FCC 47 CFR PART 15 SUBPART E

TEST REPORT

For

AC1200 Wireless LAN Concurrent Dual Band Gigabit Router

Model: BR-6485AC

Trade Name: EDIMAX

Issued to

EDIMAX TECHNOLOGY CO., LTD.
No.3,Wu-Chuan 3rd Road,Wu-Ku Industrial Park, New Taipei City, Taiwan

Issued by

Compliance Certification Services Inc.
No.11, Wugong 6th Rd., Wugu Dist.,
New Taipei City 24891, Taiwan. (R.O.C.)
http://www.ccsrf.com
service@ccsrf.com
Issued Date: August 26, 2015

Testing Laboratory
1309

Revision History

Rev.		Issue Date		Revisions	Effect Page	Revised By
00		August 26, 2015		Initial Issue	ALL	Kelly Cheng

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1. TEST RESULT CERTIFICATION

Applicant:	EDIMAX TECHNOLOGY CO., LTD. No.3,Wu-Chuan 3rd Road,Wu-Ku Industrial Park, New Taipei City, Taiwan
Equipment Under Test:	AC1200 Wireless LAN Concurrent Dual Band Gigabit Router
Trade Name:	EDIMAX
Model:	BR-6485AC
Date of Test:	August 18~23, 2015

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

We hereby certify that:

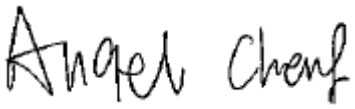
Compliance Certification Services Inc. tested the above equipment. The test data, data evaluation, test procedures, and equipment configurations shown in this report were made in accordance with the procedures given in ANSI C63.10: 2009 and the energy emitted by the sample EUT tested as described in this report is in compliance with conducted and radiated emission limits of FCC Rules Part 15.407.

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

Approved by:

Miller Lee
Manager
Compliance Certification Services Inc.

Reviewed by:



Angel Cheng
Section Manager
Compliance Certification Services Inc.

2. EUT DESCRIPTION

<table>
<tr><td>Product</td><td>AC1200 Wireless LAN Concurrent Dual Band Gigabit Router</td></tr>
<tr><td>Trade Name</td><td>EDIMAX</td></tr>
<tr><td>Model Number</td><td>BR-6485AC</td></tr>
<tr><td>Model Discrepancy</td><td>N/A</td></tr>
<tr><td>Received Date</td><td>May 29, 2015</td></tr>
<tr><td>Power Supply</td><td>VDC from Power Adapter
Model: WB-18D12FU
I/P: 100-240V, 50-60Hz, 0.5A Max
O/P: 12V, 1.5A</td></tr>
<tr><td>Frequency Range</td><td>IEEE 802.11a, IEEE 802.11n HT20 : 5180MHz ~ 5240MHz; 5745 ~ 5825MHz
IEEE 802.11n HT40 : 5190MHz ~ 5230MHz; 5755 ~ 5795MHz
IEEE 802.11ac VHT80 mode: 5210MHz; 5775MHz</td></tr>
<tr><td>Channel Number</td><td>IEEE 802.11a, IEEE 802.11n HT20 : 5180MHz ~ 5825MHz : 9 Channels
IEEE 802.11n HT40 : 5190MHz ~ 5795MHz : 4 Channels
IEEE 802.11ac VHT80 mode: 5210MHz ~ 5775MHz : 2 Channels</td></tr>
<tr><td>Transmit Power</td><td>
<table>
<tr><th></th><th>Mode</th><th>Frequency Range (MHz)</th><th>Transmit Power (dBm)</th><th>Transmit Power (W)</th></tr>
<tr><td rowspan="4">UNII Band I</td><td>IEEE 802.11a</td><td>5180 ~ 5240</td><td>24.05</td><td>0.2541</td></tr>
<tr><td>IEEE 802.11n HT 20 mode</td><td>5180 ~ 5240</td><td>22.11</td><td>0.1626</td></tr>
<tr><td>IEEE 802.11n HT 40 mode</td><td>5190 ~ 5230</td><td>18.28</td><td>0.0673</td></tr>
<tr><td>IEEE 802.11ac VHT80 mode</td><td>5210</td><td>23.81</td><td>0.2404</td></tr>
<tr><td rowspan="4">UNII Band IV</td><td>IEEE 802.11a</td><td>5745 ~ 5825</td><td>18.87</td><td>0.0771</td></tr>
<tr><td>IEEE 802.11n HT 20 mode</td><td>5745 ~ 5825</td><td>18.78</td><td>0.0755</td></tr>
<tr><td>IEEE 802.11n HT 40 mode</td><td>5755 ~ 5815</td><td>16.79</td><td>0.0478</td></tr>
<tr><td>IEEE 802.11ac VHT80 mode</td><td>5775</td><td>20.17</td><td>0.1040</td></tr>
</table>
</td></tr>
<tr><td>Modulation Technique</td><td>OFDM (QPSK, BPSK, 16-QAM, 64-QAM, 256QAM)</td></tr>
<tr><td>Transmit Data Rate</td><td>IEEE 802.11a mode: 54, 48, 36, 24, 18, 12, 9, 6 Mbps
IEEE 802.11n HT 20 mode: OFDM (6.5, 7.2, 13, 14.4, 14.44, 19.5, 21.7, 26, 28.89, 28.9, 39, 43.3, 43.33 52, 57.78, 57.8, 58.5, 65.0, 72.2, 78, 86.67, 104, 115.56, 117, 130, 144.44 Mbps)
IEEE 802.11n HT 40 mode: OFDM (13.5, 15, 27, 30, 40.5, 45, 54, 60, 81, 90, 108, 120, 121.5, 135, 150, 162, 180, 216, 240, 243, 270, 300 Mbps)
IEEE 802.11ac VHT80 mode: OFDM (29.3, 58.5, 87.8, 117, 175.5, 234, 263.3, 292.5, 351, 390, 468, 526.5, 585, 702, 780 Mbps)</td></tr>
<tr><td>Antenna Specification</td><td>Dipole Antenna
1. GORTEC / AN2450-1711WBO
Gain: 4.3dBi
2. GORTEC / AN2450-1712WGO
Gain: 4.3dBi
MIMO: Total ANT=7.31 dBi</td></tr>
</table>

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: **NDD9564851502** filing to comply with Section 15.407 of the FCC Part 15, Subpart E Rules.*

3. TEST METHODOLOGY

Both conducted and radiated testing was performed according to the procedures in ANSI C63.10 Radiated testing was performed at an antenna to EUT distance 3 meters, KDB 789033 D02.

KDB 662911 D01 Multiple Transmitter Output v02r01

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 13.1.4.1 of ANSI C63.10, 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 1.5 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 13.1.4.1 of ANSI C63.10.

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

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

[2] Above 38.6

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

3.5 DESCRIPTION OF TEST MODES

The EUT (model: BR-6485AC) had been tested under operating condition.

The EUT is a 2x2 configuration spatial MIMO (2Tx & 2Rx) without beam forming function that operate in double TX chains and double RX chains. The 2x2 configuration is implemented with two outside TX & RX chains (Chain 0 and 1).

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

The field strength of spurious emission was measured in the following position: EUT stand-up position (Z axis), lie-down position (X, Y axis). The worst emission was found in lie-down position (X axis) and the worst case was recorded.

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.

Band I

IEEE 802.11a mode / 5180 ~ 5240MHz:

Channel Low (5180MHz), Channel Mid (5220MHz) and Channel High (5240MHz) with 6Mbps data rate were chosen for full testing.

IEEE 802.11n HT 20 mode / 5180 ~ 5240MHz:

Channel Low (5180MHz), Channel Mid (5220MHz) and Channel High (5240MHz) with 6.5Mbps data rate were chosen for full testing.

IEEE 802.11n HT 40 mode / 5190 ~ 5230MHz:

Channel Low (5190MHz) and Channel High (5230MHz) with 13.5Mbps data rate were chosen for full testing.

IEEE 802.11ac VHT80 Mode for 5210MHz:
Channel (5210MHz) with 6.5Mbps data rate were chosen for full testing.

Band IV

IEEE 802.11a mode / 5745 ~ 5825MHz
Channel Low (5745MHz), Channel Mid (5785MHz) and Channel High (5825MHz) with 6Mbps data rate were chosen for full testing.

IEEE 802.11n HT 20 mode: / 5745 ~ 5825MHz
Channel Low(5745MHz), Channel Mid(5785MHz) and Channel High(5825MHz) with 6.5Mbps data rate were chosen for full testing.

IEEE 802.11n HT 40 mode / 5755 ~ 5795MHz
Channel Low(5755MHz) and Channel High(5795MHz) with 13.5Mbps data rate were chosen for full testing.

IEEE 802.11ac VHT80 Mode for 5775MHz:
Channel (5775MHz) with 6.5Mbps data rate were chosen for full testing.

4. INSTRUMENT CALIBRATION

4.1 MEASURING INSTRUMENT CALIBRATION

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

4.2 MEASUREMENT EQUIPMENT USED

Equipment Used for Emissions Measurement

Remark: *Each piece of equipment is scheduled for calibration once a year and Loop Antenna is scheduled for calibration once three years.*

Conducted Emissions Test Site				
Name of Equipment	**Manufacturer**	**Model**	**Serial Number**	**Calibration Due**
Spectrum Analyzer	Agilent	E4446A	US42510252	11/23/2015
Thermostatic/Humidity Chamber	TAICHY	MHG-150LF	930619	10/07/2015
AC Power Source	EXTECH	6205	1140845	N.C.R
DC Power Supply	ABM	8301HD	D011531	N.C.R
Power Meter	Anritsu	ML2495A	1012009	07/07/2016
Power Sensor	Anritsu	MA2411A	0917072	07/07/2016
Spectrum Analyzer	ROHDE&SCHWARZ	FSV40	101073	07/19/2016

Wugu 966 Chamber A				
Name of Equipment	**Manufacturer**	**Model**	**Serial Number**	**Calibration Due**
Spectrum Analyzer	Agilent	E4446A	US42510268	01/25/2016
EMI Test Receiver	R&S	ESCI	100064	06/03/2016
Bilog Antenna	Sunol Sciences	JB3	A030105	08/05/2016
Horn Antenna	EMCO	3117	00055165	01/26/2016
Horn Antenna	EMCO	3116	26370	12/25/2015
Turn Table	CCS	CC-T-1F	N/A	N.C.R
Antenna Tower	CCS	CC-A-1F	N/A	N.C.R
Controller	CCS	CC-C-1F	N/A	N.C.R
Pre-Amplifier	MITEQ	1652-3000	1490939	08/09/2016
Pre-Amplifier	EMC	EMC 012635	980151	06/04/2016
Pre-Amplifier	MITEQ	AMF-6F-260400-40-8P	985646	12/25/2015
Coaxial Cable	Huber+Suhner	102	29212/2	12/25/2015
Coaxial Cable	Huber+Suhner	102	29406/2	12/25/2015
Test S/W	EZ-EMC (CCS-3A1RE)			

Conducted Emission room # B				
Name of Equipment	**Manufacturer**	**Model**	**Serial Number**	**Calibration Due**
EMI Test Receiver	R&S	ESCI	101073	09/18/2015
LISN	R&S	ENV216	101054	06/06/2016
LISN	SCHWARZBECK	NSLK 8127	8127-541	11/25/2015
Capacitive Voltage Probe	FCC	F-CVP-1	100185	03/12/2016
Test S/W	CCS-3A1-CE			

4.3 MEASUREMENT UNCERTAINTY

PARAMETER	UNCERTAINTY
Powerline Conducted Emission	+/- 1.2575
3M Semi Anechoic Chamber / <200M	+/- 4.0138
3M Semi Anechoic Chamber / 200M~1000M	+/- 3.9483
3M Semi Anechoic Chamber / 1G~8G	+/- 2.5975
3M Semi Anechoic Chamber / 8G~18G	+/- 2.6112
3M Semi Anechoic Chamber / 18G~26G	+/- 2.7389
3M Semi Anechoic Chamber / 26G~40G	+/- 2.9683

***Remark**: This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.*

5. FACILITIES AND ACCREDITATIONS

5.1 FACILITIES

All measurement facilities used to collect the measurement data are located at

☐ No.199, Chunghsen Road, Hsintien City, Taipei Hsien, Taiwan, R.O.C.

☐ No.139, Wugong Rd., Wugu Dist., New Taipei City 24891, Taiwan (R.O.C.)

☒ No.11, Wugong 6th Rd., Wugu Dist., New Taipei City 24891, Taiwan. (R.O.C.)

☐ No.81-1, Lane 210, Bade 2nd Rd., Lujhu Township, Taoyuan County 33841, TAIWAN, R.O.C.

The sites are constructed in conformance with the requirements of ANSI C63.7, ANSI C63.10 and CISPR Publication 22.

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 pre-selectors and quasi-peak detectors are used to perform radiated measurements.

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

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

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

5.3 TABLE OF ACCREDITATIONS AND LISTINGS

Country	Agency	Scope of Accreditation	Logo
USA	FCC	3M Semi Anechoic Chamber (FCC MRA: TW1039) to perform FCC Part 15 measurements	FCC MRA: TW1039
Taiwan	TAF	LP0002, RTTE01, FCC Method-47 CFR Part 15 Subpart C, D, E, RSS-310 IDA TS SRD, AS/NZS 4268, AS/NZS 4771, TS 12.1 & 12,2, ETSI EN 300 440-1, ETSI EN 300 440-2, ETSI EN 300 328, ETSI EN 300 220-1, ETSI EN 300 220-2, ETSI EN 301 893, ETSI EN 301 489-1/3/7/17 FCC OET Bulletin 65 + Supplement C, EN 50360, EN 50361, EN 50371, RSS 102, EN 50383, EN 50385, EN 50392, IEC 62209, CNS 14958-1, CNS 14959 FCC Method –47 CFR Part 15 Subpart B IEC / EN 61000-3-2, IEC / EN 61000-3-3, IEC / EN 61000-4-2/3/4/5/6/8/11	TAF Testing Laboratory 1309
Canada	Industry Canada	3M Semi Anechoic Chamber (IC 2324G-1 / IC 2324G-2) to perform	Canada IC 2324G-1 IC 2324G-2

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

6. SETUP OF EQUIPMENT UNDER TEST

6.1 SETUP CONFIGURATION OF EUT

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

6.2 SUPPORT EQUIPMENT

No.	Device Type	Brand	Model	Series No.	FCC ID	Data Cable	Power Cord
1	Notebook PC	IBM	7663 (T61)	L3E9812	N/A	N/A	AC I/P: Unshielded, 1.8m DC O/P: Unshielded, 1.8m with a core

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.*

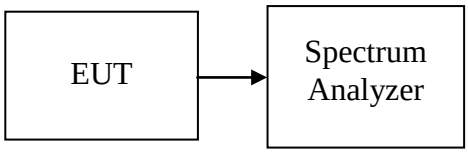
7. FCC PART 15 REQUIREMENTS

7.1 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 / 5180 ~ 5240MHz

Channel	Frequency (MHz)	Chain 0 Bandwidth (MHz)	Chain 1 Bandwidth (MHz)
Low	5180	36.964	37.435
Mid	5220	39.336	39.277
High	5240	39.228	39.290

Test mode: IEEE 802.11n HT 20 mode / 5180 ~ 5240MHz

Channel	Frequency (MHz)	Chain 0 Bandwidth (MHz)	Chain 1 Bandwidth (MHz)
Low	5180	30.735	32.219
Mid	5220	40.000	39.921
High	5240	40.000	40.000

Test mode: IEEE 802.11n HT 40 mode / 5190 ~ 5230MHz

Channel	Frequency (MHz)	Chain 0 Bandwidth (MHz)	Chain 1 Bandwidth (MHz)
Low	5190	41.019	40.894
High	5230	71.379	72.258

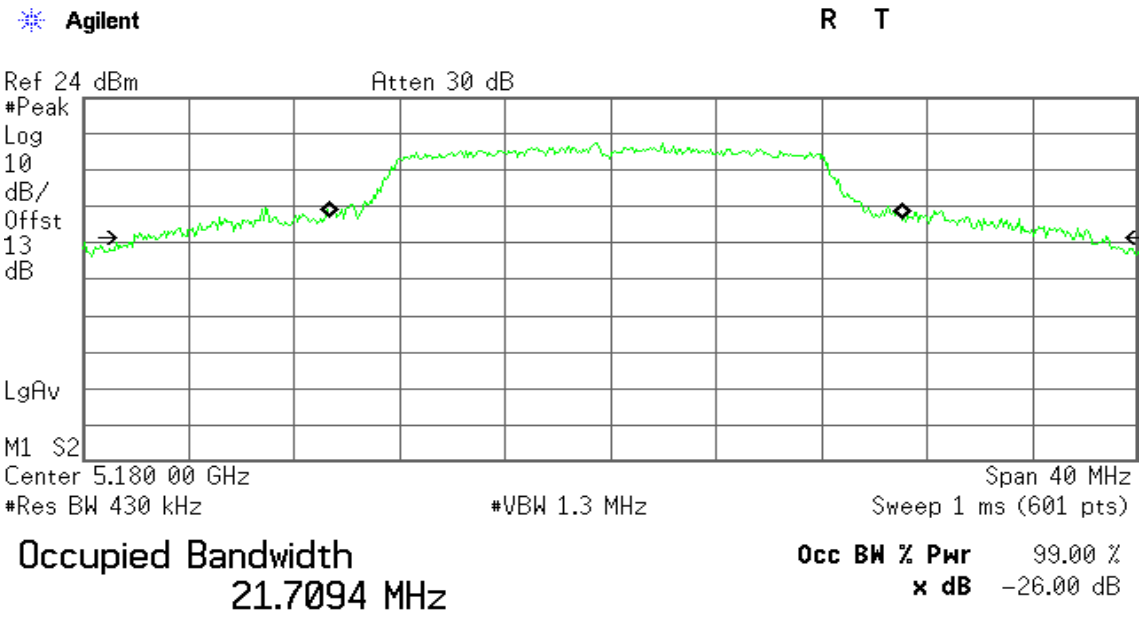
Test mode: IEEE 802.11ac VHT80 Mode/ 5210MHz

Channel	Frequency (MHz)	Chain 0 Bandwidth (MHz)	Chain 1 Bandwidth (MHz)
Mid	5210	137.710	132.708

Test Plot

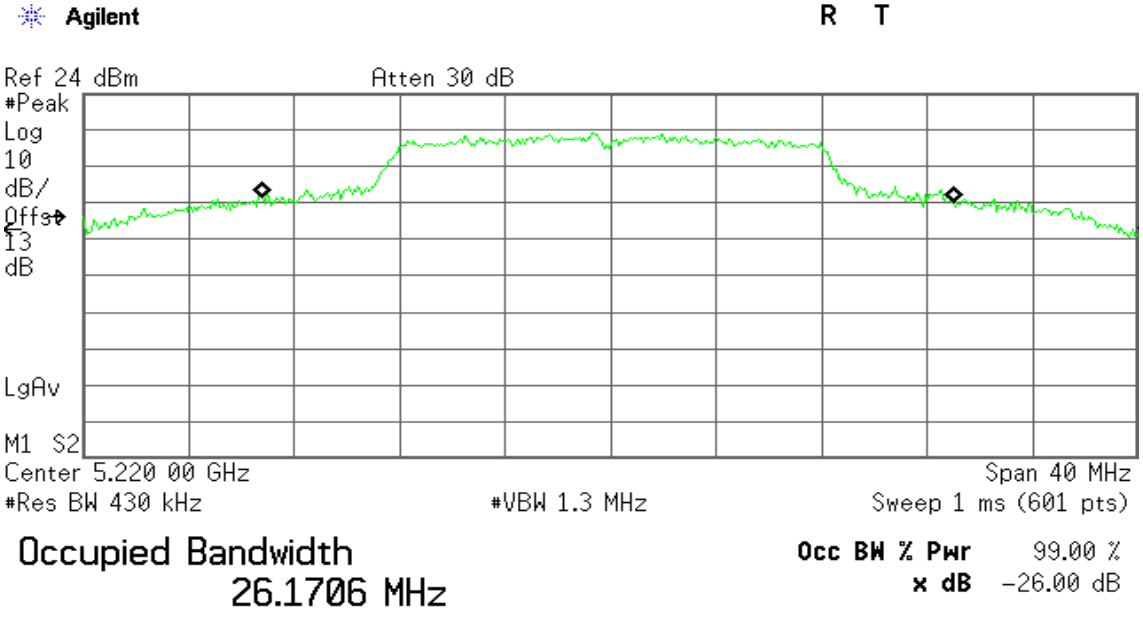
IEEE 802.11a mode / 5180 ~ 5240MHz / Chain 0

CH Low



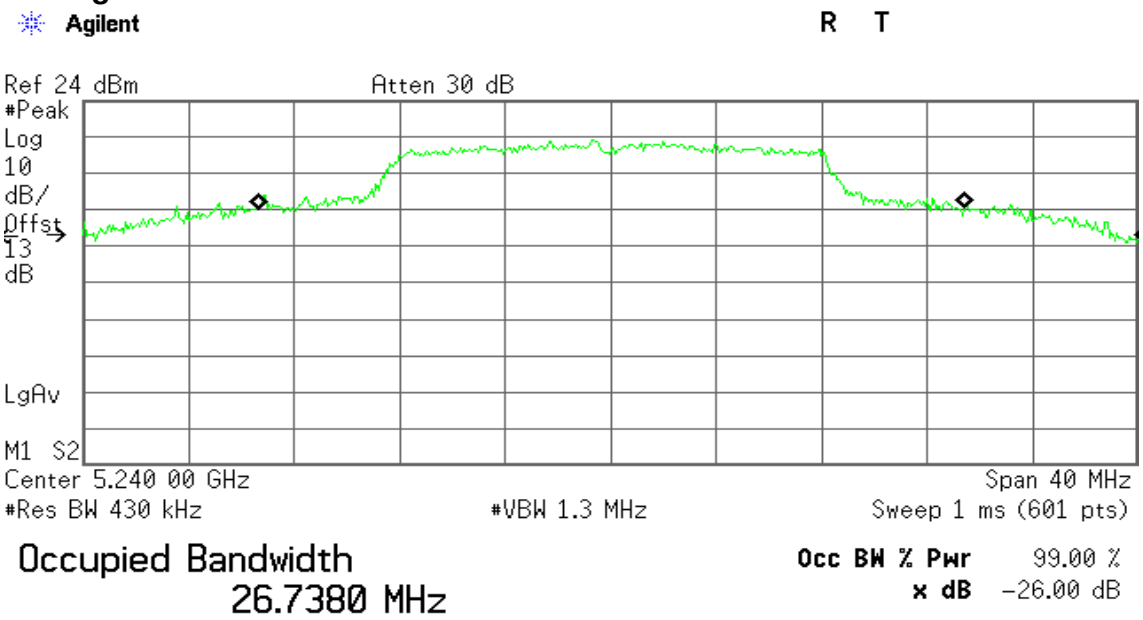
Transmit Freq Error 192.290 kHz
x dB Bandwidth 36.964 MHz

CH Mid



Transmit Freq Error -110.165 kHz
x dB Bandwidth 39.336 MHz

CH High



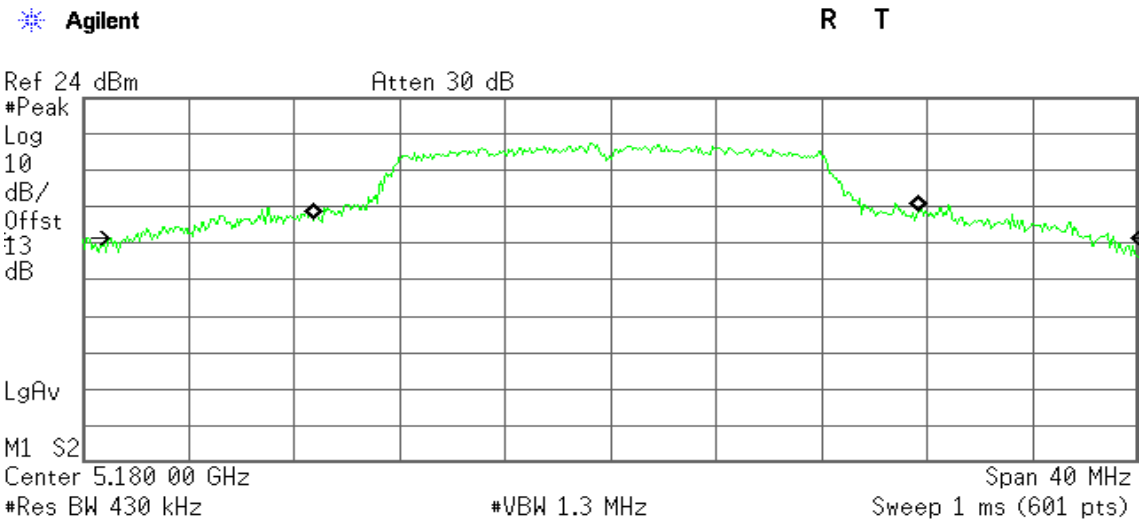
Occupied Bandwidth
26.7380 MHz

Occ BW % Pwr 99.00 %
x dB -26.00 dB

Transmit Freq Error 29.822 kHz
x dB Bandwidth 39.228 MHz

IEEE 802.11a mode / 5180 ~ 5240MHz / Chain 1

CH Low

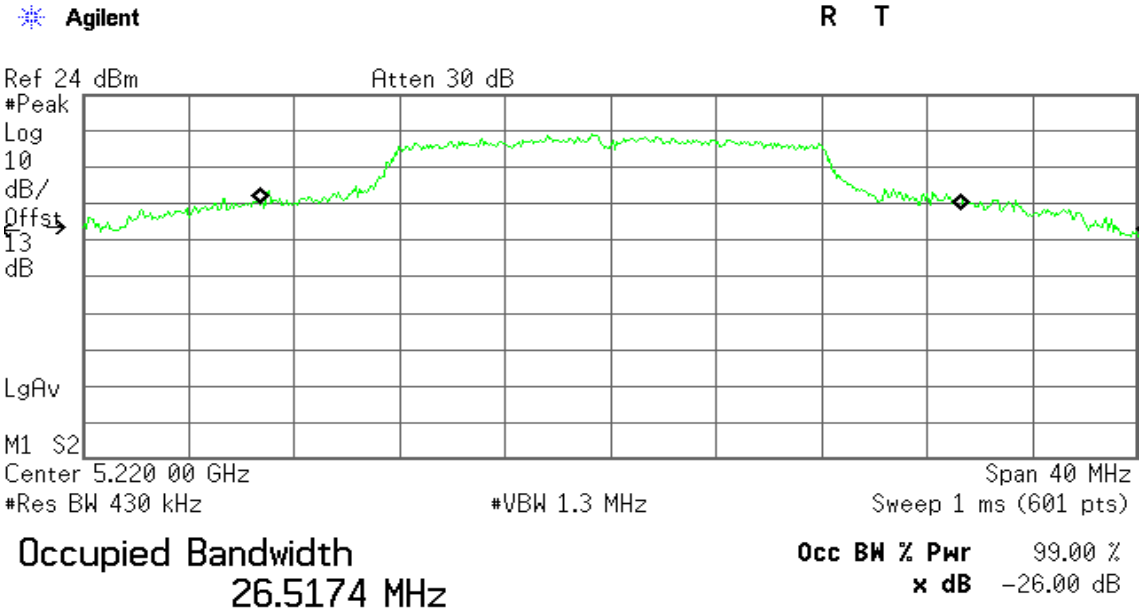


Occupied Bandwidth
22.9184 MHz

Occ BW % Pwr 99.00 %
x dB -26.00 dB

Transmit Freq Error 209.341 kHz
x dB Bandwidth 37.435 MHz

CH Mid

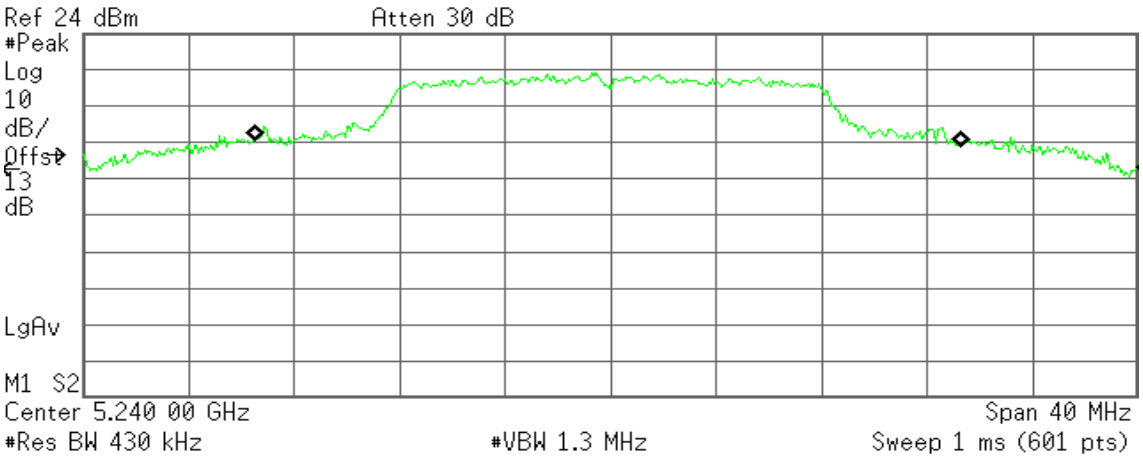


Occupied Bandwidth
26.5174 MHz

Occ BW % Pwr 99.00 %
x dB -26.00 dB

Transmit Freq Error 3.758 kHz
x dB Bandwidth 39.277 MHz

CH High



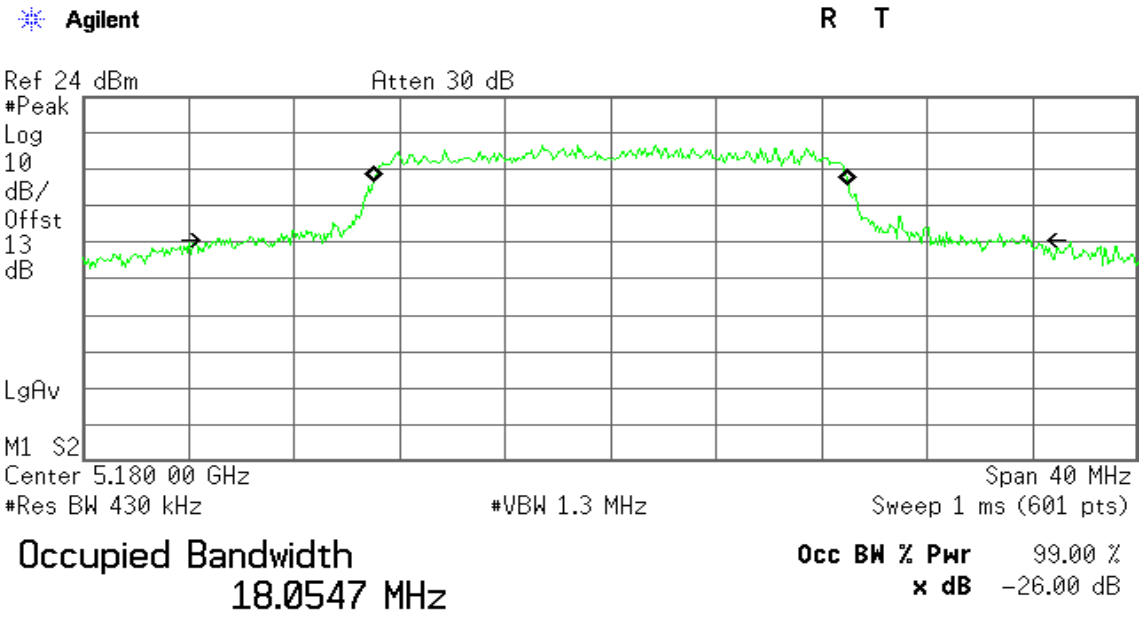
Occupied Bandwidth
26.7366 MHz

Occ BW % Pwr 99.00 %
x dB -26.00 dB

Transmit Freq Error -97.723 kHz
x dB Bandwidth 39.290 MHz

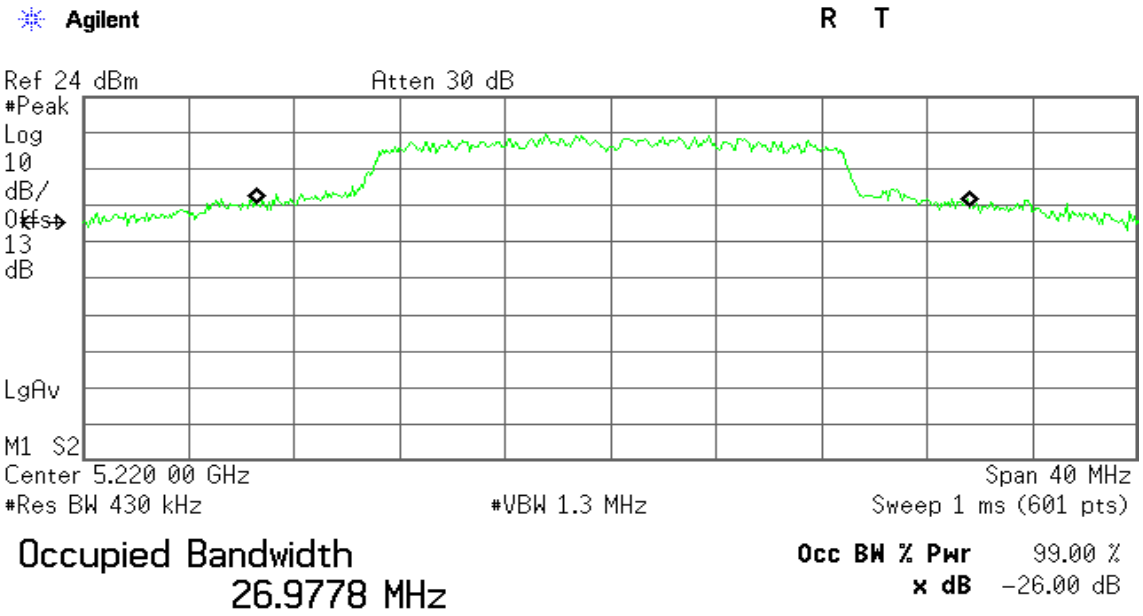
IEEE 802.11n HT 20 mode / 5180 ~ 5240MHz / Chain 0

CH Low



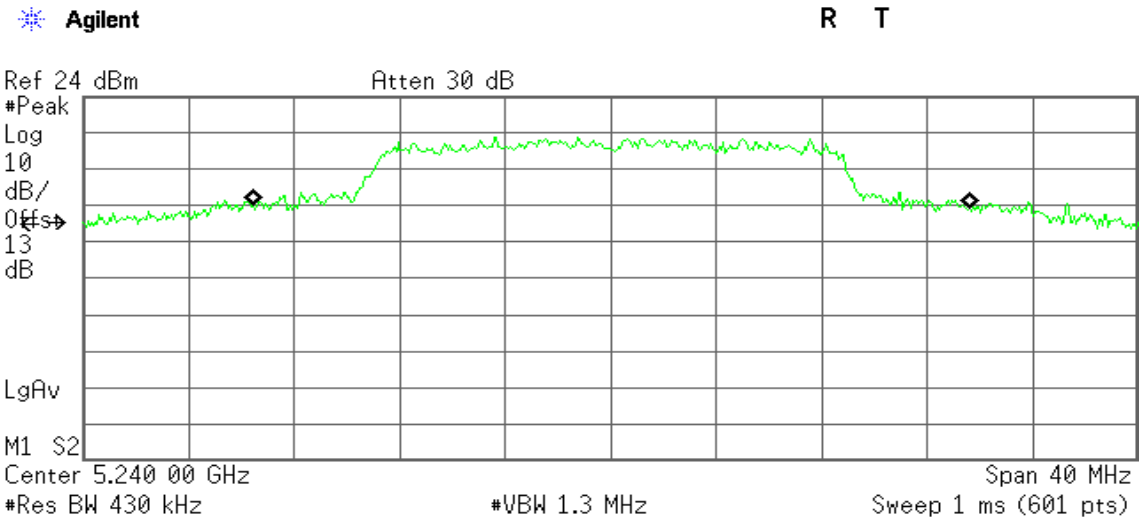
Transmit Freq Error	3.558 kHz
x dB Bandwidth	30.735 MHz

CH Mid



Transmit Freq Error	100.131 kHz
x dB Bandwidth	40.000 MHz

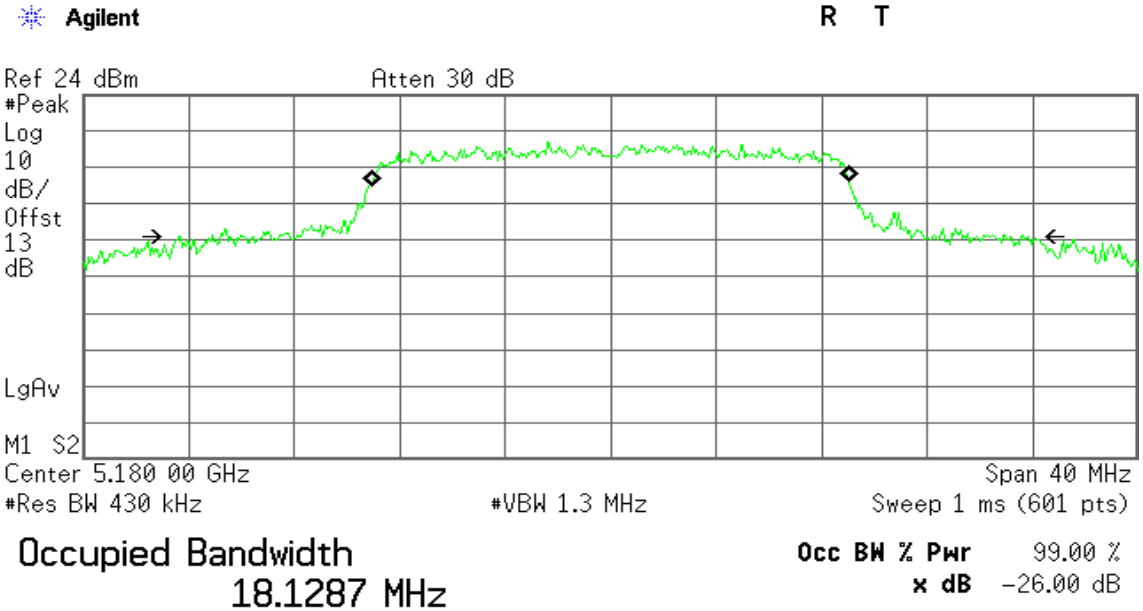
CH High



Transmit Freq Error 28.919 kHz
x dB Bandwidth 40.000 MHz

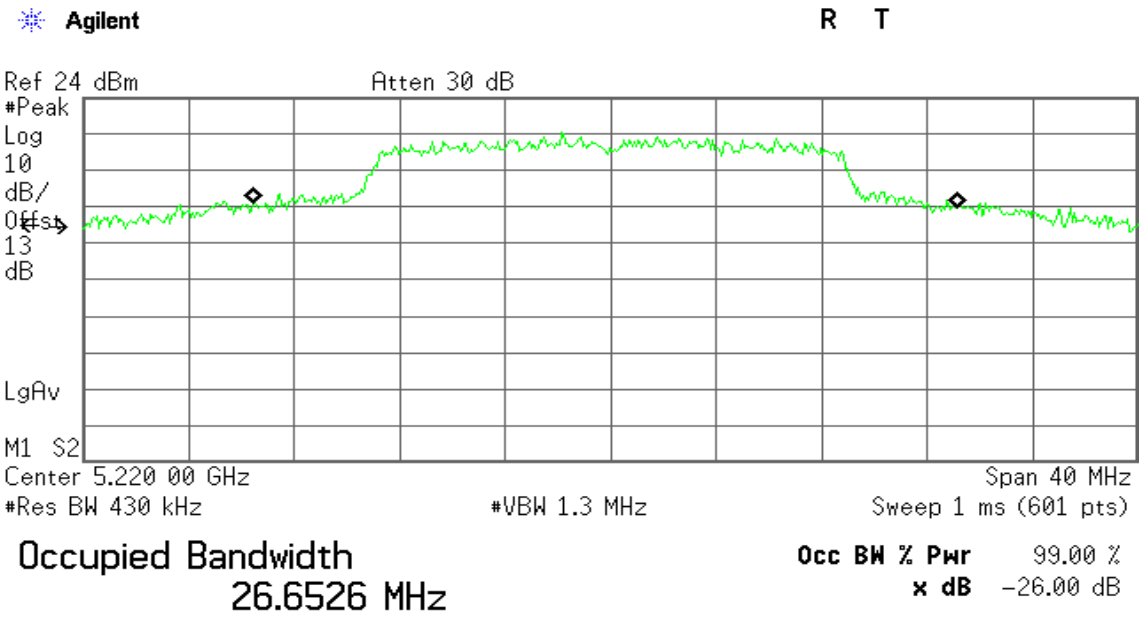
IEEE 802.11n HT 20 mode / 5180 ~ 5240MHz / Chain 1

