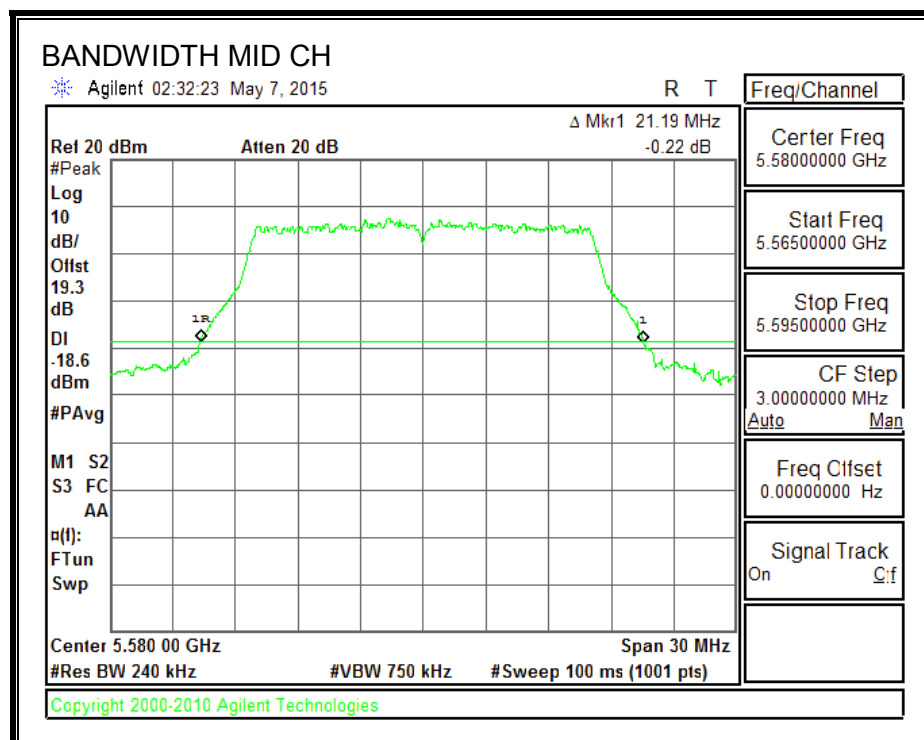
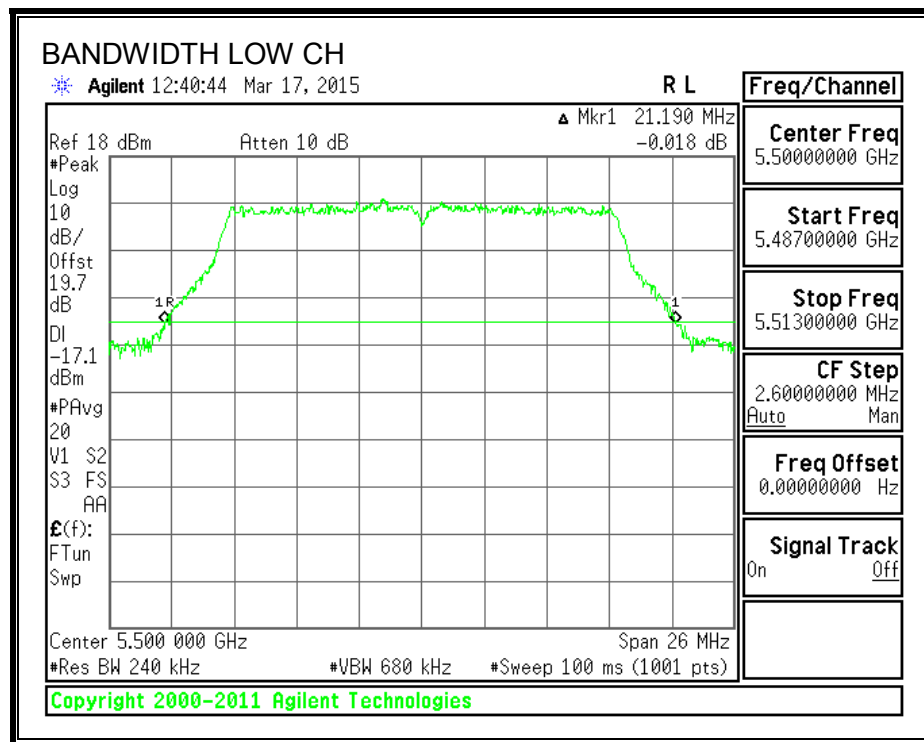
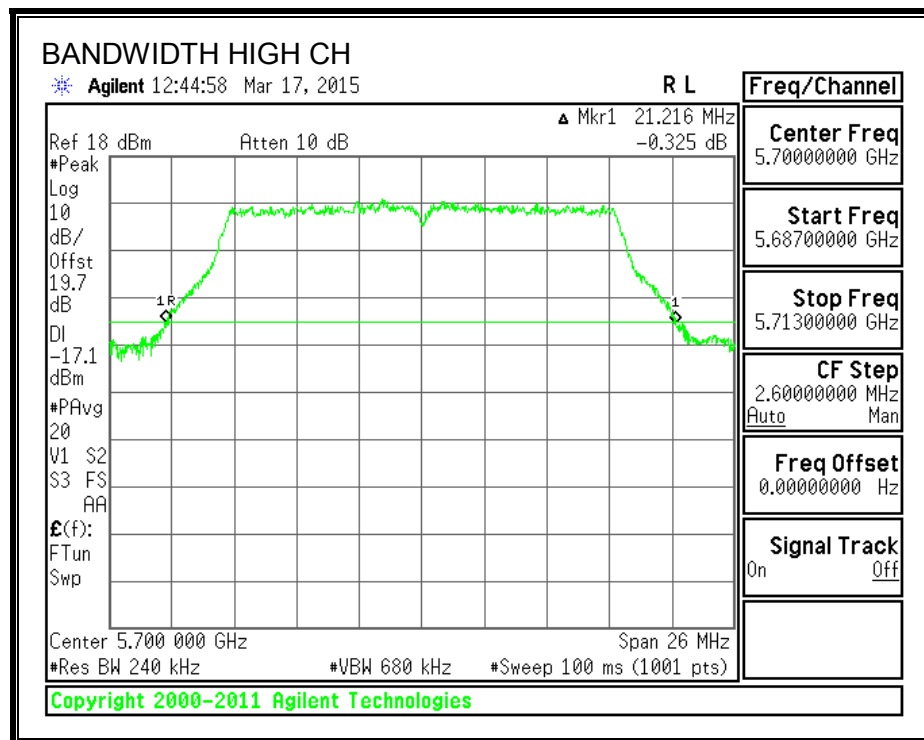


## 26 dB BANDWIDTH





### 8.37.2. 99% BANDWIDTH

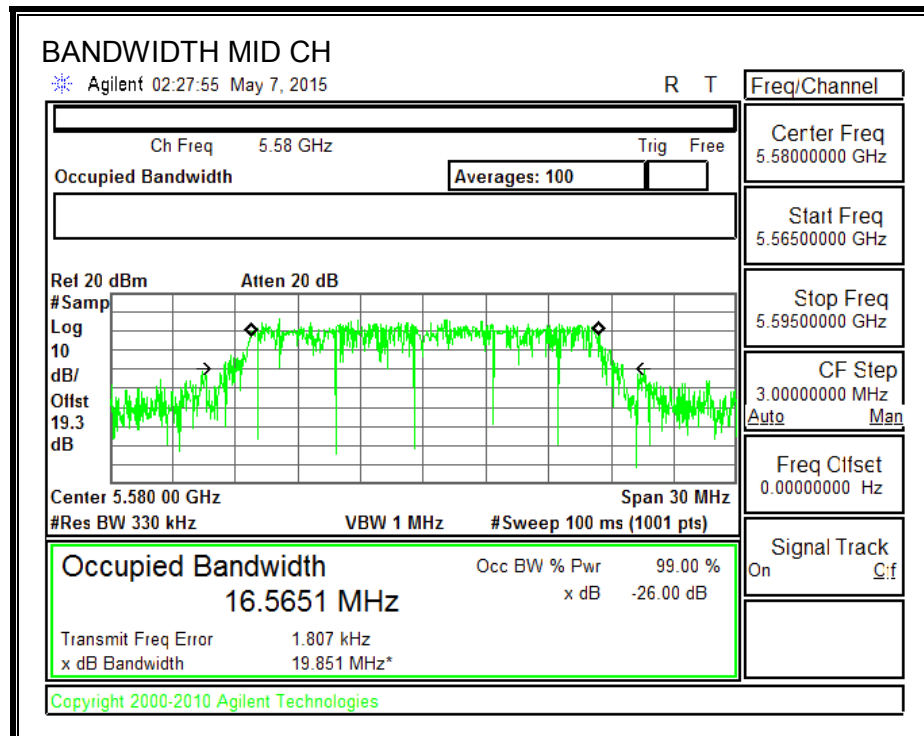
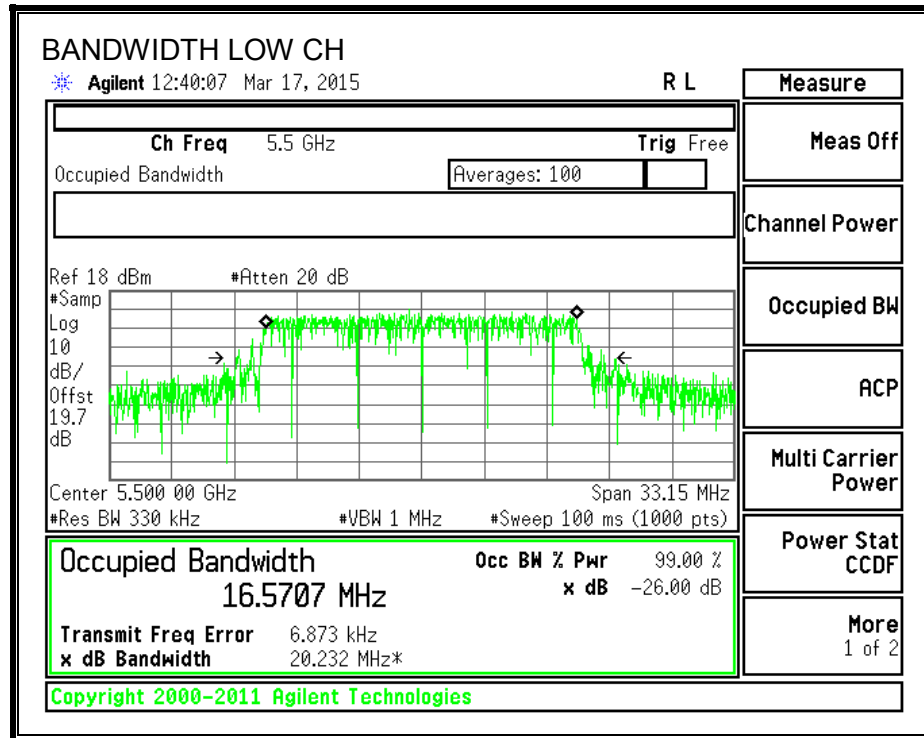
#### LIMITS

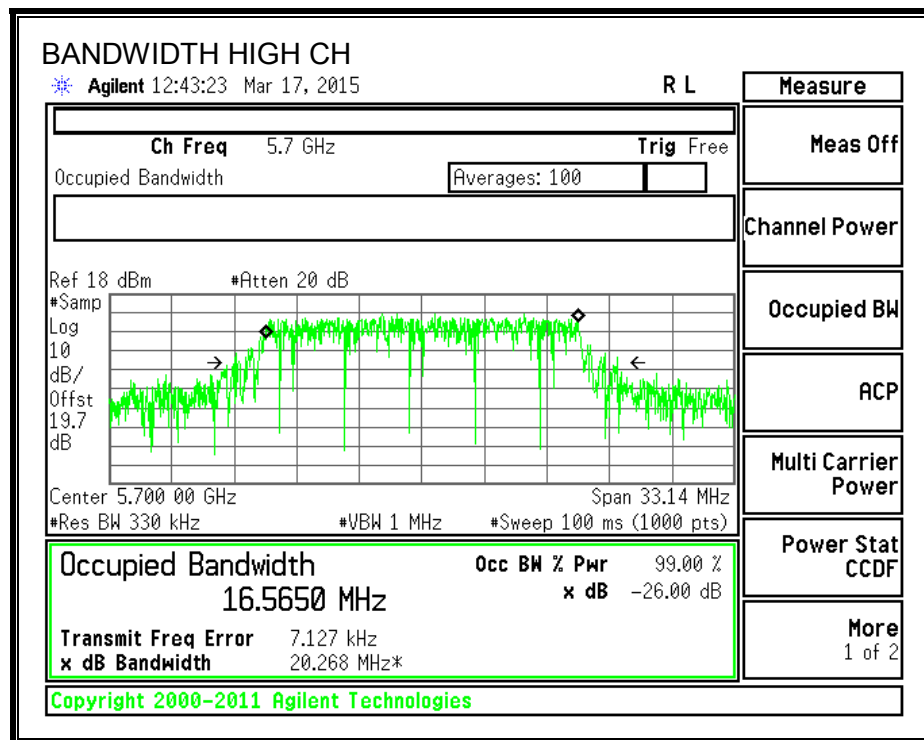
None; for reporting purposes only.

#### RESULTS

| Channel | Frequency<br>(MHz) | 99% Bandwidth<br>(MHz) |
|---------|--------------------|------------------------|
| Low     | 5500               | 16.5707                |
| Mid     | 5580               | 16.5651                |
| High    | 5700               | 16.5650                |

# 99% BANDWIDTH





### **8.37.3. 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.

#### **DIRECTIONAL ANTENNA GAIN**

This is SISO mode, AG is the highest (worst-case) = 5.72 dBi

## RESULTS

### Bandwidth, Antenna Gain, and Limits

| Channel | Frequency<br>(MHz) | Min<br>26 dB<br>BW<br>(MHz) | Directional<br>Gain<br>(dBi) | Power<br>Limit<br>(dBm) | PSD<br>Limit<br>(dBm) |
|---------|--------------------|-----------------------------|------------------------------|-------------------------|-----------------------|
| Low     | 5500               | 23.14                       | 5.72                         | 24.00                   | 11.00                 |
| Mid     | 5600               | 21.29                       | 5.72                         | 24.00                   | 11.00                 |
| High    | 5700               | 22.97                       | 5.72                         | 24.00                   | 11.00                 |

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

### Output Power Results

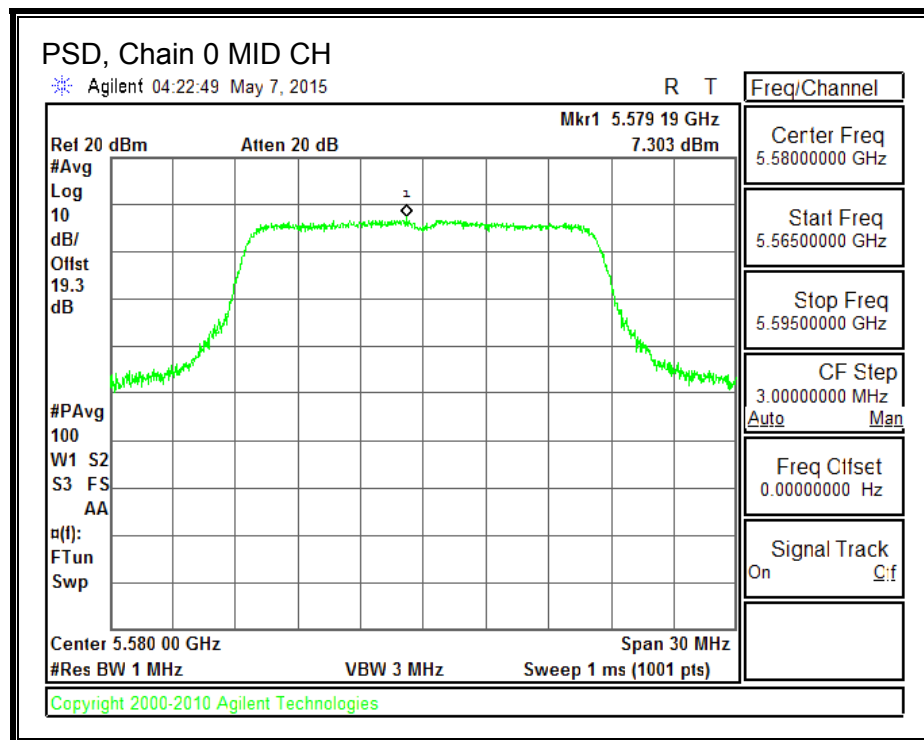
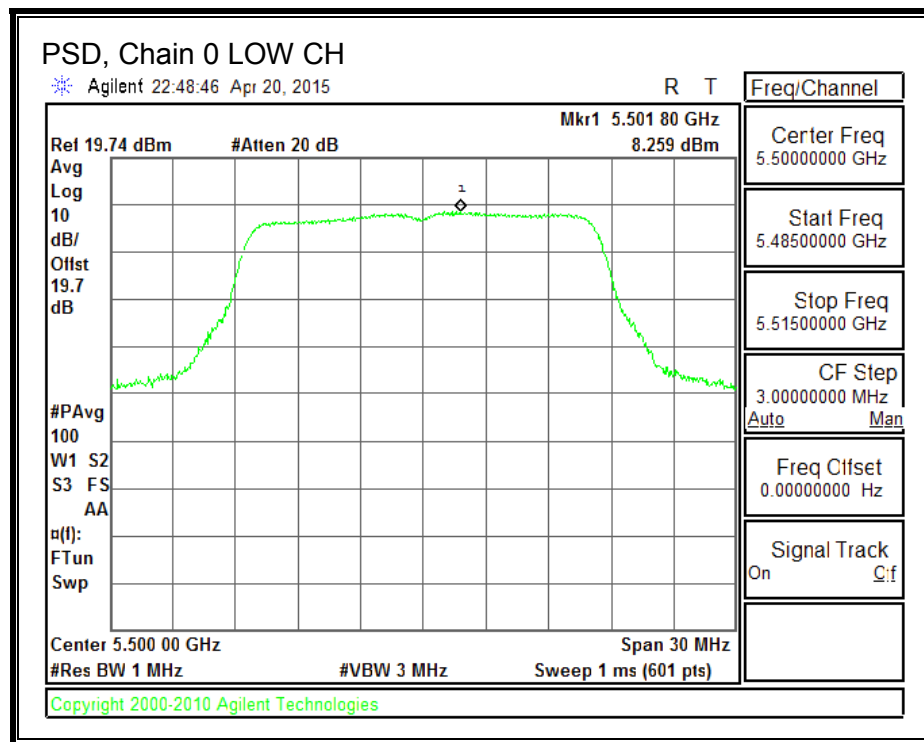
| Channel | Frequency<br>(MHz) | Chain 0<br>Meas<br>Power<br>(dBm) | Total<br>Corr'd<br>Power<br>(dBm) | Power<br>Limit<br>(dBm) | Power<br>Margin<br>(dB) |
|---------|--------------------|-----------------------------------|-----------------------------------|-------------------------|-------------------------|
| Low     | 5500               | 15.90                             | 15.90                             | 24.00                   | -8.10                   |
| Mid     | 5600               | 18.00                             | 18.00                             | 24.00                   | -6.00                   |
| High    | 5700               | 14.70                             | 14.70                             | 24.00                   | -9.30                   |

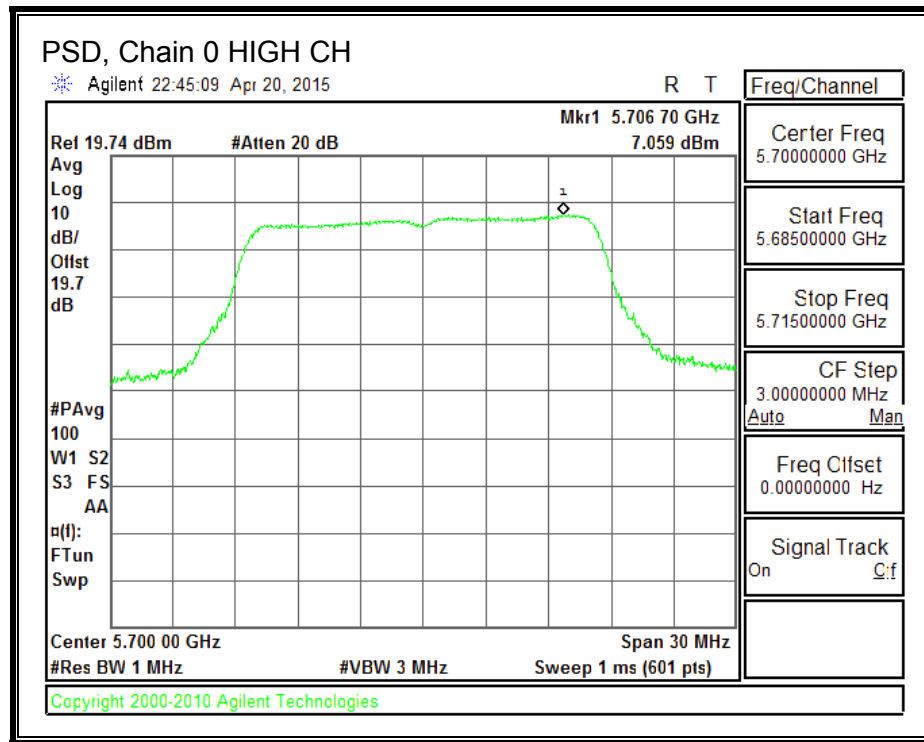
### PSD Results

| Channel | Frequency<br>(MHz) | Chain 0<br>Meas<br>PSD<br>(dBm) | Total<br>Corr'd<br>PSD<br>(dBm) | PSD<br>Limit<br>(dBm) | PSD<br>Margin<br>(dB) |
|---------|--------------------|---------------------------------|---------------------------------|-----------------------|-----------------------|
| Low     | 5500               | 8.259                           | 8.259                           | 11.00                 | -2.741                |
| Mid     | 5600               | 7.303                           | 7.303                           | 11.00                 | -3.697                |
| High    | 5700               | 7.059                           | 7.059                           | 11.00                 | -3.941                |

**Note:** the power readings above were measured with gated method, and the measurement was taken only during the ON time. No duty cycle correction was necessary.

**PSD, Chain 0**





## **8.38. 802.11n HT20 CDD 2TX MODE IN THE 5.6 GHz BAND**

### **8.38.1. 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.

#### **DIRECTIONAL ANTENNA GAIN**

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

| <b>Chain 0<br/>Antenna<br/>Gain<br/>(dBi)</b> | <b>Chain 1<br/>Antenna<br/>Gain<br/>(dBi)</b> | <b>Uncorrelated Chains<br/>Directional<br/>Gain<br/>(dBi)</b> |
|-----------------------------------------------|-----------------------------------------------|---------------------------------------------------------------|
| 3.17                                          | 4.72                                          | 5.01                                                          |

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

| <b>Chain 0<br/>Antenna<br/>Gain<br/>(dBi)</b> | <b>Chain 1<br/>Antenna<br/>Gain<br/>(dBi)</b> | <b>Correlated Chains<br/>Directional<br/>Gain<br/>(dBi)</b> |
|-----------------------------------------------|-----------------------------------------------|-------------------------------------------------------------|
| 3.17                                          | 4.72                                          | 7.99                                                        |

## RESULTS

### Bandwidth, Antenna Gain, and Limits

| Channel | Frequency<br>(MHz) | Min<br>26 dB<br>BW<br>(MHz) | Directional<br>Gain<br>for Power<br>(dBi) | Directional<br>Gain<br>for PSD<br>(dBi) | Power<br>Limit<br>(dBm) | PSD<br>Limit<br>(dBm) |
|---------|--------------------|-----------------------------|-------------------------------------------|-----------------------------------------|-------------------------|-----------------------|
| Low     | 5500               | 27.89                       | 5.01                                      | 7.99                                    | 24.00                   | 9.01                  |
| Mid     | 5580               | 27.24                       | 5.01                                      | 7.99                                    | 24.00                   | 9.01                  |
| High    | 5700               | 21.35                       | 5.01                                      | 7.99                                    | 24.00                   | 9.01                  |

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

### Output Power Results

| Channel | Frequency<br>(MHz) | Chain 0<br>Meas<br>Power<br>(dBm) | Chain 1<br>Meas<br>Power<br>(dBm) | Total<br>Corr'd<br>Power<br>(dBm) | Power<br>Limit<br>(dBm) | Power<br>Margin<br>(dB) |
|---------|--------------------|-----------------------------------|-----------------------------------|-----------------------------------|-------------------------|-------------------------|
| Low     | 5500               | 15.10                             | 15.00                             | 18.06                             | 24.00                   | -5.94                   |
| Mid     | 5580               | 15.90                             | 16.00                             | 18.96                             | 24.00                   | -5.04                   |
| High    | 5700               | 13.50                             | 13.20                             | 16.36                             | 24.00                   | -7.64                   |

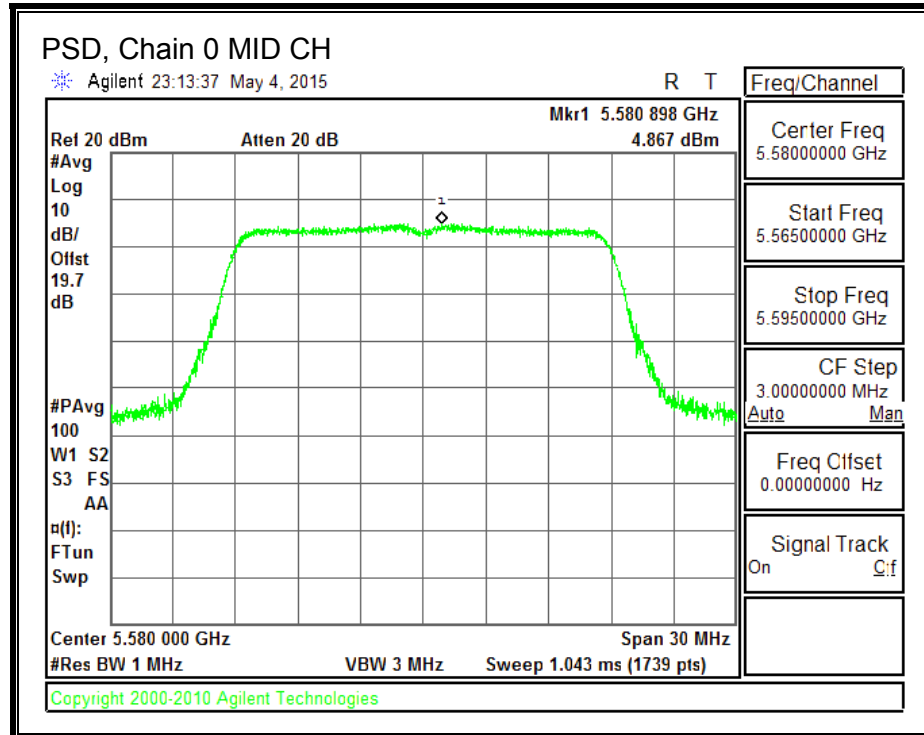
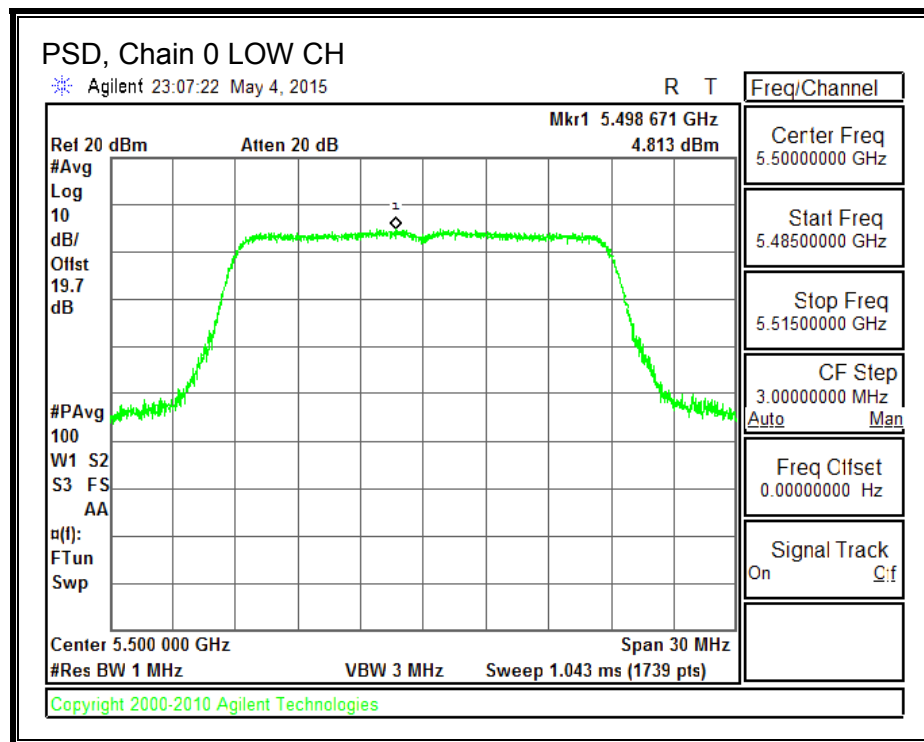
### PSD Results

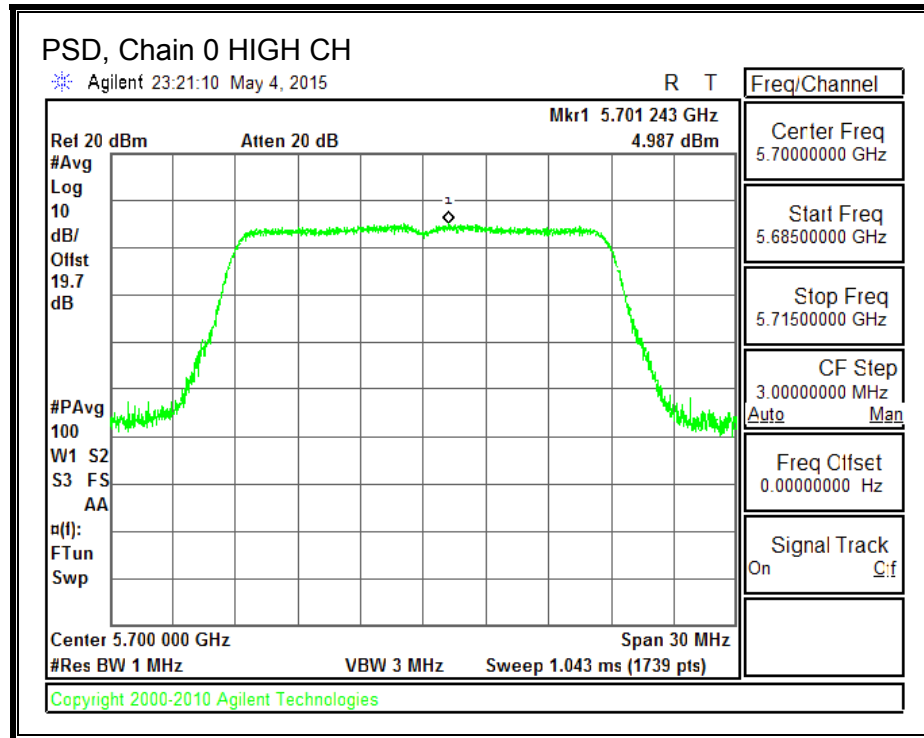
| Channel | Frequency<br>(MHz) | Chain 0<br>Meas<br>PSD<br>(dBm) | Chain 1<br>Meas<br>PSD<br>(dBm) | Total<br>Corr'd<br>PSD<br>(dBm) | PSD<br>Limit<br>(dBm) | PSD<br>Margin<br>(dB) |
|---------|--------------------|---------------------------------|---------------------------------|---------------------------------|-----------------------|-----------------------|
| Low     | 5500               | 4.813                           | 5.129                           | 7.98                            | 9.01                  | -1.03                 |
| Mid     | 5580               | 4.867                           | 5.073                           | 7.98                            | 9.01                  | -1.03                 |
| High    | 5700               | 4.987                           | 4.984                           | 8.00                            | 9.01                  | -1.01                 |

**Note:** for Chain 0 and Chain 1, 26dB & 99% data & plots, see section 802.11n HT20 CDD 3TX MODE IN THE 5.6 GHz BAND

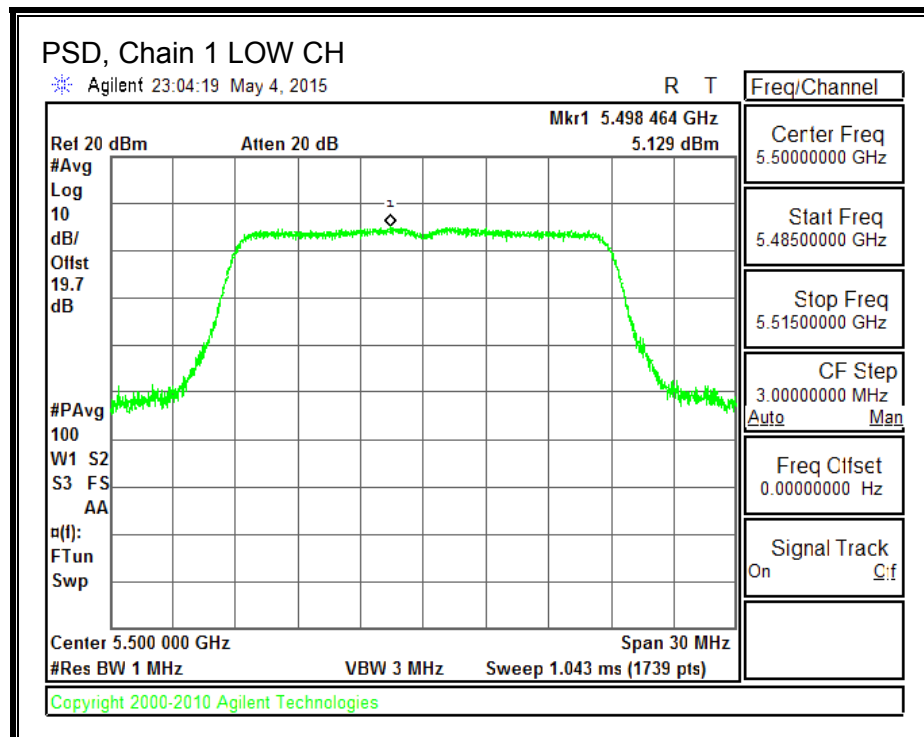
**Note:** the power readings above were measured with gated method, and the measurement was taken only during the ON time. No duty cycle correction was necessary

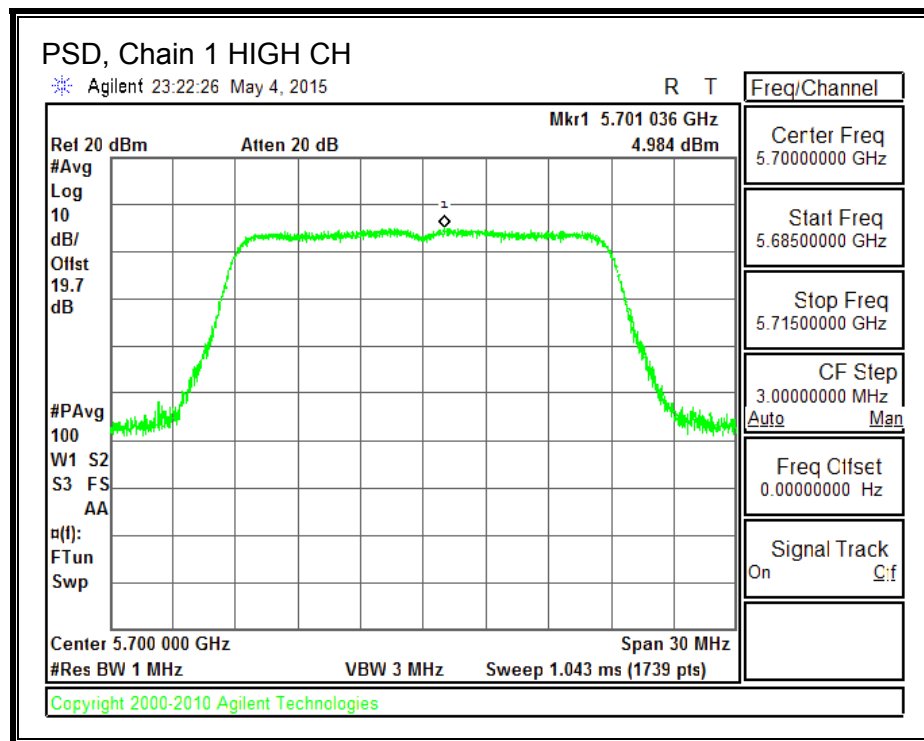
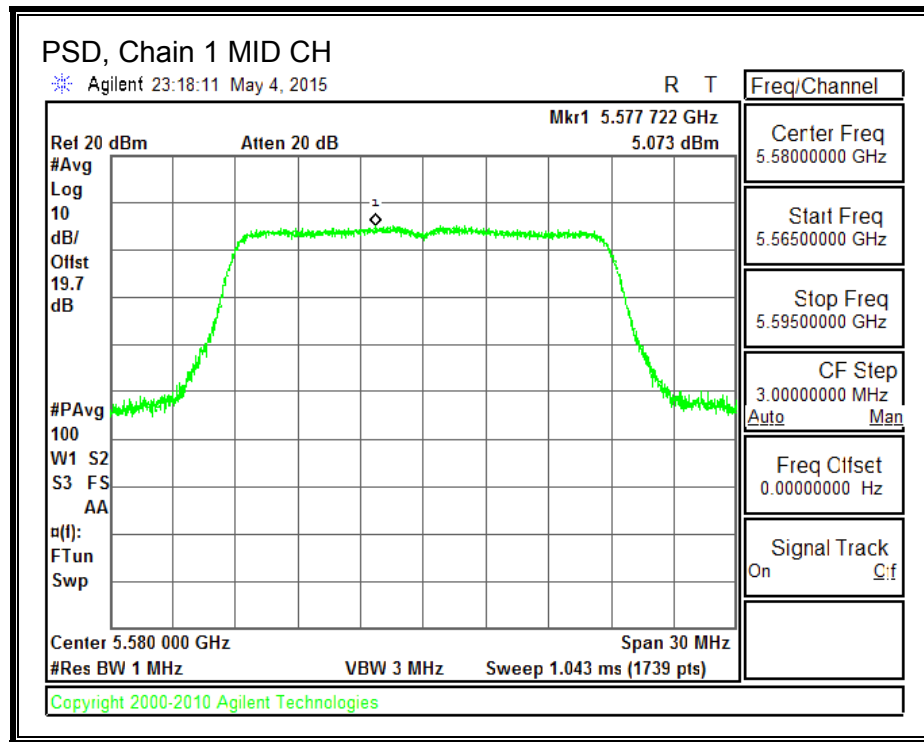
**PSD, Chain 0**





**PSD, Chain 1**





## **STRADDLE CHANNEL 144 RESULTS**

### **UNII-2C BAND**

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

| Channel | Frequency<br>(MHz) | Min<br>26 dB<br>BW<br>(MHz) | Directional<br>Gain<br>for Power<br>(dBi) | Directional<br>Gain<br>for PSD<br>(dBi) | Power<br>Limit<br>(dBm) | PSD<br>Limit<br>(dBm) |
|---------|--------------------|-----------------------------|-------------------------------------------|-----------------------------------------|-------------------------|-----------------------|
| 144     | 5720               | 20.08                       | 5.01                                      | 7.99                                    | 24.00                   | 9.01                  |

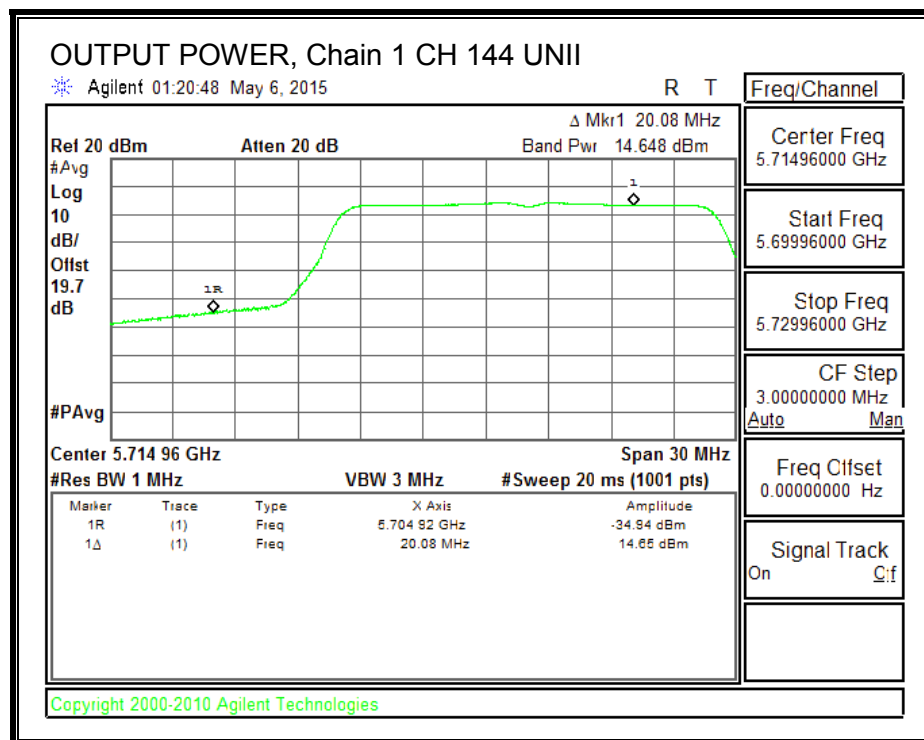
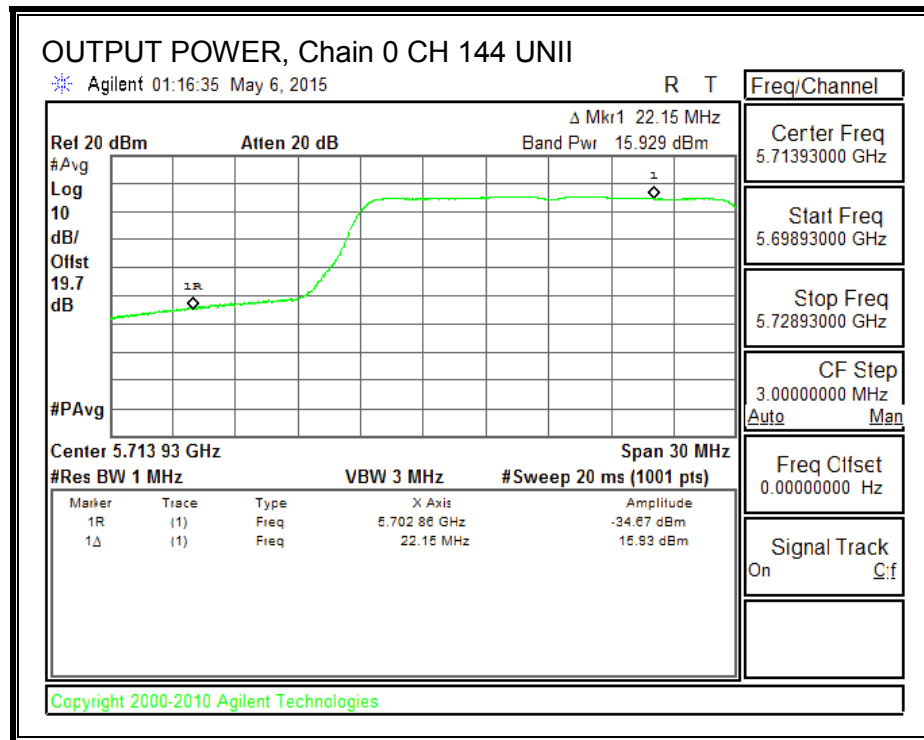
|                    |      |                                                |
|--------------------|------|------------------------------------------------|
| Duty Cycle CF (dB) | 0.00 | Included in Calculations of Corr'd Power & PSD |
|--------------------|------|------------------------------------------------|

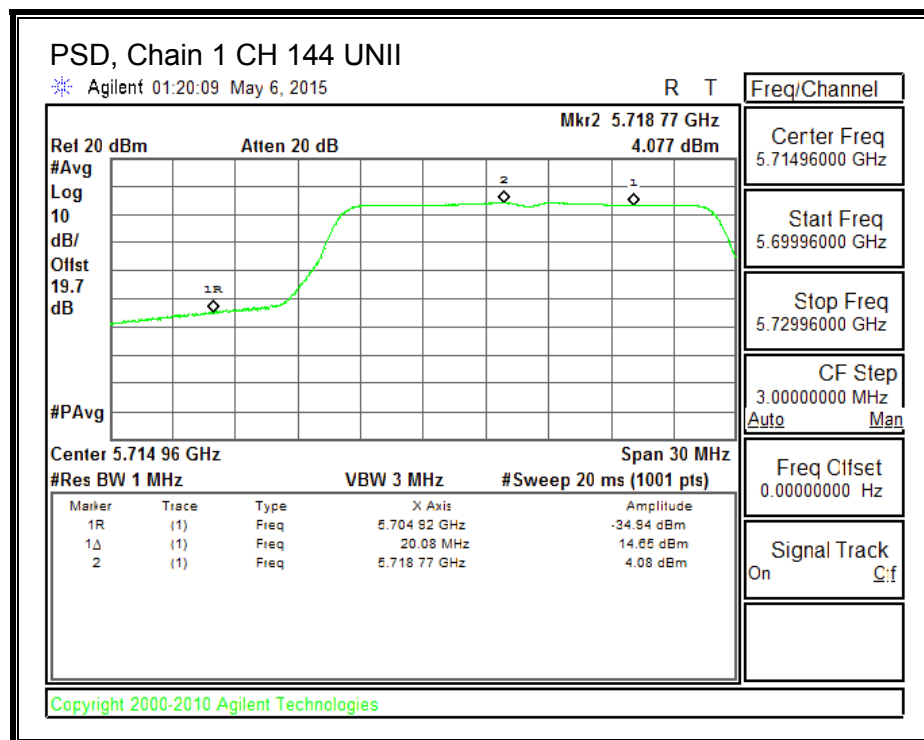
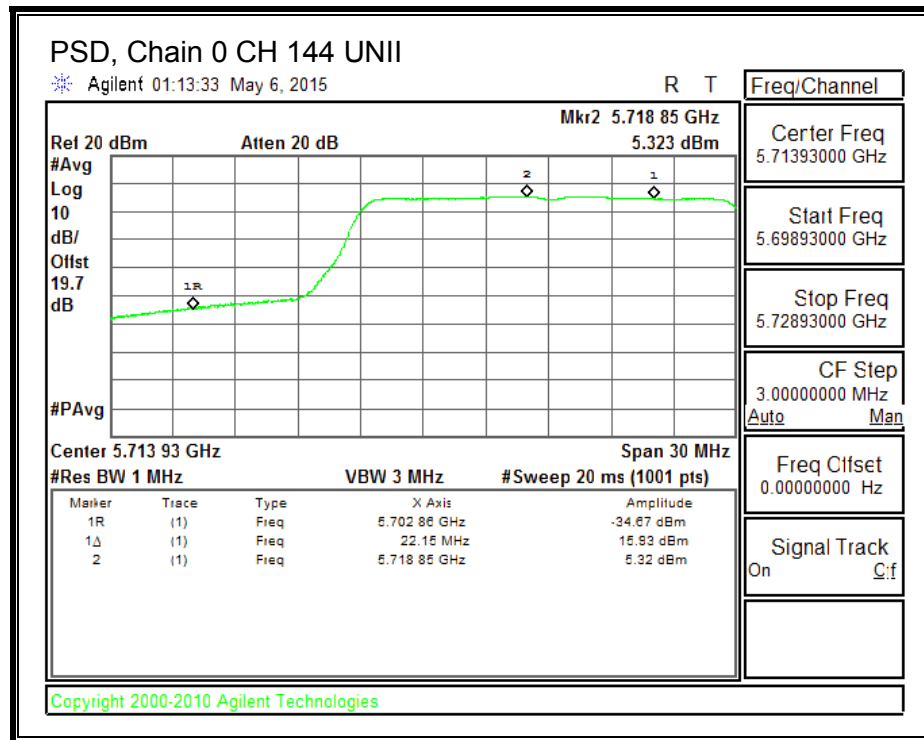
#### **Output Power Results**

| Channel | Frequency<br>(MHz) | Chain 0<br>Meas<br>Power<br>(dBm) | Chain 1<br>Meas<br>Power<br>(dBm) | Total<br>Corr'd<br>Power<br>(dBm) | Power<br>Limit<br>(dBm) | Power<br>Margin<br>(dB) |
|---------|--------------------|-----------------------------------|-----------------------------------|-----------------------------------|-------------------------|-------------------------|
| 144     | 5720               | 15.929                            | 14.648                            | 18.35                             | 24.00                   | -5.65                   |

#### **PSD Results**

| Channel | Frequency<br>(MHz) | Chain 0<br>Meas<br>PSD<br>(dBm) | Chain 1<br>Meas<br>PSD<br>(dBm) | Total<br>Corr'd<br>PSD<br>(dBm) | PSD<br>Limit<br>(dBm) | PSD<br>Margin<br>(dB) |
|---------|--------------------|---------------------------------|---------------------------------|---------------------------------|-----------------------|-----------------------|
| 144     | 5720               | 5.323                           | 4.077                           | 7.75                            | 9.01                  | -1.26                 |





# **UNII-3 BAND**

## **Antenna Gain and Limit**

| Channel | Frequency<br>(MHz) | Directional<br>Gain<br>for Power<br>(dBi) | Directional<br>Gain<br>for PSD<br>(dBi) | Power<br>Limit<br>(dBm) | PSD<br>Limit<br>(dBm) |
|---------|--------------------|-------------------------------------------|-----------------------------------------|-------------------------|-----------------------|
| 144     | 5720               | 5.06                                      | 8.03                                    | 30.00                   | 27.97                 |

