

## RESULTS

<b>ID:</b>	39004	<b>Date:</b>	9/2/16
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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)
Mid	5290	82.88	75.81	7.36	10.36	24.00	6.64

<b>Duty Cycle CF (dB)</b>	0.21	<b>Included in Calculations of Corr'd PSD</b>
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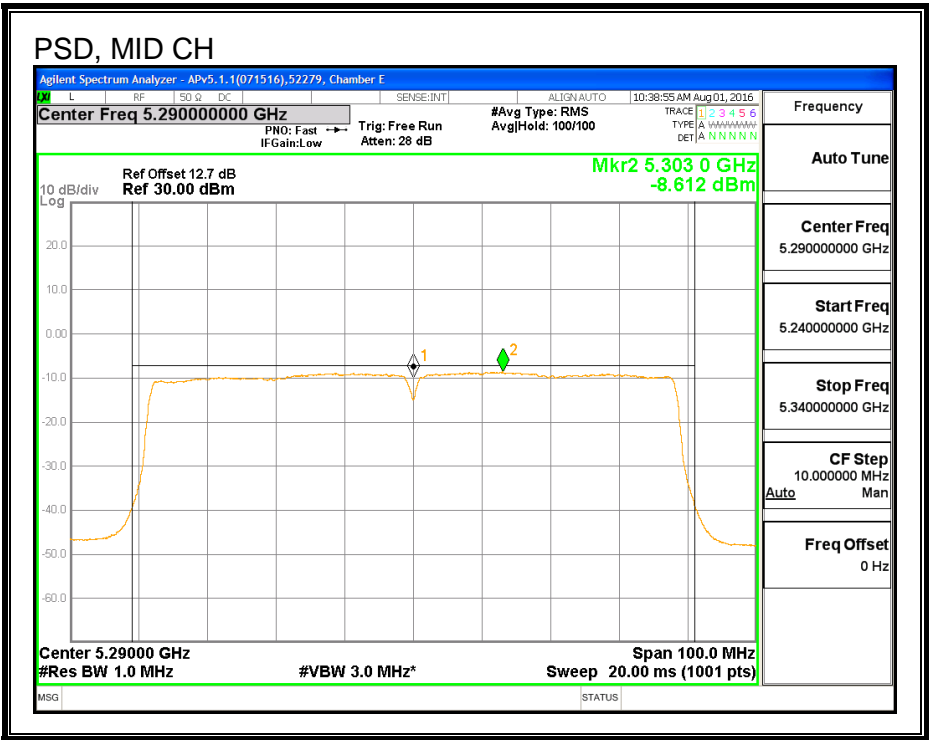
### Output Power Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Chain 1 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Mid	5290	8.93	8.89	11.92	24.00	-12.08

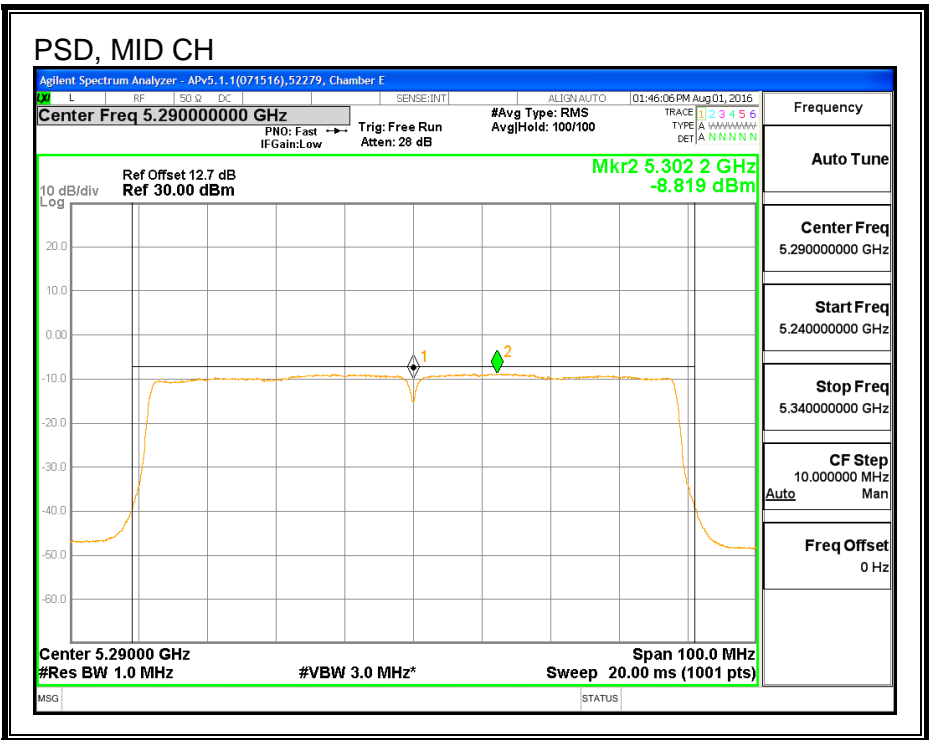
### PSD Results

Channel	Frequency (MHz)	Chain 0 Meas PSD (dBm)	Chain 1 Meas PSD (dBm)	Total Corr'd PSD (dBm)	PSD Limit (dBm)	PSD Margin (dB)
Mid	5290	-8.61	-8.82	-5.49	6.64	-12.13

PSD, CHAIN 0



PSD, CHAIN 1



## 8.29. 802.11ac VHT80 2Tx STBC MODE IN THE 5.3 GHz BAND

### 8.29.1. 26 dB BANDWIDTH

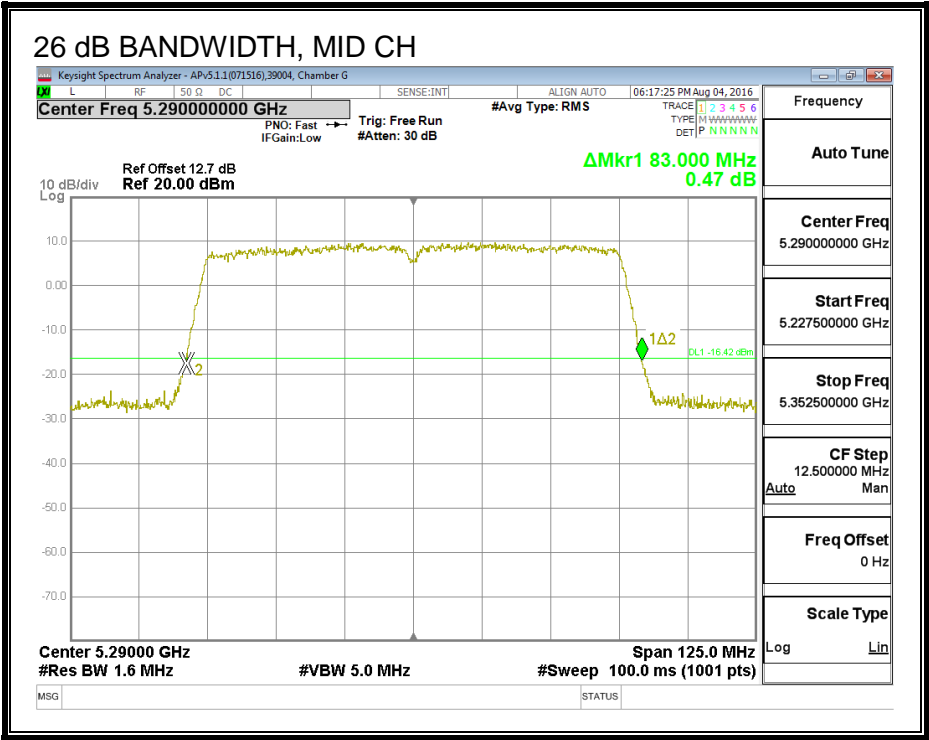
#### LIMITS

None; for reporting purposes only.

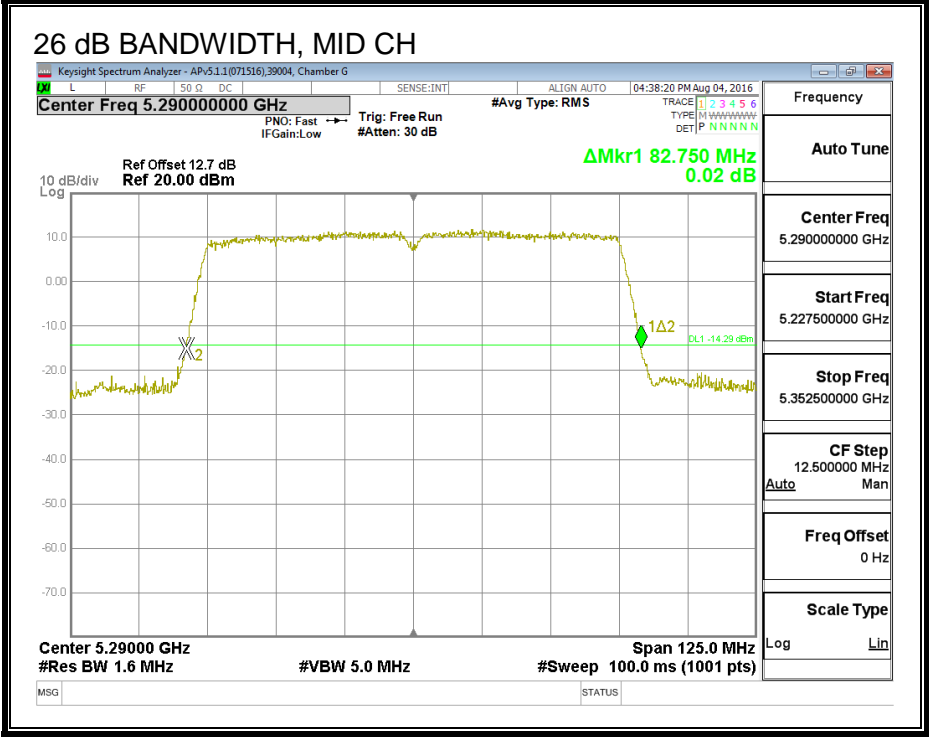
#### RESULTS

Channel	Frequency (MHz)	26 dB BW Chain 0 (MHz)	26 dB BW Chain 1 (MHz)
Mid	5290	83.000	85.750

26 DB BANDWIDTH, CHAIN 0



26 DB BANDWIDTH, CHAIN 1



## 8.29.2. 99% BANDWIDTH

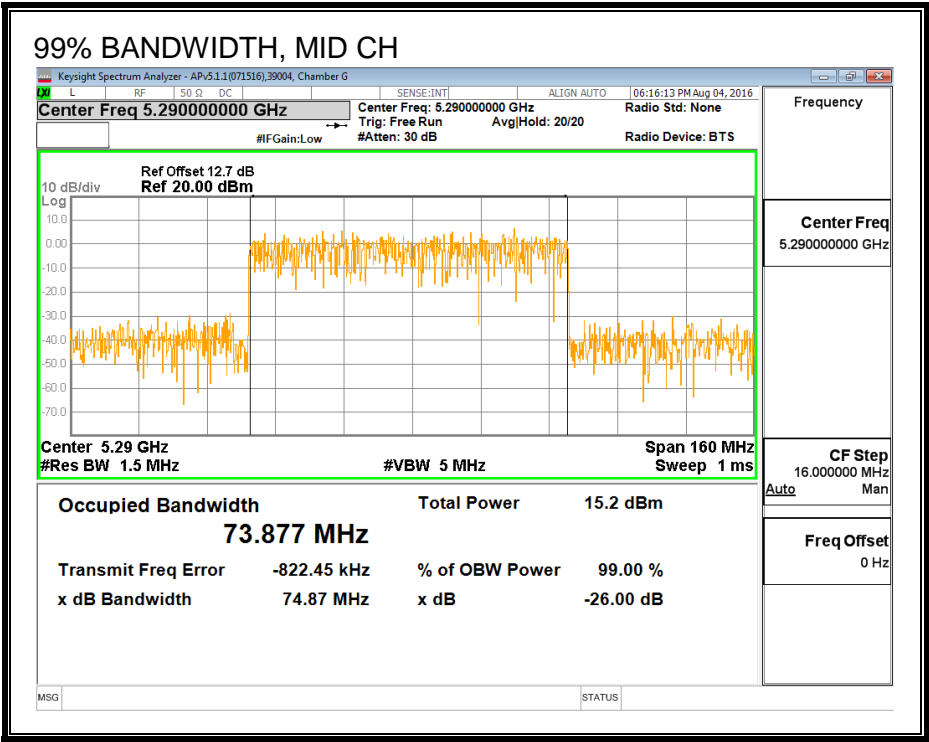
### LIMITS

None; for reporting purposes only.

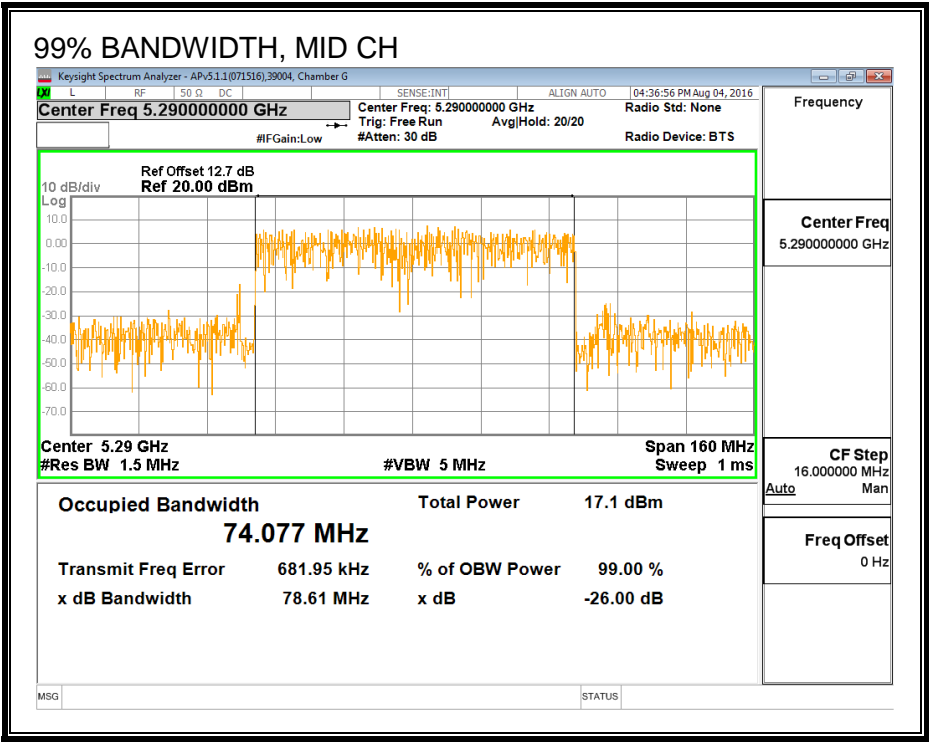
### RESULTS

Channel	Frequency (MHz)	99% BW Chain 0 (MHz)	99% BW Chain 1 (MHz)
Mid	5290	73.877	74.077

99% BANDWIDTH, CHAIN 0



99% BANDWIDTH, CHAIN 1



### 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>	39004	<b>Date:</b>	9/2/16
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#### Average Power Results

Channel	Frequency (MHz)	Chain 0 Power (dBm)	Chain 1 Power (dBm)	Total Power (dBm)
Mid	5290	9.84	9.88	12.87

#### 8.29.4. 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  $11 \text{ dBm} + 10 \log B$ , 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.

IC RSS-247 (6.2.2) (1)

The maximum conducted output power shall not exceed 250 mW or  $11 + 10 \log_{10} B$ , dBm, whichever is less. The power spectral density shall not exceed 11 dBm in any 1.0 MHz band.

The maximum e.i.r.p. shall not exceed 1.0 W or  $17 + 10 \log_{10} B$ , dBm, whichever is less. B is the 99% emission bandwidth in megahertz. Note that devices with a maximum e.i.r.p. greater than 500 mW shall implement TPC in order to have the capability to operate at least 6 dB below the maximum permitted e.i.r.p. of 1 W.

##### 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:

Chain 0 Antenna Gain (dBi)	Chain 1 Antenna Gain (dBi)	Uncorrelated Chains Directional Gain (dBi)
7.10	7.60	7.36



## RESULTS

<b>ID:</b>	39004	<b>Date:</b>	9/2/16
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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)
Mid	5290	83.00	73.88	7.36	7.36	24.00	9.64

<b>Duty Cycle CF (dB)</b>	0.21	Included in Calculations of Corr'd PSD
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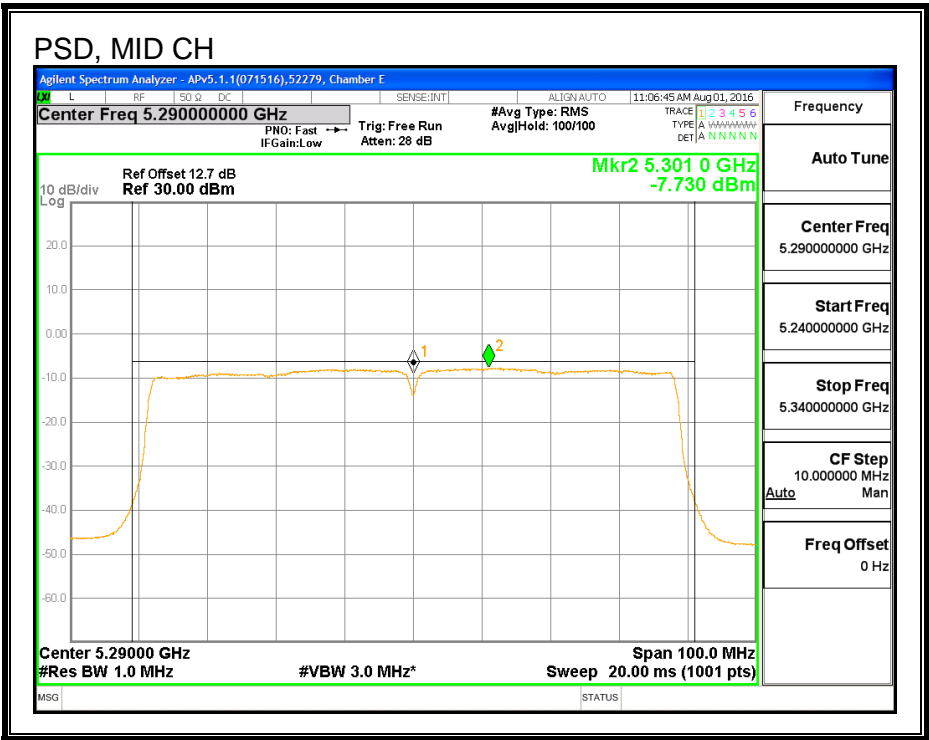
### Output Power Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Chain 1 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Mid	5290	9.84	9.88	12.87	24.00	-11.13

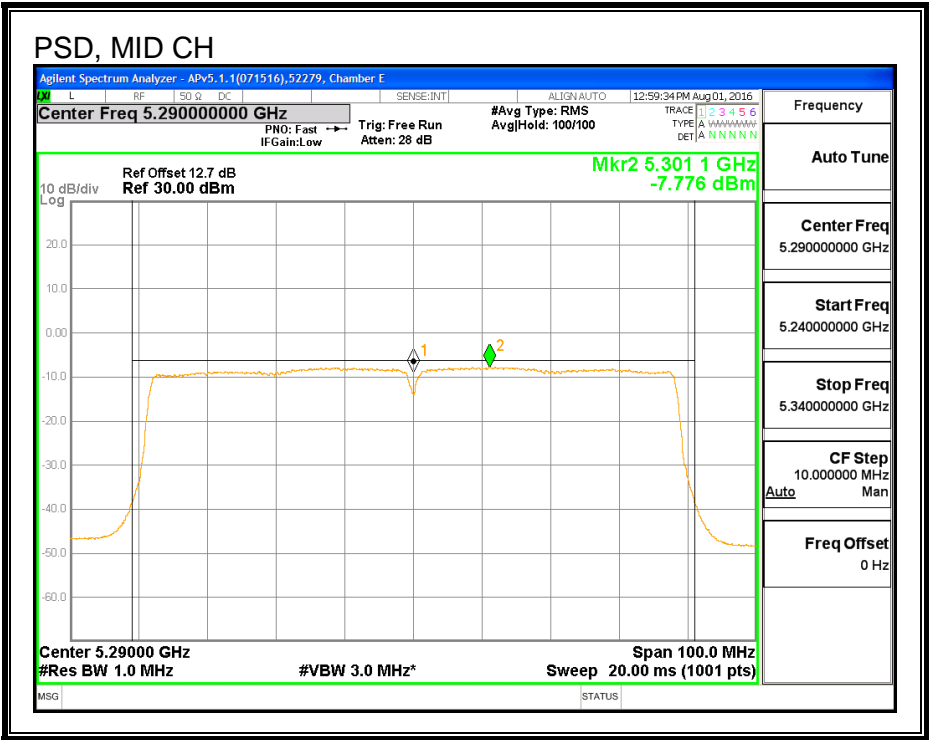
### PSD Results

Channel	Frequency (MHz)	Chain 0 Meas PSD (dBm)	Chain 1 Meas PSD (dBm)	Total Corr'd PSD (dBm)	PSD Limit (dBm)	PSD Margin (dB)
Mid	5290	-7.73	-7.78	-4.53	9.64	-14.17

PSD, CHAIN 0



PSD, CHAIN 1



## 8.30. 802.11ac VHT80 2Tx BEAM FORMING MODE IN THE 5.3 GHz BAND

### 8.30.1. 26 dB BANDWIDTH

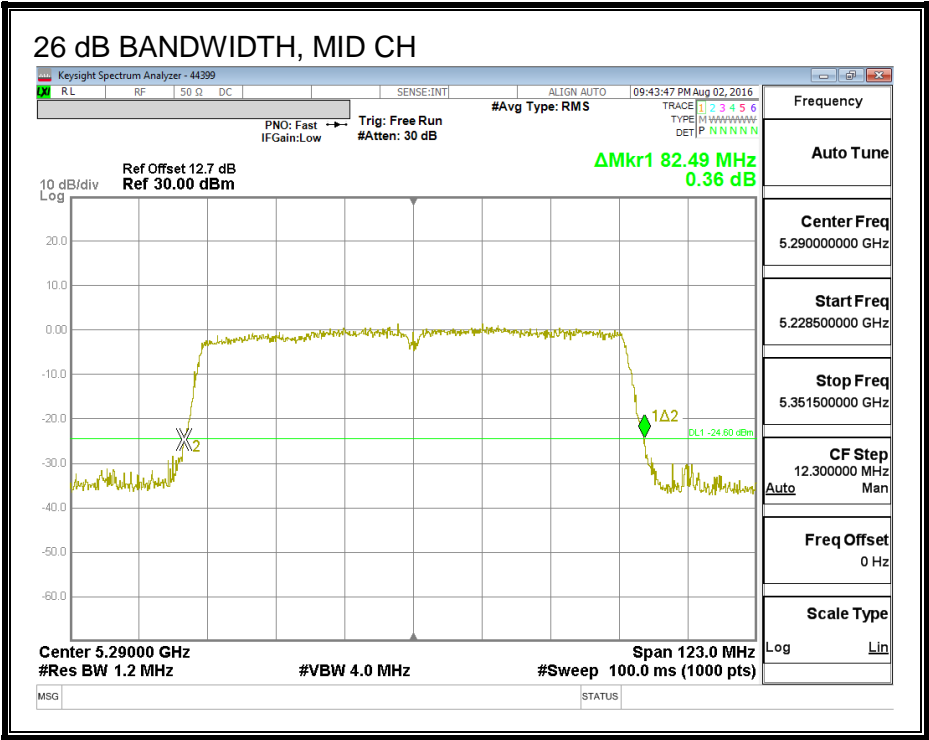
#### LIMITS

None; for reporting purposes only.

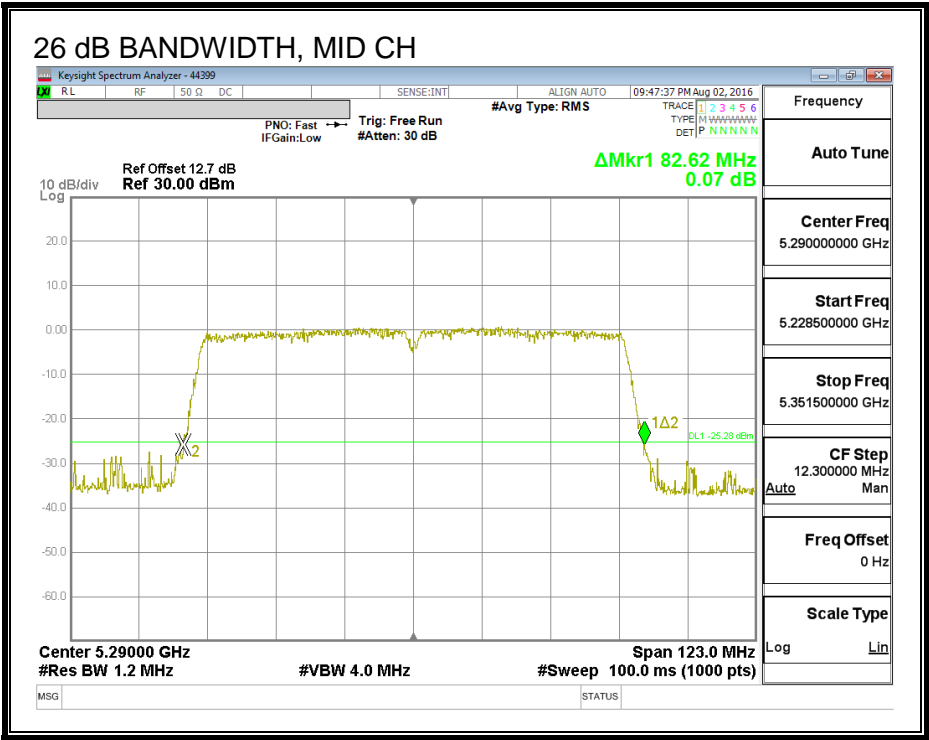
#### RESULTS

Channel	Frequency (MHz)	26 dB BW Chain 0 (MHz)	26 dB BW Chain 1 (MHz)
Mid	5290	82.490	82.620

26 DB BANDWIDTH, CHAIN 0



26 DB BANDWIDTH, CHAIN 1



### 8.30.2. 99% BANDWIDTH

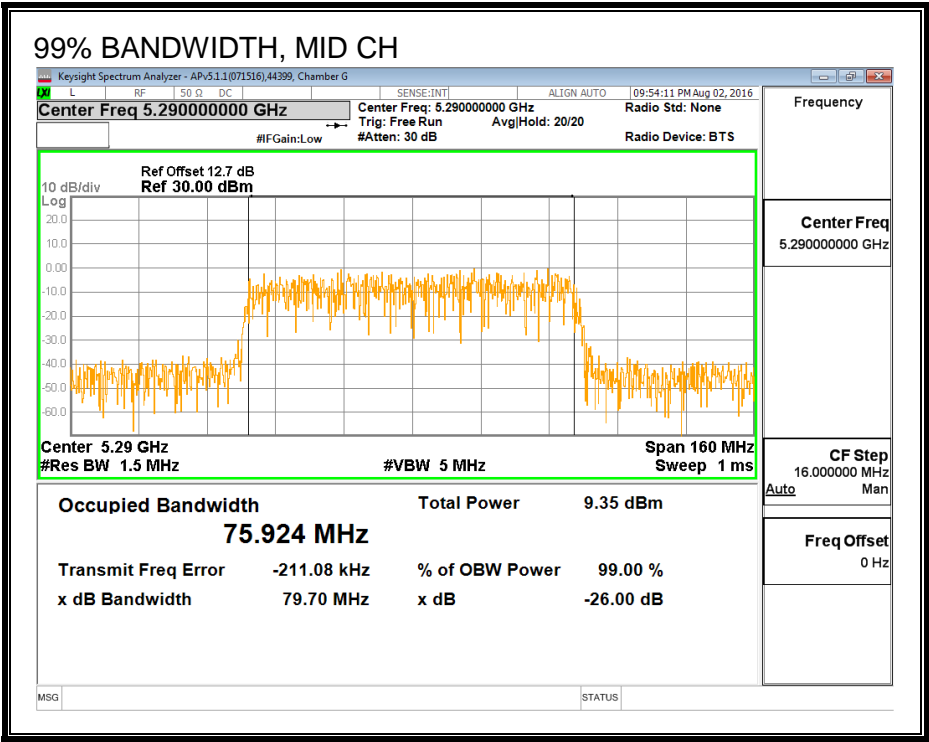
#### LIMITS

None; for reporting purposes only.

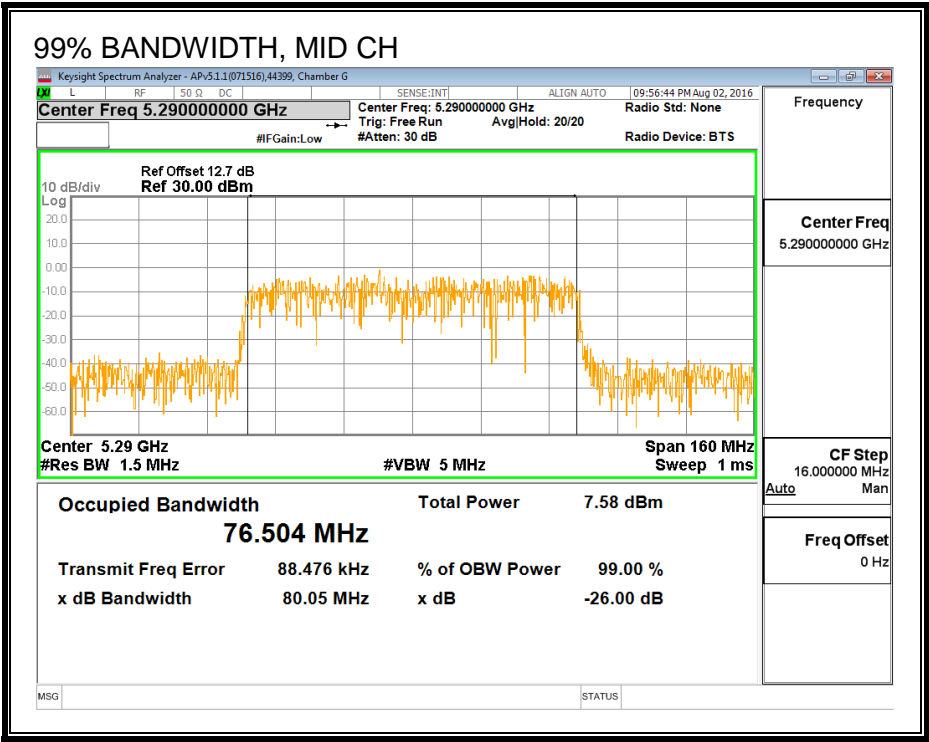
#### RESULTS

Channel	Frequency (MHz)	99% BW Chain 0 (MHz)	99% BW Chain 1 (MHz)
Mid	5290	75.924	76.504

99% BANDWIDTH, CHAIN 0



99% BANDWIDTH, CHAIN 1



### 8.30.3. AVERAGE POWER

#### LIMITS

None; for reporting purposes only.

#### TEST PROCEDURE

Measurements perform using a wideband gated RF power meter.

#### RESULTS

<b>ID:</b>	39004	<b>Date:</b>	9/2/16
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#### Average Power Results

Channel	Frequency (MHz)	Chain 0 Power (dBm)	Chain 1 Power (dBm)	Total Power (dBm)
Mid	5290	7.92	7.93	10.94

#### 8.30.4. 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  $11 \text{ dBm} + 10 \log B$ , 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.

IC RSS-247 (6.2.2) (1)

The maximum conducted output power shall not exceed 250 mW or  $11 + 10 \log_{10} B$ , dBm, whichever is less. The power spectral density shall not exceed 11 dBm in any 1.0 MHz band.

The maximum e.i.r.p. shall not exceed 1.0 W or  $17 + 10 \log_{10} B$ , dBm, whichever is less. B is the 99% emission bandwidth in megahertz. Note that devices with a maximum e.i.r.p. greater than 500 mW shall implement TPC in order to have the capability to operate at least 6 dB below the maximum permitted e.i.r.p. of 1 W.

