

**UNII-3 BAND**

**Antenna Gain and Limit**

Channel	Frequency (MHz)	Min 99% BW (MHz)	Directional Gain (dBi)	Power Limit (dBm)	PSD Limit (dBm)
138	5690	2.83	6.40	29.60	29.60

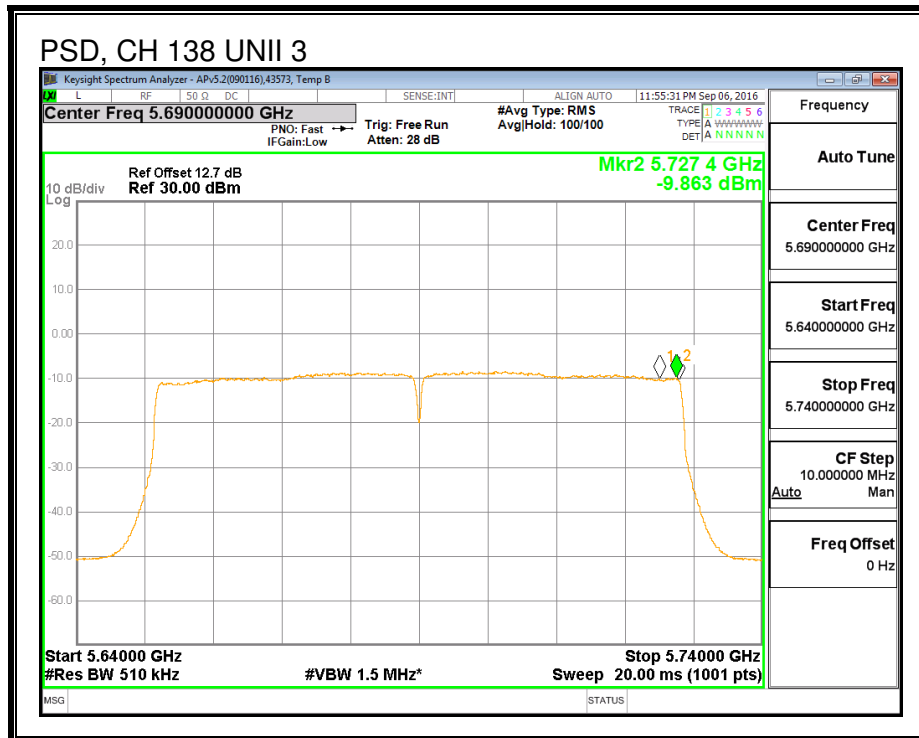
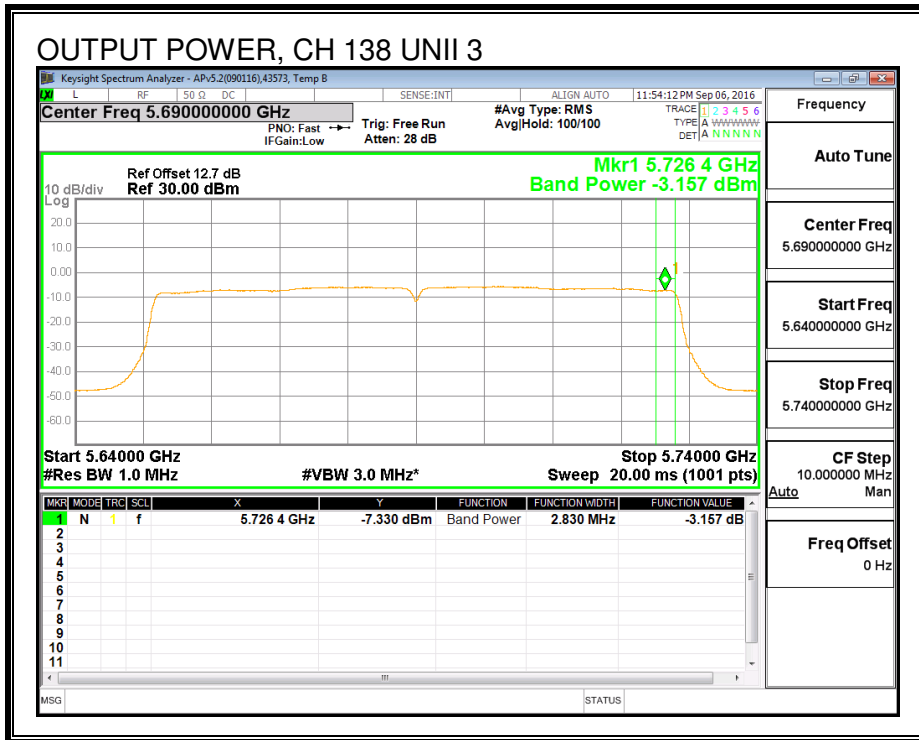
<b>Duty Cycle CF (dB)</b>	0.22	<b>Included in Calculations of Corr'd Power &amp; PSD</b>
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**Output Power Results**

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
138	5690	-3.16	-2.94	29.60	-32.54

**PSD Results**

Channel	Frequency (MHz)	Chain 0 Meas PSD (dBm)	Total Corr'd PSD (dBm)	PSD Limit (dBm)	PSD Margin (dB)
138	5690	-9.86	-9.64	29.60	-39.24



### 8.62.7. 6 dB BANDWIDTH

#### LIMITS

FCC §15.407 (e)

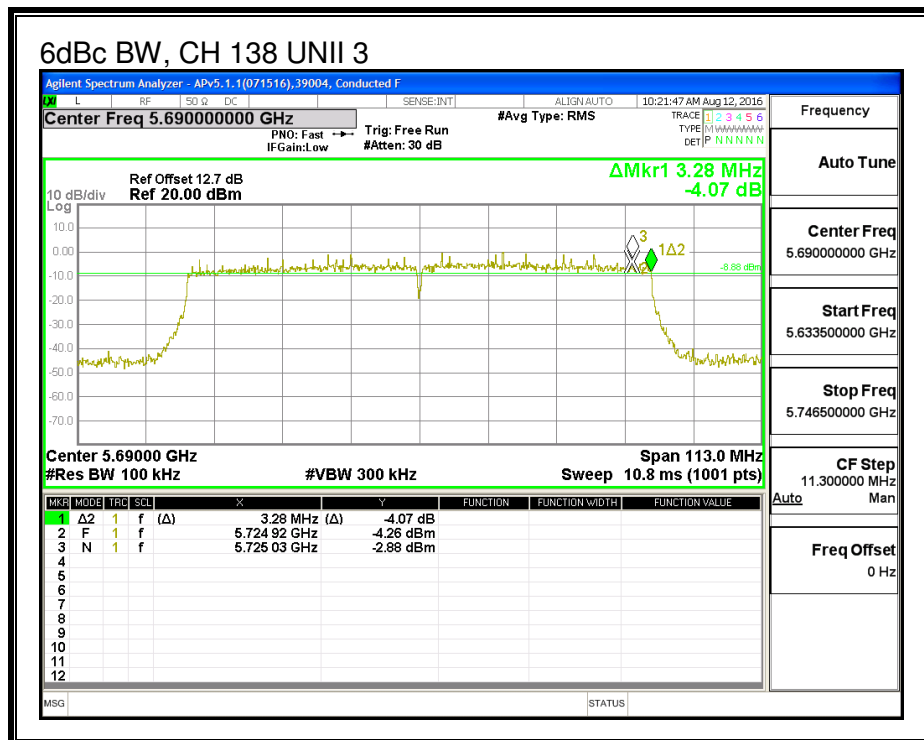
IC RSS-247 (6.2.4) (1)

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

#### RESULTS

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)
High	5690	3.28

#### 6 dB BANDWIDTH



### 8.63. 802.11ac VHT80 CHAIN 1 MODE IN THE 5.6 GHz BAND

#### 8.63.1. 26 dB BANDWIDTH

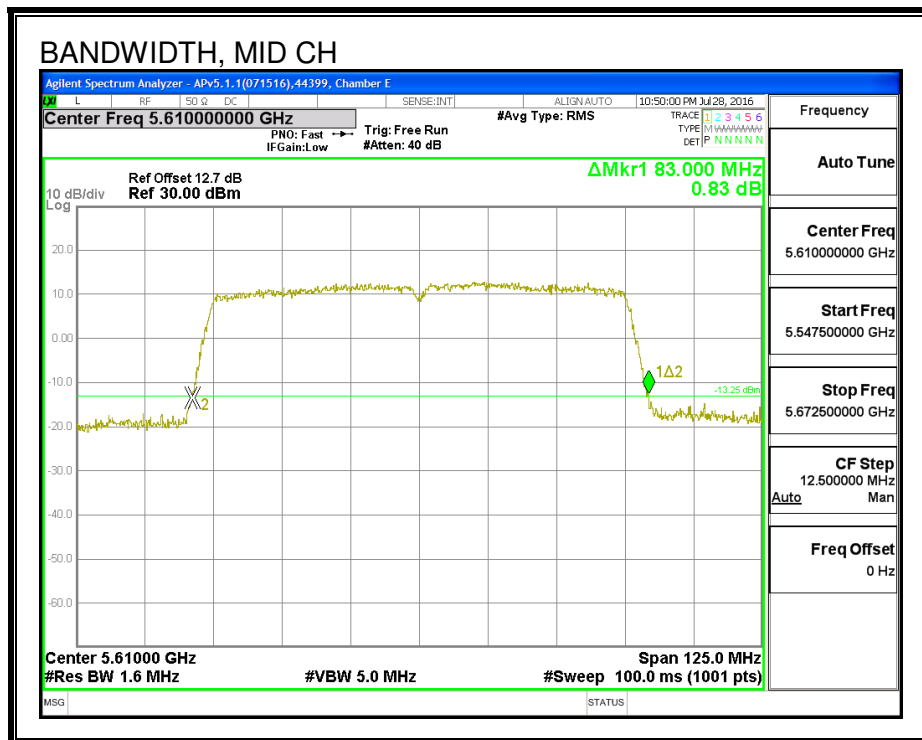
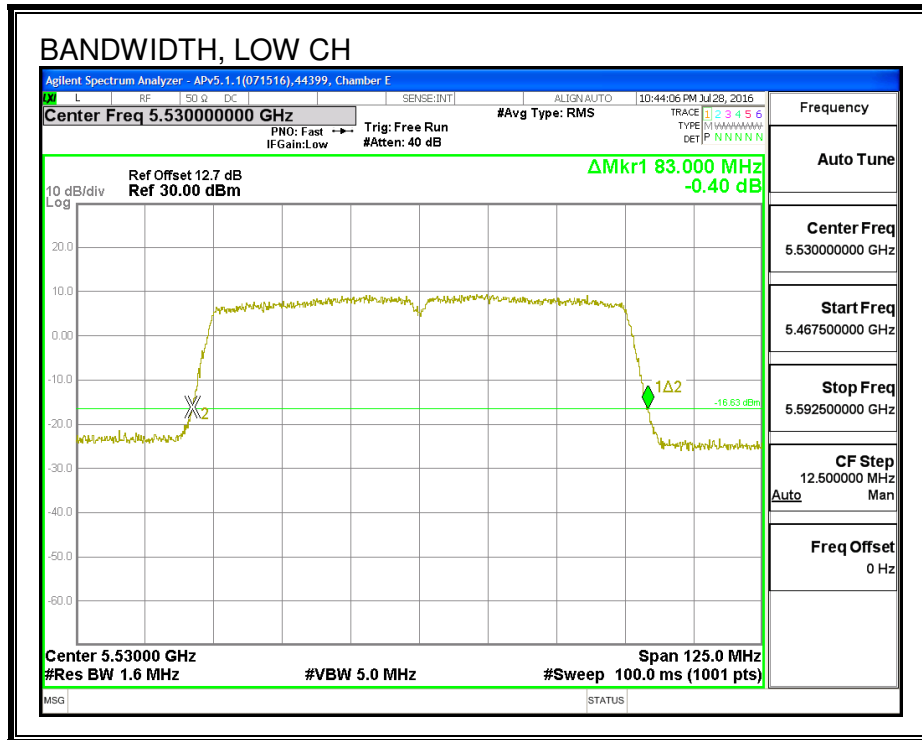
##### LIMITS

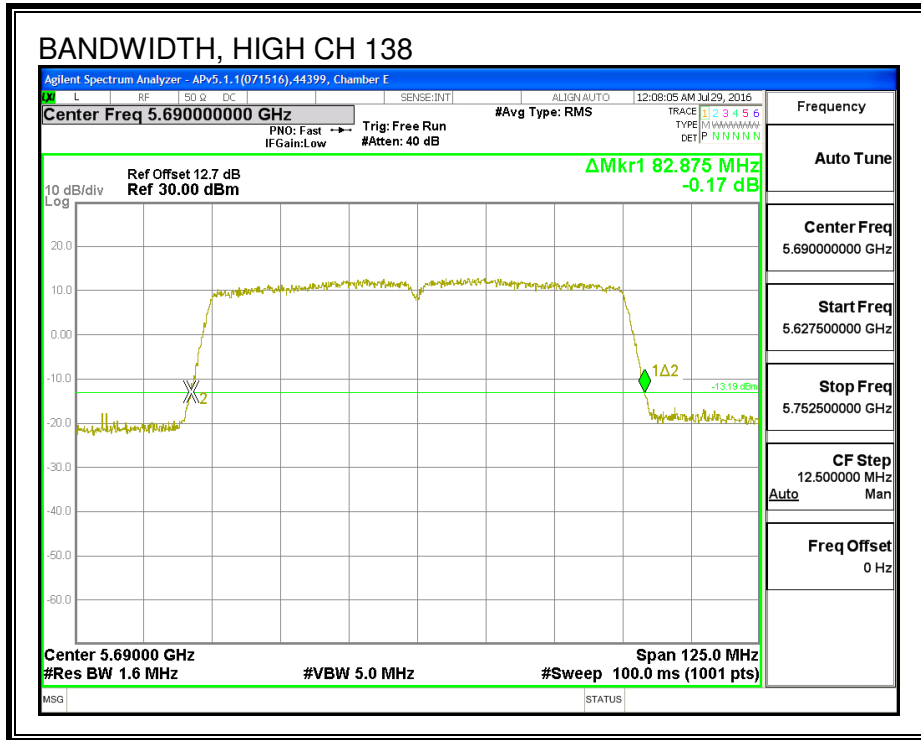
None; for reporting purposes only.

##### RESULTS

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)
Low	5530	83.00
Mid	5610	83.00
High	5690	82.88

**26 dB BANDWIDTH**





### 8.63.2. 99% BANDWIDTH

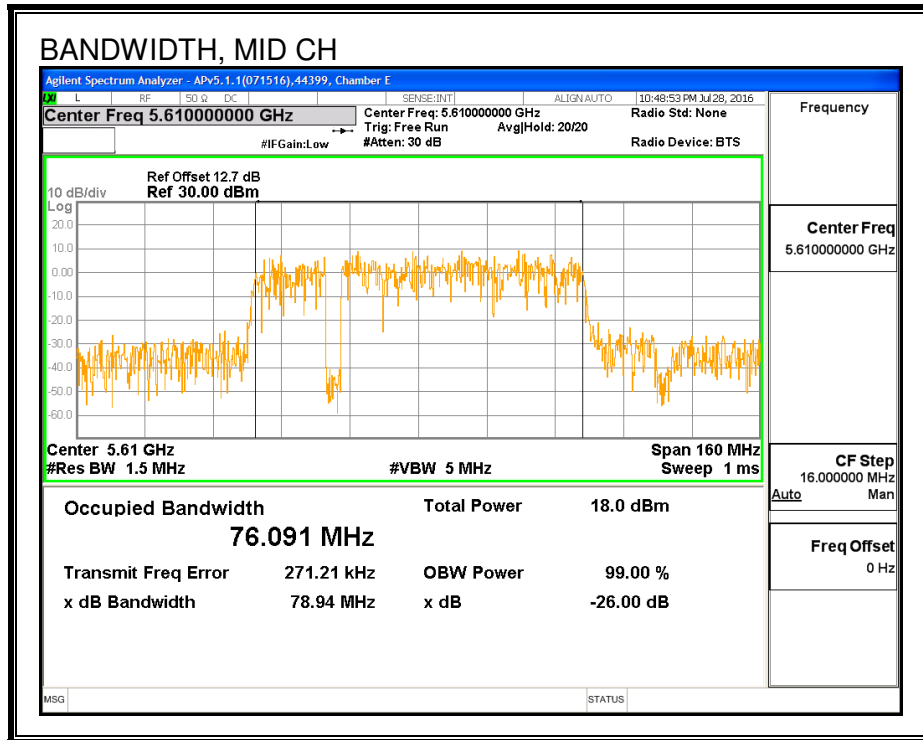
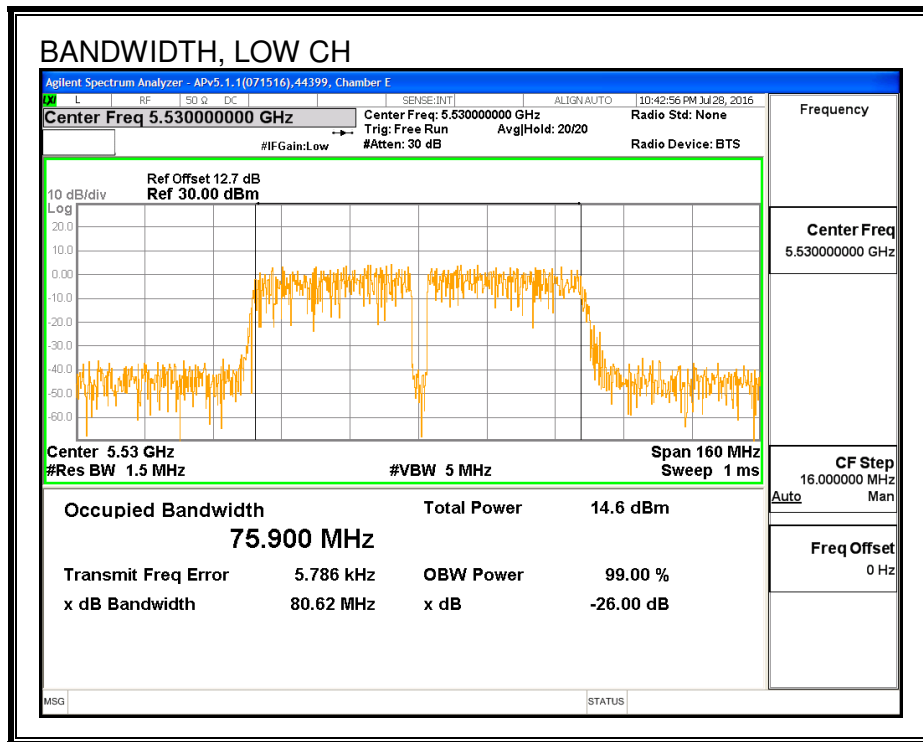
#### LIMITS

None; for reporting purposes only.

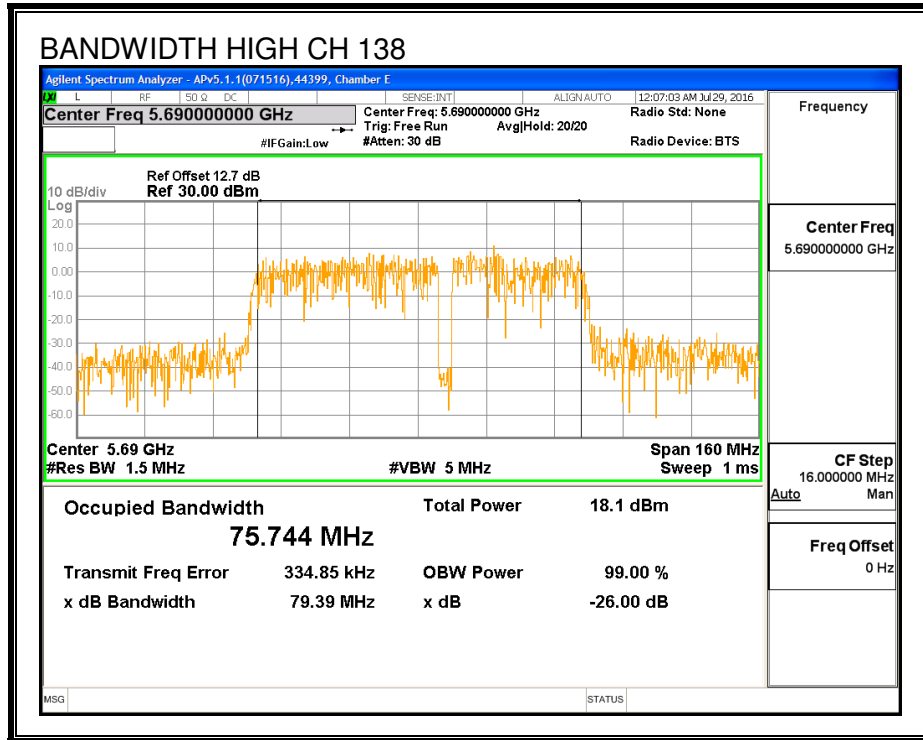
#### RESULTS

Frequency (MHz)	99% Bandwidth (MHz)
5530	75.900
5610	76.091
5690	75.744

**99% BANDWIDTH**







### 8.63.3. 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	5530	12.45
Mid	5610	12.40
High	5690	12.39

## 8.63.4. 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	5530	83.00	75.90	7.90	24.00	9.10
Mid	5610	83.00	76.09	7.90	24.00	9.10

<b>Duty Cycle CF (dB)</b>	0.22	<b>Included in Calculations of Corr'd PSD</b>
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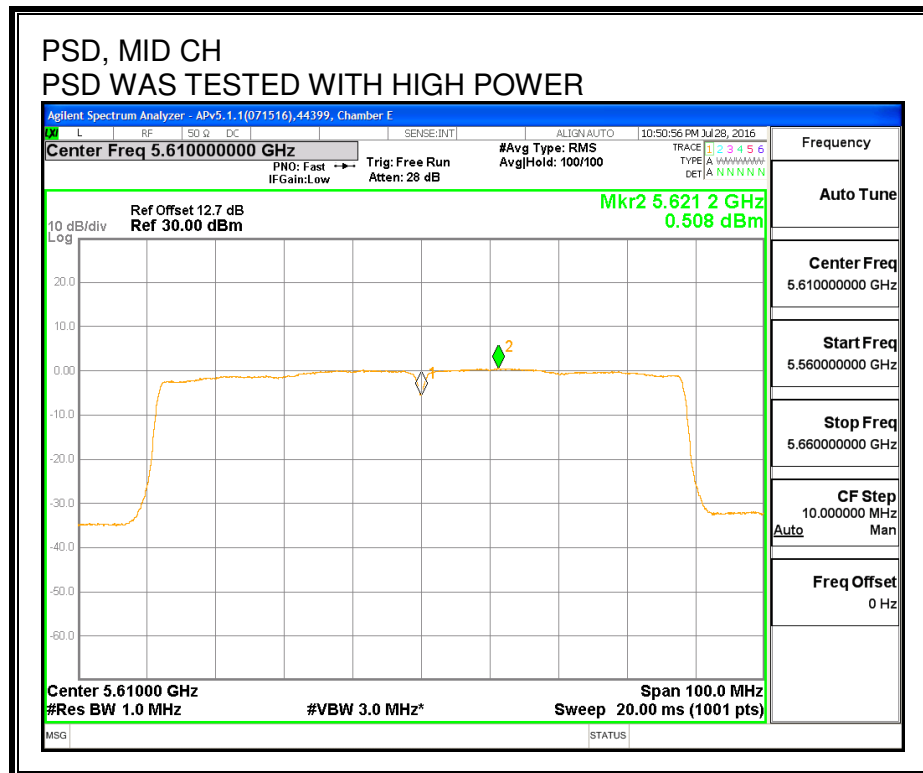
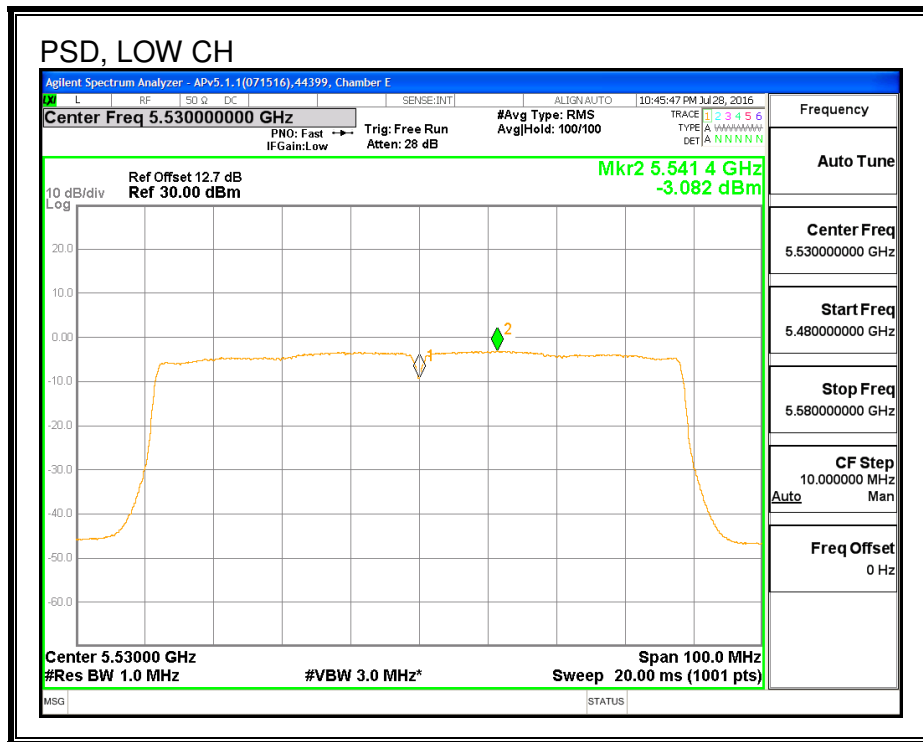
**Output Power Results**

Channel	Frequency (MHz)	Chain 1 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5530	12.45	12.45	24.00	-11.55
Mid	5610	12.40	12.40	24.00	-11.60

**PSD Results**

Channel	Frequency (MHz)	Chain 1 Meas PSD (dBm)	Total Corr'd PSD (dBm)	PSD Limit (dBm)	PSD Margin (dB)
Low	5530	-3.08	-2.86	9.10	-11.96
Mid	5610	0.51	0.73	9.10	-8.37

**PSD**



### 8.63.5. STRADDLE CHANNEL 138 RESULTS (FCC)

#### 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	7.90	7.90	22.10	9.10

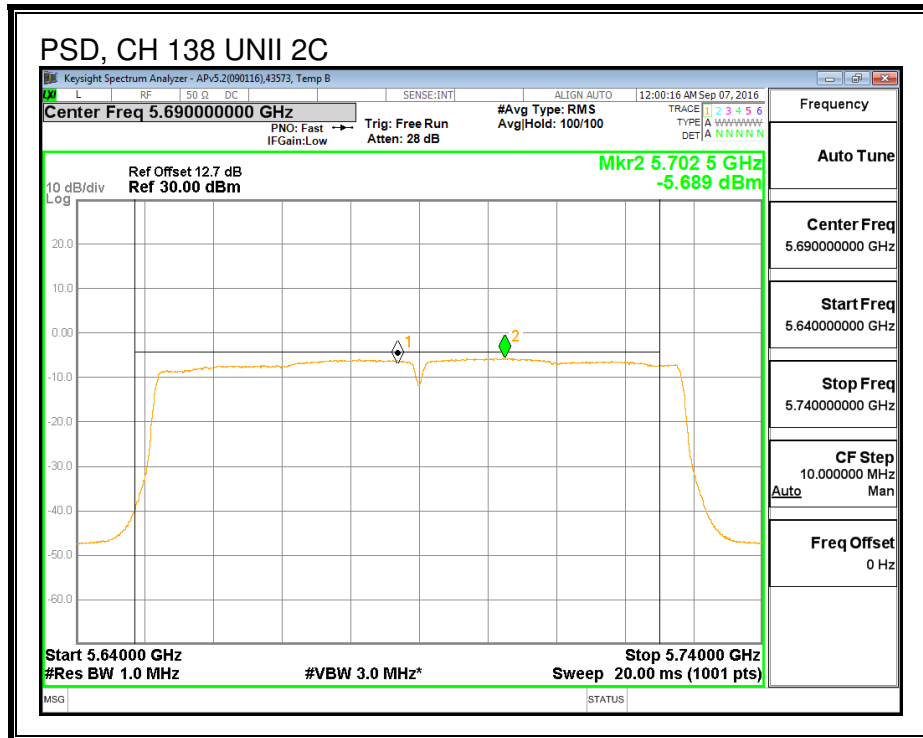
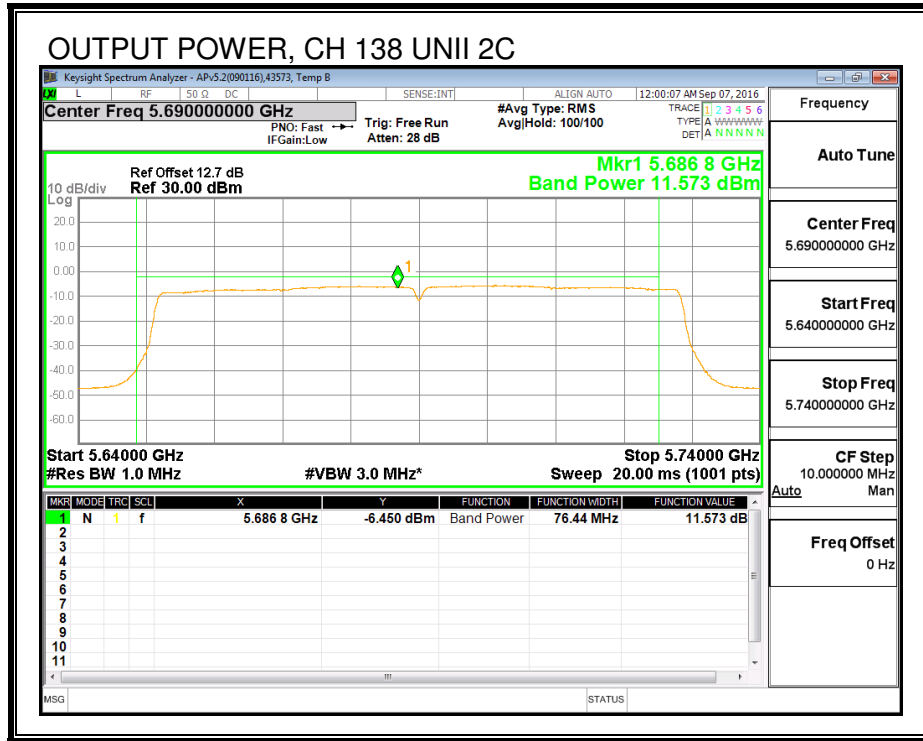
<b>Duty Cycle CF (dB)</b>	0.22	<b>Included in Calculations of Corr'd Power &amp; PSD</b>
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##### Output Power Results

Channel	Frequency (MHz)	Chain 1 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
138	5690	11.57	11.79	22.10	-10.31

##### PSD Results

Channel	Frequency (MHz)	Chain 1 Meas PSD (dBm)	Total Corr'd PSD (dBm)	PSD Limit (dBm)	PSD Margin (dB)
138	5690	-5.69	-5.47	9.10	-14.57