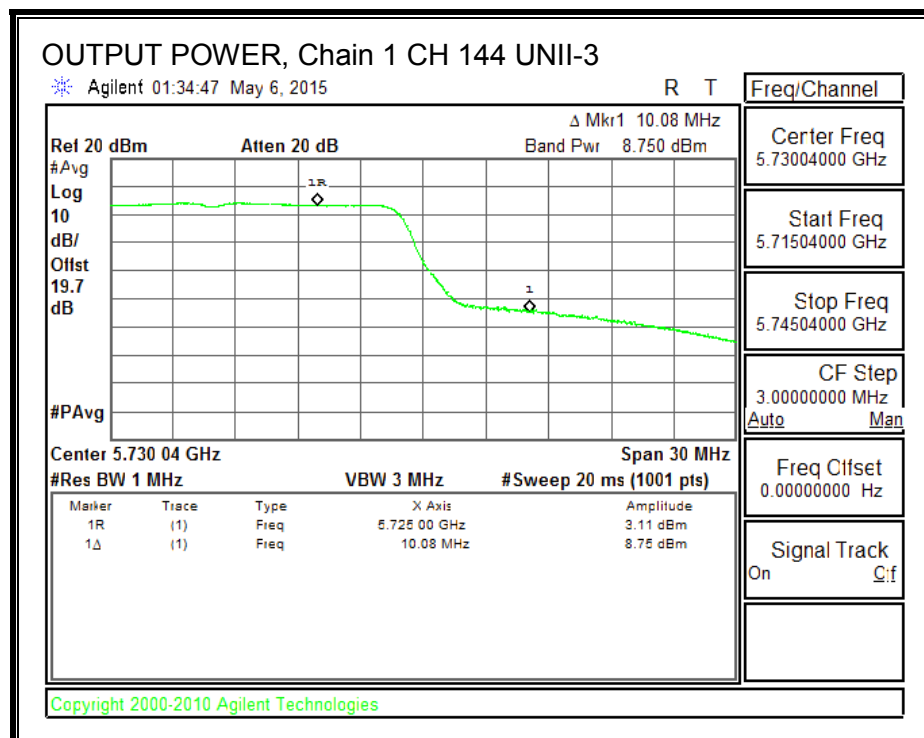
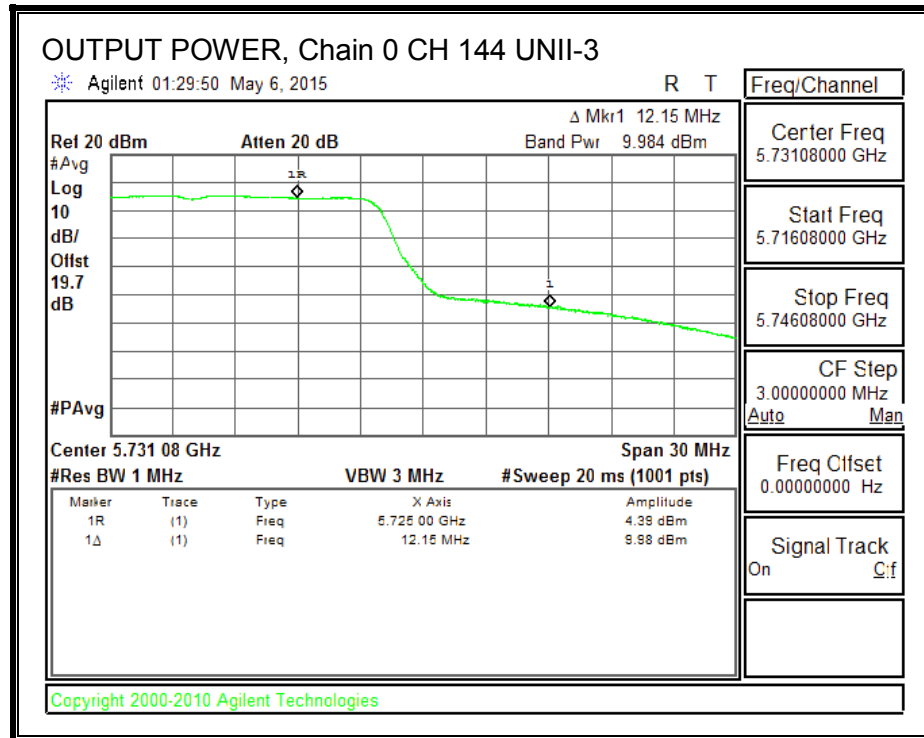
|                    |      |                                                |
|--------------------|------|------------------------------------------------|
| Duty Cycle CF (dB) | 0.00 | Included in Calculations of Corr'd Power & PSD |
|--------------------|------|------------------------------------------------|

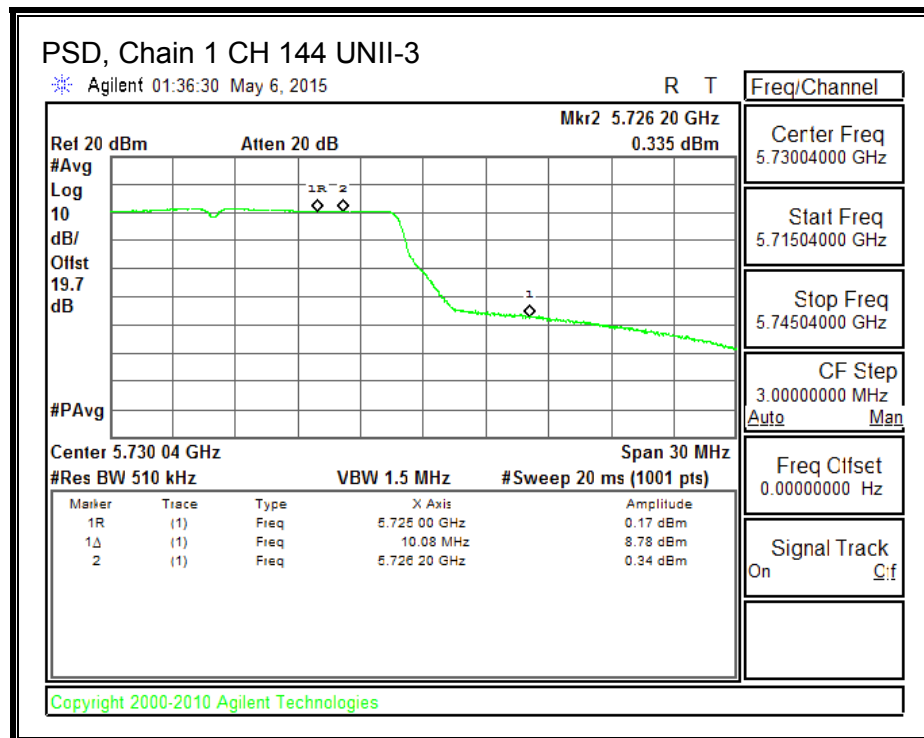
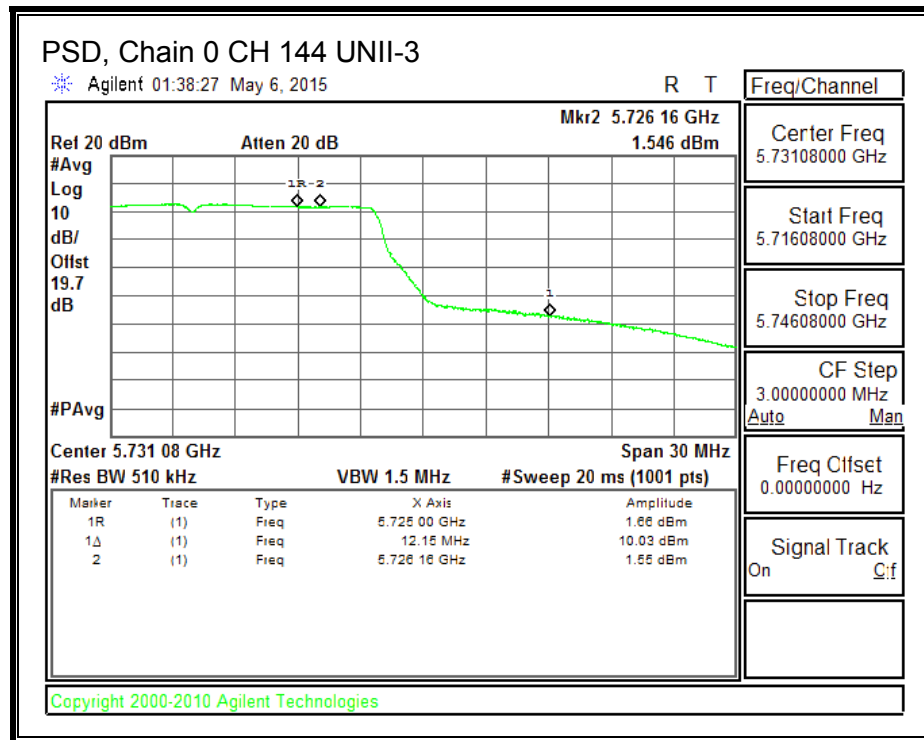
## **Output Power Results**

| Channel | Frequency<br>(MHz) | Chain 0<br>Meas<br>Power<br>(dBm) | Chain 1<br>Meas<br>Power<br>(dBm) | Total<br>Corr'd<br>Power<br>(dBm) | Power<br>Limit<br>(dBm) | Power<br>Margin<br>(dB) |
|---------|--------------------|-----------------------------------|-----------------------------------|-----------------------------------|-------------------------|-------------------------|
| 144     | 5720               | 9.98                              | 8.75                              | 12.42                             | 30.00                   | -17.58                  |

## **PSD Results**

| Channel | Frequency<br>(MHz) | Chain 0<br>Meas<br>PSD<br>(dBm) | Chain 1<br>Meas<br>PSD<br>(dBm) | Total<br>Corr'd<br>PSD<br>(dBm) | PSD<br>Limit<br>(dBm) | PSD<br>Margin<br>(dB) |
|---------|--------------------|---------------------------------|---------------------------------|---------------------------------|-----------------------|-----------------------|
| 144     | 5720               | 1.546                           | 0.335                           | 3.993                           | 27.97                 | -23.98                |





### 8.38.2. AVERAGE OUTPUT POWER (WHOLE FUNDAMENTAL)

#### LIMITS

None; for reporting purposes only.

#### TEST PROCEDURE

The transmitter output is connected to a power meter.

#### RESULTS

##### Output Power Results

| Channel | Frequency<br>(MHz) | Chain 0<br>Meas<br>Power<br>(dBm) | Chain 1<br>Meas<br>Power<br>(dBm) | Total<br>Corr'd<br>Power<br>(dBm) |
|---------|--------------------|-----------------------------------|-----------------------------------|-----------------------------------|
| 144     | 5720               | 17.90                             | 17.50                             | 20.71                             |

**Note:** the power readings above were measured with gated method, and the measurement was taken only during the ON time. No duty cycle correction was necessary

## **8.39. 802.11n HT20 STBC 2TX MODE IN THE 5.6 GHz BAND**

### **8.39.1. 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.

#### **DIRECTIONAL ANTENNA GAIN**

For power and PSD, the TX chains are uncorrelated and the antenna gain is unequal among the chains. The directional gain is:

| <b>Chain 0<br/>Antenna<br/>Gain<br/>(dBi)</b> | <b>Chain 1<br/>Antenna<br/>Gain<br/>(dBi)</b> | <b>Uncorrelated Chains<br/>Directional<br/>Gain<br/>(dBi)</b> |
|-----------------------------------------------|-----------------------------------------------|---------------------------------------------------------------|
| 3.17                                          | 4.72                                          | 5.01                                                          |

## RESULTS

### Bandwidth, Antenna Gain, and Limits

| Channel | Frequency<br>(MHz) | Min<br>26 dB<br>BW<br>(MHz) | Directional<br>Gain<br>for Power<br>(dBi) | Directional<br>Gain<br>for PSD<br>(dBi) | Power<br>Limit<br>(dBm) | PSD<br>Limit<br>(dBm) |
|---------|--------------------|-----------------------------|-------------------------------------------|-----------------------------------------|-------------------------|-----------------------|
| Low     | 5500               | 27.89                       | 5.01                                      | 5.01                                    | 24.00                   | 11.00                 |
| Mid     | 5580               | 27.24                       | 5.01                                      | 5.01                                    | 24.00                   | 11.00                 |
| High    | 5700               | 21.35                       | 5.01                                      | 5.01                                    | 24.00                   | 11.00                 |

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

### Output Power Results

| Channel | Frequency<br>(MHz) | Chain 0<br>Meas<br>Power<br>(dBm) | Chain 1<br>Meas<br>Power<br>(dBm) | Total<br>Corr'd<br>Power<br>(dBm) | Power<br>Limit<br>(dBm) | Power<br>Margin<br>(dB) |
|---------|--------------------|-----------------------------------|-----------------------------------|-----------------------------------|-------------------------|-------------------------|
| Low     | 5500               | 15.10                             | 15.00                             | 18.06                             | 24.00                   | -5.94                   |
| Mid     | 5580               | 17.30                             | 17.81                             | 20.57                             | 24.00                   | -3.43                   |
| High    | 5700               | 13.50                             | 13.20                             | 16.36                             | 24.00                   | -7.64                   |

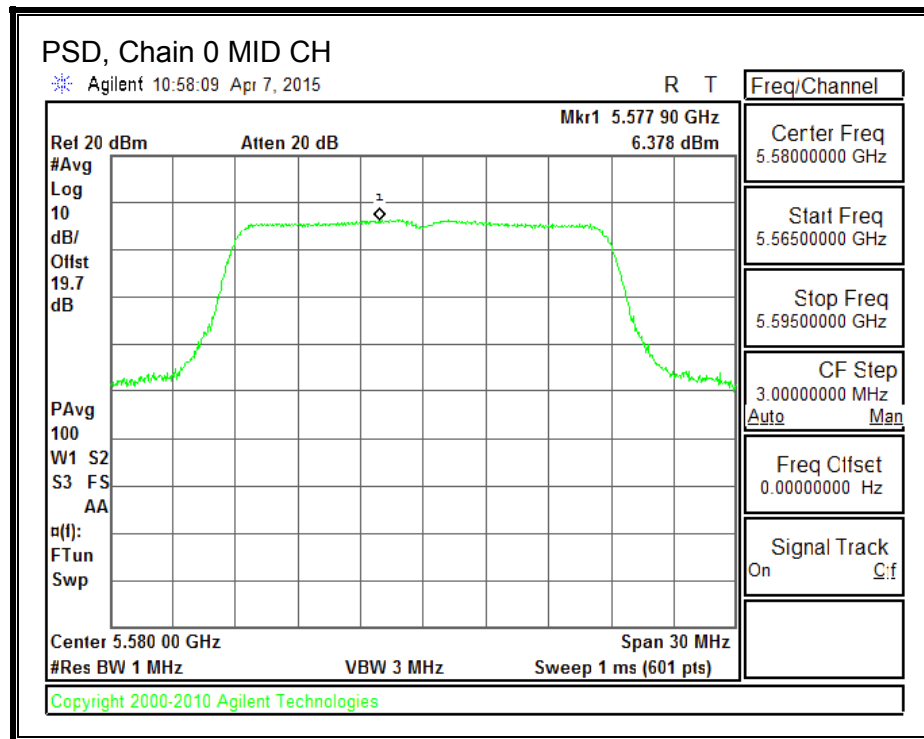
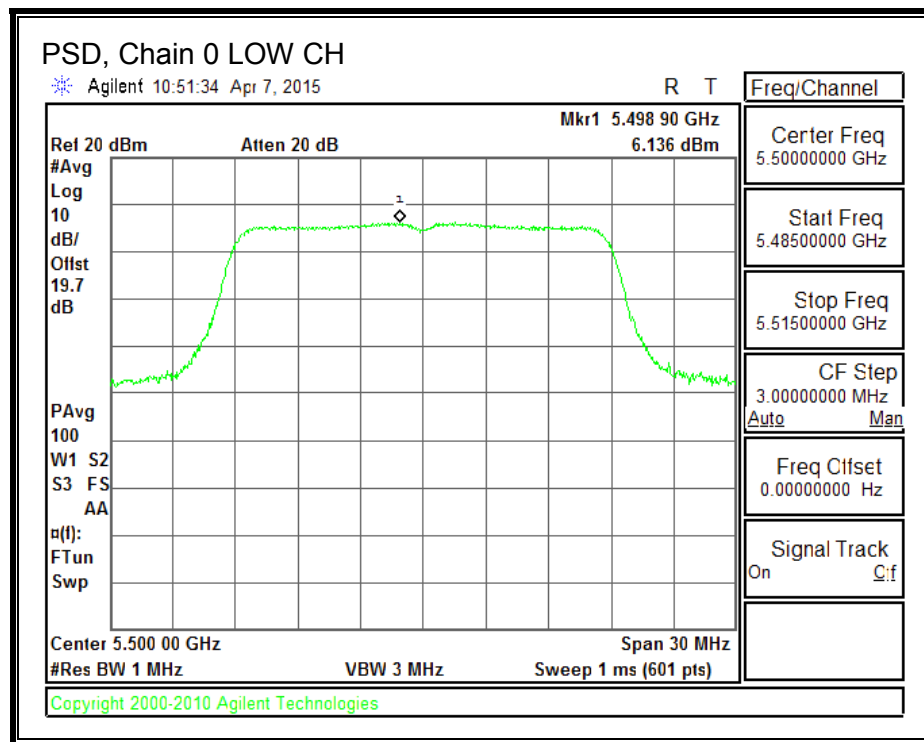
### PSD Results

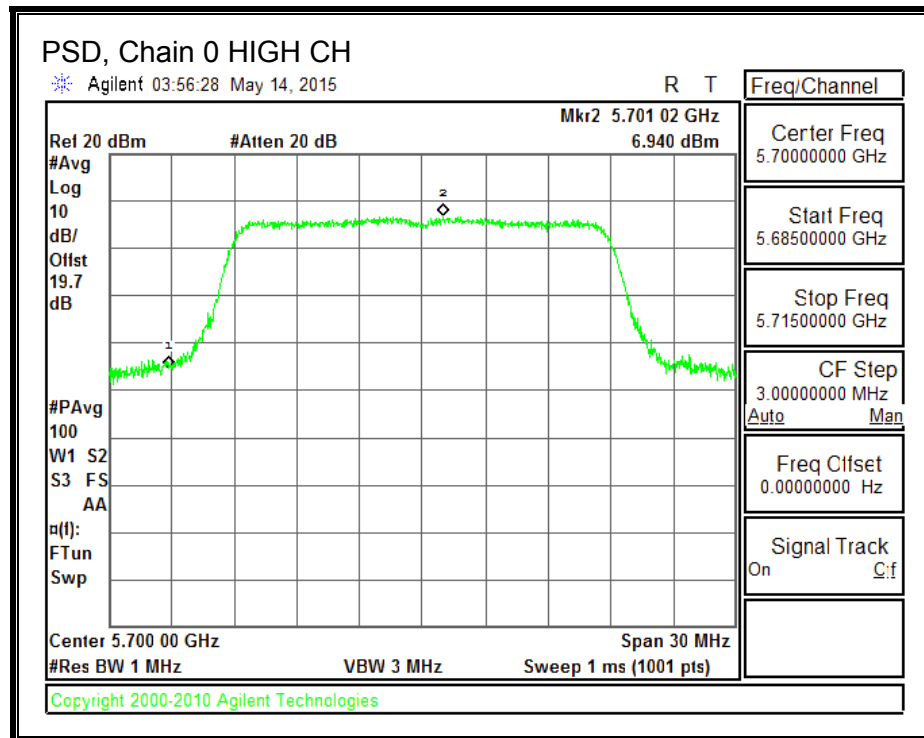
| Channel | Frequency<br>(MHz) | Chain 0<br>Meas<br>PSD<br>(dBm) | Chain 1<br>Meas<br>PSD<br>(dBm) | Total<br>Corr'd<br>PSD<br>(dBm) | PSD<br>Limit<br>(dBm) | PSD<br>Margin<br>(dB) |
|---------|--------------------|---------------------------------|---------------------------------|---------------------------------|-----------------------|-----------------------|
| Low     | 5500               | 6.136                           | 6.435                           | 9.30                            | 11.00                 | -1.70                 |
| Mid     | 5580               | 6.378                           | 6.518                           | 9.46                            | 11.00                 | -1.54                 |
| High    | 5700               | 6.940                           | 6.822                           | 9.89                            | 11.00                 | -1.11                 |

**Note:** for Chain 0 and Chain 1, 26dB & 99% data & plots, see section 802.11n HT20 CDD 3TX MODE IN THE 5.6 GHz BAND

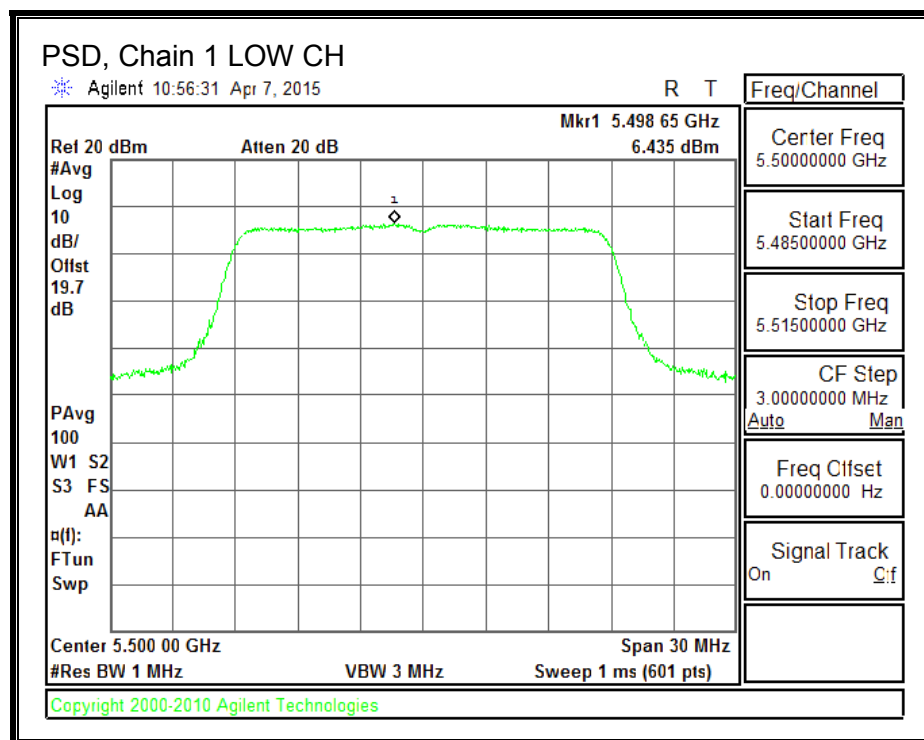
**Note:** the power readings above were measured with gated method, and the measurement was taken only during the ON time. No duty cycle correction was necessary

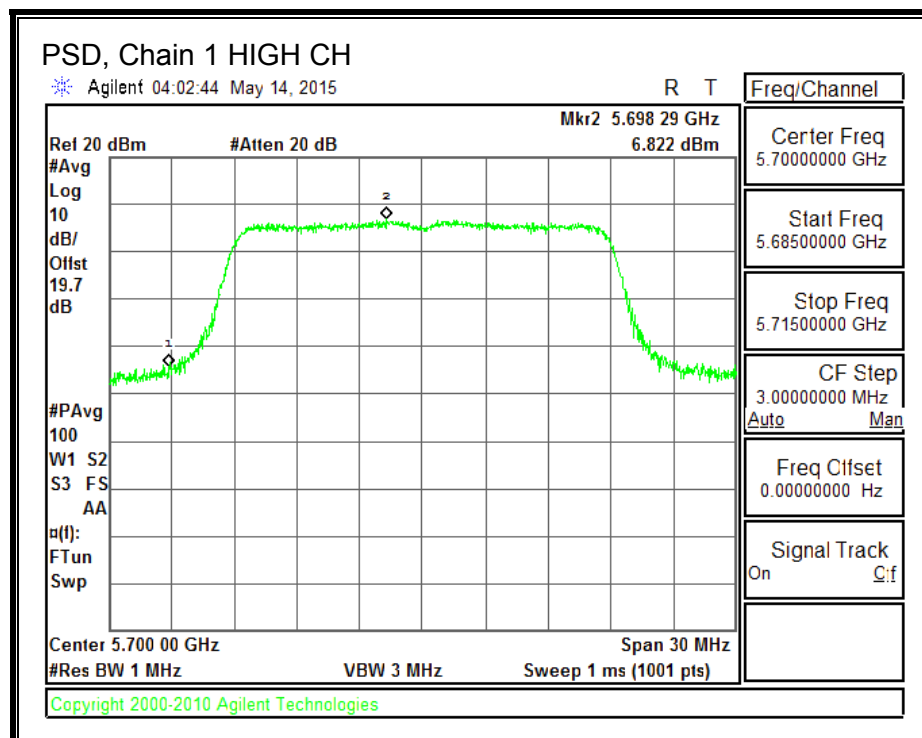
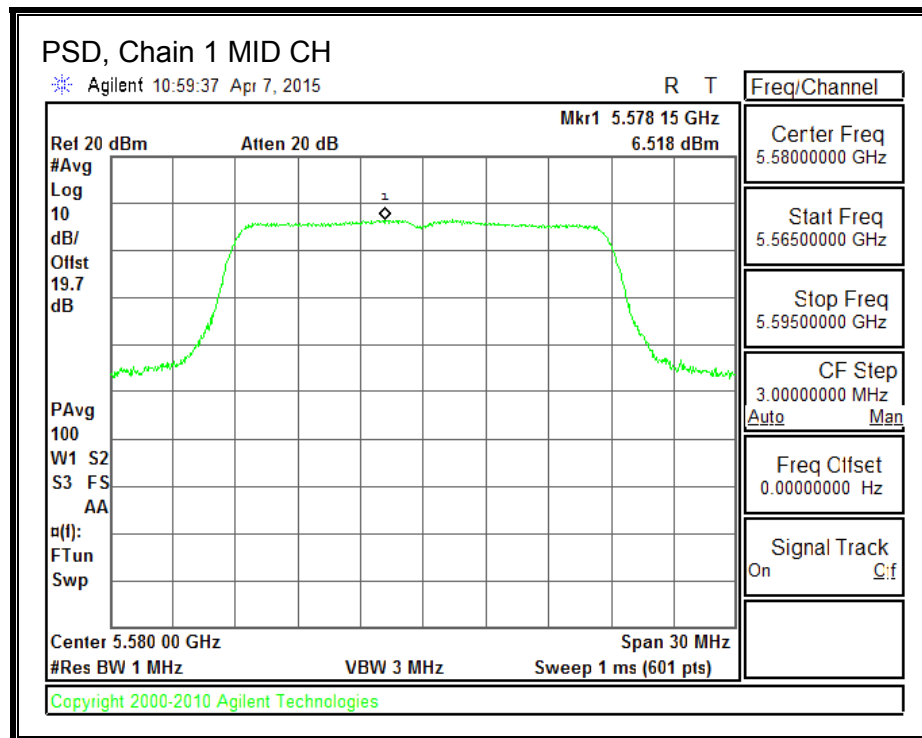
**PSD, Chain 0**





**PSD, Chain 1**





## **STRADDLE CHANNEL 144 RESULTS**

### **UNII-2C BAND**

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

| Channel | Frequency<br>(MHz) | Min<br>26 dB<br>BW<br>(MHz) | Directional<br>Gain<br>for Power<br>(dBi) | Directional<br>Gain<br>for PSD<br>(dBi) | Power<br>Limit<br>(dBm) | PSD<br>Limit<br>(dBm) |
|---------|--------------------|-----------------------------|-------------------------------------------|-----------------------------------------|-------------------------|-----------------------|
| 144     | 5720               | 16.06                       | 5.01                                      | 5.01                                    | 23.06                   | 11.00                 |

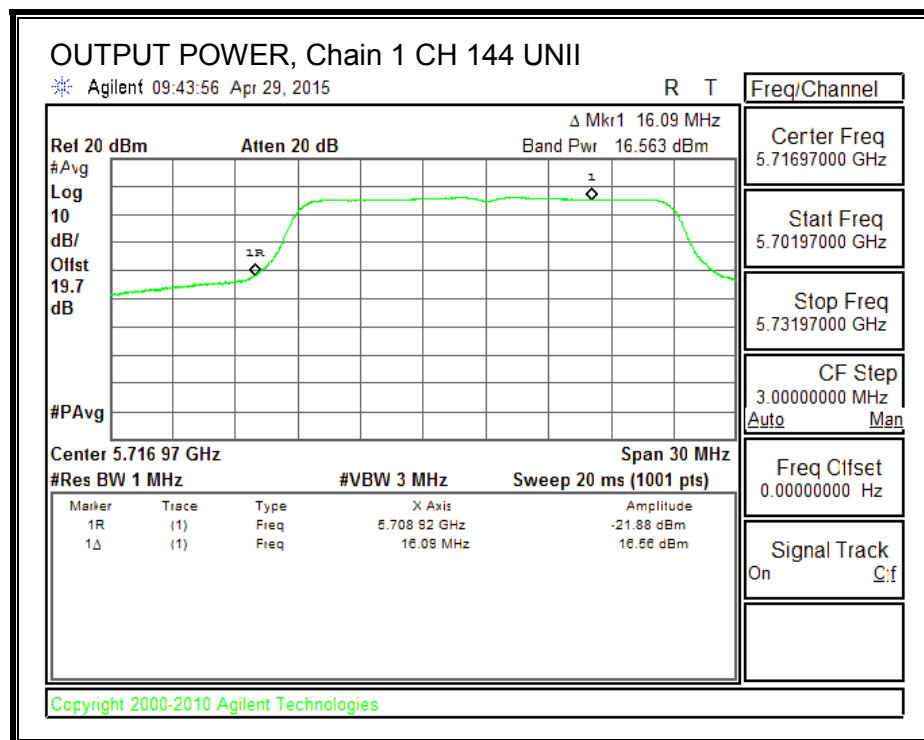
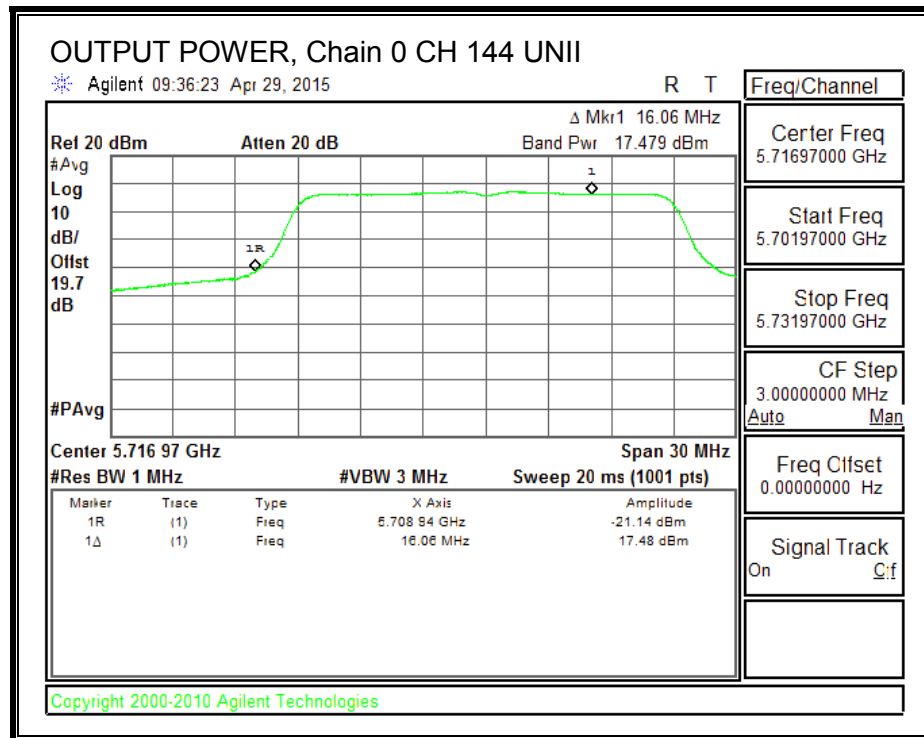
|                    |      |                                                |
|--------------------|------|------------------------------------------------|
| Duty Cycle CF (dB) | 0.00 | Included in Calculations of Corr'd Power & PSD |
|--------------------|------|------------------------------------------------|

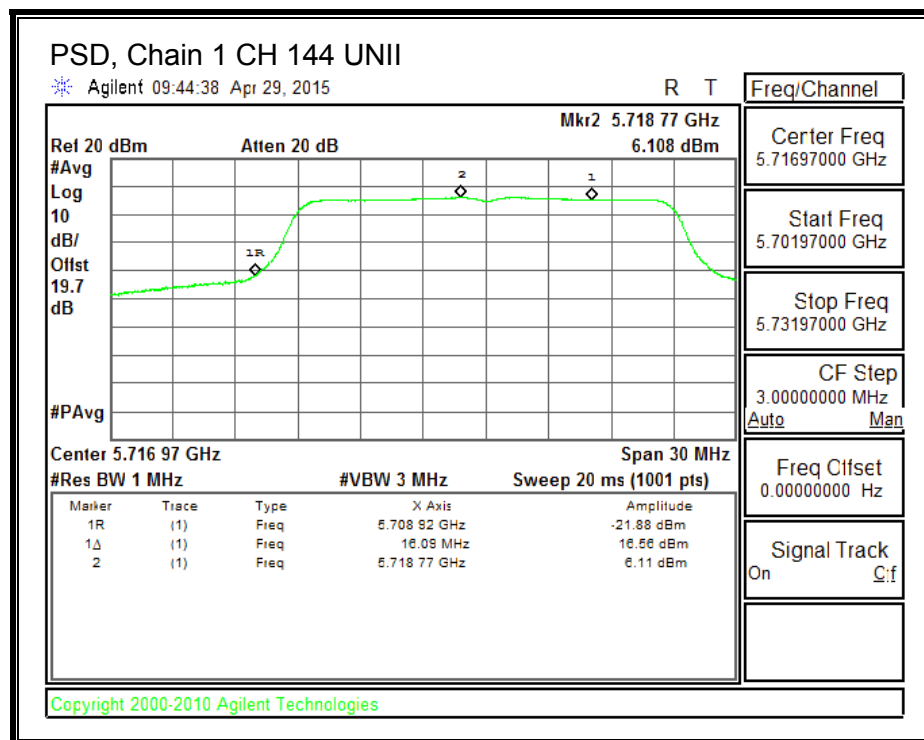
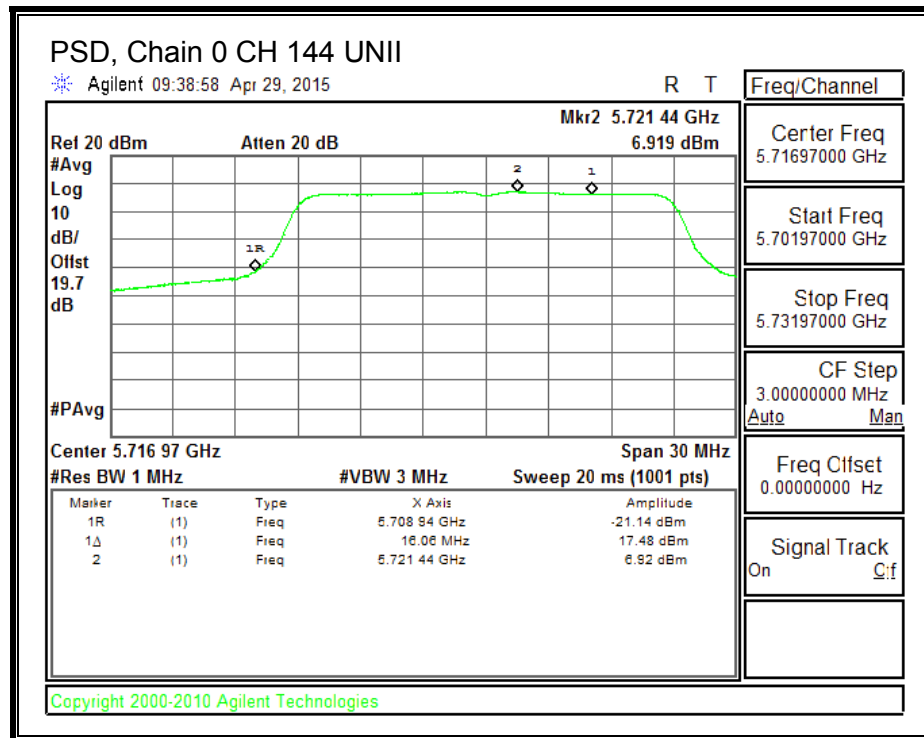
#### **Output Power Results**

| Channel | Frequency<br>(MHz) | Chain 0<br>Meas<br>Power<br>(dBm) | Chain 1<br>Meas<br>Power<br>(dBm) | Total<br>Corr'd<br>Power<br>(dBm) | Power<br>Limit<br>(dBm) | Power<br>Margin<br>(dB) |
|---------|--------------------|-----------------------------------|-----------------------------------|-----------------------------------|-------------------------|-------------------------|
| 144     | 5720               | 17.479                            | 16.563                            | 20.055                            | 23.06                   | -3.00                   |

#### **PSD Results**

| Channel | Frequency<br>(MHz) | Chain 0<br>Meas<br>PSD<br>(dBm) | Chain 1<br>Meas<br>PSD<br>(dBm) | Total<br>Corr'd<br>PSD<br>(dBm) | PSD<br>Limit<br>(dBm) | PSD<br>Margin<br>(dB) |
|---------|--------------------|---------------------------------|---------------------------------|---------------------------------|-----------------------|-----------------------|
| 144     | 5720               | 6.92                            | 6.11                            | 9.54                            | 11.00                 | -1.46                 |





### **UNII-3 BAND**

#### **Antenna Gain and Limit**

| Channel | Frequency<br>(MHz) | Directional<br>Gain<br>for Power<br>(dBi) | Directional<br>Gain<br>for PSD<br>(dBi) | Power<br>Limit<br>(dBm) | PSD<br>Limit<br>(dBm) |
|---------|--------------------|-------------------------------------------|-----------------------------------------|-------------------------|-----------------------|
| 144     | 5720               | 5.06                                      | 5.06                                    | 30.00                   | 30.00                 |

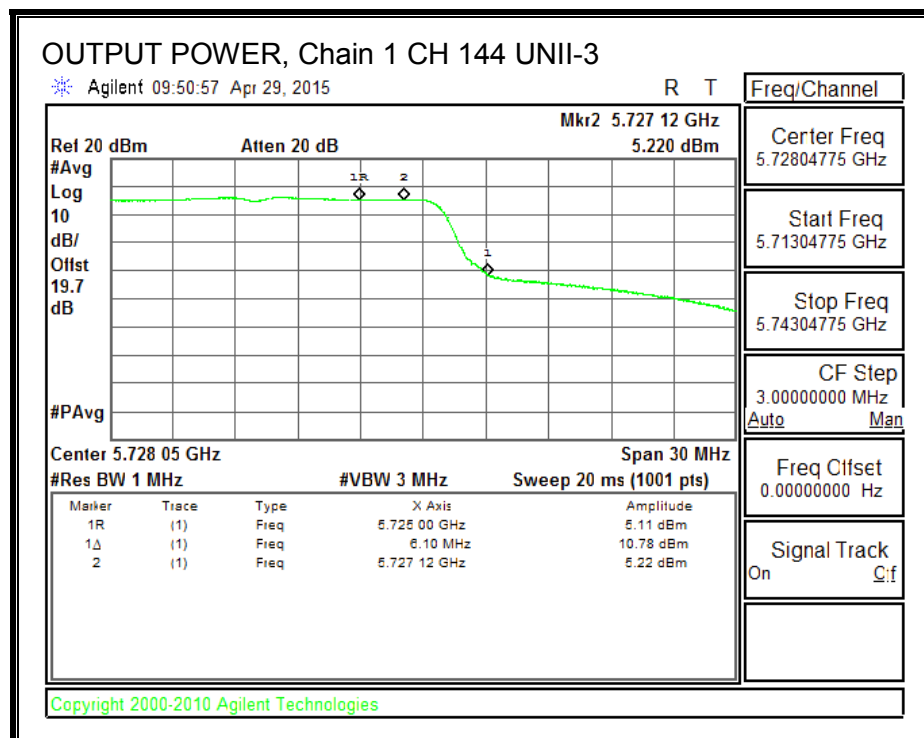
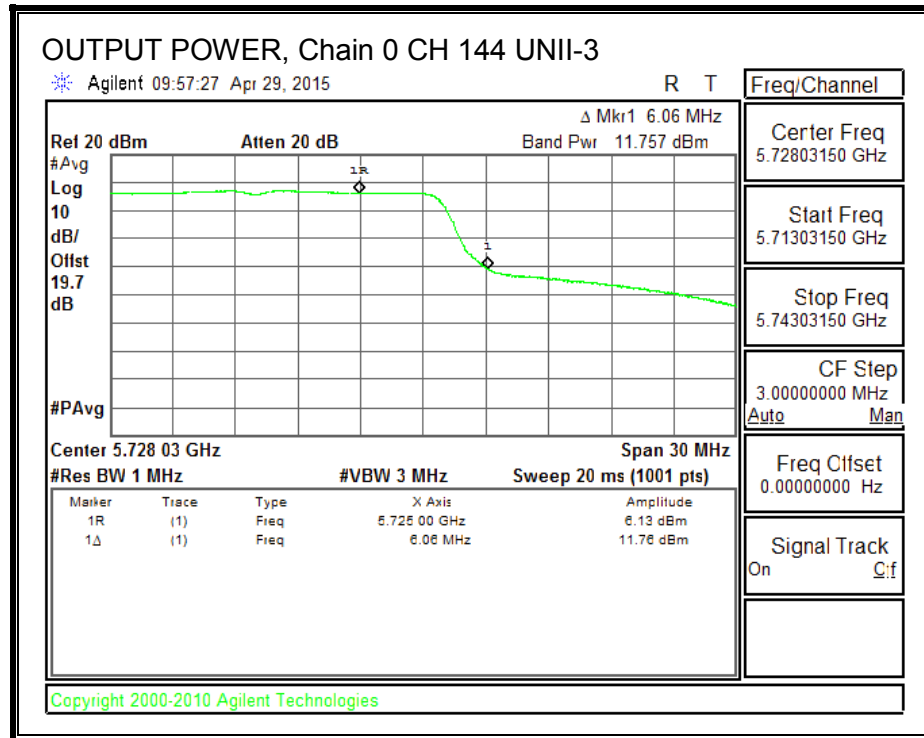
|                    |      |                                                |
|--------------------|------|------------------------------------------------|
| Duty Cycle CF (dB) | 0.00 | Included in Calculations of Corr'd Power & PSD |
|--------------------|------|------------------------------------------------|

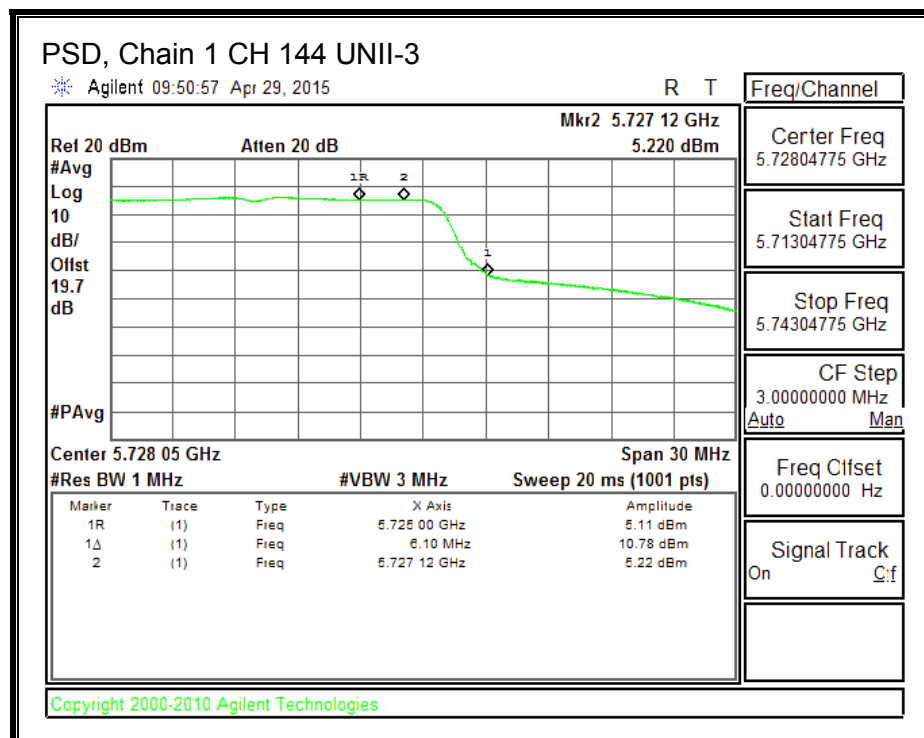
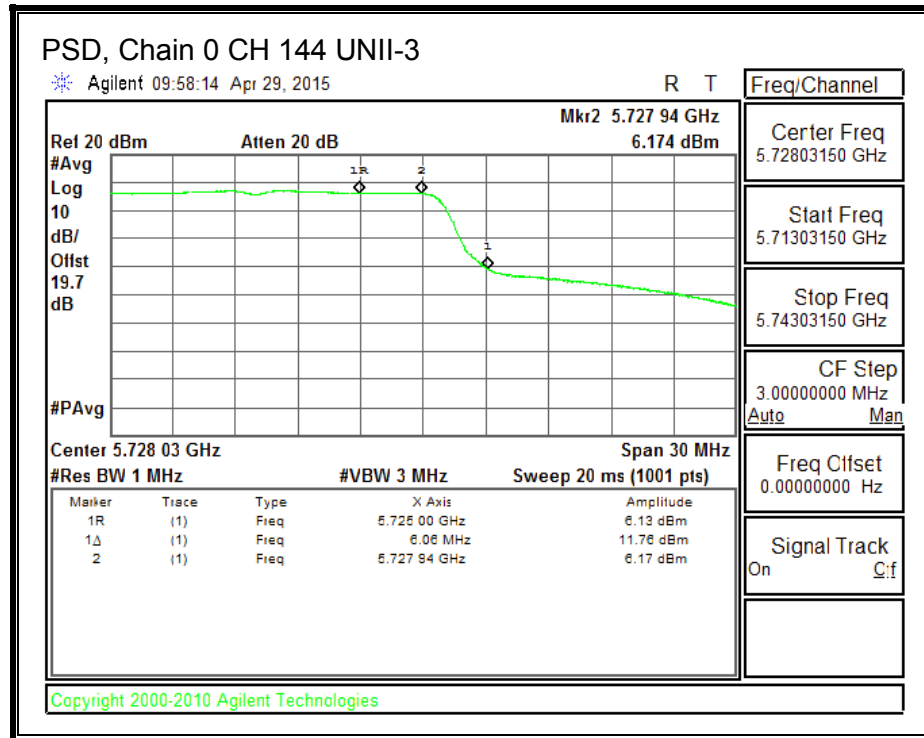
#### **Output Power Results**

| Channel | Frequency<br>(MHz) | Chain 0<br>Meas<br>Power<br>(dBm) | Chain 1<br>Meas<br>Power<br>(dBm) | Total<br>Corr'd<br>Power<br>(dBm) | Power<br>Limit<br>(dBm) | Power<br>Margin<br>(dB) |
|---------|--------------------|-----------------------------------|-----------------------------------|-----------------------------------|-------------------------|-------------------------|
| 144     | 5720               | 11.76                             | 10.78                             | 14.31                             | 30.00                   | -15.69                  |

#### **PSD Results**

| Channel | Frequency<br>(MHz) | Chain 0<br>Meas<br>PSD<br>(dBm) | Chain 1<br>Meas<br>PSD<br>(dBm) | Total<br>Corr'd<br>PSD<br>(dBm) | PSD<br>Limit<br>(dBm) | PSD<br>Margin<br>(dB) |
|---------|--------------------|---------------------------------|---------------------------------|---------------------------------|-----------------------|-----------------------|
| 144     | 5720               | 6.17                            | 5.22                            | 8.73                            | 30.00                 | -21.27                |





#### 8.40.1. AVERAGE OUTPUT POWER (WHOLE FUNDAMENTAL)

##### LIMITS

None; for reporting purposes only.

##### TEST PROCEDURE

The transmitter output is connected to a power meter.

