FCC 47 CFR PART15 SUBPART E

For

Prepared by

Product Name: Touchstone Wireless Telephony Gateway

Brand Name: ARRIS

Model No.: TG2472G

Series Model: N/A

FCC ID: UIDTG2472

Test Report Number:

C141031R01-RPB

Issued for

ARRIS Group, Inc.

3871 Lakefield Drive Suite 300 Suwanee, GA 30024, U.S.A

Issued by

Compliance Certification Services Inc.

Kun shan Laboratory

**No.10 Weiye Rd., Innovation park, Eco&Tec,
Development Zone, Kunshan City, Jiangsu, China**

TEL: 86-512-57355888

FAX: 86-512-57370818

ACCREDITED
TESTING CERT #2541.01

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1 TEST RESULT CERTIFICATION

Product Name:	Touchstone Wireless Telephony Gateway
Trade Name:	ARRIS
Model Name.:	TG2472G
Series Model:	N/A
Applicant Discrepancy:	Initial
Device Category:	Mobile Device
Date of Test:	November 5 , 2014 ~ November 11 , 2014
Applicant:	**ARRIS Group, Inc.** 3871 Lakefield Drive Suite 300 Suwanee, GA 30024, U.S.A
Manufacturer:	**ARRIS Group, Inc.** 3871 Lakefield Drive Suite 300 Suwanee, GA 30024, U.S.A
Application Type:	Certification

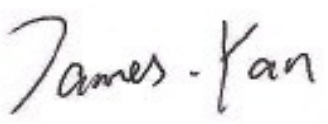
APPLICABLE STANDARDS	
STANDARD	**TEST RESULT**
FCC 47 CFR Part 15 Subpart E	No non-compliance noted
Canada RSS-210：issue 8	No non-compliance noted

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 C63.4:2009 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, 15.407and KDB 789033 – 20140606.
The test results of this report relate only to the tested sample EUT identified in this report.

Approved by:

Jeff.Fang
RF Manager
Compliance Certification Service Inc.

Tested by:



James.Yan
Test Engineer
Compliance Certification Service Inc.

2 EUT DESCRIPTION

Product Name:	Touchstone Wireless Telephony Gateway
Brand Name:	ARRIS
Model Name:	TG2472G
Series Model:	N/A
Model Discrepancy:	N/A
Power Adapter Power Rating :	Input: AC ~115V 60Hz 0.7A
Frequency Range :	5.15-5.25GHz
Transmit Power :	802.11a mode: 24.40 dBm 802.11an Standard-20 MHz Channel mode: 23.37 dBm 802.11an Wide-40 MHz Channel mode: 20.59 dBm 802.11ac Wide-20 MHz Channel mode: 23.36 dBm 802.11ac Wide-40 MHz Channel mode: 20.63 dBm 802.11ac Wide-80 MHz Channel mode: 18.01 dBm
Modulation Technique :	802.11a mode: OFDM (6,9,12,18,24,36,48 and 54 Mbps) 802.11an Standard-20 MHz Channel mode: OFDM (6.5,13,19.5,26,39,52,58.5 and 65 Mbps) 802.11an Wide-40 MHz Channel mode: OFDM (13.5,27,40.5,54,81,108,121.5 and 135 Mbps) 802.11ac Standard-20 MHz Channel mode: OFDM(MCS0,MCS1,MCS2,MCS3,MCS4,MCS5,MCS6,MCS7,MCS8 and MCS9) 802.11ac Wide-40 MHz Channel mode: OFDM(MCS0,MCS1,MCS2,MCS3,MCS4,MCS5,MCS6,MCS7,MCS8and MCS9) 802.11ac Wide-80 MHz Channel mode: OFDM(MCS0,MCS1,MCS2,MCS3,MCS4,MCS5,MCS6,MCS7,MCS8 and MCS9)
Number of Channels :	IEEE 802.11a mode: 4 Channels draft 802.11an 20MHz/ac 20MHz mode: 4 Channels draft 802.11an 40MHz/ac 40MHz mode: 2 Channels draft 802.11ac Wide-80 MHz Channel mode: 1 Channel
Antenna Specification:	Dipole antennas for 2.4GHz Gain 3.20 dBi and Dipole antennas for 5 GHz Gain 5.20 dBi
	Dipole antennas for 2.4GHz Gain 5.40 dBi and Dipole antennas for 5 GHz Gain 3.50 dBi

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: UIDTG2472** filing to comply with FCC Part 15, Subpart E Rules.

3 TEST METHODOLOGY

The tests documented in this report were performed in accordance with ANSI C63.4 2009 and FCC CFR 47 15.207, 15.209 and 15.407,.

3.1 EUT CONFIGURATION

The EUT configuration for testing is installed for RF field strength measurement to meet the Commissions requirement, and is operated in a manner intended to generate the maximum emission in a continuous normal application.

3.2 EUT EXERCISE

The EUT is operated in the engineering mode to fix the Tx frequency for the purposes of measurement.

According to its specifications, the EUT must comply with the requirements of Section 15.407 under the FCC Rules Part 15 Subpart E.

3.3 GENERAL TEST PROCEDURES

Conducted Emissions

The EUT is placed on the turntable, which is positioned at 0.8 m above the ground plane. According to the requirements in Section 13.3 of ANSI C63.4, the conducted emission from the EUT is measured in the frequency range between 0.15 MHz and 30MHz, using the CISPR Quasi-Peak detector mode.

Radiated Emissions

The EUT is placed on the turntable, which is 0.8 m above the ground plane. The turntable is then rotated for 360 degrees to determine the proper orientation for the maximum emission level. The EUT is set 3m away from the receiving antenna, which is varied from 1m to 4m to find out the highest emission level. And, each emission is to be maximized by changing the horizontal and vertical polarization of the receiving antenna. In order to find out the maximum emissions, exploratory radiated emission measurements were made according to the requirements in Section 13.4 of ANSI C63.4.

3.4 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	4.50 - 5.15
0.495 - 0.505 (1)	16.69475 - 16.69525	608 - 614	5.35 - 5.46
2.1735 - 2.1905	16.80425 - 16.80475	960.0 - 1240	7.25 - 7.75
4.125 - 4.128	25.50 - 25.67	1300 - 1427	8.025 - 8.500
4.17725 - 4.17775	37.50 - 38.25	1435.0 - 1626.5	9.0 - 9.2
4.20725 - 4.20775	73.00 - 74.60	1645.5 - 1646.5	9.3 - 9.5
6.215 - 6.218	74.80 - 75.20	1660 - 1710	10.6 - 12.7
6.26775 - 6.26825	108.00 - 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	149.90 - 150.05	2310 - 2390	15.35 - 16.2
8.362 - 8.366	156.52475 - 156.52525	2483.5 – 2500.0	17.7 - 21.4
8.37625 - 8.38675	156.70 - 156.90	2655 - 2900	22.01 - 23.12
8.41425 - 8.41475	162.0125 - 167.1700	3260 - 3267	23.6 - 24.0
12.29 - 12.293	167.72 - 173.20	3332 - 3339	31.2 - 31.8
12.51975 - 12.52025	240 - 285	3345.8 - 3358.0	36.43 - 36.5(2)
12.57675 - 12.57725	322.0- 335.4	3600 - 4400	
13.36 - 13.41			

[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.

3.5 DESCRIPTION OF TEST MODES

Description	Modulation Technology	Modulation Type
26dB Bandwidth and 99% Bandwidth	OFDM	BPSK
Maximum conducted output power	OFDM	BPSK
Band edges measurement	OFDM	BPSK
Peak Power Spectral Density	OFDM	BPSK
Peak excursion	OFDM	BPSK
Radiated undesirable emission	OFDM	BPSK
Conducted undesirable emission	OFDM	BPSK
Powerline conducted emission	OFDM	BPSK

The EUT transmitting and receiving with three antennas simultaneously working at a/an/ac mode, so 3x3 configuration was used for all testing in this report.

Software used to control the EUT for staying in continuous transmitting mode was programmed.

After verification, all tests were carried out with the worst case test modes as shown below except radiated spurious emission below 1GHz, which worst case was in normal link mode only.

IEEE 802.11a mode:

Channel Low (5180MHz), Channel Mid (5200MHz) and Channel High (5240MHz) with 54Mbps data rate were chosen for full testing.

draft 802.11an Standard-20 MHz Channel mode:

Channel Low (5180MHz), Channel Mid (5200MHz) and Channel High (5240MHz) with 65Mbps data rate were chosen for full testing.

draft 802.11an Wide-40 MHz Channel mode:

Channel Low (5190MHz)and Channel Mid (5230MHz) with 135Mbps data rate were chosen for full testing.

draft 802.11ac Standard-20 MHz Channel mode:

Channel Low (5180MHz), Channel Mid (5200MHz) and Channel High (5240MHz) with MCS9 data rate were chosen for full testing.

draft 802.11ac Wide-40 MHz Channel mode:

Channel Low (5190MHz)and Channel Mid (5230MHz) with MCS9 data rate were chosen for full testing.

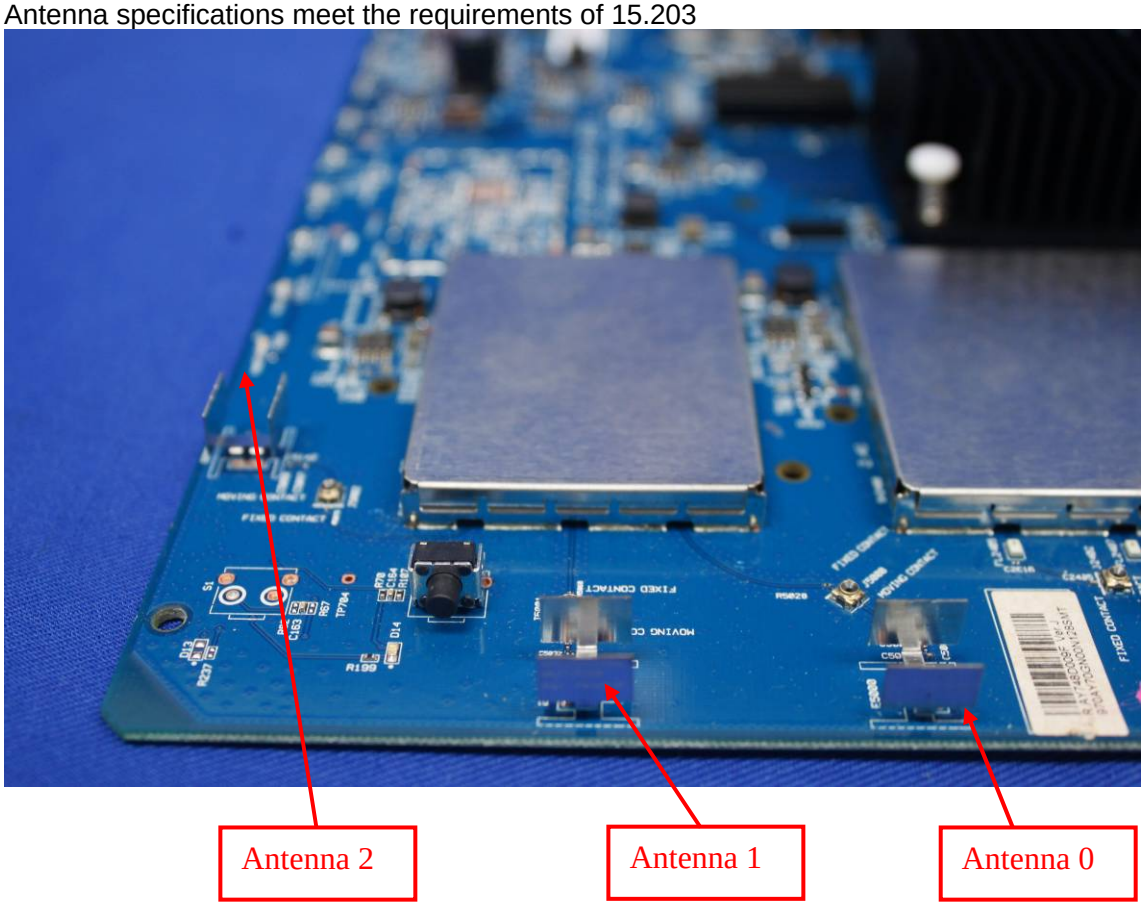
draft 802.11ac Wide-80 MHz Channel mode:

Channel (5210MHz) with MCS9 data rate were chosen for full testing.

Note: After the preliminary san the EUT 5G antenna with 5.20 dBi gain was the worst mode, which mode data was recorded.

3.6 ANTENNA DESCRIPTION

Antenna specifications meet the requirements of 15.203



4 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.

4.1 MEASUREMENT EQUIPMENT USED

Conducted Emissions Test Site				
Name of Equipment	**Manufacturer**	**Model**	**Serial Number**	**Calibration Due**
Spectrum Analyzer	Agilent	E4446A	MY44020154	2015-4-9
Spectrum Analyzer	RS	FSU26	200789	2015-8-11
Detector negative	Agilent	8473B	MY42240176	2015-5-11
OSCILLOSCOPE	Agilent	DSO6104A	MY44002585	2015-3-16
Peak and Avg Power Sensor	Agilent	E9327A	US40441788	2015-3-17
EPM-P Series Power Meter	Agilent	E4416A	GB41292714	2015-3-17
Power SPLITTER	Mini-Circuits	ZN2PD-9G	SF078500430	N.C.R
DC POWER SUPPLY	GW instek	GPS-3303C	E903131	N.C.R
Temp. / Humidity Chamber	Kingson	THS-M1	242	2015-1-22

977 Chamber				
Name of Equipment	**Manufacturer**	**Model**	**Serial Number**	**Calibration Due**
Spectrum Analyzer	Agilent	E4446A	MY44020154	2015-4-9
EMI Test Receiver	R&S	ESCI	101378	2015-1-22
Pre-Amplfier	MINI	ZFL-1000VH2	d041703	2015-1-22
Pre-Amplfier	Miteq	JS41-00101800-32-10P	1675713	2015-1-22
Bilog Antenna	Sunol	JB1	A062604	2015-3-6
Horn-antenna	SCHWARZBECK	BBHA9120D	D:266	2015-3-7
Turn Table	CT	CT123	4165	N.C.R
Antenna Tower	CT	CTERG23	3256	N.C.R
Controller	CT	CT1OO	95637	N.C.R
Test Software	EZ-EMC			

Conducted Emission				
Name of Equipment	**Manufacturer**	**Model**	**Serial Number**	**Calibration Due**
EMI TEST RECEIVER	R&S	ESCI	100781	2015-3-16
V (V-LISN)	SCHWARZBECK	NNLK 8129	8129-143	N.C.R
LISN (EUT)	FCC	FCC-LISN-50/250-50-2-02	05012	2015-3-16
Pulse LIMITER	R&S	ESH3-Z2	100524	2015-9-24
Test Software	EZ-EMC			

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

4.2 MEASUREMENT UNCERTAINTY

For the test methods, according to the present document, the measurement uncertainty figures shall be calculated in accordance with TR 100 028-1 [2] and shall correspond to an expansion factor (coverage factor) k = 1,96 or k = 2 (which provide confidence levels of respectively 95 % and 95,45 % in the case where the distributions characterizing the actual measurement uncertainties are normal (Gaussian)).

Table 6 is based on such expansion factors.

Table 6: Maximum measurement uncertainty

Parameter	UNCERTAINTY
Radio frequency	±0.8 × 10-7
RF power, conducted	0.2054
Maximum frequency deviation: -within 300 Hz and 6 kHz of audio frequency	1.3%
-within 6 kHz and 25 kHz of audio frequency	0.65 dB
Adjacent channel power	0.2054
Conducted spurious emission of transmitter, valid up to 6 GHz	0.2892
Conducted emission of receivers	+1.2/-1.1 dB
Radiated emission of transmitter, valid up to 6 GHz	±3.94 dB
Radiated emission of receiver, valid up to 6 GHz	±3.94 dB
RF level uncertainty for a given BER	±0.3 dB
Temperature	0.1979
Humidity	±1 %

5 FACILITIES AND ACCREDITATIONS

5.1 FACILITIES

All measurement facilities used to collect the measurement data are located at
☒ **No.10Weiye Rd., Innovation park, Eco&Tec, Development Zone, Kunshan City, Jiangsu, China.**
The sites are constructed in conformance with the requirements of ANSI C63.4:2003 and CISPR Publication 22. All receiving equipment conforms to CISPR Publication 16-1, “Radio Interference Measuring Apparatus and Measurement Methods.”

5.2 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 preselectors 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.”

5.3 TABLE OF ACCREDITATIONS AND LISTINGS

Our laboratories are accredited and approved by the following accreditation body according to ISO/IEC 17025.

USA	A2LA
China	CNAS

The measuring facility of laboratories has been authorized or registered by the following approval agencies.

Canada	Industry Canada
Japan	VCCI
Taiwan	BSMI
USA	FCC

Copies of granted accreditation certificates are available for downloading from our web site, http://www.ccsrf.com.

6 SETUP OF EQUIPMENT UNDER TEST

6.1 SETUP CONFIGURATION OF EUT

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

6.2 SUPPORT EQUIPMENT

No.	Equipment	Model No.	Serial No.
1	Notebook	dell	E5430

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 REQUIREMENTS

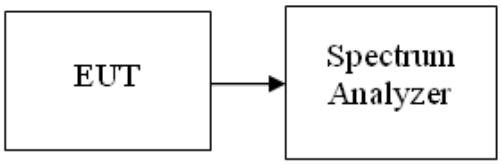
7.1 99% AND 26 DB EMISSION BANDWIDTH

LIMIT

According to §15.303(c), for purposes of this subpart the emission bandwidth shall be determined by measuring the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, that are 26 dB down relative to the maximum level of the modulated carrier. Compliance with the emissions limits is based on the use of measurement instrumentation employing a peak detector function with an instrument resolutions bandwidth approximately equal to 1.0 percent of the emission bandwidth of the device under measurement.

Test Configuration

TEST PROCEDURE



1. Place the EUT on the table and set it in the transmitting mode.
2. Remove the antenna from the EUT and then connect a low-loss RF cable from the antenna port to the spectrum analyzer.
3. Set the spectrum analyzer as RBW > 1%EBW, VBW > RBW, Span >26dB bandwidth, and Sweep = auto.
4. Mark the peak frequency and –26dB (upper and lower) frequency.
5. Repeat until all the rest channels were investigated.

TEST RESULTS

No non-compliance noted

Test Data

Test mode: IEEE 802.11a mode/chain 0

5150~5250MHz

Channel	Frequency (MHz)	Bandwidth (B) (MHz)	99% Occupied Bandwidth（MHz）
Low	5180	22.604	16.818
Mid	5200	21.927	16.717
High	5240	21.710	16.813

Test mode: IEEE 802.11a mode/chain 1

5150~5250MHz

Channel	Frequency (MHz)	Bandwidth (B) (MHz)	99% Occupied Bandwidth（MHz）
Low	5180	21.466	16.801
Mid	5200	21.190	16.727
High	5240	21.366	16.741

Test mode: IEEE 802.11a mode/chain 2

5150~5250MHz

Channel	Frequency (MHz)	Bandwidth (B) (MHz)	99% Occupied Bandwidth（MHz）
Low	5180	21.577	16.720
Mid	5200	22.384	16.706
High	5240	21.783	16.773

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

5150~5250MHz

Channel	Frequency (MHz)	Bandwidth (B) (MHz)	99% Occupied Bandwidth（MHz）
Low	5180	23.392	17.868
Mid	5200	22.467	17.915
High	5240	22.331	17.931

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

5150~5250MHz

Channel	Frequency (MHz)	Bandwidth (B) (MHz)	99% Occupied Bandwidth（MHz）
Low	5180	22.055	17.838
Mid	5200	22.300	17.944
High	5240	22.372	17.872

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

5150~5250MHz

Channel	Frequency (MHz)	Bandwidth (B) (MHz)	99% Occupied Bandwidth（MHz）
Low	5180	22.260	17.856
Mid	5200	22.499	17.892
High	5240	22.499	17.866

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

5150~5250MHz

Channel	Frequency (MHz)	Bandwidth (B) (MHz)	99% Occupied Bandwidth（MHz）
Low	5190	45.234	36.692
High	5230	45.971	36.657

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

5150~5250MHz

Channel	Frequency (MHz)	Bandwidth (B) (MHz)	99% Occupied Bandwidth（MHz）
Low	5190	45.104	36.734
High	5230	45.771	36.811

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

5150~5250MHz

Channel	Frequency (MHz)	Bandwidth (B) (MHz)	99% Occupied Bandwidth（MHz）
Low	5190	45.059	36.599
High	5230	45.516	36.603

Test mode: draft 802.11ac Standard-20 MHz Channel mode / Chain 0

5150~5250MHz

Channel	Frequency (MHz)	Bandwidth (B) (MHz)	99% Occupied Bandwidth（MHz）
Low	5180	22.282	17.935
Mid	5200	22.685	17.884
High	5240	22.353	17.892

Test mode: draft 802.11ac Standard-20 MHz Channel mode / Chain 1

5150~5250MHz

Channel	Frequency (MHz)	Bandwidth (B) (MHz)	99% Occupied Bandwidth（MHz）
Low	5180	22.510	17.895
Mid	5200	22.336	17.876
High	5240	22.715	17.855

Test mode: draft 802.11ac Standard-20 MHz Channel mode / Chain 2

5150~5250MHz

Channel	Frequency (MHz)	Bandwidth (B) (MHz)	99% Occupied Bandwidth（MHz）
Low	5180	22.089	17.870
Mid	5200	22.039	17.919
High	5240	22.214	17.927

Test mode: draft 802.11ac Wide-40 MHz Channel mode / Chain 0

5150~5250MHz

Channel	Frequency (MHz)	Bandwidth (B) (MHz)	99% Occupied Bandwidth（MHz）
Low	5190	44.357	36.653
High	5230	45.609	36.683

Test mode: draft 802.11ac Wide-40 MHz Channel mode / Chain 1

5150~5250MHz

Channel	Frequency (MHz)	Bandwidth (B) (MHz)	99% Occupied Bandwidth（MHz）
Low	5190	44.157	36.703
High	5230	45.236	36.635

Test mode: draft 802.11ac Wide-40 MHz Channel mode / Chain 2

5150~5250MHz

Channel	Frequency (MHz)	Bandwidth (B) (MHz)	99% Occupied Bandwidth（MHz）
Low	5190	44.966	36.577
High	5230	44.751	36.661

Test mode: draft 802.11ac Wide-80 MHz Channel mode / Chain 0

5150~5250MHz

Channel	Frequency (MHz)	Bandwidth (B) (MHz)	99% Occupied Bandwidth（MHz）
Low	5210	86.658	75.868

Test mode: draft 802.11ac Wide-80 MHz Channel mode / Chain 1

5150~5250MHz

Channel	Frequency (MHz)	Bandwidth (B) (MHz)	99% Occupied Bandwidth（MHz）
Low	5210	87.364	75.683

Test mode: draft 802.11ac Wide-80 MHz Channel mode / Chain 2

5150~5250MHz

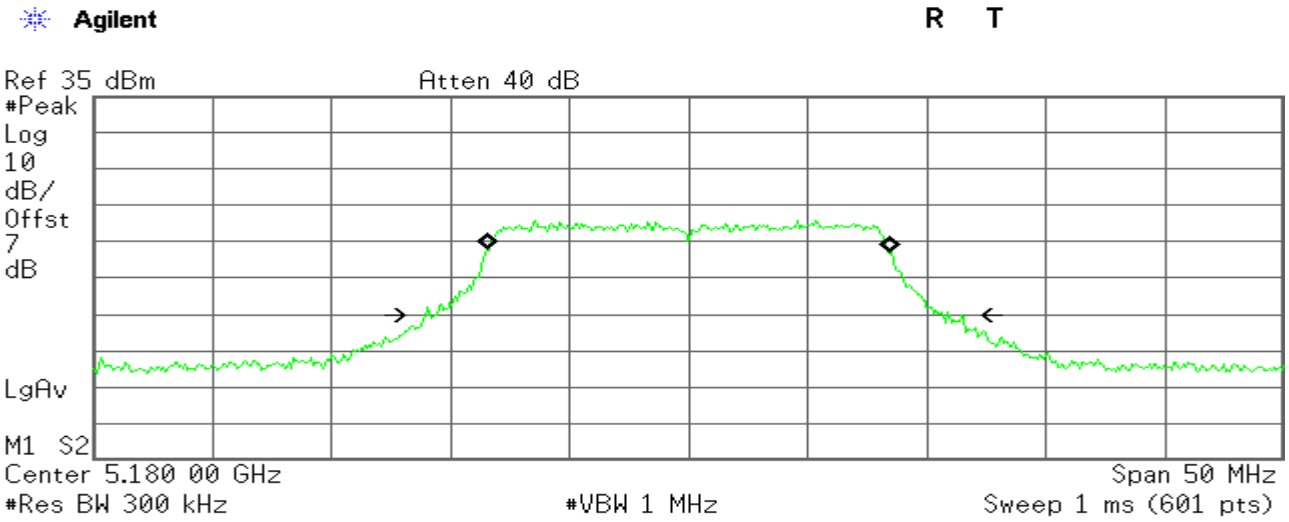
Channel	Frequency (MHz)	Bandwidth (B) (MHz)	99% Occupied Bandwidth（MHz）
Low	5210	84.471	75.630

Test Plot

IEEE 802.11a mode/chain 0:

5150~5250MHz

CH Low

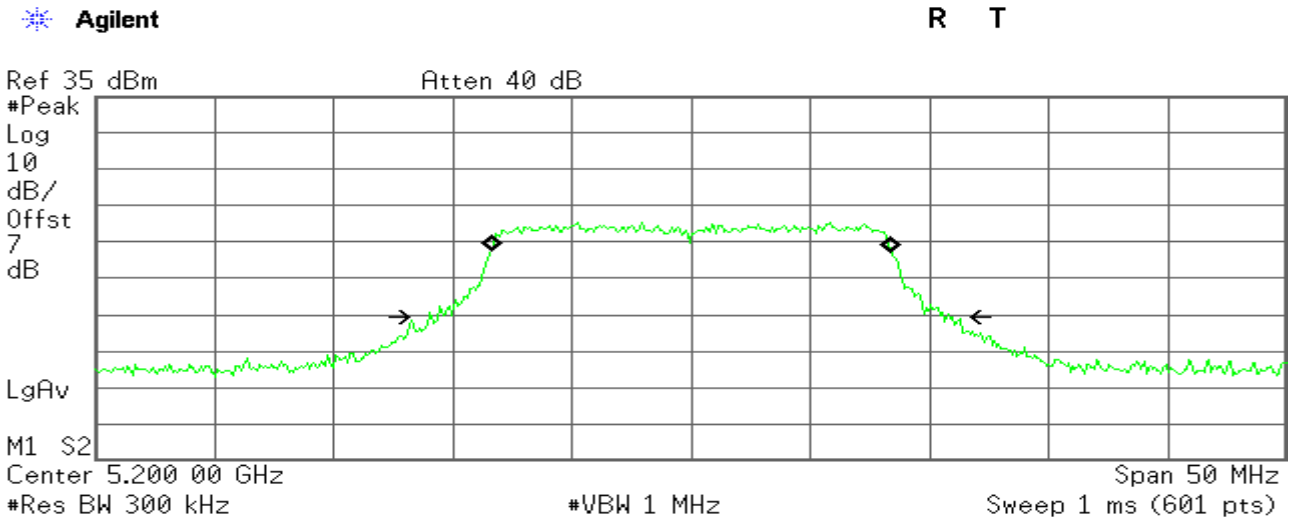


Occupied Bandwidth
16.8181 MHz

Occ BW % Pwr 99.00 %
x dB -26.00 dB

Transmit Freq Error 951.784 Hz
x dB Bandwidth 22.604 MHz

CH Mid

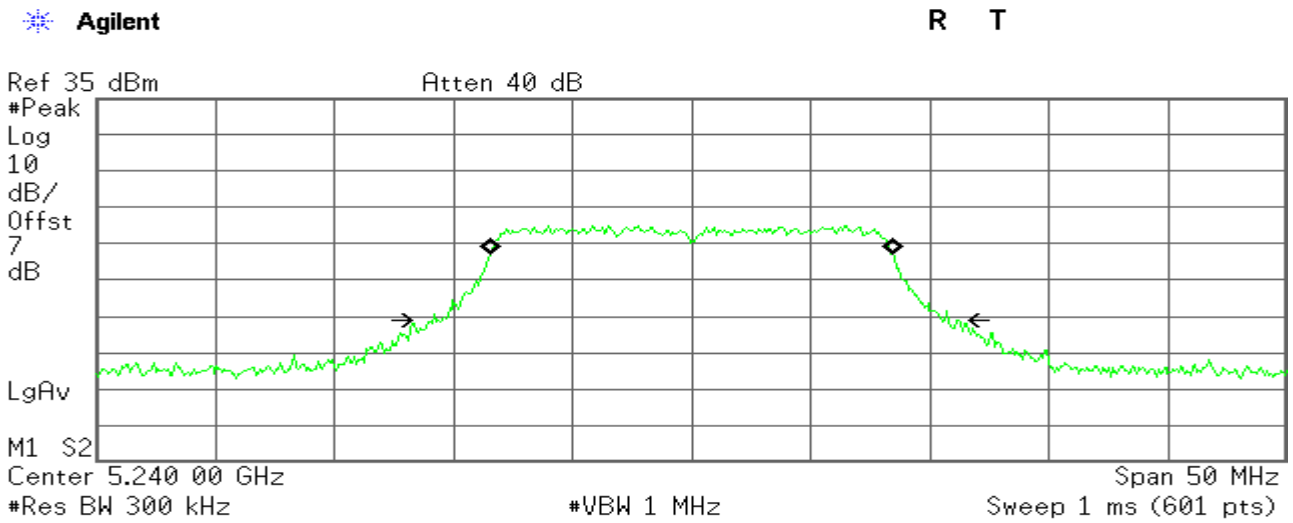


Occupied Bandwidth
16.7169 MHz

Occ BW % Pwr 99.00 %
x dB -26.00 dB

Transmit Freq Error 15.130 kHz
x dB Bandwidth 21.927 MHz

CH High

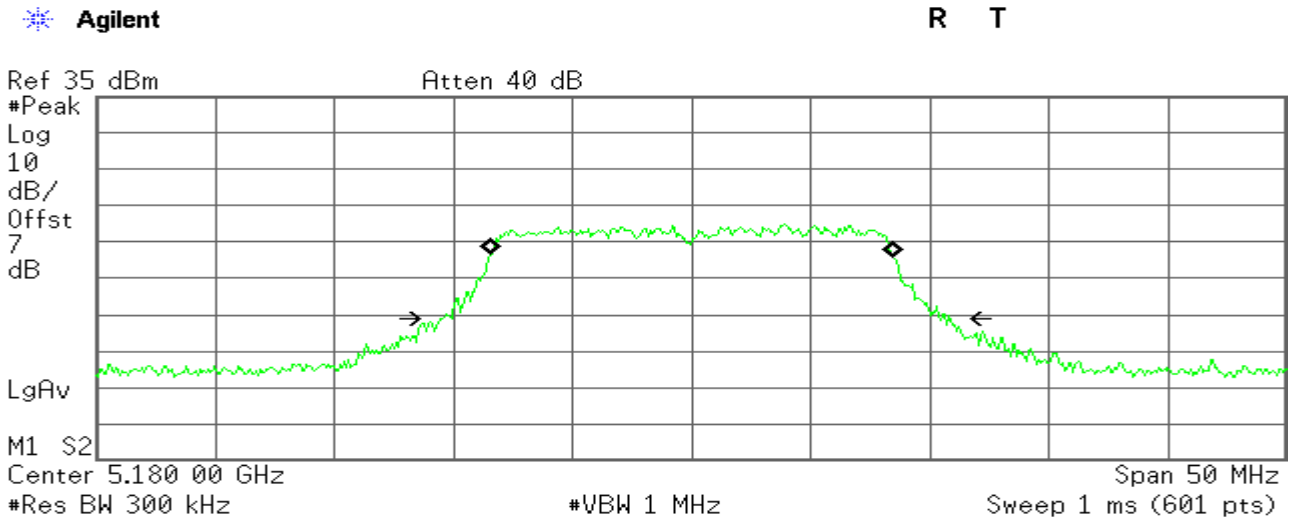


Transmit Freq Error −7.533 kHz
x dB Bandwidth 21.710 MHz

IEEE 802.11a mode/chain 1:

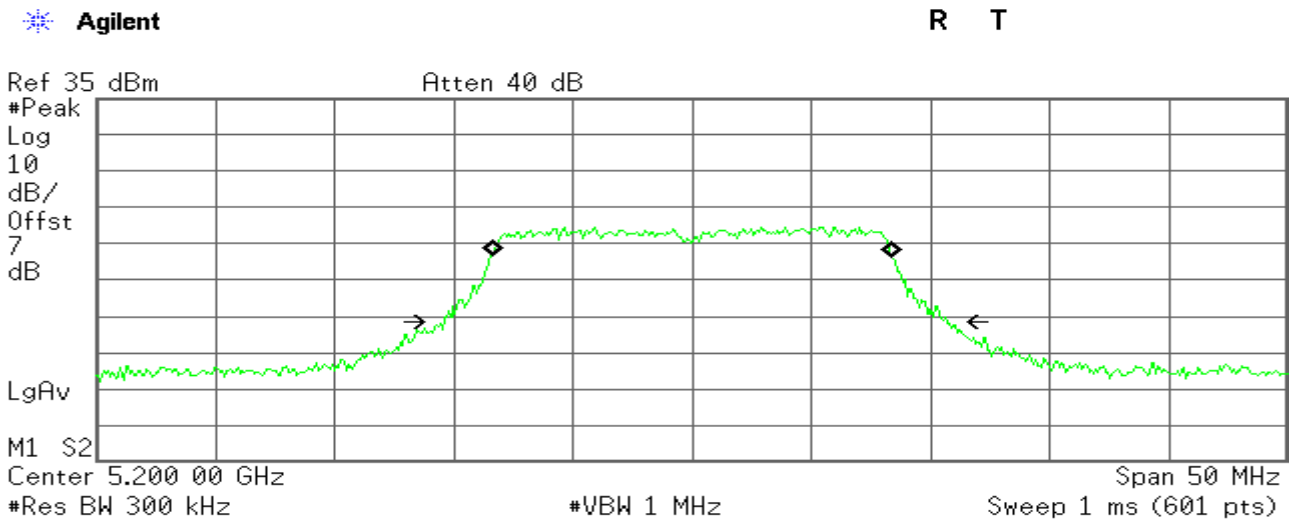
5150~5250MHz

CH Low



Transmit Freq Error 10.005 kHz
x dB Bandwidth 21.466 MHz

CH Mid

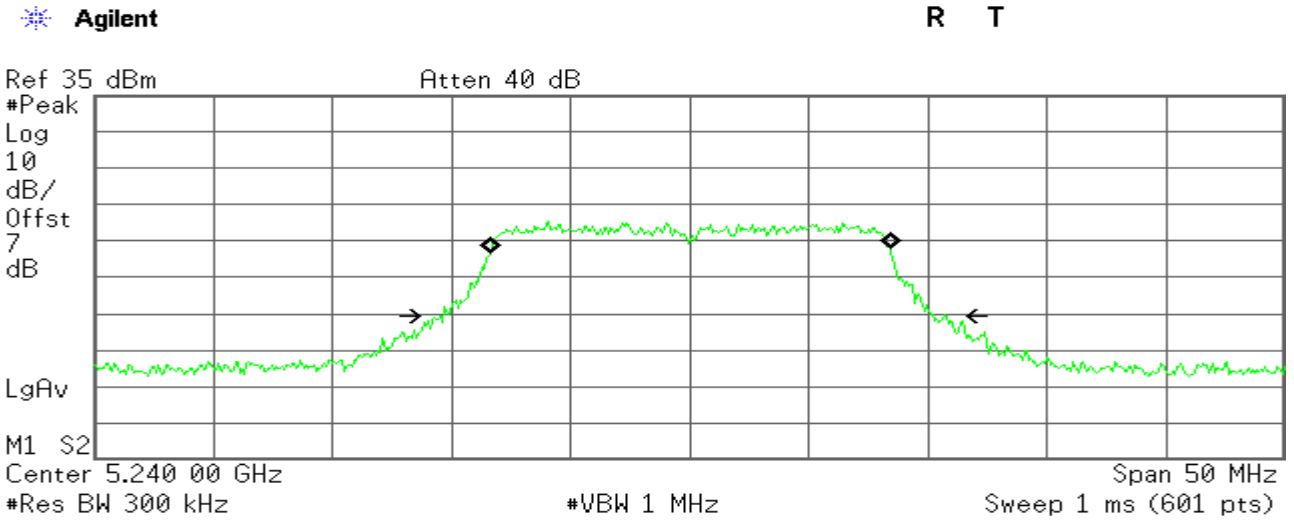


Occupied Bandwidth
16.7266 MHz

Occ BW % Pwr 99.00 %
x dB -26.00 dB

Transmit Freq Error -2.934 kHz
x dB Bandwidth 21.190 MHz

CH High



Occupied Bandwidth
16.7407 MHz

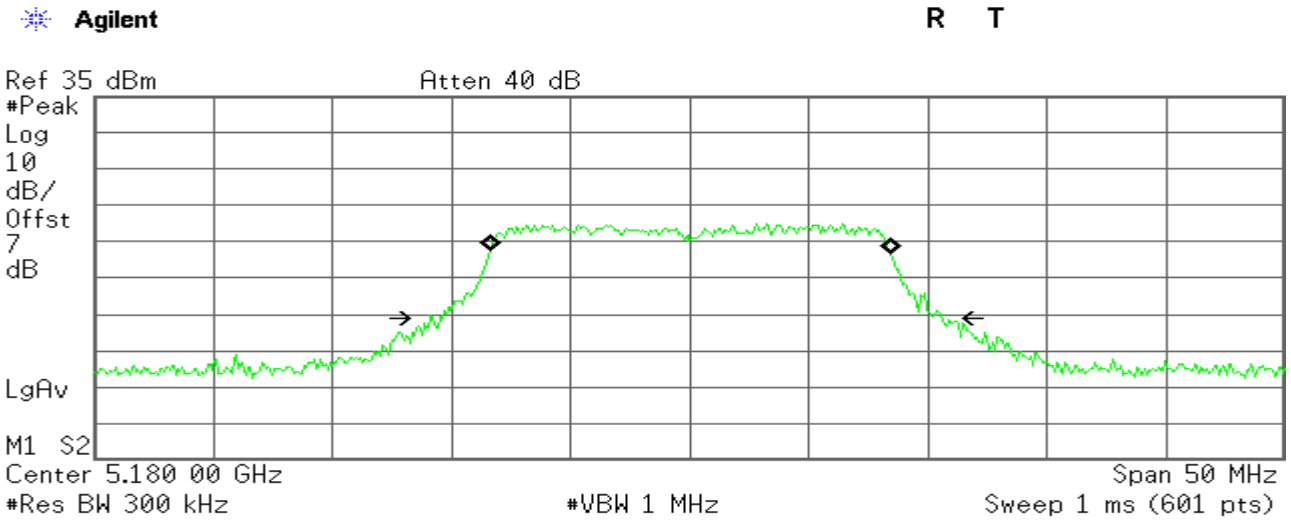
Occ BW % Pwr 99.00 %
x dB -26.00 dB

Transmit Freq Error 13.214 kHz
x dB Bandwidth 21.366 MHz

IEEE 802.11a mode/chain 2:

5150~5250MHz

CH Low

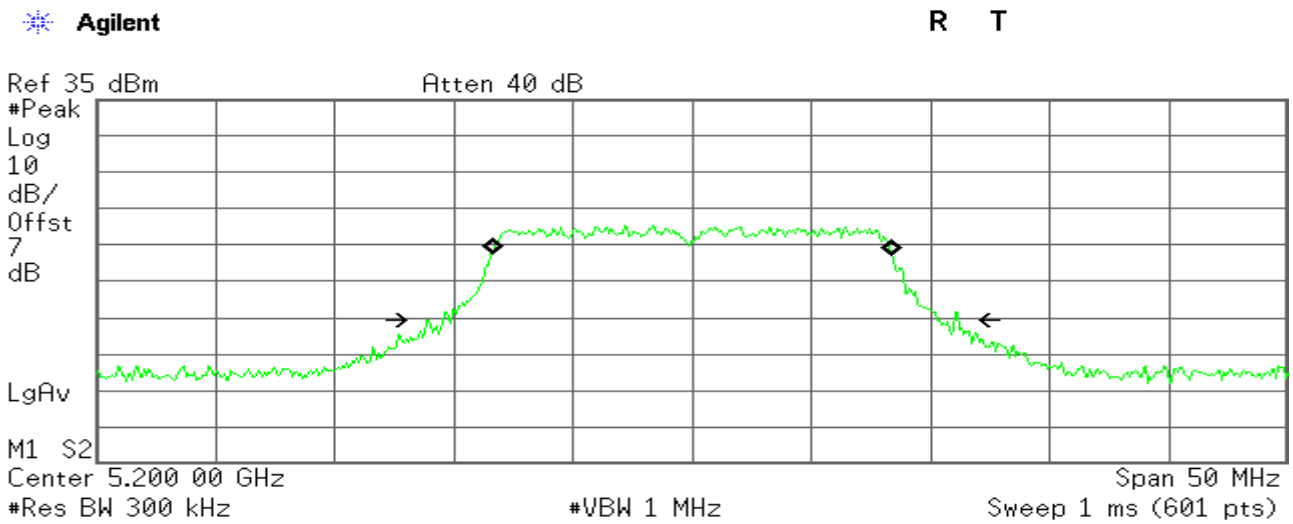


Occupied Bandwidth
16.7204 MHz

Occ BW % Pwr 99.00 %
x dB -26.00 dB

Transmit Freq Error 28.225 kHz
x dB Bandwidth 21.577 MHz

CH Mid

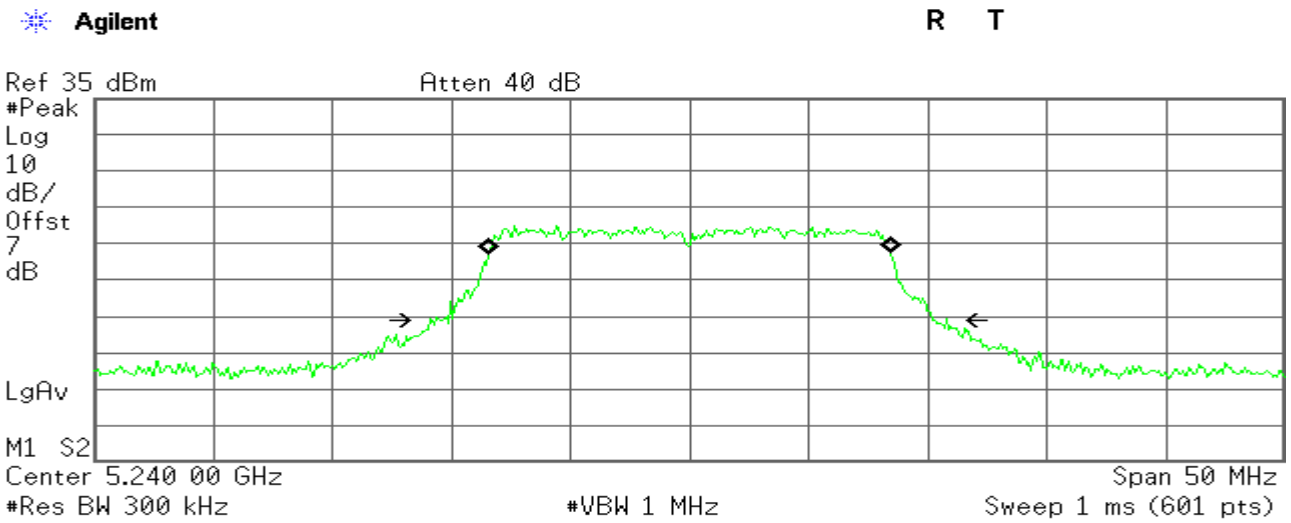


Occupied Bandwidth
16.7059 MHz

Occ BW % Pwr 99.00 %
x dB -26.00 dB

Transmit Freq Error -4.000 kHz
x dB Bandwidth 22.384 MHz

CH High

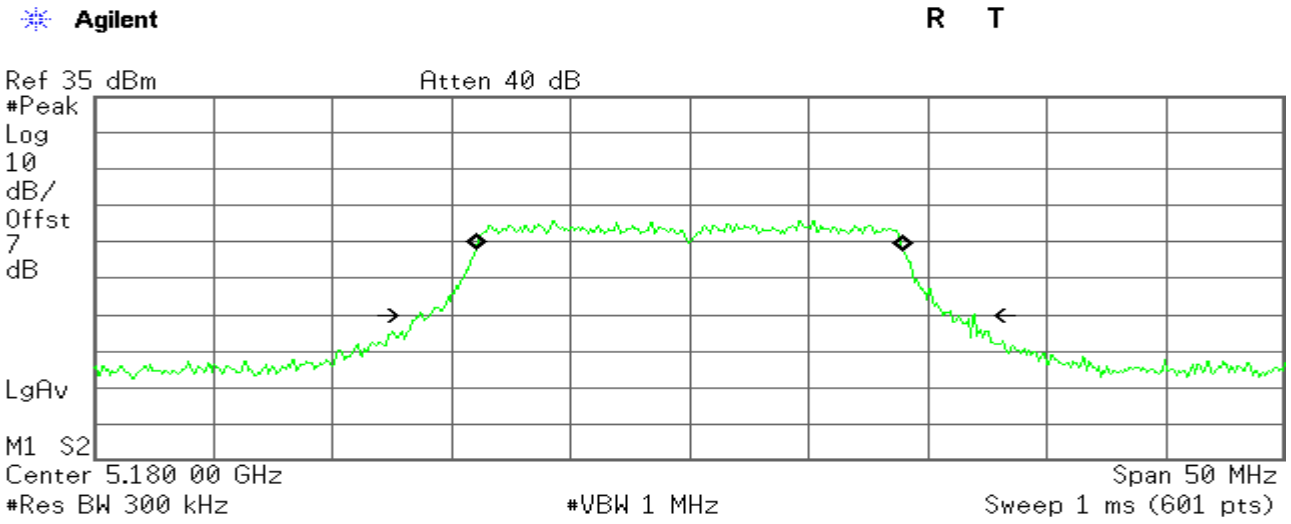


Transmit Freq Error −2.859 kHz
x dB Bandwidth 21.783 MHz

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

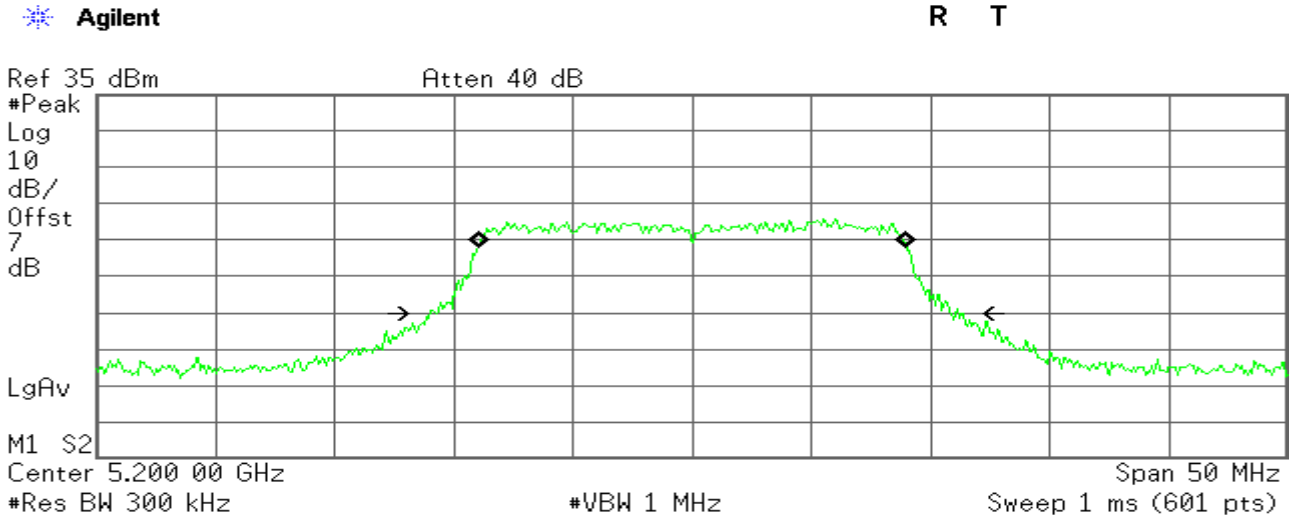
5150~5250MHz

CH Low



Transmit Freq Error 5.175 kHz
x dB Bandwidth 23.392 MHz

CH Mid

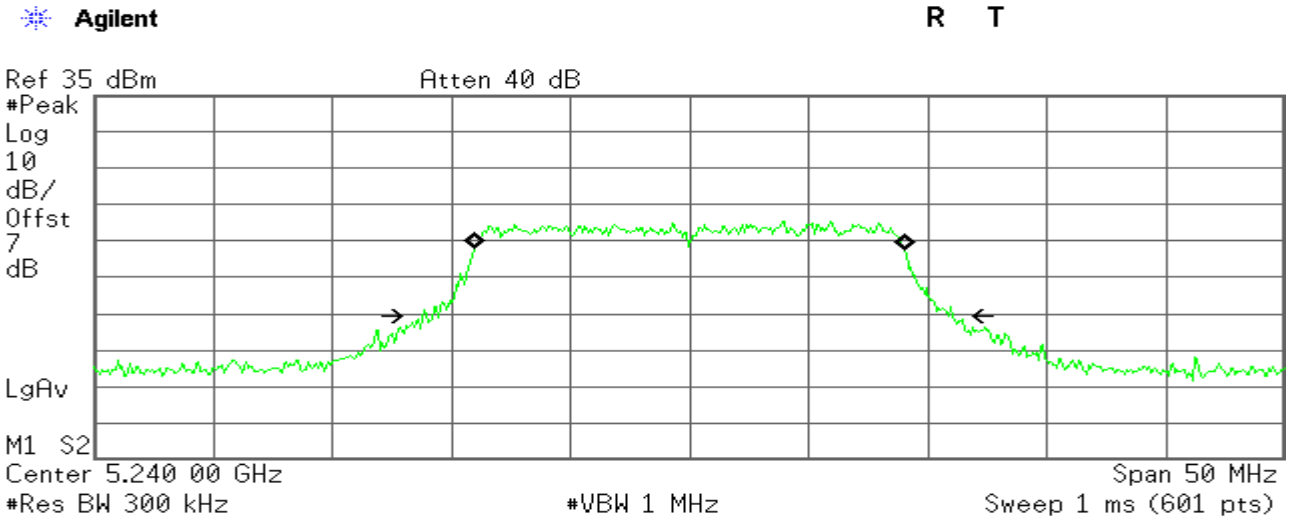


Occupied Bandwidth
17.9147 MHz

Occ BW % Pwr 99.00 %
x dB -26.00 dB

Transmit Freq Error 787.329 Hz
x dB Bandwidth 22.467 MHz

CH High



Occupied Bandwidth
17.9308 MHz

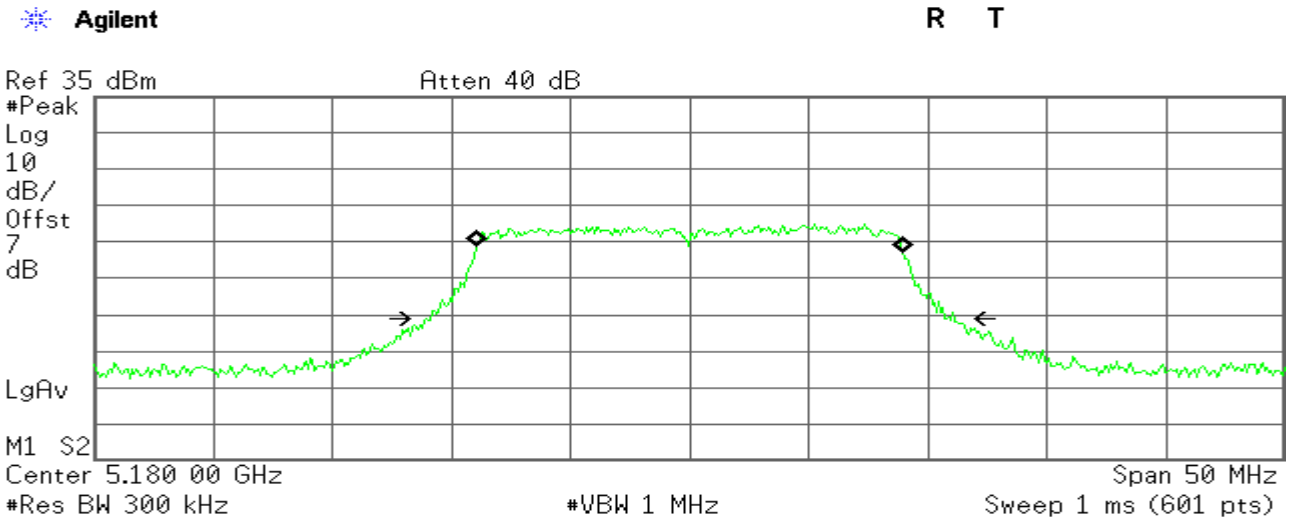
Occ BW % Pwr 99.00 %
x dB -26.00 dB

Transmit Freq Error -6.874 kHz
x dB Bandwidth 22.331 MHz

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

5150~5250MHz

CH Low

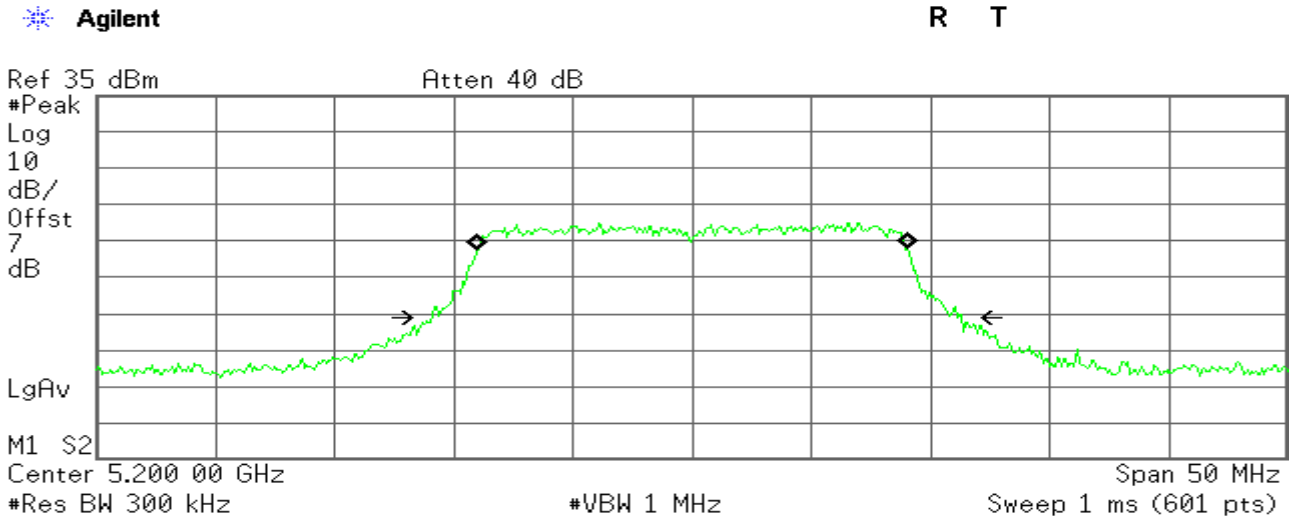


Occupied Bandwidth
17.8381 MHz

Occ BW % Pwr 99.00 %
x dB -26.00 dB

Transmit Freq Error 2.043 kHz
x dB Bandwidth 22.055 MHz

CH Mid

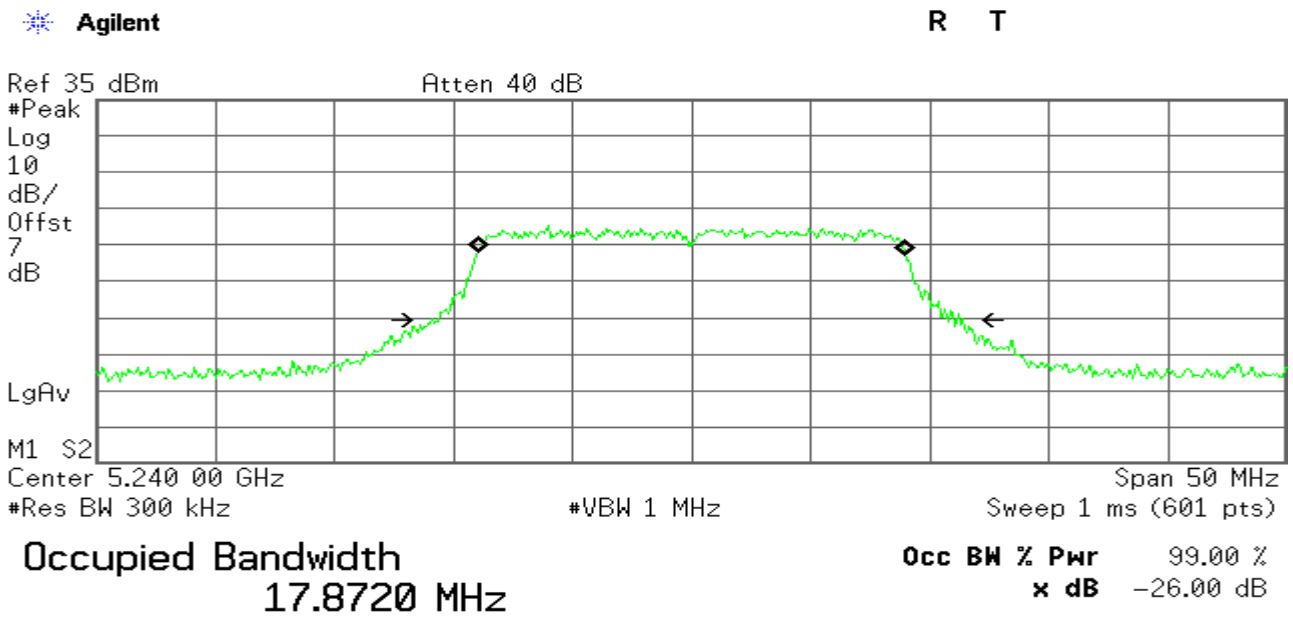


Occupied Bandwidth
17.9440 MHz

Occ BW % Pwr 99.00 %
x dB -26.00 dB

Transmit Freq Error 12.508 kHz
x dB Bandwidth 22.300 MHz

CH High

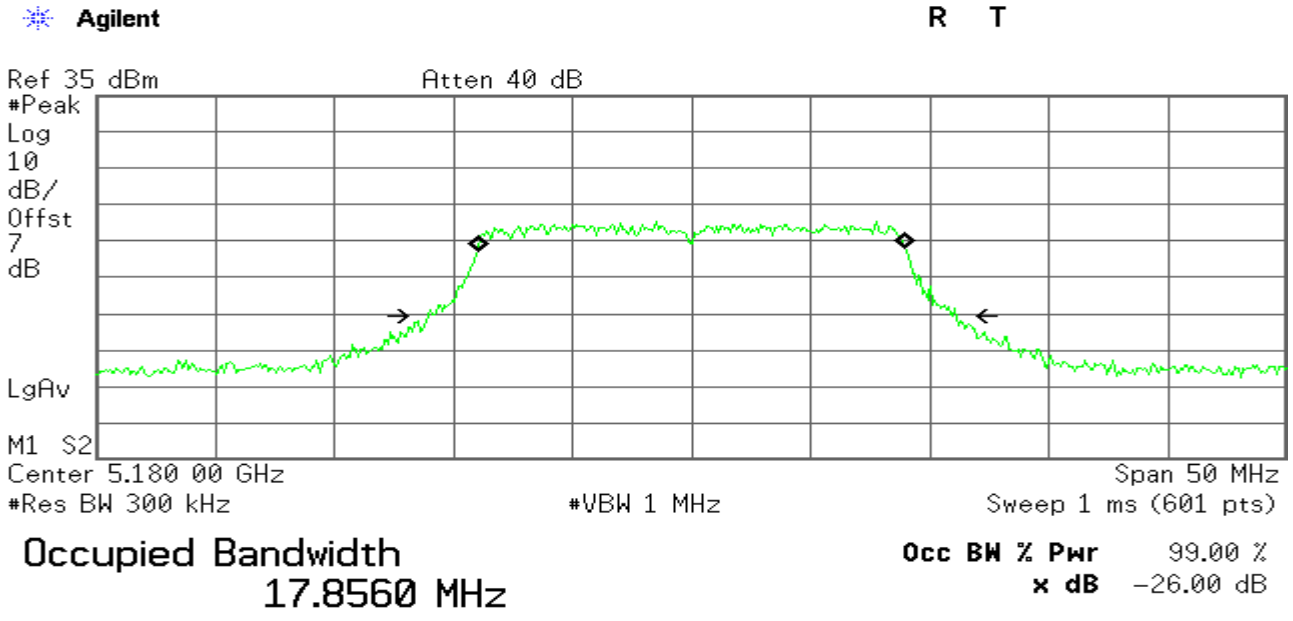


Transmit Freq Error −12.193 kHz
x dB Bandwidth 22.372 MHz

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

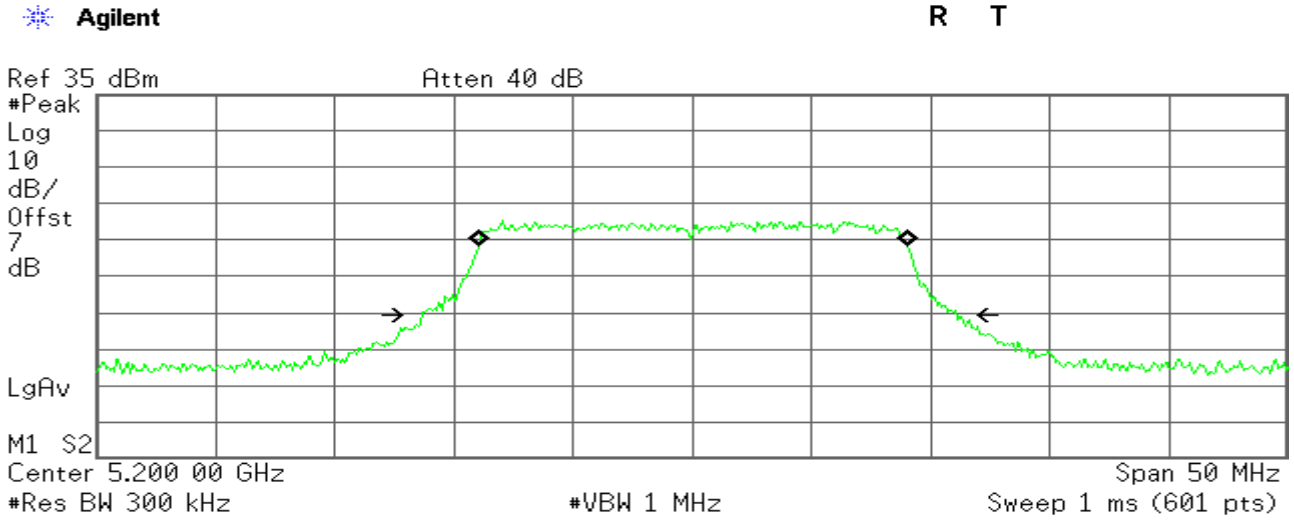
5150~5250MHz

CH Low



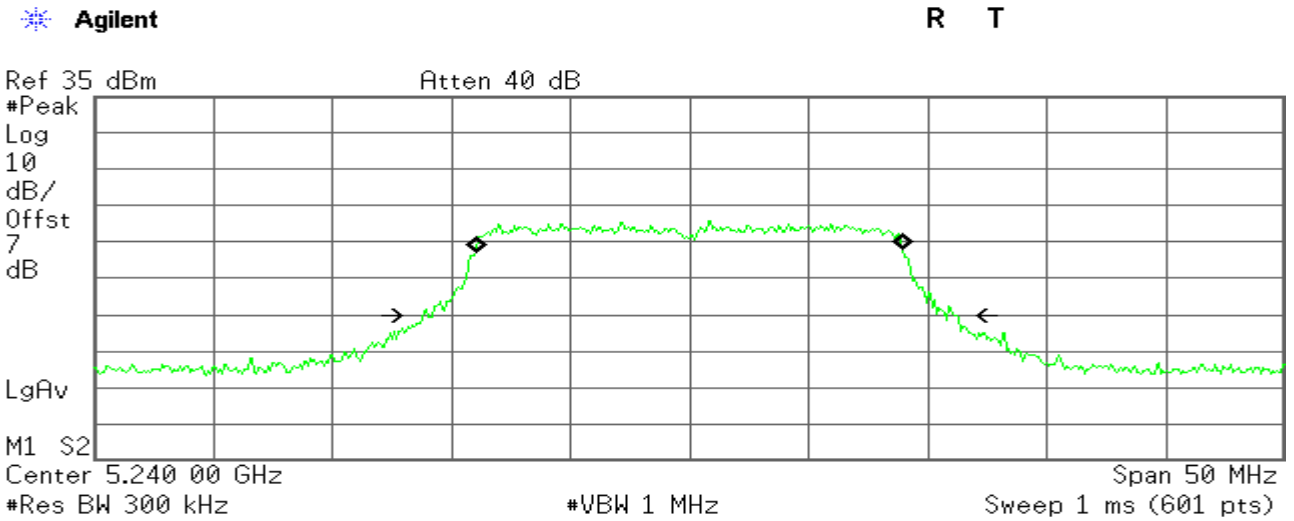
Transmit Freq Error 9.188 kHz
x dB Bandwidth 22.260 MHz

