

## 8.28. 802.11ac VHT20 2Tx (ANTENNA A + ANTENNA B) STBC STRADDLE CHANNEL 144 RESULTS

### 8.28.1. OUTPUT POWER AND PSD

#### UNII-2C BAND

##### Bandwidth, Antenna Gain, and Limits

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Directional Gain for Power (dBi)	Directional Gain for PSD (dBi)	Power Limit (dBm)	PSD Limit (dBm)
144	5720	22.08	5.29	5.29	24.00	11.00

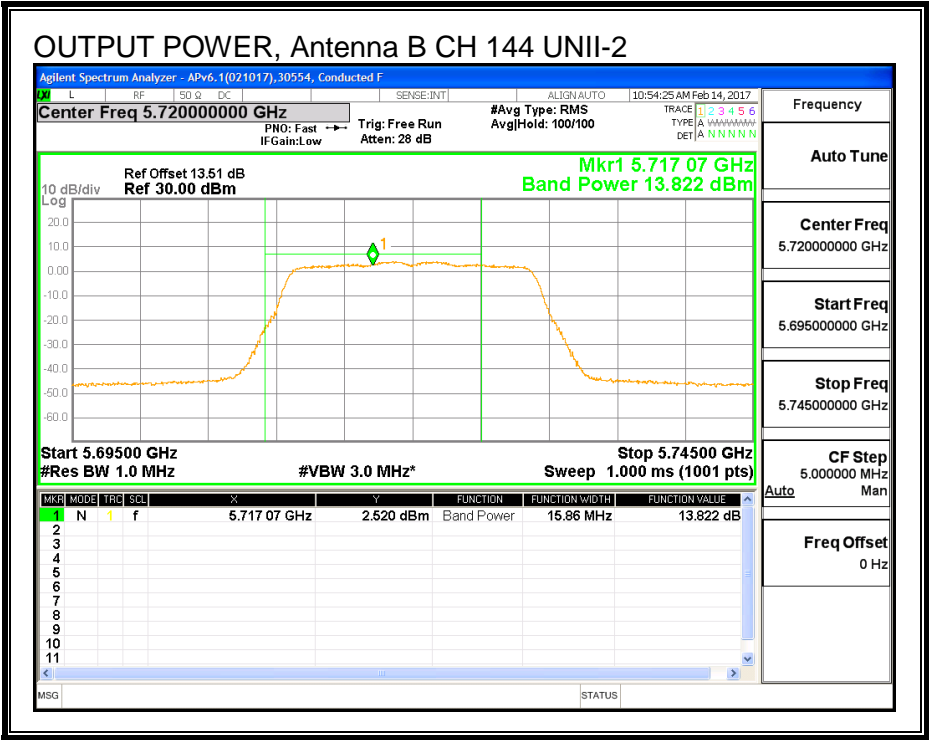
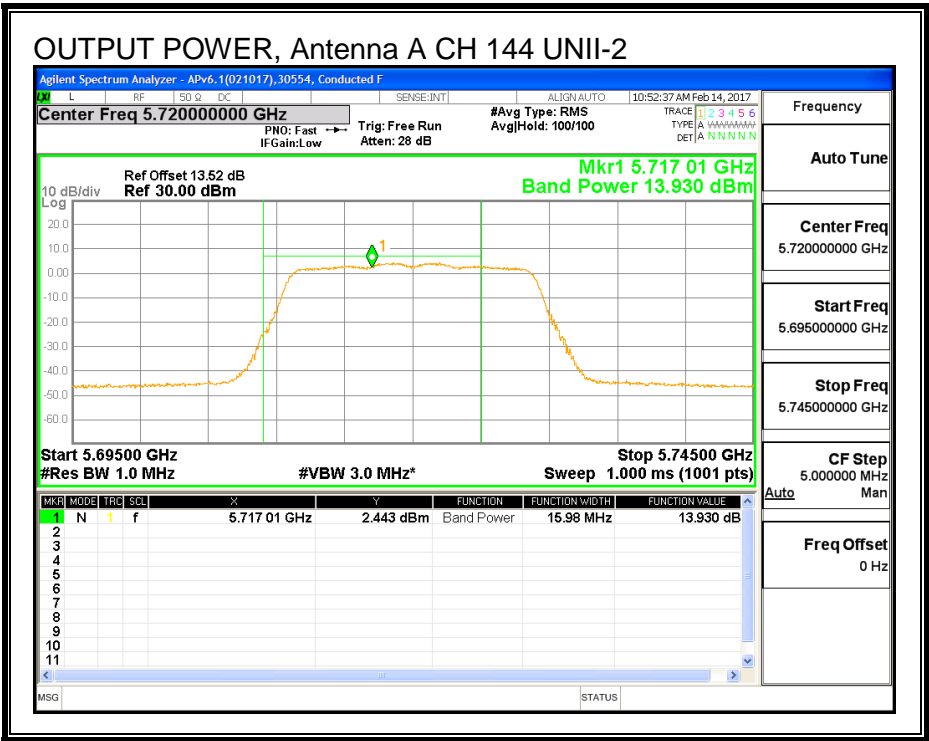
Duty Cycle CF (dB)	0.00	Included in Calculations of Corr'd Power & PSD
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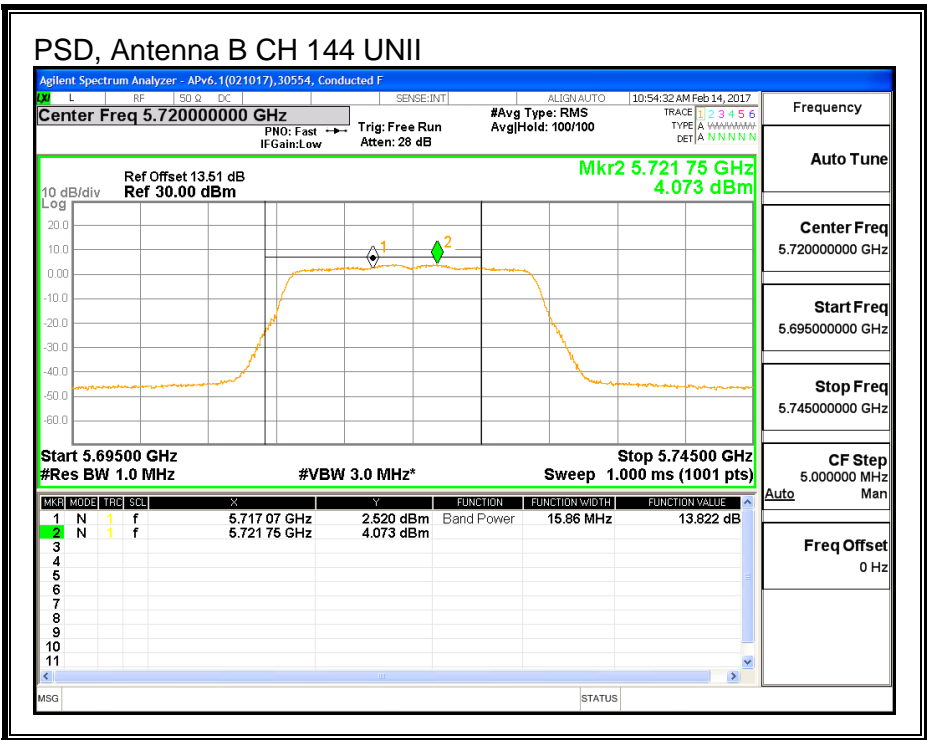
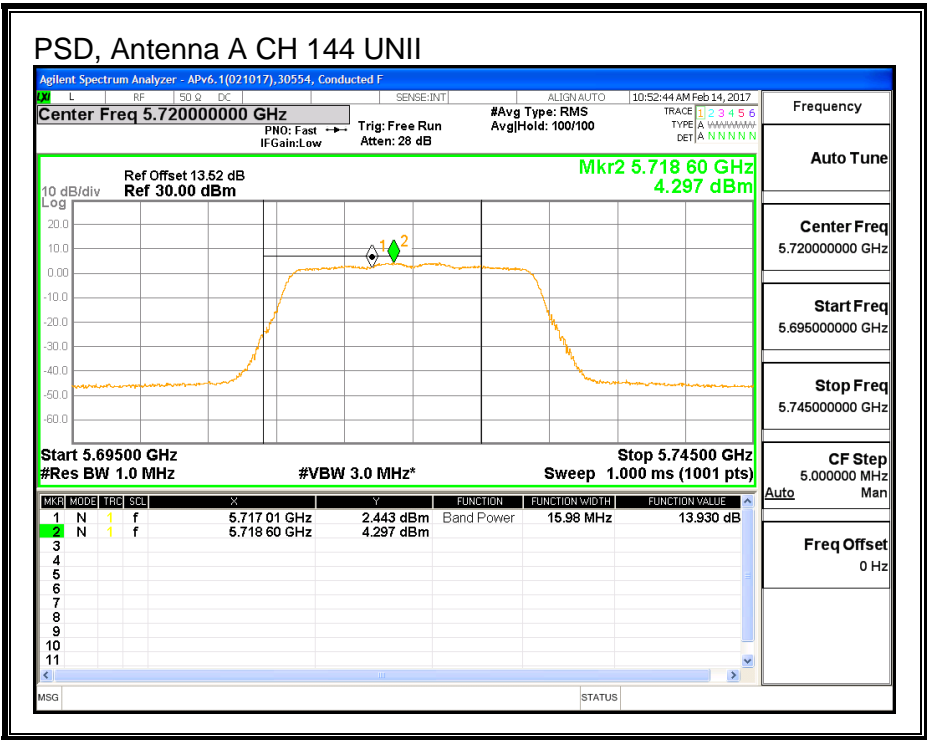
##### Output Power Results

Channel	Frequency (MHz)	Antenna A Meas Power (dBm)	Antenna B Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
144	5720	13.930	13.822	16.89	24.00	-7.11

##### PSD Results

Channel	Frequency (MHz)	Antenna A Meas PSD (dBm)	Antenna B Meas PSD (dBm)	Total Corr'd PSD (dBm)	PSD Limit (dBm)	PSD Margin (dB)
144	5720	4.297	4.073	7.20	11.00	-3.80





**UNII-3 BAND**

**Antenna Gain and Limit**

Channel	Frequency (MHz)	Directional Gain for Power (dBi)	Directional Gain for PSD (dBi)	Power Limit (dBm)	PSD Limit (dBm)
144	5720	5.29	5.29	30.00	30.00

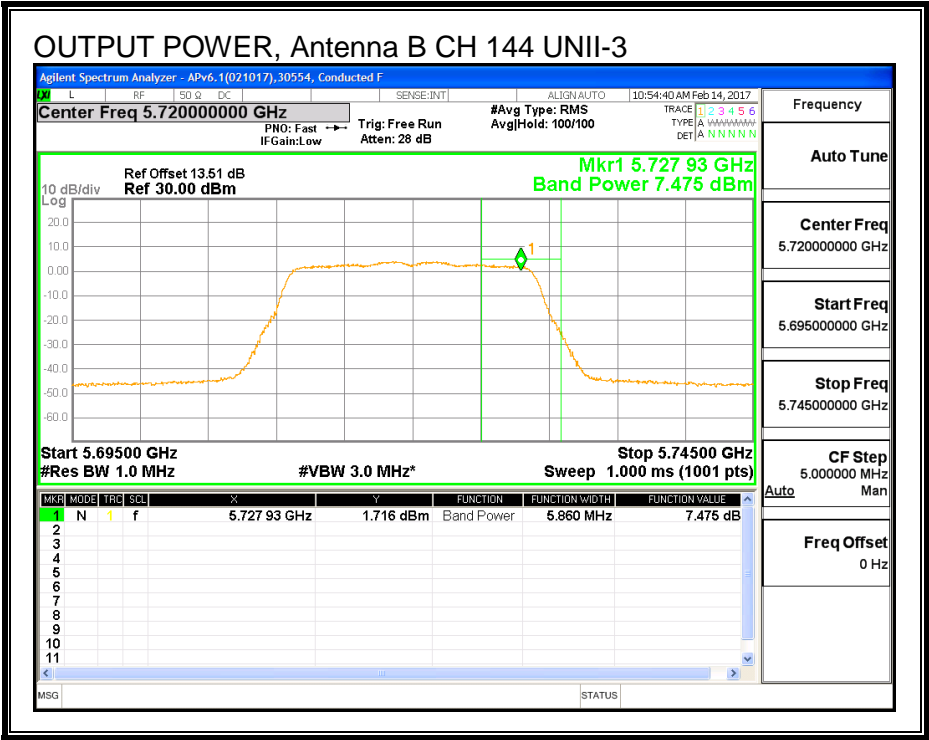
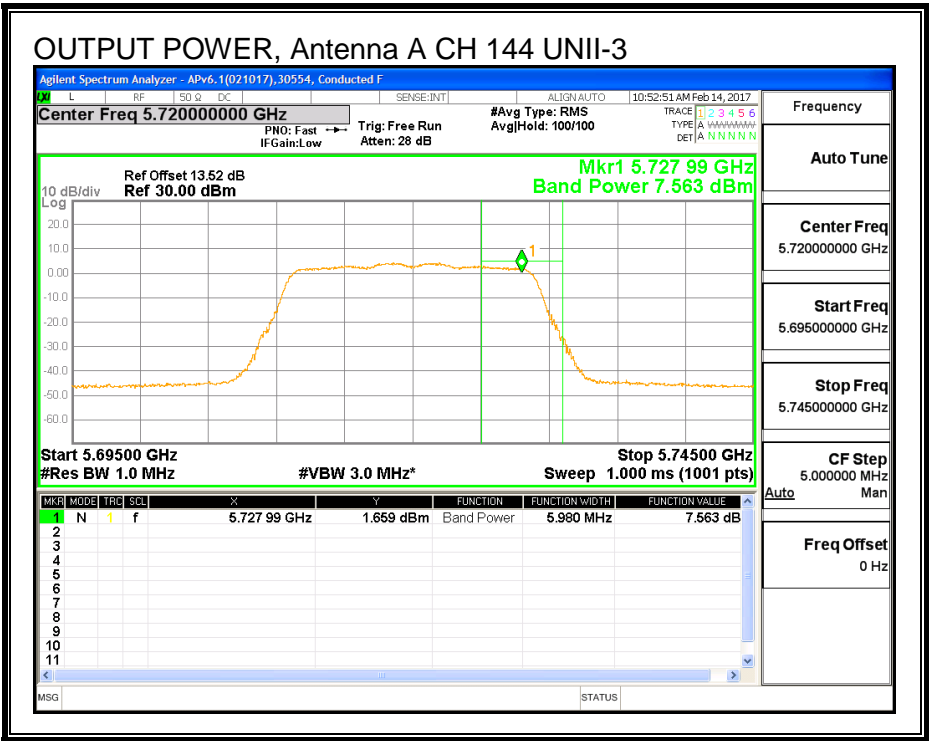
Duty Cycle CF (dB)	0.00	Included in Calculations of Corr'd Power & PSD
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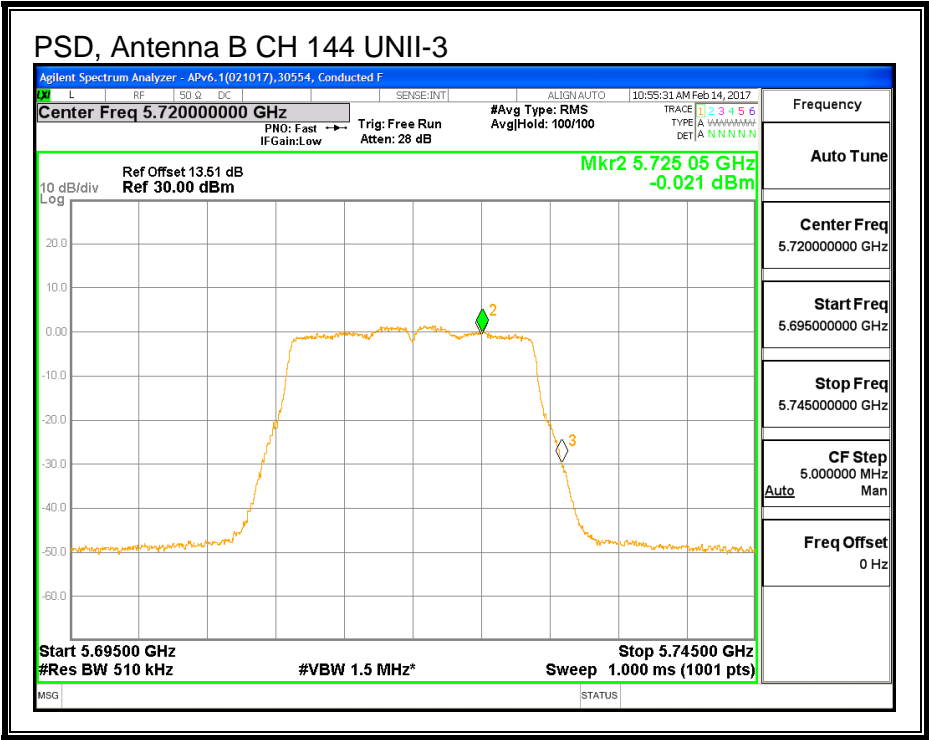
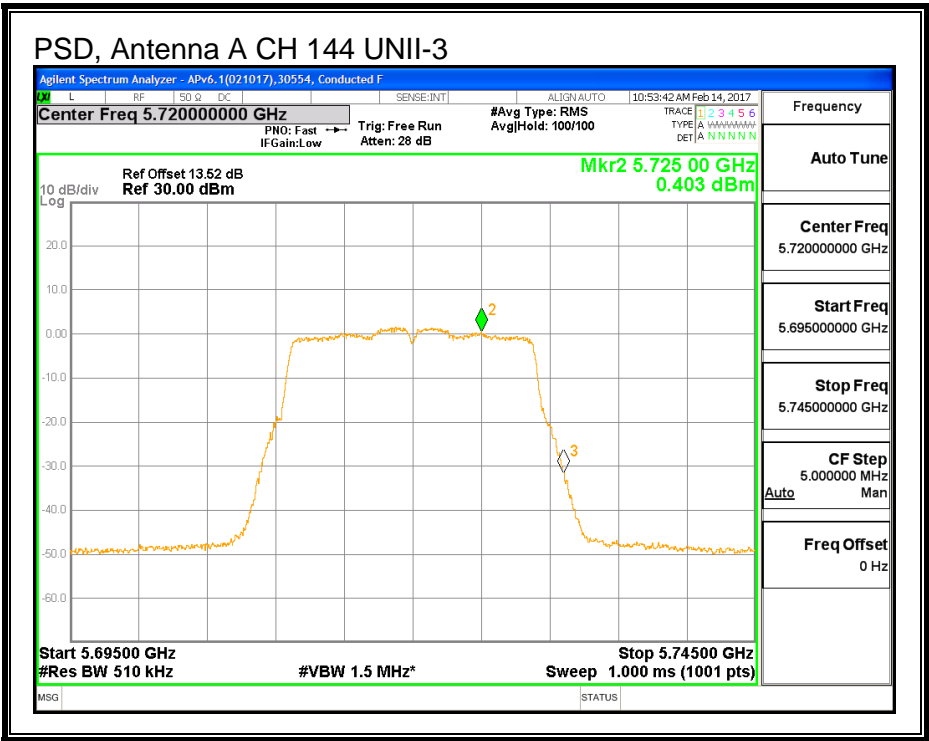
**Output Power Results**

Channel	Frequency (MHz)	Antenna A Meas Power (dBm)	Antenna B Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
144	5720	7.563	7.475	10.53	30.00	-19.47

**PSD Results**

Channel	Frequency (MHz)	Antenna A Meas PSD (dBm)	Antenna B Meas PSD (dBm)	Total Corr'd PSD (dBm)	PSD Limit (dBm)	PSD Margin (dB)
144	5720	0.403	-0.021	3.21	30.00	-26.79





## 8.28.2. 6 dB BANDWIDTH

### LIMITS

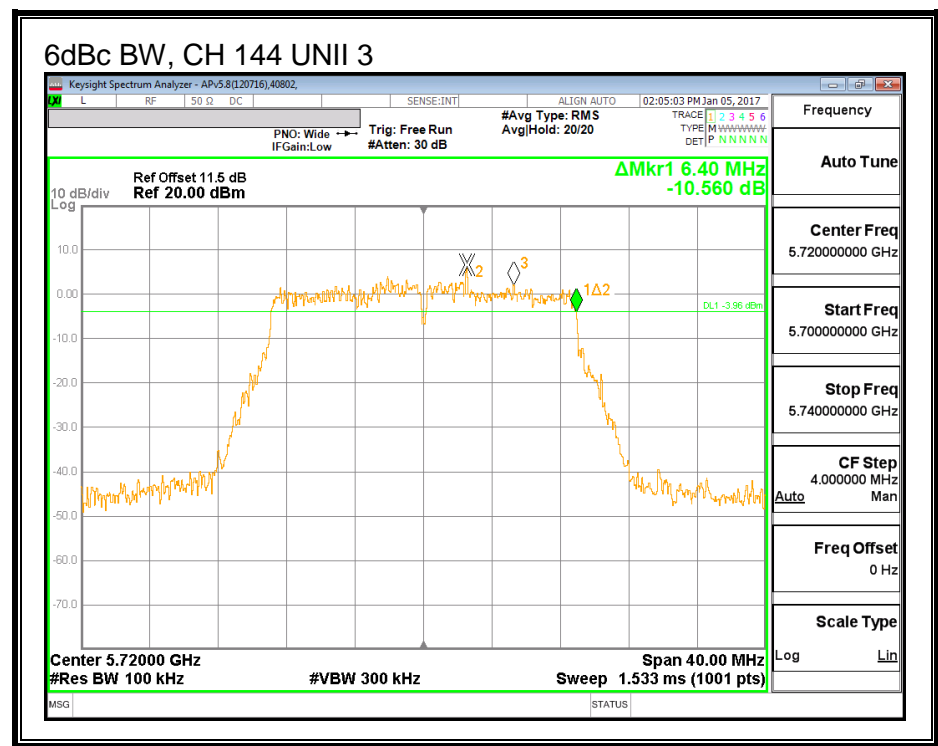
FCC §15.407 (e)

The minimum 6 dB bandwidth shall be at least 500 kHz.

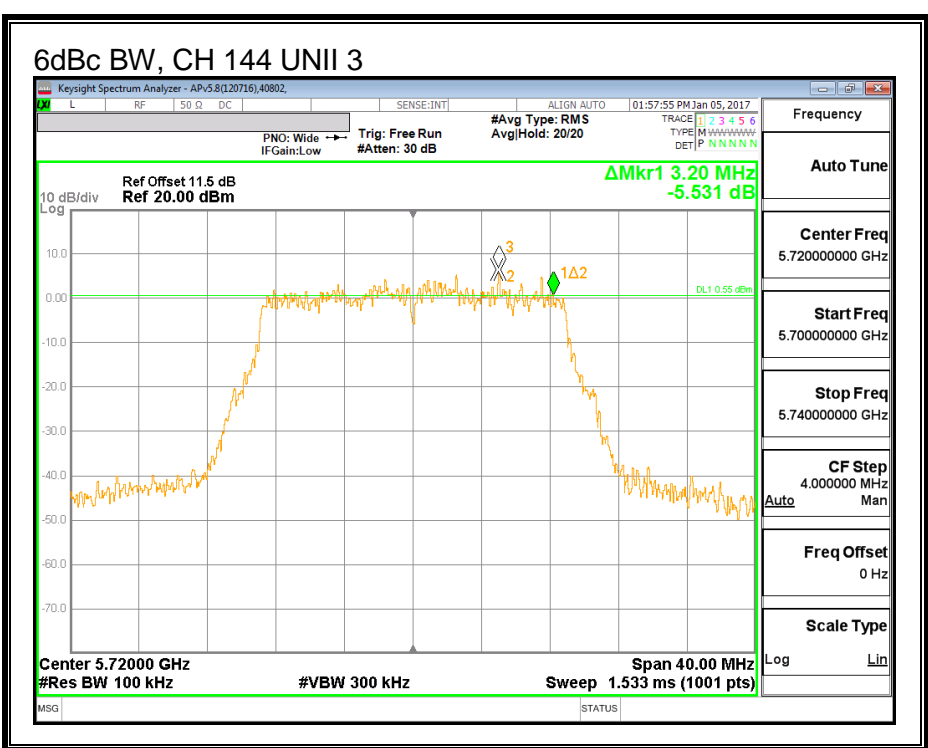
### RESULTS

Channel	Frequency (MHz)	6 dB BW Antenna A (MHz)	6 dB BW Antenna B (MHz)
144	5720	6.400	3.200

ANTENNA A



ANTENNA B





## **8.29. 802.11n HT40 ANTENNA A MODE IN THE 5.6 GHz BAND**

### **8.29.1. 26 dB BANDWIDTH**

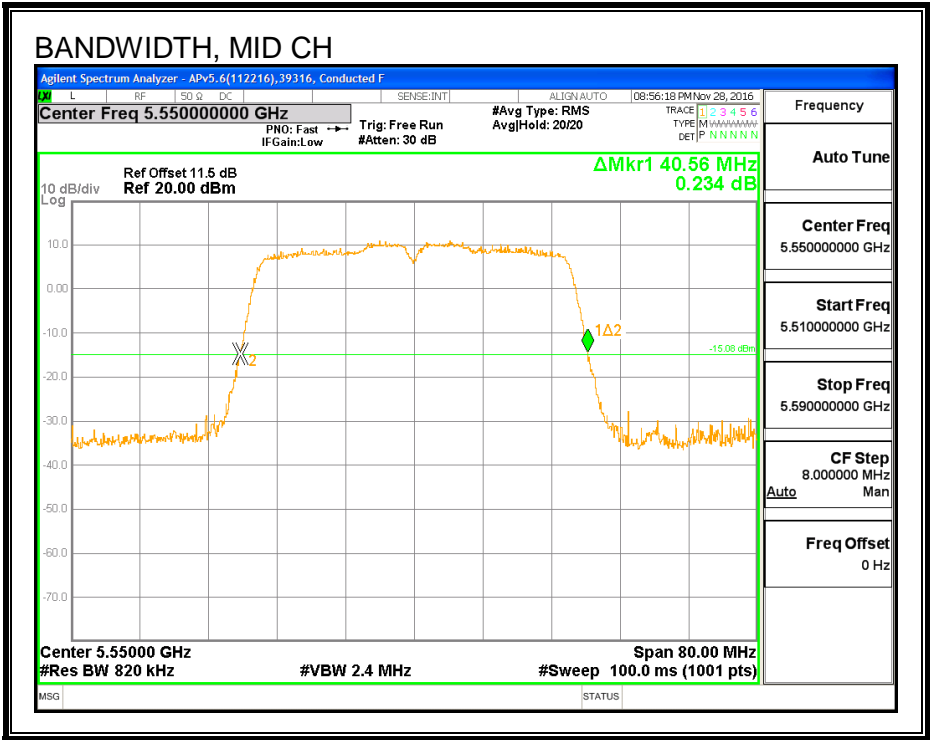
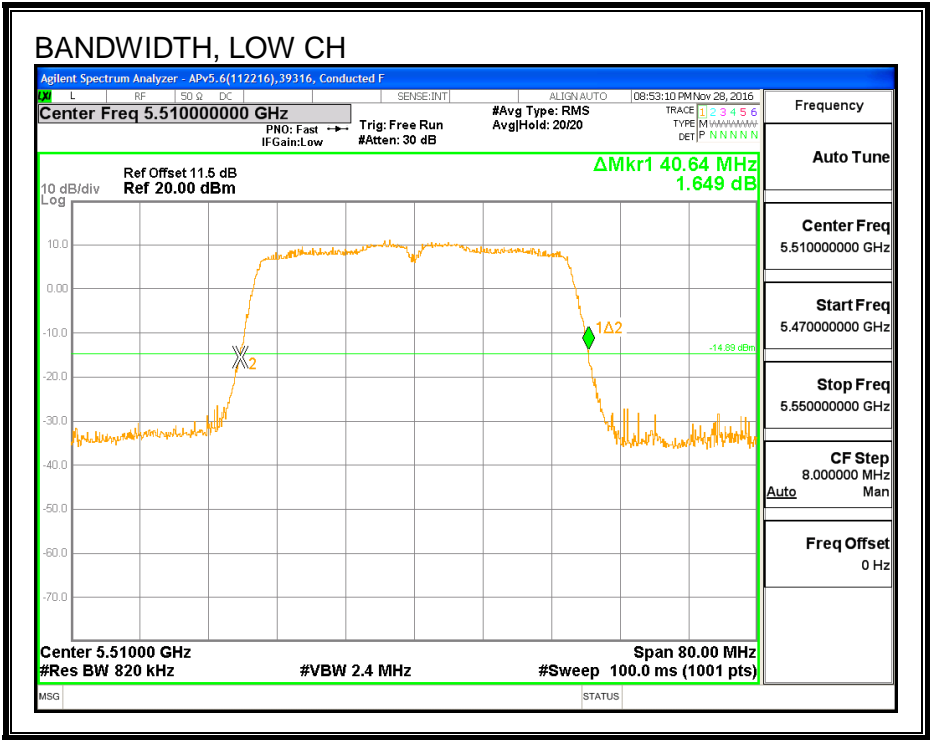
#### **LIMITS**

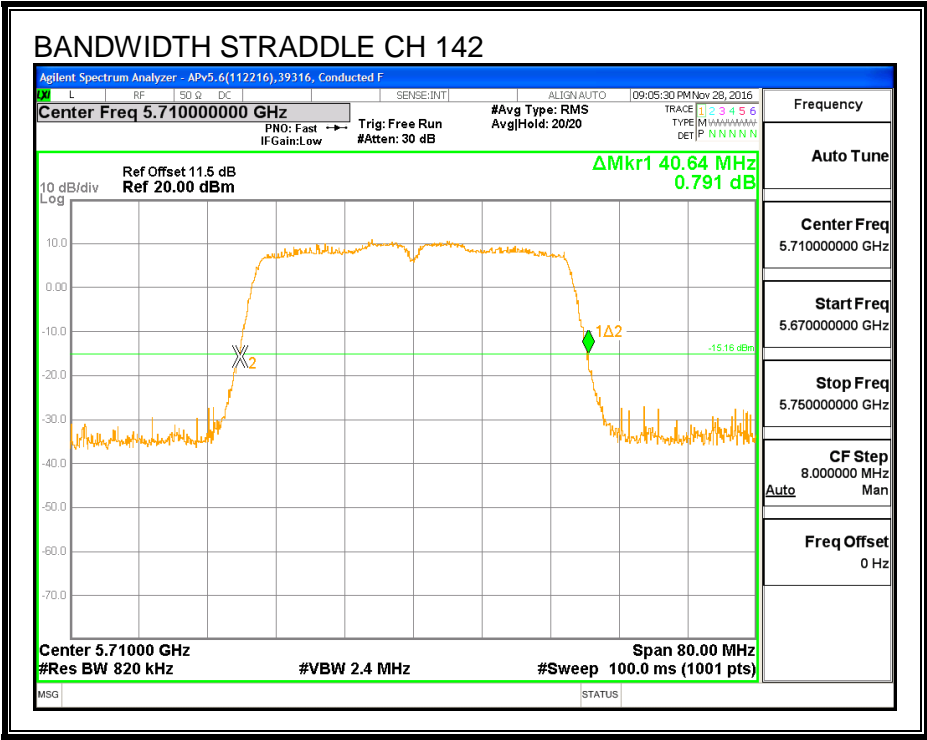
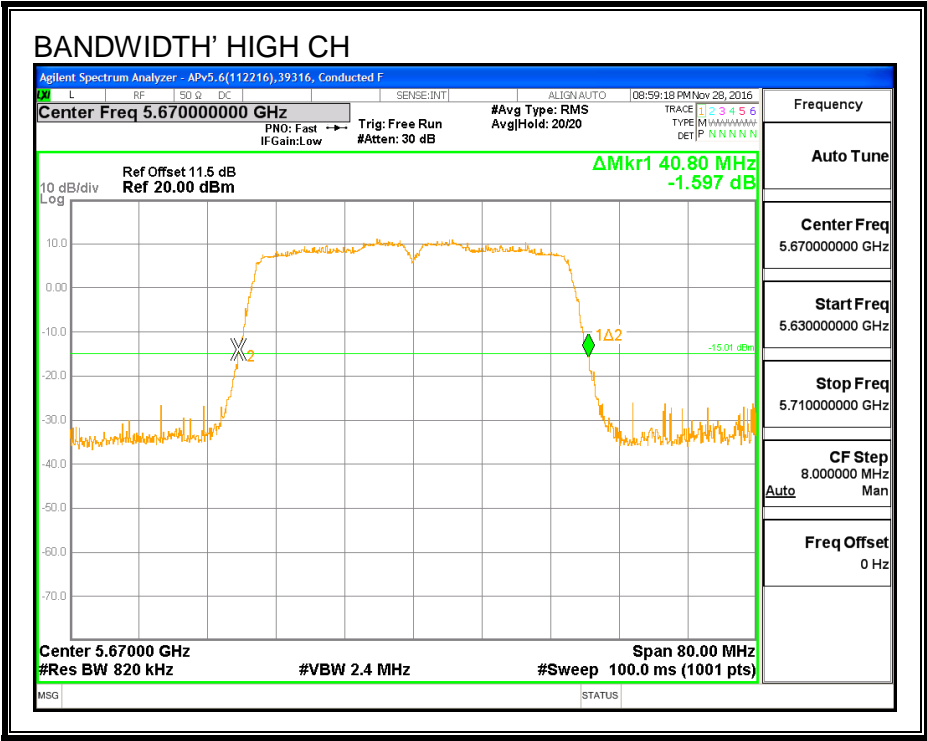
None; for reporting purposes only.

