

### 8.7.2. 99% BANDWIDTH

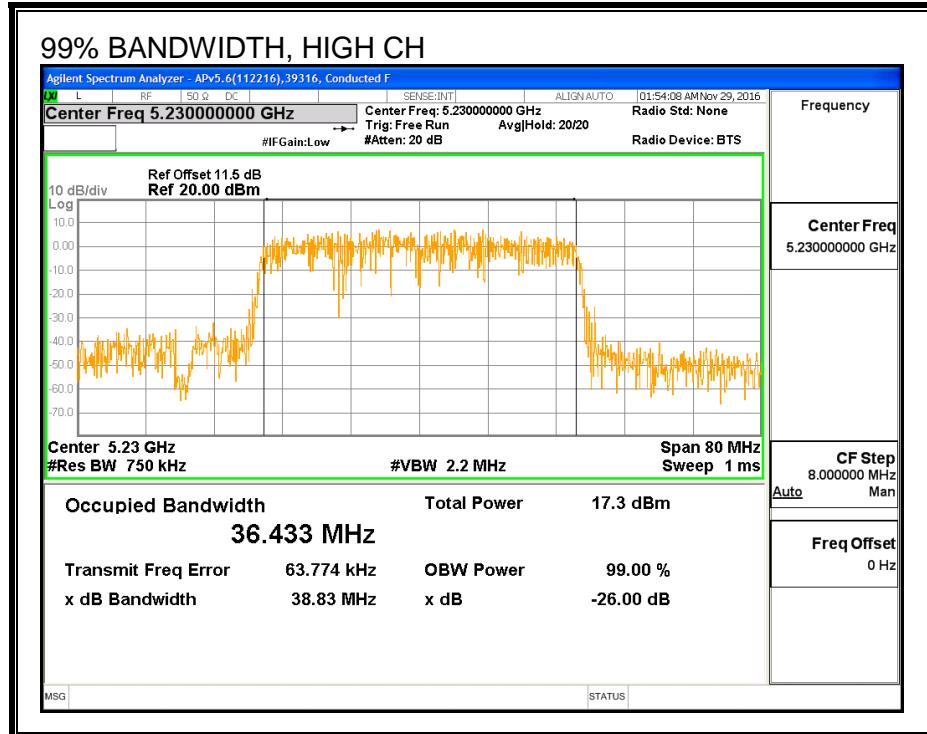
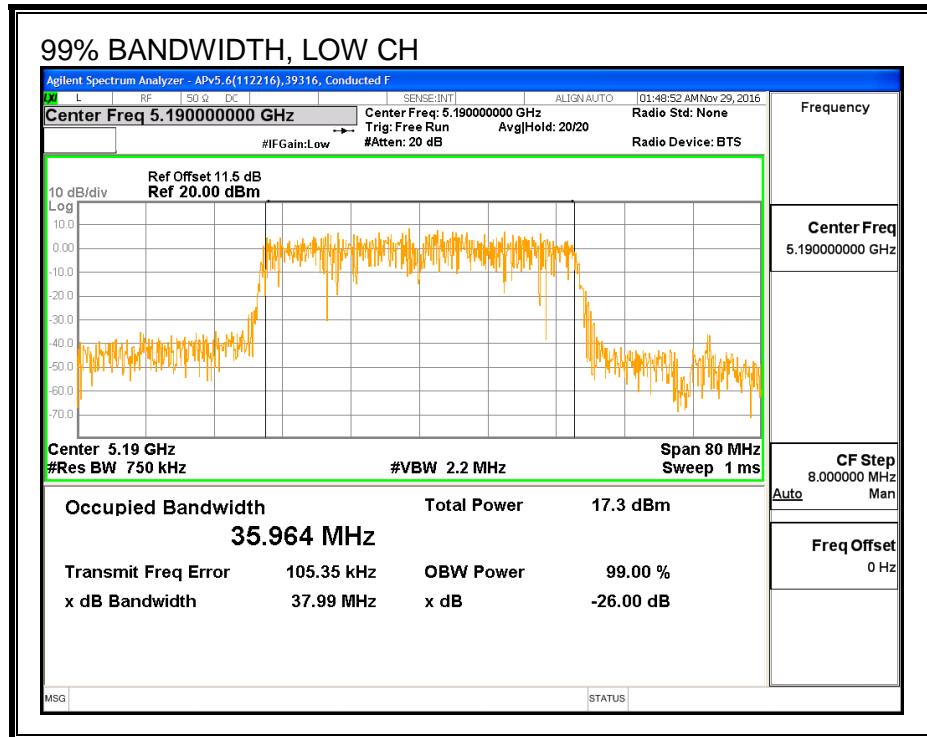
#### LIMITS

None; for reporting purposes only.

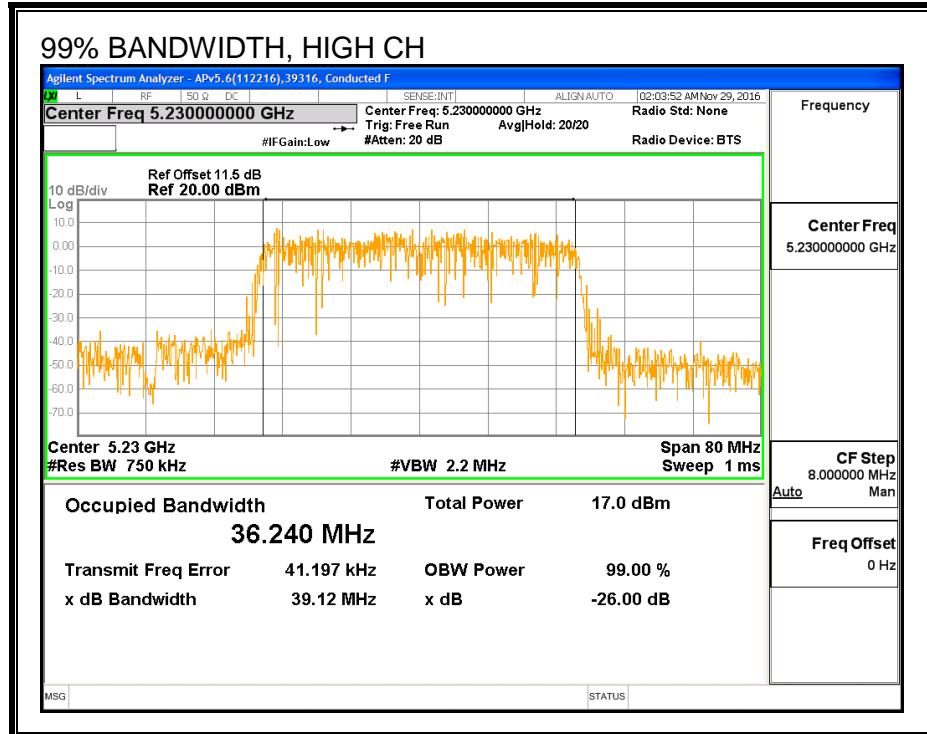
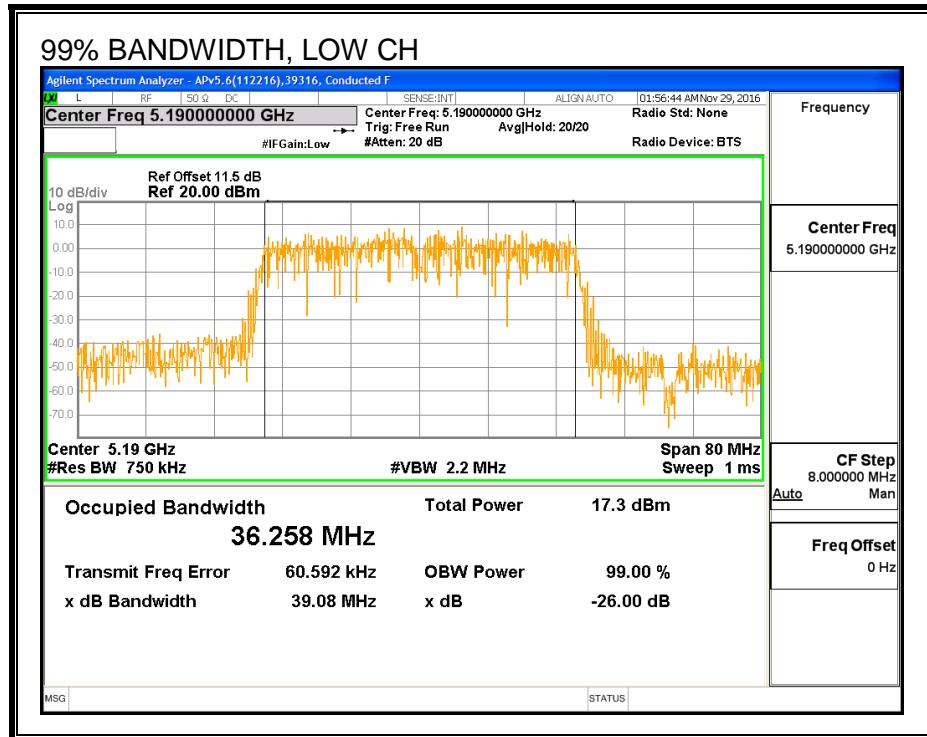
#### RESULTS

| Channel | Frequency<br>(MHz) | 99% BW<br>Antenna A<br>(MHz) | 99% BW<br>Antenna B<br>(MHz) |
|---------|--------------------|------------------------------|------------------------------|
| Low     | 5190               | 35.964                       | 36.258                       |
| High    | 5230               | 36.433                       | 36.240                       |

**99% BANDWIDTH, Antenna A**



**99% BANDWIDTH, Antenna B**



### 8.7.3. AVERAGE POWER

#### LIMITS

None; for reporting purposes only.

#### TEST PROCEDURE

Measurements perform using a wideband gated RF power meter.

#### RESULTS

|            |       |              |         |
|------------|-------|--------------|---------|
| <b>ID:</b> | 45256 | <b>Date:</b> | 1/31/17 |
|------------|-------|--------------|---------|

#### Average Power Results

| Channel | Frequency<br>(MHz) | Antenna A<br>Power<br>(dBm) | Antenna B<br>Power<br>(dBm) | Total<br>Power<br>(dBm) |
|---------|--------------------|-----------------------------|-----------------------------|-------------------------|
| Low     | 5190               | 12.92                       | 12.95                       | 15.95                   |
| High    | 5230               | 16.88                       | 15.97                       | 19.46                   |

#### 8.7.4. 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:

|            |            | Uncorrelated Chains    |
|------------|------------|------------------------|
| Antenna A  | Antenna B  | Directional Gain (dBi) |
| Gain (dBi) | Gain (dBi) | Gain (dBi)             |
| 3.48       | 3.33       | 3.41                   |

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

|            |            | Correlated Chains      |
|------------|------------|------------------------|
| Antenna A  | Antenna B  | Directional Gain (dBi) |
| Gain (dBi) | Gain (dBi) | Gain (dBi)             |
| 3.48       | 3.33       | 6.42                   |

## RESULTS

|     |       |       |         |
|-----|-------|-------|---------|
| ID: | 45256 | Date: | 1/31/17 |
|-----|-------|-------|---------|

### Antenna Gain and Limits

| Channel | Frequency<br>(MHz) | Directional<br>Gain<br>for Power<br>(dBi) | Directional<br>Gain<br>for PSD<br>(dBi) | Power<br>Limit<br>(dBm) | PSD<br>Limit<br>(dBm) |
|---------|--------------------|---|---|-------------------------|-----------------------|
| Low     | 5190               | 3.41                                      | 6.42                                    | 24.00                   | 10.58                 |
| High    | 5230               | 3.41                                      | 6.42                                    | 24.00                   | 10.58                 |

|                    |      |  |
|--------------------|------|--|
| Duty Cycle CF (dB) | 0.10 | Included in Calculations of Corr'd PSD |
|--------------------|------|--|

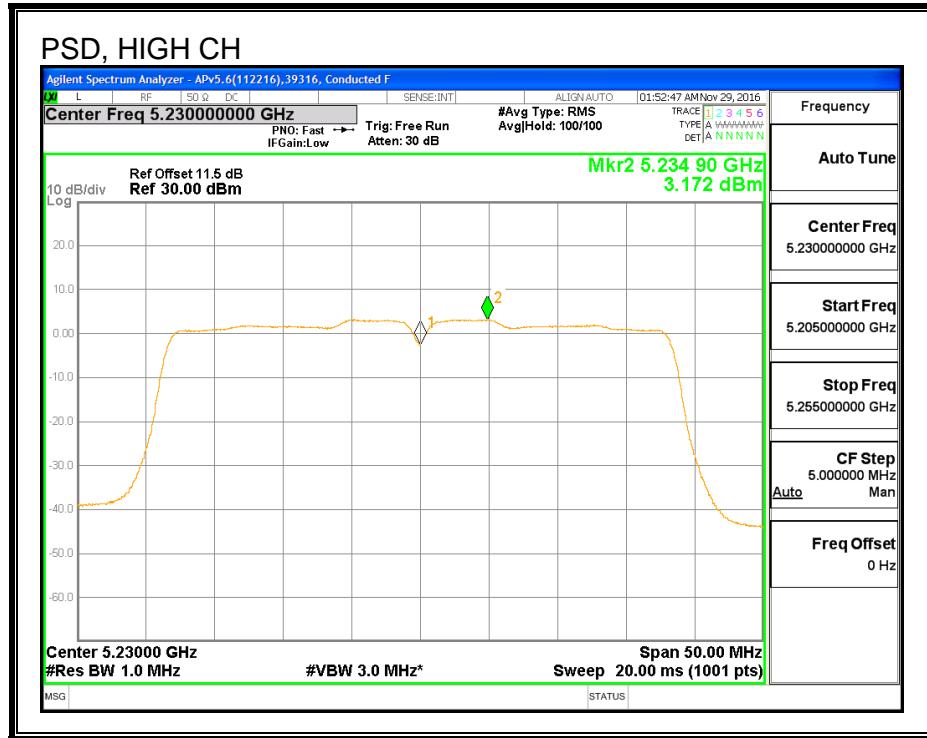
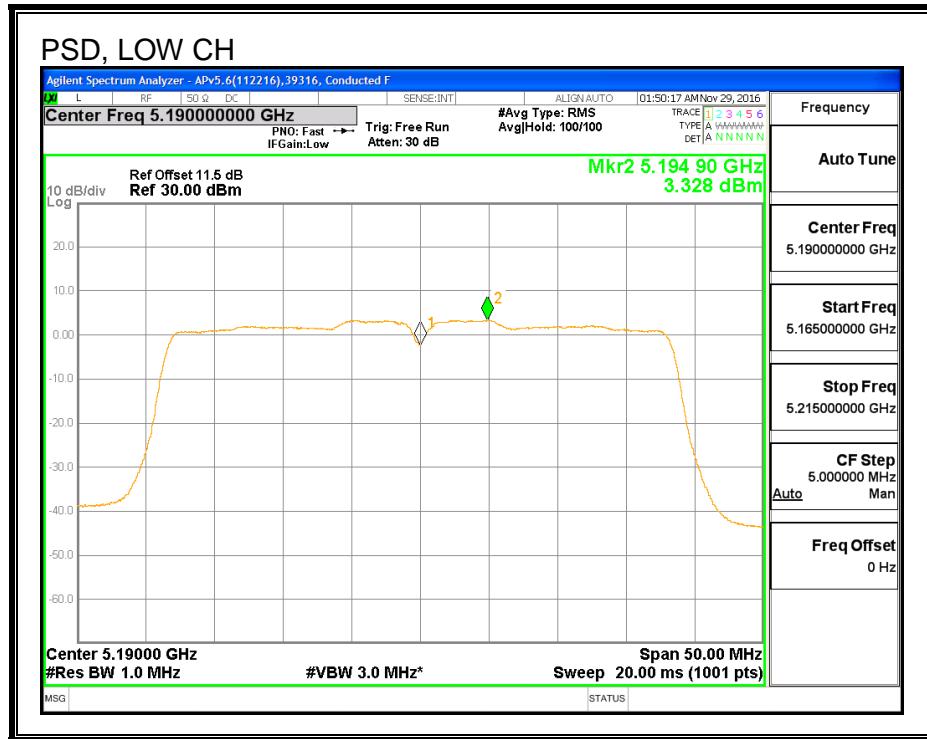
### Output Power Results

| Channel | Frequency<br>(MHz) | Antenna A<br>Meas<br>Power<br>(dBm) | Antenna B<br>Meas<br>Power<br>(dBm) | Total<br>Corr'd<br>Power<br>(dBm) | Power<br>Limit<br>(dBm) | Power<br>Margin<br>(dB) |
|---------|--------------------|-------------------------------------|-------------------------------------|-----------------------------------|-------------------------|-------------------------|
| Low     | 5190               | 12.92                               | 12.95                               | 15.95                             | 24.00                   | -8.05                   |
| High    | 5230               | 16.88                               | 15.97                               | 19.46                             | 24.00                   | -4.54                   |

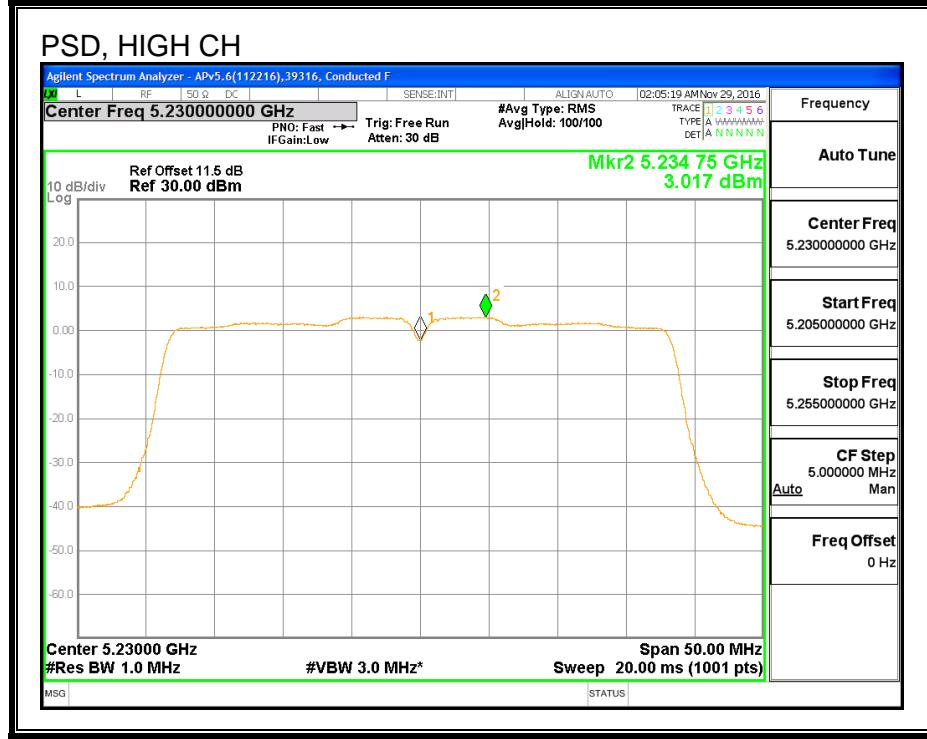
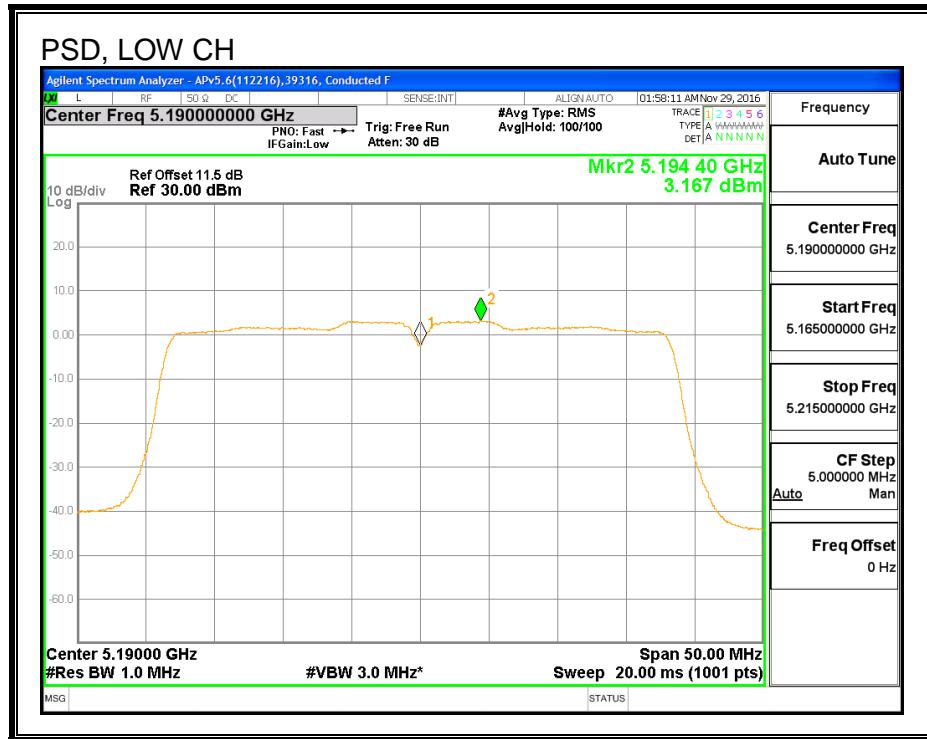
### PSD Results

| Channel | Frequency<br>(MHz) | Antenna A<br>Meas<br>PSD<br>(dBm) | Antenna B<br>Meas<br>PSD<br>(dBm) | Total<br>Corr'd<br>PSD<br>(dBm) | PSD<br>Limit<br>(dBm) | PSD<br>Margin<br>(dB) |
|---------|--------------------|-----------------------------------|-----------------------------------|---------------------------------|-----------------------|-----------------------|
| Low     | 5190               | 3.33                              | 3.17                              | 6.36                            | 10.58                 | -4.22                 |
| High    | 5230               | 3.17                              | 3.02                              | 6.21                            | 10.58                 | -4.37                 |

**PSD, Antenna A**



**PSD, Antenna B**



## 8.8. 802.11ac VHT80 Antenna A MODE IN THE 5.2 GHz BAND

### 8.8.1. 26 dB BANDWIDTH

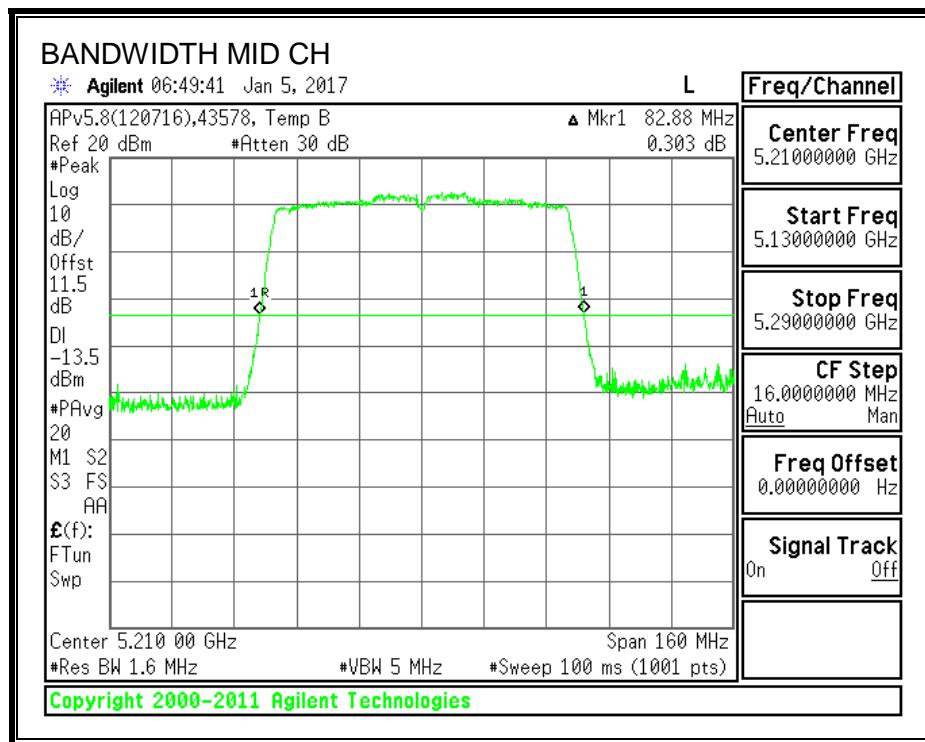
#### LIMITS

None; for reporting purposes only.

#### RESULTS

| Channel | Frequency (MHz) | 26 dB Bandwidth (MHz) |
|---------|-----------------|-----------------------|
| Mid     | 5210            | 82.880                |

#### 26 dB BANDWIDTH



### 8.8.2. 99% BANDWIDTH

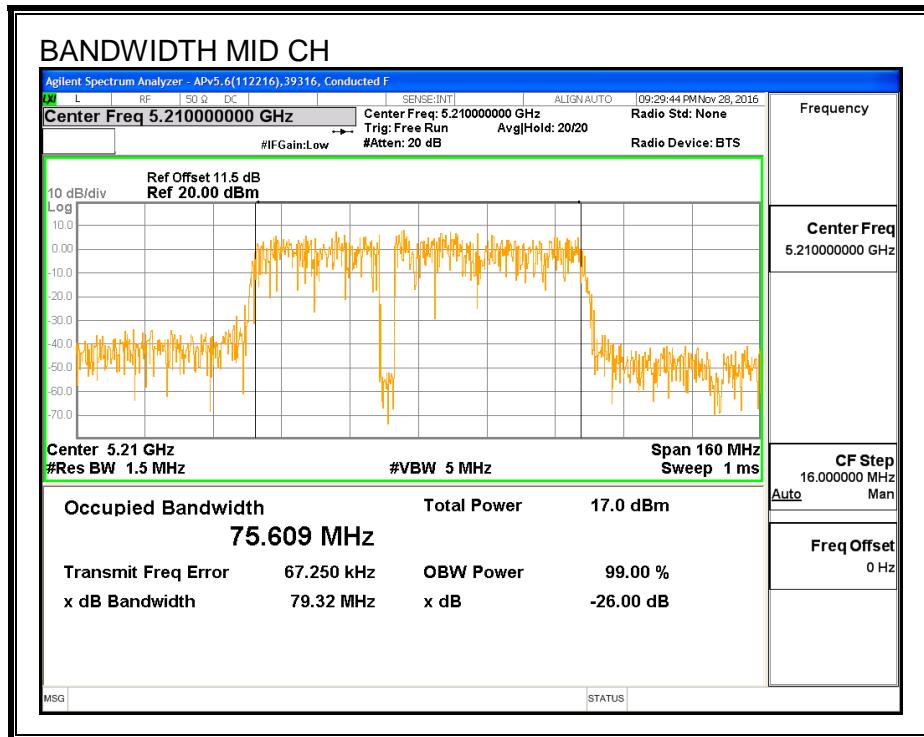
#### LIMITS

None; for reporting purposes only.

#### RESULTS

| Channel | Frequency<br>(MHz) | 99% Bandwidth<br>(MHz) |
|---------|--------------------|------------------------|
| Mid     | 5210               | 75.609                 |

#### 99% BANDWIDTH



### 8.8.3. AVERAGE POWER

#### LIMITS

None; for reporting purposes only.

#### TEST PROCEDURE

Measurements perform using a wideband gated RF power meter.