##### RESULTS

###### Output Power Results

| Channel | Frequency<br>(MHz) | Chain 0<br>Meas<br>Power<br>(dBm) | Chain 1<br>Meas<br>Power<br>(dBm) | Total<br>Corr'd<br>Power<br>(dBm) |
|---------|--------------------|-----------------------------------|-----------------------------------|-----------------------------------|
| 144     | 5720               | 18.15                             | 17.60                             | 20.89                             |

**Note:** the power readings above were measured with gated method, and the measurement was taken only during the ON time. No duty cycle correction was necessary

## **8.40. 802.11n HT20 TxBF 2TX MODE IN THE 5.6 GHz BAND**

### **8.40.1. 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.

#### **DIRECTIONAL ANTENNA GAIN**

For Power and PSD, the TX chains are correlated and the antenna gain is unequal among the chains. The directional gain is:

| <b>Chain 0<br/>Antenna<br/>Gain<br/>(dBi)</b> | <b>Chain 1<br/>Antenna<br/>Gain<br/>(dBi)</b> | <b>Correlated Chains<br/>Directional<br/>Gain<br/>(dBi)</b> |
|-----------------------------------------------|-----------------------------------------------|-------------------------------------------------------------|
| 3.17                                          | 4.72                                          | 7.99                                                        |

## RESULTS

### Bandwidth, Antenna Gain, and Limits

| Channel | Frequency<br>(MHz) | Min<br>26 dB<br>BW<br>(MHz) | Directional<br>Gain<br>for Power<br>(dBi) | Directional<br>Gain<br>for PSD<br>(dBi) | Power<br>Limit<br>(dBm) | PSD<br>Limit<br>(dBm) |
|---------|--------------------|-----------------------------|-------------------------------------------|-----------------------------------------|-------------------------|-----------------------|
| Low     | 5500               | 27.89                       | 7.99                                      | 7.99                                    | 22.01                   | 9.01                  |
| Mid     | 5580               | 27.24                       | 7.99                                      | 7.99                                    | 22.01                   | 9.01                  |
| High    | 5700               | 21.35                       | 7.99                                      | 7.99                                    | 22.01                   | 9.01                  |

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

### Output Power Results

| Channel | Frequency<br>(MHz) | Chain 0<br>Meas<br>Power<br>(dBm) | Chain 1<br>Meas<br>Power<br>(dBm) | Total<br>Corr'd<br>Power<br>(dBm) | Power<br>Limit<br>(dBm) | Power<br>Margin<br>(dB) |
|---------|--------------------|-----------------------------------|-----------------------------------|-----------------------------------|-------------------------|-------------------------|
| Low     | 5500               | 14.10                             | 14.60                             | 17.37                             | 22.01                   | -4.64                   |
| Mid     | 5580               | 15.90                             | 16.00                             | 18.96                             | 22.01                   | -3.05                   |
| High    | 5700               | 13.00                             | 12.85                             | 15.94                             | 22.01                   | -6.07                   |

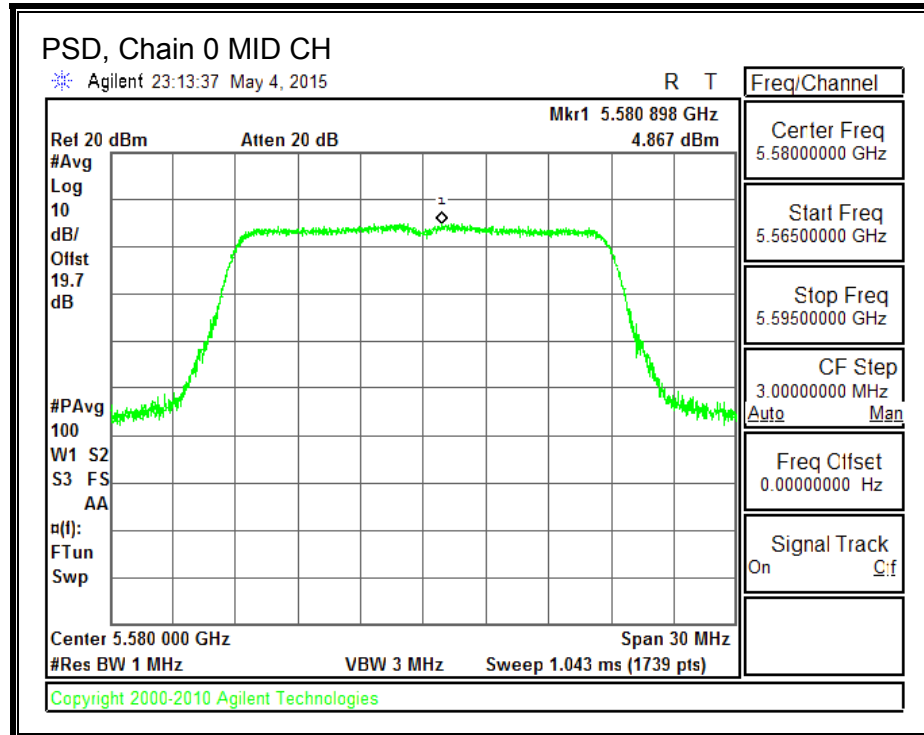
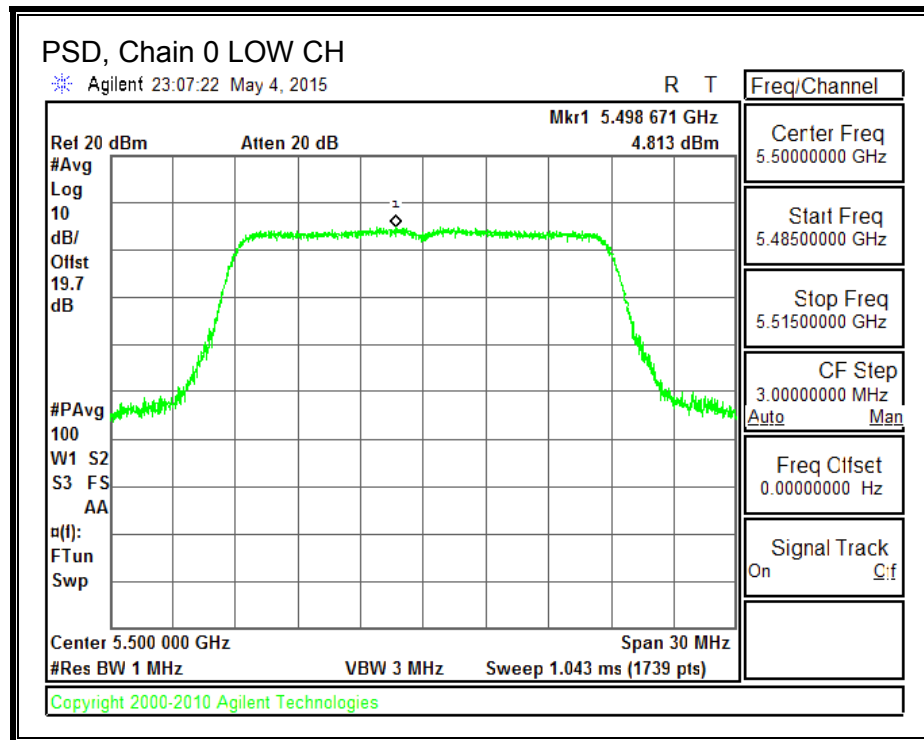
### PSD Results

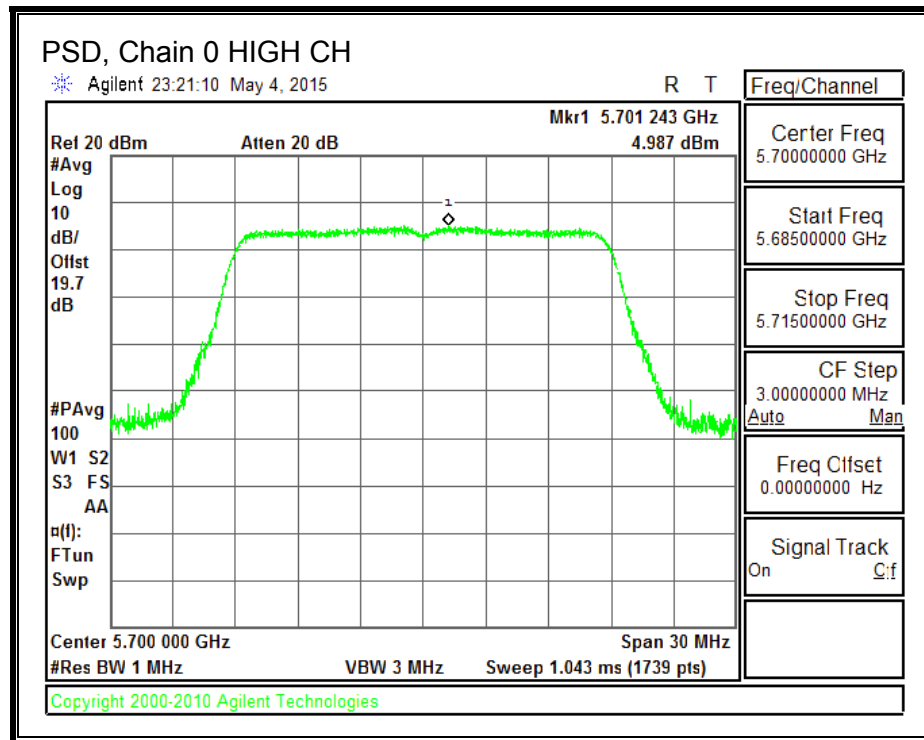
| Channel | Frequency<br>(MHz) | Chain 0<br>Meas<br>PSD<br>(dBm) | Chain 1<br>Meas<br>PSD<br>(dBm) | Total<br>Corr'd<br>PSD<br>(dBm) | PSD<br>Limit<br>(dBm) | PSD<br>Margin<br>(dB) |
|---------|--------------------|---------------------------------|---------------------------------|---------------------------------|-----------------------|-----------------------|
| Low     | 5500               | 4.813                           | 5.129                           | 7.98                            | 9.01                  | -1.03                 |
| Mid     | 5580               | 4.867                           | 5.073                           | 7.98                            | 9.01                  | -1.03                 |
| High    | 5700               | 4.987                           | 4.984                           | 8.00                            | 9.01                  | -1.01                 |

**Note:** for Chain 0 and Chain 1, 26dB & 99% data & plots, see section 802.11n HT20 CDD 3TX MODE IN THE 5.6 GHz BAND

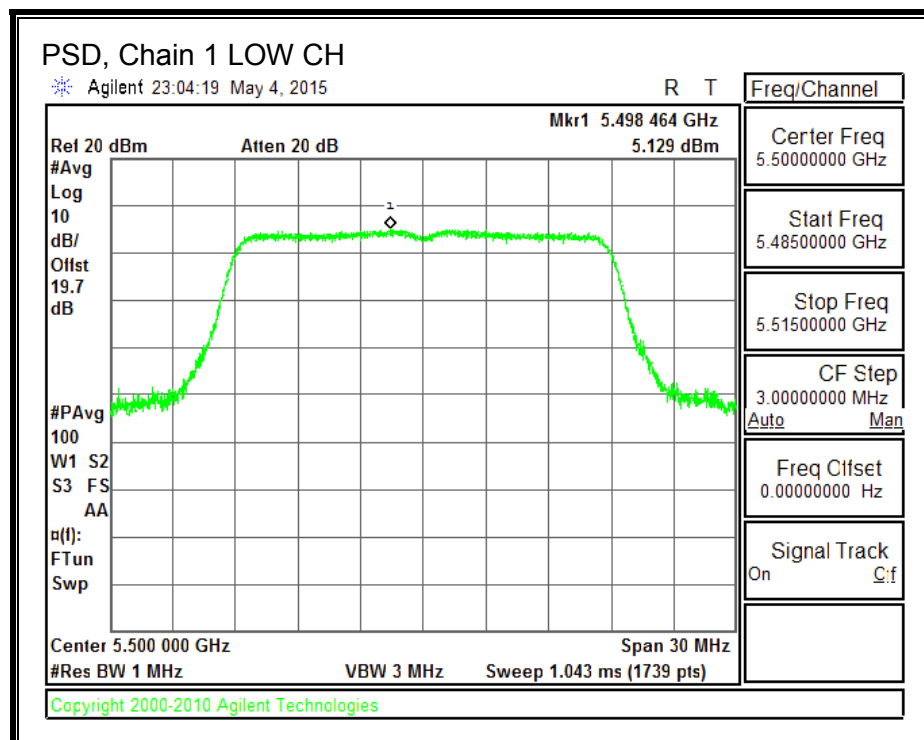
**Note:** the power readings above were measured with gated method, and the measurement was taken only during the ON time. No duty cycle correction was necessary

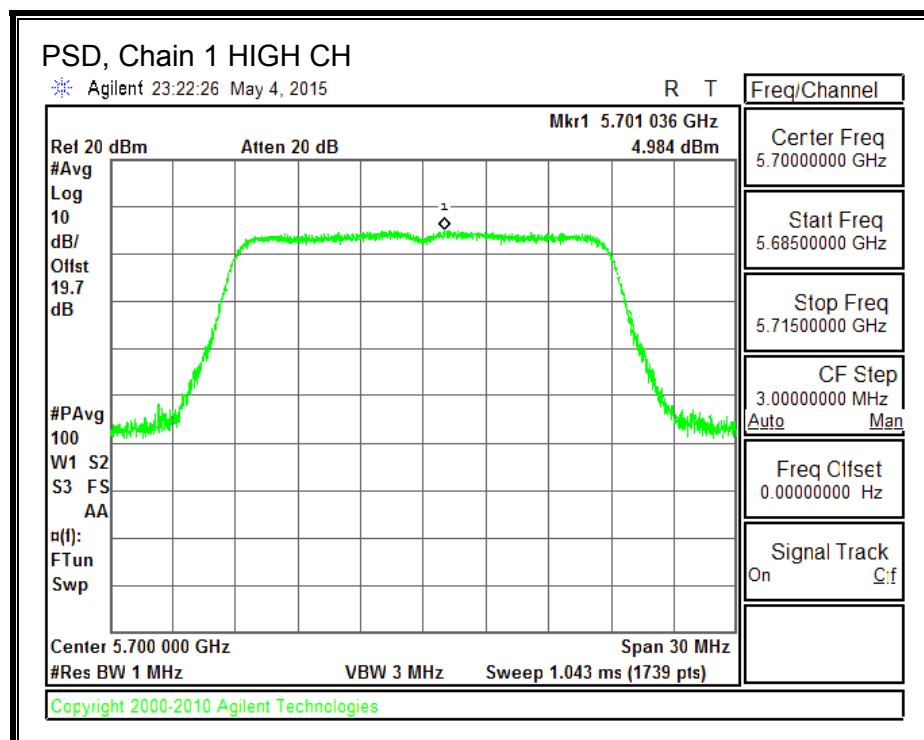
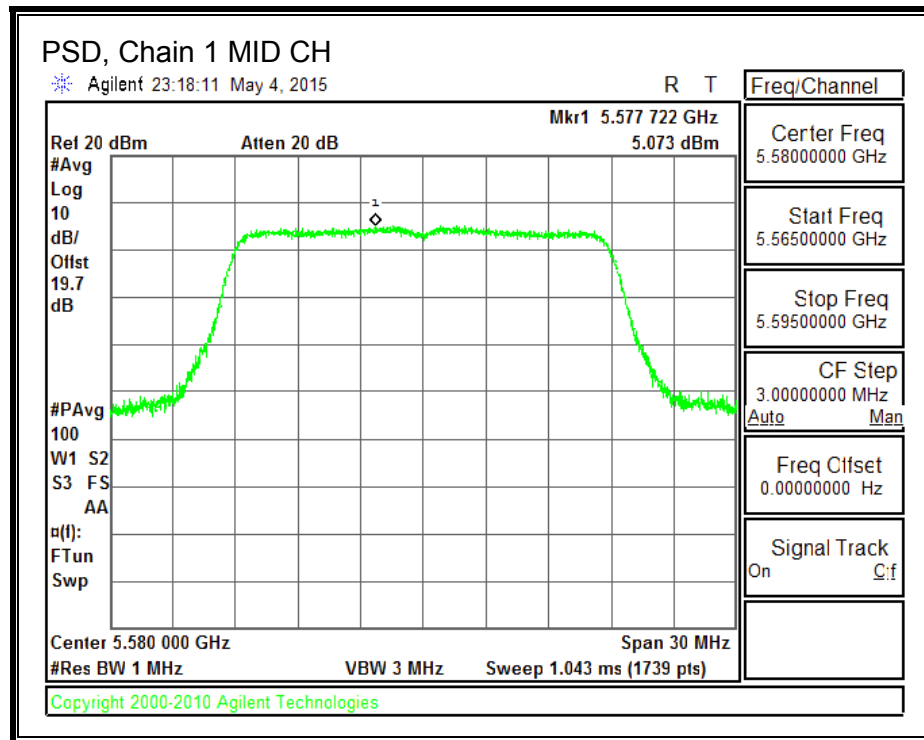
**PSD, Chain 0**





**PSD, Chain 1**





## **8.41. 802.11n HT20 CDD 3TX MODE IN THE 5.6 GHz BAND**

### **8.41.1. 26 dB BANDWIDTH**

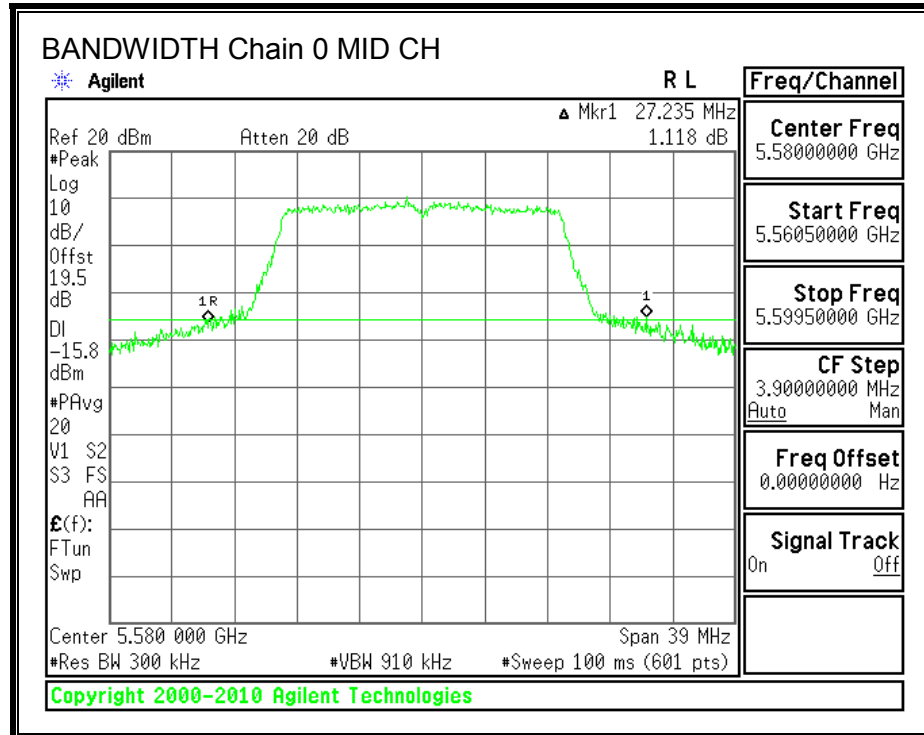
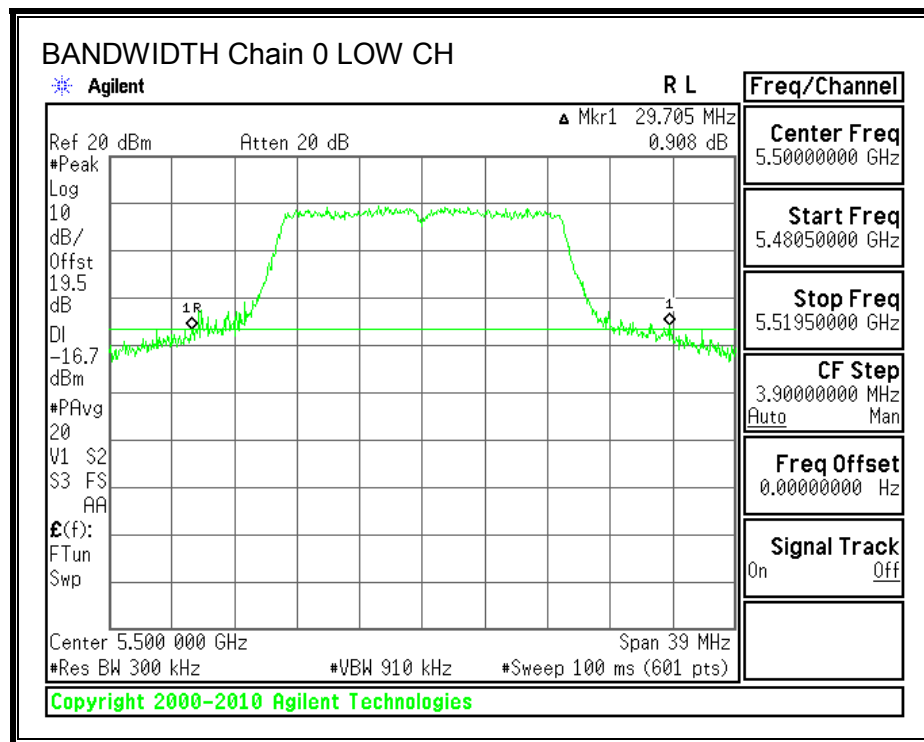
#### **LIMITS**

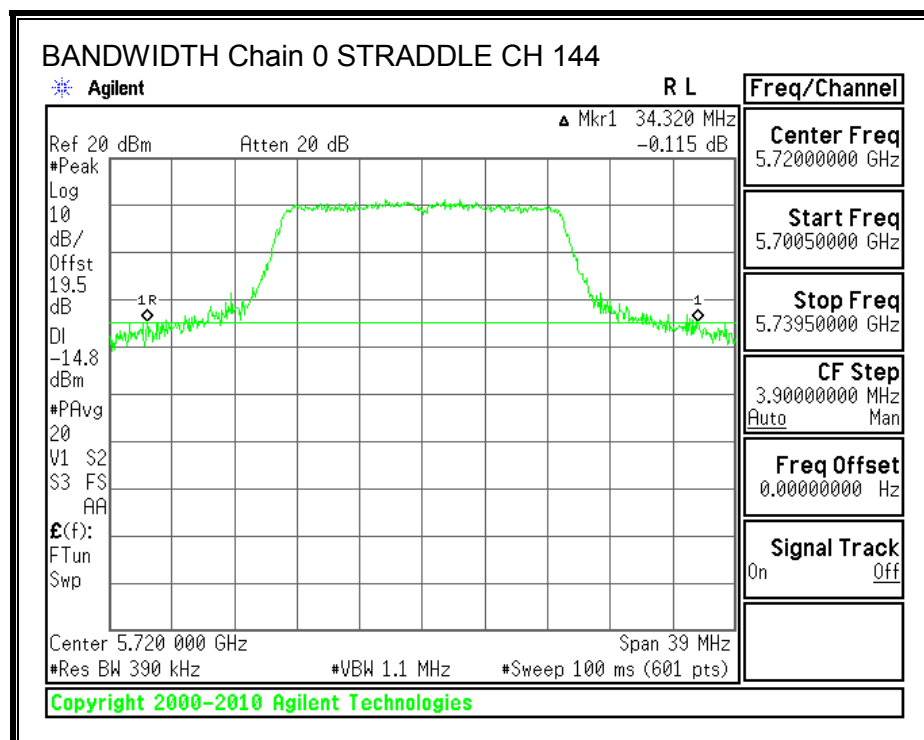
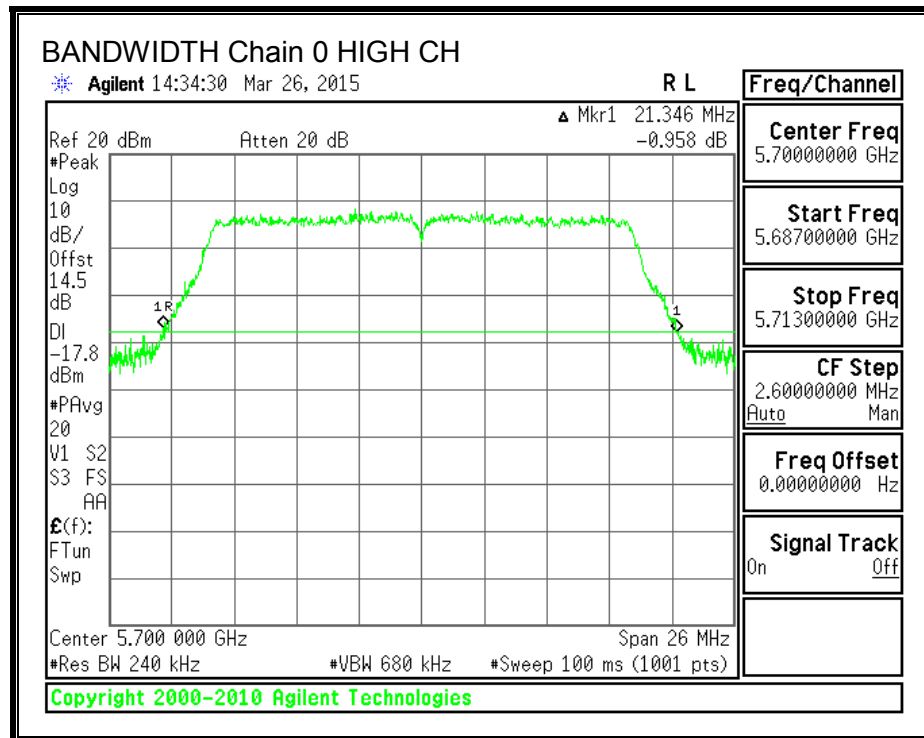
None; for reporting purposes only.

#### **RESULTS**

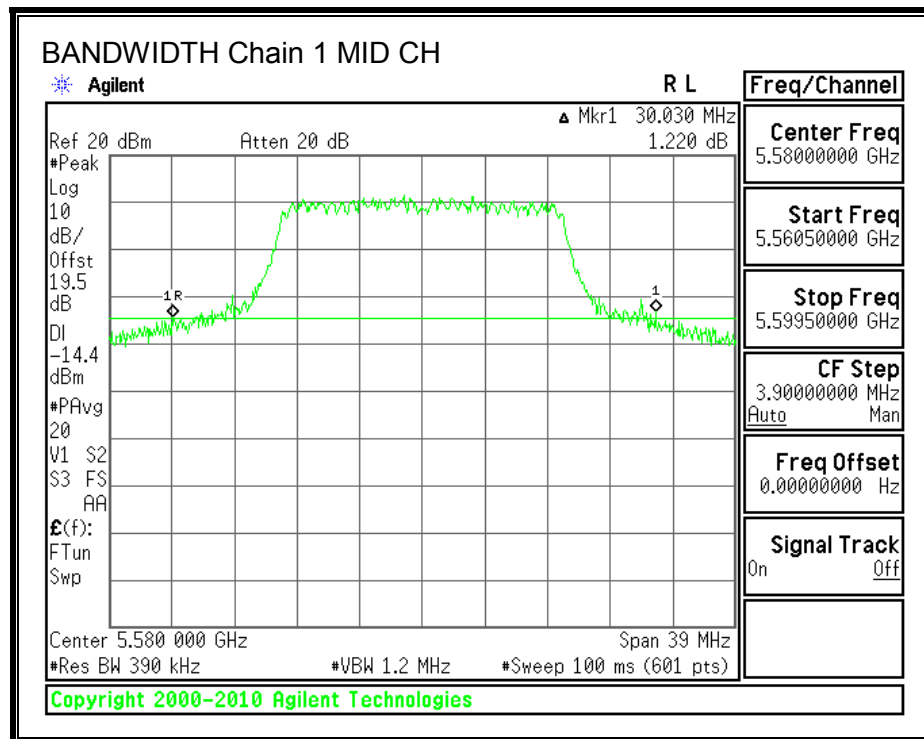
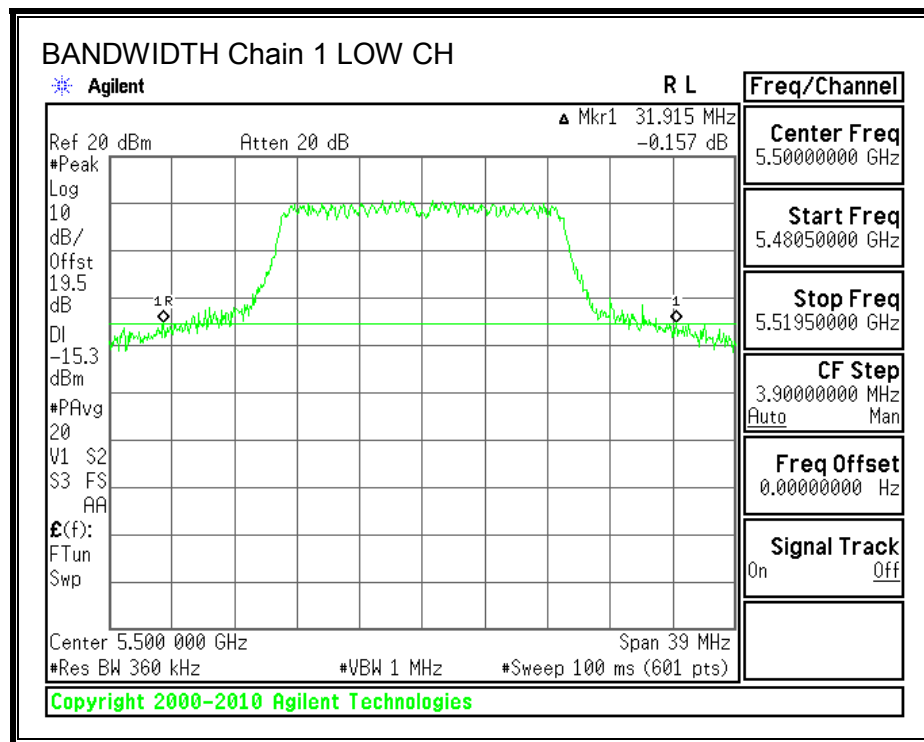
| Channel | Frequency<br>(MHz) | 26 dB BW<br>Chain 0<br>(MHz) | 26 dB BW<br>Chain 1<br>(MHz) | 26 dB BW<br>Chain 2<br>(MHz) |
|---------|--------------------|------------------------------|------------------------------|------------------------------|
| Low     | 5500               | 29.705                       | 31.915                       | 27.885                       |
| Mid     | 5580               | 27.235                       | 30.030                       | 28.015                       |
| High    | 5700               | 21.346                       | 22.828                       | 21.684                       |
| 144     | 5720               | 34.320                       | 30.160                       | 29.770                       |

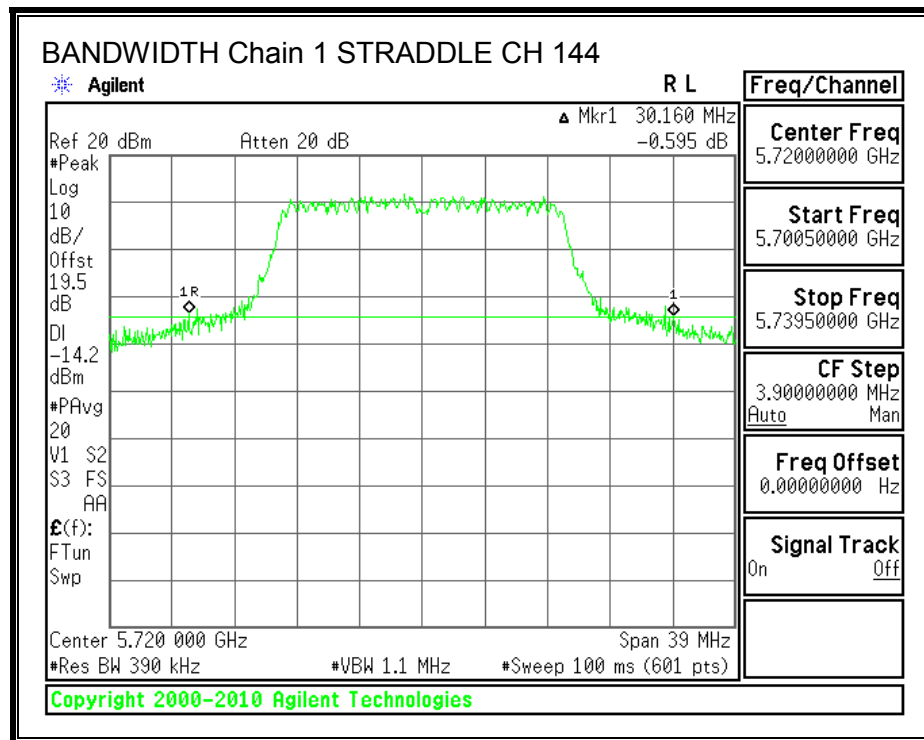
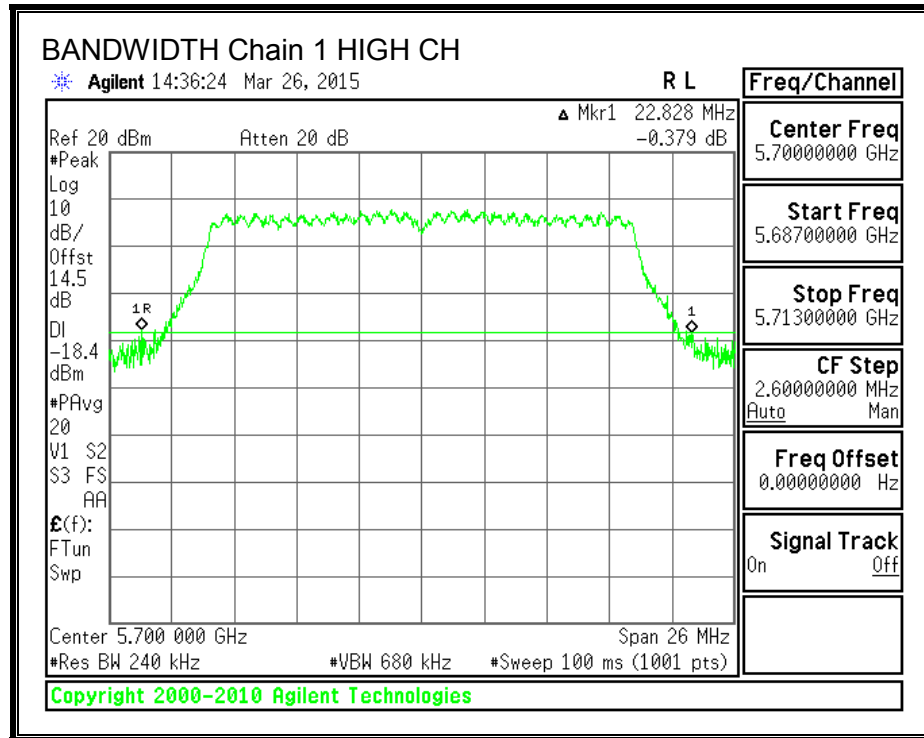
**26 dB BANDWIDTH, Chain 0**



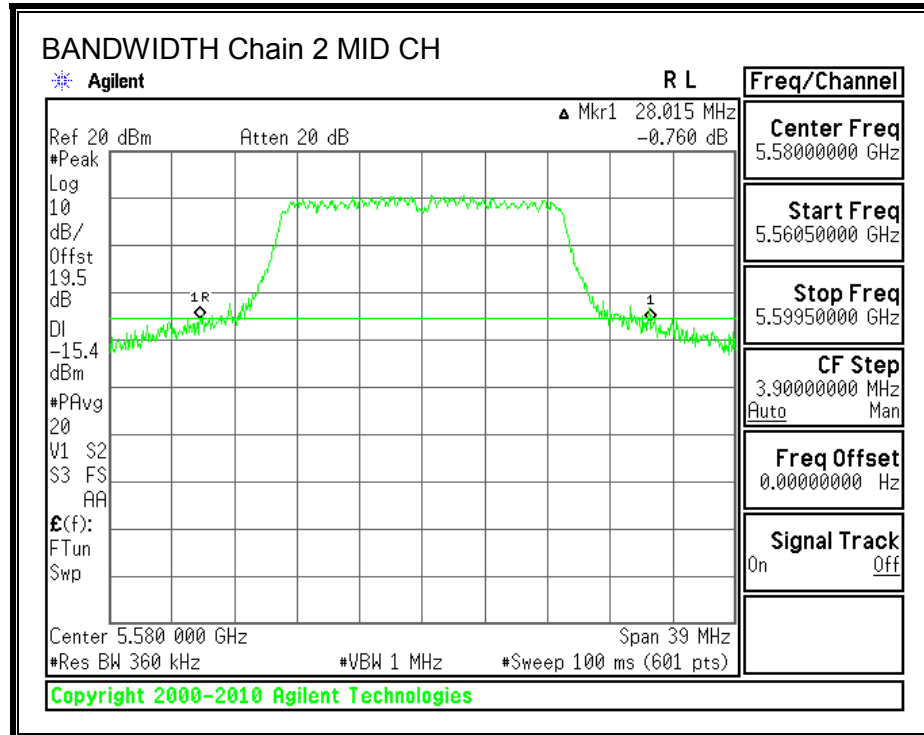
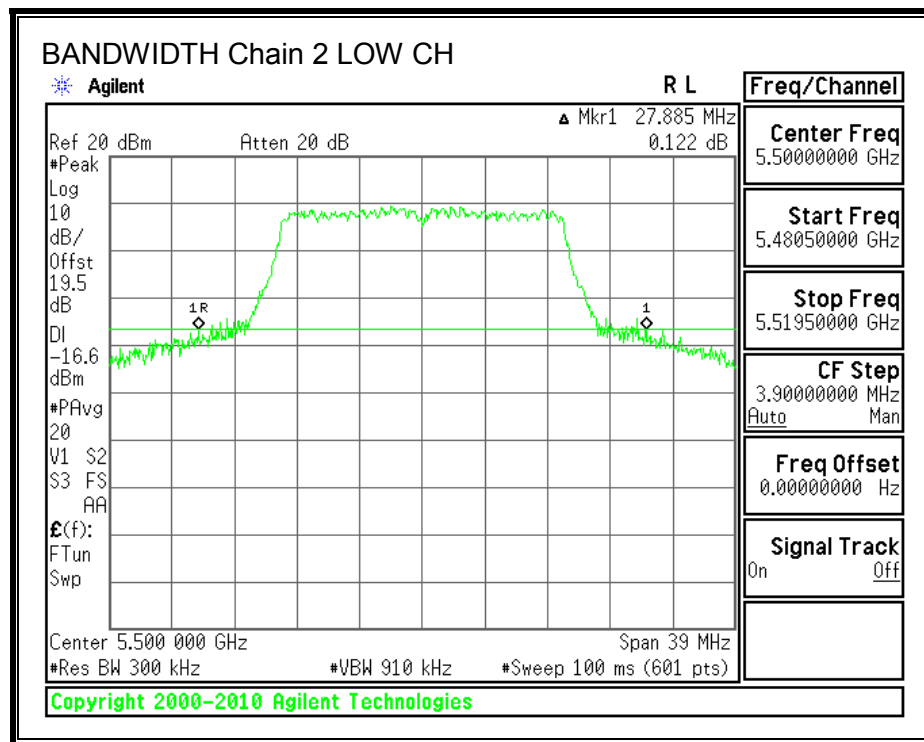


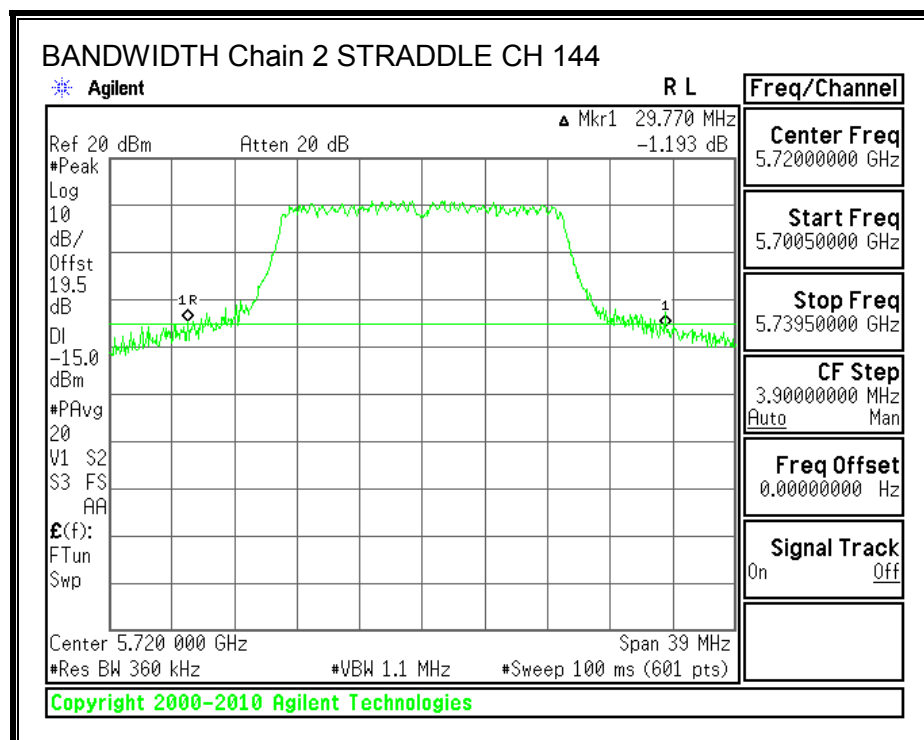
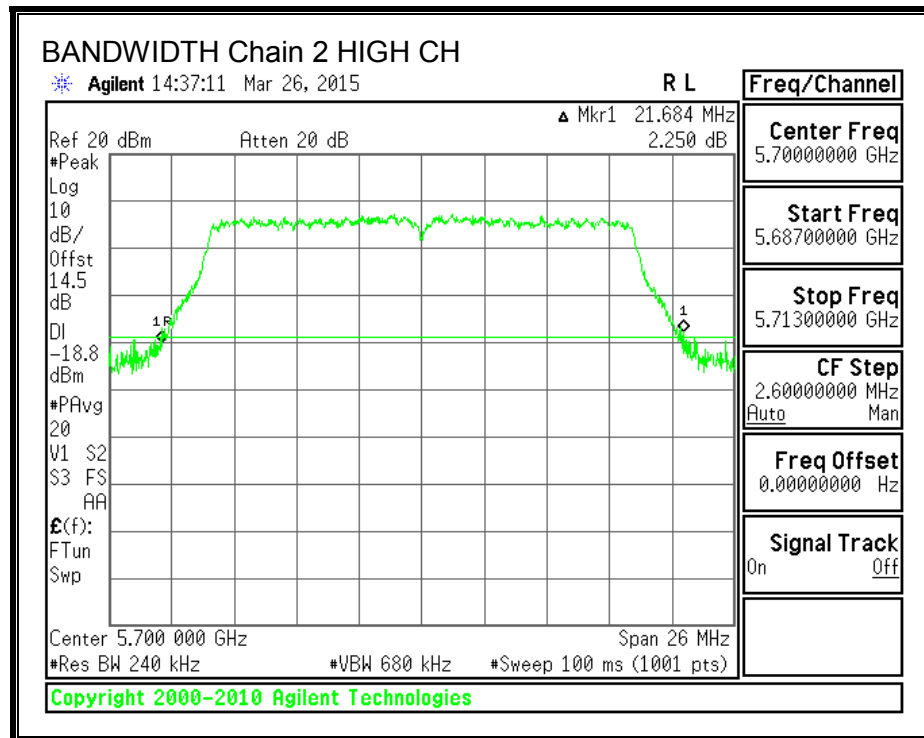
**26 dB BANDWIDTH, Chain 1**





**26 dB BANDWIDTH, Chain 2**





## 8.41.2. 99% BANDWIDTH

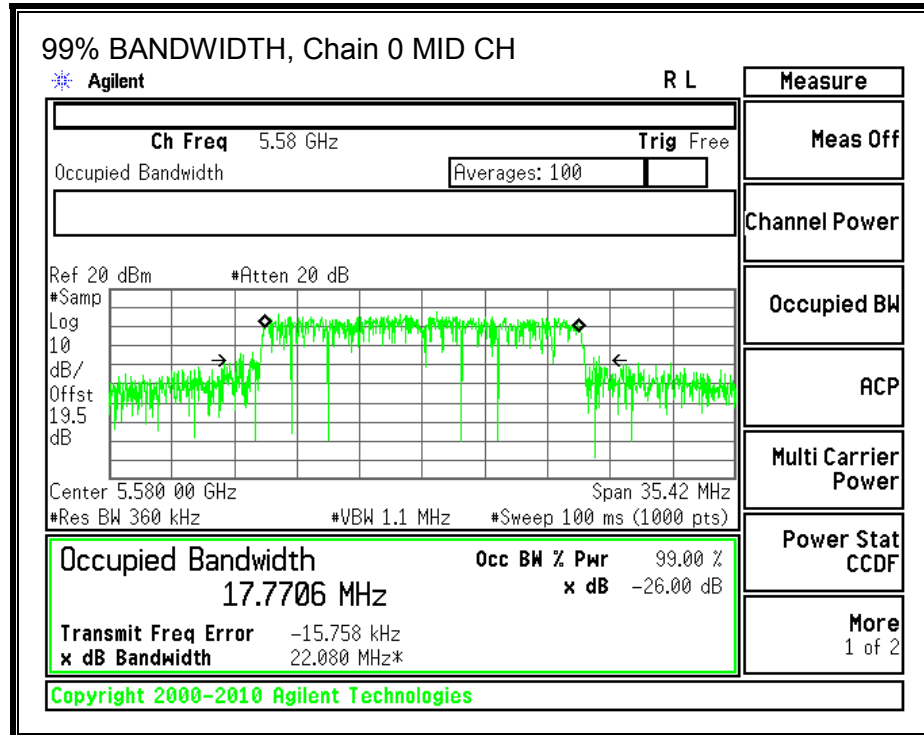
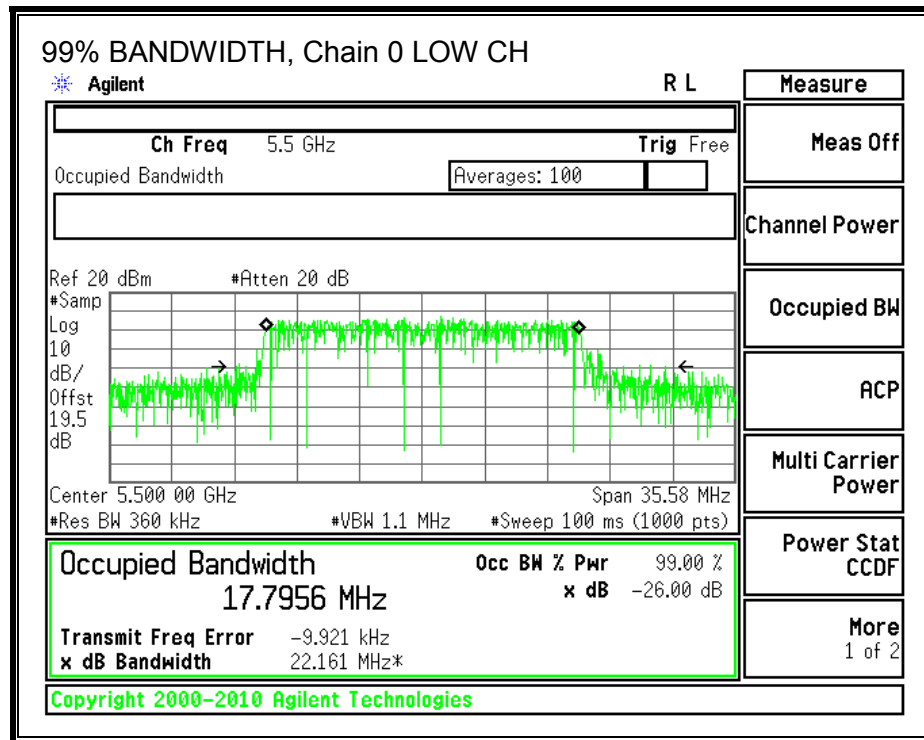
### LIMITS

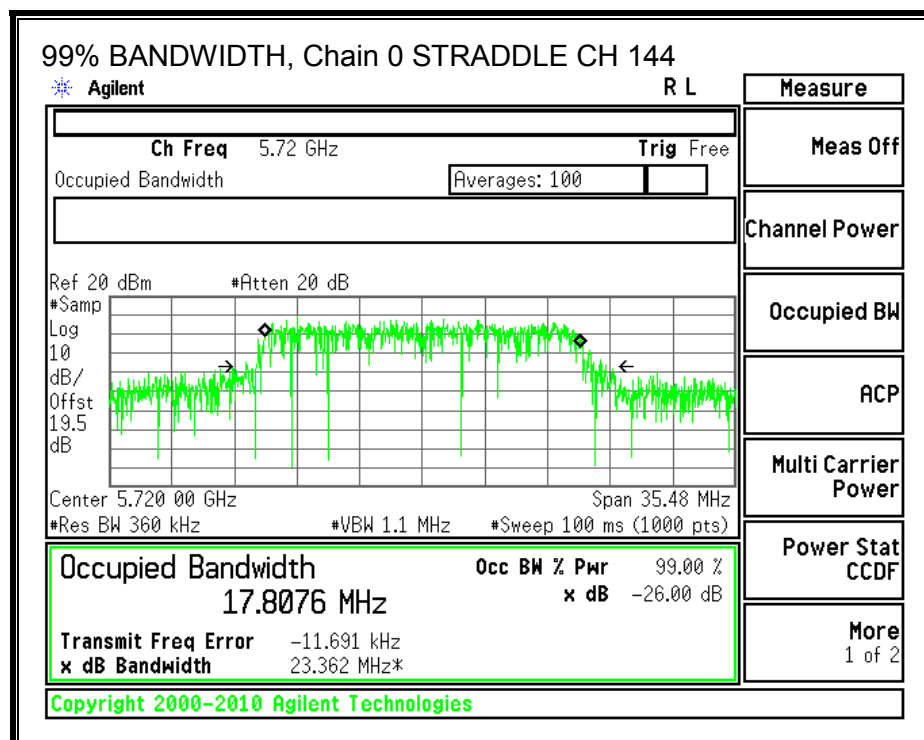
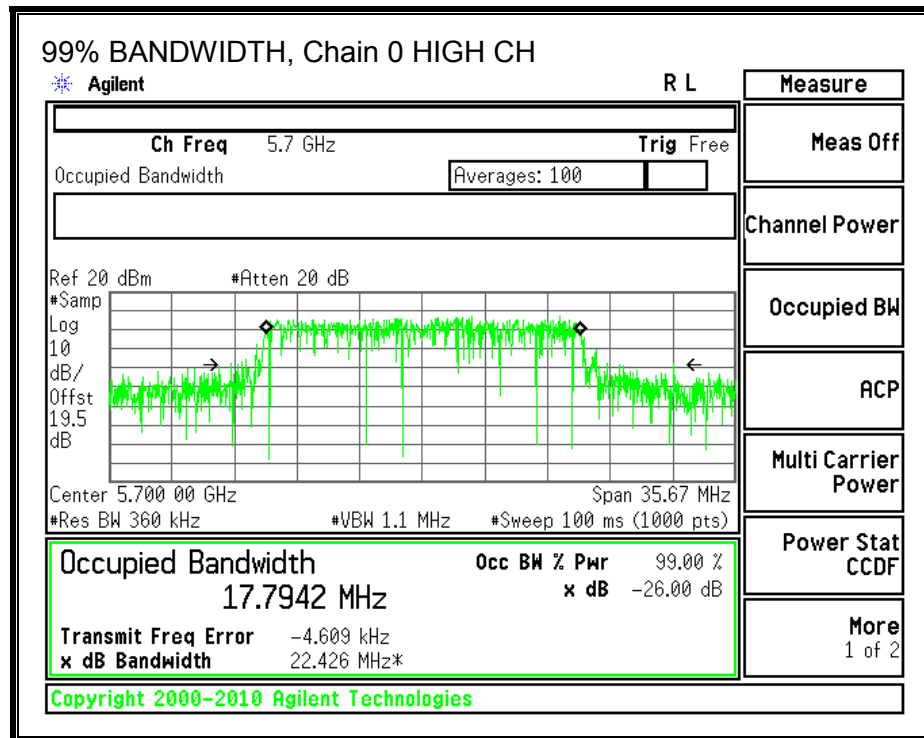
None; for reporting purposes only.