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

Chain 0 Antenna Gain (dBi)	Chain 1 Antenna Gain (dBi)	Correlated Chains Directional Gain (dBi)
7.10	7.60	10.36



## RESULTS

<b>ID:</b>	39004	<b>Date:</b>	9/2/16
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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)
Mid	5290	82.49	75.92	10.36	10.36	24.00	6.64

<b>Duty Cycle CF (dB)</b>	0.33	<b>Included in Calculations of Corr'd PSD</b>
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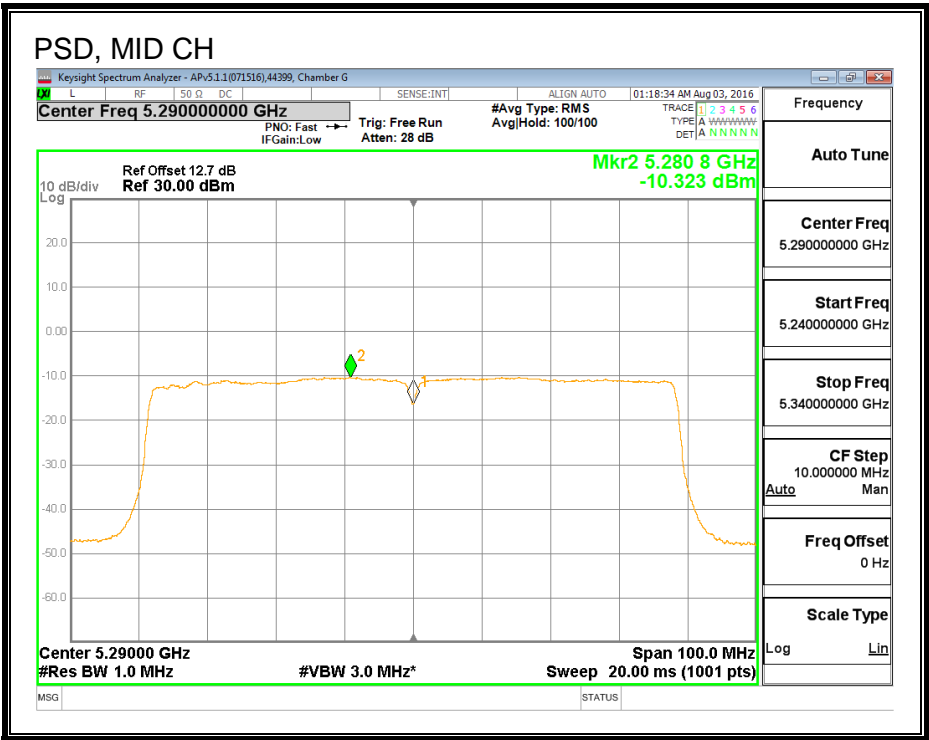
### Output Power Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Chain 1 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Mid	5290	7.92	7.93	10.94	24.00	-13.06

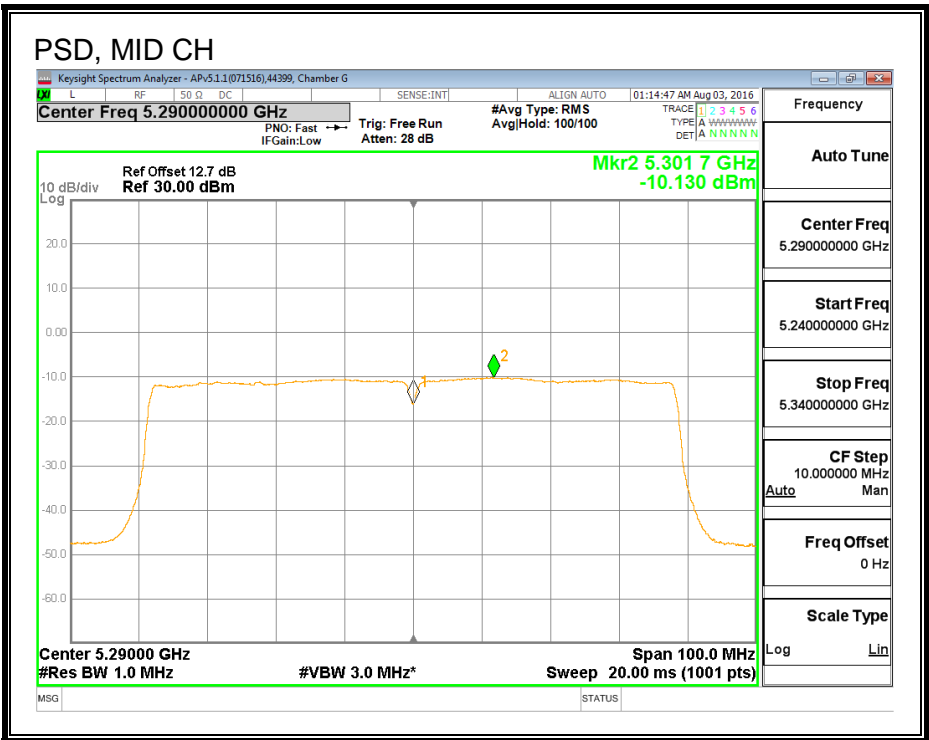
### PSD Results

Channel	Frequency (MHz)	Chain 0 Meas PSD (dBm)	Chain 1 Meas PSD (dBm)	Total Corr'd PSD (dBm)	PSD Limit (dBm)	PSD Margin (dB)
Mid	5290	-10.32	-10.13	-6.89	6.64	-13.53

PSD, CHAIN 0



PSD, CHAIN 1



## **8.31. 802.11n HT20 CHAIN 0 MODE IN THE 5.6 GHz BAND**

### **8.31.1. 26 dB BANDWIDTH**

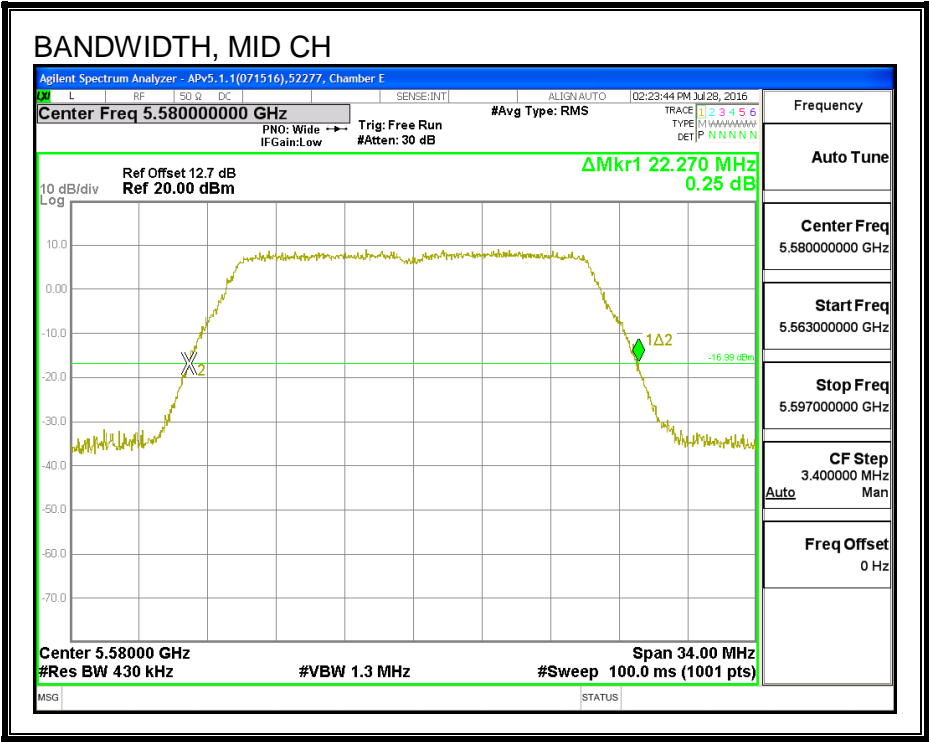
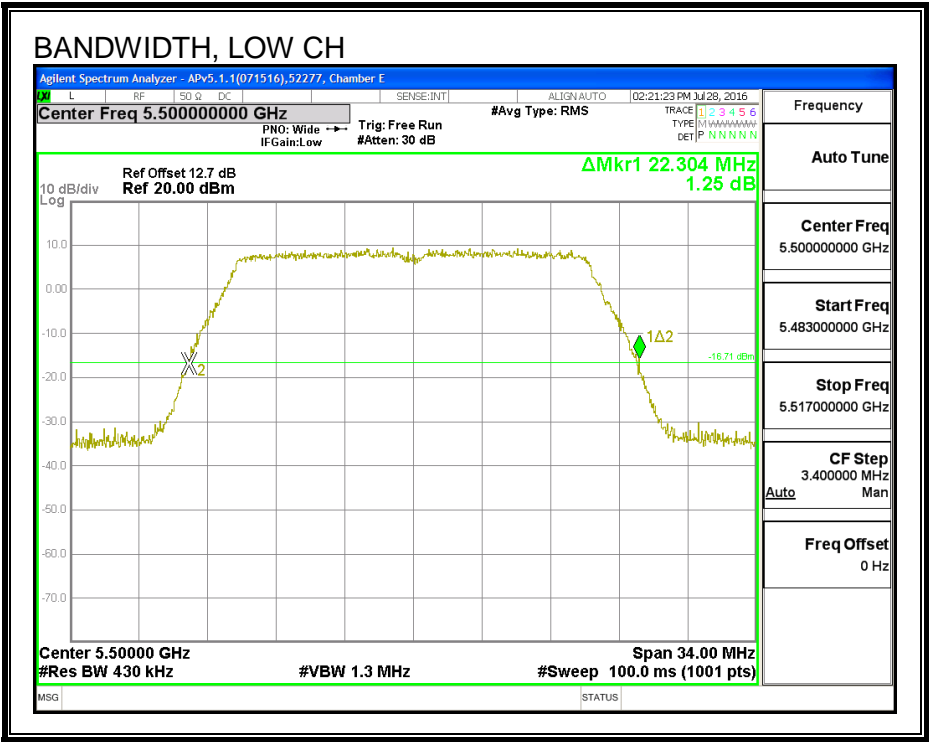
#### **LIMITS**

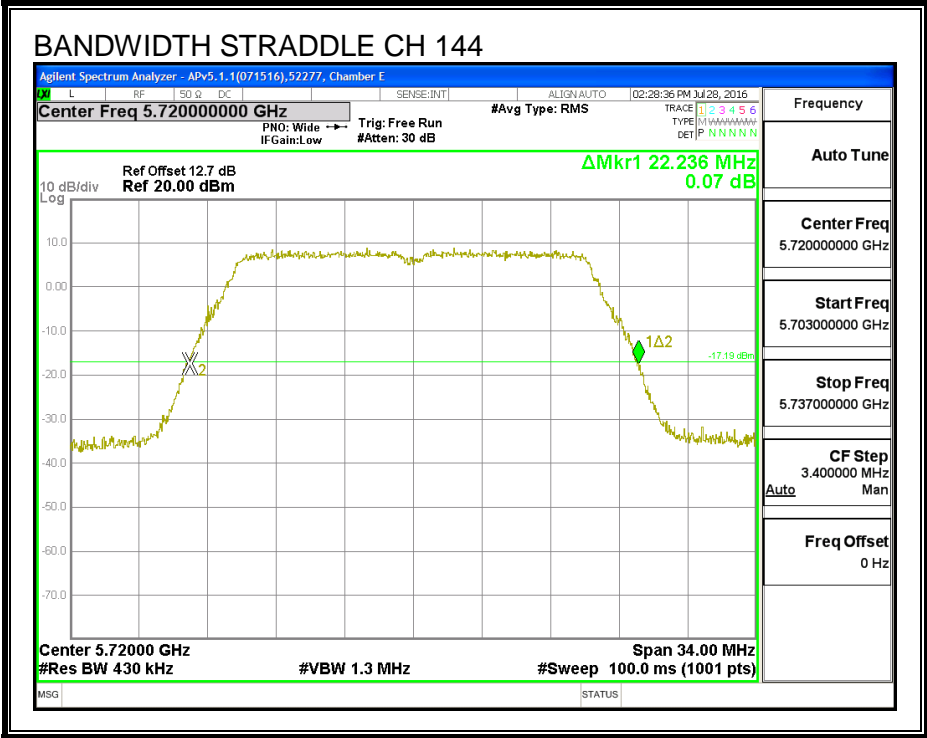
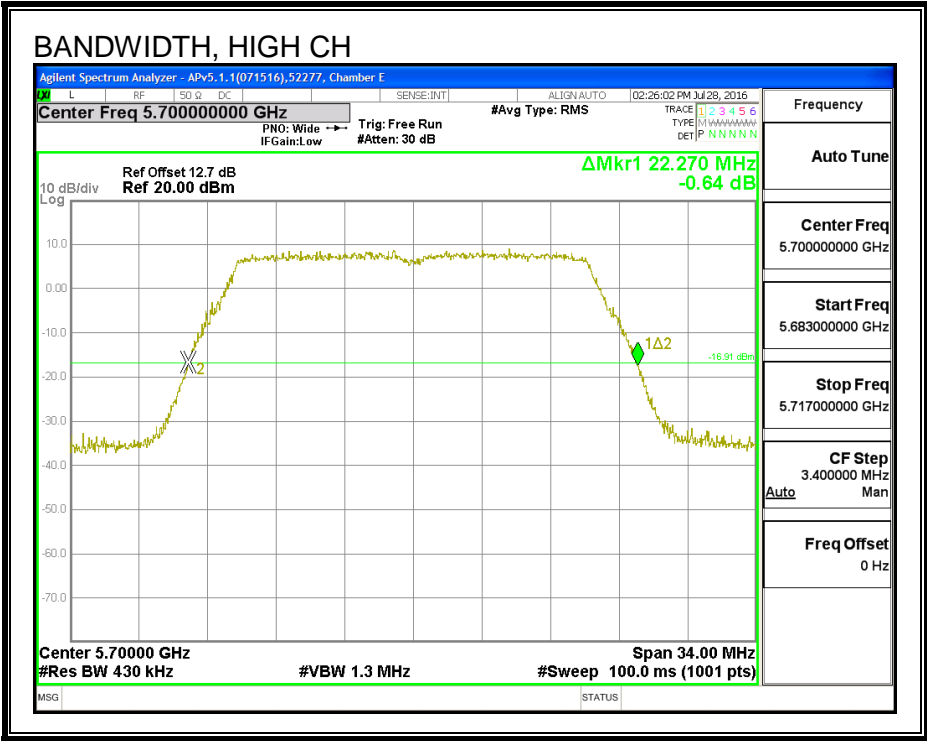
None; for reporting purposes only.

#### **RESULTS**

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)
Low	5500	22.304
Mid	5580	22.270
High	5700	22.270
144	5720	22.236

26 dB BANDWIDTH





### 8.31.2. 99% BANDWIDTH

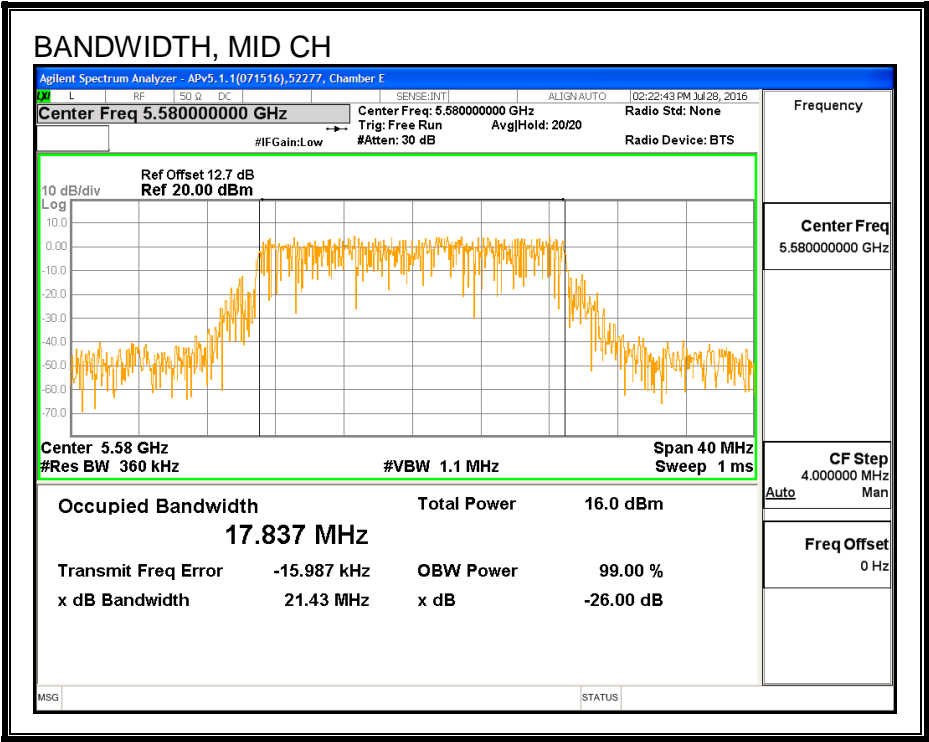
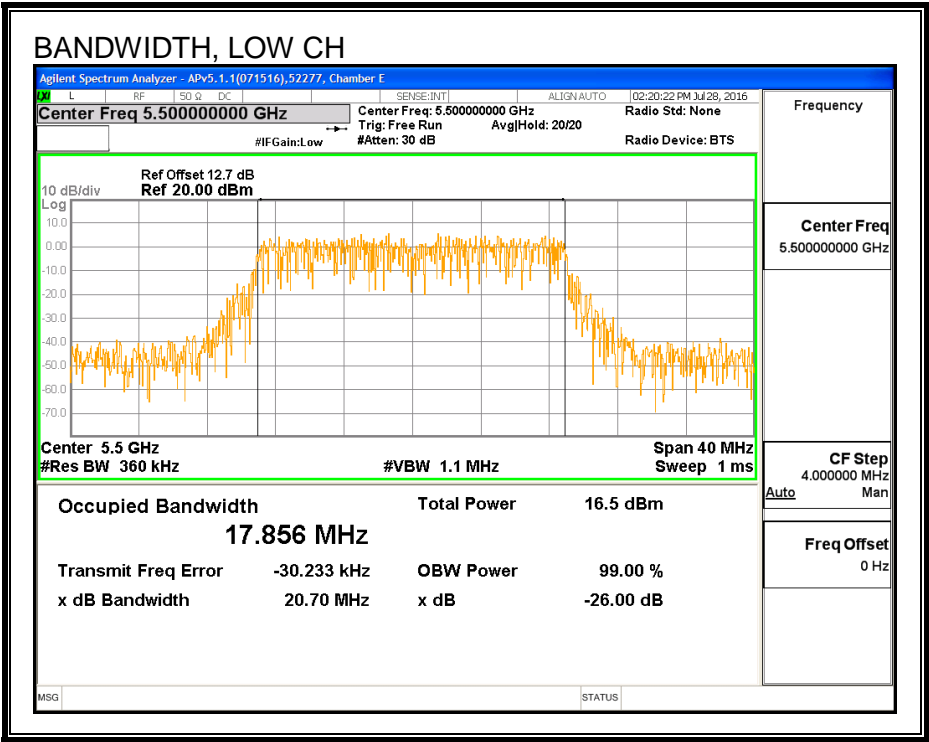
#### LIMITS

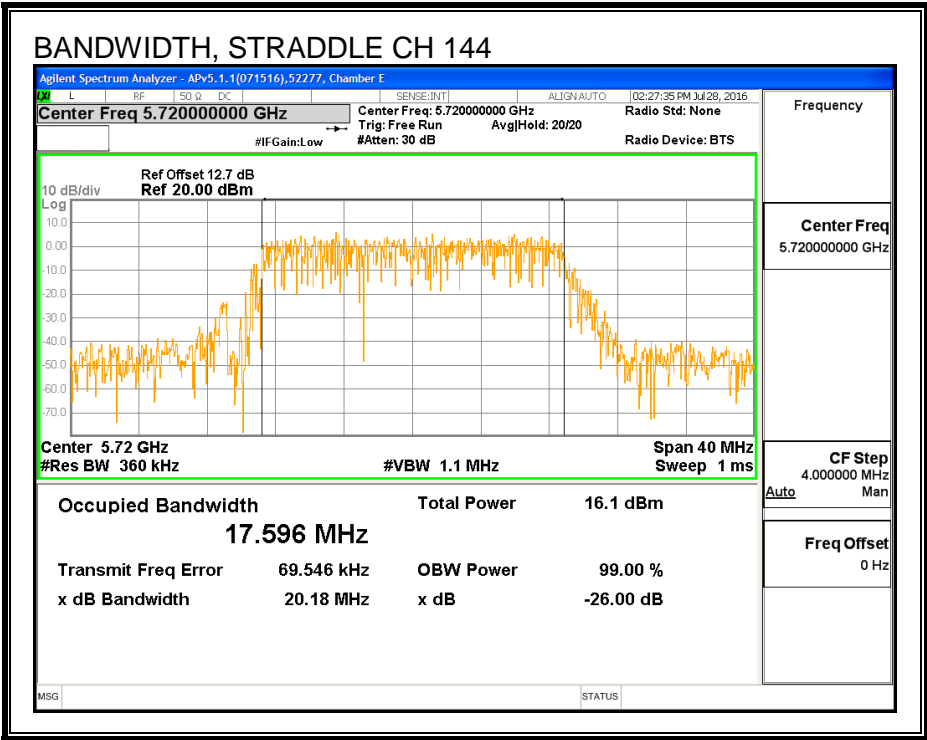
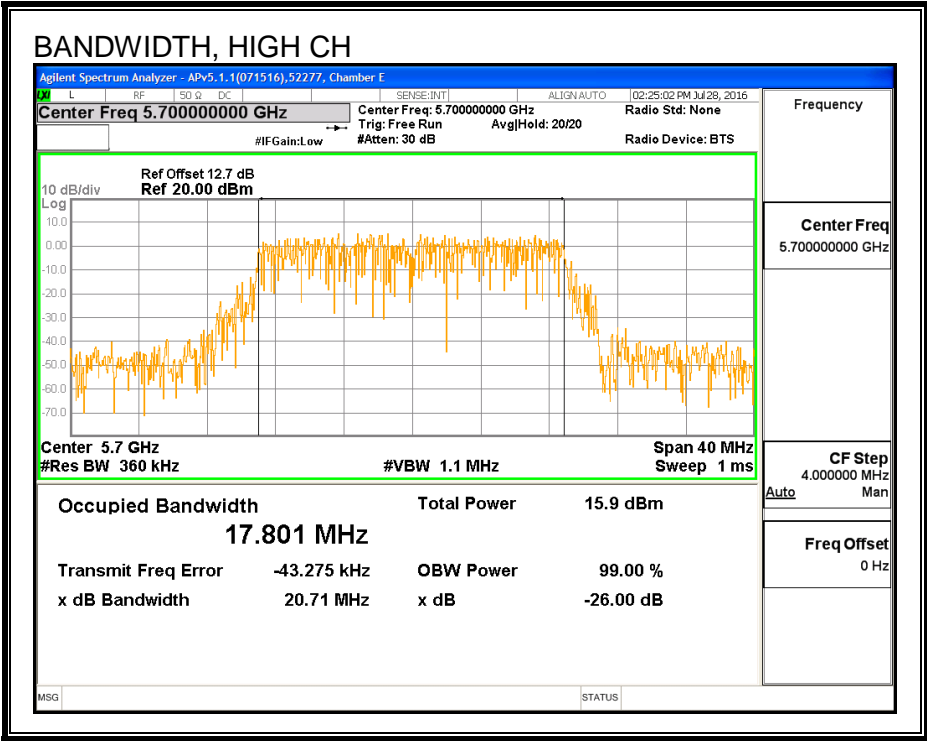
None; for reporting purposes only.

#### RESULTS

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	5500	17.856
Mid	5580	17.837
High	5700	17.801
144	5720	17.596

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>	39004	<b>Date:</b>	9/2/16
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Channel	Frequency (MHz)	Power (dBm)
Low	5500	12.41
Mid	5580	12.46
High	5700	12.37
144	5720	12.42

#### **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 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.

IC RSS-247 (6.2.3) (1)

The maximum conducted output power shall not exceed 250 mW or  $11 + 10 \log_{10} B$ , dBm, whichever is less. The power spectral density shall not exceed 11 dBm in any 1.0 MHz band.

The maximum e.i.r.p. shall not exceed 1.0 W or  $17 + 10 \log_{10} B$ , dBm, whichever is less. B is the 99% emission bandwidth in megahertz. Note that devices with a maximum e.i.r.p. greater than 500 mW shall implement TPC in order to have the capability to operate at least 6 dB below the maximum permitted e.i.r.p. of 1 W.

##### **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>	39004	<b>Date:</b>	9/2/16
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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	5500	22.30	17.86	6.40	23.12	10.60
Mid	5580	22.27	17.84	6.40	23.11	10.60
High	5700	22.27	17.80	6.40	23.10	10.60

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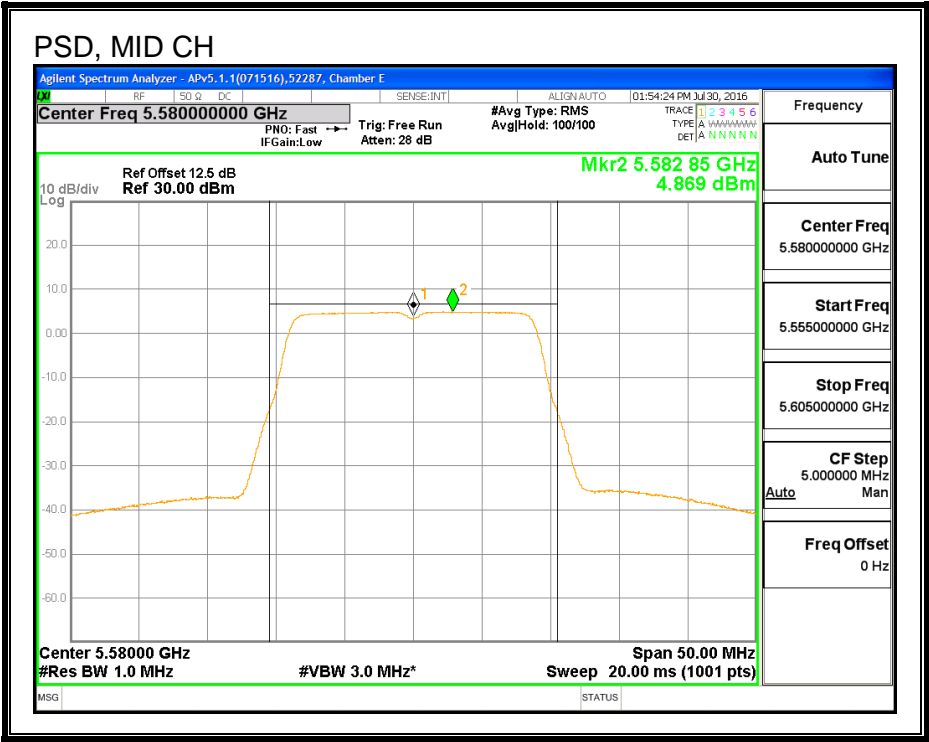
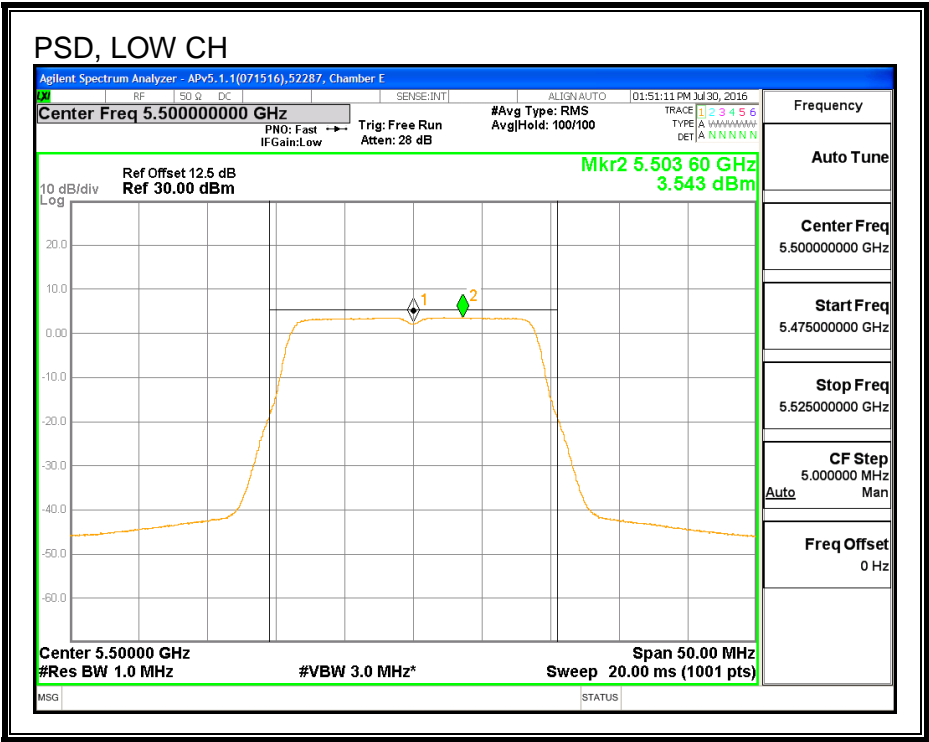
### Output Power Results

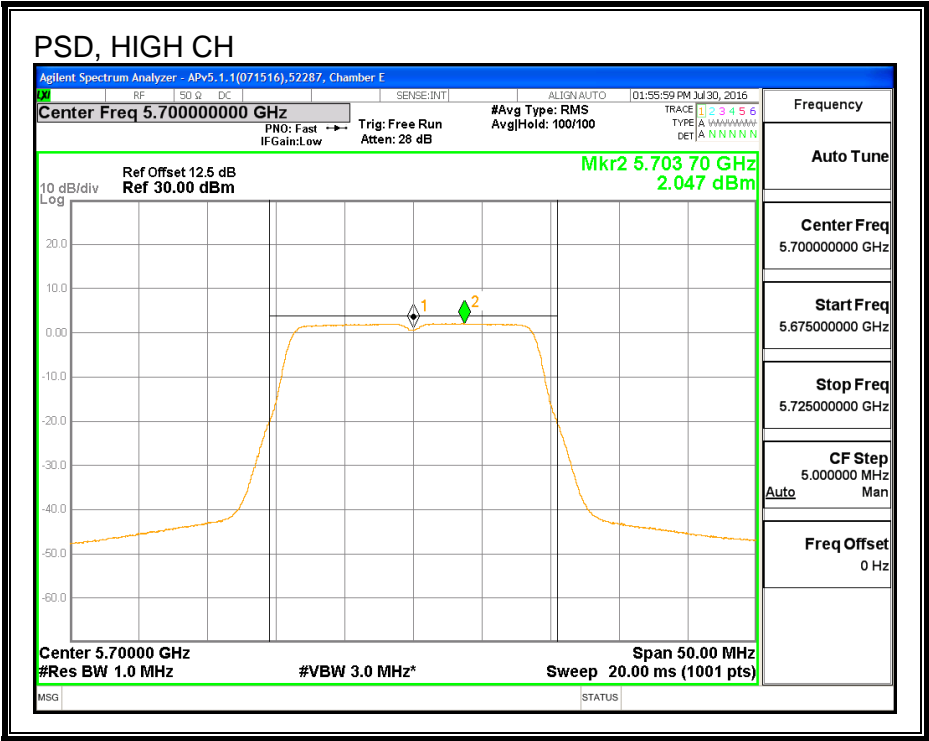
Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5500	12.41	12.41	23.12	-10.71
Mid	5580	12.46	12.46	23.11	-10.65
High	5700	12.37	12.37	23.10	-10.73

### PSD Results

Channel	Frequency (MHz)	Chain 0 Meas PSD (dBm)	Total Corr'd PSD (dBm)	PSD Limit (dBm)	PSD Margin (dB)
Low	5500	3.54	3.54	10.60	-7.06
Mid	5580	4.87	4.87	10.60	-5.73
High	5700	2.05	2.05	10.60	-8.55

PSD





## 8.32. 802.11ac VHT20 CHAIN 0 STRADDLE CHANNEL 144 RESULTS (FCC)

### 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)
144	5720	16.12	6.40	6.40	22.67	10.60

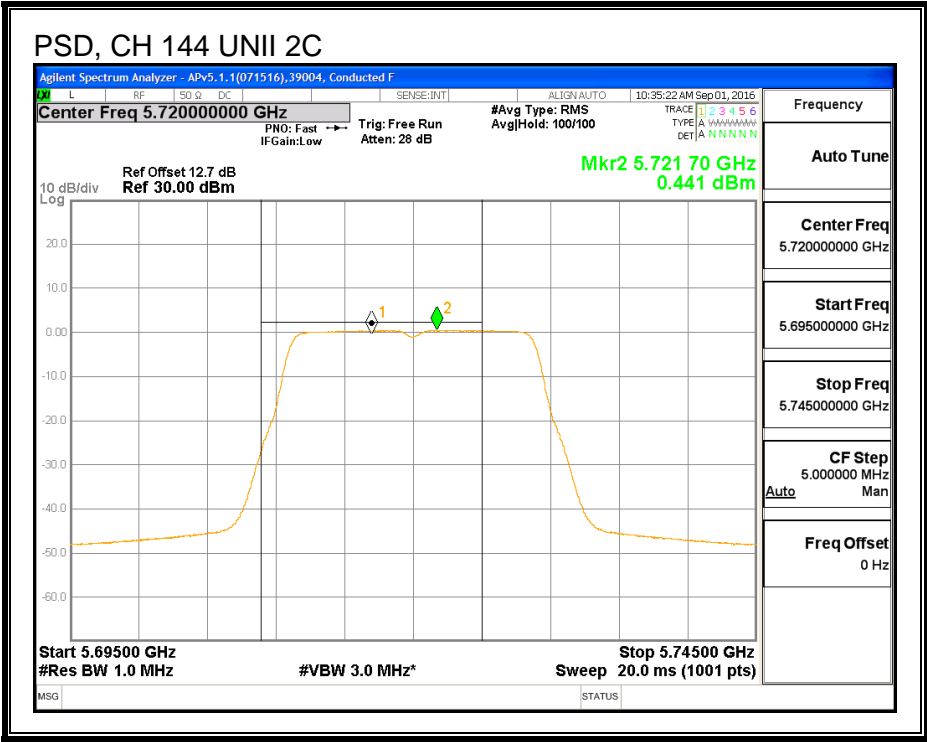
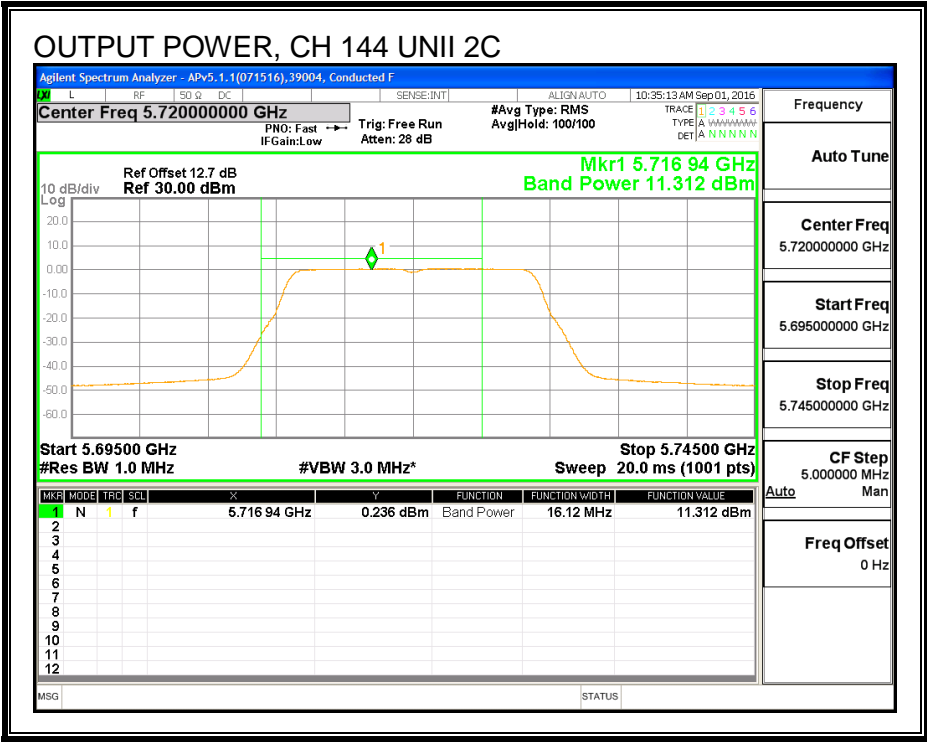
Duty Cycle CF (dB)	0.00	Included in Calculations of Corr'd Power & PSD
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##### Output Power Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
144	5720	11.31	11.31	22.67	-11.36

