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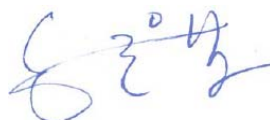
FCC and IC EVALUATION REPORT FOR CLASS II PERMISSIVE CHANGE

Applicant :**Samsung Electronics Co., Ltd.****129, Samsung-ro, Yeongtong-gu,****Suwon-si, Gyeonggi-do, Korea.****(Post code : 16677)****Attn. : Ohoon. Choi****Dates of Issue : June 2, 2016****Test Report No. : NK-16-R-063****Test Site : Nemko Korea Co., Ltd.****FCC
IC****A3LATKM052000
649E-ATKM052000****Brand Name****SAMSUNG****Contact Person****Samsung Electronics Co., Ltd.
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Applied Standard: FCC 47 CFR Part 15.407 and IC RSS-247 Issue 1
Classification: Unlicensed National Information Infrastructure (NII)
EUT Type: IoT Module

The device bearing the brand name and model specified above has been shown to comply with the applicable technical standards as indicated in the measurement report and was tested in accordance with the measurement procedures specified in ANSI C63.10-2013. The client should not use it to claim product endorsement by TAF or any government agencies. The test results in the report only apply to the tested sample.

I attest to the accuracy of data and all measurements reported herein were performed by me or were made under my supervision and are correct to the best of my knowledge and belief. I assume full responsibility for the completeness of these measurements and vouch for the qualifications of all persons taking them.

 Jun 02, 2016

Tested By : Wonho Son
Engineer

 Jun 02, 2016

Reviewed By : Deokha Ryu
Technical Manager

Revision History

Rev.	Issue Date	Revisions	Revised By
00	Apr.14,2016	Initial issue (NK-16-R-029)	
01	Jun.02,2016	Band added (42,46,48 Channel of UNII-1, UNII-2A, UNII-2C)	

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1. SCOPE

Measurement and determination of electromagnetic emissions (EME) of radio frequency devices including intentional and/or unintentional radiators for compliance with the technical rules and regulations of the Federal Communications Commission under FCC part 15 and IC RSS-247 Issue1.

Responsible Party :	Samsung Electronics Co., Ltd.
Contact Person :	Ohoon Choi
Manufacturer :	Samsung Electronics Co., Ltd. 129, Samsung-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, Korea 16677 Samsung Electronics Co., Ltd. 1, Samsung-ro, Giheung-gu, Yongin-si, Gyeonggi-do, Korea 17113

- FCC ID A3LATKM052000
- IC : 649E-ATKM052000
- Model: ATKM052000
- Variants Model ATKM052001, ATKM052002
- Brand Name: SAMSUNG
- EUT Type: IoT Module
- Classification: Unlicensed National Information Infrastructure (NII)
- Applied Standard: FCC 47 CFR Part 15.407 and IC RSS-247 Issue 1
- Test Procedure(s): ANSI C63.10-2013 and FCC guidance of 789033 D02 General UNII Test Procedures New Rules v01r01 dated January 8, 2016 entitled "Guidelines for Compliance Testing of Unlicensed National Information Infrastructure (U-NII) Devices – Part 15, Subpart E" KDB 644545 D03 Guidance for IEEE 802.11ac v01
- Dates of Test: May 20, 2016 ~ May 29, 2016
- Place of Tests: Nemko Korea Co., Ltd.

2. INTRODUCTION

2.1 Test facility

The measurement procedure described in American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz (ANSI C63.4-2014), the American National Standard for Testing Unlicensed Wireless Devices (ANSI C63.10-2013) was used in determining radiated and conducted emissions emanating from **Samsung Electronics Co., Ltd. FCC ID :**

A3LATKM052000 and IC : 649E-ATKM052000.

These measurement tests were conducted at **Nemko Korea Co., Ltd. EMC Laboratory**.

The site address 155 & 159, Osan-Ro, Mohyeon-Myeon, Cheoin-Gu, Yongin-Si, Gyeonggi-Do 16885 KOREA, REPULIC OF.

The area of Nemko Korea Corporation Ltd. EMC Test Site is located in a mountain area at 80 km (48 miles) southeast and Incheon International Airport (Incheon Airport), 30 km (18miles) south-southeast from central Seoul.

It is located in the valley surrounded by mountains in all directions where ambient radio signal conditions are quiet and a favorable area to measure the radio frequency interference on open field test site for the computing and ISM devices manufactures.

The detailed description of the measurement facility was found to be in compliance with the requirements of ANSI C63.4-2014 according to §2.948.



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Fig. 1. The map above shows the Seoul in Korea vicinity area.
The map also shows Nemko Korea Corporation Ltd. EMC Lab. and Incheon Airport.

2.2 Accreditation and listing

Accreditation type		Accreditation number
	CAB Accreditation for DOC	Designation No. KR0026
	KOLAS Accredited Lab. (Korea Laboratory Accreditation Scheme)	Registration No. 155
	Canada IC Registered site	Site No. 2040E
	VCCI registration site(RE/CE/Telecom CE)	Member No. 2118
	EMC CBTL	-
	KCC(RRL)Designated Lab.	Registration No. KR0026

3. TEST CONDITIONS & EUT INFORMATION

3.1 Operation During Test

The EUT is the SISO, CDD, MIMO transceiver which is module supporting the 802.11a/b/g/n/ac mode (802.11a/b/g : 1TX/1RX, 802.11n(20,40MHz)/ac(20,40,80MHz) : 1TX/1RX, 2TX/2RX).

During the test, the EUT was connected to laptop PC and then a test program was executed to operate EUT constantly (duty cycle< 98%). The operating voltage of EUT was 4.2 Vdc supplied from JIG board connected with Laptop PC using USB cable.

The EUT was tested at the lowest channel, middle channel and the highest channel with the maximum output power in accordance with the manufacturer's specifications. The worst data were recorded in the report.

3.1.1 Table of test power setting

Frequency	Mode	5180 ~ 5240 MHz	5260 ~ 5320 MHz	5500 ~ 5700 MHz	5745 ~ 5825 MHz
Power setting Level	802.11a	Default	Default	Default	Default
	802.11n(20MHz)	Default	Default	Default	Default
	802.11n(40MHz)	Default	13	13	15
	802.11ac(20MHz)	Default	Default	Default	Default
	802.11ac(40MHz)	Default	13	13	15
	802.11ac(80MHz)	Default	Default	13	15

3.1.2 Table of test channels

Frequency band	Mode	Test Channel (CH)	Frequency (MHz)
U-NII-1	802.11a,n,ac(20MHz)	36	5180
		44	5220
		48	5240
	802.11n,ac(40MHz)	38	5190
		46	5230
	802.11ac(80MHz)	42	5210
U-NII-2A	802.11a,n,ac(20MHz)	52	5260
		60	5300
		64	5320
	802.11n.ac(40 MHz)	54	5270
		62	5310
	802.11ac(80MHz)	58	5290

U-NII-2C	802.11a,n,ac(20MHz)	100	5500
		116	5580
		140	5700
	802.11n,ac(40MHz)	102	5510
		110	5550
		134	5670
	802.11ac(80MHz)	106	5530
U-NII-3	802.11a,n,ac(20MHz)	149	5745
		157	5785
		165	5825
	802.11n.ac(40 MHz)	151	5755
		159	5795
	802.11ac(80MHz)	155	5775

3.1.3 Table of test modes

Test Items	Mode	Data rate (Mbps)	Test Channel (CH)
Conducted Emissions	802.11n(20 MHz)	MCS0	40
Radiated Emissions	802.11n(20 MHz)	MCS0	40
26 dB Spectrum Bandwidth	802.11a	6	36//44/48
	802.11n(20 MHz)	MCS0 / MCS8	52/60/64
	802.11ac(20 MHz)	MCS0NSS1 / MCS0NSS2	100/116/140
	802.11n(40 MHz)	MCS0 / MCS8	149/157/165
	802.11ac(40 MHz)	MCS0NSS1 / MCS0NSS2	38/46
	802.11ac(80 MHz)	MCS0NSS1 / MCS0NSS2	54/62
Maximum Conducted Output Power	802.11a	6	102/110/134
	802.11n(20 MHz)	MCS0 / MCS8	151/159
	802.11ac(20 MHz)	MCS0NSS1 / MCS0NSS2	42/58/106/155
	802.11n(40 MHz)	MCS0 / MCS8	36//44/48
	802.11ac(40 MHz)	MCS0NSS1 / MCS0NSS2	52/60/64
	802.11ac(80 MHz)	MCS0NSS1 / MCS0NSS2	100/116/140
Power Spectral Density	802.11a	6	149/157/165
	802.11n(20 MHz)	MCS0 / MCS8	38/46
	802.11ac(20 MHz)	MCS0NSS1 / MCS0NSS2	54/62
	802.11n(40 MHz)	MCS0 / MCS8	102/110/134
	802.11ac(40 MHz)	MCS0NSS1 /	151/159

		MCS0NSS2	102/110/134 151/159
	802.11ac(80 MHz)	MCS0NSS1 / MCS0NSS2	42/58/106/155
*Radiated Spurious Emission,	802.11a	6	36//44/48 52/60/64
	802.11ac(20 MHz)	MCS0NSS1 / MCS0NSS2	100/116/140 149/157/165
	802.11ac(40 MHz)	MCS0NSS1 / MCS0NSS2	38/46 54/62 102/110/134 151/159
	802.11ac(80 MHz)	MCS0NSS1 / MCS0NSS2	42/58/106/155
Radiated Band edge Emission	802.11a	6	36 64
	802.11n(20 MHz)	MCS0 / MCS8	100/140 149/157/165
	802.11ac(20 MHz)	MCS0NSS1 / MCS0NSS2	38 62 102/134 151/159
	802.11n(40 MHz)	MCS0 / MCS8	42/58/106/155
	802.11ac(40 MHz)	MCS0NSS1 / MCS0NSS2	
	802.11ac(80 MHz)	MCS0NSS1 / MCS0NSS2	

The Worst Test Mode

The EUT was tested at the lowest channel, middle channel and the highest channel with the maximum output power in accordance with the manufacturer's specifications. The worst data were recorded in the report as specified table above.

1. Data Rate

The worst data was determined by the conducted output power that generates the highest emission performing pre-scan testing in all data rates of each mode.

The highest conducted output power was generated at the lowest data rate for a/n(20,40MHz)/ac(20,40,80M), therefore the lowest data rate was chosen as the worst-case for other mandatory test requirements.

2. Antenna Port

For conducted testing, all of measurements were done on ANT port 0 and port 1, and results on ANT port 0 are higher output power in UNII-1, UNII-2A, UNII-2C, UNII-3 band. Therefore, the radiated emissions testing was done on ANT port 0 in SISO mode.

For radiated emissions testing, the worst position was tested as resulted in pre-scanned measurement with respect to 802.11a/n(20,40MHz)/ac(20,40,80MHz).

3. Position for Radiated emissions testing

Pre-scanning was performed by rotating EUT through three orthogonal axes and rotating the receive antenna with horizontal, Vertical polarization. The worst data was recorded.

4. *Radiated Spurious Emission

Same digital modulation is used by 802.11n and 802.11ac mode.

The worst conducted output power was generated in 802.11ac mode, therefore the 802.11ac mode was chosen as the worst-case for relevant mandatory test requirements.

3.1.4 Table of actual operating channels

Frequency band	Bandwidth	channel	Frequency (MHz)
UNII-1	20MHz	36	5180
		44	5220
		48	5240
	40MHz	38	5190
		46	5230
	80MHz	42	5210
UNII-2A	20MHz	52	5260
		60	5300
		64	5320
	40MHz	54	5270
		62	5310
	80MHz	58	5290
UNII-2C	20MHz	100	5500
		116	5580
		140	5700
	40MHz	102	5510
		110	5550
		134	5670
UNII-3	80MHz	106	5530
		149	5745
		153	5765
		157	5785
		161	5805
	40MHz	165	5825
		151	5755
		159	5795
	80MHz	155	5775

3.1.5. Additional Information Related to Testing

The cable and attenuator loss from 30MHz to 25GHz was reflected in spectrum analyzer with correction factor for all conducted testing.

There is no change of the EUT in hardware, power setting level and operation in UNII-1, 3 band. And in the UNII-1 band, channel 48(5240MHz), 46(5230MHz), 42(5210MHz) were added to original grant. (Please refer to C2PC description for detailed information)
Therefore, all testing was performed in additional channels, UNII-2A and UNII-2C Band.

99% occupied bandwidth of other channels in UNII-1, UNII-3 is not extended into DFS band.

3.1.6 Antenna information:

Frequency band	Mode	Data rate	Antenna TX mode	Support CDD	Support MIMO
5 GHz	802.11a	All	■ 1TX, □ 2TX	□ Yes, ■ No	□ Yes, ■ No
	802.11n (20 MHz)	MCS 0~7	■ 1TX, ■ 2TX	■ Yes, □ No	□ Yes, ■ No
		MCS 8~15	□ 1TX, ■ 2TX	□ Yes, ■ No	■ Yes, □ No
	802.11n (40 MHz)	MCS 0~7	■ 1TX, ■ 2TX	■ Yes, □ No	□ Yes, ■ No
		MCS 8~15	□ 1TX, ■ 2TX	□ Yes, ■ No	■ Yes, □ No
	802.11ac (20 MHz)	MCS0NSS1~ MCS8NSS1	■ 1TX, ■ 2TX	■ Yes, □ No	□ Yes, ■ No
		MCS0NSS2~ MCS8NSS2	□ 1TX, ■ 2TX	□ Yes, ■ No	■ Yes, □ No
	802.11ac (40 MHz)	MCS0NSS1~ MCS9NSS1	■ 1TX, ■ 2TX	■ Yes, □ No	□ Yes, ■ No
		MCS0NSS2~ MCS9NSS2	□ 1TX, ■ 2TX	□ Yes, ■ No	■ Yes, □ No
	802.11ac (80 MHz)	MCS0NSS1~ MCS9NSS1	■ 1TX, ■ 2TX	■ Yes, □ No	□ Yes, ■ No
		MCS0NSS2~ MCS9NSS2	□ 1TX, ■ 2TX	□ Yes, ■ No	■ Yes, □ No

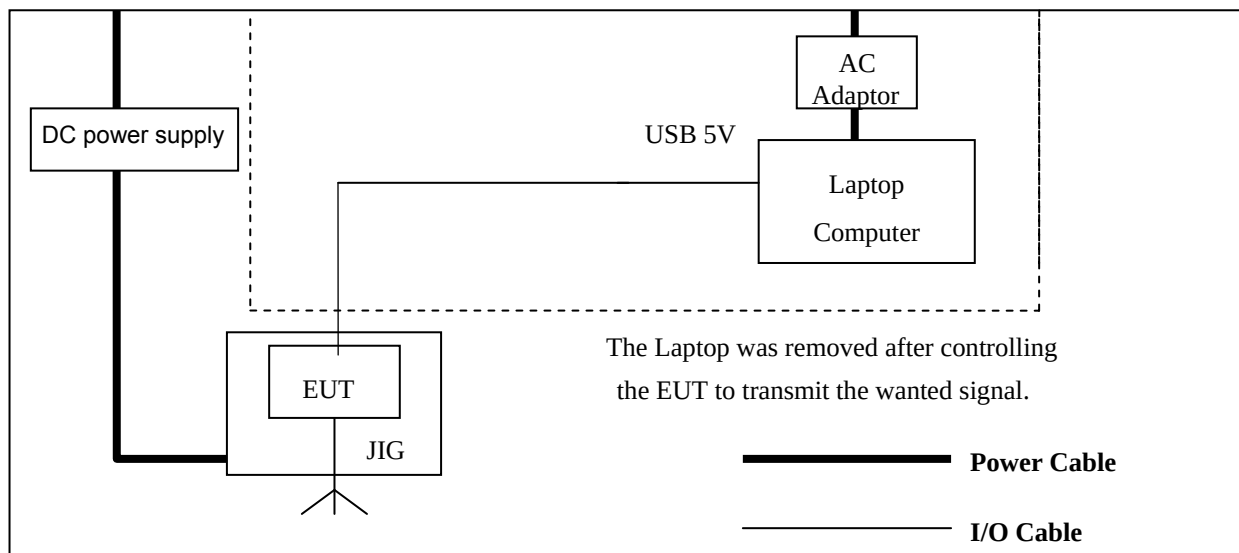
Note :

1. CDD mode is Cyclic Delay Diversity mode.
2. For 802.11n(20 MHz), EUT support SISO, CDD mode for MCS0~7 and MIMO mode for MCS8~15.
3. For 802.11n(40 MHz), EUT support SISO, CDD mode for MCS0~7 and MIMO mode for MCS8~15.
4. For 802.11ac(20 MHz), EUT support SISO, CDD mode for MCS0NSS1~MCS8NSS1 and MIMO mode for MCS0NSS2~MCS8NSS2.
5. For 802.11ac(40 MHz), EUT support SISO, CDD mode for MCS0NSS1~MCS9NSS1 and MIMO mode for MCS0NSS2~MCS9NSS2.
6. For 802.11ac(80 MHz), EUT support SISO, CDD mode for MCS0NSS1~MCS9NSS1 and MIMO mode for MCS0NSS2~MCS9NSS2.
7. CDD mode, $N_{SS}=1$, MIMO mode, $N_{SS}=2$, where N_{SS} = number of spatial streams.
8. MIMO mode means SM-MIMO transmission.

3.2 Support Equipment

EUT	Samsung Electronics Co., Ltd. Model : ATKM052000	S/N: N/A
Laptop Computer	HP Model : 15-AC631TU 0.3 m unshielded pin connector cable	FCC DOC S/N : CND55093NW
AC/DC Adapter	LITE-ON TECHNOLOGY Model : HSTNN-LA40 1.5 m unshielded power cable	FCC DOC S/N : 5Y23208202

3.3 Setup Drawing



3.4 EUT Information

The EUT is the **Samsung IoT Module FCC ID: A3LATKM052000, IC: 649E-ATKM052000.**

Specifications:

Category	IoT Module
Model Name	ATKM052000
Brand Name	SAMSUNG
Frequency of Operation	<u>For U-NII-1 Band</u> 802.11a,n,ac(20 MHz): 5180 MHz ~ 5240 MHz 802.11n,ac(40 MHz): 5190 MHz ~ 5230 MHz 802.11ac(80 MHz): 5210 MHz <u>For U-NII-2A Band</u> 802.11a,n,ac(20 MHz): 5260 MHz ~ 5320 MHz 802.11n,ac(40 MHz): 5270 MHz ~ 5310 MHz 802.11ac(80 MHz): 5290 MHz <u>For U-NII-2C Band</u> 802.11a,n,ac(20 MHz): 5500 MHz ~ 5700 MHz 802.11n,ac(40 MHz): 5510 MHz ~ 5670 MHz 802.11ac(80 MHz): 5530 MHz <u>For U-NII-3 Band</u> 802.11a,n,ac(20 MHz): 5745 MHz ~ 5825 MHz 802.11n,ac(40 MHz): 5755 MHz ~ 5795 MHz 802.11ac(80 MHz): 5775 MHz
Output power (Conducted)	<u>For U-NII-1 Band</u> 802.11a : 10.26 dBm 802.11n(20 MHz) : 12.37 dBm 802.11n(40 MHz) : 11.94 dBm 802.11ac(20 MHz) : 12.30 dBm 802.11ac(40 MHz) : 12.03 dBm 802.11ac(80 MHz) : 10.83 dBm <u>For U-NII-2A Band</u> 802.11a : 10.16 dBm 802.11n(20 MHz) : 12.85 dBm 802.11n(40 MHz) : 9.72 dBm 802.11ac(20 MHz) : 12.83 dBm 802.11ac(40 MHz) : 11.30 dBm 802.11ac(80 MHz) : 11.05 dBm <u>For U-NII-2C Band</u> 802.11a : 9.93 dBm 802.11n(20 MHz) : 11.26 dBm 802.11n(40 MHz) : 8.47 dBm 802.11ac(20 MHz) : 11.24 dBm

	802.11ac(40 MHz) : 8.54 dBm 802.11ac(80 MHz) : 7.12 dBm <u>For U-NII-3 Band</u> 802.11a : 7.52 dBm 802.11n(20 MHz) : 9.13 dBm 802.11n(40 MHz) : 7.54 dBm 802.11ac(20 MHz) : 9.17 dBm 802.11ac(40 MHz) : 7.54 dBm 802.11ac(80 MHz) : 6.79 dBm
Channels	<u>For U-NII-1 Band</u> 802.11a,n,ac(20 MHz): 4ch 802.11n,ac(40 MHz): 2ch 802.11ac(80 MHz): 1ch <u>For U-NII-2A Band</u> 802.11a,n,ac(20 MHz): 4ch 802.11n,ac(40 MHz): 2ch 802.11ac(80 MHz): 1ch <u>For U-NII-2C Band*</u> 802.11a,n,ac(20 MHz): 9ch 802.11n,ac(40 MHz): 4ch 802.11ac(80 MHz): 2ch <u>For U-NII-3 Band</u> 802.11a,n,ac(20 MHz): 5ch 802.11n,ac(40 MHz): 2ch 802.11ac(80 MHz): 1ch
Antenna Gain (peak)	Ant0 : 2.7 dBi, Ant1 : 2.7 dBi
Antenna setup	802.11a : 1TX/1RX 802.11n(20,40MHz)/ac(20.40.80MHz) : 1TX/1RX, 2TX/2RX
Modulations	OFDM(BPSK,QPSK,16QAM,64QAM) for 802.11a,n,ac
Temperature Range	0 °C ~ +70 °C
Voltage	4.2 Vdc
Dimensions (L x W x H)	About 45 mm x 40 mm X 3.5 mm
Weight	About 3 g
H/W Status	-
S/W Status	-
Remarks	-

*Devices is not capable of transmitting in the band 5600-5650 MHz. This restriction is for the protection of Environment Canada's weather radars operating in this band.

4. SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specification:

Name of Test	FCC Paragraph No.	IC Paragraph No.	Result	Remark
Conducted Emission	15.207	RSS-GEN Issue 4 8.8	Complies	
Radiated Emission	15.209	RSS-GEN Issue 4 8.9	Complies	
26 dB Spectrum Bandwidth and 99% Occupied bandwidth	15.407(a)	RSS-247 Issue 1 6.2	Complies	
6 dB Bandwidth	15.407(e)	RSS-247 Issue 1 6.2	Complies	
Maximum Conducted Output Power	15.407(a)	RSS-247 Issue 1 6.2	Complies	
Power Spectral Density	15.407(a)	RSS-247 Issue 1 6.2	Complies	
Radiated Spurious Emission	15.407(b)	RSS-247 Issue 1 6.2	Complies	
DFS	15.407(h)	RSS-247 Issue 1 6.3	Complies	
Maximum Permissible Exposure	1.1307(b)	RSS-102	Complies	

5. RECOMMENDATION/CONCLUSION

The data collected shows that the **Samsung IoT Module FCC ID: A3LATKM052000, IC : 649E-ATKM052000** is in compliance with Part 15.247 of the FCC Rule and RSS-247 Issue 1 of the IC Specification.

6. ANTENNA REQUIREMENTS

§15.203 of the FCC Rules part 15 Subpart C

: An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section.

The antenna of the **Samsung IoT Module FCC ID: A3LATKM052000, IC : 649E-ATKM052000** is **permanently attached** and there are no provisions for connection to an external antenna. It complies with the requirement of §15.203.

Directional gain was be calculated according to “**662911 D01 Multiple Transmitter Output v02r01**” and would be found at end of average output power and PSD results in this report.

7. DESCRIPTION OF TESTS

7.1 Conducted Emissions

The Line conducted emission test facility is located inside a 4 x 7 x 2.5 meter shielded enclosure. It is manufactured by EM engineering. The shielding effectiveness of the shielded room is in accordance with MIL-STD-285 or NSA 65-6. A 1 m x 1.5 m wooden table 0.8 m height is placed 0.4 m away from the vertical wall and 1.5 m away from the side of wall of the shielded room Rohde & Schwarz (ESH3-Z5) and (ESH2-Z5) of the 50 ohm/50 μ H Line Impedance Stabilization Network (LISN) are bonded to the shielded room. The EUT is powered from the Rohde & Schwarz LISN (ESH3-Z5) and the support equipment is powered from the Rohde & Schwarz LISN (ESH2-Z5). Power to the LISNs are filtered by high-current high insertion loss Power line filters. The purpose of filter is to attenuate ambient signal interference and this filter is also bonded to shielded enclosure. All electrical cables are shielded by tinned copper zipper tubing with inner diameter of 1 / 2 ". If DC power device, power will be derived from the source power supply it normally will be powered from and this supply lines will be connected to the LISNs, All interconnecting cables more than 1 meter were shortened by non-inductive bundling (serpentine fashion) to a 1 meter length. Sufficient time for EUT, support equipment, and test equipment was allowed in order for them to warm up to their normal operating condition. The RF output of the LISN was connected to the spectrum analyzer to determine the frequency producing the maximum EME from the EUT. The spectrum was scanned from 150 kHz to 30 MHz with 200 msec sweep time. The frequency producing the maximum level was re-examined using the EMI test receiver. (Rohde & Schwarz ESCS30). The detector functions were set to CISPR quasi-peak mode & average mode. The bandwidth of receiver was set to 9 kHz. The EUT, support equipment, and interconnecting cables were arranged and manipulated to maximize each EME emission. Each emission was maximized by; switching power lines; varying the mode of operation or resolution; clock or data exchange speed; scrolling H pattern to the EUT and of support equipment, and powering the monitor from the floor mounted outlet box and computer aux AC outlet, if applicable; whichever determined the worst case emission. Each EME reported was calibrated using the R&S signal generator.

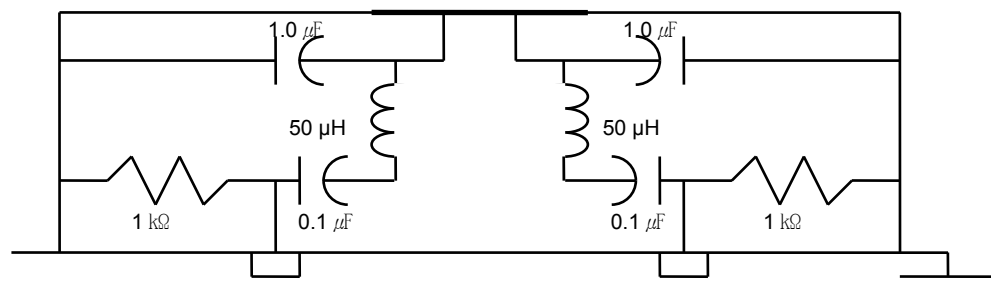


Fig. 2. LISN Schematic Diagram

7.2 Radiated Emissions

The measurement was performed at the test site that is specified in accordance with ANCI C63.10-2013.

The spurious emission was scanned from 9 kHz to 30 MHz using Loop Antenna(Rohde&Schwarz, HFH2-Z2) and 30 to 1000 MHz using Trilog broadband test antenna(Schwarzbeck, VULB 9163). Above 1 GHz, Horn antenna (Schwarzbeck BBHA 9120D: up to 18 GHz, Q-par Angus QSH20S20 : 18 to 26.5 GHz, QSH22K20: up to 40 GHz) was used.

For emissions testing at below 1GHz, The test equipment was placed on turntable with 0.8 m above ground. For emission measurements above 1 GHz, The test equipment was placed on turntable with 1.5 m above ground. Sufficient time for the EUT, support equipment, and test equipment was allowed in order for them to warm up to their normal operating condition. The EUT, cable, wire arrangement and mode of operation that has the highest amplitude relative to the limit was selected. Then, the turn table was rotated from 0° to 360° and an antenna mast was moved from 1 m to 4 m height to maximize the suspected highest amplitude signal. The final maximized level was recorded.

Unwanted emissions in the restricted bands

At frequencies below 1000 MHz, measurements performed using the CISPR quasi-peak detection.

At frequencies above 1000 MHz, measurements performed using the peak and average measurement procedures described in KDB "789033 D02 General UNII Test Procedures New Rules v01r01" in section G)5) and G)6). Peak emission levels was measured by setting the analyzer RBW = 1 MHz, VBW = 3 MHz, Detector = Peak, Trace mode = max hold. Average emission levels was measured using the "Method VB" by setting the analyzer RBW = 1 MHz, VBW = 1 kHz (VBW ≤ RBW/100), Detector = Peak, if the EUT is configured to transmit with duty cycle ≥ 98 percent. When the duty cycle ≤ 98 percent, VBW ≥ 1/T (T = minimum transmission duration over which the transmitter is on) was used.

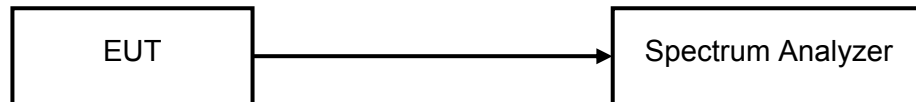
Unwanted emissions outside of the restricted bands

At frequencies below 1000 MHz, measurements performed using the CISPR quasi-peak detection.

At frequencies above 1000 MHz, measurements performed using the peak and average measurement procedures described in KDB "789033 D02 General UNII Test Procedures New Rules v01r01" in section G)5). Peak emission levels was measured by setting the analyzer RBW = 1 MHz, VBW = 3 MHz, Detector = Peak, Trace mode = max hold. If the transmission is not continuous, the time required for the trace to stabilize will increase by a factor of approximately 1/x, where x is the duty cycle.

7.3 26 dB Bandwidth and 99% Occupied bandwidth

Test Setup



Test Procedure

EUTs 26 dB bandwidth is measured at low, middle, high channels with a spectrum analyzer connected to the antenna terminal while the EUTs operating at its maximum power control level.

The spectrum analyzer setting is as follows.

RBW = approximately 1 % of the emission bandwidth

VBW $\geq$ 3 x RBW

Detector = Peak

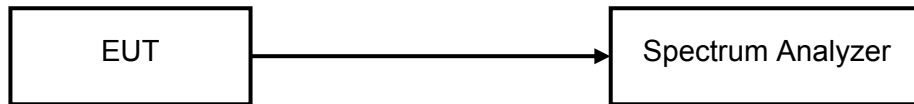
Trace mode = max hold

Sweep = auto couple.

The bandwidth measurement function on the spectrum analyzer is used to measure the 26 dB bandwidth and 99% occupied bandwidth.

7.4 6 dB Bandwidth

Test Setup



Test Procedure

EUTs 6 dB bandwidth is measured at low, middle, high channels with a spectrum analyzer connected to the antenna terminal while the EUTs operating at its maximum power control level.

The spectrum analyzer setting is as follows.

RBW = 100 kHz

VBW > 3 x RBW

Detector = Peak

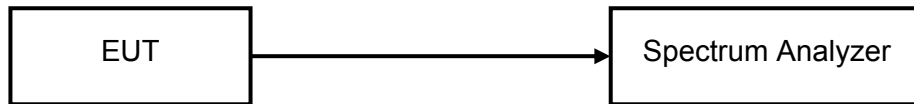
Trace mode = max hold

Sweep = auto couple

The bandwidth measurement function on the spectrum analyzer is used to measure the 6 dB bandwidth.

7.5 Maximum Conducted Output Power (average)

Test Setup



Test Procedure

EUTs Maximum Conducted Output Power is measured at low, middle, high channels with a spectrum analyzer connected to the antenna terminal while the EUTs operating at its maximum power control level.

The spectrum analyzer setting is as follows.

Measure the duty cycle

Span = encompass the EBW of the signal.

RBW = 1 MHz

VBW $\geq$ 3 MHz

Number of points in sweep $\geq$ 2 Span / RBW

Sweep time = auto

Detector = RMS

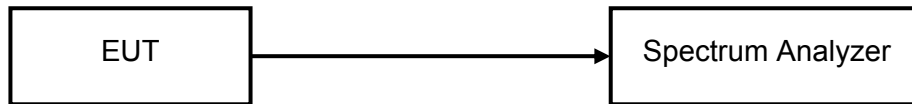
Trace average at least 100 traces in power averaging mode

The band power measurement function on the spectrum analyzer is used to measure the Maximum conducted output power.

Add $10 \log(1/x)$, where x is the duty cycle.

7.6 Maximum Power Spectral Density (average)

Test Setup



Test Procedure

EUTs Maximum Conducted Output Power is measured at low, middle, high channels with a spectrum analyzer connected to the antenna terminal while the EUTs operating at its maximum power control level.

Measure the duty cycle.

The spectrum analyzer setting is as follows.

Span = encompass the EBW of the signal.

RBW = 1 MHz

VBW $\geq$ 3 MHz

Number of points in sweep $\geq$ 2 Span / RBW

Sweep time = auto

Detector = RMS

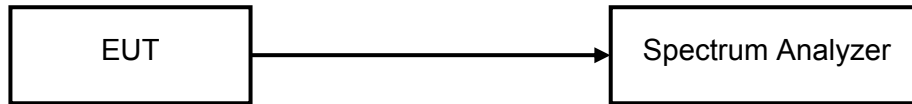
Trace average at least 100 traces in power averaging mode

The peak search function on the spectrum analyzer is used to find the peak of the spectrum.

Add $10 \log(1/x)$, where x is the duty cycle.

7.7 Duty Cycle

Test Setup



Test Procedure

EUTs duty cycle are measured at middle channel with a spectrum analyzer connected to the antenna terminal while the EUTs operating at its maximum power control level. The spectrum analyzer setting is as follows.

Center frequency = Center frequency of the transmission

Span = zero

RBW = 8 MHz

VBW = 8 MHz

Detector = peak

Sweep time = at least 2 ms

Trace mode = view

The marker function on the spectrum analyzer is used to determine the duty cycle.

Following is the worst result of the duty cycle measurements according to the above test procedure

	Data rate	On time (ms)	On + Off time (ms)	Duty Cycle (%)	Duty Factor (dB)
a mode	6Mbps	1.427	1.730	82	0.84
n(20MHz) mode	MCS0	1.333	1.640	81	0.90
	MCS8	0.684	0.988	69	1.60
n(40MHz) mode	MCS0	0.662	0.963	68	1.63
	MCS8	0.352	0.654	53	2.68
ac(20MHz) mode	MCS0	1.342	1.65	81	0.90
	MCS8	0.690	0.993	69	1.58
ac(40MHz) mode	MCS0	0.665	0.968	68	1.63
	MCS8	0.355	0.659	53	2.70
ac(80MHz) mode	MCS0	0.330	0.632	52	2.82
	MCS8	0.187	0.491	38	4.18

8. TEST DATA

8.1 Conducted Emissions

FCC §15.207, RSS-Gen Issue 4 8.8

Frequency (MHz)	Level (dB μ V)		*) Factor (dB)	**) Line	Limit (dB μ V)		Margin (dB)	
	Q-Peak	Average			Q-Peak	Average	Q-Peak	Average
0.15	40.4	22.7	10.84	L	66.0	56.0	25.6	33.3
0.17	38.8	23.2	10.80	L	65.0	55.0	26.2	31.8
0.19	37.0	22.0	10.75	L	64.0	54.0	27.0	32.0
0.21	35.8	21.7	10.71	L	63.2	53.2	27.4	31.5
0.23	34.1	22.0	10.67	L	62.4	52.4	28.3	30.4
0.49	33.7	26.7	10.16	L	56.2	46.2	22.5	19.5

Line Conducted Emissions Tabulated Data

Notes:

1. Measurements using CISPR quasi-peak mode & average mode.
2. All modes of operation were investigated and the worst -case emission are reported.
See attached Plots.
3. *) Factor = LISN + Cable Loss
4. **) LINE : L = Line , N = Neutral
5. The limit is on the FCC §15.207 and IC RSS-GEN issue4 8.8.

PLOTS OF EMISSIONS

Conducted Emission at the Mains port (Line)

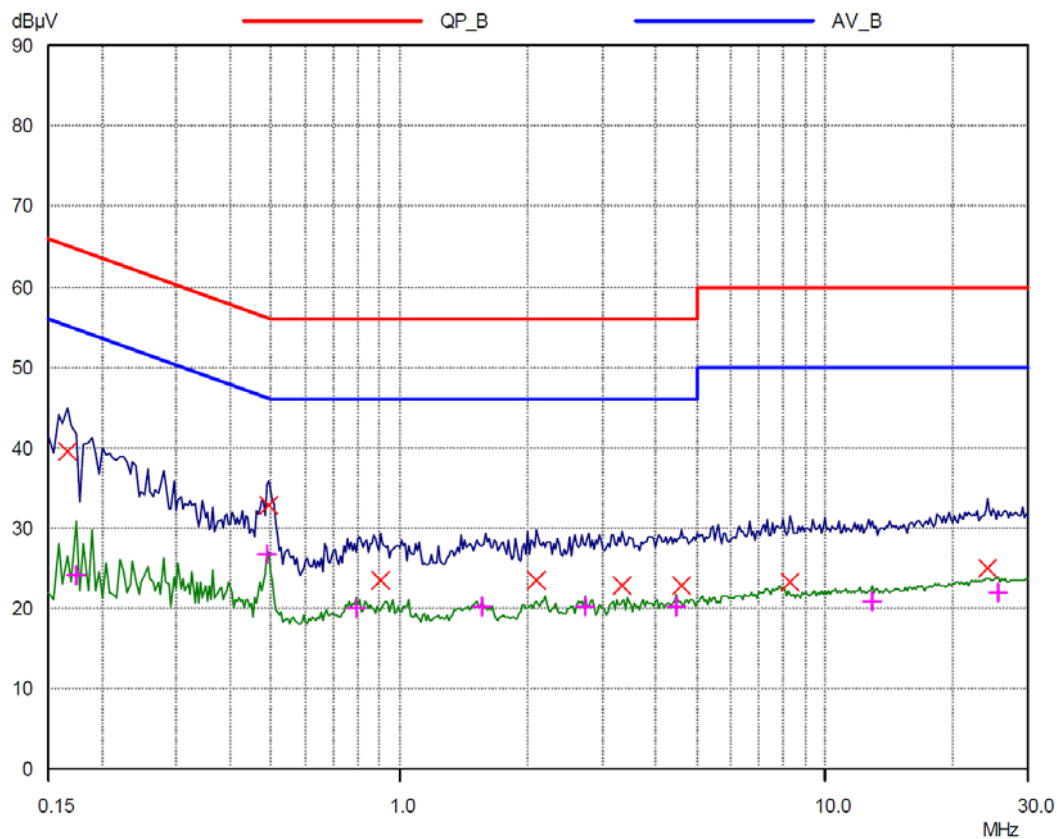
NEMKO KOREA (NK-16-R-029)

01 Apr 2016 15:22

Conducted Emissions

EUT: EUT
Manuf: Samsung Electronics. Co., Ltd.
Op Cond: d.c. 4.2 V // Wifi 5 GHz
Operator: Wonho. Son
Test Spec: FCC Part 15
Comment: MODEL : ATKM052000
LINE : LINE
Result File: r24_5gl.dat : New Measurement

Scan Settings		(1 Range)						
Frequencies					Receiver Settings			
Start	Stop	Step	IF BW	Detector	M-Time	Atten	Preamp	OpRge
150kHz	30MHz	3.9063kHz	9kHz	PK+AV	20msec	20 dB	OFF	60dB
Transducer	No.	Start	Stop	Name				
	1	150kHz	30MHz	ESH3_Z5_Line				
Final Measurement:		Detectors:	X QP / + AV					
		Meas Time:	1sec					
		Subranges:	8					
		Acc Margin:	60 dB					



PLOTS OF EMISSIONS

Conducted Emission at the Mains port (Neutral)

NEMKO KOREA (NK-16-R-029)

01 Apr 2016 15:32

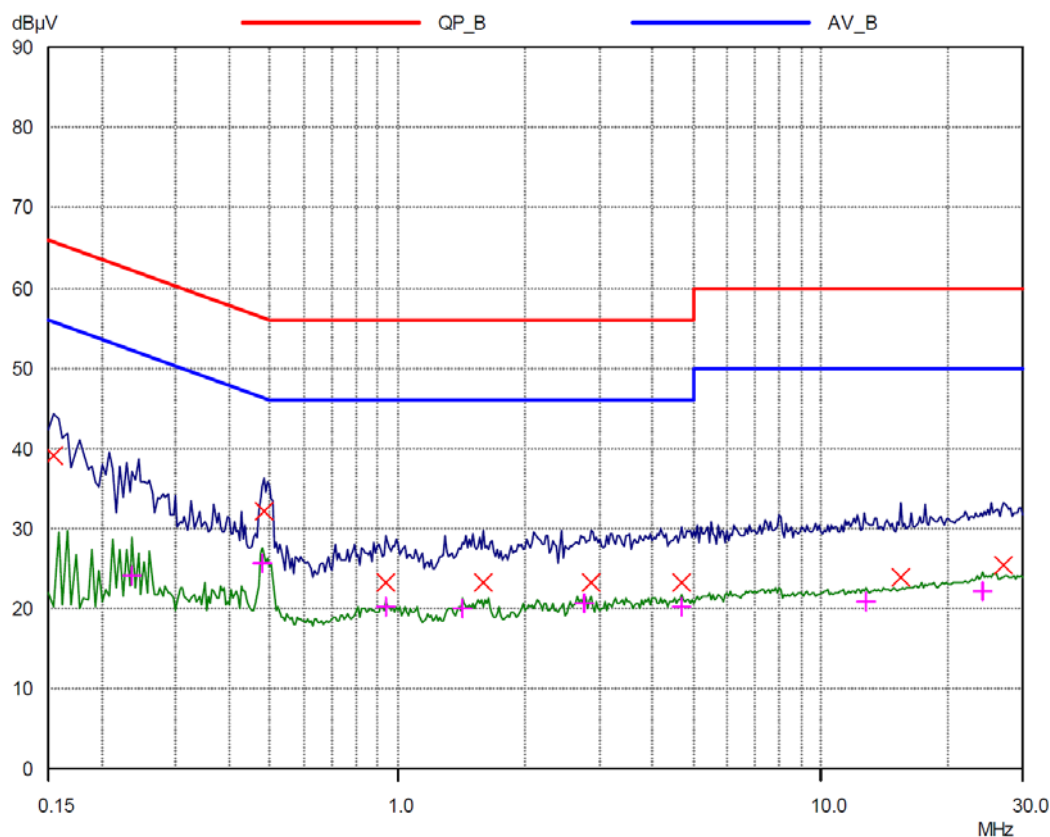
Conducted Emissions

EUT: EUT
Manuf: Samsung Electronics. Co., Ltd.
Op Cond: d.c. 4.2 V // Wifi 5 GHz
Operator: Wonho. Son
Test Spec: FCC Part 15
Comment: MODEL : ATKM052000
LINE : NEUTRAL
Result File: r24_5gn.dat : New Measurement

Scan Settings		(1 Range)		Receiver Settings					
Start	Stop	Step	IF BW	Detector	M-Time	Atten	Preamp	OpRge	
150kHz	30MHz	3.9063kHz	9kHz	PK+AV	20msec	20 dB	OFF	60dB	

Transducer	No.	Start	Stop	Name
	1	150kHz	30MHz	ESH3_Z5_Neutral

Final Measurement: Detectors: X QP / + AV
Meas Time: 1sec
Subranges: 8
Acc Margin: 60 dB



TEST DATA

8.2 Radiated Emissions

FCC §15.209, RSS-Gen Issue 4 8.9

Frequency (MHz)	Reading (dBμV/m)	Pol* (H/V)	Antenna Heights (cm)	Turntable Angles (°)	AF+CL+Amp (dB)**	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)
30.10	55.30	V	116	186	-24.3	31.0	40.0	9.0
32.04	53.20	V	100	15	-24.0	29.2	40.0	10.8
35.09	56.60	V	100	202	-23.4	33.2	40.0	6.8
39.26	57.20	V	100	177	-22.4	34.8	40.0	5.2
43.63	50.50	V	100	195	-22.0	28.5	40.0	11.5
67.10	51.10	V	100	158	-25.5	25.6	40.0	14.4

Radiated Measurements at 3meters

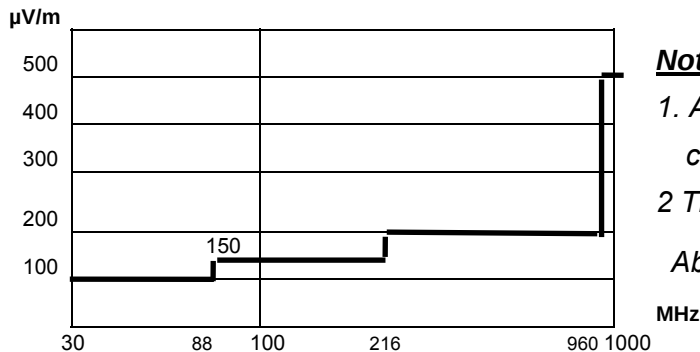


Fig. 3. Limits at 3 meters

Notes:

1. All modes were measured and the worst-case emission was reported.

2 The radiated limits are shown on Figure 3.

Above 1 GHz the limit is 500 μV/m.

MHz

3. *Pol. H = Horizontal, V = Vertical

4. **AF + CL + Amp. = Antenna Factor + Cable Loss + Amplifier.

5. Measurements using CISPR quasi-peak mode.

6. The radiated emissions testing were made by rotating through three orthogonal axes.

The worst date was recorded.

7. n(20MHz) CDD mode on the middle channel (5200MHz) is the worst case channel.

7. No emission found between lowest internal used/generated frequency to 30MHz (9kHz~30MHz).

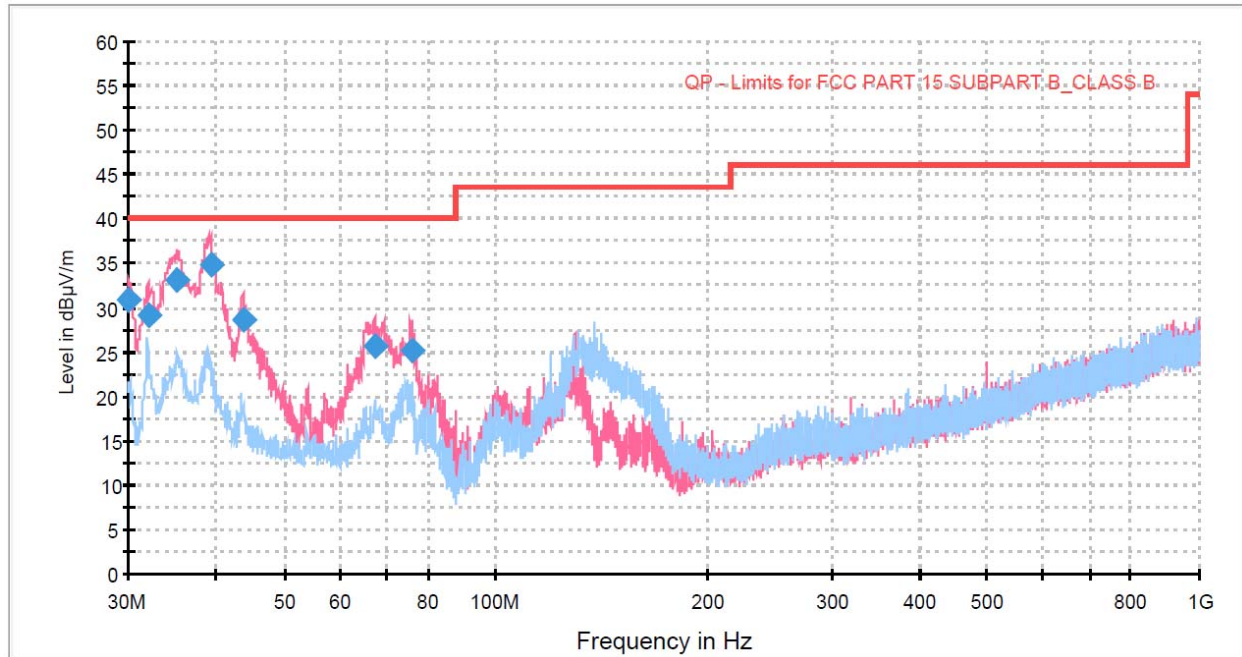
8. The limit is on the FCC §15.209 and RSS-Gen Issue4 8.9

PLOTS OF EMISSIONS

Worst Case – UNII-1 band

802.11n (20 MHz) mode – CDD

Middle channel (5200MHz)



TEST DATA

8.3 26 dB Bandwidth and 99 % Occupied bandwidth

8.3.1 26 dB Bandwidth and 99 % Occupied bandwidth – UNII-1 band

FCC §15.407(a), RSS-247 Issue 1 6.2

Test Mode : Set to Lowest channel, Middle channel and Highest channel

802.11a mode

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)		99% Occupied Bandwidth (MHz)	
		Chain 0	Chain 1	Chain 0	Chain 1
Low	5180	21.53	21.76	16.86	16.94
Middle	5220	21.66	21.65	16.91	16.89
High	5240	21.50	51.62	16.88	16.91

802.11n (20 MHz) mode - SISO

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)		99% Occupied Bandwidth (MHz)	
		Chain 0	Chain 1	Chain 0	Chain 1
Low	5180	21.71	21.93	17.97	17.98
Middle	5220	21.81	21.62	17.99	17.95
High	5240	21.71	21.82	17.95	17.97

802.11n (20 MHz) mode - CDD

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)		99% Occupied Bandwidth (MHz)	
		Chain 0	Chain 1	Chain 0	Chain 1
Low	5180	21.84	21.94	18.01	17.94
Middle	5220	22.03	21.73	17.98	17.91
High	5240	21.63	21.90	17.93	17.91

TEST DATA

802.11n (20 MHz) mode – MIMO

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)		99% Occupied Bandwidth (MHz)	
		Chain 0	Chain 1	Chain 0	Chain 1
Low	5180	21.68	21.71	17.98	17.91
Middle	5220	21.68	21.62	17.93	17.90
High	5240	21.76	21.79	17.96	17.89

802.11n (40 MHz) mode – SISO

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)		99% Occupied Bandwidth (MHz)	
		Chain 0	Chain 1	Chain 0	Chain 1
Low	5190	40.25	39.89	36.41	36.28
High	5230	39.88	40.18	36.32	36.36

802.11n (40 MHz) mode - CDD

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)		99% Occupied Bandwidth (MHz)	
		Chain 0	Chain 1	Chain 0	Chain 1
Low	5190	40.16	39.47	36.36	36.28
High	5230	39.85	39.69	36.34	36.28

802.11n (40 MHz) mode - MIMO

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)		99% Occupied Bandwidth (MHz)	
		Chain 0	Chain 1	Chain 0	Chain 1
Low	5190	39.82	39.61	36.3	36.27
High	5230	39.89	39.78	36.32	36.29

TEST DATA

802.11ac (20 MHz) mode - SISO

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)		99% Occupied Bandwidth (MHz)	
		Chain 0	Chain 1	Chain 0	Chain 1
Low	5180	21.54	21.77	17.95	17.91
Middle	5220	21.99	21.89	18.02	17.97
High	5240	21.86	21.89	17.98	17.98

802.11ac (20 MHz) mode - CDD

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)		99% Occupied Bandwidth (MHz)	
		Chain 0	Chain 1	Chain 0	Chain 1
Low	5180	21.74	22.41	17.97	17.96
Middle	5220	21.83	21.51	17.95	17.92
High	5240	21.78	21.84	17.94	17.89

802.11ac (20 MHz) mode - MIMO

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)		99% Occupied Bandwidth (MHz)	
		Chain 0	Chain 1	Chain 0	Chain 1
Low	5180	22.26	21.63	18.00	17.87
Middle	5220	21.65	18.15	17.96	17.47
High	5240	21.87	21.57	17.96	17.90

802.11ac (40 MHz) mode - SISO

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)		99% Occupied Bandwidth (MHz)	
		Chain 0	Chain 1	Chain 0	Chain 1
Low	5190	40.11	40.10	36.36	36.31
High	5230	40.05	39.83	36.32	36.33

TEST DATA

802.11ac (40 MHz) mode - CDD

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)		99% Occupied Bandwidth (MHz)	
		Chain 0	Chain 1	Chain 0	Chain 1
Low	5190	40.31	39.25	36.38	36.25
High	5230	40.36	39.68	36.33	36.20

802.11ac (40 MHz) mode - MIMO

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)		99% Occupied Bandwidth (MHz)	
		Chain 0	Chain 1	Chain 0	Chain 1
Low	5190	39.97	39.71	36.38	36.31
High	5230	39.99	39.34	36.36	36.32

802.11ac (80 MHz) mode - SISO

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)		99% Occupied Bandwidth (MHz)	
		Chain 0	Chain 1	Chain 0	Chain 1
	5210	81.49	81.48	75.63	75.68

802.11ac (80 MHz) mode - CDD

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)		99% Occupied Bandwidth (MHz)	
		Chain 0	Chain 1	Chain 0	Chain 1
	5210	81.51	80.82	75.67	75.60

TEST DATA

802.11ac (80 MHz) mode - MIMO

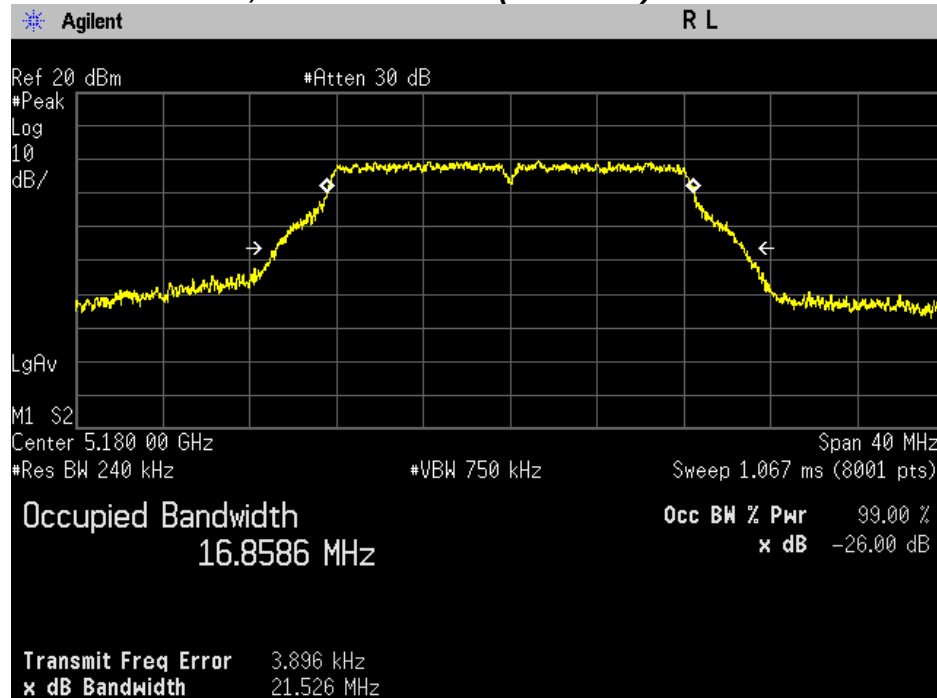
Channel	Frequency (MHz)	26 dB Bandwidth (MHz)		99% Occupied Bandwidth (MHz)	
		Chain 0	Chain 1	Chain 0	Chain 1
	5210	81.51	80.91	75.67	75.63

PLOTS OF EMISSIONS

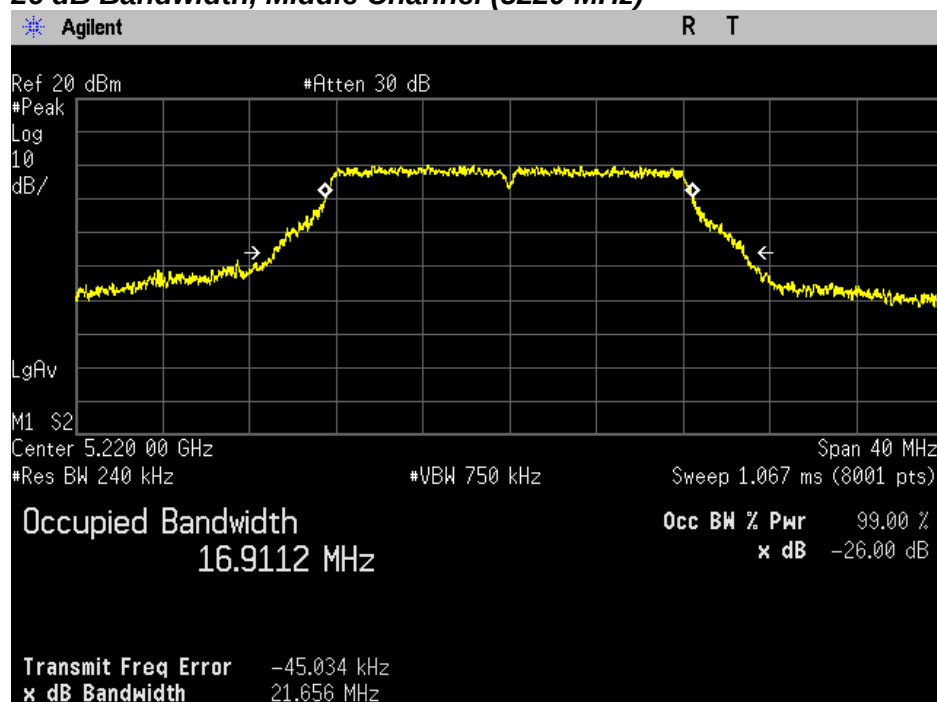
802.11a mode

Chain 0

26 dB Bandwidth, Lowest Channel (5180 MHz)

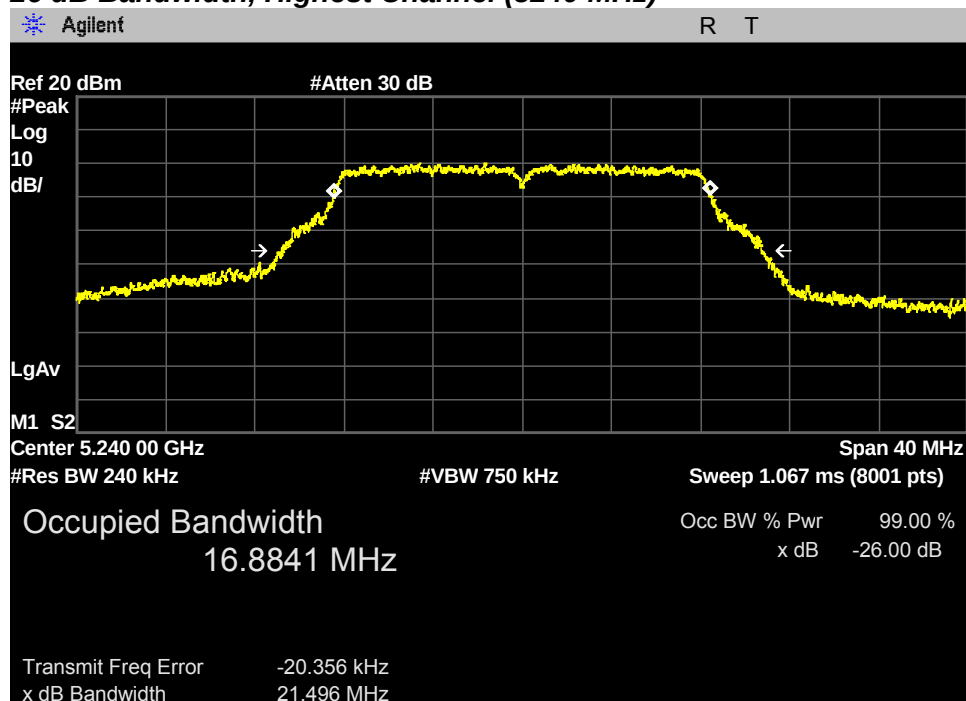


26 dB Bandwidth, Middle Channel (5220 MHz)



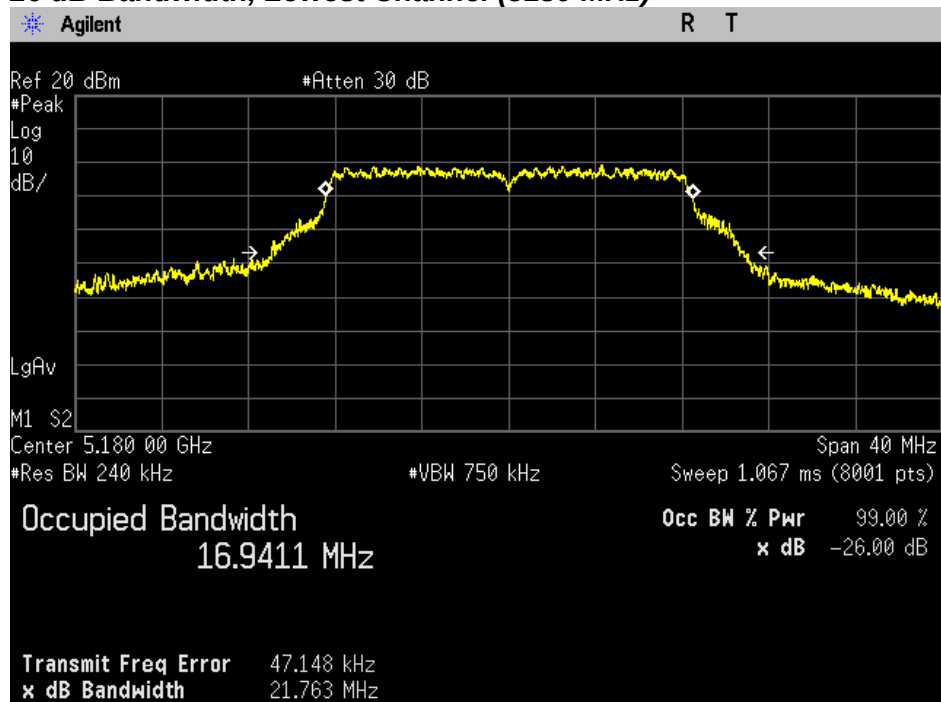
PLOTS OF EMISSIONS

26 dB Bandwidth, Highest Channel (5240 MHz)



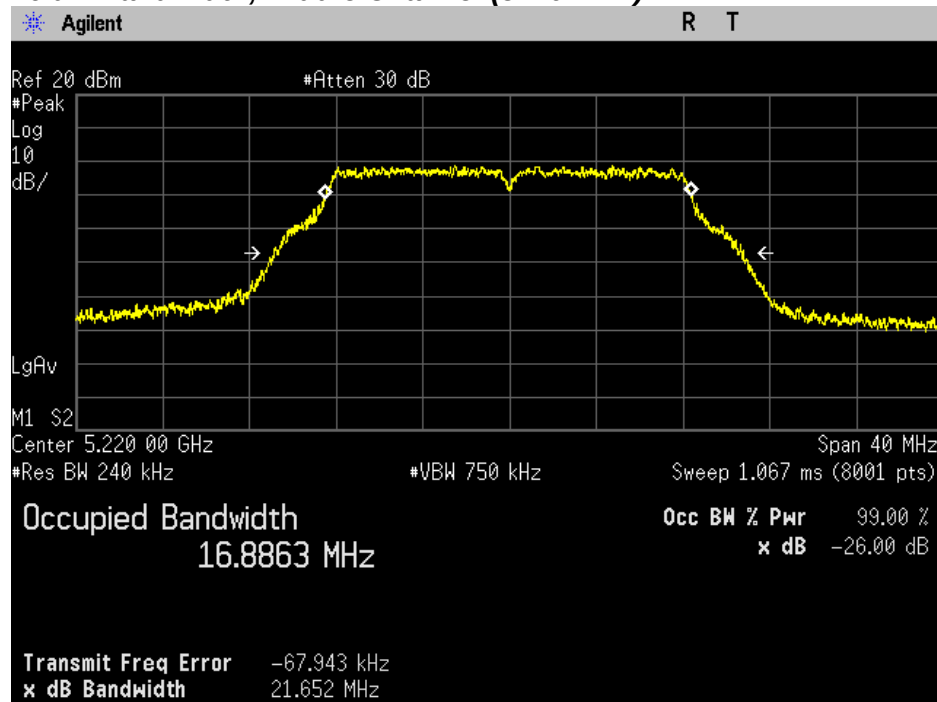
Chain 1

26 dB Bandwidth, Lowest Channel (5180 MHz)

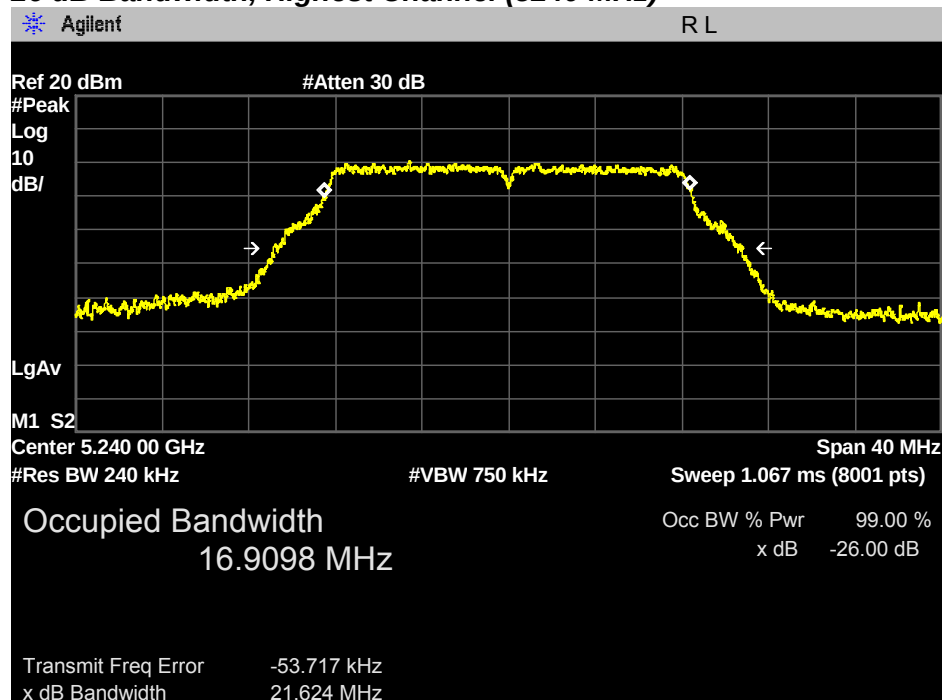


PLOTS OF EMISSIONS

26 dB Bandwidth, Middle Channel (5220 MHz)



26 dB Bandwidth, Highest Channel (5240 MHz)

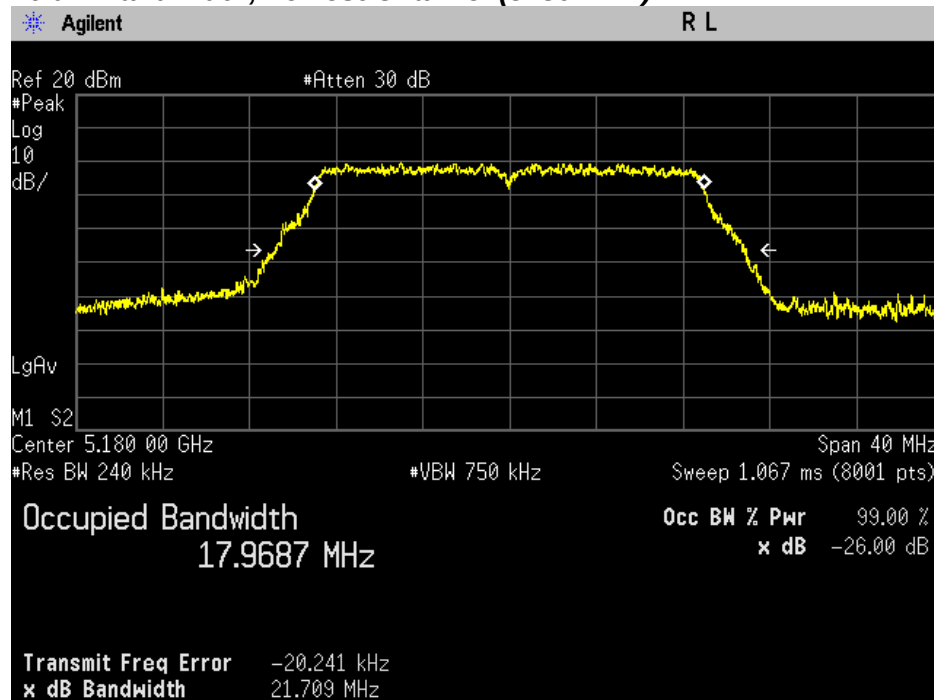


PLOTS OF EMISSIONS

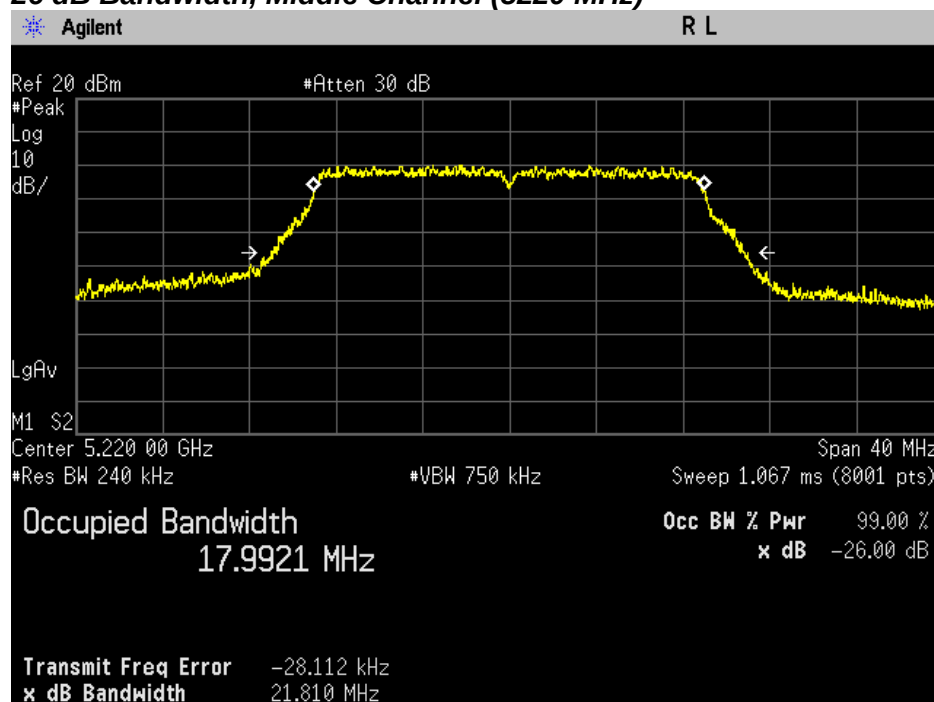
802.11n (20 MHz) mode - SISO

Chain 0

26 dB Bandwidth, Lowest Channel (5180 MHz)

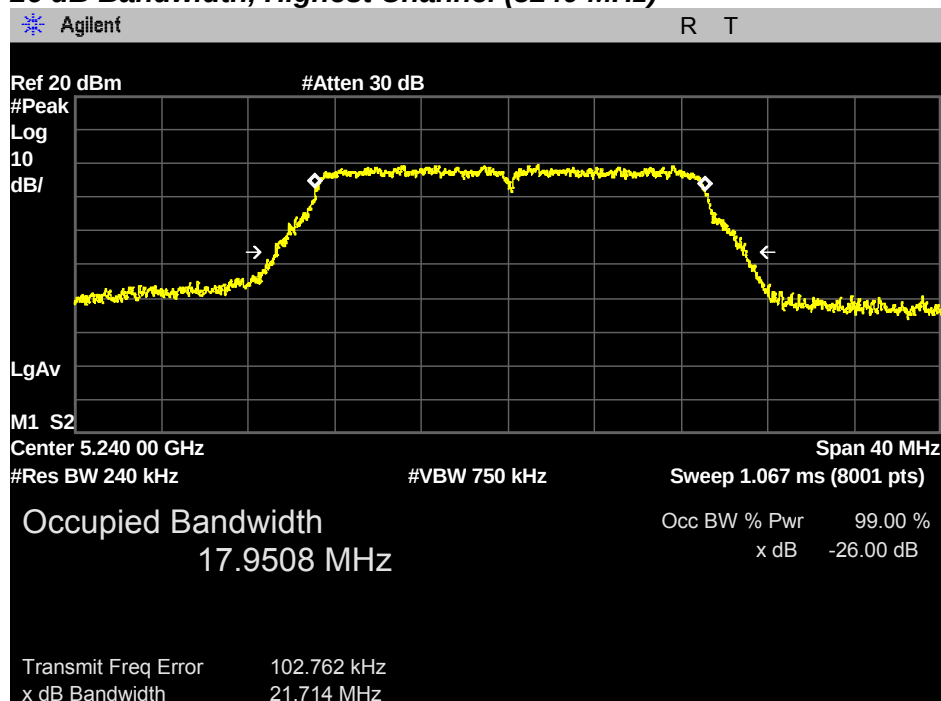


26 dB Bandwidth, Middle Channel (5220 MHz)



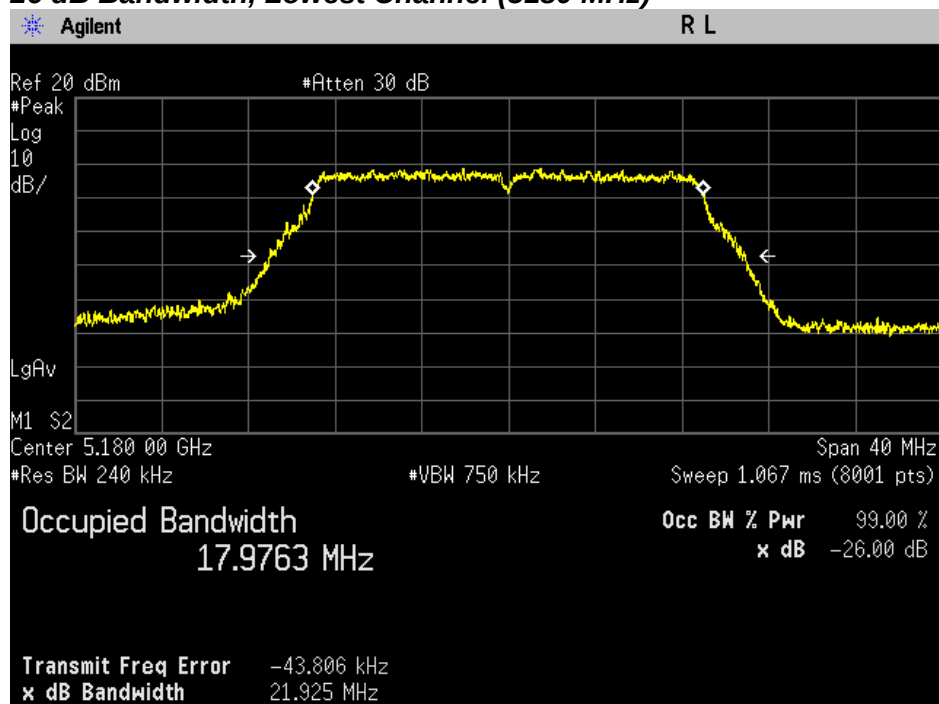
PLOTS OF EMISSIONS

26 dB Bandwidth, Highest Channel (5240 MHz)



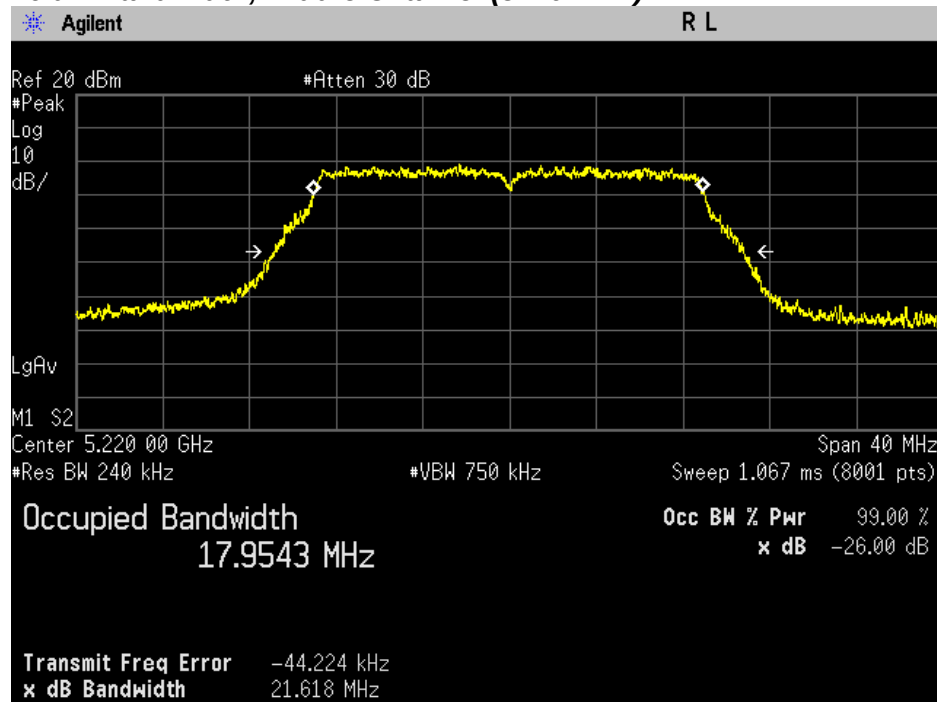
Chain 1

26 dB Bandwidth, Lowest Channel (5180 MHz)

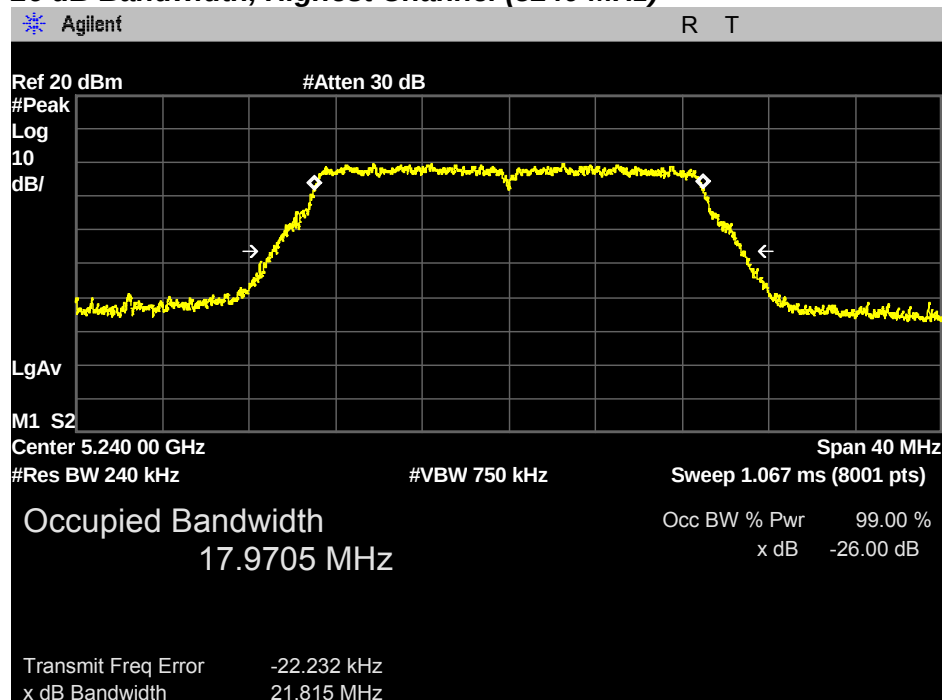


PLOTS OF EMISSIONS

26 dB Bandwidth, Middle Channel (5220 MHz)



26 dB Bandwidth, Highest Channel (5240 MHz)

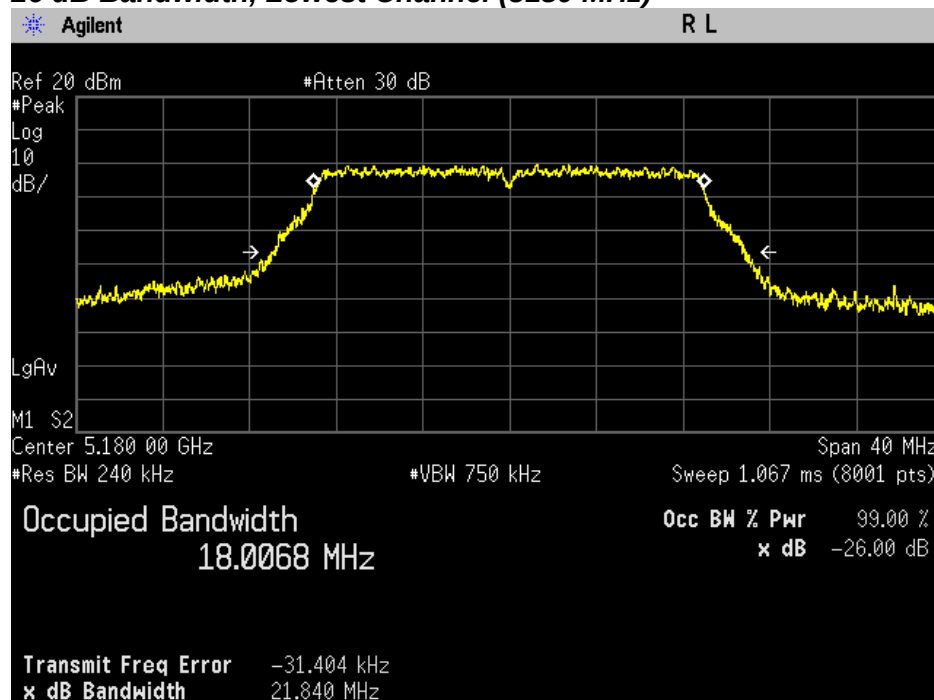


PLOTS OF EMISSIONS

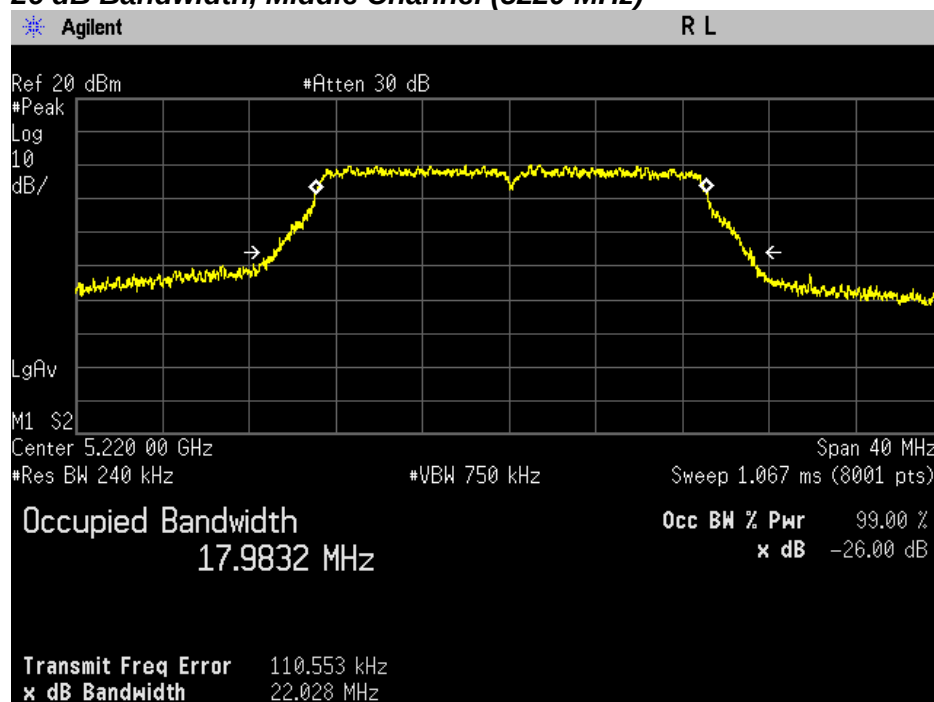
802.11n (20 MHz) mode - CDD

Chain 0

26 dB Bandwidth, Lowest Channel (5180 MHz)

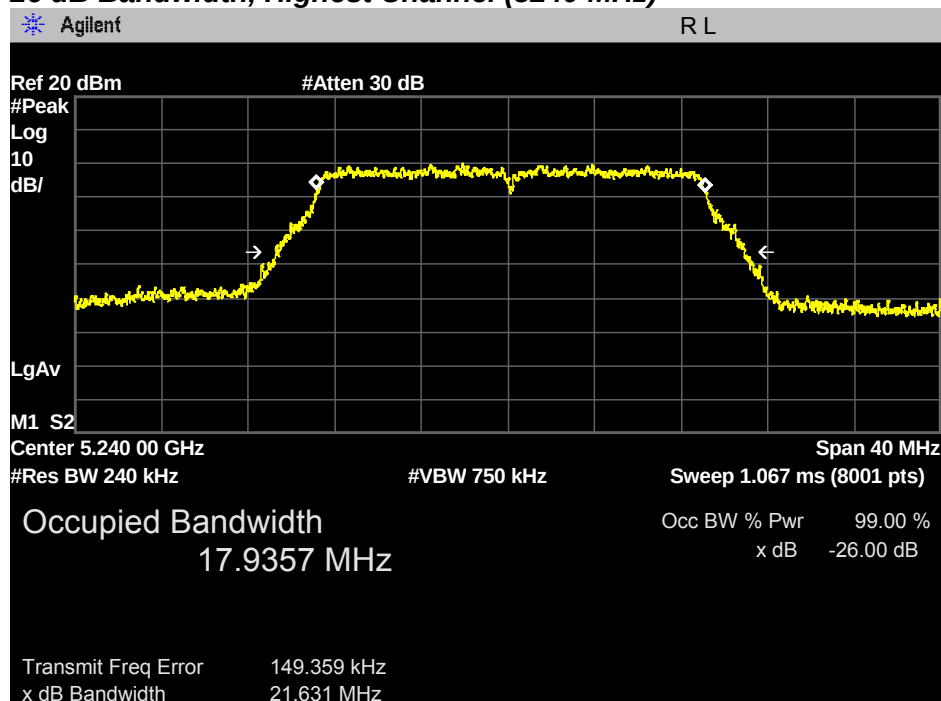


26 dB Bandwidth, Middle Channel (5220 MHz)



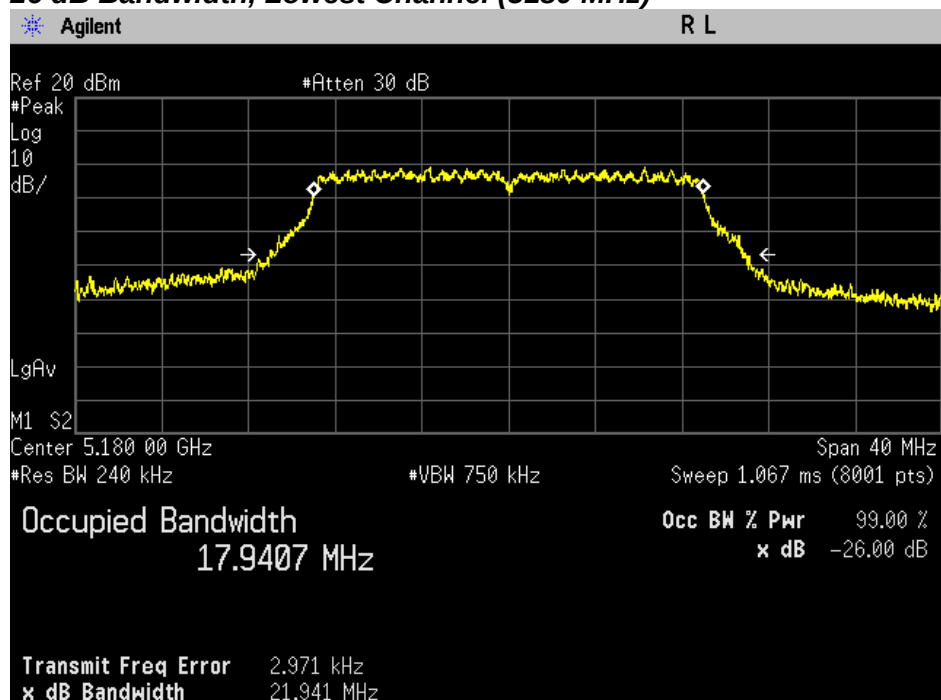
PLOTS OF EMISSIONS

26 dB Bandwidth, Highest Channel (5240 MHz)



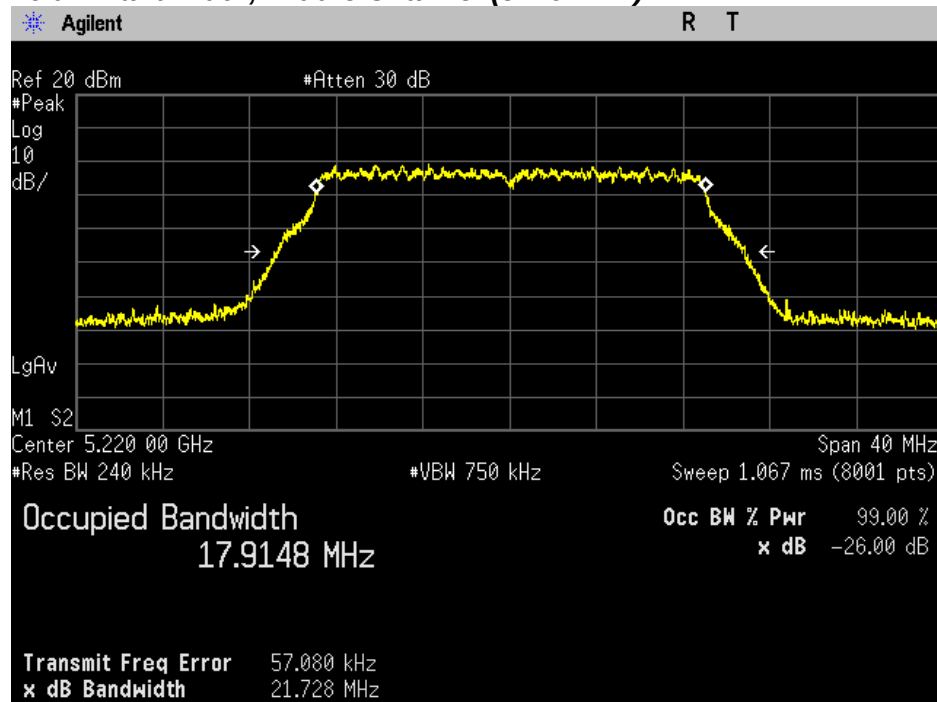
Chain 1

26 dB Bandwidth, Lowest Channel (5180 MHz)

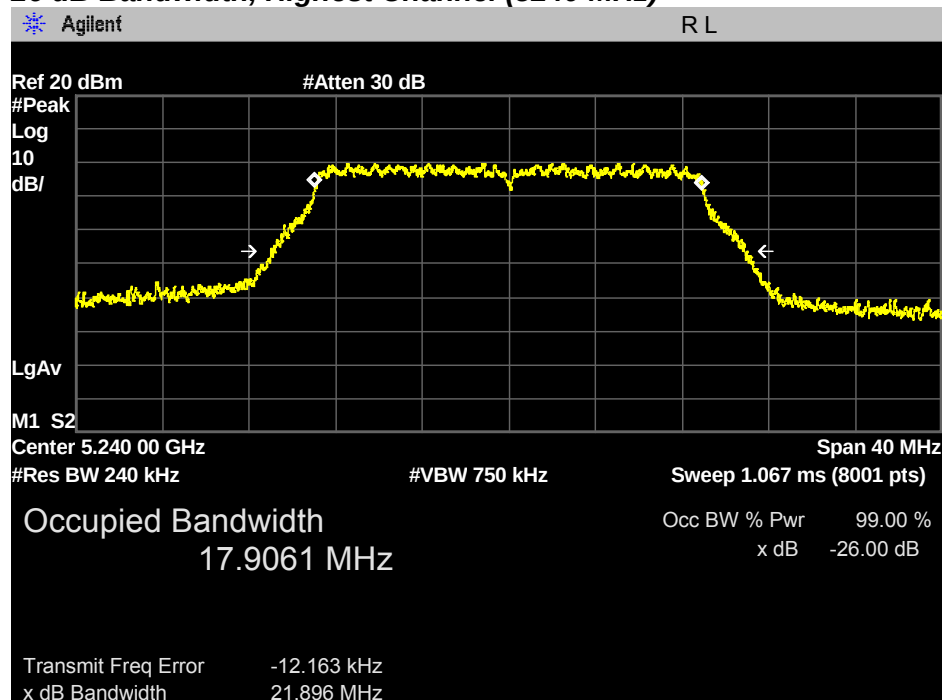


PLOTS OF EMISSIONS

26 dB Bandwidth, Middle Channel (5220 MHz)



26 dB Bandwidth, Highest Channel (5240 MHz)

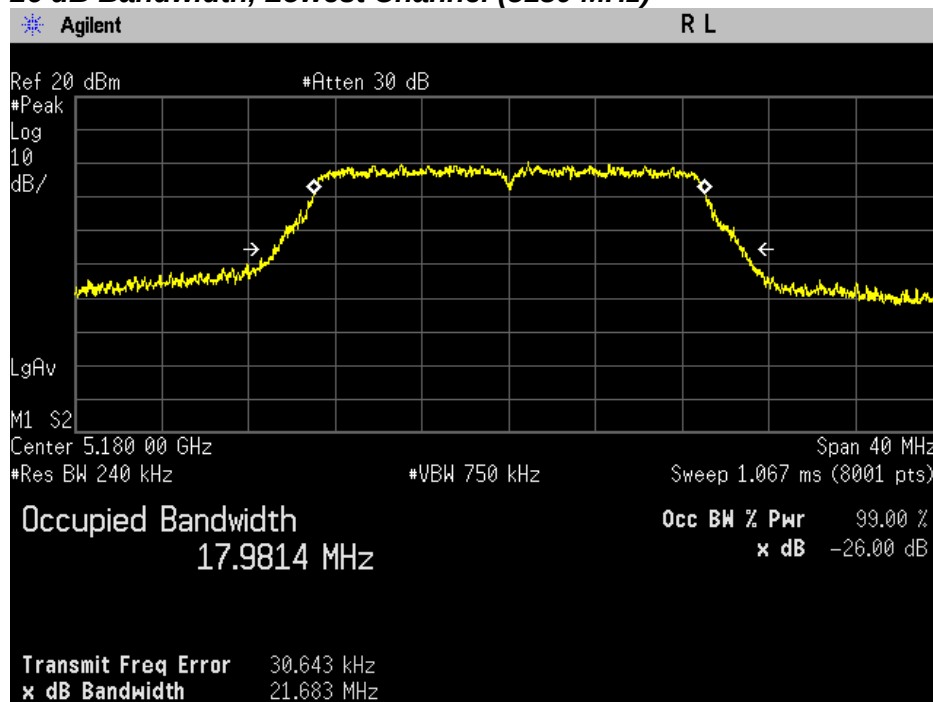


PLOTS OF EMISSIONS

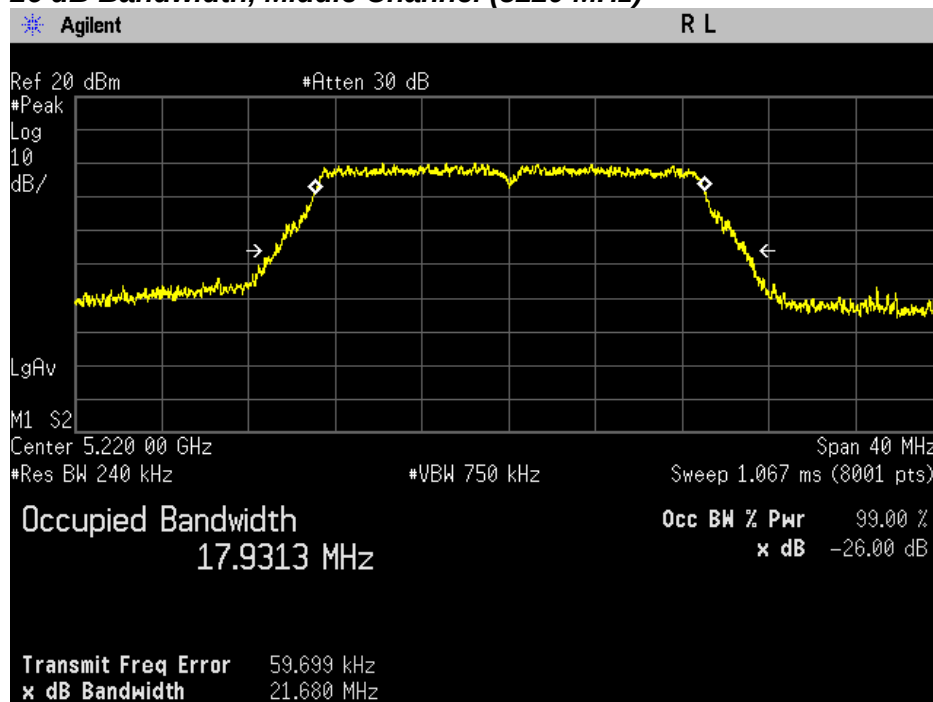
802.11n (20 MHz) mode - MIMO

Chain 0

26 dB Bandwidth, Lowest Channel (5180 MHz)

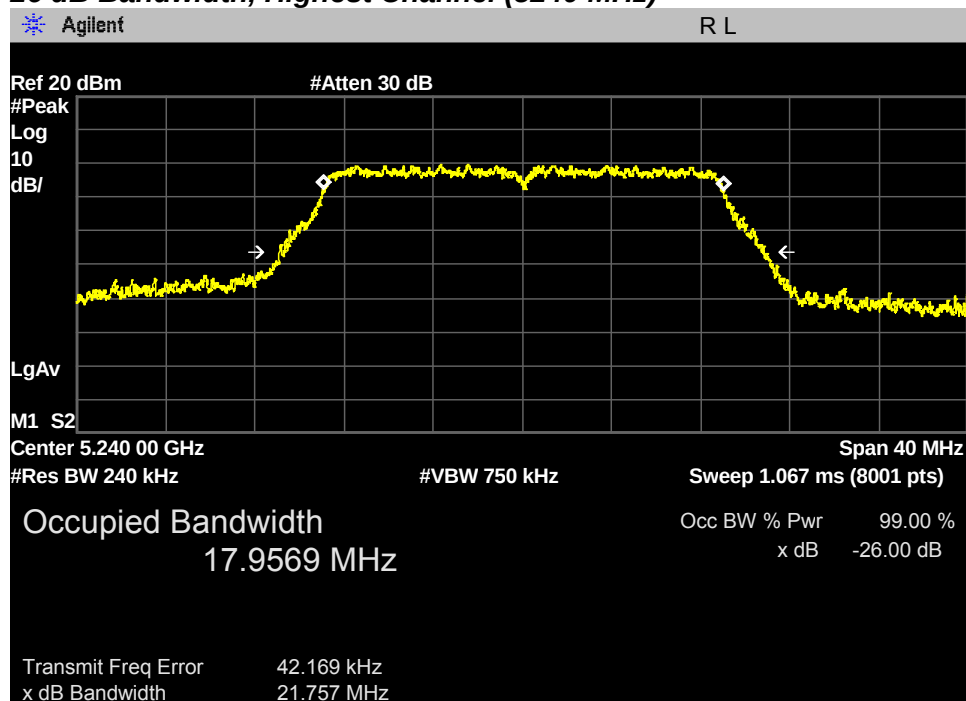


26 dB Bandwidth, Middle Channel (5220 MHz)



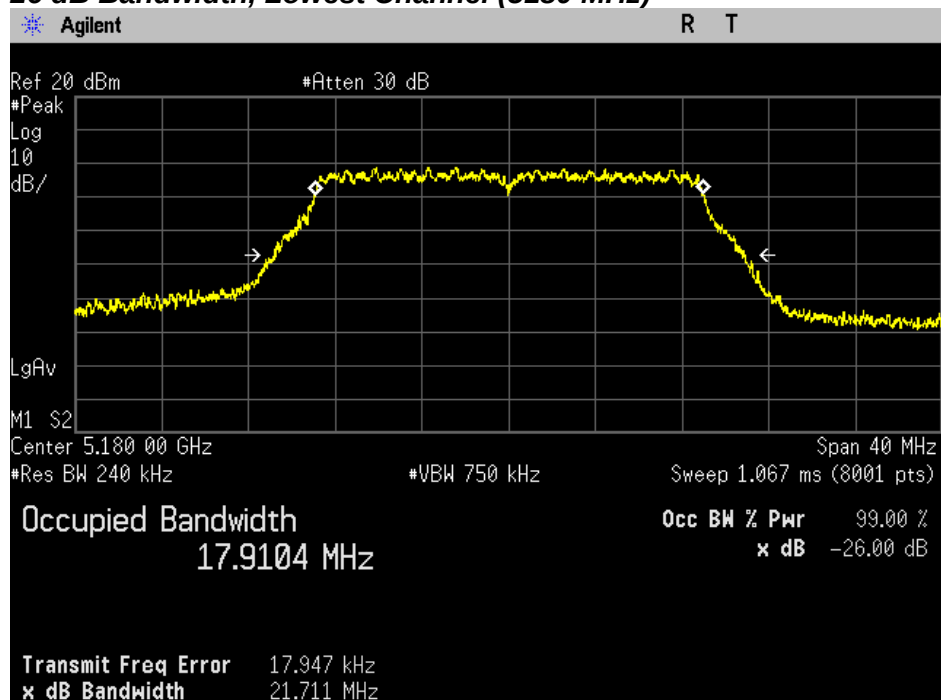
PLOTS OF EMISSIONS

26 dB Bandwidth, Highest Channel (5240 MHz)



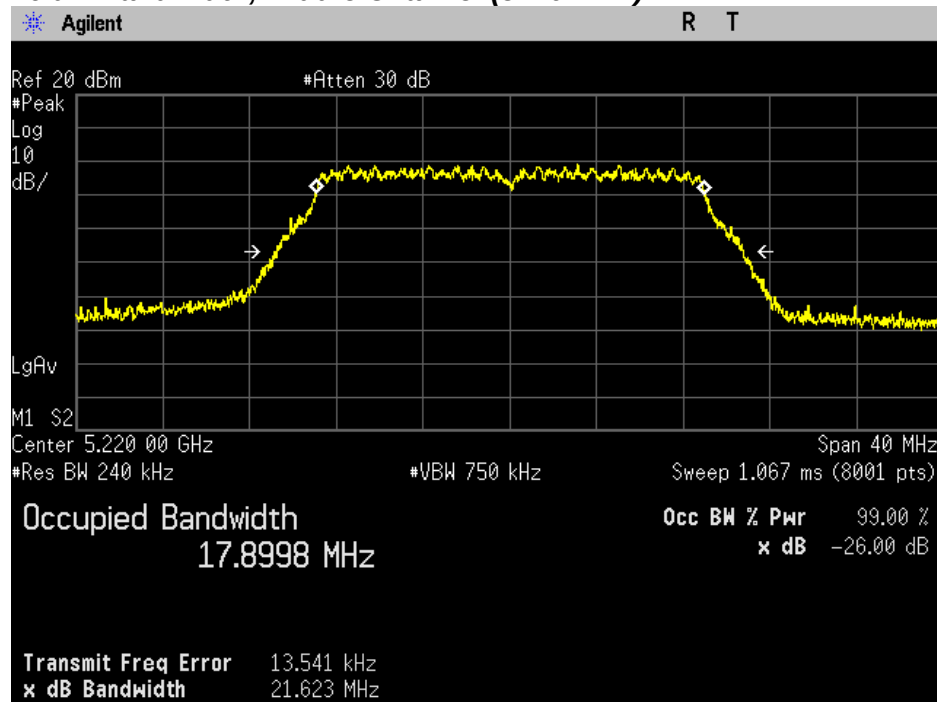
Chain 1

26 dB Bandwidth, Lowest Channel (5180 MHz)

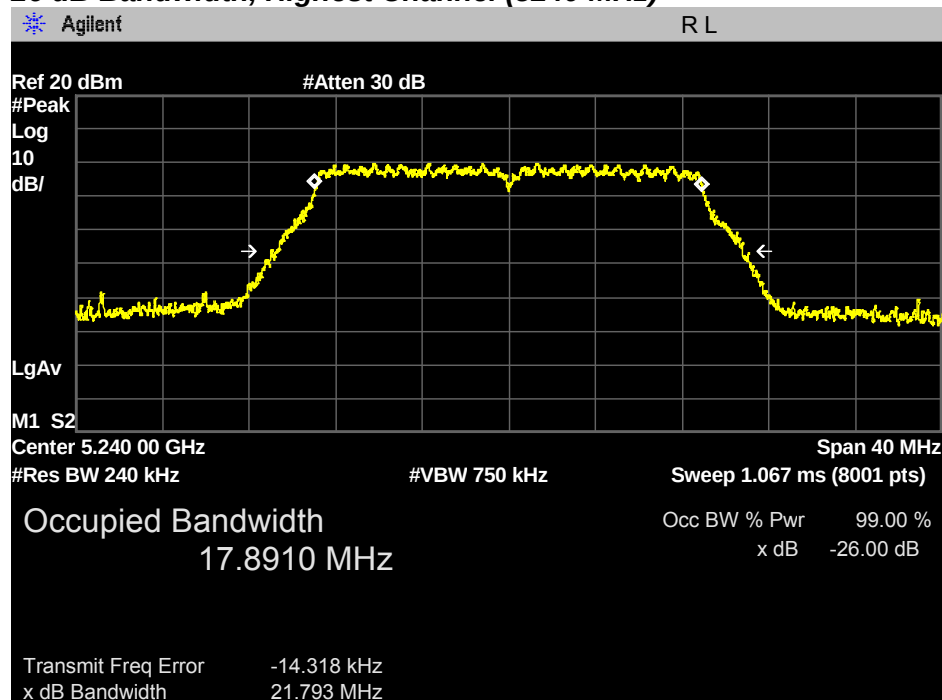


PLOTS OF EMISSIONS

26 dB Bandwidth, Middle Channel (5220 MHz)



26 dB Bandwidth, Highest Channel (5240 MHz)

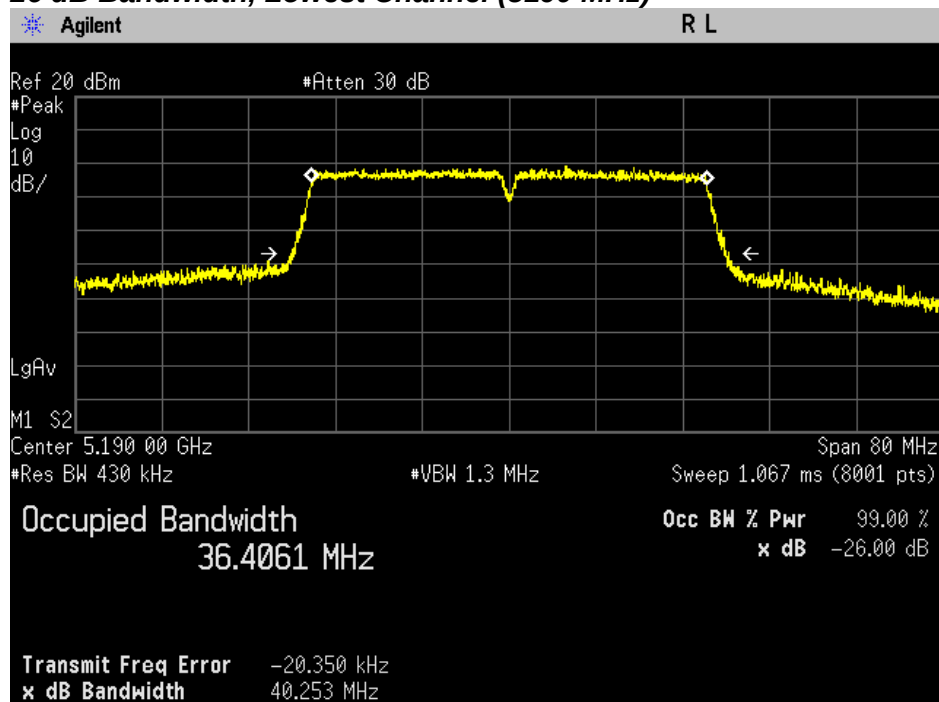


PLOTS OF EMISSIONS

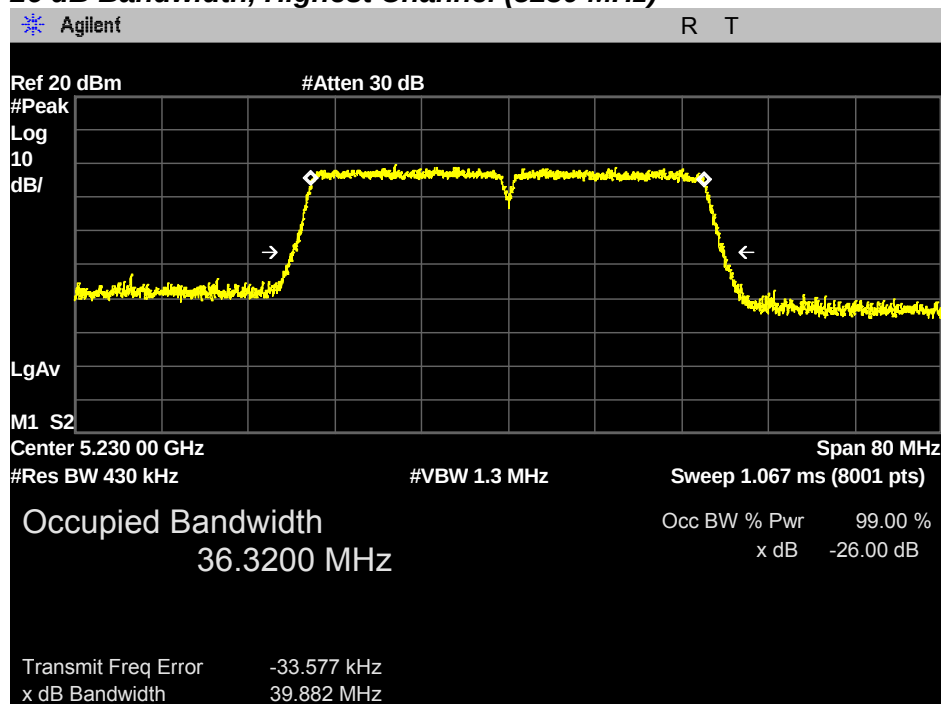
802.11n (40 MHz) mode - SISO

Chain 0

26 dB Bandwidth, Lowest Channel (5190 MHz)



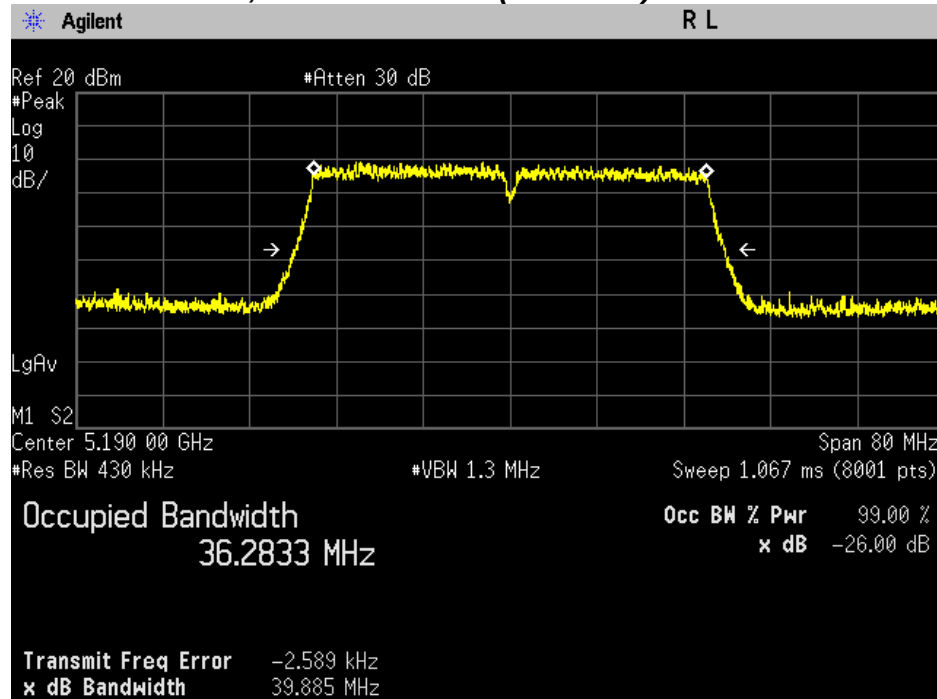
26 dB Bandwidth, Highest Channel (5230 MHz)



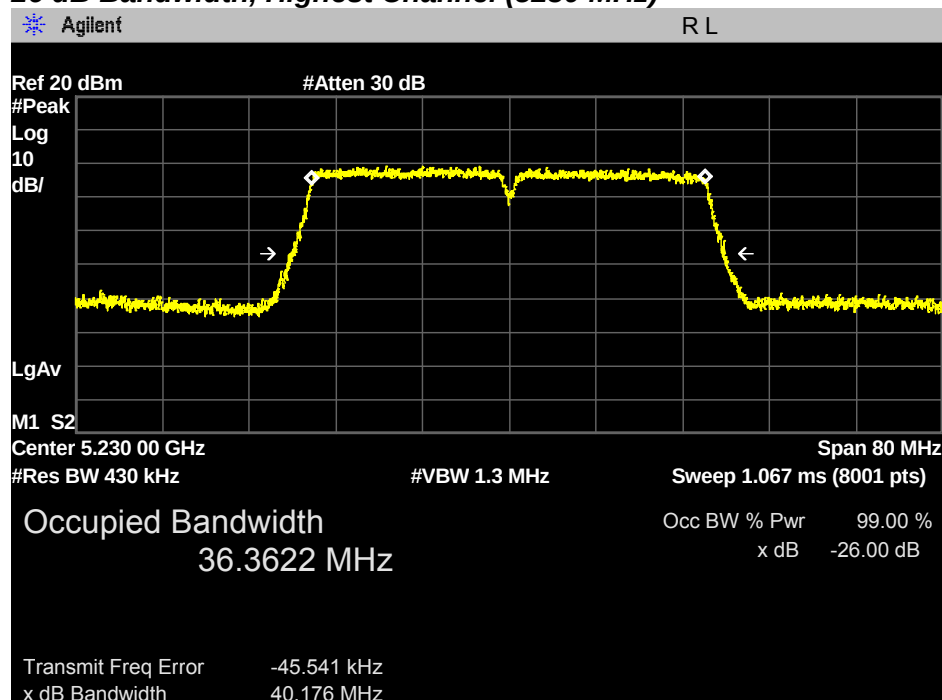
PLOTS OF EMISSIONS

Chain 1

26 dB Bandwidth, Lowest Channel (5190 MHz)