#### **RESULTS**

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)
Low	5510	40.640
Mid	5550	40.560
High	5670	40.800
142	5710	40.640

26 dB BANDWIDTH





## 8.29.2. 99% BANDWIDTH

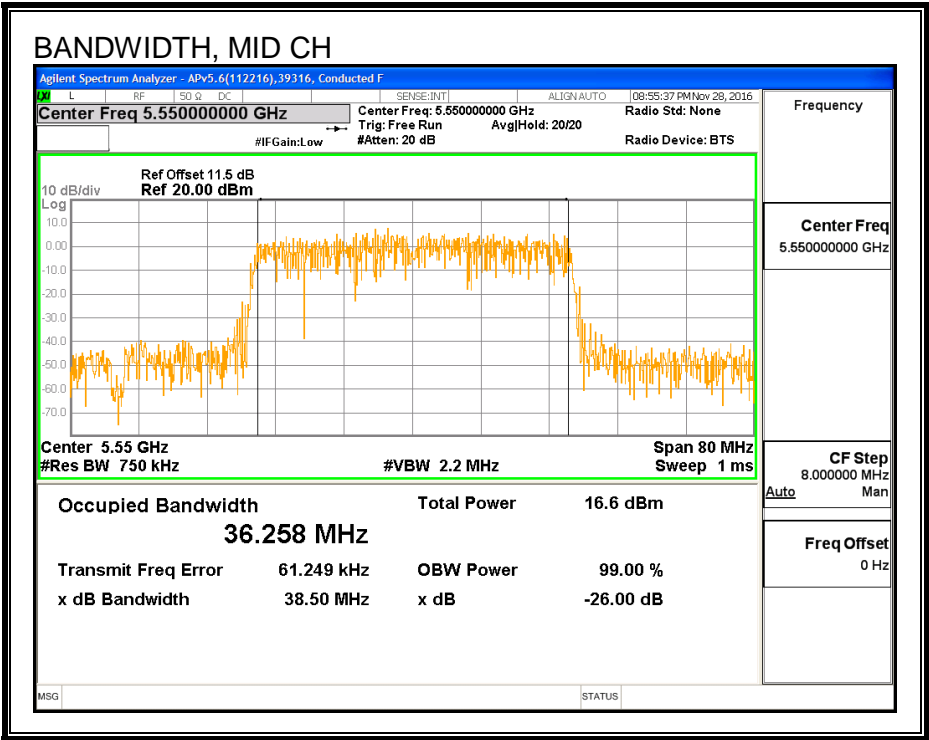
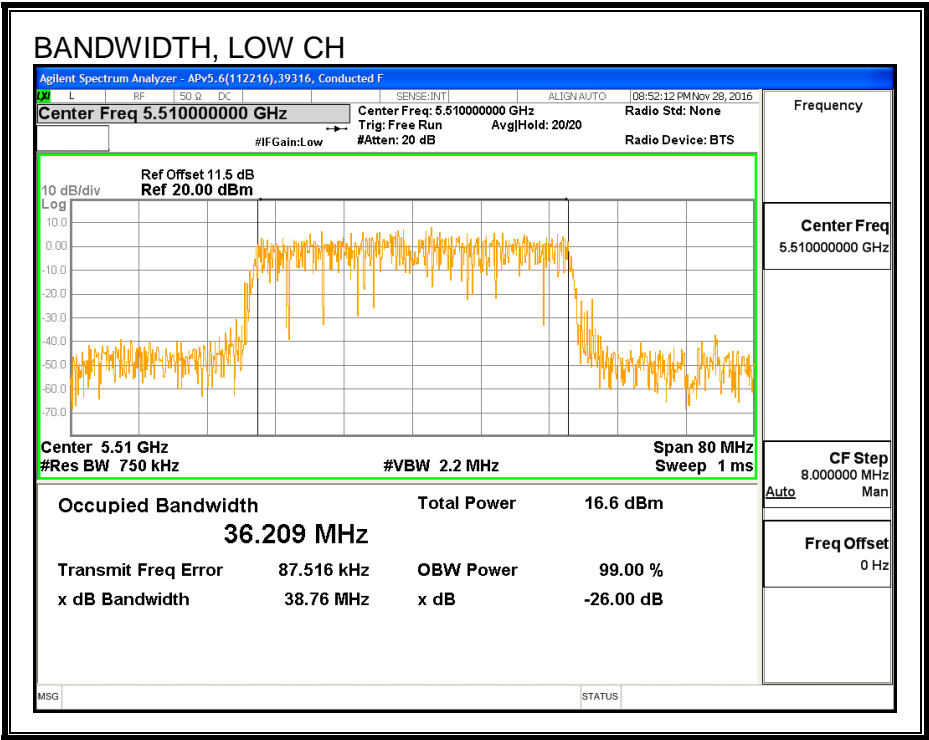
### LIMITS

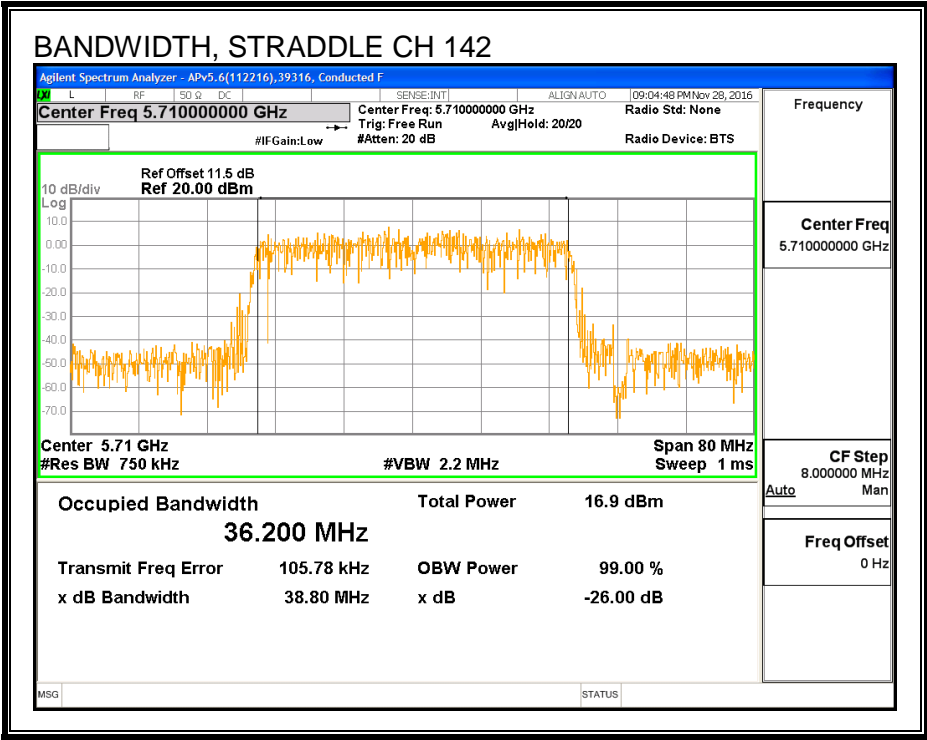
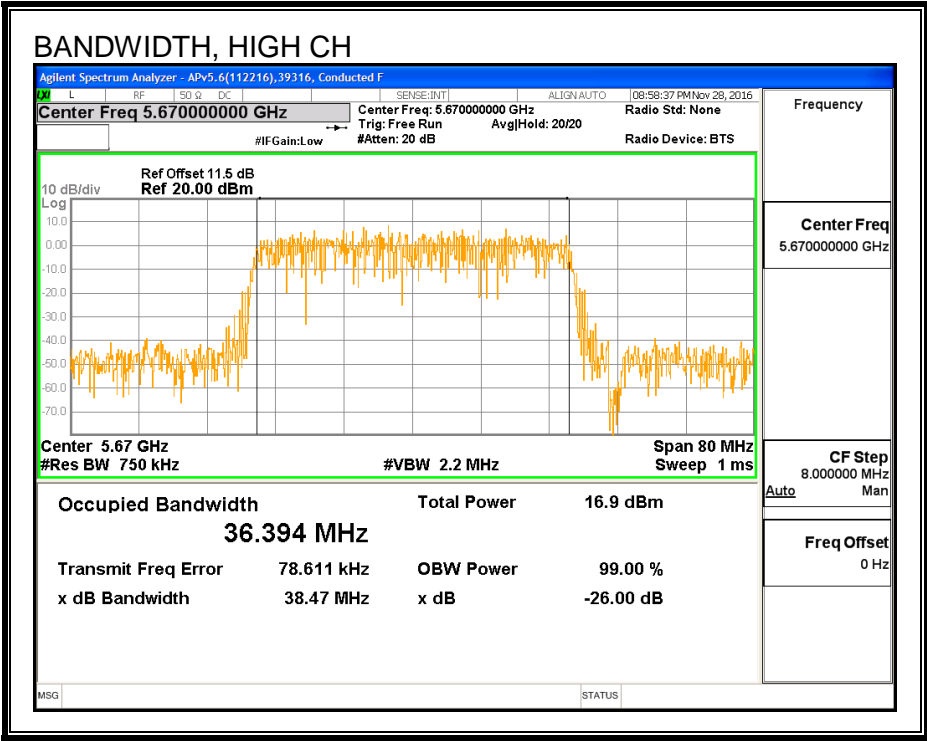
None; for reporting purposes only.

### RESULTS

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	5510	36.209
Mid	5550	36.258
High	5670	36.394
142	5710	36.200

99% BANDWIDTH





### 8.29.3. 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
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Channel	Frequency (MHz)	Power (dBm)
Low	5510	14.44
Mid	5550	14.93
High	5670	14.96
142	5710	14.92

#### **8.29.4. OUTPUT POWER AND PSD**

##### **LIMITS**

FCC §15.407 (a) (2)

For the band 5.47–5.725 GHz, the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 250 mW or  $11 \text{ dBm} + 10 \log B$ , where B is the 26-dB emission bandwidth in MHz. In addition, the peak 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.

Straddle channel power is measured using PXA spectrum analyzer, 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>	39919	<b>Date:</b>	2/14/17
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### Bandwidth, Antenna Gain, and Limits

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Min 99% BW (MHz)	Directional Gain (dBi)	Power Limit (dBm)	PSD Limit (dBm)
Low	5510	40.64	36.21	5.41	24.00	11.00
Mid	5550	40.56	36.26	5.41	24.00	11.00
High	5670	40.80	36.39	5.41	24.00	11.00

<b>Duty Cycle CF (dB)</b>	0.11	<b>Included in Calculations of Corr'd PSD</b>
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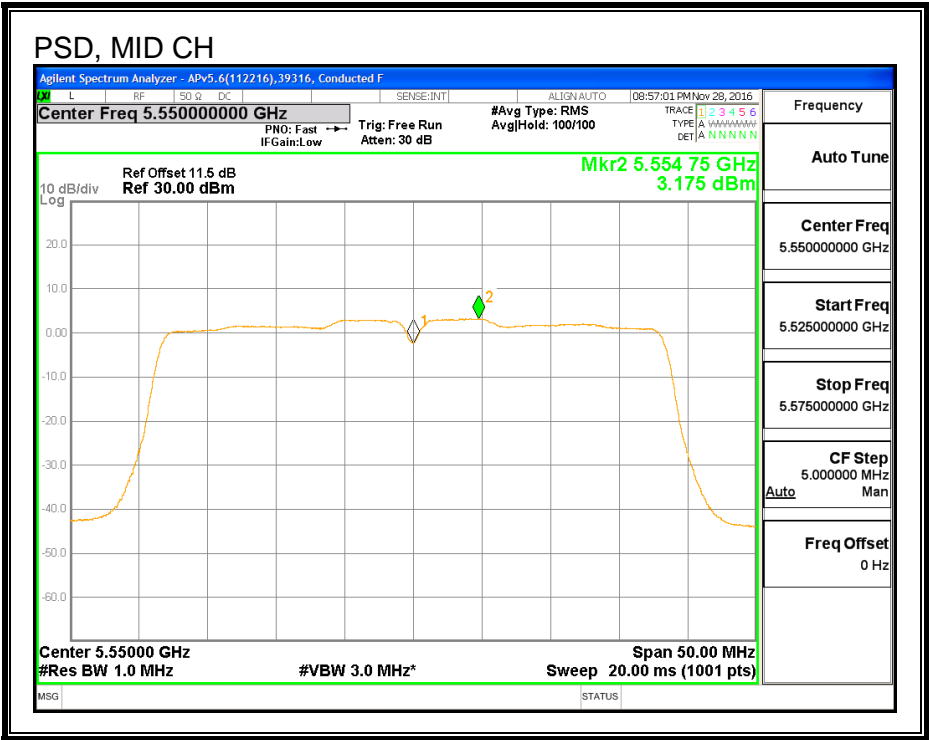
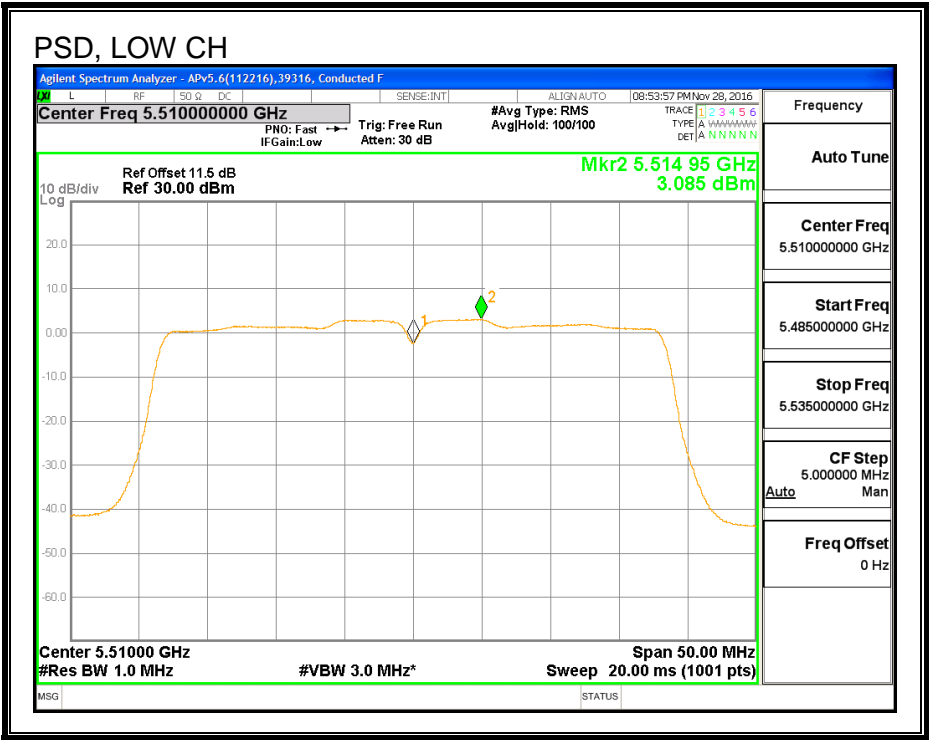
### Output Power Results

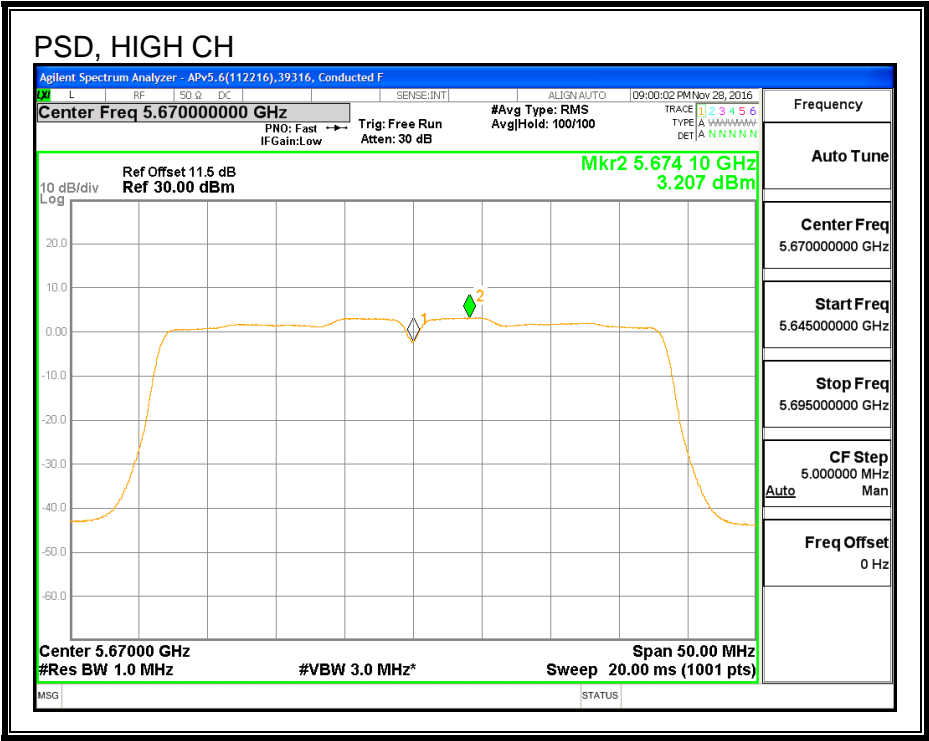
Channel	Frequency (MHz)	Antenna A Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5510	14.44	14.44	24.00	-9.56
Mid	5550	14.93	14.93	24.00	-9.07
High	5670	14.96	14.96	24.00	-9.04

### PSD Results

Channel	Frequency (MHz)	Antenna A Meas PSD (dBm)	Total Corr'd PSD (dBm)	PSD Limit (dBm)	PSD Margin (dB)
Low	5510	3.09	3.20	11.00	-7.81
Mid	5550	3.18	3.29	11.00	-7.72
High	5670	3.21	3.32	11.00	-7.68

PSD





## 8.30. 802.11ac VHT40 ANTENNA A STRADDLE CH 142 RESULTS

### 8.30.1. OUTPUT POWER AND PSD

#### UNII-2C BAND

##### Bandwidth, Antenna Gain, and Limits

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Directional Gain for Power (dBi)	Directional Gain for PSD (dBi)	Power Limit (dBm)	PSD Limit (dBm)
142	5710	35.32	5.41	5.41	24.00	11.00

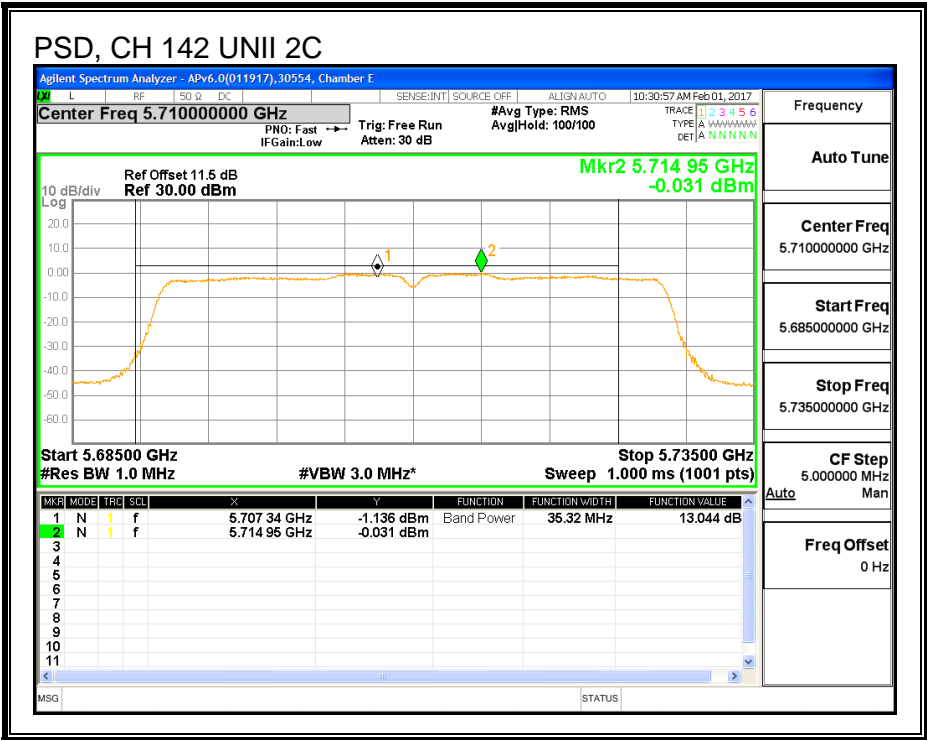
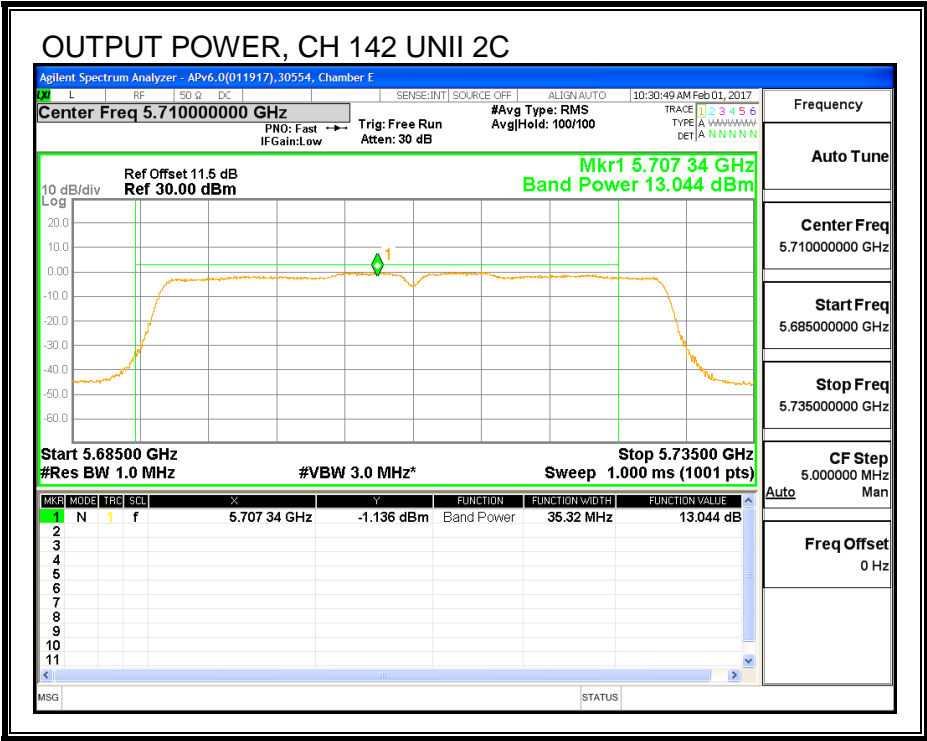
Duty Cycle CF (dB)	0.11	Included in Calculations of Corr'd Power & PSD
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##### Output Power Results

Channel	Frequency (MHz)	Antenna A Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
142	5710	13.04	13.15	24.00	-10.85

##### PSD Results

Channel	Frequency (MHz)	Antenna A Meas PSD (dBm)	Total Corr'd PSD (dBm)	PSD Limit (dBm)	PSD Margin (dB)
142	5710	-0.03	0.08	11.00	-10.92



# **UNII-3 BAND**

## **Antenna Gain and Limit**

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Directional Gain (dBi)	Power Limit (dBm)	PSD Limit (dBm)
142	5710	5.32	4.20	30.00	30.00

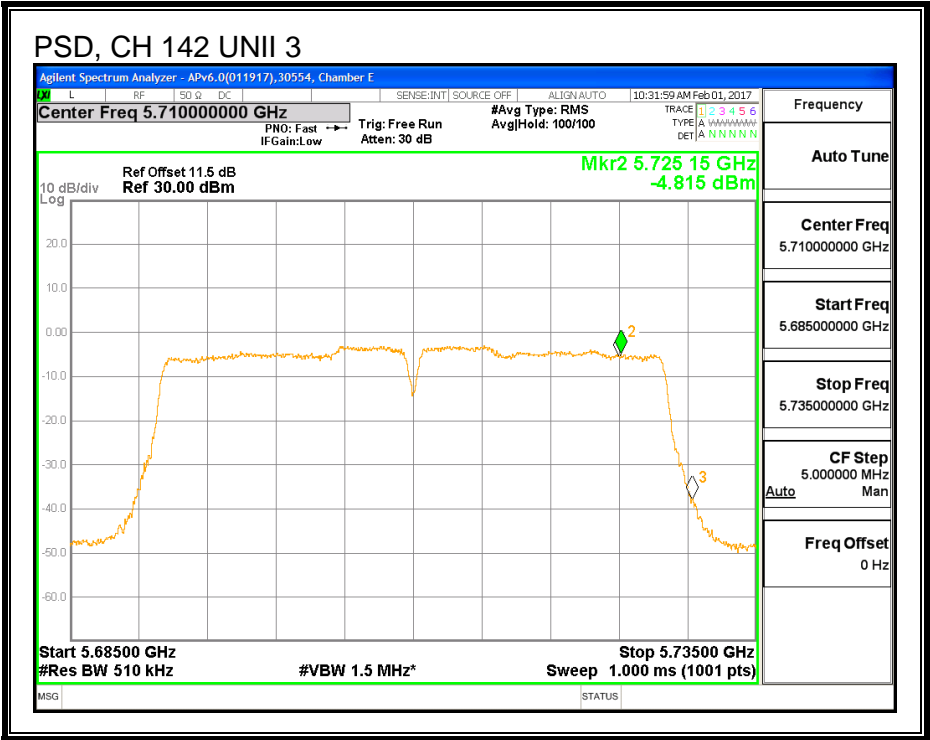
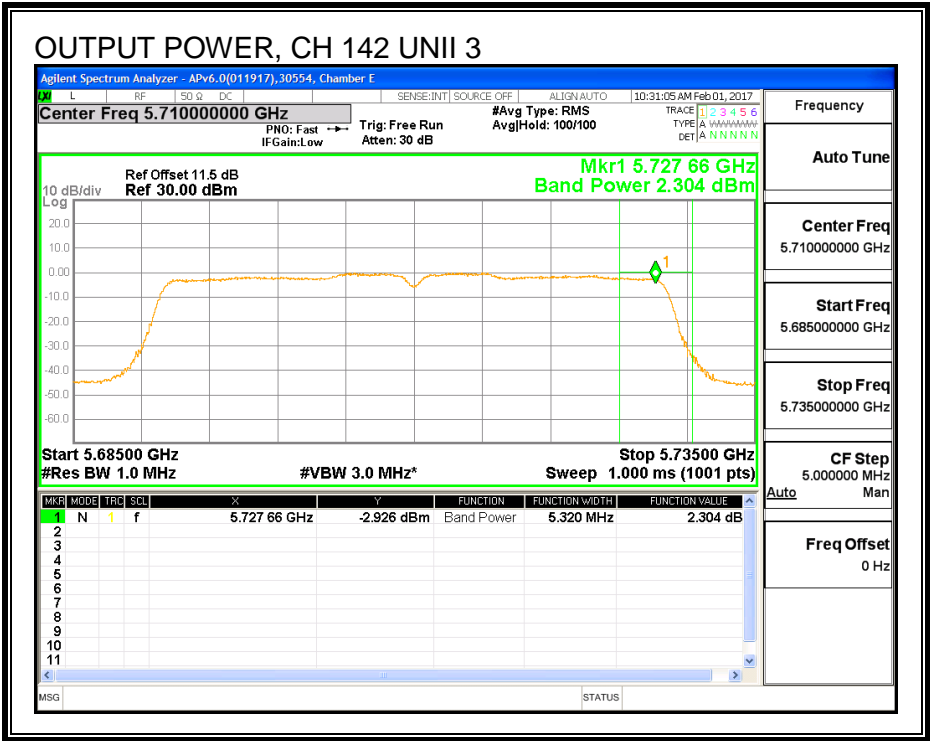
Duty Cycle CF (dB)	0.11	Included in Calculations of Corr'd Power & PSD
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## **Output Power Results**

Channel	Frequency (MHz)	Antenna A Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
142	5710	2.30	2.41	30.00	-27.59

## **PSD Results**

Channel	Frequency (MHz)	Antenna A Meas PSD (dBm)	Total Corr'd PSD (dBm)	PSD Limit (dBm)	PSD Margin (dB)
142	5710	-4.82	-4.71	30.00	-34.71



8.30.2. 6 dB BANDWIDTH

LIMITS

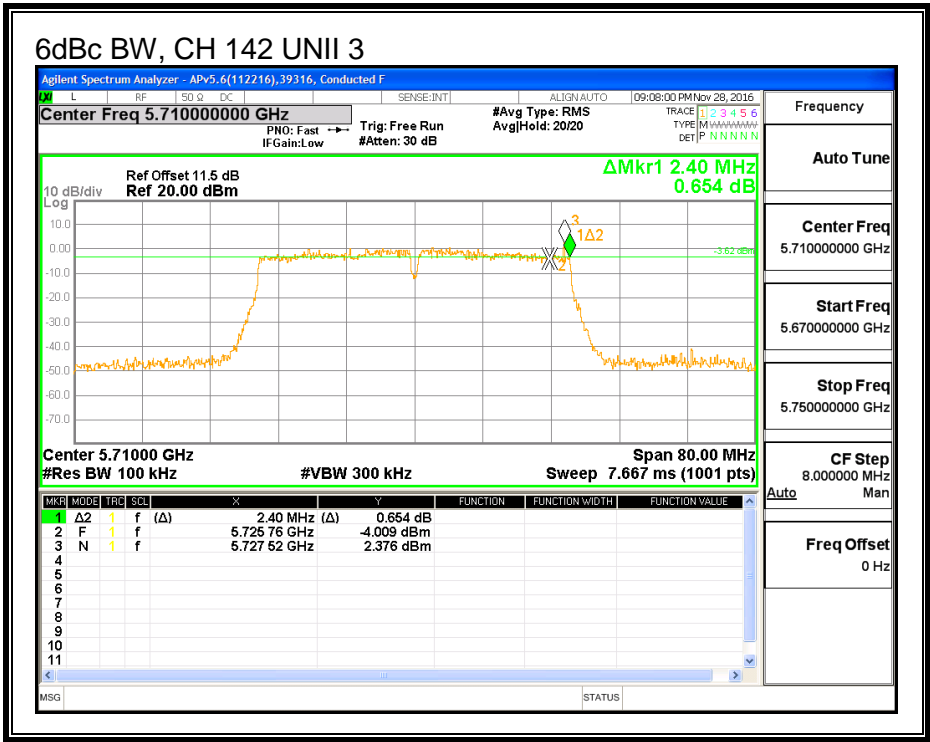
FCC §15.407 (e)

The minimum 6 dB bandwidth shall be at least 500 kHz.

