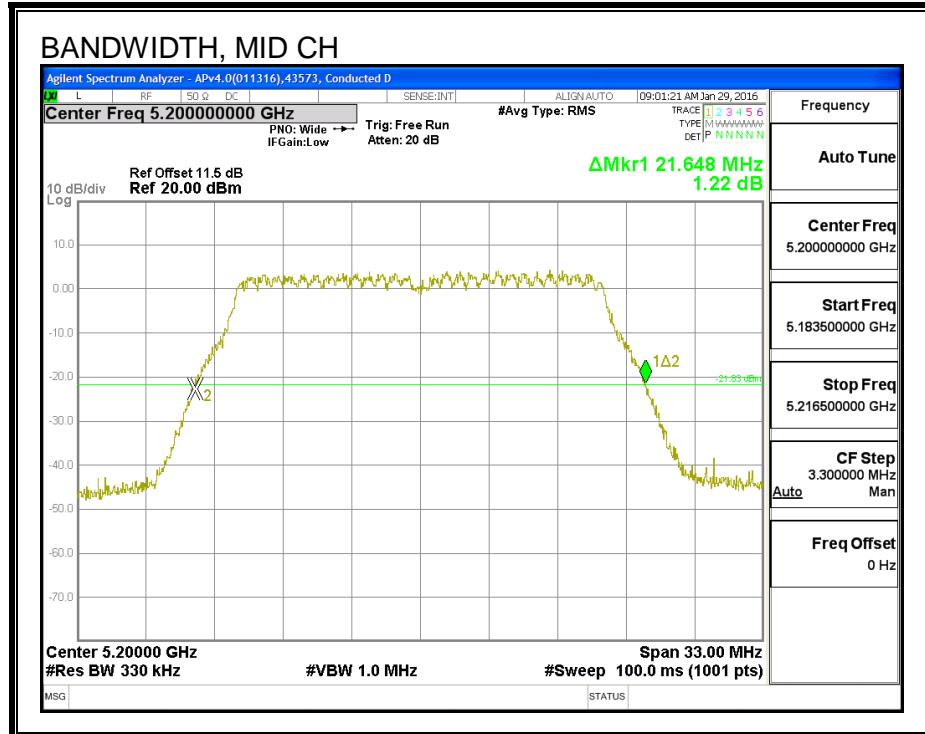
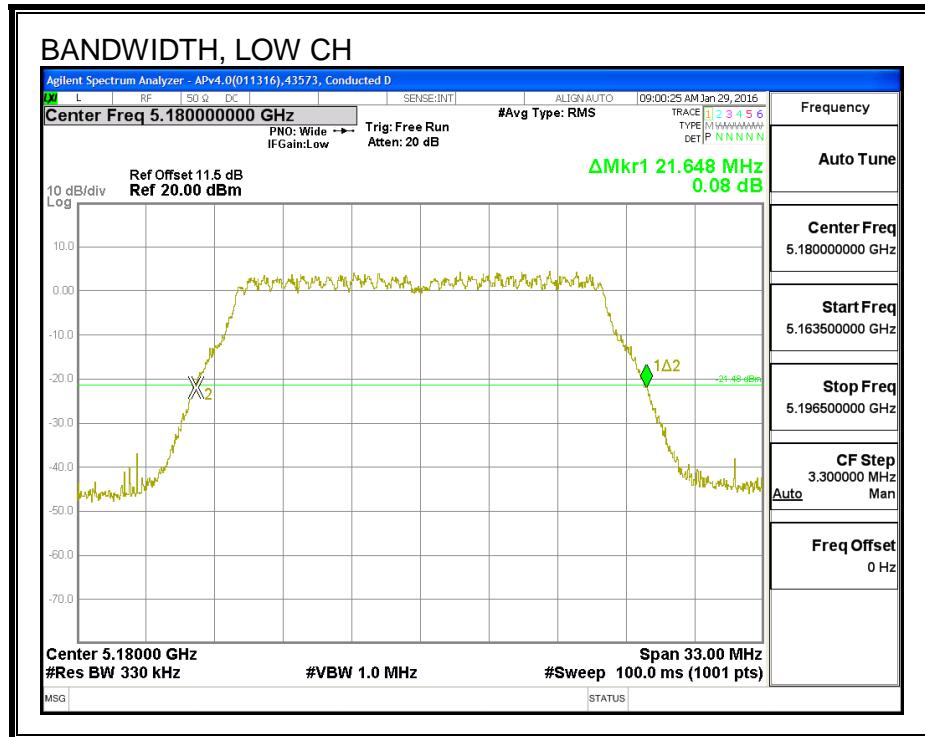
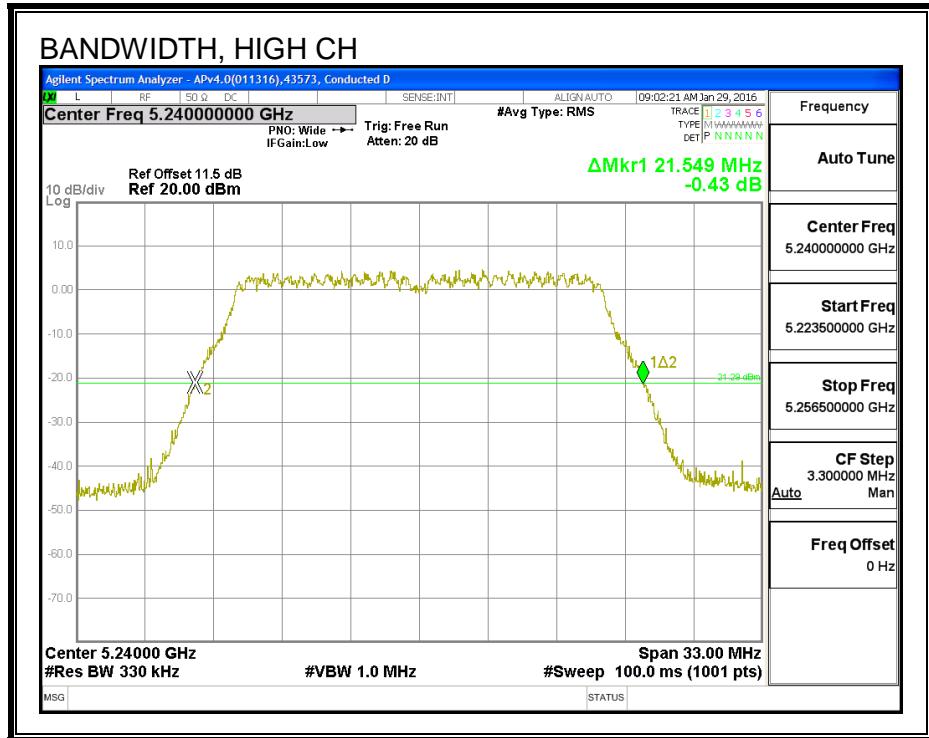
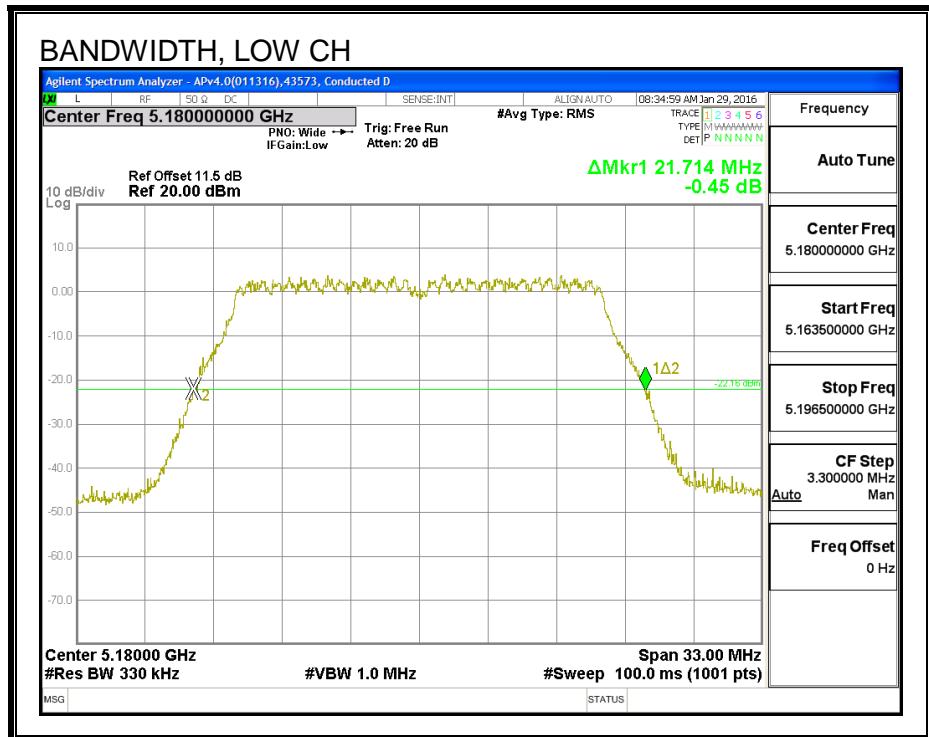


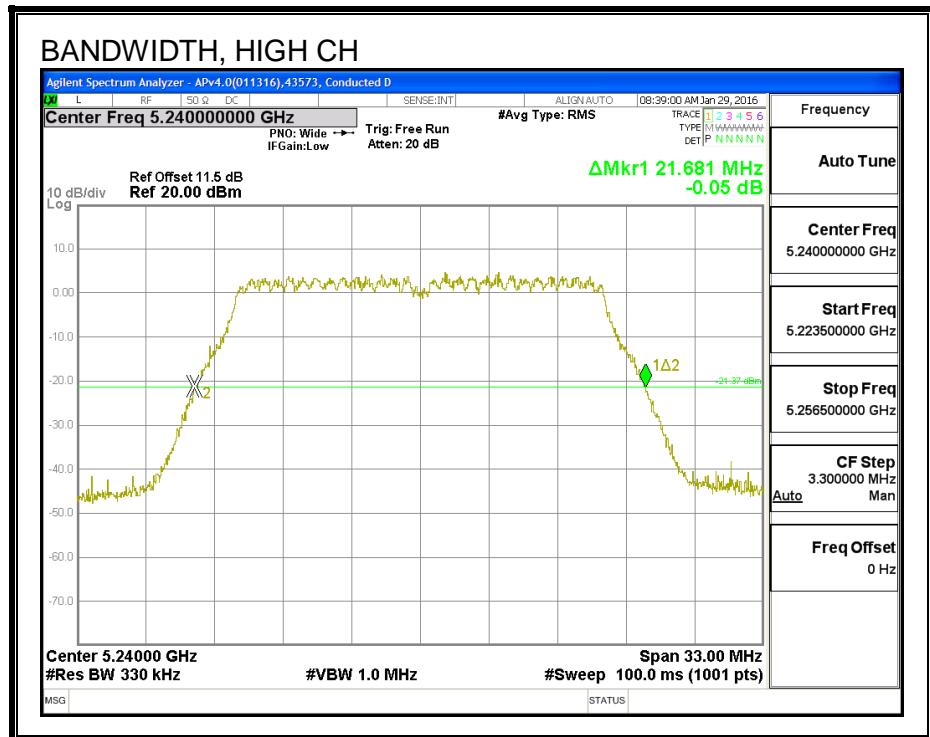
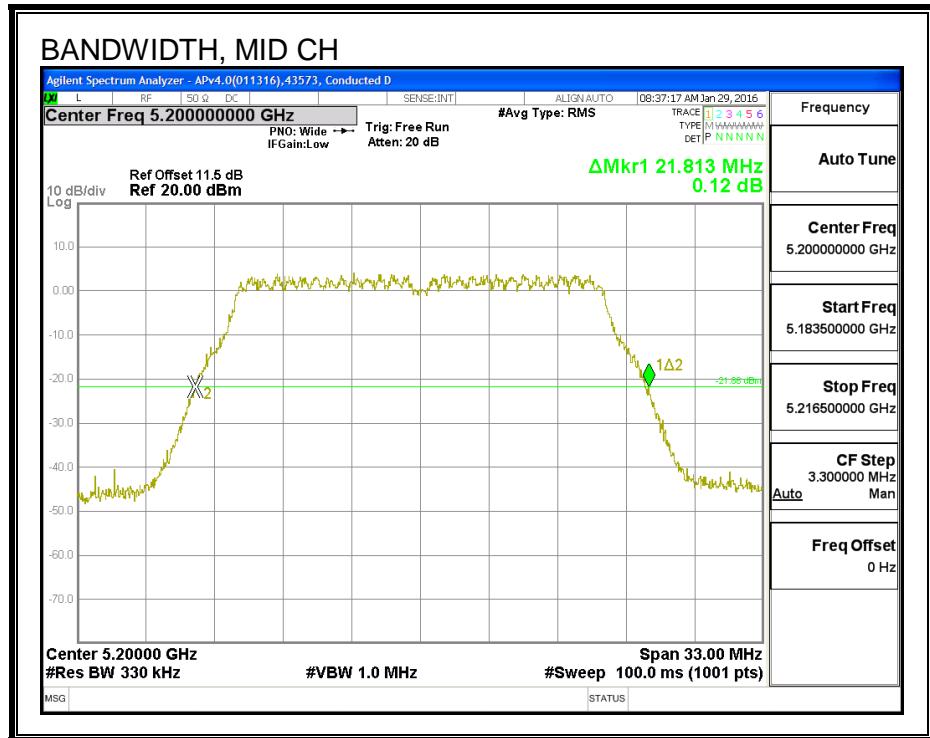
**26 DB BANDWIDTH, ANTENNA - B**





**26 DB BANDWIDTH, ANTENNA - A**





### 8.11.2. 99% BANDWIDTH

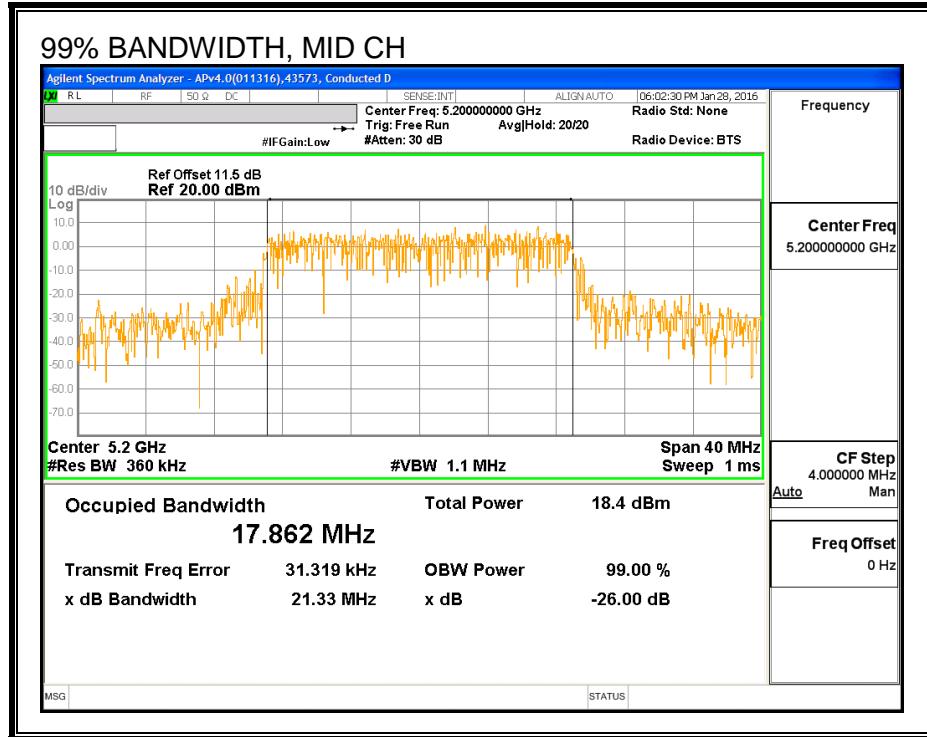
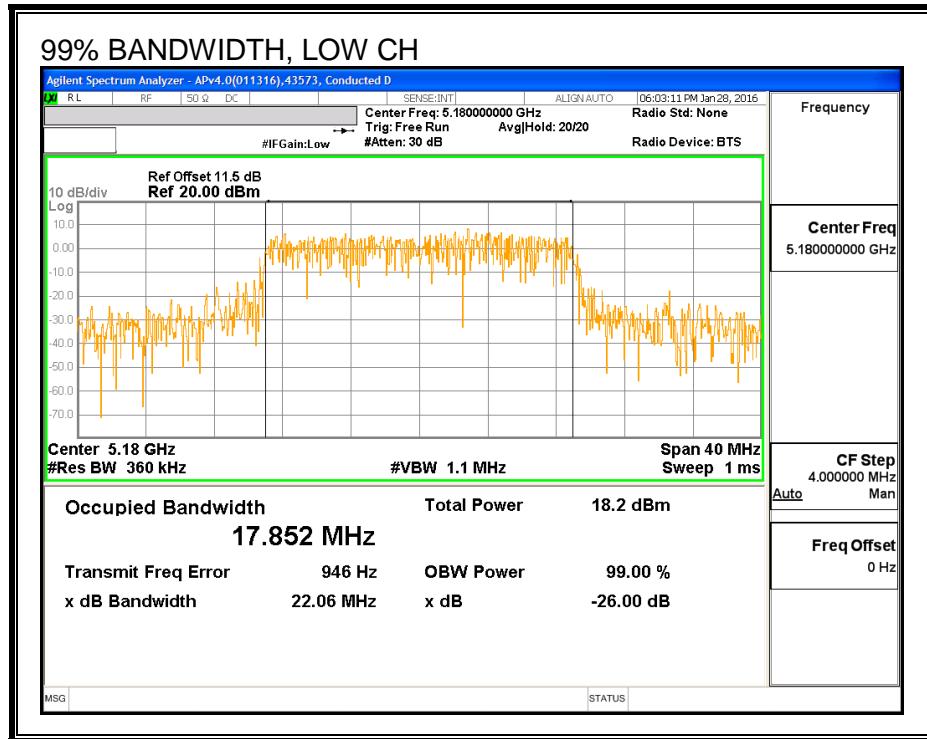
#### LIMITS

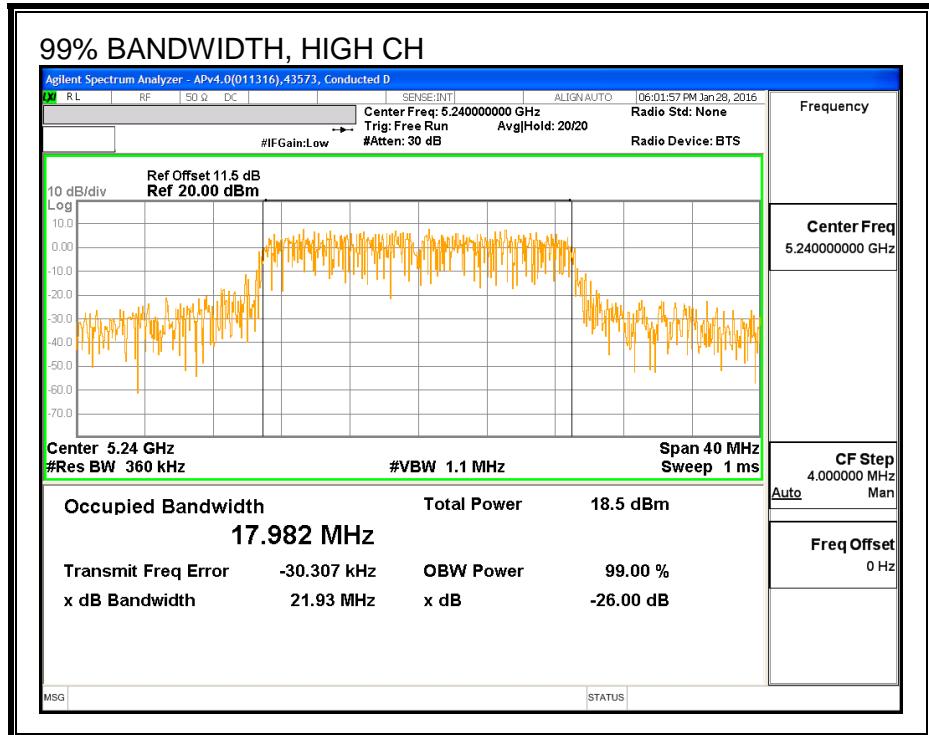
None; for reporting purposes only.

#### RESULTS

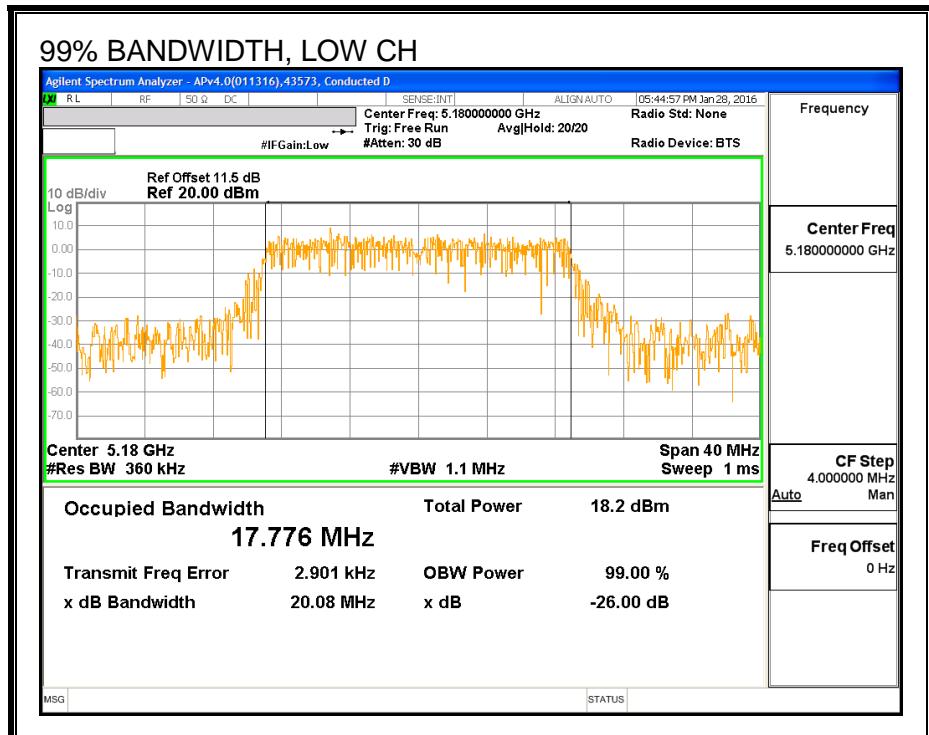
Channel	Frequency (MHz)	99% BW Antenna B (MHz)	99% BW Antenna A (MHz)
Low	5180	17.852	17.776
Mid	5200	17.862	17.752
High	5240	17.982	17.802

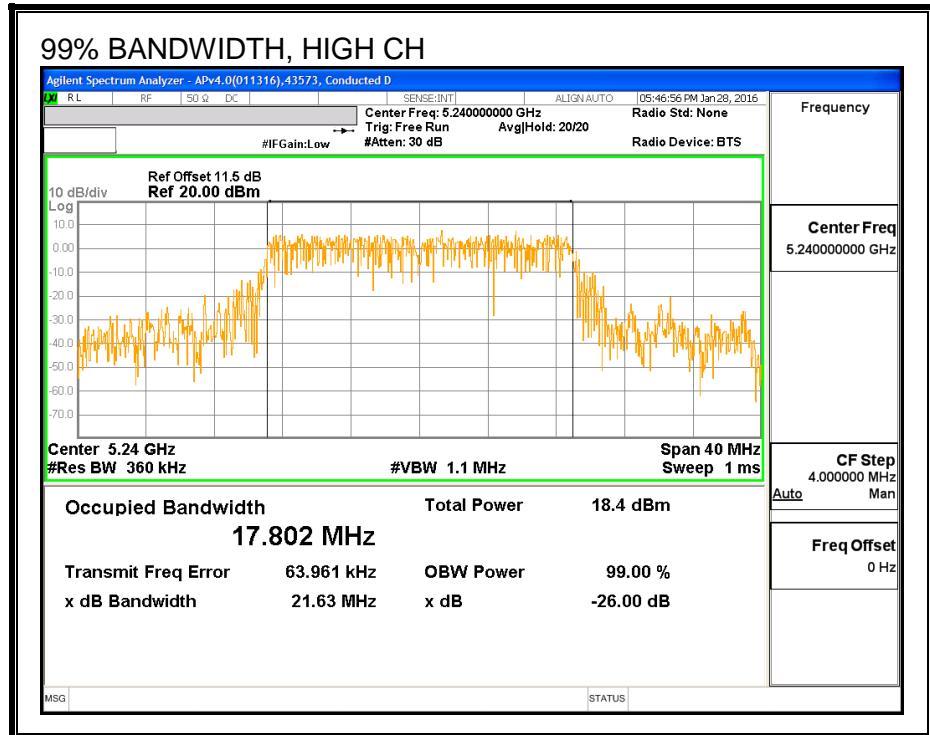
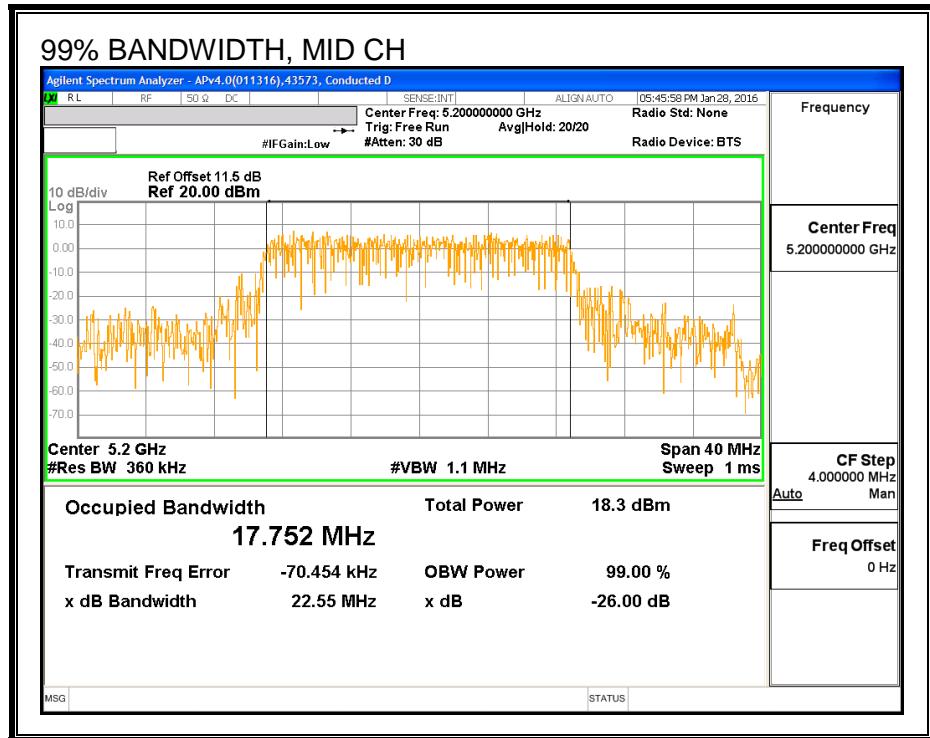
**99% BANDWIDTH, ANTENNA - B**





**99% BANDWIDTH, ANTENNA - A**





### 8.11.3. AVERAGE POWER

#### LIMITS

None; for reporting purposes only.

#### TEST PROCEDURE

Measurements perform using a wideband gated RF power meter.

#### RESULTS

Channel	Frequency (MHz)	Antenna B Power (dBm)	Antenna A Power (dBm)	Total Power (dBm)
Low	5180	14.45	14.44	17.46
Mid	5200	16.45	16.78	19.63
High	5240	16.47	16.92	19.71

#### 8.11.4. OUTPUT POWER AND PSD

##### LIMITS

FCC §15.407 (a) (1)

- (i) For an outdoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. The maximum e.i.r.p. at any elevation angle above 30 degrees as measured from the horizon must not exceed 125 mW (21 dBm).
- (ii) For an indoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.
- (iii) For fixed point-to-point access points operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. Fixed point-to-point U-NII devices may employ antennas with directional gain up to 23 dBi without any corresponding reduction in the maximum conducted output power or maximum power spectral density. For fixed point-to-point transmitters that employ a directional antenna gain greater than 23 dBi, a 1 dB reduction in maximum conducted output power and maximum power spectral density is required for each 1 dB of antenna gain in excess of 23 dBi. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.
- (iv) For mobile and portable client devices in the 5.15-5.25 GHz band, the maximum conducted output power over the frequency band of operation shall not exceed 250 mW provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

##### TEST PROCEDURE

Measurements perform using a wideband gated RF power meter provided that the gate parameters are adjusted such that the power is measured only when the EUT is transmitting at its maximum power control level. Since the measurement is made only during the ON time of the transmitter, no duty cycle correction factor is required.