CH Mid



Transmit Freq Error 27.696 kHz
x dB Bandwidth 22.499 MHz

CH High

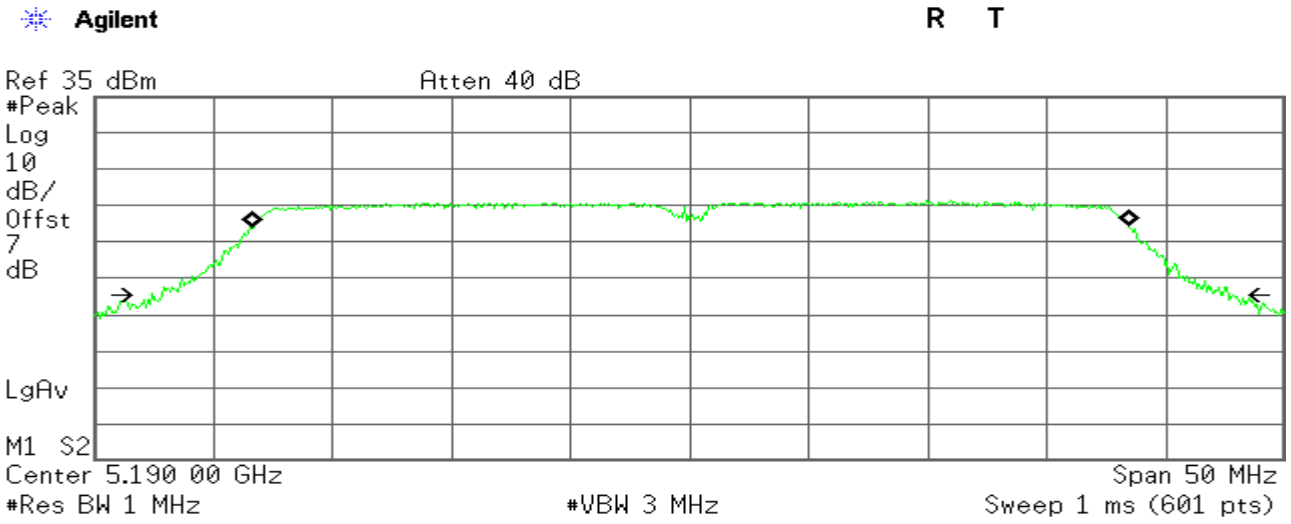


Transmit Freq Error -23.834 kHz
x dB Bandwidth 22.449 MHz

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

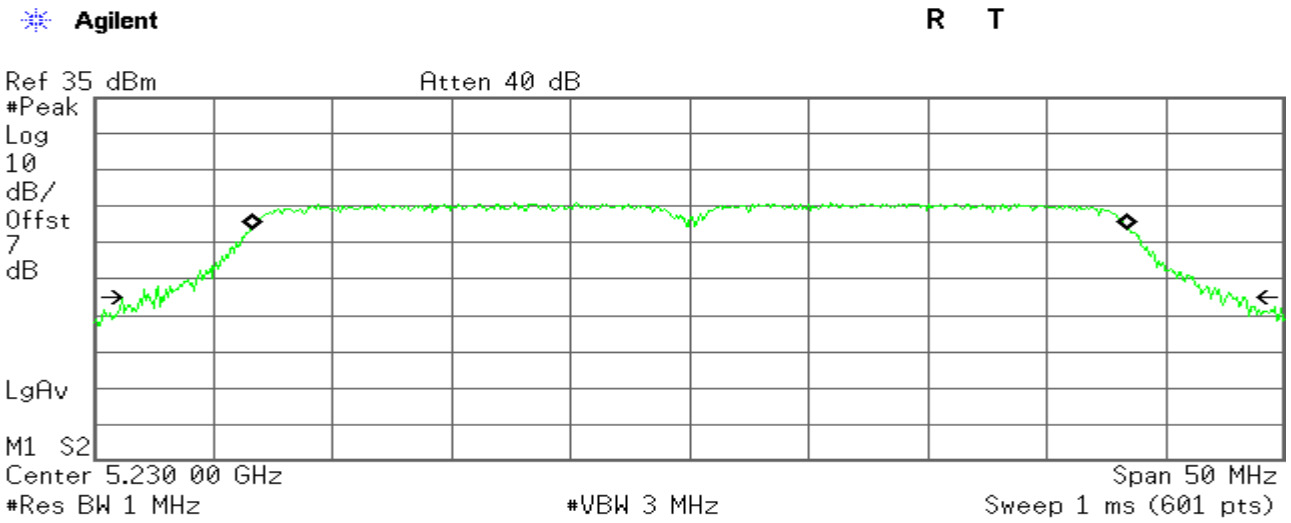
5150~5250MHz

CH Low



Transmit Freq Error	51.361 kHz
x dB Bandwidth	45.234 MHz

CH High

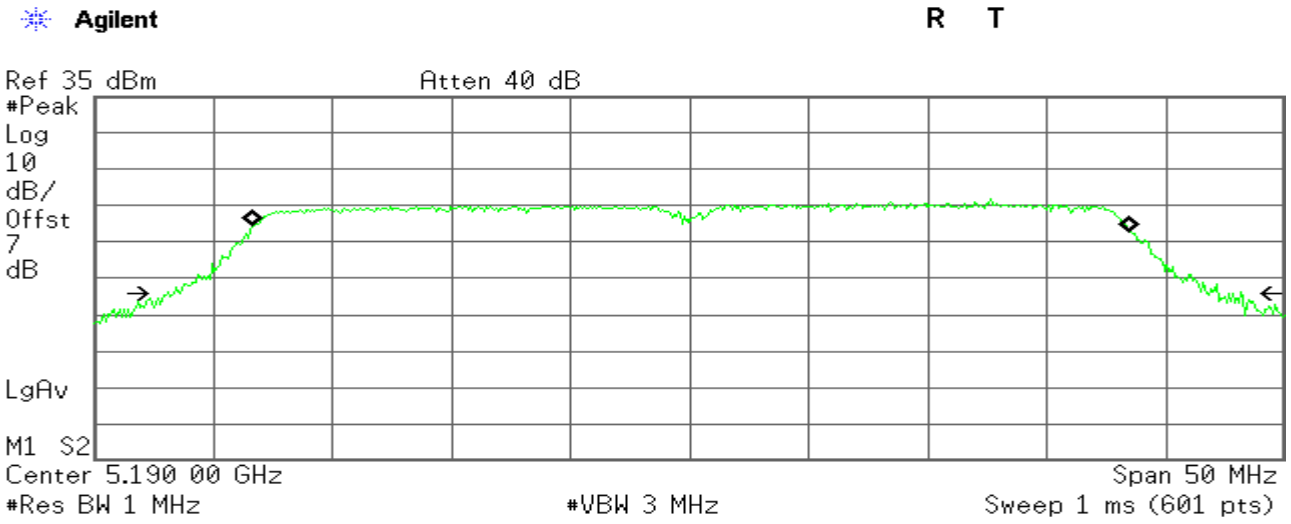


Transmit Freq Error	27.235 kHz
x dB Bandwidth	45.971 MHz

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

5150~5250MHz

CH Low

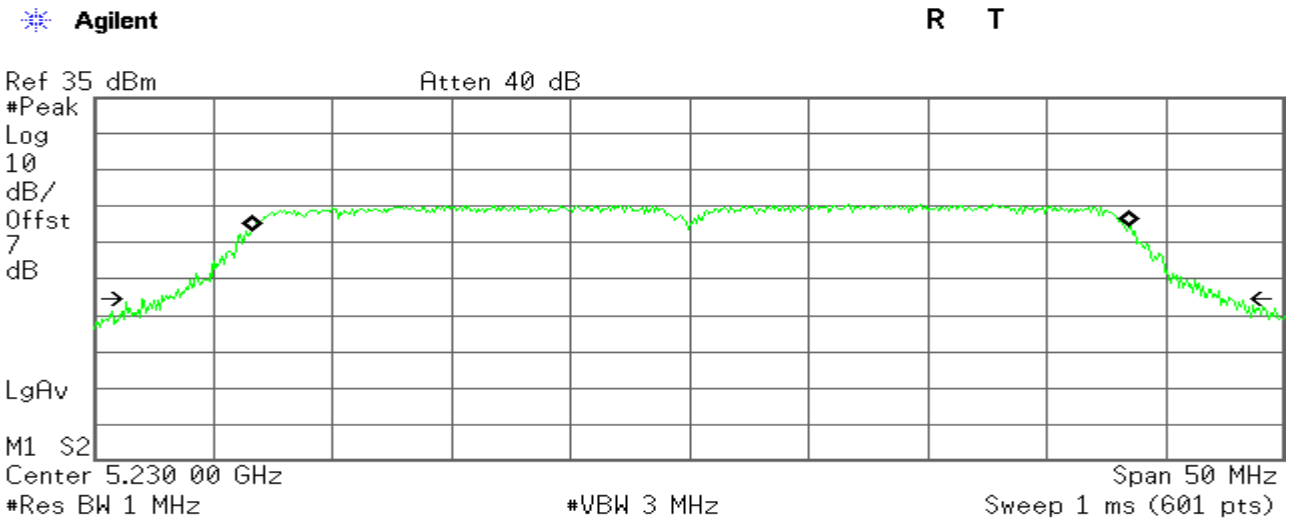


Occupied Bandwidth
36.7339 MHz

Occ BW % Pwr 99.00 %
x dB -26.00 dB

Transmit Freq Error 65.988 kHz
x dB Bandwidth 45.104 MHz

CH High



Occupied Bandwidth
36.8112 MHz

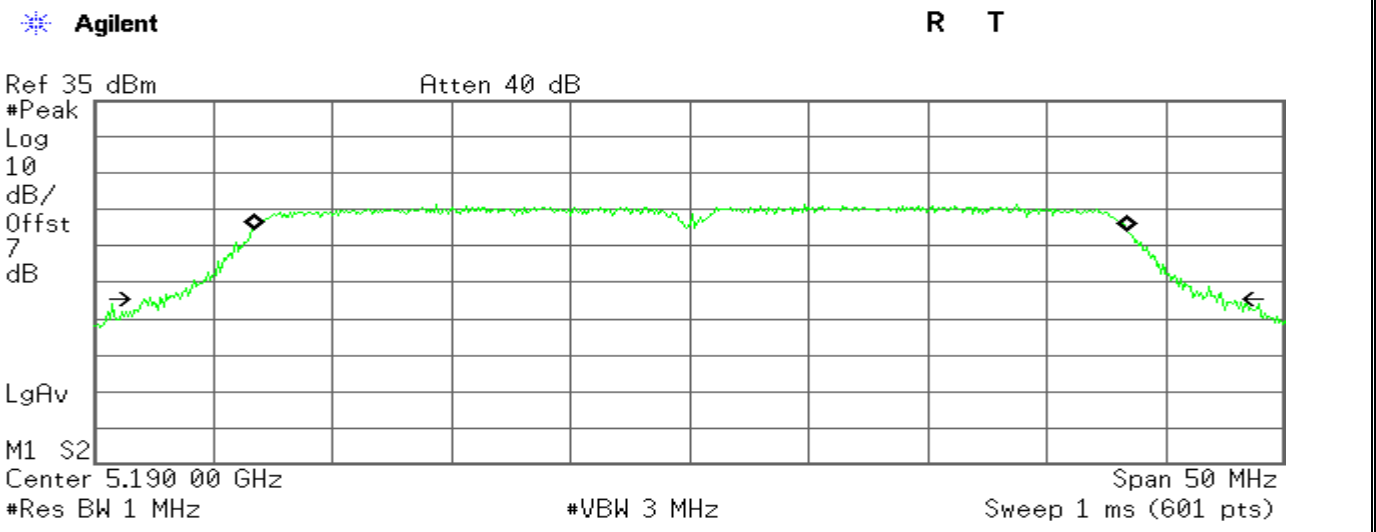
Occ BW % Pwr 99.00 %
x dB -26.00 dB

Transmit Freq Error 36.830 kHz
x dB Bandwidth 45.771 MHz

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

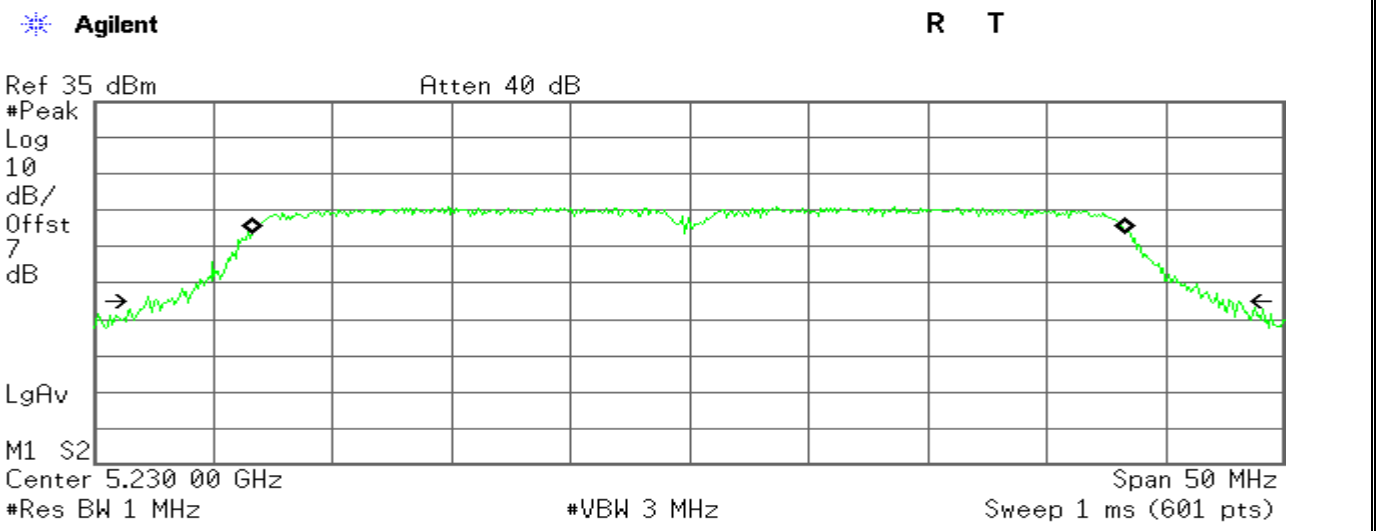
5150~5250MHz

CH Low



Transmit Freq Error 41.243 kHz
x dB Bandwidth 45.059 MHz

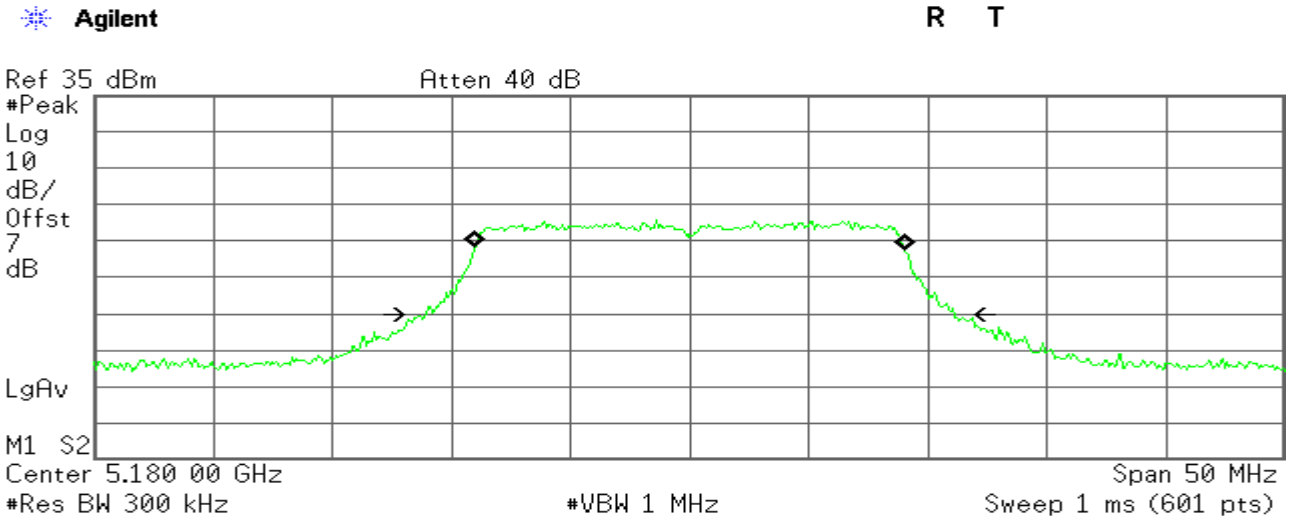
CH High



Transmit Freq Error -11.459 kHz
x dB Bandwidth 45.516 MHz

draft 802.11ac Standard-20 MHz Channel mode / Chain 0
5150~5250MHz

CH Low

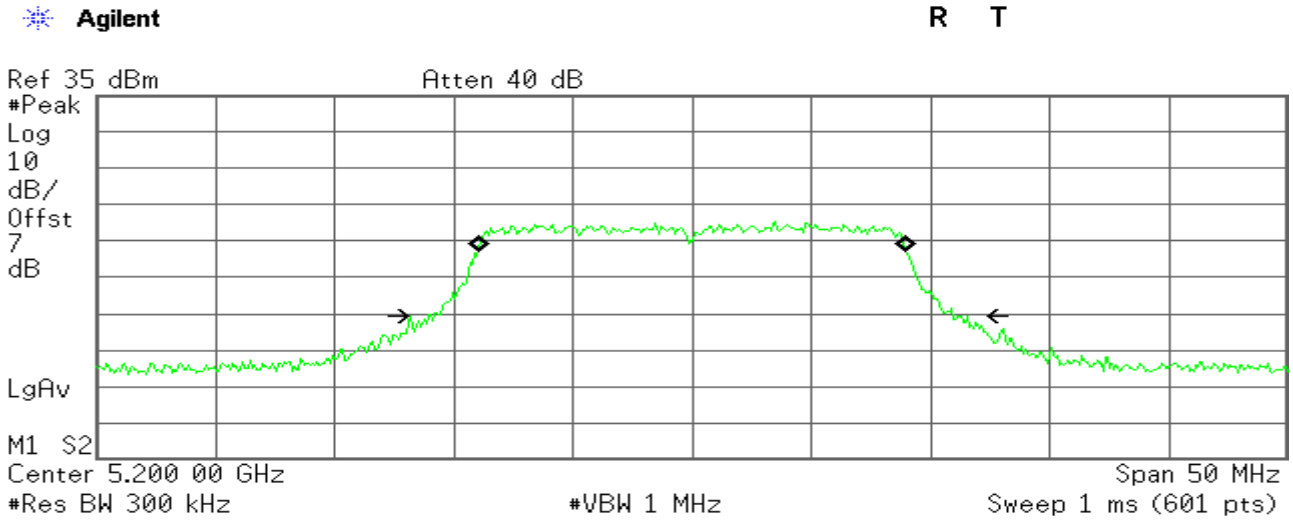


Occupied Bandwidth
17.9351 MHz

Occ BW % Pwr 99.00 %
x dB -26.00 dB

Transmit Freq Error 6.933 kHz
x dB Bandwidth 22.282 MHz

CH Mid

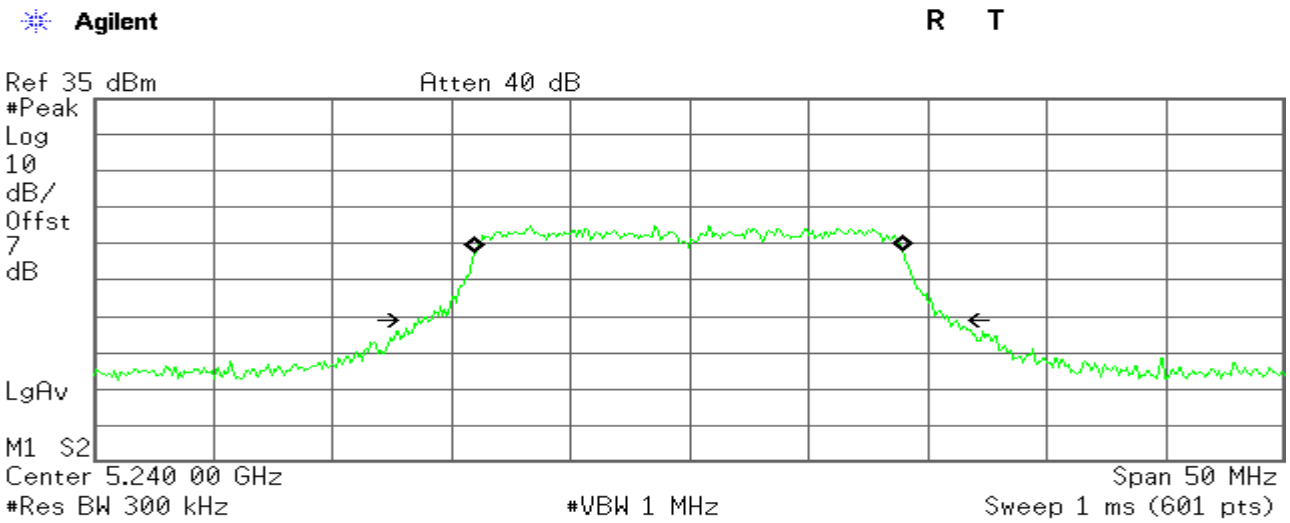


Occupied Bandwidth
17.8836 MHz

Occ BW % Pwr 99.00 %
x dB -26.00 dB

Transmit Freq Error -13.373 kHz
x dB Bandwidth 22.685 MHz

CH High

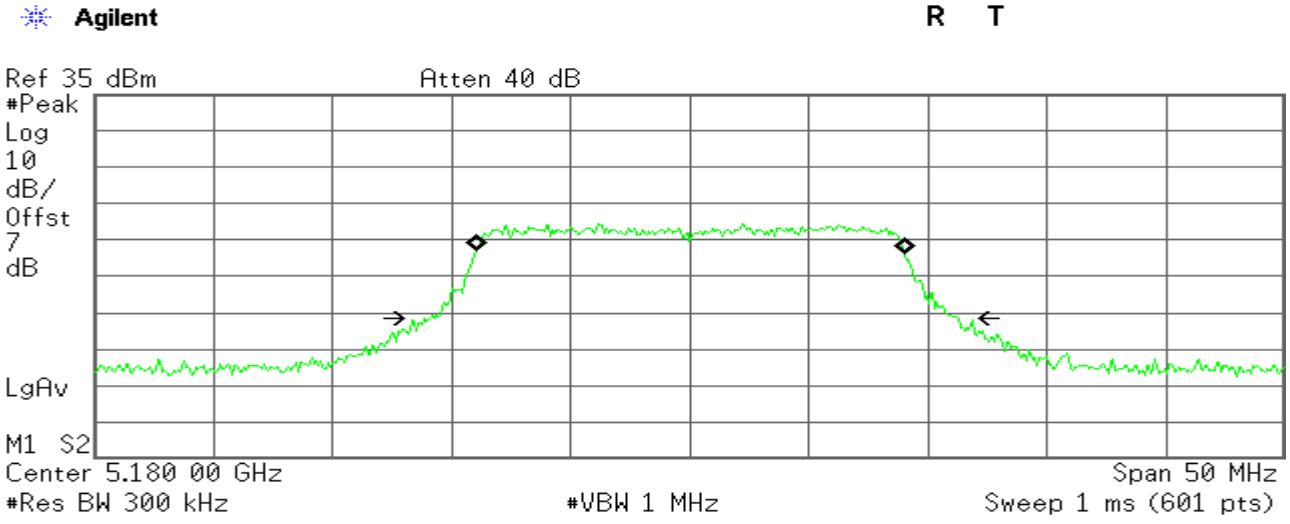


Transmit Freq Error −15.889 kHz
x dB Bandwidth 22.353 MHz

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

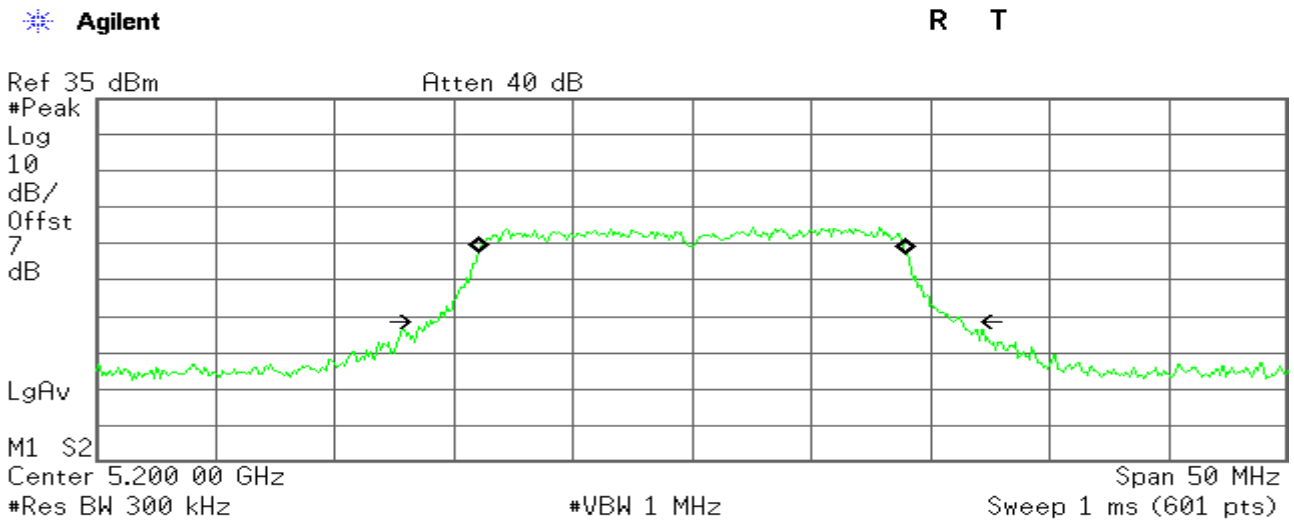
5150~5250MHz

CH Low



Transmit Freq Error 27.254 kHz
x dB Bandwidth 22.510 MHz

CH Mid

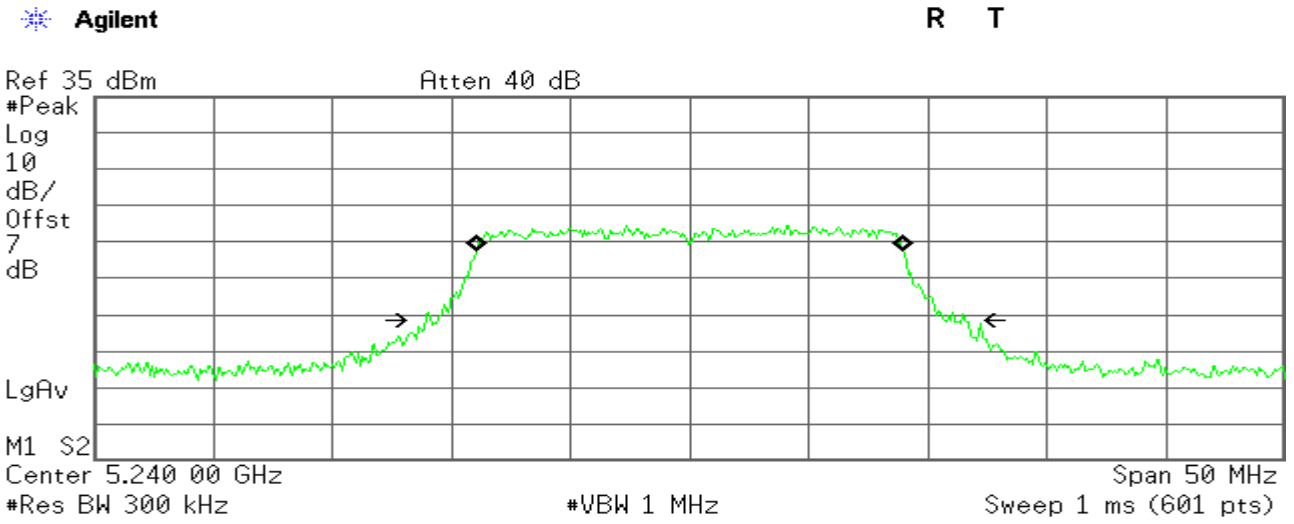


Occupied Bandwidth
17.8760 MHz

Occ BW % Pwr 99.00 %
x dB -26.00 dB

Transmit Freq Error 5.800 kHz
x dB Bandwidth 22.336 MHz

CH High



Occupied Bandwidth
17.8551 MHz

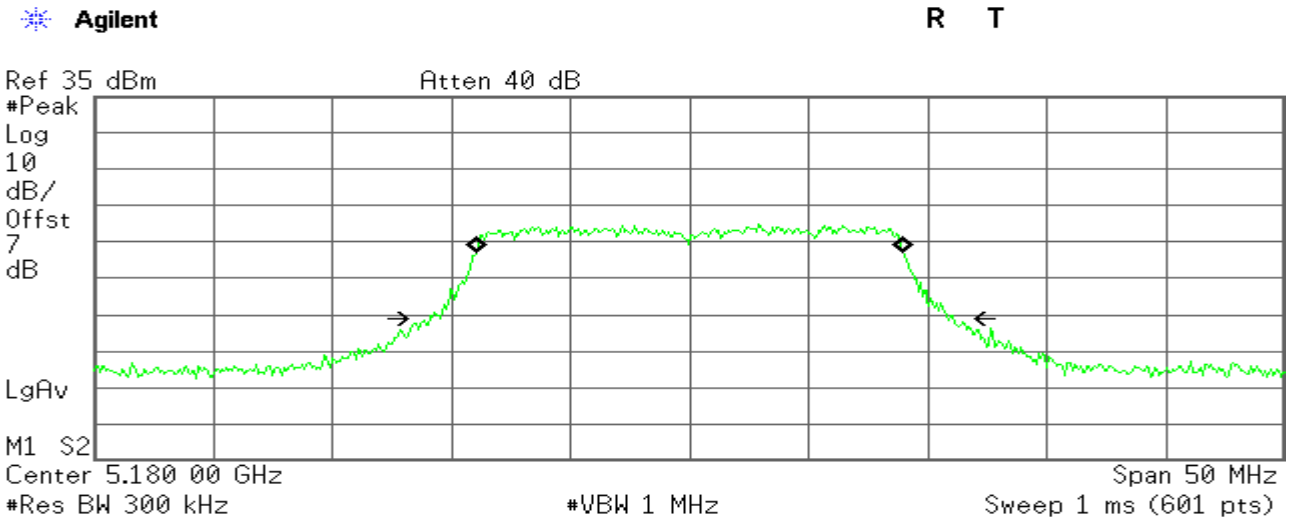
Occ BW % Pwr 99.00 %
x dB -26.00 dB

Transmit Freq Error 471.204 Hz
x dB Bandwidth 22.715 MHz

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

5150~5250MHz

CH Low

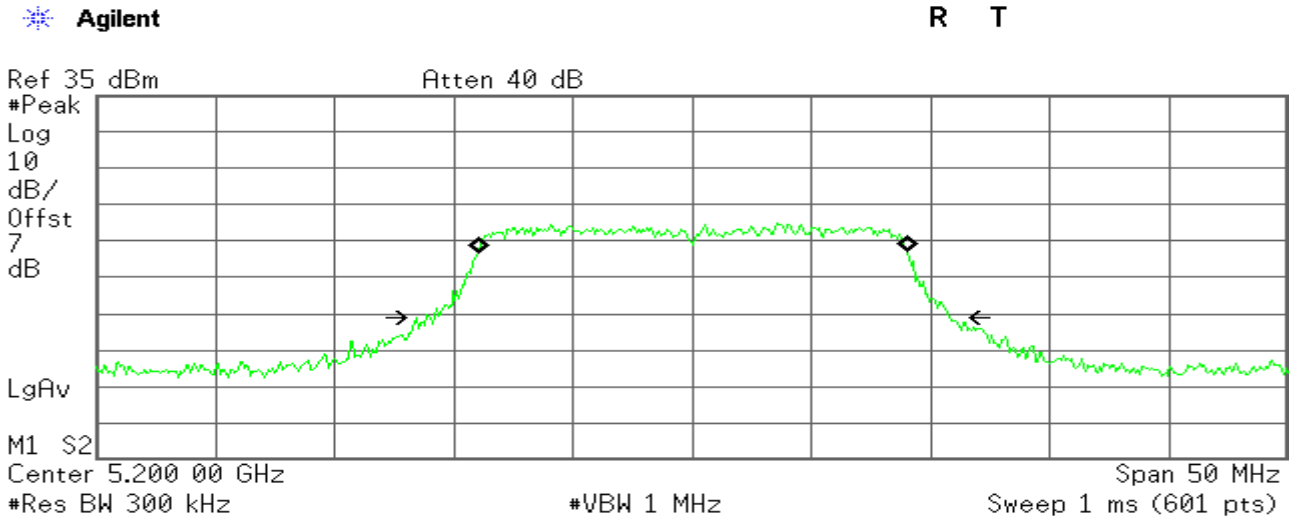


Occupied Bandwidth
17.8699 MHz

Occ BW % Pwr 99.00 %
x dB -26.00 dB

Transmit Freq Error 1.820 kHz
x dB Bandwidth 22.089 MHz

CH Mid

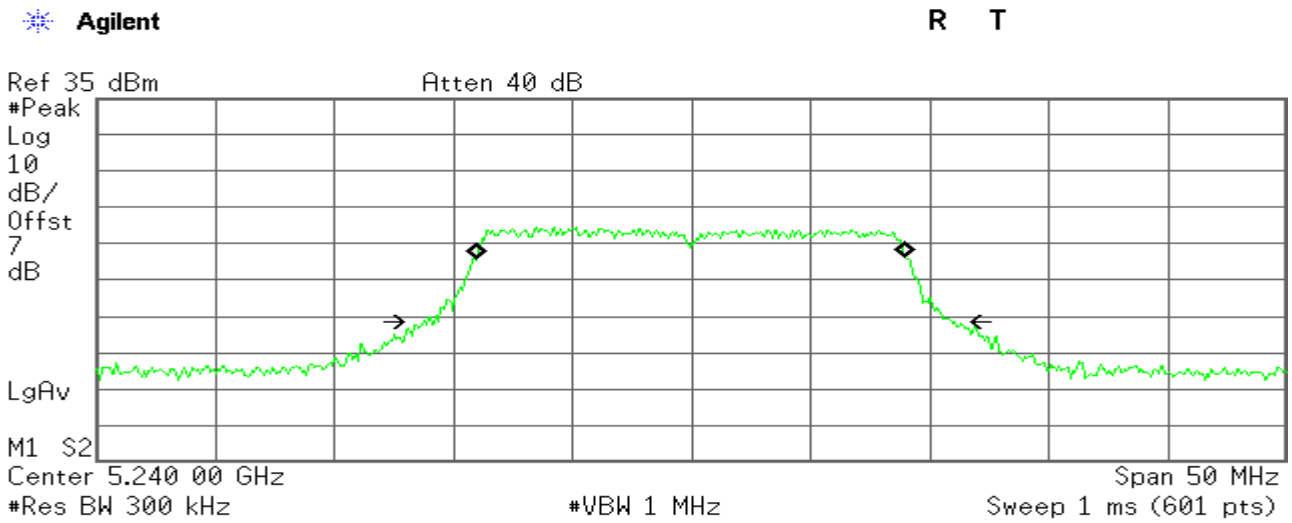


Occupied Bandwidth
17.9190 MHz

Occ BW % Pwr 99.00 %
x dB -26.00 dB

Transmit Freq Error 10.477 kHz
x dB Bandwidth 22.039 MHz

CH High

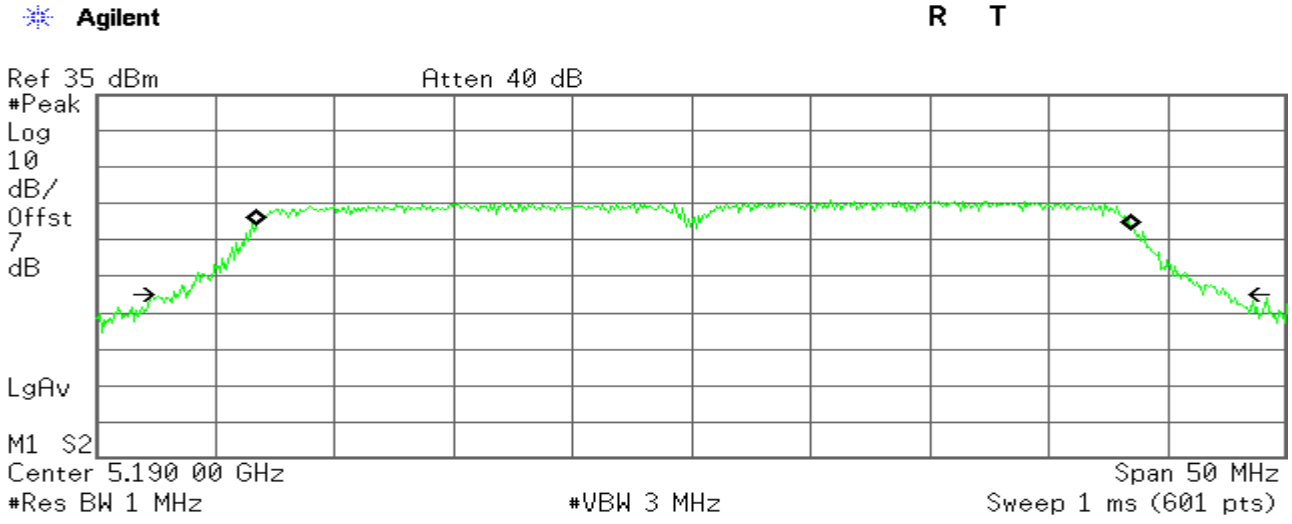


Transmit Freq Error −32.224 kHz
x dB Bandwidth 22.214 MHz

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

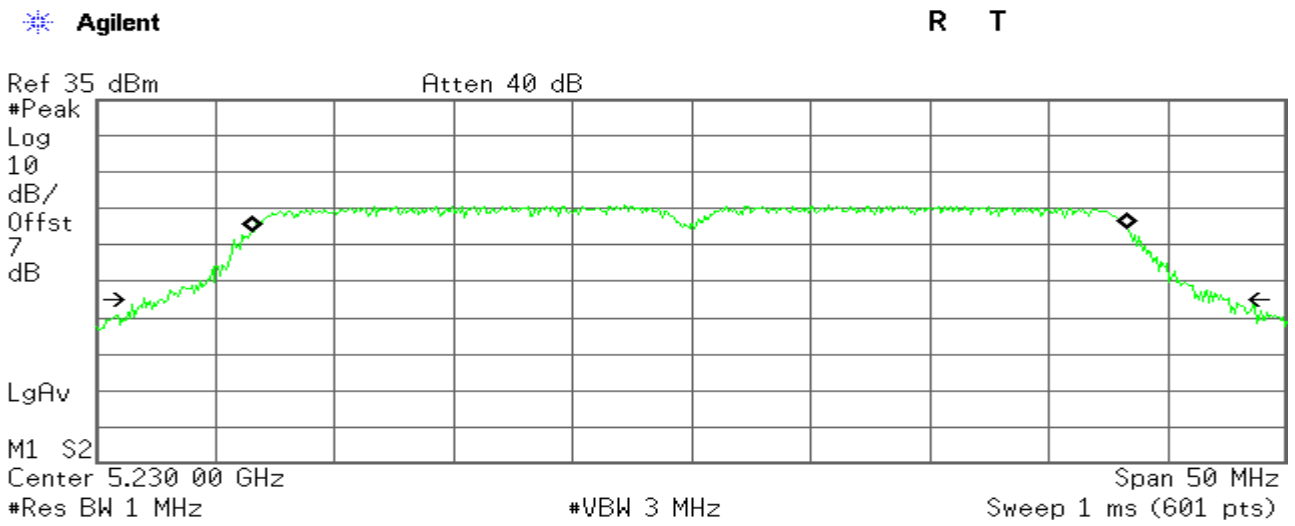
5150~5250MHz

CH Low



Transmit Freq Error 89.598 kHz
x dB Bandwidth 44.357 MHz

CH High

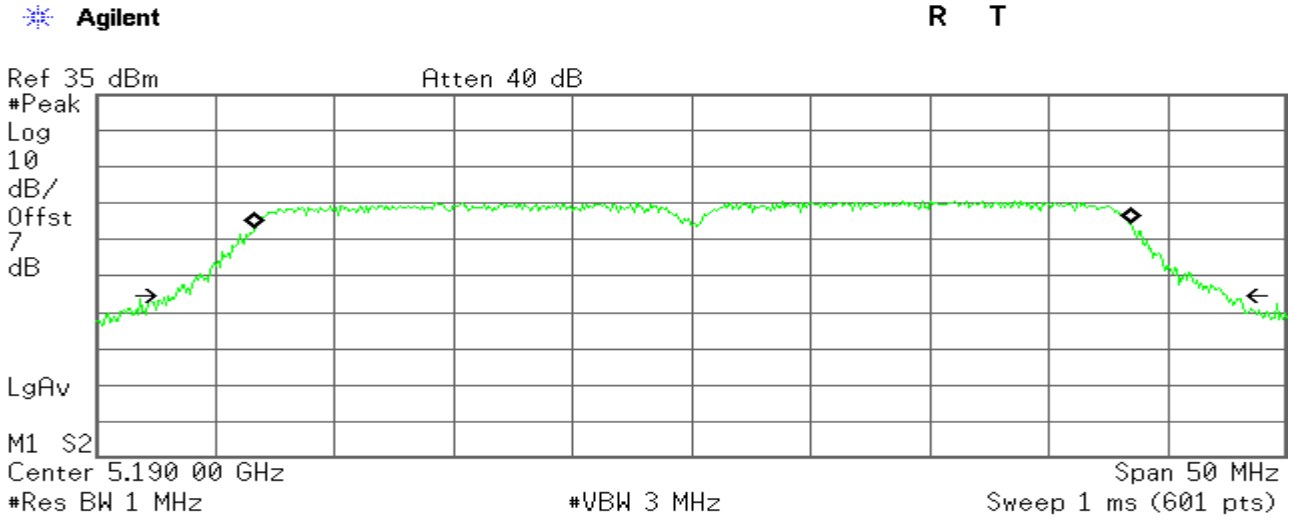


Transmit Freq Error -57.421 kHz
x dB Bandwidth 45.609 MHz

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

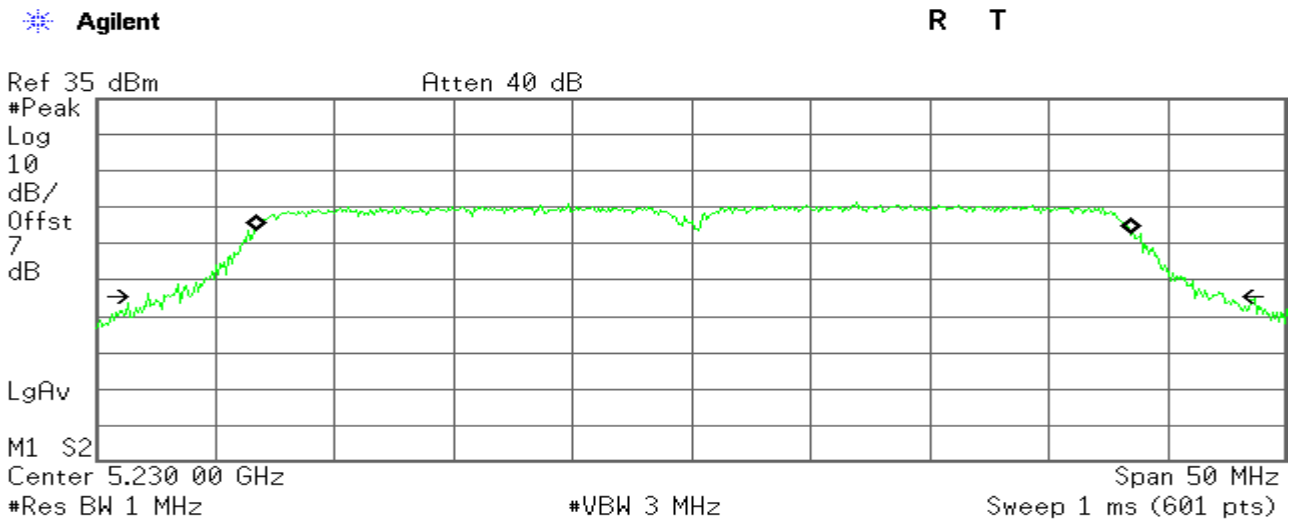
5150~5250MHz

CH Low



Transmit Freq Error 58.749 kHz
x dB Bandwidth 44.157 MHz

CH High

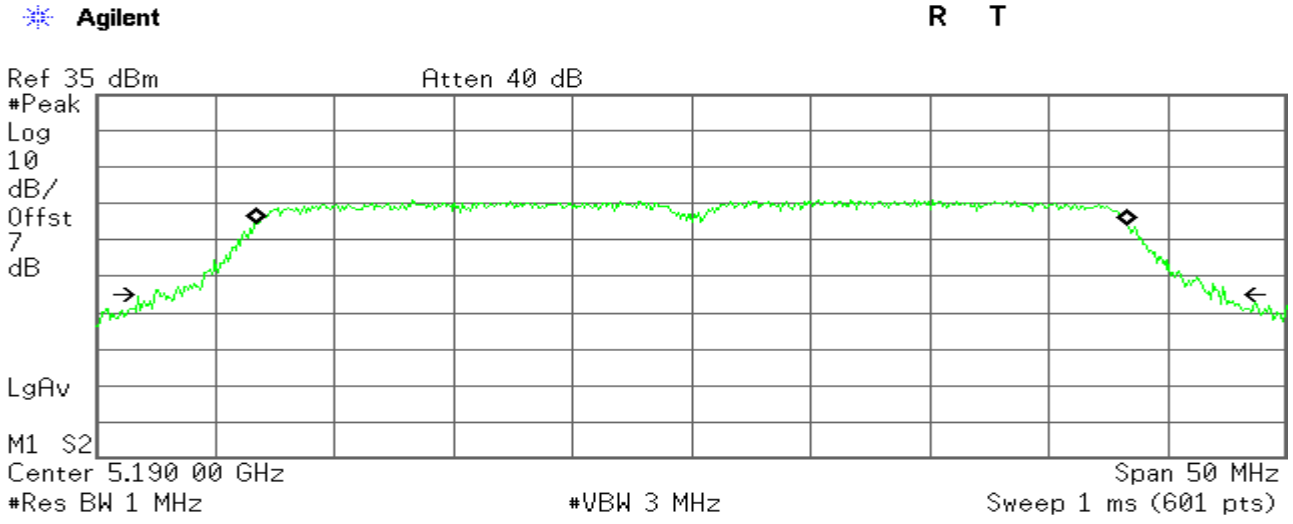


Transmit Freq Error 76.384 kHz
x dB Bandwidth 45.236 MHz

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

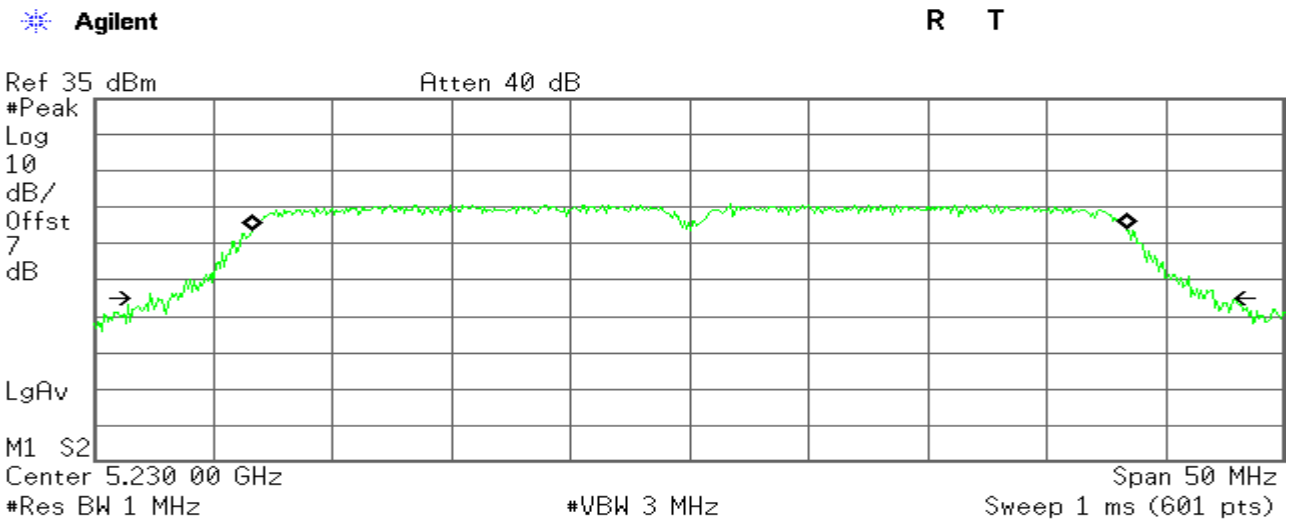
5150~5250MHz

CH Low



Transmit Freq Error 175.030 Hz
x dB Bandwidth 44.966 MHz

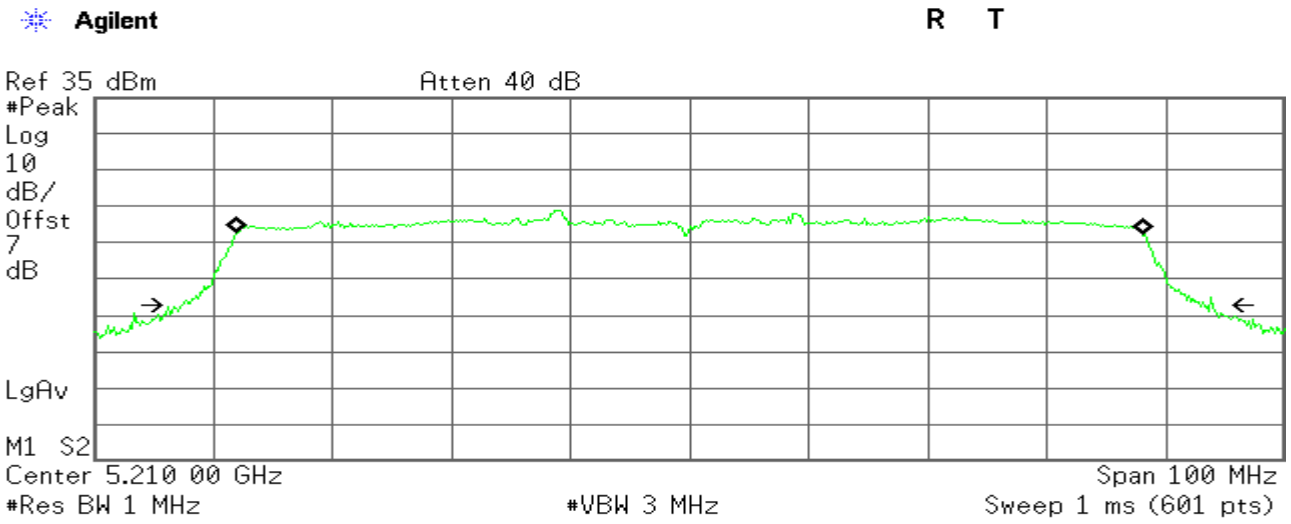
CH High



Transmit Freq Error −1.760 kHz
x dB Bandwidth 44.751 MHz

draft 802.11ac Wide-80 MHz Channel mode / Chain 0

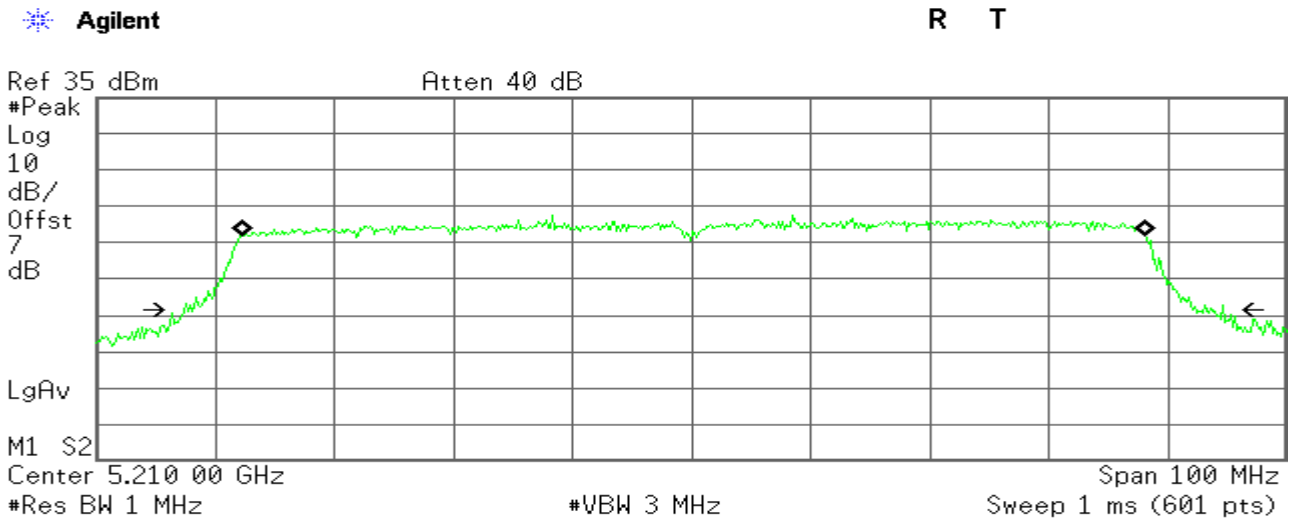
5150~5250MHz



Transmit Freq Error 16.709 kHz
x dB Bandwidth 86.658 MHz

draft 802.11ac Wide-80 MHz Channel mode / Chain 1

5150~5250MHz



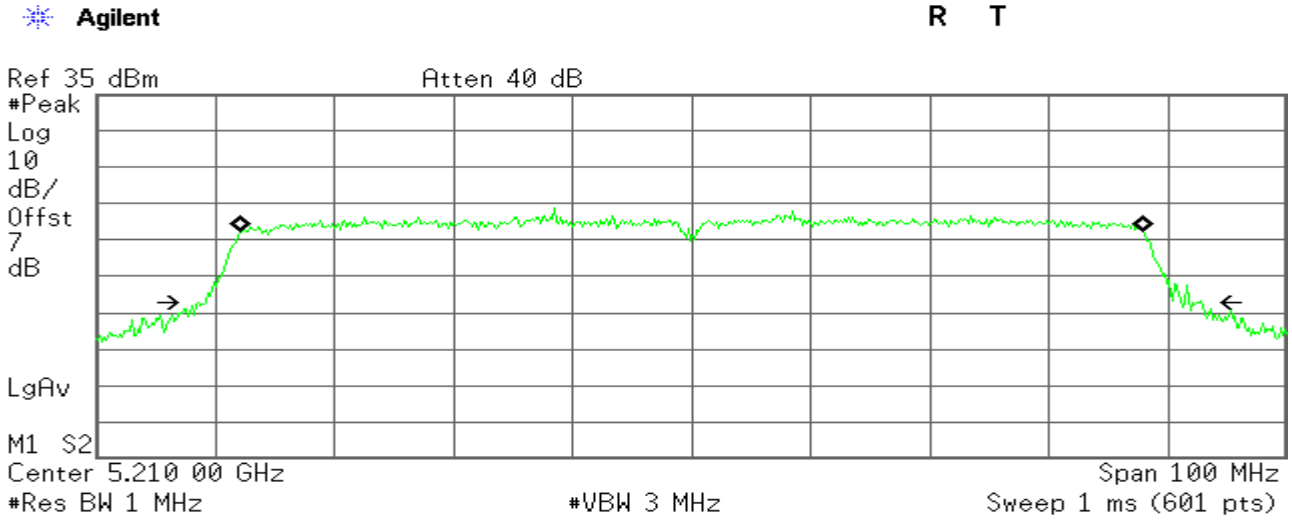
Occupied Bandwidth
75.6826 MHz

Occ BW % Pwr 99.00 %
x dB -26.00 dB

Transmit Freq Error 140.108 kHz
x dB Bandwidth 87.364 MHz

draft 802.11ac Wide-80 MHz Channel mode / Chain 2

5150~5250MHz



Occupied Bandwidth
75.6297 MHz

Occ BW % Pwr 99.00 %
x dB -26.00 dB

Transmit Freq Error 27.414 kHz
x dB Bandwidth 84.471 MHz

7.2 MAXIMUM CONDUCTED OUTPUT POWER

LIMIT

According to §15.407(a),

(1) For the band 5.15-5.25 GHz, Indoor AP: the maximum conducted output power (POut) shall not exceed the lesser of 1 W.

(2) For the 5.25-5.35 GHz and 5.47-5.725 GHz bands, the maximum conducted output power over the frequency bands of operation shall not exceed the lesser of 250 mW or 11 dBm + 10log B, where B is the 26 dB emission bandwidth in MHz.

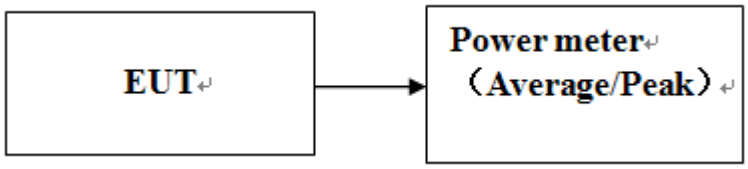
If transmitting antennas of directional gain greater than 6dBi are used, both the maximum *transmit power and the* maximum *power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.*

The maximum power shall not exceed the limit as follow:

Test Configuration

The EUT was connected to a power meter.

TEST PROCEDURE



The testing follows Method PM of FCC KDB 789033 D02 General UNII Test Procedures New Rules v01.Method PM (Measurement using an RF average power meter):

1. Measurement is performed using an RF average power meter.
2. The EUT is configured to transmit continuously with a consistent duty cycle at its maximum power control level.
3. Measure the average power of the transmitter, and the average power is corrected with duty factor, 10 log(1/x), where x is the duty cycle.

TEST RESULTS

No non-compliance noted

Test Data

Test mode: IEEE 802.11a mode

5150~5250MHz

Channel	Frequency (MHz)	Duty factor (dB)			Average Conducted Power (dBm)				Limit (dBm)
		Chain0	Chain1	Chain2	Chain0	Chain1	Chain2	Sum Power	
Low	5180	0.15	0.14	0.15	19.29	19.93	19.10	24.23	30
Mid	5200	0.15	0.14	0.15	19.57	20.04	19.23	24.40	30
High	5240	0.15	0.14	0.15	19.37	19.89	19.09	24.23	30

Test mode: draft 802.11n Standard-20 MHz Channel mode
5150~5250MHz

Channel	Frequency (MHz)	Duty factor (dB)			Average Conducted Power (dBm)				Limit (dBm)
		Chain0	Chain1	Chain2	Chain0	Chain1	Chain2	Sum Power	
Low	5180	0.14	0.14	0.15	18.35	19.08	18.08	23.30	30
Mid	5200	0.14	0.14	0.15	18.41	19.15	18.19	23.37	30
High	5240	0.14	0.14	0.15	18.18	18.74	18.10	23.12	30

Test mode: draft 802.11n Wide-40 MHz Channel mode
5150~5250MHz

Channel	Frequency (MHz)	Duty factor (dB)			Average Conducted Power (dBm)				Limit (dBm)
		Chain0	Chain1	Chain2	Chain0	Chain1	Chain2	Sum Power	
Low	5190	0.28	0.27	0.25	15.49	16.07	15.56	20.49	30
High	5230	0.28	0.27	0.25	15.69	16.14	15.60	20.59	30

Test mode: draft 802.11ac Standard-20 MHz Channel mode
5150~5250MHz

Channel	Frequency (MHz)	Duty factor (dB)			Average Conducted Power (dBm)				Limit (dBm)
		Chain0	Chain1	Chain2	Chain0	Chain1	Chain2	Sum Power	
Low	5180	0.16	0.16	0.17	18.20	19.00	17.91	23.17	30
Mid	5200	0.16	0.16	0.17	18.49	19.13	18.07	23.36	30
High	5240	0.16	0.16	0.17	18.15	18.65	18.06	23.07	30

Note:Measured power(dBm) has offiset with cable loss and duty factor

Test mode: draft 802.11ac Wide-40 MHz Channel mode
5150~5250MHz

Channel	Frequency (MHz)	Duty factor (dB)			Average Conducted Power (dBm)				Limit (dBm)
		Chain0	Chain1	Chain2	Chain0	Chain1	Chain2	Sum Power	
Low	5190	0.31	0.30	0.27	15.40	16.17	15.62	20.51	30
High	5230	0.31	0.30	0.27	15.68	16.24	15.63	20.63	30

Test mode: draft 802.11ac Wide-80 MHz Channel mode
5150~5250MHz

Channel	Frequency (MHz)	Duty factor (dB)			Average Conducted Power (dBm)				Limit (dBm)
		Chain0	Chain1	Chain2	Chain0	Chain1	Chain2	Sum Power	
Mid	5210	0.51	0.54	0.48	12.99	13.78	12.90	18.01	30

Note:Measured power(dBm) has offiset with cable loss and duty factor

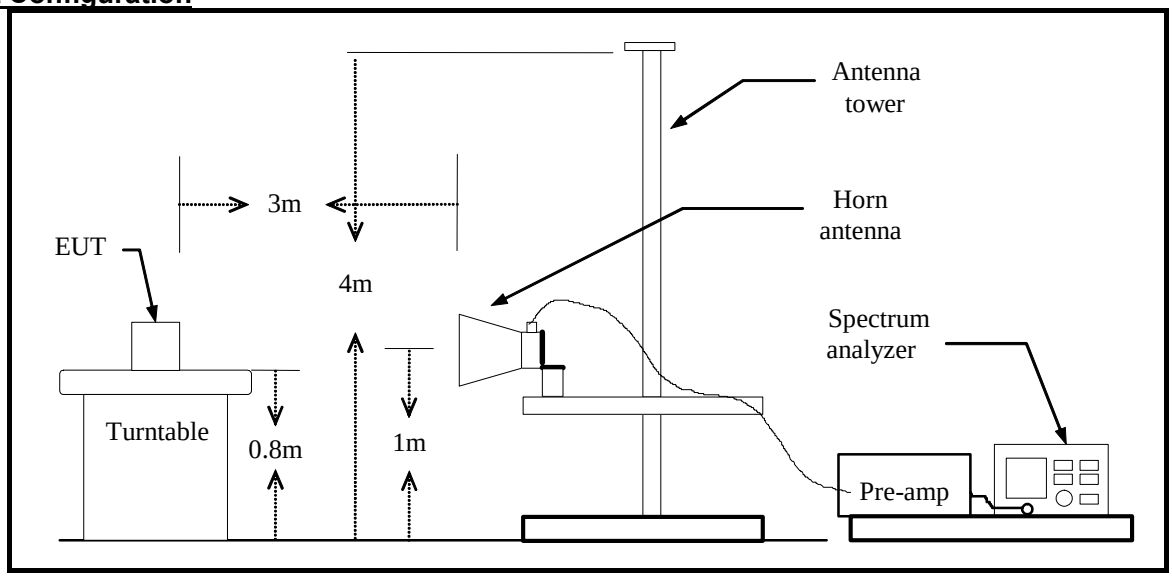
Remark : Sum Power Power(dBm)=10log(10^(chain0 outputpower/10)+ 10^(chain1 outputpower/10)+ 10^(chain2 outputpower/10))

7.3 BAND EDGES MEASUREMENT

LIMIT

According to §15.407(b),
(1) The provisions of Section 15.205 of this part apply to intentional radiators operating under this section.
(2) When measuring the emission limits, the nominal carrier frequency shall be adjusted as close to the upper and lower frequency block edges as the design of the equipment permits.

Test Configuration



TEST PROCEDURE

1. The EUT is placed on a turntable, which is 0.8m above the 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 emission.
4. Set the spectrum analyzer in the following setting in order to capture the lower and upper band-edges of the emission:
   (a) PEAK: RBW=VBW=1MHz / Sweep=AUTO
   (b) AVERAGE: RBW=1MHz / VBW=10Hz / Sweep=AUTO
5. Repeat the procedures until all the PEAK and AVERAGE versus POLARIZATION are measured.

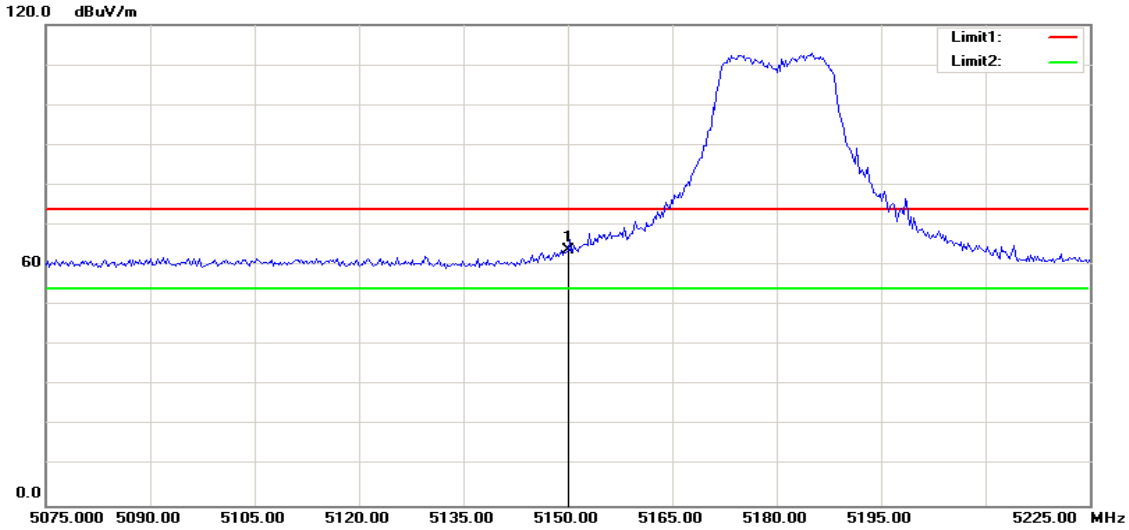
TEST RESULTS

Refer to attach spectrum analyzer data chart.

Band Edges (draft 802.11a mode)

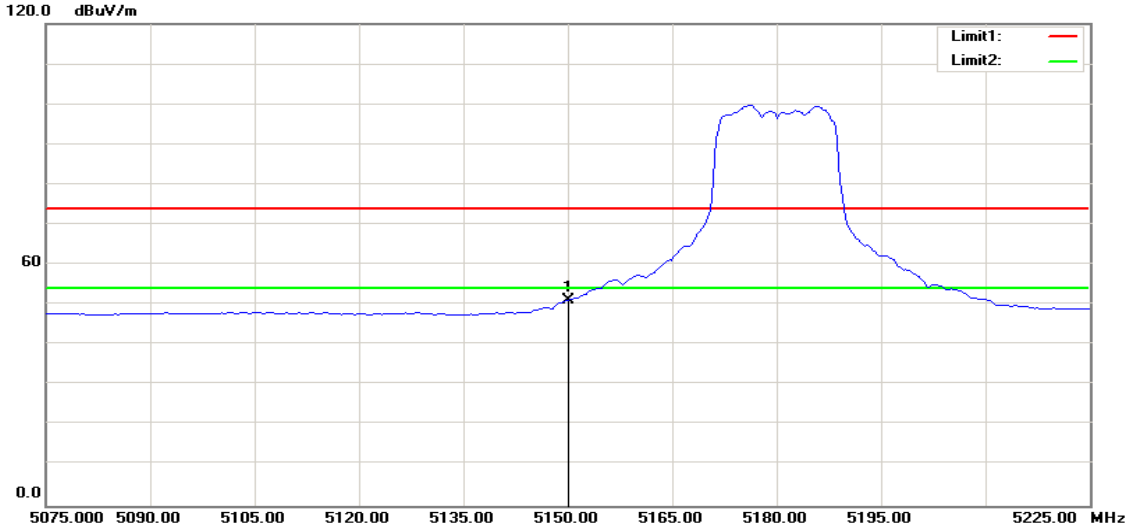
5180MHz

Detector mode: Peak **Polarity: Vertical**



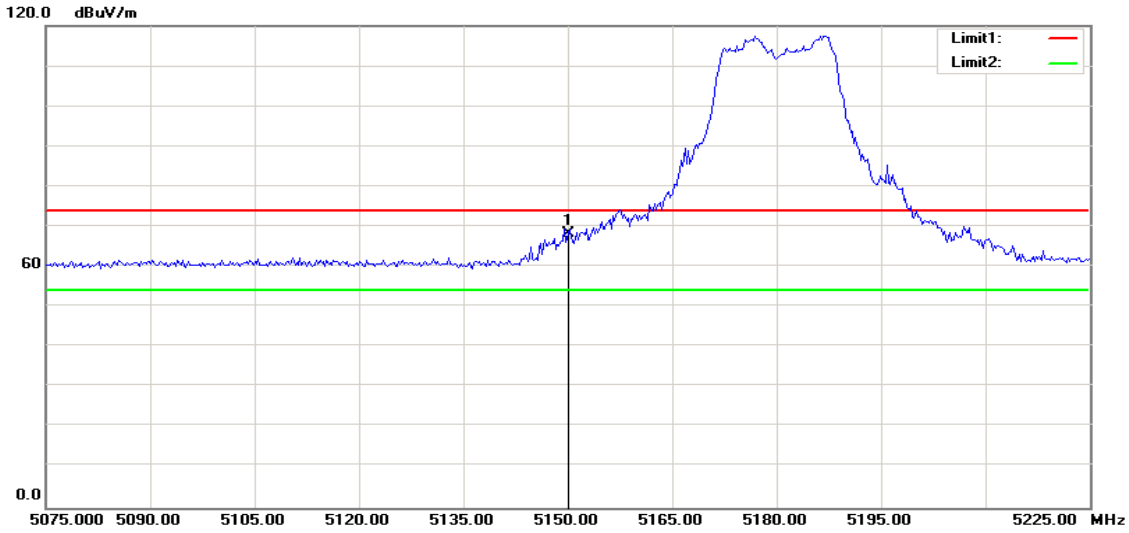
No.	Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(deg.)	
1	5150.000	65.24	-1.38	63.86	74.00	-10.14	100	303	peak

Detector mode: Average **Polarity: Vertical**



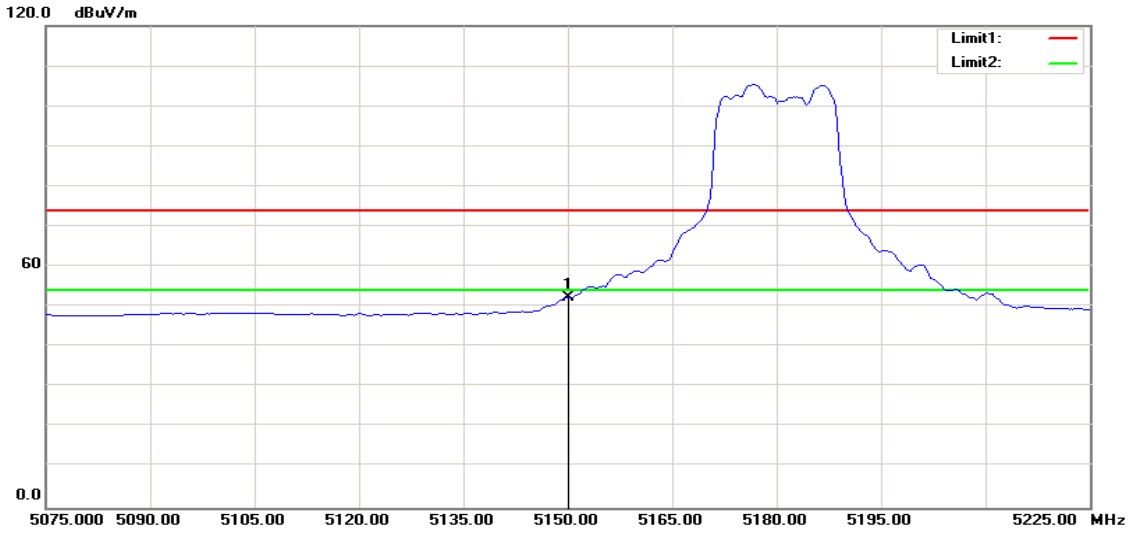
No.	Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(deg.)	
1	5150.000	52.66	-1.38	51.28	54.00	-2.72	100	303	AVG

Detector mode: Peak **Polarity: Horizontal**



No.	Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(deg.)	
1	5150.000	69.71	-1.38	68.33	74.00	-5.67	100	253	peak

Detector mode: Average **Polarity: Horizontal**

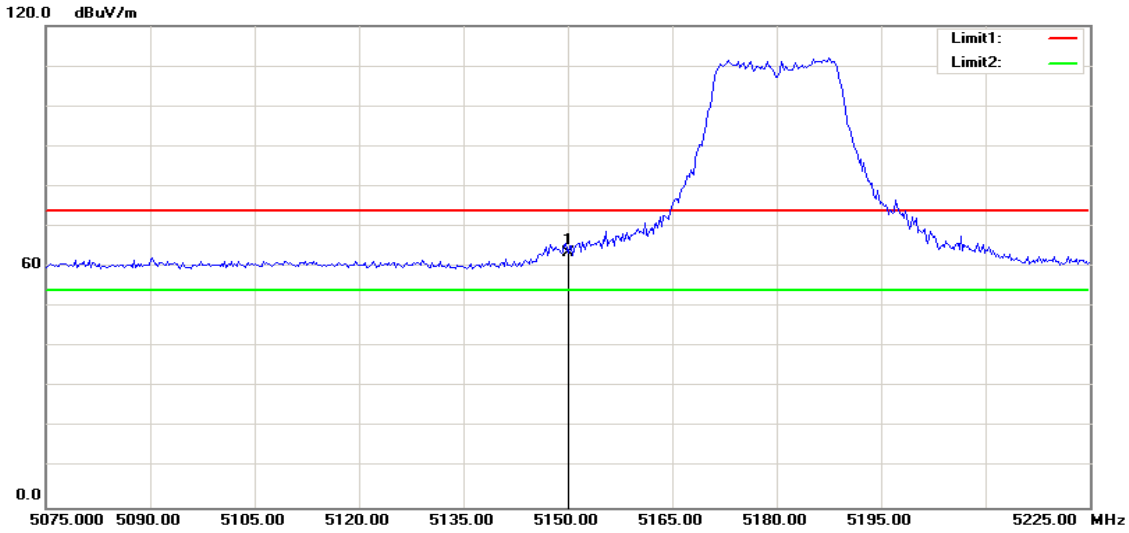


No.	Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(deg.)	
1	5150.000	53.70	-1.38	52.32	54.00	-1.68	100	261	AVG

Band Edges (draft 802.11n Standard-20 MHz Channel mode)

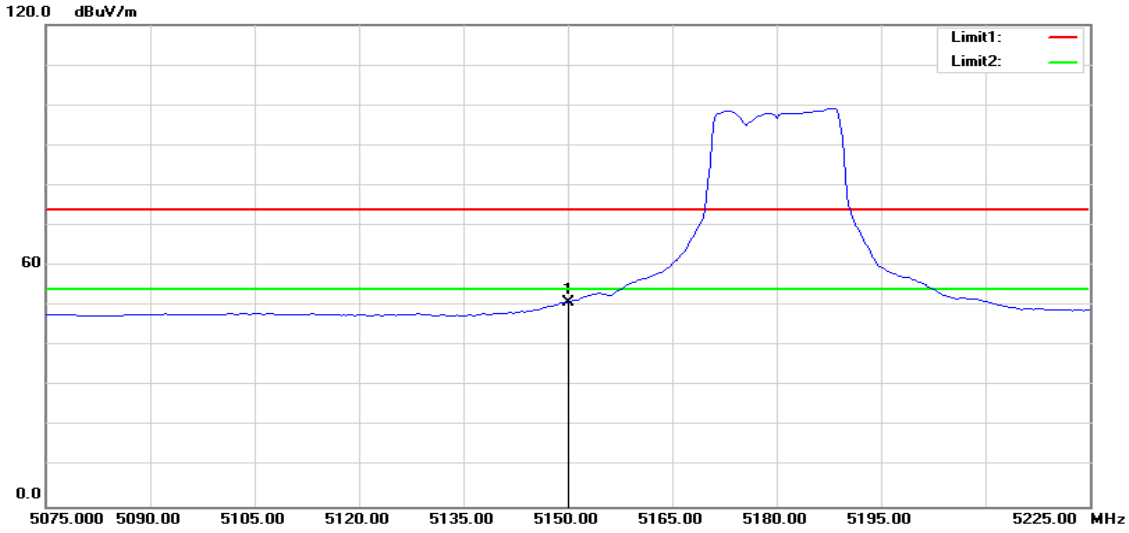
5180MHz

Detector mode: Peak **Polarity: Vertical**



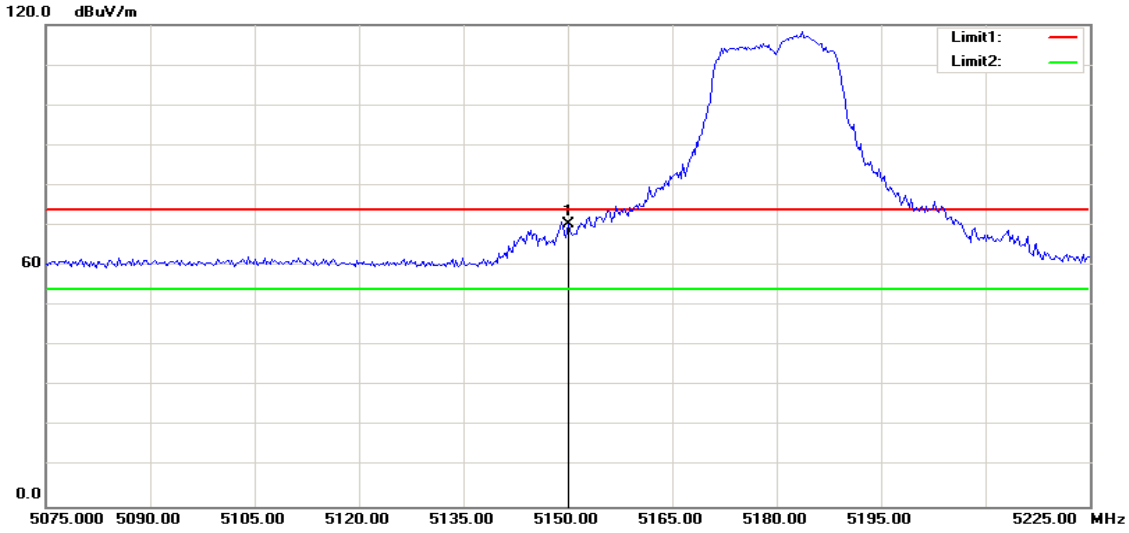
No.	Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(deg.)	
1	5150.000	64.74	-1.38	63.36	74.00	-10.64	100	303	peak

Detector mode: Average **Polarity: Vertical**



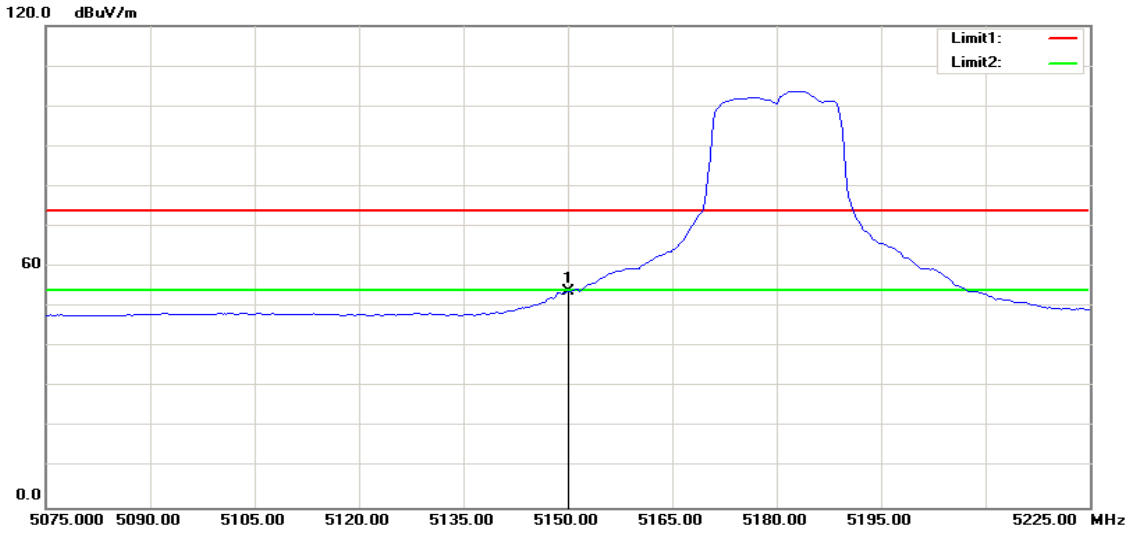
No.	Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(deg.)	
1	5150.000	52.35	-1.38	50.97	54.00	-3.03	100	303	AVG

Detector mode: Peak **Polarity: Horizontal**



No.	Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(deg.)	
1	5150.000	71.72	-1.38	70.34	74.00	-3.66	100	258	peak

Detector mode: Average **Polarity: Horizontal**

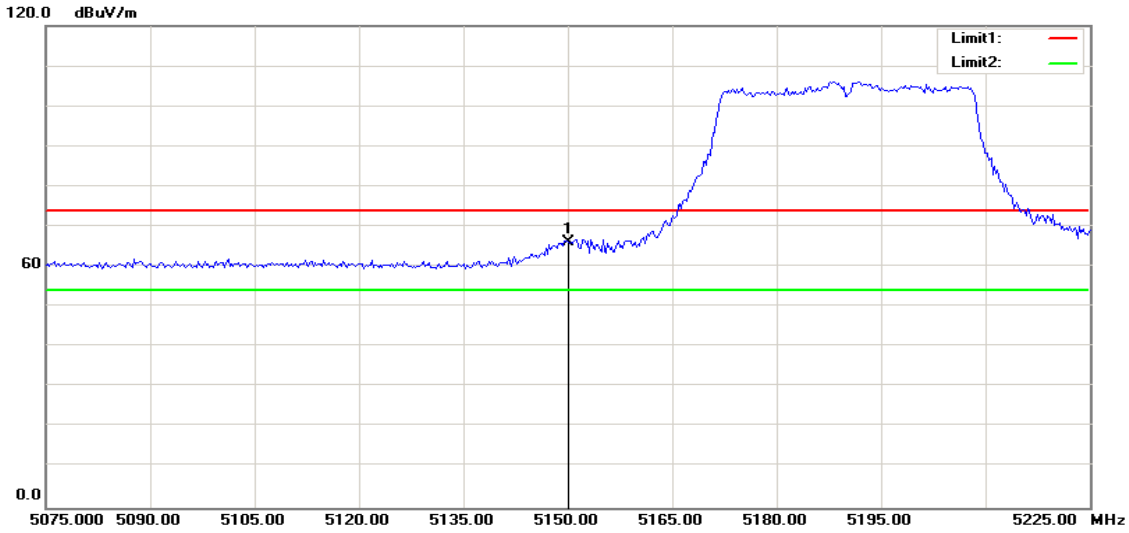


No.	Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(deg.)	
1	5150.000	55.10	-1.38	53.72	54.00	-0.28	100	258	AVG

Band Edges (draft 802.11n Wide-40 MHz Channel mode)

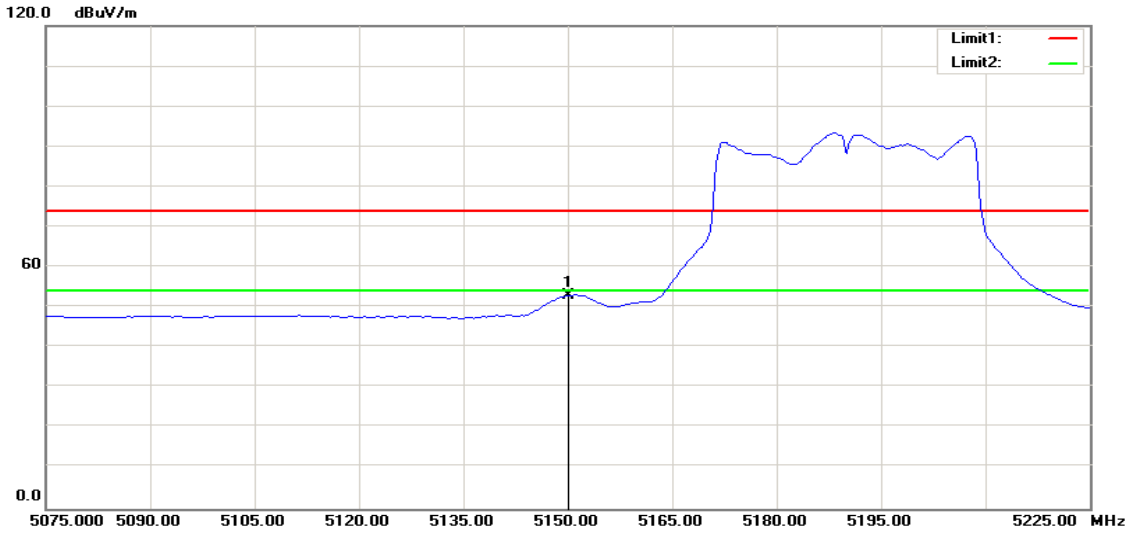
5190MHz

Detector mode: Peak **Polarity: Vertical**



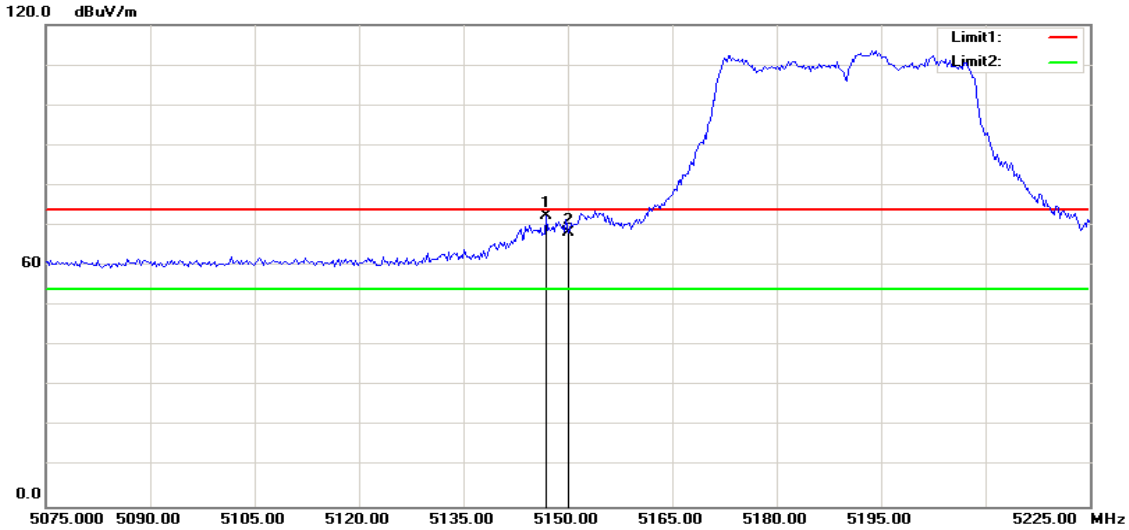
No.	Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(deg.)	
1	5150.000	67.58	-1.38	66.20	74.00	-7.80	100	188	peak

Detector mode: Average **Polarity: Vertical**



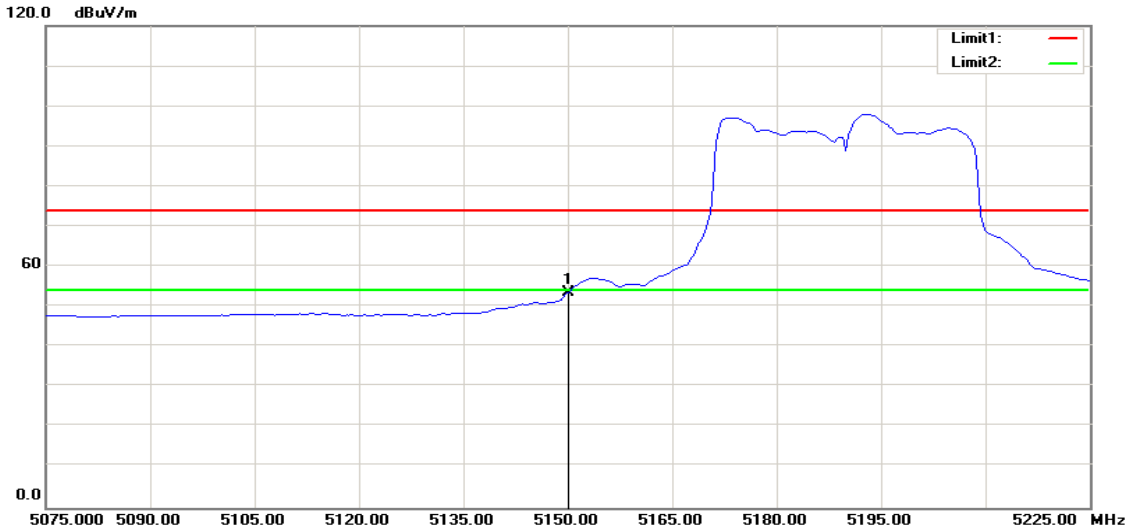
No.	Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(deg.)	
1	5150.000	54.28	-1.38	52.90	54.00	-1.10	100	188	AVG