26 dB Bandwidth, Highest Channel (5230 MHz)

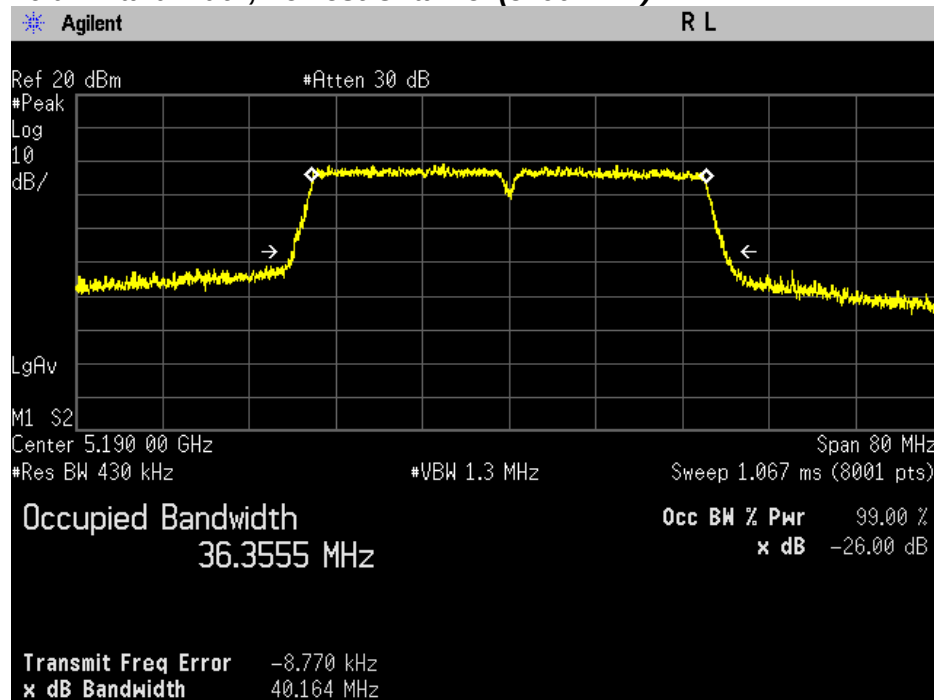


PLOTS OF EMISSIONS

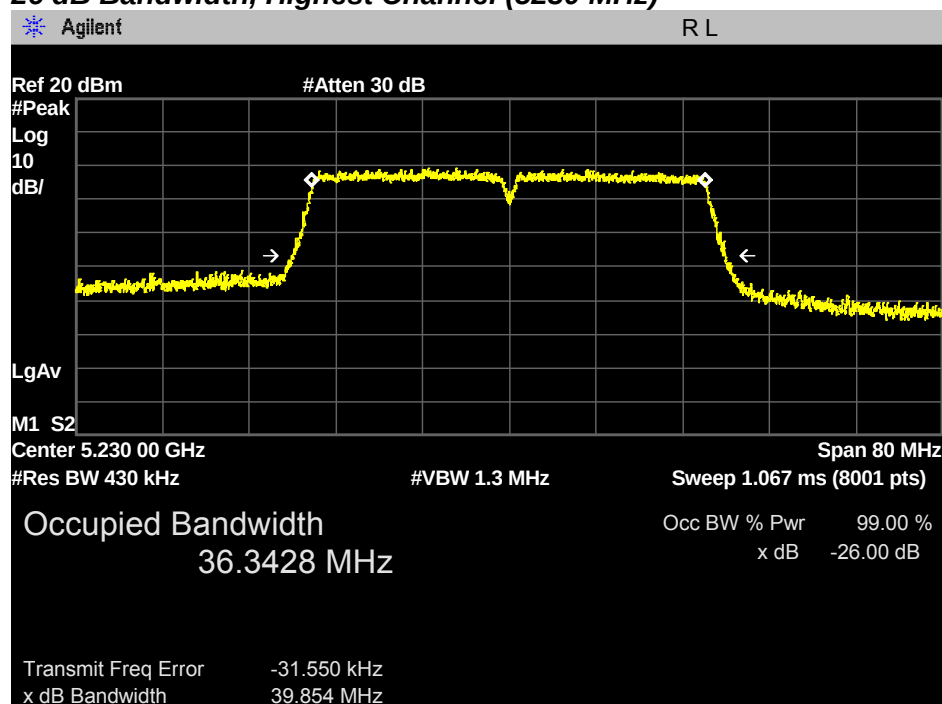
802.11n (40 MHz) mode - CDD

Chain 0

26 dB Bandwidth, Lowest Channel (5190 MHz)



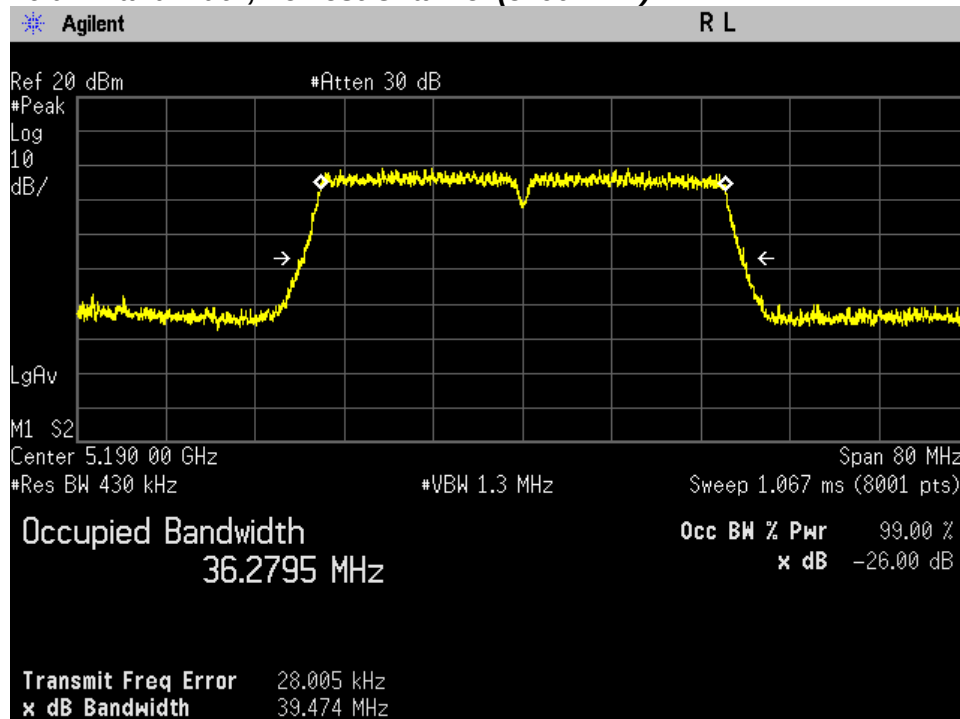
26 dB Bandwidth, Highest Channel (5230 MHz)



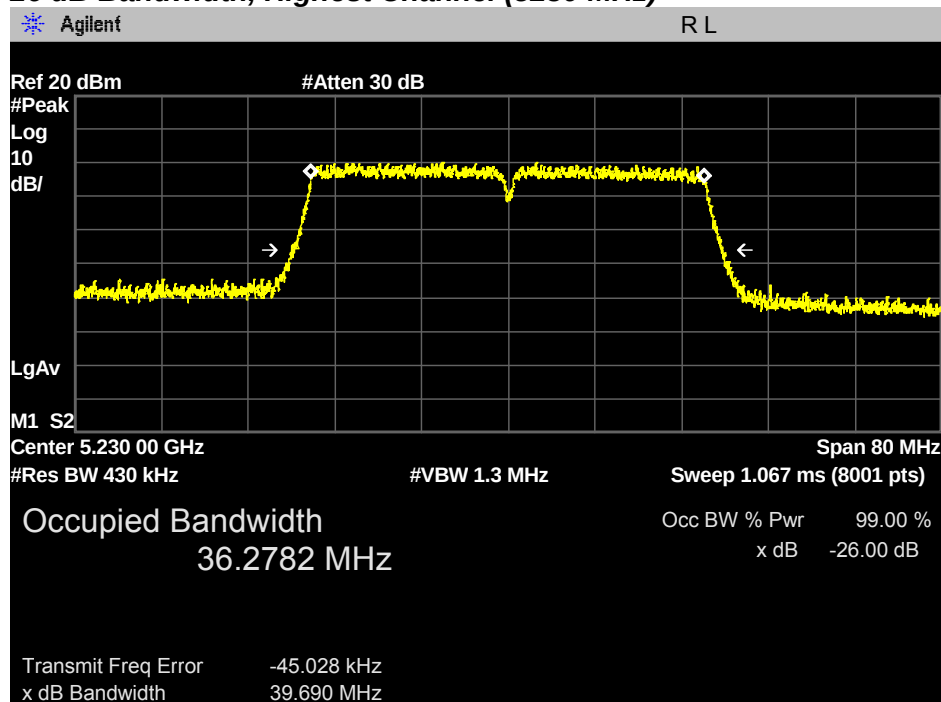
PLOTS OF EMISSIONS

Chain 1

26 dB Bandwidth, Lowest Channel (5190 MHz)



26 dB Bandwidth, Highest Channel (5230 MHz)

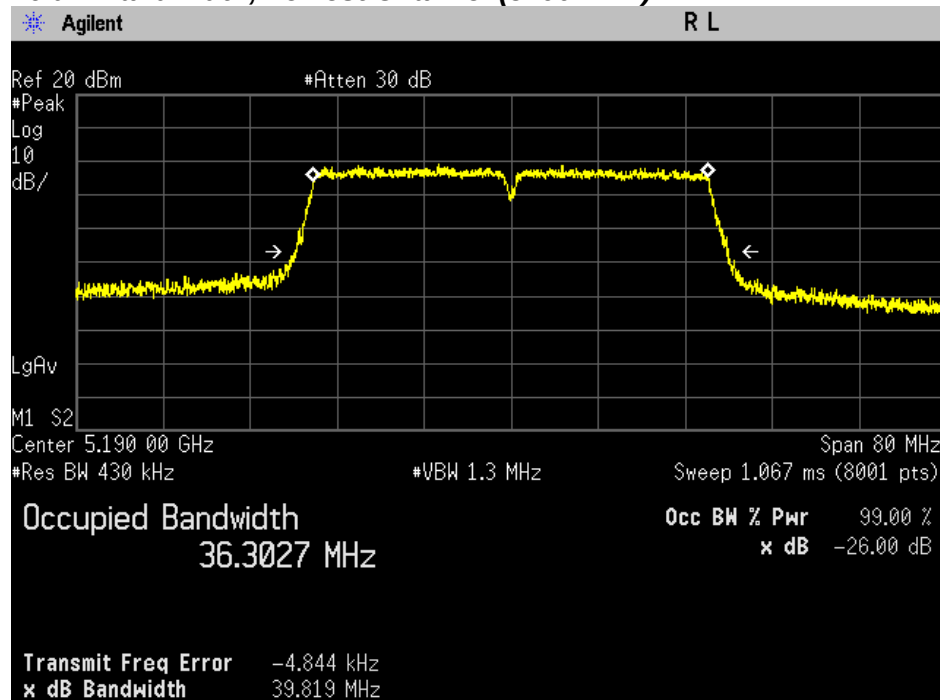


PLOTS OF EMISSIONS

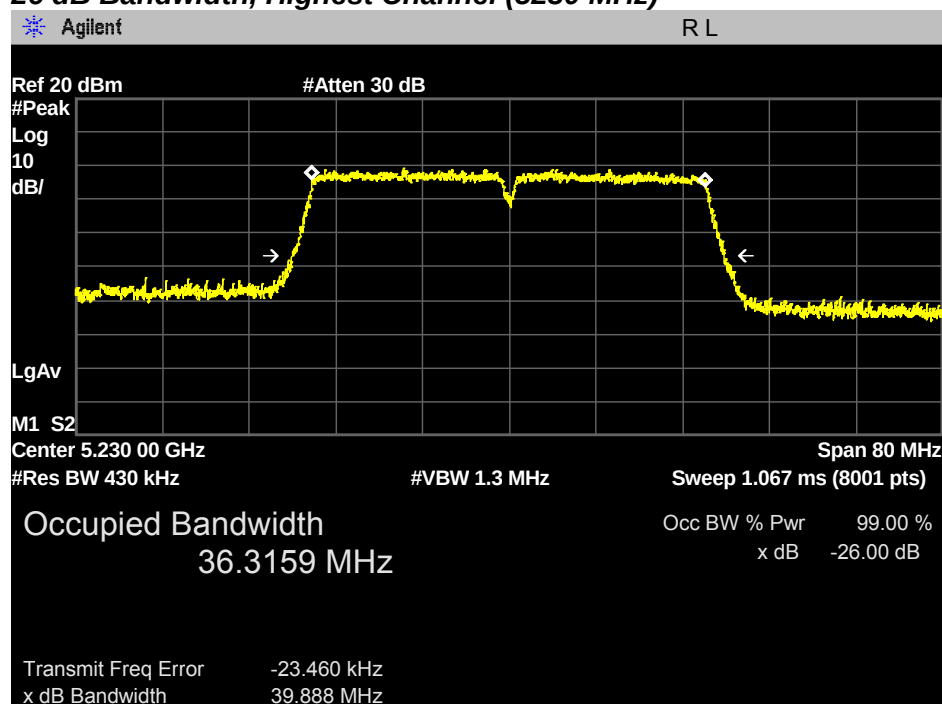
802.11n (40 MHz) mode - MIMO

Chain 0

26 dB Bandwidth, Lowest Channel (5190 MHz)



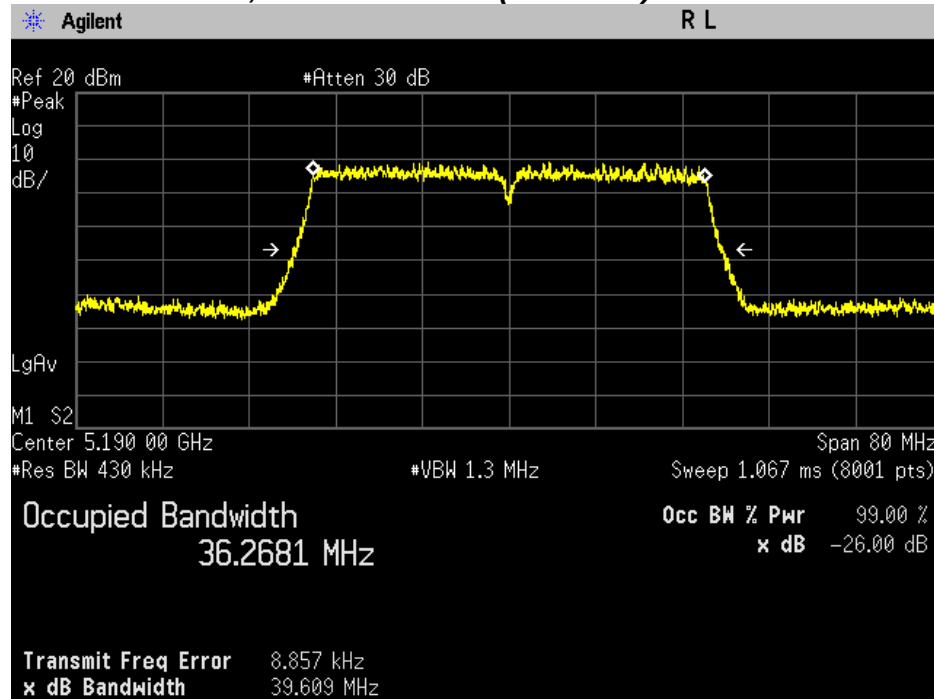
26 dB Bandwidth, Highest Channel (5230 MHz)



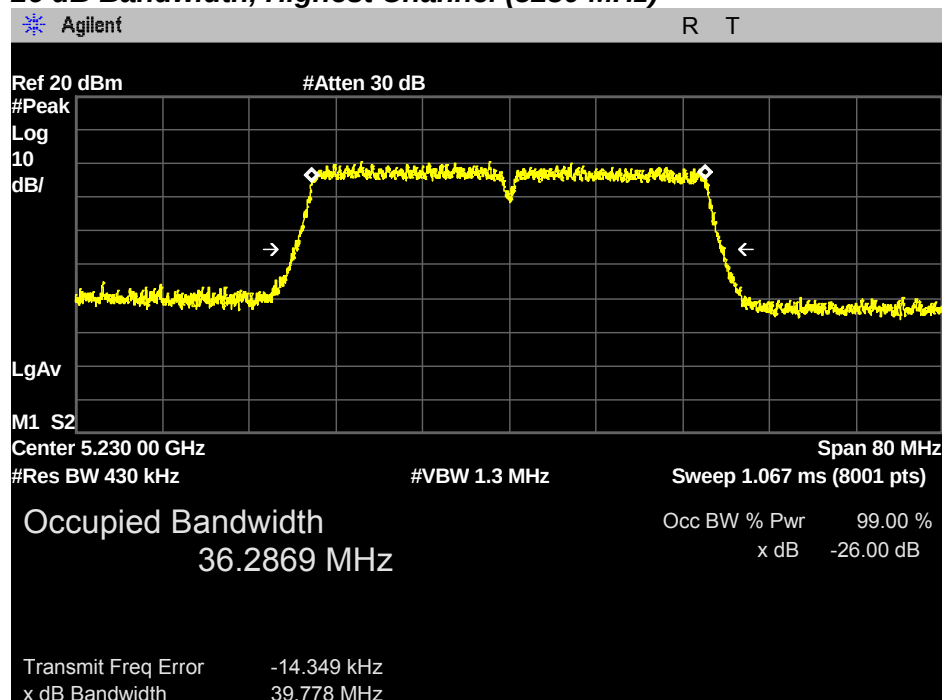
PLOTS OF EMISSIONS

Chain 1

26 dB Bandwidth, Lowest Channel (5190 MHz)



26 dB Bandwidth, Highest Channel (5230 MHz)

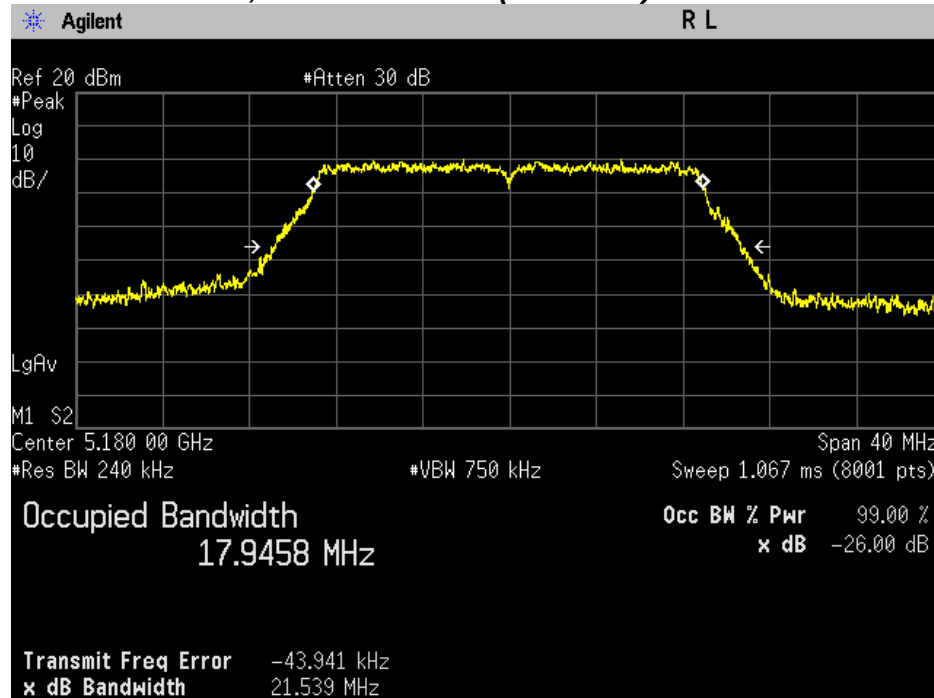


PLOTS OF EMISSIONS

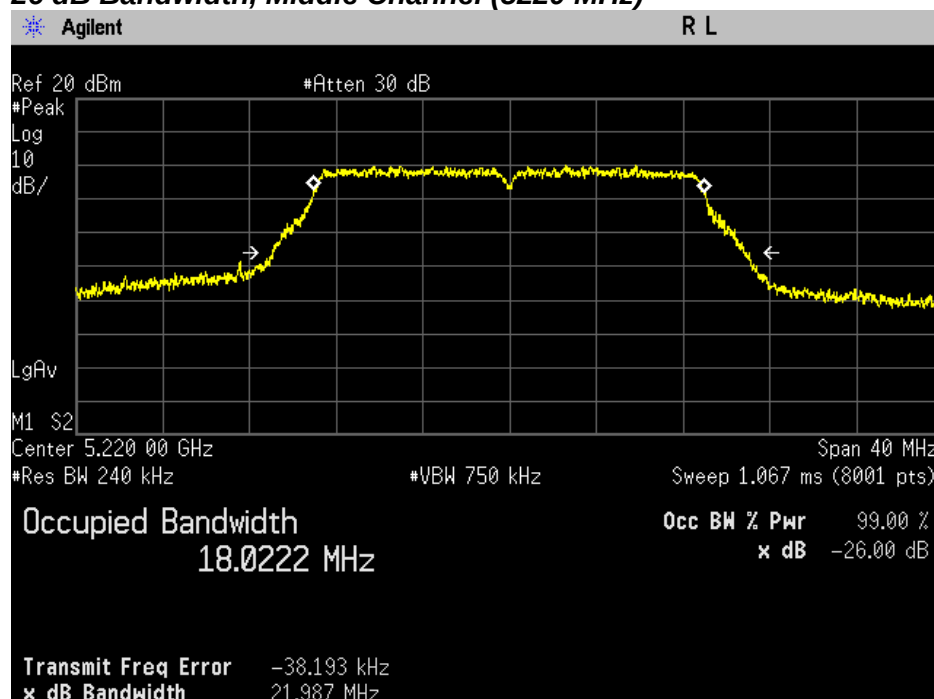
802.11ac (20 MHz) mode - SISO

Chain 0

26 dB Bandwidth, Lowest Channel (5180 MHz)

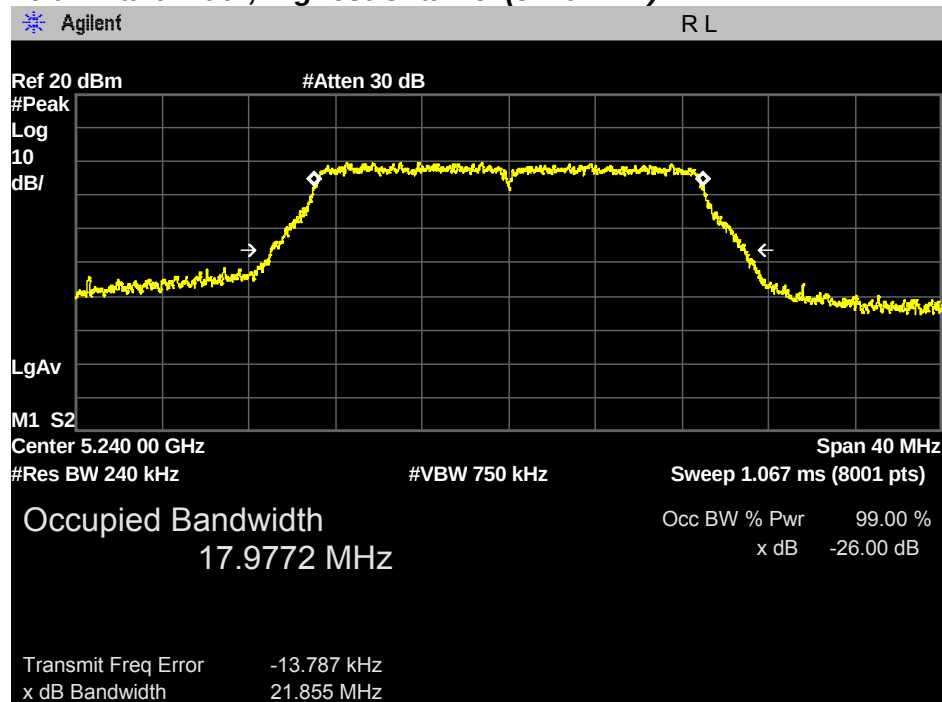


26 dB Bandwidth, Middle Channel (5220 MHz)



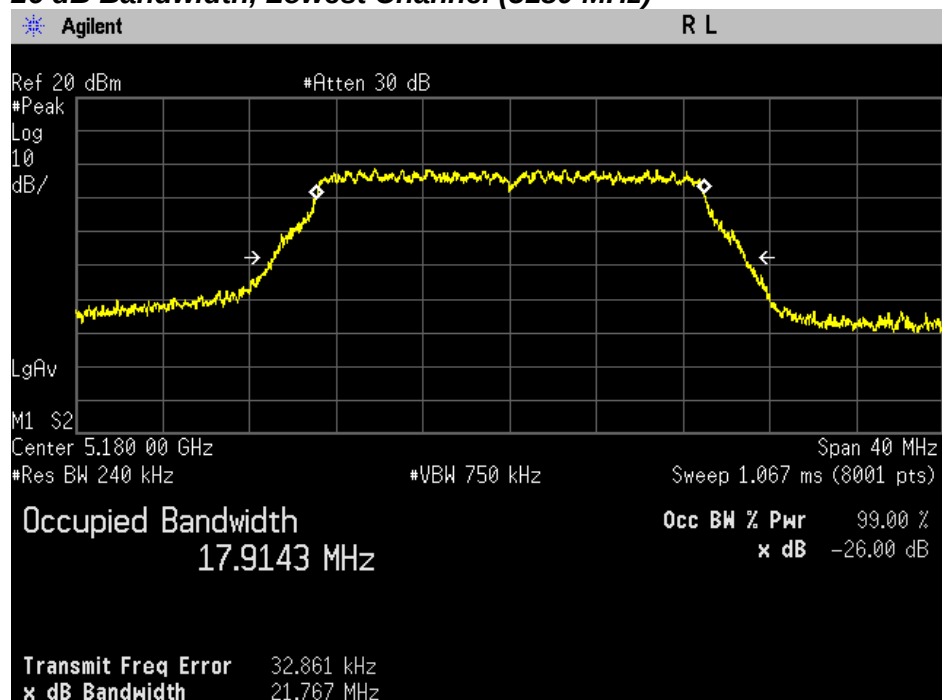
PLOTS OF EMISSIONS

26 dB Bandwidth, Highest Channel (5240 MHz)



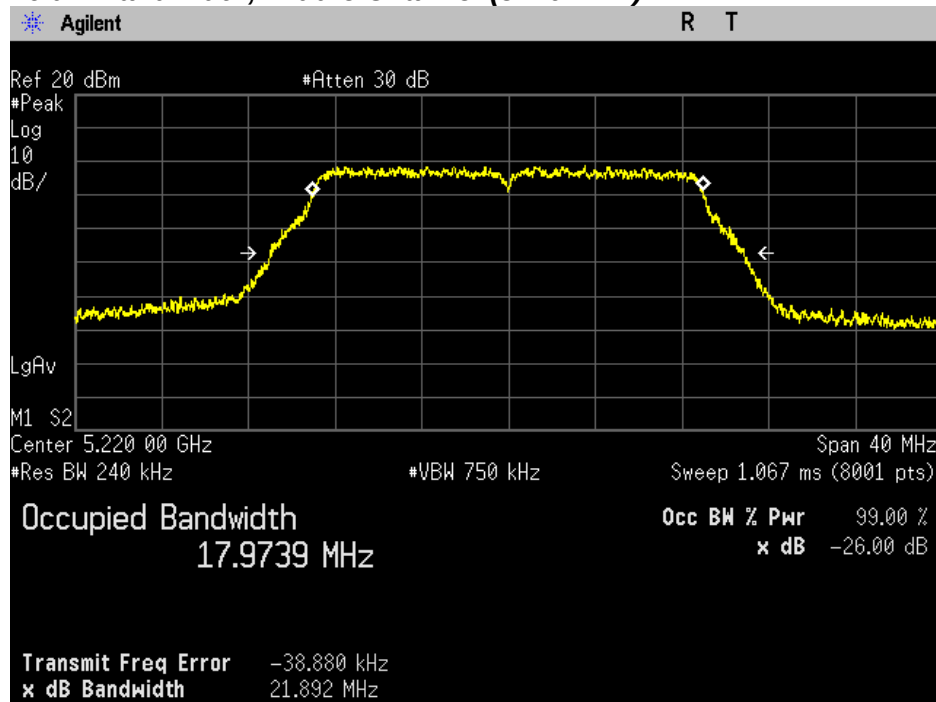
Chain 1

26 dB Bandwidth, Lowest Channel (5180 MHz)

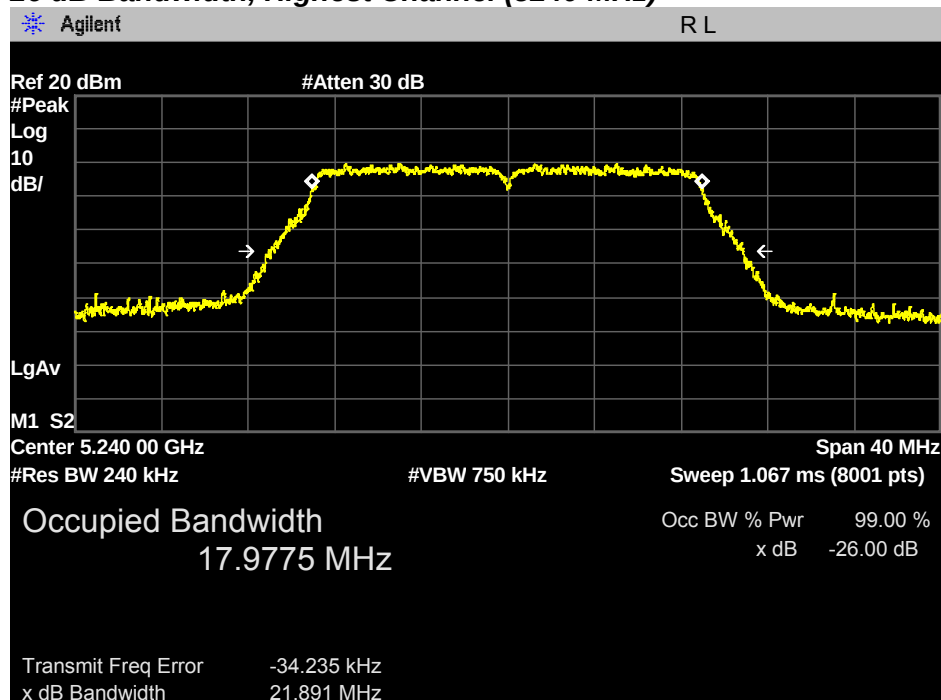


PLOTS OF EMISSIONS

26 dB Bandwidth, Middle Channel (5220 MHz)



26 dB Bandwidth, Highest Channel (5240 MHz)

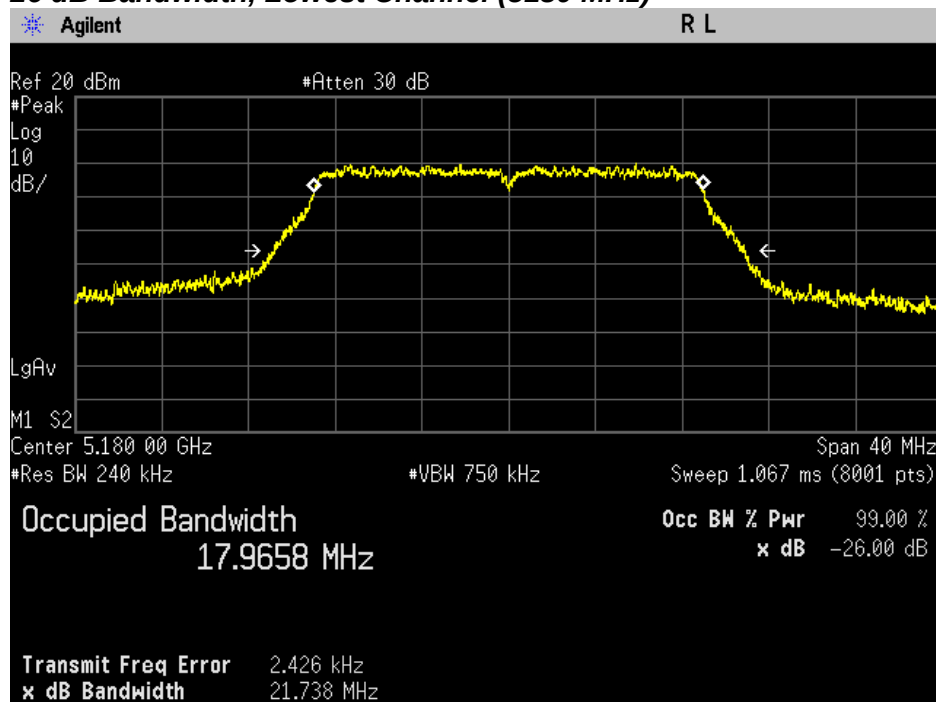


PLOTS OF EMISSIONS

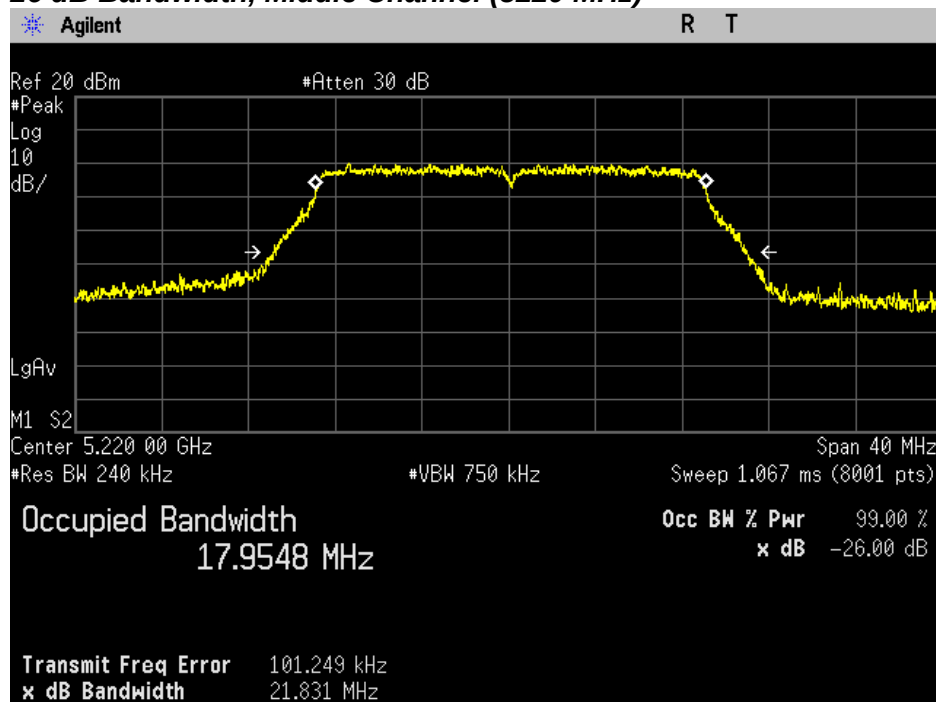
802.11ac (20 MHz) mode - CDD

Chain 0

26 dB Bandwidth, Lowest Channel (5180 MHz)



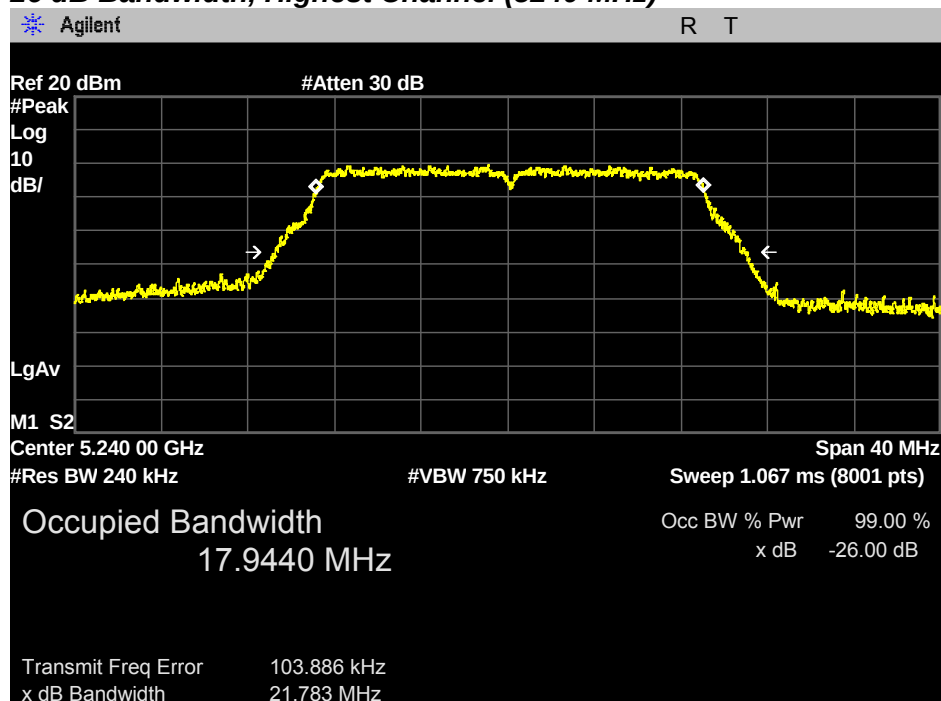
26 dB Bandwidth, Middle Channel (5220 MHz)



PLOTS OF EMISSIONS

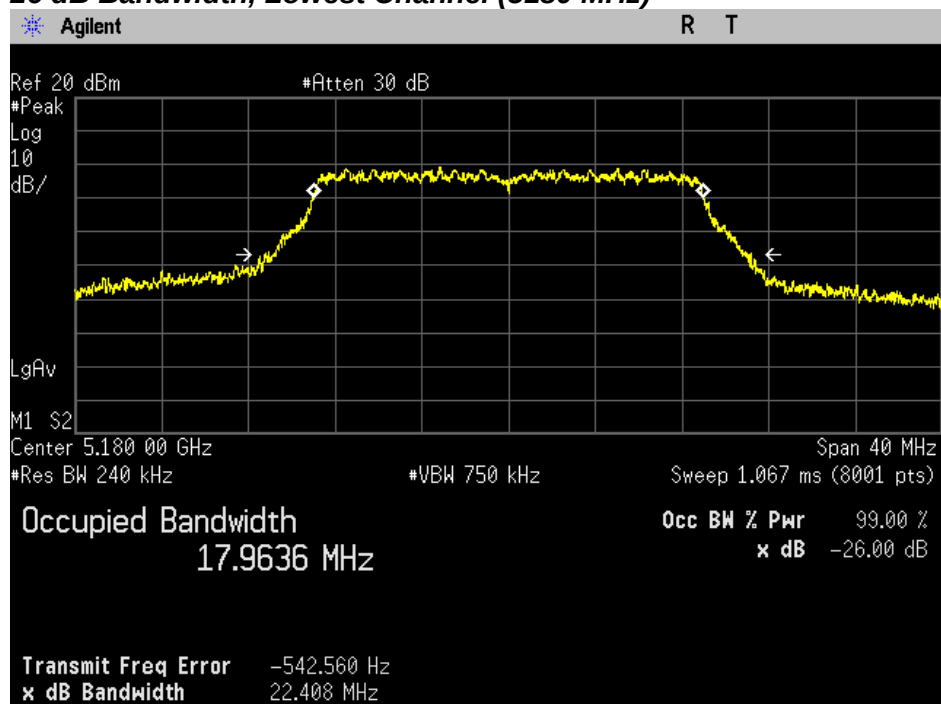
PLOTS OF EMISSIONS

26 dB Bandwidth, Highest Channel (5240 MHz)



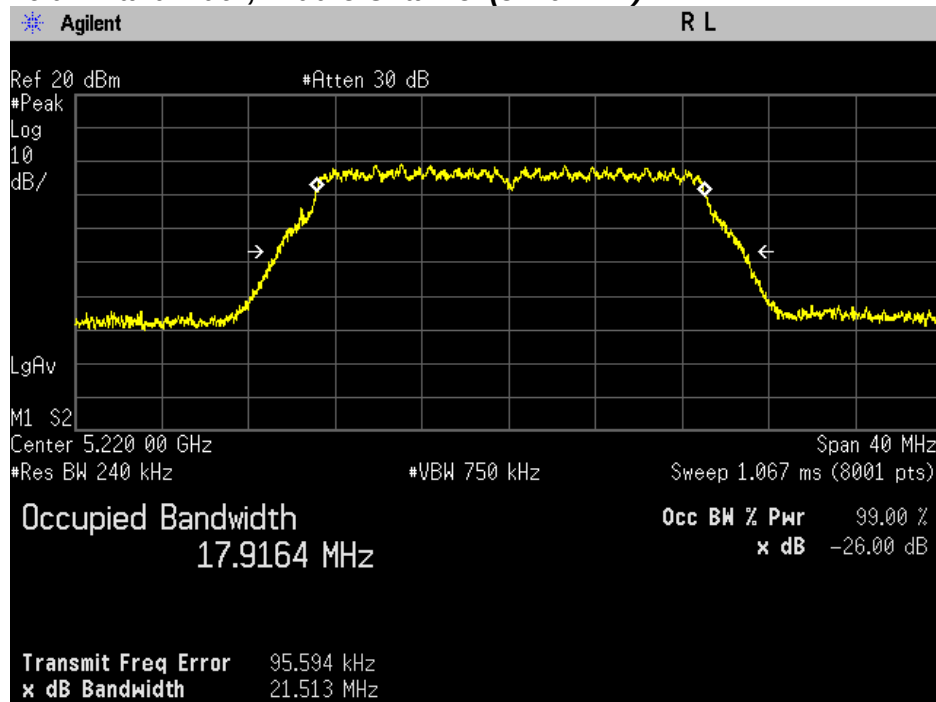
Chain 1

26 dB Bandwidth, Lowest Channel (5180 MHz)

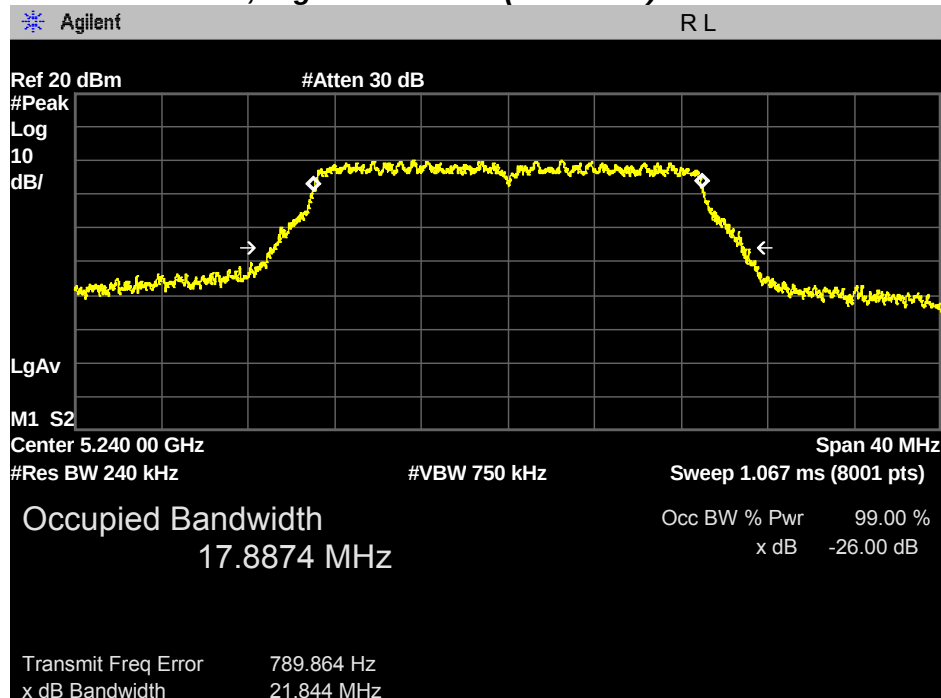


PLOTS OF EMISSIONS

26 dB Bandwidth, Middle Channel (5220 MHz)



26 dB Bandwidth, Highest Channel (5240 MHz)

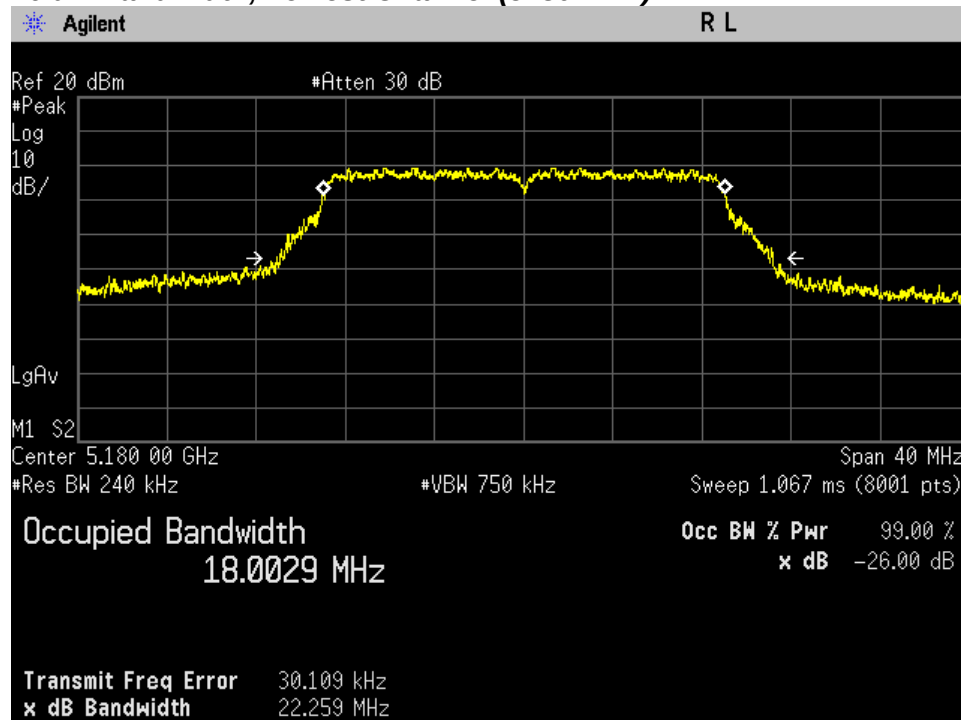


PLOTS OF EMISSIONS

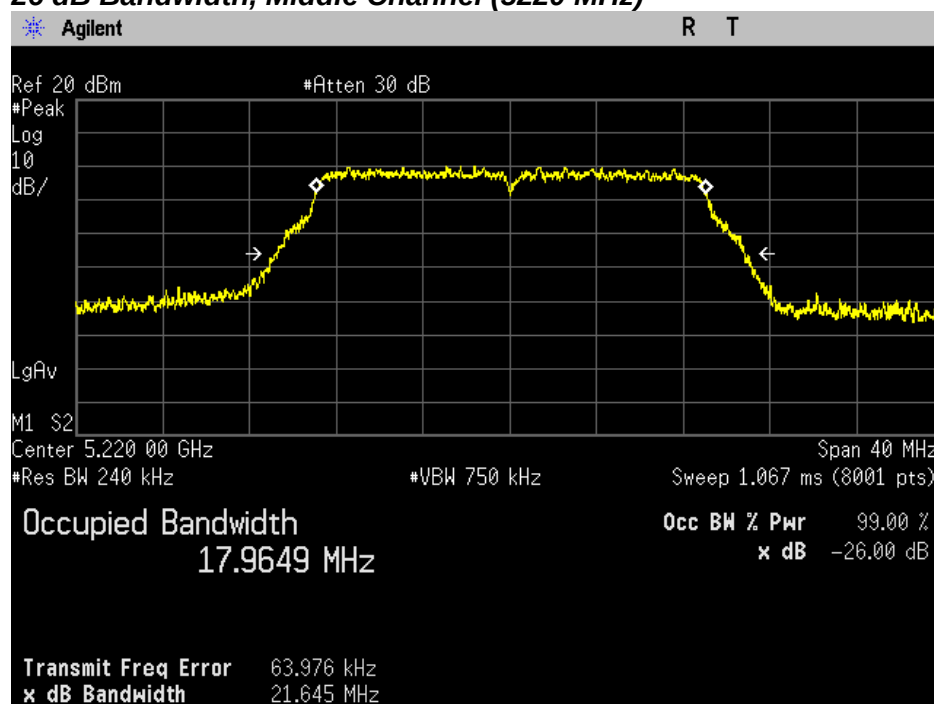
802.11ac (20 MHz) mode - MIMO

Chain 0

26 dB Bandwidth, Lowest Channel (5180 MHz)

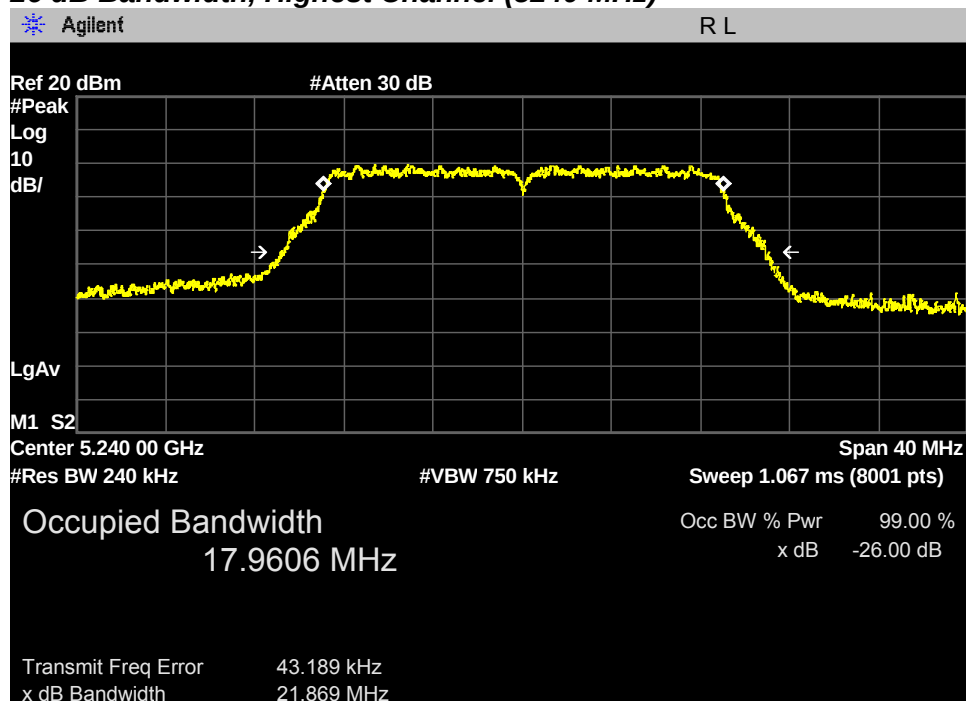


26 dB Bandwidth, Middle Channel (5220 MHz)



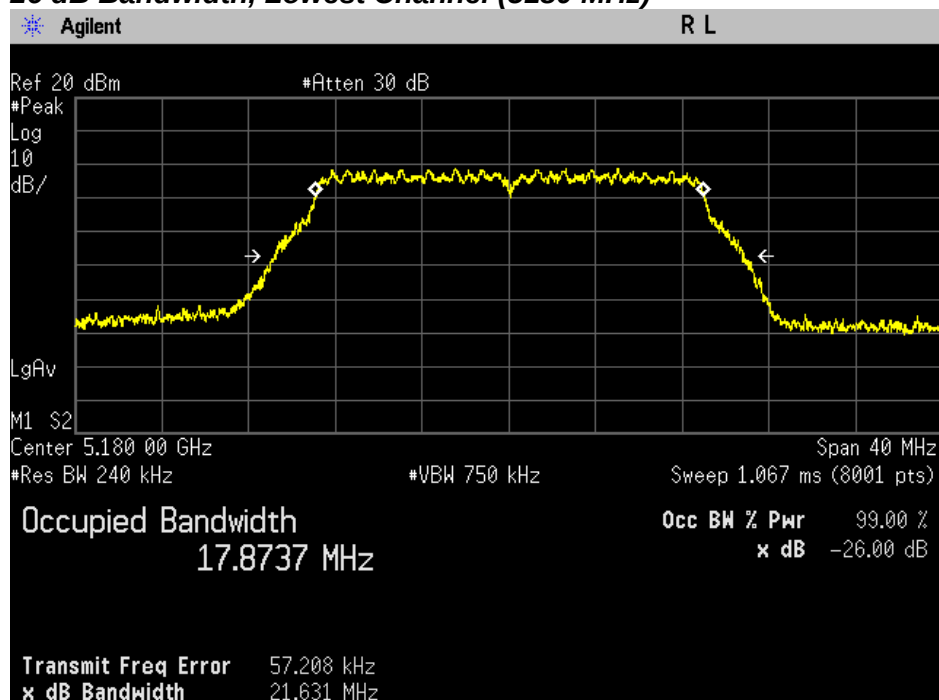
PLOTS OF EMISSIONS

26 dB Bandwidth, Highest Channel (5240 MHz)



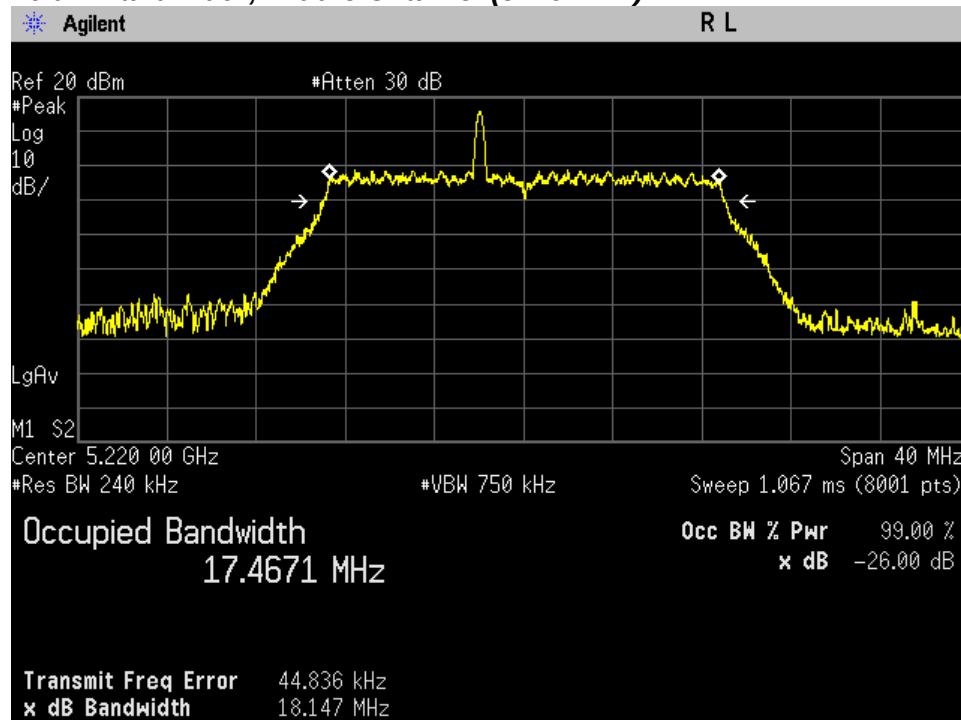
Chain 1

26 dB Bandwidth, Lowest Channel (5180 MHz)

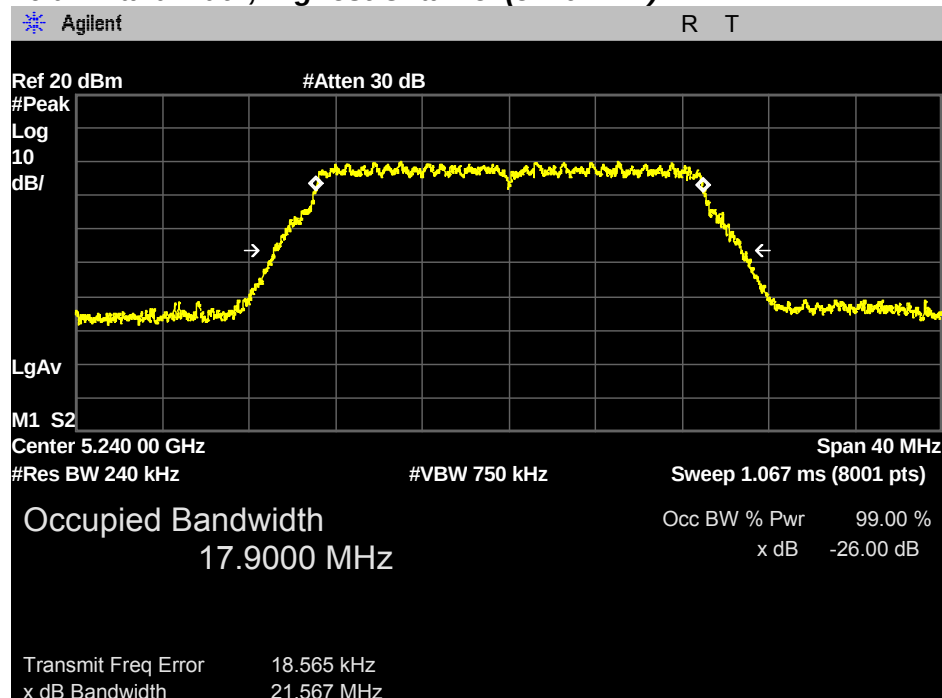


PLOTS OF EMISSIONS

26 dB Bandwidth, Middle Channel (5220 MHz)



26 dB Bandwidth, Highest Channel (5240 MHz)

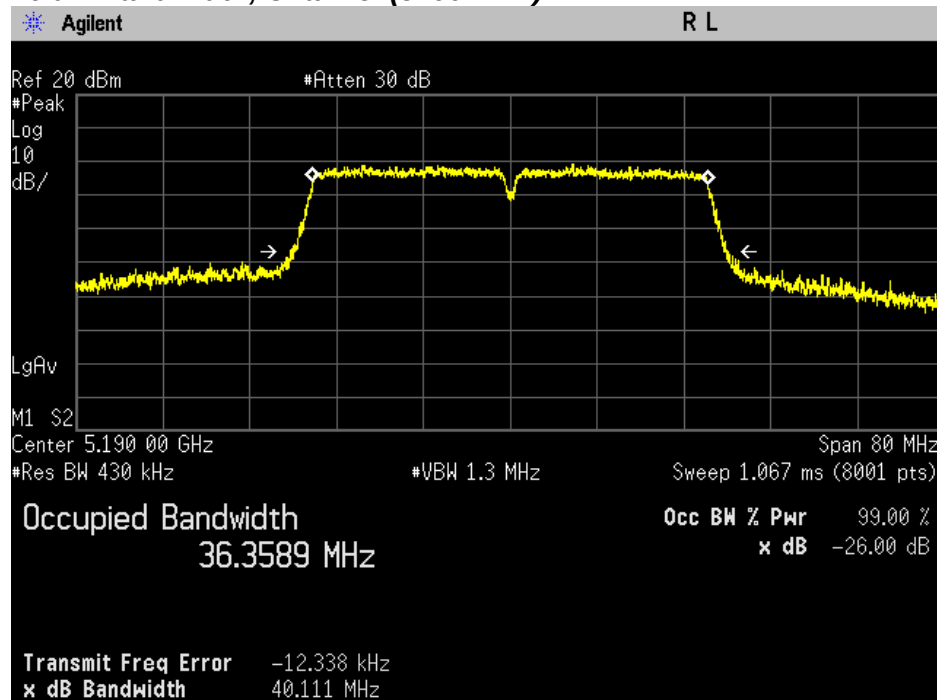


PLOTS OF EMISSIONS

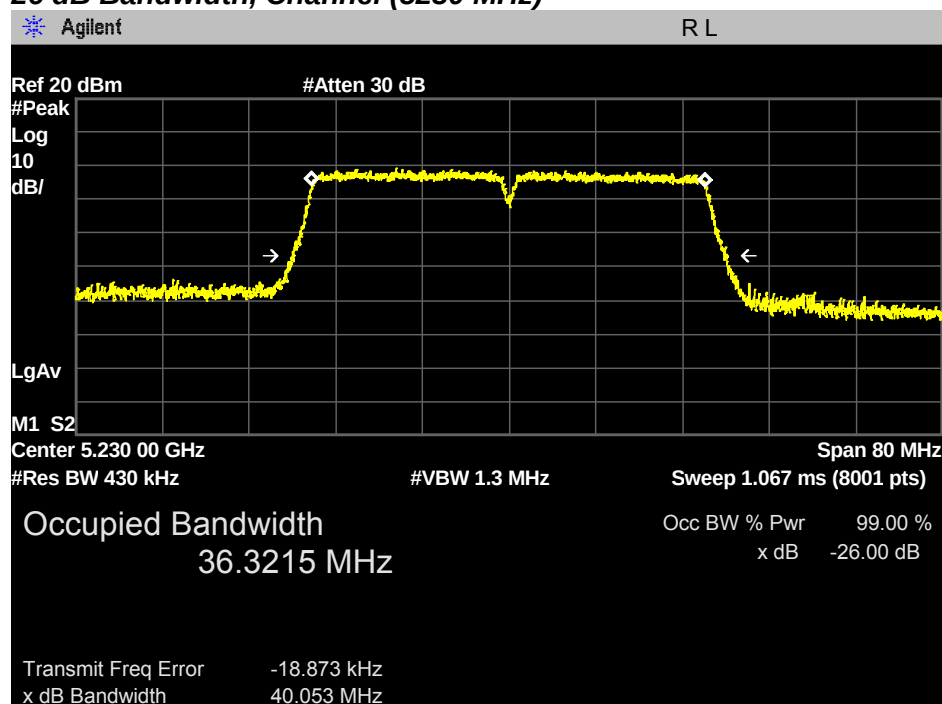
802.11ac (40 MHz) mode - SISO

Chain 0

26 dB Bandwidth, Channel (5190 MHz)



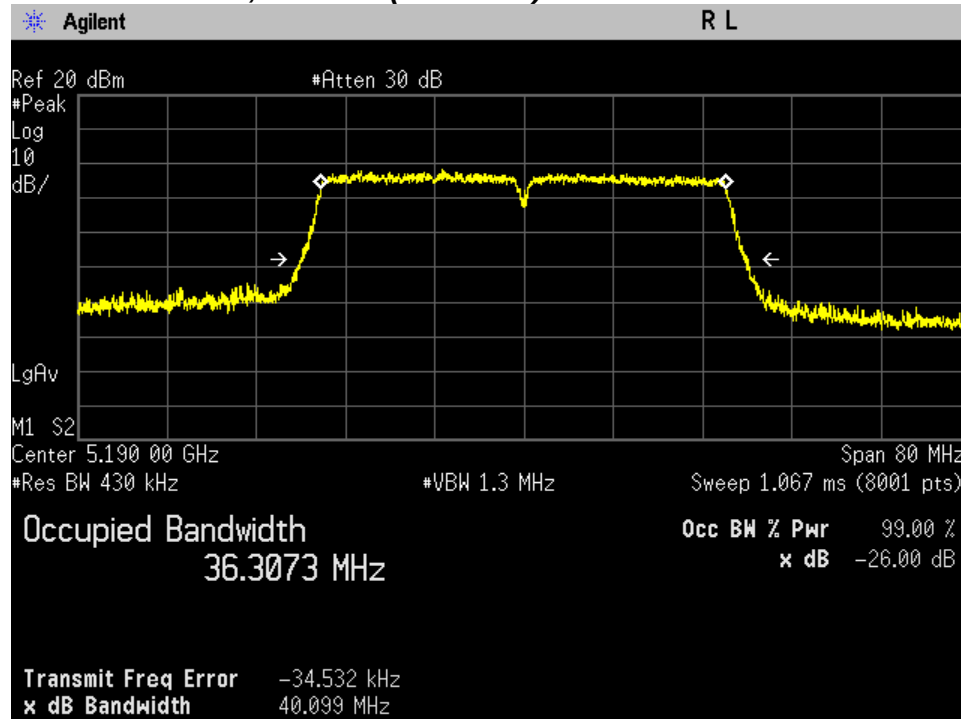
26 dB Bandwidth, Channel (5230 MHz)



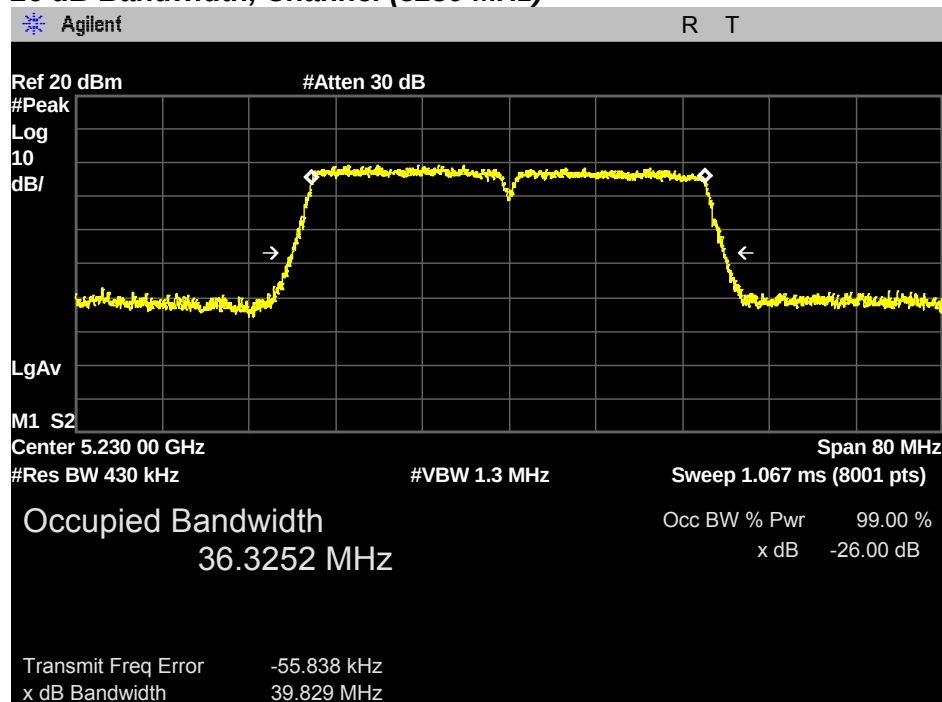
PLOTS OF EMISSIONS

Chain 1

26 dB Bandwidth, Channel (5190 MHz)



26 dB Bandwidth, Channel (5230 MHz)

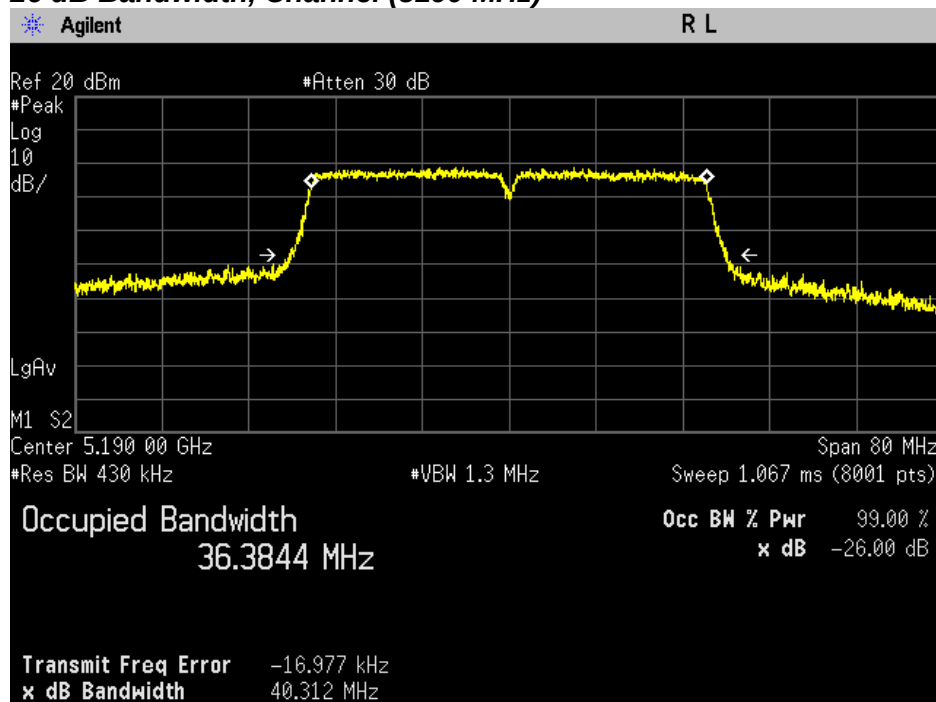


PLOTS OF EMISSIONS

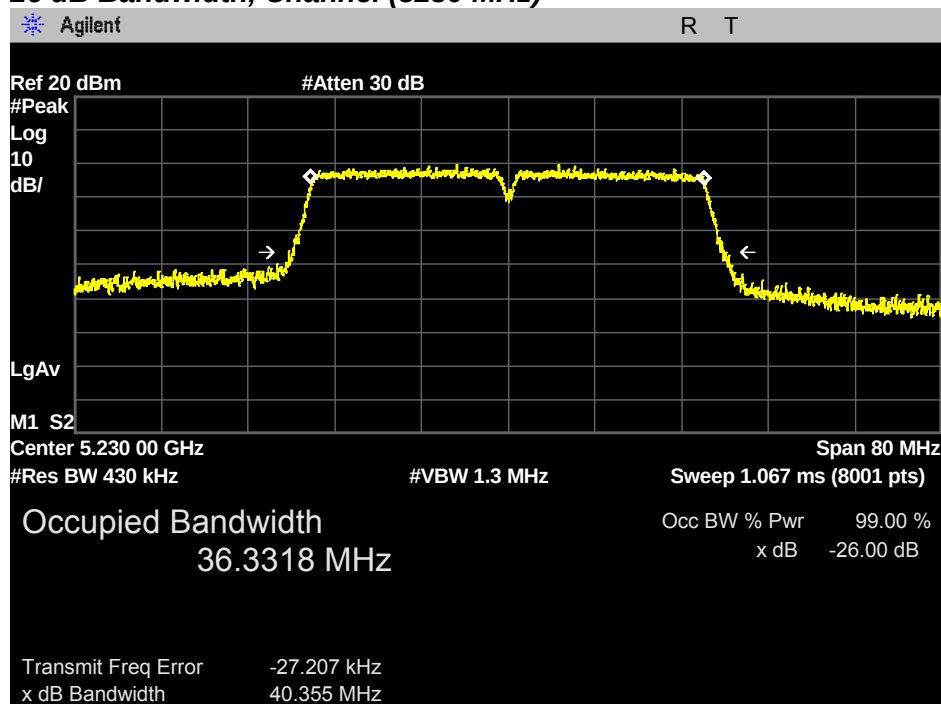
802.11ac (40 MHz) mode - CDD

Chain 0

26 dB Bandwidth, Channel (5190 MHz)



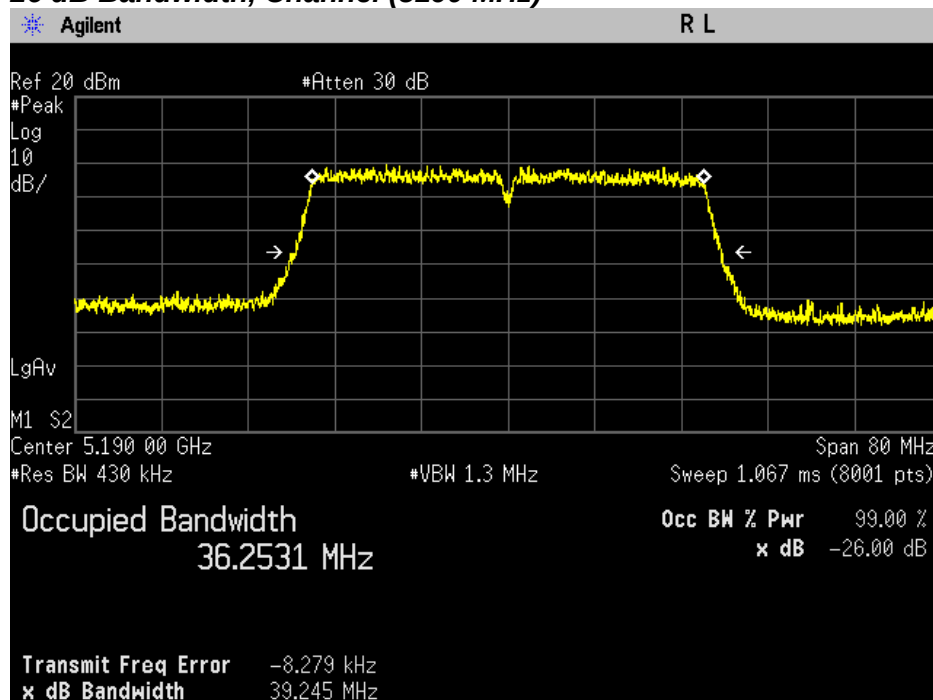
26 dB Bandwidth, Channel (5230 MHz)



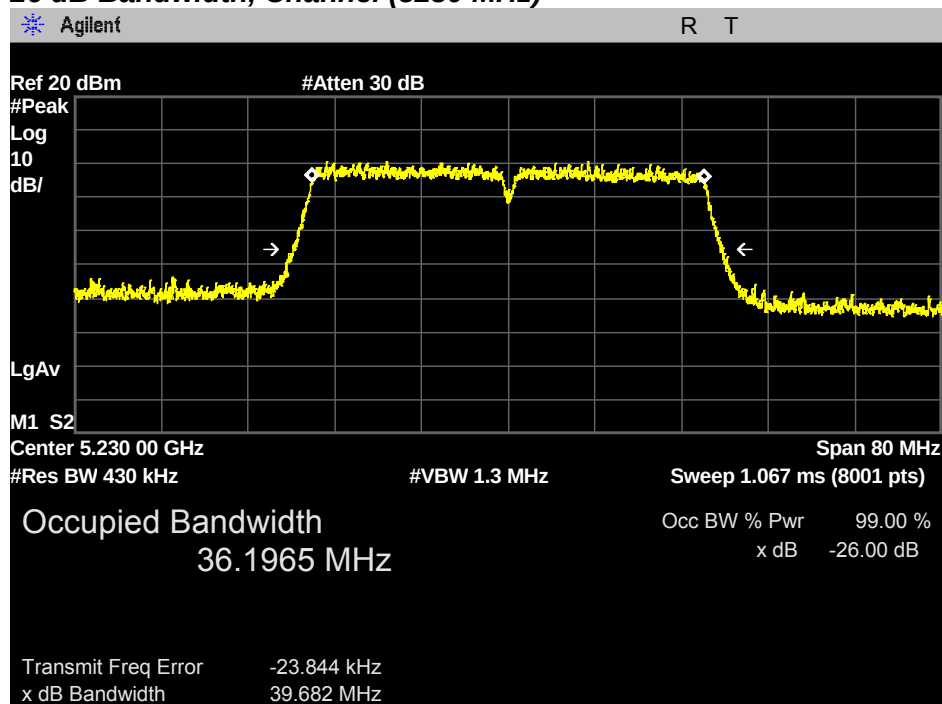
PLOTS OF EMISSIONS

Chain 1

26 dB Bandwidth, Channel (5190 MHz)



26 dB Bandwidth, Channel (5230 MHz)

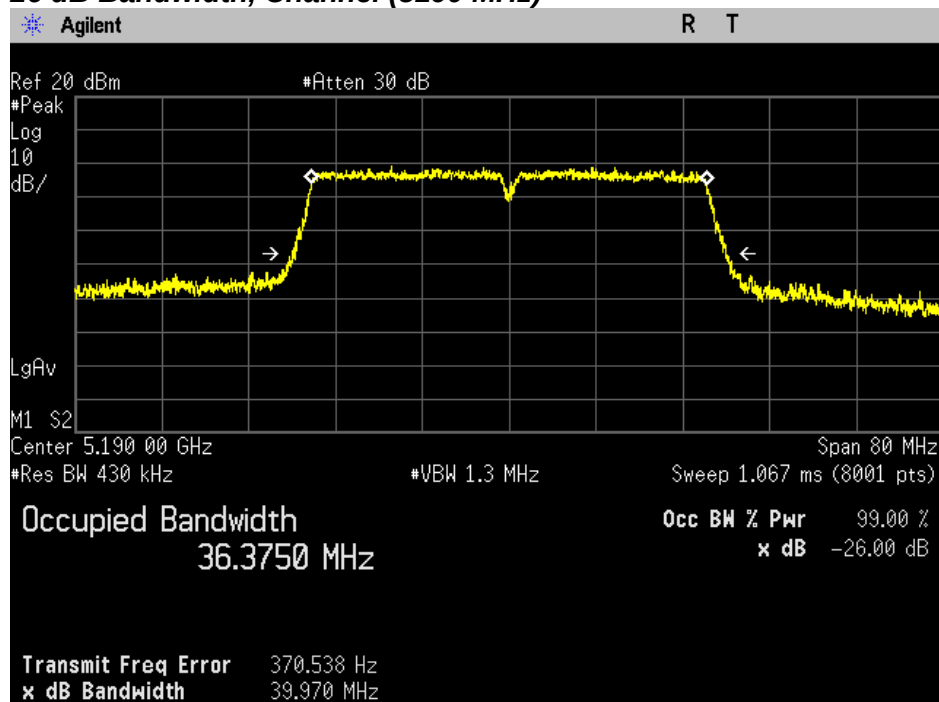


PLOTS OF EMISSIONS

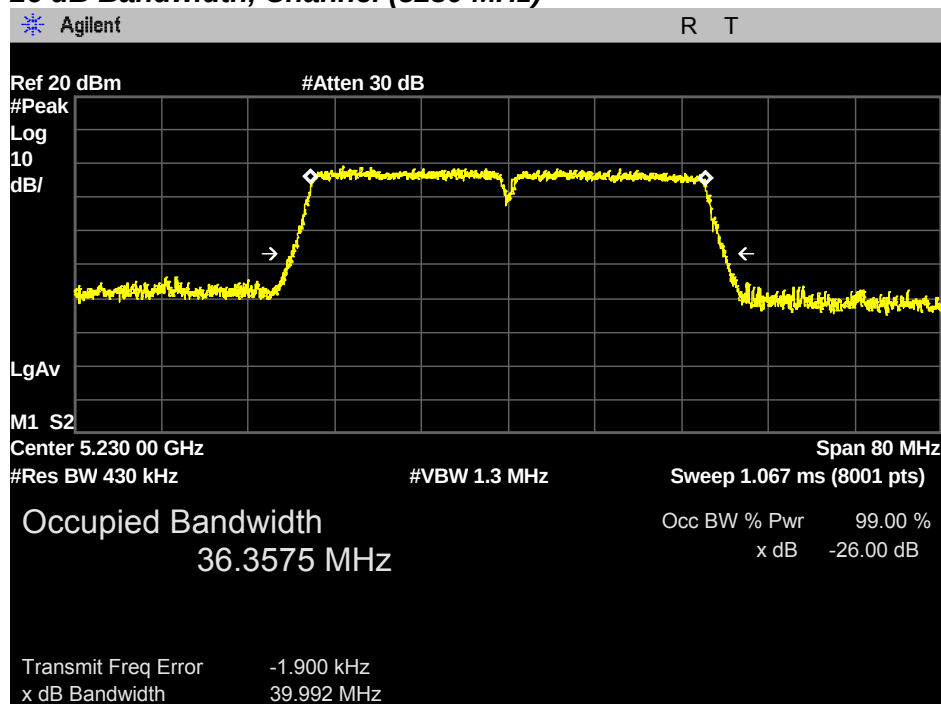
802.11ac (40 MHz) mode - MIMO

Chain 0

26 dB Bandwidth, Channel (5190 MHz)



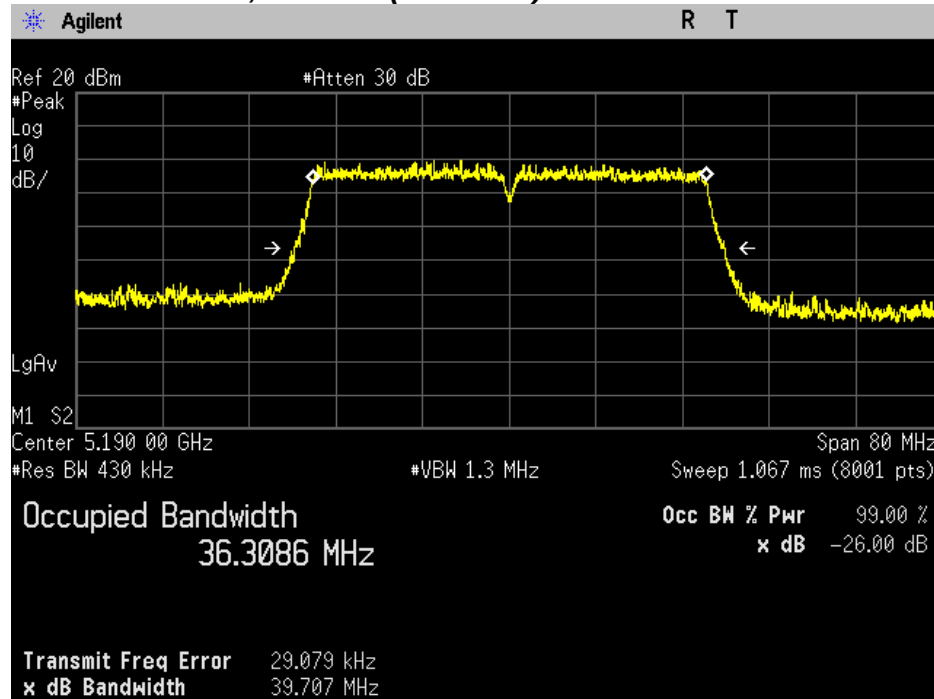
26 dB Bandwidth, Channel (5230 MHz)



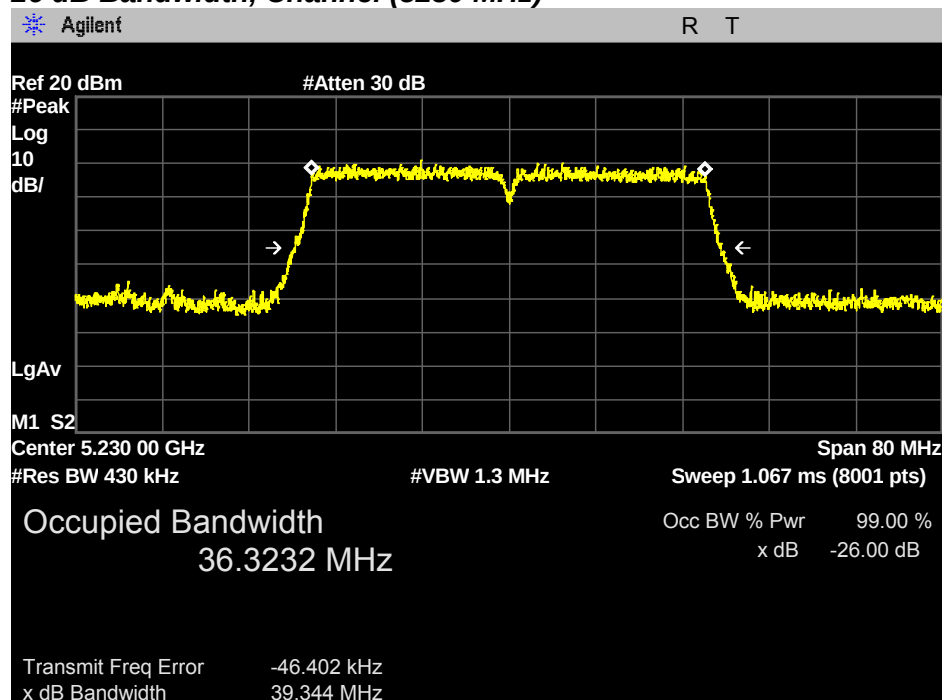
PLOTS OF EMISSIONS

Chain 1

26 dB Bandwidth, Channel (5190 MHz)



26 dB Bandwidth, Channel (5230 MHz)

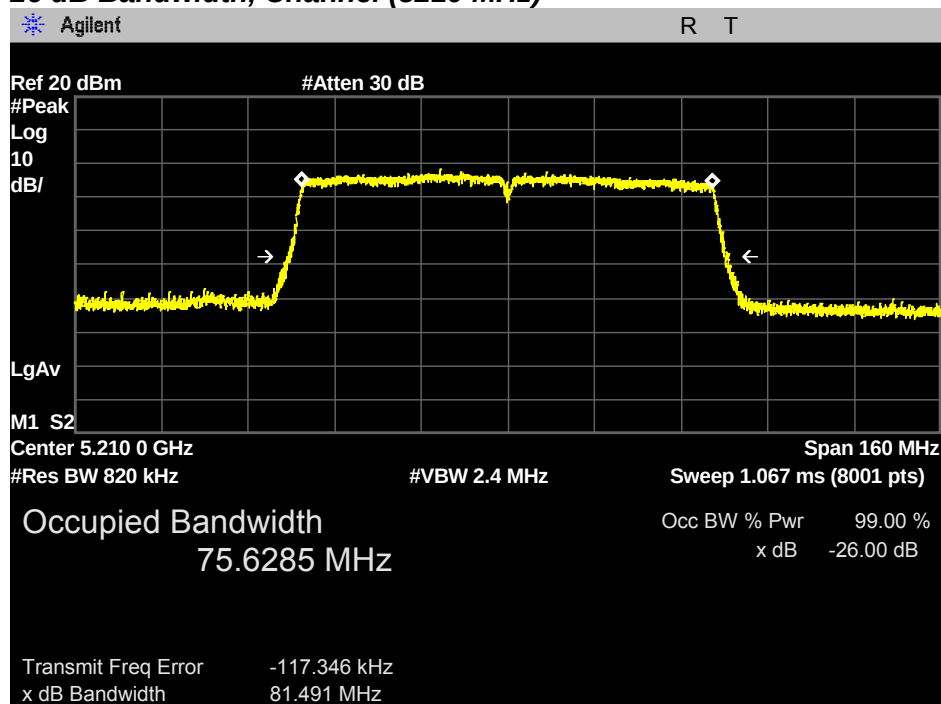


PLOTS OF EMISSIONS

802.11ac (80 MHz) mode - SISO

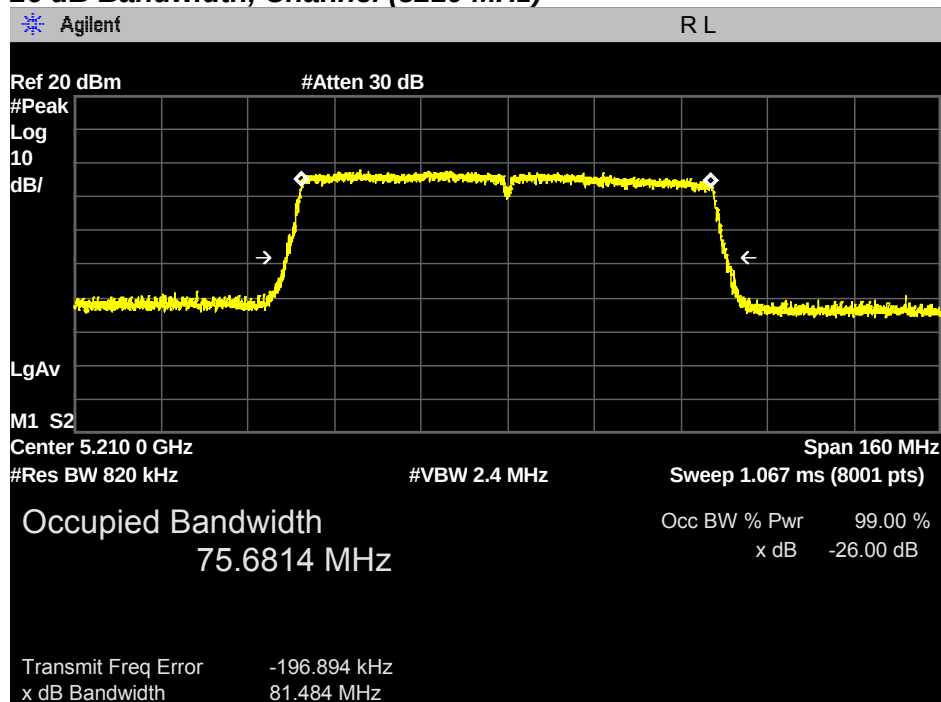
Chain 0

26 dB Bandwidth, Channel (5210 MHz)



Chain 1

26 dB Bandwidth, Channel (5210 MHz)

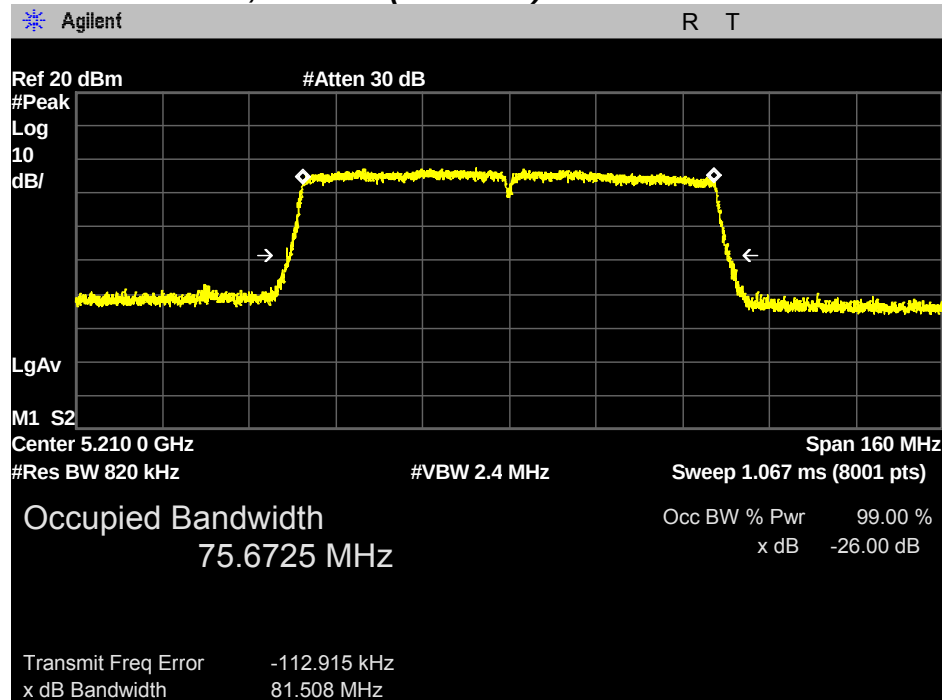


PLOTS OF EMISSIONS

802.11ac (80 MHz) mode - CDD

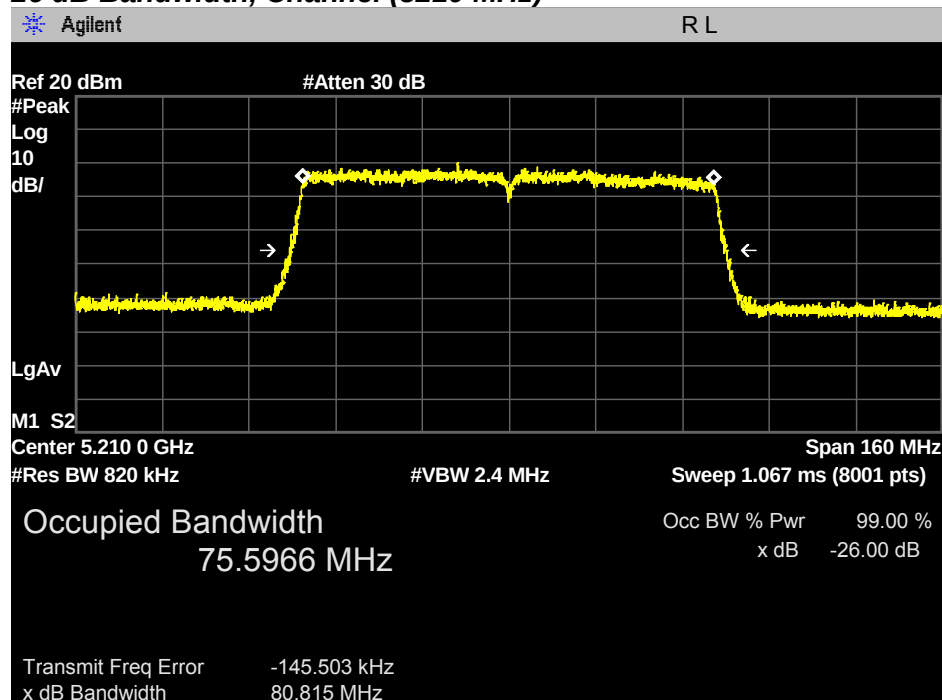
Chain 0

26 dB Bandwidth, Channel (5210 MHz)



Chain 1

26 dB Bandwidth, Channel (5210 MHz)

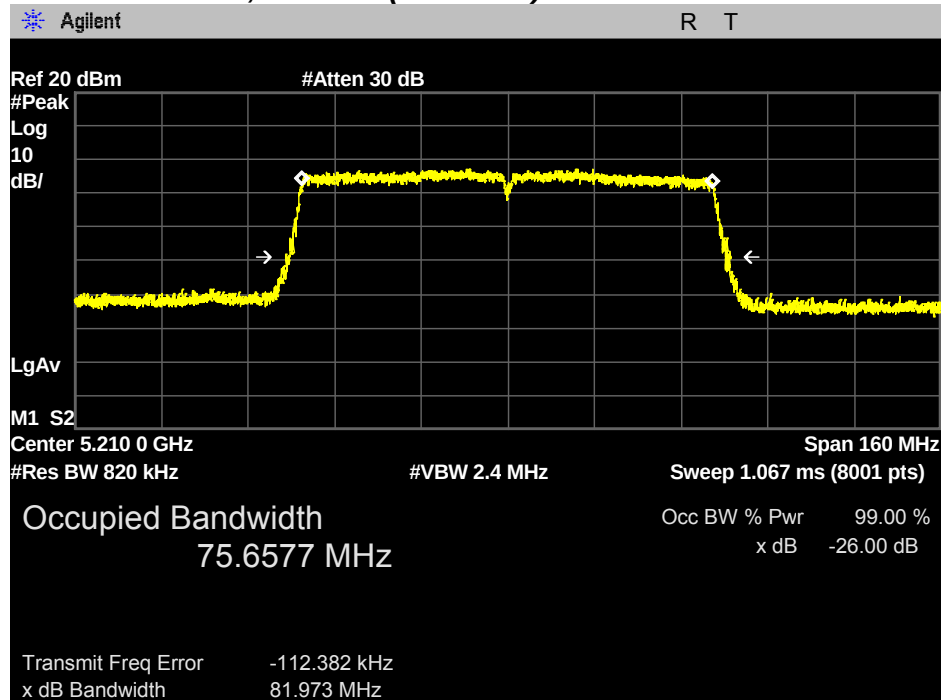


PLOTS OF EMISSIONS

802.11ac (80 MHz) mode - MIMO

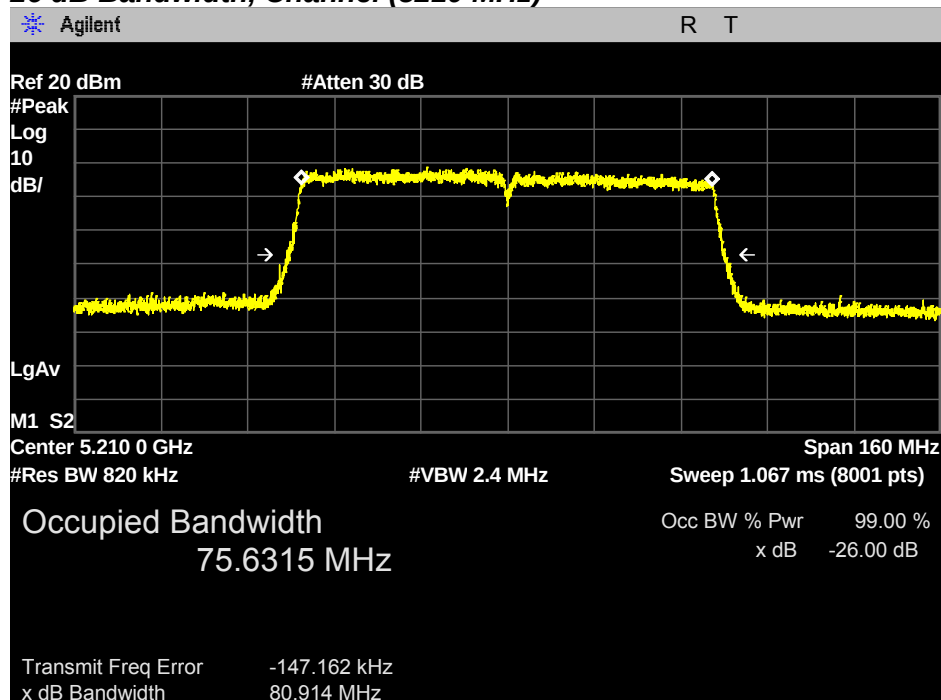
Chain 0

26 dB Bandwidth, Channel (5210 MHz)



Chain 1

26 dB Bandwidth, Channel (5210 MHz)



TEST DATA

8.3.2 26 dB Bandwidth and 99 % Occupied bandwidth – UNII-2A band

FCC §15.407(a), RSS-247 Issue 1 6.2

Test Mode : Set to Lowest channel, Middle channel and Highest channel

802.11a mode

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)		99% Occupied Bandwidth (MHz)	
		Chain 0	Chain 1	Chain 0	Chain 1
Low	5260	21.68	21.46	16.92	16.93
Middle	5300	21.63	21.57	16.89	16.93
High	5320	21.61	21.62	16.94	16.90

802.11n (20 MHz) mode - SISO

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)		99% Occupied Bandwidth (MHz)	
		Chain 0	Chain 1	Chain 0	Chain 1
Low	5260	21.82	22.01	17.97	17.95
Middle	5300	21.62	21.81	17.97	17.94
High	5320	21.72	21.61	17.97	18.03

802.11n (20 MHz) mode - CDD

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)		99% Occupied Bandwidth (MHz)	
		Chain 0	Chain 1	Chain 0	Chain 1
Low	5260	21.82	21.69	18.02	17.91
Middle	5300	21.77	21.56	18.00	18.00
High	5320	21.44	21.73	17.94	17.98

TEST DATA

802.11n (20 MHz) mode – MIMO

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)		99% Occupied Bandwidth (MHz)	
		Chain 0	Chain 1	Chain 0	Chain 1
Low	5260	21.82	21.67	17.95	17.90
Middle	5300	21.59	21.50	17.93	17.93
High	5320	21.69	21.64	17.96	18.01

802.11n (40 MHz) mode – SISO

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)		99% Occupied Bandwidth (MHz)	
		Chain 0	Chain 1	Chain 0	Chain 1
Low	5270	39.80	39.81	36.32	36.31
High	5310	39.99	39.94	36.28	36.30

802.11n (40 MHz) mode - CDD

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)		99% Occupied Bandwidth (MHz)	
		Chain 0	Chain 1	Chain 0	Chain 1
Low	5270	40.10	39.48	36.32	36.27
High	5310	40.04	39.69	36.29	36.29

802.11n (40 MHz) mode - MIMO

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)		99% Occupied Bandwidth (MHz)	
		Chain 0	Chain 1	Chain 0	Chain 1
Low	5270	39.79	39.55	36.35	36.29
High	5310	39.92	39.23	36.34	36.33

TEST DATA

802.11ac (20 MHz) mode - SISO

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)		99% Occupied Bandwidth (MHz)	
		Chain 0	Chain 1	Chain 0	Chain 1
Low	5260	21.91	21.59	17.98	17.94
Middle	5300	21.69	21.78	17.95	17.95
High	5320	21.70	21.58	17.96	18.01

802.11ac (20 MHz) mode - CDD

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)		99% Occupied Bandwidth (MHz)	
		Chain 0	Chain 1	Chain 0	Chain 1
Low	5260	21.89	21.60	17.98	17.92
Middle	5300	21.74	21.64	18.01	17.95
High	5320	21.68	21.71	17.92	17.98

802.11ac (20 MHz) mode - MIMO

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)		99% Occupied Bandwidth (MHz)	
		Chain 0	Chain 1	Chain 0	Chain 1
Low	5260	22.24	21.56	17.99	17.90
Middle	5300	21.78	21.51	17.91	17.91
High	5320	21.82	21.69	17.92	17.96

802.11ac (40 MHz) mode - SISO

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)		99% Occupied Bandwidth (MHz)	
		Chain 0	Chain 1	Chain 0	Chain 1
Low	5270	39.88	39.96	36.32	36.37
High	5310	40.07	39.68	36.33	36.34

TEST DATA

802.11ac (40 MHz) mode - CDD

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)		99% Occupied Bandwidth (MHz)	
		Chain 0	Chain 1	Chain 0	Chain 1
Low	5270	40.14	39.40	36.30	36.25
High	5310	39.81	39.45	36.34	36.27

802.11ac (40 MHz) mode - MIMO

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)		99% Occupied Bandwidth (MHz)	
		Chain 0	Chain 1	Chain 0	Chain 1
Low	5270	39.97	39.56	36.34	36.33
High	5310	39.93	39.60	36.34	36.29

802.11ac (80 MHz) mode - SISO

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)		99% Occupied Bandwidth (MHz)	
		Chain 0	Chain 1	Chain 0	Chain 1
	5290	81.58	81.06	75.81	75.78

802.11ac (80 MHz) mode - CDD

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)		99% Occupied Bandwidth (MHz)	
		Chain 0	Chain 1	Chain 0	Chain 1
	5290	81.63	80.81	75.77	75.71

TEST DATA

802.11ac (80 MHz) mode – MIMO

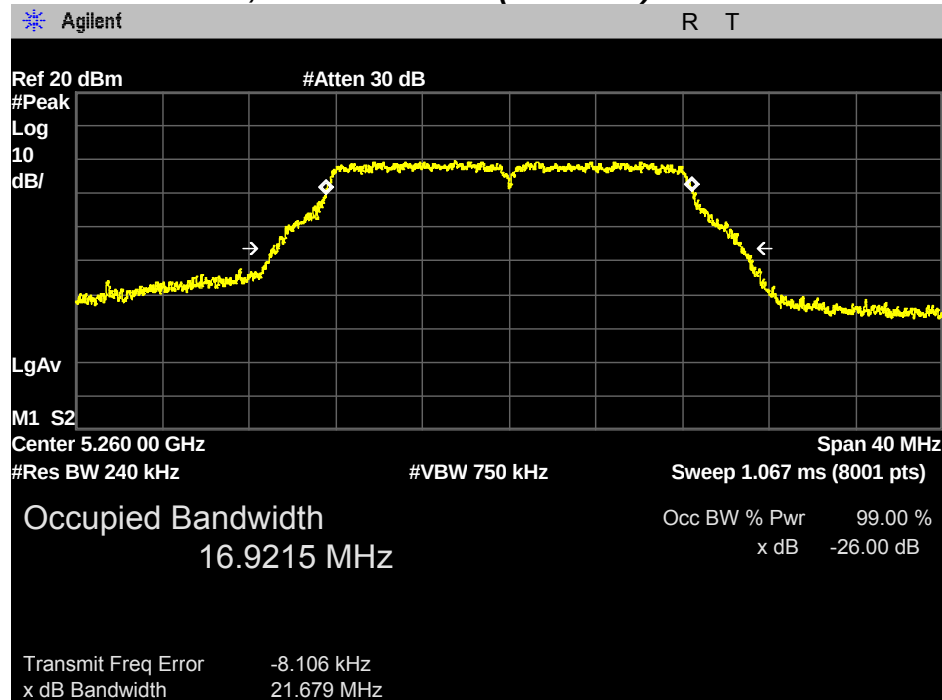
Channel	Frequency (MHz)	26 dB Bandwidth (MHz)		99% Occupied Bandwidth (MHz)	
		Chain 0	Chain 1	Chain 0	Chain 1
	5290	81.47	80.92	75.71	75.79

PLOTS OF EMISSIONS

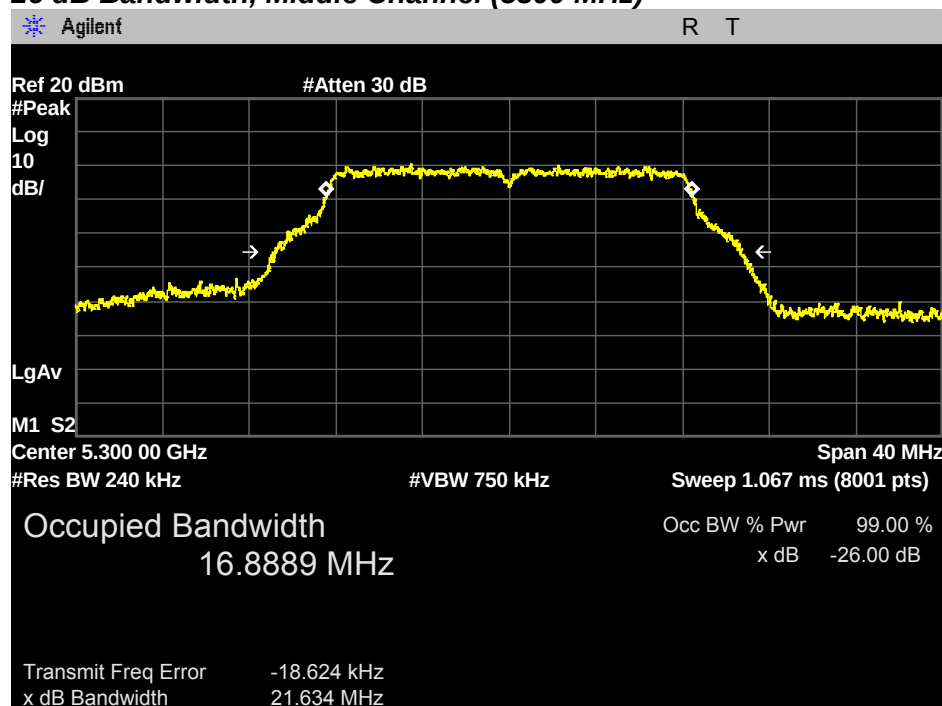
802.11a mode

Chain 0

26 dB Bandwidth, Lowest Channel (5260 MHz)

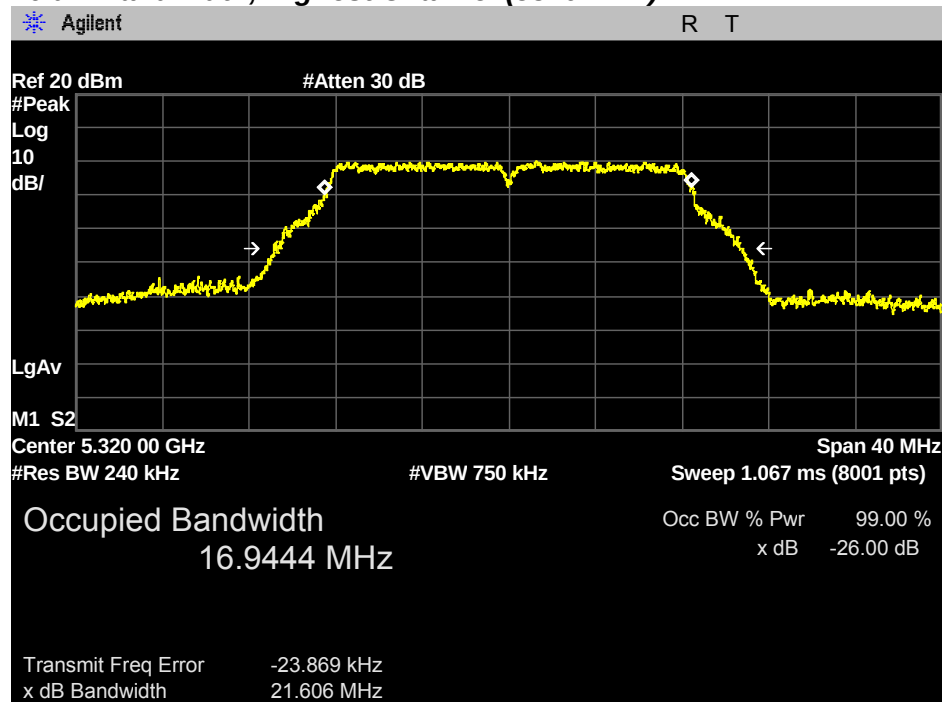


26 dB Bandwidth, Middle Channel (5300 MHz)



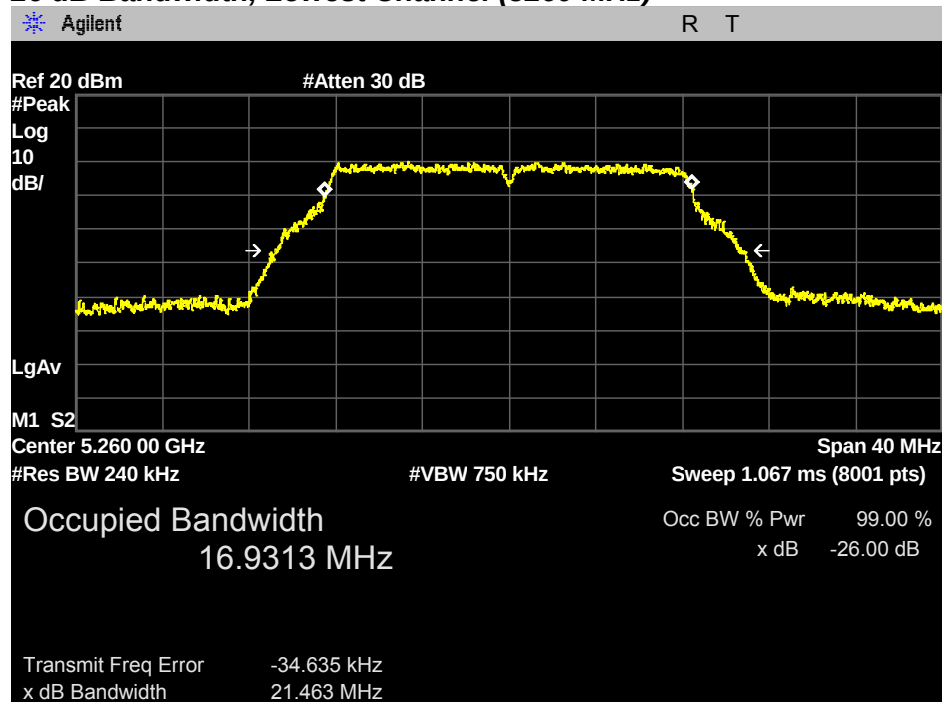
PLOTS OF EMISSIONS

26 dB Bandwidth, Highest Channel (5320 MHz)



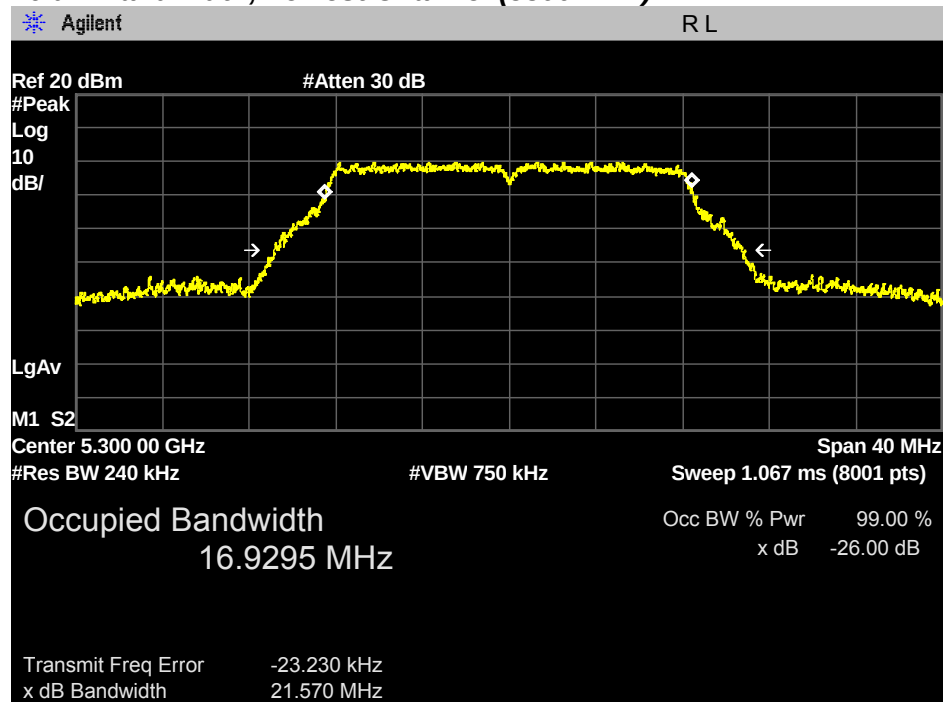
Chain 1

26 dB Bandwidth, Lowest Channel (5260 MHz)

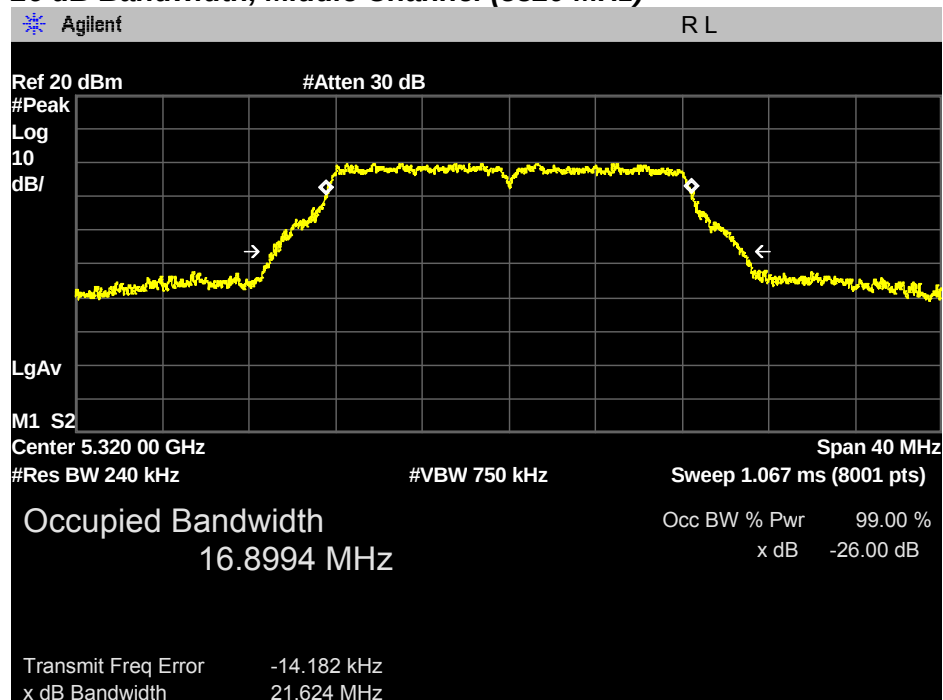


PLOTS OF EMISSIONS

26 dB Bandwidth, Lowest Channel (5300 MHz)