### **DIRECTIONAL ANTENNA GAIN**

The TX chains are uncorrelated and the antenna gain is unequal among the chains. The directional gain is:

<b>Antenna B</b>	<b>Antenna A</b>	<b>Uncorrelated Chains Directional Gain (dBi)</b>
<b>Gain (dBi)</b>	<b>Gain (dBi)</b>	<b>Gain (dBi)</b>
3.04	2.30	2.69

## RESULTS

### Antenna Gain and Limits

Channel	Frequency (MHz)	Directional Gain for Power (dBi)	Directional Gain for PSD (dBi)	Power Limit (dBm)	PSD Limit (dBm)
Low	5180	2.69	2.69	24.00	11.00
Mid	5200	2.69	2.69	24.00	11.00
High	5240	2.69	2.69	24.00	11.00

Duty Cycle CF (dB)	0.00	Included in Calculations of Corr'd PSD
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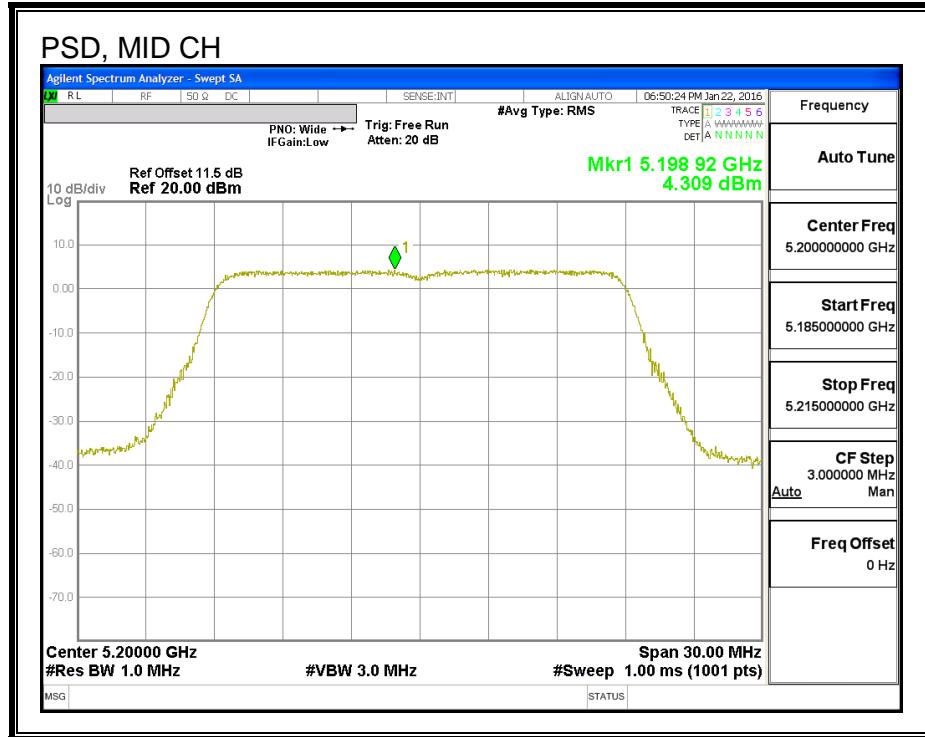
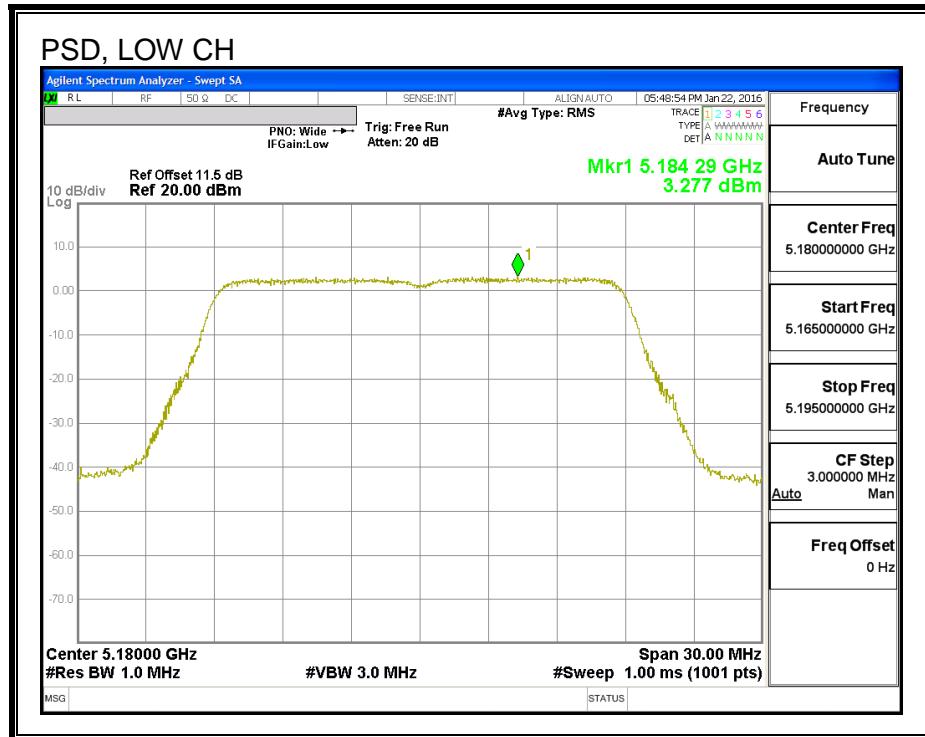
### Output Power Results

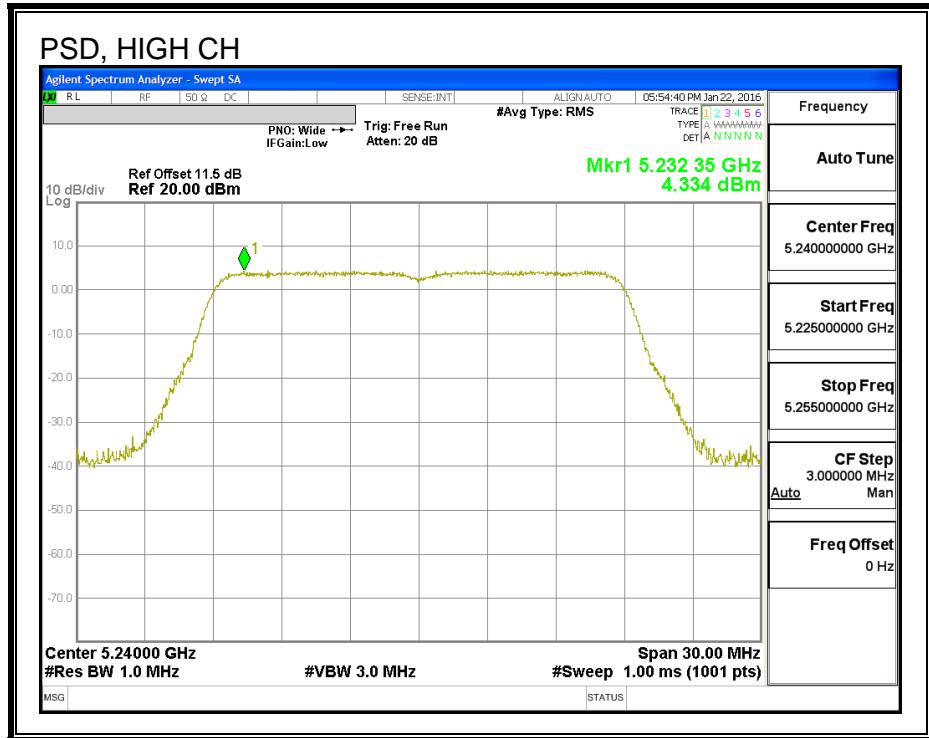
Channel	Frequency (MHz)	Antenna B Meas Power (dBm)	Antenna A Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5180	14.45	14.44	17.46	24.00	-6.54
Mid	5200	16.45	16.78	19.63	24.00	-4.37
High	5240	16.47	16.92	19.71	24.00	-4.29

### PSD Results

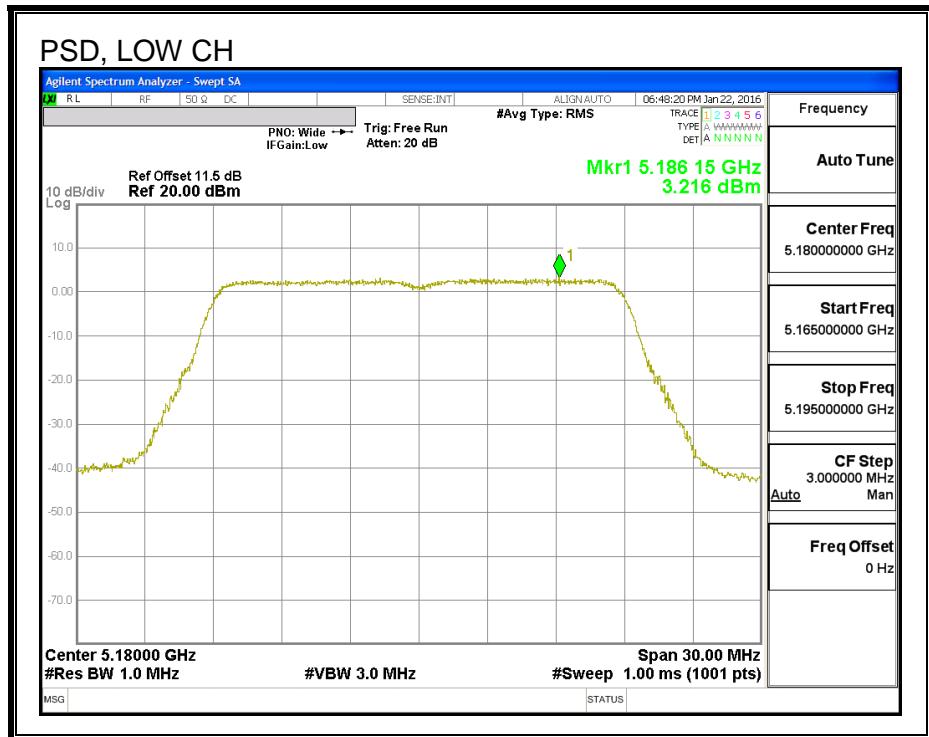
Channel	Frequency (MHz)	Antenna B Meas PSD (dBm)	Antenna A Meas PSD (dBm)	Total Corr'd PSD (dBm)	PSD Limit (dBm)	PSD Margin (dB)
Low	5180	3.28	3.22	6.26	11.00	-4.74
Mid	5200	4.31	4.38	7.36	11.00	-3.64
High	5240	4.33	4.58	7.47	11.00	-3.53

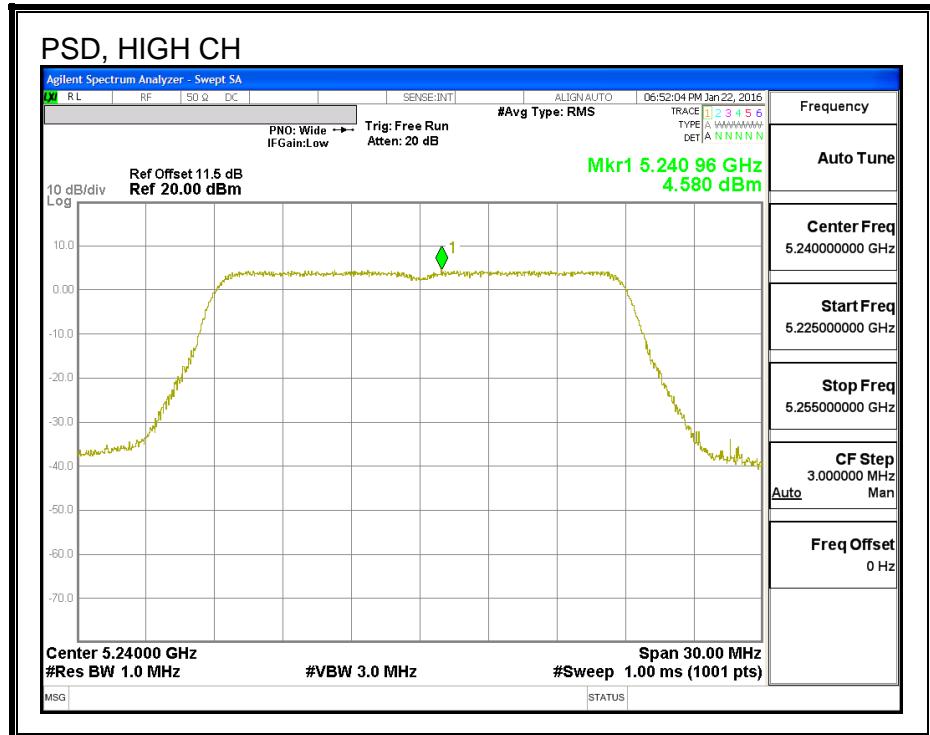
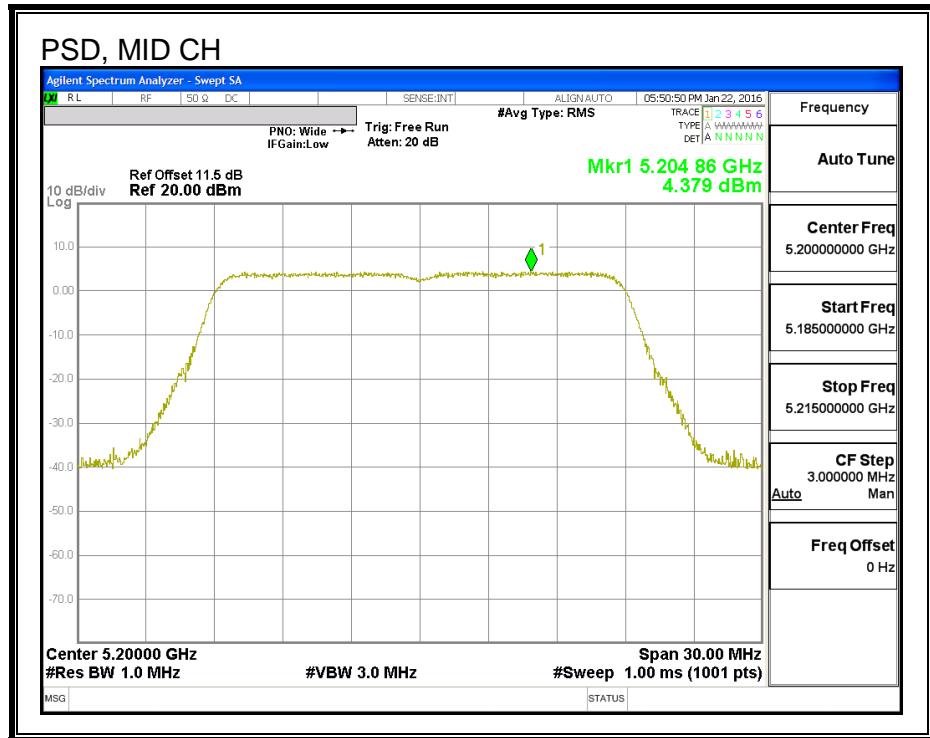
**PSD, ANTENNA - B**





**PSD, ANTENNA - A**





## 8.12. 802.11n HT20 ANTENNA A+C STBC MODE IN THE 5.2 GHz BAND

### 8.12.1. 26 dB BANDWIDTH

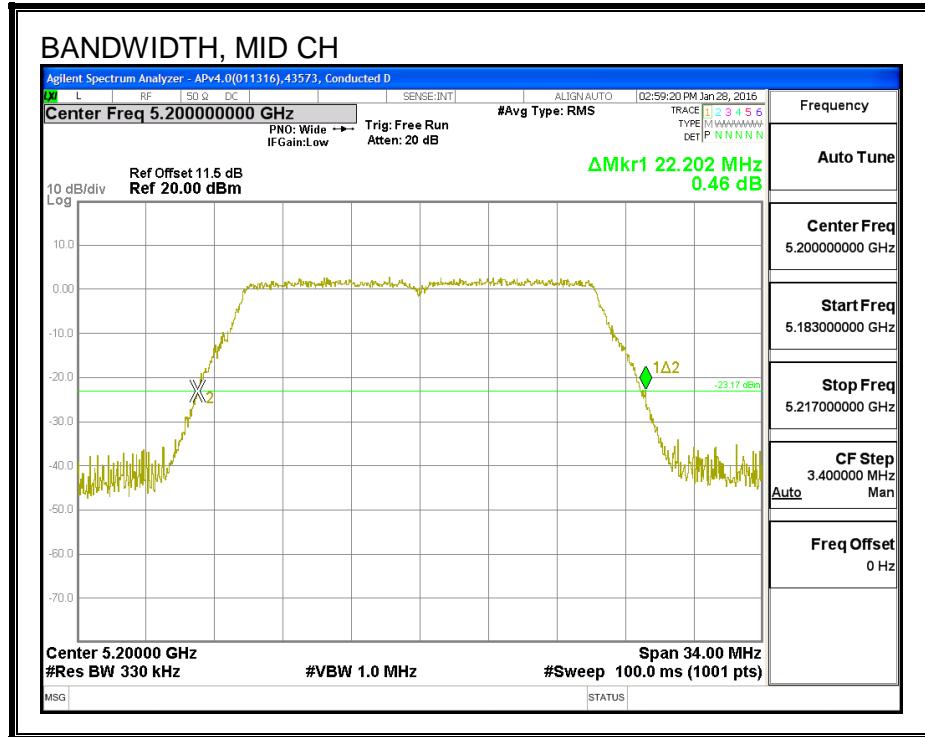
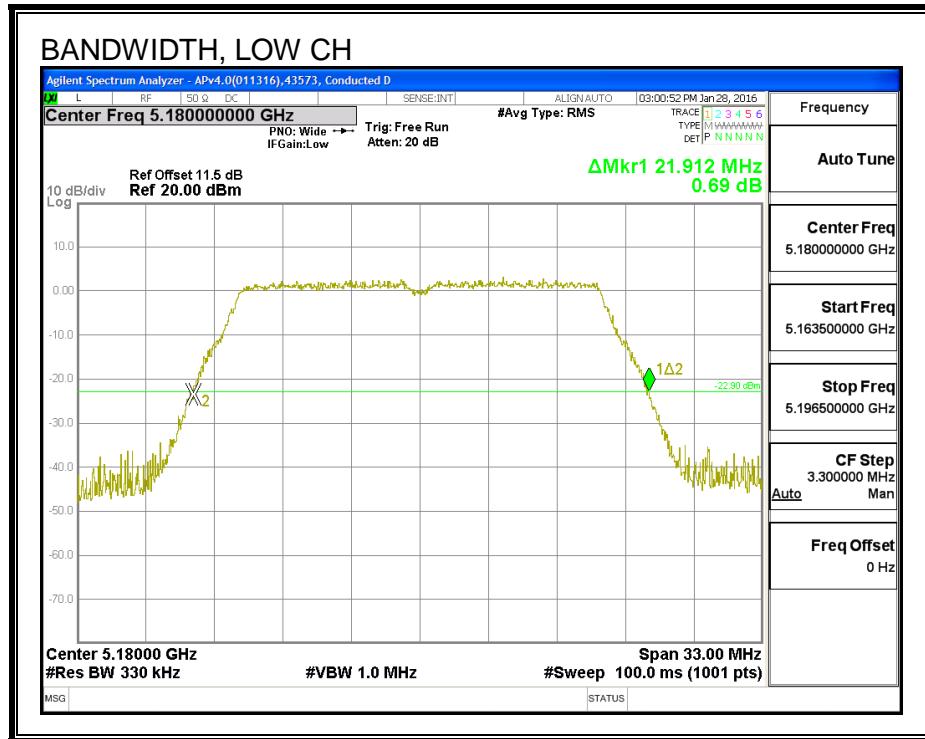
#### LIMITS

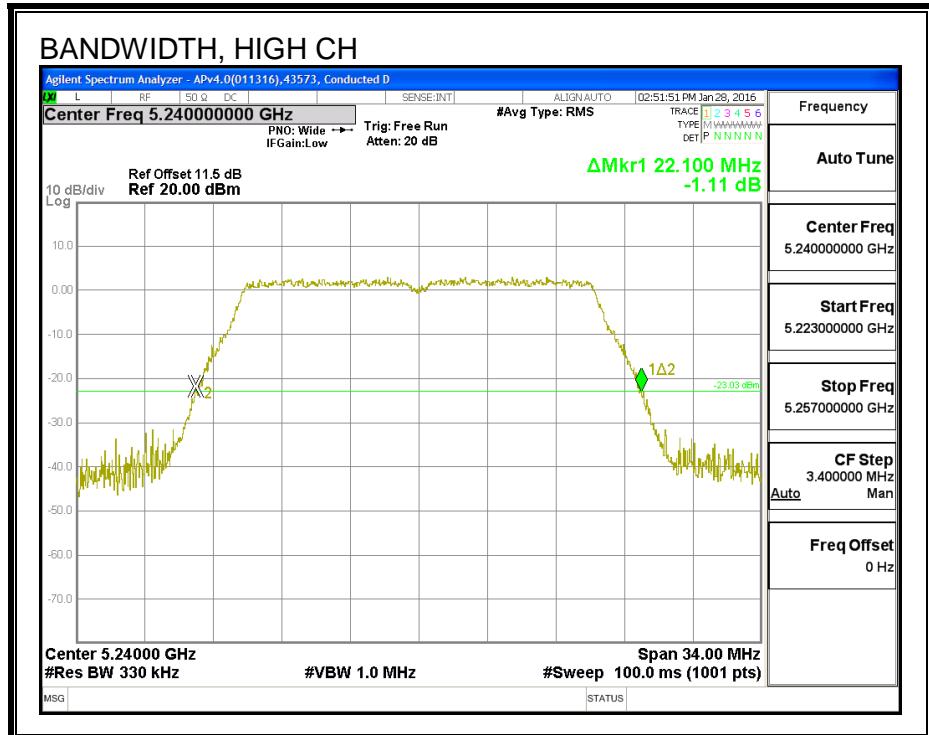
None; for reporting purposes only.

#### RESULTS

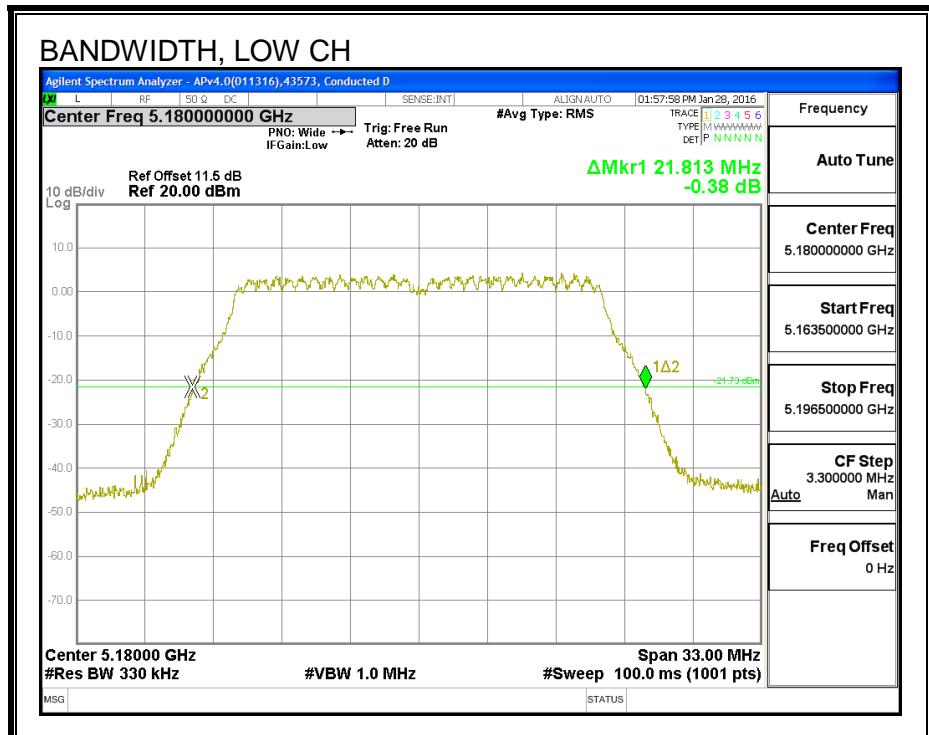
Channel	Frequency (MHz)	26 dB BW Antenna A (MHz)	26 dB BW Antenna C (MHz)
Low	5180	21.91	21.81
Mid	5200	22.20	21.78
High	5240	22.10	21.81

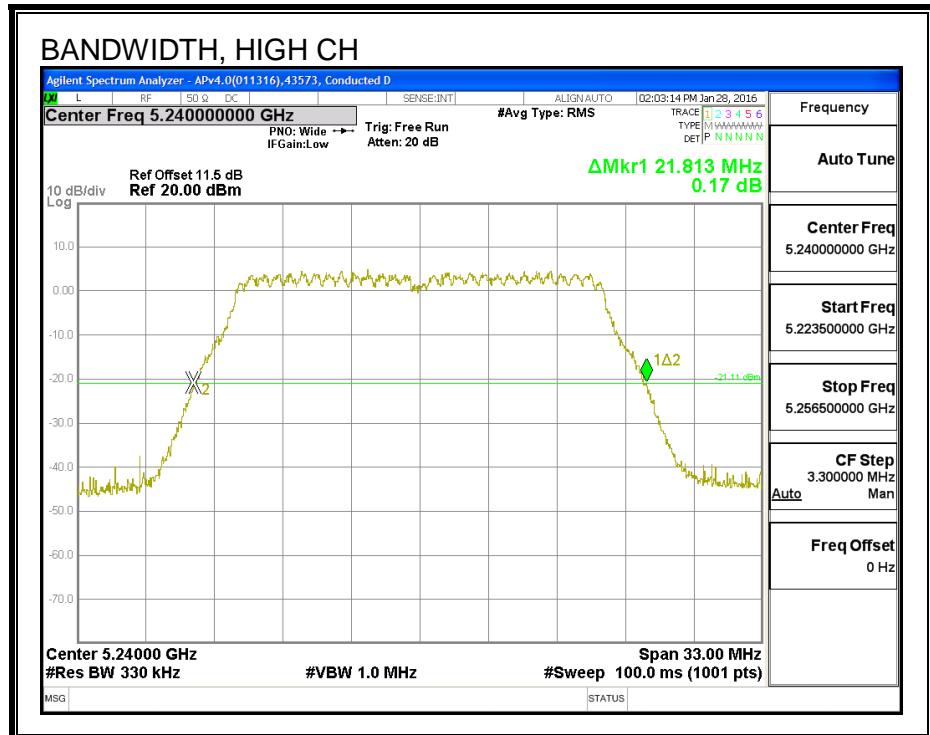
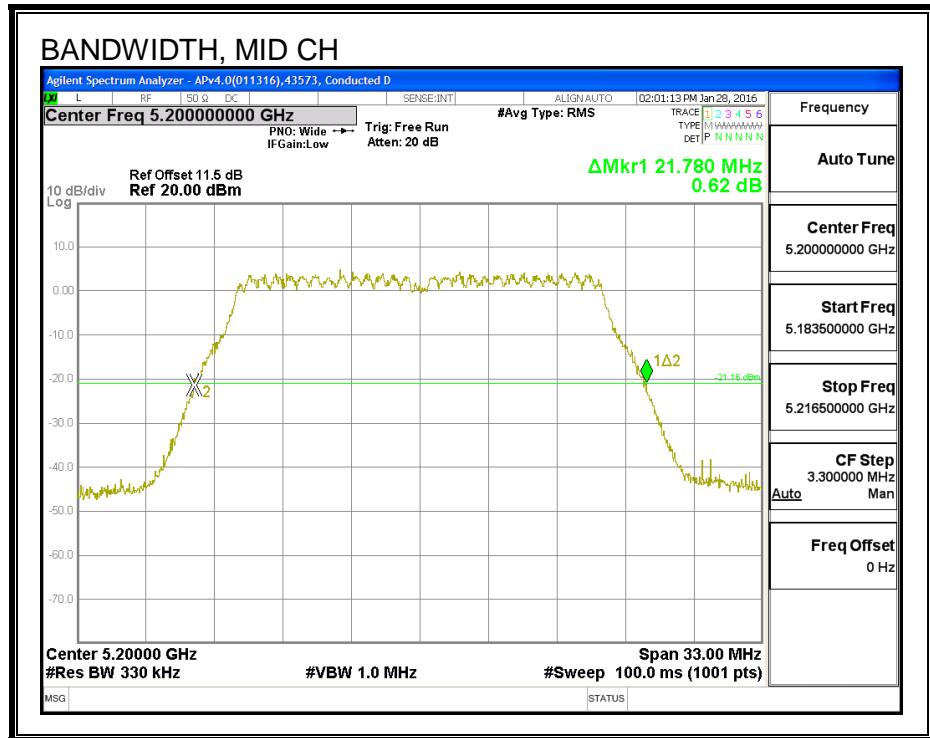
**26 DB BANDWIDTH, ANTENNA - A**





**26 DB BANDWIDTH, ANTENNA - C**





### 8.12.2. 99% BANDWIDTH

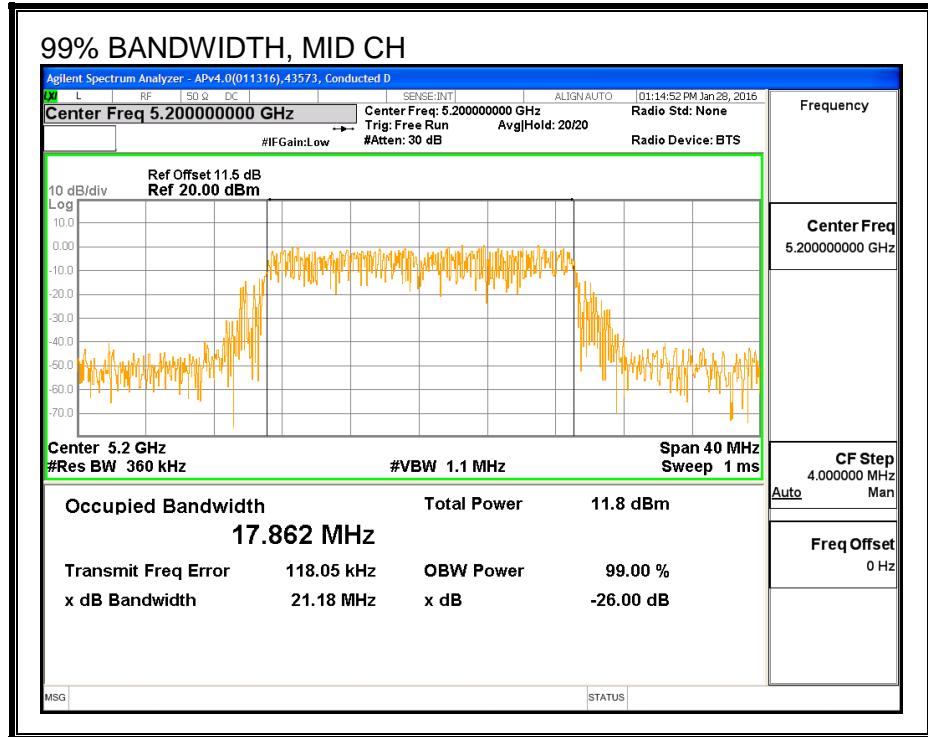
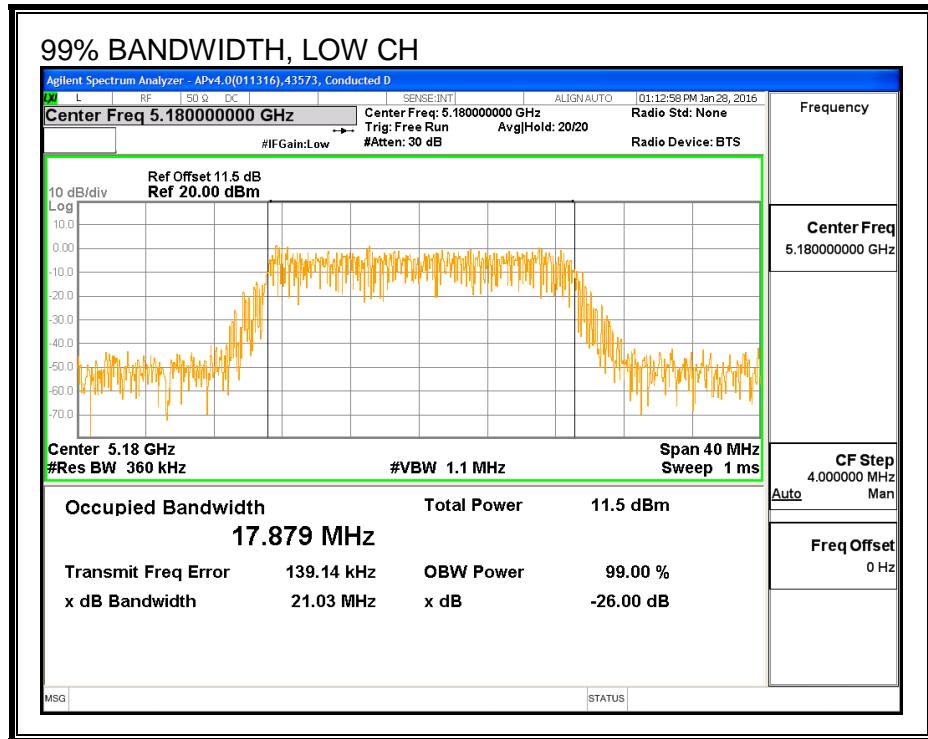
#### LIMITS

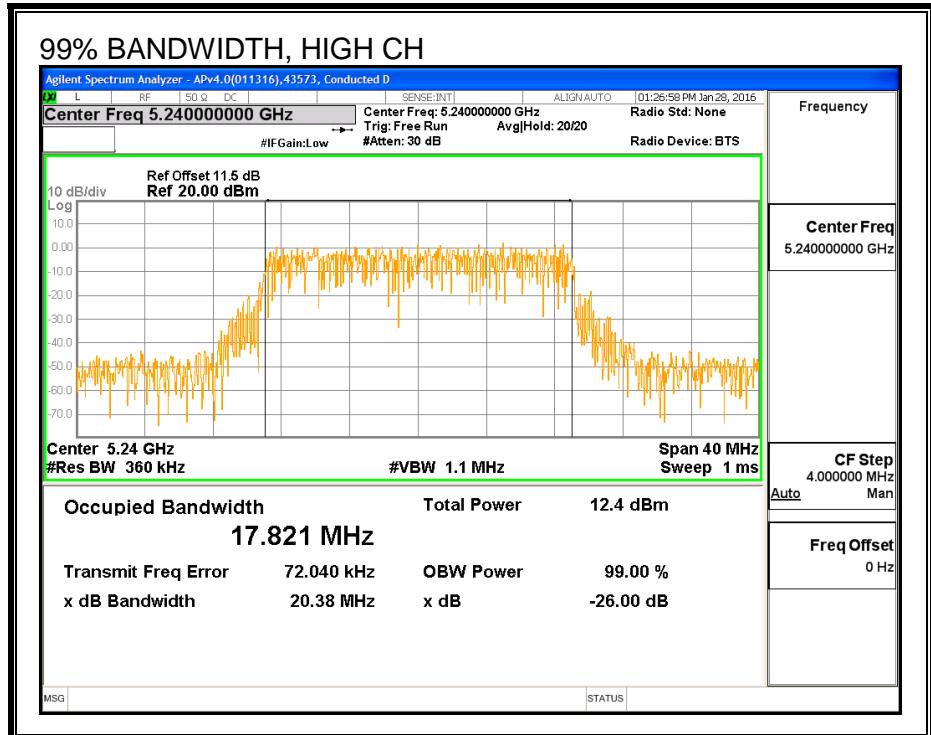
None; for reporting purposes only.