#### RESULTS

|            |       |              |         |
|------------|-------|--------------|---------|
| <b>ID:</b> | 45256 | <b>Date:</b> | 1/31/17 |
|------------|-------|--------------|---------|

| Channel | Frequency<br>(MHz) | Power<br>(dBm) |
|---------|--------------------|----------------|
| Mid     | 5210               | 13.45          |

#### 8.8.4. 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

|     |       |       |         |
|-----|-------|-------|---------|
| ID: | 45256 | Date: | 1/31/17 |
|-----|-------|-------|---------|

### Antenna Gain and Limits

| Channel | Frequency<br>(MHz) | Directional<br>Gain<br>for Power<br>(dBi) | Directional<br>Gain<br>for PSD<br>(dBi) | Power<br>Limit<br>(dBm) | PSD<br>Limit<br>(dBm) |
|---------|--------------------|---|---|-------------------------|-----------------------|
| Mid     | 5210               | 3.48                                      | 3.48                                    | 24.00                   | 11.00                 |

|                    |      |  |
|--------------------|------|--|
| Duty Cycle CF (dB) | 0.20 | Included in Calculations of Corr'd PSD |
|--------------------|------|--|

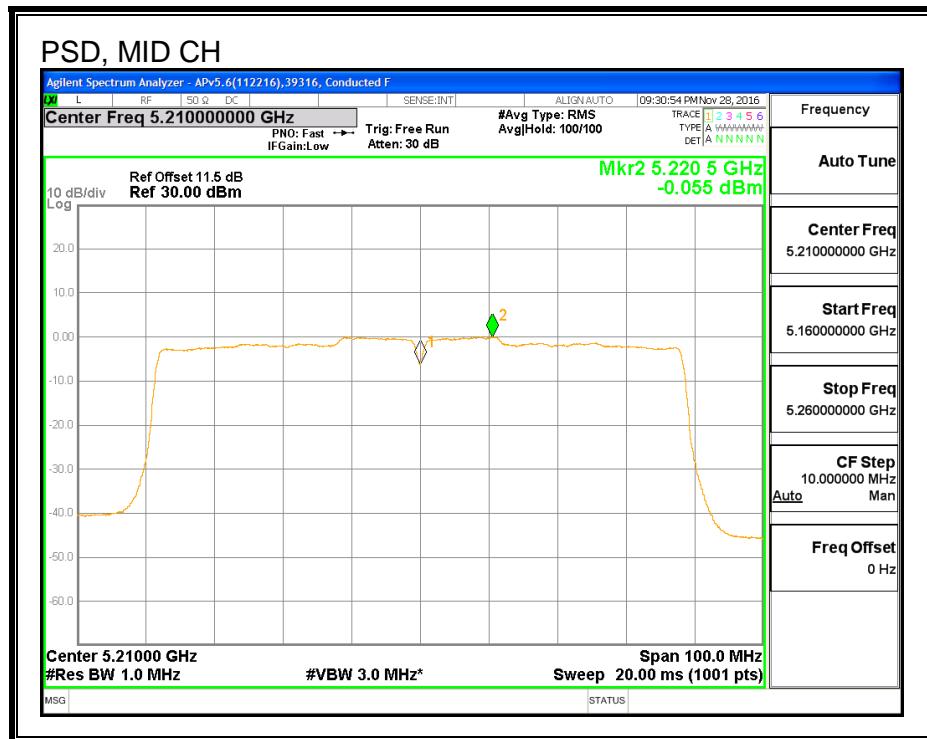
### Output Power Results

| Channel | Frequency<br>(MHz) | Antenna A<br>Meas<br>Power<br>(dBm) | Total<br>Corr'd<br>Power<br>(dBm) | Power<br>Limit<br>(dBm) | Power<br>Margin<br>(dB) |
|---------|--------------------|-------------------------------------|-----------------------------------|-------------------------|-------------------------|
| Mid     | 5210               | 13.45                               | 13.45                             | 24.00                   | -10.55                  |

### PSD Results

| Channel | Frequency<br>(MHz) | Antenna A<br>Meas<br>PSD<br>(dBm) | Total<br>Corr'd<br>PSD<br>(dBm) | PSD<br>Limit<br>(dBm) | PSD<br>Margin<br>(dB) |
|---------|--------------------|-----------------------------------|---------------------------------|-----------------------|-----------------------|
| Mid     | 5210               | -0.055                            | 0.15                            | 11.00                 | -10.86                |

**PSD**



## 8.9. 802.11ac VHT80 Antenna B MODE IN THE 5.2 GHz BAND

### 8.9.1. 26 dB BANDWIDTH

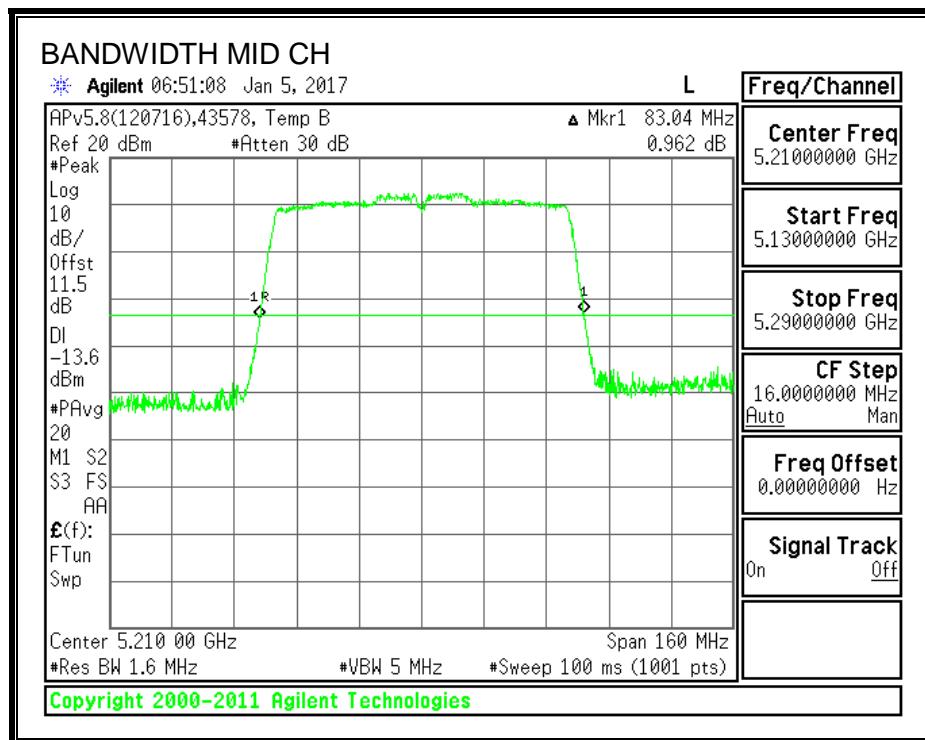
#### LIMITS

None; for reporting purposes only.

#### RESULTS

| Channel | Frequency (MHz) | 26 dB Bandwidth (MHz) |
|---------|-----------------|-----------------------|
| Mid     | 5210            | 83.040                |

#### 26 dB BANDWIDTH



### 8.9.2. 99% BANDWIDTH

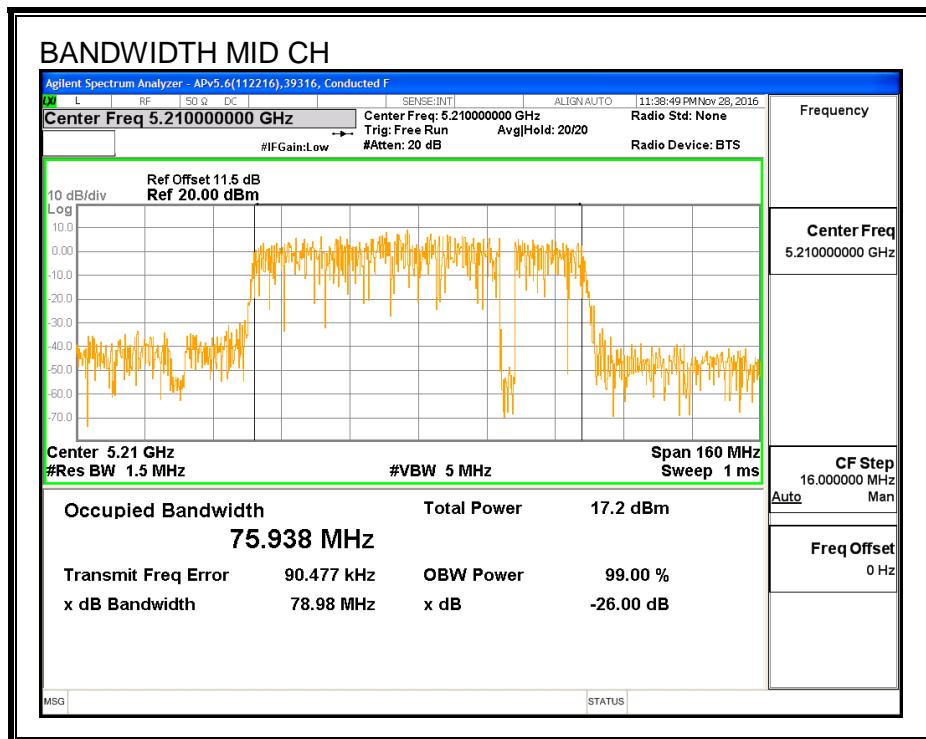
#### LIMITS

None; for reporting purposes only.

#### RESULTS

| Channel | Frequency<br>(MHz) | 99% Bandwidth<br>(MHz) |
|---------|--------------------|------------------------|
| Mid     | 5210               | 75.938                 |

#### 99% BANDWIDTH



### 8.9.3. AVERAGE POWER

#### LIMITS

None; for reporting purposes only.

#### TEST PROCEDURE

Measurements perform using a wideband gated RF power meter.

#### RESULTS

|            |       |              |         |
|------------|-------|--------------|---------|
| <b>ID:</b> | 45256 | <b>Date:</b> | 1/31/17 |
|------------|-------|--------------|---------|

| Channel | Frequency<br>(MHz) | Power<br>(dBm) |
|---------|--------------------|----------------|
| Mid     | 5210               | 13.41          |

#### 8.9.4. 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

|            |       |              |         |
|------------|-------|--------------|---------|
| <b>ID:</b> | 45256 | <b>Date:</b> | 1/31/17 |
|------------|-------|--------------|---------|

### Antenna Gain and Limits

| Channel | Frequency<br>(MHz) | Directional<br>Gain<br>for Power<br>(dBi) | Directional<br>Gain<br>for PSD<br>(dBi) | Power<br>Limit<br>(dBm) | PSD<br>Limit<br>(dBm) |
|---------|--------------------|---|---|-------------------------|-----------------------|
| Mid     | 5210               | 3.33                                      | 3.33                                    | 24.00                   | 11.00                 |

|                           |      |   |
|---------------------------|------|---|
| <b>Duty Cycle CF (dB)</b> | 0.20 | <b>Included in Calculations of Corr'd PSD</b> |
|---------------------------|------|---|

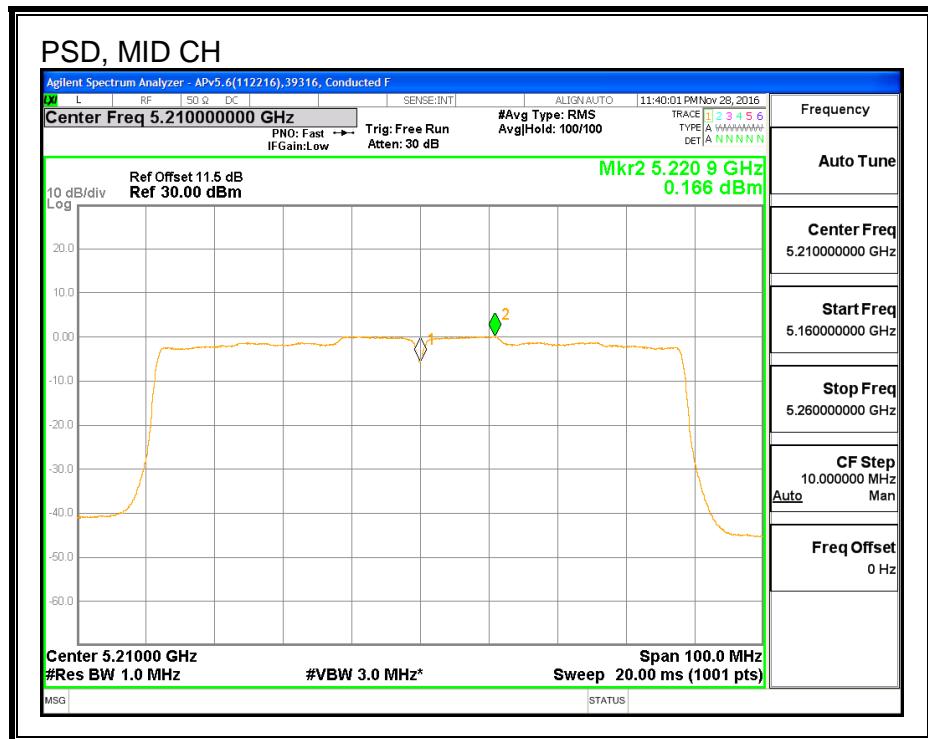
### Output Power Results

| Channel | Frequency<br>(MHz) | Antenna B<br>Meas<br>Power<br>(dBm) | Total<br>Corr'd<br>Power<br>(dBm) | Power<br>Limit<br>(dBm) | Power<br>Margin<br>(dB) |
|---------|--------------------|-------------------------------------|-----------------------------------|-------------------------|-------------------------|
| Mid     | 5210               | 13.41                               | 13.41                             | 24.00                   | -10.59                  |

### PSD Results

| Channel | Frequency<br>(MHz) | Antenna B<br>Meas<br>PSD<br>(dBm) | Total<br>Corr'd<br>PSD<br>(dBm) | PSD<br>Limit<br>(dBm) | PSD<br>Margin<br>(dB) |
|---------|--------------------|-----------------------------------|---------------------------------|-----------------------|-----------------------|
| Mid     | 5210               | 0.17                              | 0.37                            | 11.00                 | -10.63                |

**PSD**



## 8.10. 802.11ac VHT80 2Tx (Antenna A + Antenna B) CDD MODE IN THE 5.2 GHz BAND

### 8.10.1. 26 dB BANDWIDTH

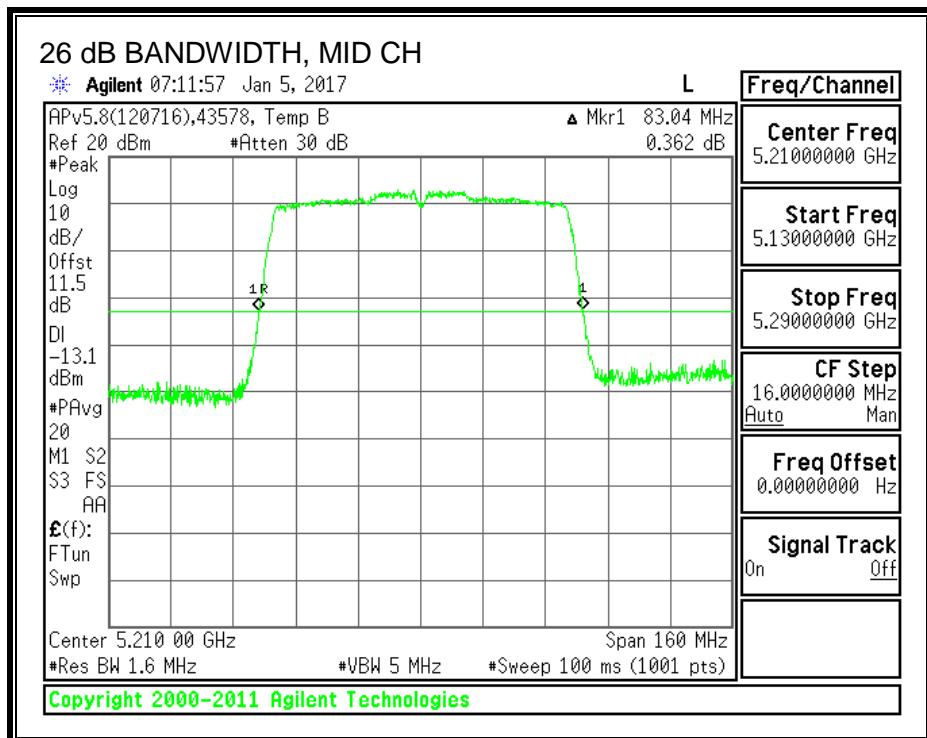
#### LIMITS

None; for reporting purposes only.

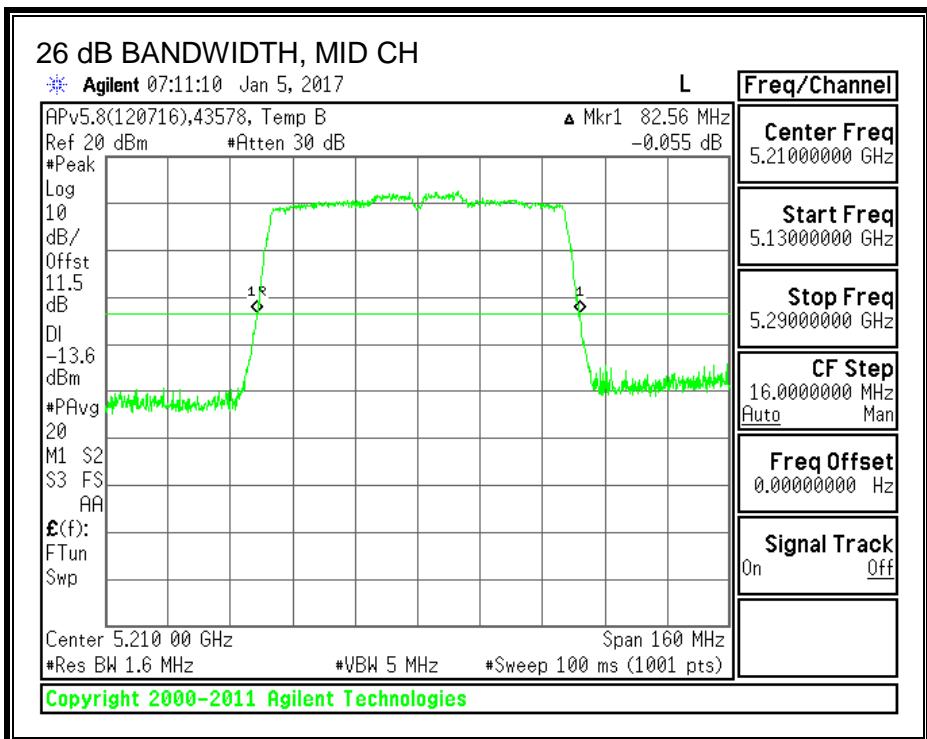
#### RESULTS

| Channel | Frequency<br>(MHz) | 26 dB BW<br>Antenna A<br>(MHz) | 26 dB BW<br>Antenna B<br>(MHz) |
|---------|--------------------|--------------------------------|--------------------------------|
| Mid     | 5210               | 83.040                         | 82.560                         |

## 26 DB BANDWIDTH, Antenna A



## 26 DB BANDWIDTH, Antenna B



### 8.10.2. 99% BANDWIDTH

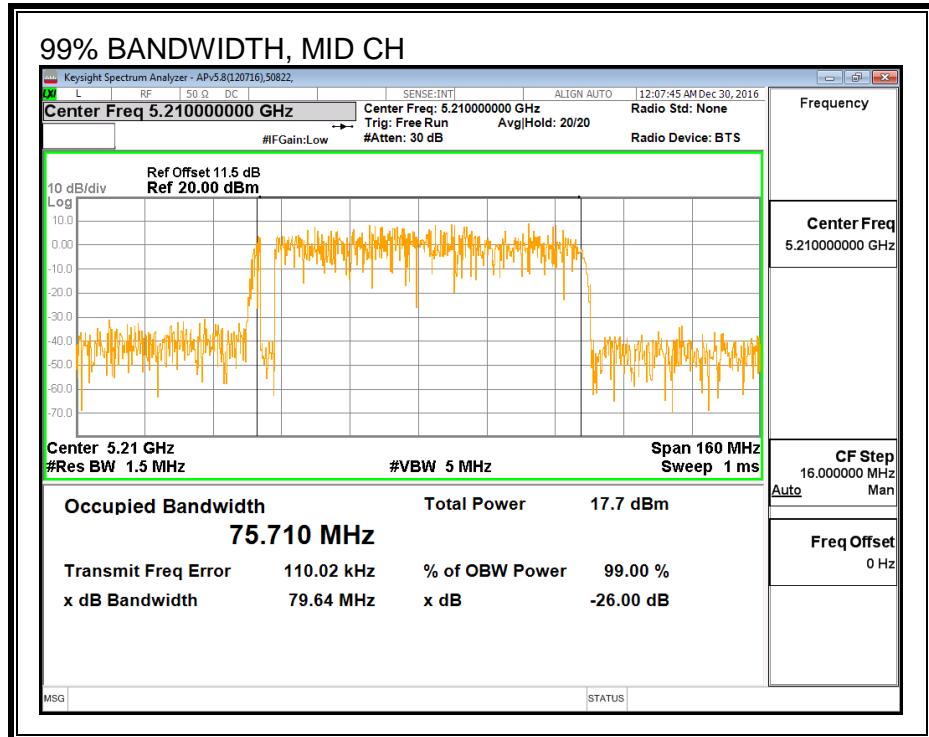
#### LIMITS

None; for reporting purposes only.

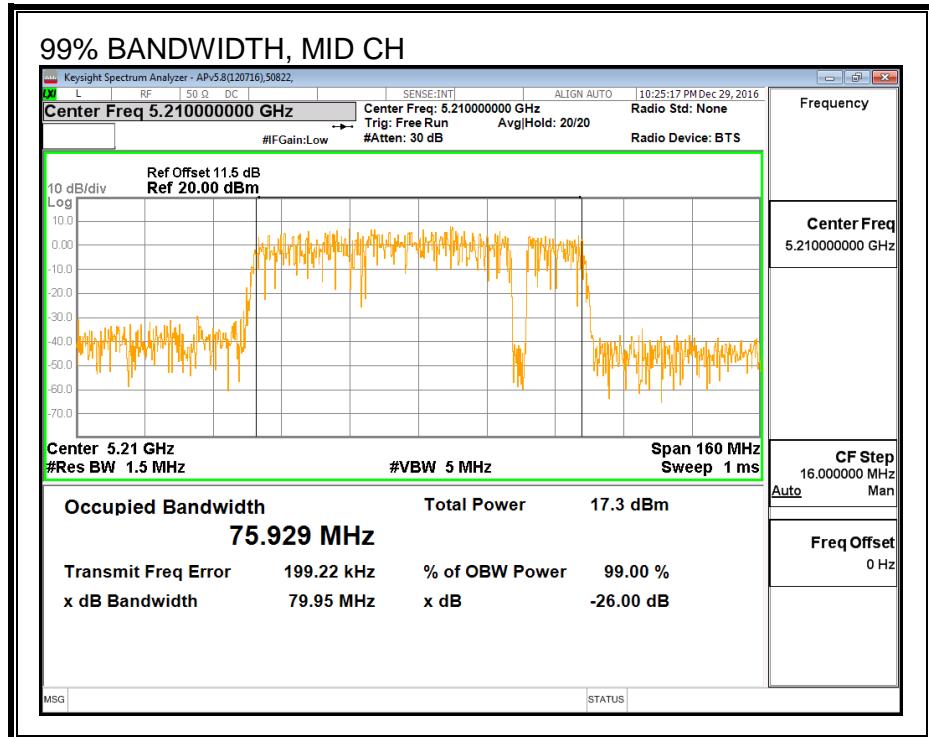
#### RESULTS

| Channel | Frequency<br>(MHz) | 99% BW<br>Ant A<br>(MHz) | 99% BW<br>Ant B<br>(MHz) |
|---------|--------------------|--------------------------|--------------------------|
| Mid     | 5210               | 75.710                   | 75.929                   |

## **99% BANDWIDTH, Antenna A**



## **99% BANDWIDTH, Antenna B**



### 8.10.3. AVERAGE POWER

#### LIMITS

None; for reporting purposes only.

#### TEST PROCEDURE

Measurements perform using a wideband gated RF power meter.

#### RESULTS

|            |       |              |         |
|------------|-------|--------------|---------|
| <b>ID:</b> | 45256 | <b>Date:</b> | 1/31/17 |
|------------|-------|--------------|---------|

| Channel | Frequency<br>(MHz) | Antenna A<br>Power<br>(dBm) | Antenna B<br>Power<br>(dBm) | Total<br>Power<br>(dBm) |
|---------|--------------------|-----------------------------|-----------------------------|-------------------------|
| Mid     | 5210               | 11.98                       | 11.92                       | 14.96                   |

#### 8.10.4. 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 B</b>      | <b>Uncorrelated Chains<br/>Directional<br/>Gain<br/>(dBi)</b> |
|-----------------------|-----------------------|---|
| <b>Gain<br/>(dBi)</b> | <b>Gain<br/>(dBi)</b> | <b>Gain<br/>(dBi)</b>   |
| 3.48                  | 3.33                  | 3.41  |

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

| <b>Antenna A</b>      | <b>Antenna B</b>      | <b>Correlated Chains<br/>Directional<br/>Gain<br/>(dBi)</b> |
|-----------------------|-----------------------|---|
| <b>Gain<br/>(dBi)</b> | <b>Gain<br/>(dBi)</b> | <b>Gain<br/>(dBi)</b>                                       |
| 3.48                  | 3.33                  | 6.42  |

## RESULTS

|     |       |       |         |
|-----|-------|-------|---------|
| ID: | 45256 | Date: | 1/31/17 |
|-----|-------|-------|---------|

### Antenna Gain and Limits

| Channel | Frequency<br>(MHz) | Directional<br>Gain<br>for Power<br>(dBi) | Directional<br>Gain<br>for PSD<br>(dBi) | Power<br>Limit<br>(dBm) | PSD<br>Limit<br>(dBm) |
|---------|--------------------|---|---|-------------------------|-----------------------|
| Mid     | 5210               | 3.41                                      | 6.42                                    | 24.00                   | 10.58                 |

|                    |      |  |
|--------------------|------|--|
| Duty Cycle CF (dB) | 0.21 | Included in Calculations of Corr'd PSD |
|--------------------|------|--|

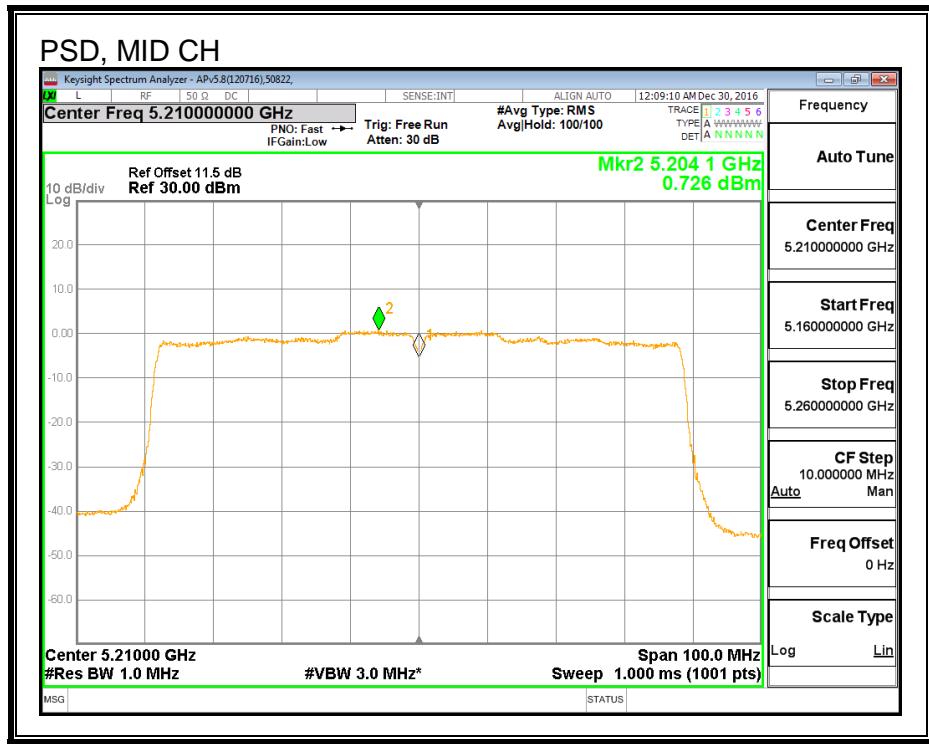
### Output Power Results

| Channel | Frequency<br>(MHz) | Antenna A<br>Meas<br>Power<br>(dBm) | Antenna B<br>Meas<br>Power<br>(dBm) | Total<br>Corr'd<br>Power<br>(dBm) | Power<br>Limit<br>(dBm) | Power<br>Margin<br>(dB) |
|---------|--------------------|-------------------------------------|-------------------------------------|-----------------------------------|-------------------------|-------------------------|
| Mid     | 5210               | 11.98                               | 11.92                               | 14.96                             | 24.00                   | -9.04                   |

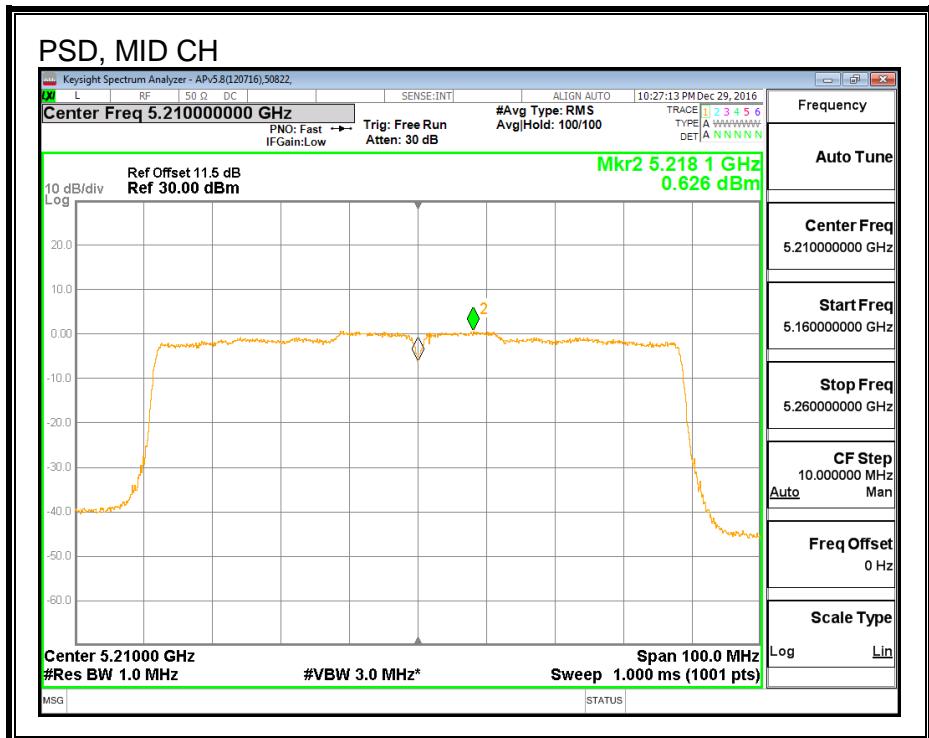
### PSD Results

| Channel | Frequency<br>(MHz) | Antenna A<br>Meas<br>PSD<br>(dBm) | Antenna B<br>Meas<br>PSD<br>(dBm) | Total<br>Corr'd<br>PSD<br>(dBm) | PSD<br>Limit<br>(dBm) | PSD<br>Margin<br>(dB) |
|---------|--------------------|-----------------------------------|-----------------------------------|---------------------------------|-----------------------|-----------------------|
| Mid     | 5210               | 0.73                              | 0.63                              | 3.90                            | 10.58                 | -6.68                 |