**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	7.90	28.10	28.10

<b>Duty Cycle CF (dB)</b>	0.22	<b>Included in Calculations of Corr'd Power &amp; PSD</b>
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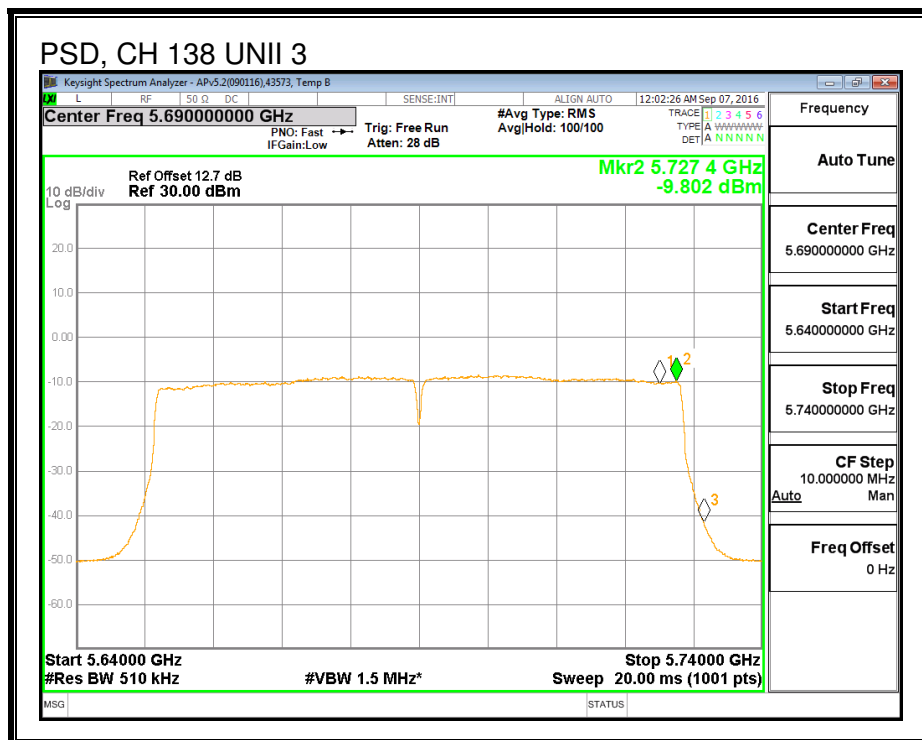
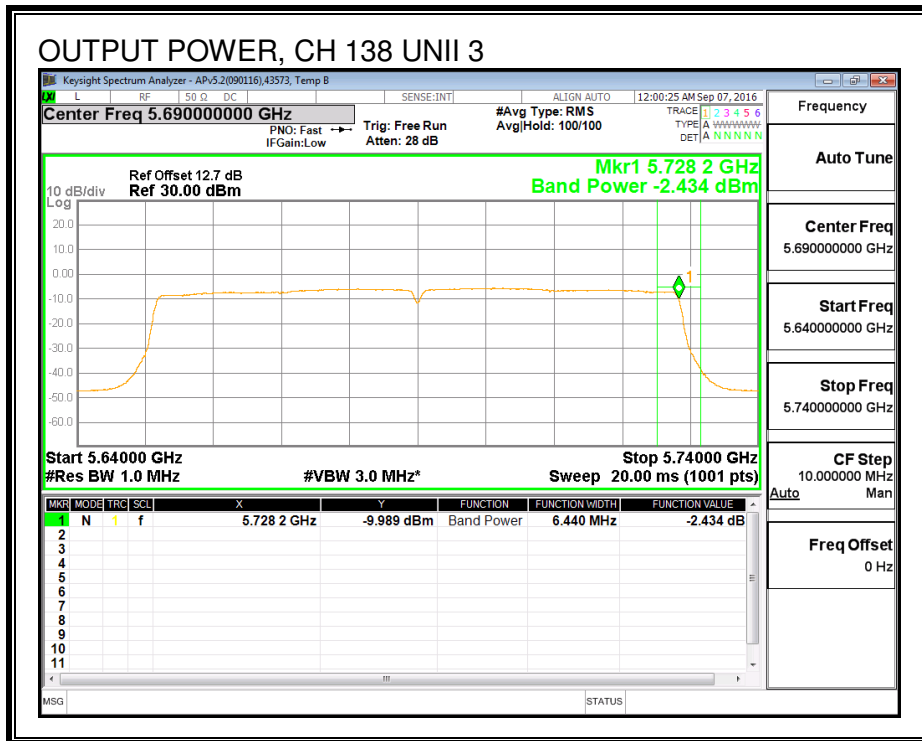
**Output Power Results**

Channel	Frequency (MHz)	Chain 1 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
138	5690	-2.43	-2.21	28.10	-30.31

**PSD Results**

Channel	Frequency (MHz)	Chain 1 Meas PSD (dBm)	Total Corr'd PSD (dBm)	PSD Limit (dBm)	PSD Margin (dB)
138	5690	-9.80	-9.58	28.10	-37.68





### 8.63.6. STRADDLE CHANNEL 138 RESULTS (IC)

#### 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)
138	5690	72.87	7.90	7.90	22.10	9.10

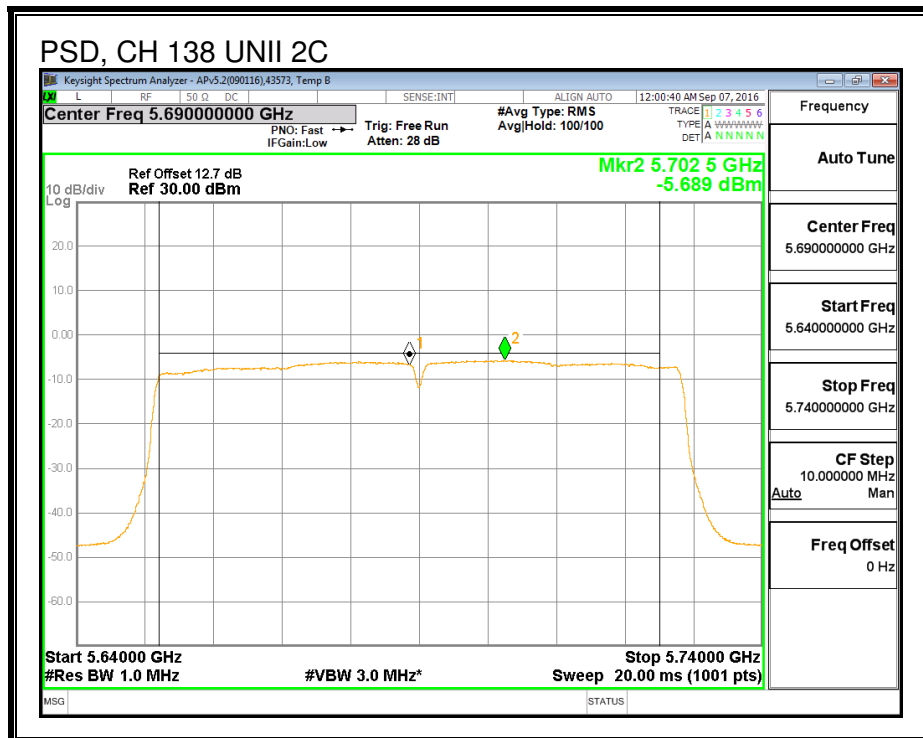
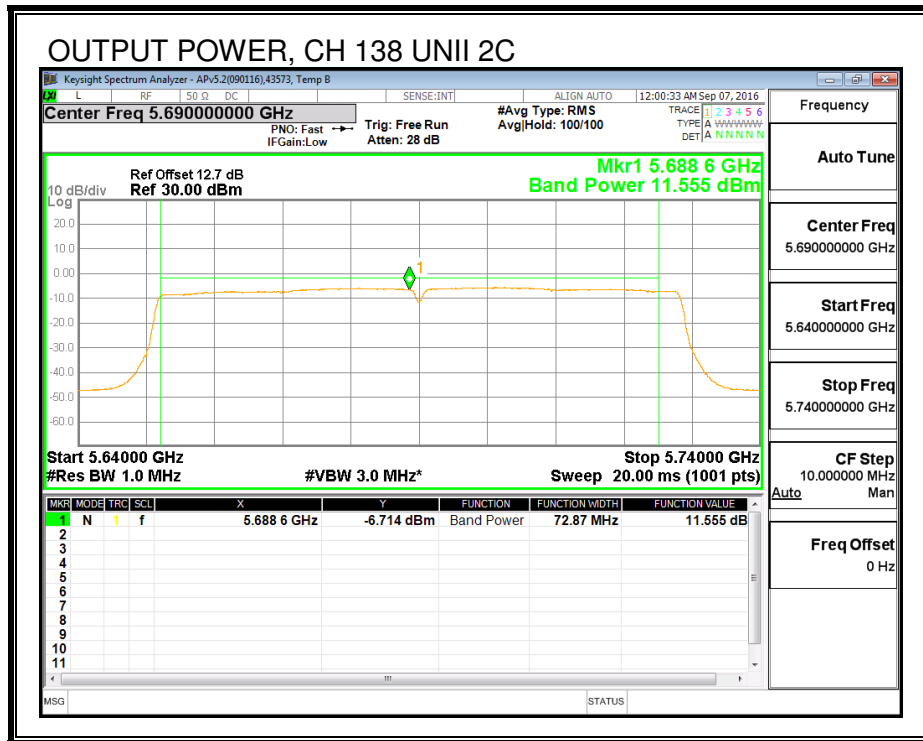
<b>Duty Cycle CF (dB)</b>	0.22	<b>Included in Calculations of Corr'd Power &amp; PSD</b>
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##### Output Power Results

Channel	Frequency (MHz)	Chain 1 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
138	5690	11.55	11.77	22.10	-10.33

##### PSD Results

Channel	Frequency (MHz)	Chain 1 Meas PSD (dBm)	Total Corr'd PSD (dBm)	PSD Limit (dBm)	PSD Margin (dB)
138	5690	-5.69	-5.47	9.10	-14.57



**UNII-3 BAND**

**Antenna Gain and Limit**

Channel	Frequency (MHz)	Min 99% BW (MHz)	Directional Gain (dBi)	Power Limit (dBm)	PSD Limit (dBm)
138	5690	2.87	7.90	28.10	28.10

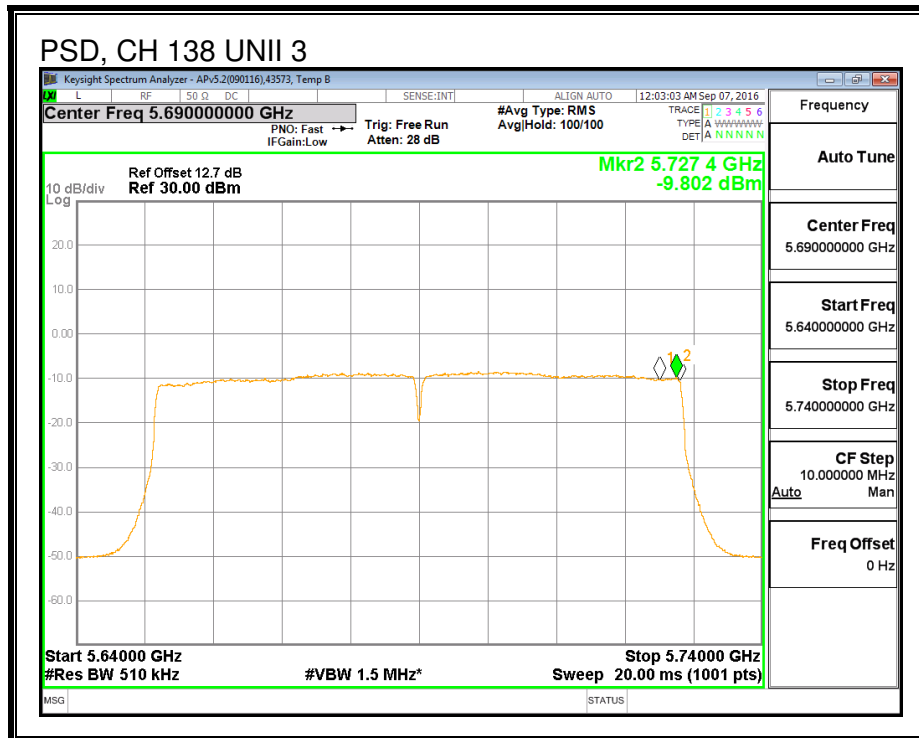
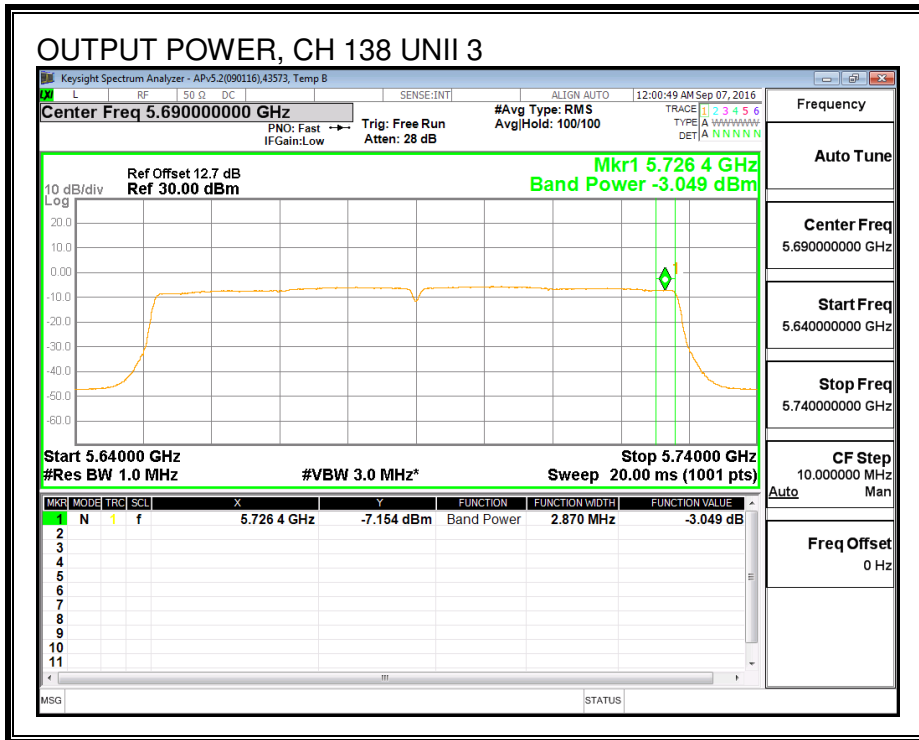
<b>Duty Cycle CF (dB)</b>	0.22	<b>Included in Calculations of Corr'd Power &amp; PSD</b>
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**Output Power Results**

Channel	Frequency (MHz)	Chain 1 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
138	5690	-3.05	-2.83	28.10	-30.93

**PSD Results**

Channel	Frequency (MHz)	Chain 1 Meas PSD (dBm)	Total Corr'd PSD (dBm)	PSD Limit (dBm)	PSD Margin (dB)
138	5690	-9.80	-9.58	28.10	-37.68



### 8.63.7. 6 dB BANDWIDTH

#### LIMITS

FCC §15.407 (e)

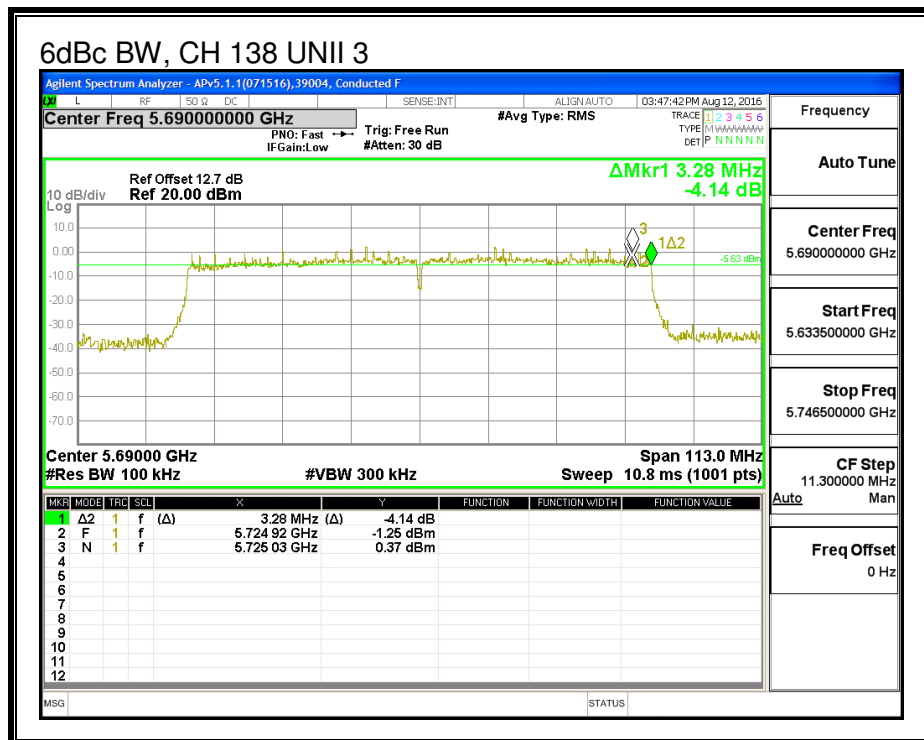
IC RSS-247 (6.2.4) (1)

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

#### RESULTS

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)
High	5690	3.28

#### 6 dB BANDWIDTH



**8.64. 802.11ac VHT80 2Tx CDD MODE IN THE 5.6 GHz BAND (5610MHz for FCC only)**

**8.64.1. 26 dB BANDWIDTH**

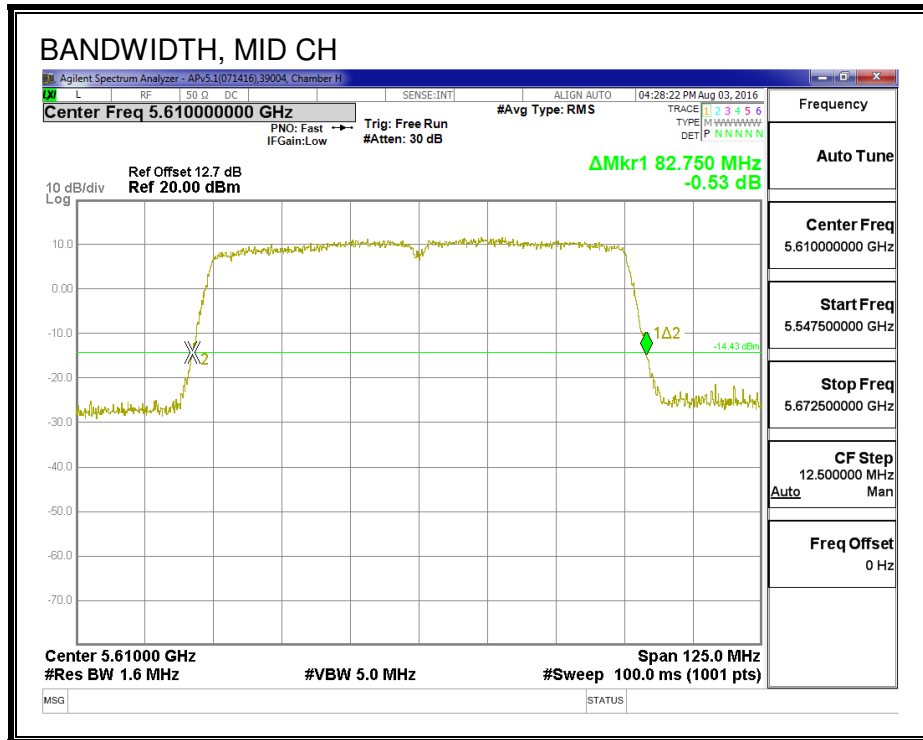
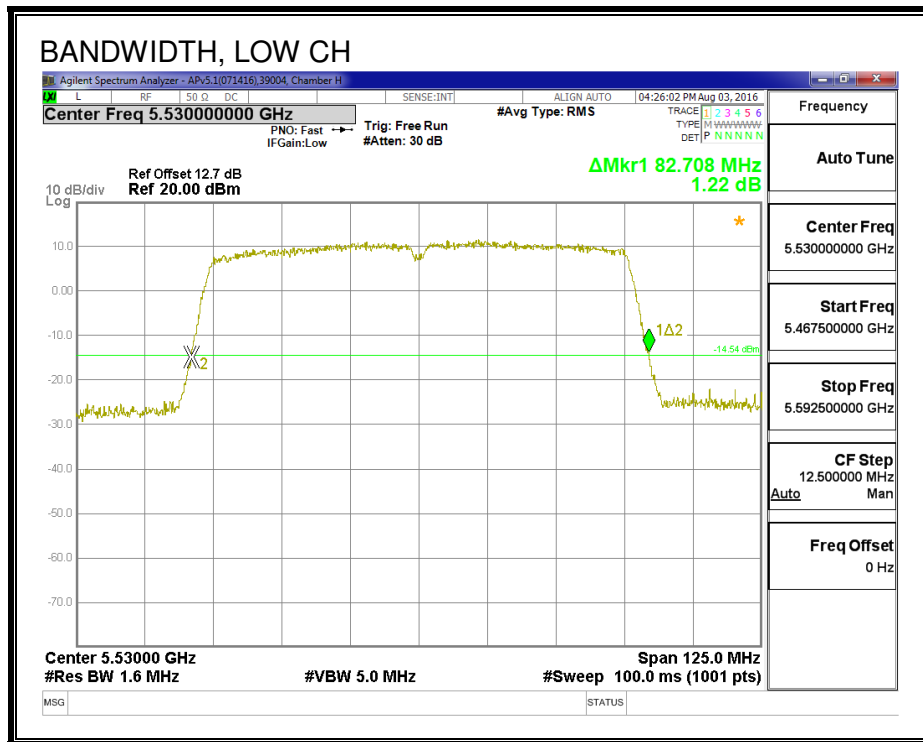
**LIMITS**

None; for reporting purposes only.

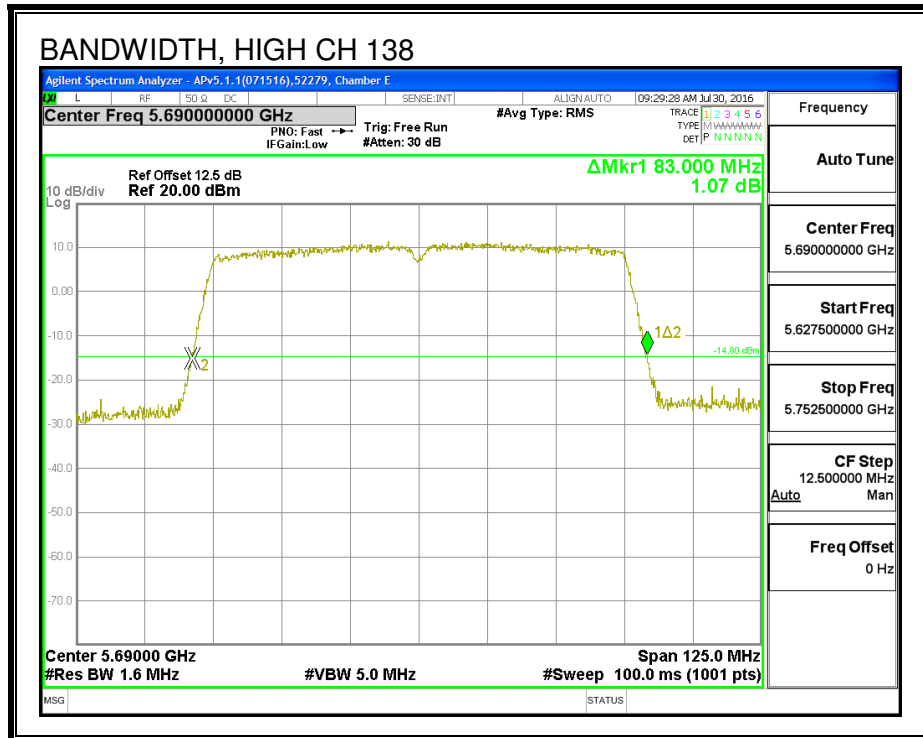
**RESULTS**

Channel	Frequency (MHz)	26 dB BW Chain 0 (MHz)	26 dB BW Chain 1 (MHz)
Low	5530	82.71	82.75
Mid	5610	82.75	82.75
High	5690	83.00	82.46

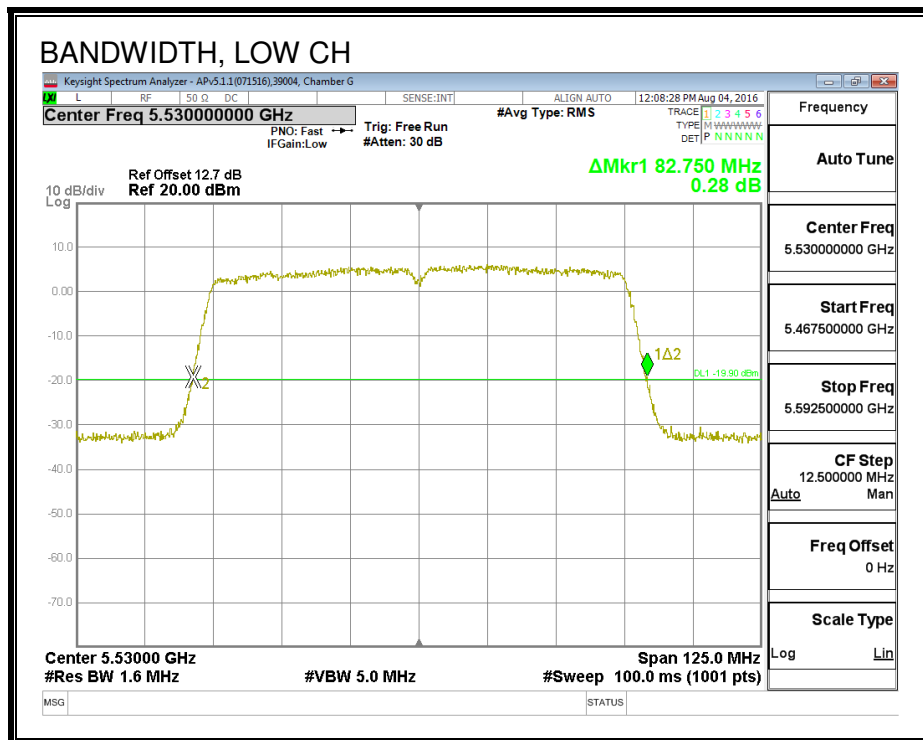
**26 dB BANDWIDTH, CHAIN 0**

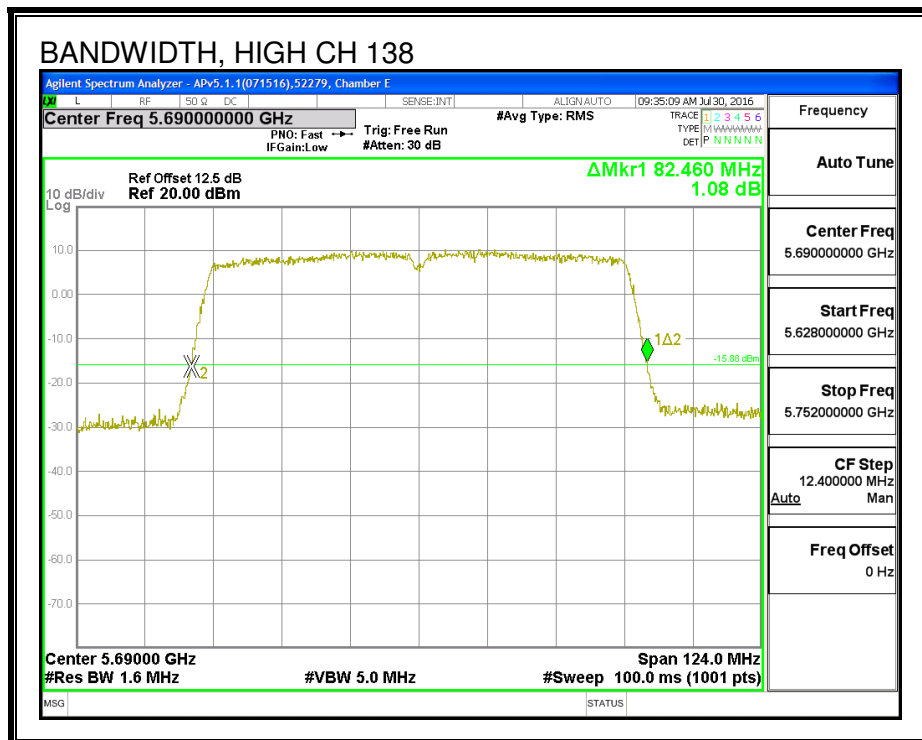
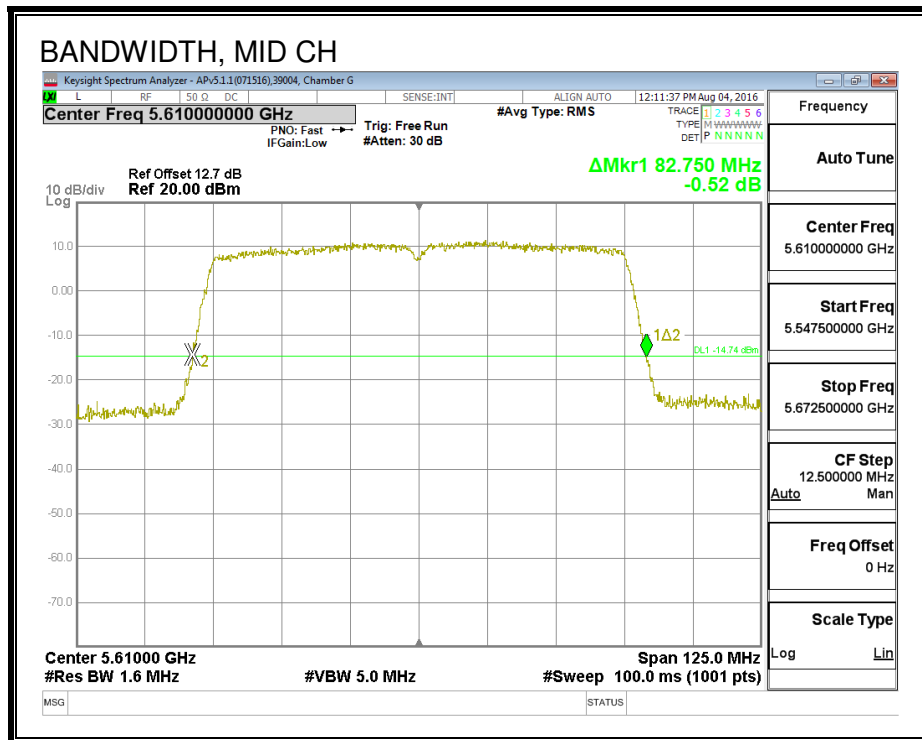






**26 dB BANDWIDTH, CHAIN 1**





### 8.64.2. 99% BANDWIDTH

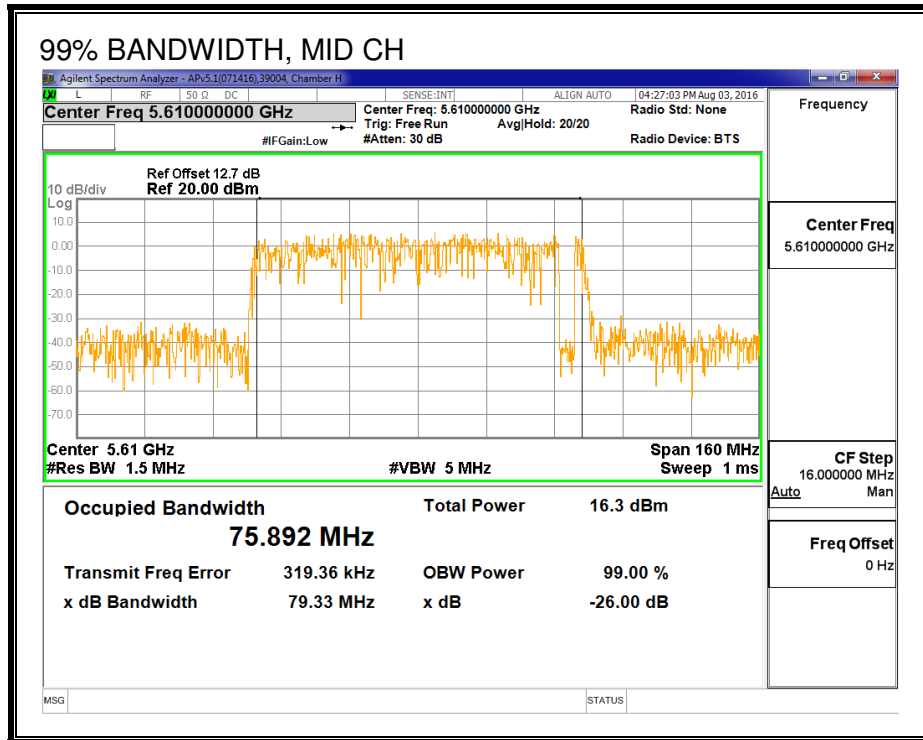
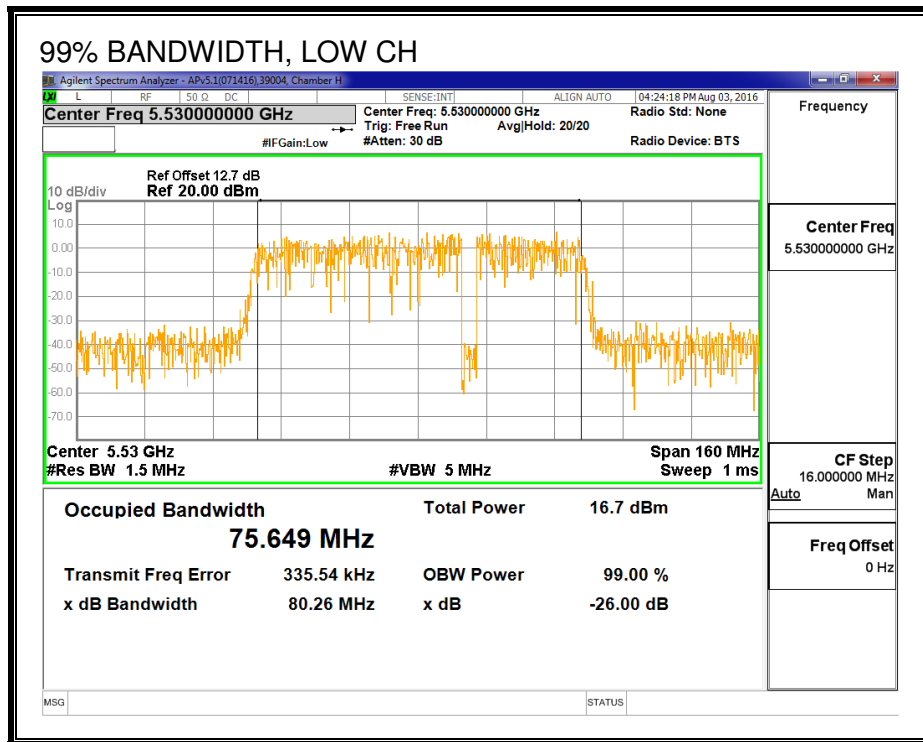
#### LIMITS

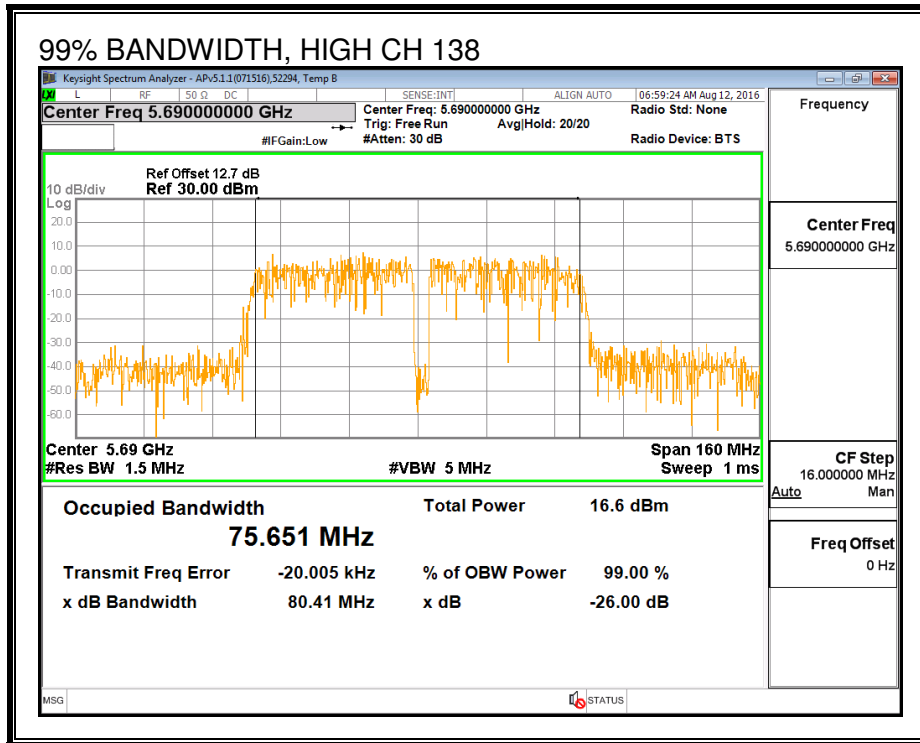
None; for reporting purposes only.