Detector mode: Peak **Polarity: Horizontal**



No.	Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(deg.)	
1	5146.875	73.78	-1.39	72.39	74.00	-1.61	100	189	peak
2	5150.000	69.66	-1.38	68.28	74.00	-5.72	100	344	peak

Detector mode: Average **Polarity: Horizontal**

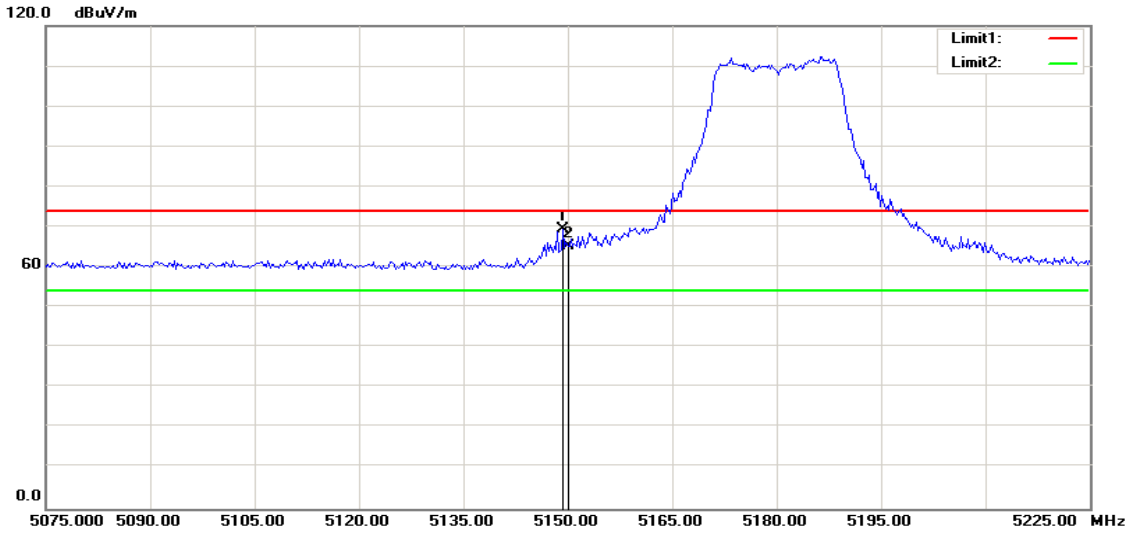


No.	Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(deg.)	
1	5150.000	54.79	-1.38	53.41	54.00	-0.59	100	344	AVG

Band Edges (draft 802.11ac Standard-20 MHz Channel mode)

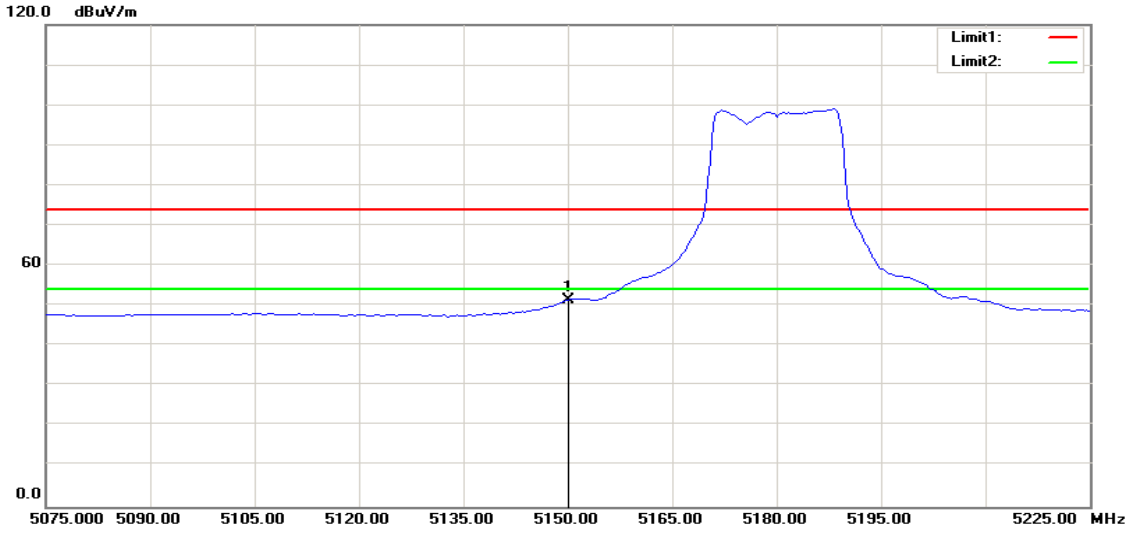
5180MHz

Detector mode: Peak **Polarity: Vertical**



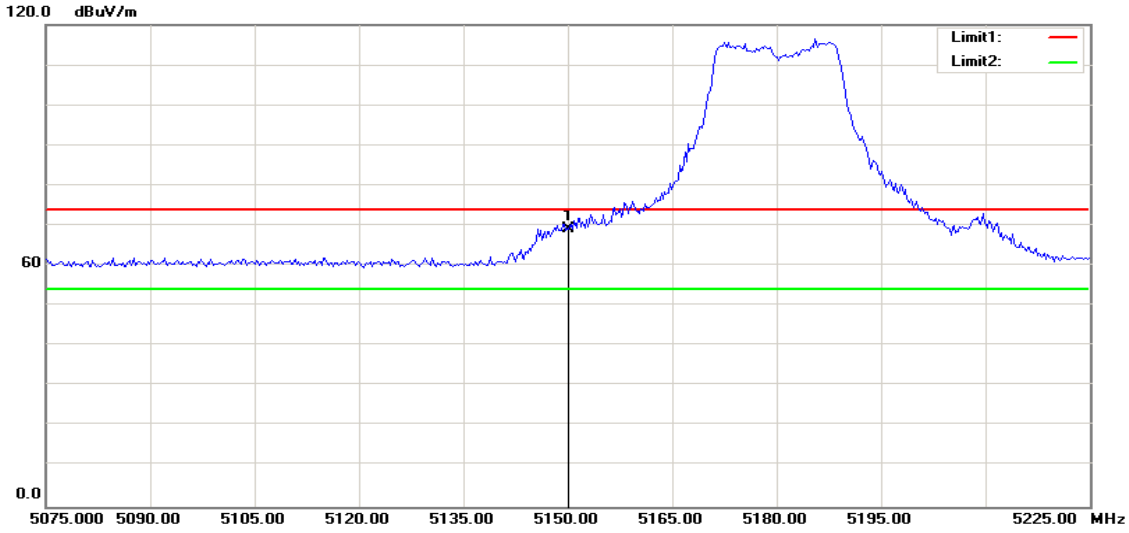
No.	Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(deg.)	
1	5149.279	70.73	-1.38	69.35	74.00	-4.65	100	188	peak
2	5150.000	66.64	-1.38	65.26	74.00	-8.74	100	193	peak

Detector mode: Average **Polarity: Vertical**



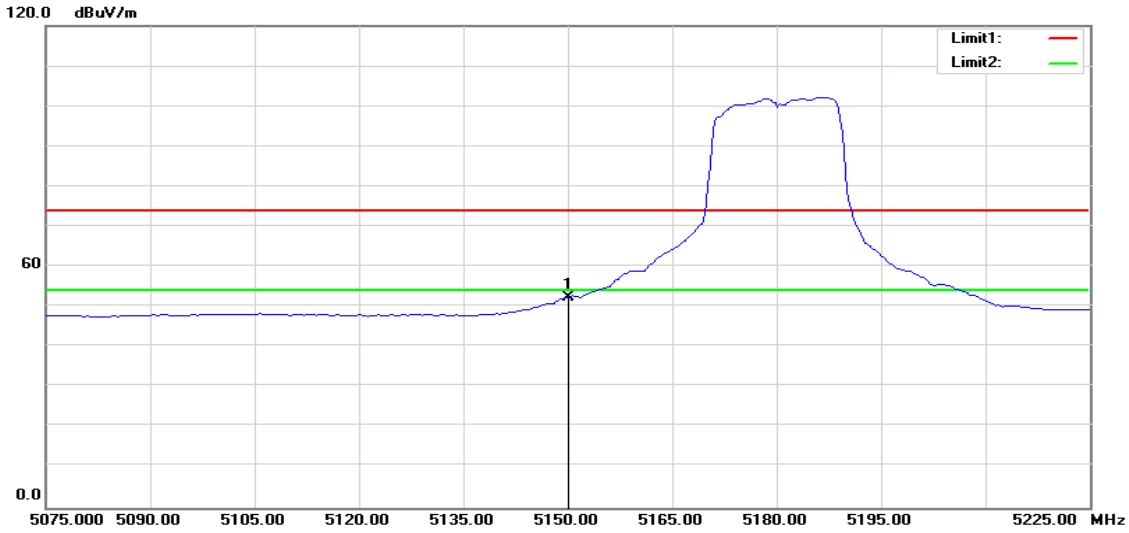
No.	Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(deg.)	
1	5150.000	52.90	-1.38	51.52	54.00	-2.48	100	193	AVG

Detector mode: Peak **Polarity: Horizontal**



No.	Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(deg.)	
1	5150.000	70.43	-1.38	69.05	74.00	-4.95	100	205	peak

Detector mode: Average **Polarity: Horizontal**

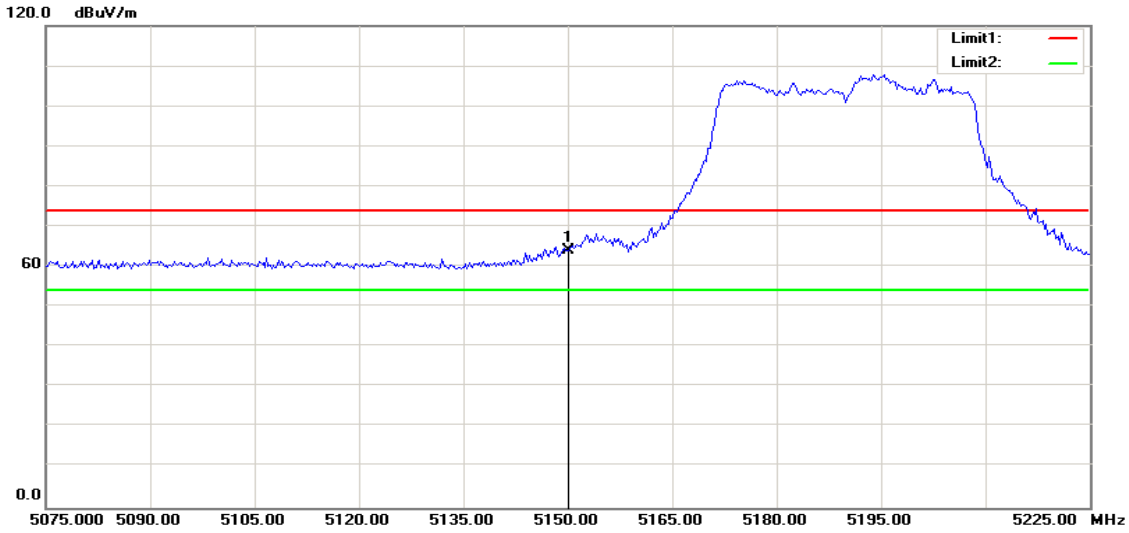


No.	Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(deg.)	
1	5150.000	53.86	-1.38	52.48	54.00	-1.52	100	205	AVG

Band Edges (draft 802.11ac Wide-40 MHz Channel mode)

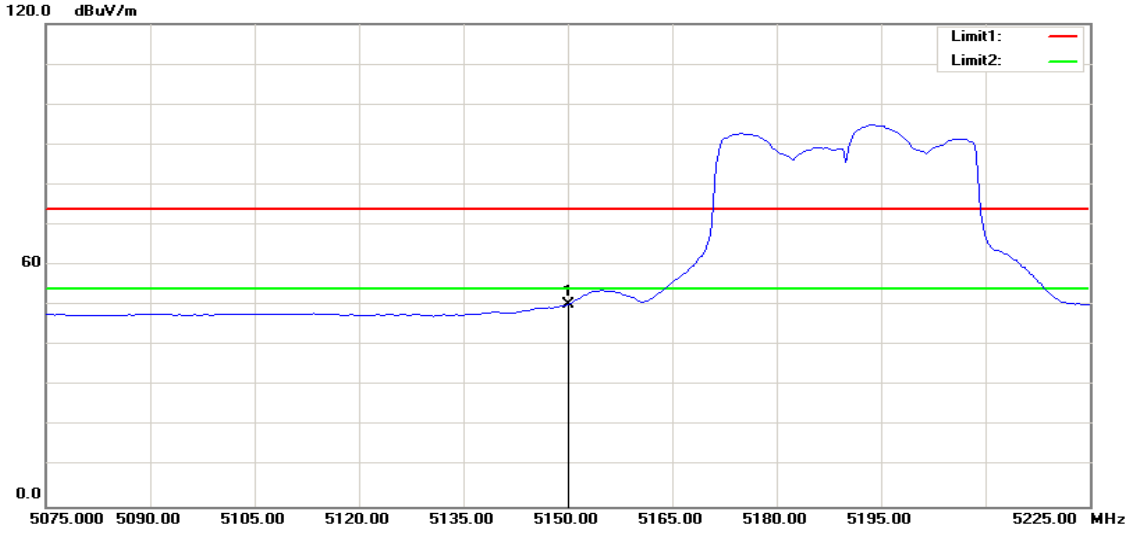
5190MHz

Detector mode: Peak **Polarity: Vertical**



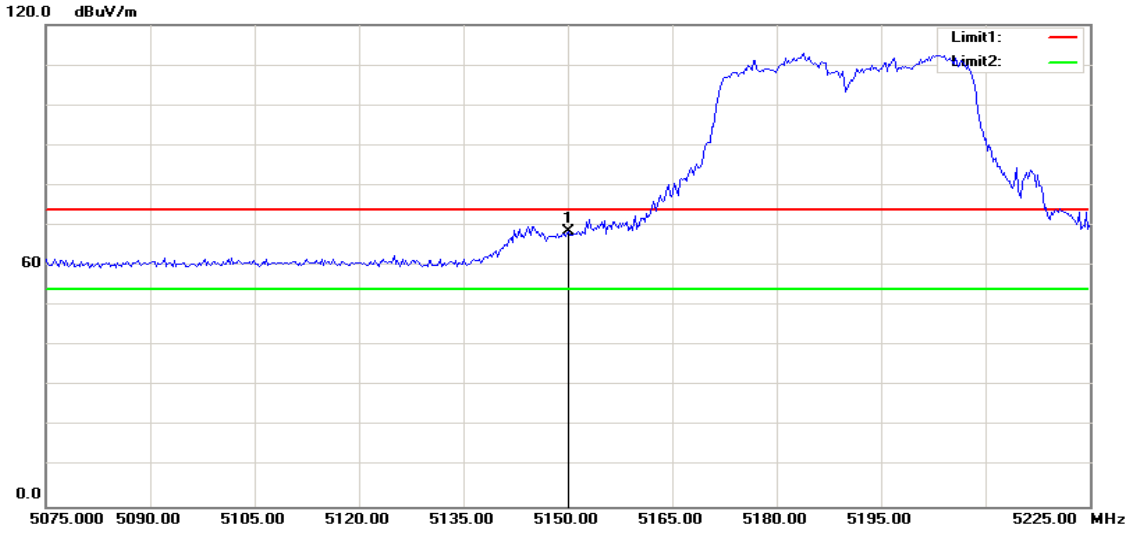
No.	Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(deg.)	
1	5150.000	65.43	-1.38	64.05	74.00	-9.95	100	178	peak

Detector mode: Average **Polarity: Vertical**



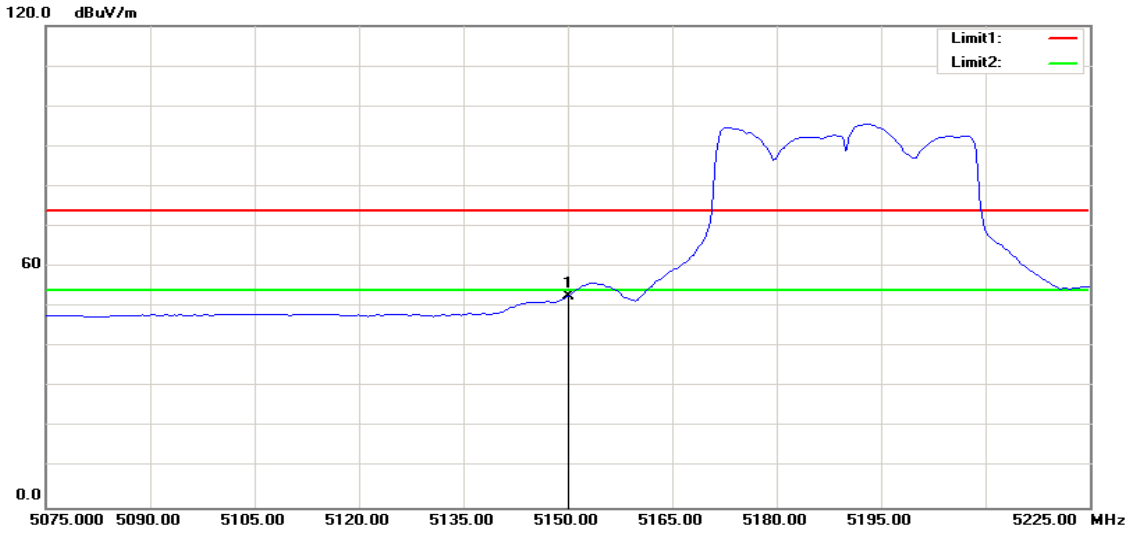
No.	Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(deg.)	
1	5150.000	51.59	-1.38	50.21	54.00	-3.79	100	178	AVG

Detector mode: Peak **Polarity: Horizontal**



No.	Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(deg.)	
1	5150.000	69.78	-1.38	68.40	74.00	-5.60	100	256	peak

Detector mode: Average **Polarity: Horizontal**

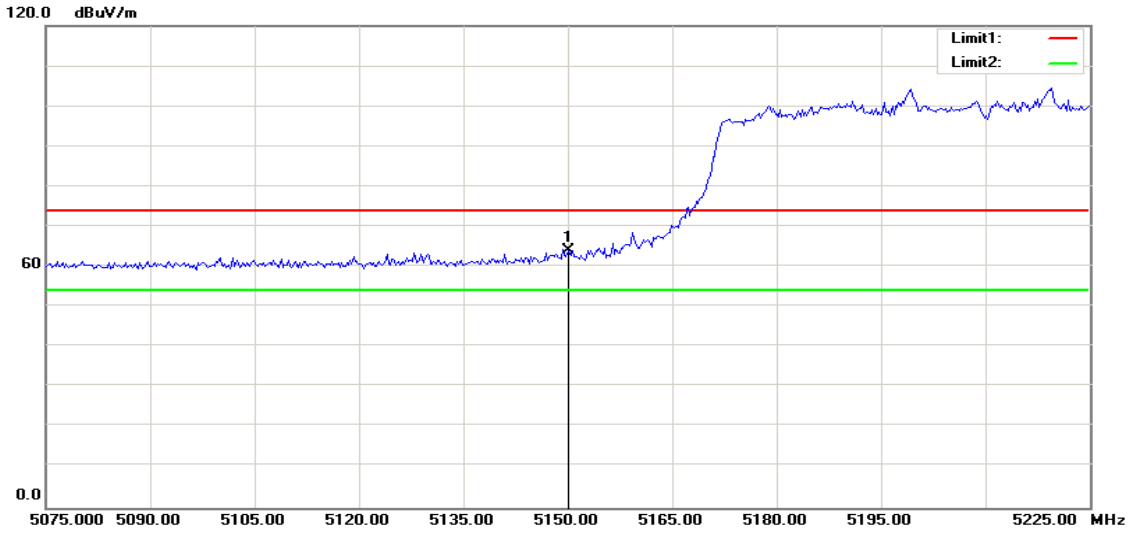


No.	Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(deg.)	
1	5150.000	54.05	-1.38	52.67	54.00	-1.33	100	256	AVG

Band Edges (draft 802.11ac wide-80 MHz Channel mode)

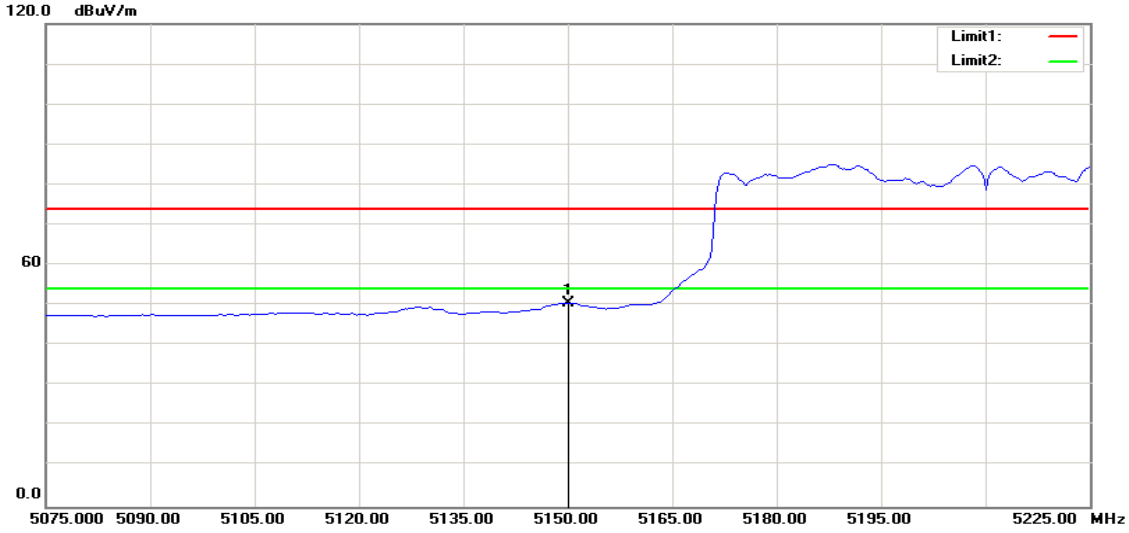
5210MHz

Detector mode: Peak **Polarity: Vertical**



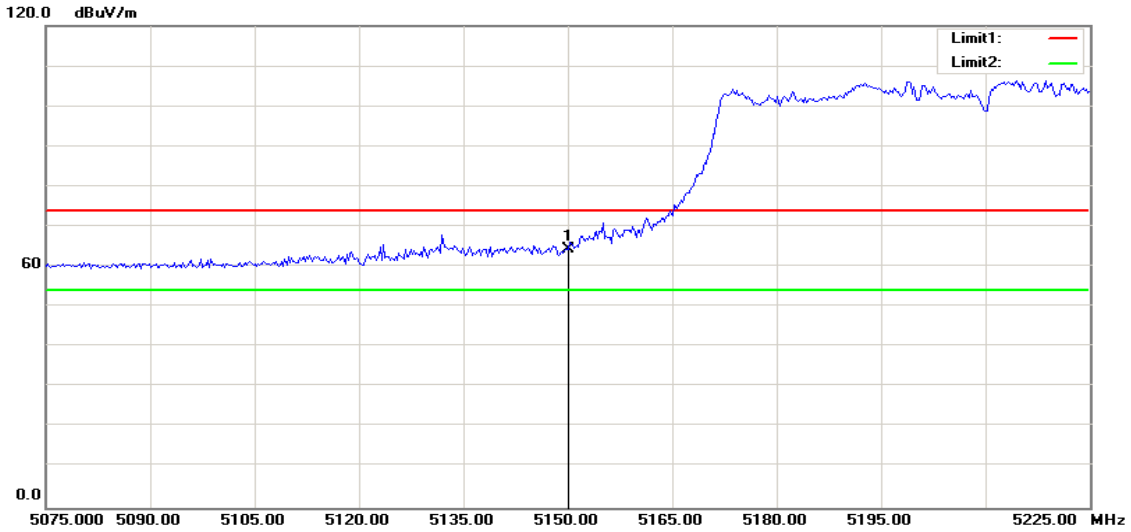
No.	Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(deg.)	
1	5150.000	65.57	-1.38	64.19	74.00	-9.81	100	187	peak

Detector mode: Average **Polarity: Vertical**



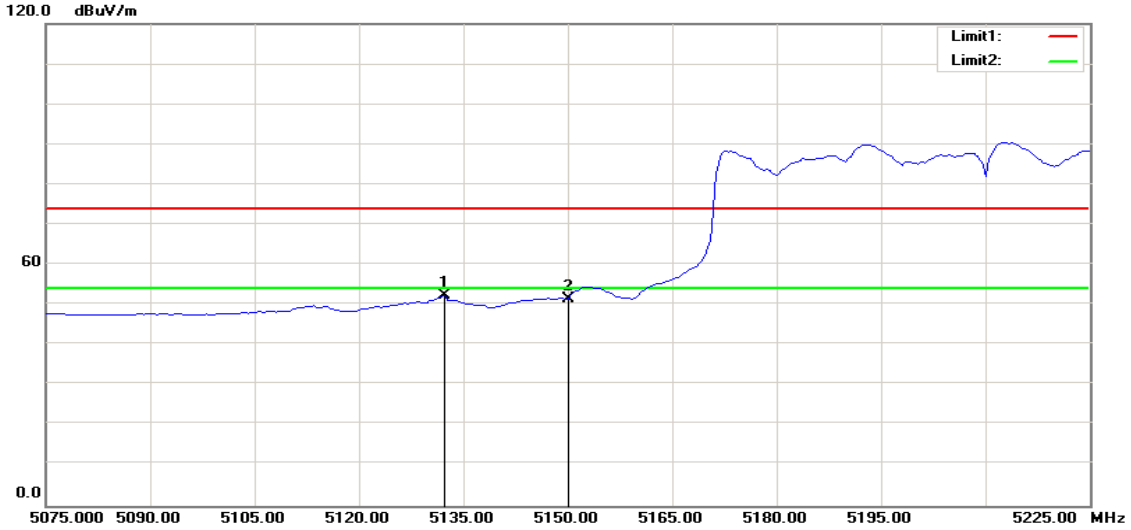
No.	Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(deg.)	
1	5150.000	51.85	-1.38	50.47	54.00	-3.53	100	187	AVG

Detector mode: Peak **Polarity: Horizontal**



No.	Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(deg.)	
1	5150.000	65.61	-1.38	64.23	74.00	-9.77	100	360	peak

Detector mode: Average **Polarity: Horizontal**



No.	Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(deg.)	
1	5132.212	53.73	-1.48	52.25	54.00	-1.75	100	341	AVG
2	5150.000	52.89	-1.38	51.51	54.00	-2.49	100	360	AVG

7.4 POWER SPECTRAL DENSITY MEASUREMENT

LIMIT

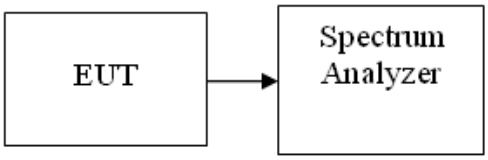
According to §15.407(a),

For the band 5.15-5.25 GHz, the maximum power spectral density shall not exceed 17dBm in any 1MHz band.

For the band 5.25-5.35 GHz and 5.47-5.725 GHz, the maximum power spectral density shall not exceed 11dBm in any 1MHz band.

If transmitting antennas of directional gain greater than 6dBi are used, both the maximum *transmit power and the* maximum *power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.*

Test Configuration



TEST PROCEDURE

1. The testing follows Method SA-2 of FCC KDB 789033 D02 General UNII Test Procedures New Rules v01.

- Measure the duty cycle.
- Set span to encompass the entire emission bandwidth (EBW) of the signal.
- Set RBW = 1 MHz.
- Set VBW ≥ 3 MHz.
- Number of points in sweep ≥ 2 Span / RBW.
- Sweep time = auto.
- Detector = RMS
- Trace average at least 100 traces in power averaging mode.
- Add 10 log(1/x), where x is the duty cycle, to the measured power in order to compute the

average power during the actual transmission times. For example, add 10 log(1/0.25) = 6

dB if the duty cycle is 25 percent.

2. The RF output of EUT was connected to the spectrum analyzer by a low loss cable.
3. Each plot has already offset with cable loss, and attenuator loss. Measure the PPSD and record it.

TEST RESULTS

No non-compliance noted

Test Data

Test mode: IEEE 802.11a mode

5150~5250MHz

Channel	Frequency (MHz)	Duty factor (dB)			Average PSD (dBm/MHz)			Total PPSD (dBm)	Average PSD Limit (dBm)	Result
		Chain0	Chain1	Chain2	Chain0	Chain1	Chain2			
Low	5180	0.15	0.14	0.15	6.42	6.79	7.28	11.62	17.00	PASS
Mid	5200	0.15	0.14	0.15	6.1	7.5	7.99	12.04	17.00	PASS
High	5240	0.15	0.14	0.15	7	7.09	6.95	11.78	17.00	PASS

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

5150~5250MHz

Channel	Frequency (MHz)	Duty factor (dB)			Average PSD (dBm/MHz)			Total PPSD (dBm)	Average PSD Limit (dBm)	Result
		Chain0	Chain1	Chain2	Chain0	Chain1	Chain2			
Low	5180	0.14	0.14	0.15	6.14	3.82	5.33	9.97	17.00	PASS
Mid	5200	0.14	0.14	0.15	3.76	5.1	4.52	9.27	17.00	PASS
High	5240	0.14	0.14	0.15	4.32	4.31	5.54	9.53	17.00	PASS

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

5150~5250MHz

Channel	Frequency (MHz)	Duty factor (dB)			Average PSD (dBm/MHz)			Total PPSD (dBm)	Average PSD Limit (dBm)	Result
		Chain0	Chain1	Chain2	Chain0	Chain1	Chain2			
Low	5190	0.28	0.27	0.25	0.43	0.21	-0.07	4.97	17.00	PASS
High	5230	0.28	0.27	0.25	0.25	0.39	0.34	5.10	17.00	PASS

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

5150~5250MHz

Channel	Frequency (MHz)	Duty factor (dB)			Average PSD (dBm/MHz)			Total PPSD (dBm)	Average PSD Limit (dBm)	Result
		Chain0	Chain1	Chain2	Chain0	Chain1	Chain2			
Low	5180	0.16	0.16	0.17	4.69	5.07	5.55	9.89	17.00	PASS
Mid	5200	0.16	0.16	0.17	5.26	5.28	5.73	10.20	17.00	PASS
High	5240	0.16	0.16	0.17	3.61	4.88	4.9	9.28	17.00	PASS

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

5150~5250MHz

Channel	Frequency (MHz)	Duty factor (dB)			Average PSD (dBm/MHz)			Total PPSD (dBm)	Average PSD Limit (dBm)	Result
		Chain0	Chain1	Chain2	Chain0	Chain1	Chain2			
Low	5190	0.31	0.30	0.27	1.14	-0.14	0.86	5.43	17.00	PASS
High	5230	0.31	0.30	0.27	0.65	-0.25	0.77	5.18	17.00	PASS

Test mode: draft 802.11ac Wide-80 MHz Channel mode

5150~5250MHz

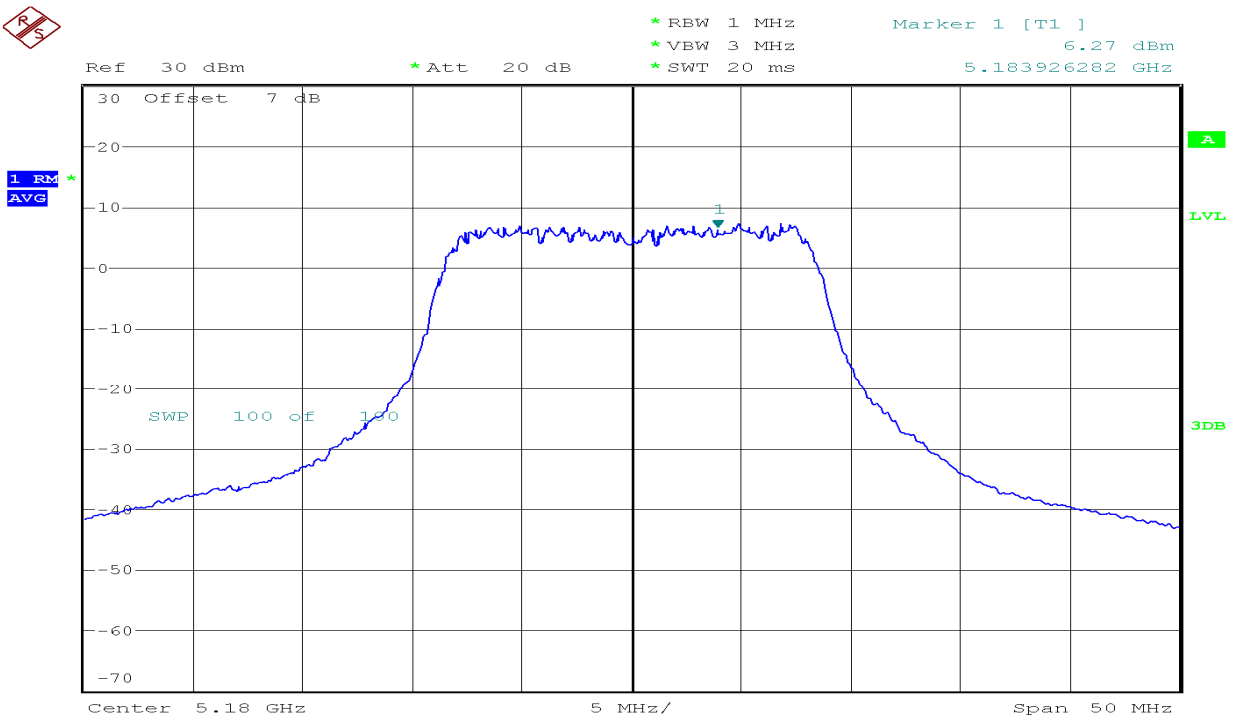
Channel	Frequency (MHz)	Duty factor (dB)			Average PSD (dBm/MHz)			Total PPSD (dBm)	Average PSD Limit (dBm)	Result
		Chain0	Chain1	Chain2	Chain0	Chain1	Chain2			
Mid	5210	0.51	0.54	0.48	-5.86	-6.46	-6.9	-1.61	17.00	PASS

*Remark: Total PPSD (dBm) = 10*LOG(10^(Chain 0 PPSD / 10)+10^(Chain 1 PPSD /10)+10^(Chain 2 PPSD /10)))*

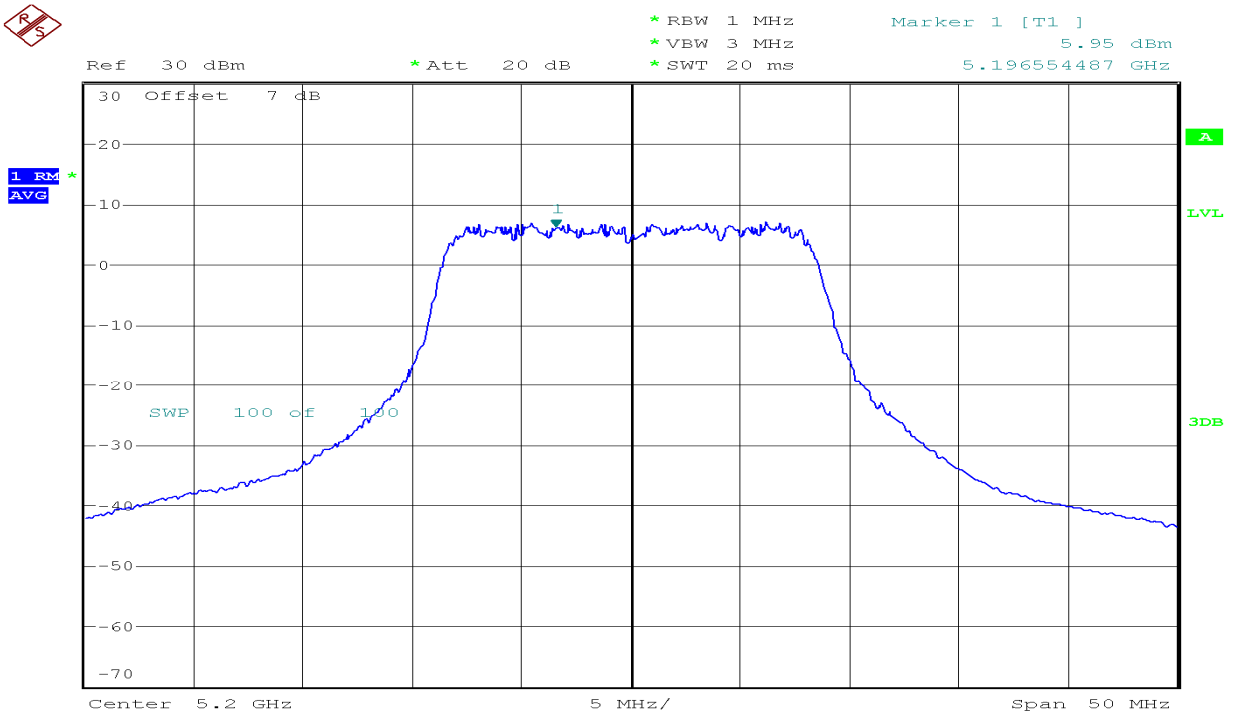
Test Plot
IEEE 802.11a mode/chain 0:

5150~5250MHz

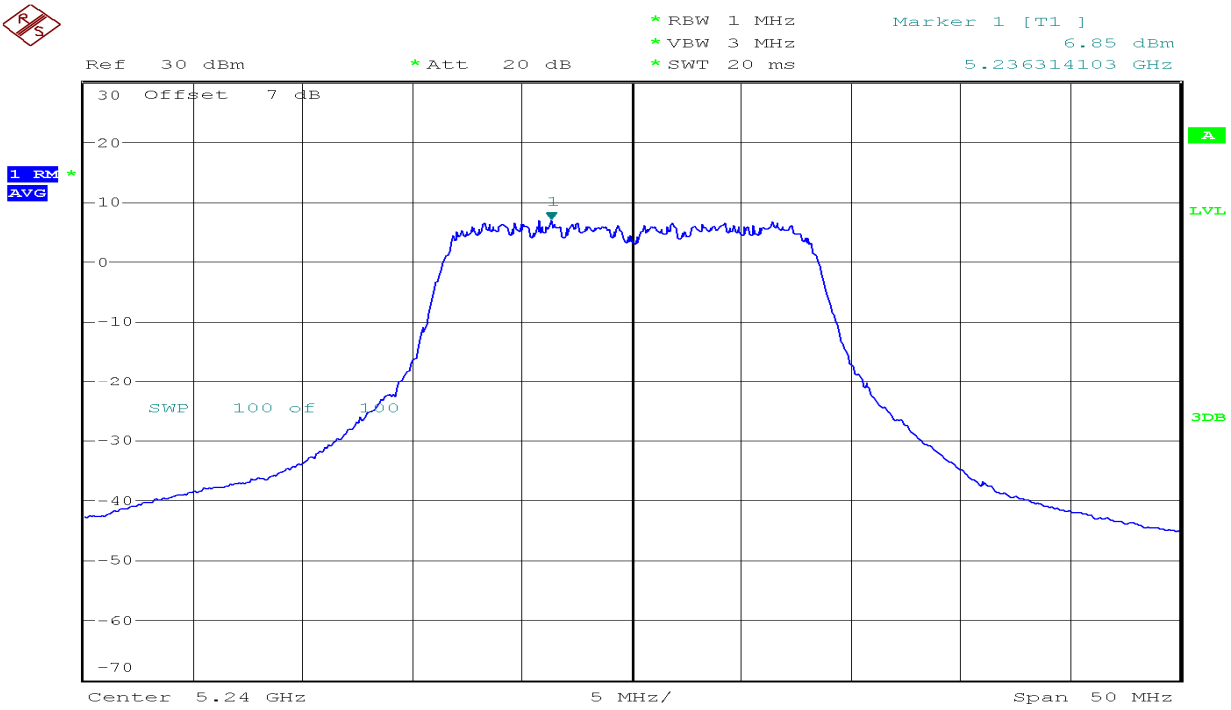
CH Low



CH Mid



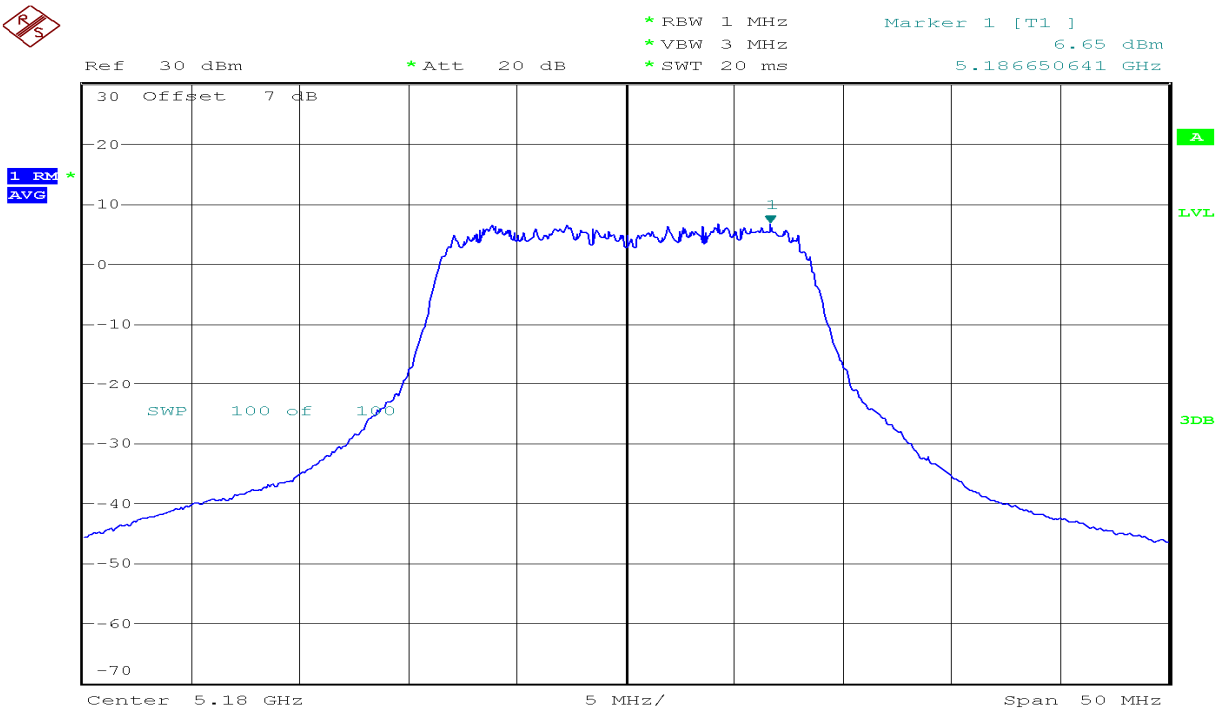
CH High



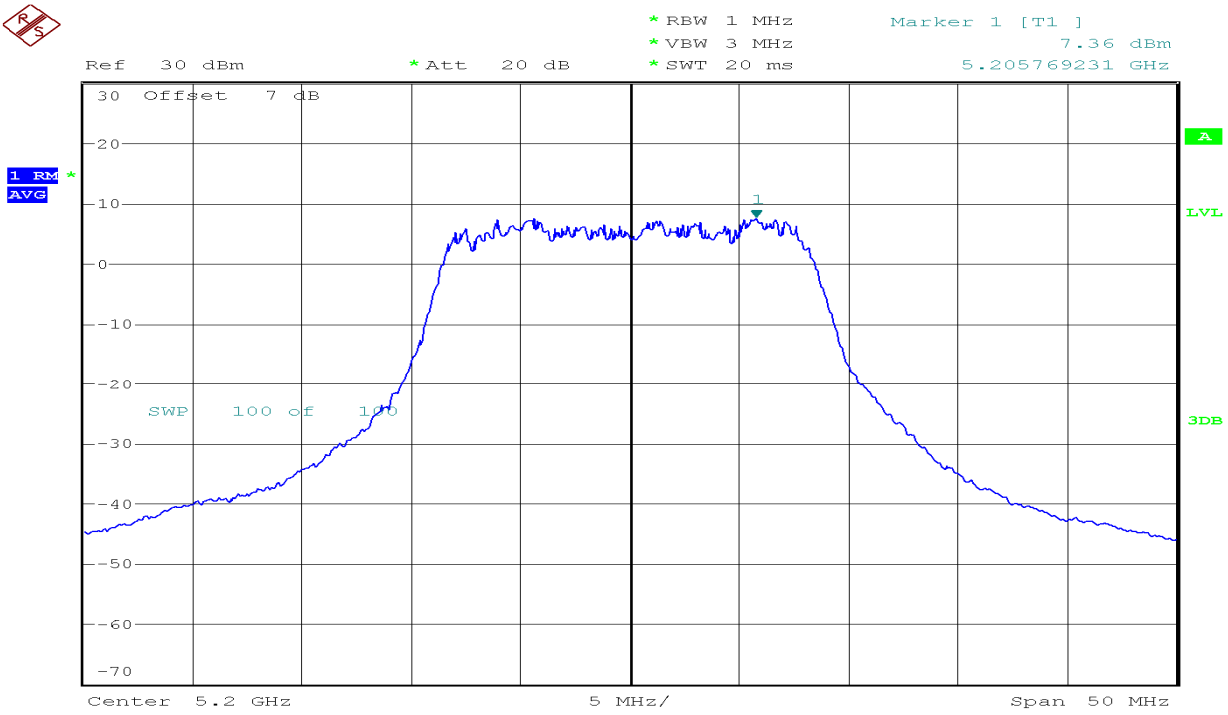
IEEE 802.11a mode/chain 1:

5150~5250MHz

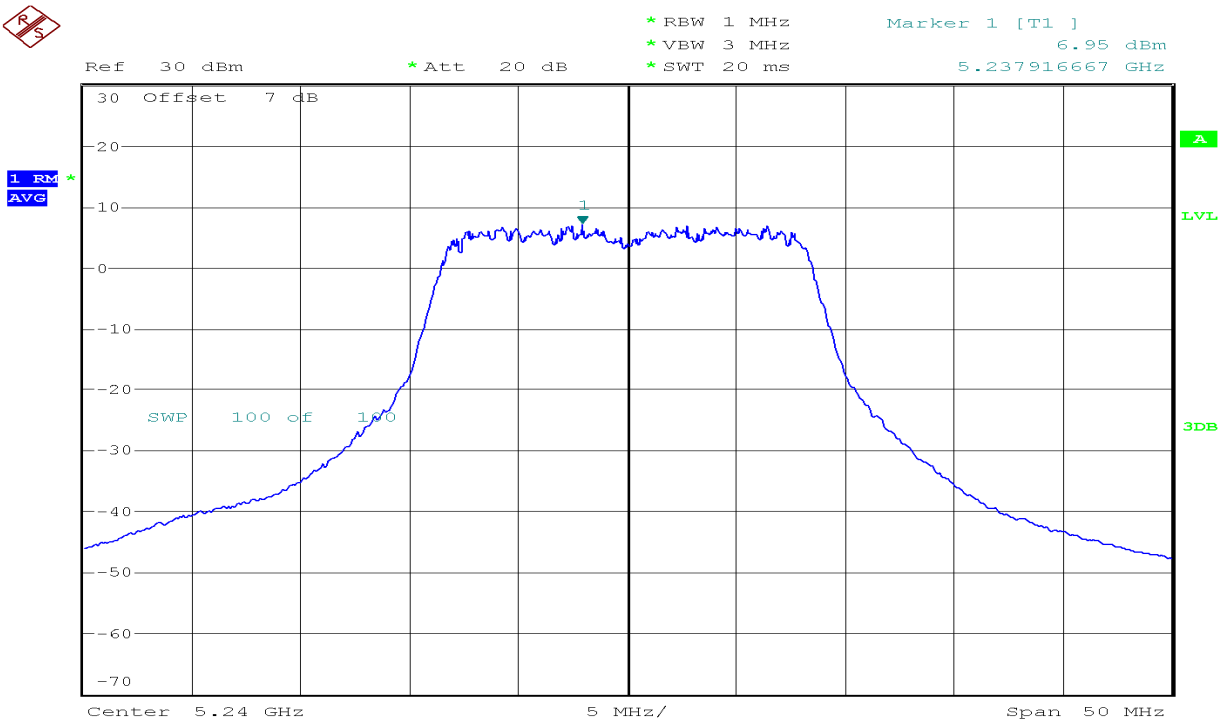
CH Low



CH Mid



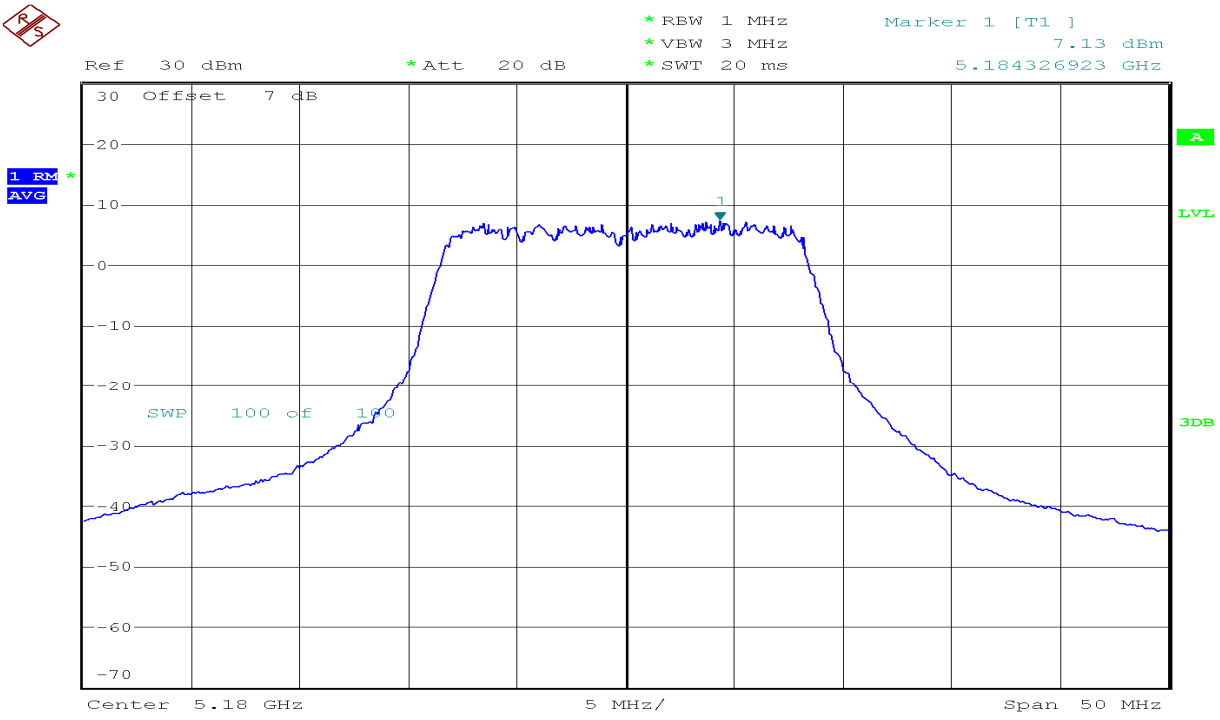
CH High



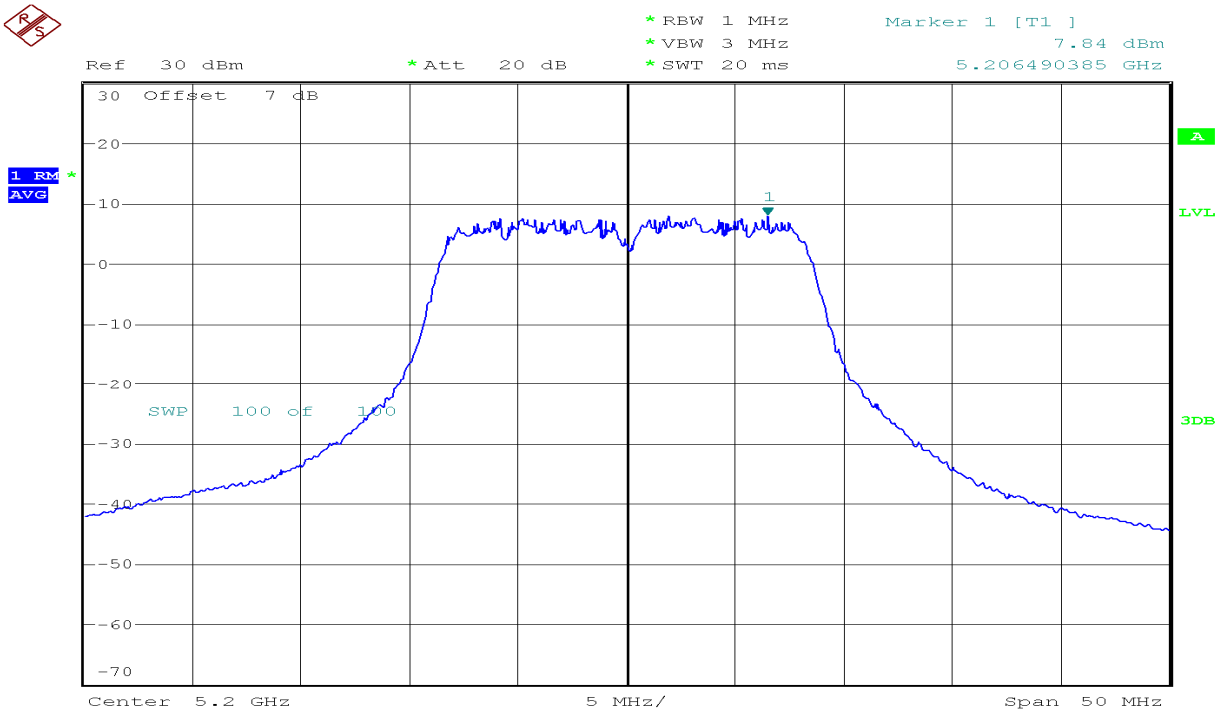
IEEE 802.11a mode/chain 2:

5150~5250MHz

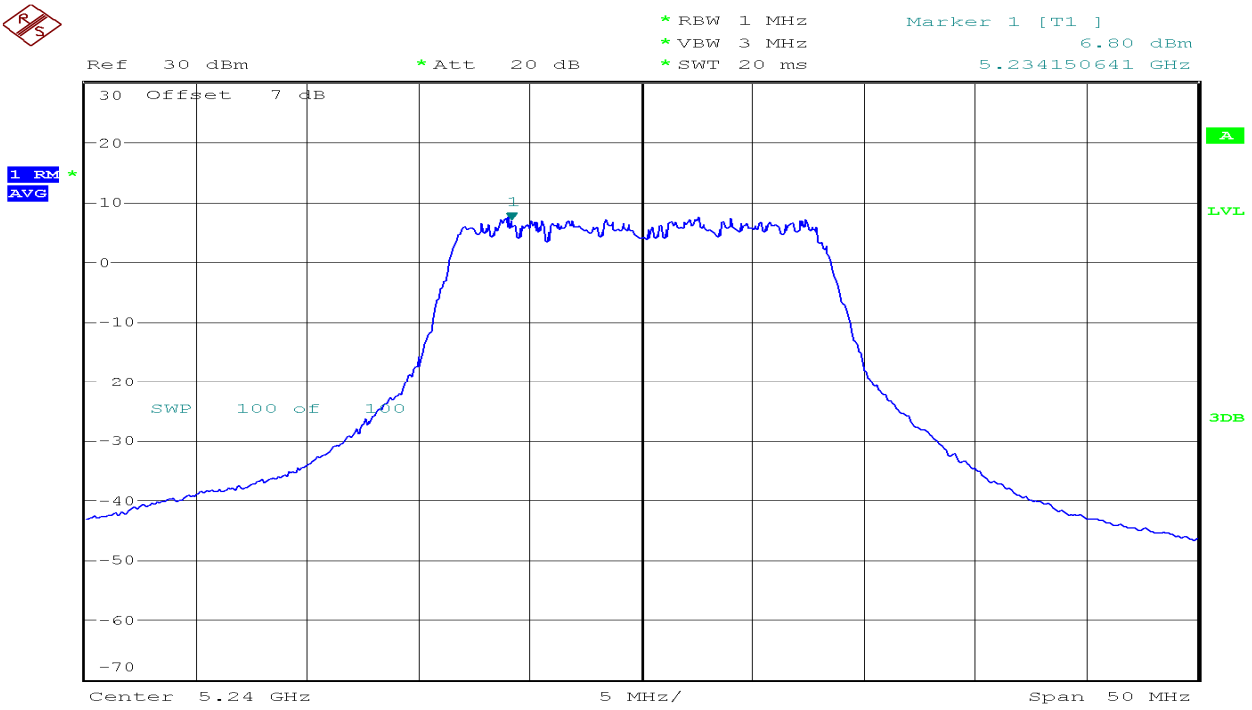
CH Low



CH Mid



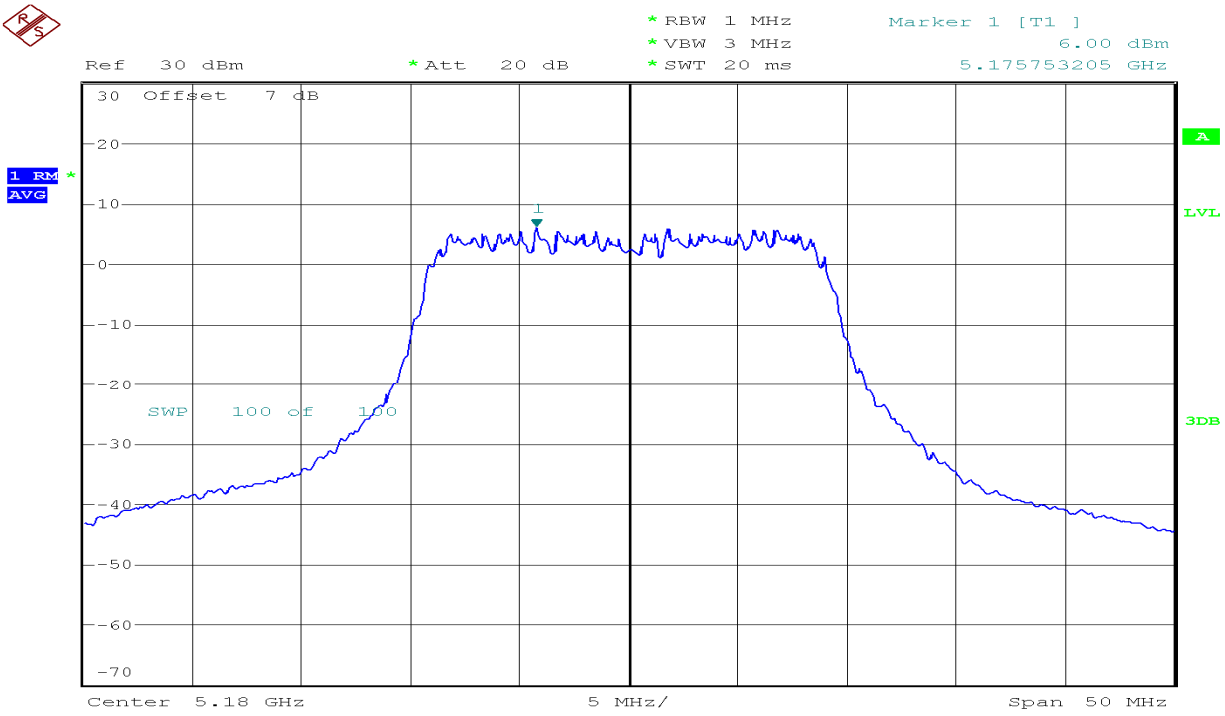
CH High



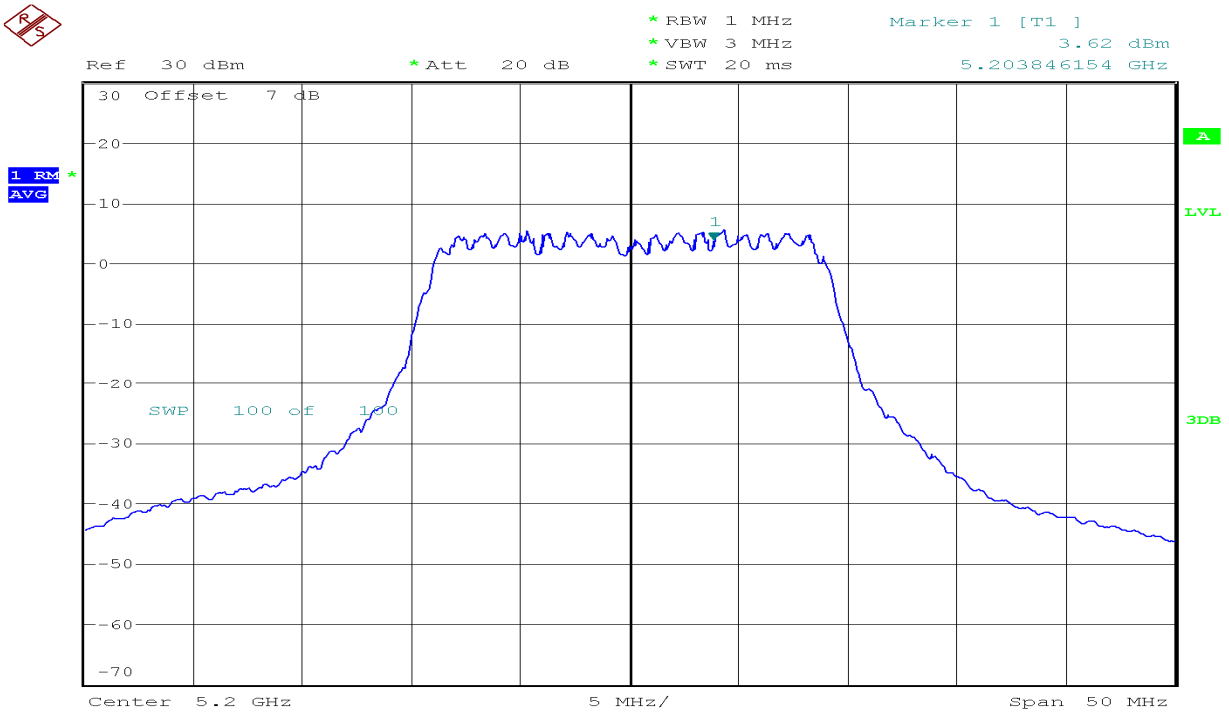
draft 802.11n Standard-20 MHz Channel mode / Chain 0

5150~5250MHz

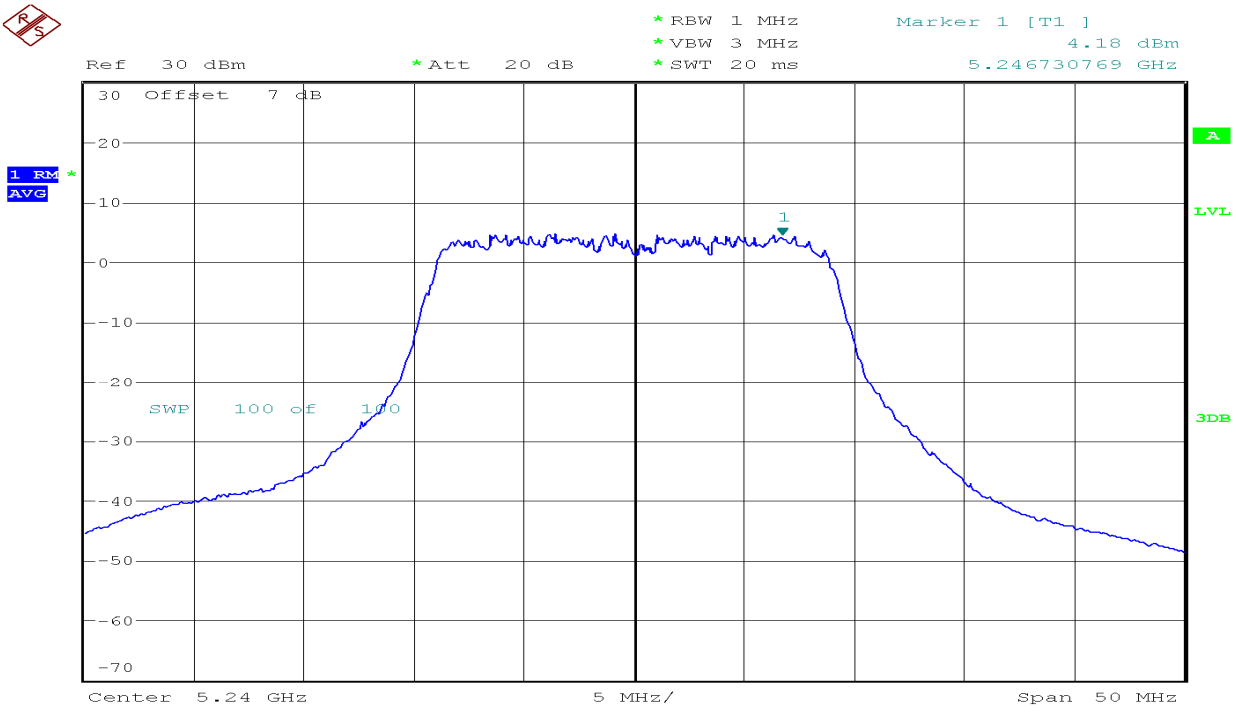
CH Low



CH Mid



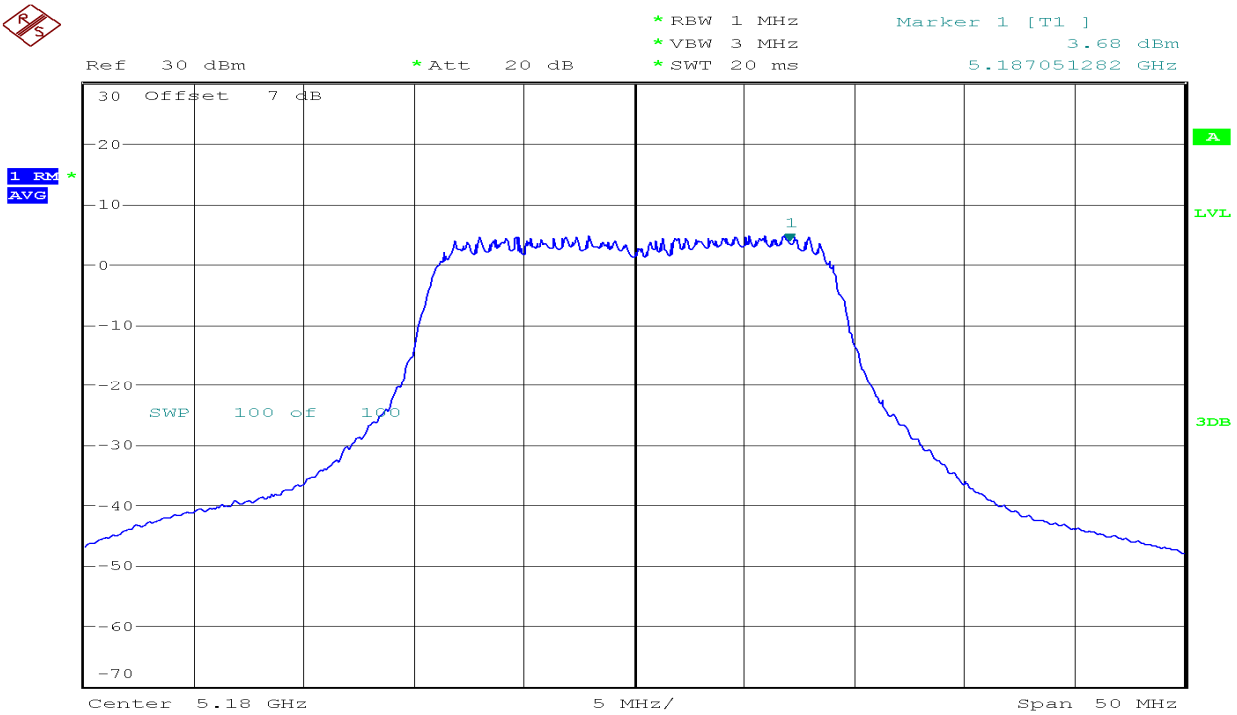
CH High



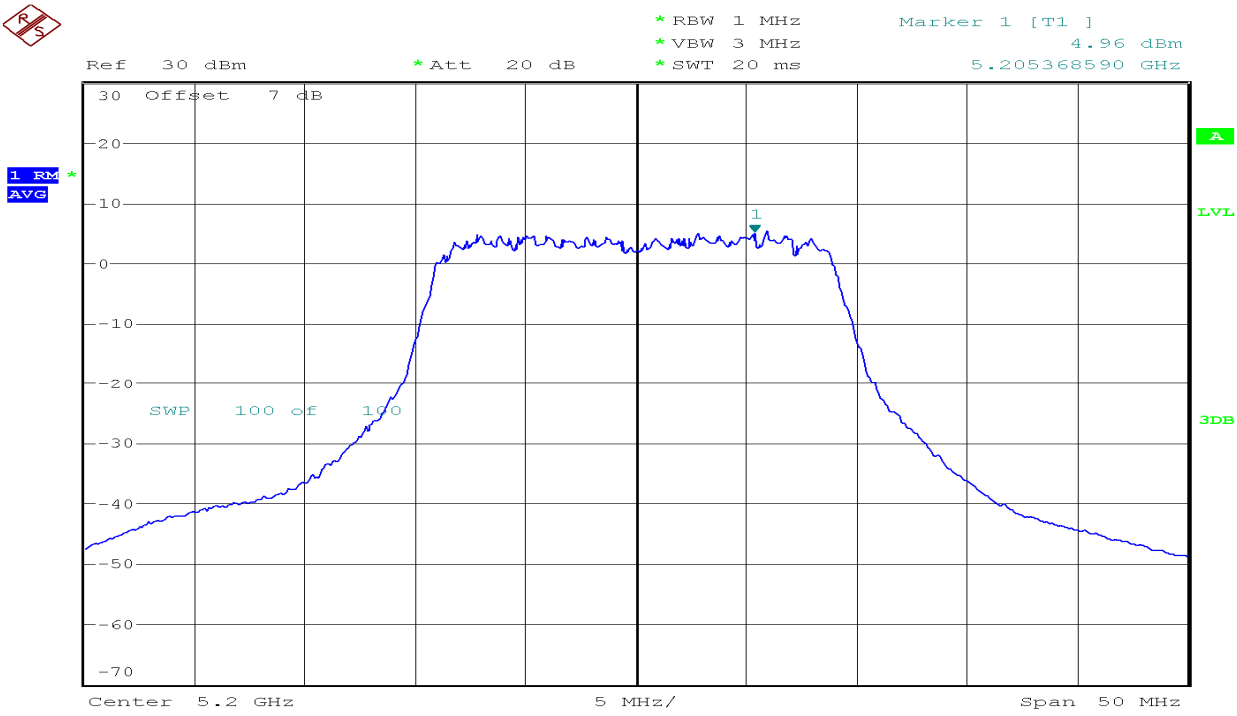
draft 802.11n Standard-20 MHz Channel mode / Chain 1

5150~5250MHz

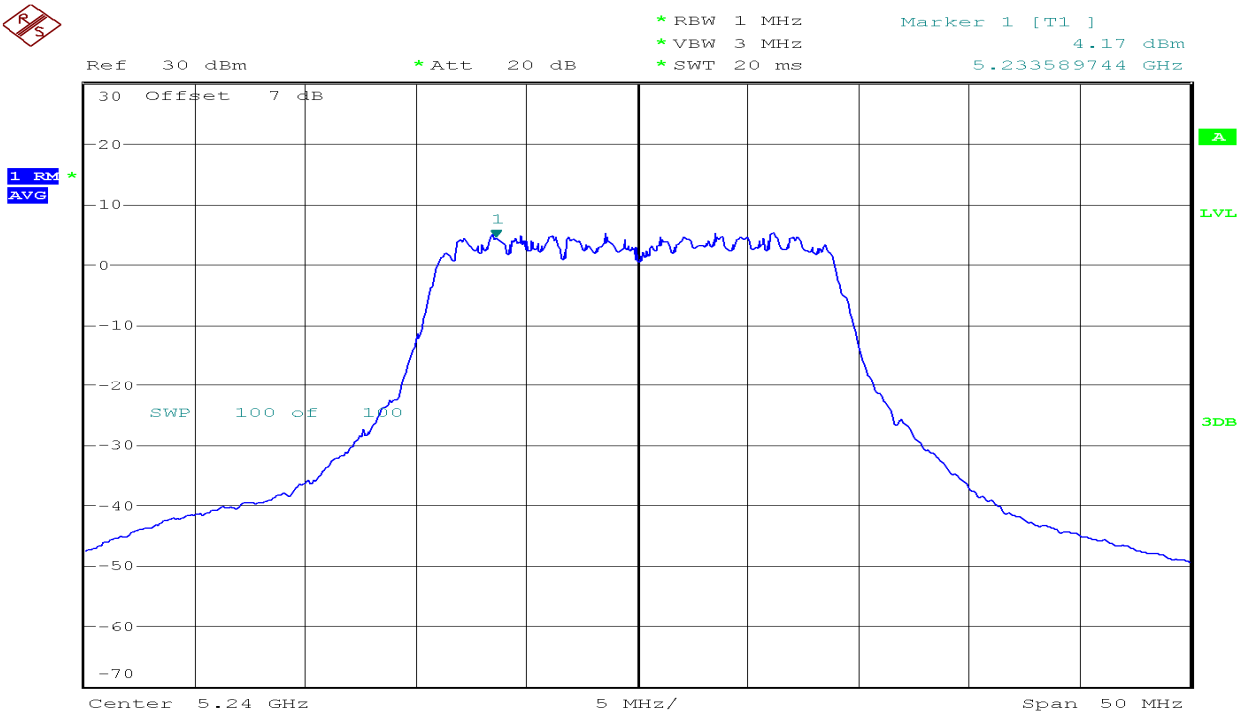
CH Low



CH Mid



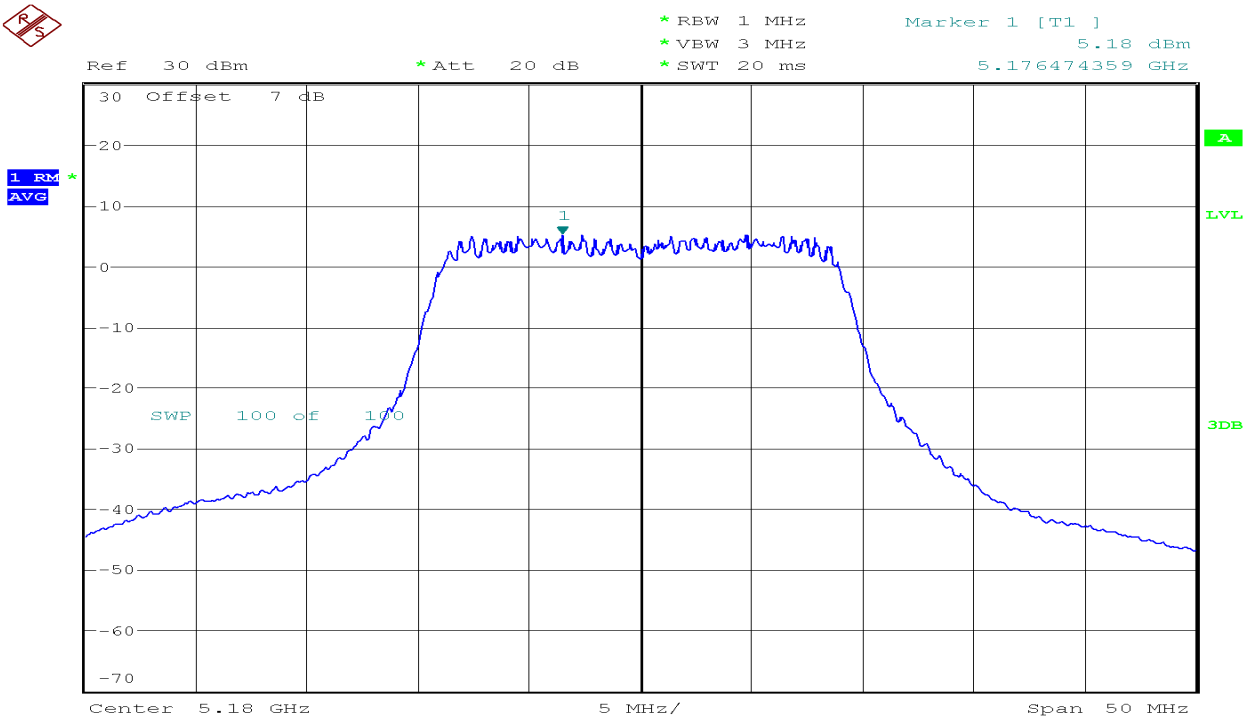
CH High



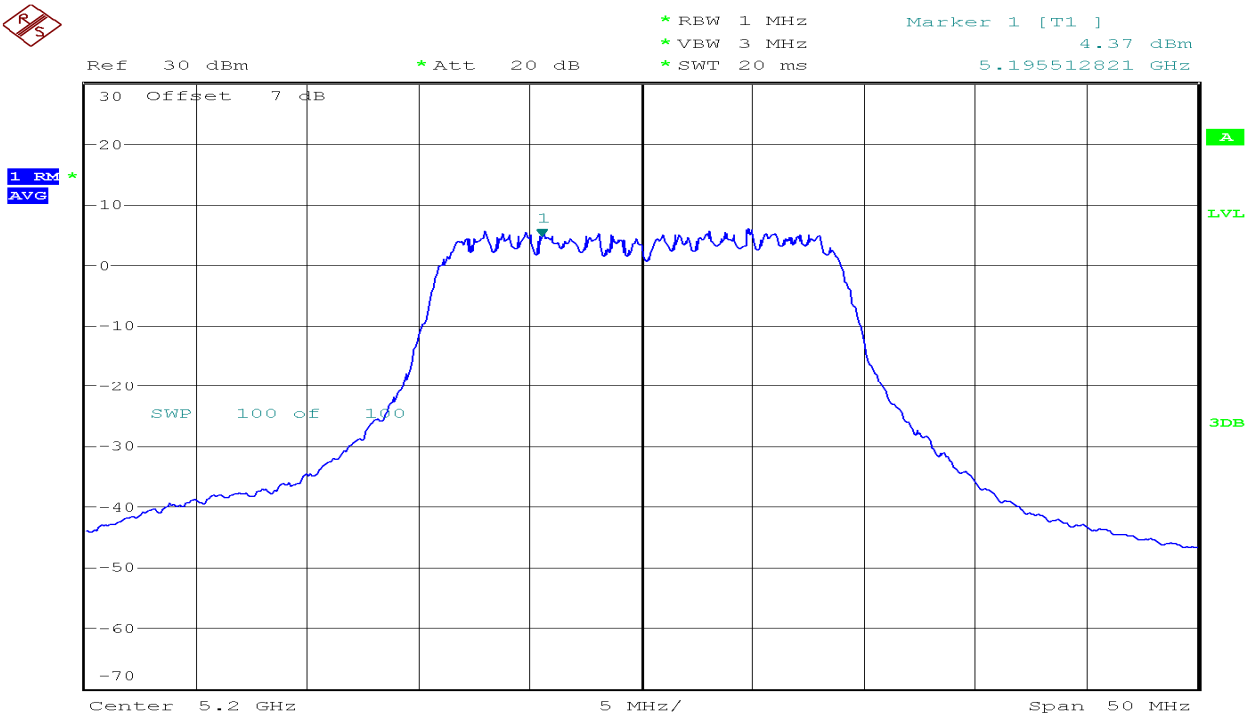
draft 802.11n Standard-20 MHz Channel mode / Chain 2