## PSD, Antenna A



## PSD, Antenna B



## 8.11. 802.11n HT20 Antenna A MODE IN THE 5.3 GHz BAND

### 8.11.1. 26 dB BANDWIDTH

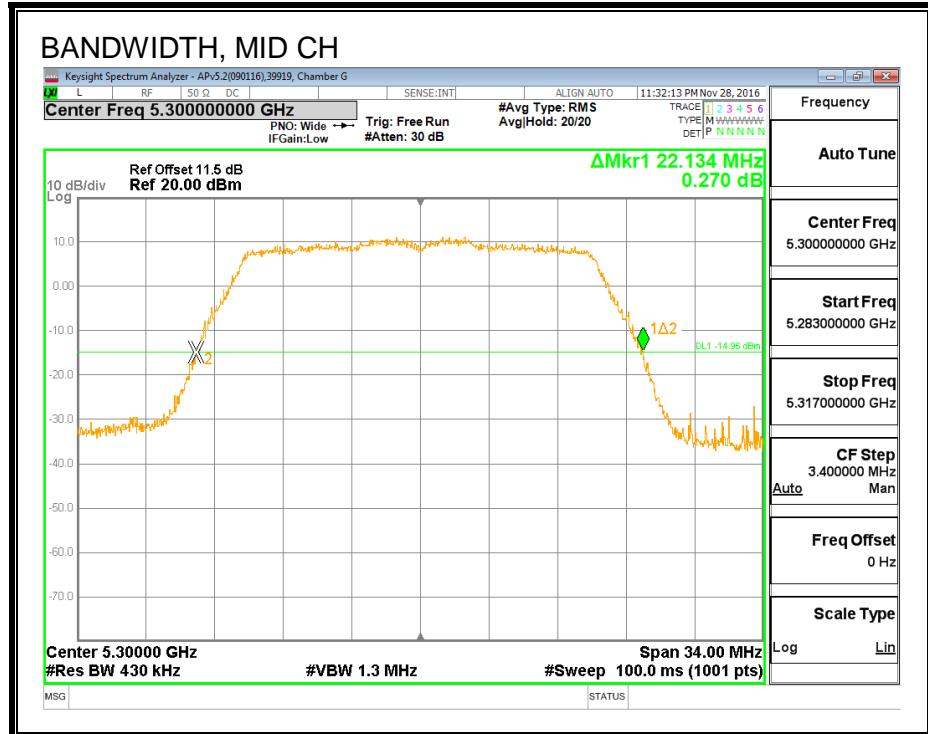
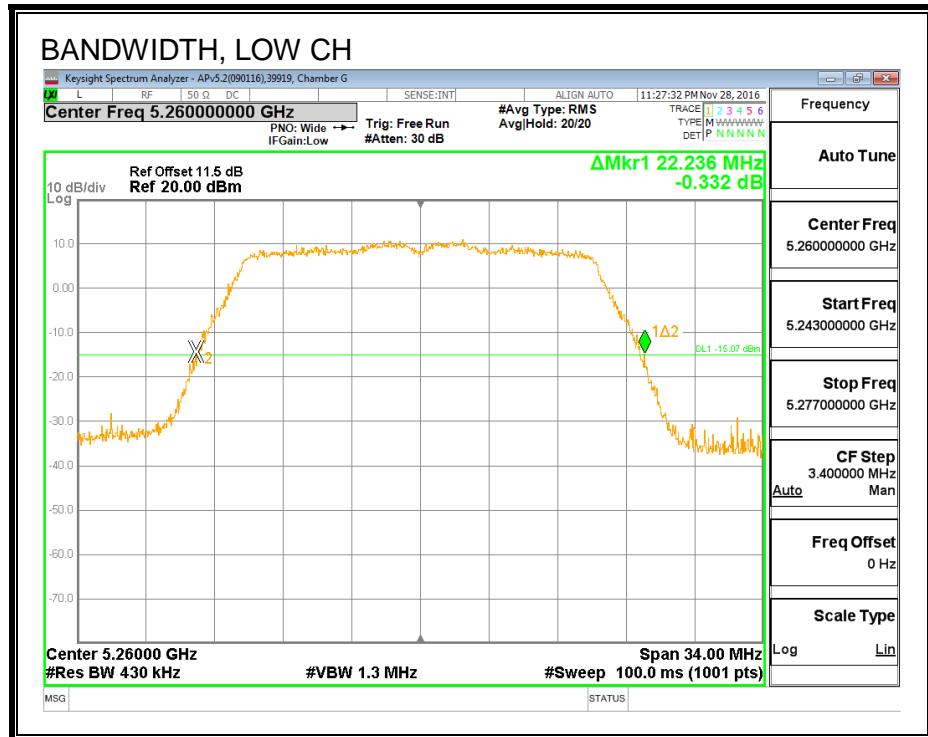
#### LIMITS

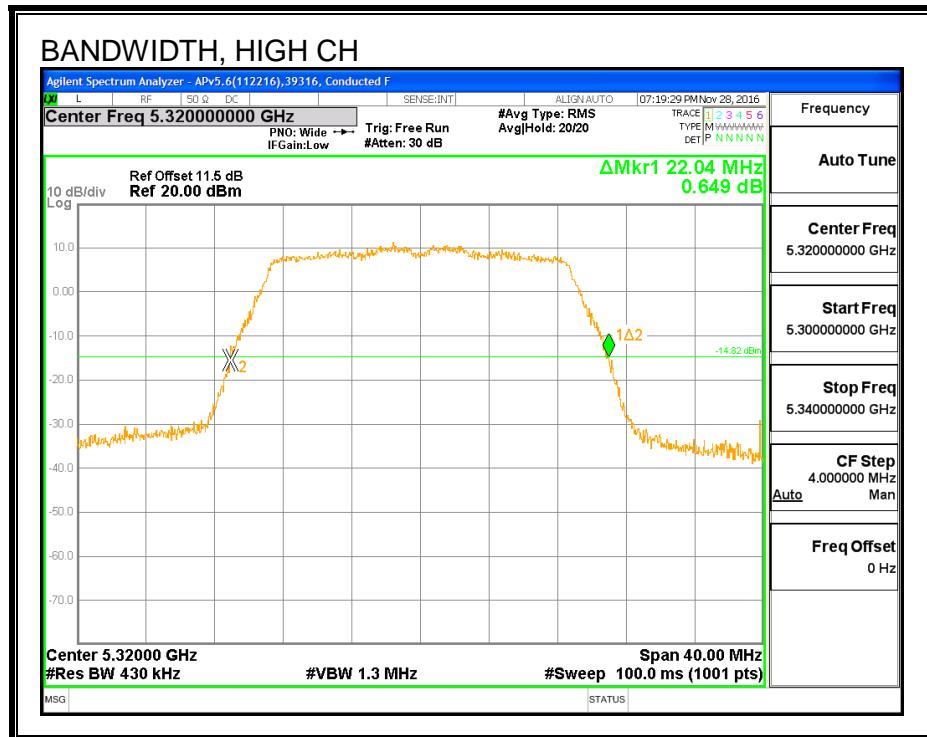
None; for reporting purposes only.

#### RESULTS

| Channel | Frequency (MHz) | 26 dB Bandwidth (MHz) |
|---------|-----------------|-----------------------|
| Low     | 5260            | 22.236                |
| Mid     | 5300            | 22.134                |
| High    | 5320            | 22.040                |

## 26 dB BANDWIDTH





### 8.11.2. 99% BANDWIDTH

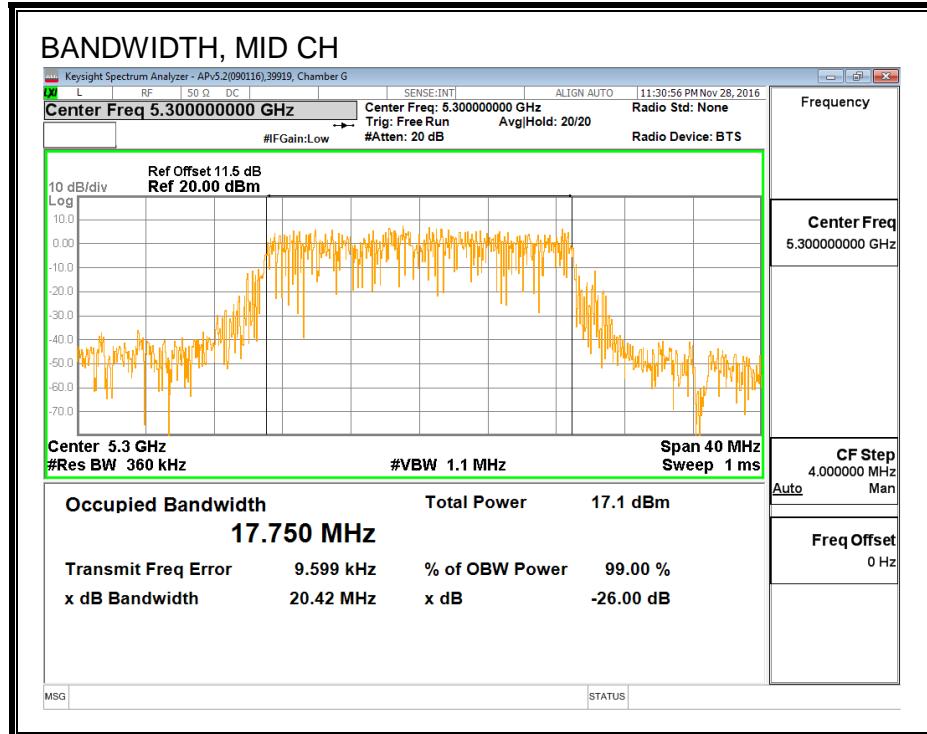
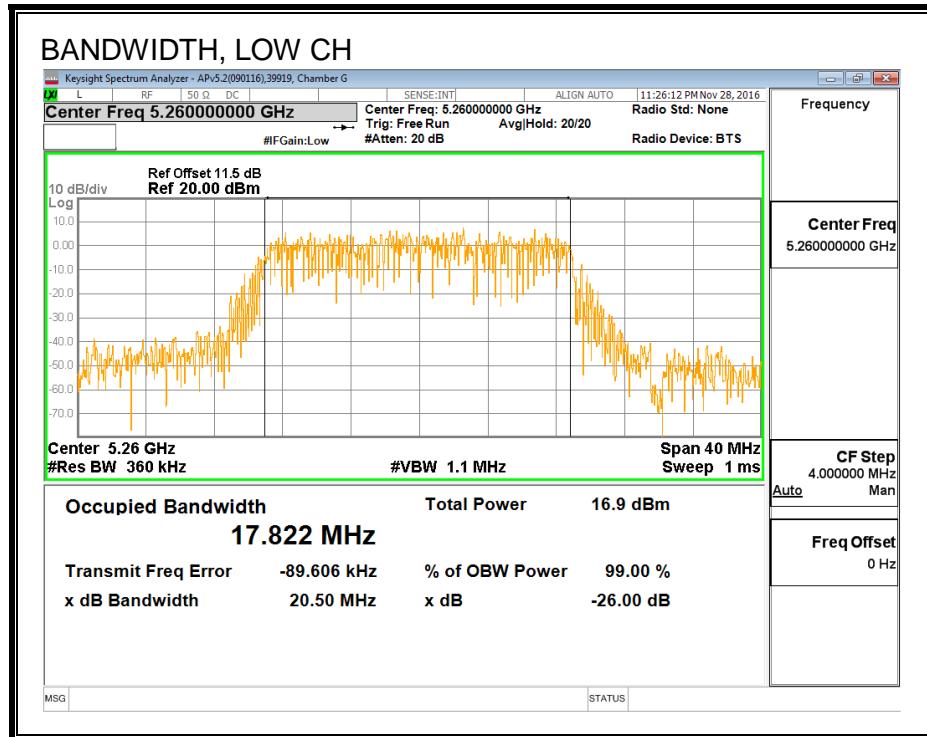
#### LIMITS

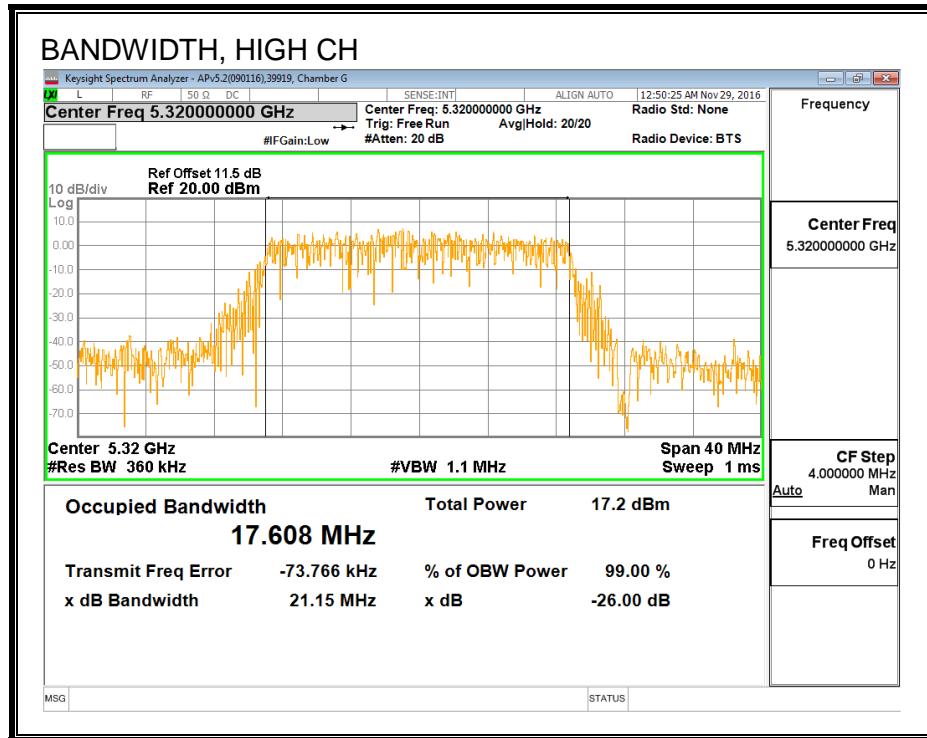
None; for reporting purposes only.

#### RESULTS

| Channel | Frequency<br>(MHz) | 99% Bandwidth<br>(MHz) |
|---------|--------------------|------------------------|
| Low     | 5260               | 17.822                 |
| Mid     | 5300               | 17.750                 |
| High    | 5320               | 17.608                 |

**99% BANDWIDTH**





### 8.11.3. AVERAGE POWER

#### LIMITS

None; for reporting purposes only.

#### TEST PROCEDURE

Measurements perform using a wideband gated RF power meter.

#### RESULTS

|            |       |              |         |
|------------|-------|--------------|---------|
| <b>ID:</b> | 45256 | <b>Date:</b> | 1/31/17 |
|------------|-------|--------------|---------|

| Channel | Frequency<br>(MHz) | Power<br>(dBm) |
|---------|--------------------|----------------|
| Low     | 5260               | 15.97          |
| Mid     | 5300               | 15.92          |
| High    | 5320               | 15.98          |

#### 8.11.4. OUTPUT POWER AND PSD

##### LIMITS

FCC §15.407 (a) (2)

For the band 5.25–5.35 GHz, the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 250 mW or 11 dBm + 10 log B, where B is the 26-dB emission bandwidth in MHz. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1-MHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the peak 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

|     |       |       |         |
|-----|-------|-------|---------|
| ID: | 45256 | Date: | 1/31/17 |
|-----|-------|-------|---------|

### Bandwidth, Antenna Gain, and Limits

| Channel | Frequency<br>(MHz) | Min<br>26 dB<br>BW<br>(MHz) | Min<br>99%<br>BW<br>(MHz) | Directional<br>Gain<br>(dBi) | Power<br>Limit<br>(dBm) | PSD<br>Limit<br>(dBm) |
|---------|--------------------|-----------------------------|---------------------------|------------------------------|-------------------------|-----------------------|
| Low     | 5260               | 22.24                       | 17.82                     | 4.11                         | 23.51                   | 11.00                 |
| Mid     | 5300               | 22.13                       | 17.75                     | 4.11                         | 23.49                   | 11.00                 |
| High    | 5320               | 22.04                       | 17.61                     | 4.11                         | 23.46                   | 11.00                 |

|                    |      |  |
|--------------------|------|--|
| Duty Cycle CF (dB) | 0.00 | Included in Calculations of Corr'd PSD |
|--------------------|------|--|

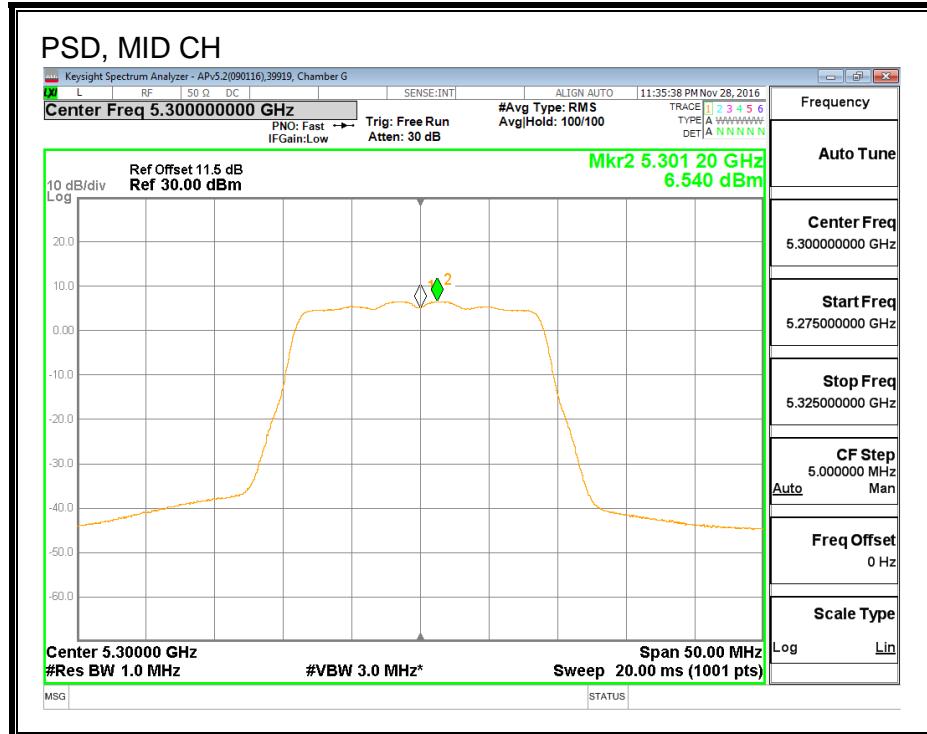
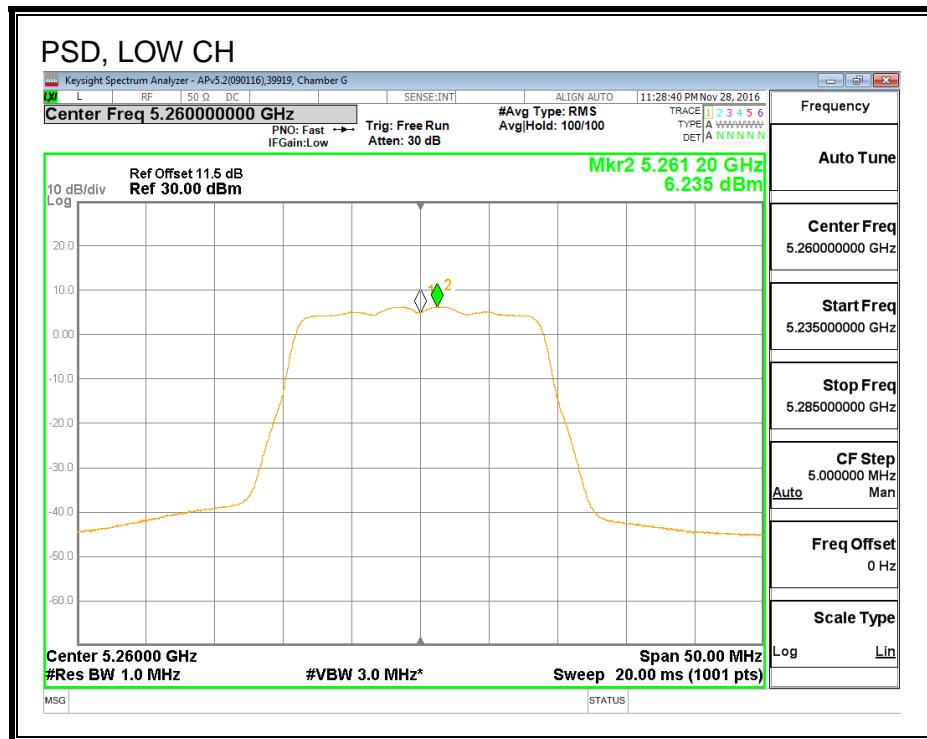
### Output Power Results

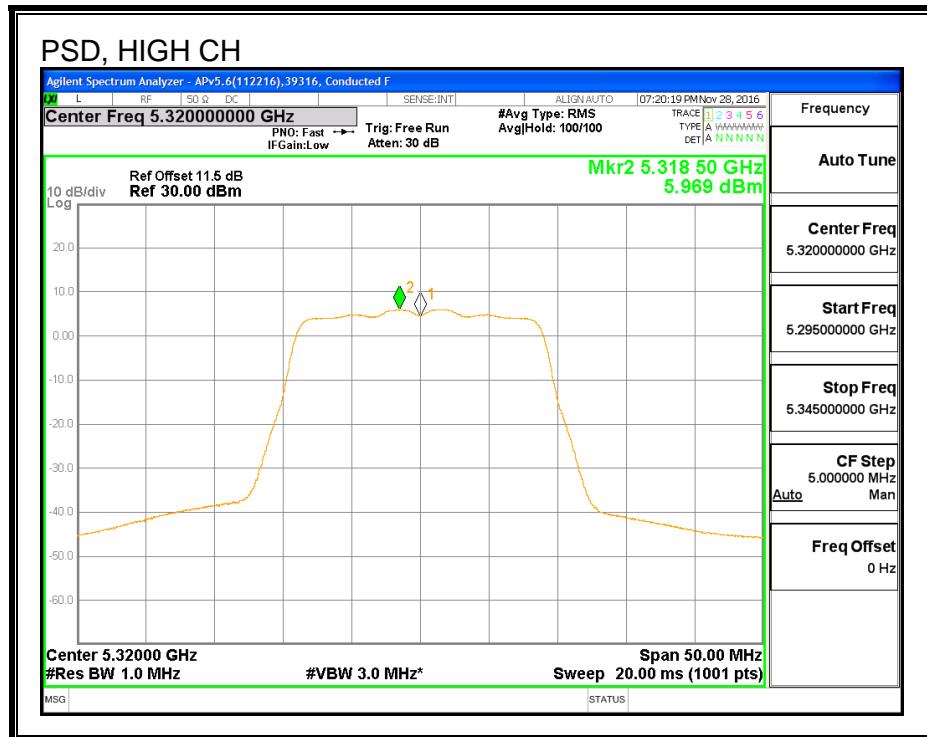
| Channel | Frequency<br>(MHz) | Antenna A<br>Meas<br>Power<br>(dBm) | Total<br>Corr'd<br>Power<br>(dBm) | Power<br>Limit<br>(dBm) | Power<br>Margin<br>(dB) |
|---------|--------------------|-------------------------------------|-----------------------------------|-------------------------|-------------------------|
| Low     | 5260               | 15.97                               | 15.97                             | 23.51                   | -7.54                   |
| Mid     | 5300               | 15.92                               | 15.92                             | 23.49                   | -7.57                   |
| High    | 5320               | 15.98                               | 15.98                             | 23.46                   | -7.48                   |

### PSD Results

| Channel | Frequency<br>(MHz) | Antenna A<br>Meas<br>PSD<br>(dBm) | Total<br>Corr'd<br>PSD<br>(dBm) | PSD<br>Limit<br>(dBm) | PSD<br>Margin<br>(dB) |
|---------|--------------------|-----------------------------------|---------------------------------|-----------------------|-----------------------|
| Low     | 5260               | 6.24                              | 6.24                            | 11.00                 | -4.77                 |
| Mid     | 5300               | 6.54                              | 6.54                            | 11.00                 | -4.46                 |
| High    | 5320               | 5.97                              | 5.97                            | 11.00                 | -5.03                 |

**PSD**





## 8.12. 802.11n HT20 Antenna B MODE IN THE 5.3 GHz BAND

### 8.12.1. 26 dB BANDWIDTH

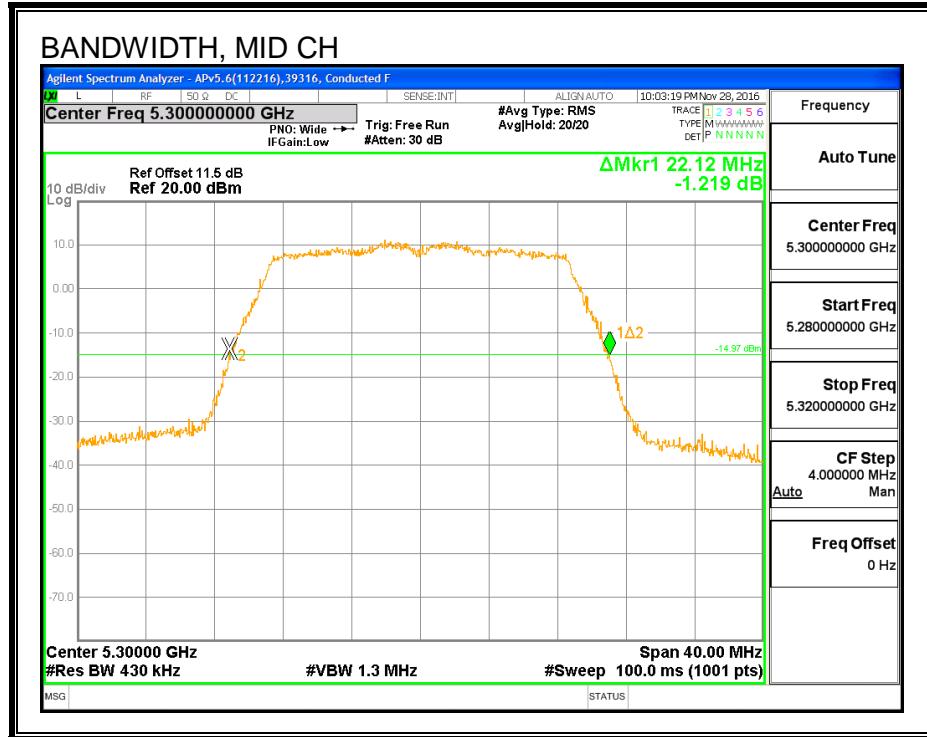
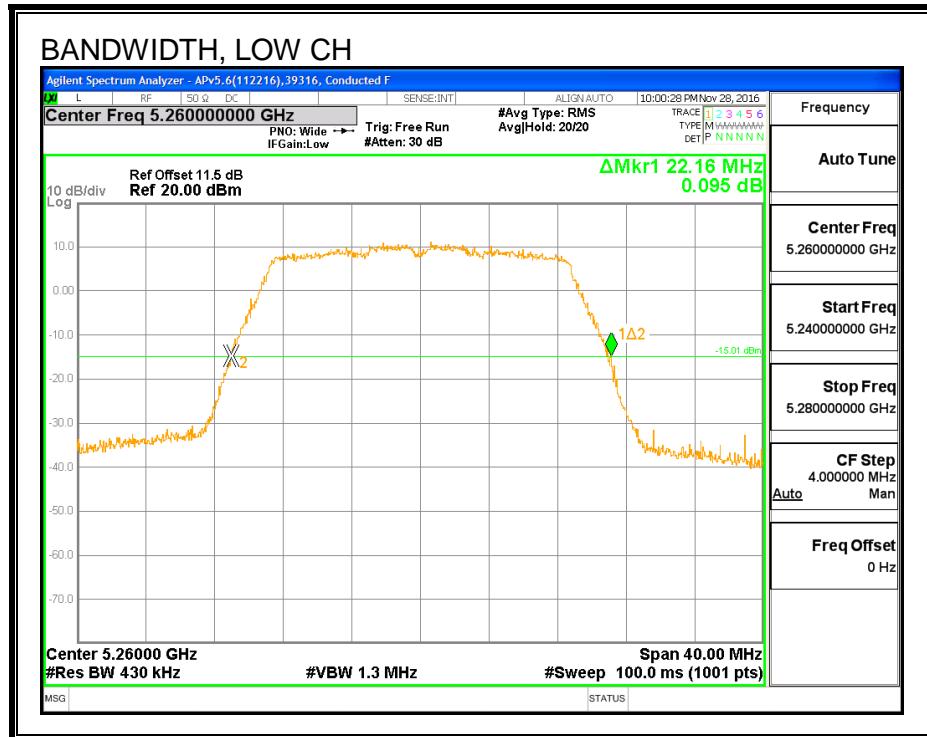
#### LIMITS

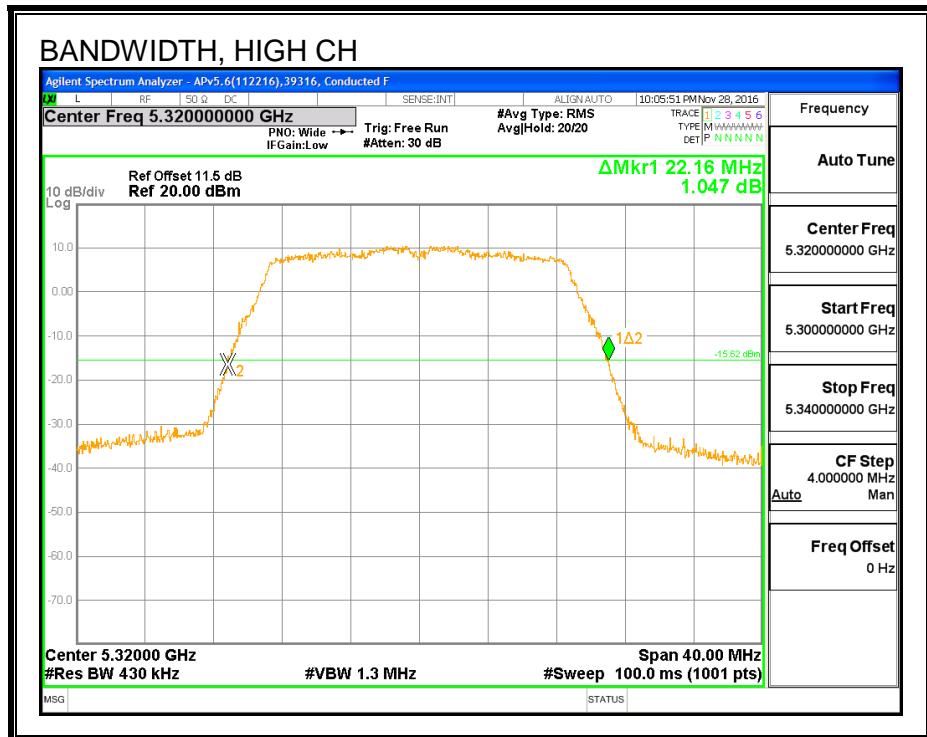
None; for reporting purposes only.