#### RESULTS

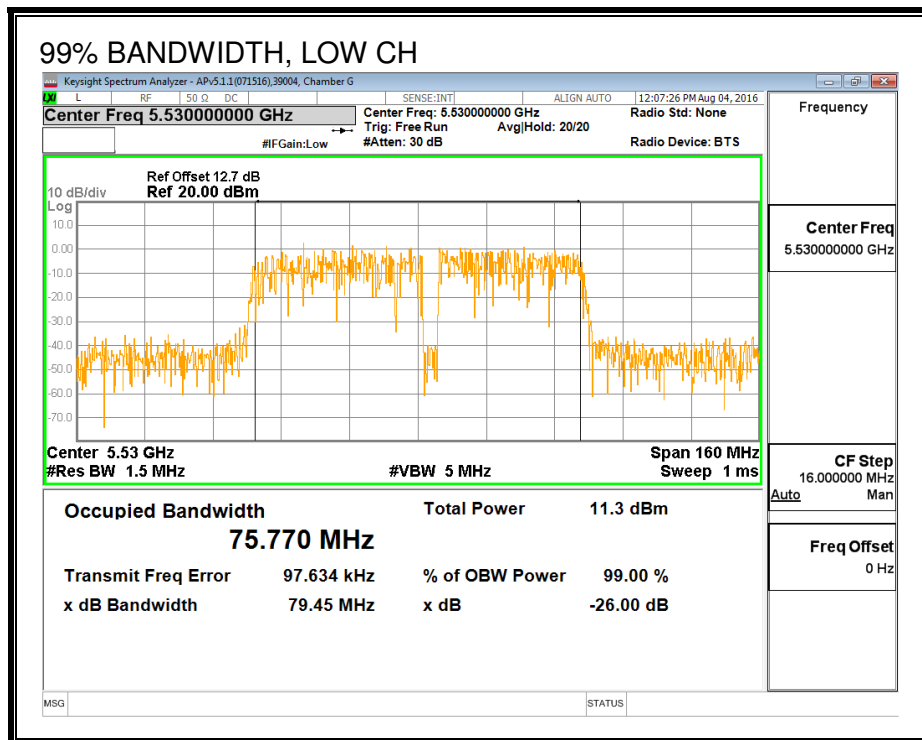
Channel	Frequency (MHz)	99% BW Chain 0 (MHz)	99% BW Chain 1 (MHz)
Low	5530	75.649	75.770
Mid	5610	75.892	75.678
High	5690	75.651	75.174

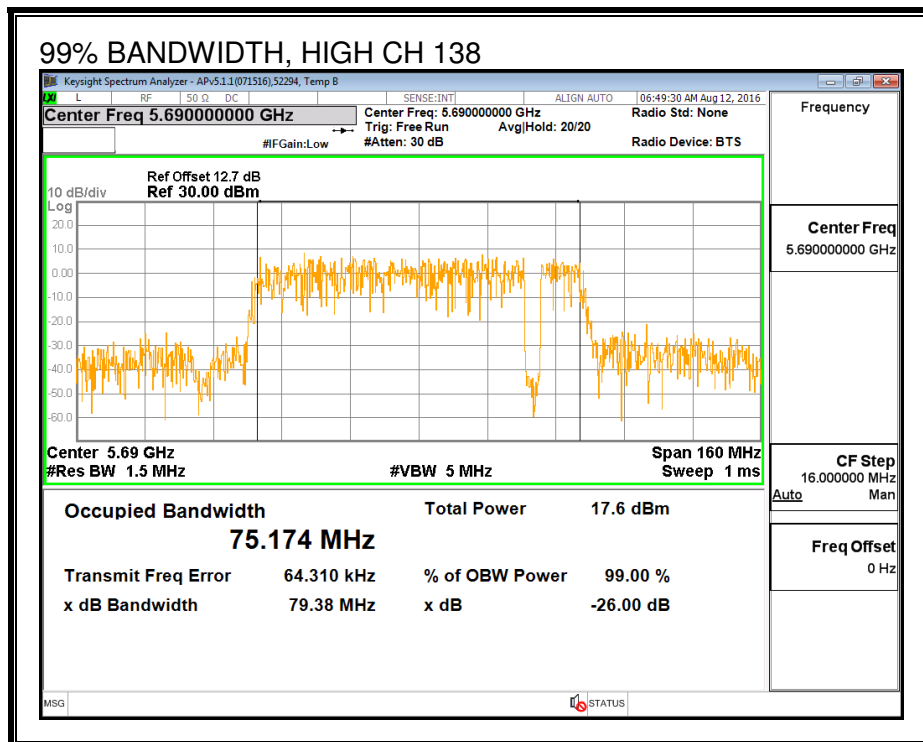
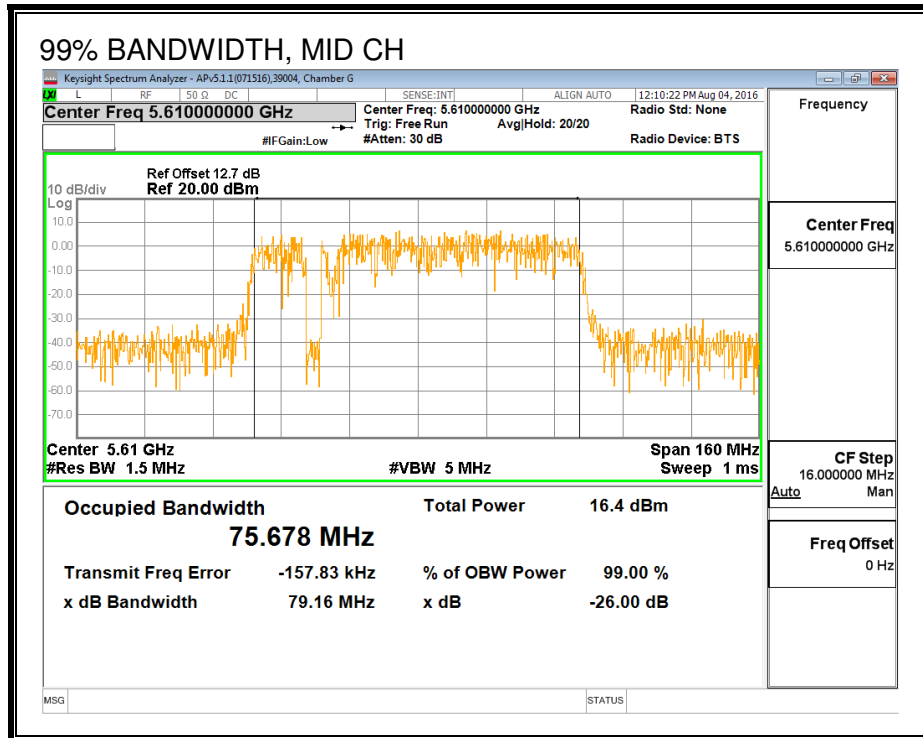
**99% BANDWIDTH, CHAIN 0**





**99% BANDWIDTH, CHAIN 1**





### 8.64.3. 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)	Chain 0 Power (dBm)	Chain 1 Power (dBm)	Total Power (dBm)
Low	5530	10.79	10.72	13.76
Mid	5610	12.45	12.39	15.43
High	5690	12.42	12.37	15.41

#### 8.64.4. 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	5530	82.71	75.65	7.21	10.19	24.00	6.81
High	5610	82.75	75.68	7.21	10.19	24.00	6.81

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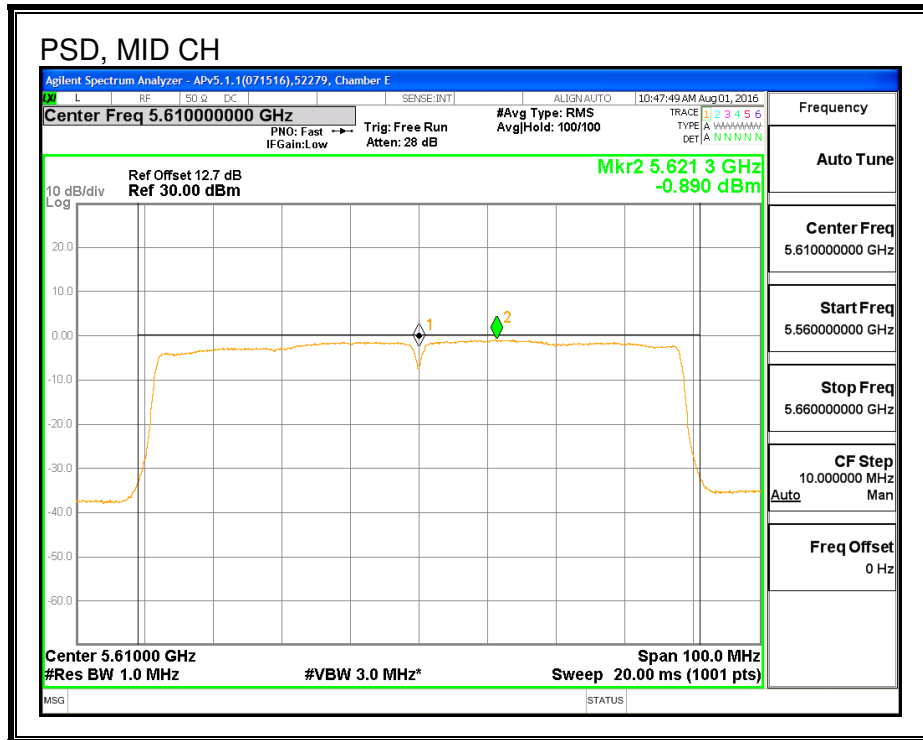
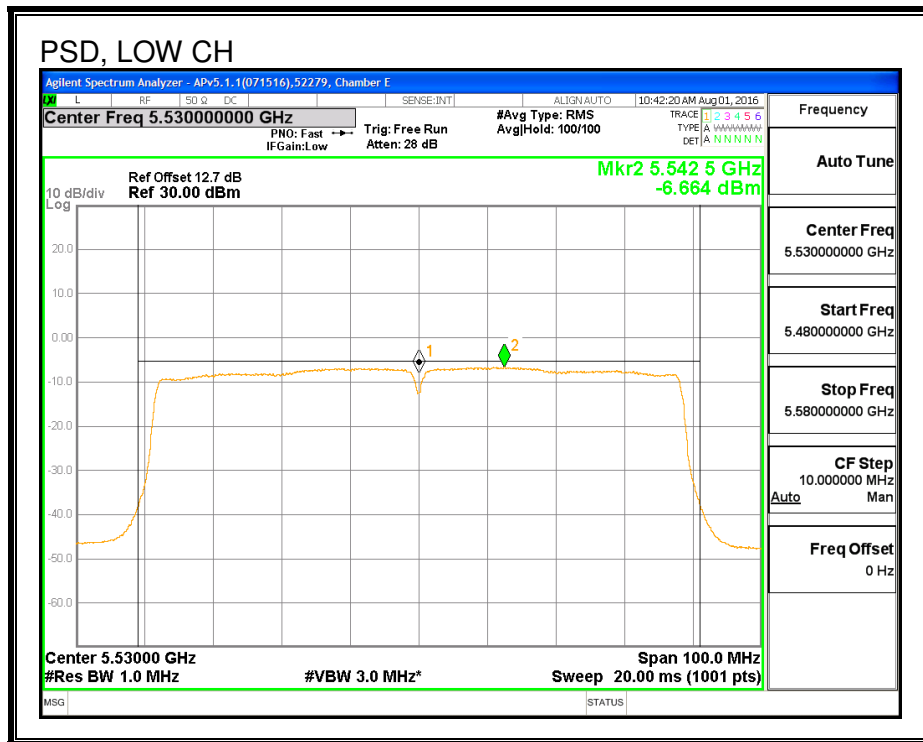
**Output Power Results**

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Chain 1 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5530	10.79	10.72	13.76	24.00	-10.24
High	5610	12.45	12.39	15.43	24.00	-8.57

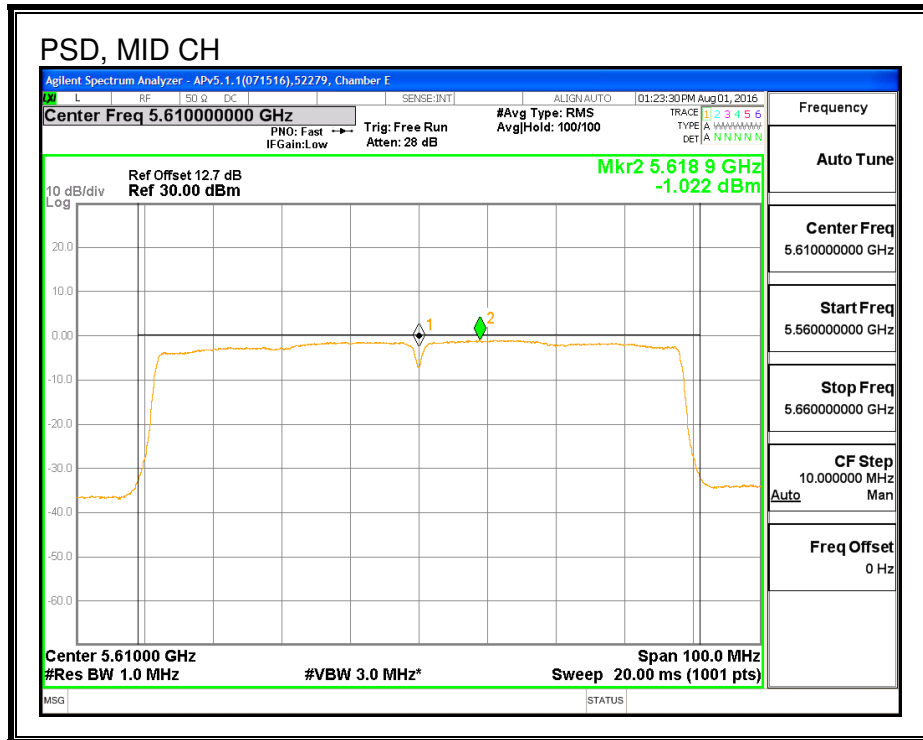
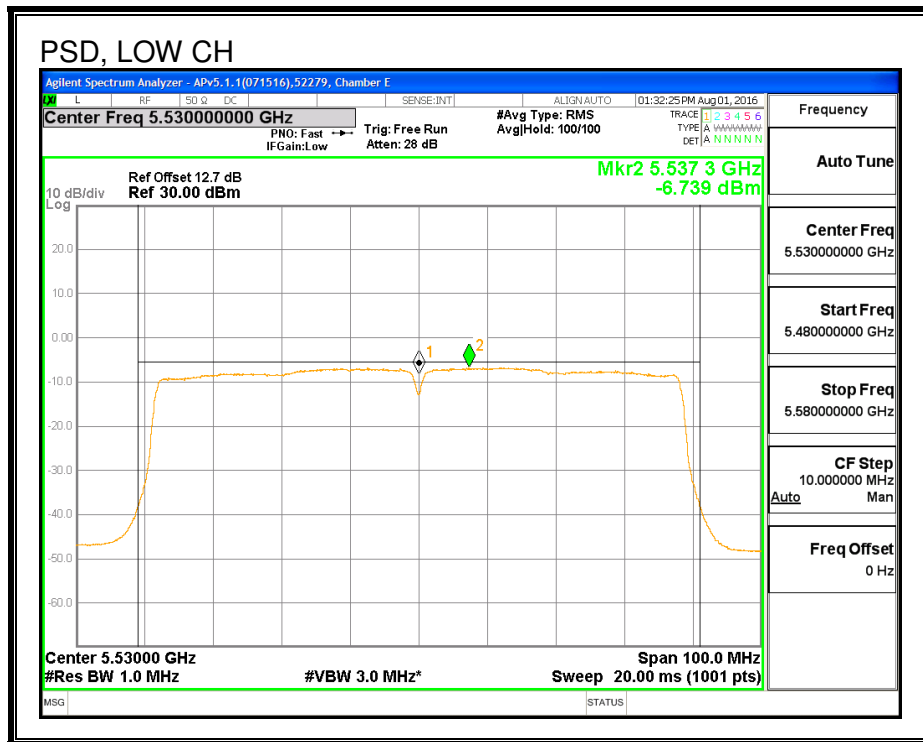
**PSD Results**

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	5530	-6.66	-6.74	-3.48	6.81	-10.29
High	5610	-0.89	-1.02	2.26	6.81	-4.55

**PSD, CHAIN 0**



**PSD, CHAIN 1**



### 8.64.5. STRADDLE CHANNEL 138 RESULTS (FCC)

#### 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	76.23	7.21	10.19	22.79	6.81

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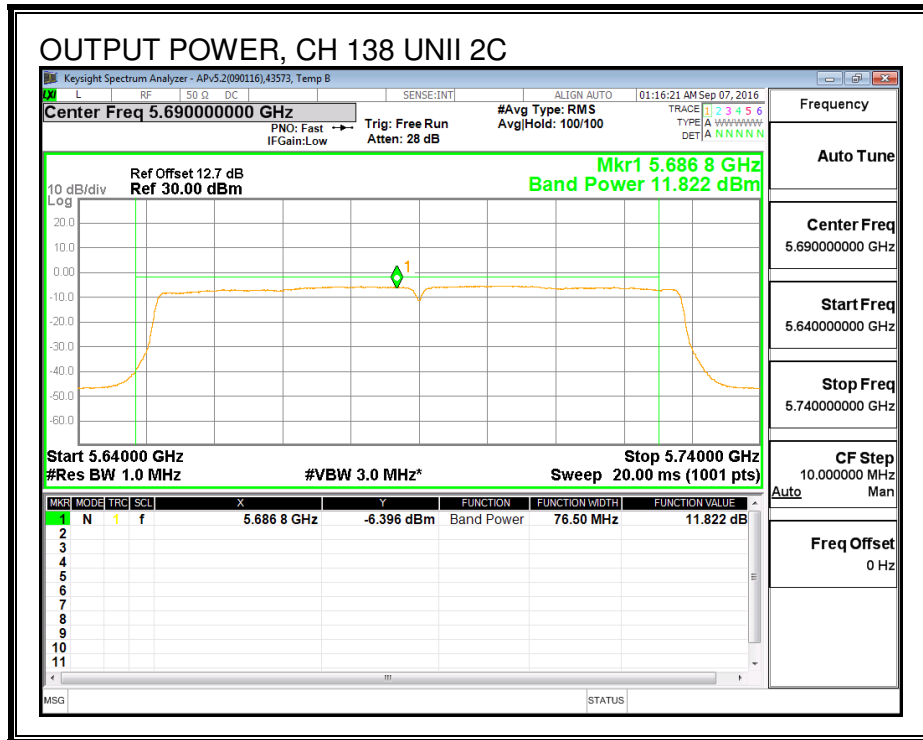
##### Output Power Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Chain 1 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
138	5690	11.82	11.81	15.03	22.79	-7.76

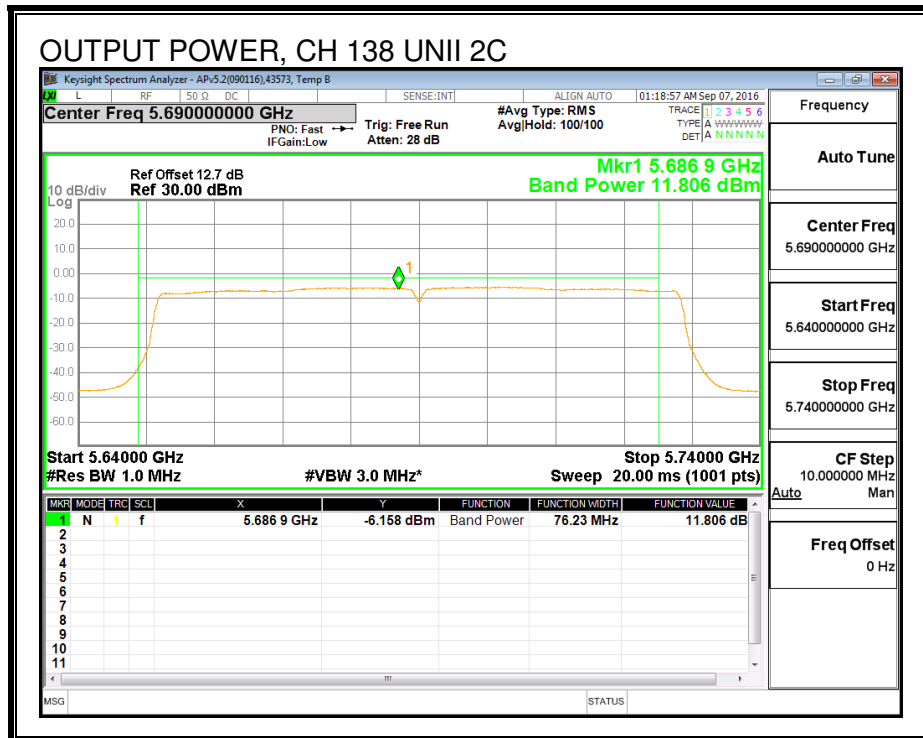
##### PSD Results

Channel	Frequency (MHz)	Chain 0 Meas PSD (dBm)	Chain 1 Meas PSD (dBm)	Total Corr'd PSD (dBm)	PSD Limit (dBm)	PSD Margin (dB)
138	5690	-5.45	-5.61	-2.31	6.81	-9.12

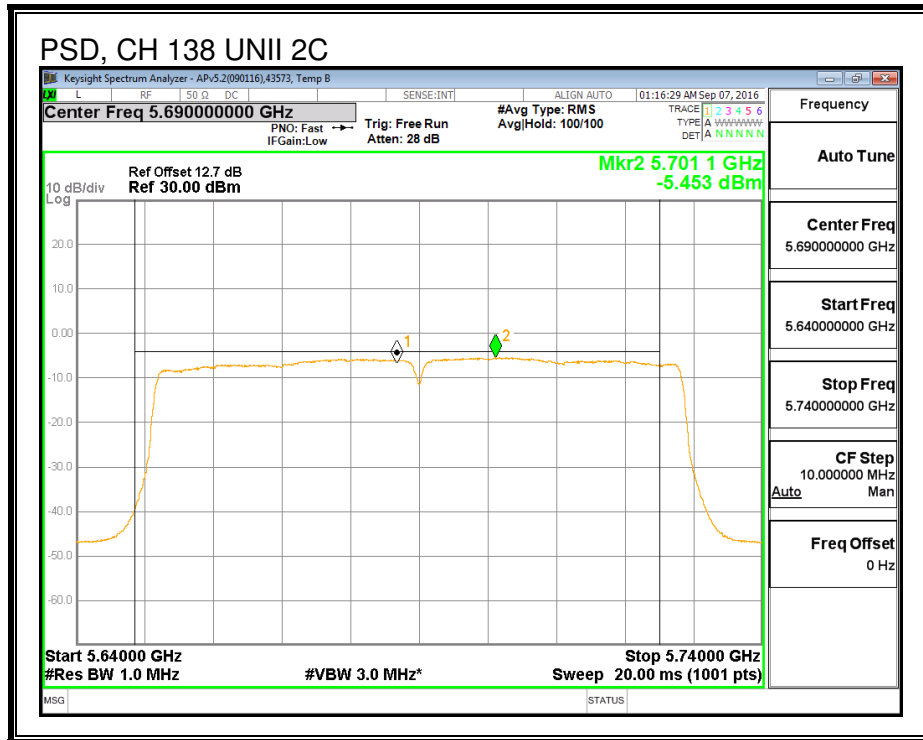
**OUTPUT POWER, CHAIN 0**



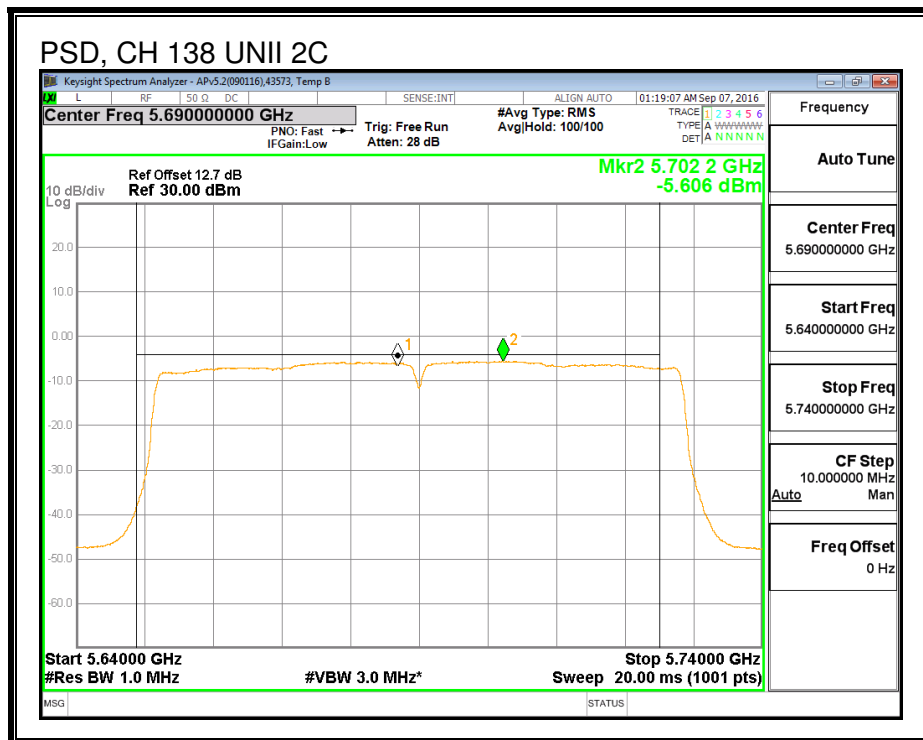
**OUTPUT POWER, CHAIN 1**



**PSD, CHAIN 0**



**PSD, CHAIN 1**



**UNII-3 BAND**

**Antenna Gain and Limit**

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Directional Gain (dBi)	Directional Gain (dBi)	Power Limit (dBm)	PSD Limit (dBm)
138	5690	6.23	7.21	10.19	28.79	25.81

<b>Duty Cycle CF (dB)</b>	0.22	<b>Included in Calculations of Corr'd Power &amp; PSD</b>
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**Output Power Results**

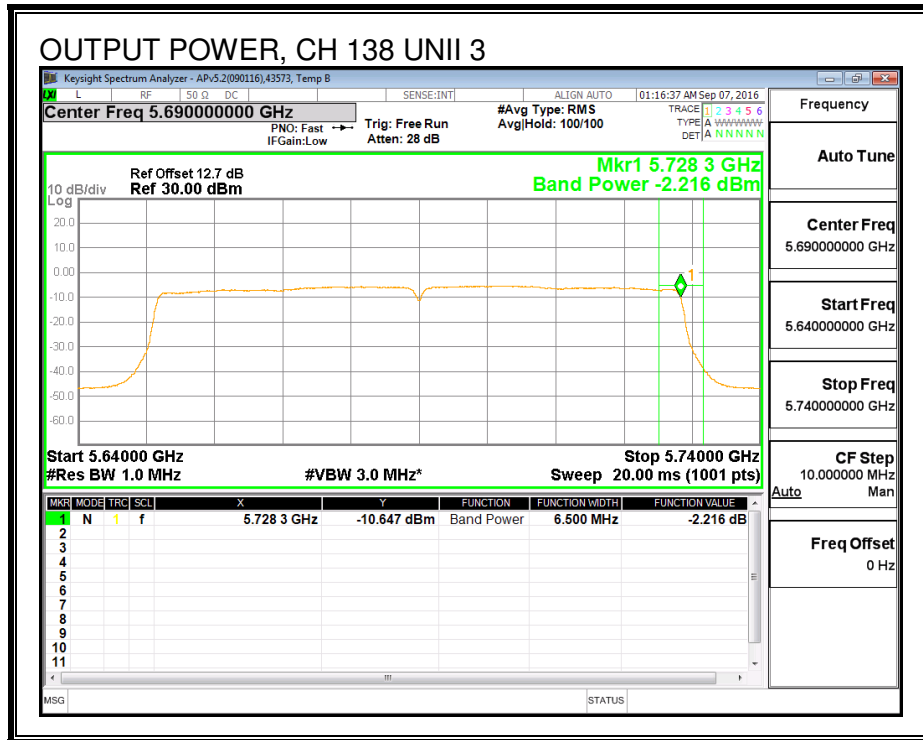
Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Chain 1 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
138	5690	-2.22	-2.35	0.95	28.79	-27.84

**PSD Results**

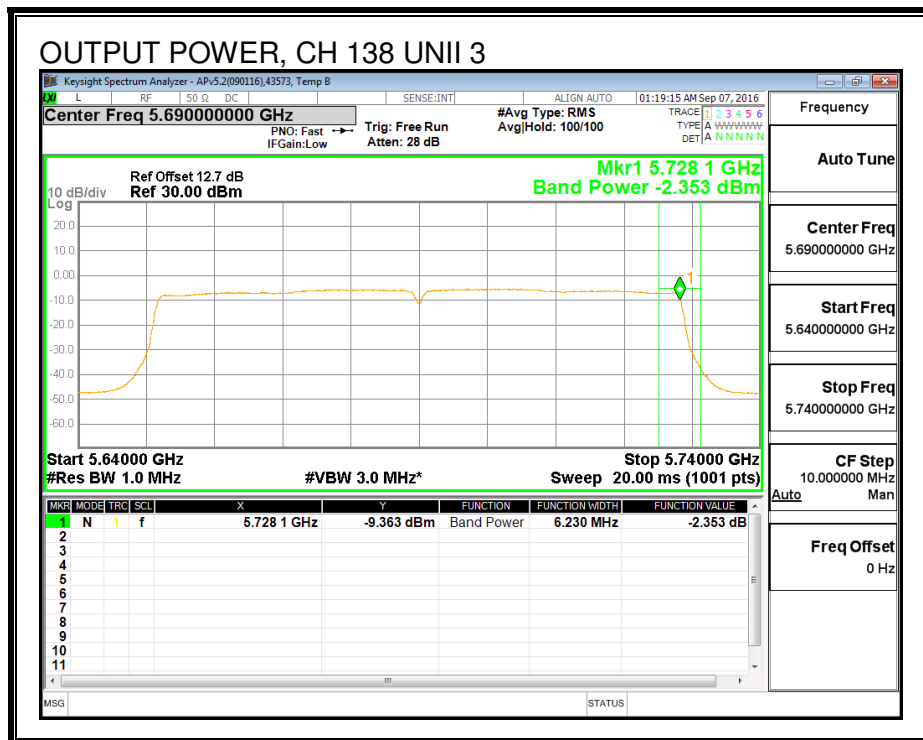
Channel	Frequency (MHz)	Chain 0 Meas PSD (dBm)	Chain 1 Meas PSD (dBm)	Total Corr'd PSD (dBm)	PSD Limit (dBm)	PSD Margin (dB)
138	5690	-9.58	-9.81	-6.47	25.81	-32.28