5150~5250MHz

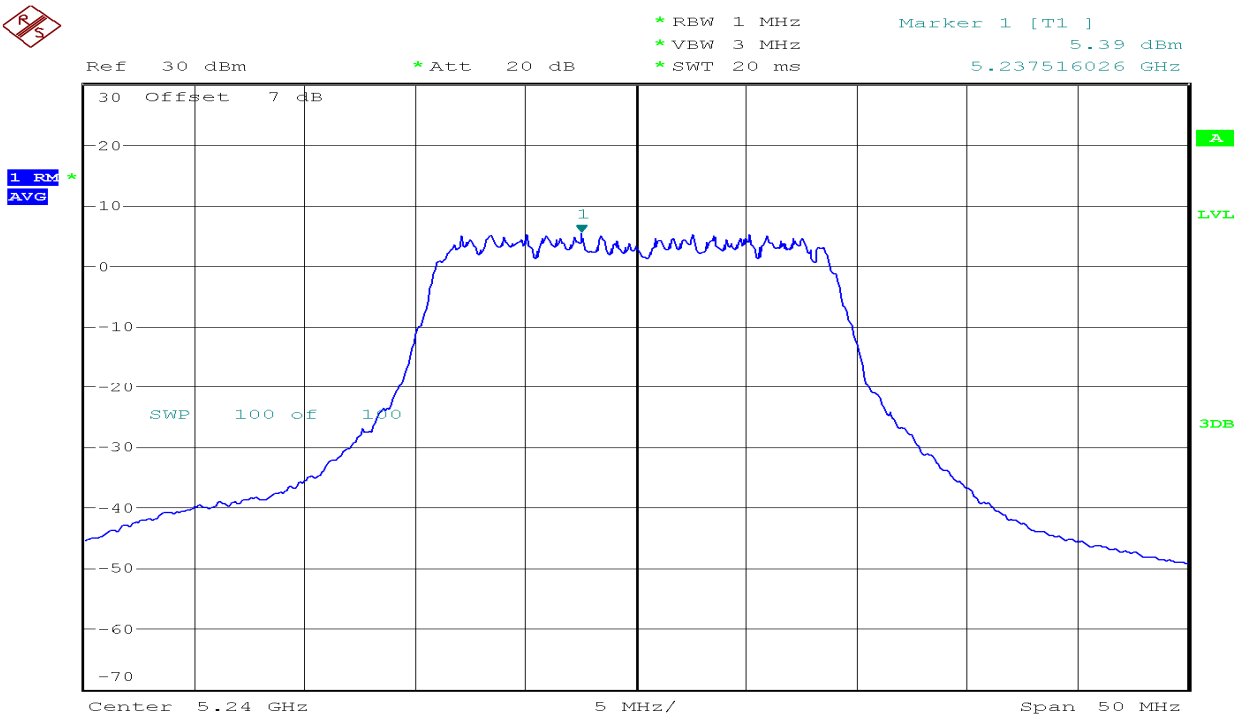
CH Low



CH Mid



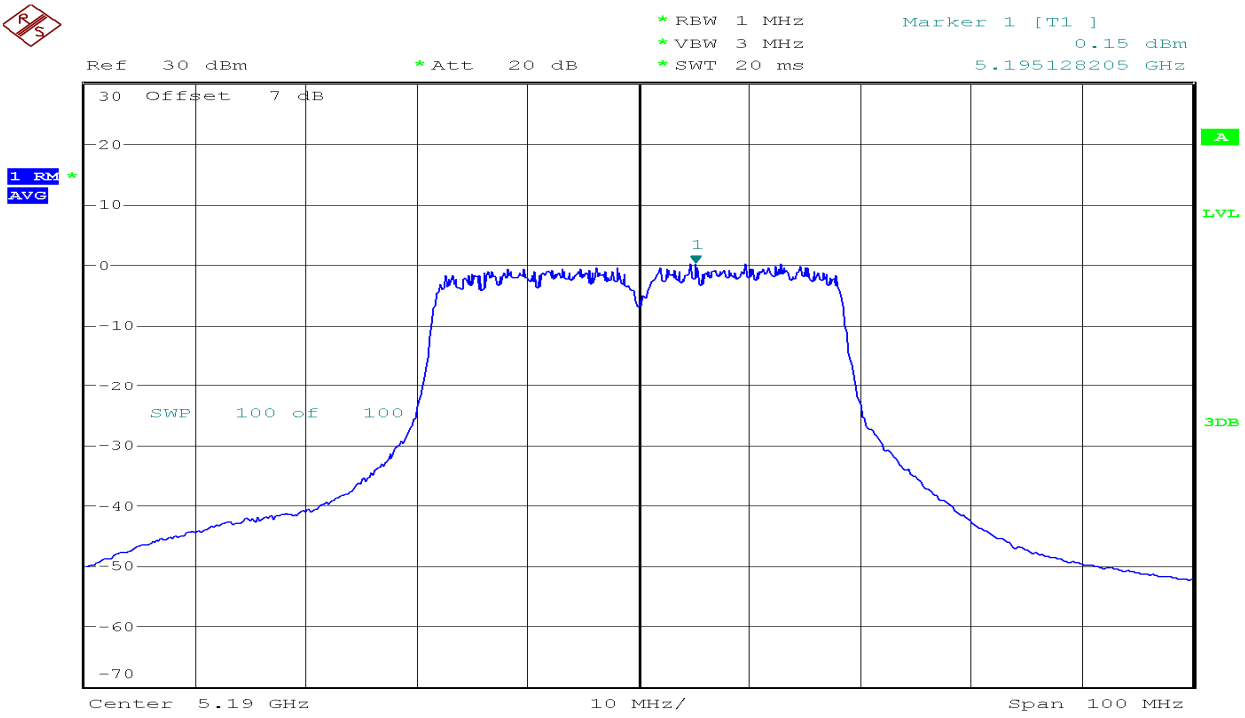
CH High



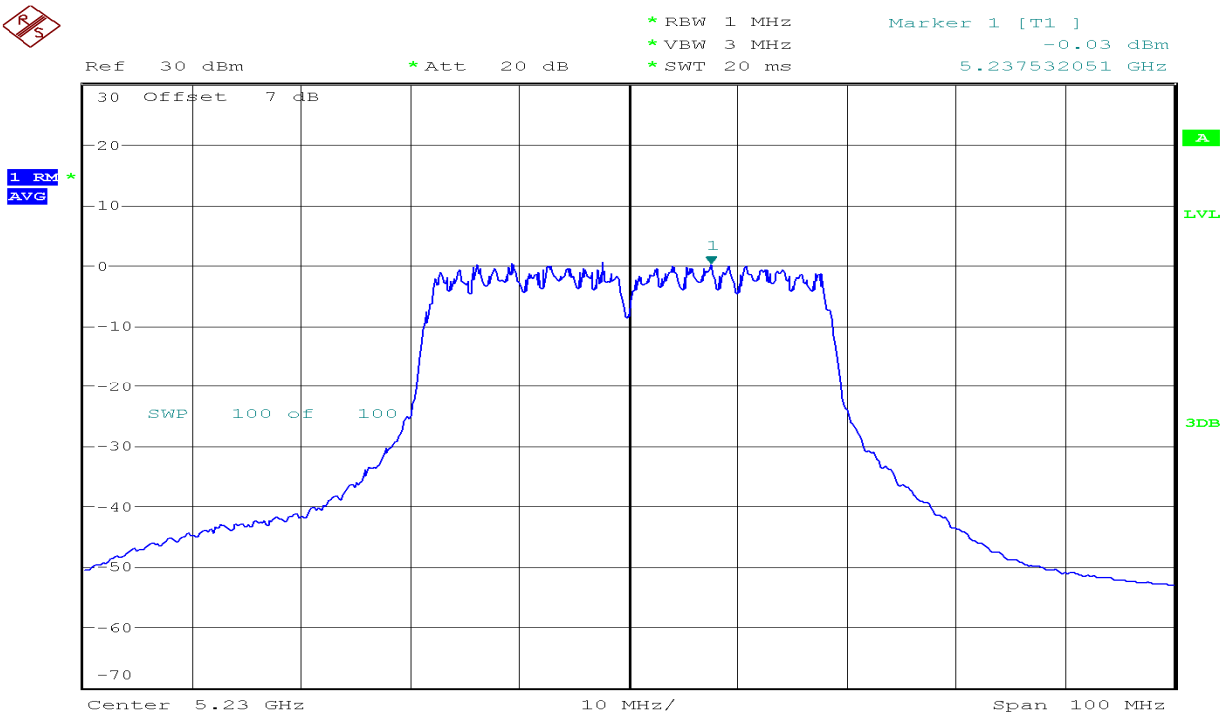
draft 802.11n Wide-40 MHz Channel mode / Chain 0

5150~5250MHz

CH Low



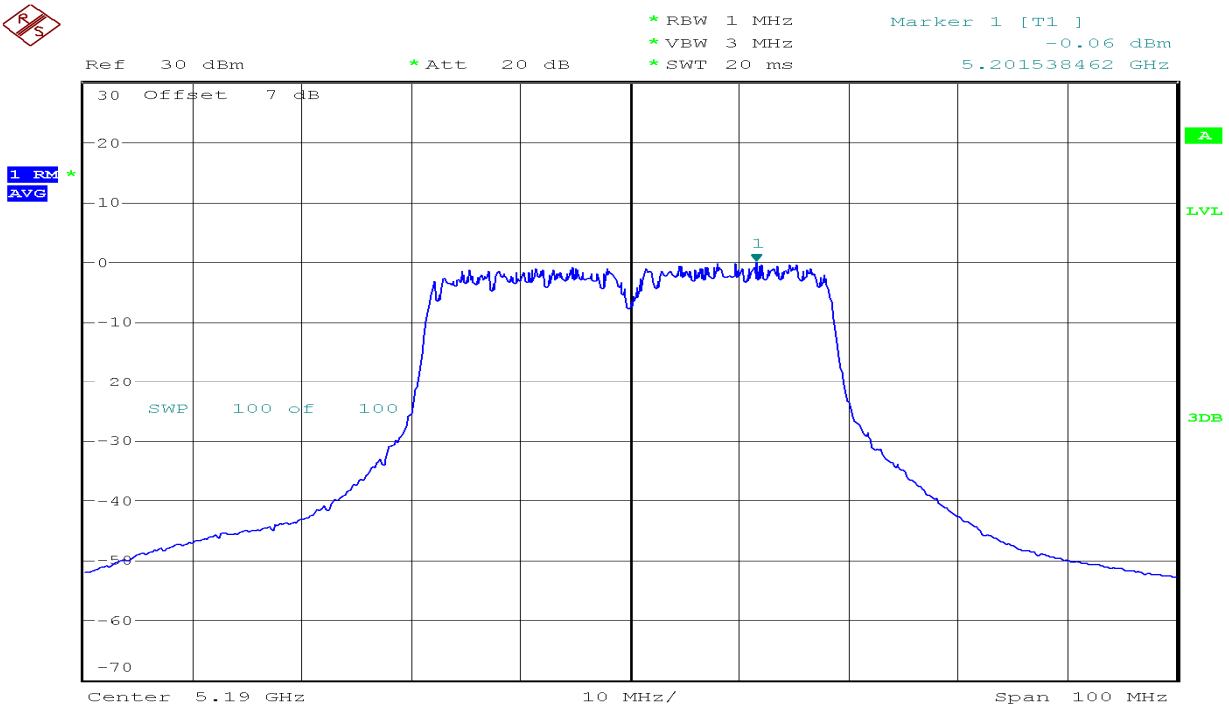
CH High



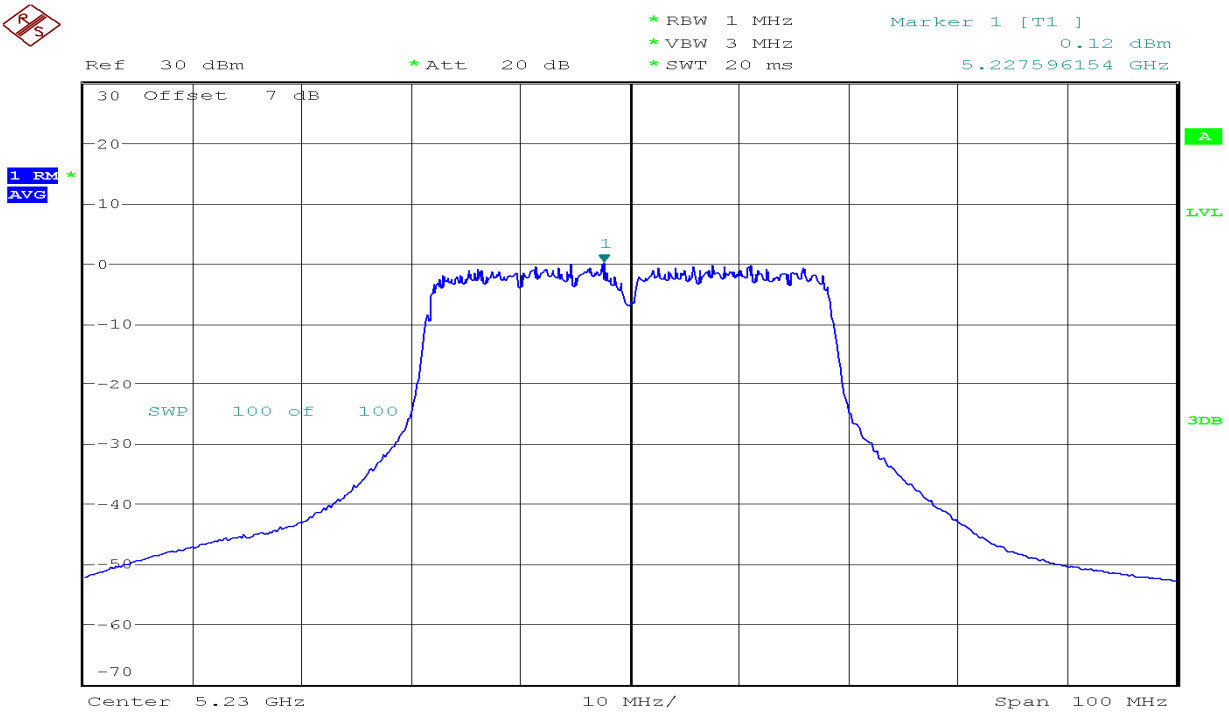
draft 802.11n Wide-40 MHz Channel mode / Chain 1

5150~5250MHz

CH Low



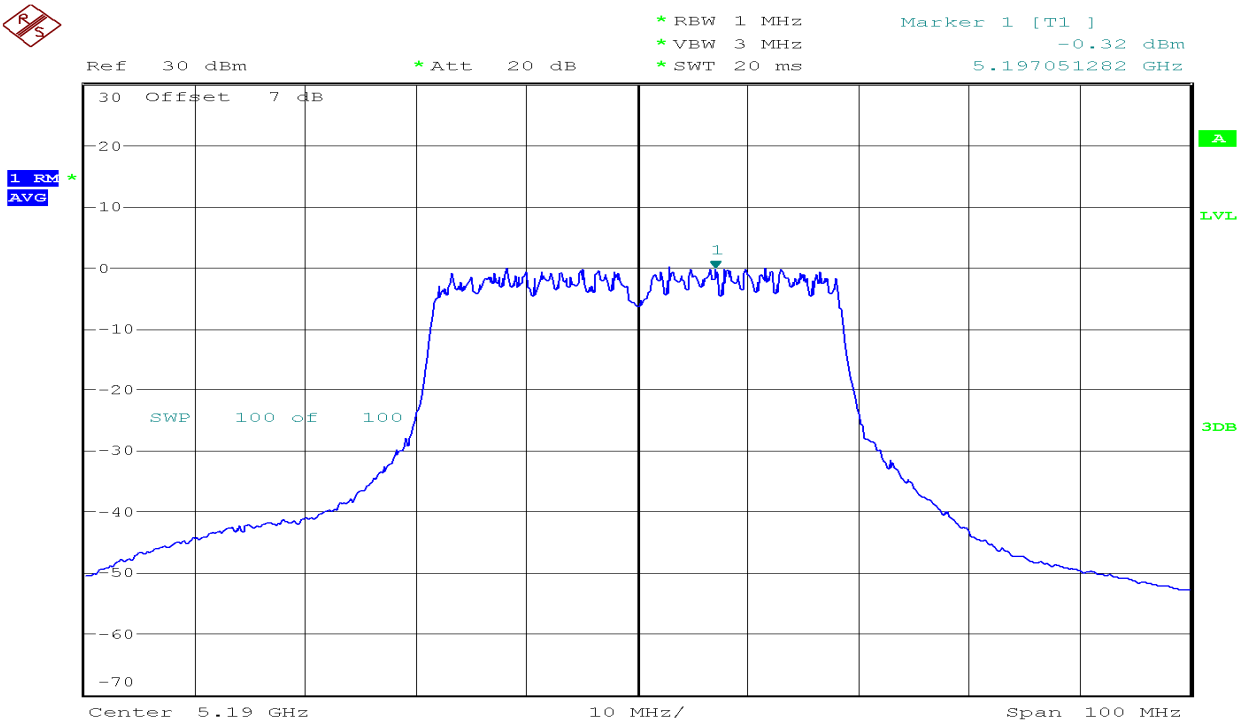
CH High



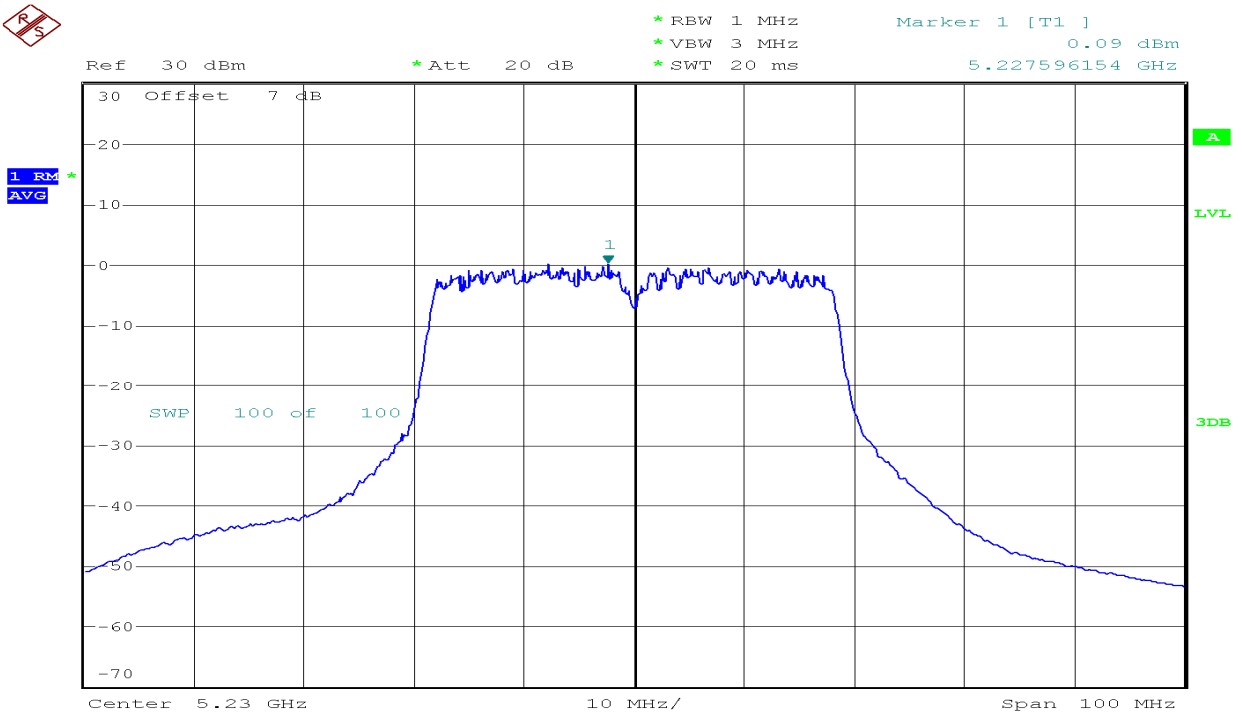
draft 802.11n Wide-40 MHz Channel mode / Chain 2

5150~5250MHz

CH Low



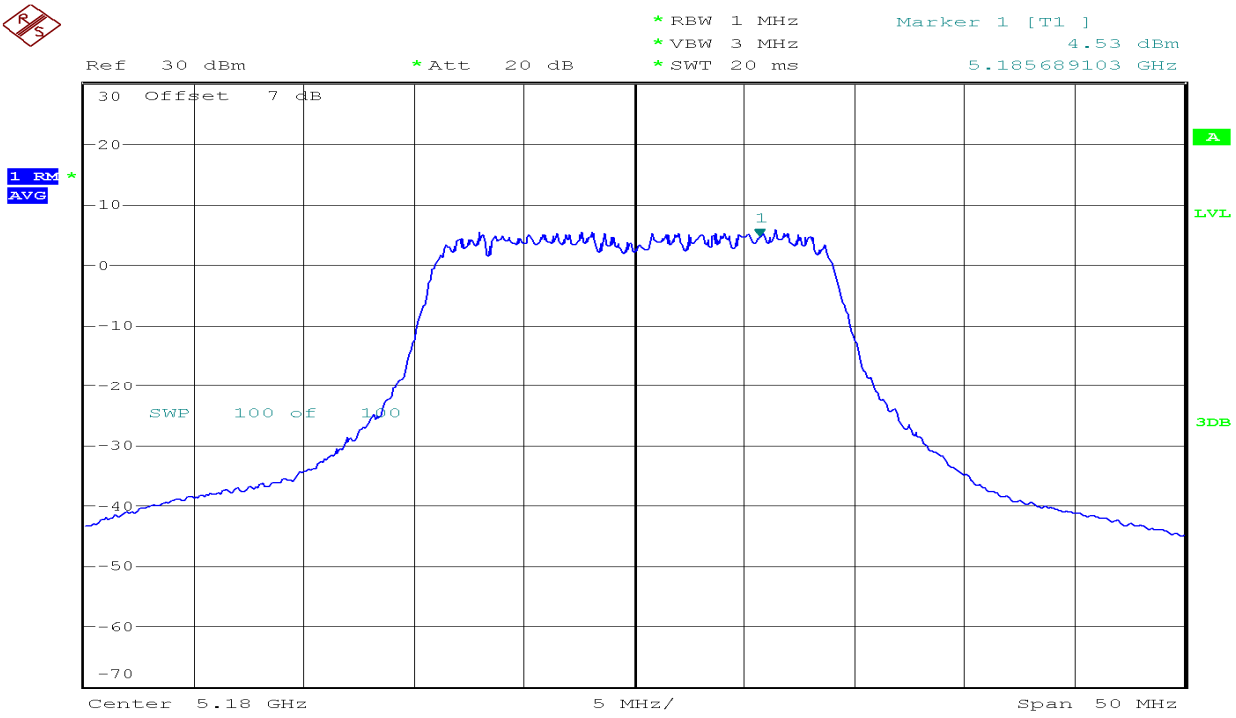
CH High



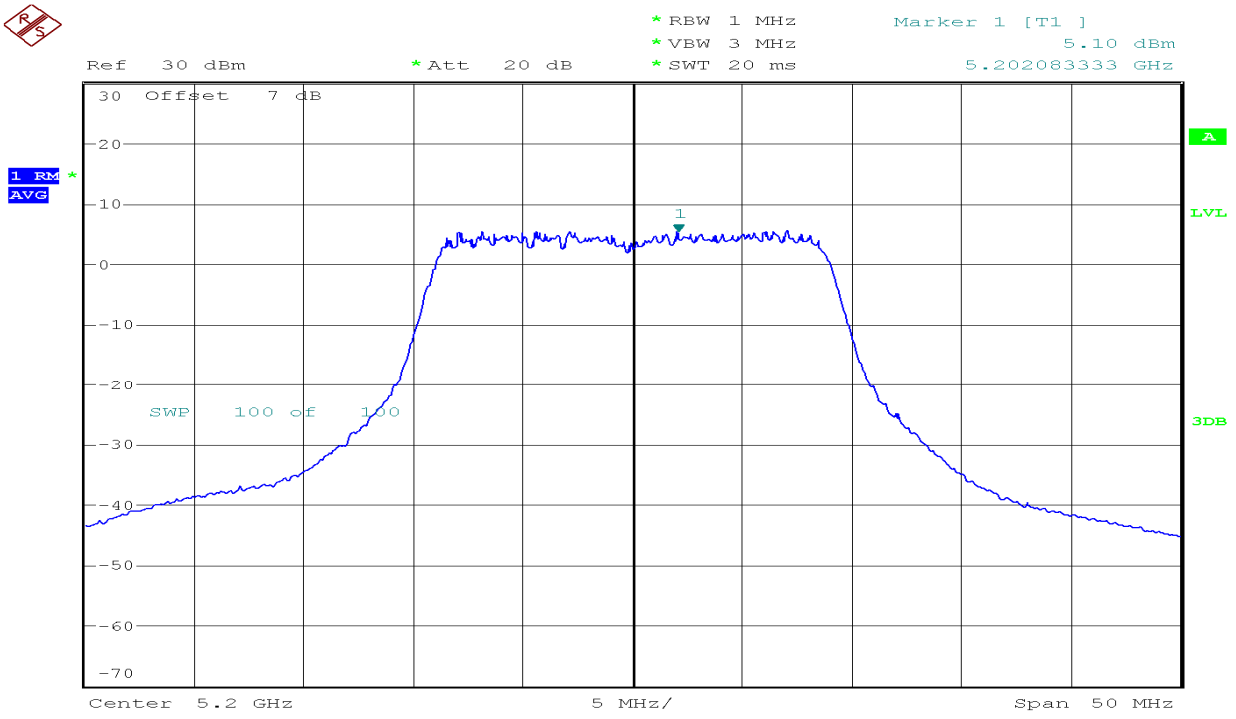
draft 802.11ac Standard-20 MHz Channel mode / Chain 0

5150~5250MHz

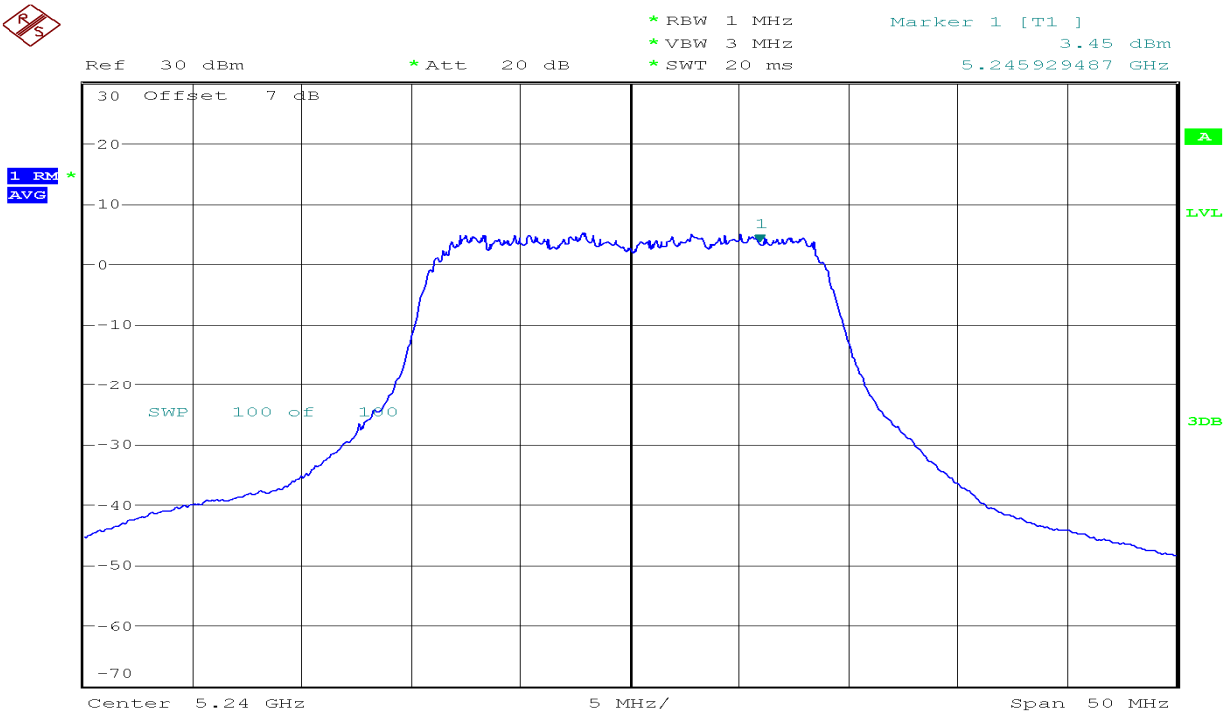
CH Low



CH Mid



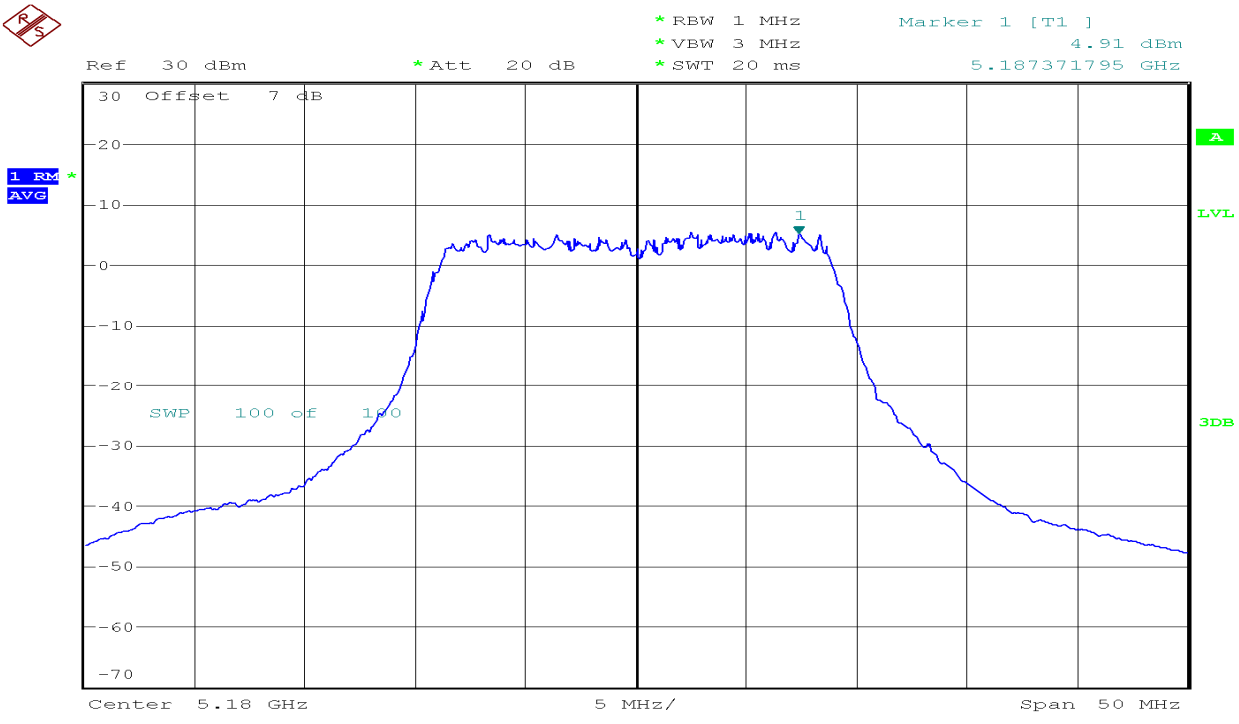
CH High



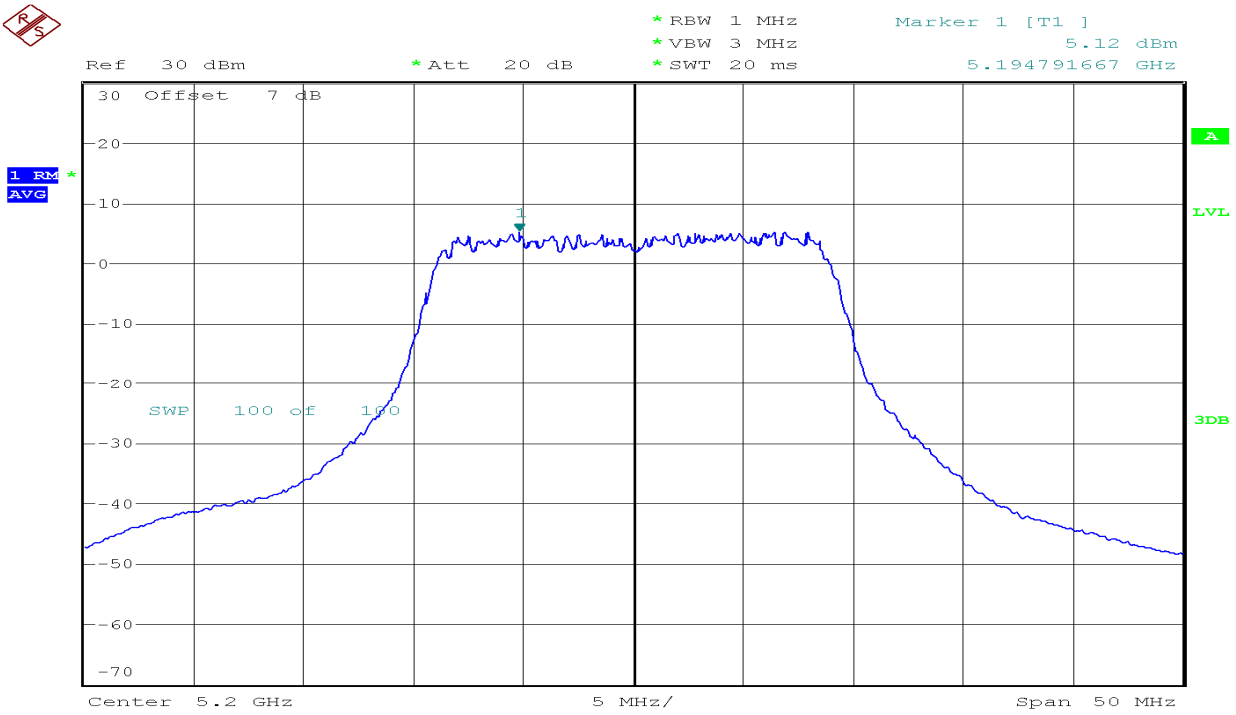
draft 802.11ac Standard-20 MHz Channel mode / Chain 1

5150~5250MHz

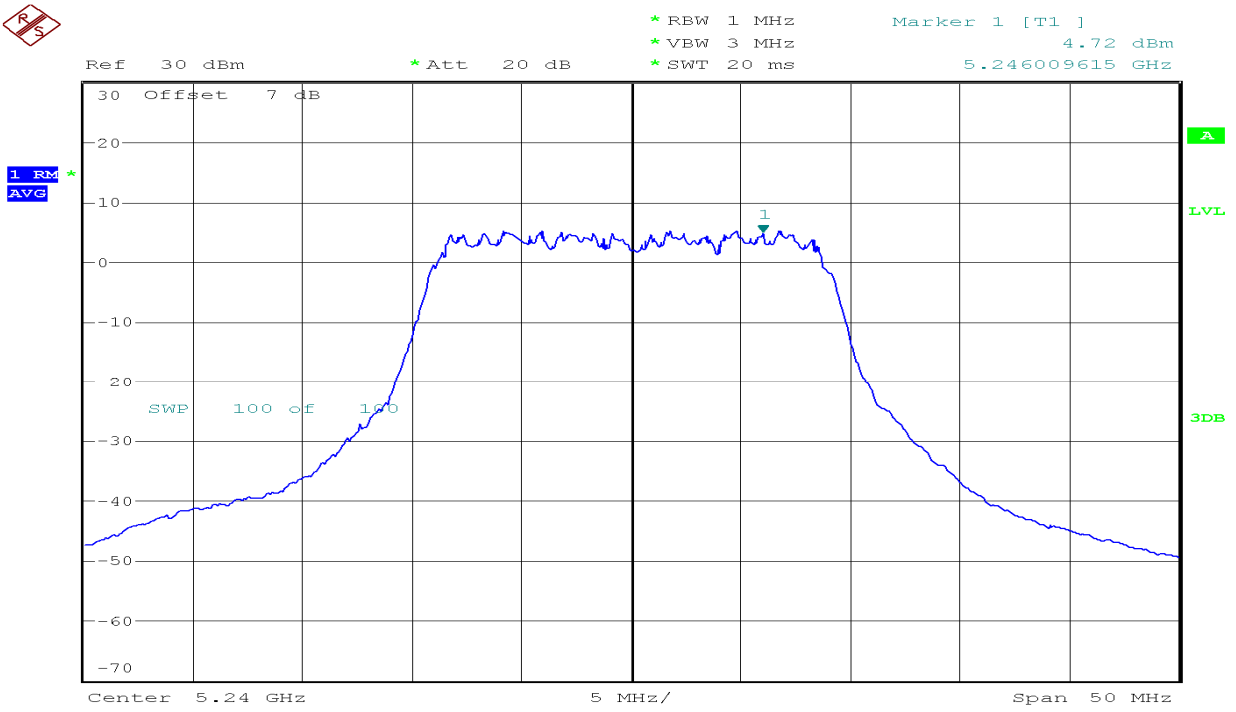
CH Low



CH Mid



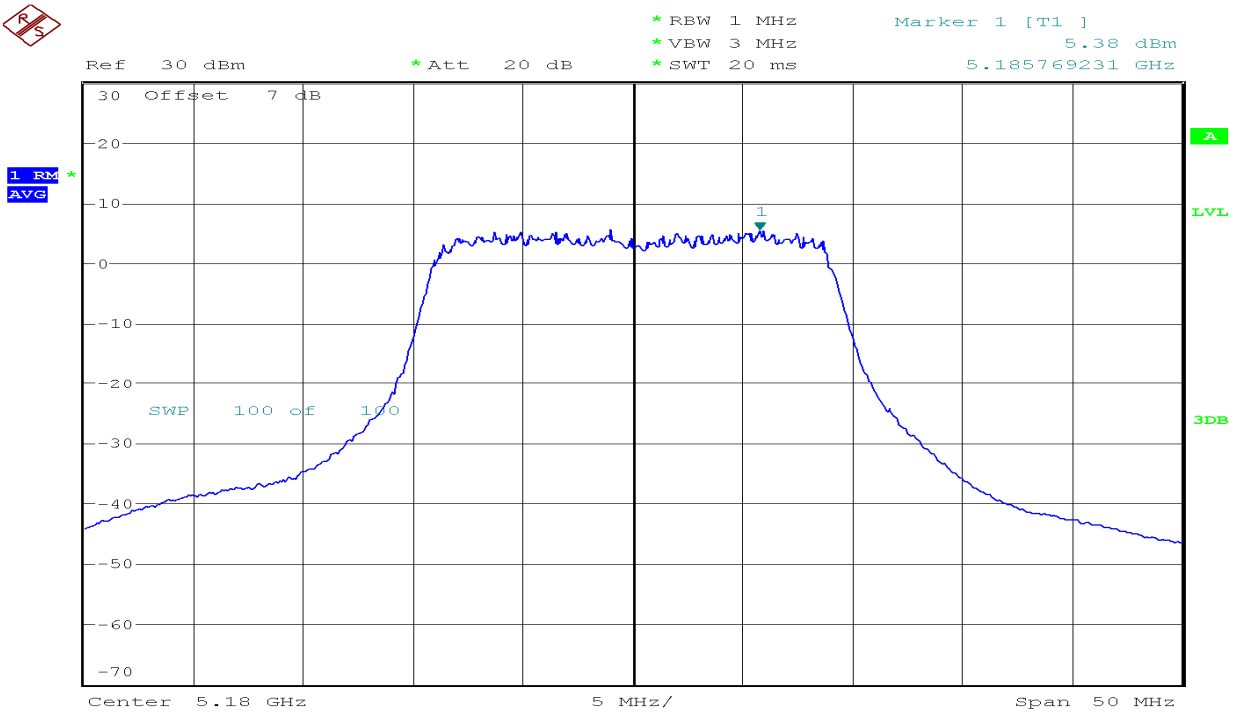
CH High



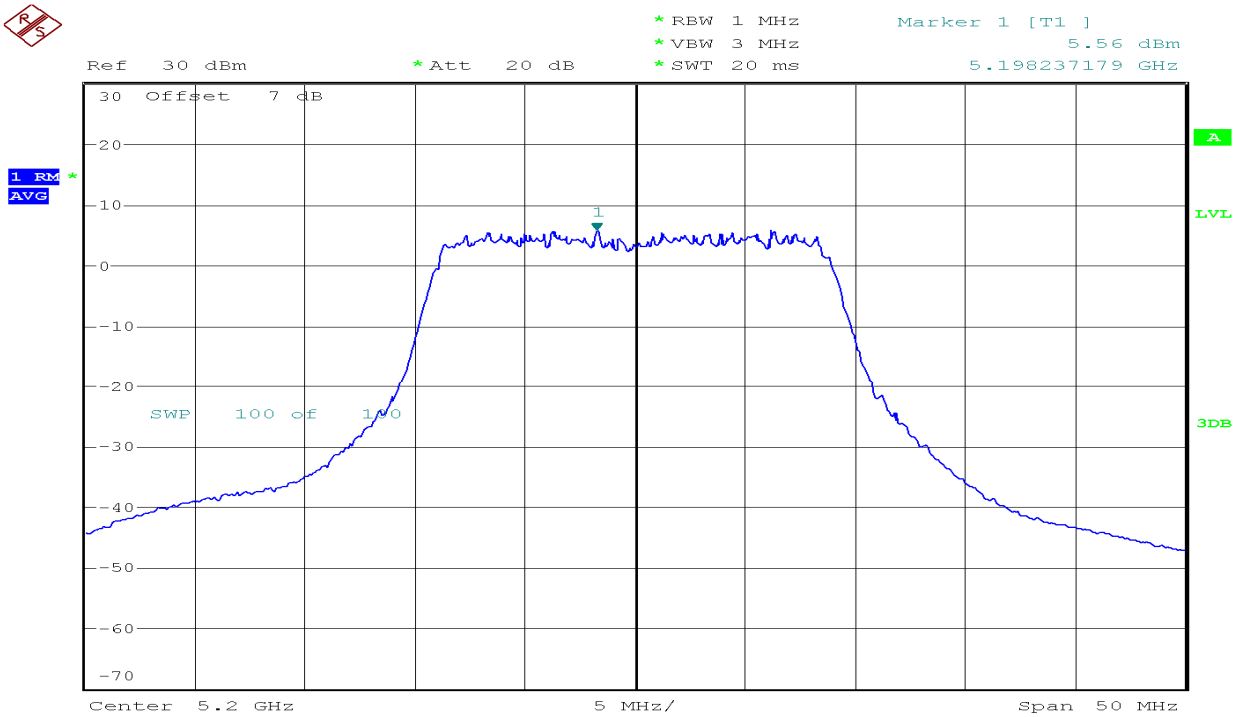
draft 802.11ac Standard-20 MHz Channel mode / Chain 2

5150~5250MHz

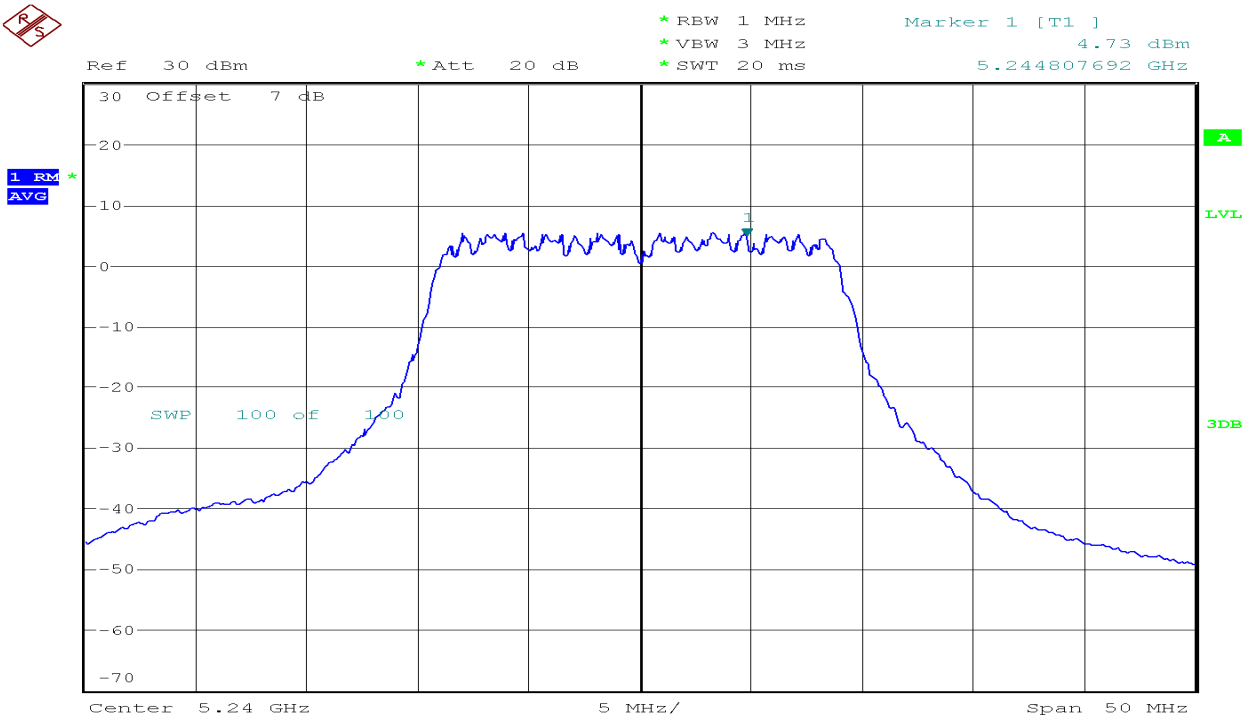
CH Low



CH Mid



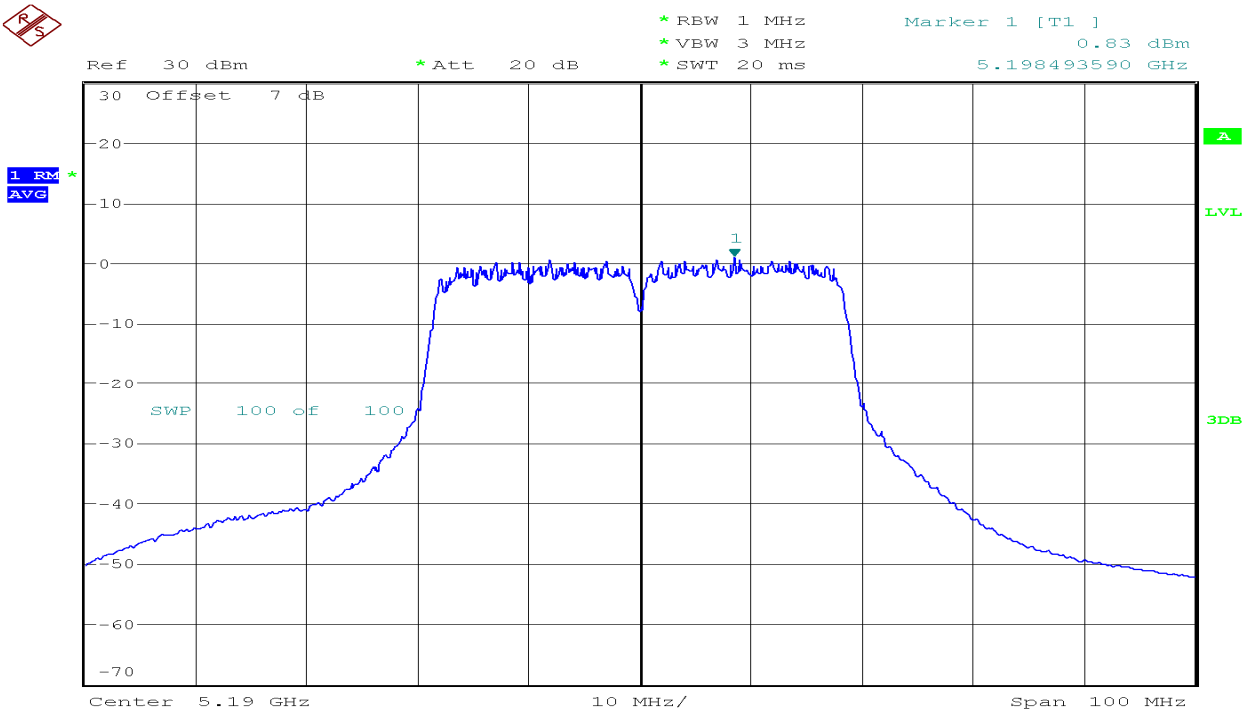
CH High



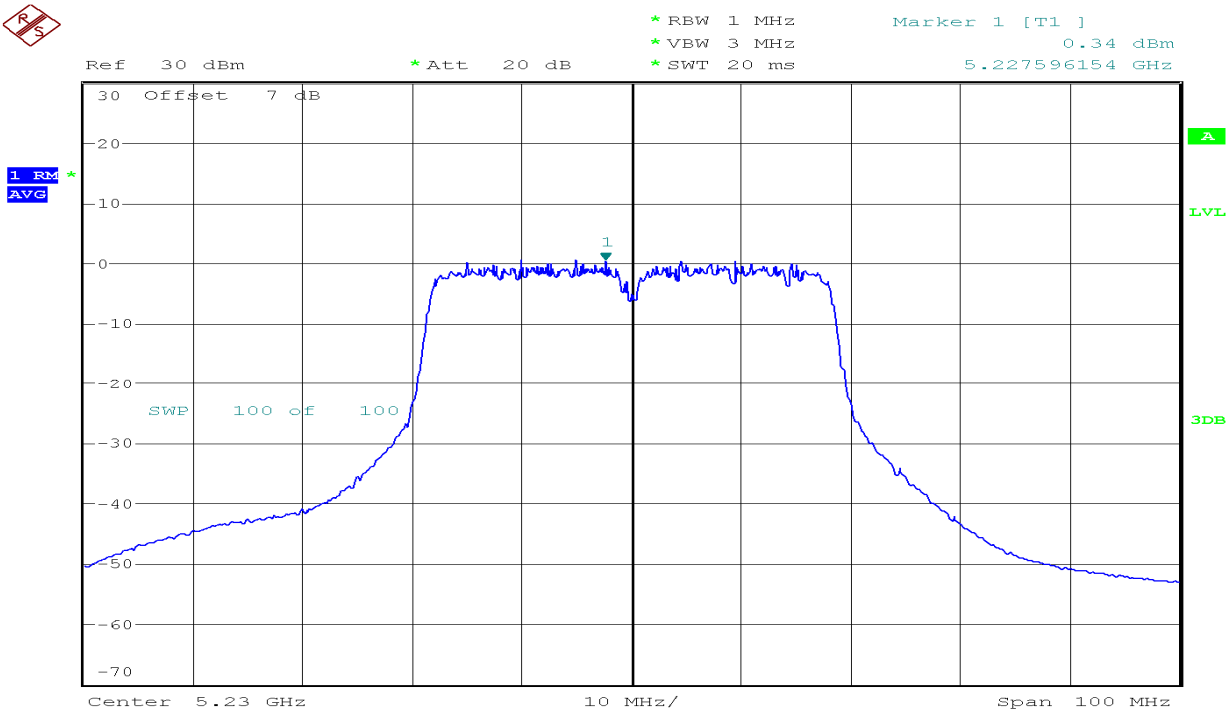
draft 802.11ac Wide-40 MHz Channel mode / Chain 0

5150~5250MHz

CH Low



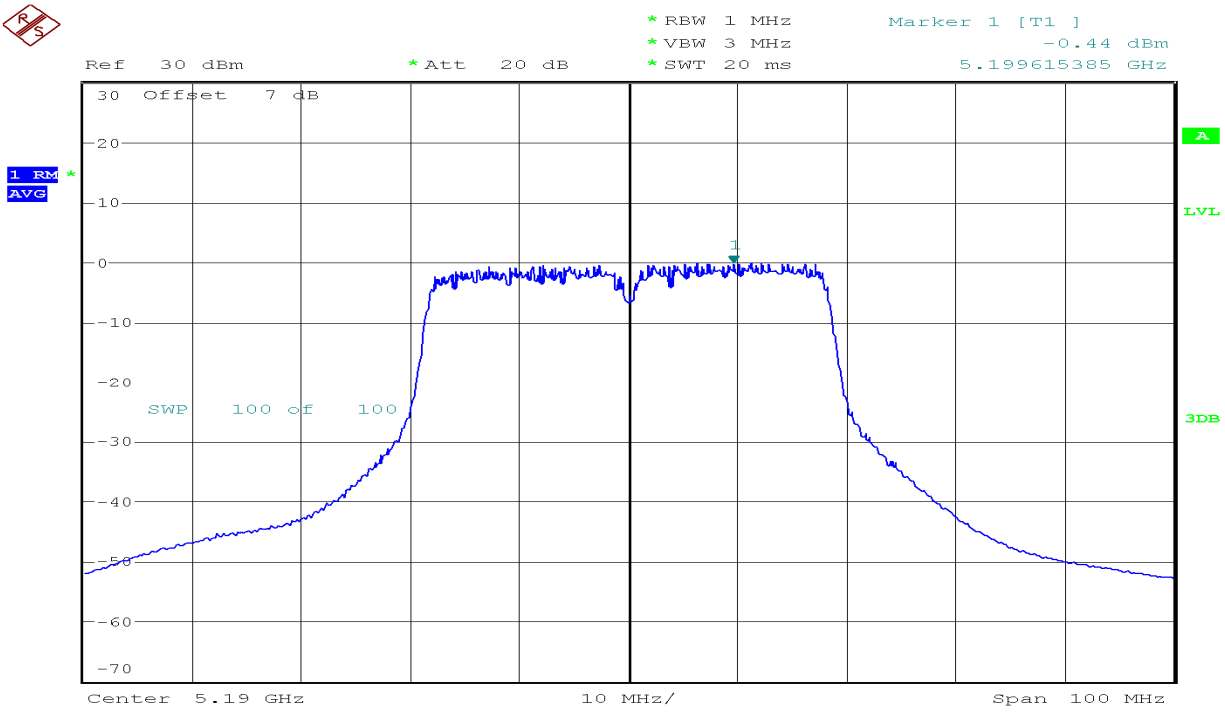
CH High



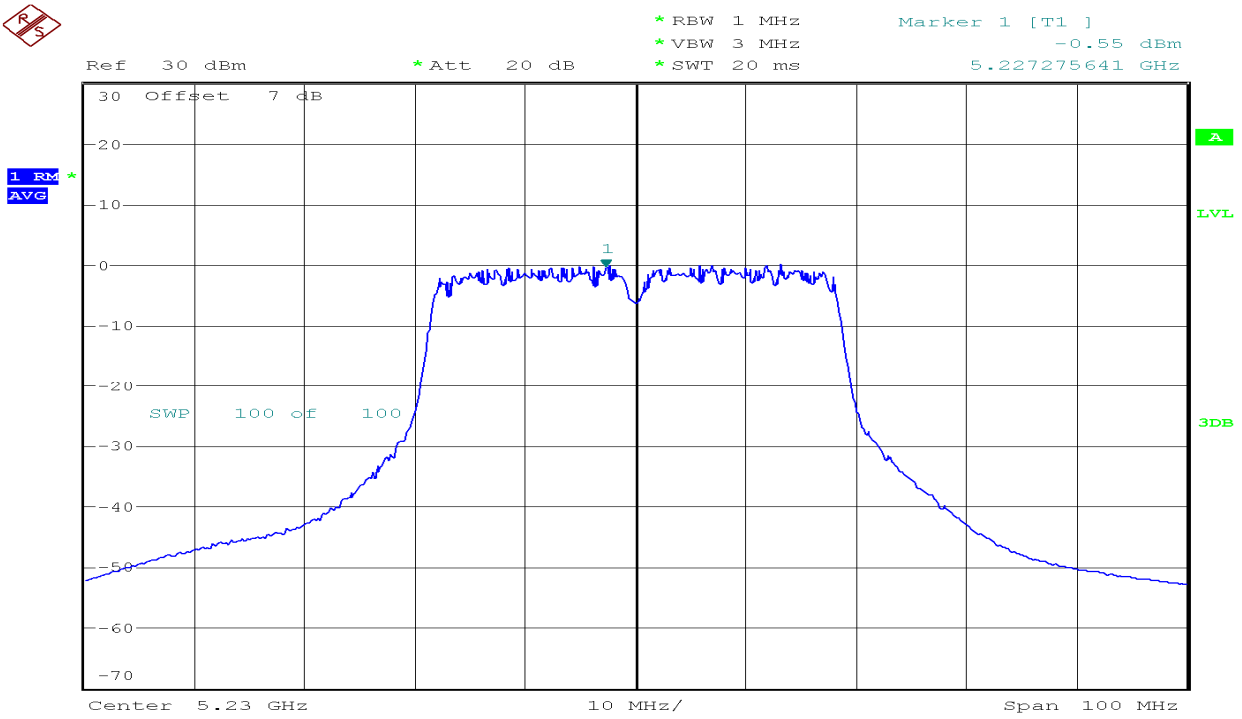
draft 802.11ac Wide-40 MHz Channel mode / Chain 1

5150~5250MHz

CH Low



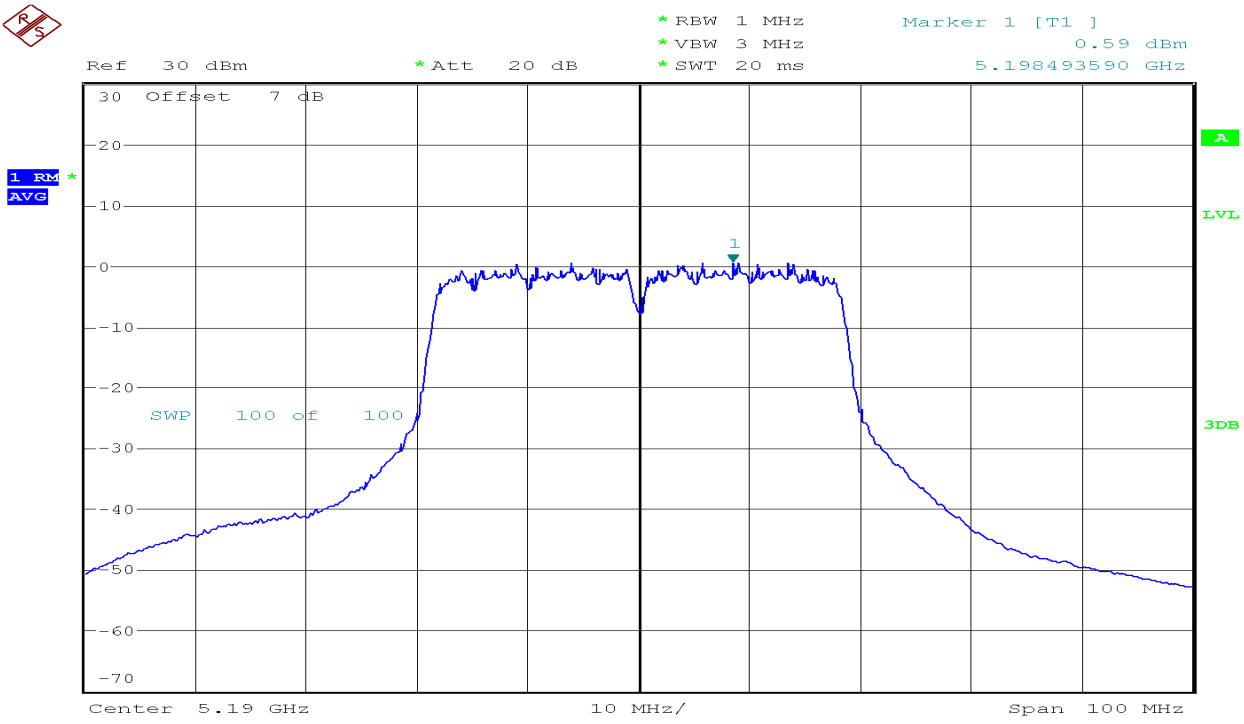
CH High



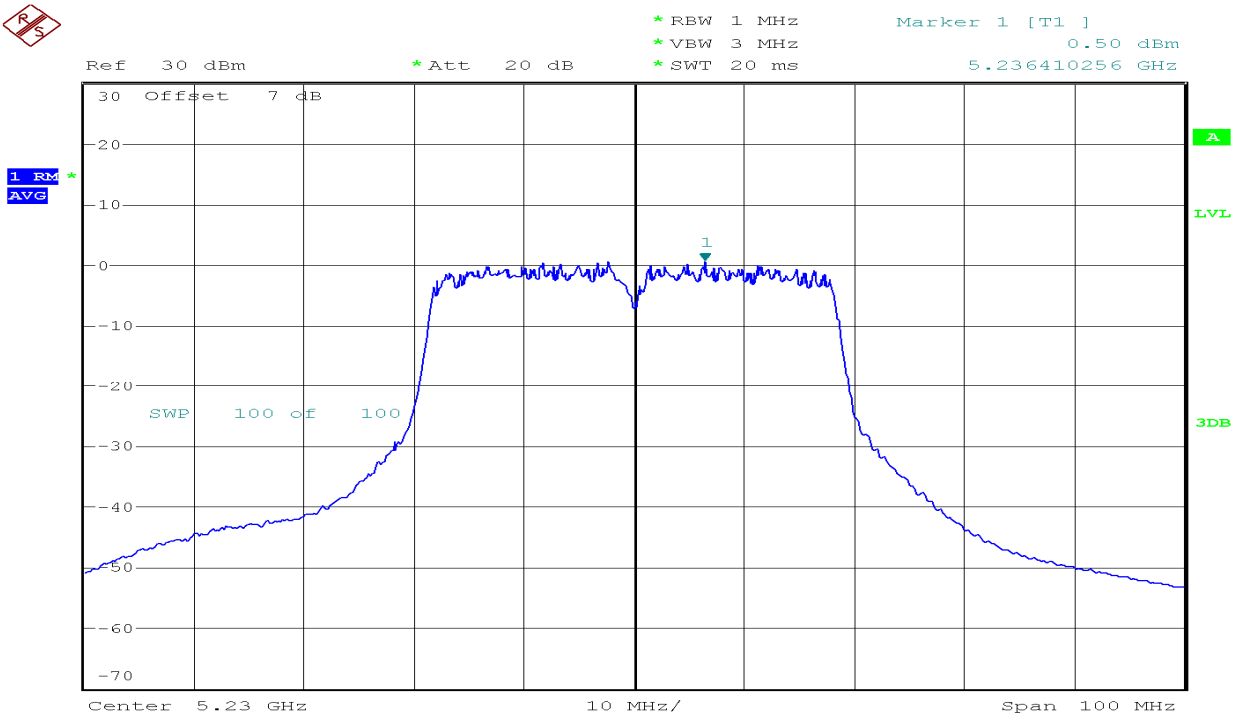
draft 802.11ac Wide-40 MHz Channel mode / Chain 2

5150~5250MHz

CH Low

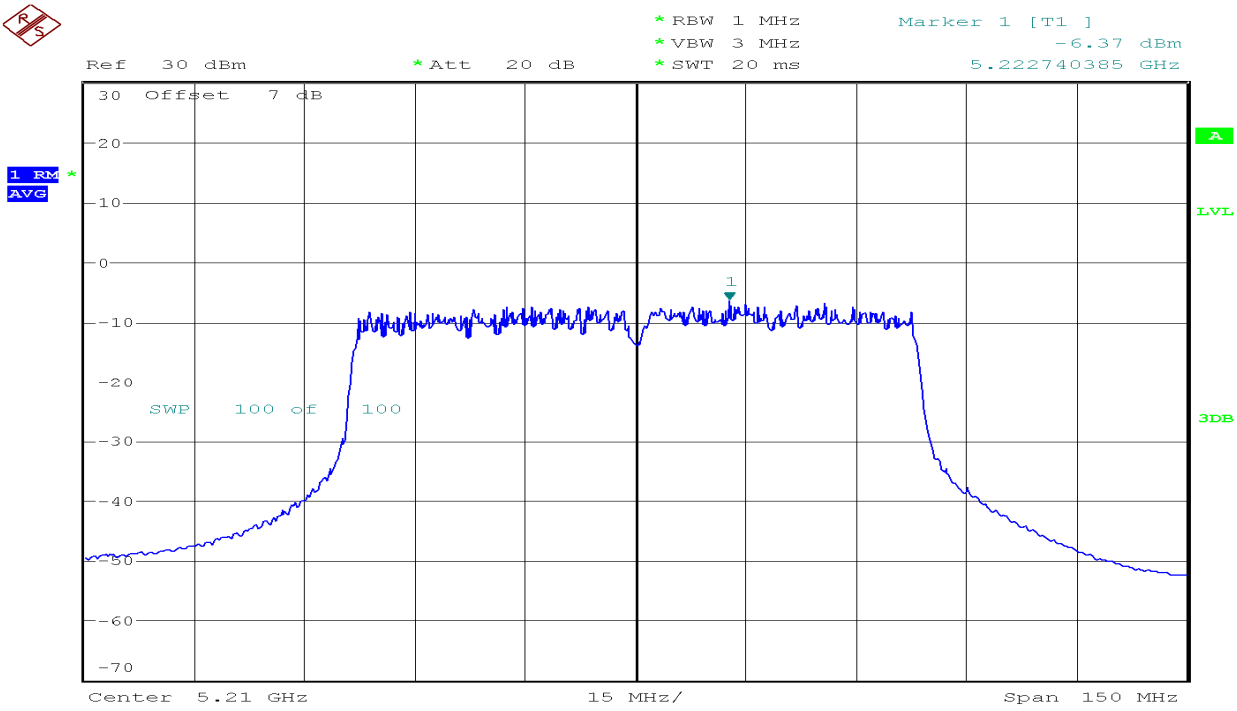


CH High



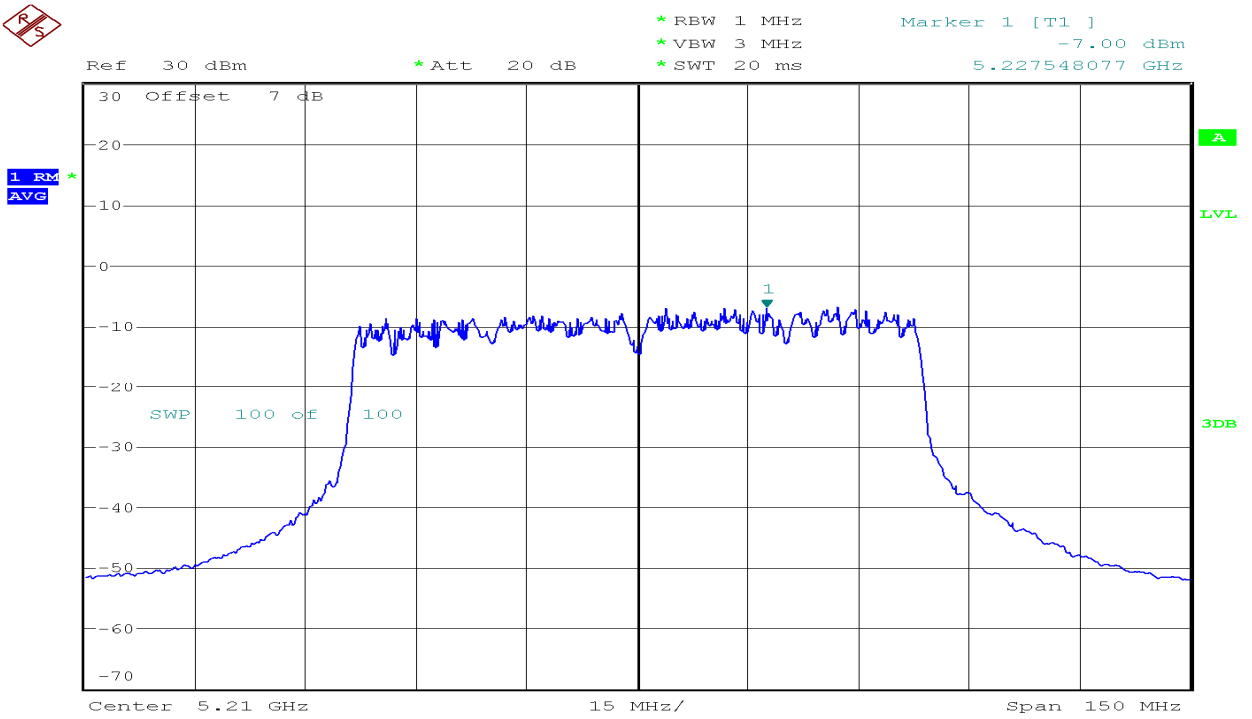
draft 802.11ac Wide-80 MHz Channel mode / Chain 0

5150~5250MHz



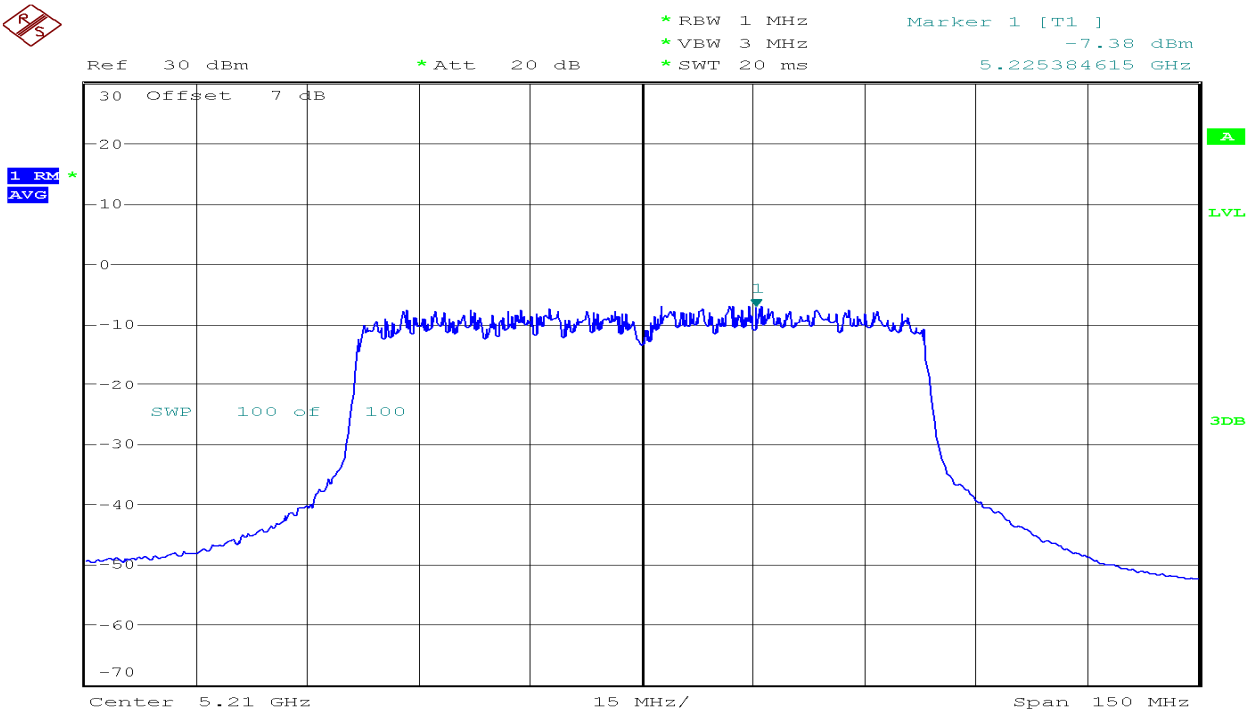
draft 802.11ac Wide-80 MHz Channel mode / Chain 1

5150~5250MHz



draft 802.11ac Wide-80 MHz Channel mode / Chain 2

5150~5250MHz

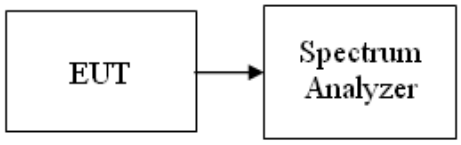


7.5 PEAK EXCURSION

LIMIT

According to §15.407(a)(6), the ratio of the peak excursion of the modulation envelope (measured using a peak hold function) to the maximum conducted output power (measured as specified above) shall not exceed 13 dB across any 1 MHz bandwidth or the emission bandwidth whichever is less.

Test Configuration



TEST PROCEDURE

The test is performed in accordance with <FCC Public Notice: APPENDIX A Guidelines for Assessing Unlicensed National Information Infrastructure (U-NII) Devices> – Part 15, Subpart E, August 2002.

1. Place the EUT on the table and set it in transmitting mode.
2. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to spectrum.
3. Trace A peak detector, Set RBW =1MHz, VBW = 3MHz, Span >26dB bandwidth, Max. hold.
4. Delta Mark trace A Maximum frequency and trace B same frequency.
5. Repeat the above procedure until measurements for all frequencies were complete.