##### PSD Results

Channel	Frequency (MHz)	Chain 0 Meas PSD (dBm)	Total Corr'd PSD (dBm)	PSD Limit (dBm)	PSD Margin (dB)
144	5720	0.44	0.44	10.60	-10.16



# **UNII-3 BAND**

## **Antenna Gain and Limit**

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Directional Gain (dBi)	Power Limit (dBm)	PSD Limit (dBm)
144	5720	6.12	6.40	29.60	29.60

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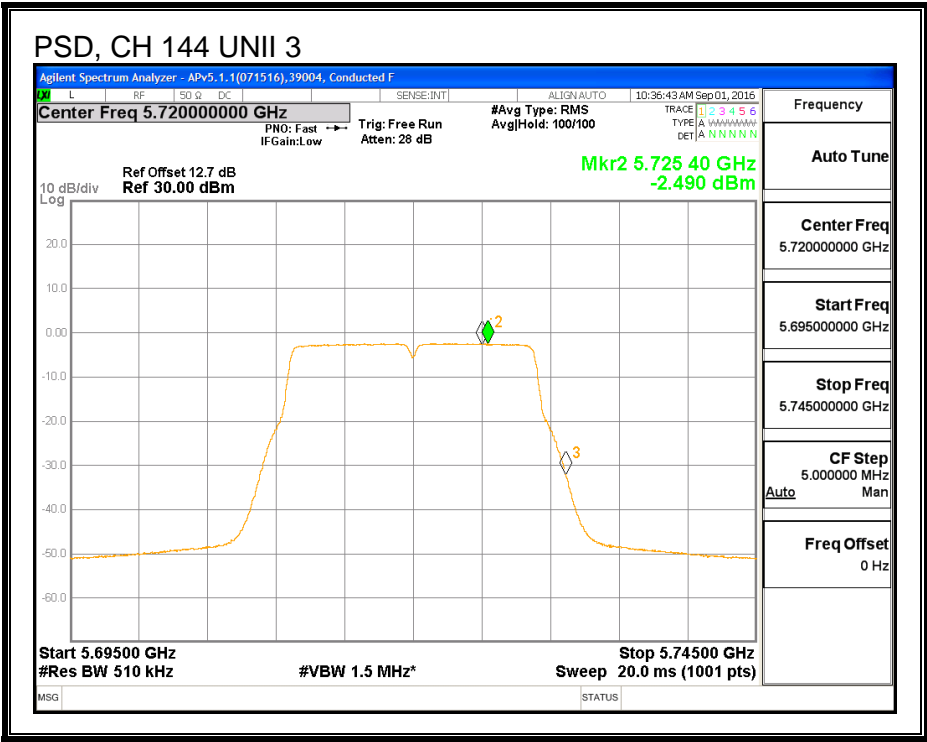
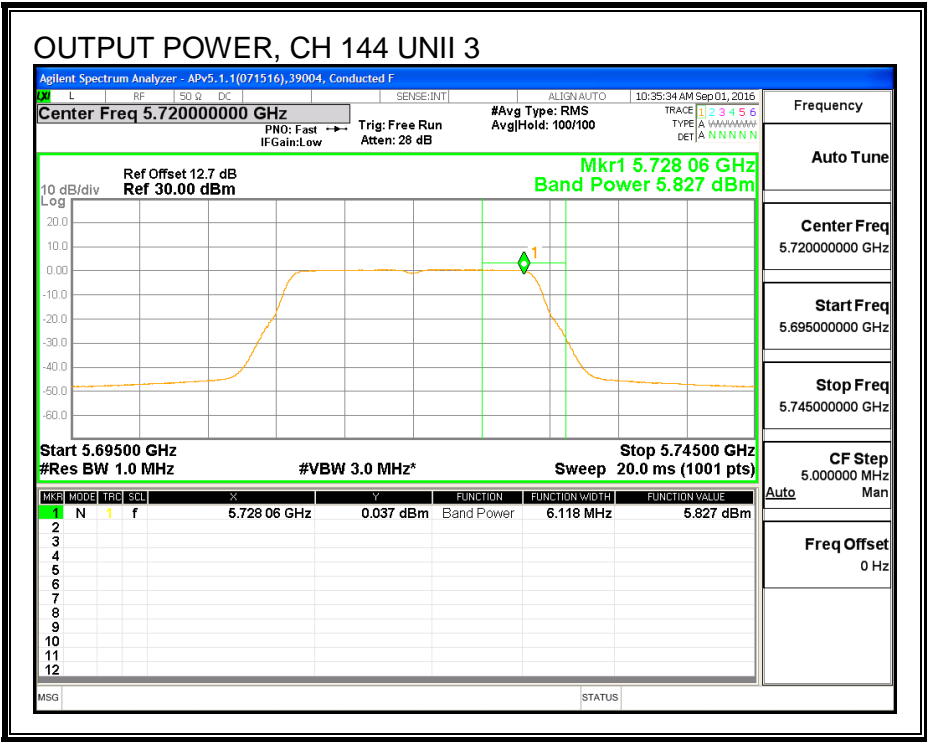
## **Output Power Results**

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
144	5720	5.83	5.83	29.60	-23.77

## **PSD Results**

Channel	Frequency (MHz)	Chain 0 Meas PSD (dBm)	Total Corr'd PSD (dBm)	PSD Limit (dBm)	PSD Margin (dB)
144	5720	-2.49	-2.49	29.60	-32.09





### 8.33. 802.11ac VHT20 CHAIN 0 STRADDLE CHANNEL 144 RESULTS (IC)

#### 8.33.1. OUTPUT POWER AND PSD

##### UNII-2C BAND

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

Channel	Frequency (MHz)	Min 99% BW (MHz)	Directional Gain for Power (dBi)	Directional Gain for PSD (dBi)	Power Limit (dBm)	PSD Limit (dBm)
144	5720	13.80	6.40	6.40	22.00	10.60

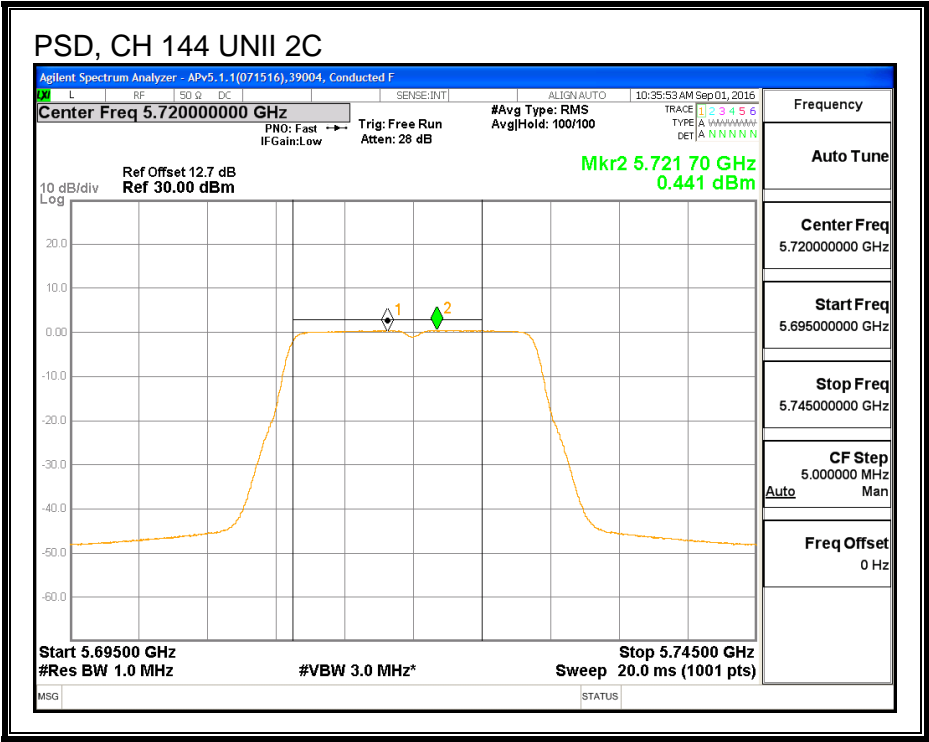
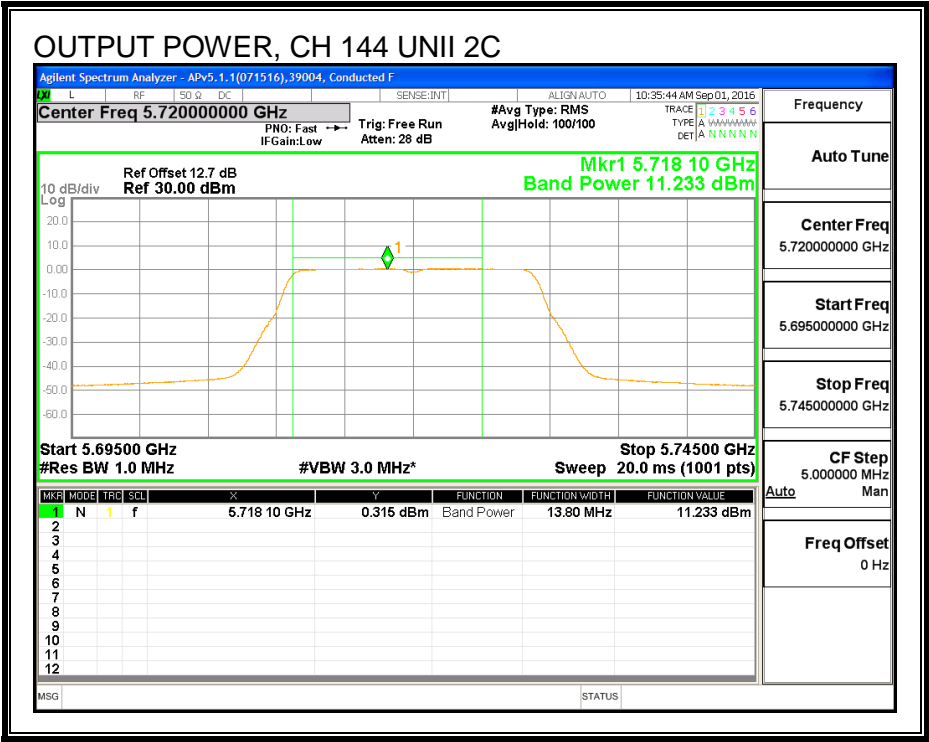
Duty Cycle CF (dB)	0.00	Included in Calculations of Corr'd Power & PSD
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##### Output Power Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
144	5720	11.23	11.23	22.00	-10.77

##### PSD Results

Channel	Frequency (MHz)	Chain 0 Meas PSD (dBm)	Total Corr'd PSD (dBm)	PSD Limit (dBm)	PSD Margin (dB)
144	5720	0.44	0.44	10.60	-10.16



### UNII-3 BAND

#### Antenna Gain and Limit

Channel	Frequency (MHz)	Min 99% BW (MHz)	Directional Gain (dBi)	Power Limit (dBm)	PSD Limit (dBm)
144	5720	6.12	6.40	29.60	29.60

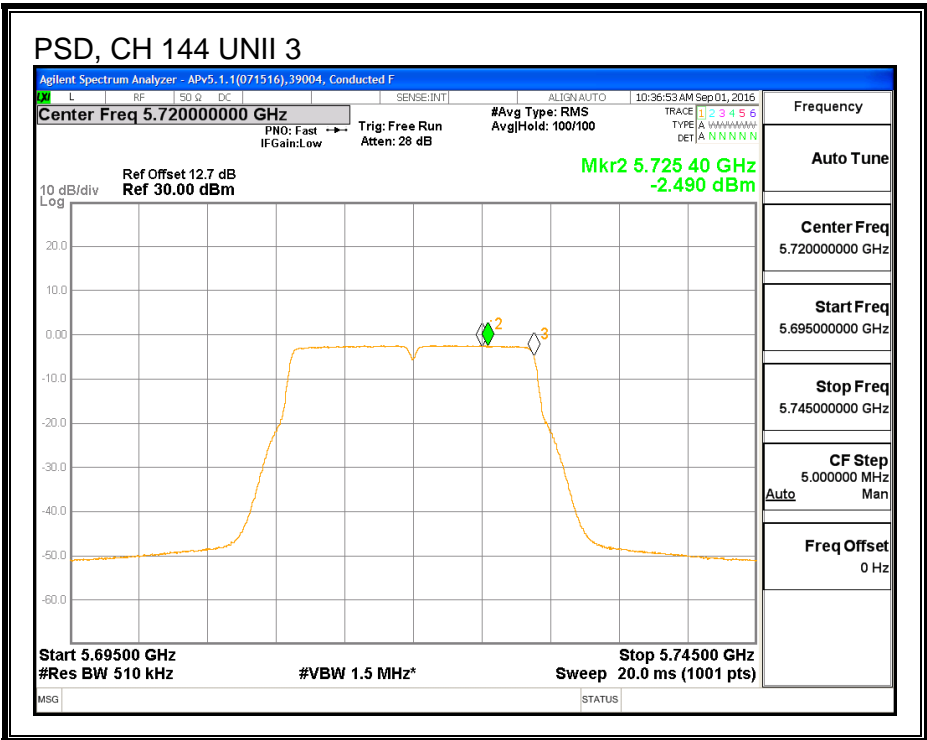
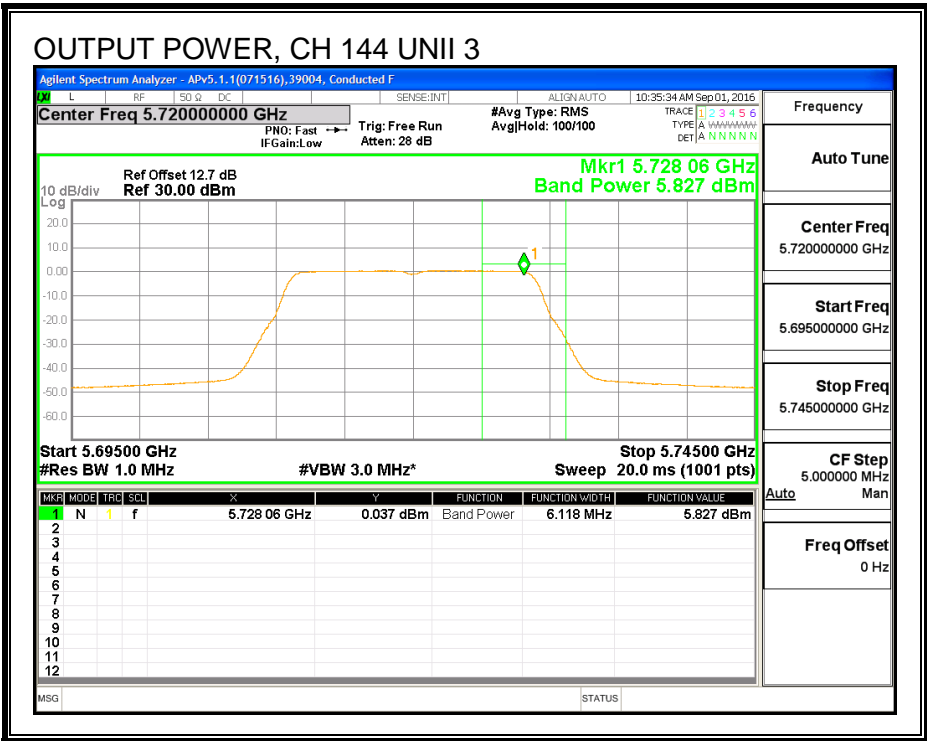
Duty Cycle CF (dB)	0.00	Included in Calculations of Corr'd Power & PSD
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#### Output Power Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
144	5720	5.83	5.83	29.60	-23.77

#### PSD Results

Channel	Frequency (MHz)	Chain 0 Meas PSD (dBm)	Total Corr'd PSD (dBm)	PSD Limit (dBm)	PSD Margin (dB)
144	5720	-2.49	-2.49	29.60	-32.09



8.33.2. 6 dB BANDWIDTH

LIMITS

FCC §15.407 (e)

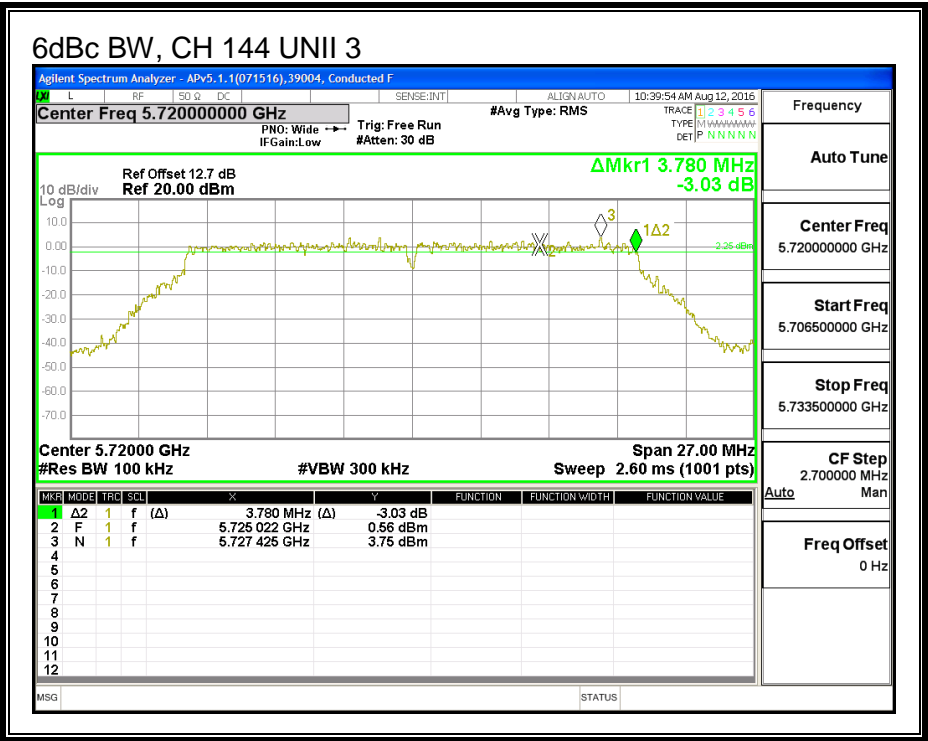
IC RSS-247 (6.2.4) (1)

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

RESULTS

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)
144	5720	3.78

6 dB BANDWIDTH



## **8.34. 802.11n HT20 CHAIN 1 MODE IN THE 5.6 GHz BAND**

### **8.34.1. 26 dB BANDWIDTH**

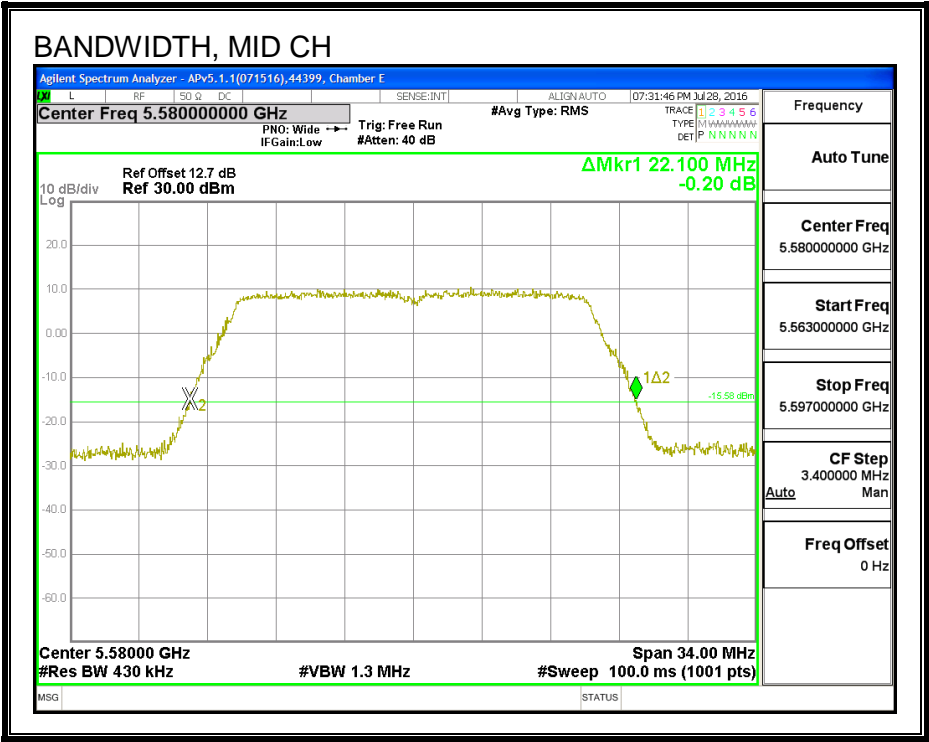
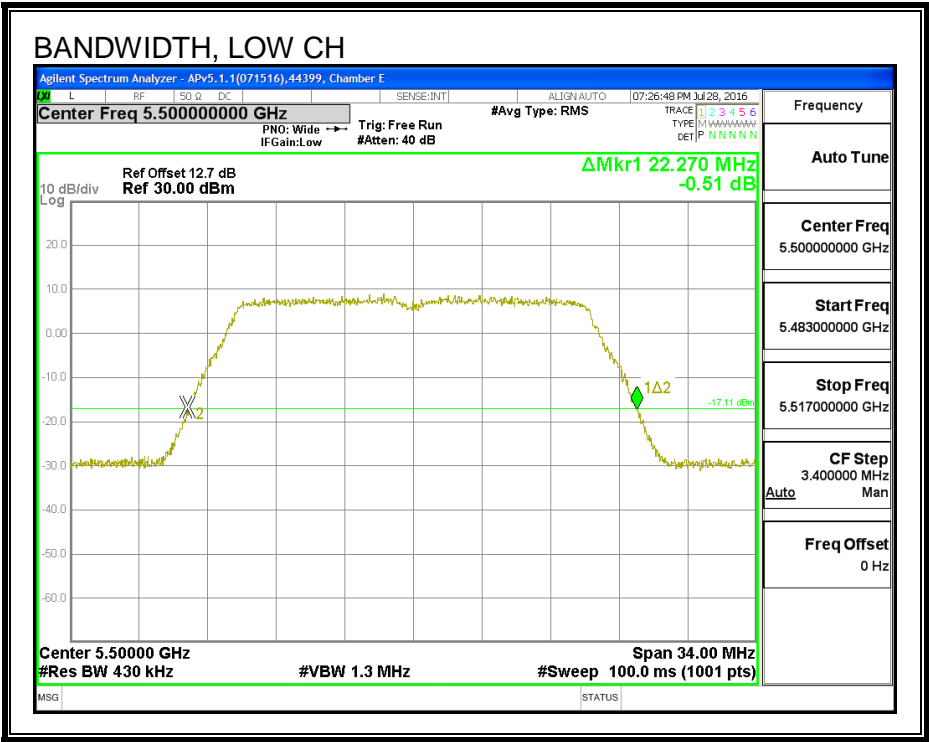
#### **LIMITS**

None; for reporting purposes only.

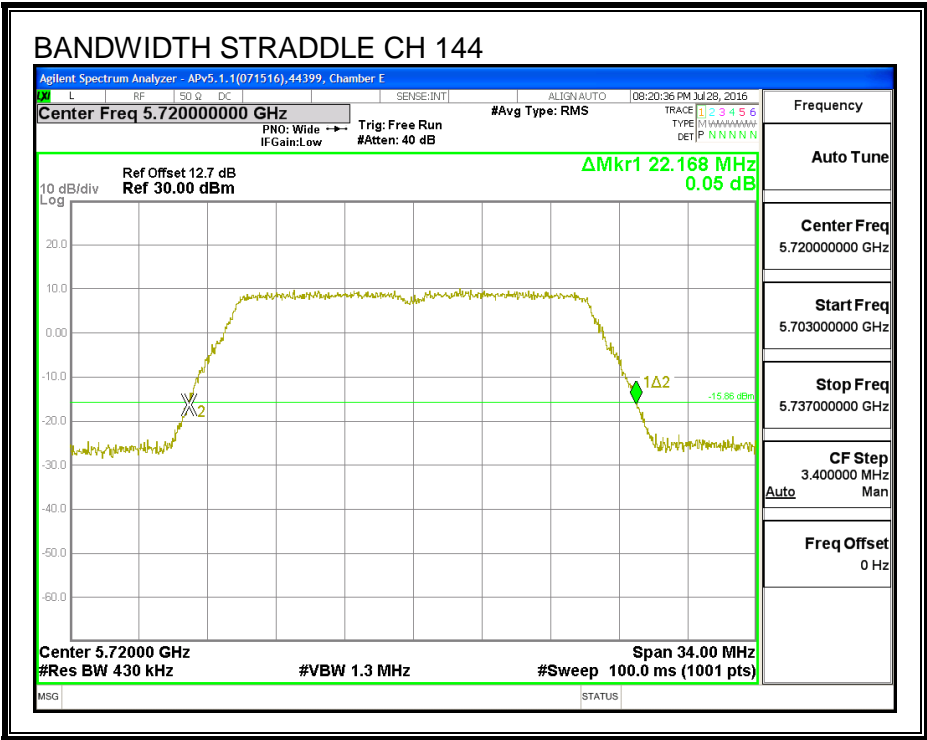
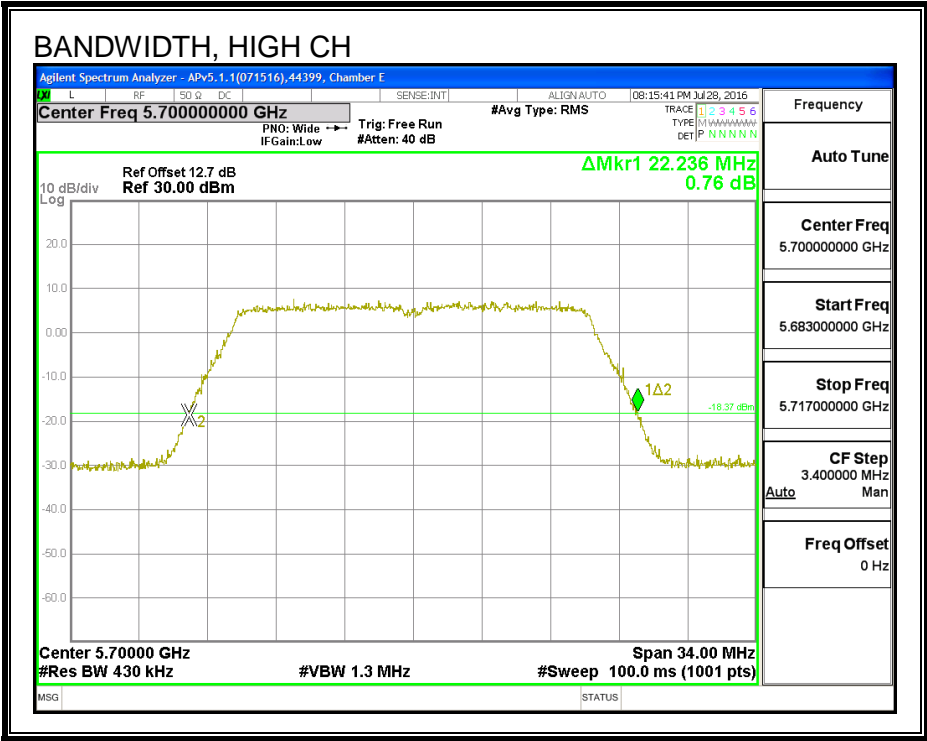
#### **RESULTS**

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)
Low	5500	22.270
Mid	5580	22.100
High	5700	22.236
144	5720	22.170

26 dB BANDWIDTH







### 8.34.2. 99% BANDWIDTH

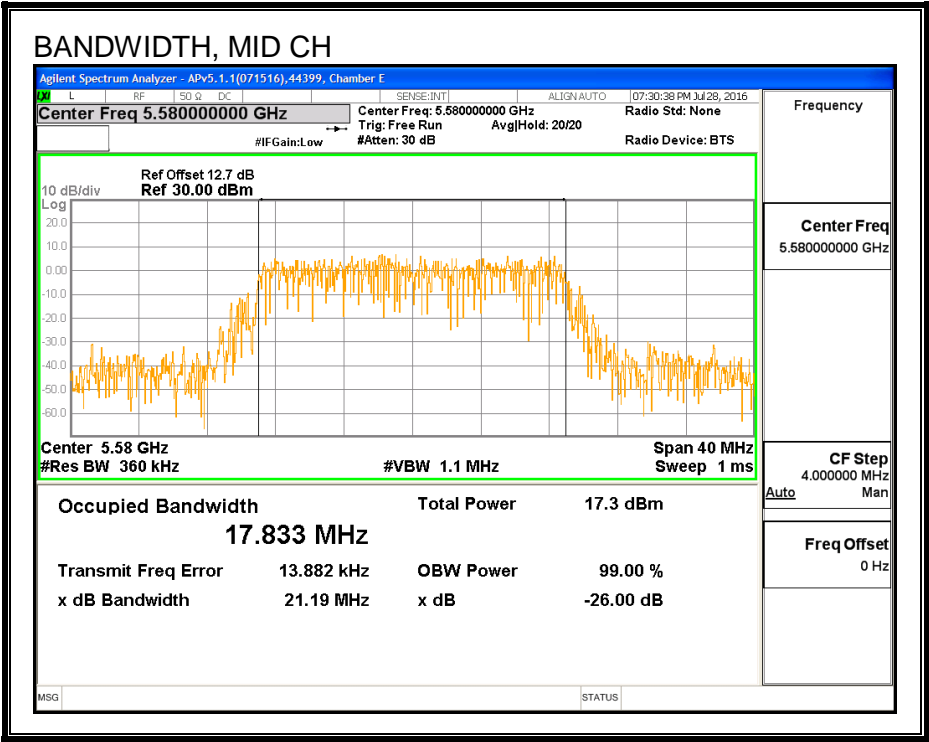
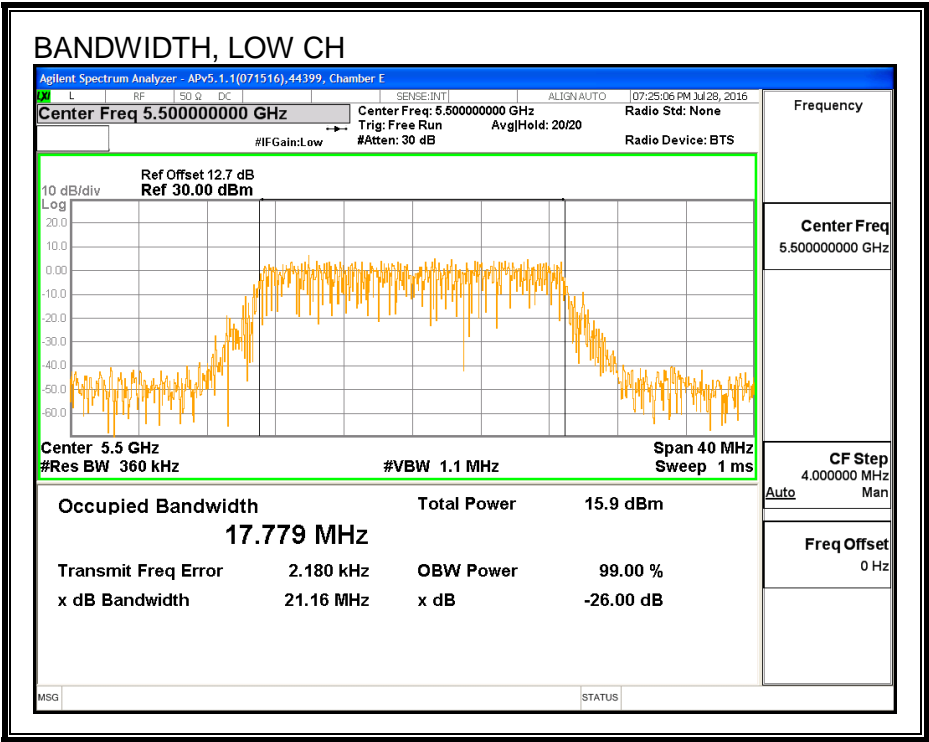
#### LIMITS

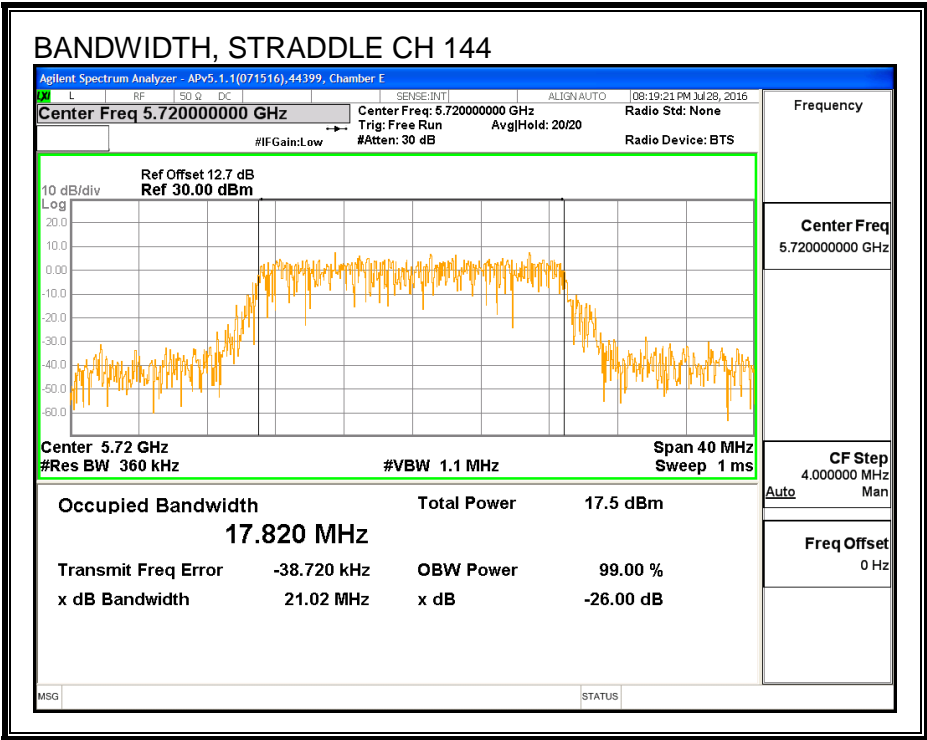
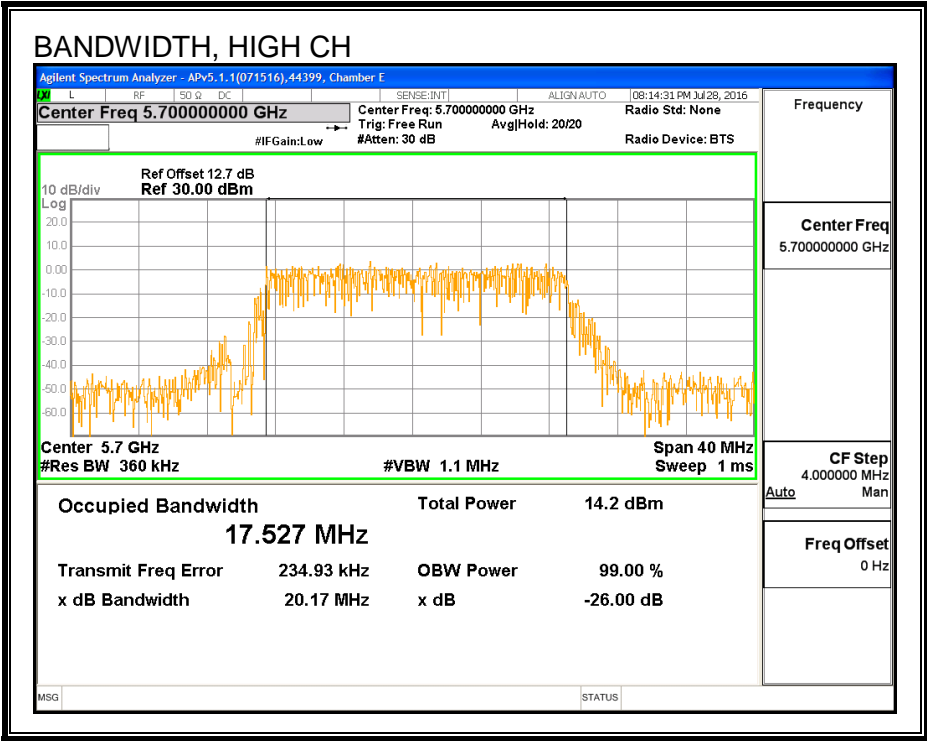
None; for reporting purposes only.