### RESULTS

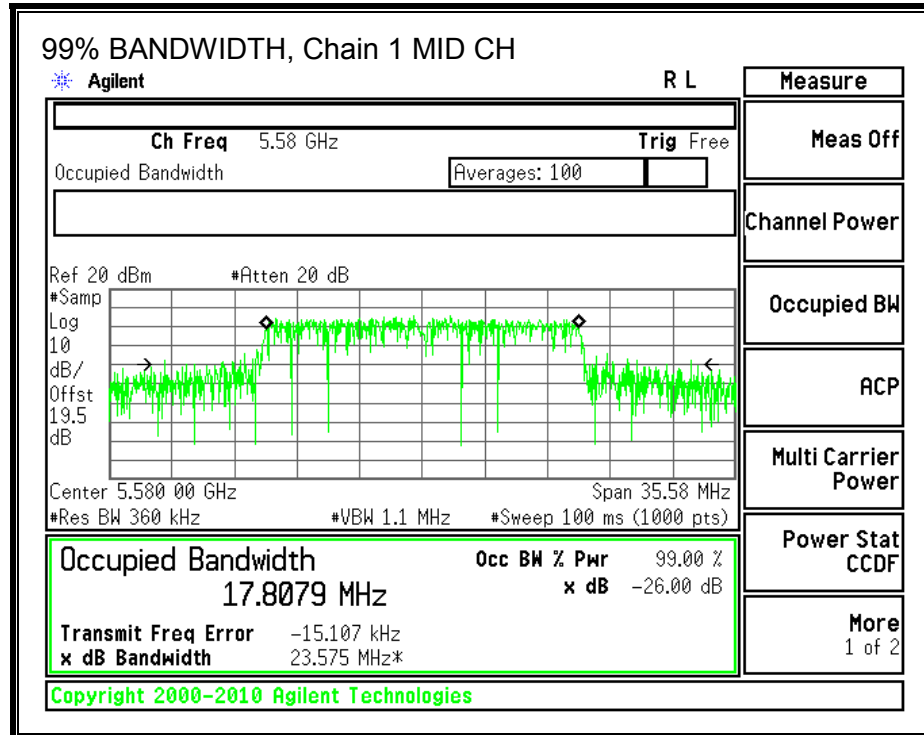
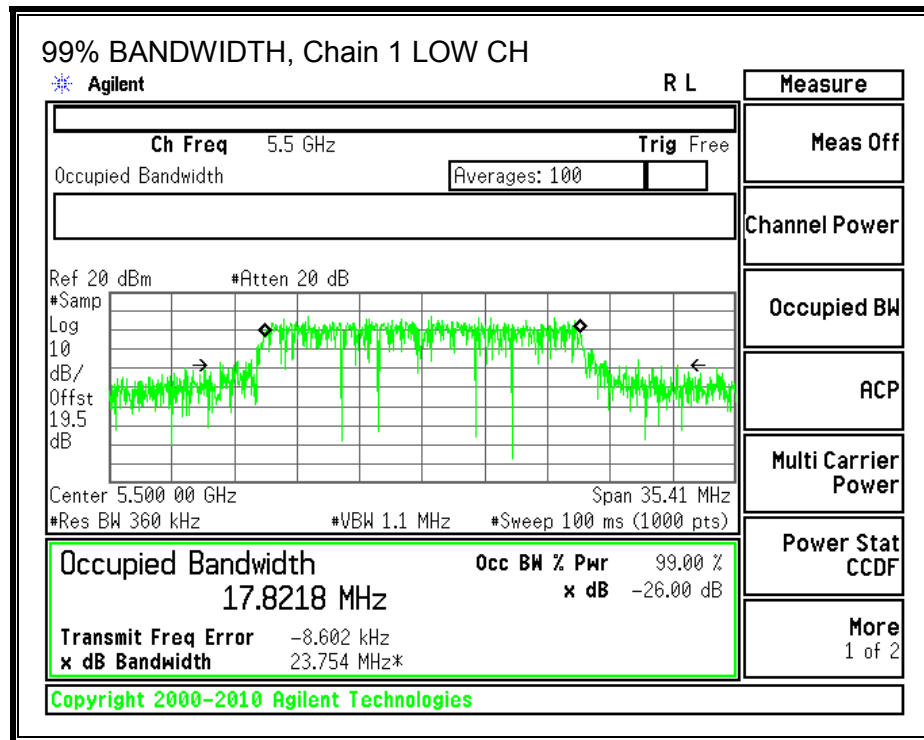
| Channel | Frequency<br>(MHz) | 99% BW<br>Chain 0<br>(MHz) | 99% BW<br>Chain 1<br>(MHz) | 99% BW<br>Chain 2<br>(MHz) |
|---------|--------------------|----------------------------|----------------------------|----------------------------|
| Low     | 5500               | 17.7956                    | 17.8218                    | 17.7825                    |
| Mid     | 5580               | 17.7706                    | 17.8079                    | 17.7695                    |
| High    | 5700               | 17.7942                    | 17.7920                    | 17.7873                    |
| 144     | 5720               | 17.8076                    | 17.7859                    | 17.7960                    |

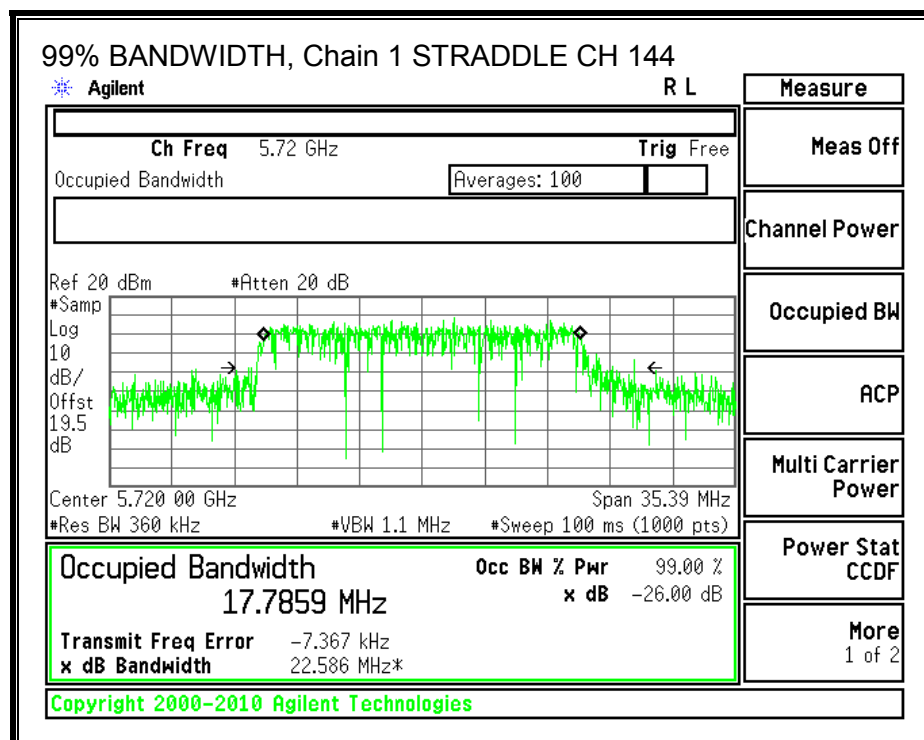
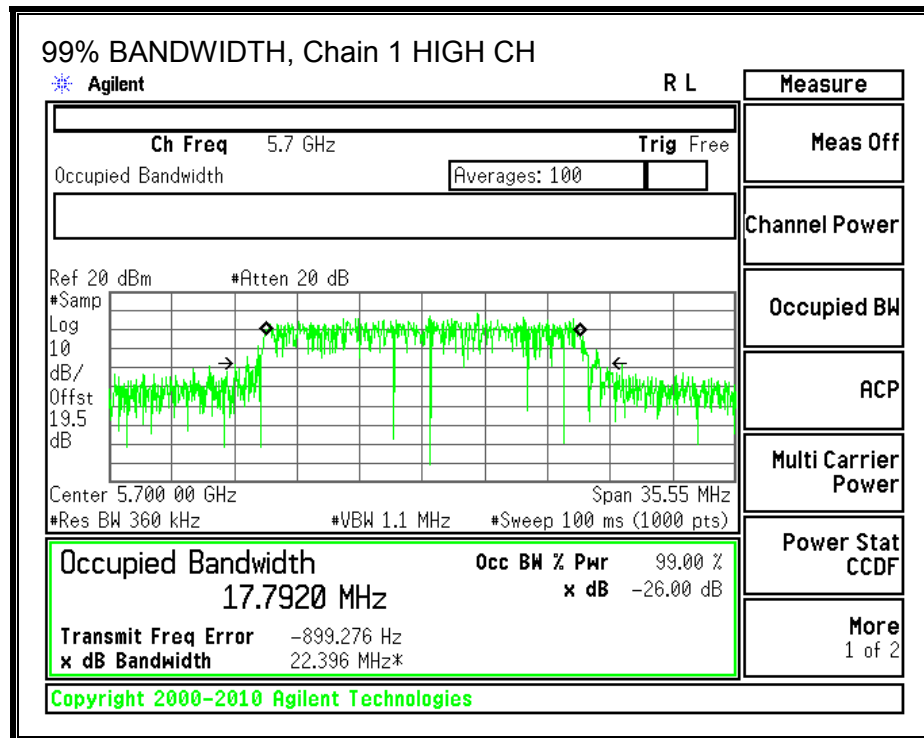
**99% BANDWIDTH, Chain 0**



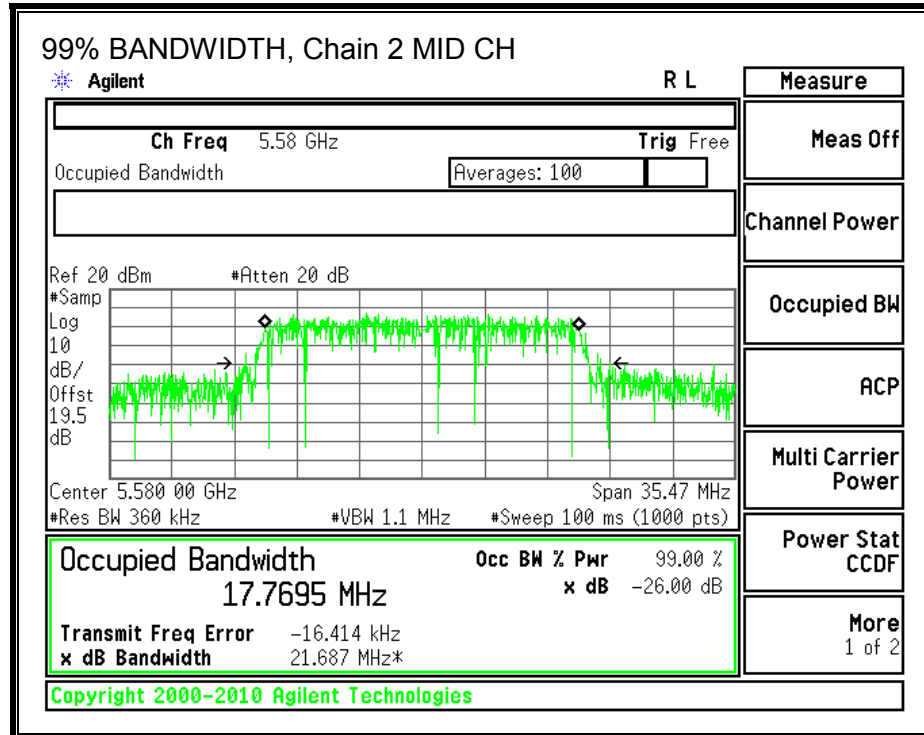
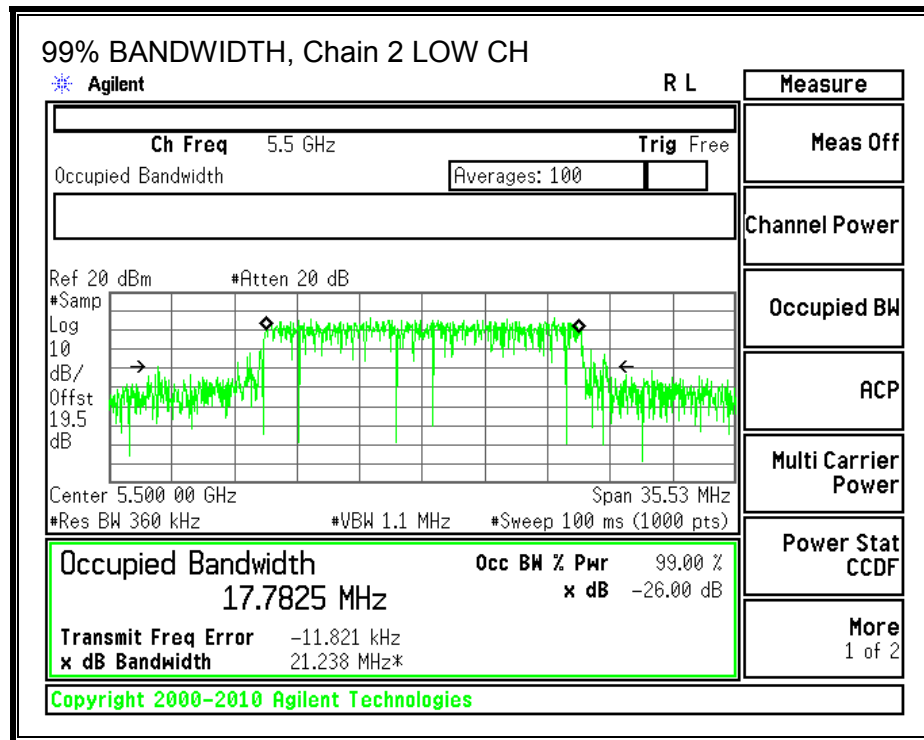


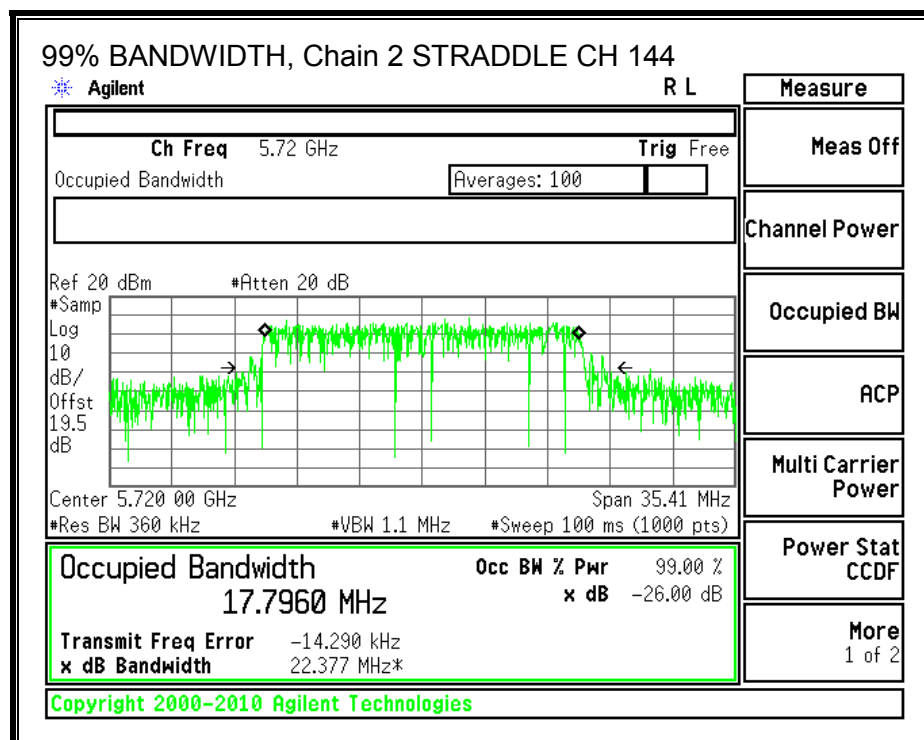
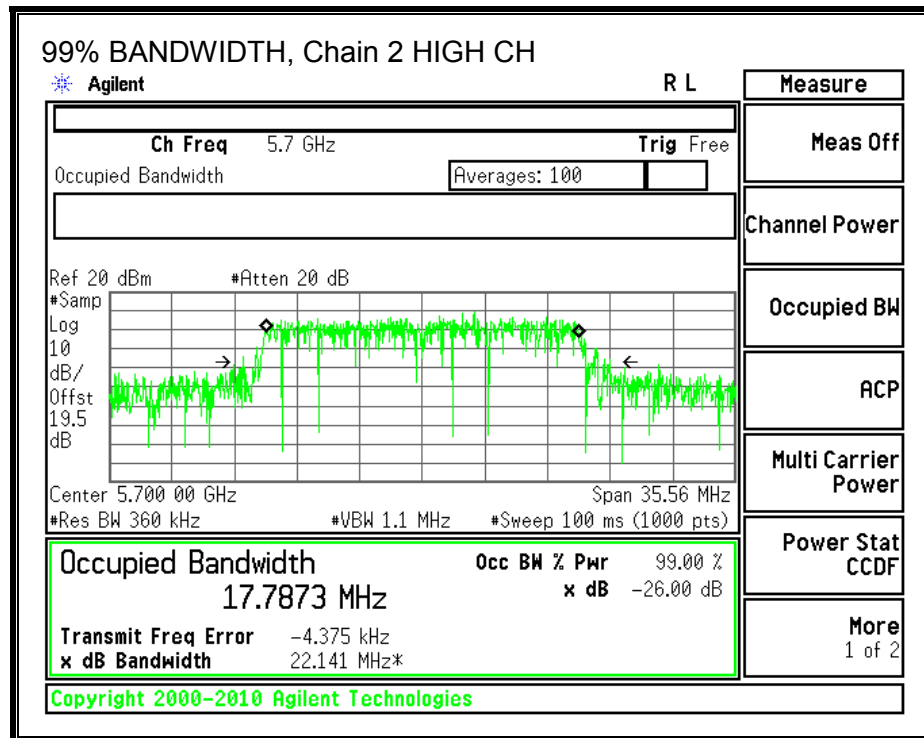
**99% BANDWIDTH, Chain 1**





**99% BANDWIDTH, Chain 2**





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

#### DIRECTIONAL ANTENNA GAIN

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

| Chain 0<br>Antenna<br>Gain<br>(dBi) | Chain 1<br>Antenna<br>Gain<br>(dBi) | Chain 2<br>Antenna<br>Gain<br>(dBi) | Uncorrelated Chains<br>Directional<br>Gain<br>(dBi) |
|-------------------------------------|-------------------------------------|-------------------------------------|-----------------------------------------------------|
| 3.17                                | 2.09                                | 4.72                                | 4.46                                                |

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

| Chain 0<br>Antenna<br>Gain<br>(dBi) | Chain 1<br>Antenna<br>Gain<br>(dBi) | Chain 2<br>Antenna<br>Gain<br>(dBi) | Correlated Chains<br>Directional<br>Gain<br>(dBi) |
|-------------------------------------|-------------------------------------|-------------------------------------|---------------------------------------------------|
| 3.17                                | 2.09                                | 4.72                                | 9.17                                              |

## RESULTS

### Bandwidth, Antenna Gain, and Limits

| Channel | Frequency<br>(MHz) | Min<br>26 dB<br>BW<br>(MHz) | Directional<br>Gain<br>for Power<br>(dBi) | Directional<br>Gain<br>for PSD<br>(dBi) | Power<br>Limit<br>(dBm) | PSD<br>Limit<br>(dBm) |
|---------|--------------------|-----------------------------|-------------------------------------------|-----------------------------------------|-------------------------|-----------------------|
| Low     | 5500               | 27.89                       | 4.46                                      | 9.17                                    | 24.00                   | 7.83                  |
| Mid     | 5580               | 27.24                       | 4.46                                      | 9.17                                    | 24.00                   | 7.83                  |
| High    | 5700               | 21.35                       | 4.46                                      | 9.17                                    | 24.00                   | 7.83                  |

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

### Output Power Results

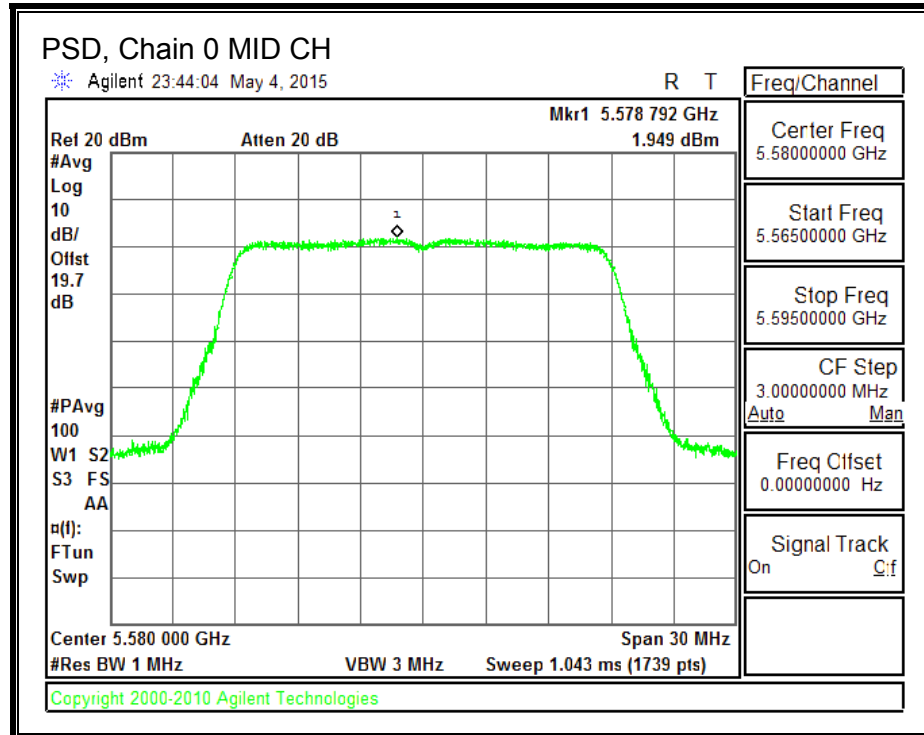
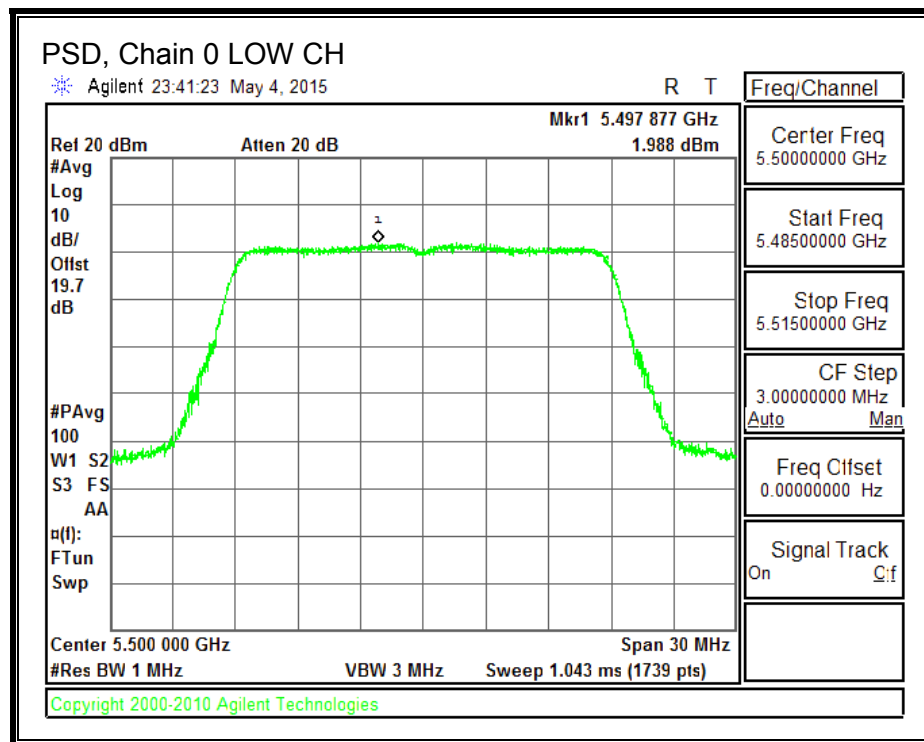
| Channel | Frequency<br>(MHz) | Chain 0<br>Meas<br>Power<br>(dBm) | Chain 1<br>Meas<br>Power<br>(dBm) | Chain 2<br>Meas<br>Power<br>(dBm) | Total<br>Corr'd<br>Power<br>(dBm) | Power<br>Limit<br>(dBm) | Power<br>Margin<br>(dB) |
|---------|--------------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|-------------------------|-------------------------|
| Low     | 5500               | 12.80                             | 13.40                             | 12.80                             | 17.78                             | 24.00                   | -6.22                   |
| Mid     | 5580               | 12.80                             | 13.10                             | 12.50                             | 17.58                             | 24.00                   | -6.42                   |
| High    | 5700               | 12.30                             | 12.40                             | 12.20                             | 17.07                             | 24.00                   | -6.93                   |

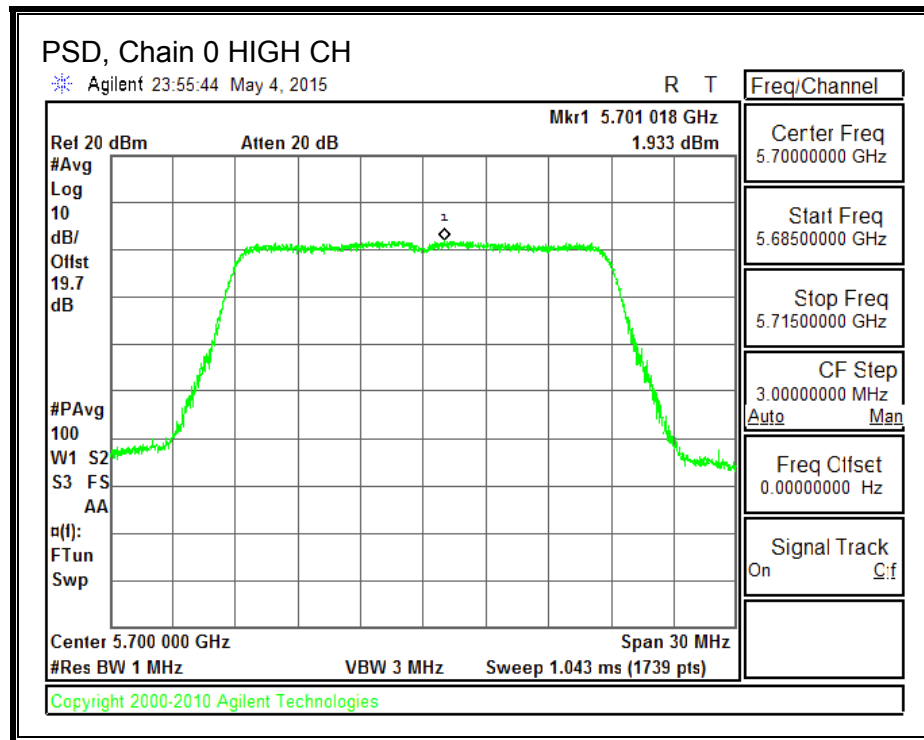
### PSD Results

| Channel | Frequency<br>(MHz) | Chain 0<br>Meas<br>PSD<br>(dBm) | Chain 1<br>Meas<br>PSD<br>(dBm) | Chain 2<br>Meas<br>PSD<br>(dBm) | Total<br>Corr'd<br>PSD<br>(dBm) | PSD<br>Limit<br>(dBm) | PSD<br>Margin<br>(dB) |
|---------|--------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|-----------------------|-----------------------|
| Low     | 5500               | 1.988                           | 2.450                           | 1.642                           | 6.81                            | 7.83                  | -1.02                 |
| Mid     | 5580               | 1.949                           | 2.302                           | 1.566                           | 6.72                            | 7.83                  | -1.11                 |
| High    | 5700               | 1.933                           | 2.021                           | 1.917                           | 6.73                            | 7.83                  | -1.10                 |

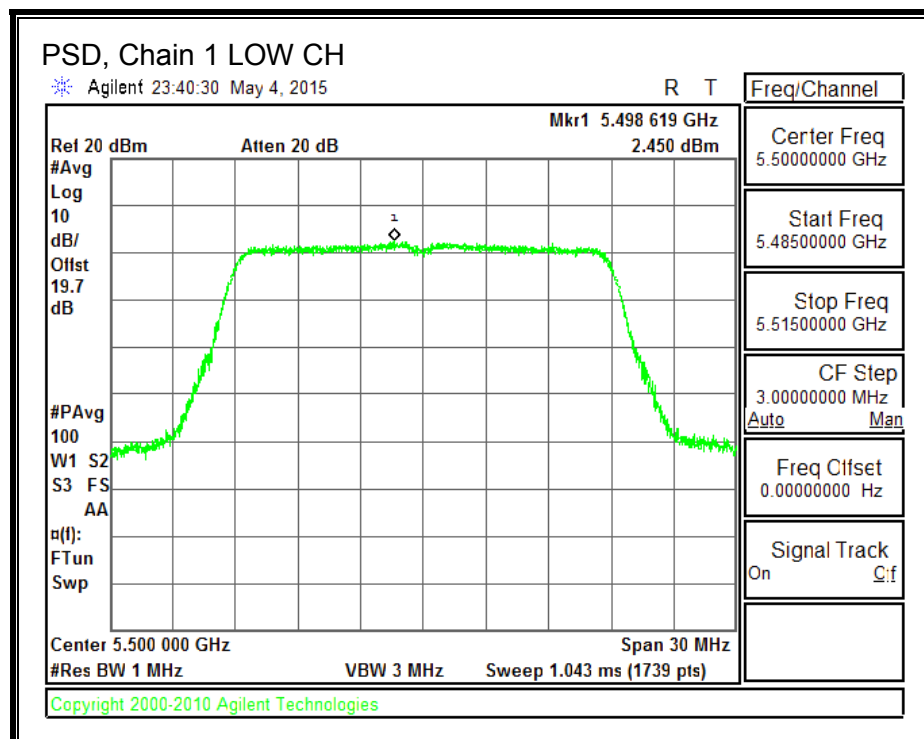
**Note:** the power readings above were measured with gated method, and the measurement was taken only during the ON time. No duty cycle correction was necessary.

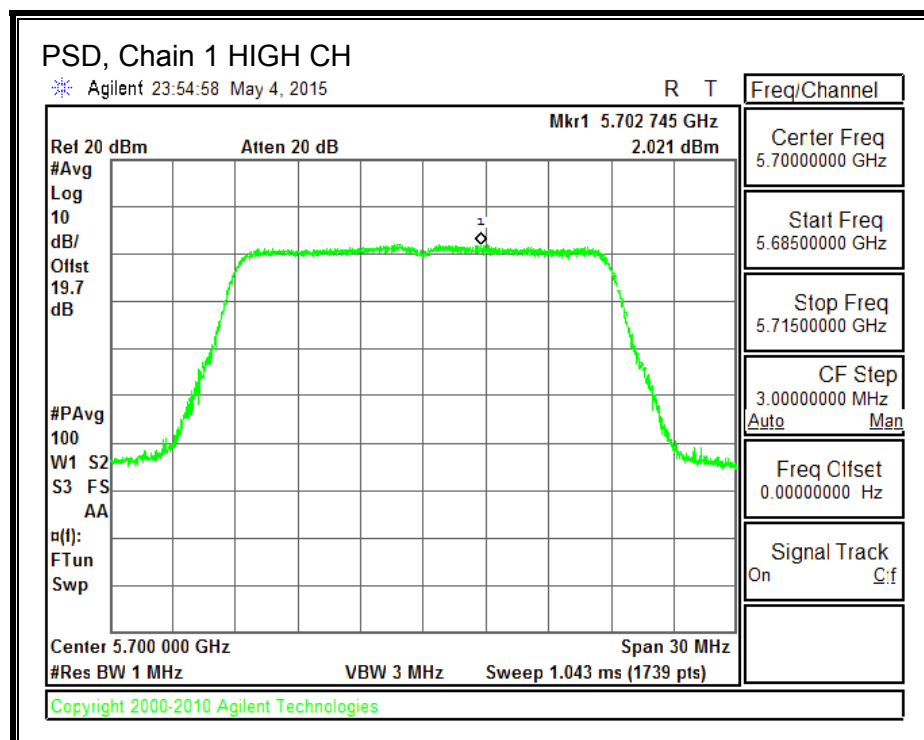
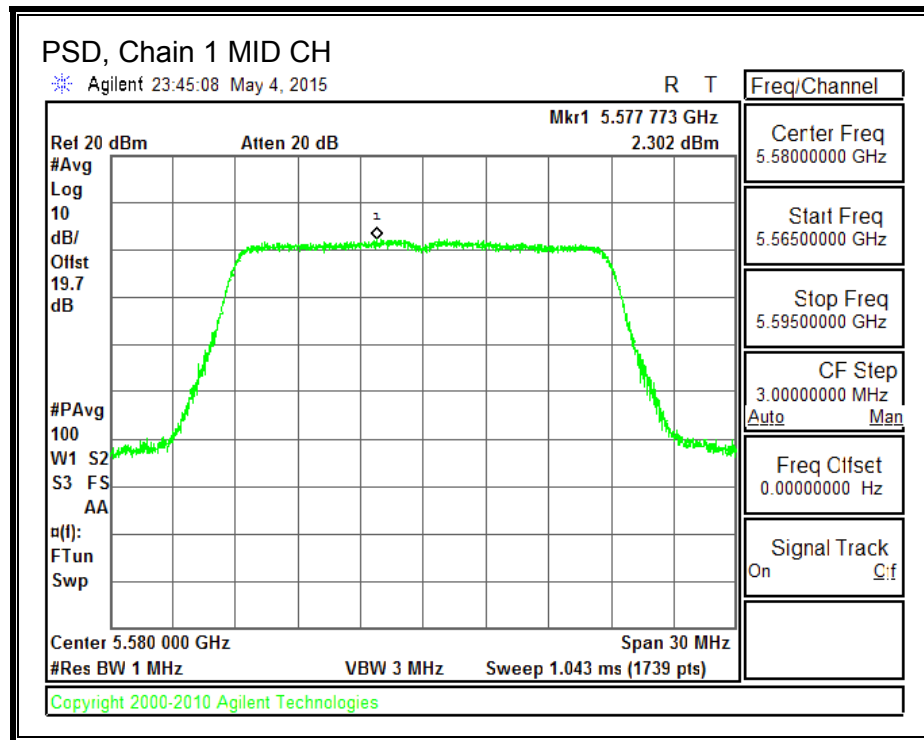
**PSD, Chain 0**



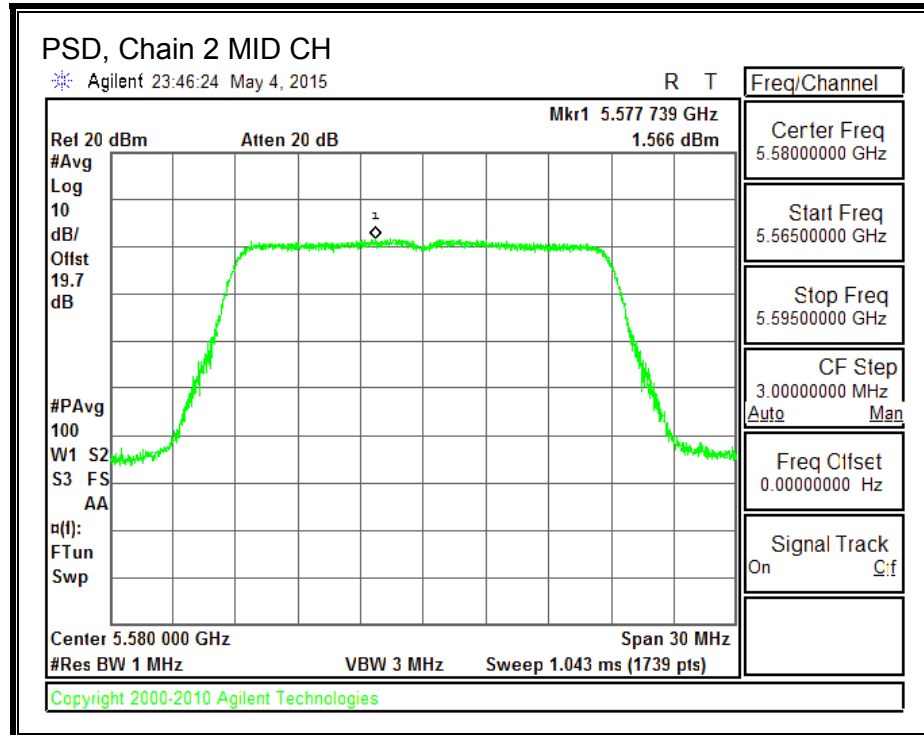
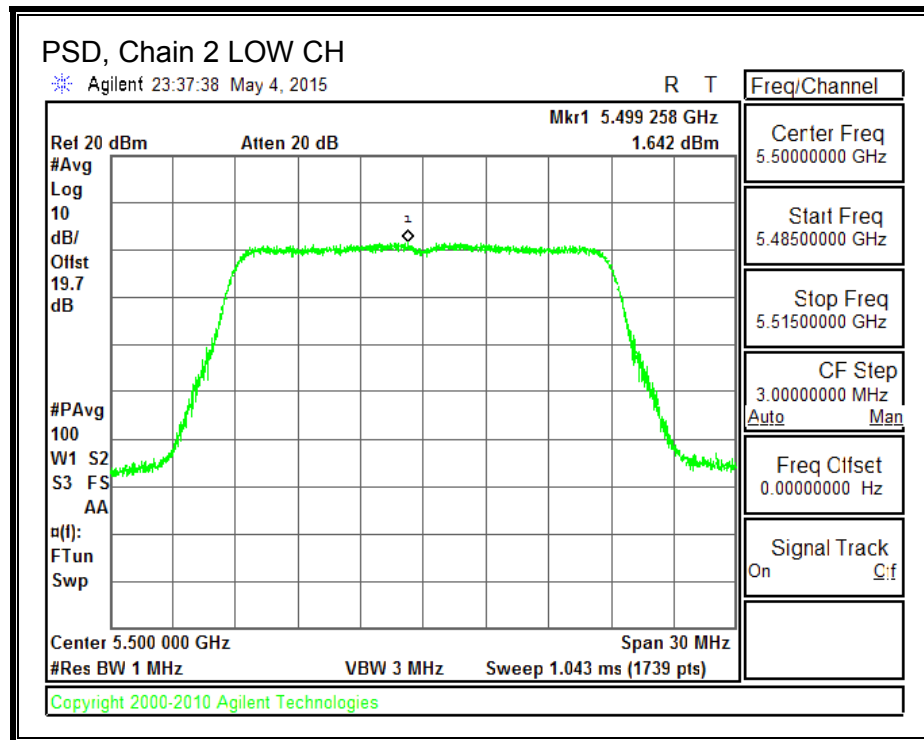


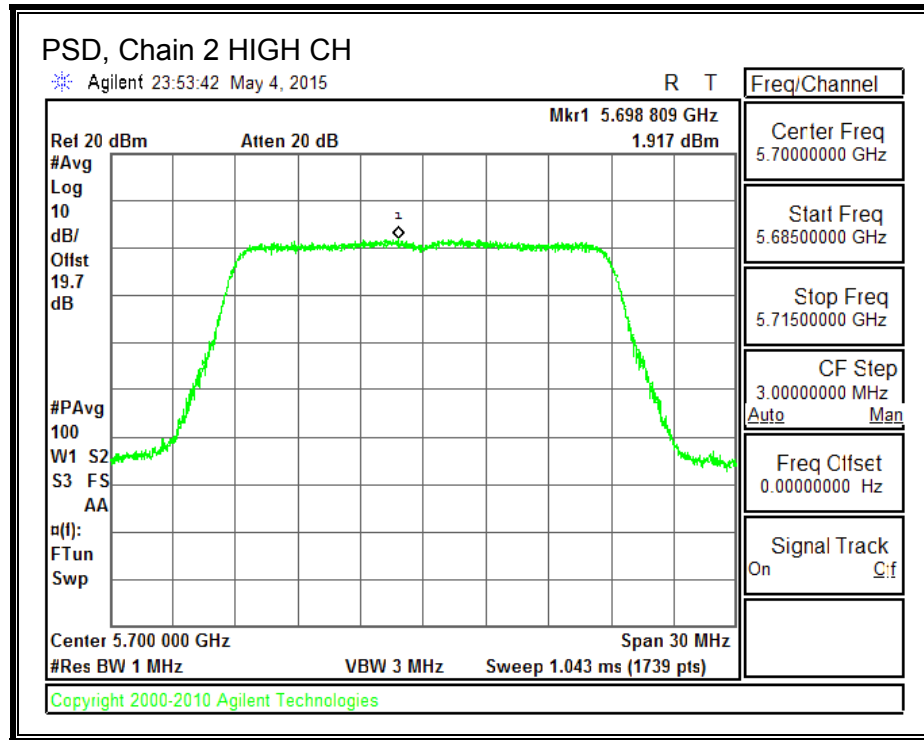
**PSD, Chain 1**





**PSD, Chain 2**





# **STRADDLE CHANNEL 144 RESULTS**

## **UNII-2C BAND**

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

| Channel | Frequency<br>(MHz) | Min<br>26 dB<br>BW<br>(MHz) | Directional<br>Gain<br>for Power<br>(dBi) | Directional<br>Gain<br>for PSD<br>(dBi) | Power<br>Limit<br>(dBm) | PSD<br>Limit<br>(dBm) |
|---------|--------------------|-----------------------------|-------------------------------------------|-----------------------------------------|-------------------------|-----------------------|
| 144     | 5720               | 19.89                       | 4.46                                      | 9.17                                    | 23.99                   | 7.83                  |

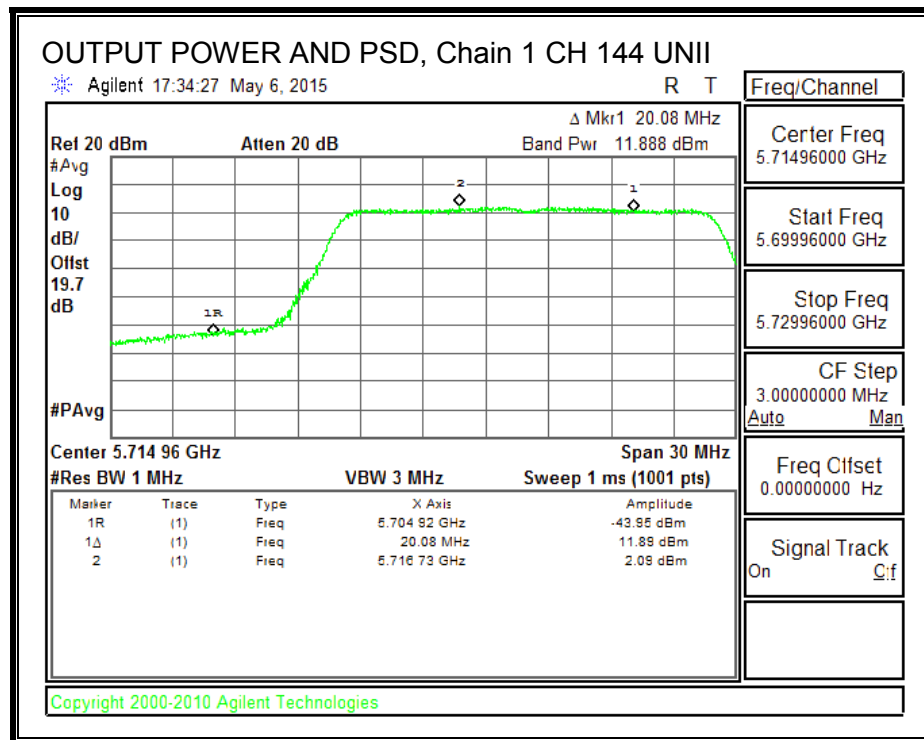
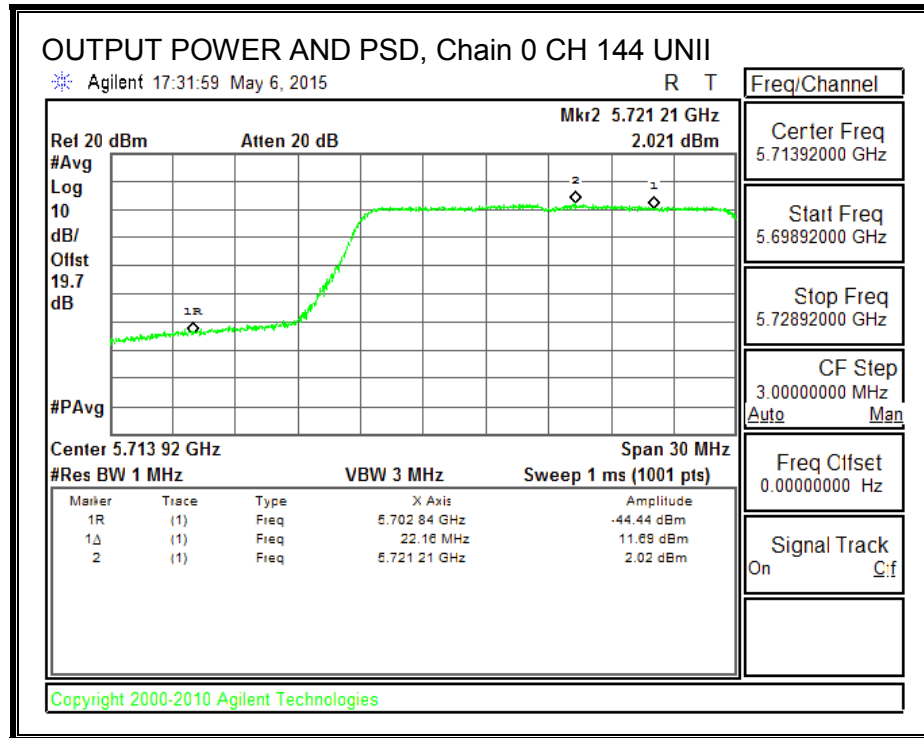
|                    |      |                                        |
|--------------------|------|----------------------------------------|
| Duty Cycle CF (dB) | 0.00 | Included in Calculations of Corr'd PSD |
|--------------------|------|----------------------------------------|

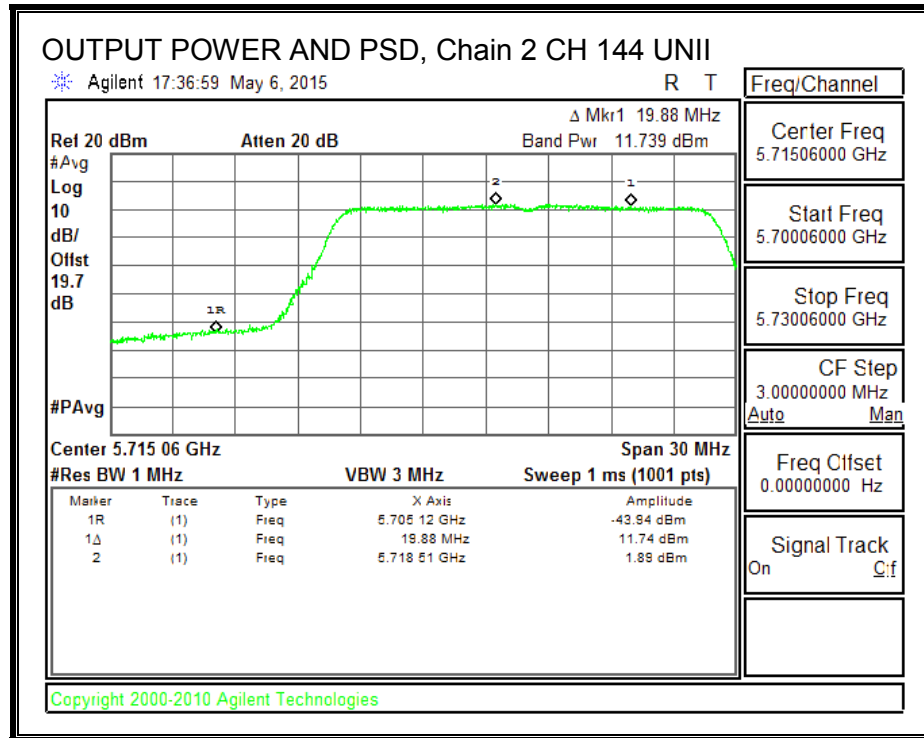
### **Output Power Results**

| Channel | Frequency<br>(MHz) | Chain 0<br>Meas<br>Power<br>(dBm) | Chain 1<br>Meas<br>Power<br>(dBm) | Chain 2<br>Meas<br>Power<br>(dBm) | Total<br>Corr'd<br>Power<br>(dBm) | Power<br>Limit<br>(dBm) | Power<br>Margin<br>(dB) |
|---------|--------------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|-------------------------|-------------------------|
| 144     | 5720               | 11.690                            | 11.888                            | 11.739                            | 16.54                             | 23.99                   | -7.44                   |

### **PSD Results**

| Channel | Frequency<br>(MHz) | Chain 0<br>Meas<br>PSD<br>(dBm) | Chain 1<br>Meas<br>PSD<br>(dBm) | Chain 2<br>Meas<br>PSD<br>(dBm) | Total<br>Corr'd<br>PSD<br>(dBm) | PSD<br>Limit<br>(dBm) | PSD<br>Margin<br>(dB) |
|---------|--------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|-----------------------|-----------------------|
| 144     | 5720               | 2.021                           | 2.090                           | 1.890                           | 6.77                            | 7.83                  | -1.06                 |





**UNII-3 BAND**

**Antenna Gain and Limit**

| Channel | Frequency<br>(MHz) | Directional<br>Gain<br>for Power<br>(dBi) | Directional<br>Gain<br>for PSD<br>(dBi) | Power<br>Limit<br>(dBm) | PSD<br>Limit<br>(dBm) |
|---------|--------------------|-------------------------------------------|-----------------------------------------|-------------------------|-----------------------|
| 144     | 5720               | 4.47                                      | 9.15                                    | 30.00                   | 26.85                 |