TEST RESULTS

No non-compliance noted

Test Data

Test mode: IEEE 802.11a mode/chain 0

5150~5250MHz

Channel	Frequency (MHz)	Peak Excursion (dB)	Limit (dB)	Result
Low	5180	4.42	13.00	PASS
Mid	5200	6.37	13.00	PASS
High	5240	4.45	13.00	PASS

Test mode: IEEE 802.11a mode/chain 1

5150~5250MHz

Channel	Frequency (MHz)	Peak Excursion (dB)	Limit (dB)	Result
Low	5180	6.09	13.00	PASS
Mid	5200	4.30	13.00	PASS
High	5240	4.52	13.00	PASS

Test mode: IEEE 802.11a mode/chain 2

5150~5250MHz

Channel	Frequency (MHz)	Peak Excursion (dB)	Limit (dB)	Result
Low	5180	5.42	13.00	PASS
Mid	5200	6.08	13.00	PASS
High	5240	4.37	13.00	PASS

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

5150~5250MHz

Channel	Frequency (MHz)	Peak Excursion (dB)	Limit (dB)	Result
Low	5180	3.69	13.00	PASS
Mid	5200	4.02	13.00	PASS
High	5240	4.97	13.00	PASS

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

5150~5250MHz

Channel	Frequency (MHz)	Peak Excursion (dB)	Limit (dB)	Result
Low	5180	6.59	13.00	PASS
Mid	5200	4.89	13.00	PASS
High	5240	5.30	13.00	PASS

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

5150~5250MHz

Channel	Frequency (MHz)	Peak Excursion (dB)	Limit (dB)	Result
Low	5180	4.62	13.00	PASS
Mid	5200	5.48	13.00	PASS
High	5240	3.97	13.00	PASS

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

5150~5250MHz

Channel	Frequency (MHz)	Peak Excursion (dB)	Limit (dB)	Result
Low	5190	4.79	13.00	PASS
High	5230	4.08	13.00	PASS

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

5150~5250MHz

Channel	Frequency (MHz)	Peak Excursion (dB)	Limit (dB)	Result
Low	5190	3.87	13.00	PASS
High	5230	5.25	13.00	PASS

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

5150~5250MHz

Channel	Frequency (MHz)	Peak Excursion (dB)	Limit (dB)	Result
Low	5190	4.87	13.00	PASS
High	5230	5.84	13.00	PASS

Test mode: draft 802.11ac Standard-20 MHz Channel mode / Chain 0

5150~5250MHz

Channel	Frequency (MHz)	Peak Excursion (dB)	Limit (dB)	Result
Low	5180	5.53	13.00	PASS
Mid	5200	4.30	13.00	PASS
High	5240	5.02	13.00	PASS

Test mode: draft 802.11ac Standard-20 MHz Channel mode / Chain 1

5150~5250MHz

Channel	Frequency (MHz)	Peak Excursion (dB)	Limit (dB)	Result
Low	5180	4.08	13.00	PASS
Mid	5200	5.33	13.00	PASS
High	5240	4.85	13.00	PASS

Test mode: draft 802.11ac Standard-20 MHz Channel mode / Chain 2

5150~5250MHz

Channel	Frequency (MHz)	Peak Excursion (dB)	Limit (dB)	Result
Low	5180	5.57	13.00	PASS
Mid	5200	3.59	13.00	PASS
High	5240	5.13	13.00	PASS

Test mode: draft 802.11ac Wide-40 MHz Channel mode / Chain 0

5150~5250MHz

Channel	Frequency (MHz)	Peak Excursion (dB)	Limit (dB)	Result
Low	5190	2.84	13.00	PASS
High	5230	5.26	13.00	PASS

Test mode: draft 802.11ac Wide-40 MHz Channel mode / Chain 1

5150~5250MHz

Channel	Frequency (MHz)	Peak Excursion (dB)	Limit (dB)	Result
Low	5190	5.20	13.00	PASS
High	5230	4.59	13.00	PASS

Test mode: draft 802.11ac Wide-40 MHz Channel mode / Chain 2

5150~5250MHz

Channel	Frequency (MHz)	Peak Excursion (dB)	Limit (dB)	Result
Low	5190	4.20	13.00	PASS
High	5230	5.05	13.00	PASS

Test mode: draft 802.11ac Wide-80 MHz Channel mode / Chain 0

5150~5250MHz

Channel	Frequency (MHz)	Peak Excursion (dB)	Limit (dB)	Result
Mid	5210	6.44	13.00	PASS

Test mode: draft 802.11ac Wide-80 MHz Channel mode / Chain 1

5150~5250MHz

Channel	Frequency (MHz)	Peak Excursion (dB)	Limit (dB)	Result
Mid	5210	5.67	13.00	PASS

Test mode: draft 802.11ac Wide-80 MHz Channel mode / Chain 2

5150~5250MHz

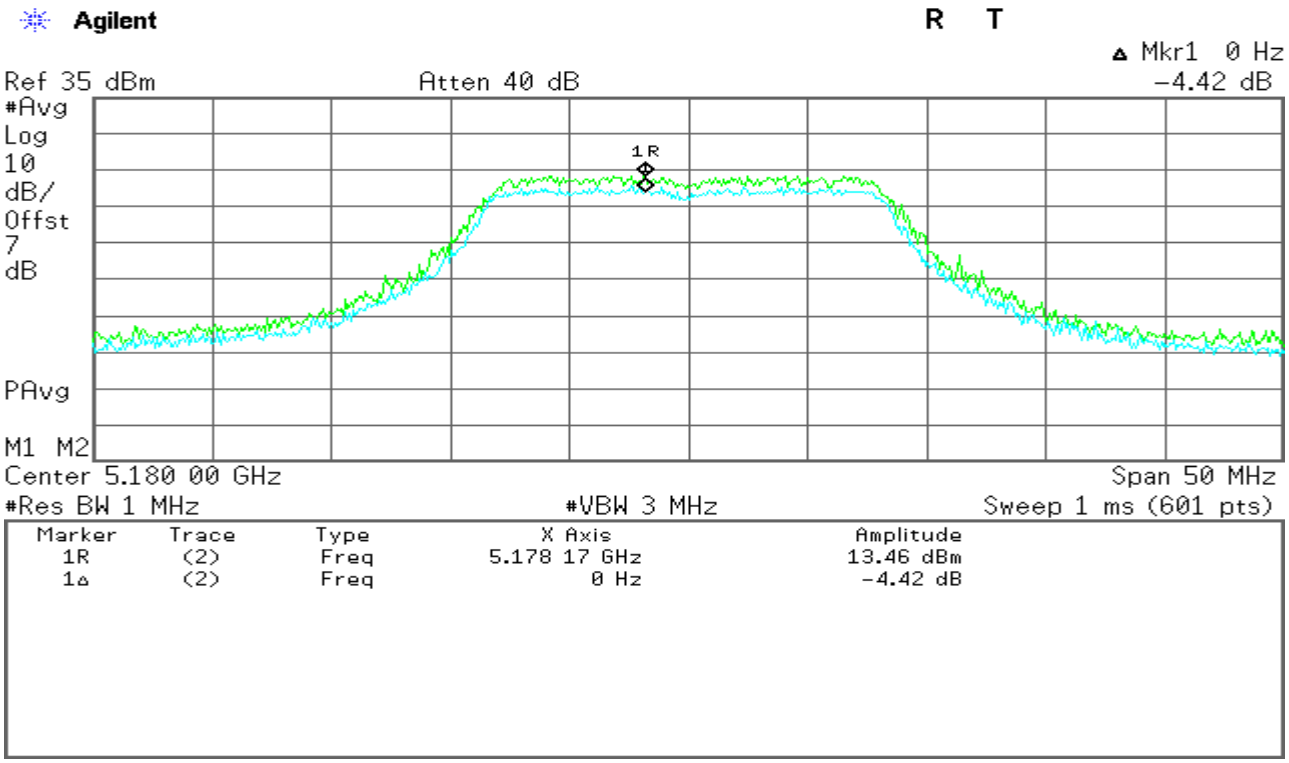
Channel	Frequency (MHz)	Peak Excursion (dB)	Limit (dB)	Result
Mid	5210	7.12	13.00	PASS

Test Plots

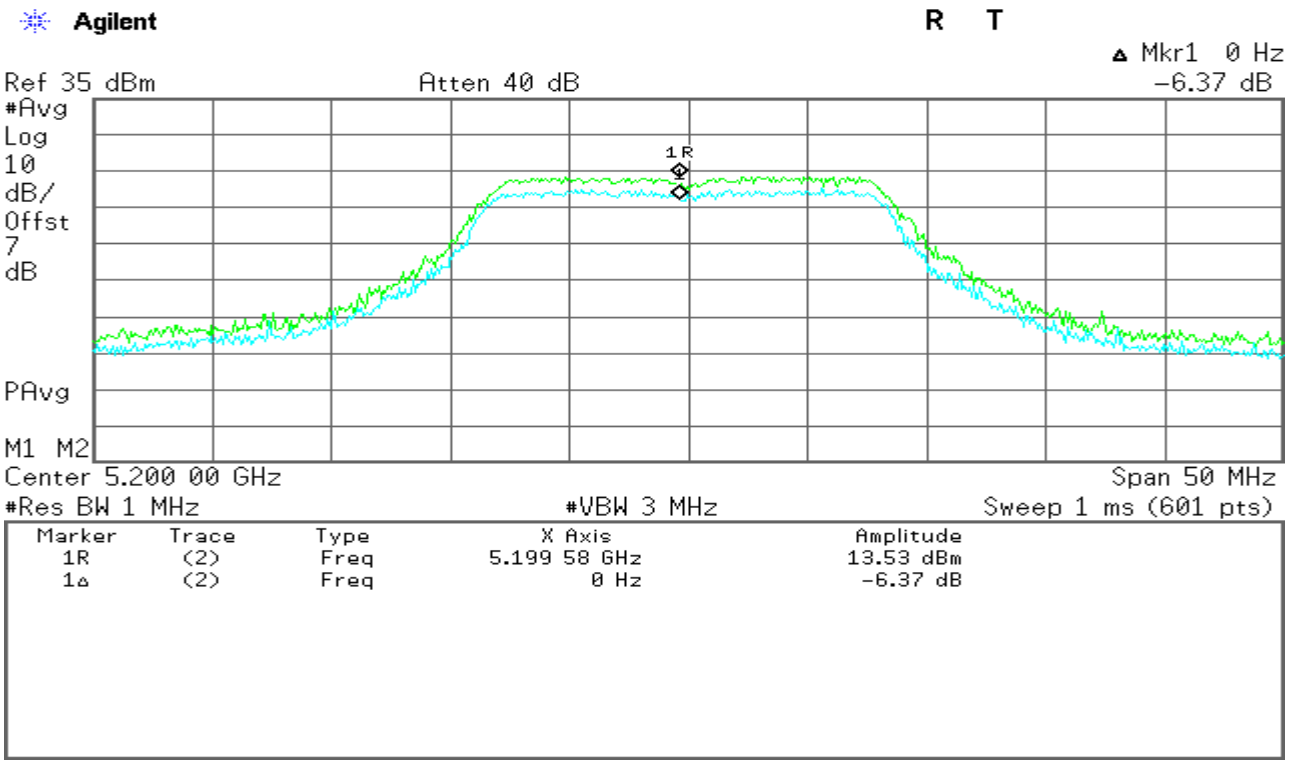
IEEE 802.11a mode/chain 0

5150-5250MHz

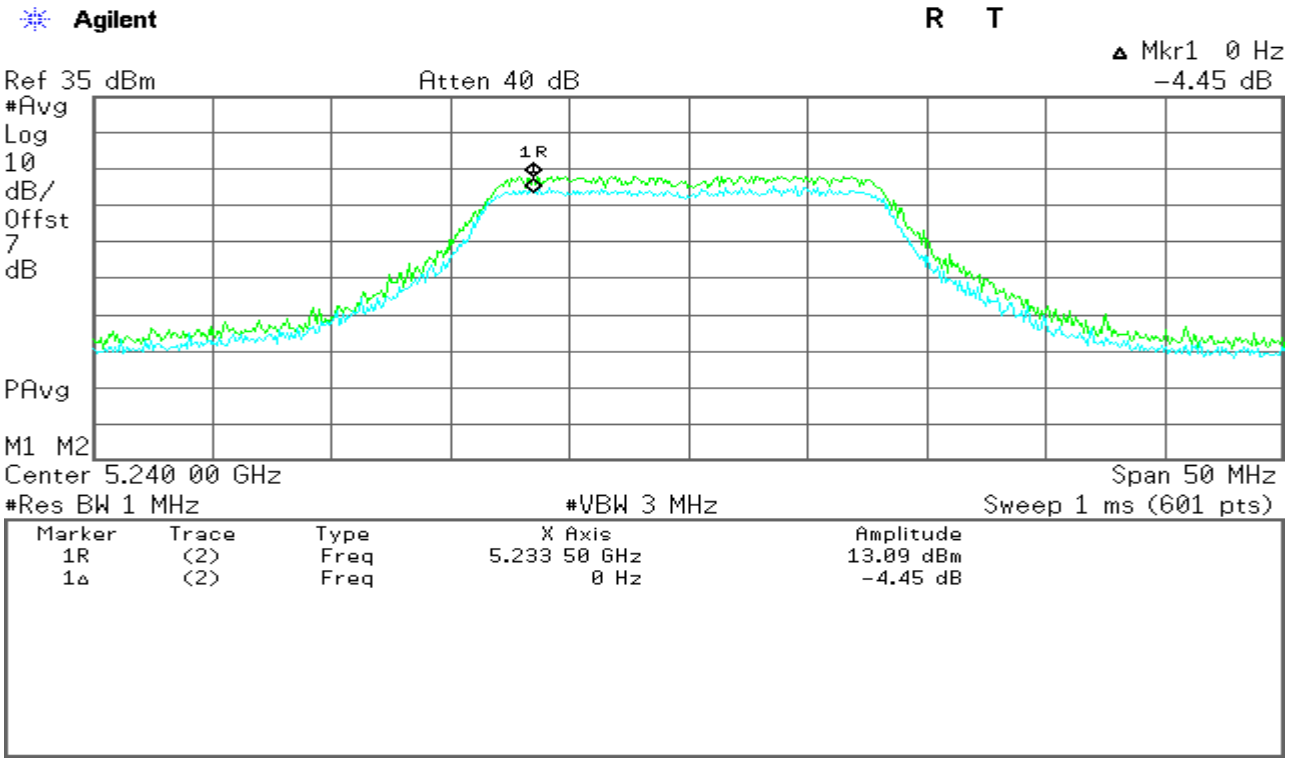
CH Low



CH Mid



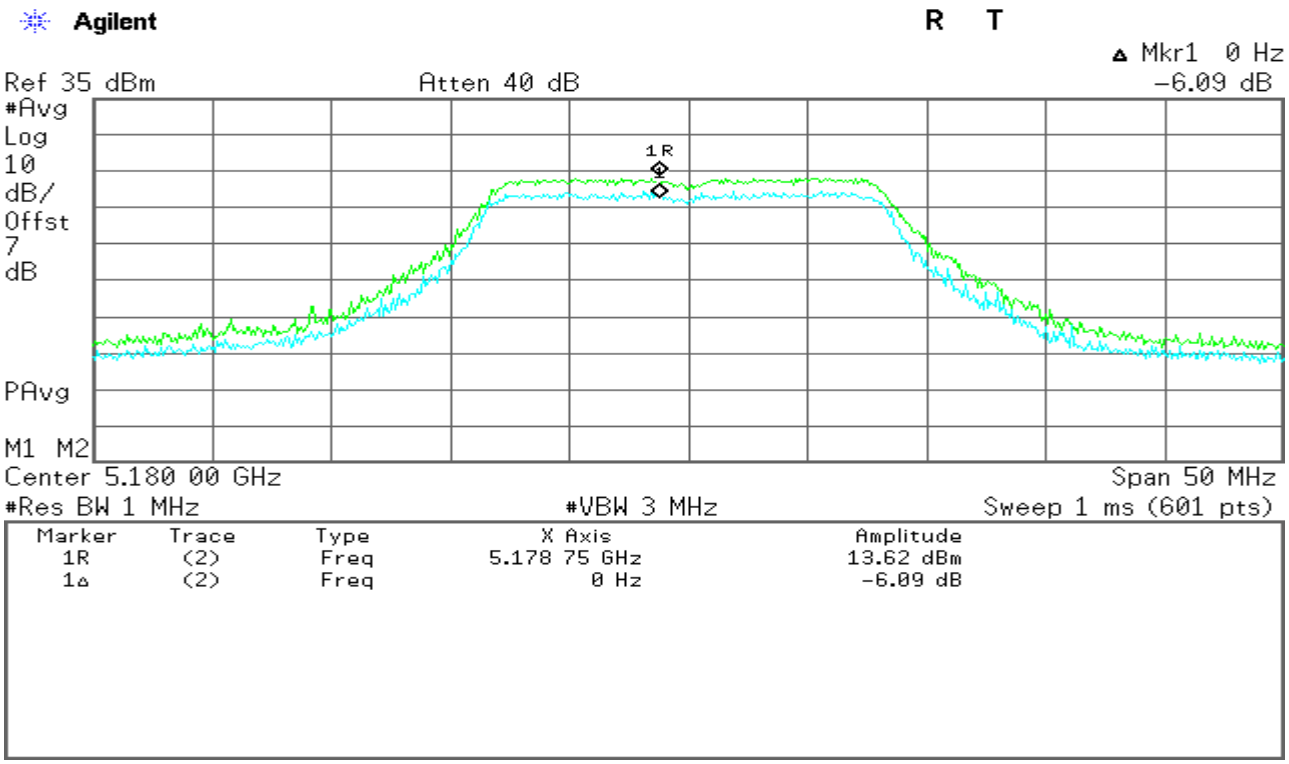
CH High



IEEE 802.11a mode/chain 1

5150-5250MHz

CH Low



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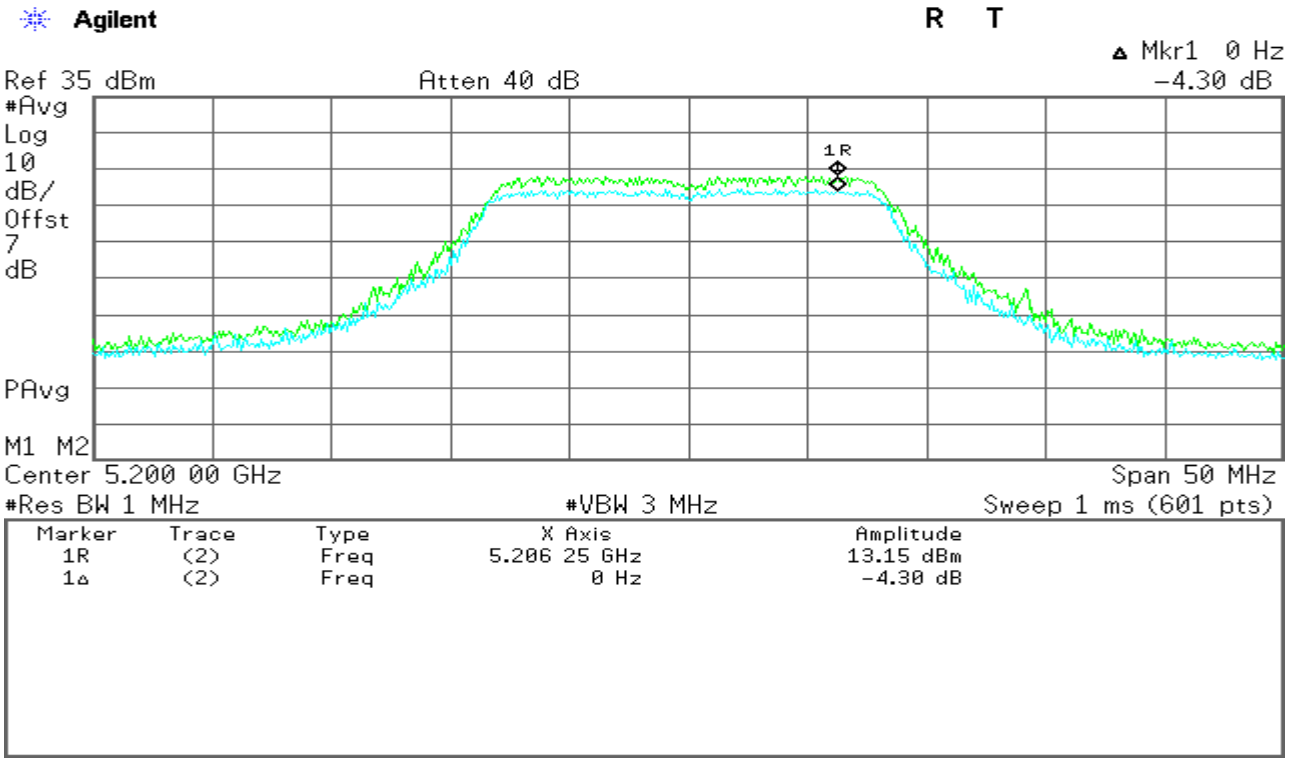

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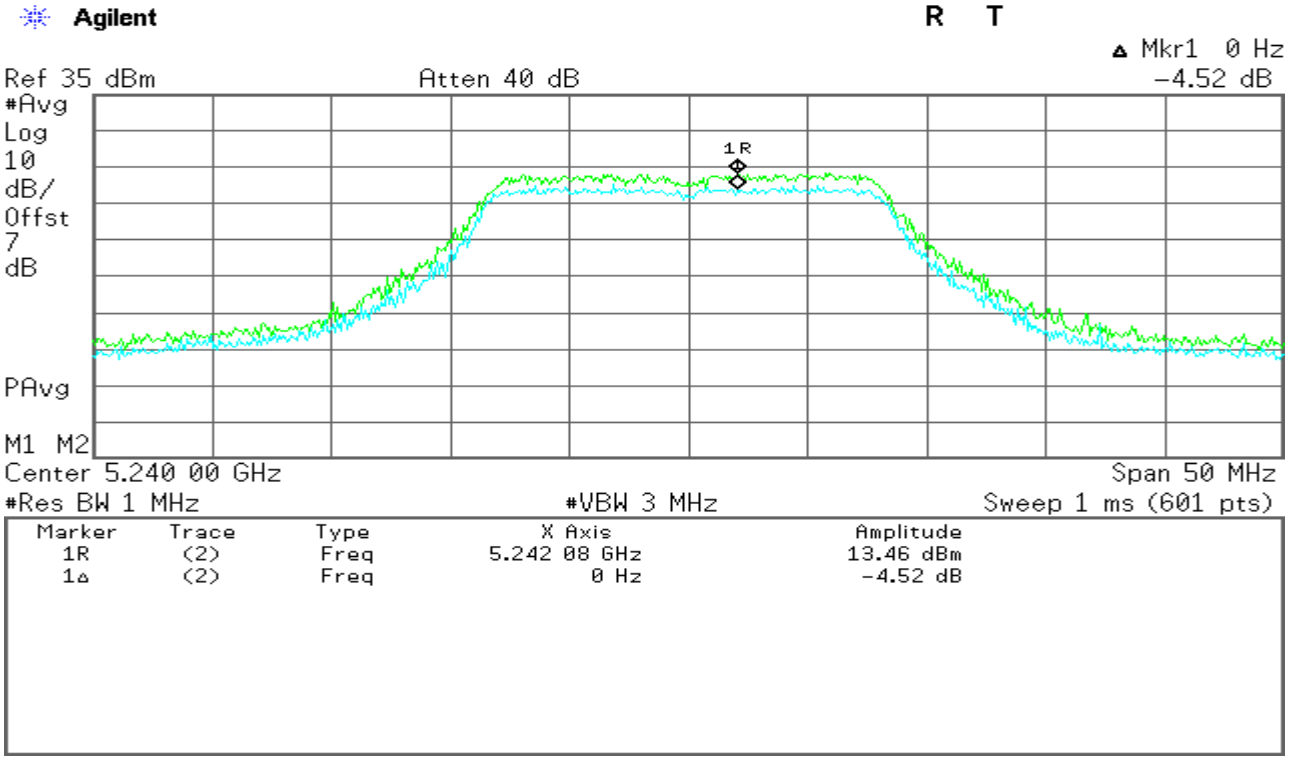
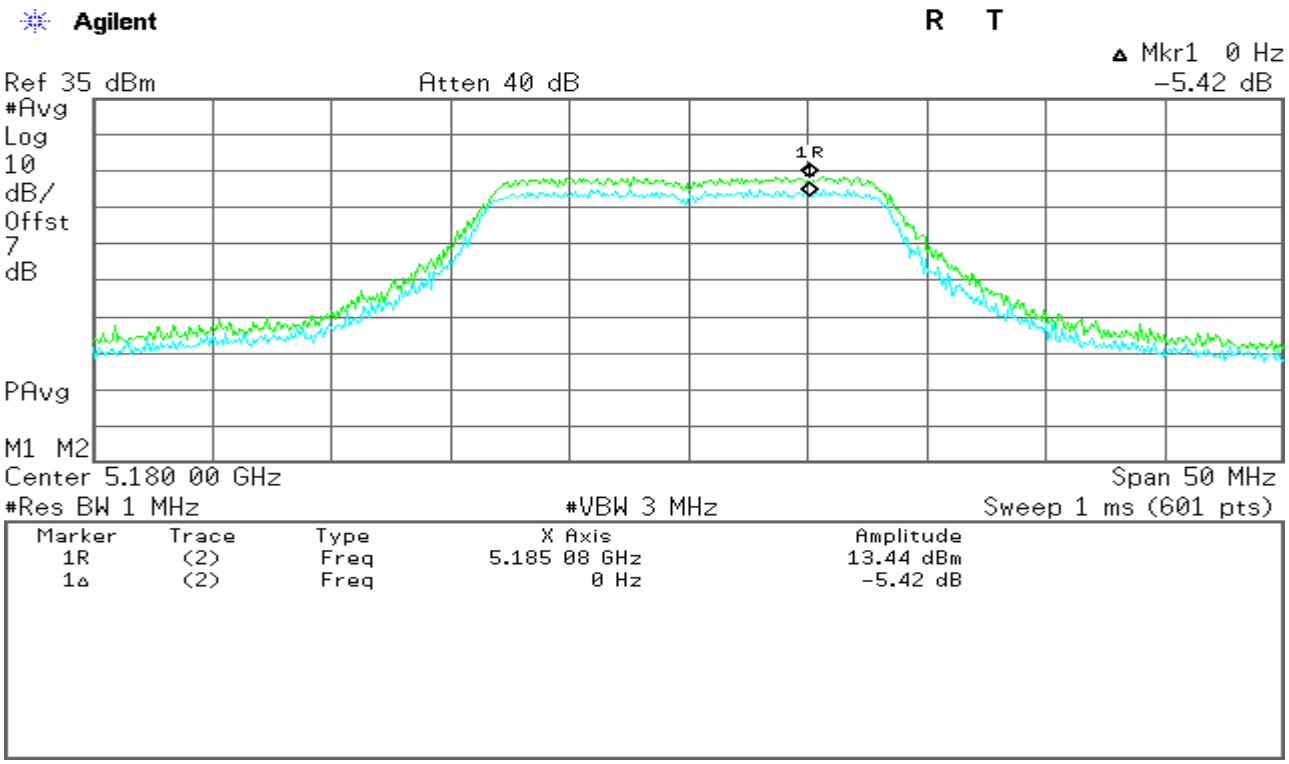


IEEE 802.11a mode/chain 2

5150-5250MHz

CH Low



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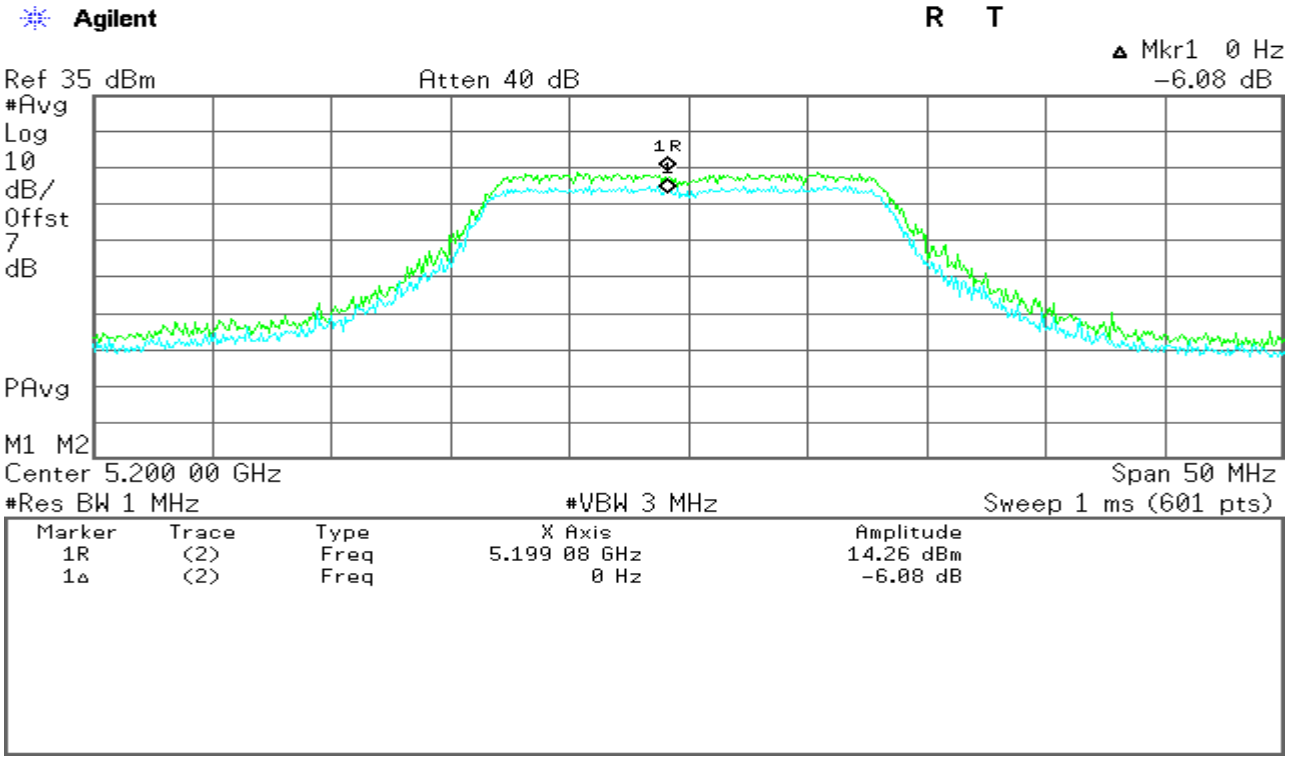

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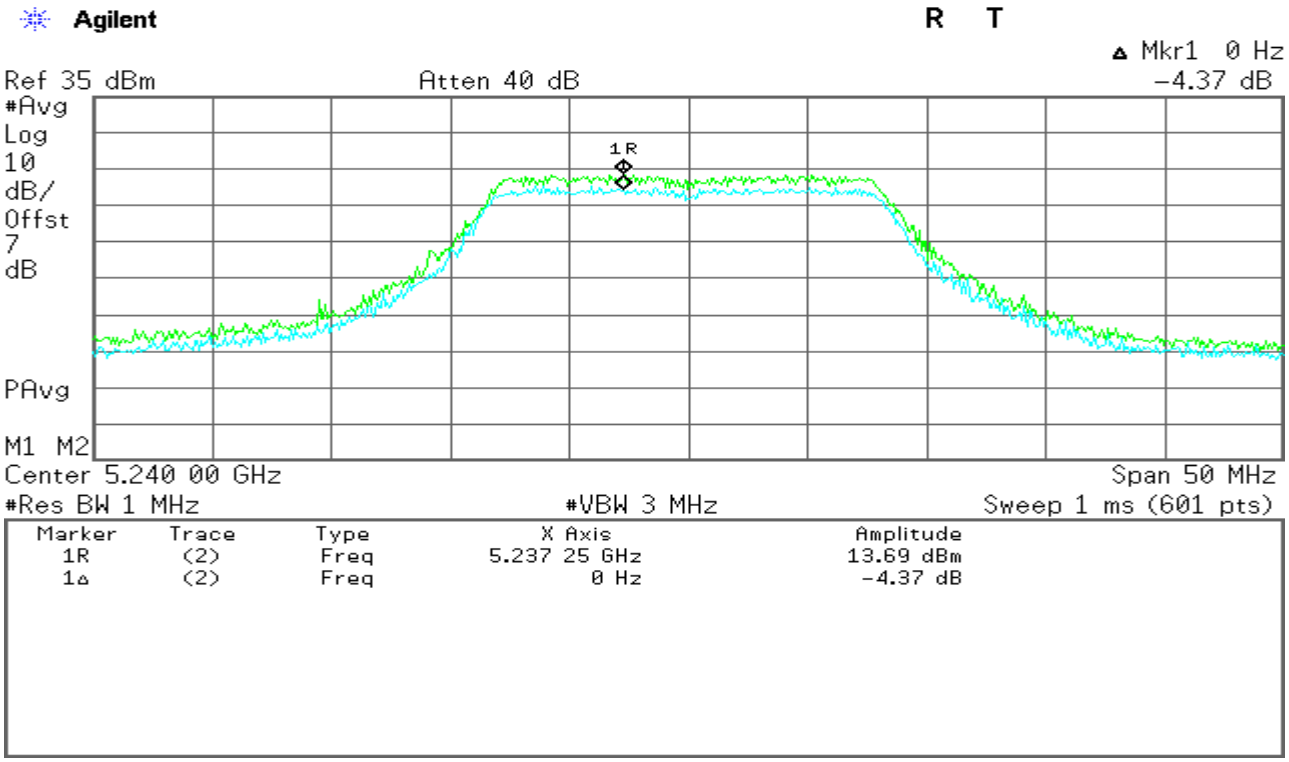
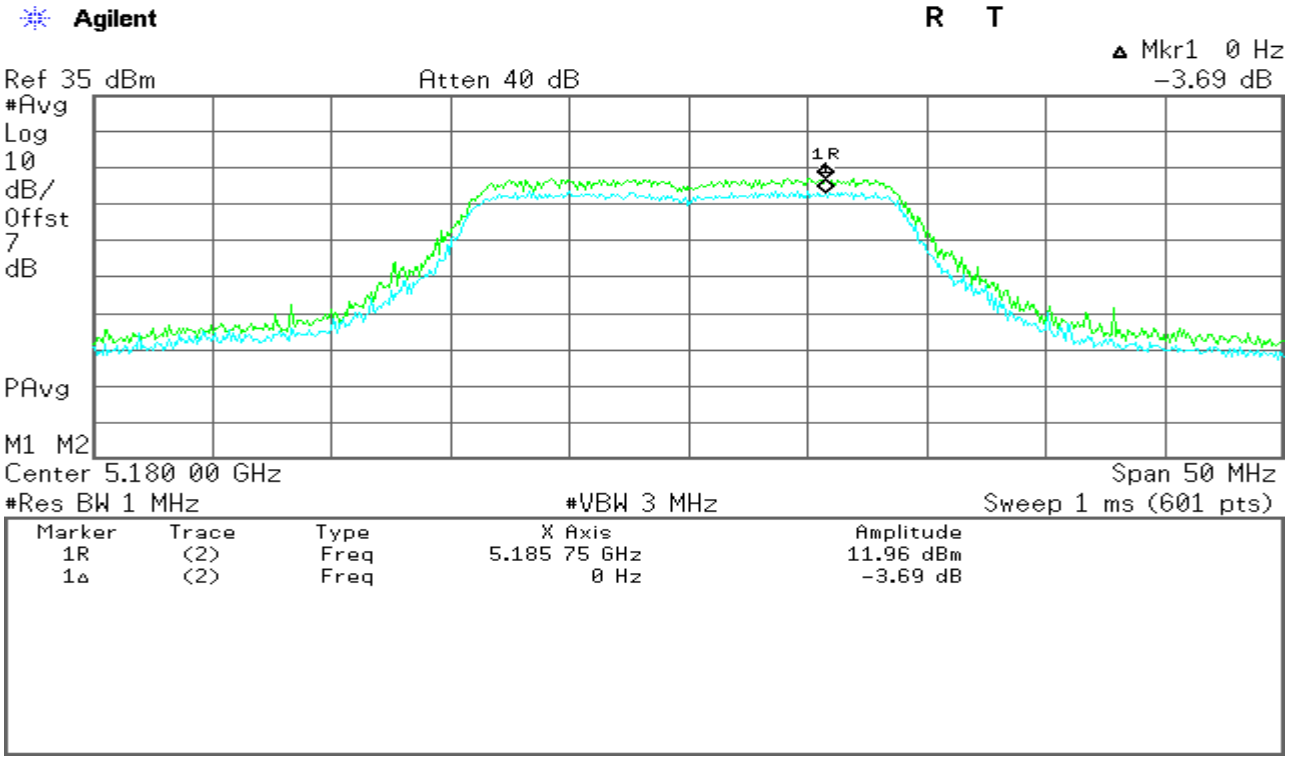


draft 802.11n Standard-20 MHz Channel mode / Chain 0

5150-5250MHz

CH Low



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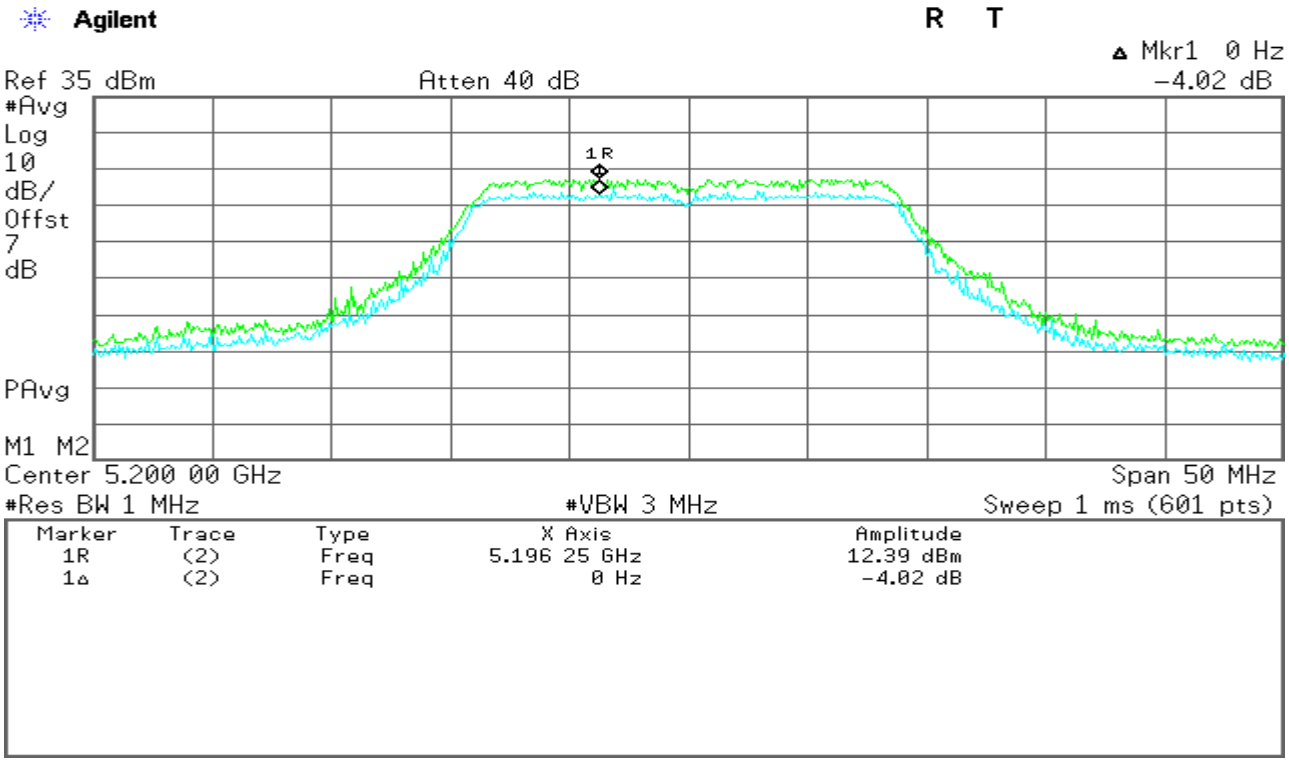

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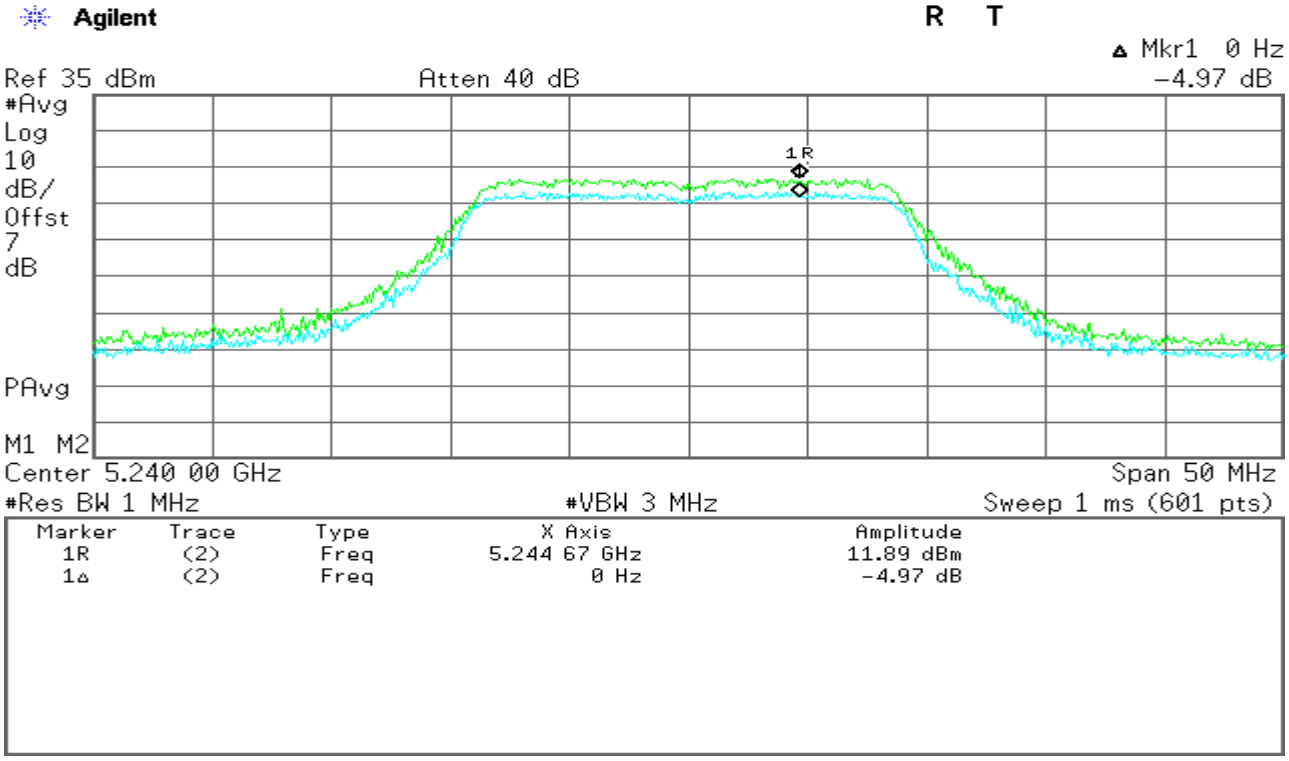
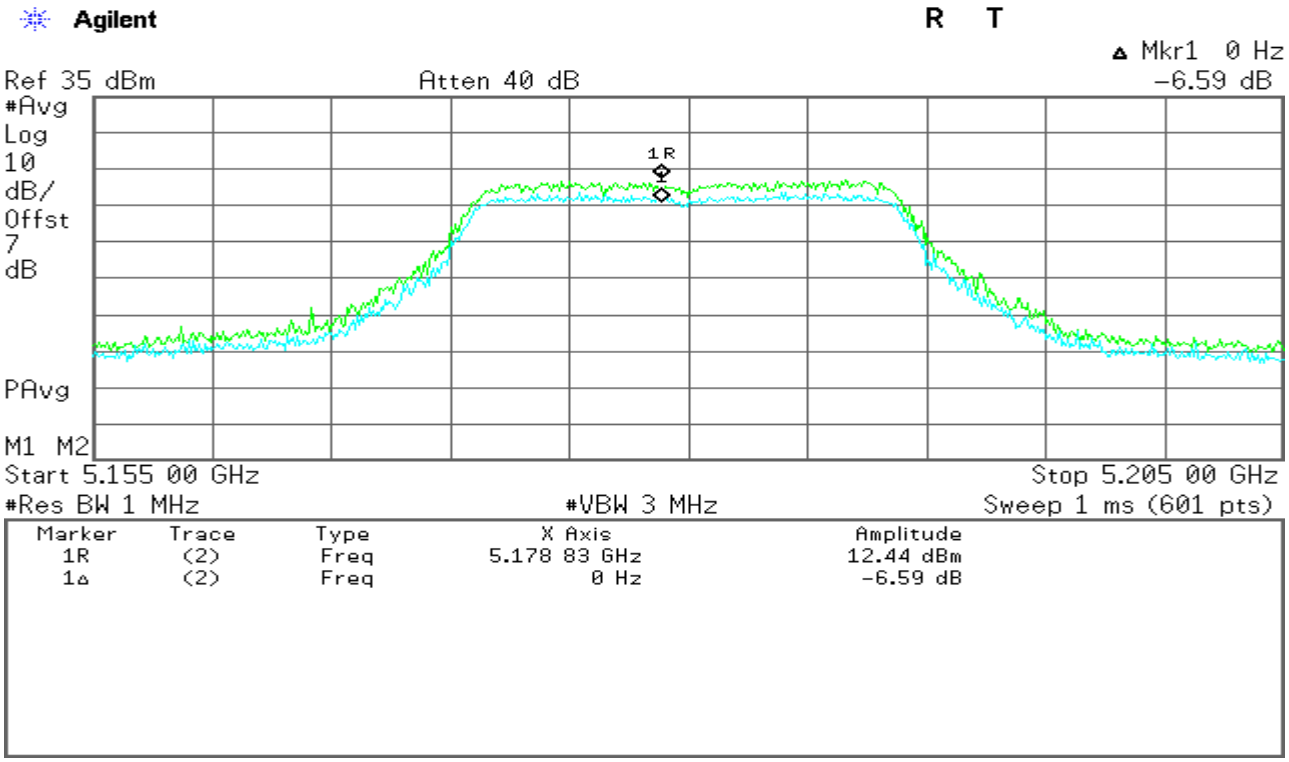


draft 802.11n Standard-20 MHz Channel mode / Chain 1

5150-5250MHz

CH Low



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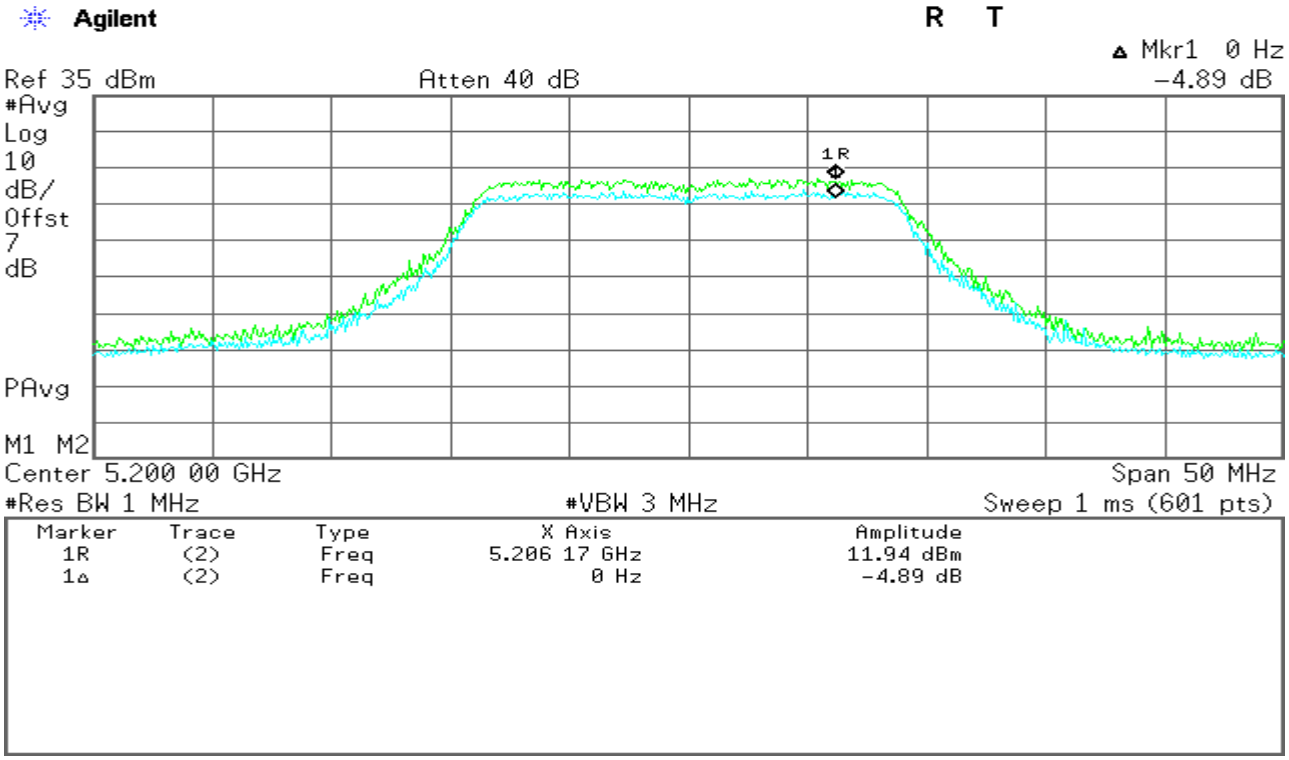

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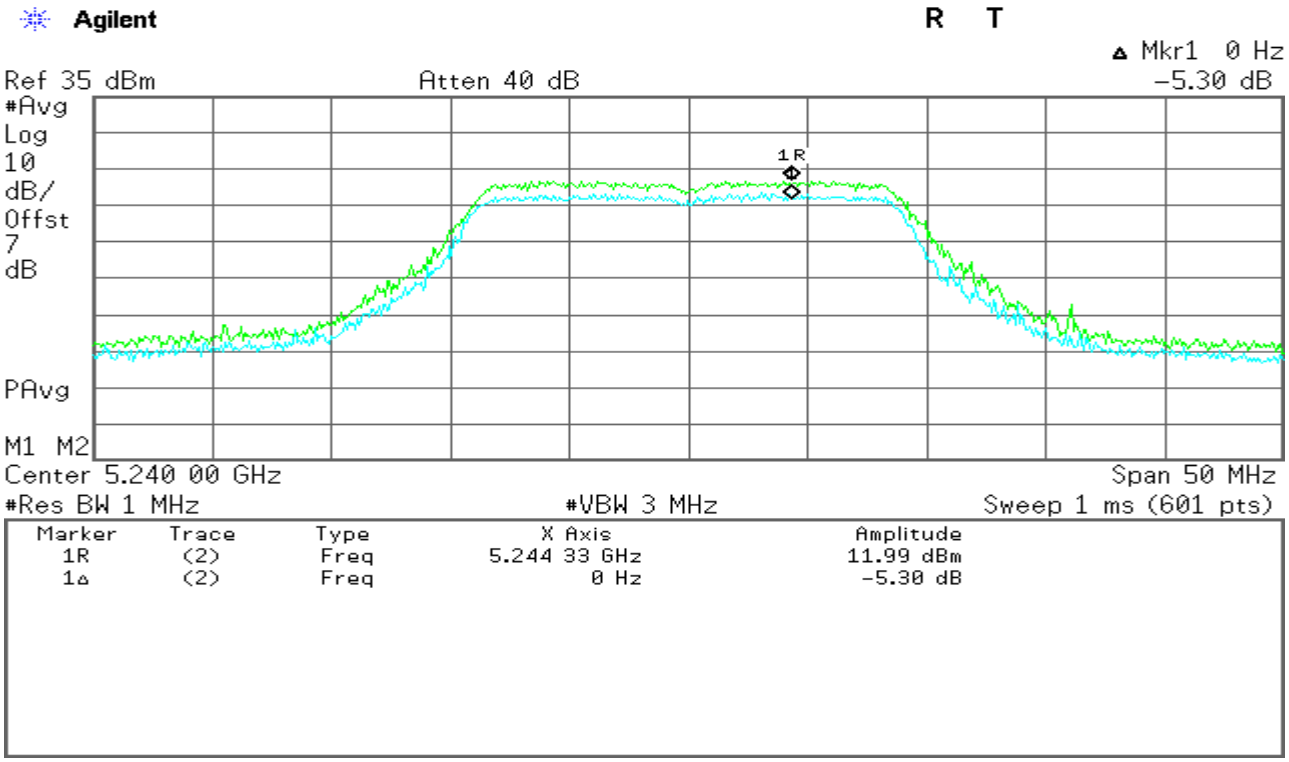
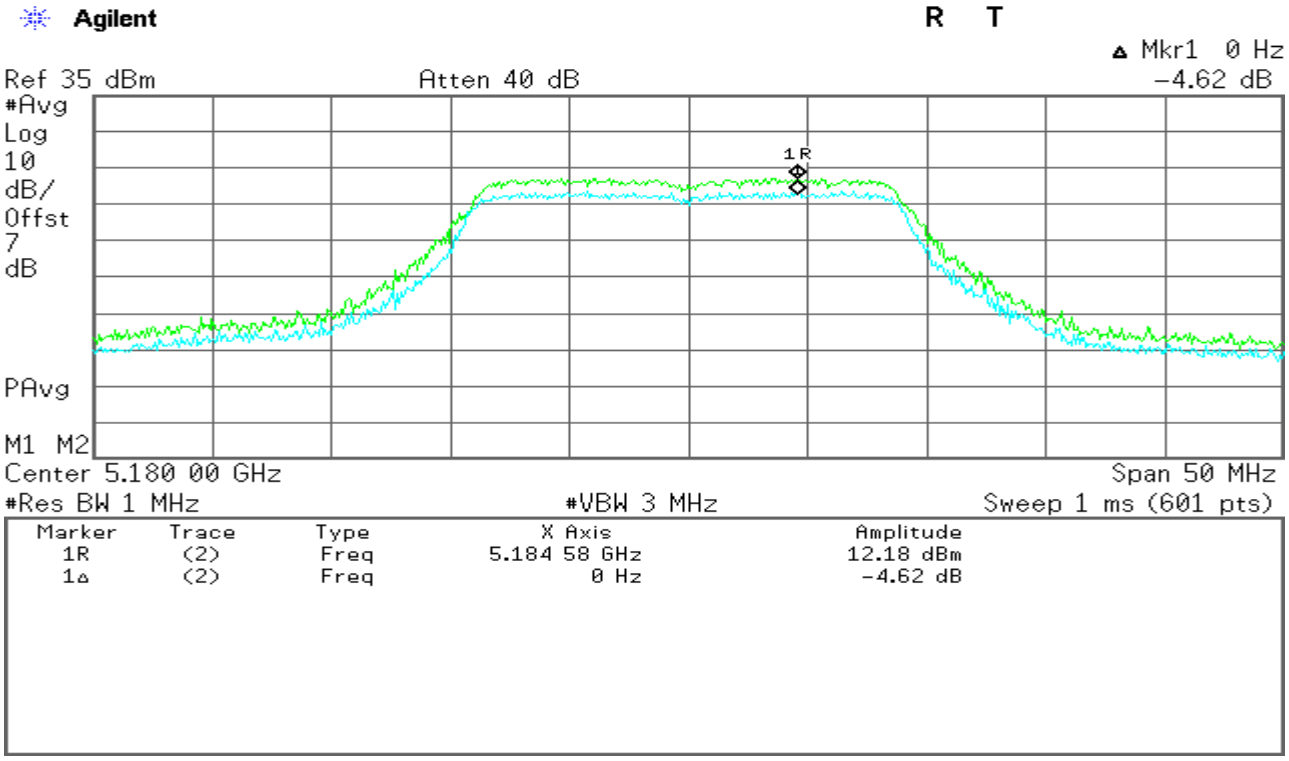


draft 802.11n Standard-20 MHz Channel mode / Chain 2

5150-5250MHz

CH Low



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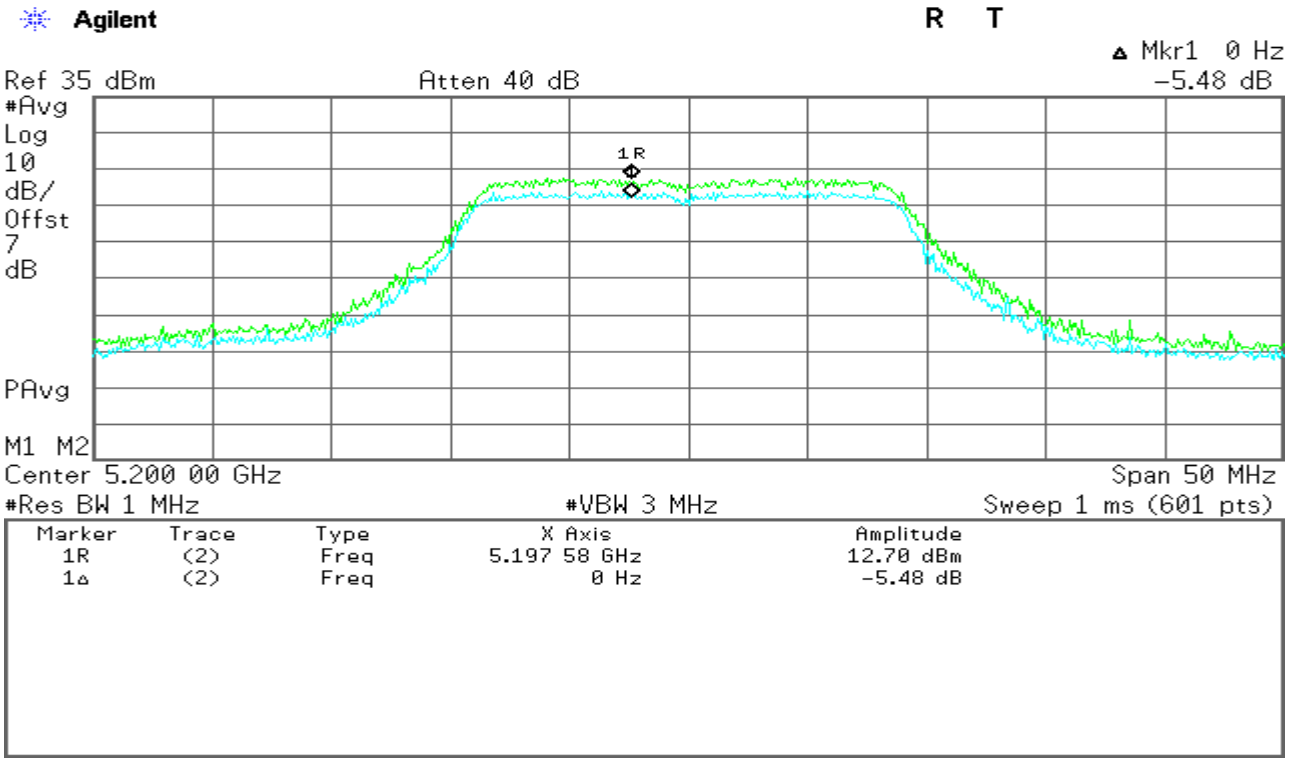

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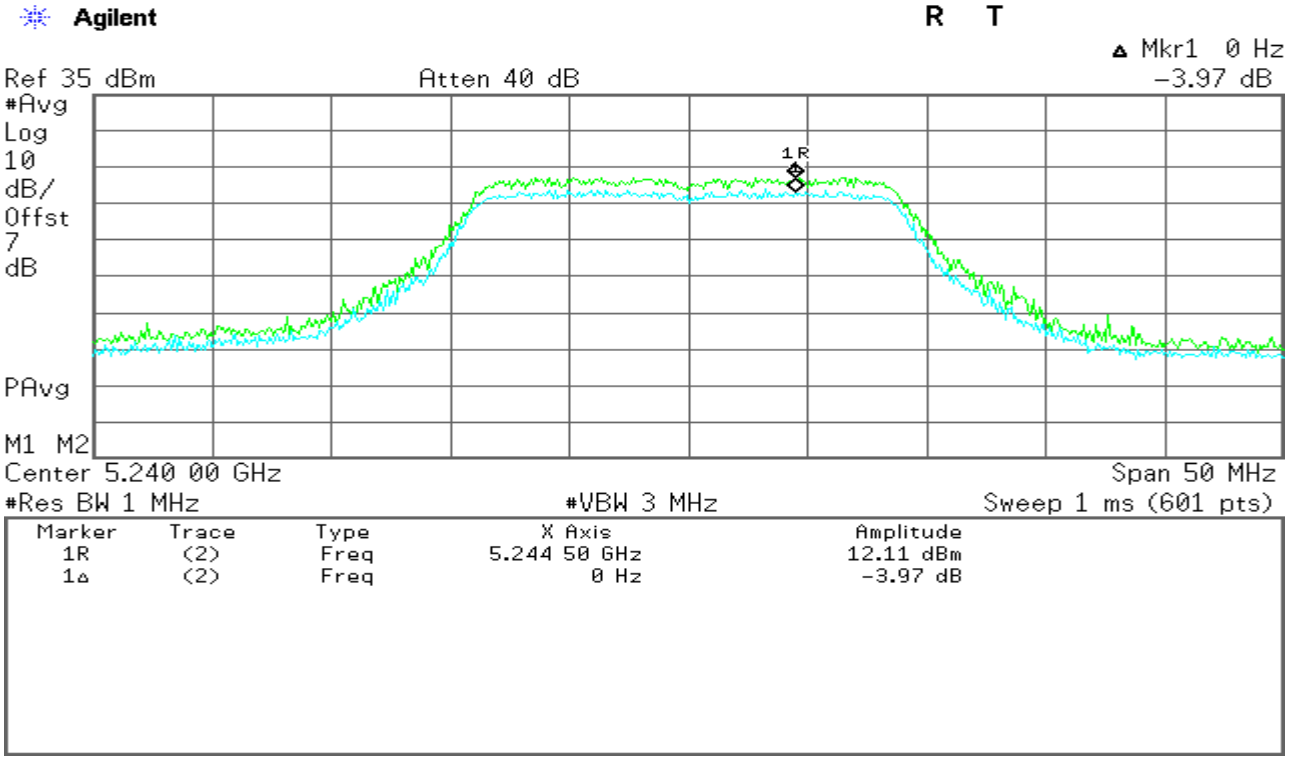
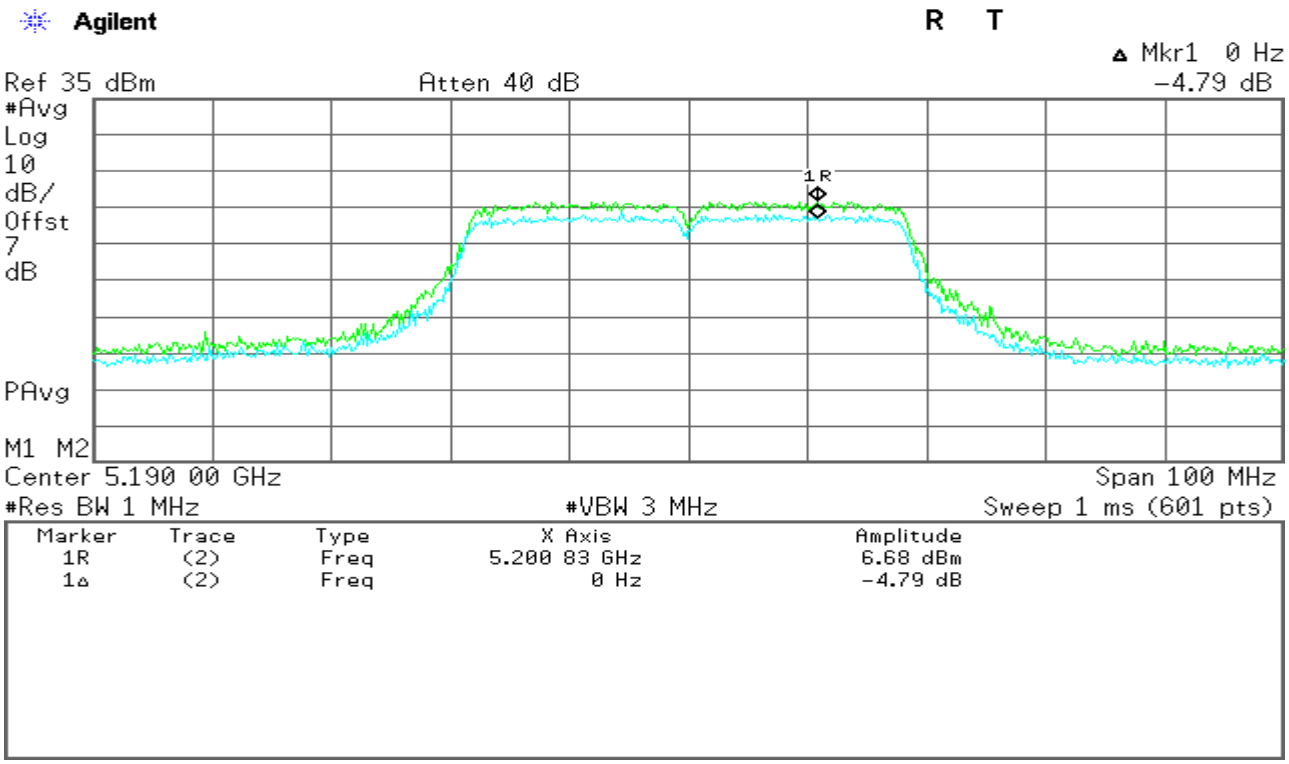


draft 802.11n Wide-40 MHz Channel mode / Chain 0

5150-5250MHz

CH Low



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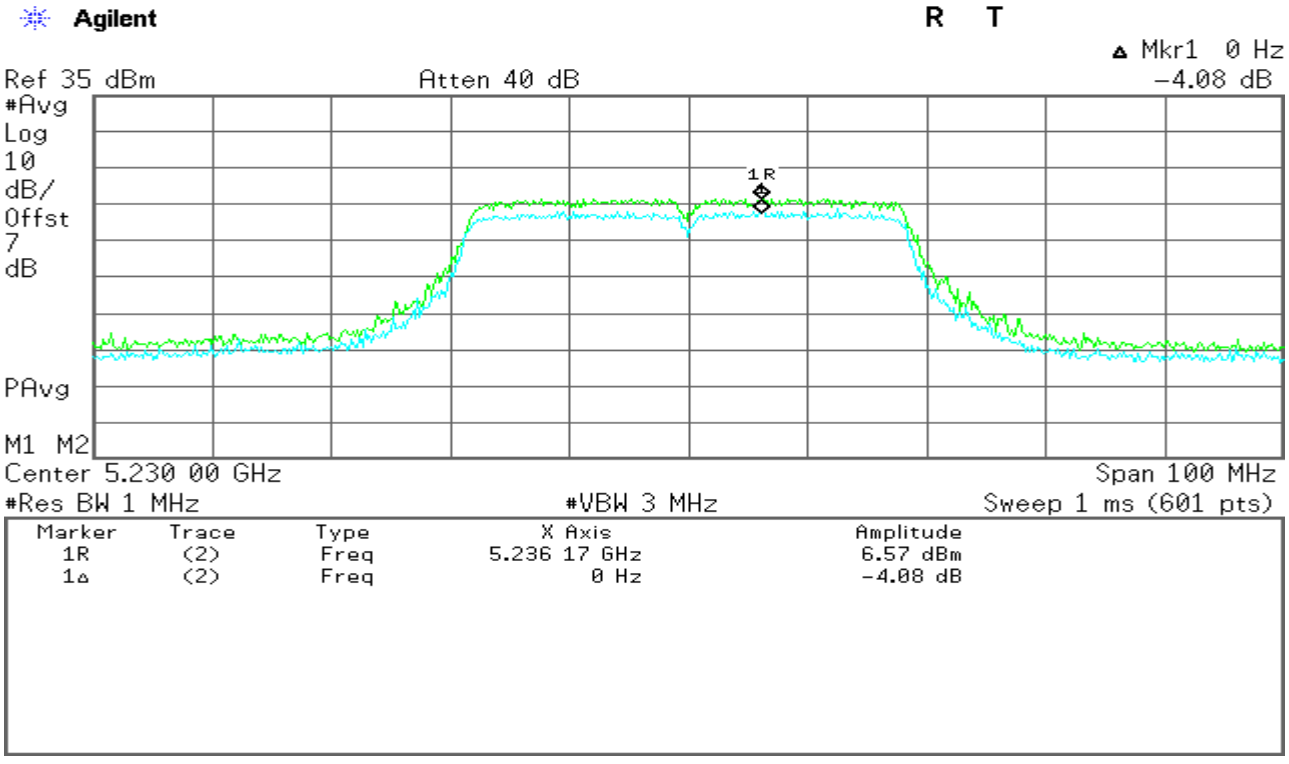
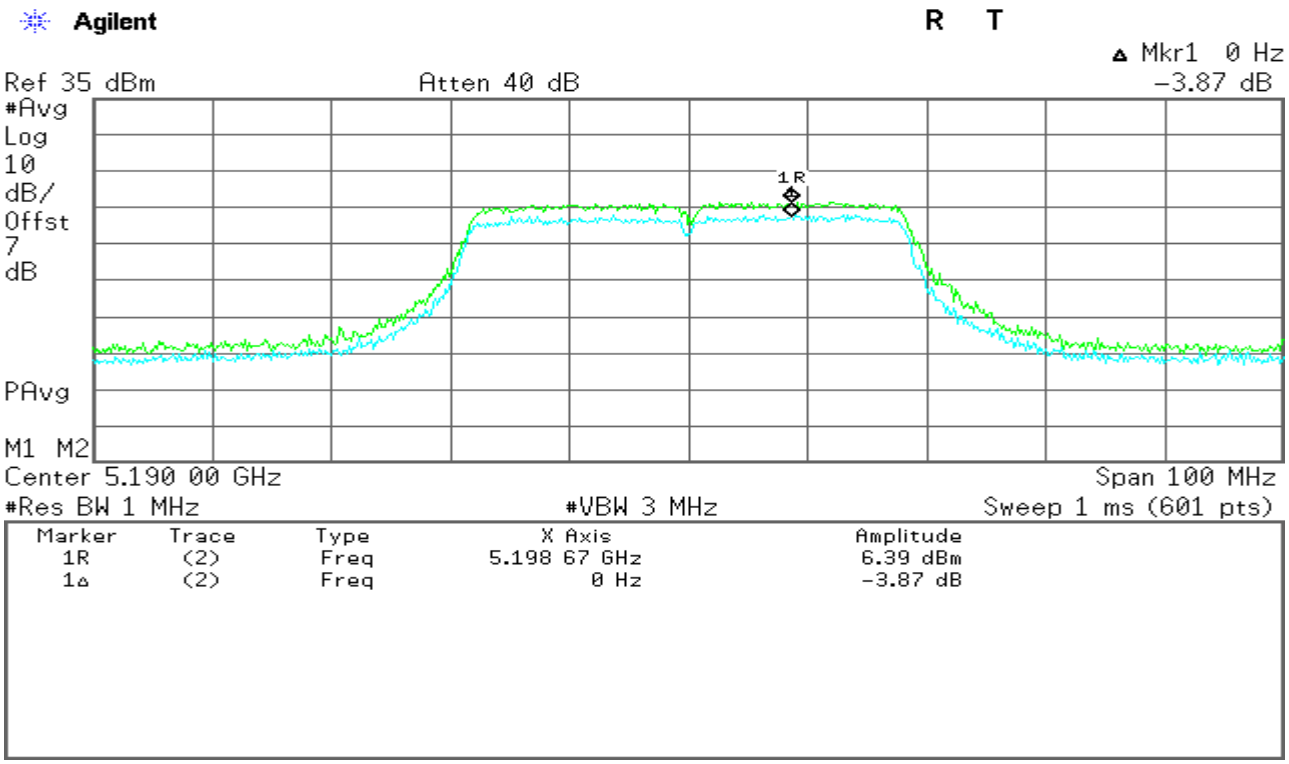


draft 802.11n Wide-40 MHz Channel mode / Chain 1

5150-5250MHz

CH Low



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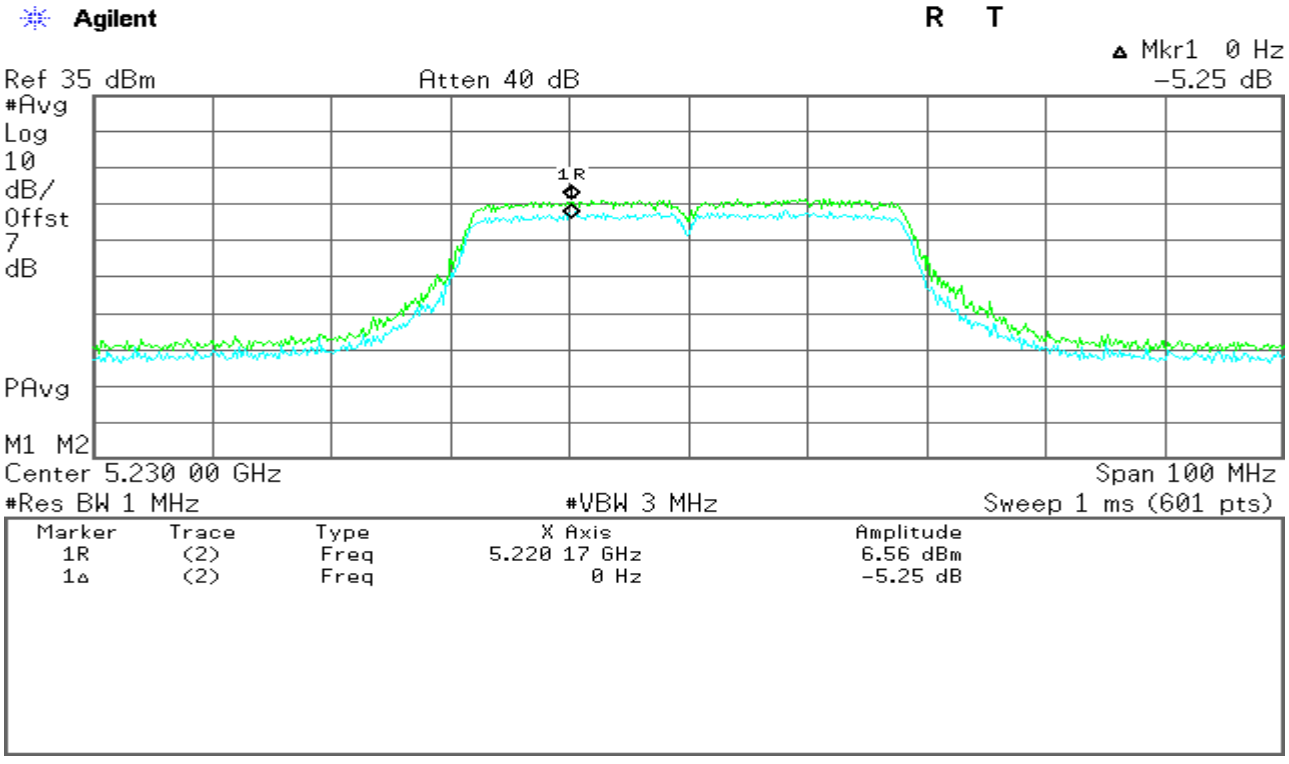
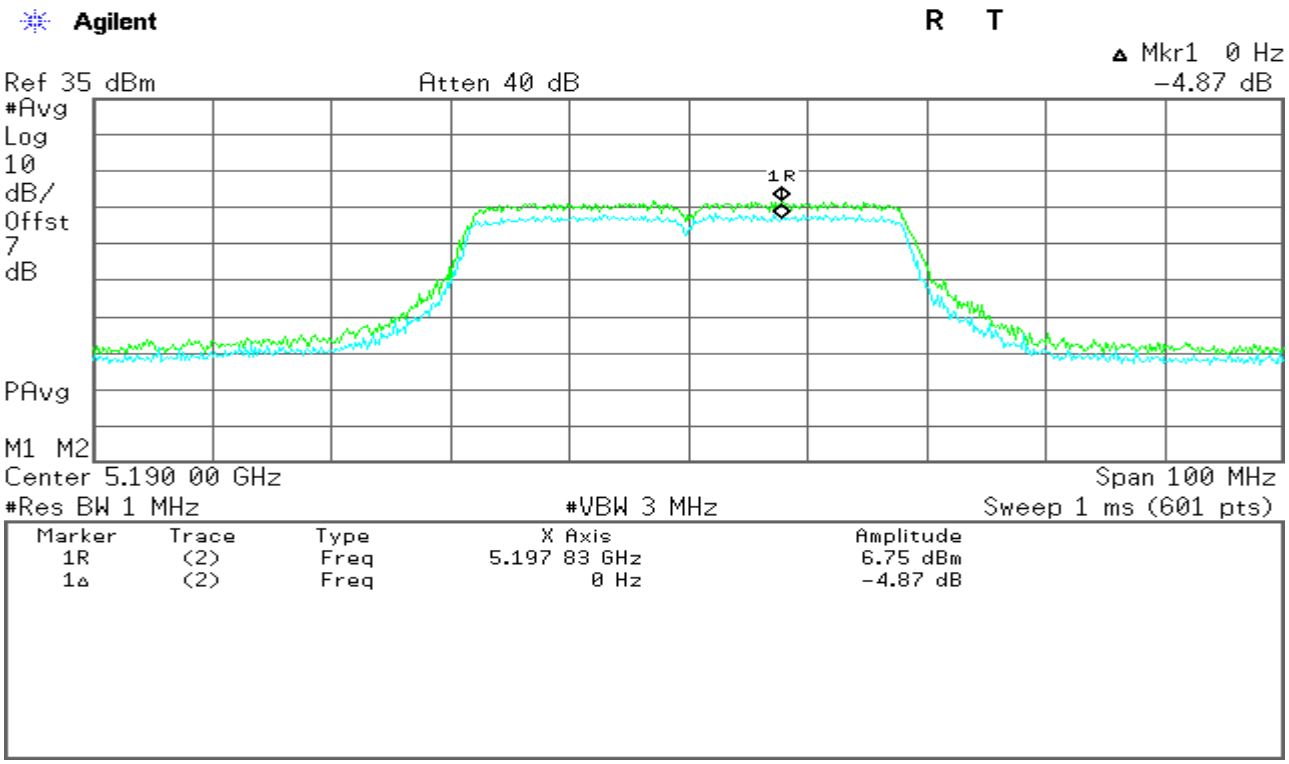


draft 802.11n Wide-40 MHz Channel mode / Chain 2

5150-5250MHz

CH Low



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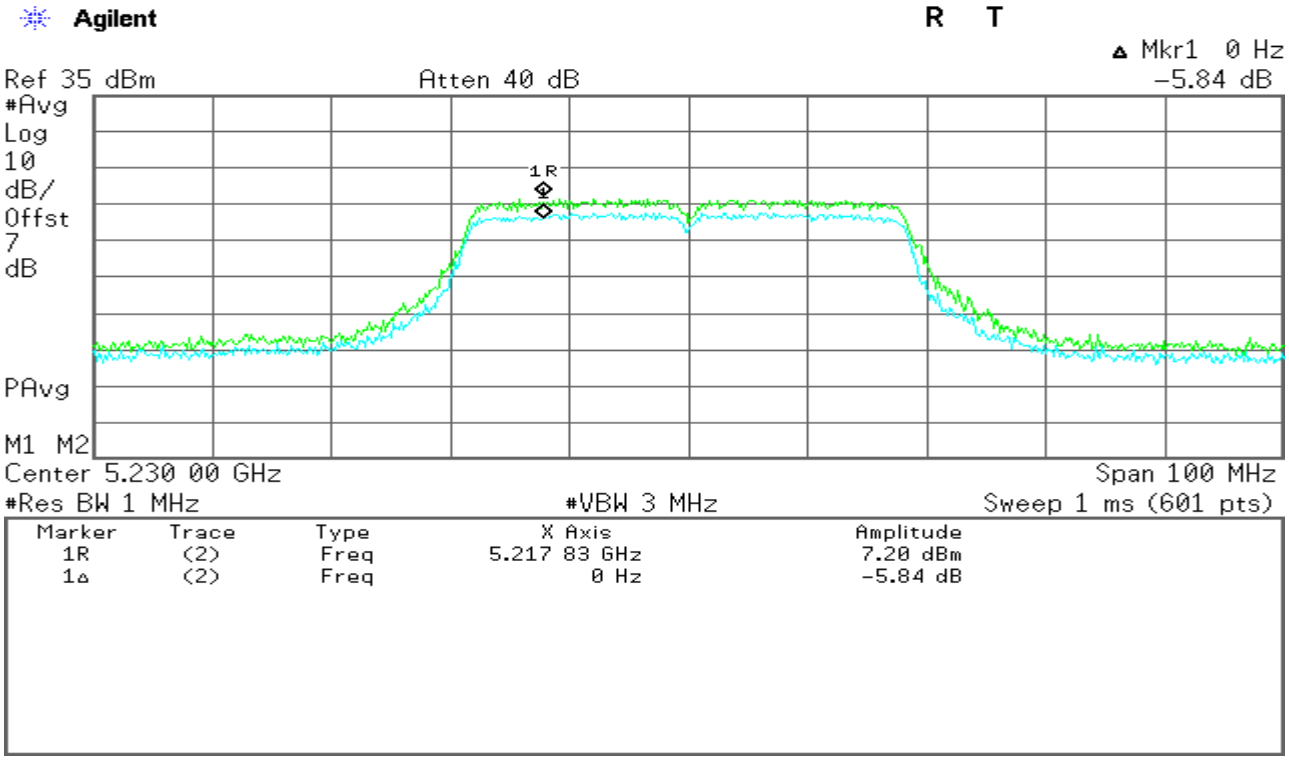
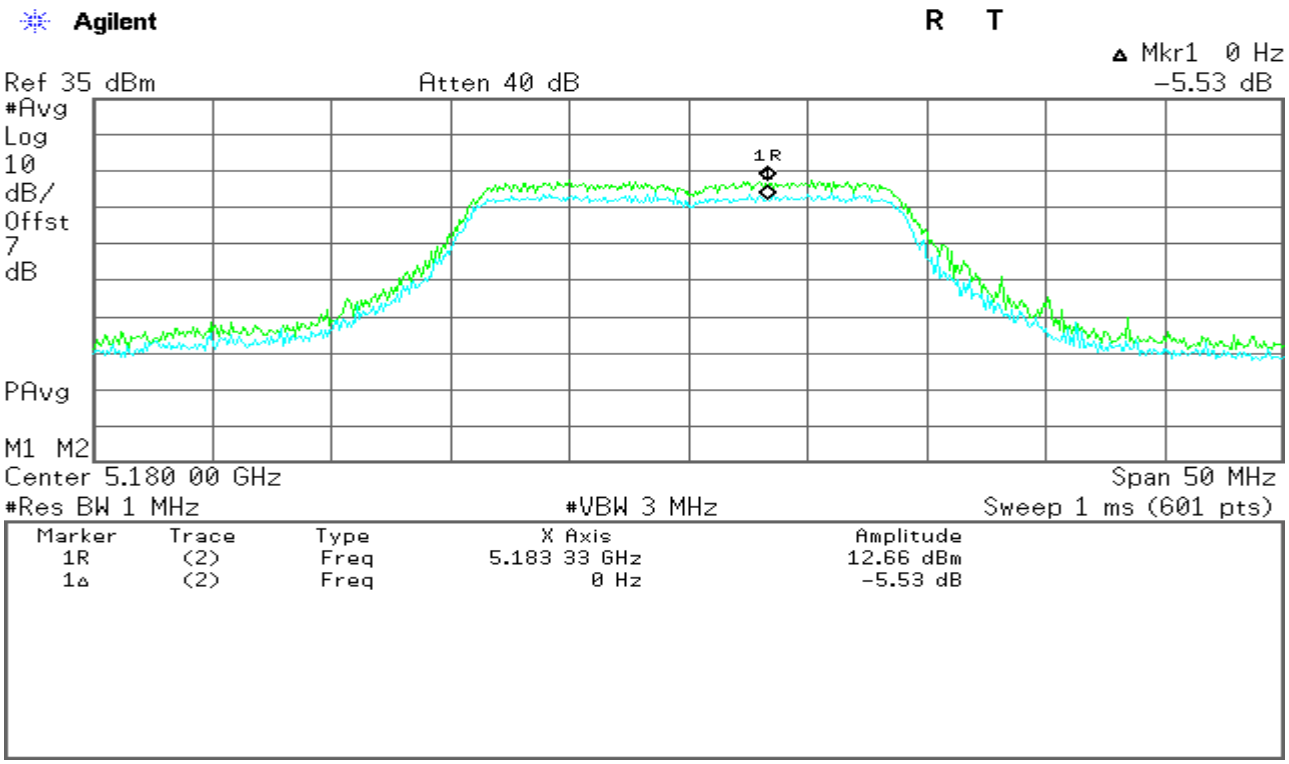