#### RESULTS

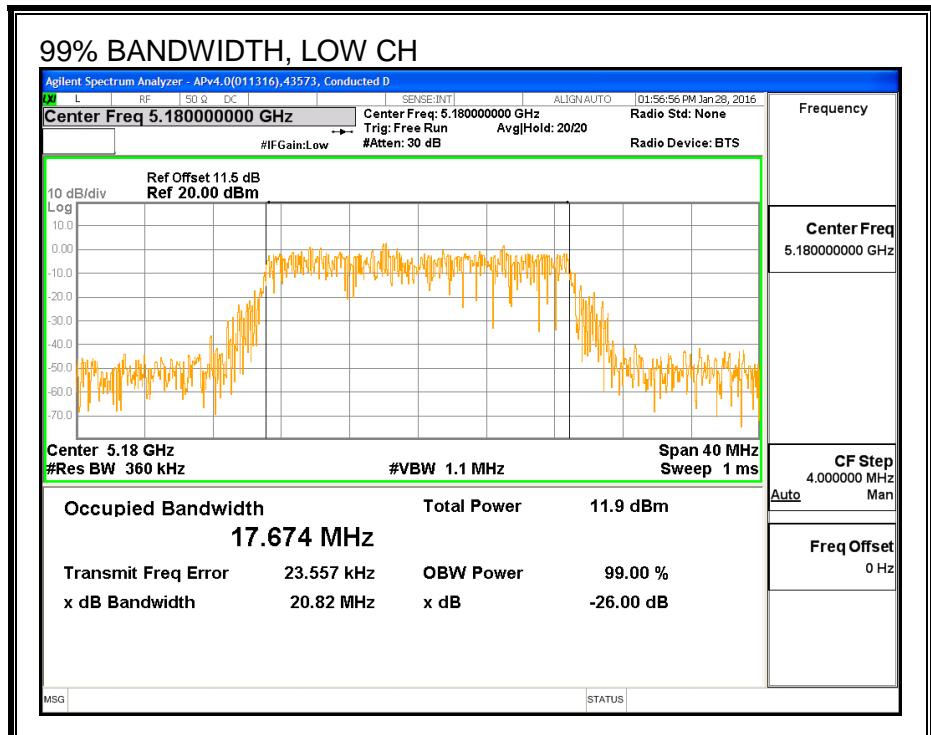
Channel	Frequency (MHz)	99% BW Antenna A (MHz)	99% BW Antenna C (MHz)
Low	5180	17.879	17.674
Mid	5200	17.862	17.749
High	5240	17.821	17.806

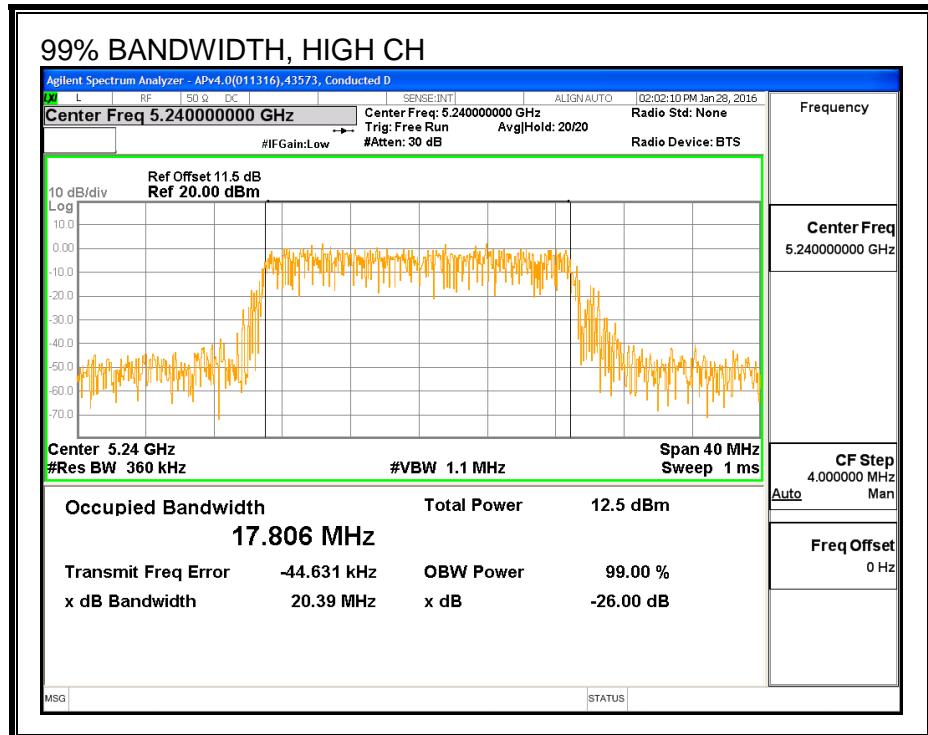
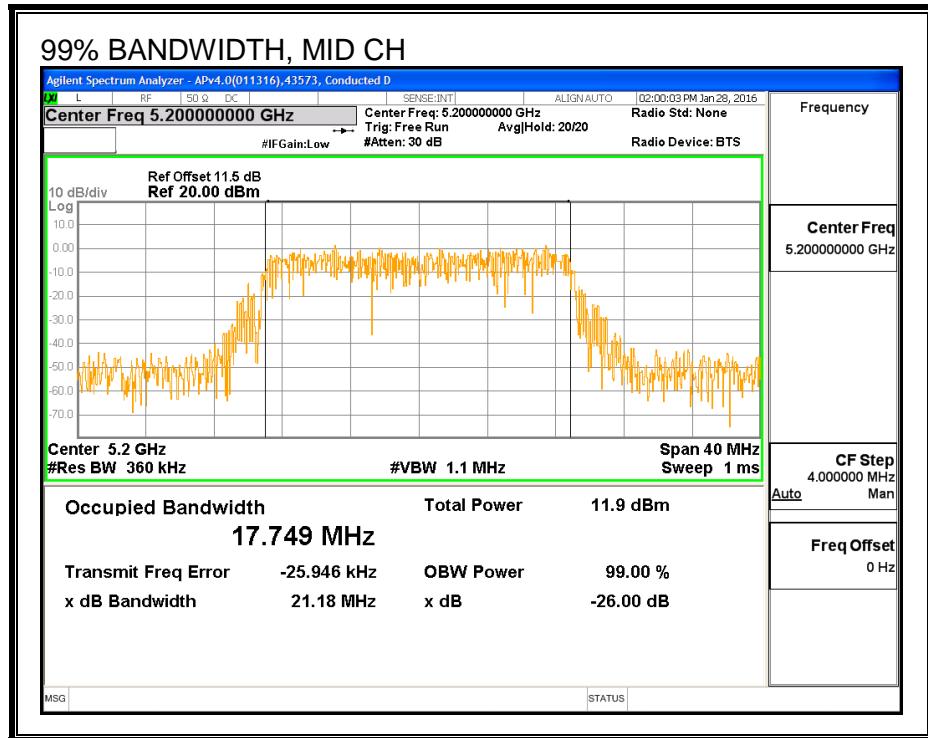
**99% BANDWIDTH, ANTENNA - A**





## 99% BANDWIDTH, ANTENNA - C





### 8.12.3. AVERAGE POWER

#### LIMITS

None; for reporting purposes only.

#### TEST PROCEDURE

Measurements perform using a wideband gated RF power meter.

#### RESULTS

Channel	Frequency (MHz)	Antenna A Power (dBm)	Antenna C Power (dBm)	Total Power (dBm)
Low	5180	14.47	14.48	17.49
Mid	5200	16.89	16.97	19.94
High	5240	17.00	16.92	19.97

#### 8.12.4. OUTPUT POWER AND PSD

##### LIMITS

FCC §15.407 (a) (1)

- (i) For an outdoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. The maximum e.i.r.p. at any elevation angle above 30 degrees as measured from the horizon must not exceed 125 mW (21 dBm).
- (ii) For an indoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.
- (iii) For fixed point-to-point access points operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. Fixed point-to-point U-NII devices may employ antennas with directional gain up to 23 dBi without any corresponding reduction in the maximum conducted output power or maximum power spectral density. For fixed point-to-point transmitters that employ a directional antenna gain greater than 23 dBi, a 1 dB reduction in maximum conducted output power and maximum power spectral density is required for each 1 dB of antenna gain in excess of 23 dBi. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.
- (iv) For mobile and portable client devices in the 5.15-5.25 GHz band, the maximum conducted output power over the frequency band of operation shall not exceed 250 mW provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

##### TEST PROCEDURE

Measurements perform using a wideband gated RF power meter provided that the gate parameters are adjusted such that the power is measured only when the EUT is transmitting at its maximum power control level. Since the measurement is made only during the ON time of the transmitter, no duty cycle correction factor is required.

### **DIRECTIONAL ANTENNA GAIN**

The TX chains are uncorrelated and the antenna gain is unequal among the chains. The directional gain is:

<b>Antenna A</b>	<b>Antenna C</b>	<b>Uncorrelated Chains</b>
<b>Gain (dBi)</b>	<b>Gain (dBi)</b>	<b>Directional Gain (dBi)</b>
2.30	1.36	1.86

## RESULTS

### Antenna Gain and Limits

Channel	Frequency (MHz)	Directional Gain for Power (dBi)	Directional Gain for PSD (dBi)	Power Limit (dBm)	PSD Limit (dBm)
Low	5180	1.86	1.86	24.00	11.00
Mid	5200	1.86	1.86	24.00	11.00
High	5240	1.86	1.86	24.00	11.00

Duty Cycle CF (dB)	0.00	Included in Calculations of Corr'd PSD
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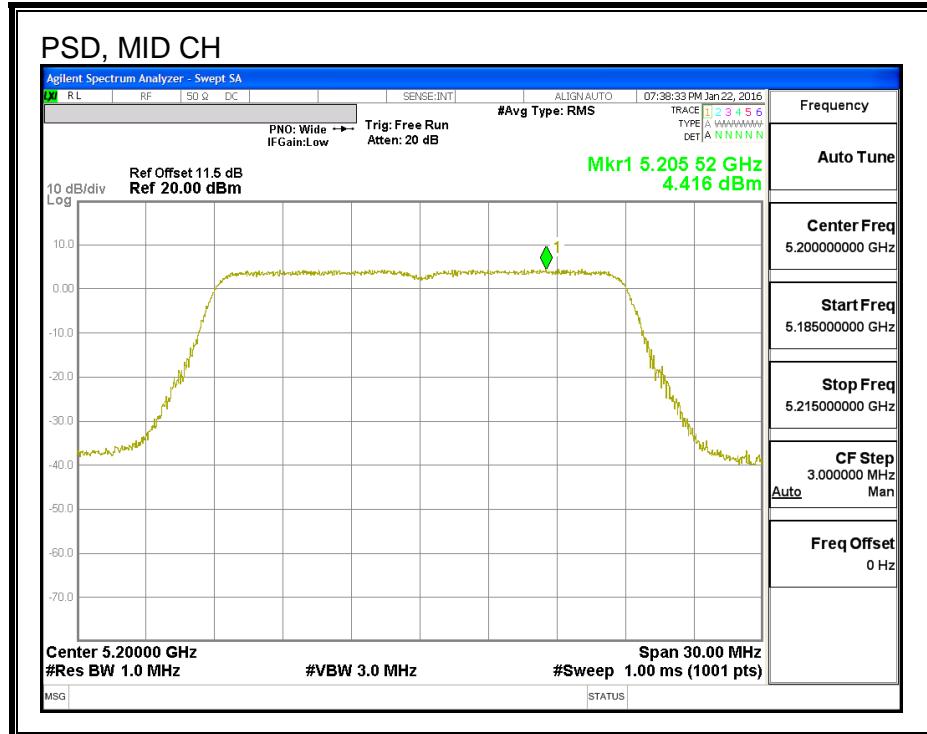
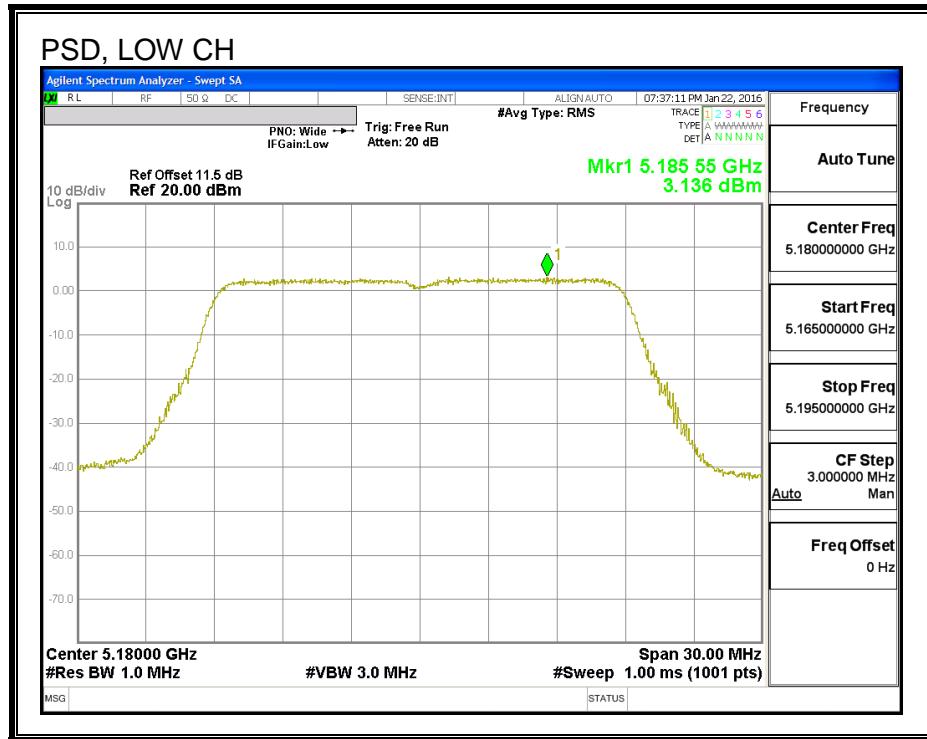
### Output Power Results

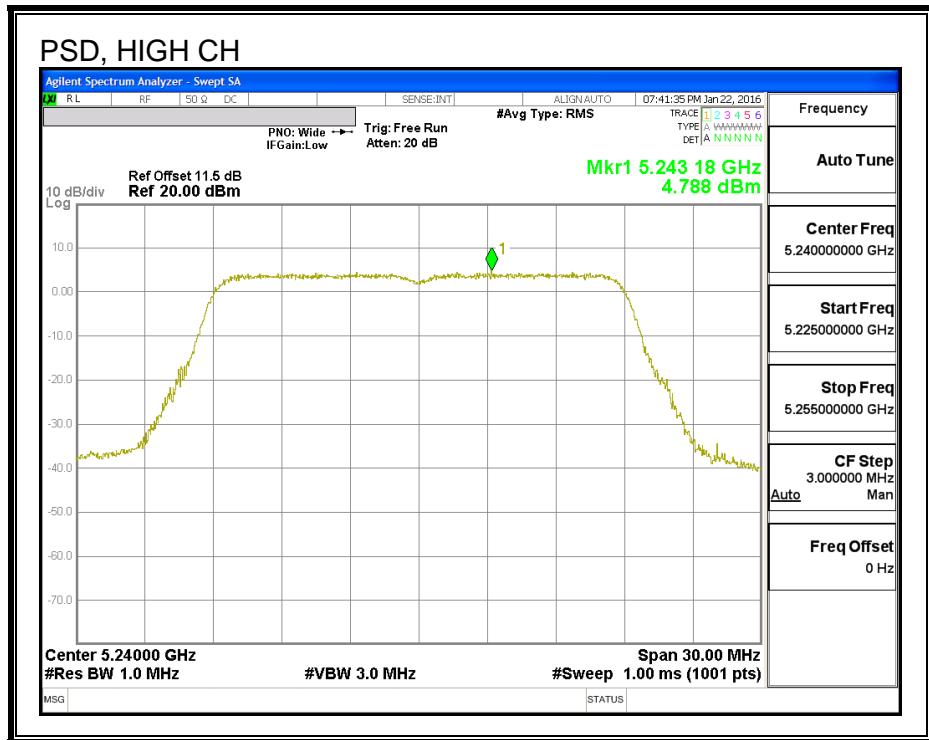
Channel	Frequency (MHz)	Antenna A Meas Power (dBm)	Antenna C Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5180	14.47	14.48	17.49	24.00	-6.51
Mid	5200	16.89	16.97	19.94	24.00	-4.06
High	5240	17.00	16.92	19.97	24.00	-4.03

### PSD Results

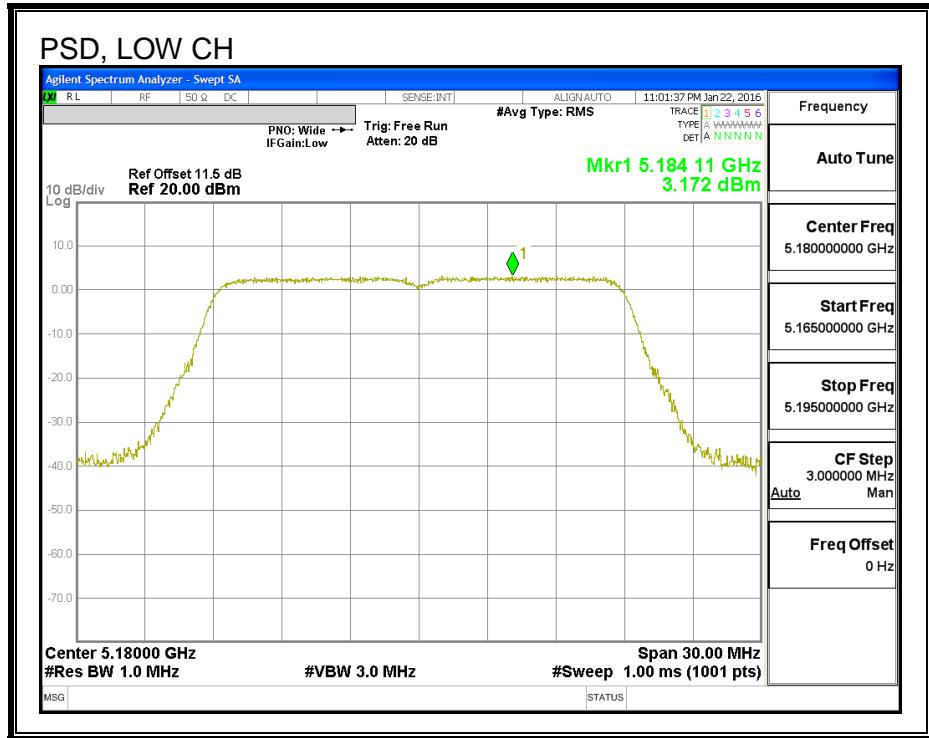
Channel	Frequency (MHz)	Antenna A Meas PSD (dBm)	Antenna C Meas PSD (dBm)	Total Corr'd PSD (dBm)	PSD Limit (dBm)	PSD Margin (dB)
Low	5180	3.14	3.17	6.16	11.00	-4.84
Mid	5200	4.42	4.67	7.55	11.00	-3.45
High	5240	4.78	4.54	7.67	11.00	-3.33

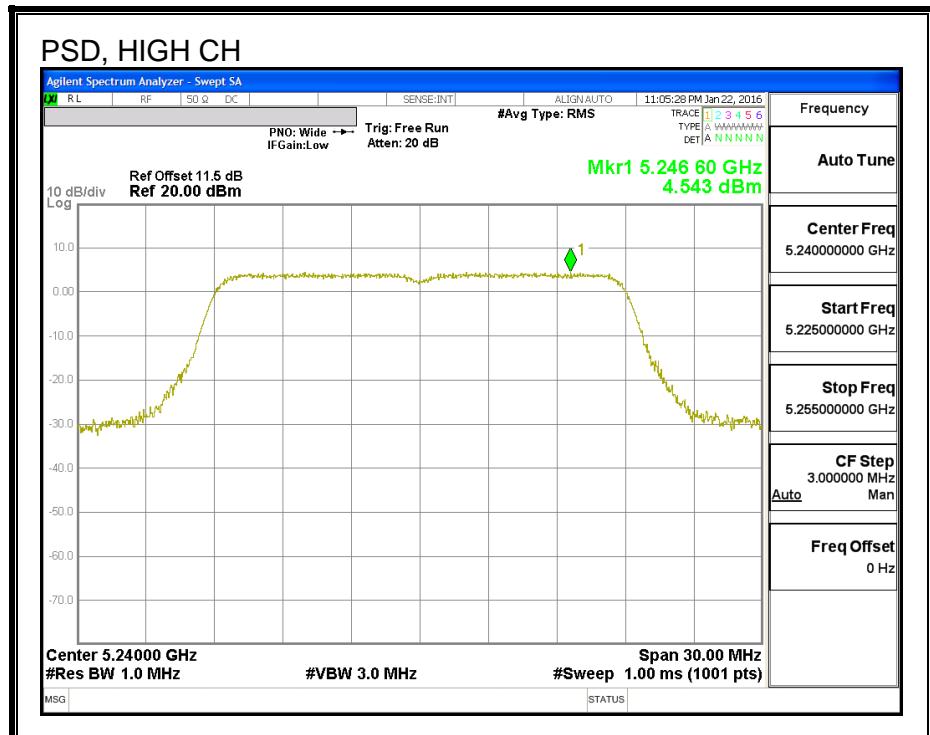
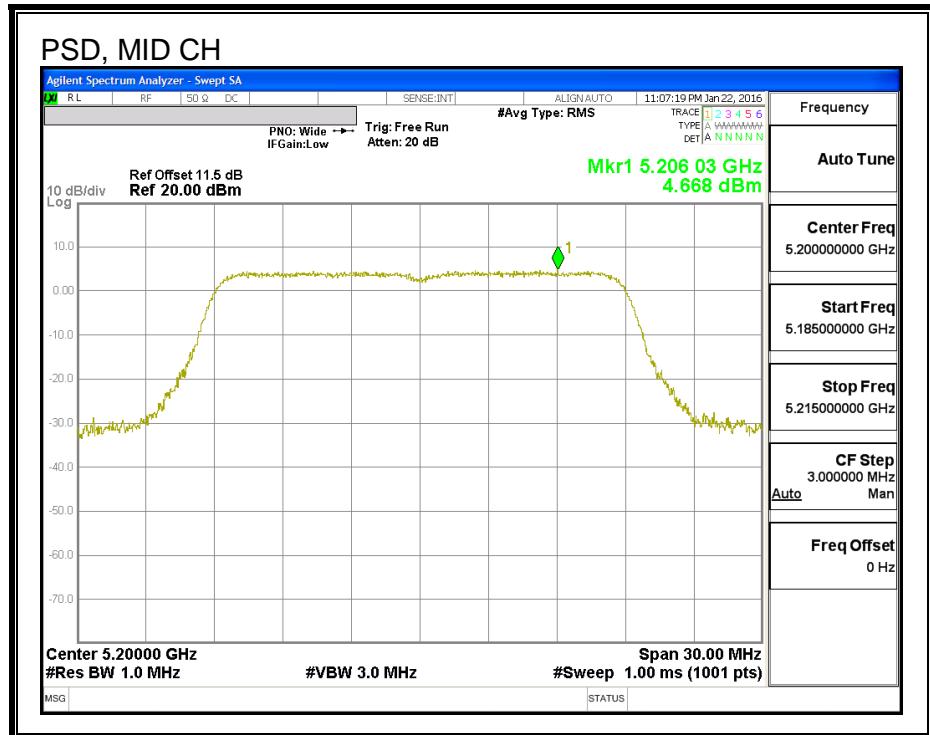
**PSD, ANTENNA - A**





**PSD, ANTENNA - C**





### 8.13. 802.11n HT20 ANTENNA B+A SDM MODE IN THE 5.2 GHz BAND

**Noted:** Covered by 802.11n HT20 ANTENNA B+A STBC MODE IN THE 5.2 GHz BAND

#### 8.14. 802.11n HT20 ANTENNA A+C SDM MODE IN THE 5.2 GHz BAND

**Noted:** Covered by 802.11n HT20 ANTENNA A+C STBC MODE IN THE 5.2 GHz BAND

## 8.15. 802.11n HT40 ANTENNA - B MODE IN THE 5.2 GHz BAND

### 8.15.1. 26 dB BANDWIDTH

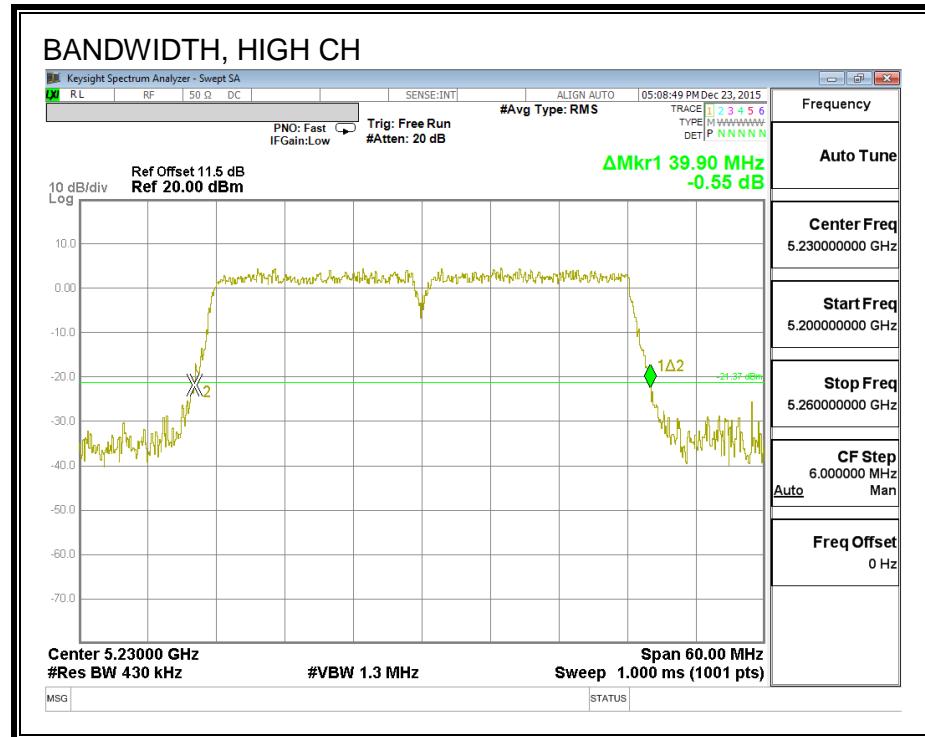
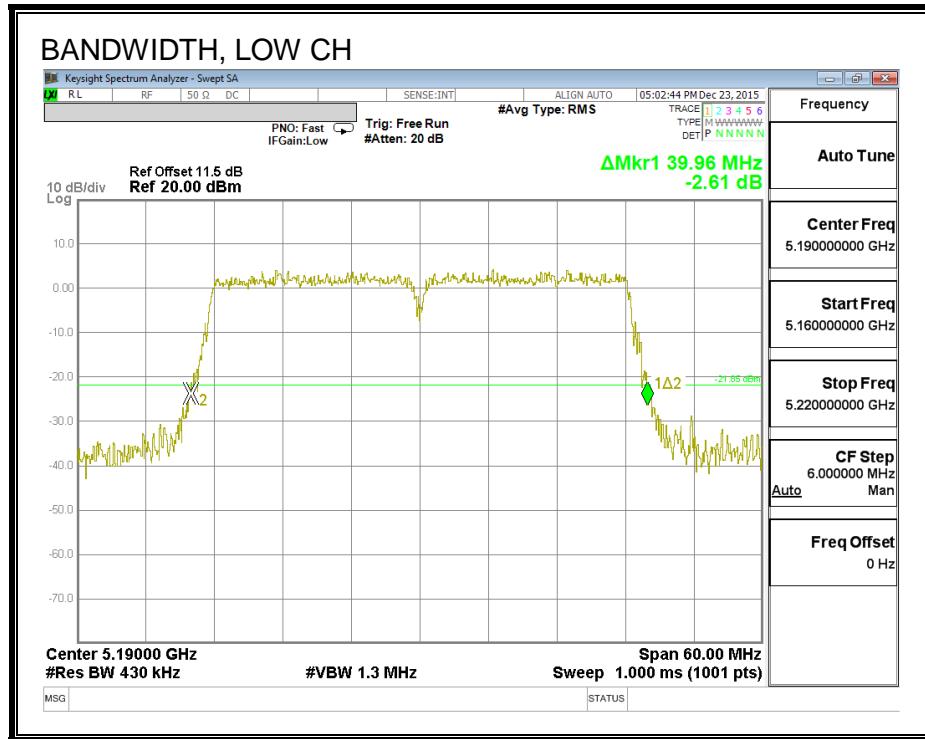
#### LIMITS

None; for reporting purposes only.

#### RESULTS

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)
Low	5190	39.96
High	5230	39.90

## 26 dB BANDWIDTH



### 8.15.2. 99% BANDWIDTH

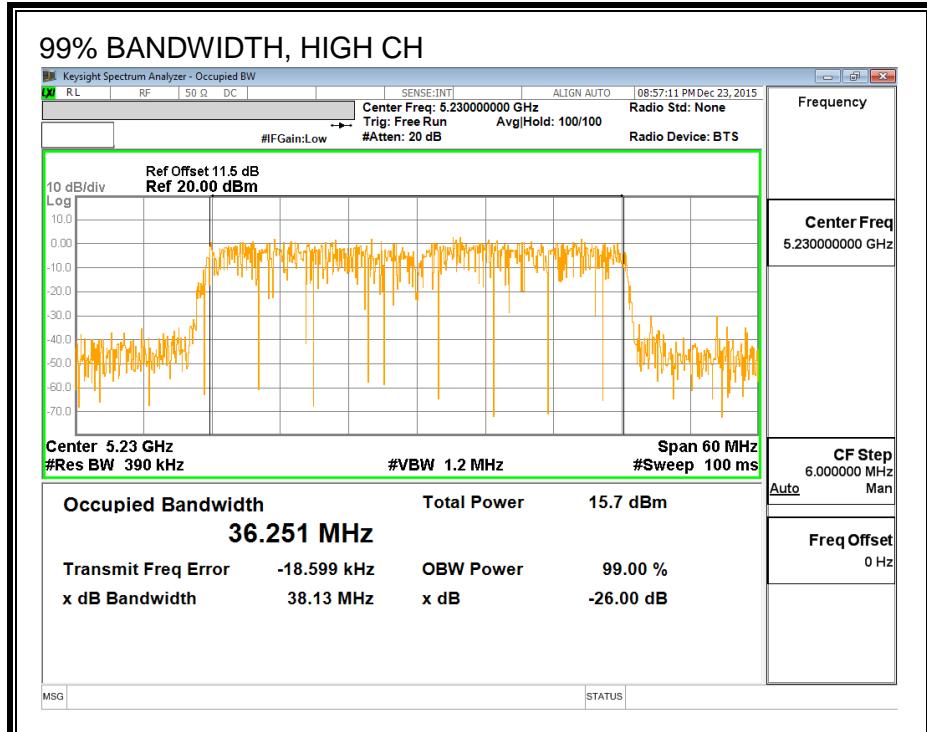
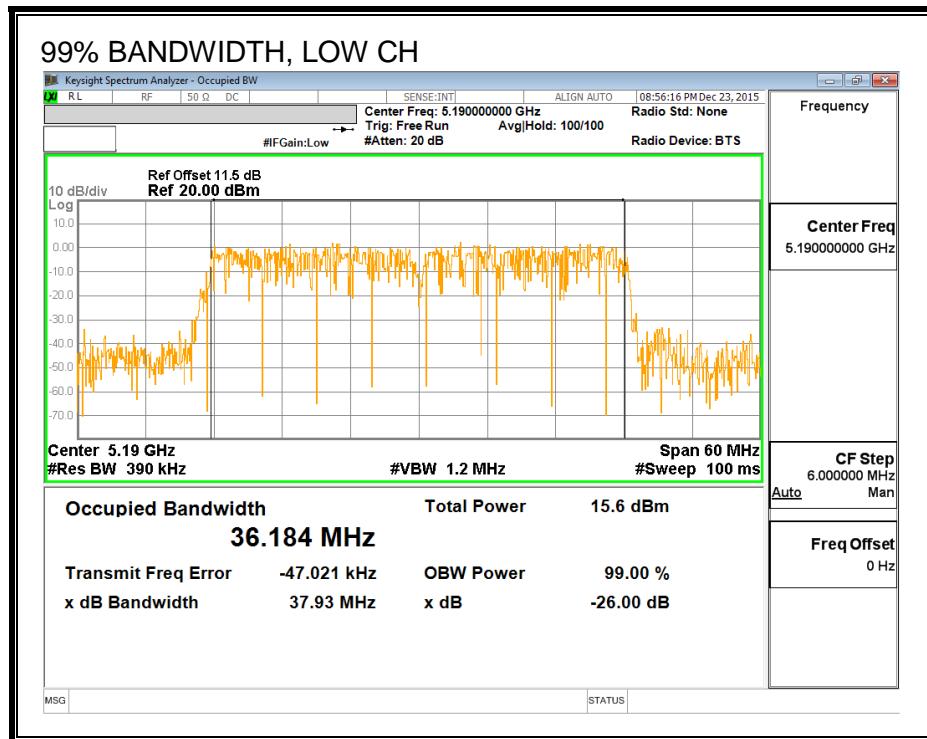
#### LIMITS

None; for reporting purposes only.