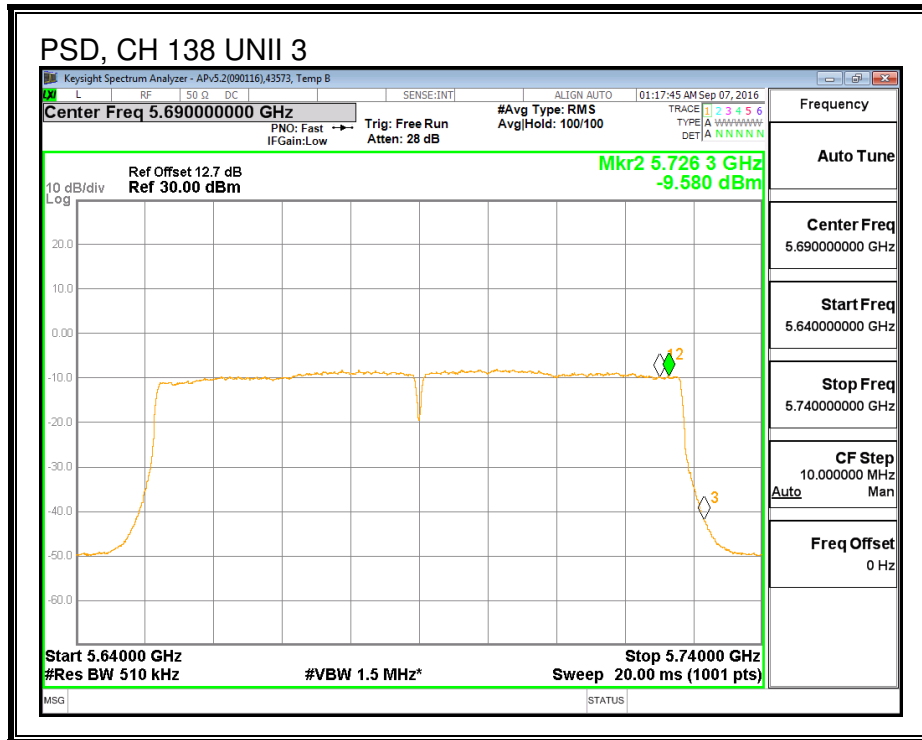
**OUTPUT POWER, CHAIN 0**



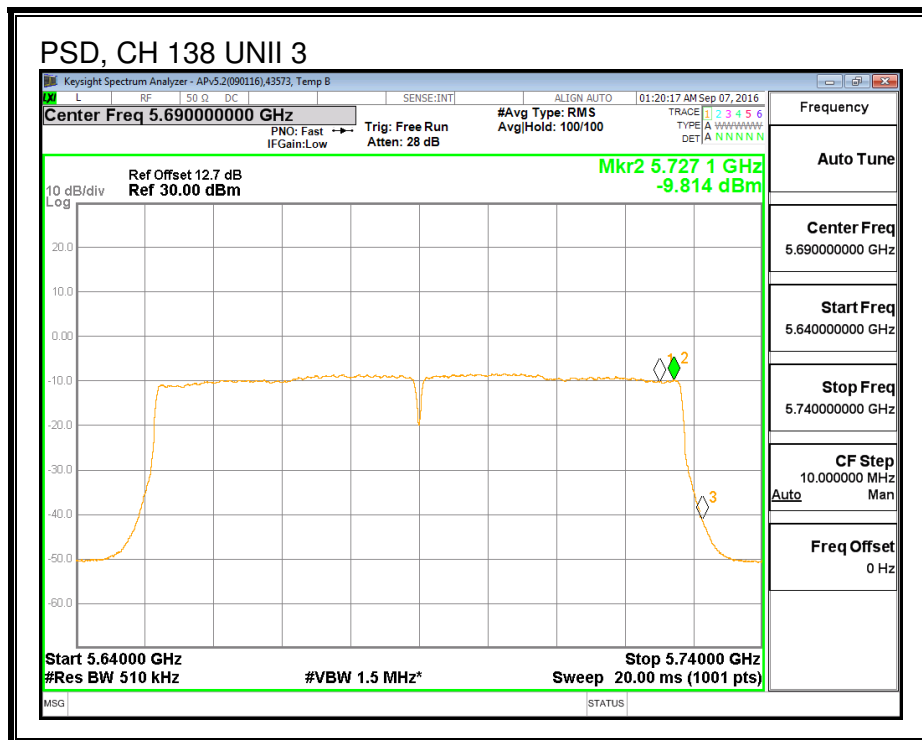
**OUTPUT POWER, CHAIN 1**



**PSD, CHAIN 0**



**PSD, CHAIN 1**



### 8.64.6. STRADDLE CHANNEL 138 RESULTS (IC)

#### 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)
138	5690	72.59	7.21	10.19	22.79	6.81

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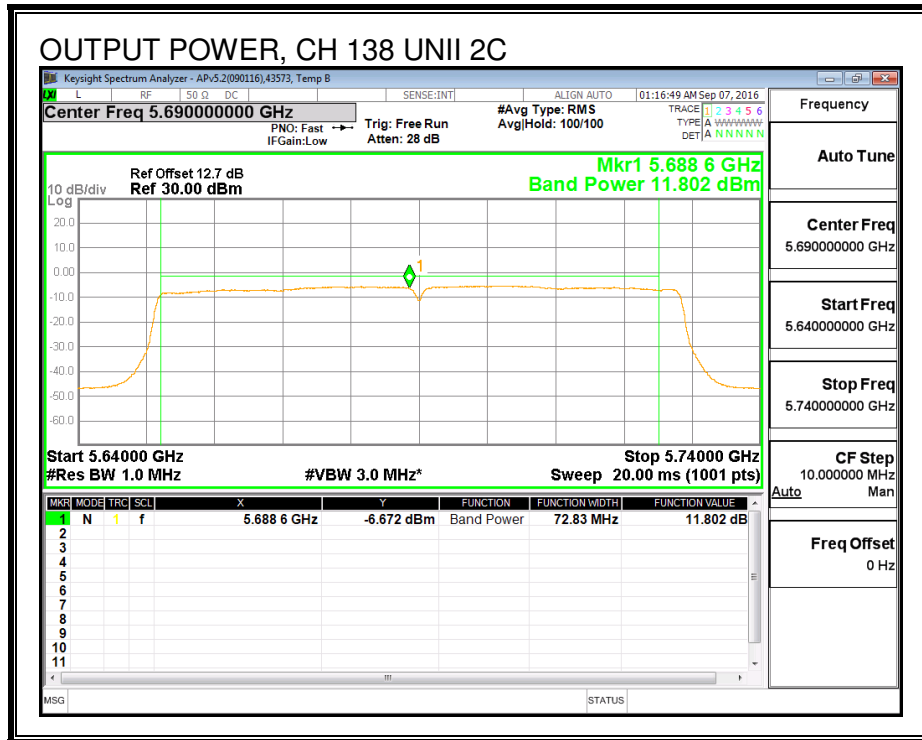
##### Output Power Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Chain 1 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
138	5690	11.80	11.78	15.01	22.79	-7.78

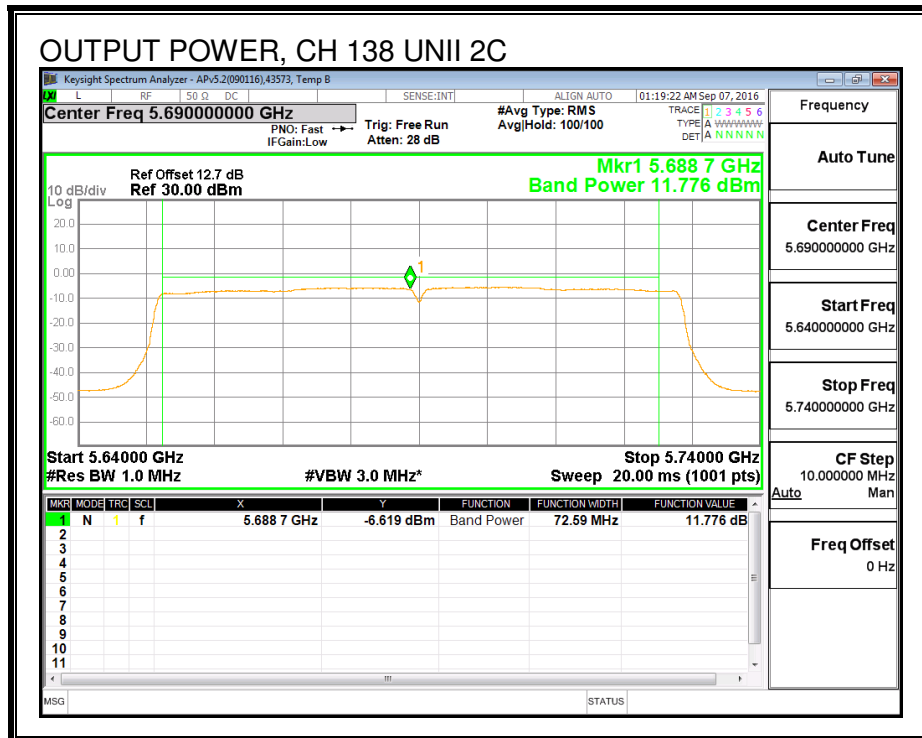
##### PSD Results

Channel	Frequency (MHz)	Chain 0 Meas PSD (dBm)	Chain 1 Meas PSD (dBm)	Total Corr'd PSD (dBm)	PSD Limit (dBm)	PSD Margin (dB)
138	5690	-5.45	-5.61	-2.31	6.81	-9.12

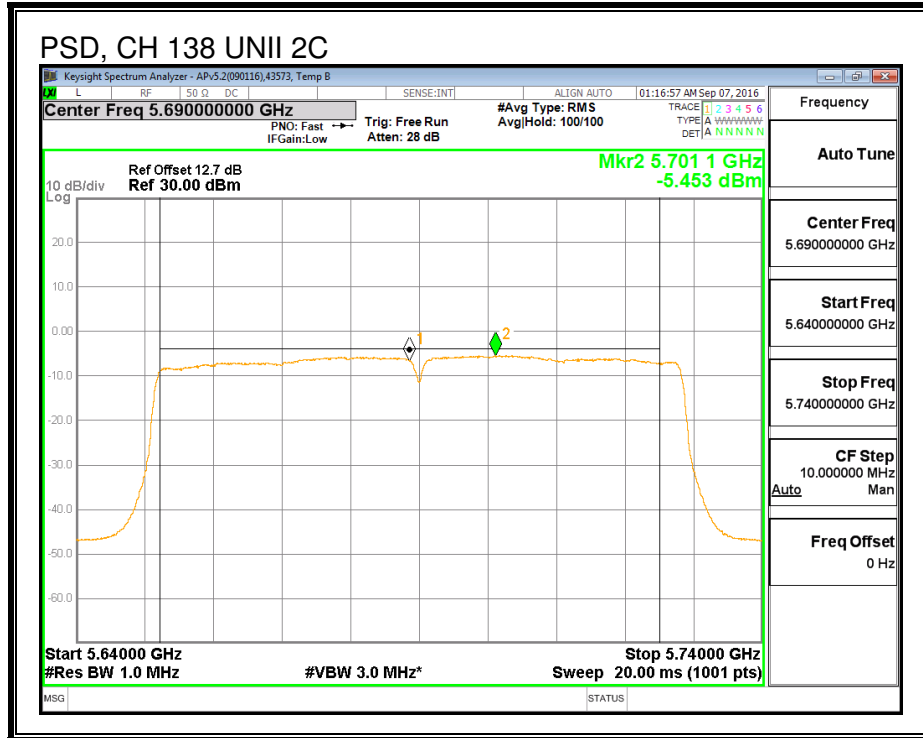
**OUTPUT POWER, CHAIN 0**



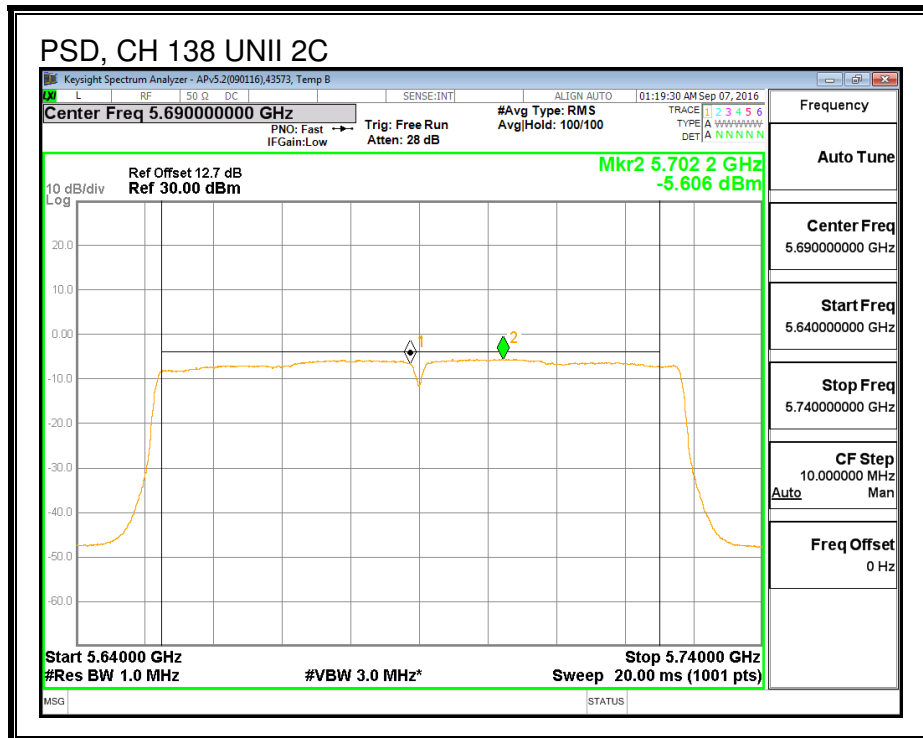
**OUTPUT POWER, CHAIN 1**



**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)
138	5690	2.59	7.21	10.19	28.79	25.81

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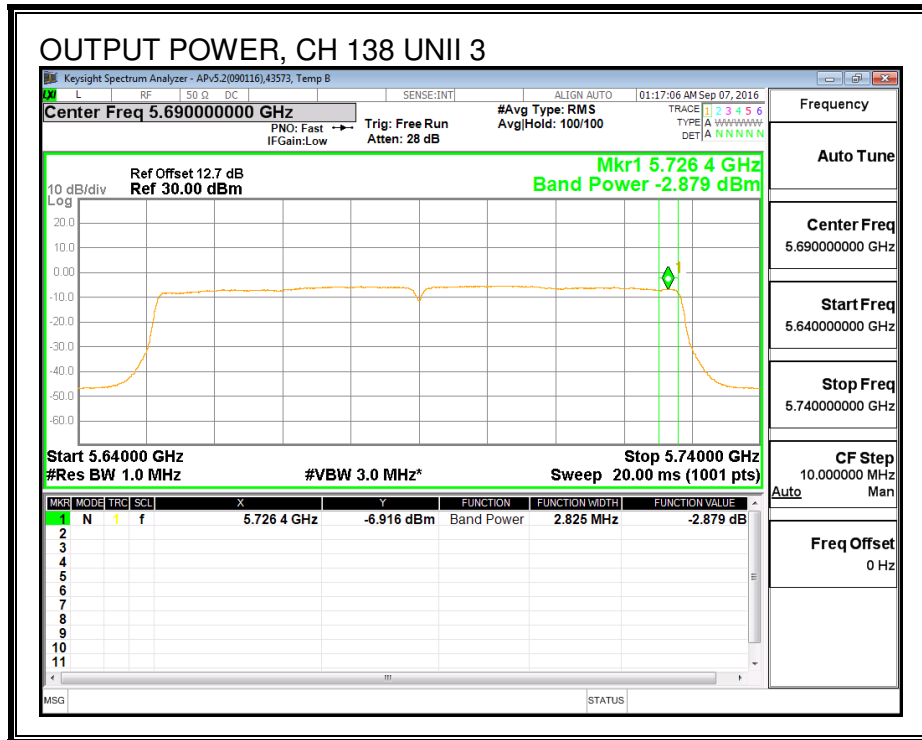
**Output Power Results**

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Chain 1 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
138	5690	-2.88	-3.36	0.11	28.79	-28.68

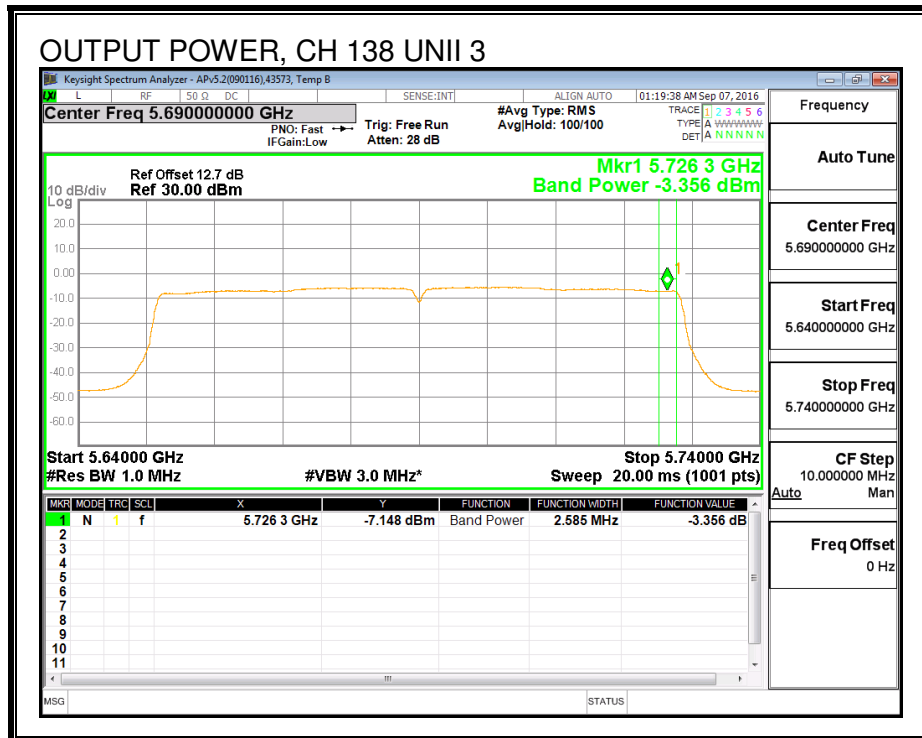
**PSD Results**

Channel	Frequency (MHz)	Chain 0 Meas PSD (dBm)	Chain 1 Meas PSD (dBm)	Total Corr'd PSD (dBm)	PSD Limit (dBm)	PSD Margin (dB)
138	5690	-9.58	-9.81	-6.48	25.81	-32.29

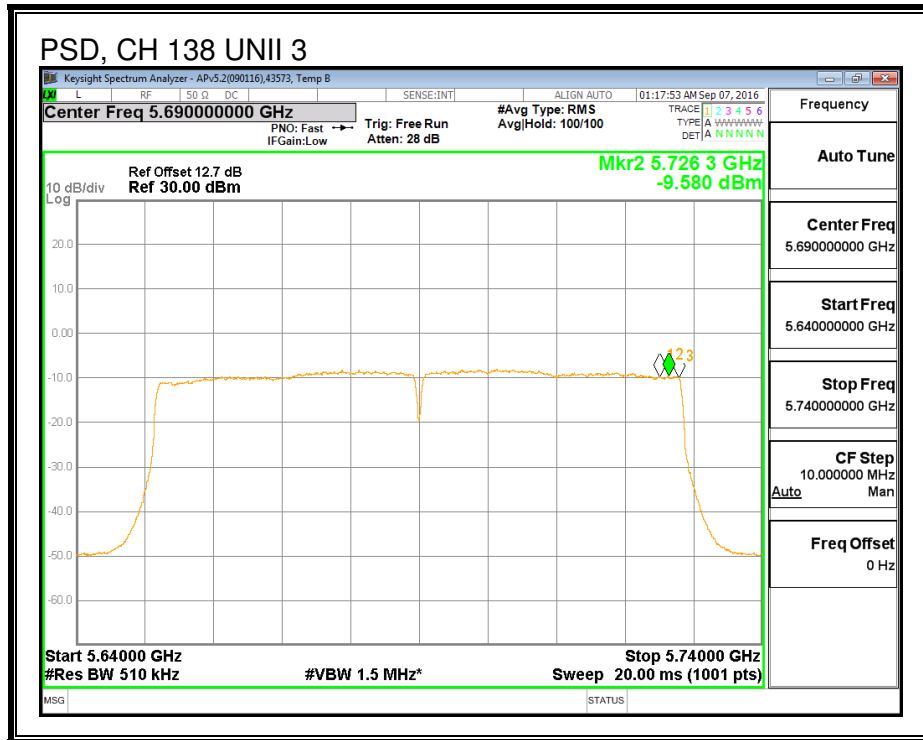
**OUTPUT POWER, CHAIN 0**



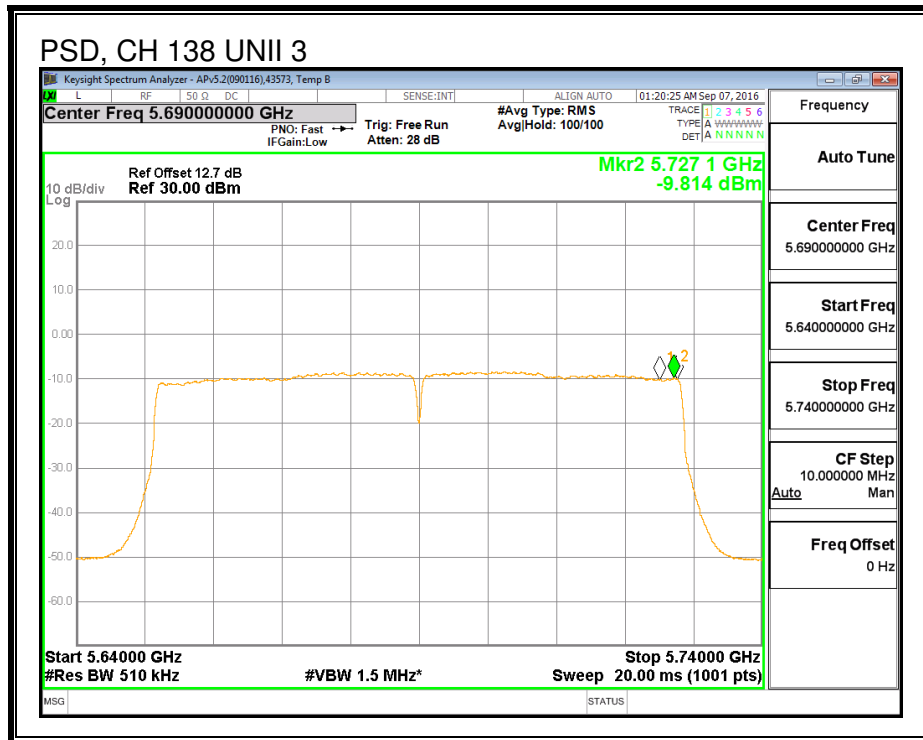
**OUTPUT POWER, CHAIN 1**



**PSD, CHAIN 0**



**PSD, CHAIN 1**





### 8.64.7. 6 dB BANDWIDTH

#### LIMITS

FCC §15.407 (e)

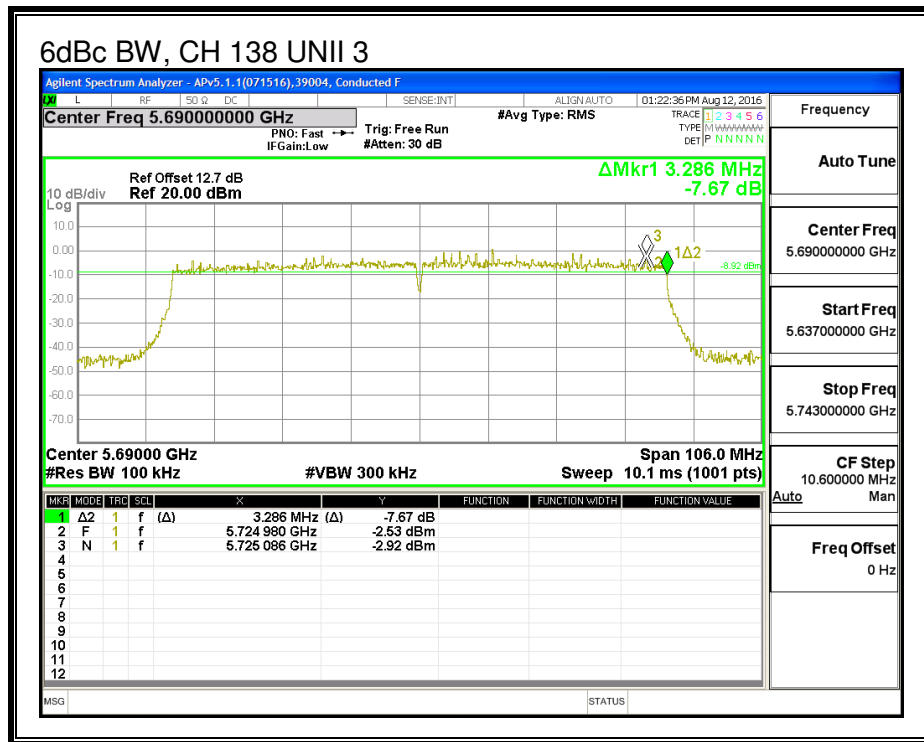
IC RSS-247 (6.2.4) (1)

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

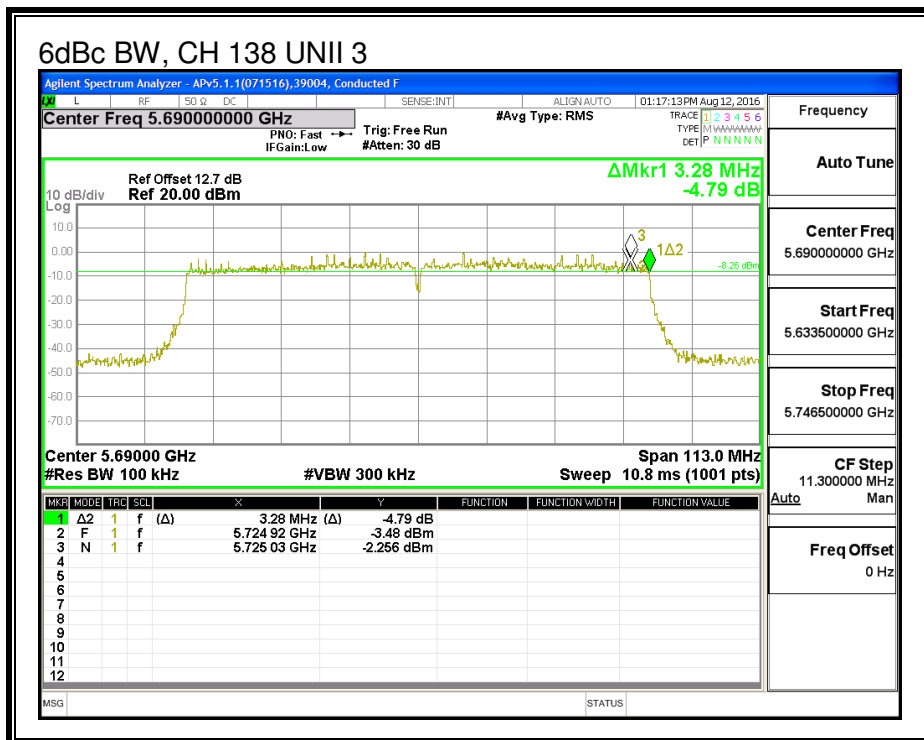
#### RESULTS

Channel	Frequency (MHz)	6 dB BW Chain 0 (MHz)	6 dB BW Chain 1 (MHz)
High	5690	3.29	3.28

**CHAIN 0**



**CHAIN 1**



**8.65. 802.11ac VHT80 2Tx STBC MODE IN THE 5.6 GHz BAND (5610MHz for FCC only)**

**8.65.1. 26 dB BANDWIDTH**

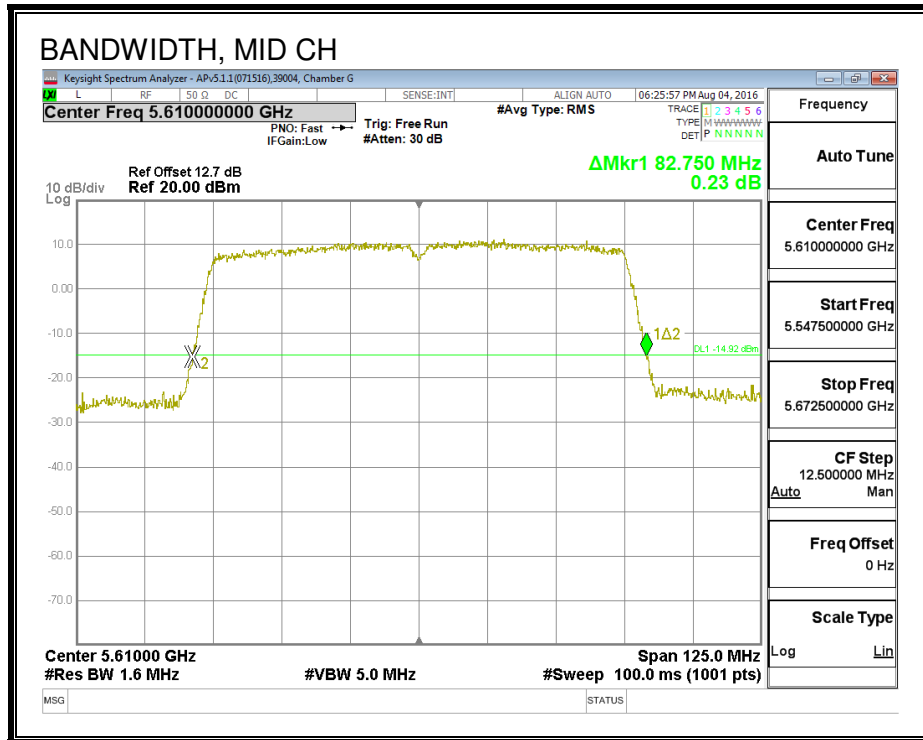
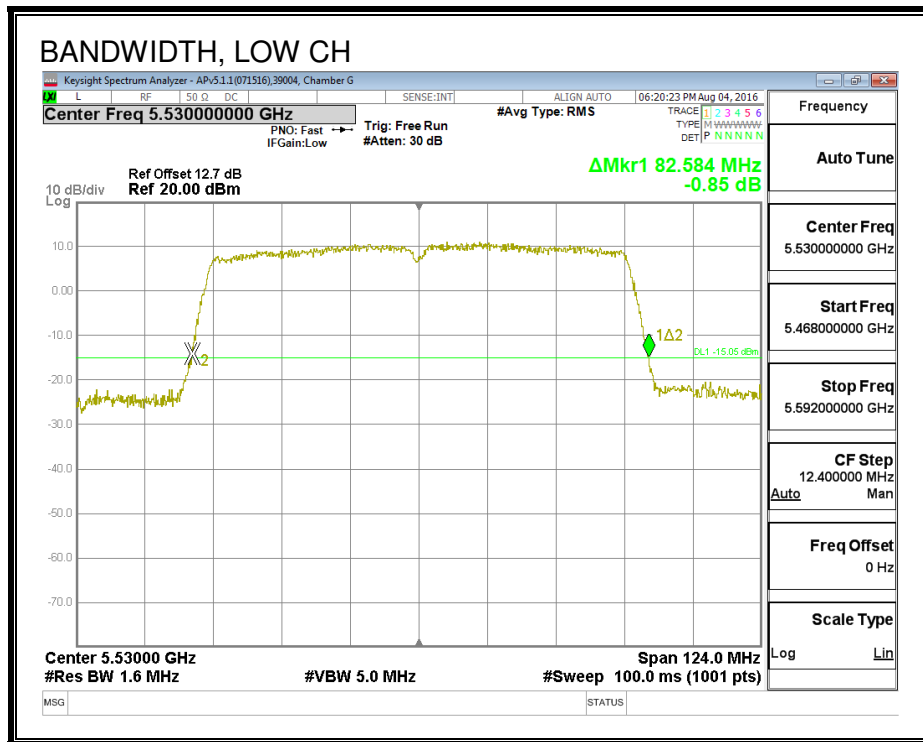
**LIMITS**

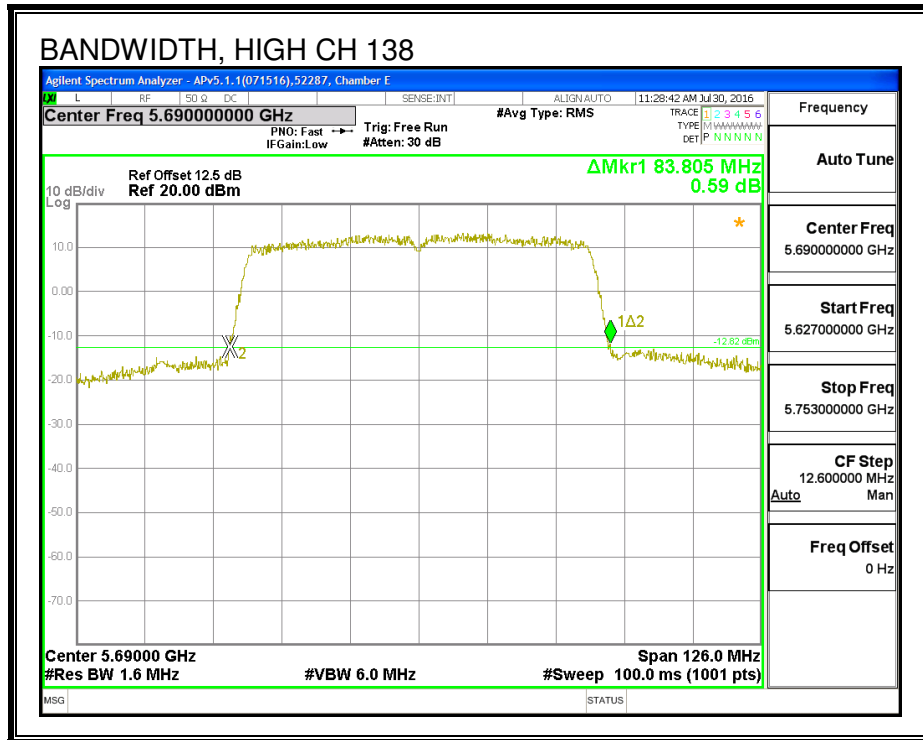
None; for reporting purposes only.