RESULTS

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)
142	5710	2.400

6 dB BANDWIDTH





### 8.31. 802.11n HT40 ANTENNA B MODE IN THE 5.6 GHz BAND

#### 8.31.1. 26 dB BANDWIDTH

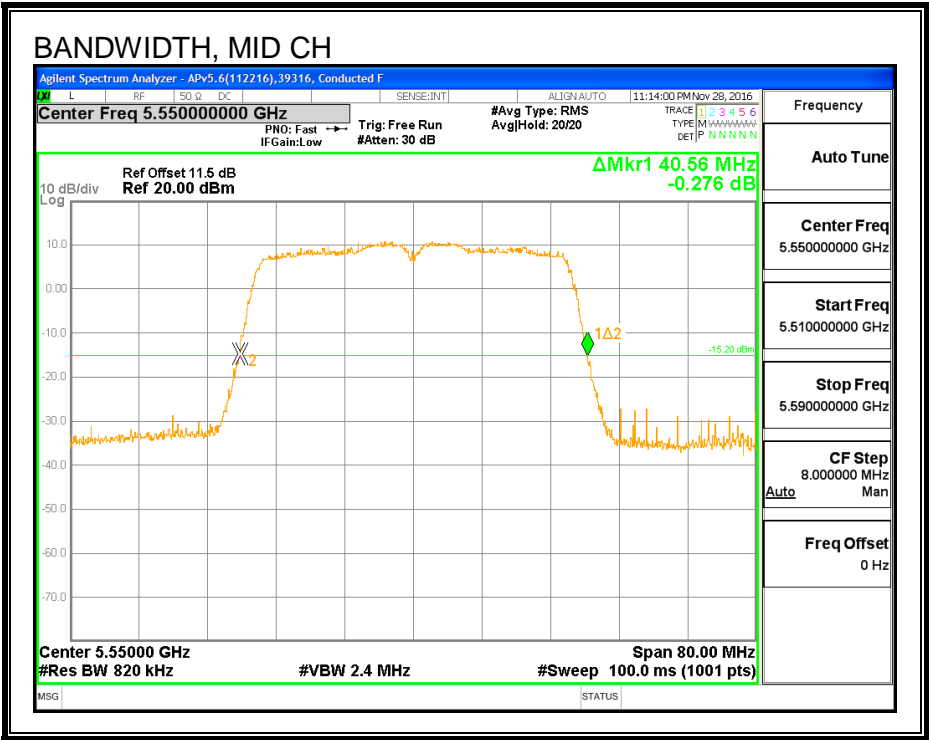
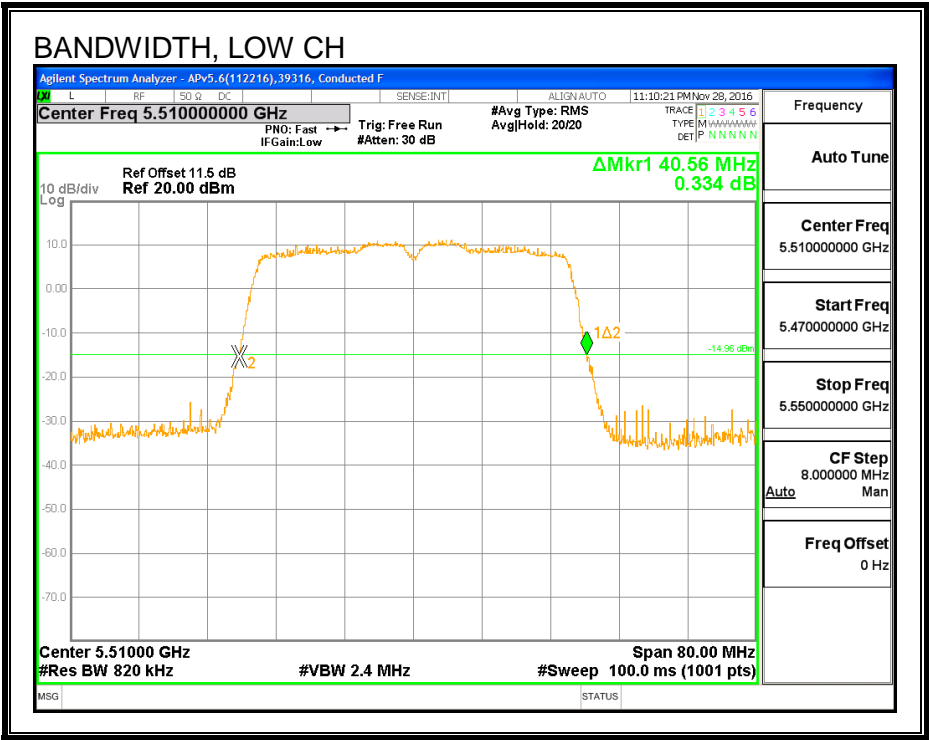
##### LIMITS

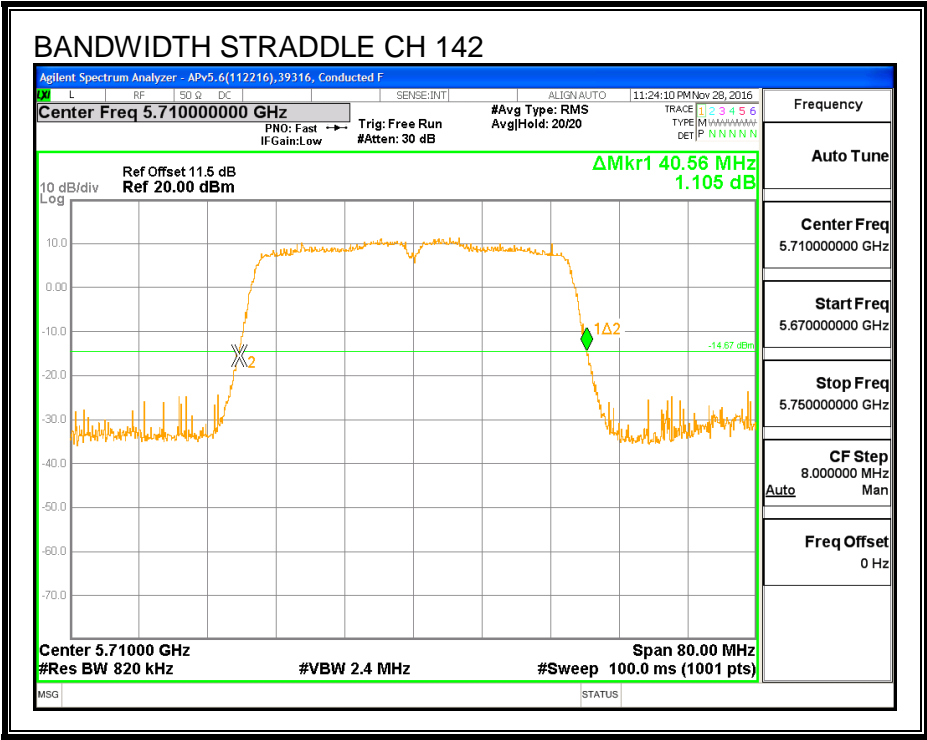
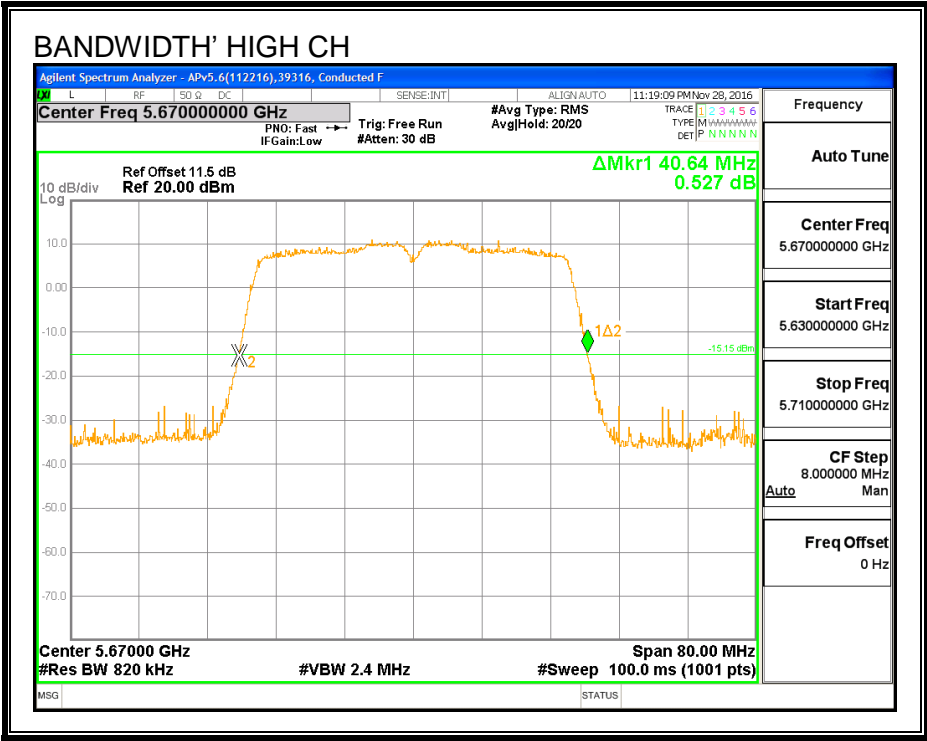
None; for reporting purposes only.

##### RESULTS

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)
Low	5510	40.560
Mid	5550	40.560
High	5670	40.640
142	5710	40.560

26 dB BANDWIDTH





### 8.31.2. 99% BANDWIDTH

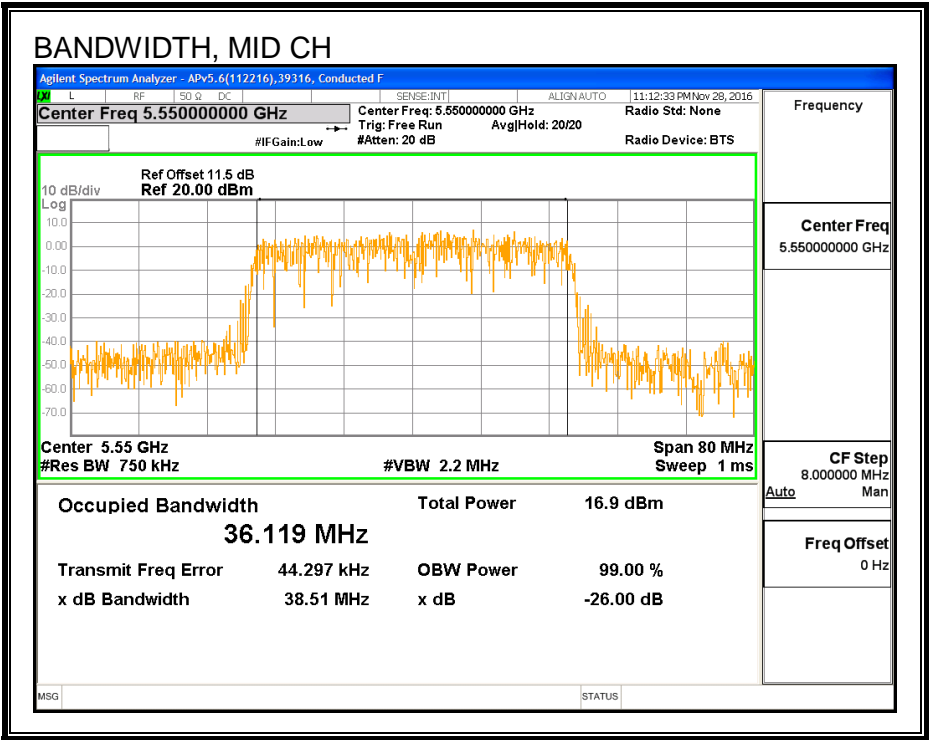
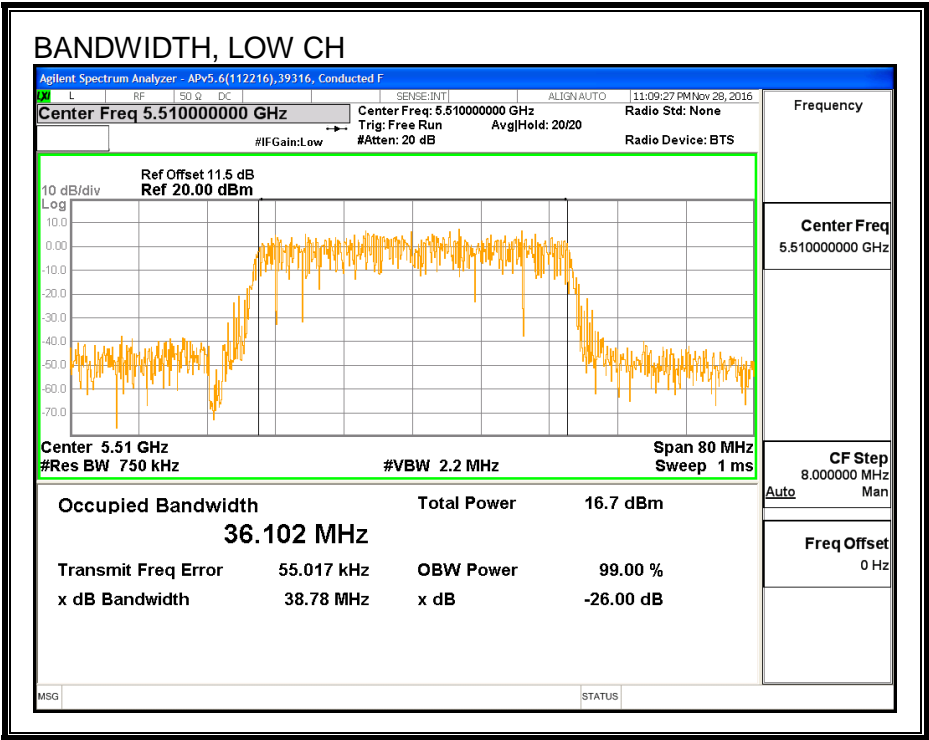
#### LIMITS

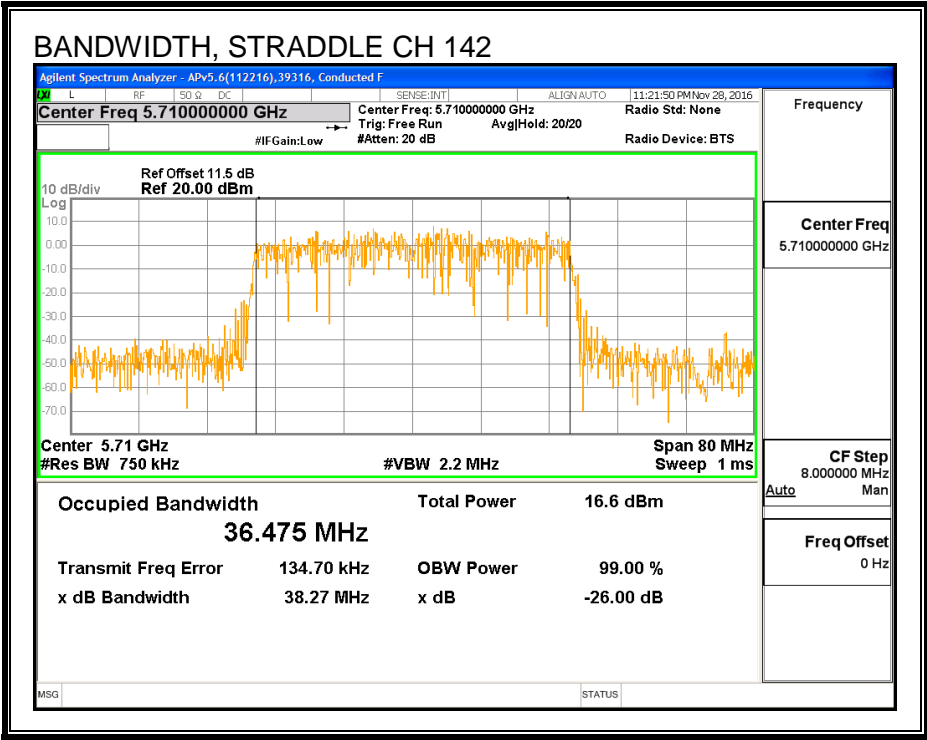
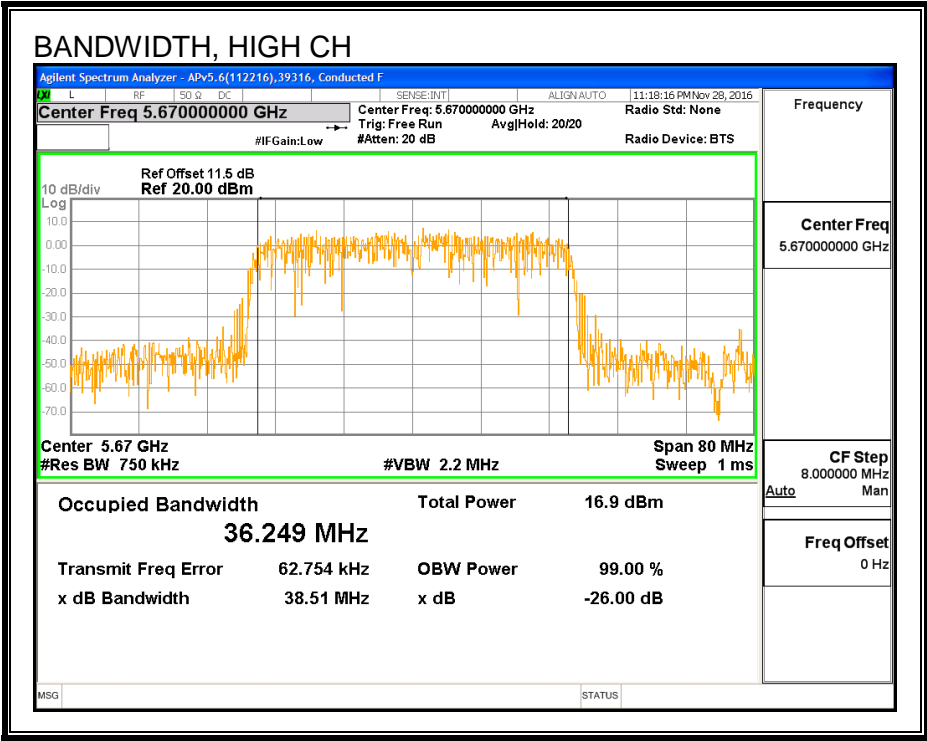
None; for reporting purposes only.

#### RESULTS

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	5510	36.102
Mid	5550	36.119
High	5670	36.249
142	5710	36.475

99% BANDWIDTH





### 8.31.3. 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
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Channel	Frequency (MHz)	Power (dBm)
Low	5510	14.49
Mid	5550	14.96
High	5670	14.91
142	5710	14.98

#### **8.31.4. OUTPUT POWER AND PSD**

##### **LIMITS**

FCC §15.407 (a) (2)

For the band 5.47–5.725 GHz, the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 250 mW or  $11 \text{ dBm} + 10 \log B$ , where B is the 26-dB emission bandwidth in MHz. In addition, the peak 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.

Straddle channel power is measured using PXA spectrum analyzer, 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>	39919	<b>Date:</b>	2/14/17
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### Bandwidth, Antenna Gain, and Limits

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Min 99% BW (MHz)	Directional Gain (dBi)	Power Limit (dBm)	PSD Limit (dBm)
Low	5510	40.56	36.10	5.17	24.00	11.00
Mid	5550	40.56	36.12	5.17	24.00	11.00
High	5670	40.64	36.25	5.17	24.00	11.00

<b>Duty Cycle CF (dB)</b>	0.11	<b>Included in Calculations of Corr'd PSD</b>
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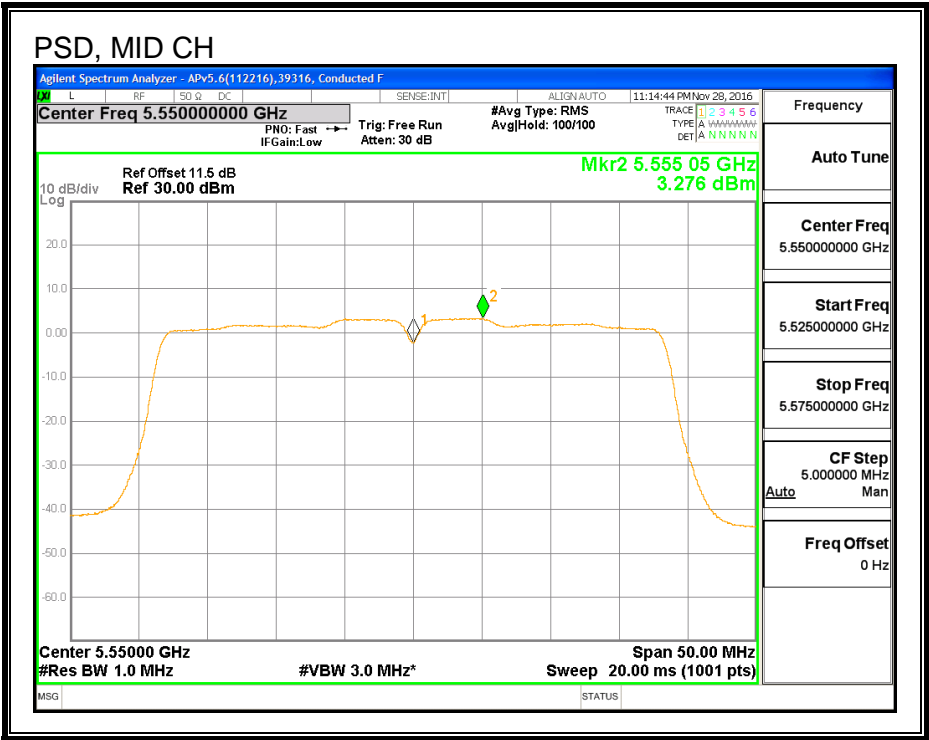
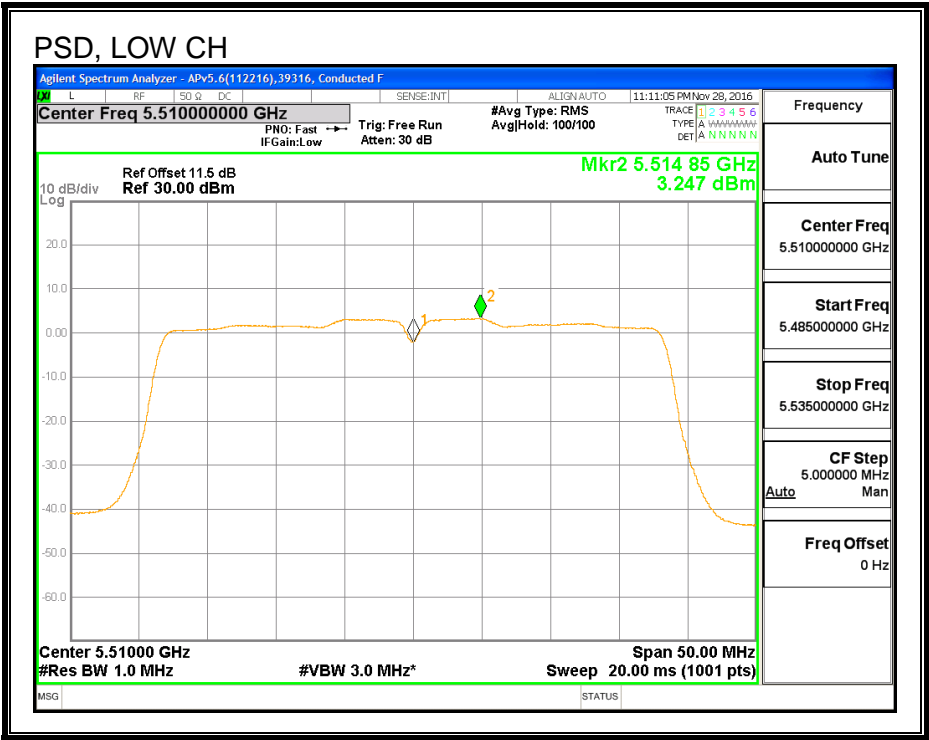
### Output Power Results

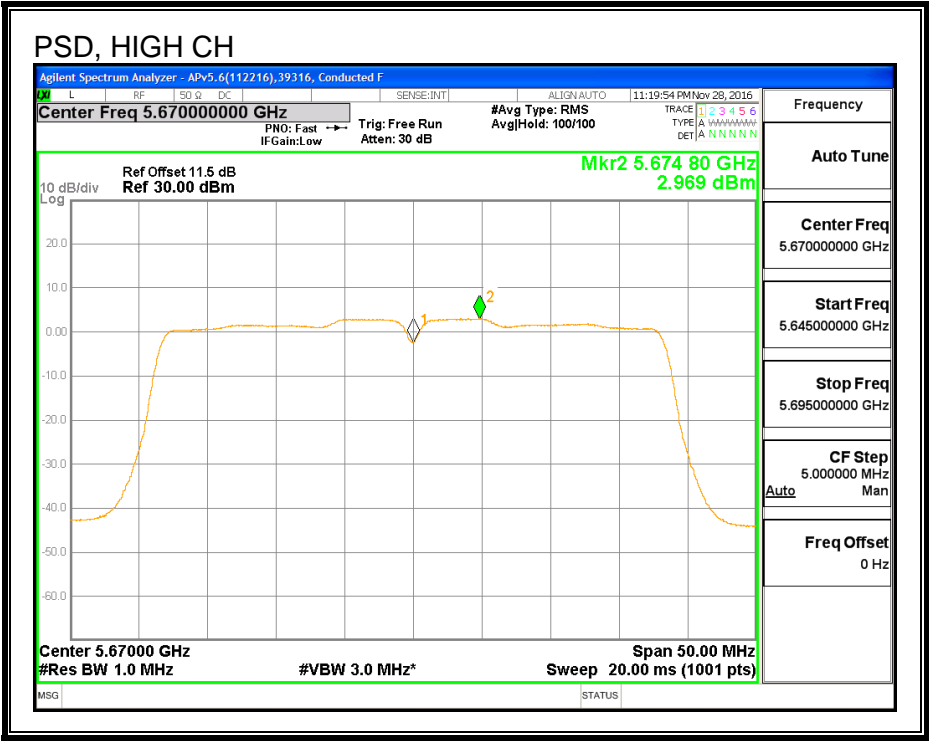
Channel	Frequency (MHz)	Antenna B Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5510	14.49	14.49	24.00	-9.51
Mid	5550	14.96	14.96	24.00	-9.04
High	5670	14.91	14.91	24.00	-9.09

### PSD Results

Channel	Frequency (MHz)	Antenna B Meas PSD (dBm)	Total Corr'd PSD (dBm)	PSD Limit (dBm)	PSD Margin (dB)
Low	5510	3.25	3.36	11.00	-7.64
Mid	5550	3.28	3.39	11.00	-7.61
High	5670	2.97	3.08	11.00	-7.92

PSD





## 8.32. 802.11ac VHT40 ANTENNA B STRADDLE CH 142 RESULTS

### 8.32.1. OUTPUT POWER AND PSD

#### UNII-2C BAND

##### Bandwidth, Antenna Gain, and Limits

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Directional Gain for Power (dBi)	Directional Gain for PSD (dBi)	Power Limit (dBm)	PSD Limit (dBm)
142	5710	35.28	5.17	5.17	24.00	11.00

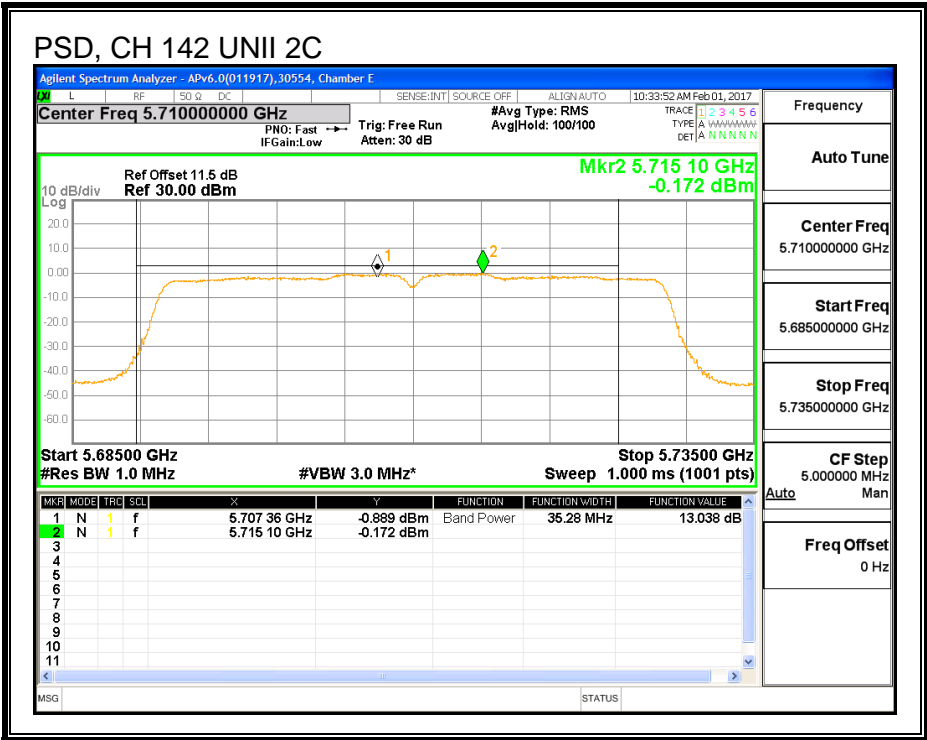
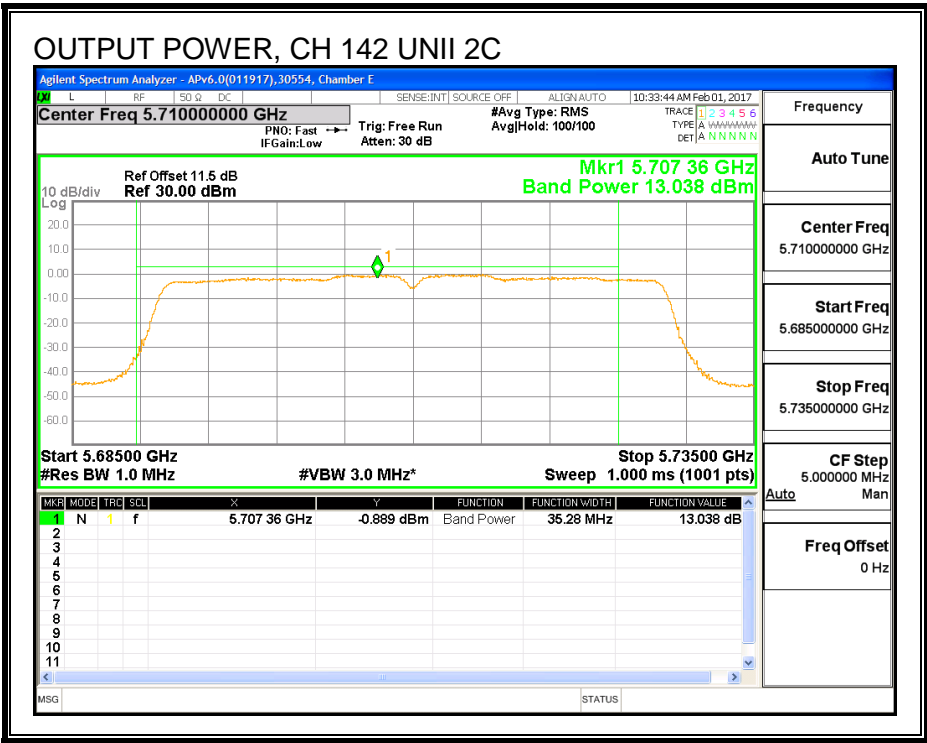
Duty Cycle CF (dB)	0.11	Included in Calculations of Corr'd Power & PSD
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##### Output Power Results

Channel	Frequency (MHz)	Antenna B Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
142	5710	13.04	13.15	24.00	-10.85

##### PSD Results

Channel	Frequency (MHz)	Antenna B Meas PSD (dBm)	Total Corr'd PSD (dBm)	PSD Limit (dBm)	PSD Margin (dB)
142	5710	-1.72	-1.61	11.00	-12.61



### UNII-3 BAND

#### Antenna Gain and Limit

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Directional Gain (dBi)	Power Limit (dBm)	PSD Limit (dBm)
142	5710	5.28	4.32	30.00	30.00