#### RESULTS

| Channel | Frequency (MHz) | 26 dB Bandwidth (MHz) |
|---------|-----------------|-----------------------|
| Low     | 5260            | 22.160                |
| Mid     | 5300            | 22.120                |
| High    | 5320            | 22.160                |

## 26 dB BANDWIDTH





### 8.12.2. 99% BANDWIDTH

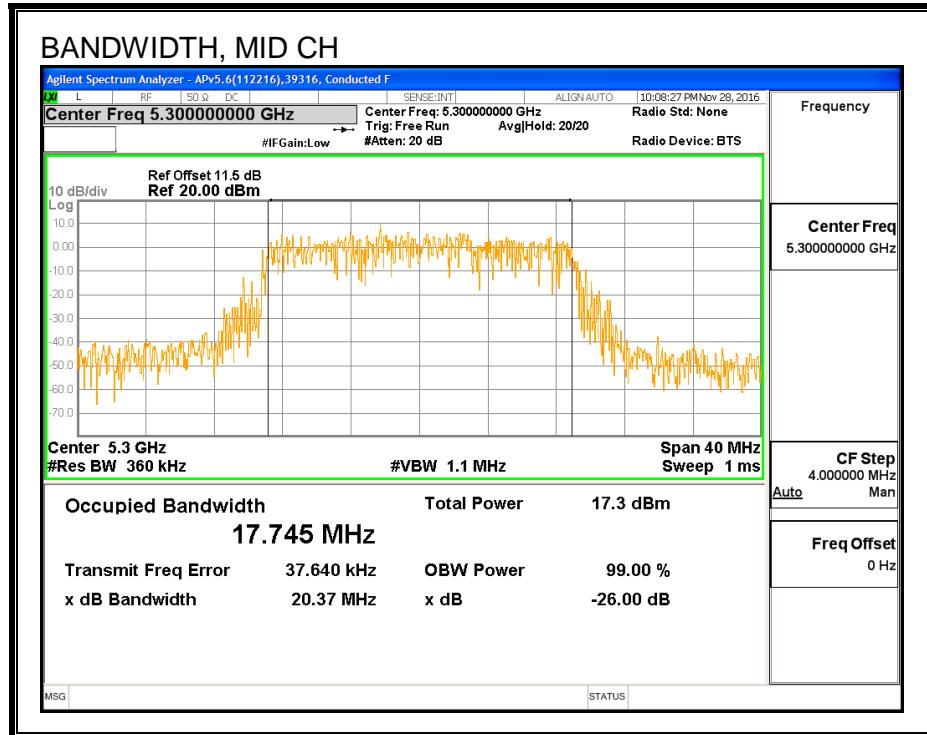
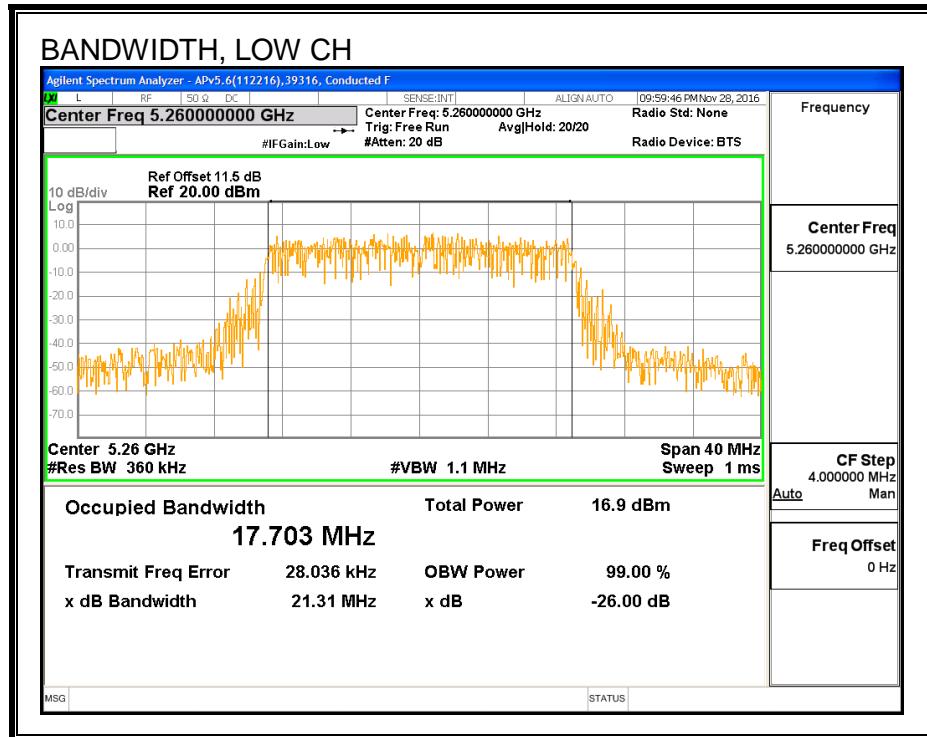
#### LIMITS

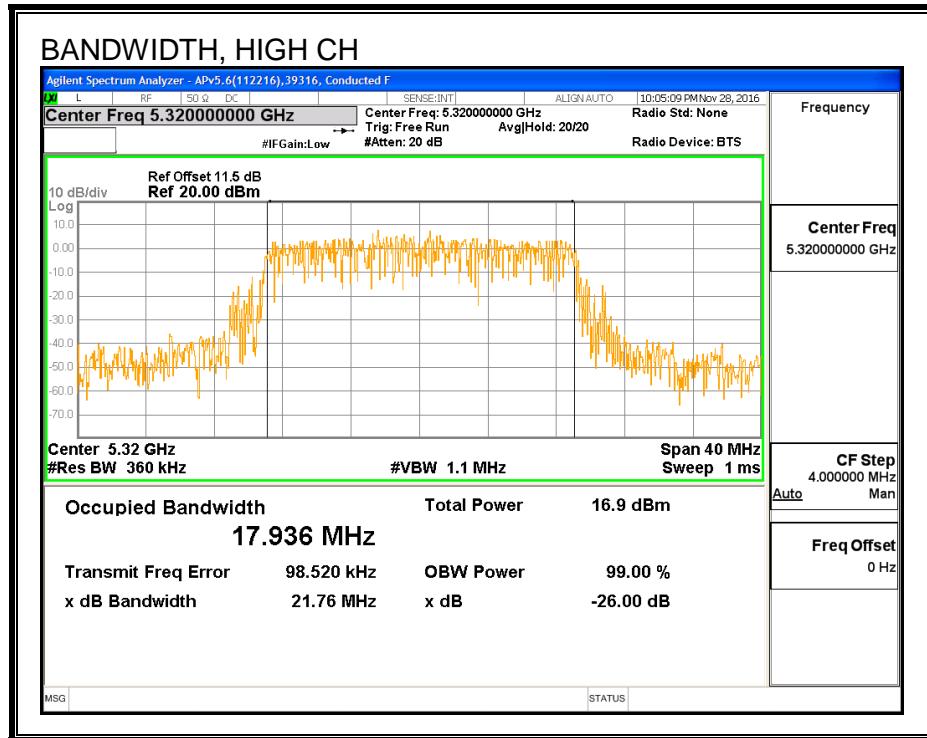
None; for reporting purposes only.

#### RESULTS

| Channel | Frequency<br>(MHz) | 99% Bandwidth<br>(MHz) |
|---------|--------------------|------------------------|
| Low     | 5260               | 17.703                 |
| Mid     | 5300               | 17.745                 |
| High    | 5320               | 17.936                 |

**99% BANDWIDTH**





### 8.12.3. AVERAGE POWER

#### LIMITS

None; for reporting purposes only.

#### TEST PROCEDURE

Measurements perform using a wideband gated RF power meter.

#### RESULTS

| ID: | 45256 | Date: | 1/31/17 |
|-----|-------|-------|---------|
|-----|-------|-------|---------|

| Channel | Frequency (MHz) | Power (dBm) |
|---------|-----------------|-------------|
| Low     | 5260            | 15.95       |
| Mid     | 5300            | 15.94       |
| High    | 5320            | 15.88       |

#### 8.12.4. OUTPUT POWER AND PSD

##### LIMITS

FCC §15.407 (a) (2)

For the band 5.25–5.35 GHz, the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 250 mW or 11 dBm + 10 log B, where B is the 26–dB emission bandwidth in MHz. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1–MHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the peak 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

|     |       |       |         |
|-----|-------|-------|---------|
| ID: | 45256 | Date: | 1/31/17 |
|-----|-------|-------|---------|

### Bandwidth, Antenna Gain, and Limits

| Channel | Frequency<br>(MHz) | Min<br>BW<br>(MHz) | Min<br>BW<br>(MHz) | Directional<br>Gain<br>(dBi) | Power<br>Limit<br>(dBm) | PSD<br>Limit<br>(dBm) |
|---------|--------------------|--------------------|--------------------|------------------------------|-------------------------|-----------------------|
| Low     | 5260               | 22.16              | 17.70              | 3.36                         | 23.48                   | 11.00                 |
| Mid     | 5300               | 22.12              | 17.75              | 3.36                         | 23.49                   | 11.00                 |
| High    | 5320               | 22.16              | 17.94              | 3.36                         | 23.54                   | 11.00                 |

|                    |      |  |
|--------------------|------|--|
| Duty Cycle CF (dB) | 0.00 | Included in Calculations of Corr'd PSD |
|--------------------|------|--|

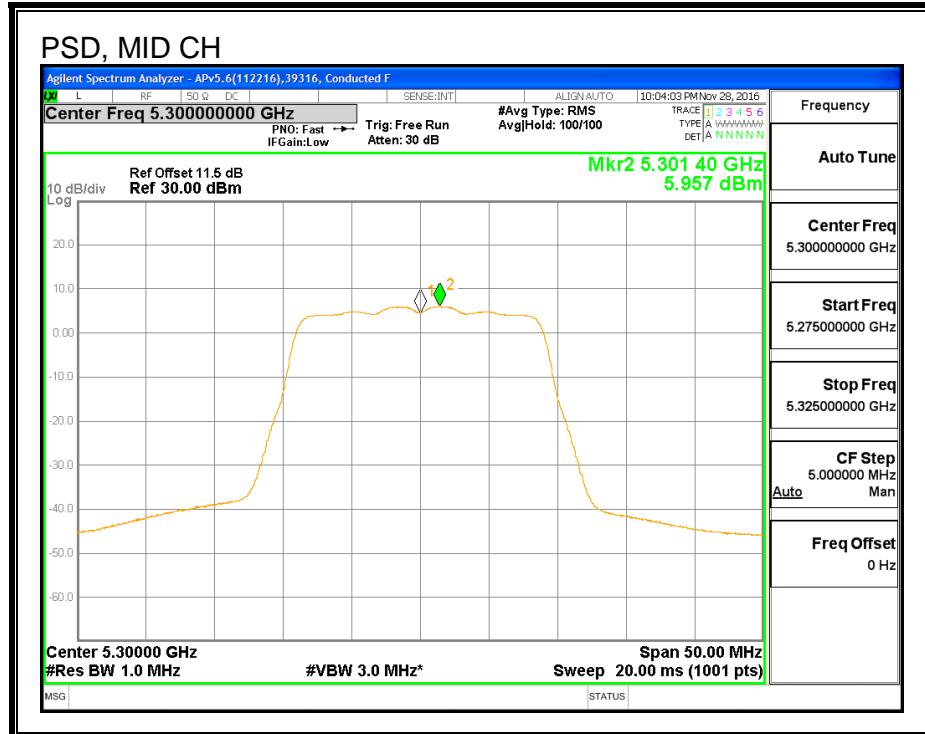
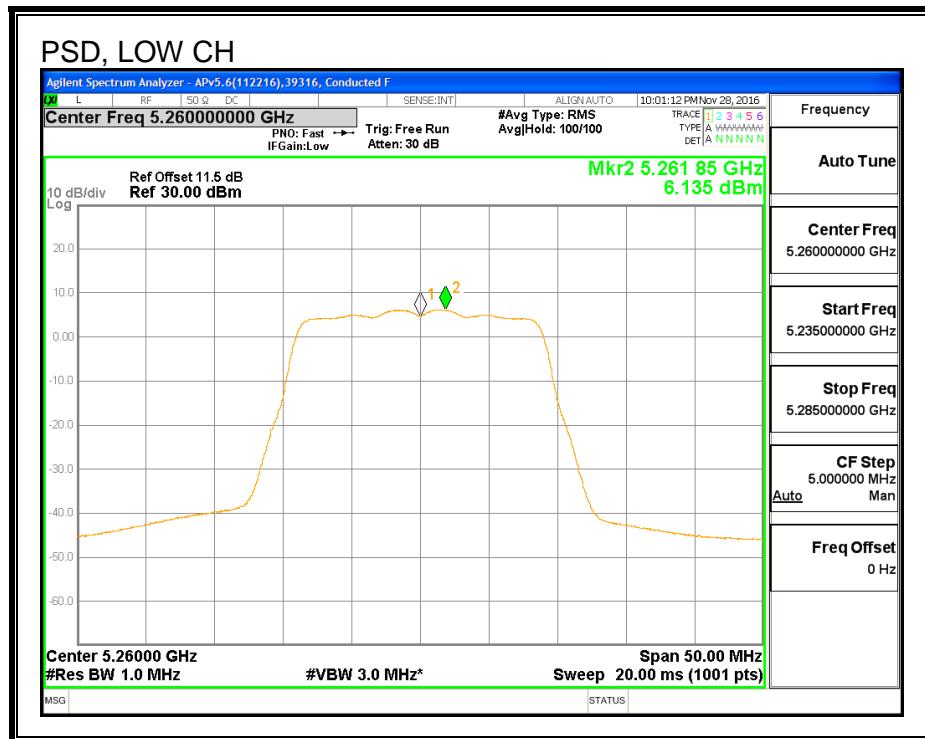
### Output Power Results

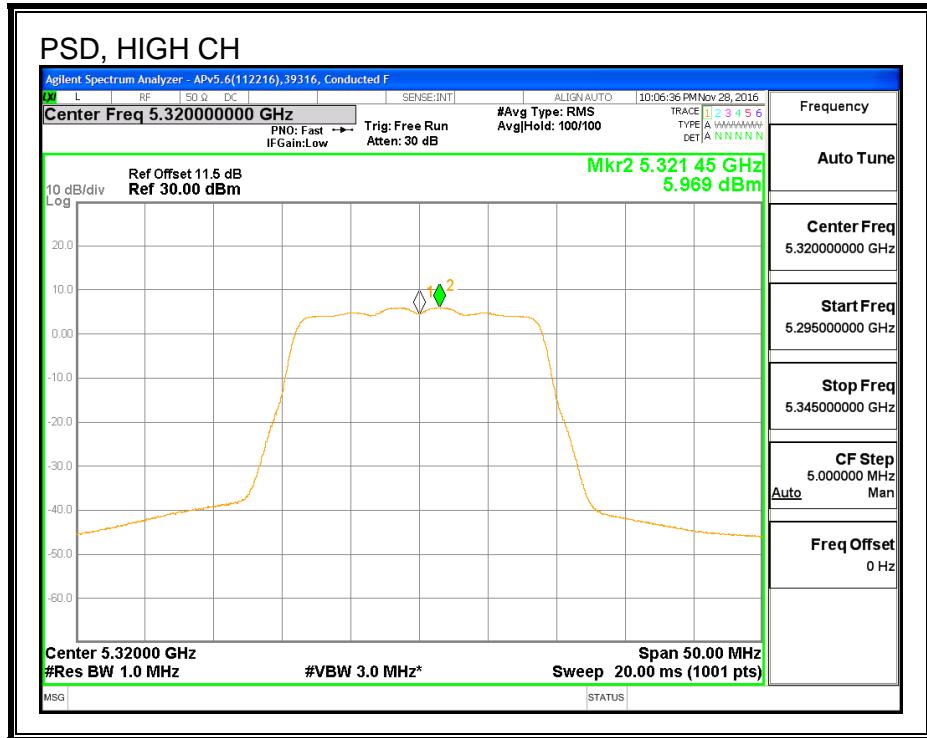
| Channel | Frequency<br>(MHz) | Antenna B<br>Meas<br>Power<br>(dBm) | Total<br>Corr'd<br>Power<br>(dBm) | Power<br>Limit<br>(dBm) | Power<br>Margin<br>(dB) |
|---------|--------------------|-------------------------------------|-----------------------------------|-------------------------|-------------------------|
| Low     | 5260               | 15.95                               | 15.95                             | 23.48                   | -7.53                   |
| Mid     | 5300               | 15.94                               | 15.94                             | 23.49                   | -7.55                   |
| High    | 5320               | 15.88                               | 15.88                             | 23.54                   | -7.66                   |

### PSD Results

| Channel | Frequency<br>(MHz) | Antenna B<br>Meas<br>PSD<br>(dBm) | Total<br>Corr'd<br>PSD<br>(dBm) | PSD<br>Limit<br>(dBm) | PSD<br>Margin<br>(dB) |
|---------|--------------------|-----------------------------------|---------------------------------|-----------------------|-----------------------|
| Low     | 5260               | 6.14                              | 6.14                            | 11.00                 | -4.87                 |
| Mid     | 5300               | 5.96                              | 5.96                            | 11.00                 | -5.04                 |
| High    | 5320               | 5.97                              | 5.97                            | 11.00                 | -5.03                 |

**PSD**





## 8.13. 802.11n HT20 2Tx (Antenna A + Antenna B) CDD MODE IN THE 5.3 GHz BAND

### 8.13.1. 26 dB BANDWIDTH

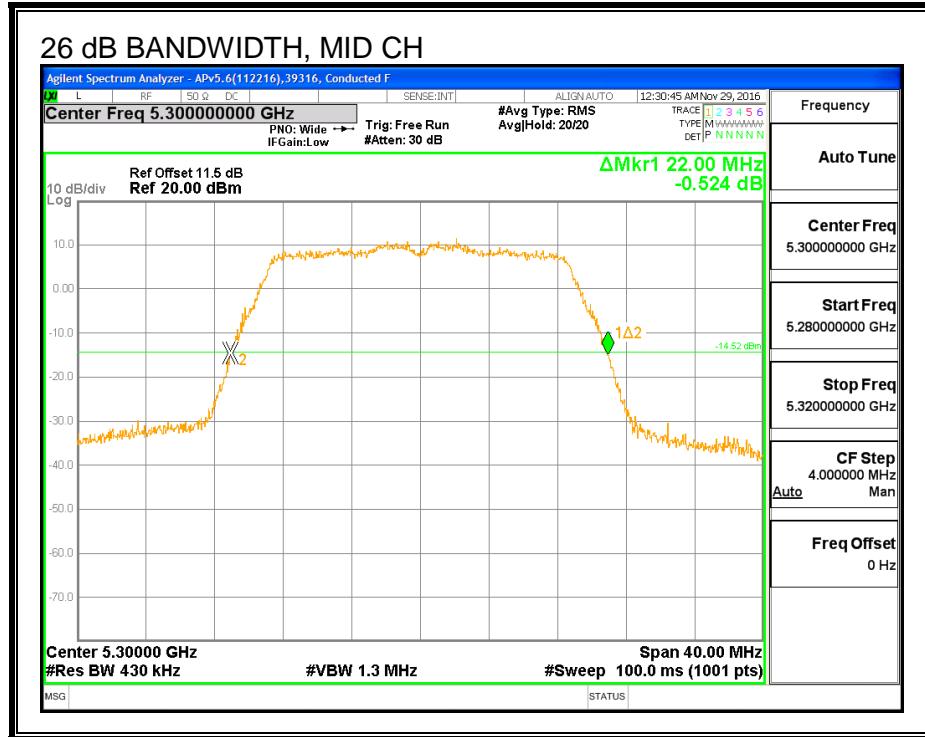
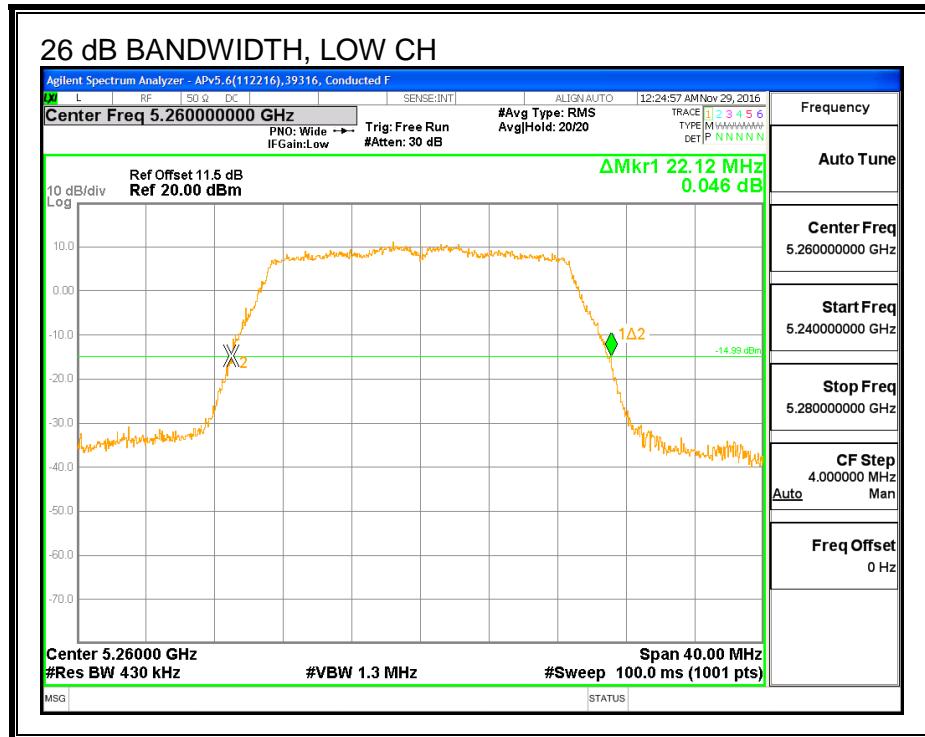
#### LIMITS

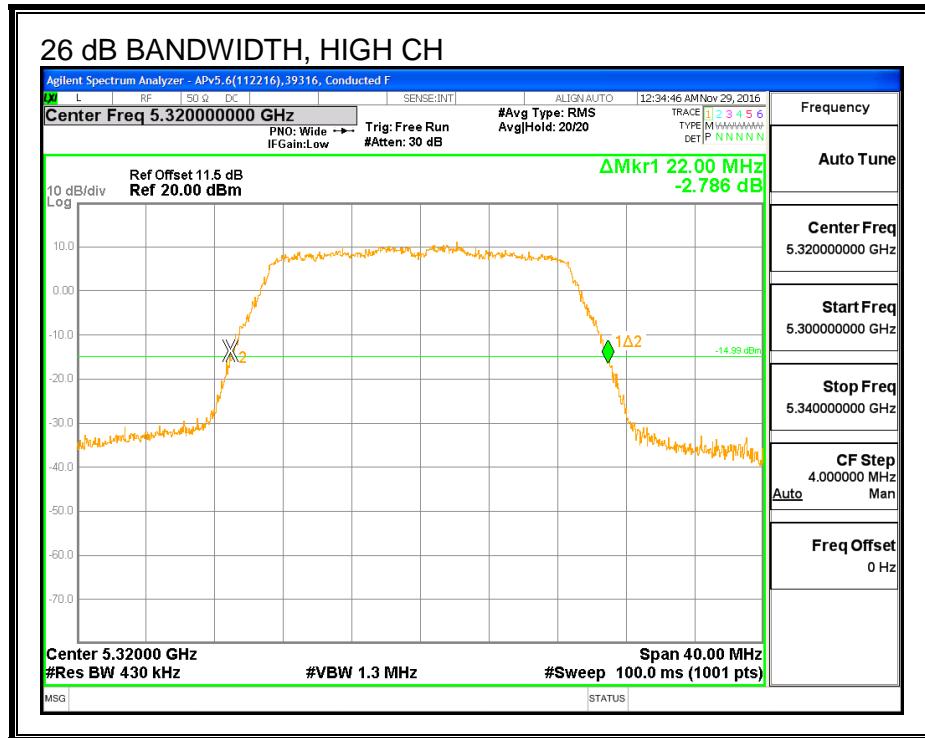
None; for reporting purposes only.

#### RESULTS

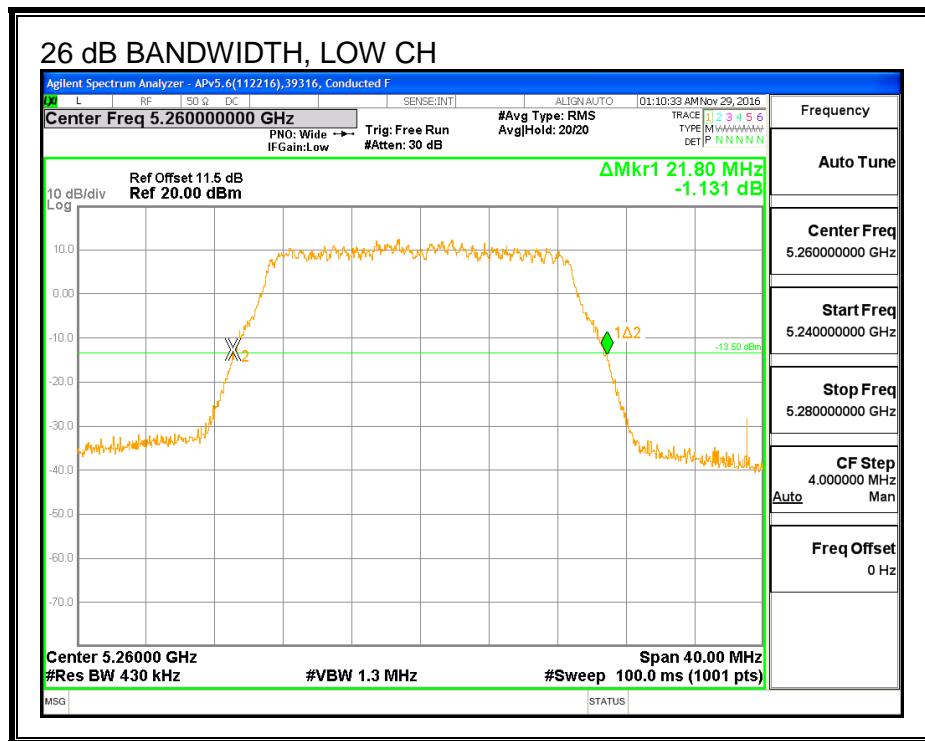
| Channel | Frequency<br>(MHz) | 26 dB BW<br>Antenna A<br>(MHz) | 26 dB BW<br>Antenna B<br>(MHz) |
|---------|--------------------|--------------------------------|--------------------------------|
| Low     | 5260               | 22.120                         | 21.800                         |
| Mid     | 5300               | 22.000                         | 21.720                         |
| High    | 5320               | 22.000                         | 21.640                         |

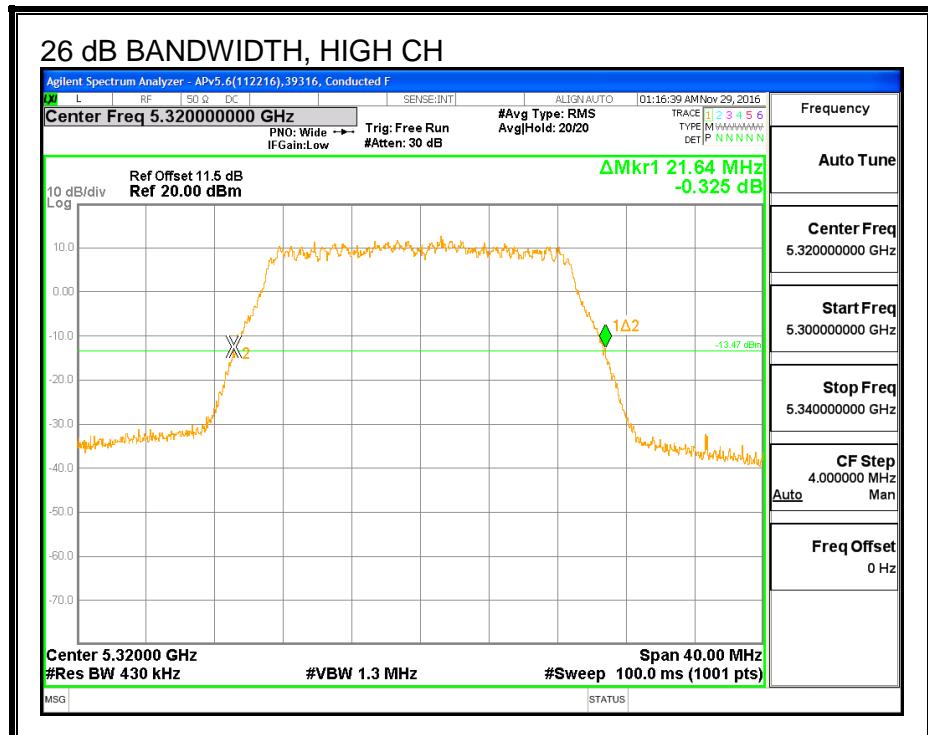
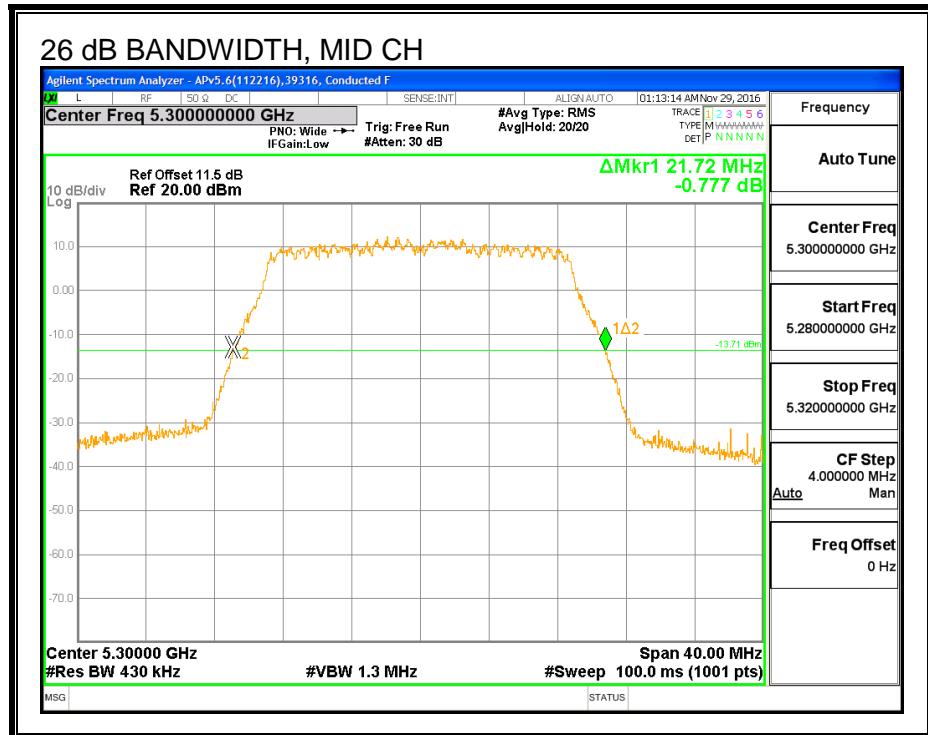
**26 DB BANDWIDTH, ANTENNA A**