**RESULTS**

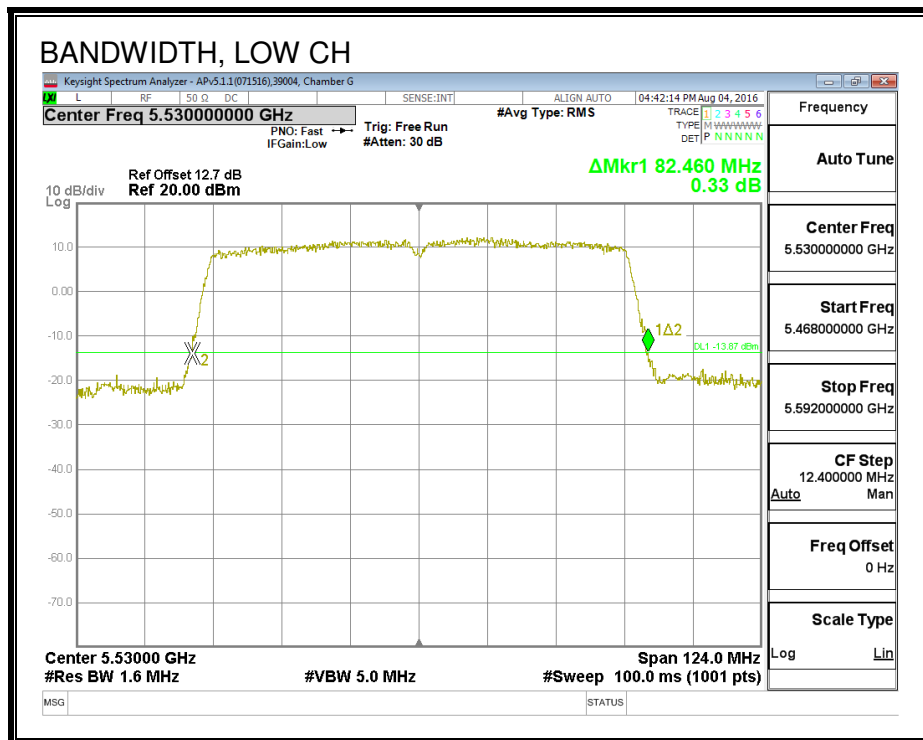
Channel	Frequency (MHz)	26 dB BW Chain 0 (MHz)	26 dB BW Chain 1 (MHz)
Low	5530	82.58	82.46
Mid	5610	82.75	82.21
High	5690	83.81	82.88

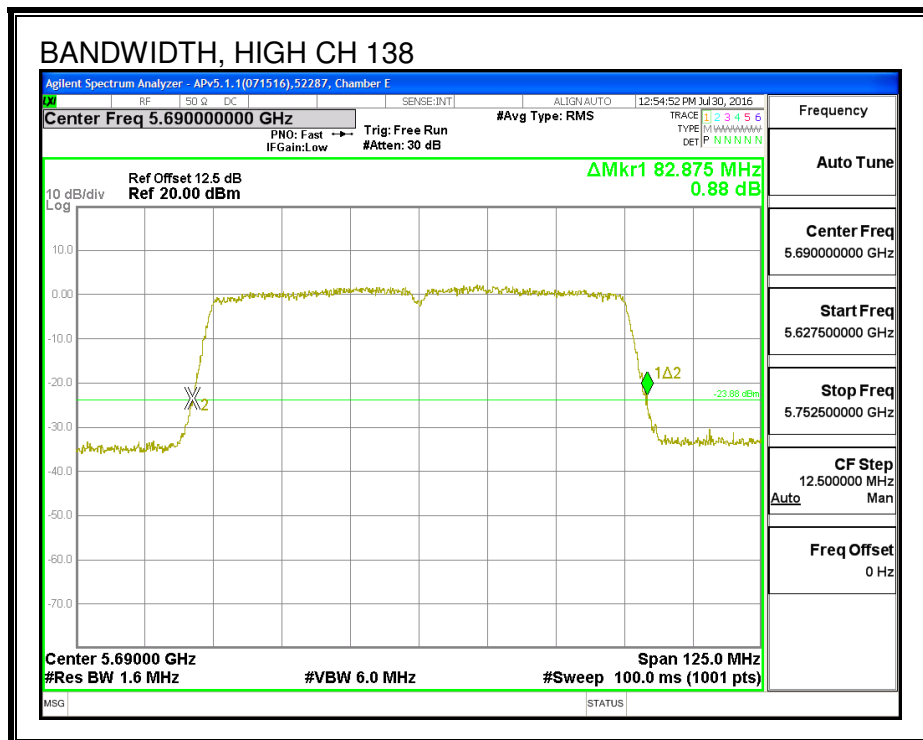
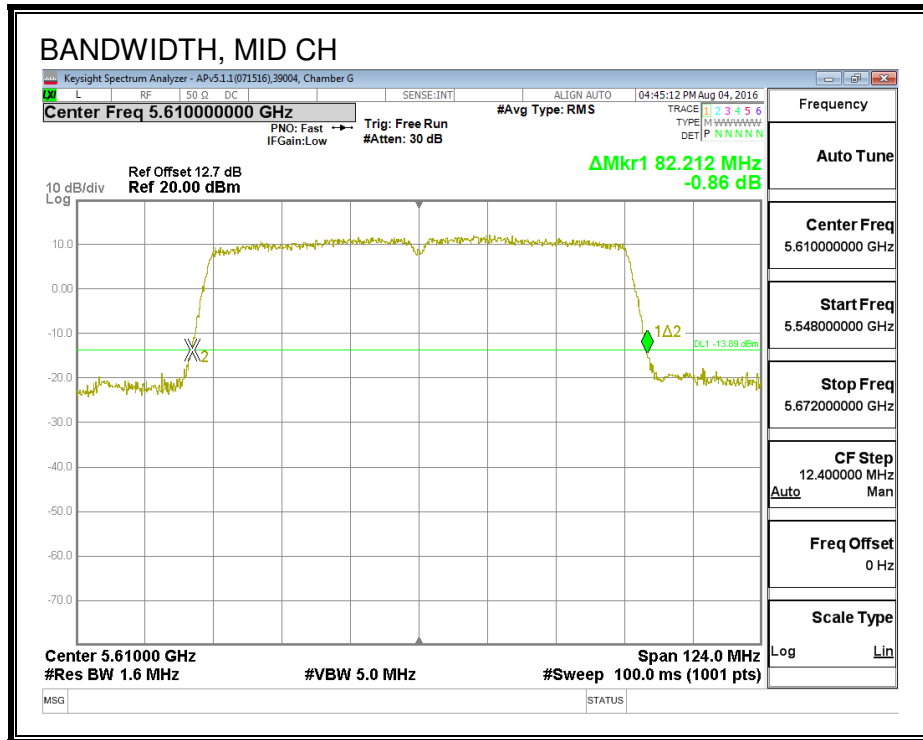
**26 dB BANDWIDTH, CHAIN 0**





**26 dB BANDWIDTH, CHAIN 1**





### 8.65.2. 99% BANDWIDTH

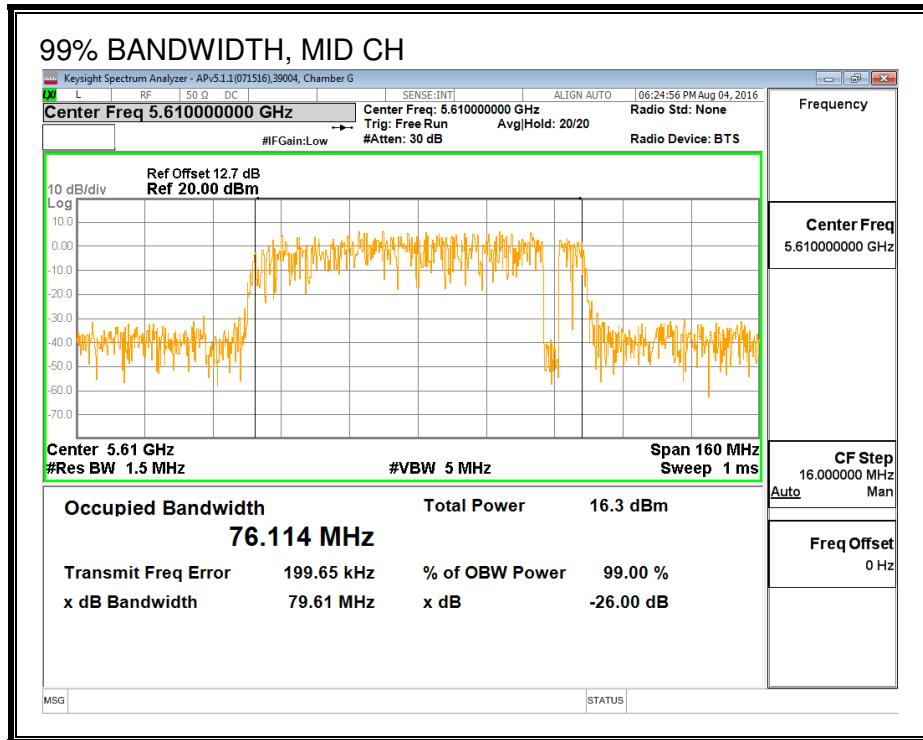
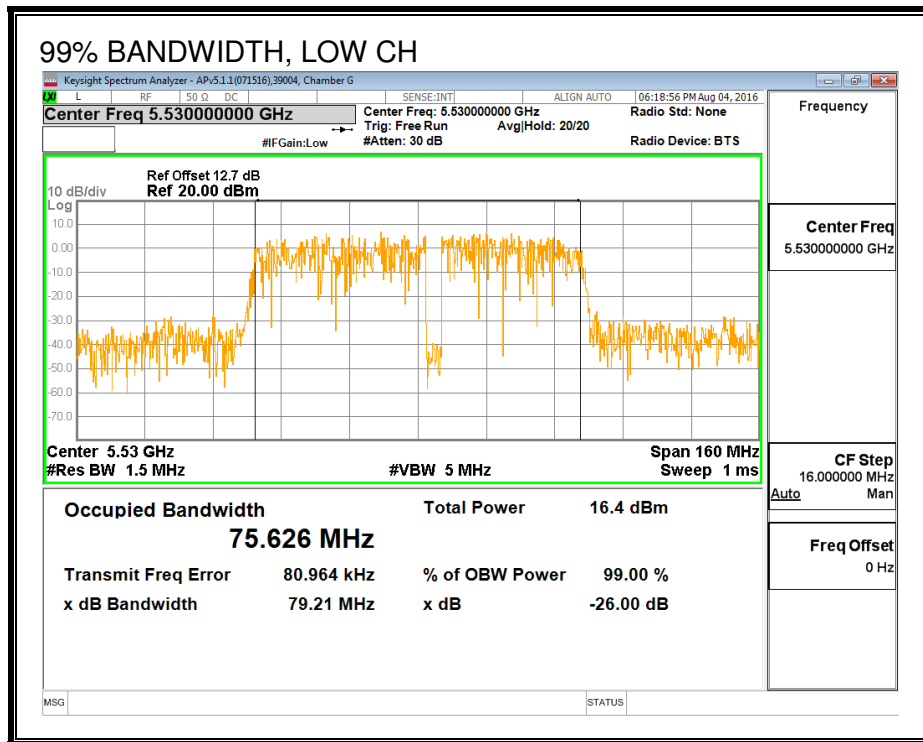
#### LIMITS

None; for reporting purposes only.

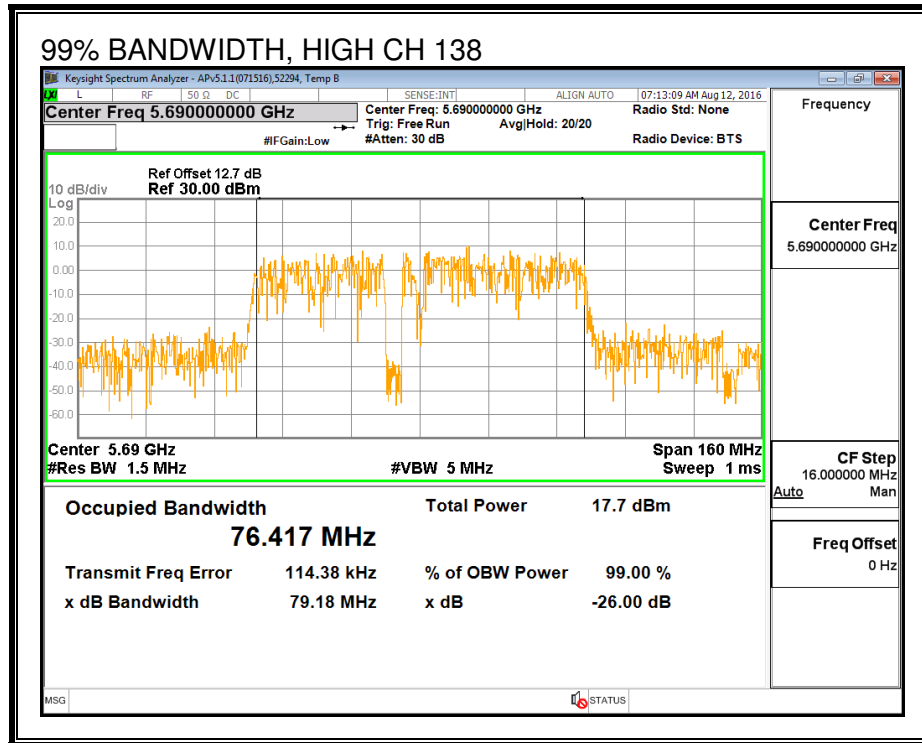
#### RESULTS

Channel	Frequency (MHz)	99% BW Chain 0 (MHz)	99% BW Chain 1 (MHz)
Low	5530	75.626	75.729
Mid	5610	76.114	75.847
High	5690	76.417	75.866

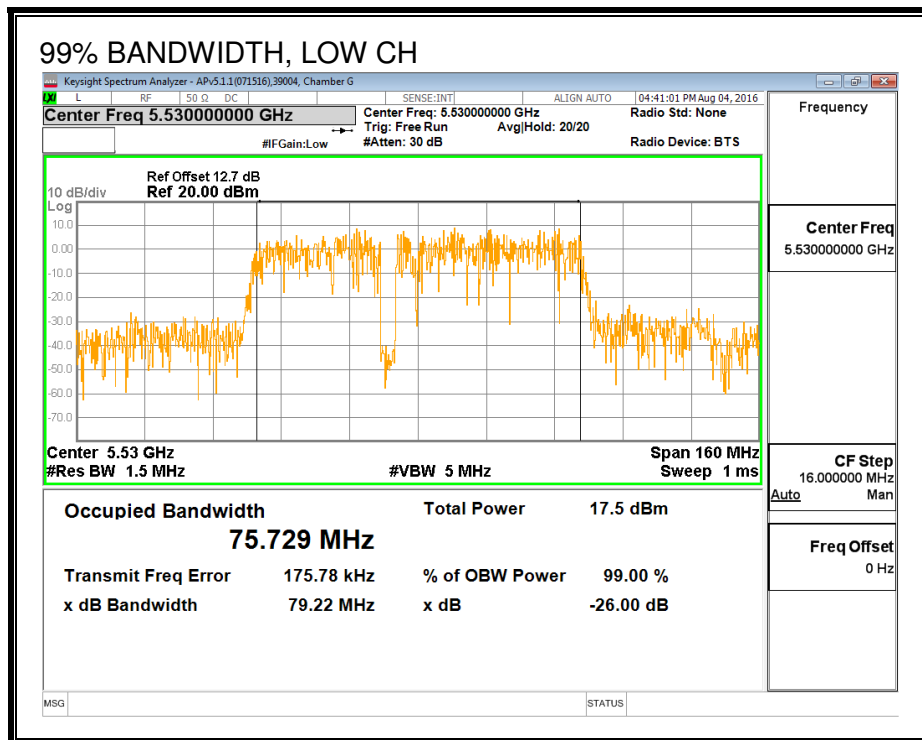
**99% BANDWIDTH, CHAIN 0**

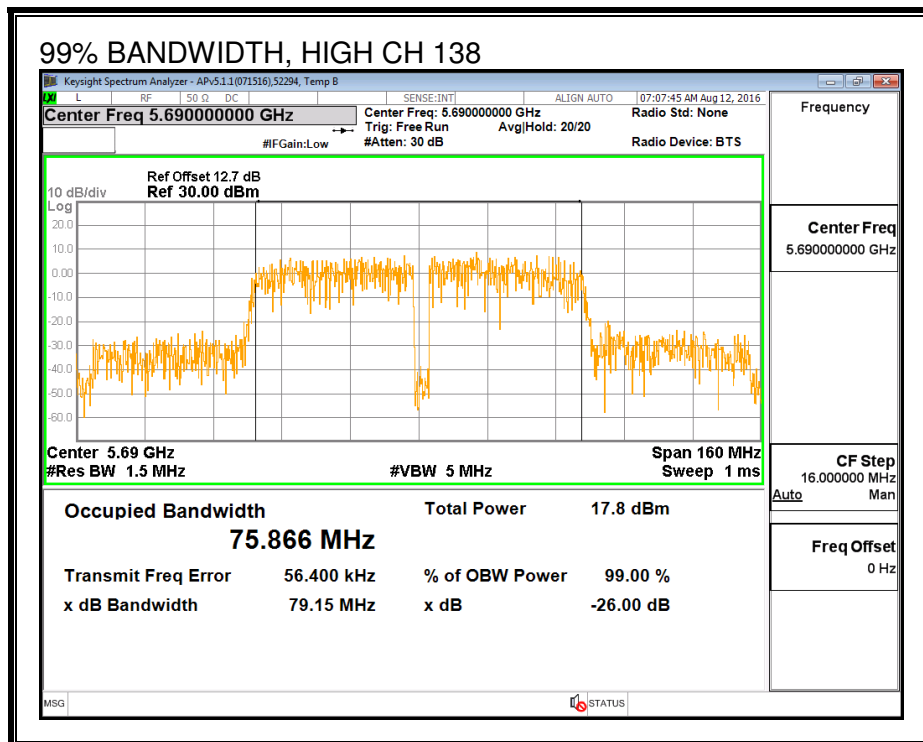
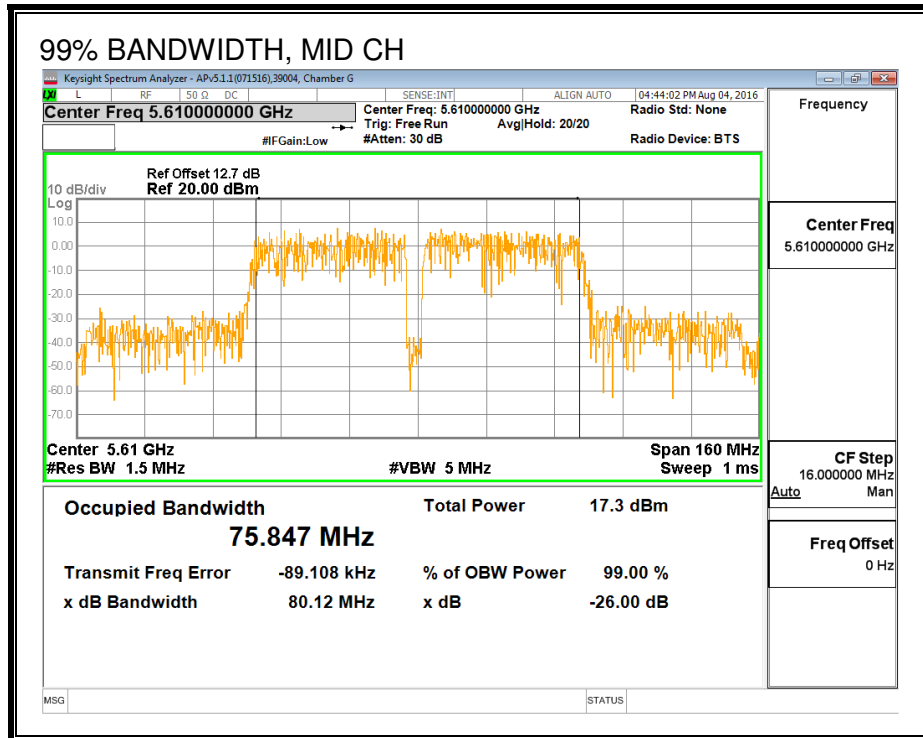






**99% BANDWIDTH, CHAIN 1**





### 8.65.3. 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)	Chain 0 Power (dBm)	Chain 1 Power (dBm)	Total Power (dBm)
Low	5530	11.76	11.88	14.83
Mid	5610	12.38	12.41	15.41
High	5690	12.40	12.43	15.43

## 8.65.4. 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

**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	5530	82.46	75.63	7.21	7.21	24.00	9.79
High	5610	82.21	75.85	7.21	7.21	24.00	9.79

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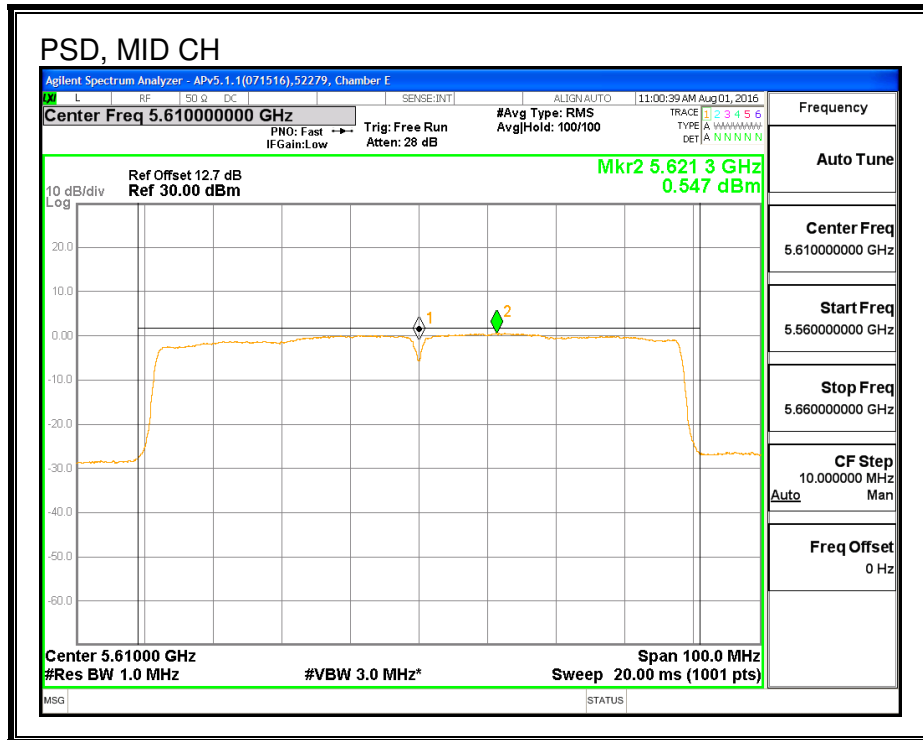
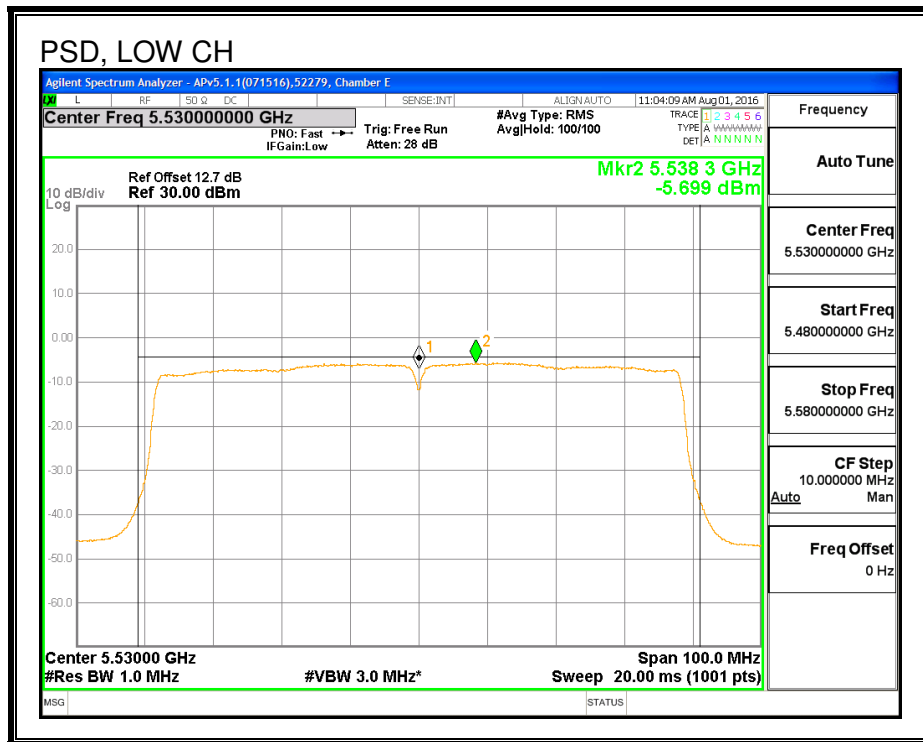
**Output Power Results**

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Chain 1 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5530	11.76	11.88	14.83	24.00	-9.17
High	5610	12.38	12.41	15.41	24.00	-8.59

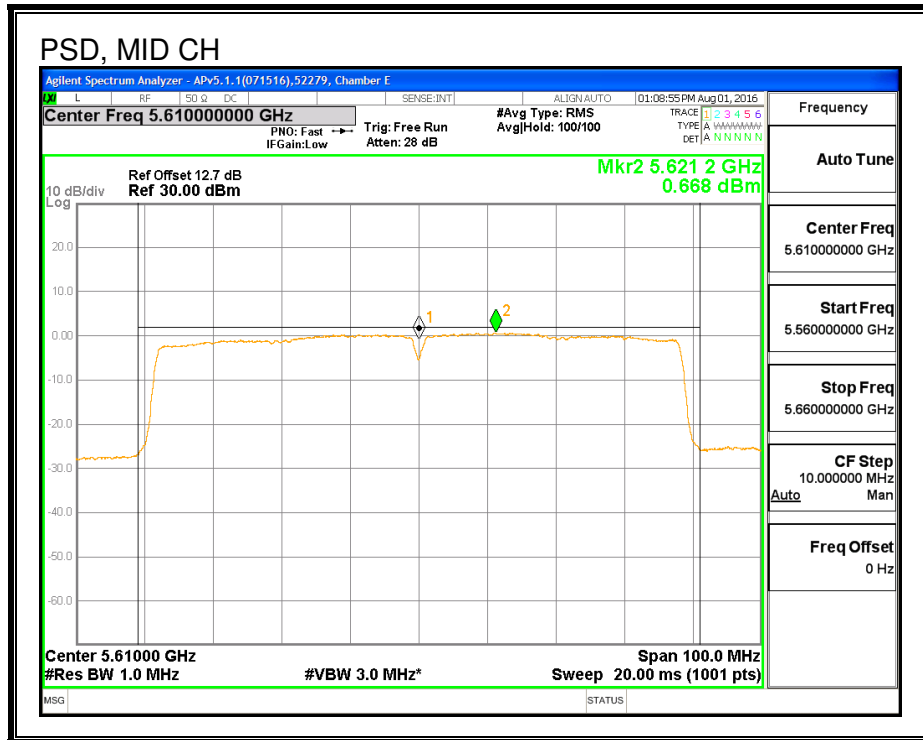
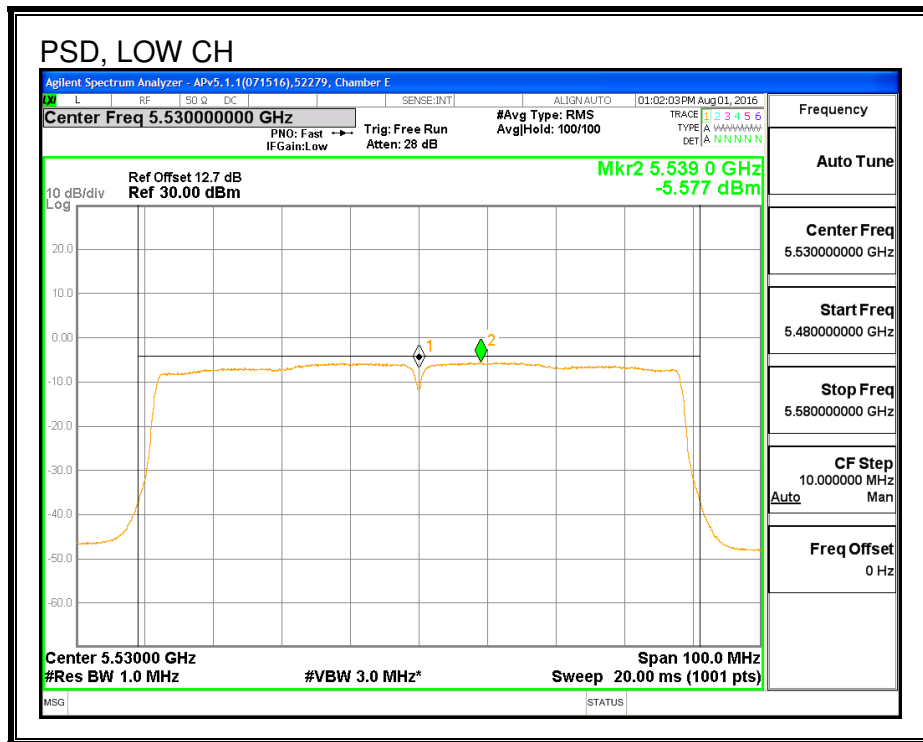
**PSD Results**

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	5530	-5.70	-5.58	-2.42	9.79	-12.21
High	5610	0.55	0.67	3.83	9.79	-5.96