#### RESULTS

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	5500	17.779
Mid	5580	17.833
High	5700	17.527
144	5720	17.820

99% BANDWIDTH





### 8.34.3. AVERAGE POWER

#### LIMITS

None; for reporting purposes only.

#### TEST PROCEDURE

Measurements perform using a wideband gated RF power meter.

#### RESULTS

<b>ID:</b>	39004	<b>Date:</b>	9/2/16
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Channel	Frequency (MHz)	Power (dBm)
Low	5500	12.39
Mid	5580	12.42
High	5700	12.37
144	5720	12.43

#### **8.34.4. 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.

###### **IC RSS-247 (6.2.3) (1)**

The maximum conducted output power shall not exceed 250 mW or  $11 + 10 \log_{10} B$ , dBm, whichever is less. The power spectral density shall not exceed 11 dBm in any 1.0 MHz band.

The maximum e.i.r.p. shall not exceed 1.0 W or  $17 + 10 \log_{10} B$ , dBm, whichever is less. B is the 99% emission bandwidth in megahertz. Note that devices with a maximum e.i.r.p. greater than 500 mW shall implement TPC in order to have the capability to operate at least 6 dB below the maximum permitted e.i.r.p. of 1 W.

##### **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>	39004	<b>Date:</b>	9/2/16
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### Bandwidth, Antenna Gain, and Limits

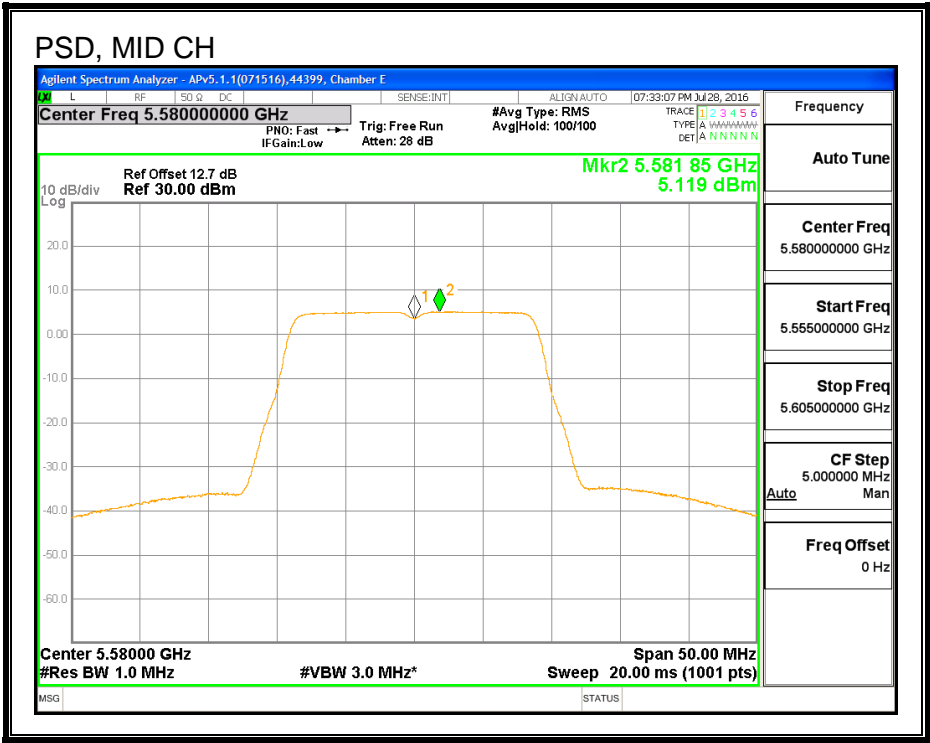
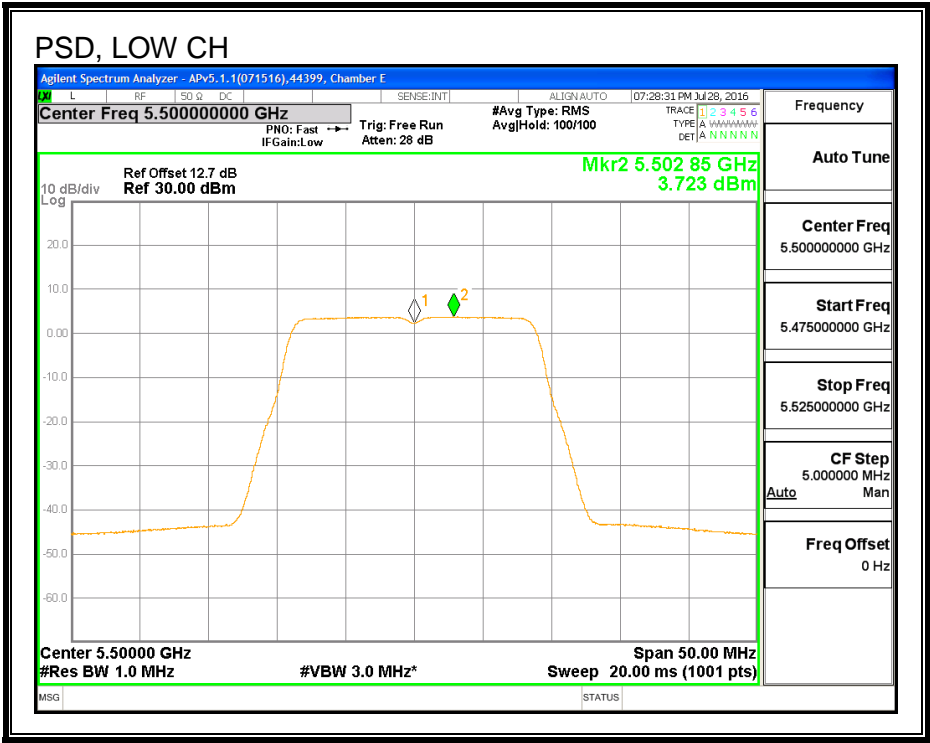
Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Min 99% BW (MHz)	Directional Gain (dBi)	Power Limit (dBm)	PSD Limit (dBm)
Low	5500	22.27	17.78	7.90	21.60	9.10
Mid	5580	22.10	17.83	7.90	21.61	9.10
High	5700	22.24	17.53	7.90	21.54	9.10
<b>Duty Cycle CF (dB)</b>		0.00	<b>Included in Calculations of Corr'd PSD</b>			

### Output Power Results

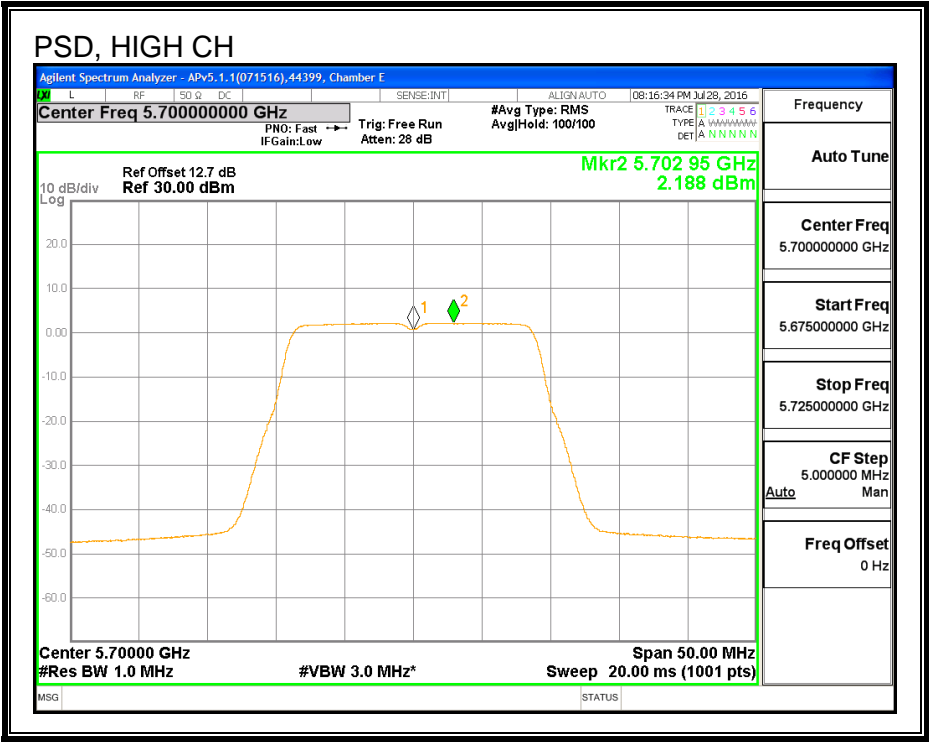
Channel	Frequency (MHz)	Chain 1 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5500	12.39	12.39	21.60	-9.21
Mid	5580	12.42	12.42	21.61	-9.19
High	5700	12.37	12.37	21.54	-9.17

### PSD Results

Channel	Frequency (MHz)	Chain 1 Meas PSD (dBm)	Total Corr'd PSD (dBm)	PSD Limit (dBm)	PSD Margin (dB)
Low	5500	3.72	3.72	9.10	-5.38
Mid	5580	5.12	5.12	9.10	-3.98
High	5700	2.19	2.19	9.10	-6.91







## 8.35. 802.11ac VHT20 CHAIN 1 STRADDLE CHANNEL 144 RESULTS (FCC)

### 8.35.1. 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	16.09	7.90	7.90	21.17	9.10

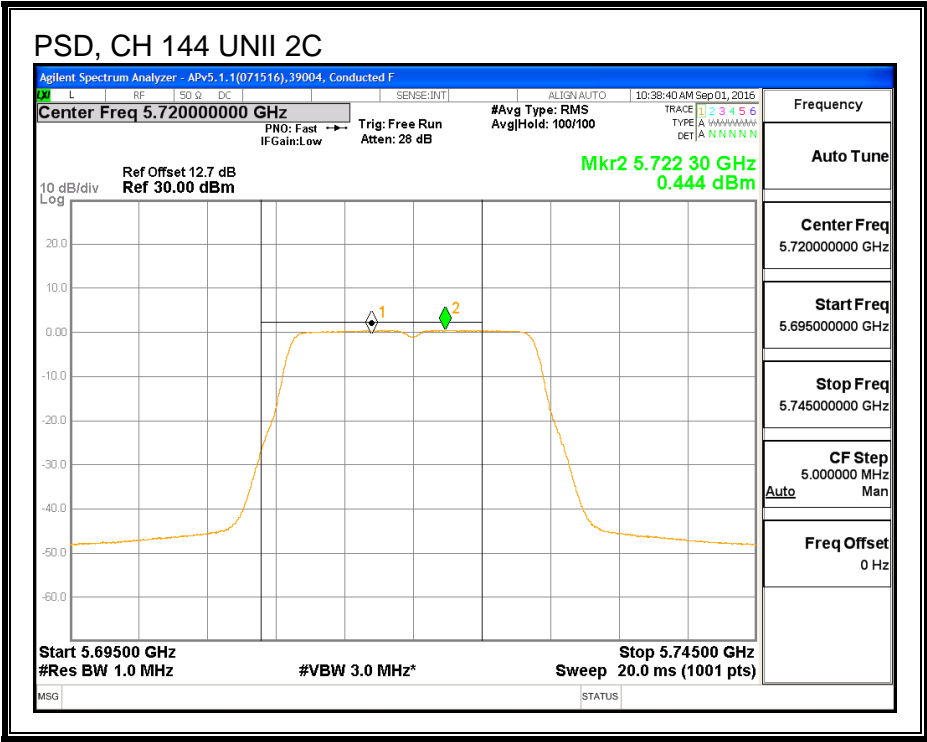
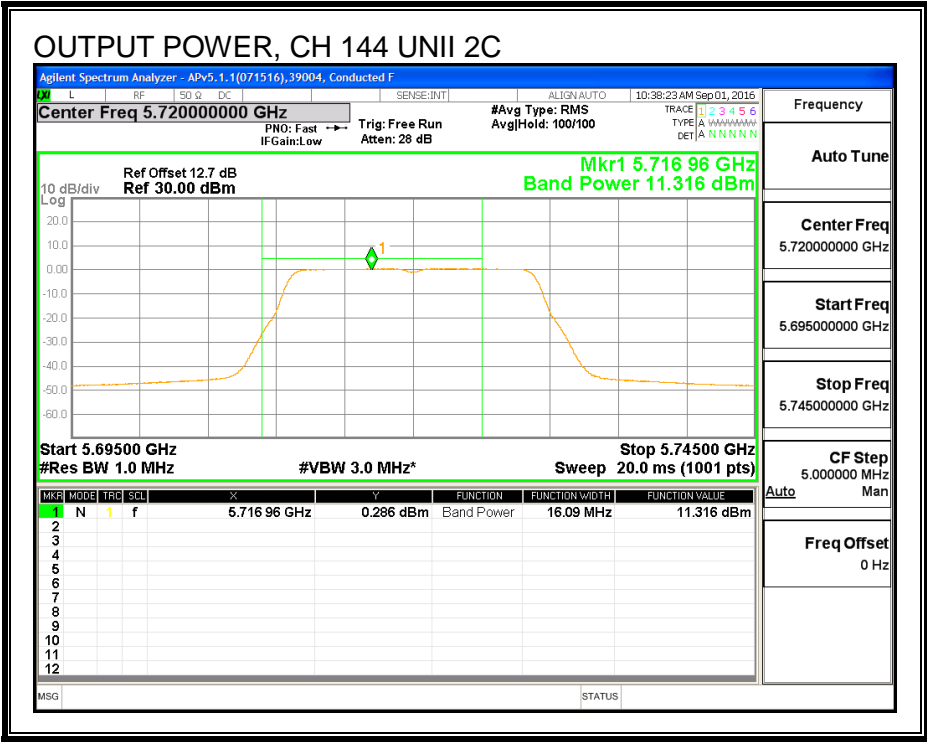
Duty Cycle CF (dB)	0.00	Included in Calculations of Corr'd Power & PSD
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##### Output Power Results

Channel	Frequency (MHz)	Chain 1 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
144	5720	11.32	11.32	21.17	-9.85

##### PSD Results

Channel	Frequency (MHz)	Chain 1 Meas PSD (dBm)	Total Corr'd PSD (dBm)	PSD Limit (dBm)	PSD Margin (dB)
144	5720	0.44	0.44	9.10	-8.66



# **UNII-3 BAND**

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

Channel	Frequency (MHz)	Min 26dB BW (MHz)	Directional Gain for Power (dBi)	Directional Gain for PSD (dBi)	Power Limit (dBm)	PSD Limit (dBm)
144	5720	6.09	7.90	7.90	16.95	9.10

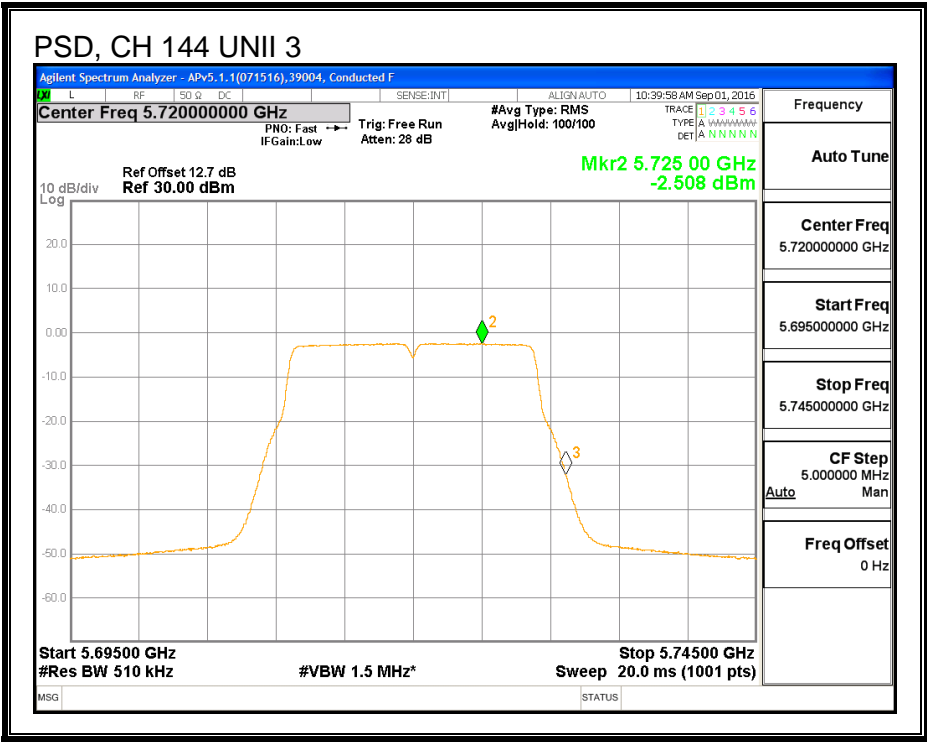
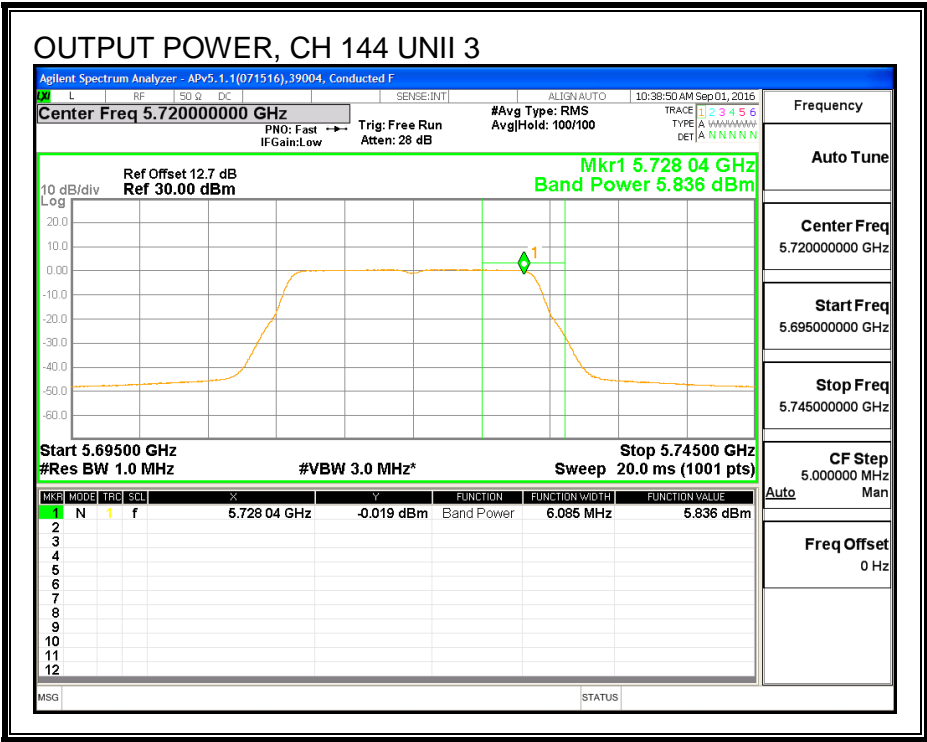
<b>Duty Cycle CF (dB)</b>	0.00	<b>Included in Calculations of Corr'd Power &amp; PSD</b>
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## **Output Power Results**

Channel	Frequency (MHz)	Chain 1 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
144	5720	5.84	5.84	16.95	-11.11

## **PSD Results**

Channel	Frequency (MHz)	Chain 1 Meas PSD (dBm)	Total Corr'd PSD (dBm)	PSD Limit (dBm)	PSD Margin (dB)
144	5720	-2.51	-2.51	9.10	-11.61



## 8.36. 802.11ac VHT20 CHAIN 1 STRADDLE CHANNEL 144 RESULTS (IC)

### 8.36.1. OUTPUT POWER AND PSD

#### UNII-2C BAND

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

Channel	Frequency (MHz)	Min 99% BW (MHz)	Directional Gain for Power (dBi)	Directional Gain for PSD (dBi)	Power Limit (dBm)	PSD Limit (dBm)
144	5720	13.91	7.90	7.90	20.53	9.10

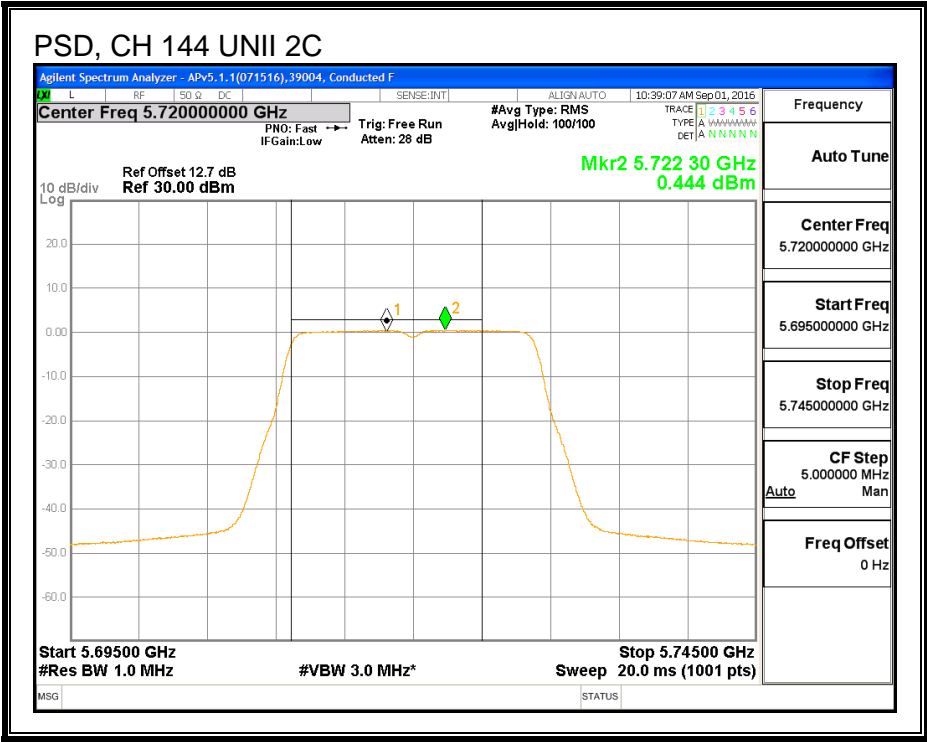
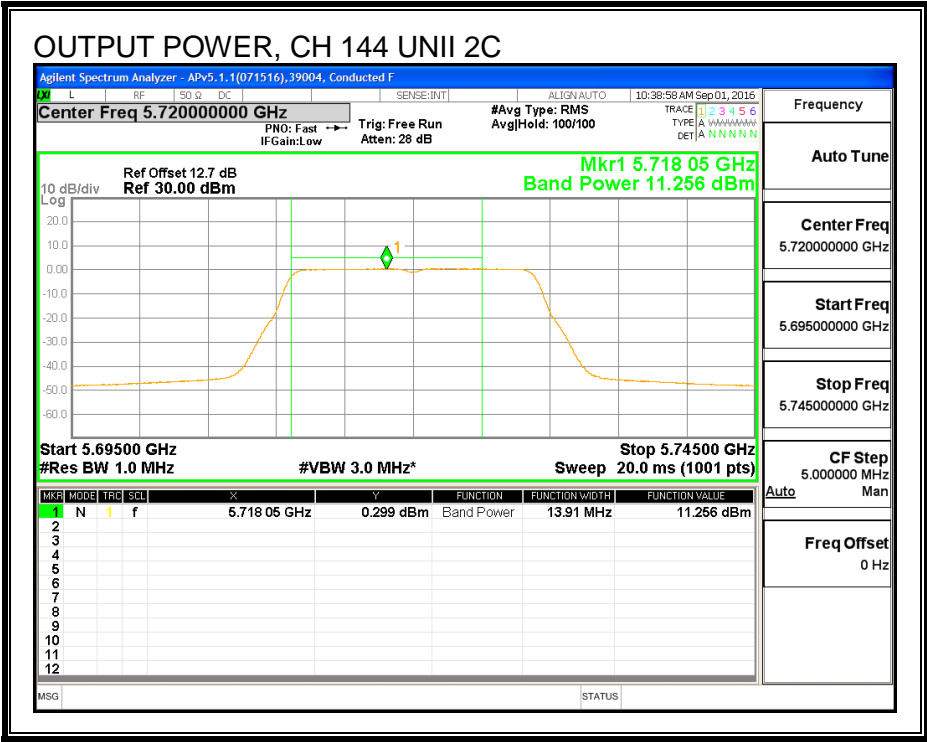
Duty Cycle CF (dB)	0.00	Included in Calculations of Corr'd Power & PSD
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##### Output Power Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
144	5720	11.26	11.26	20.53	-9.28

##### PSD Results

Channel	Frequency (MHz)	Chain 0 Meas PSD (dBm)	Total Corr'd PSD (dBm)	PSD Limit (dBm)	PSD Margin (dB)
144	5720	0.44	0.44	9.10	-8.66



### UNII-3 BAND

#### Antenna Gain and Limit

Channel	Frequency (MHz)	Min 99% BW (MHz)	Directional Gain (dBi)	Power Limit (dBm)	PSD Limit (dBm)
144	5720	3.91	7.90	28.10	28.10

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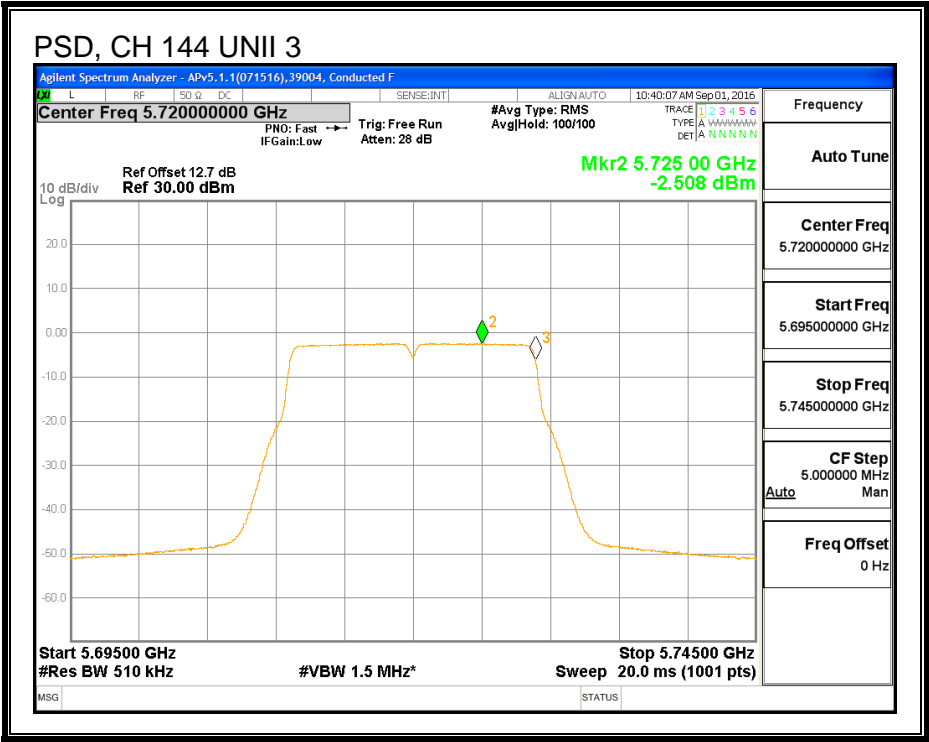
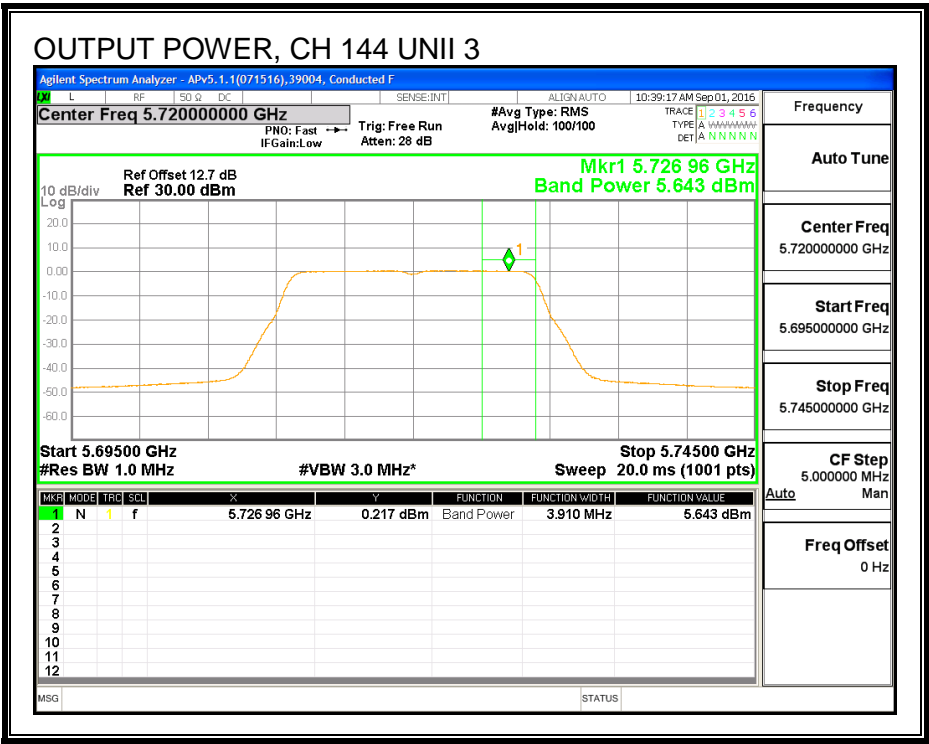
#### Output Power Results

Channel	Frequency (MHz)	Chain 1 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
144	5720	5.64	5.64	28.10	-22.46

#### PSD Results

Channel	Frequency (MHz)	Chain 1 Meas PSD (dBm)	Total Corr'd PSD (dBm)	PSD Limit (dBm)	PSD Margin (dB)
144	5720	-2.51	-2.51	28.10	-30.61





8.36.2. 6 dB BANDWIDTH

LIMITS

FCC §15.407 (e)