CH Low



Transmit Freq Error -9.593 kHz
x dB Bandwidth 32.219 MHz

CH Mid

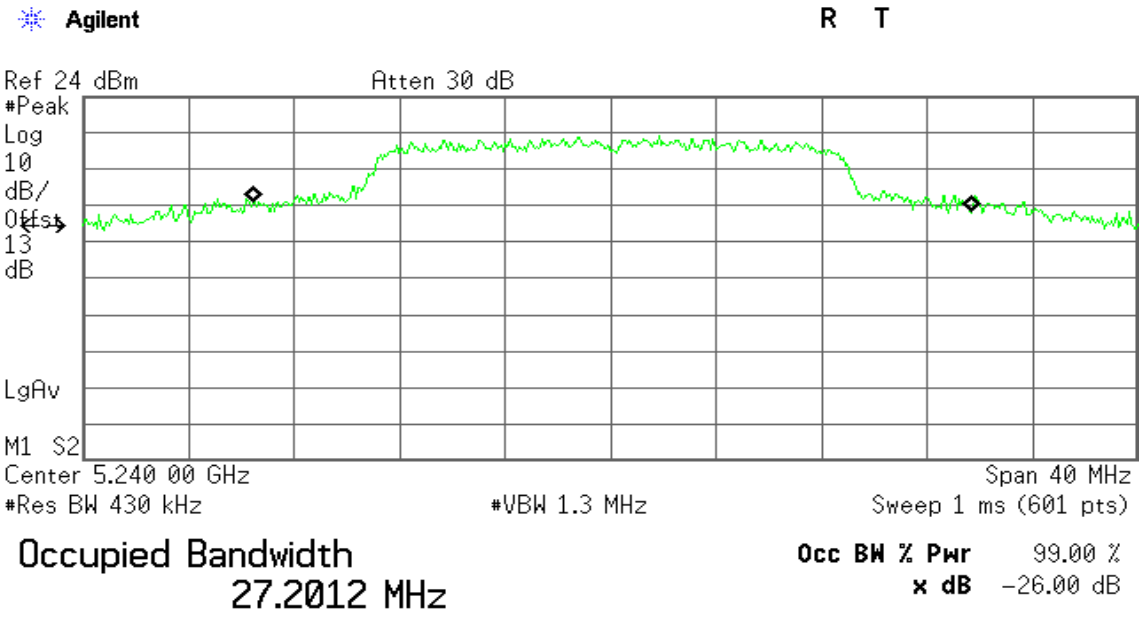


Occupied Bandwidth
26.6526 MHz

Occ BW % Pwr 99.00 %
x dB -26.00 dB

Transmit Freq Error -195.425 kHz
x dB Bandwidth 39.921 MHz

CH High



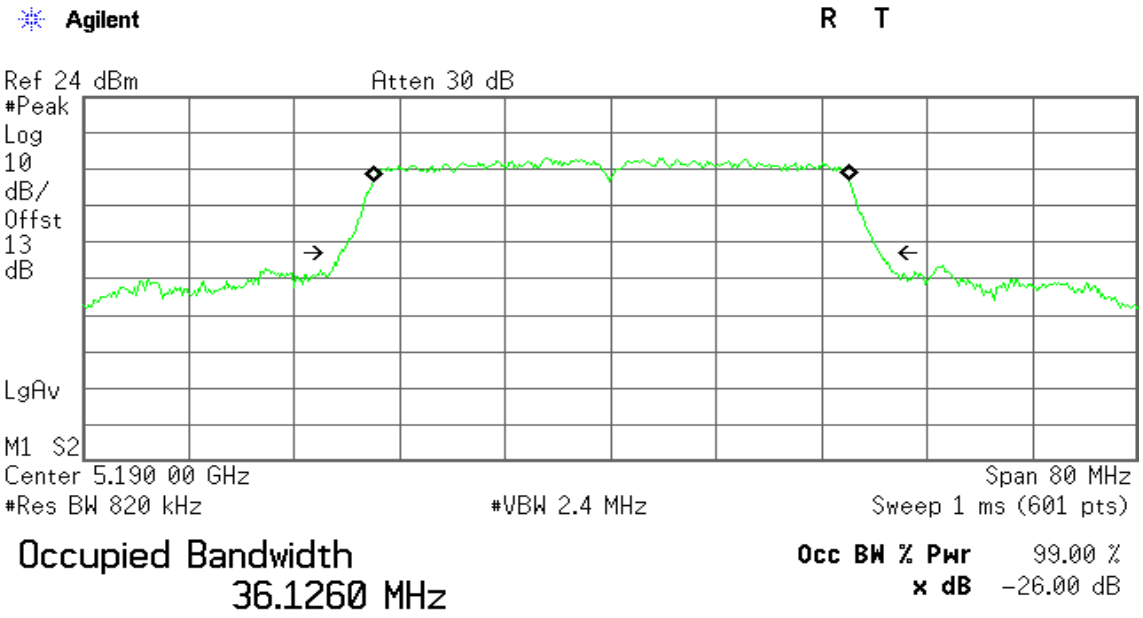
Occupied Bandwidth
27.2012 MHz

Occ BW % Pwr 99.00 %
x dB -26.00 dB

Transmit Freq Error 90.126 kHz
x dB Bandwidth 40.000 MHz

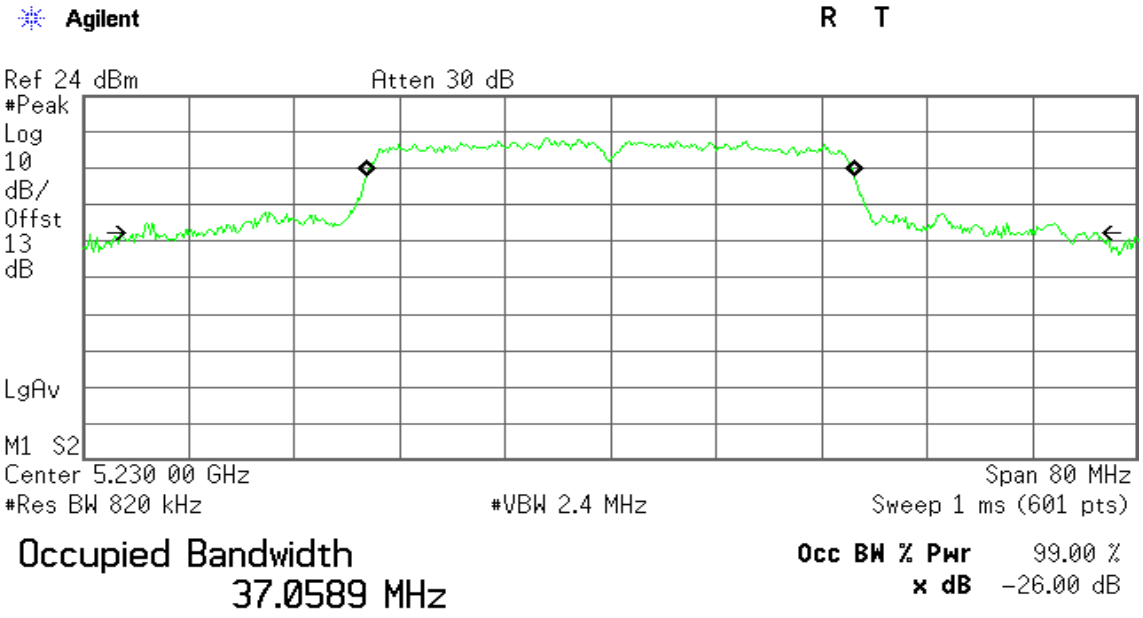
IEEE 802.11n HT 40 mode / 5190 ~ 5230MHz / Chain 0

CH Low



Transmit Freq Error	27.861 kHz
x dB Bandwidth	41.019 MHz

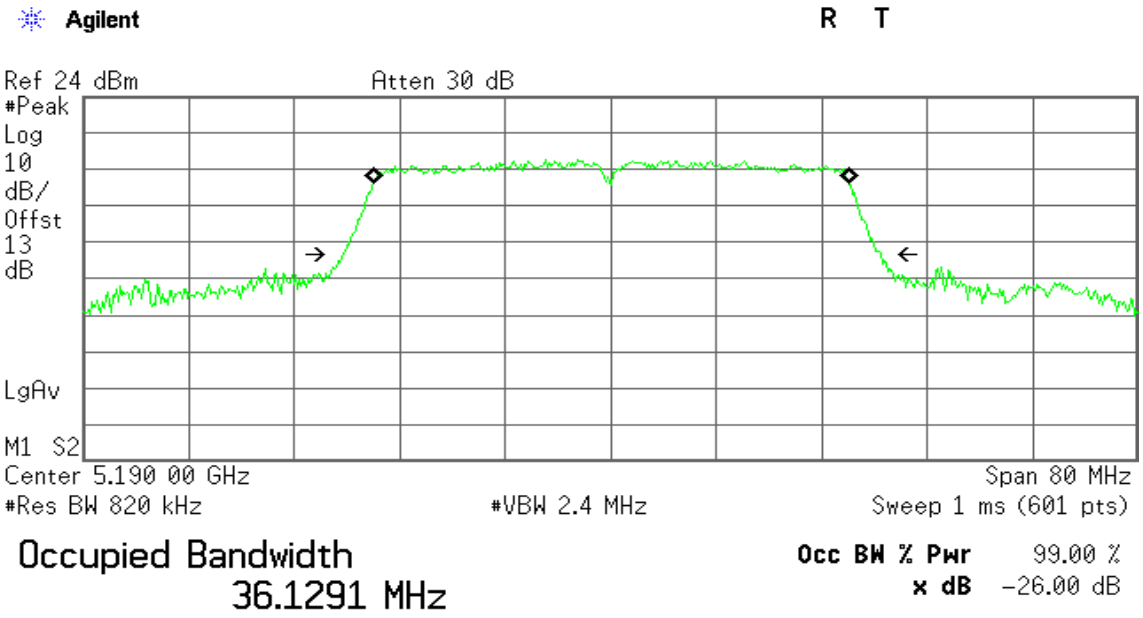
CH High



Transmit Freq Error	-39.446 kHz
x dB Bandwidth	71.379 MHz

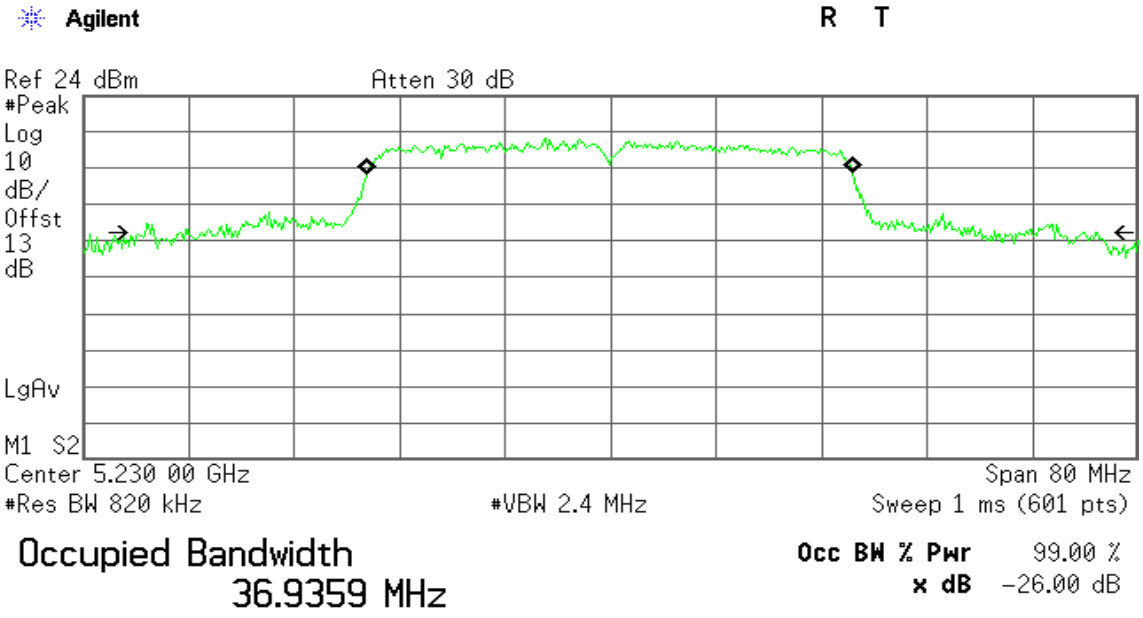
IEEE 802.11n HT 40 mode / 5190 ~ 5230MHz / Chain 1

CH Low



Transmit Freq Error	51.305 kHz
x dB Bandwidth	40.894 MHz

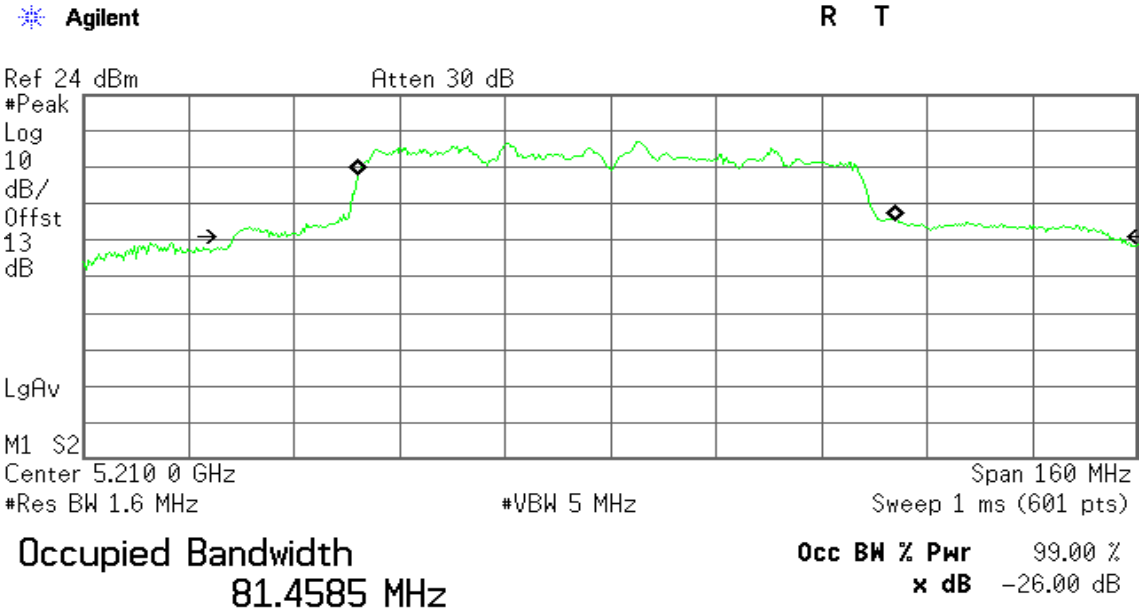
CH High



Transmit Freq Error	-75.551 kHz
x dB Bandwidth	72.258 MHz

IEEE 802.11ac VHT80 Mode / 5210MHz / Chain 0

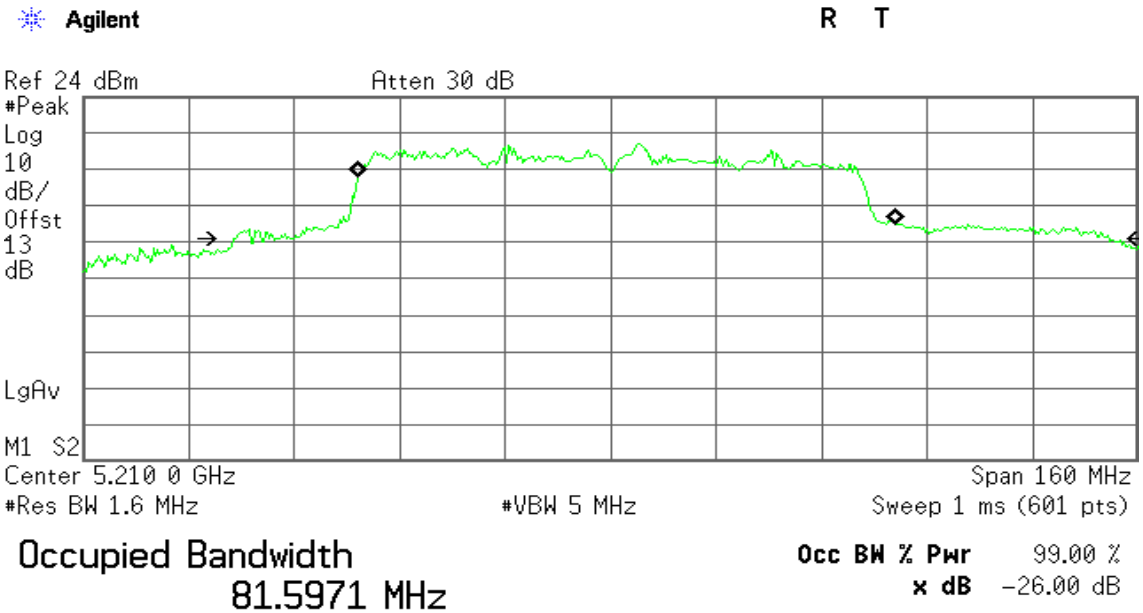
CH Mid



Transmit Freq Error 2.434 MHz
x dB Bandwidth 132.710 MHz

IEEE 802.11ac VHT80 Mode / 5210MHz / Chain 1

CH Mid



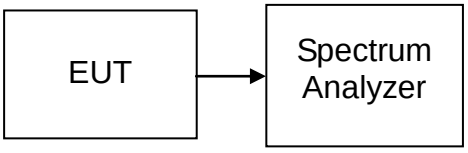
Transmit Freq Error 2.517 MHz
x dB Bandwidth 132.708 MHz

7.2 6DB BANDWIDTH

LIMIT

According to §15.407, systems using digital modulation techniques may operate in the 5725 - 5850 MHz bands. The minimum 6dB bandwidth shall be at least 500 kHz.

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 : 100kHz / VBW : 300kHz, Span = 50MHz, Sweep = auto.
4. Mark the peak frequency and –6dB (upper and lower) frequency.
5. Repeat until all the rest channels are investigated.

TEST RESULTS

No non-compliance noted

Test mode: IEEE 802.11a mode / 5745 ~ 5825MHz

Channel	Frequency (MHz)	Chain 0 Bandwidth (MHz)	Chain 1 Bandwidth (MHz)
Low	5745	16.540	16.417
Mid	5785	16.567	16.381
High	5825	16.318	16.402

Test mode: IEEE 802.11n HT 20 mode / 5745 ~ 5825MHz

Channel	Frequency (MHz)	Chain 0 Bandwidth (MHz)	Chain 1 Bandwidth (MHz)
Low	5745	17.643	17.704
Mid	5785	17.733	17.616
High	5825	17.673	17.588

Test mode: IEEE 802.11n HT 40 mode / 5755 ~ 5815MHz

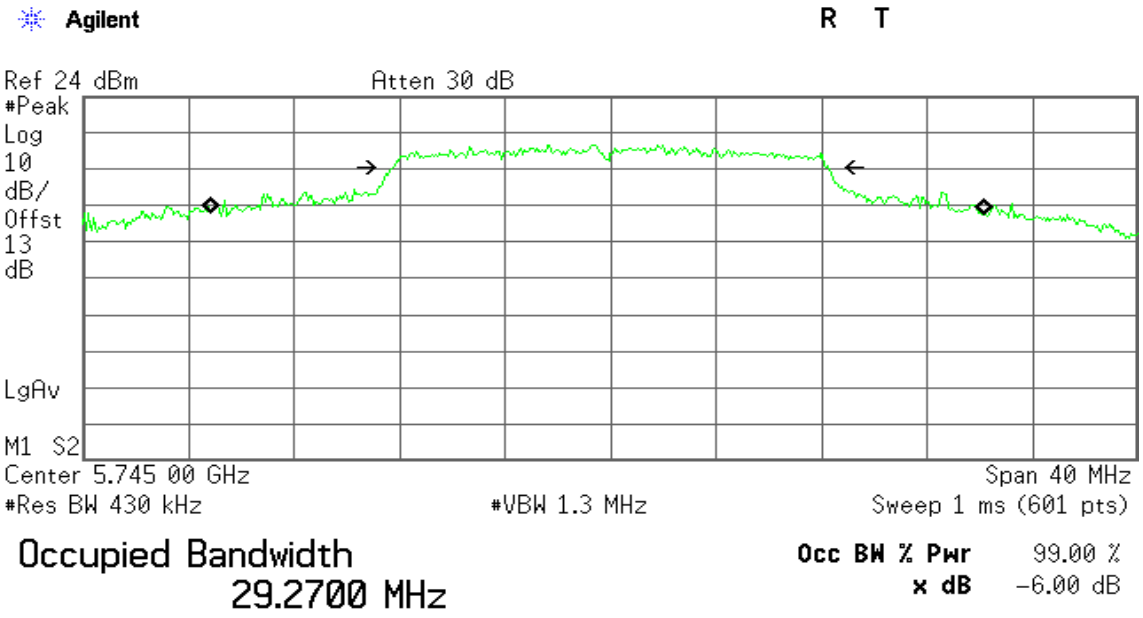
Channel	Frequency (MHz)	Chain 0 Bandwidth (MHz)	Chain 1 Bandwidth (MHz)
Low	5755	35.772	35.913
High	5795	36.044	36.095

Test mode: IEEE 802.11ac VHT80 Mode/ 5775MHz

Channel	Frequency (MHz)	Chain 0 Bandwidth (MHz)	Chain 1 Bandwidth (MHz)
Mid	5775	73.594	73.594

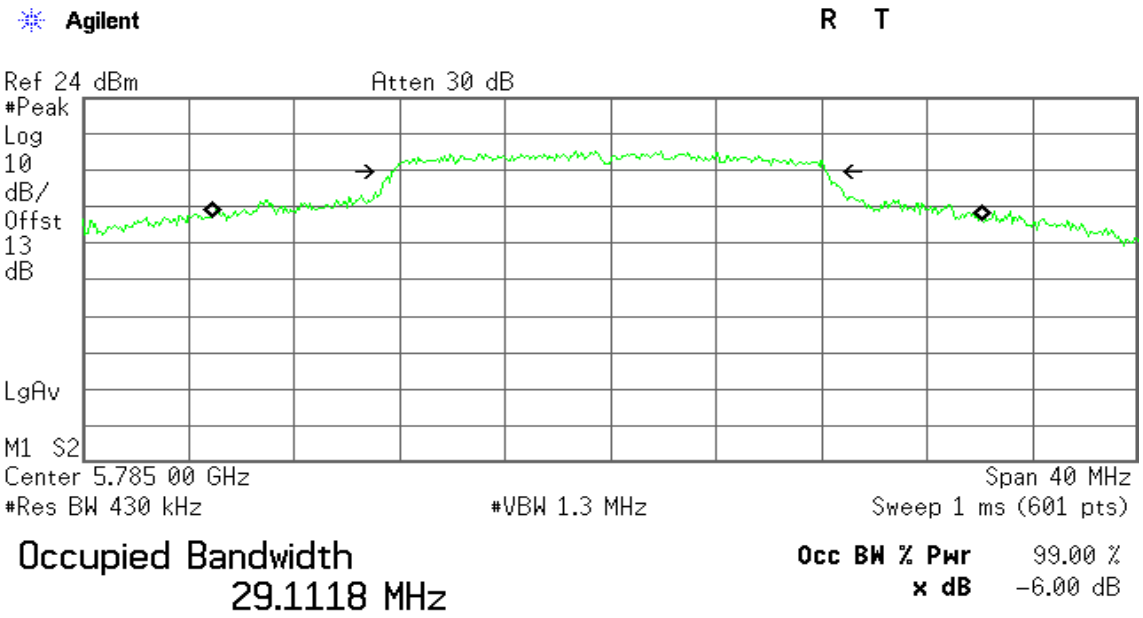
IEEE 802.11a mode / 5745 ~ 5825MHz / Chain 0

CH Low



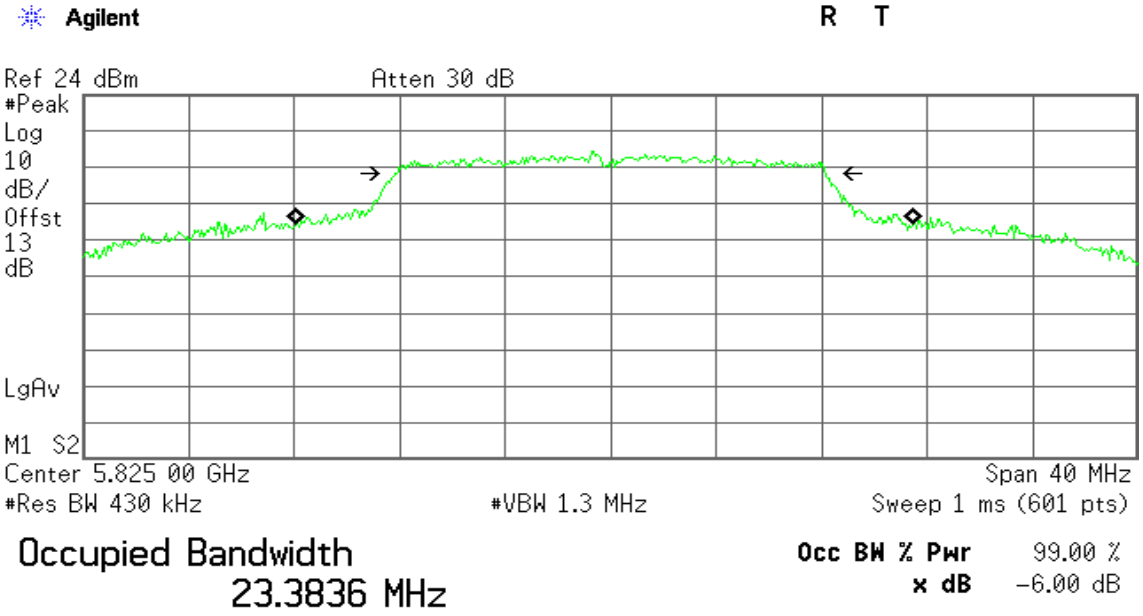
Transmit Freq Error −504.894 kHz
x dB Bandwidth 16.540 MHz

CH Mid



Transmit Freq Error −511.638 kHz
x dB Bandwidth 16.567 MHz

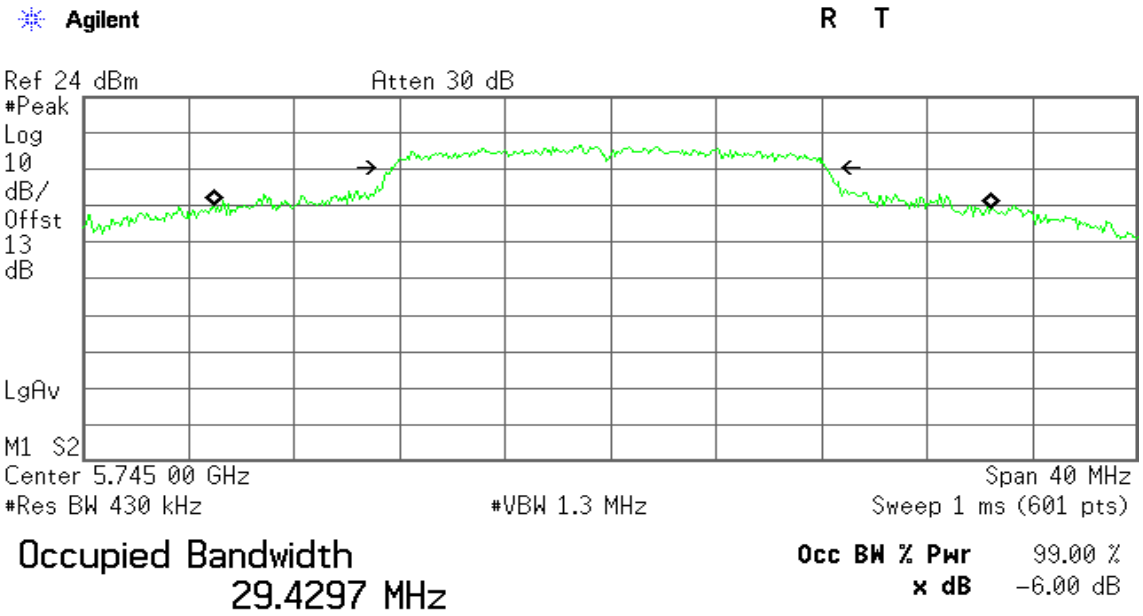
CH High



Transmit Freq Error −208.631 kHz
x dB Bandwidth 16.318 MHz

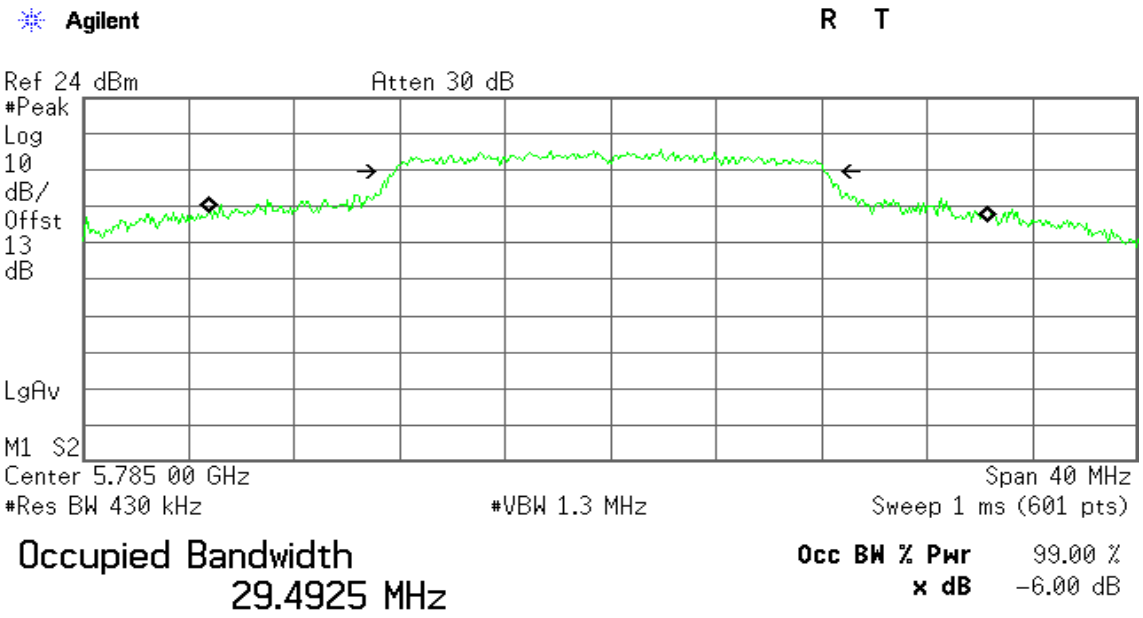
IEEE 802.11a mode / 5745 ~ 5825MHz / Chain 1

CH Low



Transmit Freq Error −304.896 kHz
x dB Bandwidth 16.417 MHz

CH Mid

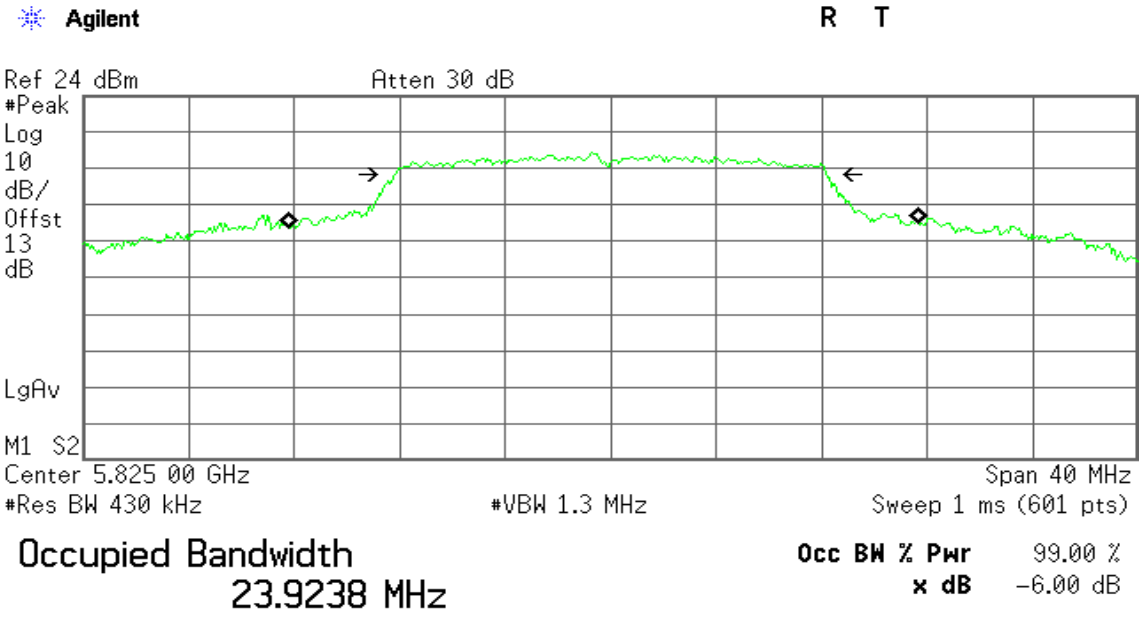


Occupied Bandwidth
29.4925 MHz

Occ BW % Pwr 99.00 %
x dB -6.00 dB

Transmit Freq Error -476.383 kHz
x dB Bandwidth 16.381 MHz

CH High



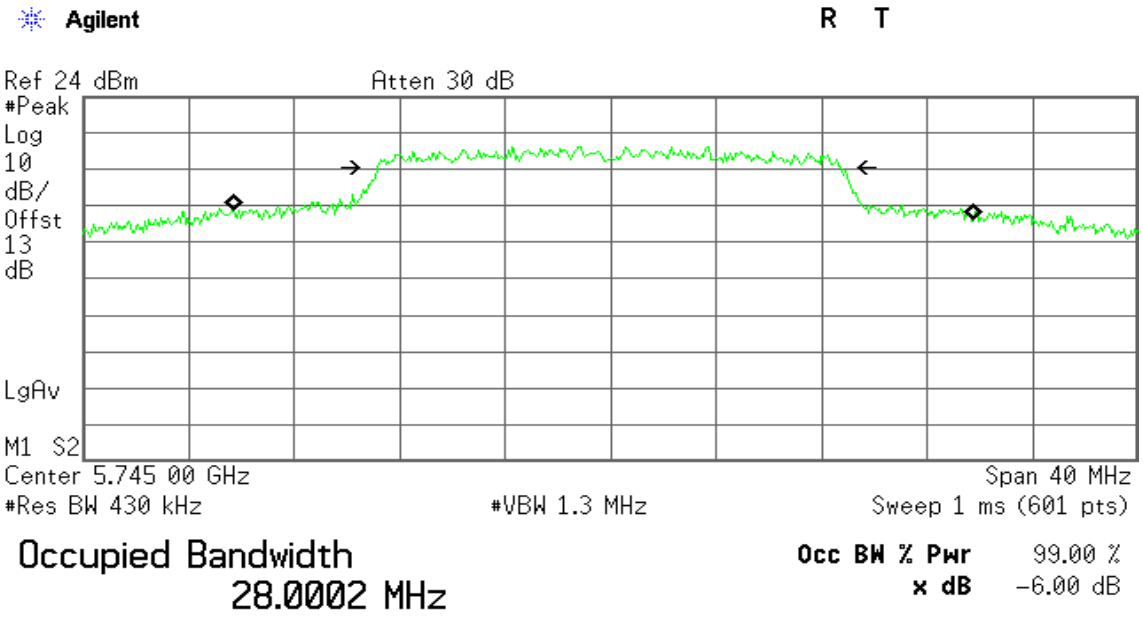
Occupied Bandwidth
23.9238 MHz

Occ BW % Pwr 99.00 %
x dB -6.00 dB

Transmit Freq Error -262.485 kHz
x dB Bandwidth 16.402 MHz

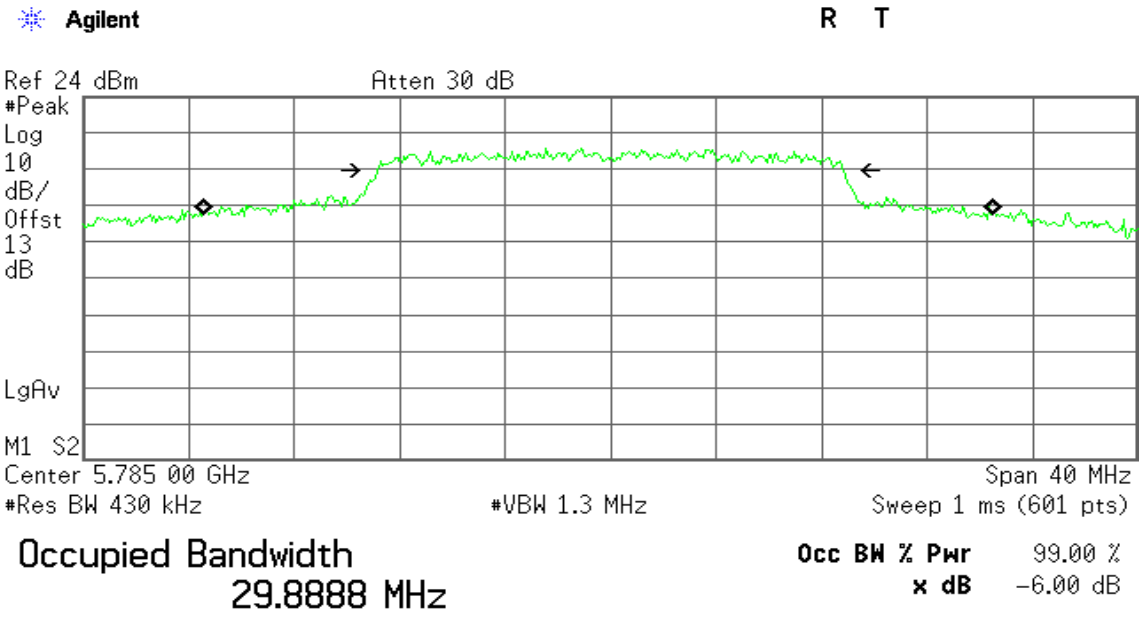
IEEE 802.11n HT 20 mode / 5745 ~ 5825MHz / Chain 0

CH Low



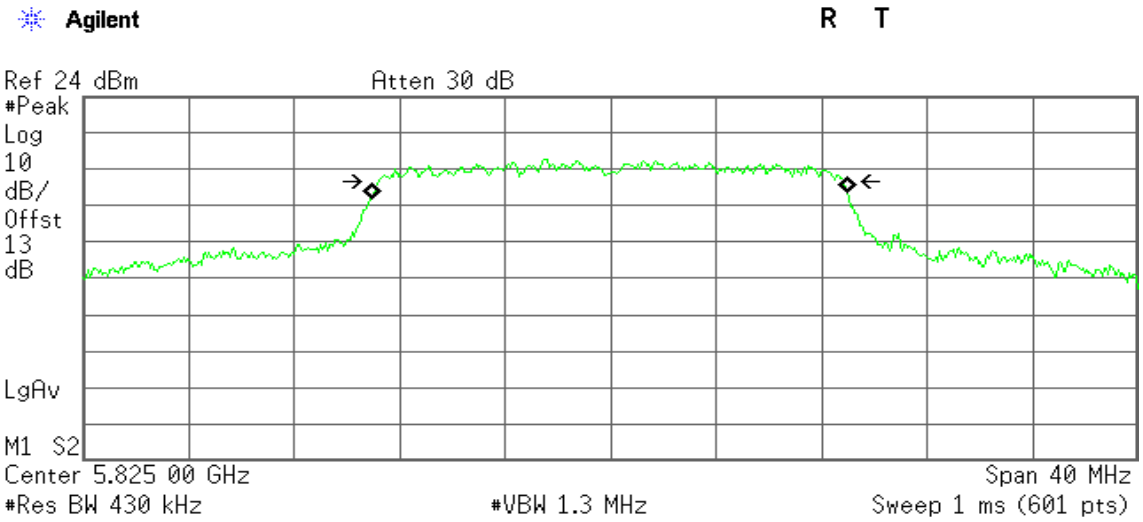
Transmit Freq Error -250.915 kHz
x dB Bandwidth 17.643 MHz