**26 DB BANDWIDTH, ANTENNA B**





### 8.13.2. 99% BANDWIDTH

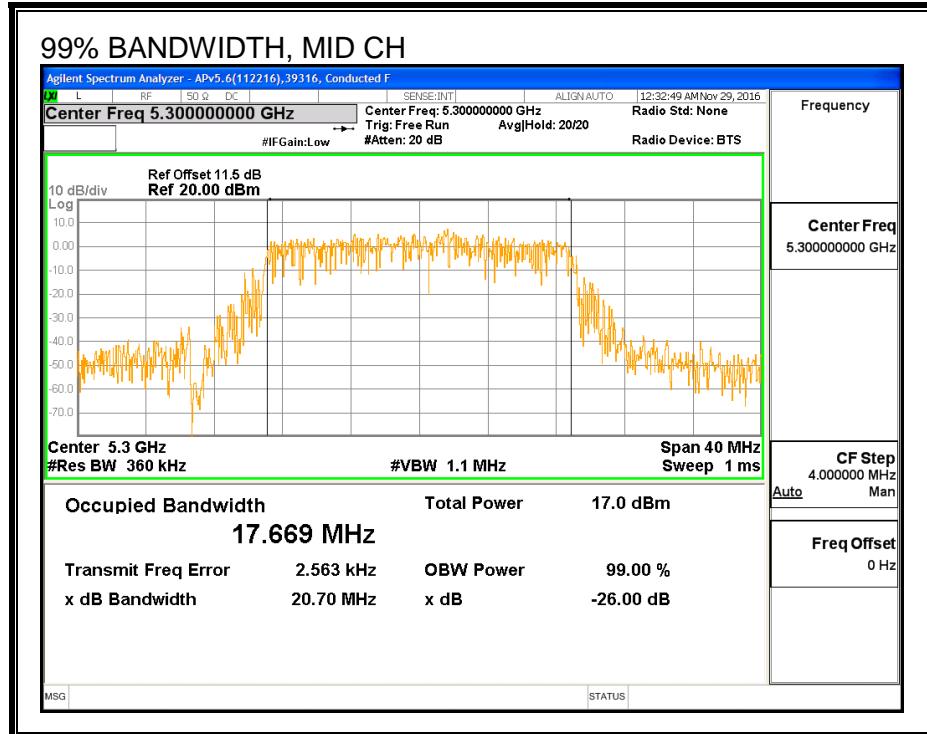
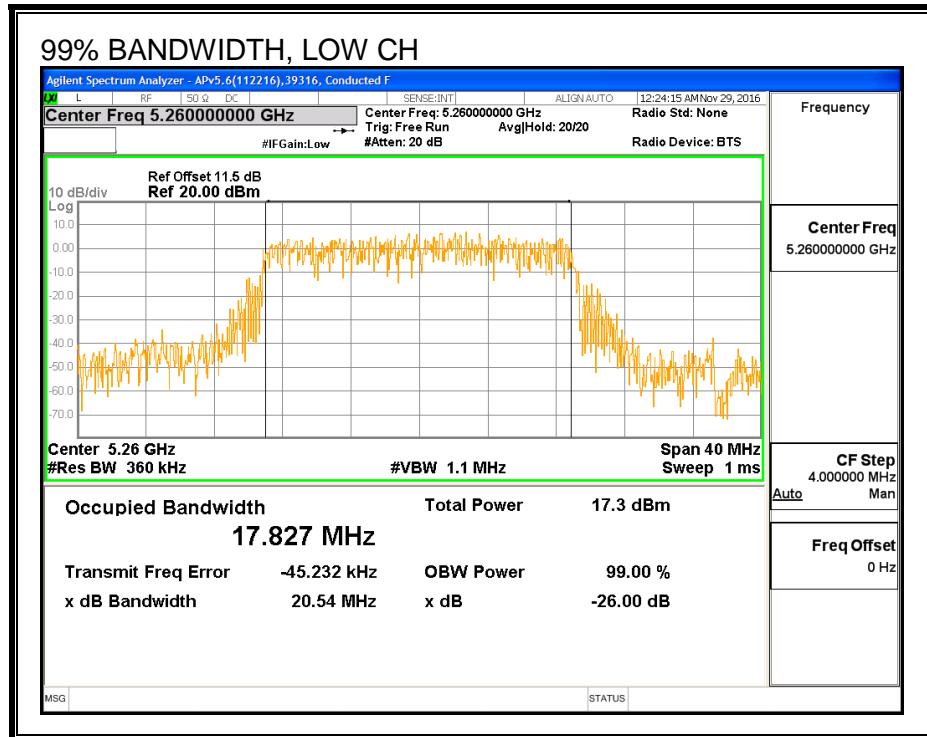
#### LIMITS

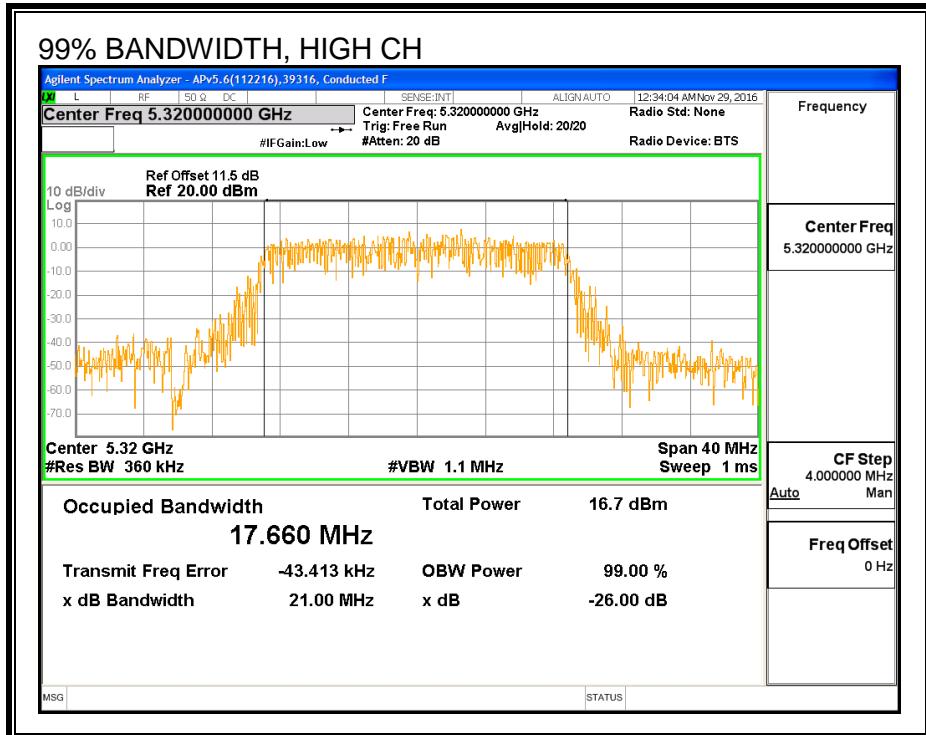
None; for reporting purposes only.

#### RESULTS

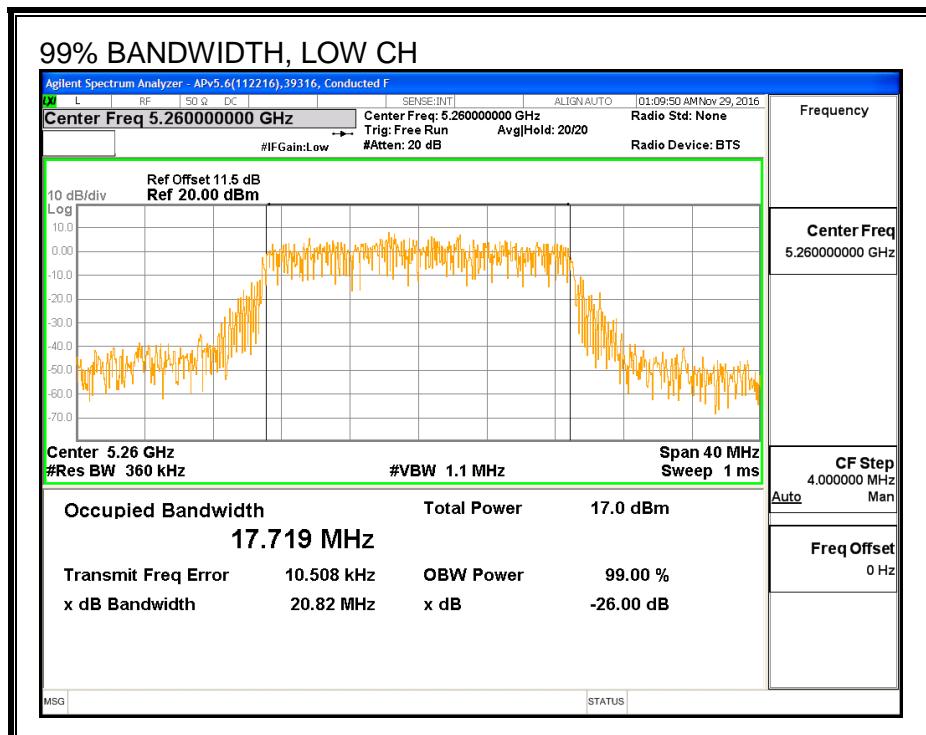
| Channel | Frequency<br>(MHz) | 99% BW<br>Antenna A<br>(MHz) | 99% BW<br>Antenna B<br>(MHz) |
|---------|--------------------|------------------------------|------------------------------|
| Low     | 5260               | 17.827                       | 17.719                       |
| Mid     | 5300               | 17.669                       | 17.799                       |
| High    | 5320               | 17.660                       | 17.791                       |

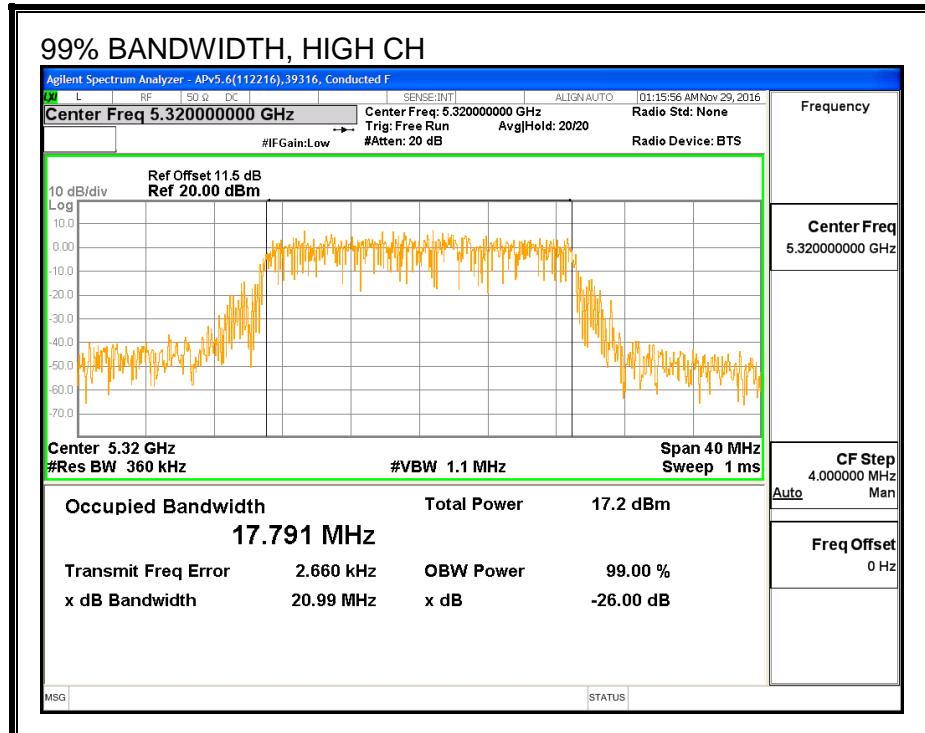
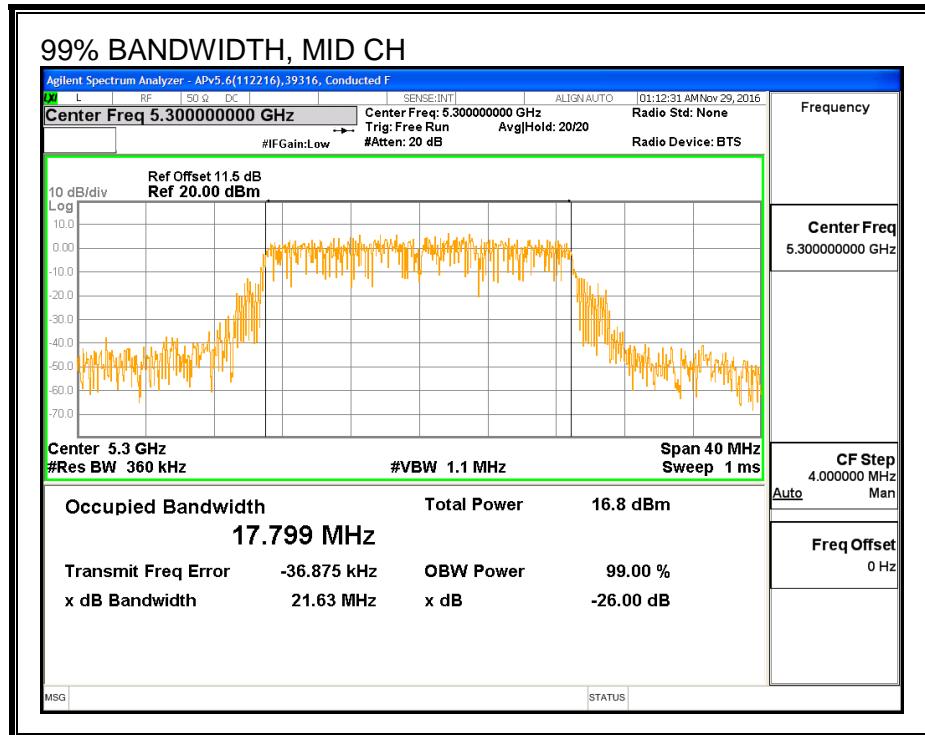
**99% BANDWIDTH, ANTENNA A**





**99% BANDWIDTH, ANTENNA B**





### 8.13.3. AVERAGE POWER

#### LIMITS

None; for reporting purposes only.

#### TEST PROCEDURE

Measurements perform using a wideband gated RF power meter.

#### RESULTS

|            |       |              |         |
|------------|-------|--------------|---------|
| <b>ID:</b> | 45256 | <b>Date:</b> | 1/31/17 |
|------------|-------|--------------|---------|

#### Average Power Results

| Channel | Frequency<br>(MHz) | Antenna A<br>Power<br>(dBm) | Antenna B<br>Power<br>(dBm) | Total<br>Power<br>(dBm) |
|---------|--------------------|-----------------------------|-----------------------------|-------------------------|
| Low     | 5260               | 14.98                       | 14.93                       | 17.97                   |
| Mid     | 5300               | 14.99                       | 14.93                       | 17.97                   |
| High    | 5320               | 14.42                       | 14.44                       | 17.44                   |

#### 8.13.4. OUTPUT POWER AND PSD

##### LIMITS

FCC §15.407 (a) (2)

For the band 5.25–5.35 GHz, the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 250 mW or 11 dBm + 10 log B, where B is the 26–dB emission bandwidth in MHz. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1–MHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the peak 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 B     | Uncorrelated Chains<br>Directional<br>Gain<br>(dBi) |
|---------------|---------------|---|
| Gain<br>(dBi) | Gain<br>(dBi) | Gain<br>(dBi)                                       |
| 4.11          | 3.36          | 3.75  |

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

| Antenna A     | Antenna B     | Correlated Chains<br>Directional<br>Gain<br>(dBi) |
|---------------|---------------|---|
| Gain<br>(dBi) | Gain<br>(dBi) | Gain<br>(dBi)                                     |
| 4.11          | 3.36          | 6.75  |

## RESULTS

|     |       |       |          |
|-----|-------|-------|----------|
| ID: | 39316 | Date: | 11/29/16 |
|-----|-------|-------|----------|

### Bandwidth, Antenna Gain and Limits

| Channel | Frequency<br>(MHz) | Min<br>26 dB<br>BW<br>(MHz) | Min<br>99%<br>BW<br>(MHz) | Directional<br>Gain<br>for Power<br>(dBi) | Directional<br>Gain<br>for PSD<br>(dBi) | Power<br>Limit<br>(dBm) | PSD<br>Limit<br>(dBm) |
|---------|--------------------|-----------------------------|---------------------------|---|---|-------------------------|-----------------------|
| Low     | 5260               | 21.80                       | 17.719                    | 3.75                                      | 6.75                                    | 23.48                   | 10.25                 |
| Mid     | 5300               | 21.72                       | 17.669                    | 3.75                                      | 6.75                                    | 23.47                   | 10.25                 |
| High    | 5320               | 21.64                       | 17.66                     | 3.75                                      | 6.75                                    | 23.47                   | 10.25                 |

|                    |      |  |
|--------------------|------|--|
| Duty Cycle CF (dB) | 0.00 | Included in Calculations of Corr'd PSD |
|--------------------|------|--|

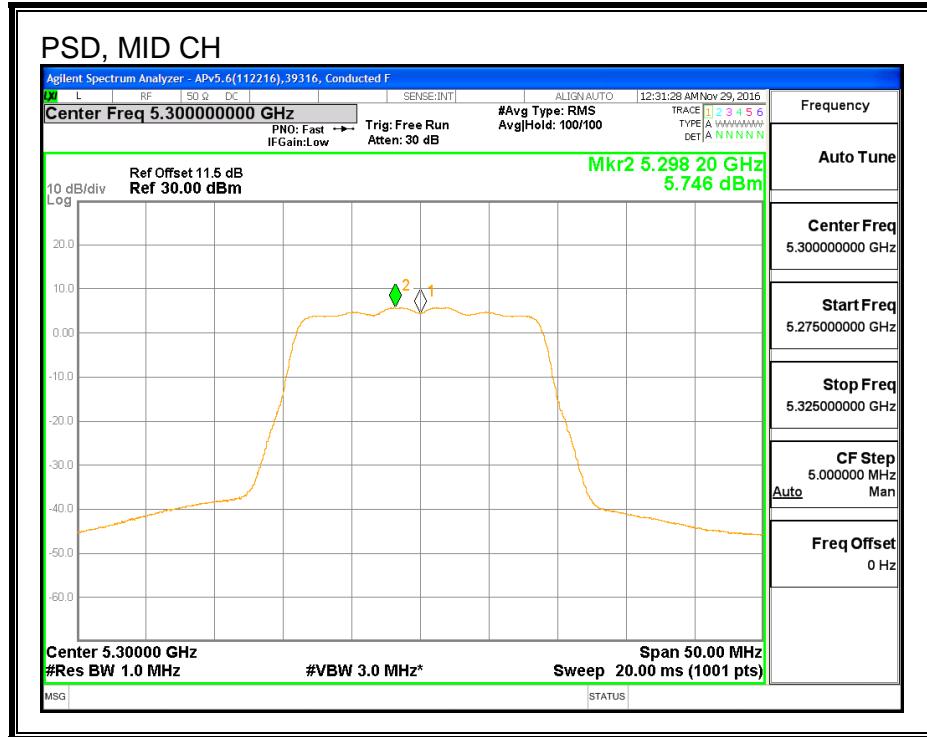
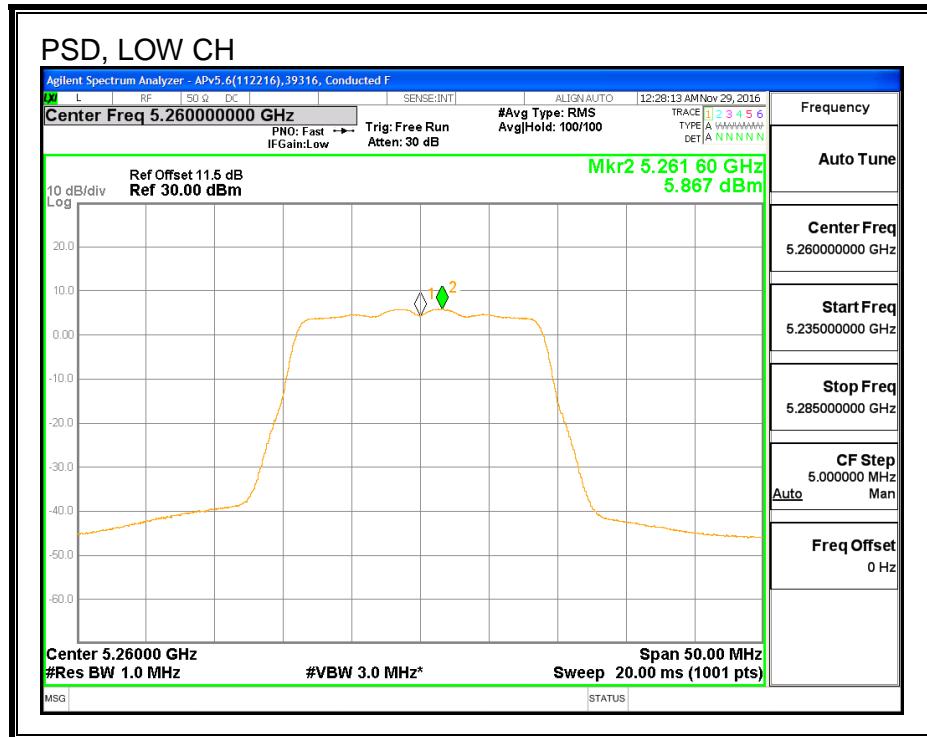
### Output Power Results

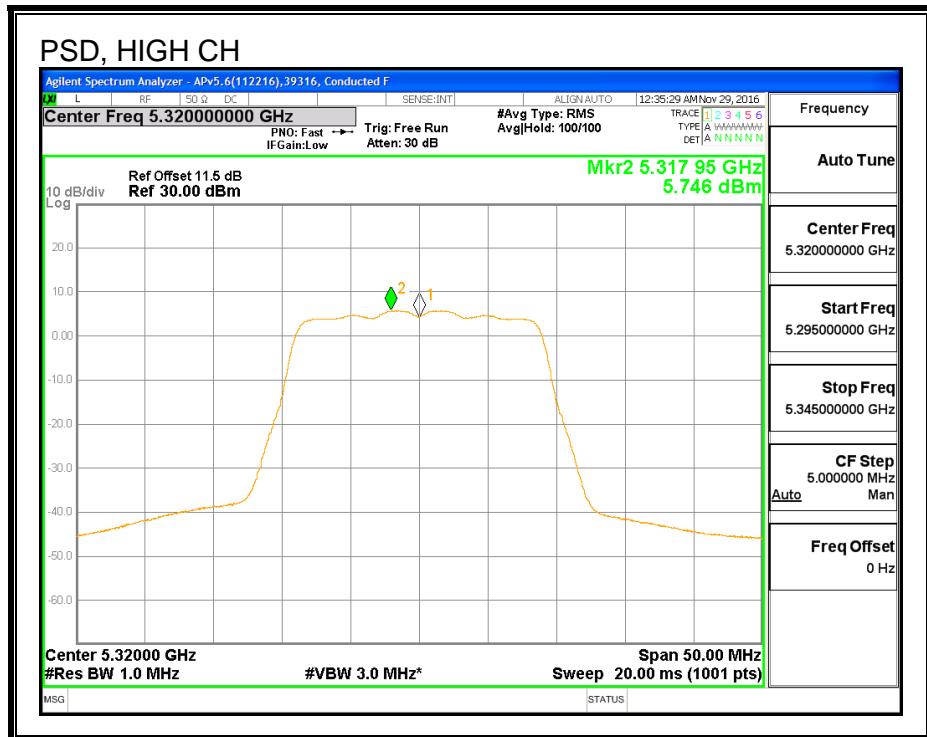
| Channel | Frequency<br>(MHz) | Antenna A<br>Meas<br>Power<br>(dBm) | Antenna B<br>Meas<br>Power<br>(dBm) | Total<br>Corr'd<br>Power<br>(dBm) | Power<br>Limit<br>(dBm) | Power<br>Margin<br>(dB) |
|---------|--------------------|-------------------------------------|-------------------------------------|-----------------------------------|-------------------------|-------------------------|
| Low     | 5260               | 14.98                               | 14.93                               | 17.97                             | 23.48                   | -5.52                   |
| Mid     | 5300               | 14.99                               | 14.93                               | 17.97                             | 23.47                   | -5.50                   |
| High    | 5320               | 14.42                               | 14.44                               | 17.44                             | 23.47                   | -6.03                   |

### PSD Results

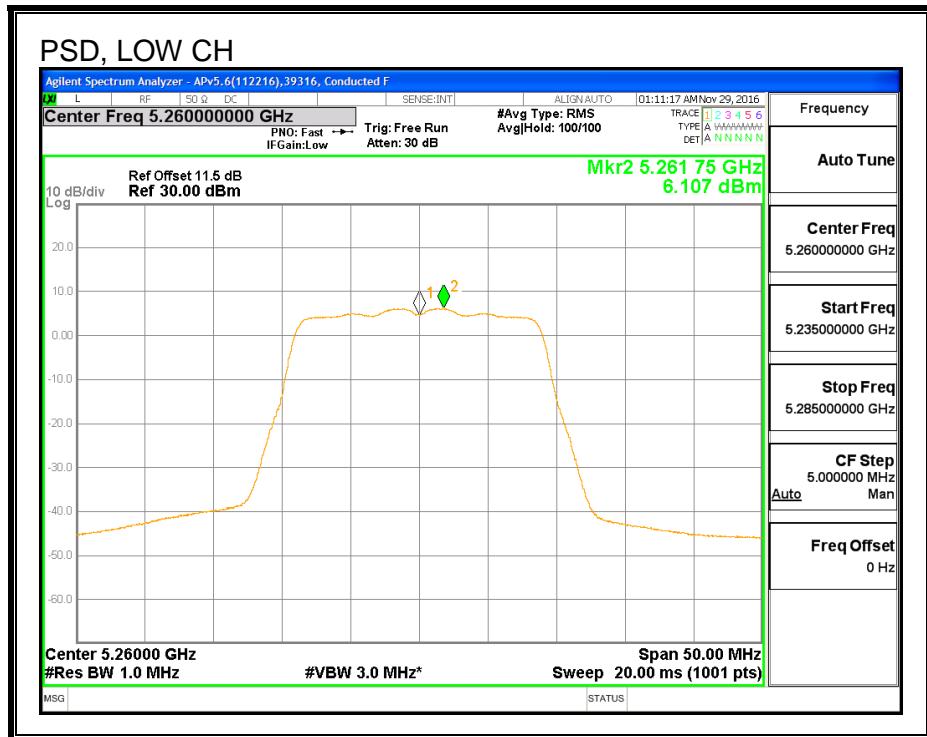
| Channel | Frequency<br>(MHz) | Antenna A<br>Meas<br>PSD<br>(dBm) | Antenna B<br>Meas<br>PSD<br>(dBm) | Total<br>Corr'd<br>PSD<br>(dBm) | PSD<br>Limit<br>(dBm) | PSD<br>Margin<br>(dB) |
|---------|--------------------|-----------------------------------|-----------------------------------|---------------------------------|-----------------------|-----------------------|
| Low     | 5260               | 5.87                              | 6.11                              | 9.00                            | 10.25                 | -1.25                 |
| Mid     | 5300               | 5.75                              | 6.05                              | 8.91                            | 10.25                 | -1.34                 |
| High    | 5320               | 5.75                              | 5.97                              | 8.87                            | 10.25                 | -1.38                 |

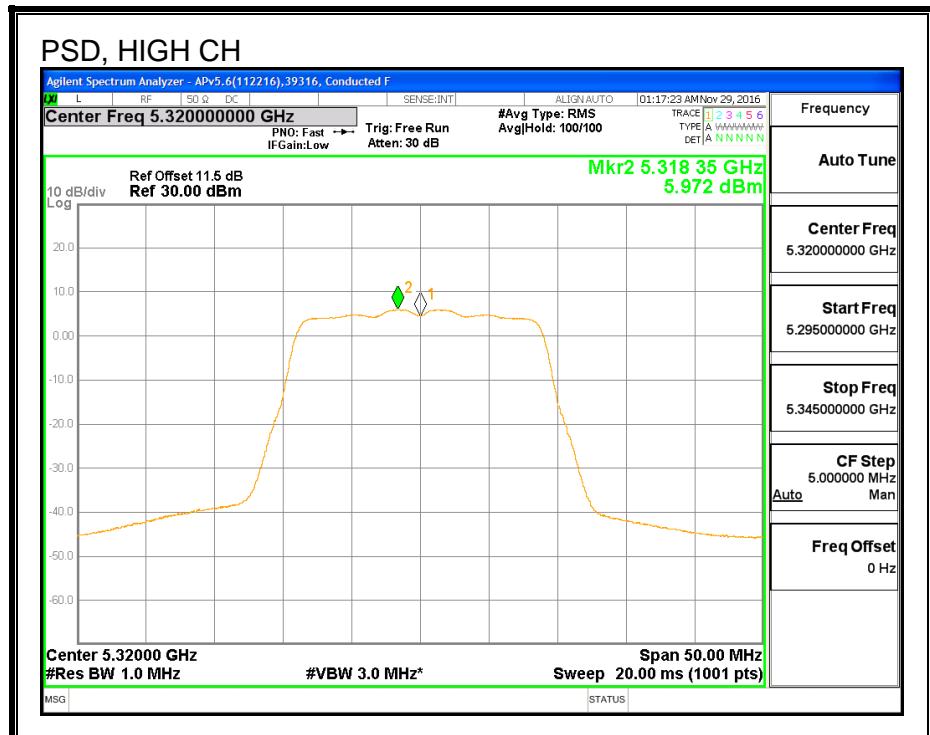
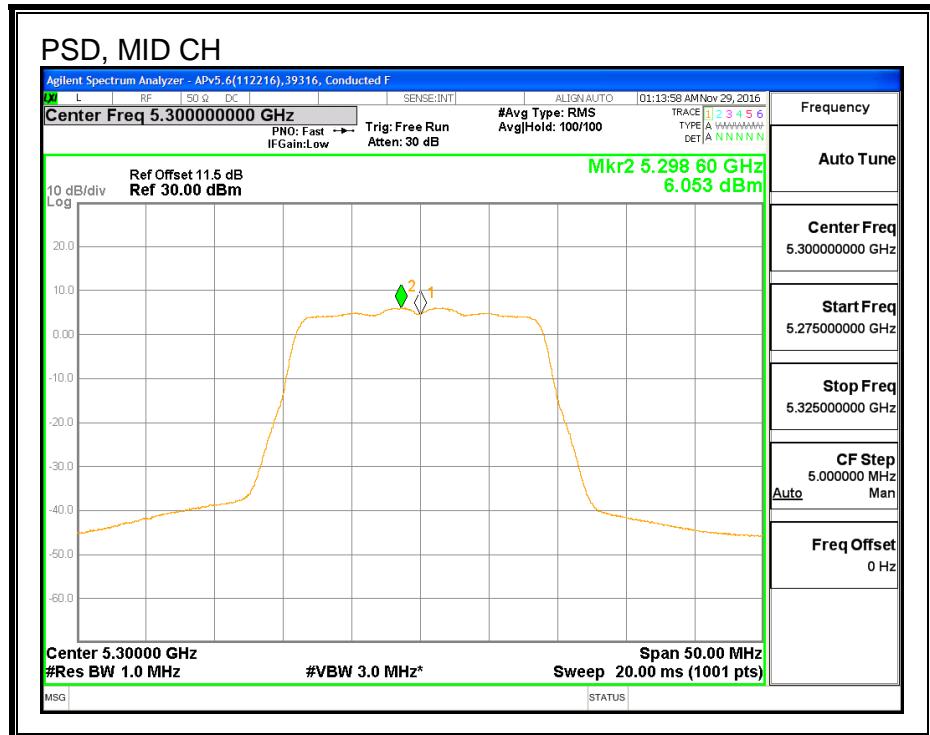
**PSD, ANTENNA A**