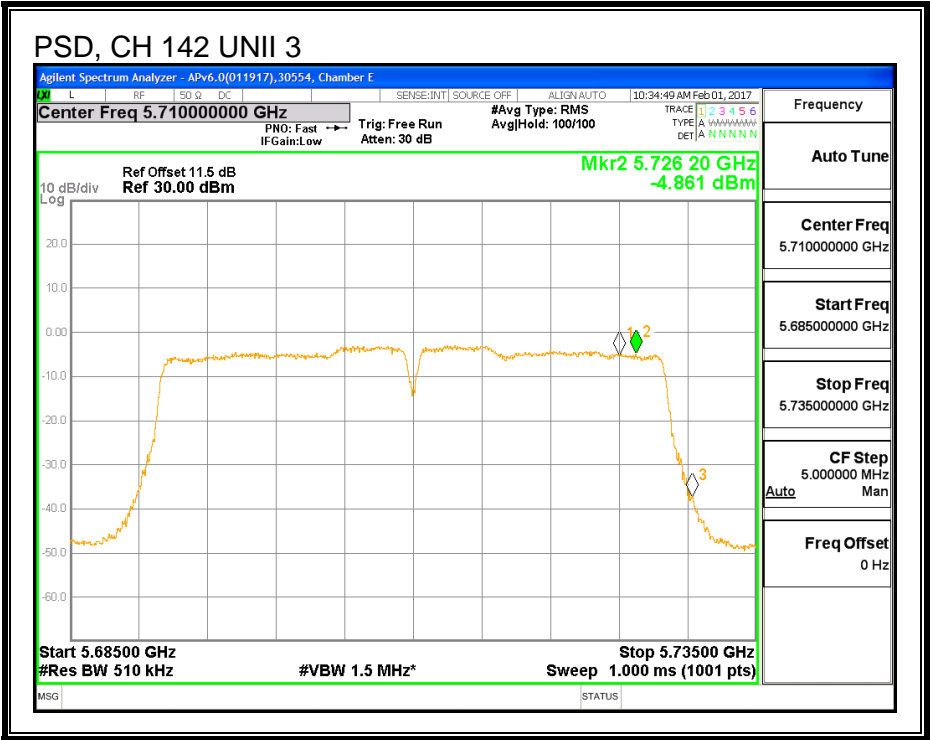
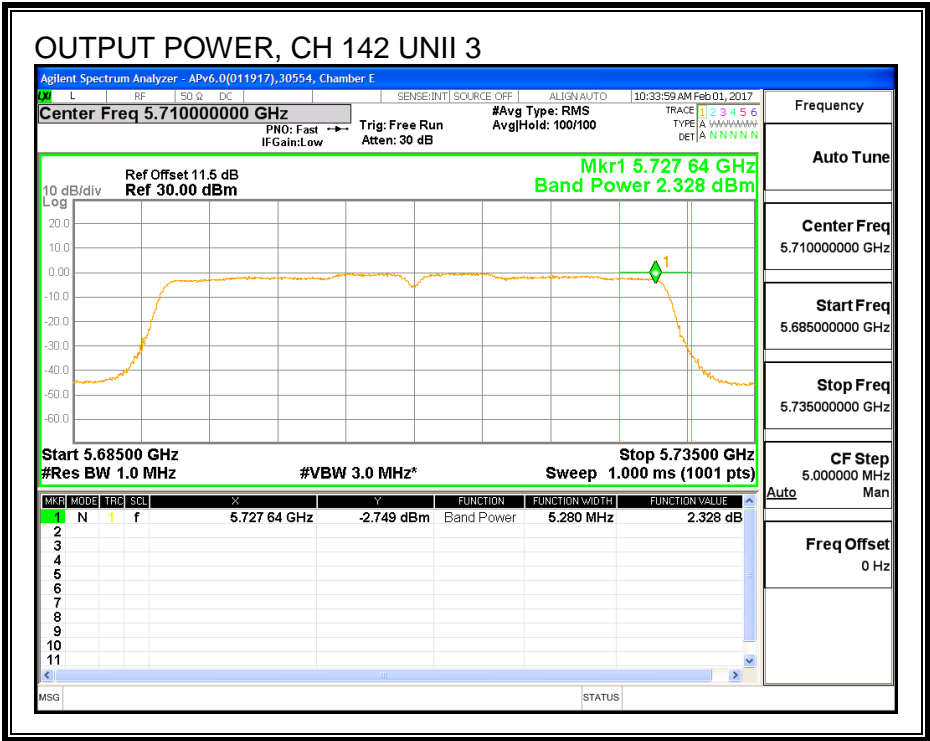
Duty Cycle CF (dB)	0.11	Included in Calculations of Corr'd Power & PSD
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#### Output Power Results

Channel	Frequency (MHz)	Antenna B Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
142	5710	2.33	2.44	30.00	-27.56

#### PSD Results

Channel	Frequency (MHz)	Antenna B Meas PSD (dBm)	Total Corr'd PSD (dBm)	PSD Limit (dBm)	PSD Margin (dB)
142	5710	-4.86	-4.75	30.00	-34.75



8.32.2. 6 dB BANDWIDTH

LIMITS

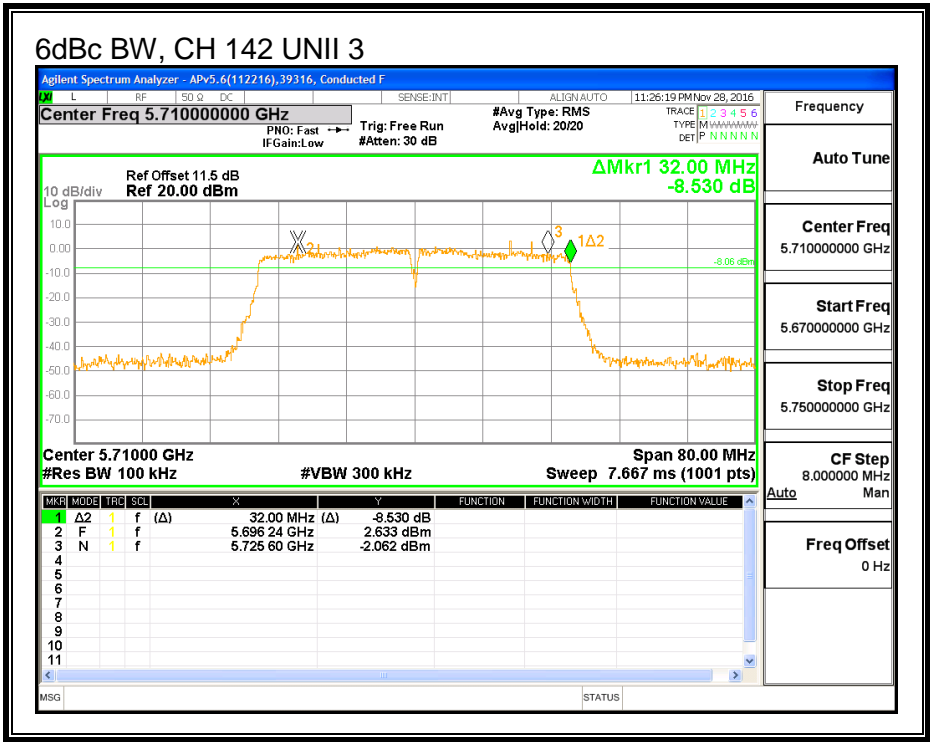
FCC §15.407 (e)

The minimum 6 dB bandwidth shall be at least 500 kHz.

RESULTS

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)
142	5710	32.000

6 dB BANDWIDTH





### 8.33. 802.11n HT40 2Tx (ANTENNA A + ANTENNA B) CDD MODE IN THE 5.6 GHz BAND

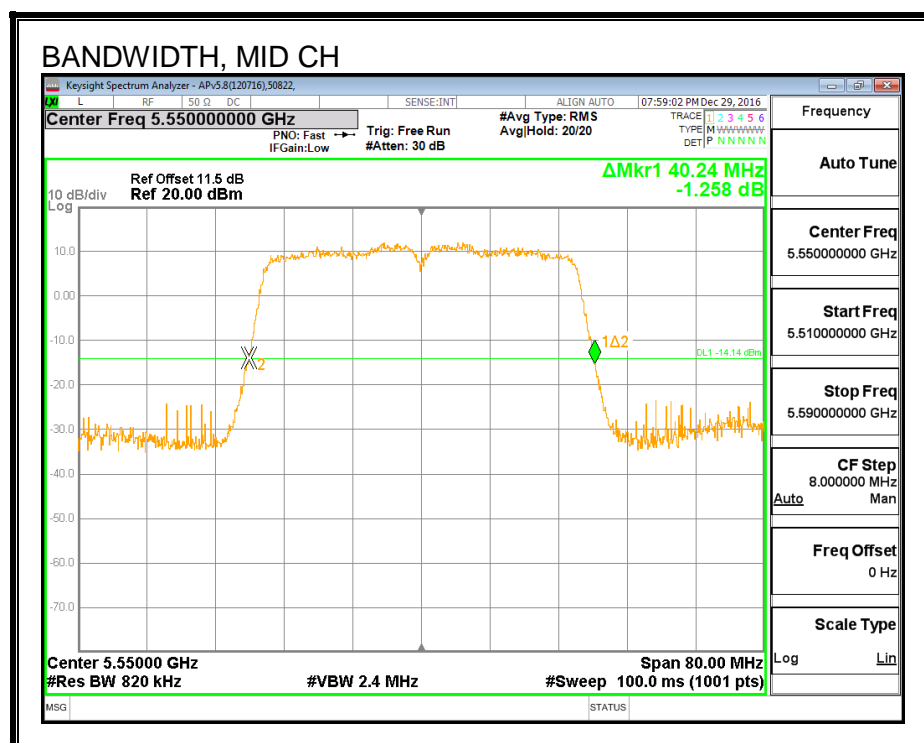
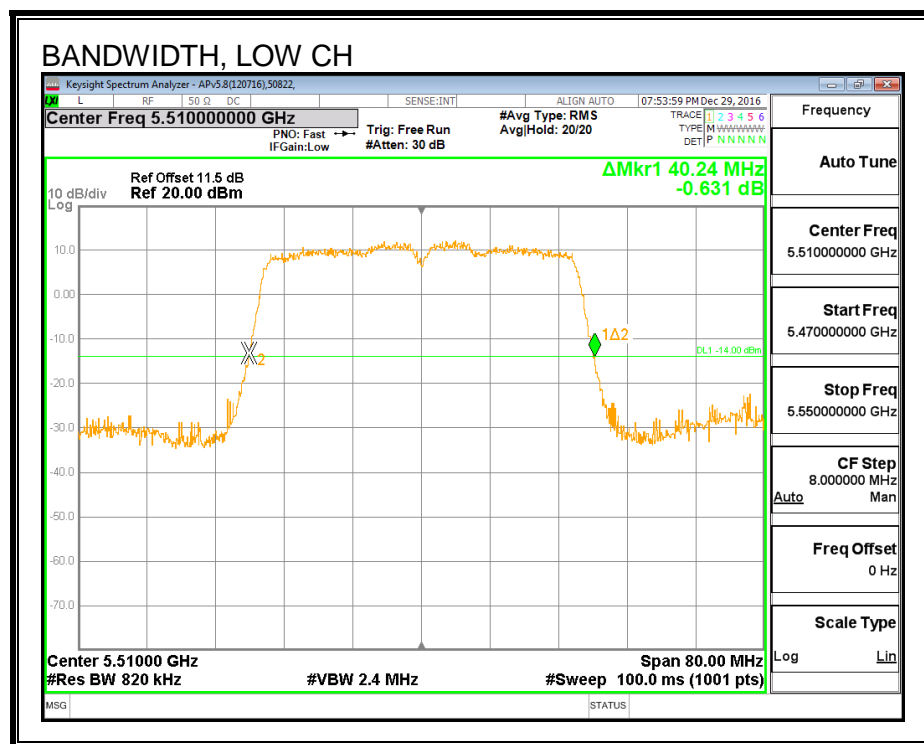
#### 8.33.1. 26 dB BANDWIDTH

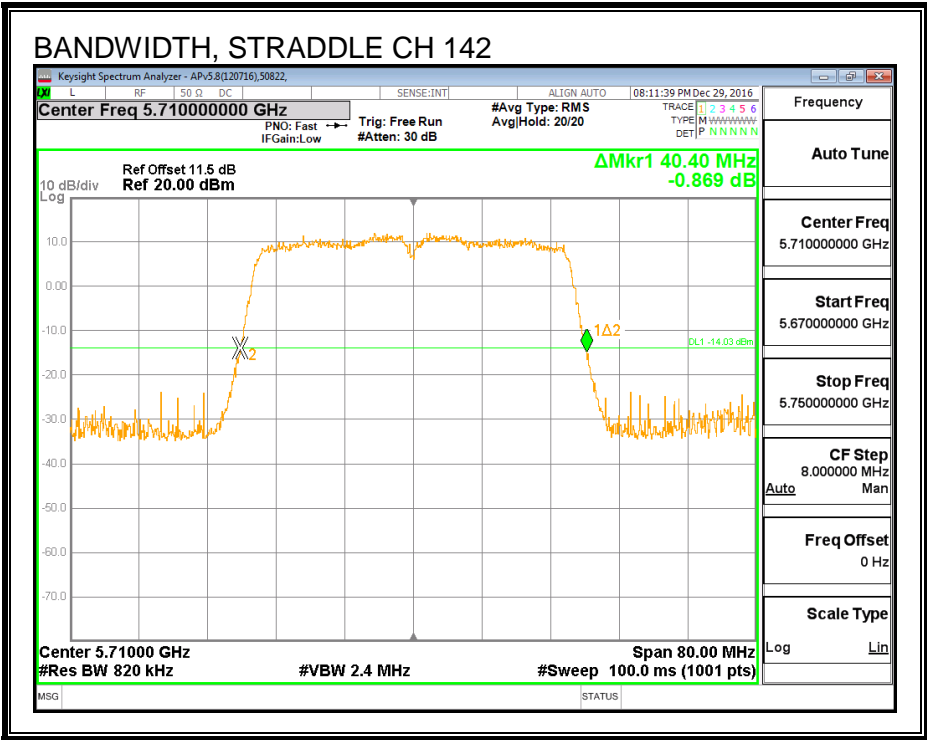
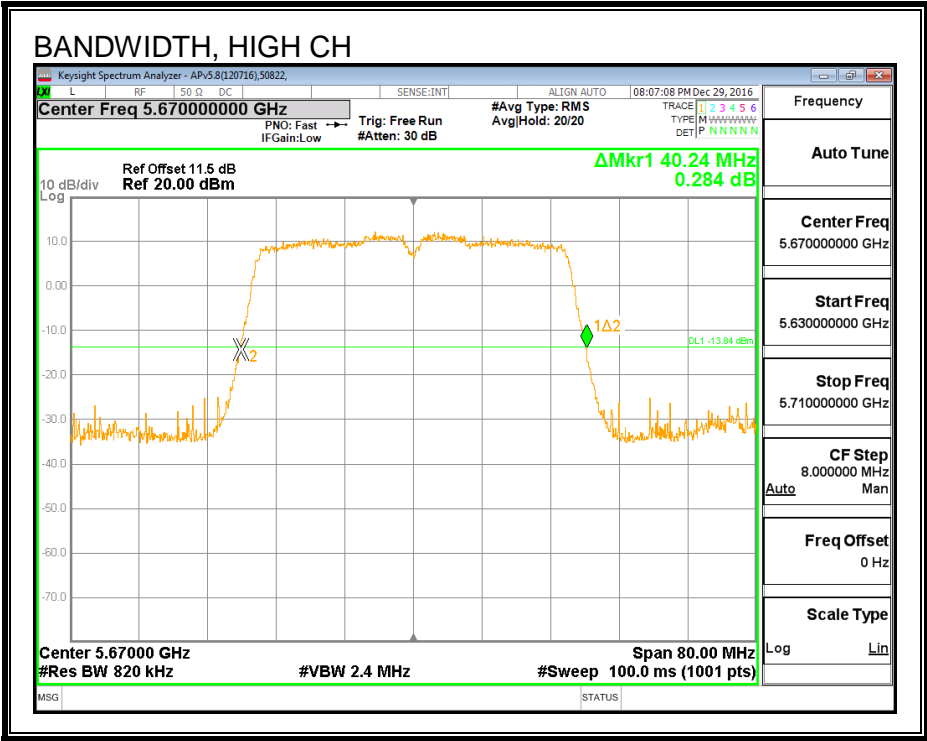
##### LIMITS

None; for reporting purposes only.

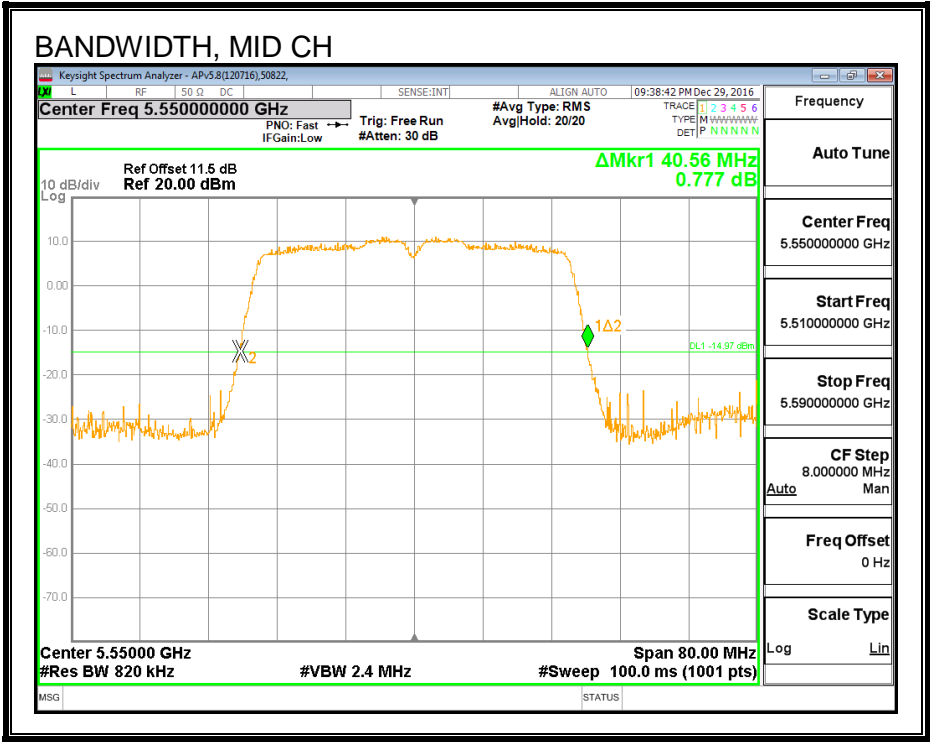
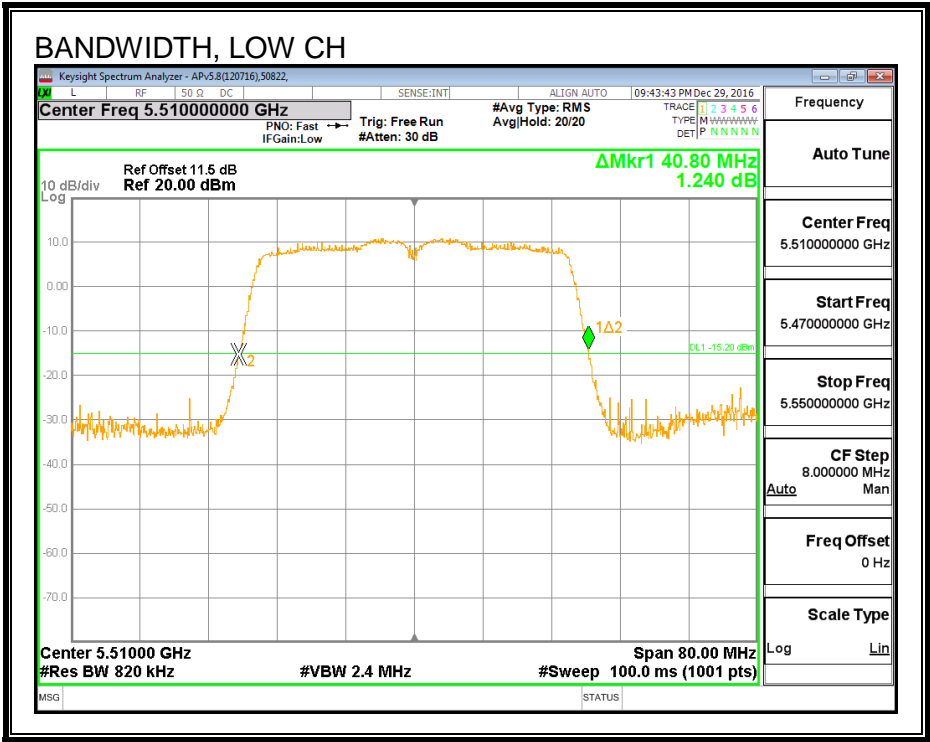
##### RESULTS

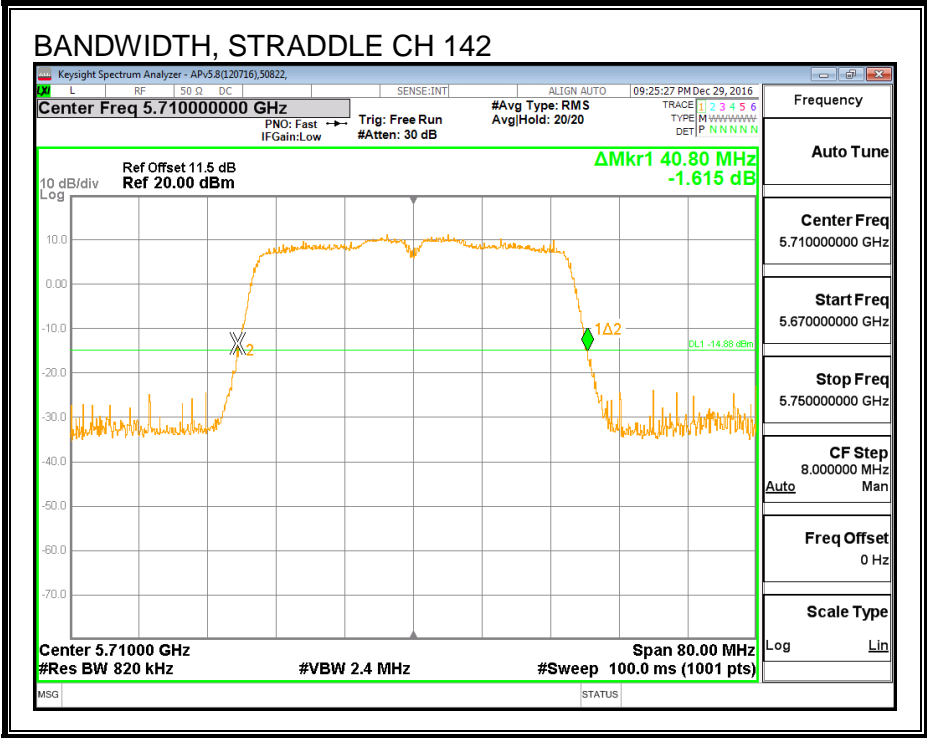
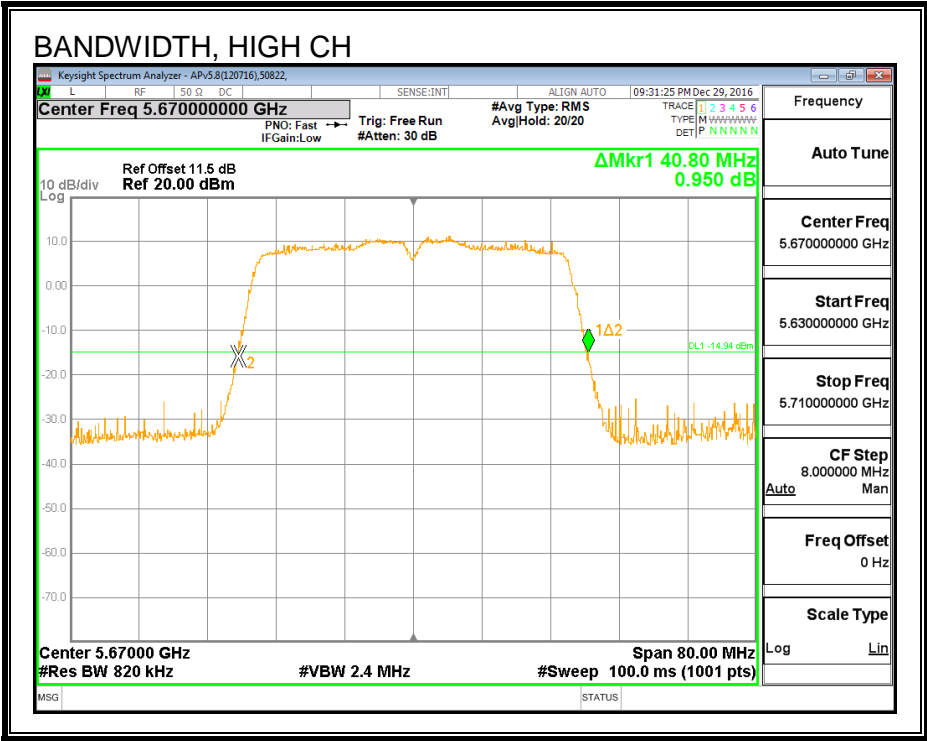
Channel	Frequency (MHz)	26 dB BW Antenna A (MHz)	26 dB BW Antenna B (MHz)
Low	5510	40.240	40.800
Mid	5550	40.240	40.560
High	5670	40.240	40.800
142	5710	40.400	40.800





26 dB BANDWIDTH, ANTENNA B





### 8.33.2. 99% BANDWIDTH

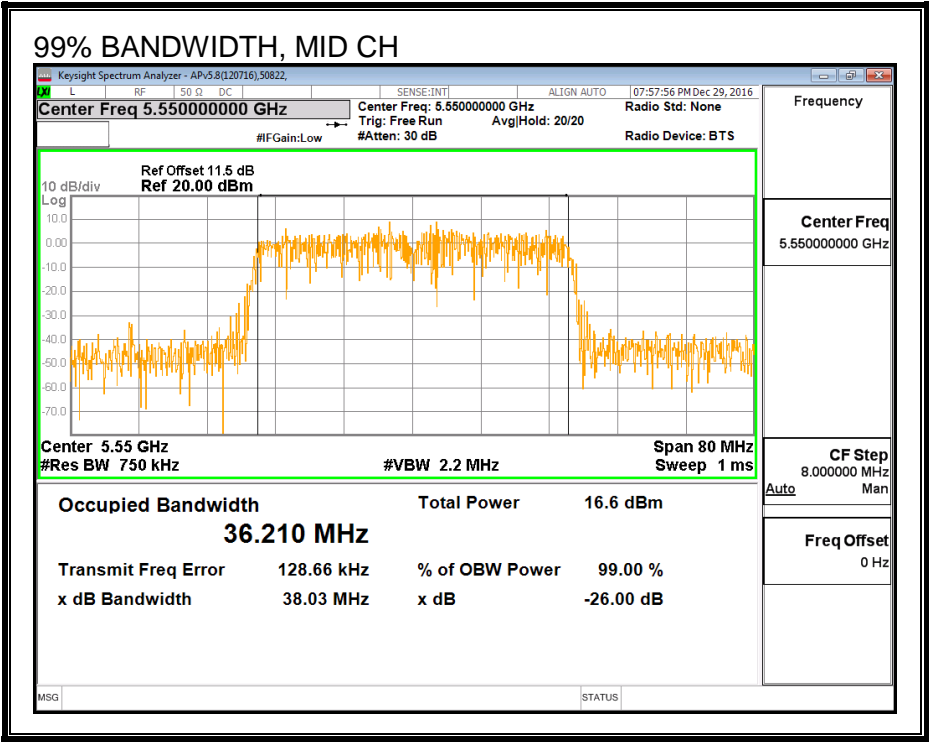
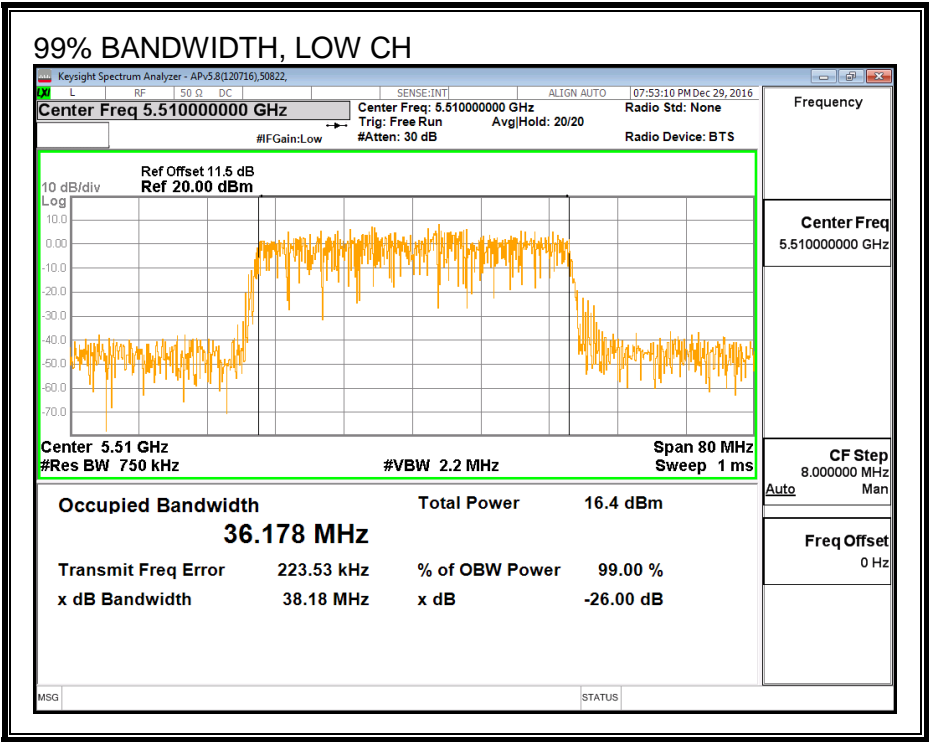
#### LIMITS

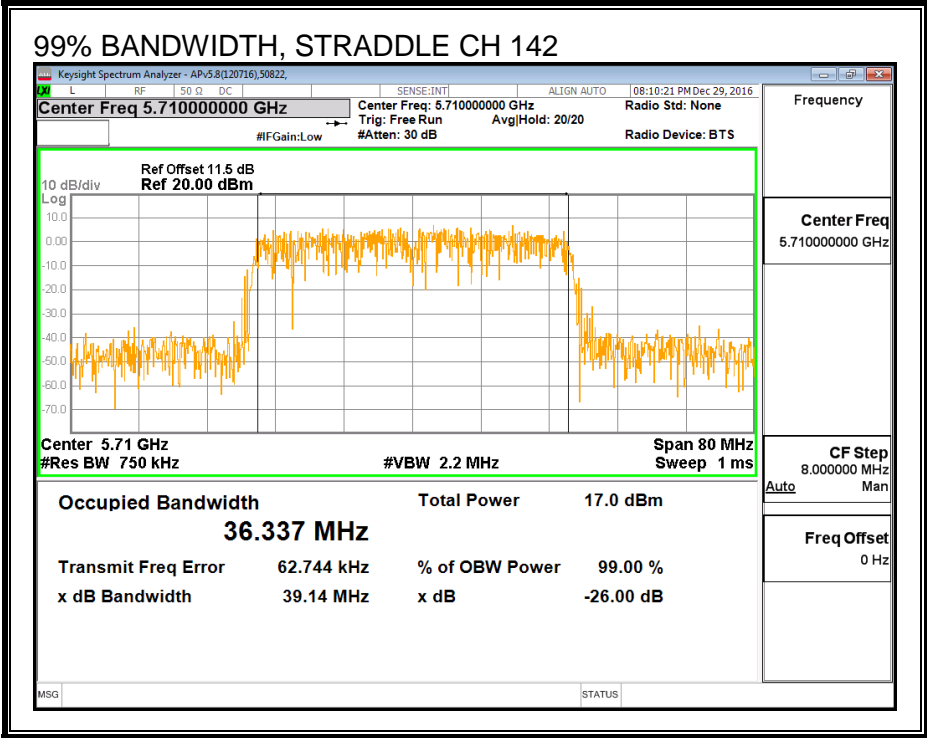
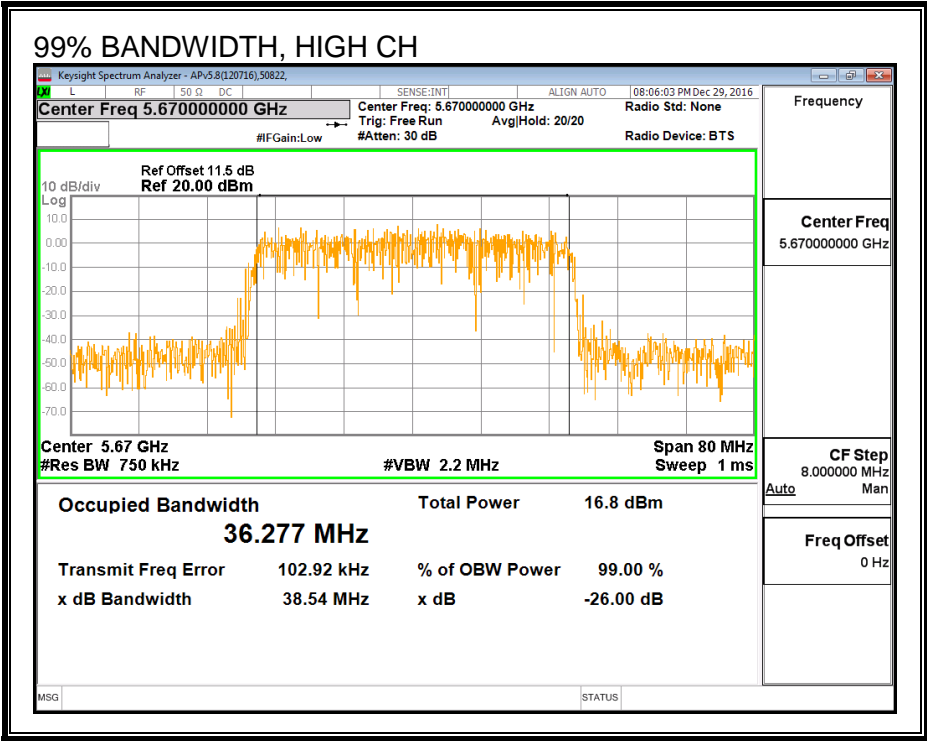
None; for reporting purposes only.