CH Mid



Transmit Freq Error -455.164 kHz
x dB Bandwidth 17.733 MHz

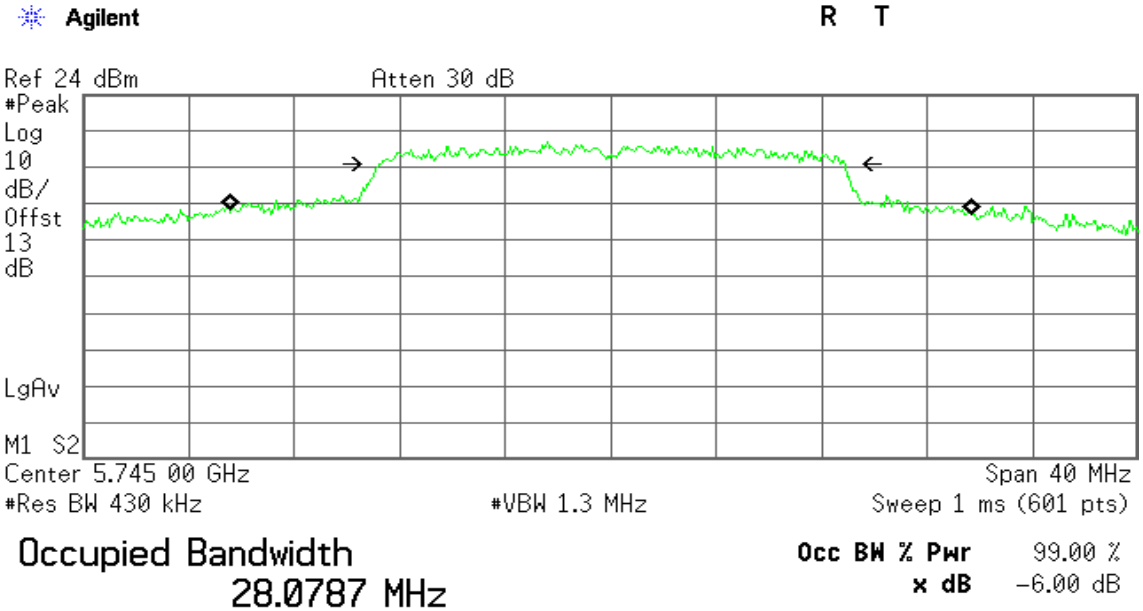
CH High



Transmit Freq Error −35.249 kHz
x dB Bandwidth 17.673 MHz

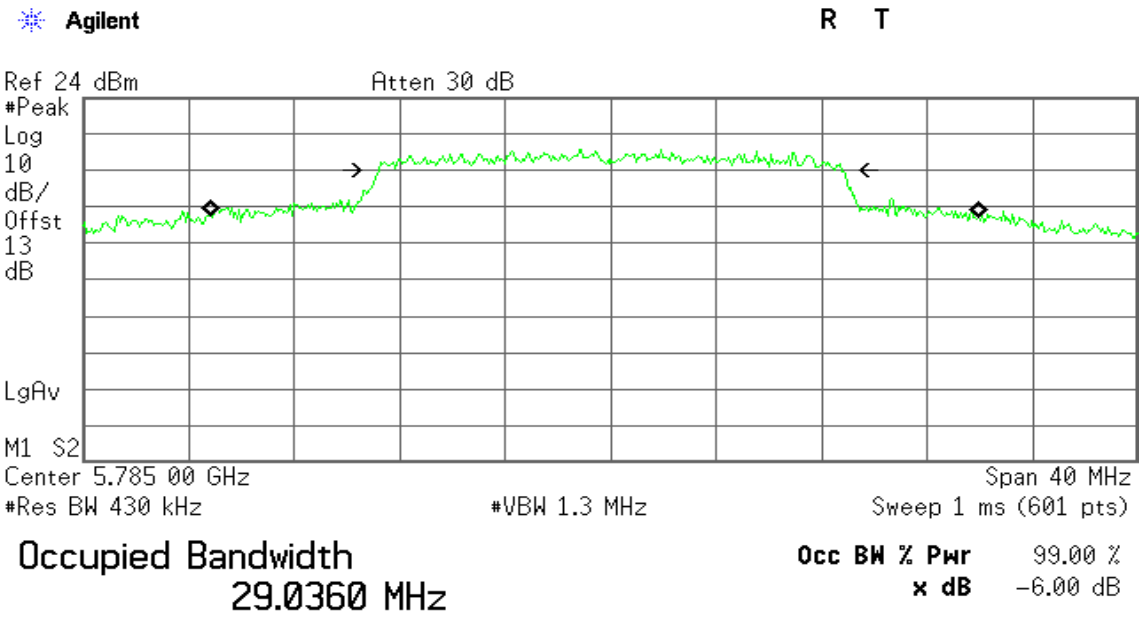
IEEE 802.11n HT 20 mode / 5745 ~ 5825MHz / Chain 1

CH Low



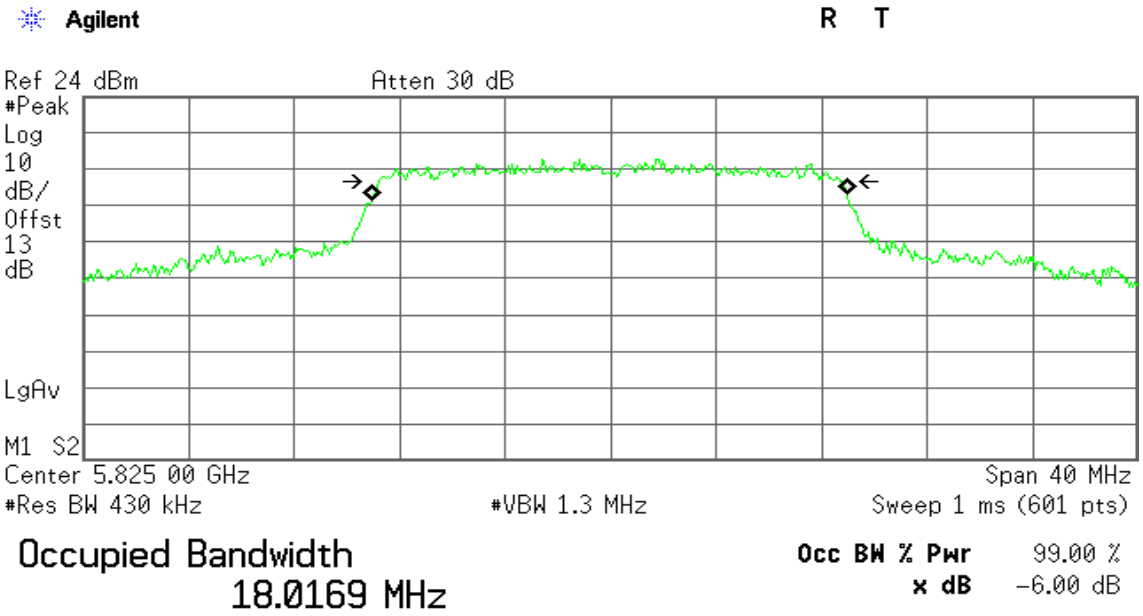
Transmit Freq Error −392.368 kHz
x dB Bandwidth 17.704 MHz

CH Mid



Transmit Freq Error −588.108 kHz
x dB Bandwidth 17.616 MHz

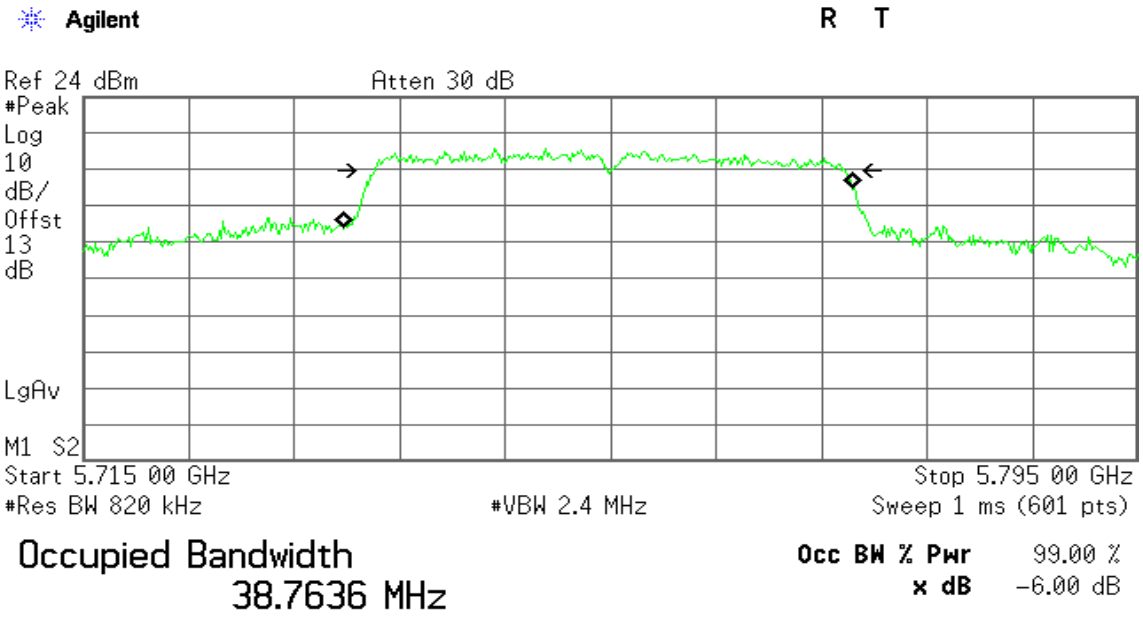
CH High



Transmit Freq Error −41.452 kHz
x dB Bandwidth 17.588 MHz

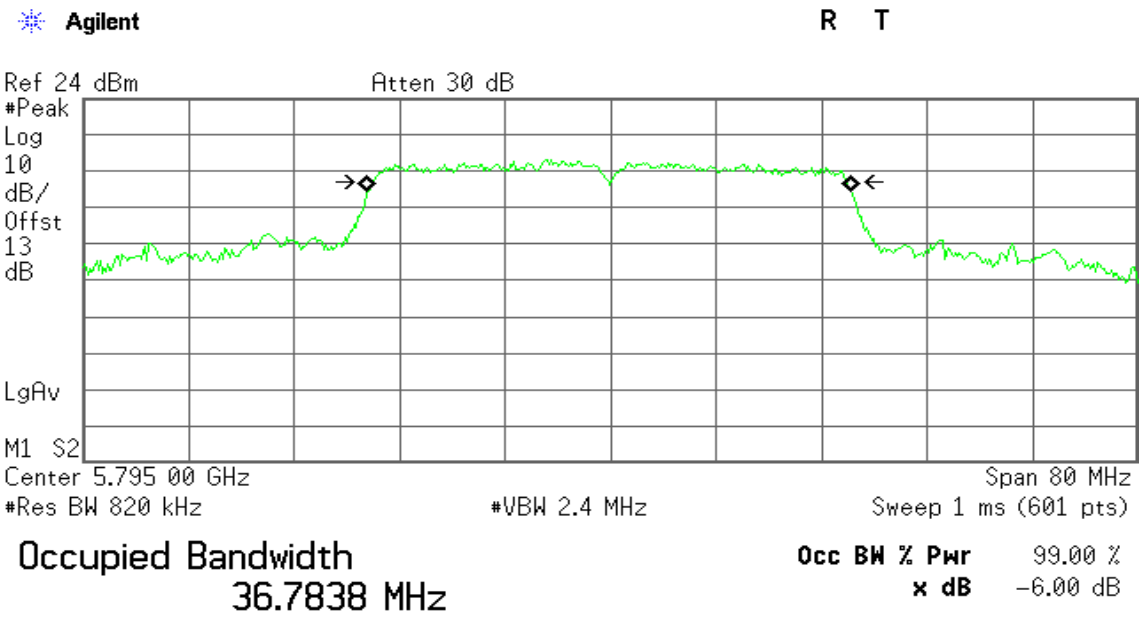
IEEE 802.11n HT 40 mode / 5755 ~ 5795MHz / Chain 0

CH Low



Transmit Freq Error -937.085 kHz
x dB Bandwidth 35.772 MHz

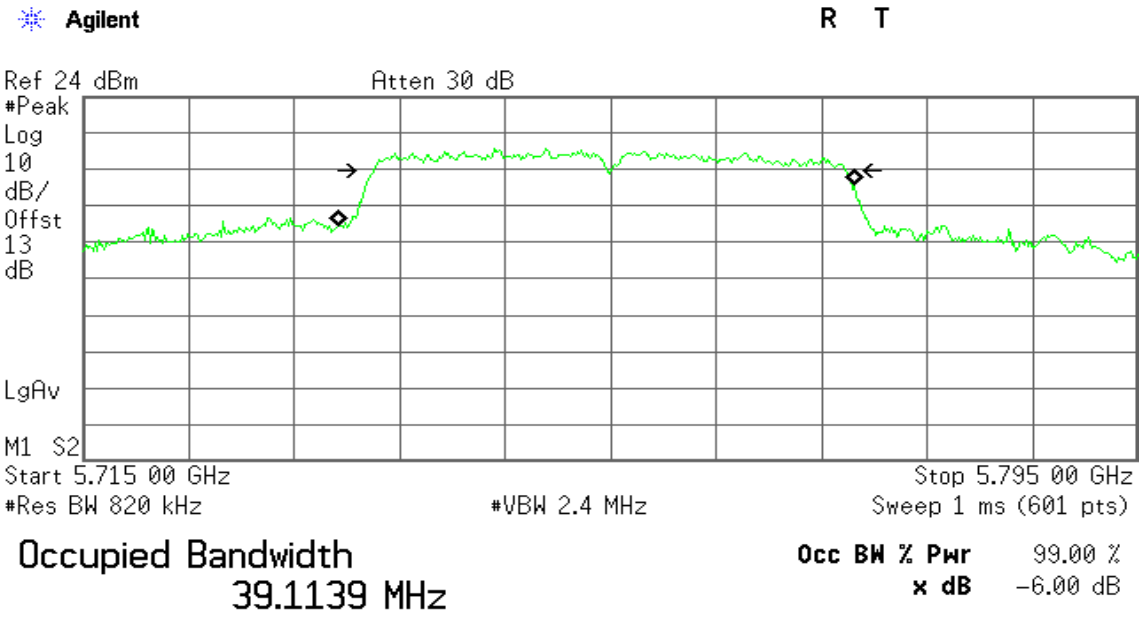
CH High



Transmit Freq Error -140.926 kHz
x dB Bandwidth 36.044 MHz

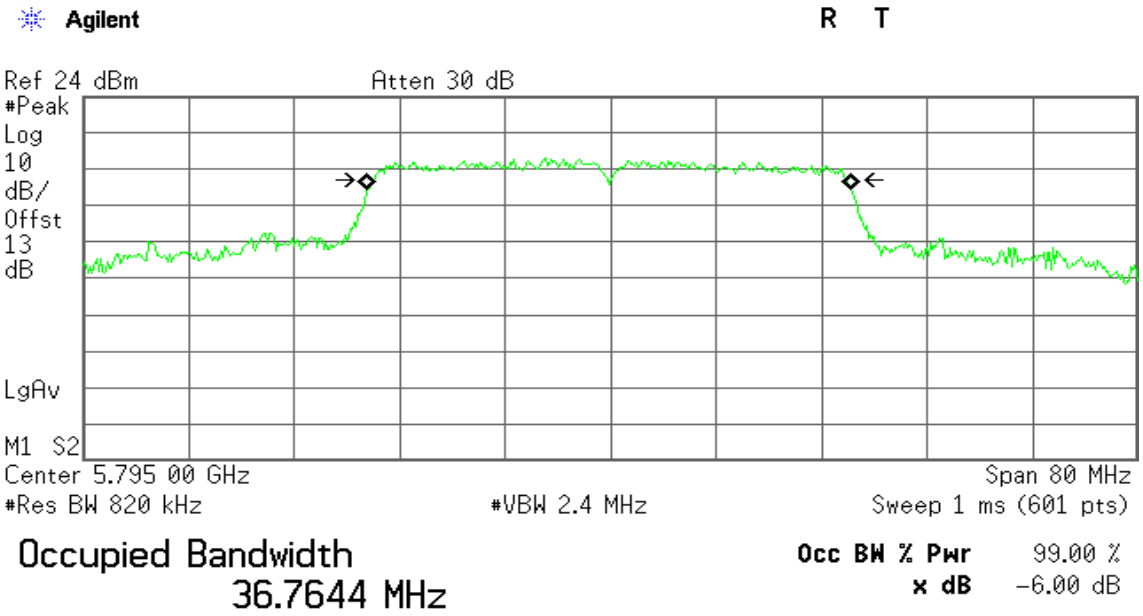
IEEE 802.11n HT 40 mode / 5755 ~ 5795MHz / Chain 1

CH Low



Transmit Freq Error -1.063 MHz
x dB Bandwidth 35.913 MHz

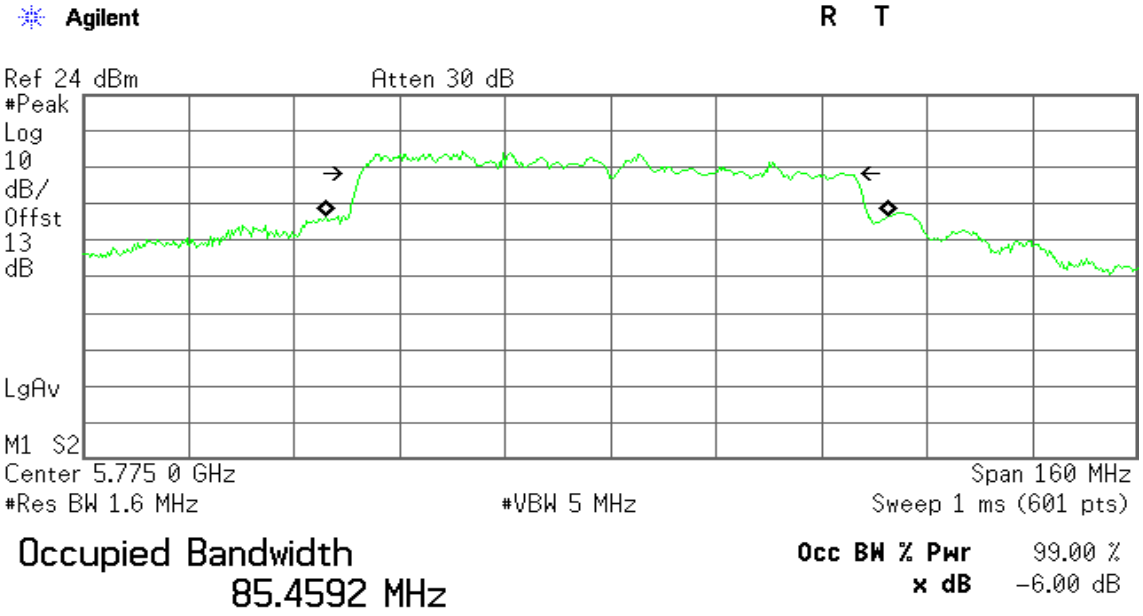
CH High



Transmit Freq Error -142.497 kHz
x dB Bandwidth 36.095 MHz

IEEE 802.11ac VHT80 Mode / 5775MHz / Chain 0

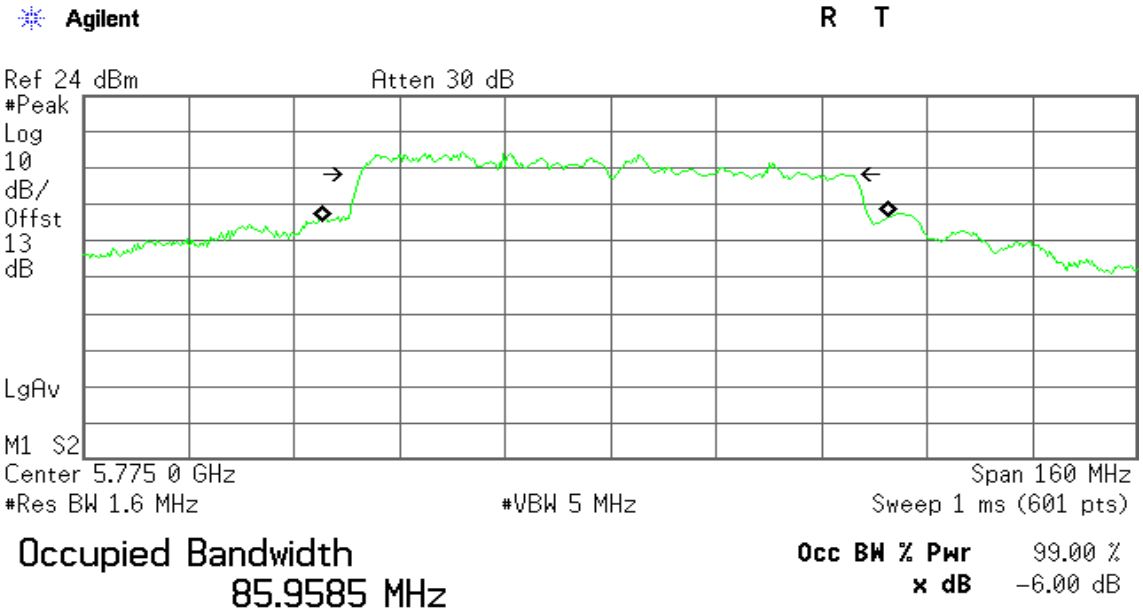
CH Mid



Transmit Freq Error -523.663 kHz
x dB Bandwidth 73.594 MHz

IEEE 802.11ac VHT80 Mode / 5775MHz / Chain 1

CH Mid

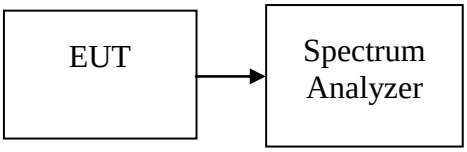


Transmit Freq Error -796.677 kHz
x dB Bandwidth 73.594 MHz

7.3 MAXIMUM CONDUCTED OUTPUT POWER

Test Configuration

The EUT was connected to a spectrum analyzer through a 50Ω RF cable.



TEST PROCEDURE

Set span to encompass the entire emission bandwidth (EBW) of the signal.

Set RBW = 1 MHz / Set VBW = 3 MHz.

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

TEST RESULTS

No non-compliance noted

Test Data

Test mode: IEEE 802.11a mode / 5180 ~ 5240MHz

Channel	Frequency (MHz)	Chain 0 Output Power (dBm)	Chain 1 Output Power (dBm)	Total Maximum Conducted Output Power (dBm)	Limit (dBm)
Low	5180	22.99	17.43	***24.05**	28.69
Mid	5220	19.19	19.19	22.20	28.69
High	5240	18.87	19.29	22.09	28.69

Test mode: IEEE 802.11n HT 20 mode / 5180 ~ 5240MHz

Channel	Frequency (MHz)	Chain 0 Output Power (dBm)	Chain 1 Output Power (dBm)	Total Maximum Conducted Output Power (dBm)	Limit (dBm)
Low	5180	16.15	16.24	19.20	28.69
Mid	5220	18.97	19.23	***22.11**	28.69
High	5240	18.86	19.19	22.04	28.69

Test mode: IEEE 802.11n HT 40 mode / 5190 ~ 5230MHz

Channel	Frequency (MHz)	Chain 0 Output Power (dBm)	Chain 1 Output Power (dBm)	Total Maximum Conducted Output Power (dBm)	Limit (dBm)
Low	5190	12.70	12.21	15.47	28.69
High	5230	15.62	14.88	***18.28**	28.69

Test mode: IEEE 802.11ac VHT80 Mode / 5210MHz

Channel	Frequency (MHz)	Chain 0 Output Power (dBm)	Chain 1 Output Power (dBm)	Total Maximum Conducted Output Power (dBm)	Limit (dBm)
Mid	5210	21.72	19.64	***23.81**	28.69

Remark:

1. Total Output Power (w) = Chain 0 (10^(Output Power /10)/1000) + Chain 1 (10^(Output Power /10)/1000))

2. The maximum antenna gain is 7.31dBi; therefore the reduction due to antenna gain is 1.31dBi, so the limit is 28.69dBm.

Test mode: IEEE 802.11a mode / 5745 ~ 5825MHz

Channel	Frequency (MHz)	Chain 0 Output Power (dBm)	Chain 1 Output Power (dBm)	Total Maximum Conducted Output Power (dBm)	Limit (dBm)
Low	5745	15.68	16.05	***18.87**	28.69
Mid	5785	16.13	15.41	18.79	28.69
High	5825	13.53	13.94	16.75	28.69

Test mode: IEEE 802.11n HT 20 mode / 5745~5825MHz

Channel	Frequency (MHz)	Chain 0 Output Power (dBm)	Chain 1 Output Power (dBm)	Total Maximum Conducted Output Power (dBm)	Limit (dBm)
Low	5745	15.59	15.95	***18.78**	28.69
Mid	5785	15.62	15.49	18.56	28.69
High	5825	12.29	12.07	15.19	28.69

Test mode: IEEE 802.11n HT 40 mode / 5755 ~ 5795MHz

Channel	Frequency (MHz)	Chain 0 Output Power (dBm)	Chain 1 Output Power (dBm)	Total Maximum Conducted Output Power (dBm)	Limit (dBm)
Low	5755	12.22	12.75	15.50	28.69
High	5795	13.96	13.59	***16.79**	28.69

Test mode: IEEE 802.11ac VHT80 Mode / 5775MHz

Channel	Frequency (MHz)	Chain 0 Output Power (dBm)	Chain 1 Output Power (dBm)	Total Maximum Conducted Output Power (dBm)	Limit (dBm)
Mid	5775	17.00	17.32	***20.17**	28.69

Remark:

1. Total Output Power (w) = Chain 0 (10^(Output Power /10)/1000) + Chain 1 (10^(Output Power /10)/1000))

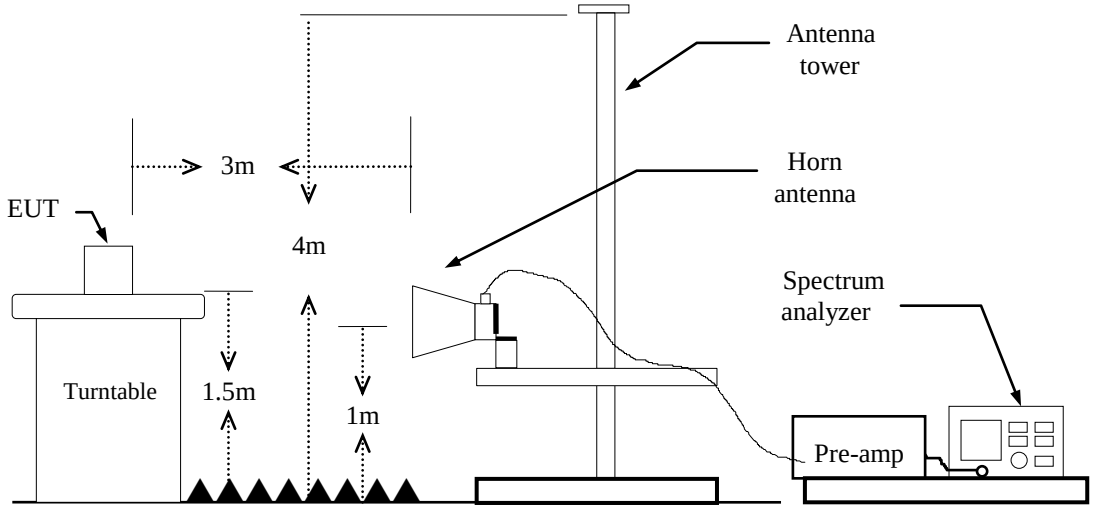
2. The maximum antenna gain is 7.31dBi; therefore the reduction due to antenna gain is 1.31dBi, so the limit is 28.69dBm.

7.4 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

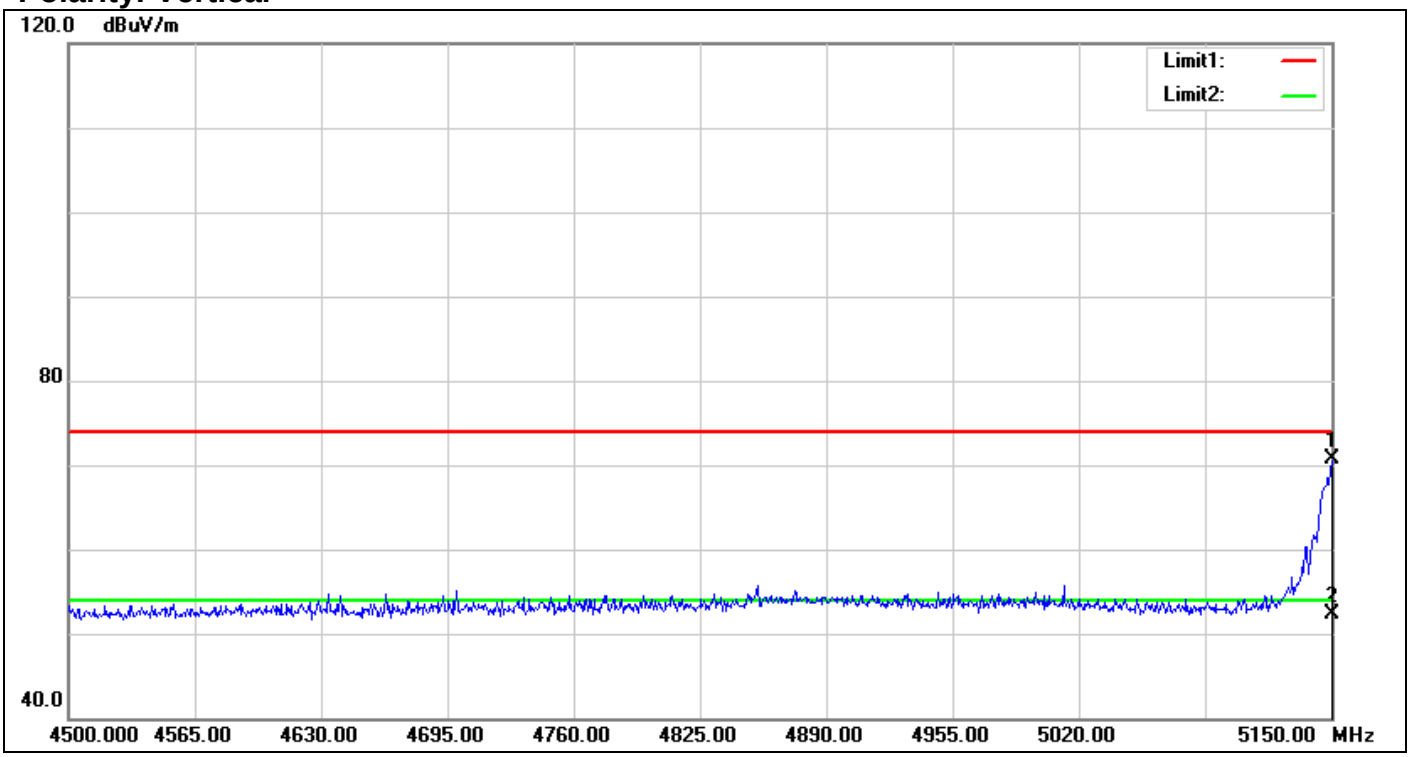
1. The EUT is placed on a turntable, which is 1.5m above the ground plane.
2. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.
3. EUT is set 3m away from the receiving antenna, which is varied from 1m to 4m to find out the highest emission.
4. Set the spectrum analyzer in the following setting in order to capture the lower and upper band-edges of the emission:
   (a) PEAK: RBW=1MHz / VBW=3MHz / Sweep=AUTO
   (b) AVERAGE: RBW=1MHz,
   if duty cycle≧98%, VBW=10Hz.
   if duty cycle<98% VBW=1/T.
   IEEE 802.11a mode: = 88%, VBW=680Hz
   IEEE 802.11n HT 20 MHz mode: = 78%, VBW=1.5KHz
   IEEE 802.11n HT 40 MHz mode: = 65%, VBW=3KHz
   IEEE 802.11ac VHT 80 MHz mode: = 26%, VBW=15KHz
5. Repeat the procedures until all the PEAK and AVERAGE versus POLARIZATION are measured.

TEST RESULTS

Refer to attach spectrum analyzer data chart.

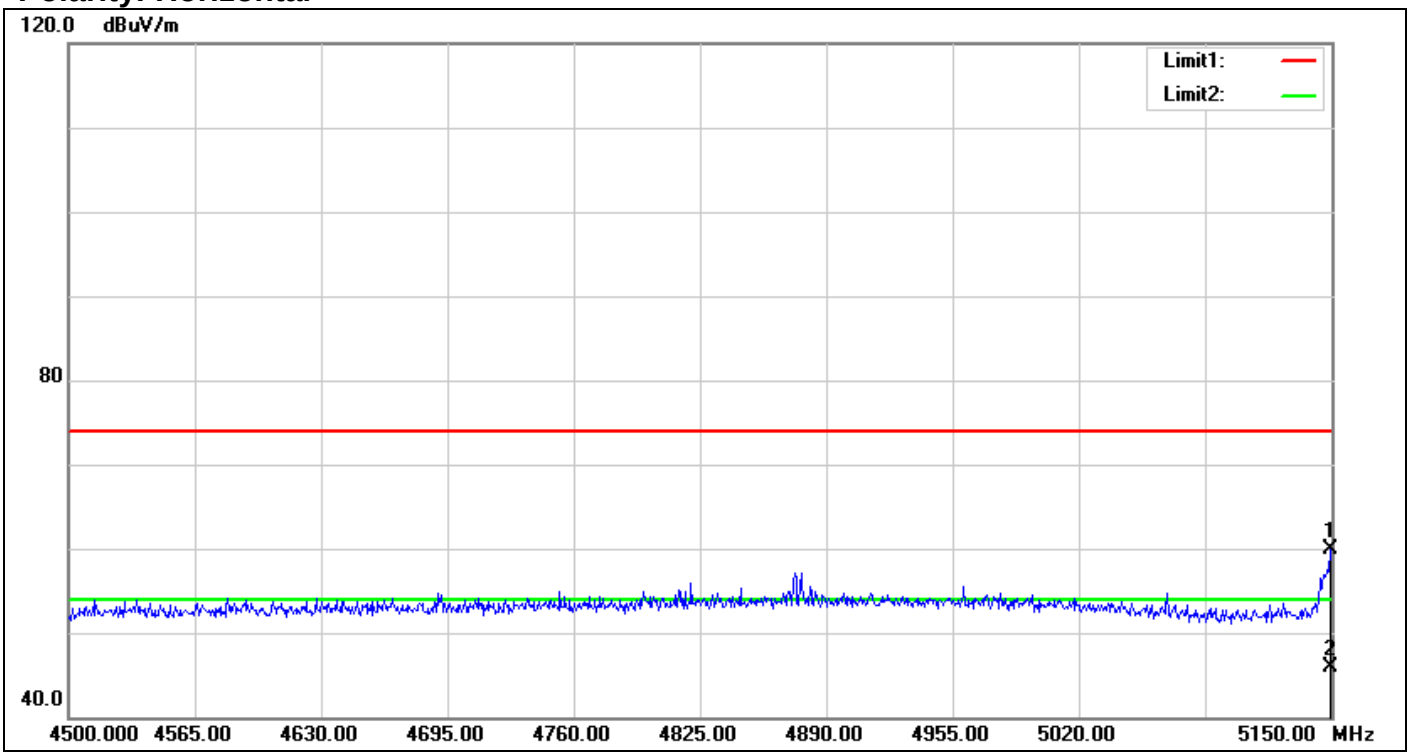
Band Edges (IEEE 802.11a mode / 5180 MHz)

Polarity: Vertical



No.	Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(°)	
1	5150.000	67.72	3.04	70.76	74.00	-3.24	100	43	peak
2	5150.000	49.31	3.04	52.35	54.00	-1.65	100	43	AVG

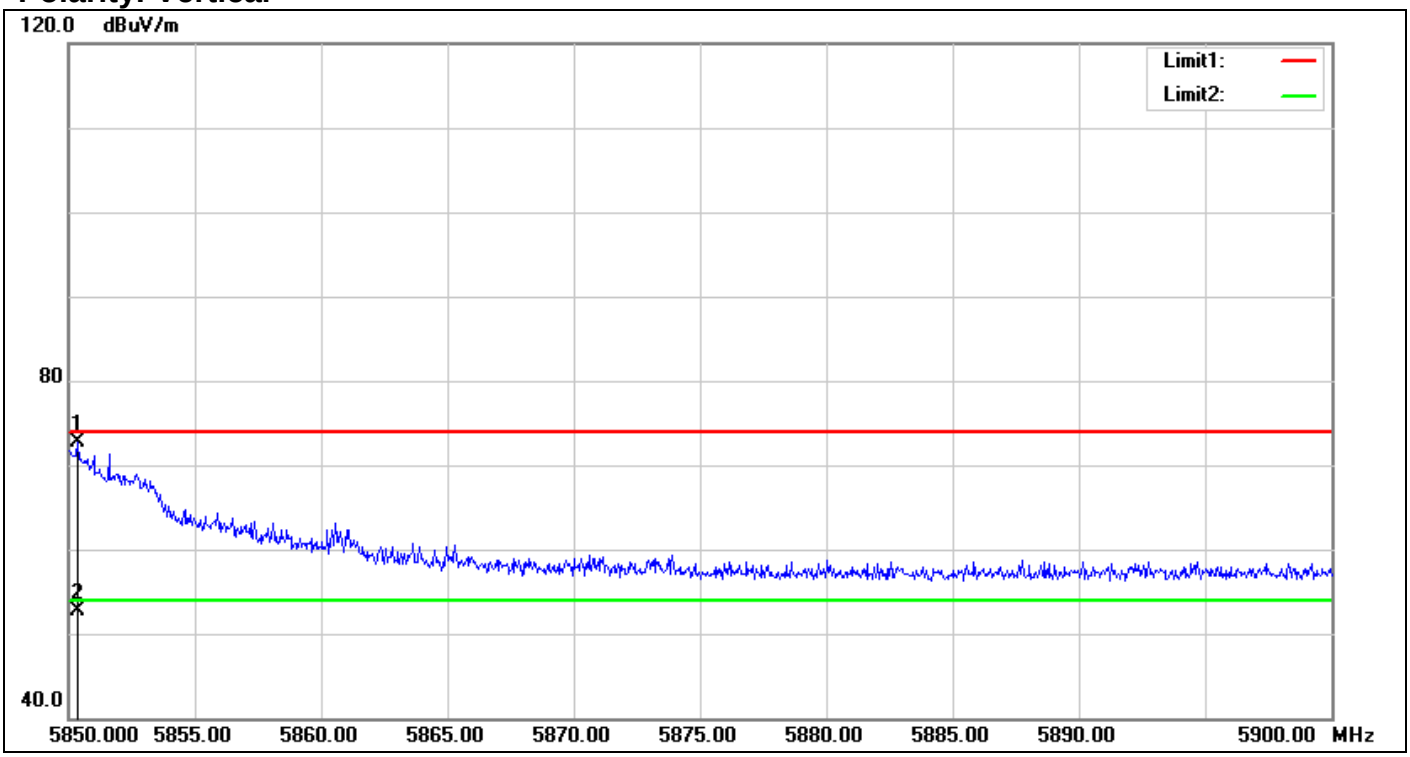
Polarity: Horizontal



No.	Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(°)	
1	5149.350	56.93	3.04	59.97	74.00	-14.03	100	157	peak
2	5149.350	42.85	3.04	45.89	54.00	-8.11	100	157	AVG