26 dB Bandwidth, Middle Channel (5320 MHz)

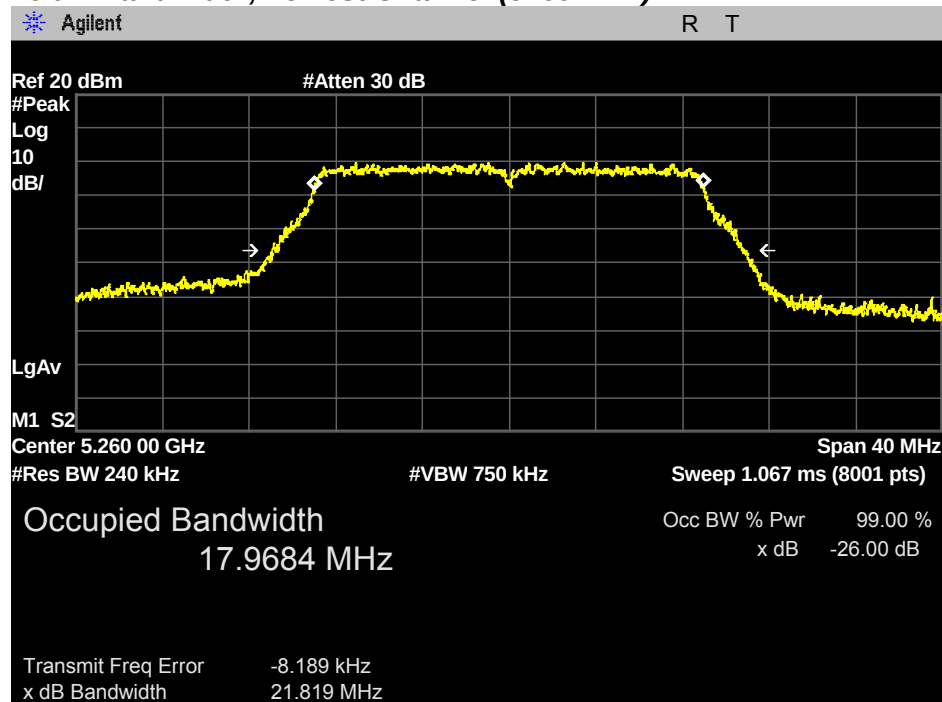


PLOTS OF EMISSIONS

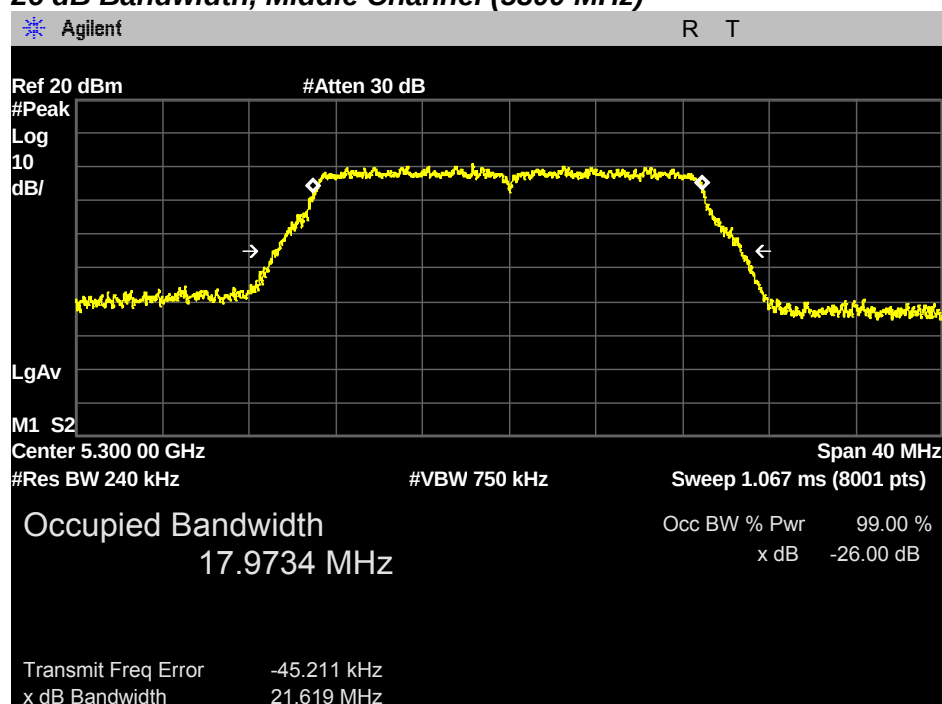
802.11n(20MHz) mode - SISO

Chain 0

26 dB Bandwidth, Lowest Channel (5260 MHz)

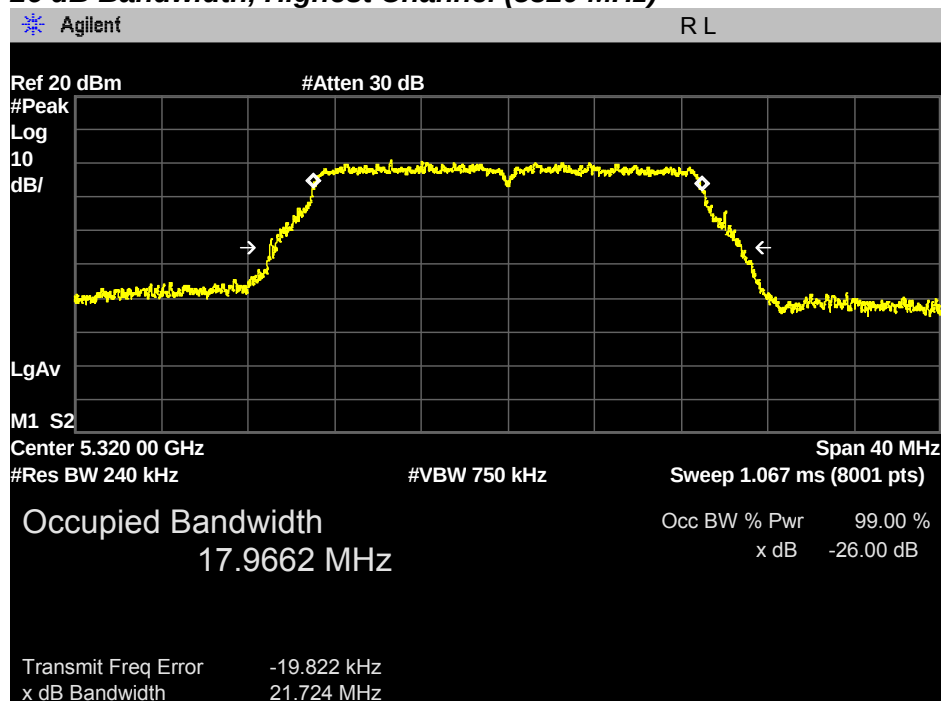


26 dB Bandwidth, Middle Channel (5300 MHz)



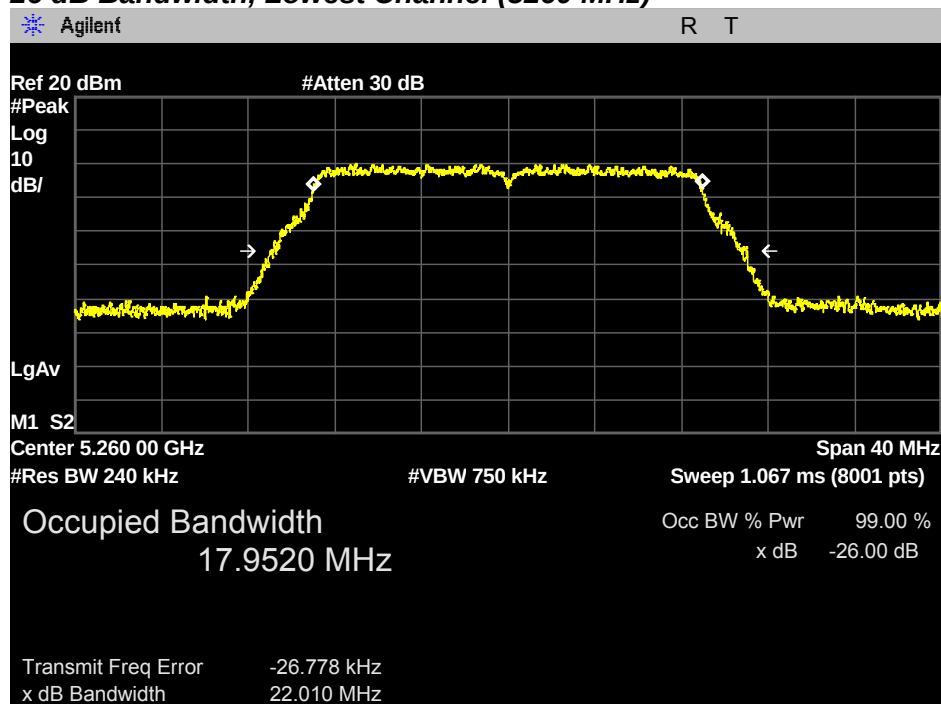
PLOTS OF EMISSIONS

26 dB Bandwidth, Highest Channel (5320 MHz)



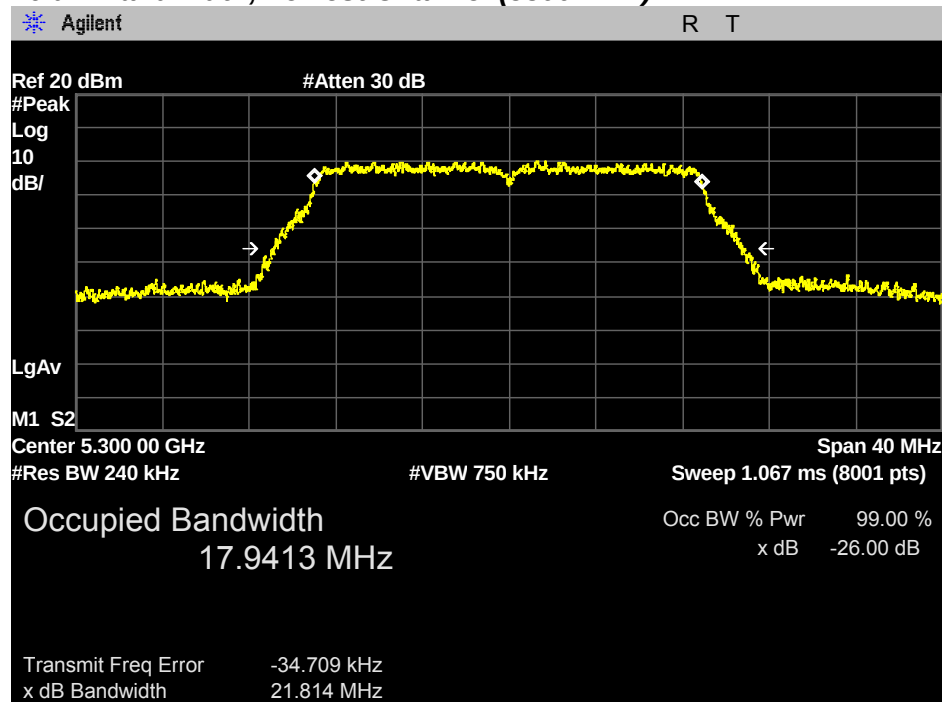
Chain 1

26 dB Bandwidth, Lowest Channel (5260 MHz)

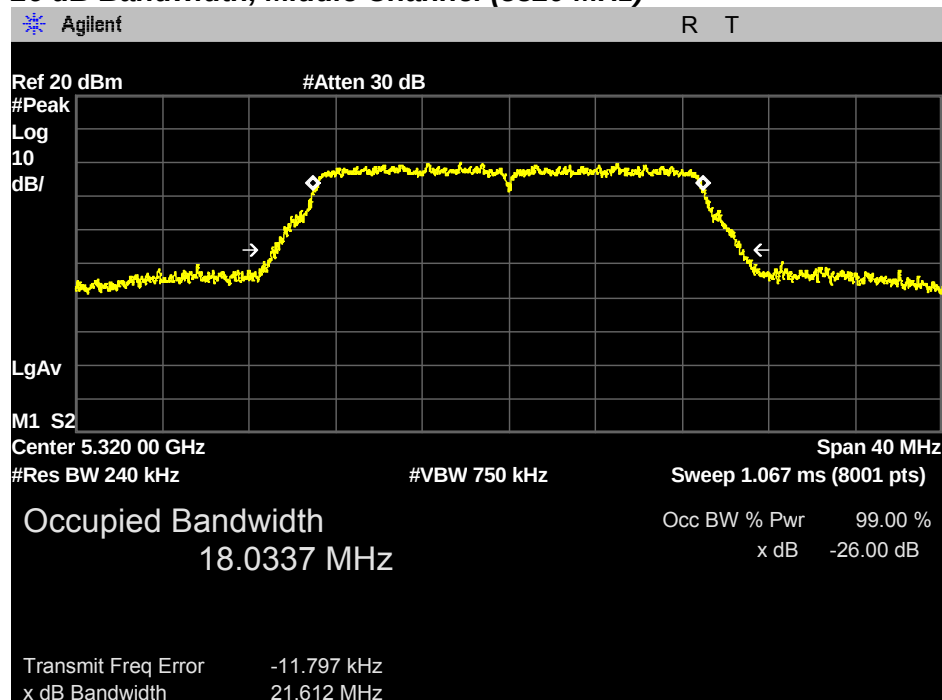


PLOTS OF EMISSIONS

26 dB Bandwidth, Lowest Channel (5300 MHz)



26 dB Bandwidth, Middle Channel (5320 MHz)

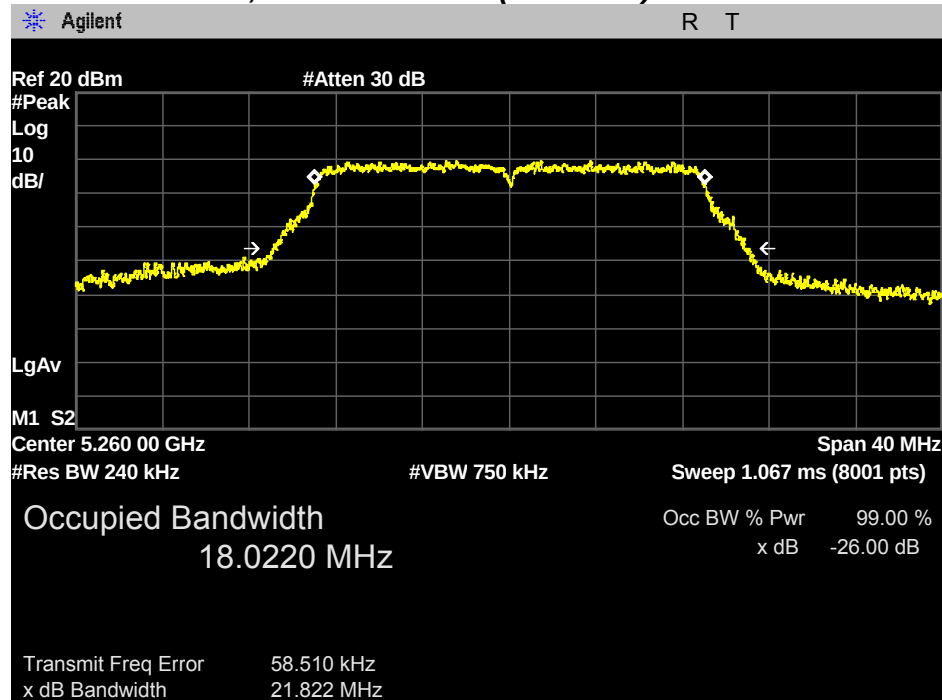


PLOTS OF EMISSIONS

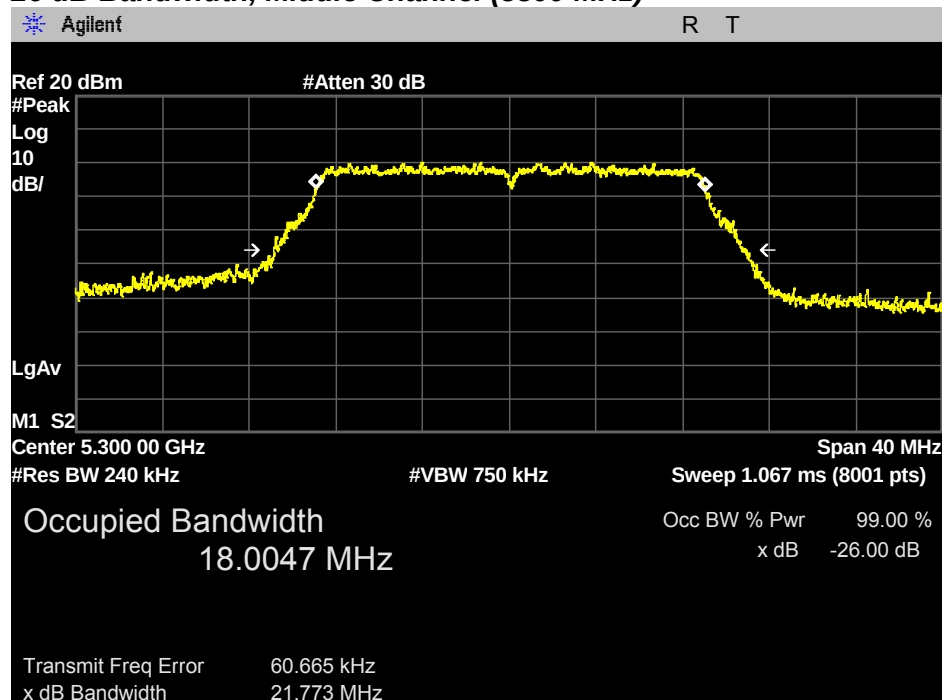
802.11n(20MHz) mode - CDD

Chain 0

26 dB Bandwidth, Lowest Channel (5260 MHz)

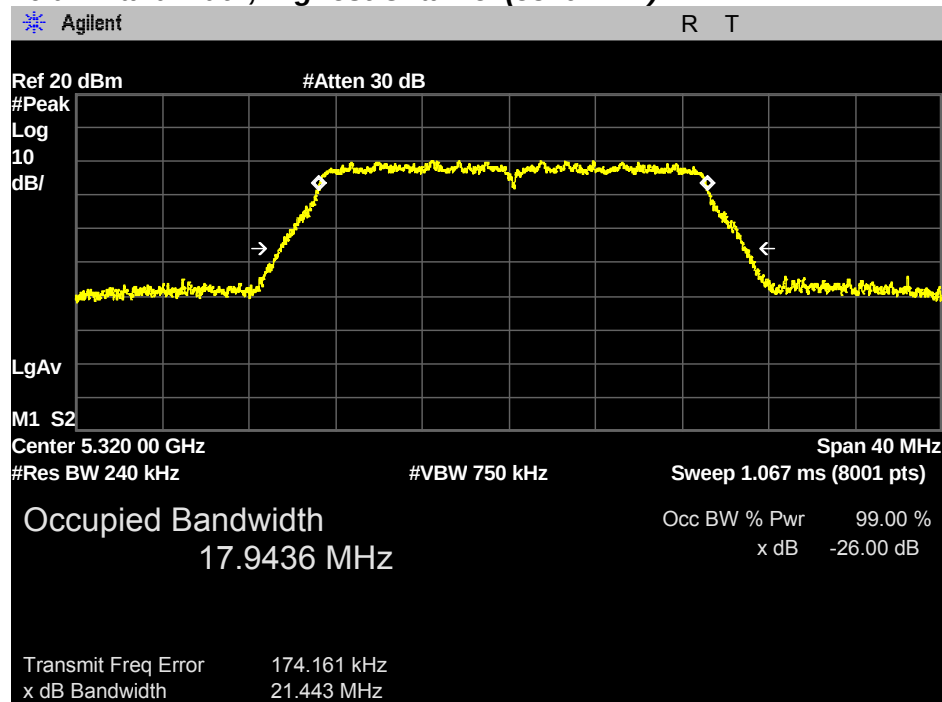


26 dB Bandwidth, Middle Channel (5300 MHz)



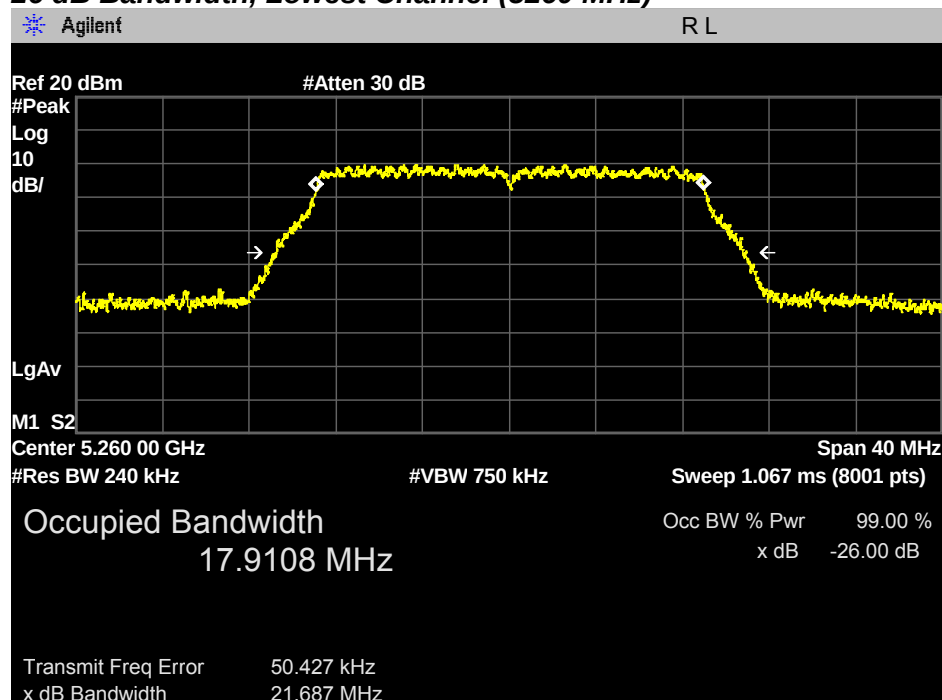
PLOTS OF EMISSIONS

26 dB Bandwidth, Highest Channel (5320 MHz)



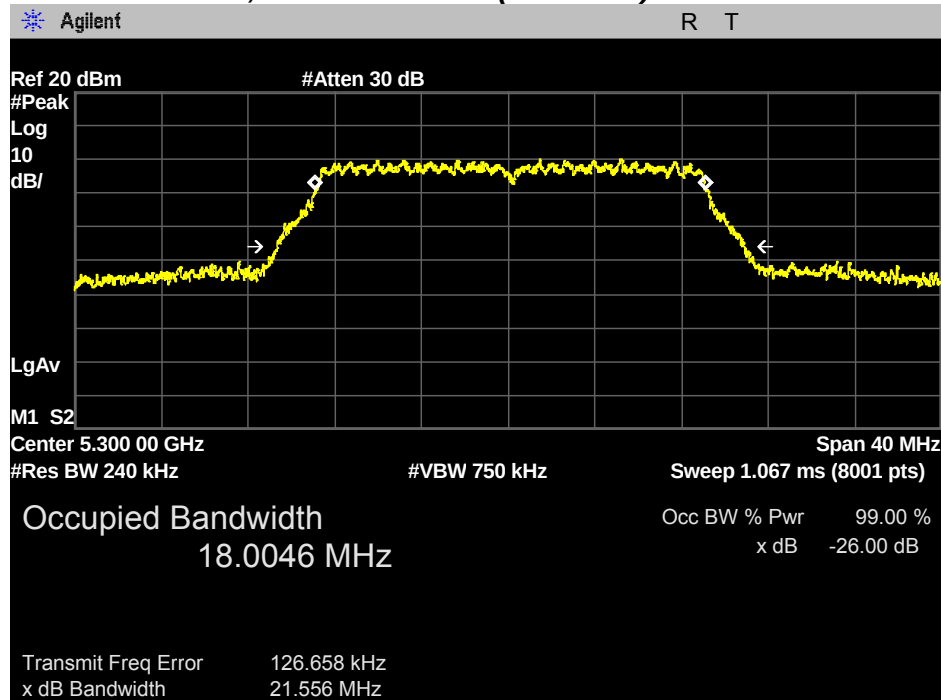
Chain 1

26 dB Bandwidth, Lowest Channel (5260 MHz)

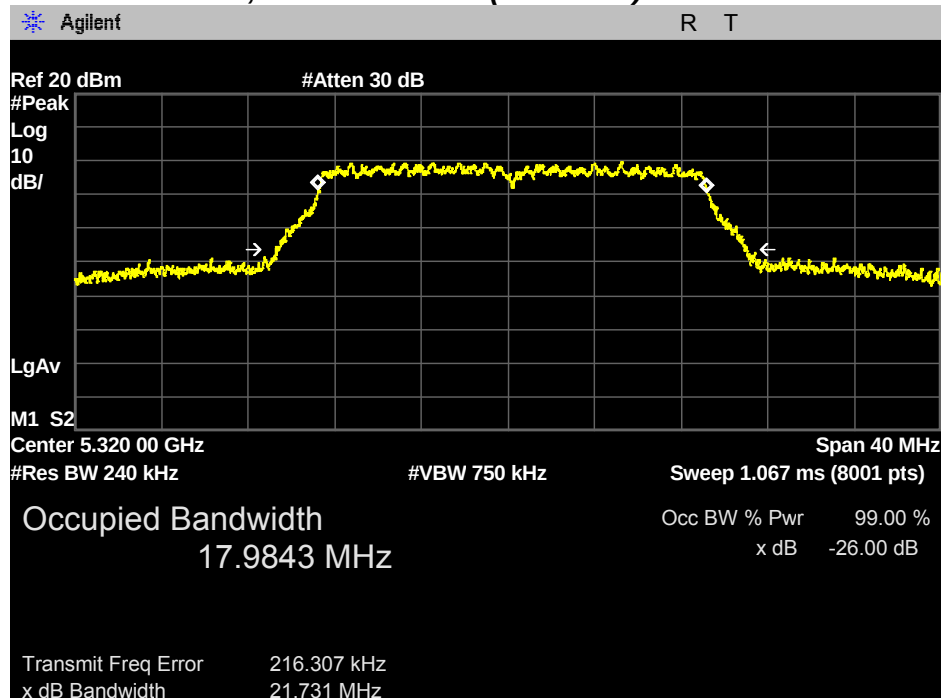


PLOTS OF EMISSIONS

26 dB Bandwidth, Lowest Channel (5300 MHz)



26 dB Bandwidth, Middle Channel (5320 MHz)

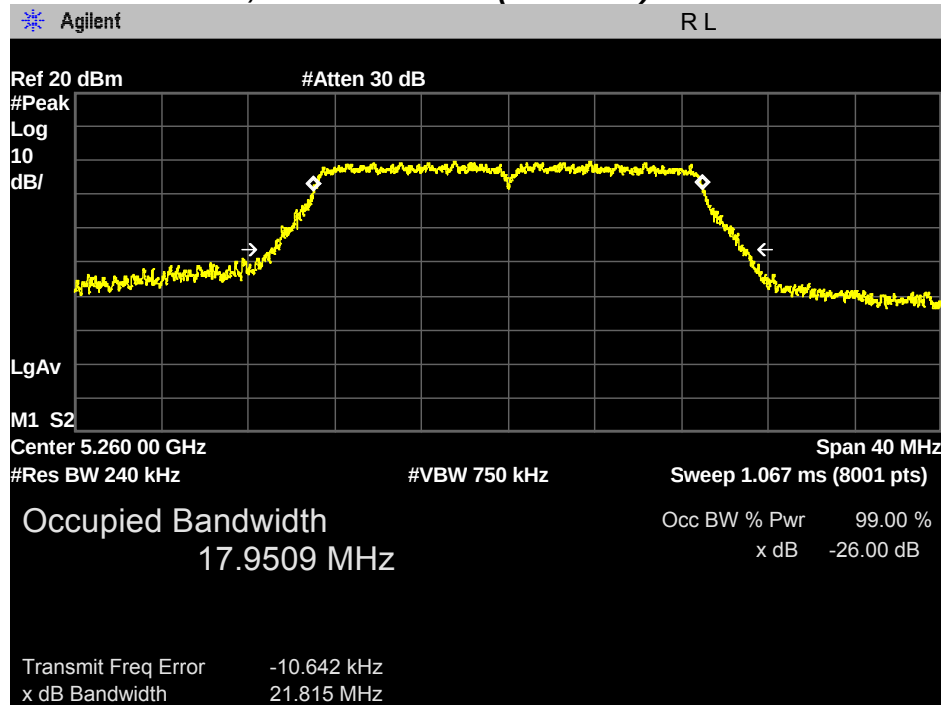


PLOTS OF EMISSIONS

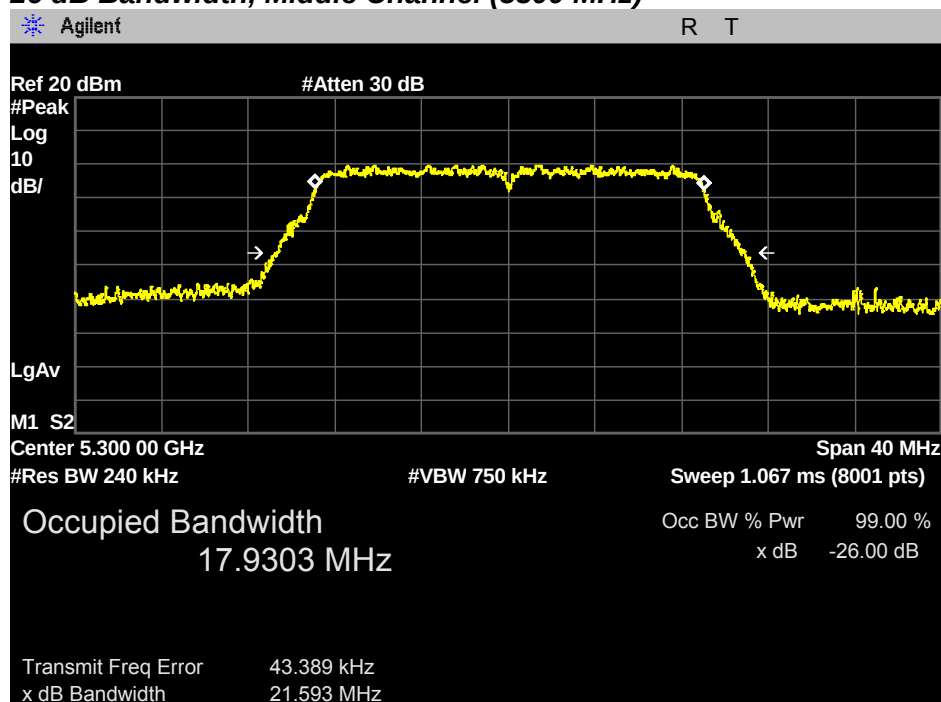
802.11n(20MHz) mode - MIMO

Chain 0

26 dB Bandwidth, Lowest Channel (5260 MHz)

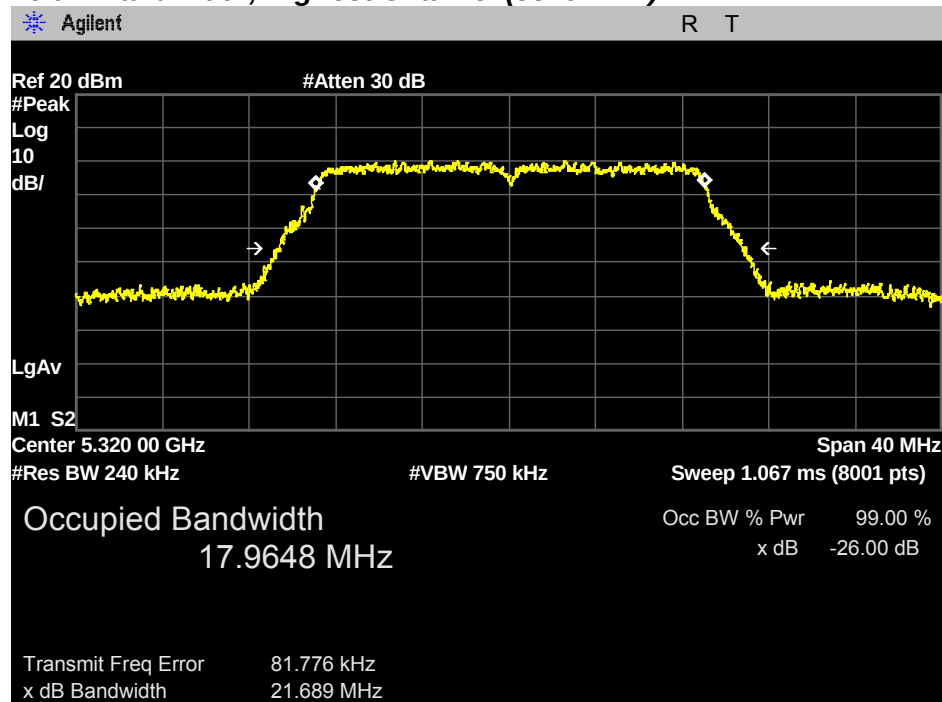


26 dB Bandwidth, Middle Channel (5300 MHz)



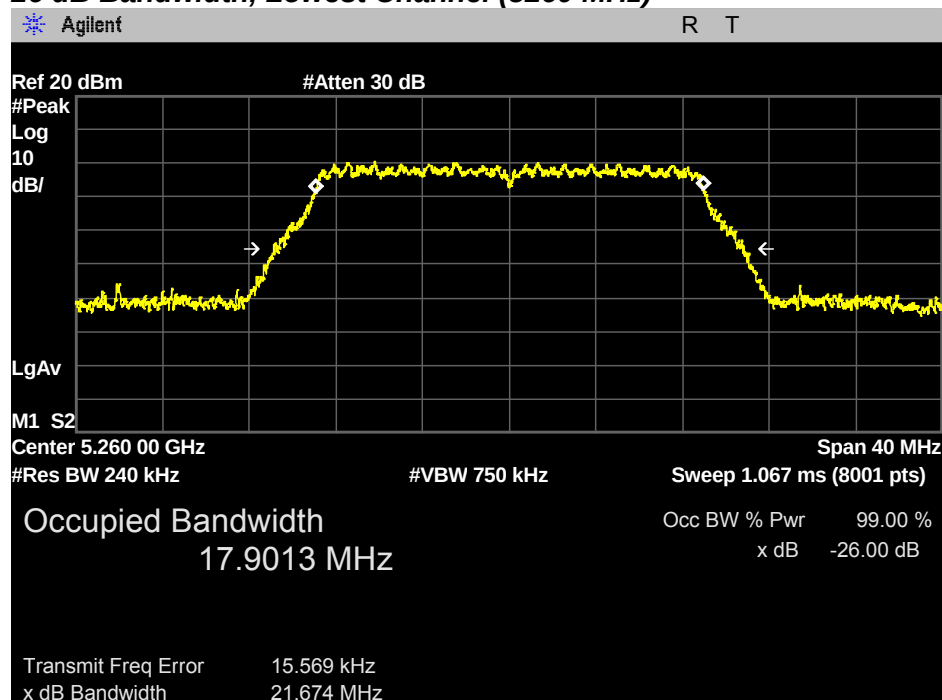
PLOTS OF EMISSIONS

26 dB Bandwidth, Highest Channel (5320 MHz)



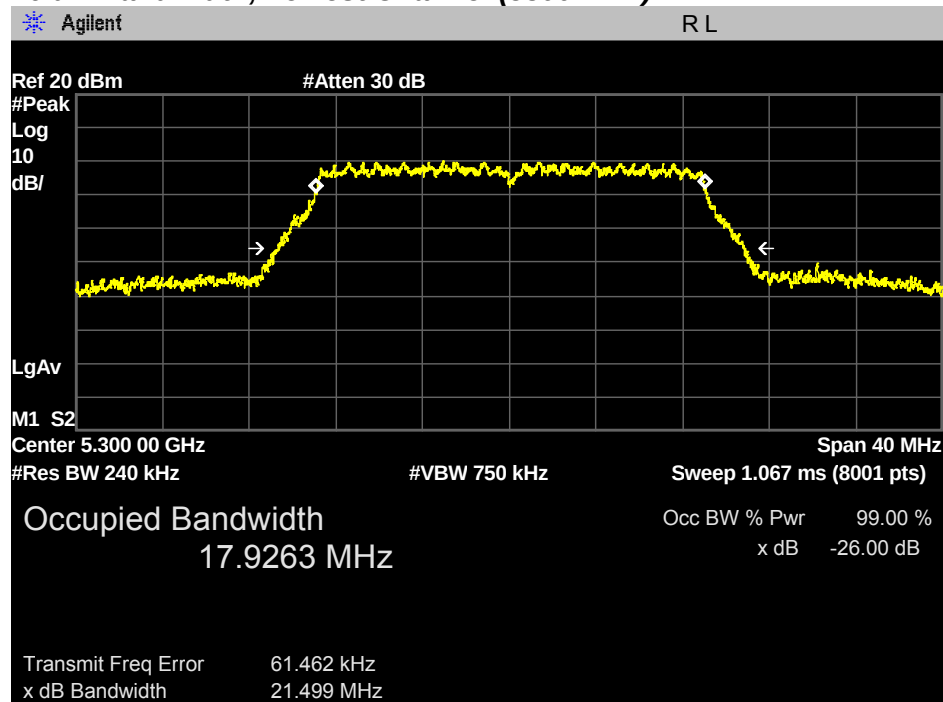
Chain 1

26 dB Bandwidth, Lowest Channel (5260 MHz)

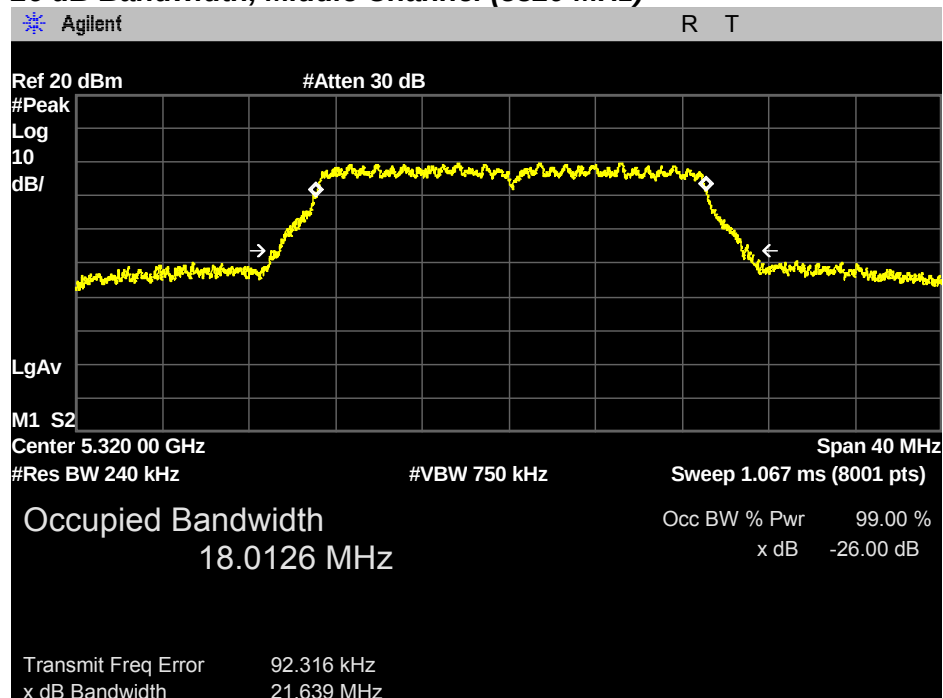


PLOTS OF EMISSIONS

26 dB Bandwidth, Lowest Channel (5300 MHz)



26 dB Bandwidth, Middle Channel (5320 MHz)

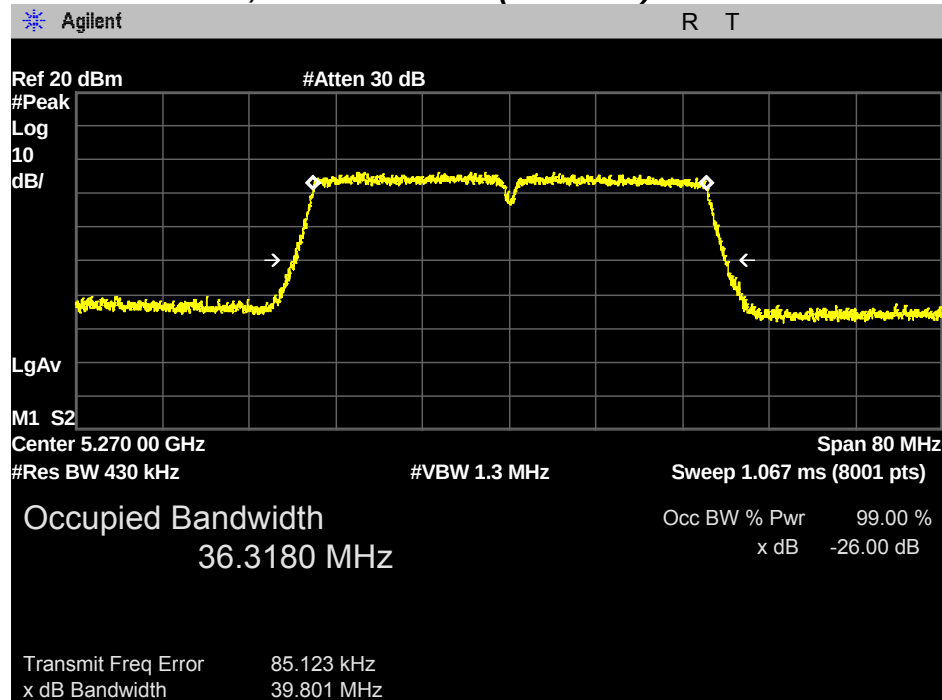


PLOTS OF EMISSIONS

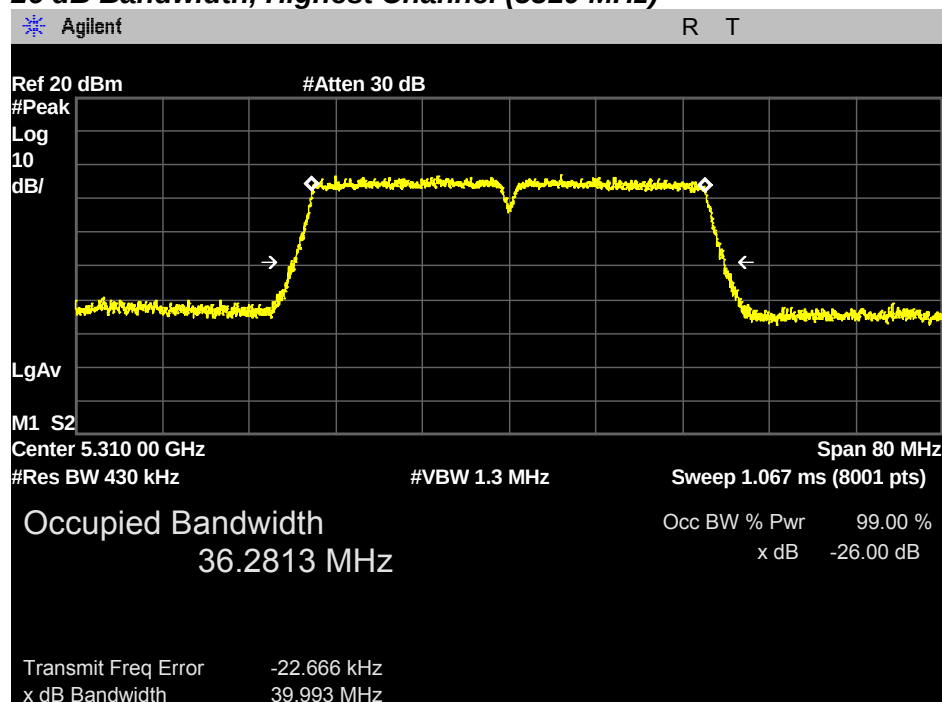
802.11n(40MHz) mode - SISO

Chain 0

26 dB Bandwidth, Lowest Channel (5270 MHz)



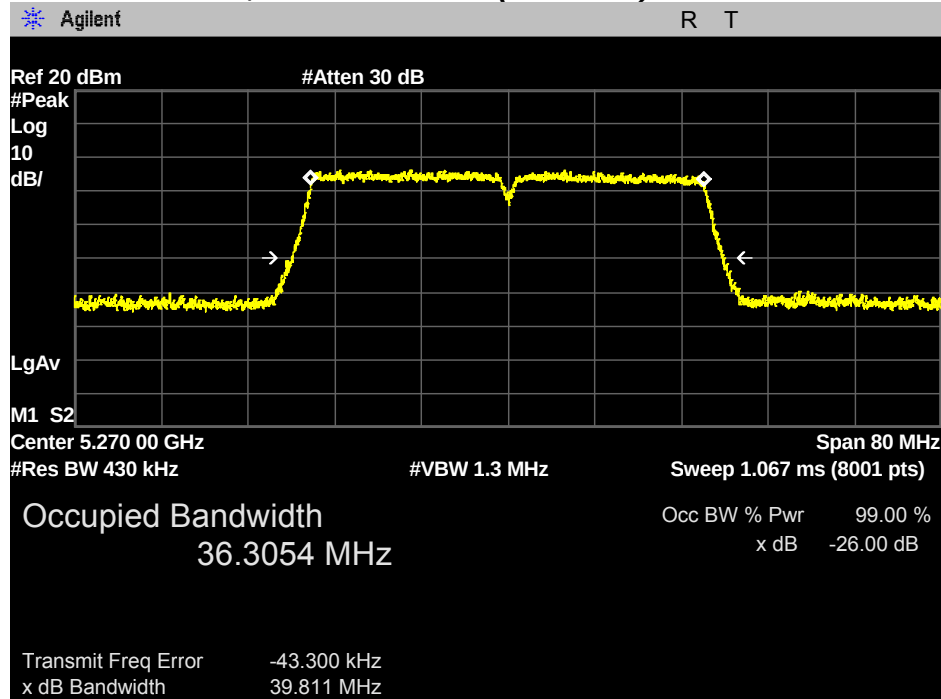
26 dB Bandwidth, Highest Channel (5310 MHz)



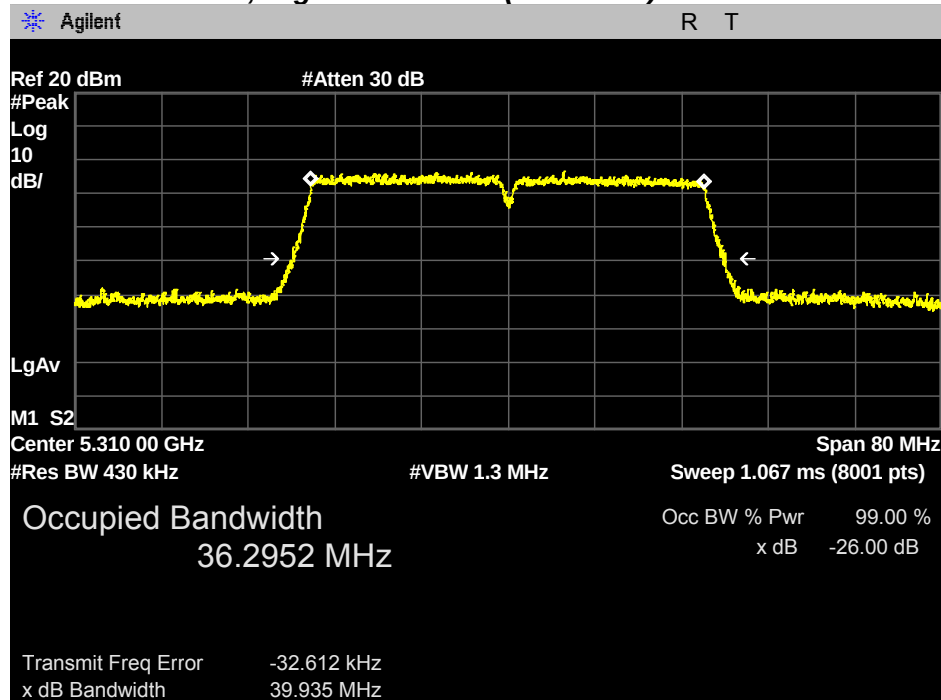
PLOTS OF EMISSIONS

Chain 1

26 dB Bandwidth, Lowest Channel (5270 MHz)



26 dB Bandwidth, Highest Channel (5310 MHz)

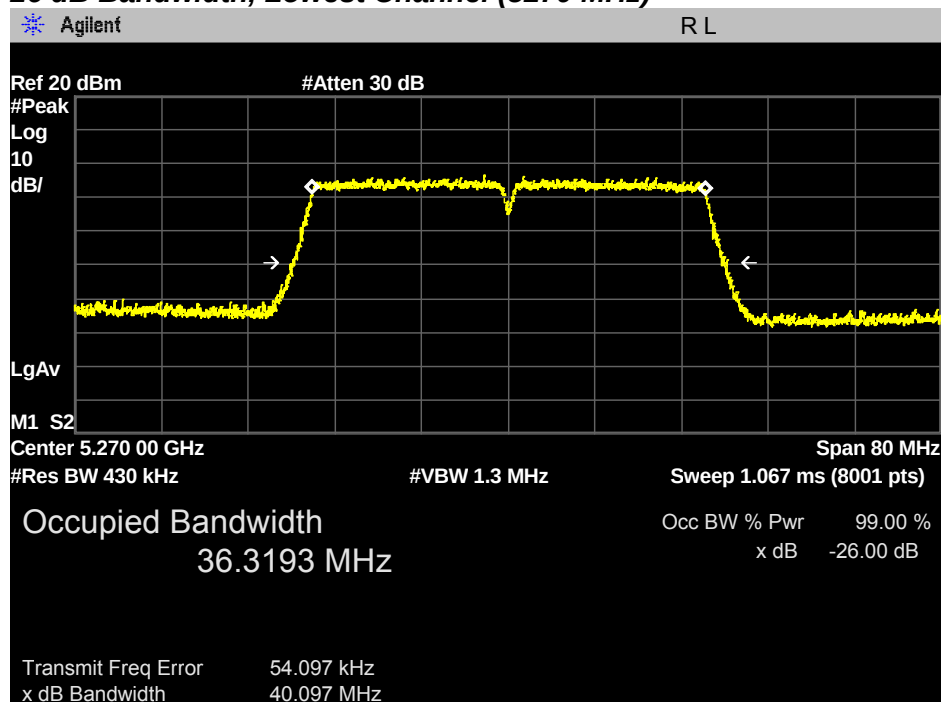


PLOTS OF EMISSIONS

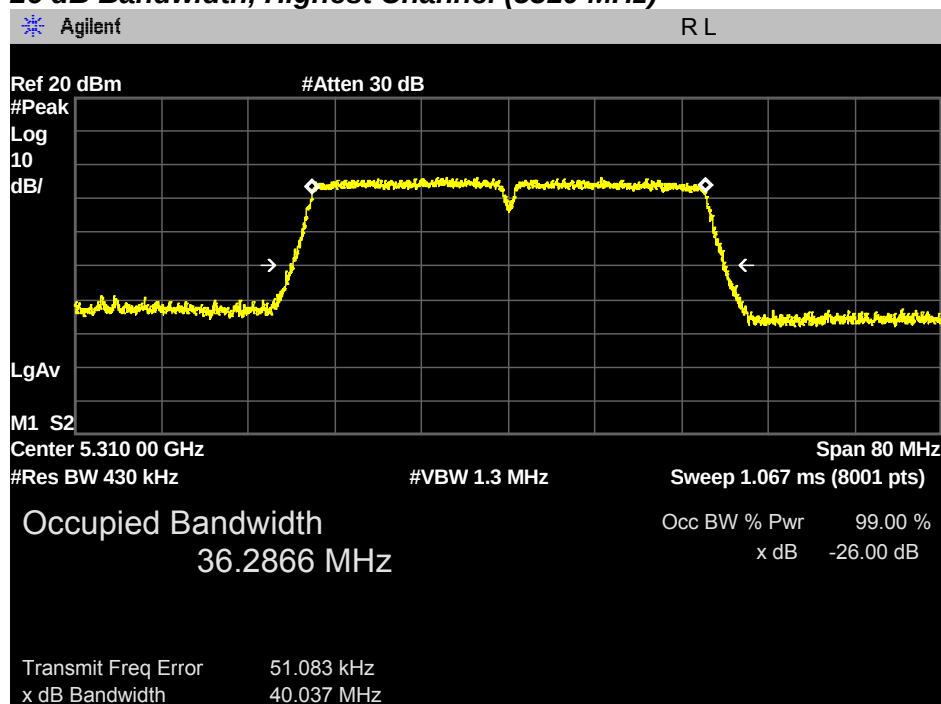
802.11n(40MHz) mode - CDD

Chain 0

26 dB Bandwidth, Lowest Channel (5270 MHz)



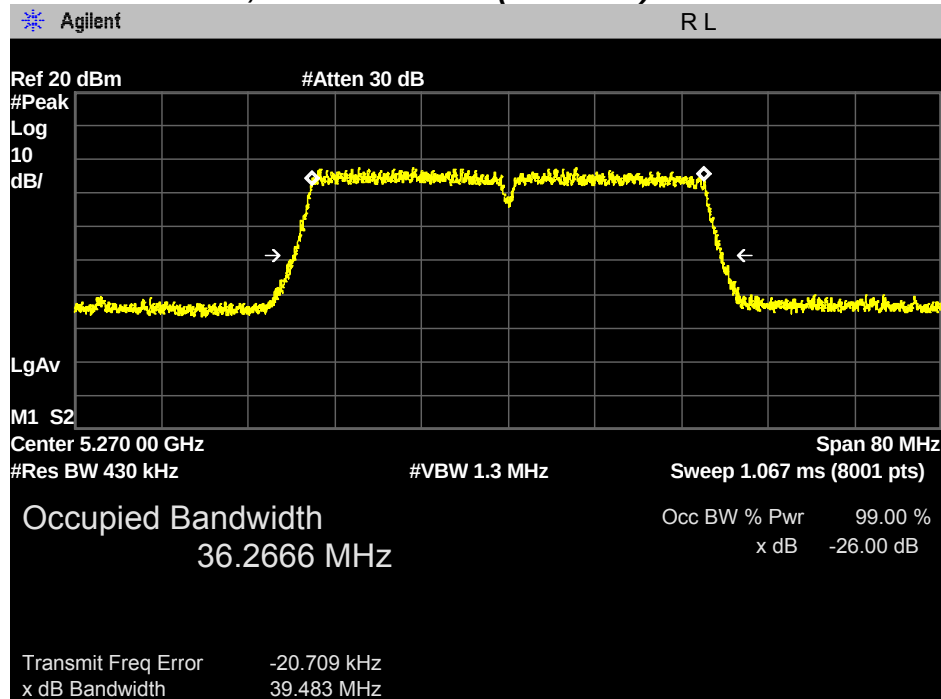
26 dB Bandwidth, Highest Channel (5310 MHz)



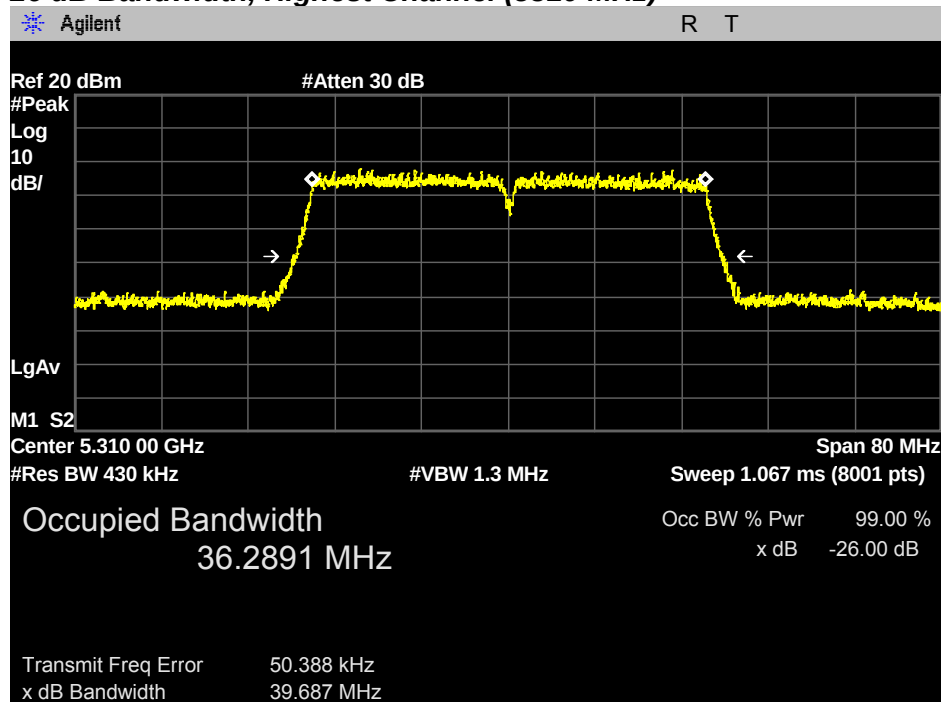
PLOTS OF EMISSIONS

Chain 1

26 dB Bandwidth, Lowest Channel (5270 MHz)



26 dB Bandwidth, Highest Channel (5310 MHz)

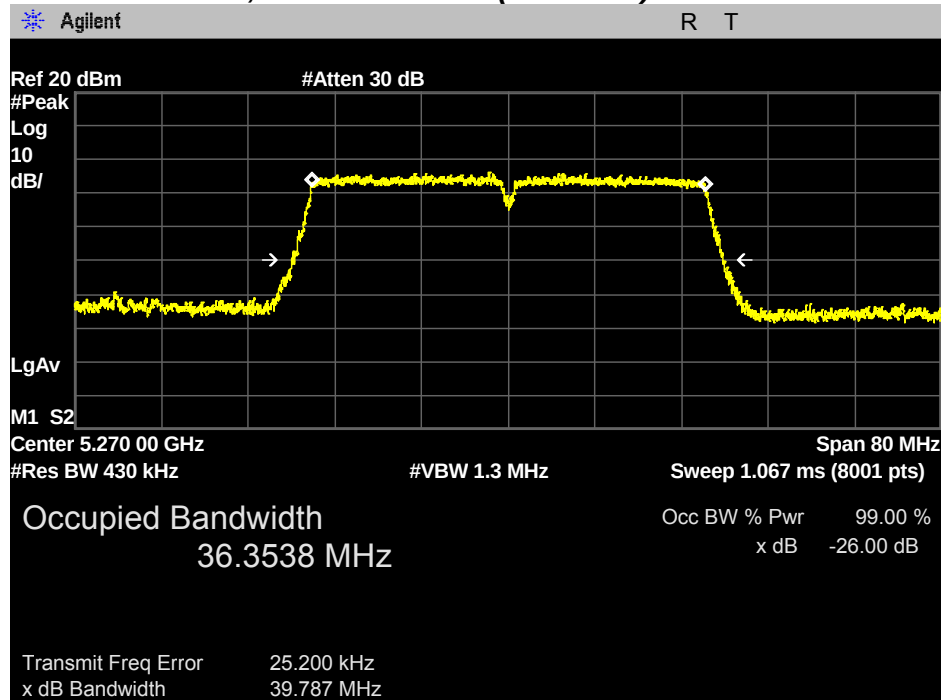


PLOTS OF EMISSIONS

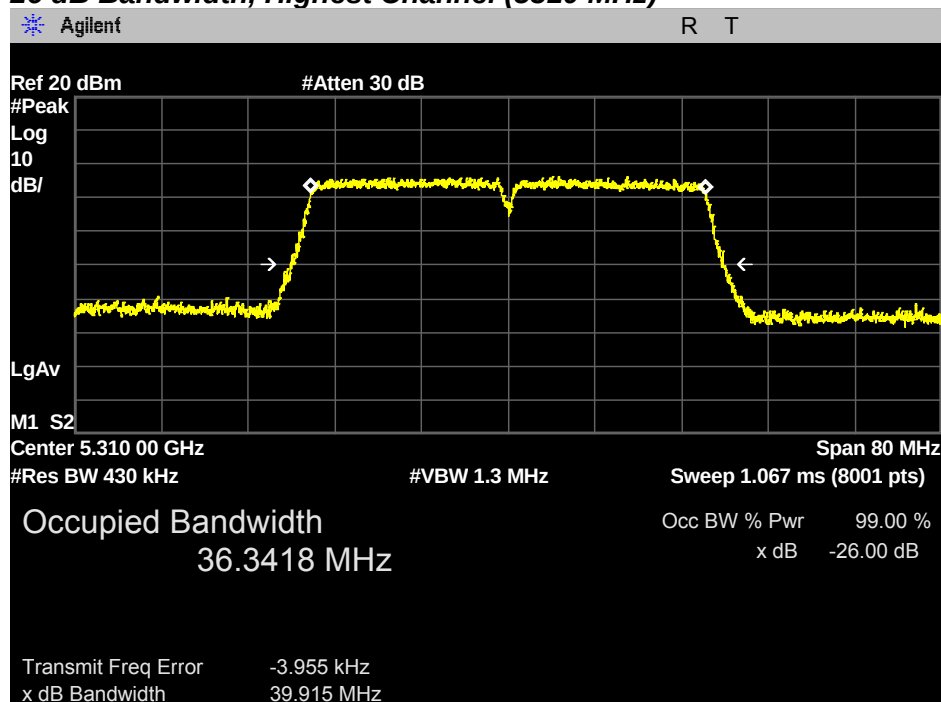
802.11n(40MHz) mode - MIMO

Chain 0

26 dB Bandwidth, Lowest Channel (5270 MHz)



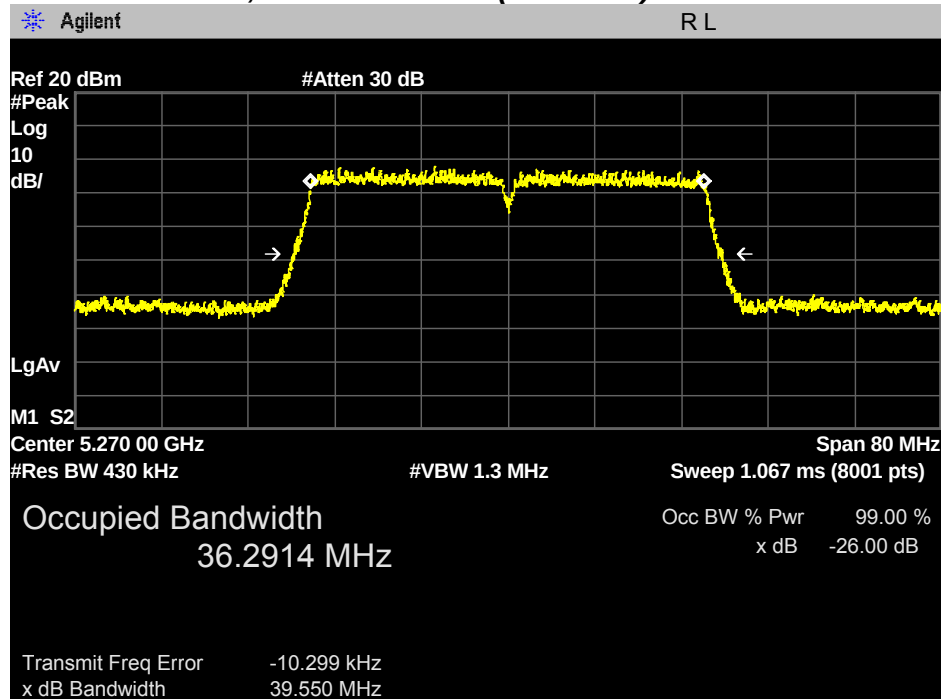
26 dB Bandwidth, Highest Channel (5310 MHz)



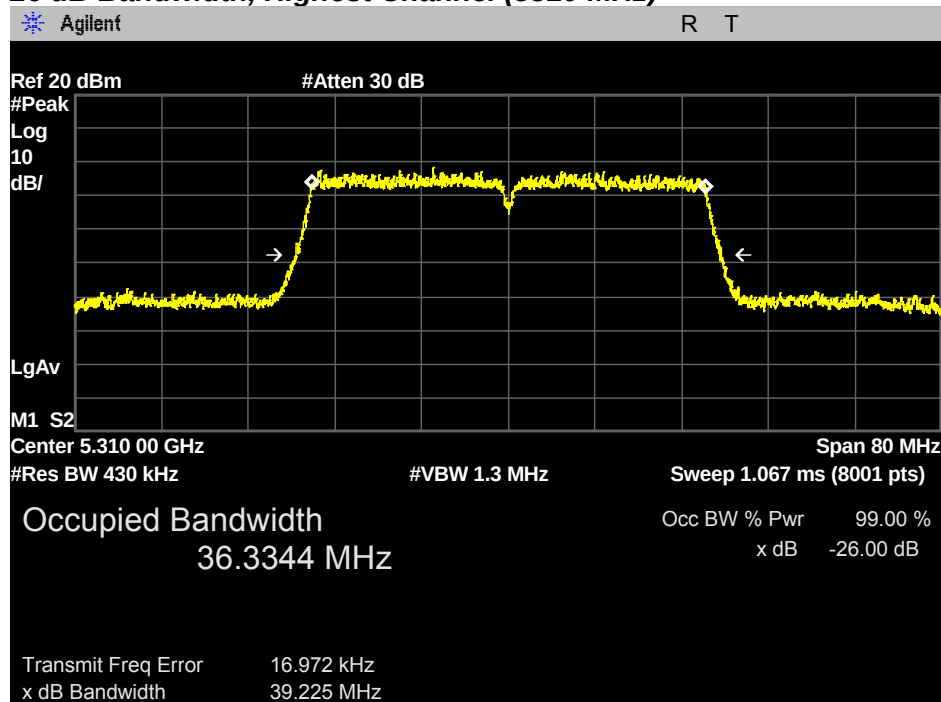
PLOTS OF EMISSIONS

Chain 1

26 dB Bandwidth, Lowest Channel (5270 MHz)



26 dB Bandwidth, Highest Channel (5310 MHz)

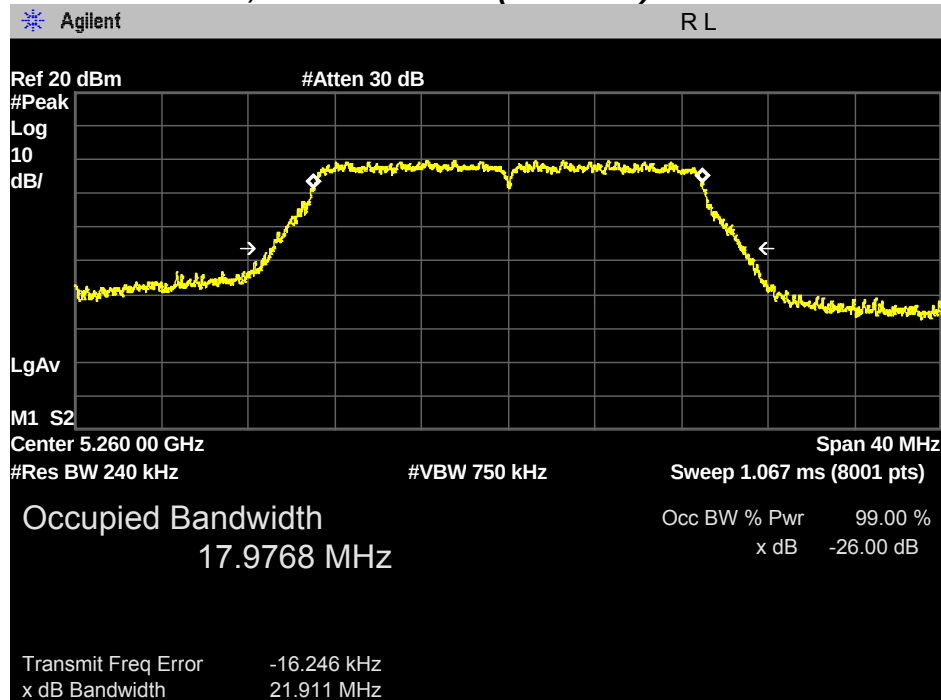


PLOTS OF EMISSIONS

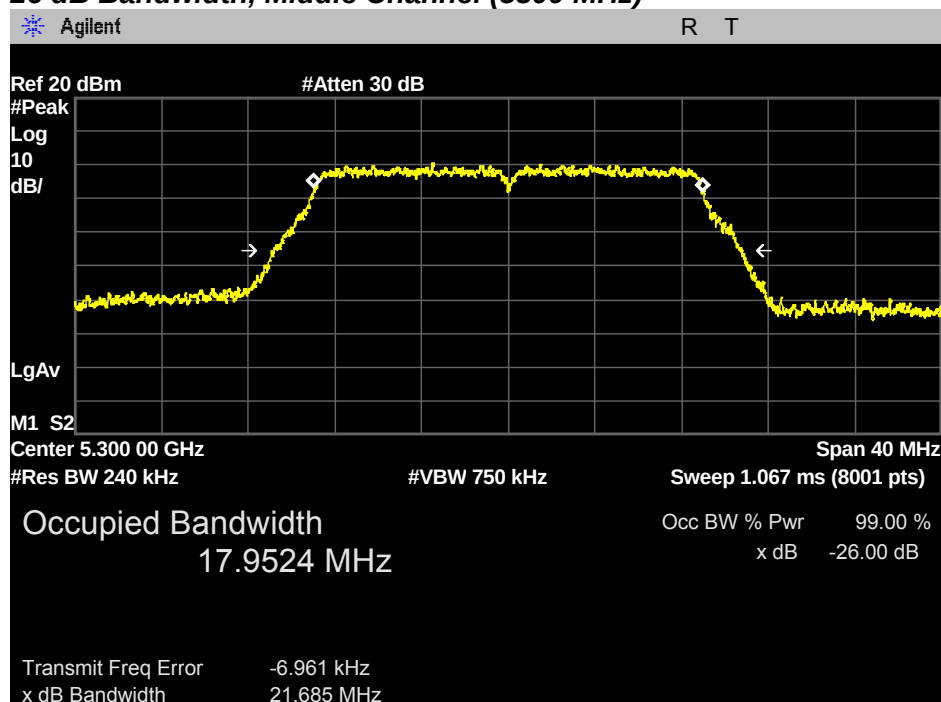
802.11ac(20MHz) mode - SISO

Chain 0

26 dB Bandwidth, Lowest Channel (5260 MHz)

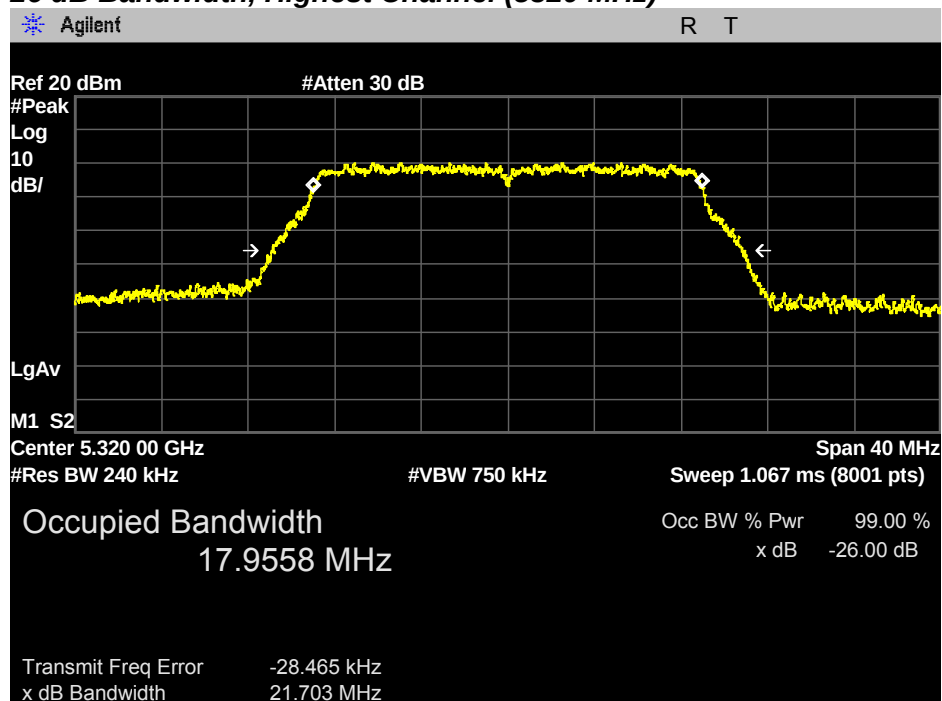


26 dB Bandwidth, Middle Channel (5300 MHz)



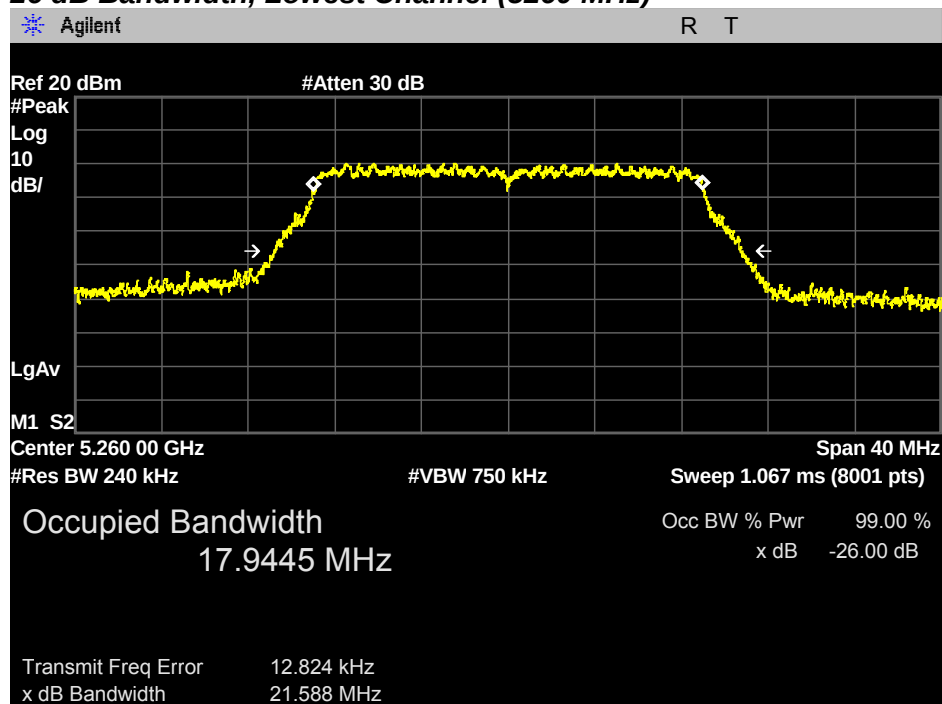
PLOTS OF EMISSIONS

26 dB Bandwidth, Highest Channel (5320 MHz)



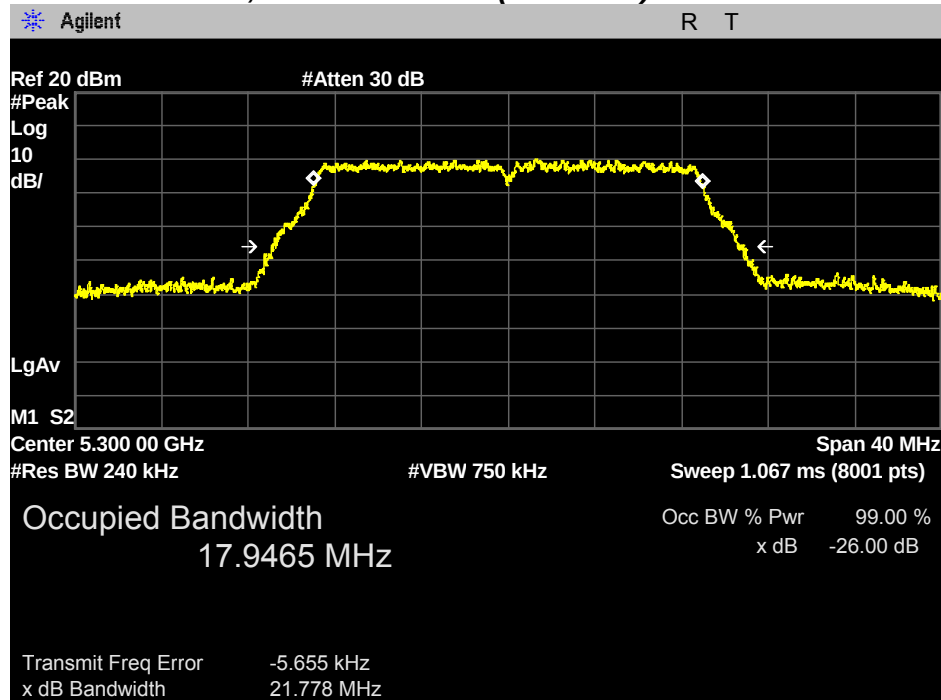
Chain 1

26 dB Bandwidth, Lowest Channel (5260 MHz)

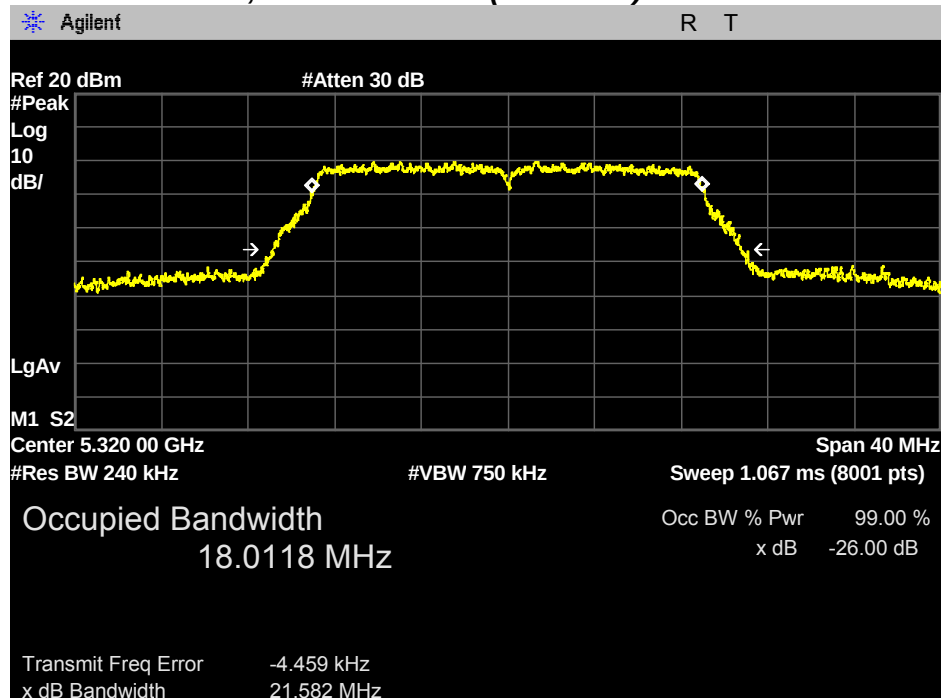


PLOTS OF EMISSIONS

26 dB Bandwidth, Lowest Channel (5300 MHz)



26 dB Bandwidth, Middle Channel (5320 MHz)

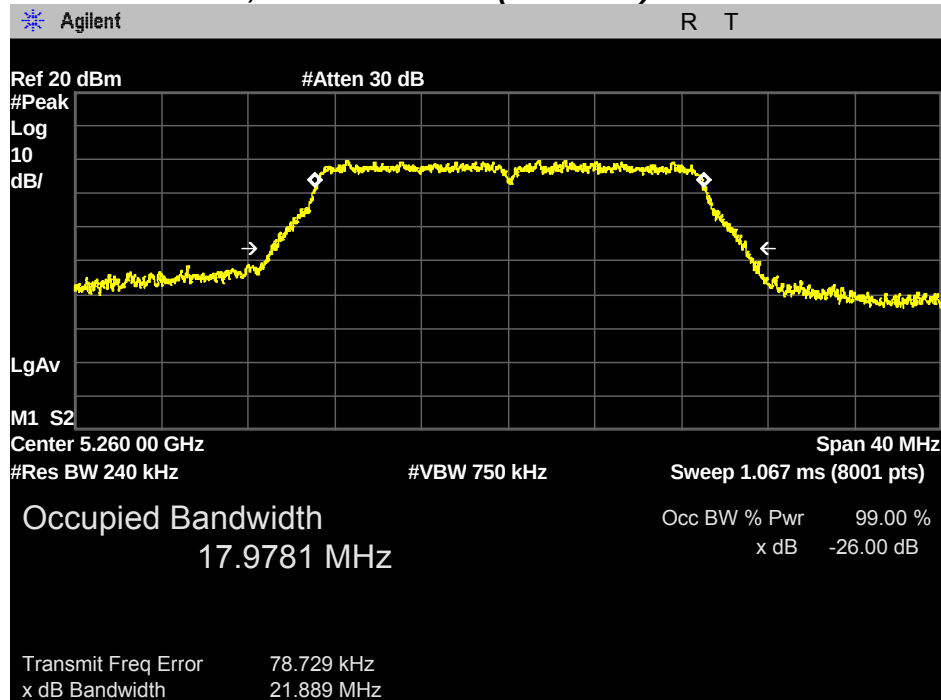


PLOTS OF EMISSIONS

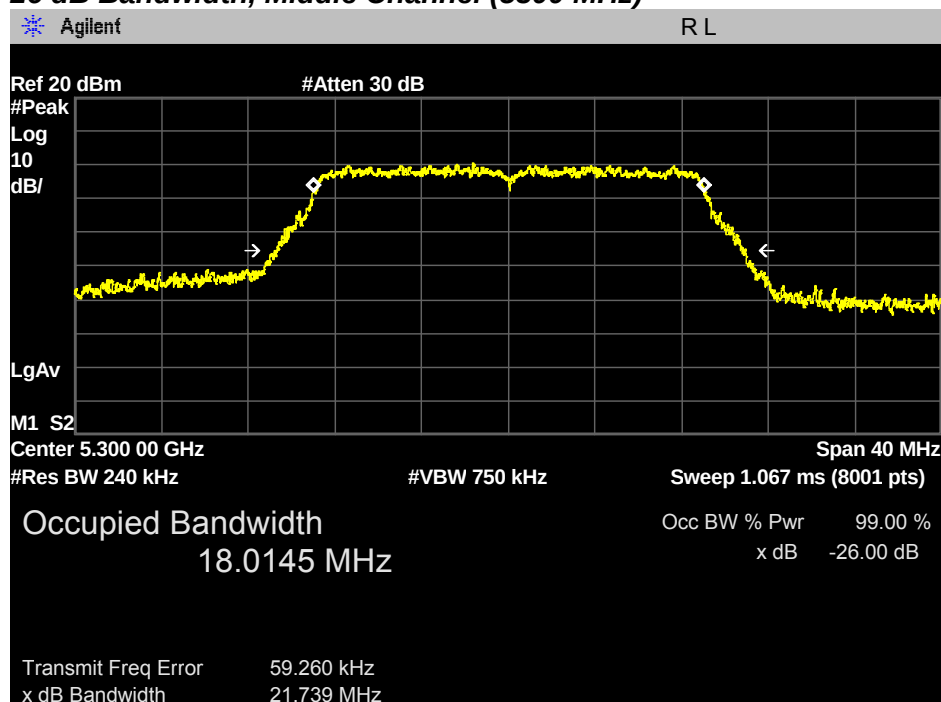
802.11ac(20MHz) mode - CDD

Chain 0

26 dB Bandwidth, Lowest Channel (5260 MHz)

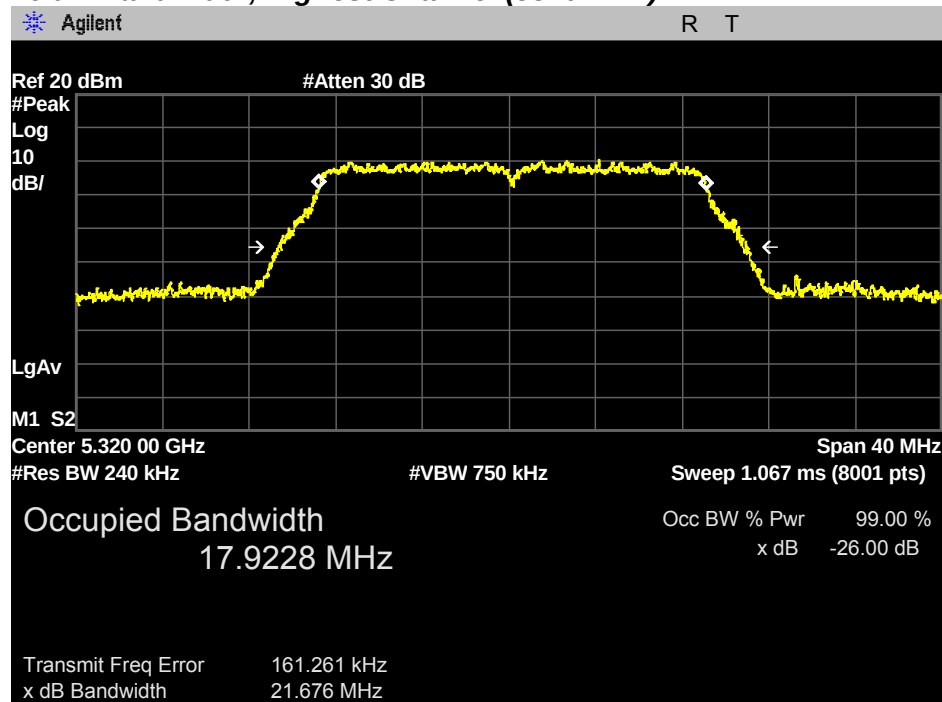


26 dB Bandwidth, Middle Channel (5300 MHz)



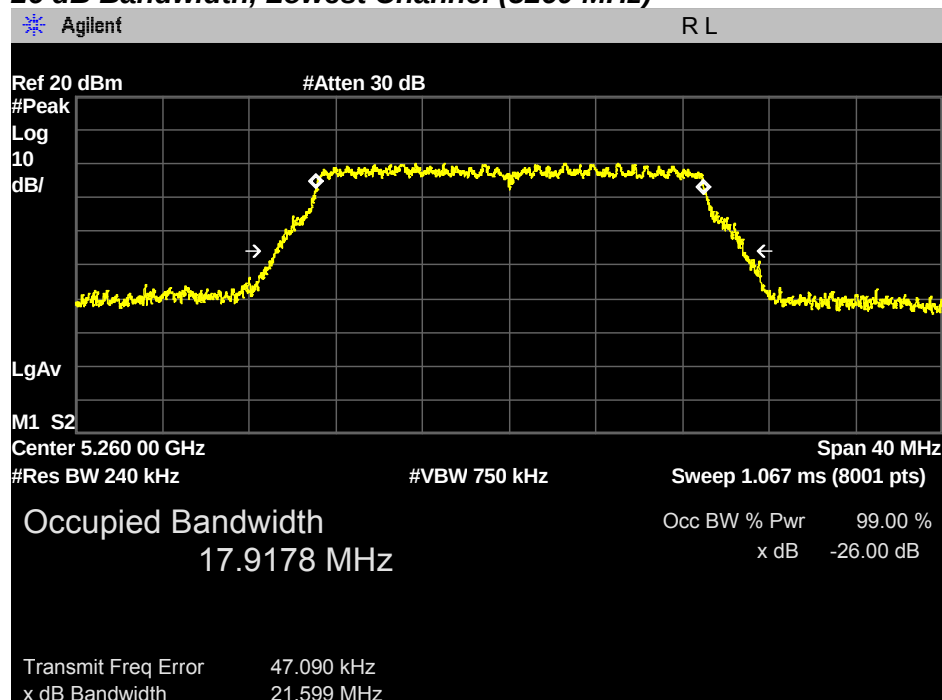
PLOTS OF EMISSIONS

26 dB Bandwidth, Highest Channel (5320 MHz)



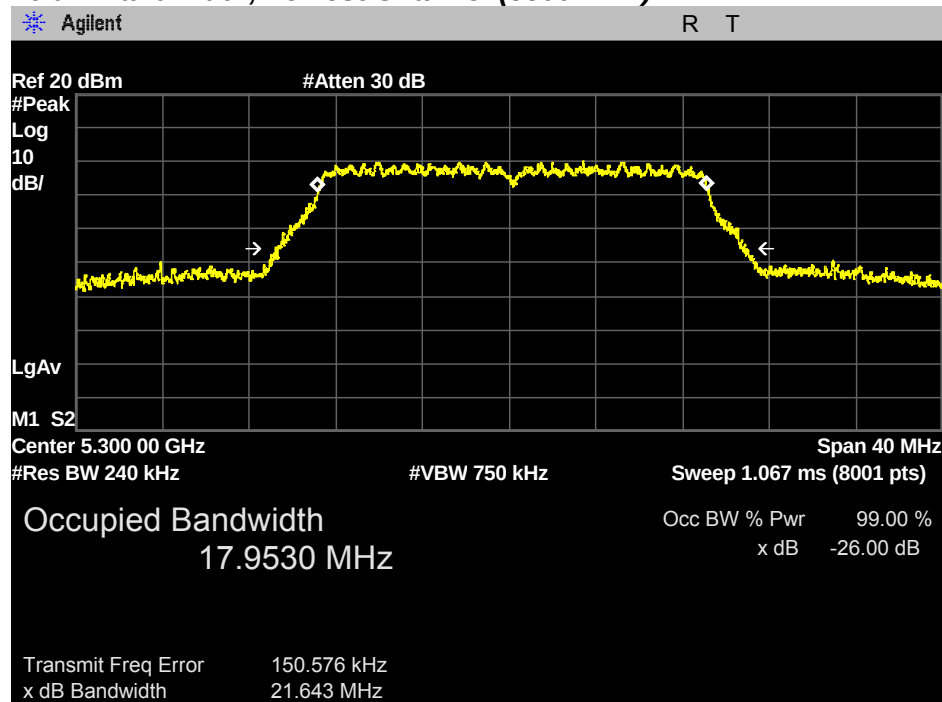
Chain 1

26 dB Bandwidth, Lowest Channel (5260 MHz)

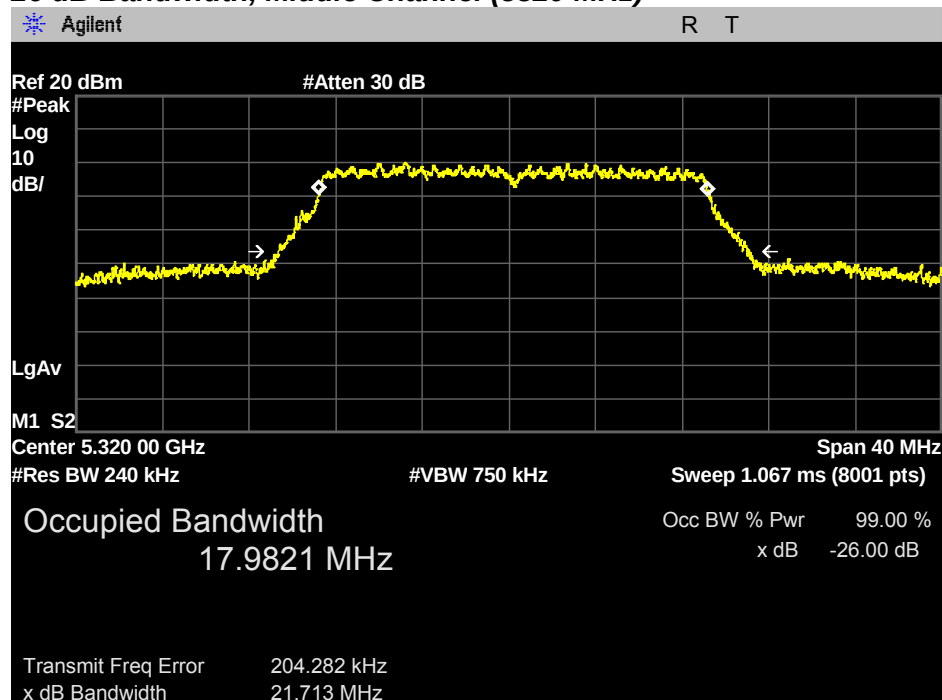


PLOTS OF EMISSIONS

26 dB Bandwidth, Lowest Channel (5300 MHz)



26 dB Bandwidth, Middle Channel (5320 MHz)

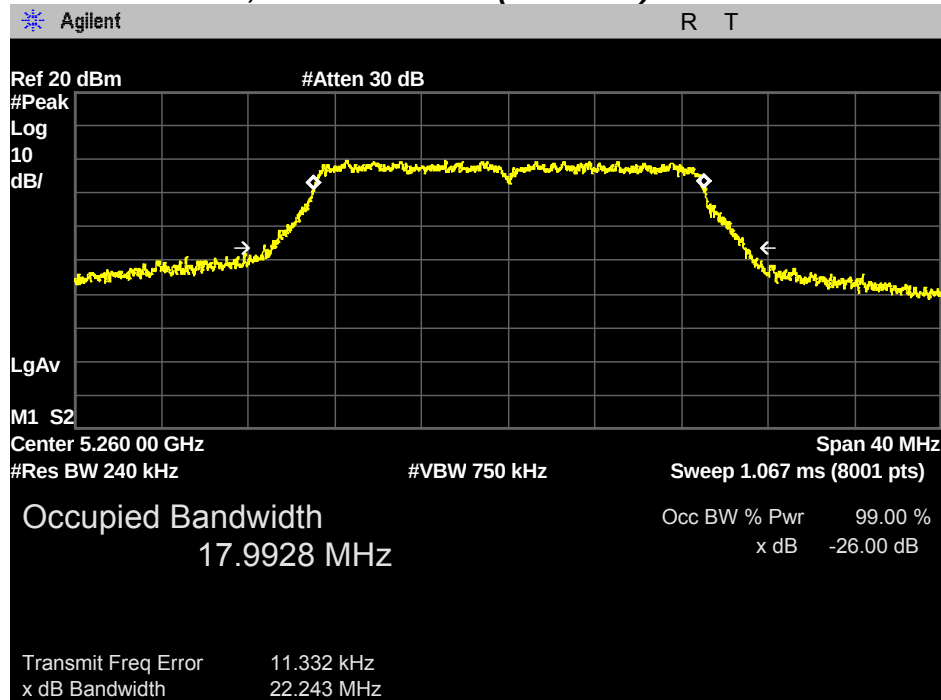


PLOTS OF EMISSIONS

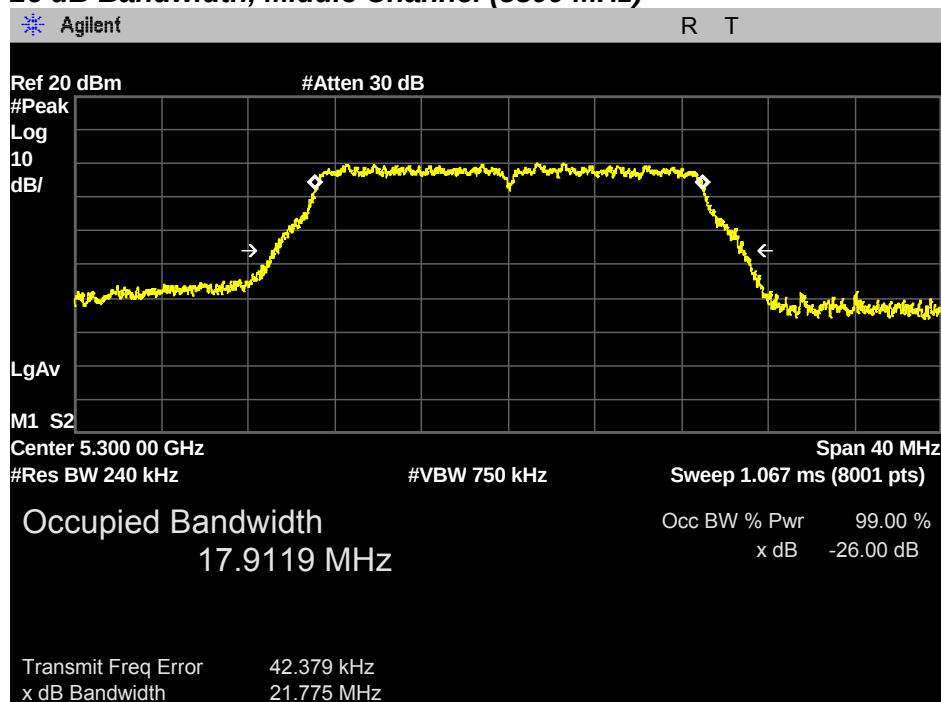
802.11ac(20MHz) mode - MIMO

Chain 0

26 dB Bandwidth, Lowest Channel (5260 MHz)

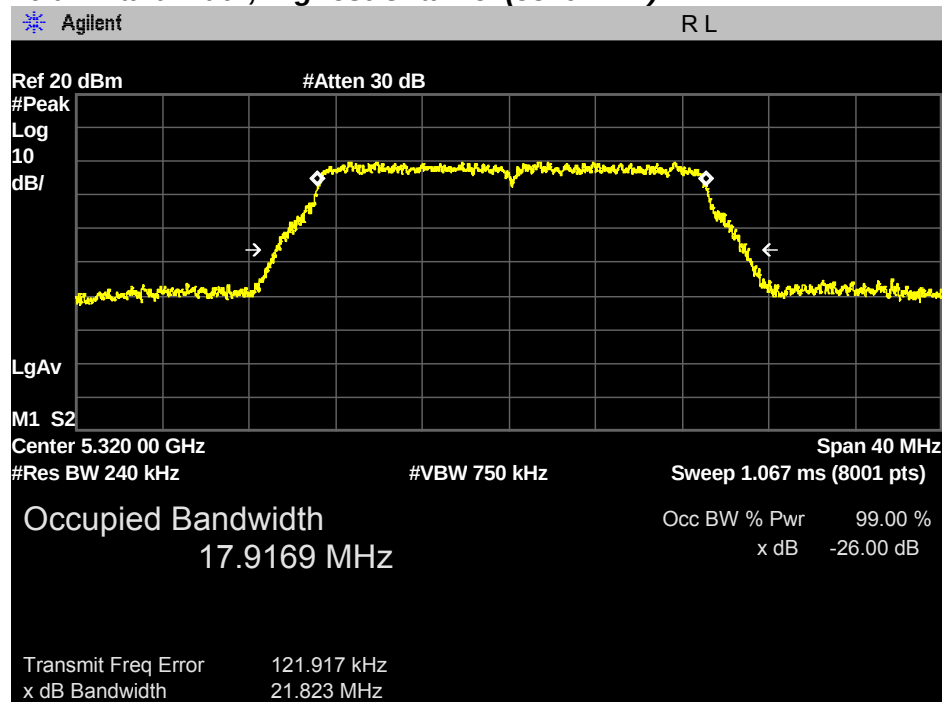


26 dB Bandwidth, Middle Channel (5300 MHz)



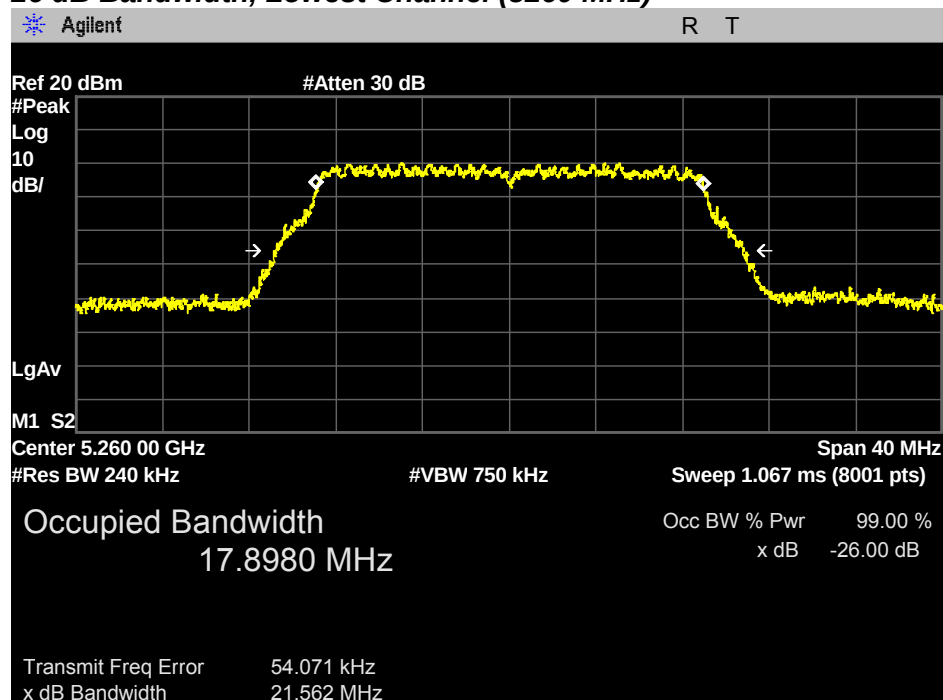
PLOTS OF EMISSIONS

26 dB Bandwidth, Highest Channel (5320 MHz)



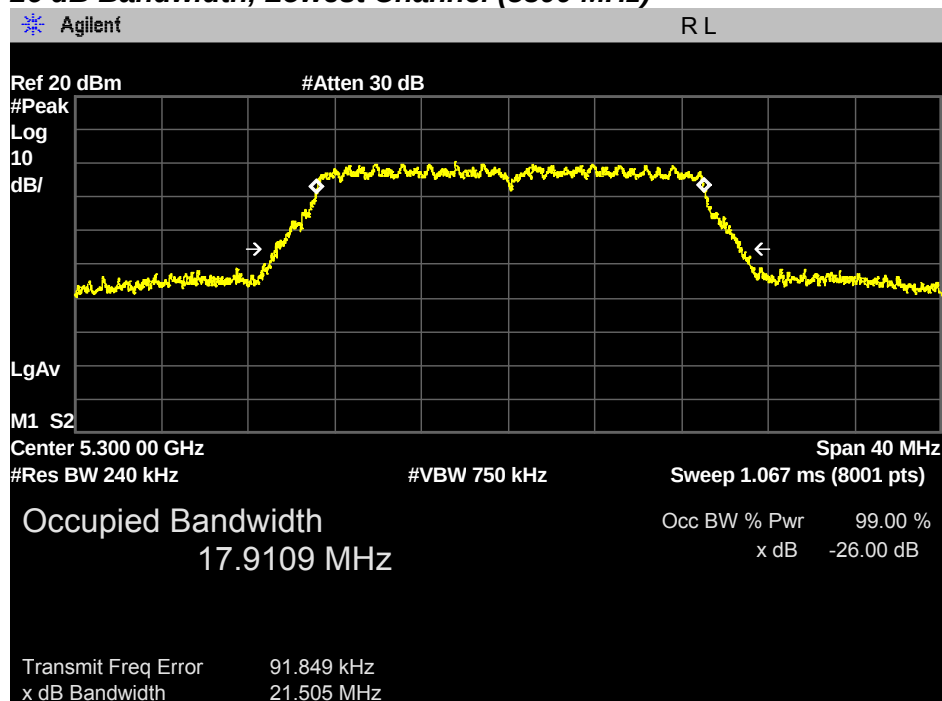
Chain 1

26 dB Bandwidth, Lowest Channel (5260 MHz)

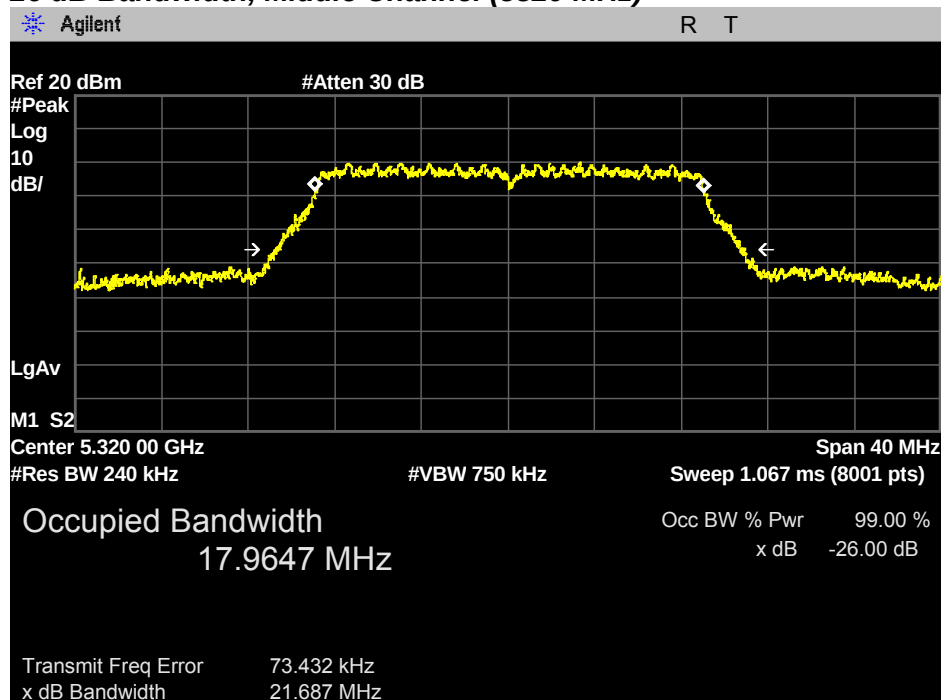


PLOTS OF EMISSIONS

26 dB Bandwidth, Lowest Channel (5300 MHz)



26 dB Bandwidth, Middle Channel (5320 MHz)

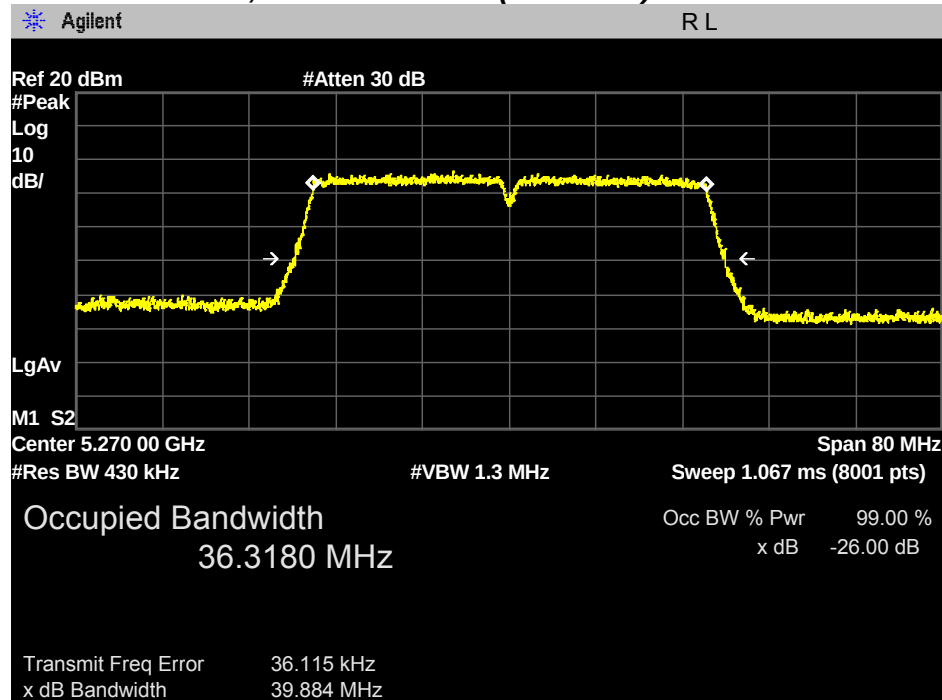


PLOTS OF EMISSIONS

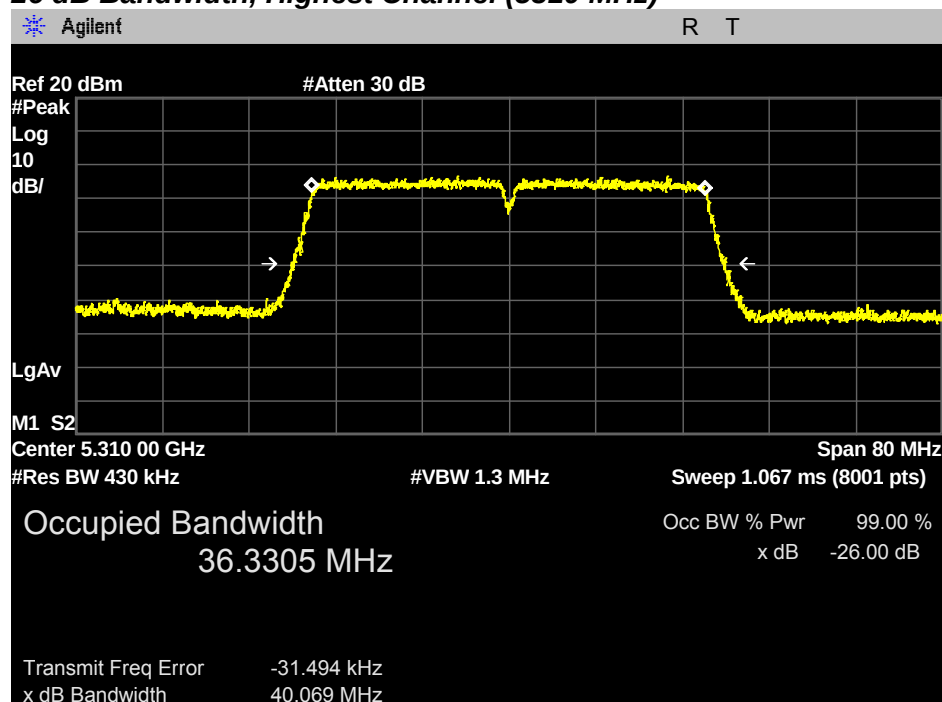
802.11ac(40MHz) mode - SISO

Chain 0

26 dB Bandwidth, Lowest Channel (5270 MHz)



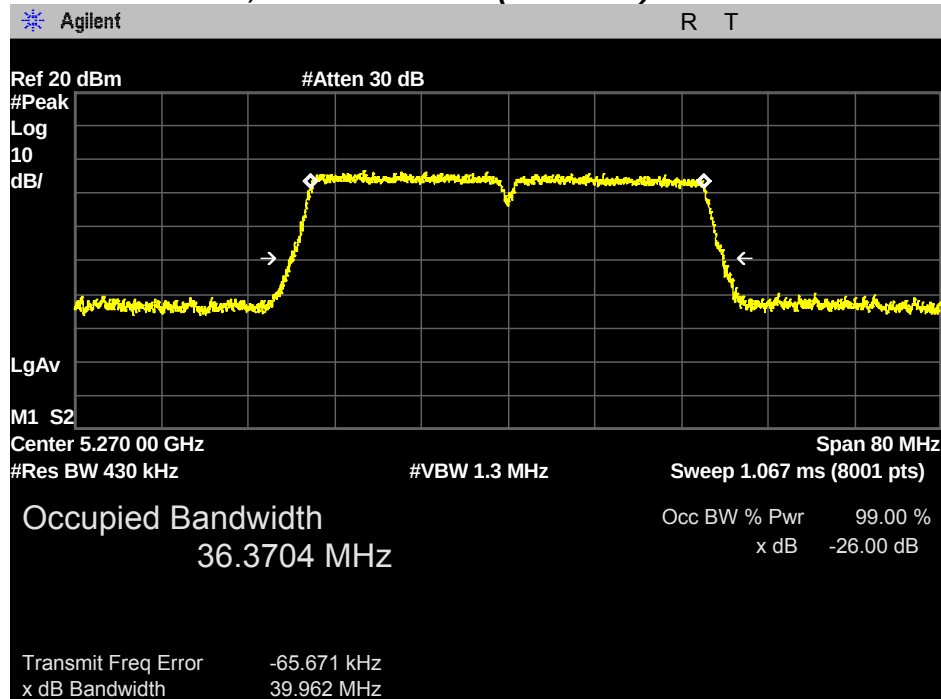
26 dB Bandwidth, Highest Channel (5310 MHz)



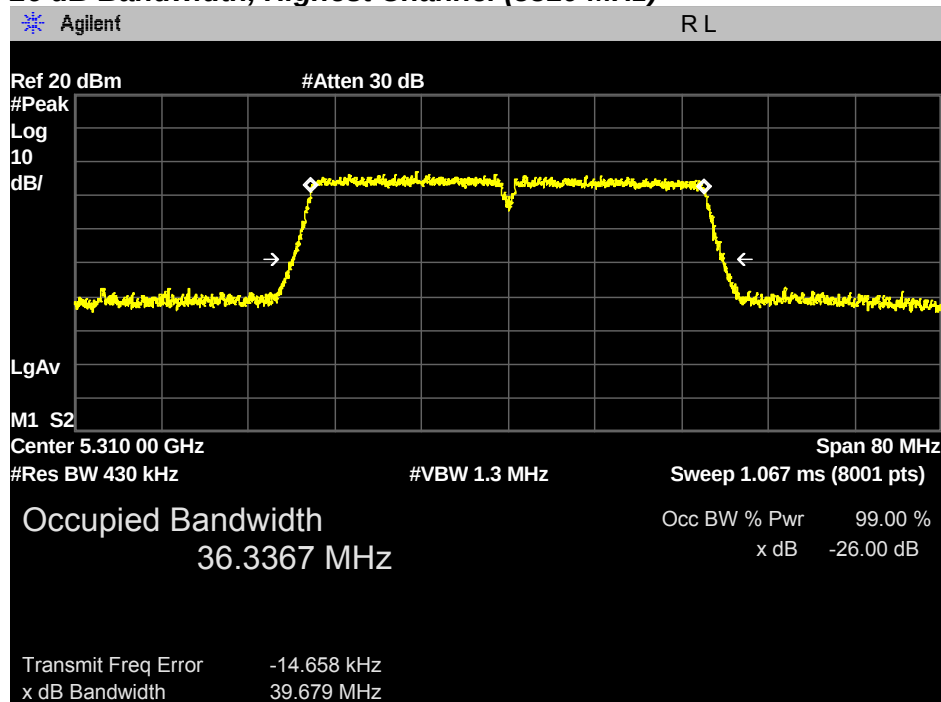
PLOTS OF EMISSIONS

Chain 1

26 dB Bandwidth, Lowest Channel (5270 MHz)