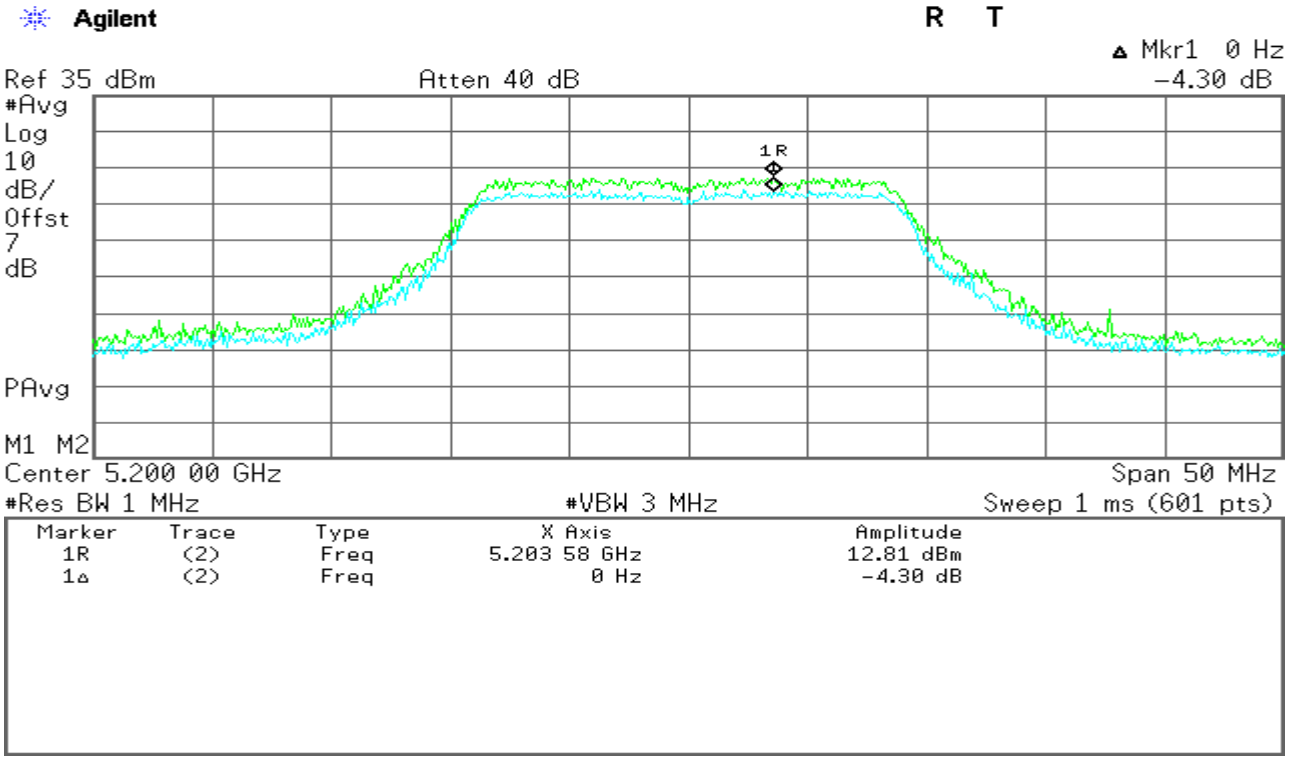
draft 802.11ac Standard-20 MHz Channel mode / Chain 0

5150-5250MHz

CH Low



CH Mid



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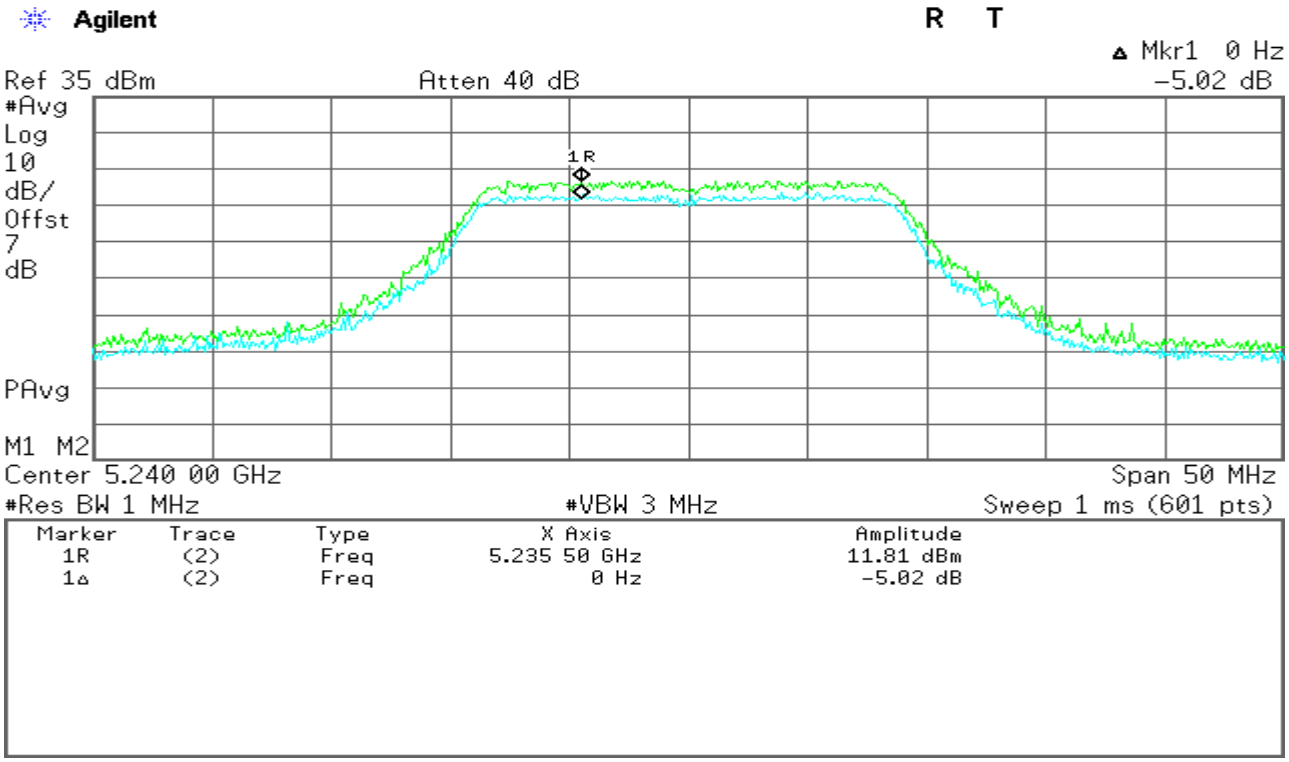
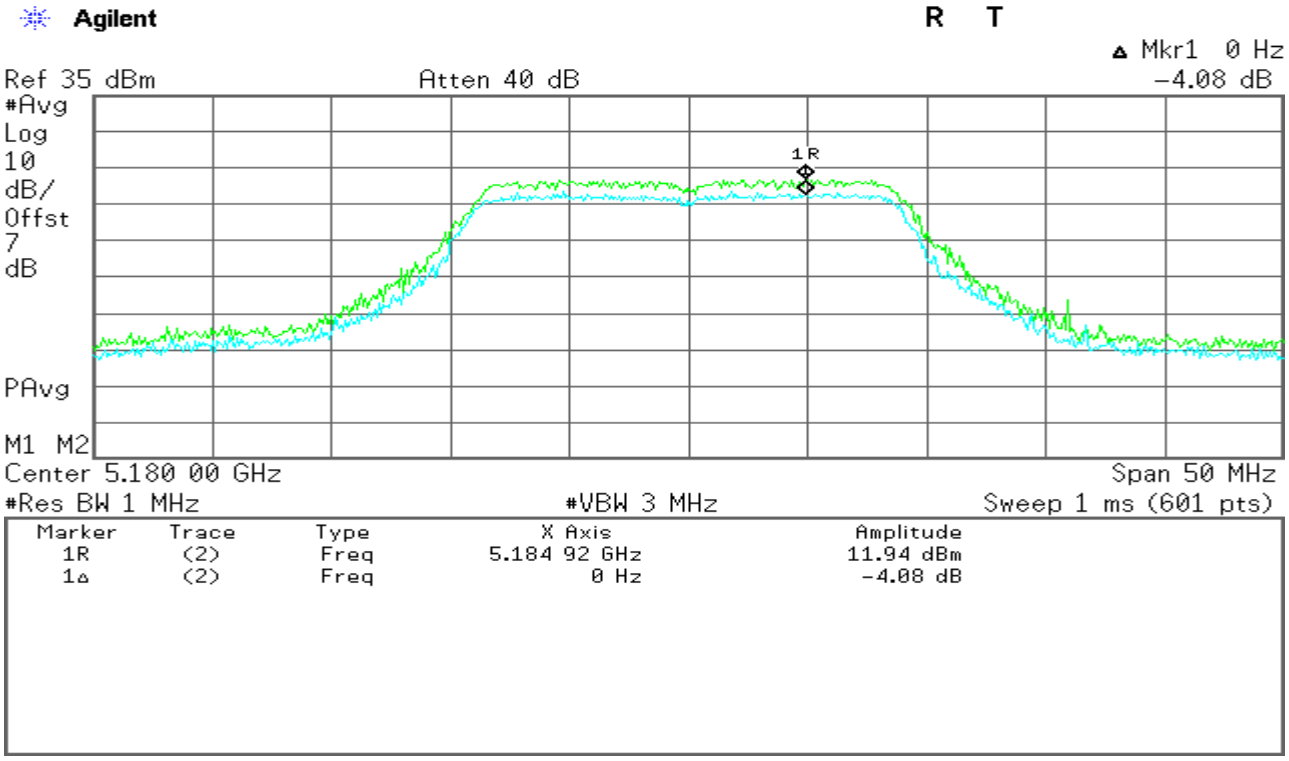


draft 802.11ac Standard-20 MHz Channel mode / Chain 1

5150-5250MHz

CH Low



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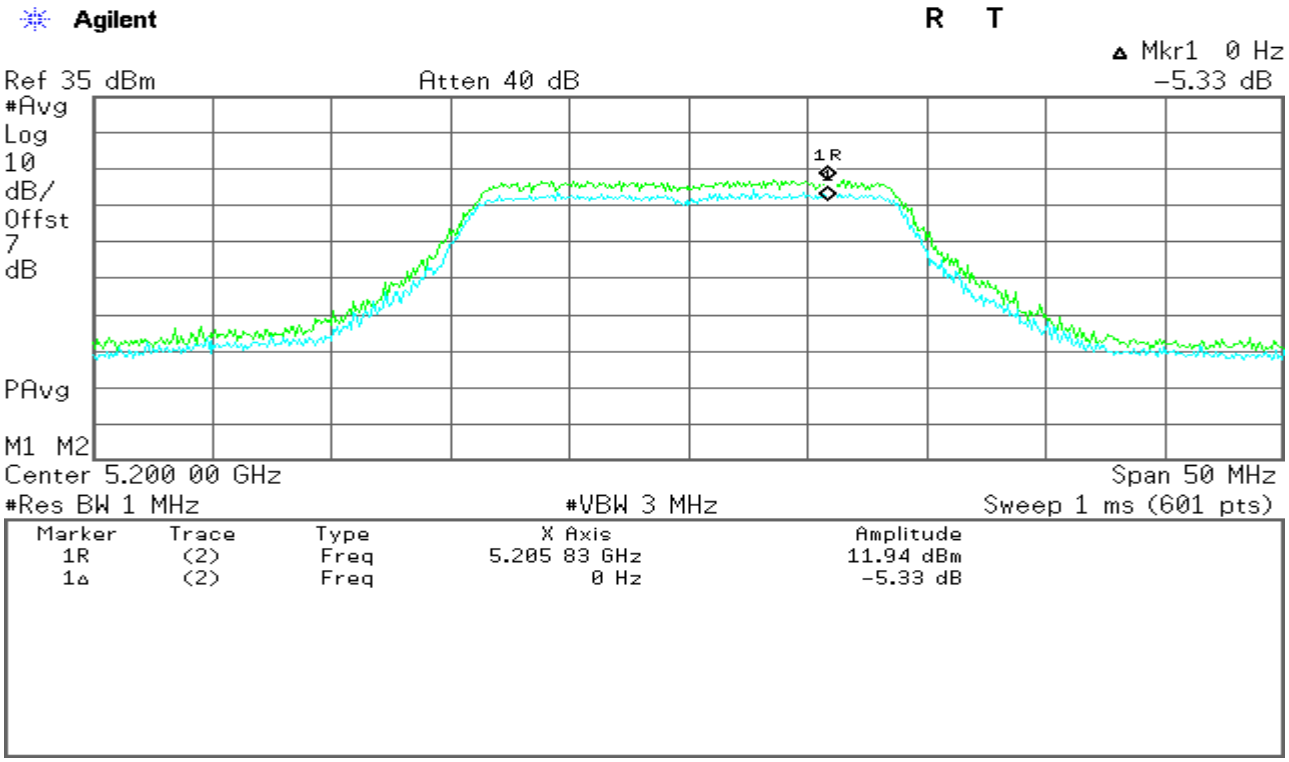

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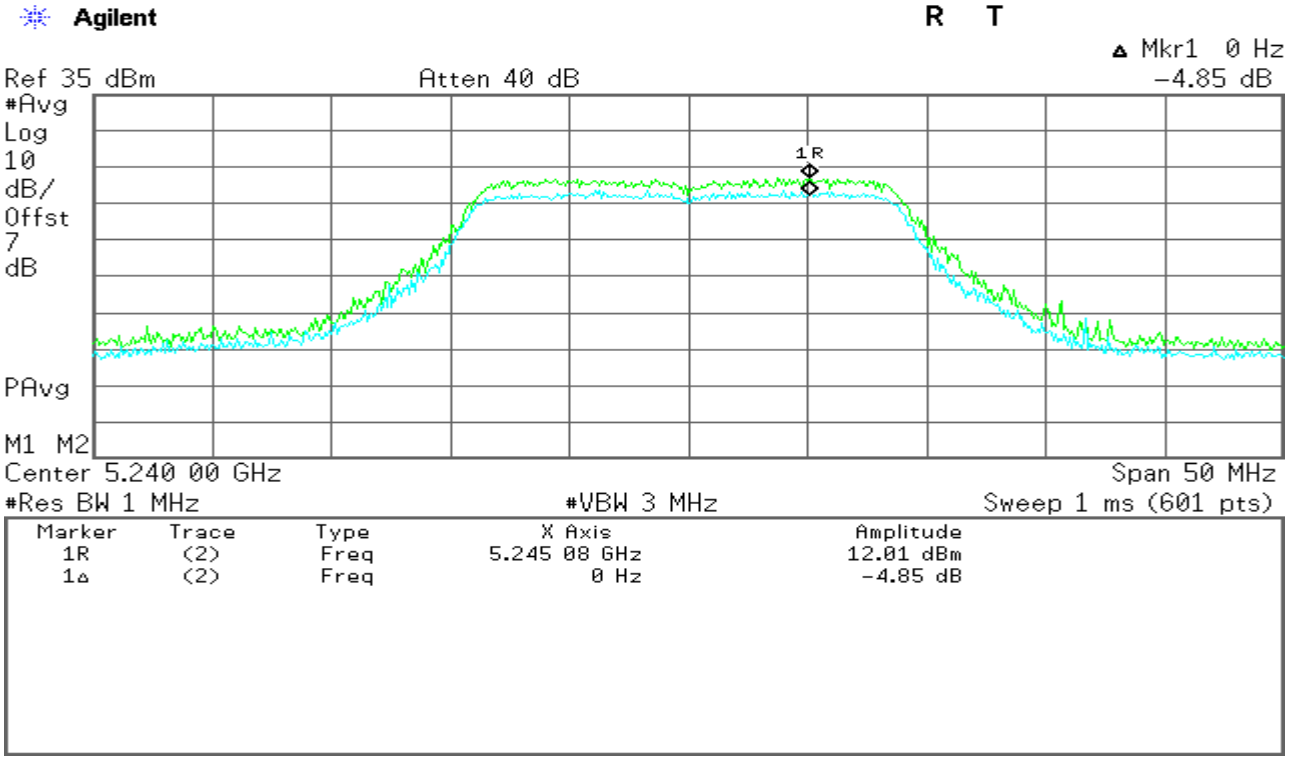
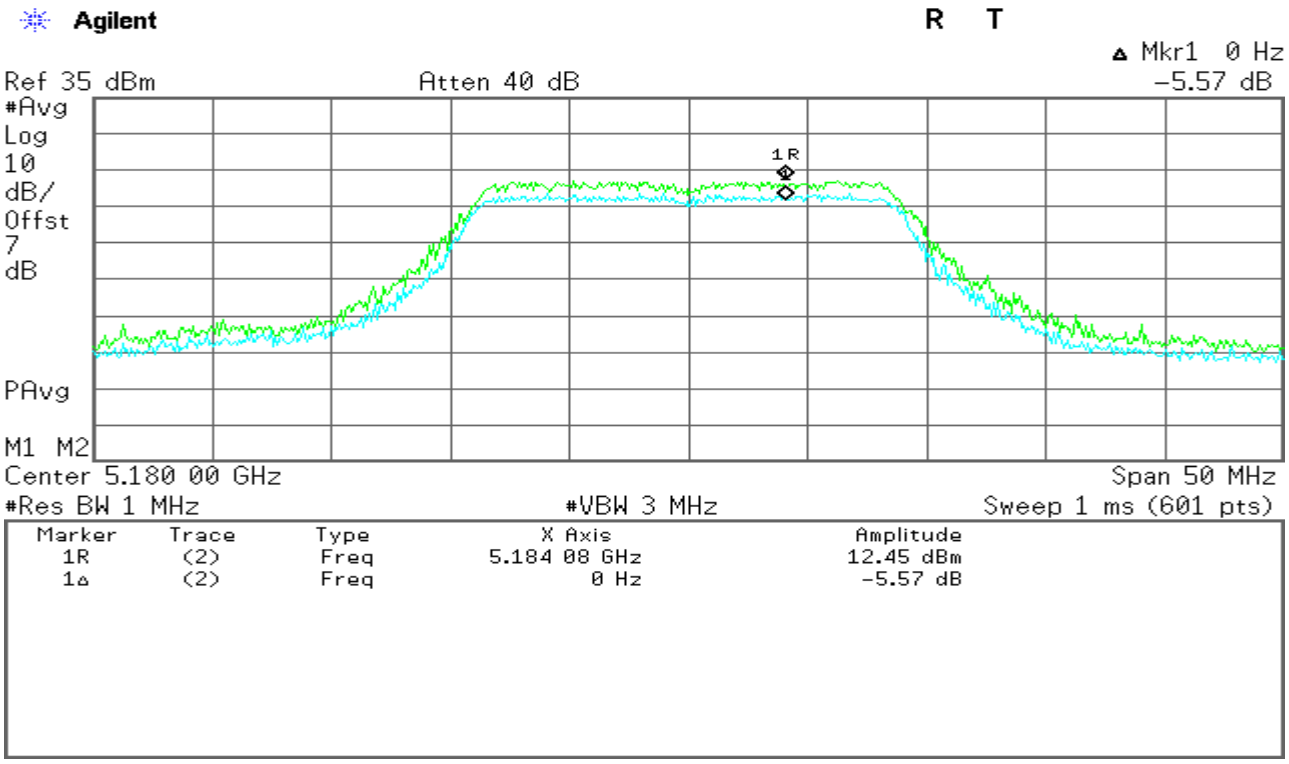


draft 802.11ac Standard-20 MHz Channel mode / Chain 2

5150-5250MHz

CH Low



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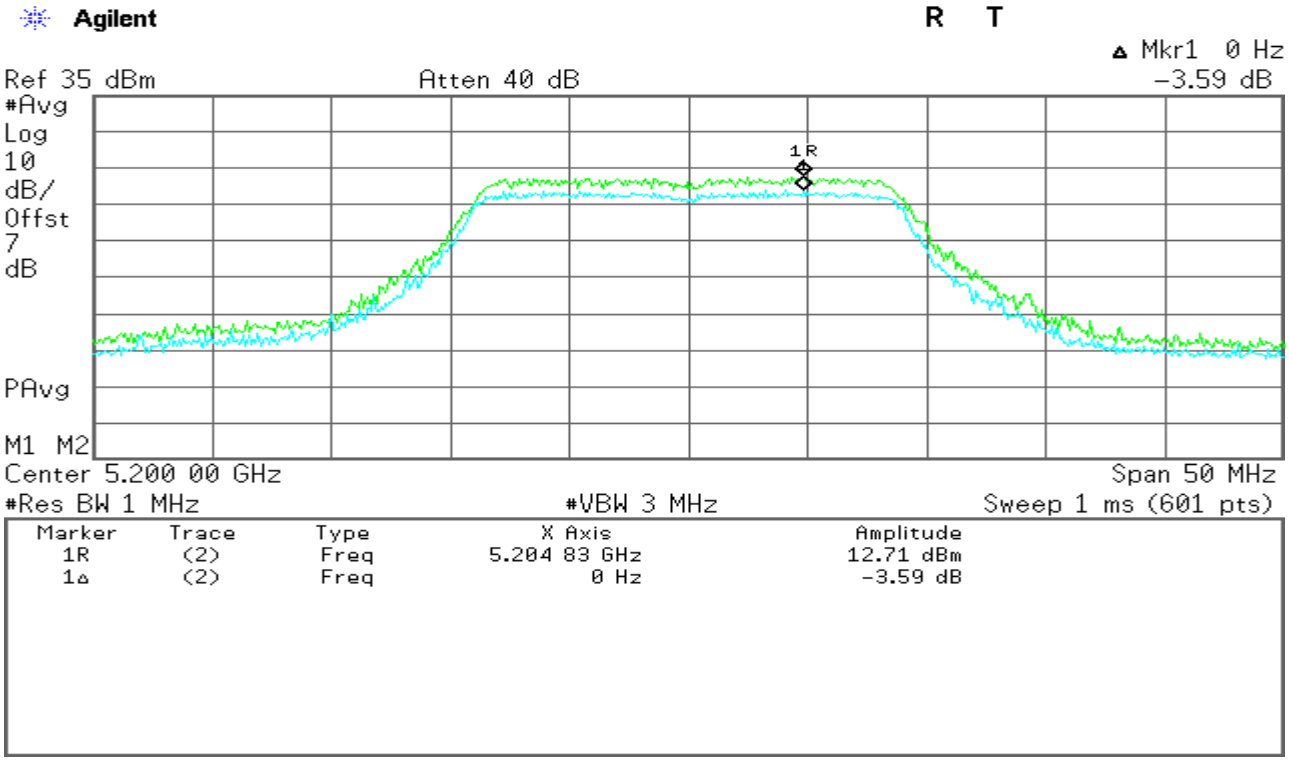

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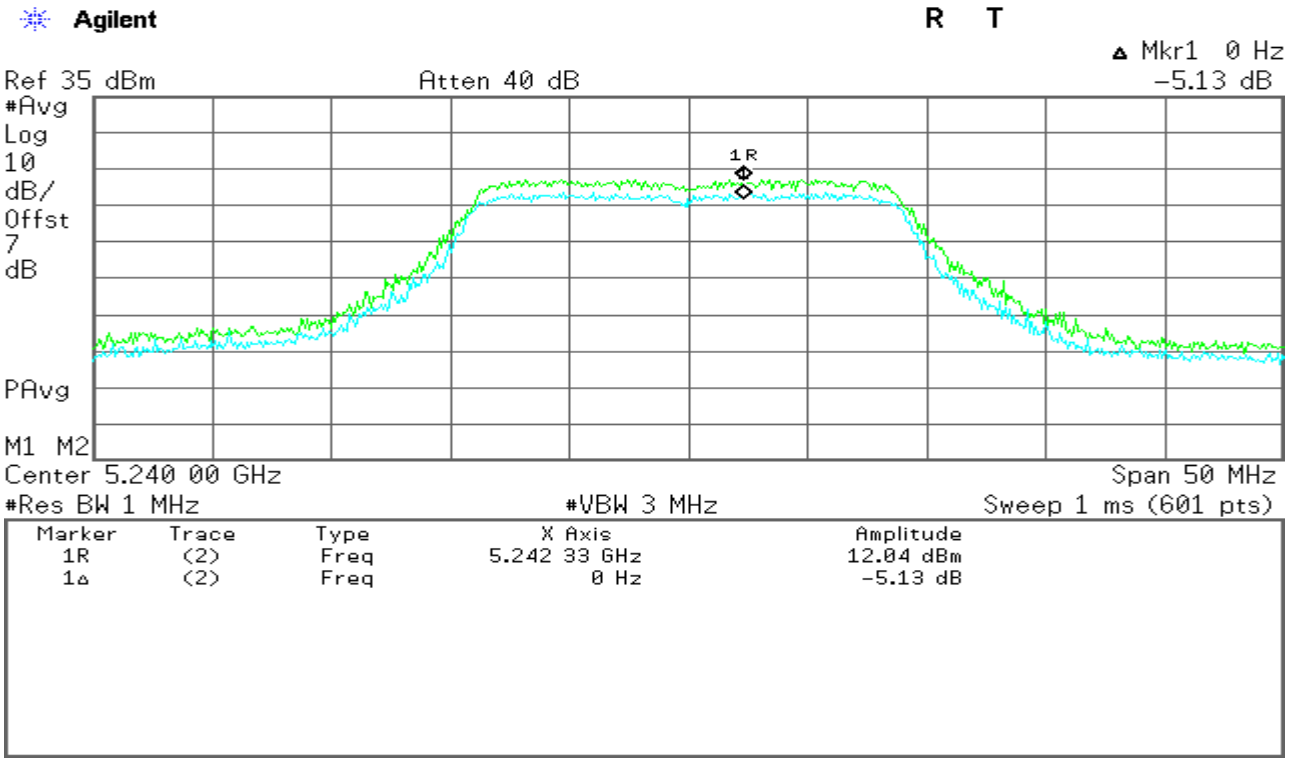
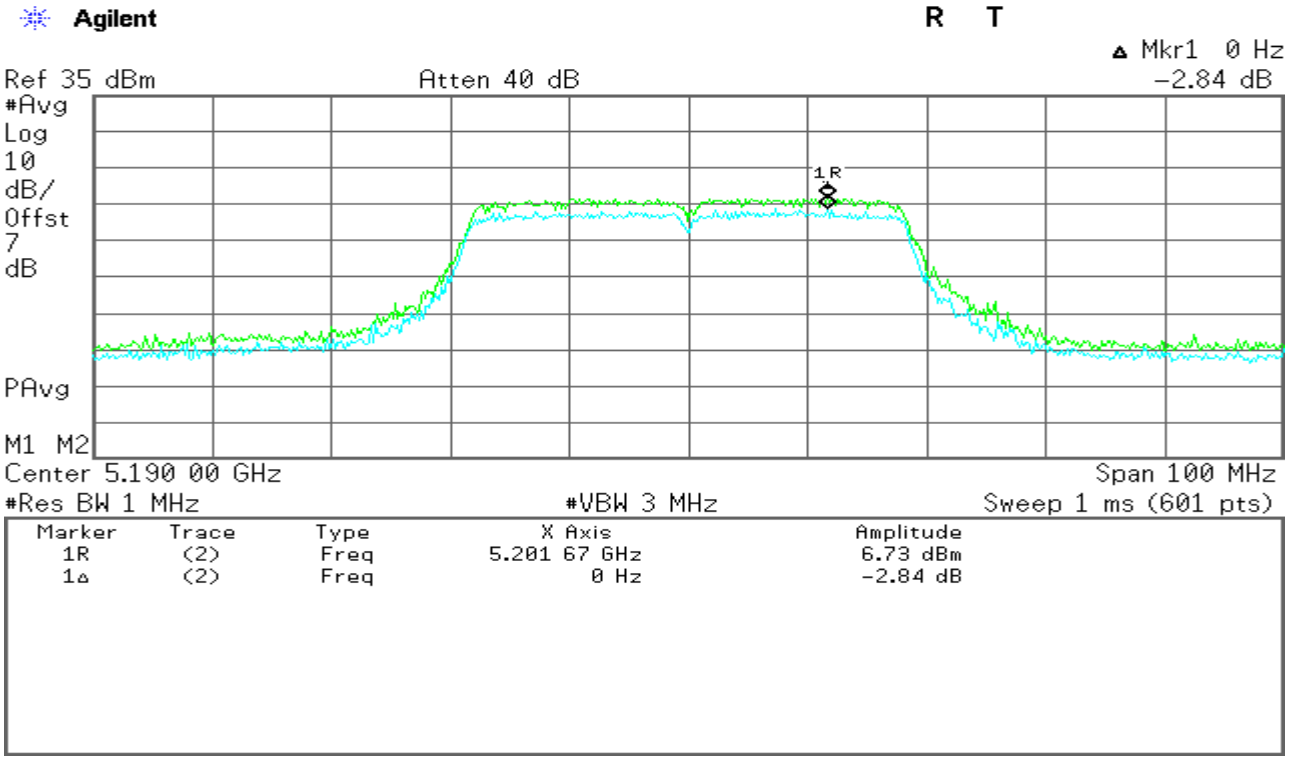


draft 802.11ac Wide-40 MHz Channel mode / Chain 0

5150-5250MHz

CH Low



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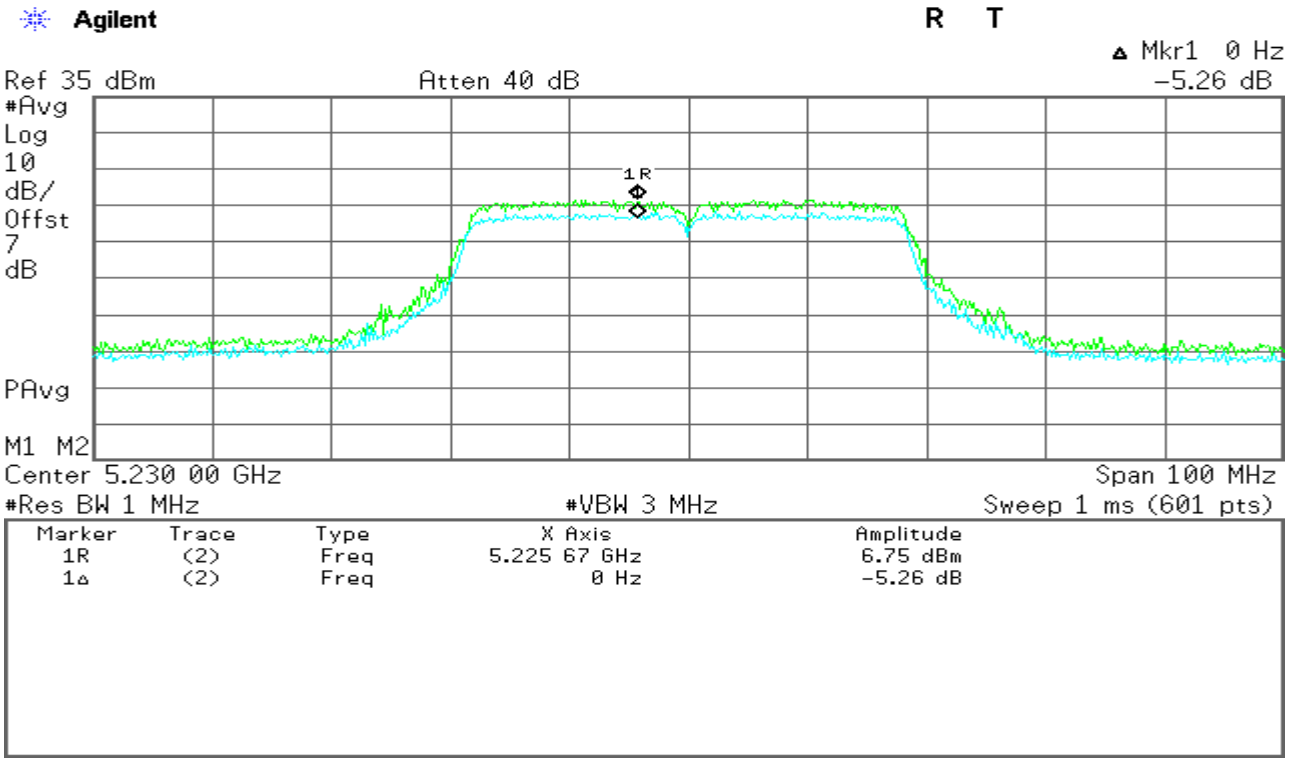
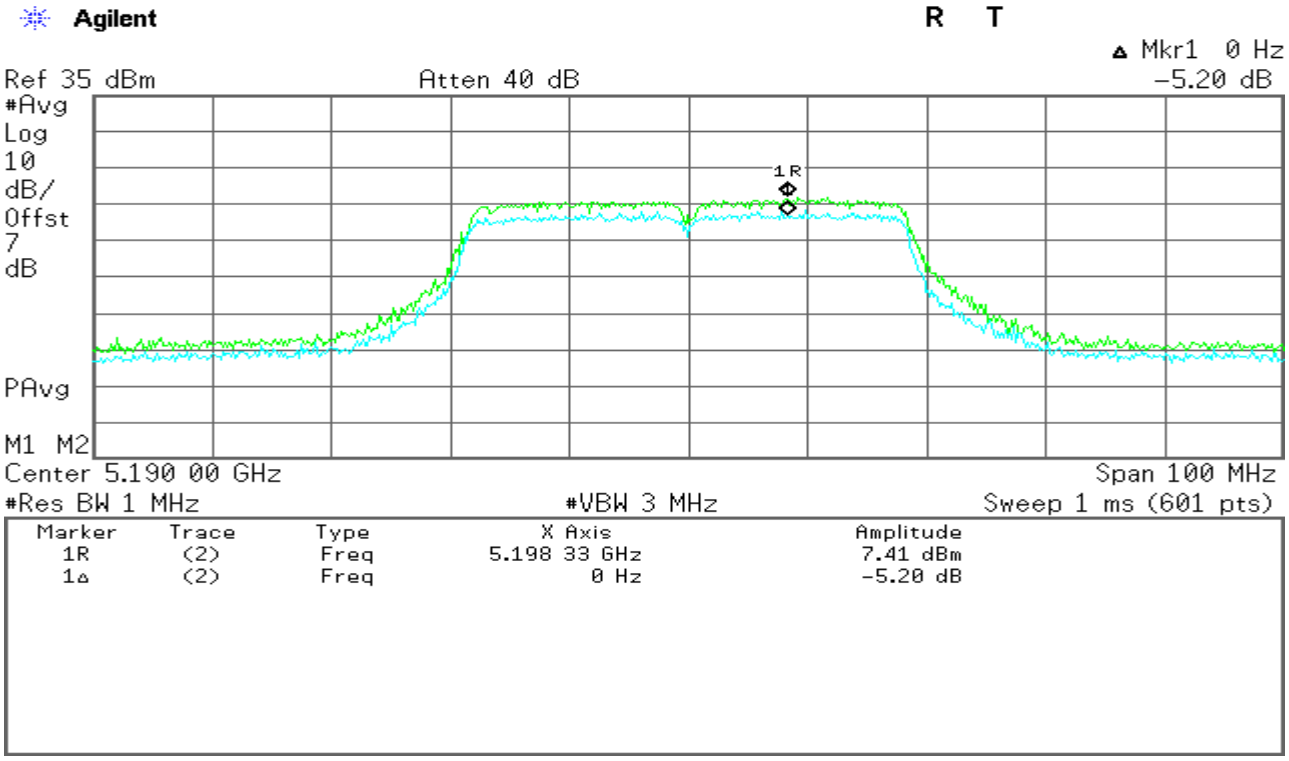


draft 802.11ac Wide-40 MHz Channel mode / Chain 1

5150-5250MHz

CH Low



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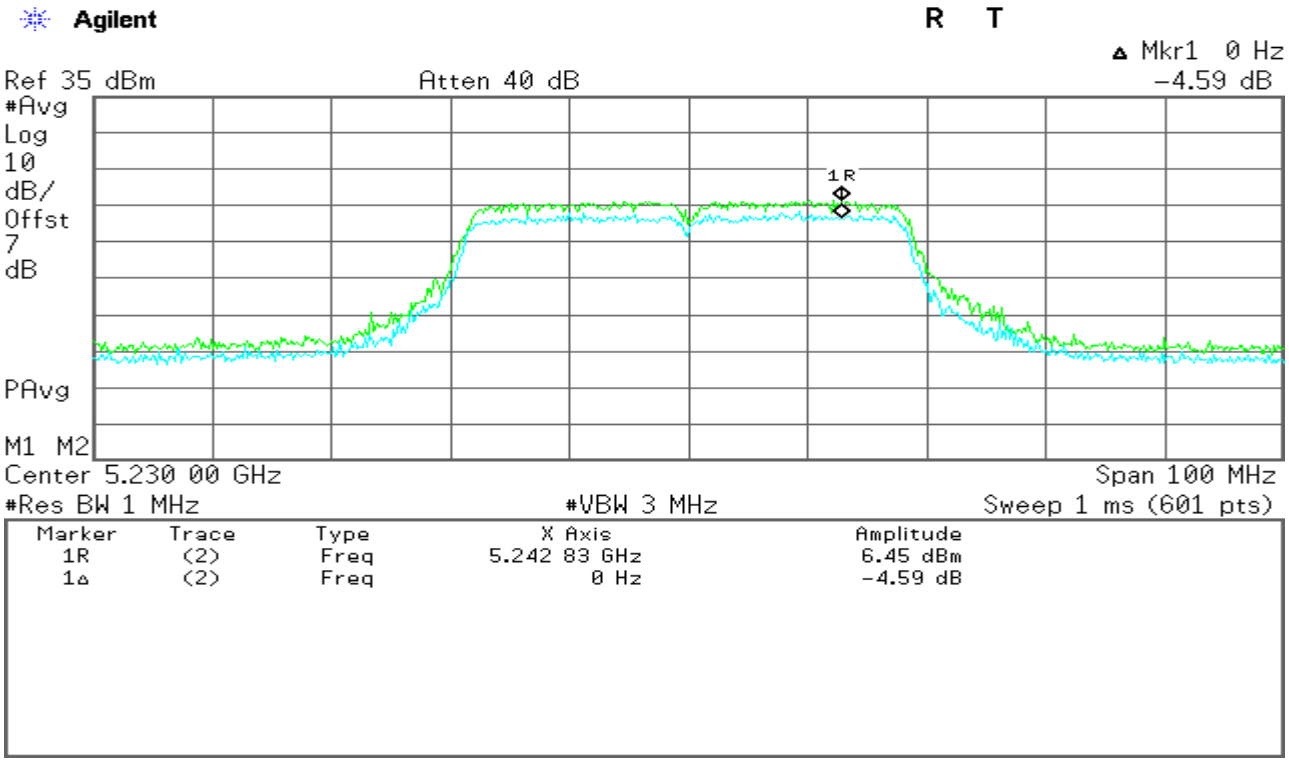
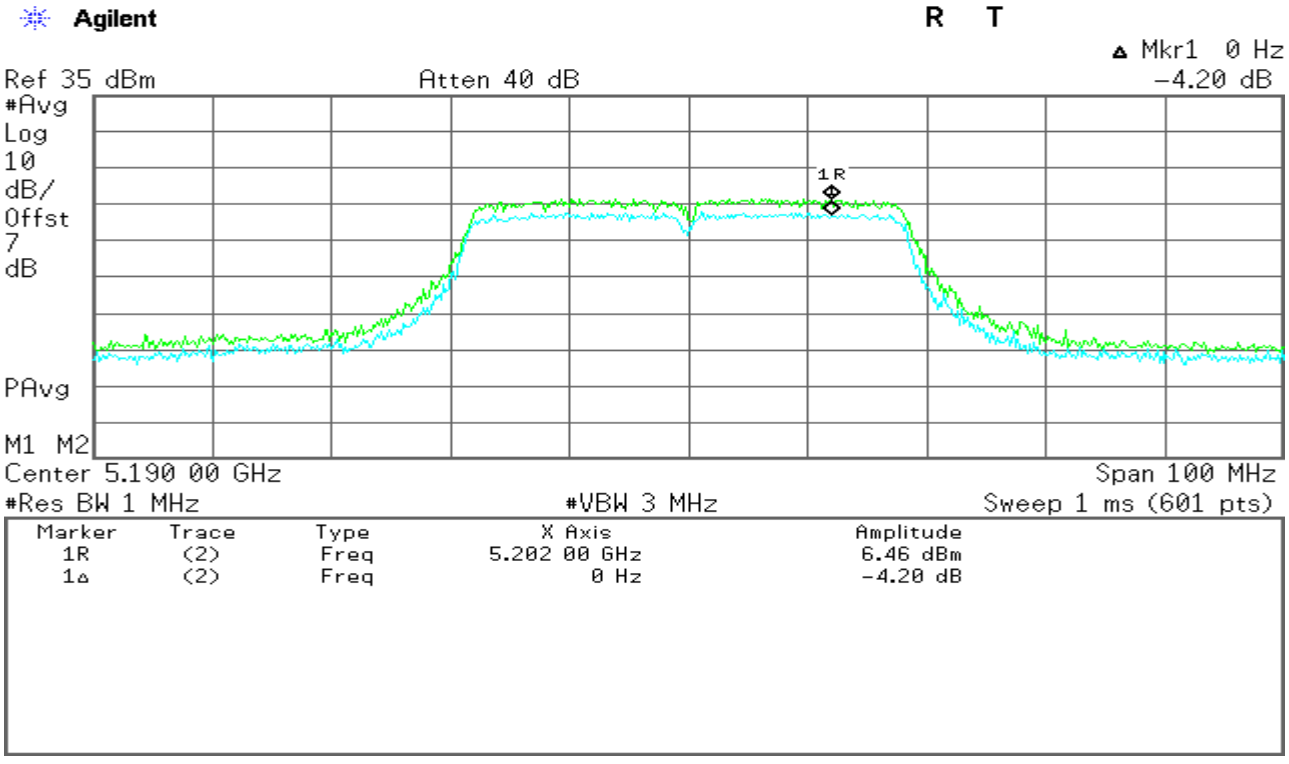


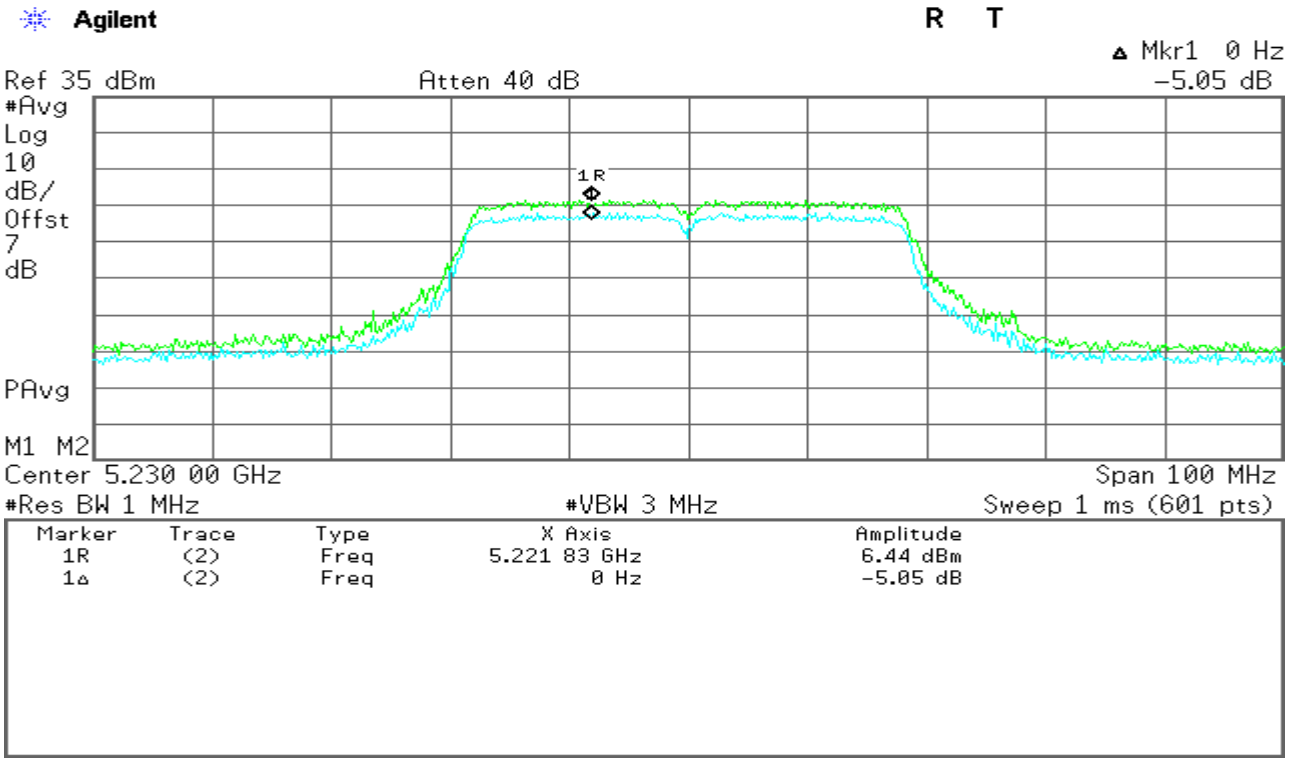
draft 802.11ac Wide-40 MHz Channel mode / Chain 2

5150-5250MHz

CH Low

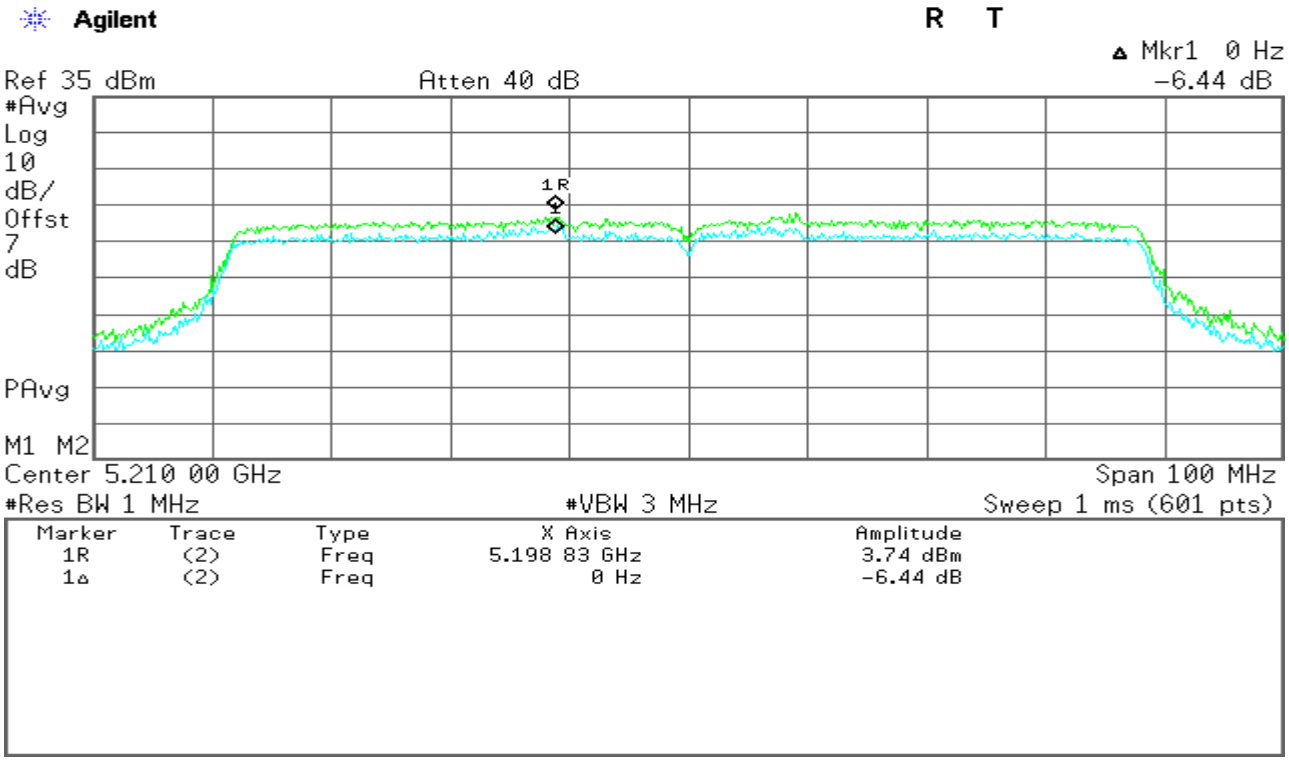


CH High



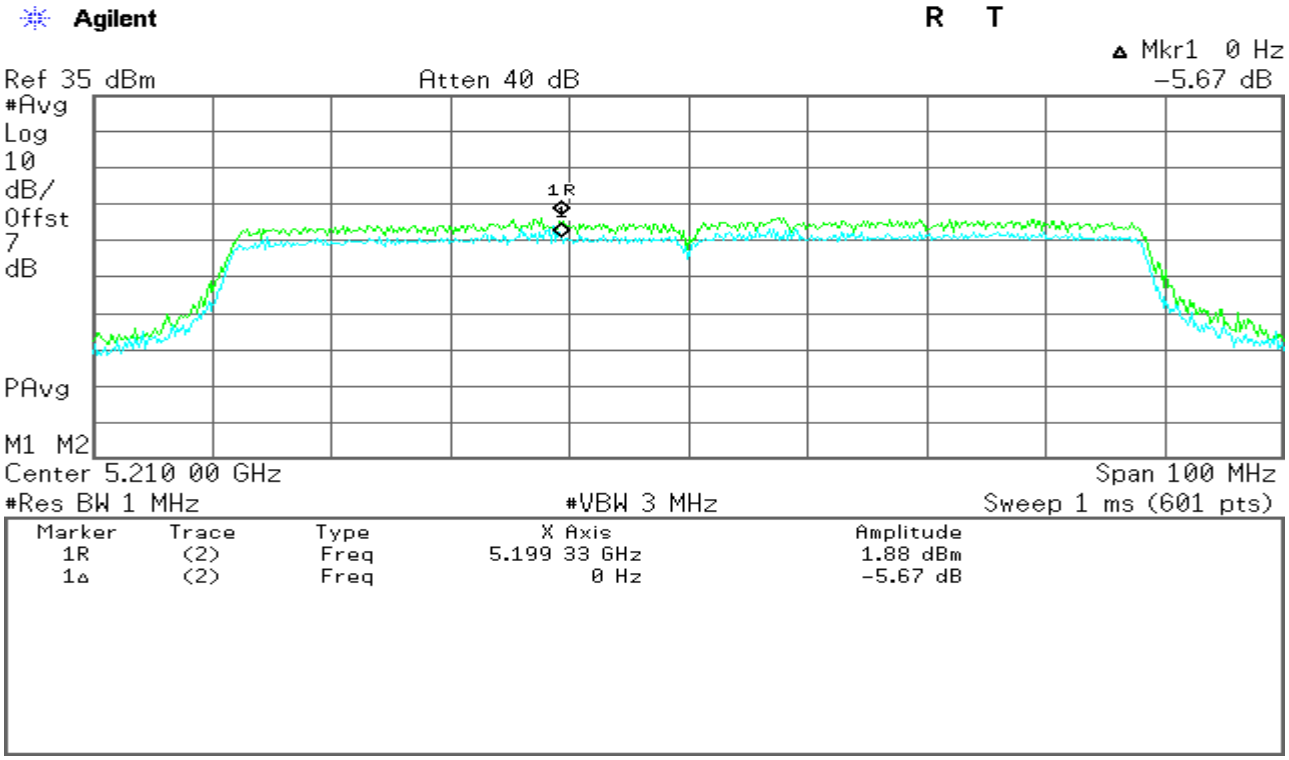
draft 802.11ac Wide-80 MHz Channel mode / Chain 0

5150-5250MHz



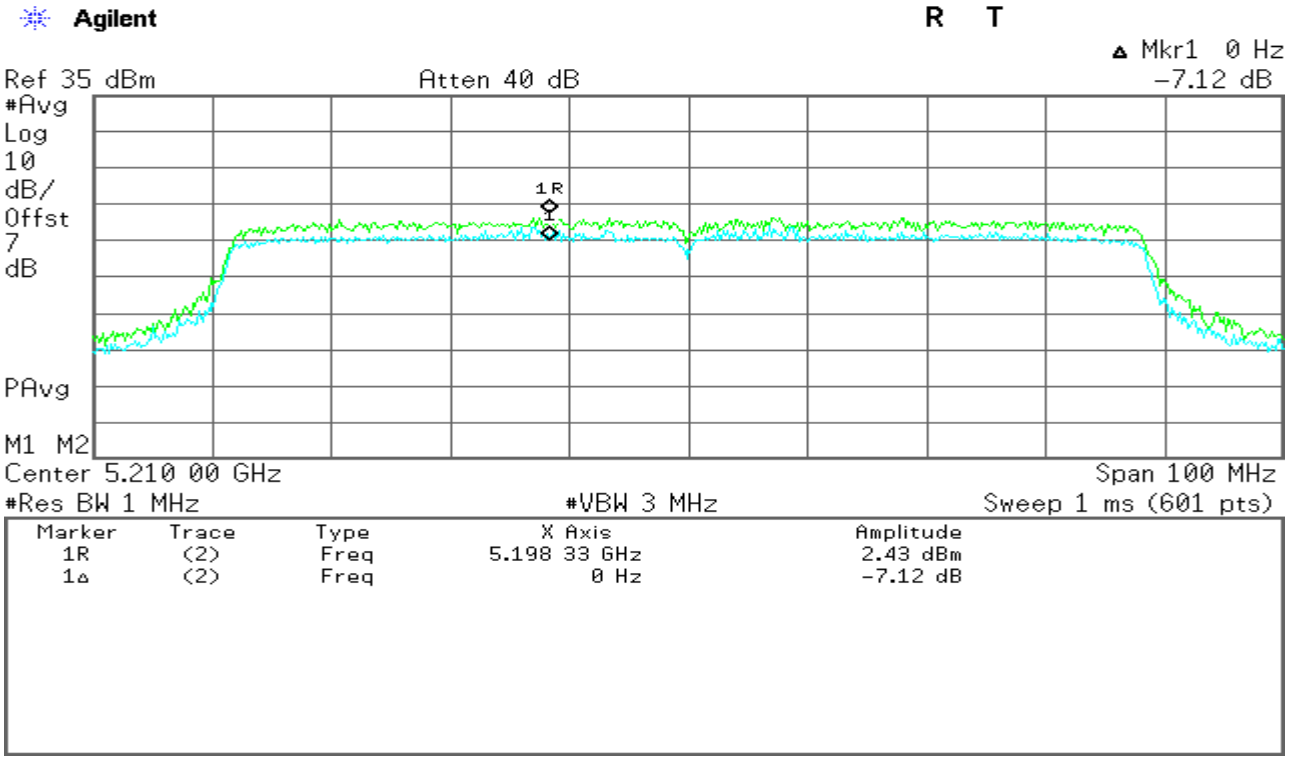
draft 802.11ac Wide-80 MHz Channel mode / Chain 1

5150-5250MHz



draft 802.11ac Wide-80 MHz Channel mode / Chain 2

5150-5250MHz



7.6 RADIATED UNDESIRABLE EMISSION

LIMIT

Radiated emissions from 9 kHz to 25 GHz were measured according to the methods defines in ANSI C63.4-2009. The EUT was placed, 0.8 meter above the ground plane, as shown in section 5.6.3. The interface cables and equipment positions were varied within limits of reasonable applications to determine the positions producing maximum radiated emissions

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:

FREQUENCIES(MHz)	FIELD STRENGTH (microvolts/meter)	MEASUREMENT DISTANCE(meters)
0.009~0.490	2400/F(kHz)	300
0.490~1.705	24000/F(kHz)	30
1.705~30.0	30	30
30~88	100	3
88~216	150	3
216~960	200	3
Above 960	500	3

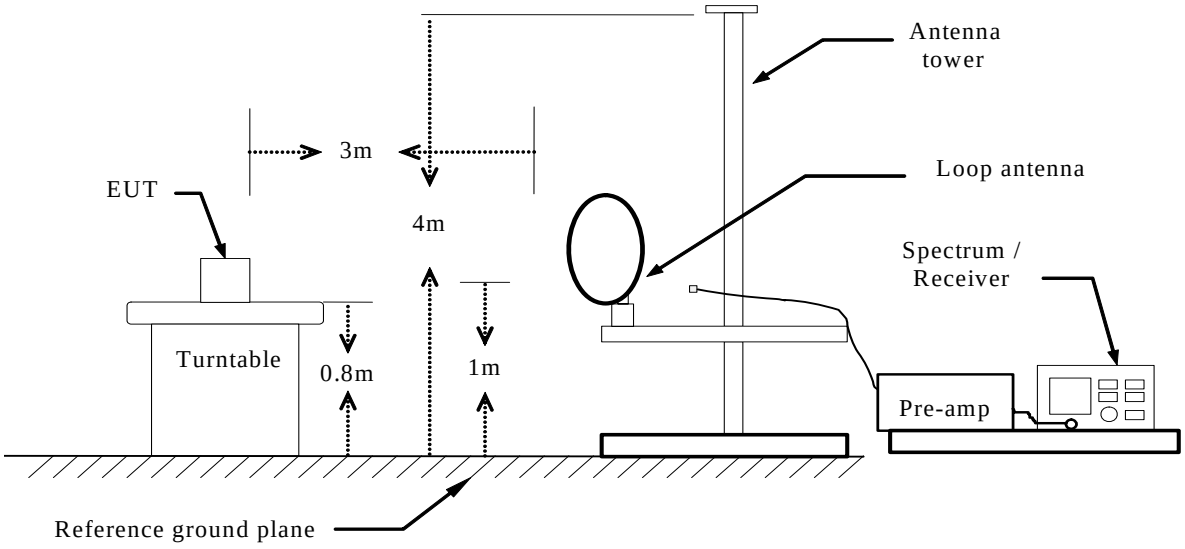
Remark: *Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this Section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permitted under other sections of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

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

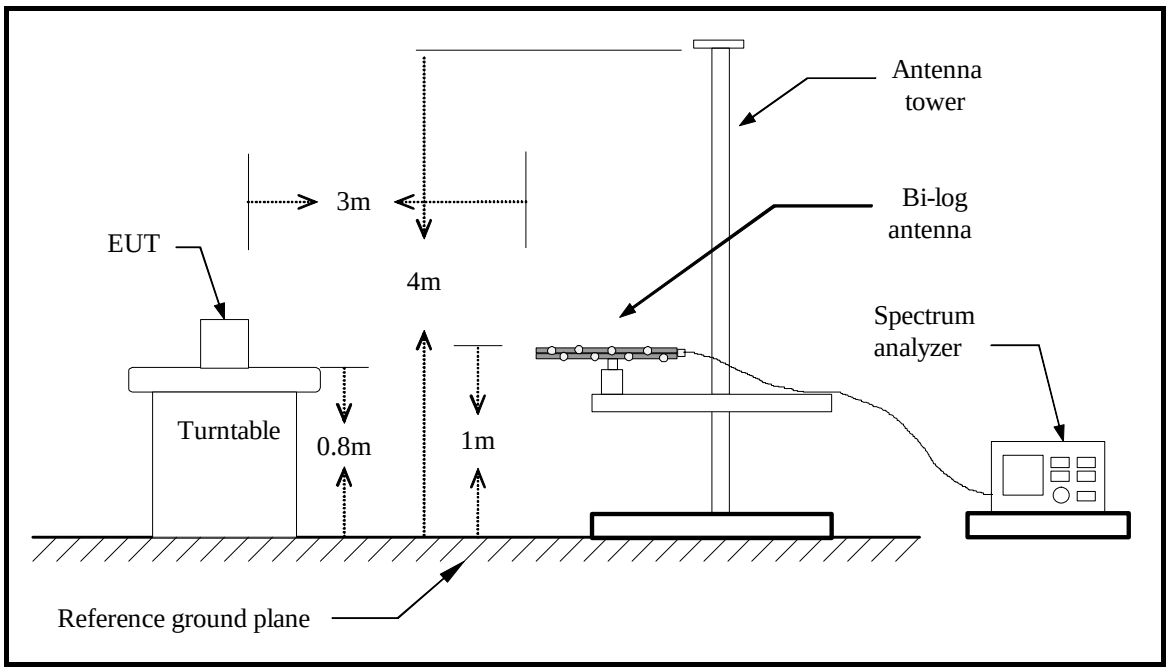
Frequency (MHz)	Field Strength (μV/m at 3-meter)	Field Strength (dBμV/m at 3-meter)
30-88	100	40
88-216	150	43.5
216-960	200	46
Above 960	500	54

Test Configuration

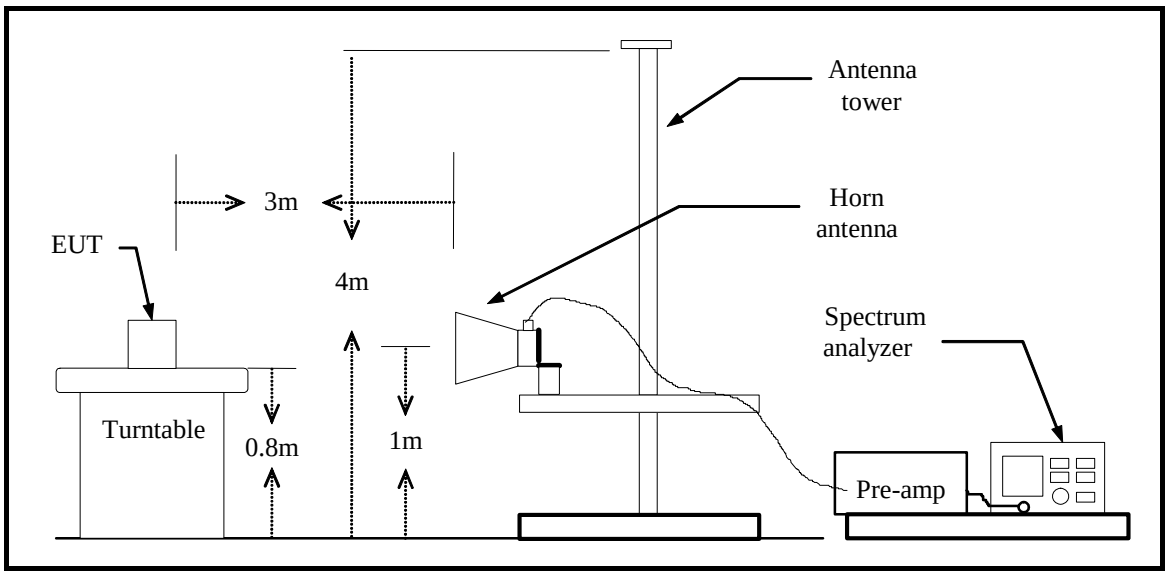
Below 30MHz



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

Below 1 GHz

Operation Mode:	Normal Link	**Test Date:**	2014-11-7
Temperature:	25°C	Tested by:	James.Yan
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**
44.5500	V	20.91	12.48	33.39	40.00	-6.61	Peak
58.1300	V	28.12	8.09	36.21	40.00	-3.79	Peak
156.1000	V	17.27	13.48	30.75	43.50	-12.75	Peak
375.3200	V	21.47	17.45	38.92	46.00	-7.08	Peak
625.5800	V	17.07	21.39	38.46	46.00	-7.54	Peak
828.3100	V	13.48	24.69	38.17	46.00	-7.83	Peak
58.1300	H	28.42	8.09	36.51	40.00	-3.49	Peak
219.1500	H	19.23	13.33	32.56	46.00	-13.44	Peak
293.8400	H	21.76	14.94	36.70	46.00	-9.30	Peak
625.5800	H	15.04	21.39	36.43	46.00	-9.57	Peak
832.1900	H	14.48	24.82	39.30	46.00	-6.70	Peak
935.9800	H	15.10	25.30	40.40	46.00	-5.60	Peak

Remark:

4. Measuring frequencies from 30 MHz to the 1GHz.(no emission found from the lowest internal used/generated frequency to 30MHz)
5. Radiated emissions measured were made with an instrument using peak/quasi-peak detector mode.
6. Quasi-peak test would be performed if the peak result were greater than the quasi-peak limit or as required by the applicant.
7. 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.
8. Margin (dB) = Remark result (dBuV/m) – Quasi-peak limit (dBuV/m).

Above 1 GHz

Operation Mode:	Tx / IEEE 802.11a mode CH Low	**Test Date:**	November 7, 2014
Temperature:	25°C	**Tested by:**	James.Yan
Humidity:	55% RH	**Polarity:**	Ver. / Hor.

Horizontal

No.	Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(deg.)	
1	5168.269	62.99	-1.27	61.72	74.00	-12.28	100	202	peak
2	5195.513	48.37	-1.11	47.26	54.00	-6.74	100	191	AVG
3	10371.795	47.80	9.86	57.66	74.00	-16.34	100	38	peak
4	10399.039	37.92	9.94	47.86	54.00	-6.14	100	339	AVG
5	14918.387	32.49	17.72	50.21	54.00	-3.79	100	205	AVG
6	14921.474	38.21	17.73	55.94	74.00	-18.06	100	205	peak

Vertical

No.	Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(deg.)	
1	5168.269	59.73	-1.27	58.46	74.00	-15.54	100	187	peak
2	5195.513	51.43	-1.11	50.32	54.00	-3.68	100	195	AVG
3	10317.308	37.25	9.68	46.93	54.00	-7.07	100	134	AVG
4	10371.795	56.79	9.86	66.65	74.00	-7.35	100	77	peak
5	15357.372	33.24	17.61	50.85	54.00	-3.15	100	301	AVG
6	15384.615	36.56	17.58	54.14	74.00	-19.86	100	198	peak

Operation Mode:	Tx / IEEE 802.11a mode CH Mid	**Test Date:**	November 7, 2014
Temperature:	25°C	**Tested by:**	James.Yan
Humidity:	55% RH	**Polarity:**	Ver. / Hor.

Horizontal

No.	Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(deg.)	
1	5195.513	58.56	-1.11	57.45	74.00	-16.55	100	340	peak
2	5222.756	43.74	-0.96	42.78	54.00	-11.22	100	15	AVG
3	10393.526	39.13	9.93	49.06	54.00	-4.94	100	236	AVG
4	10399.039	47.59	9.94	57.53	74.00	-16.47	100	34	peak
5	14921.474	31.47	17.73	49.20	54.00	-4.80	100	251	AVG
6	14948.718	36.70	17.82	54.52	74.00	-19.48	100	322	peak

Vertical

No.	Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(deg.)	
1	5195.513	52.86	-1.11	51.75	74.00	-22.25	100	360	peak
2	10399.039	55.69	9.94	65.63	74.00	-8.37	100	82	peak
3	10426.282	38.59	10.03	48.62	54.00	-5.38	100	71	AVG
4	15357.372	31.92	17.61	49.53	54.00	-4.47	100	139	AVG
5	15384.615	37.30	17.58	54.88	74.00	-19.12	100	288	peak
N/A									

Operation Mode:	Tx / IEEE 802.11a mode CH High	**Test Date:**	November 7, 2014
Temperature:	25°C	**Tested by:**	James.Yan
Humidity:	55% RH	**Polarity:**	Ver. / Hor.

Horizontal

No.	Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(deg.)	
1	5222.756	48.88	-0.96	47.92	74.00	-26.08	100	187	peak
2	10453.526	39.22	10.12	49.34	54.00	-4.66	100	249	AVG
3	10480.769	43.50	10.21	53.71	74.00	-20.29	100	98	peak
4	16201.923	28.49	20.80	49.29	54.00	-4.71	100	25	AVG
5	16229.167	34.81	20.92	55.73	74.00	-18.27	100	313	peak
N/A									

Vertical

No.	Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(deg.)	
1	4977.564	51.84	-2.36	49.48	74.00	-24.52	100	78	peak
2	10480.769	54.54	10.21	64.75	74.00	-9.25	100	94	peak
3	10535.256	38.39	10.39	48.78	54.00	-5.22	100	359	AVG
4	15384.615	37.00	17.58	54.58	74.00	-19.42	100	1	peak
5	15411.859	32.32	17.55	49.87	54.00	-4.13	100	1	AVG
N/A									

Operation Mode:	TX / draft 802.11n Standard-20 MHz Channel mode /CH Low	**Test Date:**	November 7, 2014
Temperature:	25°C	**Tested by:**	James.Yan
Humidity:	55% RH	**Polarity:**	Ver. / Hor.

Horizontal

No.	Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(deg.)	
1	5168.269	61.78	-1.27	60.51	74.00	-13.49	100	338	peak
2	5195.513	48.27	-1.11	47.16	54.00	-6.84	100	257	AVG
3	10371.795	45.02	9.86	54.88	74.00	-19.12	100	31	peak
4	10399.039	38.23	9.94	48.17	54.00	-5.83	100	150	AVG
5	14921.474	30.52	17.73	48.25	54.00	-5.75	100	172	AVG
6	14948.718	37.49	17.82	55.31	74.00	-18.69	100	130	peak

Vertical

No.	Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(deg.)	
1	5168.269	56.90	-1.27	55.63	74.00	-18.37	100	185	peak
2	5195.513	49.27	-1.11	48.16	54.00	-5.84	100	338	AVG
3	10371.795	55.17	9.86	65.03	74.00	-8.97	100	97	peak
4	10399.039	39.72	9.94	49.66	54.00	-4.34	100	151	AVG
5	16283.654	27.31	21.17	48.48	54.00	-5.52	100	360	AVG
6	16310.897	34.51	21.32	55.83	74.00	-18.17	100	238	peak

Operation Mode:	TX / draft 802.11n Standard-20 MHz Channel mode /CH Mid	**Test Date:**	November 7, 2014
Temperature:	25°C	**Tested by:**	James.Yan
Humidity:	55% RH	**Polarity:**	Ver. / Hor.

Horizontal

No.	Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(deg.)	
1	5195.513	56.18	-1.11	55.07	74.00	-18.93	100	196	peak
2	5195.513	49.18	-1.11	48.07	54.00	-5.93	100	196	AVG
3	10399.039	44.05	9.94	53.99	74.00	-20.01	100	38	peak
4	10426.282	39.46	10.03	49.49	54.00	-4.51	100	46	AVG
5	15411.859	37.40	17.55	54.95	74.00	-19.05	100	162	peak
6	15439.103	32.60	17.52	50.12	54.00	-3.88	100	164	AVG

Vertical

No.	Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(deg.)	
1	5195.513	51.30	-1.11	50.19	74.00	-23.81	100	349	peak
2	10371.795	41.83	9.86	51.69	54.00	-2.31	100	79	AVG
3	10399.039	54.20	9.94	64.14	74.00	-9.86	100	78	peak
4	16147.436	30.57	19.74	50.31	54.00	-3.69	100	13	AVG
5	16174.680	35.16	20.29	55.45	74.00	-18.55	100	138	peak
N/A									

Operation Mode:	TX / draft 802.11n Standard-20 MHz Channel mode /CH High	**Test Date:**	November 7, 2014
Temperature:	25°C	**Tested by:**	James.Yan
Humidity:	55% RH	**Polarity:**	Ver. / Hor.

Horizontal

No.	Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(deg.)	
1	5549.680	52.54	0.69	53.23	74.00	-20.77	100	224	peak
2	10453.526	38.80	10.12	48.92	54.00	-5.08	100	203	AVG
3	10480.769	44.27	10.21	54.48	74.00	-19.52	100	39	peak
4	16201.923	29.33	20.80	50.13	54.00	-3.87	100	286	AVG
5	16229.167	36.14	20.92	57.06	74.00	-16.94	100	244	peak
N/A									

Vertical

No.	Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(deg.)	
1	4977.564	50.17	-2.36	47.81	74.00	-26.19	100	84	peak
2	10480.769	51.19	10.21	61.40	74.00	-12.60	100	97	peak
3	10508.013	38.97	10.30	49.27	54.00	-4.73	100	92	AVG
4	16201.923	34.55	20.80	55.35	74.00	-18.65	100	260	peak
5	16229.167	29.24	20.92	50.16	54.00	-3.84	100	297	AVG
N/A									

Operation Mode:	TX / draft 802.11n Wide-40 MHz Channel mode/CH Low	**Test Date:**	November 7, 2014
Temperature:	25°C	**Tested by:**	James.Yan
Humidity:	55% RH	**Polarity:**	Ver. / Hor.