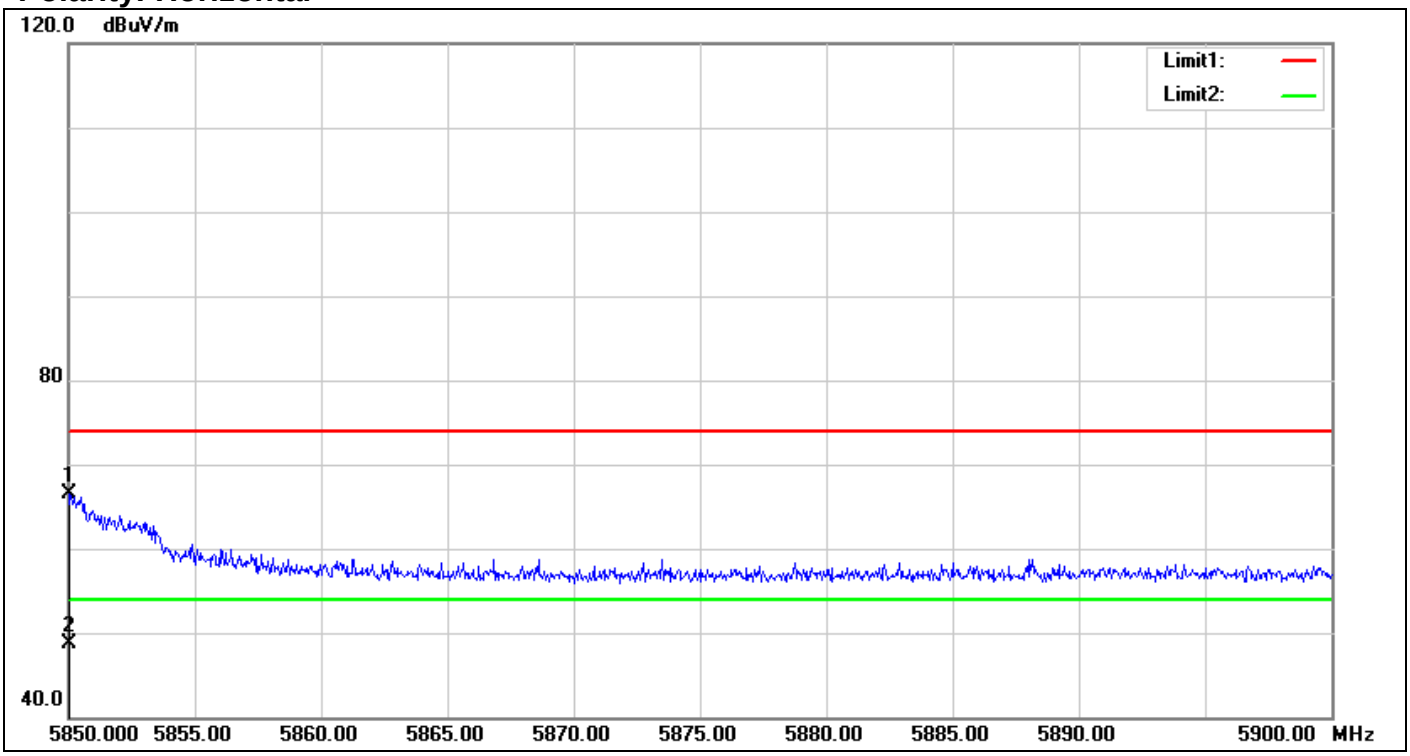
Band Edges (IEEE 802.11a mode / 5825 MHz)

Polarity: Vertical



No.	Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(°)	
1	5850.350	65.97	6.74	72.71	74.00	-1.29	100	253	peak
2	5850.350	46.00	6.74	52.74	54.00	-1.26	100	253	AVG

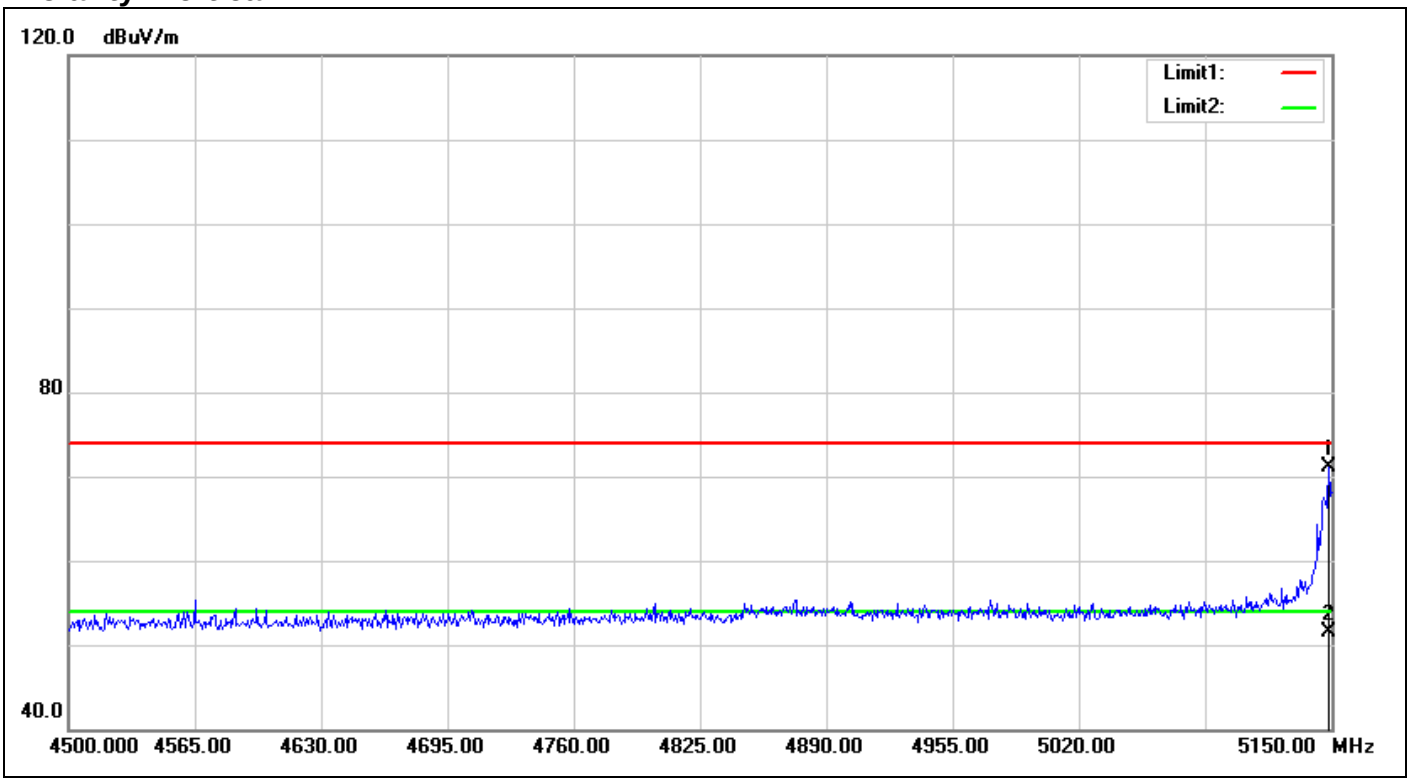
Polarity: Horizontal



No.	Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(°)	
1	5850.050	59.70	6.74	66.44	74.00	-7.56	100	155	peak
2	5850.050	41.88	6.74	48.62	54.00	-5.38	100	155	AVG

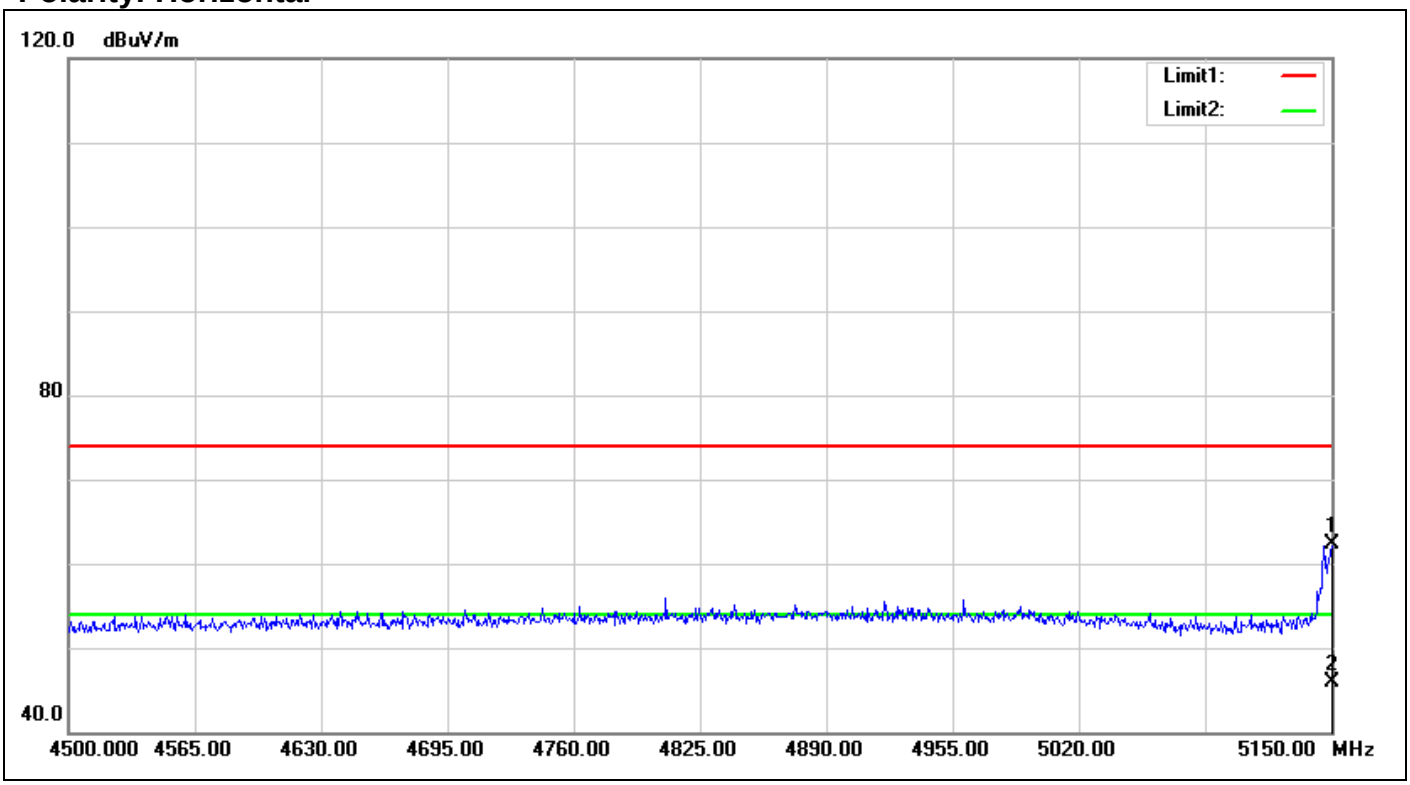
Band Edges (IEEE 802.11n HT 20 mode / 5180 MHz)

Polarity: Vertical



No.	Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(°)	
1	5148.700	68.02	3.03	71.05	74.00	-2.95	100	79	peak
2	5148.700	48.41	3.03	51.44	54.00	-2.56	100	79	AVG

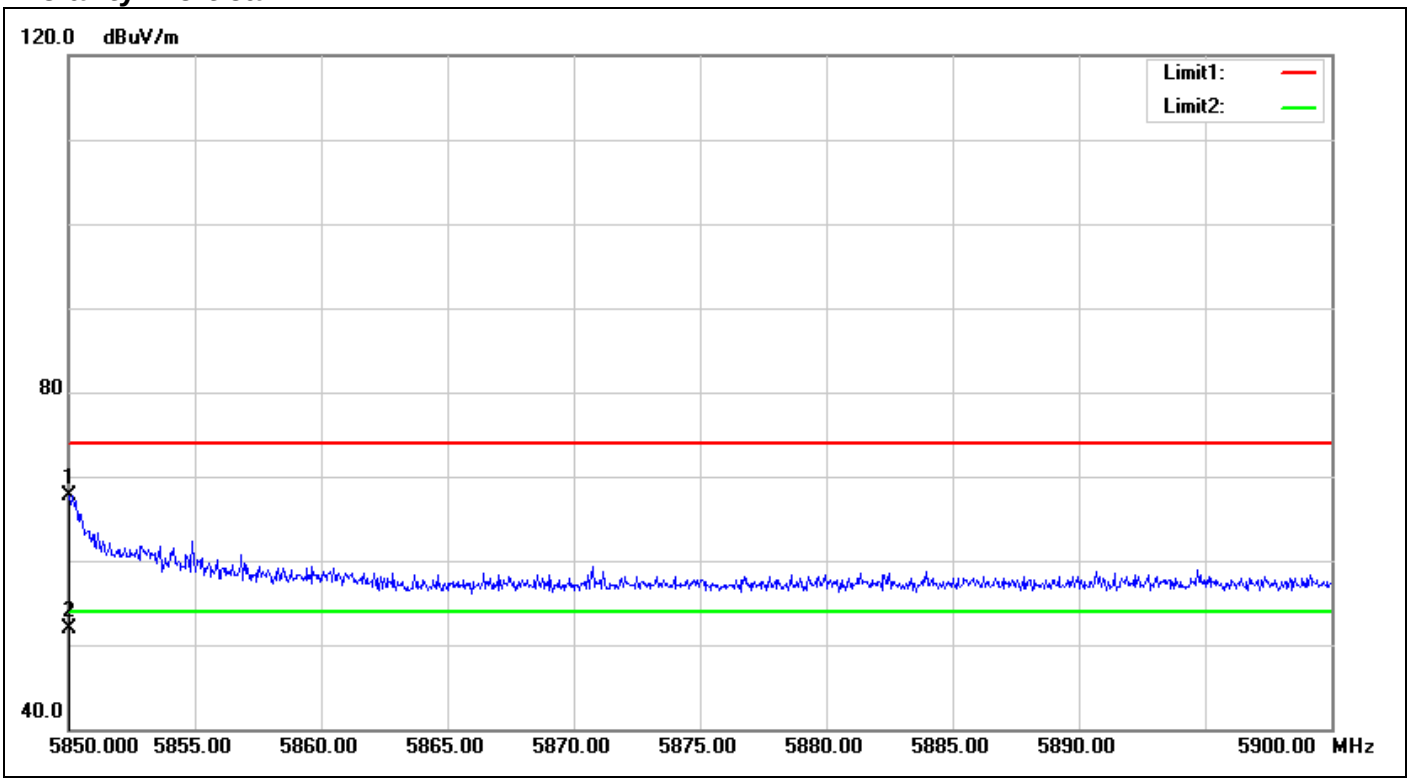
Polarity: Horizontal



No.	Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(°)	
1	5150.000	59.23	3.04	62.27	74.00	-11.73	100	185	peak
2	5150.000	42.89	3.04	45.93	54.00	-8.07	100	185	AVG

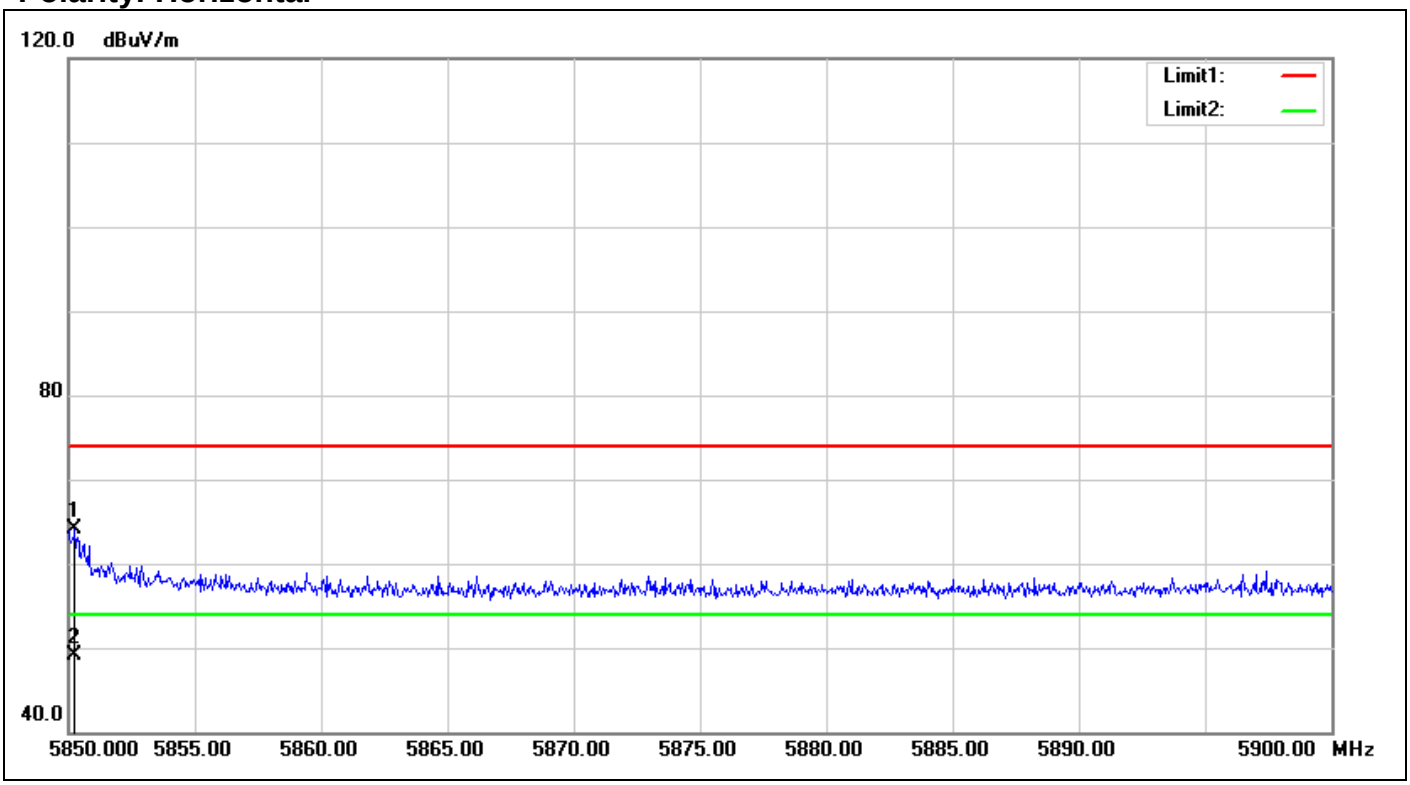
Band Edges (IEEE 802.11n HT 20 mode / 5825 MHz)

Polarity: Vertical



No.	Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(°)	
1	5850.000	61.06	6.74	67.80	74.00	-6.20	100	354	peak
2	5850.000	45.26	6.74	52.00	54.00	-2.00	100	354	AVG

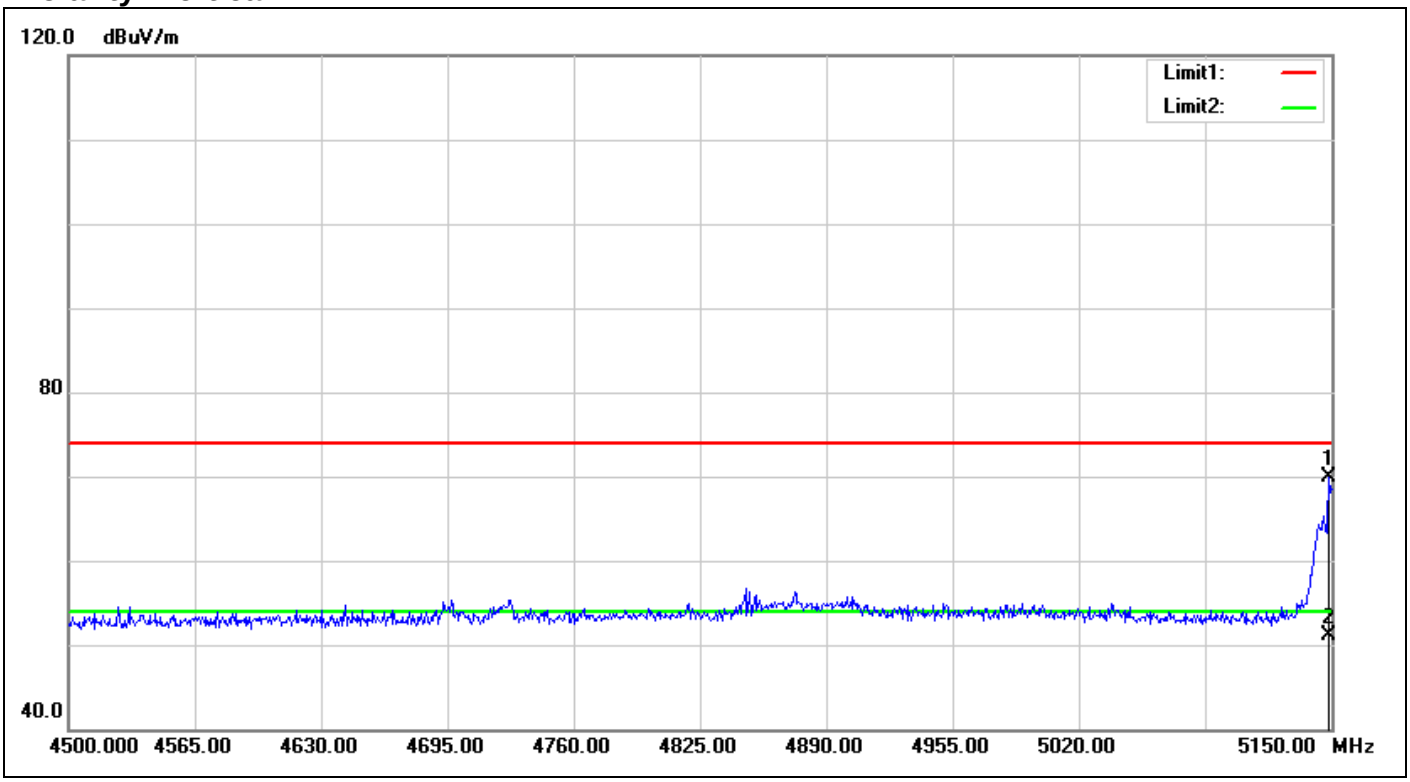
Polarity: Horizontal



No.	Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(°)	
1	5850.250	57.41	6.74	64.15	74.00	-9.85	100	306	peak
2	5850.250	42.28	6.74	49.02	54.00	-4.98	100	306	AVG

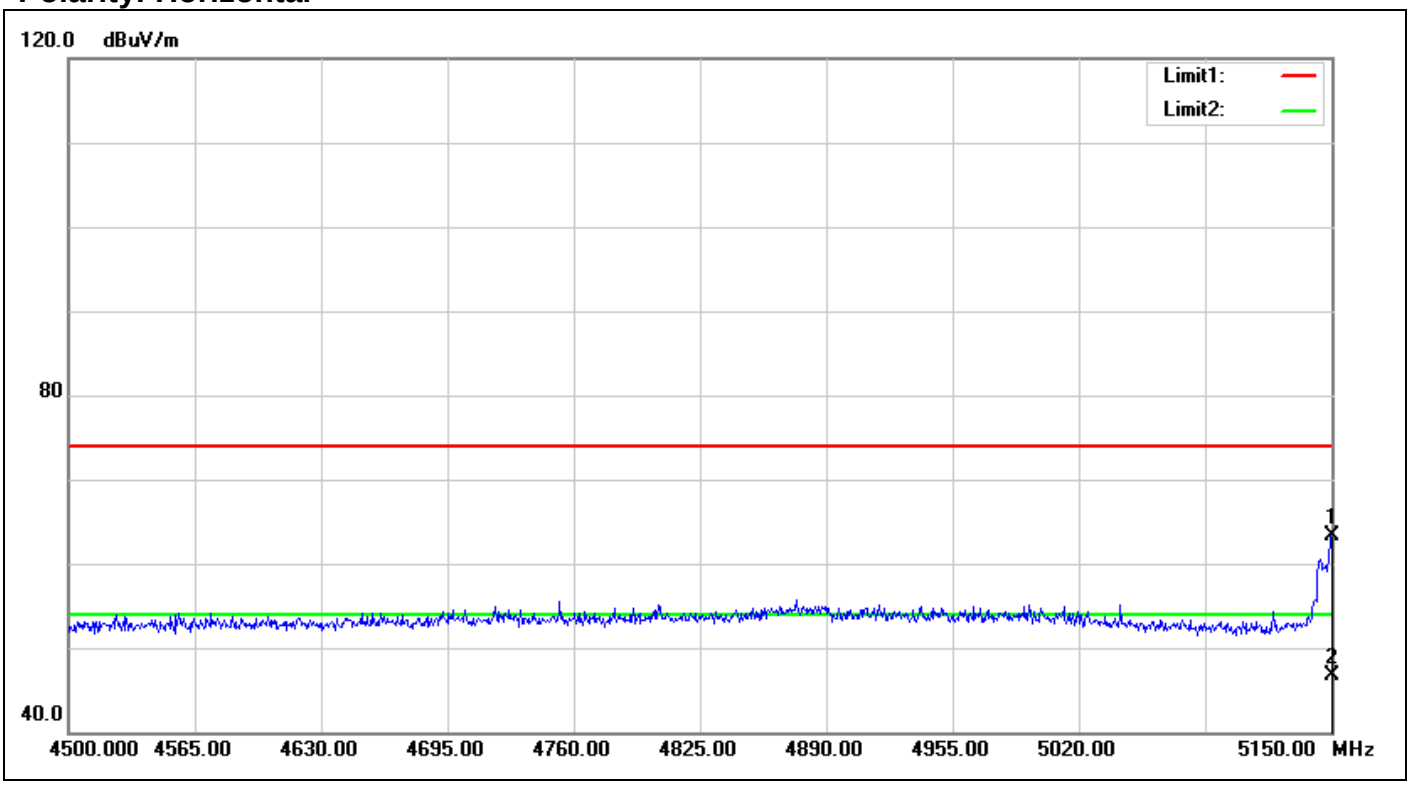
Band Edges (IEEE 802.11n HT 40 mode / 5190 MHz)

Polarity: Vertical



No.	Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(°)	
1	5148.700	66.80	3.03	69.83	74.00	-4.17	100	123	peak
2	5148.700	48.13	3.03	51.16	54.00	-2.84	100	123	AVG

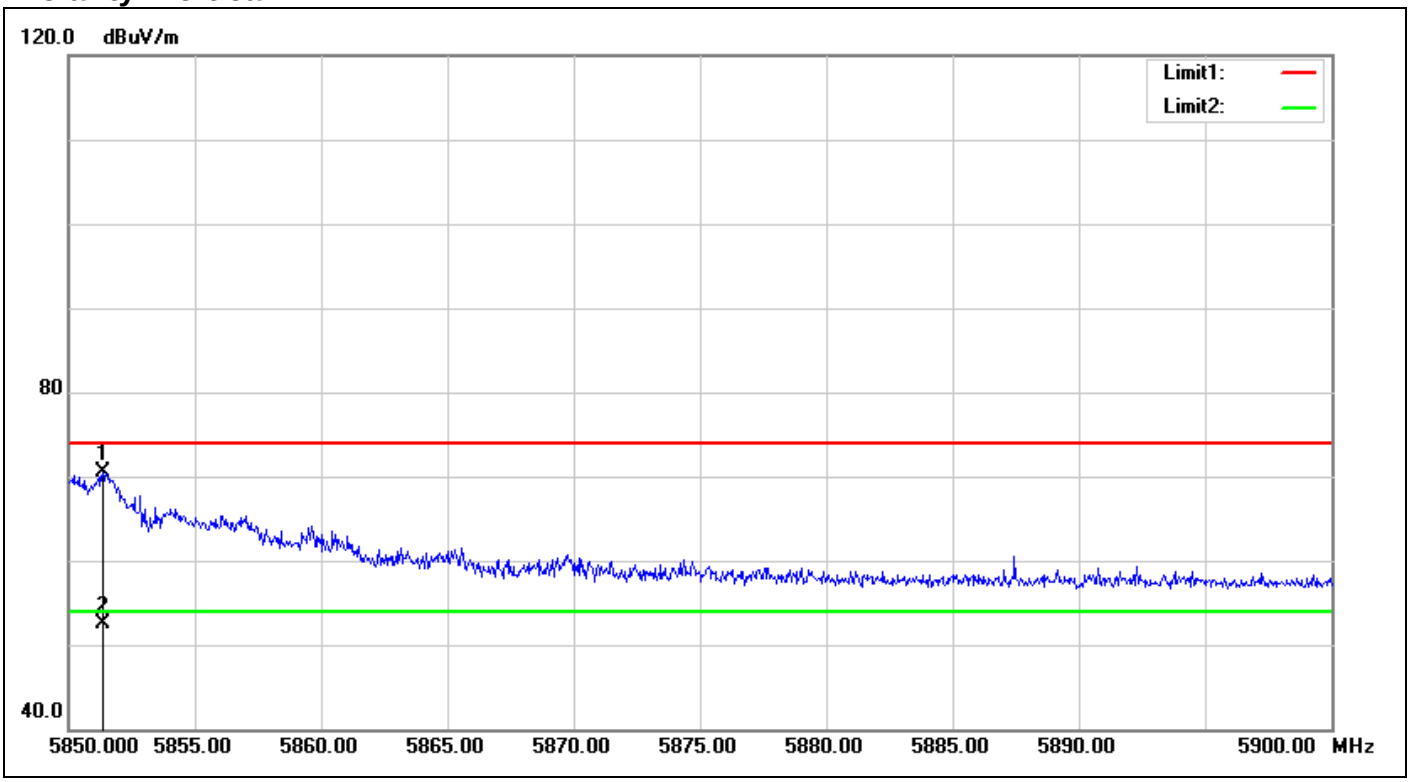
Polarity: Horizontal



No.	Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(°)	
1	5150.000	60.22	3.04	63.26	74.00	-10.74	100	357	peak
2	5150.000	43.71	3.04	46.75	54.00	-7.25	100	357	AVG

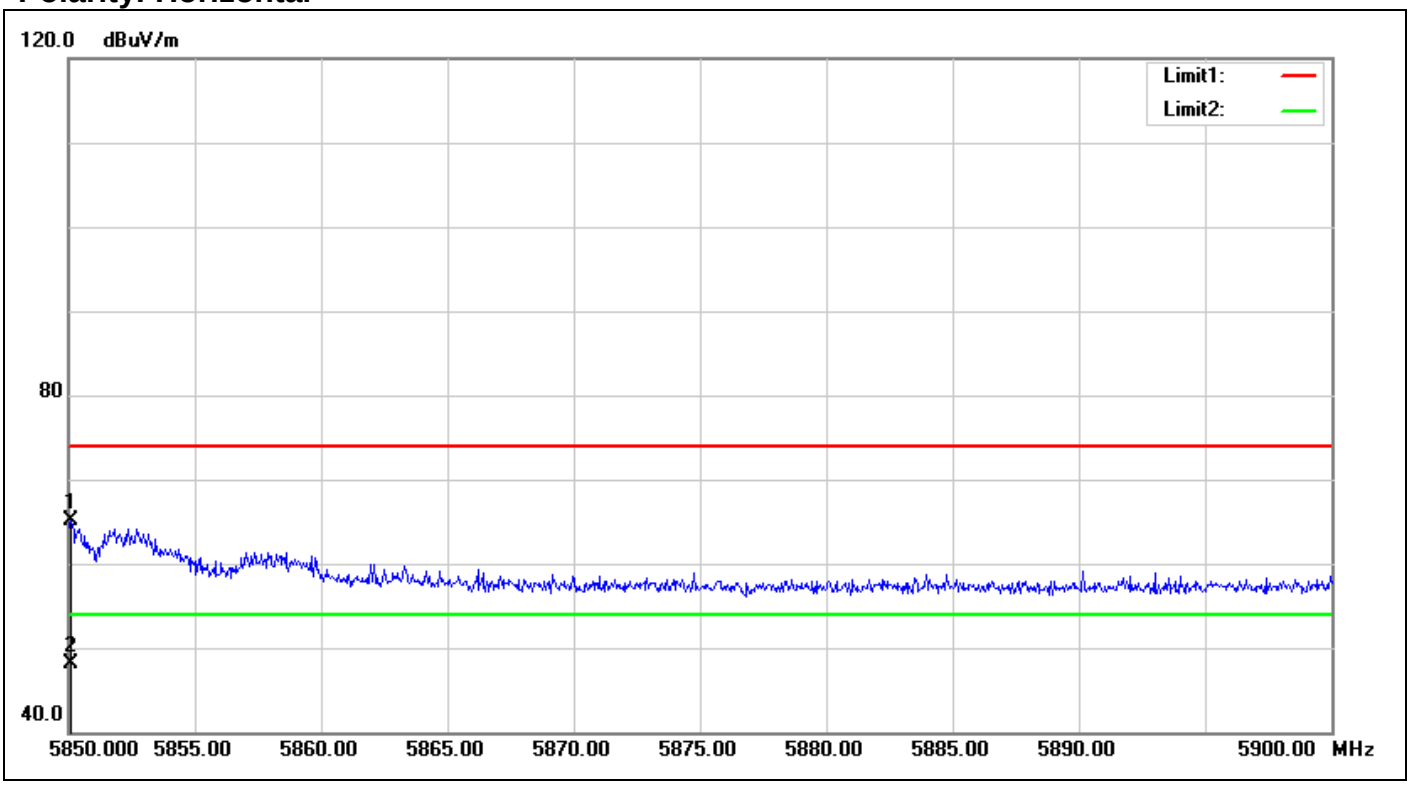
Band Edges (IEEE 802.11n HT 40 mode / 5795 MHz)

Polarity: Vertical



No.	Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(°)	
1	5851.350	63.69	6.75	70.44	74.00	-3.56	100	4	peak
2	5851.350	45.75	6.75	52.50	54.00	-1.50	100	4	AVG

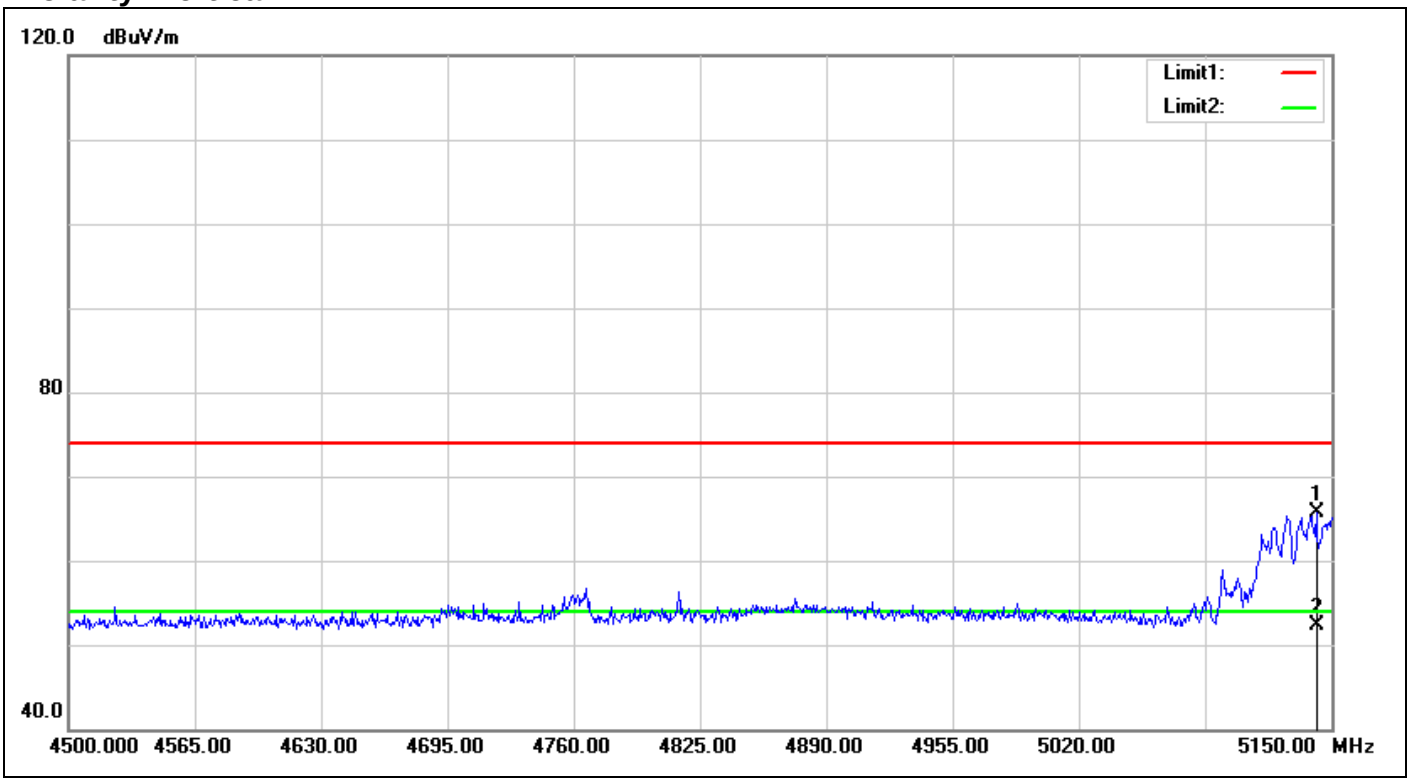
Polarity: Horizontal



No.	Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(°)	
1	5850.100	58.36	6.74	65.10	74.00	-8.90	100	312	peak
2	5850.100	41.30	6.74	48.04	54.00	-5.96	100	312	AVG

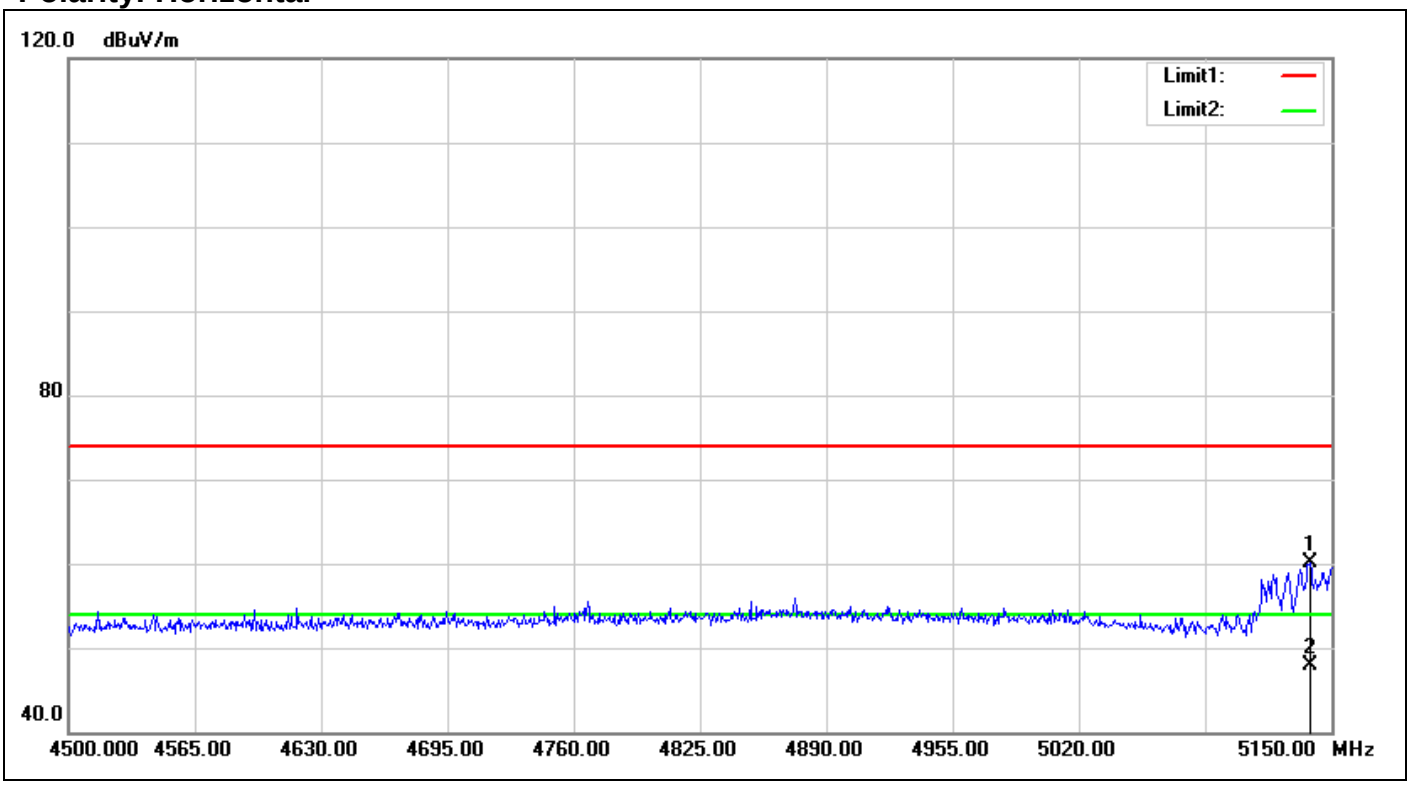
Band Edges (IEEE 802.11ac VHT80 Mode / CH 5210 MHz)