#### RESULTS

Channel	Frequency (MHz)	99% BW Antenna A (MHz)	99% BW Antenna B (MHz)
Low	5510	36.178	36.188
Mid	5550	36.210	36.240
High	5670	36.277	36.310
142	5710	36.337	36.196

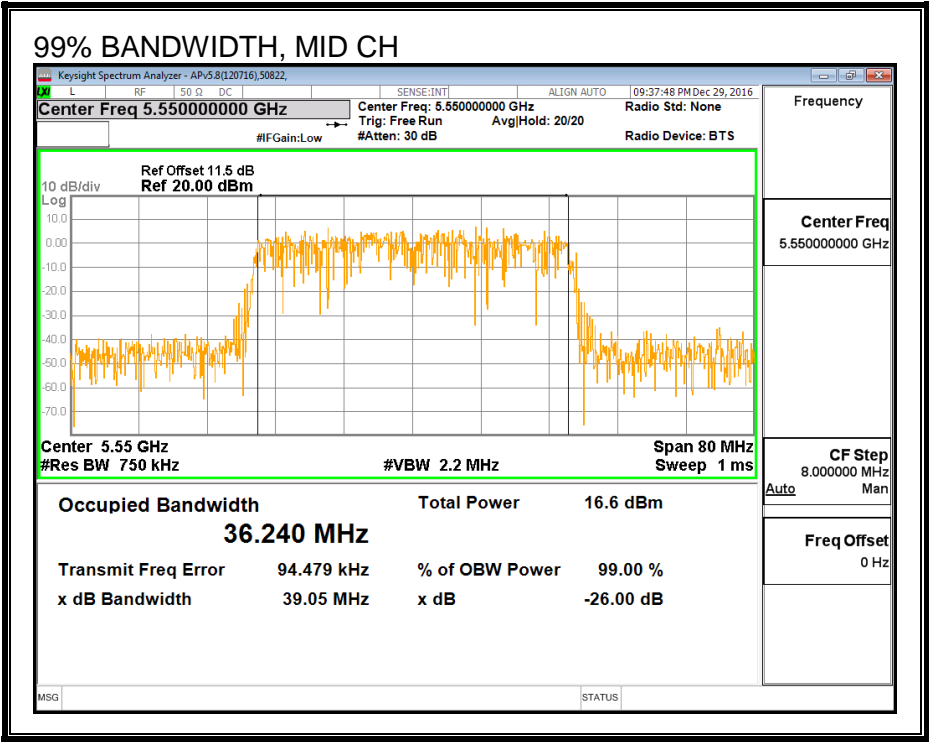
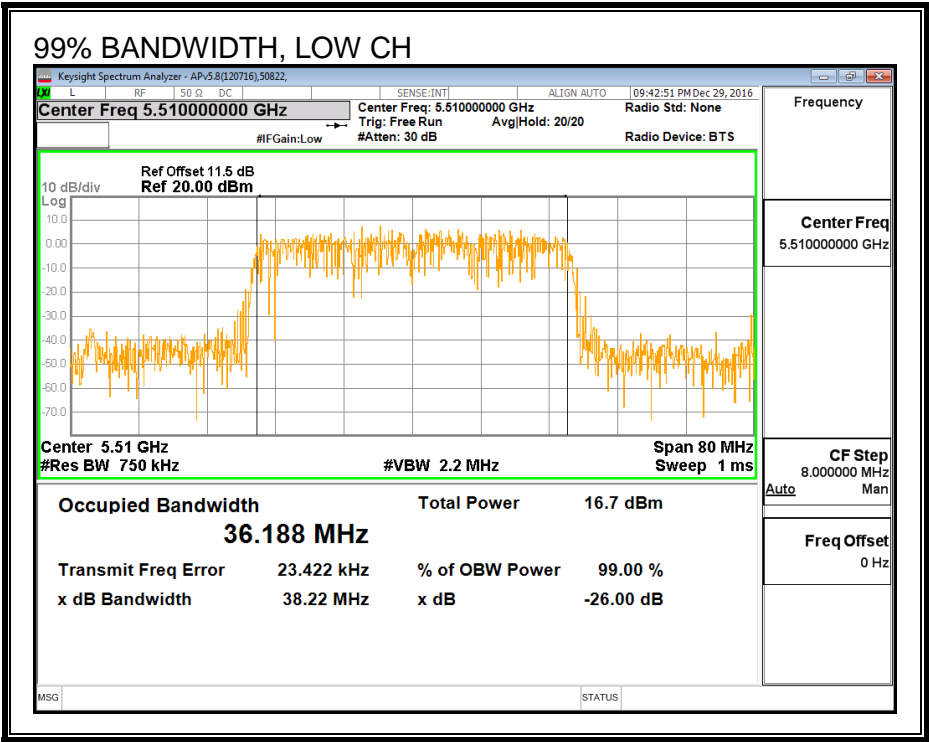
99% BANDWIDTH, ANTENNA A

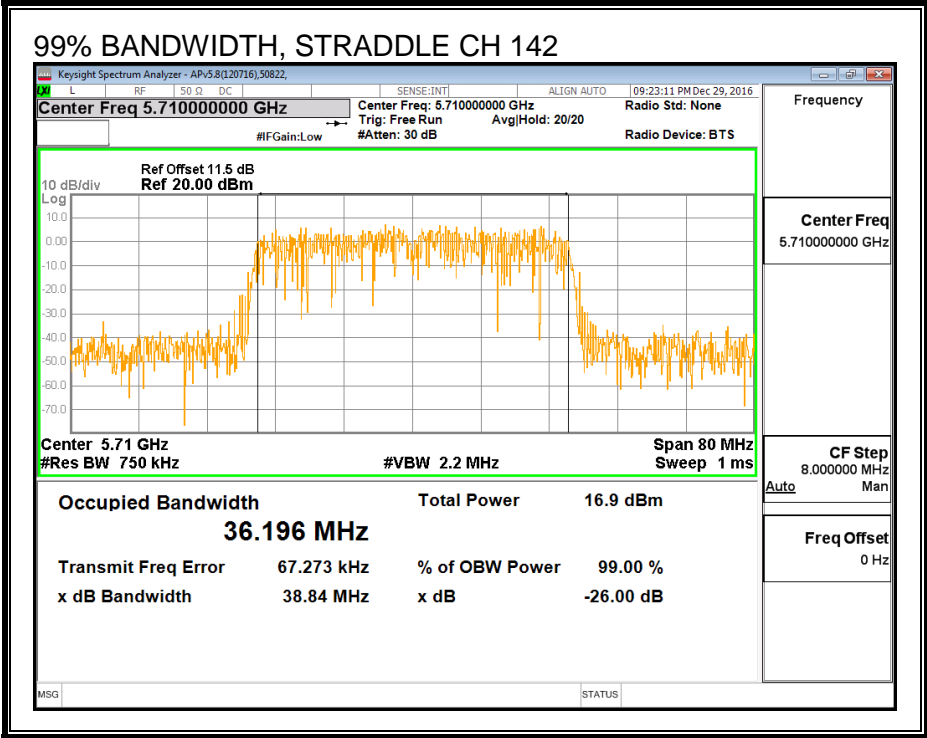
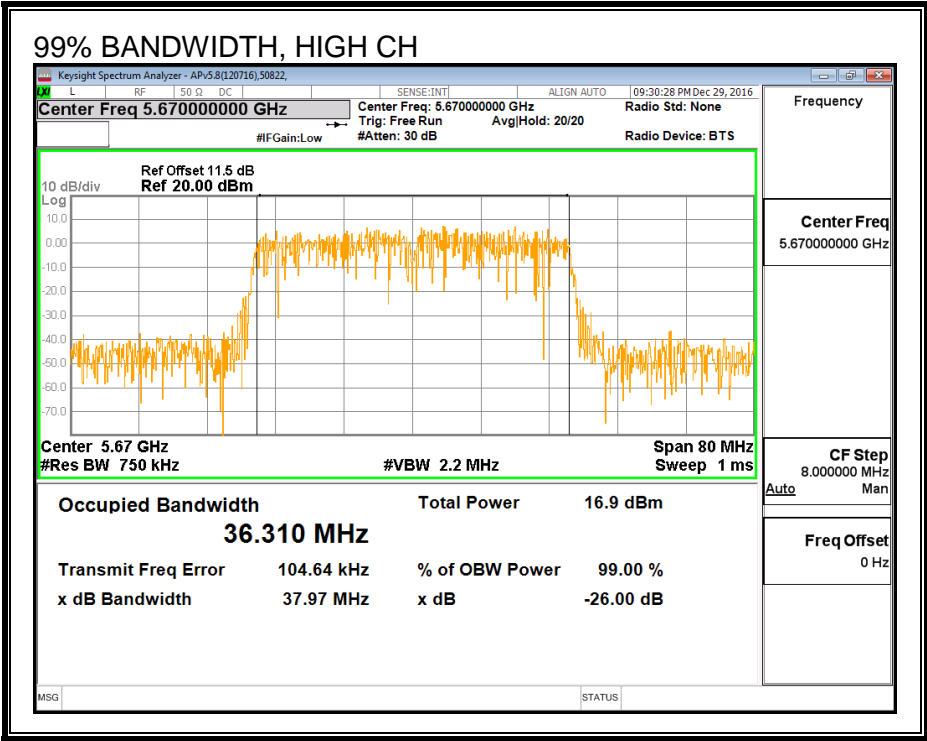






99% BANDWIDTH, ANTENNA B





### 8.33.3. 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
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#### Average Power Results

Channel	Frequency (MHz)	Antenna A Power (dBm)	Antenna B Power (dBm)	Total Power (dBm)
Low	5510	13.46	13.45	16.47
Mid	5550	14.96	14.98	17.98
High	5670	14.97	14.97	17.98
142	5710	14.96	14.93	17.96

#### **8.33.4. OUTPUT POWER AND PSD**

##### **LIMITS**

FCC §15.407 (a) (2)

For the band 5.47–5.725 GHz, the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 250 mW or  $11 \text{ dBm} + 10 \log B$ , 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.

Straddle channel power is measured using PXA spectrum analyzer, 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
Gain (dBi)	Gain (dBi)	Directional Gain (dBi)
5.41	5.17	5.29

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

Antenna A	Antenna B	Correlated Chains
Gain (dBi)	Gain (dBi)	Directional Gain (dBi)
5.41	5.17	8.30

## RESULTS

<b>ID:</b>	39919	<b>Date:</b>	2/14/17
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### Bandwidth, Antenna Gain and Limits

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Min 99% BW (MHz)	Directional Gain for Power (dBi)	Directional Gain for PSD (dBi)	Power Limit (dBm)	PSD Limit (dBm)
Low	5510	40.24	36.18	5.29	8.30	24.00	8.70
Mid	5550	40.24	36.21	5.29	8.30	24.00	8.70
High	5670	40.24	36.28	5.29	8.30	24.00	8.70

<b>Duty Cycle CF (dB)</b>	0.10	<b>Included in Calculations of Corr'd PSD</b>
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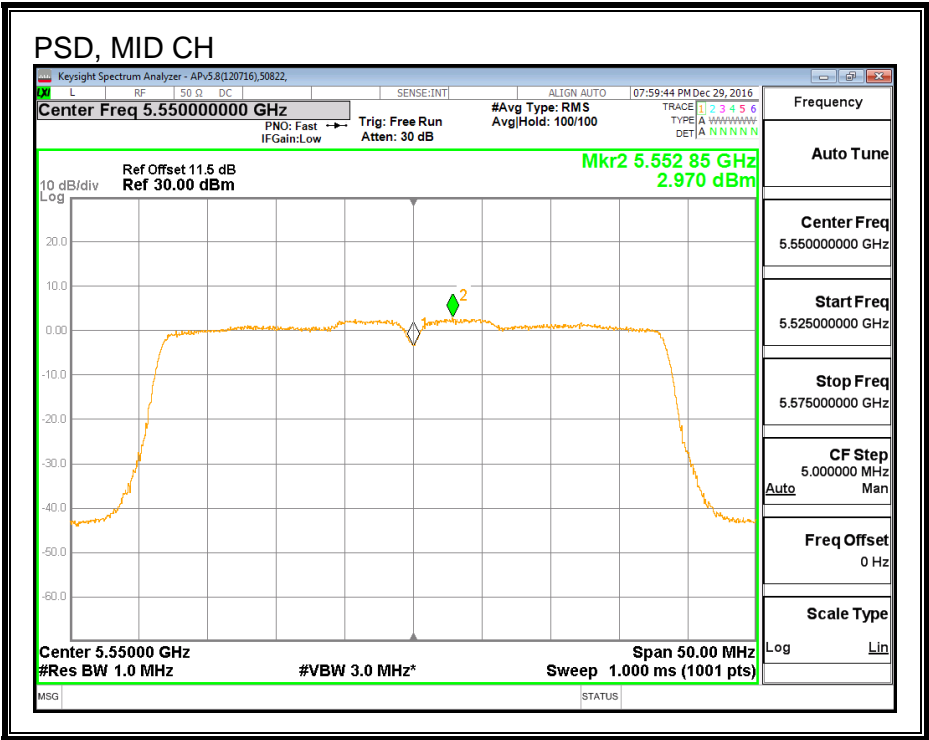
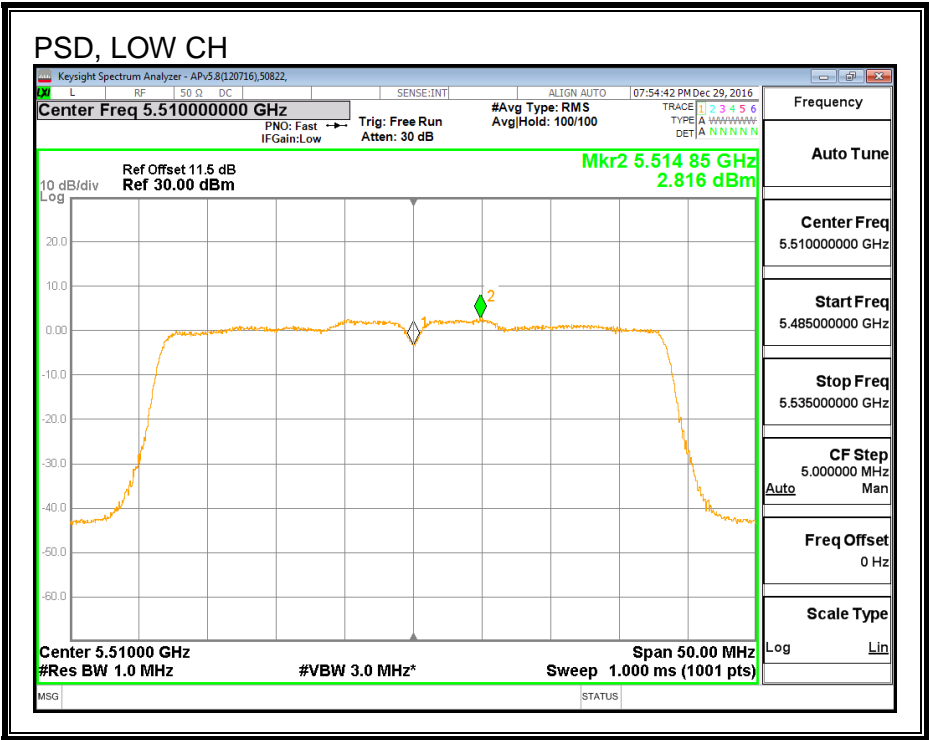
### Output Power Results

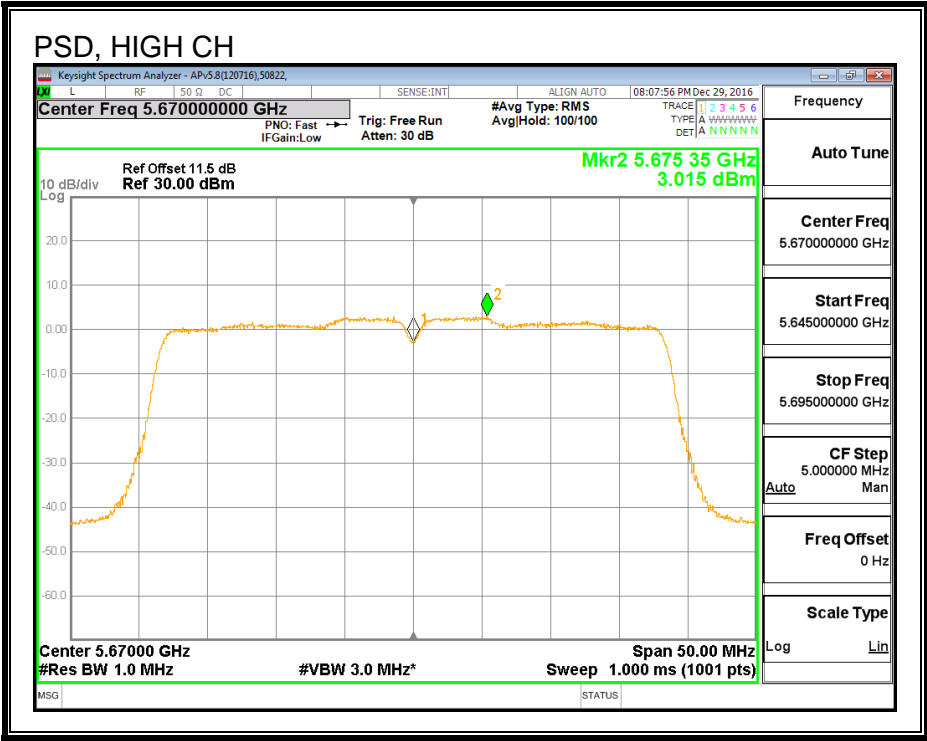
Channel	Frequency (MHz)	Antenna A Meas Power (dBm)	Antenna B Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5510	13.46	13.45	16.47	24.00	-7.53
Mid	5550	14.96	14.98	17.98	24.00	-6.02
High	5670	14.97	14.97	17.98	24.00	-6.02

### PSD Results

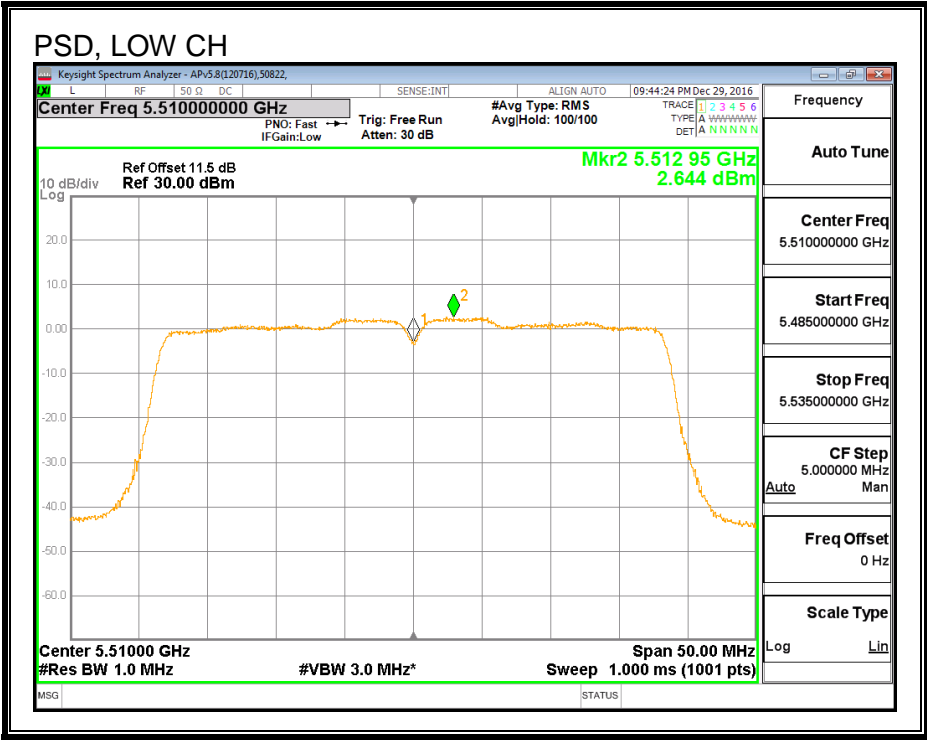
Channel	Frequency (MHz)	Antenna A Meas PSD (dBm)	Antenna B Meas PSD (dBm)	Total Corr'd PSD (dBm)	PSD Limit (dBm)	PSD Margin (dB)
Low	5510	2.82	2.64	5.84	8.70	-2.86
Mid	5550	2.97	2.81	6.00	8.70	-2.70
High	5670	3.02	2.99	6.11	8.70	-2.59

PSD, ANTENNA A

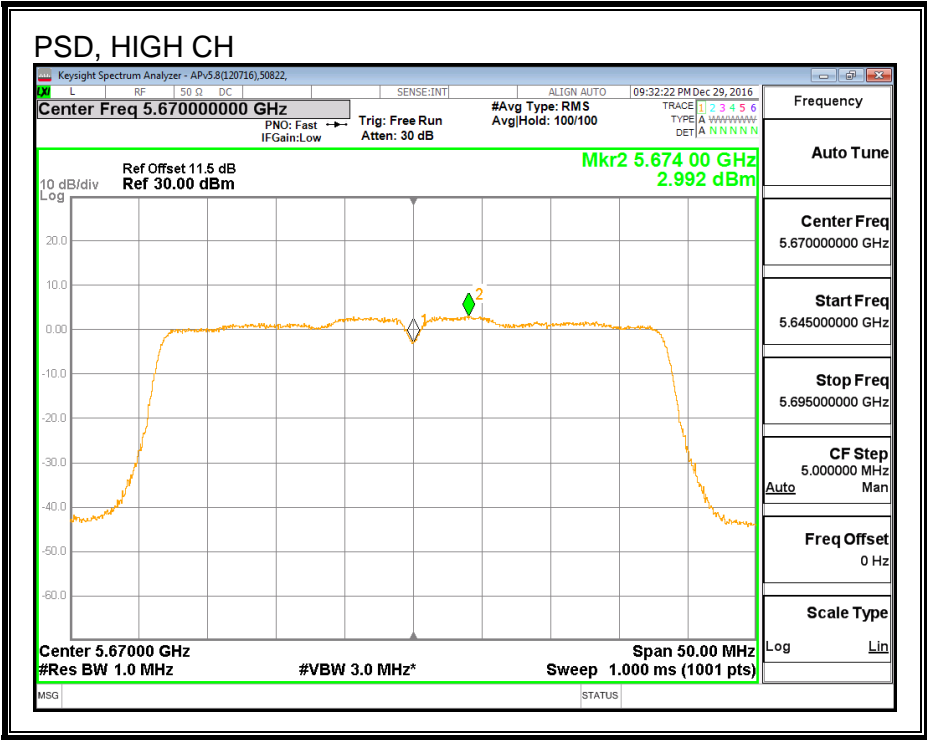
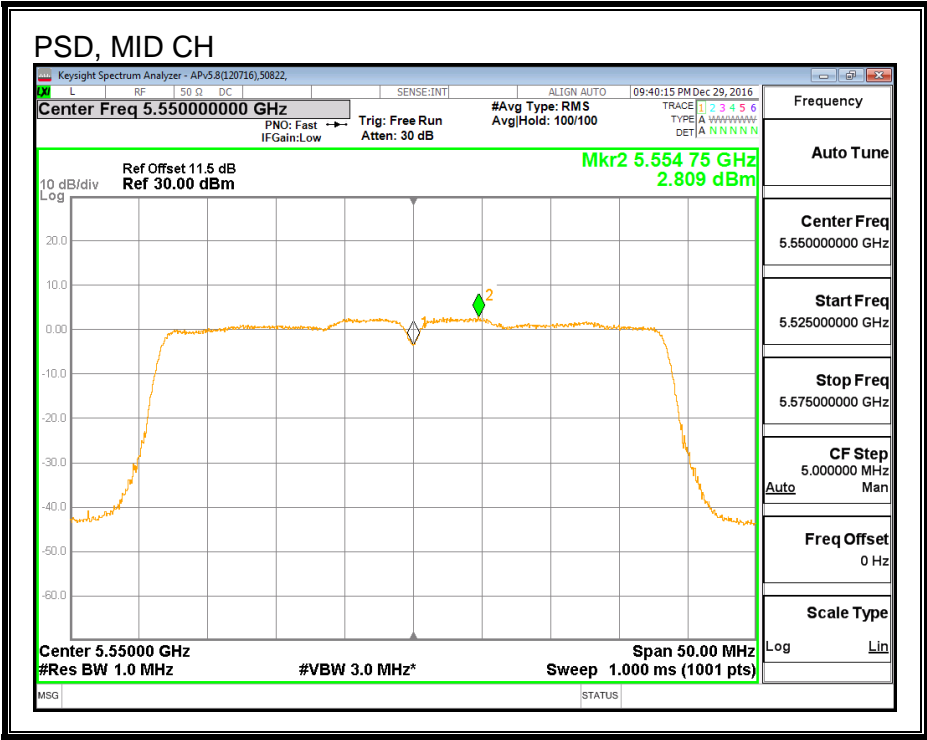




PSD, ANTENNA B







## 8.34. 802.11ac VHT40 2Tx (ANTENNA A + ANTENNA B) CDD STRADDLE CHANNEL 142 RESULTS

### 8.34.1. OUTPUT POWER AND PSD

#### UNII-2C BAND

##### Bandwidth, Antenna Gain, and Limits

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Directional Gain for Power (dBi)	Directional Gain for PSD (dBi)	Power Limit (dBm)	PSD Limit (dBm)
142	5710	36.34	5.29	8.30	24.00	8.70

Duty Cycle CF (dB)	0.10	Included in Calculations of Corr'd Power & PSD
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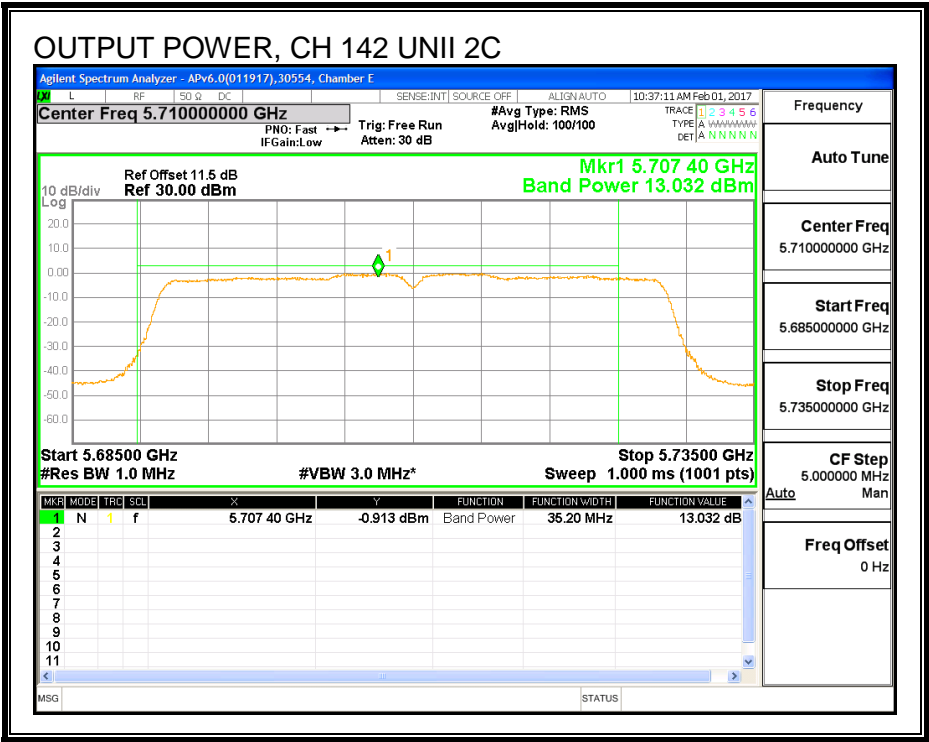
##### Output Power Results

Channel	Frequency (MHz)	Antenna A Meas Power (dBm)	Antenna B Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
142	5710	13.03	13.03	16.14	24.00	-7.86

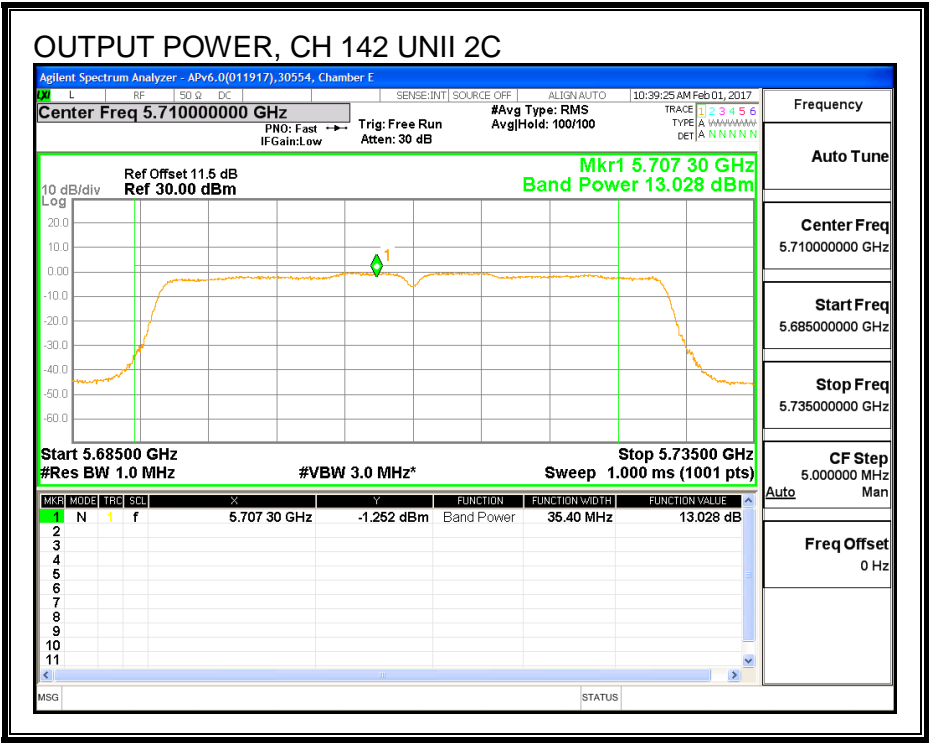
##### PSD Results

Channel	Frequency (MHz)	Antenna A Meas PSD (dBm)	Antenna B Meas PSD (dBm)	Total Corr'd PSD (dBm)	PSD Limit (dBm)	PSD Margin (dB)
142	5710	-0.10	-0.04	3.04	8.70	-5.66