#### RESULTS

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	5190	36.184
High	5230	36.251

**99% BANDWIDTH**



### 8.15.3. AVERAGE POWER

#### LIMITS

None; for reporting purposes only.

#### TEST PROCEDURE

Measurements perform using a wideband gated RF power meter.

#### RESULTS

Channel	Frequency (MHz)	Power (dBm)
Low	5190	13.91
High	5230	16.43

#### 8.15.4. OUTPUT POWER AND PSD

##### LIMITS

FCC §15.407 (a) (1)

- (i) For an outdoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. The maximum e.i.r.p. at any elevation angle above 30 degrees as measured from the horizon must not exceed 125 mW (21 dBm).
- (ii) For an indoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.
- (iii) For fixed point-to-point access points operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. Fixed point-to-point U-NII devices may employ antennas with directional gain up to 23 dBi without any corresponding reduction in the maximum conducted output power or maximum power spectral density. For fixed point-to-point transmitters that employ a directional antenna gain greater than 23 dBi, a 1 dB reduction in maximum conducted output power and maximum power spectral density is required for each 1 dB of antenna gain in excess of 23 dBi. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.
- (iv) For mobile and portable client devices in the 5.15-5.25 GHz band, the maximum conducted output power over the frequency band of operation shall not exceed 250 mW provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

##### TEST PROCEDURE

Measurements perform using a wideband gated RF power meter provided that the gate parameters are adjusted such that the power is measured only when the EUT is transmitting at its maximum power control level. Since the measurement is made only during the ON time of the transmitter, no duty cycle correction factor is required.

##### DIRECTIONAL ANTENNA GAIN

There is only one transmitter output therefore the directional gain is equal to the antenna gain.

## RESULTS

### Antenna Gain and Limits

Channel	Frequency (MHz)	Directional Gain for Power (dBi)	Directional Gain for PSD (dBi)	Power Limit (dBm)	PSD Limit (dBm)
Low	5190	3.04	3.04	24.00	11.00
High	5230	3.04	3.04	24.00	11.00

Duty Cycle CF (dB)	0.00	Included in Calculations of Corr'd PSD
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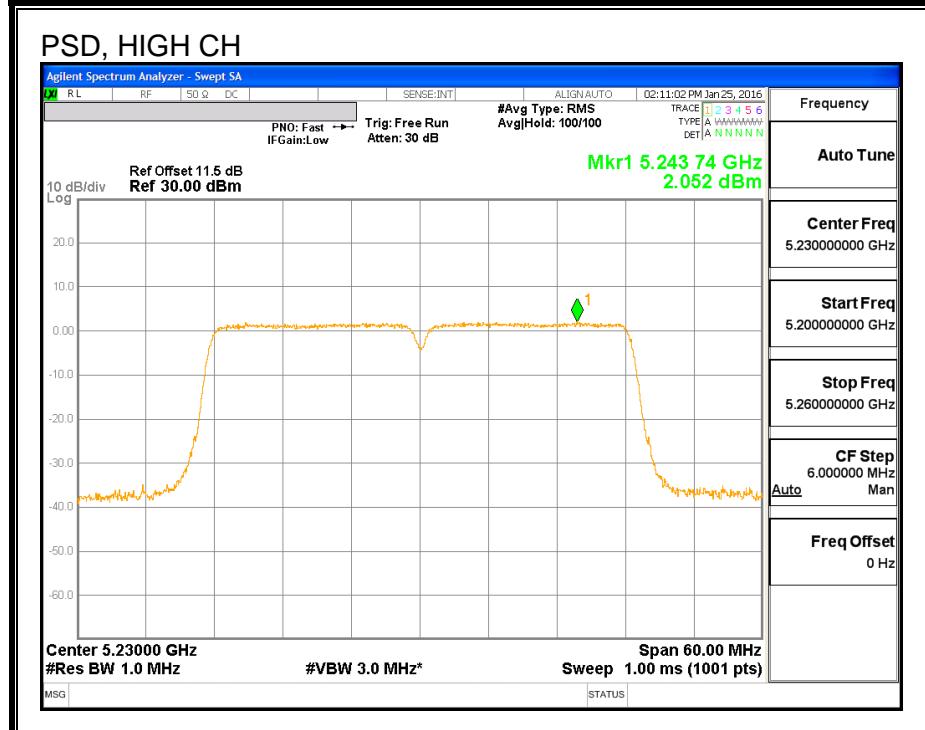
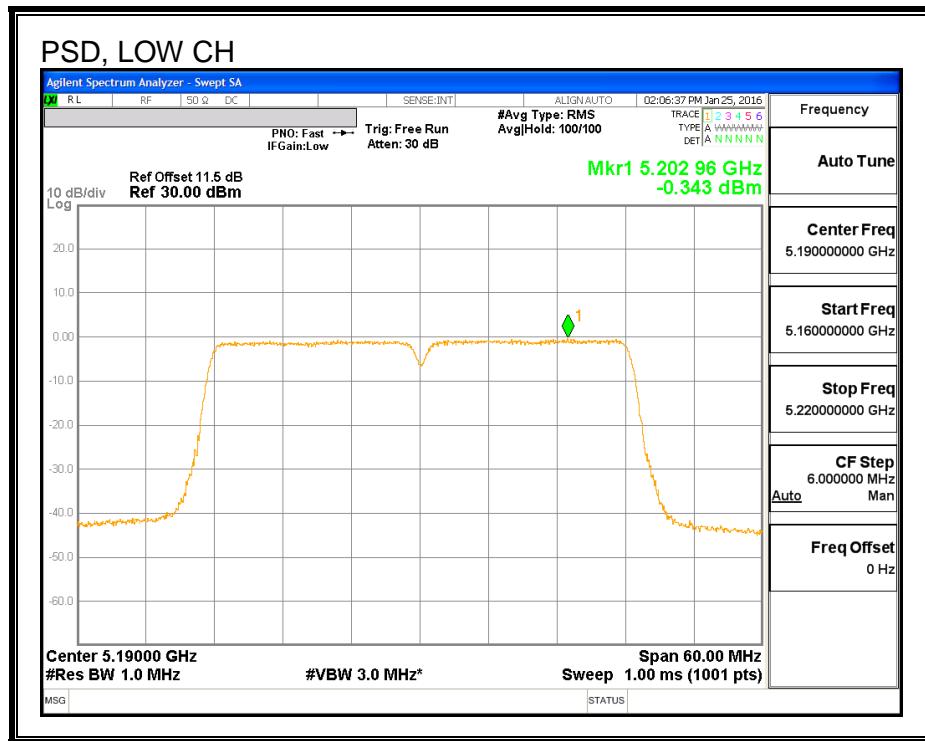
### Output Power Results

Channel	Frequency (MHz)	Antenna B Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5190	13.91	13.91	24.00	-10.09
High	5230	16.43	16.43	24.00	-7.57

### PSD Results

Channel	Frequency (MHz)	Antenna B Meas PSD (dBm)	Total Corr'd PSD (dBm)	PSD Limit (dBm)	PSD Margin (dB)
Low	5190	-0.34	-0.34	11.00	-11.34
High	5230	2.05	2.05	11.00	-8.95

PSD



## 8.16. 802.11n HT40 ANTENNA - A MODE IN THE 5.2 GHz BAND

### 8.16.1. 26 dB BANDWIDTH

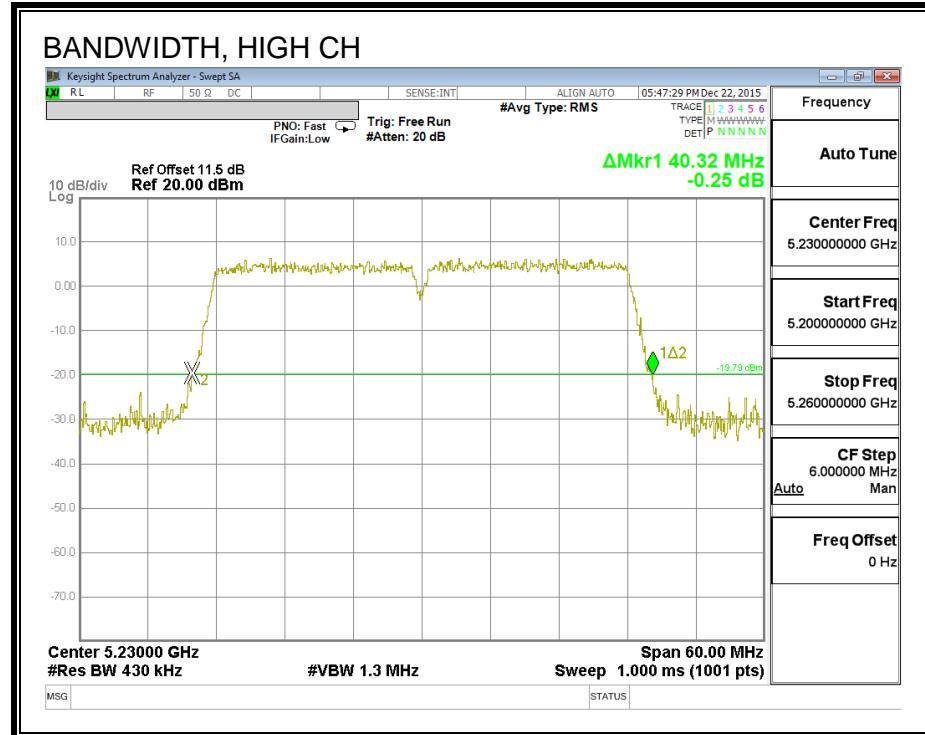
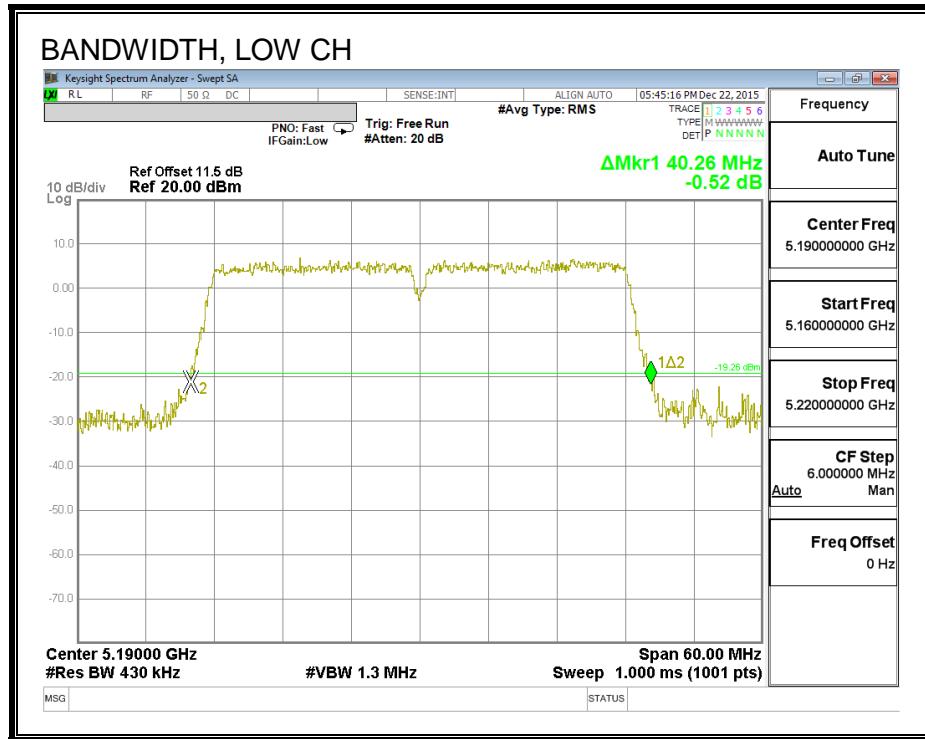
#### LIMITS

None; for reporting purposes only.

#### RESULTS

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)
Low	5190	40.26
High	5230	40.32

**26 dB BANDWIDTH**



### 8.16.2. 99% BANDWIDTH

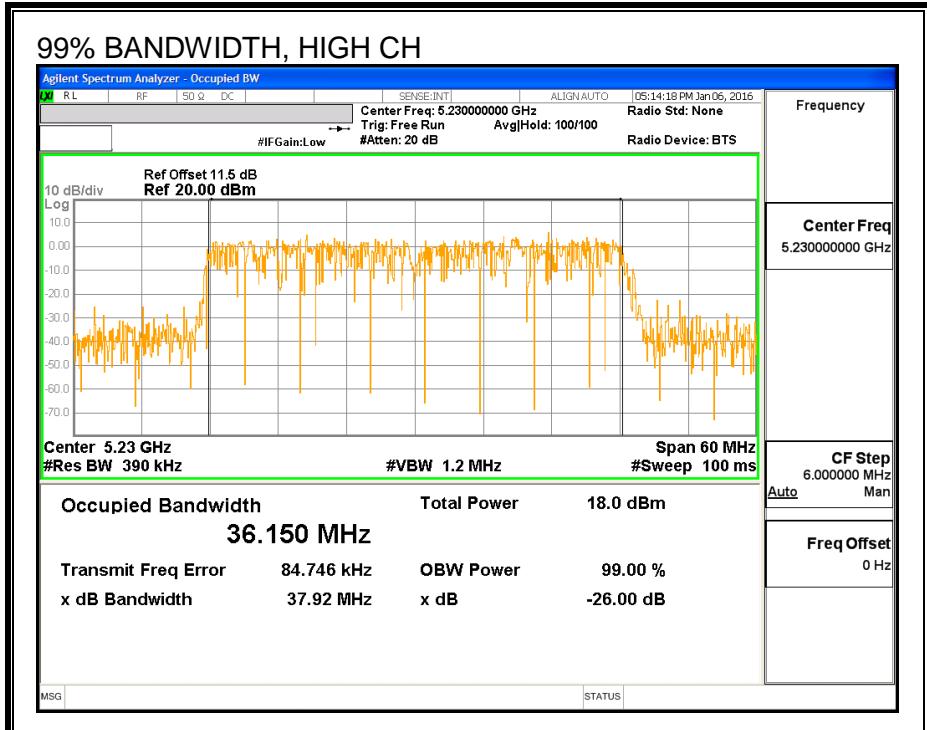
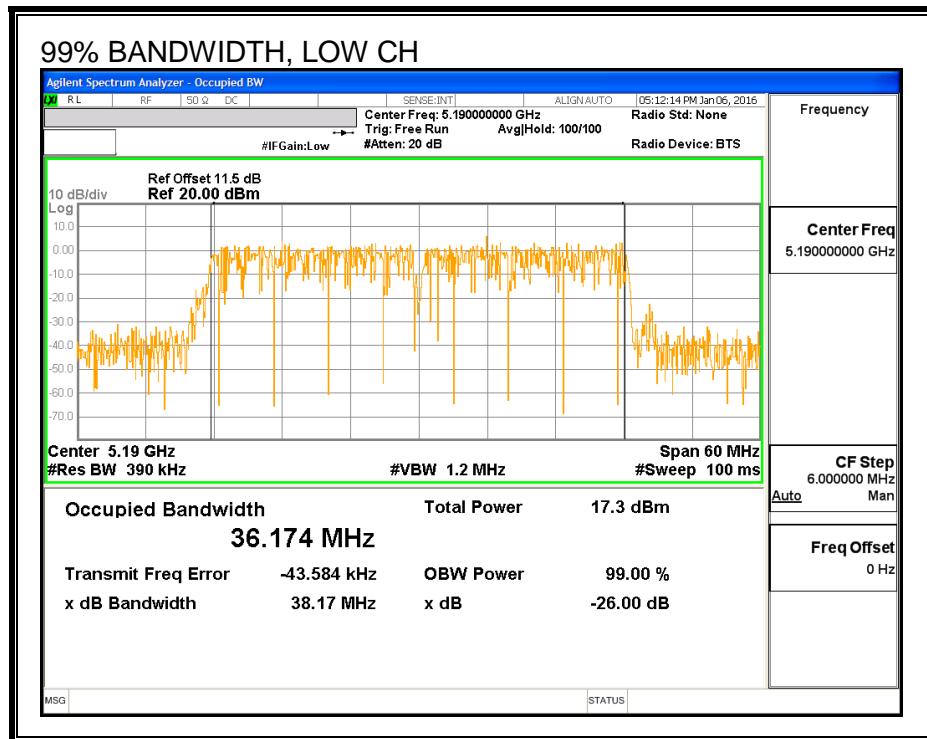
#### LIMITS

None; for reporting purposes only.

#### RESULTS

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	5190	36.174
High	5230	36.150

**99% BANDWIDTH**



### 8.16.3. AVERAGE POWER

#### LIMITS

None; for reporting purposes only.

#### TEST PROCEDURE

Measurements perform using a wideband gated RF power meter.

#### RESULTS

Channel	Frequency (MHz)	Power (dBm)
Low	5190	13.95
High	5230	16.81

#### 8.16.4. OUTPUT POWER AND PSD

##### LIMITS

FCC §15.407 (a) (1)

- (i) For an outdoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. The maximum e.i.r.p. at any elevation angle above 30 degrees as measured from the horizon must not exceed 125 mW (21 dBm).
- (ii) For an indoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.
- (iii) For fixed point-to-point access points operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. Fixed point-to-point U-NII devices may employ antennas with directional gain up to 23 dBi without any corresponding reduction in the maximum conducted output power or maximum power spectral density. For fixed point-to-point transmitters that employ a directional antenna gain greater than 23 dBi, a 1 dB reduction in maximum conducted output power and maximum power spectral density is required for each 1 dB of antenna gain in excess of 23 dBi. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.
- (iv) For mobile and portable client devices in the 5.15-5.25 GHz band, the maximum conducted output power over the frequency band of operation shall not exceed 250 mW provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

##### TEST PROCEDURE

Measurements perform using a wideband gated RF power meter provided that the gate parameters are adjusted such that the power is measured only when the EUT is transmitting at its maximum power control level. Since the measurement is made only during the ON time of the transmitter, no duty cycle correction factor is required.

##### DIRECTIONAL ANTENNA GAIN

There is only one transmitter output therefore the directional gain is equal to the antenna gain.

## RESULTS

### Antenna Gain and Limits

Channel	Frequency (MHz)	Directional Gain for Power (dBi)	Directional Gain for PSD (dBi)	Power Limit (dBm)	PSD Limit (dBm)
Low	5190	2.30	2.30	24.00	11.00
High	5230	2.30	2.30	24.00	11.00

Duty Cycle CF (dB)	0.00	Included in Calculations of Corr'd PSD
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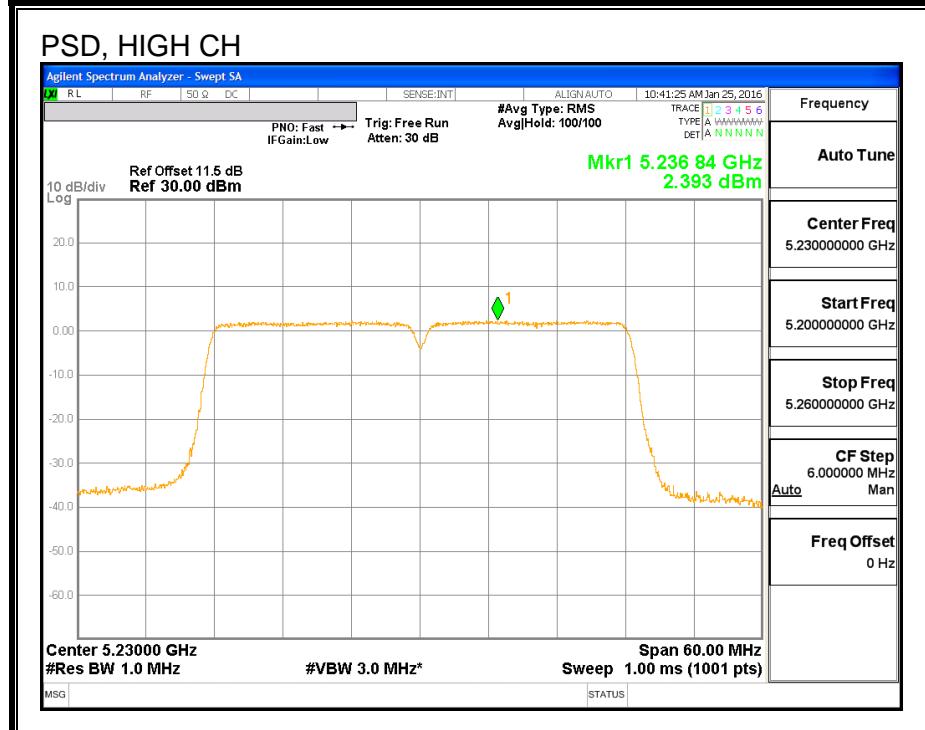
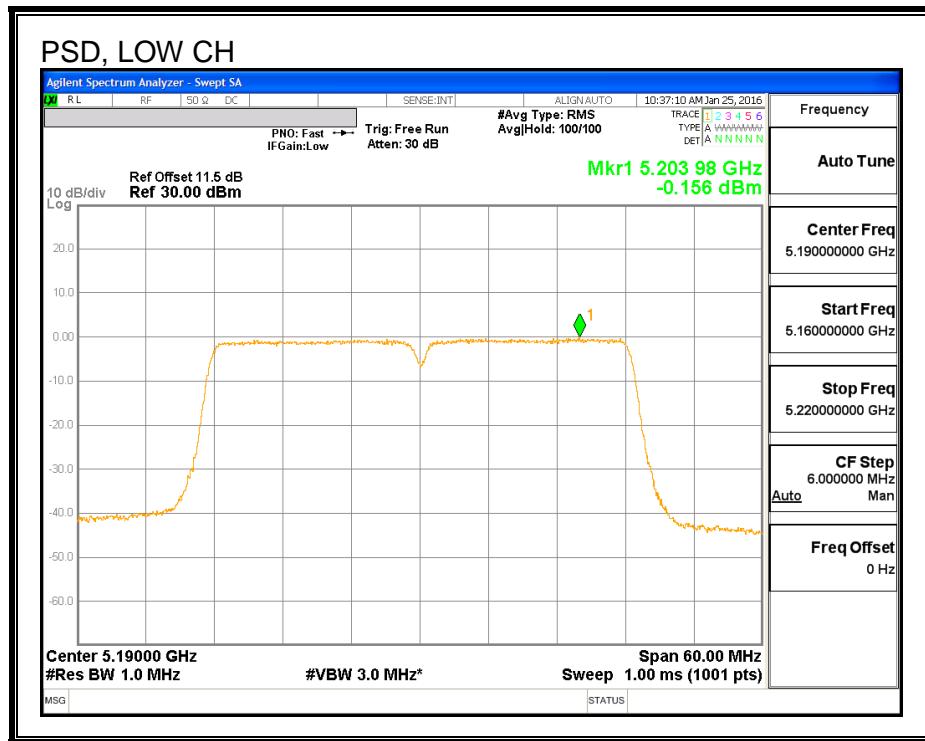
### Output Power Results

Channel	Frequency (MHz)	Antenna A Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5190	13.95	13.95	24.00	-10.05
High	5230	16.81	16.81	24.00	-7.19

### PSD Results

Channel	Frequency (MHz)	Antenna A Meas PSD (dBm)	Total Corr'd PSD (dBm)	PSD Limit (dBm)	PSD Margin (dB)
Low	5190	-0.16	-0.16	11.00	-11.16
High	5230	2.39	2.39	11.00	-8.61

PSD



## 8.17. 802.11n HT40 ANTENNA - C MODE IN THE 5.2 GHz BAND

### 8.17.1. 26 dB BANDWIDTH

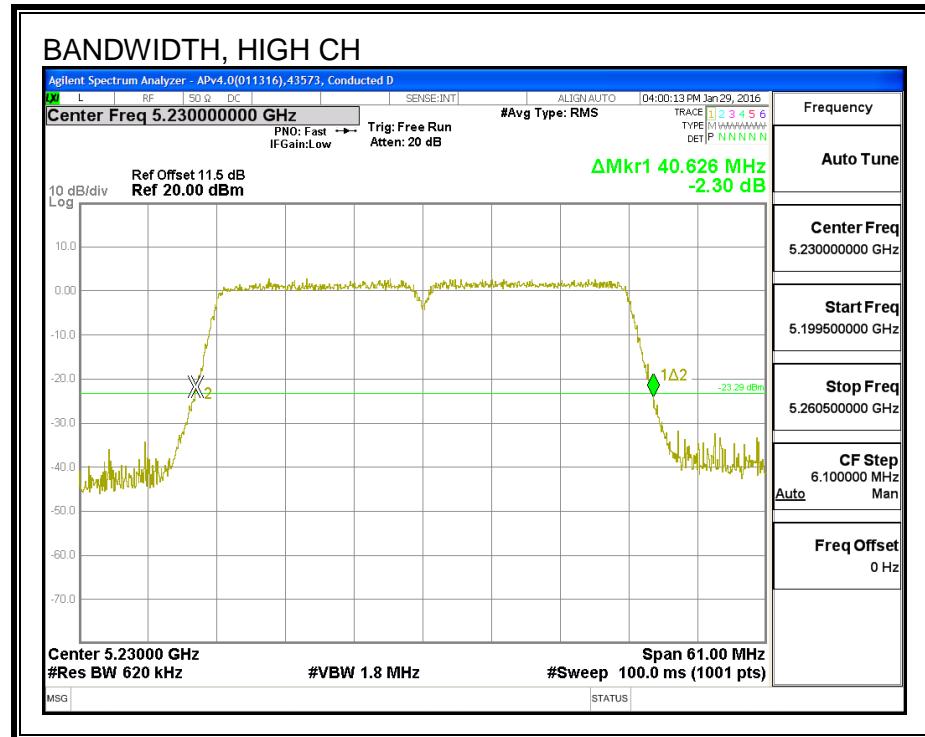
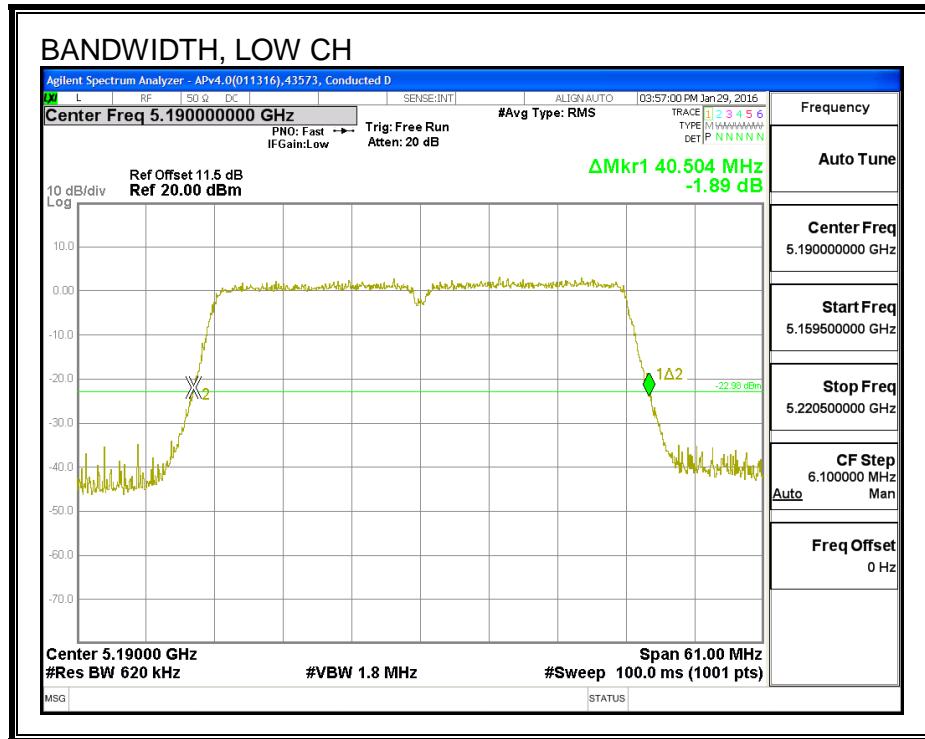
#### LIMITS

None; for reporting purposes only.

#### RESULTS

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)
Low	5190	40.50
High	5230	40.63

## 26 dB BANDWIDTH



### 8.17.2. 99% BANDWIDTH

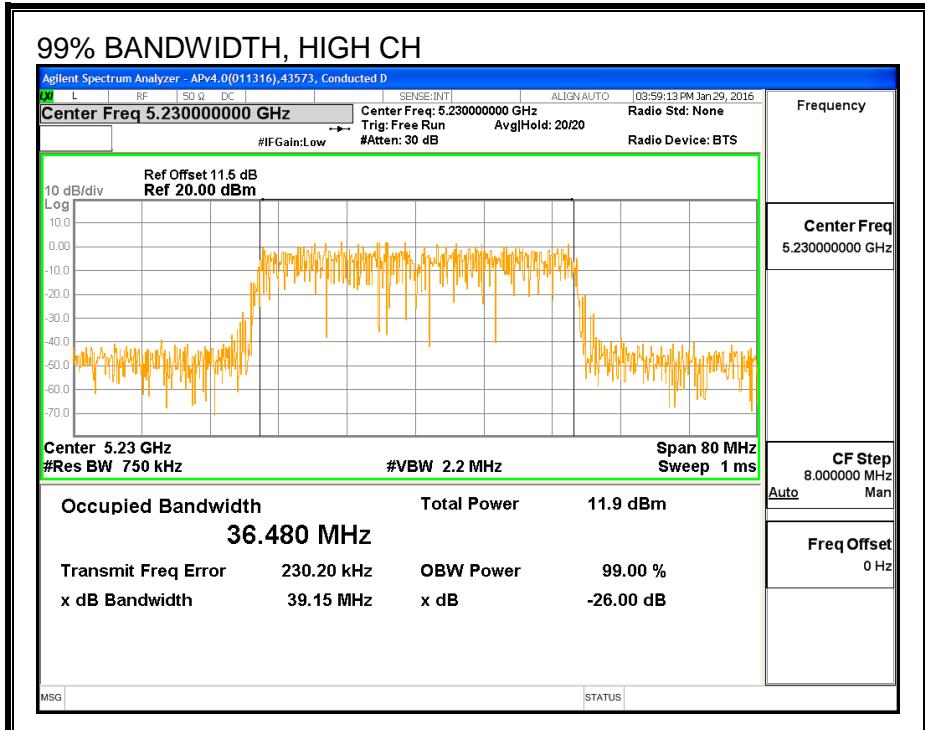
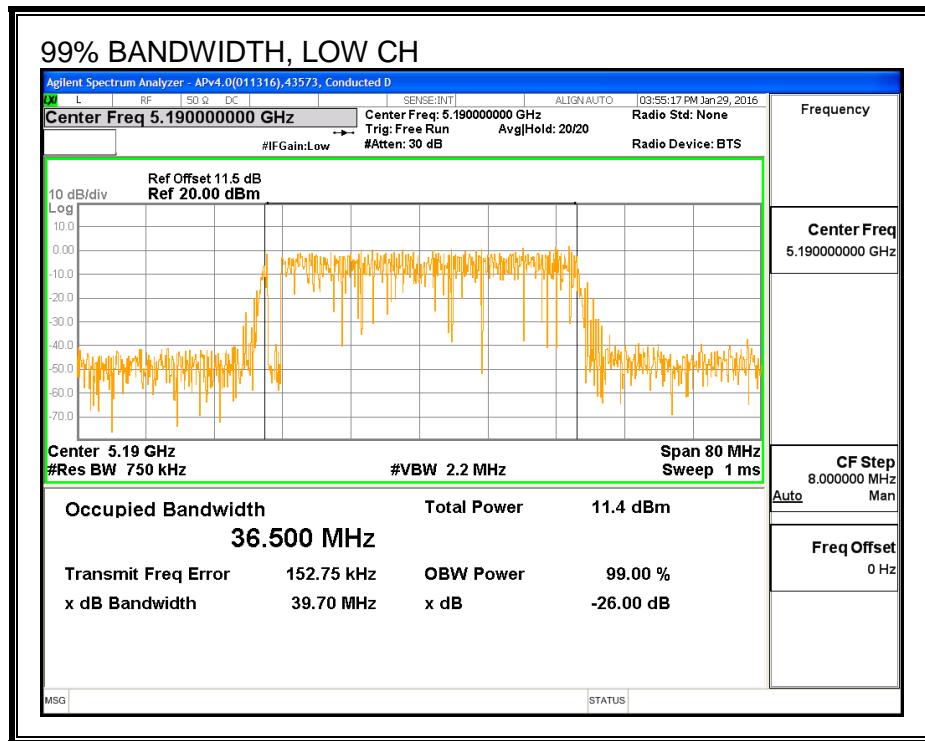
#### LIMITS

None; for reporting purposes only.