**PSD, CHAIN 0**



**PSD, CHAIN 1**





### 8.65.5. STRADDLE CHANNEL 138 RESULTS (FCC)

#### 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	7.21	7.21	22.79	9.79

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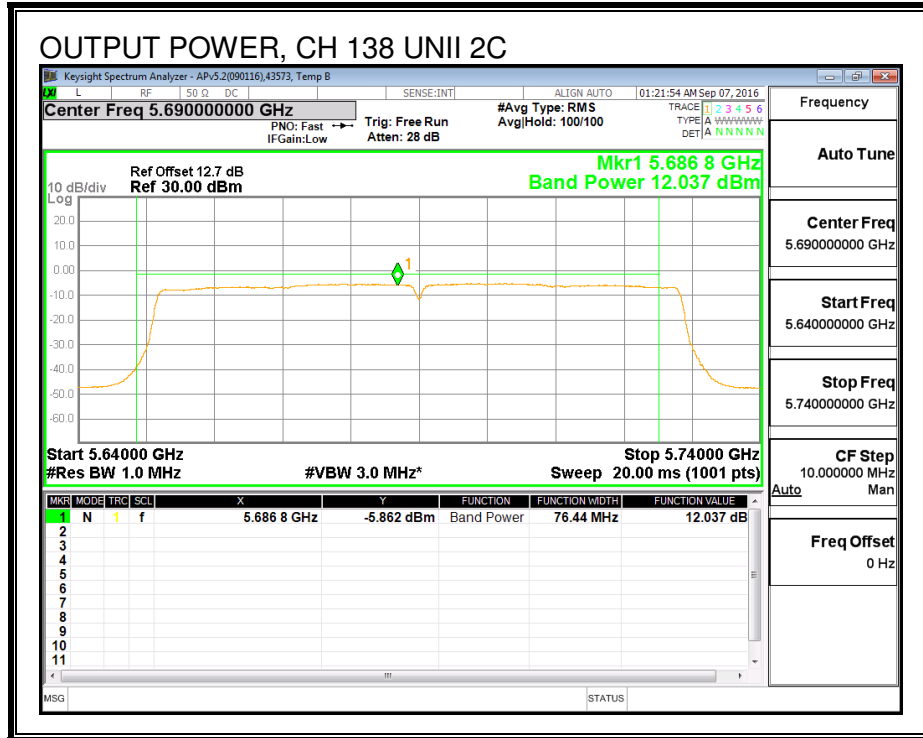
##### Output Power Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Chain 1 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
138	5690	12.04	12.11	15.29	22.79	-7.50

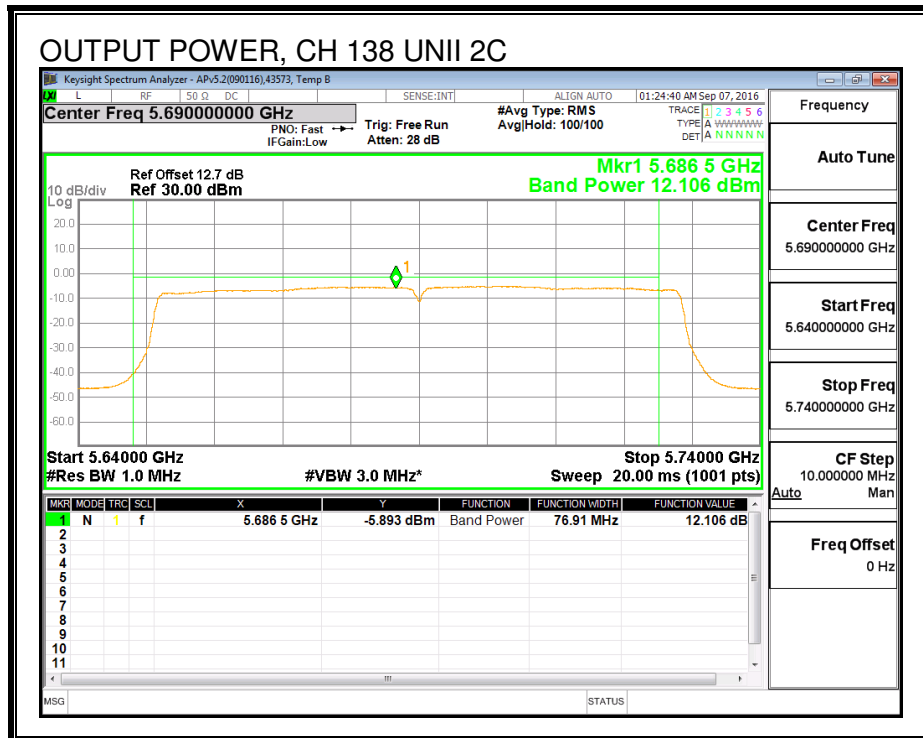
##### PSD Results

Channel	Frequency (MHz)	Chain 0 Meas PSD (dBm)	Chain 1 Meas PSD (dBm)	Total Corr'd PSD (dBm)	PSD Limit (dBm)	PSD Margin (dB)
138	5690	-5.14	-5.31	-2.00	9.79	-11.79

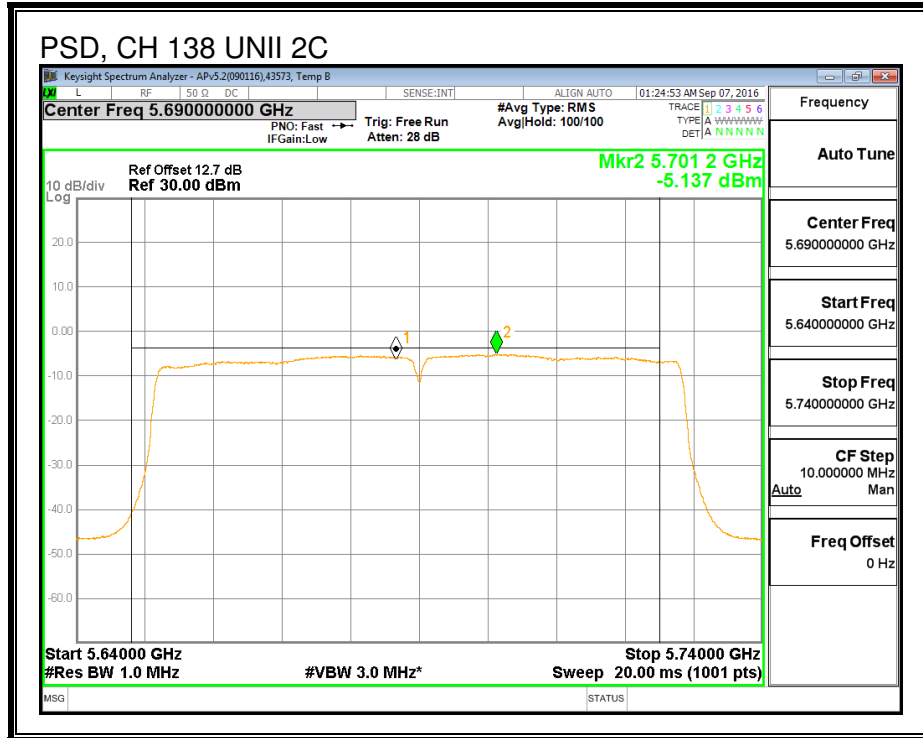
**OUTPUT POWER, CHAIN 0**



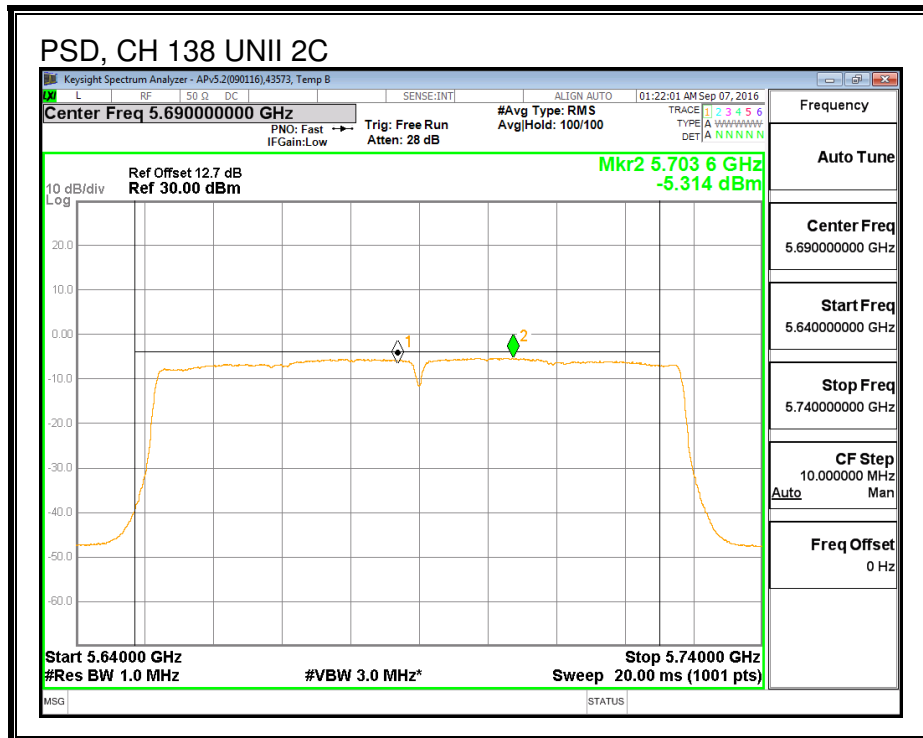
**OUTPUT POWER, CHAIN 1**



**PSD, CHAIN 0**



**PSD, CHAIN 1**



**UNII-3 BAND**

**Antenna Gain and Limit**

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Directional Gain (dBi)	Directional Gain (dBi)	Power Limit (dBm)	PSD Limit (dBm)
138	5690	6.44	7.21	7.21	28.79	28.79

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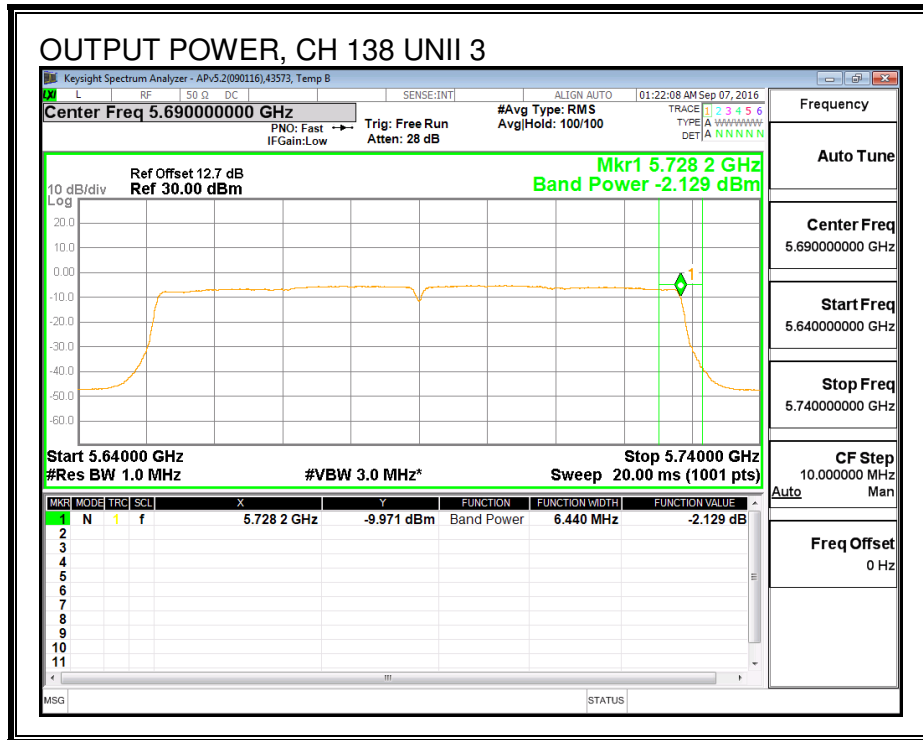
**Output Power Results**

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Chain 1 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
138	5690	-2.13	-1.95	1.18	28.79	-27.61

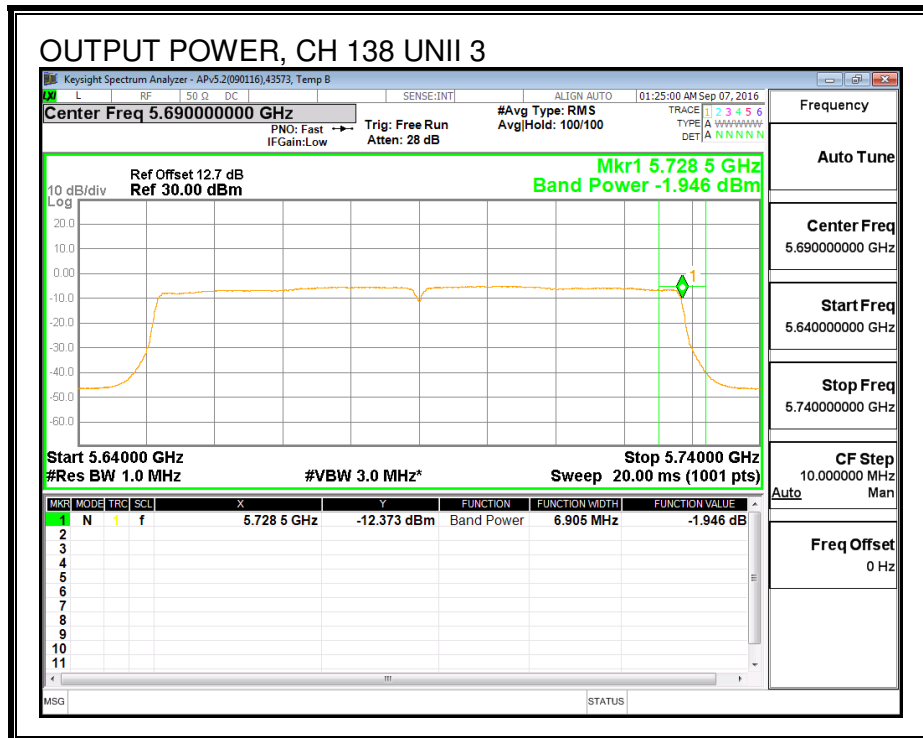
**PSD Results**

Channel	Frequency (MHz)	Chain 0 Meas PSD (dBm)	Chain 1 Meas PSD (dBm)	Total Corr'd PSD (dBm)	PSD Limit (dBm)	PSD Margin (dB)
138	5690	-9.48	-9.56	-6.30	28.79	-35.09

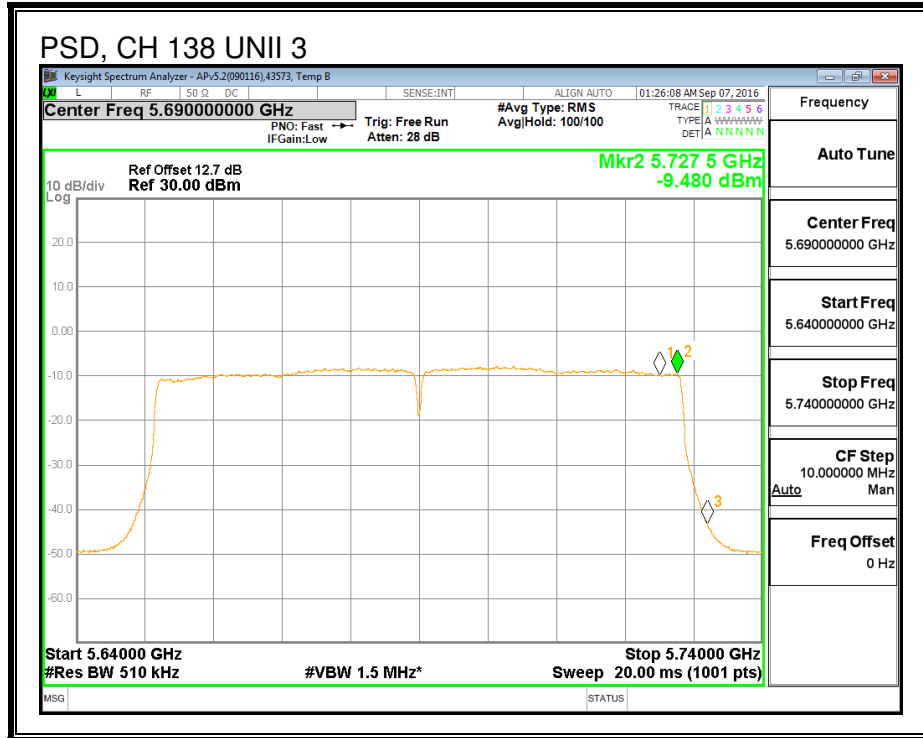
**OUTPUT POWER, CHAIN 0**



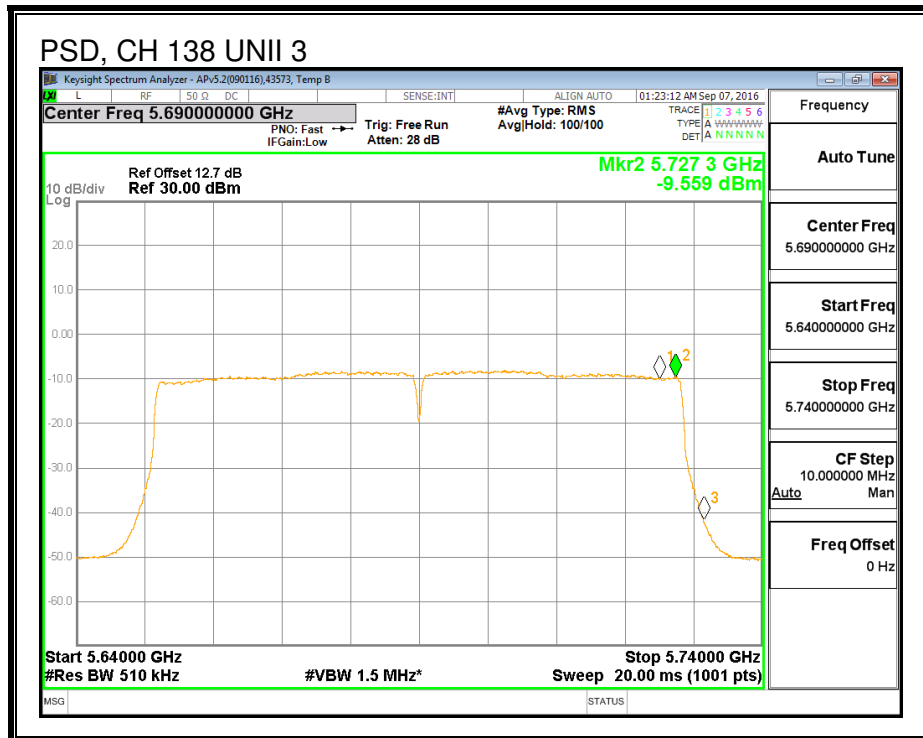
**OUTPUT POWER, CHAIN 1**



**PSD, CHAIN 0**



**PSD, CHAIN 1**



### 8.65.6. STRADDLE CHANNEL 138 RESULTS (IC)

#### 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)
138	5690	72.94	7.21	7.21	22.79	9.79

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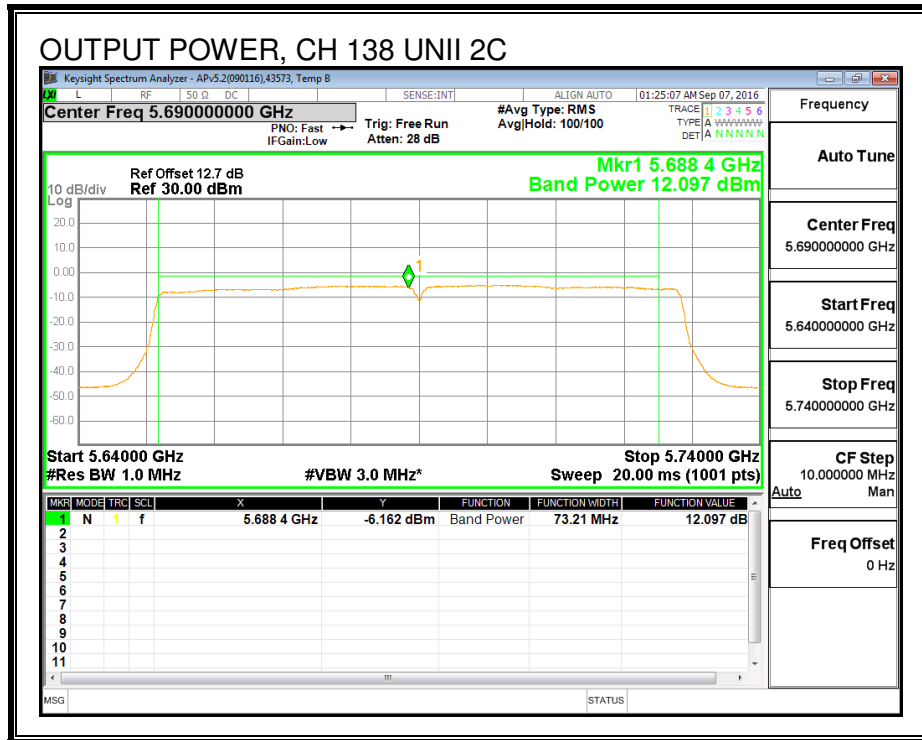
##### Output Power Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Chain 1 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
138	5690	12.10	12.02	15.28	22.79	-7.51

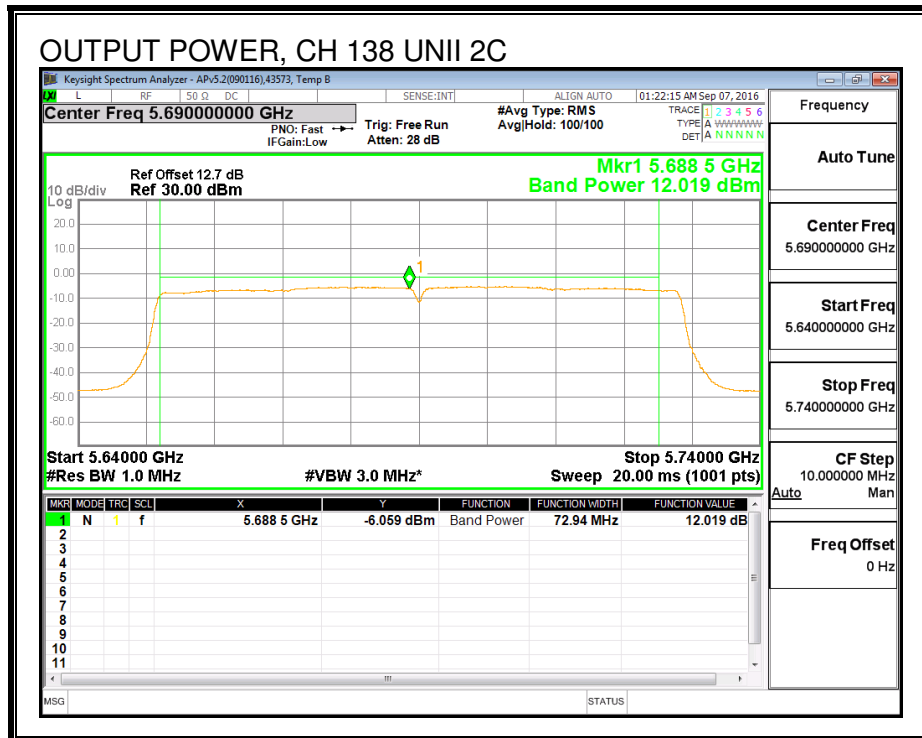
##### PSD Results

Channel	Frequency (MHz)	Chain 0 Meas PSD (dBm)	Chain 1 Meas PSD (dBm)	Total Corr'd PSD (dBm)	PSD Limit (dBm)	PSD Margin (dB)
138	5690	-5.14	-5.31	-2.00	9.79	-11.79

**OUTPUT POWER, CHAIN 0**

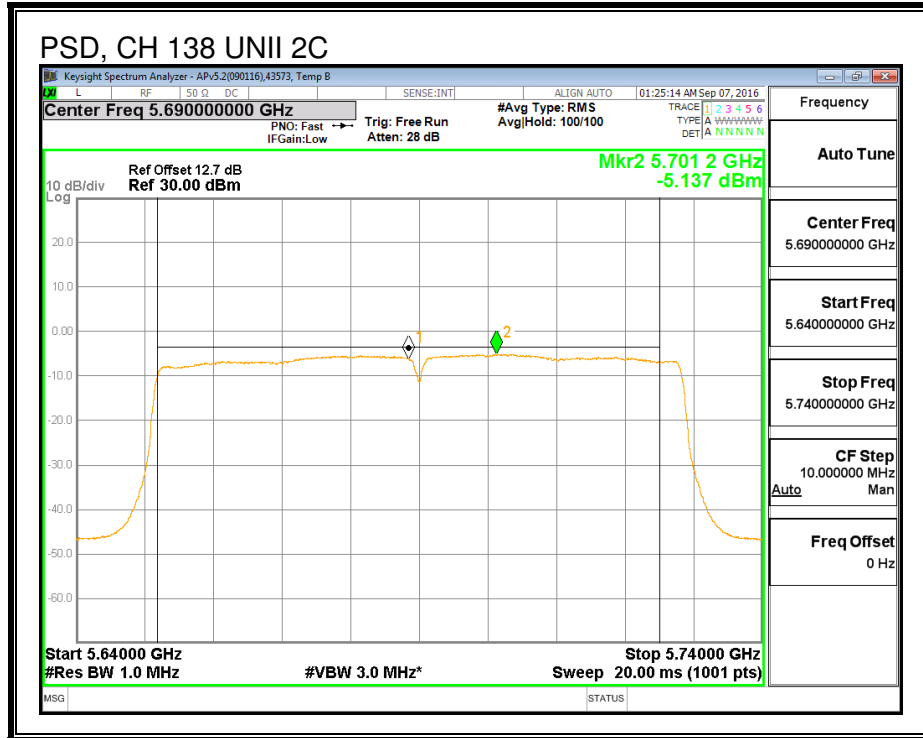


**OUTPUT POWER, CHAIN 1**

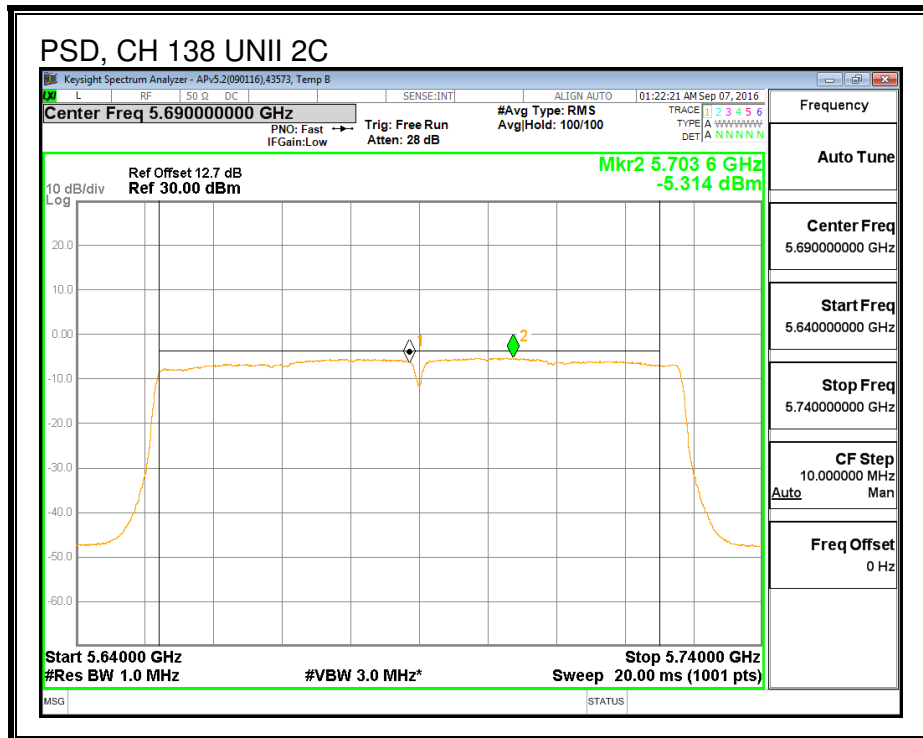




**PSD, CHAIN 0**



**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)
138	5690	2.94	7.21	7.21	28.79	28.79

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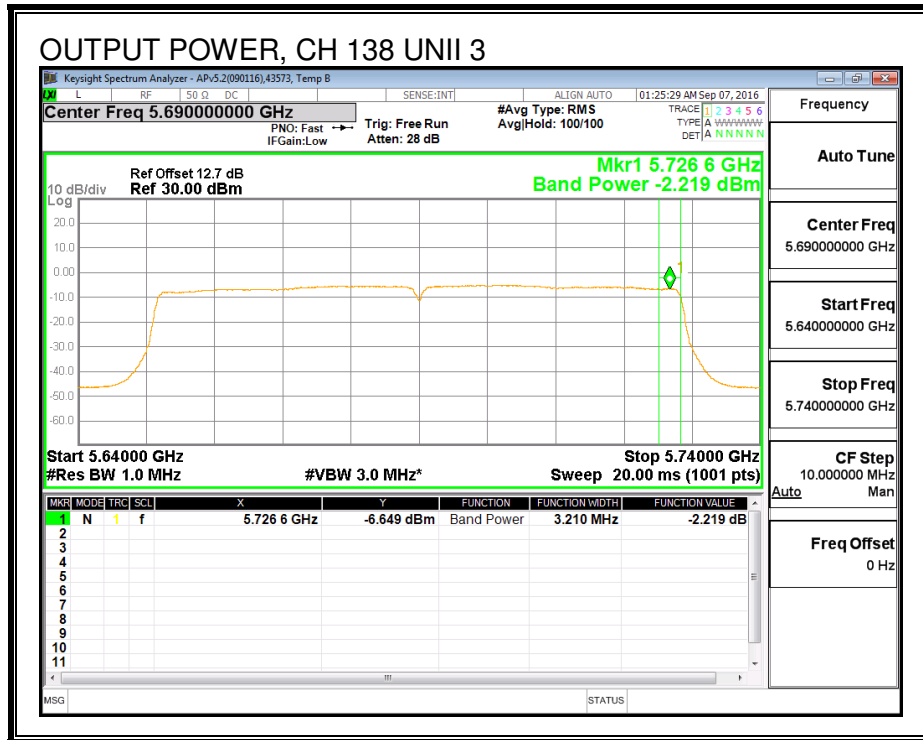
**Output Power Results**

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Chain 1 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
138	5690	-2.22	-2.65	0.79	28.79	-28.00

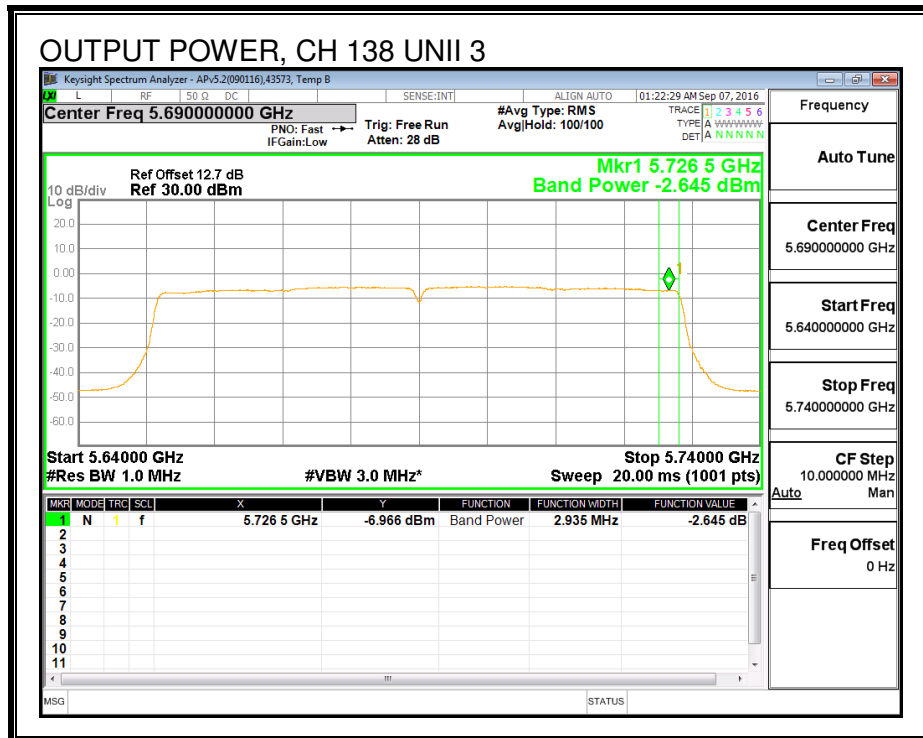
**PSD Results**

Channel	Frequency (MHz)	Chain 0 Meas PSD (dBm)	Chain 1 Meas PSD (dBm)	Total Corr'd PSD (dBm)	PSD Limit (dBm)	PSD Margin (dB)
138	5690	-9.48	-9.56	-6.30	28.79	-35.09