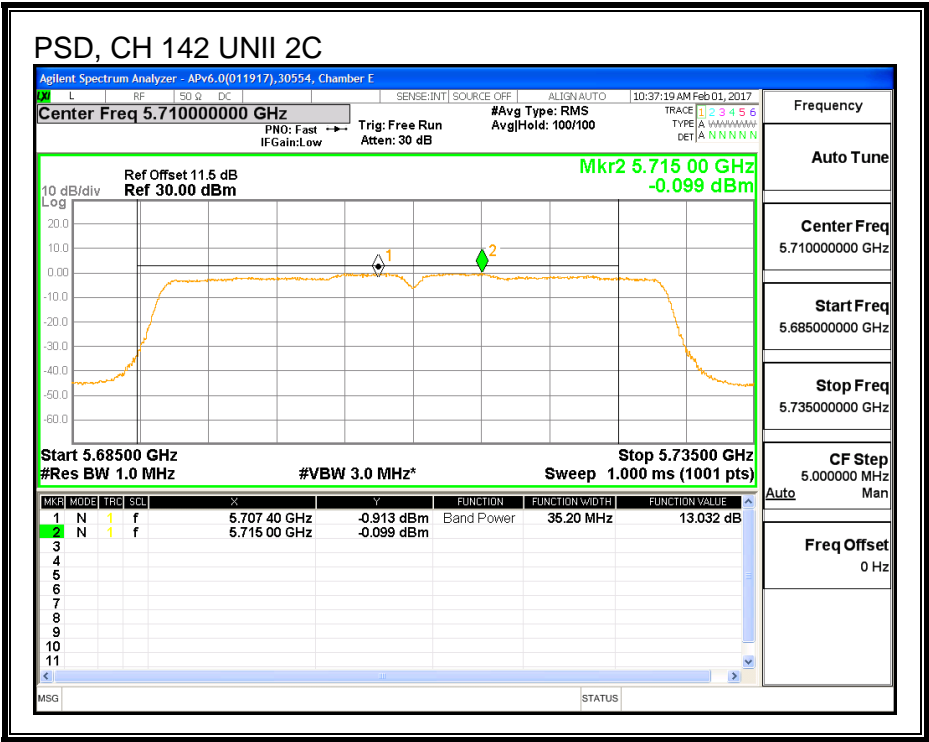
OUTPUT POWER, ANTENNA A



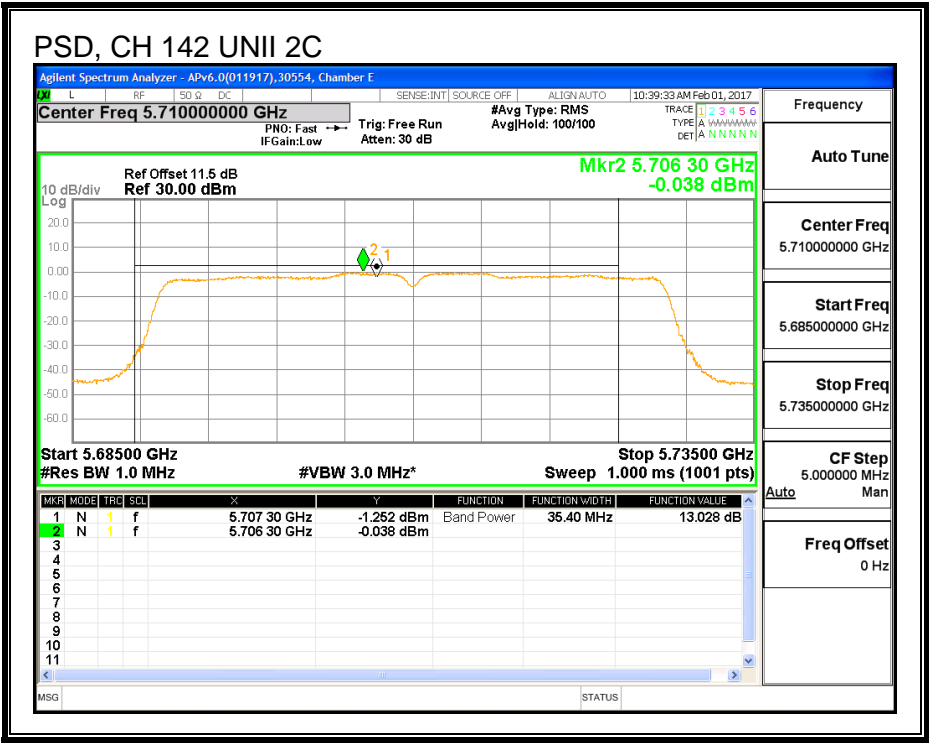
OUTPUT POWER, ANTENNA B



PSD, ANTENNA A



PSD, ANTENNA B



### UNII-3 BAND

#### Antenna Gain and Limit

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Directional Gain For Power (dBi)	Directional Gain For PSD (dBi)	Power Limit (dBm)	PSD Limit (dBm)
142	5710	5.20	4.26	7.27	30.00	28.73

Duty Cycle CF (dB)	0.10	Included in Calculations of Corr'd Power & PSD
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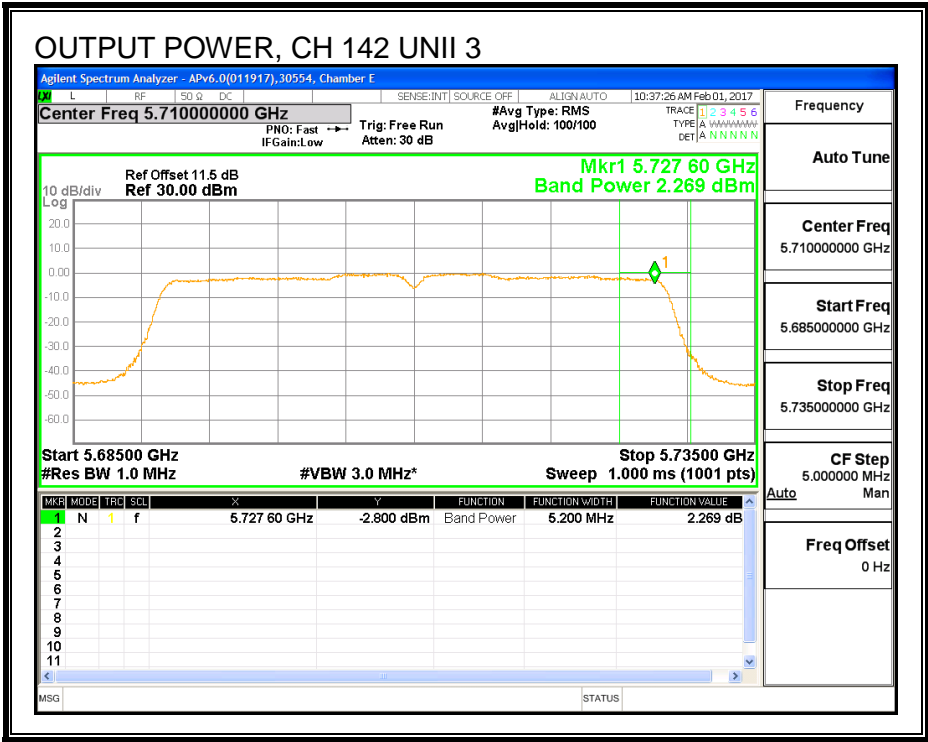
#### Output Power Results

Channel	Frequency (MHz)	Antenna A Meas Power (dBm)	Antenna B Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
142	5710	2.269	2.295	5.39	30.00	-24.61

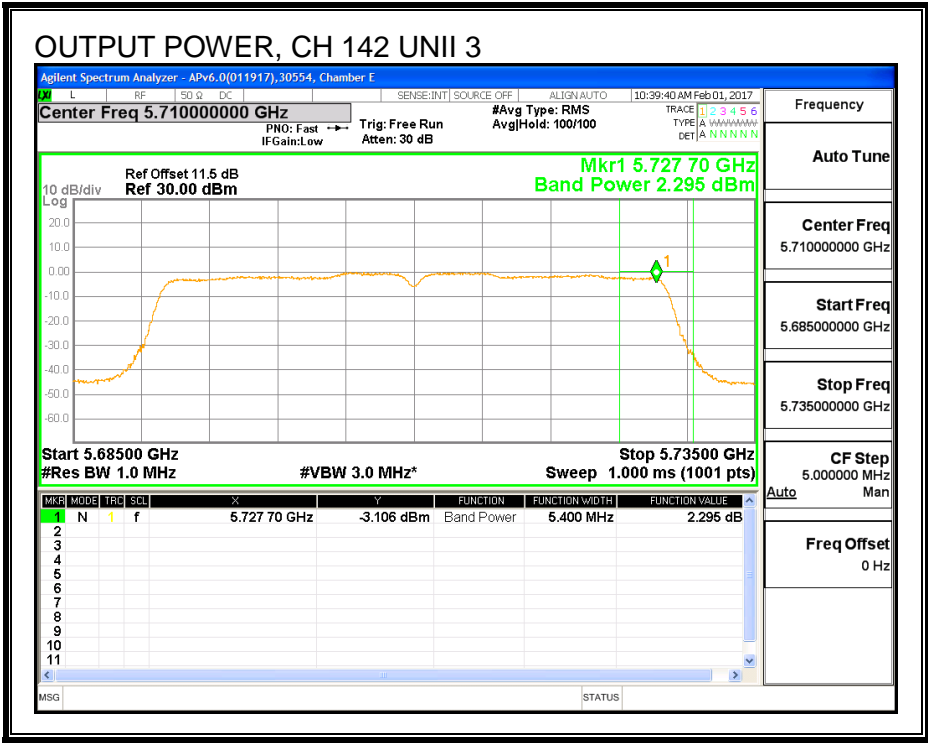
#### PSD Results

Channel	Frequency (MHz)	Antenna A Meas PSD (dBm)	Antenna B Meas PSD (dBm)	Total Corr'd PSD (dBm)	PSD Limit (dBm)	PSD Margin (dB)
142	5710	-4.843	-5.021	-1.82	28.73	-30.55

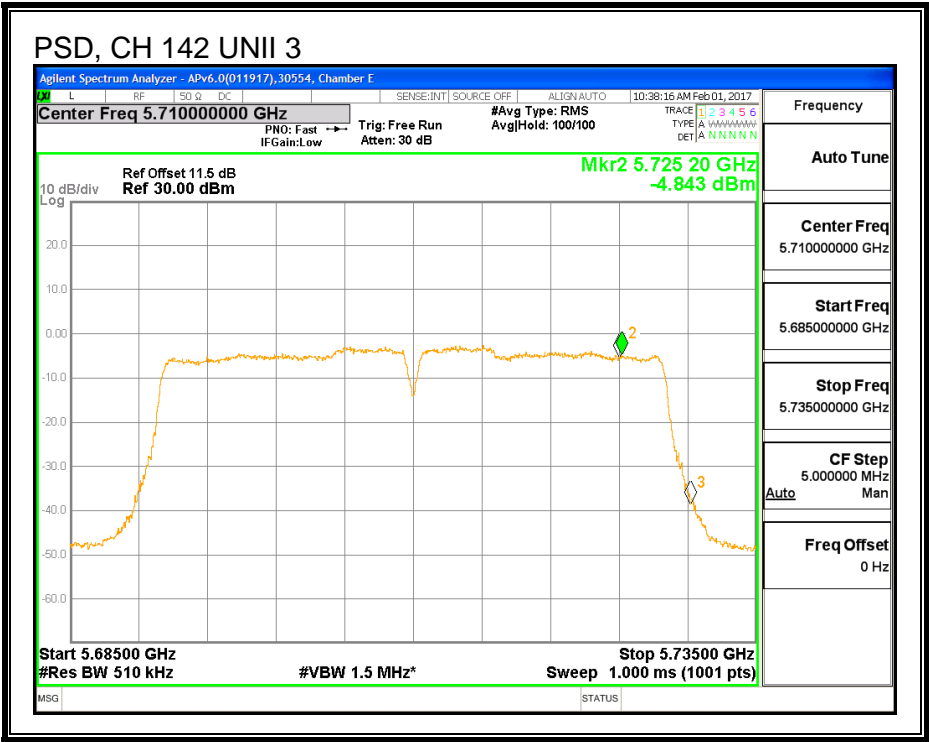
OUTPUT POWER, ANTENNA A



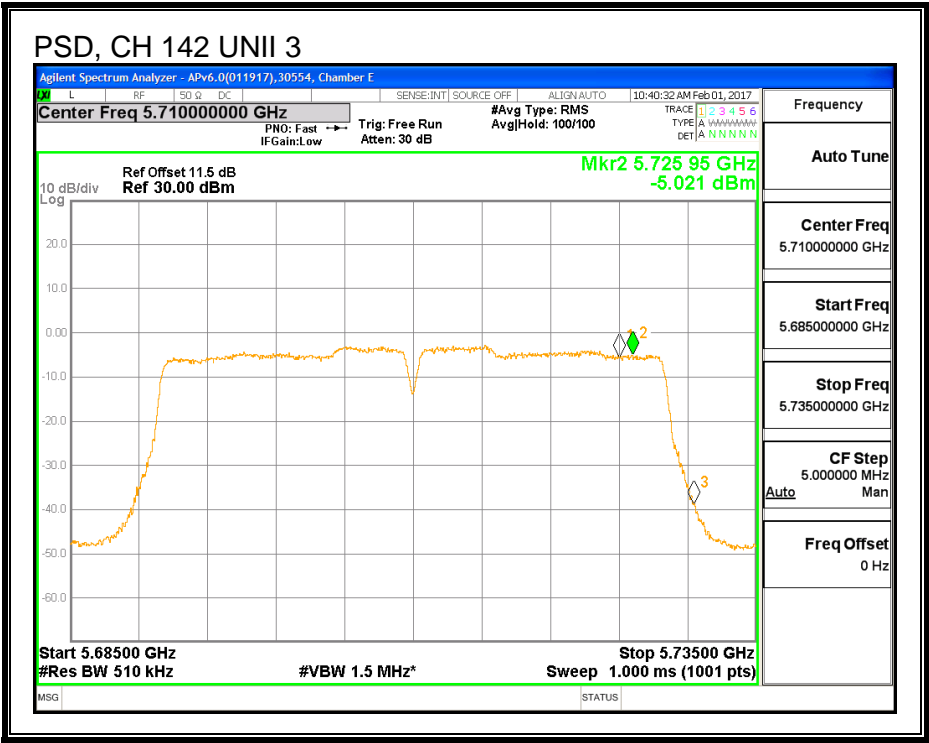
OUTPUT POWER, ANTENNA B



PSD, ANTENNA A



PSD, ANTENNA B



### 8.34.2. 6 dB BANDWIDTH

#### LIMITS

FCC §15.407 (e)

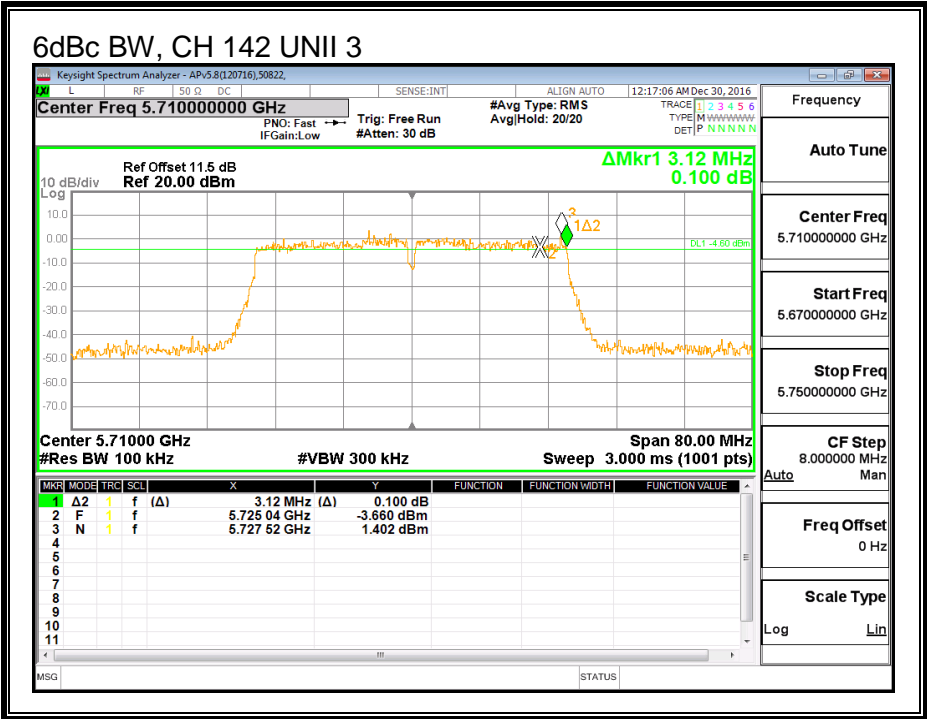
The minimum 6 dB bandwidth shall be at least 500 kHz.

#### RESULTS

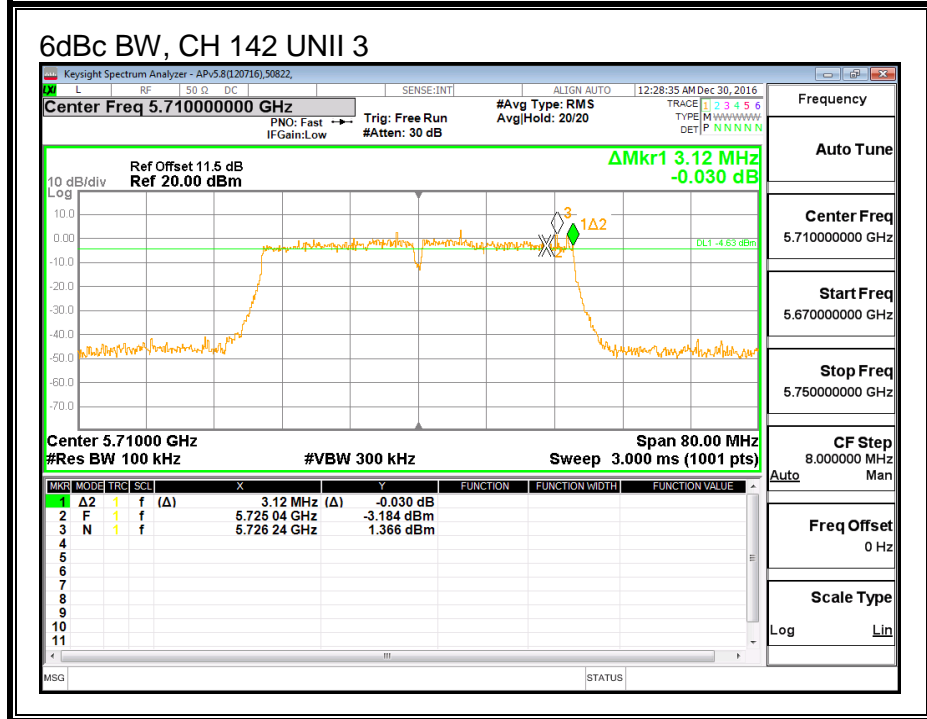
Channel	Frequency (MHz)	6 dB BW Antenna A (MHz)	6 dB BW Antenna B (MHz)
142	5710	3.120	3.120



ANTENNA A



ANTENNA B



## 8.35. 802.11ac VHT80 ANTENNA A MODE IN THE 5.6 GHz BAND

### 8.35.1. 26 dB BANDWIDTH

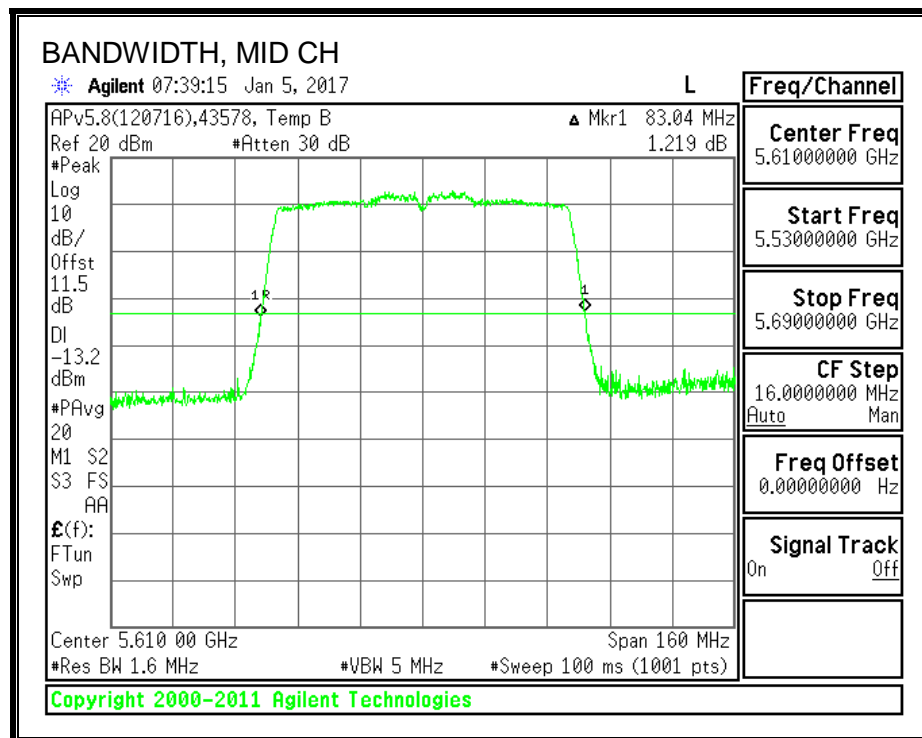
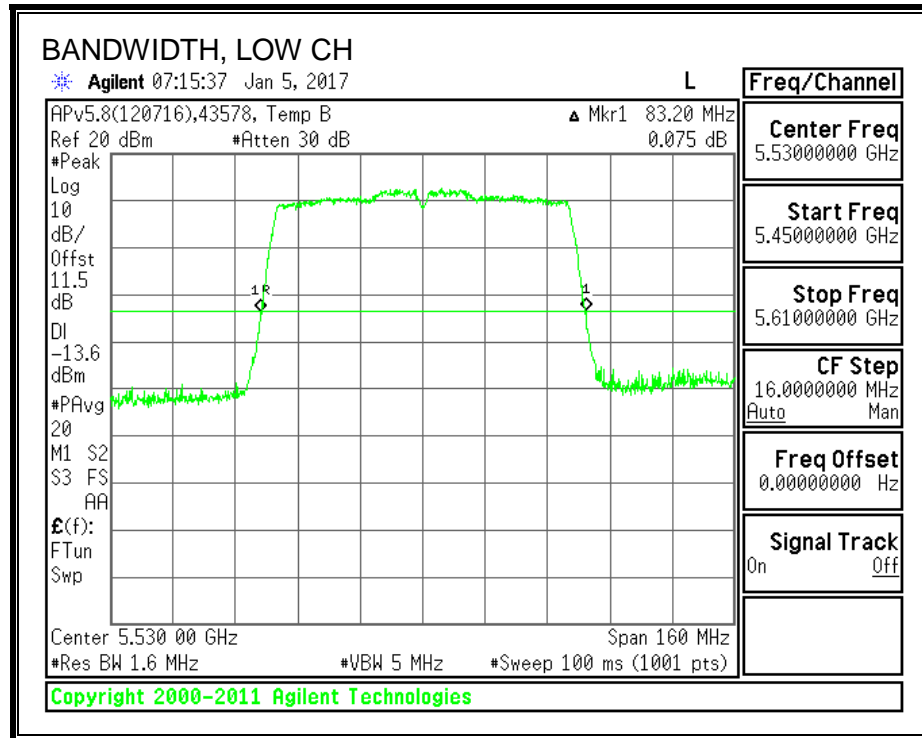
#### LIMITS

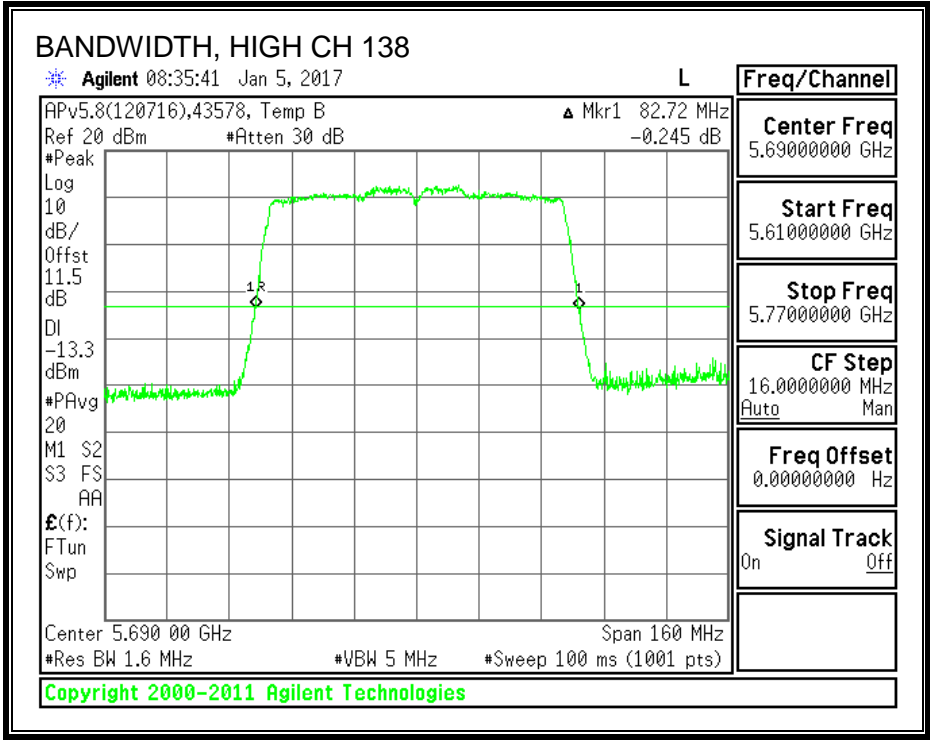
None; for reporting purposes only.

#### RESULTS

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)
Low	5530	83.200
Mid	5610	83.040
High	5690	82.720

## 26 dB BANDWIDTH





### 8.35.2. 99% BANDWIDTH

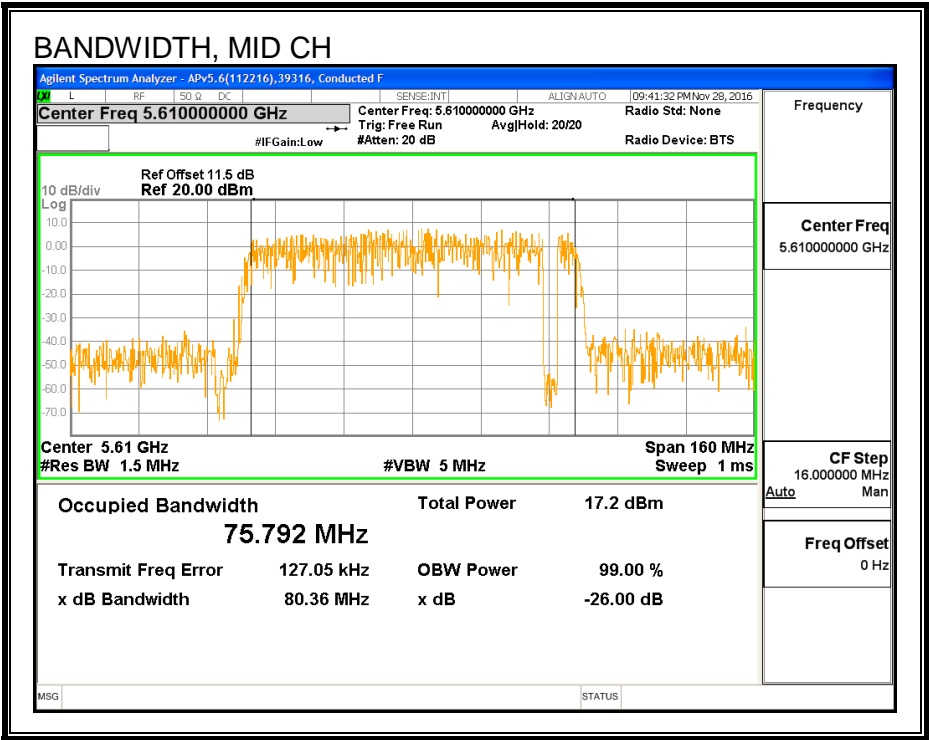
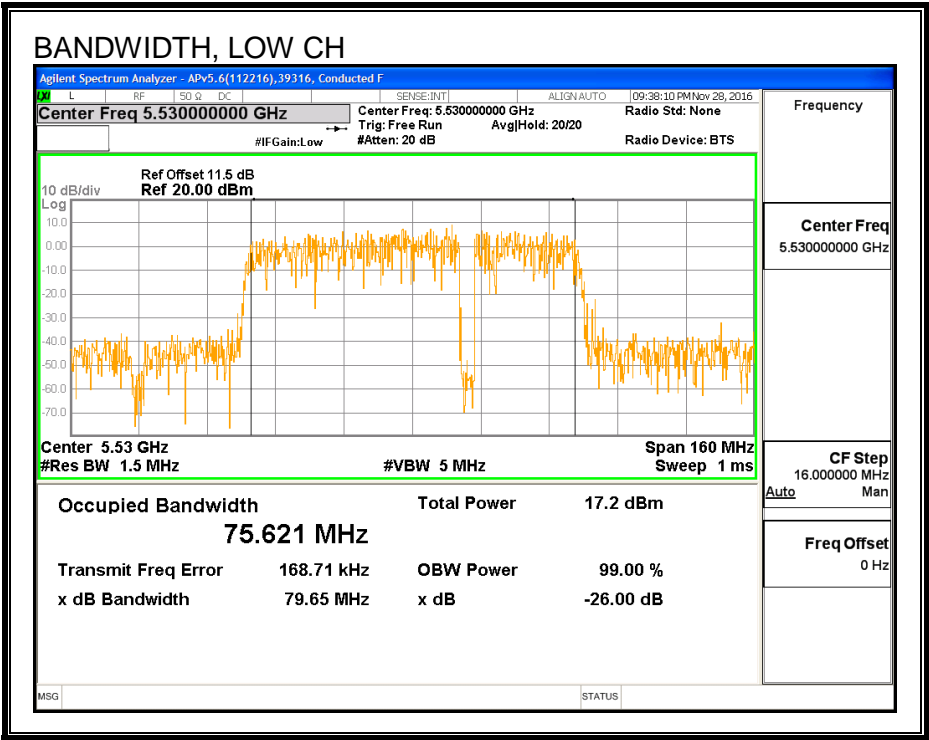
#### LIMITS

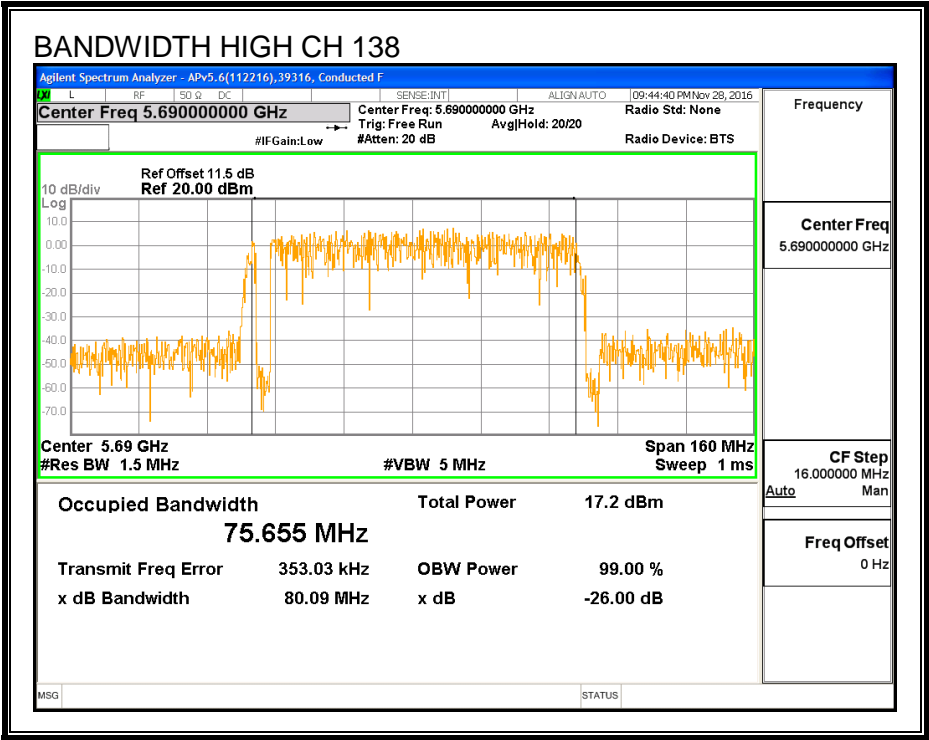
None; for reporting purposes only.

#### RESULTS

Frequency (MHz)	99% Bandwidth (MHz)
5530	75.621
5610	75.792
5690	75.655

99% BANDWIDTH





### 8.35.3. 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
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Channel	Frequency (MHz)	Power (dBm)
Low	5530	12.99
Mid	5610	14.98
High	5690	14.95



### **8.35.4. OUTPUT POWER AND PSD**

#### **LIMITS**

FCC §15.407 (a) (2)

For the band 5.47–5.725 GHz, the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 250 mW or  $11 \text{ dBm} + 10 \log B$ , 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.