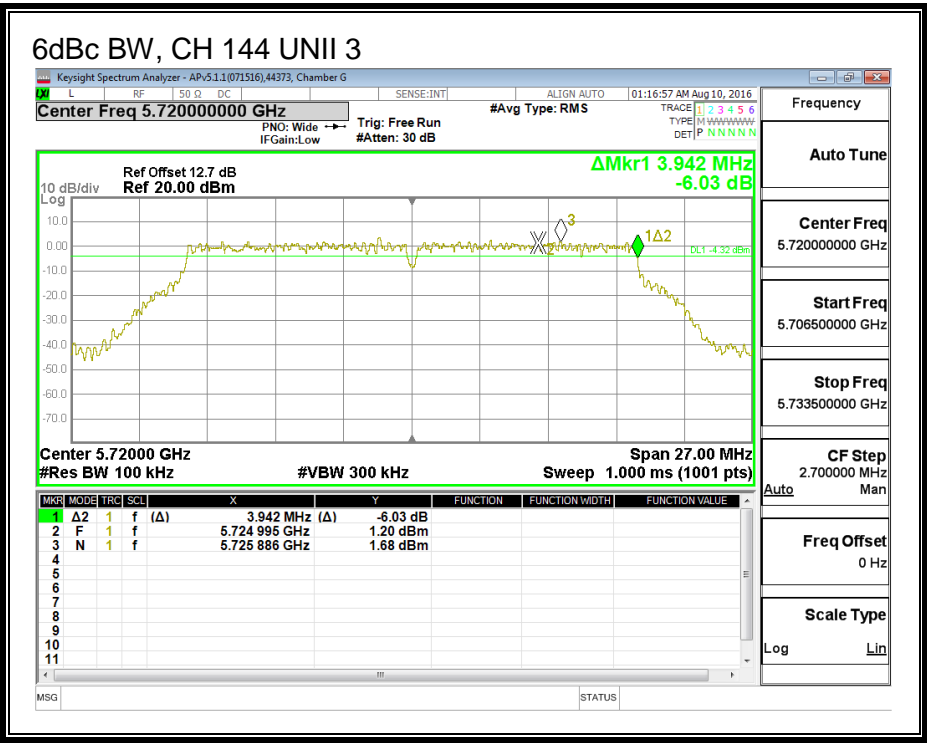
IC RSS-247 (6.2.4) (1)

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

RESULTS

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)
144	5720	3.942

6 dB BANDWIDTH



## 8.37. 802.11n HT20 2Tx CDD MODE IN THE 5.6 GHz BAND

### 8.37.1. 26 dB BANDWIDTH

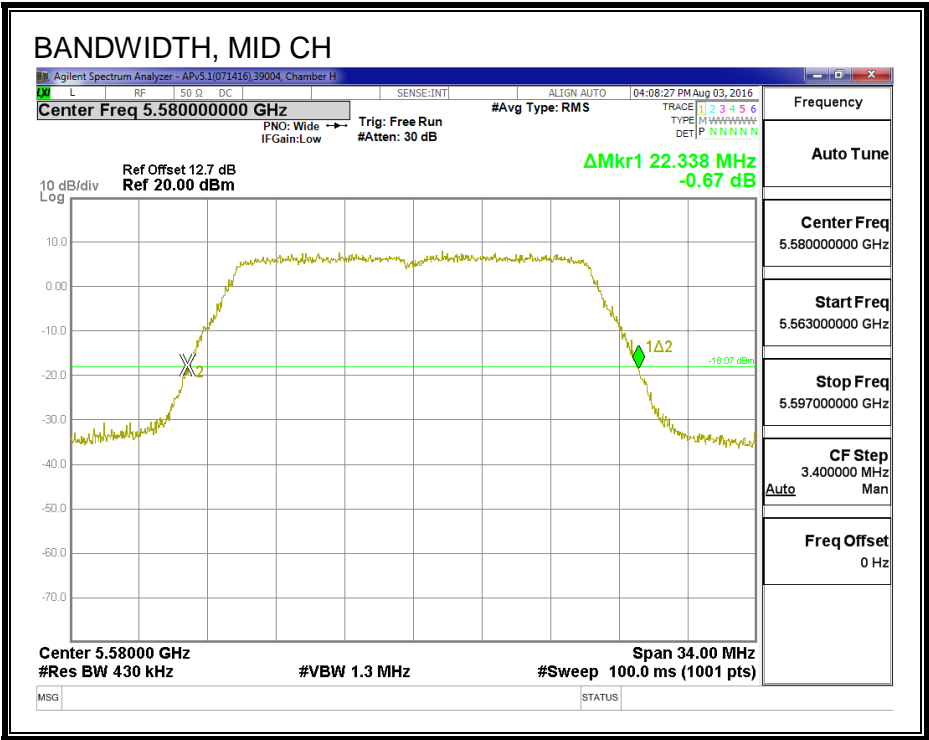
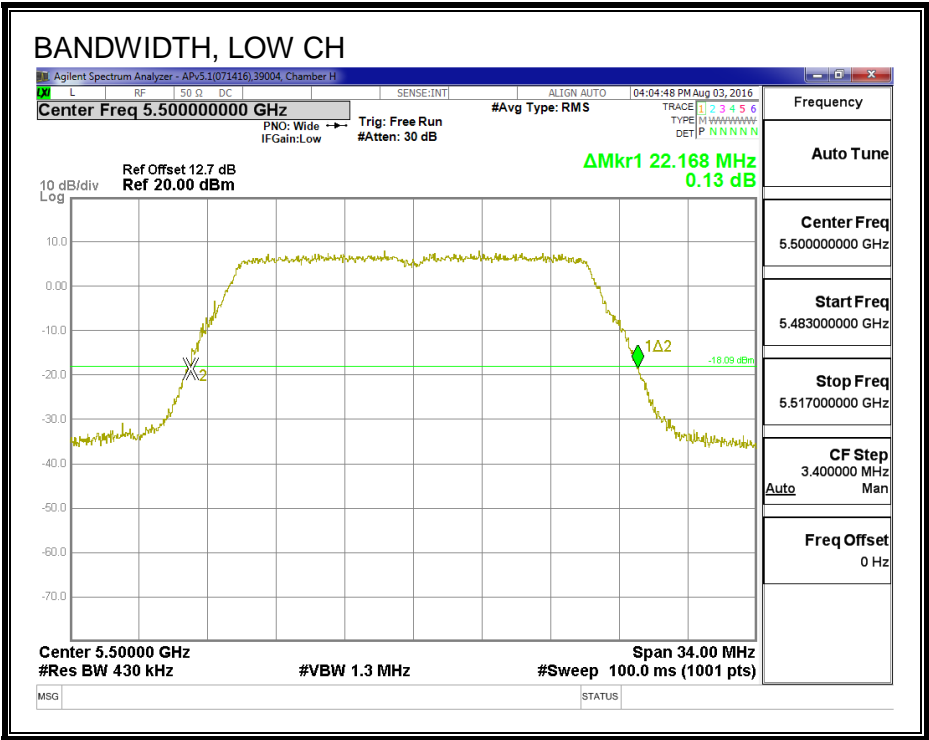
#### LIMITS

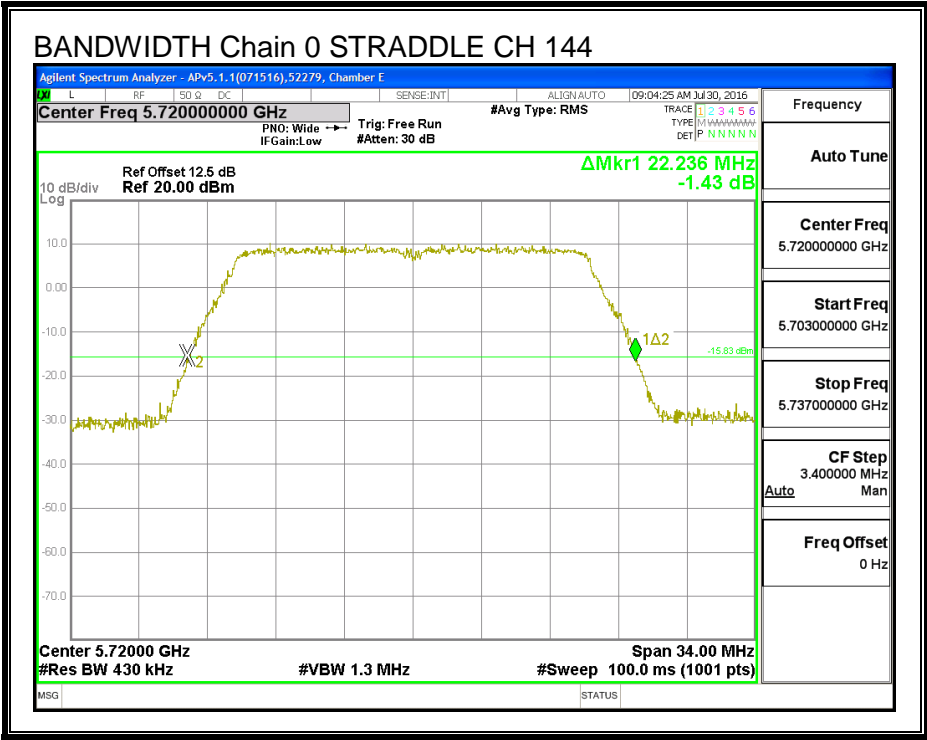
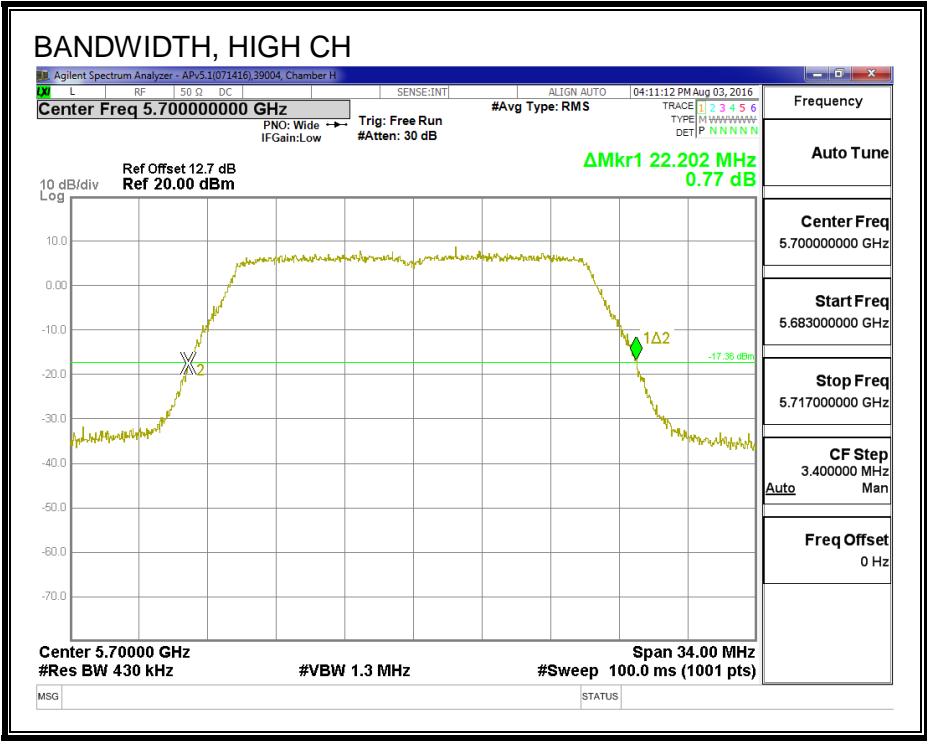
None; for reporting purposes only.

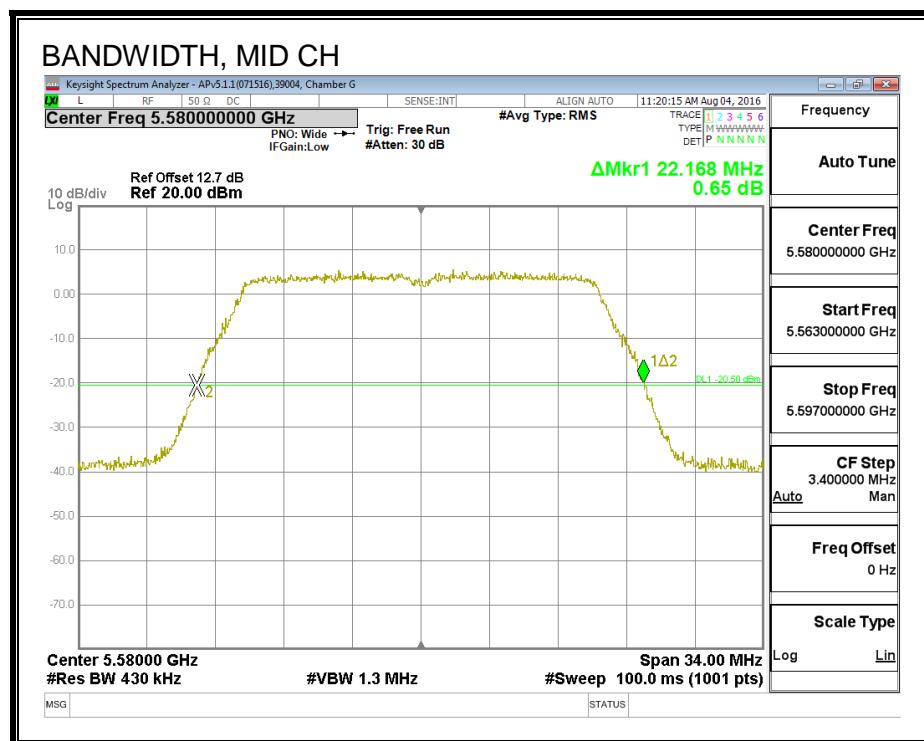
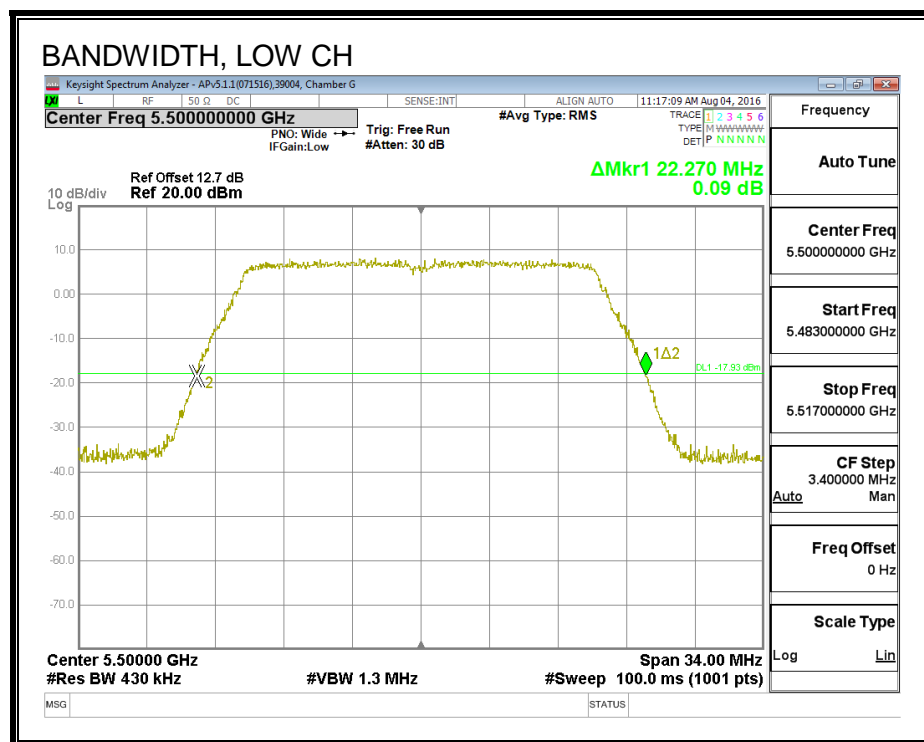
#### RESULTS

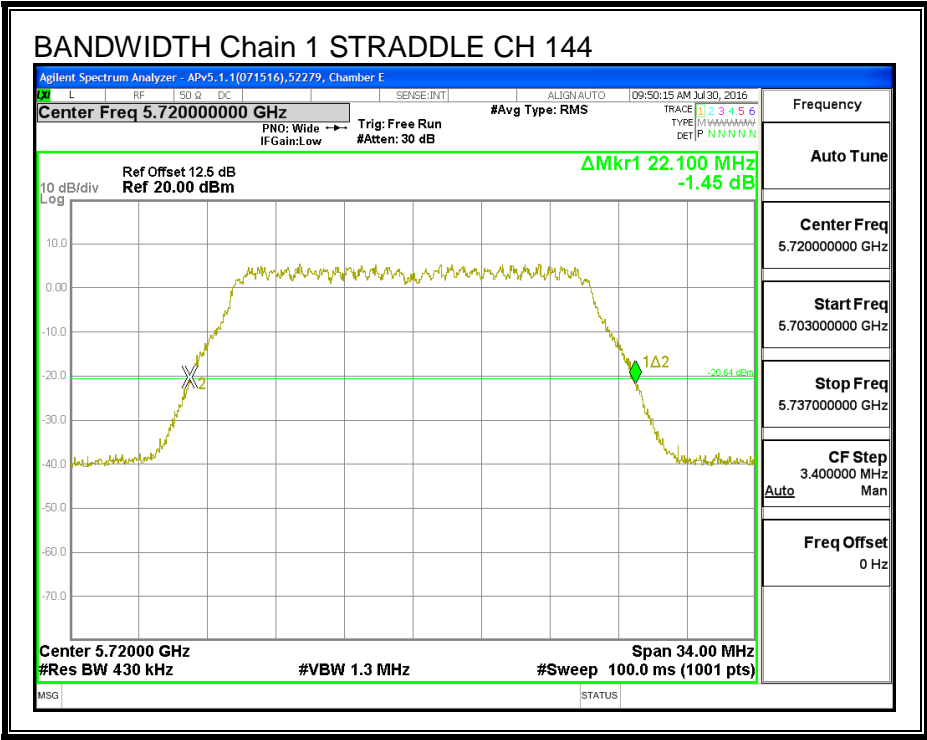
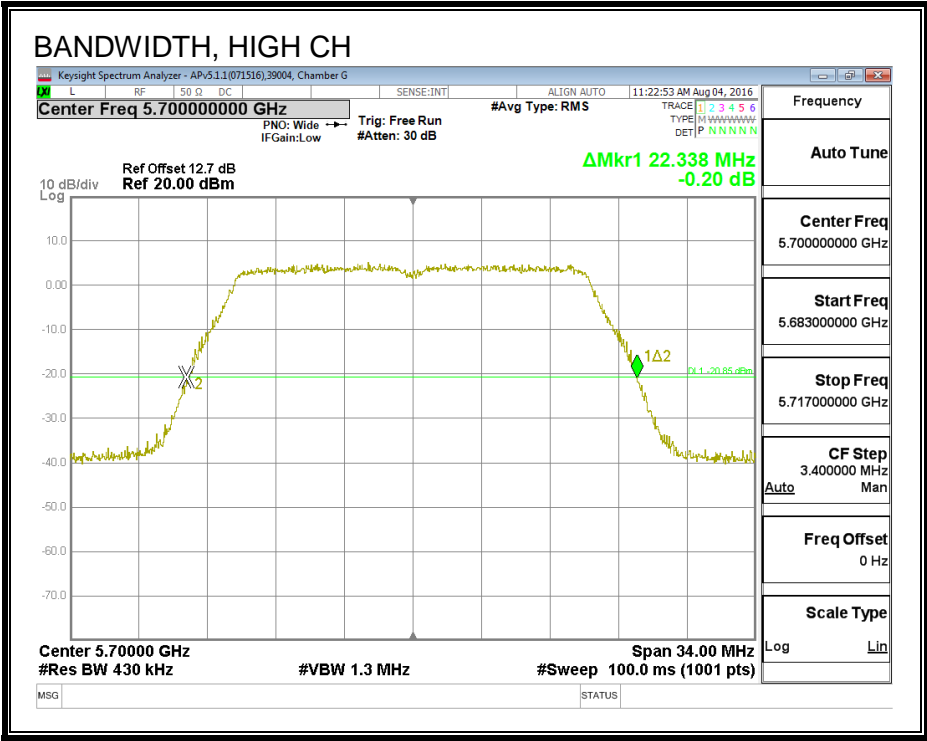
Channel	Frequency (MHz)	26 dB BW Chain 0 (MHz)	26 dB BW Chain 1 (MHz)
Low	5500	22.170	22.270
Mid	5580	22.340	22.168
High	5700	22.200	22.338
144	5720	22.236	22.100

26 dB BANDWIDTH, CHAIN 0









### 8.37.2. 99% BANDWIDTH

#### LIMITS

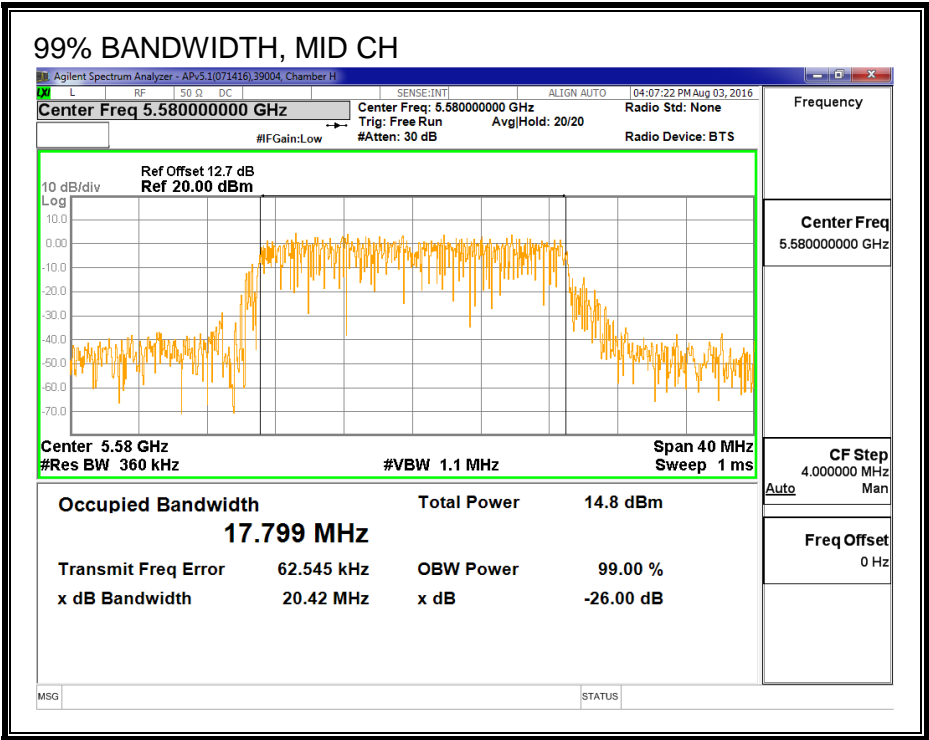
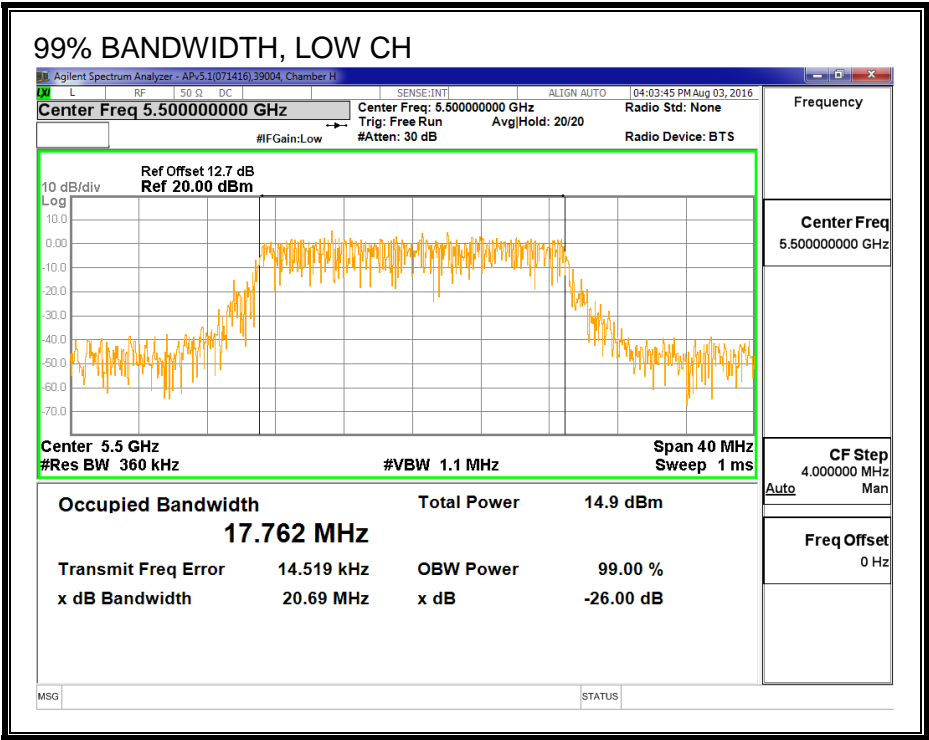
None; for reporting purposes only.

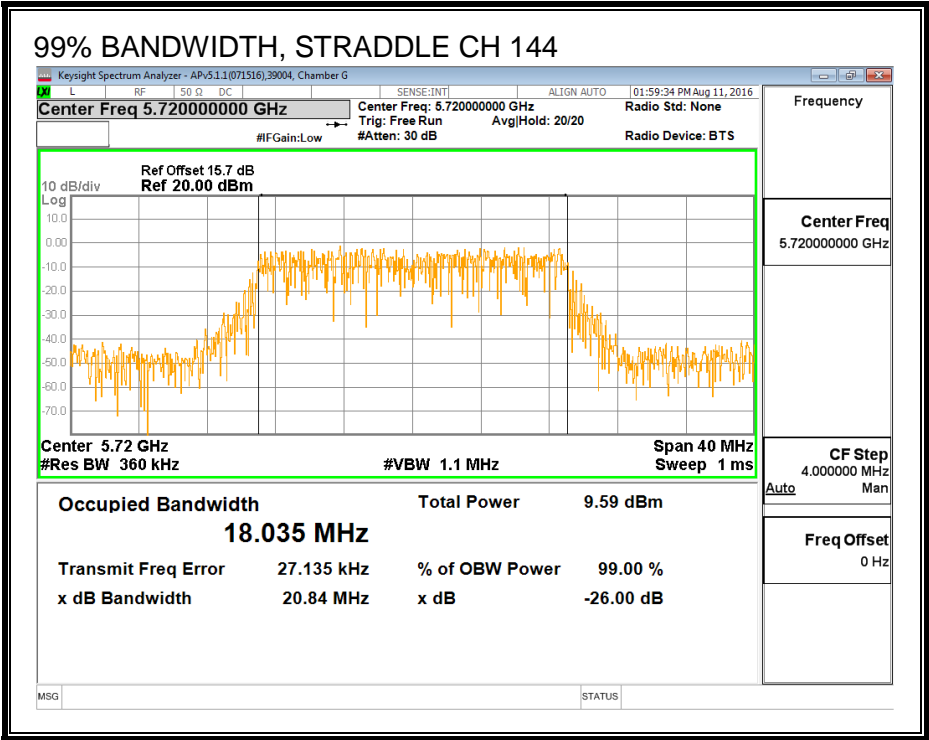
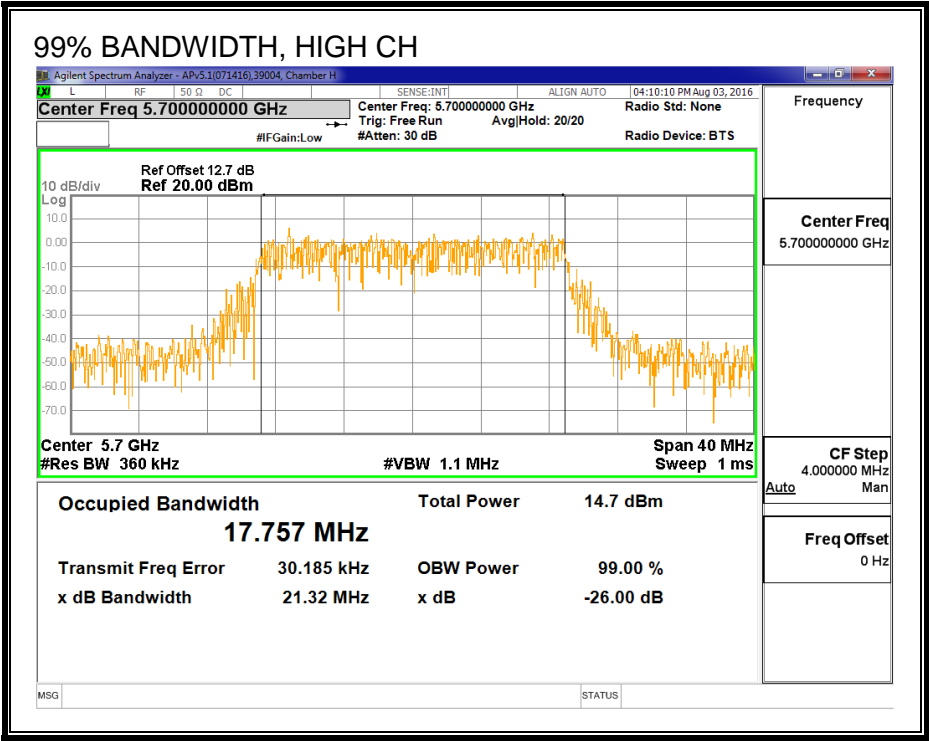
#### RESULTS

Channel	Frequency (MHz)	99% BW Chain 0 (MHz)	99% BW Chain 1 (MHz)
Low	5500	17.762	17.926
Mid	5580	17.799	17.864
High	5700	17.757	17.712
144	5720	18.035	17.828

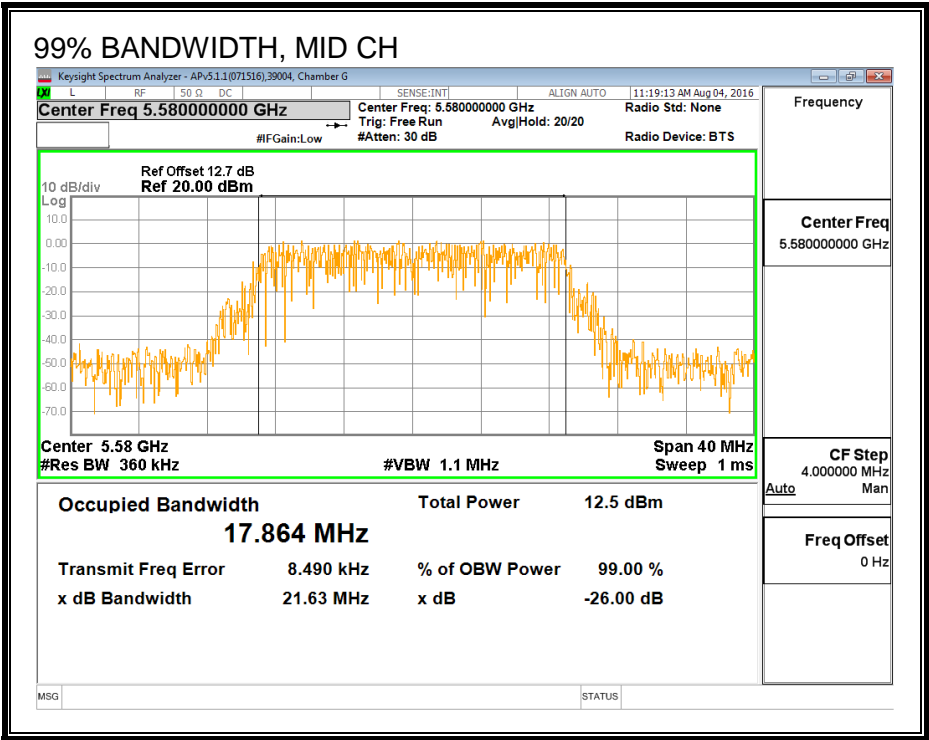
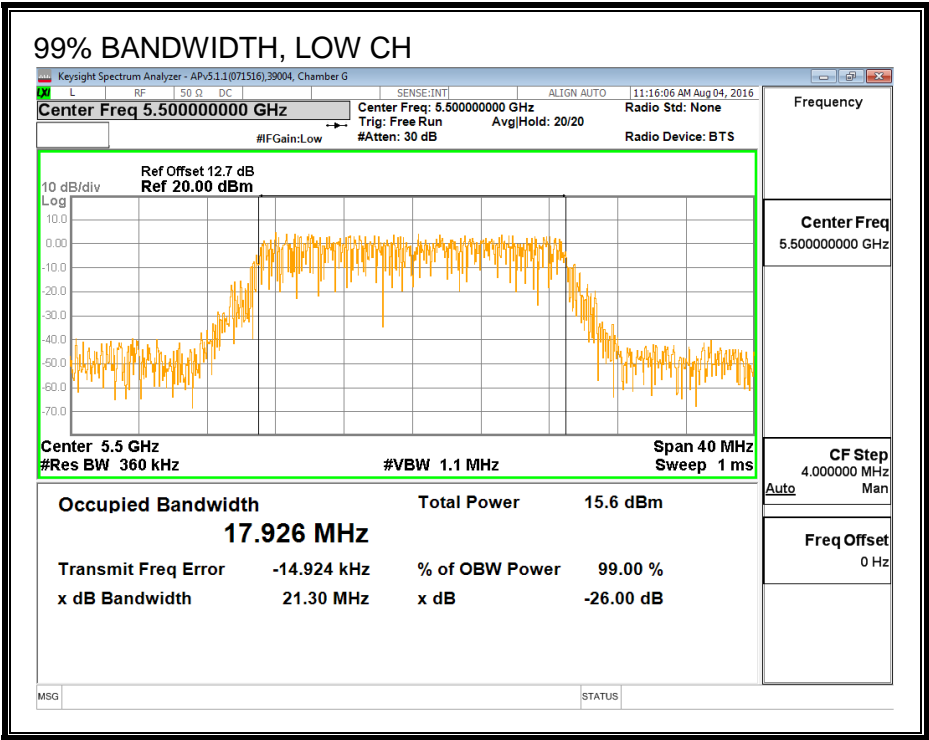


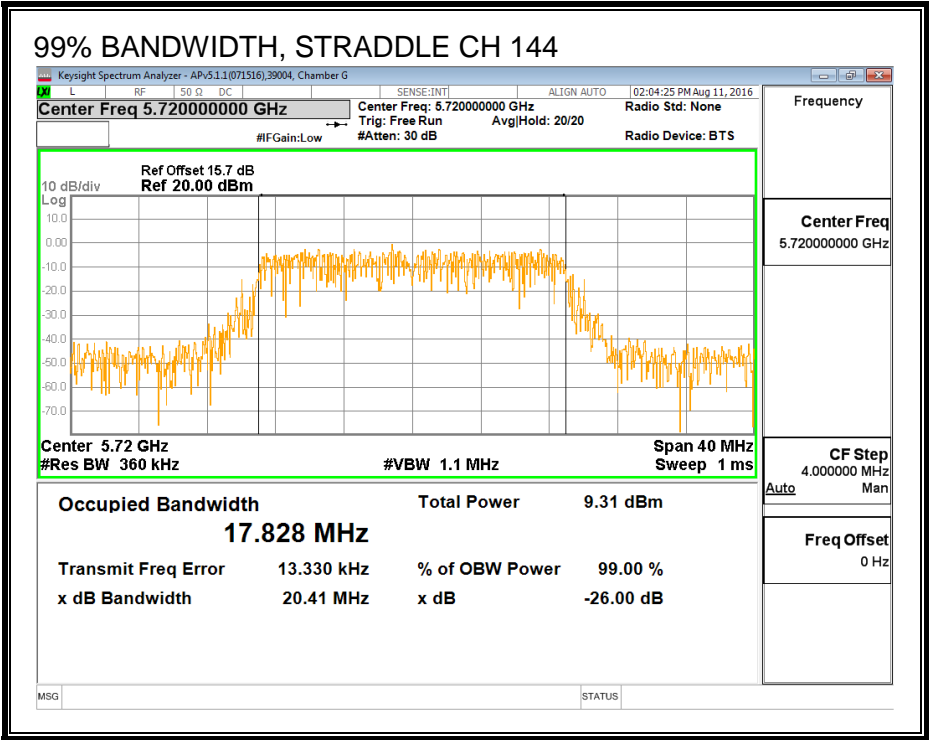
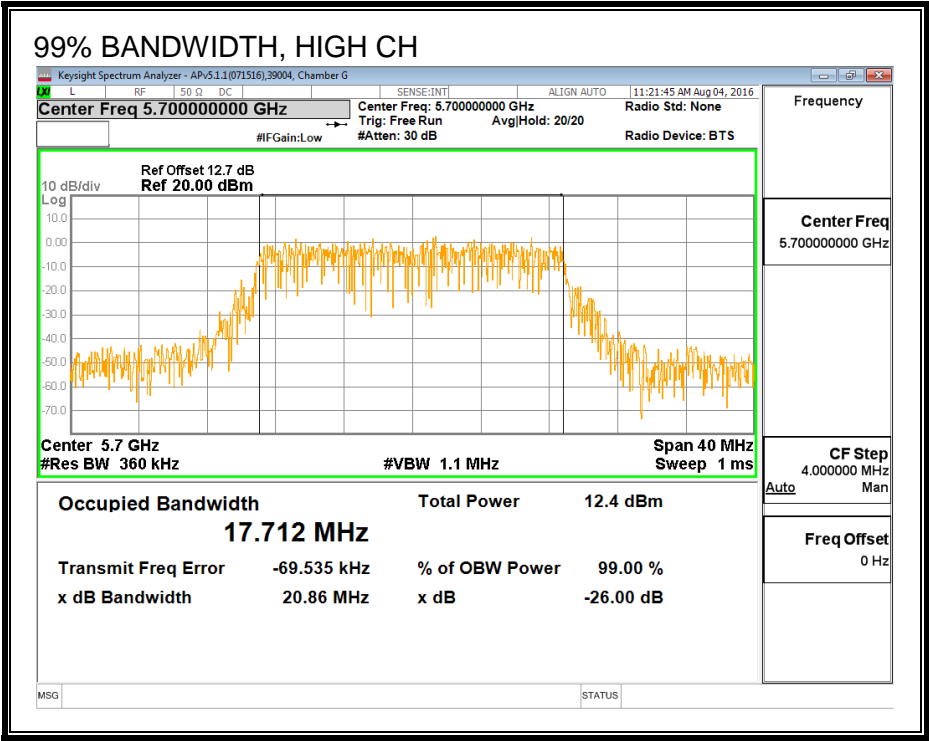
99% BANDWIDTH, CHAIN 0





99% BANDWIDTH, CHAIN 1





### 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>	39004	<b>Date:</b>	9/2/16
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#### Average Power Results

Channel	Frequency (MHz)	Chain 0 Power (dBm)	Chain 1 Power (dBm)	Total Power (dBm)
Low	5500	11.98	11.89	14.95
Mid	5580	11.42	11.39	14.42
High	5700	11.44	11.45	14.46
144	5720	11.48	11.49	14.50

#### **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.

###### **IC RSS-247 (6.2.3) (1)**

The maximum conducted output power shall not exceed 250 mW or  $11 + 10 \log_{10} B$ , dBm, whichever is less. The power spectral density shall not exceed 11 dBm in any 1.0 MHz band.