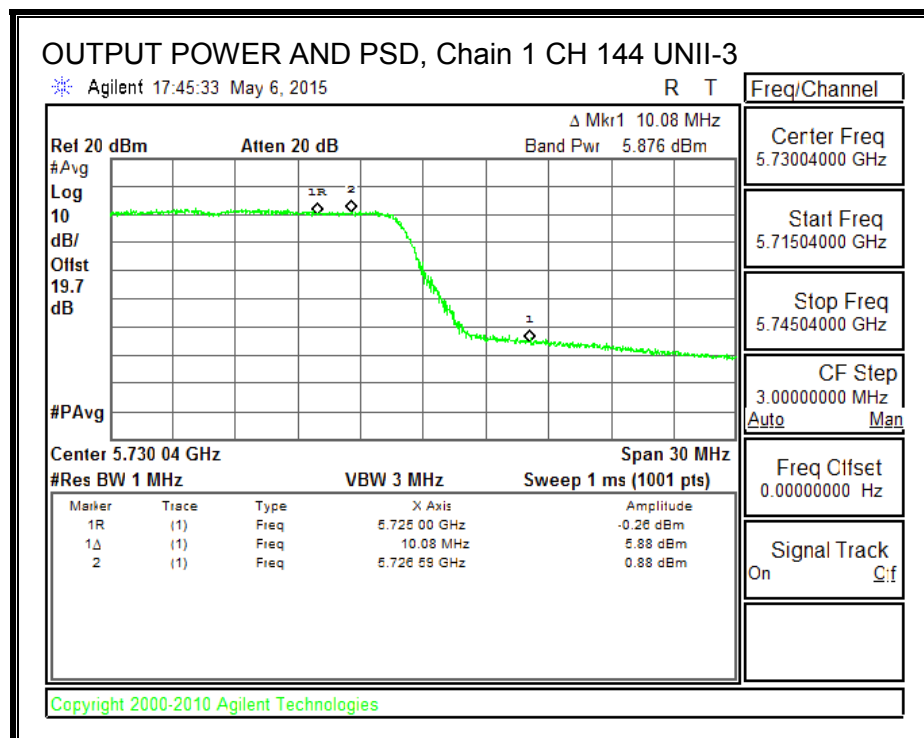
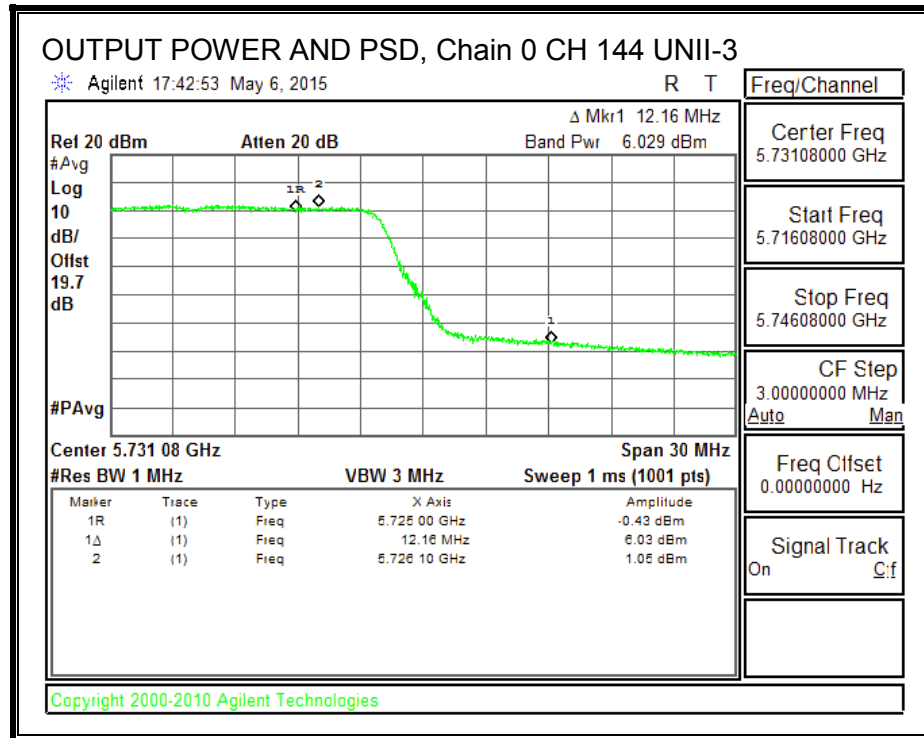
|                    |      |                                                |
|--------------------|------|------------------------------------------------|
| Duty Cycle CF (dB) | 0.00 | Included in Calculations of Corr'd Power & PSD |
|--------------------|------|------------------------------------------------|

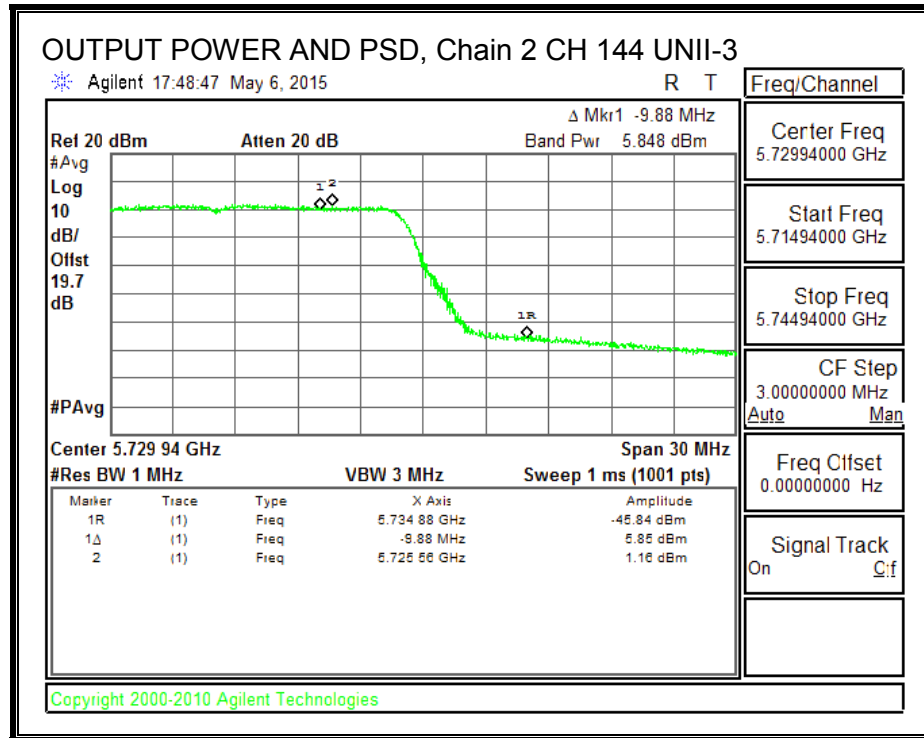
**Output Power Results**

| Channel | Frequency<br>(MHz) | Chain 0<br>Meas<br>Power<br>(dBm) | Chain 1<br>Meas<br>Power<br>(dBm) | Chain 2<br>Meas<br>Power<br>(dBm) | Total<br>Corr'd<br>Power<br>(dBm) | Power<br>Limit<br>(dBm) | Power<br>Margin<br>(dB) |
|---------|--------------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|-------------------------|-------------------------|
| 144     | 5720               | 6.029                             | 5.876                             | 5.848                             | 10.69                             | 30.00                   | -19.31                  |

**PSD Results**

| Channel | Frequency<br>(MHz) | Chain 0<br>Meas<br>PSD<br>(dBm) | Chain 1<br>Meas<br>PSD<br>(dBm) | Chain 2<br>Meas<br>PSD<br>(dBm) | Total<br>Corr'd<br>PSD<br>(dBm) | PSD<br>Limit<br>(dBm) | PSD<br>Margin<br>(dB) |
|---------|--------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|-----------------------|-----------------------|
| 144     | 5720               | 1.05                            | 0.88                            | 1.16                            | 5.80                            | 26.85                 | -21.05                |





#### 8.41.4. AVERAGE OUTPUT POWER (WHOLE FUNDAMENTAL)

##### LIMITS

None; for reporting purposes only.

##### TEST PROCEDURE

The transmitter output is connected to a power meter.

##### RESULTS

###### Output Power Results

| Channel | Frequency<br>(MHz) | Chain 0<br>Meas<br>Power<br>(dBm) | Chain 1<br>Meas<br>Power<br>(dBm) | Chain 2<br>Meas<br>Power<br>(dBm) | Total<br>Corr'd<br>Power<br>(dBm) |
|---------|--------------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|
| 144     | 5720               | 12.90                             | 13.00                             | 12.80                             | 17.67                             |

**Note:** the power readings above were measured with gated method, and the measurement was taken only during the ON time. No duty cycle correction was necessary.

## **8.42. 802.11n HT20 STBC 3TX MODE IN THE 5.6 GHz BAND**

### **8.42.1. 26 dB BANDWIDTH**

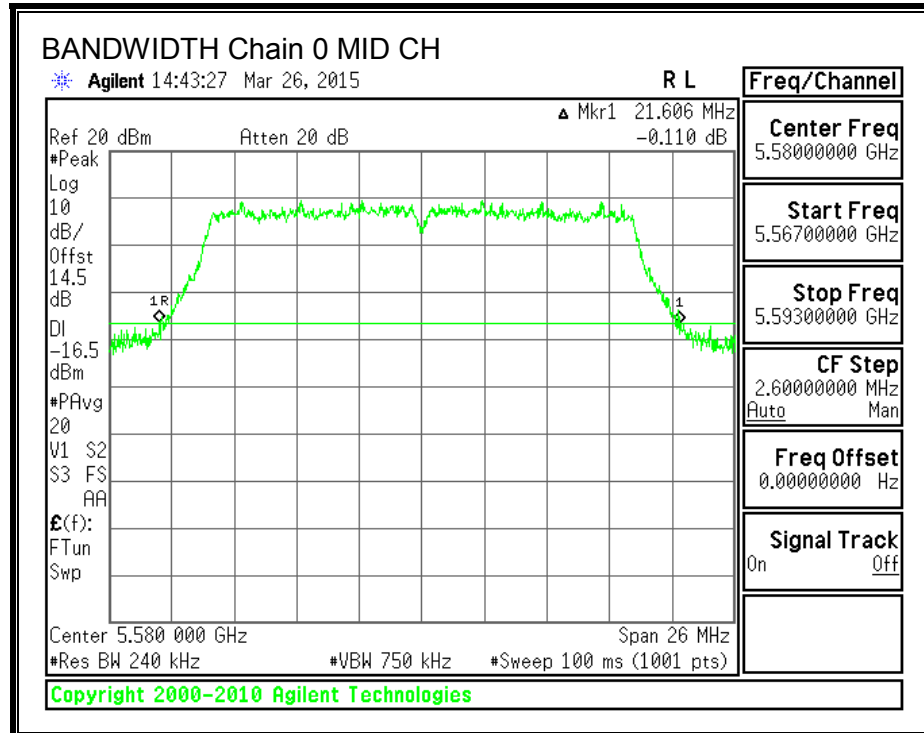
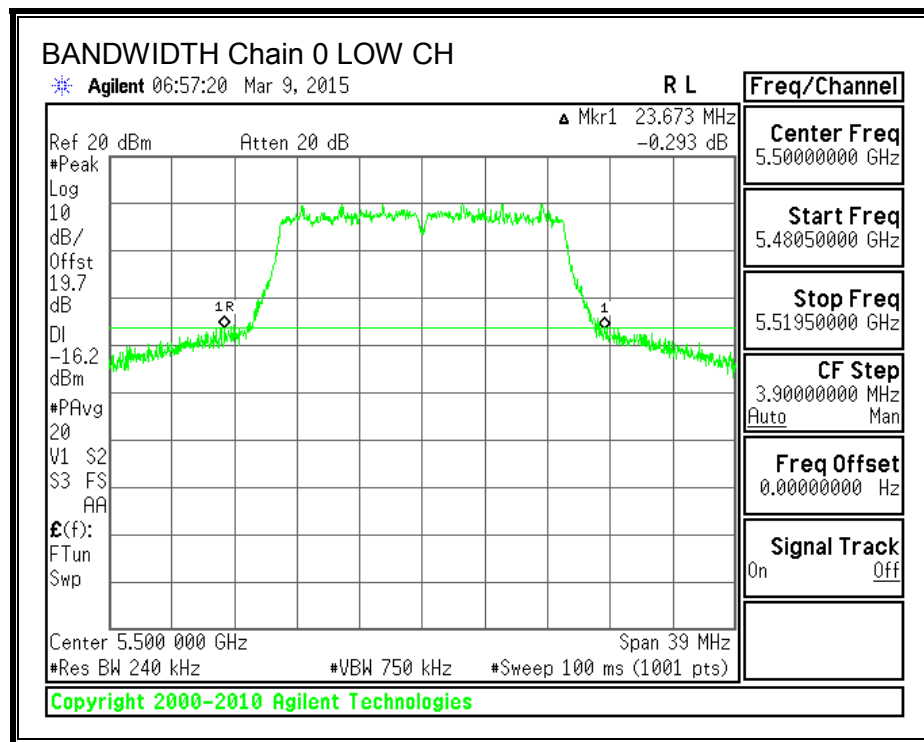
#### **LIMITS**

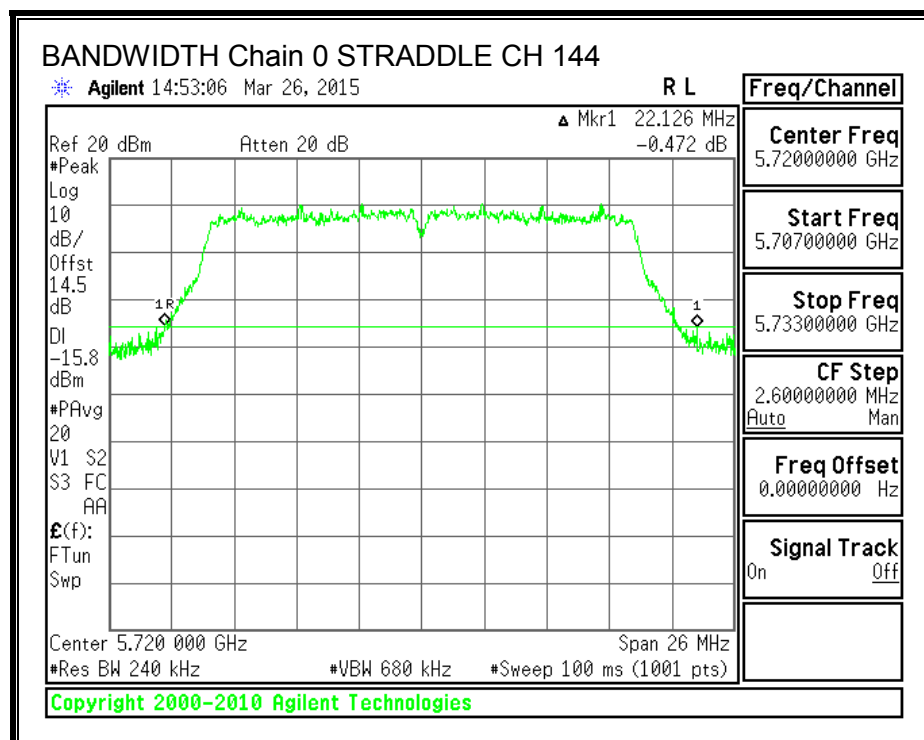
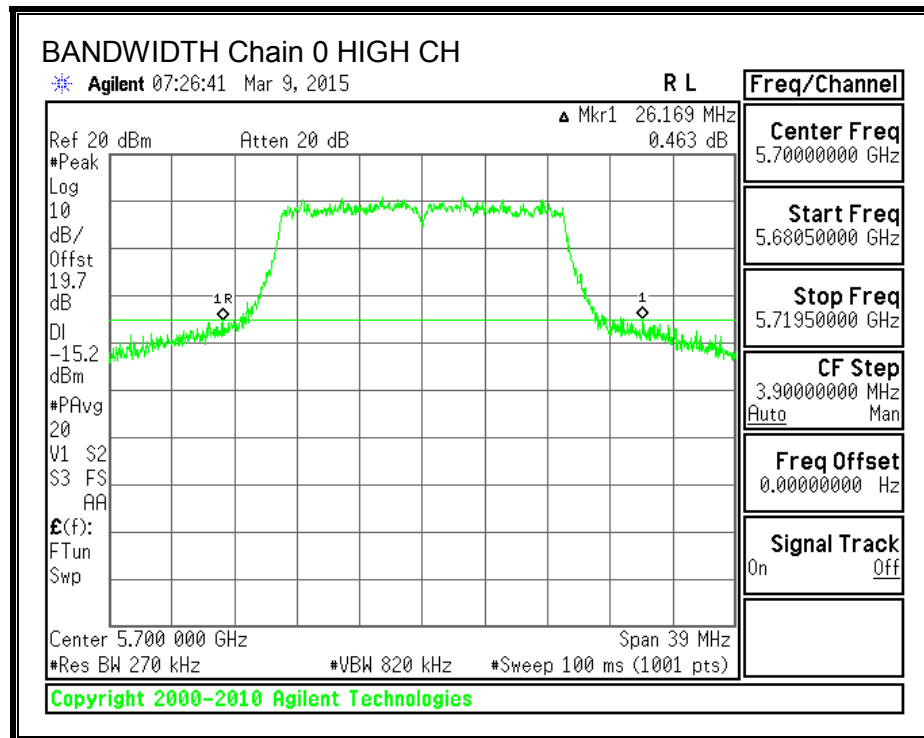
None; for reporting purposes only.

#### **RESULTS**

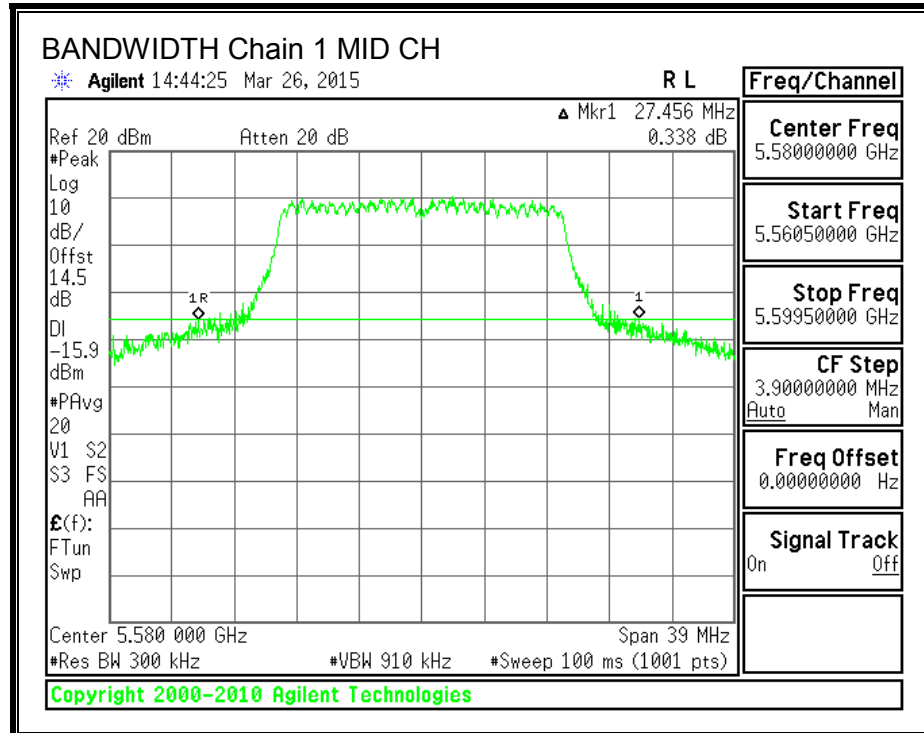
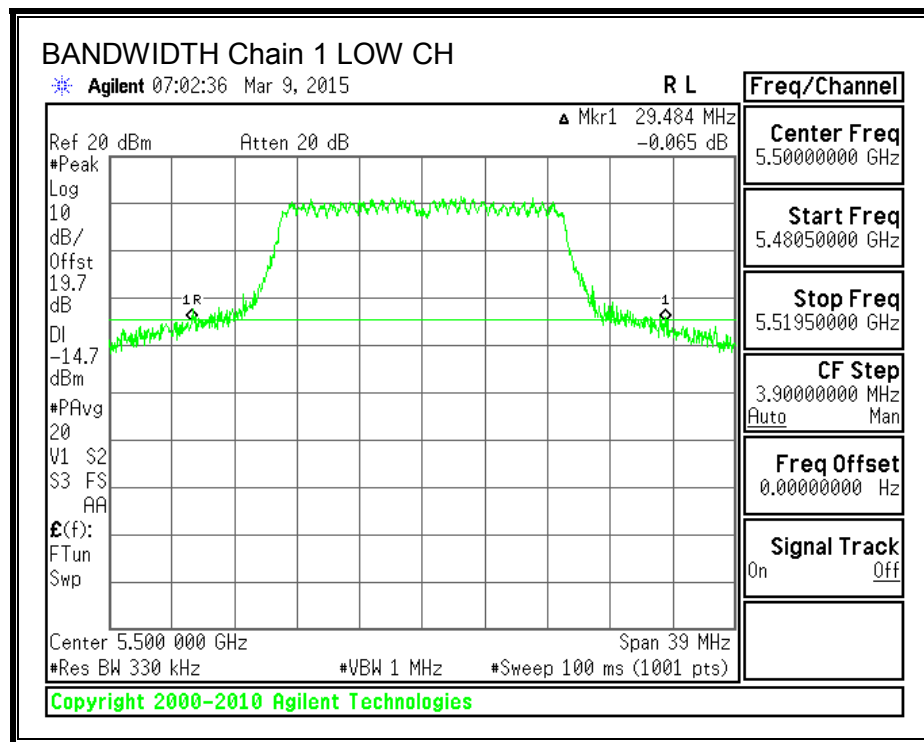
| Channel | Frequency<br>(MHz) | 26 dB BW<br>Chain 0<br>(MHz) | 26 dB BW<br>Chain 1<br>(MHz) | 26 dB BW<br>Chain 2<br>(MHz) |
|---------|--------------------|------------------------------|------------------------------|------------------------------|
| Low     | 5500               | 23.673                       | 29.484                       | 22.464                       |
| Mid     | 5580               | 21.606                       | 27.456                       | 21.502                       |
| High    | 5700               | 26.169                       | 26.325                       | 21.632                       |
| 144     | 5720               | 22.126                       | 22.191                       | 21.346                       |

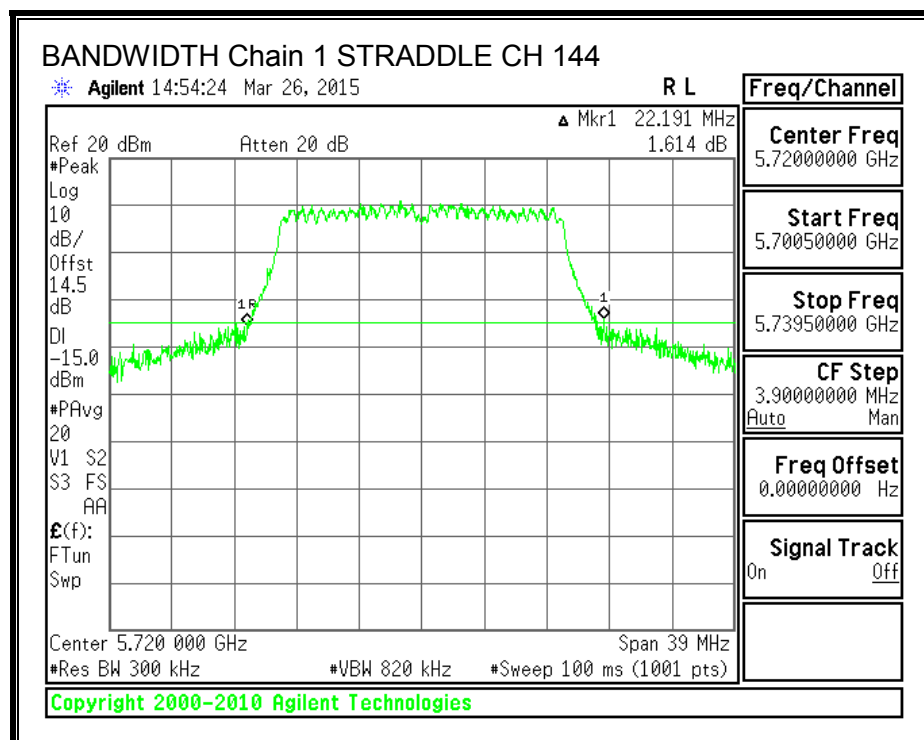
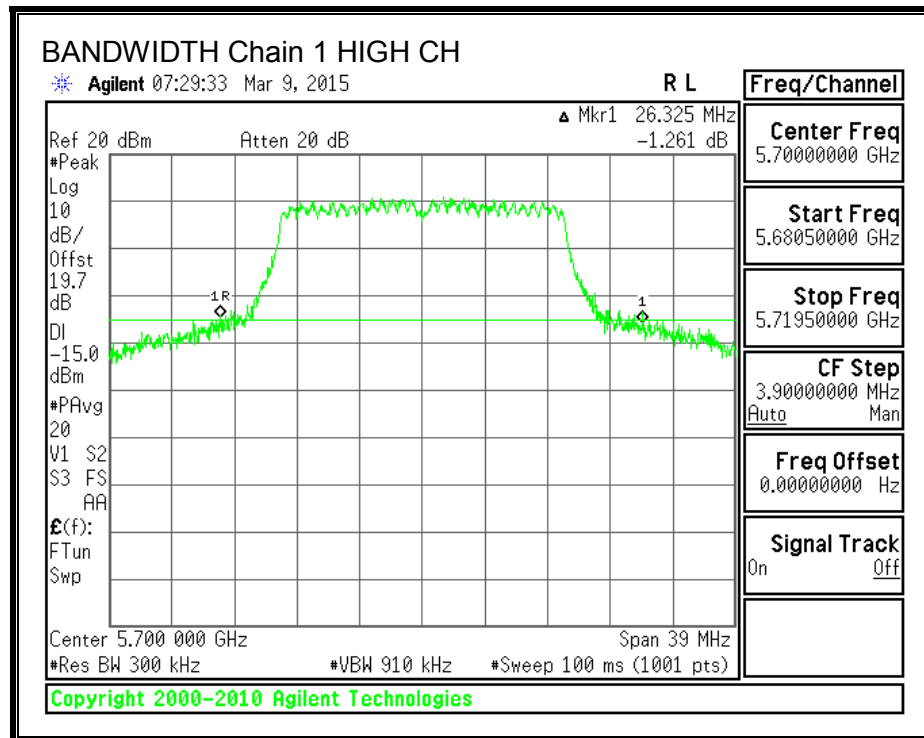
**26 dB BANDWIDTH, Chain 0**



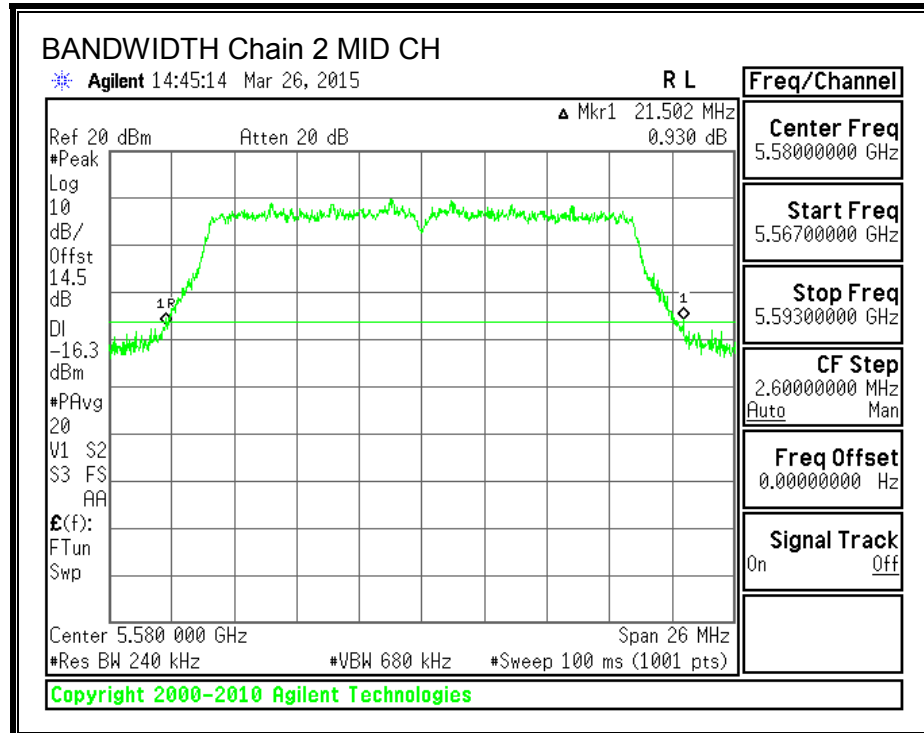
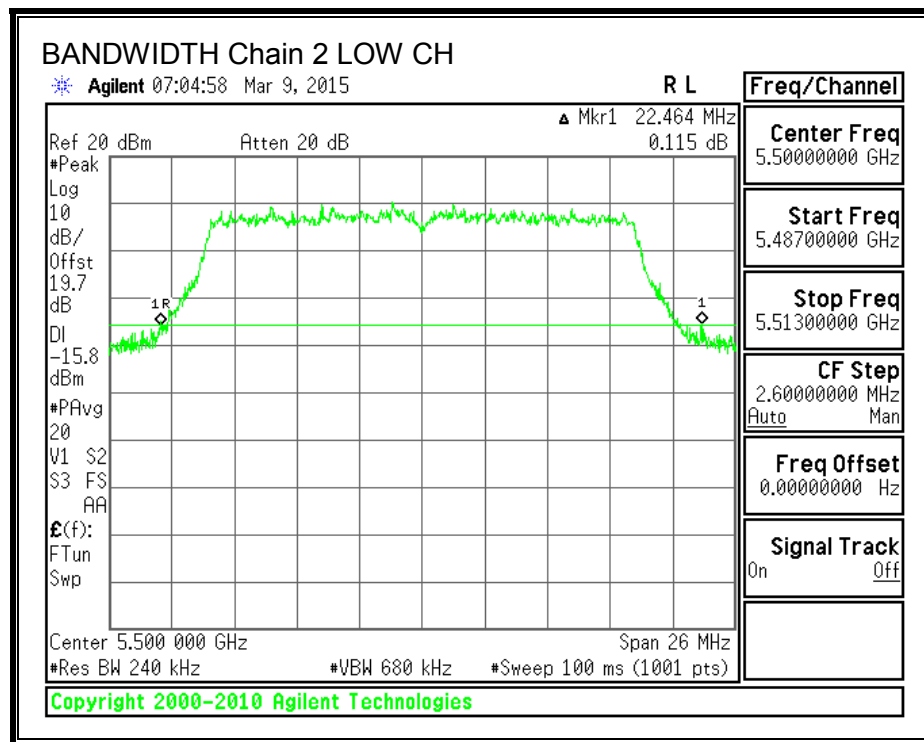


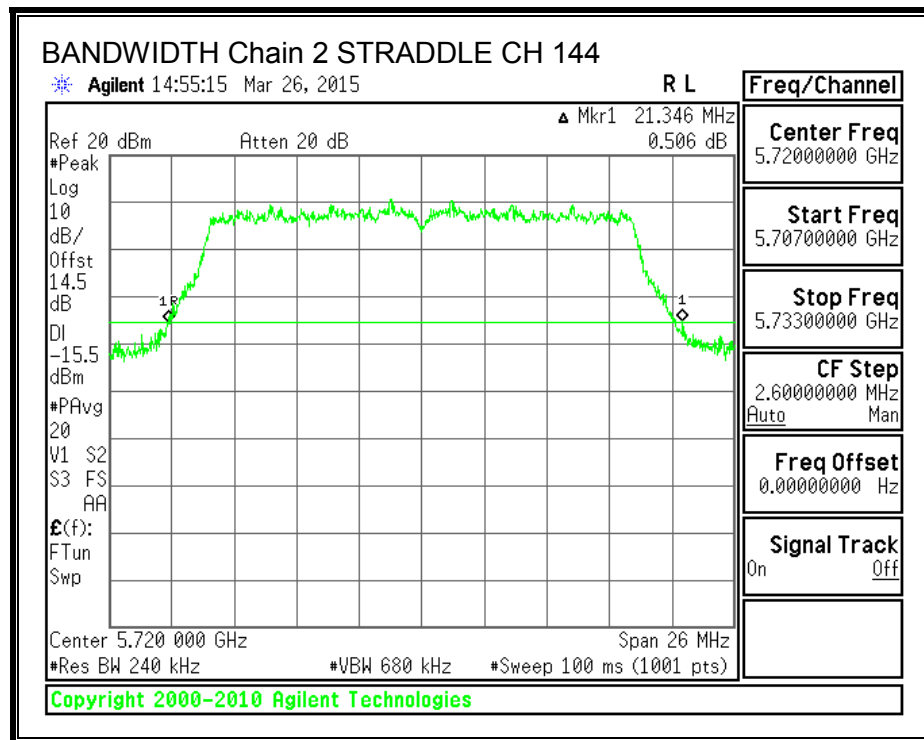
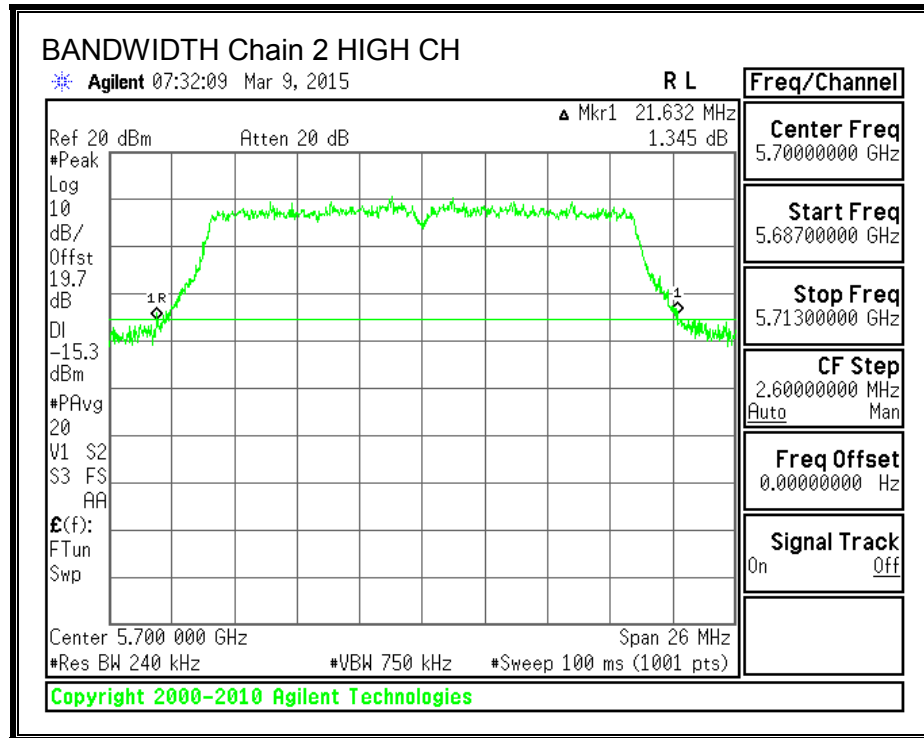
**26 dB BANDWIDTH, Chain 1**





**26 dB BANDWIDTH, Chain 2**





## 8.42.2. 99% BANDWIDTH

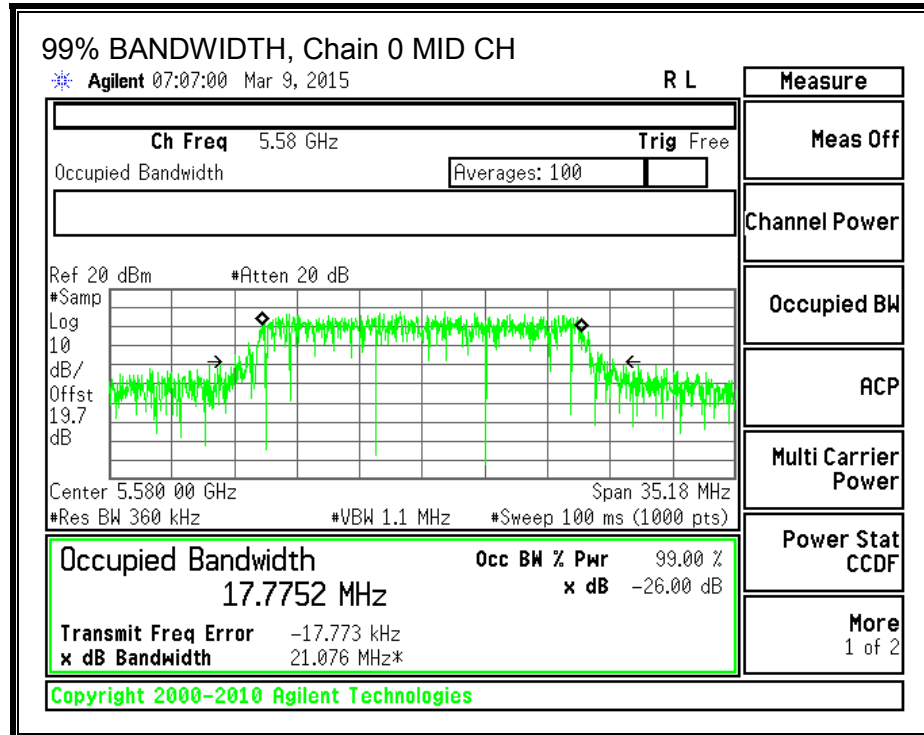
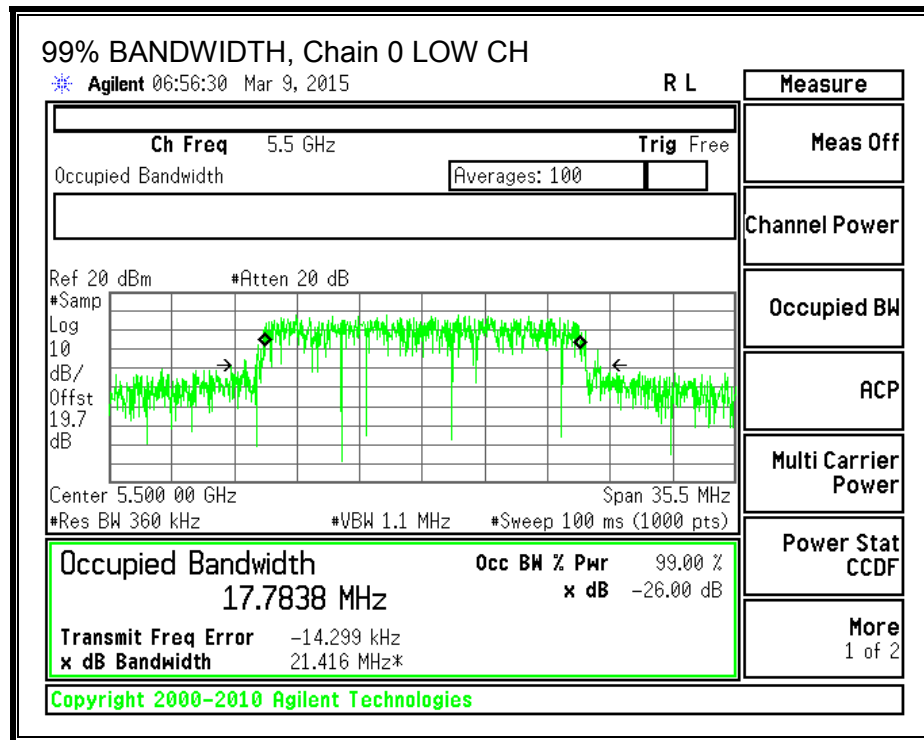
### LIMITS

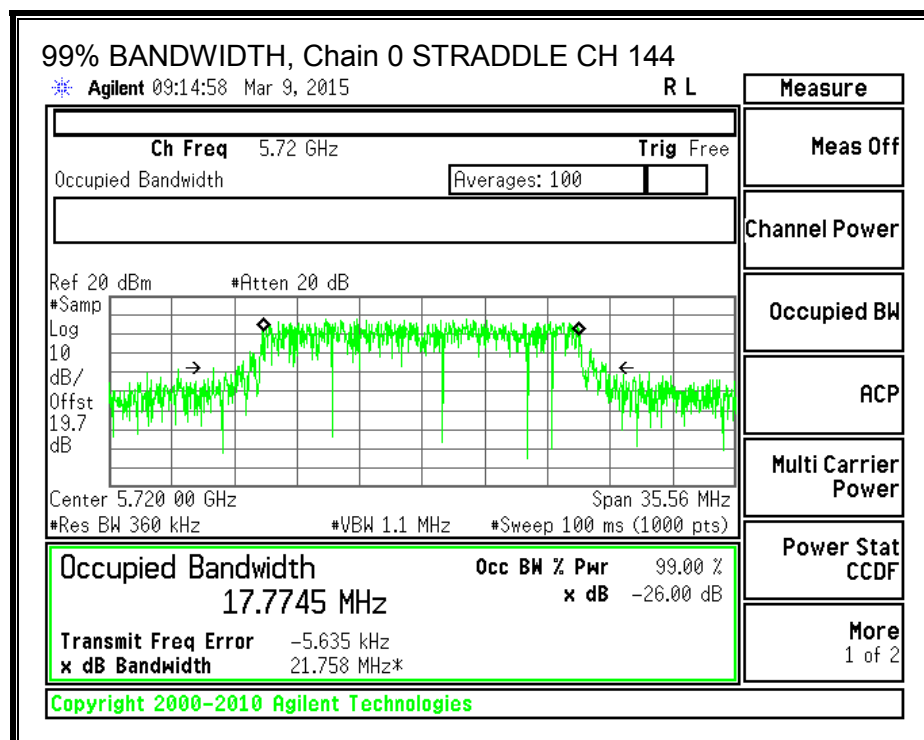
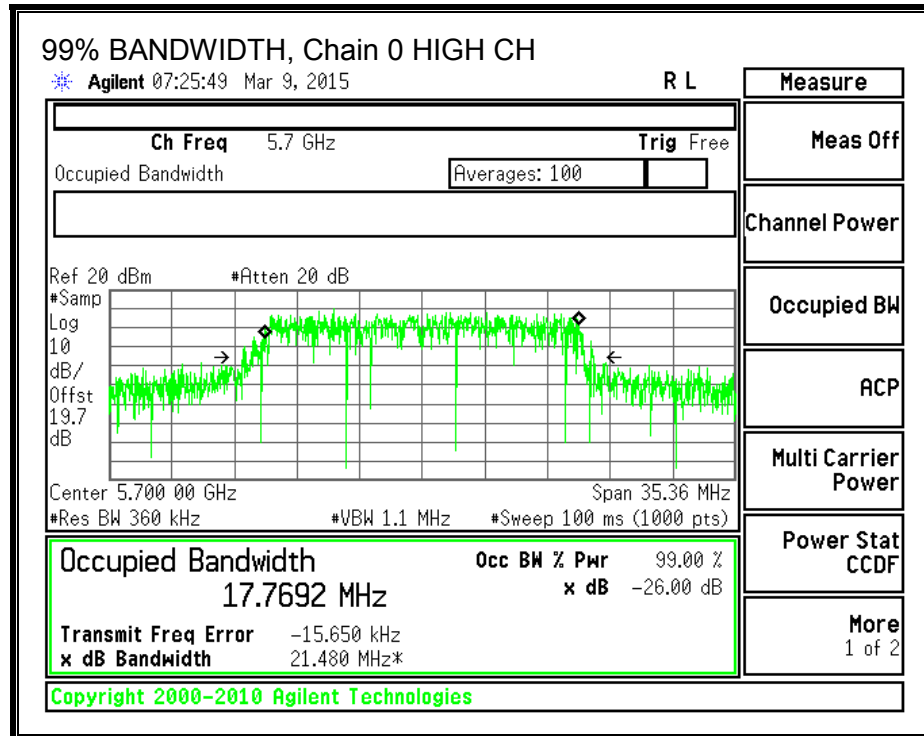
None; for reporting purposes only.