Straddle channel power is measured using PXA spectrum analyzer, 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>	39919	<b>Date:</b>	2/14/17
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### Bandwidth, Antenna Gain, and Limits

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Min 99% BW (MHz)	Directional Gain (dBi)	Power Limit (dBm)	PSD Limit (dBm)
Low	5530	82.56	75.621	5.41	24.00	11.00
Mid	5610	82.56	75.792	5.41	24.00	11.00

<b>Duty Cycle CF (dB)</b>	0.20	<b>Included in Calculations of Corr'd PSD</b>
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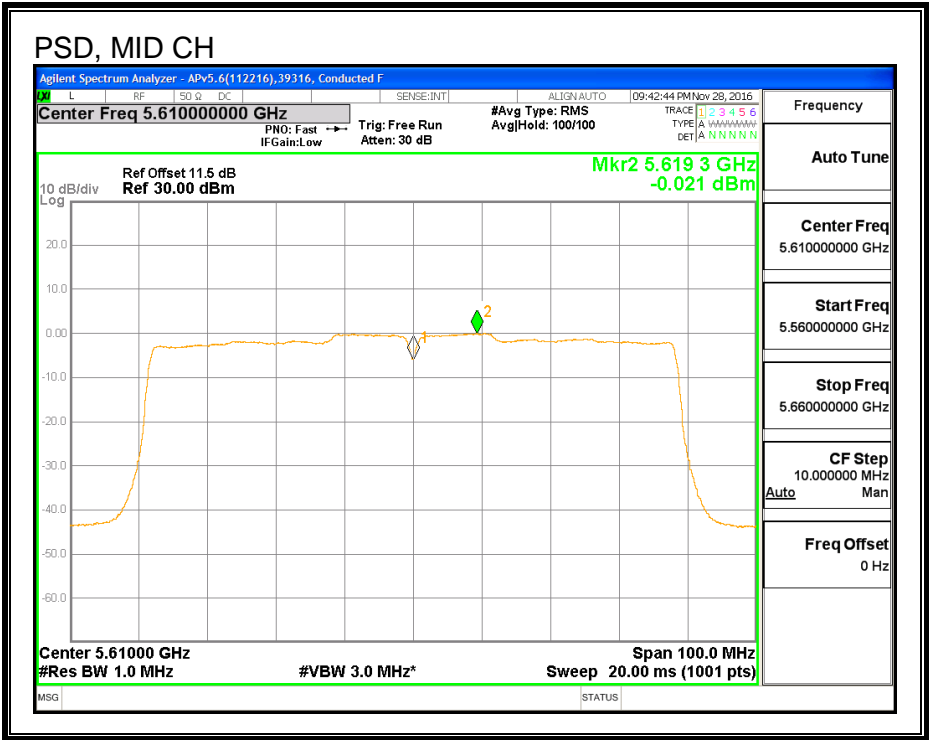
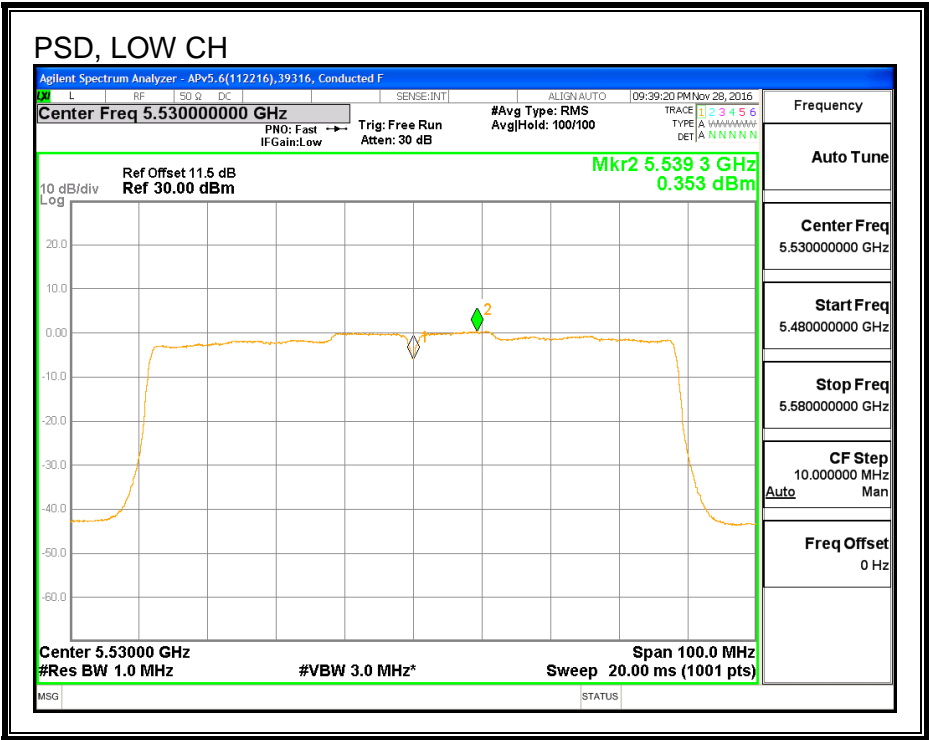
### Output Power Results

Channel	Frequency (MHz)	Antenna A Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5530	12.99	12.99	24.00	-11.01
Mid	5610	14.98	14.98	24.00	-9.02

### PSD Results

Channel	Frequency (MHz)	Antenna A Meas PSD (dBm)	Total Corr'd PSD (dBm)	PSD Limit (dBm)	PSD Margin (dB)
Low	5530	0.353	0.55	11.00	-10.45
Mid	5610	-0.021	0.18	11.00	-10.82

PSD



## 8.36. 802.11ac VHT80 ANTENNA A STRADDLE CHANNEL 138 RESULTS

### 8.36.1. OUTPUT POWER AND PSD

#### UNII-2C BAND

##### Bandwidth, Antenna Gain, and Limits

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Directional Gain for Power (dBi)	Directional Gain for PSD (dBi)	Power Limit (dBm)	PSD Limit (dBm)
138	5690	76.36	5.41	5.41	24.00	11.00

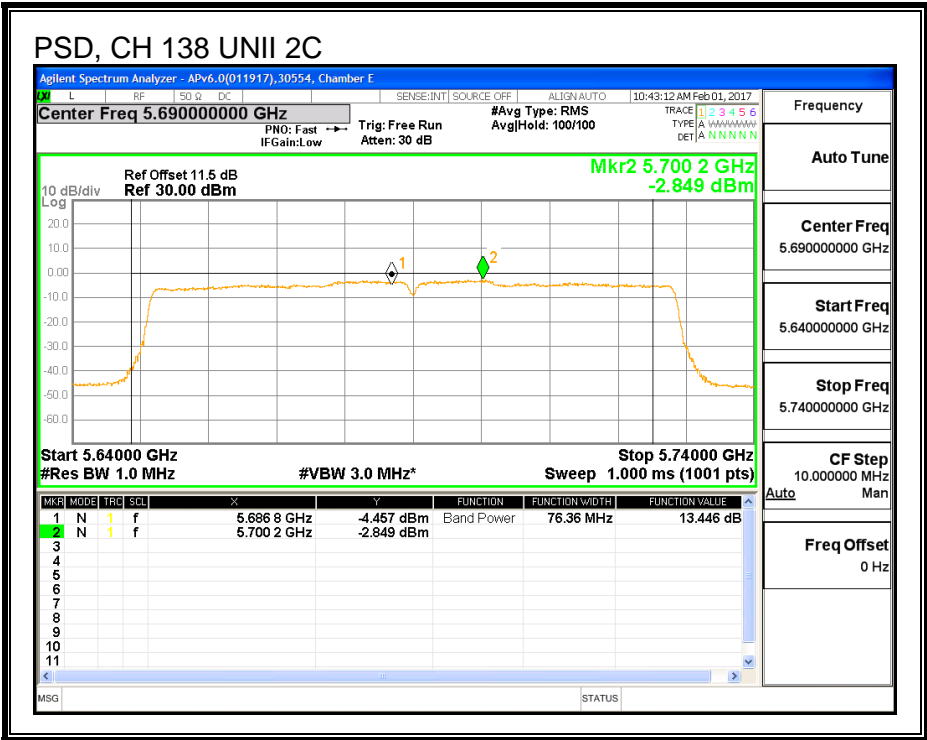
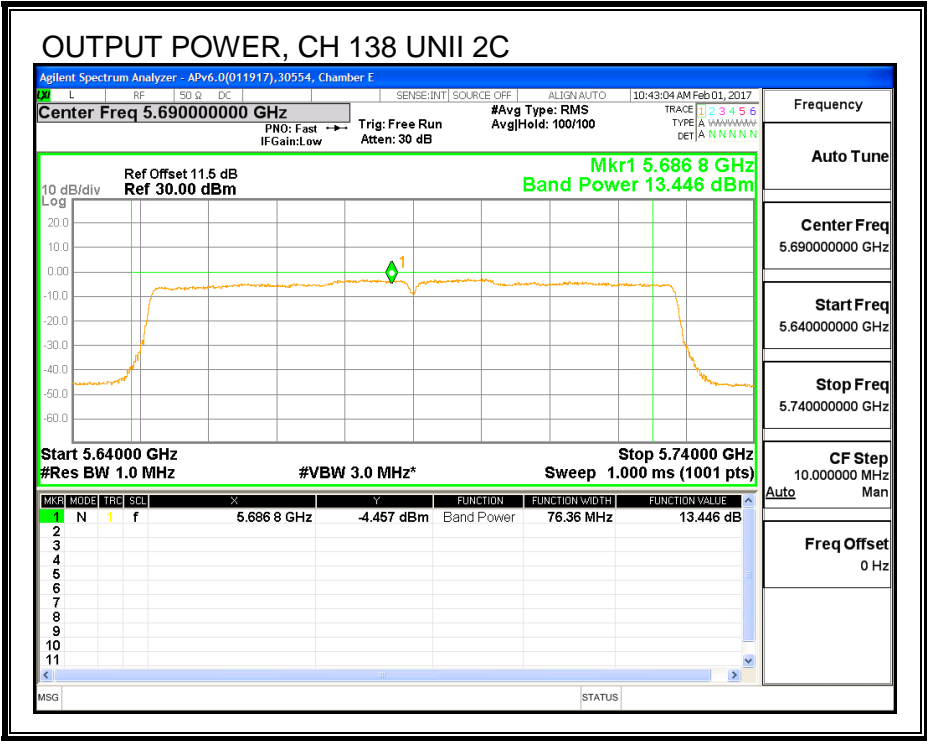
Duty Cycle CF (dB)	0.20	Included in Calculations of Corr'd Power & PSD
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##### Output Power Results

Channel	Frequency (MHz)	Antenna A Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
138	5690	13.45	13.65	24.00	-10.35

##### PSD Results

Channel	Frequency (MHz)	Antenna A Meas PSD (dBm)	Total Corr'd PSD (dBm)	PSD Limit (dBm)	PSD Margin (dB)
138	5690	-2.85	-2.65	11.00	-13.65



### UNII-3 BAND

#### Antenna Gain and Limit

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Directional Gain (dBi)	Power Limit (dBm)	PSD Limit (dBm)
138	5690	6.36	4.20	30.00	30.00

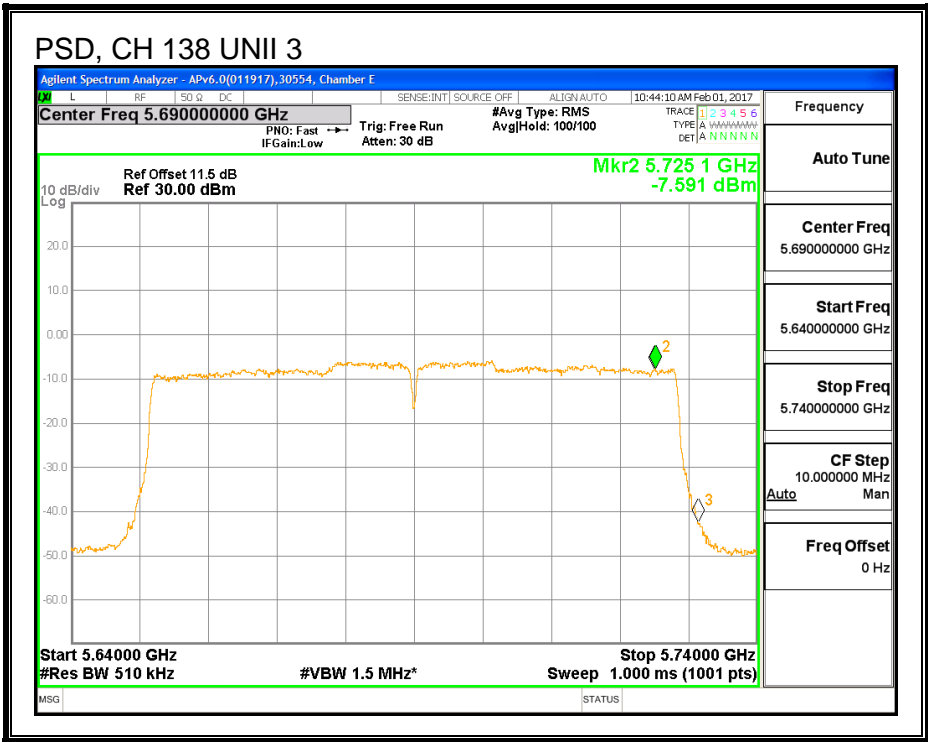
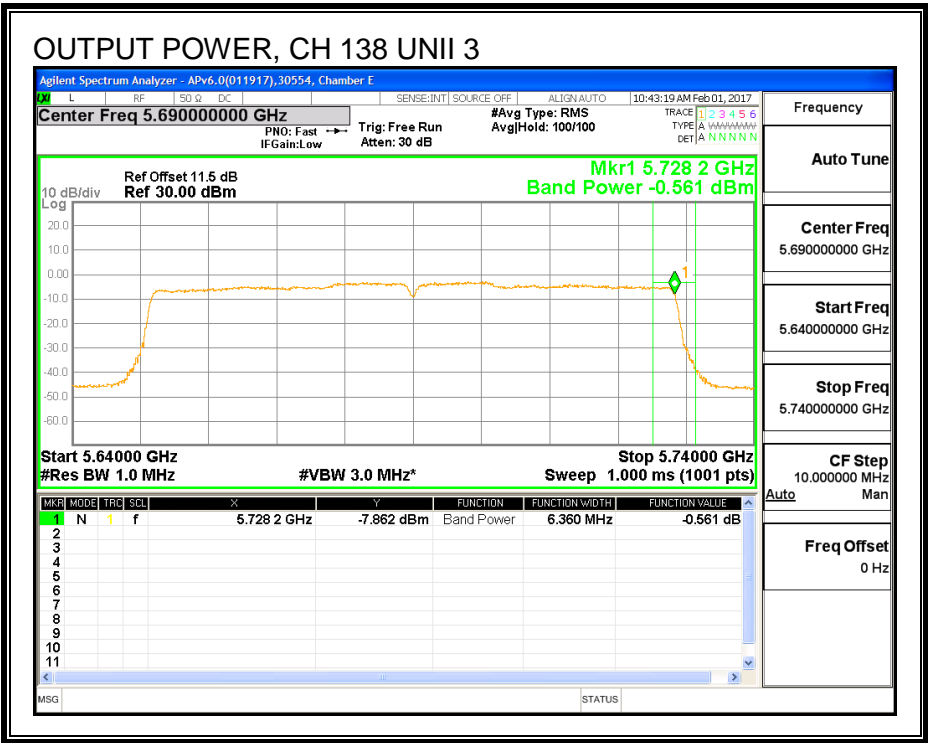
Duty Cycle CF (dB)	0.20	Included in Calculations of Corr'd Power & PSD
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#### Output Power Results

Channel	Frequency (MHz)	Antenna A Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
138	5690	-5.61	-5.41	30.00	-35.41

#### PSD Results

Channel	Frequency (MHz)	Antenna A Meas PSD (dBm)	Total Corr'd PSD (dBm)	PSD Limit (dBm)	PSD Margin (dB)
138	5690	-7.59	-7.39	30.00	-37.39



8.36.2. 6 dB BANDWIDTH

LIMITS

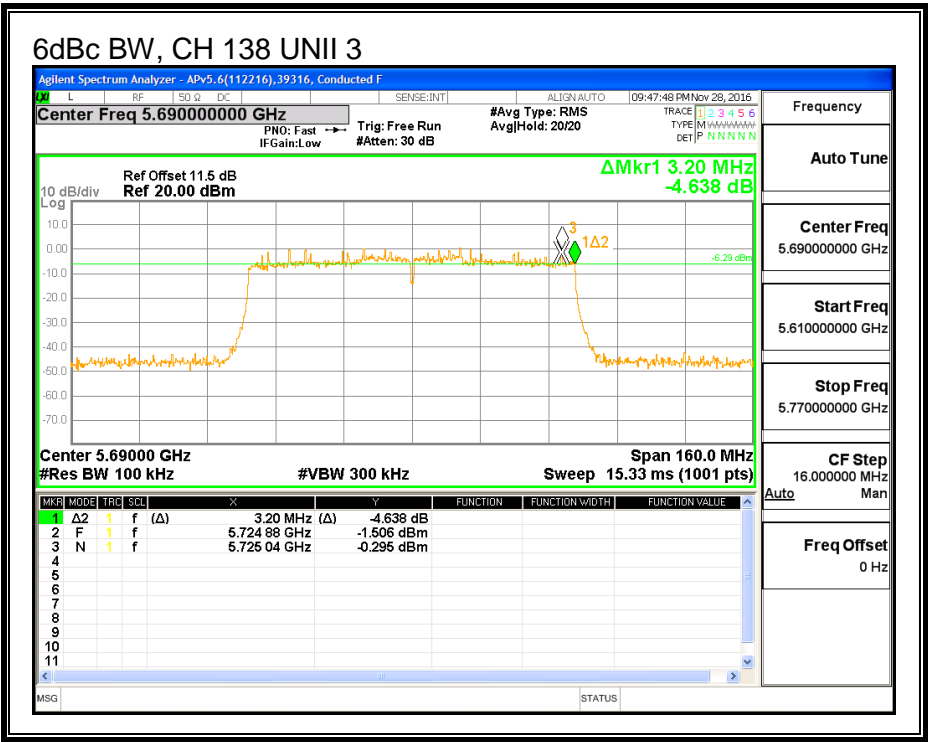
FCC §15.407 (e)

The minimum 6 dB bandwidth shall be at least 500 kHz.

RESULTS

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)
High	5690	3.200

6 dB BANDWIDTH





## **8.37. 802.11ac VHT80 ANTENNA B MODE IN THE 5.6 GHz BAND**

### **8.37.1. 26 dB BANDWIDTH**

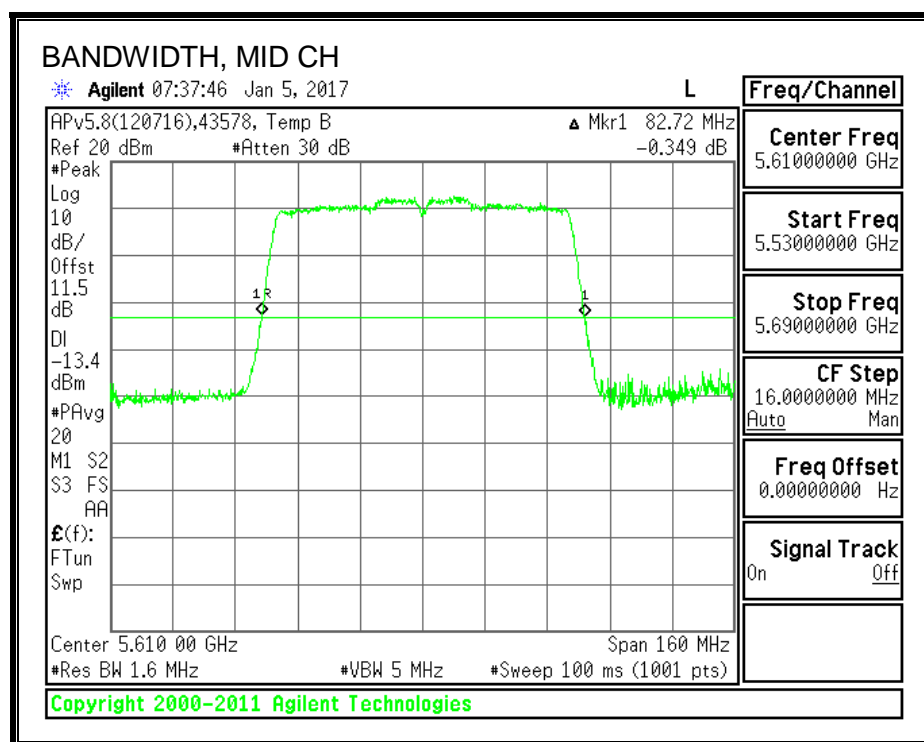
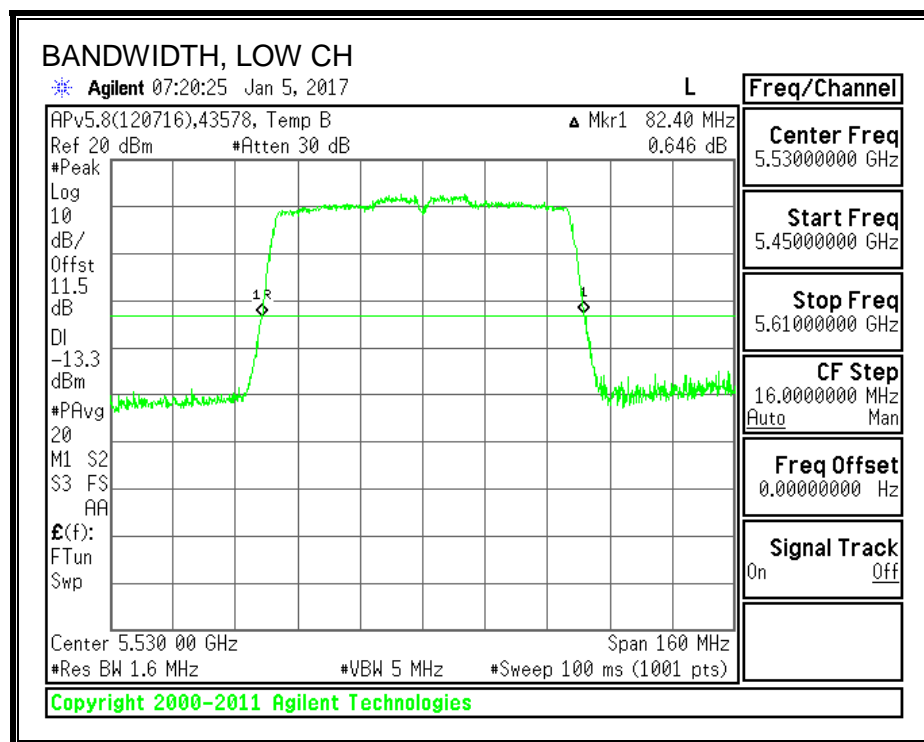
#### **LIMITS**

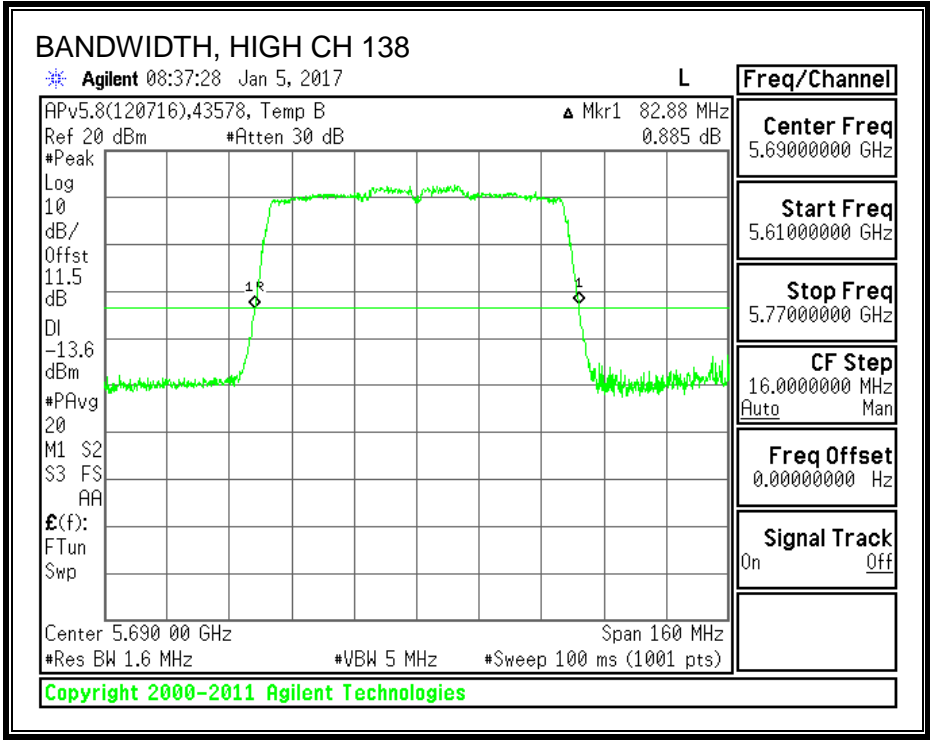
None; for reporting purposes only.

#### **RESULTS**

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)
Low	5530	82.400
Mid	5610	82.720
High	5690	82.880

## 26 dB BANDWIDTH





### 8.37.2. 99% BANDWIDTH

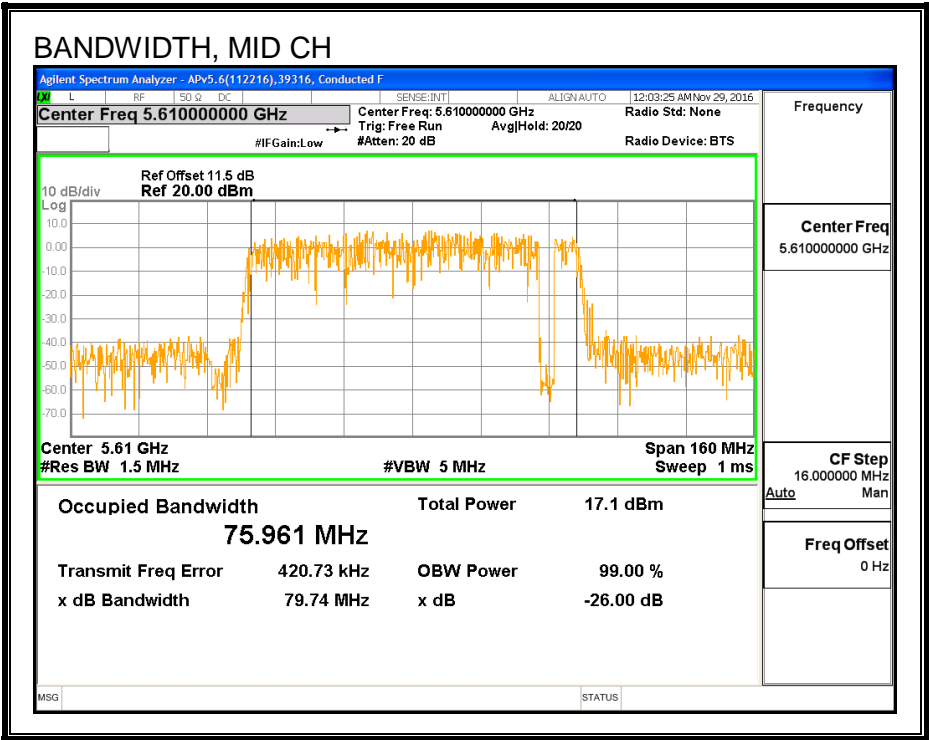
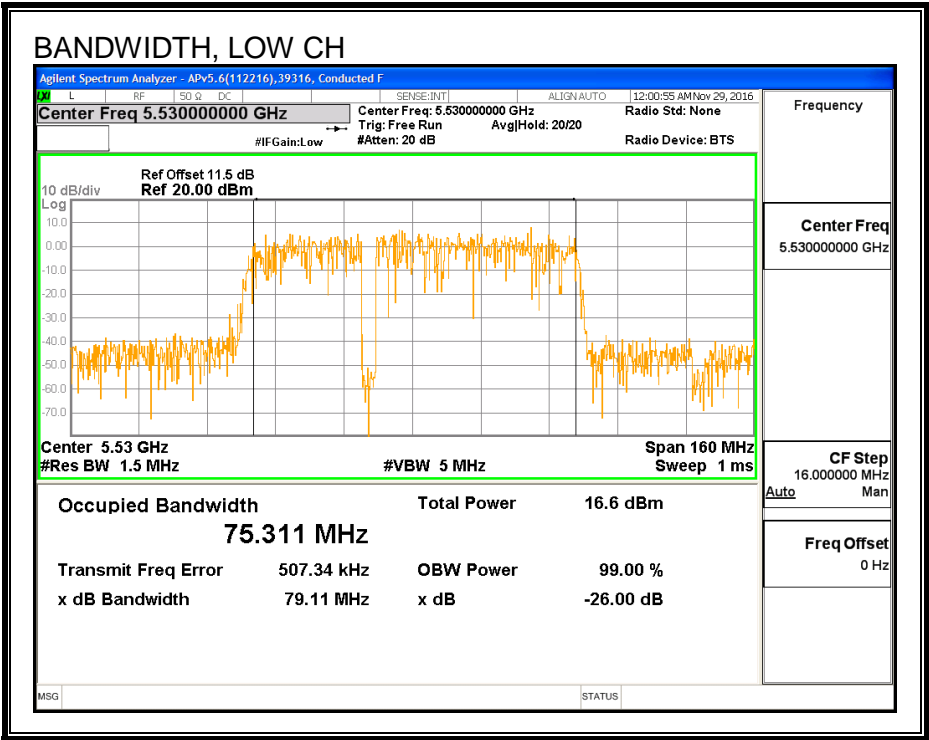
#### LIMITS

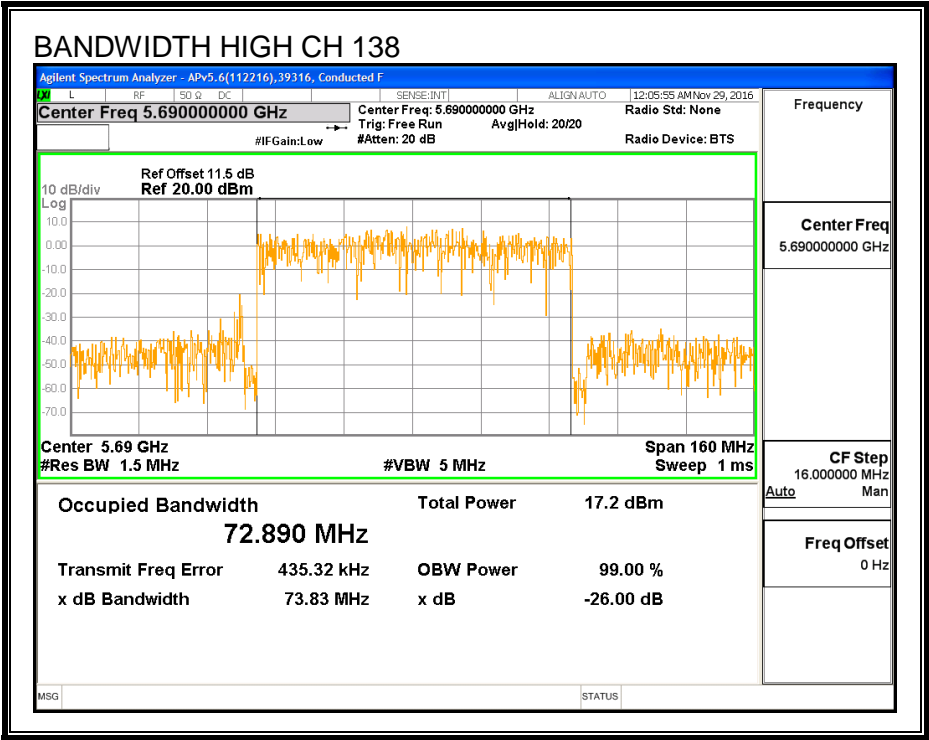
None; for reporting purposes only.

#### RESULTS

Frequency (MHz)	99% Bandwidth (MHz)
5530	75.311
5610	75.961
5690	72.890

99% BANDWIDTH





### 8.37.3. 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
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Channel	Frequency (MHz)	Power (dBm)
Low	5530	12.92
Mid	5610	14.99
High	5690	14.97

#### **8.37.4. OUTPUT POWER AND PSD**

##### **LIMITS**

FCC §15.407 (a) (2)

For the band 5.47–5.725 GHz, the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 250 mW or  $11 \text{ dBm} + 10 \log B$ , 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.