#### RESULTS

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	5190	36.500
High	5230	36.480

**99% BANDWIDTH**



### 8.17.3. AVERAGE POWER

#### LIMITS

None; for reporting purposes only.

#### TEST PROCEDURE

Measurements perform using a wideband gated RF power meter.

#### RESULTS

Channel	Frequency (MHz)	Power (dBm)
Low	5190	14.00
High	5230	16.97

#### 8.17.4. OUTPUT POWER AND PSD

##### LIMITS

FCC §15.407 (a) (1)

- (i) For an outdoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. The maximum e.i.r.p. at any elevation angle above 30 degrees as measured from the horizon must not exceed 125 mW (21 dBm).
- (ii) For an indoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.
- (iii) For fixed point-to-point access points operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. Fixed point-to-point U-NII devices may employ antennas with directional gain up to 23 dBi without any corresponding reduction in the maximum conducted output power or maximum power spectral density. For fixed point-to-point transmitters that employ a directional antenna gain greater than 23 dBi, a 1 dB reduction in maximum conducted output power and maximum power spectral density is required for each 1 dB of antenna gain in excess of 23 dBi. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.
- (iv) For mobile and portable client devices in the 5.15-5.25 GHz band, the maximum conducted output power over the frequency band of operation shall not exceed 250 mW provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

##### TEST PROCEDURE

Measurements perform using a wideband gated RF power meter provided that the gate parameters are adjusted such that the power is measured only when the EUT is transmitting at its maximum power control level. Since the measurement is made only during the ON time of the transmitter, no duty cycle correction factor is required.

##### DIRECTIONAL ANTENNA GAIN

There is only one transmitter output therefore the directional gain is equal to the antenna gain.

## RESULTS

### Antenna Gain and Limits

Channel	Frequency (MHz)	Directional Gain for Power (dBi)	Directional Gain for PSD (dBi)	Power Limit (dBm)	PSD Limit (dBm)
Low	5190	1.36	1.36	24.00	11.00
High	5230	1.36	1.36	24.00	11.00

Duty Cycle CF (dB)	0.00	Included in Calculations of Corr'd PSD
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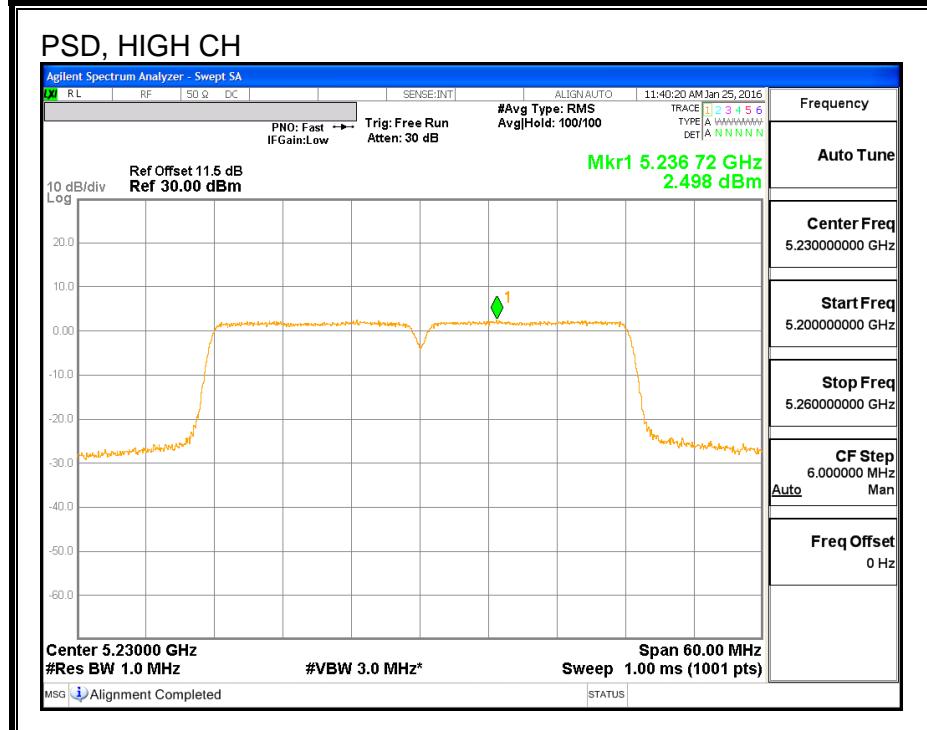
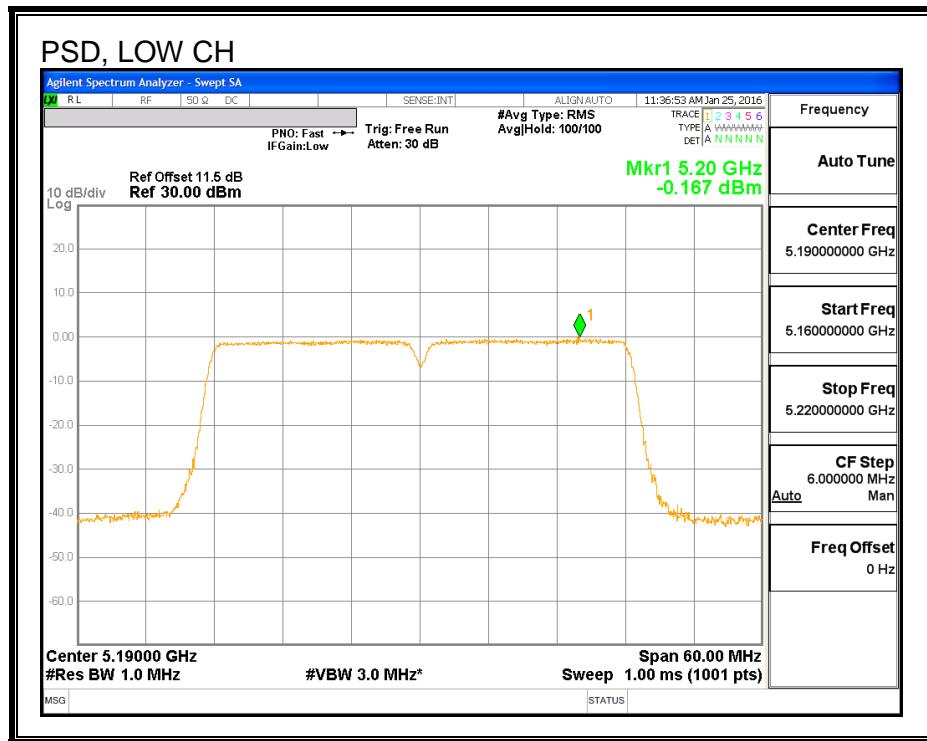
### Output Power Results

Channel	Frequency (MHz)	Antenna C Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5190	14.00	14.00	24.00	-10.00
High	5230	16.97	16.97	24.00	-7.03

### PSD Results

Channel	Frequency (MHz)	Antenna C Meas PSD (dBm)	Total Corr'd PSD (dBm)	PSD Limit (dBm)	PSD Margin (dB)
Low	5190	-0.17	-0.17	11.00	-11.17
High	5230	2.50	2.50	11.00	-8.50

PSD



## 8.18. 802.11n HT40 ANTENNA B+A CDD MODE IN THE 5.2 GHz BAND

### 8.18.1. 26 dB BANDWIDTH

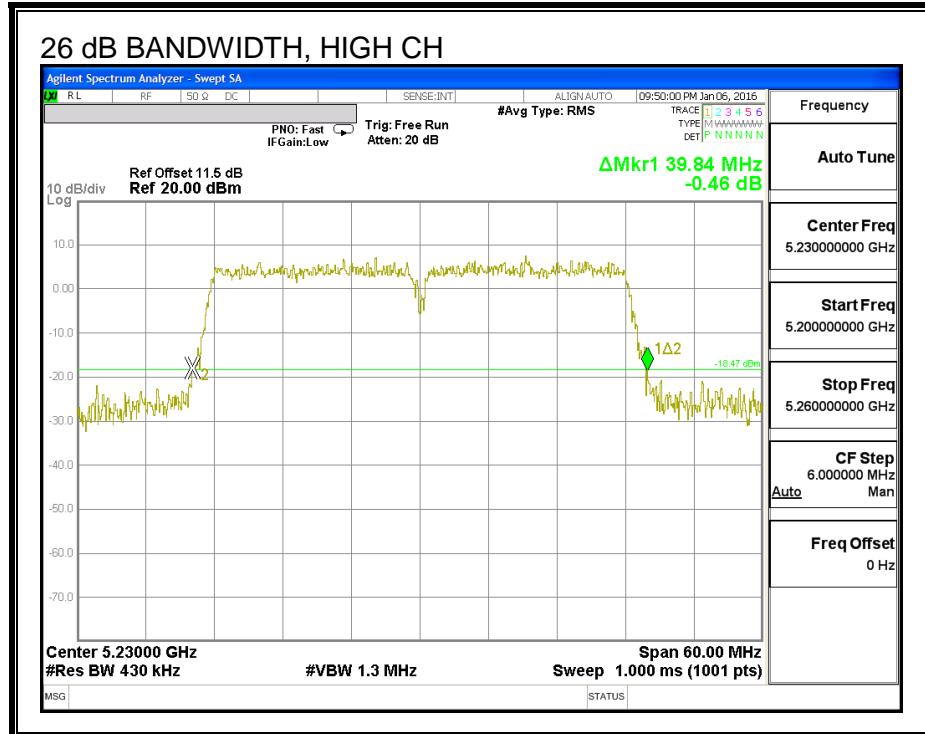
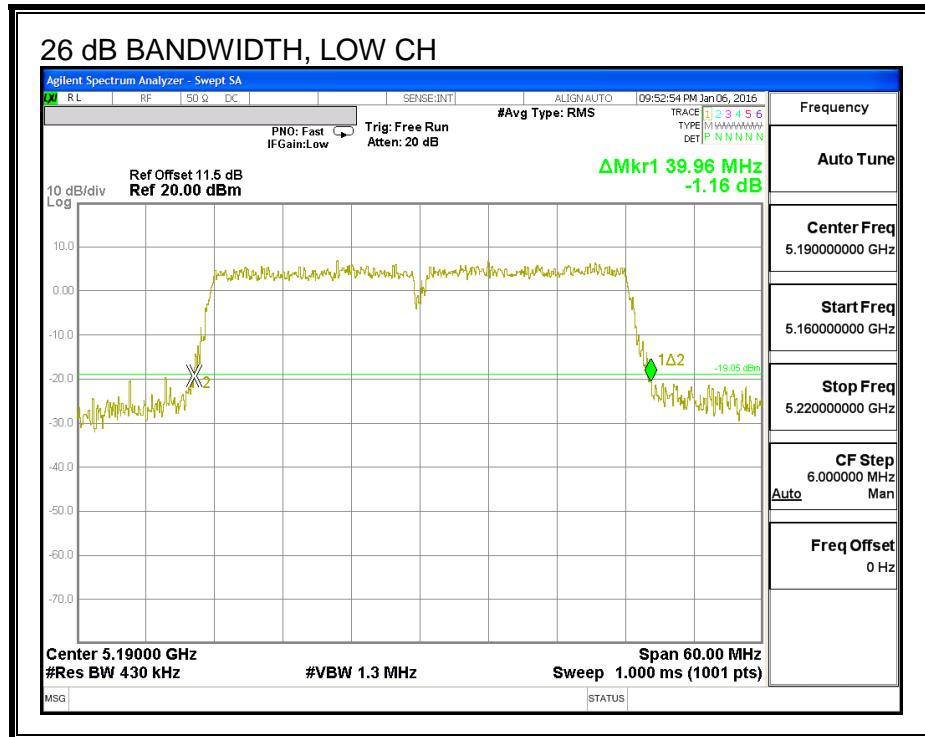
#### LIMITS

None; for reporting purposes only.

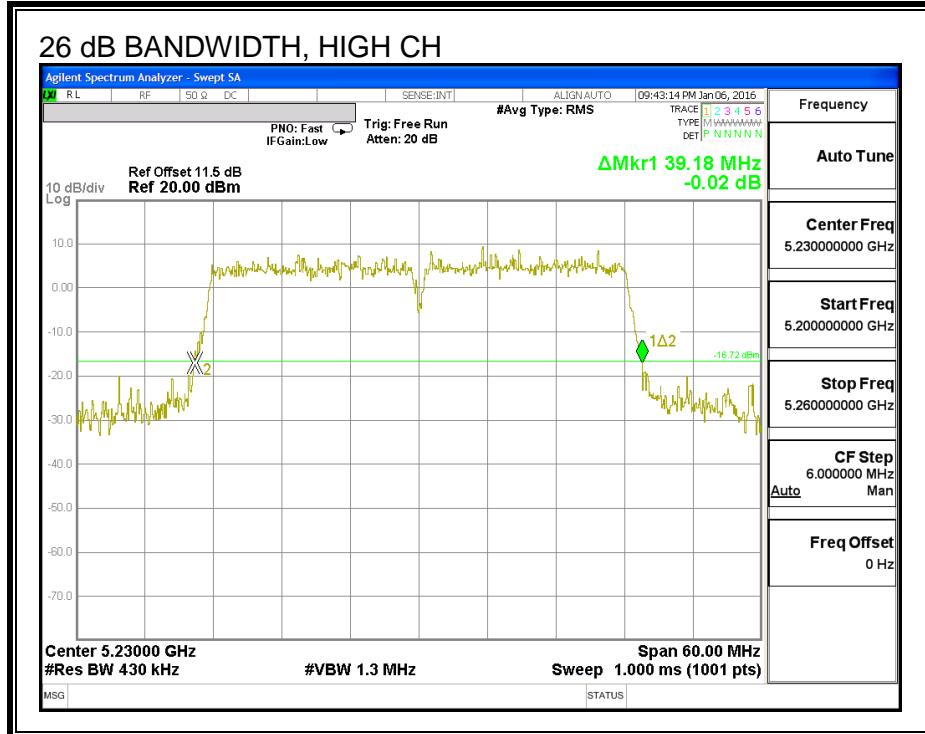
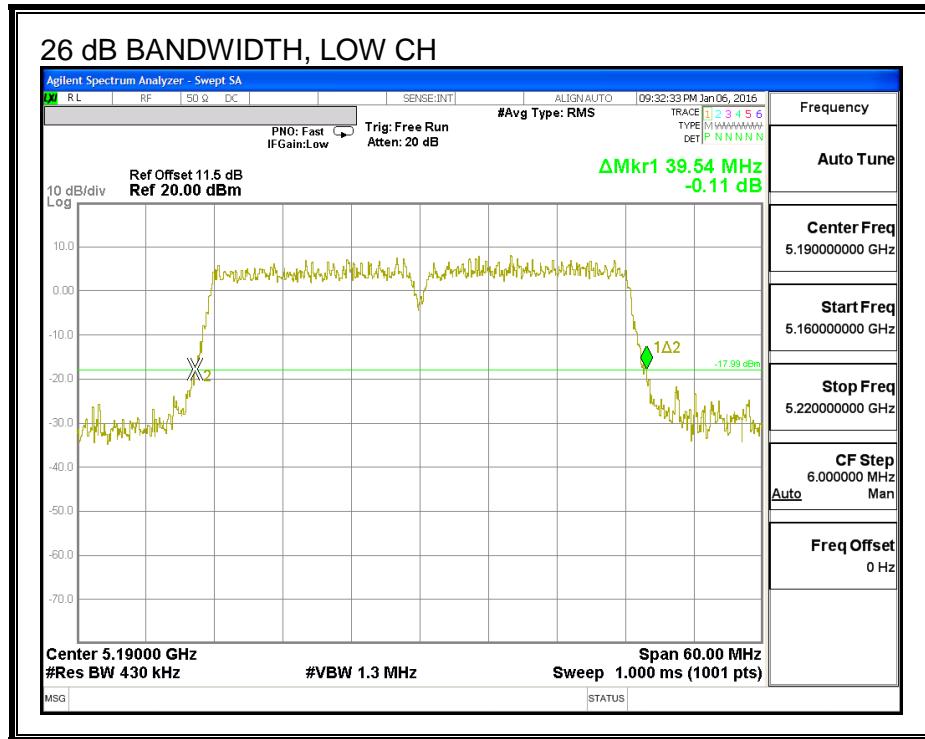
#### RESULTS

Channel	Frequency (MHz)	26 dB BW Antenna B (MHz)	26 dB BW Antenna A (MHz)
Low	5190	39.96	39.54
High	5230	39.84	39.18

**26 DB BANDWIDTH, ANTENNA - B**



**26 DB BANDWIDTH, ANTENNA - A**



### 8.18.2. 99% BANDWIDTH

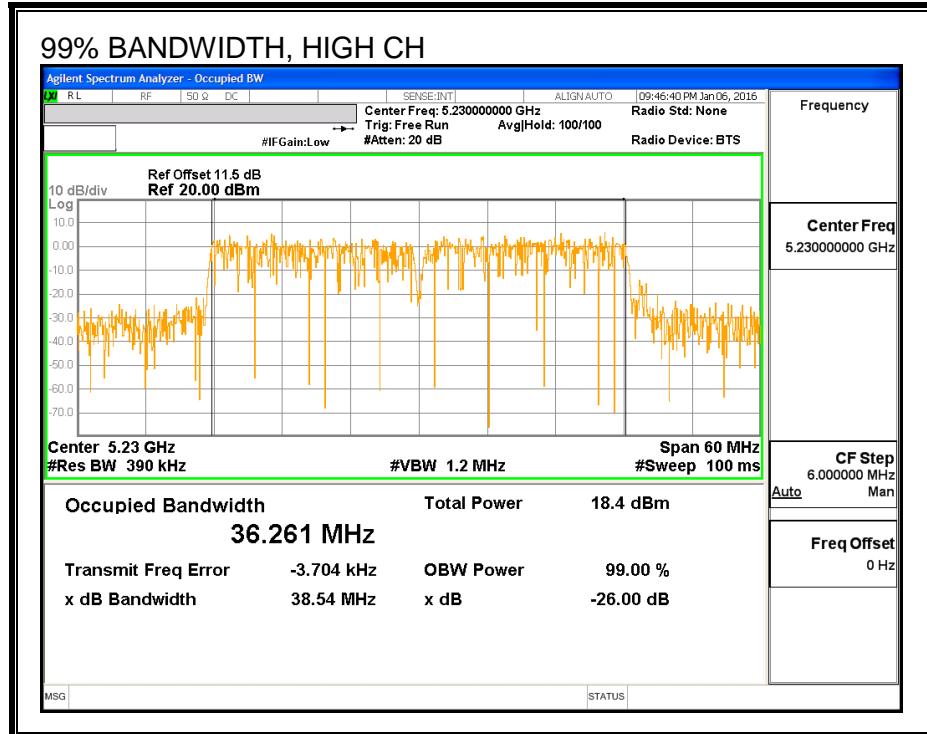
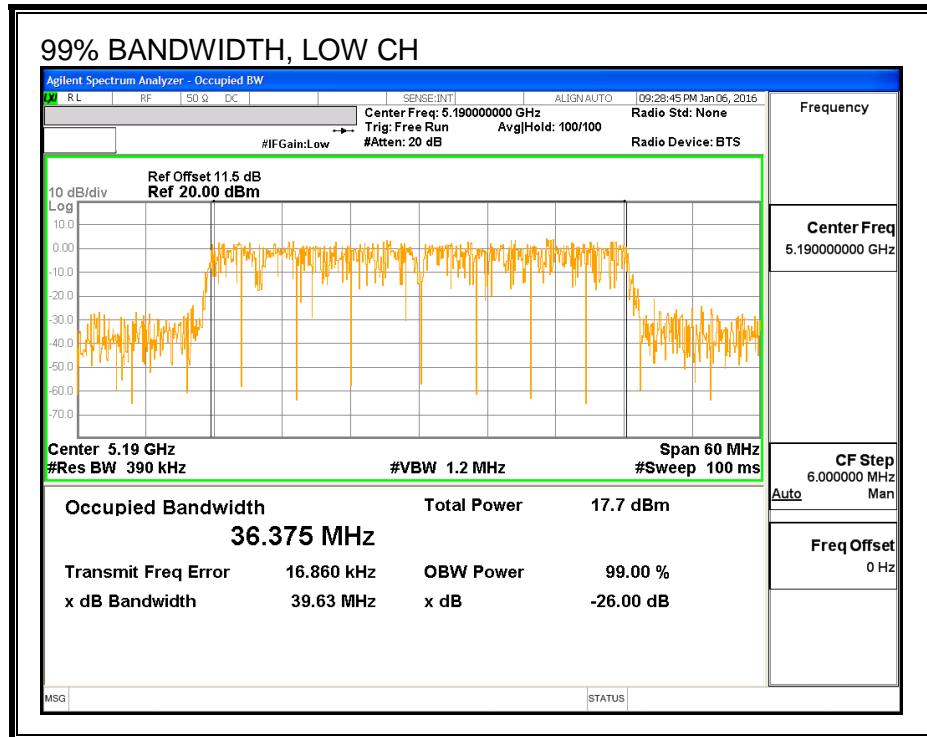
#### LIMITS

None; for reporting purposes only.

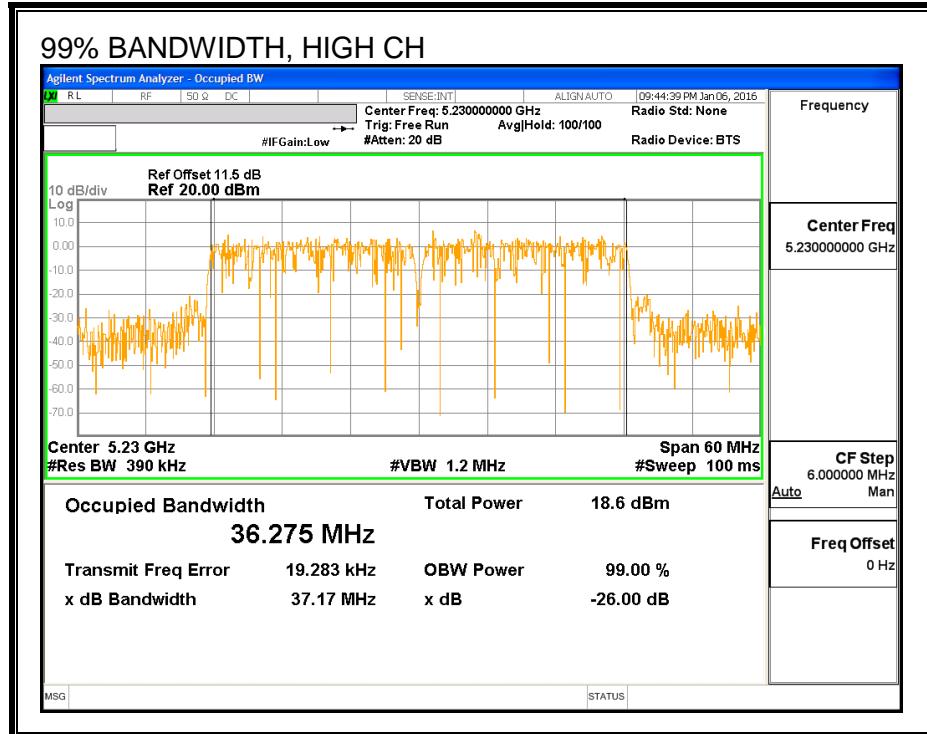
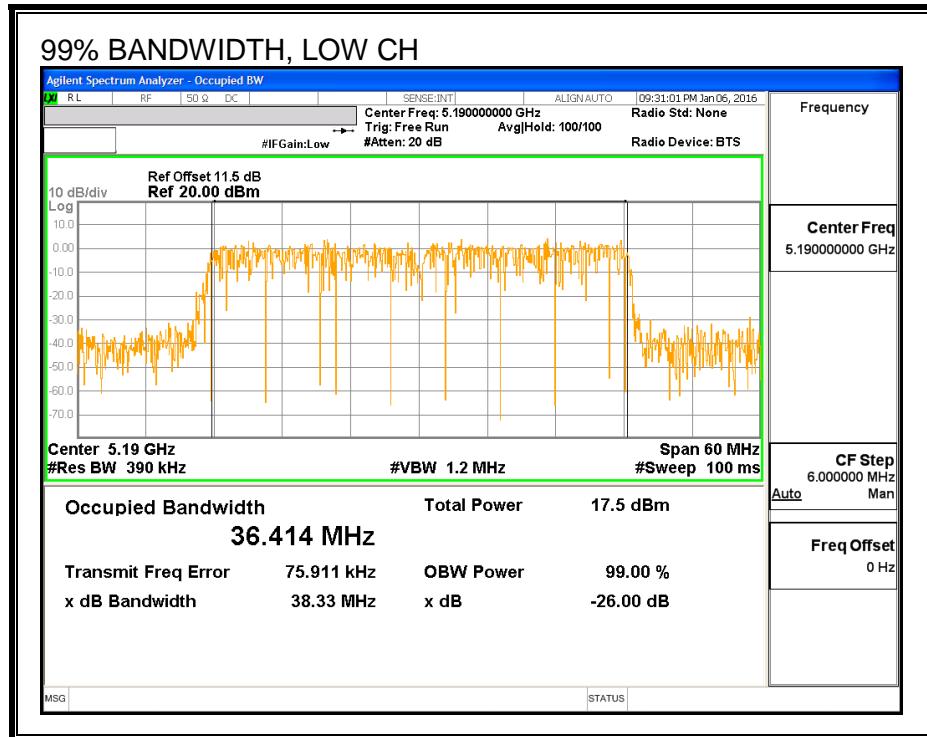
#### RESULTS

Channel	Frequency (MHz)	99% BW Antenna B (MHz)	99% BW Antenna A (MHz)
Low	5190	36.375	36.414
High	5230	36.261	36.275

**99% BANDWIDTH, ANTENNA - B**



**99% BANDWIDTH, ANTENNA - A**



### 8.18.3. AVERAGE POWER

#### LIMITS

None; for reporting purposes only.

#### TEST PROCEDURE

Measurements perform using a wideband gated RF power meter.

#### RESULTS

##### Average Power Results

Channel	Frequency (MHz)	Antenna B Power (dBm)	Antenna A Power (dBm)	Total Power (dBm)
Low	5190	12.70	13.00	15.86
High	5230	15.92	15.89	18.92

#### 8.18.4. OUTPUT POWER AND PSD

##### LIMITS

###### FCC §15.407 (a) (1)

- (i) For an outdoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. The maximum e.i.r.p. at any elevation angle above 30 degrees as measured from the horizon must not exceed 125 mW (21 dBm).
- (ii) For an indoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.
- (iii) For fixed point-to-point access points operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. Fixed point-to-point U-NII devices may employ antennas with directional gain up to 23 dBi without any corresponding reduction in the maximum conducted output power or maximum power spectral density. For fixed point-to-point transmitters that employ a directional antenna gain greater than 23 dBi, a 1 dB reduction in maximum conducted output power and maximum power spectral density is required for each 1 dB of antenna gain in excess of 23 dBi. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.
- (iv) For mobile and portable client devices in the 5.15-5.25 GHz band, the maximum conducted output power over the frequency band of operation shall not exceed 250 mW provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

##### TEST PROCEDURE

Measurements perform using a wideband gated RF power meter provided that the gate parameters are adjusted such that the power is measured only when the EUT is transmitting at its maximum power control level. Since the measurement is made only during the ON time of the transmitter, no duty cycle correction factor is required.

### **DIRECTIONAL ANTENNA GAIN**

The TX chains are uncorrelated and the antenna gain is unequal among the chains. The directional gain is:

Antenna B	Antenna A	Uncorrelated Chains
Gain (dBi)	Gain (dBi)	Directional Gain (dBi)
3.04	2.30	2.69

The TX chains are correlated and the antenna gain is unequal among the chains. The directional gain is:

Antenna B	Antenna A	Correlated Chains
Gain (dBi)	Gain (dBi)	Directional Gain (dBi)
3.04	2.30	5.69

## RESULTS

### Antenna Gain and Limits

Channel	Frequency (MHz)	Directional Gain for Power (dBi)	Directional Gain for PSD (dBi)	Power Limit (dBm)	PSD Limit (dBm)
Low	5190	2.69	5.69	24.00	11.00
High	5230	2.69	5.69	24.00	11.00

<b>Duty Cycle CF (dB)</b>	0.00	<b>Included in Calculations of Corr'd PSD</b>
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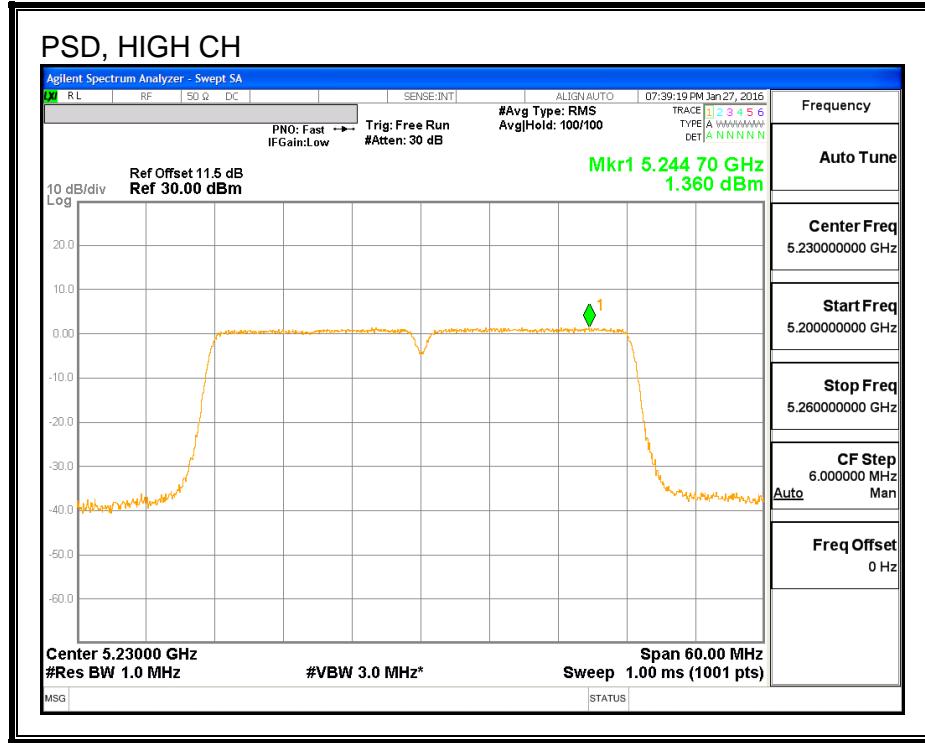
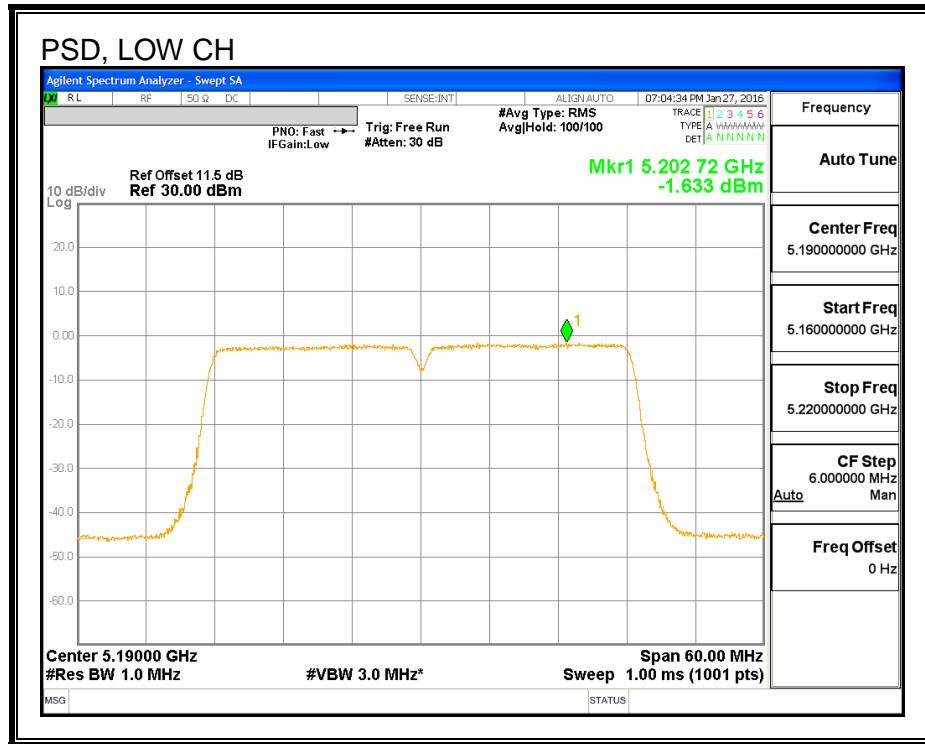
### Output Power Results