### RESULTS

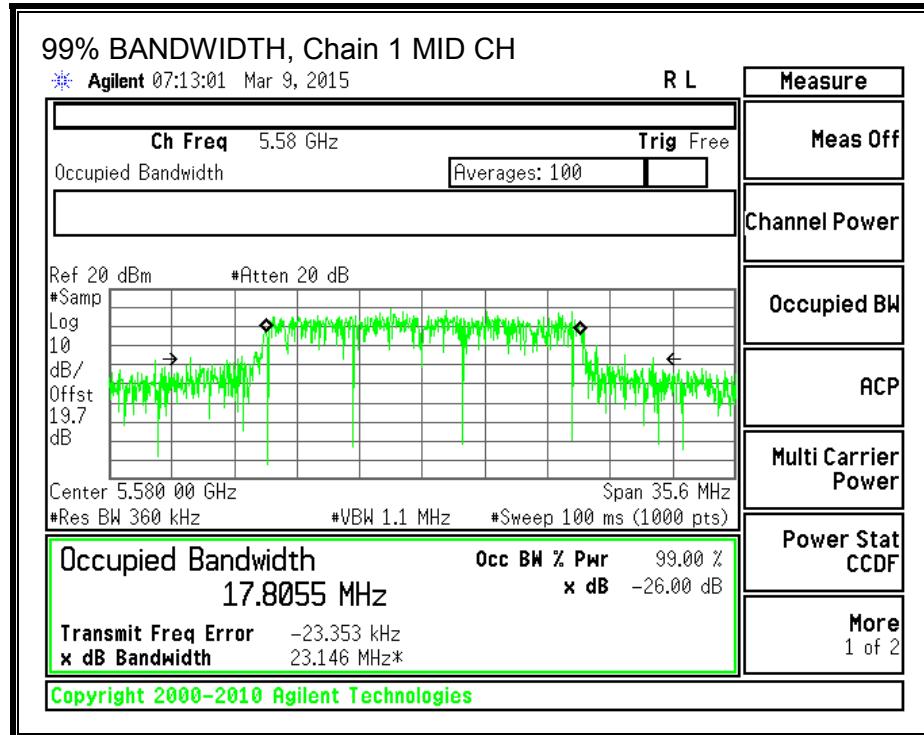
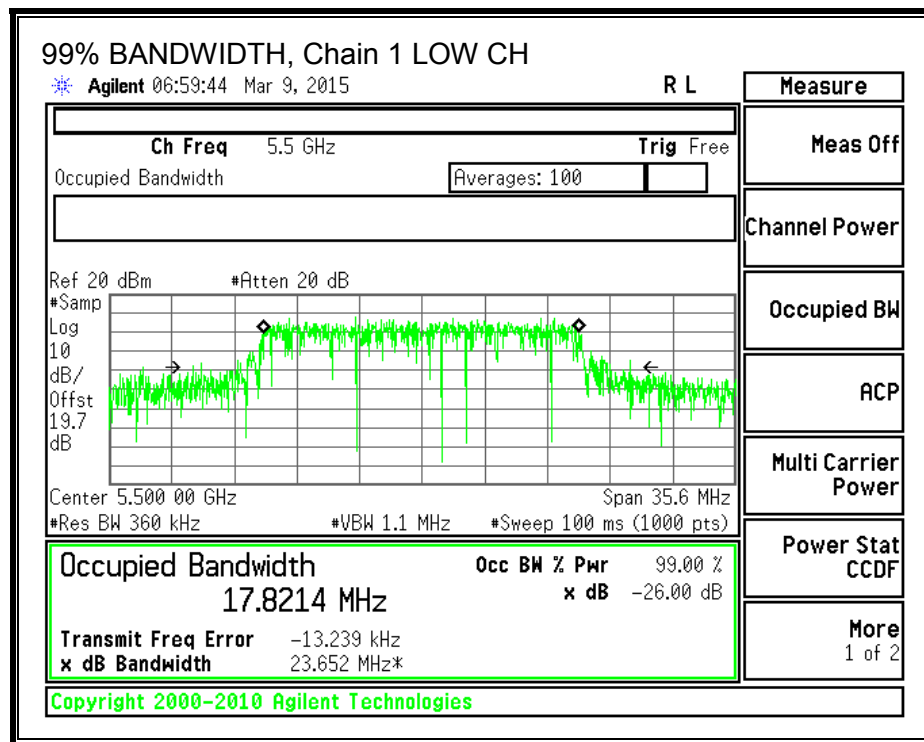
| Channel | Frequency<br>(MHz) | 99% BW<br>Chain 0<br>(MHz) | 99% BW<br>Chain 1<br>(MHz) | 99% BW<br>Chain 2<br>(MHz) |
|---------|--------------------|----------------------------|----------------------------|----------------------------|
| Low     | 5500               | 17.7838                    | 17.8214                    | 17.7489                    |
| Mid     | 5580               | 17.7752                    | 17.8055                    | 17.7580                    |
| High    | 5700               | 17.7692                    | 17.7777                    | 17.7450                    |
| 144     | 5720               | 17.7745                    | 17.7937                    | 17.7739                    |

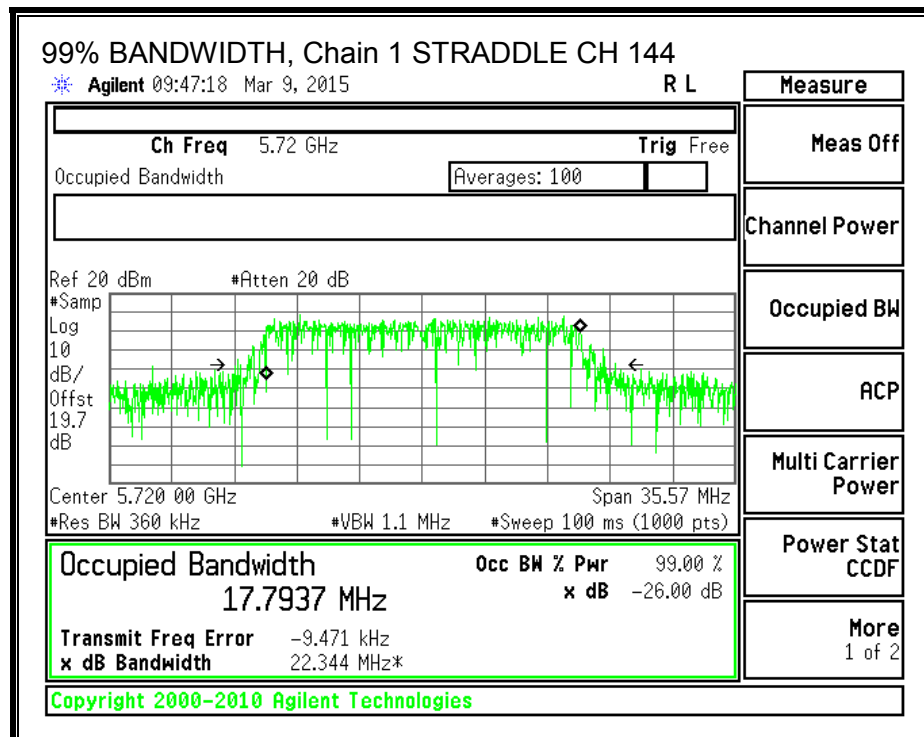
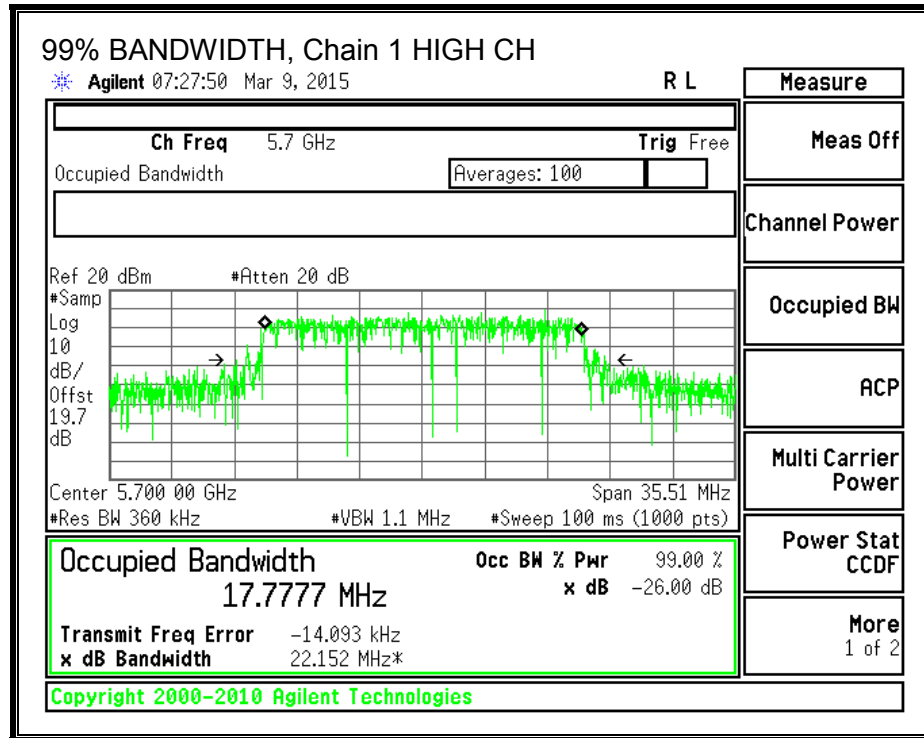
**99% BANDWIDTH, Chain 0**



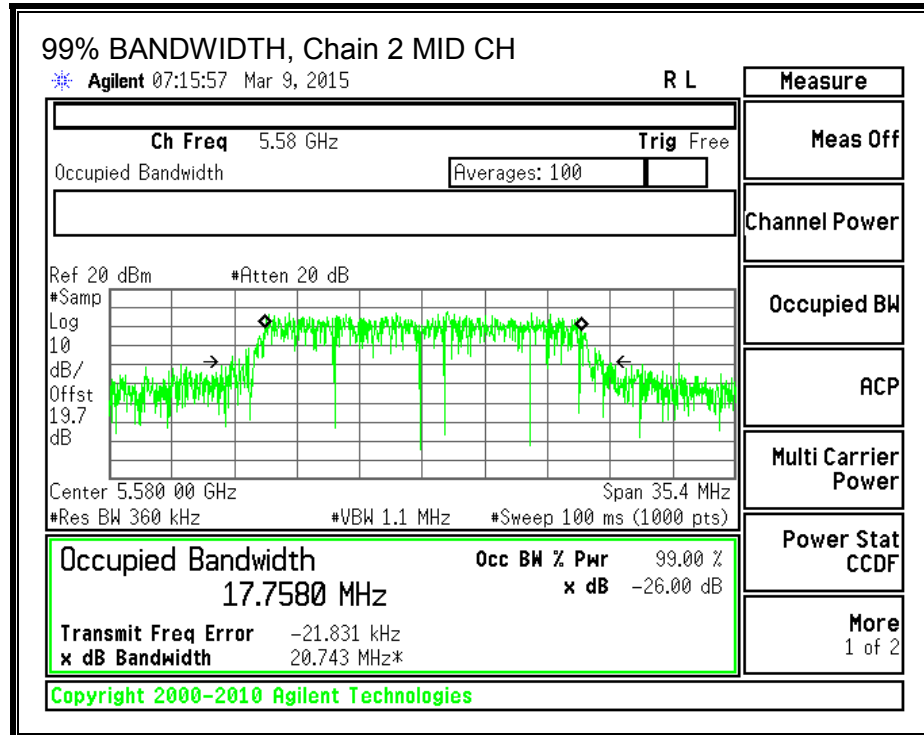
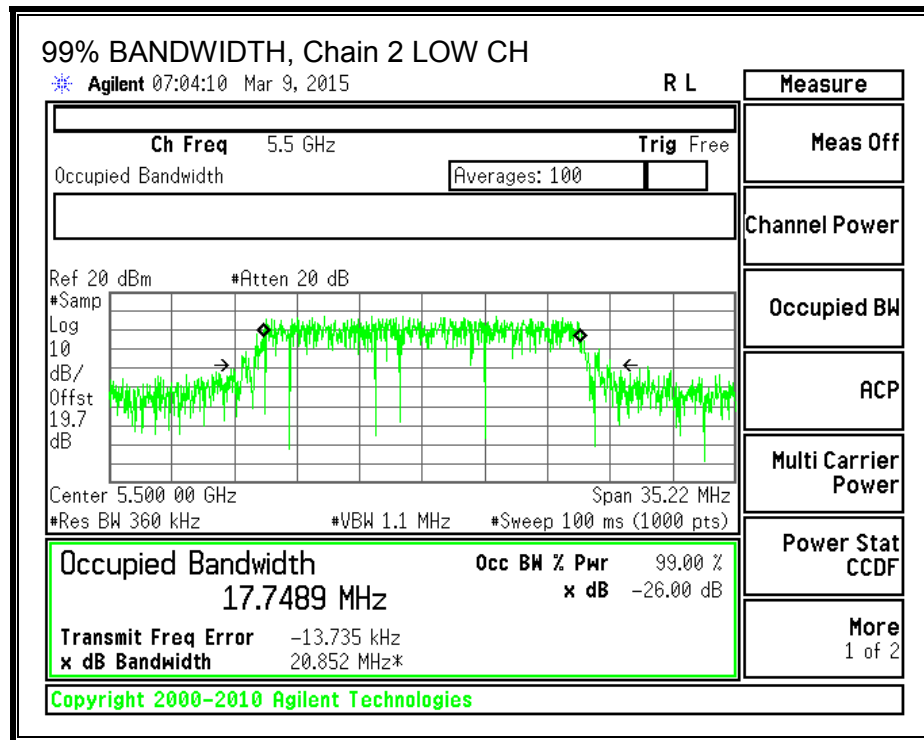


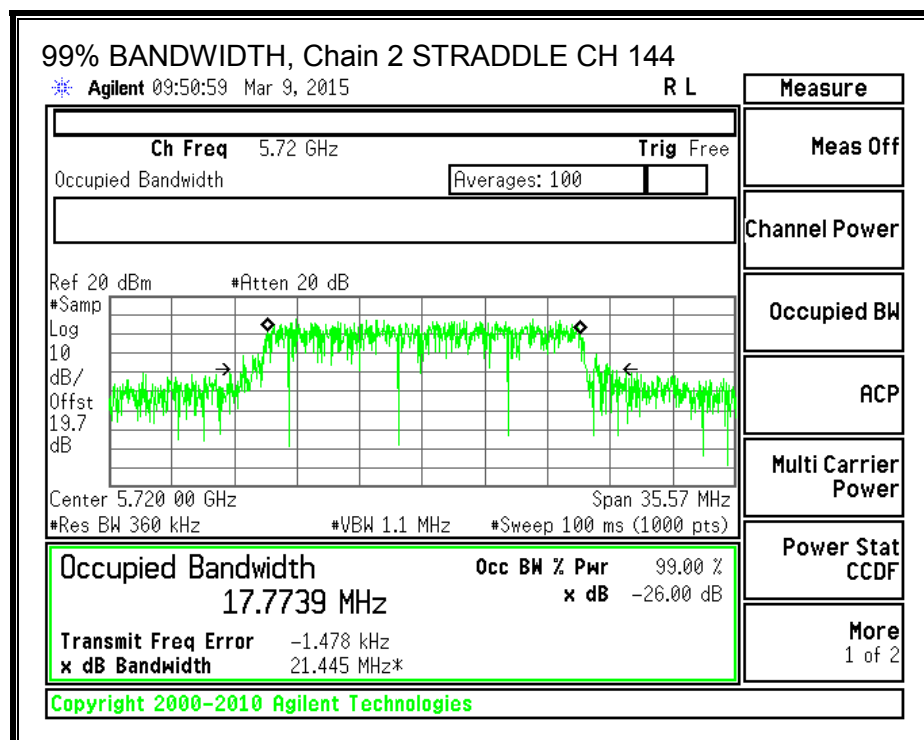
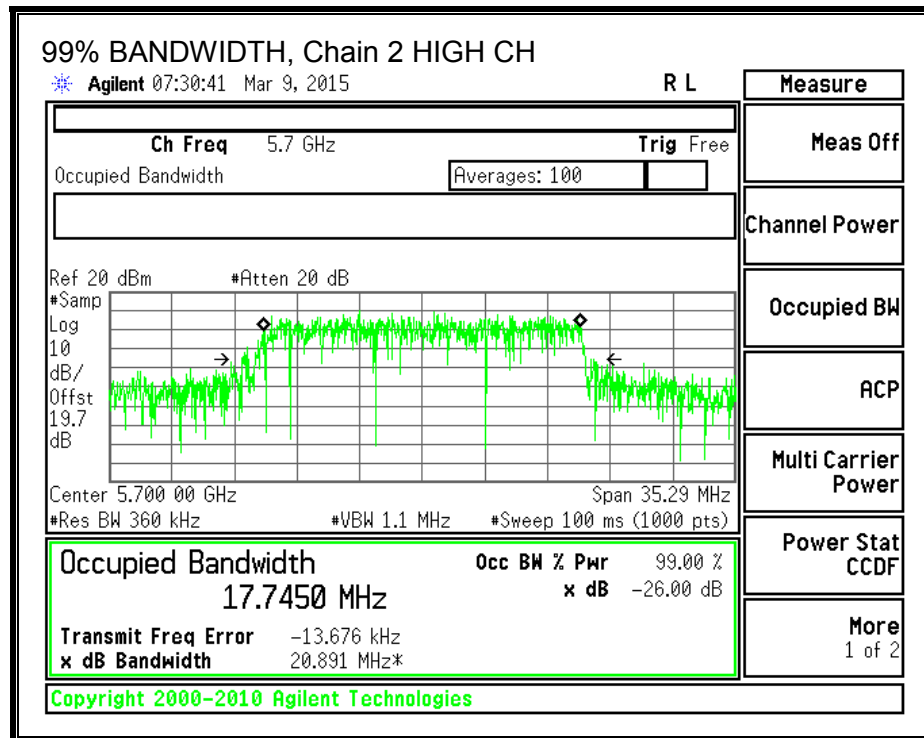
**99% BANDWIDTH, Chain 1**





**99% BANDWIDTH, Chain 2**





### 8.42.3. 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.

#### DIRECTIONAL ANTENNA GAIN

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

| Chain 0<br>Antenna<br>Gain<br>(dBi) | Chain 1<br>Antenna<br>Gain<br>(dBi) | Chain 2<br>Antenna<br>Gain<br>(dBi) | Uncorrelated Chains<br>Directional<br>Gain<br>(dBi) |
|-------------------------------------|-------------------------------------|-------------------------------------|-----------------------------------------------------|
| 3.17                                | 2.09                                | 4.72                                | 4.46                                                |

## RESULTS

### Bandwidth, Antenna Gain, and Limits

| Channel | Frequency<br>(MHz) | Min<br>26 dB<br>BW<br>(MHz) | Directional<br>Gain<br>for Power<br>(dBi) | Directional<br>Gain<br>for PSD<br>(dBi) | Power<br>Limit<br>(dBm) | PSD<br>Limit<br>(dBm) |
|---------|--------------------|-----------------------------|-------------------------------------------|-----------------------------------------|-------------------------|-----------------------|
| Low     | 5500               | 22.46                       | 4.46                                      | 4.46                                    | 24.00                   | 11.00                 |
| Mid     | 5580               | 21.50                       | 4.46                                      | 4.46                                    | 24.00                   | 11.00                 |
| High    | 5700               | 21.63                       | 4.46                                      | 4.46                                    | 24.00                   | 11.00                 |

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

### Output Power Results

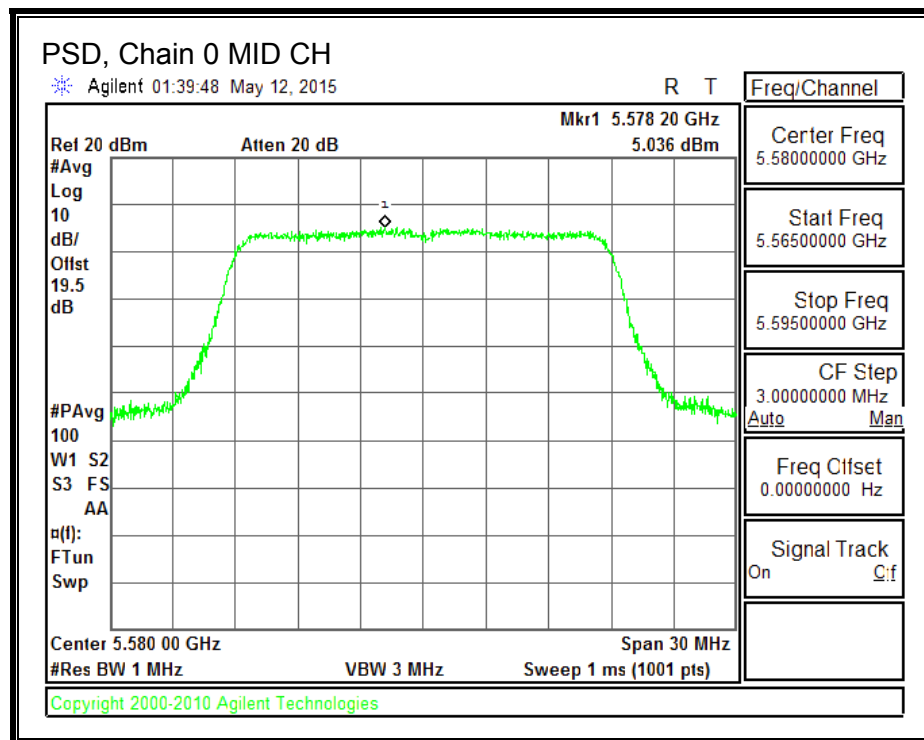
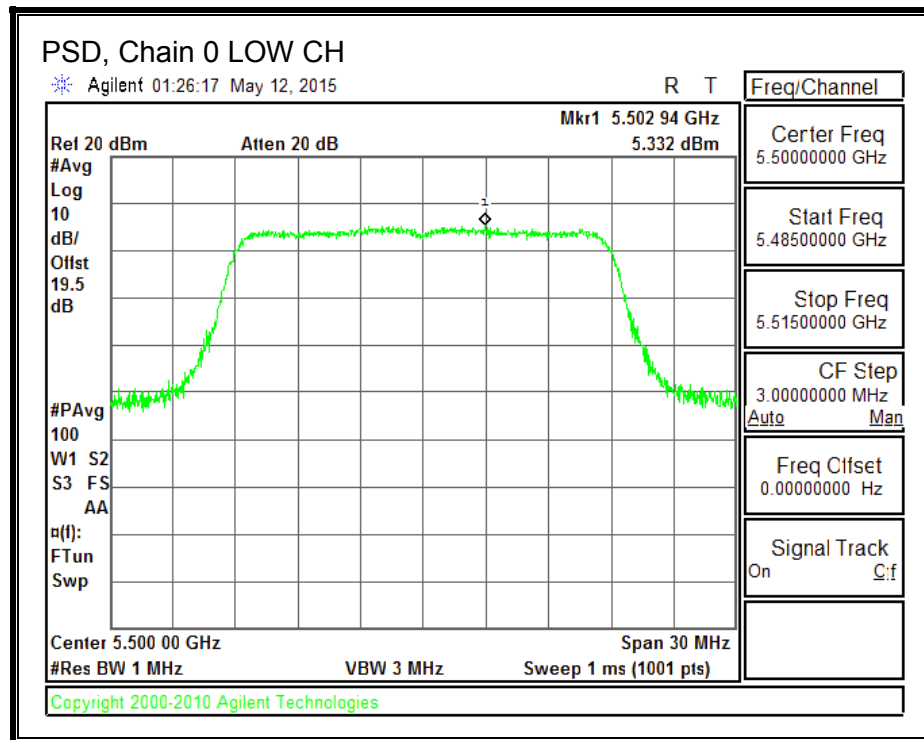
| Channel | Frequency<br>(MHz) | Chain 0<br>Meas<br>Power<br>(dBm) | Chain 1<br>Meas<br>Power<br>(dBm) | Chain 2<br>Meas<br>Power<br>(dBm) | Total<br>Corr'd<br>Power<br>(dBm) | Power<br>Limit<br>(dBm) | Power<br>Margin<br>(dB) |
|---------|--------------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|-------------------------|-------------------------|
| Low     | 5500               | 14.70                             | 14.90                             | 14.40                             | 19.44                             | 24.00                   | -4.56                   |
| Mid     | 5580               | 16.20                             | 16.60                             | 16.10                             | 21.08                             | 24.00                   | -2.92                   |
| High    | 5700               | 12.80                             | 12.60                             | 12.60                             | 17.44                             | 24.00                   | -6.56                   |

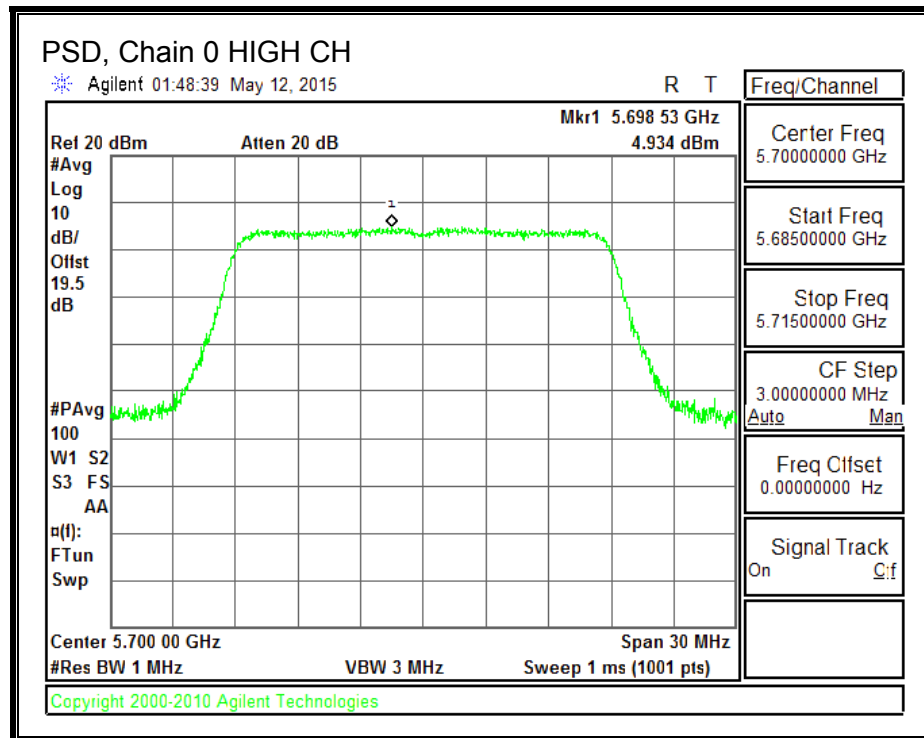
### PSD Results

| Channel | Frequency<br>(MHz) | Chain 0<br>Meas<br>PSD<br>(dBm) | Chain 1<br>Meas<br>PSD<br>(dBm) | Chain 2<br>Meas<br>PSD<br>(dBm) | Total<br>Corr'd<br>PSD<br>(dBm) | PSD<br>Limit<br>(dBm) | PSD<br>Margin<br>(dB) |
|---------|--------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|-----------------------|-----------------------|
| Low     | 5500               | 5.332                           | 5.534                           | 4.704                           | 9.98                            | 11.00                 | -1.02                 |
| Mid     | 5580               | 5.036                           | 5.460                           | 4.951                           | 9.93                            | 11.00                 | -1.07                 |
| High    | 5700               | 4.934                           | 5.314                           | 4.853                           | 9.81                            | 11.00                 | -1.19                 |

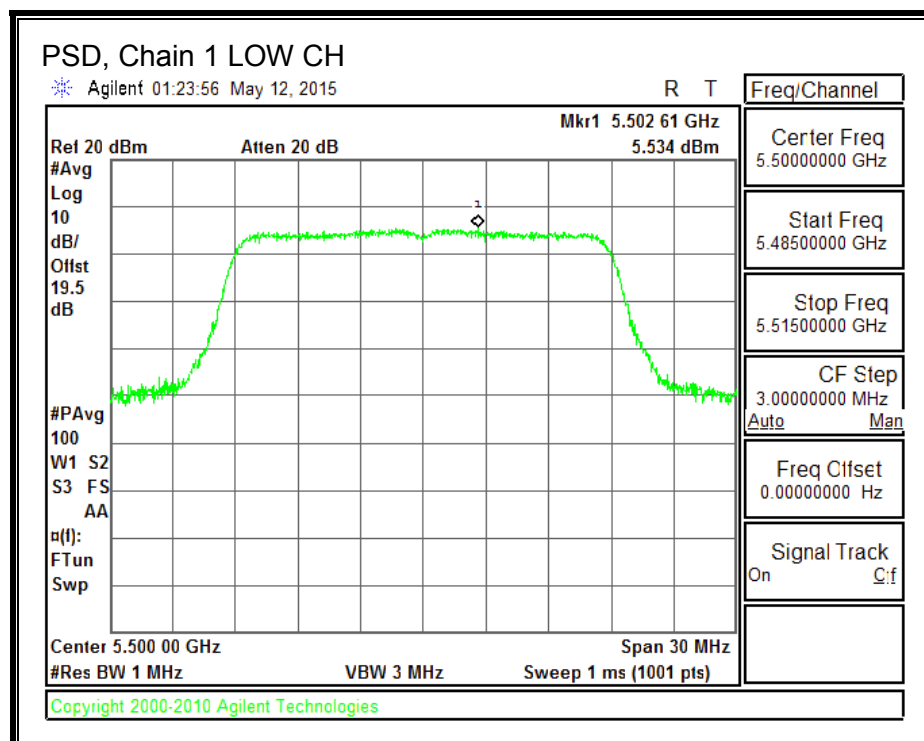
**Note:** the power readings above were measured with gated method, and the measurement was taken only during the ON time. No duty cycle correction was necessary.

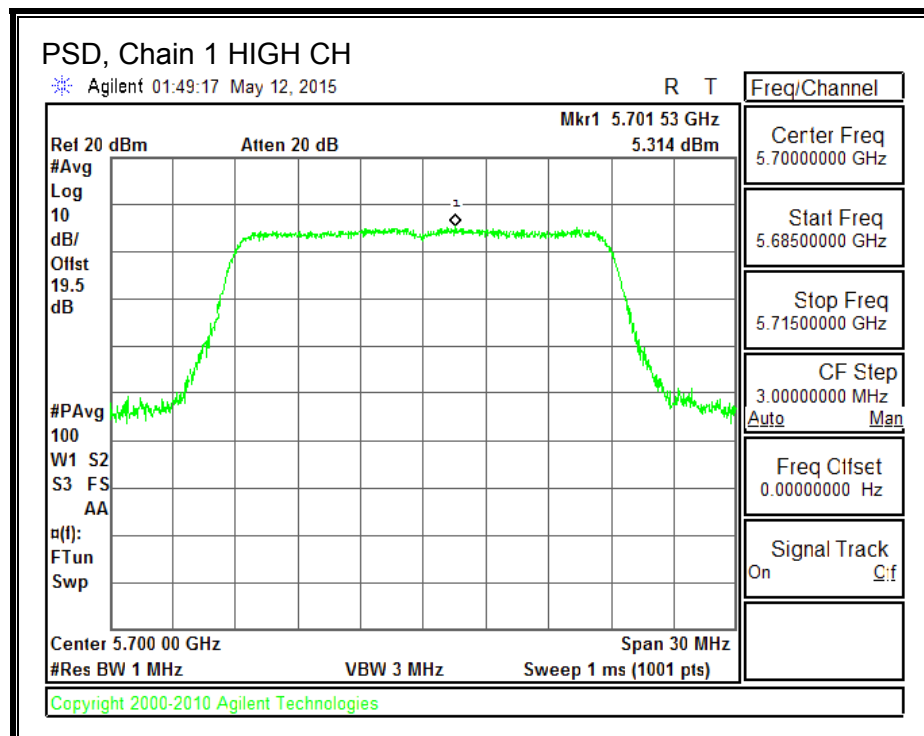
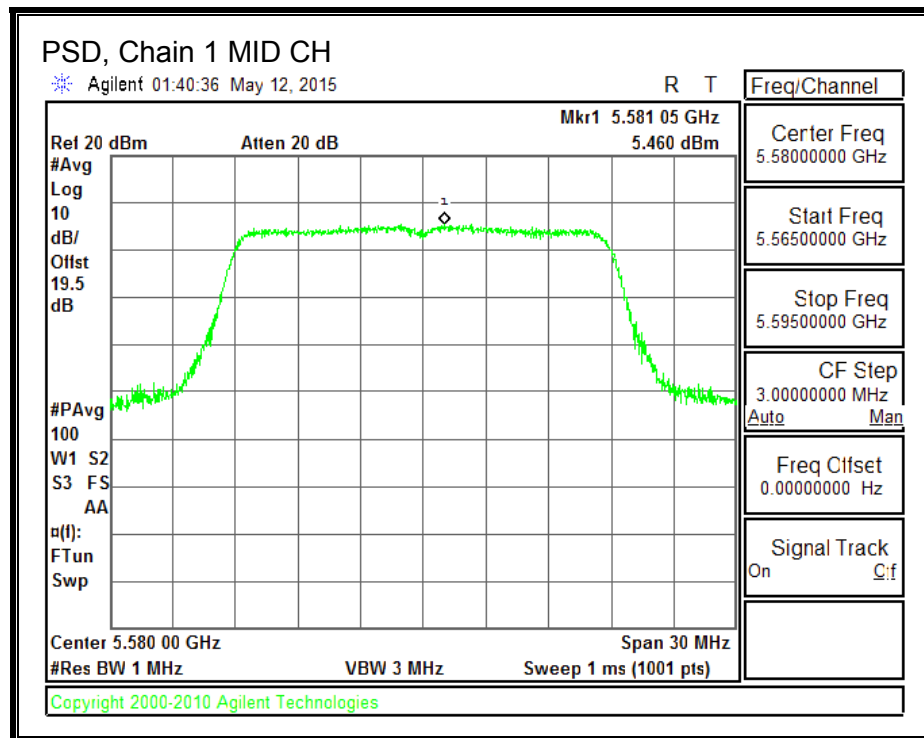
**PSD, Chain 0**



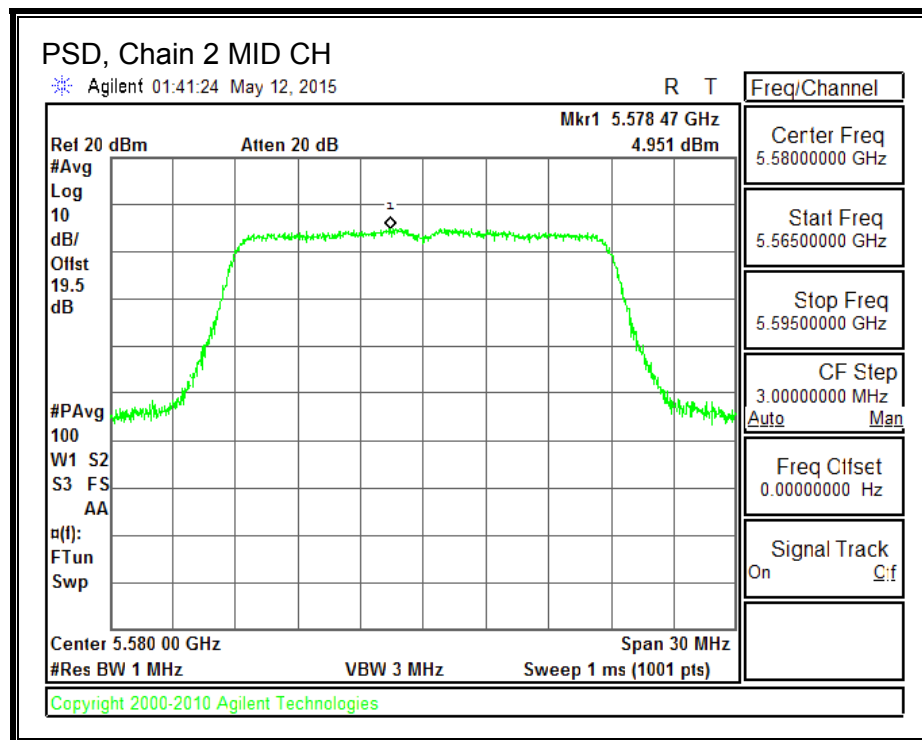
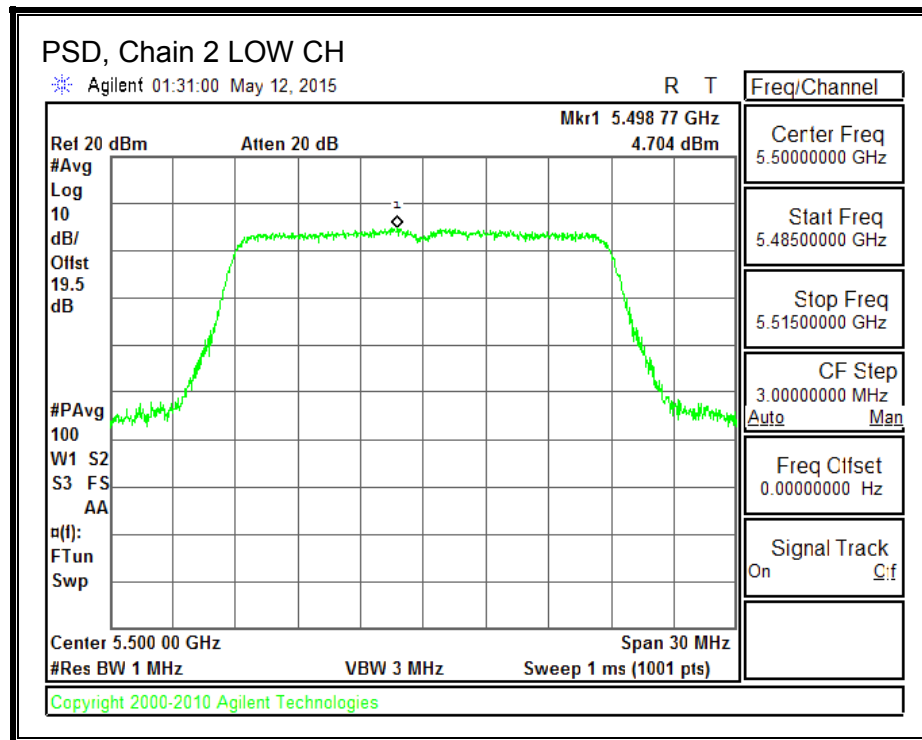


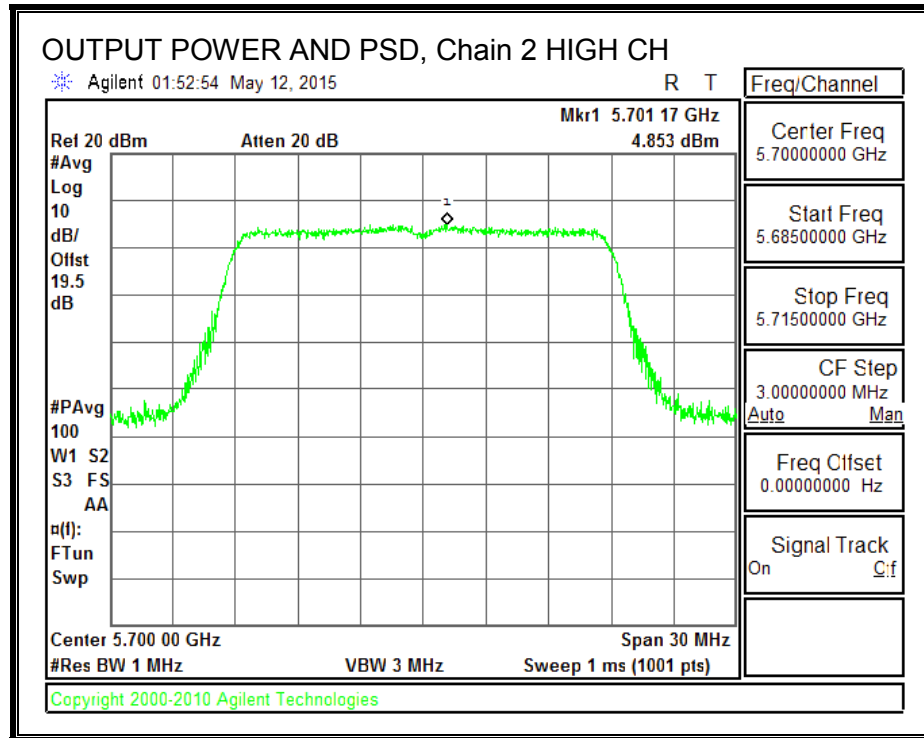
**PSD, Chain 1**





**PSD, Chain 2**





# **STRADDLE CHANNEL 144 RESULTS**

## **UNII-2C BAND**

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

| Channel | Frequency<br>(MHz) | Min<br>26 dB<br>BW<br>(MHz) | Directional<br>Gain<br>for Power<br>(dBi) | Directional<br>Gain<br>for PSD<br>(dBi) | Power<br>Limit<br>(dBm) | PSD<br>Limit<br>(dBm) |
|---------|--------------------|-----------------------------|-------------------------------------------|-----------------------------------------|-------------------------|-----------------------|
| 144     | 5720               | 15.67                       | 4.46                                      | 4.46                                    | 22.95                   | 11.00                 |

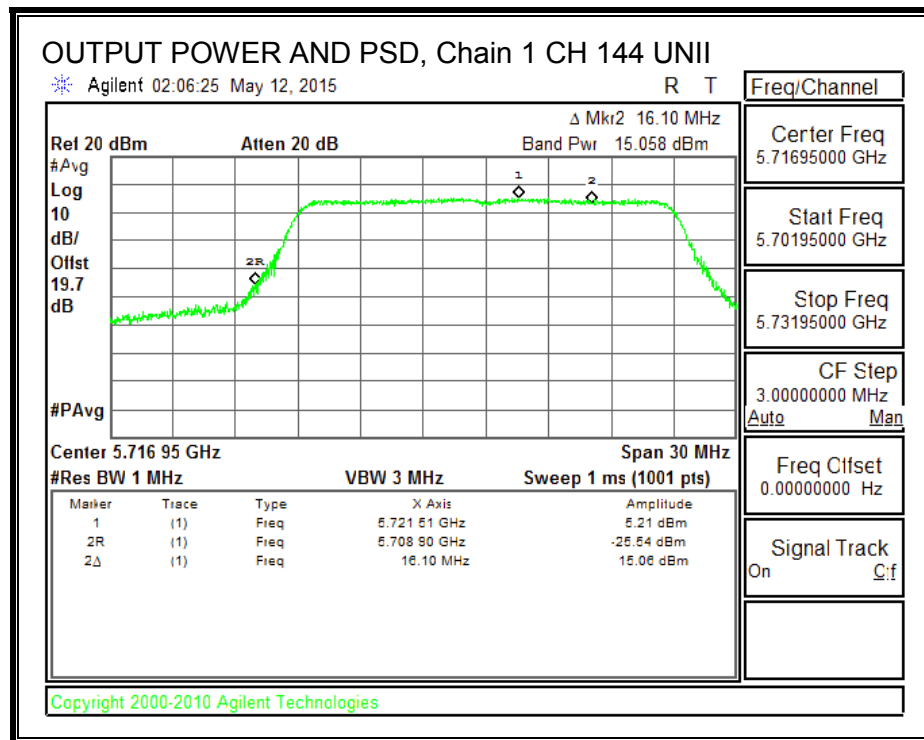
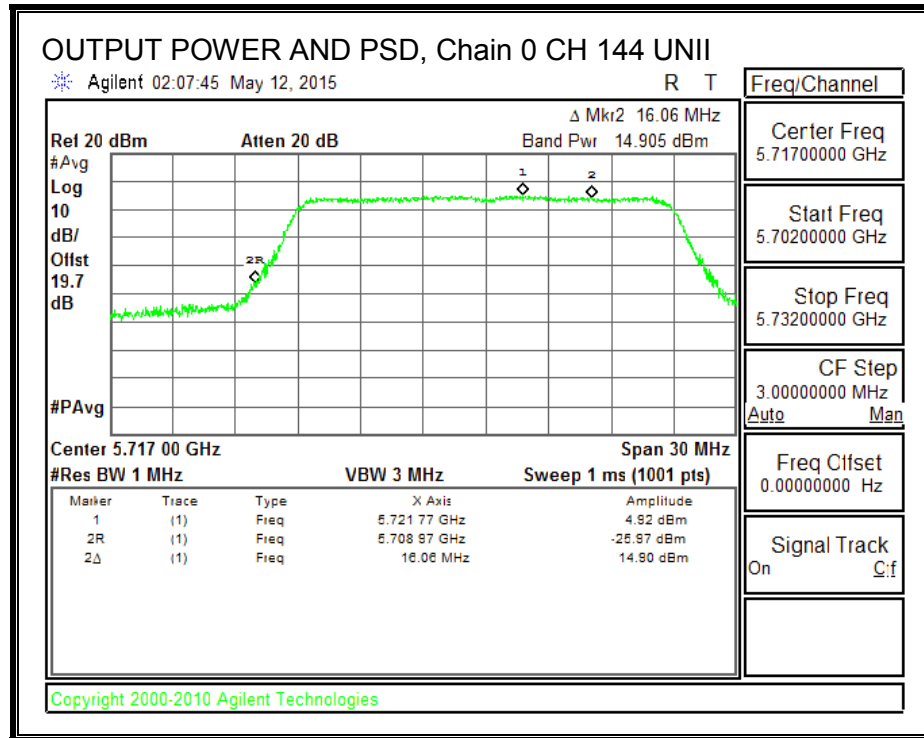
|                    |      |                                                |
|--------------------|------|------------------------------------------------|
| Duty Cycle CF (dB) | 0.00 | Included in Calculations of Corr'd Power & PSD |
|--------------------|------|------------------------------------------------|

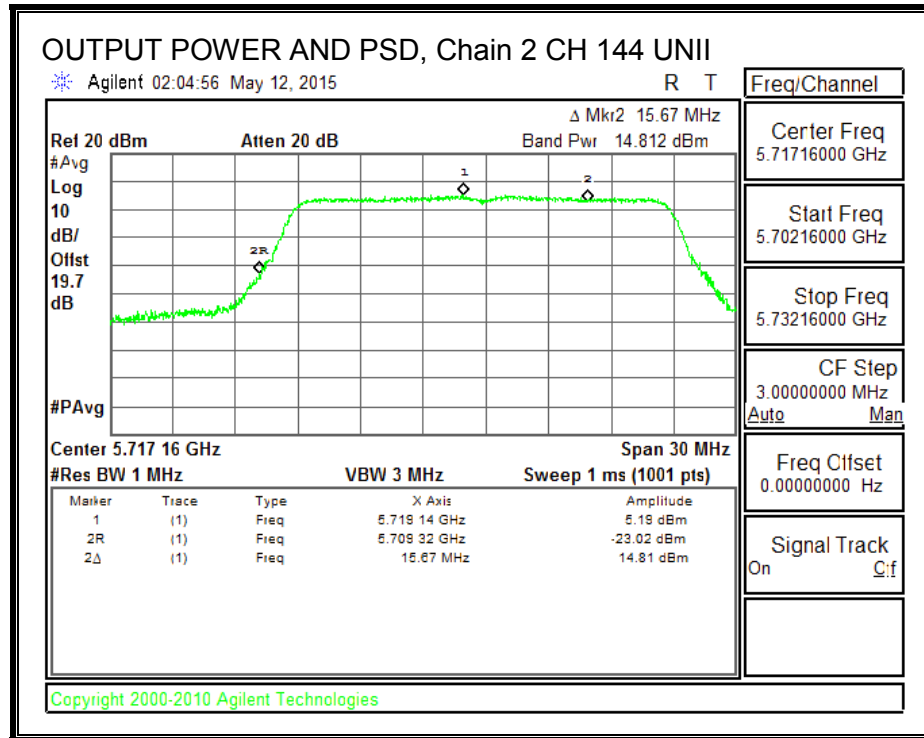
### **Output Power Results**

| Channel | Frequency<br>(MHz) | Chain 0<br>Meas<br>Power<br>(dBm) | Chain 1<br>Meas<br>Power<br>(dBm) | Chain 2<br>Meas<br>Power<br>(dBm) | Total<br>Corr'd<br>Power<br>(dBm) | Power<br>Limit<br>(dBm) | Power<br>Margin<br>(dB) |
|---------|--------------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|-------------------------|-------------------------|
| 144     | 5720               | 14.905                            | 15.058                            | 14.812                            | 19.70                             | 22.95                   | -3.25                   |

### **PSD Results**

| Channel | Frequency<br>(MHz) | Chain 0<br>Meas<br>PSD<br>(dBm) | Chain 1<br>Meas<br>PSD<br>(dBm) | Chain 2<br>Meas<br>PSD<br>(dBm) | Total<br>Corr'd<br>PSD<br>(dBm) | PSD<br>Limit<br>(dBm) | PSD<br>Margin<br>(dB) |
|---------|--------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|-----------------------|-----------------------|
| 144     | 5720               | 4.92                            | 5.21                            | 5.19                            | 9.88                            | 11.00                 | -1.12                 |





**UNII-3 BAND**

**Antenna Gain and Limit**

| Channel | Frequency<br>(MHz) | Directional<br>Gain<br>for Power<br>(dBi) | Directional<br>Gain<br>for PSD<br>(dBi) | Power<br>Limit<br>(dBm) | PSD<br>Limit<br>(dBm) |
|---------|--------------------|-------------------------------------------|-----------------------------------------|-------------------------|-----------------------|
| 144     | 5720               | 7.00                                      | 4.47                                    | 29.00                   | 30.00                 |

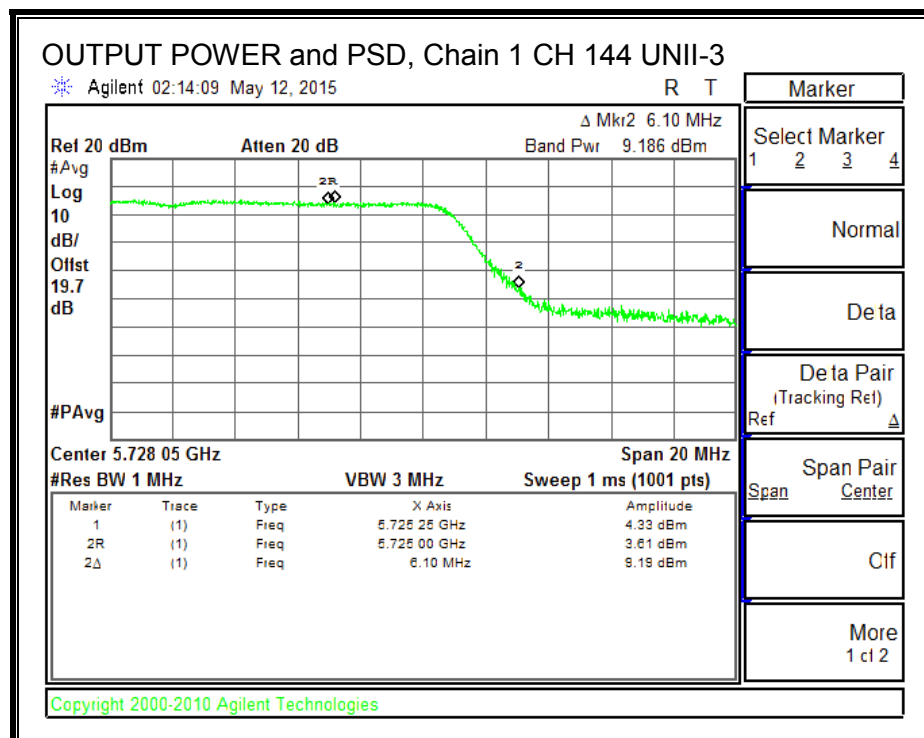
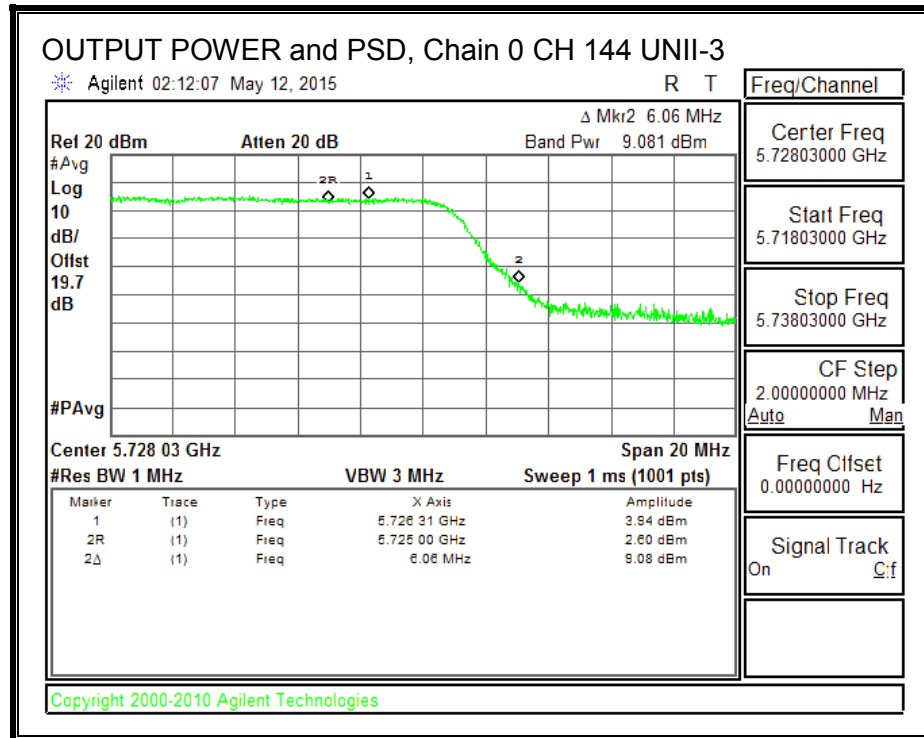
|                    |      |                                                |
|--------------------|------|------------------------------------------------|
| Duty Cycle CF (dB) | 0.00 | Included in Calculations of Corr'd Power & PSD |
|--------------------|------|------------------------------------------------|

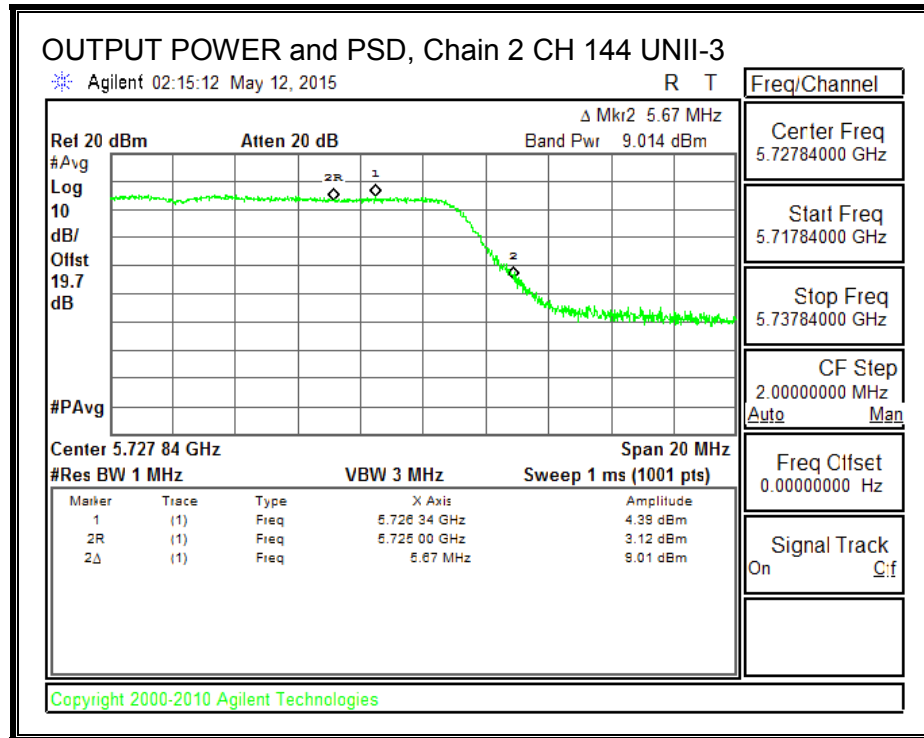
**Output Power Results**

| Channel | Frequency<br>(MHz) | Chain 0<br>Meas<br>Power<br>(dBm) | Chain 1<br>Meas<br>Power<br>(dBm) | Chain 2<br>Meas<br>Power<br>(dBm) | Total<br>Corr'd<br>Power<br>(dBm) | Power<br>Limit<br>(dBm) | Power<br>Margin<br>(dB) |
|---------|--------------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|-------------------------|-------------------------|
| 144     | 5720               | 9.081                             | 9.186                             | 9.014                             | 13.87                             | 29.00                   | -15.13                  |

**PSD Results**

| Channel | Frequency<br>(MHz) | Chain 0<br>Meas<br>PSD<br>(dBm) | Chain 1<br>Meas<br>PSD<br>(dBm) | Chain 2<br>Meas<br>PSD<br>(dBm) | Total<br>Corr'd<br>PSD<br>(dBm) | PSD<br>Limit<br>(dBm) | PSD<br>Margin<br>(dB) |
|---------|--------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|-----------------------|-----------------------|
| 144     | 5720               | 3.94                            | 4.33                            | 4.39                            | 9.00                            | 30.00                 | -21.00                |





#### **8.42.4. AVERAGE OUTPUT POWER (WHOLE FUNDAMENTAL)**

##### **LIMITS**

None; for reporting purposes only.