The maximum e.i.r.p. shall not exceed 1.0 W or  $17 + 10 \log_{10} B$ , dBm, whichever is less. B is the 99% emission bandwidth in megahertz. Note that devices with a maximum e.i.r.p. greater than 500 mW shall implement TPC in order to have the capability to operate at least 6 dB below the maximum permitted e.i.r.p. of 1 W.

##### **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:

<b>Chain 0 Antenna Gain (dBi)</b>	<b>Chain 1 Antenna Gain (dBi)</b>	<b>Uncorrelated Chains Directional Gain (dBi)</b>
6.40	7.90	7.21

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

<b>Chain 0 Antenna Gain (dBi)</b>	<b>Chain 1 Antenna Gain (dBi)</b>	<b>Correlated Chains Directional Gain (dBi)</b>
6.40	7.90	10.19

## RESULTS

<b>ID:</b>	39004	<b>Date:</b>	9/2/16
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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	5500	22.17	17.76	7.21	10.19	22.28	6.81
Mid	5580	22.17	17.86	7.21	10.19	22.31	6.81
High	5700	22.20	17.71	7.21	10.19	22.27	6.81

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

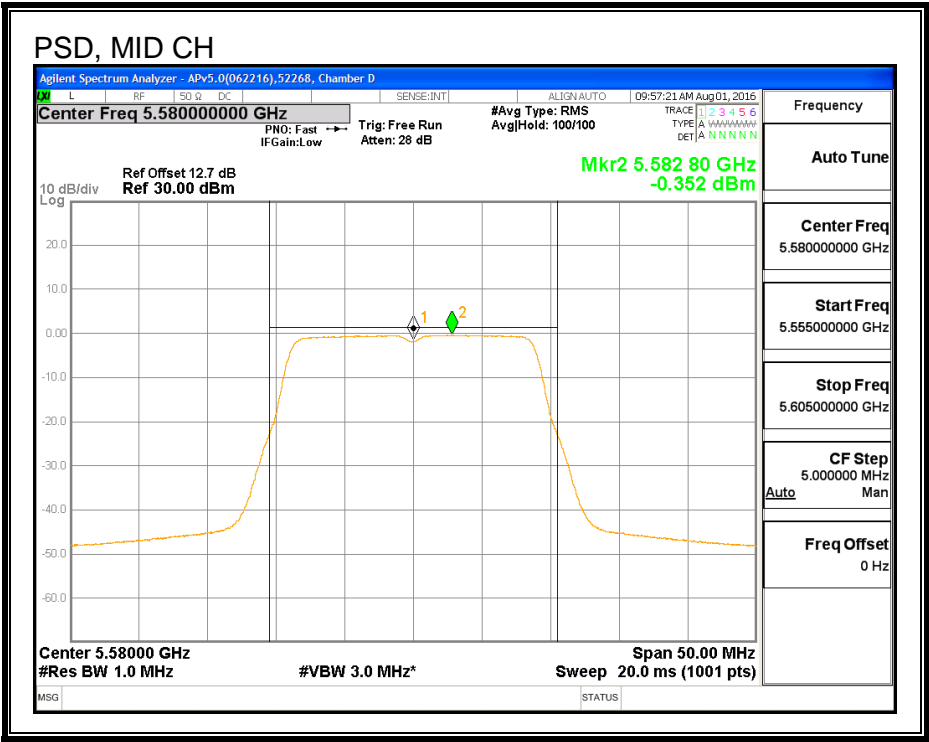
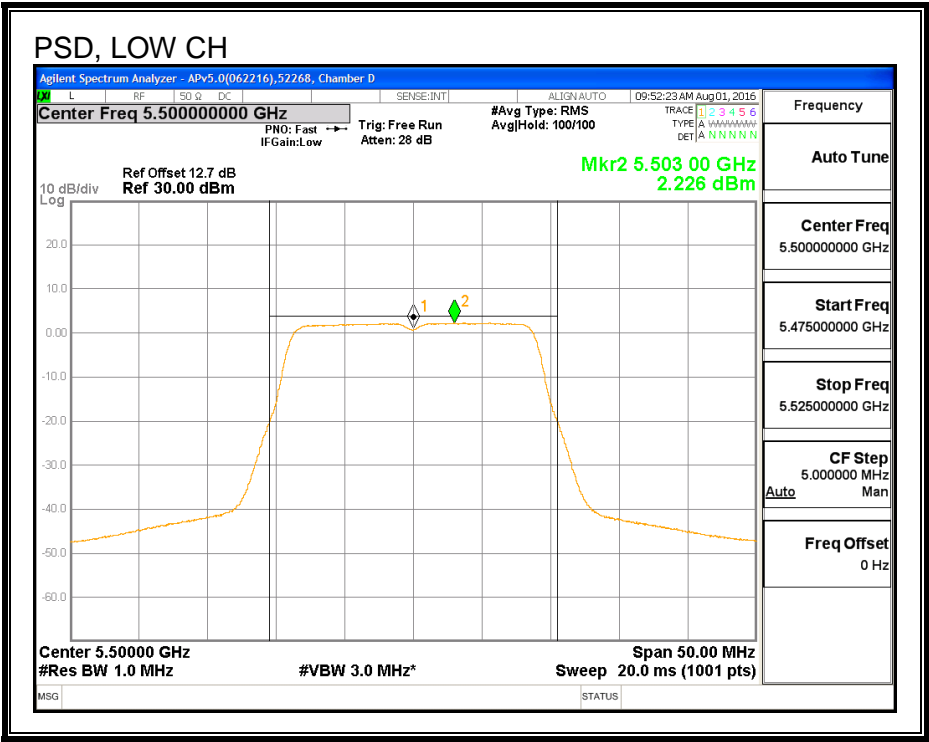
Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Chain 1 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5500	11.98	11.89	14.95	22.28	-7.34
Mid	5580	11.42	11.39	14.42	22.31	-7.89
High	5700	11.44	11.45	14.46	22.27	-7.82

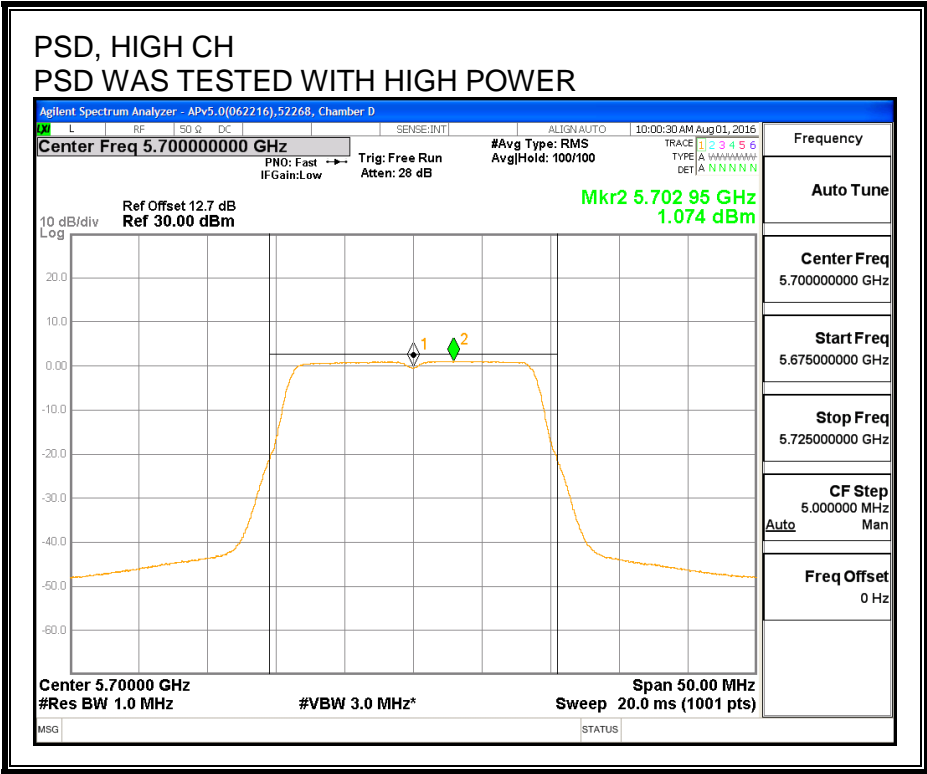
### PSD Results

Channel	Frequency (MHz)	Chain 0 Meas PSD (dBm)	Chain 1 Meas PSD (dBm)	Total Corr'd PSD (dBm)	PSD Limit (dBm)	PSD Margin (dB)
Low	5500	2.23	2.24	5.25	6.81	-1.56
Mid	5580	-0.35	-0.43	2.62	6.81	-4.19
High	5700	1.07	0.83	3.96	6.81	-2.85

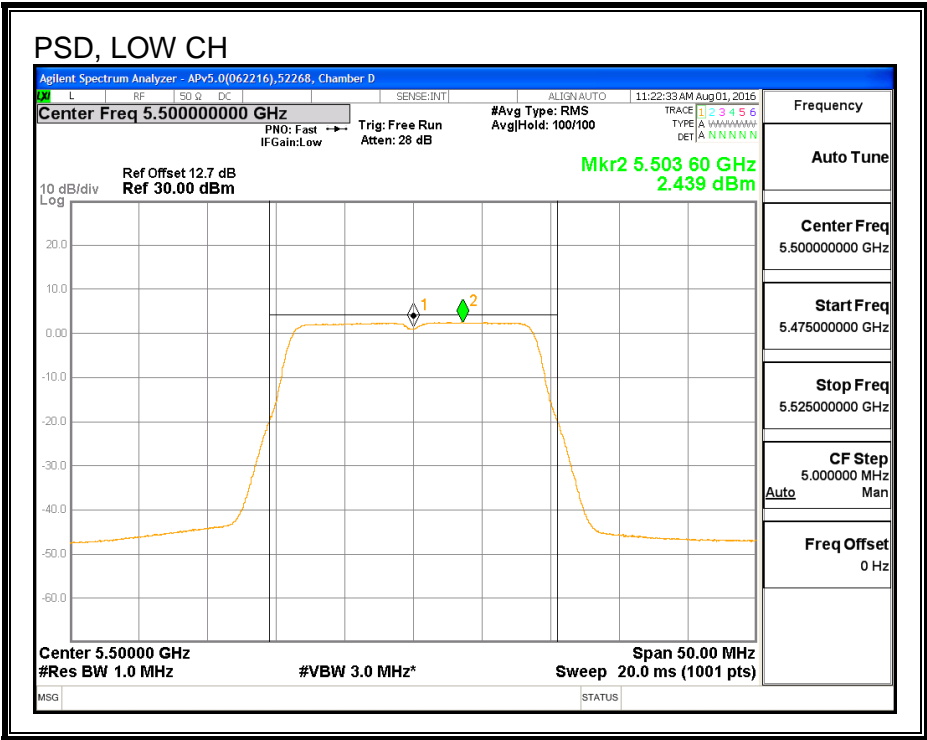


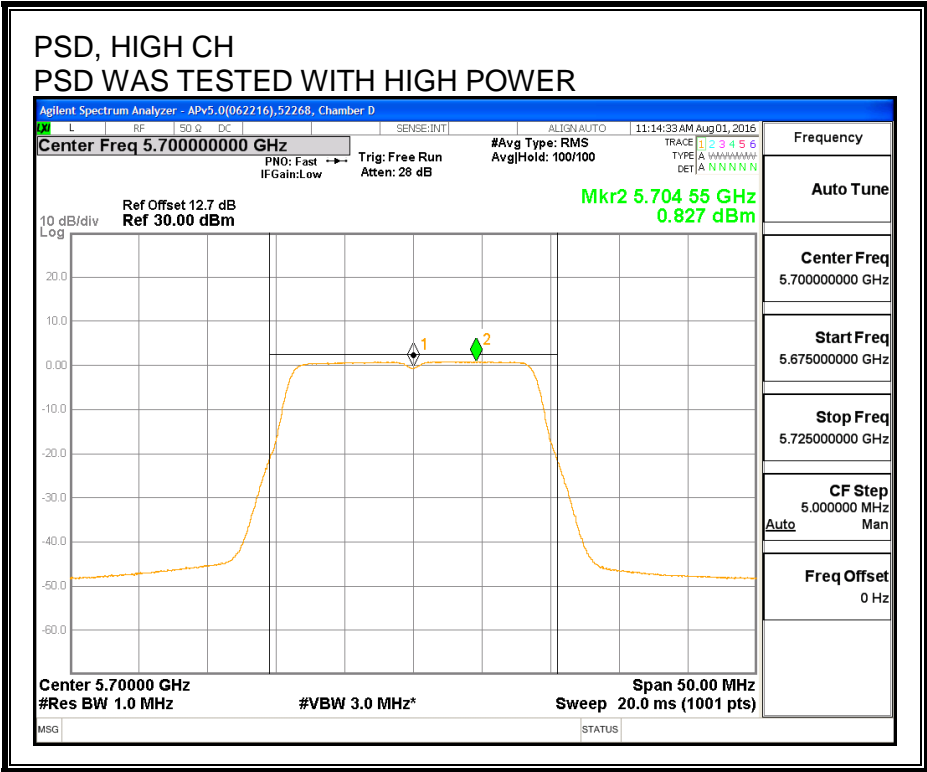
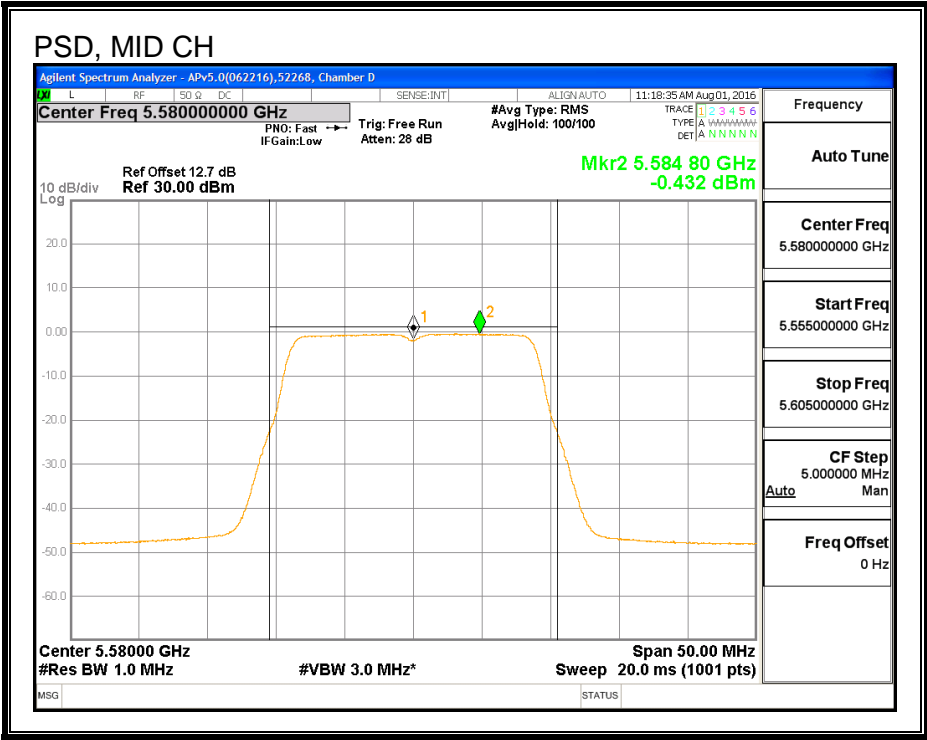
PSD, CHAIN 0





PSD, CHAIN 1





## 8.38. 802.11ac VHT20 2Tx CDD STRADDLE CHANNEL 144 RESULTS (FCC)

### 8.38.1. OUTPUT POWER AND PSD

#### UNII-2C BAND

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

Channel	Frequency (MHz)	Min 2600% BW (MHz)	Directional Gain for Power (dBi)	Directional Gain for PSD (dBi)	Power Limit (dBm)	PSD Limit (dBm)
144	5720	16.05	7.21	10.19	21.84	6.81

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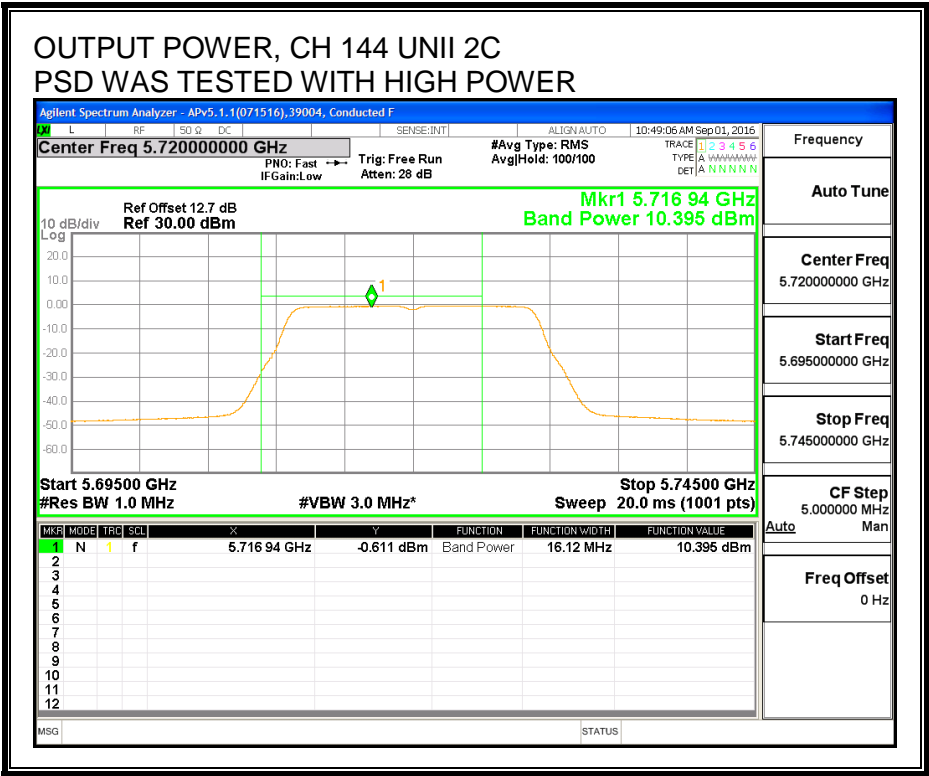
##### Output Power Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Chain 1 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
144	5720	10.41	10.42	13.43	21.84	-8.42

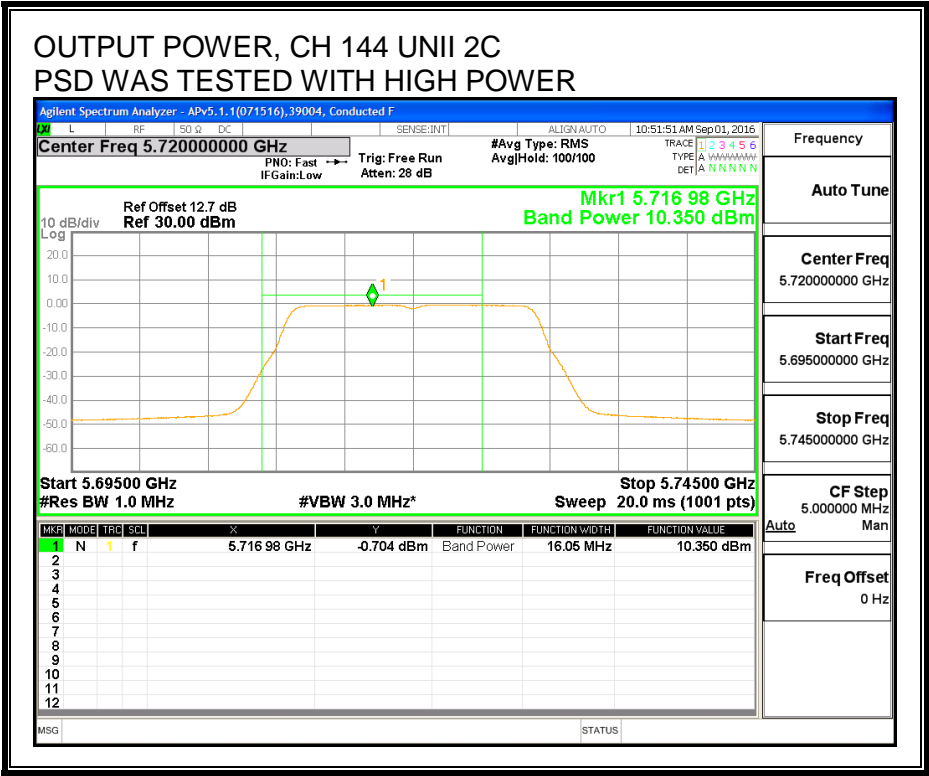
##### PSD Results

Channel	Frequency (MHz)	Chain 0 Meas PSD (dBm)	Chain 1 Meas PSD (dBm)	Total Corr'd PSD (dBm)	PSD Limit (dBm)	PSD Margin (dB)
144	5720	-0.49	-0.53	2.50	6.81	-4.31

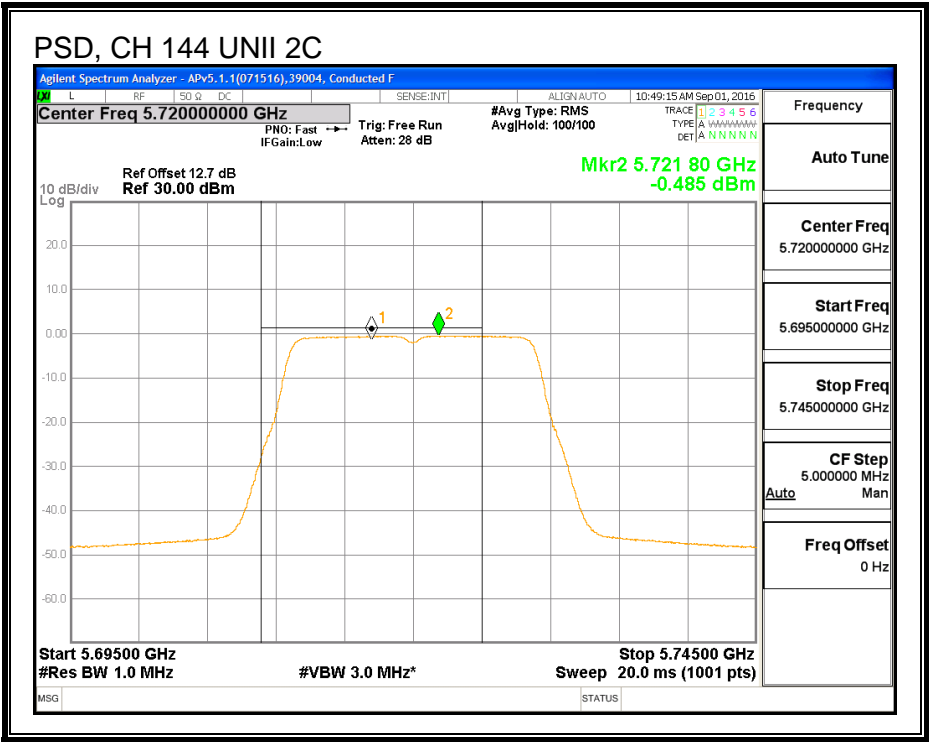
OUTPUT POWER, CHAIN 0



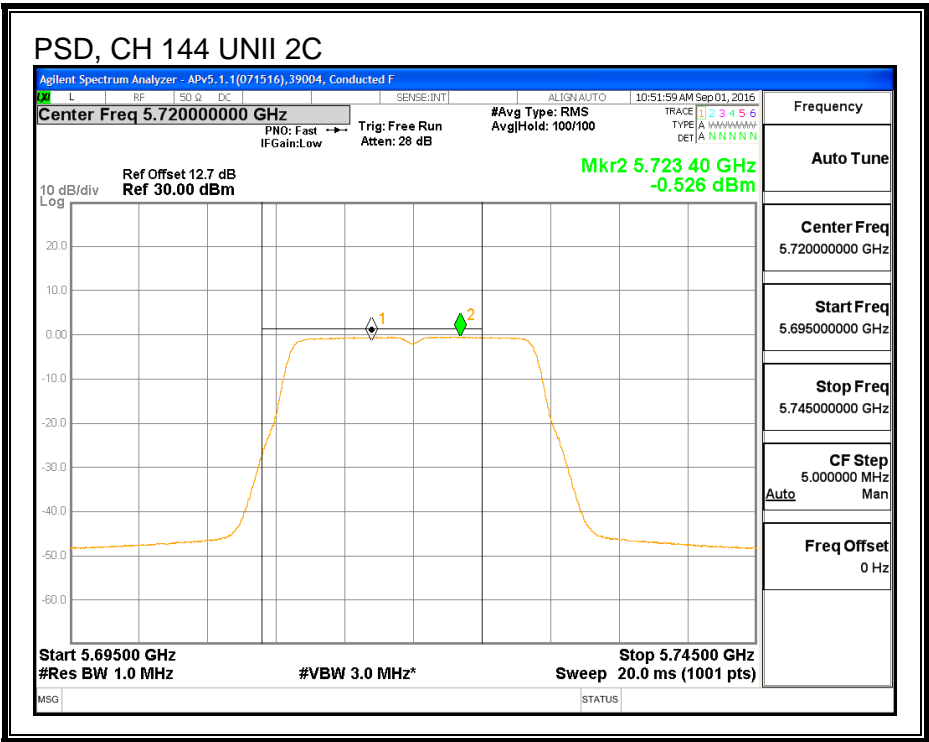
OUTPUT POWER, CHAIN 1



PSD, CHAIN 0



PSD, CHAIN 1



### UNII-3 BAND

#### Bandwidth, Antenna Gain, and Limits

Channel	Frequency (MHz)	Min 26dB BW (MHz)	Directional Gain for Power (dBi)	Directional Gain for PSD (dBi)	Power Limit (dBm)	PSD Limit (dBm)
144	5720	6.05	7.21	10.19	17.61	6.81

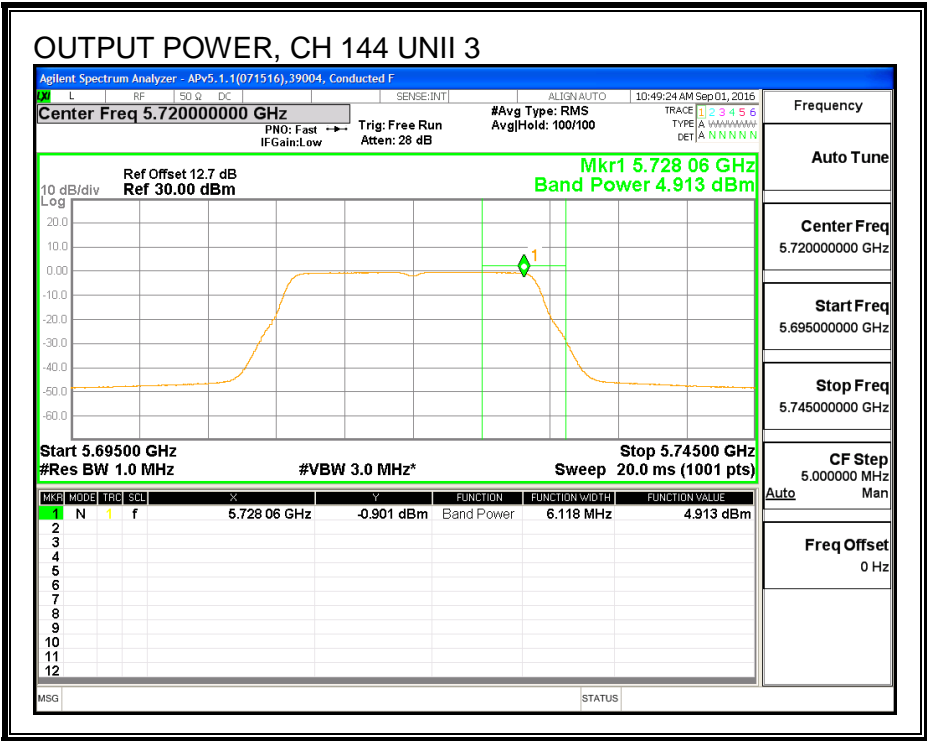
Duty Cycle CF (dB)	0.00	Included in Calculations of Corr'd Power & PSD
--------------------	------	--