Polarity: Vertical



No.	Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(°)	
1	5142.200	62.75	2.99	65.74	74.00	-8.26	100	93	peak
2	5142.200	49.38	2.99	52.37	54.00	-1.63	100	93	AVG

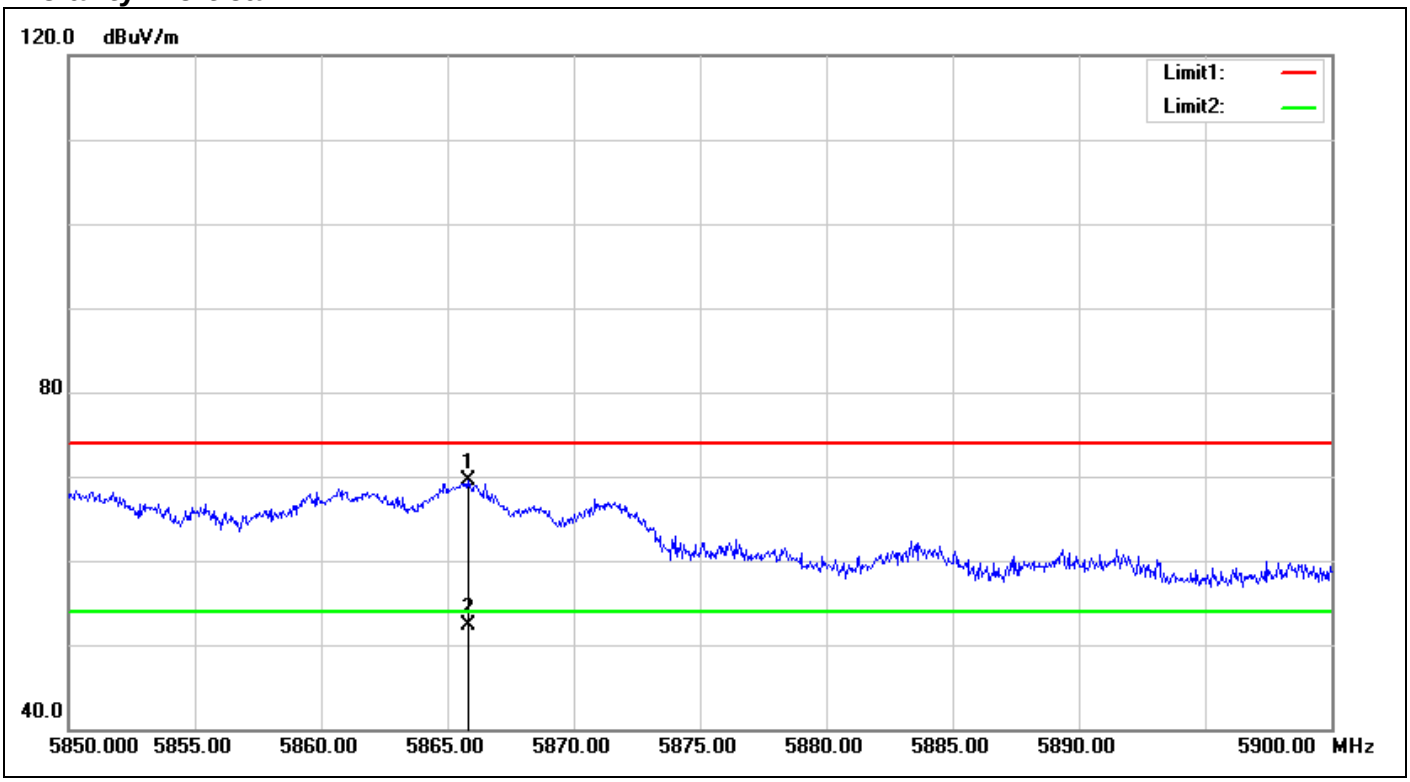
Polarity: Horizontal



No.	Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(°)	
1	5138.950	57.05	2.96	60.01	74.00	-13.99	100	137	peak
2	5138.950	44.90	2.96	47.86	54.00	-6.14	100	137	AVG

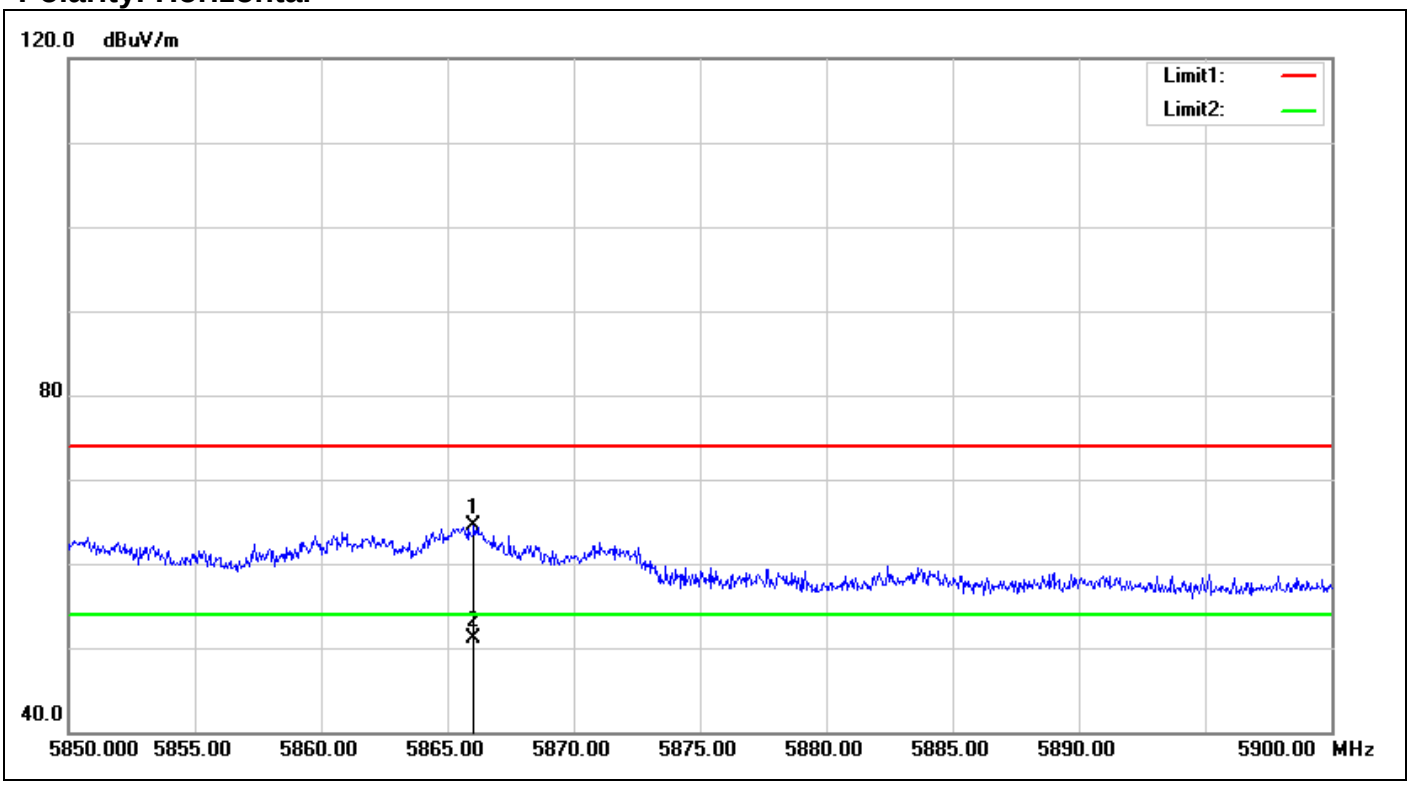
Band Edges (IEEE 802.11ac VHT80 Mode / CH 5775 MHz)

Polarity: Vertical



No.	Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(°)	
1	5865.800	62.75	6.81	69.56	74.00	-4.44	100	276	peak
2	5865.800	45.56	6.81	52.37	54.00	-1.63	100	276	AVG

Polarity: Horizontal



No.	Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(°)	
1	5866.050	57.63	6.81	64.44	74.00	-9.56	100	101	peak
2	5866.050	44.33	6.81	51.14	54.00	-2.86	100	101	AVG

7.5 PEAK POWER SPECTRAL DENSITY

LIMIT

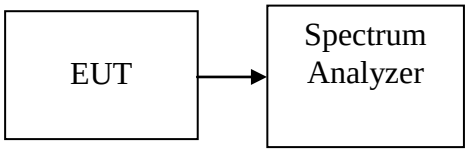
According to §15.407(a),

(1) For the band 5.150-5.250 GHz, the peak power spectral density shall not exceed 24dBm in any 1MHz band.

(2) For the band 5.745-5.850 GHz bands, the peak power spectral density shall not exceed 30dBm in any 500KHz band.

If transmitting antennas of directional gain greater than 6dBi are used, both the peak transmit power and the peak 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. Place the EUT on the table and set it in transmitting mode.
   Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the spectrum analyzer.
2. Set the spectrum analyzer as RBW = 1MHz, VBW = 3MHz, Span = Sweep= AUTO
3. Record the max. reading.
4. Repeat the above procedure until the measurements for all frequencies are completed

TEST RESULTS

No non-compliance noted

Test Data

Test mode: IEEE 802.11a mode / 5180 ~ 5240MHz

Channel	Frequency (MHz)	Chain 0 PPSD (dBm)	Chain 1 PPSD (dBm)	PPSD (dBm)	Limit (dBm)	Result
Low	5180	6.04	6.38	9.22	15.69	PASS
Mid	5220	7.41	8.05	10.75	15.69	PASS
High	5240	6.99	7.95	10.51	15.69	PASS

Test mode: IEEE 802.11n HT 20 mode / 5180 ~ 5240MHz

Channel	Frequency (MHz)	Chain 0 PPSD (dBm)	Chain 1 PPSD (dBm)	PPSD (dBm)	Limit (dBm)	Result
Low	5180	4.00	4.28	7.15	15.69	PASS
Mid	5220	6.68	7.16	9.94	15.69	PASS
High	5240	6.36	7.30	9.87	15.69	PASS

Test mode: IEEE 802.11n HT 40 mode / 5190 ~ 5230MHz

Channel	Frequency (MHz)	Chain 0 PPSD (dBm)	Chain 1 PPSD (dBm)	PPSD (dBm)	Limit (dBm)	Result
Low	5190	-3.66	-3.37	-0.50	15.69	PASS
High	5230	-1.33	0.15	2.48	15.69	PASS

Test mode: IEEE 802.11ac VHT80 Mode / 5210MHz

Channel	Frequency (MHz)	Chain 0 PPSD (dBm)	Chain 1 PPSD (dBm)	PPSD (dBm)	Limit (dBm)	Result
Mid	5210	-1.67	-1.67	1.34	15.69	PASS

Remark:

*1. Total PPSD (dBm) = 10*LOG(10^(Chain 0 PPSD / 10)+10^(Chain 1 PPSD /10))*

2. The maximum antenna gain is 7.31dBi; therefore the reduction due to antenna gain is 1.31dBi, so the limit is 15.69dBm.

Test mode: IEEE 802.11a mode/ 5745 ~ 5825MHz

Channel	Frequency (MHz)	Chain 0 PPSD (dBm)	Chain 1 PPSD (dBm)	PPSD (dBm)	Limit (dBm)	Result
Low	5745	2.80	2.32	5.58	15.69	PASS
Mid	5785	2.96	1.37	5.25	15.69	PASS
High	5825	2.03	0.08	4.17	15.69	PASS

Test mode: IEEE 802.11n HT 20 mode / 5745 ~ 5825MHz

Channel	Frequency (MHz)	Chain 0 PPSD (dBm)	Chain 1 PPSD (dBm)	PPSD (dBm)	Limit (dBm)	Result
Low	5745	2.38	1.35	4.91	15.69	PASS
Mid	5785	1.61	0.54	4.12	15.69	PASS
High	5825	-1.44	-2.83	0.93	15.69	PASS

Test mode: IEEE 802.11n HT 40 mode / 5755 ~ 5795MHz

Channel	Frequency (MHz)	Chain 0 PPSD (dBm)	Chain 1 PPSD (dBm)	PPSD (dBm)	Limit (dBm)	Result
Low	5755	-7.45	-5.26	-3.21	15.69	PASS
High	5795	-6.09	-4.96	-2.48	15.69	PASS

Test mode: IEEE 802.11ac VHT80 Mode / 5775MHz

Channel	Frequency (MHz)	Chain 0 PPSD (dBm)	Chain 1 PPSD (dBm)	PPSD (dBm)	Limit (dBm)	Result
Mid	5775	-7.49	-9.45	-5.35	15.69	PASS

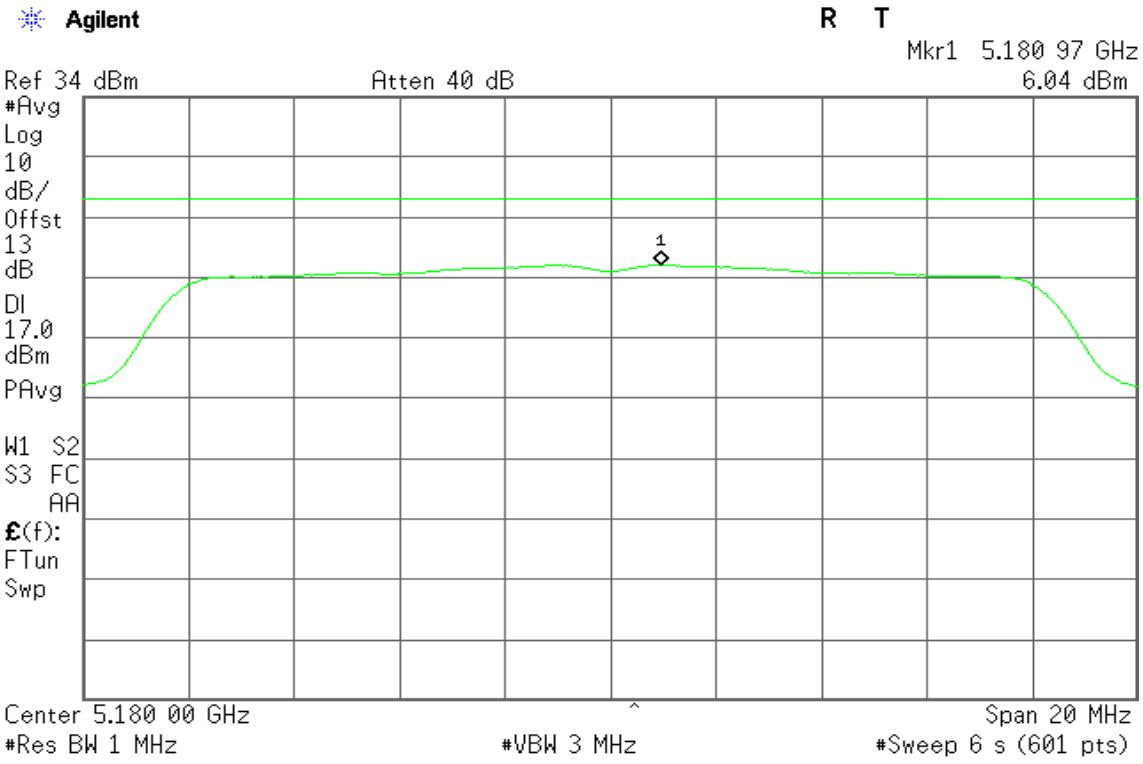
Remark:

*1. Total PPSD (dBm) = 10*LOG(10^(Chain 0 PPSD / 10)+10^(Chain 1 PPSD /10))*

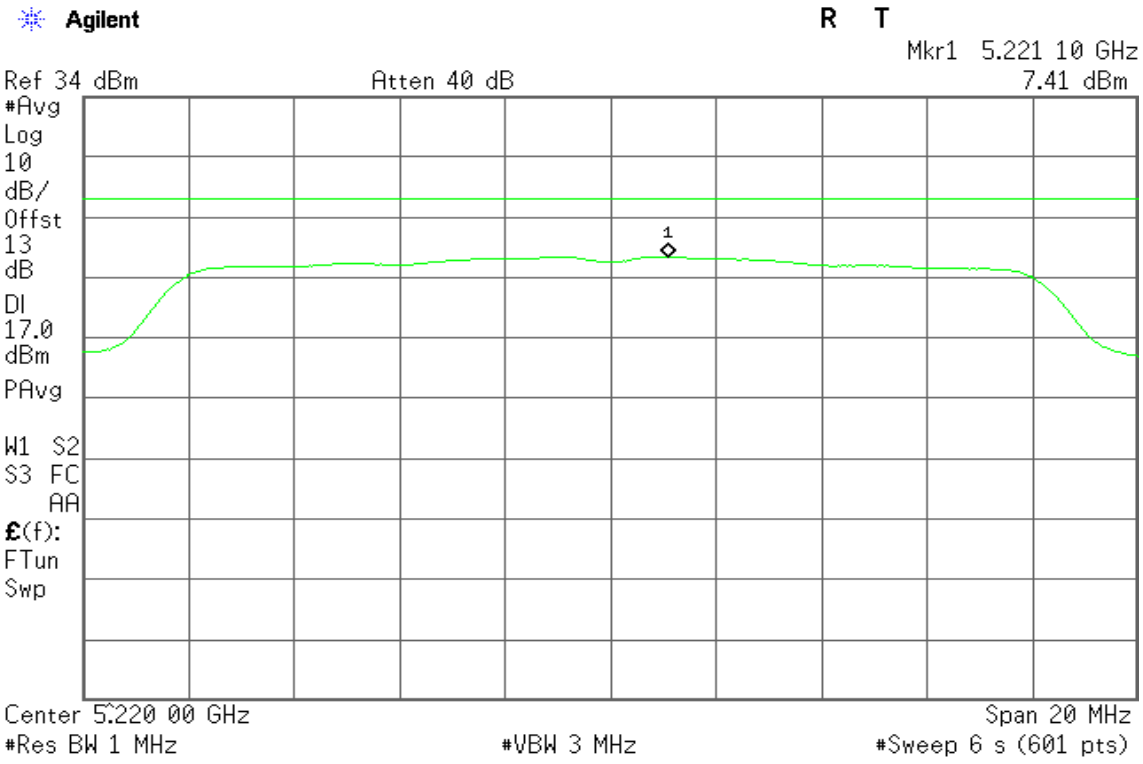
2. The maximum antenna gain is 7.31dBi; therefore the reduction due to antenna gain is 1.31dBi, so the limit is 15.69dBm.