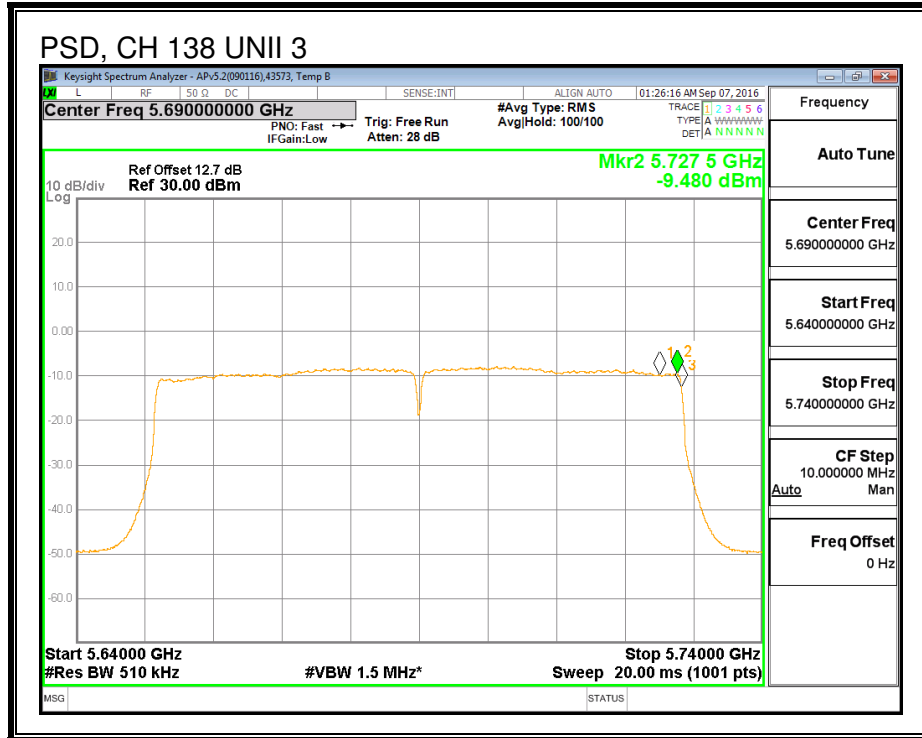
**OUTPUT POWER, CHAIN 0**



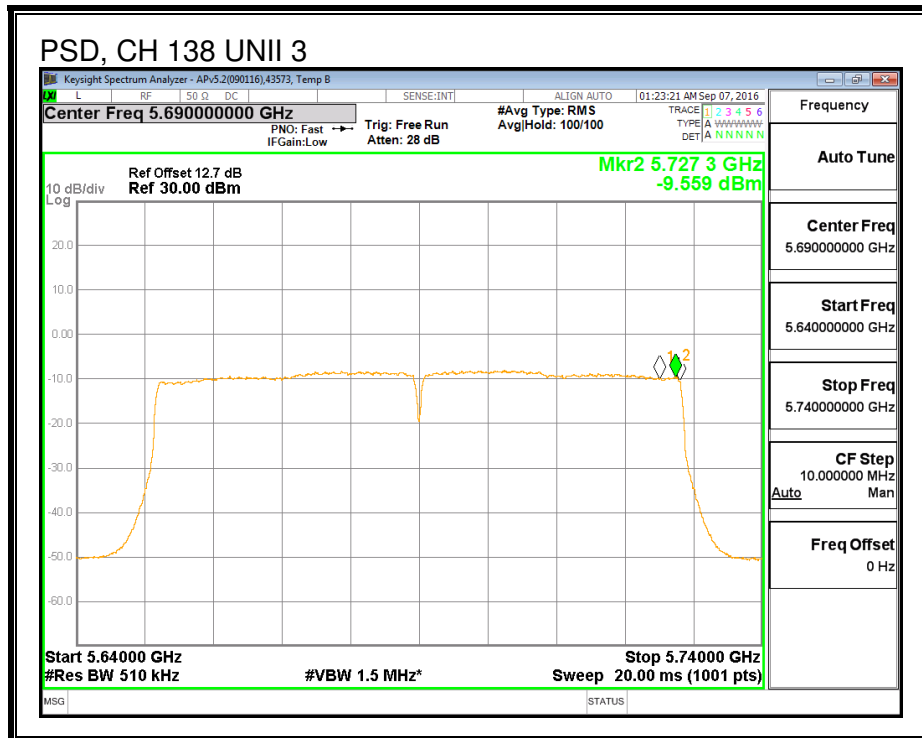
**OUTPUT POWER, CHAIN 1**



**PSD, CHAIN 0**



**PSD, CHAIN 1**



### 8.65.7. 6 dB BANDWIDTH

#### LIMITS

FCC §15.407 (e)

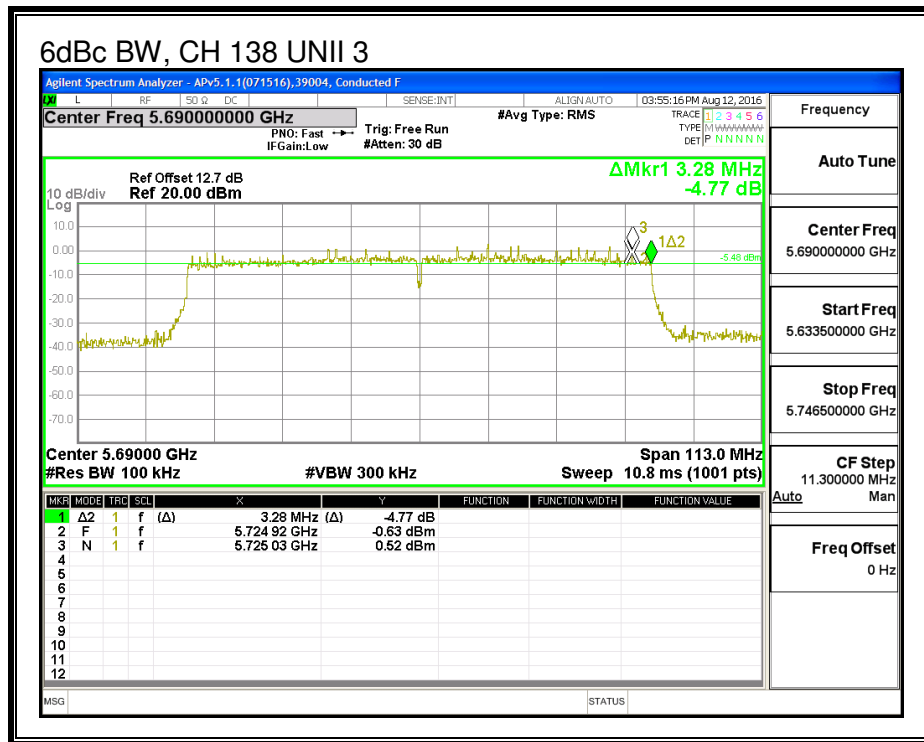
IC RSS-247 (6.2.4) (1)

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

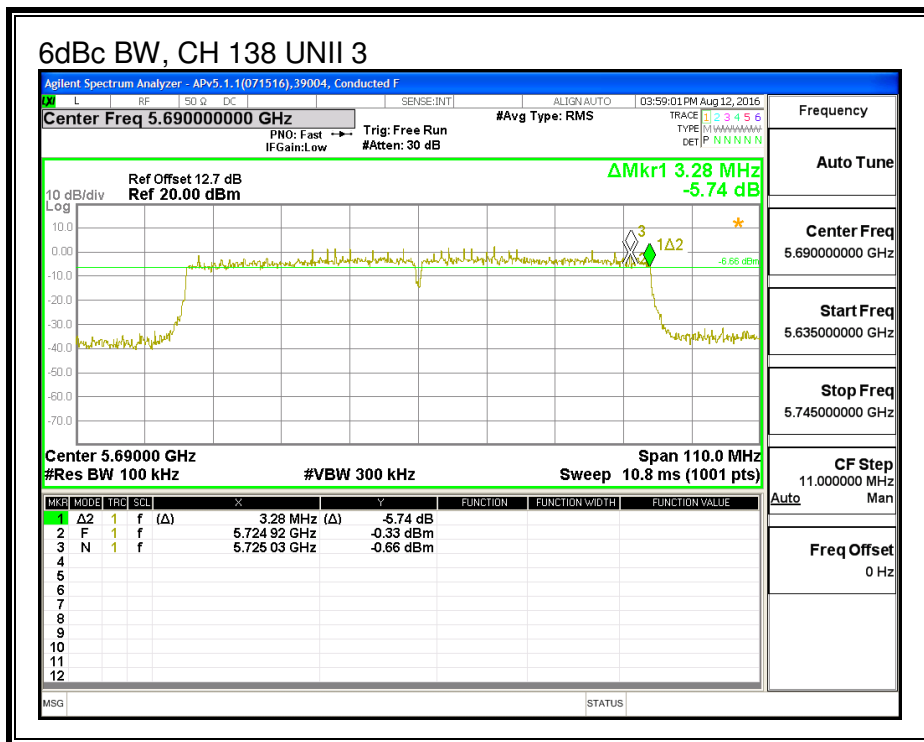
#### RESULTS

Channel	Frequency (MHz)	6 dB BW Chain 0 (MHz)	6 dB BW Chain 1 (MHz)
High	5690	3.28	3.28

**CHAIN 0**



**CHAIN 1**



**8.66. 802.11ac VHT80 2Tx BEAM FORMING MODE IN THE 5.6 GHz BAND  
(5610MHz for FCC only)**

**8.66.1. 26 dB BANDWIDTH**

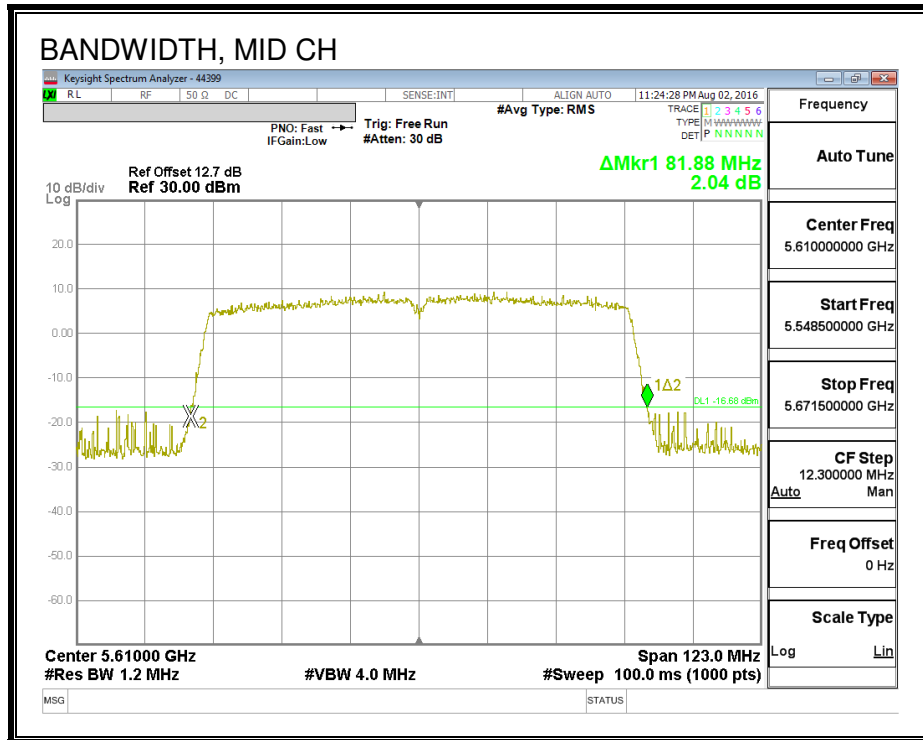
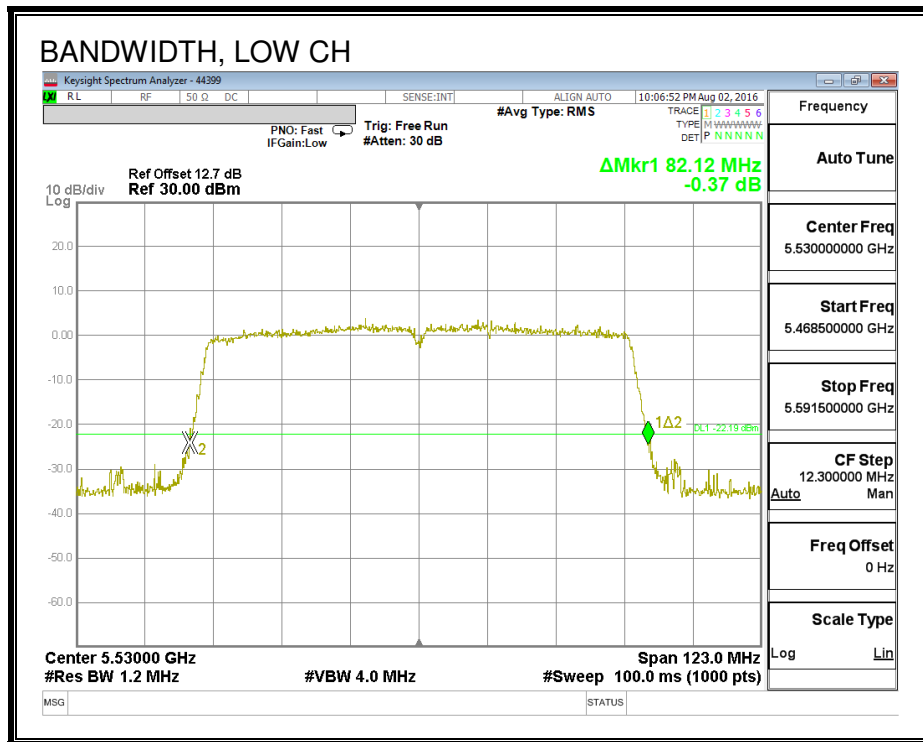
**LIMITS**

None; for reporting purposes only.

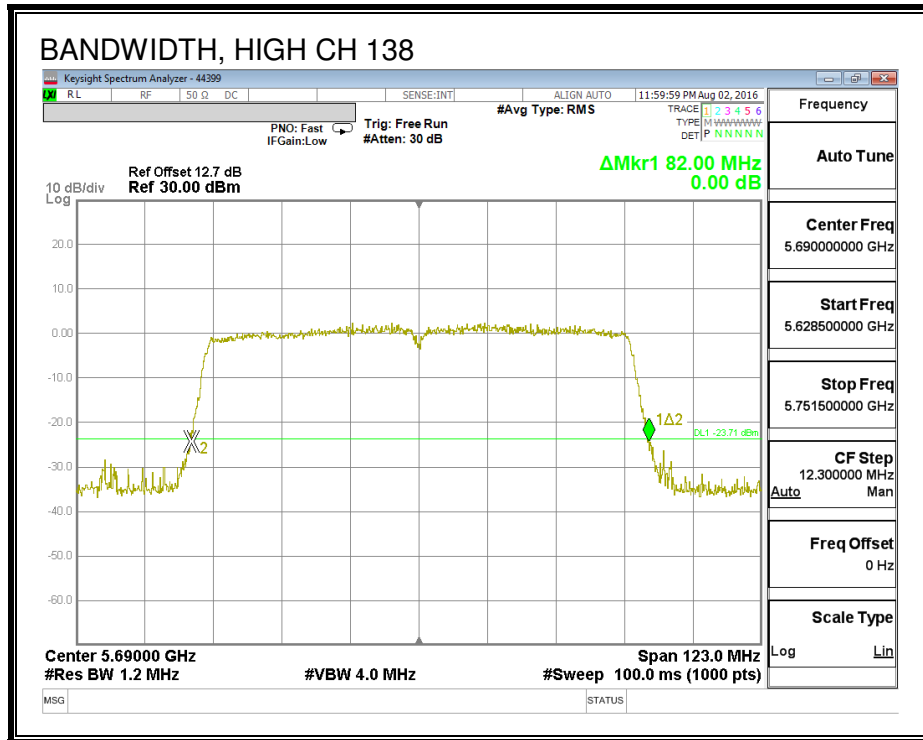
**RESULTS**

Channel	Frequency (MHz)	26 dB BW Chain 0 (MHz)	26 dB BW Chain 1 (MHz)
Low	5530	82.12	82.37
Mid	5610	81.88	82.49
High	5690	82.00	82.12

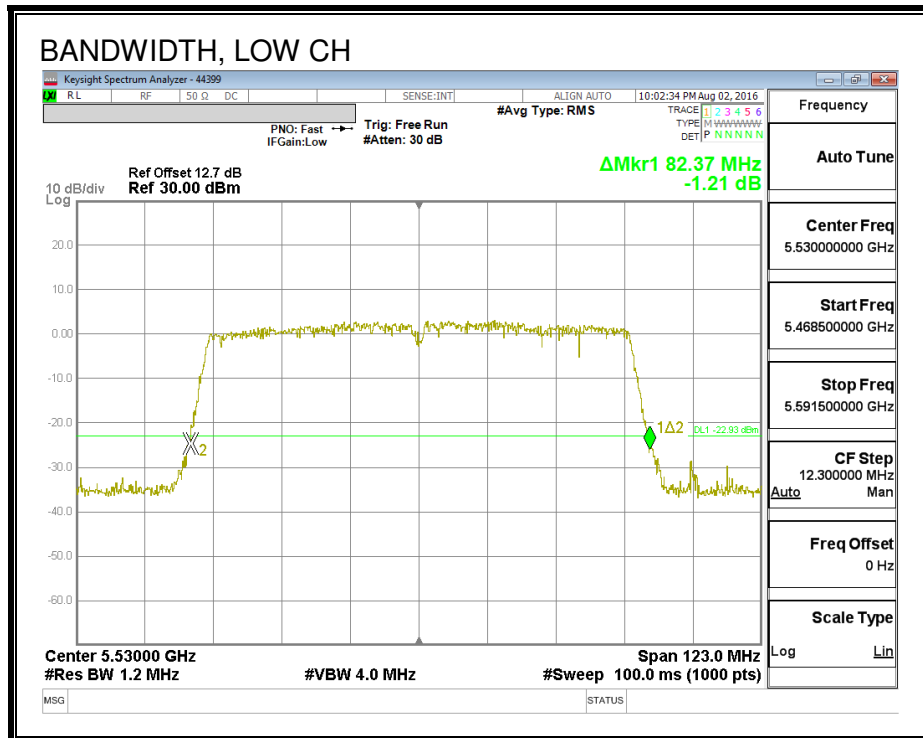
**26 dB BANDWIDTH, CHAIN 0**

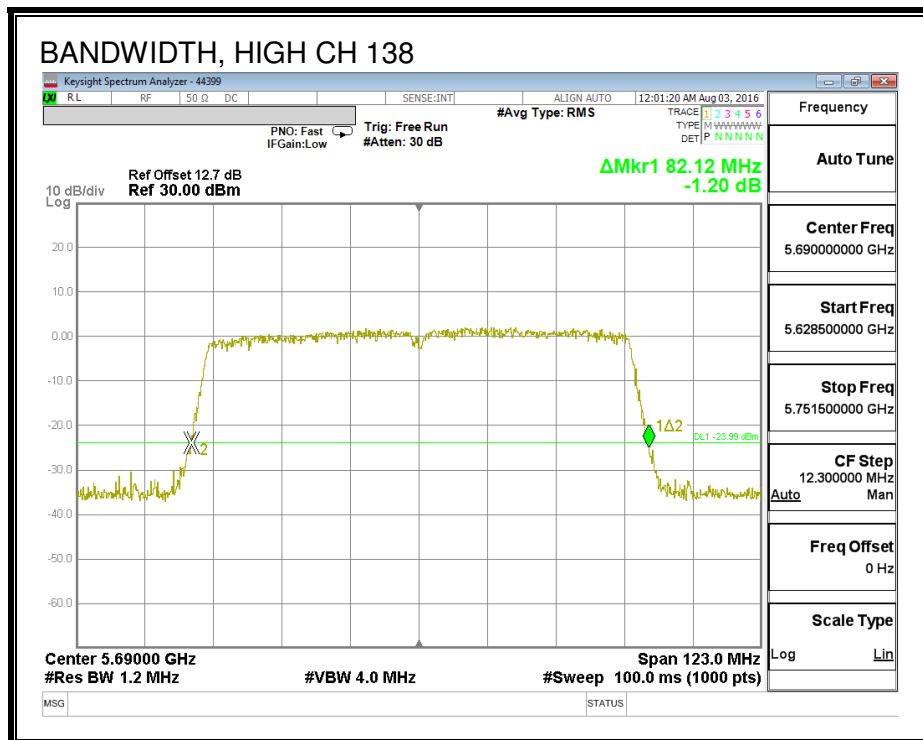
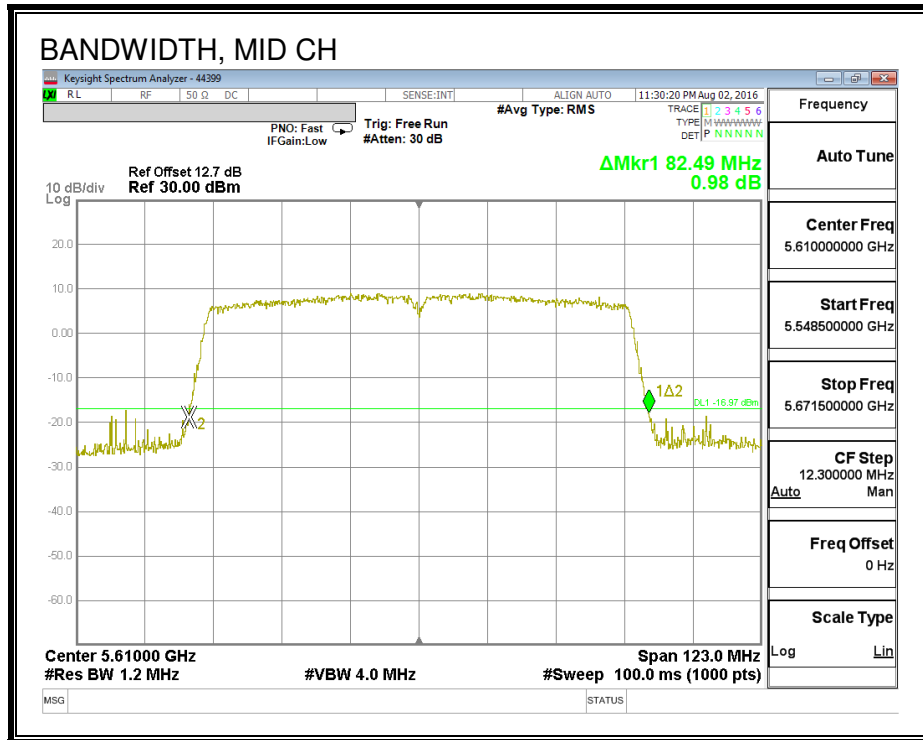






**26 dB BANDWIDTH, CHAIN 1**





**8.66.2. 99% BANDWIDTH**

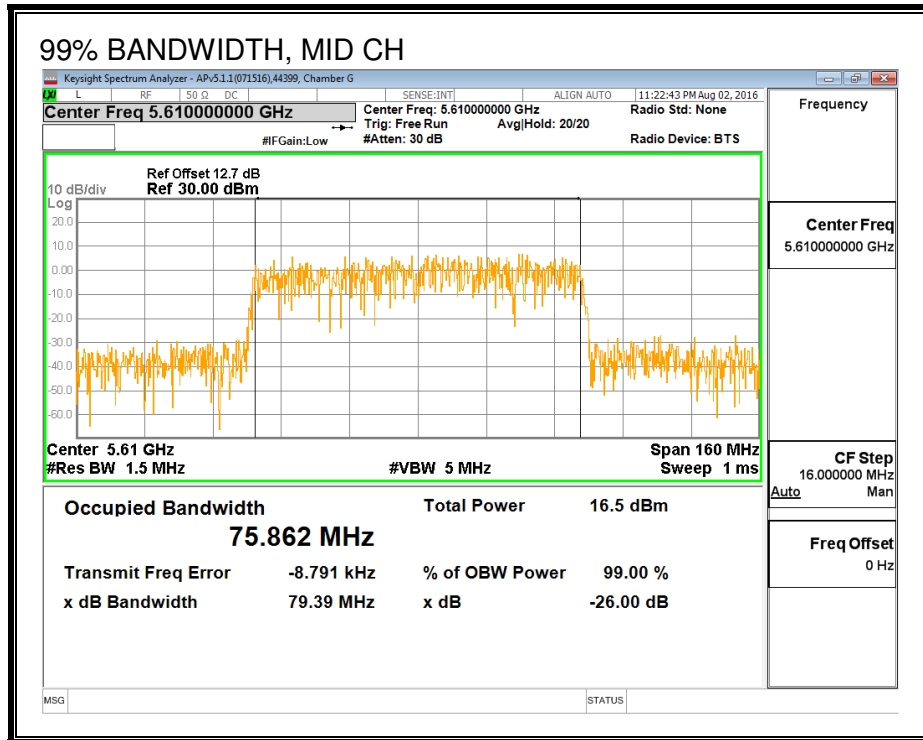
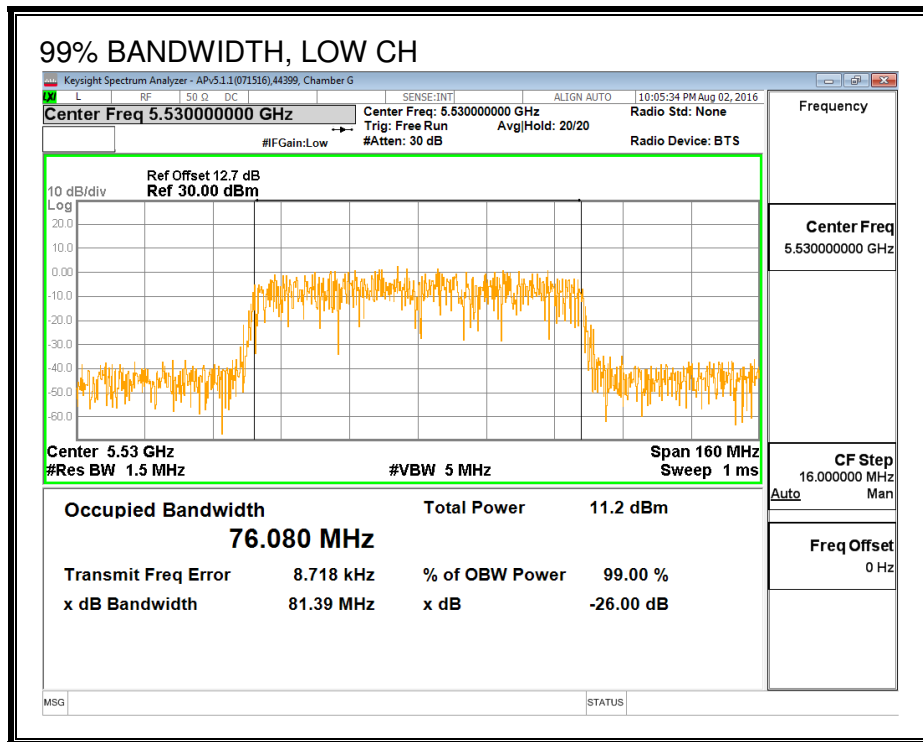
**LIMITS**

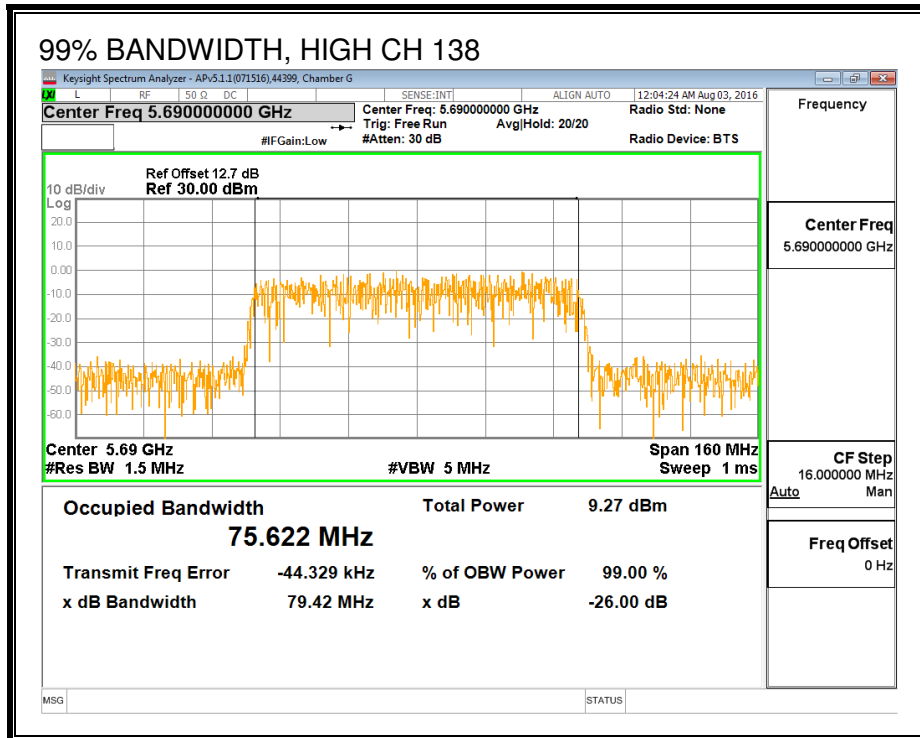
None; for reporting purposes only.