#### Output Power Results

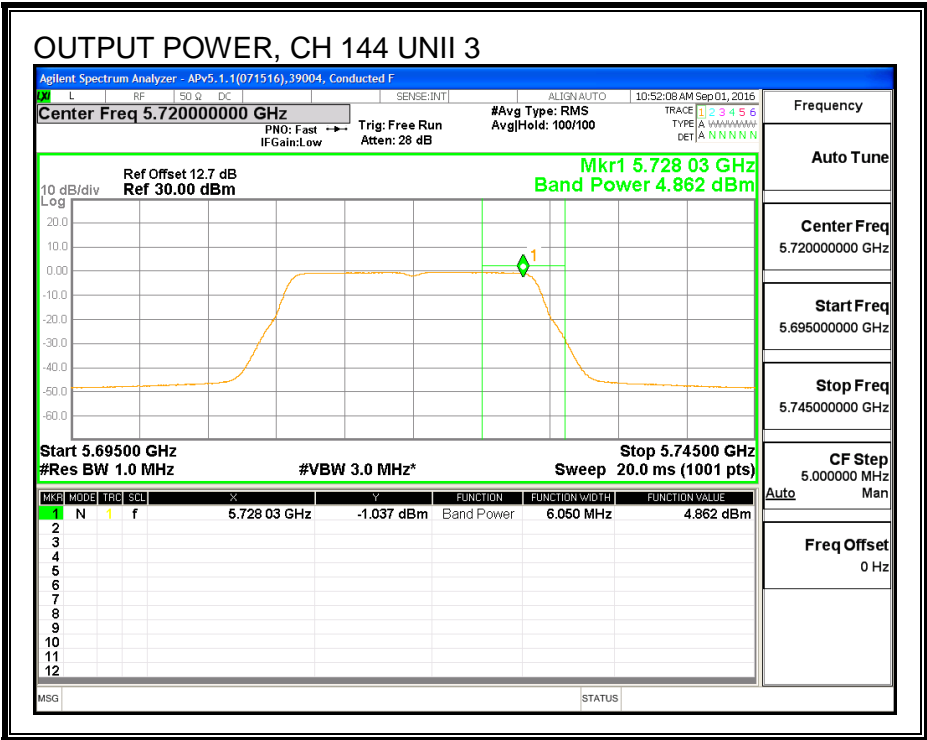
Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Chain 1 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
144	5720	4.91	4.86	7.90	17.61	-9.71

#### PSD Results

Channel	Frequency (MHz)	Chain 0 Meas PSD (dBm)	Chain 1 Meas PSD (dBm)	Total Corr'd PSD (dBm)	PSD Limit (dBm)	PSD Margin (dB)
144	5720	-3.42	-3.48	-0.44	6.81	-7.25

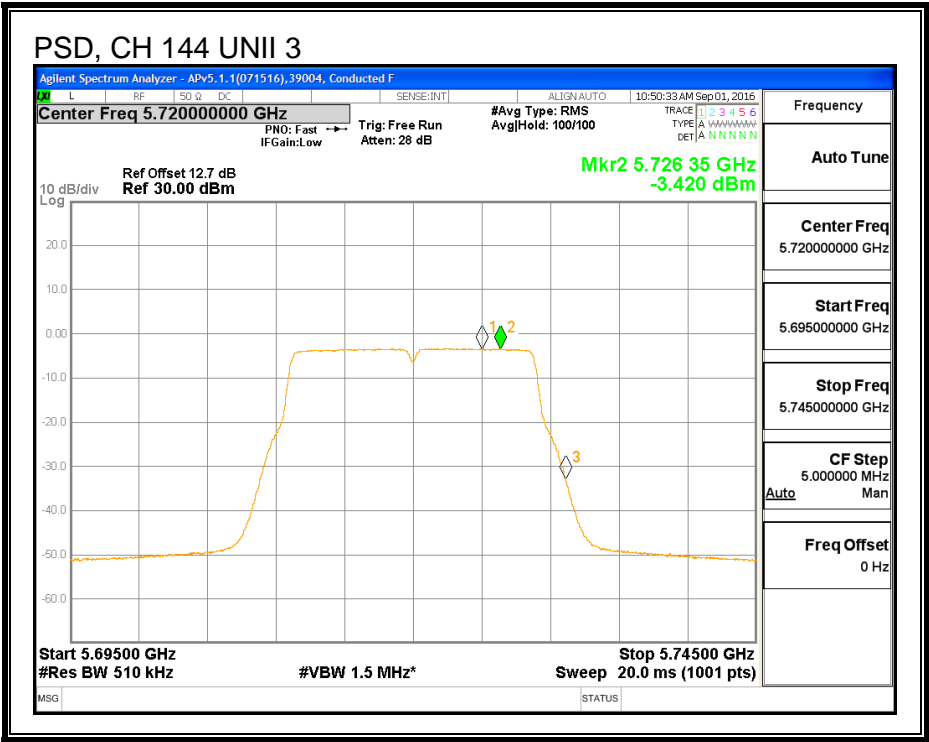


OUTPUT POWER, CHAIN 1

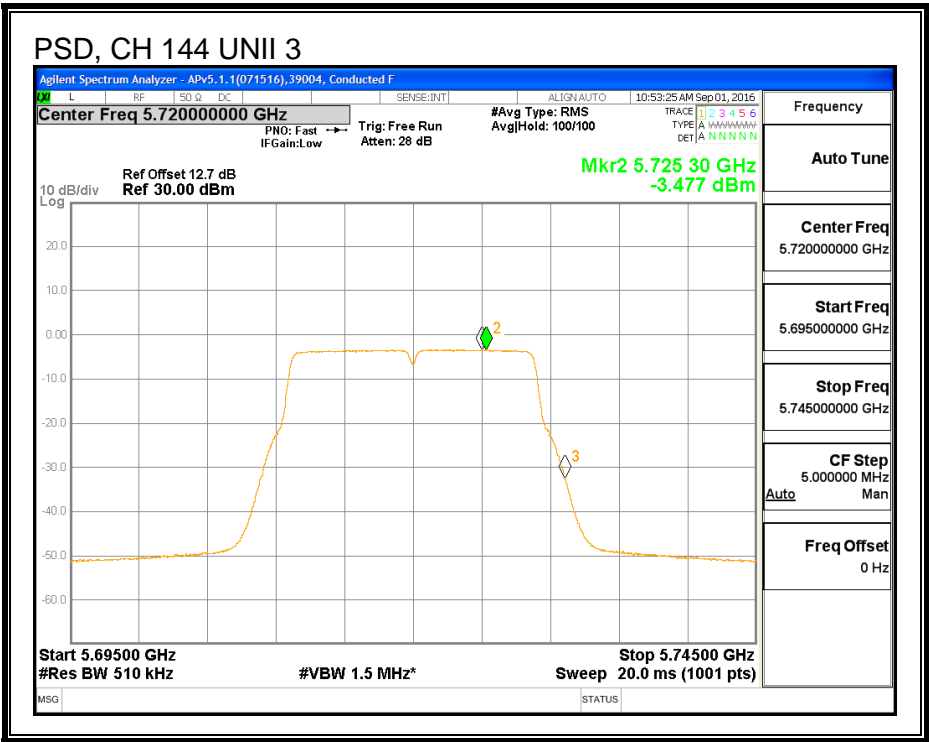




PSD, CHAIN 0



PSD, CHAIN 1



## 8.39. 802.11ac VHT20 2Tx CDD STRADDLE CHANNEL 144 RESULTS (IC)

### 8.39.1. OUTPUT POWER AND PSD

#### UNII-2C BAND

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

Channel	Frequency (MHz)	Min 99% BW (MHz)	Directional Gain for Power (dBi)	Directional Gain for PSD (dBi)	Power Limit (dBm)	PSD Limit (dBm)
144	5720	13.92	7.21	10.19	21.23	6.81

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

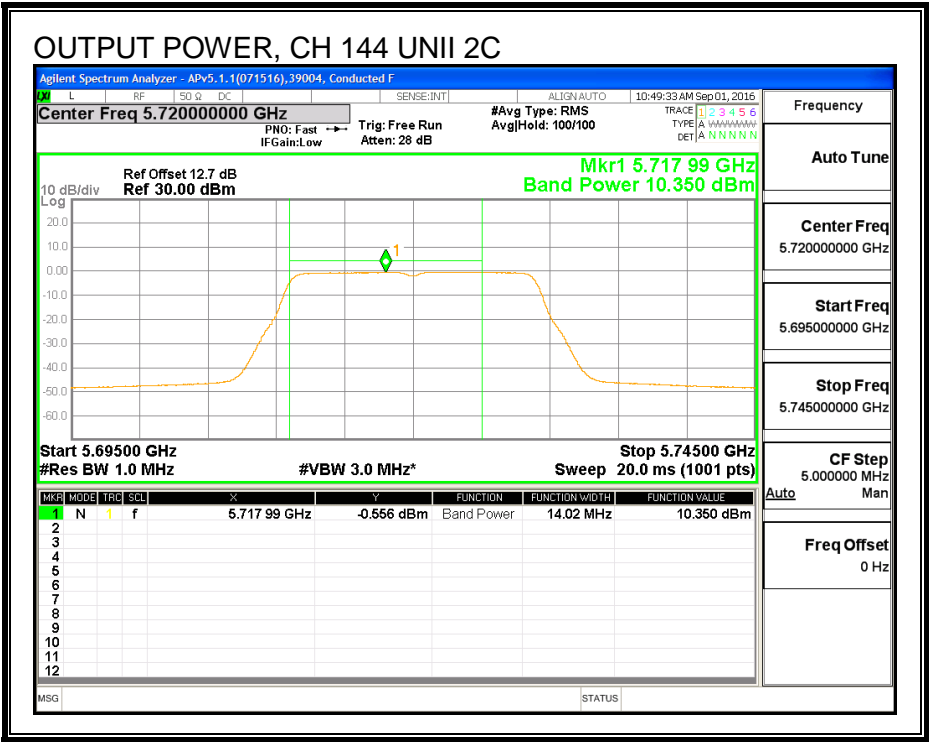
##### Output Power Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Chain 1 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
144	5720	10.35	10.29	13.33	21.23	-7.90

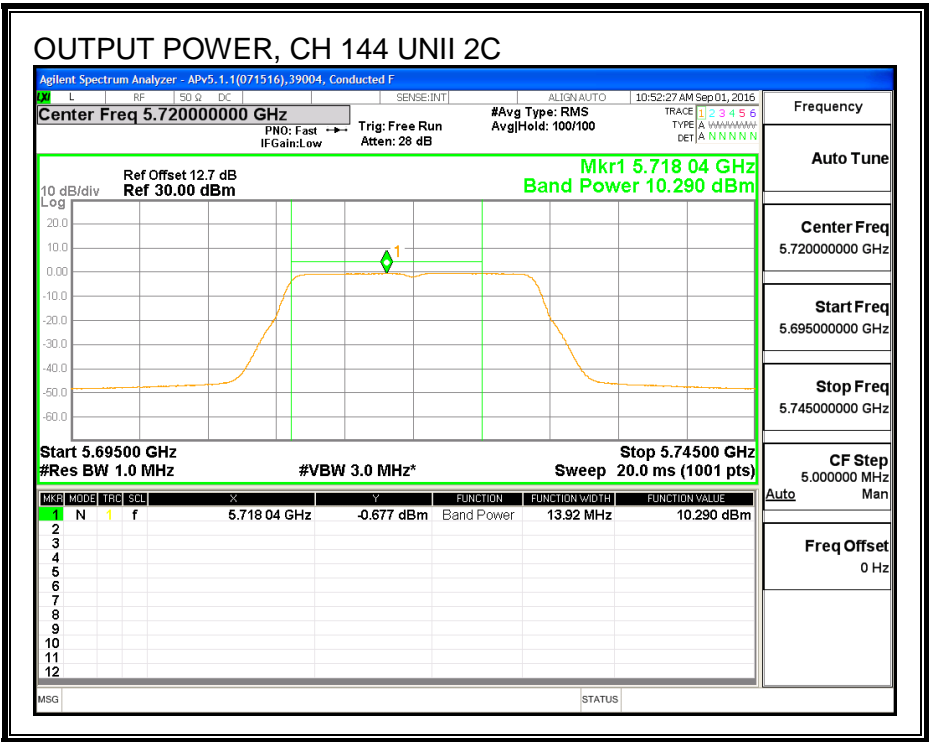
##### PSD Results

Channel	Frequency (MHz)	Chain 0 Meas PSD (dBm)	Chain 1 Meas PSD (dBm)	Total Corr'd PSD (dBm)	PSD Limit (dBm)	PSD Margin (dB)
144	5720	-0.49	-0.53	2.50	6.81	-4.31

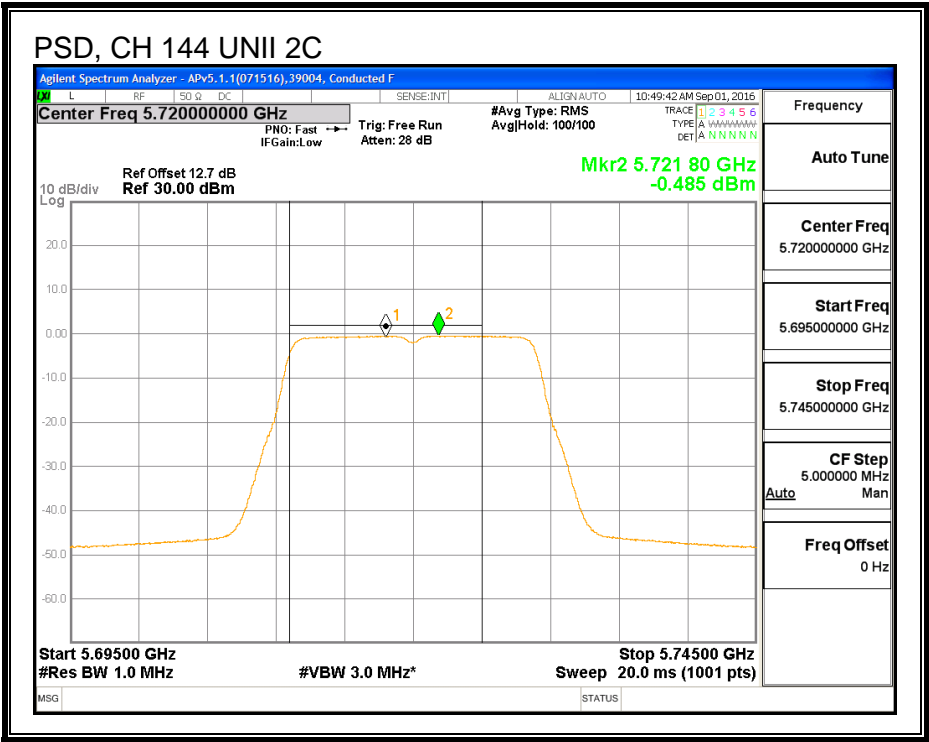
OUTPUT POWER, CHAIN 0



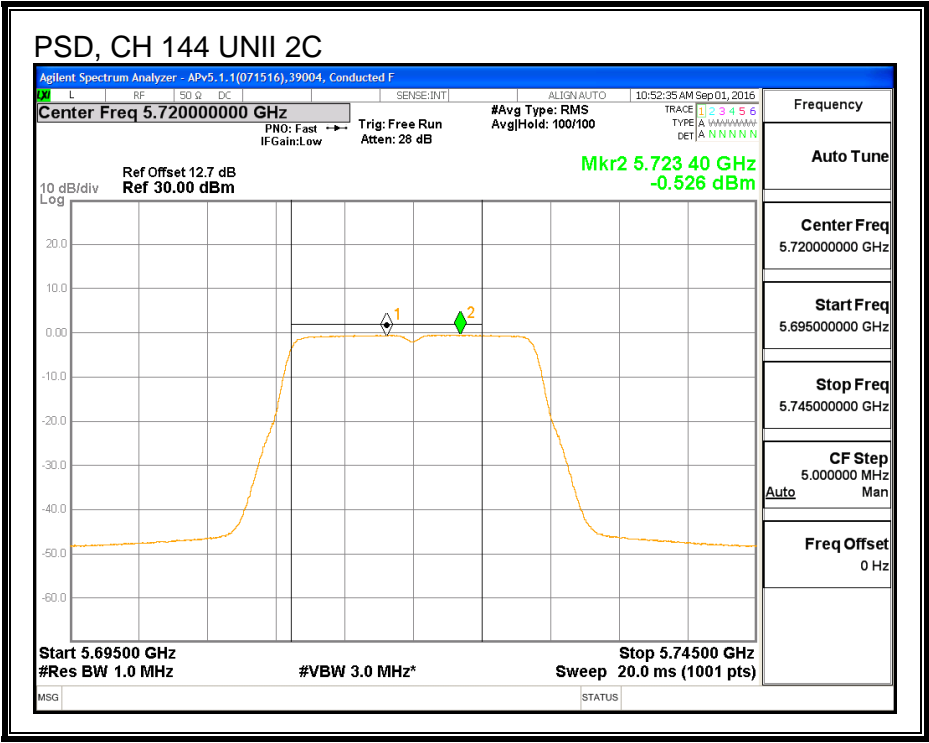
OUTPUT POWER, CHAIN 1



PSD, CHAIN 0



PSD, CHAIN 1



# **UNII-3 BAND**

## **Antenna Gain and Limit**

Channel	Frequency (MHz)	Min 99% BW (MHz)	Directional Gain For Power (dBi)	Directional Gain For PSD (dBi)	Power Limit (dBm)	PSD Limit (dBm)
144	5720	3.92	7.21	10.19	28.79	25.81

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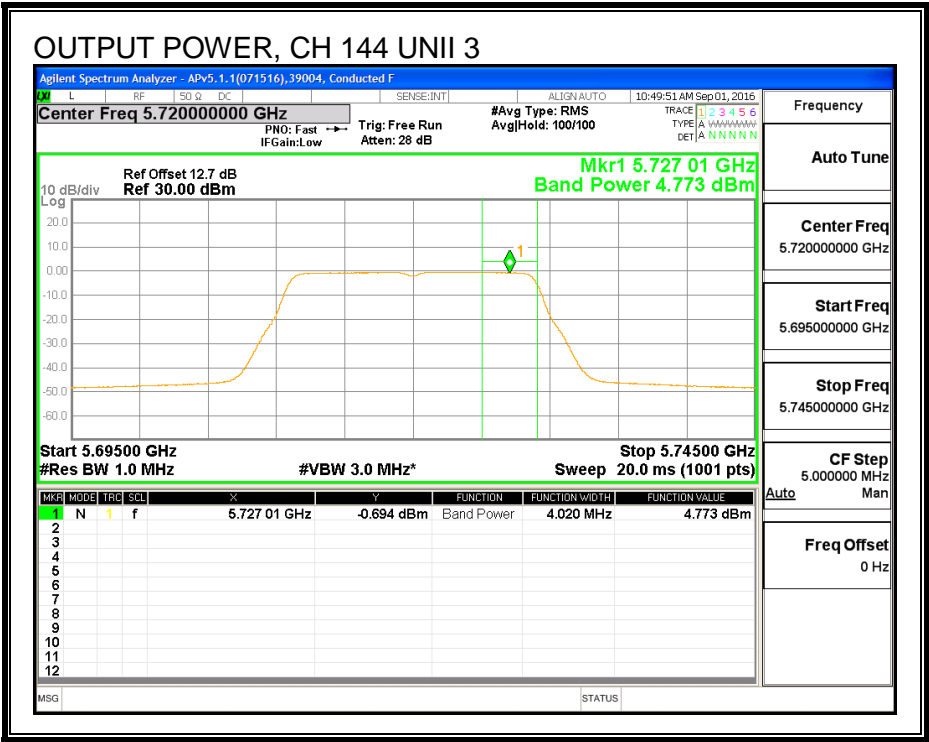
## **Output Power Results**

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Chain 1 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
144	5720	4.77	4.67	7.73	28.79	-21.06

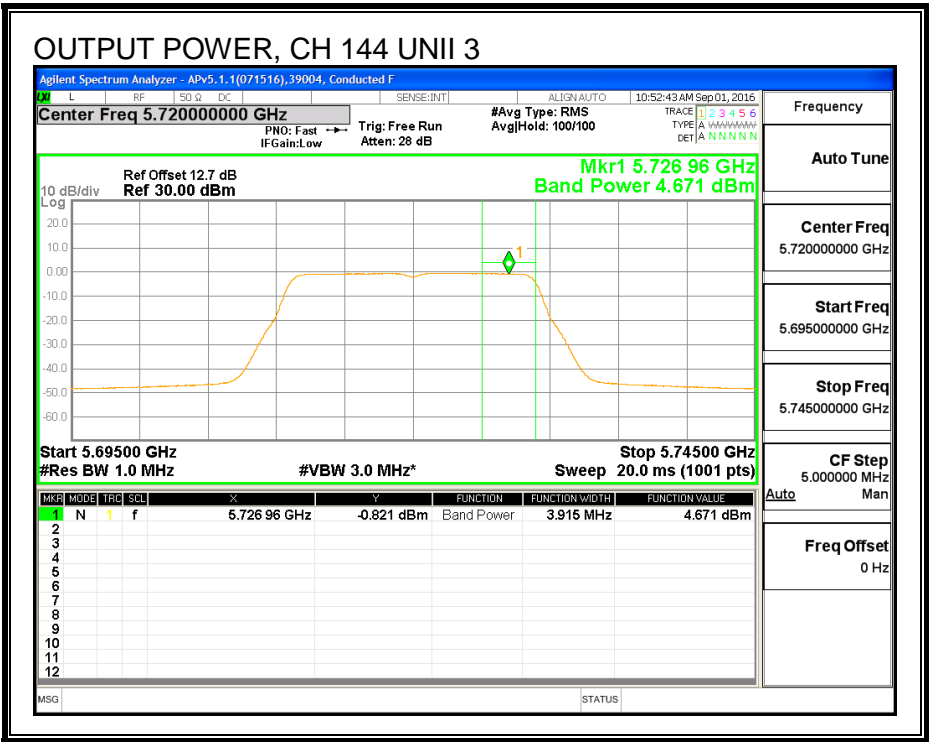
## **PSD Results**

Channel	Frequency (MHz)	Chain 0 Meas PSD (dBm)	Chain 1 Meas PSD (dBm)	Total Corr'd PSD (dBm)	PSD Limit (dBm)	PSD Margin (dB)
144	5720	-3.42	-3.48	-0.44	25.81	-26.25

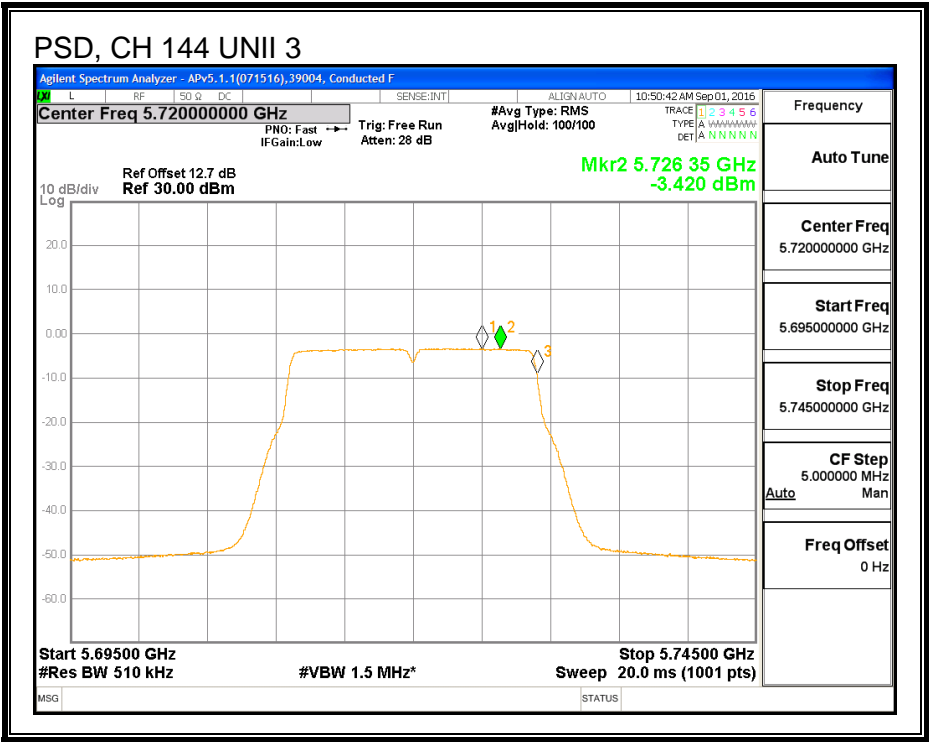
OUTPUT POWER, CHAIN 0



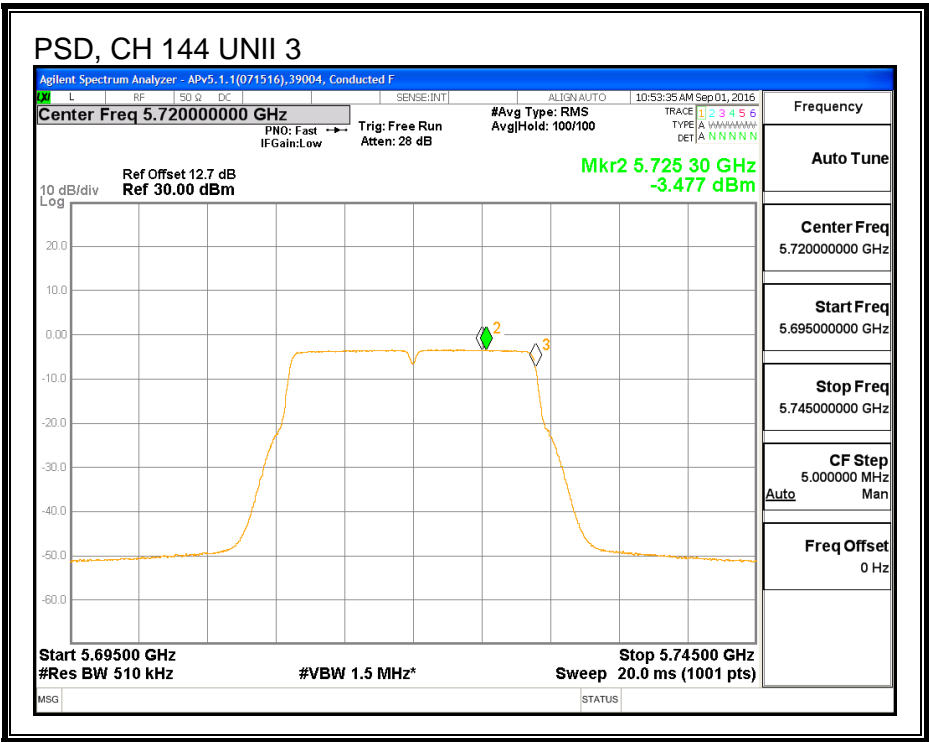
OUTPUT POWER, CHAIN 1



PSD, CHAIN 0



PSD, CHAIN 1



### 8.39.2. 6 dB BANDWIDTH

#### LIMITS

FCC §15.407 (e)

IC RSS-247 (6.2.4) (1)

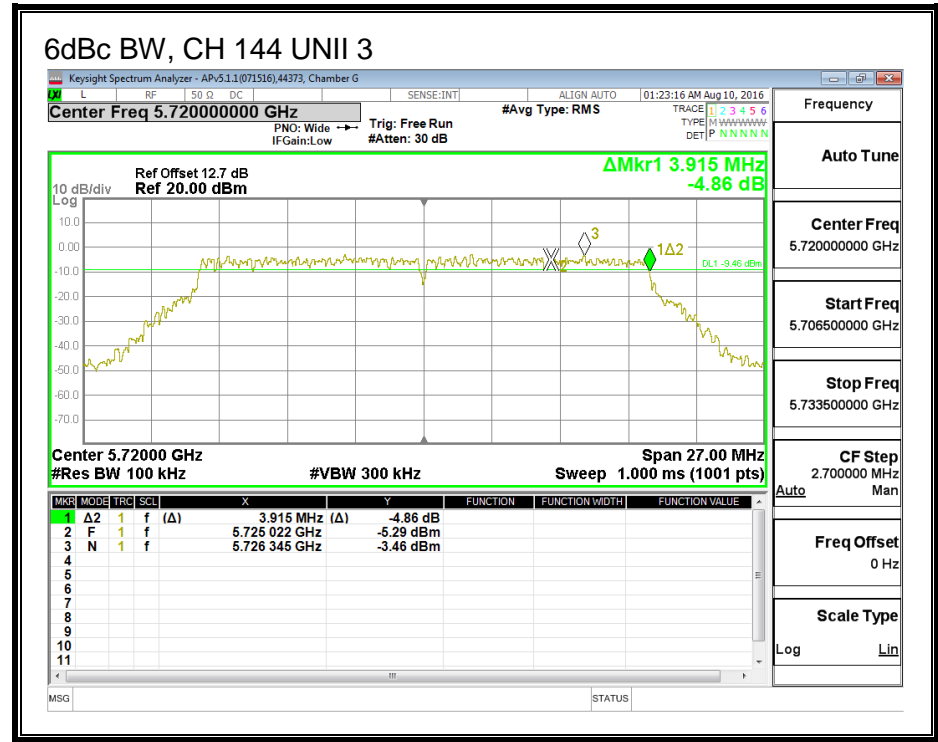
The minimum 6 dB bandwidth shall be at least 500 kHz.

#### RESULTS

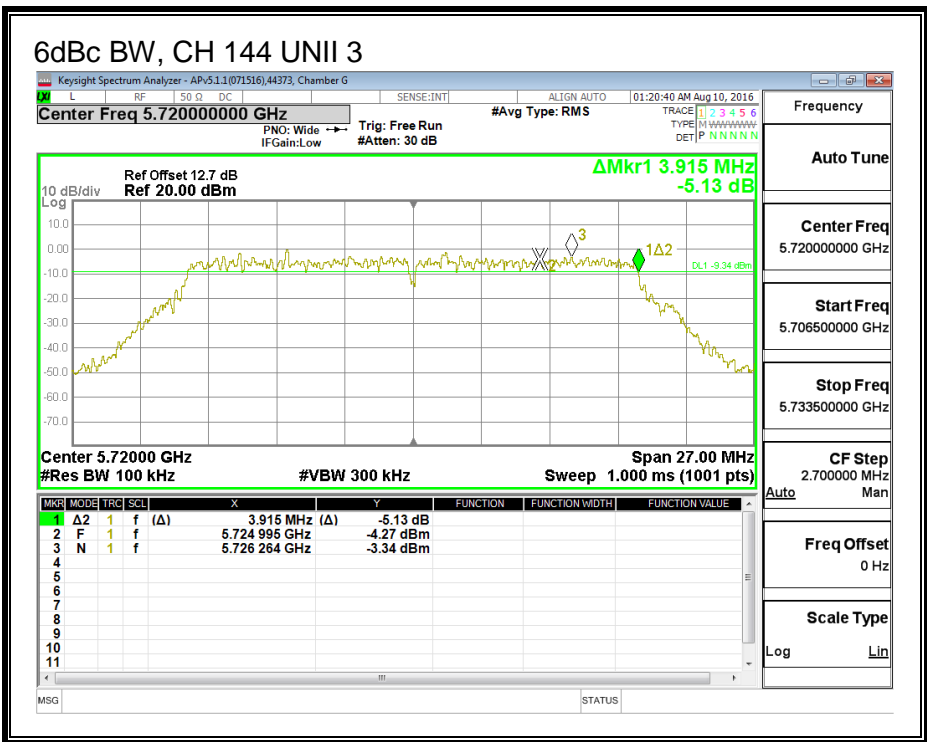
Channel	Frequency (MHz)	6 dB BW Chain 0 (MHz)	6 dB BW Chain 1 (MHz)
144	5720	3.915	3.915



CHAIN 0



CHAIN 1



## 8.40. 802.11n HT20 2Tx STBC MODE IN THE 5.6 GHz BAND

### 8.40.1. 26 dB BANDWIDTH

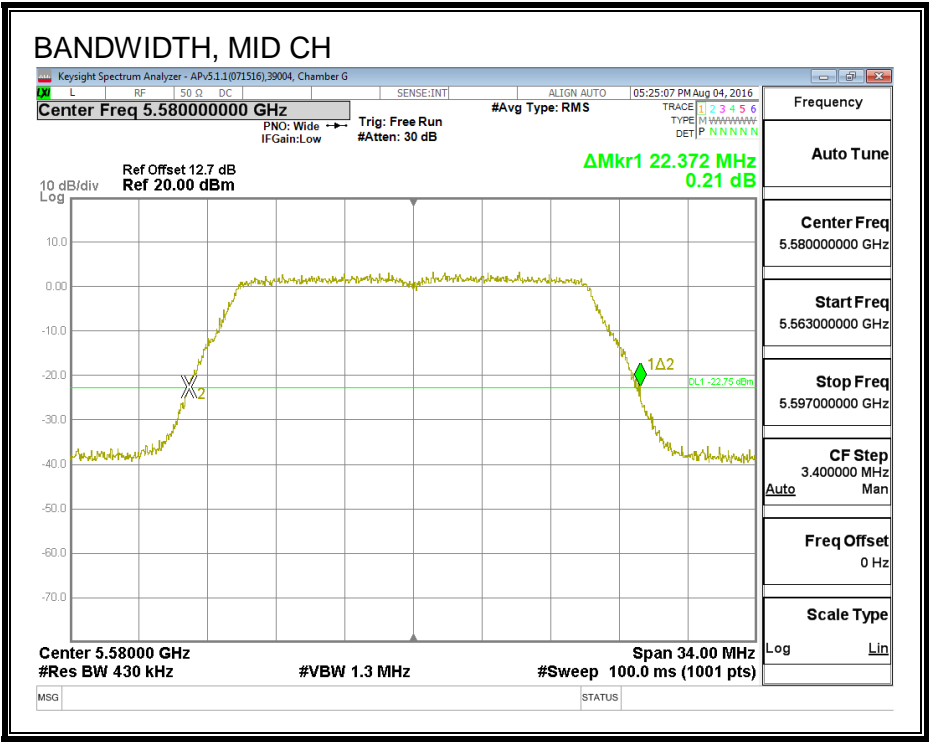
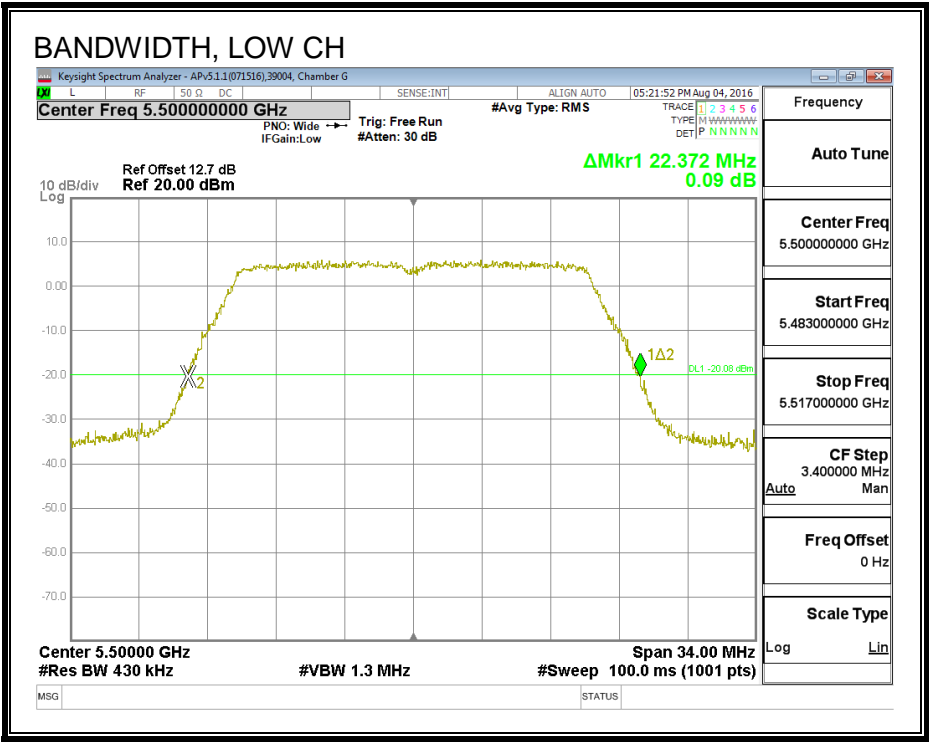
#### LIMITS