26 dB Bandwidth, Highest Channel (5310 MHz)

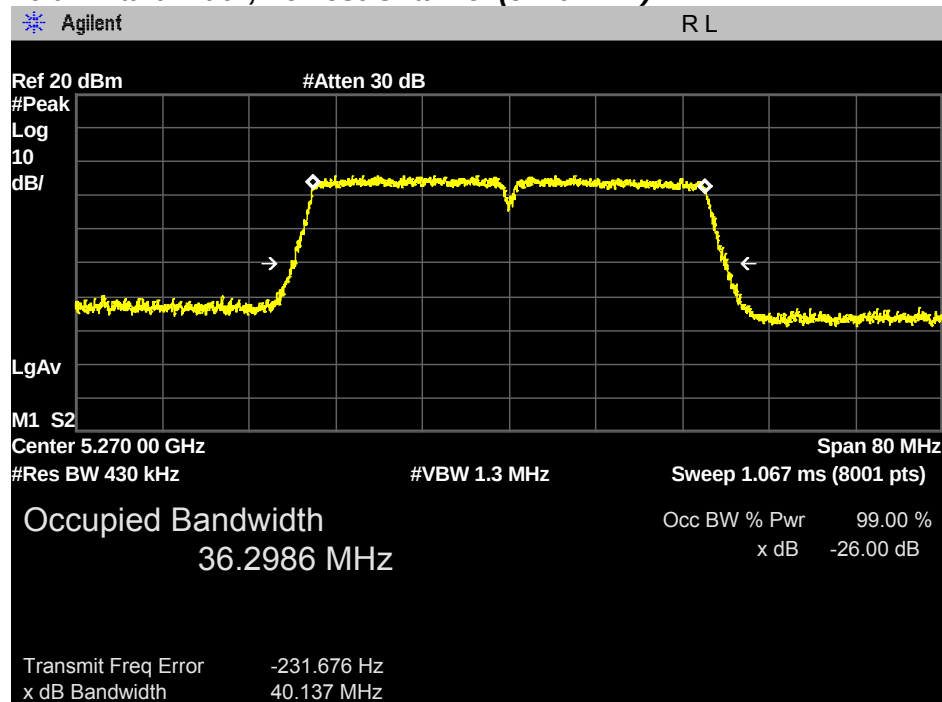


PLOTS OF EMISSIONS

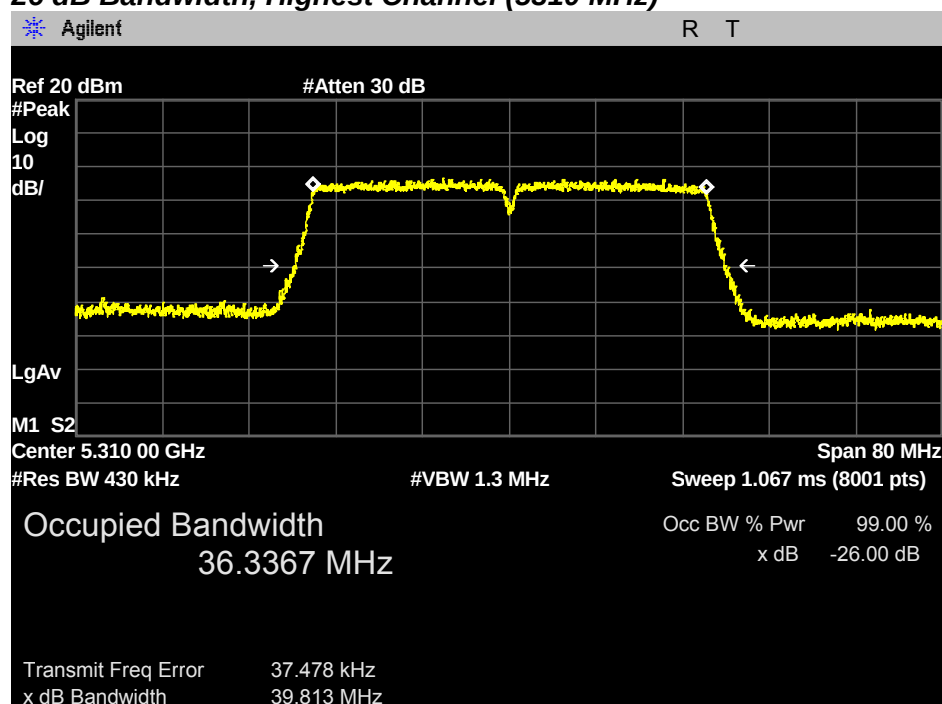
802.11ac(40MHz) mode - CDD

Chain 0

26 dB Bandwidth, Lowest Channel (5270 MHz)



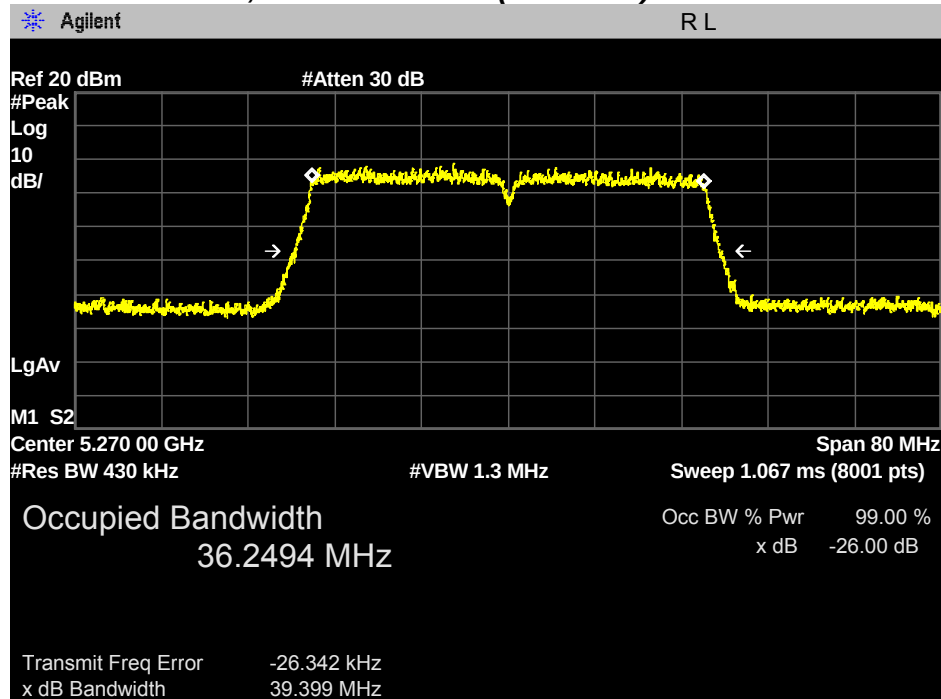
26 dB Bandwidth, Highest Channel (5310 MHz)



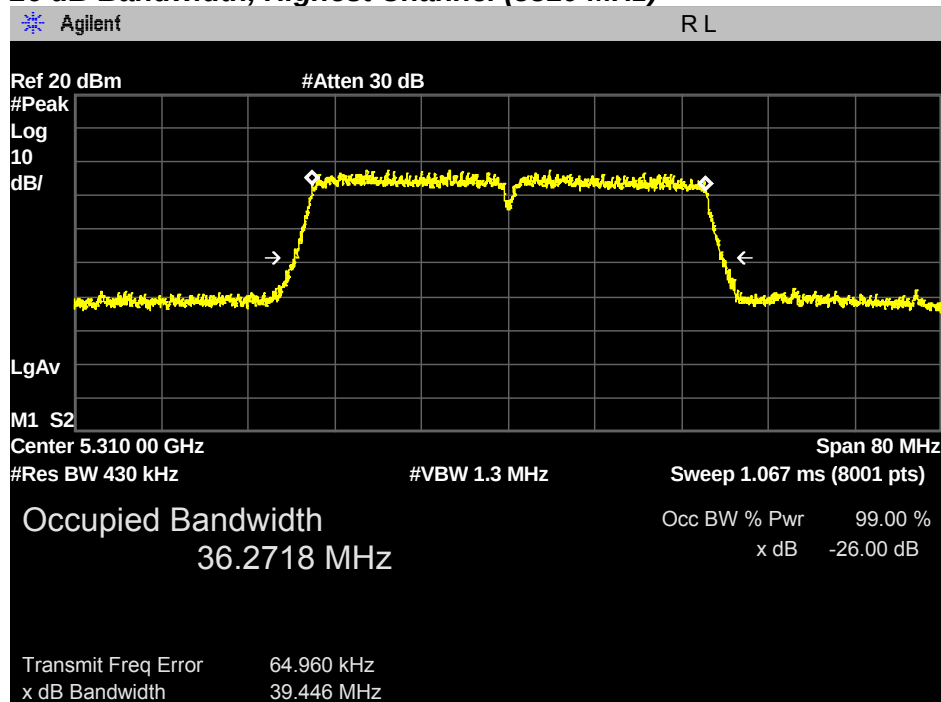
PLOTS OF EMISSIONS

Chain 1

26 dB Bandwidth, Lowest Channel (5270 MHz)



26 dB Bandwidth, Highest Channel (5310 MHz)

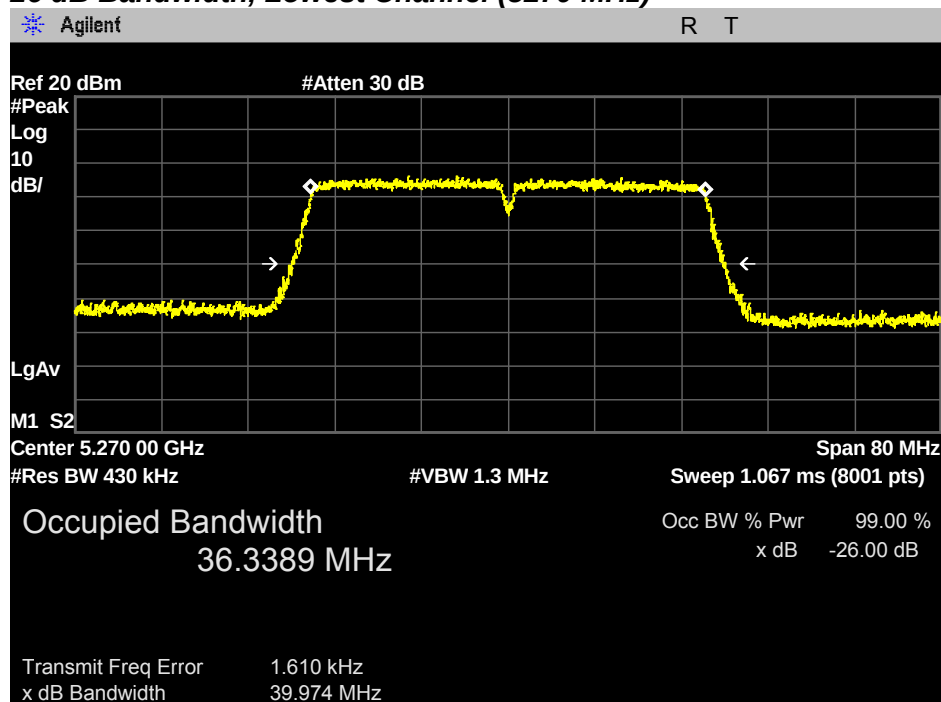


PLOTS OF EMISSIONS

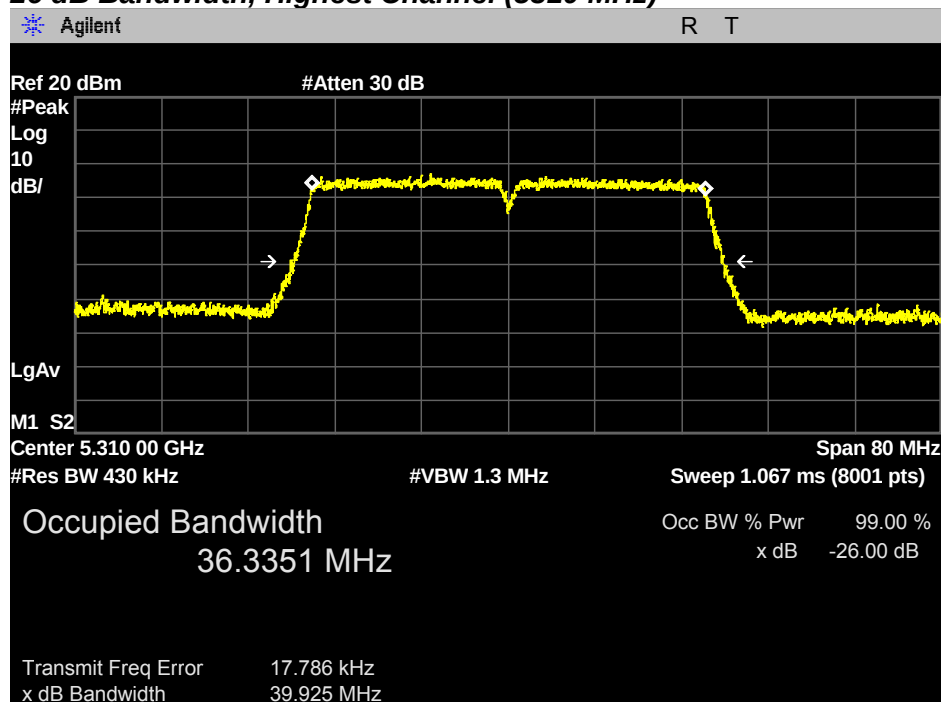
802.11ac(40MHz) mode - MIMO

Chain 0

26 dB Bandwidth, Lowest Channel (5270 MHz)



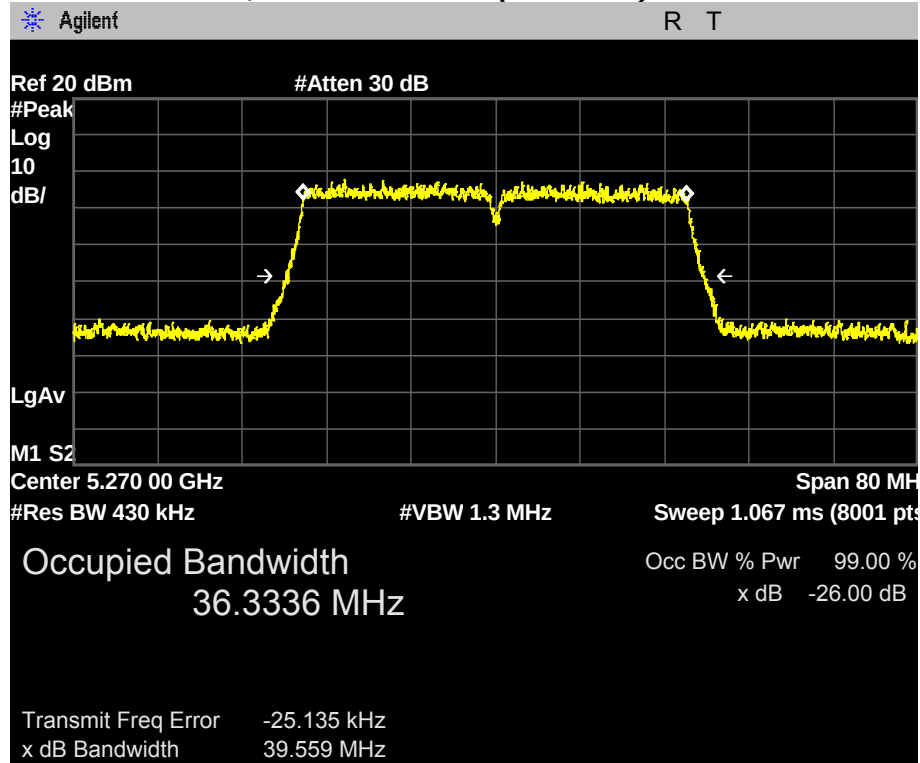
26 dB Bandwidth, Highest Channel (5310 MHz)



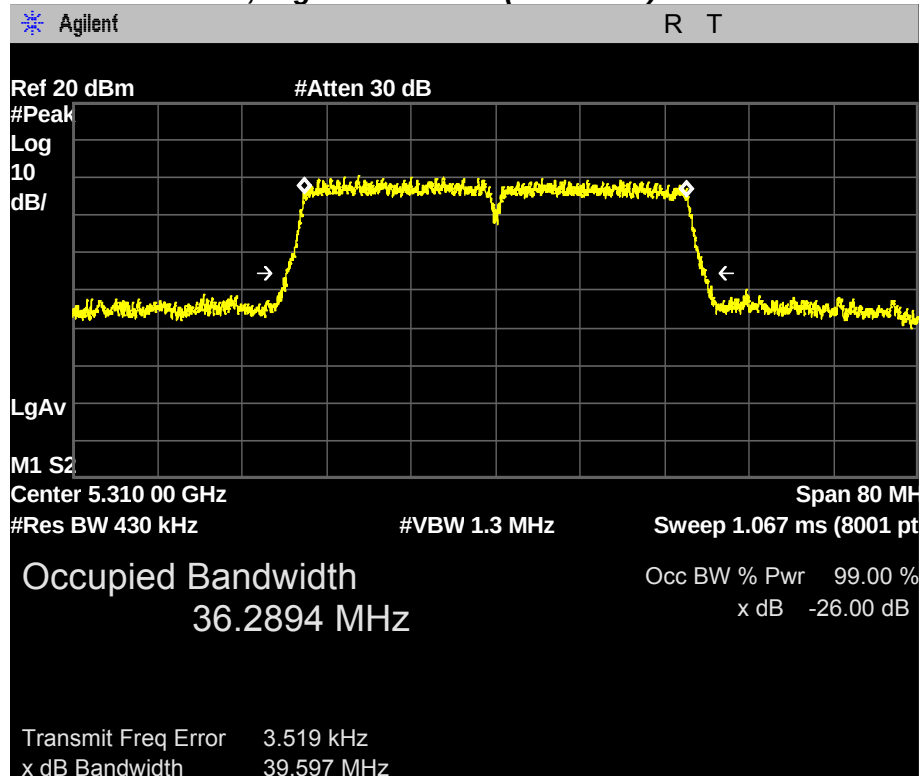
PLOTS OF EMISSIONS

Chain 1

26 dB Bandwidth, Lowest Channel (5270 MHz)



26 dB Bandwidth, Highest Channel (5310 MHz)

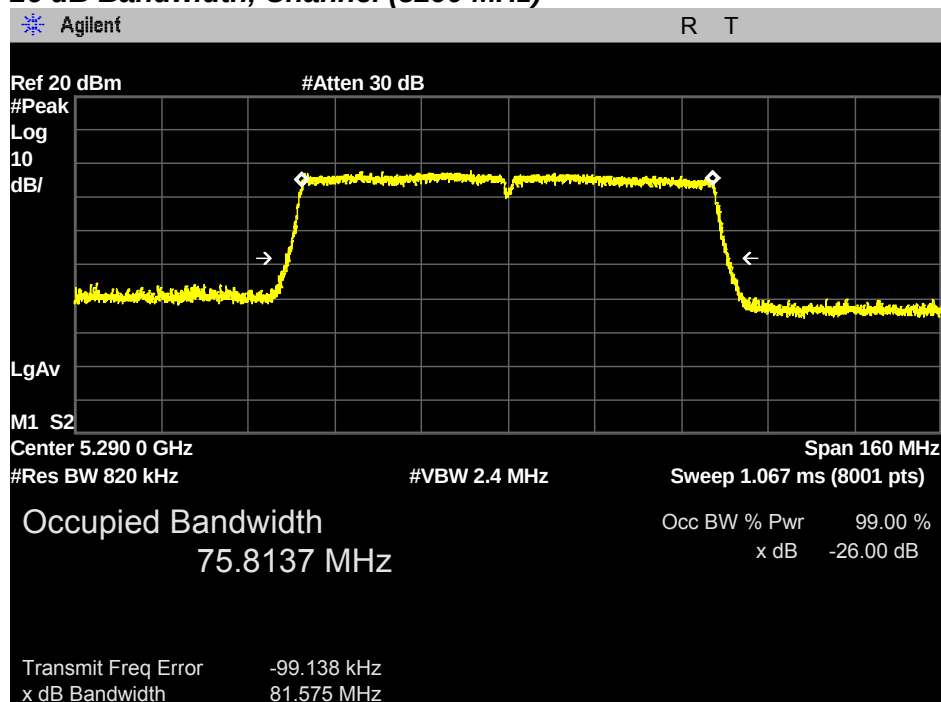


PLOTS OF EMISSIONS

802.11ac (80 MHz) mode - SISO

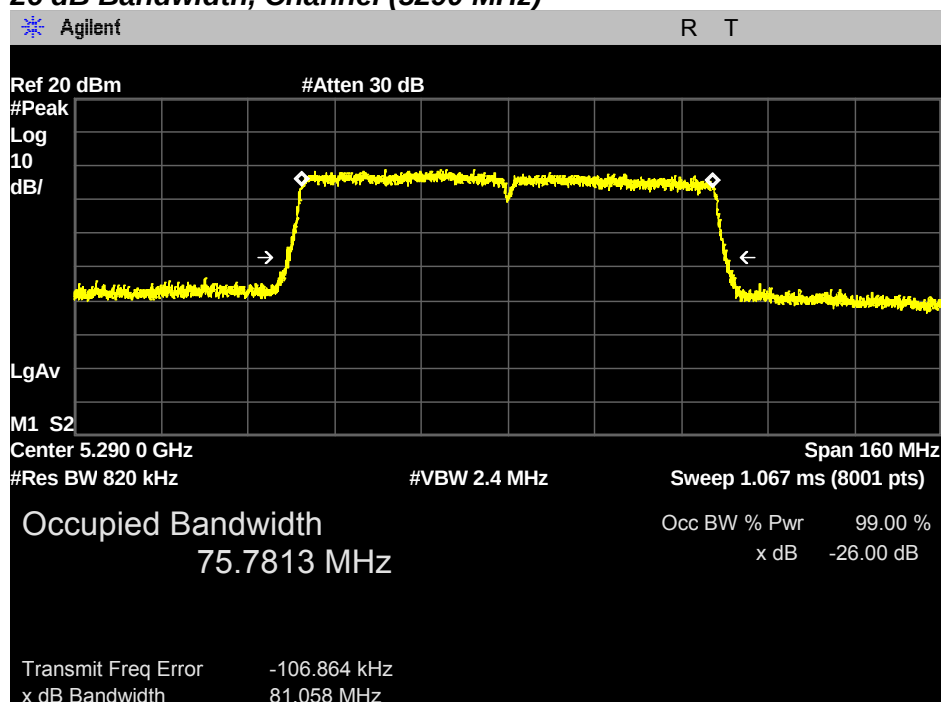
Chain 0

26 dB Bandwidth, Channel (5290 MHz)



Chain 1

26 dB Bandwidth, Channel (5290 MHz)

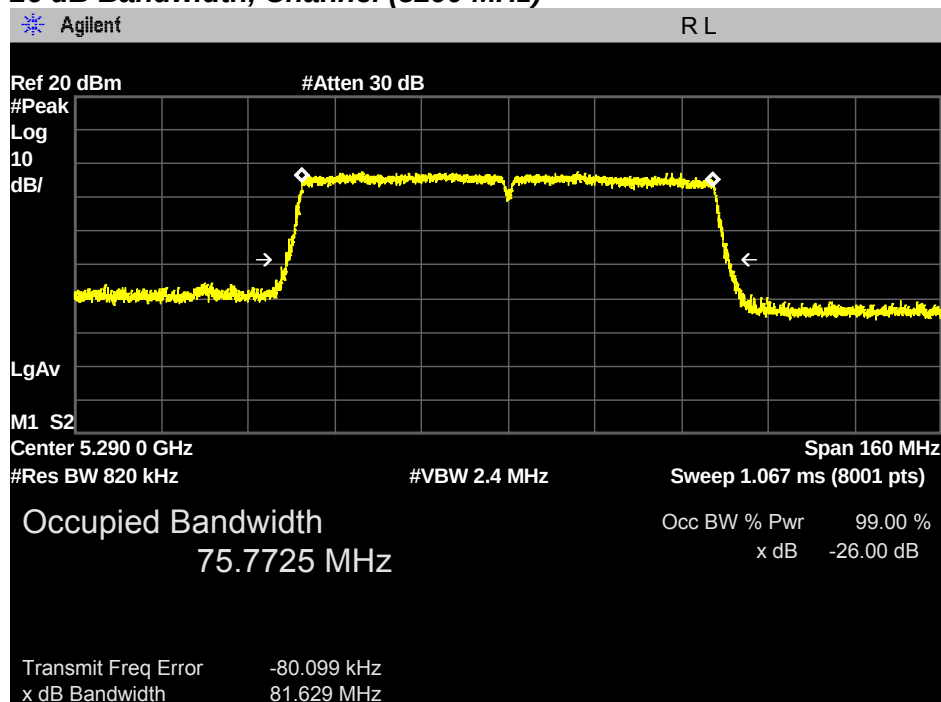


PLOTS OF EMISSIONS

802.11ac (80 MHz) mode - CDD

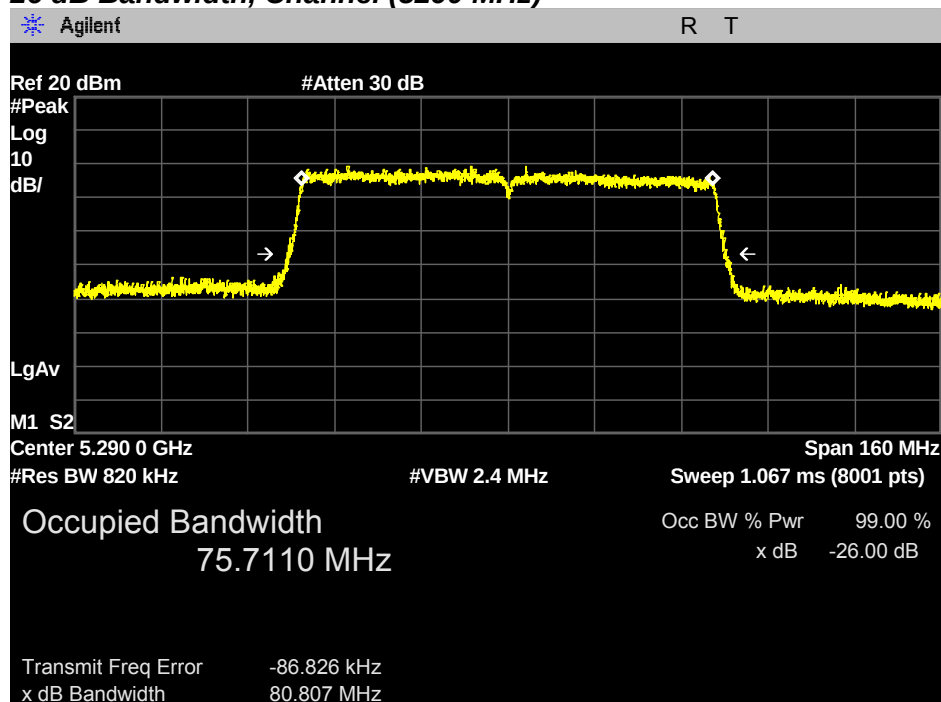
Chain 0

26 dB Bandwidth, Channel (5290 MHz)



Chain 1

26 dB Bandwidth, Channel (5290 MHz)

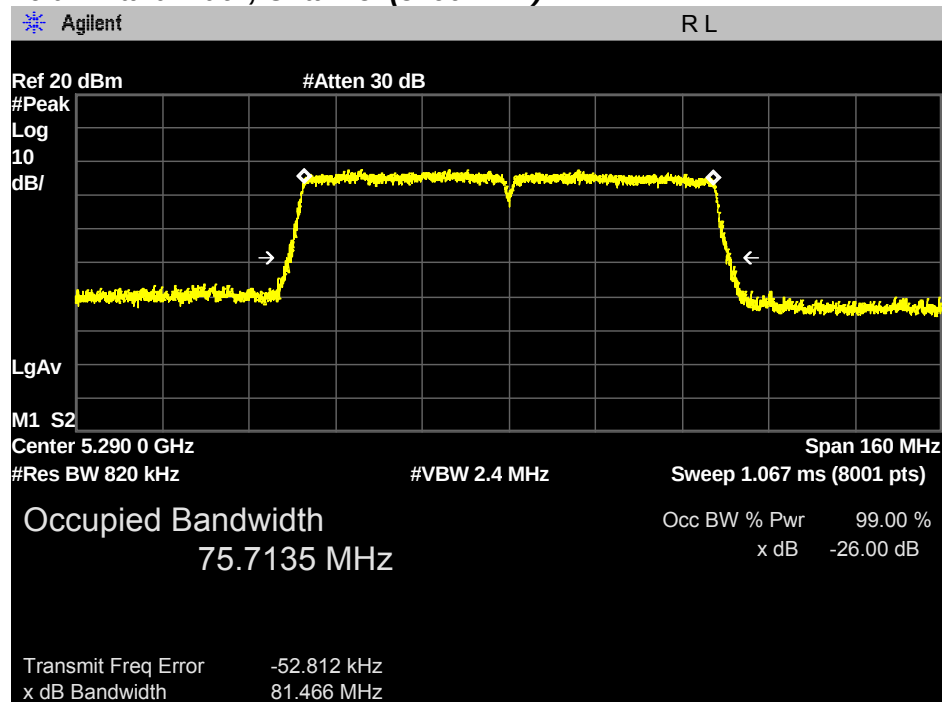


PLOTS OF EMISSIONS

802.11ac (80 MHz) mode - MIMO

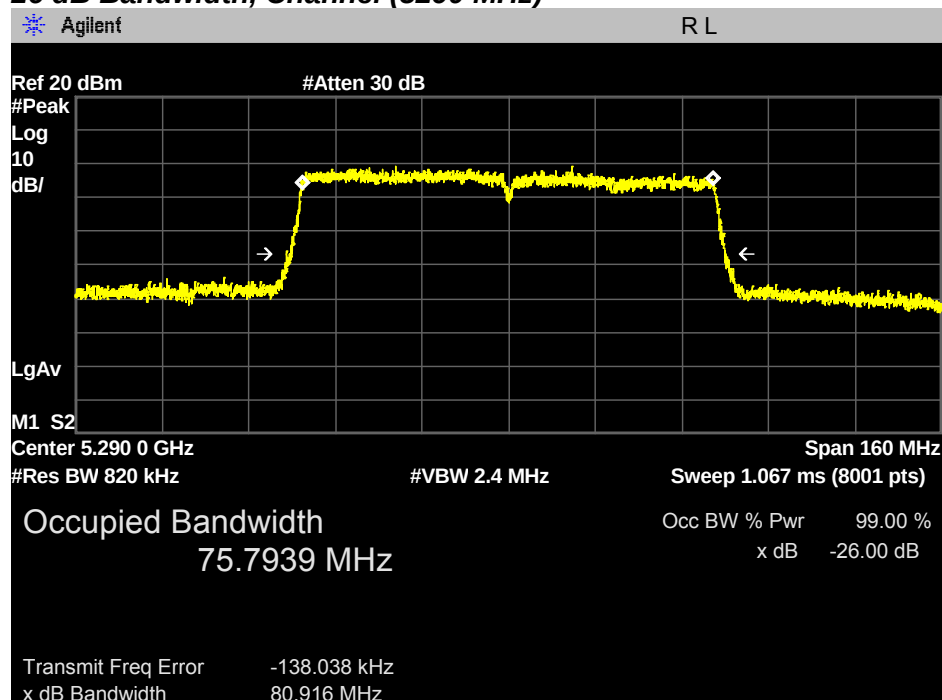
Chain 0

26 dB Bandwidth, Channel (5290 MHz)



Chain 1

26 dB Bandwidth, Channel (5290 MHz)



TEST DATA

8.3.3 26 dB Bandwidth and 99 % Occupied bandwidth – UNII-2C band

FCC §15.407(a), RSS-247 Issue 1 6.2

Test Mode : Set to Lowest channel, Middle channel and Highest channel

802.11a mode

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)		99% Occupied Bandwidth (MHz)	
		Chain 0	Chain 1	Chain 0	Chain 1
Low	5500	21.34	21.68	16.97	17.03
Middle	5580	21.45	21.54	16.86	16.90
High	5700	21.65	21.86	16.85	16.93

802.11n (20 MHz) mode - SISO

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)		99% Occupied Bandwidth (MHz)	
		Chain 0	Chain 1	Chain 0	Chain 1
Low	5500	21.70	21.74	17.99	18.05
Middle	5580	21.70	21.73	17.98	17.99
High	5700	21.94	21.91	17.97	17.99

802.11n (20 MHz) mode - CDD

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)		99% Occupied Bandwidth (MHz)	
		Chain 0	Chain 1	Chain 0	Chain 1
Low	5500	21.71	21.67	17.99	18.01
Middle	5580	21.82	21.62	17.95	17.92
High	5700	21.80	21.74	17.97	17.95

TEST DATA

802.11n (20 MHz) mode – MIMO

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)		99% Occupied Bandwidth (MHz)	
		Chain 0	Chain 1	Chain 0	Chain 1
Low	5500	21.69	21.63	18.04	18.02
Middle	5580	21.73	21.62	17.94	17.91
High	5700	21.68	21.62	17.95	17.92

802.11n (40 MHz) mode – SISO

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)		99% Occupied Bandwidth (MHz)	
		Chain 0	Chain 1	Chain 0	Chain 1
Low	5510	39.96	40.00	36.29	36.34
Middle	5550	40.05	39.82	36.30	36.36
High	5670	39.92	39.81	36.31	36.33

802.11n (40 MHz) mode - CDD

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)		99% Occupied Bandwidth (MHz)	
		Chain 0	Chain 1	Chain 0	Chain 1
Low	5510	39.70	39.69	36.30	36.29
Middle	5550	39.98	39.78	36.34	36.30
High	5670	39.84	39.54	36.36	36.29

802.11n (40 MHz) mode - MIMO

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)		99% Occupied Bandwidth (MHz)	
		Chain 0	Chain 1	Chain 0	Chain 1
Low	5510	39.83	39.62	36.30	36.29
Middle	5550	40.11	39.43	36.32	36.28
High	5670	39.97	39.61	36.34	36.31

TEST DATA

802.11ac (20 MHz) mode - SISO

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)		99% Occupied Bandwidth (MHz)	
		Chain 0	Chain 1	Chain 0	Chain 1
Low	5500	21.76	21.68	18.07	18.04
Middle	5580	21.53	21.82	17.99	18.02
High	5700	21.69	21.93	17.96	18.01

802.11ac (20 MHz) mode - CDD

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)		99% Occupied Bandwidth (MHz)	
		Chain 0	Chain 1	Chain 0	Chain 1
Low	5500	21.66	21.81	18.00	18.00
Middle	5580	21.69	21.51	17.96	17.91
High	5700	22.28	21.81	17.95	17.90

802.11ac (20 MHz) mode - MIMO

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)		99% Occupied Bandwidth (MHz)	
		Chain 0	Chain 1	Chain 0	Chain 1
Low	5500	21.71	21.86	17.93	18.01
Middle	5580	21.76	21.51	17.94	17.91
High	5700	21.67	21.79	17.96	17.92

802.11ac (40 MHz) mode - SISO

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)		99% Occupied Bandwidth (MHz)	
		Chain 0	Chain 1	Chain 0	Chain 1
Low	5510	40.00	39.82	36.37	36.36
Middle	5550	39.73	39.73	36.31	36.33
High	5670	39.84	39.99	36.35	36.32

TEST DATA

802.11ac (40 MHz) mode - CDD

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)		99% Occupied Bandwidth (MHz)	
		Chain 0	Chain 1	Chain 0	Chain 1
Low	5510	40.05	39.72	36.34	36.31
Middle	5550	39.94	39.60	36.33	36.22
High	5670	39.90	39.53	36.33	36.27

802.11ac (40 MHz) mode - MIMO

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)		99% Occupied Bandwidth (MHz)	
		Chain 0	Chain 1	Chain 0	Chain 1
Low	5510	39.96	39.79	36.32	36.32
Middle	5550	39.91	39.68	36.32	36.32
High	5670	40.05	39.61	36.36	36.30

802.11ac (80 MHz) mode - SISO

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)		99% Occupied Bandwidth (MHz)	
		Chain 0	Chain 1	Chain 0	Chain 1
	5530	81.73	81.82	75.74	75.76

802.11ac (80 MHz) mode - CDD

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)		99% Occupied Bandwidth (MHz)	
		Chain 0	Chain 1	Chain 0	Chain 1
	5530	81.56	80.63	75.70	75.70

TEST DATA

802.11ac (80 MHz) mode – MIMO

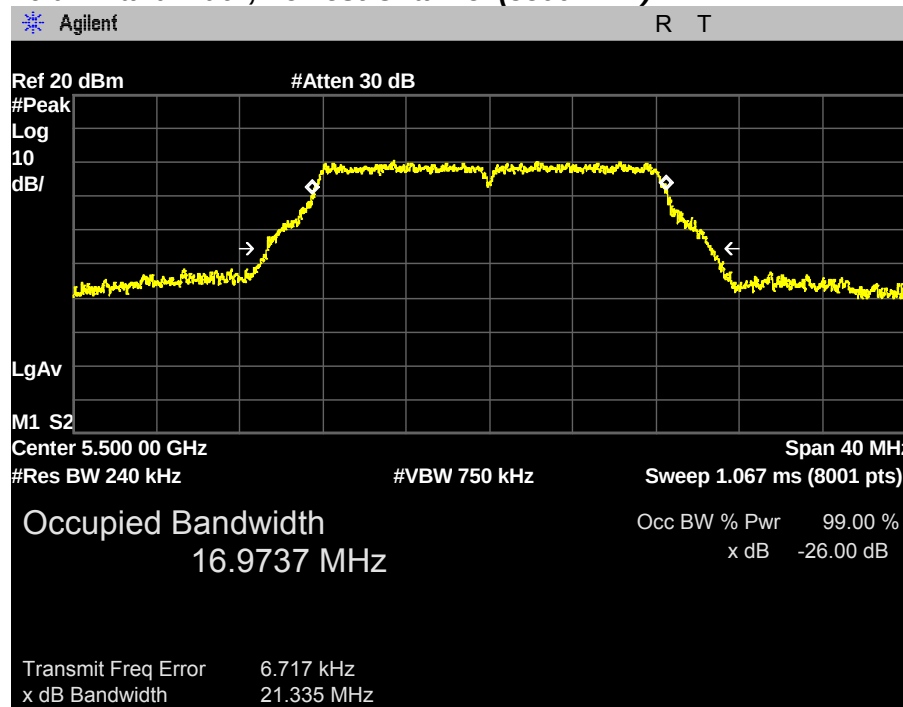
Channel	Frequency (MHz)	26 dB Bandwidth (MHz)		99% Occupied Bandwidth (MHz)	
		Chain 0	Chain 1	Chain 0	Chain 1
	5530	81.53	81.00	75.67	75.69

PLOTS OF EMISSIONS

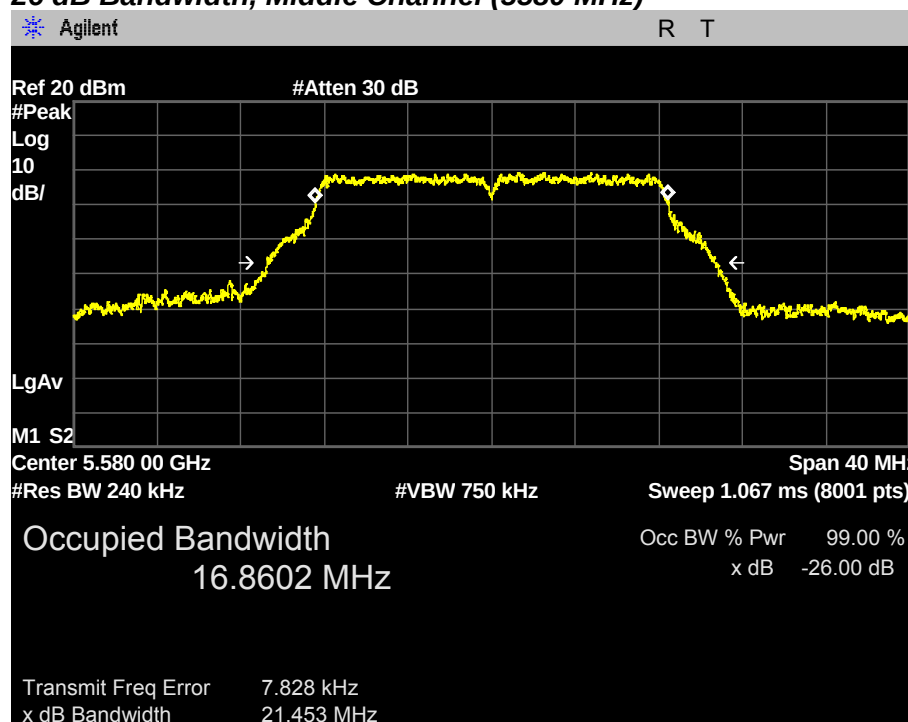
802.11a mode

Chain 0

26 dB Bandwidth, Lowest Channel (5500 MHz)

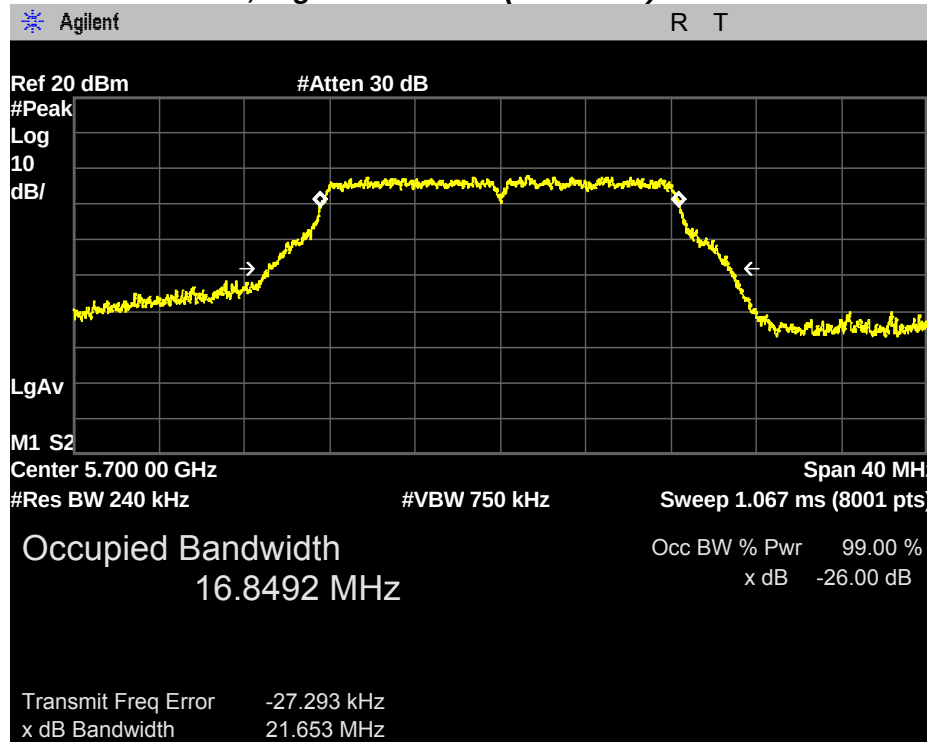


26 dB Bandwidth, Middle Channel (5580 MHz)



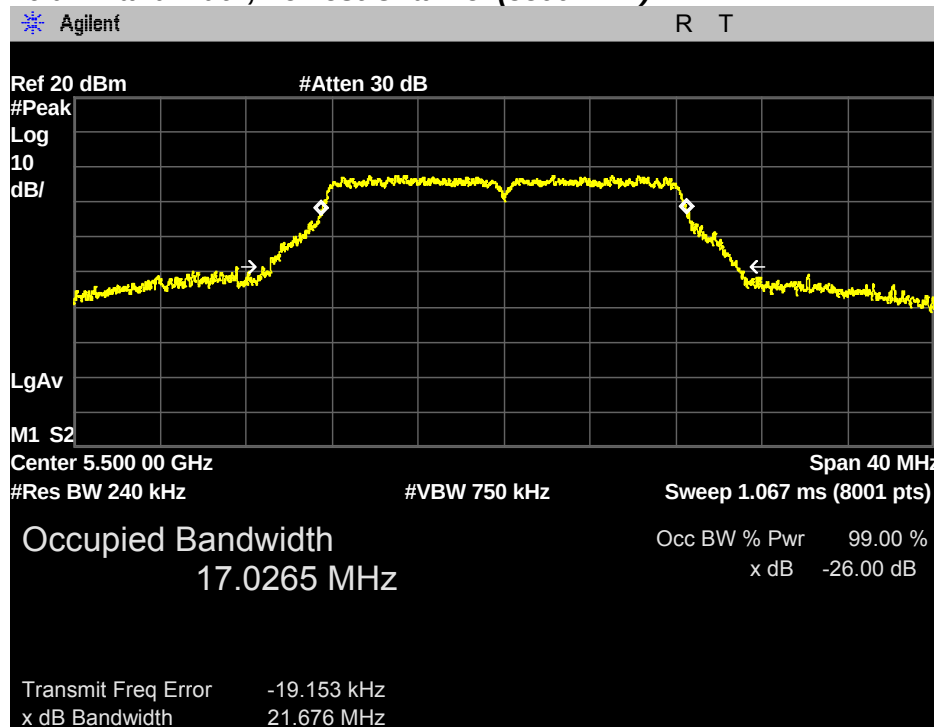
PLOTS OF EMISSIONS

26 dB Bandwidth, Highest Channel (5700 MHz)



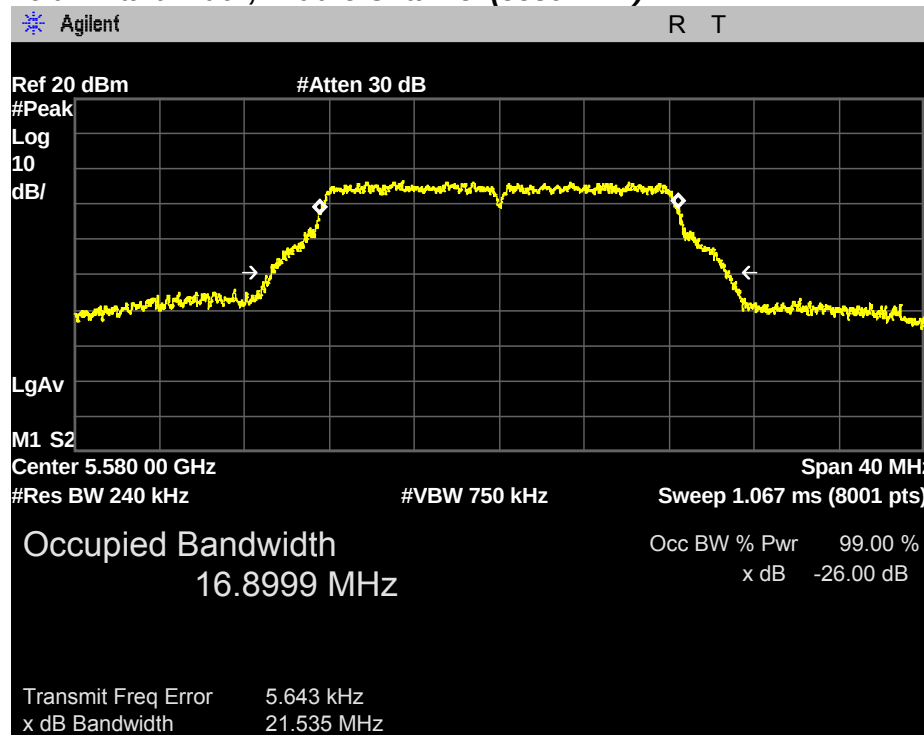
Chain 1

26 dB Bandwidth, Lowest Channel (5500 MHz)

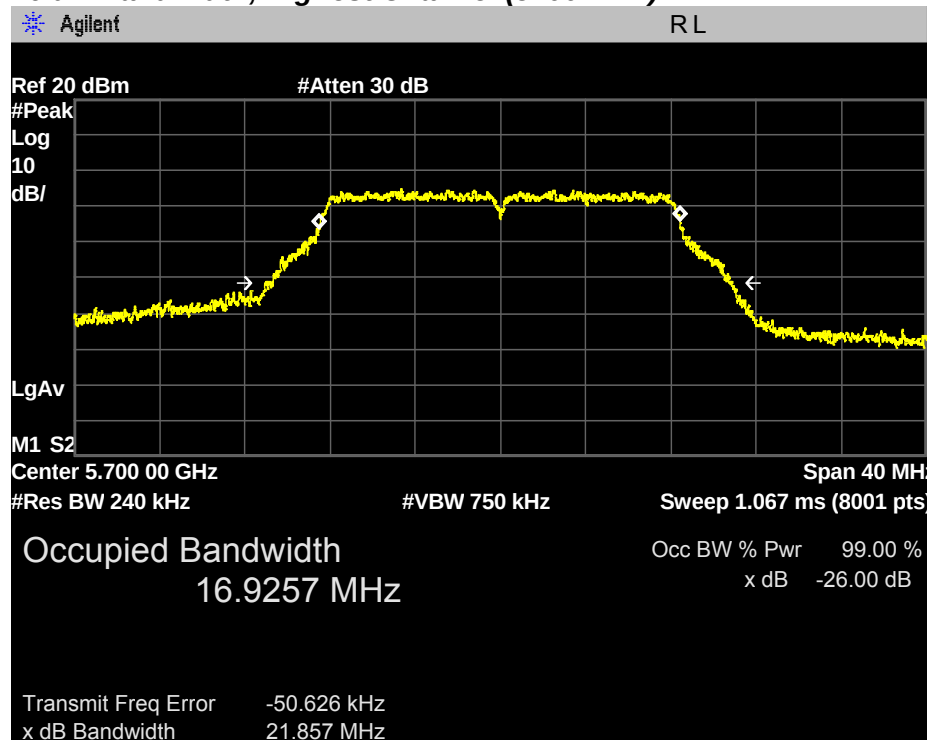


PLOTS OF EMISSIONS

26 dB Bandwidth, Middle Channel (5580 MHz)



26 dB Bandwidth, Highest Channel (5700 MHz)

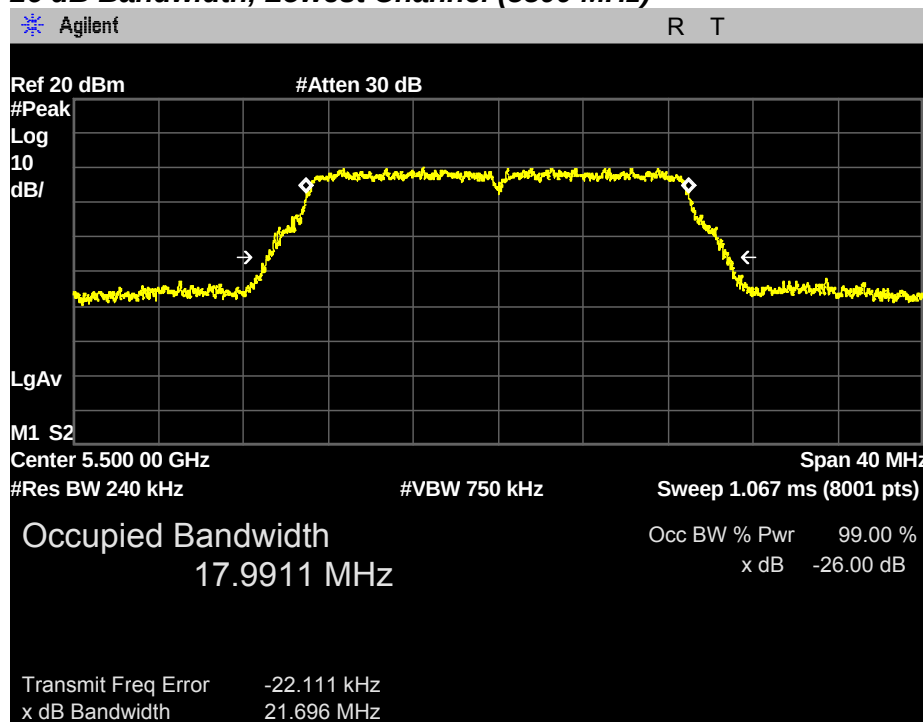


PLOTS OF EMISSIONS

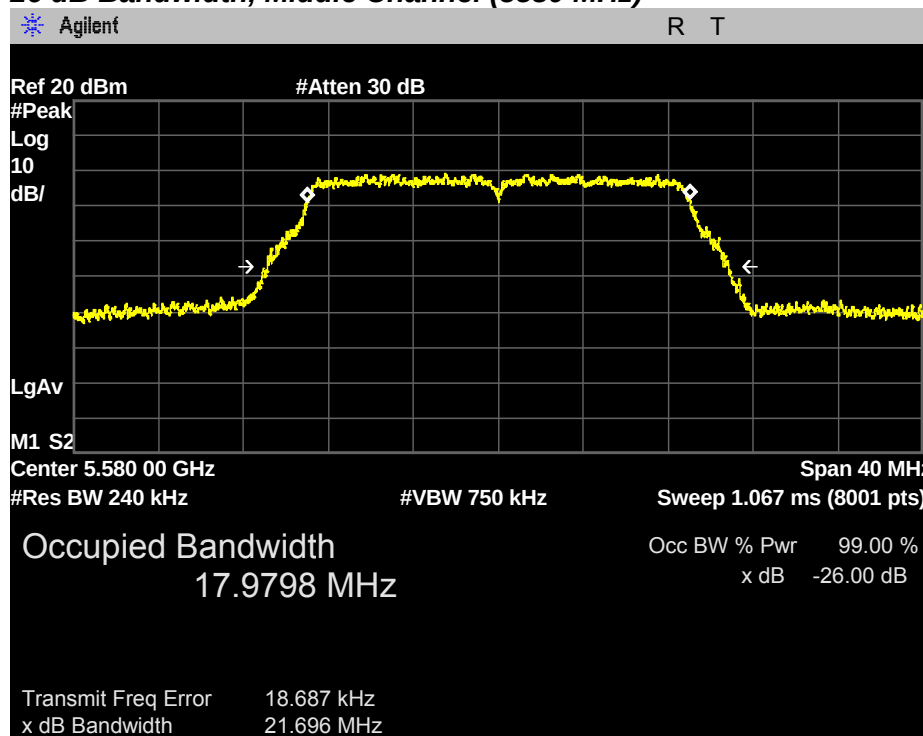
802.11n(20MHz) mode - SISO

Chain 0

26 dB Bandwidth, Lowest Channel (5500 MHz)

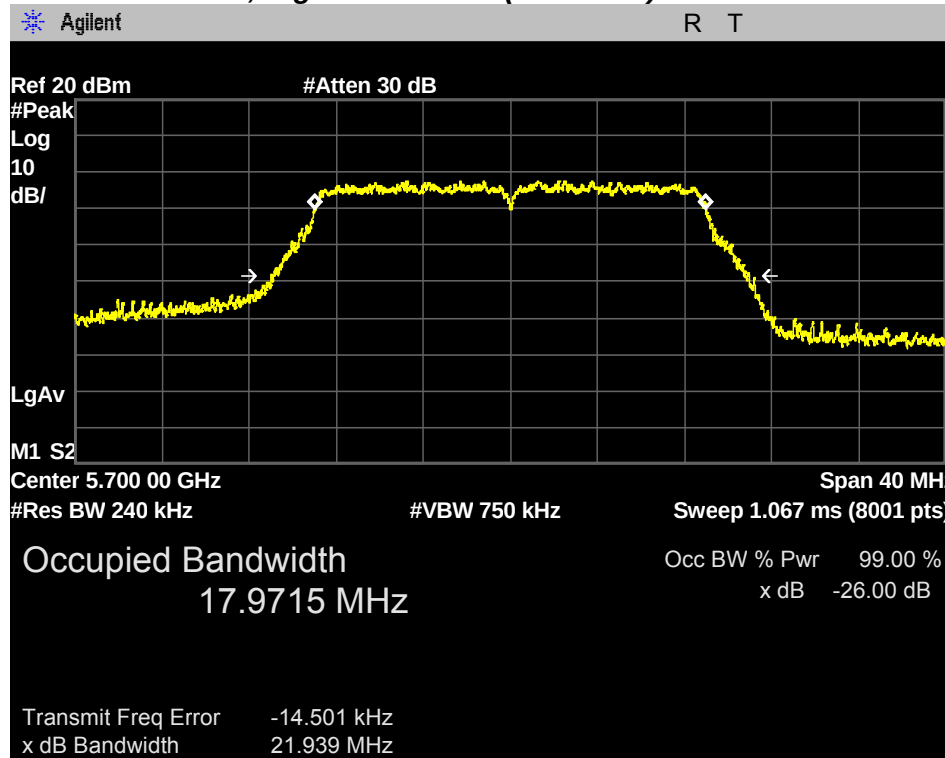


26 dB Bandwidth, Middle Channel (5580 MHz)



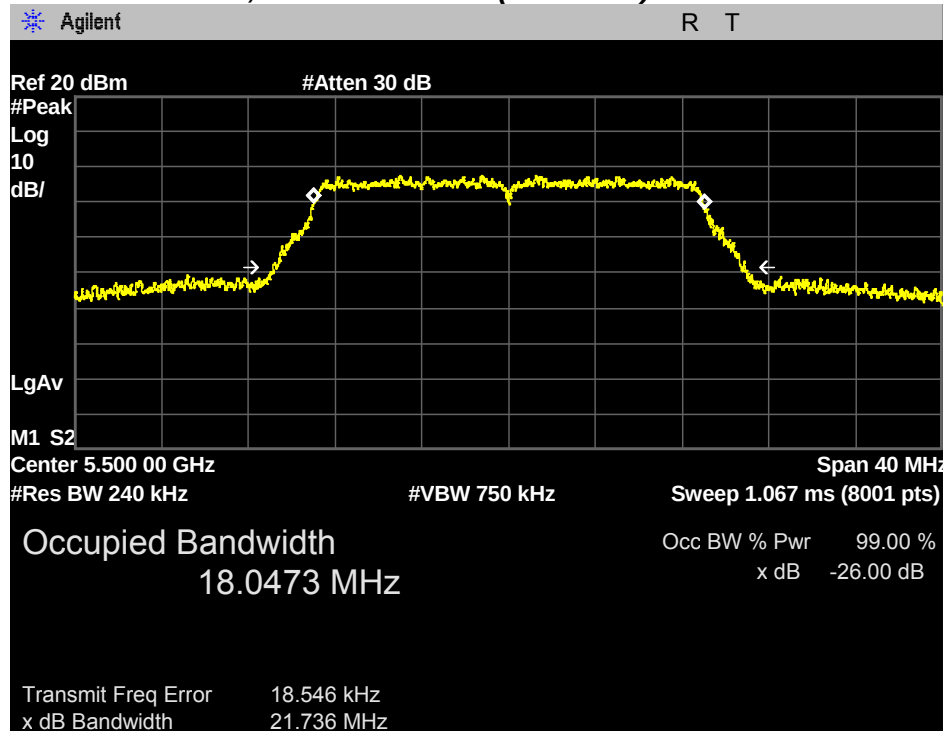
PLOTS OF EMISSIONS

26 dB Bandwidth, Highest Channel (5700 MHz)



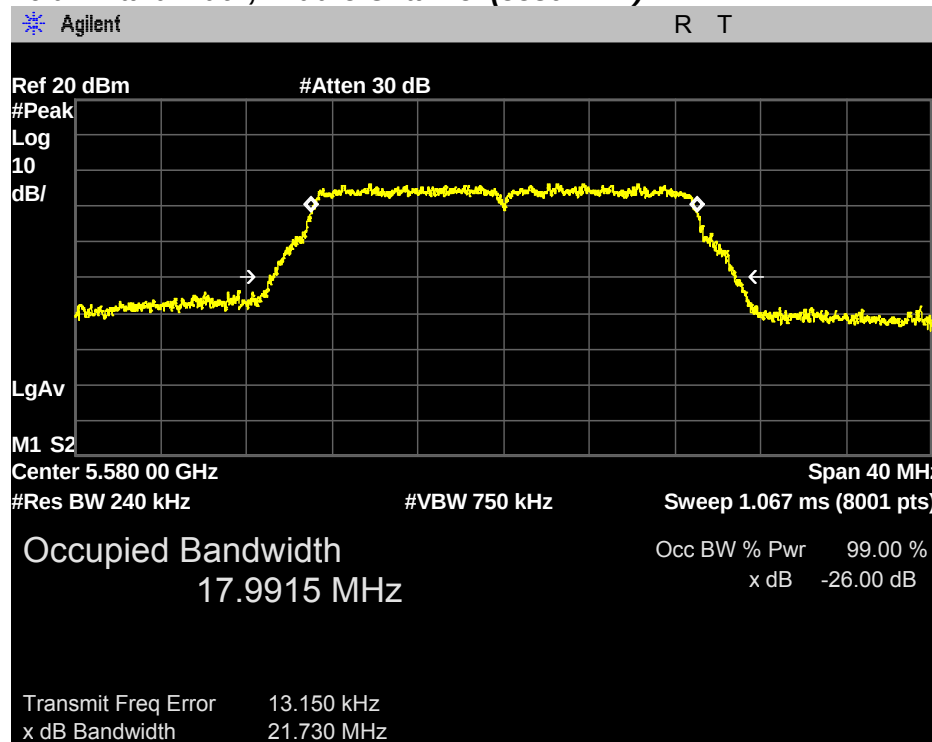
Chain 1

26 dB Bandwidth, Lowest Channel (5500 MHz)

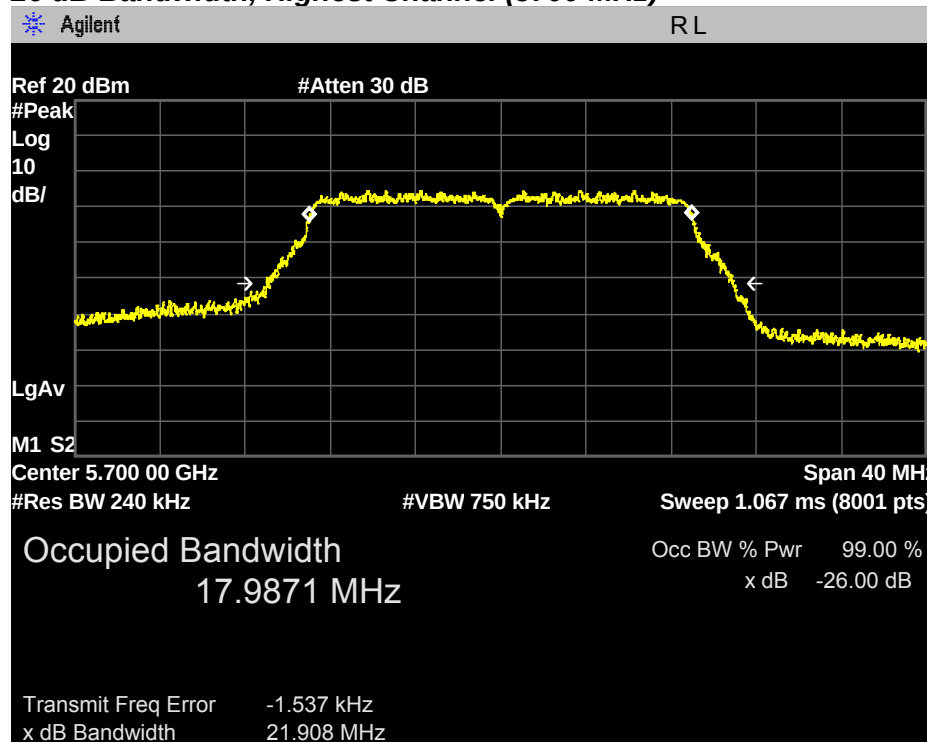


PLOTS OF EMISSIONS

26 dB Bandwidth, Middle Channel (5580 MHz)



26 dB Bandwidth, Highest Channel (5700 MHz)

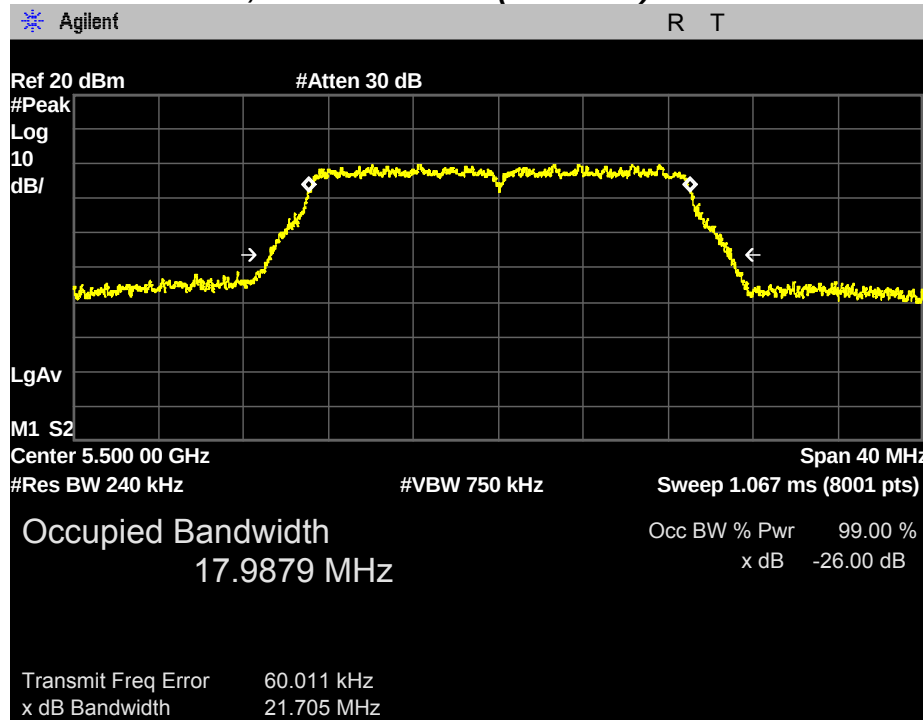


PLOTS OF EMISSIONS

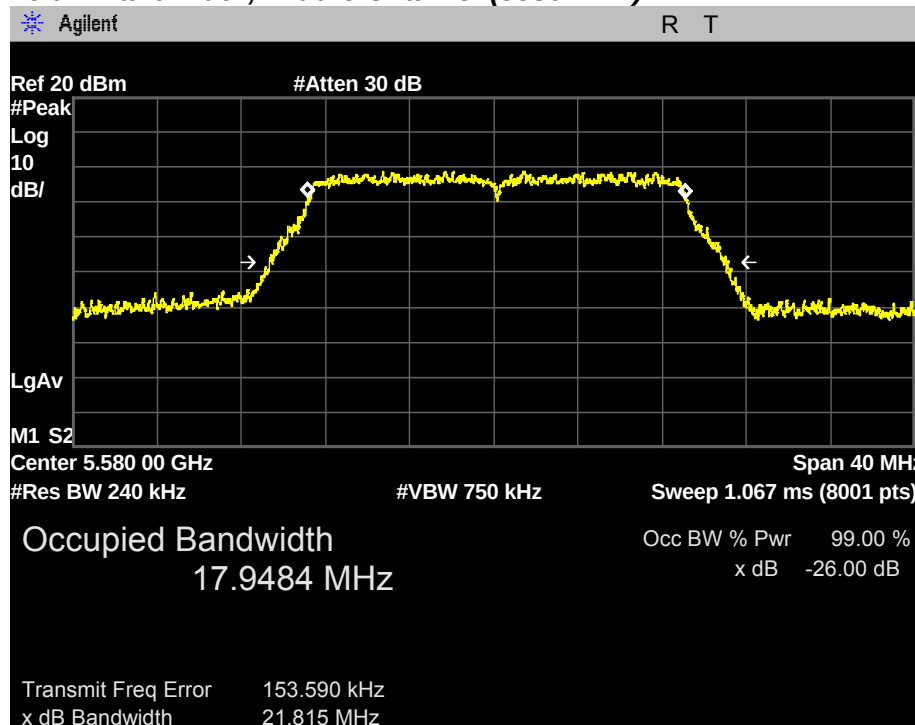
802.11n(20MHz) mode - CDD

Chain 0

26 dB Bandwidth, Lowest Channel (5500 MHz)

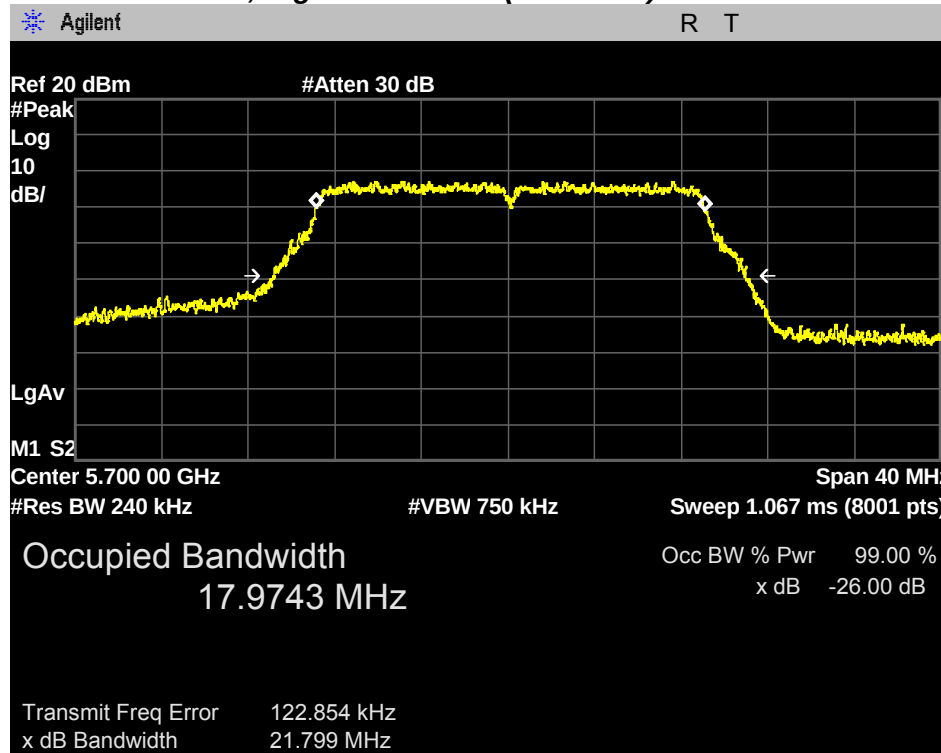


26 dB Bandwidth, Middle Channel (5580 MHz)



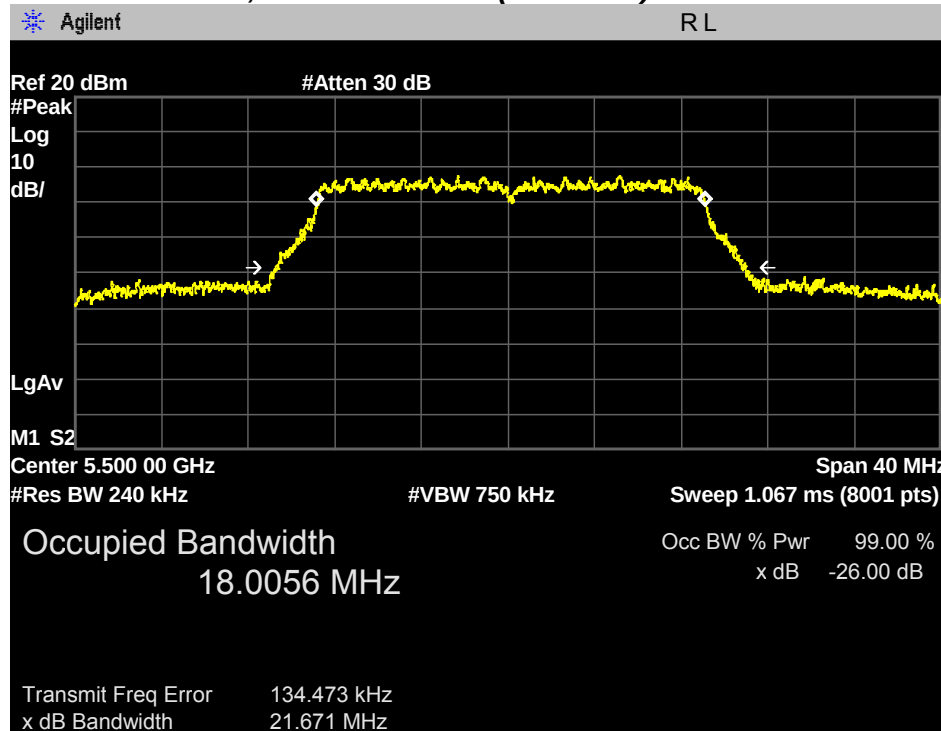
PLOTS OF EMISSIONS

26 dB Bandwidth, Highest Channel (5700 MHz)



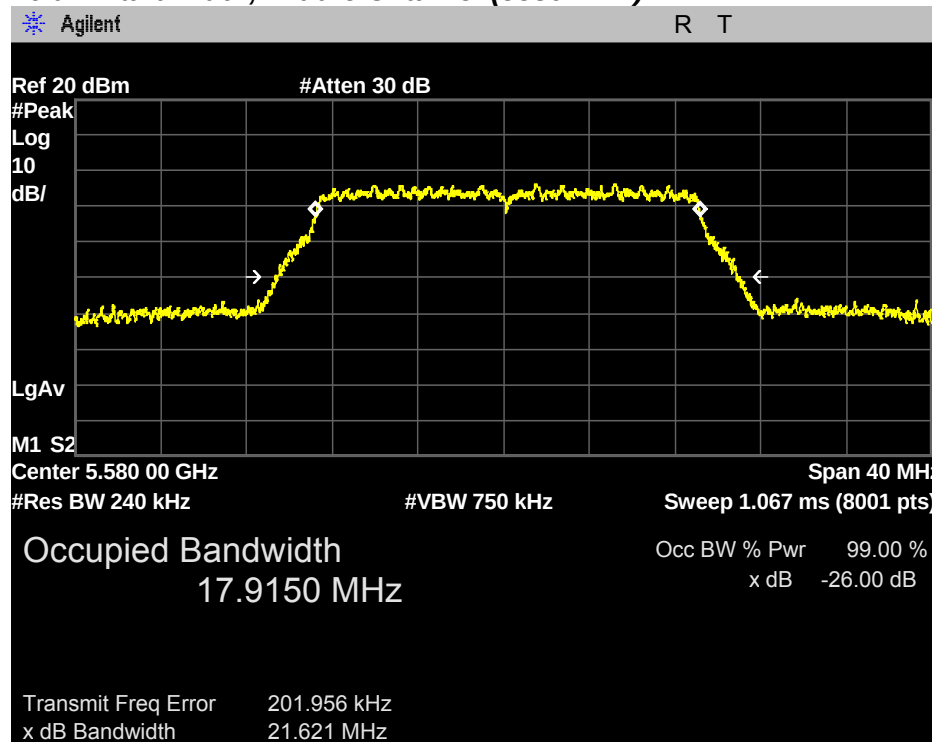
Chain 1

26 dB Bandwidth, Lowest Channel (5500 MHz)

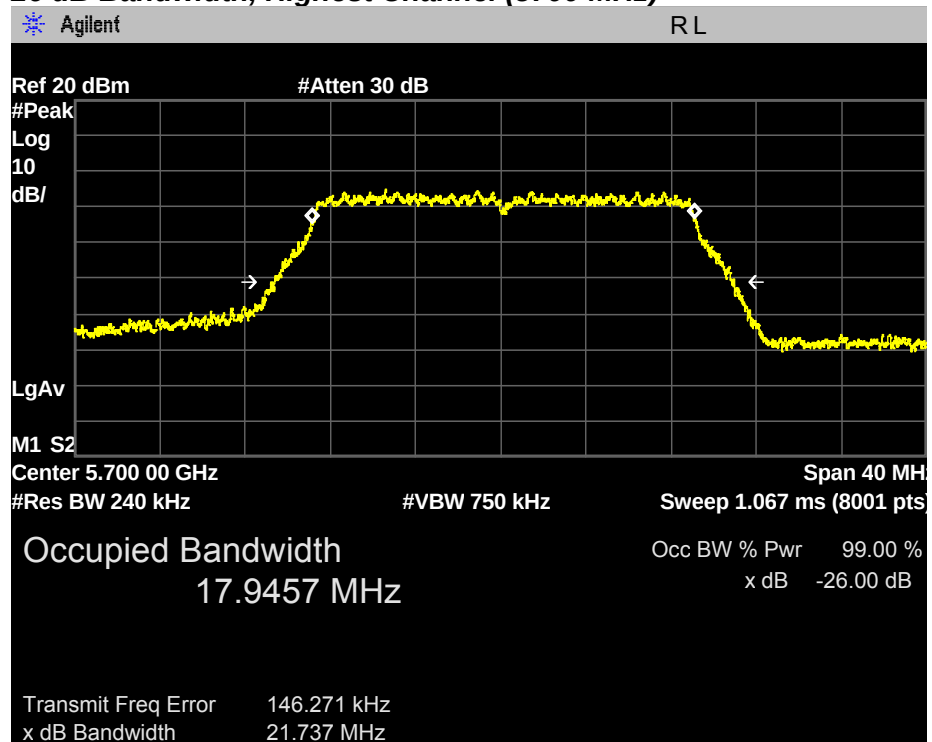


PLOTS OF EMISSIONS

26 dB Bandwidth, Middle Channel (5580 MHz)



26 dB Bandwidth, Highest Channel (5700 MHz)

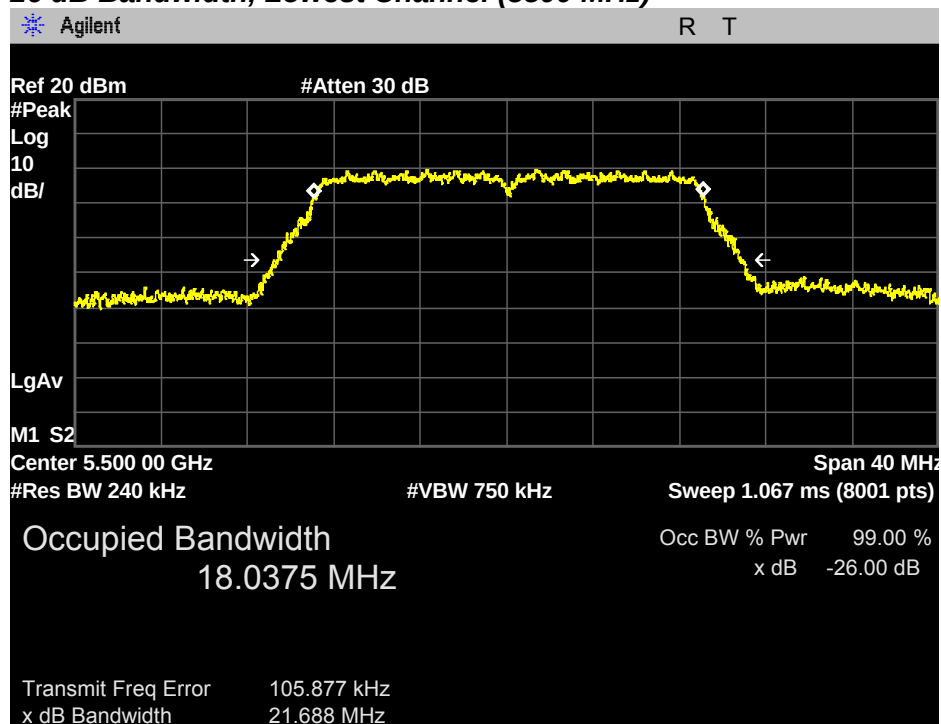


PLOTS OF EMISSIONS

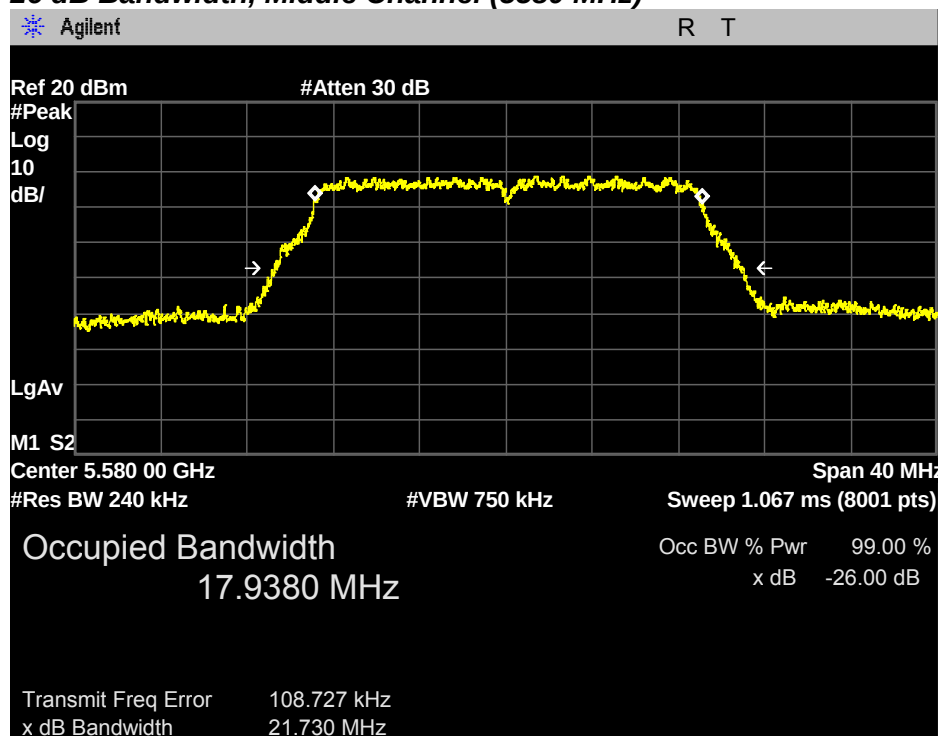
802.11n(20MHz) mode - MIMO

Chain 0

26 dB Bandwidth, Lowest Channel (5500 MHz)

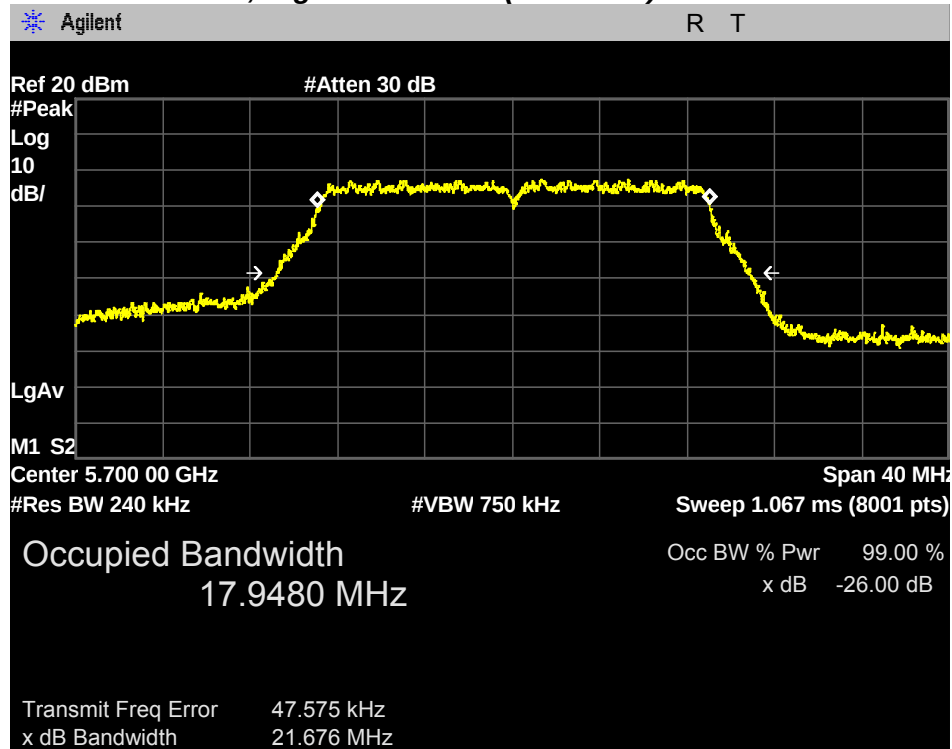


26 dB Bandwidth, Middle Channel (5580 MHz)



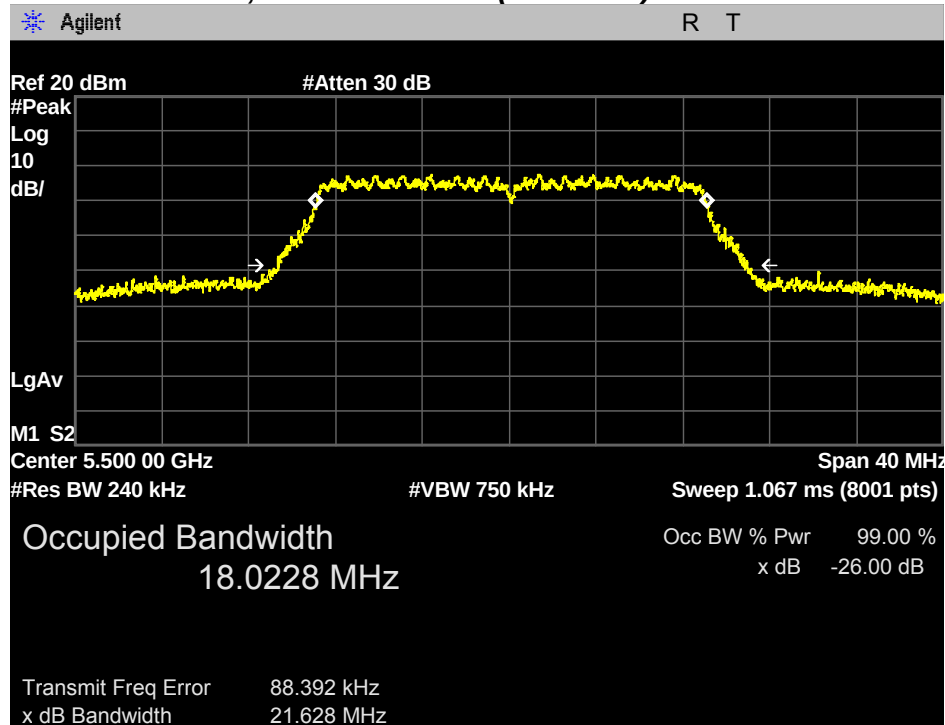
PLOTS OF EMISSIONS

26 dB Bandwidth, Highest Channel (5700 MHz)



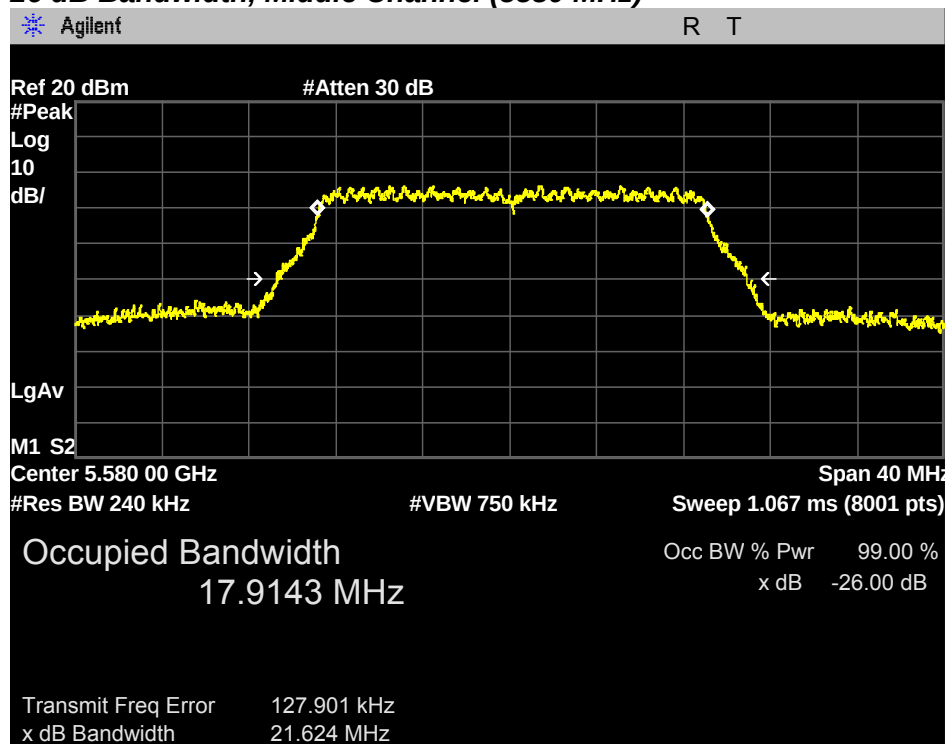
Chain 1

26 dB Bandwidth, Lowest Channel (5500 MHz)

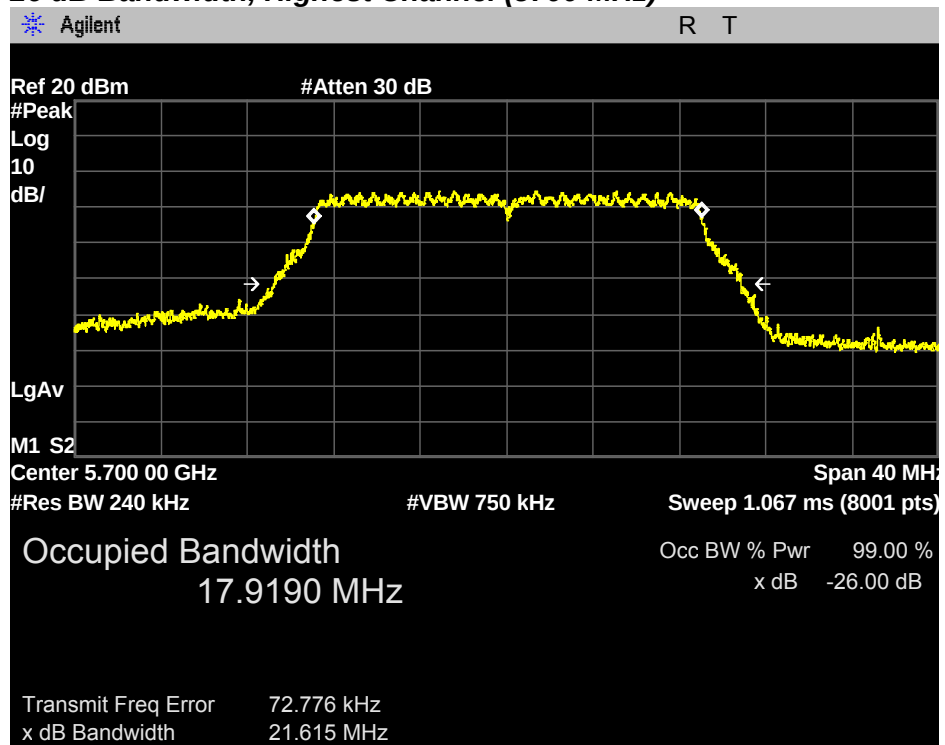


PLOTS OF EMISSIONS

26 dB Bandwidth, Middle Channel (5580 MHz)



26 dB Bandwidth, Highest Channel (5700 MHz)

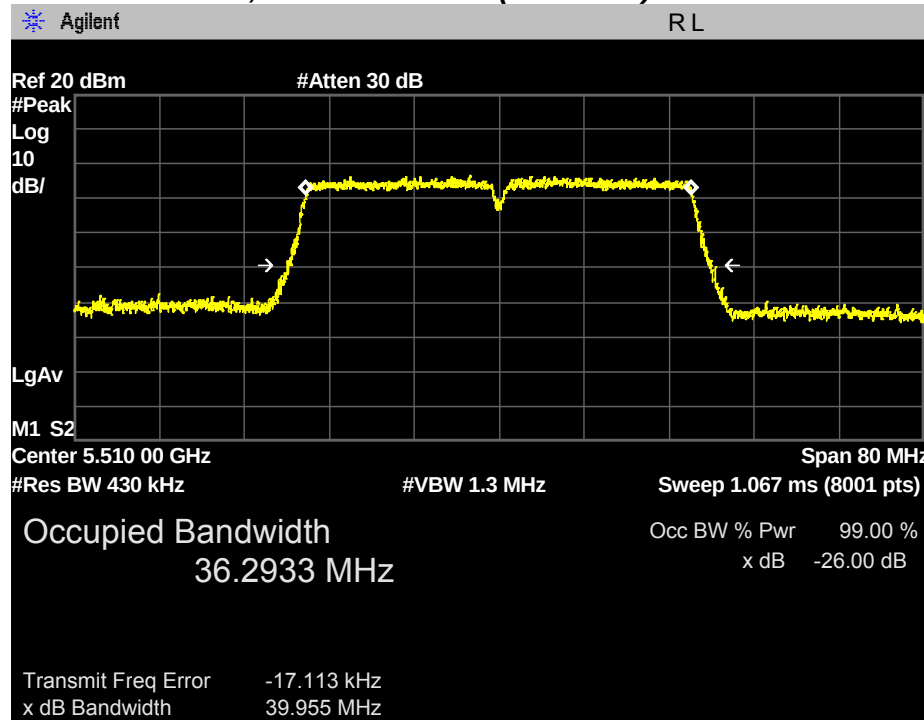


PLOTS OF EMISSIONS

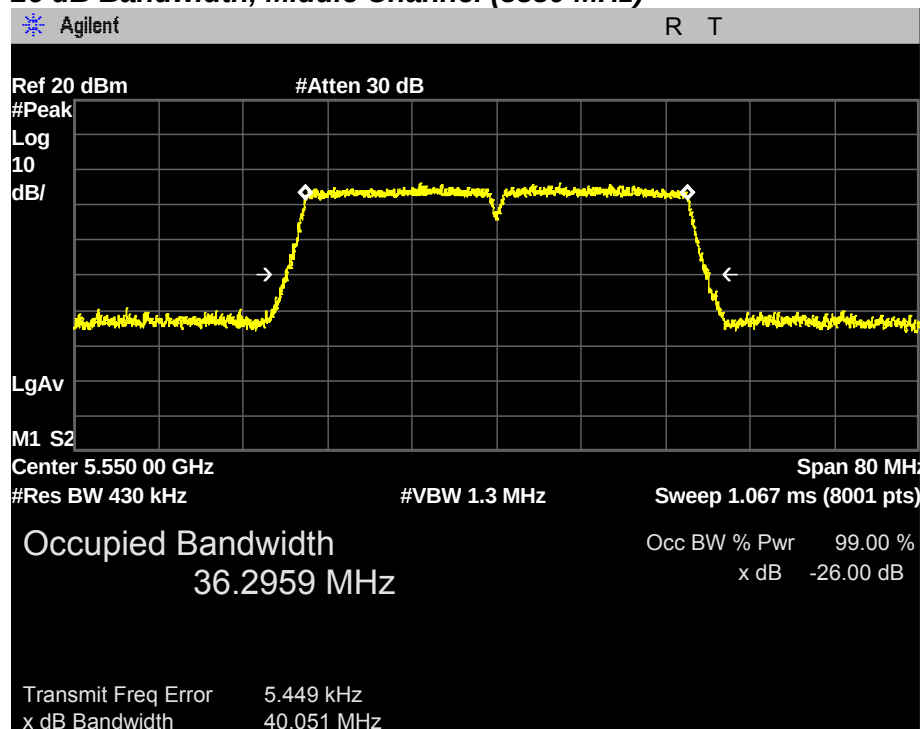
802.11n(40MHz) mode - SISO

Chain 0

26 dB Bandwidth, Lowest Channel (5510 MHz)

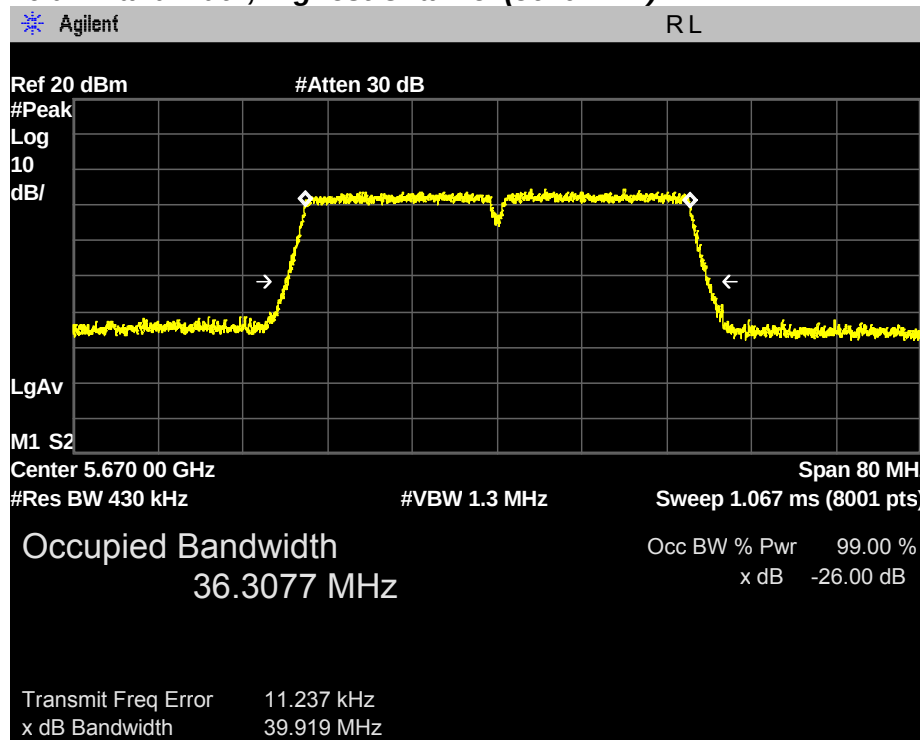


26 dB Bandwidth, Middle Channel (5550 MHz)



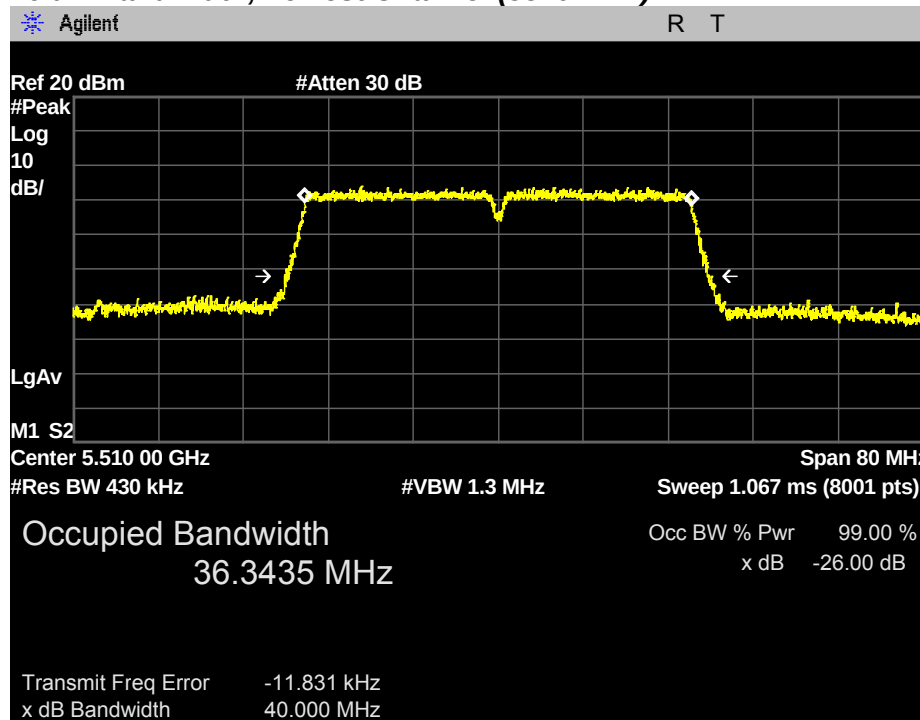
PLOTS OF EMISSIONS

26 dB Bandwidth, Highest Channel (5670 MHz)



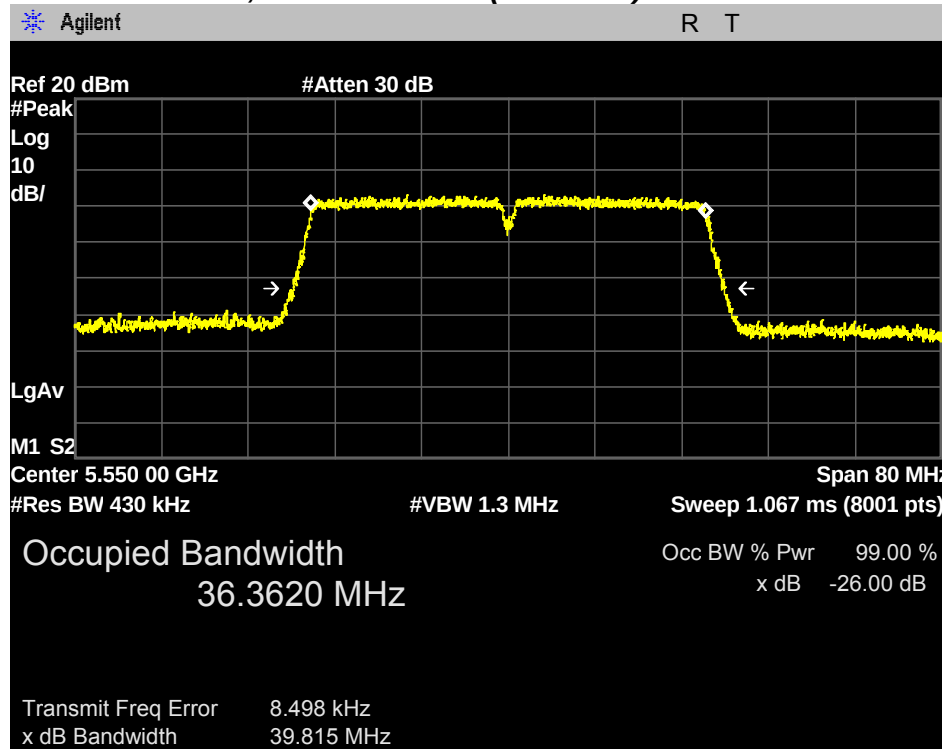
Chain 1

26 dB Bandwidth, Lowest Channel (5510 MHz)

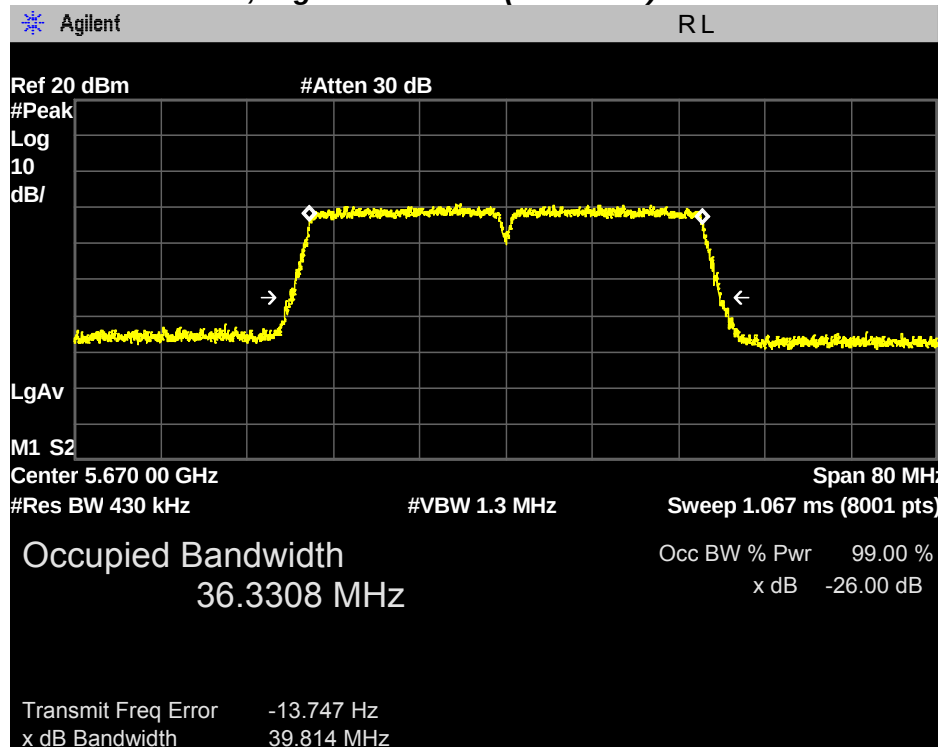


PLOTS OF EMISSIONS

26 dB Bandwidth, Middle Channel (5550 MHz)



26 dB Bandwidth, Highest Channel (5670 MHz)

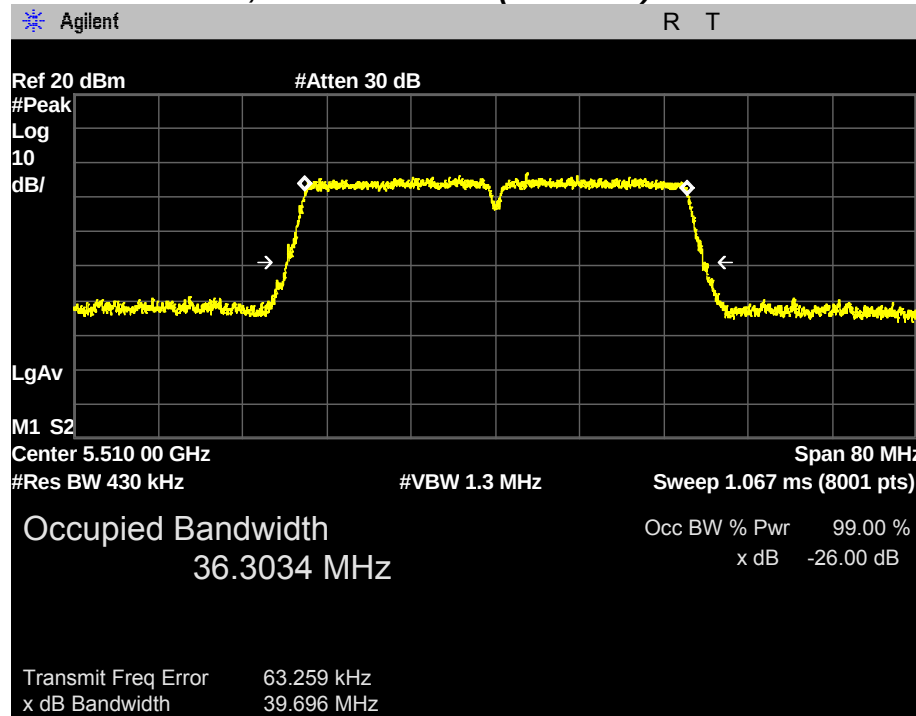


PLOTS OF EMISSIONS

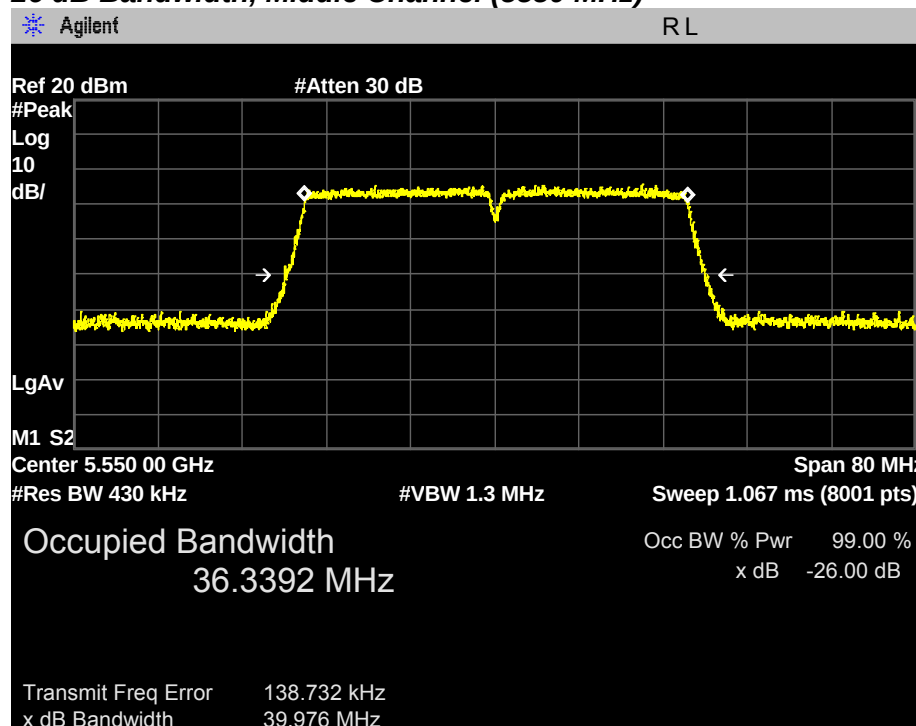
802.11n(40MHz) mode - CDD

Chain 0

26 dB Bandwidth, Lowest Channel (5510 MHz)

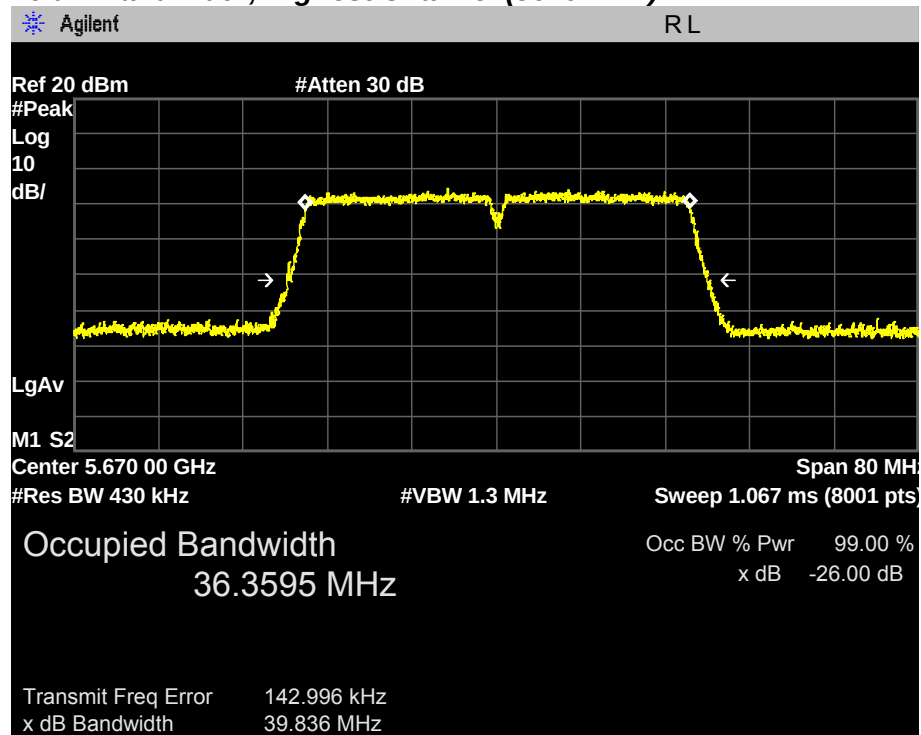


26 dB Bandwidth, Middle Channel (5550 MHz)



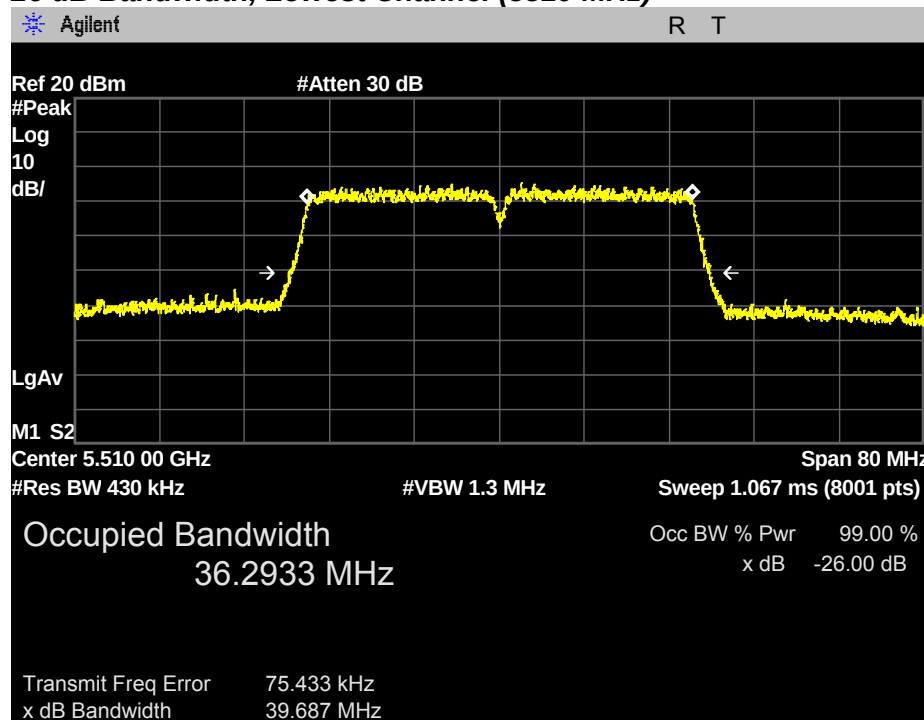
PLOTS OF EMISSIONS

26 dB Bandwidth, Highest Channel (5670 MHz)