**PSD, ANTENNA B**





## 8.14. 802.11n HT20 2Tx (ANTENNA A + ANTENNA B) STBC MODE IN THE 5.3 GHz BAND

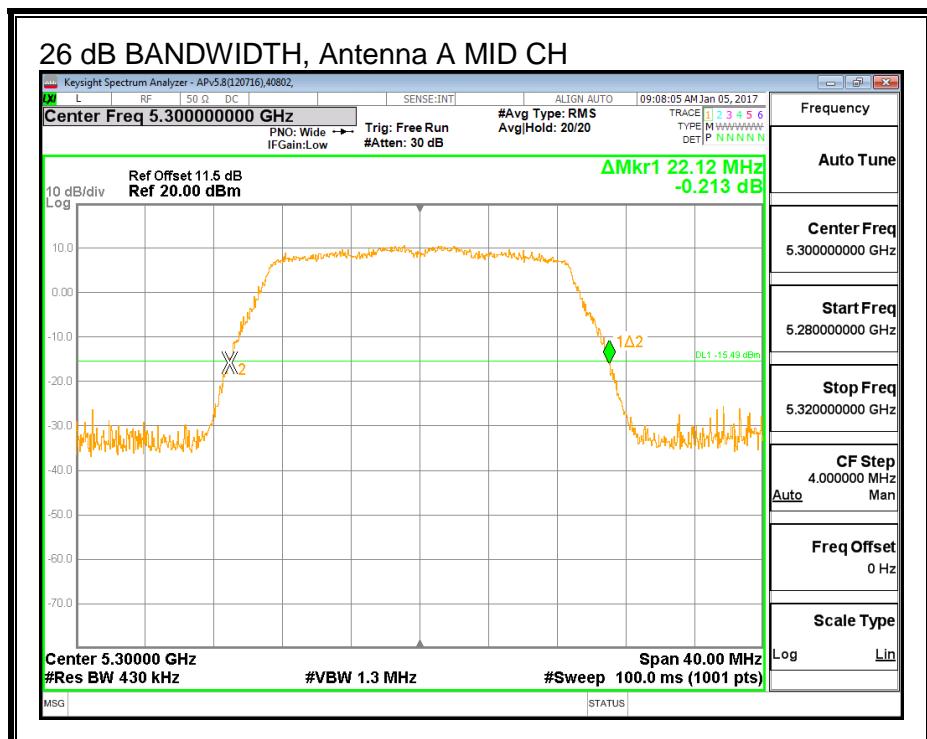
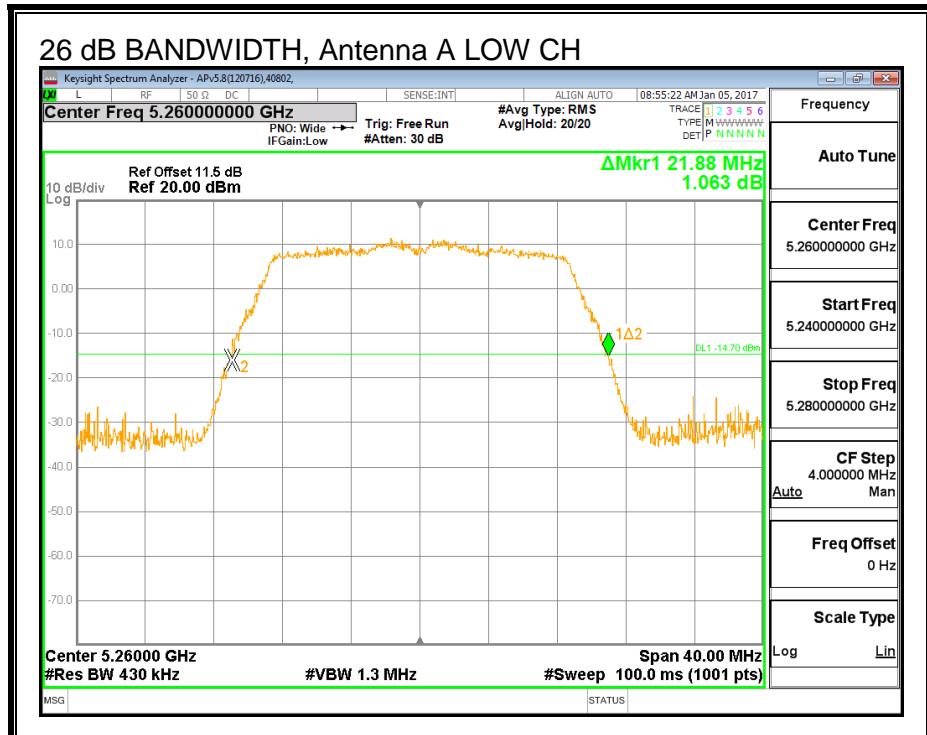
### 8.14.1. 26 dB BANDWIDTH

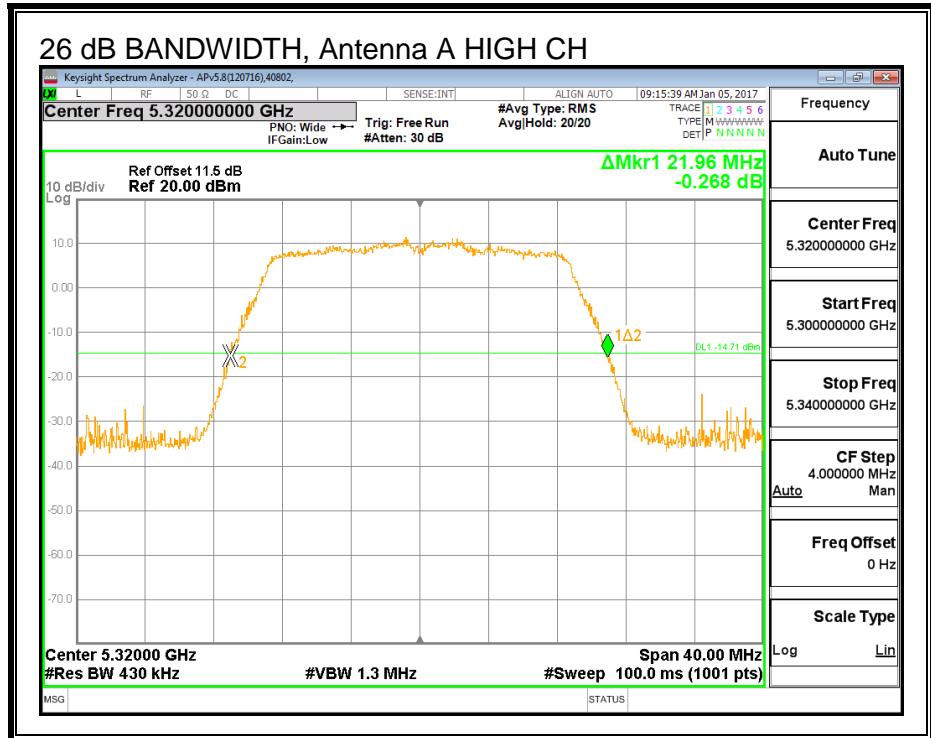
#### LIMITS

None; for reporting purposes only.

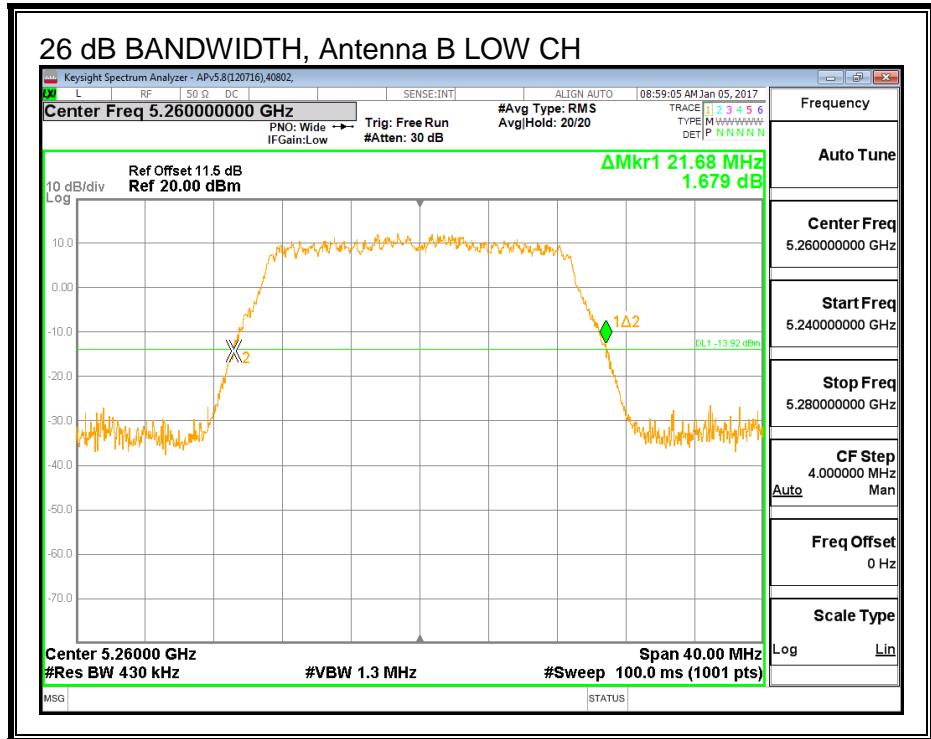
#### RESULTS

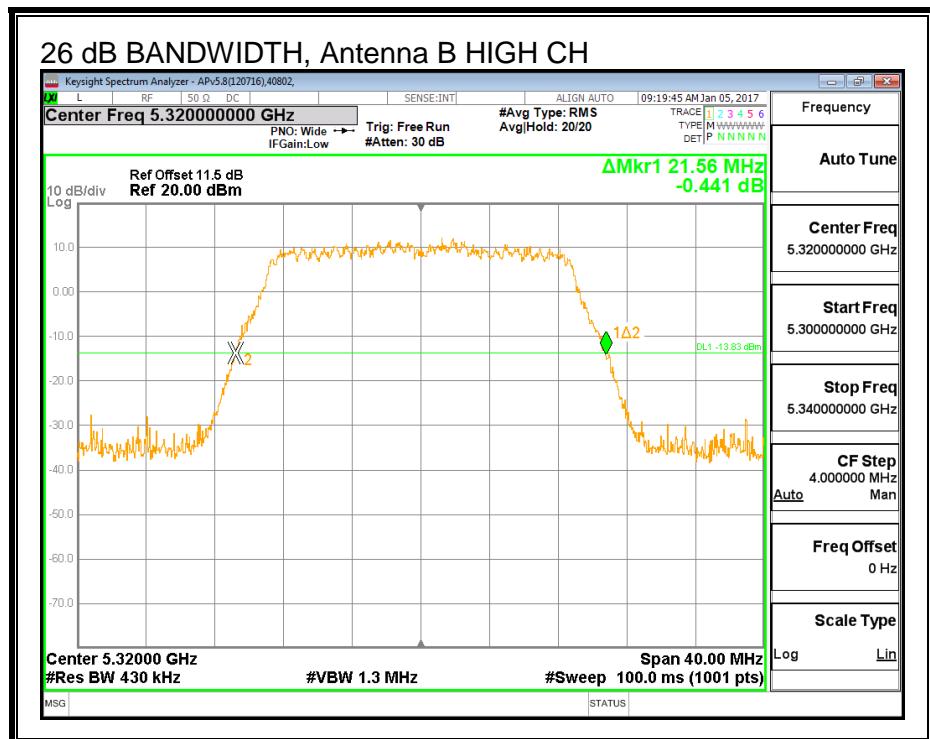
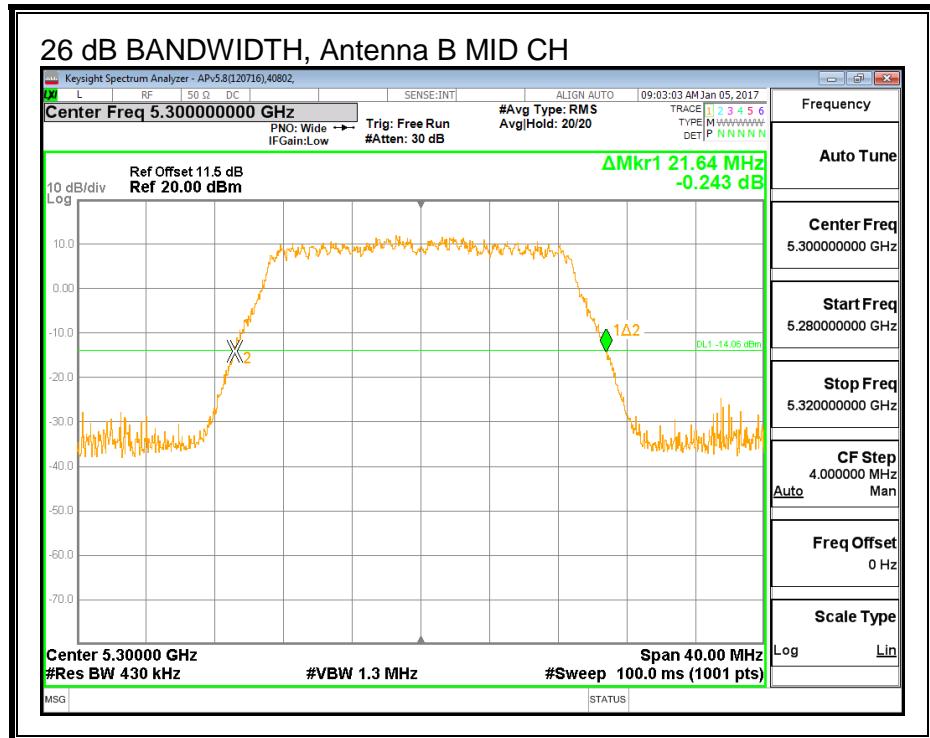
| Channel | Frequency (MHz) | 26 dB BW Antenna A (MHz) | 26 dB BW Antenna B (MHz) |
|---------|-----------------|--------------------------|--------------------------|
| Low     | 5260            | 21.880                   | 21.680                   |
| Mid     | 5300            | 22.120                   | 21.640                   |
| High    | 5320            | 21.960                   | 21.560                   |

**26 dB BANDWIDTH, Antenna A**



### 26 dB BANDWIDTH, Antenna B





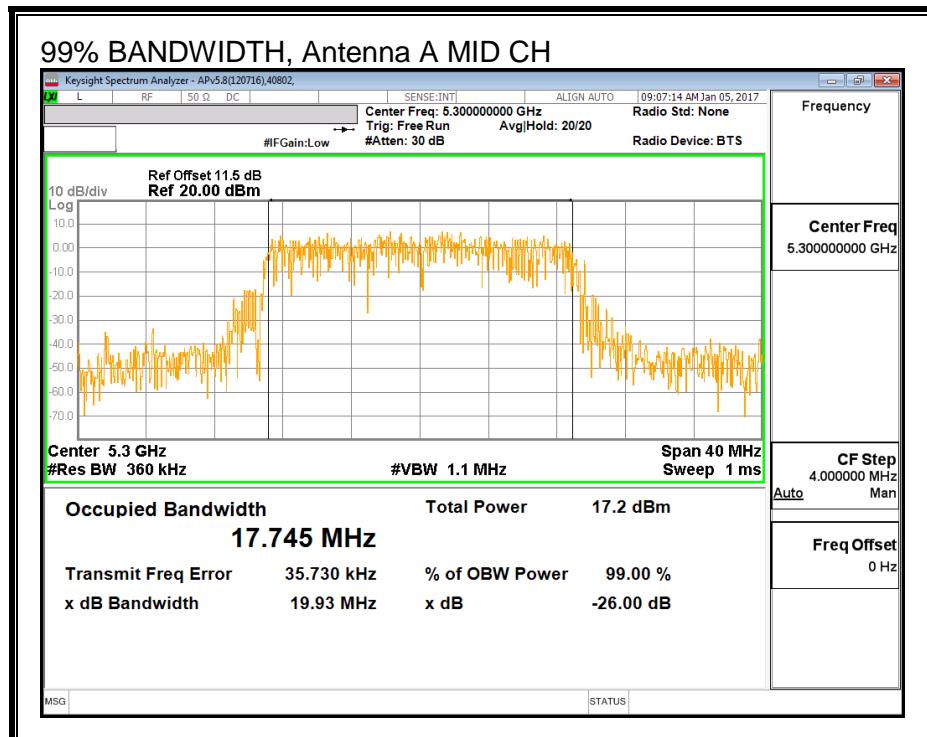
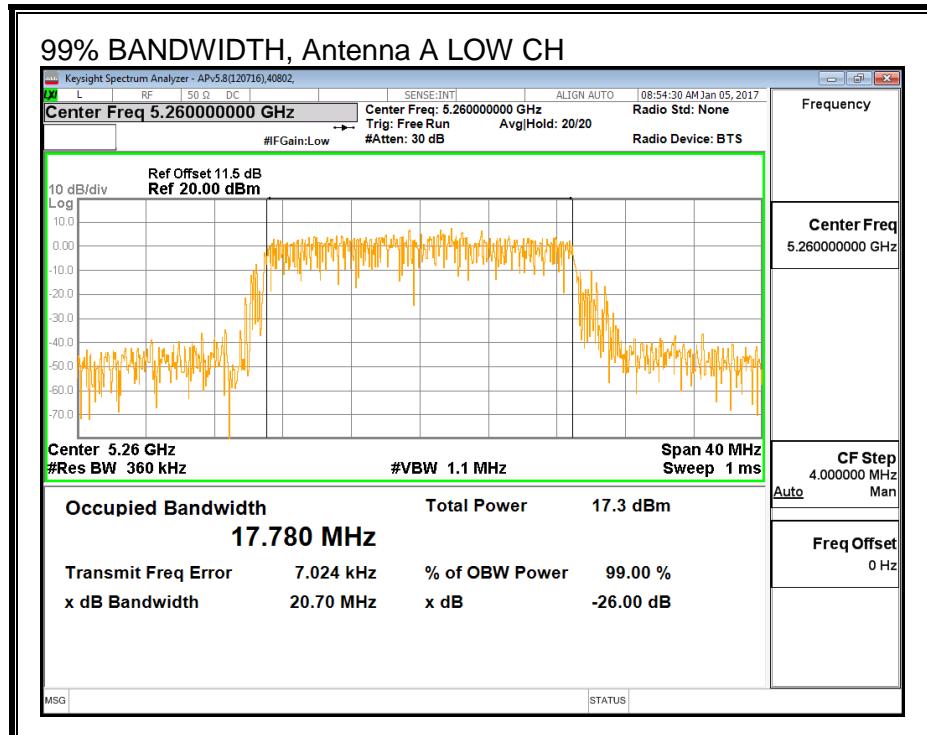
## 8.14.2. 99% BANDWIDTH

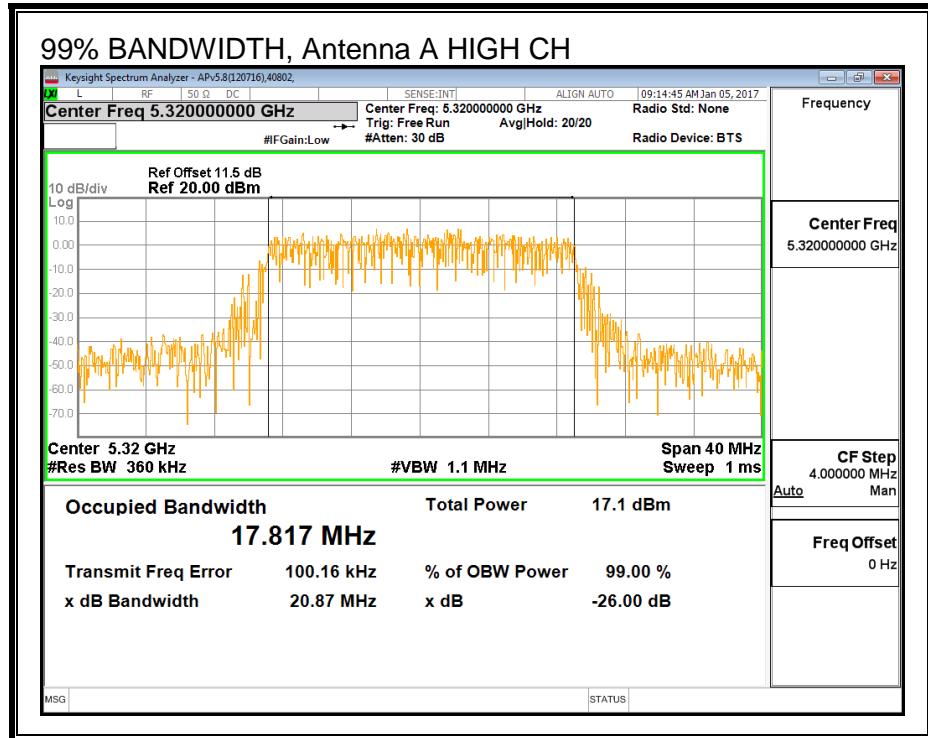
### LIMITS

None; for reporting purposes only.

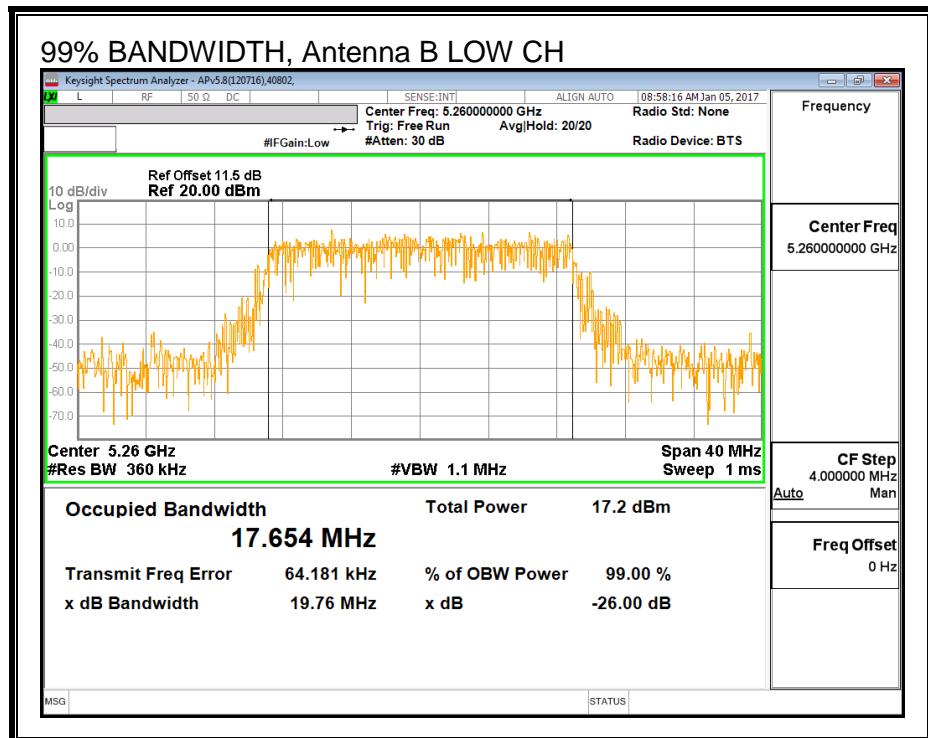
### RESULTS

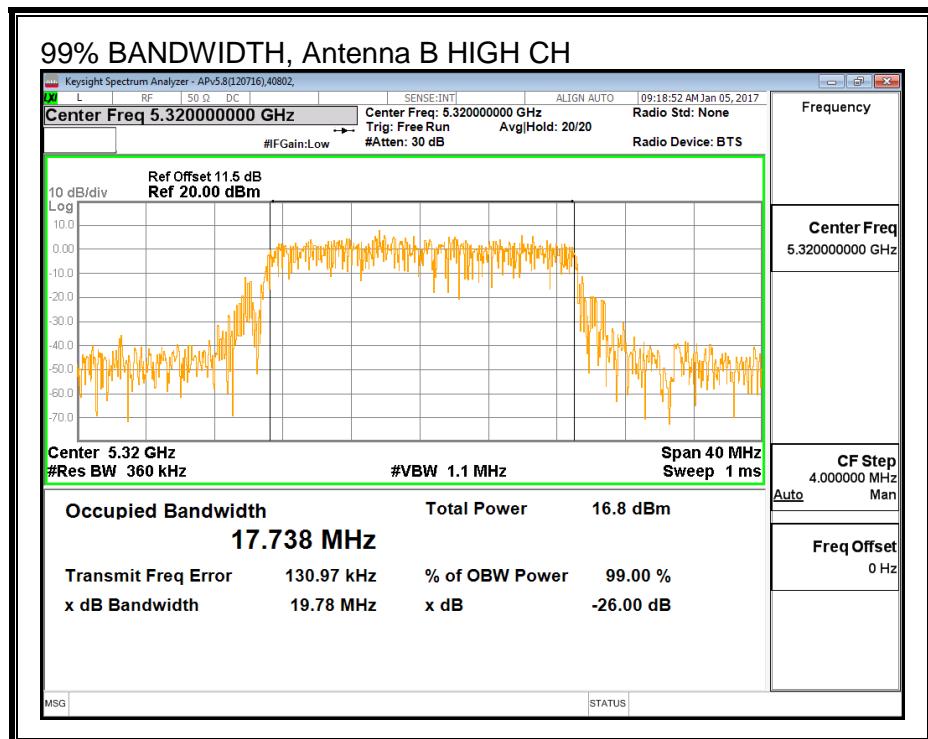
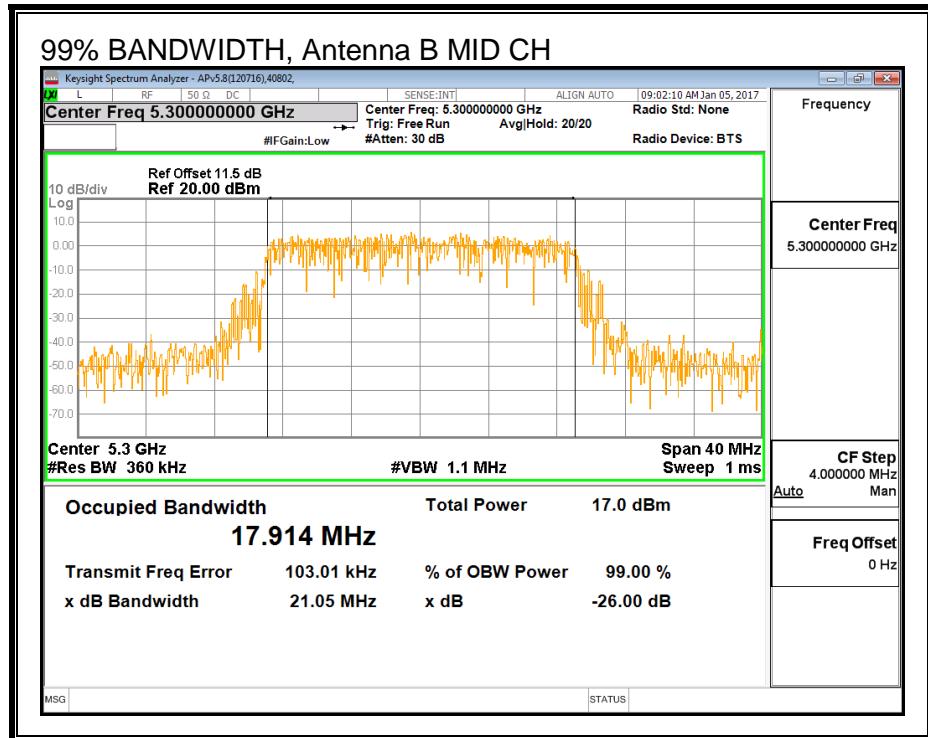
| Channel | Frequency<br>(MHz) | 99% BW<br>Antenna A<br>(MHz) | 99% BW<br>Antenna B<br>(MHz) |
|---------|--------------------|------------------------------|------------------------------|
| Low     | 5260               | 17.780                       | 17.654                       |
| Mid     | 5300               | 17.745                       | 17.914                       |
| High    | 5320               | 17.817                       | 17.738                       |

**99% BANDWIDTH, Antenna A**



**99% BANDWIDTH, Antenna B**





### 8.14.3. AVERAGE POWER

#### LIMITS

None; for reporting purposes only.

#### TEST PROCEDURE

Measurements perform using a wideband gated RF power meter.

#### RESULTS

|     |       |       |         |
|-----|-------|-------|---------|
| ID: | 45256 | Date: | 1/31/17 |
|-----|-------|-------|---------|

#### Average Power Results

| Channel | Frequency<br>(MHz) | Antenna A<br>Power<br>(dBm) | Antenna B<br>Power<br>(dBm) | Total<br>Power<br>(dBm) |
|---------|--------------------|-----------------------------|-----------------------------|-------------------------|
| Low     | 5260               | 15.91                       | 15.90                       | 18.92                   |
| Mid     | 5300               | 15.99                       | 15.96                       | 18.99                   |
| High    | 5320               | 14.41                       | 14.49                       | 17.46                   |

#### 8.14.4. OUTPUT POWER AND PSD

##### LIMITS

FCC §15.407 (a) (2)

For the band 5.25–5.35 GHz, the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 250 mW or 11 dBm + 10 log B, where B is the 26–dB emission bandwidth in MHz. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1–MHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

##### DIRECTIONAL ANTENNA GAIN

The TX chains are uncorrelated and the antenna gain is the same for each chain. The directional gain is equal to the antenna gain.