Horizontal

No.	Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(deg.)	
1	5495.192	51.19	0.61	51.80	74.00	-22.20	100	232	peak
2	11270.833	39.43	12.55	51.98	74.00	-22.02	100	301	peak
3	16201.923	35.15	20.80	55.95	74.00	-18.05	100	62	peak
4	16229.167	28.36	20.92	49.28	54.00	-4.72	100	78	AVG
N/A									

Vertical

No.	Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(deg.)	
1	5168.269	50.78	-1.27	49.51	74.00	-24.49	100	254	peak
2	10371.795	37.69	9.86	47.55	54.00	-6.45	100	77	AVG
3	10399.039	49.28	9.94	59.22	74.00	-14.78	100	79	peak
4	15711.539	36.33	17.29	53.62	74.00	-20.38	100	176	peak
5	15738.782	31.24	17.27	48.51	54.00	-5.49	100	142	AVG
N/A									

Operation Mode:	TX / draft 802.11n Wide-40 MHz Channel mode /CH High	**Test Date:**	November 7, 2014
Temperature:	25°C	**Tested by:**	James.Yan
Humidity:	55% RH	**Polarity:**	Ver. / Hor.

Horizontal

No.	Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(deg.)	
1	5222.756	47.27	-0.96	46.31	74.00	-27.69	100	346	peak
2	11298.077	39.46	12.60	52.06	74.00	-21.94	100	115	peak
3	16174.680	30.51	20.29	50.80	54.00	-3.20	100	335	AVG
4	16201.923	34.38	20.80	55.18	74.00	-18.82	100	126	peak
N/A									

Vertical

No.	Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(deg.)	
1	4977.564	50.87	-2.36	48.51	74.00	-25.49	100	82	peak
2	10453.526	46.43	10.12	56.55	74.00	-17.45	100	101	peak
3	10480.769	38.46	10.21	48.67	54.00	-5.33	100	82	AVG
4	16201.923	35.34	20.80	56.14	74.00	-17.86	100	258	peak
5	16229.167	29.52	20.92	50.44	54.00	-3.56	100	260	AVG
N/A									

Operation Mode:	TX / draft 802.11ac Standard-20 MHz Channel mode /CH Low	**Test Date:**	November 7, 2014
Temperature:	25°C	**Tested by:**	James.Yan
Humidity:	55% RH	**Polarity:**	Ver. / Hor.

Horizontal

No.	Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(deg.)	
1	5168.269	61.68	-1.27	60.41	74.00	-13.59	100	335	peak
2	5195.513	48.52	-1.11	47.41	54.00	-6.59	100	188	AVG
3	10371.795	44.58	9.86	54.44	74.00	-19.56	100	42	peak
4	10399.039	39.03	9.94	48.97	54.00	-5.03	100	20	AVG
5	16174.680	30.25	20.29	50.54	54.00	-3.46	100	10	AVG
6	16201.923	35.36	20.80	56.16	74.00	-17.84	100	196	peak

Vertical

No.	Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(deg.)	
1	5168.269	57.10	-1.27	55.83	74.00	-18.17	100	177	peak
2	5195.513	50.30	-1.11	49.19	54.00	-4.81	100	183	AVG
3	10371.795	55.07	9.86	64.93	74.00	-9.07	100	76	peak
4	10399.039	38.34	9.94	48.28	54.00	-5.72	100	211	AVG
5	16174.680	29.28	20.29	49.57	54.00	-4.43	100	80	AVG
6	16201.923	35.46	20.80	56.26	74.00	-17.74	100	179	peak

Operation Mode:	TX / draft 802.11ac Standard-20 MHz Channel mode/ CH Mid	**Test Date:**	November 7, 2014
Temperature:	25°C	**Tested by:**	James.Yan
Humidity:	55% RH	**Polarity:**	Ver. / Hor.

Horizontal

No.	Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(deg.)	
1	5194.143	49.29	-1.12	48.17	54.00	-5.83	100	339	AVG
2	5195.513	58.78	-1.11	57.67	74.00	-16.33	100	339	peak
3	10399.039	43.32	9.94	53.26	74.00	-20.74	100	33	peak
4	10426.282	38.87	10.03	48.90	54.00	-5.10	100	125	AVG
5	16201.923	35.44	20.80	56.24	74.00	-17.76	100	7	peak
6	16229.167	28.97	20.92	49.89	54.00	-4.11	100	20	AVG

Vertical

No.	Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(deg.)	
1	5195.513	51.42	-1.11	50.31	74.00	-23.69	100	3	peak
2	10371.795	39.82	9.86	49.68	54.00	-4.32	100	77	AVG
3	10399.039	55.47	9.94	65.41	74.00	-8.59	100	109	peak
4	16801.282	34.14	22.45	56.59	74.00	-17.41	100	205	peak
5	16801.282	27.86	22.45	50.31	54.00	-3.69	100	205	AVG
N/A									

Operation Mode:	TX / draft 802.11ac Standard-20 MHz Channel mode /CH High	Test Date:	November 7, 2014
Temperature:	25°C	Tested by:	James.Yan
Humidity:	55% RH	Polarity:	Ver. / Hor.

Horizontal

No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	5222.756	49.44	-0.96	48.48	74.00	-25.52	100	335	peak
2	10480.769	46.09	10.21	56.30	74.00	-17.70	100	36	peak
3	10483.526	38.50	10.22	48.72	54.00	-5.28	100	101	AVG
4	16801.282	27.70	22.45	50.15	54.00	-3.85	100	360	AVG
5	16828.526	34.79	22.36	57.15	74.00	-16.85	100	80	peak
N/A									

Vertical

No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	5222.756	46.73	-0.96	45.77	74.00	-28.23	100	3	peak
2	10453.526	39.25	10.12	49.37	54.00	-4.63	100	69	AVG
3	10480.769	54.97	10.21	65.18	74.00	-8.82	100	100	peak
4	16174.680	30.60	20.29	50.89	54.00	-3.11	100	70	AVG
5	16201.923	35.33	20.80	56.13	74.00	-17.87	100	301	peak
N/A									

Operation Mode:	TX / draft 802.11ac Wide-40 MHz Channel mode /CH Low	Test Date:	November 7, 2014
Temperature:	25°C	Tested by:	James.Yan
Humidity:	55% RH	Polarity:	Ver. / Hor.

Horizontal

No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	5168.269	55.24	-1.27	53.97	74.00	-20.03	100	341	peak
2	11270.833	38.94	12.55	51.49	74.00	-22.51	100	359	peak
3	11273.143	36.94	12.55	49.49	54.00	-4.51	100	359	AVG
4	16800.782	28.05	22.45	50.50	54.00	-3.50	100	48	AVG
5	16801.282	34.05	22.45	56.50	74.00	-17.50	100	48	peak
N/A									

Vertical

No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	5168.269	50.54	-1.27	49.27	74.00	-24.73	100	345	peak
2	10399.039	50.37	9.94	60.31	74.00	-13.69	100	78	peak
3	10401.282	39.12	9.95	49.07	54.00	-4.93	100	135	AVG
4	16201.923	29.65	20.80	50.45	54.00	-3.55	100	273	AVG
5	16229.167	34.92	20.92	55.84	74.00	-18.16	100	192	peak
N/A									

Operation Mode:	TX / draft 802.11ac Wide-40 MHz Channel mode /CH High	Test Date:	November 7, 2014
Temperature:	25°C	Tested by:	James.Yan
Humidity:	55% RH	Polarity:	Ver. / Hor.

Horizontal

No.	Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(deg.)	
1	5222.756	45.49	-0.96	44.53	74.00	-29.47	100	346	peak
2	11241.450	37.25	12.49	49.74	54.00	-4.26	100	197	AVG
3	11243.590	39.24	12.50	51.74	74.00	-22.26	100	197	peak
4	16201.923	34.91	20.80	55.71	74.00	-18.29	100	132	peak
5	16204.680	29.92	20.81	50.73	54.00	-3.27	100	289	AVG
N/A									

Vertical

No.	Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(deg.)	
1	4977.564	50.44	-2.36	48.08	74.00	-25.92	100	88	peak
2	10453.526	48.42	10.12	58.54	74.00	-15.46	100	97	peak
3	10459.332	39.40	10.14	49.54	54.00	-4.46	100	97	AVG
4	16201.923	35.26	20.80	56.06	74.00	-17.94	100	242	peak
5	16203.167	30.01	20.80	50.81	54.00	-3.19	100	121	AVG
N/A									

Operation Mode:	TX / draft 802.11ac wide-80 MHz Channel mode	Test Date:	November 7, 2014
Temperature:	25°C	Tested by:	James.Yan
Humidity:	55% RH	Polarity:	Ver. / Hor.

Horizontal

No.	Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(deg.)	
1	5168.269	50.09	-1.27	48.82	74.00	-25.18	100	353	peak
2	11325.320	39.28	12.65	51.93	74.00	-22.07	100	172	peak
3	16221.923	29.12	20.89	50.01	54.00	-3.99	100	134	AVG
4	16229.167	34.35	20.92	55.27	74.00	-18.73	100	140	peak
N/A									

Vertical

No.	Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(deg.)	
1	6230.769	47.48	1.45	48.93	74.00	-25.07	100	67	peak
2	11243.590	39.91	12.50	52.41	74.00	-21.59	100	140	peak
3	16201.923	35.08	20.80	55.88	74.00	-18.12	100	9	peak
4	16229.167	28.10	20.92	49.02	54.00	-4.98	100	160	AVG
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.*
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 3 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).*

7.7 CONDUCTED UNDESIRABLE EMISSION

LIMIT

According to 15.407(b),

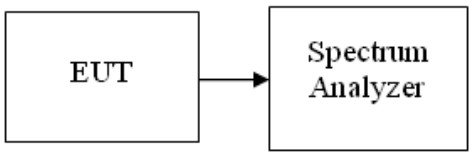
(1) For transmitters operating in the 5.15-5.25 GHz band: all emissions outside of the 5.15-5.35 GHz band shall not exceed an EIRP of -27 dBm/MHz.

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

(3) For transmitters operating in the 5.47-5.725 GHz band: all emissions outside of the 5.47-5.725 GHz band shall not exceed an EIRP of -27 dBm/MHz.

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

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 1 MHz. The video bandwidth is set to 1 MHz. Peak detection measurements are compared to the average EIRP limit, adjusted for the maximum antenna gain. If necessary, additional average detection measurements are made.

Measurements are made over the 30 MHz to 40 GHz range with the transmitter set to the lowest, middle, and highest channels.

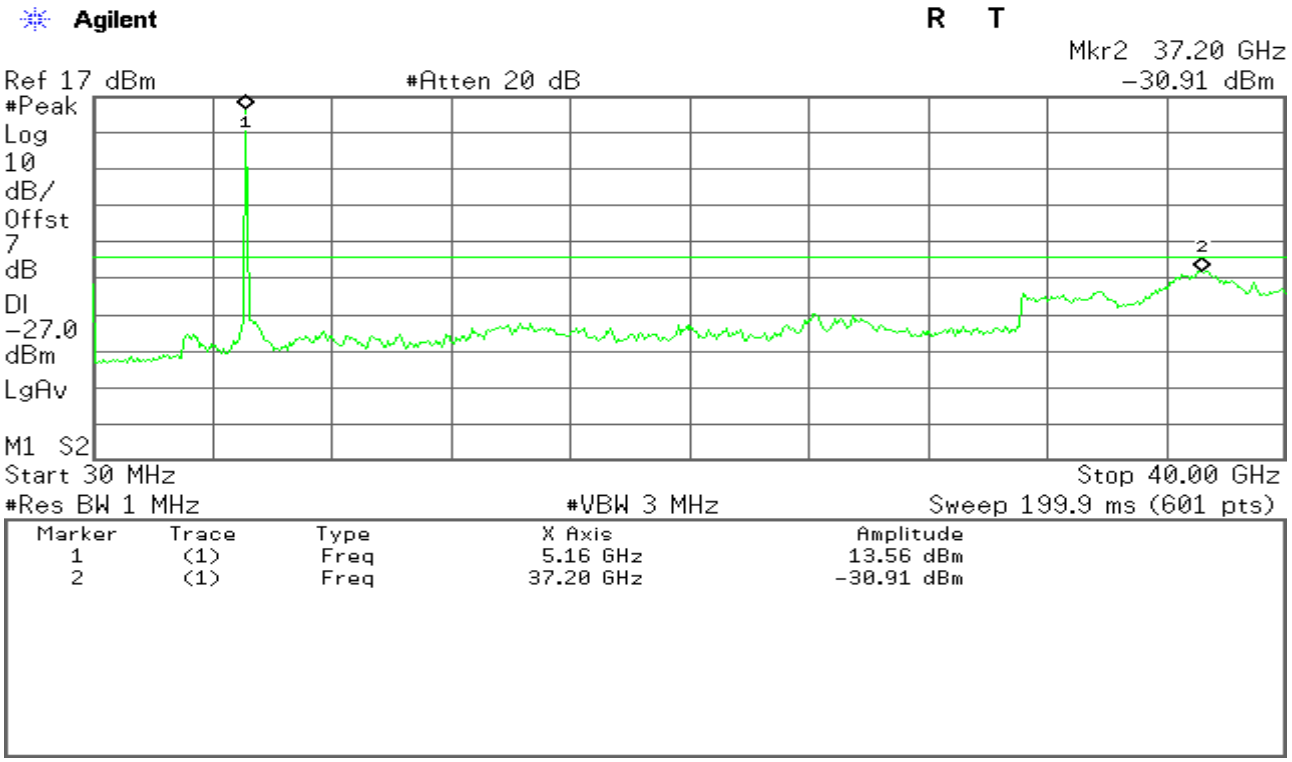
TEST RESULTS

No non-compliance noted

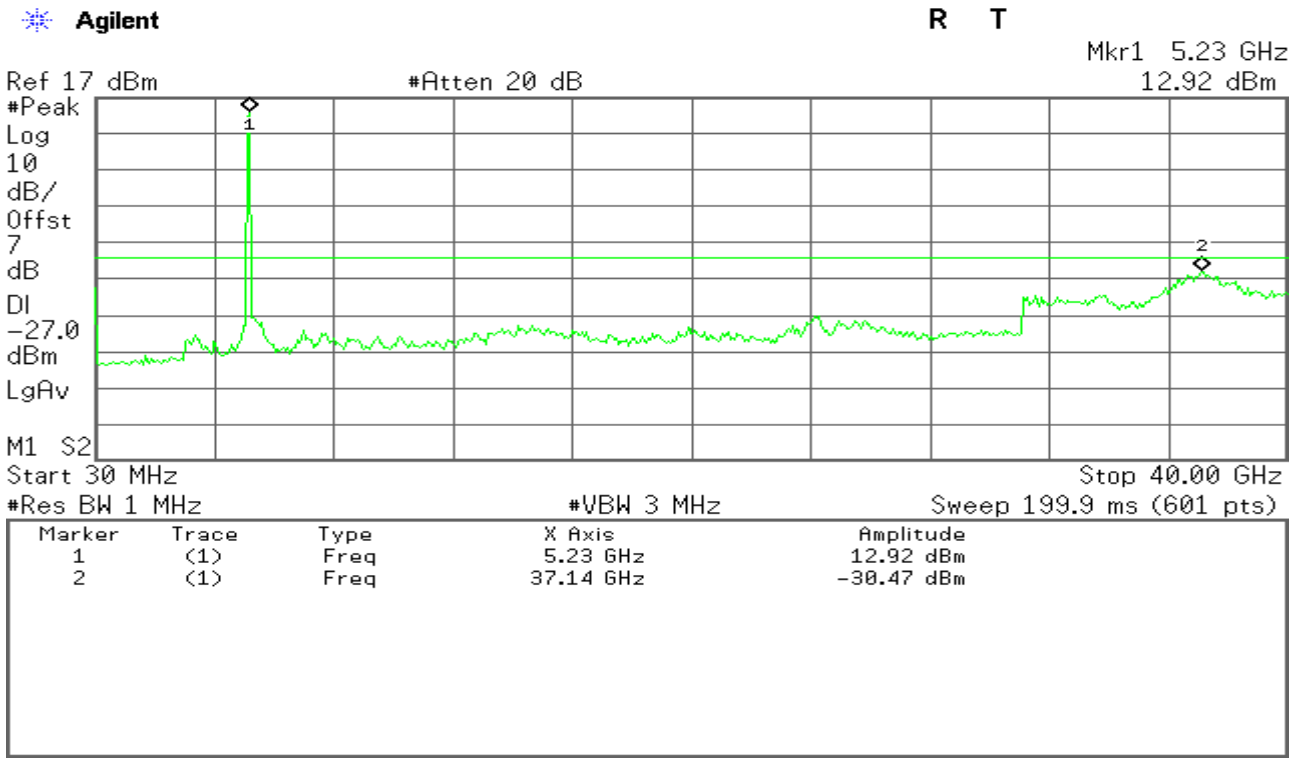
Test Plot
IEEE 802.11a mode/chain 0:

5150~5250MHz

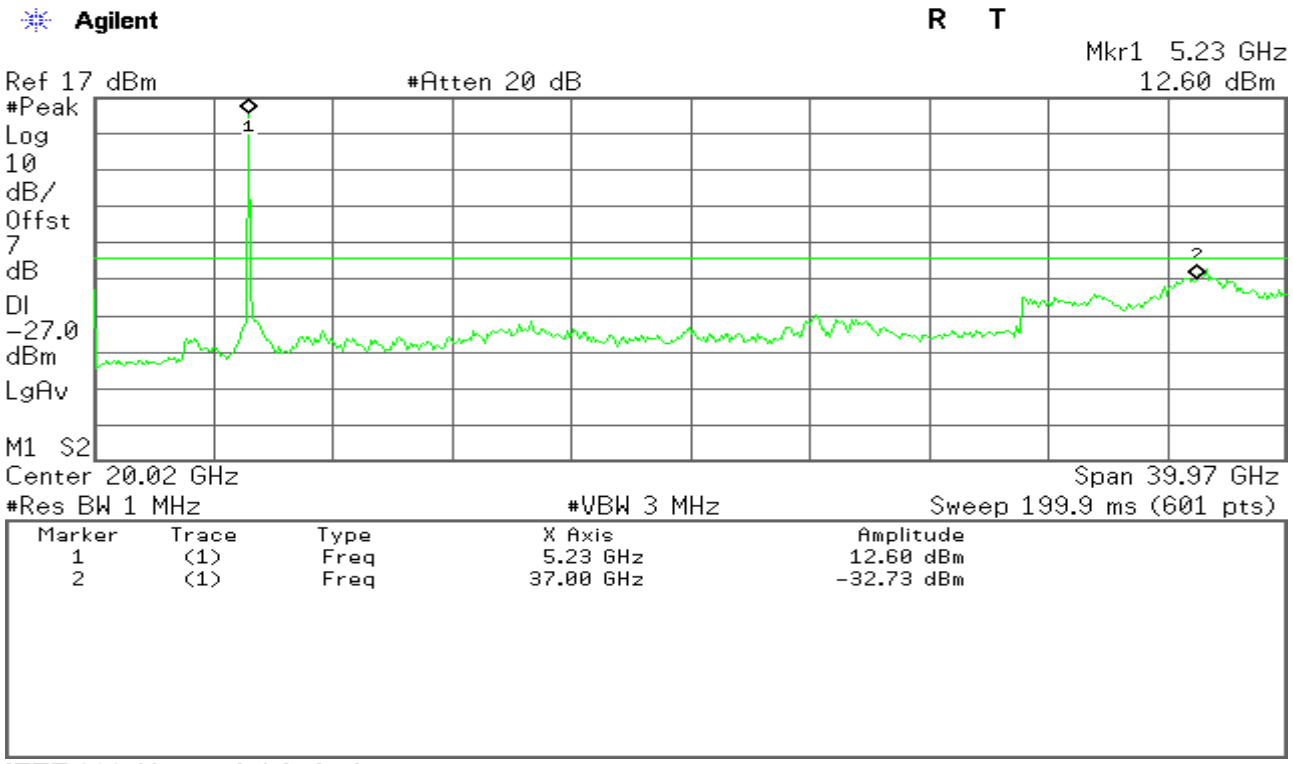
CH Low



CH Mid



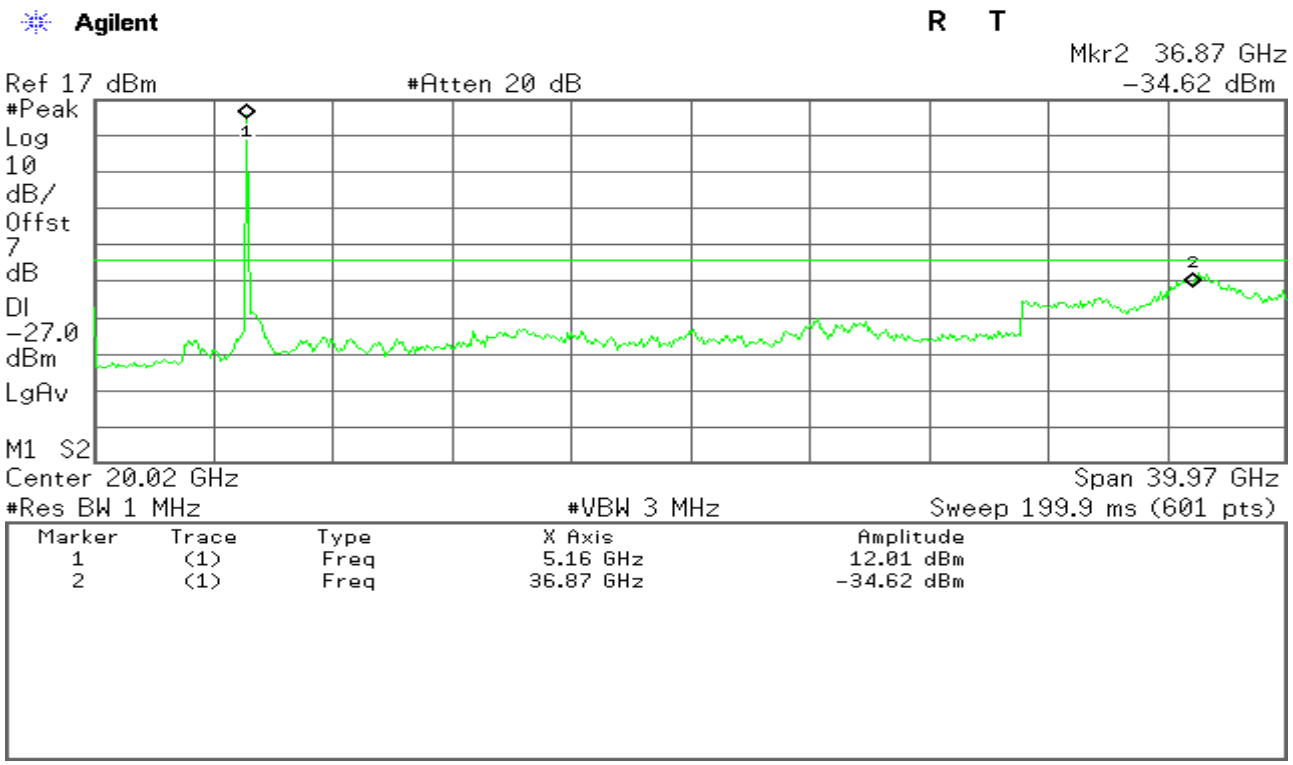
CH High



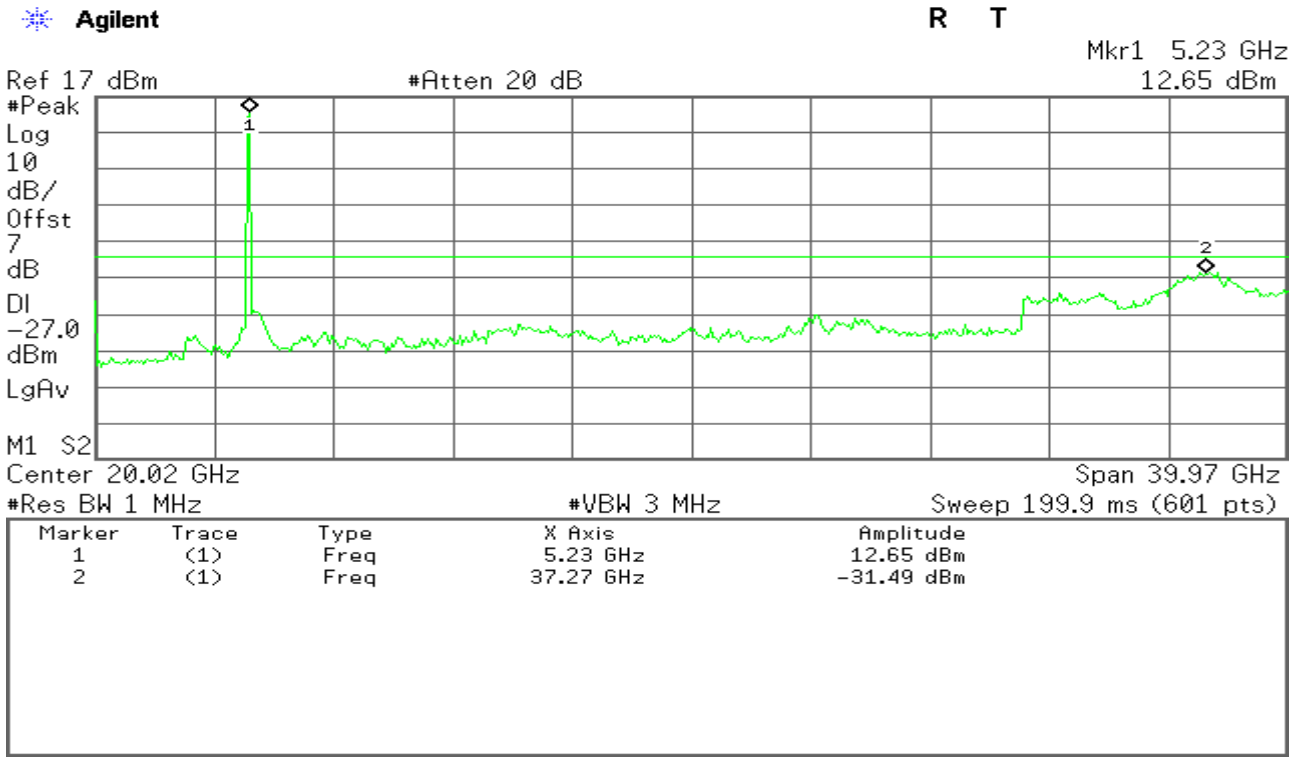
IEEE 802.11a mode/chain 1:

5150~5250MHz

CH Low

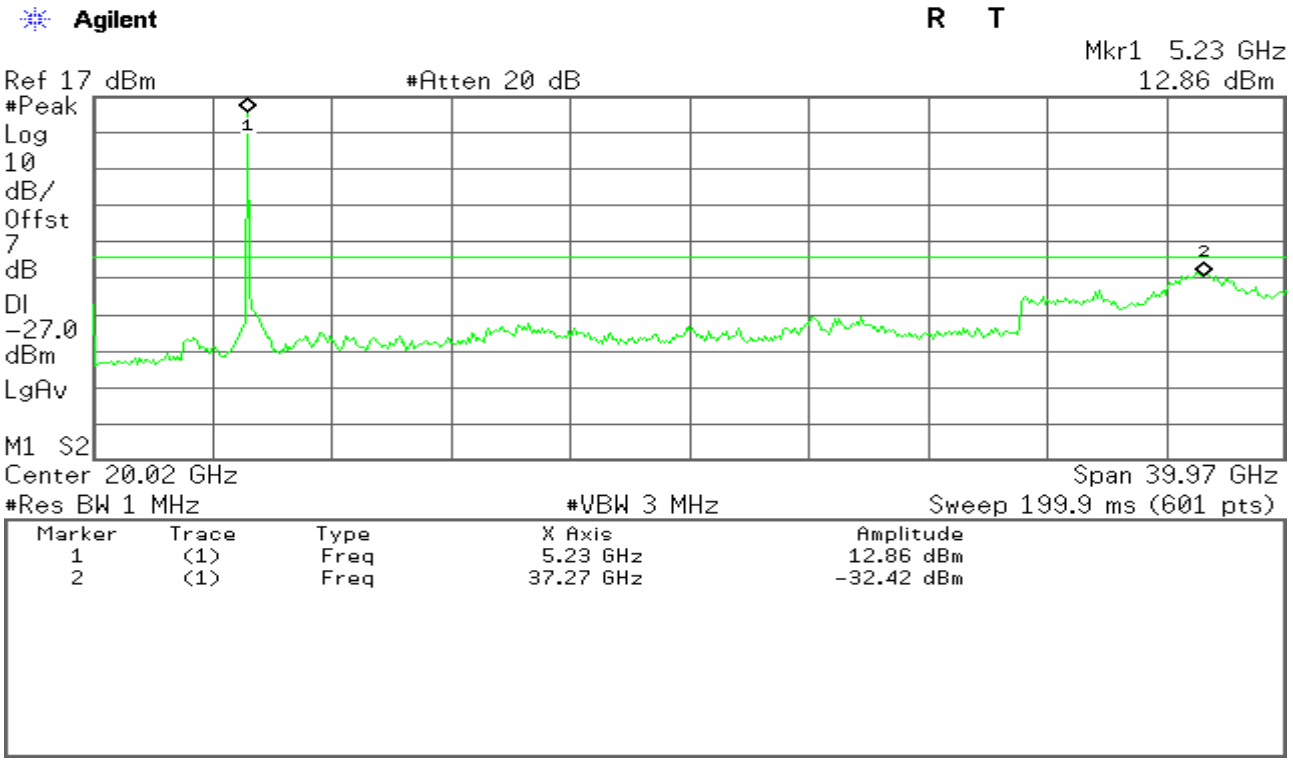


CH Mid



Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	5.23 GHz	12.65 dBm
2	(1)	Freq	37.27 GHz	-31.49 dBm

CH High

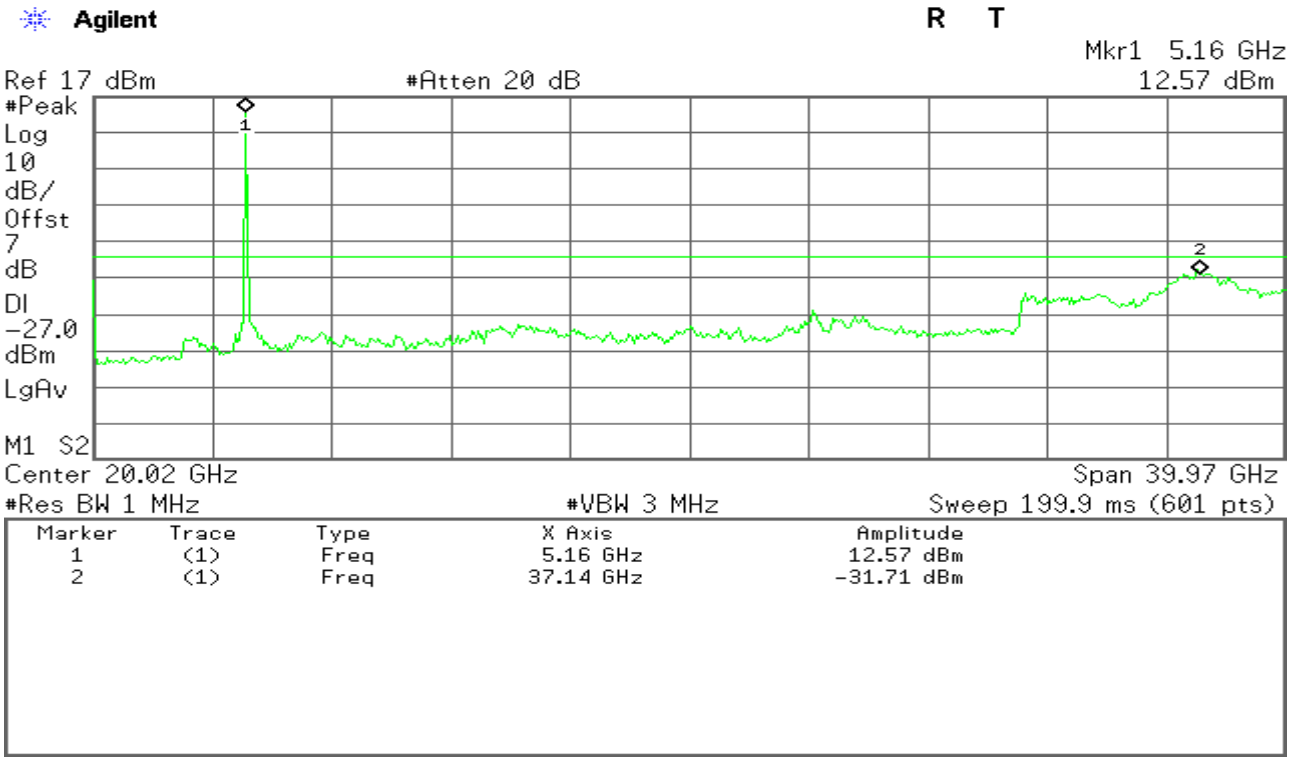


Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	5.23 GHz	12.86 dBm
2	(1)	Freq	37.27 GHz	-32.42 dBm

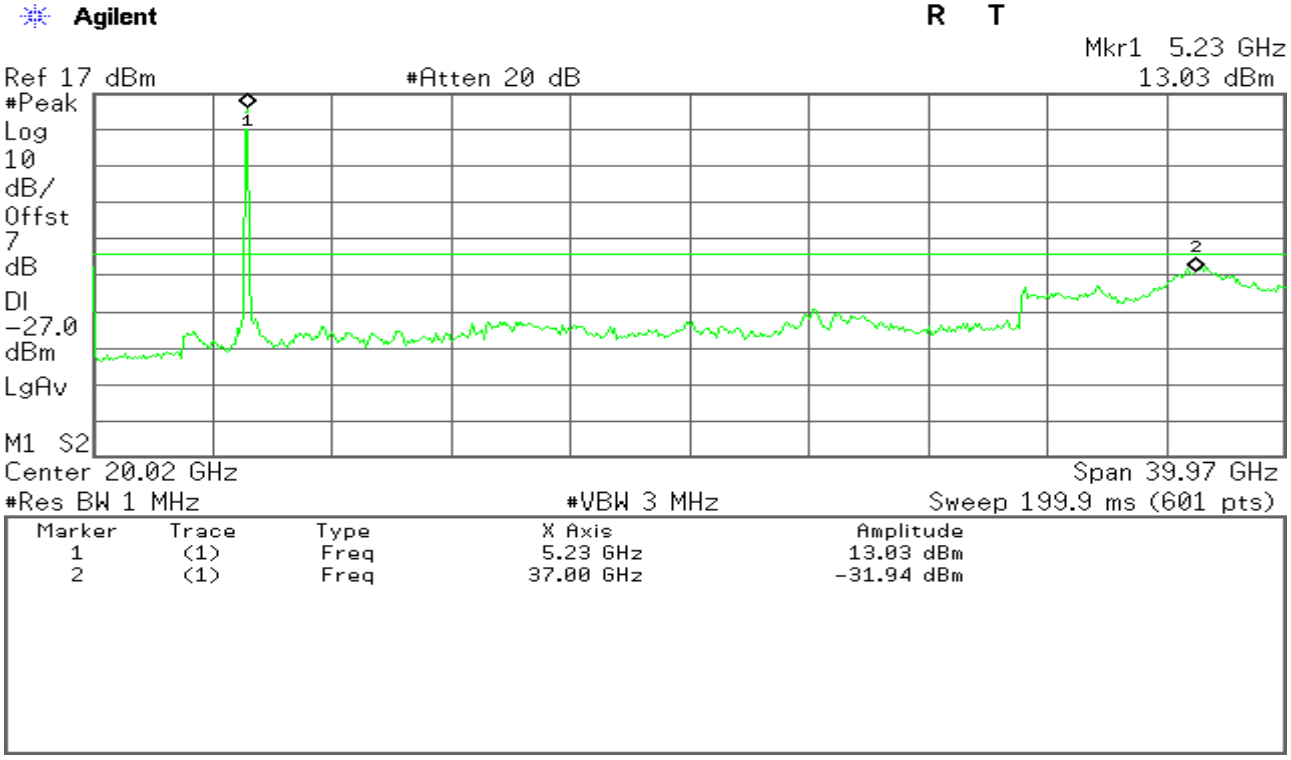
IEEE 802.11a mode/chain 2:

5150~5250MHz

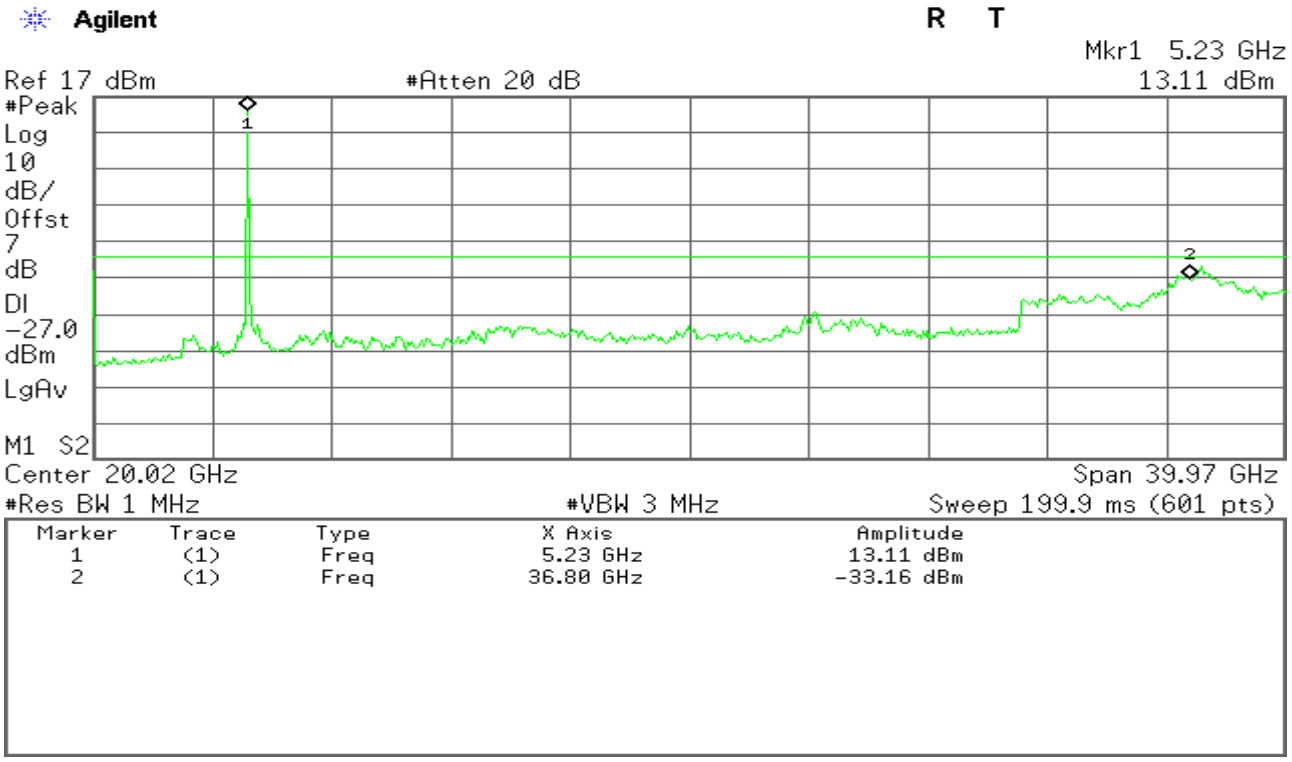
CH Low



CH Mid



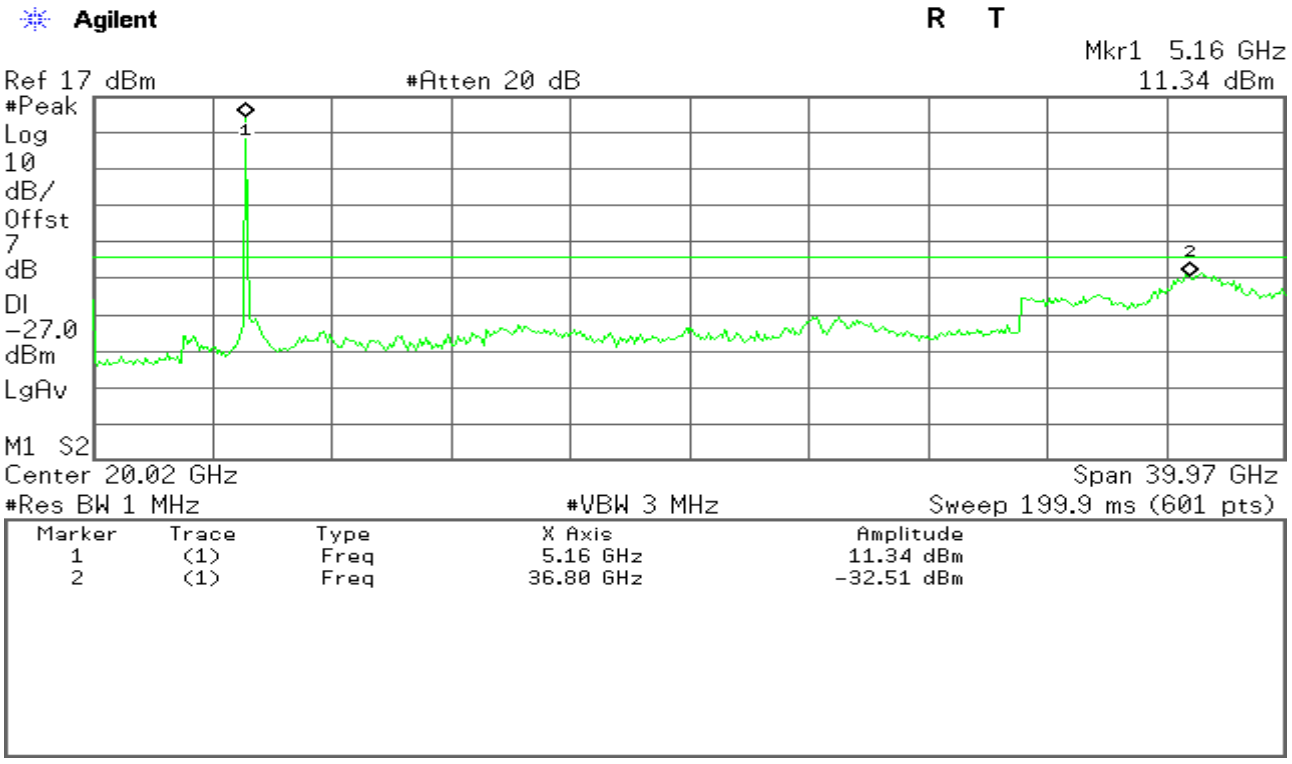
CH High



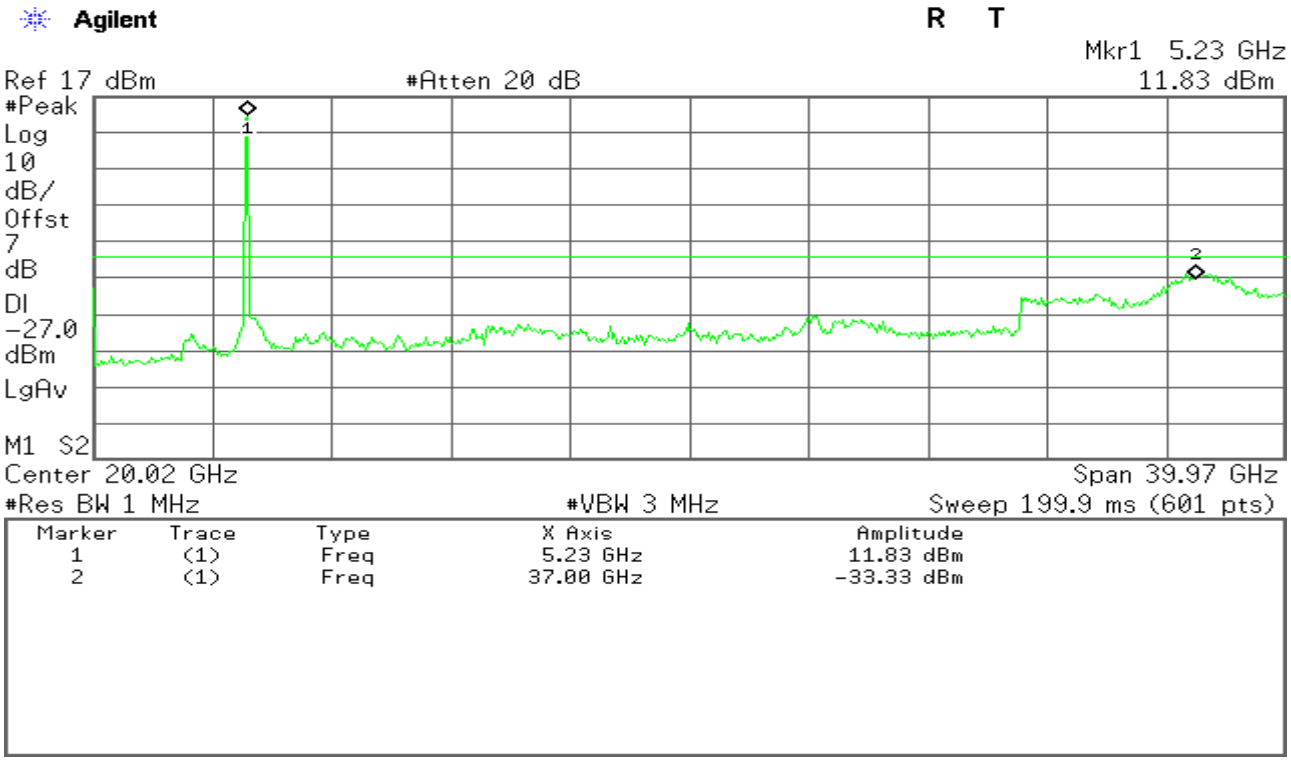
draft 802.11n Standard-20 MHz Channel mode / Chain 0

5150~5250MHz

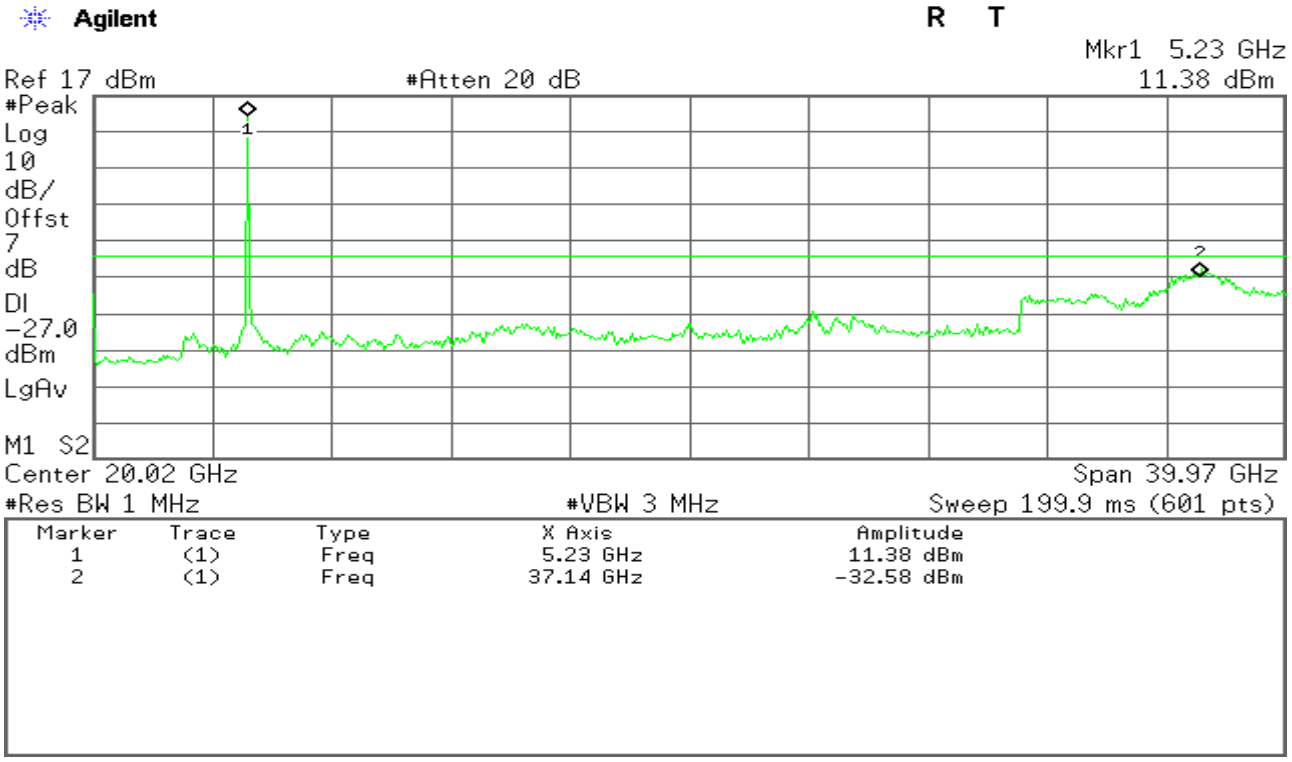
CH Low



CH Mid



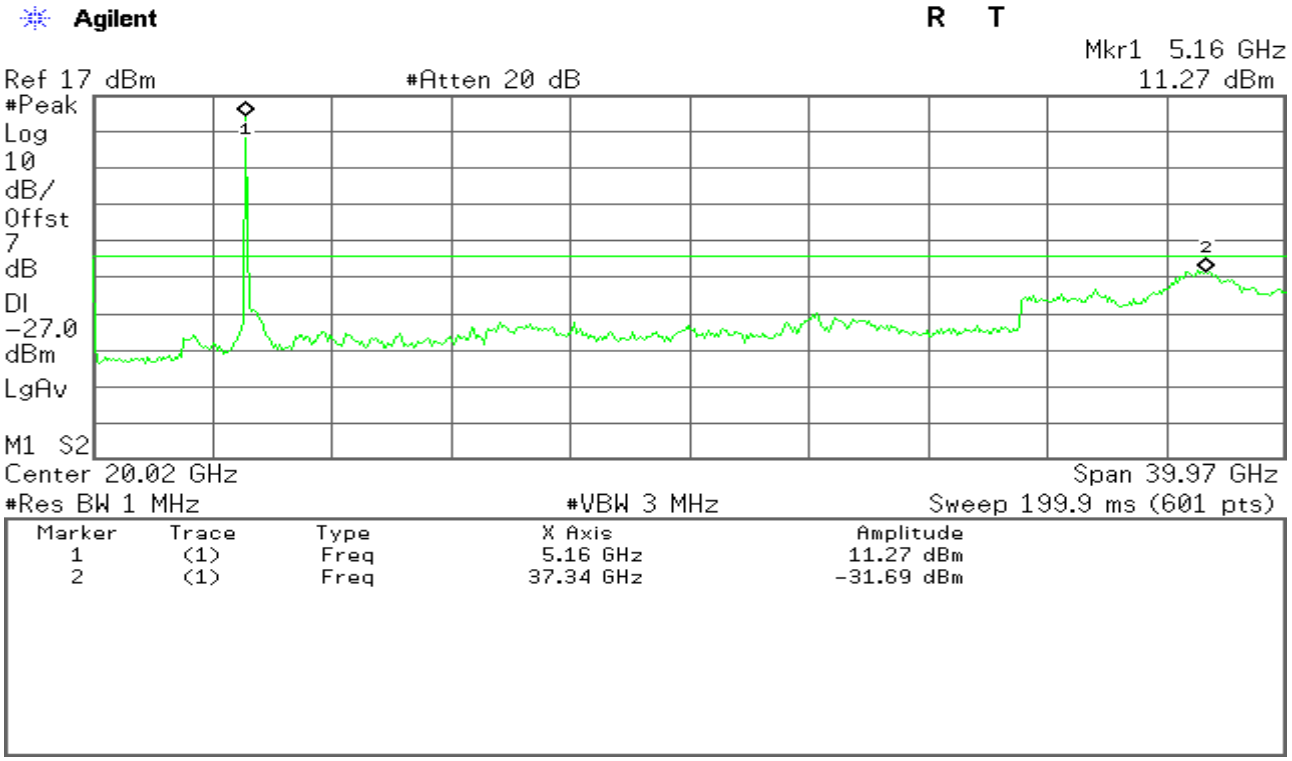
CH High



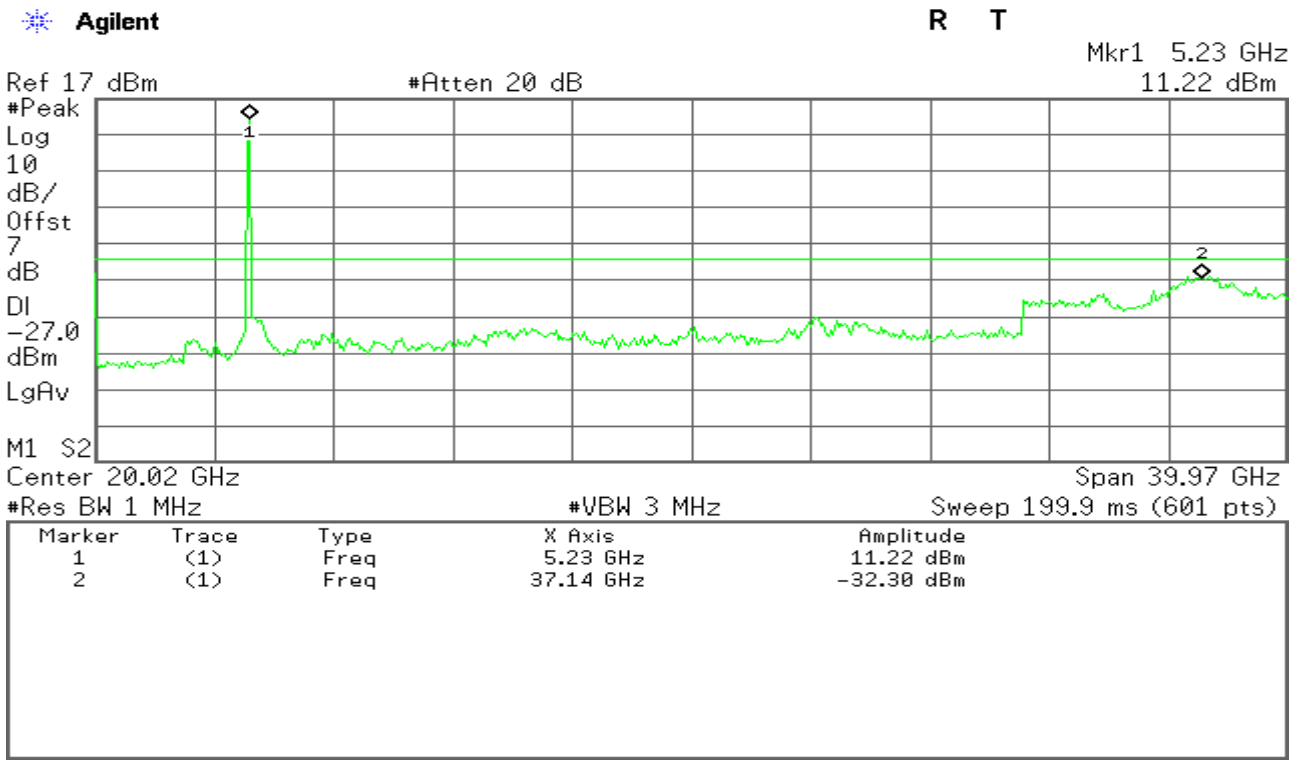
draft 802.11n Standard-20 MHz Channel mode / Chain 1

5150~5250MHz

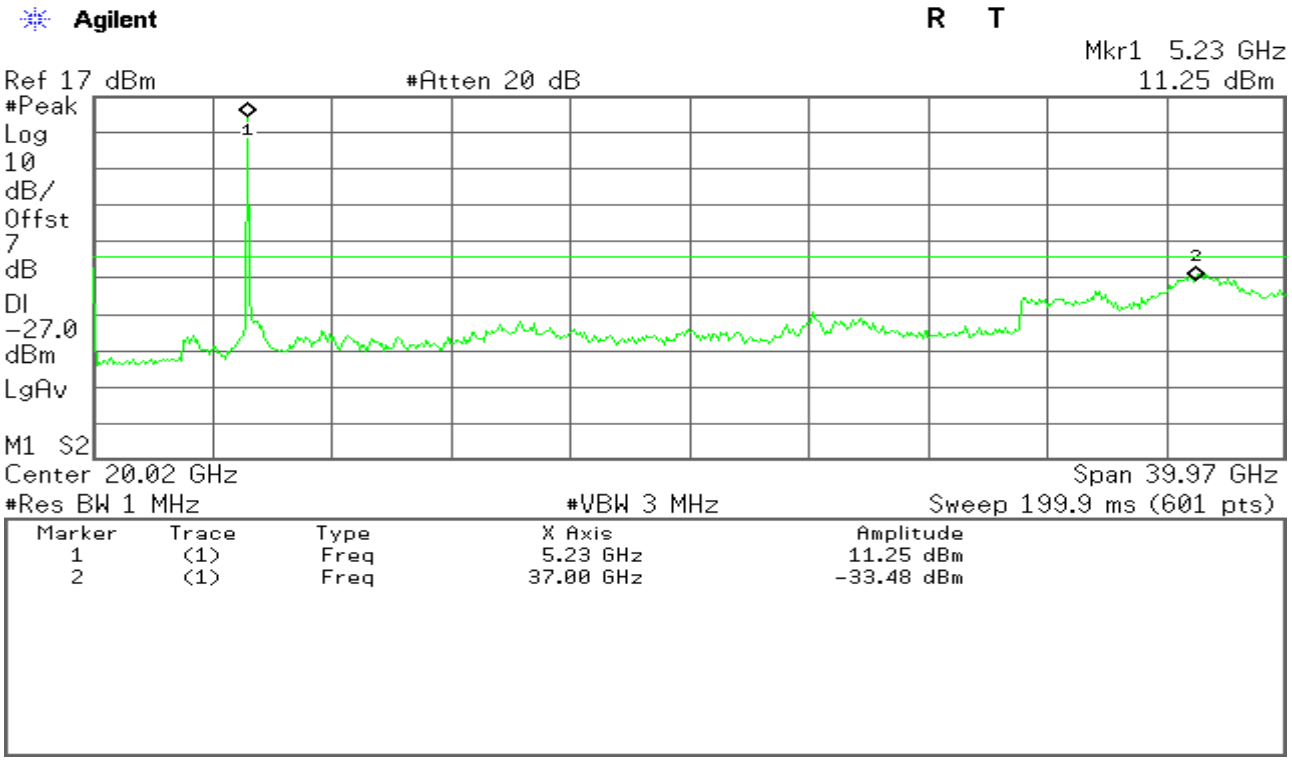
CH Low



CH Mid



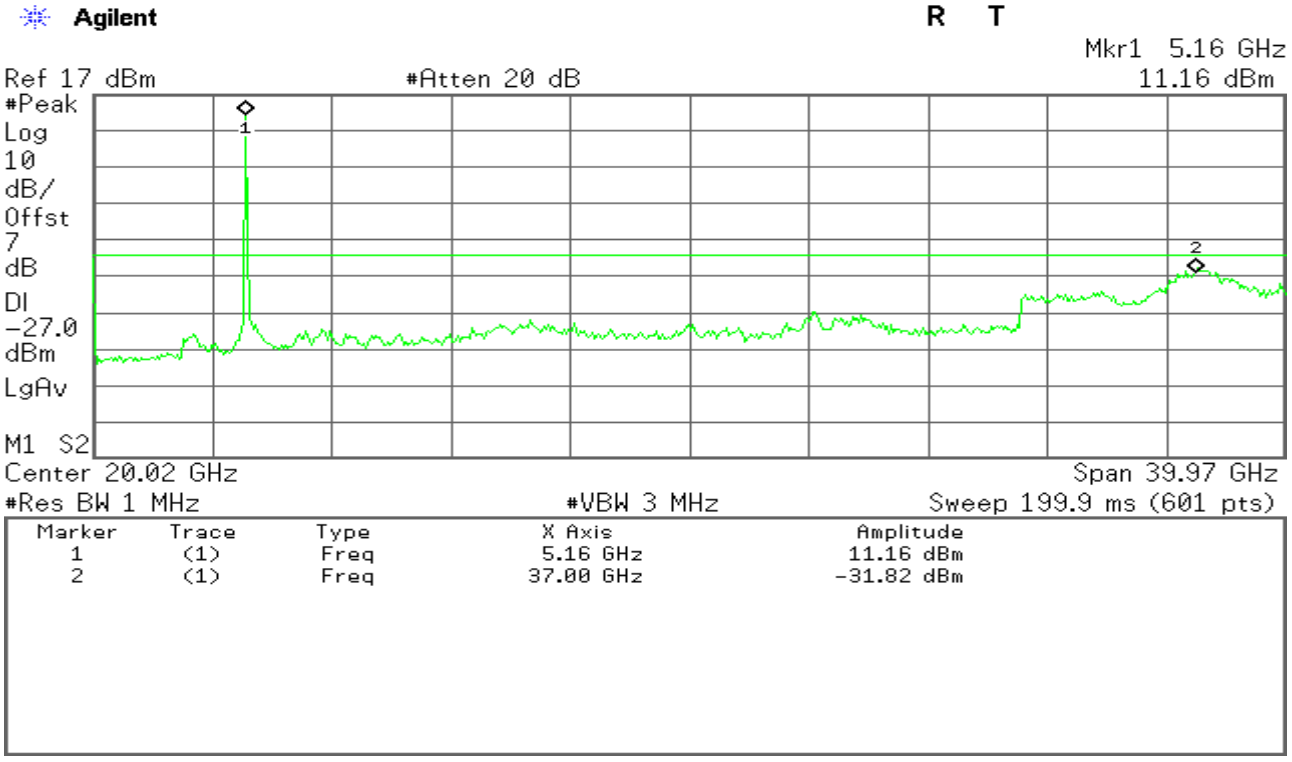
CH High



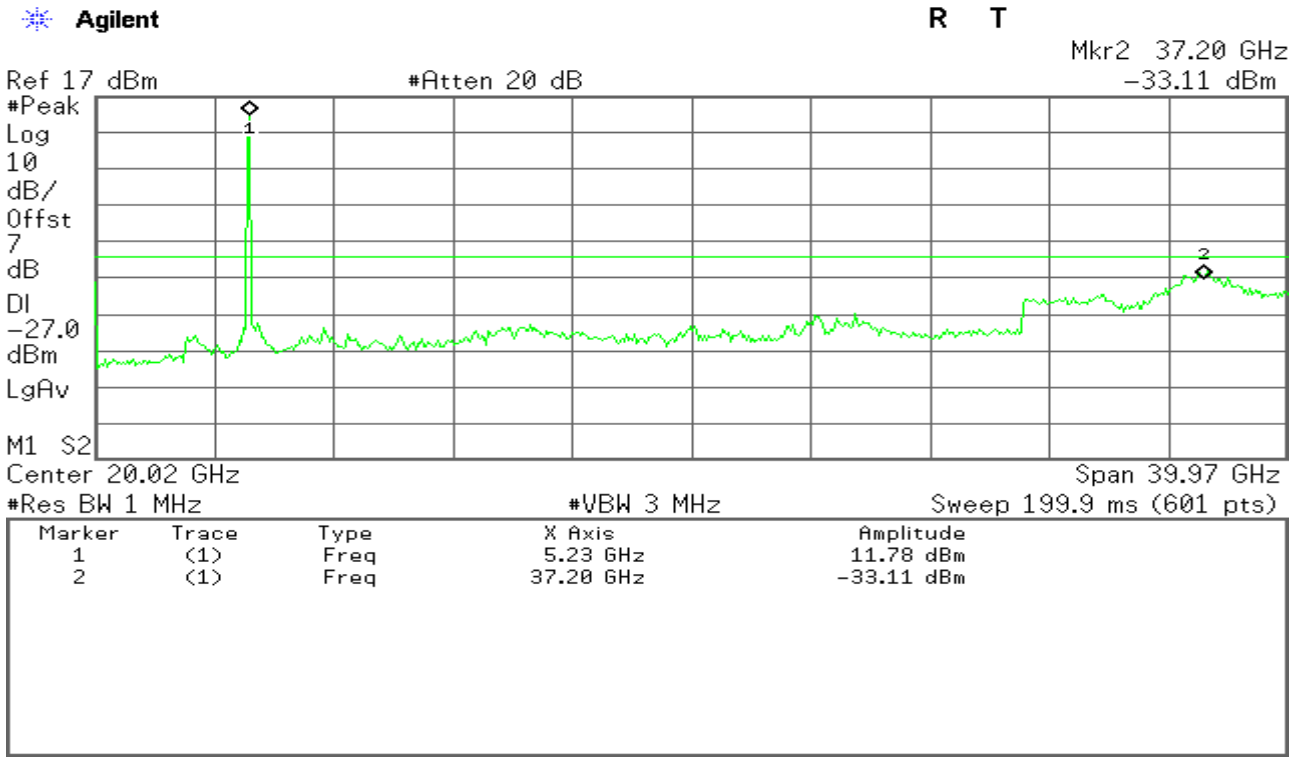
draft 802.11n Standard-20 MHz Channel mode / Chain 2

5150~5250MHz

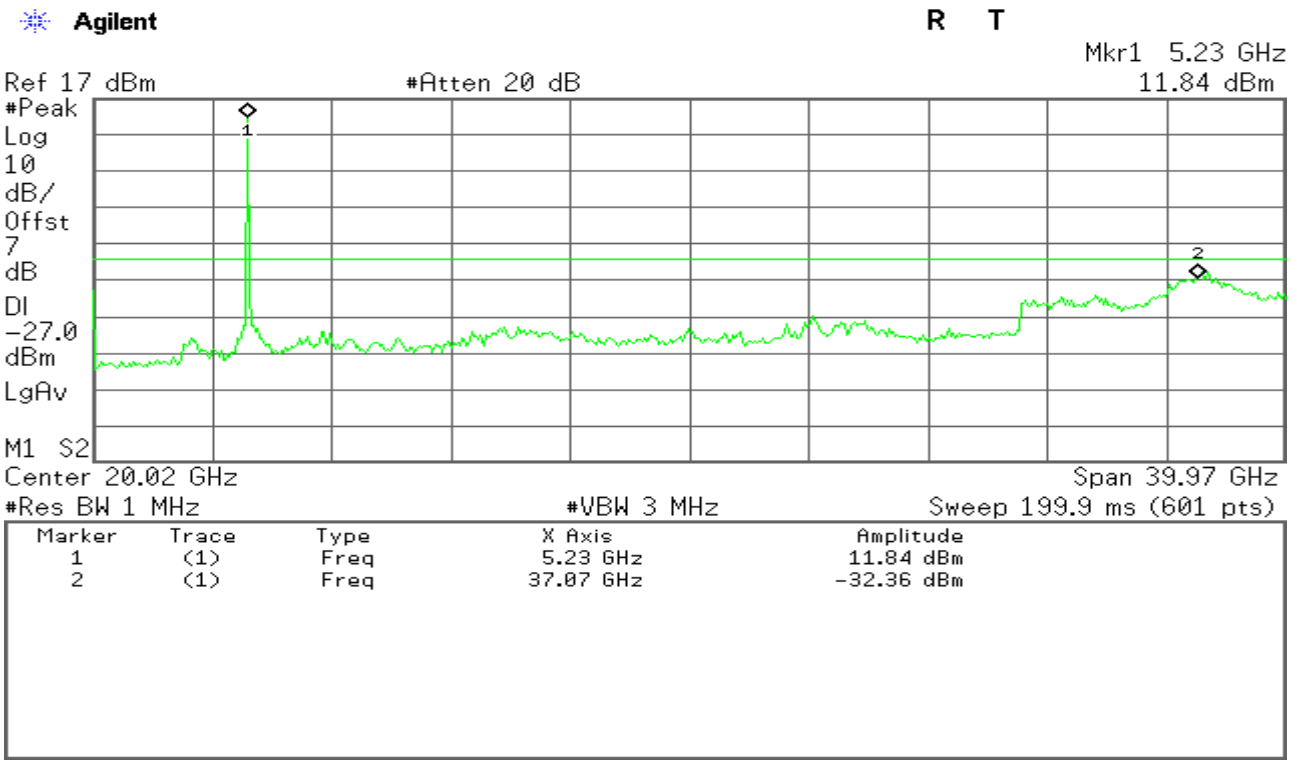
CH Low



CH Mid



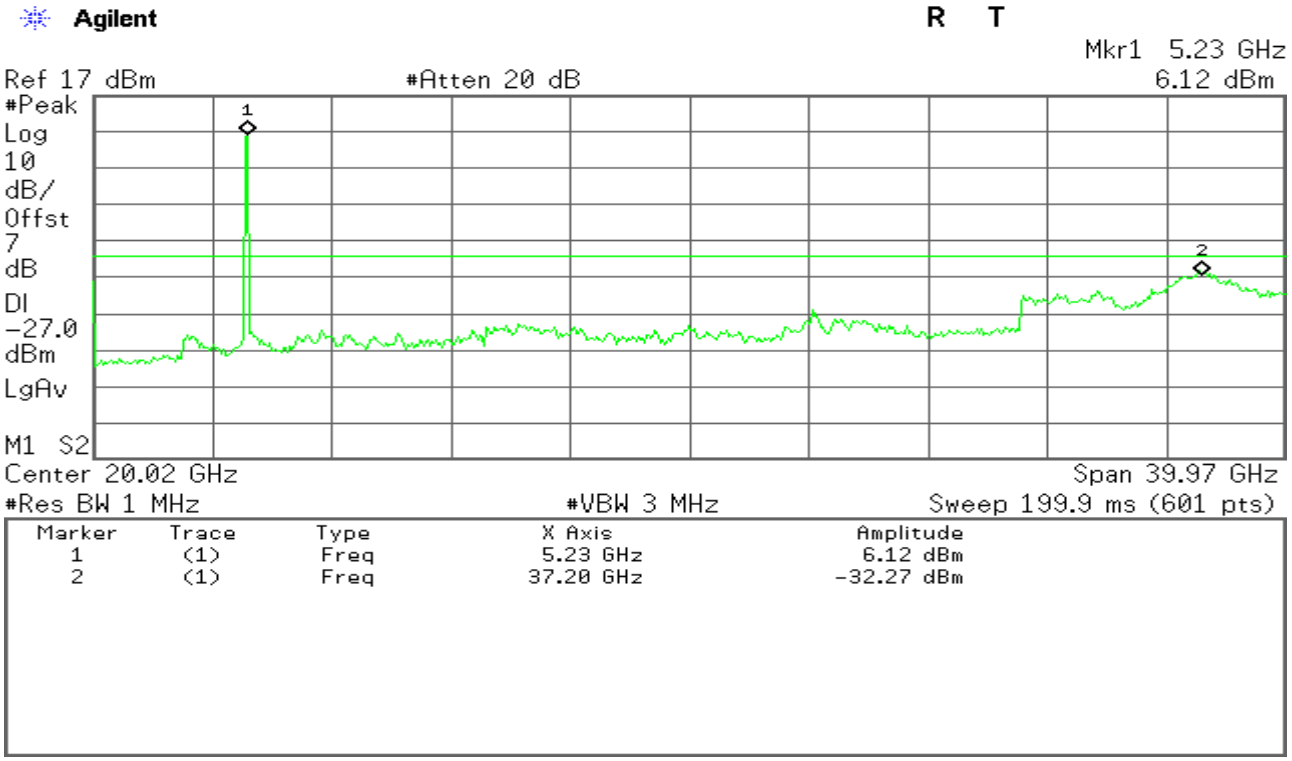
CH High



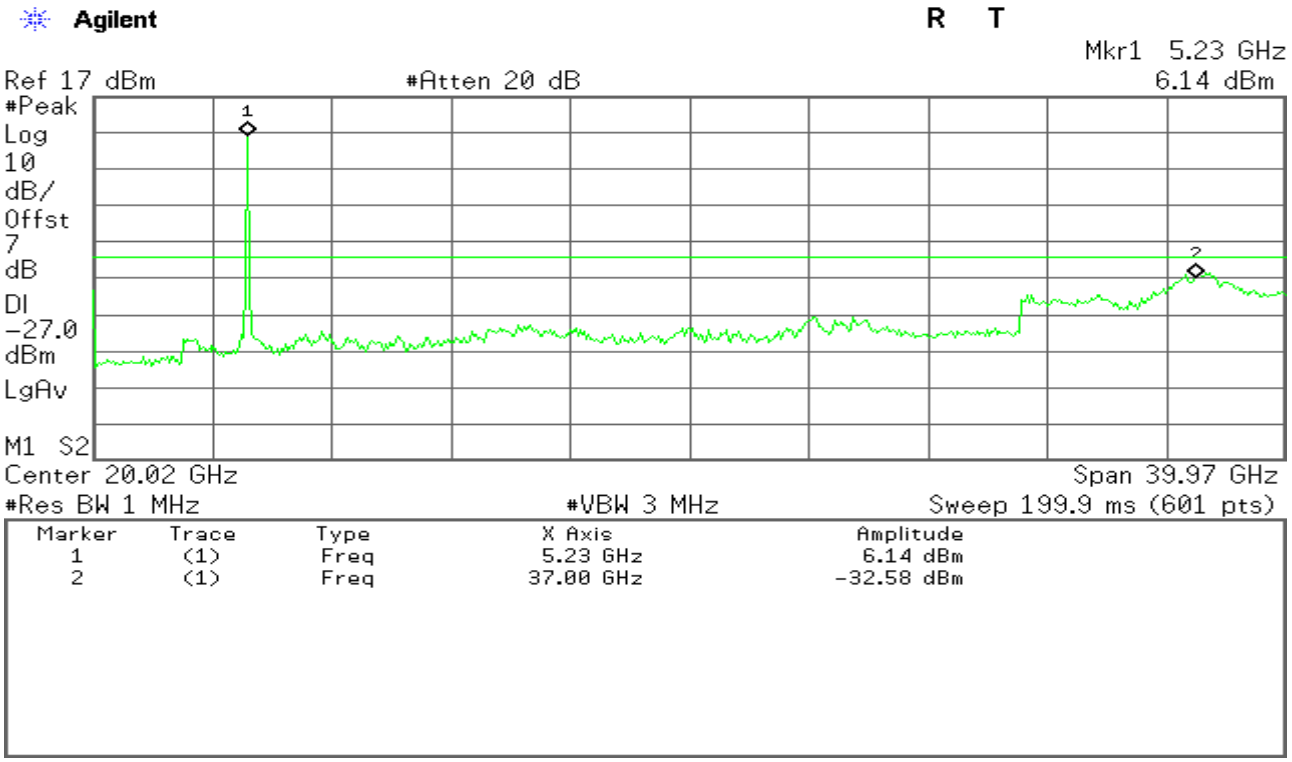
draft 802.11n Wide-40 MHz Channel mode / Chain 0