**RESULTS**

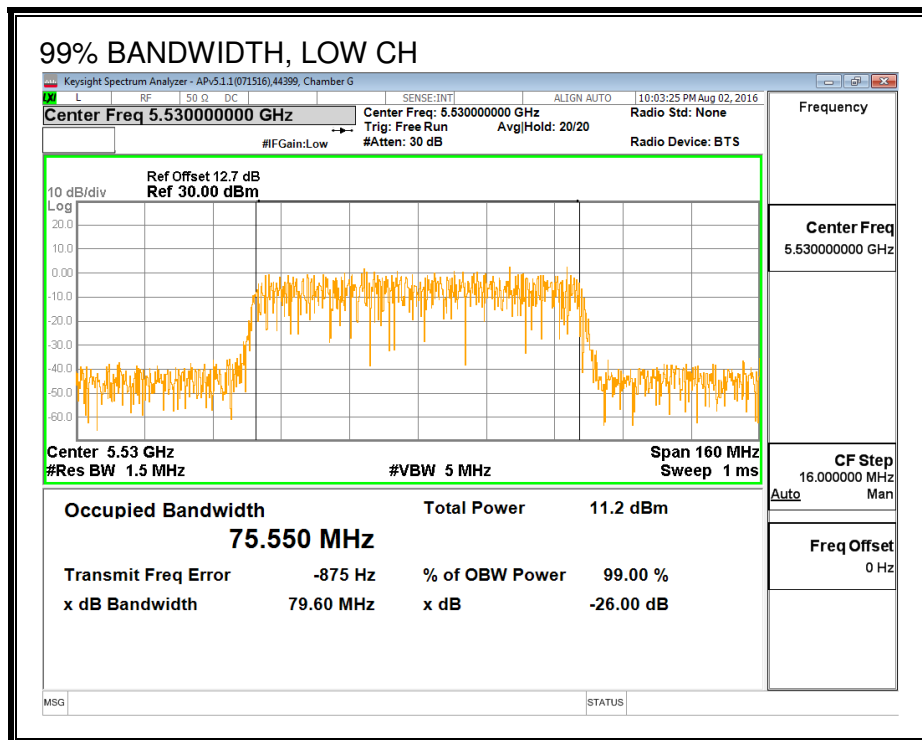
Channel	Frequency (MHz)	99% BW Chain 0 (MHz)	99% BW Chain 1 (MHz)
Low	5530	76.080	75.550
Mid	5610	75.862	75.667
High	5690	75.622	75.625

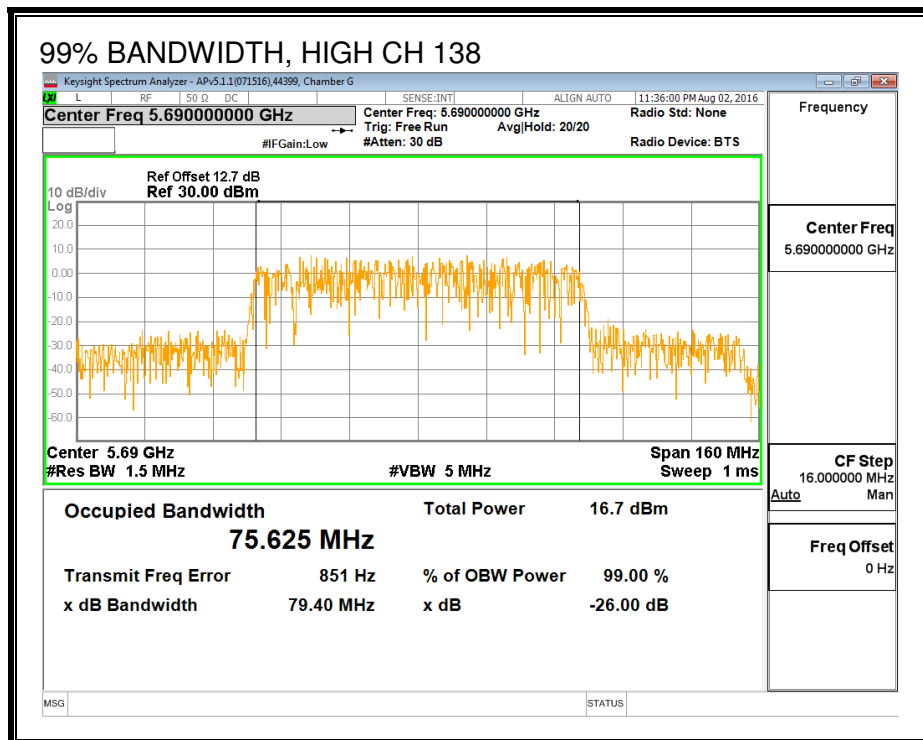
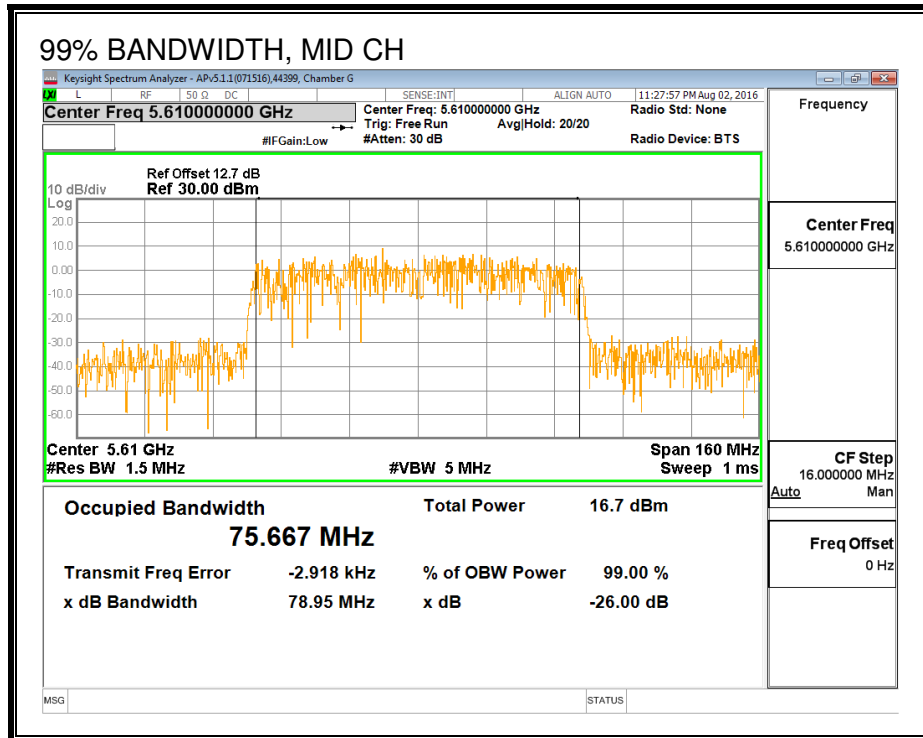
**99% BANDWIDTH, CHAIN 0**





**99% BANDWIDTH, CHAIN 1**





### 8.66.3. 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	5530	10.97	10.83	13.91
Mid	5610	12.44	12.40	15.43
High	5690	12.41	12.38	15.41

## 8.66.4. 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 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	5530	82.12	75.55	10.19	10.19	24.00	6.81
High	5610	81.88	75.67	10.19	10.19	24.00	6.81

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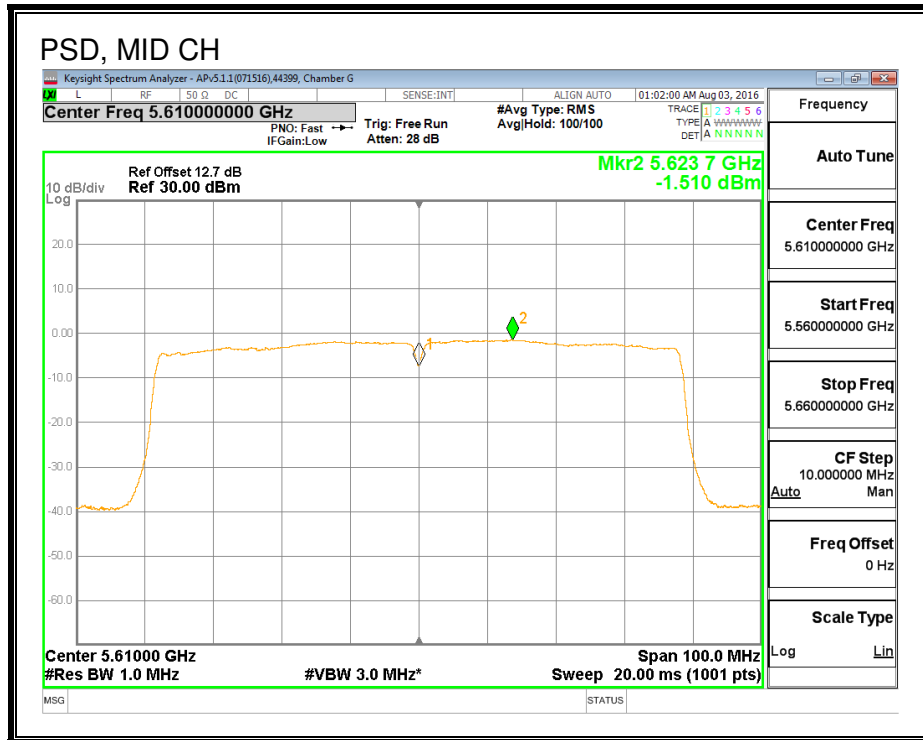
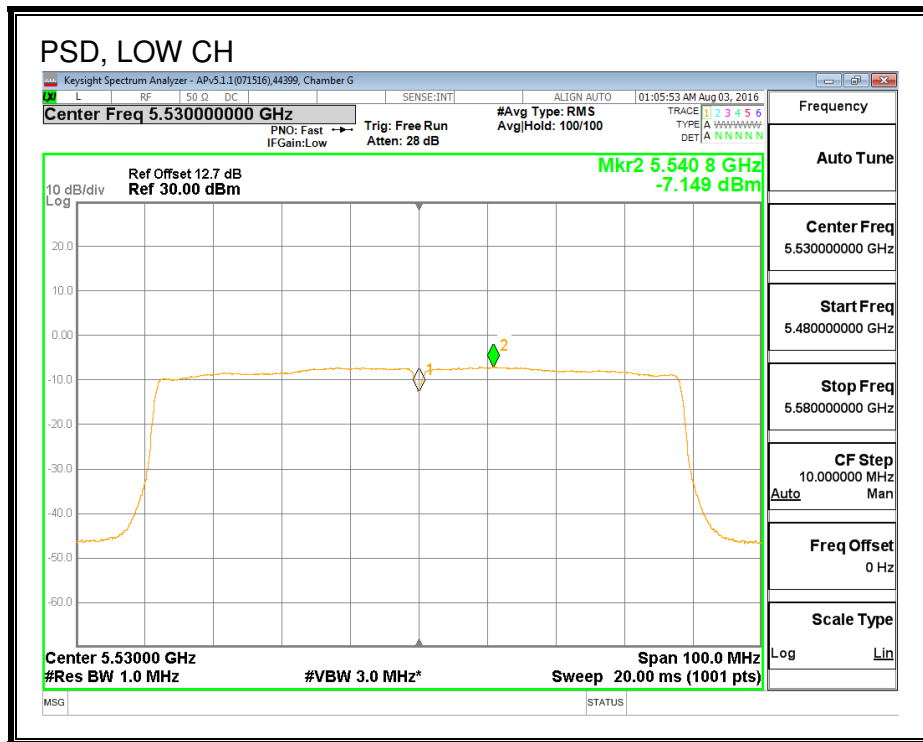
**Output Power Results**

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Chain 1 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5530	10.97	10.83	13.91	24.00	-10.09
High	5610	12.44	12.40	15.43	24.00	-8.57

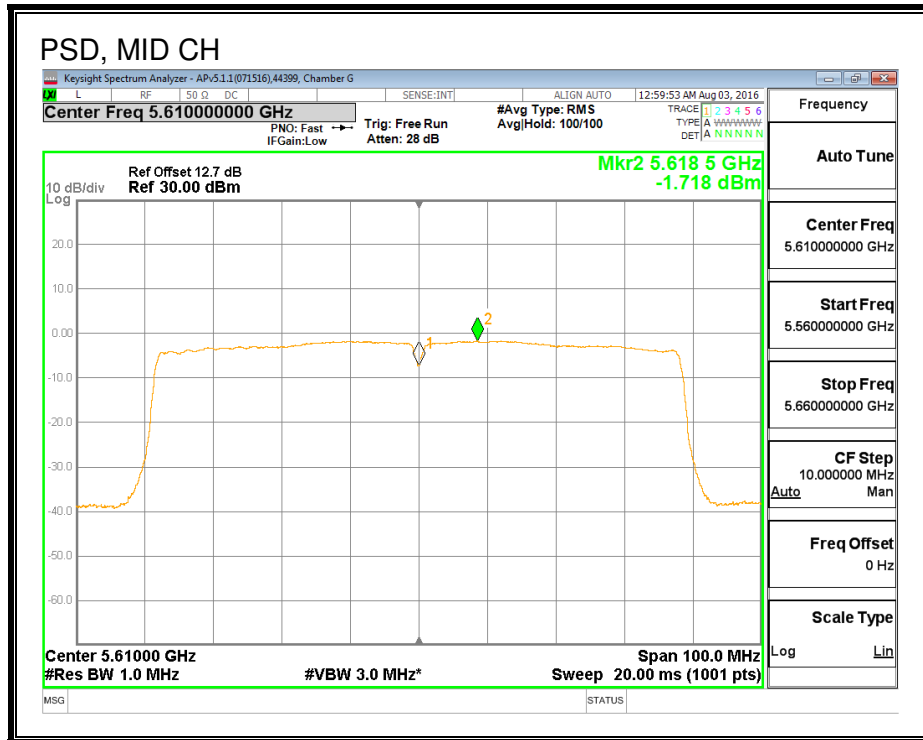
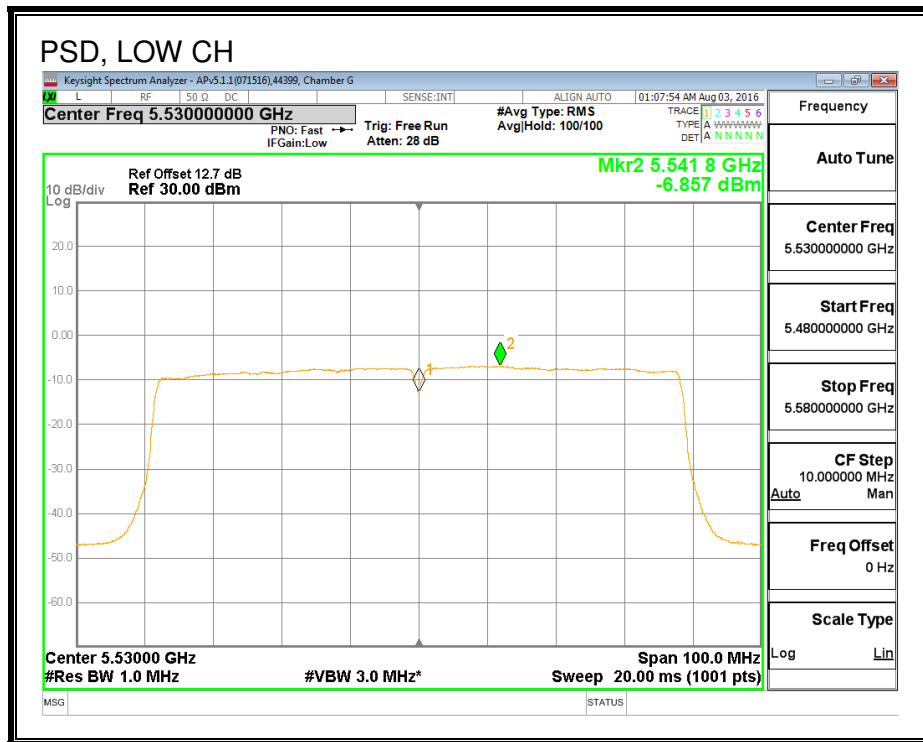
**PSD Results**

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	5530	-7.15	-6.86	-3.66	6.81	-10.47
High	5610	-1.51	-1.72	1.73	6.81	-5.08

**PSD, CHAIN 0**



**PSD, CHAIN 1**



**8.66.5. STRADDLE CHANNEL 138 RESULTS (FCC)**

**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	76.00	10.19	10.19	19.81	6.81

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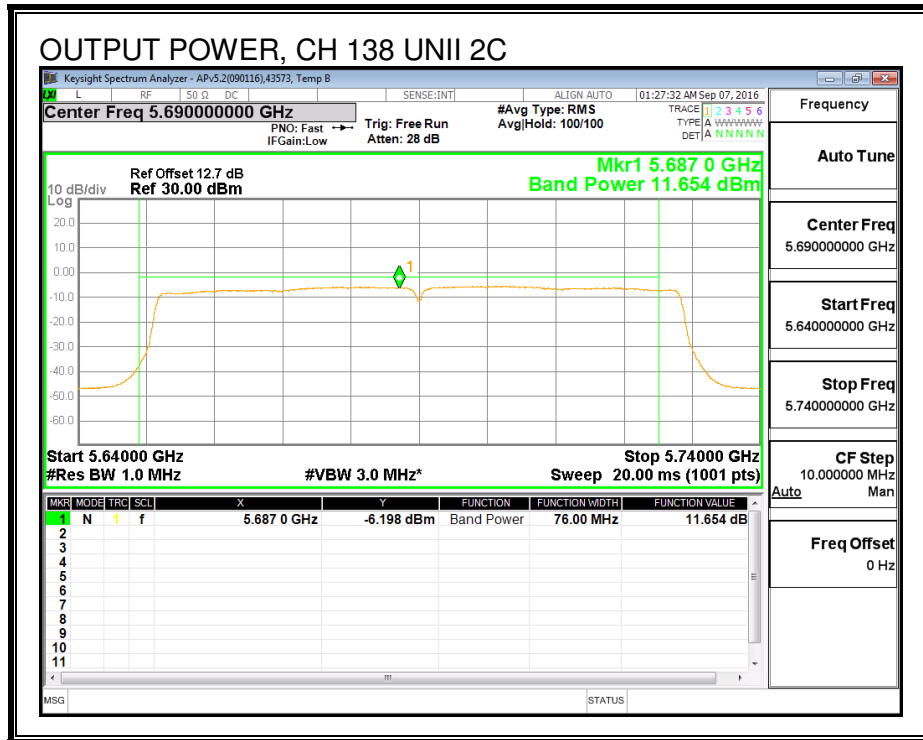
**Output Power Results**

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Chain 1 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
138	5690	11.65	11.69	15.01	19.81	-4.80

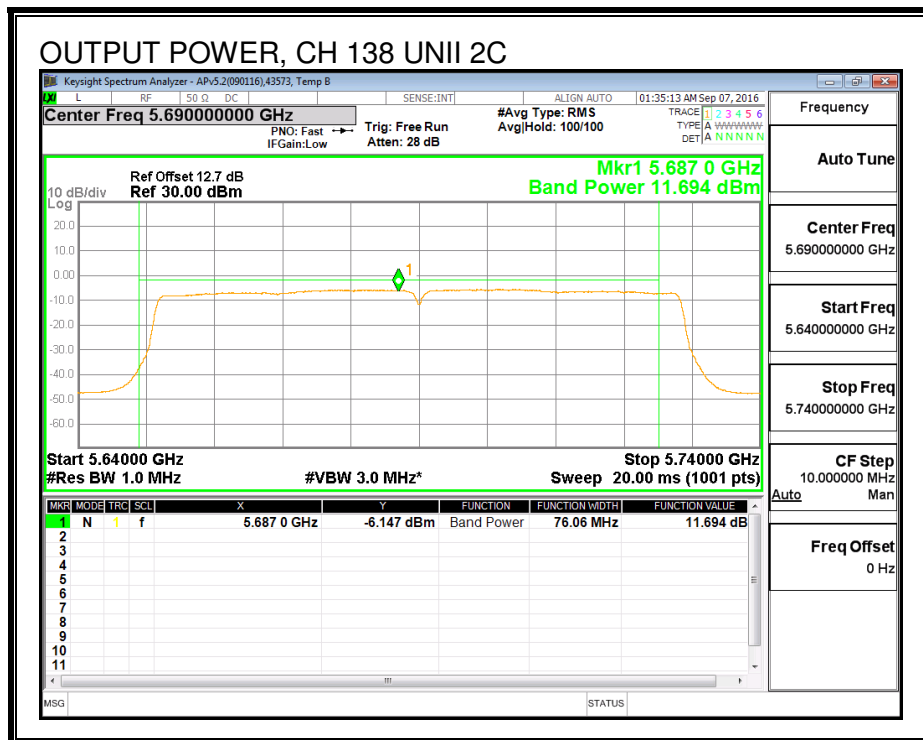
**PSD Results**

Channel	Frequency (MHz)	Chain 0 Meas PSD (dBm)	Chain 1 Meas PSD (dBm)	Total Corr'd PSD (dBm)	PSD Limit (dBm)	PSD Margin (dB)
138	5690	-5.56	-5.59	-2.23	6.81	-9.04

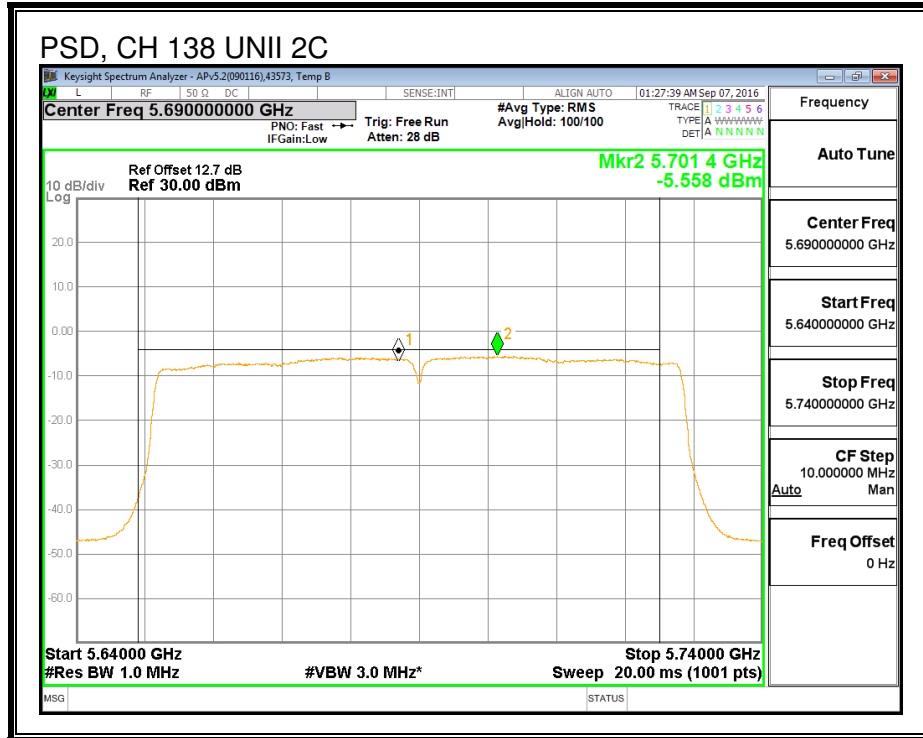
**OUTPUT POWER, CHAIN 0**



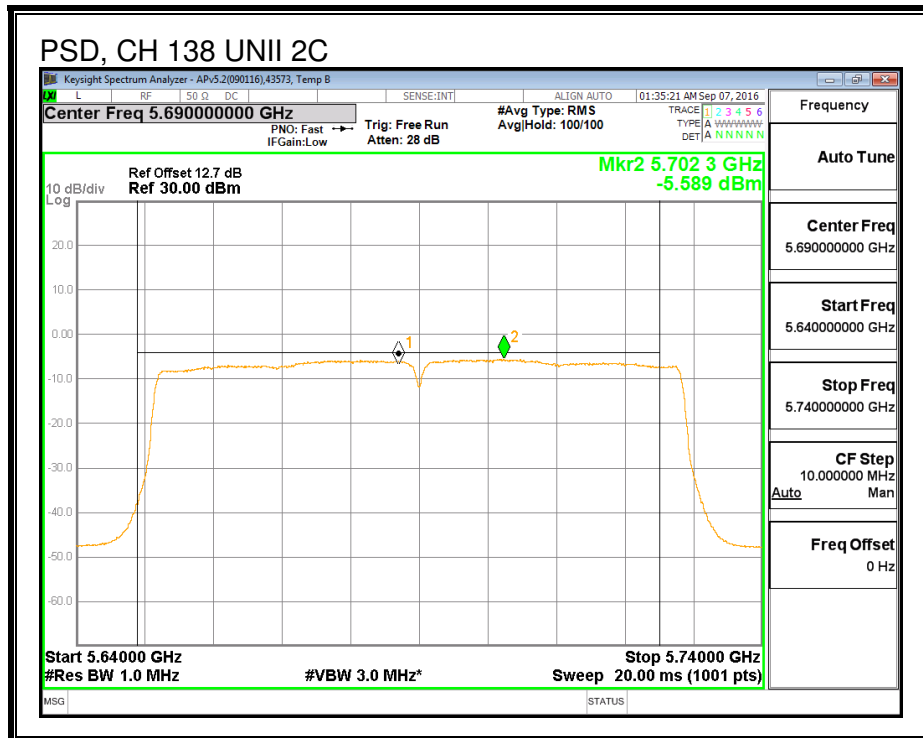
**OUTPUT POWER, CHAIN 1**



**PSD, CHAIN 0**



**PSD, CHAIN 1**



**UNII-3 BAND**

**Antenna Gain and Limit**

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Directional Gain (dBi)	Directional Gain (dBi)	Power Limit (dBm)	PSD Limit (dBm)
138	5690	6.00	10.19	10.19	25.81	25.81

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

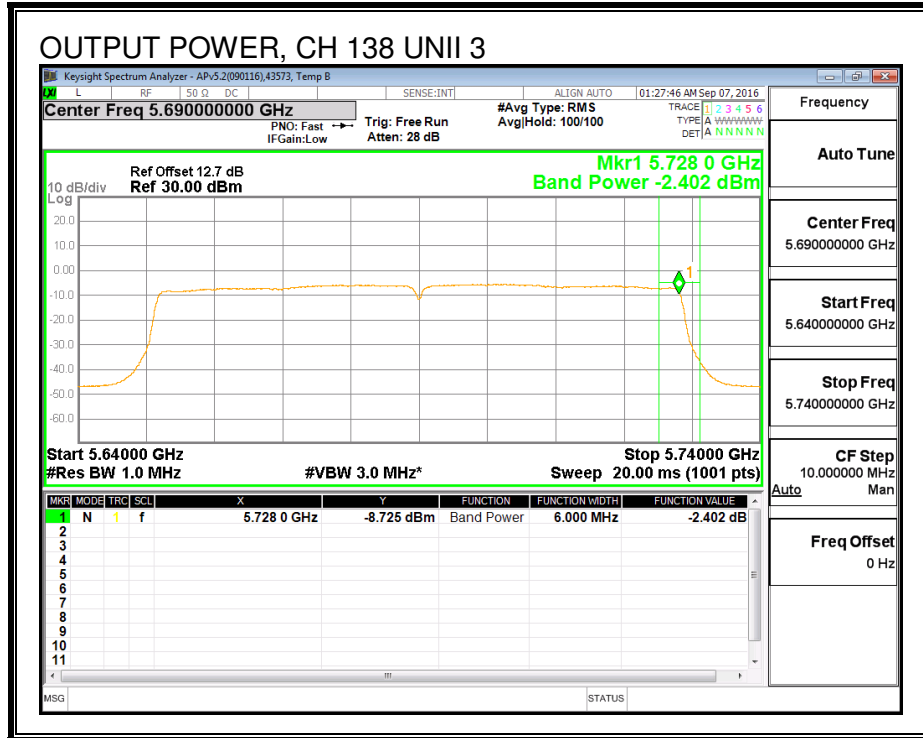
Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Chain 1 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
138	5690	2.40	-2.47	3.96	25.81	-21.85

**PSD Results**

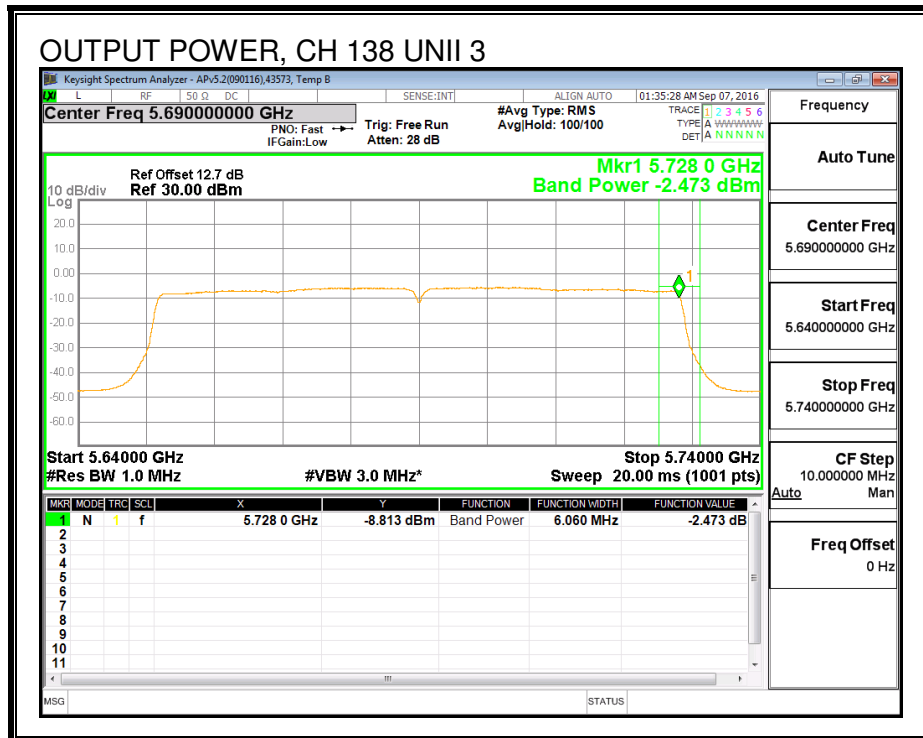
Channel	Frequency (MHz)	Chain 0 Meas PSD (dBm)	Chain 1 Meas PSD (dBm)	Total Corr'd PSD (dBm)	PSD Limit (dBm)	PSD Margin (dB)
138	5690	-9.85	-9.86	-6.51	25.81	-32.32



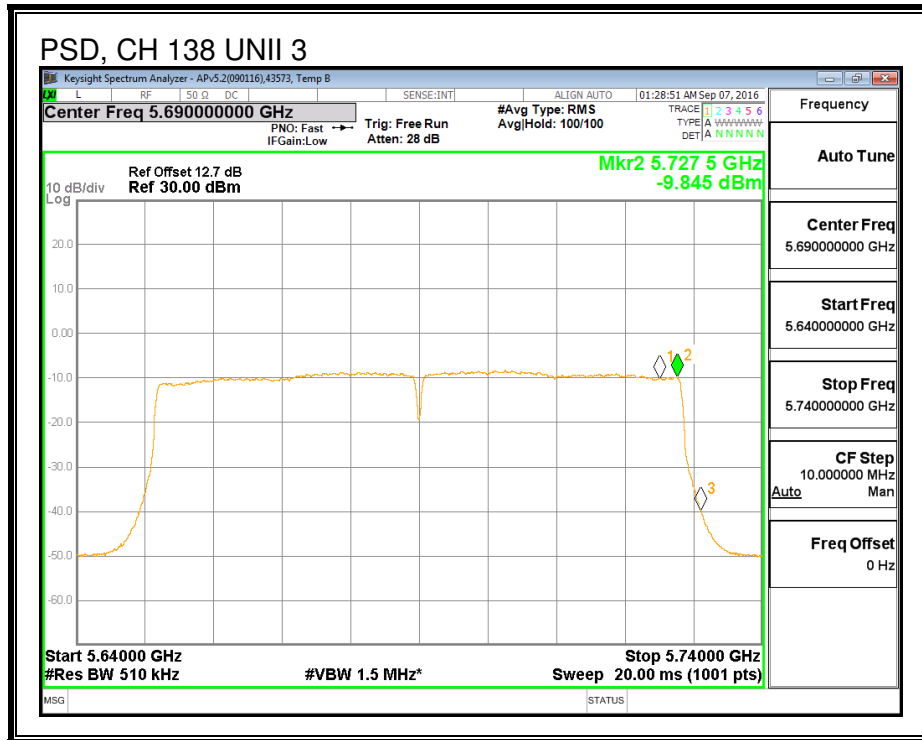
**OUTPUT POWER, CHAIN 0**



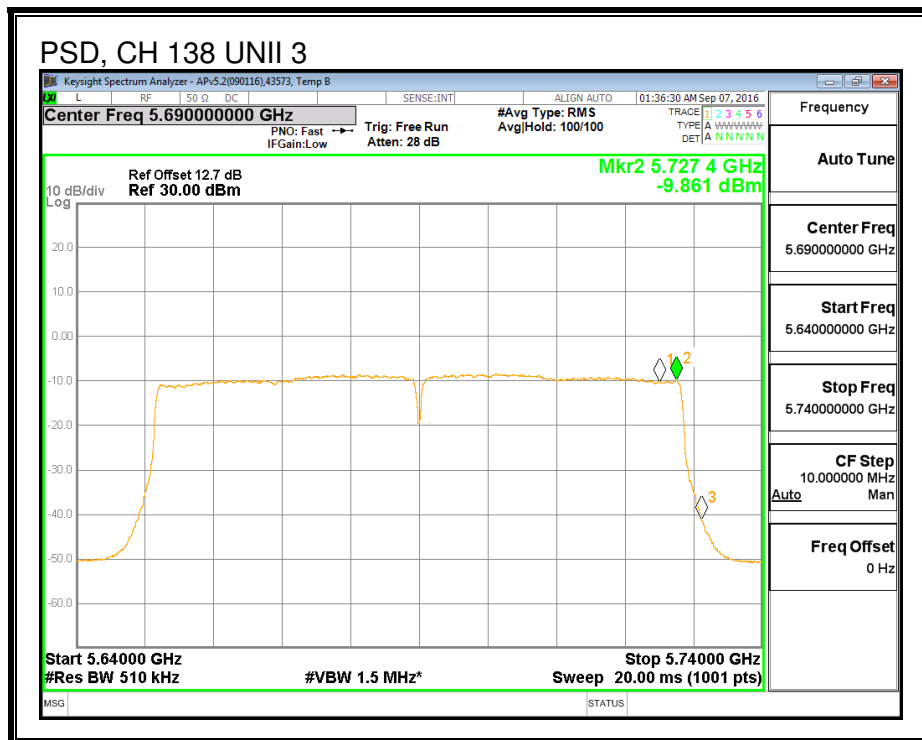
**OUTPUT POWER, CHAIN 1**



**PSD, CHAIN 0**



**PSD, CHAIN 1**



### 8.66.6. STRADDLE CHANNEL 138 RESULTS (IC)

#### 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)
138	5690	72.81	10.19	10.19	19.81	6.81

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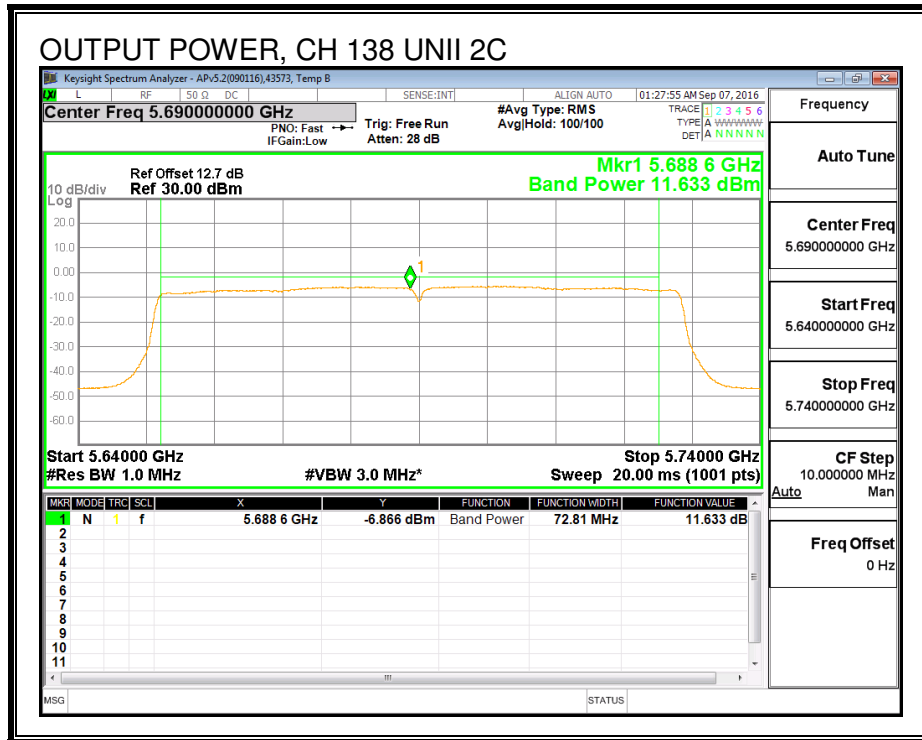
##### Output Power Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Chain 1 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
138	5690	11.63	11.67	14.99	19.81	-4.82

##### 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)
138	5690	-5.56	-5.59	-2.23	6.81	-9.04

**OUTPUT POWER, CHAIN 0**



**OUTPUT POWER, CHAIN 1**