Use this table for uncorrelated chains and unequal antenna gain

|                   |                   | <b>Uncorrelated Chains</b>    |
|-------------------|-------------------|-------------------------------|
| <b>Antenna A</b>  | <b>Antenna B</b>  | <b>Directional Gain (dBi)</b> |
| <b>Gain (dBi)</b> | <b>Gain (dBi)</b> | <b>Gain (dBi)</b>             |
| 4.11              | 3.36              | 3.75                          |

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

|                   |                   | <b>Correlated Chains</b>      |
|-------------------|-------------------|-------------------------------|
| <b>Antenna A</b>  | <b>Antenna B</b>  | <b>Directional Gain (dBi)</b> |
| <b>Gain (dBi)</b> | <b>Gain (dBi)</b> | <b>Gain (dBi)</b>             |
| 4.11              | 3.36              | 6.75                          |

## RESULTS

### Bandwidth, Antenna Gain and Limits

| Channel | Frequency<br>(MHz) | Min<br>26 dB<br>BW<br>(MHz) | Directional<br>Gain<br>for Power<br>(dBi) | Directional<br>Gain<br>for PSD<br>(dBi) | Power<br>Limit<br>(dBm) | PSD<br>Limit<br>(dBm) |
|---------|--------------------|-----------------------------|---|---|-------------------------|-----------------------|
| Low     | 5260               | 21.68                       | 3.75                                      | 6.75                                    | 24.00                   | 10.25                 |
| Mid     | 5300               | 21.64                       | 3.75                                      | 6.75                                    | 24.00                   | 10.25                 |
| High    | 5320               | 21.56                       | 3.75                                      | 6.75                                    | 24.00                   | 10.25                 |

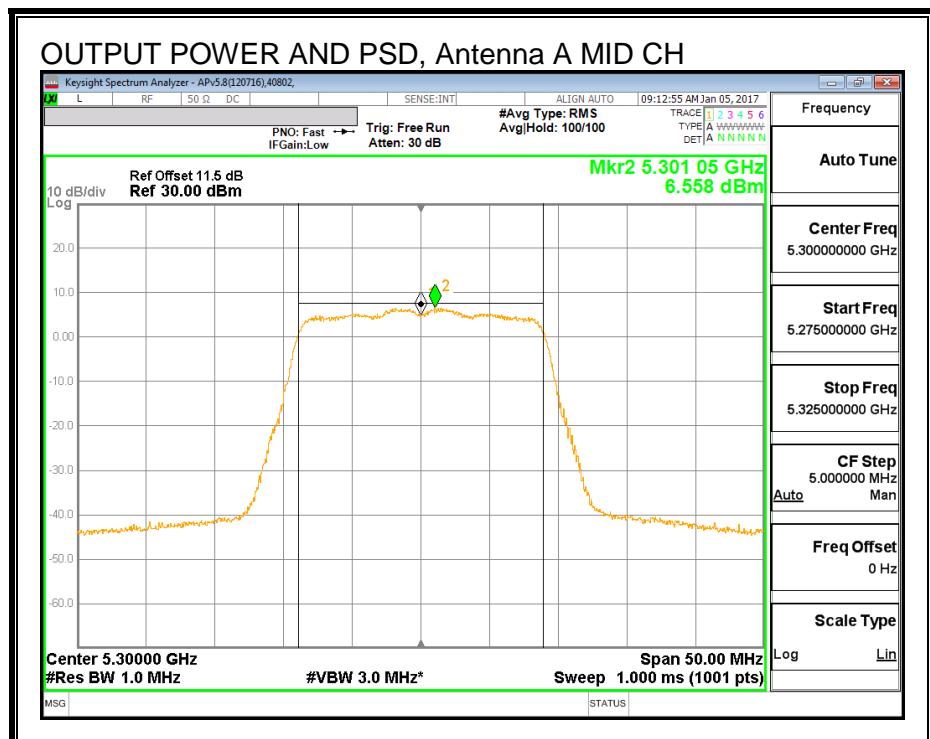
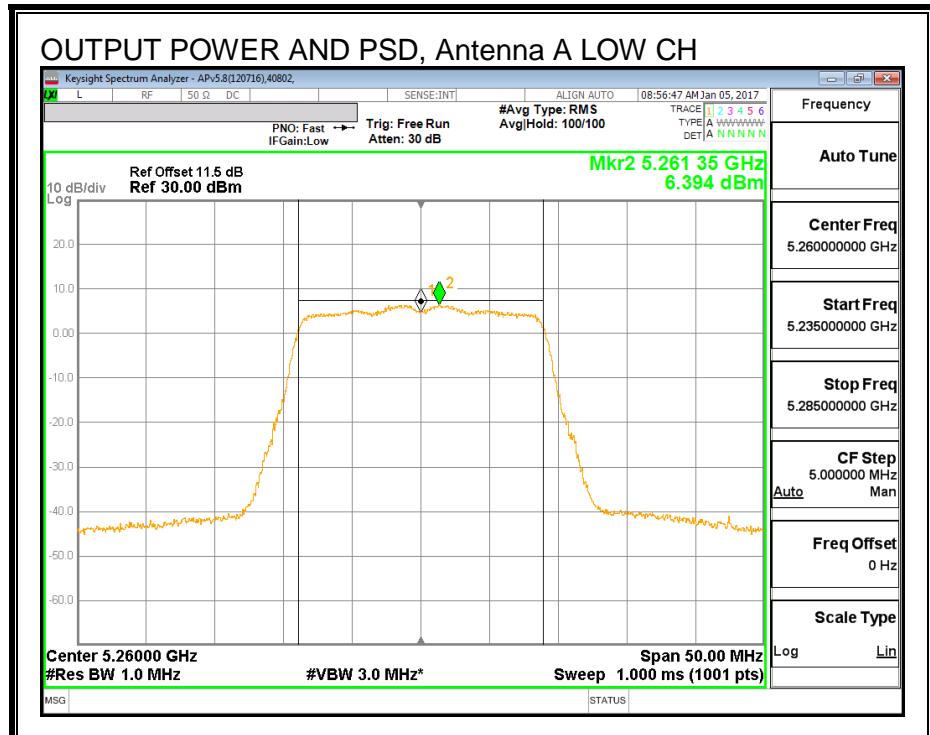
|                    |      |  |
|--------------------|------|--|
| Duty Cycle CF (dB) | 0.00 | Included in Calculations of Corr'd Power & PSD |
|--------------------|------|--|

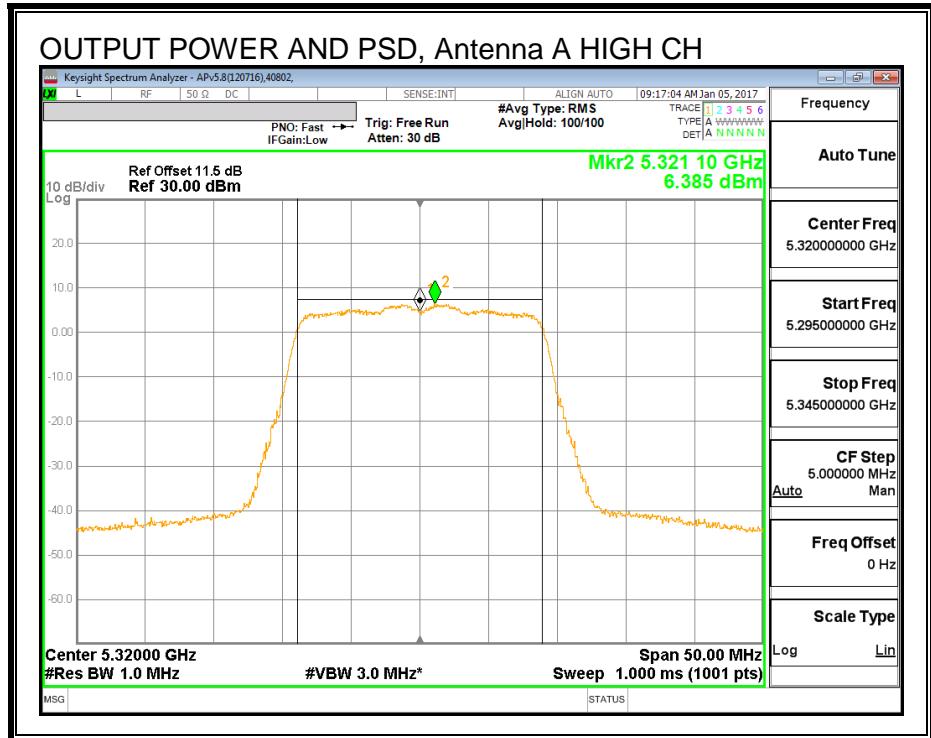
### Output Power Results

| Channel | Frequency<br>(MHz) | Antenna A<br>Meas<br>Power<br>(dBm) | Antenna B<br>Meas<br>Power<br>(dBm) | Total<br>Corr'd<br>Power<br>(dBm) | Power<br>Limit<br>(dBm) | Power<br>Margin<br>(dB) |
|---------|--------------------|-------------------------------------|-------------------------------------|-----------------------------------|-------------------------|-------------------------|
| Low     | 5260               | 15.91                               | 15.90                               | 18.92                             | 24.00                   | -5.08                   |
| Mid     | 5300               | 15.99                               | 15.96                               | 18.99                             | 24.00                   | -5.01                   |
| High    | 5320               | 14.41                               | 14.49                               | 17.46                             | 24.00                   | -6.54                   |

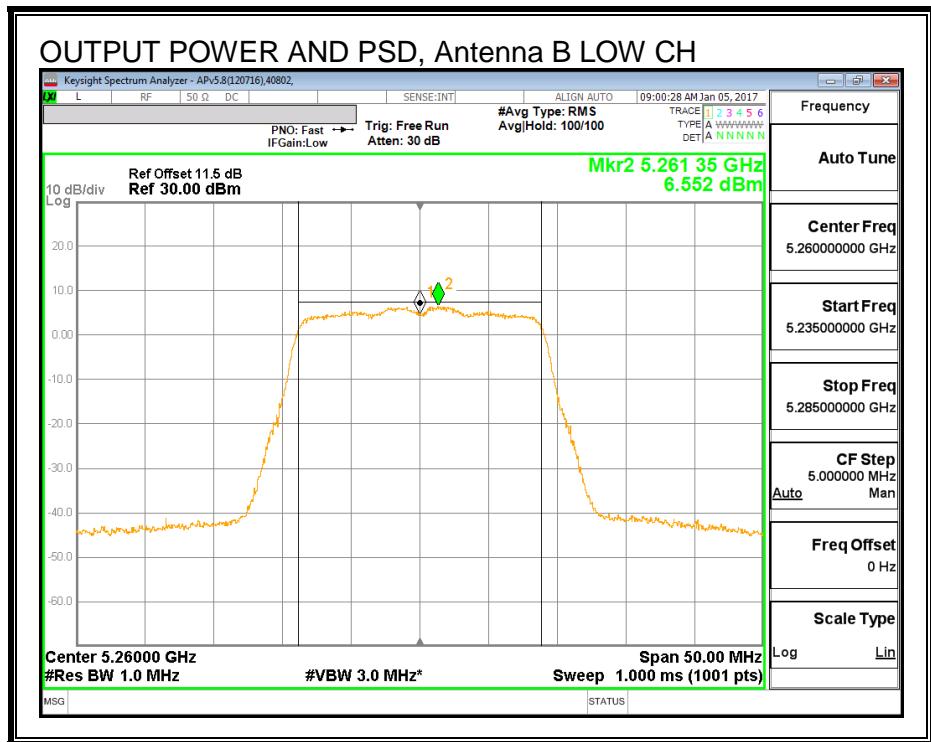
### PSD Results

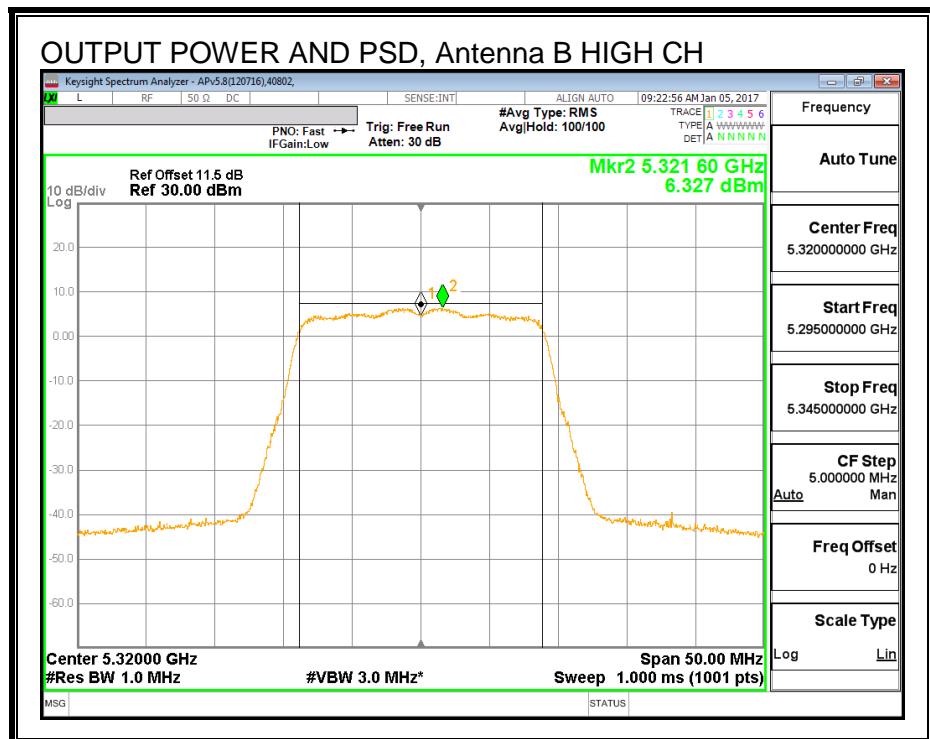
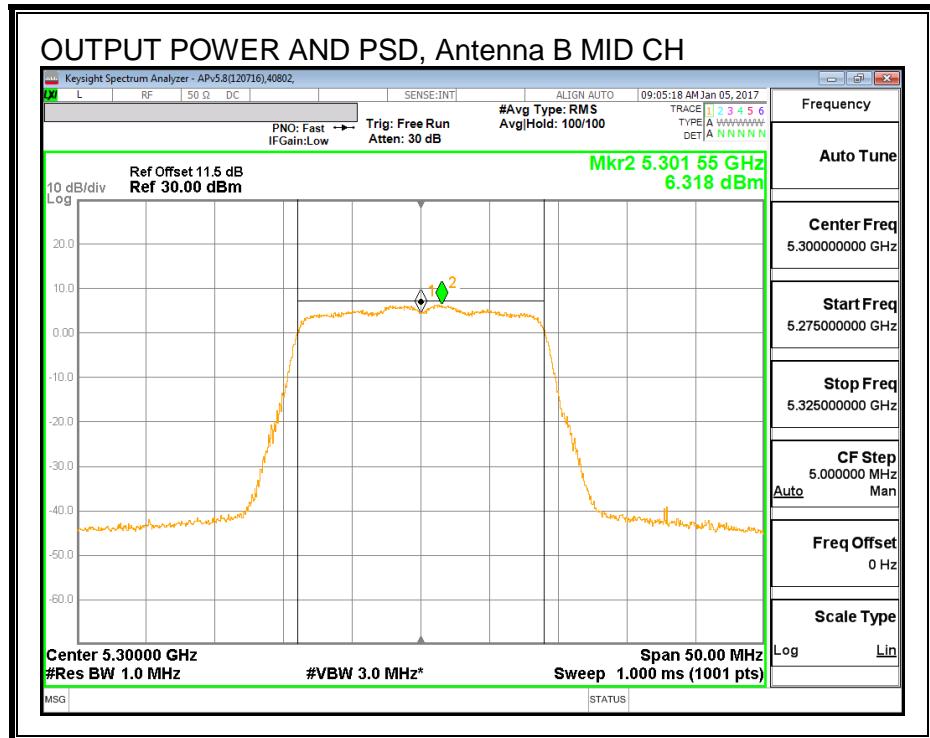
| Channel | Frequency<br>(MHz) | Antenna A<br>Meas<br>PSD<br>(dBm) | Antenna B<br>Meas<br>PSD<br>(dBm) | Total<br>Corr'd<br>PSD<br>(dBm) | PSD<br>Limit<br>(dBm) | PSD<br>Margin<br>(dB) |
|---------|--------------------|-----------------------------------|-----------------------------------|---------------------------------|-----------------------|-----------------------|
| Low     | 5260               | 6.39                              | 6.55                              | 9.48                            | 10.25                 | -0.77                 |
| Mid     | 5300               | 6.56                              | 6.32                              | 9.45                            | 10.25                 | -0.80                 |
| High    | 5320               | 6.39                              | 6.33                              | 9.37                            | 10.25                 | -0.88                 |

**OUTPUT POWER AND PSD, Antenna A**



### OUTPUT POWER AND PSD, Antenna B





## 8.15. 802.11n HT40 ANTENNA A MODE IN THE 5.3 GHz BAND

### 8.15.1. 26 dB BANDWIDTH

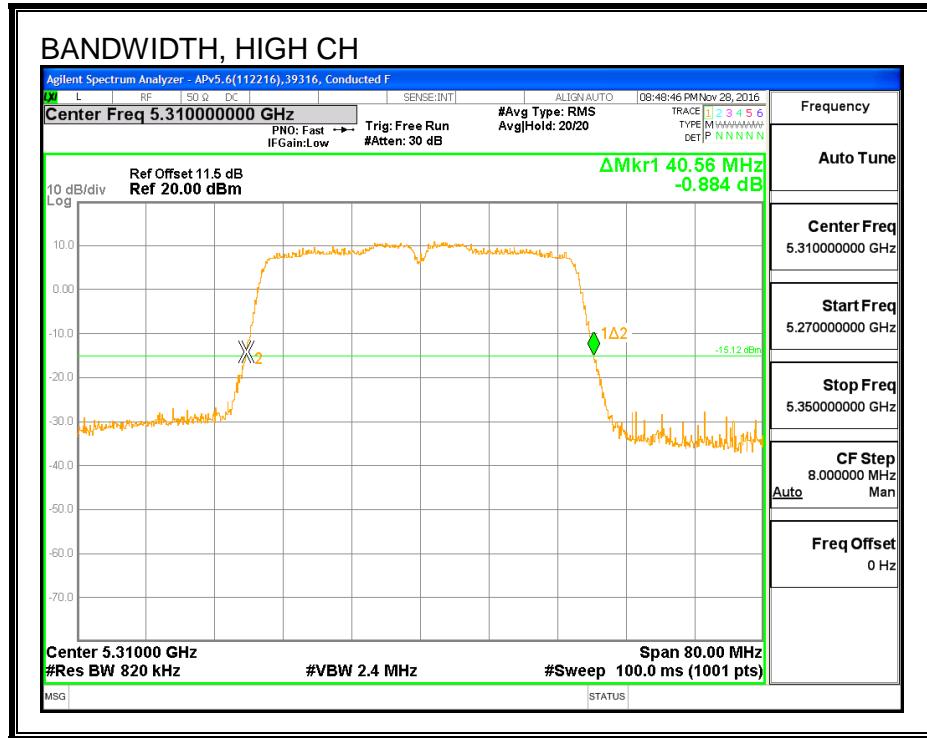
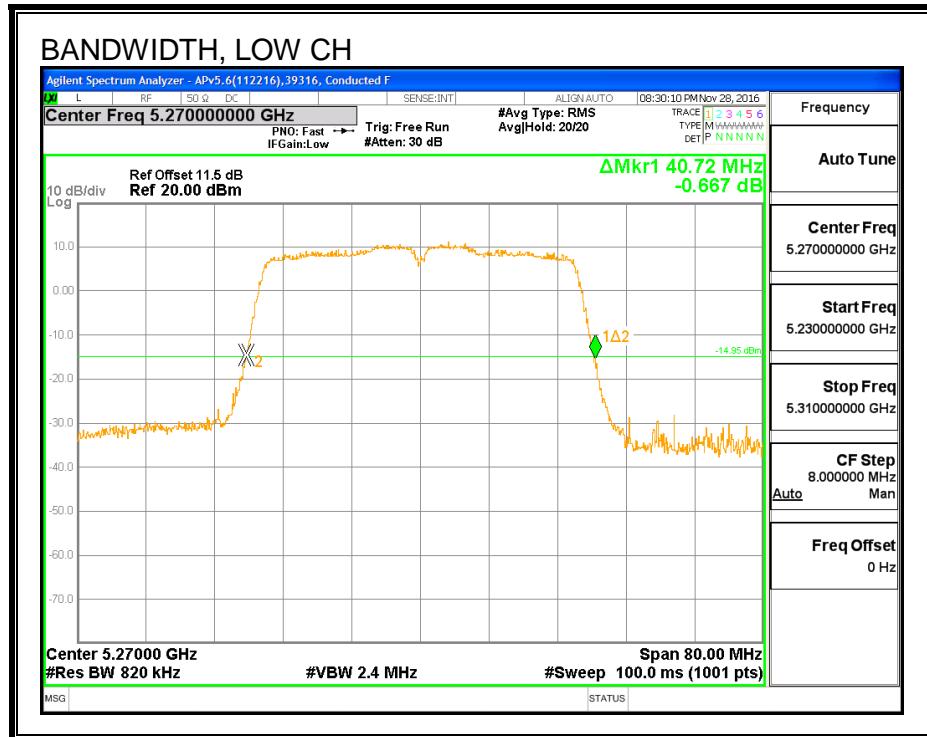
#### LIMITS

None; for reporting purposes only.

#### RESULTS

| Channel | Frequency (MHz) | 26 dB Bandwidth (MHz) |
|---------|-----------------|-----------------------|
| Low     | 5270            | 40.720                |
| High    | 5310            | 40.560                |

## 26 dB BANDWIDTH



### 8.15.2. 99% BANDWIDTH

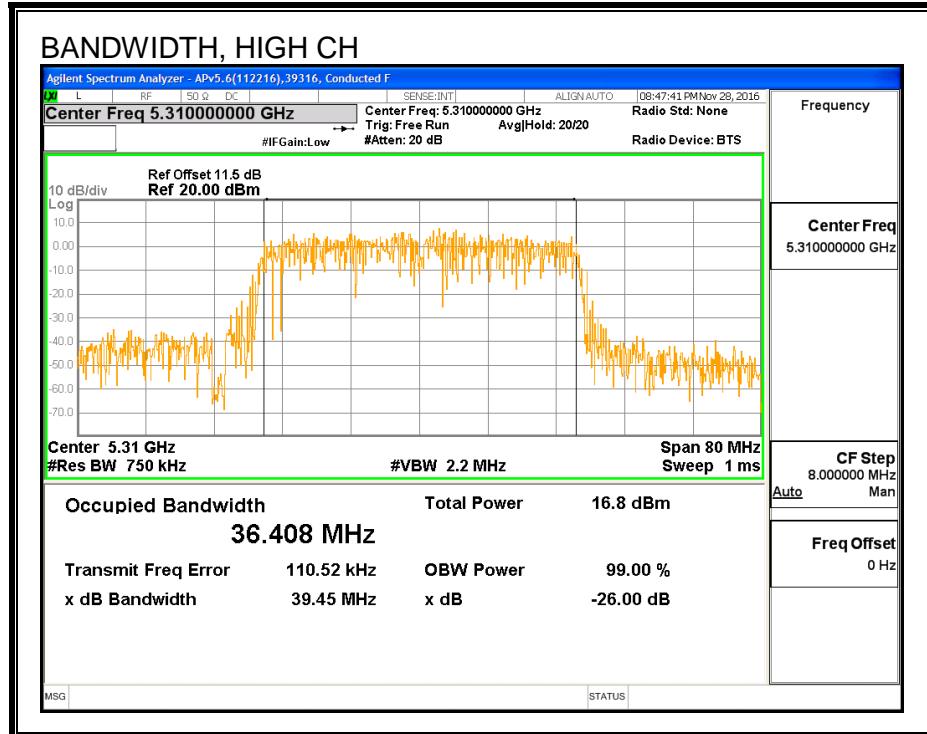
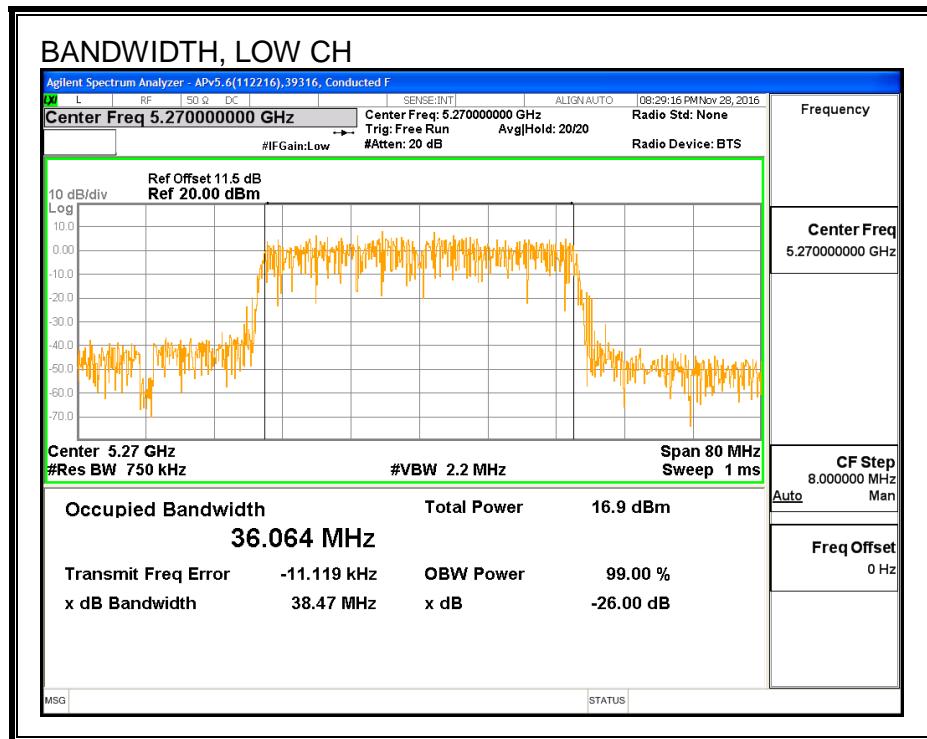
#### LIMITS

None; for reporting purposes only.