Channel	Frequency (MHz)	Antenna B Meas Power (dBm)	Antenna A Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5190	12.70	13.00	15.86	24.00	-8.14
High	5230	15.92	15.89	18.92	24.00	-5.08

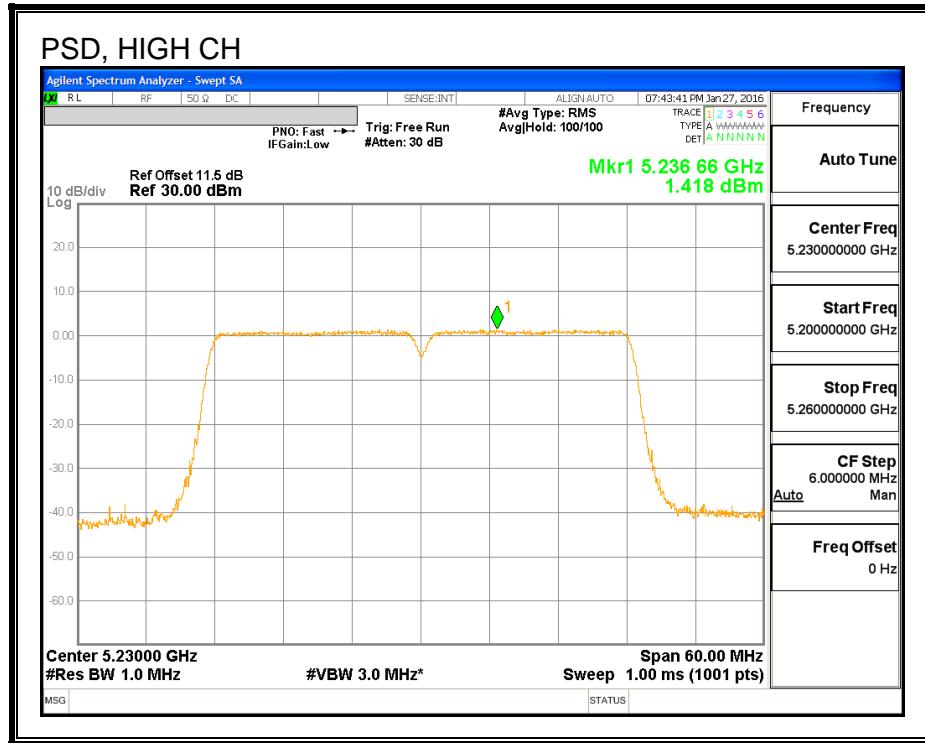
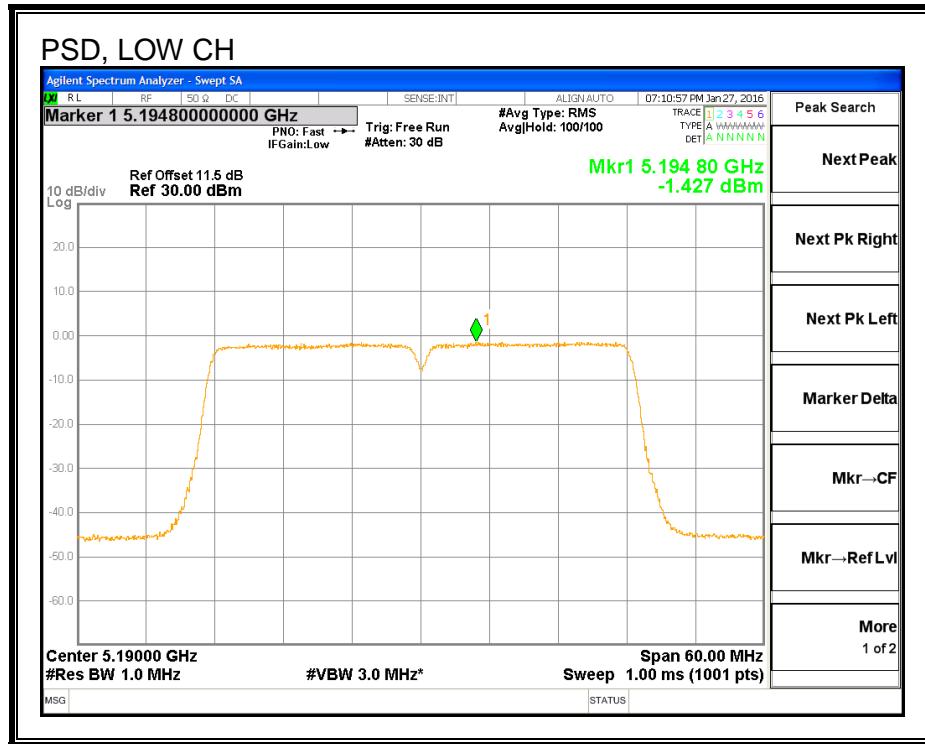
### PSD Results

Channel	Frequency (MHz)	Antenna B Meas PSD (dBm)	Antenna A Meas PSD (dBm)	Total Corr'd PSD (dBm)	PSD Limit (dBm)	PSD Margin (dB)
Low	5190	-1.63	-1.43	1.48	11.00	-9.52
High	5230	1.36	1.42	4.40	11.00	-6.60

**PSD, ANTENNA - B**



**PSD, ANTENNA - A**



## 8.19. 802.11n HT40 ANTENNA A+C CDD MODE IN THE 5.2 GHz BAND

### 8.19.1. 26 dB BANDWIDTH

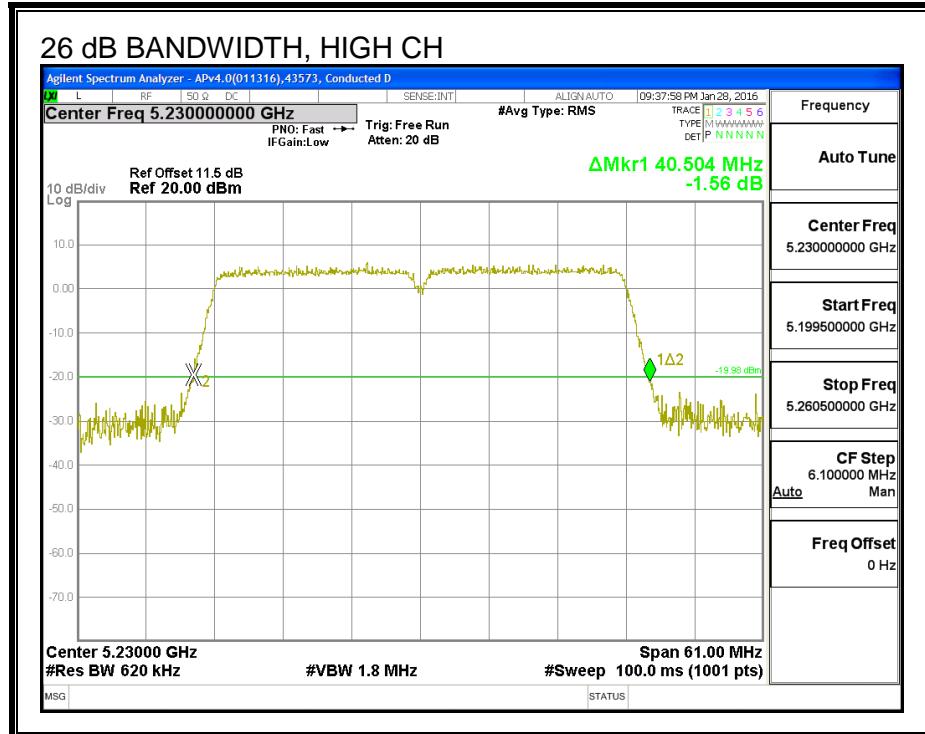
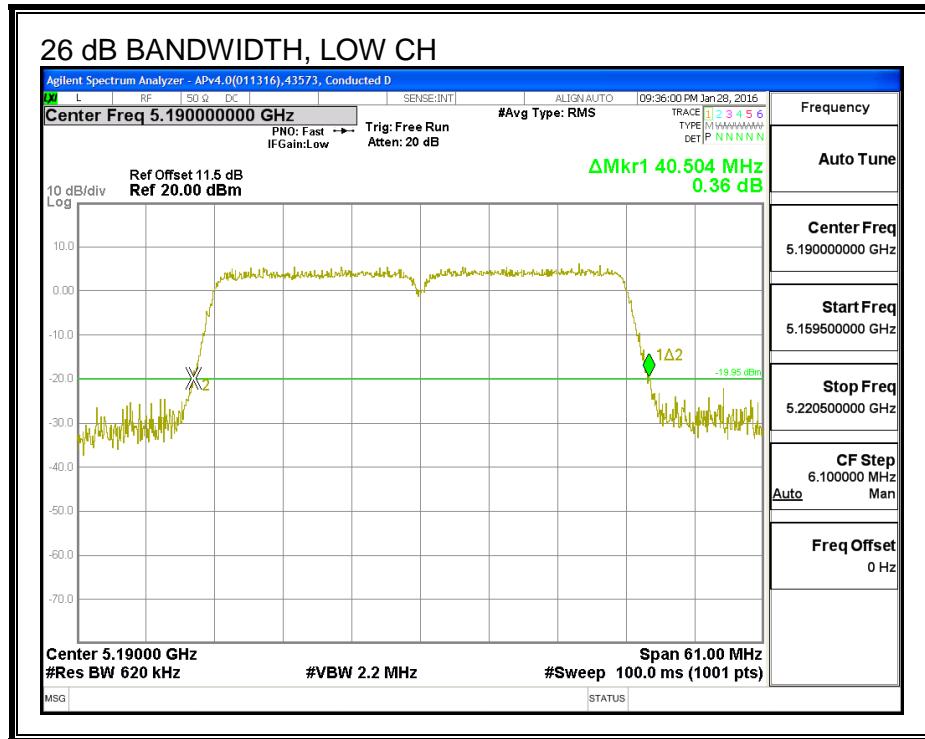
#### LIMITS

None; for reporting purposes only.

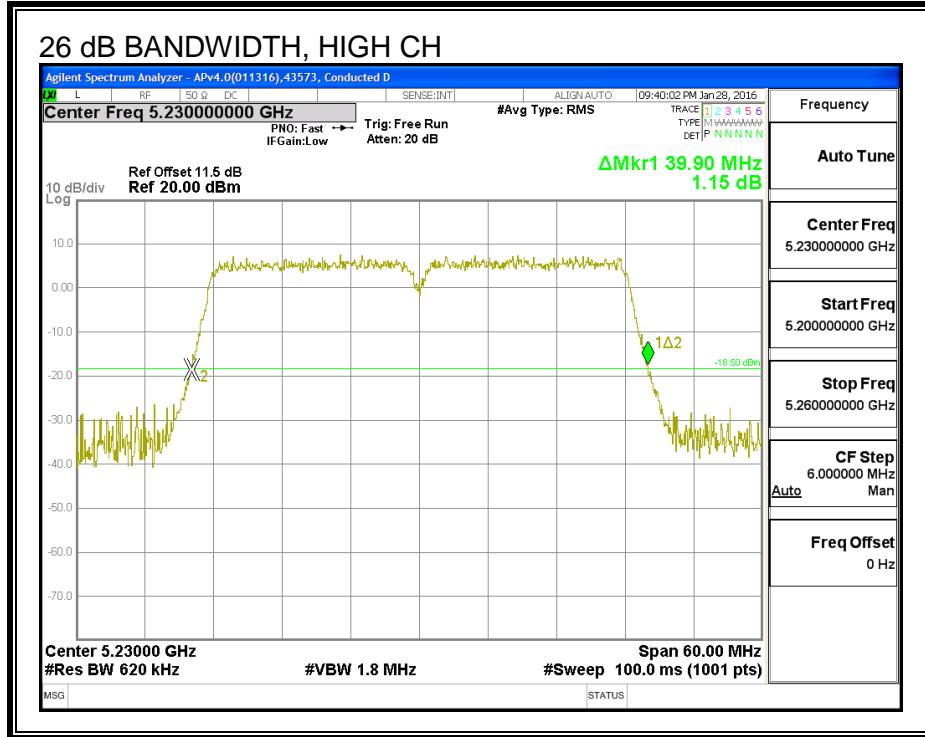
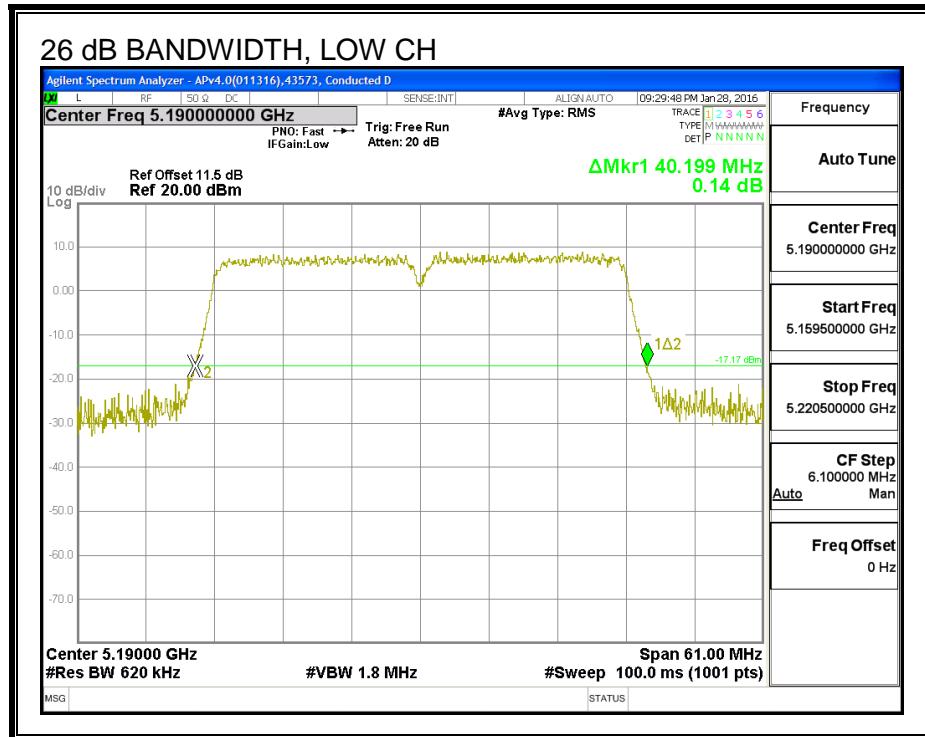
#### RESULTS

Channel	Frequency (MHz)	26 dB BW Antenna A (MHz)	26 dB BW Antenna C (MHz)
Low	5190	40.50	40.20
High	5230	40.50	39.90

**26 DB BANDWIDTH, ANTENNA - A**



**26 DB BANDWIDTH, ANTENNA - C**



### 8.19.2. 99% BANDWIDTH

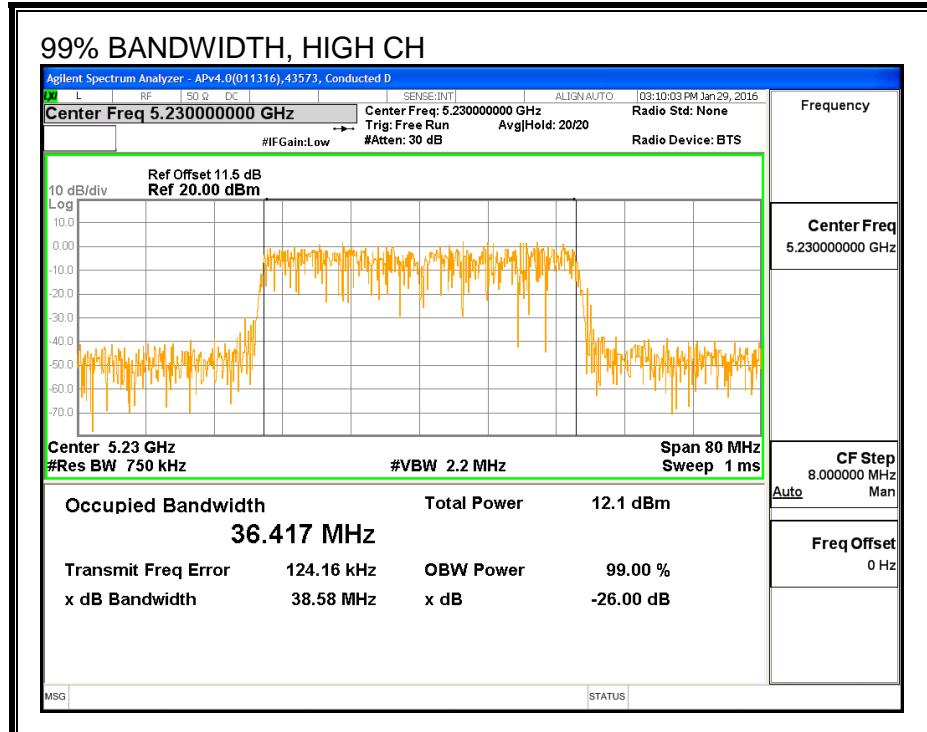
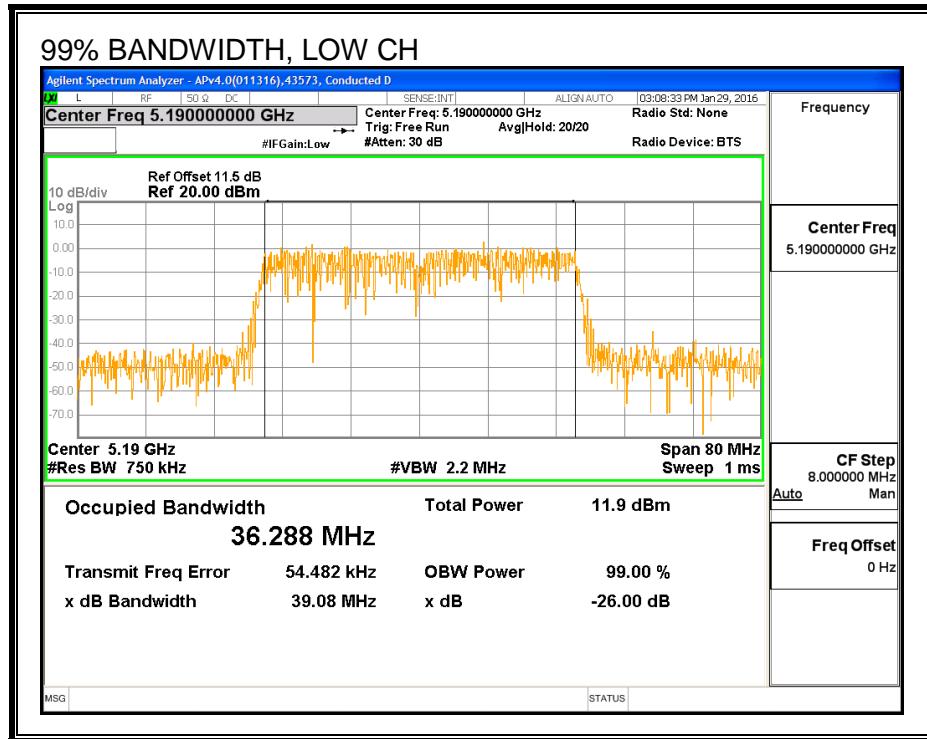
#### LIMITS

None; for reporting purposes only.

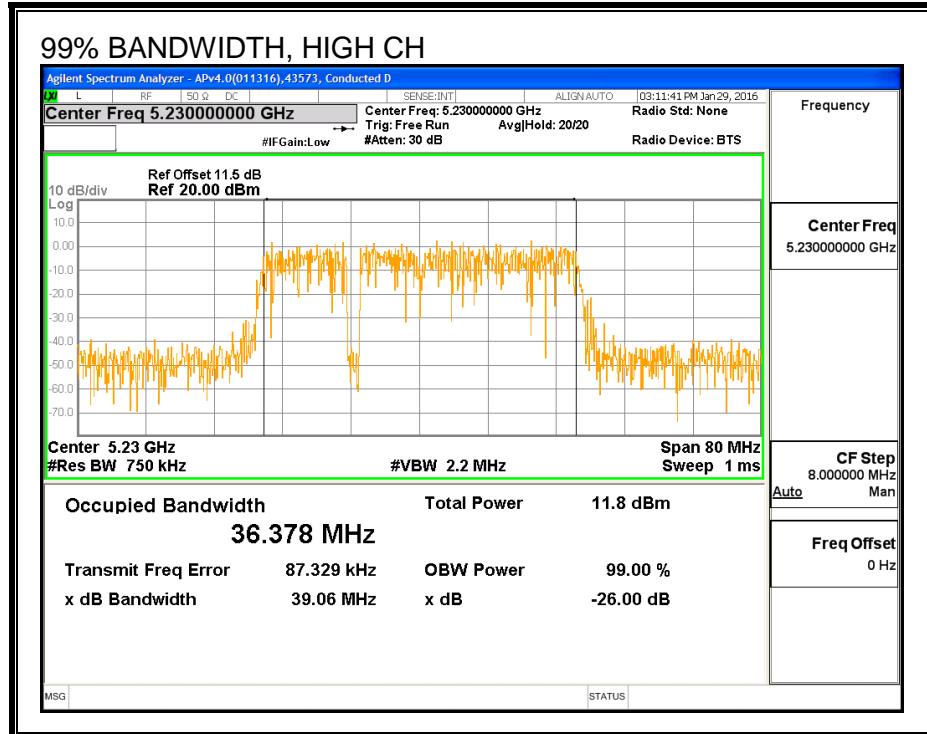
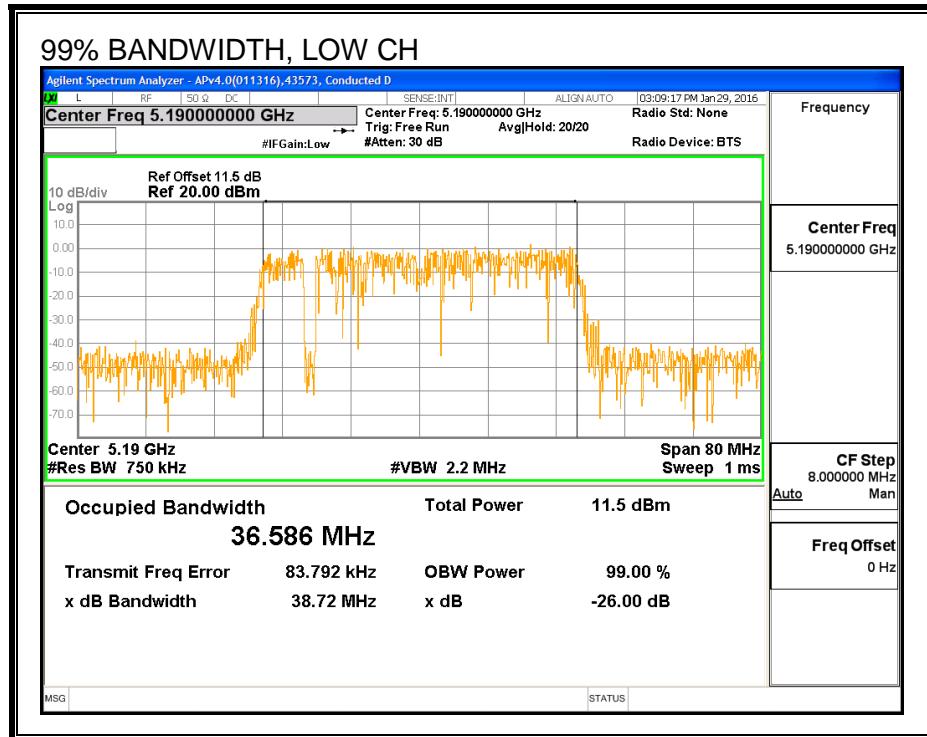
#### RESULTS

Channel	Frequency (MHz)	99% BW Antenna A (MHz)	99% BW Antenna C (MHz)
Low	5190	36.288	36.586
High	5230	36.417	36.378

**99% BANDWIDTH, ANTENNA - A**



**99% BANDWIDTH, ANTENNA - C**



### 8.19.3. AVERAGE POWER

#### LIMITS

None; for reporting purposes only.

#### TEST PROCEDURE

Measurements perform using a wideband gated RF power meter.

#### RESULTS

##### Average Power Results

Channel	Frequency (MHz)	Antenna A Power (dBm)	Antenna C Power (dBm)	Total Power (dBm)
Low	5190	13.00	13.00	16.01
High	5230	15.82	15.80	18.82

#### 8.19.4. OUTPUT POWER AND PSD

##### LIMITS

FCC §15.407 (a) (1)

- (i) For an outdoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. The maximum e.i.r.p. at any elevation angle above 30 degrees as measured from the horizon must not exceed 125 mW (21 dBm).
- (ii) For an indoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.
- (iii) For fixed point-to-point access points operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. Fixed point-to-point U-NII devices may employ antennas with directional gain up to 23 dBi without any corresponding reduction in the maximum conducted output power or maximum power spectral density. For fixed point-to-point transmitters that employ a directional antenna gain greater than 23 dBi, a 1 dB reduction in maximum conducted output power and maximum power spectral density is required for each 1 dB of antenna gain in excess of 23 dBi. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.
- (iv) For mobile and portable client devices in the 5.15-5.25 GHz band, the maximum conducted output power over the frequency band of operation shall not exceed 250 mW provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

##### TEST PROCEDURE

Measurements perform using a wideband gated RF power meter provided that the gate parameters are adjusted such that the power is measured only when the EUT is transmitting at its maximum power control level. Since the measurement is made only during the ON time of the transmitter, no duty cycle correction factor is required.

### **DIRECTIONAL ANTENNA GAIN**

The TX chains are uncorrelated and the antenna gain is unequal among the chains. The directional gain is:

Antenna A	Antenna C	Uncorrelated Chains
Gain (dBi)	Gain (dBi)	Directional Gain (dBi)
2.30	1.36	1.86

The TX chains are correlated and the antenna gain is unequal among the chains. The directional gain is:

Antenna A	Antenna C	Correlated Chains
Gain (dBi)	Gain (dBi)	Directional Gain (dBi)
2.30	1.36	4.85

## RESULTS

### Antenna Gain and Limits

Channel	Frequency (MHz)	Directional Gain for Power (dBi)	Directional Gain for PSD (dBi)	Power Limit (dBm)	PSD Limit (dBm)
Low	5190	1.86	4.85	24.00	11.00
High	5230	1.86	4.85	24.00	11.00

<b>Duty Cycle CF (dB)</b>	0.00	<b>Included in Calculations of Corr'd PSD</b>
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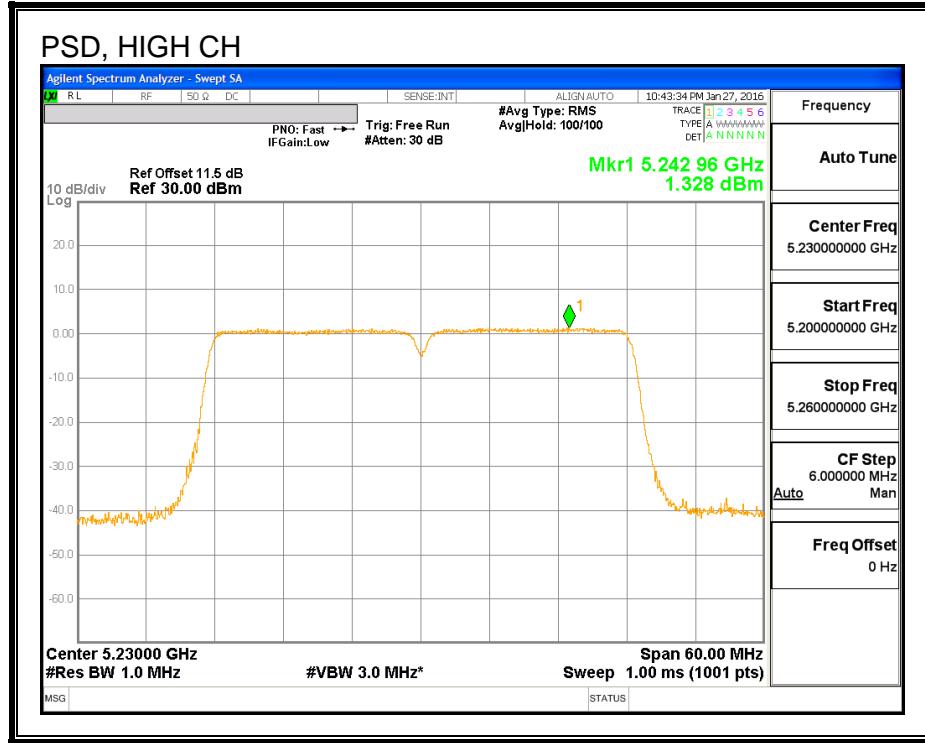
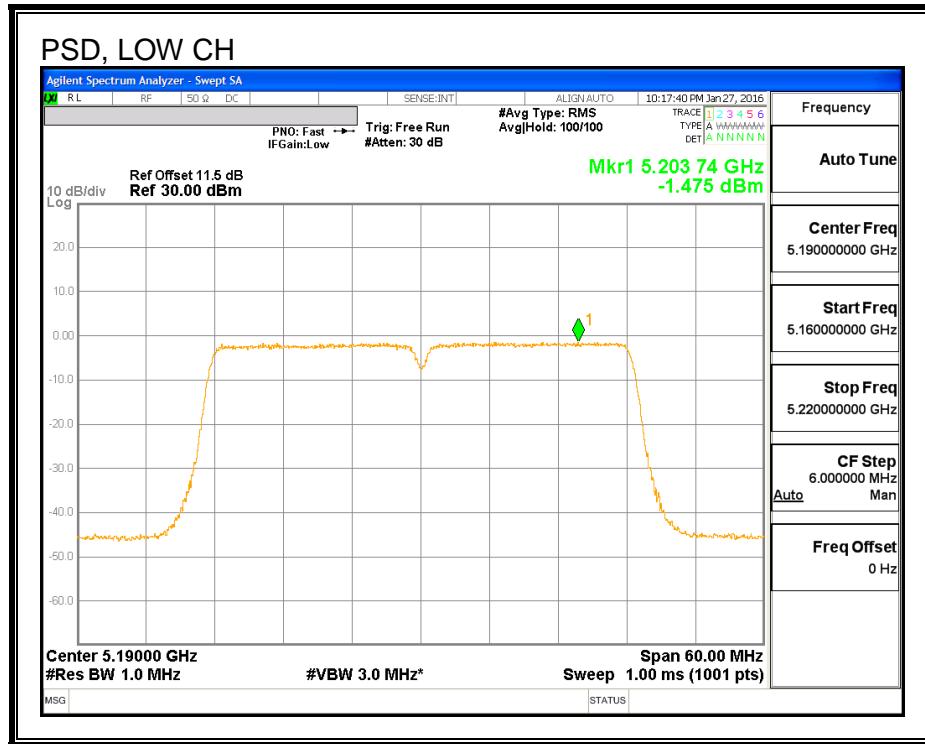
### Output Power Results

Channel	Frequency (MHz)	Antenna A Meas Power (dBm)	Antenna C Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5190	13.00	13.00	16.01	24.00	-7.99
High	5230	15.82	15.80	18.82	24.00	-5.18