Test Plot
IEEE 802.11a mode / 5180 ~ 5240MHz / Chain 0

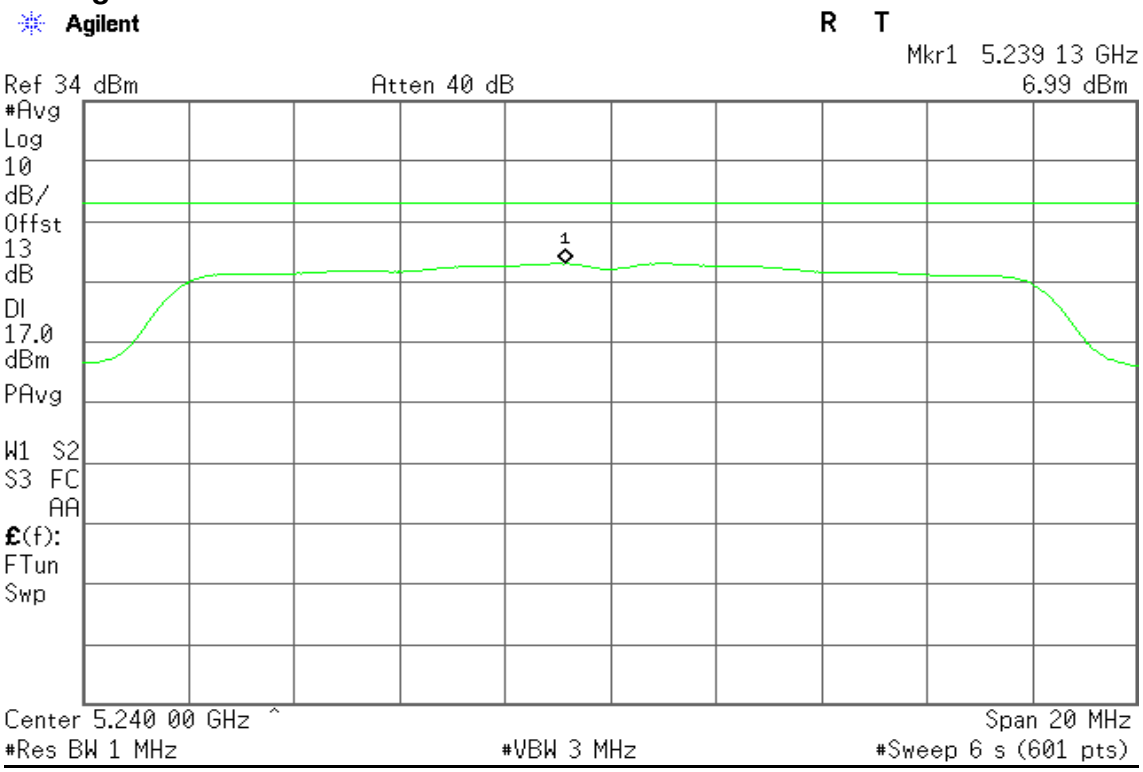
CH Low



CH Mid

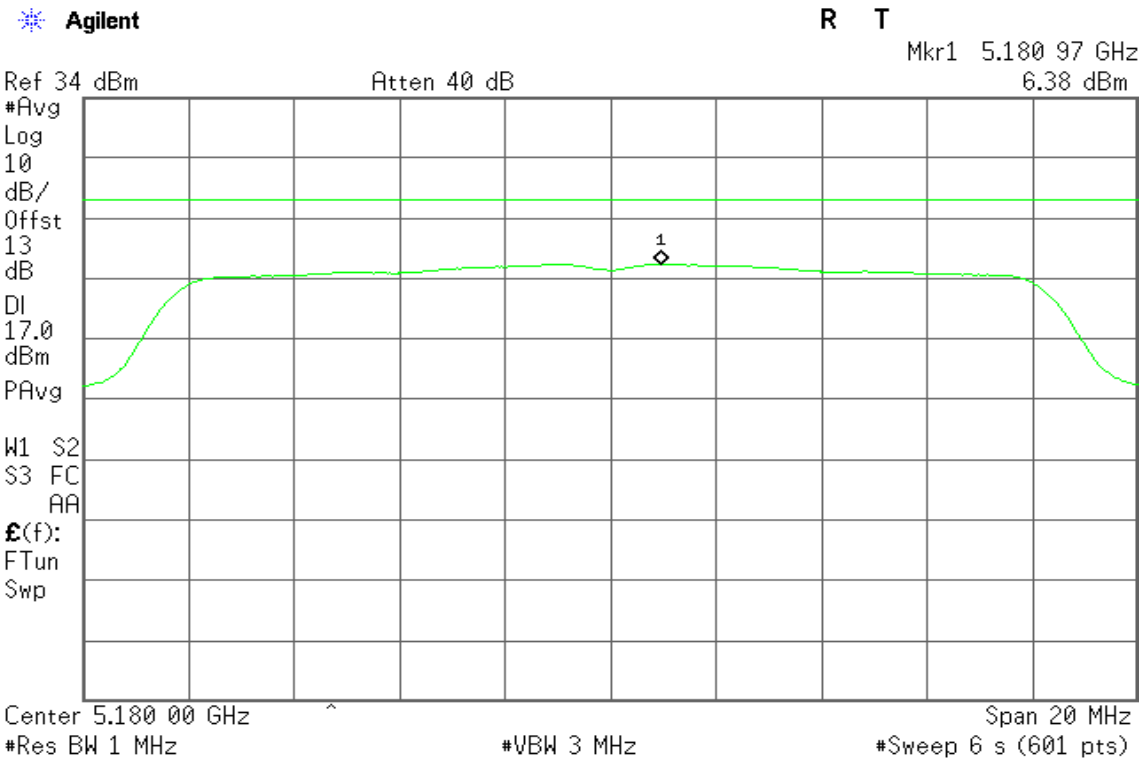


CH High

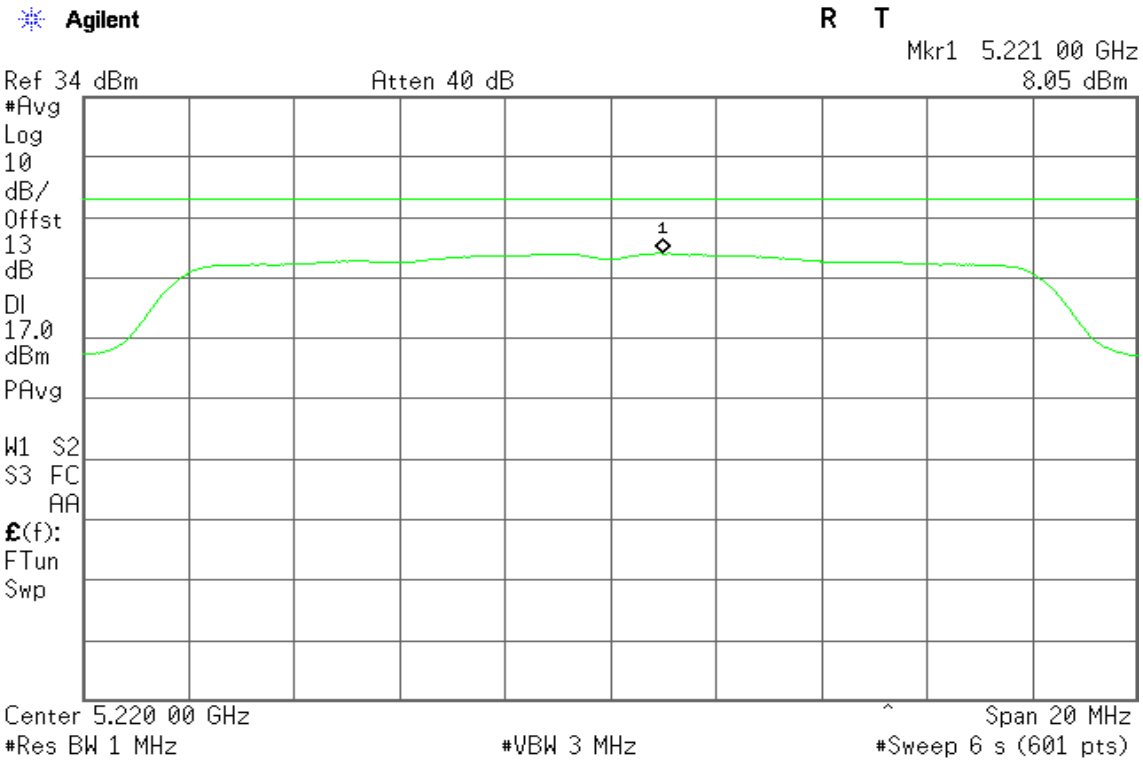


IEEE 802.11a mode / 5180 ~ 5240MHz / Chain 1

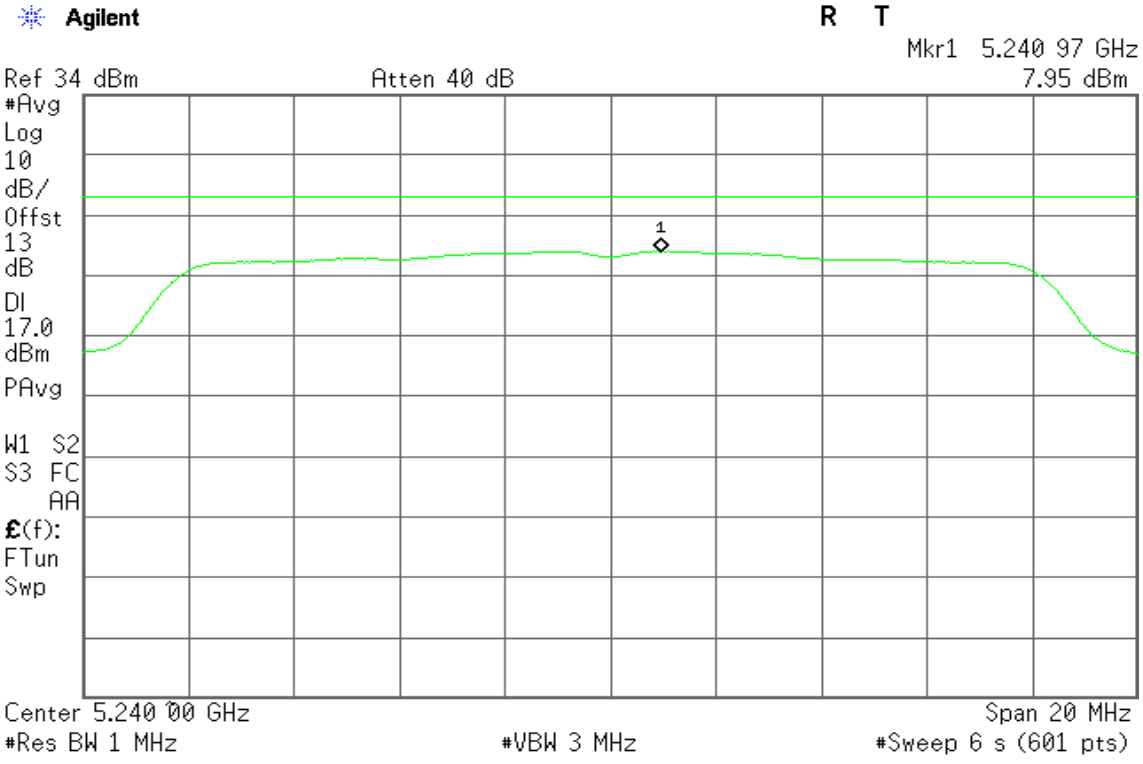
CH Low



CH Mid

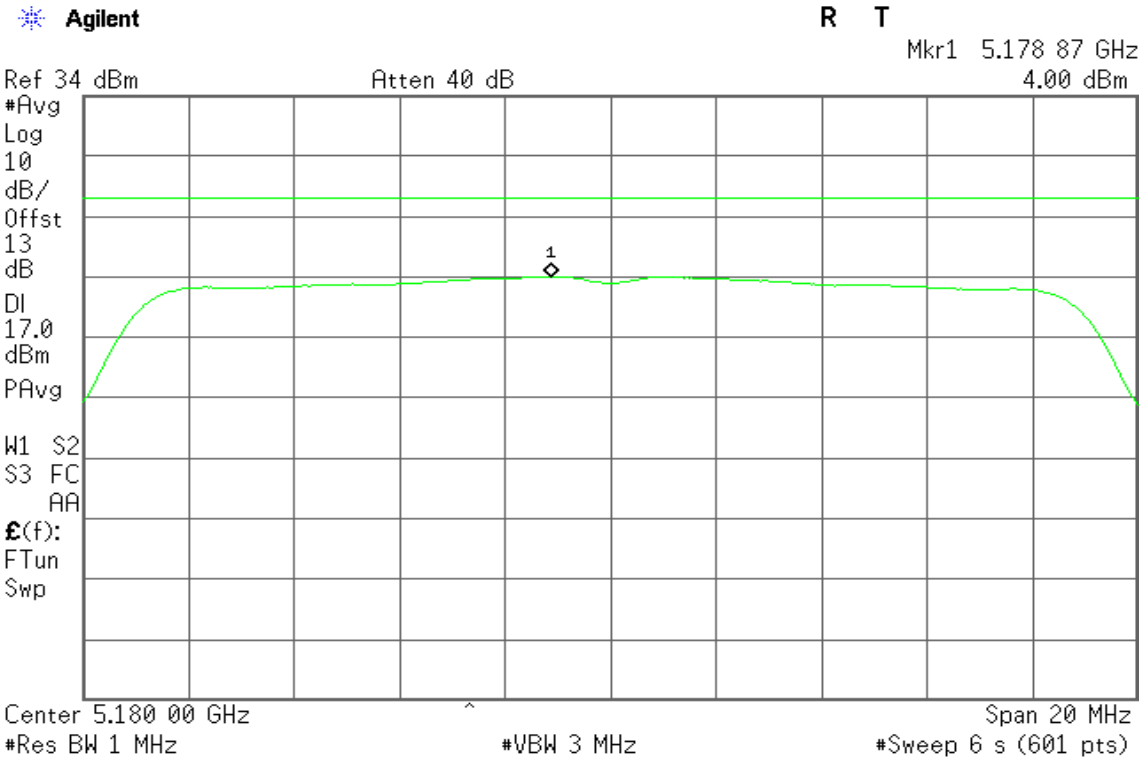


CH High

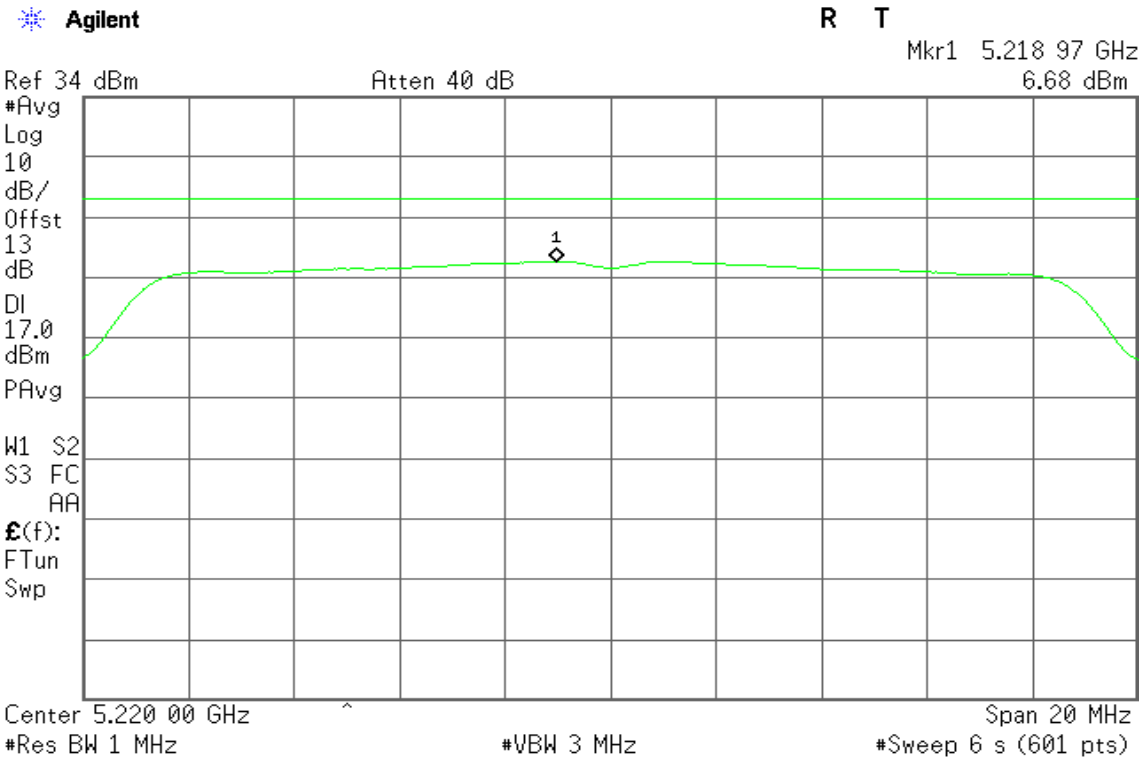


IEEE 802.11n HT 20 mode / 5180 ~ 5240MHz / Chain 0

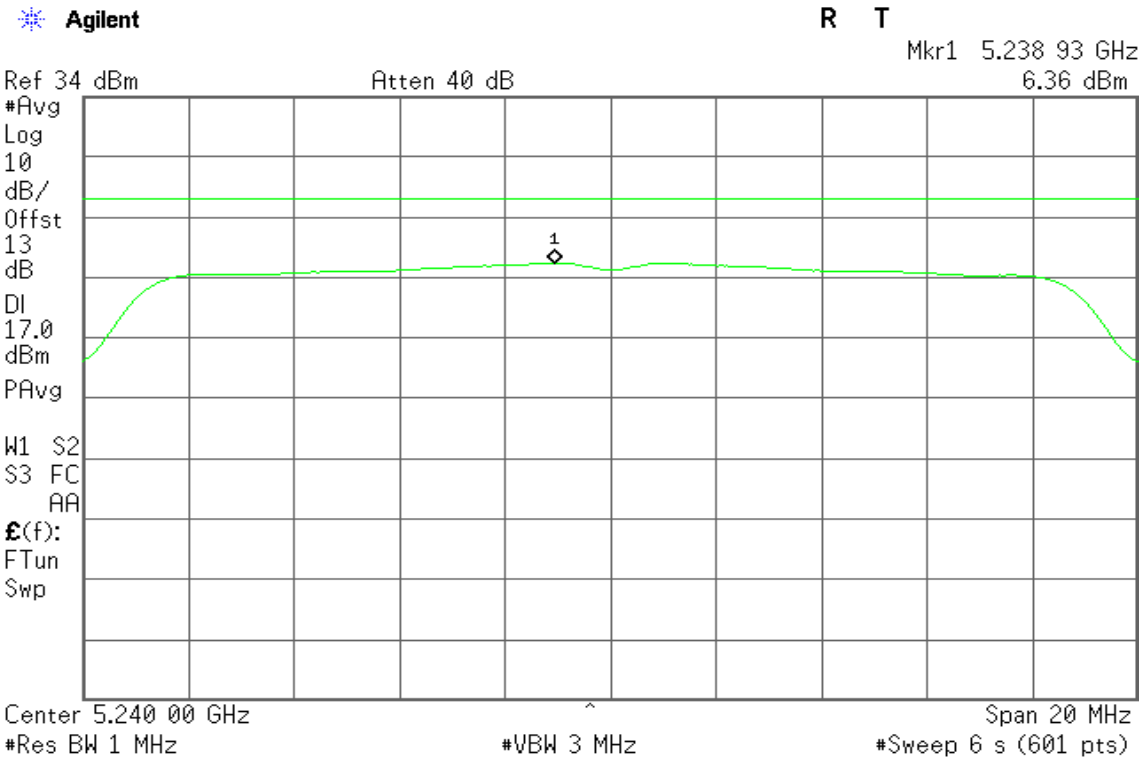
CH Low



CH Mid

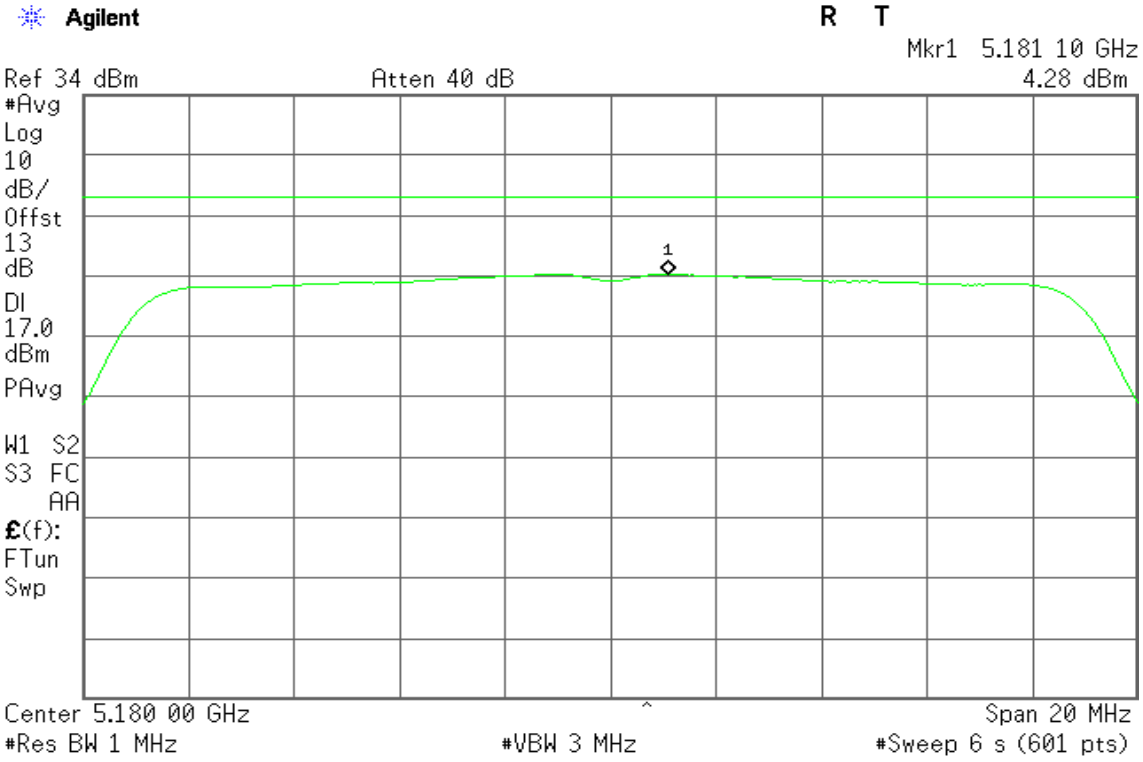


CH High

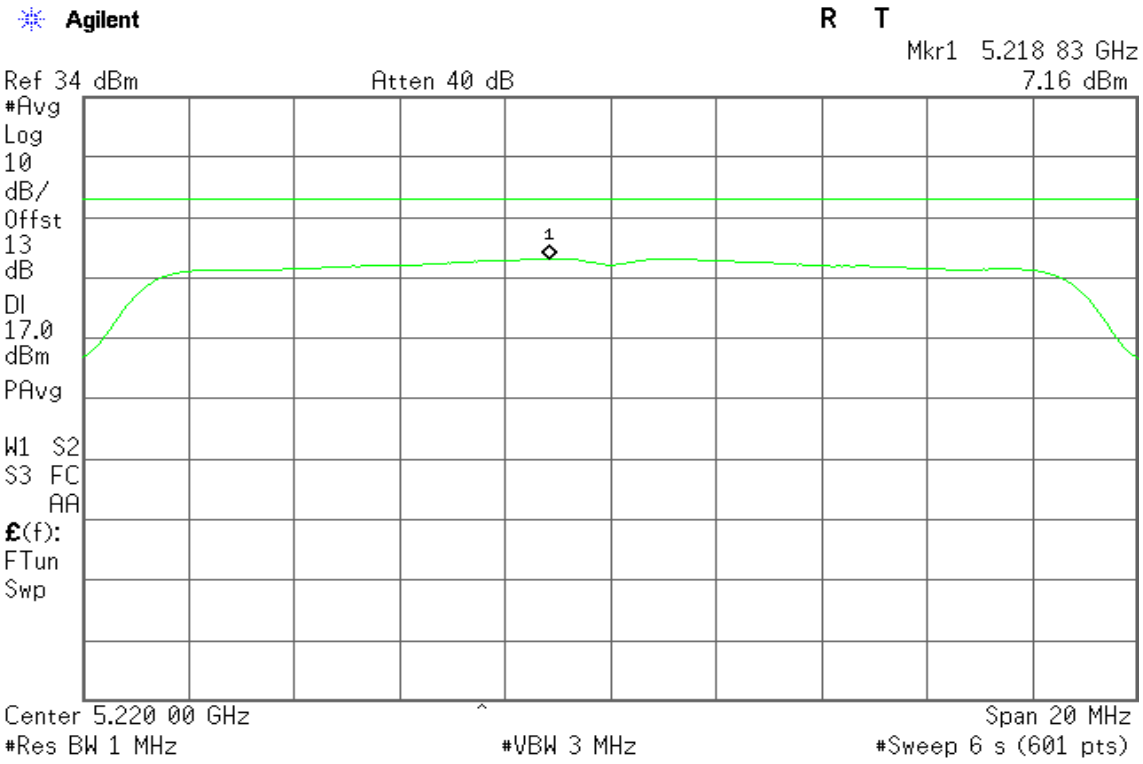


IEEE 802.11n HT 20 mode / 5180 ~ 5240MHz / Chain 1

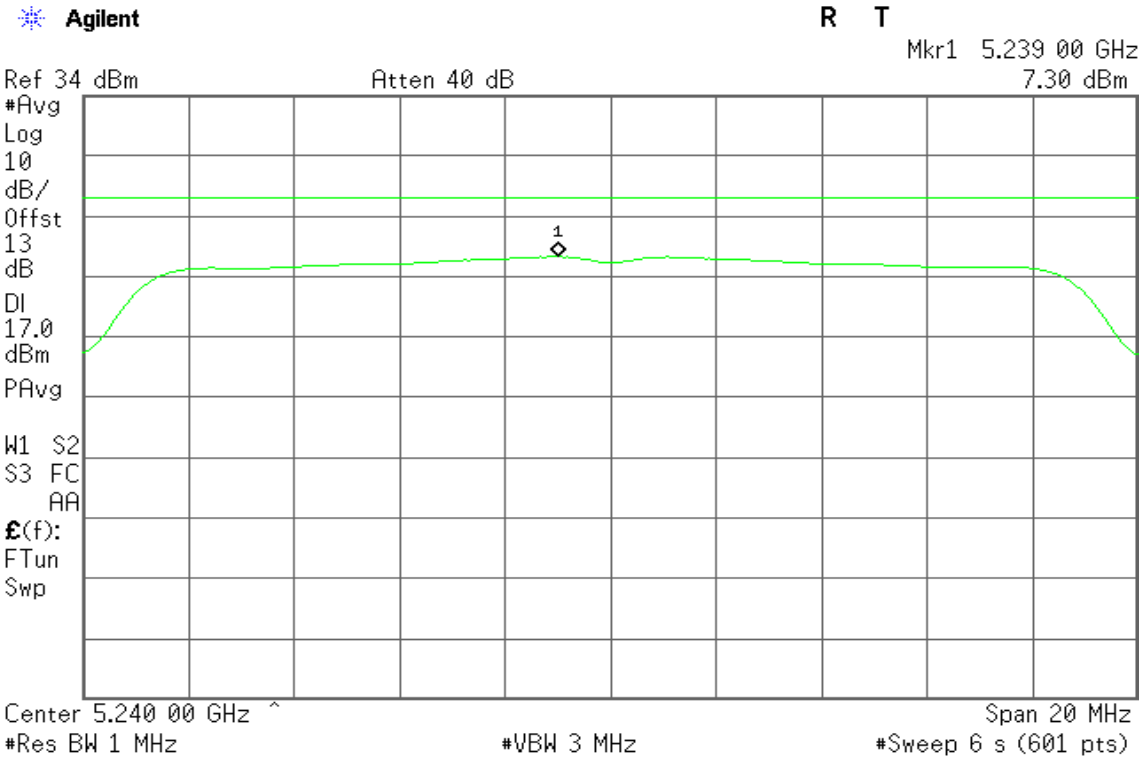
CH Low



CH Mid

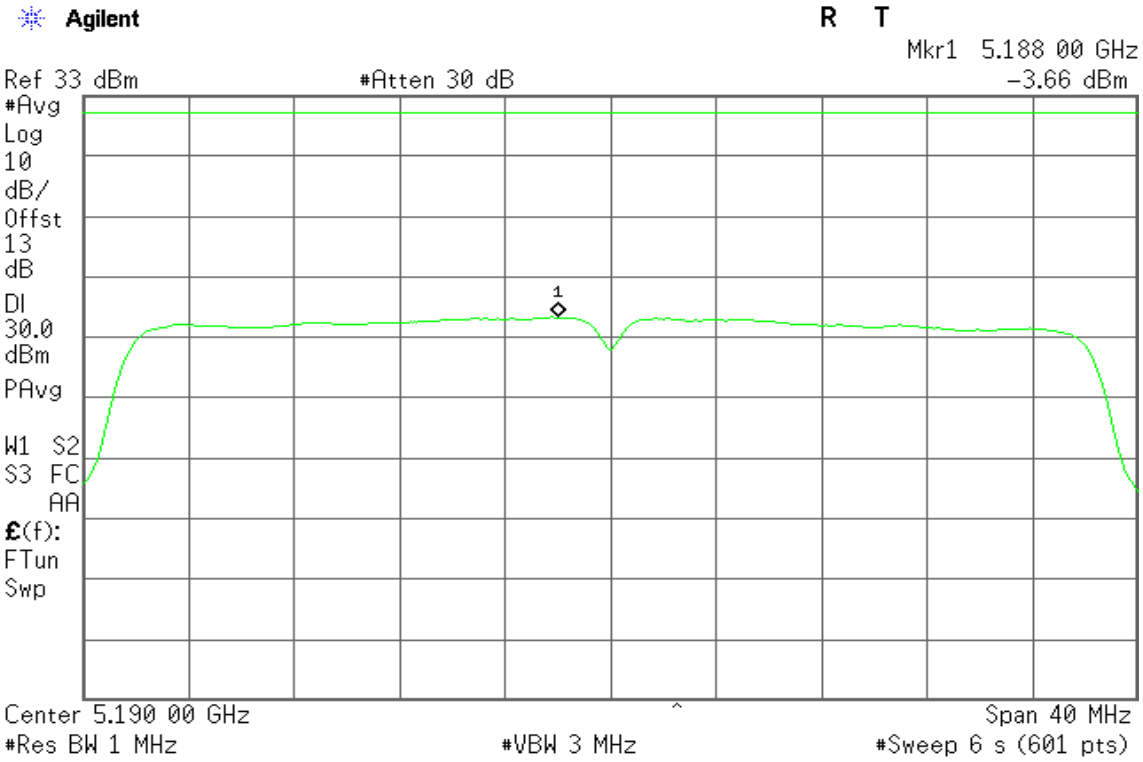


CH High

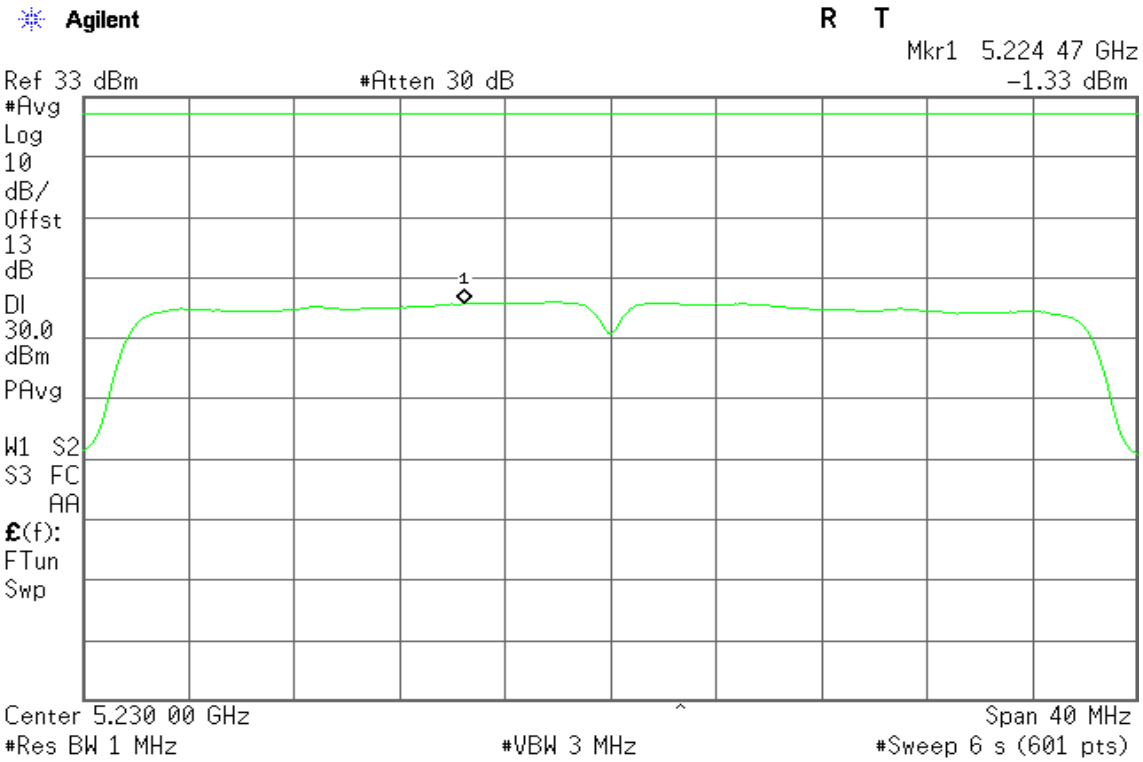


IEEE 802.11n HT 40 mode / 5190 ~ 5230MHz / Chain 0

CH Low

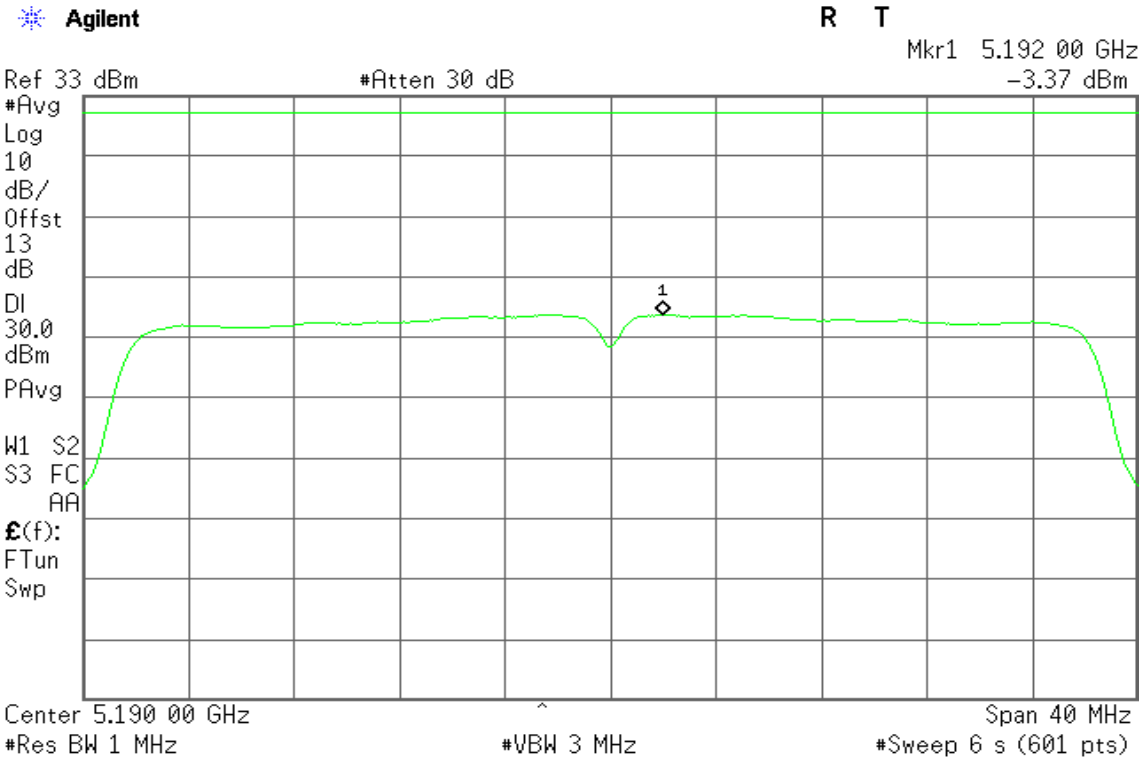


CH High

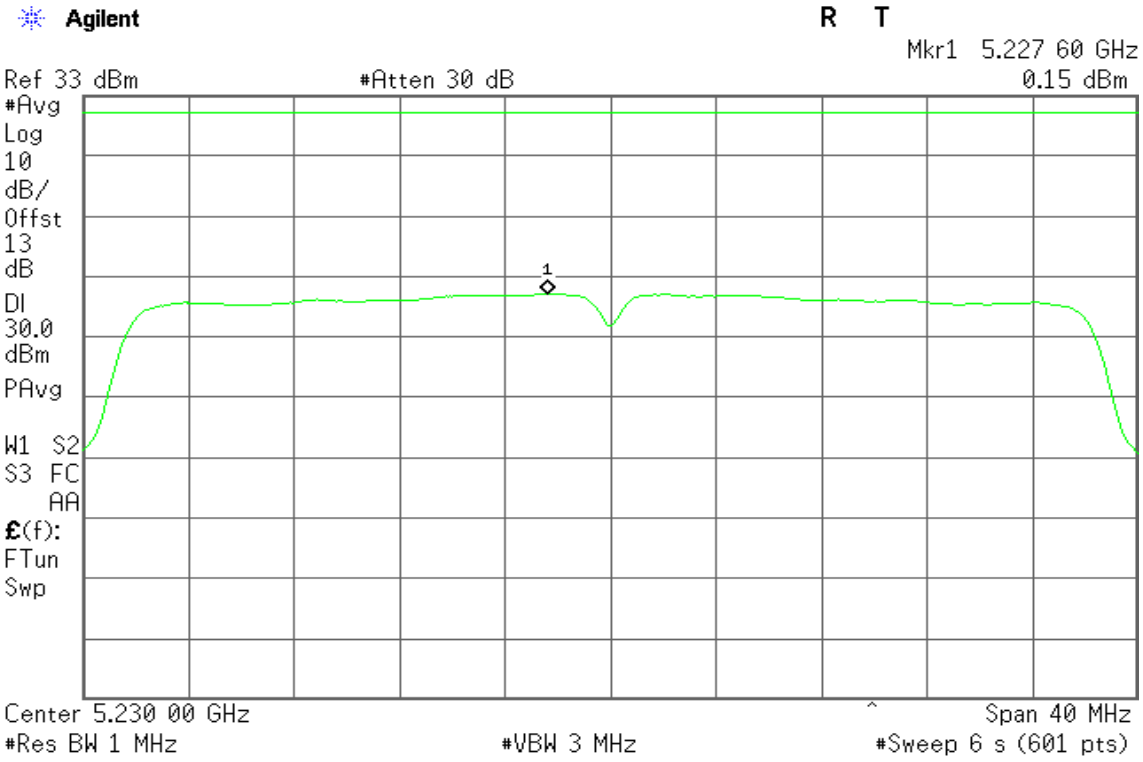


IEEE 802.11n HT 40 mode / 5190 ~ 5230MHz / Chain 1

CH Low

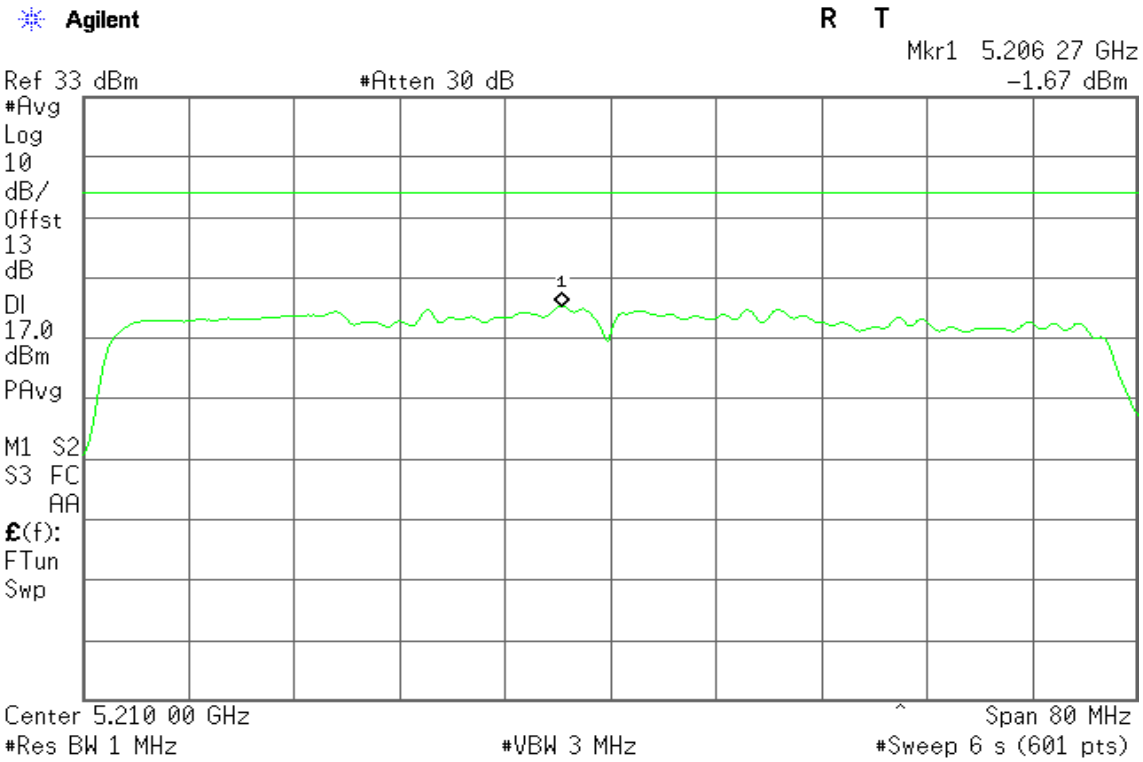


CH High



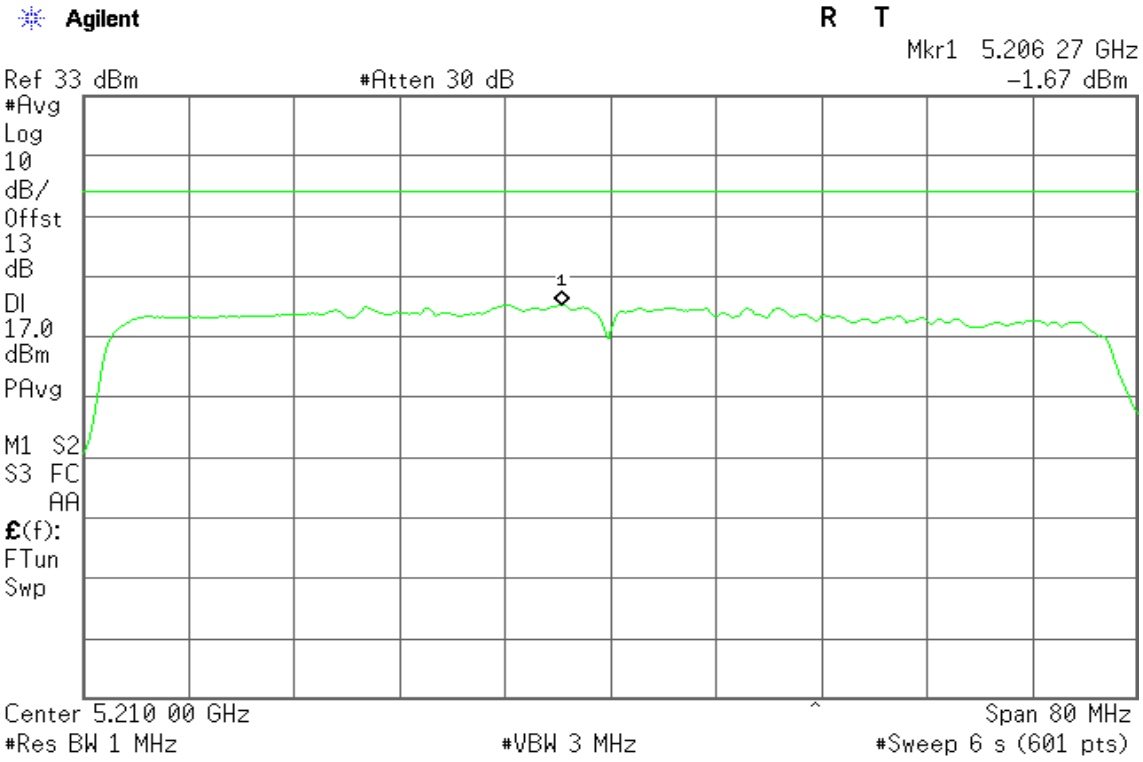
IEEE 802.11ac VHT80 Mode / 5210MHz / Chain 0

CH Mid



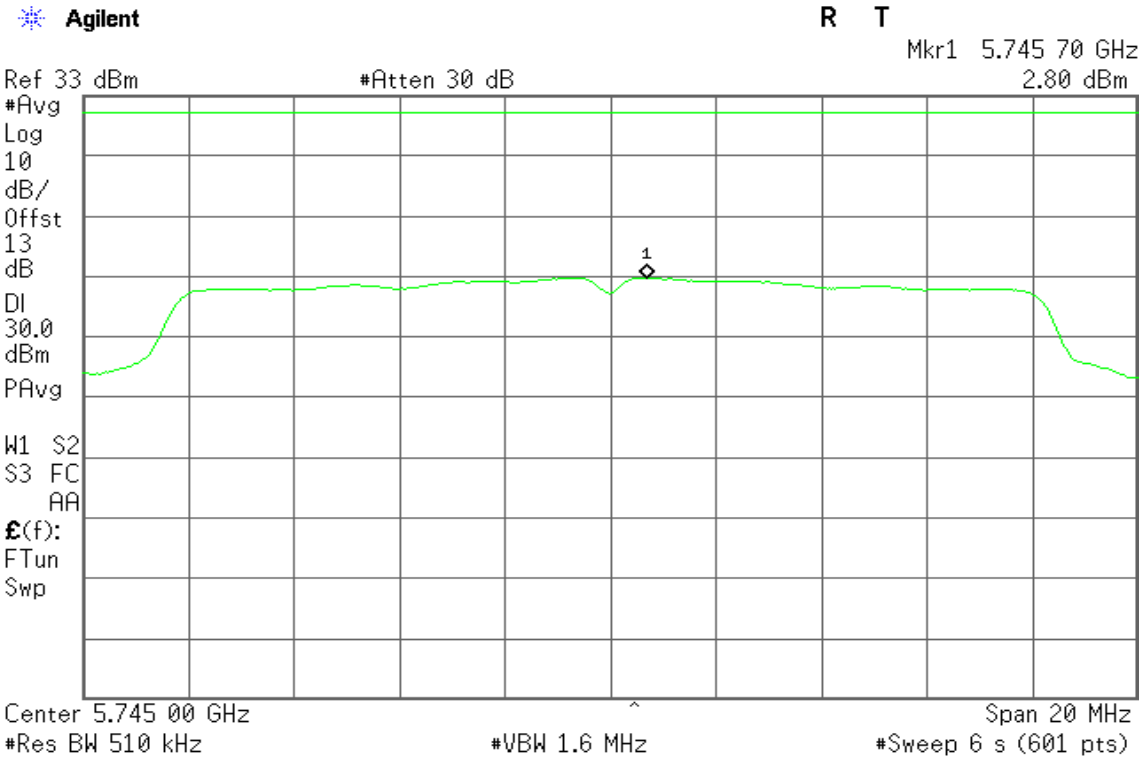
IEEE 802.11ac VHT80 Mode / 5210MHz / Chain 1