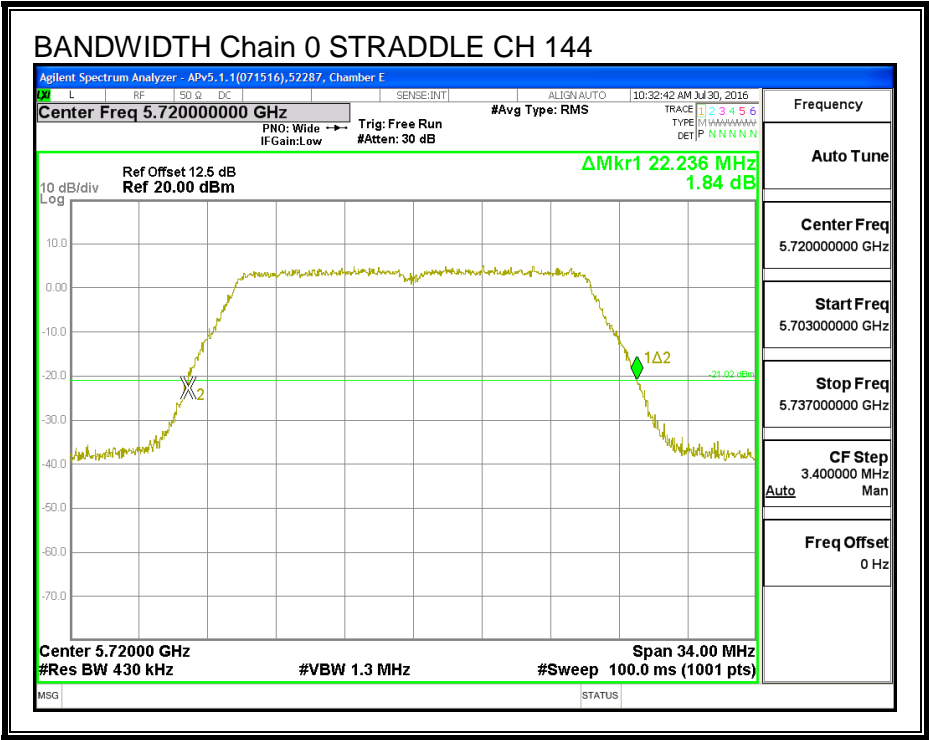
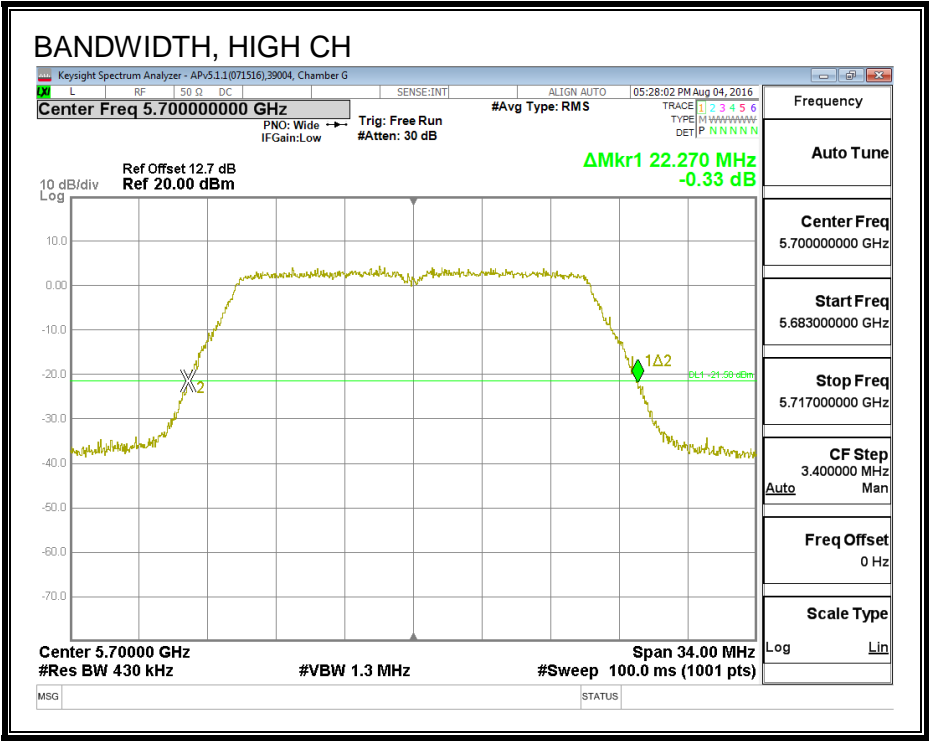
None; for reporting purposes only.

#### RESULTS

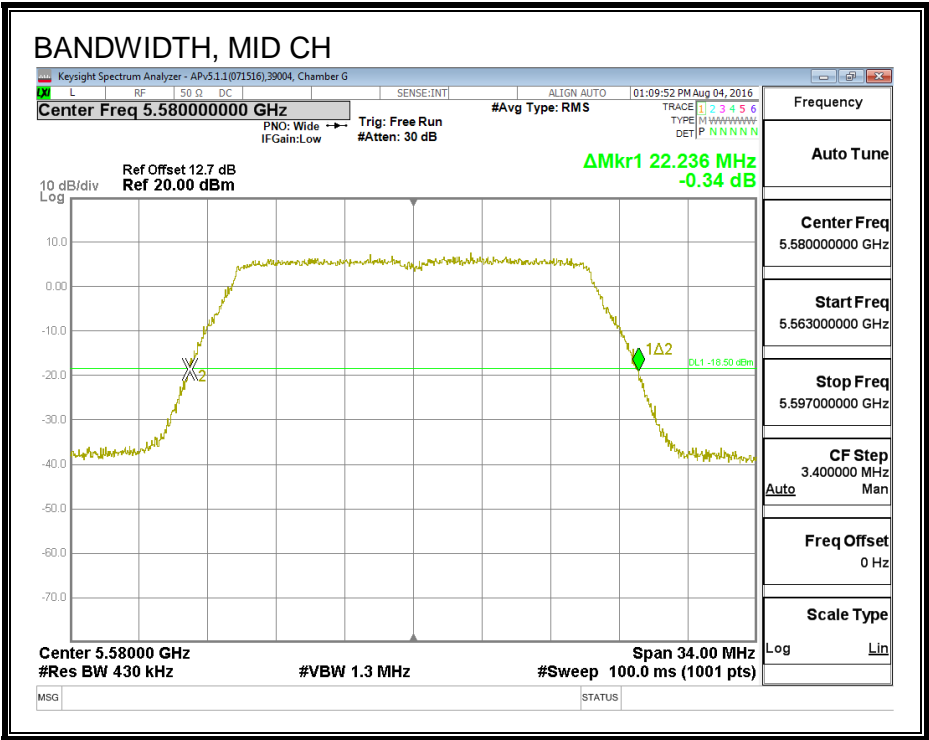
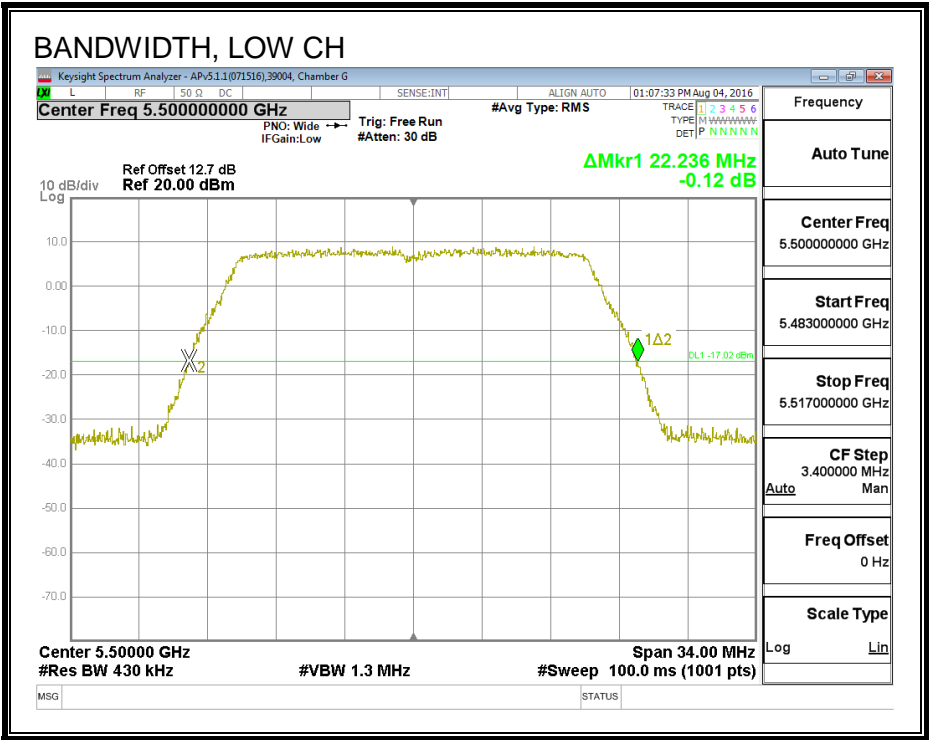
Channel	Frequency (MHz)	26 dB BW Chain 0 (MHz)	26 dB BW Chain 1 (MHz)
Low	5500	22.372	22.236
Mid	5580	22.372	22.236
High	5700	22.270	22.202
144	5720	22.236	22.066

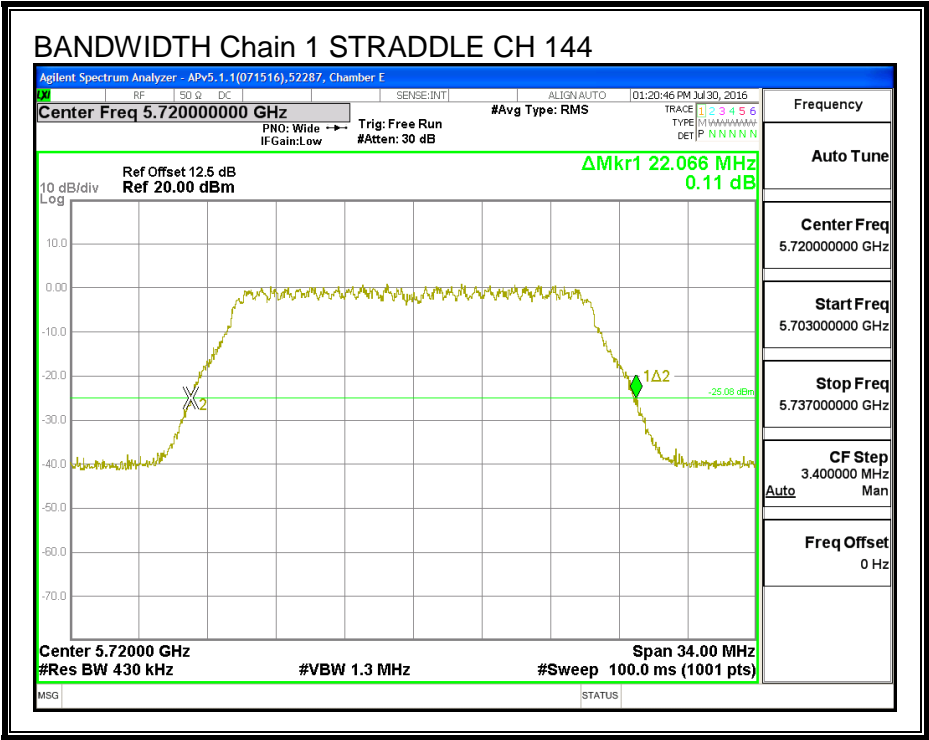
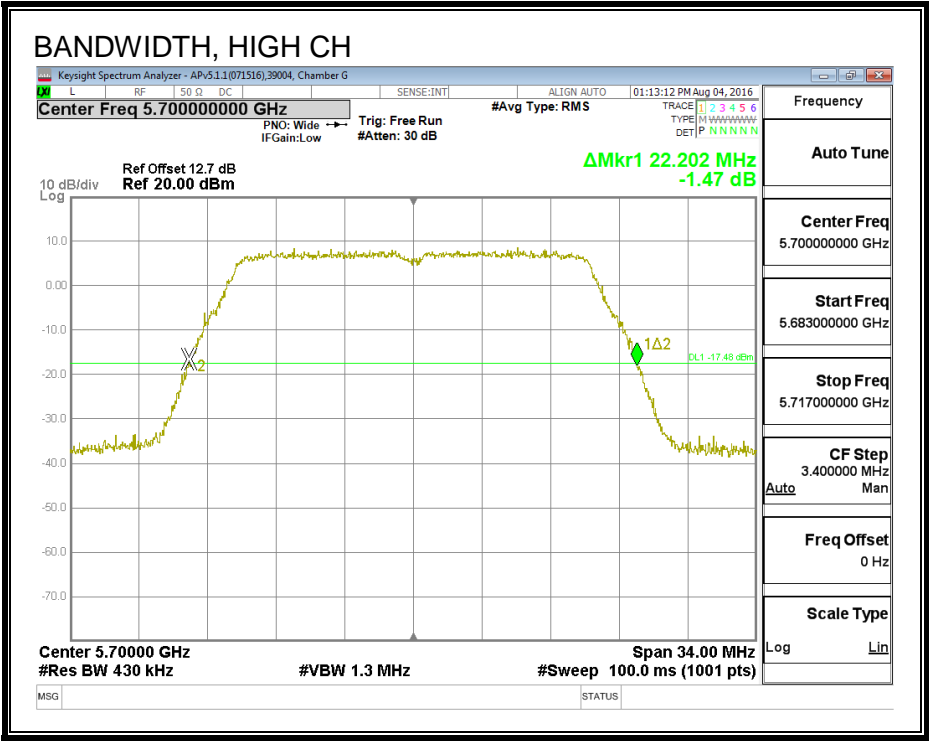
26 dB BANDWIDTH, CHAIN 0





26 dB BANDWIDTH, CHAIN 1





## 8.40.2. 99% BANDWIDTH

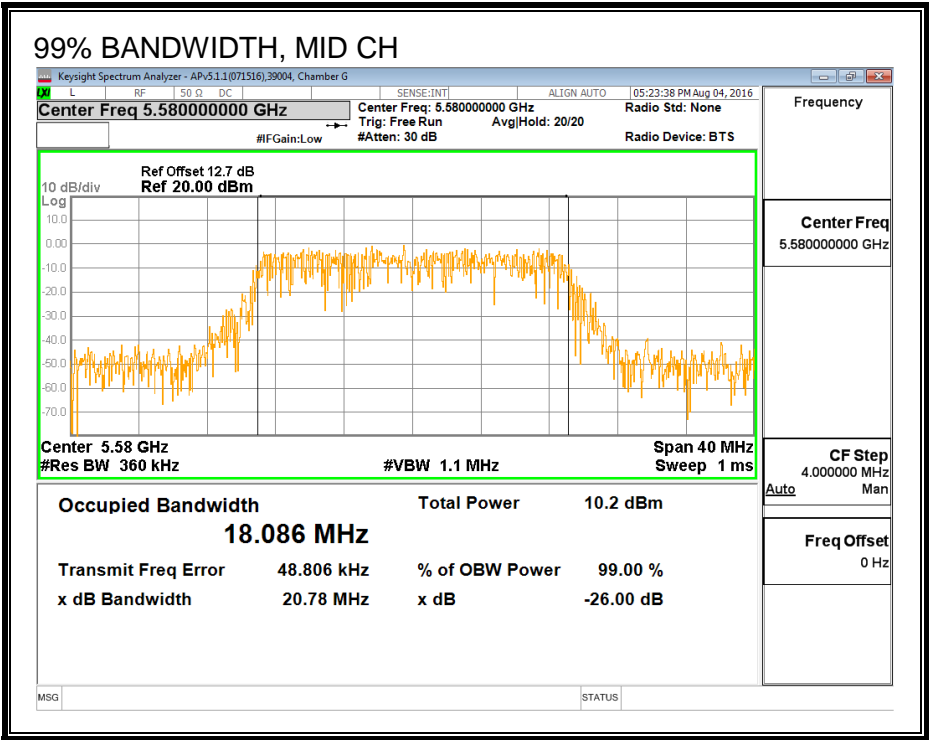
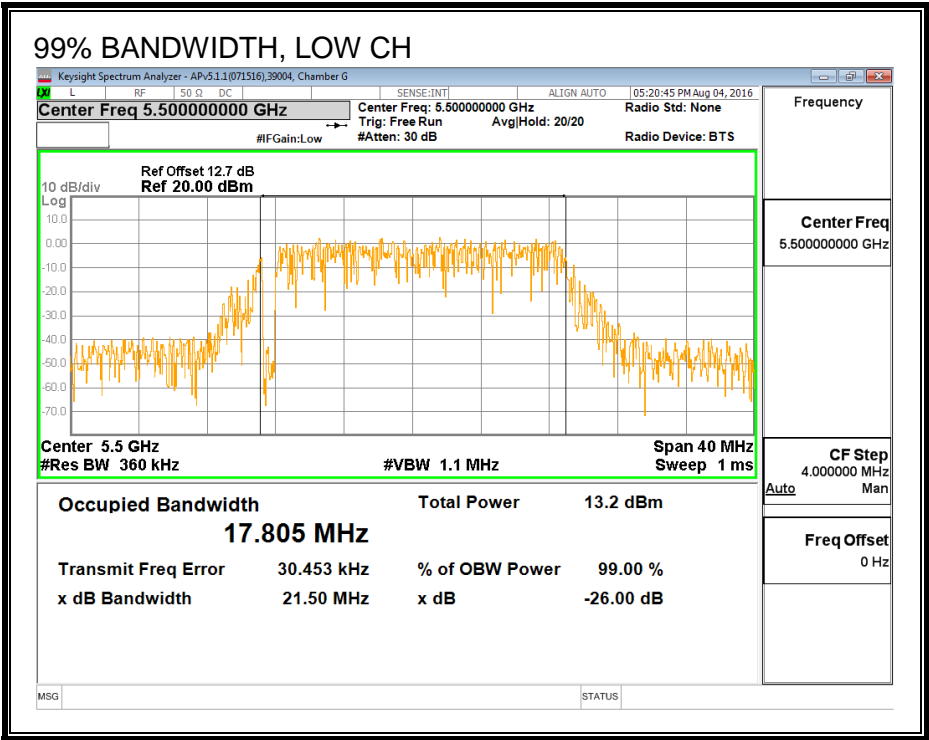
### LIMITS

None; for reporting purposes only.

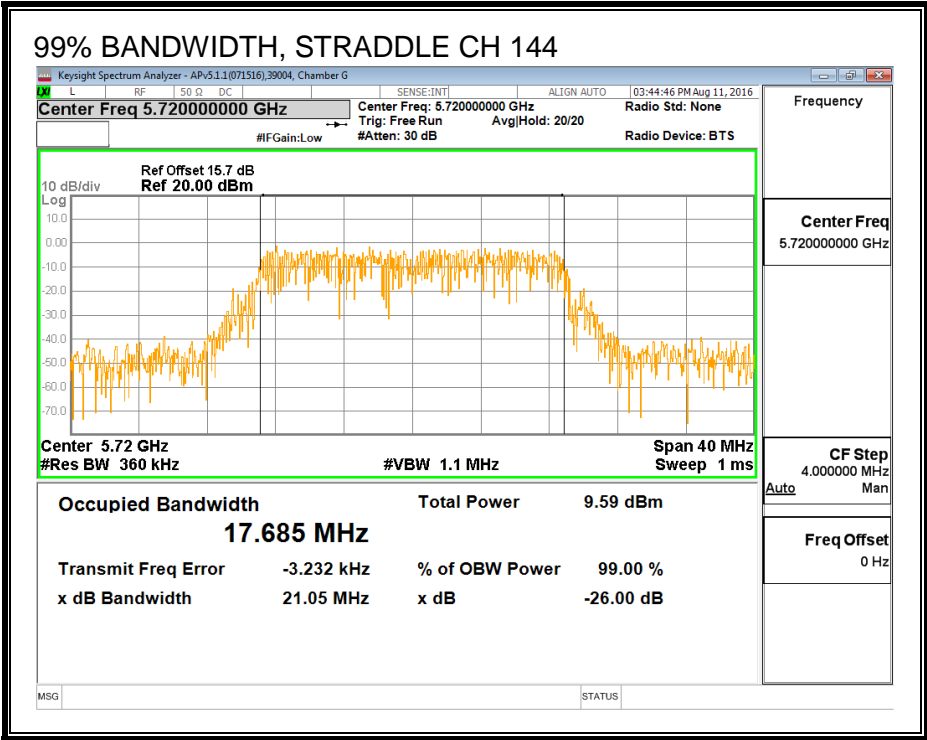
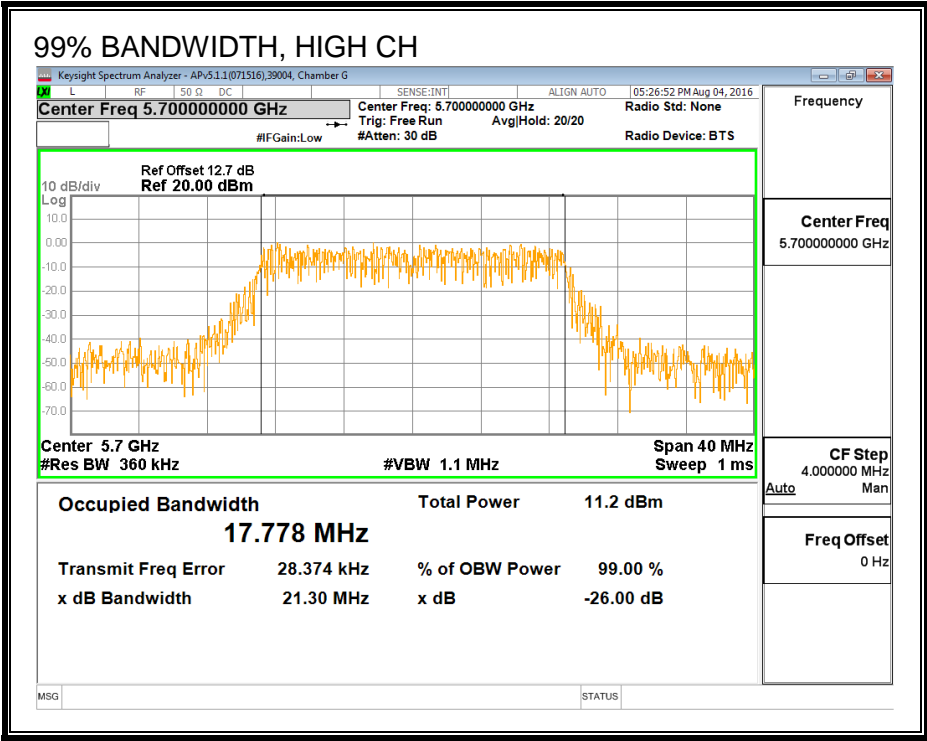
### RESULTS

Channel	Frequency (MHz)	99% BW Chain 0 (MHz)	99% BW Chain 1 (MHz)
Low	5500	17.805	17.616
Mid	5580	18.086	17.730
High	5700	17.778	17.875
144	5720	17.685	17.864

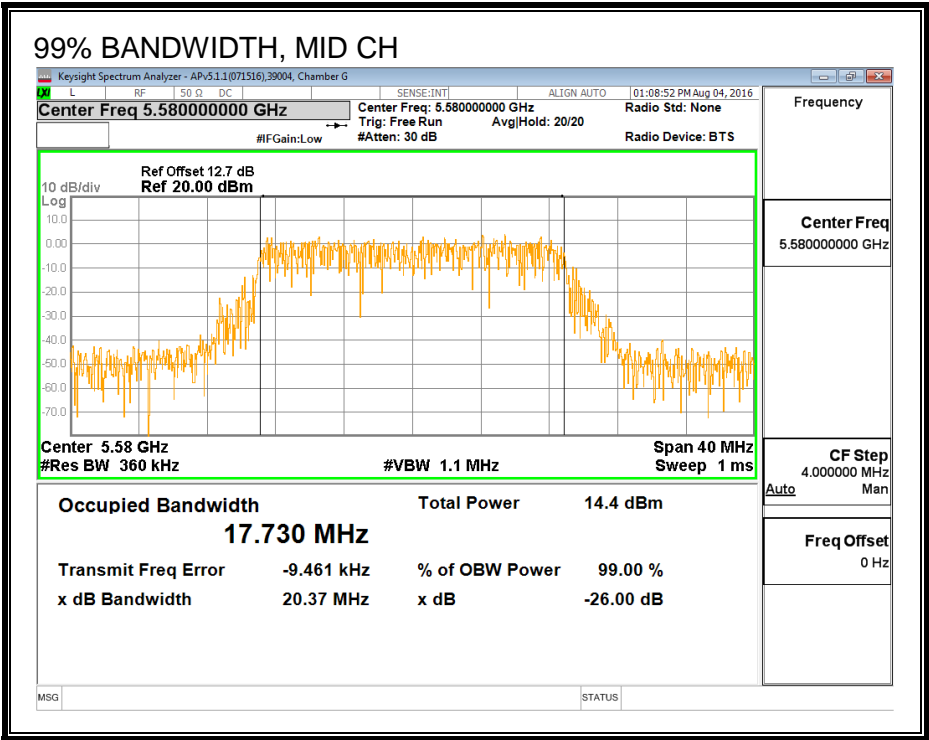
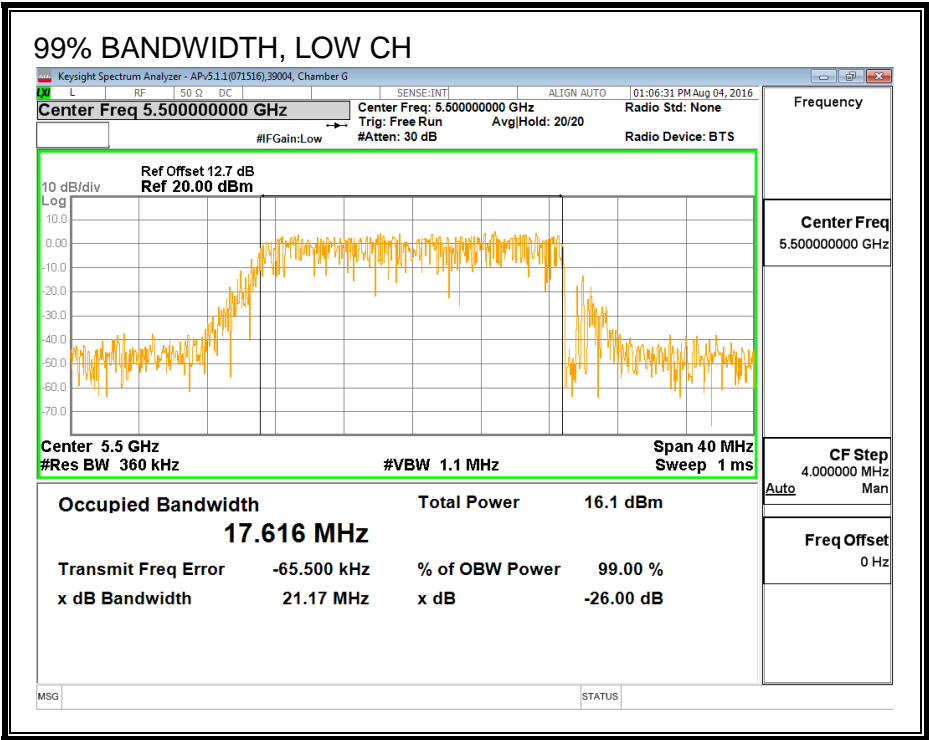
99% BANDWIDTH, CHAIN 0

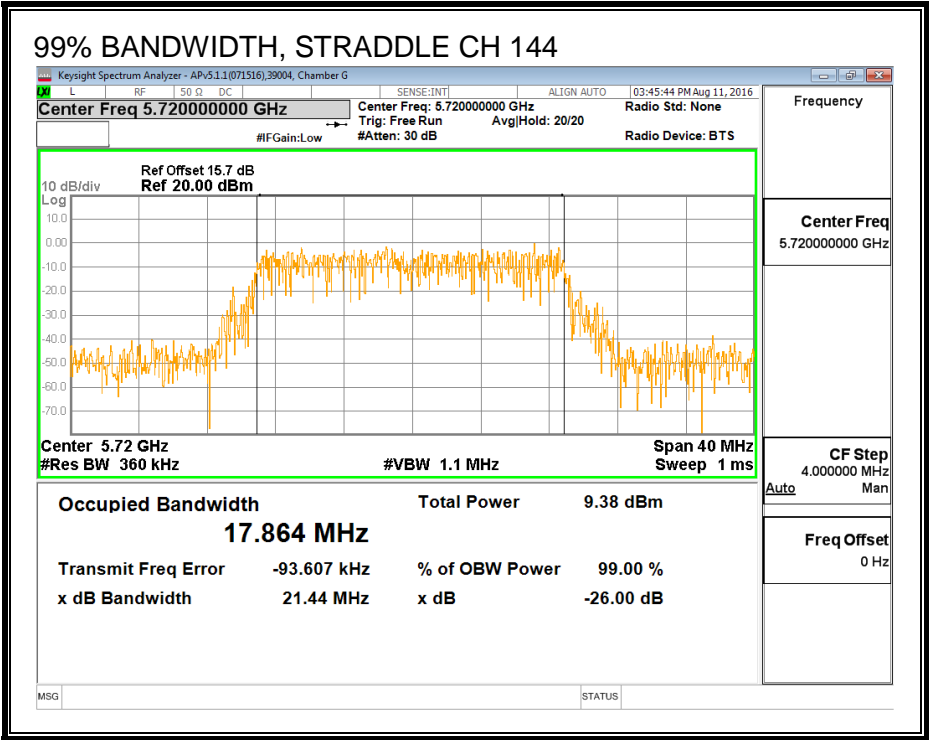
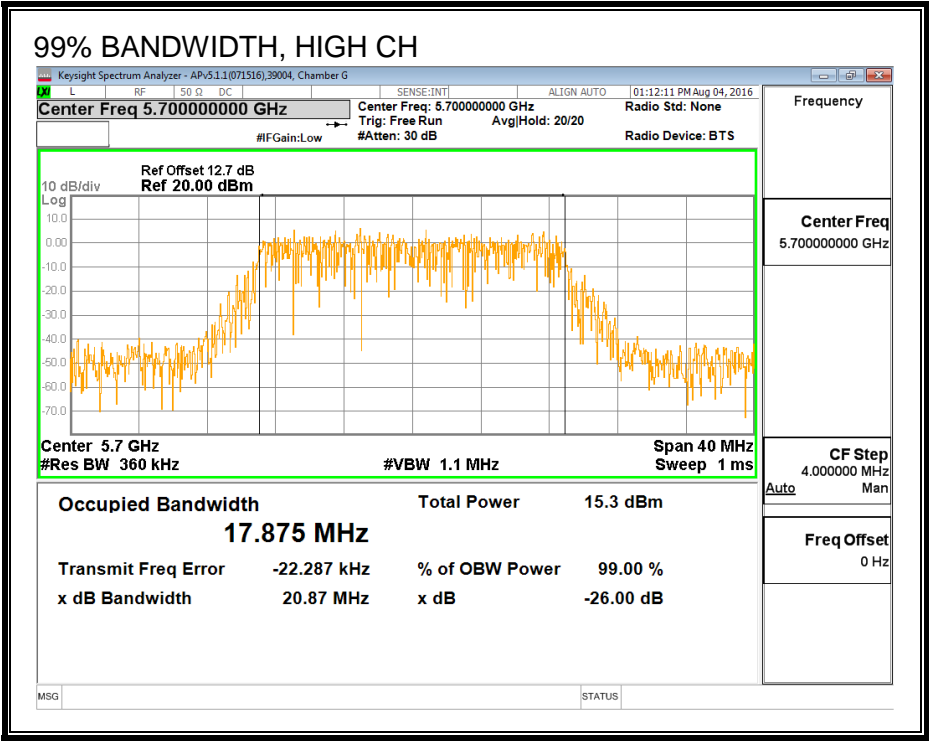






99% BANDWIDTH, CHAIN 1





### 8.40.3. AVERAGE POWER

#### LIMITS

None; for reporting purposes only.

#### TEST PROCEDURE

Measurements perform using a wideband gated RF power meter.

#### RESULTS

<b>ID:</b>	39004	<b>Date:</b>	9/2/16
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#### Average Power Results

Channel	Frequency (MHz)	Chain 0 Power (dBm)	Chain 1 Power (dBm)	Total Power (dBm)
Low	5500	12.42	12.35	15.40
Mid	5580	12.41	12.40	15.42
High	5700	12.39	12.37	15.39
144	5720	12.01	12.03	15.03