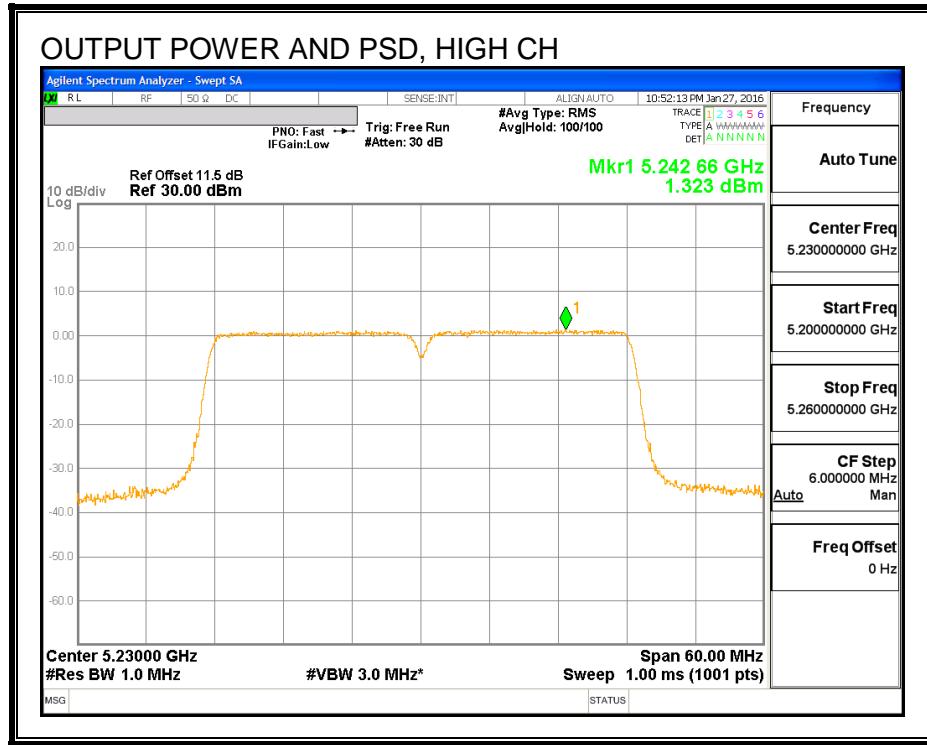
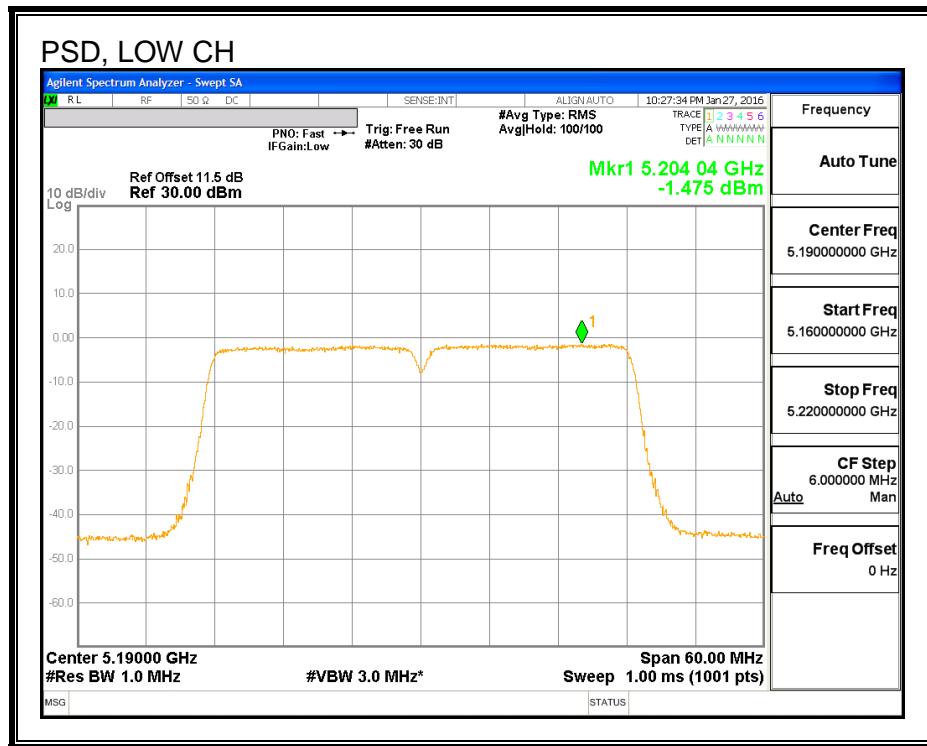
### PSD Results

Channel	Frequency (MHz)	Antenna A Meas PSD (dBm)	Antenna C Meas PSD (dBm)	Total Corr'd PSD (dBm)	PSD Limit (dBm)	PSD Margin (dB)
Low	5190	-1.48	-1.48	1.53	11.00	-9.47
High	5230	1.33	1.32	4.34	11.00	-6.66

**PSD, ANTENNA - A**



**PSD, ANTENNA - C**



## 8.20. 802.11n HT40 ANTENNA B+A STBC MODE IN THE 5.2 GHz BAND

### 8.20.1. 26 dB BANDWIDTH

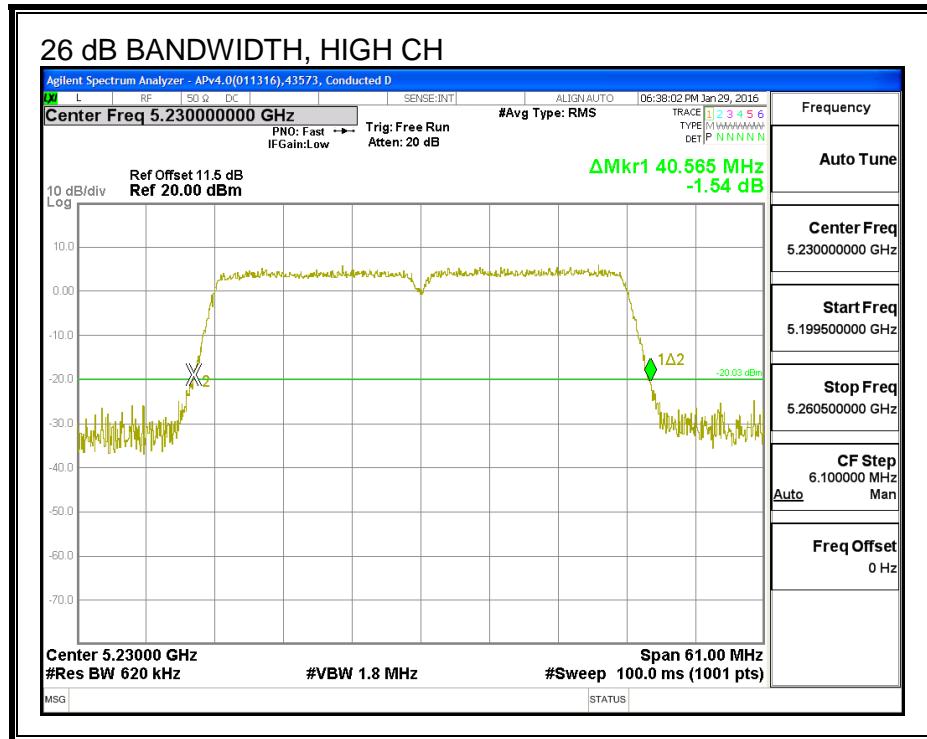
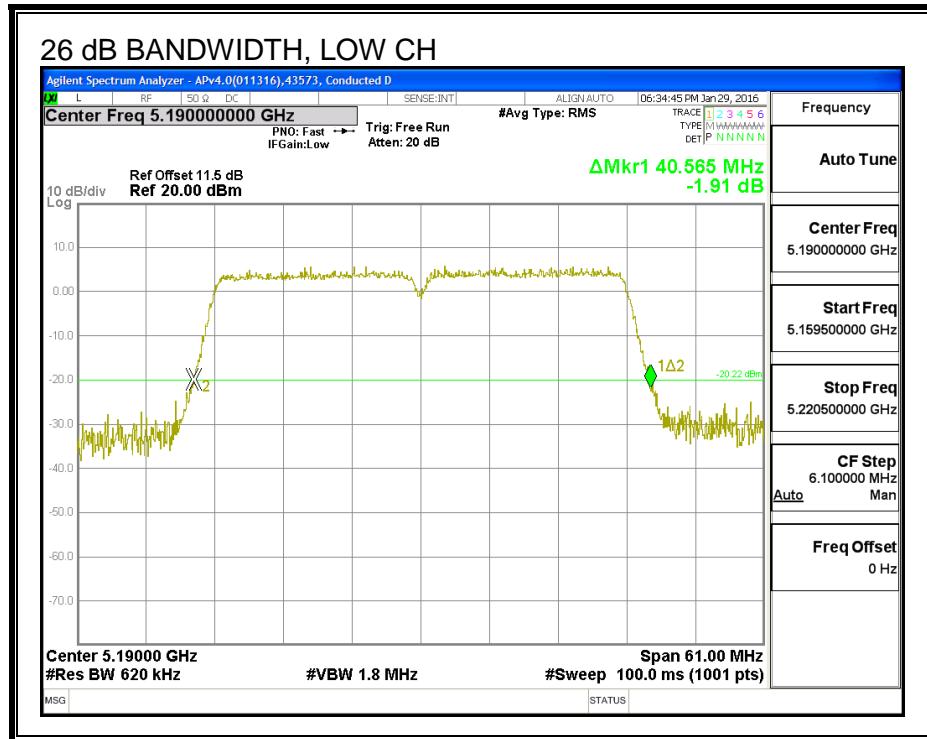
#### LIMITS

None; for reporting purposes only.

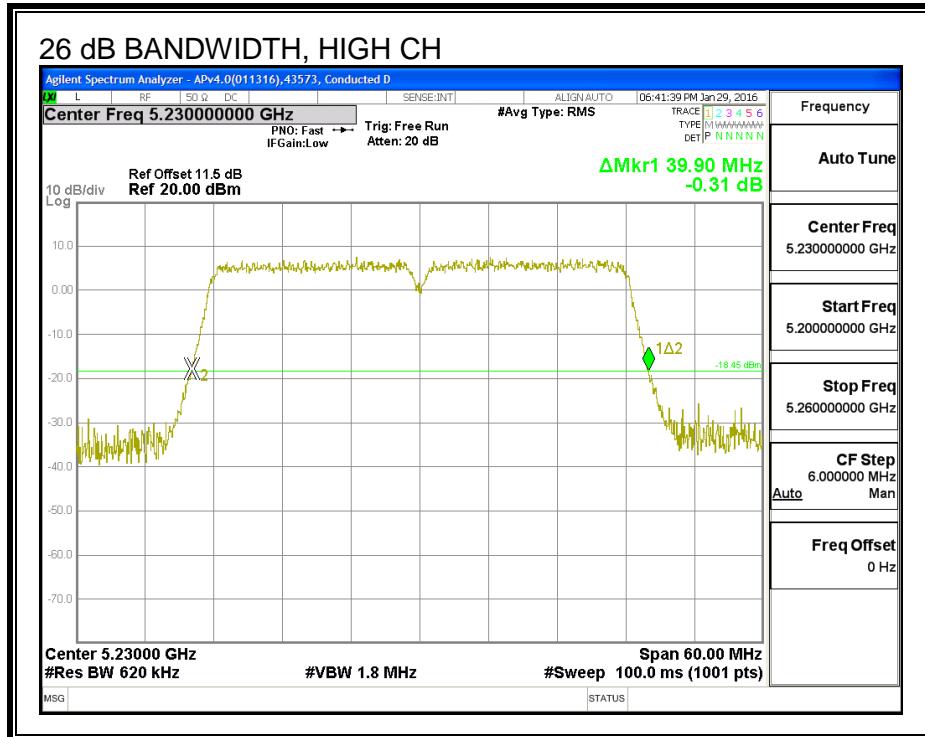
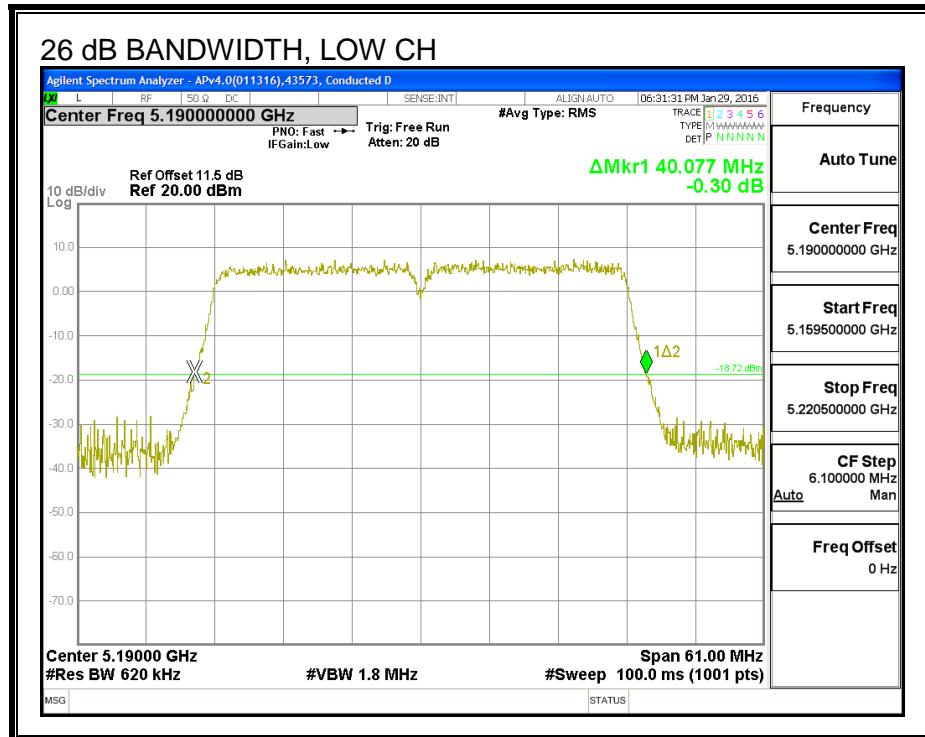
#### RESULTS

Channel	Frequency (MHz)	26 dB BW Antenna B (MHz)	26 dB BW Antenna A (MHz)
Low	5190	40.57	40.08
High	5230	40.57	39.90

**26 DB BANDWIDTH, ANTENNA - B**



**26 DB BANDWIDTH, ANTENNA - A**



### 8.20.2. 99% BANDWIDTH

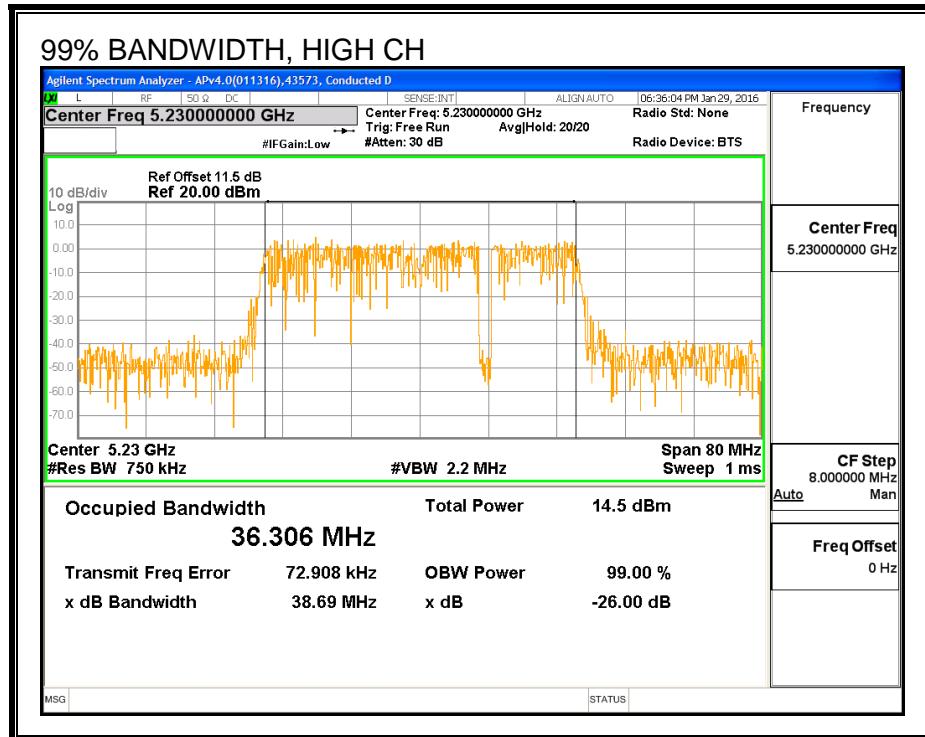
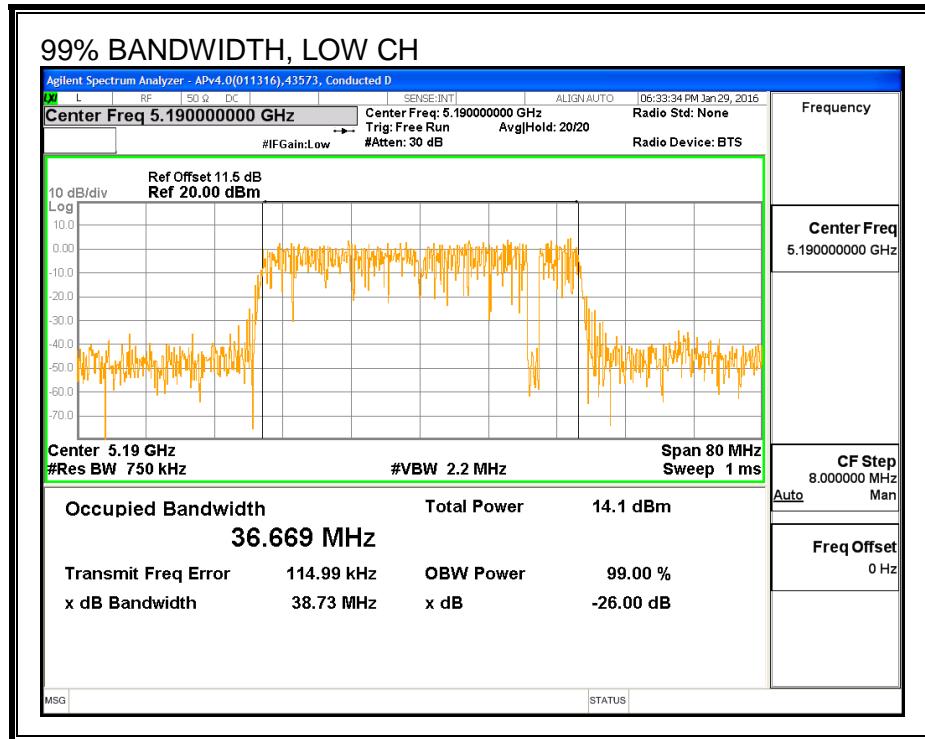
#### LIMITS

None; for reporting purposes only.

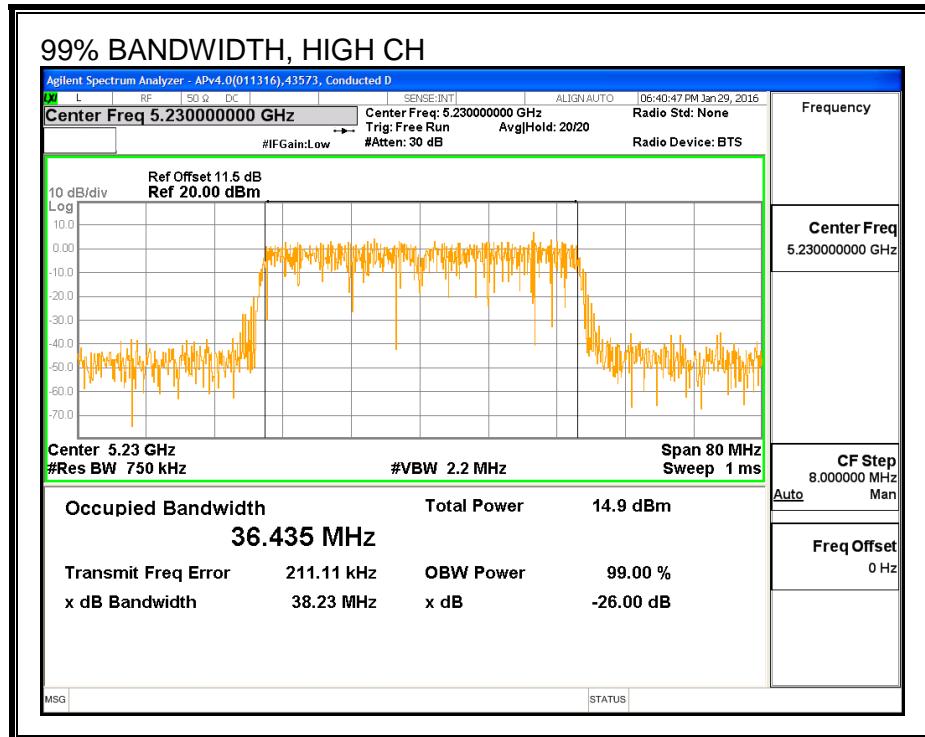
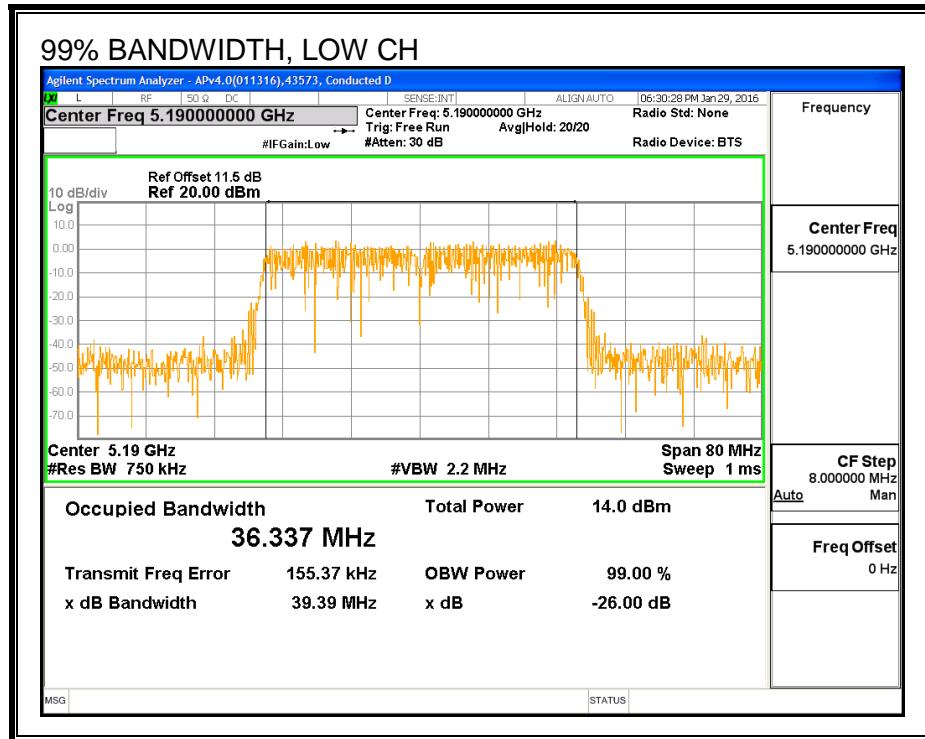
#### RESULTS

Channel	Frequency (MHz)	99% BW Antenna B (MHz)	99% BW Antenna A (MHz)
Low	5190	36.669	36.337
High	5230	36.306	36.435

**99% BANDWIDTH, ANTENNA - B**



**99% BANDWIDTH, ANTENNA - A**



### 8.20.3. AVERAGE POWER

#### LIMITS

None; for reporting purposes only.

#### TEST PROCEDURE

Measurements perform using a wideband gated RF power meter.

#### RESULTS

##### Average Power Results

Channel	Frequency (MHz)	Antenna B Power (dBm)	Antenna A Power (dBm)	Total Power (dBm)
Low	5190	12.84	12.97	15.92
High	5230	16.43	16.96	19.71

#### 8.20.4. OUTPUT POWER AND PSD

##### LIMITS

###### FCC §15.407 (a) (1)

- (i) For an outdoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. The maximum e.i.r.p. at any elevation angle above 30 degrees as measured from the horizon must not exceed 125 mW (21 dBm).
- (ii) For an indoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.
- (iii) For fixed point-to-point access points operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. Fixed point-to-point U-NII devices may employ antennas with directional gain up to 23 dBi without any corresponding reduction in the maximum conducted output power or maximum power spectral density. For fixed point-to-point transmitters that employ a directional antenna gain greater than 23 dBi, a 1 dB reduction in maximum conducted output power and maximum power spectral density is required for each 1 dB of antenna gain in excess of 23 dBi. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.
- (iv) For mobile and portable client devices in the 5.15-5.25 GHz band, the maximum conducted output power over the frequency band of operation shall not exceed 250 mW provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

##### TEST PROCEDURE

Measurements perform using a wideband gated RF power meter provided that the gate parameters are adjusted such that the power is measured only when the EUT is transmitting at its maximum power control level. Since the measurement is made only during the ON time of the transmitter, no duty cycle correction factor is required.

### **DIRECTIONAL ANTENNA GAIN**

The TX chains are uncorrelated and the antenna gain is unequal among the chains. The directional gain is:

Antenna B Gain (dBi)	Antenna A Gain (dBi)	Uncorrelated Chains Directional Gain (dBi)
3.04	2.30	2.69

## RESULTS

### Antenna Gain and Limits

Channel	Frequency (MHz)	Directional Gain for Power (dBi)	Directional Gain for PSD (dBi)	Power Limit (dBm)	PSD Limit (dBm)
Low	5190	2.69	2.69	24.00	11.00
High	5230	2.69	2.69	24.00	11.00

Duty Cycle CF (dB)	0.00	Included in Calculations of Corr'd PSD
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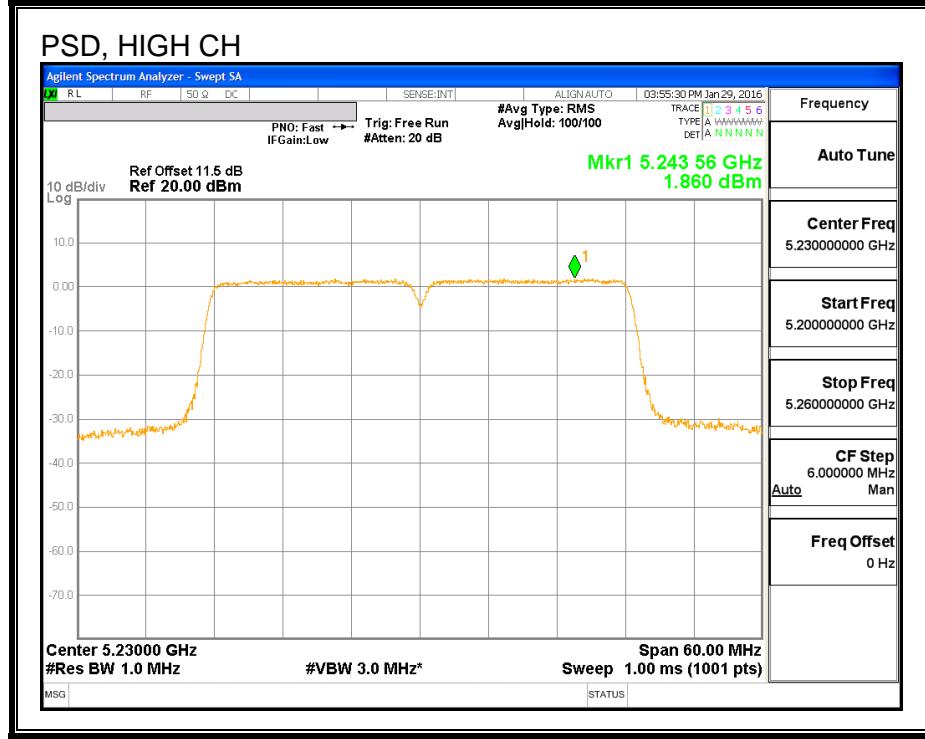
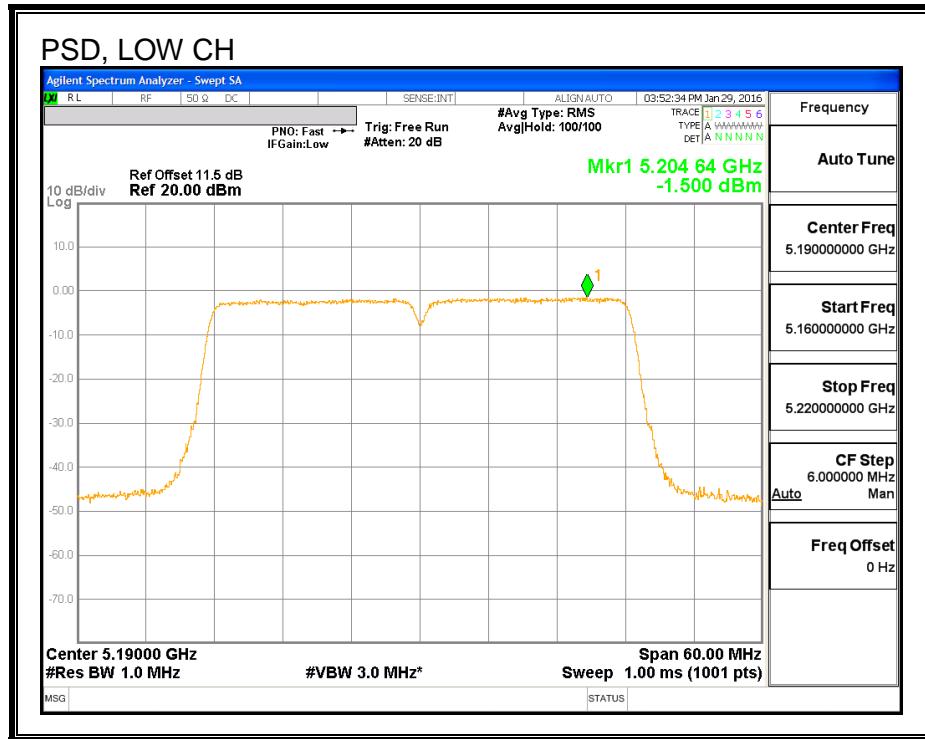
### Output Power Results

Channel	Frequency (MHz)	Antenna B Meas Power (dBm)	Antenna A Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5190	12.84	12.97	15.92	24.00	-8.08
High	5230	16.43	16.96	19.71	24.00	-4.29

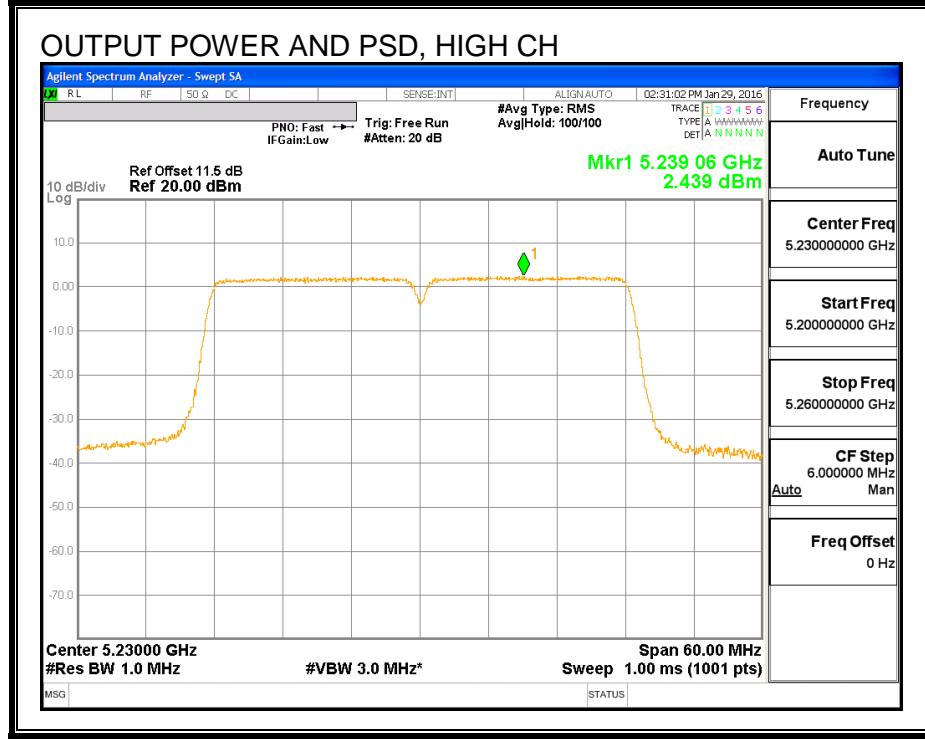
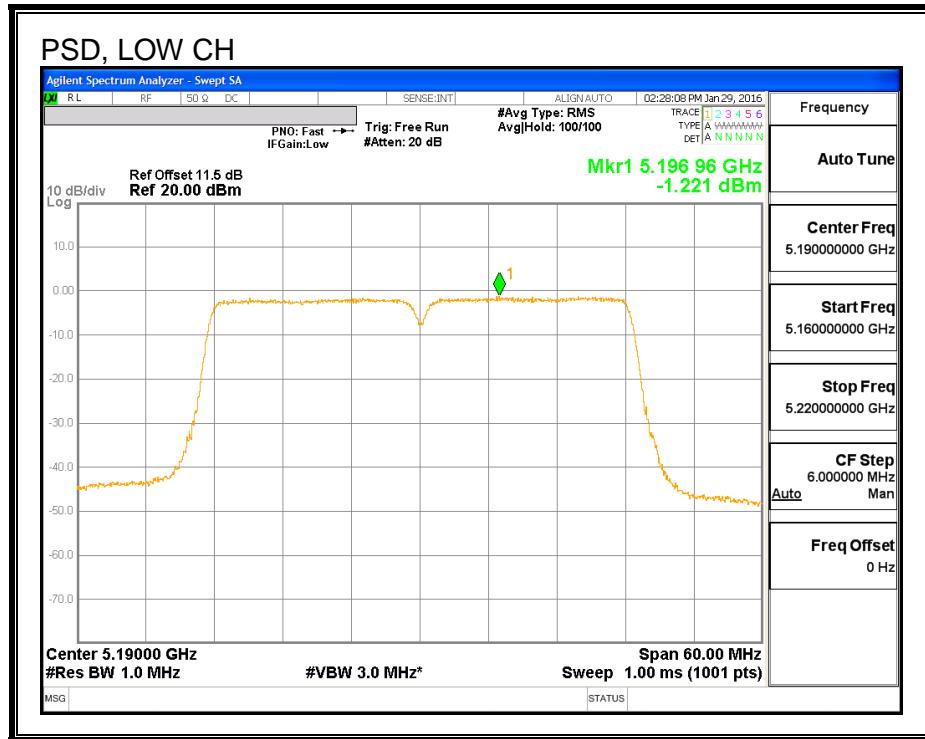
### PSD Results