CH Mid

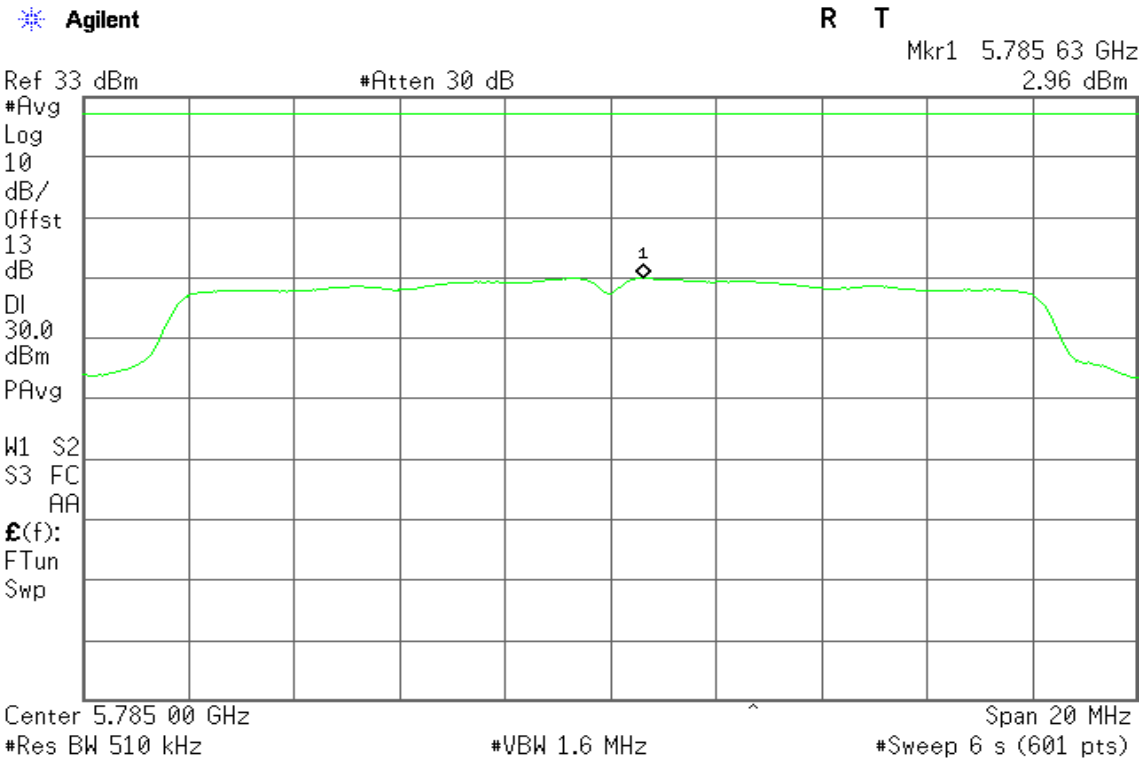


IEEE 802.11a mode / 5745 ~ 5825MHz / Chain 0

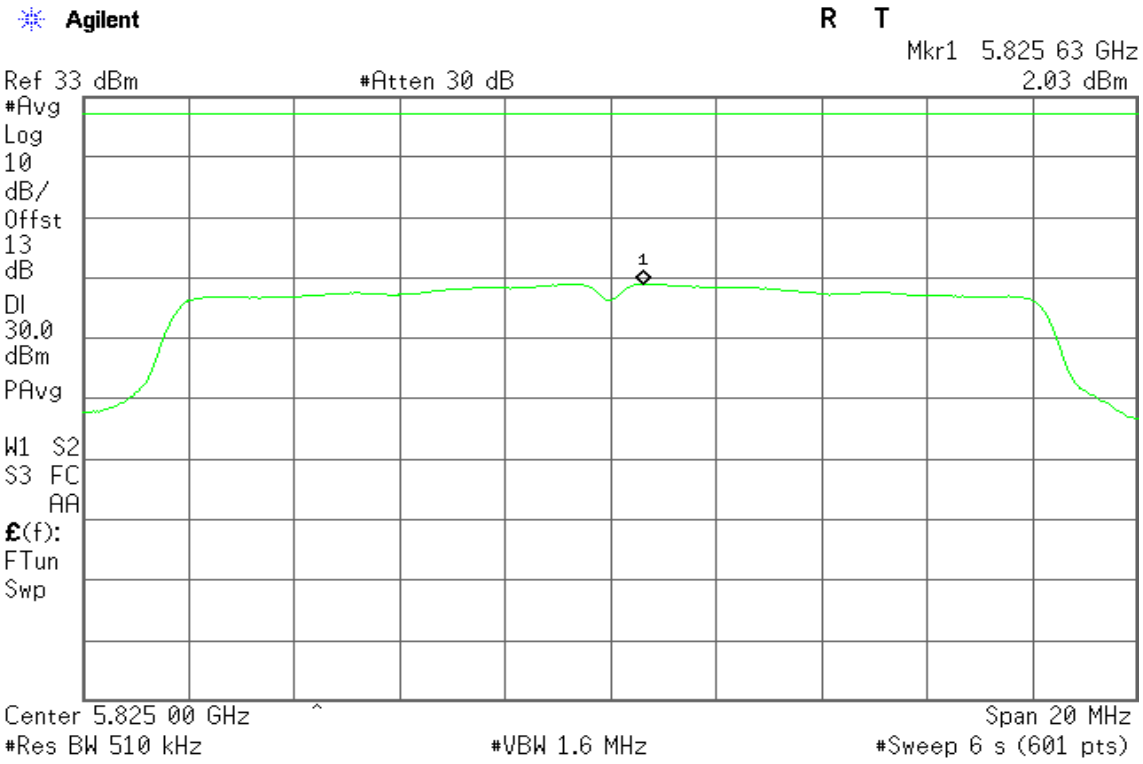
CH Low



CH Mid

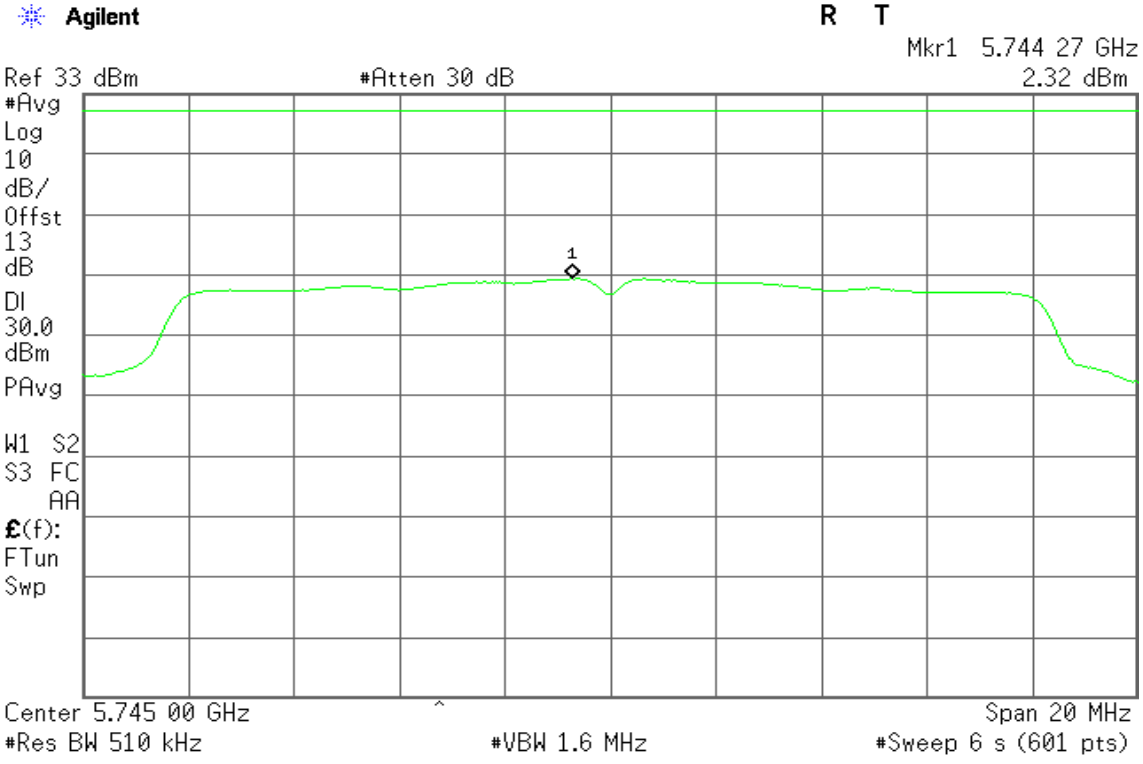


CH High

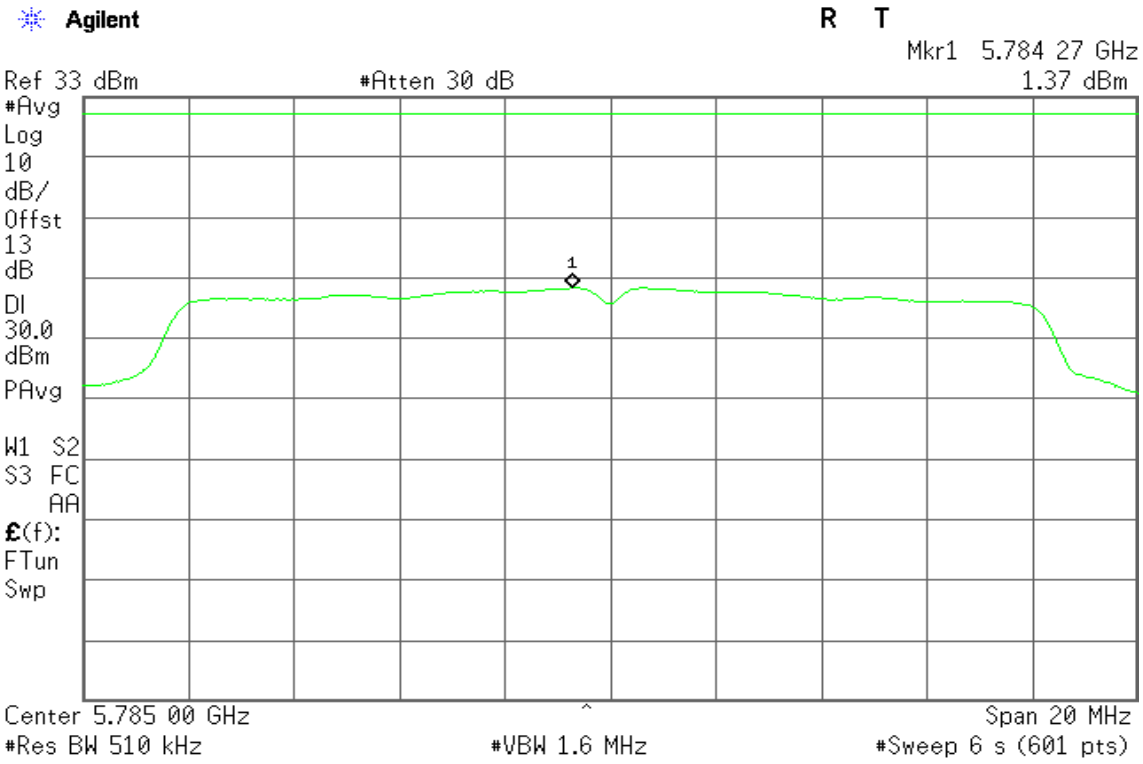


IEEE 802.11a mode / 5745 ~ 5825MHz / Chain 1

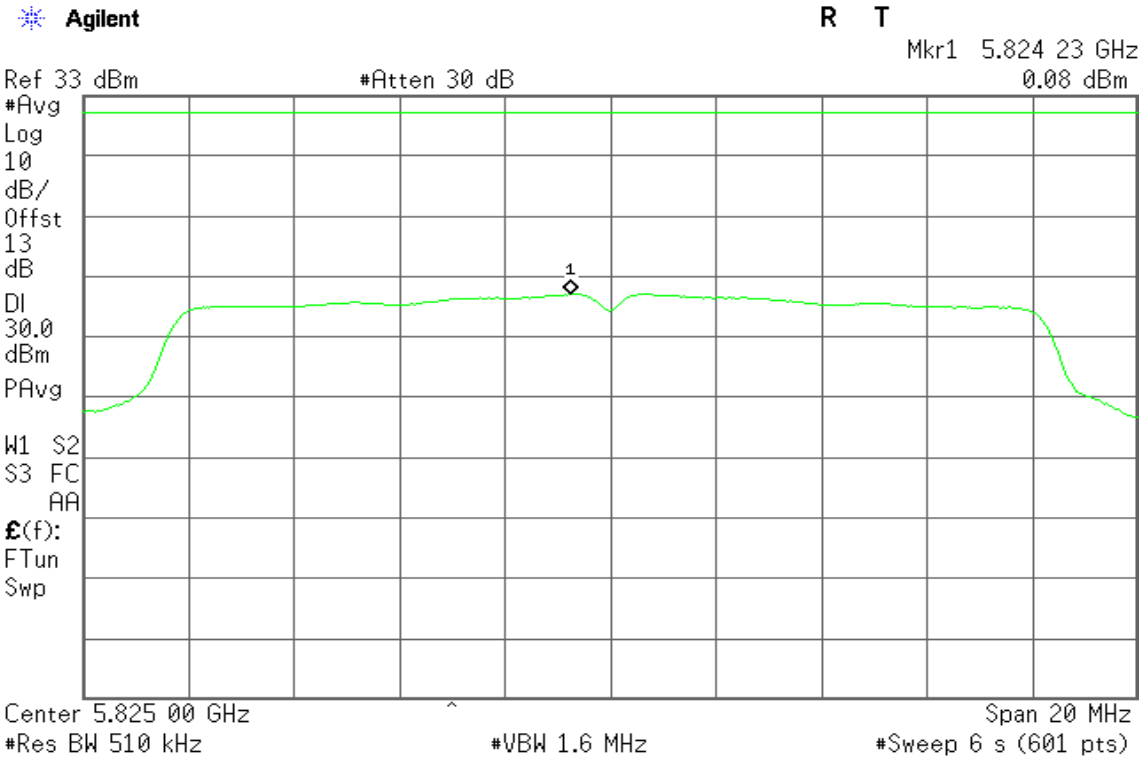
CH Low



CH Mid

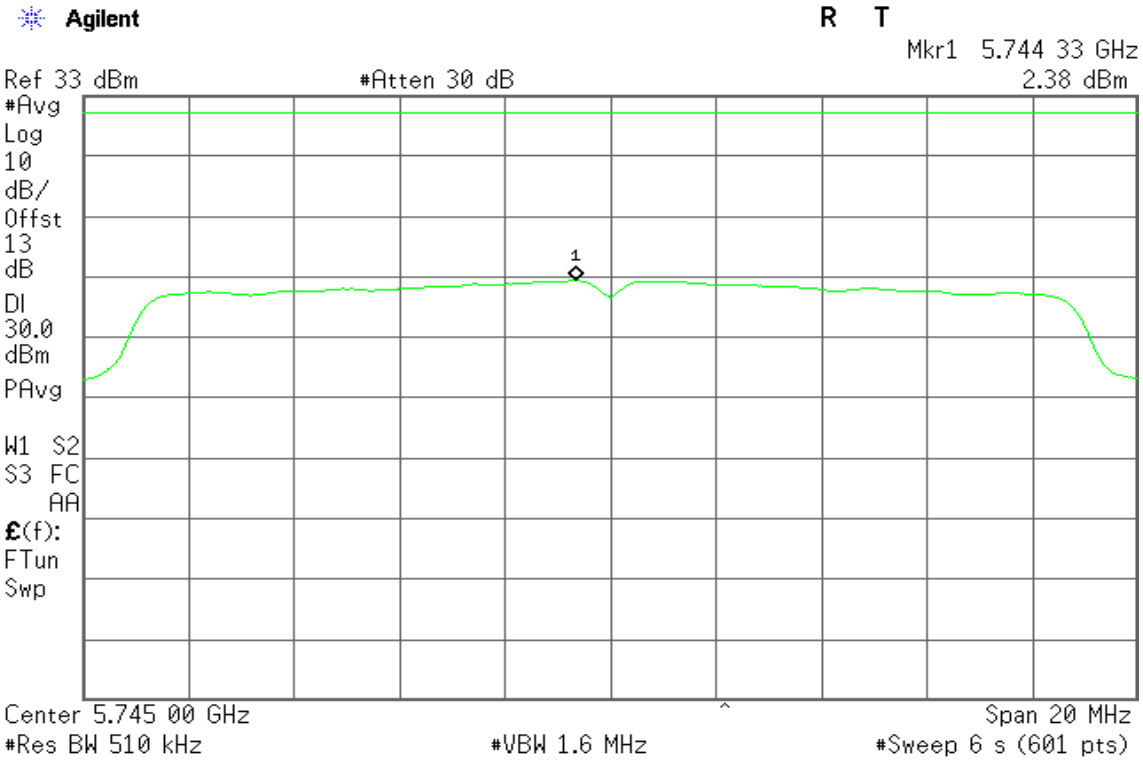


CH High

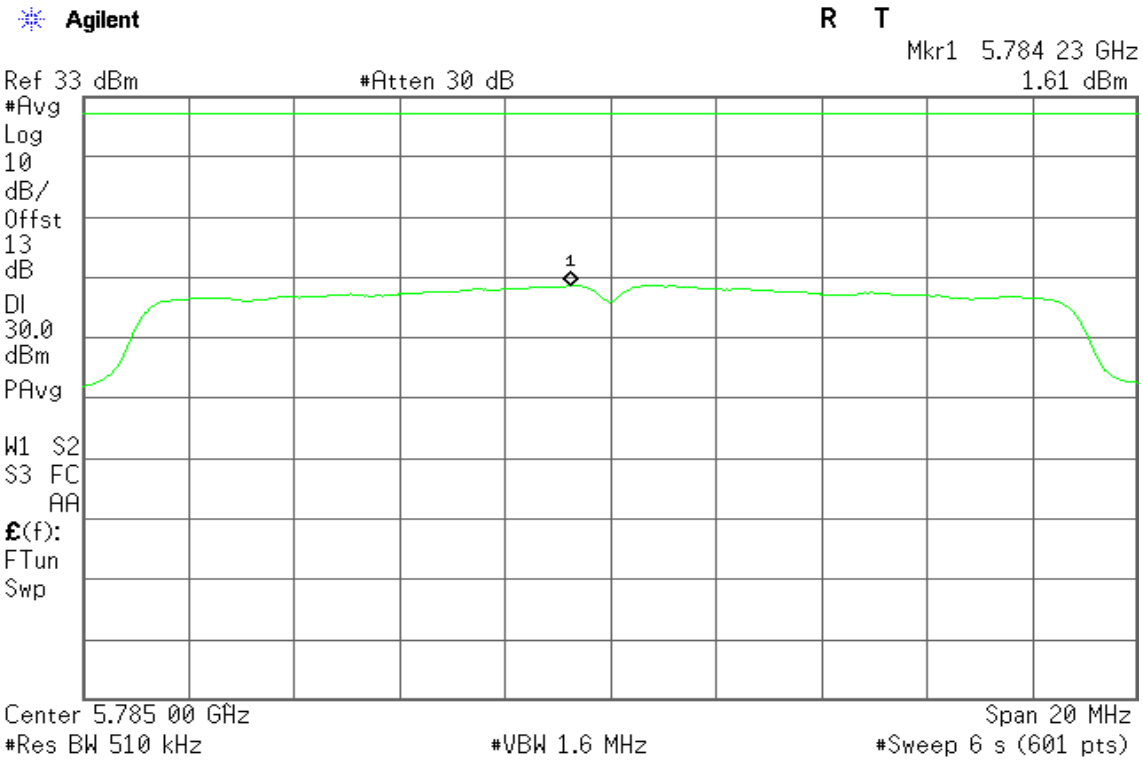


IEEE 802.11n HT 20 mode / 5745 ~ 5825MHz / Chain 0

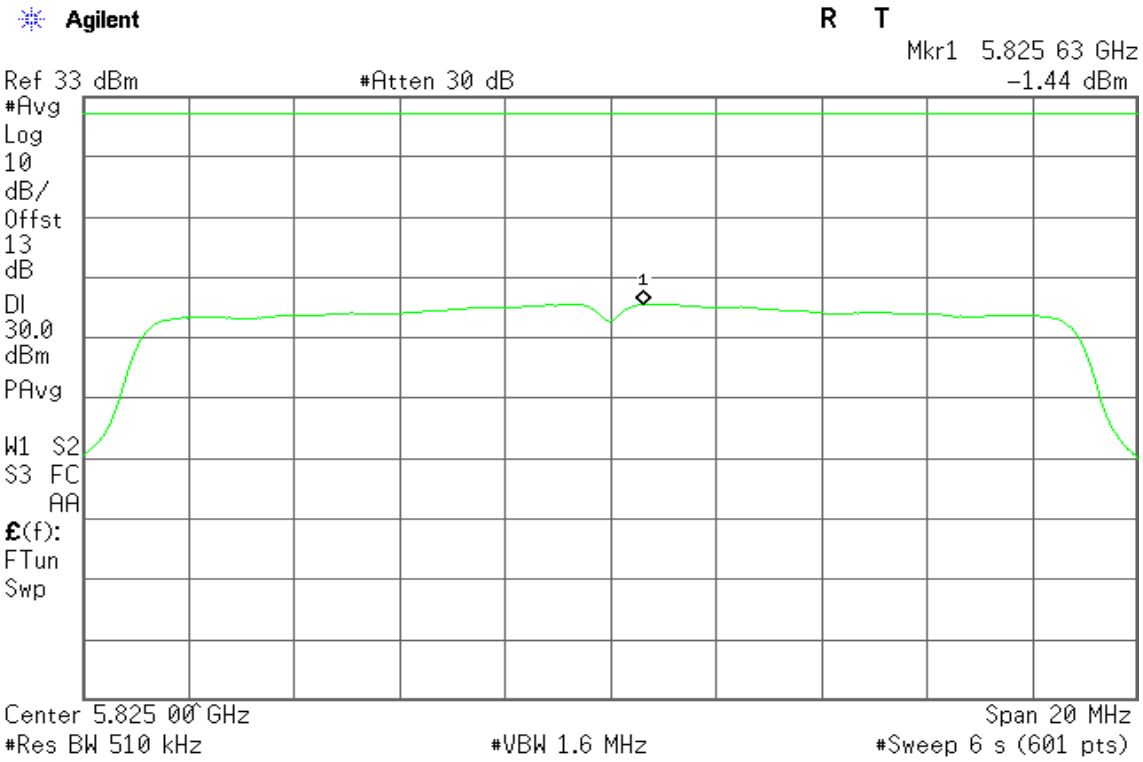
CH Low



CH Mid

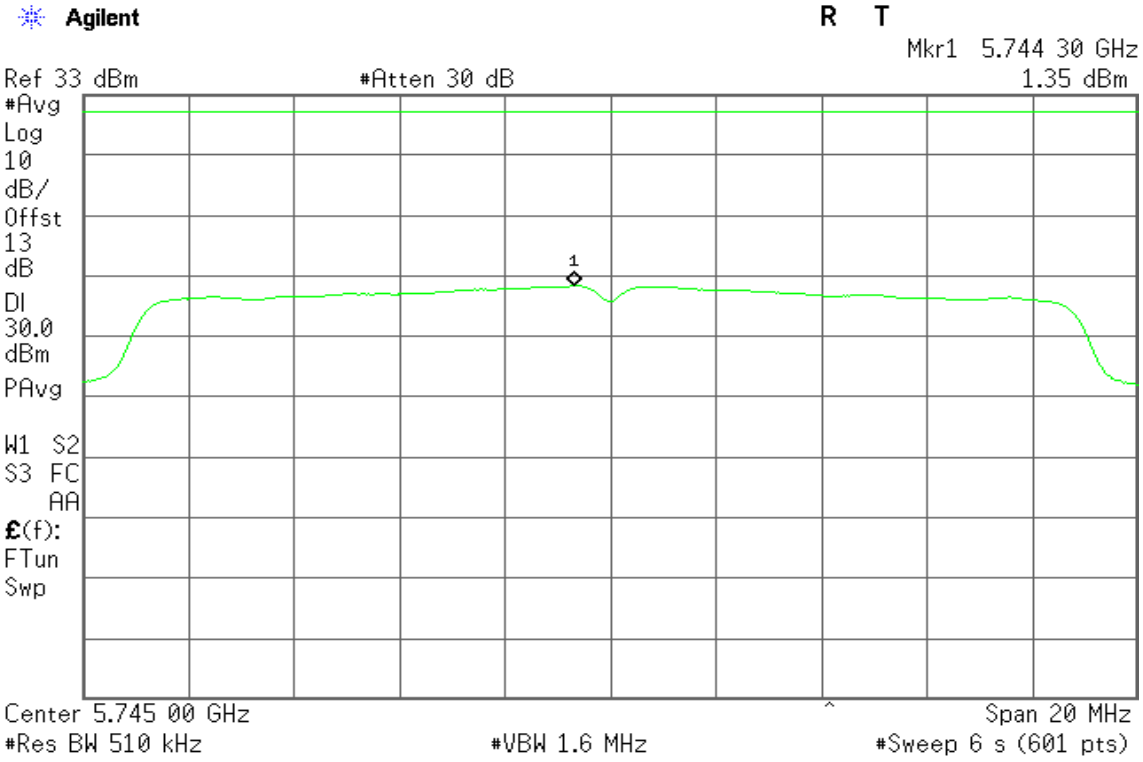


CH High

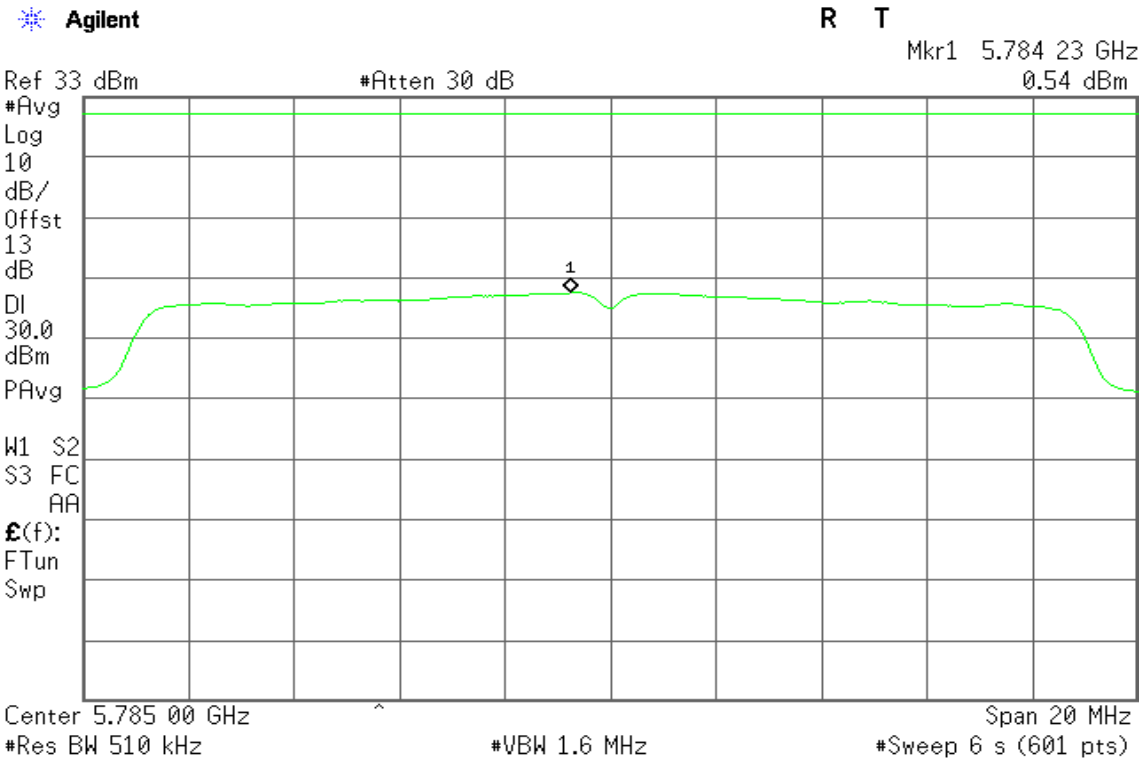


IEEE 802.11n HT 20 mode / 5745 ~ 5825MHz / Chain 1

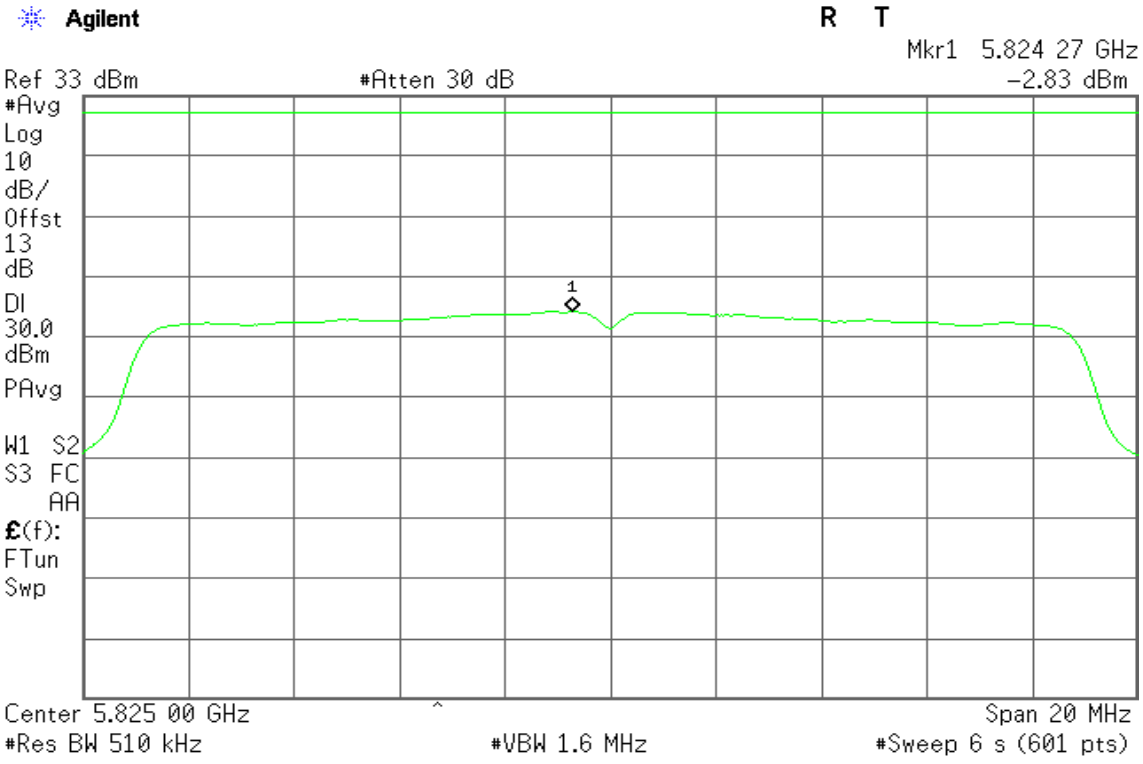
CH Low



CH Mid

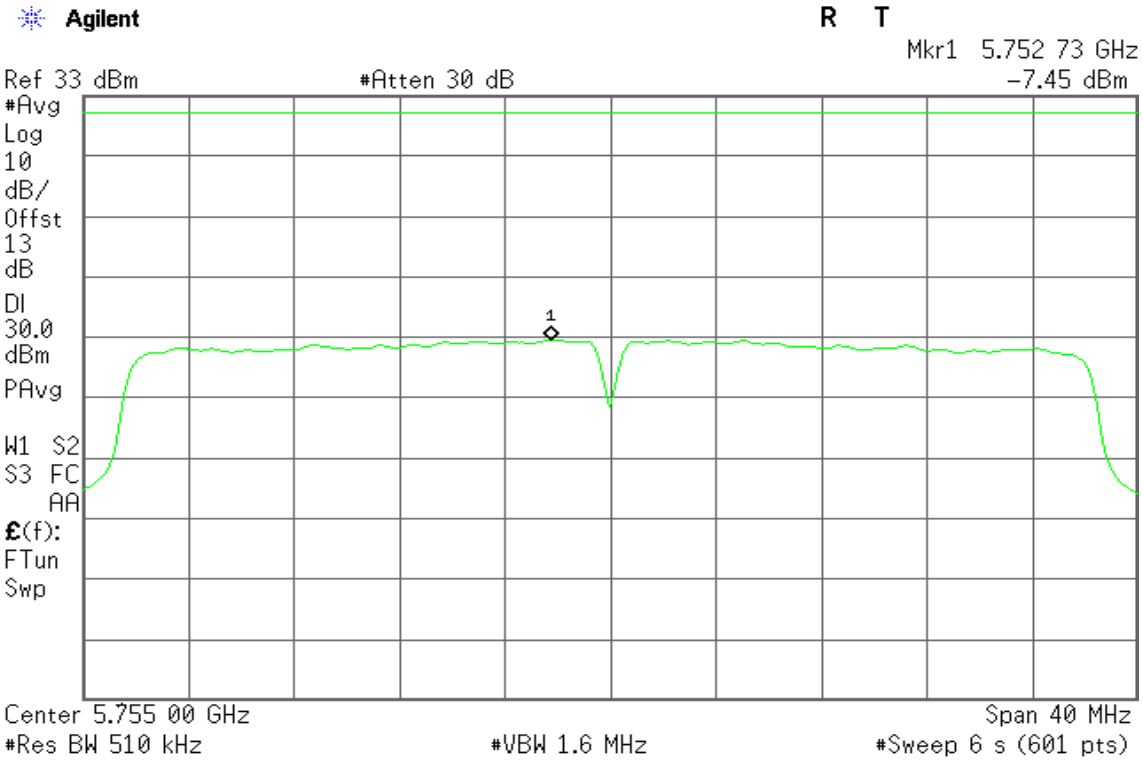


CH High

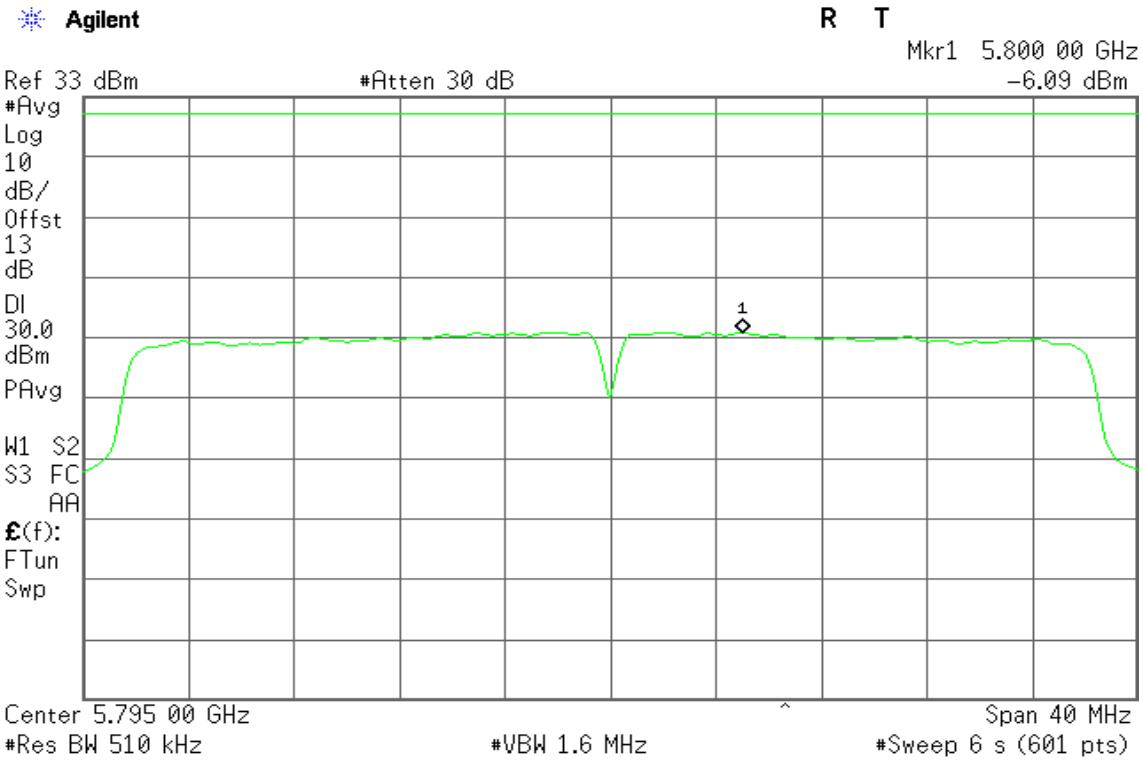


IEEE 802.11n HT 40 mode / 5755 ~ 5795MHz / Chain 0

CH Low

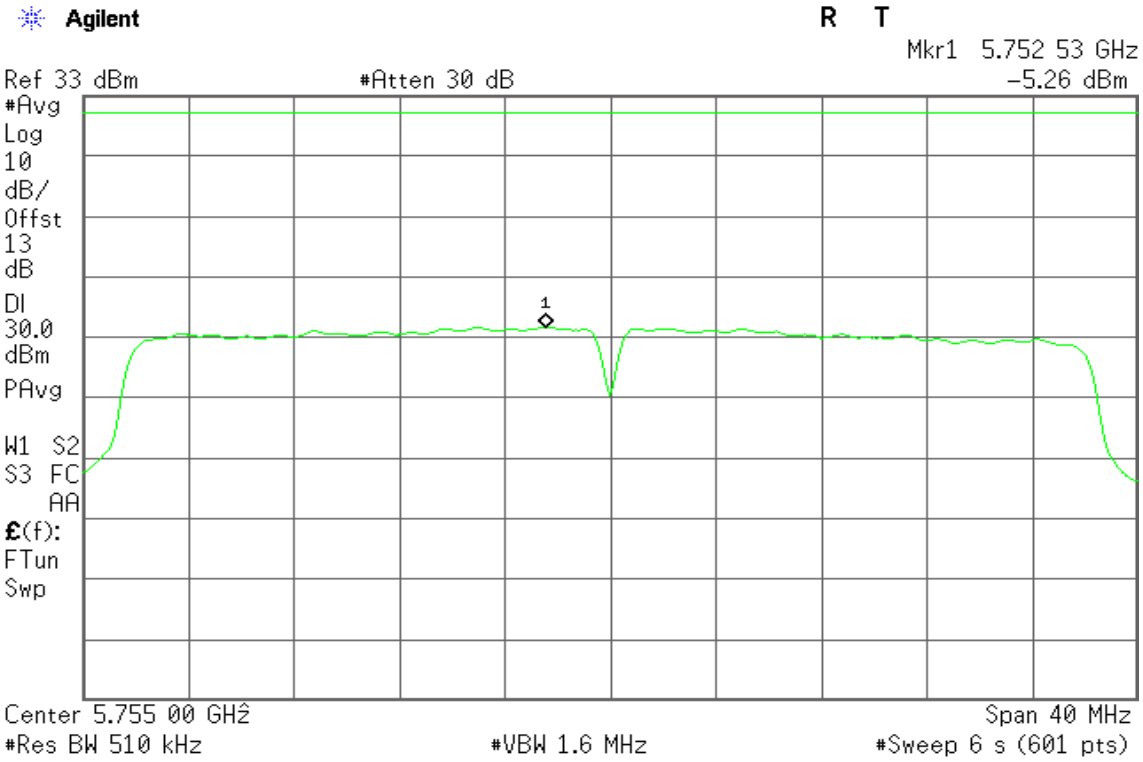


CH High

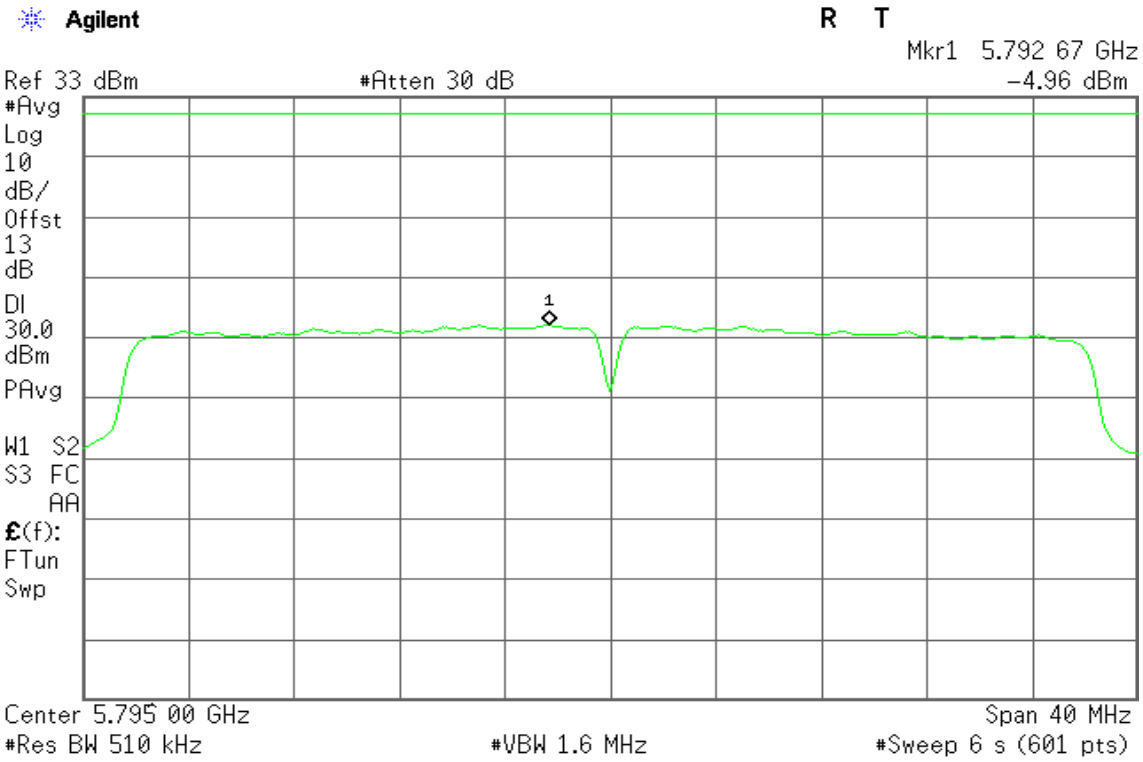


IEEE 802.11n HT 40 mode / 5755 ~ 5795MHz / Chain 1

CH Low

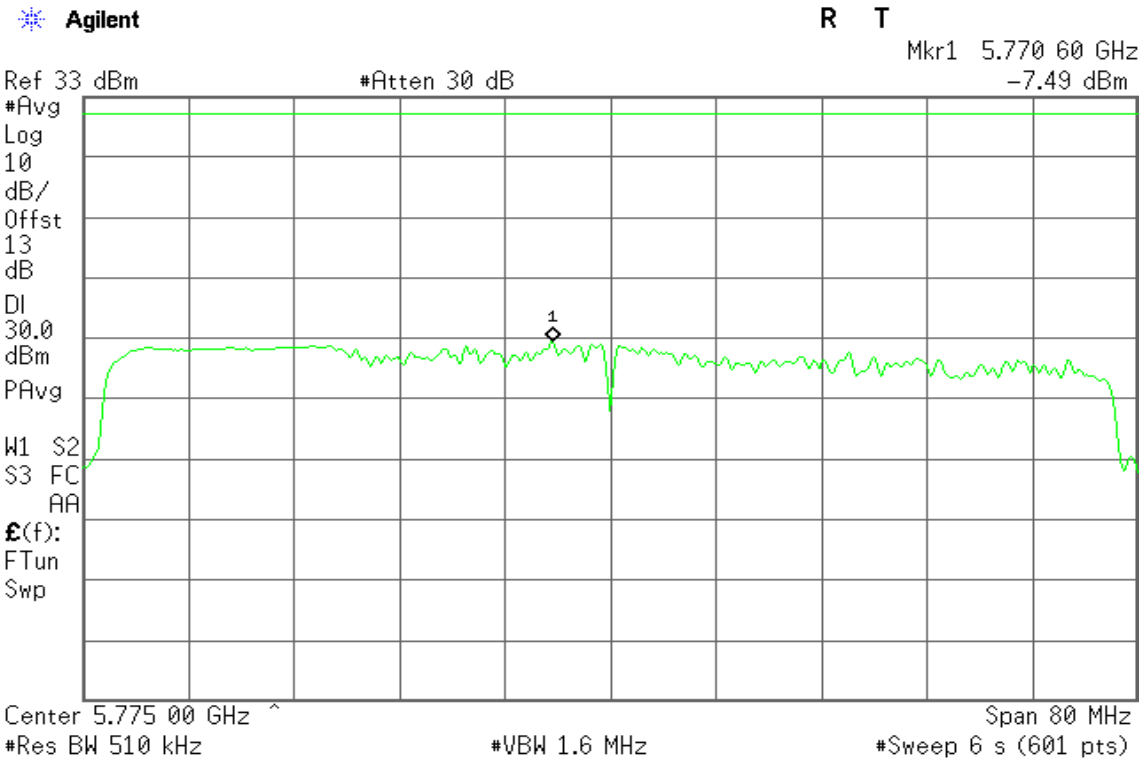


CH High



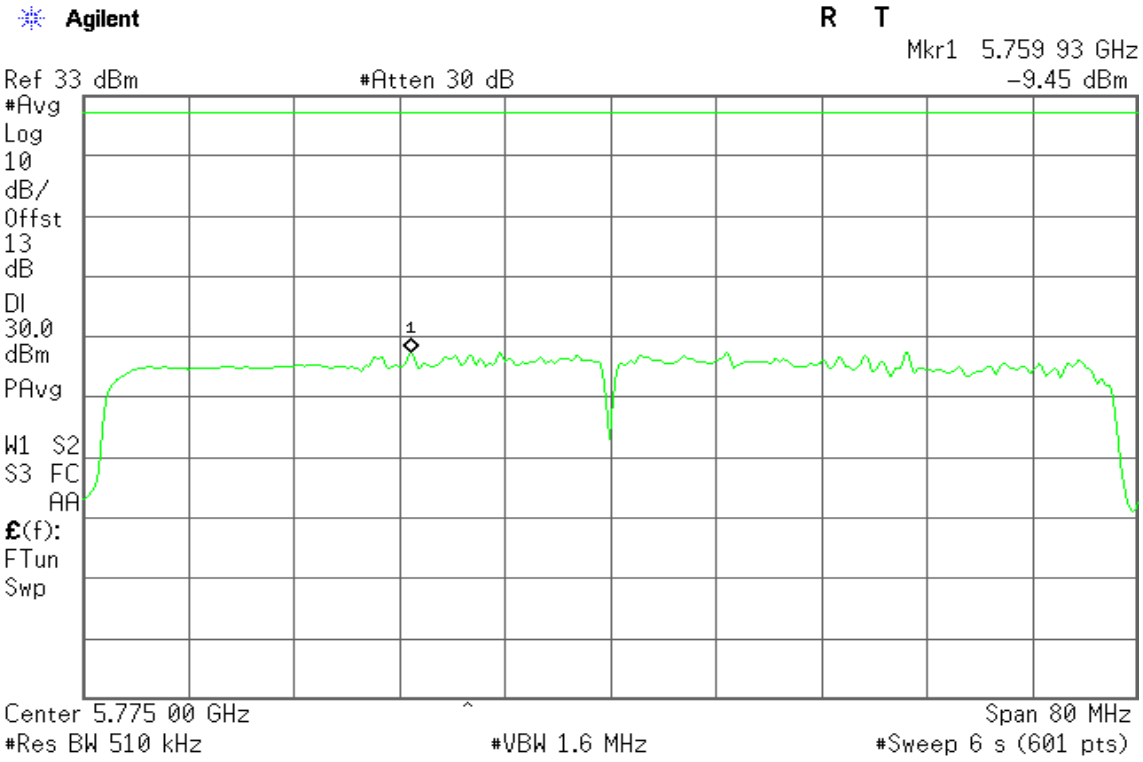
IEEE 802.11ac VHT80 Mode / 5775MHz / Chain 0

CH Mid



IEEE 802.11ac VHT80 Mode / 5775MHz / Chain 1

CH Mid



7.6 RADIATED UNDESIRABLE EMISSION

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

Frequency (MHz)	Field Strength (μV/m)	Measurement Distance (m)
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

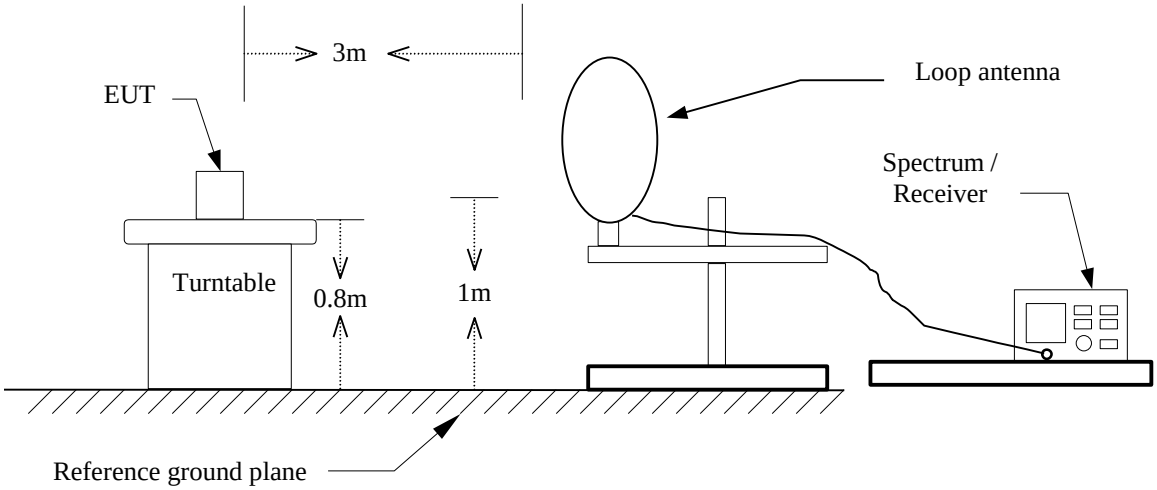
Remark: *Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this Section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permitted under other sections of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

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

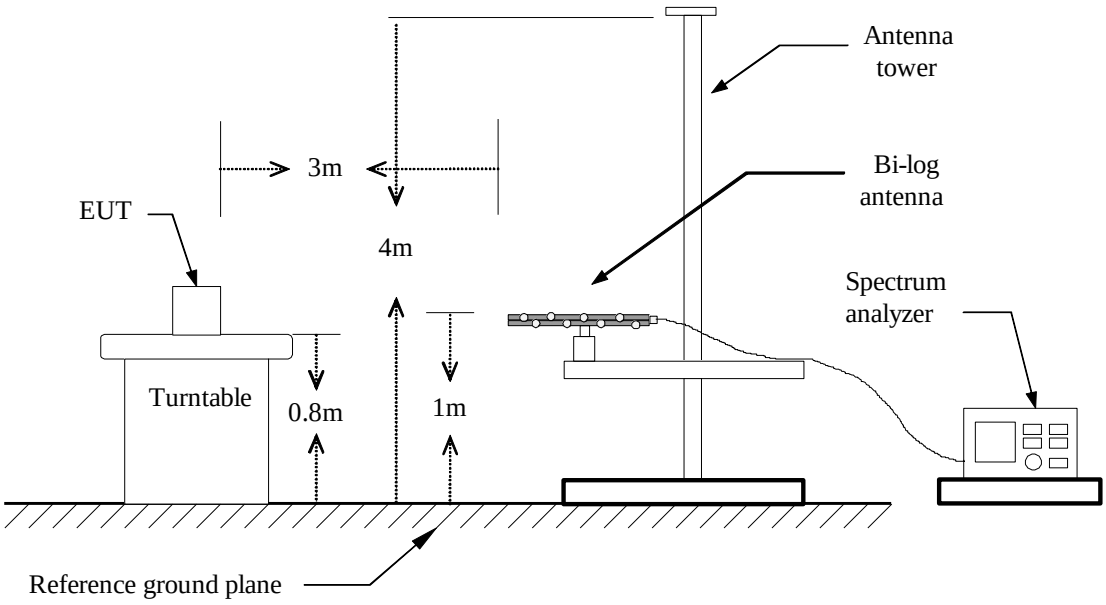
Frequency (MHz)	Field Strength (μV/m at 3-meter)	Field Strength (dBμV/m at 3-meter)
0.009 - 0.490	2400/F(kHz) +80	20LOG((2400/F(kHz))+80)
0.490 - 1.705	24000/F(kHz) +40	20LOG((24000/F(kHz))+40)
1.705 – 30.0	30	69.54
30-88	100	40
88-216	150	43.5
216-960	200	46
Above 960	500	54

Test Configuration

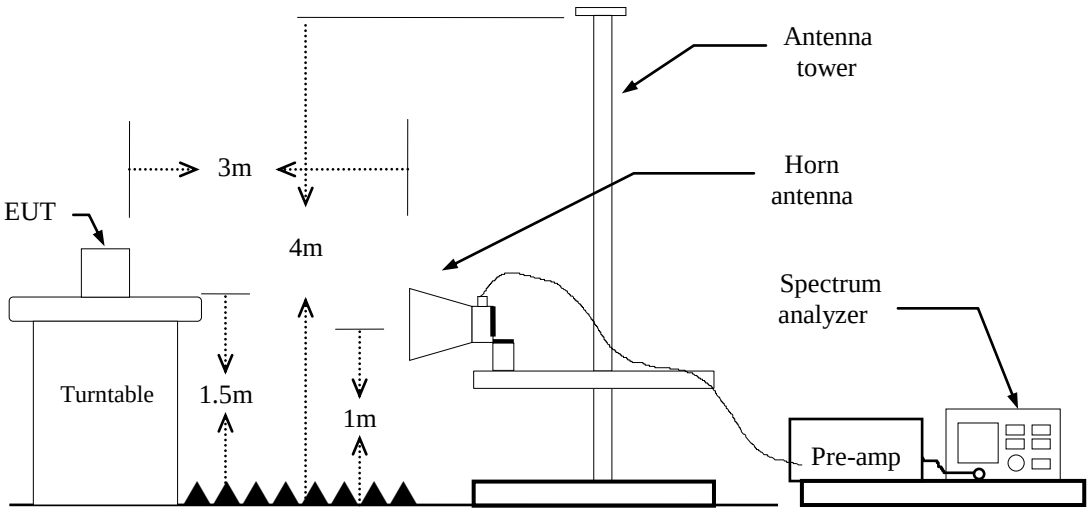
9kHz ~ 30MHz



30MHz ~ 1GHz



Above 1 GHz


Antenna
tower
Horn
antenna
Spectrum
analyzer
3m
EUT
4m
Turntable
1.5m
1m
Pre-amp

TEST PROCEDURE

1. The EUT is placed on a turntable, Above 1 GHz is 1.5m high and below 1 GHz is 0.8m high 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=1MHz / VBW=3MHz / Sweep=AUTO
   (b) AVERAGE: RBW=1MHz,
   if duty cycle≧98%, VBW=10Hz.
   if duty cycle<98% VBW=1/T.
   IEEE 802.11a mode: = 88%, VBW=680Hz
   IEEE 802.11n HT 20 MHz mode: = 78%, VBW=1.5KHz
   IEEE 802.11n HT 40 MHz mode: = 65%, VBW=3KHz
   IEEE 802.11ac VHT 80 MHz mode: = 26%, VBW=15KHz
7. Repeat above procedures until the measurements for all frequencies are complete.