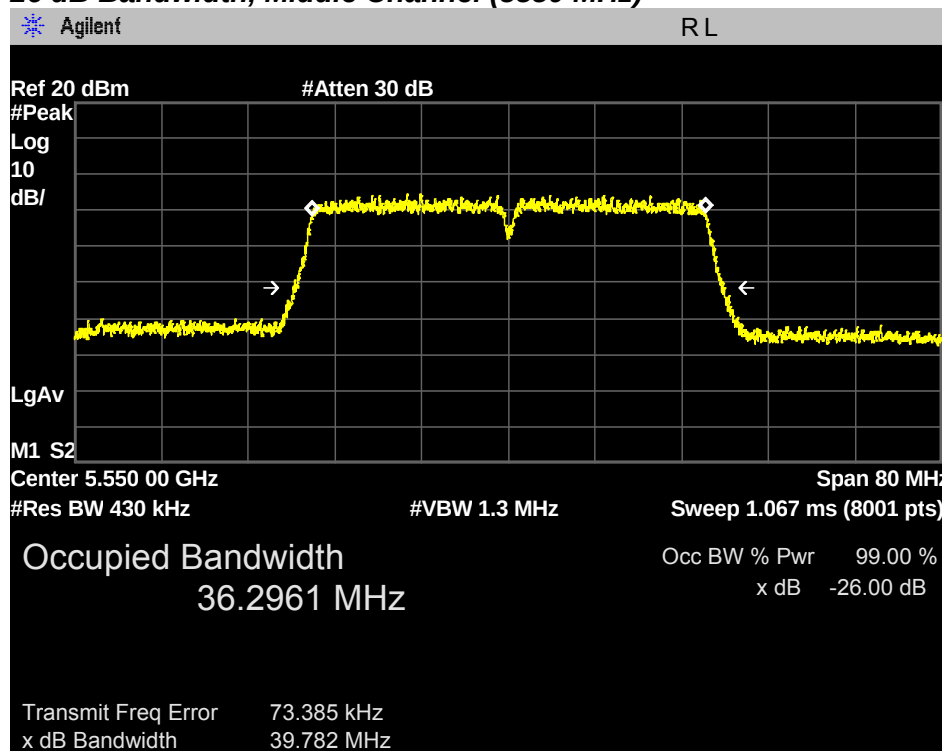
Chain 1

26 dB Bandwidth, Lowest Channel (5510 MHz)

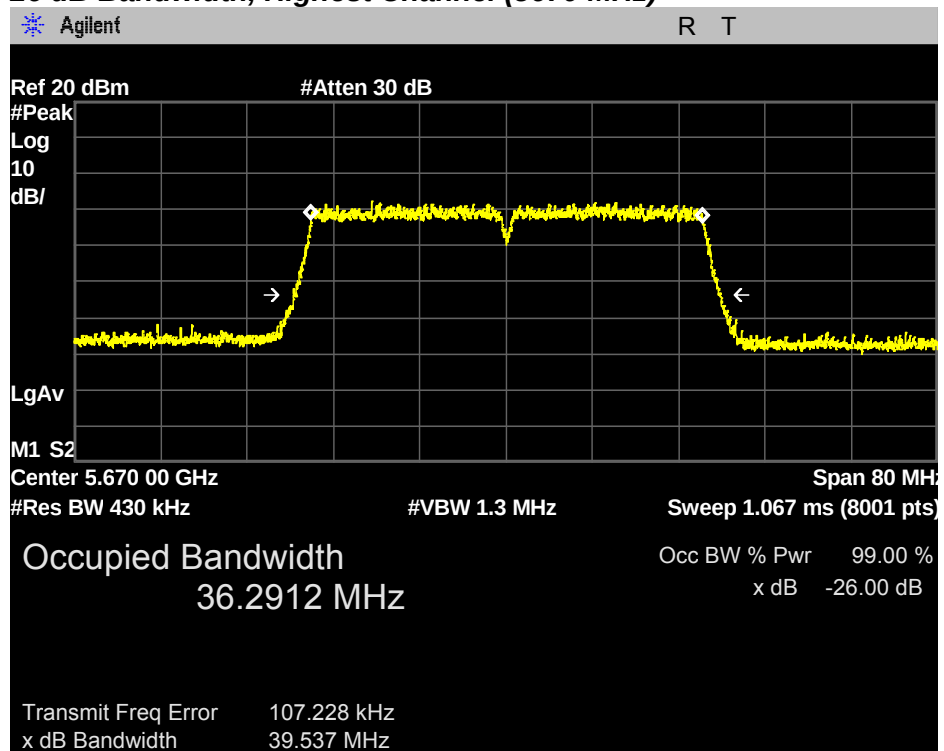


PLOTS OF EMISSIONS

26 dB Bandwidth, Middle Channel (5550 MHz)



26 dB Bandwidth, Highest Channel (5670 MHz)

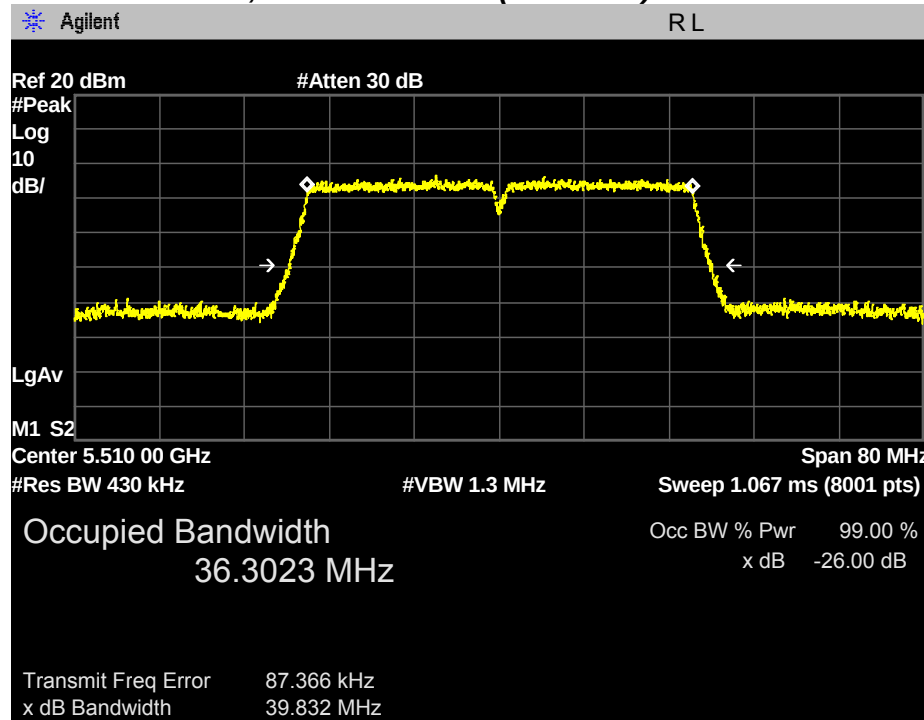


PLOTS OF EMISSIONS

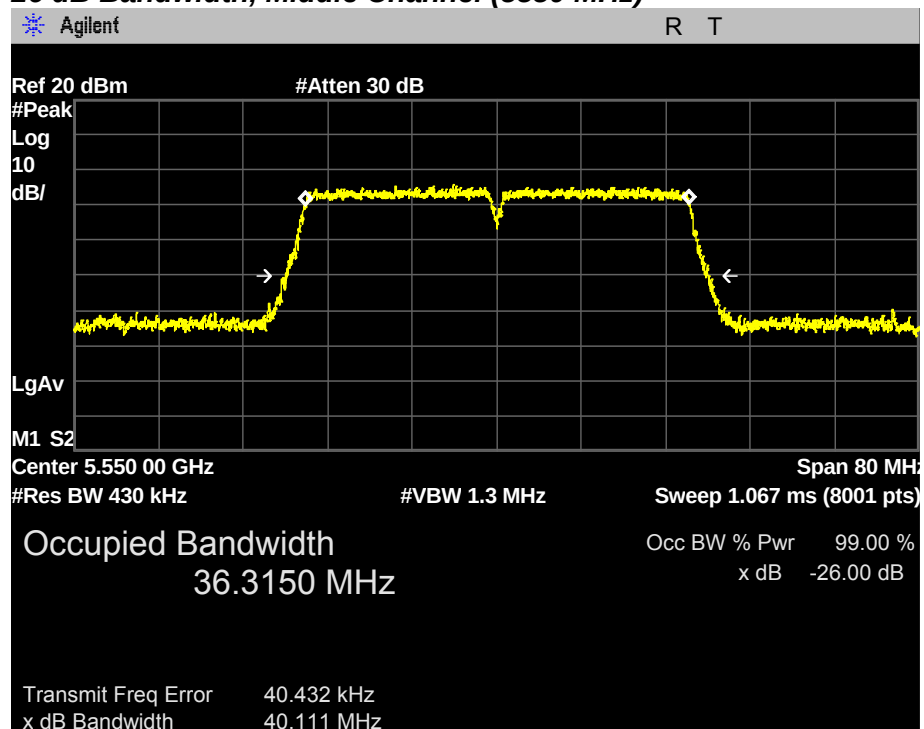
802.11n(40MHz) mode - MIMO

Chain 0

26 dB Bandwidth, Lowest Channel (5510 MHz)

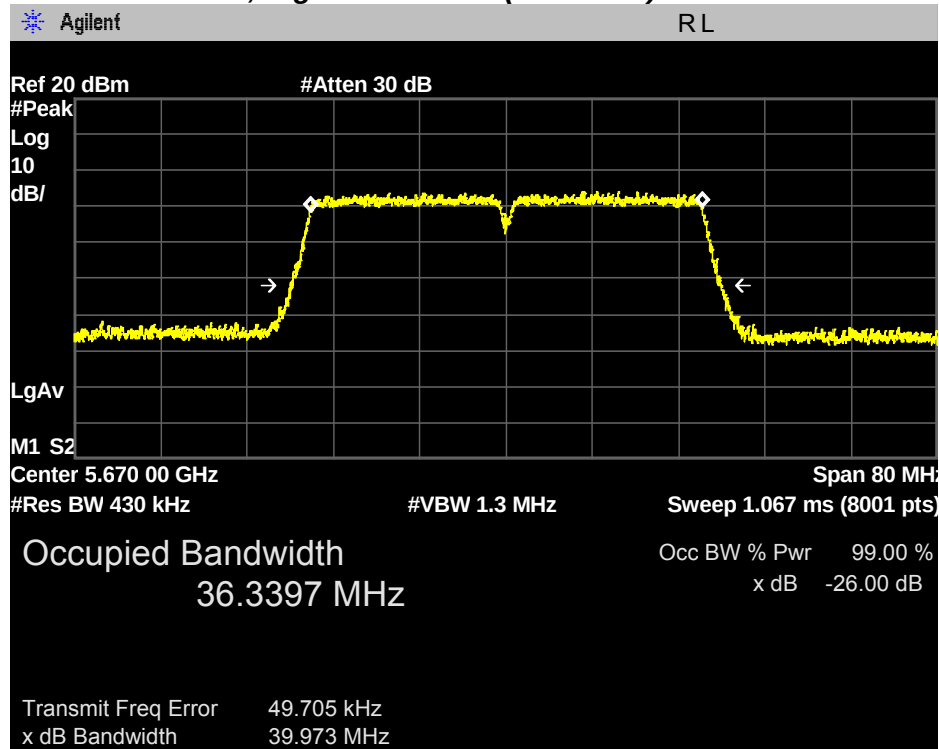


26 dB Bandwidth, Middle Channel (5550 MHz)



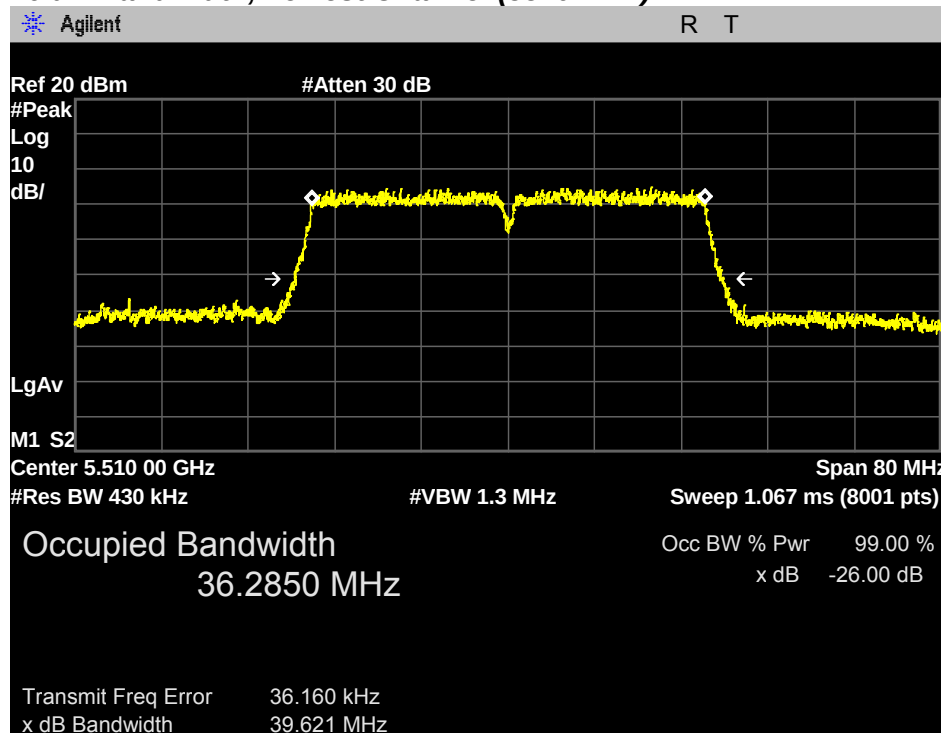
PLOTS OF EMISSIONS

26 dB Bandwidth, Highest Channel (5670 MHz)



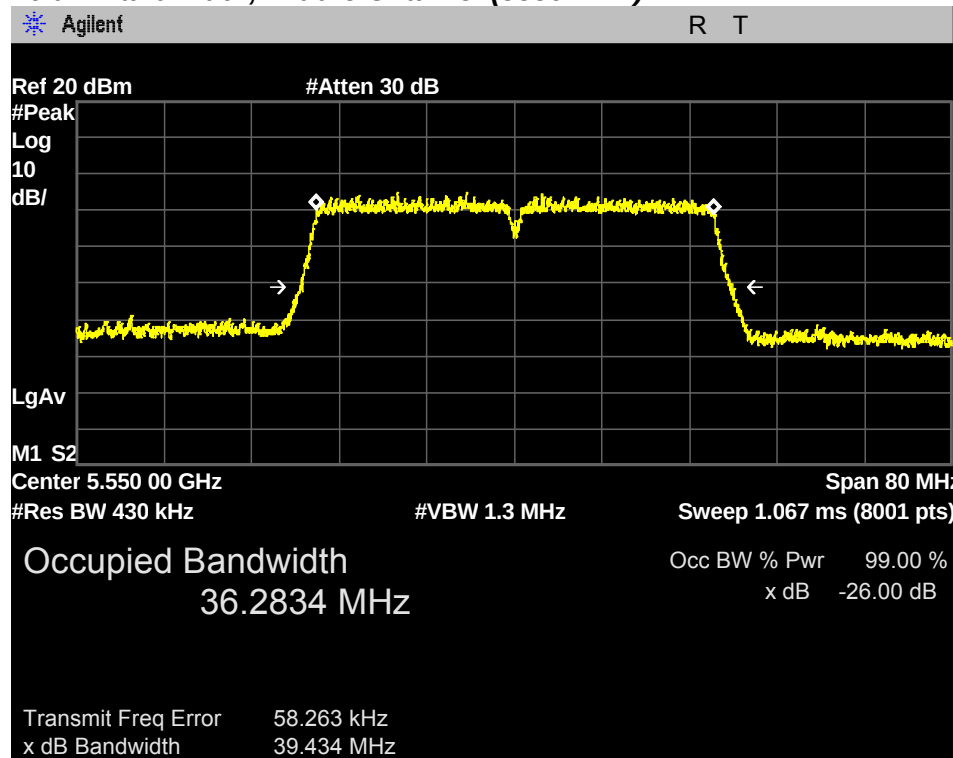
Chain 1

26 dB Bandwidth, Lowest Channel (5510 MHz)

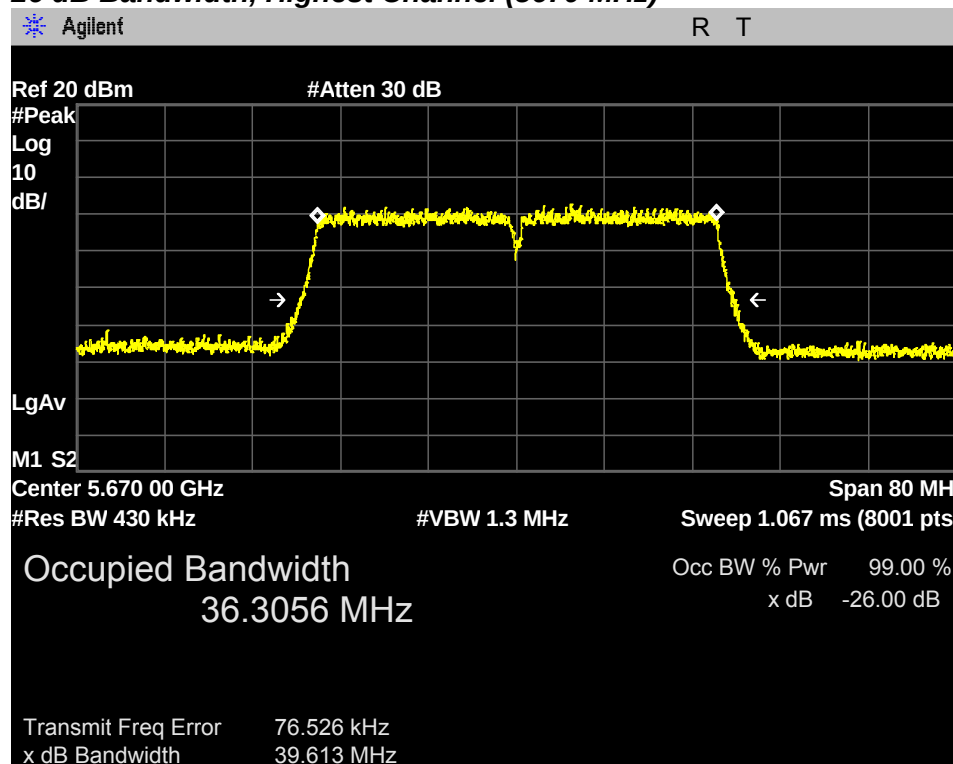


PLOTS OF EMISSIONS

26 dB Bandwidth, Middle Channel (5550 MHz)



26 dB Bandwidth, Highest Channel (5670 MHz)

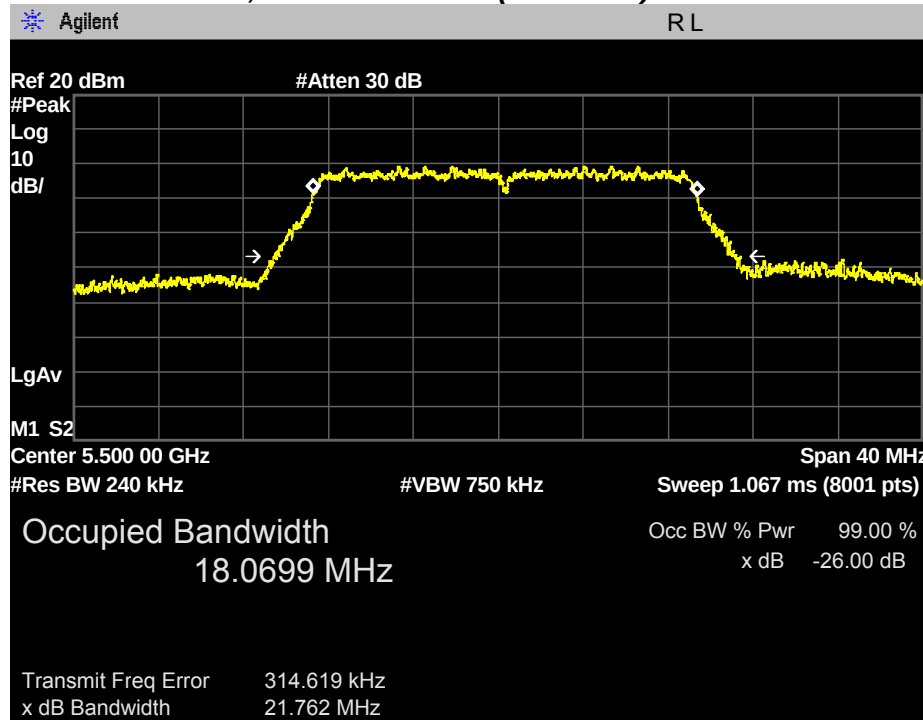


PLOTS OF EMISSIONS

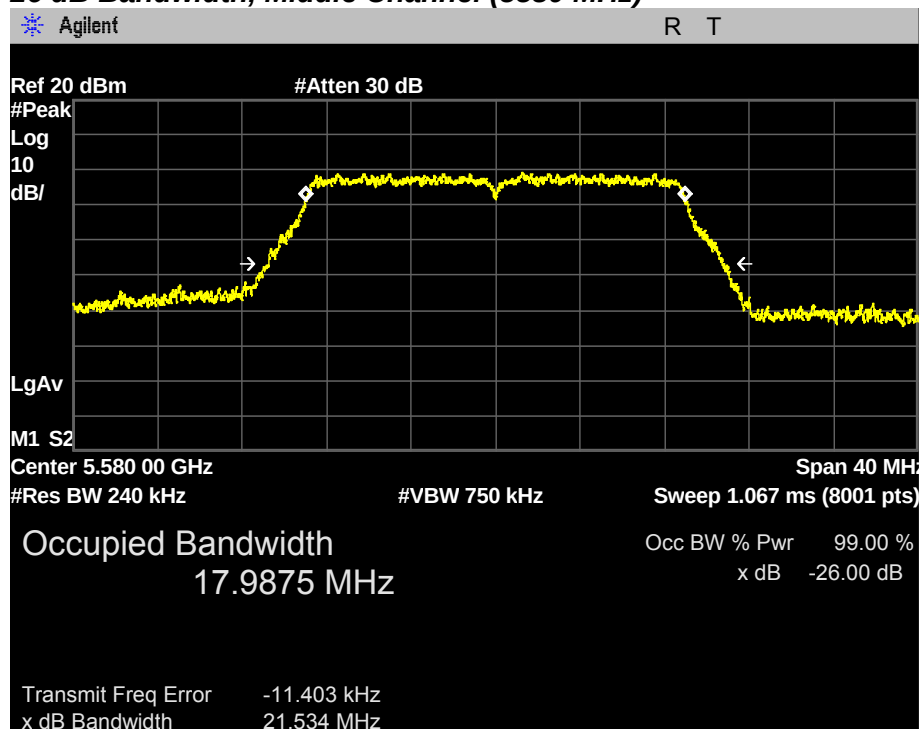
802.11ac(20MHz) mode - SISO

Chain 0

26 dB Bandwidth, Lowest Channel (5500 MHz)

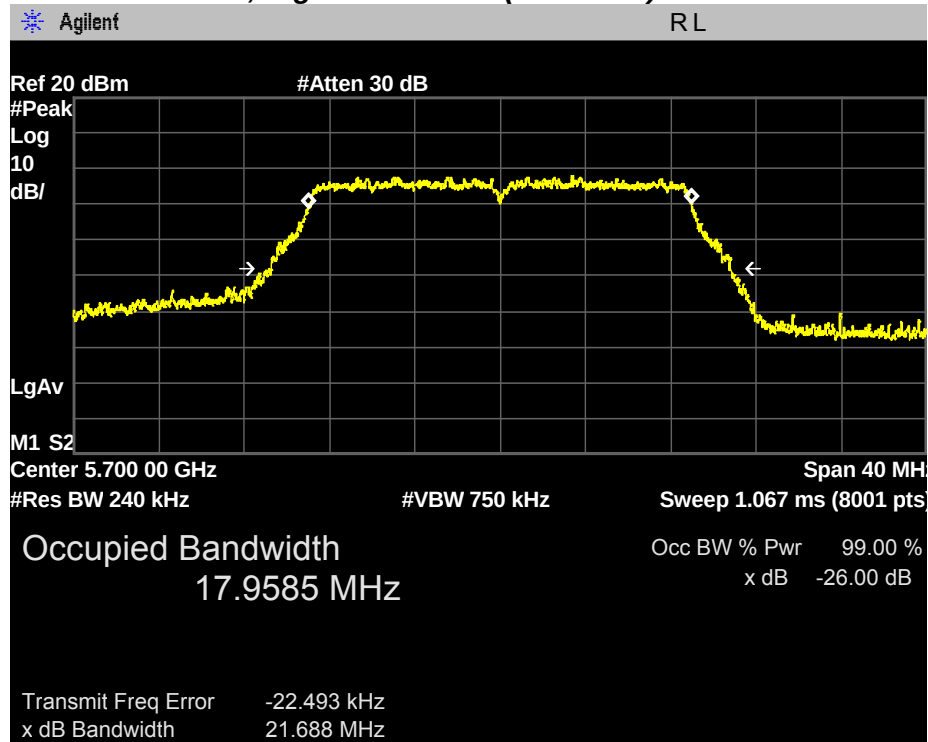


26 dB Bandwidth, Middle Channel (5580 MHz)



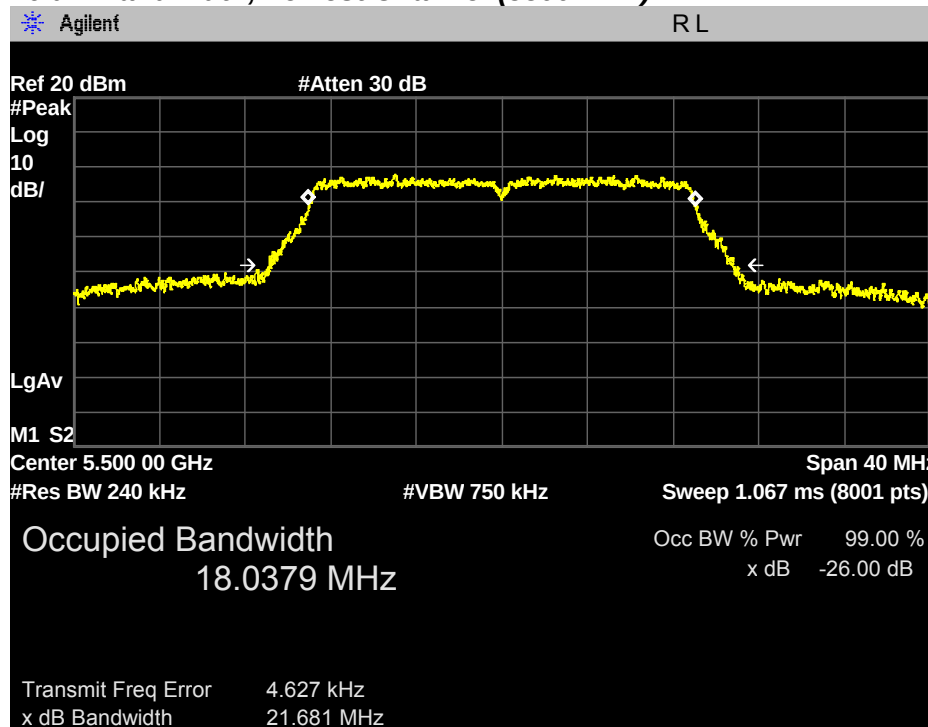
PLOTS OF EMISSIONS

26 dB Bandwidth, Highest Channel (5700 MHz)



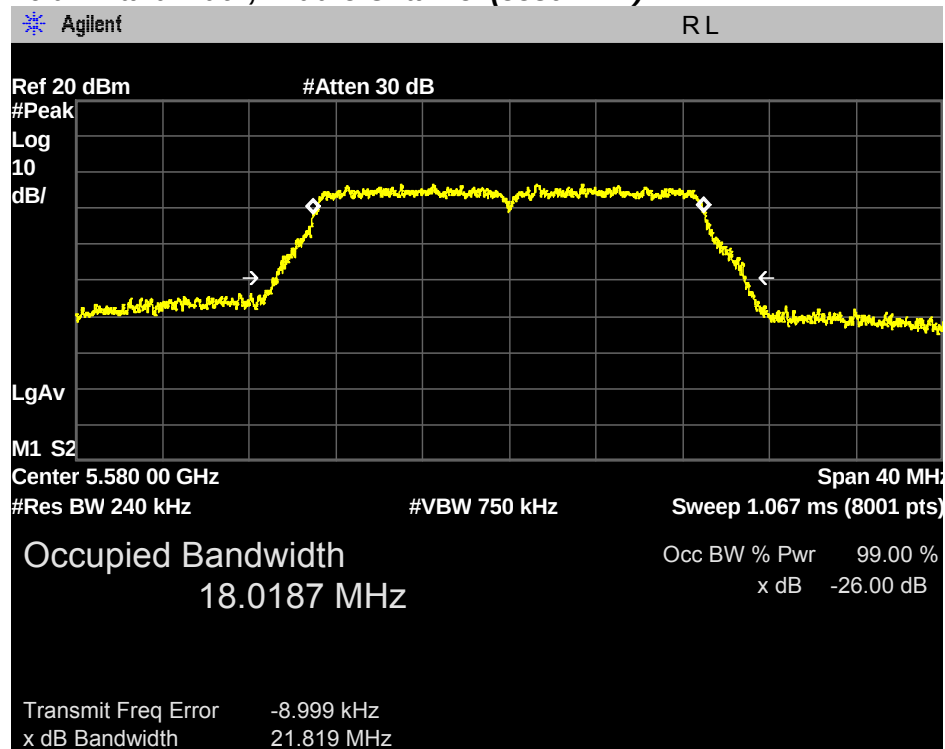
Chain 1

26 dB Bandwidth, Lowest Channel (5500 MHz)

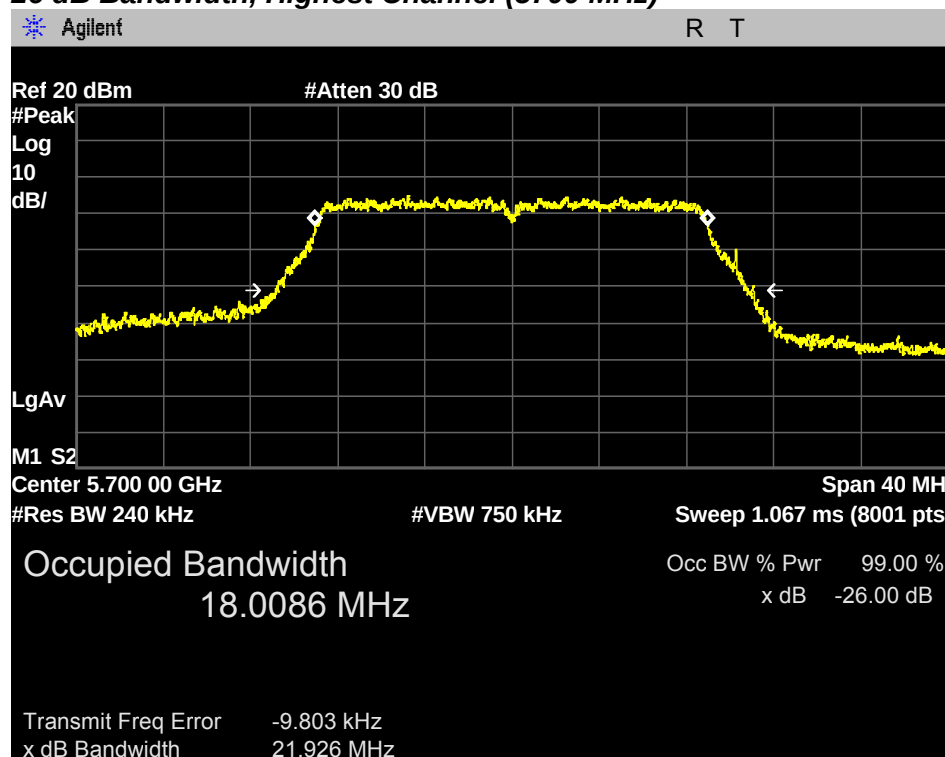


PLOTS OF EMISSIONS

26 dB Bandwidth, Middle Channel (5580 MHz)



26 dB Bandwidth, Highest Channel (5700 MHz)

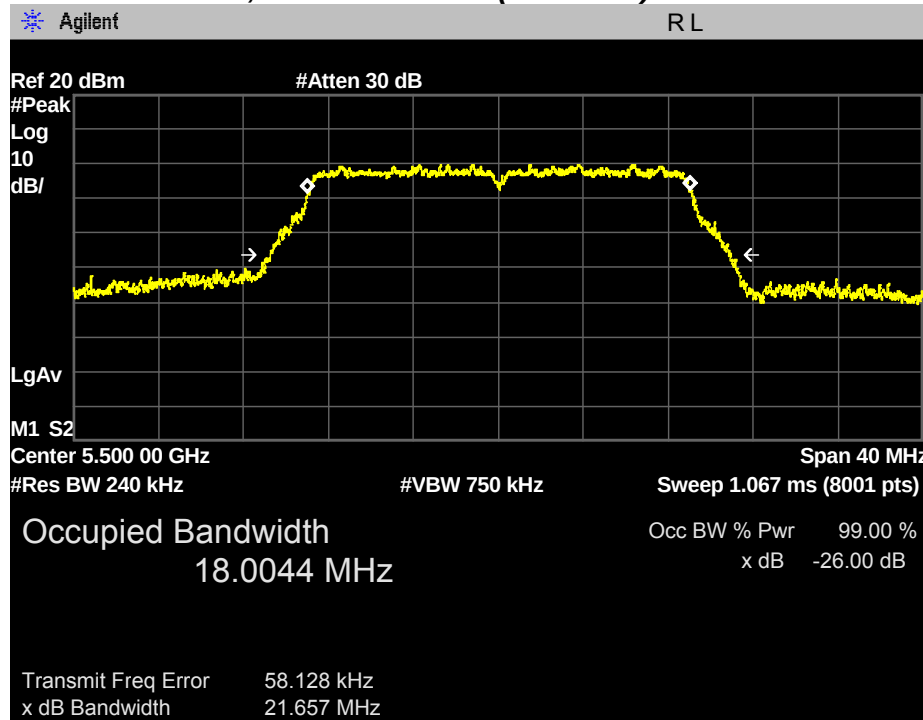


PLOTS OF EMISSIONS

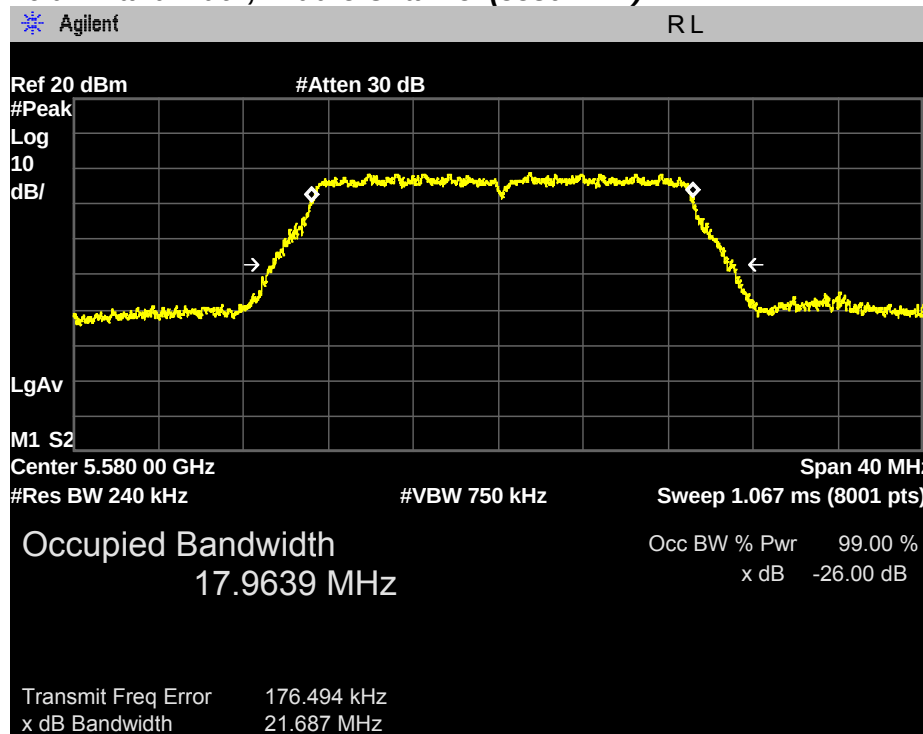
802.11ac(20MHz) mode - CDD

Chain 0

26 dB Bandwidth, Lowest Channel (5500 MHz)

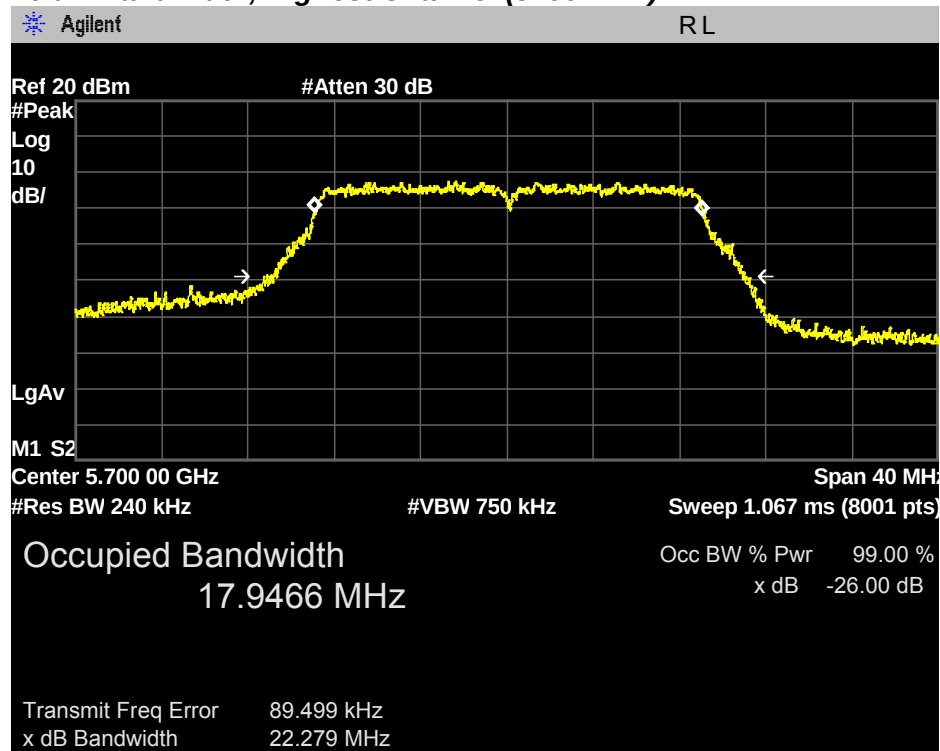


26 dB Bandwidth, Middle Channel (5580 MHz)



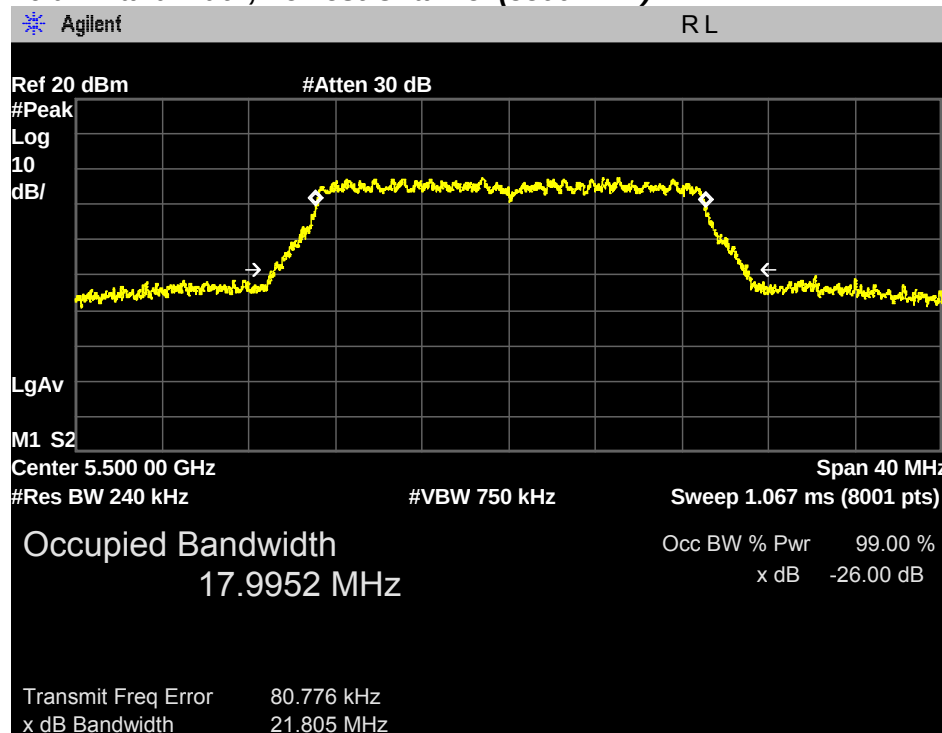
PLOTS OF EMISSIONS

26 dB Bandwidth, Highest Channel (5700 MHz)



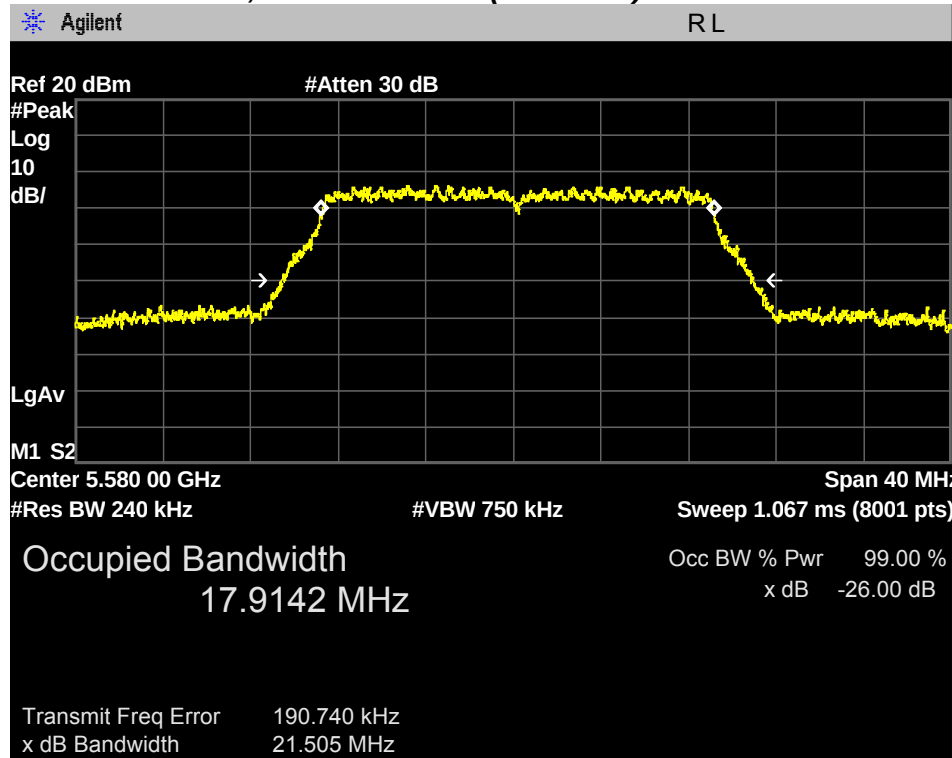
Chain 1

26 dB Bandwidth, Lowest Channel (5500 MHz)

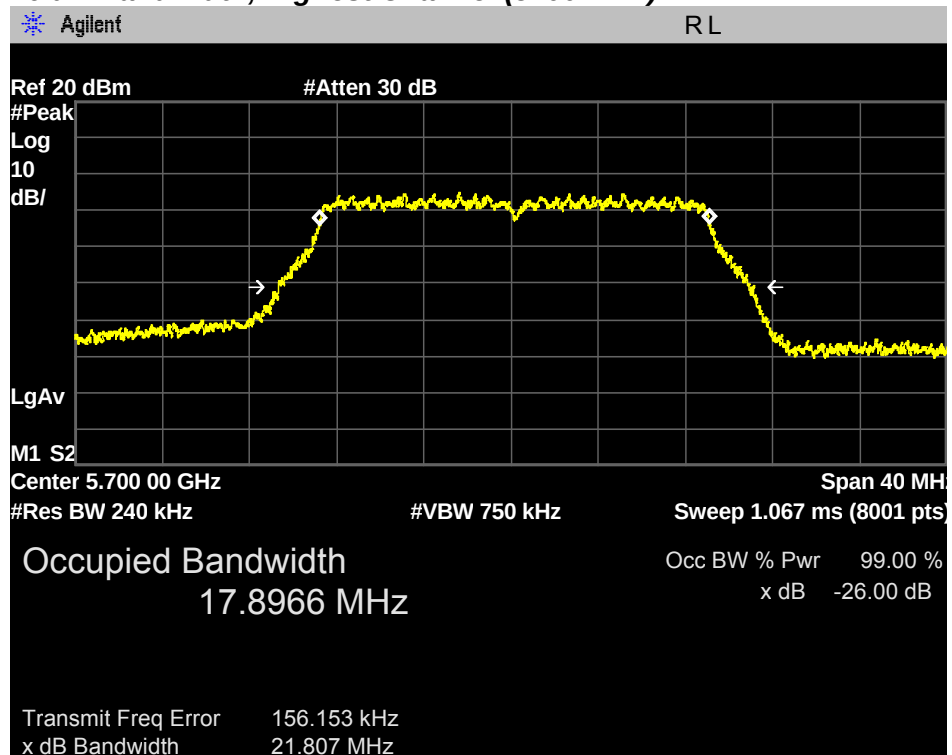


PLOTS OF EMISSIONS

26 dB Bandwidth, Middle Channel (5580 MHz)



26 dB Bandwidth, Highest Channel (5700 MHz)

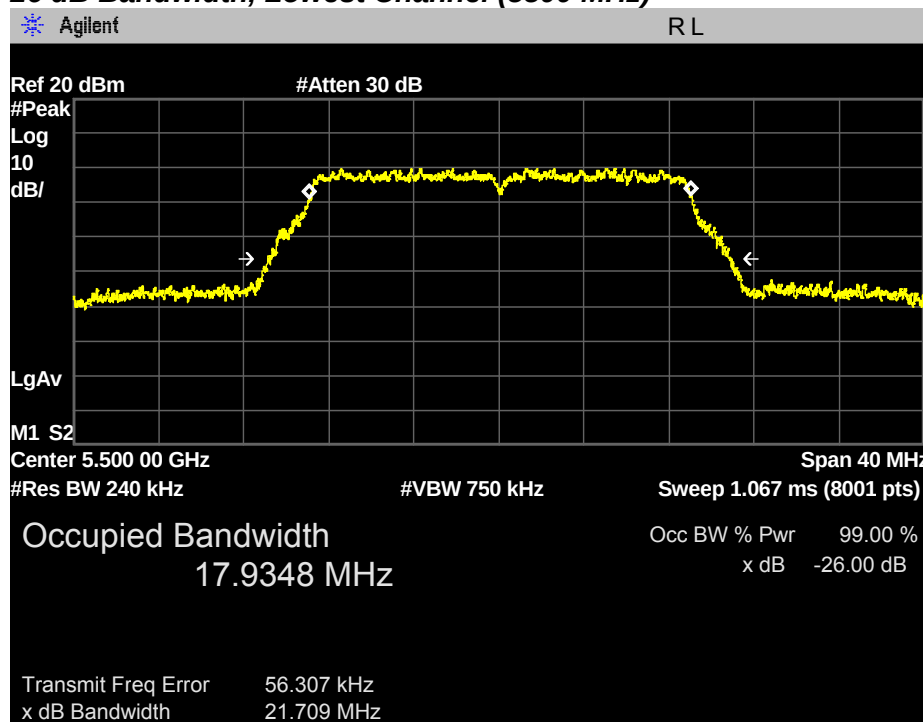


PLOTS OF EMISSIONS

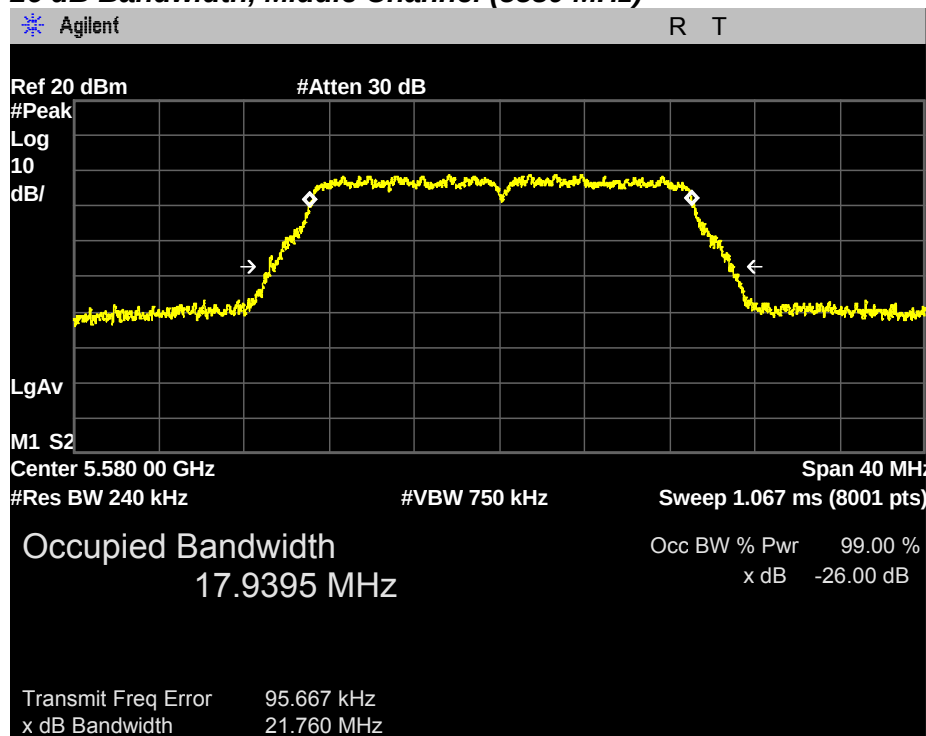
802.11ac(20MHz) mode - MIMO

Chain 0

26 dB Bandwidth, Lowest Channel (5500 MHz)

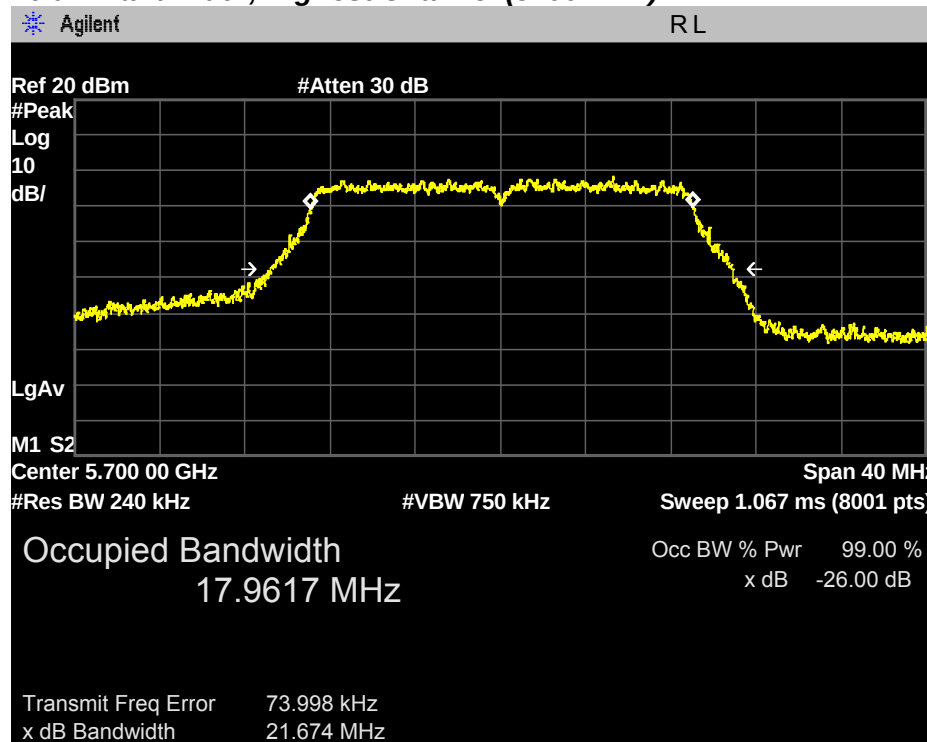


26 dB Bandwidth, Middle Channel (5580 MHz)



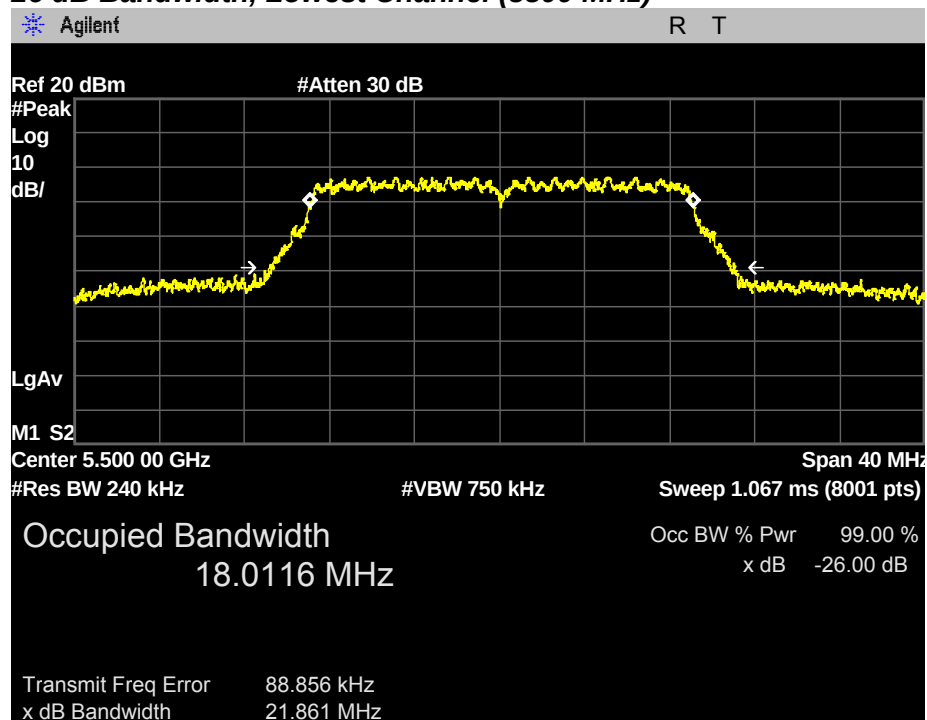
PLOTS OF EMISSIONS

26 dB Bandwidth, Highest Channel (5700 MHz)



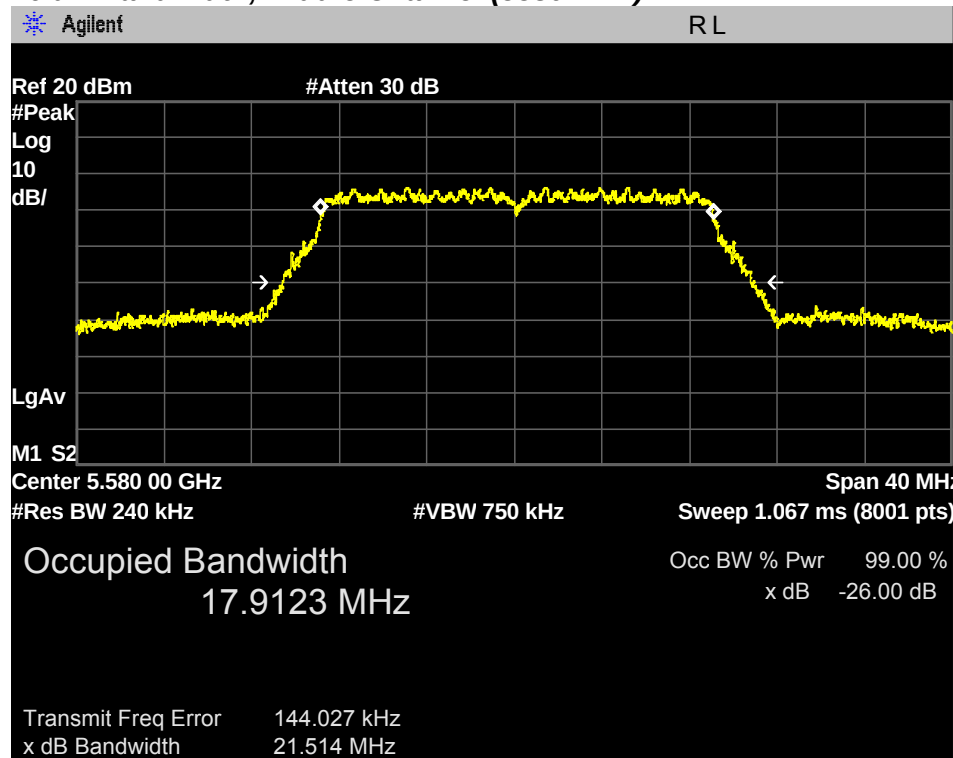
Chain 1

26 dB Bandwidth, Lowest Channel (5500 MHz)

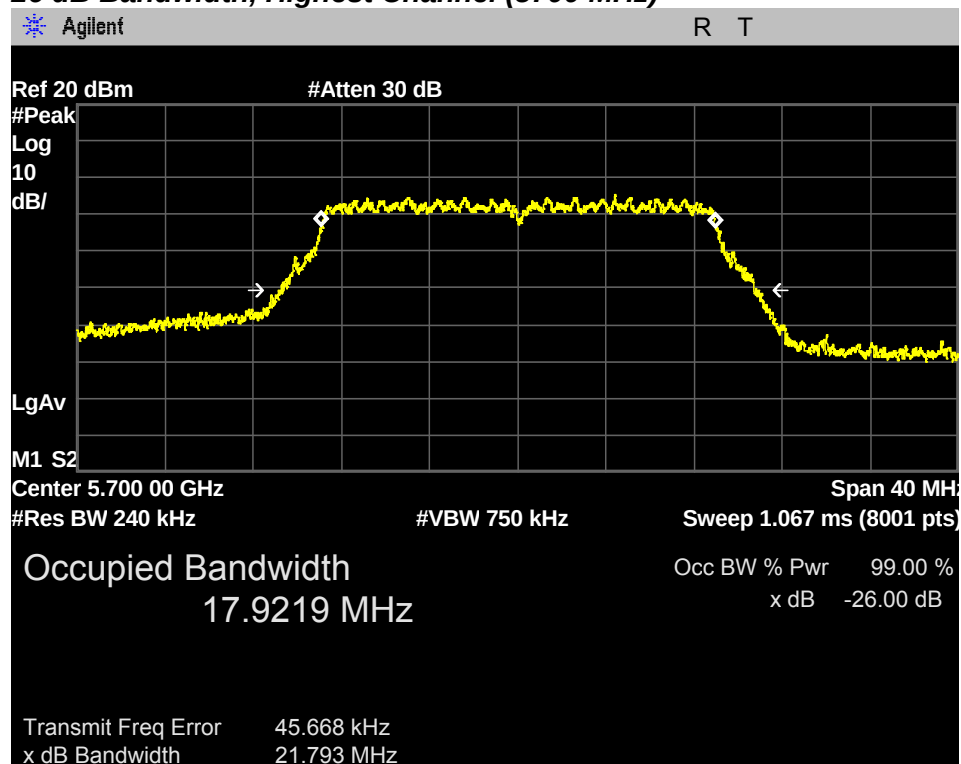


PLOTS OF EMISSIONS

26 dB Bandwidth, Middle Channel (5580 MHz)



26 dB Bandwidth, Highest Channel (5700 MHz)

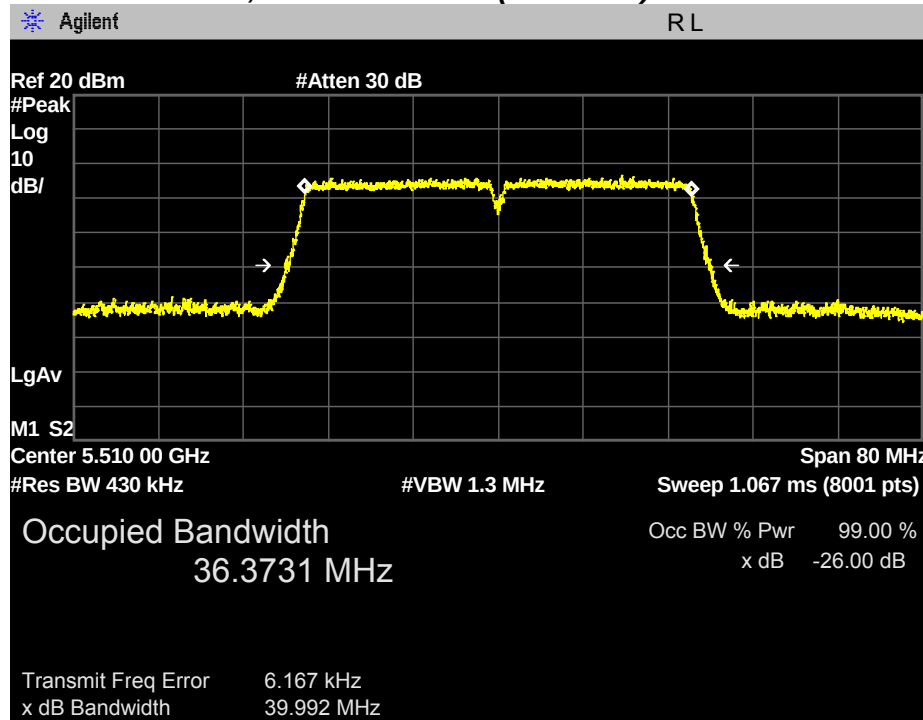


PLOTS OF EMISSIONS

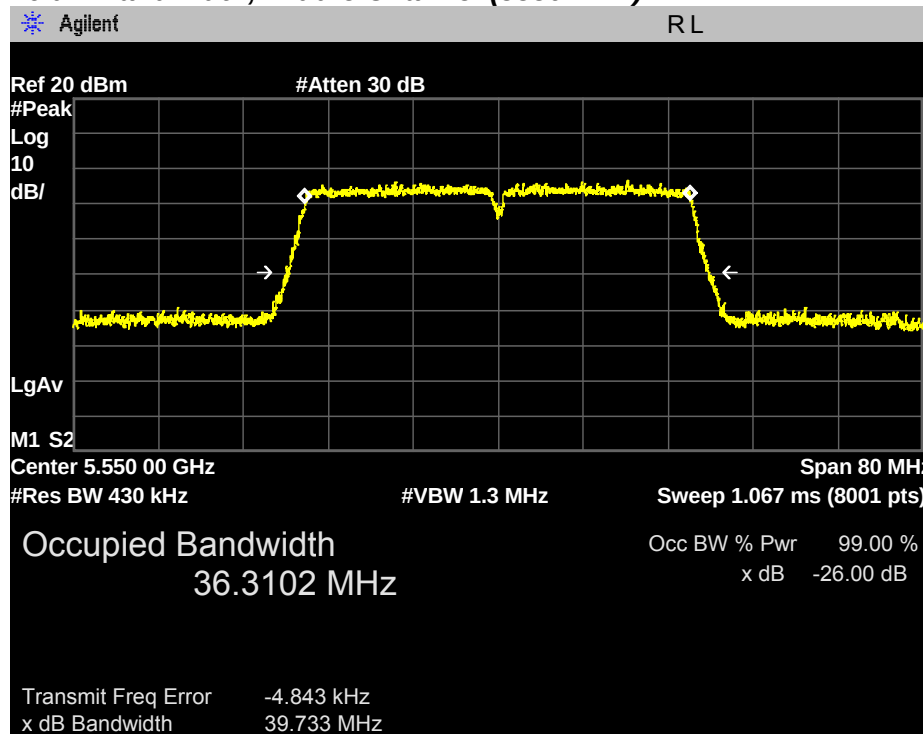
802.11ac(40MHz) mode - SISO

Chain 0

26 dB Bandwidth, Lowest Channel (5510 MHz)

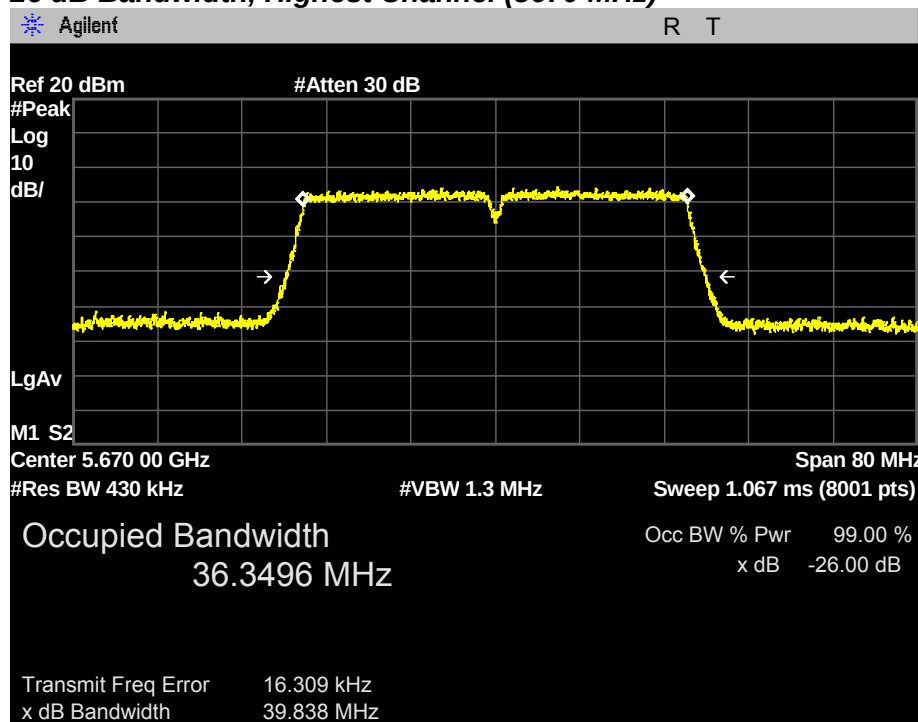


26 dB Bandwidth, Middle Channel (5550 MHz)



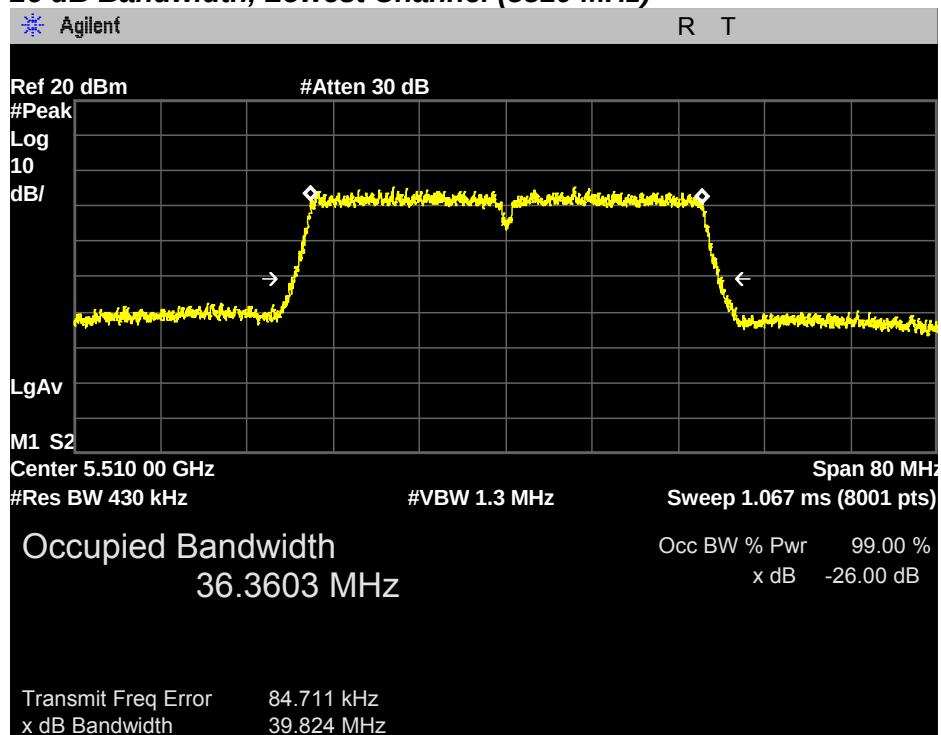
PLOTS OF EMISSIONS

26 dB Bandwidth, Highest Channel (5670 MHz)



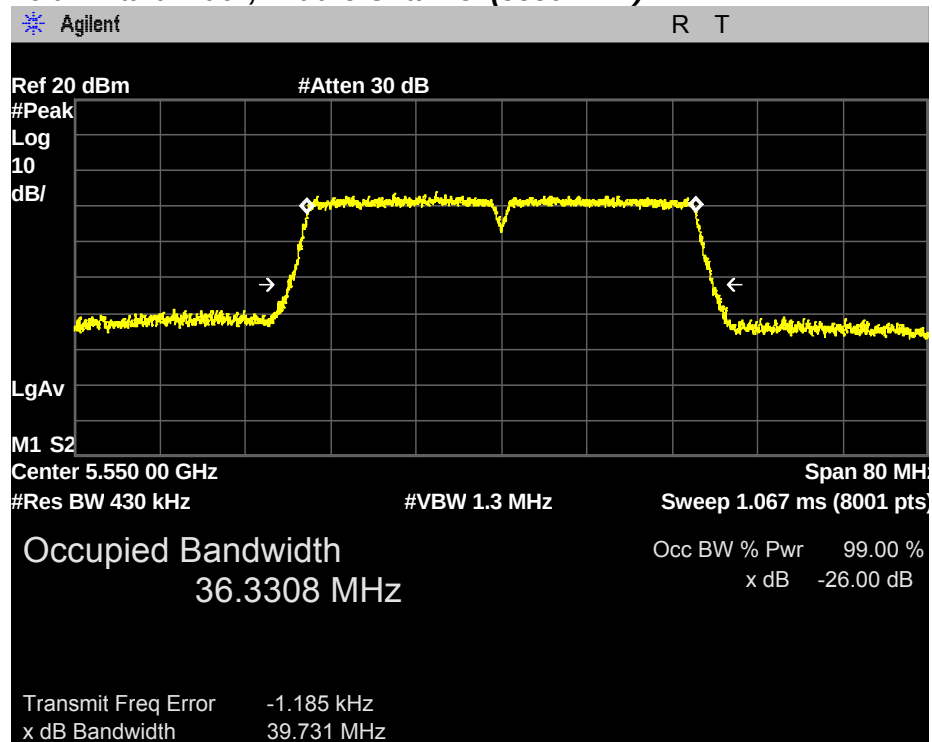
Chain 1

26 dB Bandwidth, Lowest Channel (5510 MHz)

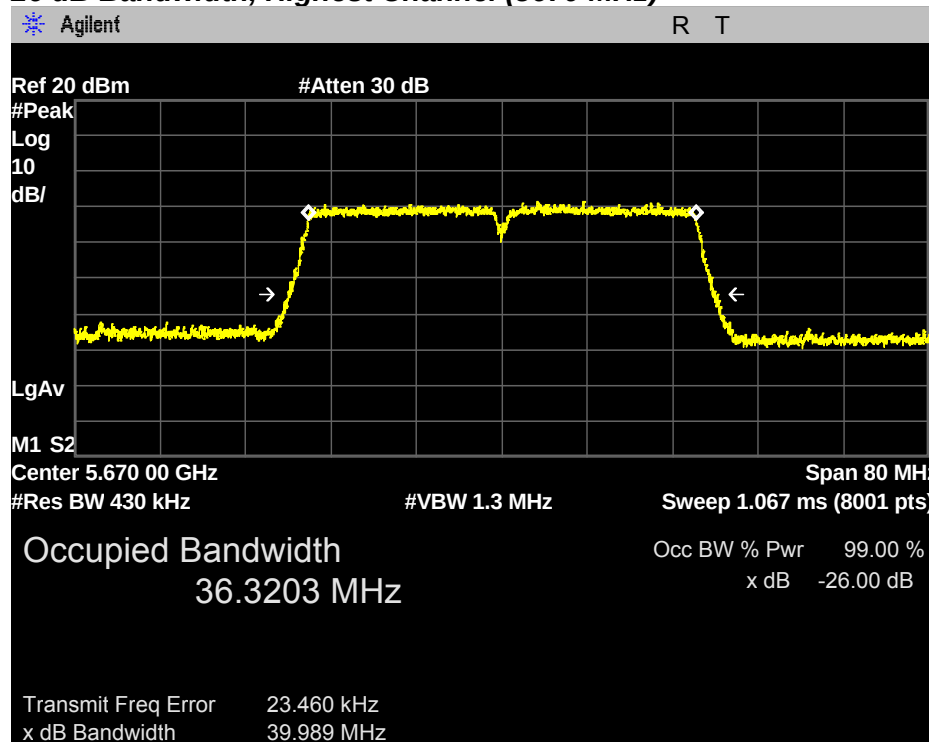


PLOTS OF EMISSIONS

26 dB Bandwidth, Middle Channel (5550 MHz)



26 dB Bandwidth, Highest Channel (5670 MHz)

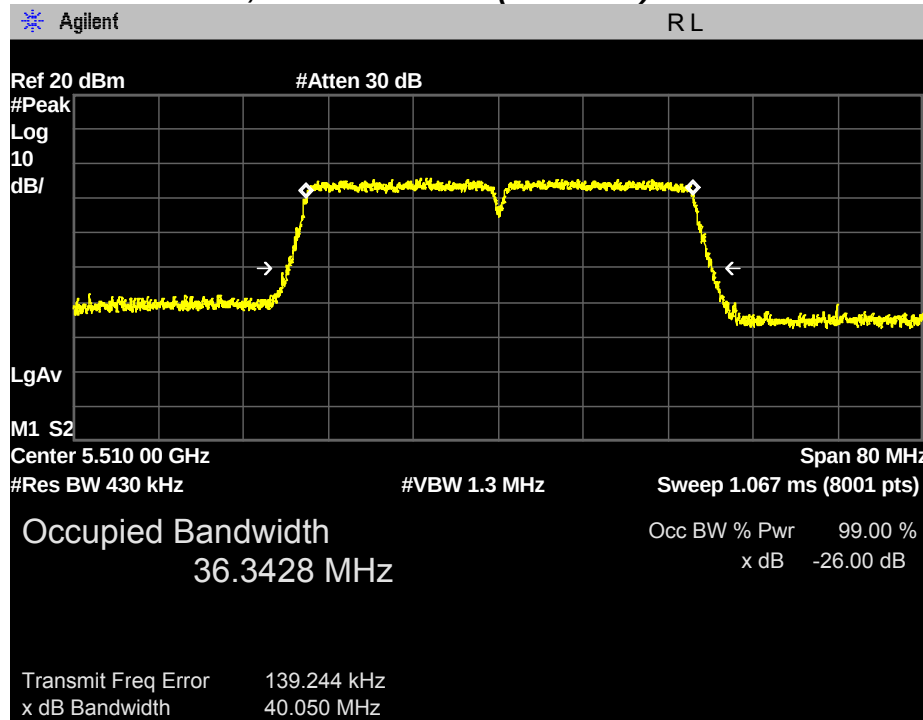


PLOTS OF EMISSIONS

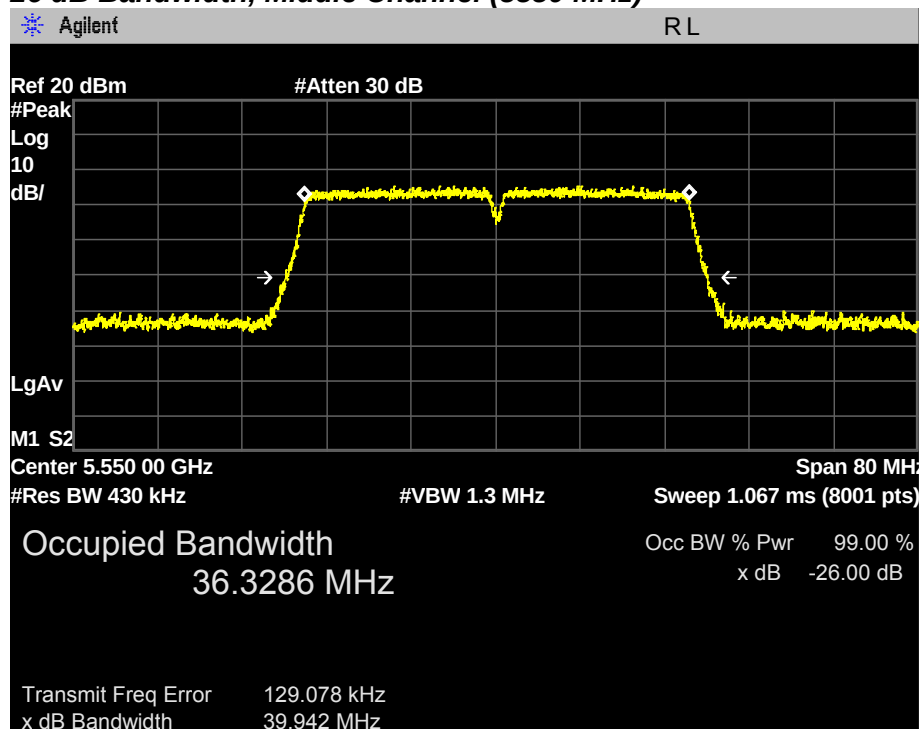
802.11ac(40MHz) mode - CDD

Chain 0

26 dB Bandwidth, Lowest Channel (5510 MHz)

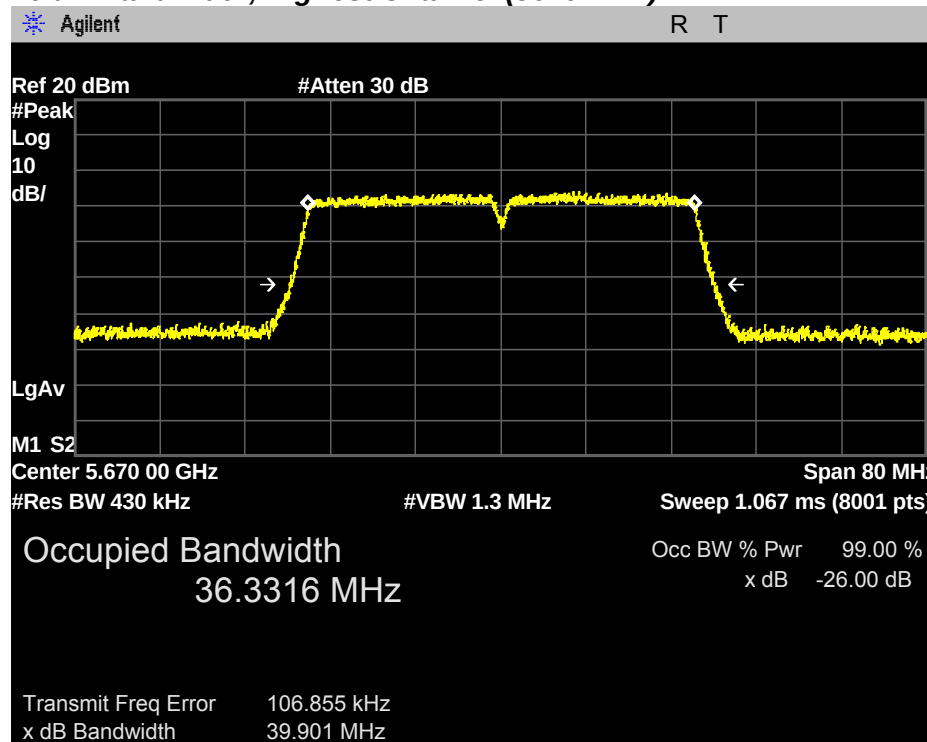


26 dB Bandwidth, Middle Channel (5550 MHz)



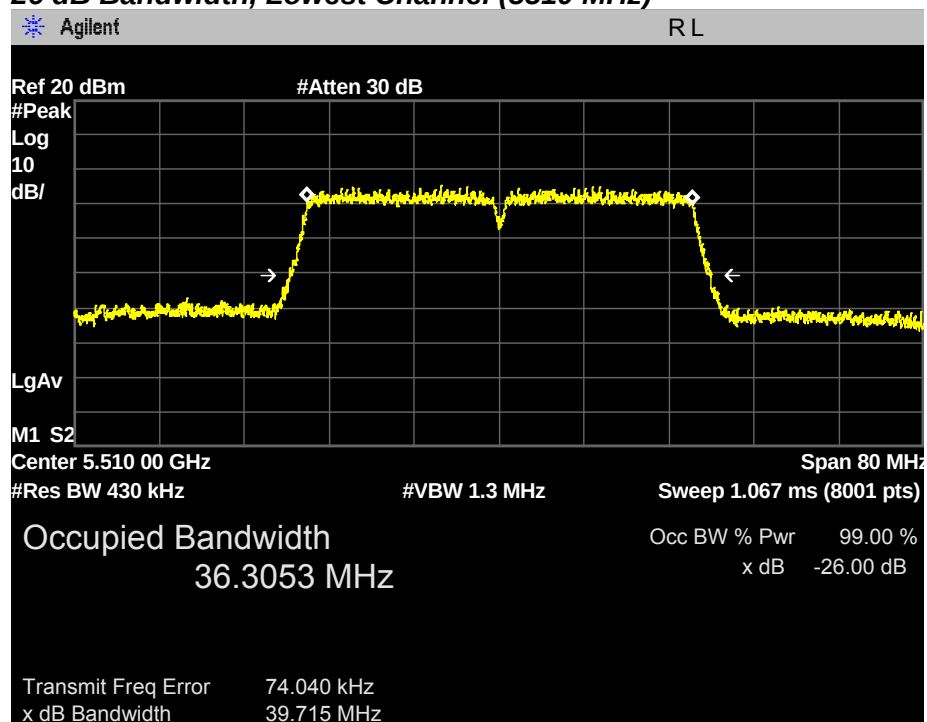
PLOTS OF EMISSIONS

26 dB Bandwidth, Highest Channel (5670 MHz)



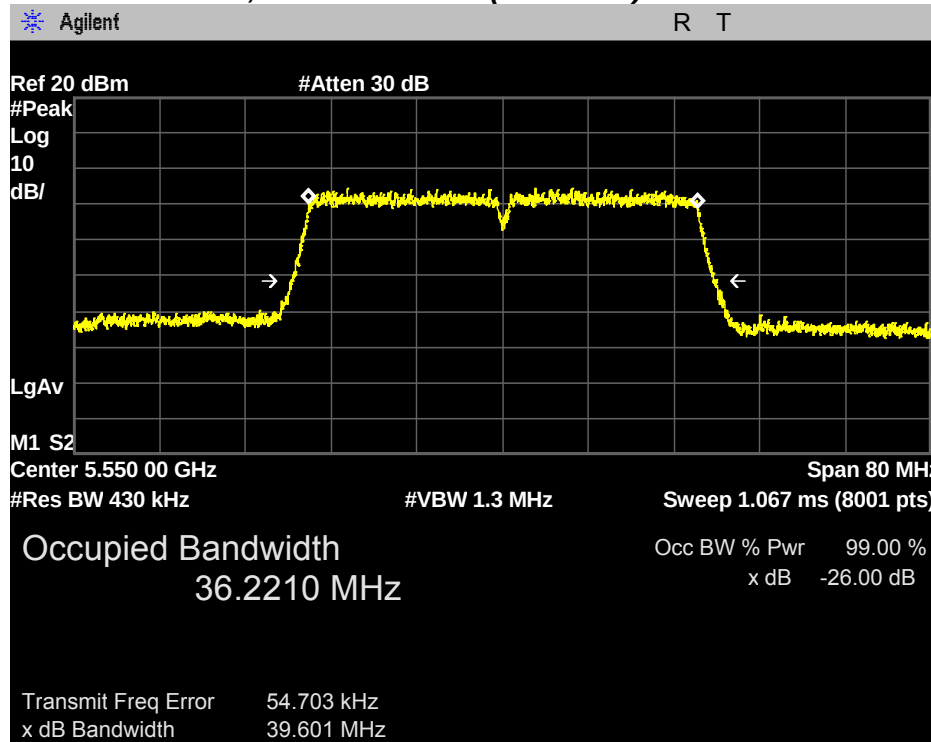
Chain 1

26 dB Bandwidth, Lowest Channel (5510 MHz)

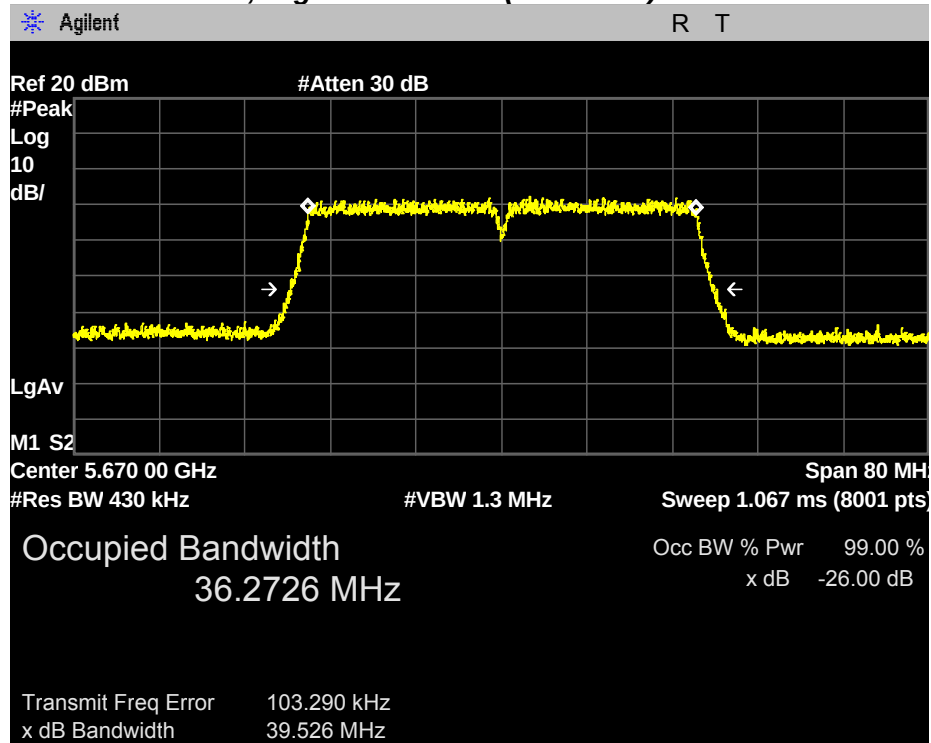


PLOTS OF EMISSIONS

26 dB Bandwidth, Middle Channel (5550 MHz)



26 dB Bandwidth, Highest Channel (5670 MHz)

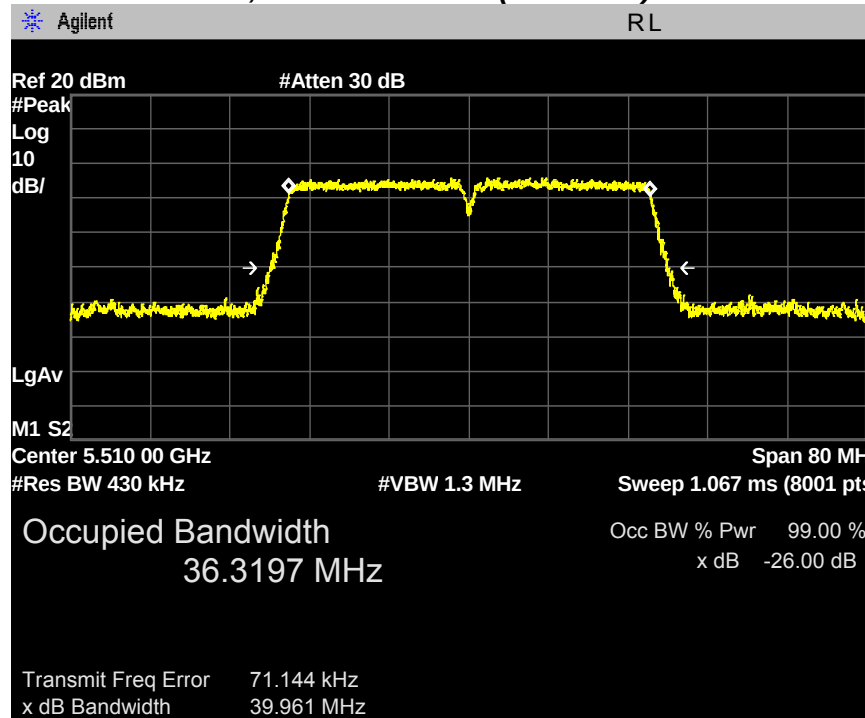


PLOTS OF EMISSIONS

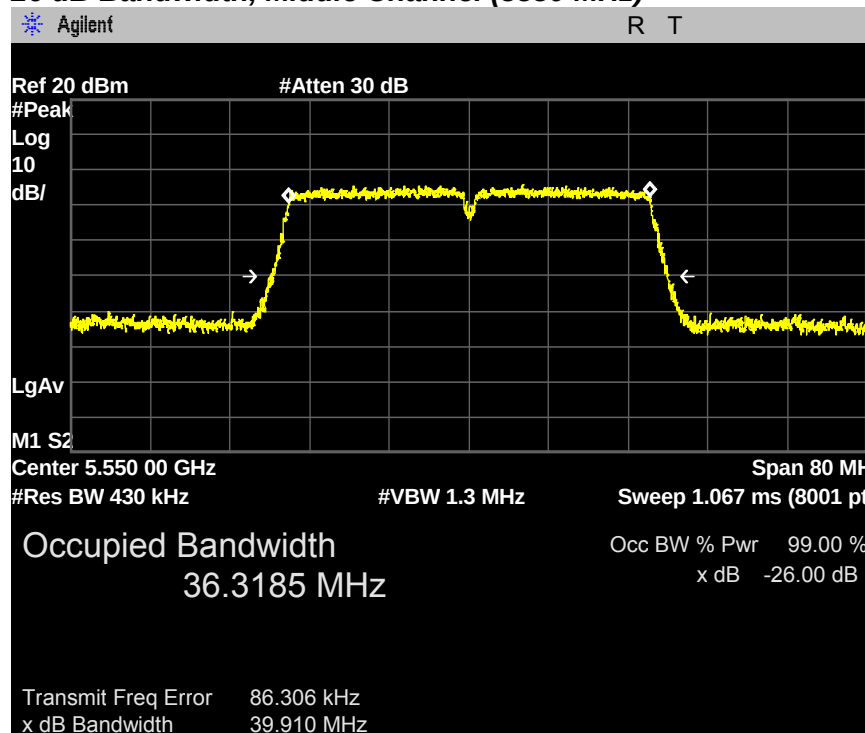
802.11ac(40MHz) mode - MIMO

Chain 0

26 dB Bandwidth, Lowest Channel (5510 MHz)

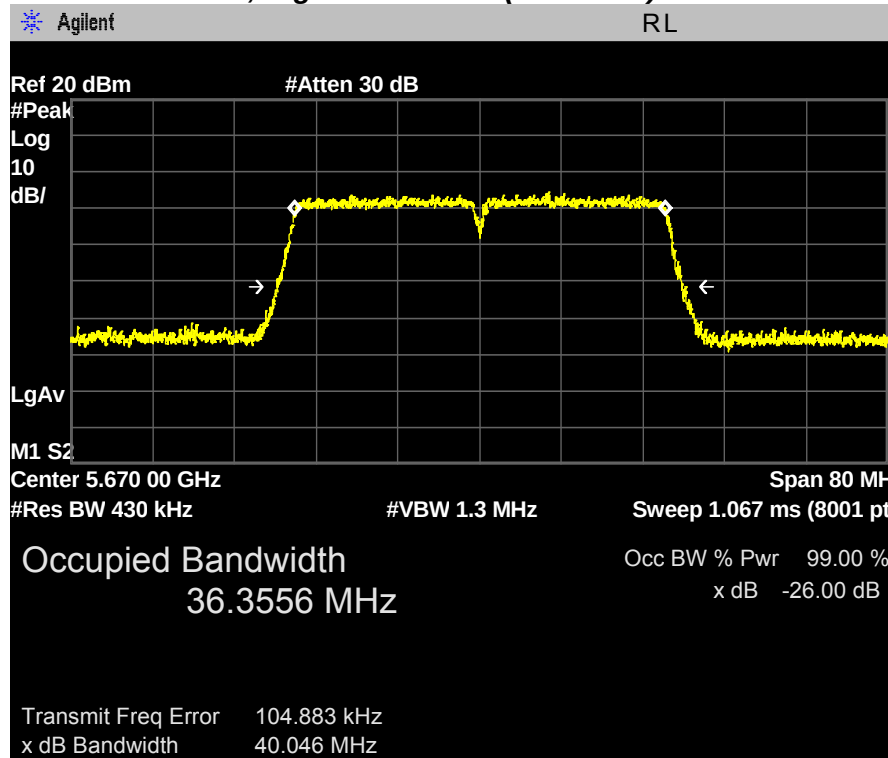


26 dB Bandwidth, Middle Channel (5550 MHz)



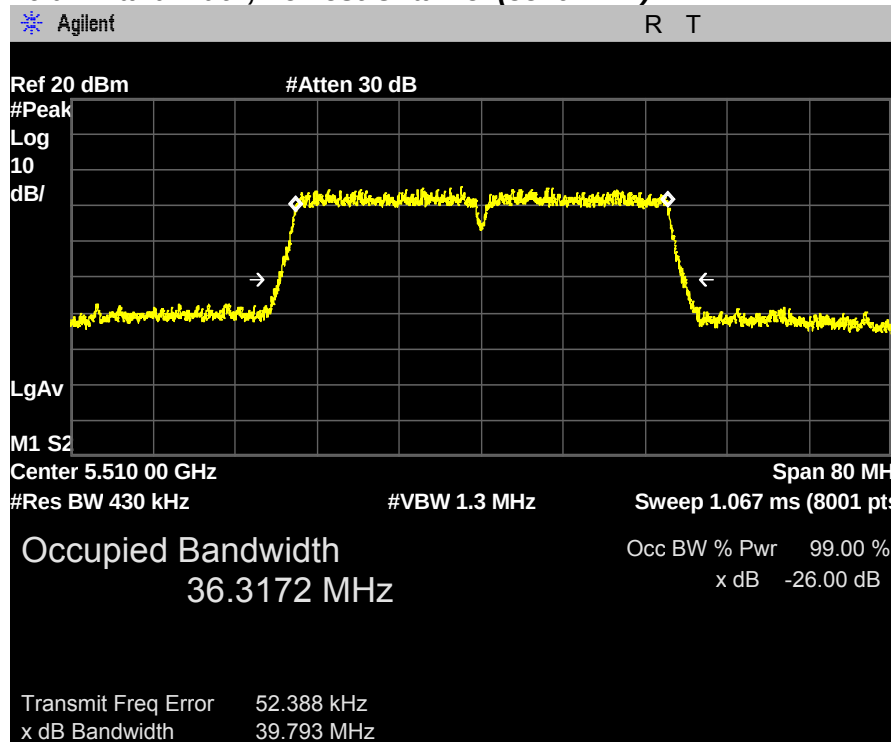
PLOTS OF EMISSIONS

26 dB Bandwidth, Highest Channel (5670 MHz)



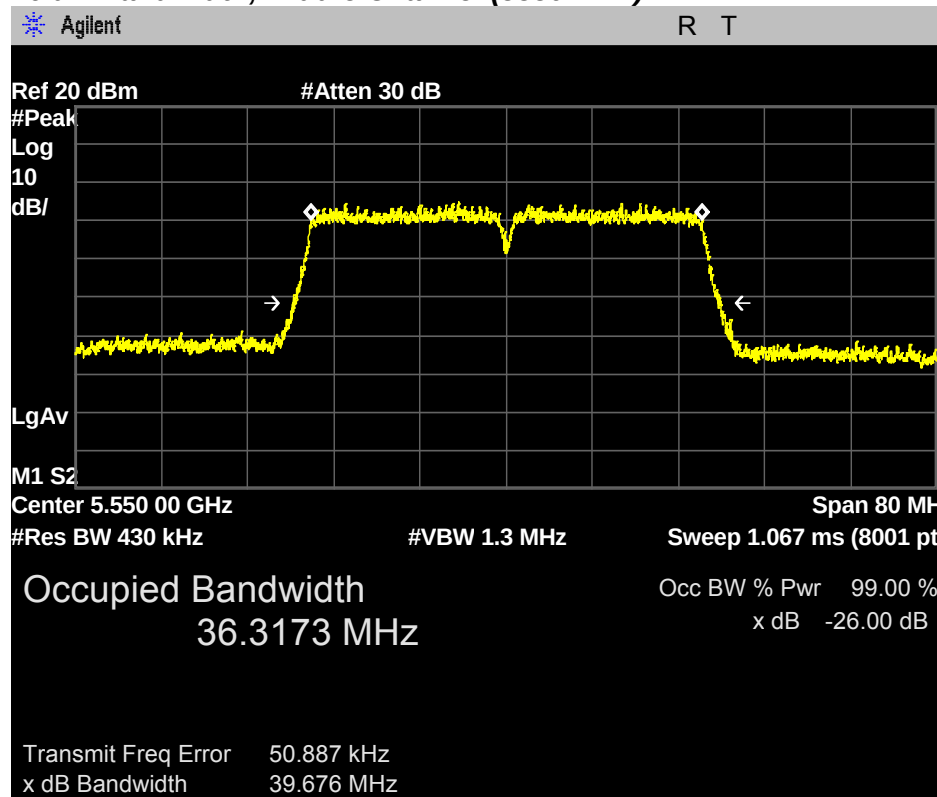
Chain 1

26 dB Bandwidth, Lowest Channel (5510 MHz)

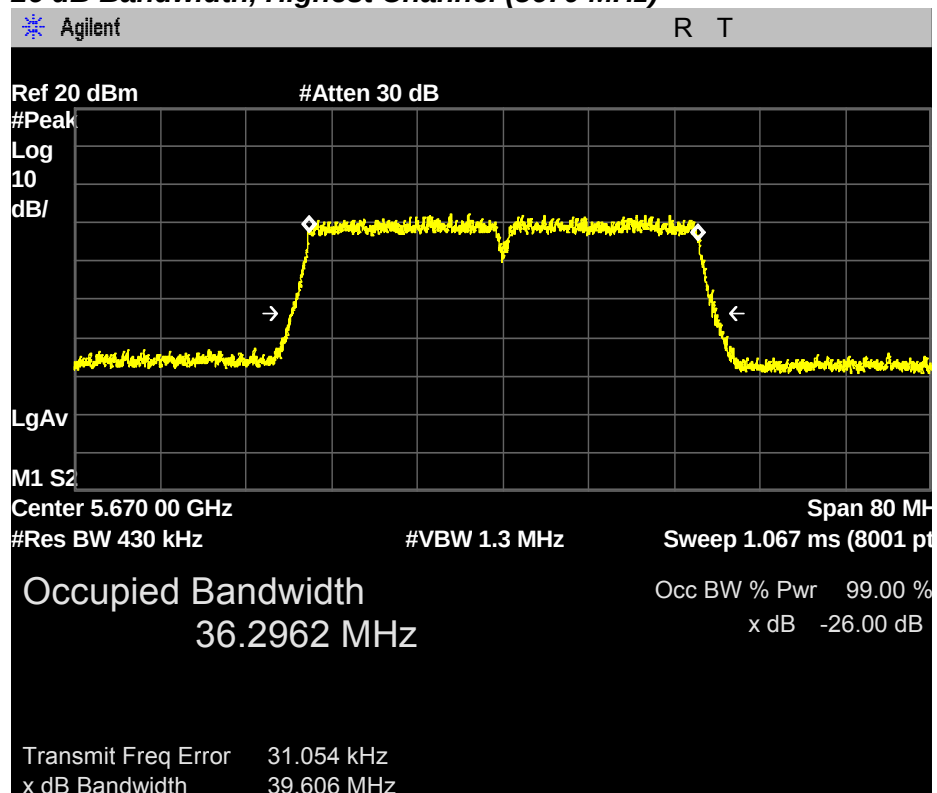


PLOTS OF EMISSIONS

26 dB Bandwidth, Middle Channel (5550 MHz)



26 dB Bandwidth, Highest Channel (5670 MHz)

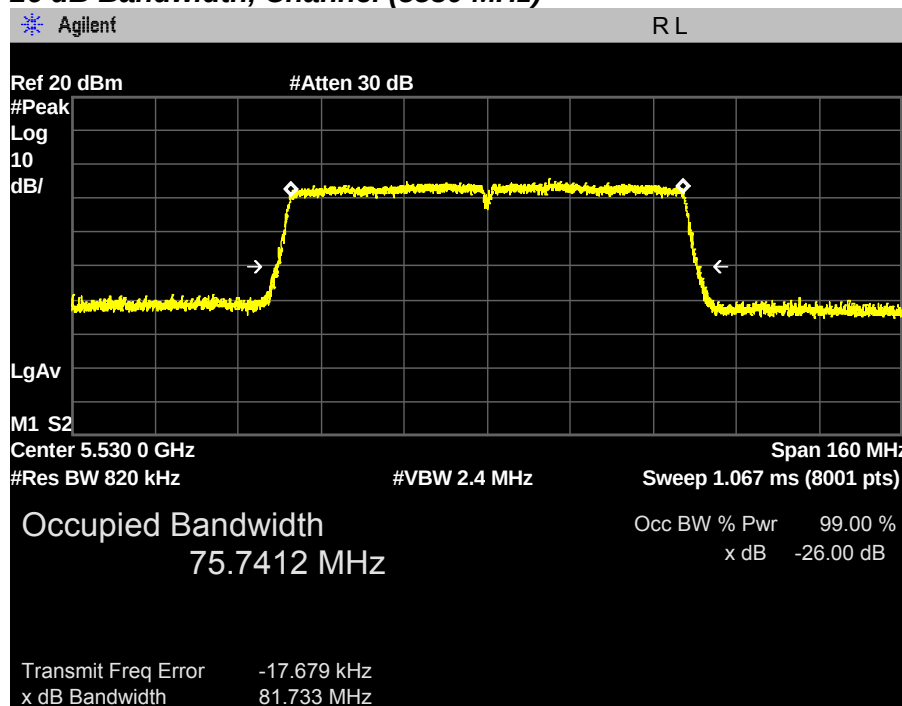


PLOTS OF EMISSIONS

802.11ac(80MHz) mode - SISO

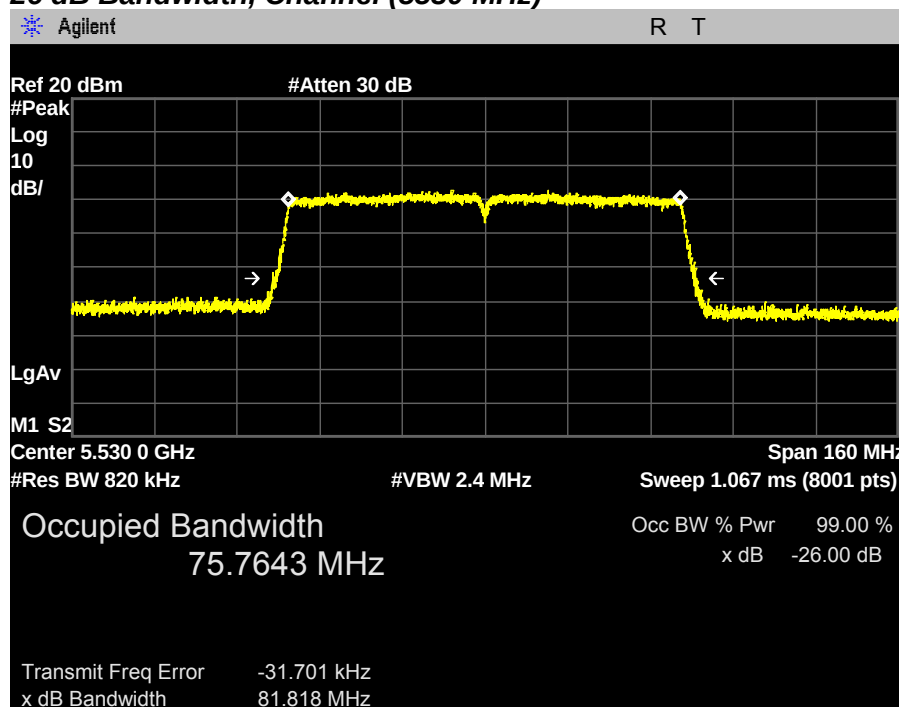
Chain 0

26 dB Bandwidth, Channel (5530 MHz)



Chain 1

26 dB Bandwidth, Channel (5530 MHz)

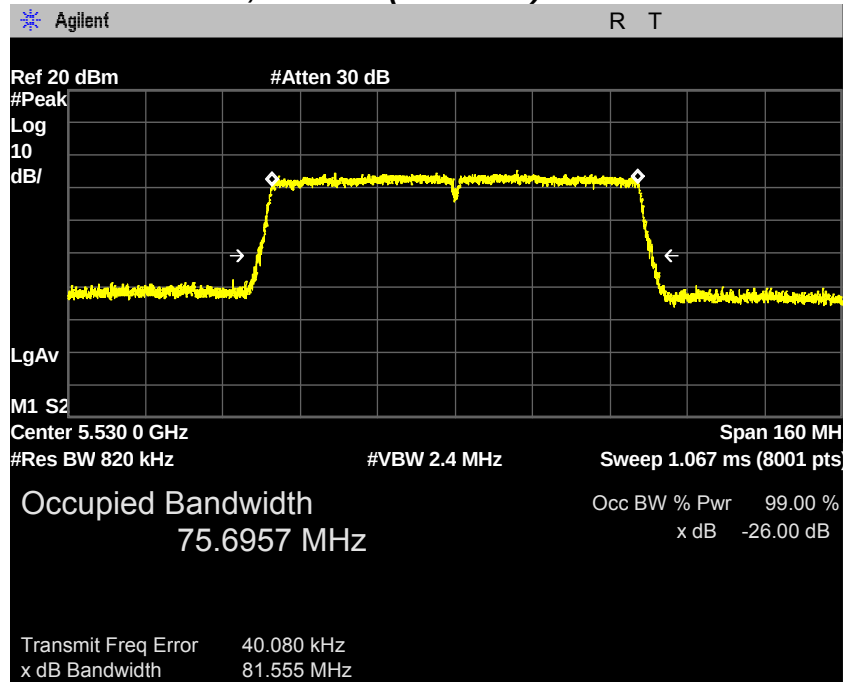


PLOTS OF EMISSIONS

802.11ac(80MHz) mode - CDD

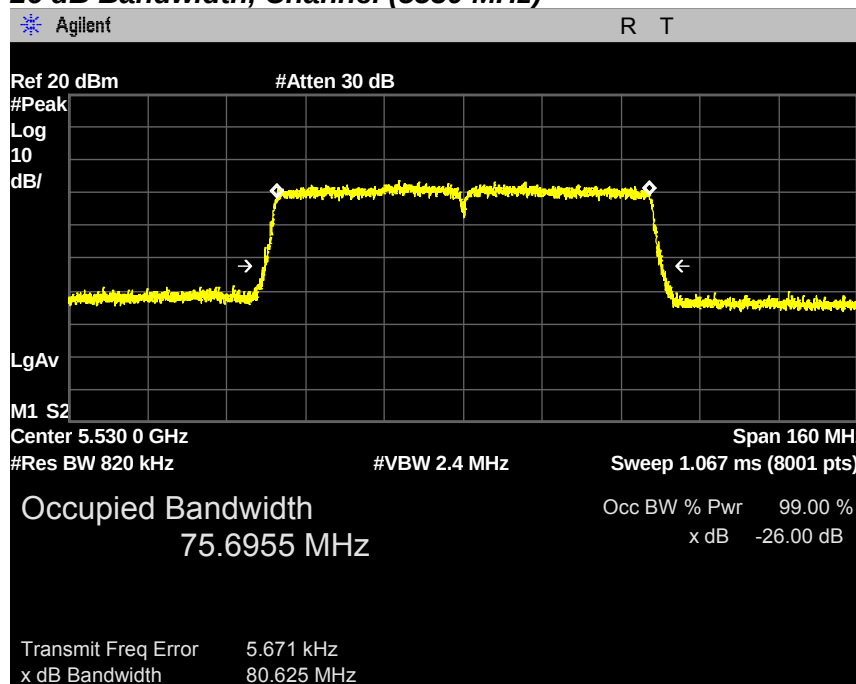
Chain 0

26 dB Bandwidth, Channel (5530 MHz)



Chain 1

26 dB Bandwidth, Channel (5530 MHz)

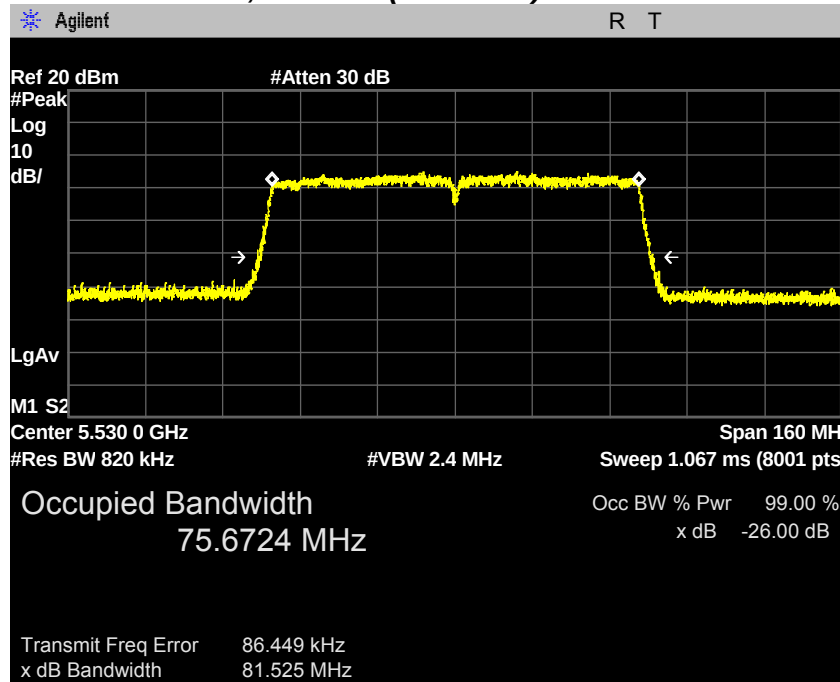


PLOTS OF EMISSIONS

802.11ac(80MHz) mode - MIMO

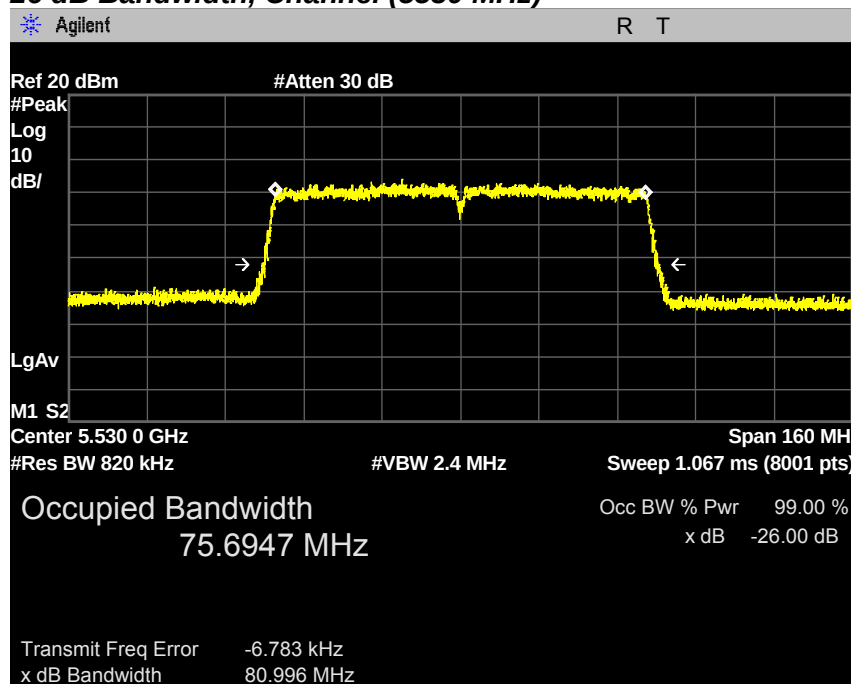
Chain 0

26 dB Bandwidth, Channel (5530 MHz)



Chain 1

26 dB Bandwidth, Channel (5530 MHz)



TEST DATA

8.5 Maximum Conducted Output Power (average)

8.5.1 Maximum Conducted Output Power – UNII-1 band

FCC §15.407(a), RSS-247 Issue 1, 6.2

Test Mode : Set to Lowest channel, Middle channel and Highest channel

802.11a mode

Channel	Frequency (MHz)	Measured conducted power (dBm)		*Maximum Conducted Power (dBm)		FCC Limit (dBm)	E.I.R.P (dBm)		IC E.I.R.P Limit (dBm)
		Chain 0	Chain 1	Chain 0	Chain 1		Chain 0	Chain 1	
Lowest	5180	8.77	7.94	9.60	8.77	23.98	12.30	11.47	22.27
Middle	5200	9.43	7.78	10.26	8.61	23.98	12.96	11.31	22.28
Highest	5240	9.09	9.12	9.93	9.96	23.98	12.63	12.66	22.28

802.11n (20 MHz) mode – SISO

Channel	Frequency (MHz)	Measured conducted power (dBm)		*Maximum Conducted Power (dBm)		FCC Limit (dBm)	E.I.R.P (dBm)		IC E.I.R.P Limit (dBm)
		Chain 0	Chain 1	Chain 0	Chain 1		Chain 0	Chain 1	
Lowest	5180	8.70	7.71	9.58	8.59	23.98	12.28	11.29	22.55
Middle	5200	9.15	7.84	10.03	8.73	23.98	12.73	11.43	22.54
Highest	5240	8.67	8.84	9.57	9.74	23.98	12.27	12.44	22.54

TEST DATA

802.11n (20 MHz) mode – CDD

Channel	Frequency (MHz)	Measured conducted power (dBm)		Duty Factor (dB)	*Maximum Conducted Power (dBm)	FCC Limit (dBm)	E.I.R.P (dBm)	IC E.I.R.P Limit (dBm)
		Chain 0	Chain 1		Total output power			
Lowest	5180	8.90	8.02	0.88	12.37	23.98	15.07	22.54
Middle	5220	9.02	7.70	0.89	12.31	23.98	15.01	22.53
Highest	5240	8.20	8.01	0.90	12.02	23.98	14.72	22.53

802.11n (20 MHz) mode – MIMO

Channel	Frequency (MHz)	Measured conducted power (dBm)		Duty Factor (dB)	*Maximum Conducted Power (dBm)	FCC Limit (dBm)	E.I.R.P (dBm)	IC E.I.R.P Limit (dBm)
		Chain 0	Chain 1		Total output power			
Lowest	5180	7.91	6.98	1.59	12.07	23.98	14.77	22.53
Middle	5220	8.22	7.04	1.56	12.24	23.98	14.94	22.53
Highest	5240	7.39	7.40	1.59	12.00	23.98	14.70	22.53

802.11n (40 MHz) mode – SISO

Channel	Frequency (MHz)	Measured conducted power (dBm)		*Maximum Conducted Power (dBm)		FCC Limit (dBm)	E.I.R.P (dBm)		IC E.I.R.P Limit (dBm)
		Chain 0	Chain 1	Chain 0	Chain 1		Chain 0	Chain 1	
Low	5190	7.81	6.70	9.43	8.32	23.98	12.13	11.02	23.01
Highest	5230	7.82	7.98	9.45	9.61	23.98	12.15	12.31	23.01

TEST DATA

802.11n (40 MHz) mode - CDD

Channel	Frequency (MHz)	Measured conducted power (dBm)		Duty Factor (dB)	*Maximum Conducted Power (dBm)	FCC Limit (dBm)	E.I.R.P (dBm)	IC E.I.R.P Limit (dBm)
		Chain 0	Chain 1		Total output power			
Low	5190	7.75	6.71	1.62	11.89	23.98	14.59	23.01
Highest	5230	6.85	7.00	1.63	11.57	23.98	14.27	23.01

802.11n (40 MHz) mode - MIMO

Channel	Frequency (MHz)	Measured conducted power (dBm)		Duty Factor (dB)	*Maximum Conducted Power (dBm)	FCC Limit (dBm)	E.I.R.P (dBm)	IC E.I.R.P Limit (dBm)
		Chain 0	Chain 1		Total output power			
Low	5190	6.72	5.74	2.67	11.94	23.98	14.64	23.01
Highest	5230	5.88	6.01	2.68	11.64	23.98	14.34	23.01

802.11ac (20 MHz) mode - SISO

Channel	Frequency (MHz)	Measured conducted power (dBm)		*Maximum Conducted Power (dBm)		FCC Limit (dBm)	E.I.R.P (dBm)		IC E.I.R.P Limit (dBm)
		Chain 0	Chain 1	Chain 0	Chain 1		Chain 0	Chain 1	
Lowest	5180	8.73	7.72	9.61	8.60	23.98	12.31	11.30	22.53
Middle	5220	9.20	7.74	10.08	8.62	23.98	12.78	11.32	22.55
Highest	5240	9.01	8.85	9.89	9.73	23.98	12.59	12.43	22.55

TEST DATA

802.11ac (20 MHz) mode - CDD

Channel	Frequency (MHz)	Measured conducted power (dBm)		Duty Factor (dB)	*Maximum Conducted Power (dBm)	FCC Limit (dBm)	E.I.R.P (dBm)	IC E.I.R.P Limit (dBm)
		Chain 0	Chain 1		Total output power			
Lowest	5180	8.85	7.81	0.88	12.25	23.98	14.95	22.54
Middle	5220	8.99	7.61	0.88	12.24	23.98	14.94	22.53
Highest	5240	8.17	8.16	0.88	12.06	23.98	14.76	22.53

802.11ac (20 MHz) mode - MIMO

Channel	Frequency (MHz)	Measured conducted power (dBm)		Duty Factor (dB)	*Maximum Conducted Power (dBm)	FCC Limit (dBm)	E.I.R.P (dBm)	IC E.I.R.P Limit (dBm)
		Chain 0	Chain 1		Total output power			
Lowest	5180	8.13	7.01	1.55	12.17	23.98	14.87	22.52
Middle	5220	8.55	6.73	1.56	12.30	23.98	15.00	22.42
Highest	5240	7.60	7.540	1.55	12.13	23.98	14.83	22.42

802.11ac (40 MHz) mode – SISO

Channel	Frequency (MHz)	Measured conducted power (dBm)		*Maximum Conducted Power (dBm)		FCC Limit (dBm)	E.I.R.P (dBm)		IC E.I.R.P Limit (dBm)
		Chain 0	Chain 1	Chain 0	Chain 1		Chain 0	Chain 1	
Low	5190	7.86	6.86	9.48	8.48	23.98	12.18	11.18	23.01
Highest	5230	7.84	7.79	9.46	9.41	23.98	13.96	12.11	23.01

TEST DATA

802.11ac (40 MHz) mode - CDD

Channel	Frequency (MHz)	Measured conducted power (dBm)		Duty Factor (dB)	*Maximum Conducted Power (dBm)	FCC Limit (dBm)	E.I.R.P (dBm)	IC E.I.R.P Limit (dBm)
		Chain 0	Chain 1		Total output power			
Low	5190	7.91	6.83	1.62	12.03	23.98	14.73	23.01
Highest	5230	7.38	6.96	1.62	11.81	23.98	14.51	23.01

802.11ac (40 MHz) mode - MIMO

Channel	Frequency (MHz)	Measured conducted power (dBm)		Duty Factor (dB)	*Maximum Conducted Power (dBm)	FCC Limit (dBm)	E.I.R.P (dBm)	IC E.I.R.P Limit (dBm)
		Chain 0	Chain 1		Total output power			
Low	5190	6.88	5.51	2.64	11.90	23.98	14.60	23.01
Highest	5230	6.36	5.95	2.70	11.87	23.98	14.57	23.01

802.11ac (80 MHz) mode – SISO

Channel	Frequency (MHz)	Measured conducted power (dBm)		*Maximum Conducted Power (dBm)		FCC Limit (dBm)	E.I.R.P (dBm)		IC E.I.R.P Limit (dBm)
		Chain 0	Chain 1	Chain 0	Chain 1		Chain 0	Chain 1	
Low	5210	4.72	5.14	7.53	7.95	23.98	10.23	10.65	23.01

802.11ac (80 MHz) mode - CDD

Channel	Frequency (MHz)	Measured conducted power (dBm)		Duty Factor (dB)	*Maximum Conducted Power (dBm)	FCC Limit (dBm)	E.I.R.P (dBm)	IC E.I.R.P Limit (dBm)
		Chain 0	Chain 1		Total output power			
	5210	4.80	5.06	2.81	10.75	23.98	13.45	23.01

TEST DATA

802.11ac (80 MHz) mode - MIMO

Channel	Frequency (MHz)	Measured conducted power (dBm)		Duty Factor (dB)	*Maximum Conducted Power (dBm)	FCC Limit (dBm)	E.I.R.P (dBm)	IC E.I.R.P Limit (dBm)
		Chain 0	Chain 1		Total output power			
	5210	3.46	3.82	4.18	10.83	23.98	13.53	23.01

Note:

- *Maximum Conducted (average) Power = Measured conducted power + Duty Factor
- Total output power = $10 \log [10^{\{(Chain\ 0\ Power + duty\ factor)/10\}} + 10^{\{(Chain\ 1\ Power + duty\ factor)/10\}}]$
- For CDD transmission, directional gain is. **2.7 dBi**

For MIMO transmission, directional gain is **2.7 dBi**.