Channel	Frequency (MHz)	Antenna B Meas PSD (dBm)	Antenna A Meas PSD (dBm)	Total Corr'd PSD (dBm)	PSD Limit (dBm)	PSD Margin (dB)
Low	5190	-1.50	-1.22	1.65	11.00	-9.35
High	5230	1.86	2.44	5.17	11.00	-5.83

**PSD, ANTENNA - B**



**PSD, ANTENNA - A**



## 8.21. 802.11n HT40 ANTENNA A+C STBC MODE IN THE 5.2 GHz BAND

### 8.21.1. 26 dB BANDWIDTH

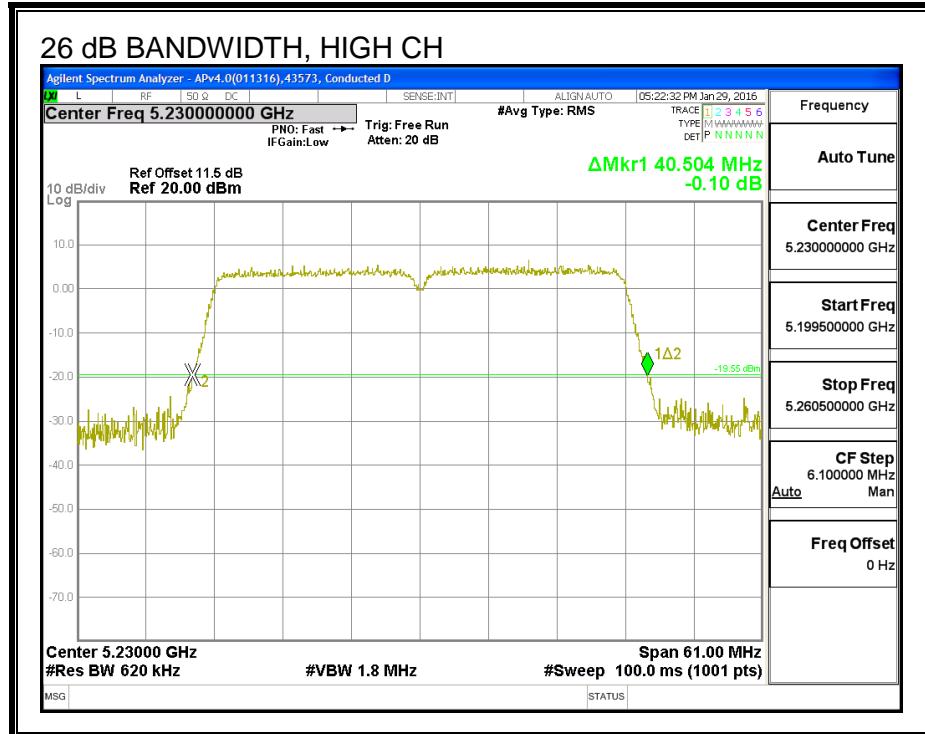
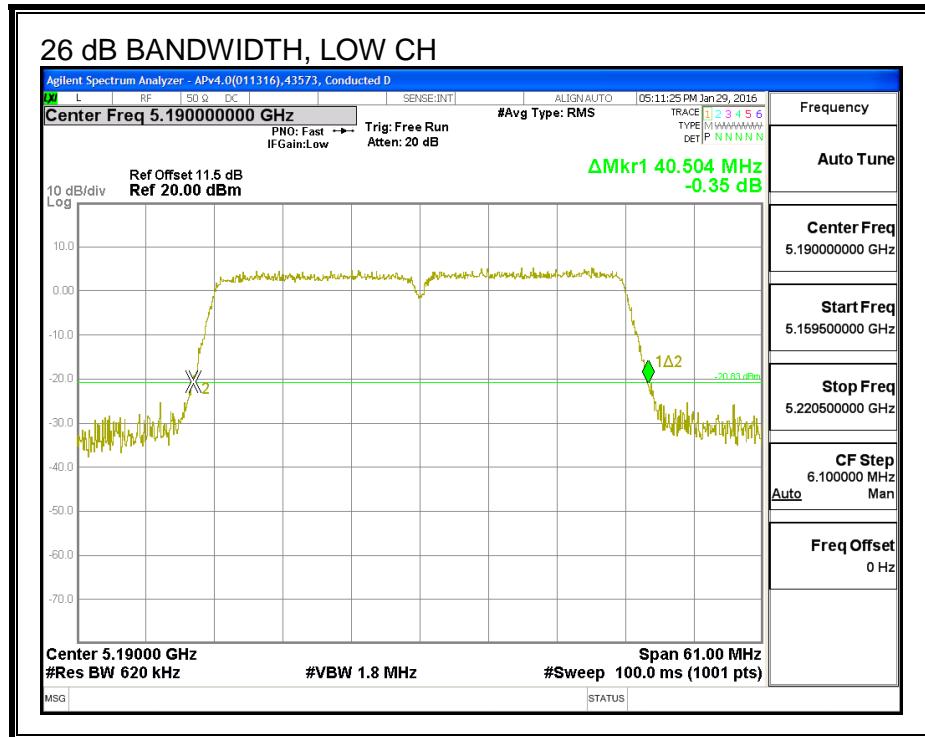
#### LIMITS

None; for reporting purposes only.

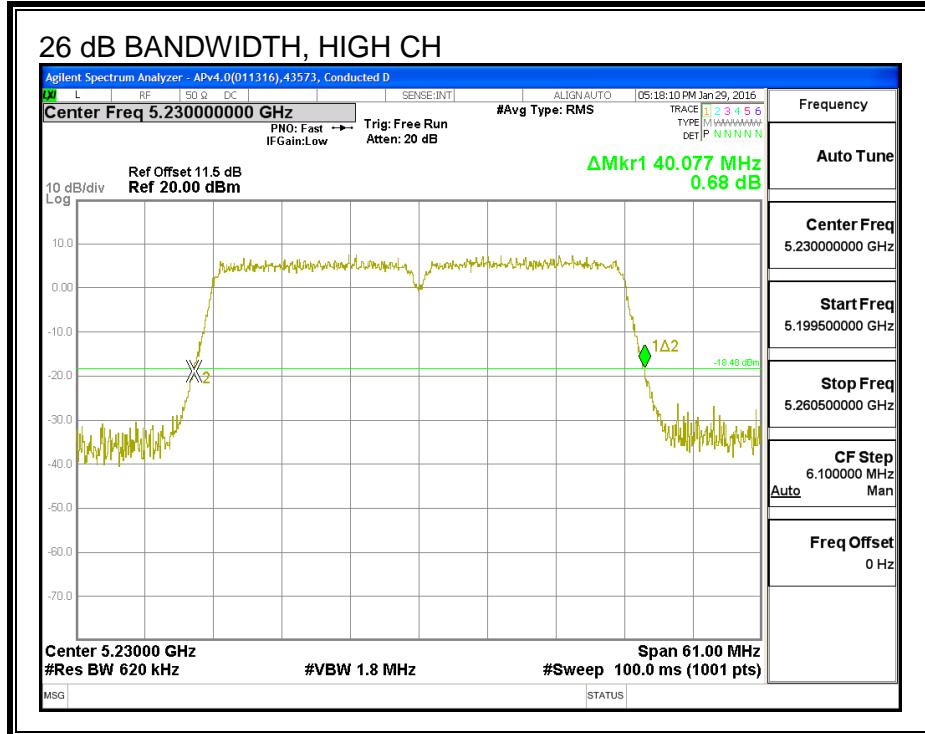
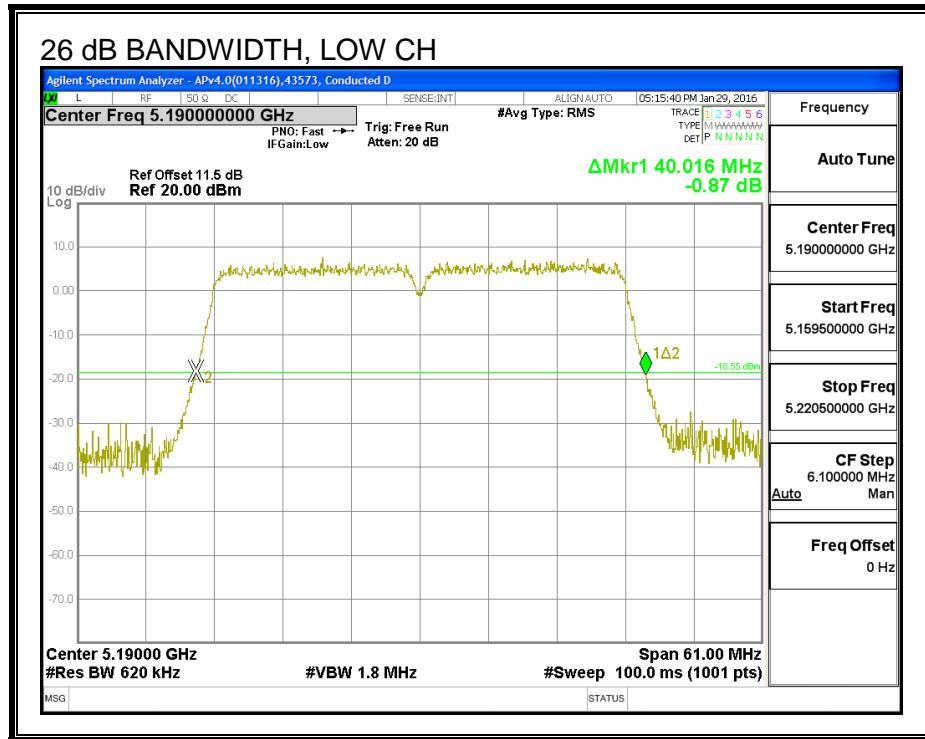
#### RESULTS

Channel	Frequency (MHz)	26 dB BW Antenna A (MHz)	26 dB BW Antenna C (MHz)
Low	5190	40.50	40.02
High	5230	40.50	40.08

**26 DB BANDWIDTH, ANTENNA - A**



**26 DB BANDWIDTH, ANTENNA - C**



### 8.21.2. 99% BANDWIDTH

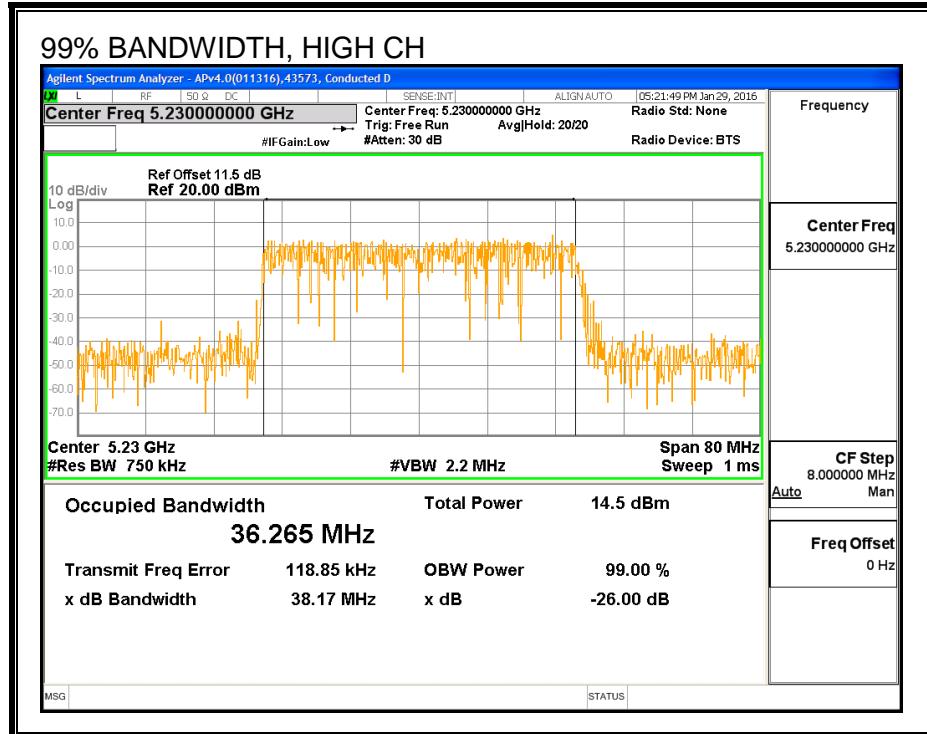
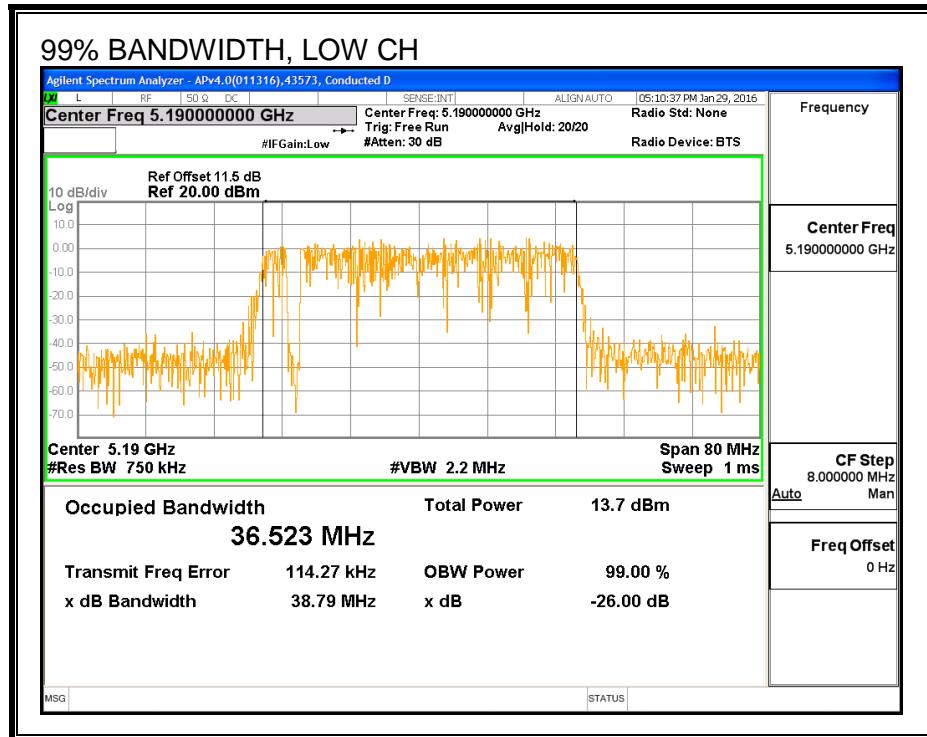
#### LIMITS

None; for reporting purposes only.

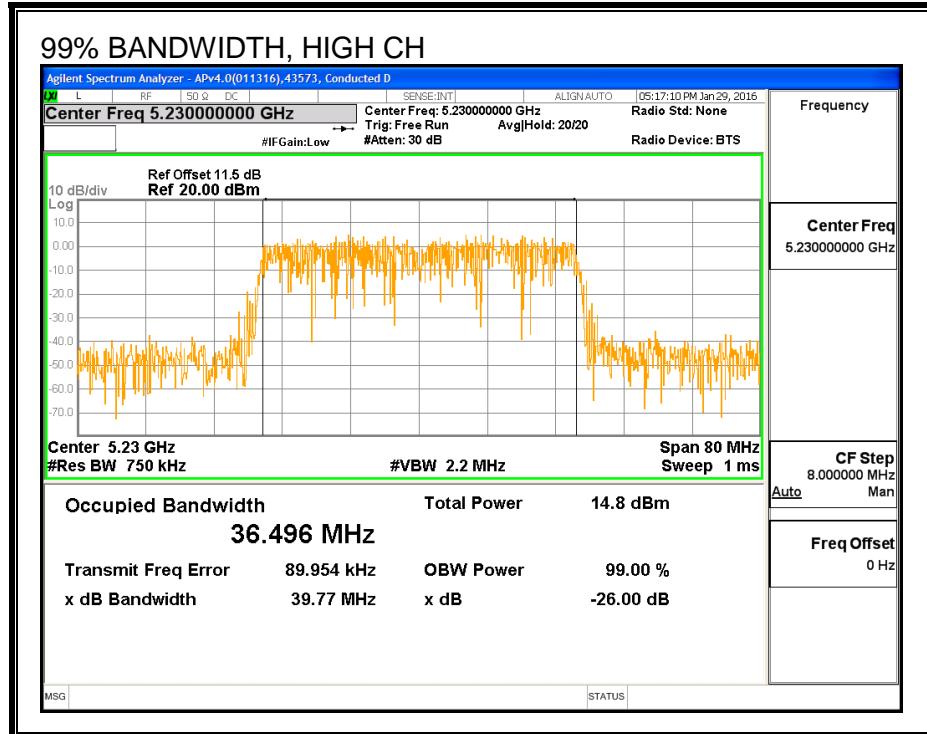
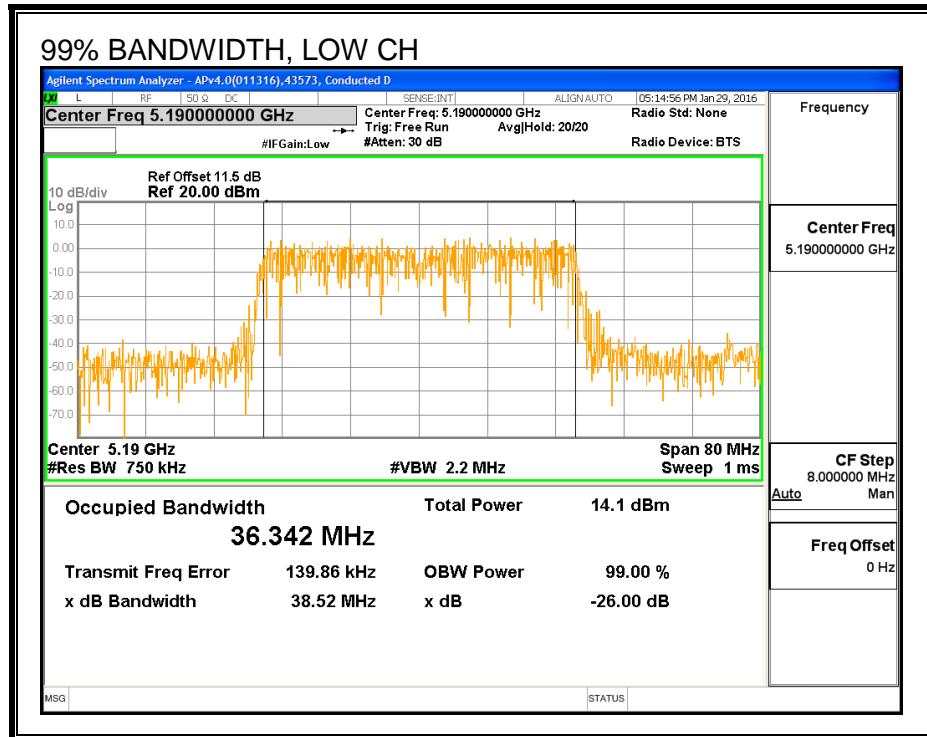
#### RESULTS

Channel	Frequency (MHz)	99% BW Antenna A (MHz)	99% BW Antenna C (MHz)
Low	5190	36.523	36.342
High	5230	36.265	36.496

**99% BANDWIDTH, ANTENNA - A**



**99% BANDWIDTH, ANTENNA - C**



### 8.21.3. AVERAGE POWER

#### LIMITS

None; for reporting purposes only.

#### TEST PROCEDURE

Measurements perform using a wideband gated RF power meter.

#### RESULTS

##### Average Power Results

Channel	Frequency (MHz)	Antenna A Power (dBm)	Antenna C Power (dBm)	Total Power (dBm)
Low	5190	12.86	12.98	15.93
High	5230	16.95	16.86	19.92

#### 8.21.4. OUTPUT POWER AND PSD

##### LIMITS

FCC §15.407 (a) (1)

- (i) For an outdoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. The maximum e.i.r.p. at any elevation angle above 30 degrees as measured from the horizon must not exceed 125 mW (21 dBm).
- (ii) For an indoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.
- (iii) For fixed point-to-point access points operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. Fixed point-to-point U-NII devices may employ antennas with directional gain up to 23 dBi without any corresponding reduction in the maximum conducted output power or maximum power spectral density. For fixed point-to-point transmitters that employ a directional antenna gain greater than 23 dBi, a 1 dB reduction in maximum conducted output power and maximum power spectral density is required for each 1 dB of antenna gain in excess of 23 dBi. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.
- (iv) For mobile and portable client devices in the 5.15-5.25 GHz band, the maximum conducted output power over the frequency band of operation shall not exceed 250 mW provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

##### TEST PROCEDURE

Measurements perform using a wideband gated RF power meter provided that the gate parameters are adjusted such that the power is measured only when the EUT is transmitting at its maximum power control level. Since the measurement is made only during the ON time of the transmitter, no duty cycle correction factor is required.

### **DIRECTIONAL ANTENNA GAIN**

The TX chains are uncorrelated and the antenna gain is unequal among the chains. The directional gain is:

Antenna A	Antenna C	Uncorrelated Chains
Gain (dBi)	Gain (dBi)	Directional Gain (dBi)
2.30	1.36	1.86

## RESULTS

### Antenna Gain and Limits

Channel	Frequency (MHz)	Directional Gain for Power (dBi)	Directional Gain for PSD (dBi)	Power Limit (dBm)	PSD Limit (dBm)
Low	5190	1.86	1.86	24.00	11.00
High	5230	1.86	1.86	24.00	11.00

Duty Cycle CF (dB)	0.00	Included in Calculations of Corr'd PSD
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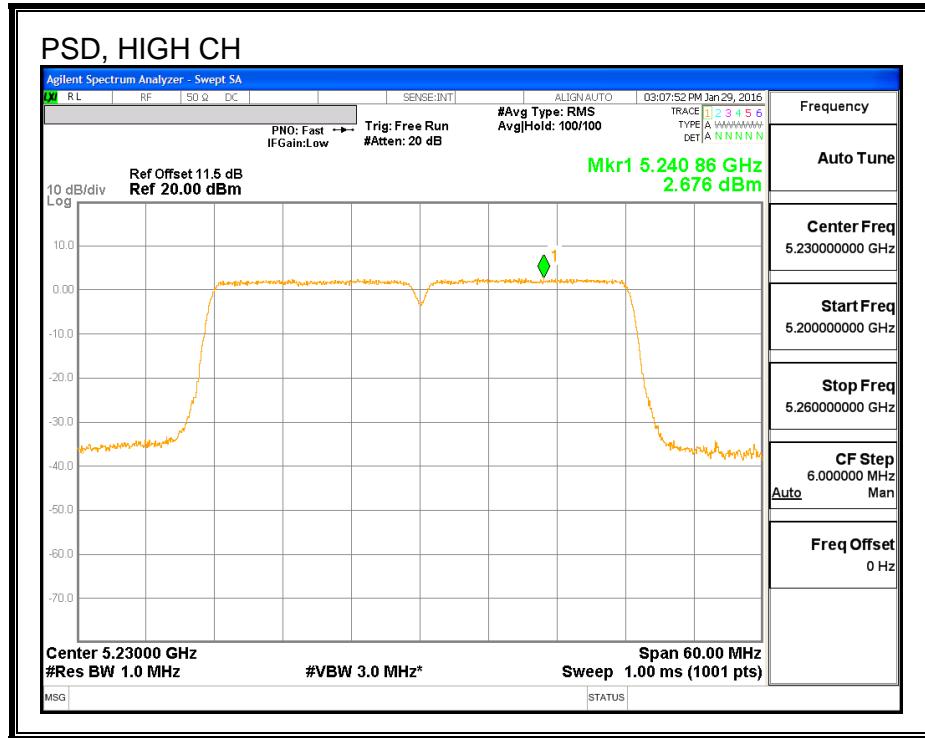
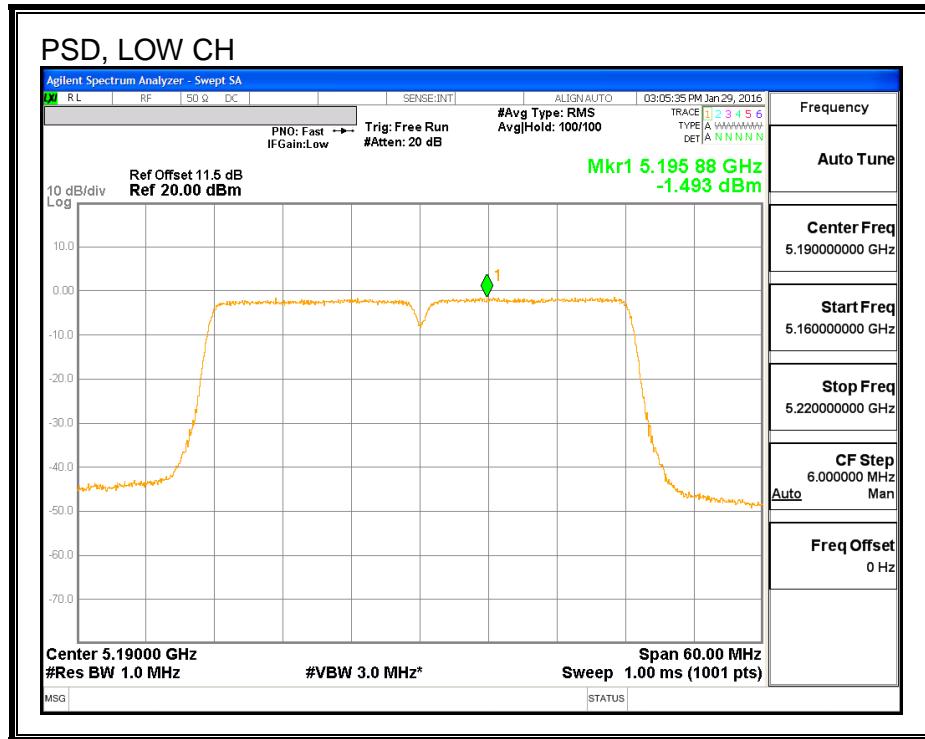
### Output Power Results

Channel	Frequency (MHz)	Antenna A Meas Power (dBm)	Antenna C Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5190	12.86	12.98	15.93	24.00	-8.07
High	5230	16.95	16.86	19.92	24.00	-4.08

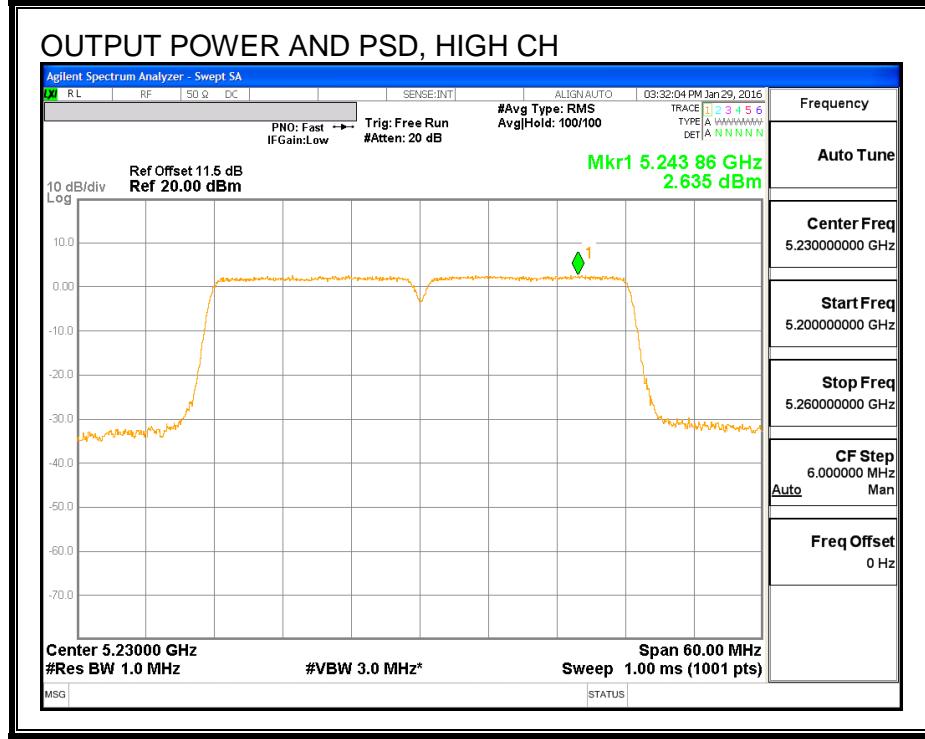
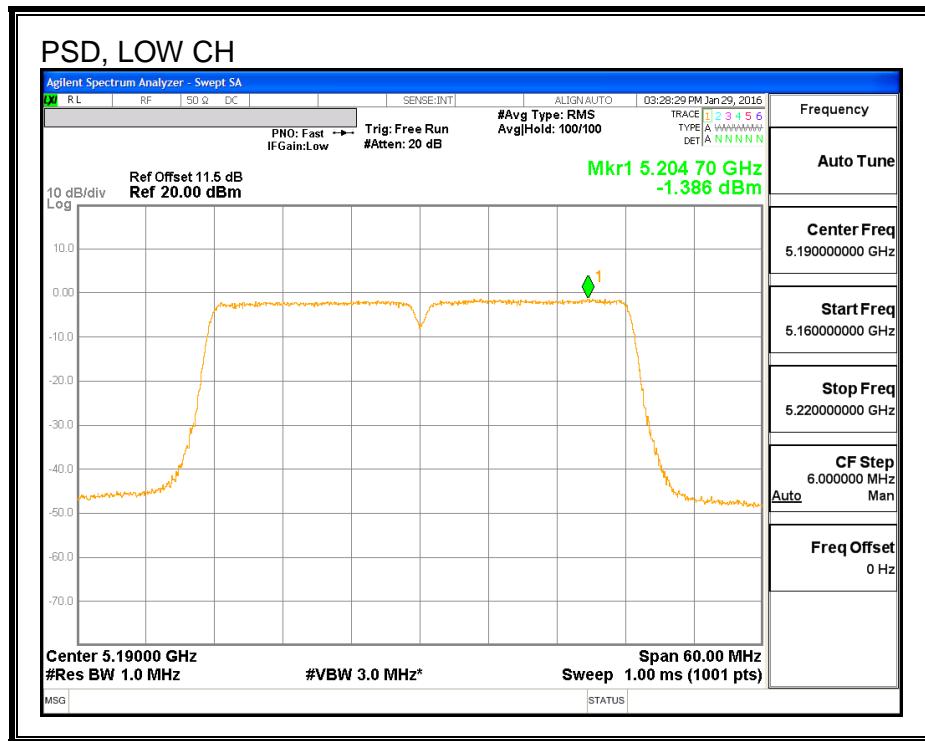
### PSD Results

Channel	Frequency (MHz)	Antenna A Meas PSD (dBm)	Antenna C Meas PSD (dBm)	Total Corr'd PSD (dBm)	PSD Limit (dBm)	PSD Margin (dB)
Low	5190	-1.49	-1.39	1.57	11.00	-9.43
High	5230	2.68	2.64	5.67	11.00	-5.33

**PSD, ANTENNA - A**



**PSD, ANTENNA - C**



## 8.22. 802.11n HT40 ANTENNA B+A SDM MODE IN THE 5.2 GHz BAND

**Noted:** Covered by 802.11n HT40 ANTENNA B+A STBC MODE IN THE 5.2 GHz BAND

### 8.23. 802.11n HT40 ANTENNA A+C SDM MODE IN THE 5.2 GHz BAND

**Noted:** Covered by 802.11n HT40 ANTENNA A+C STBC MODE IN THE 5.2 GHz BAND