##### **TEST PROCEDURE**

The transmitter output is connected to a power meter.

##### **RESULTS**

###### **Output Power Results**

| <b>Channel</b> | <b>Frequency<br/>(MHz)</b> | <b>Chain 0<br/>Meas<br/>Power<br/>(dBm)</b> | <b>Chain 1<br/>Meas<br/>Power<br/>(dBm)</b> | <b>Chain 2<br/>Meas<br/>Power<br/>(dBm)</b> | <b>Total<br/>Corr'd<br/>Power<br/>(dBm)</b> |
|----------------|----------------------------|---------------------------------------------|---------------------------------------------|---------------------------------------------|---------------------------------------------|
| 144            | 5720                       | 15.60                                       | 15.80                                       | 15.50                                       | 20.41                                       |

## **8.43. 802.11n HT20 TxBF 3TX MODE IN THE 5.6 GHz BAND**

### **8.43.1. 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.

#### **DIRECTIONAL ANTENNA GAIN**

For Power and PSD, the TX chains are correlated and the antenna gain is unequal among the chains. The directional gain is:

| <b>Chain 0<br/>Antenna<br/>Gain<br/>(dBi)</b> | <b>Chain 1<br/>Antenna<br/>Gain<br/>(dBi)</b> | <b>Chain 2<br/>Antenna<br/>Gain<br/>(dBi)</b> | <b>Correlated Chains<br/>Directional<br/>Gain<br/>(dBi)</b> |
|-----------------------------------------------|-----------------------------------------------|-----------------------------------------------|-------------------------------------------------------------|
| 3.17                                          | 2.09                                          | 4.72                                          | 9.17                                                        |

## RESULTS

### Bandwidth, Antenna Gain, and Limits

| Channel | Frequency<br>(MHz) | Min<br>26 dB<br>BW<br>(MHz) | Directional<br>Gain<br>for Power<br>(dBi) | Directional<br>Gain<br>for PSD<br>(dBi) | Power<br>Limit<br>(dBm) | PSD<br>Limit<br>(dBm) |
|---------|--------------------|-----------------------------|-------------------------------------------|-----------------------------------------|-------------------------|-----------------------|
| Low     | 5500               | 27.89                       | 9.17                                      | 9.17                                    | 20.83                   | 7.83                  |
| Mid     | 5580               | 27.24                       | 9.17                                      | 9.17                                    | 20.83                   | 7.83                  |
| High    | 5700               | 21.35                       | 9.17                                      | 9.17                                    | 20.83                   | 7.83                  |

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

### Output Power Results

| Channel | Frequency<br>(MHz) | Chain 0<br>Meas<br>Power<br>(dBm) | Chain 1<br>Meas<br>Power<br>(dBm) | Chain 2<br>Meas<br>Power<br>(dBm) | Total<br>Corr'd<br>Power<br>(dBm) | Power<br>Limit<br>(dBm) | Power<br>Margin<br>(dB) |
|---------|--------------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|-------------------------|-------------------------|
| Low     | 5500               | 12.80                             | 13.40                             | 12.80                             | 17.78                             | 20.83                   | -3.05                   |
| Mid     | 5580               | 12.80                             | 13.10                             | 12.50                             | 17.58                             | 20.83                   | -3.25                   |
| High    | 5700               | 12.30                             | 12.40                             | 12.20                             | 17.07                             | 20.83                   | -3.76                   |

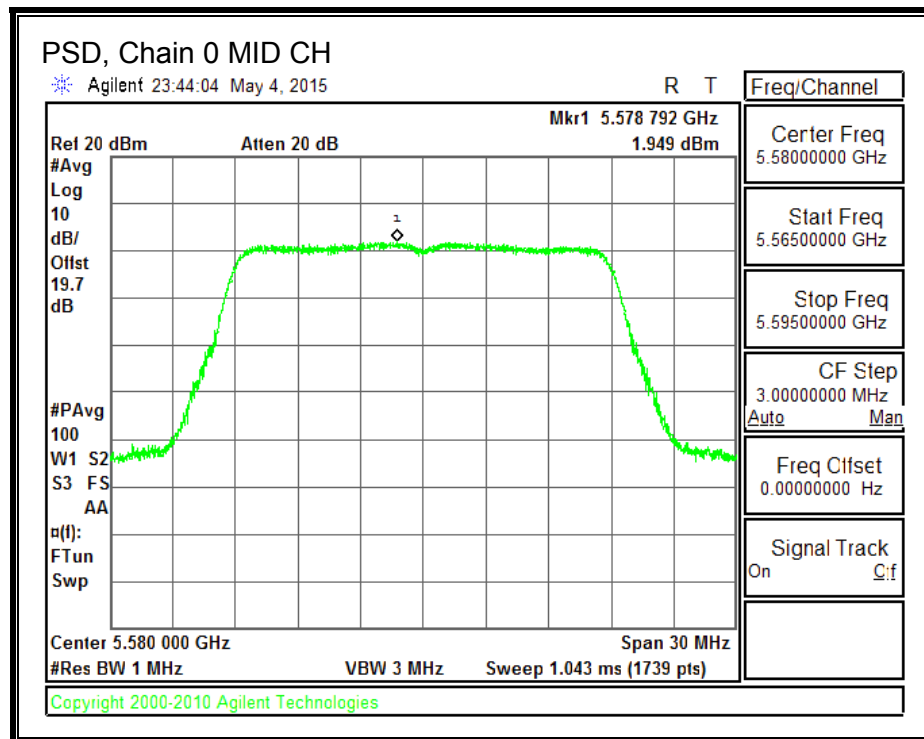
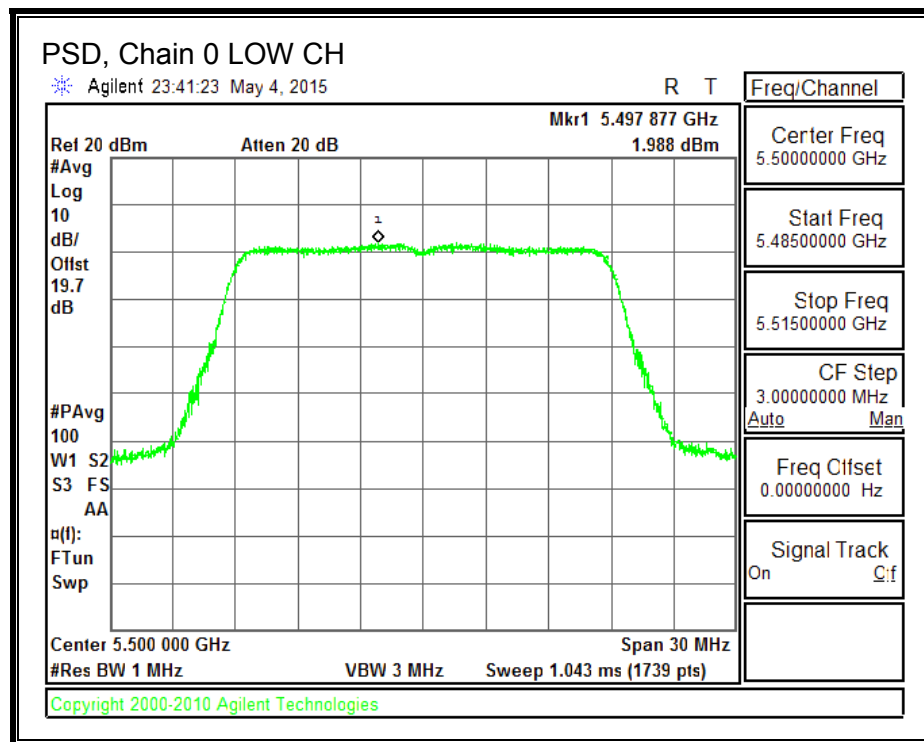
### PSD Results

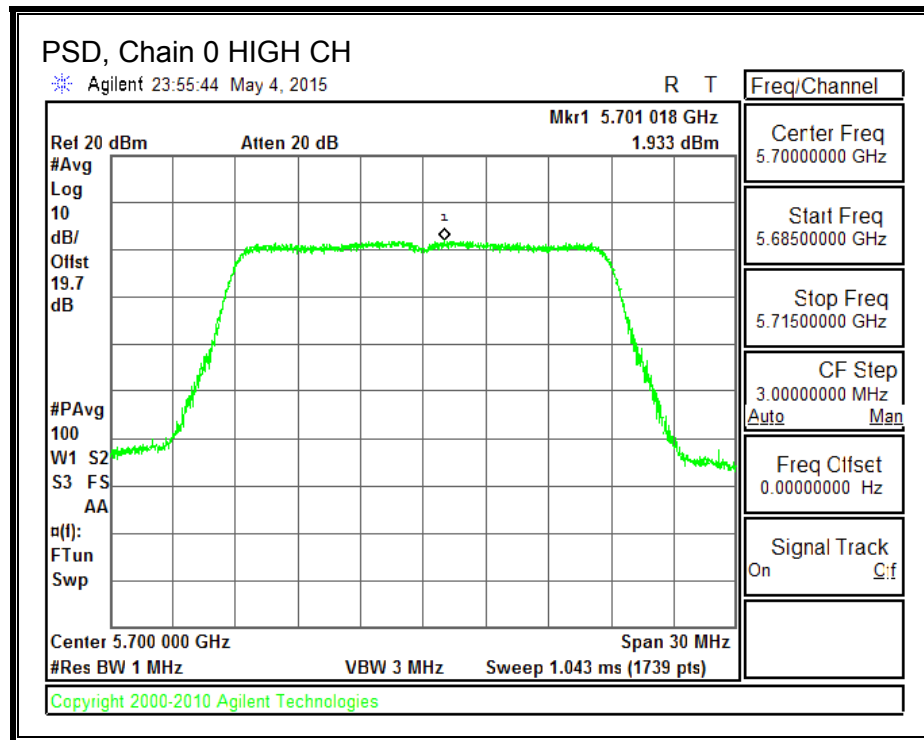
| Channel | Frequency<br>(MHz) | Chain 0<br>Meas<br>PSD<br>(dBm) | Chain 1<br>Meas<br>PSD<br>(dBm) | Chain 2<br>Meas<br>PSD<br>(dBm) | Total<br>Corr'd<br>PSD<br>(dBm) | PSD<br>Limit<br>(dBm) | PSD<br>Margin<br>(dB) |
|---------|--------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|-----------------------|-----------------------|
| Low     | 5500               | 1.988                           | 2.450                           | 1.642                           | 6.81                            | 7.83                  | -1.02                 |
| Mid     | 5580               | 1.949                           | 2.302                           | 1.566                           | 6.72                            | 7.83                  | -1.11                 |
| High    | 5700               | 1.933                           | 2.021                           | 1.917                           | 6.73                            | 7.83                  | -1.10                 |

**Note:** for Chains 0, 1 and 2, 26dB & 99% data & plots, see section 11n HT20 CDD 3TX MODE IN THE 5.6 GHz BAND

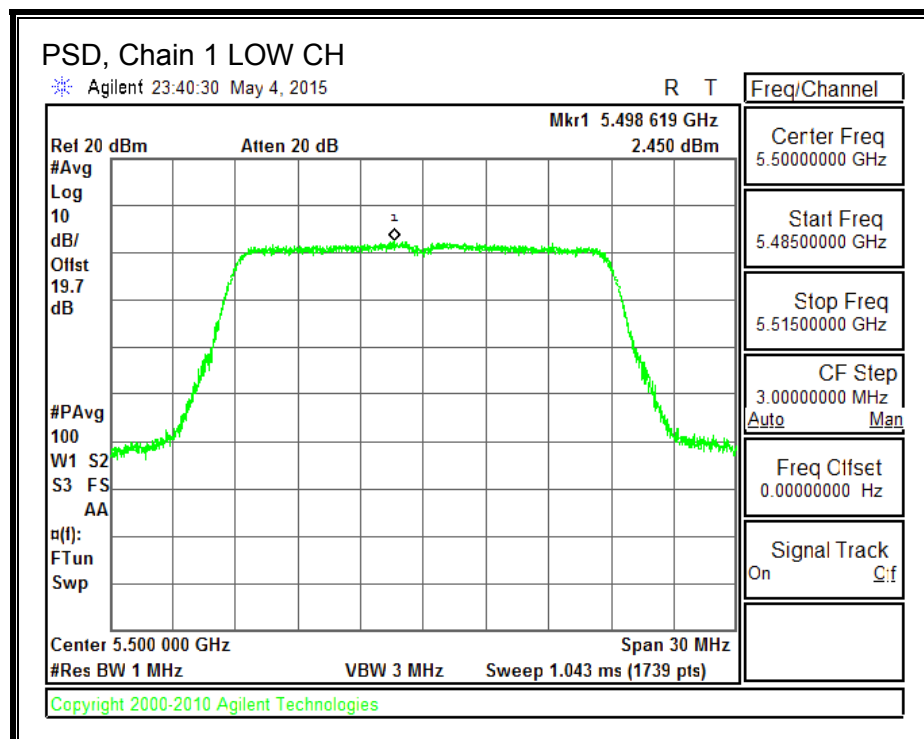
**Note:** the power readings above were measured with gated method, and the measurement was taken only during the ON time. No duty cycle correction was necessary.

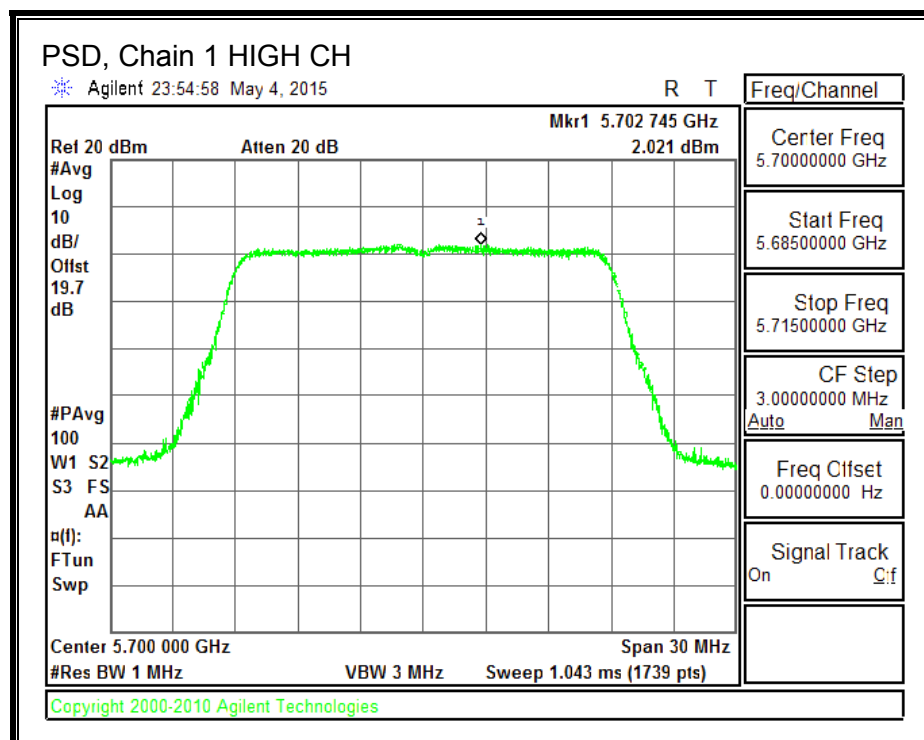
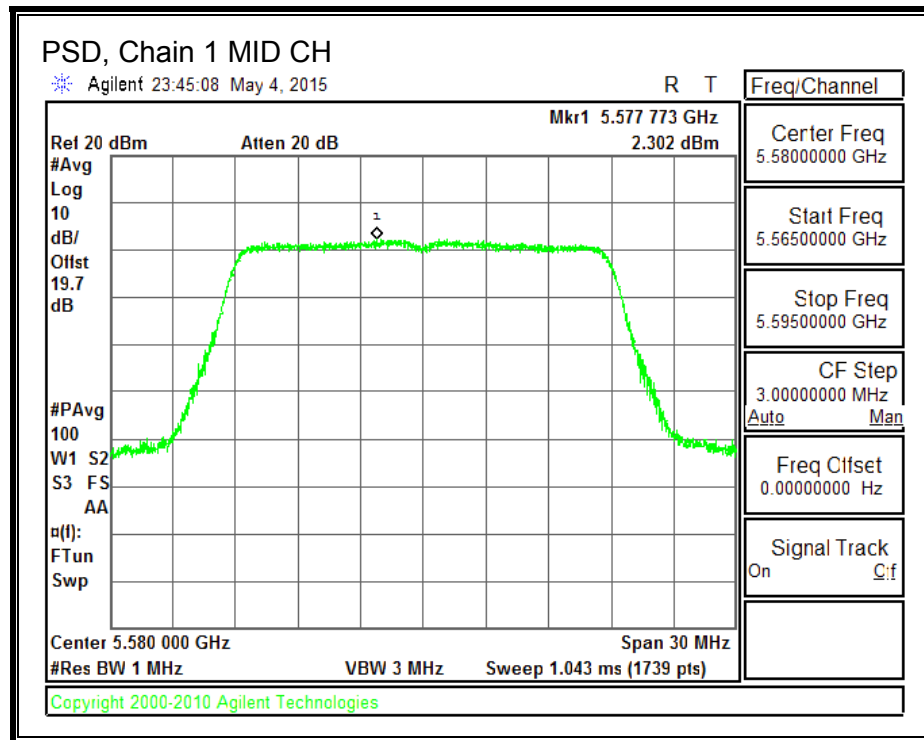
**PSD, Chain 0**



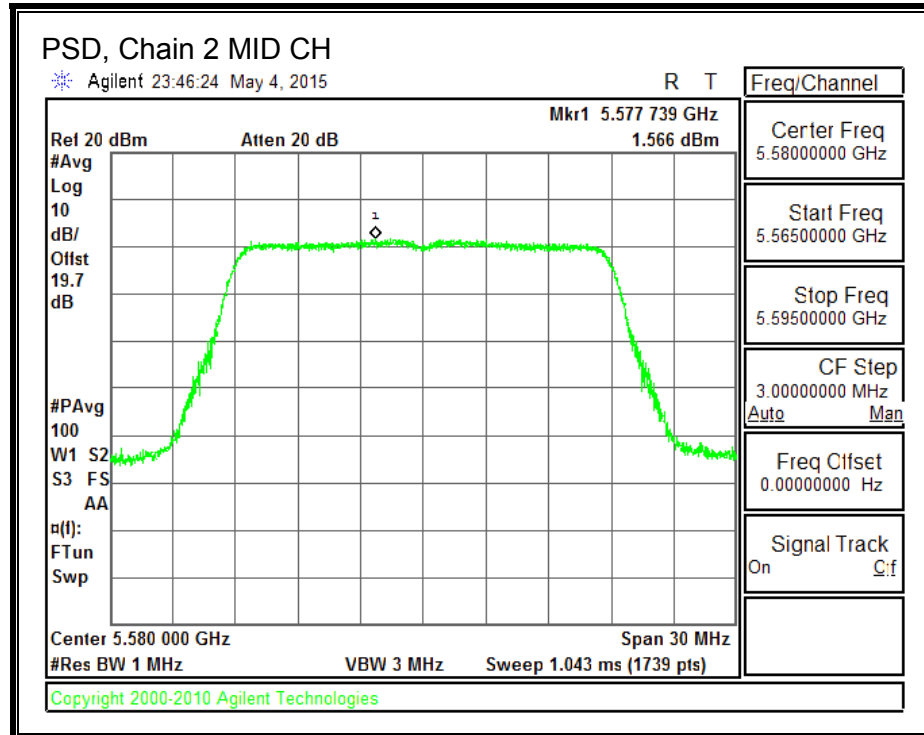
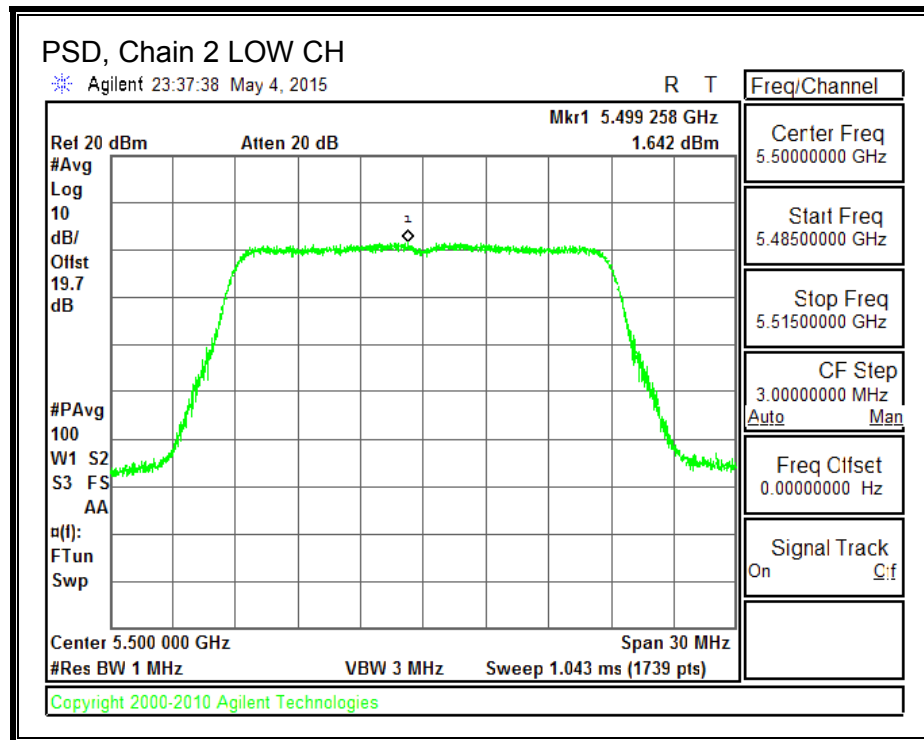


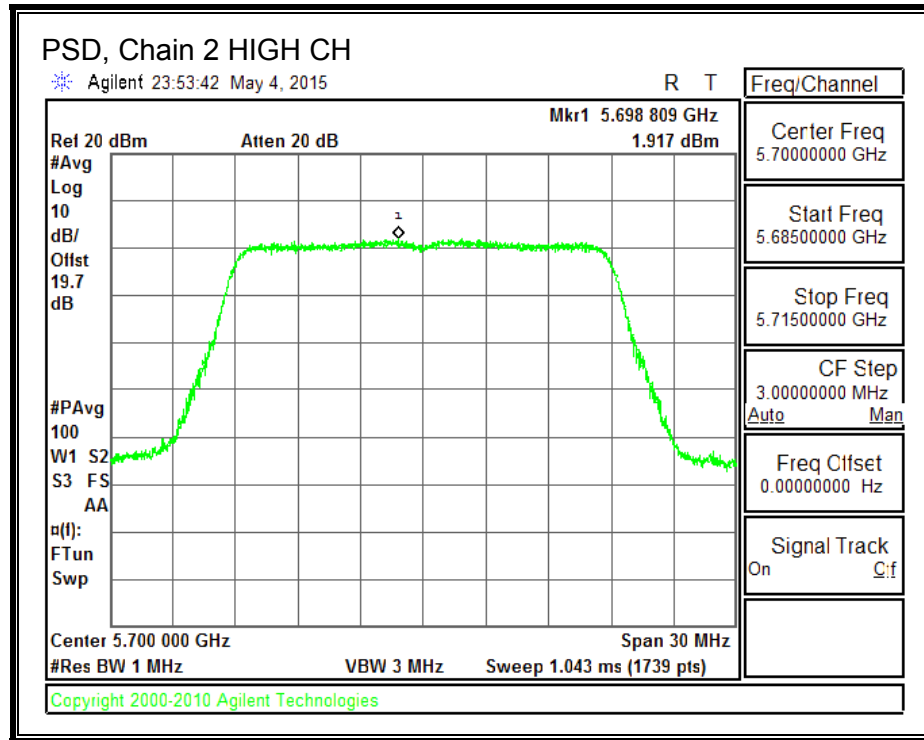
**PSD, Chain 1**





**PSD, Chain 2**





# **STRADDLE CHANNEL 144 RESULTS**

## **UNII-2C BAND**

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

| Channel | Frequency<br>(MHz) | Min<br>26 dB<br>BW<br>(MHz) | Directional<br>Gain<br>for Power<br>(dBi) | Directional<br>Gain<br>for PSD<br>(dBi) | Power<br>Limit<br>(dBm) | PSD<br>Limit<br>(dBm) |
|---------|--------------------|-----------------------------|-------------------------------------------|-----------------------------------------|-------------------------|-----------------------|
| 144     | 5720               | 19.89                       | 9.17                                      | 9.17                                    | 20.82                   | 7.83                  |

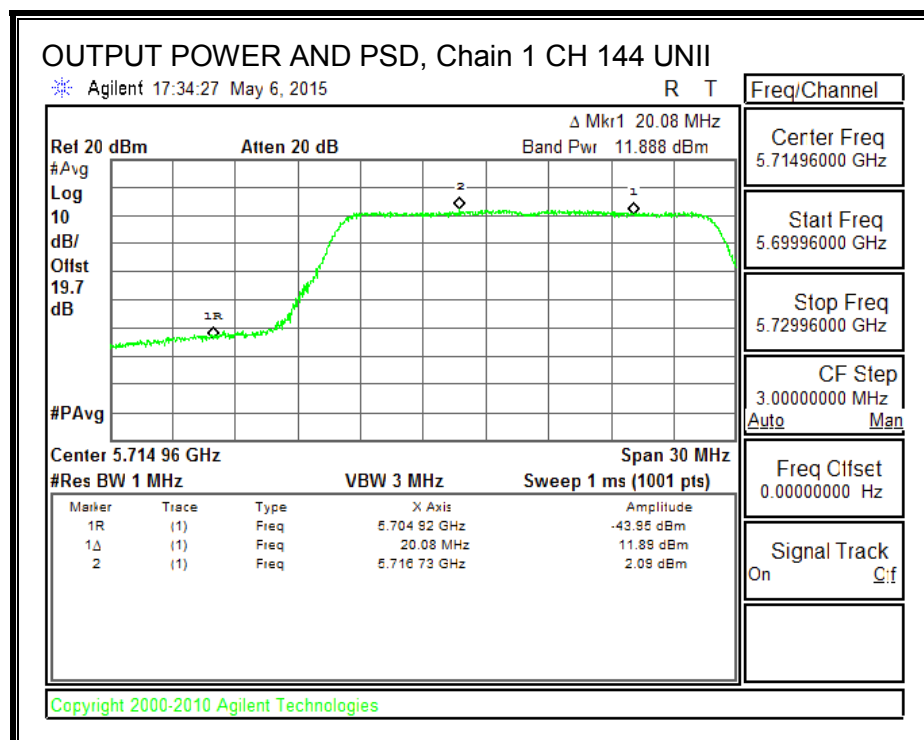
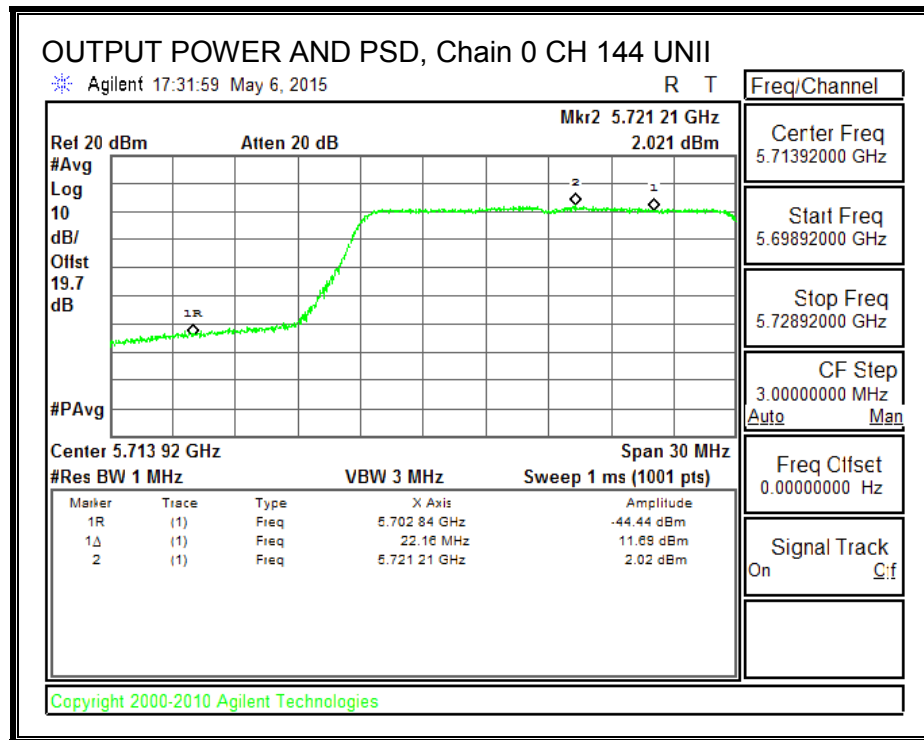
|                    |      |                                                |
|--------------------|------|------------------------------------------------|
| Duty Cycle CF (dB) | 0.00 | Included in Calculations of Corr'd Power & PSD |
|--------------------|------|------------------------------------------------|

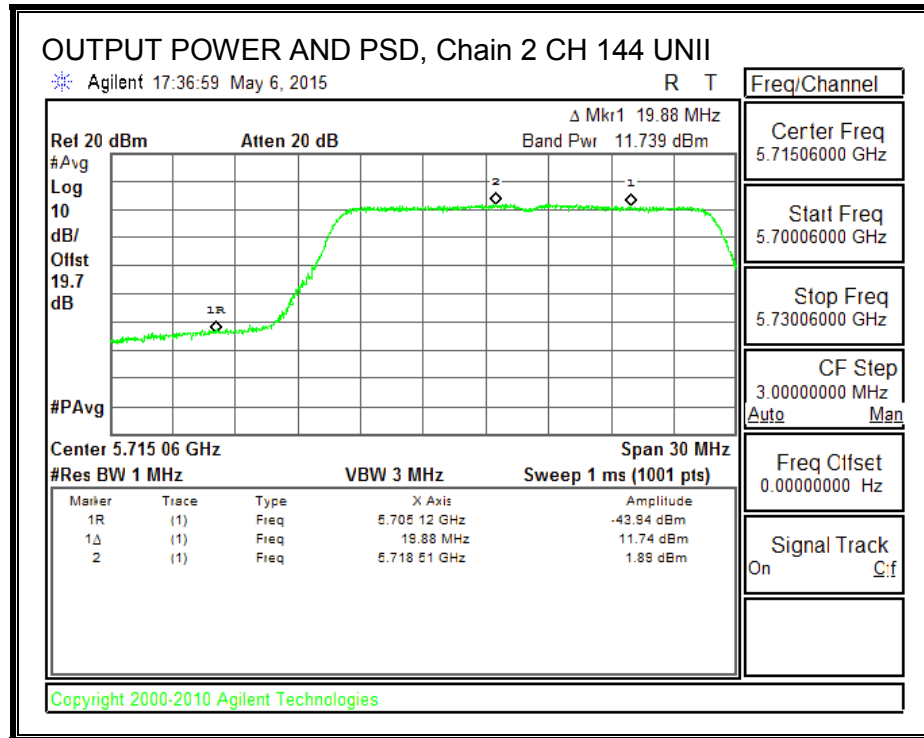
### **Output Power Results**

| Channel | Frequency<br>(MHz) | Chain 0<br>Meas<br>Power<br>(dBm) | Chain 1<br>Meas<br>Power<br>(dBm) | Chain 2<br>Meas<br>Power<br>(dBm) | Total<br>Corr'd<br>Power<br>(dBm) | Power<br>Limit<br>(dBm) | Power<br>Margin<br>(dB) |
|---------|--------------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|-------------------------|-------------------------|
| 144     | 5720               | 11.690                            | 11.888                            | 11.739                            | 16.54                             | 20.82                   | -4.27                   |

### **PSD Results**

| Channel | Frequency<br>(MHz) | Chain 0<br>Meas<br>PSD<br>(dBm) | Chain 1<br>Meas<br>PSD<br>(dBm) | Chain 2<br>Meas<br>PSD<br>(dBm) | Total<br>Corr'd<br>PSD<br>(dBm) | PSD<br>Limit<br>(dBm) | PSD<br>Margin<br>(dB) |
|---------|--------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|-----------------------|-----------------------|
| 144     | 5720               | 2.02                            | 2.09                            | 1.89                            | 6.77                            | 7.83                  | -1.06                 |





**UNII-3 BAND**

**Antenna Gain and Limit**

| Channel | Frequency<br>(MHz) | Directional<br>Gain<br>for Power<br>(dBi) | Directional<br>Gain<br>for PSD<br>(dBi) | Power<br>Limit<br>(dBm) | PSD<br>Limit<br>(dBm) |
|---------|--------------------|-------------------------------------------|-----------------------------------------|-------------------------|-----------------------|
| 144     | 5720               | 9.17                                      | 9.17                                    | 26.83                   | 26.83                 |

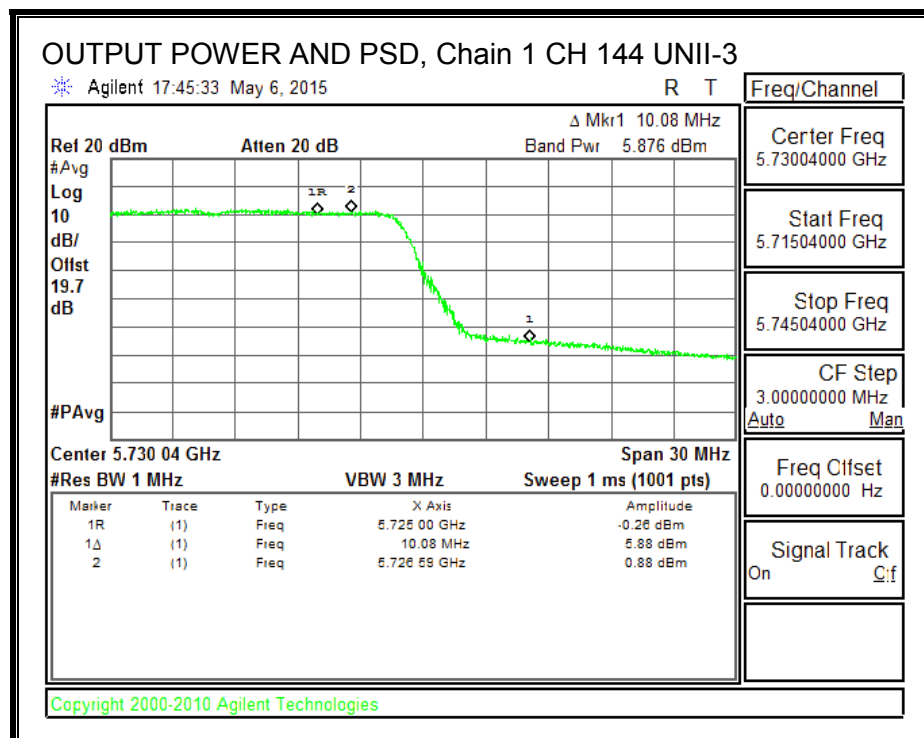
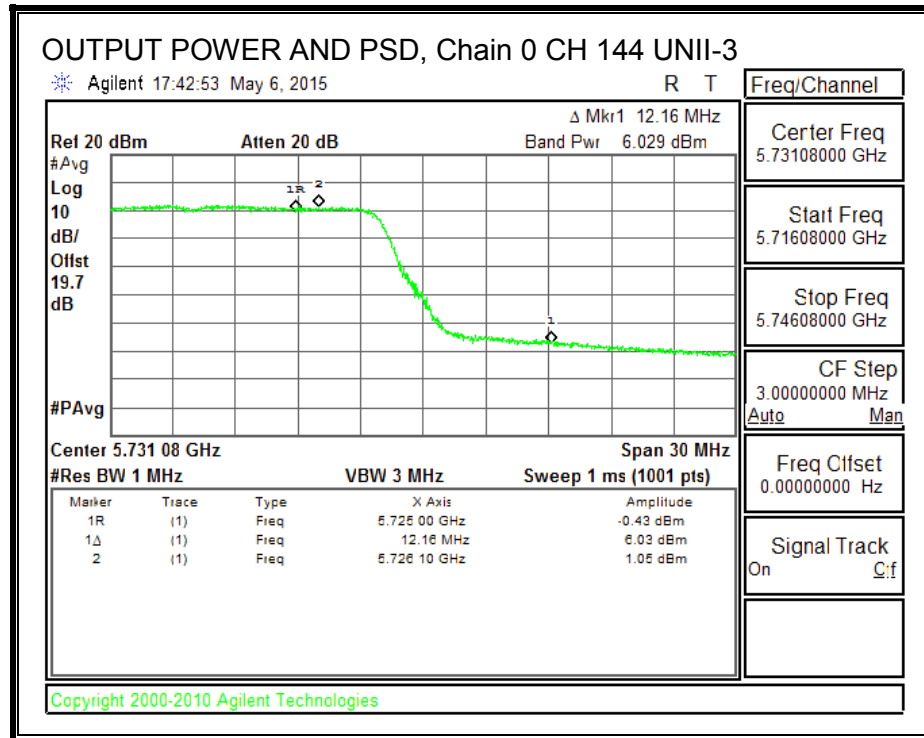
|                    |      |                                                |
|--------------------|------|------------------------------------------------|
| Duty Cycle CF (dB) | 0.00 | Included in Calculations of Corr'd Power & PSD |
|--------------------|------|------------------------------------------------|

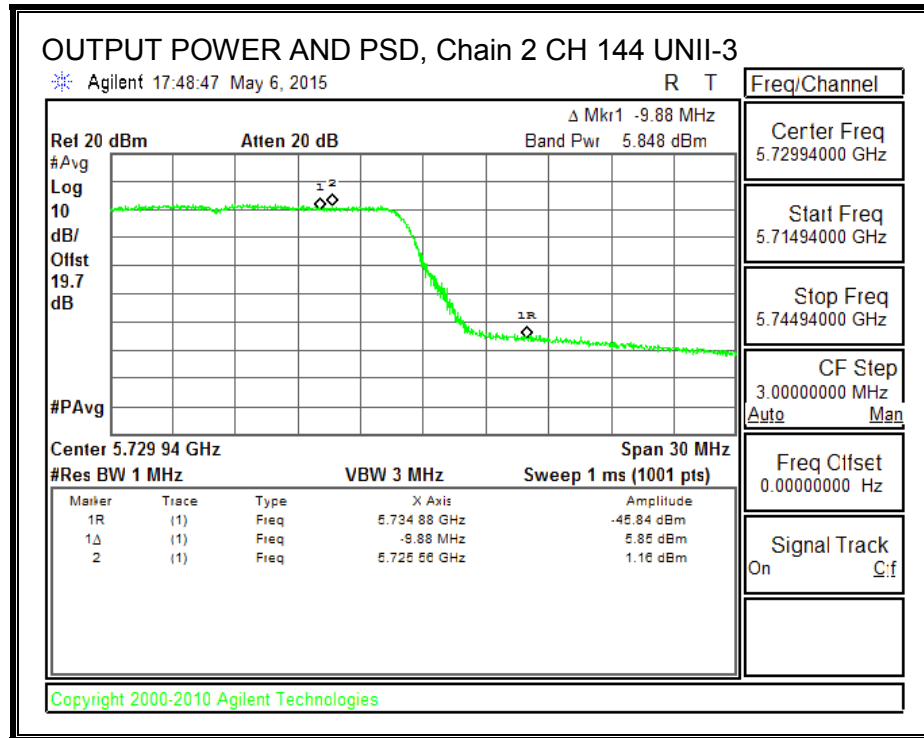
**Output Power Results**

| Channel | Frequency<br>(MHz) | Chain 0<br>Meas<br>Power<br>(dBm) | Chain 1<br>Meas<br>Power<br>(dBm) | Chain 2<br>Meas<br>Power<br>(dBm) | Total<br>Corr'd<br>Power<br>(dBm) | Power<br>Limit<br>(dBm) | Power<br>Margin<br>(dB) |
|---------|--------------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|-------------------------|-------------------------|
| 144     | 5720               | 6.029                             | 5.876                             | 5.848                             | 10.69                             | 26.83                   | -16.14                  |

**PSD Results**

| Channel | Frequency<br>(MHz) | Chain 0<br>Meas<br>PSD<br>(dBm) | Chain 1<br>Meas<br>PSD<br>(dBm) | Chain 2<br>Meas<br>PSD<br>(dBm) | Total<br>Corr'd<br>PSD<br>(dBm) | PSD<br>Limit<br>(dBm) | PSD<br>Margin<br>(dB) |
|---------|--------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|-----------------------|-----------------------|
| 144     | 5720               | 1.05                            | 0.88                            | 1.16                            | 5.80                            | 26.83                 | -21.03                |





## 8.43.2. AVERAGE OUTPUT POWER (WHOLE FUNDAMENTAL)

### LIMITS

None; for reporting purposes only.

### TEST PROCEDURE

The transmitter output is connected to a power meter.

### RESULTS

#### Output Power Results

| Channel | Frequency<br>(MHz) | Chain 0<br>Meas<br>Power<br>(dBm) | Chain 1<br>Meas<br>Power<br>(dBm) | Chain 2<br>Meas<br>Power<br>(dBm) | Total<br>Corr'd<br>Power<br>(dBm) |
|---------|--------------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|
| 144     | 5720               | 13.20                             | 13.25                             | 13.30                             | 18.02                             |

**Note:** the power readings above were measured with gated method, and the measurement was taken only during the ON time. No duty cycle correction was necessary.

## **8.44. 802.11n HT40 1TX MODE IN THE 5.6 GHz BAND**

### **8.44.1. OUTPUT POWER**

#### **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.

#### **DIRECTIONAL ANTENNA GAIN**

This is SISO mode, AG is the highest (worst-case) = 5.72 dBi

## **RESULTS**

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

| Channel | Frequency<br>(MHz) | Min<br>26 dB<br>BW<br>(MHz) | Directional<br>Gain<br>(dBi) | Power<br>Limit<br>(dBm) |
|---------|--------------------|-----------------------------|------------------------------|-------------------------|
| Low     | 5510               | 56.16                       | 5.72                         | 24.00                   |
| Mid     | 5550               | 63.27                       | 5.72                         | 24.00                   |
| High    | 5670               | 50.84                       | 5.72                         | 24.00                   |

### **Output Power Results**

| Channel | Frequency<br>(MHz) | Chain 1<br>Meas<br>Power<br>(dBm) | Total<br>Corr'd<br>Power<br>(dBm) | Power<br>Limit<br>(dBm) | Power<br>Margin<br>(dB) |
|---------|--------------------|-----------------------------------|-----------------------------------|-------------------------|-------------------------|
| Low     | 5510               | 11.00                             | 11.00                             | 24.00                   | -13.00                  |
| Mid     | 5550               | 18.00                             | 18.00                             | 24.00                   | -6.00                   |
| High    | 5670               | 15.80                             | 15.80                             | 24.00                   | -8.20                   |

**Note:** for Chain 1 26dB data & plots, see section 11n HT40 CDD 3TX MODE IN THE 5.6 GHz BAND.

**Note:** the power readings above were measured with gated method, and the measurement was taken only during the ON time. No duty cycle correction was necessary.