Directional gain was calculated according to KDB662911 D01 Multiple Transmitter Output v02r01.

For power measurements on IEEE 802.11 devices employing CDD, directional gain is as follows,

$$\text{Directional gain} = G_{ANT} + \text{Array Gain} = 2.7 \text{ dBi} + 0 \text{ dB} = 2.7 \text{ dBi}$$

Array Gain = 0 dB (i.e., no array gain) for $N_{ANT} \leq 4$;

Array Gain = 0 dB (i.e., no array gain) for channel widths ≥ 40 MHz for any N_{ANT} ;

Array Gain = $5 \log(N_{ANT}/N_{SS})$ dB or 3 dB, whichever is less, for 20-MHz channel widths with $N_{ANT} \geq 5$.

For power measurements on all devices employing MIMO, directional gain is as follows,

$$\text{Directional gain} = G_{ANT} + 10 \log(N_{ANT}/N_{SS}) \text{ dBi, where } N_{SS} = \text{the number of independent spatial streams of data and } G_{ANT} \text{ is the antenna gain in dBi.} = 2.7 \text{ dBi} + 10 \log(2/2) \text{ dB} = 2.7 \text{ dBi.}$$

For this device, MIMO mode means SM-MIMO(Spatial Multiplexing) transmission and $N_{SS}=2$.

- E.I.R.P = Maximum conducted Power + Duty Cycle Factor + Antenna gain.

E.I.R.P was calculated by following equation according to KDB412172 D01 Determining ERP and EIRP v01.

$$E.I.R.P = P_T + G_T - L_C$$

P_T = Peak outputpower (dBm)

G_T = Gain of the transmitting antenna in dBi, Directional antenna gain is **2.7 dBi**.

L_C = Signal attenuation in the connecting cable between the transmitter and antenna in dB. This factor of an integral antenna is negligible.

- IC E.I.R.P Limit = 200 mW or $10 + 10 \log 10B$, dBm, whichever power is less.

B is the worst 99% emission bandwidth in megahertz of the two results on ANT port0 and ANT port 1.

- The following equation was used for spectrum offset:

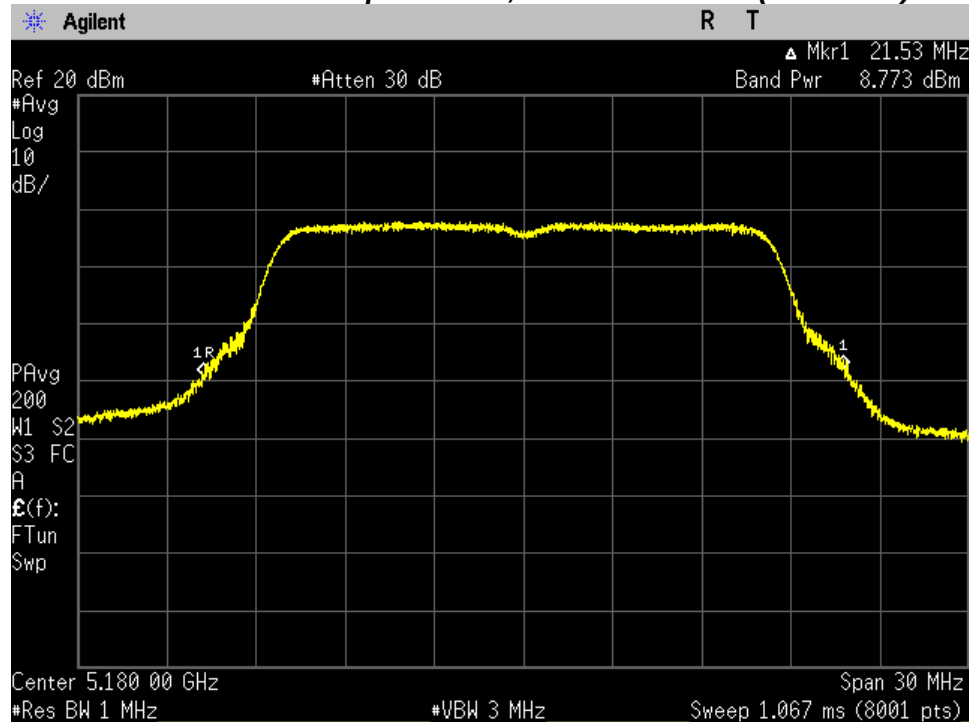
$$\text{Spectrum offset (dB)} = \text{Attenuator (dB)} + \text{Cable Loss (dB)} + \text{SMA Type Connector Loss (dB)}$$

PLOTS OF EMISSIONS

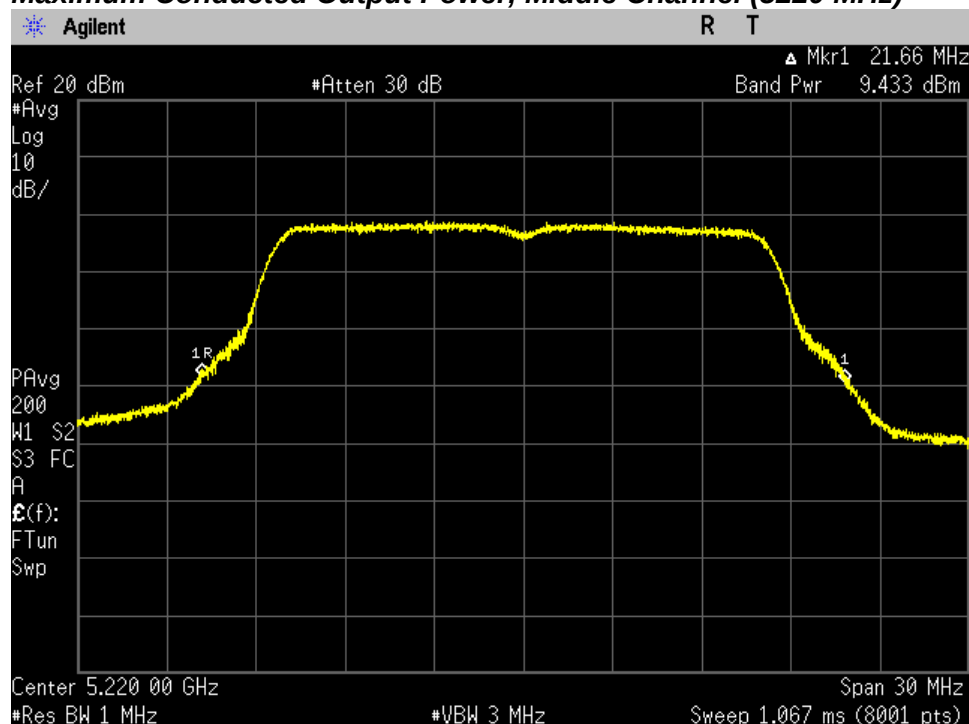
802.11a mode

Chain 0

Maximum Conducted Output Power, Lowest Channel (5180 MHz)

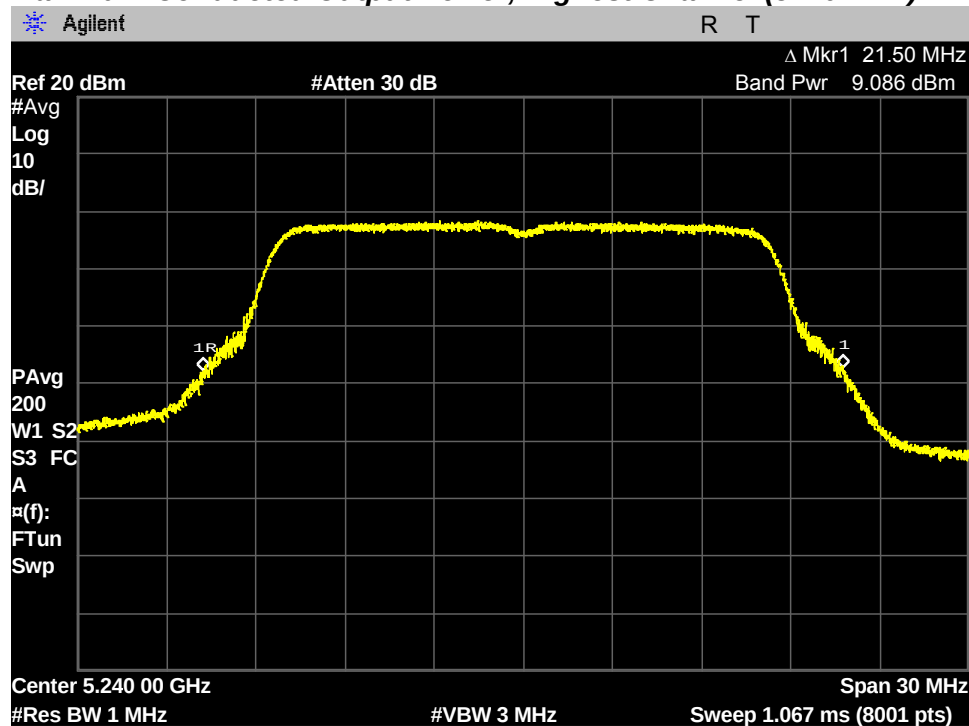


Maximum Conducted Output Power, Middle Channel (5220 MHz)



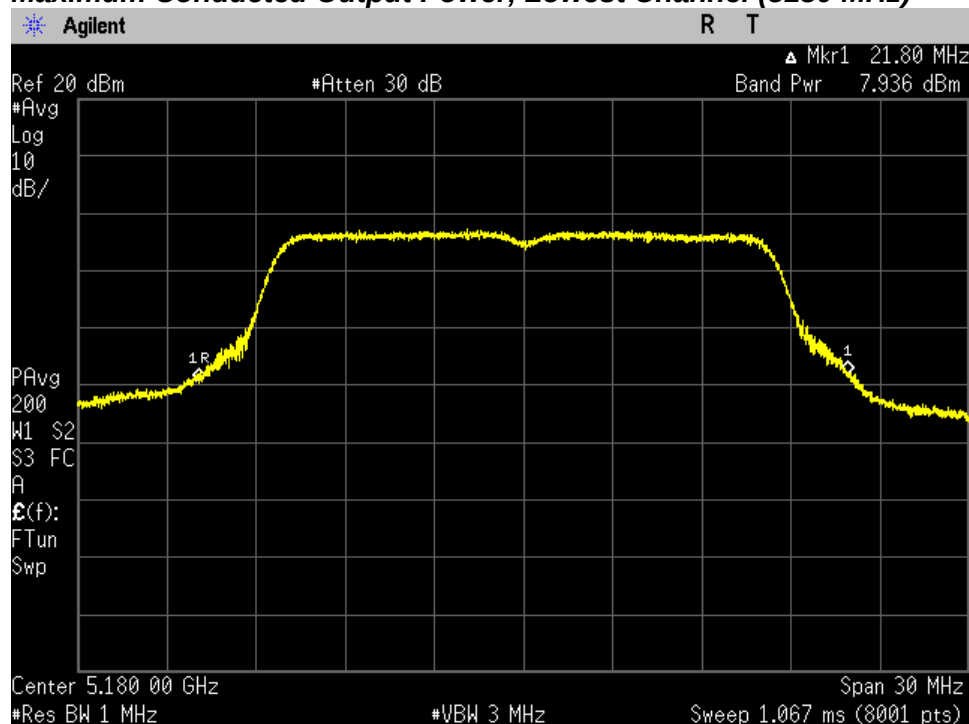
PLOTS OF EMISSIONS

Maximum Conducted Output Power, Highest Channel (5240 MHz)



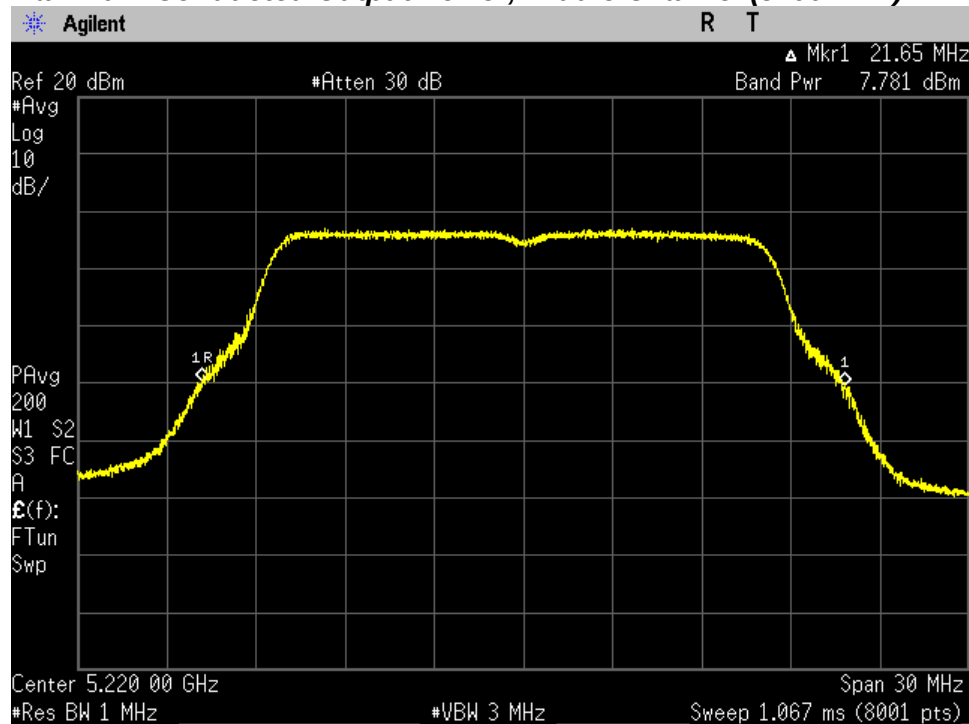
Chain 1

Maximum Conducted Output Power, Lowest Channel (5180 MHz)

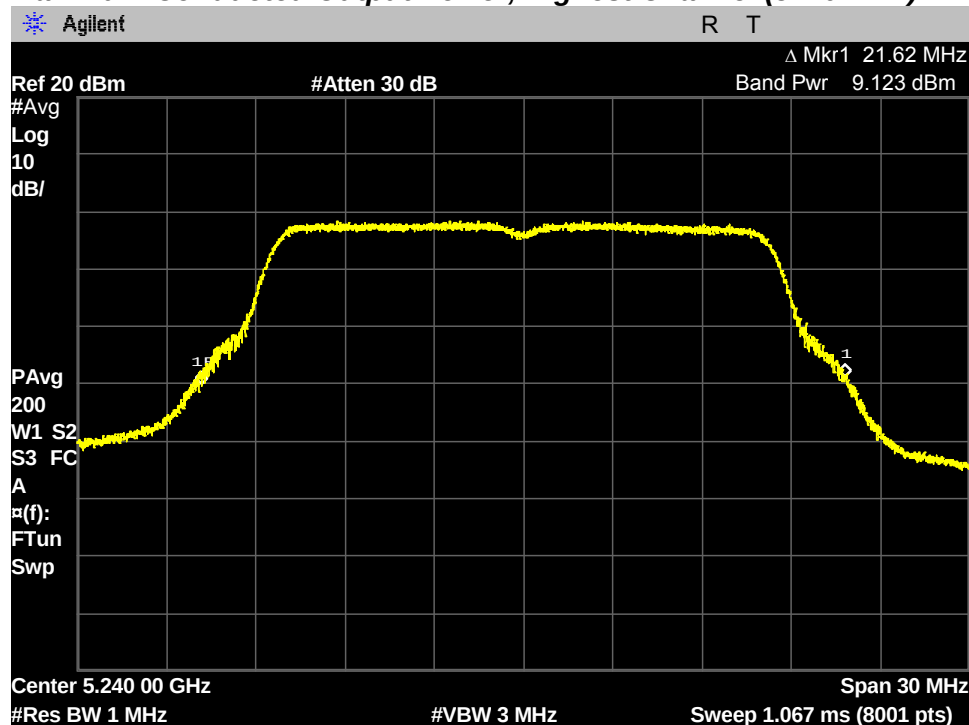


PLOTS OF EMISSIONS

Maximum Conducted Output Power, Middle Channel (5200 MHz)



Maximum Conducted Output Power, Highest Channel (5240 MHz)

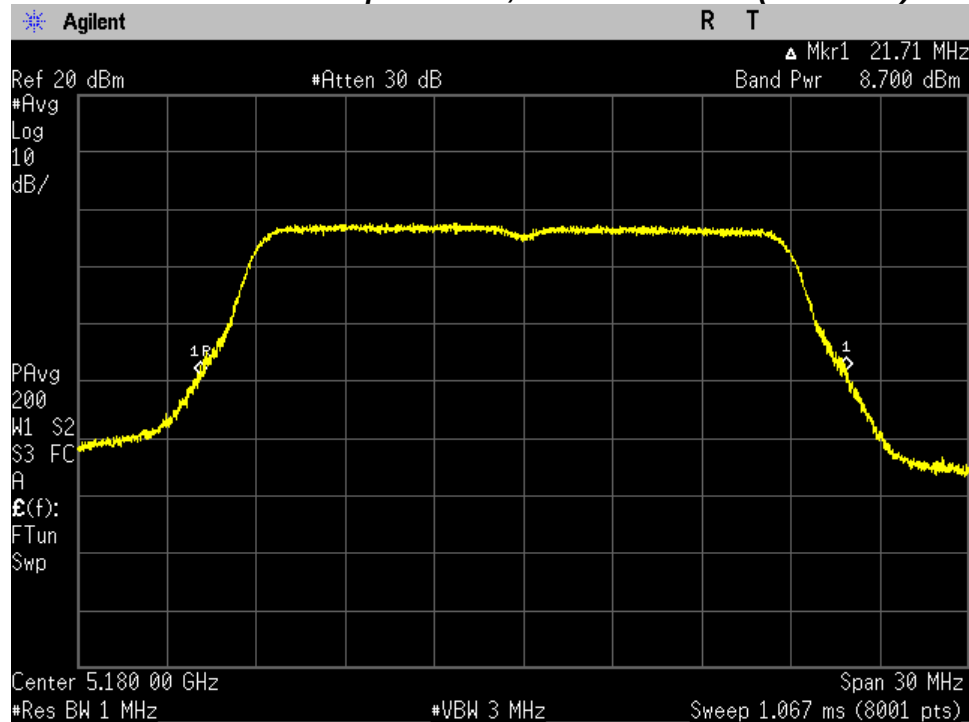


PLOTS OF EMISSIONS

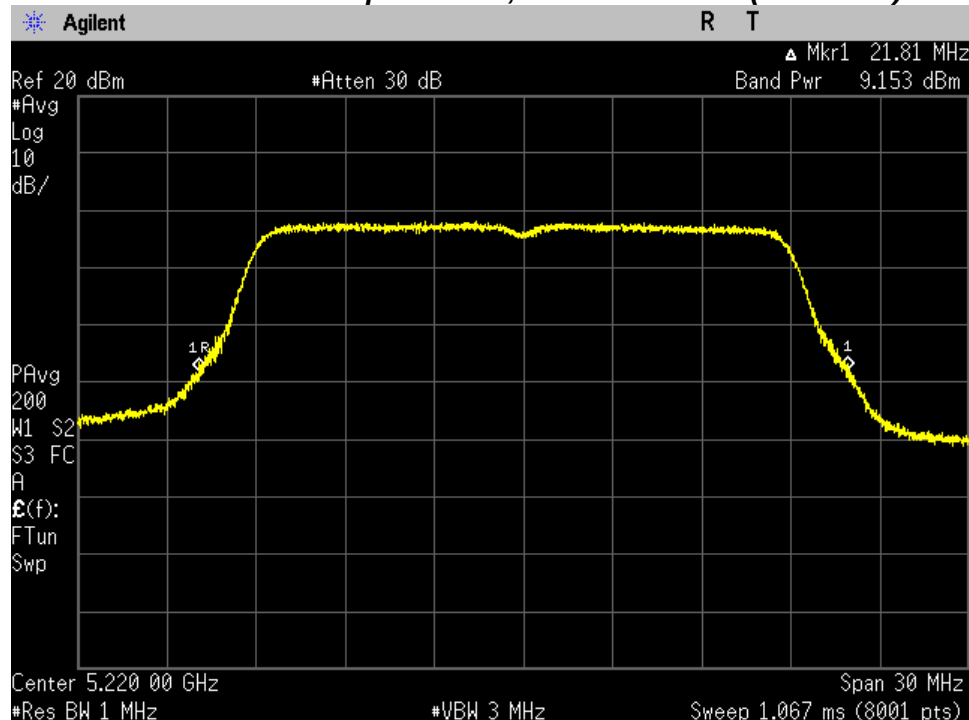
802.11n (20 MHz) mode - SISO

Chain 0

Maximum Conducted Output Power, Lowest Channel (5180 MHz)

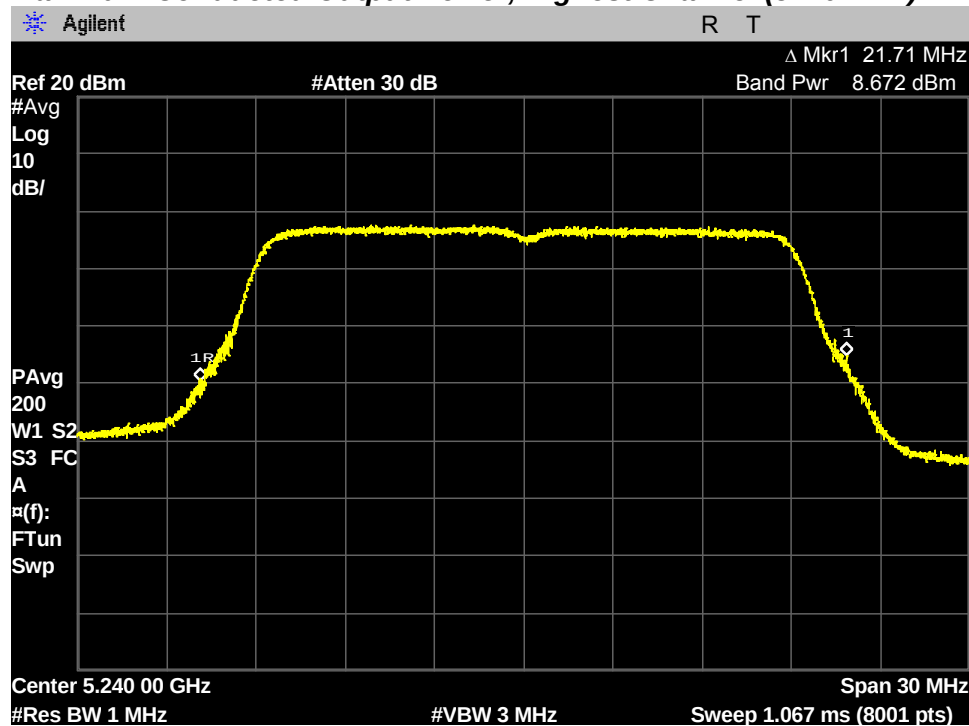


Maximum Conducted Output Power, Middle Channel (5220 MHz)



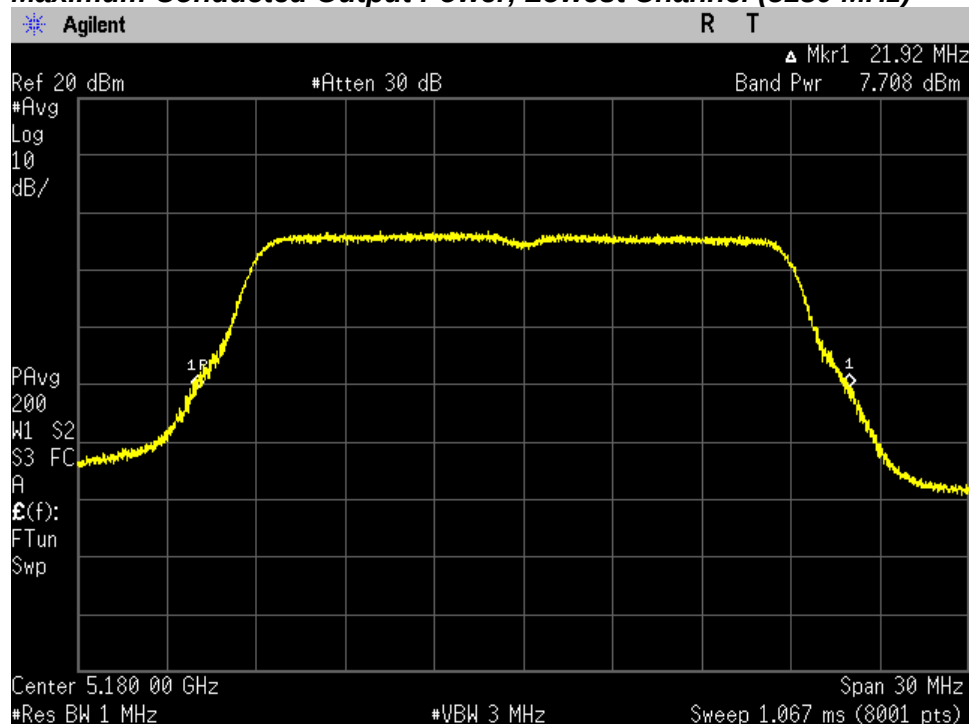
PLOTS OF EMISSIONS

Maximum Conducted Output Power, Highest Channel (5240 MHz)



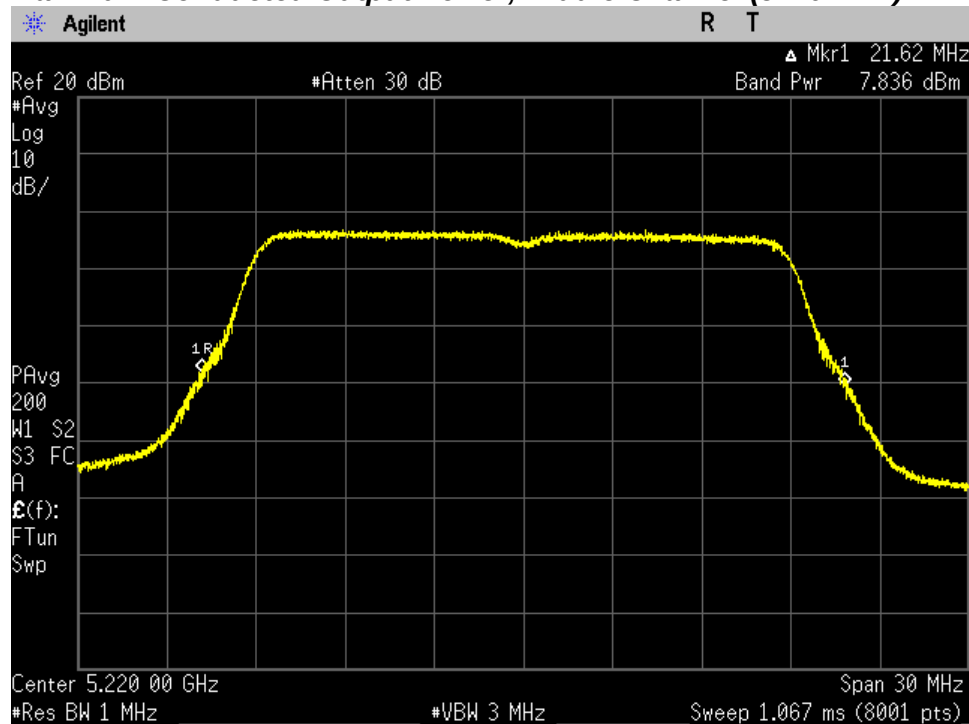
Chain 1

Maximum Conducted Output Power, Lowest Channel (5180 MHz)

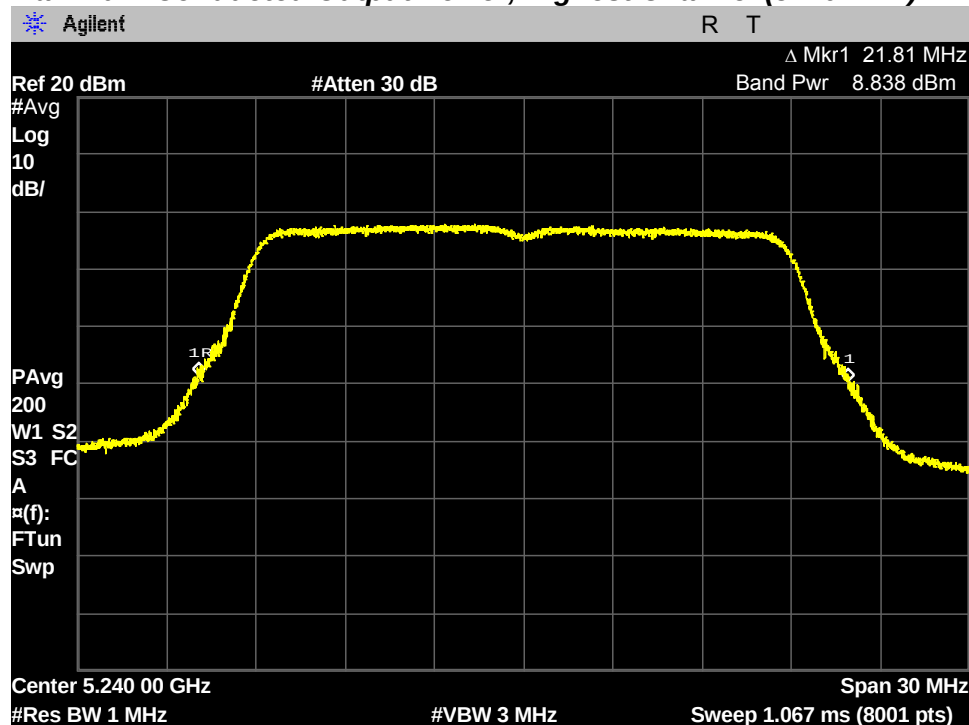


PLOTS OF EMISSIONS

Maximum Conducted Output Power, Middle Channel (5220 MHz)



Maximum Conducted Output Power, Highest Channel (5240 MHz)

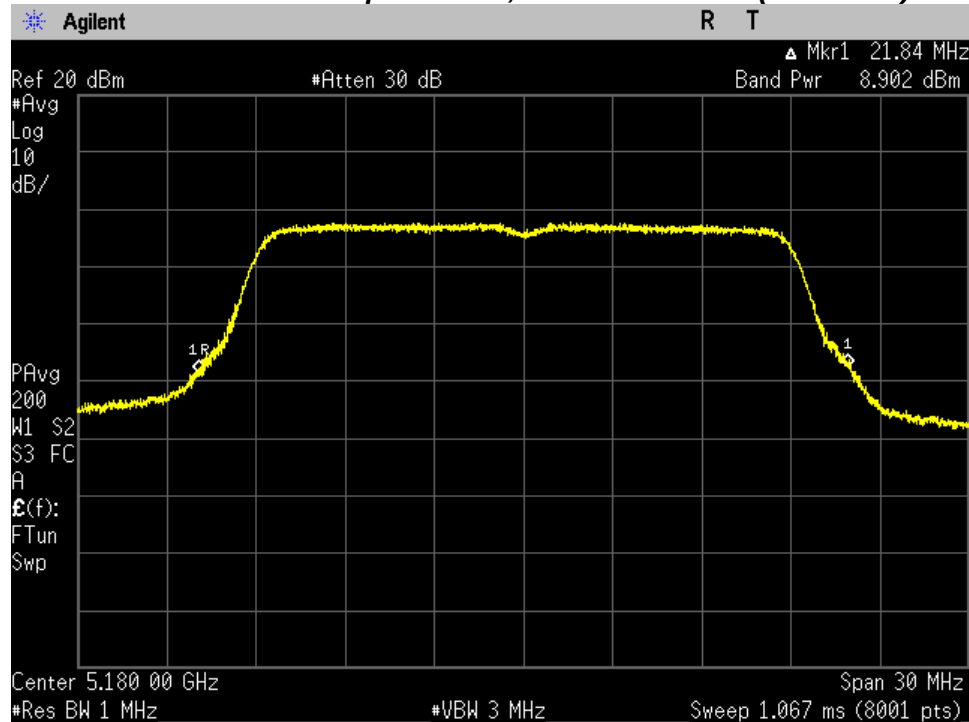


PLOTS OF EMISSIONS

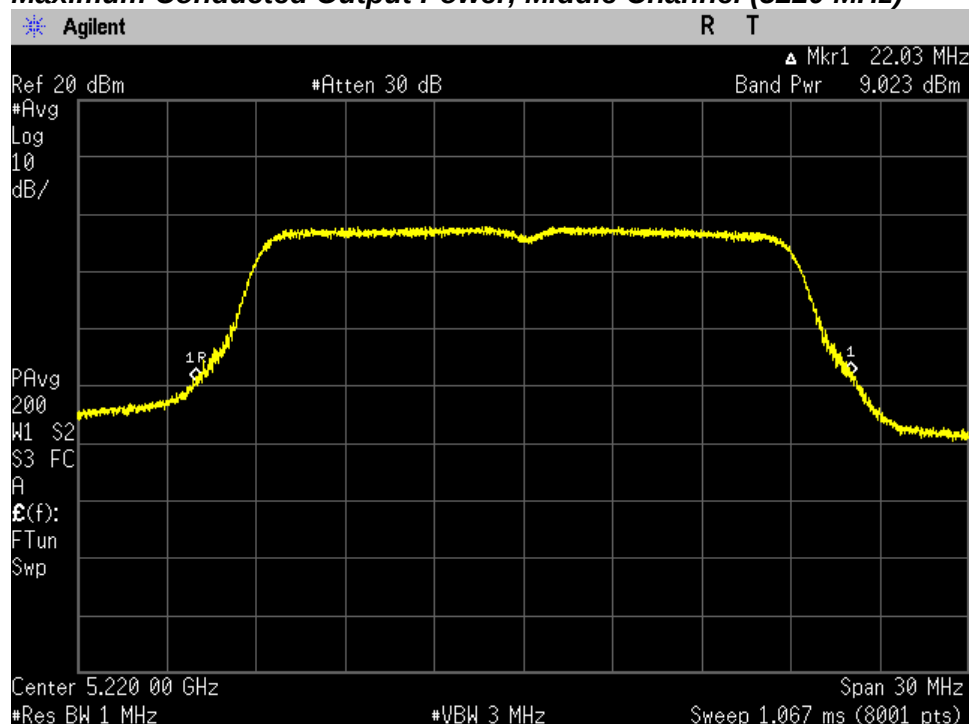
802.11n (20 MHz) mode - CDD

Chain 0

Maximum Conducted Output Power, Lowest Channel (5180 MHz)

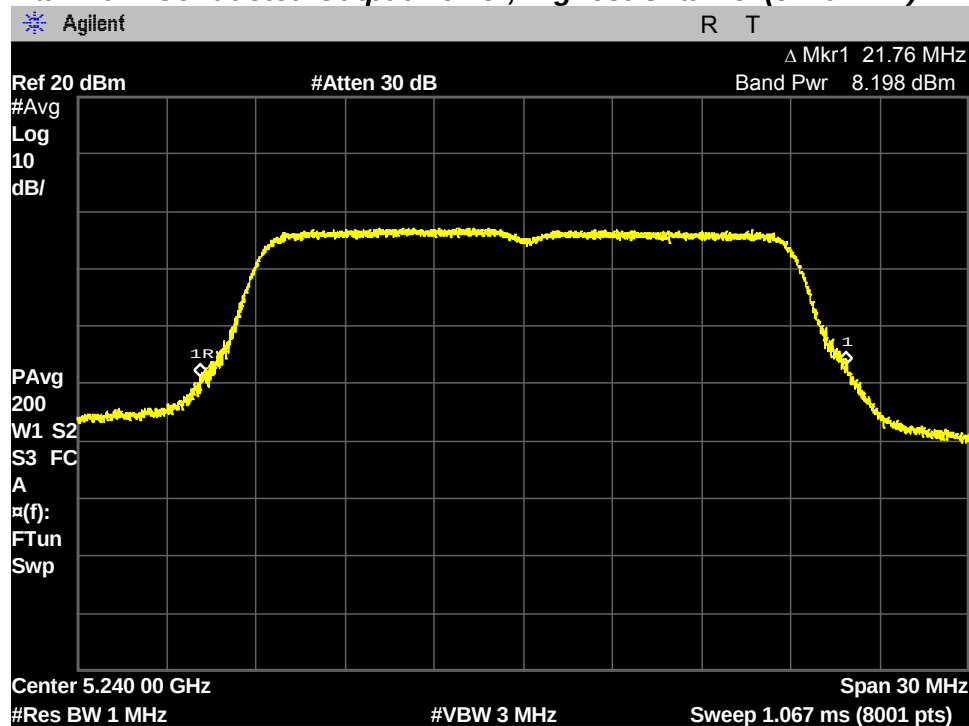


Maximum Conducted Output Power, Middle Channel (5220 MHz)



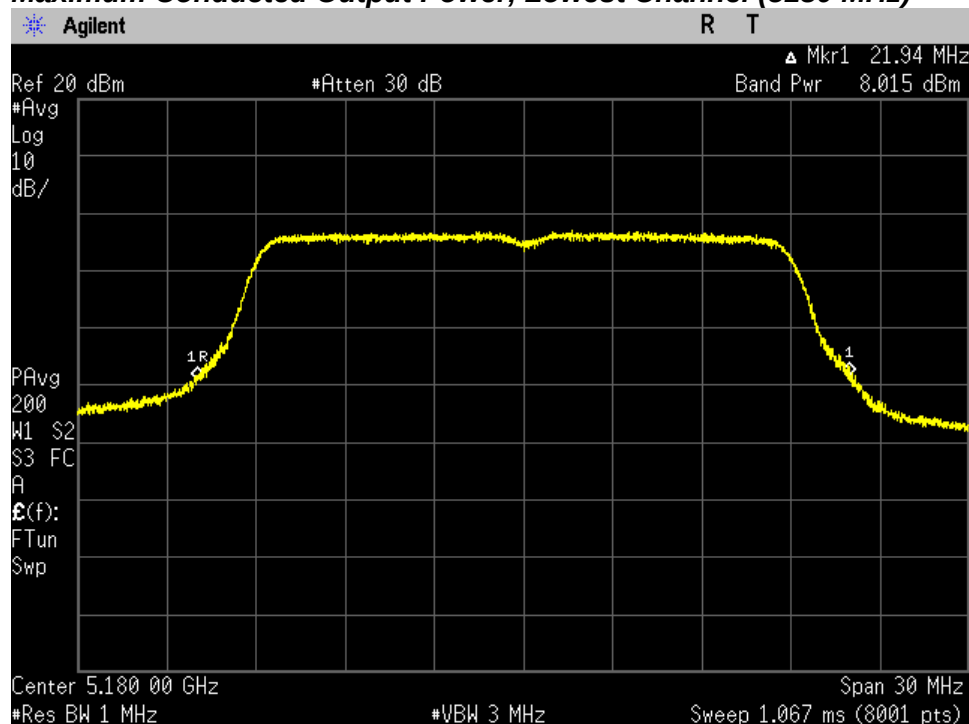
PLOTS OF EMISSIONS

Maximum Conducted Output Power, Highest Channel (5240 MHz)



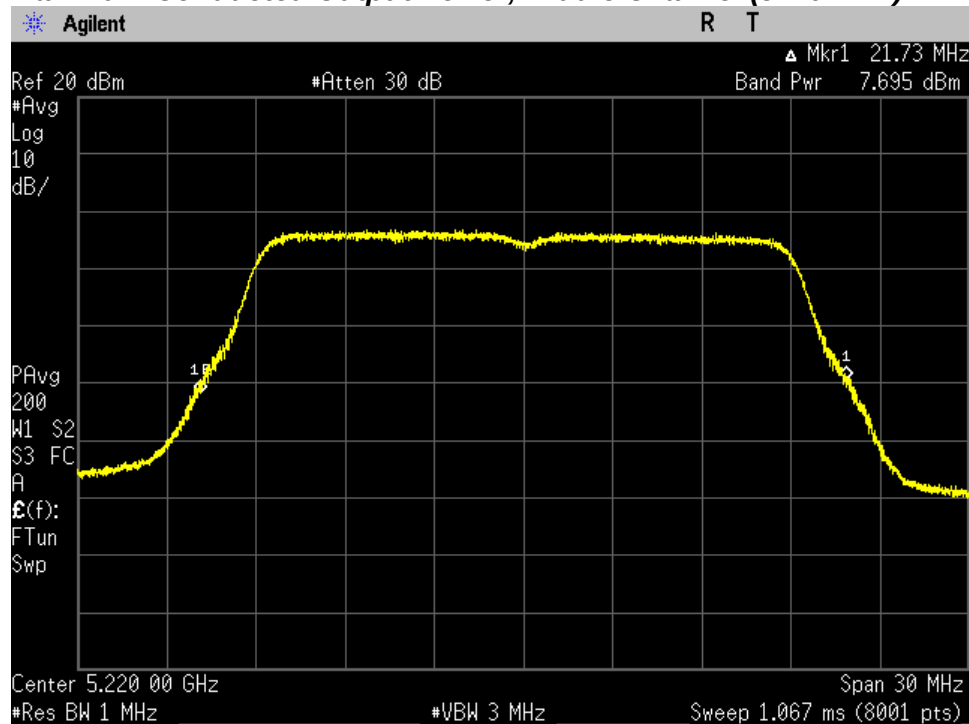
Chain 1

Maximum Conducted Output Power, Lowest Channel (5180 MHz)

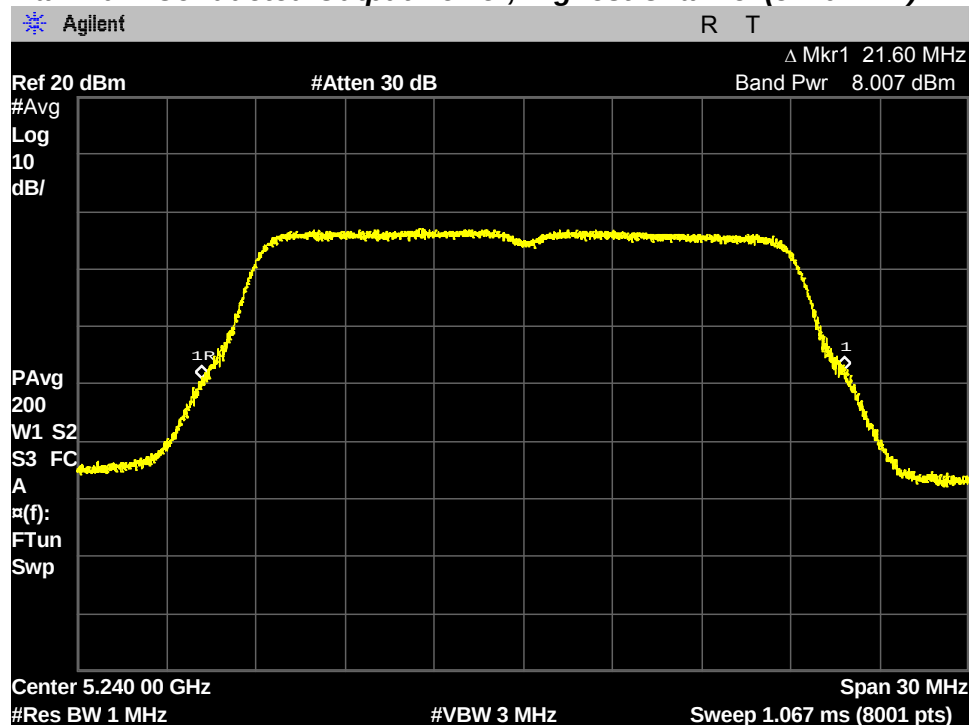


PLOTS OF EMISSIONS

Maximum Conducted Output Power, Middle Channel (5220 MHz)



Maximum Conducted Output Power, Highest Channel (5240 MHz)

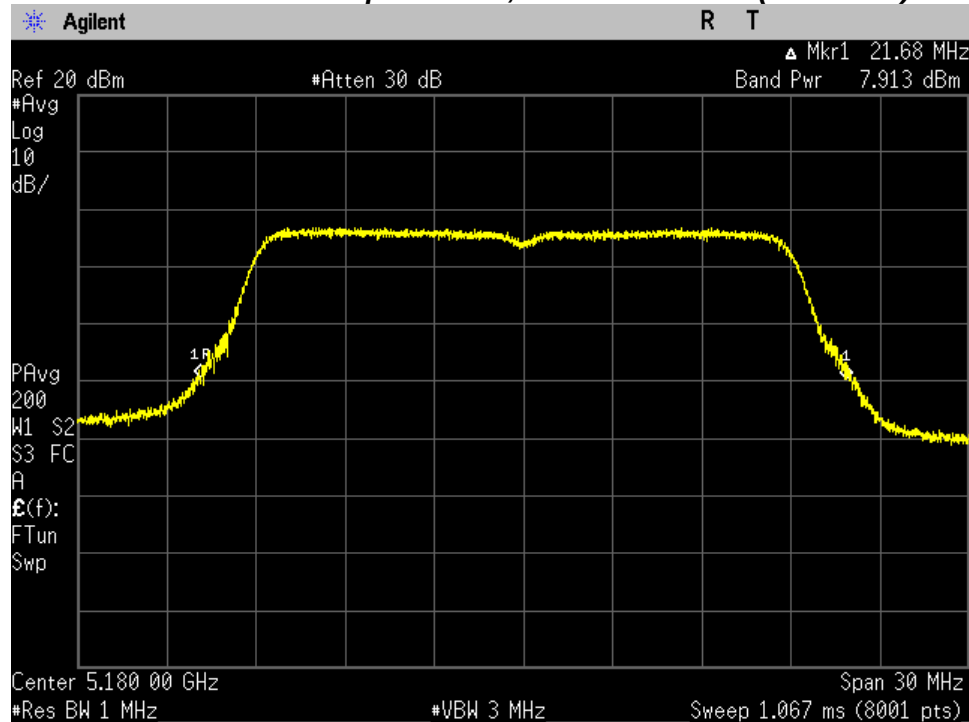


PLOTS OF EMISSIONS

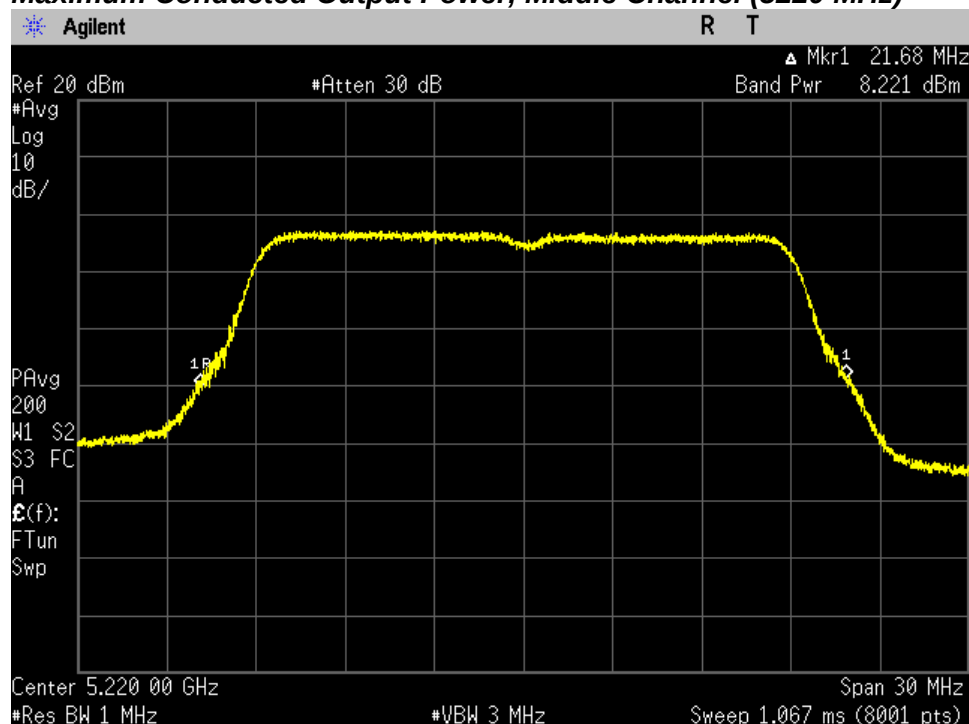
802.11n (20 MHz) mode - MIMO

Chain 0

Maximum Conducted Output Power, Lowest Channel (5180 MHz)

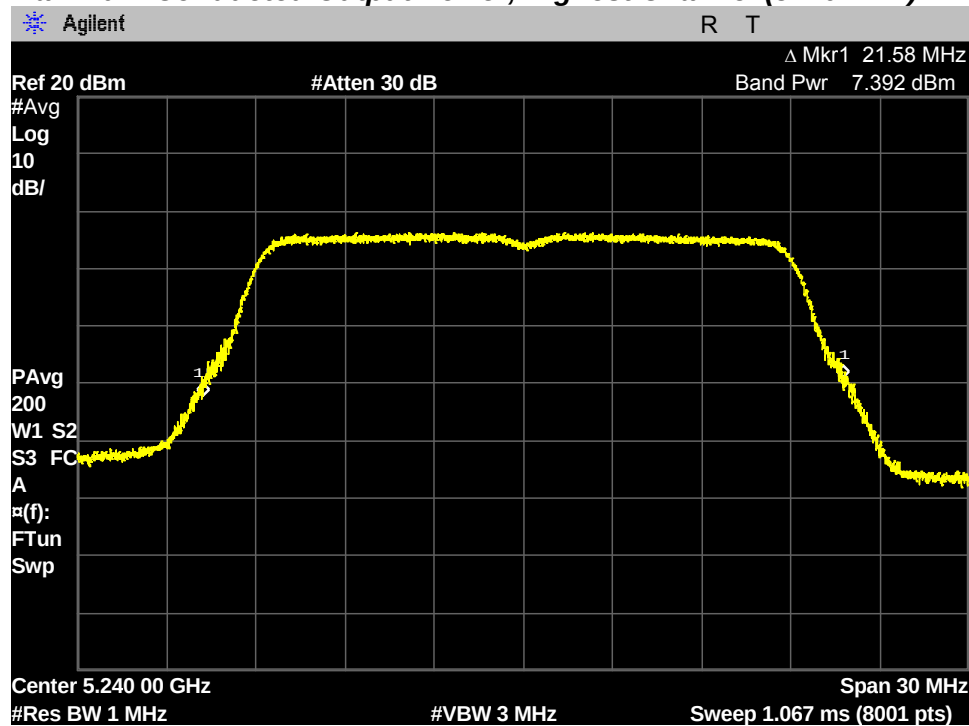


Maximum Conducted Output Power, Middle Channel (5220 MHz)



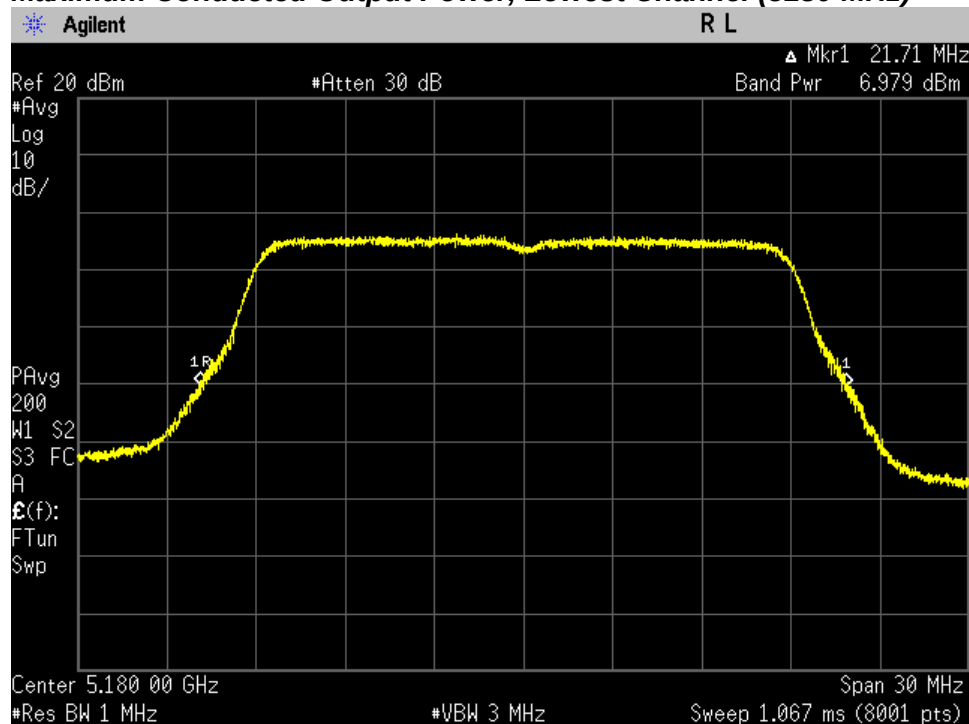
PLOTS OF EMISSIONS

Maximum Conducted Output Power, Highest Channel (5240 MHz)



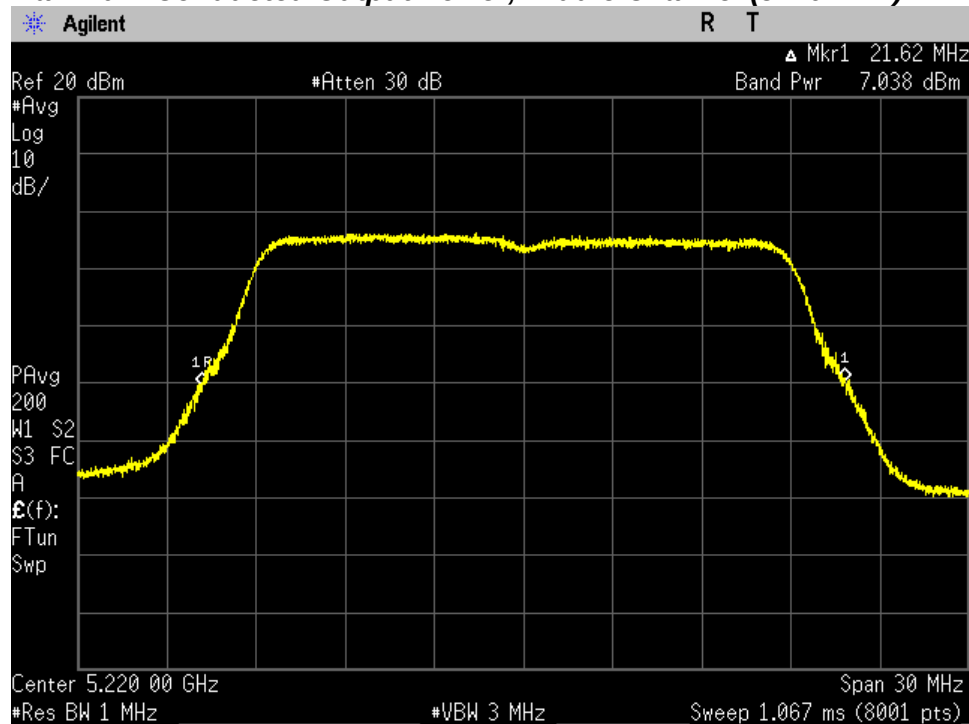
Chain 1

Maximum Conducted Output Power, Lowest Channel (5180 MHz)

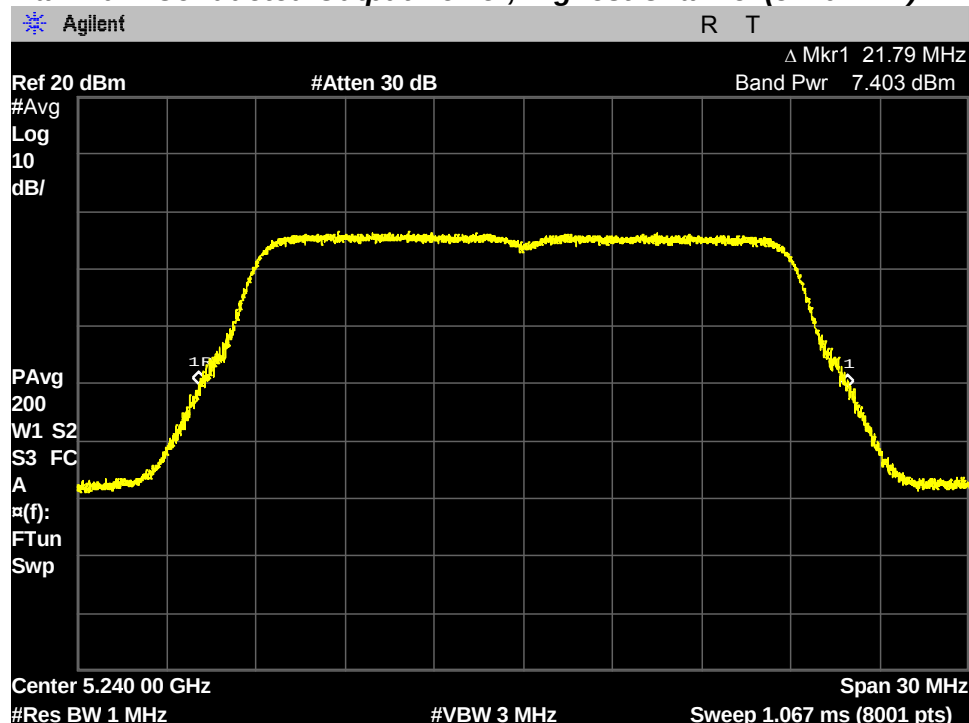


PLOTS OF EMISSIONS

Maximum Conducted Output Power, Middle Channel (5220 MHz)



Maximum Conducted Output Power, Highest Channel (5240 MHz)

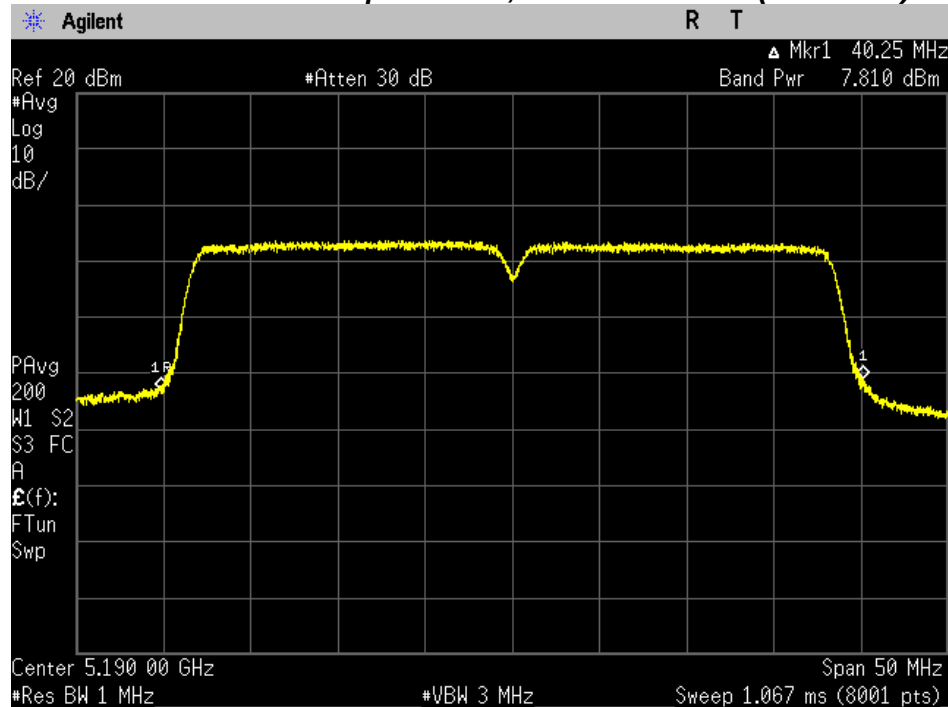


PLOTS OF EMISSIONS

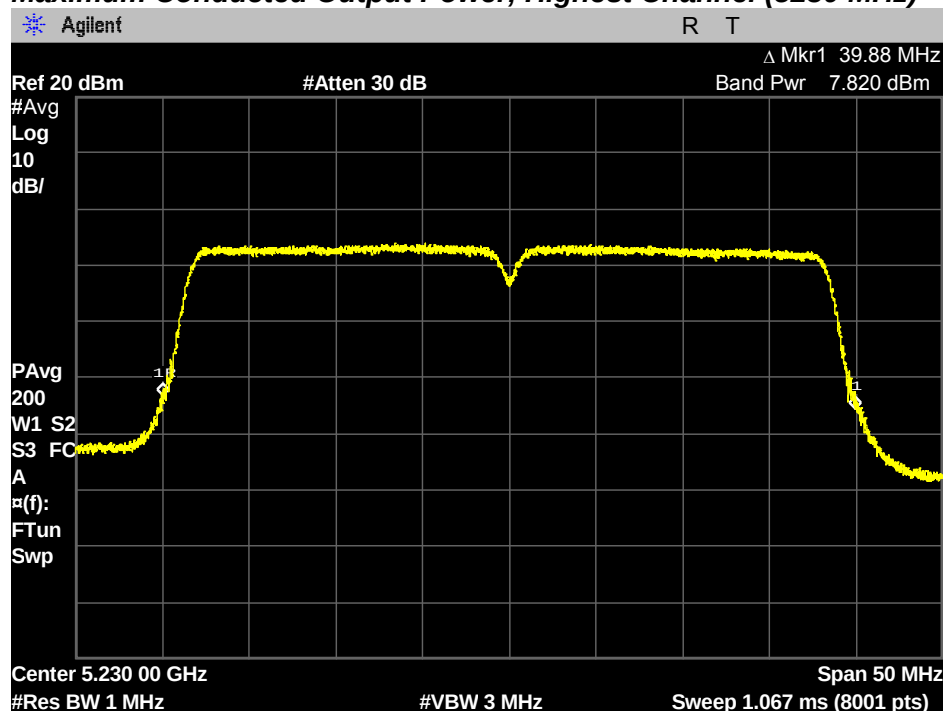
802.11n (40 MHz) mode - SISO

Chain 0

Maximum Conducted Output Power, Lowest Channel (5190 MHz)



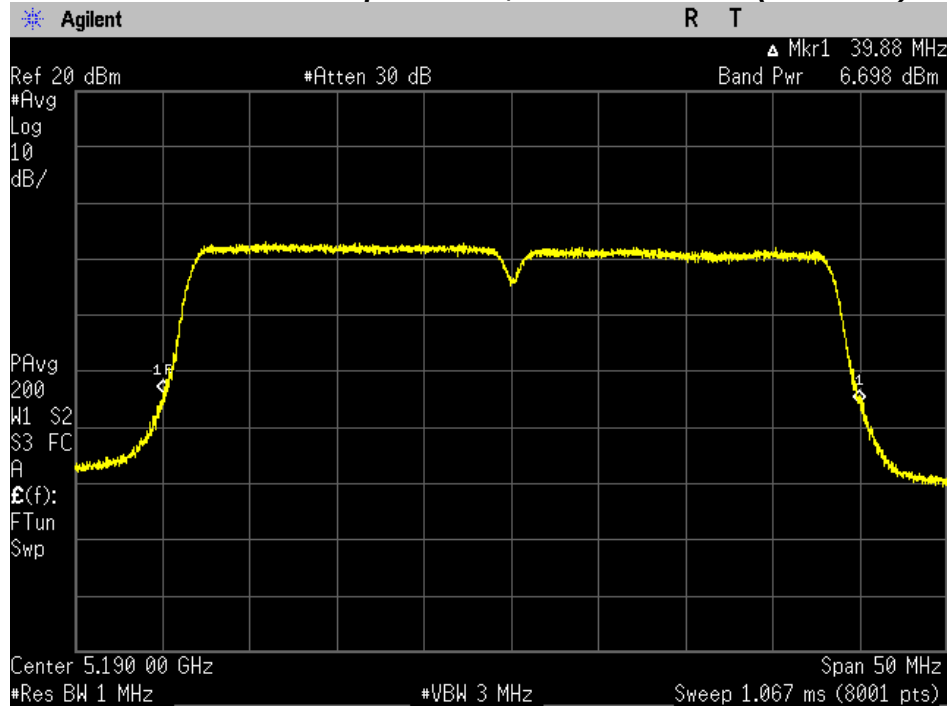
Maximum Conducted Output Power, Highest Channel (5230 MHz)



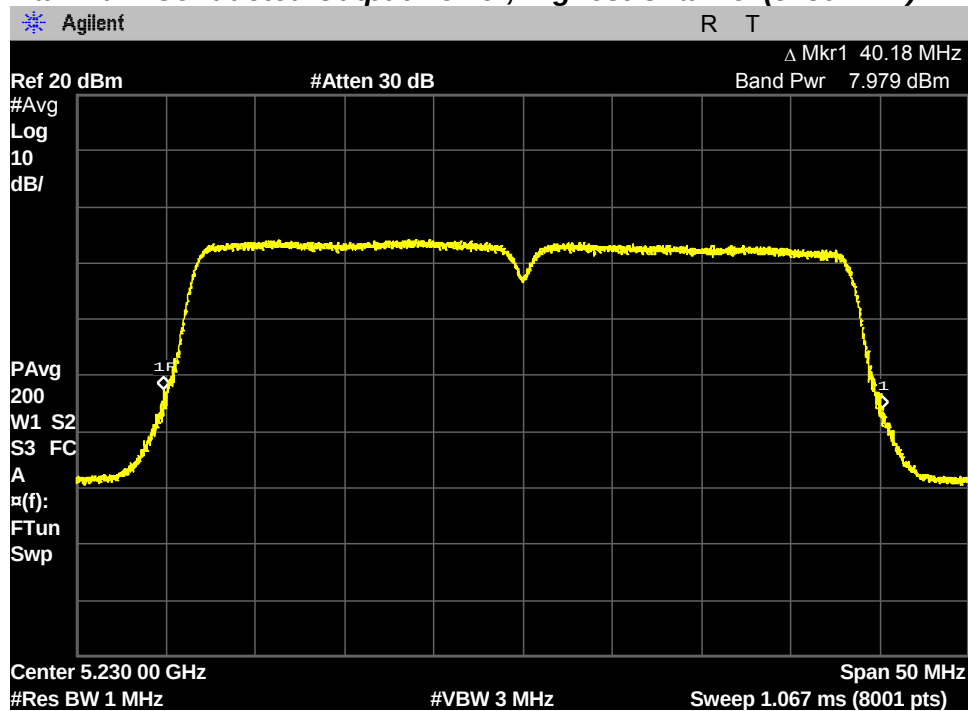
PLOTS OF EMISSIONS

Chain 1

Maximum Conducted Output Power, Lowest Channel (5190 MHz)



Maximum Conducted Output Power, Highest Channel (5230 MHz)

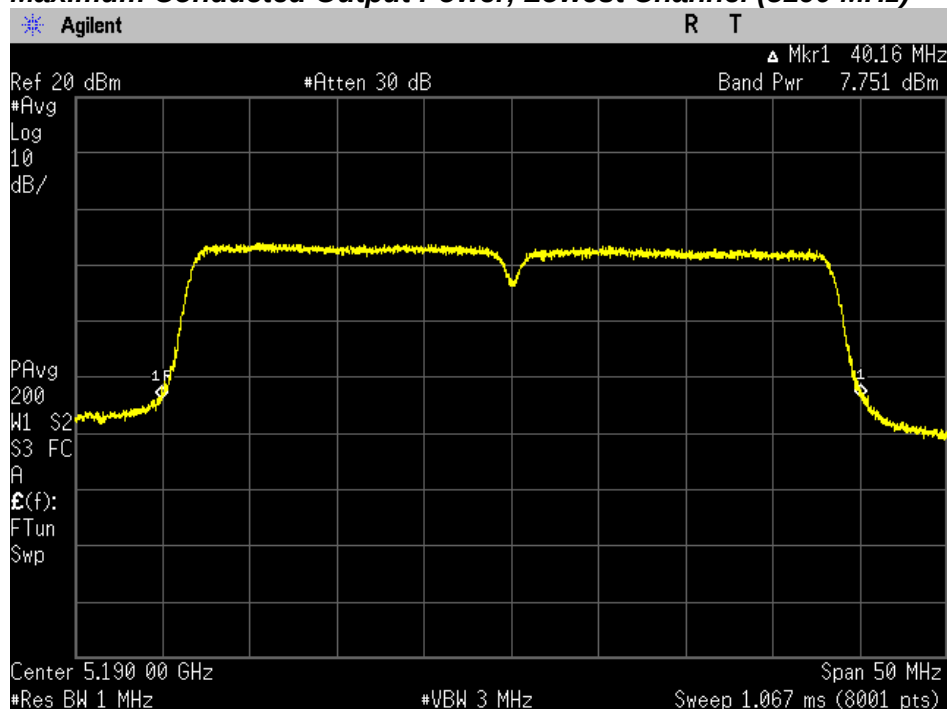


PLOTS OF EMISSIONS

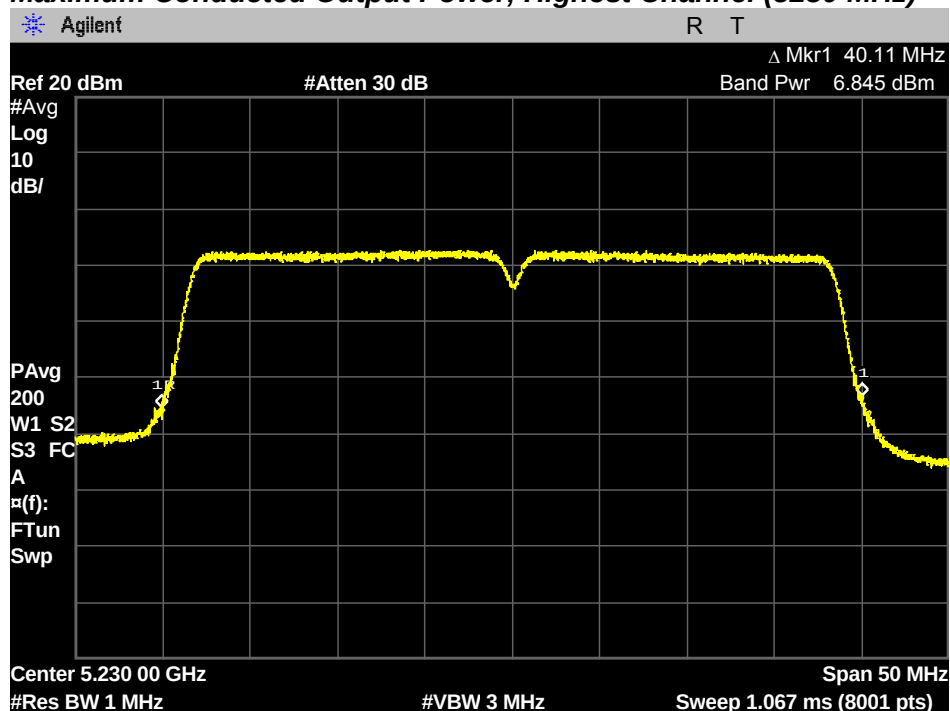
802.11n (40 MHz) mode - CDD

Chain 0

Maximum Conducted Output Power, Lowest Channel (5190 MHz)



Maximum Conducted Output Power, Highest Channel (5230 MHz)

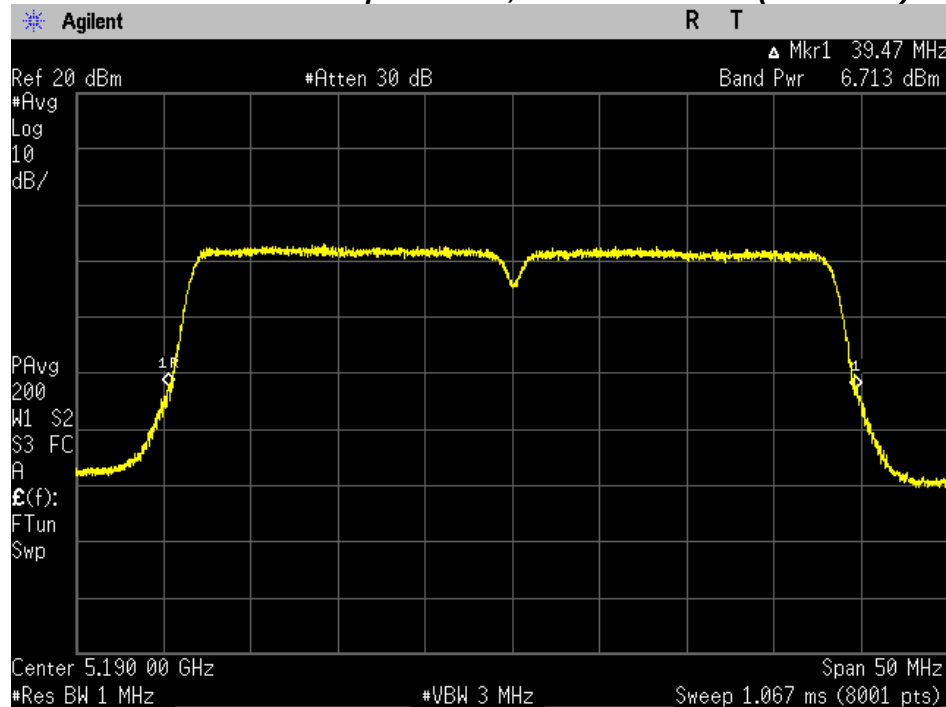


PLOTS OF EMISSIONS

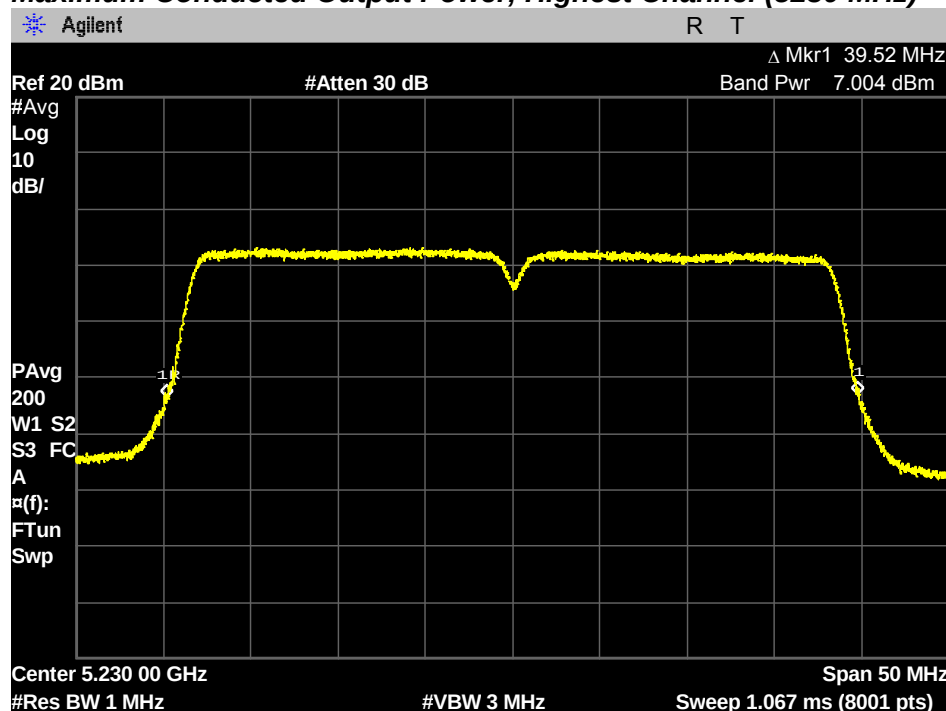
802.11n (40 MHz) mode - CDD

Chain 1

Maximum Conducted Output Power, Lowest Channel (5190 MHz)



Maximum Conducted Output Power, Highest Channel (5230 MHz)

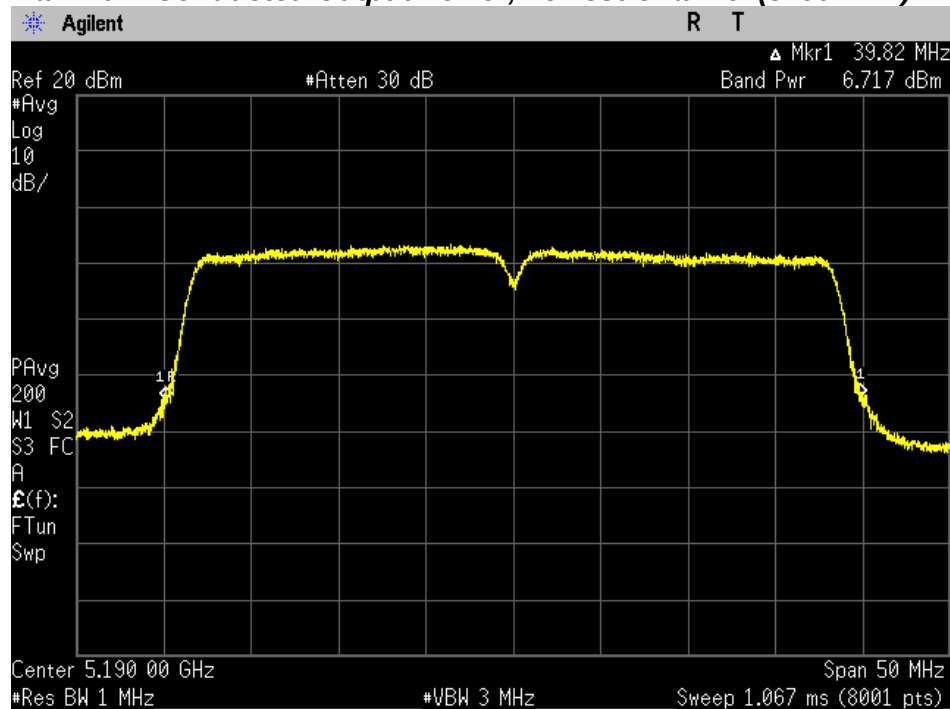


PLOTS OF EMISSIONS

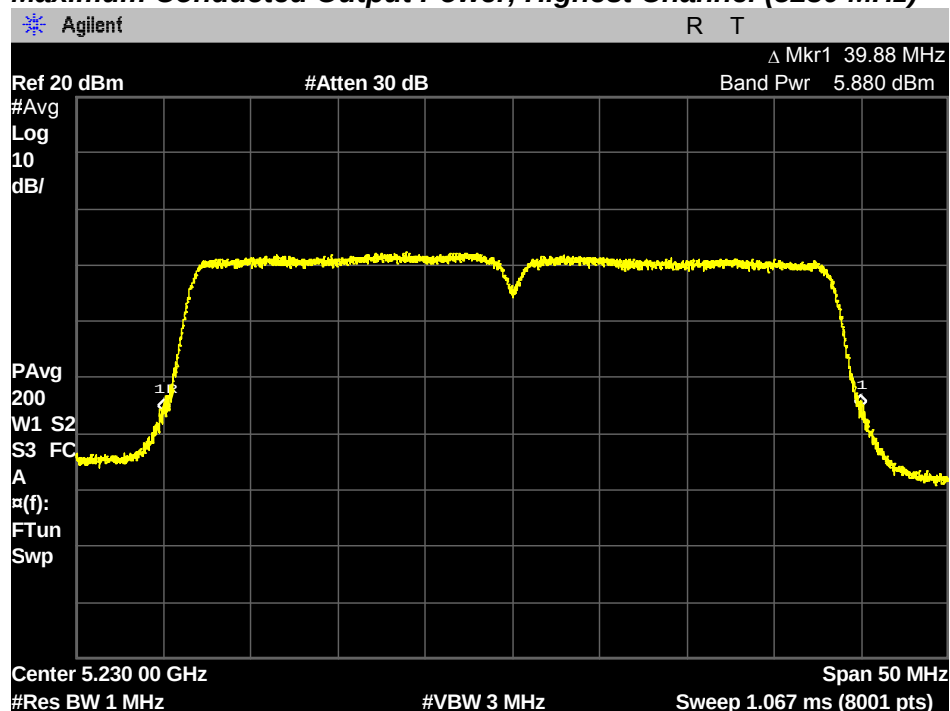
802.11n (40 MHz) mode - MIMO

Chain 0

Maximum Conducted Output Power, Lowest Channel (5190 MHz)



Maximum Conducted Output Power, Highest Channel (5230 MHz)

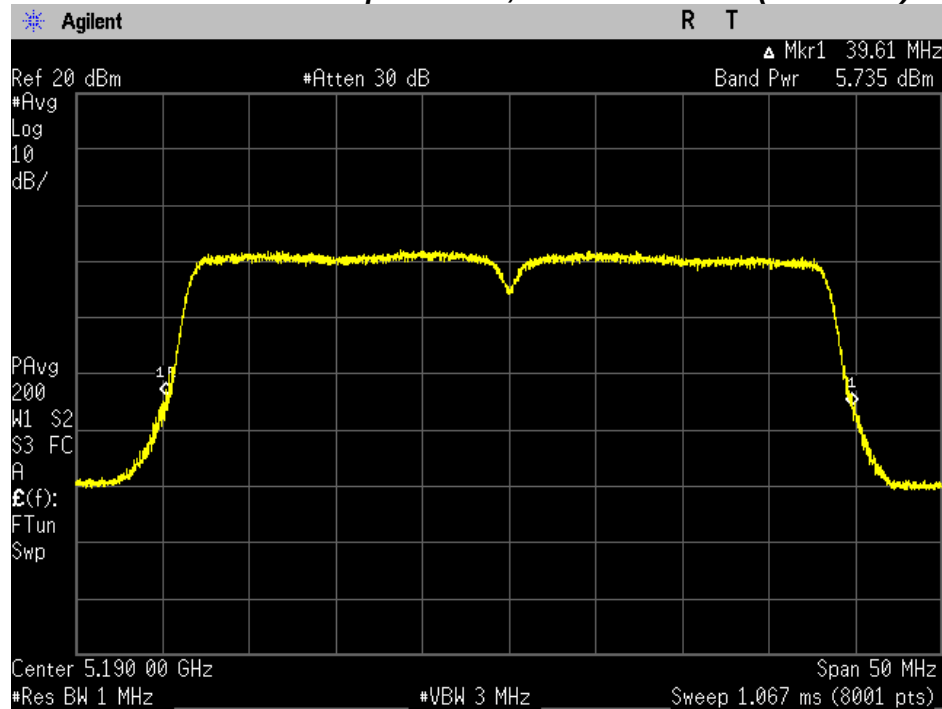


PLOTS OF EMISSIONS

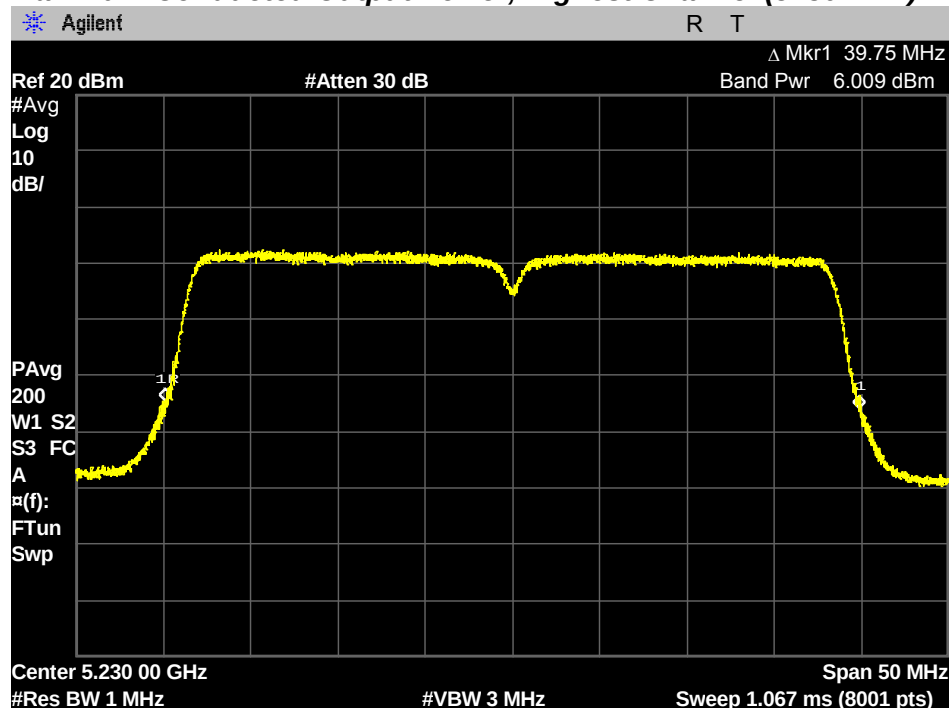
802.11n (40 MHz) mode - MIMO

Chain 1

Maximum Conducted Output Power, Lowest Channel (5190 MHz)



Maximum Conducted Output Power, Highest Channel (5230 MHz)

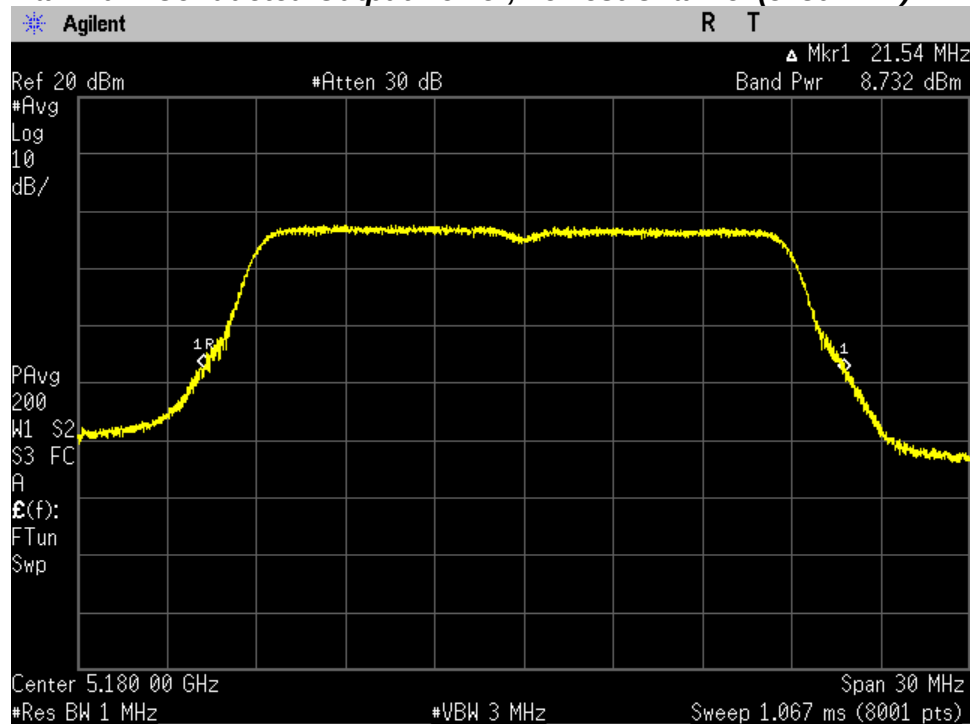


PLOTS OF EMISSIONS

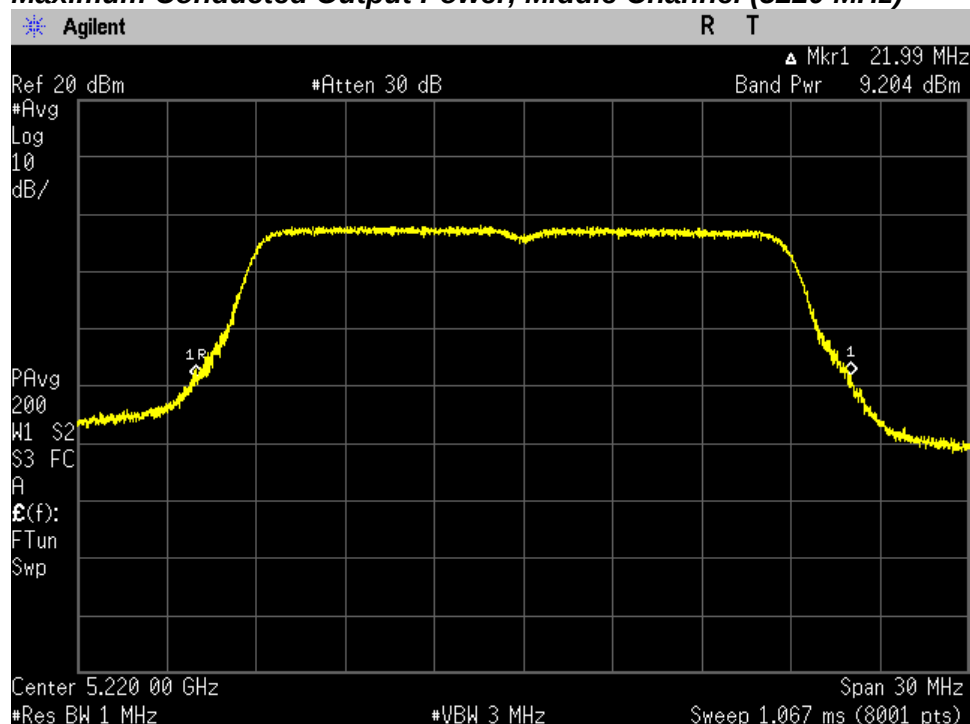
802.11ac (20 MHz) mode - SISO

Chain 0

Maximum Conducted Output Power, Lowest Channel (5180 MHz)

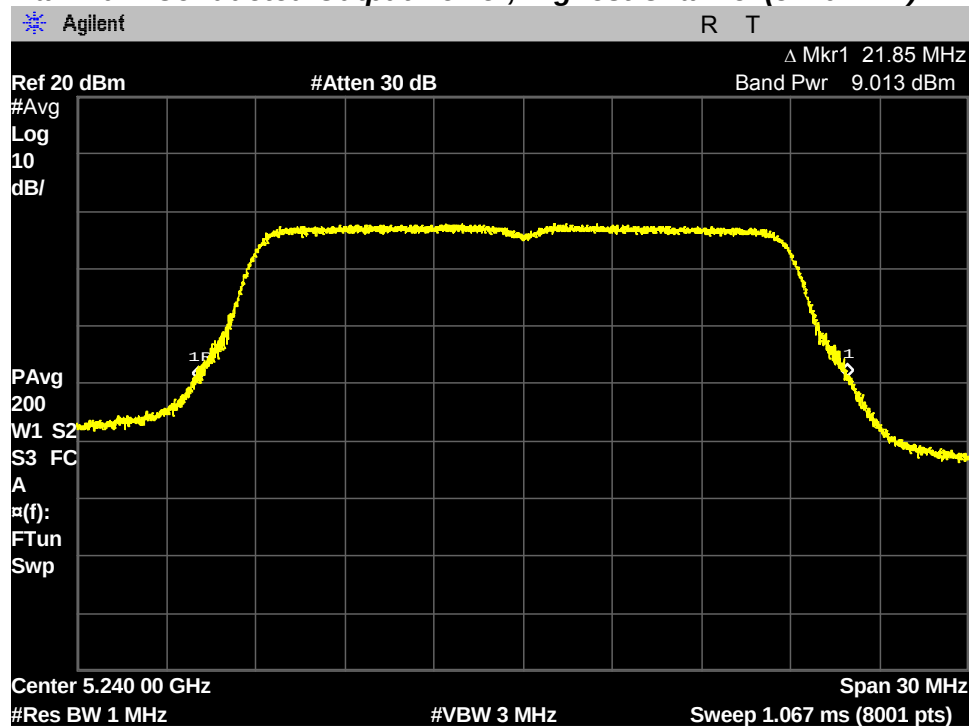


Maximum Conducted Output Power, Middle Channel (5220 MHz)



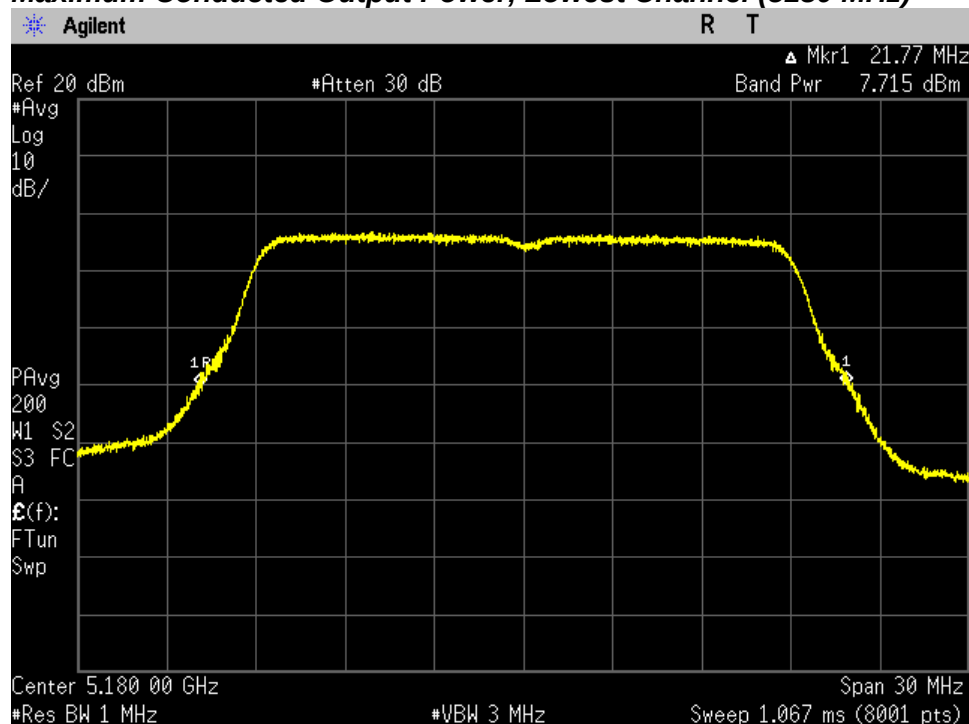
PLOTS OF EMISSIONS

Maximum Conducted Output Power, Highest Channel (5240 MHz)



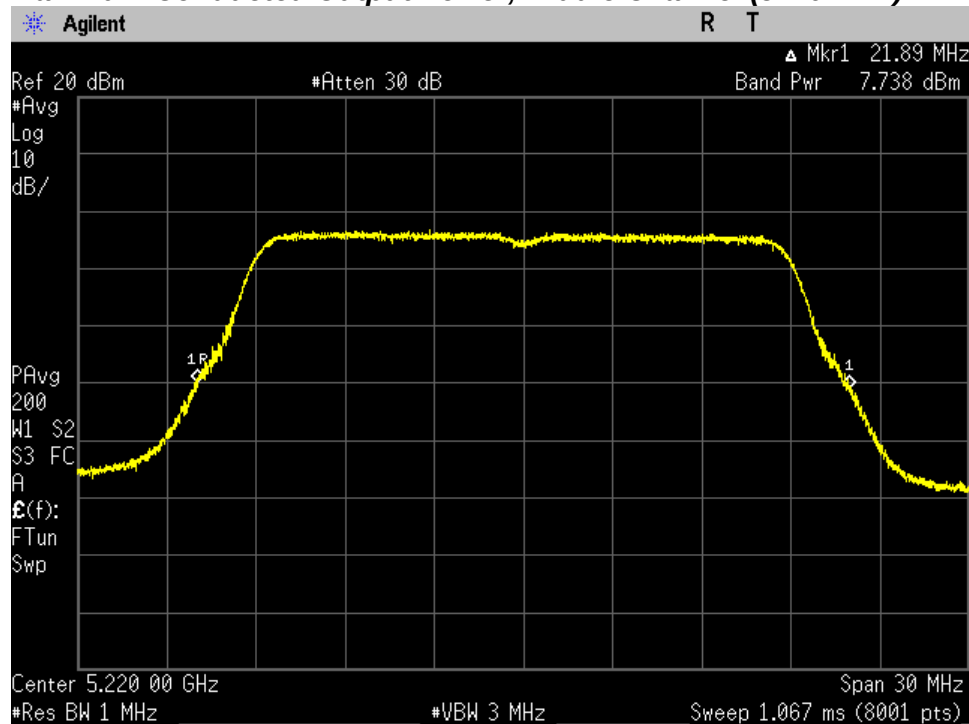
Chain 1

Maximum Conducted Output Power, Lowest Channel (5180 MHz)

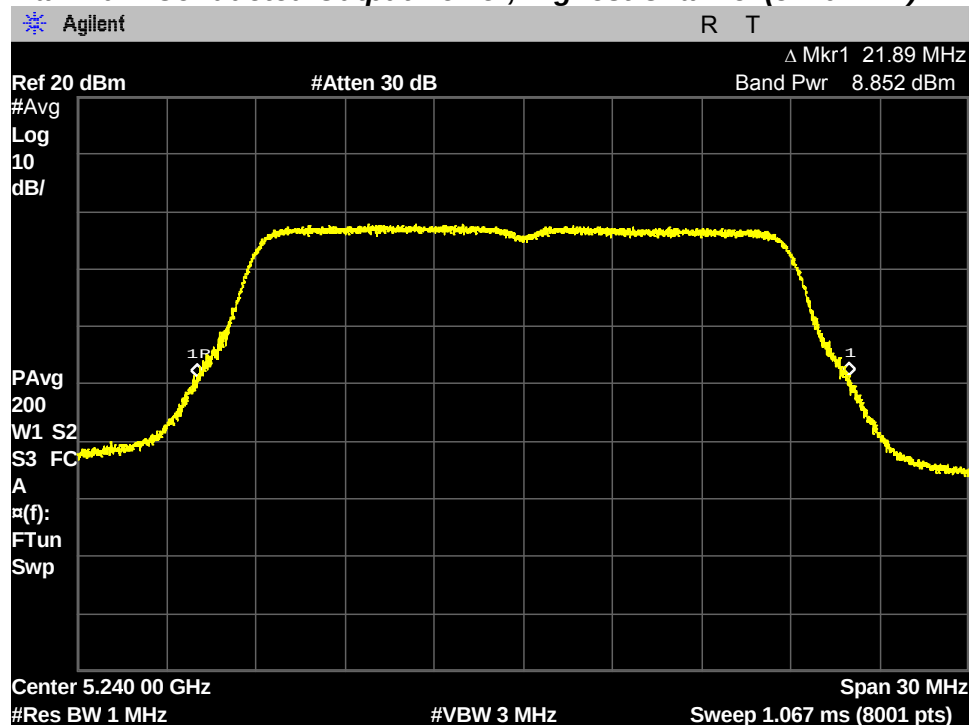


PLOTS OF EMISSIONS

Maximum Conducted Output Power, Middle Channel (5220 MHz)



Maximum Conducted Output Power, Highest Channel (5240 MHz)

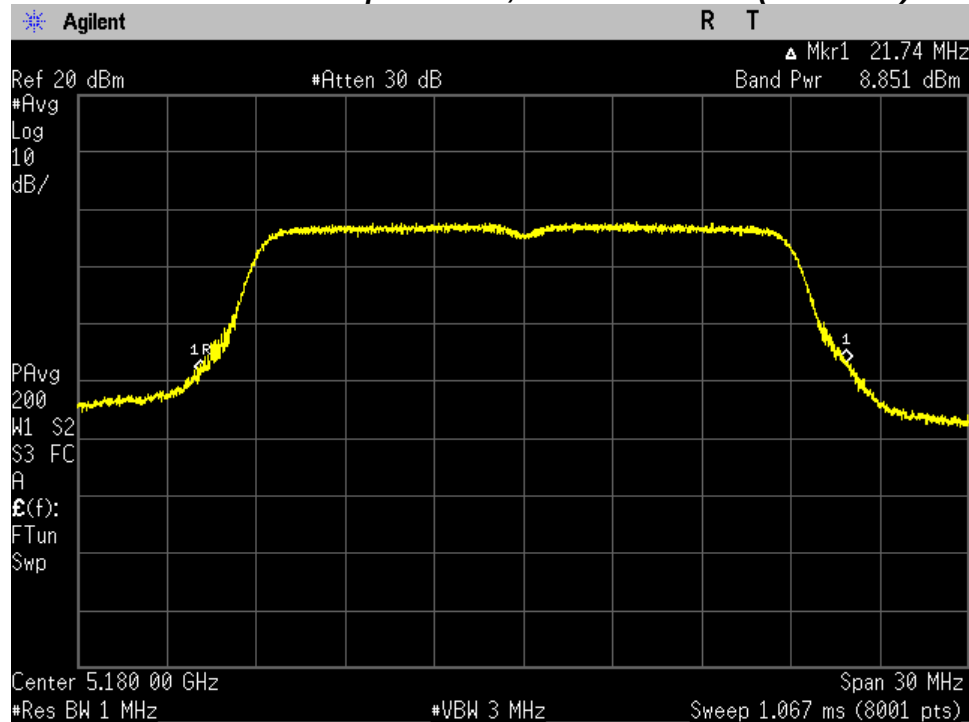


PLOTS OF EMISSIONS

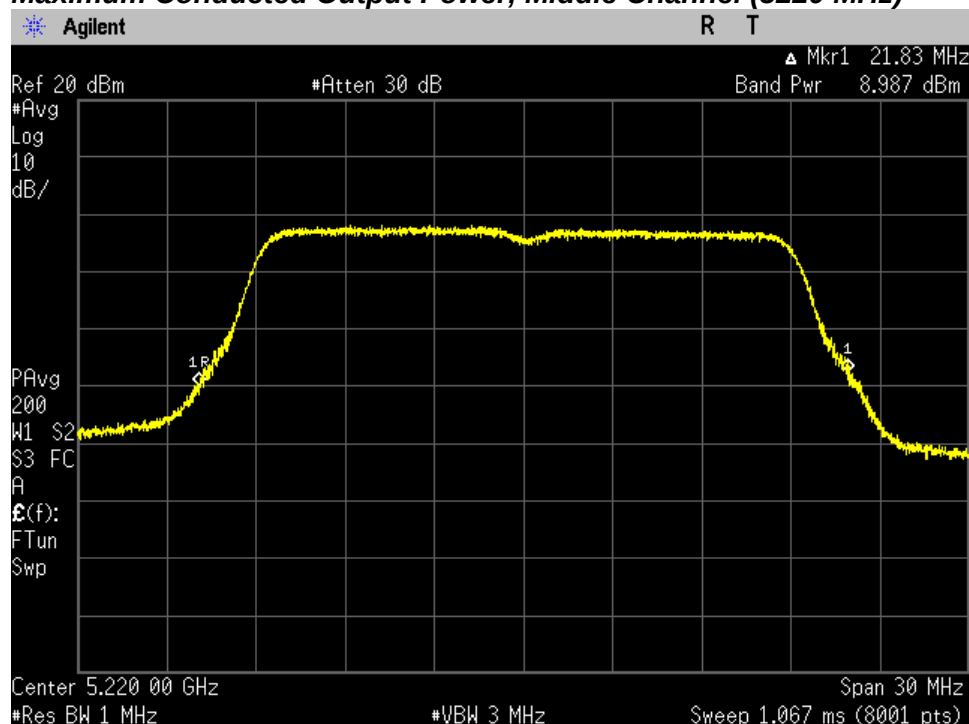
802.11ac (20 MHz) mode - CDD

Chain 0

Maximum Conducted Output Power, Lowest Channel (5180 MHz)

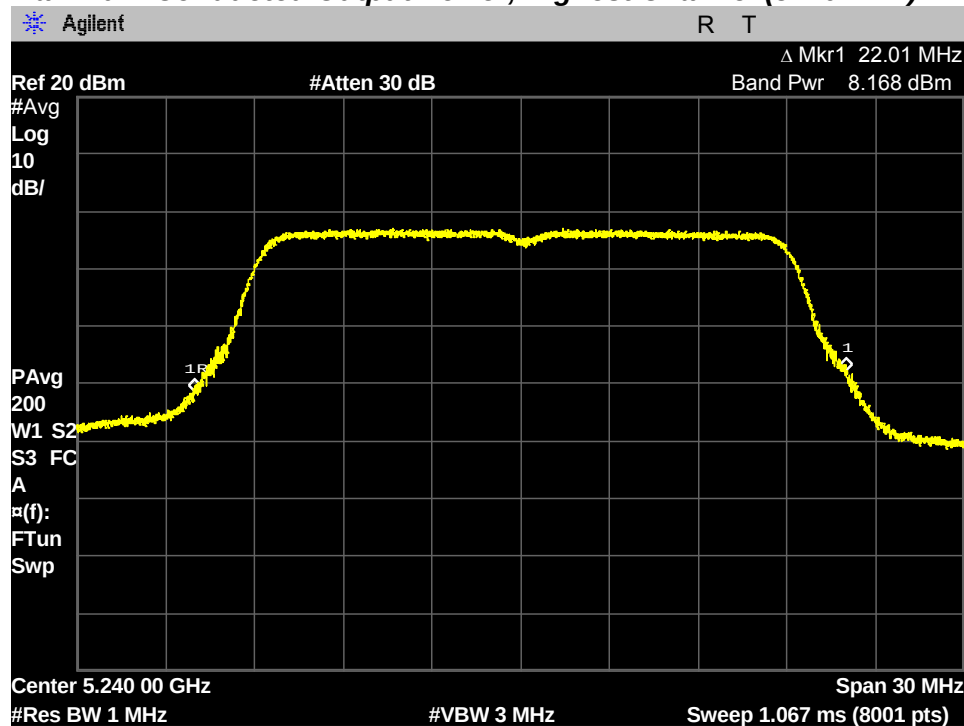


Maximum Conducted Output Power, Middle Channel (5220 MHz)



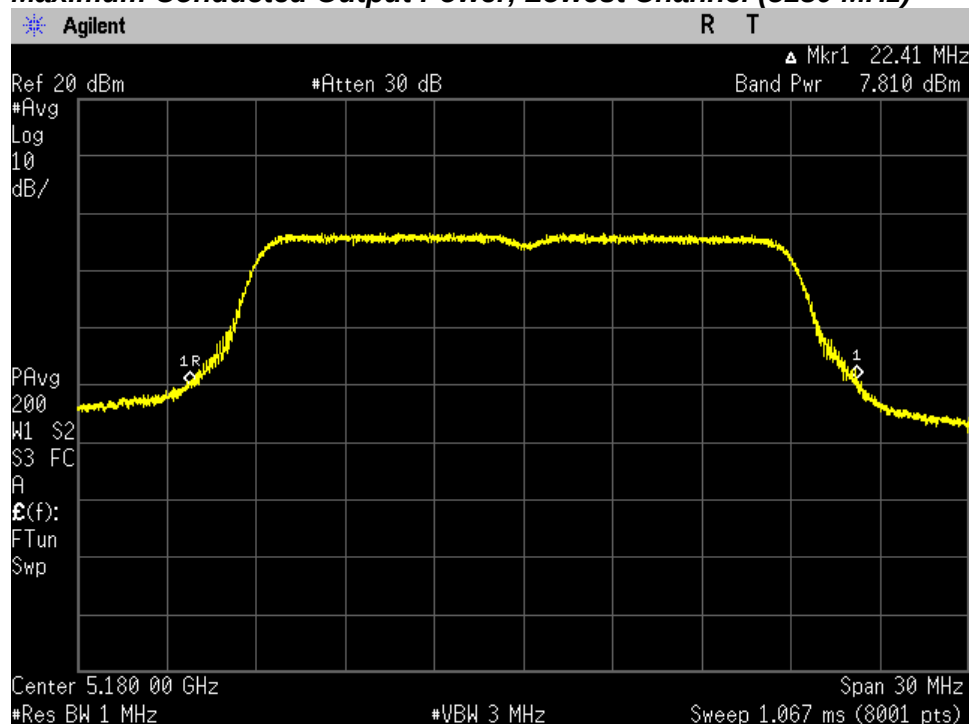
PLOTS OF EMISSIONS

Maximum Conducted Output Power, Highest Channel (5240 MHz)