5150~5250MHz

CH Low



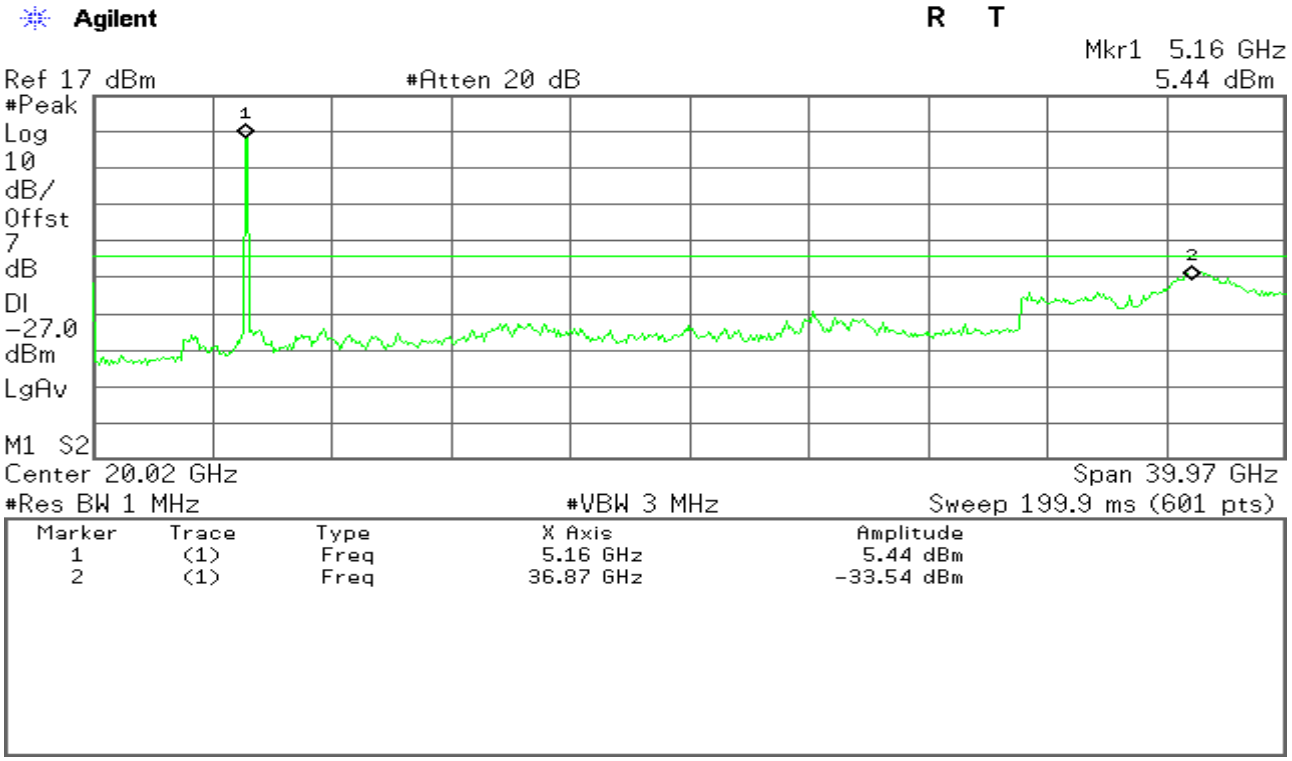
CH High



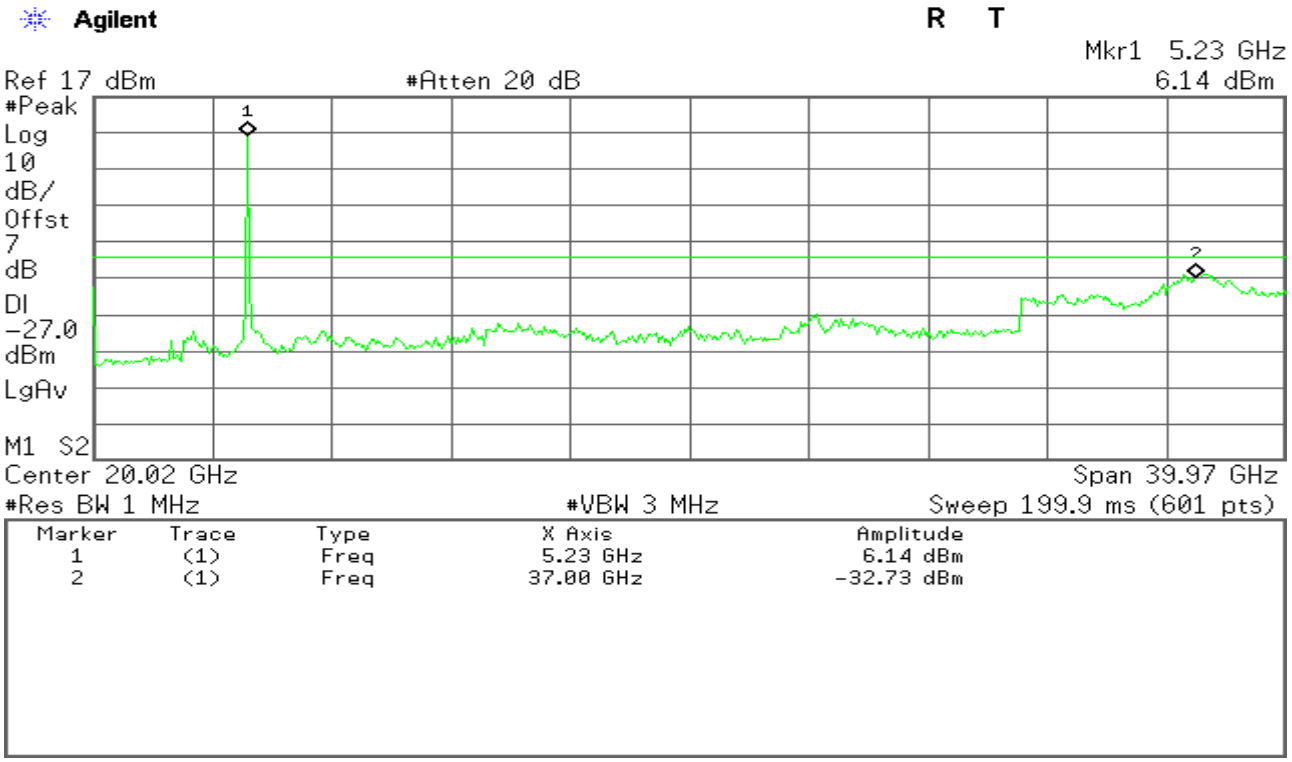
draft 802.11n Wide-40 MHz Channel mode / Chain 1

5150~5250MHz

CH Low



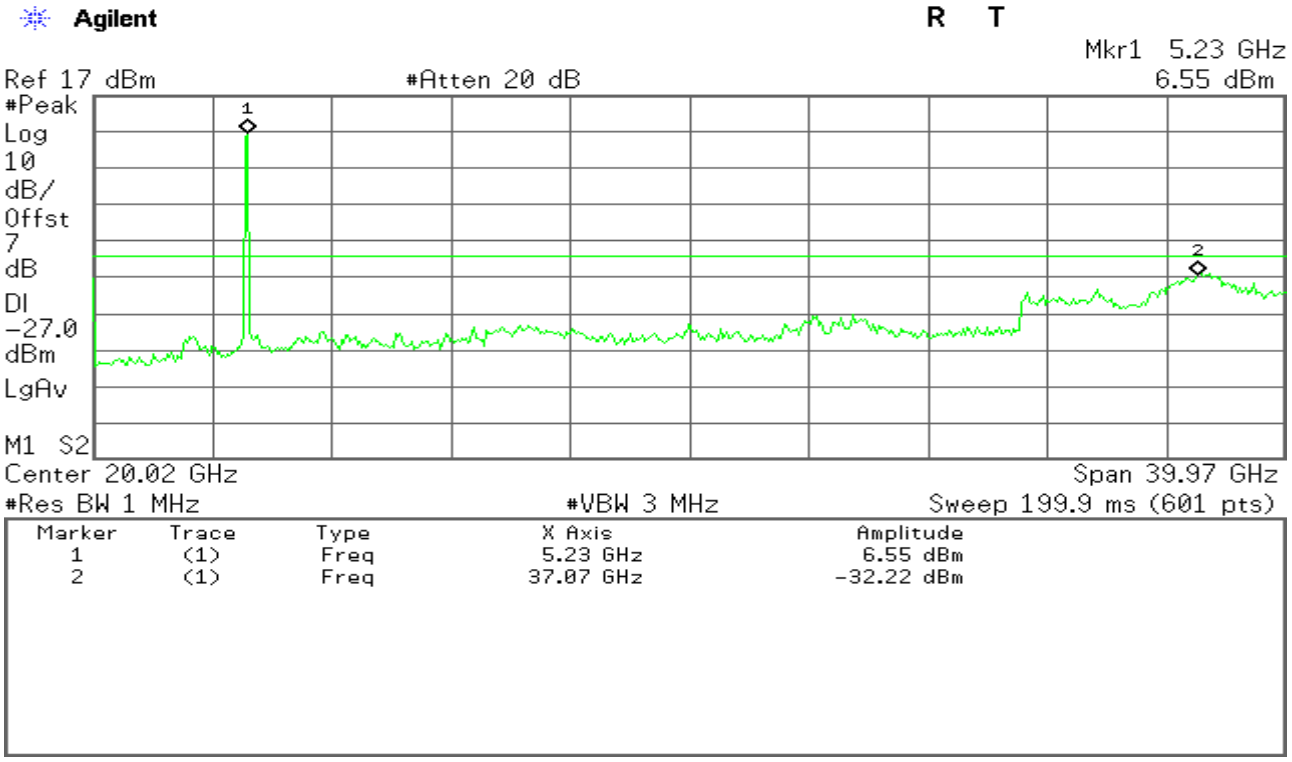
CH High



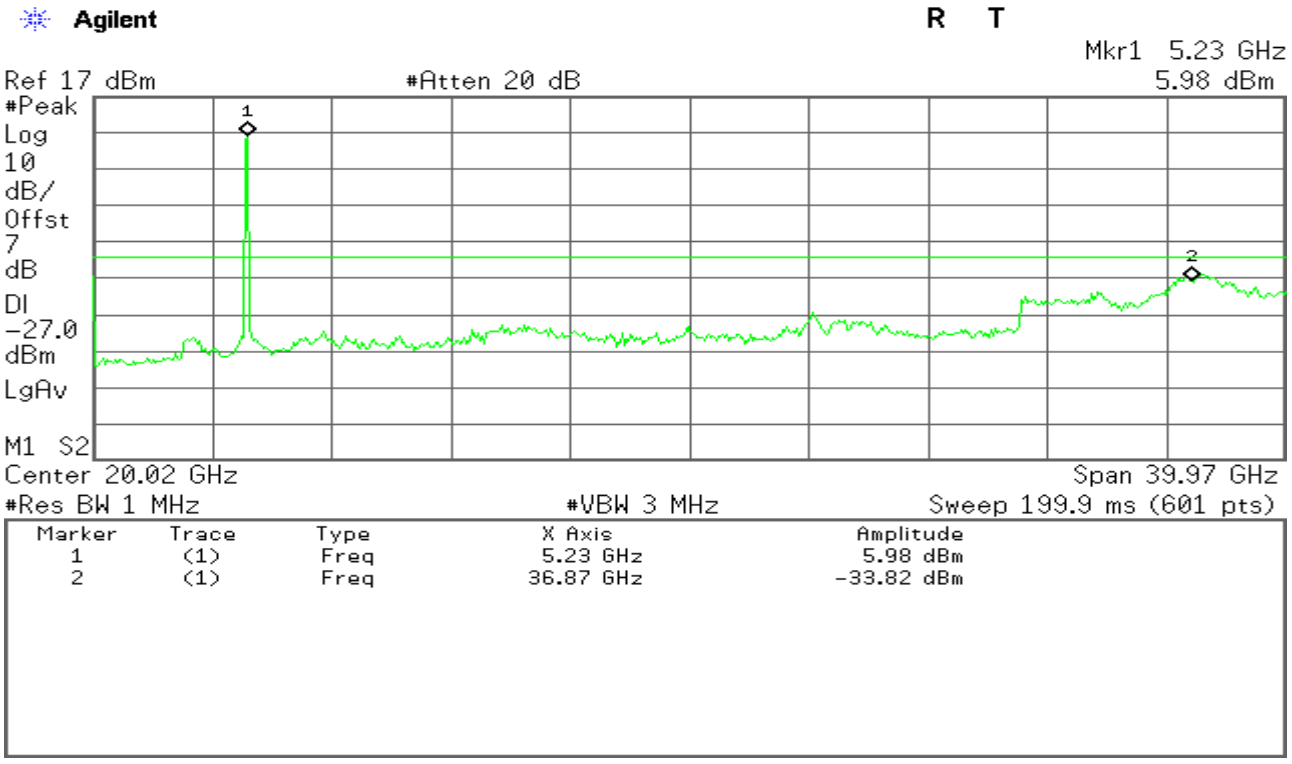
draft 802.11n Wide-40 MHz Channel mode / Chain 2

5150~5250MHz

CH Low

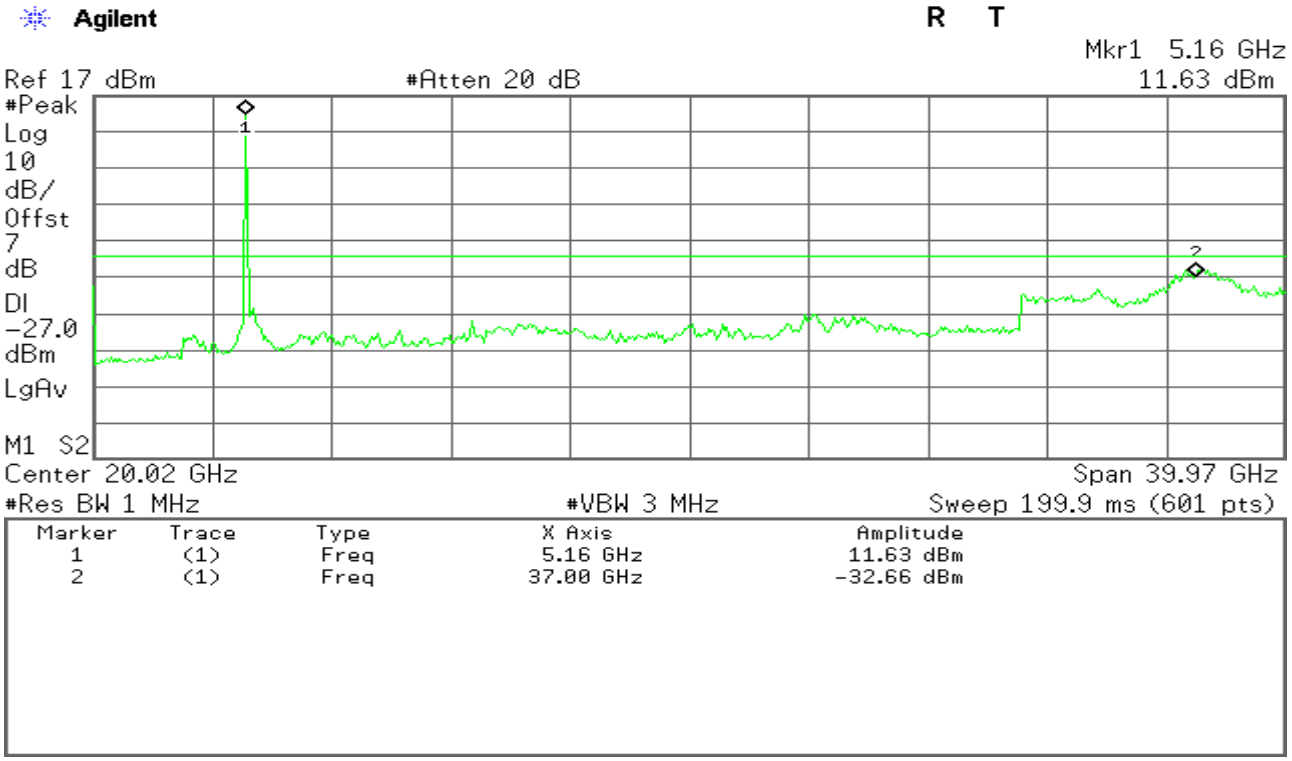


CH High

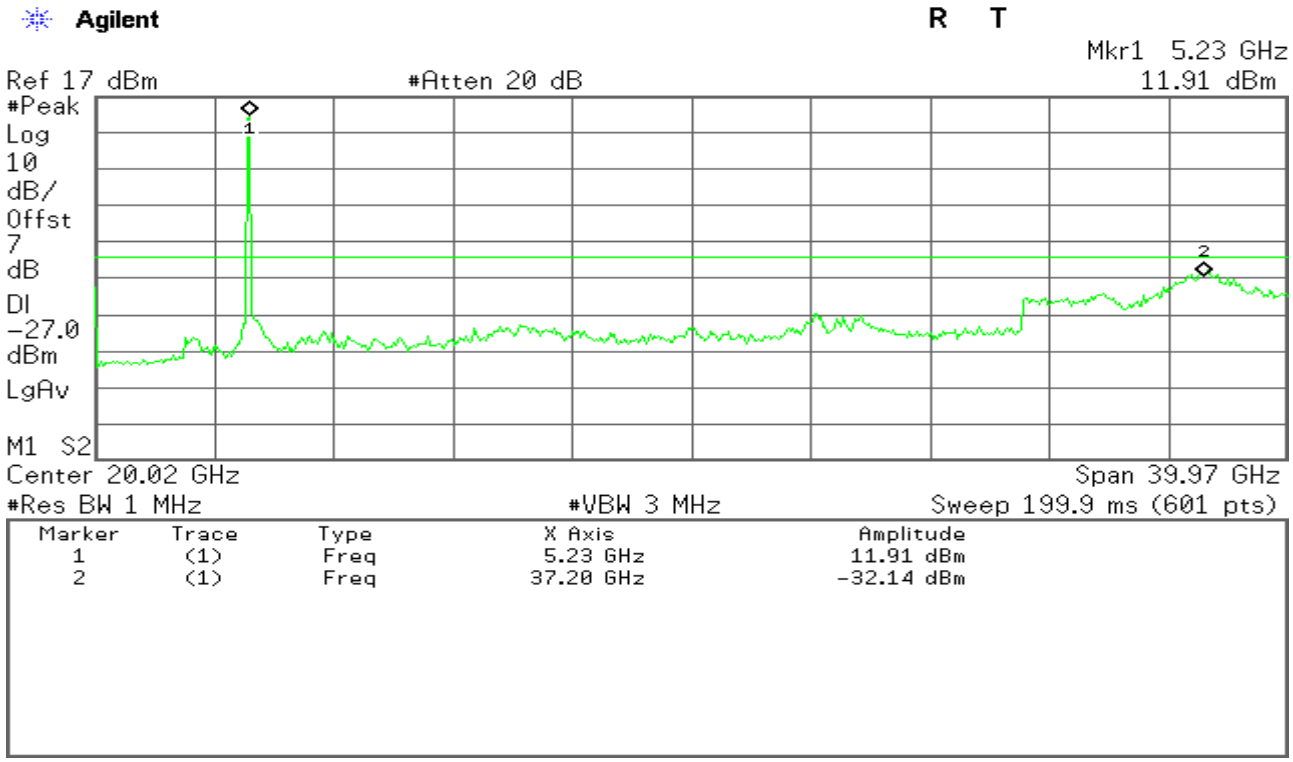


draft 802.11ac Standard-20 MHz Channel mode / Chain 0
5150~5250MHz

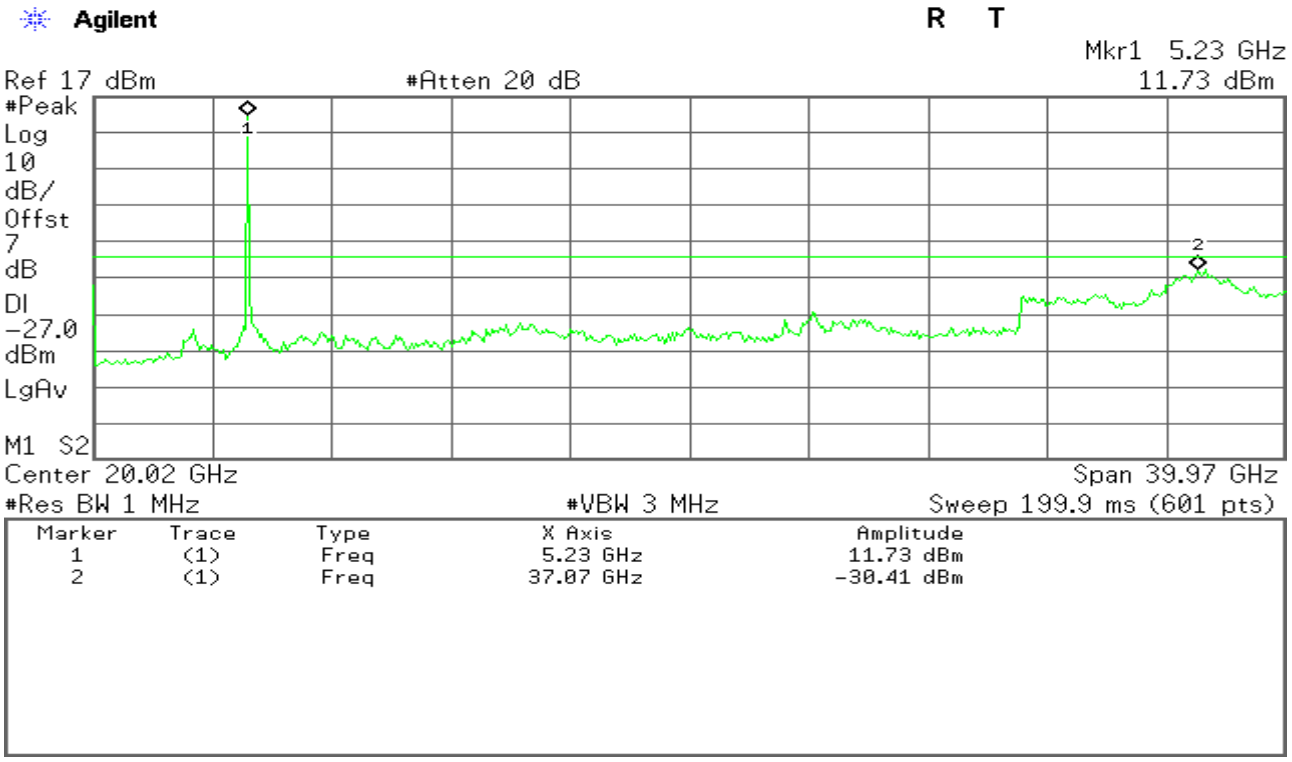
CH Low



CH Mid



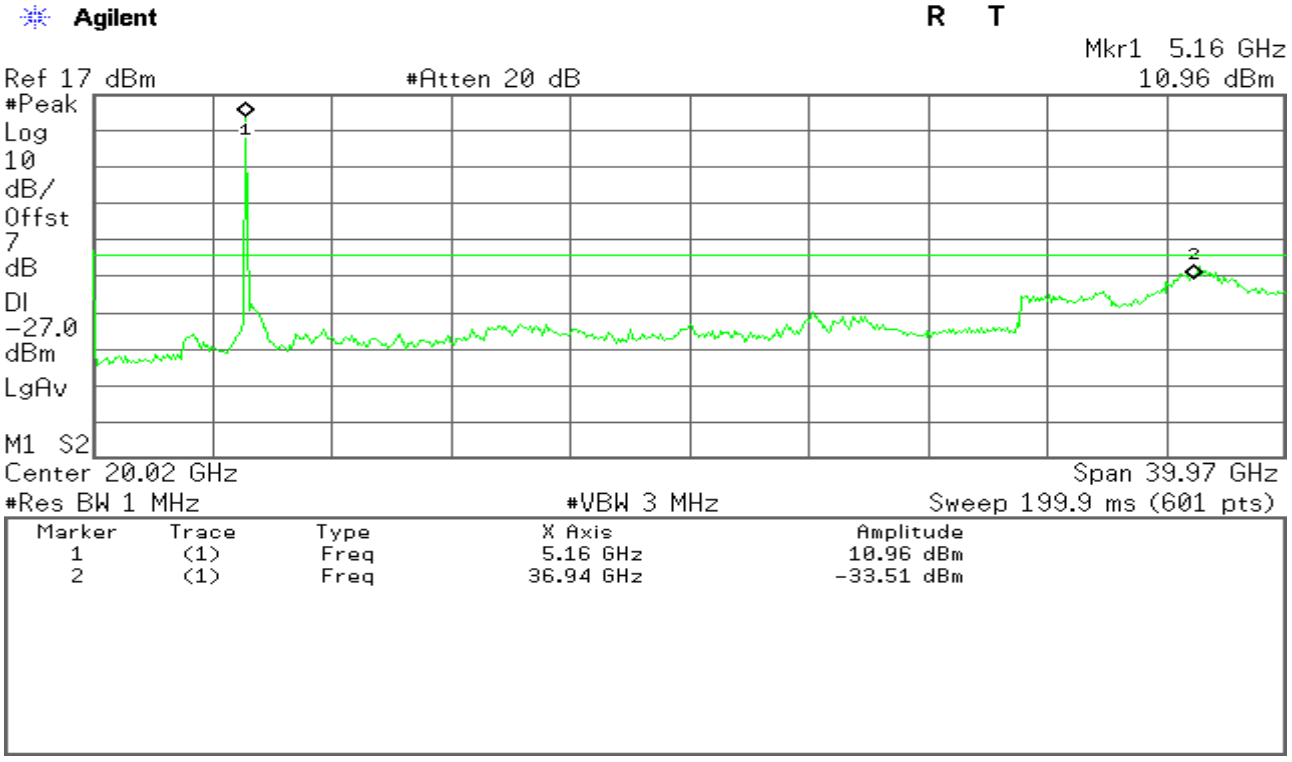
CH High



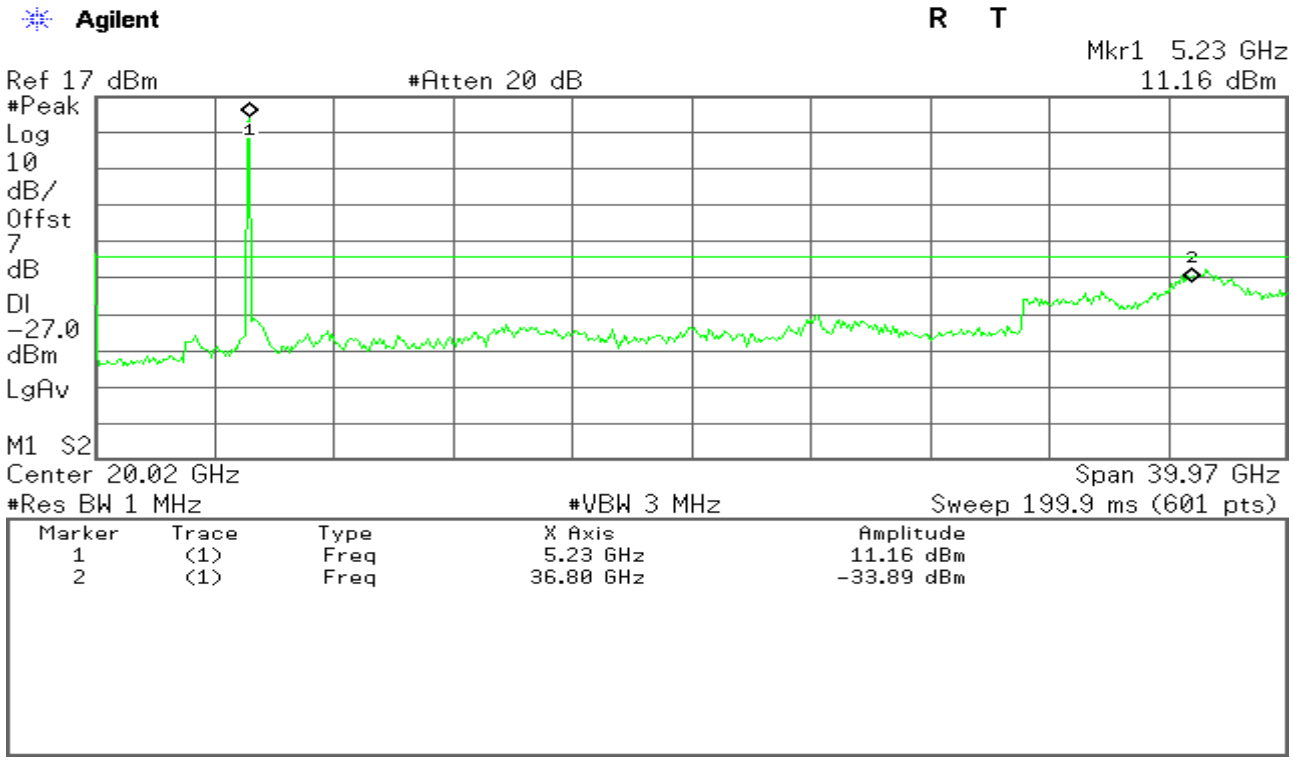
draft 802.11ac Standard-20 MHz Channel mode / Chain 1

5150~5250MHz

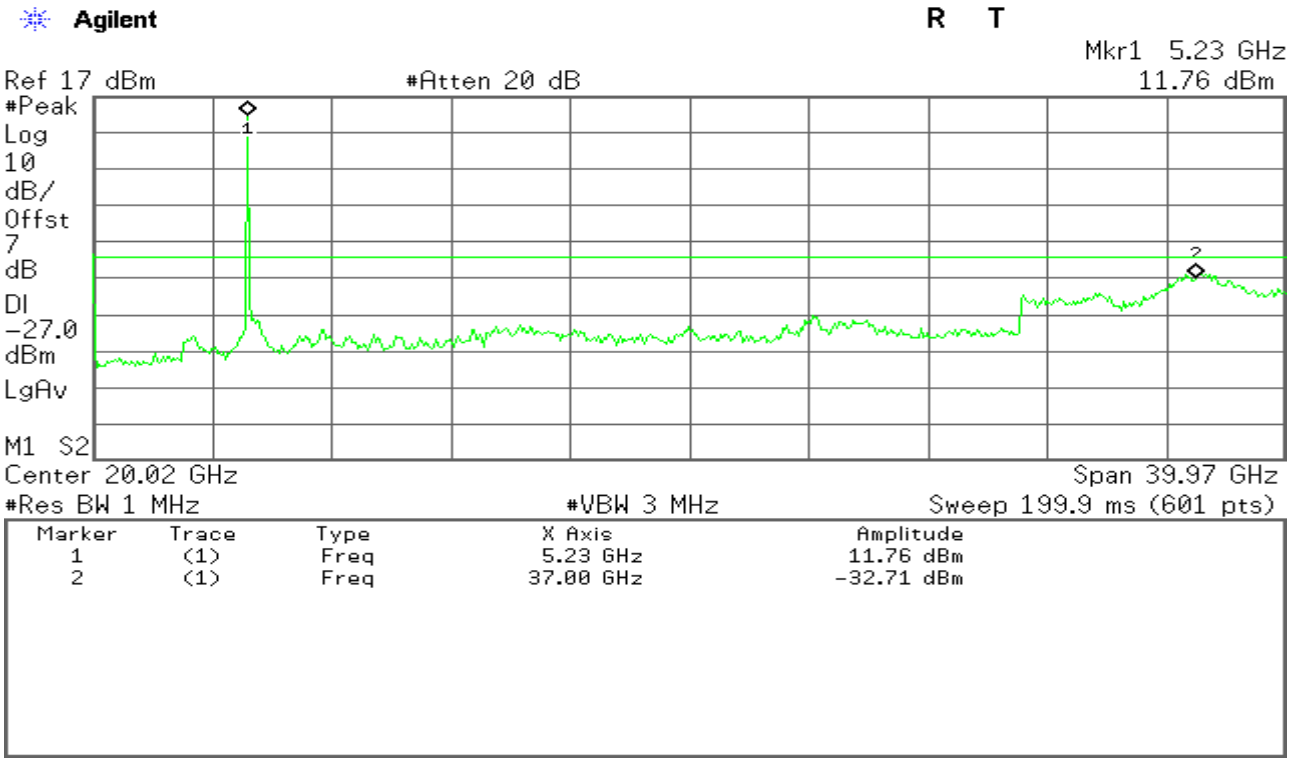
CH Low



CH Mid



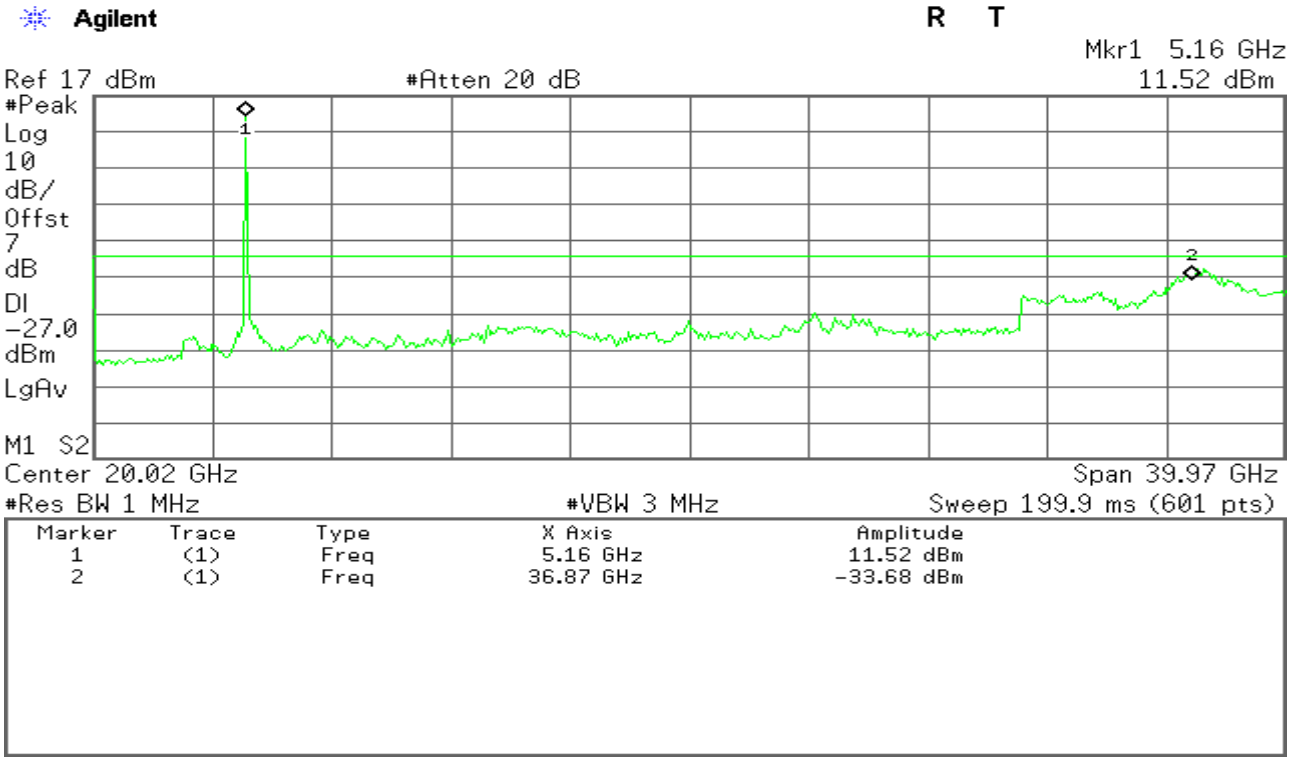
CH High



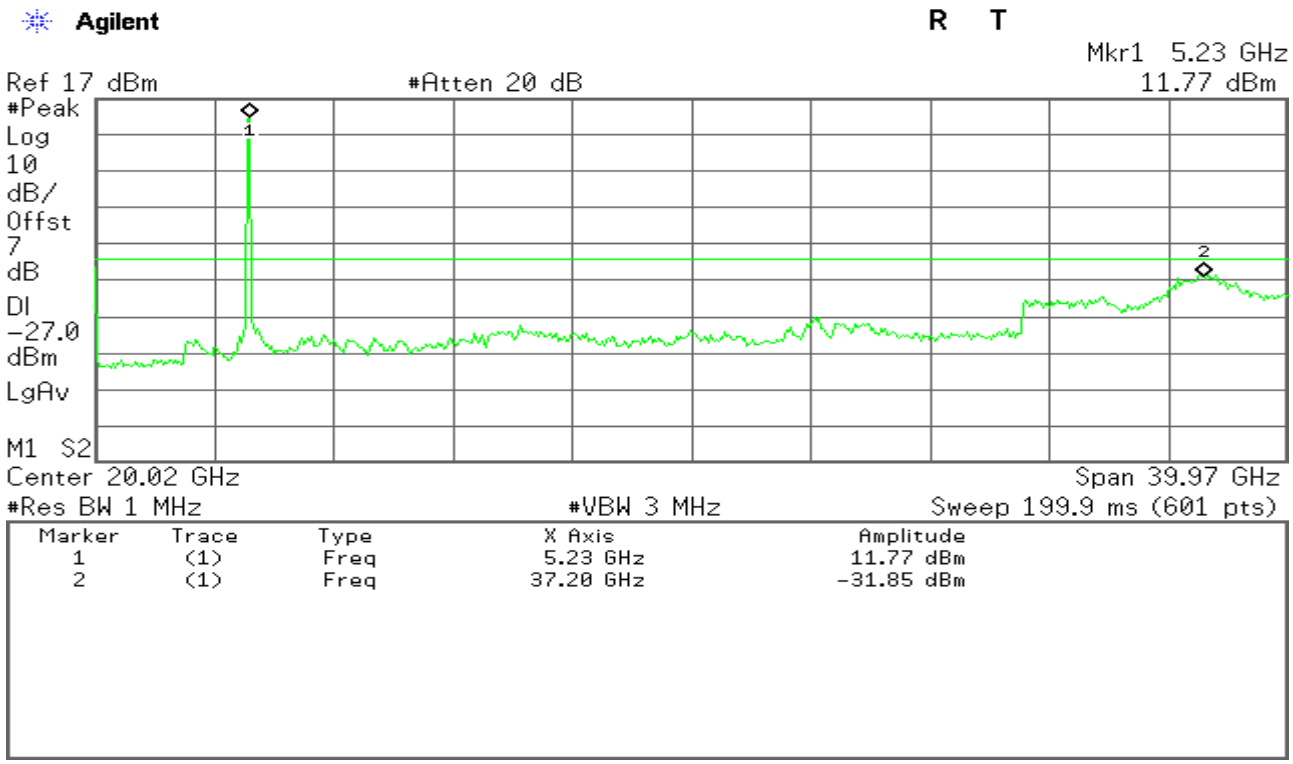
draft 802.11ac Standard-20 MHz Channel mode / Chain 2

5150~5250MHz

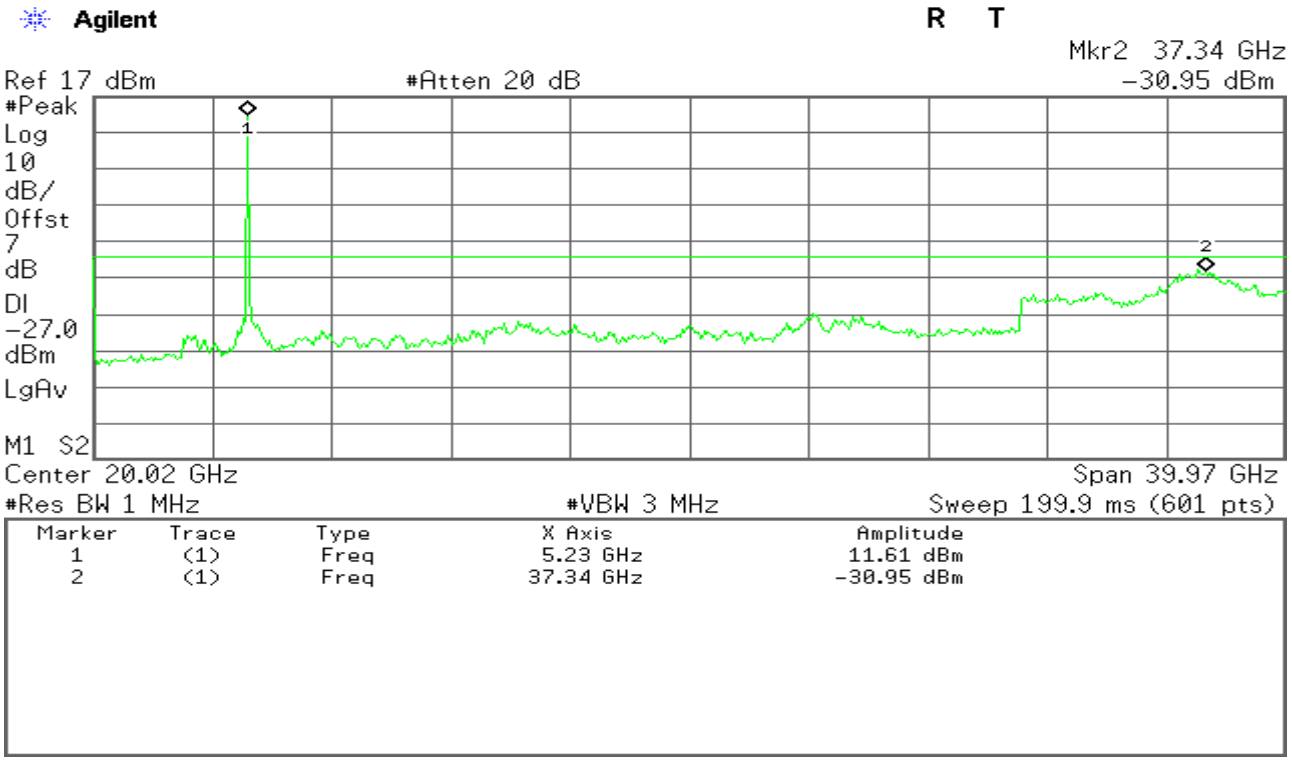
CH Low



CH Mid



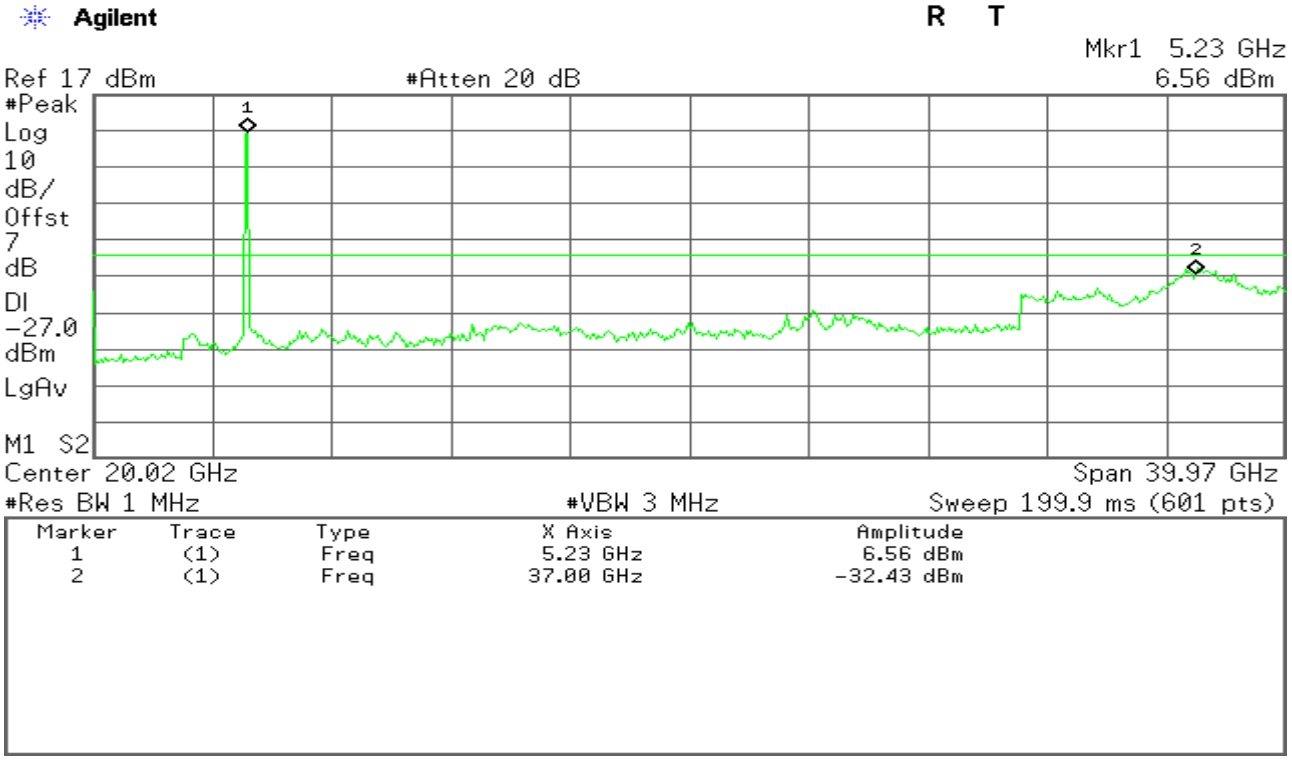
CH High



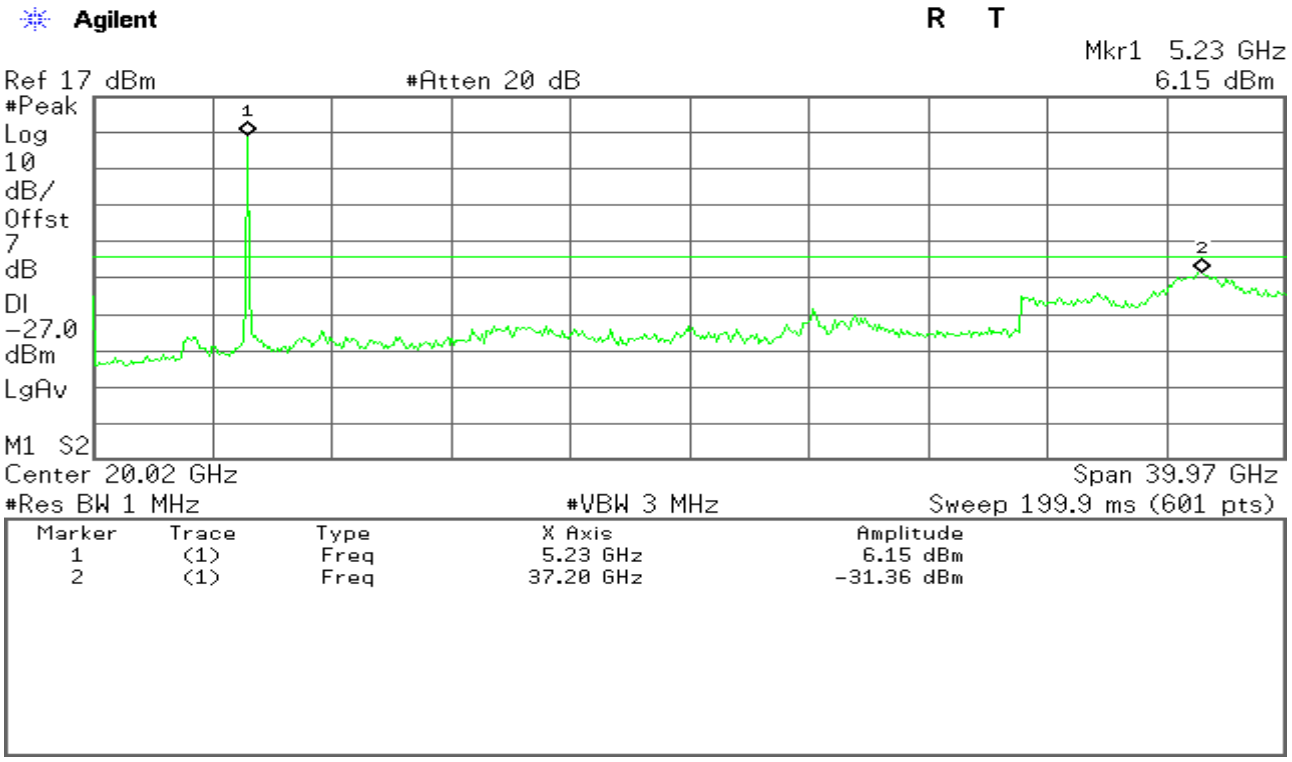
draft 802.11ac Wide-40 MHz Channel mode / Chain 0

5150~5250MHz

CH Low



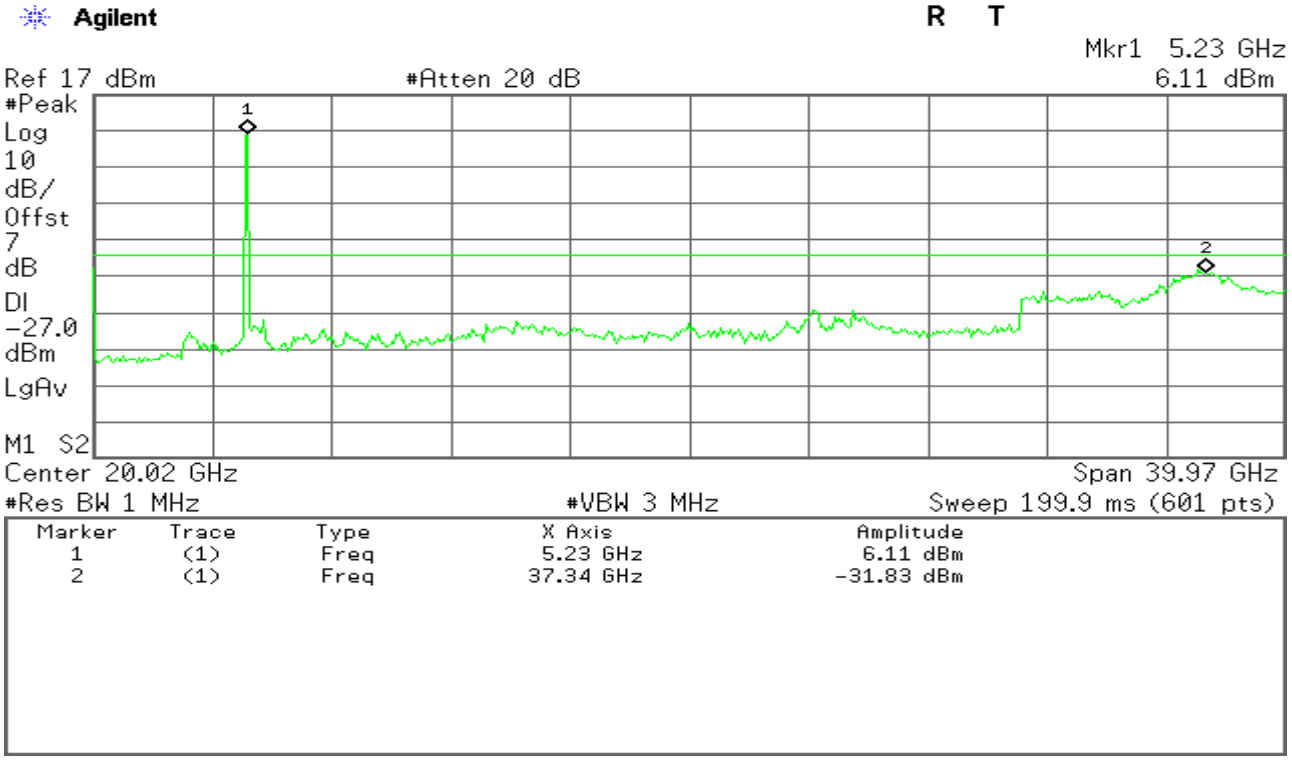
CH High



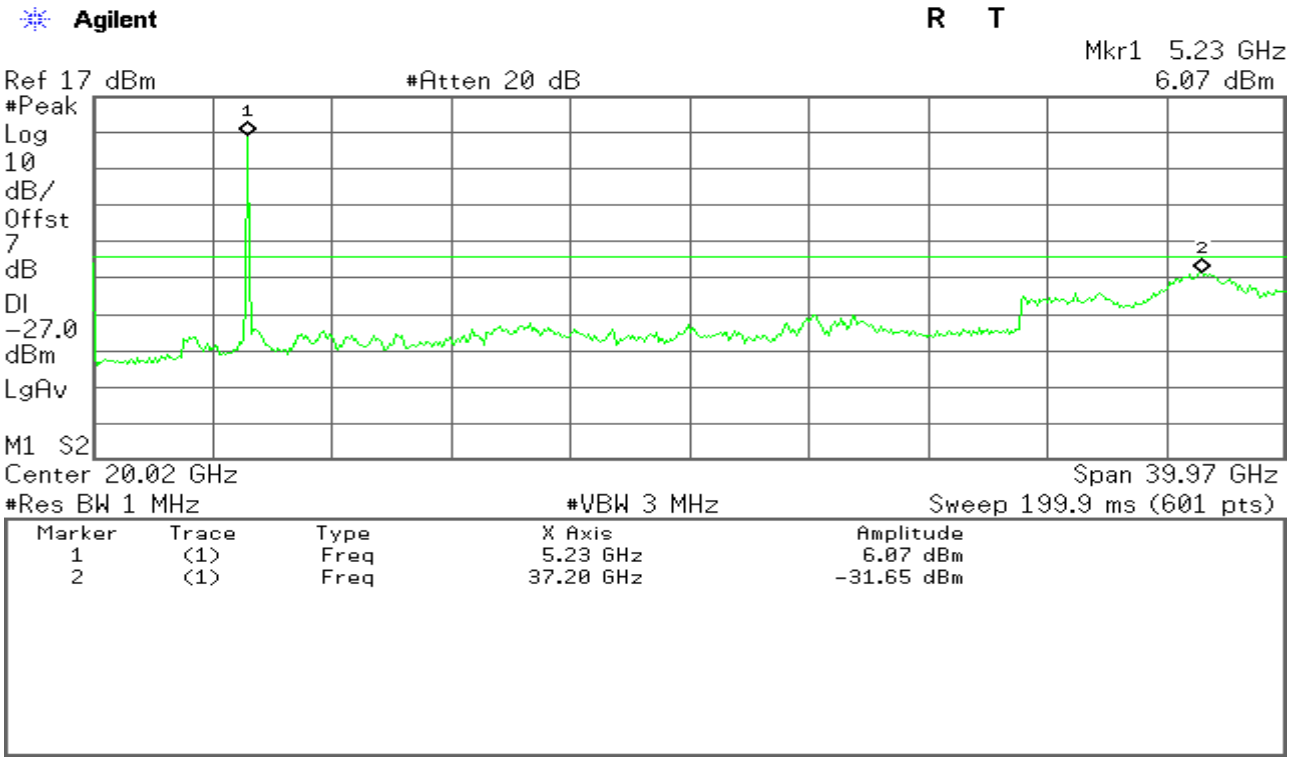
draft 802.11ac Wide-40 MHz Channel mode / Chain 1

5150~5250MHz

CH Low



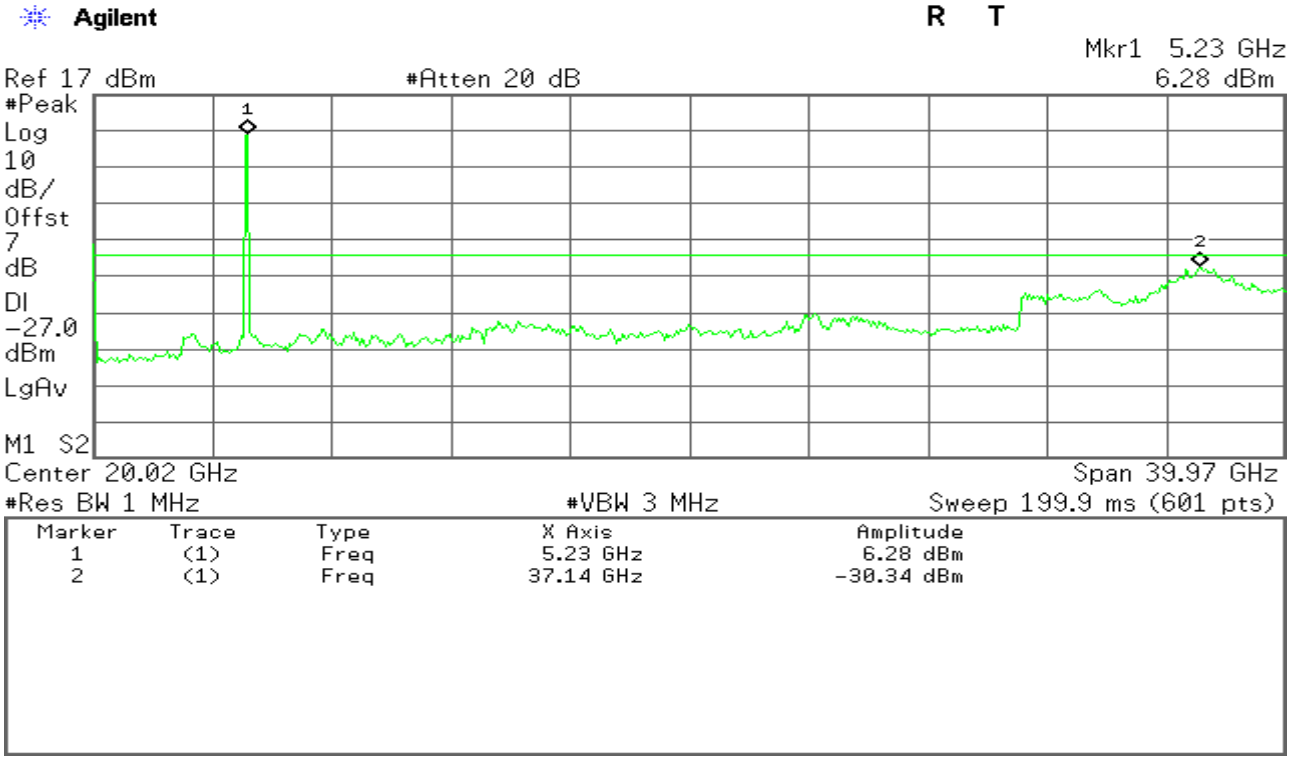
CH High



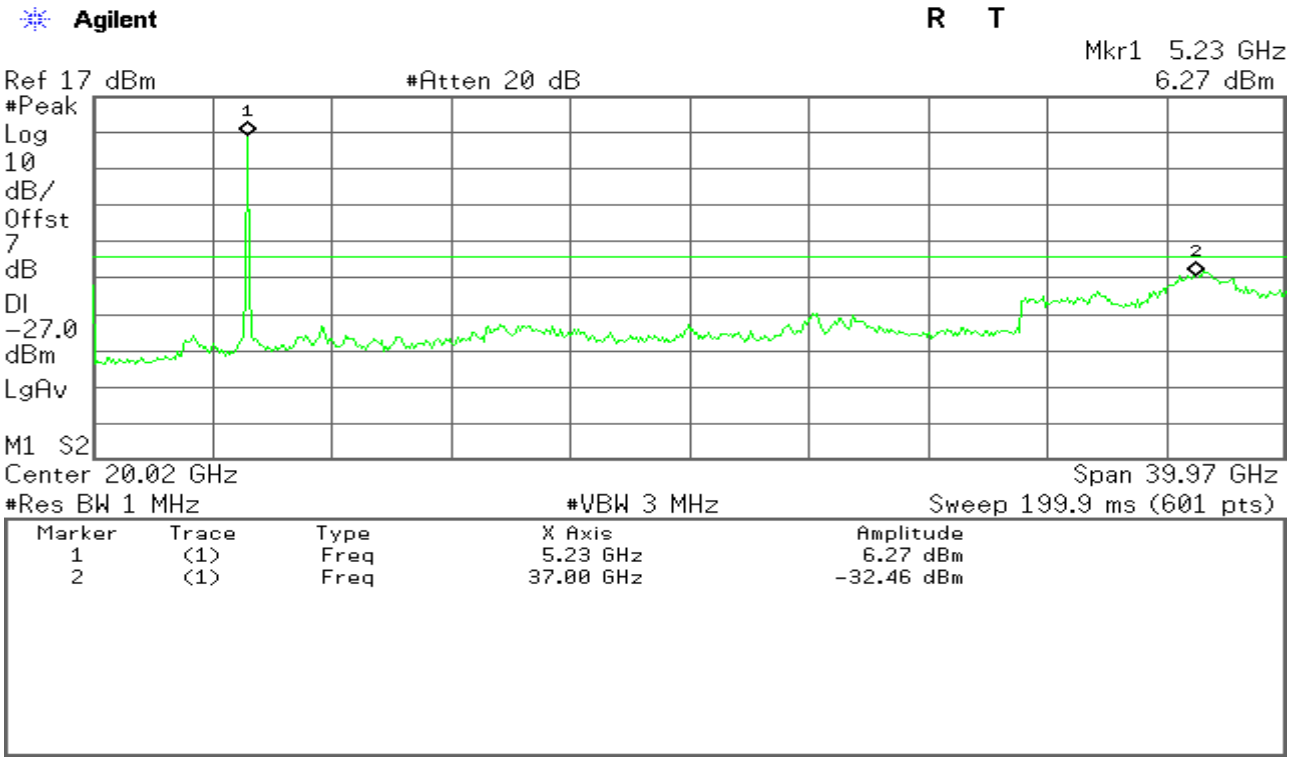
draft 802.11ac Wide-40 MHz Channel mode / Chain 2

5150~5250MHz

CH Low

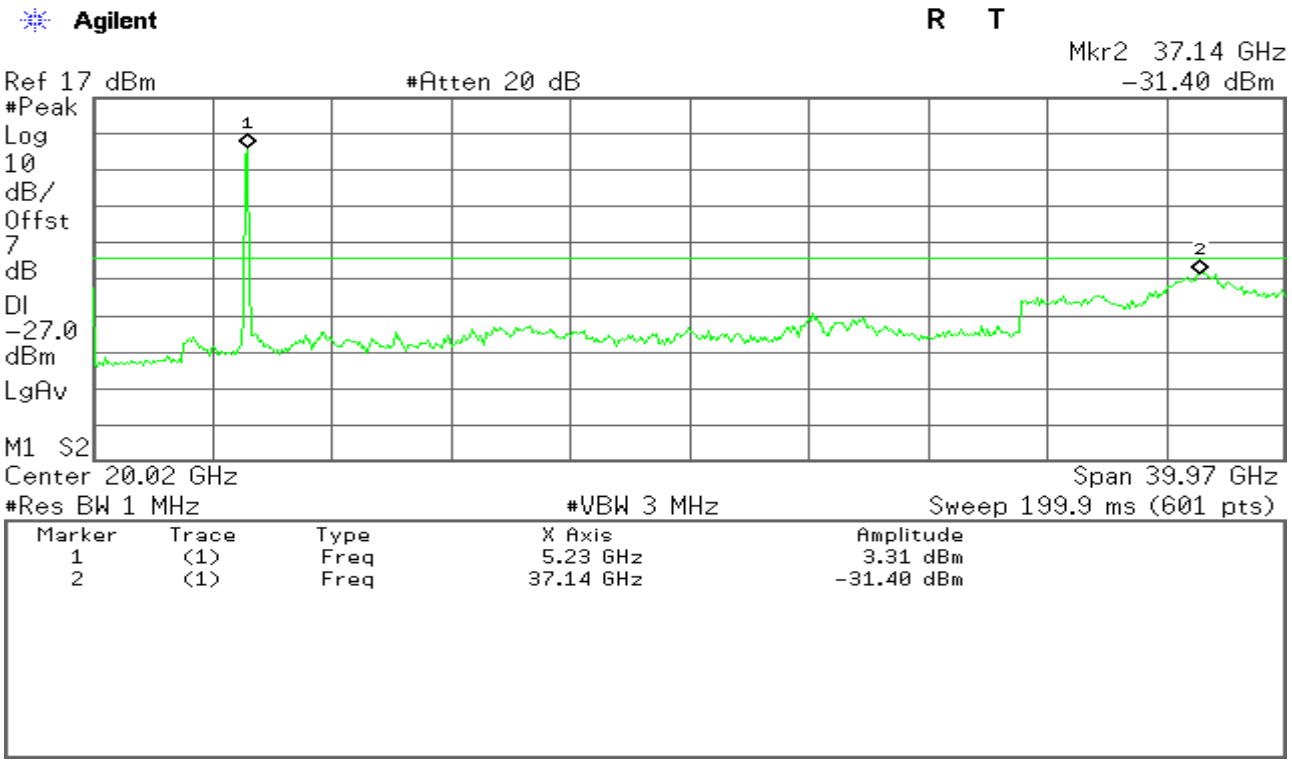


CH High



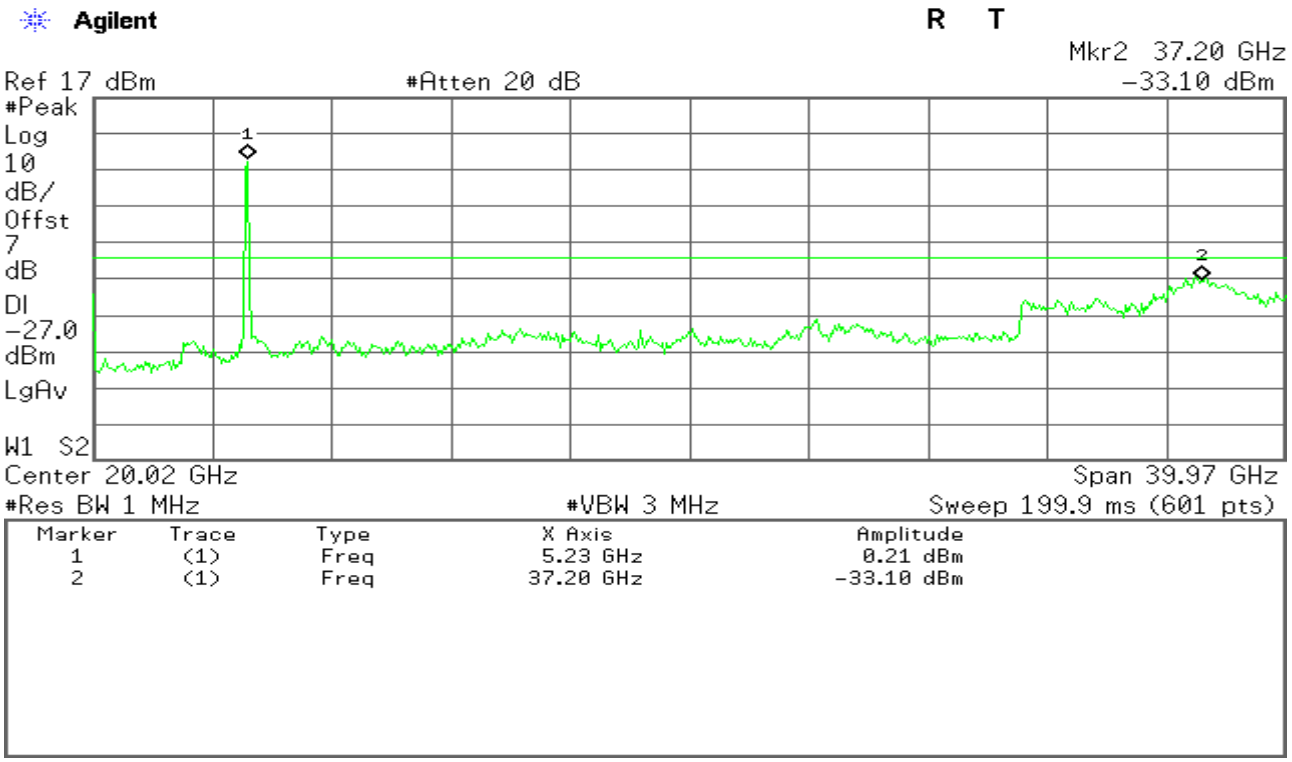
draft 802.11ac Wide-80 MHz Channel mode / Chain 0

5150~5250MHz



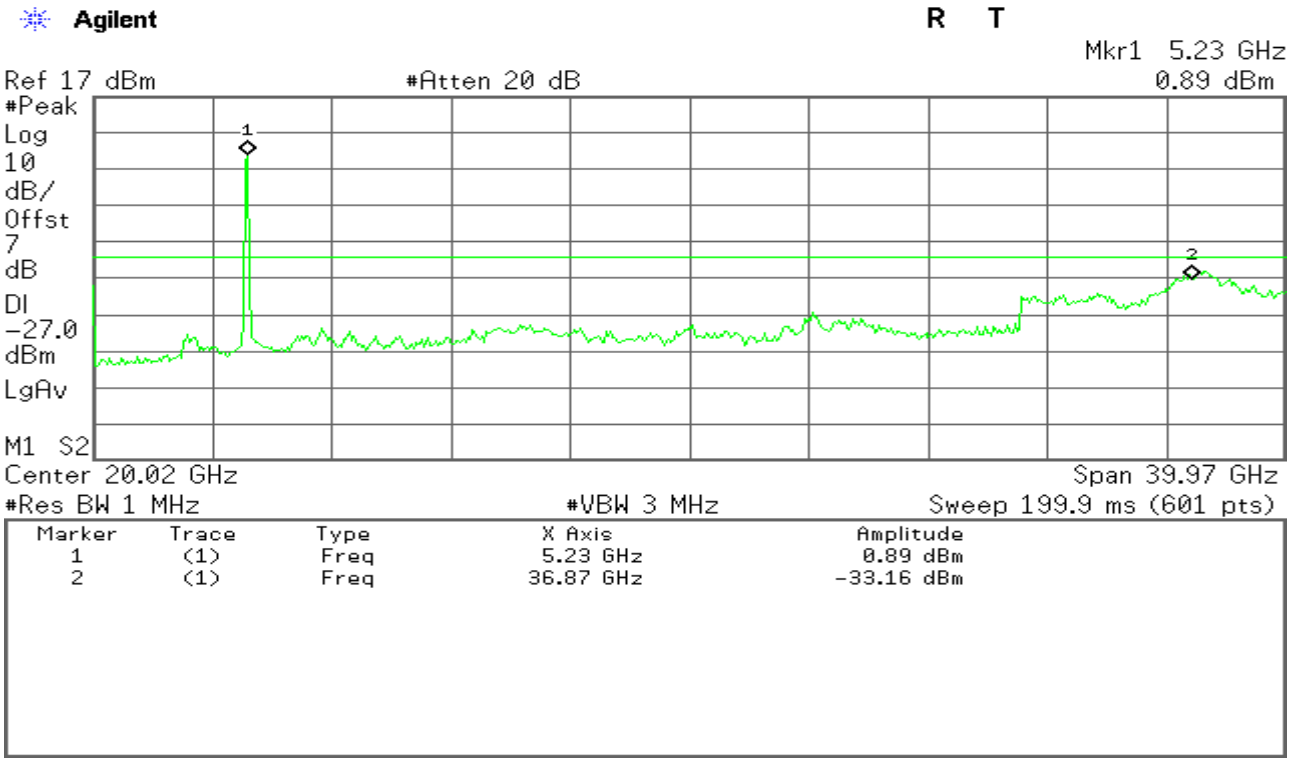
draft 802.11ac Wide-80 MHz Channel mode / Chain 1

5150~5250MHz



draft 802.11ac Wide-80 MHz Channel mode / Chain 2

5150~5250MHz



7.8 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 µH/50 ohms line impedance stabilization network (LISN). Compliance with the provisions of this paragraph shall be based on the measurement of the radio frequency voltage between each power line and ground at the power terminal. The lower limit applies at the boundary between the frequency ranges.

Frequency Range (MHz)	Limits (dBµV)	
	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.

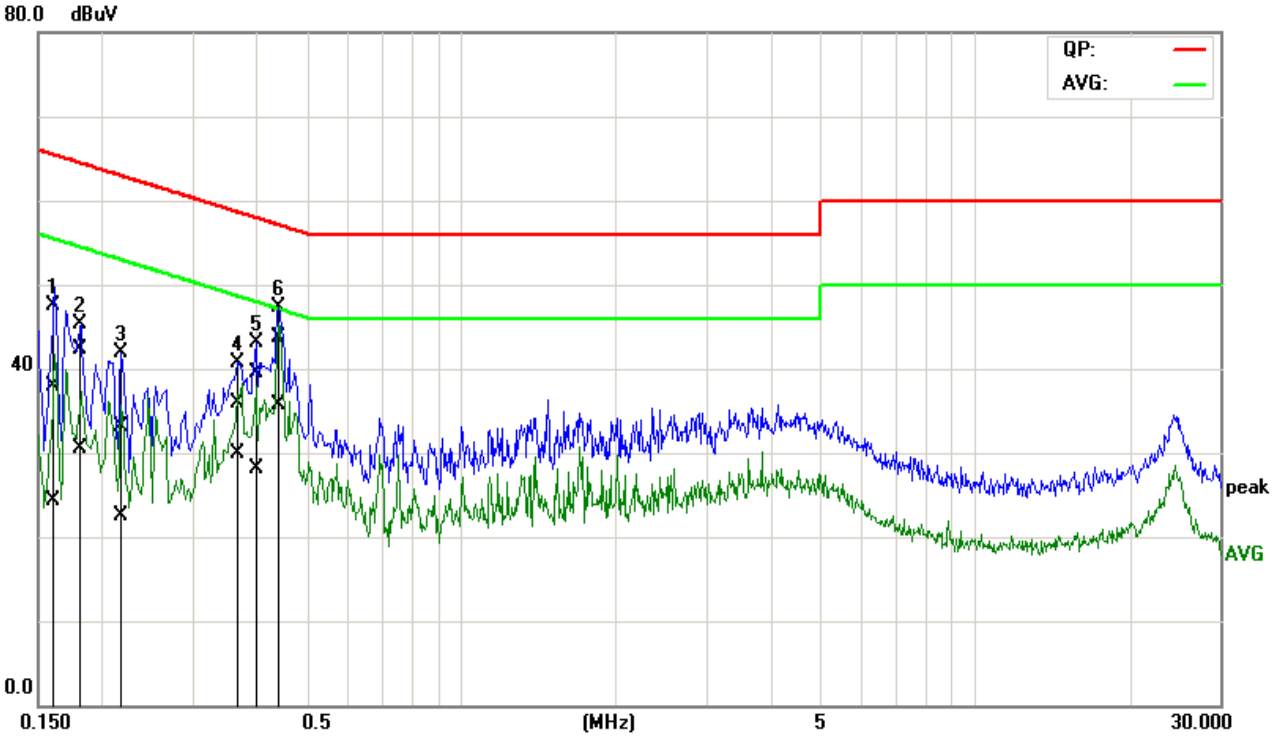
TEST RESULTS

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

Job No.:	C140221R01	Date:	2013-12-29
Model No.:	TG2472G	Time:	15:32:29
Standard:	FCC Class B	Temp.(C)/Hum.(%):	22(C)/48%
Test item:	Conduction test	Test By:	James.Yan
Line:	L1	Test Voltage:	AC 120V/60Hz
Model:		Description:	

L1

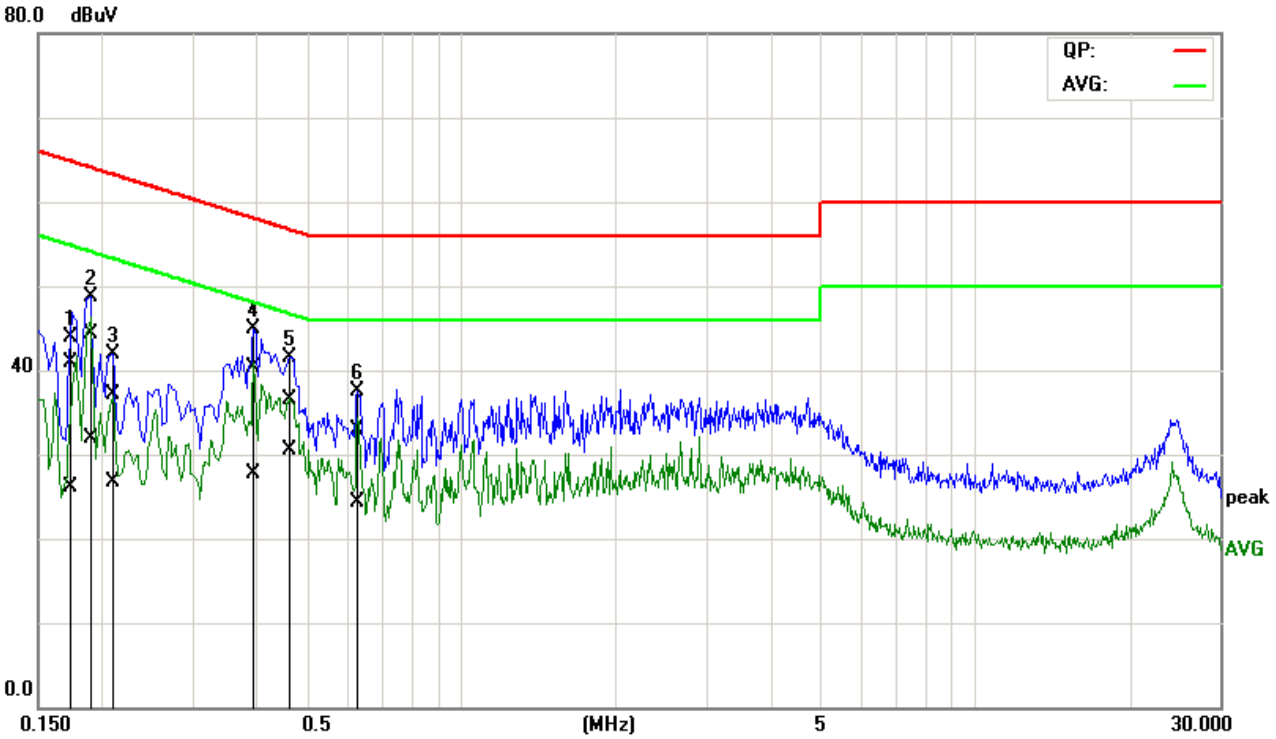


No.	Frequency	QuasiPeak reading	Average reading	Correction factor	QuasiPeak result	Average result	QuasiPeak limit	Average limit	QuasiPeak margin	Average margin	Remark
	(MHz)	(dBuV)	(dBuV)	(dB)	(dBuV)	(dBuV)	(dBuV)	(dBuV)	(dB)	(dB)	
1	0.1585	18.16	4.56	19.77	37.93	24.33	65.54	55.54	-27.61	-31.21	Pass
2	0.1813	22.62	10.75	19.68	42.30	30.43	64.43	54.43	-22.13	-24.00	Pass
3	0.2197	13.55	2.80	19.62	33.17	22.42	62.83	52.83	-29.66	-30.41	Pass
4	0.3662	16.26	10.22	19.73	35.99	29.95	58.59	48.59	-22.60	-18.64	Pass
5*	0.3983	19.82	8.32	19.75	39.57	28.07	57.89	47.89	-18.32	-19.82	Pass
6	0.4388	23.84	15.85	19.78	43.62	35.63	57.08	47.08	-13.46	-11.45	Pass

Note: 1. L1 = Line One (Live Line) / L2 = Line Two (Neutral Line).

Job No.:	C140221R01	Date:	2013-12-29
Model No.:	TG2472G	Time:	15:36:59
Standard:	FCC Class B	Temp.(C)/Hum.(%):	22(C)/48%
Test item:	Conduction test	Test By:	James.Yan
Line:	L2	Test Voltage:	AC 120V/60Hz
Model:		Description:	

L2



No.	Frequency	QuasiPeak reading	Average reading	Correction factor	QuasiPeak result	Average result	QuasiPeak limit	Average limit	QuasiPeak margin	Average margin	Remark
	(MHz)	(dBuV)	(dBuV)	(dB)	(dBuV)	(dBuV)	(dBuV)	(dBuV)	(dB)	(dB)	
1	0.1704	21.25	6.49	19.69	40.94	26.18	64.94	54.94	-24.00	-28.76	Pass
2	0.1894	24.67	12.23	19.66	44.33	31.89	64.06	54.06	-19.73	-22.17	Pass
3	0.2087	17.45	7.13	19.65	37.10	26.78	63.26	53.26	-26.16	-26.48	Pass
4	0.3930	20.54	7.94	19.78	40.32	27.72	58.00	48.00	-17.68	-20.28	Pass
5*	0.4634	16.63	10.71	19.82	36.45	30.53	56.63	46.63	-20.18	-16.10	Pass
6	0.6233	13.00	4.49	19.84	32.84	24.33	56.00	46.00	-23.16	-21.67	Pass

END OF REPORT