TEST RESULTS

Below 1 GHz

Operation Mode: Normal Link **Test Date:** August 18, 2015

Temperature: 27°C **Tested by:** Jason Lu

Humidity: 53% RH **Polarity:** Ver. / Hor.

Frequency (MHz)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Limit 3m (dBuV/m)	Margin (dB)	Detector Mode (PK/QP)	Ant.Pol. (H/V)
232.7300	46.57	-16.67	29.90	46.00	-16.10	Peak	V
390.8400	41.01	-11.92	29.09	46.00	-16.91	Peak	V
499.4800	40.14	-9.25	30.89	46.00	-15.11	Peak	V
624.6100	38.01	-7.17	30.84	46.00	-15.16	Peak	V
763.3200	34.27	-4.81	29.46	46.00	-16.54	Peak	V
846.7400	34.02	-3.83	30.19	46.00	-15.81	Peak	V
177.4400	53.33	-17.21	36.12	43.50	-7.38	Peak	H
299.6600	50.30	-14.25	36.05	46.00	-9.95	Peak	H
412.1800	44.23	-11.33	32.90	46.00	-13.10	Peak	H
624.6100	39.08	-7.17	31.91	46.00	-14.09	Peak	H
755.5600	38.86	-4.87	33.99	46.00	-12.01	Peak	H
846.7400	34.57	-3.83	30.74	46.00	-15.26	Peak	H

Remark:

1. *Measuring frequencies from 30 MHz to the 1GHz.*
2. *Radiated emissions measured in frequency range from 30 MHz to 1000MHz were made with an instrument using peak/quasi-peak detector mode.*
3. *Quasi-peak test would be performed if the peak result were greater than the quasi-peak limit or as required by the applicant.*
4. *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.*
5. *Margin (dB) = Remark result (dBuV/m) – Quasi-peak limit (dBuV/m).*

Above 1 GHz

Operation Mode: Tx / IEEE 802.11a mode / 5180 ~ 5240MHz / CH Low

Test Date: August 23, 2015

Temperature: 27°C

Tested by: Jason Lu

Humidity: 53% RH

Polarity: Ver. / Hor.

Frequency (MHz)	Reading (dBuV)	Correction (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Ant.Pol. (H/V)
3233.000	52.23	-1.55	50.68	74.00	-23.32	peak	V
N/A							
3345.000	51.81	-1.28	50.53	74.00	-23.47	peak	H
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 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.*
6. *Margin (dB) = Remark result (dBuV/m) – Average limit (dBuV/m).*

Operation Mode:	Tx / IEEE 802.11a mode / 5180 ~ 5240MHz / CH Mid	**Test Date:**	August 23, 2015
Temperature:	27°C	**Tested by:**	Jason Lu
Humidity:	53% RH	**Polarity:**	Ver. / Hor.

Frequency (MHz)	Reading (dBuV)	Correction (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Ant.Pol. (H/V)
3331.000	50.48	-1.32	49.16	74.00	-24.84	peak	V
N/A							
3415.000	50.23	-1.11	49.12	74.00	-24.88	peak	H
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 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.*
6. *Margin (dB) = Remark result (dBuV/m) – Average limit (dBuV/m).*

Operation Mode:	Tx / IEEE 802.11a mode / 5180 ~ 5240MHz / CH High	**Test Date:**	August 23, 2015
Temperature:	27°C	**Tested by:**	Jason Lu
Humidity:	53% RH	**Polarity:**	Ver. / Hor.

Frequency (MHz)	Reading (dBuV)	Correction (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Ant.Pol. (H/V)
3219.000	50.59	-1.58	49.01	74.00	-24.99	peak	V
N/A							
3373.000	50.64	-1.21	49.43	74.00	-24.57	peak	H
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 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.*
6. *Margin (dB) = Remark result (dBuV/m) – Average limit (dBuV/m).*

Operation Mode:	Tx / IEEE 802.11n HT 20 mode / 5180 ~ 5240MHz / CH Low	**Test Date:**	August 23, 2015
Temperature:	27°C	**Tested by:**	Jason Lu
Humidity:	53% RH	**Polarity:**	Ver. / Hor.

Frequency (MHz)	Reading (dBuV)	Correction (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Ant.Pol. (H/V)
3289.000	52.01	-1.42	50.59	74.00	-23.41	peak	V
N/A							
3310.000	51.97	-1.37	50.60	74.00	-23.40	peak	H
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 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.*
6. *Margin (dB) = Remark result (dBuV/m) – Average limit (dBuV/m).*

Operation Mode:	Tx / IEEE 802.11n HT 20 mode / 5180 ~ 5240MHz / CH Mid	**Test Date:**	August 23, 2015
Temperature:	27°C	**Tested by:**	Jason Lu
Humidity:	53% RH	**Polarity:**	Ver. / Hor.

Frequency (MHz)	Reading (dBuV)	Correction (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Ant.Pol. (H/V)
3121.000	52.20	-1.82	50.38	74.00	-23.62	peak	V
N/A							
3317.000	51.72	-1.35	50.37	74.00	-23.63	peak	H
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 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.*
6. *Margin (dB) = Remark result (dBuV/m) – Average limit (dBuV/m).*

Operation Mode:	Tx / IEEE 802.11n HT 20 mode / 5180 ~ 5240MHz / CH High	**Test Date:**	August 23, 2015
Temperature:	27°C	**Tested by:**	Jason Lu
Humidity:	53% RH	**Polarity:**	Ver. / Hor.

Frequency (MHz)	Reading (dBuV)	Correction (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Ant.Pol. (H/V)
3184.000	52.57	-1.67	50.90	74.00	-23.10	peak	V
N/A							
2435.000	52.99	-3.53	49.46	74.00	-24.54	peak	H
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 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.*
6. *Margin (dB) = Remark result (dBuV/m) – Average limit (dBuV/m).*

Operation Mode:	Tx / IEEE 802.11n HT 40 mode / 5190 ~ 5230MHz / CH Low	**Test Date:**	August 23, 2015
Temperature:	27°C	**Tested by:**	Jason Lu
Humidity:	53% RH	**Polarity:**	Ver. / Hor.

Frequency (MHz)	Reading (dBuV)	Correction (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Ant.Pol. (H/V)
3212.000	51.13	-1.60	49.53	74.00	-24.47	peak	V
N/A							
4101.000	49.37	1.61	50.98	74.00	-23.02	peak	H
N/A							
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 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.*
6. *Margin (dB) = Remark result (dBuV/m) – Average limit (dBuV/m).*

Operation Mode:	Tx / IEEE 802.11n HT 40 mode / 5190 ~ 5230MHz / CH High	**Test Date:**	August 23, 2015
Temperature:	27°C	**Tested by:**	Jason Lu
Humidity:	53% RH	**Polarity:**	Ver. / Hor.

Frequency (MHz)	Reading (dBuV)	Correction (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Ant.Pol. (H/V)
3373.000	51.34	-1.21	50.13	74.00	-23.87	peak	V
N/A							
3219.000	52.17	-1.58	50.59	74.00	-23.41	peak	H
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 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.*
6. *Margin (dB) = Remark result (dBuV/m) – Average limit (dBuV/m).*

Operation Mode:	Tx / IEEE 802.11ac VHT80 Mode / 5210MHz / CH Mid	**Test Date:**	August 23, 2015
Temperature:	27°C	**Tested by:**	Jason Lu
Humidity:	53% RH	**Polarity:**	Ver. / Hor.

Frequency (MHz)	Reading (dBuV)	Correction (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Ant.Pol. (H/V)
3135.000	53.16	-1.79	51.37	74.00	-22.63	peak	V
N/A							
3289.000	52.58	-1.42	51.16	74.00	-22.84	peak	H
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 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.*
6. *Margin (dB) = Remark result (dBuV/m) – Average limit (dBuV/m).*

Operation Mode:	Tx / IEEE 802.11a mode / 5745 ~ 5825MHz / CH Low	**Test Date:**	August 23, 2015
Temperature:	27°C	**Tested by:**	Jason Lu
Humidity:	53% RH	**Polarity:**	Ver. / Hor.

Frequency (MHz)	Reading (dBuV)	Correction (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Ant.Pol. (H/V)
3310.000	52.84	-1.37	51.47	74.00	-22.53	peak	V
N/A							
4101.000	49.43	1.61	51.04	74.00	-22.96	peak	H
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 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.*
6. *Margin (dB) = Remark result (dBuV/m) – Average limit (dBuV/m).*

Operation Mode:	Tx / IEEE 802.11a mode / 5745 ~ 5825MHz / CH Mid	**Test Date:**	August 23, 2015
Temperature:	27°C	**Tested by:**	Jason Lu
Humidity:	53% RH	**Polarity:**	Ver. / Hor.

Frequency (MHz)	Reading (dBuV)	Correction (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Ant.Pol. (H/V)
3345.000	51.80	-1.28	50.52	74.00	-23.48	peak	V
N/A							
3352.000	52.06	-1.27	50.79	74.00	-23.21	peak	H
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 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.*
6. *Margin (dB) = Remark result (dBuV/m) – Average limit (dBuV/m).*

Operation Mode:	Tx / IEEE 802.11a mode / 5745 ~ 5825MHz / CH High	**Test Date:**	August 23, 2015
Temperature:	27°C	**Tested by:**	Jason Lu
Humidity:	53% RH	**Polarity:**	Ver. / Hor.

Frequency (MHz)	Reading (dBuV)	Correction (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Ant.Pol. (H/V)
3051.000	51.61	-1.99	49.62	74.00	-24.38	peak	V
N/A							
3387.000	53.15	-1.18	51.97	74.00	-22.03	peak	H
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 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.*
6. *Margin (dB) = Remark result (dBuV/m) – Average limit (dBuV/m).*

Operation Mode:	Tx / IEEE 802.11n HT 20 mode / 5745 ~ 5825MHz / CH Low	**Test Date:**	August 23, 2015
Temperature:	27°C	**Tested by:**	Jason Lu
Humidity:	53% RH	**Polarity:**	Ver. / Hor.

Frequency (MHz)	Reading (dBuV)	Correction (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Ant.Pol. (H/V)
3310.000	52.95	-1.37	51.58	74.00	-22.42	peak	V
N/A							
4101.000	50.85	1.61	52.46	74.00	-21.54	peak	H
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 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.*
6. *Margin (dB) = Remark result (dBuV/m) – Average limit (dBuV/m).*

Operation Mode:	Tx / IEEE 802.11n HT 20 mode / 5745 ~ 5825MHz / CH Mid	**Test Date:**	August 23, 2015
Temperature:	27°C	**Tested by:**	Jason Lu
Humidity:	53% RH	**Polarity:**	Ver. / Hor.

Frequency (MHz)	Reading (dBuV)	Correction (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Ant.Pol. (H/V)
3352.000	52.29	-1.27	51.02	74.00	-22.98	peak	V
N/A							
3352.000	52.71	-1.27	51.44	74.00	-22.56	peak	H
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 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.*
6. *Margin (dB) = Remark result (dBuV/m) – Average limit (dBuV/m).*

Operation Mode:	Tx / IEEE 802.11n HT 20 mode / 5745 ~ 5825MHz / CH High	**Test Date:**	August 23, 2015
Temperature:	27°C	**Tested by:**	Jason Lu
Humidity:	53% RH	**Polarity:**	Ver. / Hor.

Frequency (MHz)	Reading (dBuV)	Correction (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Ant.Pol. (H/V)
3156.000	51.78	-1.74	50.04	74.00	-23.96	peak	V
N/A							
3149.000	52.82	-1.75	51.07	74.00	-22.93	peak	H
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 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.*
6. *Margin (dB) = Remark result (dBuV/m) – Average limit (dBuV/m).*

Operation Mode:	Tx / IEEE 802.11n HT 40 mode / 5755 ~ 5795MHz / CH Low	**Test Date:**	August 23, 2015
Temperature:	27°C	**Tested by:**	Jason Lu
Humidity:	53% RH	**Polarity:**	Ver. / Hor.

Frequency (MHz)	Reading (dBuV)	Correction (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Ant.Pol. (H/V)
3324.000	52.67	-1.33	51.34	74.00	-22.66	peak	V
N/A							
3310.000	52.02	-1.37	50.65	74.00	-23.35	peak	H
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 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.*
6. *Margin (dB) = Remark result (dBuV/m) – Average limit (dBuV/m).*

Operation Mode:	Tx / IEEE 802.11n HT 40 mode / 5755 ~ 5795MHz / CH High	**Test Date:**	August 23, 2015
Temperature:	27°C	**Tested by:**	Jason Lu
Humidity:	53% RH	**Polarity:**	Ver. / Hor.

Frequency (MHz)	Reading (dBuV)	Correction (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Ant.Pol. (H/V)
4031.000	50.37	1.35	51.72	74.00	-22.28	peak	V
N/A							
3226.000	51.95	-1.57	50.38	74.00	-23.62	peak	H
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 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.*
6. *Margin (dB) = Remark result (dBuV/m) – Average limit (dBuV/m).*

Operation Mode:	Tx / IEEE 802.11ac VHT80 Mode / 5775MHz / CH Mid	**Test Date:**	August 23, 2015
Temperature:	27°C	**Tested by:**	Jason Lu
Humidity:	53% RH	**Polarity:**	Ver. / Hor.

Frequency (MHz)	Reading (dBuV)	Correction (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Ant.Pol. (H/V)
3499.000	50.38	-0.91	49.47	74.00	-24.53	peak	V
N/A							
3338.000	53.22	-1.30	51.92	74.00	-22.08	peak	H
N/A							

Remark:

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

7.7 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

Operation Mode:	Normal Link	**Test Date:**	August 24, 2015
Temperature:	26°C	**Tested by:**	Sehni Hu
Humidity:	60% RH		

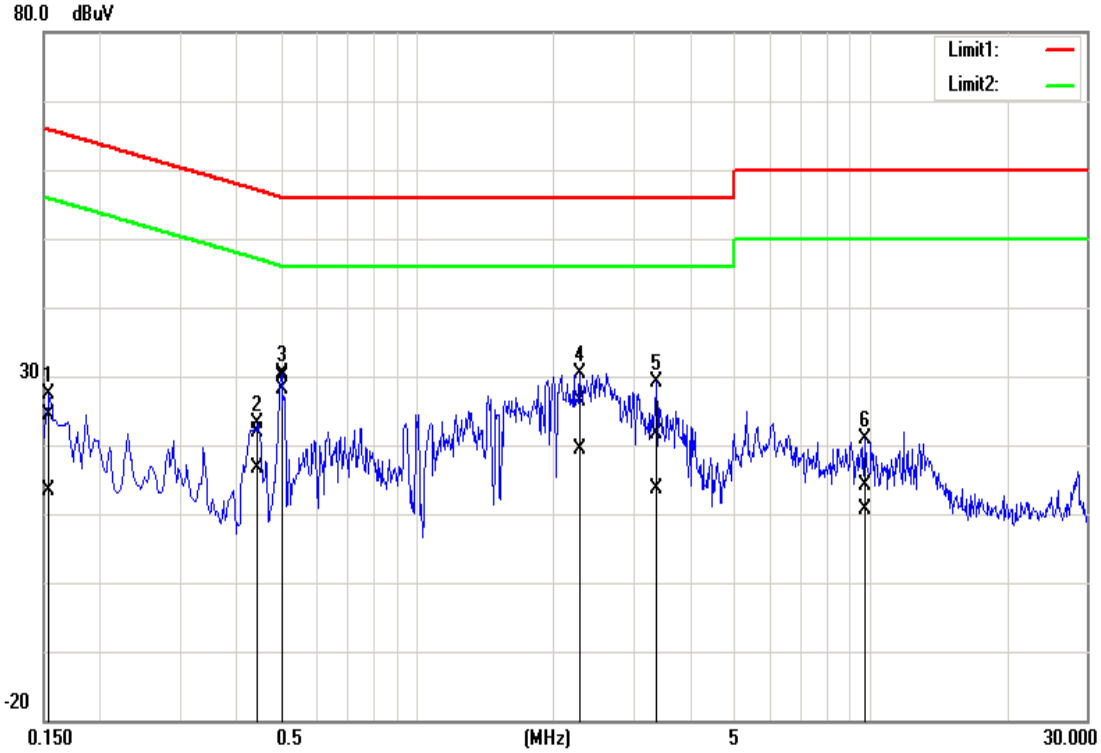
Freq. (MHz)	QP Reading (dBuV)	AV Reading (dBuV)	Corr. factor (dB/m)	QP Result (dBuV/m)	AV Result (dBuV/m)	QP Limit (dBuV)	AV Limit (dBuV)	QP Margin (dB)	AV Margin (dB)	Note
0.1540	24.13	13.26	0.19	24.32	13.45	65.78	55.78	-41.46	-42.33	L1
0.4460	21.58	16.42	0.20	21.78	16.62	56.95	46.95	-35.17	-30.33	L1
0.5020	29.74	27.92	0.20	29.94	28.12	56.00	46.00	-26.06	-17.88	L1
2.2860	26.22	19.14	0.15	26.37	19.29	56.00	46.00	-29.63	-26.71	L1
3.3740	21.41	13.43	0.18	21.59	13.61	56.00	46.00	-34.41	-32.39	L1
9.7500	13.61	10.04	0.50	14.11	10.54	60.00	50.00	-45.89	-39.46	L1
0.4380	23.36	17.03	0.19	23.55	17.22	57.10	47.10	-33.55	-29.88	L2
0.5020	27.09	25.78	0.19	27.28	25.97	56.00	46.00	-28.72	-20.03	L2
1.4980	24.93	18.13	0.16	25.09	18.29	56.00	46.00	-30.91	-27.71	L2
2.0100	28.15	21.00	0.12	28.27	21.12	56.00	46.00	-27.73	-24.88	L2
3.6700	22.96	13.26	0.16	23.12	13.42	56.00	46.00	-32.88	-32.58	L2
6.0260	18.60	10.09	0.24	18.84	10.33	60.00	50.00	-41.16	-39.67	L2

Remark:

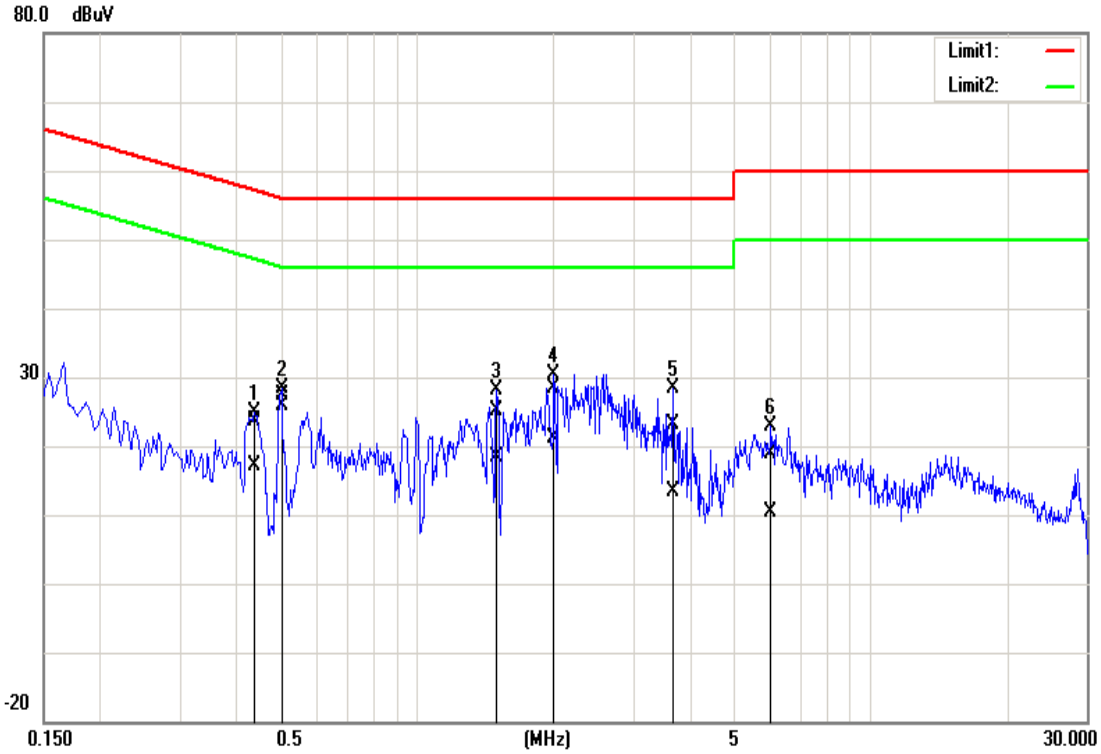
1. *Measuring frequencies from 0.15 MHz to 30MHz.*
2. *The emissions measured in frequency range from 0.15 MHz to 30MHz were made with an instrument using Quasi-peak detector and average detector.*
3. *The IF bandwidth of SPA between 0.15MHz to 30MHz was 10kHz; the IF bandwidth of Test Receiver between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

Test Plots

Conducted emissions (Line 1)



Conducted emissions (Line 2)

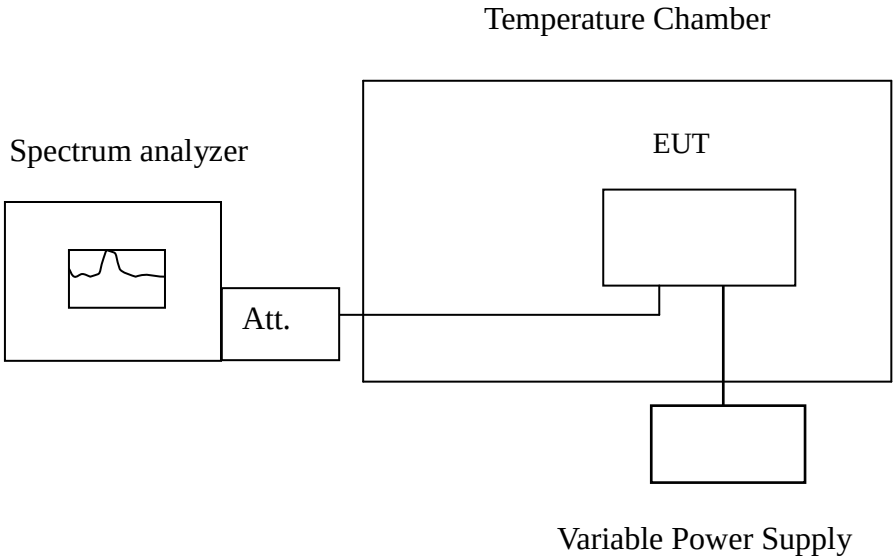


7.8 FREQUENCY STABILITY

LIMIT

According to §15.407(g), manufacturers of U-NII devices are responsible for ensuring frequency stability such that an emission is maintained within the band of operation under all conditions of normal operation as specified in the user's manual.

Test Configuration



Remark: *Measurement setup for testing on Antenna connector*

TEST PROCEDURE

The equipment under test was connected to an external AC or DC power supply and input rated voltage. RF output was connected to a frequency counter or spectrum analyzer via feed through attenuators. The EUT was placed inside the temperature chamber. Set the spectrum analyzer RBW low enough to obtain the desired frequency resolution and measure EUT 20°C operating frequency as reference frequency. Turn EUT off and set the chamber temperature to –20°C. After the temperature stabilized for approximately 30 minutes recorded the frequency. Repeat step measure with 10°C increased per stage until the highest temperature of +50°C reached.

TEST RESULTS

No non-compliance noted.

IEEE 802.11a mode / 5180 ~ 5240 MHz / Chain 0:

CH Low

Operating Frequency: 5180 MHz				
Environment Temperature (°C)	Voltage (V)	Measured Frequency (MHz)	Limit Range	Test Result
50	110	5180.003489	5150~5250	Pass
40	110	5180.004907	5150~5250	Pass
30	110	5179.992503	5150~5250	Pass
20	110	5180.002348	5150~5250	Pass
10	110	5180.009753	5150~5250	Pass
0	110	5180.001906	5150~5250	Pass
-10	110	5180.004107	5150~5250	Pass
-20	110	5180.002679	5150~5250	Pass

Operating Frequency: 5180 MHz				
Environment Temperature (°C)	Voltage (V)	Measured Frequency (MHz)	Limit Range	Test Result
20	93.5	5179.99457	5150~5250	Pass
	110	5180.004772	5150~5250	Pass
	126.5	5179.990363	5150~5250	Pass

CH Mid

Operating Frequency: 5220 MHz				
Environment Temperature (°C)	Voltage (V)	Measured Frequency (MHz)	Limit Range	Test Result
50	110	5219.994544	5150~5250	Pass
40	110	5219.991690	5150~5250	Pass
30	110	5219.997595	5150~5250	Pass
20	110	5219.991935	5150~5250	Pass
10	110	5220.006330	5150~5250	Pass
0	110	5220.001621	5150~5250	Pass
-10	110	5220.006372	5150~5250	Pass
-20	110	5219.998540	5150~5250	Pass

Operating Frequency: 5220 MHz				
Environment Temperature (°C)	Voltage (V)	Measured Frequency (MHz)	Limit Range	Test Result
20	93.5	5220.001915	5150~5250	Pass
	110	5220.010364	5150~5250	Pass
	126.5	5219.99259	5150~5250	Pass

CH High

Operating Frequency: 5240 MHz				
Environment Temperature (°C)	Voltage (V)	Measured Frequency (MHz)	Limit Range	Test Result
50	110	5239.996406	5150~5250	Pass
40	110	5240.006255	5150~5250	Pass
30	110	5239.999584	5150~5250	Pass
20	110	5239.998478	5150~5250	Pass
10	110	5239.993465	5150~5250	Pass
0	110	5239.993856	5150~5250	Pass
-10	110	5239.998710	5150~5250	Pass
-20	110	5240.000540	5150~5250	Pass

Operating Frequency: 5240 MHz				
Environment Temperature (°C)	Voltage (V)	Measured Frequency (MHz)	Limit Range	Test Result
20	93.5	5240.006408	5150~5250	Pass
	110	5240.007878	5150~5250	Pass
	126.5	5239.997513	5150~5250	Pass

IEEE 802.11a mode / 5180 ~ 5240 MHz / Chain 1:

CH Low

Operating Frequency: 5180 MHz				
Environment Temperature (°C)	Voltage (V)	Measured Frequency (MHz)	Limit Range	Test Result
50	110	5180.001717	5150~5250	Pass
40	110	5180.009774	5150~5250	Pass
30	110	5180.010145	5150~5250	Pass
20	110	5180.004177	5150~5250	Pass
10	110	5179.997492	5150~5250	Pass
0	110	5180.006999	5150~5250	Pass
-10	110	5180.007177	5150~5250	Pass
-20	110	5179.991654	5150~5250	Pass

Operating Frequency: 5180 MHz				
Environment Temperature (°C)	Voltage (V)	Measured Frequency (MHz)	Limit Range	Test Result
20	93.5	5180.010064	5150~5250	Pass
	110	5179.990865	5150~5250	Pass
	126.5	5180.007733	5150~5250	Pass

CH Mid

Operating Frequency: 5220 MHz				
Environment Temperature (°C)	Voltage (V)	Measured Frequency (MHz)	Limit Range	Test Result
50	110	5219.997935	5150~5250	Pass
40	110	5219.993054	5150~5250	Pass
30	110	5220.006278	5150~5250	Pass
20	110	5220.010230	5150~5250	Pass
10	110	5220.006714	5150~5250	Pass
0	110	5219.992722	5150~5250	Pass
-10	110	5219.996873	5150~5250	Pass
-20	110	5220.005511	5150~5250	Pass

Operating Frequency: 5220 MHz				
Environment Temperature (°C)	Voltage (V)	Measured Frequency (MHz)	Limit Range	Test Result
20	93.5	5220.006559	5150~5250	Pass
	110	5220.003271	5150~5250	Pass
	126.5	5219.991776	5150~5250	Pass

CH High

Operating Frequency: 5240 MHz				
Environment Temperature (°C)	Voltage (V)	Measured Frequency (MHz)	Limit Range	Test Result
50	110	5239.999699	5150~5250	Pass
40	110	5239.993216	5150~5250	Pass
30	110	5239.999801	5150~5250	Pass
20	110	5240.006242	5150~5250	Pass
10	110	5239.992718	5150~5250	Pass
0	110	5239.991174	5150~5250	Pass
-10	110	5240.005534	5150~5250	Pass
-20	110	5240.006467	5150~5250	Pass

Operating Frequency: 5240 MHz				
Environment Temperature (°C)	Voltage (V)	Measured Frequency (MHz)	Limit Range	Test Result
20	93.5	5240.002633	5150~5250	Pass
	110	5239.99842	5150~5250	Pass
	126.5	5240.006403	5150~5250	Pass

IEEE 802.11n HT 20 mode / 5180 ~ 5240 MHz / Chain 0:

CH Low

Operating Frequency: 5180 MHz				
Environment Temperature (°C)	Voltage (V)	Measured Frequency (MHz)	Limit Range	Test Result
50	110	5180.010827	5150~5250	Pass
40	110	5179.997534	5150~5250	Pass
30	110	5180.000221	5150~5250	Pass
20	110	5179.993276	5150~5250	Pass
10	110	5179.998019	5150~5250	Pass
0	110	5179.996962	5150~5250	Pass
-10	110	5180.005016	5150~5250	Pass
-20	110	5179.998401	5150~5250	Pass

Operating Frequency: 5180 MHz				
Environment Temperature (°C)	Voltage (V)	Measured Frequency (MHz)	Limit Range	Test Result
20	93.5	5180.008422	5150~5250	Pass
	110	5180.001184	5150~5250	Pass
	126.5	5179.995681	5150~5250	Pass

CH Mid

Operating Frequency: 5220 MHz				
Environment Temperature (°C)	Voltage (V)	Measured Frequency (MHz)	Limit Range	Test Result
50	110	5220.000956	5150~5250	Pass
40	110	5220.004338	5150~5250	Pass
30	110	5220.010679	5150~5250	Pass
20	110	5219.997152	5150~5250	Pass
10	110	5219.997642	5150~5250	Pass
0	110	5220.010515	5150~5250	Pass
-10	110	5219.992564	5150~5250	Pass
-20	110	5220.002722	5150~5250	Pass

Operating Frequency: 5220 MHz				
Environment Temperature (°C)	Voltage (V)	Measured Frequency (MHz)	Limit Range	Test Result
20	93.5	5219.993123	5150~5250	Pass
	110	5219.993183	5150~5250	Pass
	126.5	5219.992303	5150~5250	Pass

CH High

Operating Frequency: 5240 MHz				
Environment Temperature (°C)	Voltage (V)	Measured Frequency (MHz)	Limit Range	Test Result
50	110	5240.003176	5150~5250	Pass
40	110	5240.010766	5150~5250	Pass
30	110	5240.010056	5150~5250	Pass
20	110	5239.993307	5150~5250	Pass
10	110	5240.005178	5150~5250	Pass
0	110	5239.999065	5150~5250	Pass
-10	110	5239.993663	5150~5250	Pass
-20	110	5239.991566	5150~5250	Pass

Operating Frequency: 5240 MHz				
Environment Temperature (°C)	Voltage (V)	Measured Frequency (MHz)	Limit Range	Test Result
20	93.5	5240.010389	5150~5250	Pass
	110	5240.008902	5150~5250	Pass
	126.5	5239.991719	5150~5250	Pass

IEEE 802.11n HT 20 mode / 5180 ~ 5240 MHz / Chain 1:

CH Low

Operating Frequency: 5180 MHz				
Environment Temperature (°C)	Voltage (V)	Measured Frequency (MHz)	Limit Range	Test Result
50	110	5180.009702	5150~5250	Pass
40	110	5180.001183	5150~5250	Pass
30	110	5180.003054	5150~5250	Pass
20	110	5179.995656	5150~5250	Pass
10	110	5179.996918	5150~5250	Pass
0	110	5179.991436	5150~5250	Pass
-10	110	5179.994161	5150~5250	Pass
-20	110	5180.003116	5150~5250	Pass

Operating Frequency: 5180 MHz				
Environment Temperature (°C)	Voltage (V)	Measured Frequency (MHz)	Limit Range	Test Result
20	93.5	5180.001561	5150~5250	Pass
	110	5180.008711	5150~5250	Pass
	126.5	5180.002018	5150~5250	Pass

CH Mid

Operating Frequency: 5220 MHz				
Environment Temperature (°C)	Voltage (V)	Measured Frequency (MHz)	Limit Range	Test Result
50	110	5219.997698	5150~5250	Pass
40	110	5219.995106	5150~5250	Pass
30	110	5219.999898	5150~5250	Pass
20	110	5220.001670	5150~5250	Pass
10	110	5220.007602	5150~5250	Pass
0	110	5219.990030	5150~5250	Pass
-10	110	5219.991205	5150~5250	Pass
-20	110	5220.006461	5150~5250	Pass

Operating Frequency: 5220 MHz				
Environment Temperature (°C)	Voltage (V)	Measured Frequency (MHz)	Limit Range	Test Result
20	93.5	5219.992919	5150~5250	Pass
	110	5219.990611	5150~5250	Pass
	126.5	5220.008566	5150~5250	Pass

CH High

Operating Frequency: 5240 MHz				
Environment Temperature (°C)	Voltage (V)	Measured Frequency (MHz)	Limit Range	Test Result
50	110	5239.999389	5150~5250	Pass
40	110	5239.995396	5150~5250	Pass
30	110	5240.007918	5150~5250	Pass
20	110	5240.004249	5150~5250	Pass
10	110	5240.004065	5150~5250	Pass
0	110	5239.995903	5150~5250	Pass
-10	110	5240.000678	5150~5250	Pass
-20	110	5239.996178	5150~5250	Pass

Operating Frequency: 5240 MHz				
Environment Temperature (°C)	Voltage (V)	Measured Frequency (MHz)	Limit Range	Test Result
20	93.5	5240.005518	5150~5250	Pass
	110	5240.004114	5150~5250	Pass
	126.5	5239.998876	5150~5250	Pass

IEEE 802.11n HT 40 mode / 5190 ~ 5230 MHz / Chain 0:

CH Low

Operating Frequency: 5190 MHz				
Environment Temperature (°C)	Voltage (V)	Measured Frequency (MHz)	Limit Range	Test Result
50	110	5190.001977	5150~5250	Pass
40	110	5189.998001	5150~5250	Pass
30	110	5190.005219	5150~5250	Pass
20	110	5189.996805	5150~5250	Pass
10	110	5190.008457	5150~5250	Pass
0	110	5190.004491	5150~5250	Pass
-10	110	5190.007133	5150~5250	Pass
-20	110	5190.010505	5150~5250	Pass

Operating Frequency: 5190 MHz				
Environment Temperature (°C)	Voltage (V)	Measured Frequency (MHz)	Limit Range	Test Result
20	93.5	5190.000997	5150~5250	Pass
	110	5190.007447	5150~5250	Pass
	126.5	5189.995524	5150~5250	Pass

CH High

Operating Frequency: 5230 MHz				
Environment Temperature (°C)	Voltage (V)	Measured Frequency (MHz)	Limit Range	Test Result
50	110	5229.993735	5150~5250	Pass
40	110	5229.992330	5150~5250	Pass
30	110	5230.009813	5150~5250	Pass
20	110	5229.991978	5150~5250	Pass
10	110	5230.010423	5150~5250	Pass
0	110	5229.990187	5150~5250	Pass
-10	110	5230.006318	5150~5250	Pass
-20	110	5230.006129	5150~5250	Pass

Operating Frequency: 5230 MHz				
Environment Temperature (°C)	Voltage (V)	Measured Frequency (MHz)	Limit Range	Test Result
20	93.5	5229.990444	5150~5250	Pass
	110	5230.009959	5150~5250	Pass
	126.5	5229.99979	5150~5250	Pass

IEEE 802.11n HT 40 mode / 5190 ~ 5230 MHz / Chain 1:

CH Low

Operating Frequency: 5190 MHz				
Environment Temperature (°C)	Voltage (V)	Measured Frequency (MHz)	Limit Range	Test Result
50	110	5190.005408	5150~5250	Pass
40	110	5189.998113	5150~5250	Pass
30	110	5189.995784	5150~5250	Pass
20	110	5189.992691	5150~5250	Pass
10	110	5190.000151	5150~5250	Pass
0	110	5190.003264	5150~5250	Pass
-10	110	5189.990836	5150~5250	Pass
-20	110	5189.992809	5150~5250	Pass

Operating Frequency: 5190 MHz				
Environment Temperature (°C)	Voltage (V)	Measured Frequency (MHz)	Limit Range	Test Result
20	93.5	5189.995848	5150~5250	Pass
	110	5190.000122	5150~5250	Pass
	126.5	5189.99657	5150~5250	Pass

CH High

Operating Frequency: 5230 MHz				
Environment Temperature (°C)	Voltage (V)	Measured Frequency (MHz)	Limit Range	Test Result
50	110	5229.999301	5150~5250	Pass
40	110	5230.010789	5150~5250	Pass
30	110	5229.997651	5150~5250	Pass
20	110	5230.009099	5150~5250	Pass
10	110	5229.991201	5150~5250	Pass
0	110	5229.994544	5150~5250	Pass
-10	110	5229.990850	5150~5250	Pass
-20	110	5229.996795	5150~5250	Pass

Operating Frequency: 5230 MHz				
Environment Temperature (°C)	Voltage (V)	Measured Frequency (MHz)	Limit Range	Test Result
20	93.5	5230.000737	5150~5250	Pass
	110	5229.998157	5150~5250	Pass
	126.5	5229.990121	5150~5250	Pass

IEEE 802.11ac VHT80 Mode / Chain 0:

CH Mid

Operating Frequency: 5210 MHz				
Environment Temperature (°C)	Voltage (V)	Measured Frequency (MHz)	Limit Range	Test Result
50	110	5210.008255	5150~5250	Pass
40	110	5209.996615	5150~5250	Pass
30	110	5210.001516	5150~5250	Pass
20	110	5210.003315	5150~5250	Pass
10	110	5210.003024	5150~5250	Pass
0	110	5210.005088	5150~5250	Pass
-10	110	5210.009597	5150~5250	Pass
-20	110	5210.006923	5150~5250	Pass

Operating Frequency: 5210 MHz				
Environment Temperature (°C)	Voltage (V)	Measured Frequency (MHz)	Limit Range	Test Result
20	93.5	5210.002061	5150~5250	Pass
	110	5209.992792	5150~5250	Pass
	126.5	5210.008948	5150~5250	Pass

IEEE 802.11ac VHT80 Mode / Chain 1:

CH Mid

Operating Frequency: 5210 MHz				
Environment Temperature (°C)	Voltage (V)	Measured Frequency (MHz)	Limit Range	Test Result
50	110	5209.998443	5150~5250	Pass
40	110	5209.998585	5150~5250	Pass
30	110	5210.003597	5150~5250	Pass
20	110	5210.007911	5150~5250	Pass
10	110	5210.002533	5150~5250	Pass
0	110	5209.991547	5150~5250	Pass
-10	110	5210.002396	5150~5250	Pass
-20	110	5209.996019	5150~5250	Pass

Operating Frequency: 5210 MHz				
Environment Temperature (°C)	Voltage (V)	Measured Frequency (MHz)	Limit Range	Test Result
20	93.5	5210.002973	5150~5250	Pass
	110	5210.004451	5150~5250	Pass
	126.5	5210.001414	5150~5250	Pass