#### RESULTS

| Channel | Frequency (MHz) | 99% Bandwidth (MHz) |
|---------|-----------------|---------------------|
| Low     | 5270            | 36.064              |
| High    | 5310            | 36.408              |

**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

| ID: | 45256 | Date: | 1/31/17 |
|-----|-------|-------|---------|
|-----|-------|-------|---------|

| Channel | Frequency<br>(MHz) | Power<br>(dBm) |
|---------|--------------------|----------------|
| Low     | 5270               | 15.89          |
| High    | 5310               | 13.97          |

#### 8.15.4. OUTPUT POWER AND PSD

##### LIMITS

FCC §15.407 (a) (2)

For the band 5.25–5.35 GHz, the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 250 mW or 11 dBm + 10 log B, where B is the 26-dB emission bandwidth in MHz. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1-MHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the peak 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

|     |       |       |         |
|-----|-------|-------|---------|
| ID: | 39919 | Date: | 2/14/17 |
|-----|-------|-------|---------|

### Bandwidth, Antenna Gain, and Limits

| Channel | Frequency<br>(MHz) | Min<br>BW<br>(MHz) | Min<br>BW<br>(MHz) | Directional<br>Gain<br>(dBi) | Power<br>Limit<br>(dBm) | PSD<br>Limit<br>(dBm) |
|---------|--------------------|--------------------|--------------------|------------------------------|-------------------------|-----------------------|
| Low     | 5270               | 40.72              | 36.06              | 4.11                         | 24.00                   | 11.00                 |
| High    | 5310               | 40.56              | 36.41              | 4.11                         | 24.00                   | 11.00                 |

|                    |      |  |
|--------------------|------|--|
| Duty Cycle CF (dB) | 0.11 | Included in Calculations of Corr'd PSD |
|--------------------|------|--|

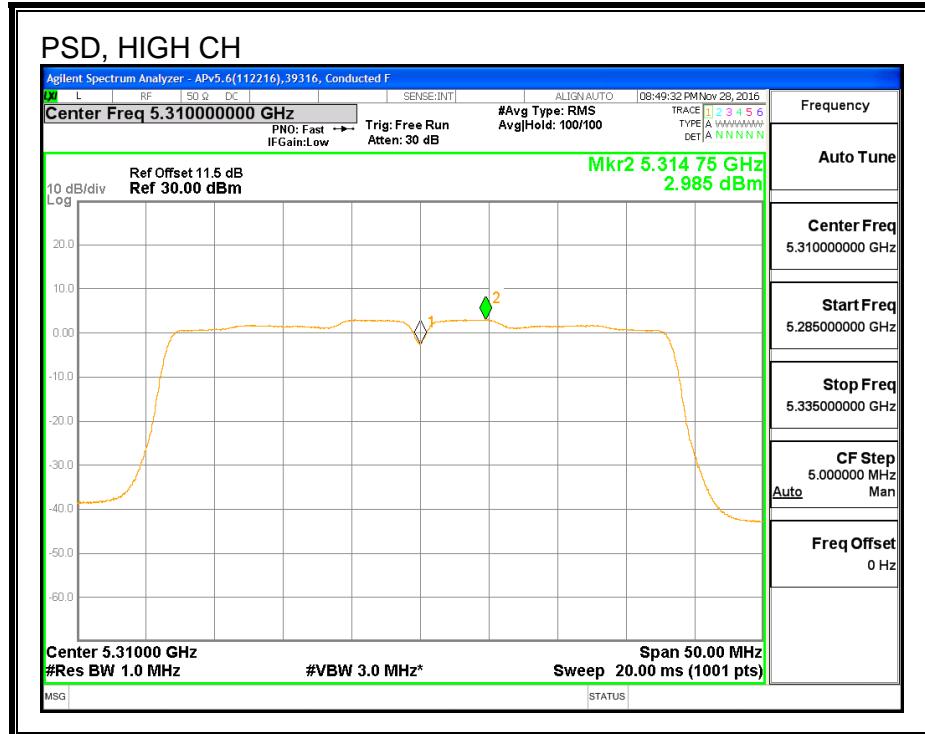
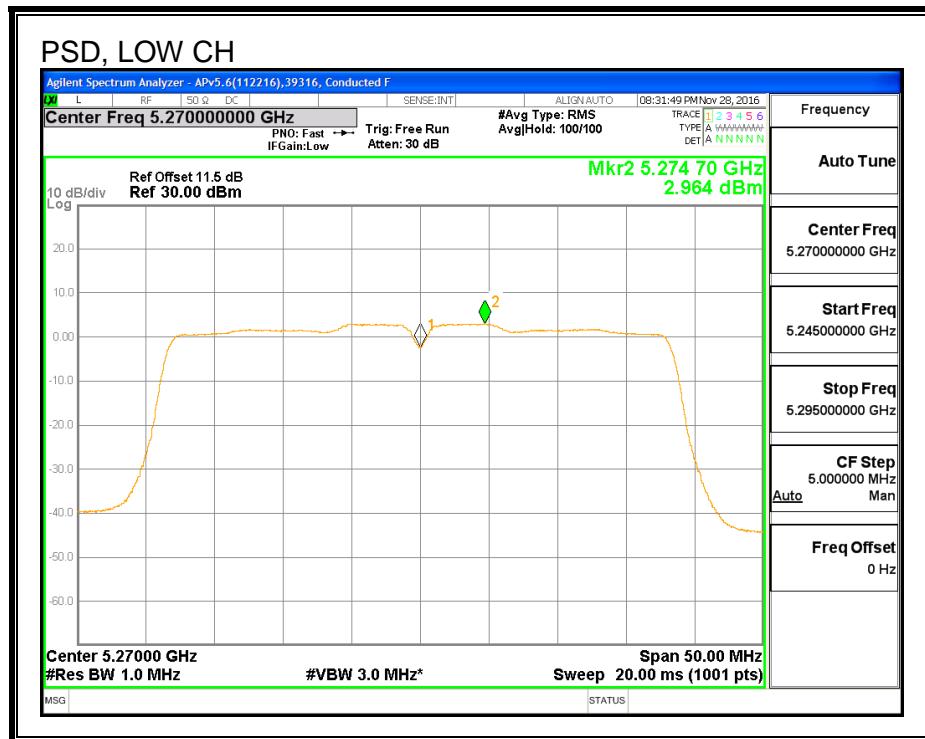
### Output Power Results

| Channel | Frequency<br>(MHz) | Antenna A<br>Meas<br>Power<br>(dBm) | Total<br>Corr'd<br>Power<br>(dBm) | Power<br>Limit<br>(dBm) | Power<br>Margin<br>(dB) |
|---------|--------------------|-------------------------------------|-----------------------------------|-------------------------|-------------------------|
| Low     | 5270               | 15.89                               | 15.89                             | 24.00                   | -8.11                   |
| High    | 5310               | 13.97                               | 13.97                             | 24.00                   | -10.03                  |

### PSD Results

| Channel | Frequency<br>(MHz) | Antenna A<br>Meas<br>PSD<br>(dBm) | Total<br>Corr'd<br>PSD<br>(dBm) | PSD<br>Limit<br>(dBm) | PSD<br>Margin<br>(dB) |
|---------|--------------------|-----------------------------------|---------------------------------|-----------------------|-----------------------|
| Low     | 5270               | 2.96                              | 3.07                            | 11.00                 | -7.93                 |
| High    | 5310               | 2.99                              | 3.10                            | 11.00                 | -7.91                 |

**PSD**



## 8.16. 802.11n HT40 ANTENNA B MODE IN THE 5.3 GHz BAND

### 8.16.1. 26 dB BANDWIDTH

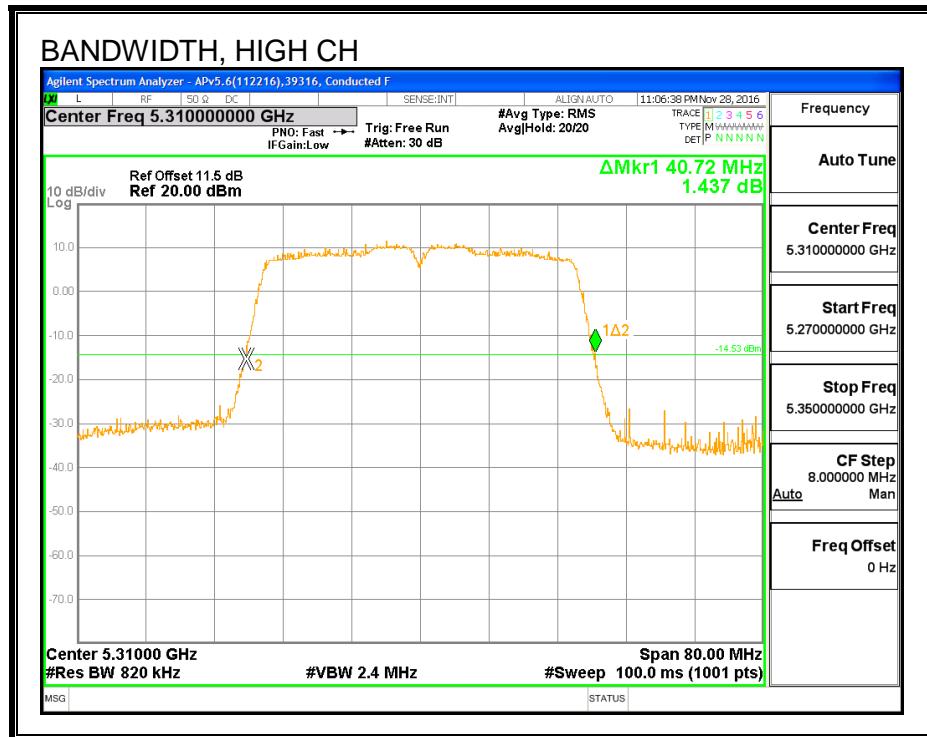
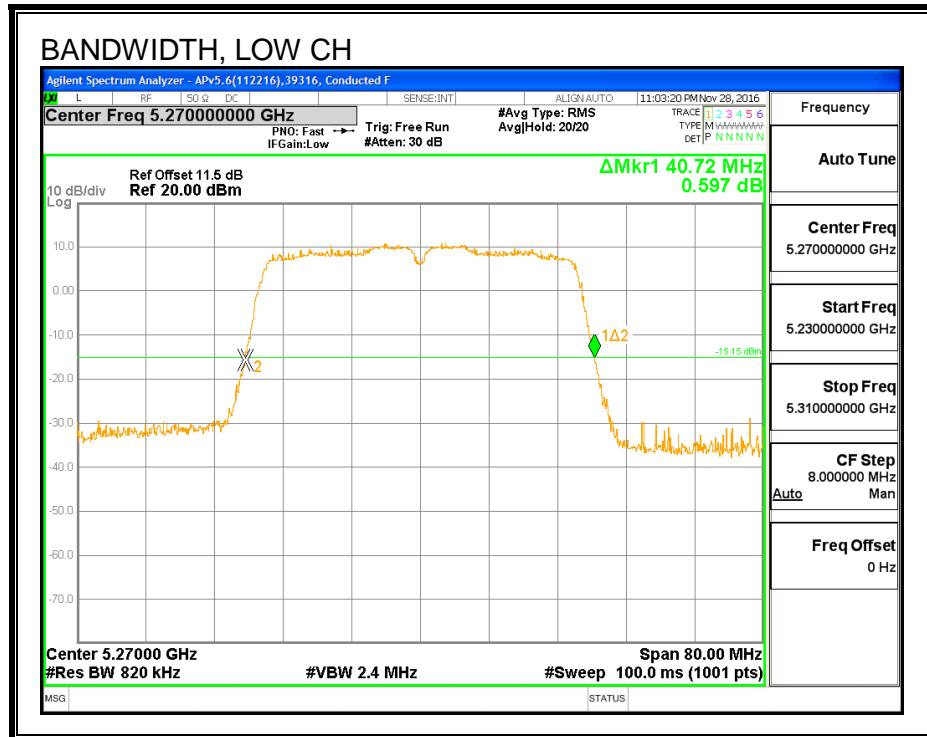
#### LIMITS

None; for reporting purposes only.

#### RESULTS

| Channel | Frequency<br>(MHz) | 26 dB Bandwidth<br>(MHz) |
|---------|--------------------|--------------------------|
| Low     | 5270               | 40.720                   |
| High    | 5310               | 40.720                   |

## 26 dB BANDWIDTH



### 8.16.2. 99% BANDWIDTH

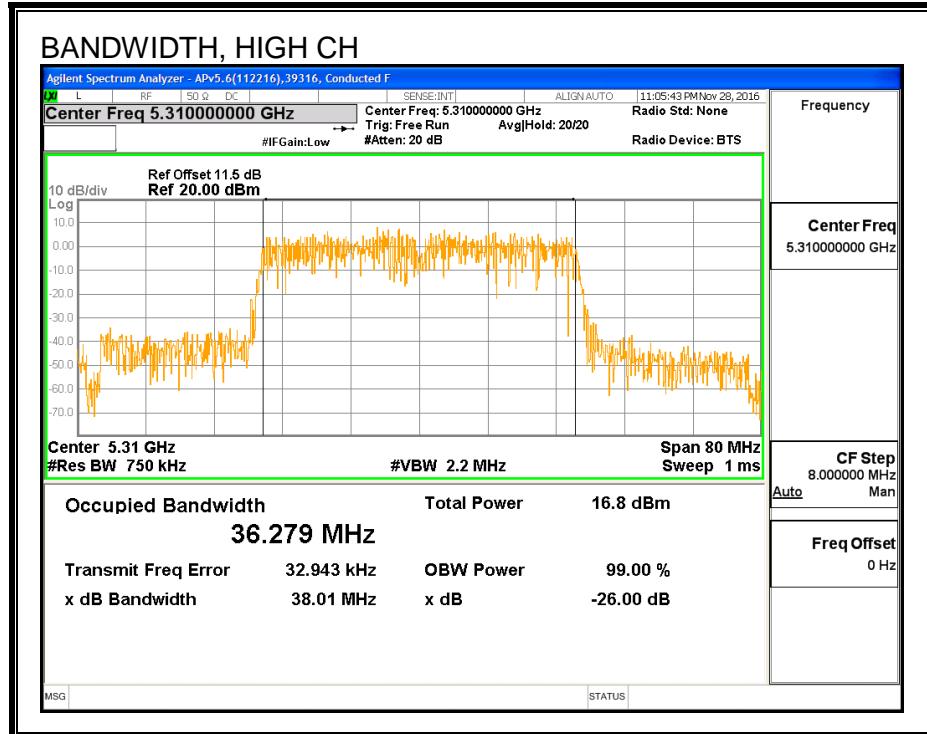
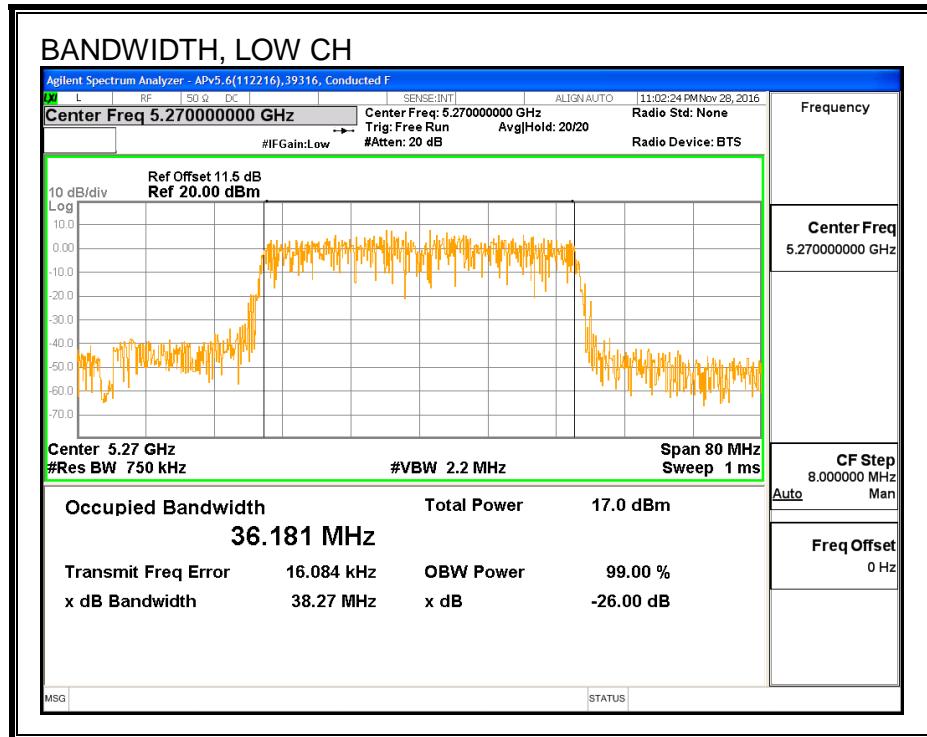
#### LIMITS

None; for reporting purposes only.

#### RESULTS

| Channel | Frequency (MHz) | 99% Bandwidth (MHz) |
|---------|-----------------|---------------------|
| Low     | 5270            | 36.181              |
| High    | 5310            | 36.279              |

**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

| ID: | 45256 | Date: | 1/31/17 |
|-----|-------|-------|---------|
|-----|-------|-------|---------|

| Channel | Frequency<br>(MHz) | Power<br>(dBm) |
|---------|--------------------|----------------|
| Low     | 5270               | 15.90          |
| High    | 5310               | 13.98          |

#### 8.16.4. OUTPUT POWER AND PSD

##### LIMITS

FCC §15.407 (a) (2)

For the band 5.25–5.35 GHz, the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 250 mW or 11 dBm + 10 log B, where B is the 26-dB emission bandwidth in MHz. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1-MHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the peak 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

|     |       |       |         |
|-----|-------|-------|---------|
| ID: | 39919 | Date: | 2/14/17 |
|-----|-------|-------|---------|

### Bandwidth, Antenna Gain, and Limits

| Channel | Frequency<br>(MHz) | Min<br>BW<br>(MHz) | Min<br>BW<br>(MHz) | Directional<br>Gain<br>(dBi) | Power<br>Limit<br>(dBm) | PSD<br>Limit<br>(dBm) |
|---------|--------------------|--------------------|--------------------|------------------------------|-------------------------|-----------------------|
| Low     | 5270               | 40.72              | 36.18              | 3.36                         | 24.00                   | 11.00                 |
| High    | 5310               | 40.72              | 36.28              | 3.36                         | 24.00                   | 11.00                 |

|                    |      |  |
|--------------------|------|--|
| Duty Cycle CF (dB) | 0.11 | Included in Calculations of Corr'd PSD |
|--------------------|------|--|

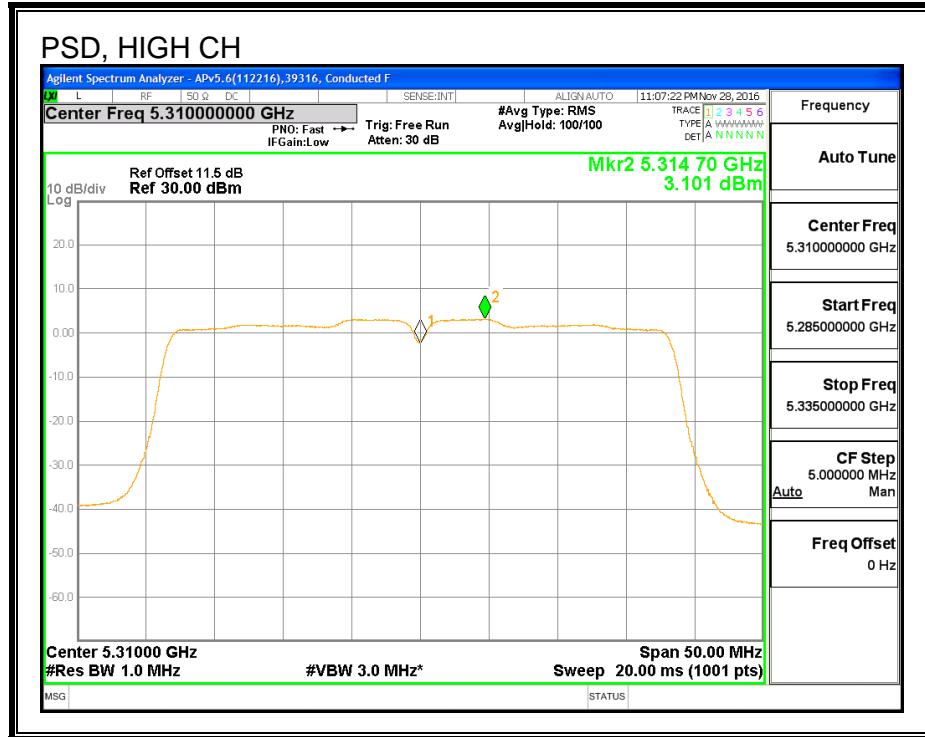
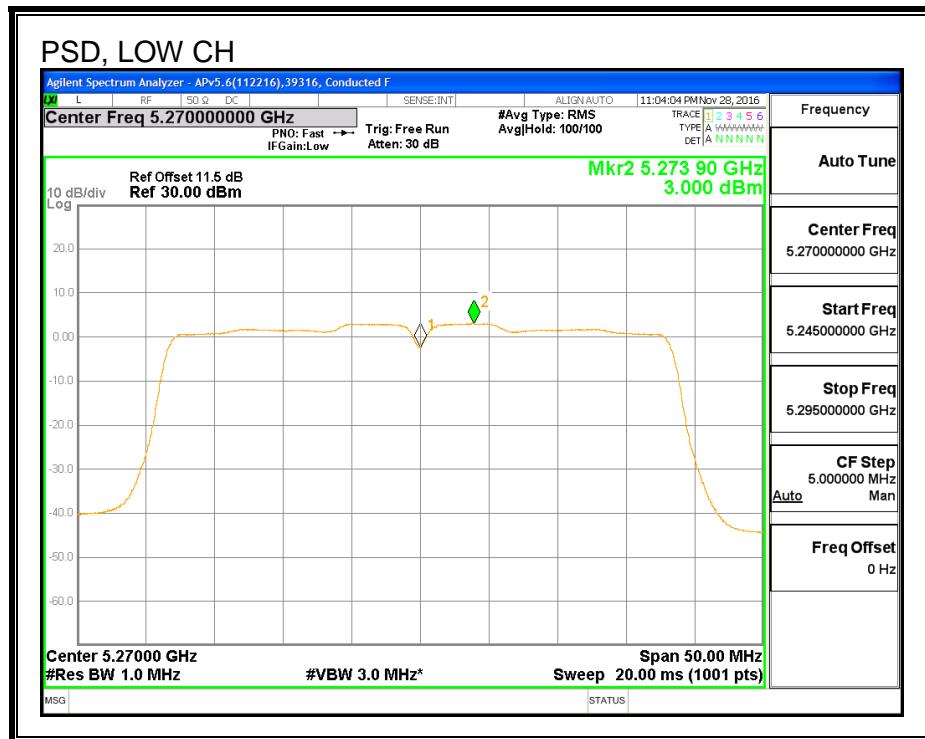
### Output Power Results

| Channel | Frequency<br>(MHz) | Antenna B<br>Meas<br>Power<br>(dBm) | Total<br>Corr'd<br>Power<br>(dBm) | Power<br>Limit<br>(dBm) | Power<br>Margin<br>(dB) |
|---------|--------------------|-------------------------------------|-----------------------------------|-------------------------|-------------------------|
| Low     | 5270               | 15.90                               | 15.90                             | 24.00                   | -8.10                   |
| High    | 5310               | 13.98                               | 13.98                             | 24.00                   | -10.02                  |

### PSD Results

| Channel | Frequency<br>(MHz) | Antenna B<br>Meas<br>PSD<br>(dBm) | Total<br>Corr'd<br>PSD<br>(dBm) | PSD<br>Limit<br>(dBm) | PSD<br>Margin<br>(dB) |
|---------|--------------------|-----------------------------------|---------------------------------|-----------------------|-----------------------|
| Low     | 5270               | 3.00                              | 3.11                            | 11.00                 | -7.89                 |
| High    | 5310               | 3.10                              | 3.21                            | 11.00                 | -7.79                 |

**PSD**



## 8.17. 802.11n HT40 2Tx (ANTENNA A + ANTENNA B) CDD MODE IN THE 5.3 GHz BAND

### 8.17.1. 26 dB BANDWIDTH

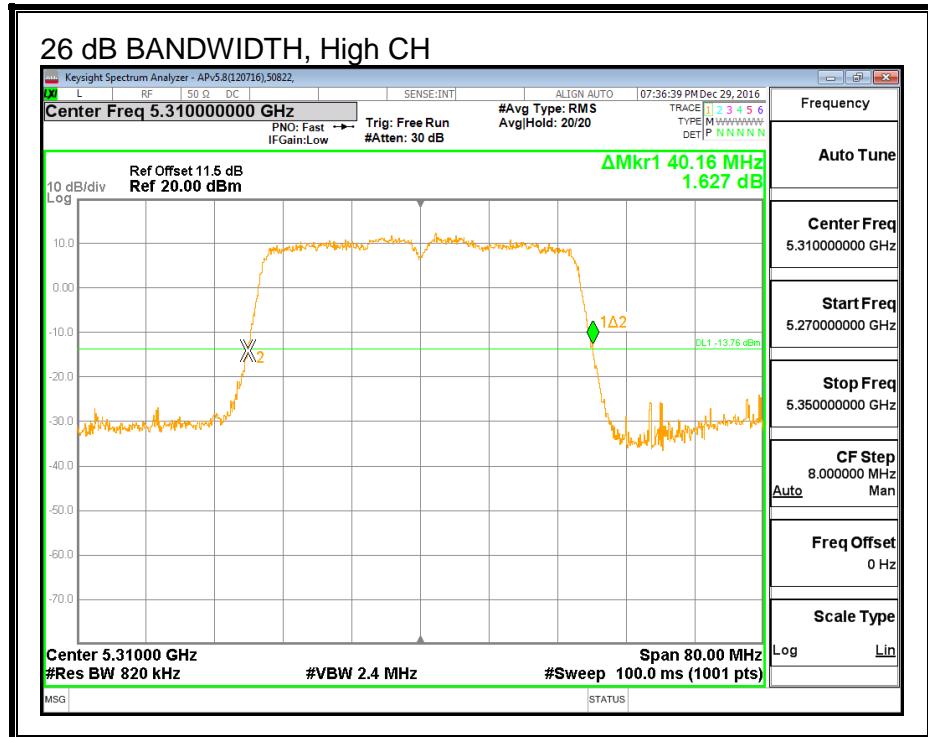
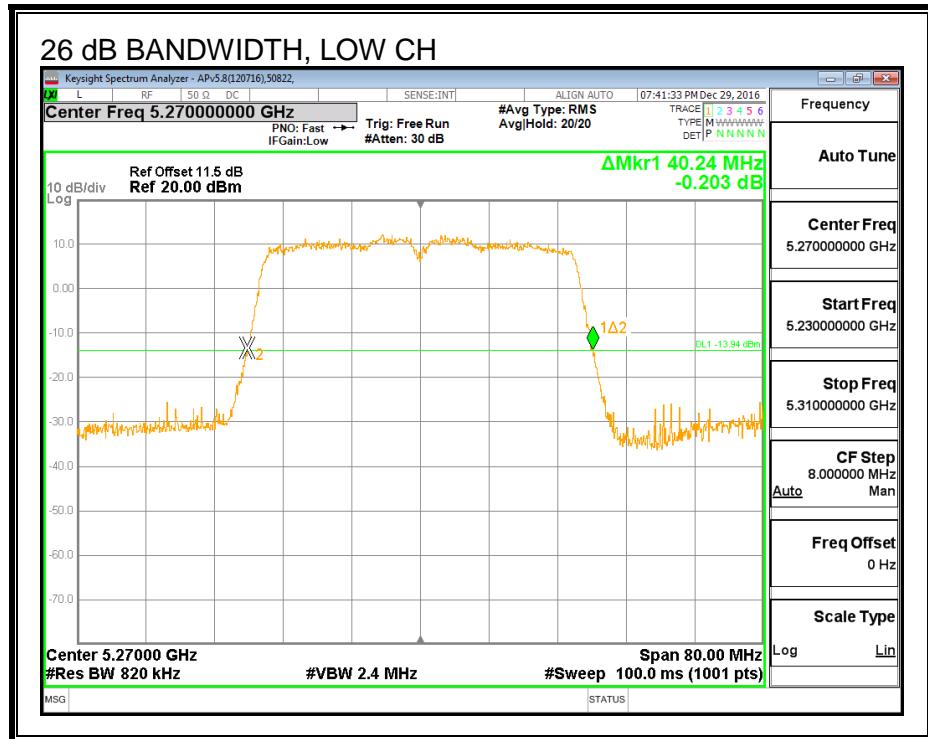
#### LIMITS

None; for reporting purposes only.

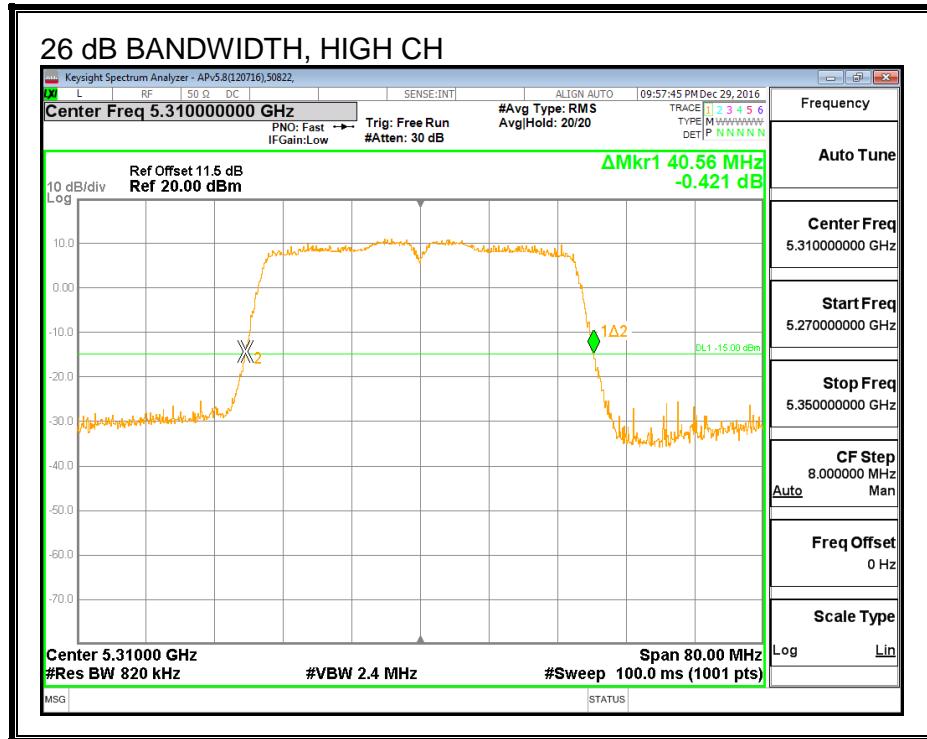
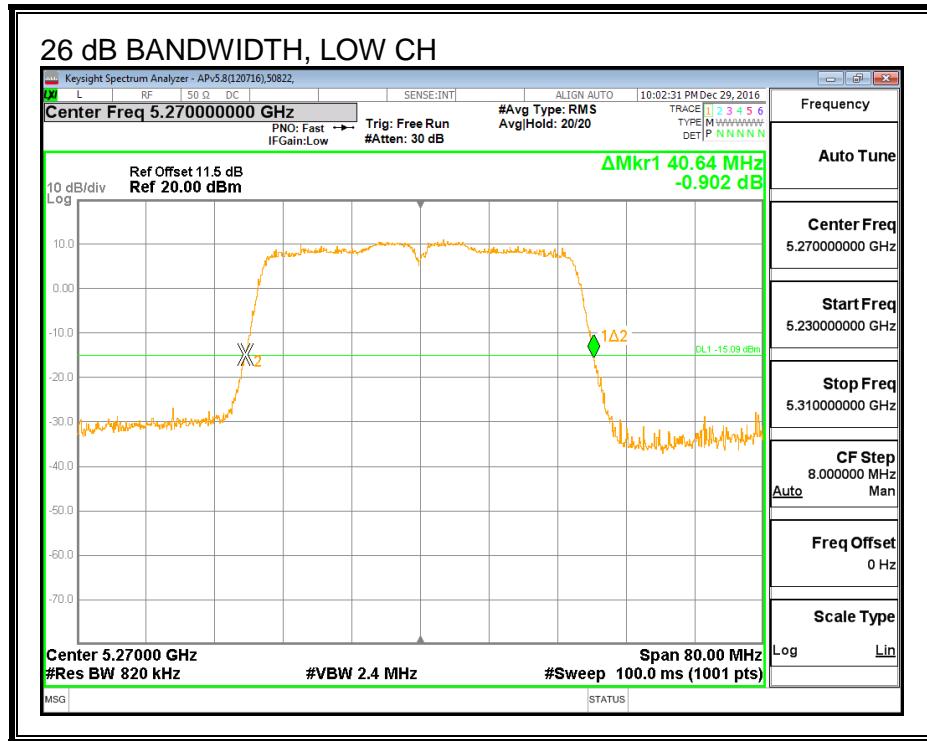
#### RESULTS

| Channel | Frequency<br>(MHz) | 26 dB BW<br>Antenna A<br>(MHz) | 26 dB BW<br>Antenna B<br>(MHz) |
|---------|--------------------|--------------------------------|--------------------------------|
| Low     | 5270               | 40.240                         | 40.640                         |
| High    | 5310               | 40.160                         | 40.560                         |

**26 DB BANDWIDTH, ANTENNA A**



## 26 DB BANDWIDTH, ANTENNA B



### 8.17.2. 99% BANDWIDTH

#### LIMITS

None; for reporting purposes only.

#### RESULTS

| Channel | Frequency<br>(MHz) | 99% BW<br>Antenna A<br>(MHz) | 99% BW<br>Antenna B<br>(MHz) |
|---------|--------------------|------------------------------|------------------------------|
| Low     | 5270               | 36.257                       | 36.298                       |
| High    | 5310               | 36.250                       | 36.243                       |