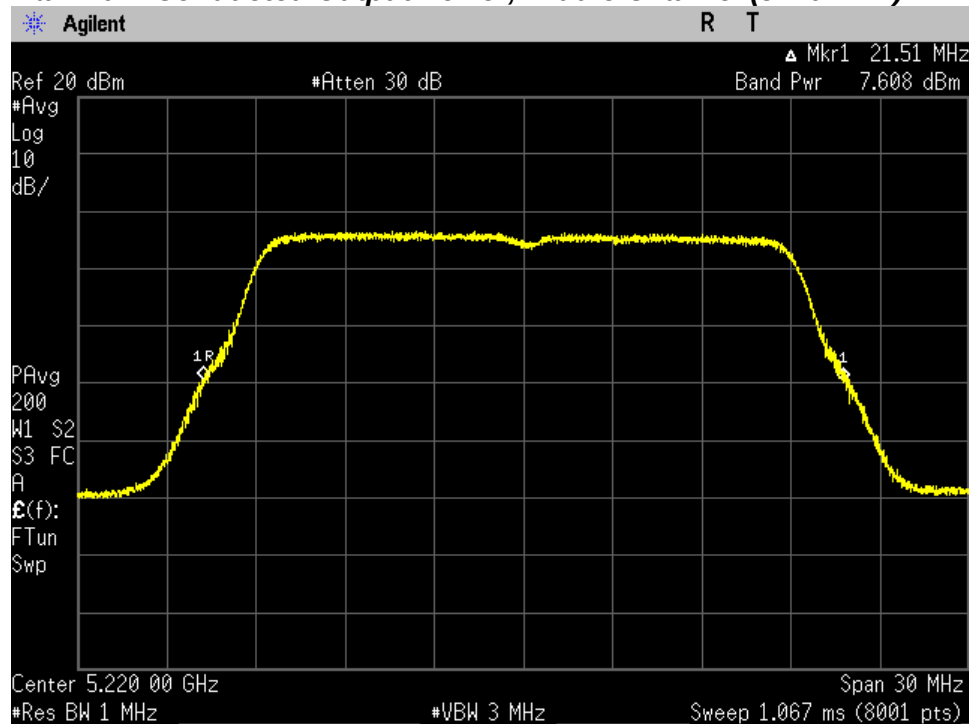
Chain 1

Maximum Conducted Output Power, Lowest Channel (5180 MHz)

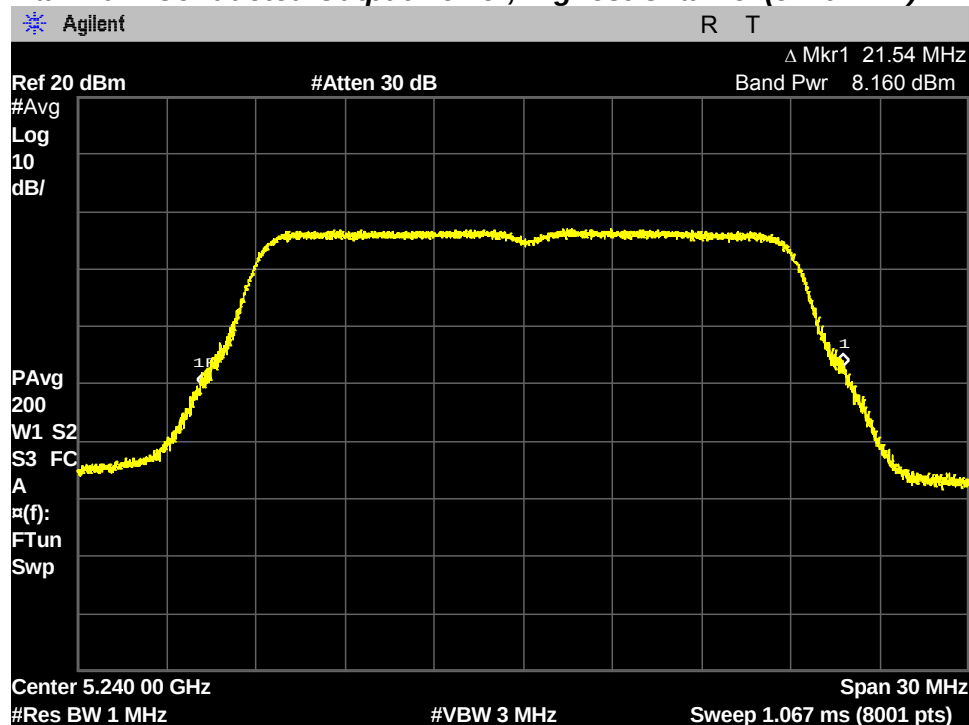


PLOTS OF EMISSIONS

Maximum Conducted Output Power, Middle Channel (5220 MHz)



Maximum Conducted Output Power, Highest Channel (5240 MHz)

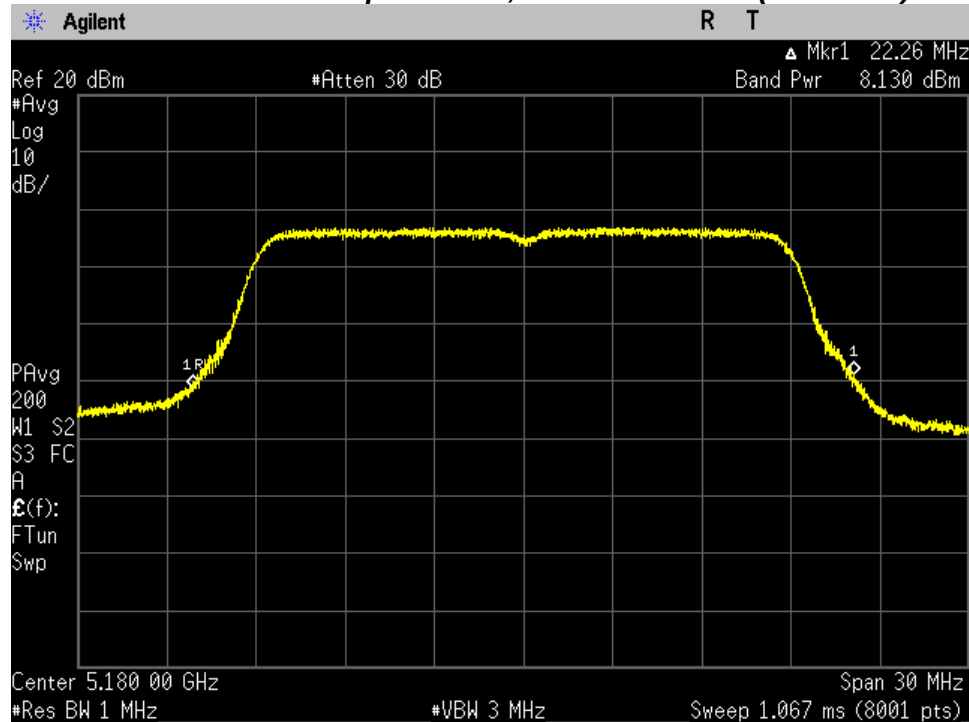


PLOTS OF EMISSIONS

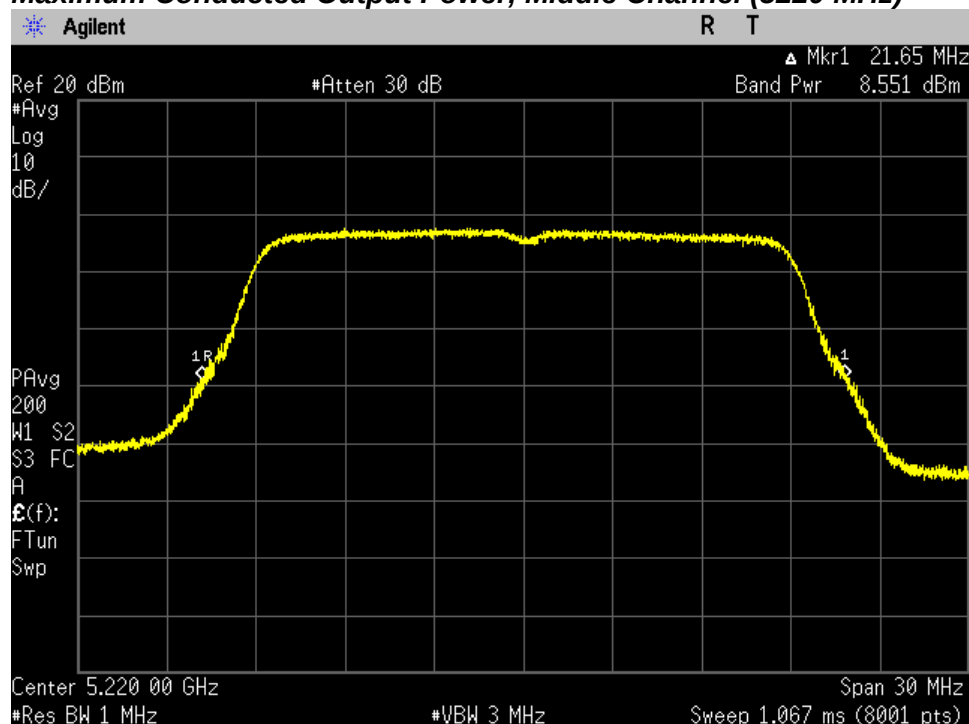
802.11ac (20 MHz) mode - MIMO

Chain 0

Maximum Conducted Output Power, Lowest Channel (5180 MHz)

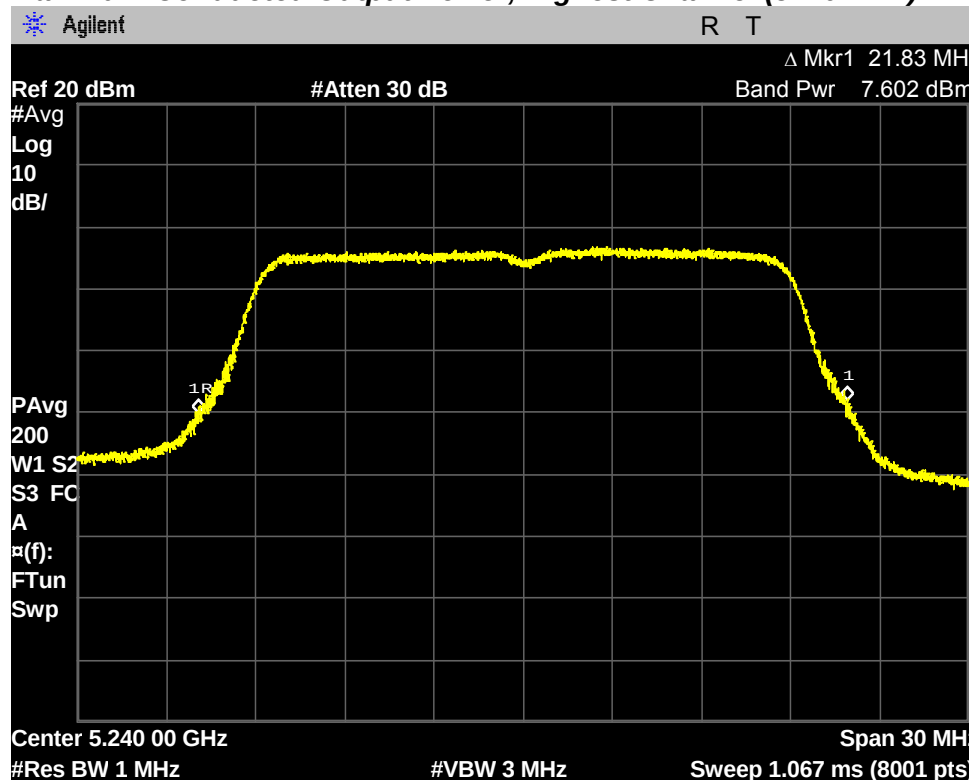


Maximum Conducted Output Power, Middle Channel (5220 MHz)



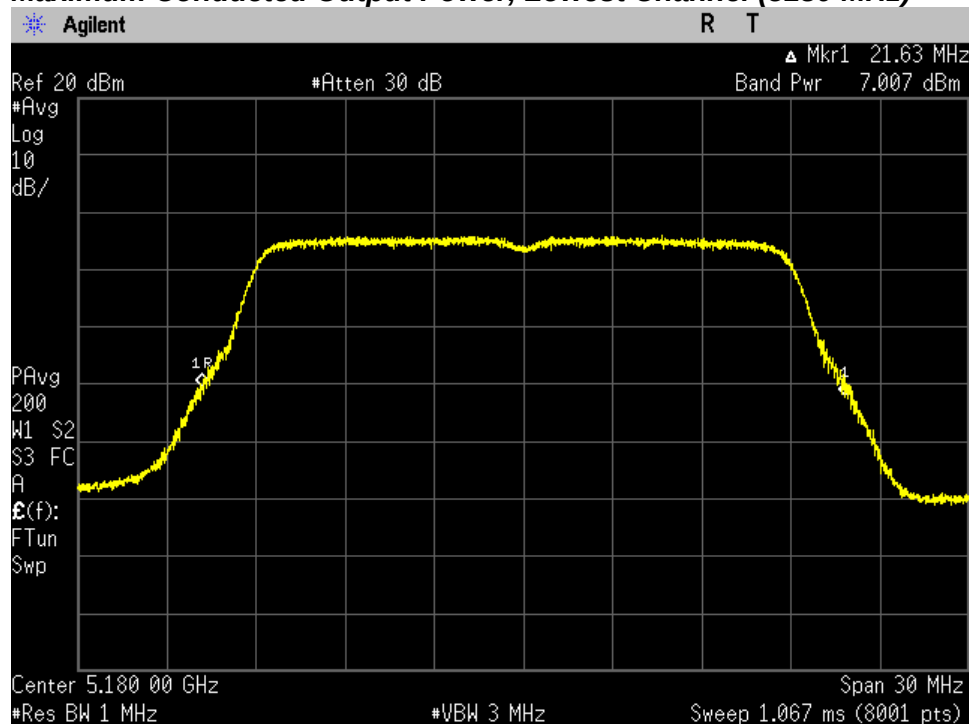
PLOTS OF EMISSIONS

Maximum Conducted Output Power, Highest Channel (5240 MHz)



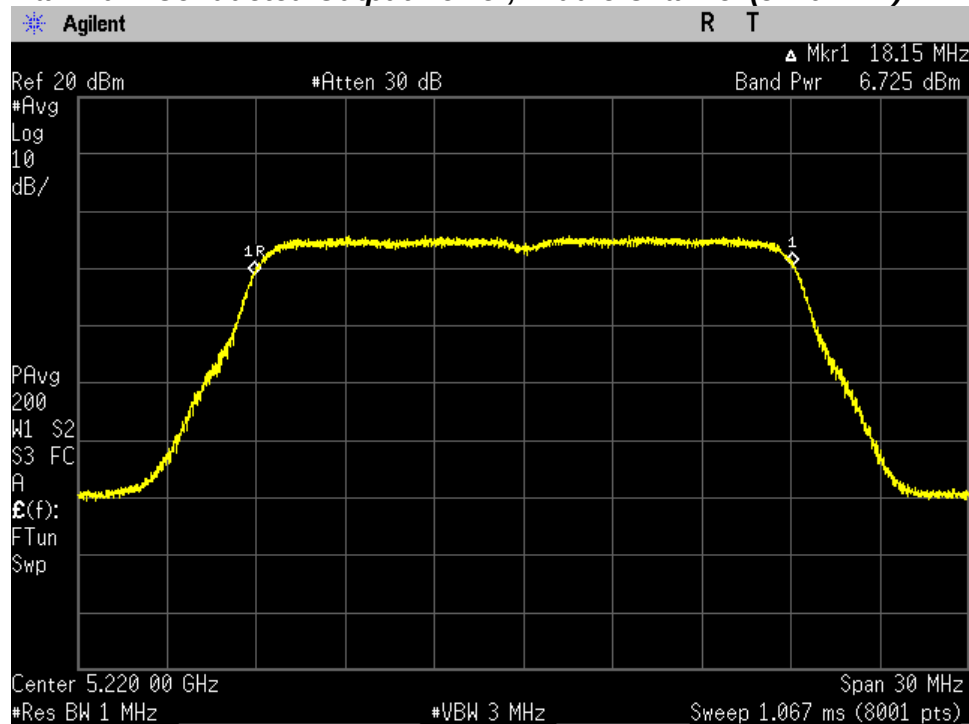
Chain 1

Maximum Conducted Output Power, Lowest Channel (5180 MHz)

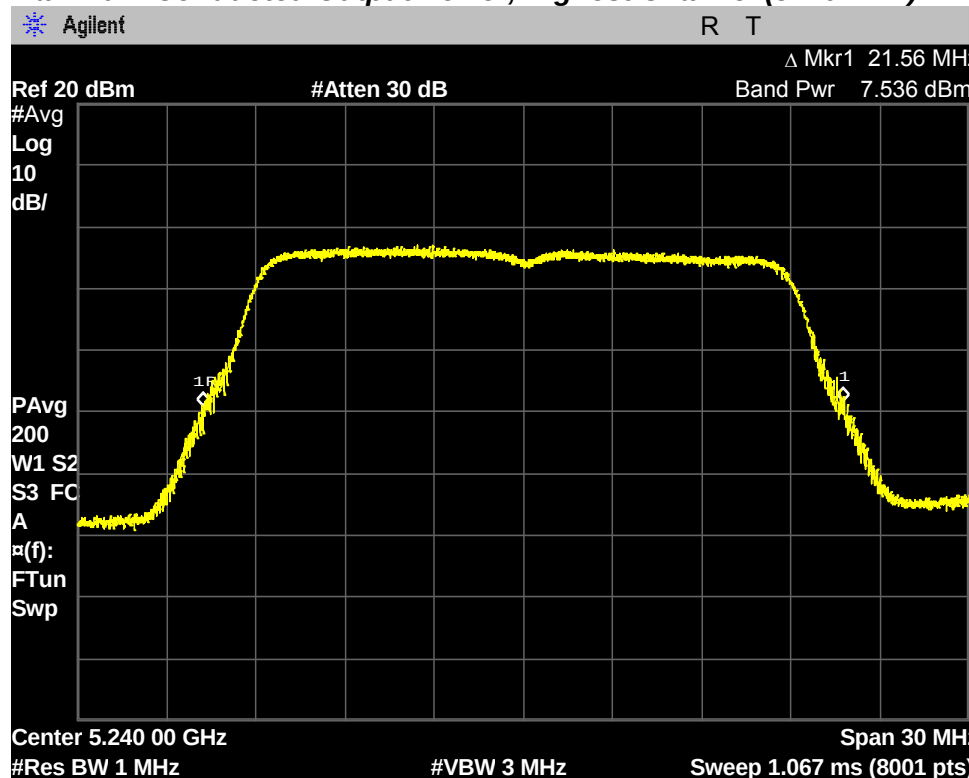


PLOTS OF EMISSIONS

Maximum Conducted Output Power, Middle Channel (5220 MHz)



Maximum Conducted Output Power, Highest Channel (5240 MHz)

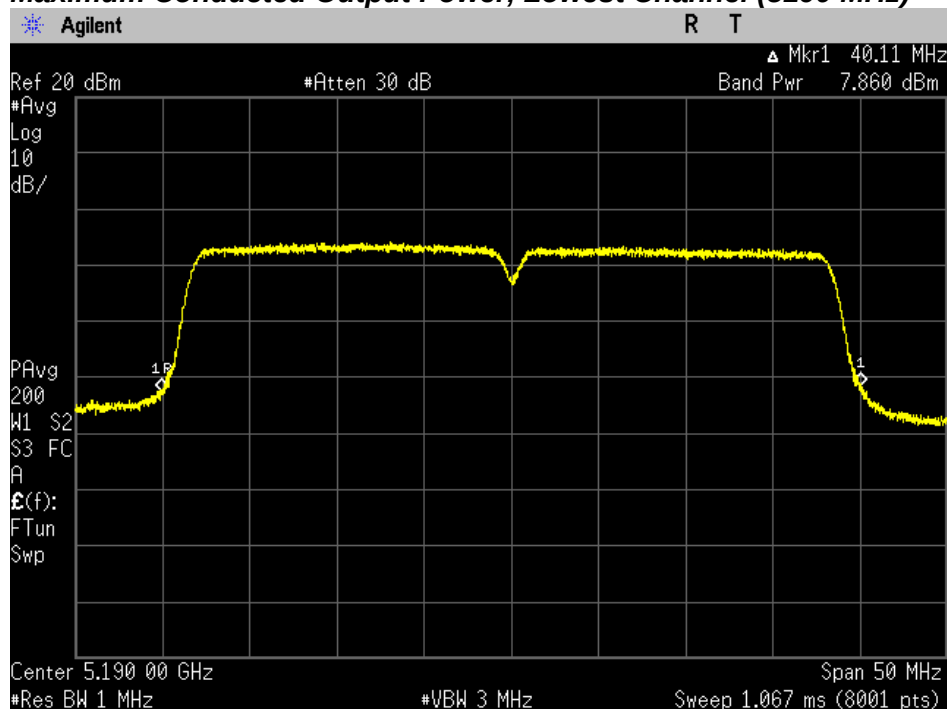


PLOTS OF EMISSIONS

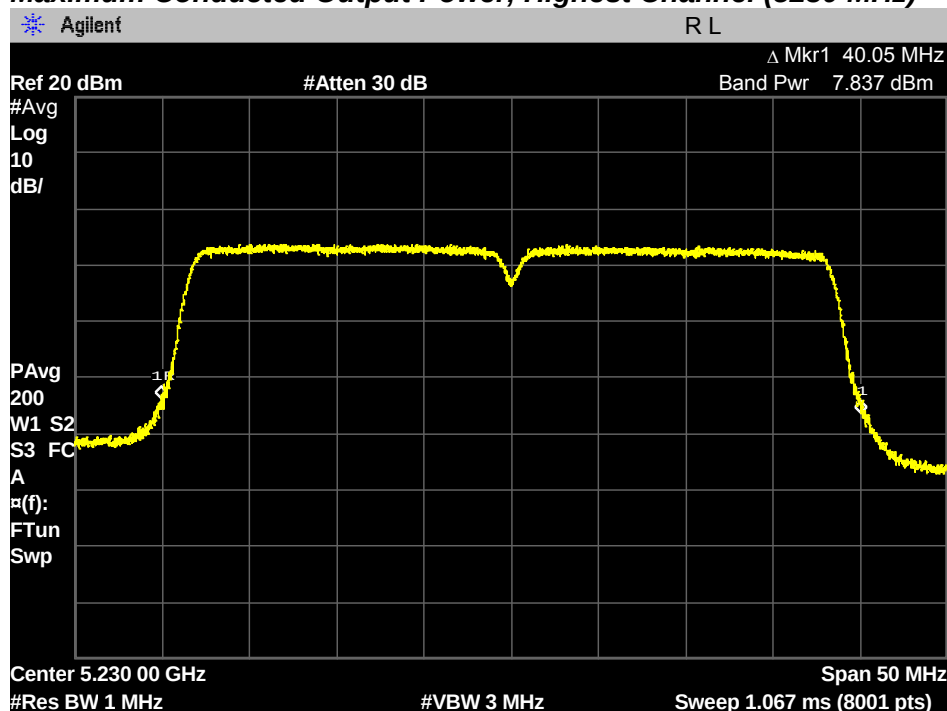
802.11ac (40 MHz) mode - SISO

Chain 0

Maximum Conducted Output Power, Lowest Channel (5190 MHz)



Maximum Conducted Output Power, Highest Channel (5230 MHz)

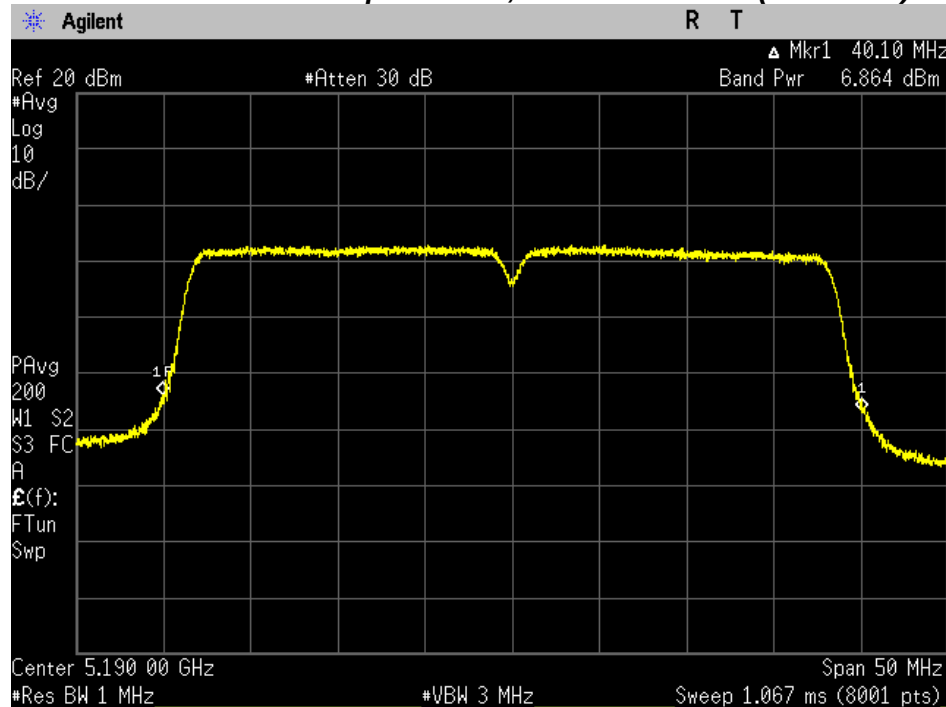


PLOTS OF EMISSIONS

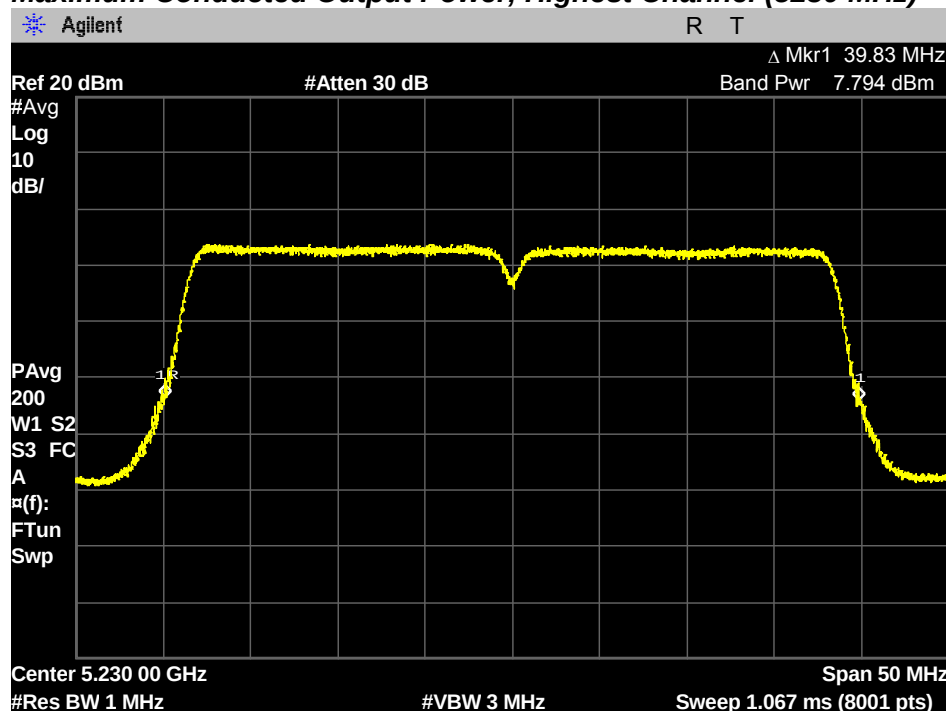
802.11ac (40 MHz) mode - SISO

Chain 1

Maximum Conducted Output Power, Lowest Channel (5190 MHz)



Maximum Conducted Output Power, Highest Channel (5230 MHz)

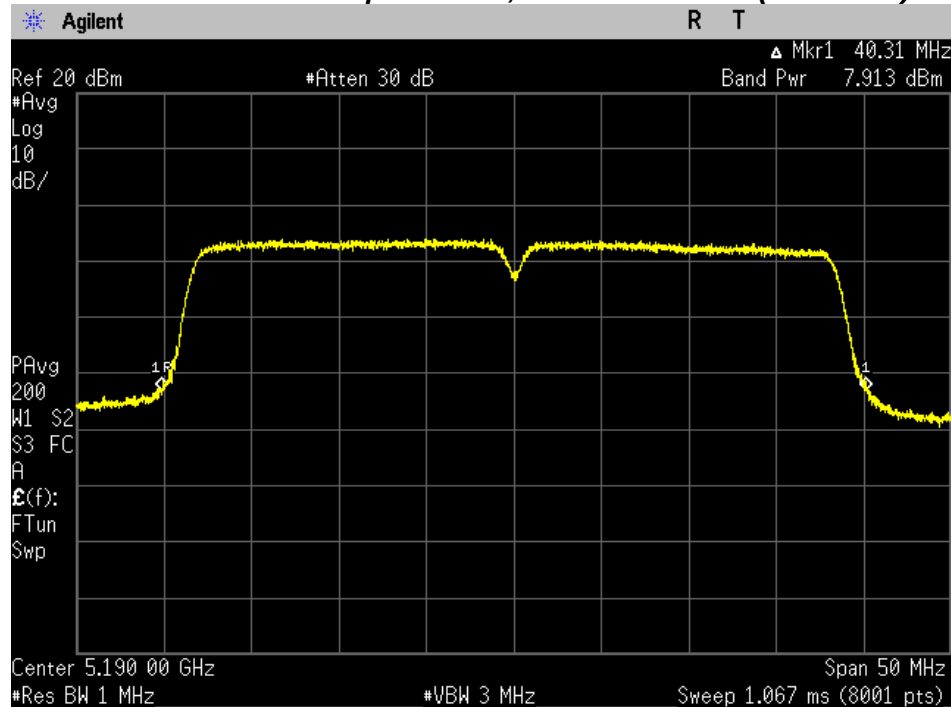


PLOTS OF EMISSIONS

802.11ac (40 MHz) mode - CDD

Chain 0

Maximum Conducted Output Power, Lowest Channel (5190 MHz)



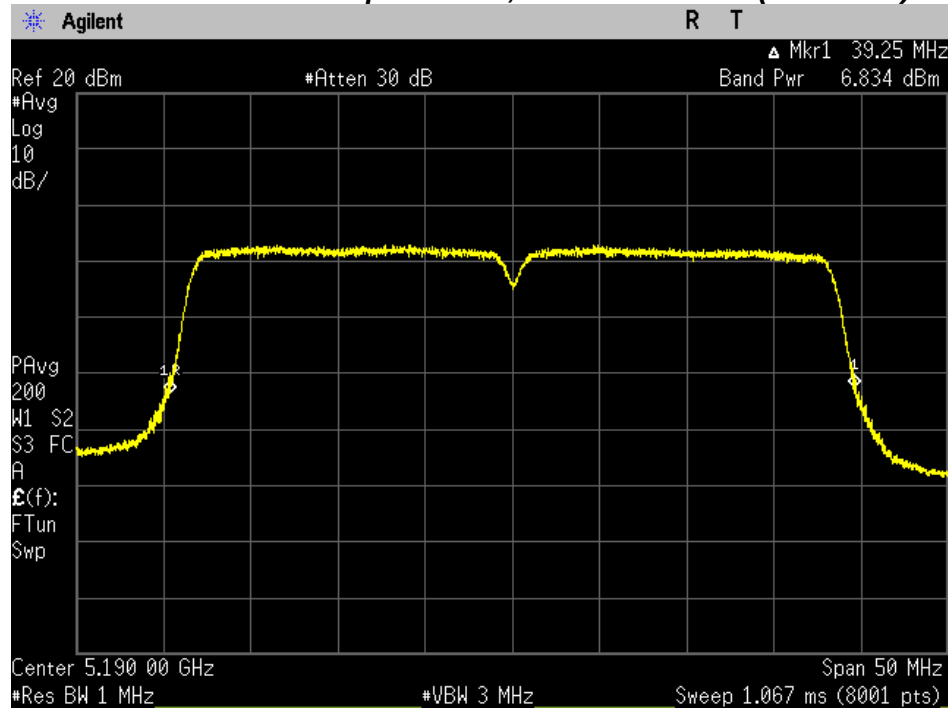
Maximum Conducted Output Power, Highest Channel (5230 MHz)



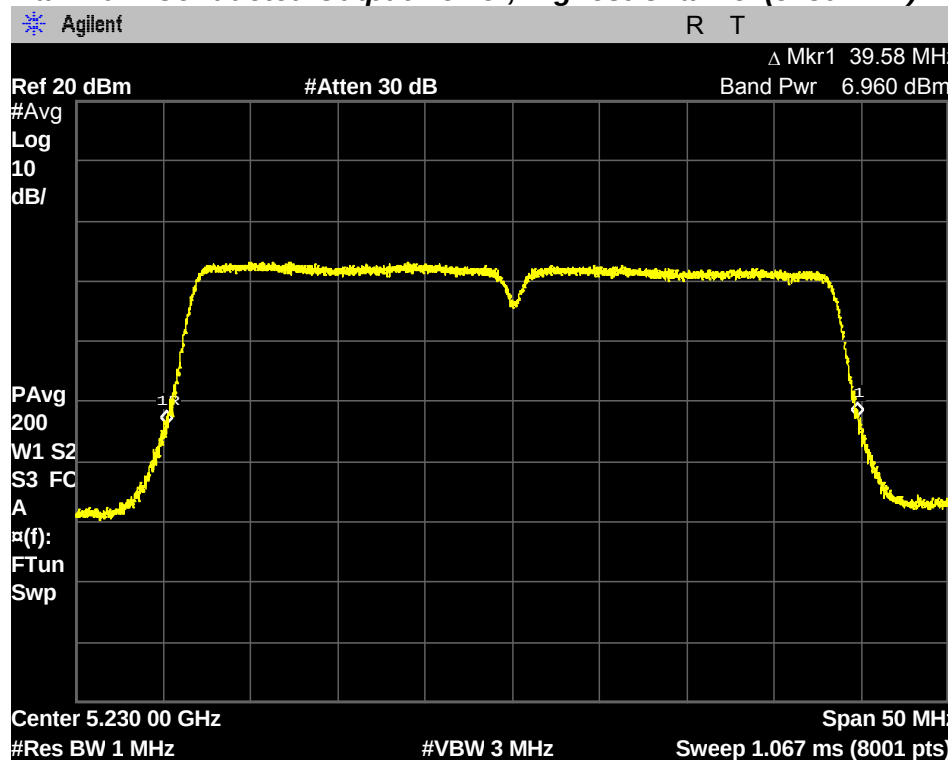
PLOTS OF EMISSIONS

Chain 1

Maximum Conducted Output Power, Lowest Channel (5190 MHz)



Maximum Conducted Output Power, Highest Channel (5230 MHz)

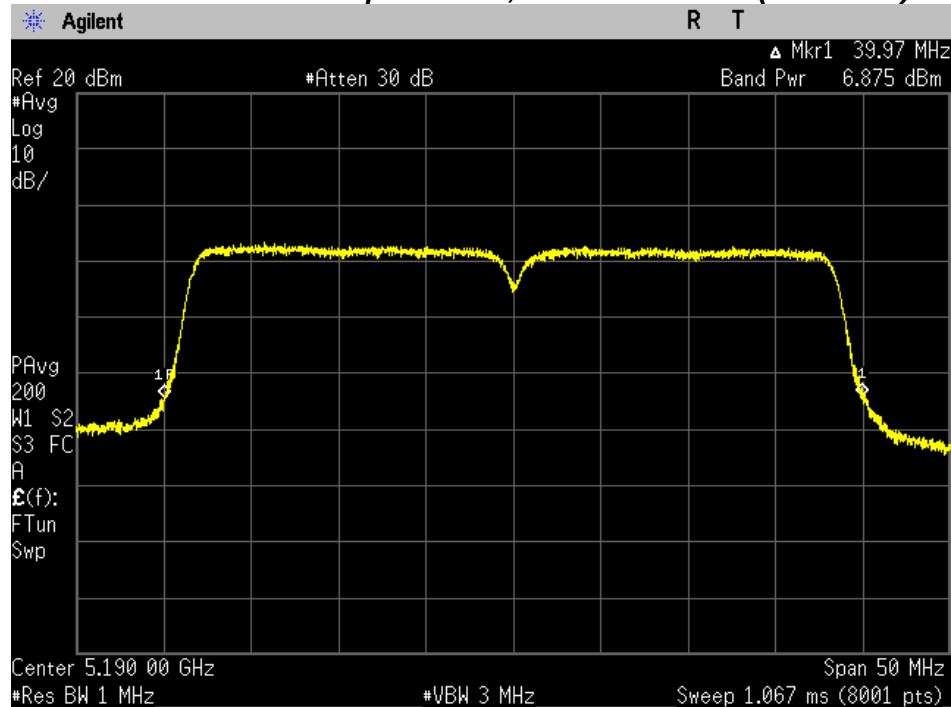


PLOTS OF EMISSIONS

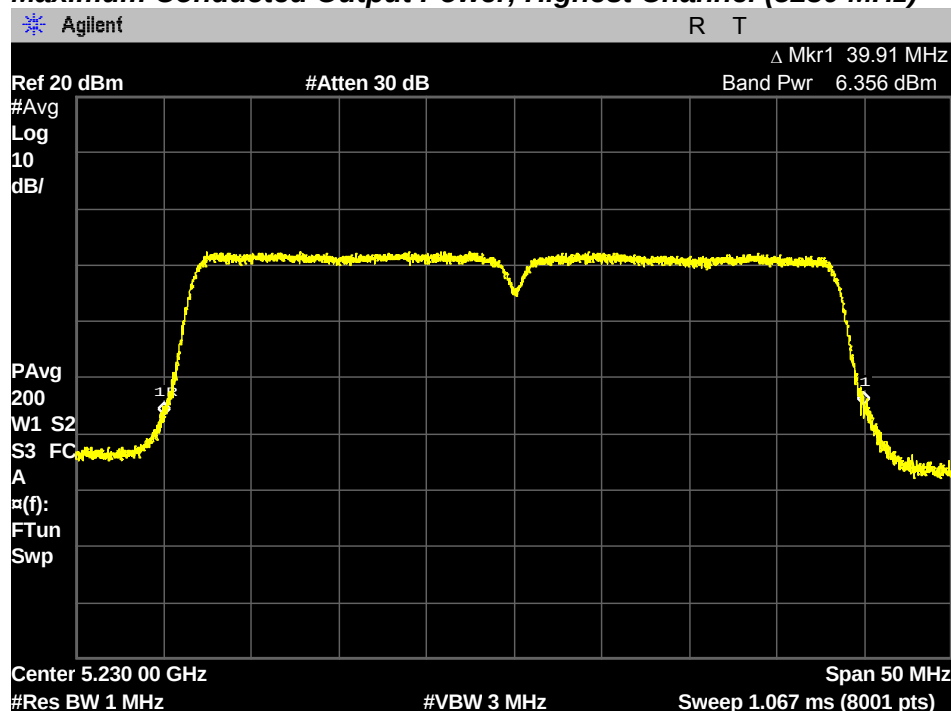
802.11ac (40 MHz) mode - MIMO

Chain 0

Maximum Conducted Output Power, Lowest Channel (5190 MHz)



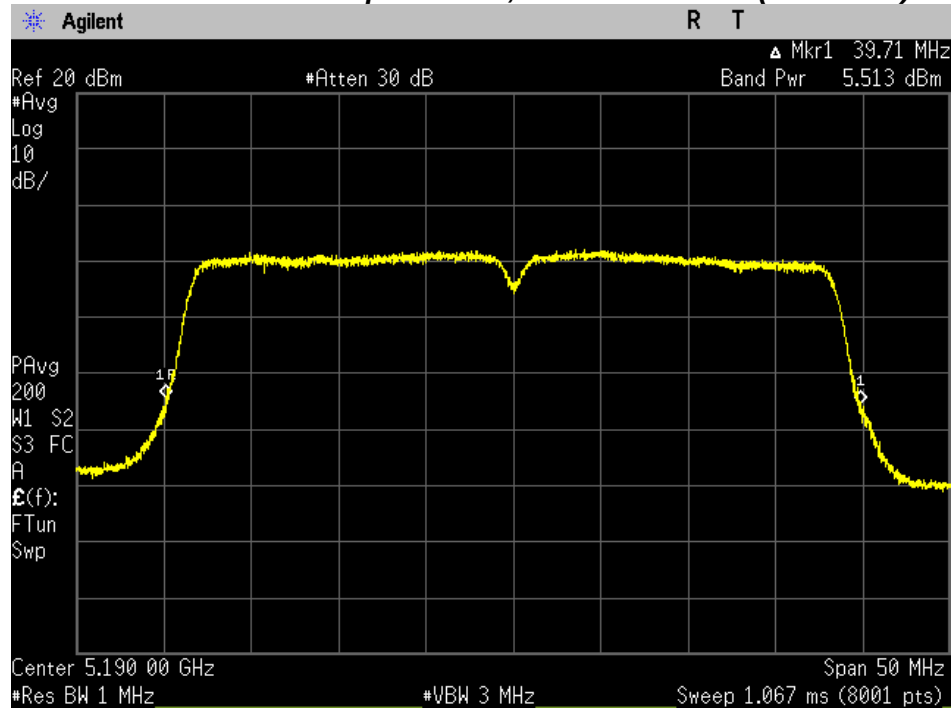
Maximum Conducted Output Power, Highest Channel (5230 MHz)



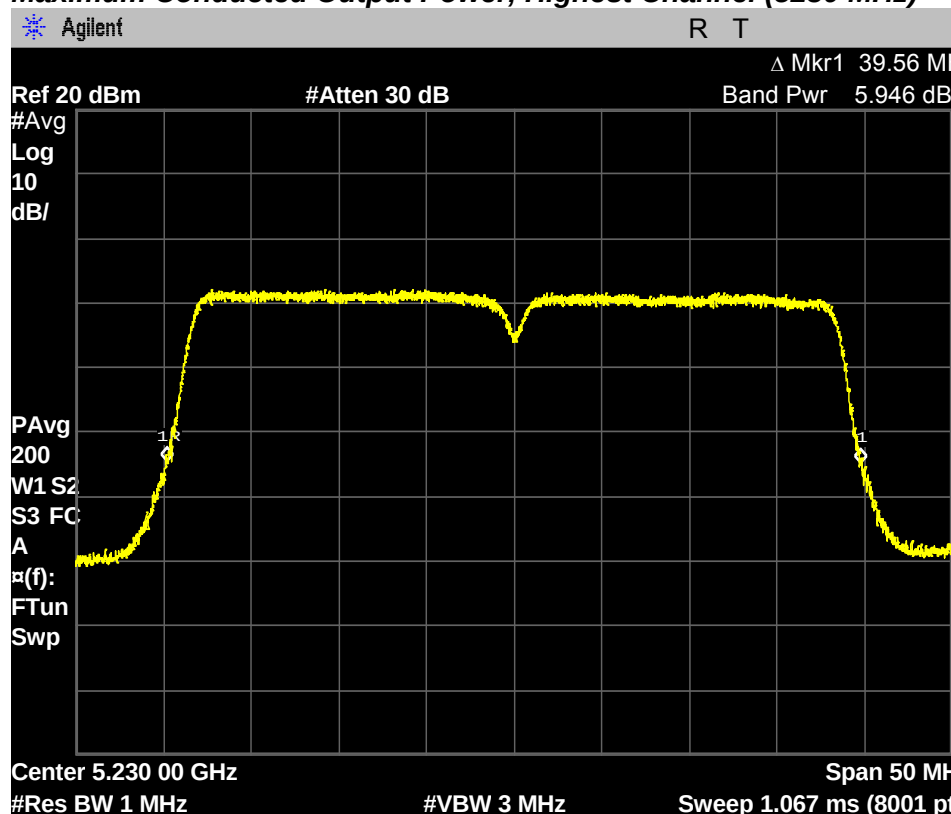
PLOTS OF EMISSIONS

Chain 1

Maximum Conducted Output Power, Lowest Channel (5190 MHz)



Maximum Conducted Output Power, Highest Channel (5230 MHz)

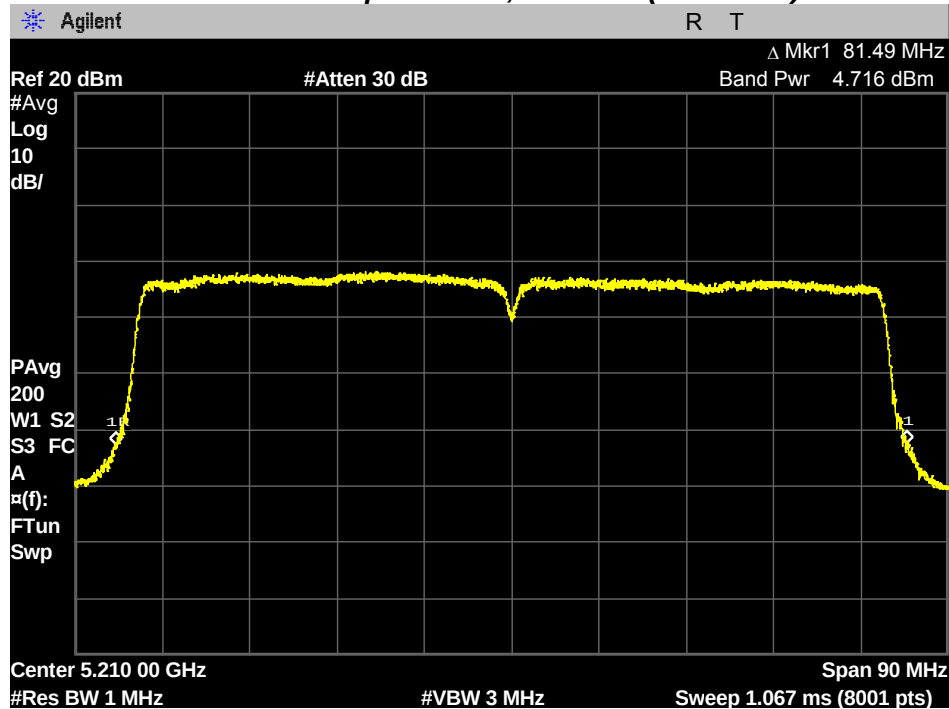


PLOTS OF EMISSIONS

802.11ac (80 MHz) mode - SISO

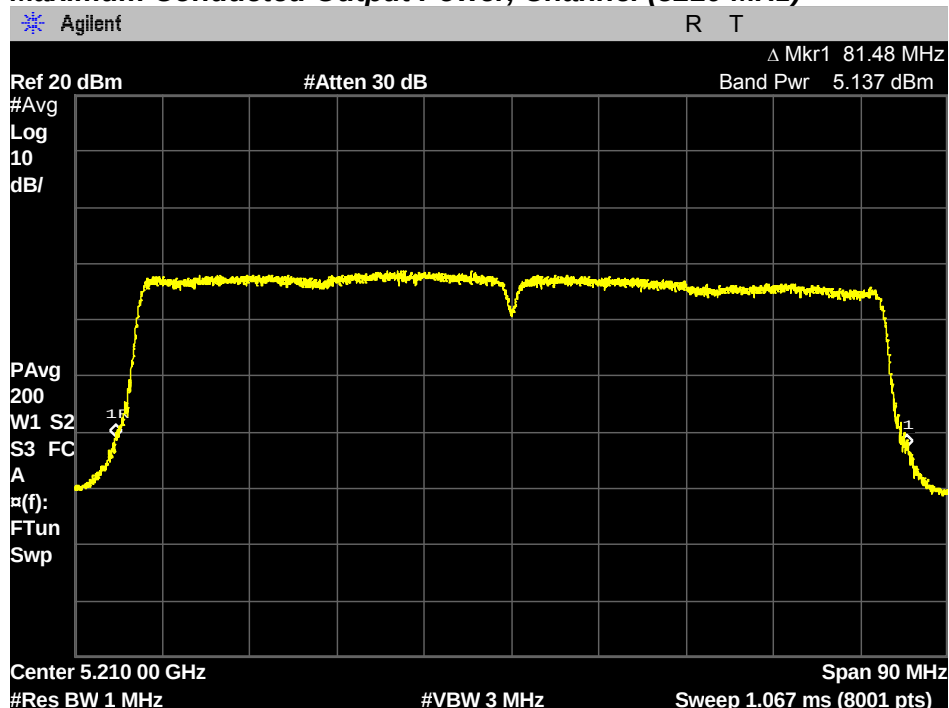
Chain 0

Maximum Conducted Output Power, Channel (5210 MHz)



Chain 1

Maximum Conducted Output Power, Channel (5210 MHz)

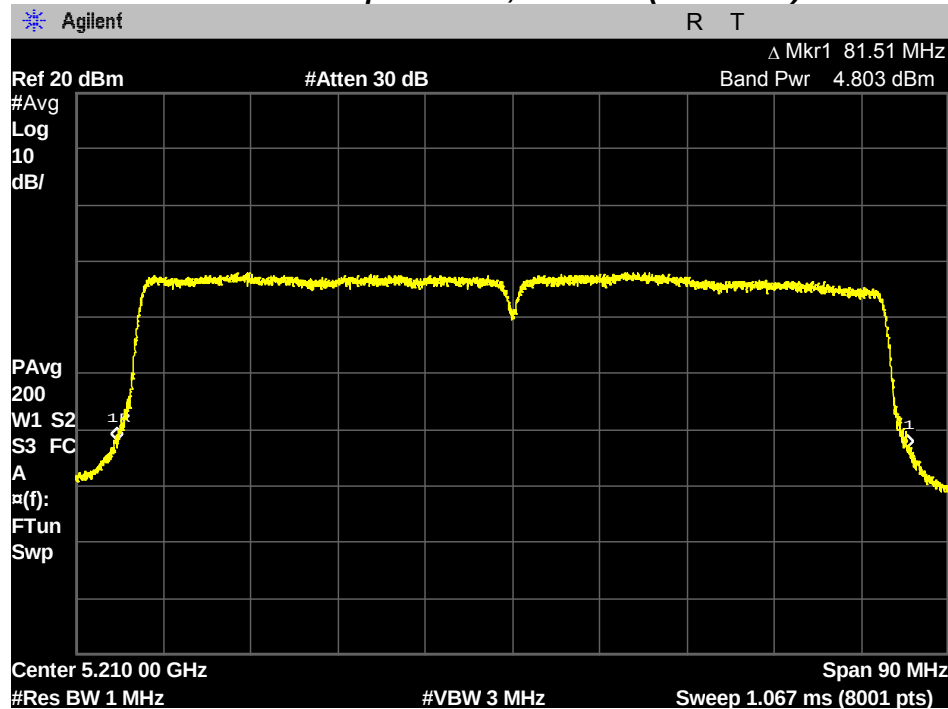


PLOTS OF EMISSIONS

802.11ac (80 MHz) mode - CDD

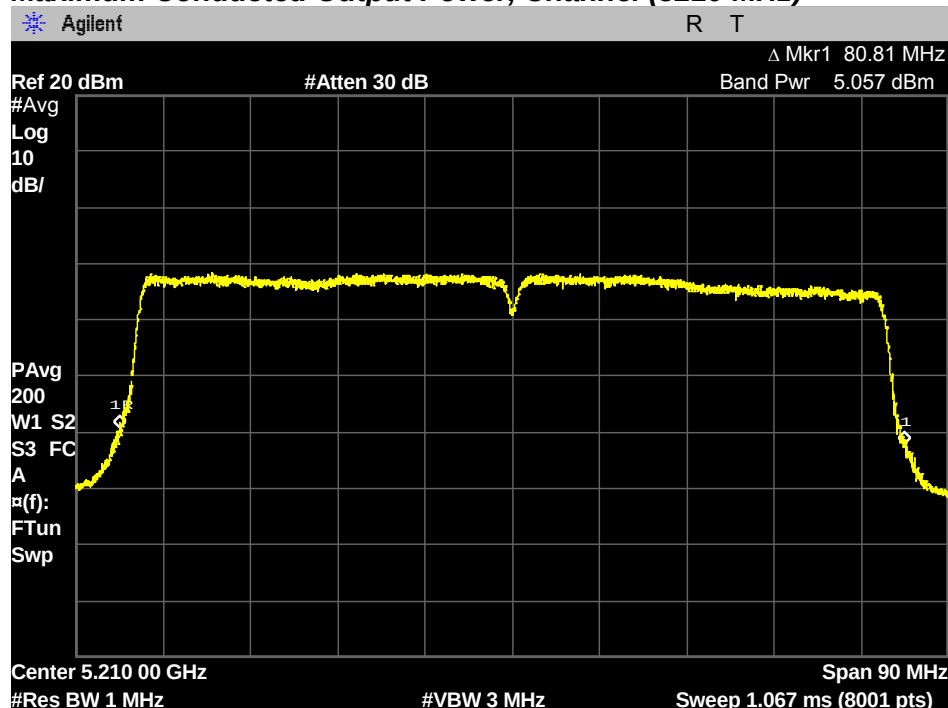
Chain 0

Maximum Conducted Output Power, Channel (5210 MHz)



Chain 1

Maximum Conducted Output Power, Channel (5210 MHz)

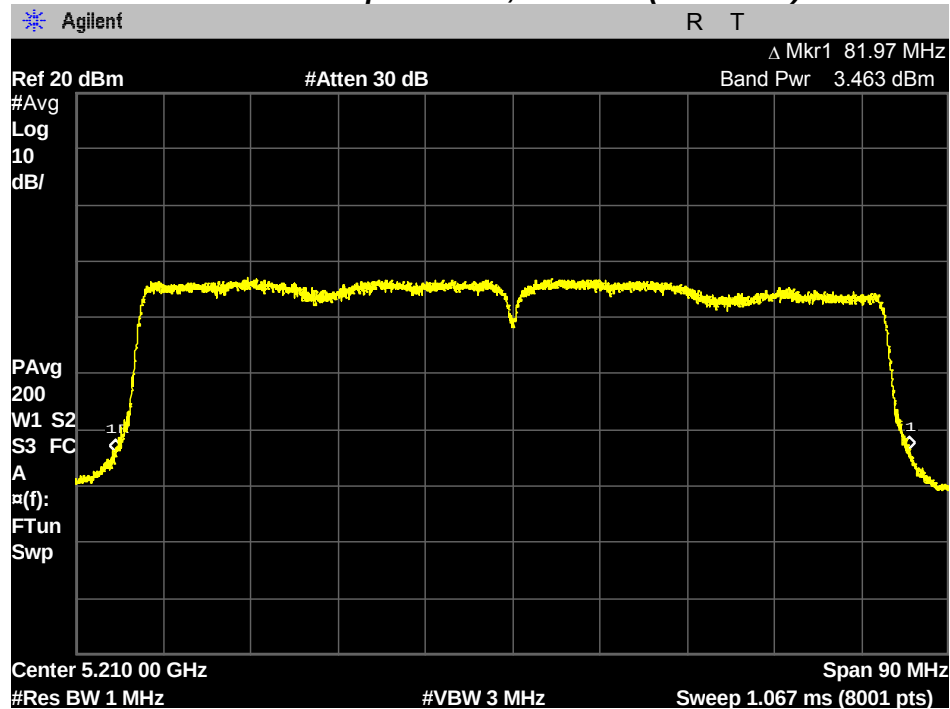


PLOTS OF EMISSIONS

802.11ac (80 MHz) mode - MIMO

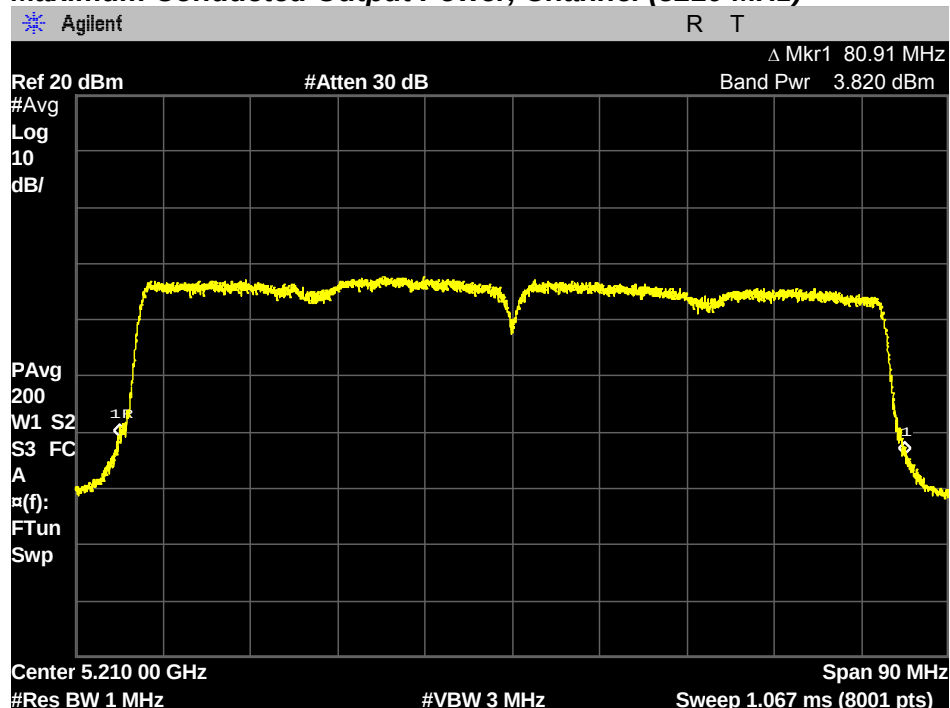
Chain 0

Maximum Conducted Output Power, Channel (5210 MHz)



Chain 1

Maximum Conducted Output Power, Channel (5210 MHz)



TEST DATA

8.5.2 Maximum Conducted Output Power (average) – UNII-2A band

FCC §15.407(a), RSS-247 Issue 1, 6.2

Test Mode : Set to Lowest channel, Middle channel and Highest channel

802.11a mode

Channel	Frequency (MHz)	Measured conducted power (dBm)		Maximum Conducted Power (dBm)*		Conducted Limit (dBm)		E.I.R.P (dBm)		IC E.I.R.P Limit (dBm)
		Chain 0	Chain 1	Chain 0	Chain 1	FCC	IC	Chain 0	Chain 1	
Lowest	5260	8.92	9.33	9.75	10.16	23.98	23.28	12.45	12.86	29.28
Middle	5300	9.14	9.04	9.98	9.88	23.98	23.28	12.68	12.58	29.28
Highest	5320	9.31	9.09	10.15	9.93	23.98	23.28	12.85	12.63	29.28

802.11n (20 MHz) mode – SISO

Channel	Frequency (MHz)	Measured conducted power (dBm)		Maximum Conducted Power (dBm)*		Conducted Limit (dBm)		E.I.R.P (dBm)		IC E.I.R.P Limit (dBm)
		Chain 0	Chain 1	Chain 0	Chain 1	FCC	IC	Chain 0	Chain 1	
Lowest	5260	8.74	9.01	9.62	9.89	23.98	23.54	12.32	12.59	29.54
Middle	5300	9.15	9.01	10.05	9.91	23.98	23.54	12.75	12.61	29.54
Highest	5320	9.40	8.41	10.28	9.29	23.98	23.55	12.98	11.99	29.55

802.11n (20 MHz) mode - CDD

Channel	Frequency (MHz)	Measured conducted power (dBm)		Duty Factor (dB)	Maximum Conducted Power (dBm)*	Conducted Limit (dBm)		E.I.R.P (dBm)	IC E.I.R.P Limit (dBm)
		Chain 0	Chain 1			FCC	IC		
Lowest	5260	8.70	8.97	0.88	12.73	23.98	23.53	15.43	29.53
Middle	5300	8.82	8.69	0.90	12.67	23.98	23.53	15.37	29.53
Highest	5320	8.93	8.31	0.88	12.52	23.98	23.54	15.22	29.54

TEST DATA

802.11n (20 MHz) mode – MIMO

Channel	Frequency (MHz)	Measured conducted power (dBm)		Duty Factor (dB)	Maximum Conducted Power (dBm)*	Conducted Limit (dBm)		E.I.R.P (dBm)	IC E.I.R.P Limit (dBm)
		Chain 0	Chain 1			FCC	IC		
Lowest	5260	8.11	8.40	1.58	12.85	23.98	23.53	15.55	29.53
Middle	5300	8.31	8.00	1.58	12.75	23.98	23.54	15.45	29.53
Highest	5320	8.43	7.77	1.58	12.70	23.98	23.54	15.40	29.54

802.11n (40 MHz) mode – SISO

Channel	Frequency (MHz)	Measured conducted power (dBm)		Maximum Conducted Power (dBm)*		Conducted Limit (dBm)		E.I.R.P (dBm)		IC E.I.R.P Limit (dBm)
		Chain 0	Chain 1	Chain 0	Chain 1	FCC	IC	Chain 0	Chain 1	
Lowest	5270	4.93	5.12	6.56	6.75	23.98	23.98	9.26	9.45	30.00
Highest	5310	5.36	4.95	6.99	6.58	23.98	23.98	9.69	9.28	30.00

802.11n (40 MHz) mode - CDD

Channel	Frequency (MHz)	Measured conducted power (dBm)		Duty Factor (dB)	Maximum Conducted Power (dBm)*	Conducted Limit (dBm)		E.I.R.P (dBm)	IC E.I.R.P Limit (dBm)
		Chain 0	Chain 1			FCC	IC		
Lowest	5270	4.77	5.09	1.63	9.57	23.98	23.98	12.27	30.00
Highest	5310	5.19	4.97	1.63	9.72	23.98	23.98	12.42	30.00

802.11n (40 MHz) mode - MIMO

Channel	Frequency (MHz)	Measured conducted power (dBm)		Duty Factor (dB)	Maximum Conducted Power (dBm)*	Conducted Limit (dBm)		E.I.R.P (dBm)	IC E.I.R.P Limit (dBm)
		Chain 0	Chain 1			FCC	IC		
Lowest	5270	3.89	4.06	2.66	9.65	23.98	23.98	12.35	30.00
Highest	5310	4.09	3.90	2.66	9.67	23.98	23.98	12.37	30.00

TEST DATA

802.11ac (20 MHz) mode – SISO

Channel	Frequency (MHz)	Measured conducted power (dBm)		Maximum Conducted Power (dBm)*		Conducted Limit (dBm)		E.I.R.P (dBm)		IC E.I.R.P Limit (dBm)
		Chain 0	Chain 1	Chain 0	Chain 1	FCC	IC	Chain 0	Chain 1	
Lowest	5260	8.82	9.12	9.70	10.00	23.98	23.54	12.40	12.70	29.54
Middle	5300	9.16	8.72	10.04	9.60	23.98	23.54	12.74	12.30	29.54
Highest	5320	9.20	8.64	10.10	9.54	23.98	23.54	12.80	12.24	29.54

802.11ac (20 MHz) mode - CDD

Channel	Frequency (MHz)	Measured conducted power (dBm)		Duty Factor (dB)	Maximum Conducted Power (dBm)*	Conducted Limit (dBm)		E.I.R.P (dBm)	IC E.I.R.P Limit (dBm)
		Chain 0	Chain 1			Total output power	FCC	IC	
Lowest	5260	8.67	9.02	0.88	12.74	23.98	23.53	15.44	29.53
Middle	5300	8.96	8.37	0.88	12.57	23.98	23.54	15.27	29.54
Highest	5320	8.67	8.32	0.90	12.41	23.98	23.55	15.11	29.55

802.11ac (20 MHz) mode - MIMO

Channel	Frequency (MHz)	Measured conducted power (dBm)		Duty Factor (dB)	Maximum Conducted Power (dBm)*	Conducted Limit (dBm)		E.I.R.P (dBm)	IC E.I.R.P Limit (dBm)
		Chain 0	Chain 1			Total output power	FCC	IC	
Lowest	5260	8.15	8.34	1.57	12.83	23.98	23.53	15.53	29.53
Middle	5300	8.30	7.80	1.58	12.65	23.98	23.53	15.35	29.53
Highest	5320	8.51	7.81	1.56	12.74	23.98	23.53	15.44	29.53

TEST DATA

802.11ac (40 MHz) mode - SISO

Channel	Frequency (MHz)	Measured conducted power (dBm)		Maximum Conducted Power (dBm)*		Conducted Limit (dBm)		E.I.R.P (dBm)		IC E.I.R.P Limit (dBm)
		Chain 0	Chain 1	Chain 0	Chain 1	FCC	IC	Chain 0	Chain 1	
Lowest	5270	4.81	5.03	6.42	6.64	23.98	23.98	9.12	9.34	30.00
Highest	5310	5.18	5.20	6.80	6.82	23.98	23.98	9.50	9.52	30.00

802.11ac (40 MHz) mode - CDD

Channel	Frequency (MHz)	Measured conducted power (dBm)		Duty Factor (dB)	Maximum Conducted Power (dBm)*	Conducted Limit (dBm)		E.I.R.P (dBm)	IC E.I.R.P Limit (dBm)
		Chain 0	Chain 1			FCC	IC		
Lowest	5270	4.84	5.12	1.61	9.60	23.98	23.98	12.30	30.00
Highest	5310	5.21	4.89	1.62	9.68	23.98	23.98	12.38	30.00

802.11ac (40 MHz) mode - MIMO

Channel	Frequency (MHz)	Measured conducted power (dBm)		Duty Factor (dB)	Maximum Conducted Power (dBm)*	Conducted Limit (dBm)		E.I.R.P (dBm)	IC E.I.R.P Limit (dBm)
		Chain 0	Chain 1			FCC	IC		
Lowest	5270	3.86	4.02	2.65	9.60	23.98	23.98	12.30	30.00
Highest	5310	4.18	6.75	2.64	11.30	23.98	23.98	14.00	30.00

802.11ac (80 MHz) mode - SISO

Channel	Frequency (MHz)	Measured conducted power (dBm)		Maximum Conducted Power (dBm)*		Conducted Limit (dBm)		E.I.R.P (dBm)		IC E.I.R.P Limit (dBm)
		Chain 0	Chain 1	Chain 0	Chain 1	FCC	IC	Chain 0	Chain 1	
	5290	5.20	5.18	8.01	7.99	23.98	23.98	10.71	10.69	30.00

TEST DATA

802.11ac (80 MHz) mode - CDD

Channel	Frequency (MHz)	Measured conducted power (dBm)		Duty Factor (dB)	Maximum Conducted Power (dBm)*	Conducted Limit (dBm)		E.I.R.P (dBm)	IC E.I.R.P Limit (dBm)
		Chain 0	Chain 1			FCC	IC		
	5290	4.96	5.19	2.81	10.90	23.98	23.98	13.60	30.00

802.11ac (80 MHz) mode – MIMO

Channel	Frequency (MHz)	Measured conducted power (dBm)		Duty Factor (dB)	Maximum Conducted Power (dBm)*	Conducted Limit (dBm)		E.I.R.P (dBm)	IC E.I.R.P Limit (dBm)
		Chain 0	Chain 1			FCC	IC		
	5290	3.84	3.98	4.13	11.05	23.98	23.98	13.75	30.00

TEST DATA

Note:

1. *Maximum Conducted (average) Power = Measured conducted power + Duty Factor
2. Total output power = $10 \log [10^{\{(Chain\ 0\ Power + duty\ factor)/10\}} + 10^{\{(Chain\ 1\ Power + duty\ factor)/10\}}]$
3. For CDD transmission, directional gain is. **2.7 dBi**

For MIMO transmission, directional gain is **2.7 dBi**.

Directional gain was calculated according to KDB662911 D01 Multiple Transmitter Output v02r01.

For power measurements on IEEE 802.11 devices employing CDD, directional gain is as follows,

$$\text{Directional gain} = G_{ANT} + \text{Array Gain} = 2.7 \text{ dBi} + 0 \text{ dB} = 2.7 \text{ dBi}$$

Array Gain = 0 dB (i.e., no array gain) for $N_{ANT} \leq 4$;

Array Gain = 0 dB (i.e., no array gain) for channel widths ≥ 40 MHz for any N_{ANT} ;

Array Gain = $5 \log(N_{ANT}/N_{SS})$ dB or 3 dB, whichever is less, for 20-MHz channel widths with $N_{ANT} \geq 5$.

For power measurements on all devices employing MIMO, directional gain is as follows,

$$\text{Directional gain} = G_{ANT} + 10 \log(N_{ANT}/N_{SS}) \text{ dBi, where } N_{SS} = \text{the number of independent spatial streams of data and } G_{ANT} \text{ is the antenna gain in dBi.} = 2.7 \text{ dBi} + 10 \log(2/2) \text{ dB} = 2.7 \text{ dBi.}$$

For this device, MIMO mode means SM-MIMO(Spatial Multiplexing) transmission and $N_{SS}=2$.

4. E.I.R.P = Maximum conducted Power + Duty Cycle Factor + Antenna gain.

E.I.R.P was calculated by following equation according to KDB412172 D01 Determining ERP and EIRP v01.

$$E.I.R.P = P_T + G_T - L_C$$

P_T = Peak outputpower (dBm)

G_T = Gain of the transmitting antenna in dBi, Directional antenna gain is **2.7 dBi**.

L_C = Signal attenuation in the connecting cable between the transmitter and antenna in dB. This factor of an integral antenna is negligible.

5. FCC conducted output power limit = 250 mW or 11 dBm + 10 log B, whichever power is less.

B is the 26 dB emission bandwidth in megahertz.

IC conducted output power limit = 250 mW or 11 dBm + 10 log B, whichever power is less.

B is the 99% emission bandwidth in megahertz,

IC E.I.R.P Limit = 1.0 W (30dBm) or 17 + 10 log10B dBm, whichever power is less.

B is the 99% emission bandwidth in megahertz.

6. The following equation was used for spectrum offset:

$$\text{Spectrum offset (dB)} = \text{Attenuator (dB)} + \text{Cable Loss (dB)} + \text{SMA Type Connector Loss (dB)}$$

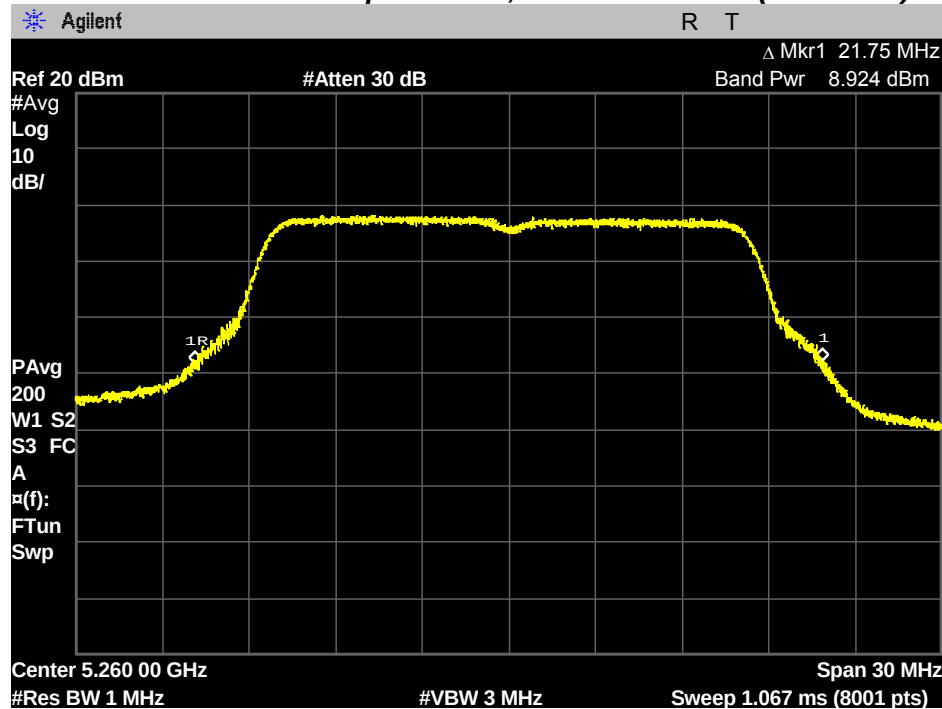
7. A TPC mechanism is not required for systems with an e.i.r.p. of less than 500 mW (26.99dBm) for FCC and IC requirements.

PLOTS OF EMISSIONS

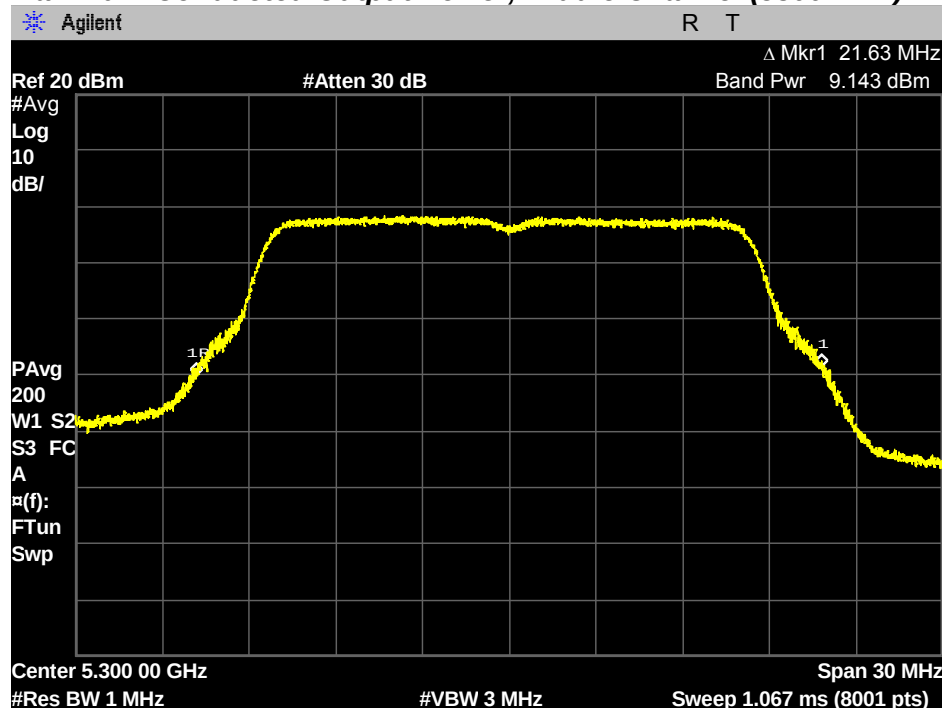
802.11a mode

Chain 0

Maximum Conducted Output Power, Lowest Channel (5260 MHz)

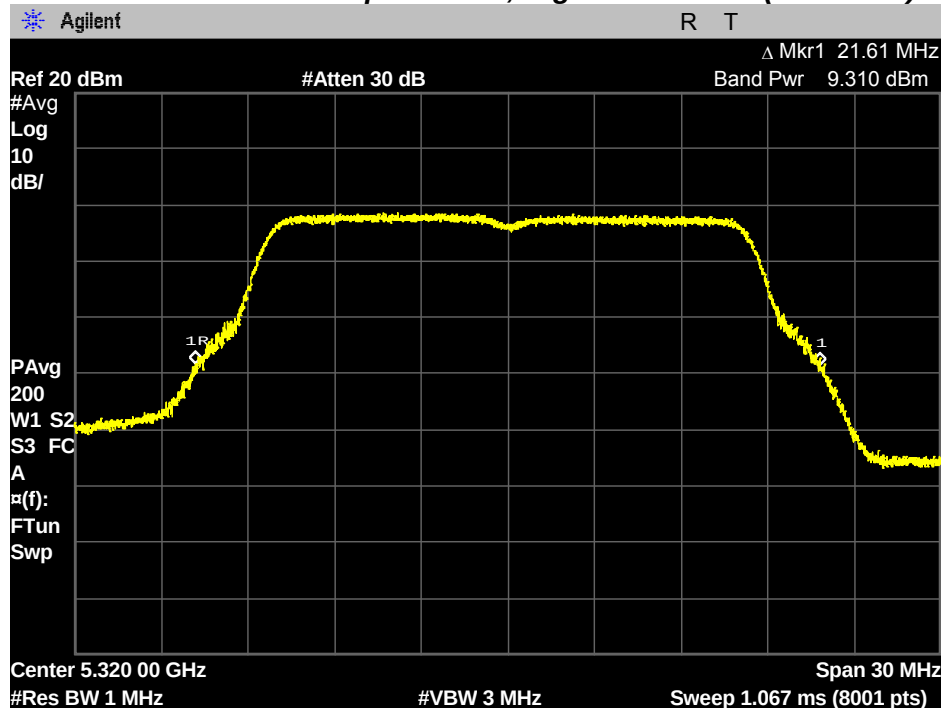


Maximum Conducted Output Power, Middle Channel (5300 MHz)



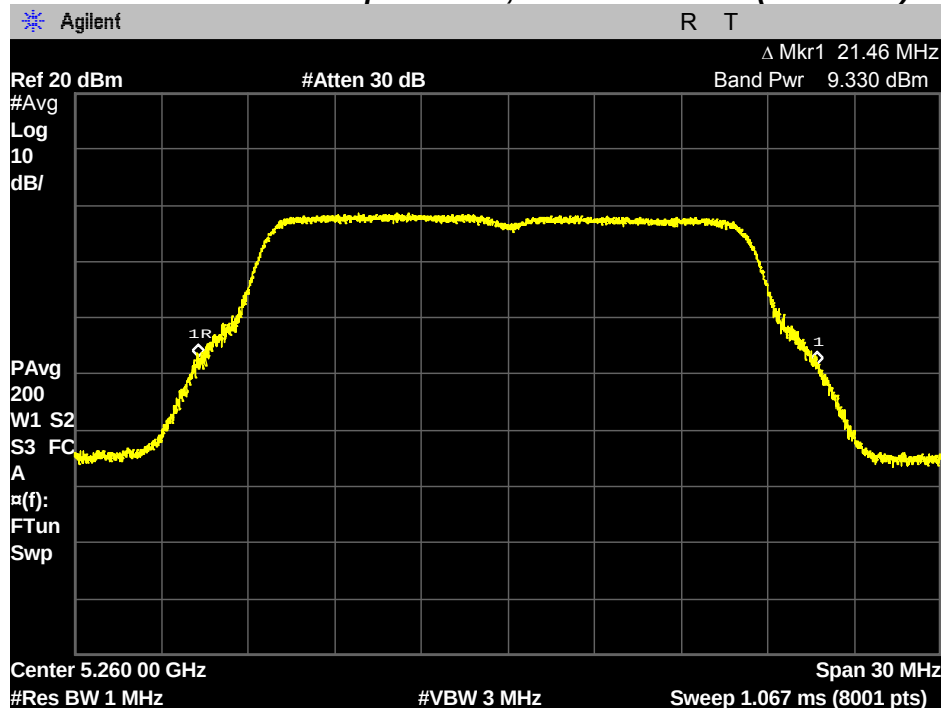
PLOTS OF EMISSIONS

Maximum Conducted Output Power, Highest Channel (5320 MHz)



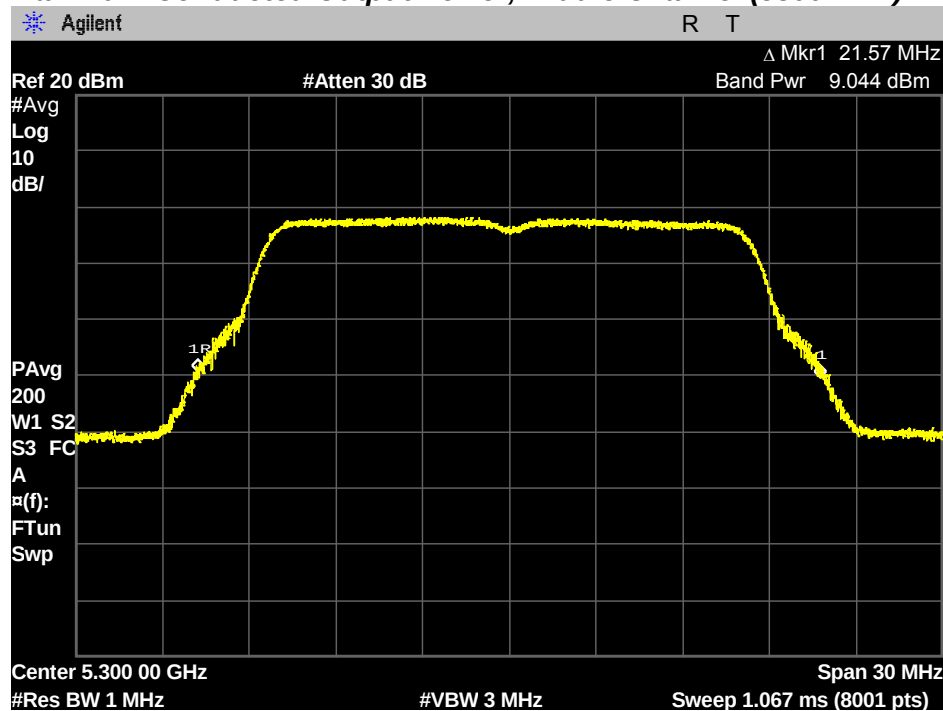
Chain 1

Maximum Conducted Output Power, Lowest Channel (5260 MHz)

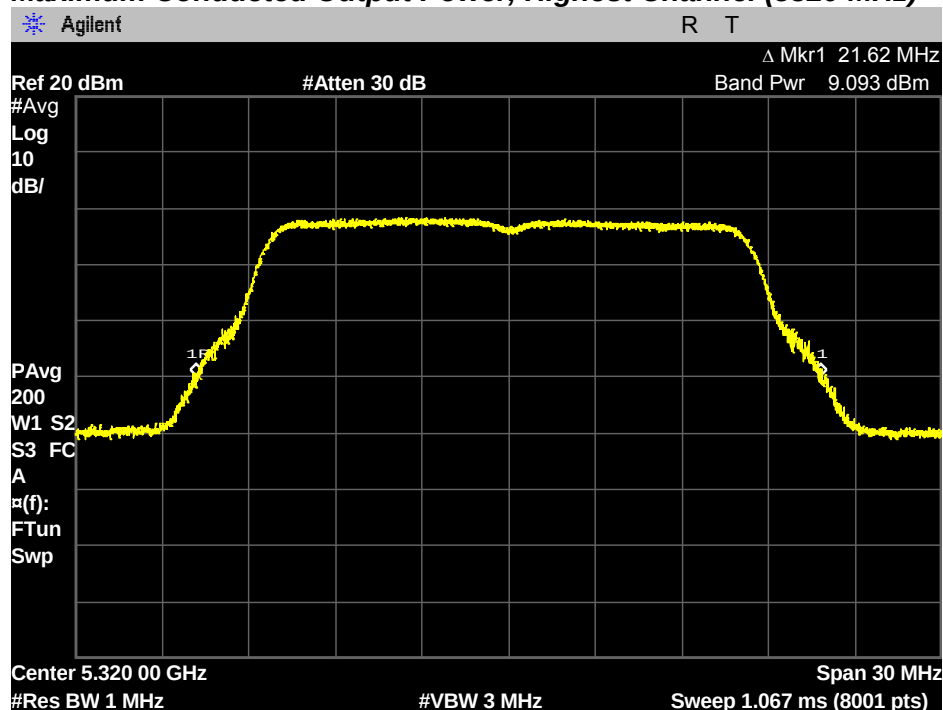


PLOTS OF EMISSIONS

Maximum Conducted Output Power, Middle Channel (5300 MHz)



Maximum Conducted Output Power, Highest Channel (5320 MHz)

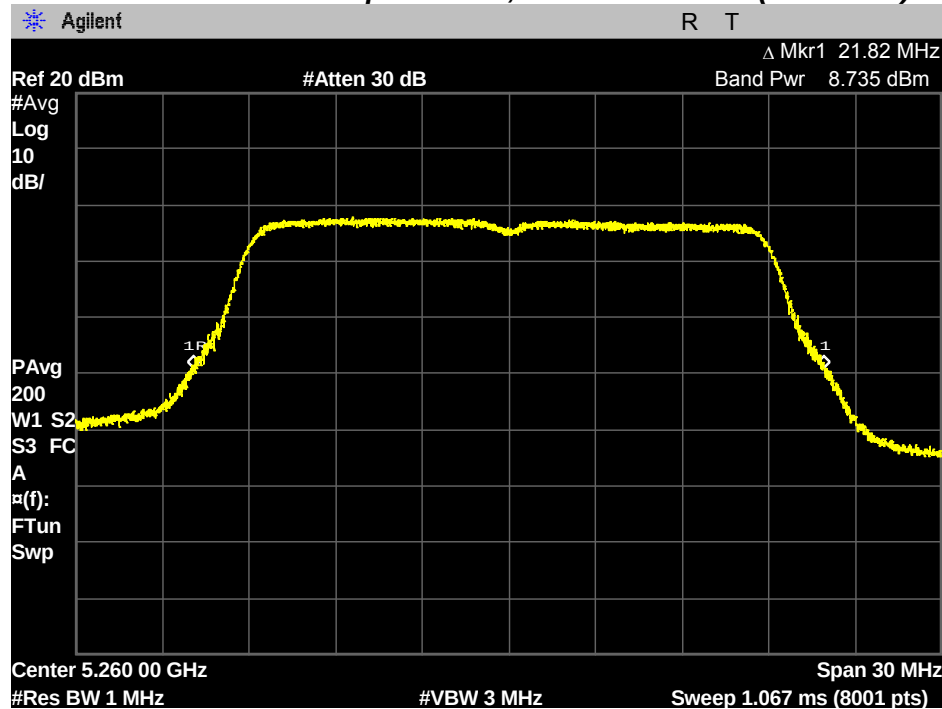


PLOTS OF EMISSIONS

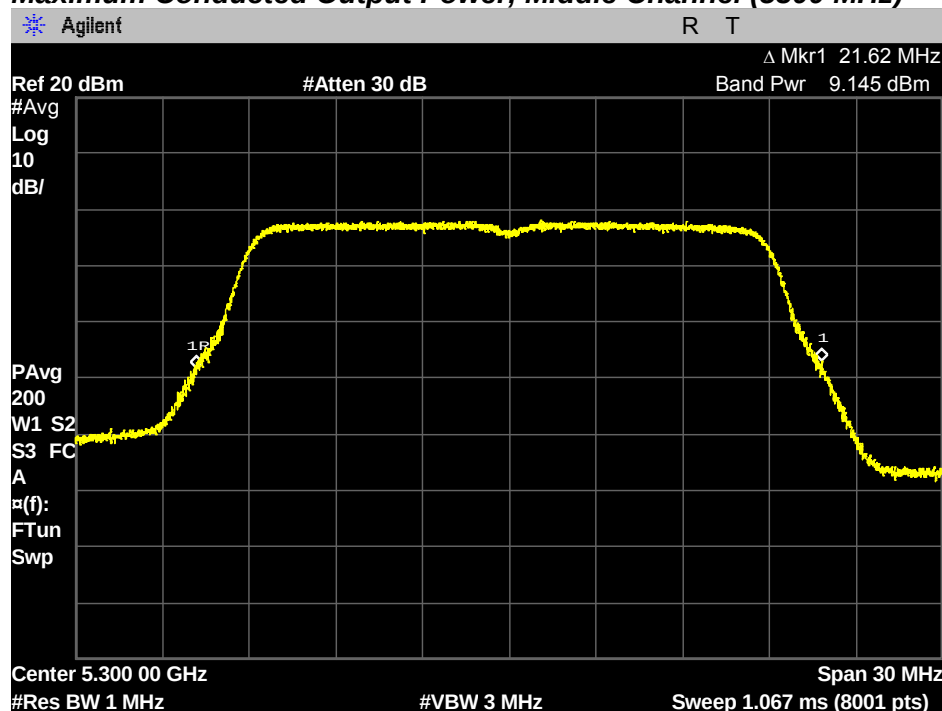
802.11n(20MHz) mode - SISO

Chain 0

Maximum Conducted Output Power, Lowest Channel (5260 MHz)

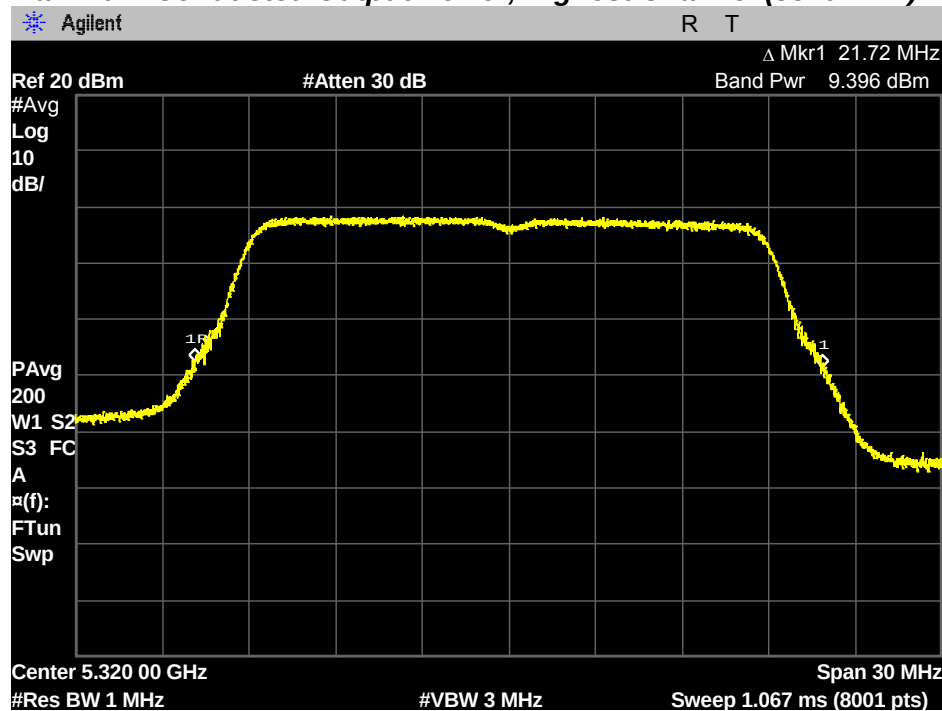


Maximum Conducted Output Power, Middle Channel (5300 MHz)



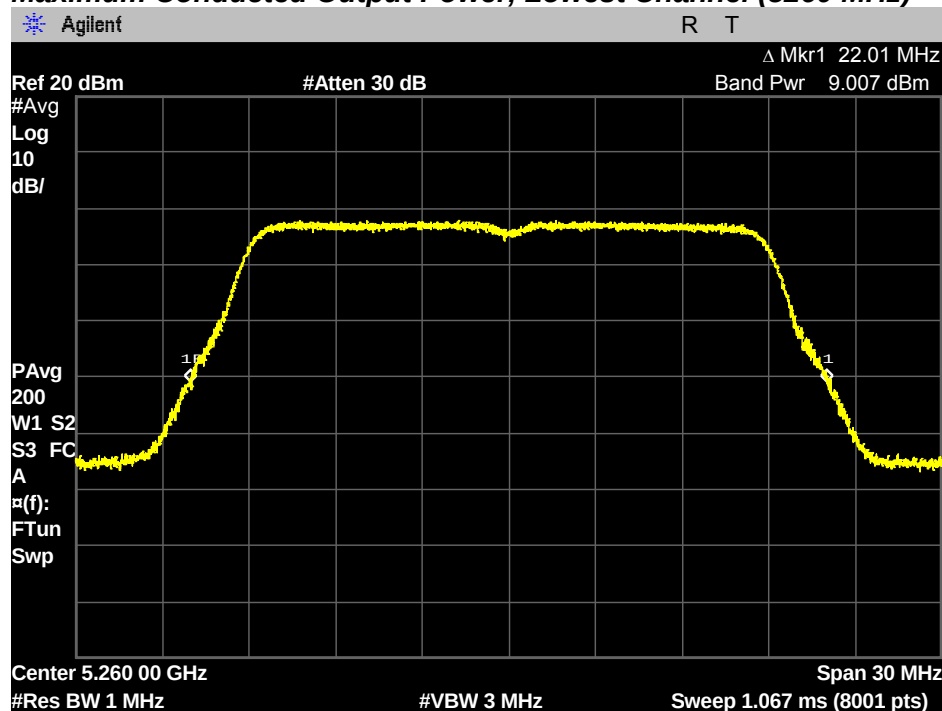
PLOTS OF EMISSIONS

Maximum Conducted Output Power, Highest Channel (5320 MHz)



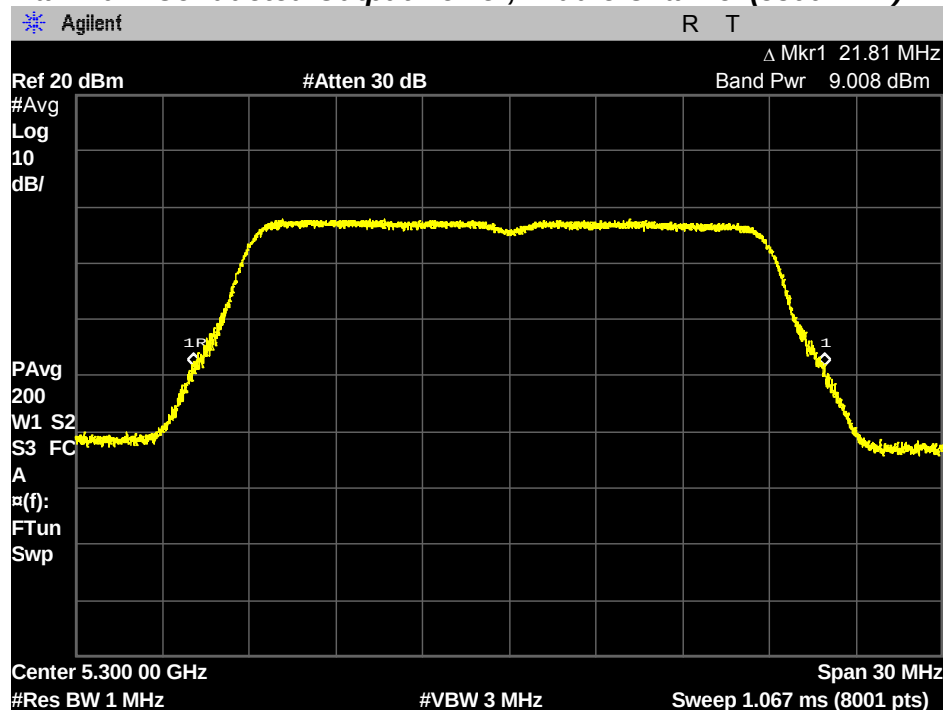
Chain 1

Maximum Conducted Output Power, Lowest Channel (5260 MHz)

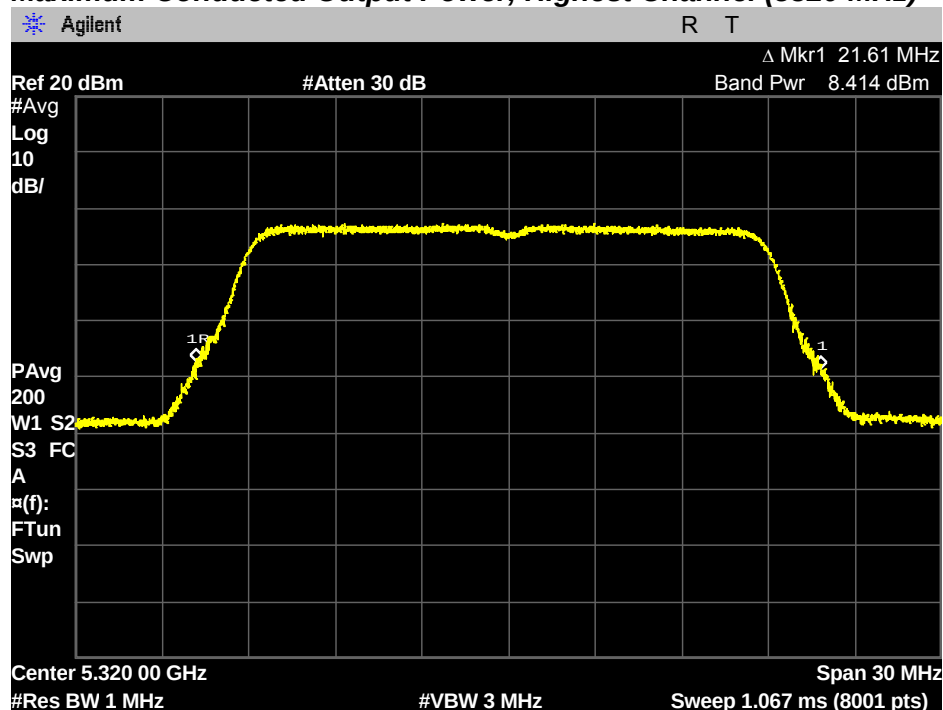


PLOTS OF EMISSIONS

Maximum Conducted Output Power, Middle Channel (5300 MHz)



Maximum Conducted Output Power, Highest Channel (5320 MHz)

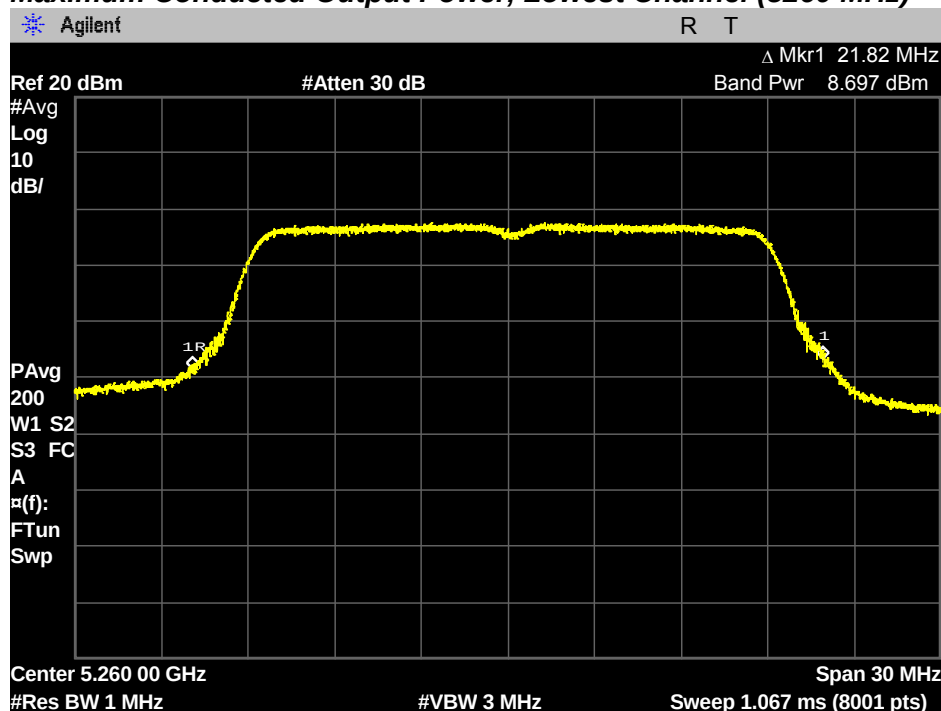


PLOTS OF EMISSIONS

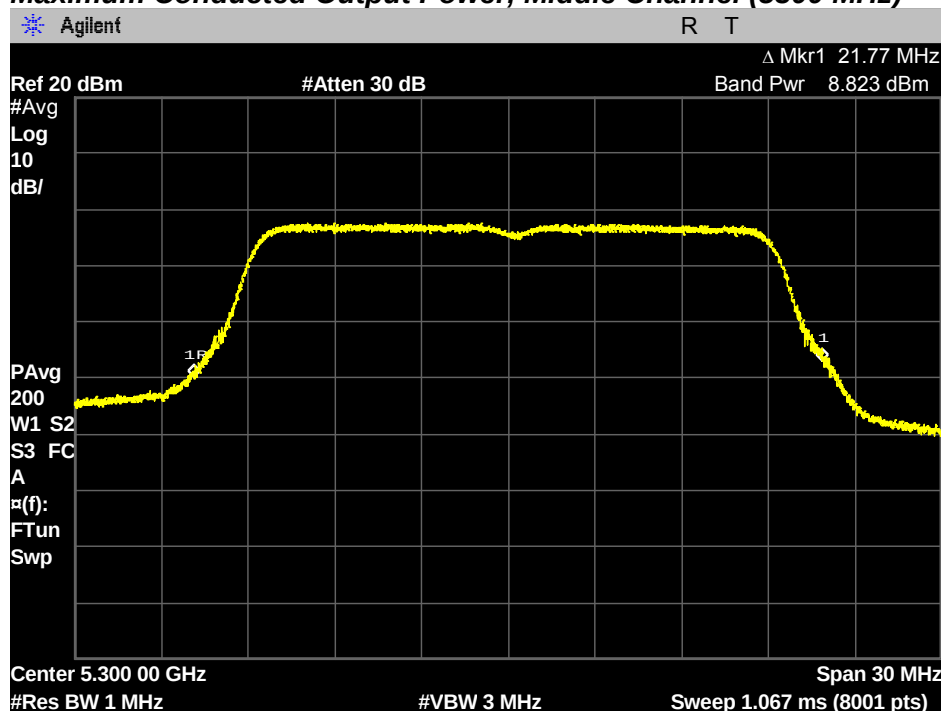
802.11n(20MHz) mode - CDD

Chain 0

Maximum Conducted Output Power, Lowest Channel (5260 MHz)

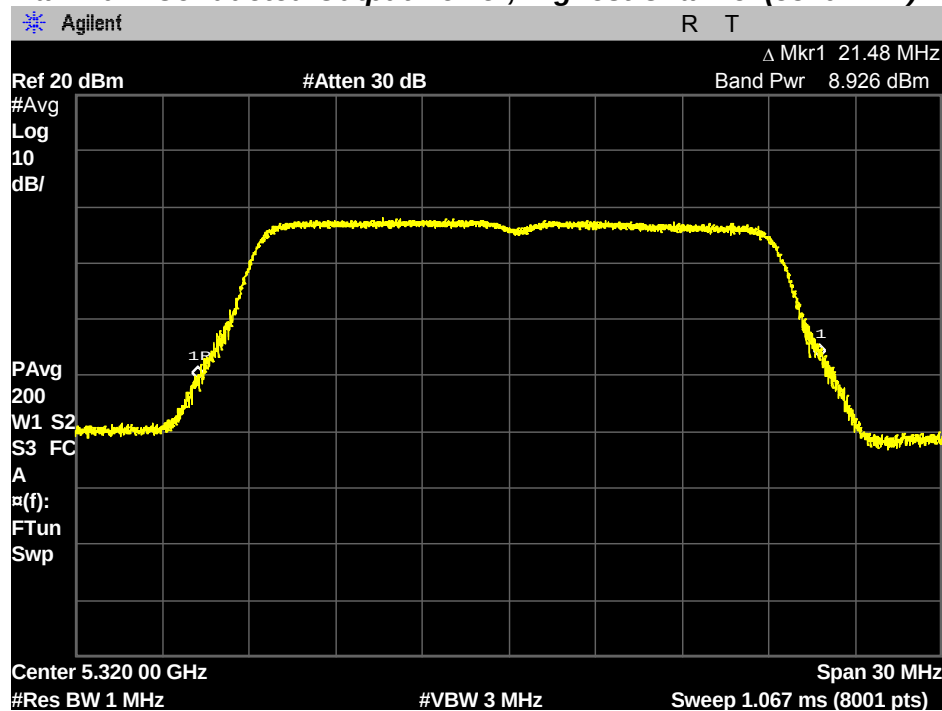


Maximum Conducted Output Power, Middle Channel (5300 MHz)



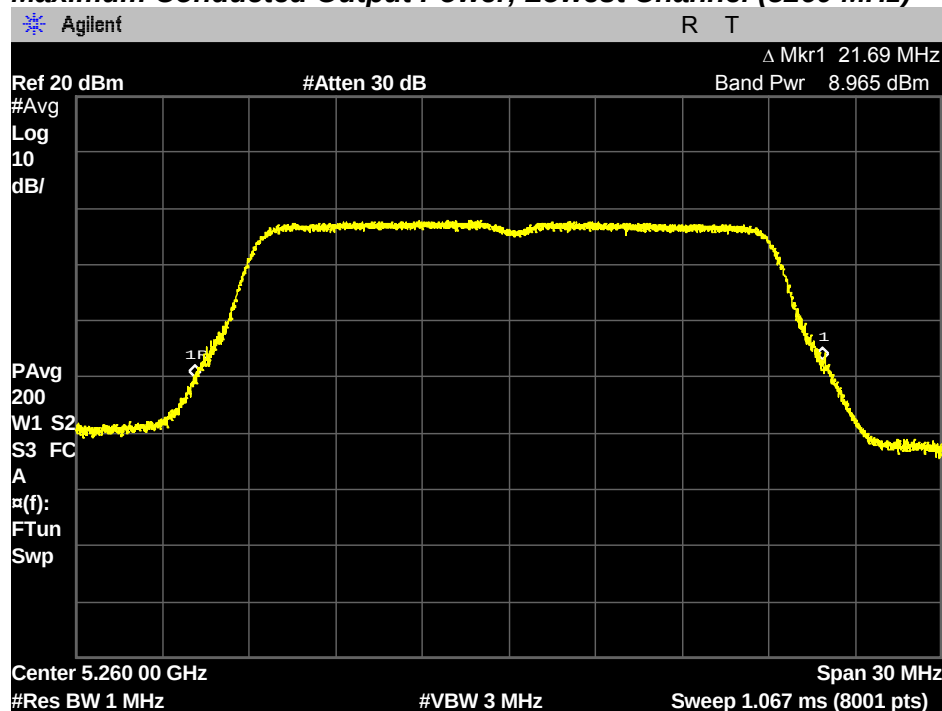
PLOTS OF EMISSIONS

Maximum Conducted Output Power, Highest Channel (5320 MHz)



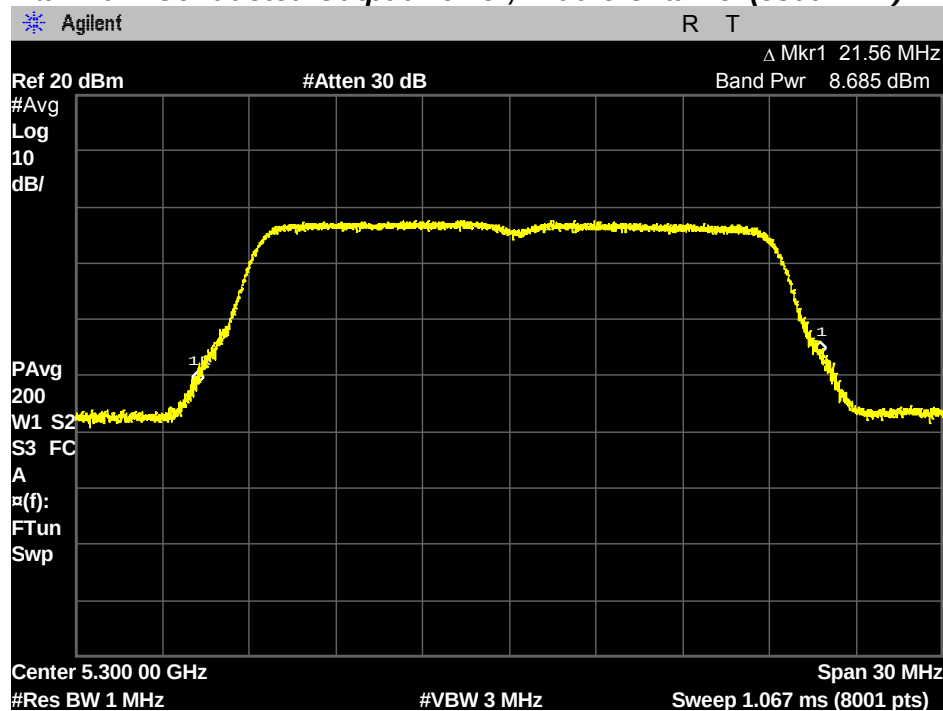
Chain 1

Maximum Conducted Output Power, Lowest Channel (5260 MHz)

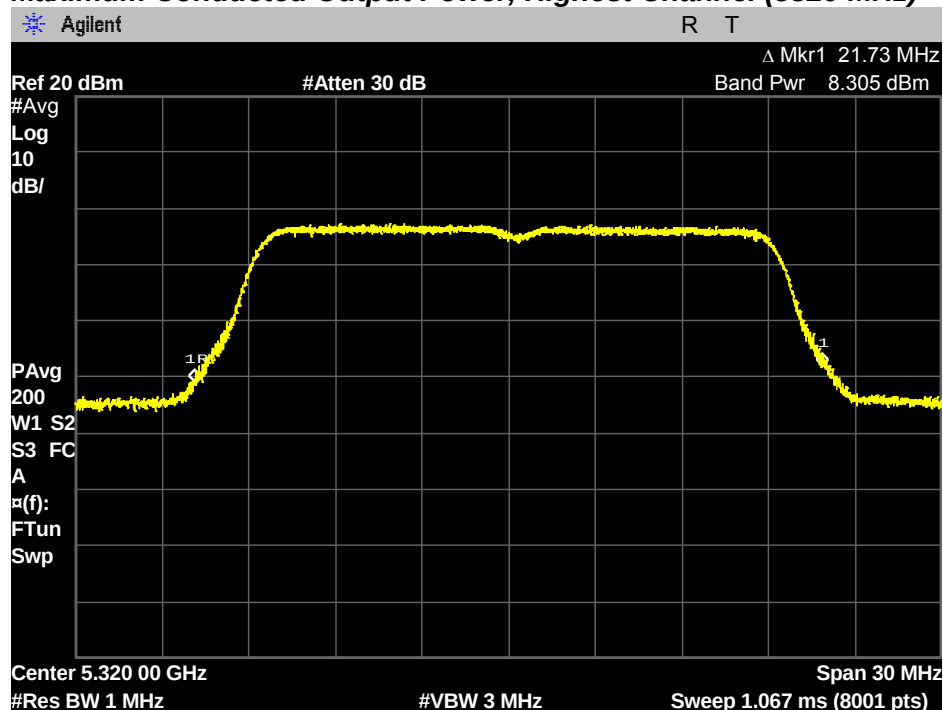


PLOTS OF EMISSIONS

Maximum Conducted Output Power, Middle Channel (5300 MHz)



Maximum Conducted Output Power, Highest Channel (5320 MHz)

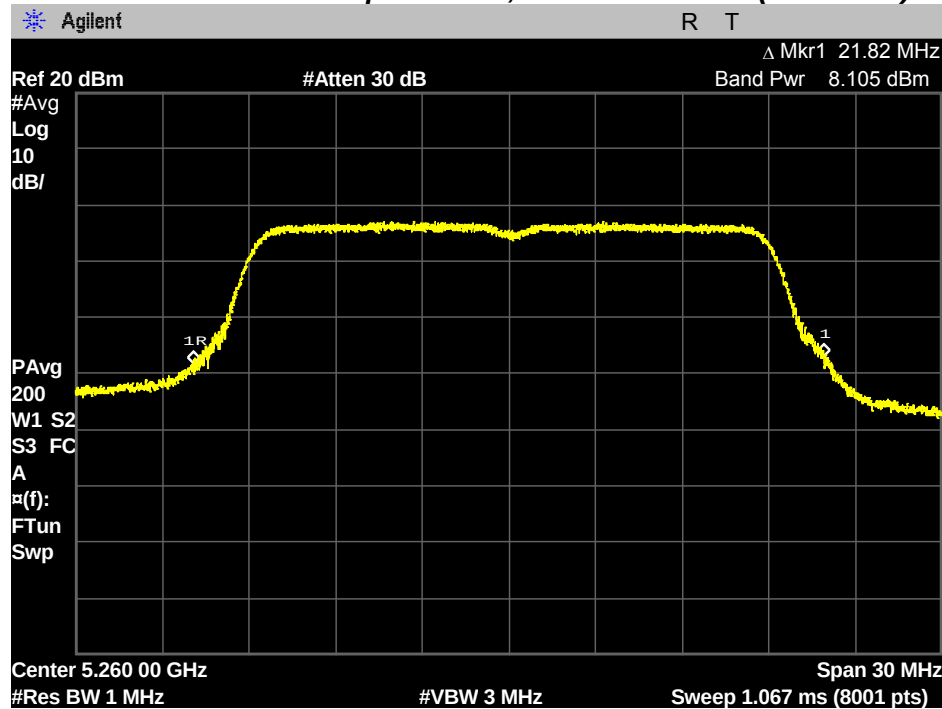


PLOTS OF EMISSIONS

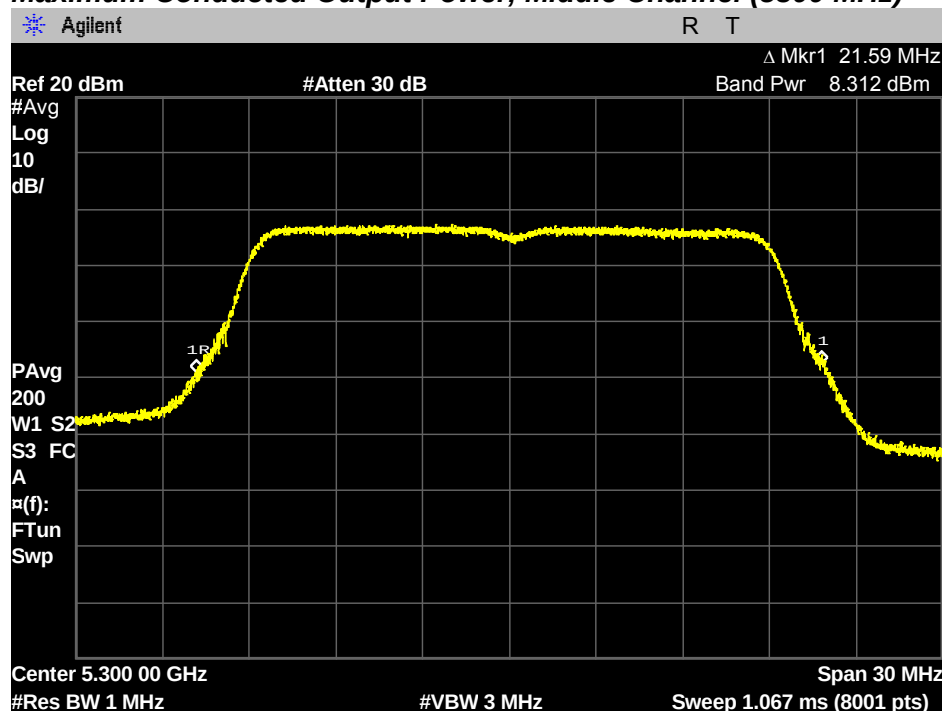
802.11n(20MHz) mode - MIMO

Chain 0

Maximum Conducted Output Power, Lowest Channel (5260 MHz)