Straddle channel power is measured using PXA spectrum analyzer, 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>	39919	<b>Date:</b>	2/14/17
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### Bandwidth, Antenna Gain, and Limits

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Min 99% BW (MHz)	Directional Gain (dBi)	Power Limit (dBm)	PSD Limit (dBm)
Low	5530	82.56	75.311	5.17	24.00	11.00
Mid	5610	82.56	75.961	5.17	24.00	11.00

<b>Duty Cycle CF (dB)</b>	0.20	<b>Included in Calculations of Corr'd PSD</b>
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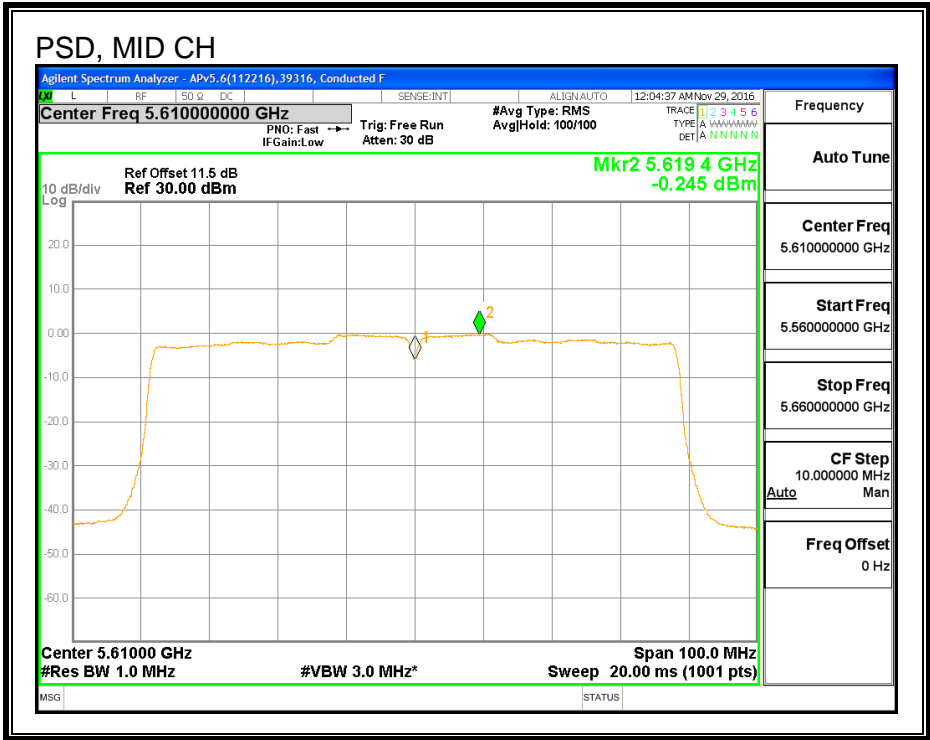
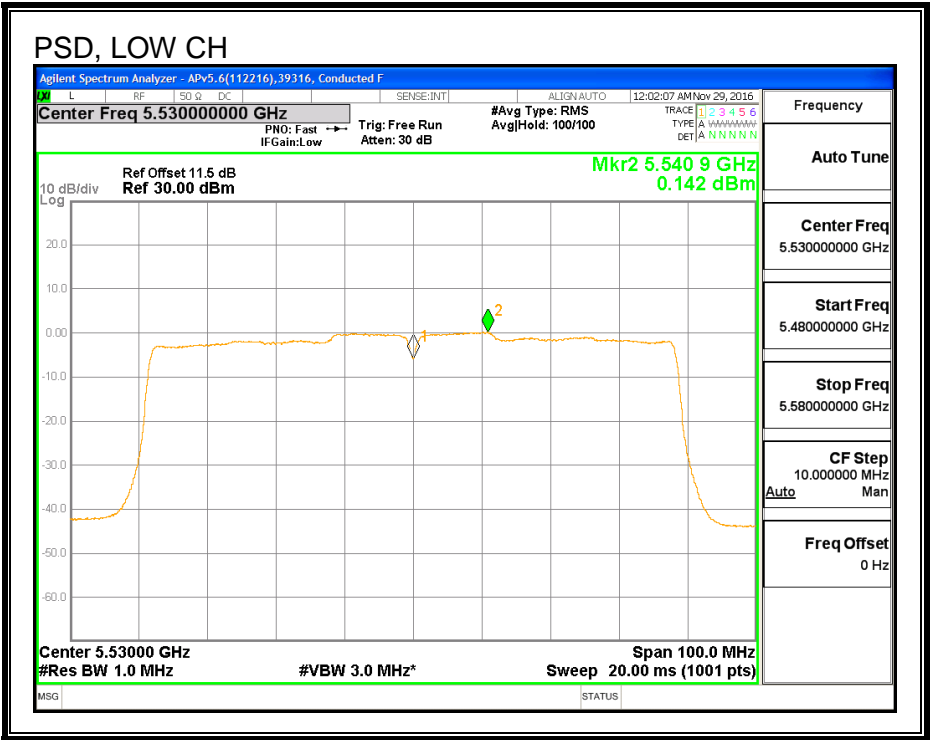
### Output Power Results

Channel	Frequency (MHz)	Antenna B Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5530	12.92	12.92	24.00	-11.08
Mid	5610	14.99	14.99	24.00	-9.01

### PSD Results

Channel	Frequency (MHz)	Antenna B Meas PSD (dBm)	Total Corr'd PSD (dBm)	PSD Limit (dBm)	PSD Margin (dB)
Low	5530	0.142	0.34	11.00	-10.66
Mid	5610	-0.245	-0.05	11.00	-11.05

PSD



## 8.38. 802.11ac VHT80 ANTENNA B STRADDLE CHANNEL 138 RESULTS

### 8.38.1. OUTPUT POWER AND PSD

#### UNII-2C BAND

##### Bandwidth, Antenna Gain, and Limits

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Directional Gain for Power (dBi)	Directional Gain for PSD (dBi)	Power Limit (dBm)	PSD Limit (dBm)
138	5690	76.44	5.17	5.17	24.00	11.00

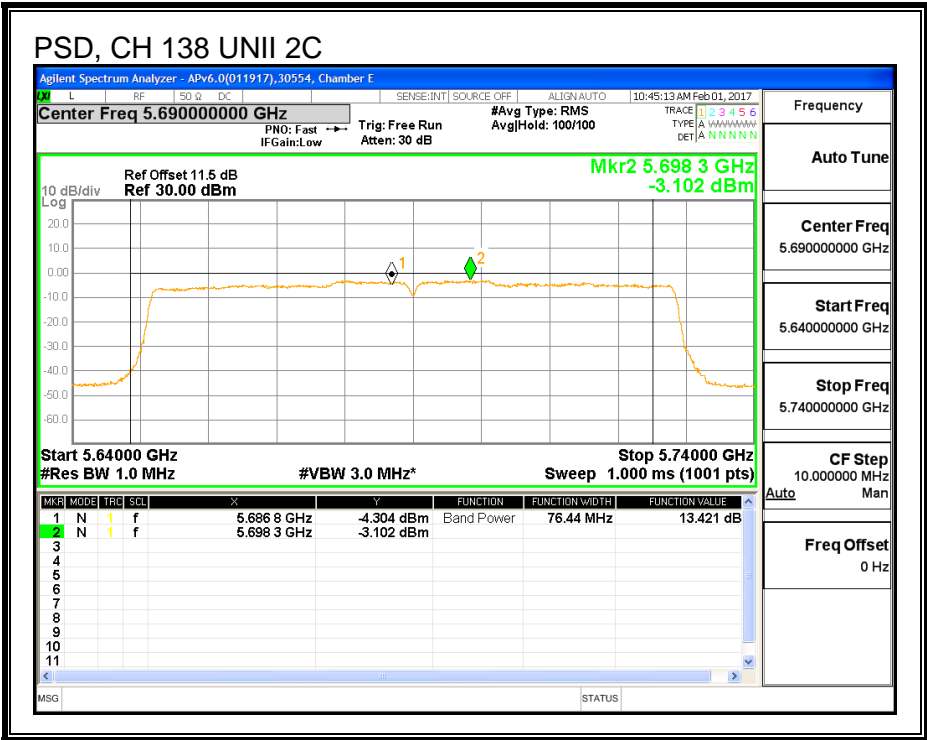
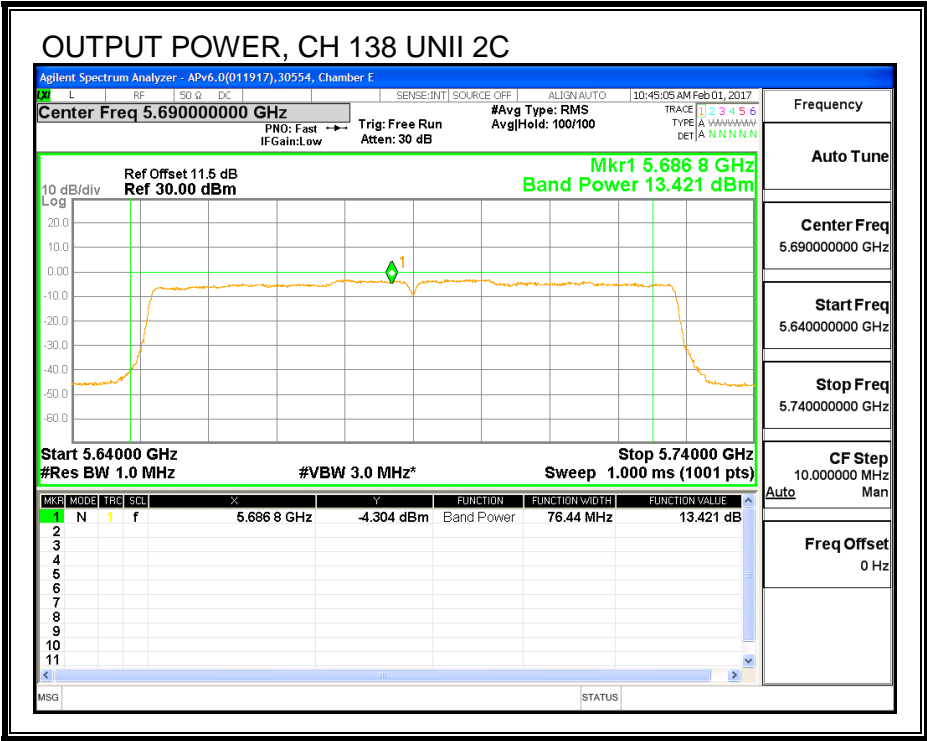
Duty Cycle CF (dB)	0.20	Included in Calculations of Corr'd Power & PSD
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##### Output Power Results

Channel	Frequency (MHz)	Antenna B Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
138	5690	13.42	13.62	24.00	-10.38

##### PSD Results

Channel	Frequency (MHz)	Antenna B Meas PSD (dBm)	Total Corr'd PSD (dBm)	PSD Limit (dBm)	PSD Margin (dB)
138	5690	-3.10	-2.90	11.00	-13.90



### UNII-3 BAND

#### Antenna Gain and Limit

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Directional Gain (dBi)	Power Limit (dBm)	PSD Limit (dBm)
138	5690	6.44	4.32	30.00	30.00

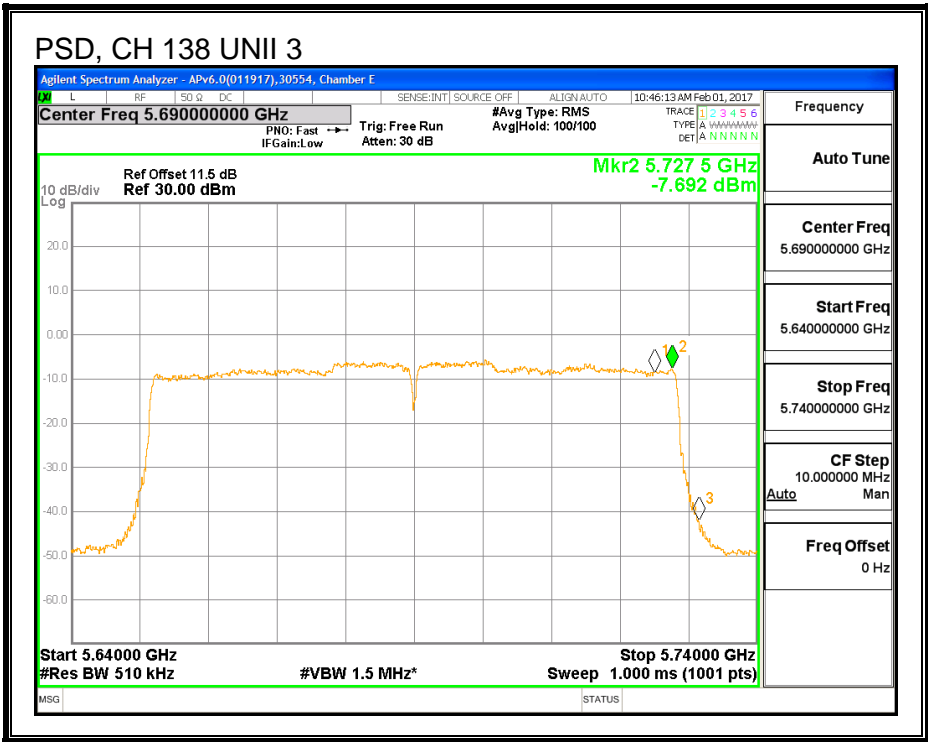
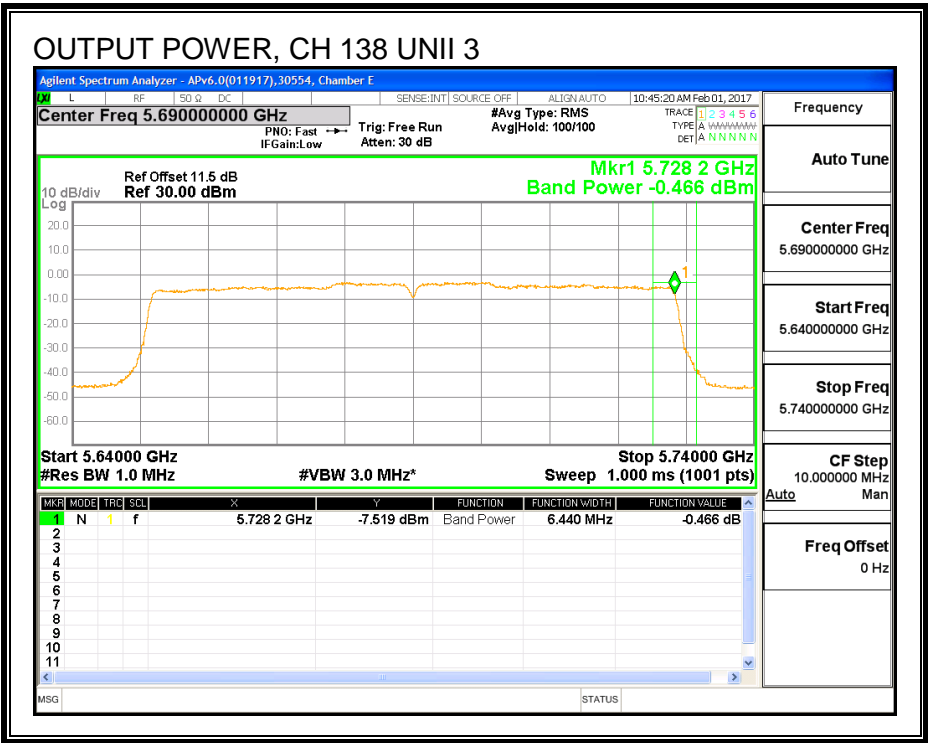
Duty Cycle CF (dB)	0.20	Included in Calculations of Corr'd Power & PSD
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#### Output Power Results

Channel	Frequency (MHz)	Antenna B Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
138	5690	-0.47	-0.27	30.00	-30.27

#### PSD Results

Channel	Frequency (MHz)	Antenna B Meas PSD (dBm)	Total Corr'd PSD (dBm)	PSD Limit (dBm)	PSD Margin (dB)
138	5690	-7.69	-7.49	30.00	-37.49



8.38.2. 6 dB BANDWIDTH

LIMITS

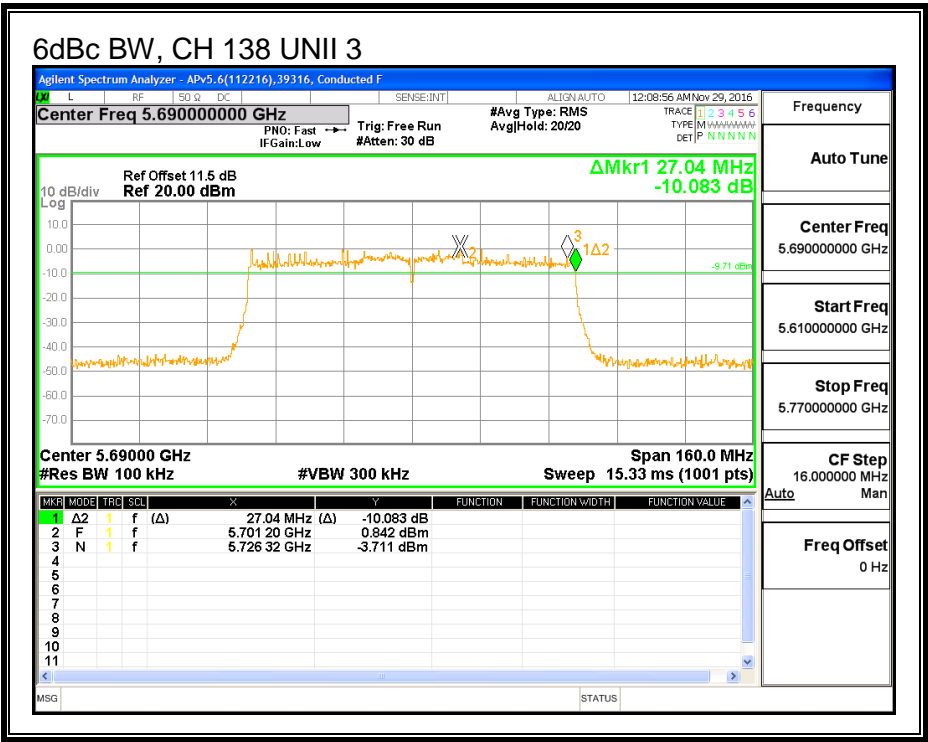
FCC §15.407 (e)

The minimum 6 dB bandwidth shall be at least 500 kHz.

RESULTS

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)
High	5690	27.040

6 dB BANDWIDTH



### 8.39. 802.11ac VHT80 2Tx (ANTENNA A + ANTENNA B) CDD MODE IN THE 5.6 GHz BAND (5610MHz for FCC only)

#### 8.39.1. 26 dB BANDWIDTH

##### LIMITS

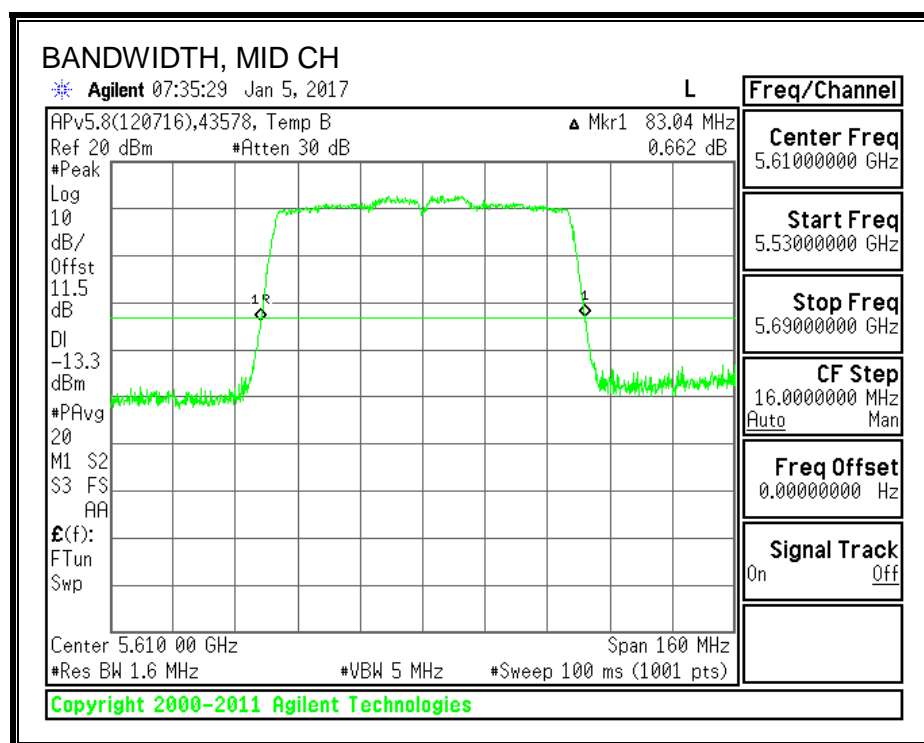
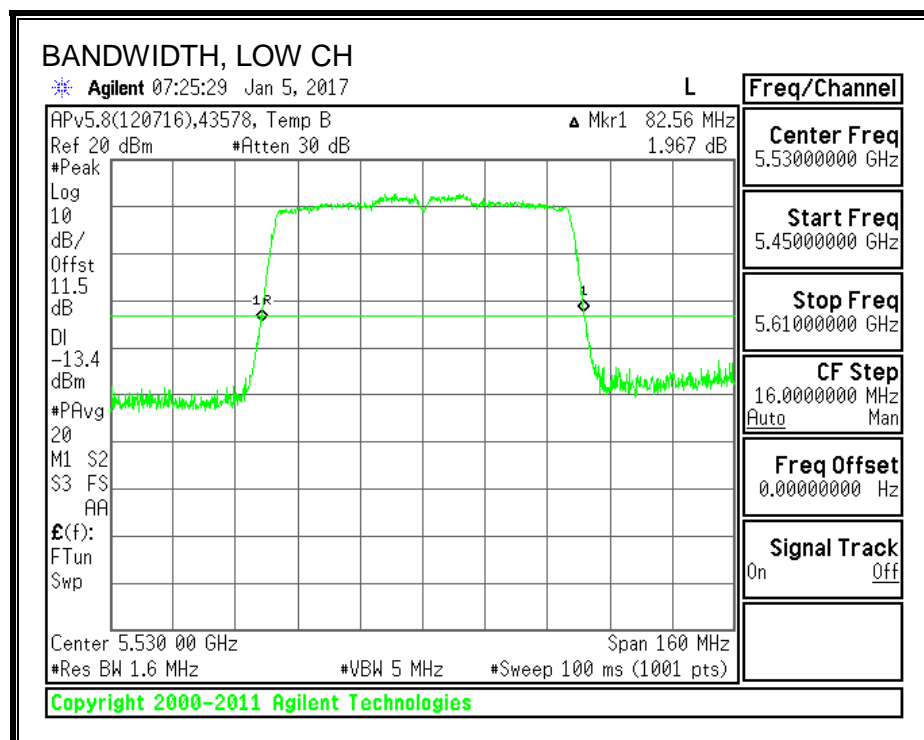
None; for reporting purposes only.

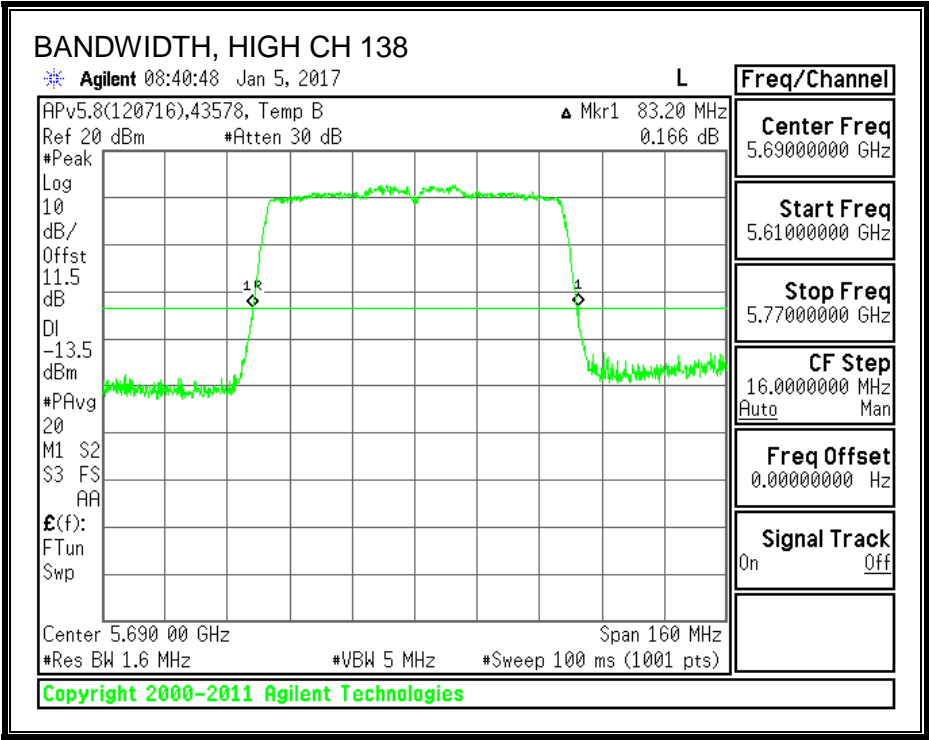
##### RESULTS

Channel	Frequency (MHz)	26 dB BW Antenna A (MHz)	26 dB BW Antenna B (MHz)
Low	5530	82.560	82.560
Mid	5610	83.040	82.560
High	5690	83.200	82.720

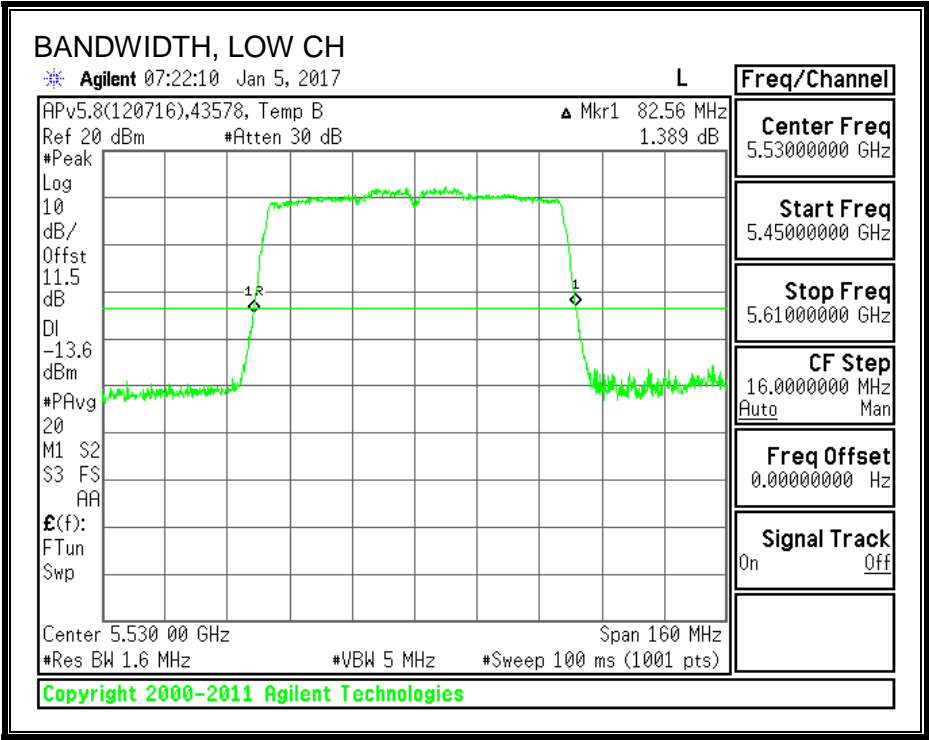


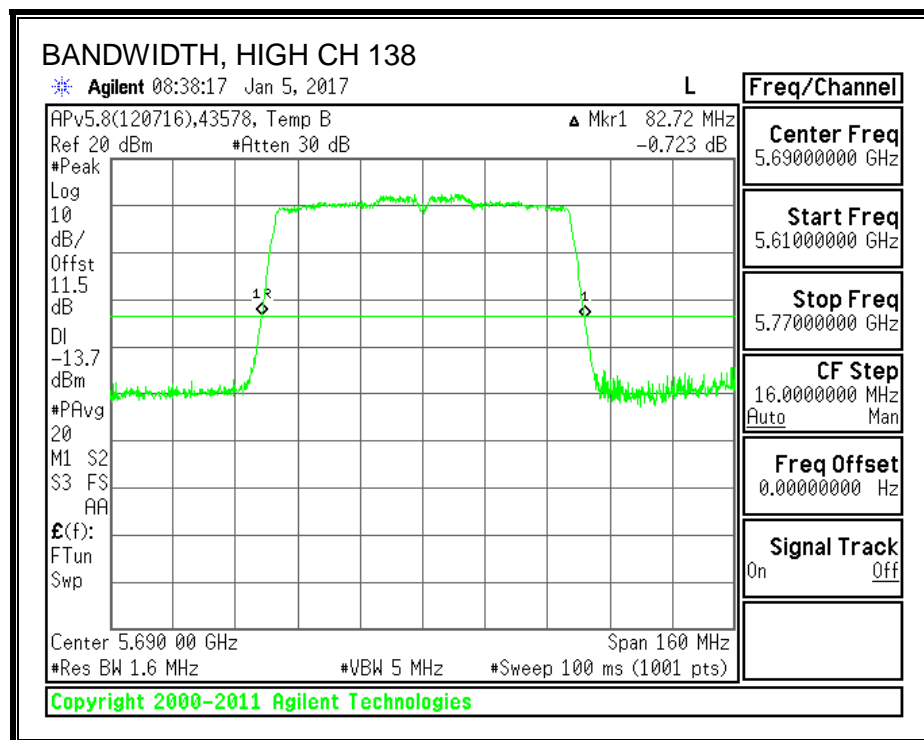
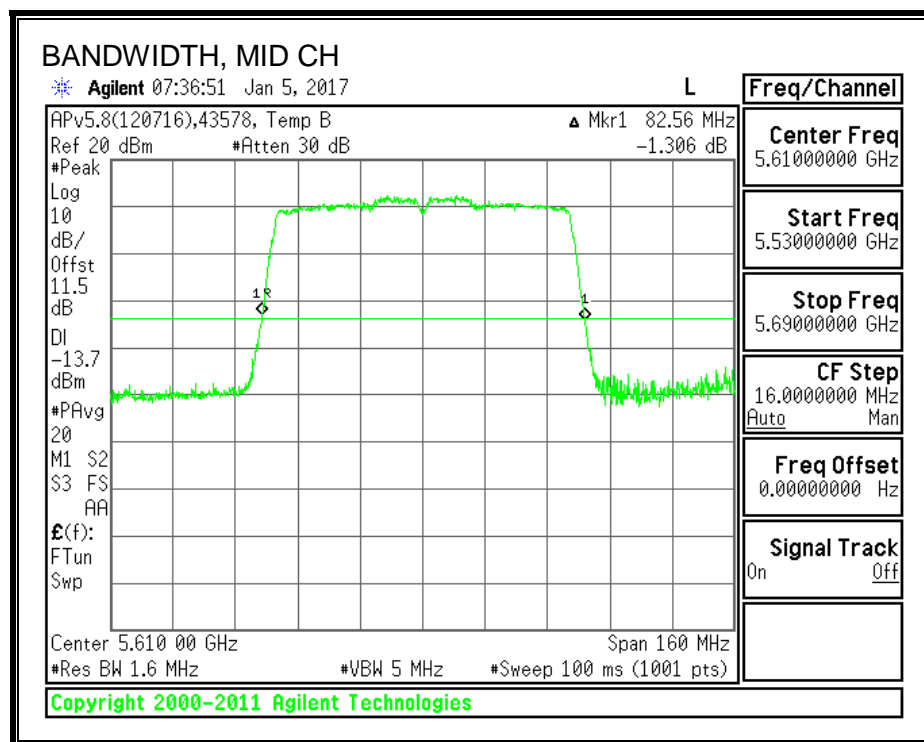
**26 dB BANDWIDTH, ANTENNA A**





26 dB BANDWIDTH, ANTENNA B





### 8.39.2. 99% BANDWIDTH

#### LIMITS

None; for reporting purposes only.

#### RESULTS

Channel	Frequency (MHz)	99% BW Antenna A (MHz)	99% BW Antenna B (MHz)
Low	5530	76.208	76.071
Mid	5610	75.924	75.728
High	5690	75.756	75.742