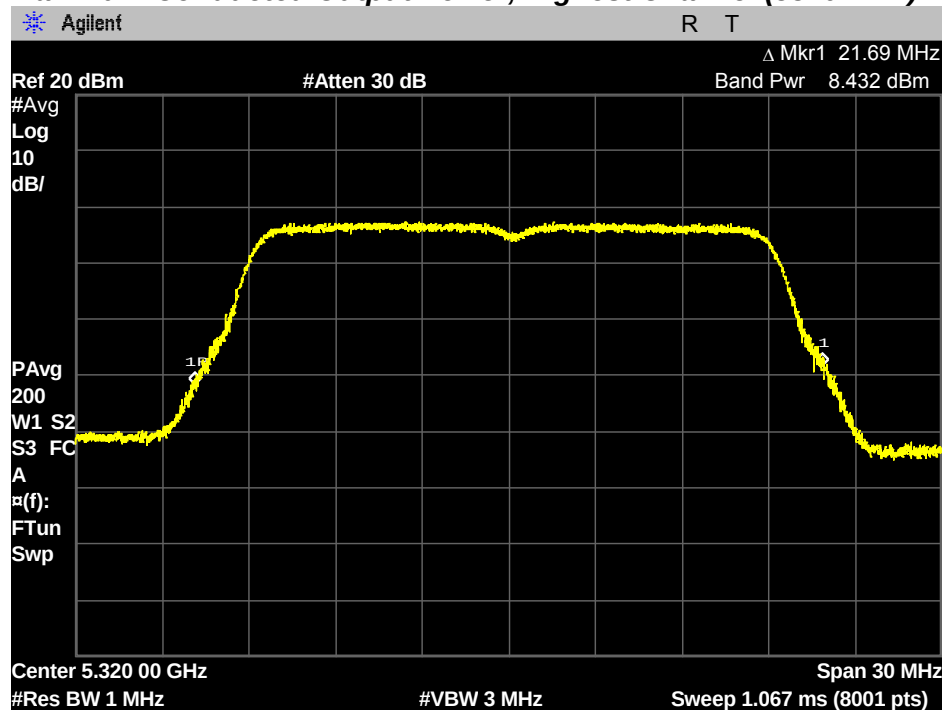


Maximum Conducted Output Power, Middle Channel (5300 MHz)



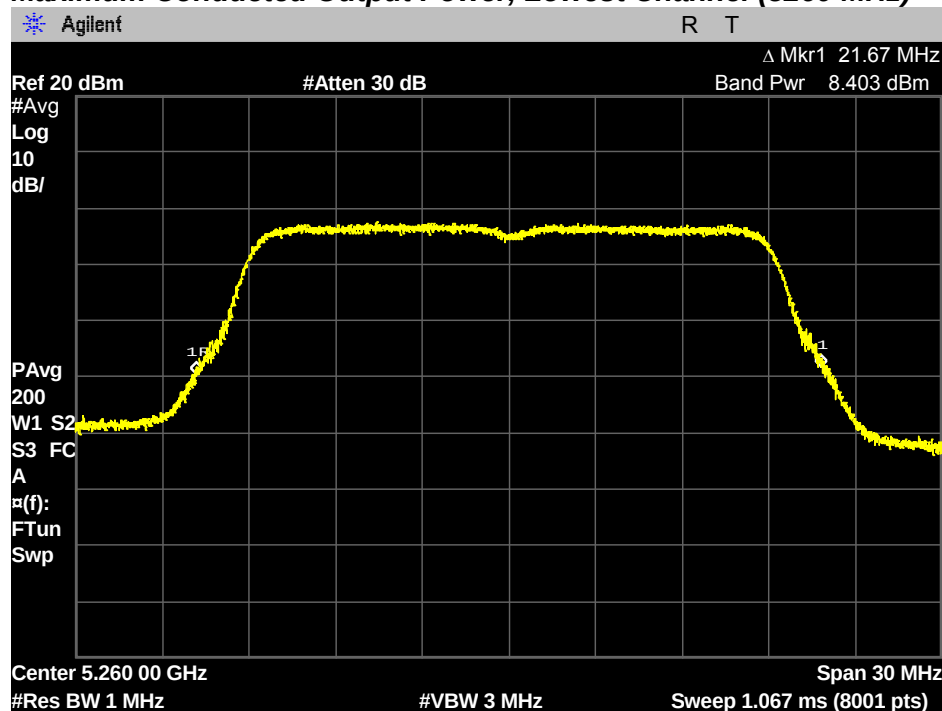
PLOTS OF EMISSIONS

Maximum Conducted Output Power, Highest Channel (5320 MHz)



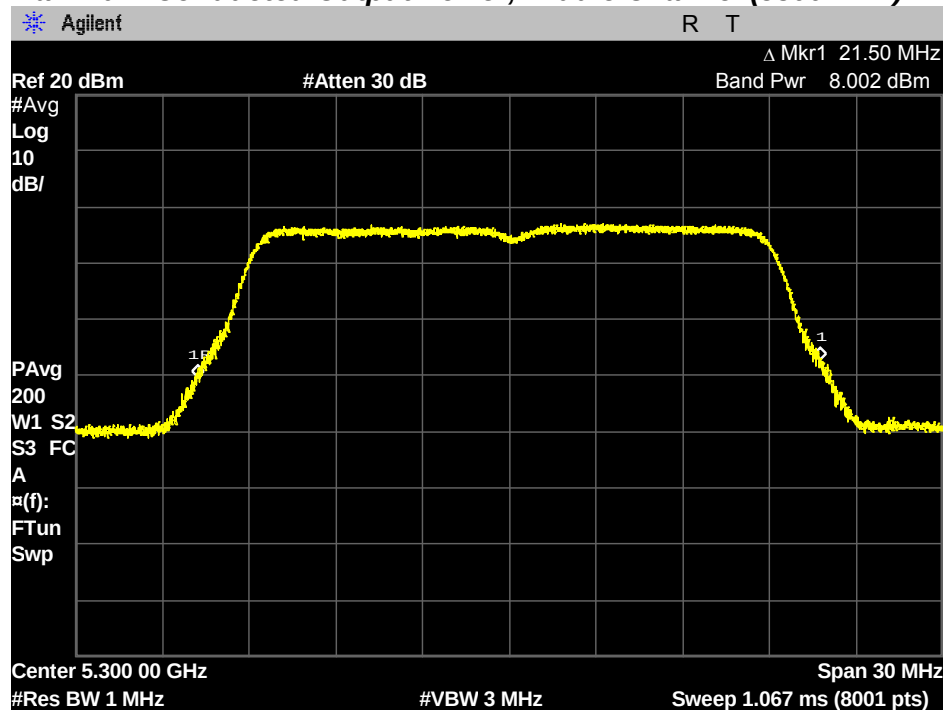
Chain 1

Maximum Conducted Output Power, Lowest Channel (5260 MHz)

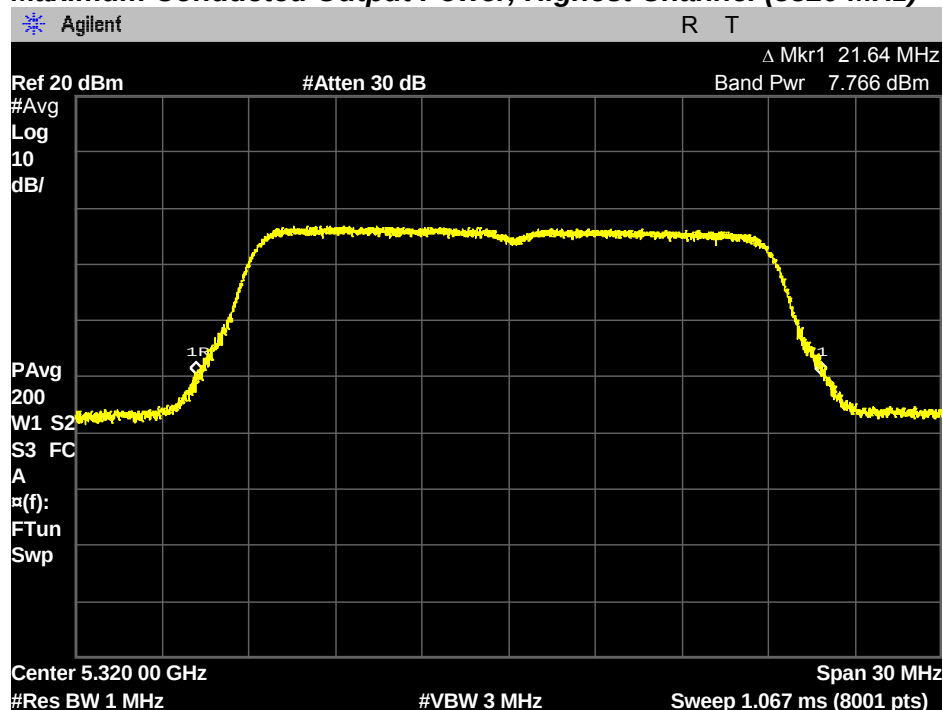


PLOTS OF EMISSIONS

Maximum Conducted Output Power, Middle Channel (5300 MHz)



Maximum Conducted Output Power, Highest Channel (5320 MHz)

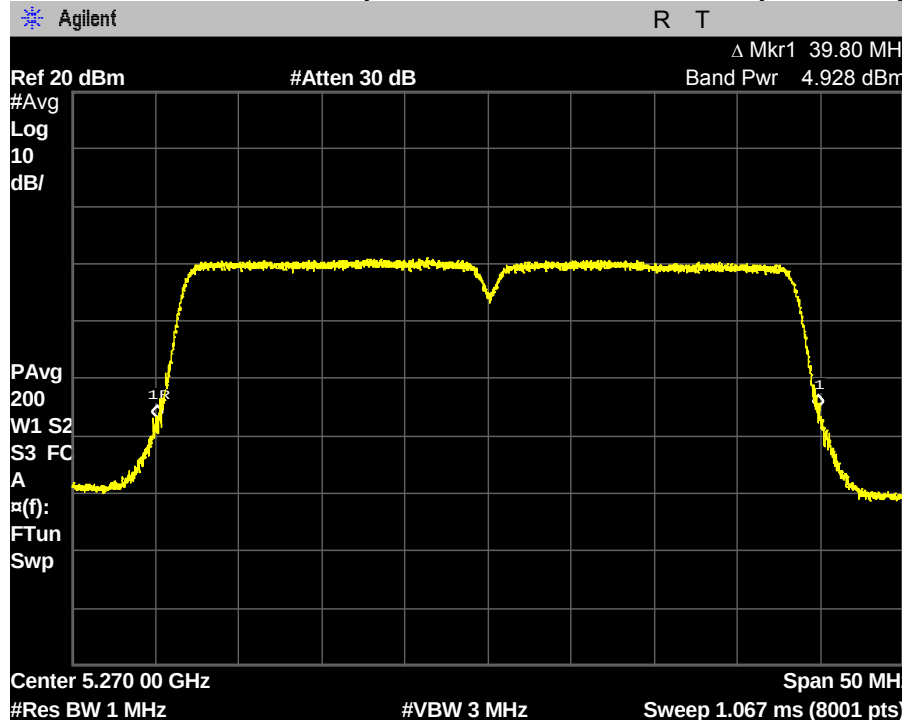


PLOTS OF EMISSIONS

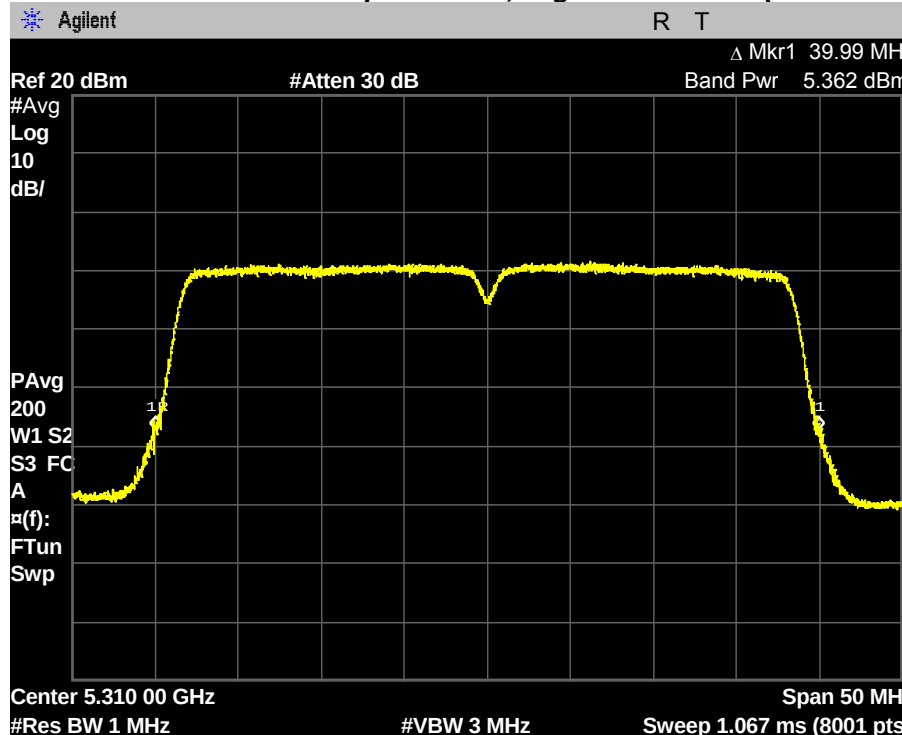
802.11n(40MHz) mode - SISO

Chain 0

Maximum Conducted Output Power, Lowest Channel (5270 MHz)



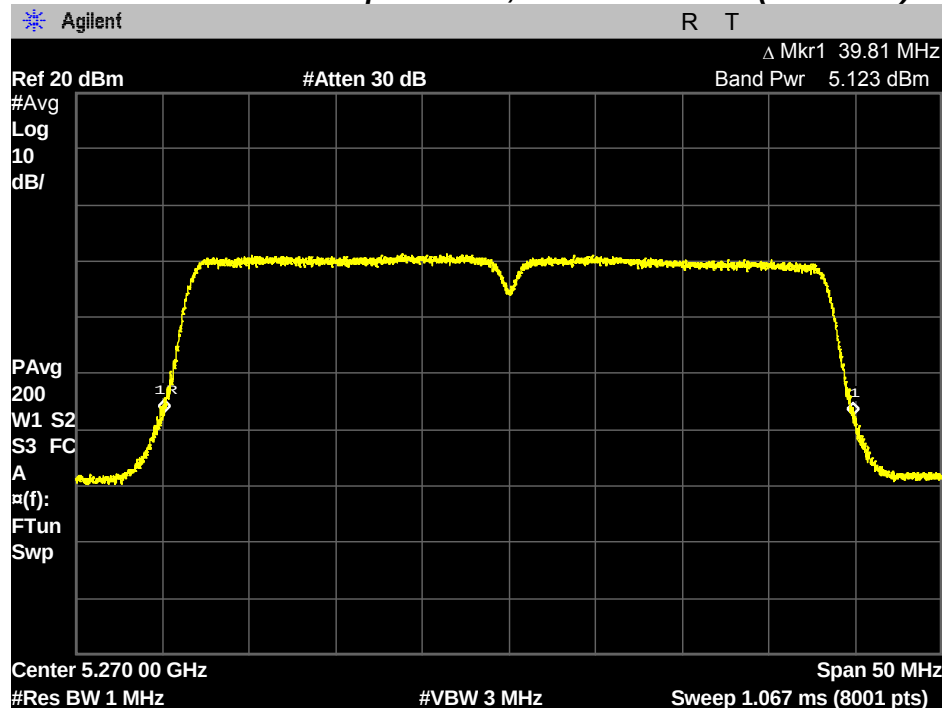
Maximum Conducted Output Power, Highest Channel (5310 MHz)



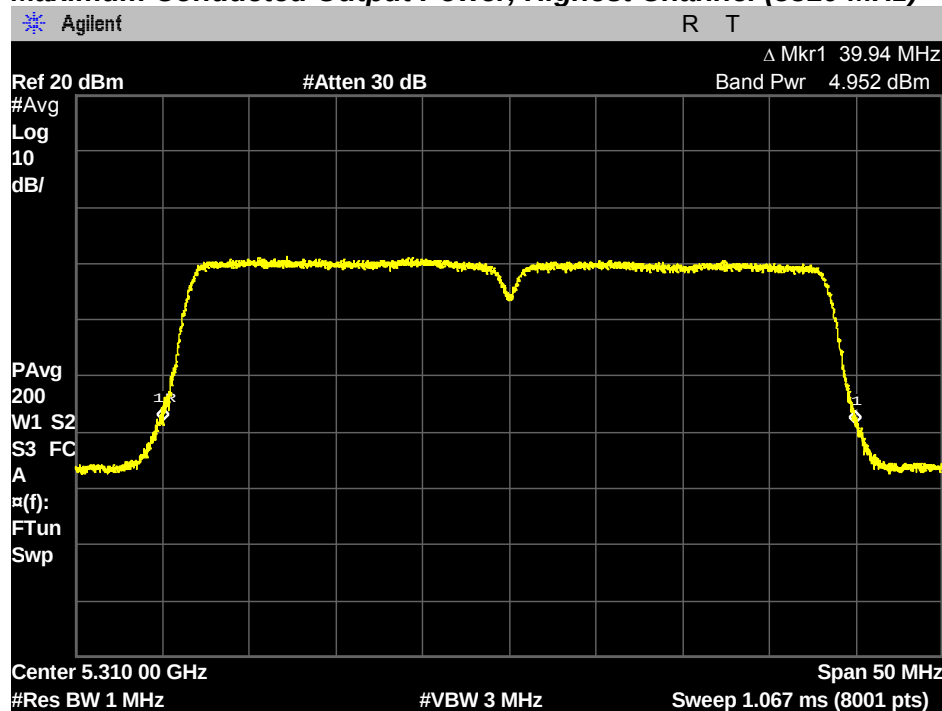
PLOTS OF EMISSIONS

Chain 1

Maximum Conducted Output Power, Lowest Channel (5270 MHz)



Maximum Conducted Output Power, Highest Channel (5310 MHz)

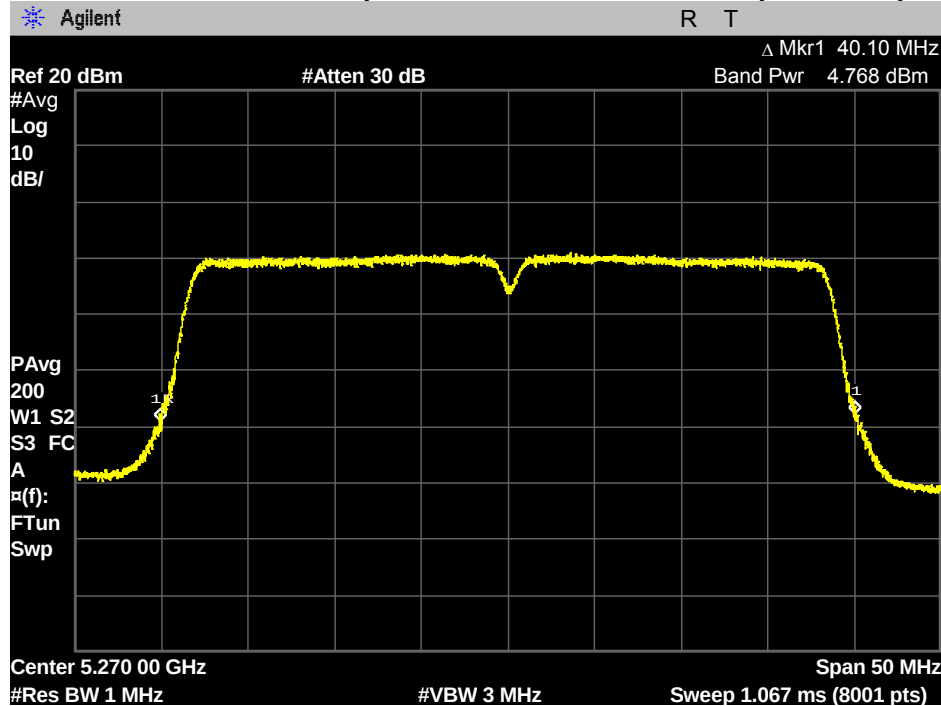


PLOTS OF EMISSIONS

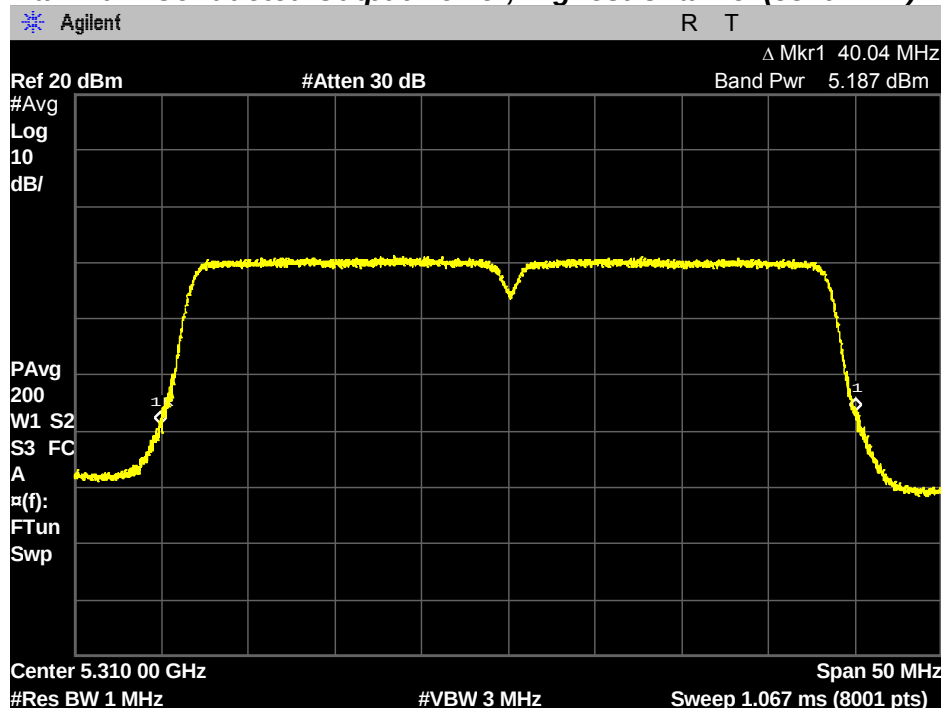
802.11n(40MHz) mode - CDD

Chain 0

Maximum Conducted Output Power, Lowest Channel (5270 MHz)



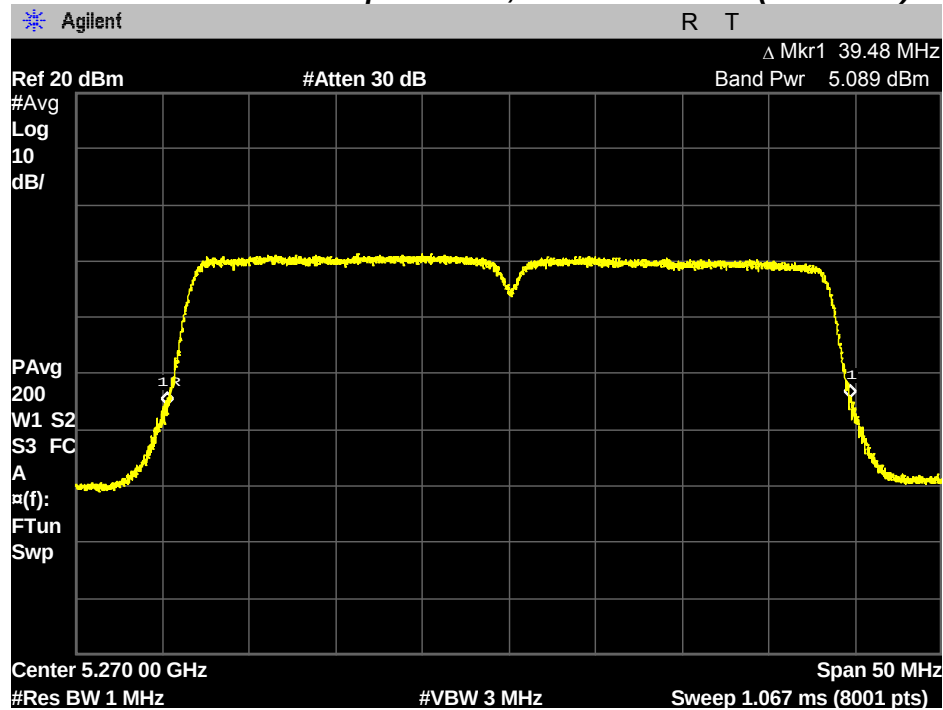
Maximum Conducted Output Power, Highest Channel (5310 MHz)



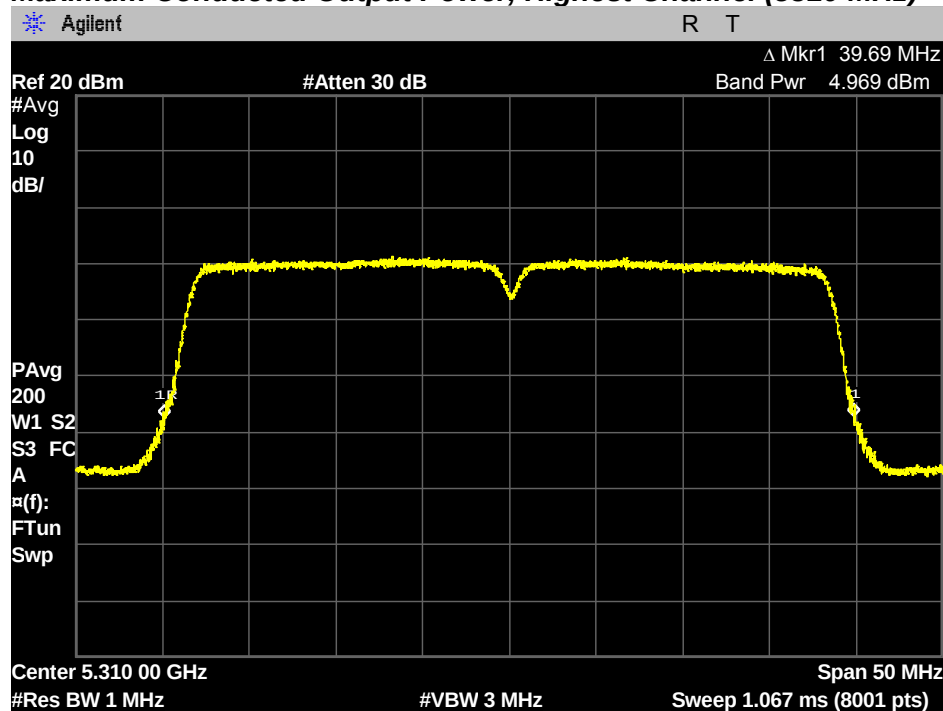
PLOTS OF EMISSIONS

Chain 1

Maximum Conducted Output Power, Lowest Channel (5270 MHz)



Maximum Conducted Output Power, Highest Channel (5310 MHz)

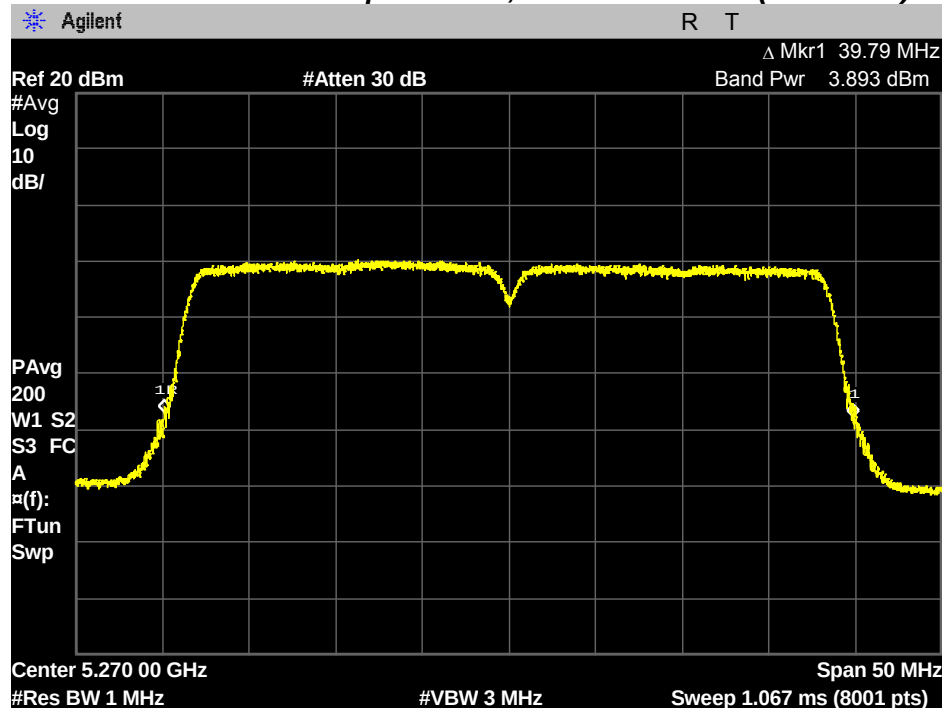


PLOTS OF EMISSIONS

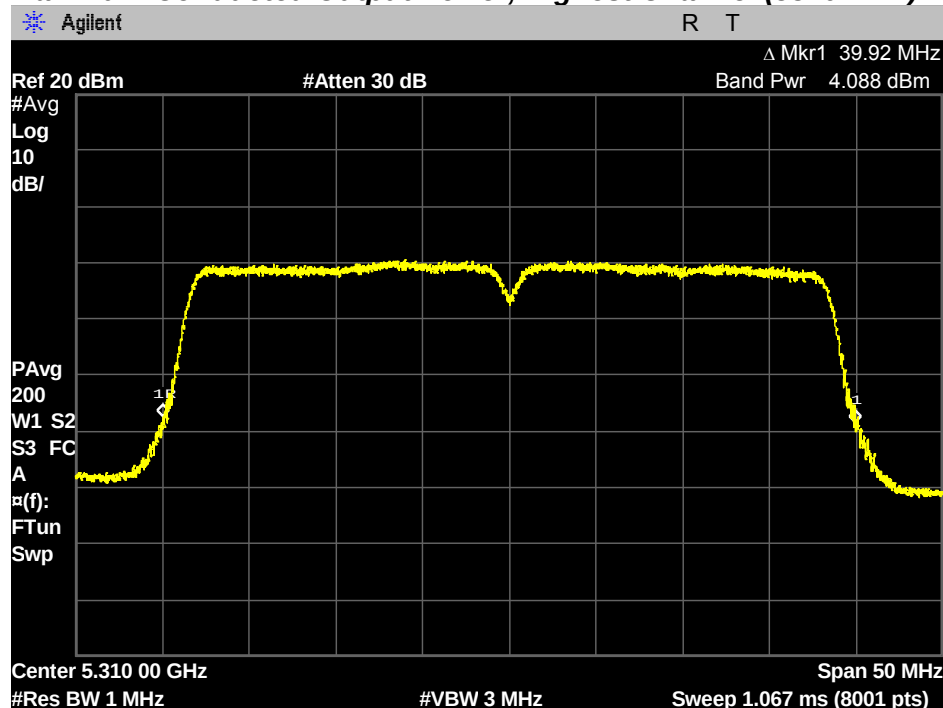
802.11n(40MHz) mode - MIMO

Chain 0

Maximum Conducted Output Power, Lowest Channel (5270 MHz)



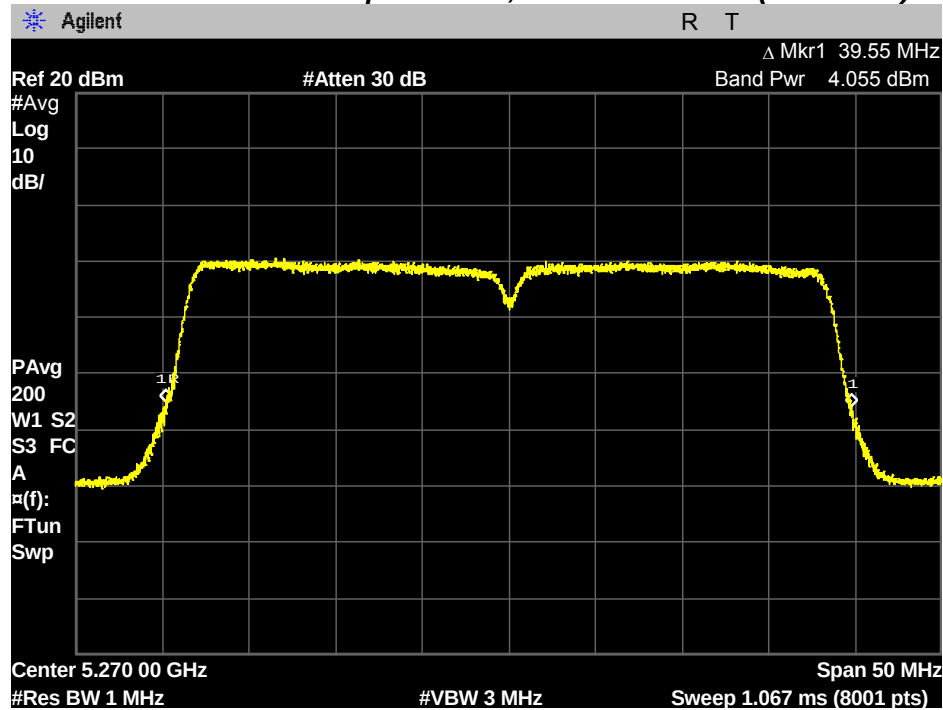
Maximum Conducted Output Power, Highest Channel (5310 MHz)



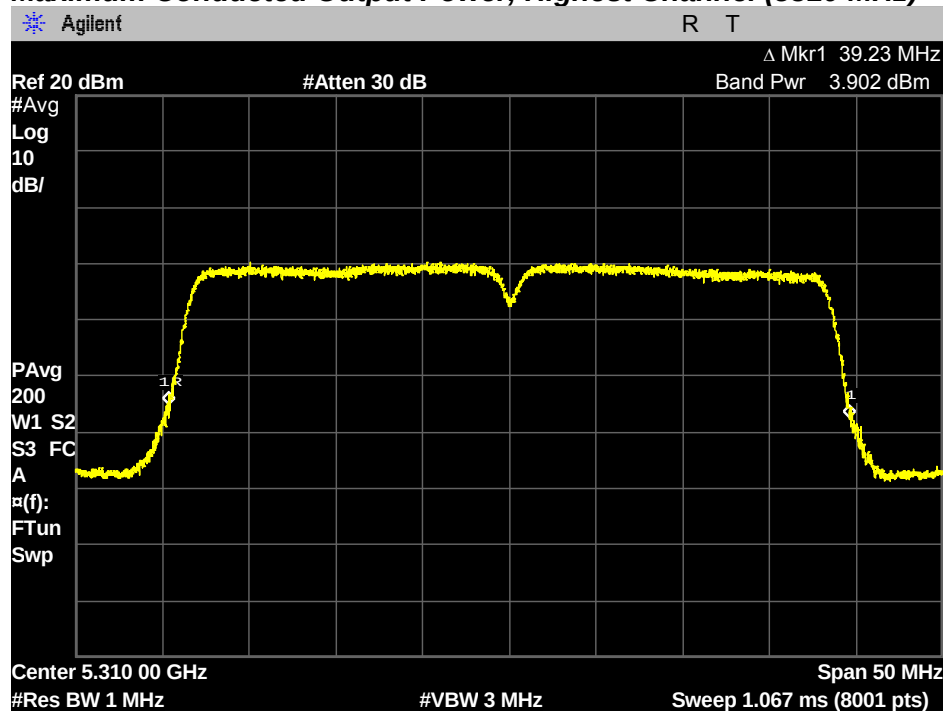
PLOTS OF EMISSIONS

Chain 1

Maximum Conducted Output Power, Lowest Channel (5270 MHz)



Maximum Conducted Output Power, Highest Channel (5310 MHz)

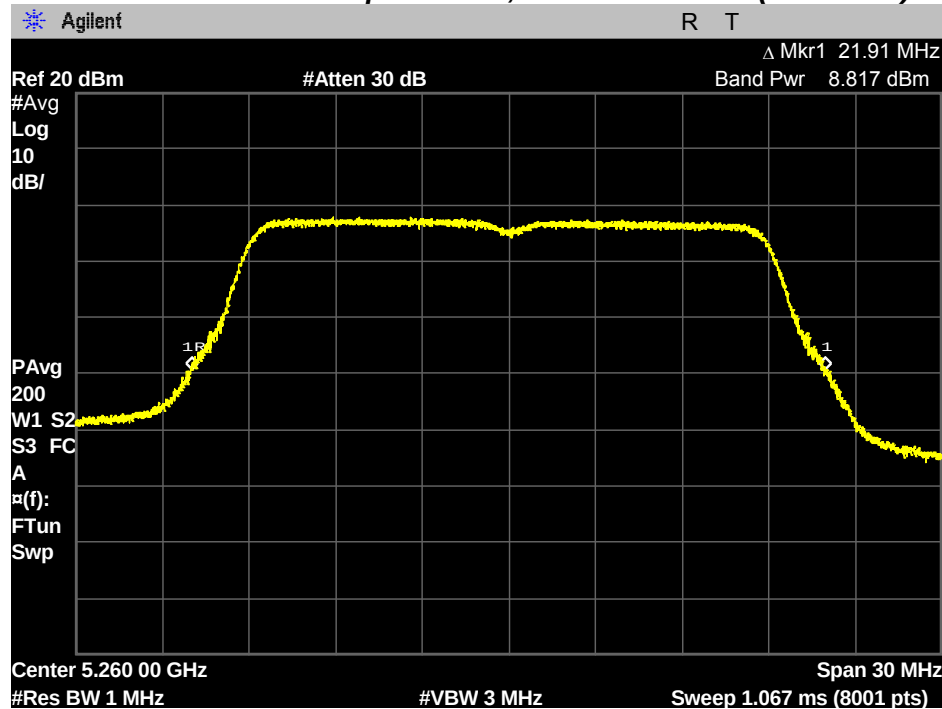


PLOTS OF EMISSIONS

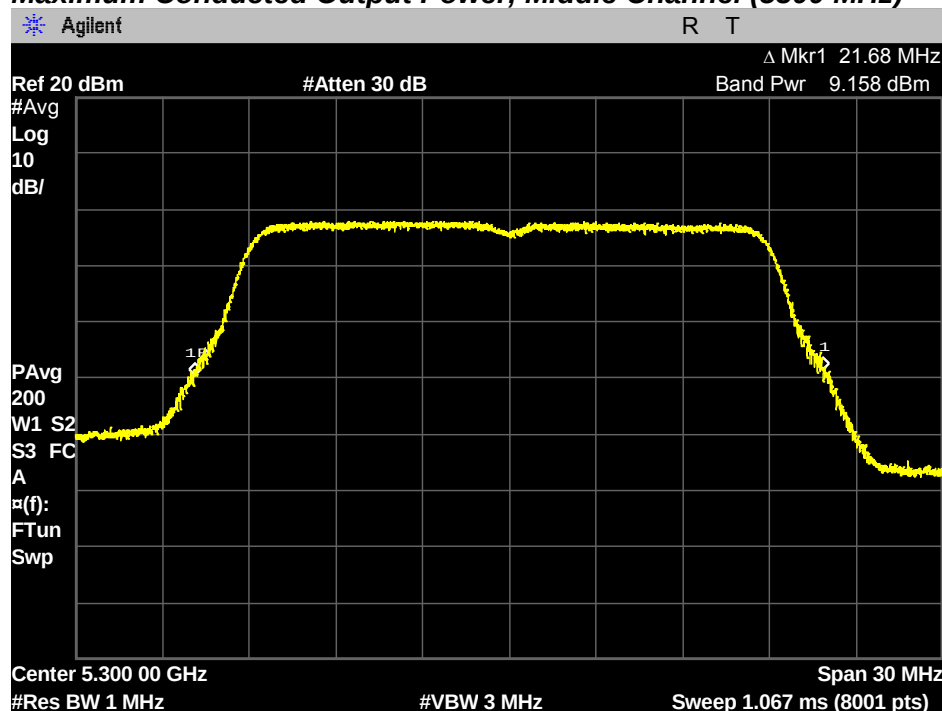
802.11ac(20MHz) mode - SISO

Chain 0

Maximum Conducted Output Power, Lowest Channel (5260 MHz)

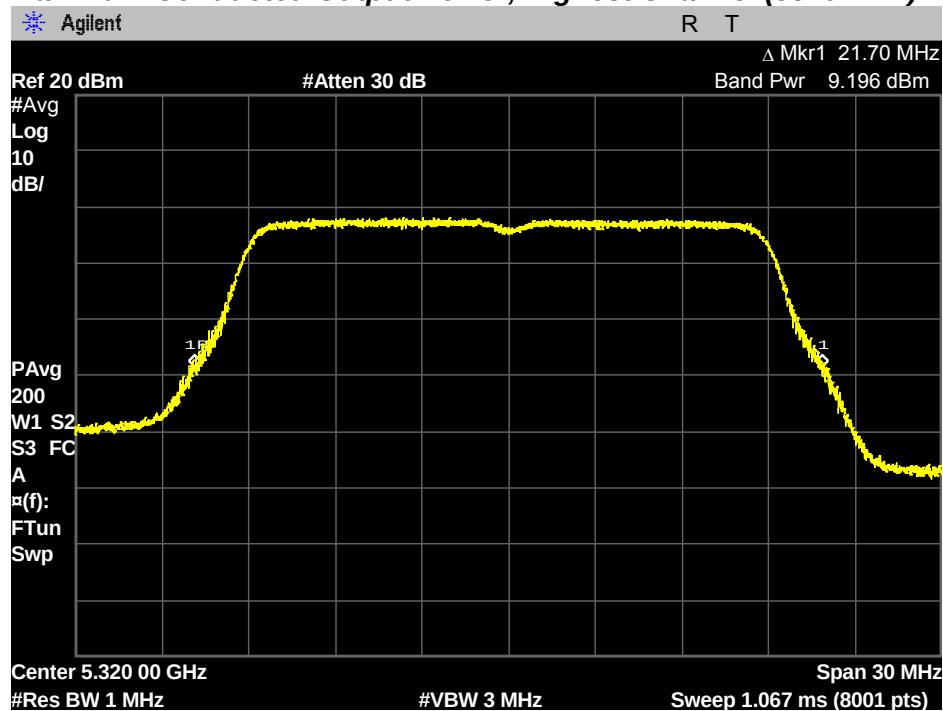


Maximum Conducted Output Power, Middle Channel (5300 MHz)



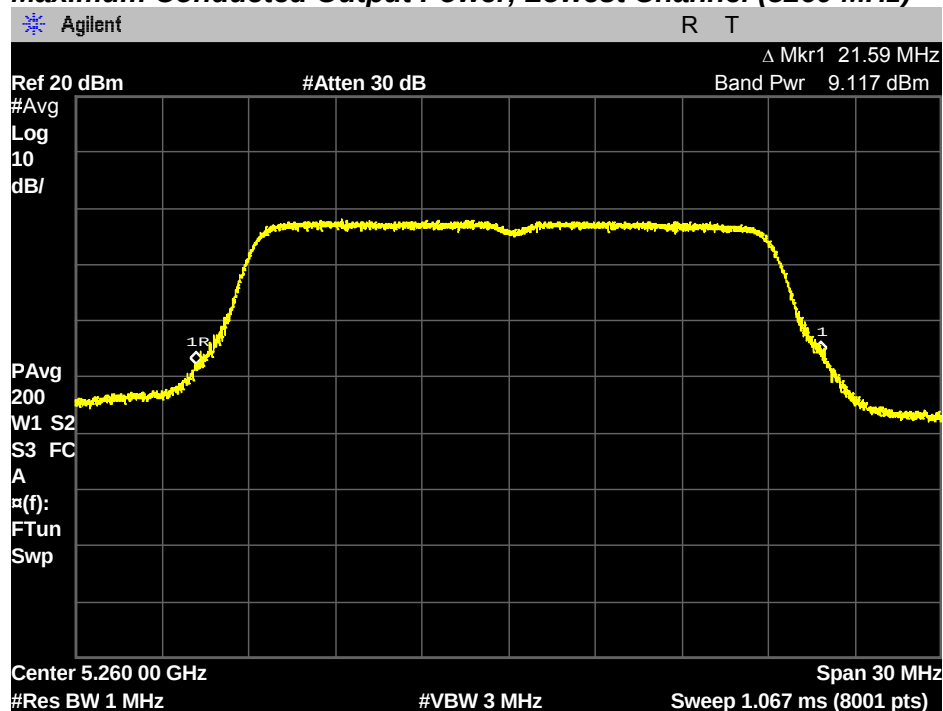
PLOTS OF EMISSIONS

Maximum Conducted Output Power, Highest Channel (5320 MHz)



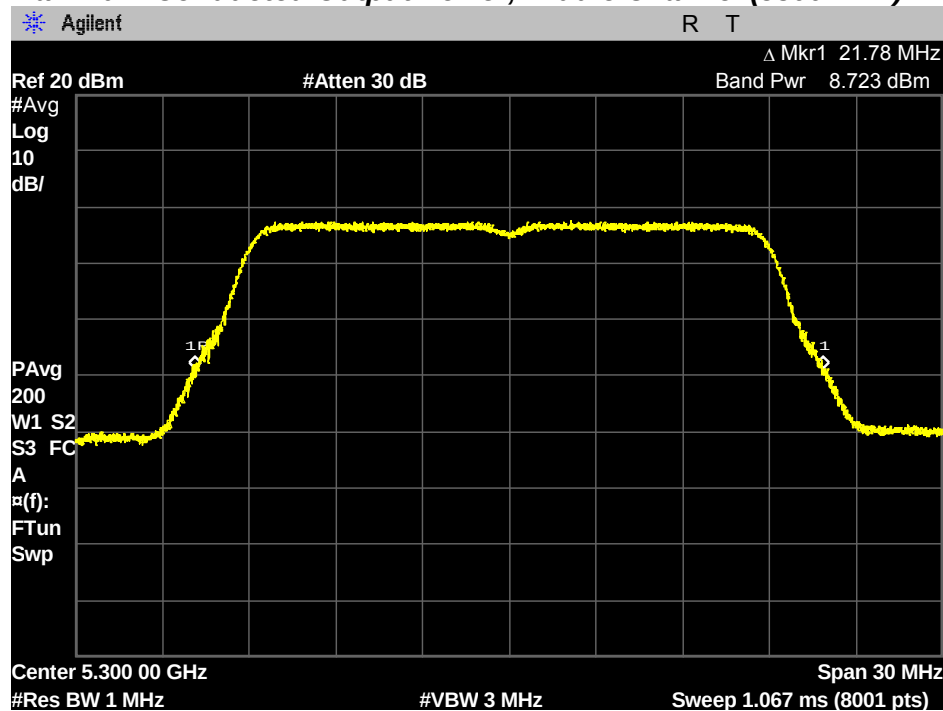
Chain 1

Maximum Conducted Output Power, Lowest Channel (5260 MHz)

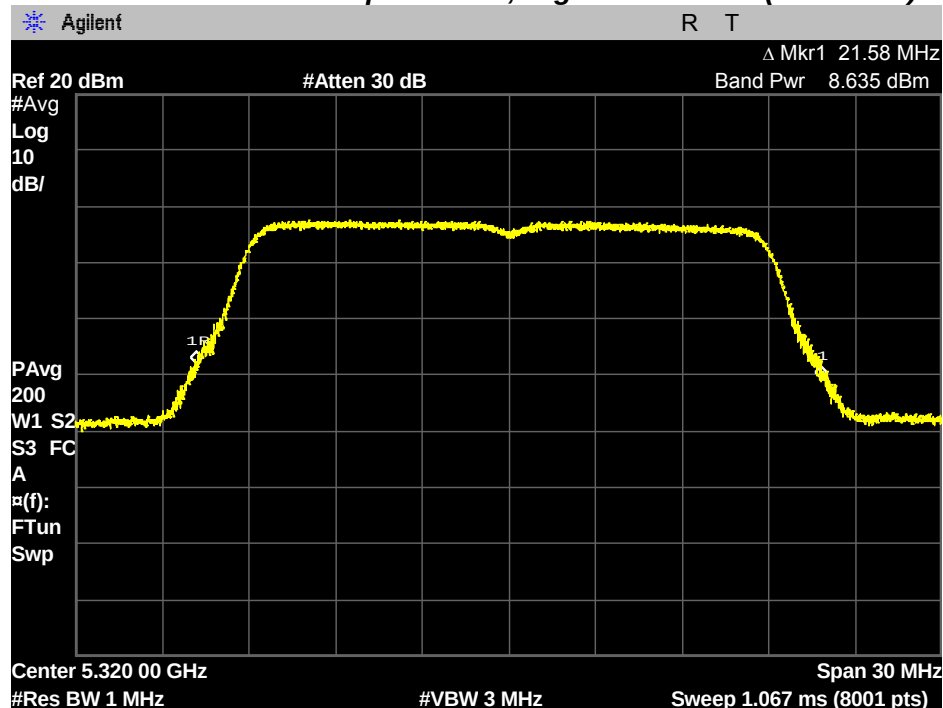


PLOTS OF EMISSIONS

Maximum Conducted Output Power, Middle Channel (5300 MHz)



Maximum Conducted Output Power, Highest Channel (5320 MHz)

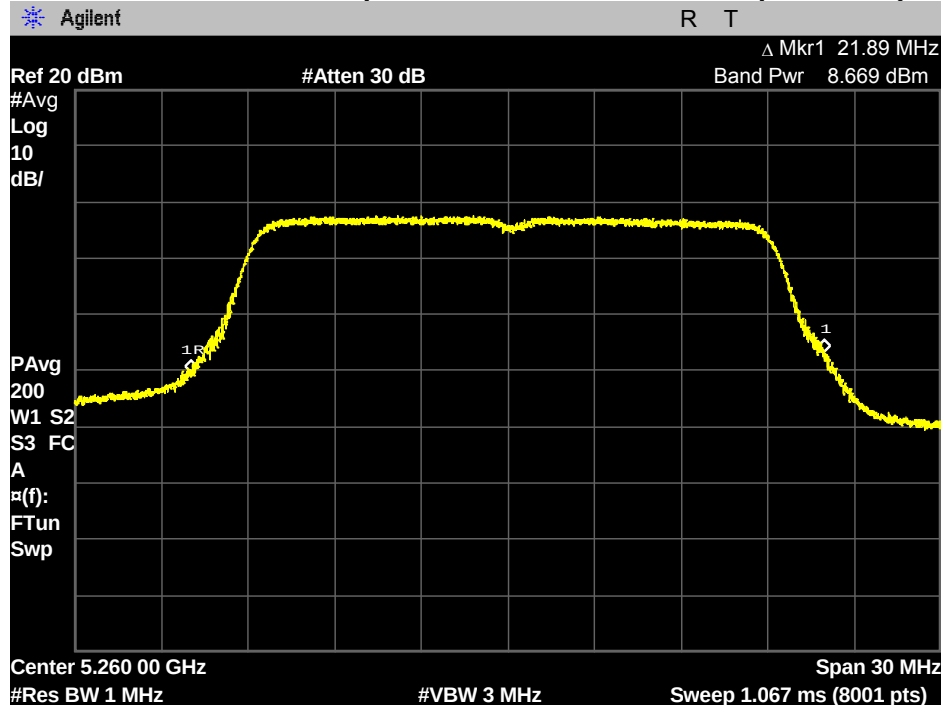


PLOTS OF EMISSIONS

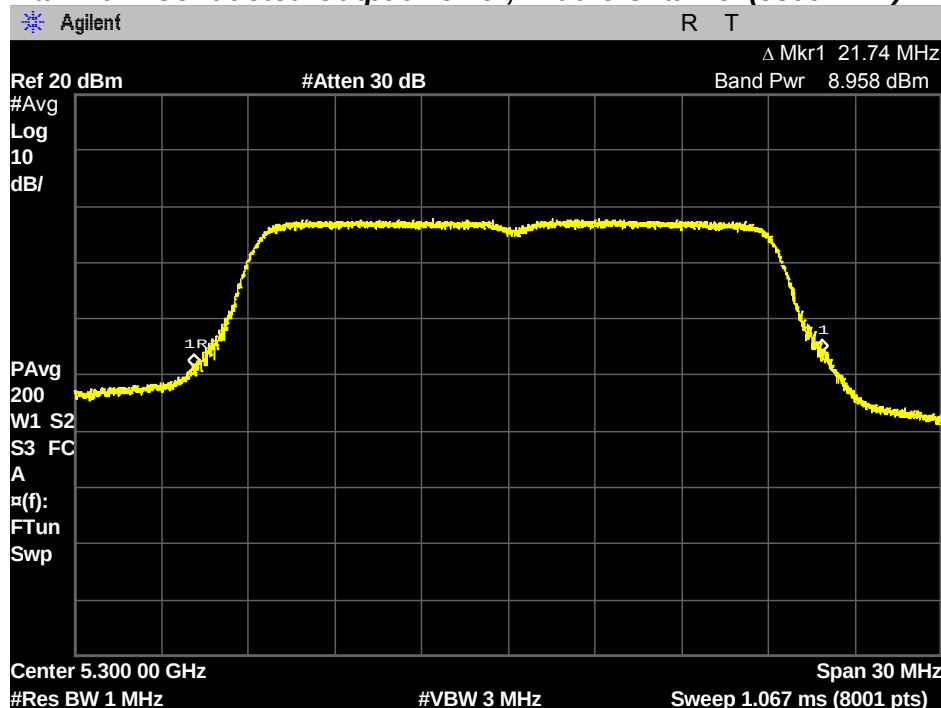
802.11ac(20MHz) mode - CDD

Chain 0

Maximum Conducted Output Power, Lowest Channel (5260 MHz)

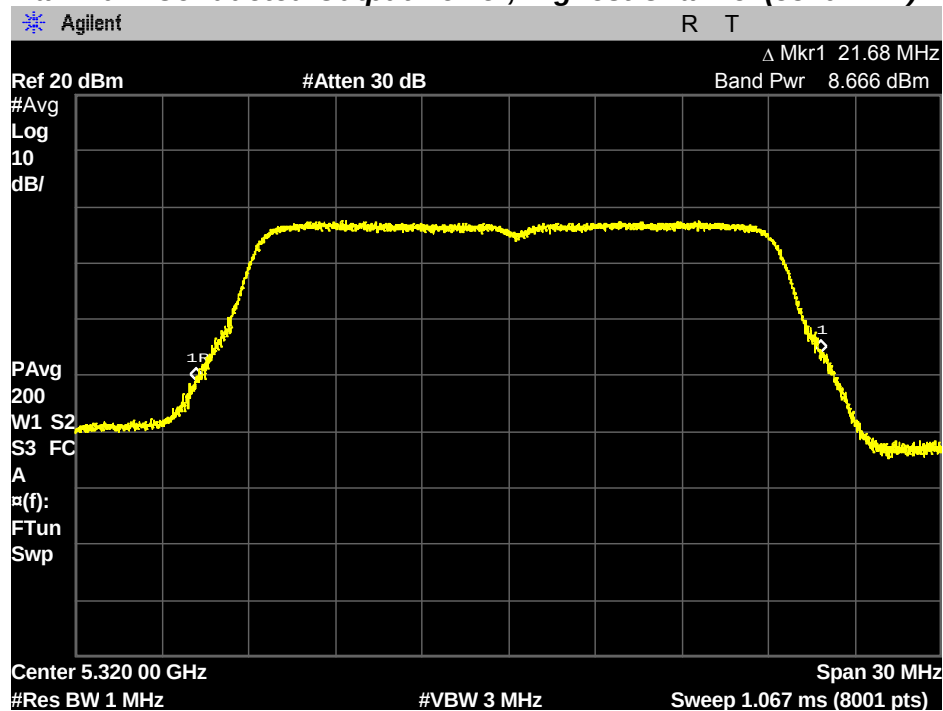


Maximum Conducted Output Power, Middle Channel (5300 MHz)



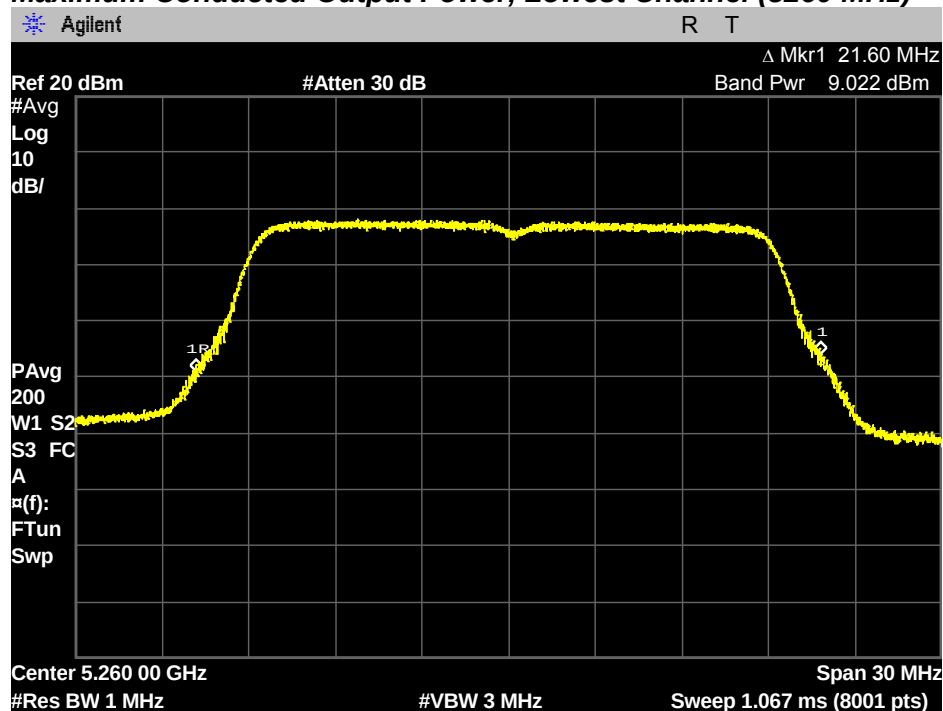
PLOTS OF EMISSIONS

Maximum Conducted Output Power, Highest Channel (5320 MHz)



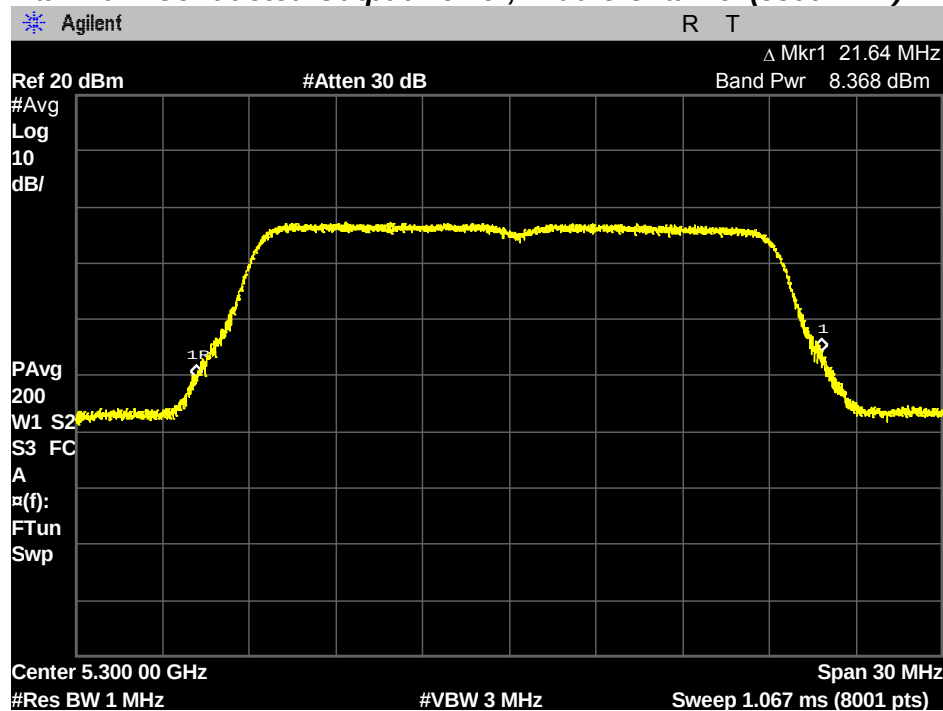
Chain 1

Maximum Conducted Output Power, Lowest Channel (5260 MHz)

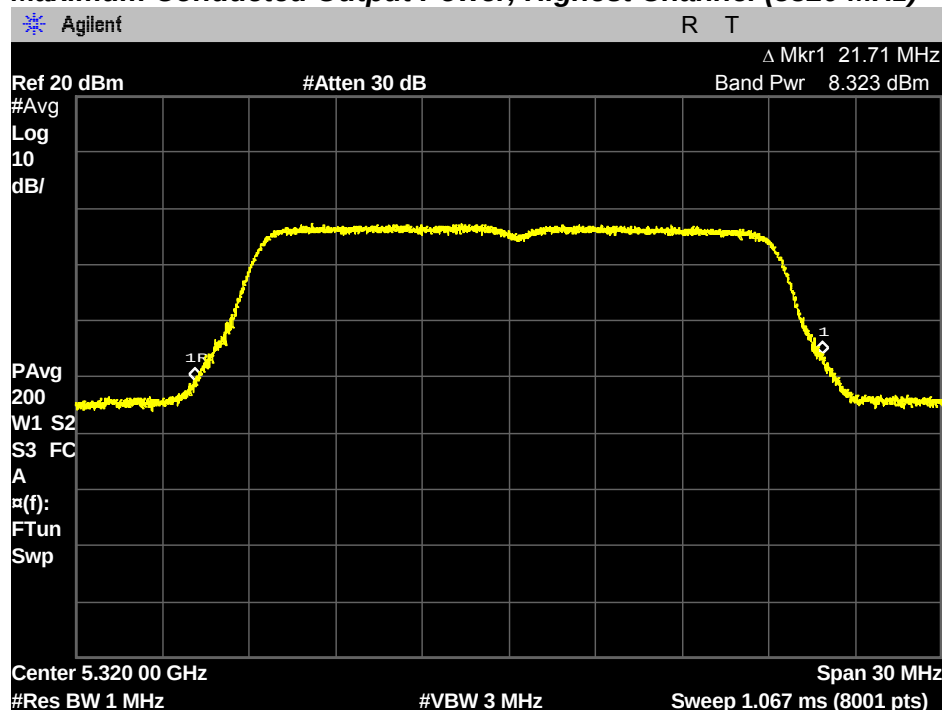


PLOTS OF EMISSIONS

Maximum Conducted Output Power, Middle Channel (5300 MHz)



Maximum Conducted Output Power, Highest Channel (5320 MHz)

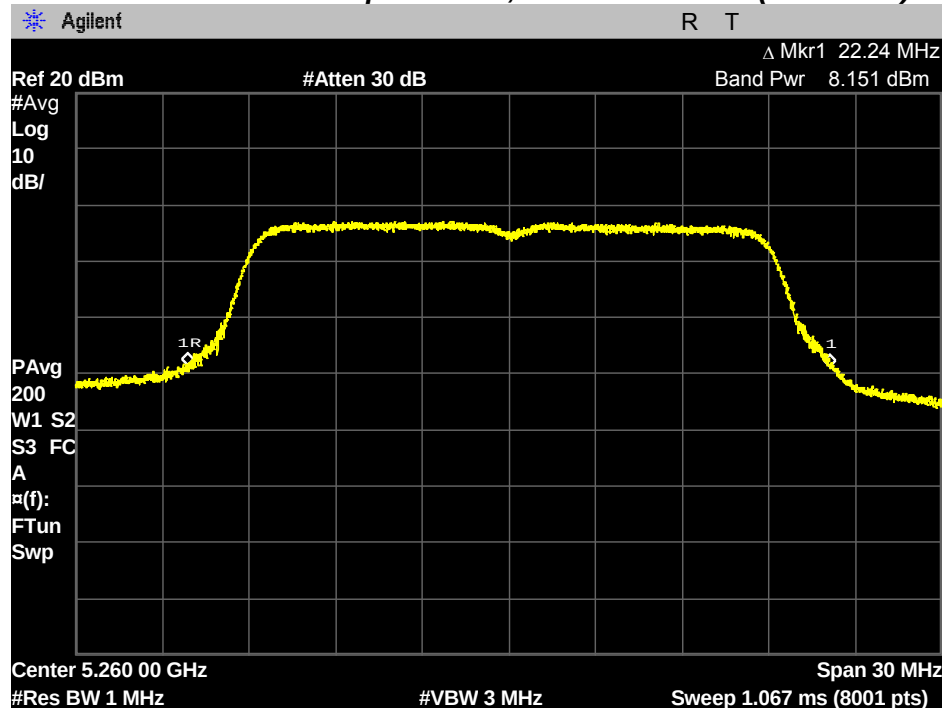


PLOTS OF EMISSIONS

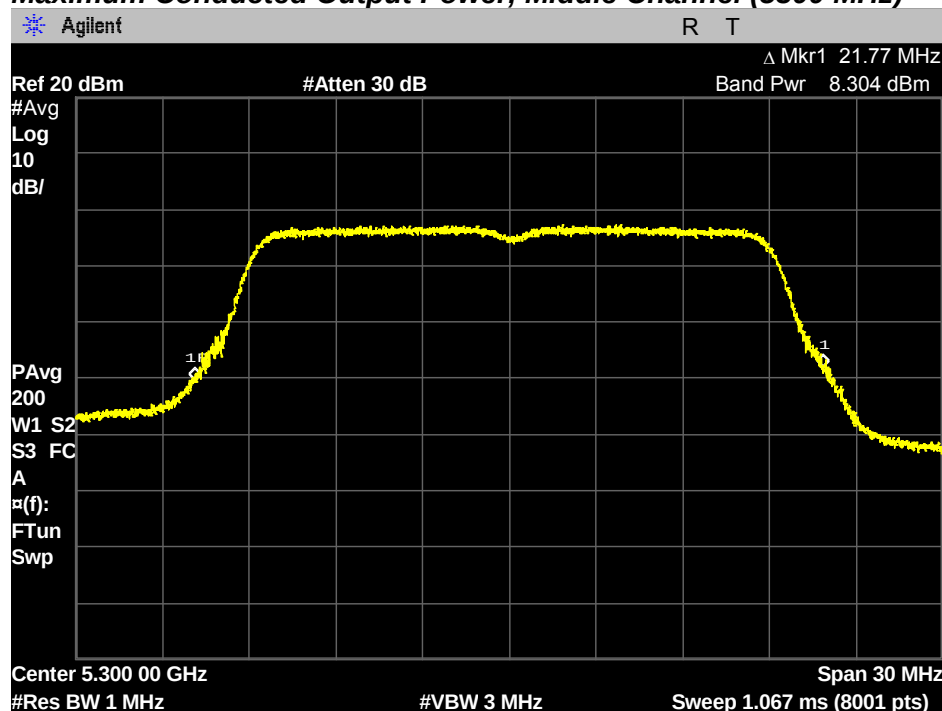
802.11ac(20MHz) mode - MIMO

Chain 0

Maximum Conducted Output Power, Lowest Channel (5260 MHz)

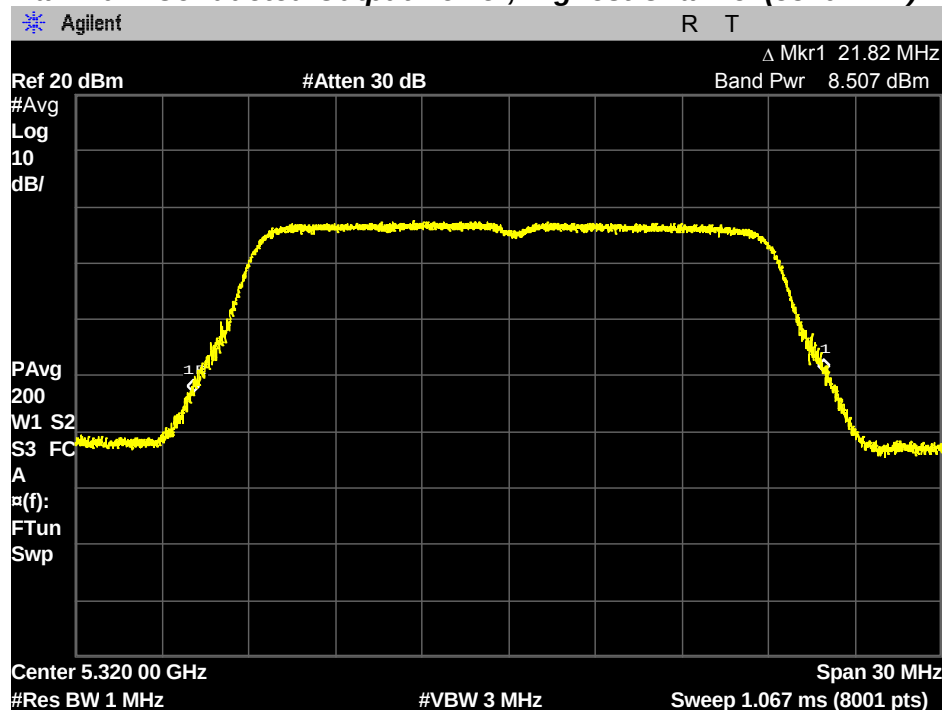


Maximum Conducted Output Power, Middle Channel (5300 MHz)



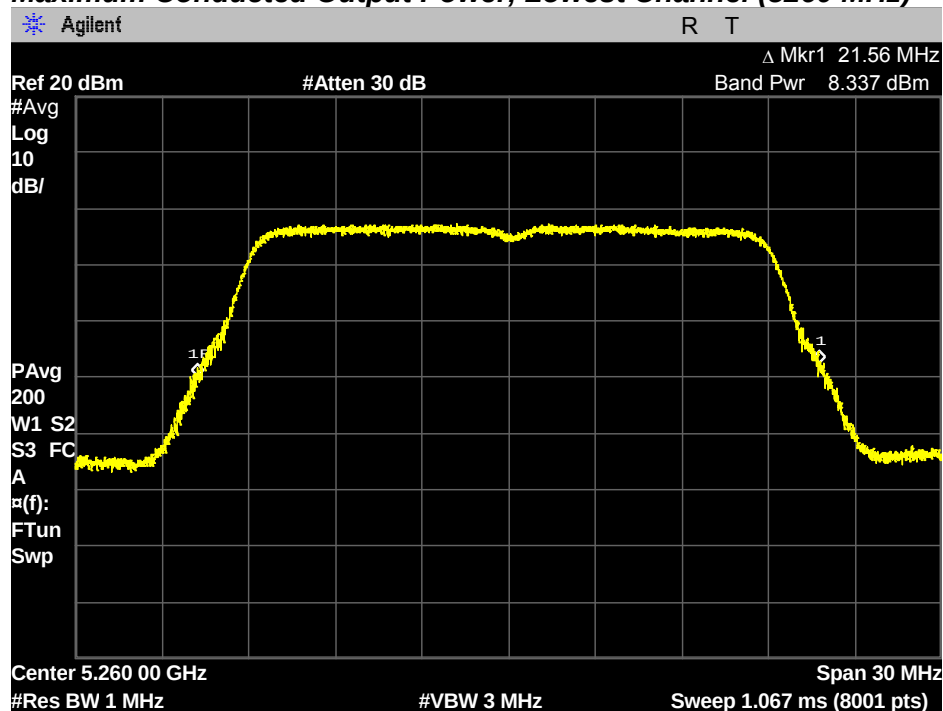
PLOTS OF EMISSIONS

Maximum Conducted Output Power, Highest Channel (5320 MHz)



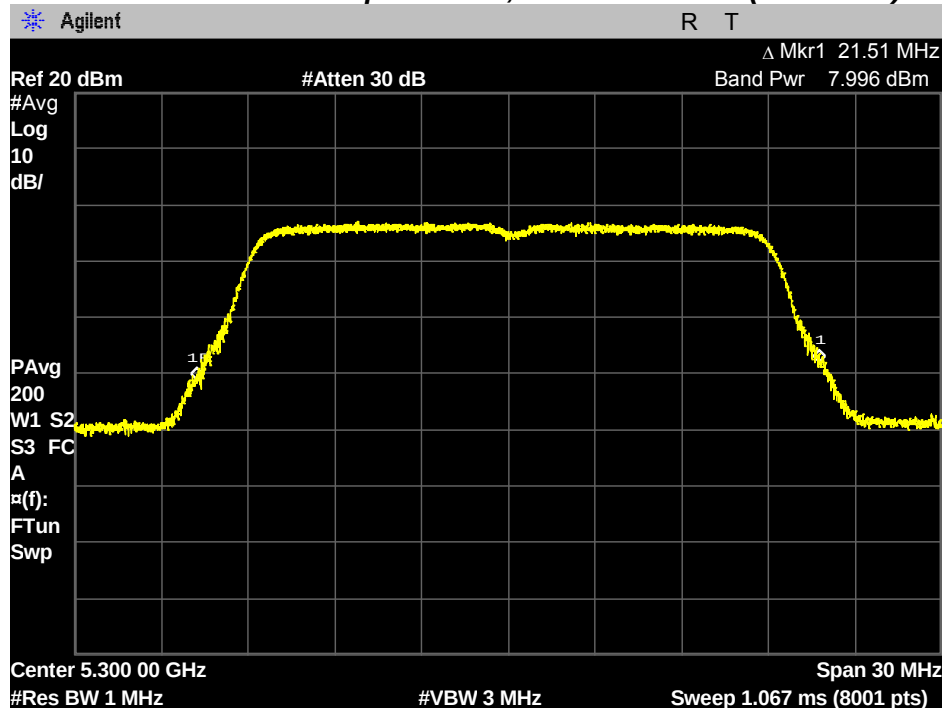
Chain 1

Maximum Conducted Output Power, Lowest Channel (5260 MHz)

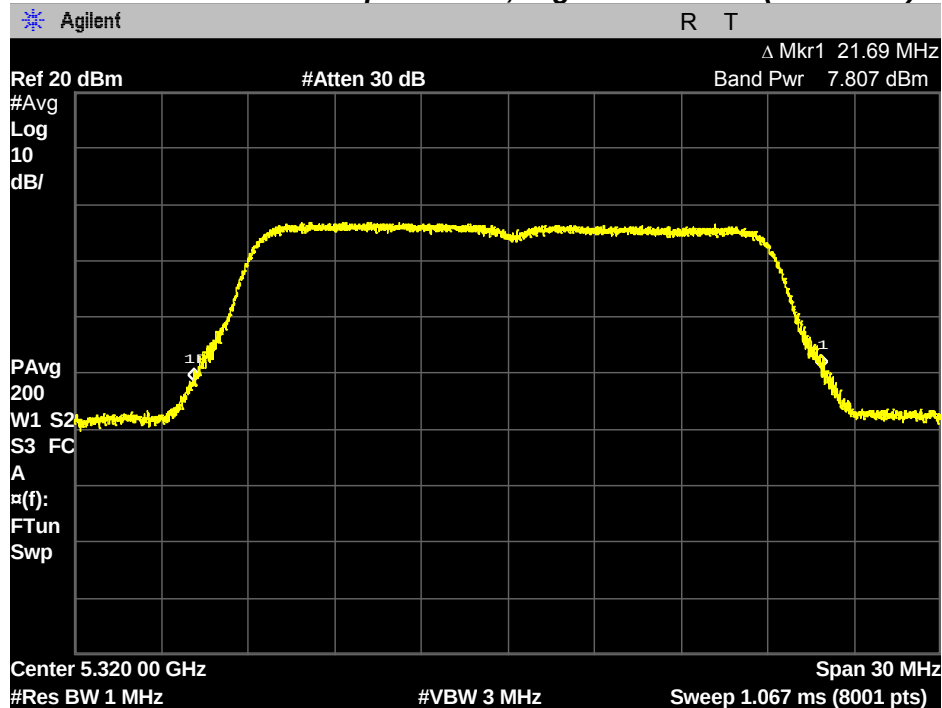


PLOTS OF EMISSIONS

Maximum Conducted Output Power, Middle Channel (5300 MHz)



Maximum Conducted Output Power, Highest Channel (5320 MHz)

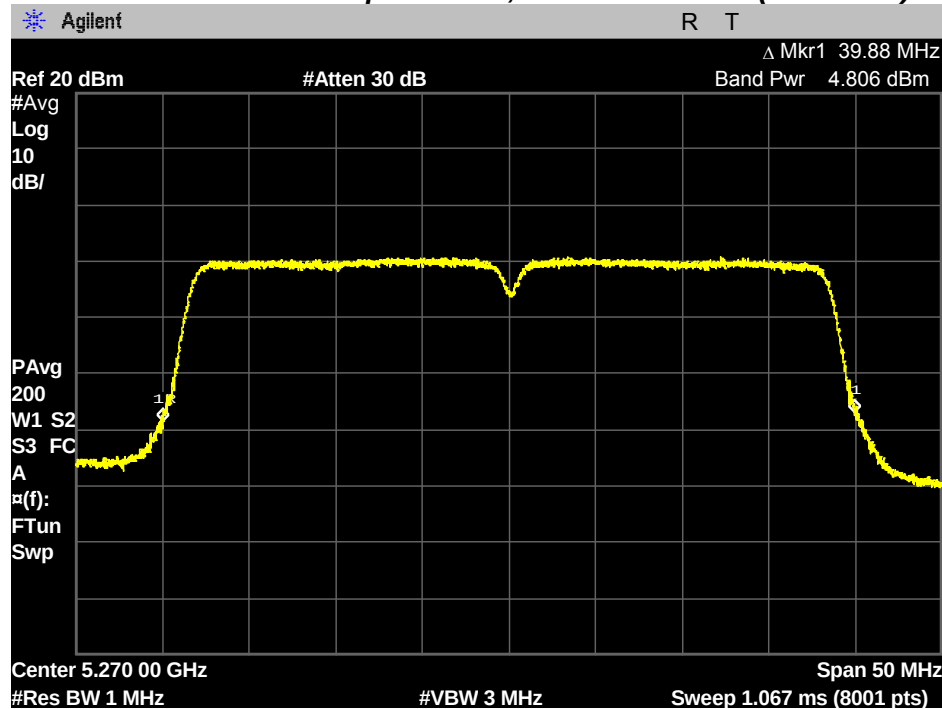


PLOTS OF EMISSIONS

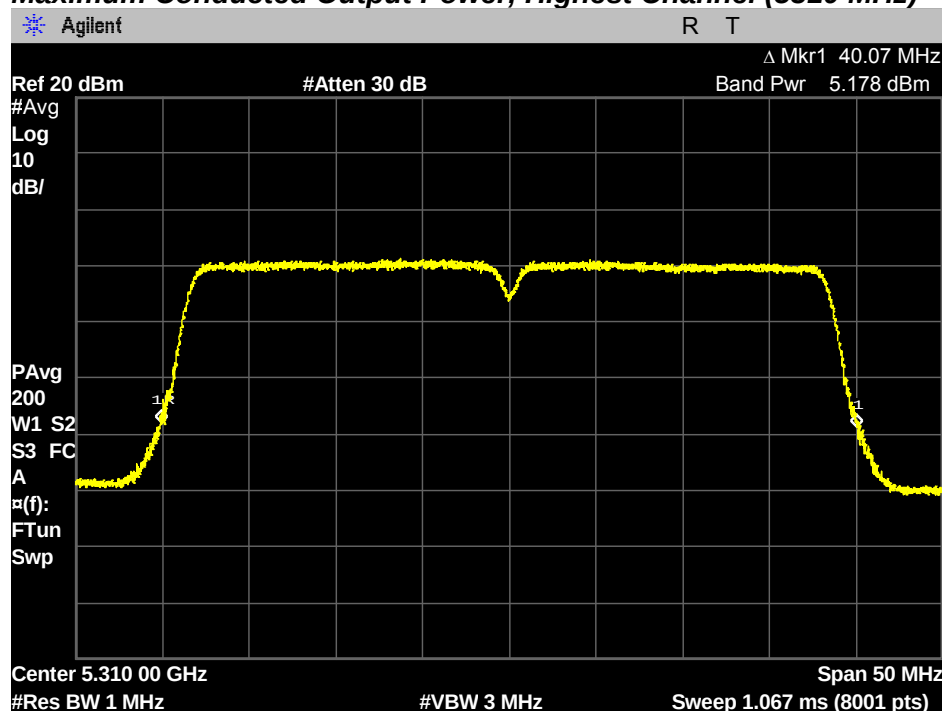
802.11ac(40MHz) mode - SISO

Chain 0

Maximum Conducted Output Power, Lowest Channel (5270 MHz)



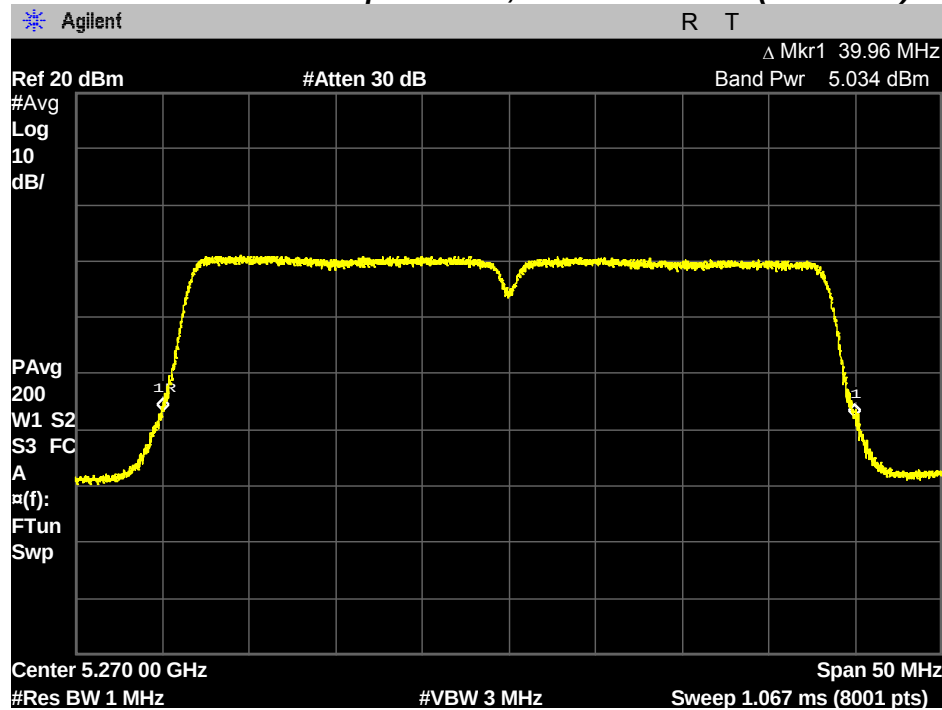
Maximum Conducted Output Power, Highest Channel (5310 MHz)



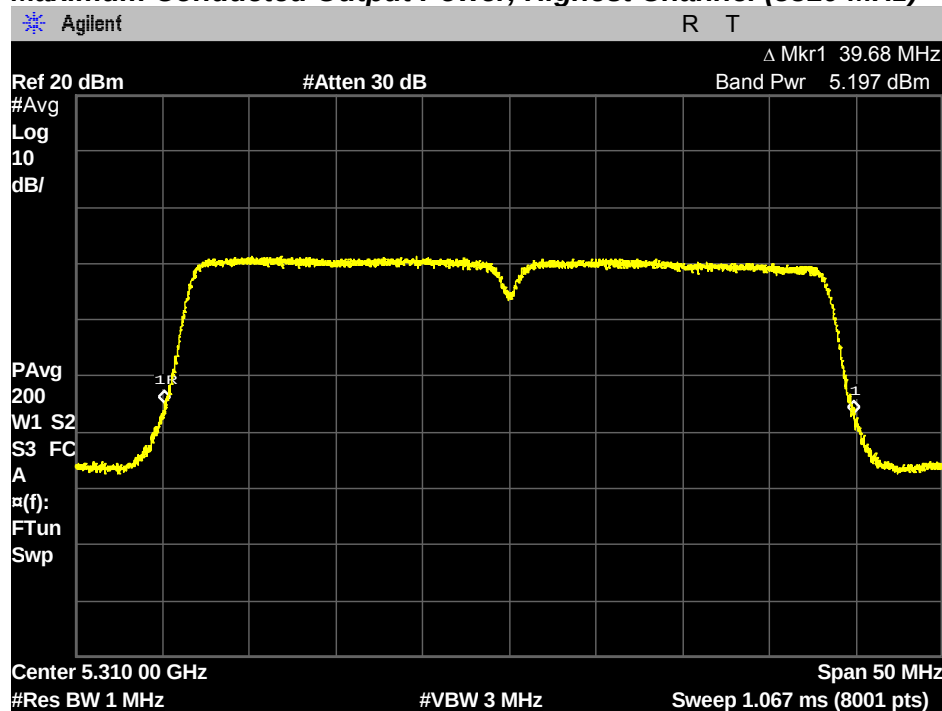
PLOTS OF EMISSIONS

Chain 1

Maximum Conducted Output Power, Lowest Channel (5270 MHz)



Maximum Conducted Output Power, Highest Channel (5310 MHz)

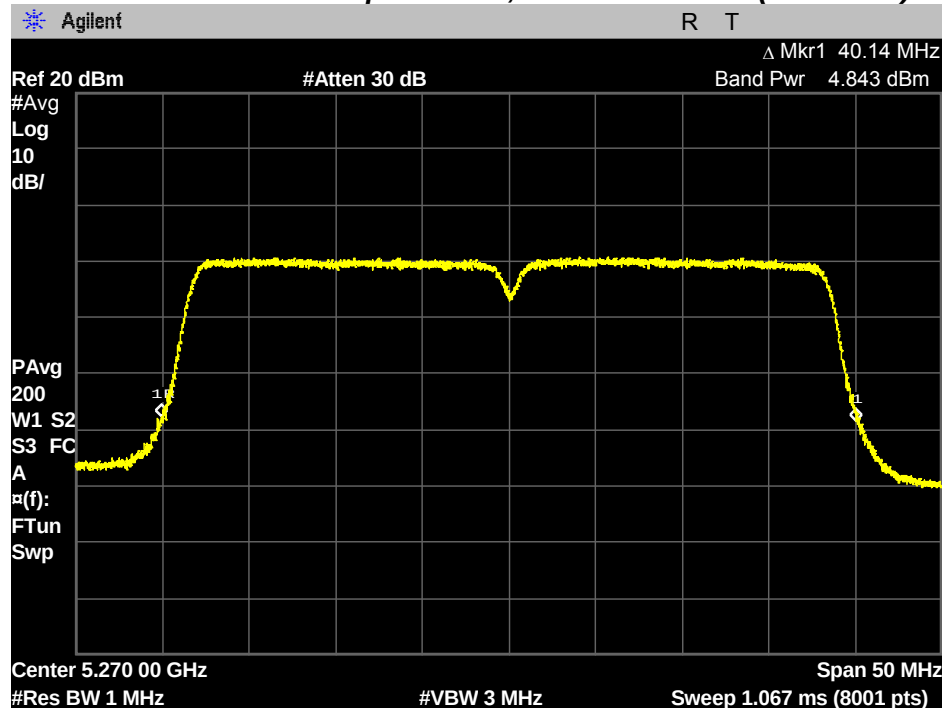


PLOTS OF EMISSIONS

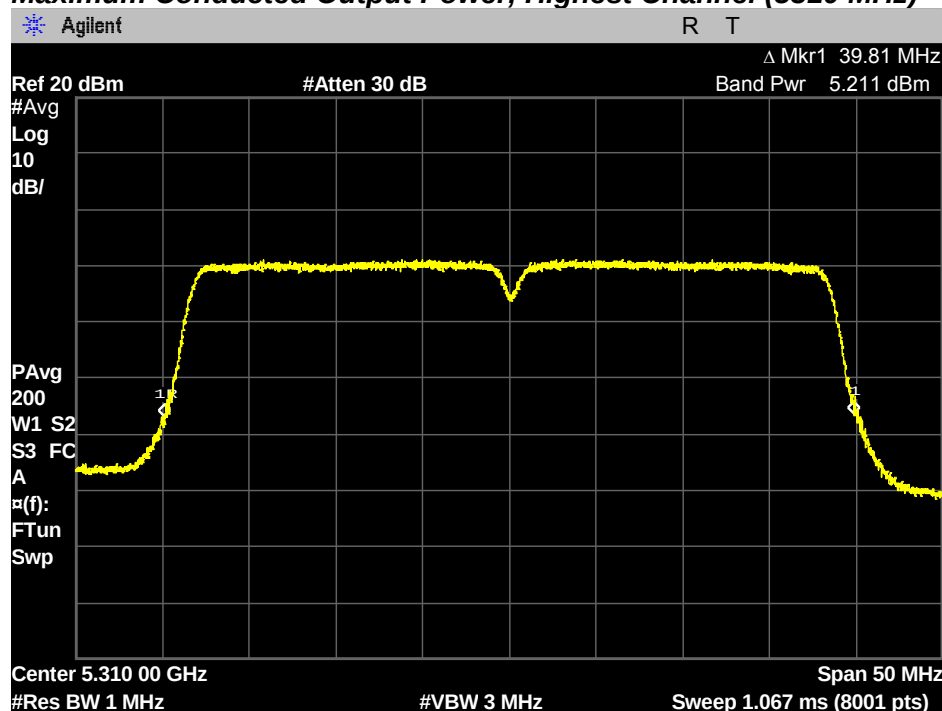
802.11ac(40MHz) mode - CDD

Chain 0

Maximum Conducted Output Power, Lowest Channel (5270 MHz)



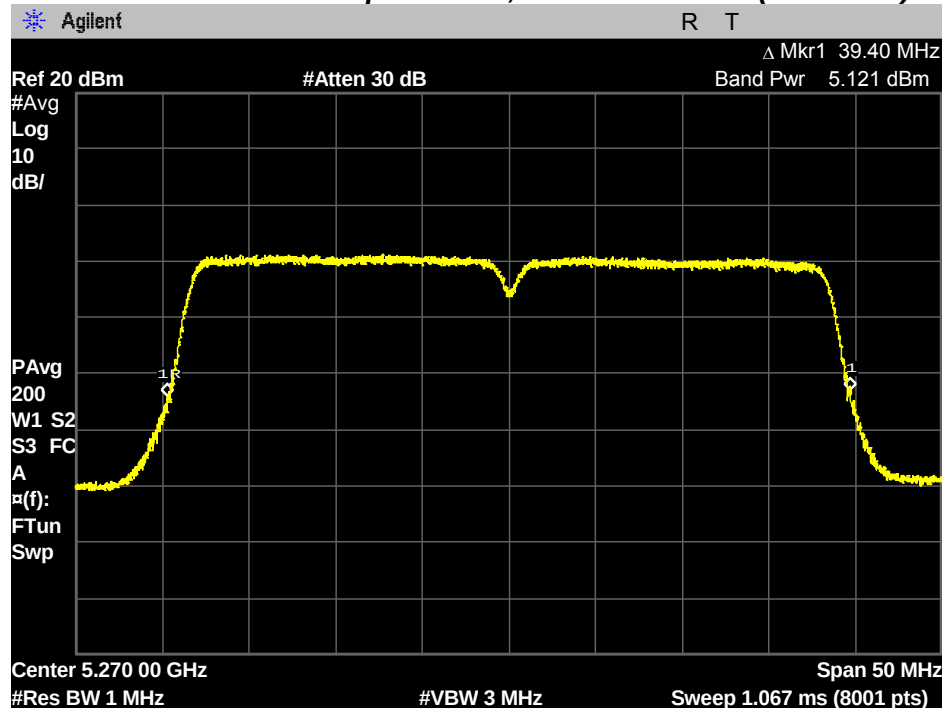
Maximum Conducted Output Power, Highest Channel (5310 MHz)



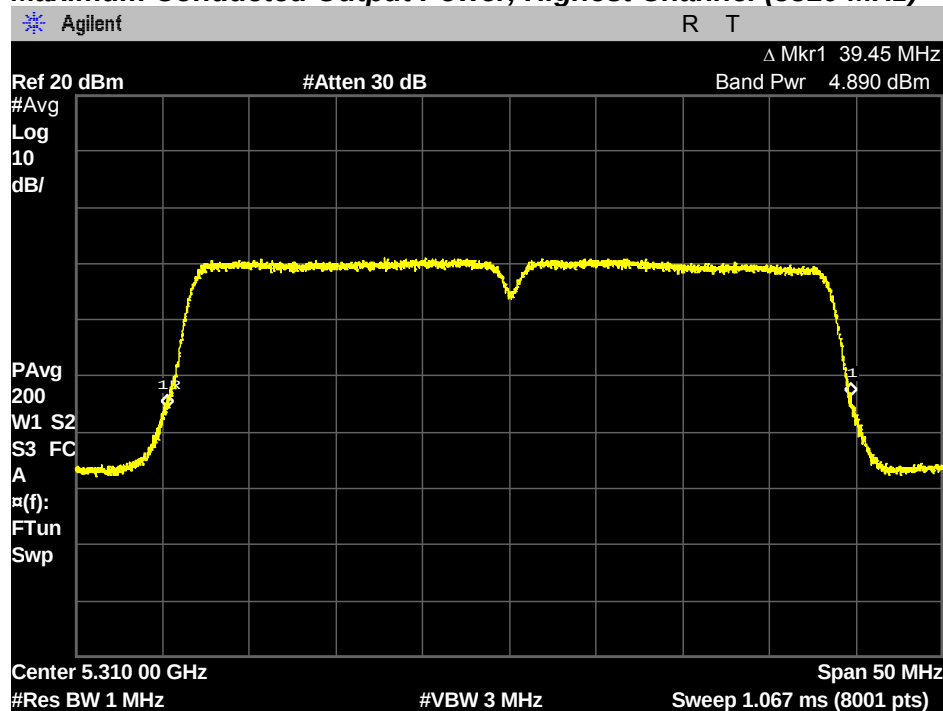
PLOTS OF EMISSIONS

Chain 1

Maximum Conducted Output Power, Lowest Channel (5270 MHz)



Maximum Conducted Output Power, Highest Channel (5310 MHz)

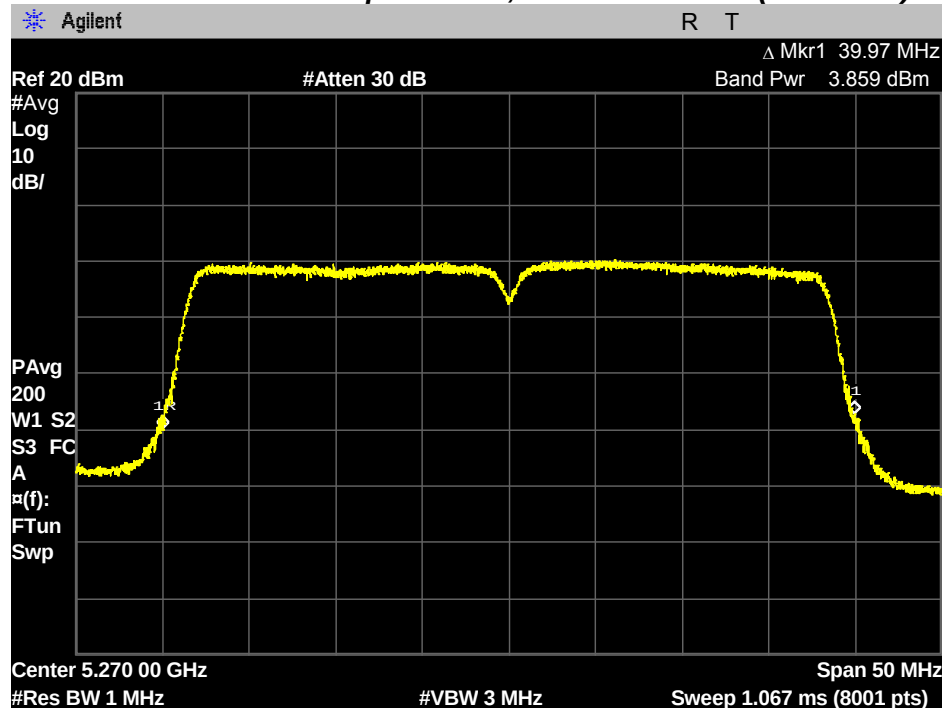


PLOTS OF EMISSIONS

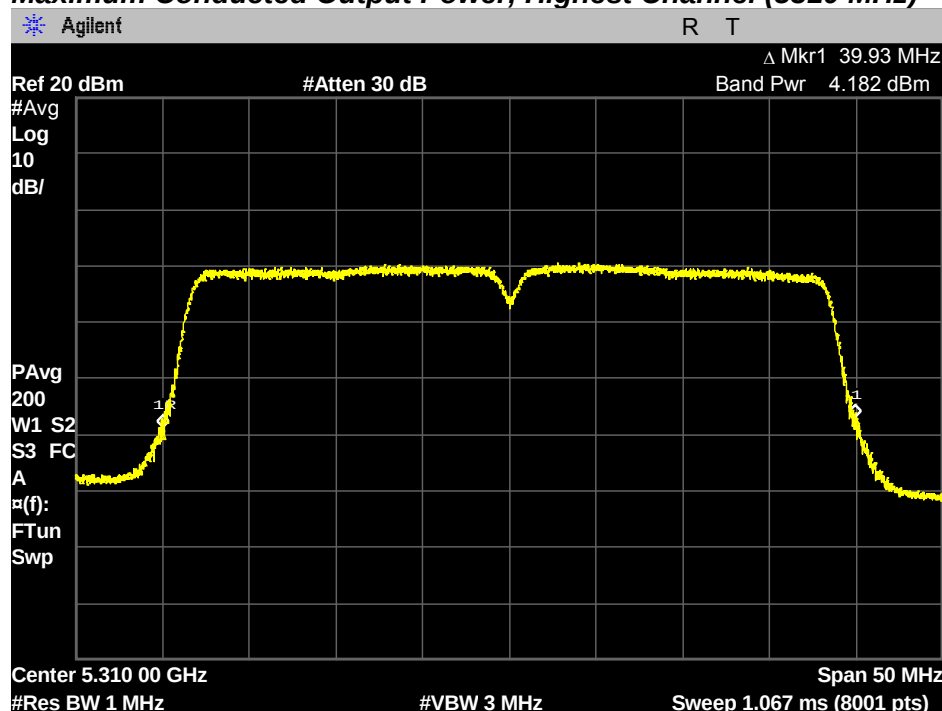
802.11ac(40MHz) mode - MIMO

Chain 0

Maximum Conducted Output Power, Lowest Channel (5270 MHz)



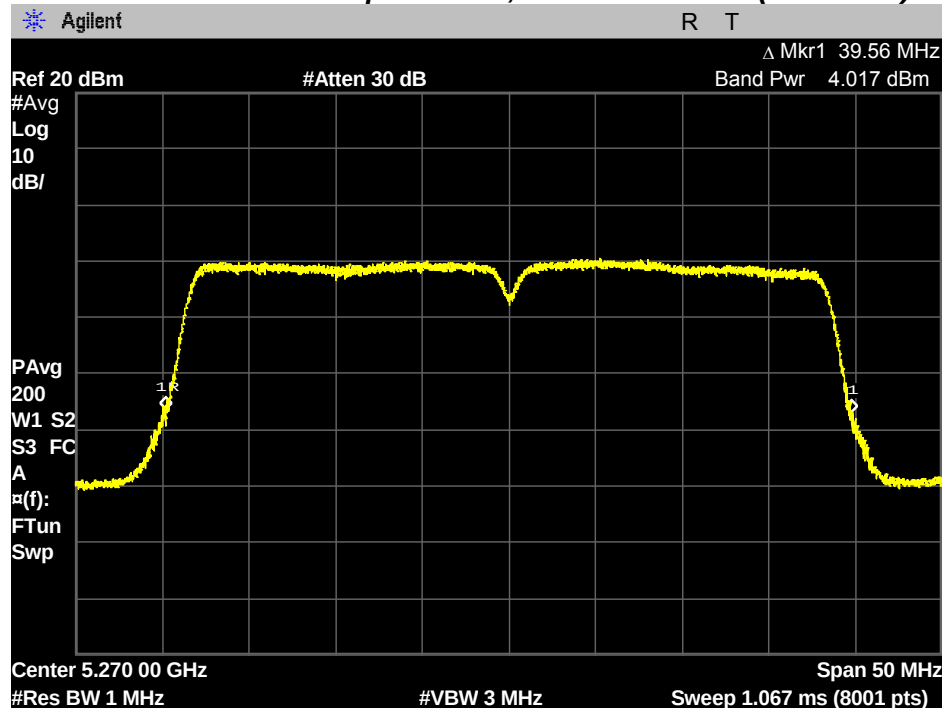
Maximum Conducted Output Power, Highest Channel (5310 MHz)



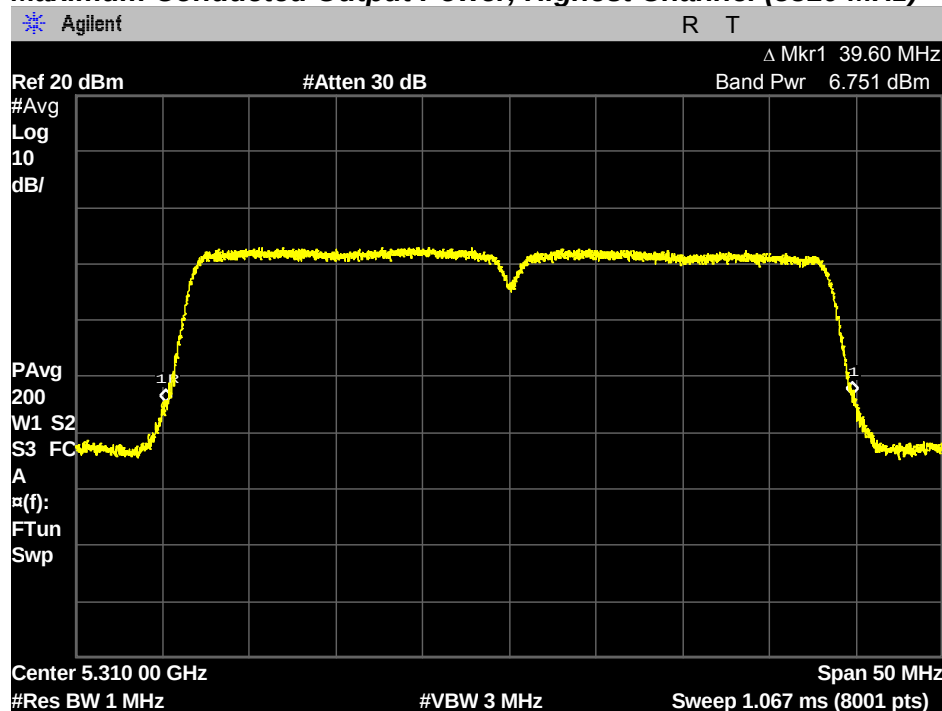
PLOTS OF EMISSIONS

Chain 1

Maximum Conducted Output Power, Lowest Channel (5270 MHz)



Maximum Conducted Output Power, Highest Channel (5310 MHz)

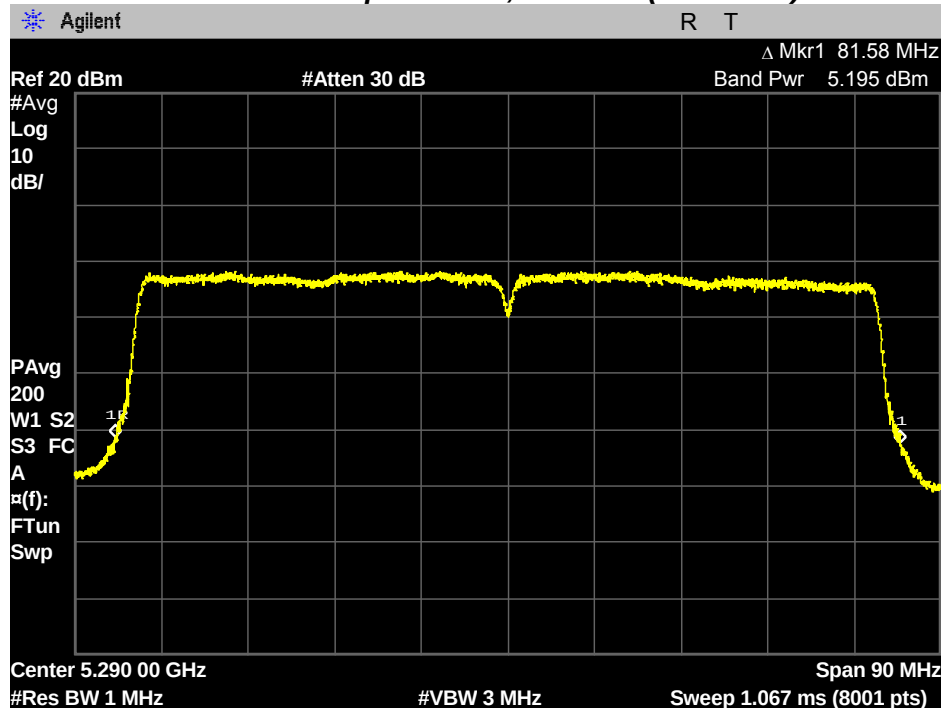


PLOTS OF EMISSIONS

802.11ac(80MHz) mode - SISO

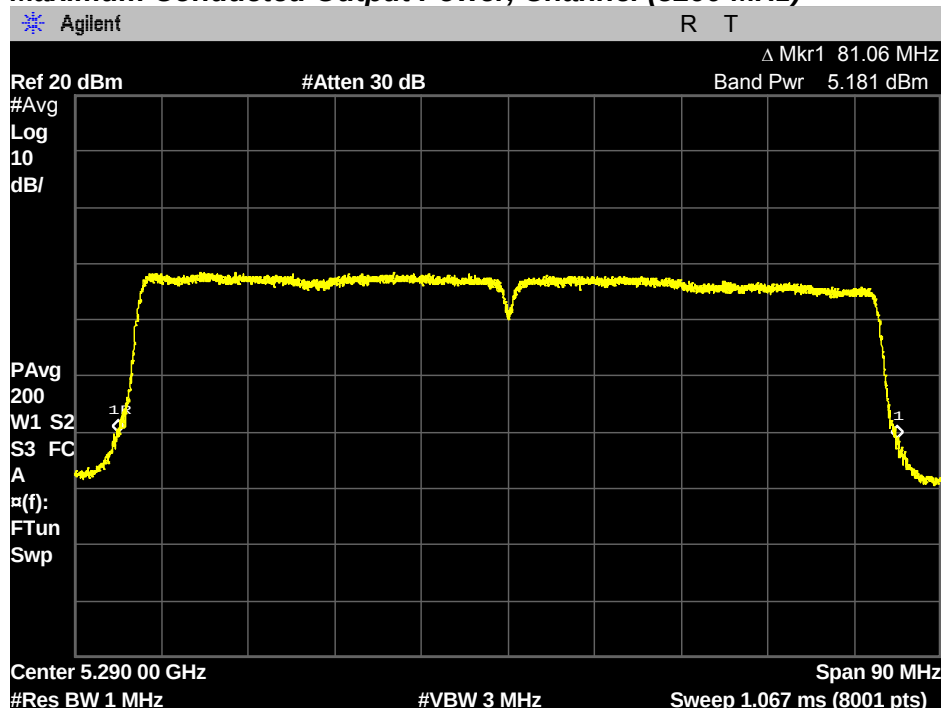
Chain 0

Maximum Conducted Output Power, Channel (5290 MHz)



Chain 1

Maximum Conducted Output Power, Channel (5290 MHz)

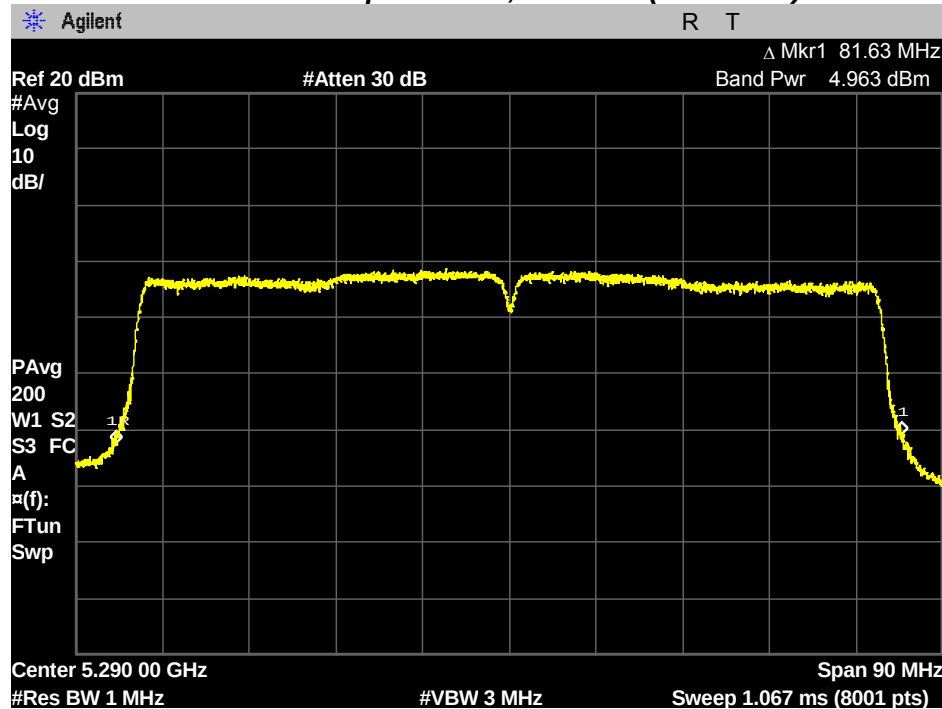


PLOTS OF EMISSIONS

802.11ac(80MHz) mode - CDD

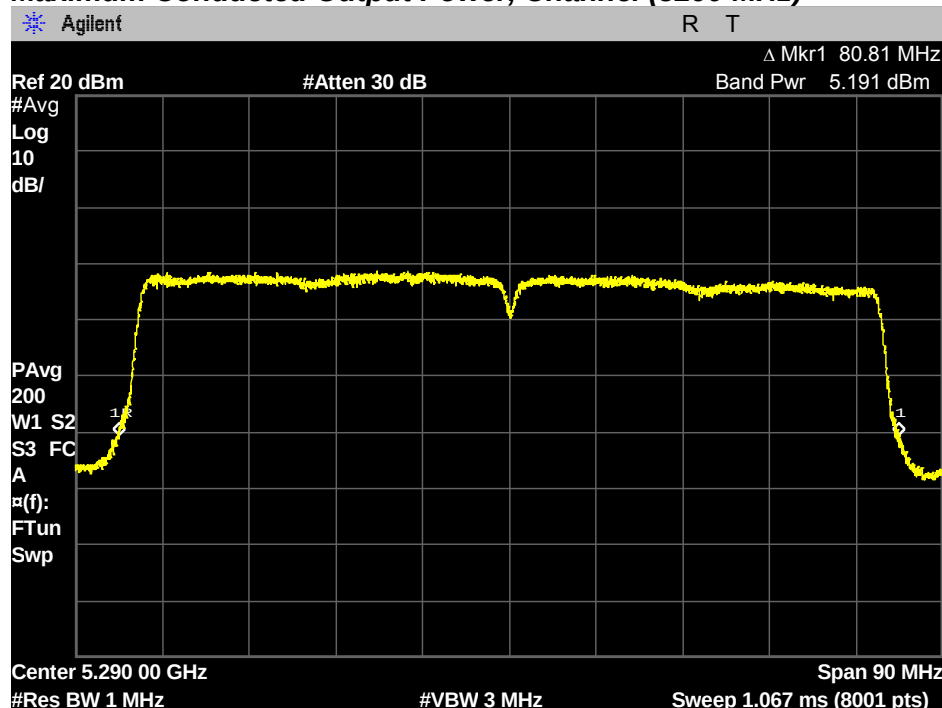
Chain 0

Maximum Conducted Output Power, Channel (5290 MHz)



Chain 1

Maximum Conducted Output Power, Channel (5290 MHz)

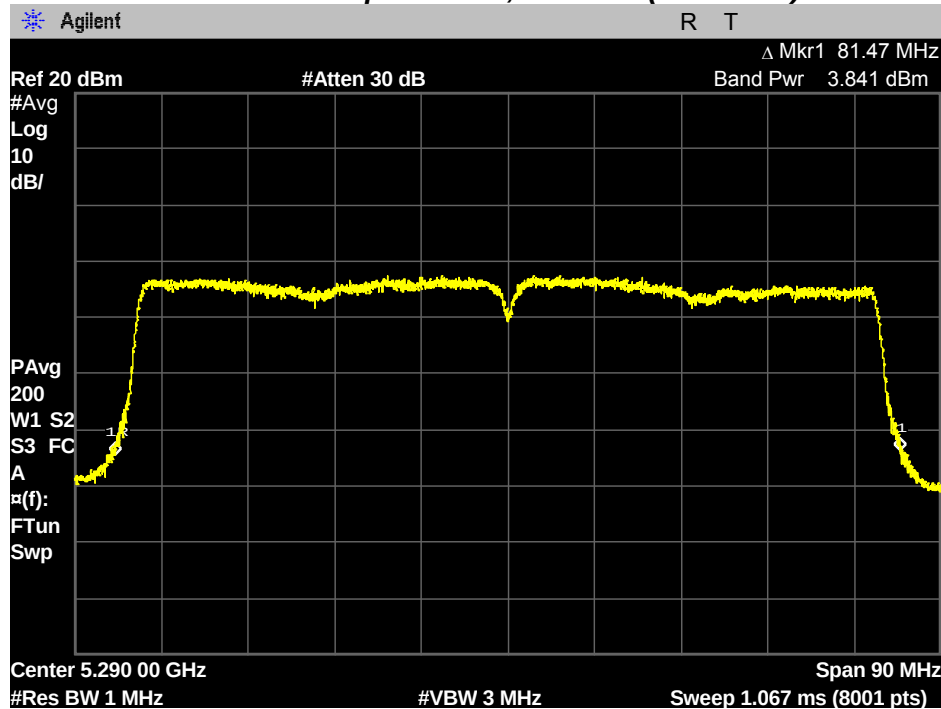


PLOTS OF EMISSIONS

802.11ac(80MHz) mode - MIMO

Chain 0

Maximum Conducted Output Power, Channel (5290 MHz)



Chain 1

Maximum Conducted Output Power, Channel (5290 MHz)