## 8.45. 802.11n HT40 CDD 2TX MODE IN THE 5.6 GHz BAND

### 8.45.1. 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.

#### DIRECTIONAL ANTENNA GAIN

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

| Chain 0<br>Antenna<br>Gain<br>(dBi) | Chain 1<br>Antenna<br>Gain<br>(dBi) | Uncorrelated Chains<br>Directional<br>Gain<br>(dBi) |
|-------------------------------------|-------------------------------------|-----------------------------------------------------|
| 3.17                                | 4.72                                | 5.01                                                |

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

| Chain 0<br>Antenna<br>Gain<br>(dBi) | Chain 1<br>Antenna<br>Gain<br>(dBi) | Correlated Chains<br>Directional<br>Gain<br>(dBi) |
|-------------------------------------|-------------------------------------|---------------------------------------------------|
| 3.17                                | 4.72                                | 7.99                                              |

## RESULTS

### Bandwidth, Antenna Gain, and Limits

| Channel | Frequency<br>(MHz) | Min<br>26 dB<br>BW<br>(MHz) | Directional<br>Gain<br>for Power<br>(dBi) | Directional<br>Gain<br>for PSD<br>(dBi) | Power<br>Limit<br>(dBm) | PSD<br>Limit<br>(dBm) |
|---------|--------------------|-----------------------------|-------------------------------------------|-----------------------------------------|-------------------------|-----------------------|
| Low     | 5510               | 56.16                       | 5.01                                      | 7.99                                    | 24.00                   | 9.01                  |
| Mid     | 5550               | 63.27                       | 5.01                                      | 7.99                                    | 24.00                   | 9.01                  |
| High    | 5670               | 50.84                       | 5.01                                      | 7.99                                    | 24.00                   | 9.01                  |

|                    |      |                                        |
|--------------------|------|----------------------------------------|
| Duty Cycle CF (dB) | 0.09 | Included in Calculations of Corr'd PSD |
|--------------------|------|----------------------------------------|

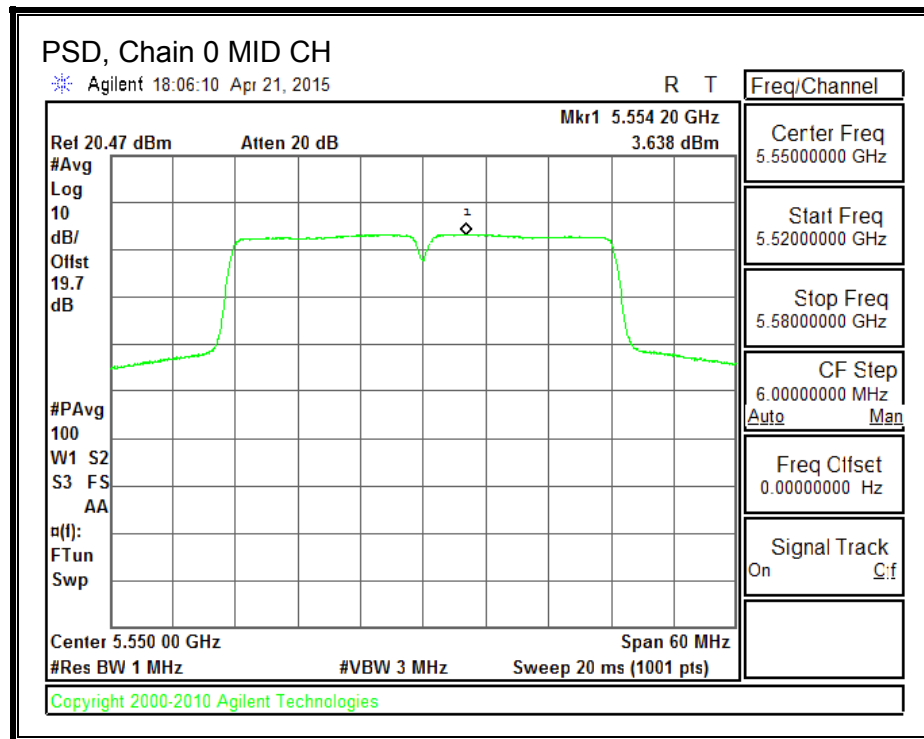
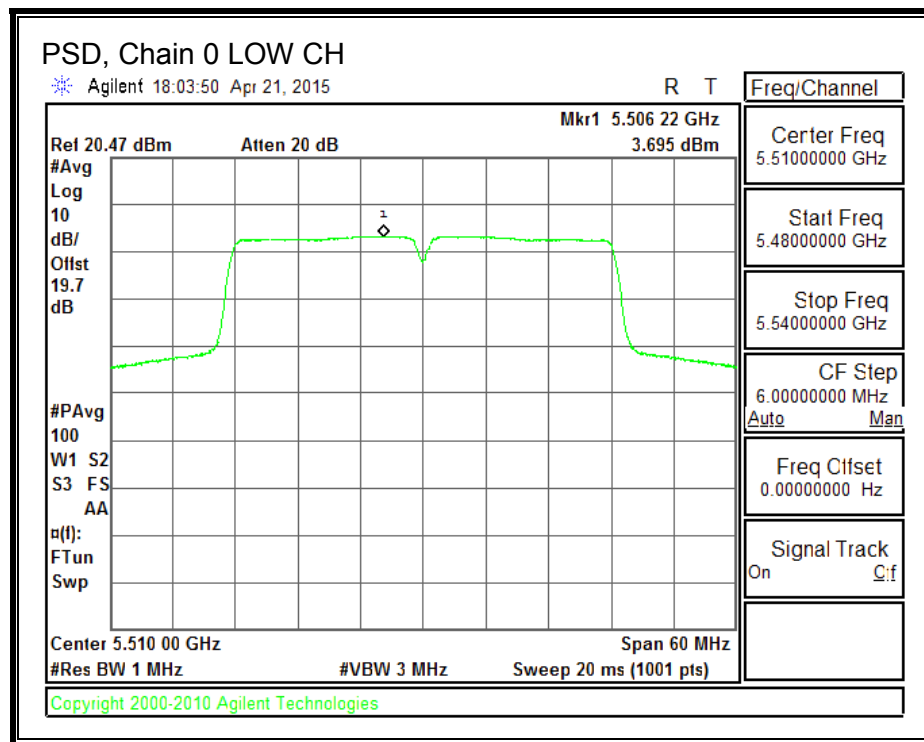
### Output Power Results

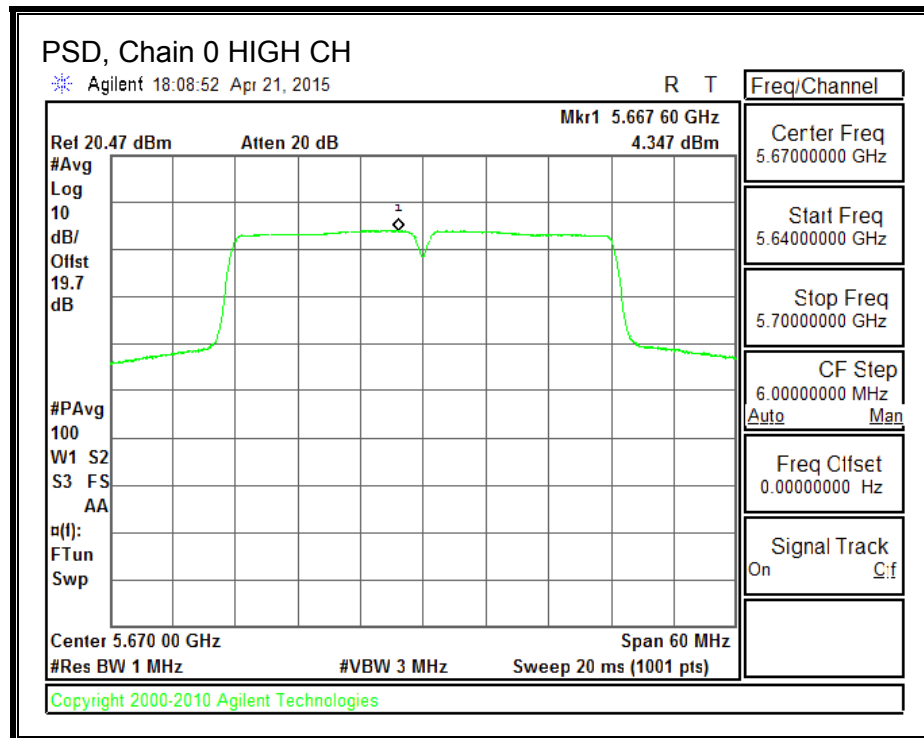
| Channel | Frequency<br>(MHz) | Chain 0<br>Meas<br>Power<br>(dBm) | Chain 1<br>Meas<br>Power<br>(dBm) | Total<br>Corr'd<br>Power<br>(dBm) | Power<br>Limit<br>(dBm) | Power<br>Margin<br>(dB) |
|---------|--------------------|-----------------------------------|-----------------------------------|-----------------------------------|-------------------------|-------------------------|
| Low     | 5510               | 12.10                             | 11.90                             | 15.01                             | 24.00                   | -8.99                   |
| Mid     | 5550               | 17.98                             | 17.65                             | 20.83                             | 24.00                   | -3.17                   |
| High    | 5670               | 16.40                             | 16.30                             | 19.36                             | 24.00                   | -4.64                   |

### PSD Results

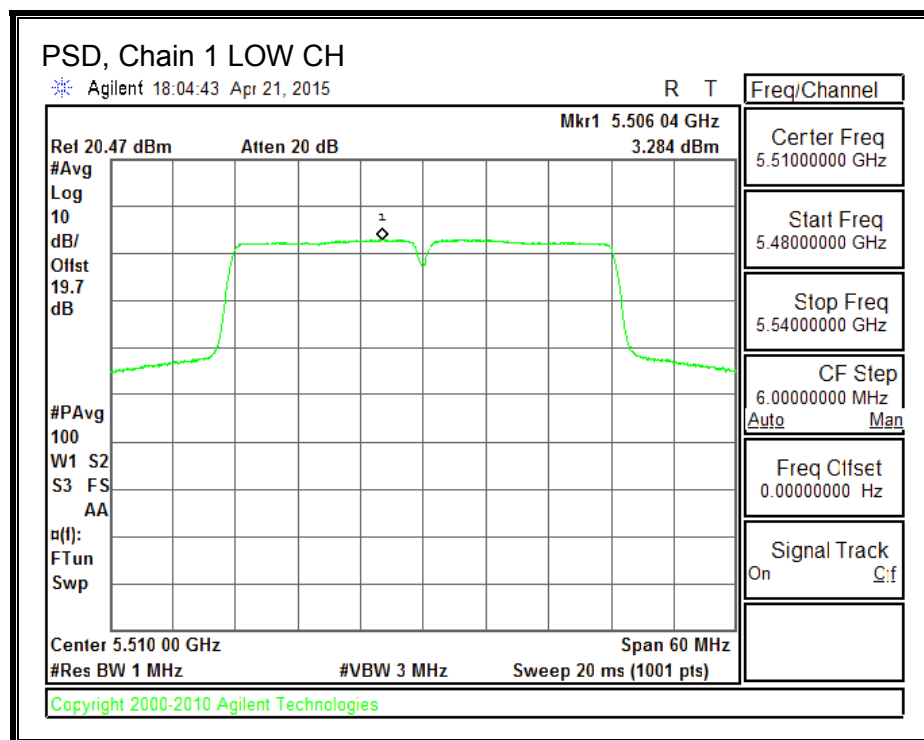
| Channel | Frequency<br>(MHz) | Chain 0<br>Meas<br>PSD<br>(dBm) | Chain 1<br>Meas<br>PSD<br>(dBm) | Total<br>Corr'd<br>PSD<br>(dBm) | PSD<br>Limit<br>(dBm) | PSD<br>Margin<br>(dB) |
|---------|--------------------|---------------------------------|---------------------------------|---------------------------------|-----------------------|-----------------------|
| Low     | 5510               | 3.695                           | 3.284                           | 6.59                            | 9.01                  | -2.42                 |
| Mid     | 5550               | 3.638                           | 3.229                           | 6.54                            | 9.01                  | -2.47                 |
| High    | 5670               | 4.347                           | 3.974                           | 7.26                            | 9.01                  | -1.75                 |

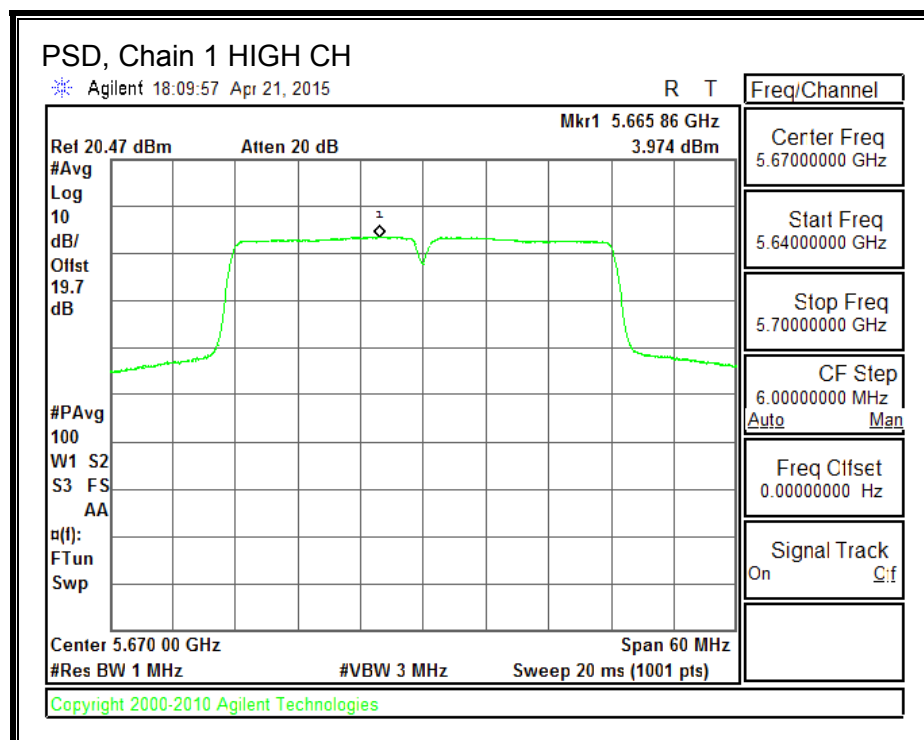
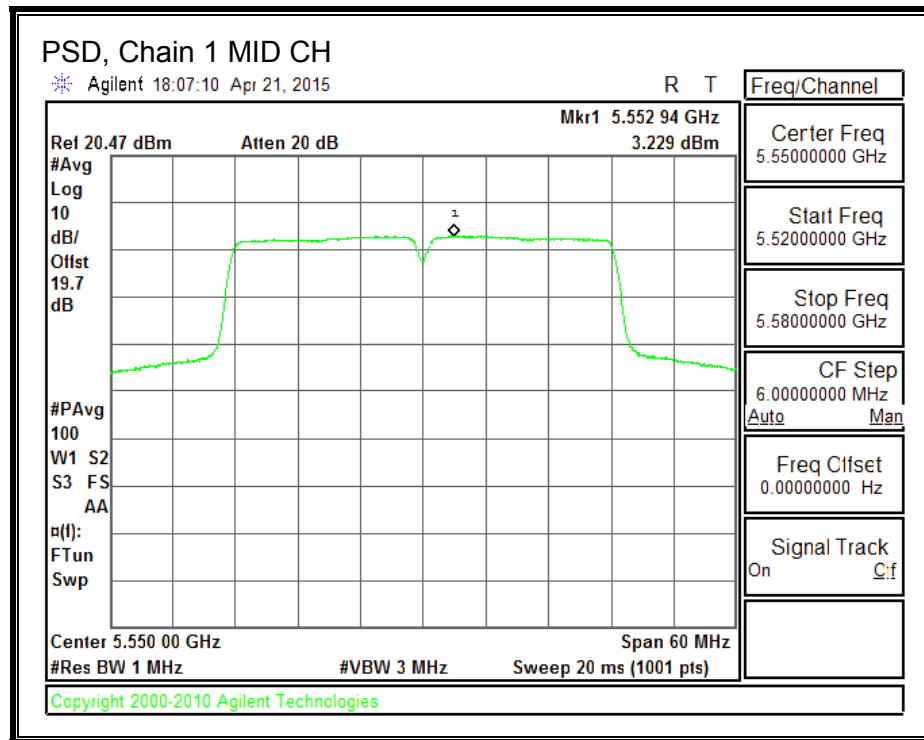
**PSD, Chain 0**





### PSD, Chain 1





## **STRADDLE CHANNEL 142 RESULTS**

### **UNII-2C BAND**

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

| Channel | Frequency<br>(MHz) | Min<br>26 dB<br>BW<br>(MHz) | Directional<br>Gain<br>for Power<br>(dBi) | Directional<br>Gain<br>for PSD<br>(dBi) | Power<br>Limit<br>(dBm) | PSD<br>Limit<br>(dBm) |
|---------|--------------------|-----------------------------|-------------------------------------------|-----------------------------------------|-------------------------|-----------------------|
| 142     | 5710               | 47.95                       | 5.01                                      | 7.99                                    | 24.00                   | 9.01                  |

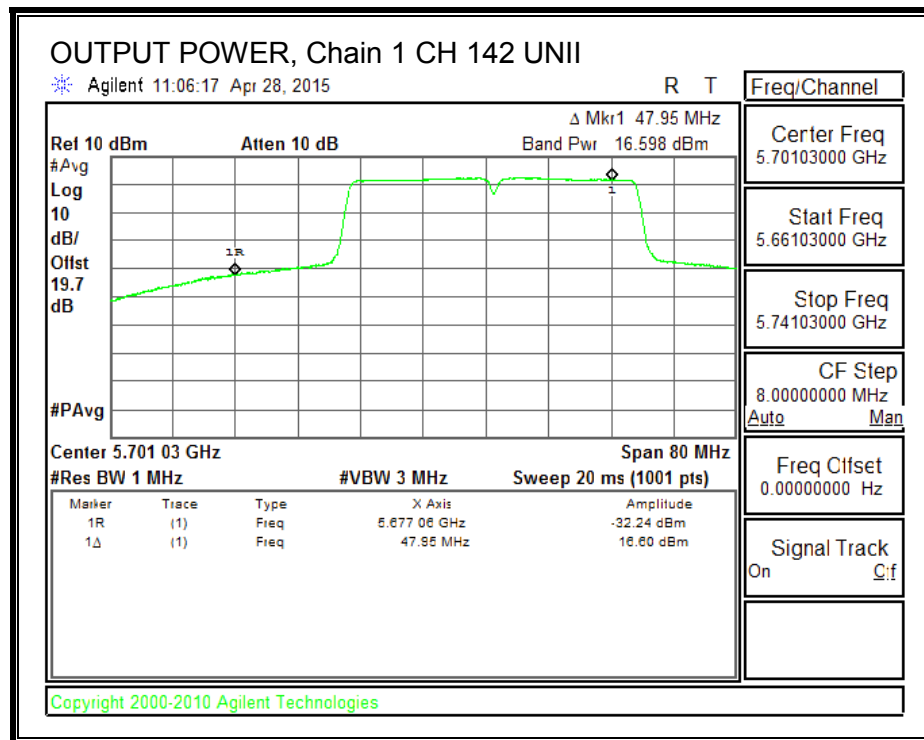
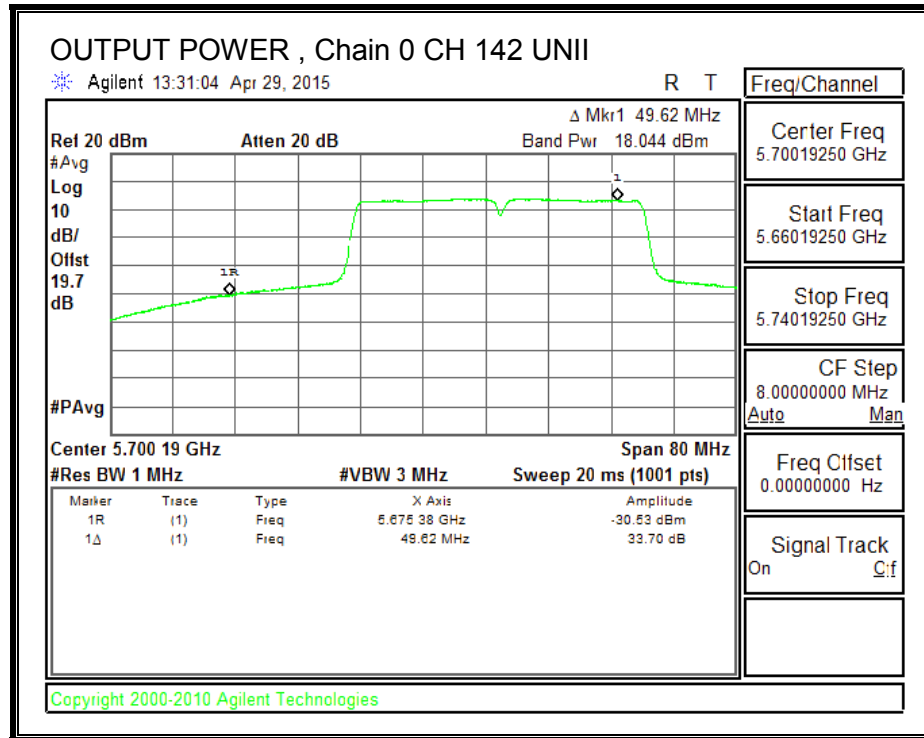
|                           |      |                                                           |
|---------------------------|------|-----------------------------------------------------------|
| <b>Duty Cycle CF (dB)</b> | 0.09 | <b>Included in Calculations of Corr'd Power &amp; PSD</b> |
|---------------------------|------|-----------------------------------------------------------|

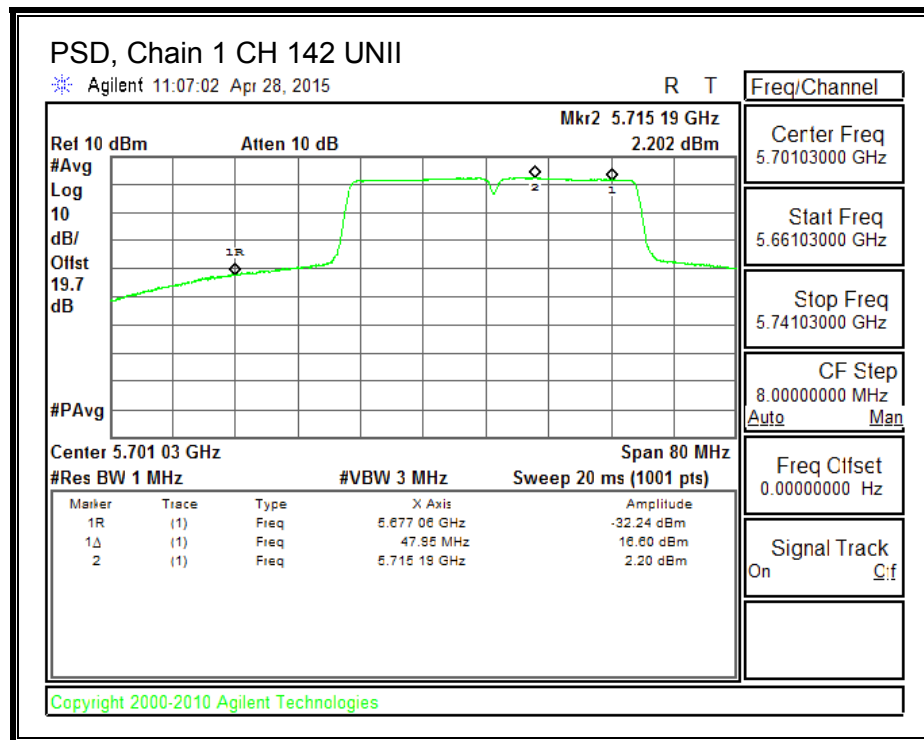
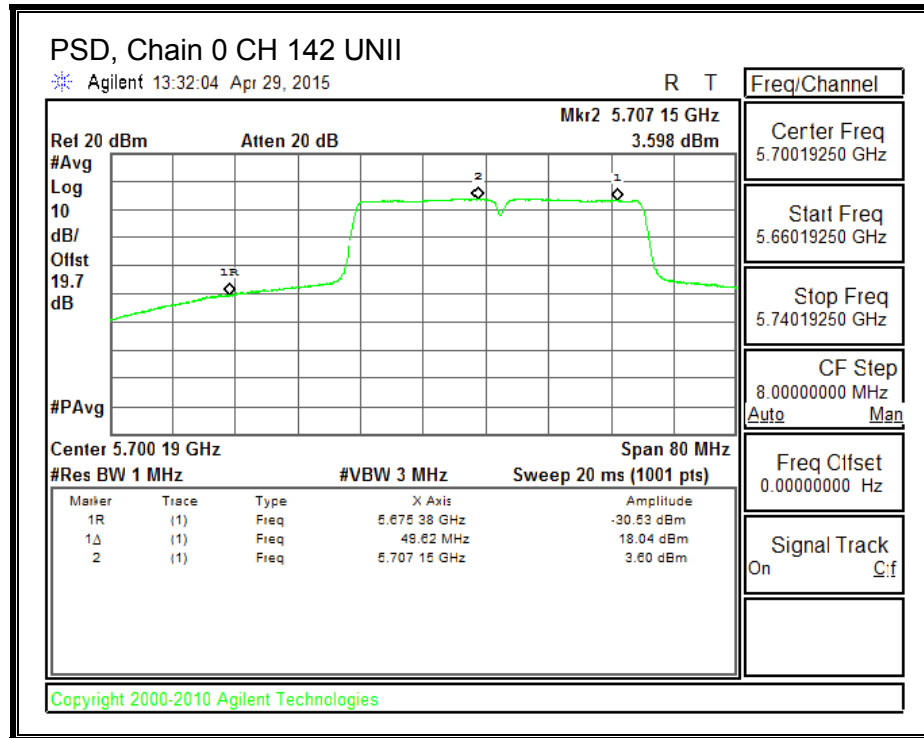
#### **Output Power Results**

| Channel | Frequency<br>(MHz) | Chain 0<br>Meas<br>Power<br>(dBm) | Chain 1<br>Meas<br>Power<br>(dBm) | Total<br>Corr'd<br>Power<br>(dBm) | Power<br>Limit<br>(dBm) | Power<br>Margin<br>(dB) |
|---------|--------------------|-----------------------------------|-----------------------------------|-----------------------------------|-------------------------|-------------------------|
| 142     | 5710               | 18.044                            | 16.598                            | 20.48                             | 24.00                   | -3.52                   |

#### **PSD Results**

| Channel | Frequency<br>(MHz) | Chain 0<br>Meas<br>PSD<br>(dBm) | Chain 1<br>Meas<br>PSD<br>(dBm) | Total<br>Corr'd<br>PSD<br>(dBm) | PSD<br>Limit<br>(dBm) | PSD<br>Margin<br>(dB) |
|---------|--------------------|---------------------------------|---------------------------------|---------------------------------|-----------------------|-----------------------|
| 142     | 5710               | 3.598                           | 2.202                           | 6.06                            | 9.01                  | -2.95                 |





**UNII-3 BAND**

**Antenna Gain and Limit**

| Channel | Frequency<br>(MHz) | Directional<br>Gain<br>for Power<br>(dBi) | Directional<br>Gain<br>for PSD<br>(dBi) | Power<br>Limit<br>(dBm) | PSD<br>Limit<br>(dBm) |
|---------|--------------------|-------------------------------------------|-----------------------------------------|-------------------------|-----------------------|
| 142     | 5710               | 5.06                                      | 8.03                                    | 30.00                   | 27.97                 |

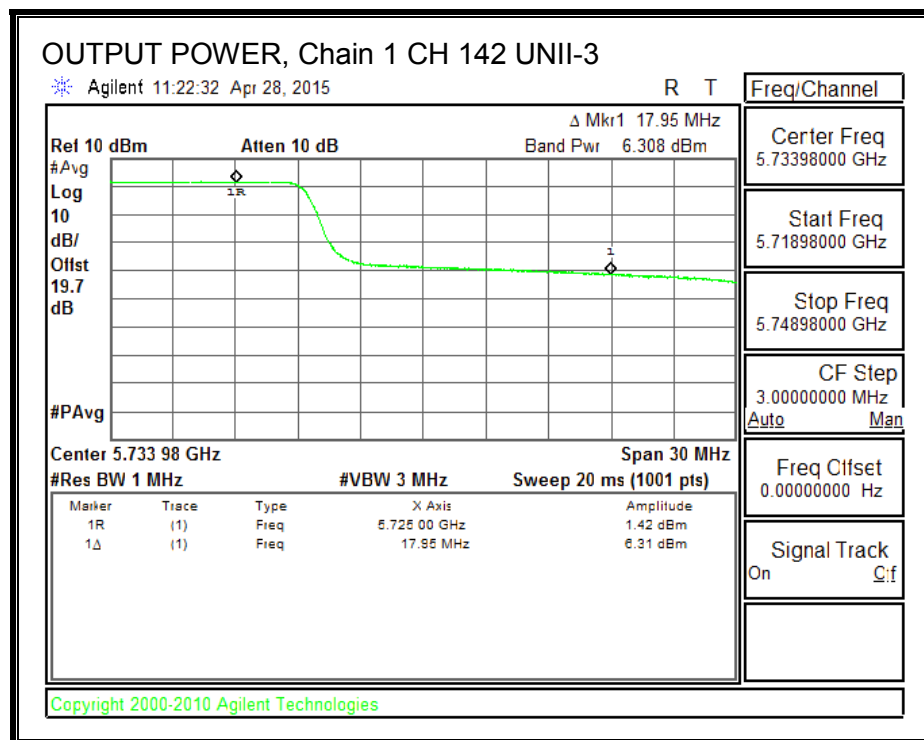
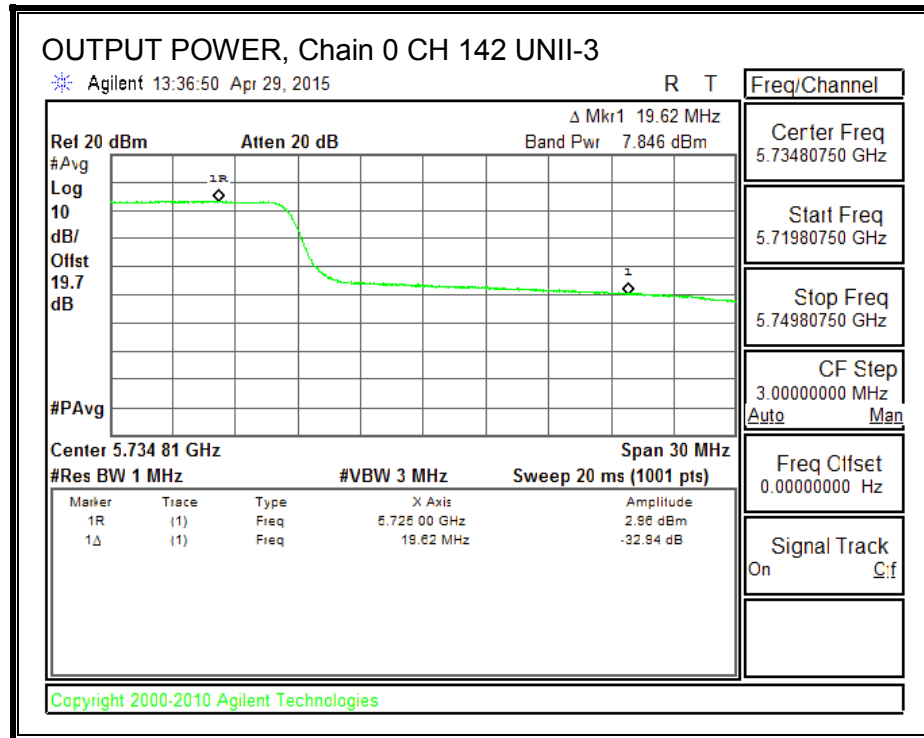
|                    |      |                                                |
|--------------------|------|------------------------------------------------|
| Duty Cycle CF (dB) | 0.09 | Included in Calculations of Corr'd Power & PSD |
|--------------------|------|------------------------------------------------|

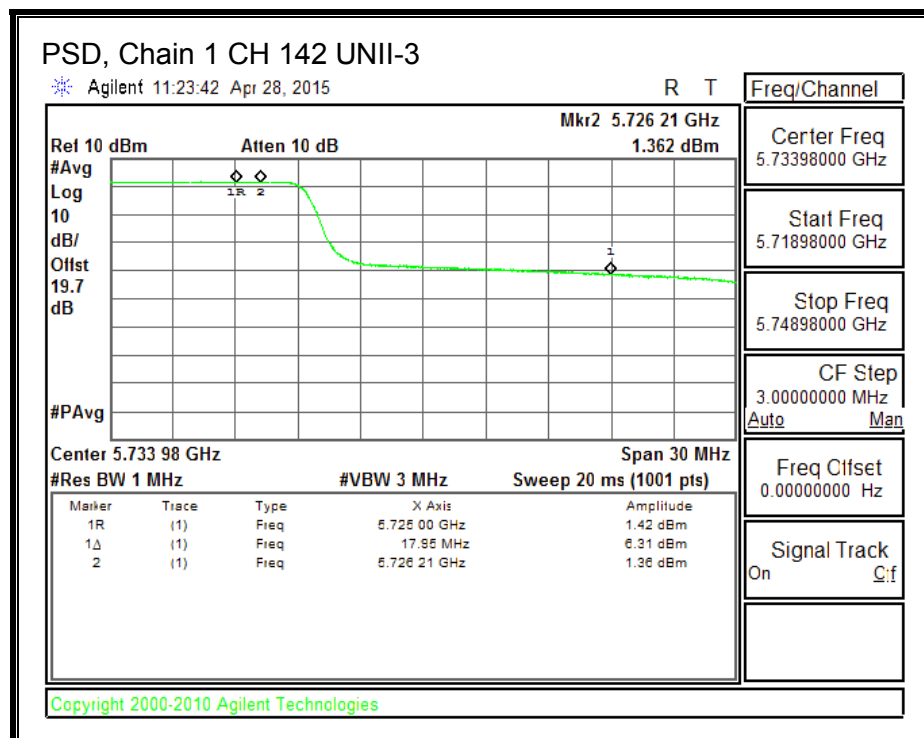
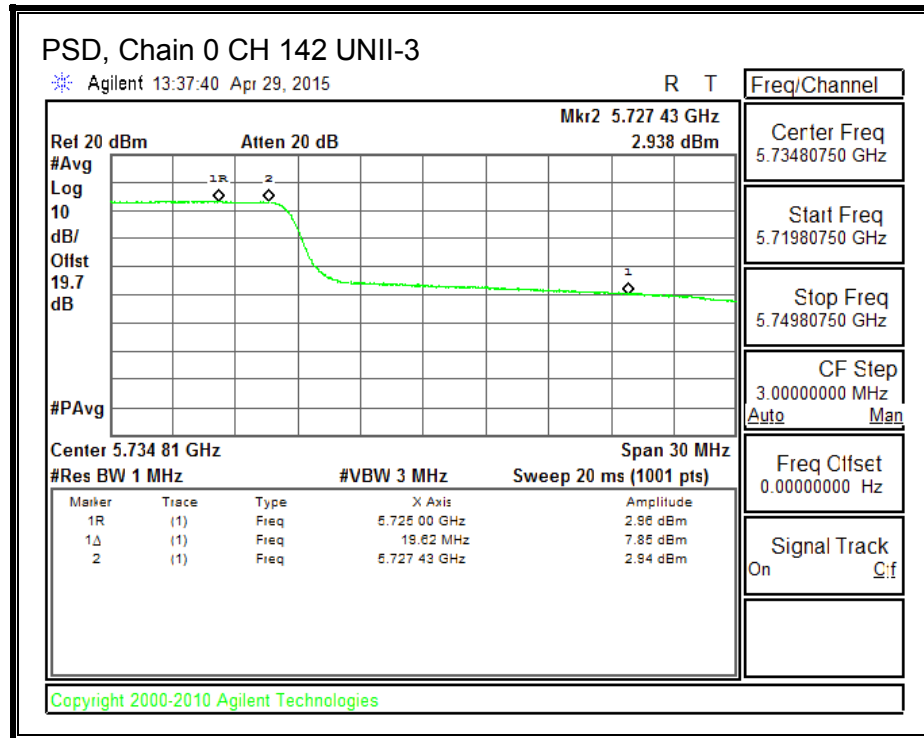
**Output Power Results**

| Channel | Frequency<br>(MHz) | Chain 0<br>Meas<br>Power<br>(dBm) | Chain 1<br>Meas<br>Power<br>(dBm) | Total<br>Corr'd<br>Power<br>(dBm) | Power<br>Limit<br>(dBm) | Power<br>Margin<br>(dB) |
|---------|--------------------|-----------------------------------|-----------------------------------|-----------------------------------|-------------------------|-------------------------|
| 142     | 5710               | 7.846                             | 6.308                             | 10.25                             | 30.00                   | -19.75                  |

**PSD Results**

| Channel | Frequency<br>(MHz) | Chain 0<br>Meas<br>PSD<br>(dBm) | Chain 1<br>Meas<br>PSD<br>(dBm) | Total<br>Corr'd<br>PSD<br>(dBm) | PSD<br>Limit<br>(dBm) | PSD<br>Margin<br>(dB) |
|---------|--------------------|---------------------------------|---------------------------------|---------------------------------|-----------------------|-----------------------|
| 142     | 5710               | 2.938                           | 1.362                           | 5.32                            | 27.97                 | -22.65                |





## 8.45.2. AVERAGE OUTPUT POWER (WHOLE FUNDAMENTAL)

### LIMITS

None; for reporting purposes only.

### TEST PROCEDURE

The transmitter output is connected to a power meter.

### RESULTS

#### Output Power Results

| Channel | Frequency<br>(MHz) | Chain 0<br>Meas<br>Power<br>(dBm) | Chain 1<br>Meas<br>Power<br>(dBm) | Total<br>Corr'd<br>Power<br>(dBm) |
|---------|--------------------|-----------------------------------|-----------------------------------|-----------------------------------|
| 142     | 5710               | 18.10                             | 17.70                             | 20.91                             |

**Note:** the power readings above were measured with gated method, and the measurement was taken only during the ON time. No duty cycle correction was necessary

## **8.46. 802.11n HT40 TxBF 2TX MODE IN THE 5.6 GHz BAND**

### **8.46.1. 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.

#### **DIRECTIONAL ANTENNA GAIN**

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

| <b>Chain 0<br/>Antenna<br/>Gain<br/>(dBi)</b> | <b>Chain 1<br/>Antenna<br/>Gain<br/>(dBi)</b> | <b>Correlated Chains<br/>Directional<br/>Gain<br/>(dBi)</b> |
|-----------------------------------------------|-----------------------------------------------|-------------------------------------------------------------|
| 3.17                                          | 4.72                                          | 7.99                                                        |

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

| <b>Chain 0<br/>Antenna<br/>Gain<br/>(dBi)</b> | <b>Chain 1<br/>Antenna<br/>Gain<br/>(dBi)</b> | <b>Correlated Chains<br/>Directional<br/>Gain<br/>(dBi)</b> |
|-----------------------------------------------|-----------------------------------------------|-------------------------------------------------------------|
| 3.17                                          | 4.72                                          | 7.99                                                        |

## RESULTS

### Bandwidth, Antenna Gain, and Limits

| Channel | Frequency<br>(MHz) | Min<br>26 dB<br>BW<br>(MHz) | Directional<br>Gain<br>for Power<br>(dBi) | Directional<br>Gain<br>for PSD<br>(dBi) | Power<br>Limit<br>(dBm) | PSD<br>Limit<br>(dBm) |
|---------|--------------------|-----------------------------|-------------------------------------------|-----------------------------------------|-------------------------|-----------------------|
| Low     | 5510               | 56.16                       | 7.99                                      | 7.99                                    | 22.01                   | 9.01                  |
| Mid     | 5550               | 63.27                       | 7.99                                      | 7.99                                    | 22.01                   | 9.01                  |
| High    | 5670               | 50.84                       | 7.99                                      | 7.99                                    | 22.01                   | 9.01                  |

|                    |      |                                        |
|--------------------|------|----------------------------------------|
| Duty Cycle CF (dB) | 0.09 | Included in Calculations of Corr'd PSD |
|--------------------|------|----------------------------------------|

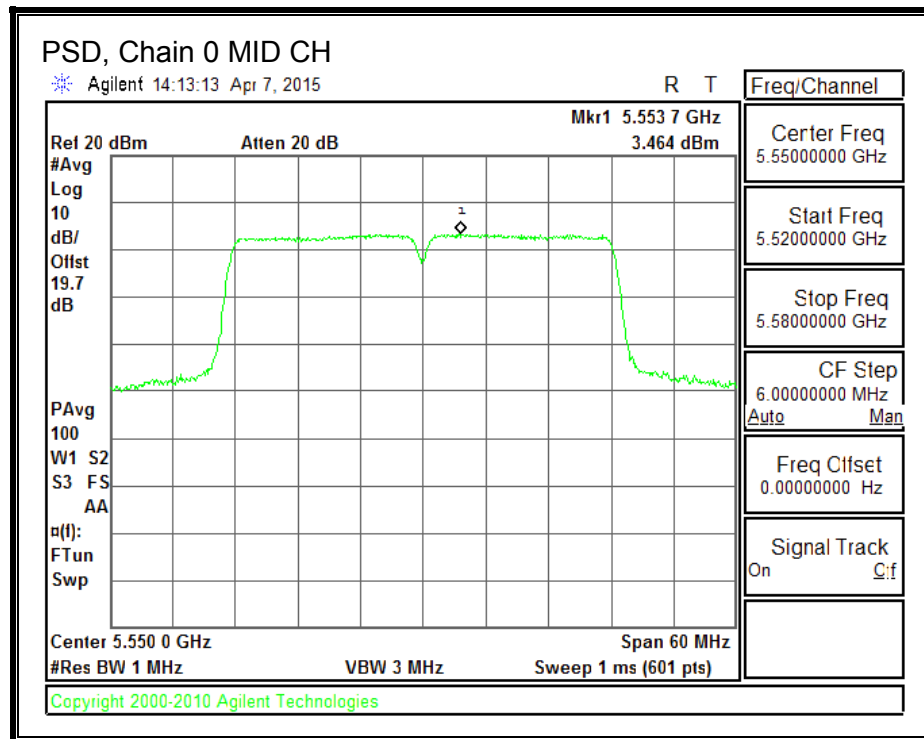
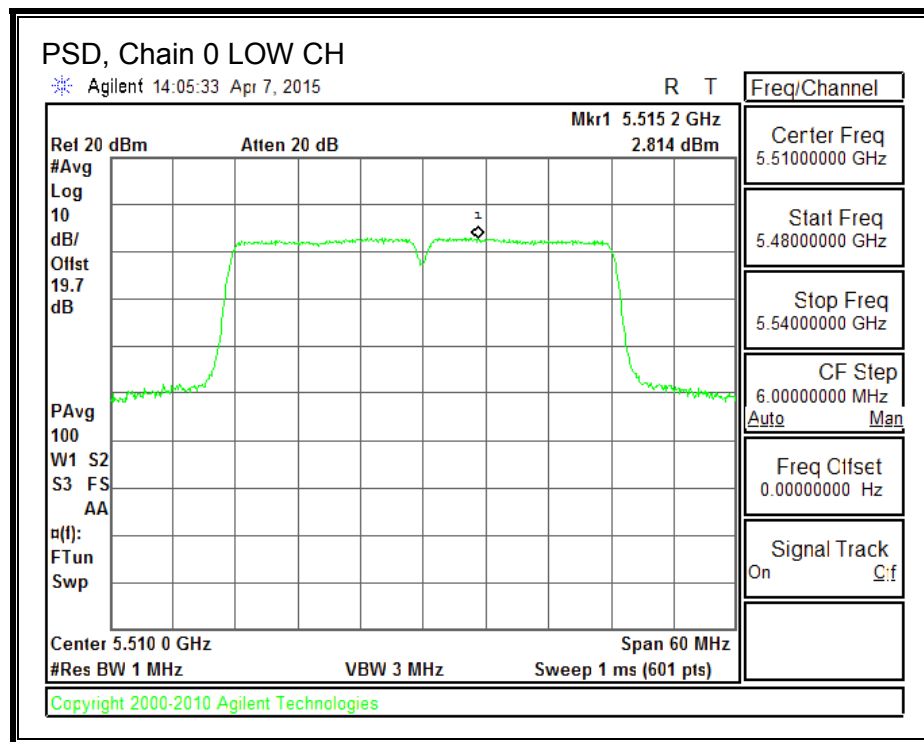
### Output Power Results

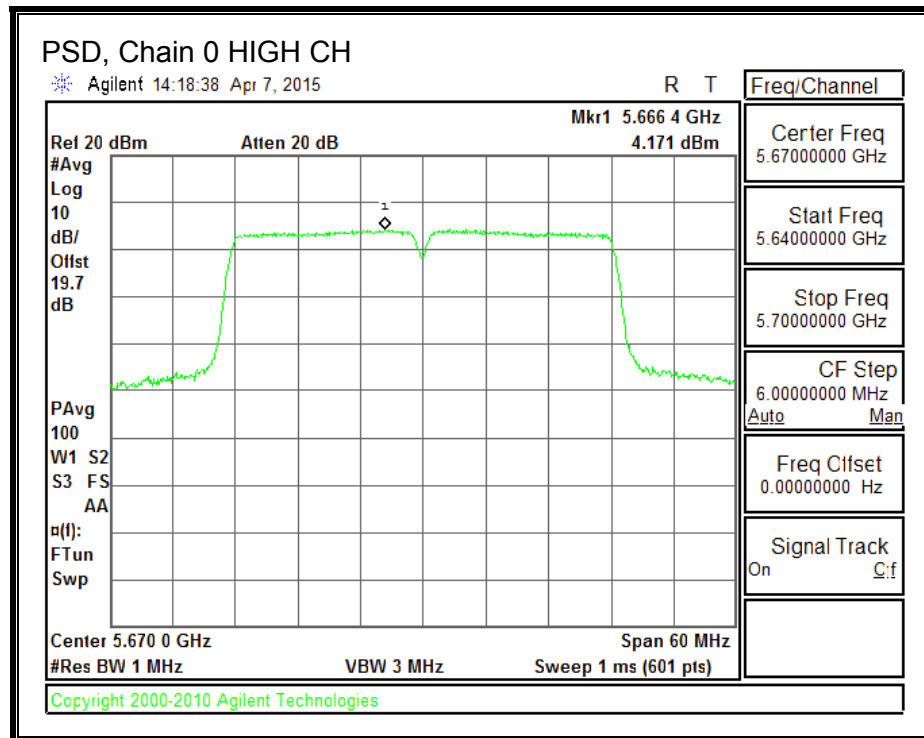
| Channel | Frequency<br>(MHz) | Chain 0<br>Meas<br>Power<br>(dBm) | Chain 1<br>Meas<br>Power<br>(dBm) | Total<br>Corr'd<br>Power<br>(dBm) | Power<br>Limit<br>(dBm) | Power<br>Margin<br>(dB) |
|---------|--------------------|-----------------------------------|-----------------------------------|-----------------------------------|-------------------------|-------------------------|
| Low     | 5510               | 10.90                             | 10.60                             | 13.76                             | 22.01                   | -8.25                   |
| Mid     | 5550               | 17.98                             | 17.65                             | 20.83                             | 22.01                   | -1.18                   |
| High    | 5670               | 13.90                             | 13.60                             | 16.76                             | 22.01                   | -5.25                   |

### PSD Results

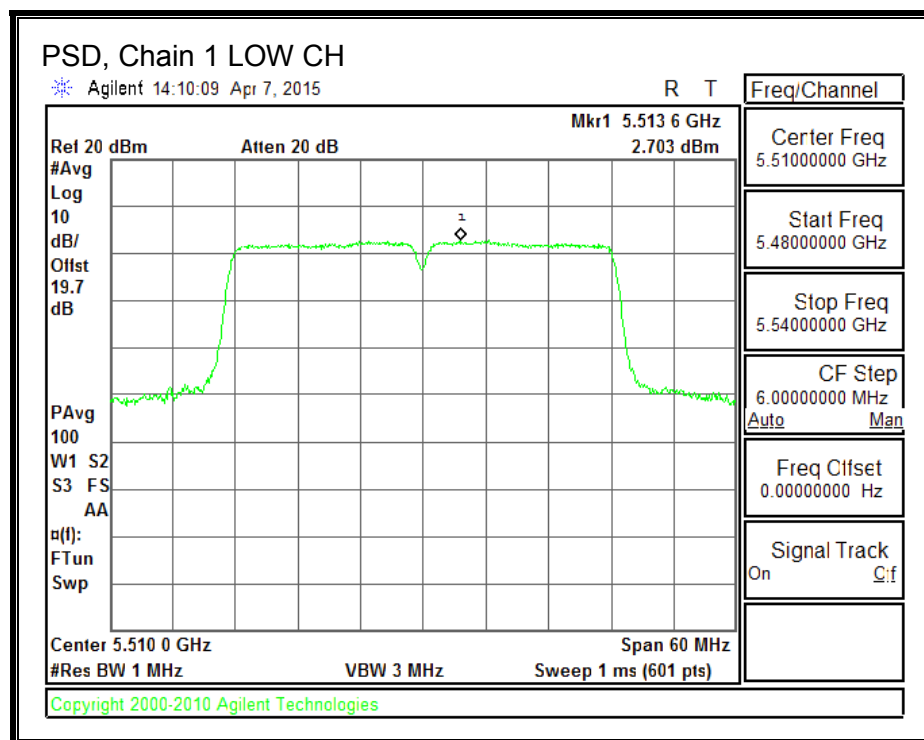
| Channel | Frequency<br>(MHz) | Chain 0<br>Meas<br>PSD<br>(dBm) | Chain 1<br>Meas<br>PSD<br>(dBm) | Total<br>Corr'd<br>PSD<br>(dBm) | PSD<br>Limit<br>(dBm) | PSD<br>Margin<br>(dB) |
|---------|--------------------|---------------------------------|---------------------------------|---------------------------------|-----------------------|-----------------------|
| Low     | 5510               | 2.814                           | 2.703                           | 5.86                            | 9.01                  | -3.15                 |
| Mid     | 5550               | 3.464                           | 3.227                           | 6.45                            | 9.01                  | -2.56                 |
| High    | 5670               | 4.171                           | 3.612                           | 7.00                            | 9.01                  | -2.01                 |

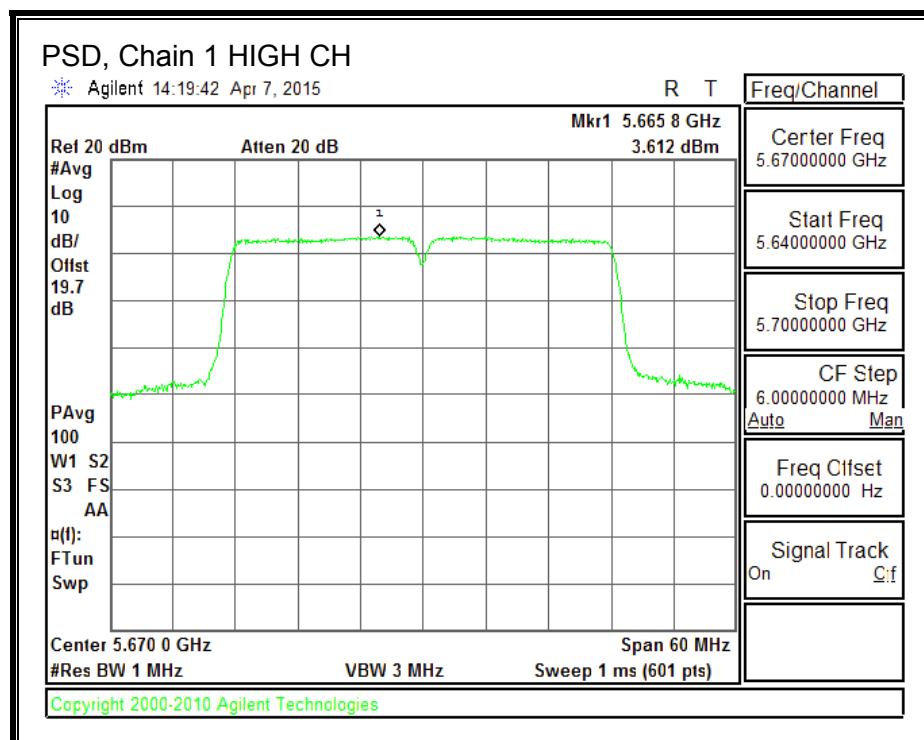
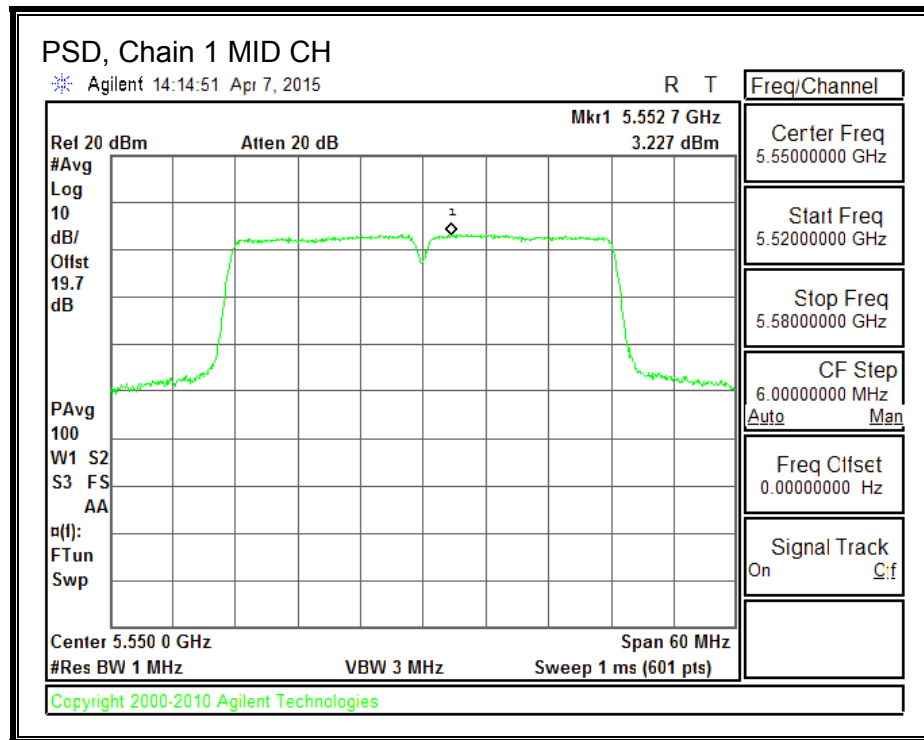
**PSD, Chain 0**





**PSD, Chain 1**





# **STRADDLE CHANNEL 142 RESULTS**

## **UNII-2C BAND**

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

| Channel | Frequency<br>(MHz) | Min<br>26 dB<br>BW<br>(MHz) | Directional<br>Gain<br>for Power<br>(dBi) | Directional<br>Gain<br>for PSD<br>(dBi) | Power<br>Limit<br>(dBm) | PSD<br>Limit<br>(dBm) |
|---------|--------------------|-----------------------------|-------------------------------------------|-----------------------------------------|-------------------------|-----------------------|
| 142     | 5710               | 47.95                       | 7.99                                      | 7.99                                    | 22.01                   | 9.01                  |

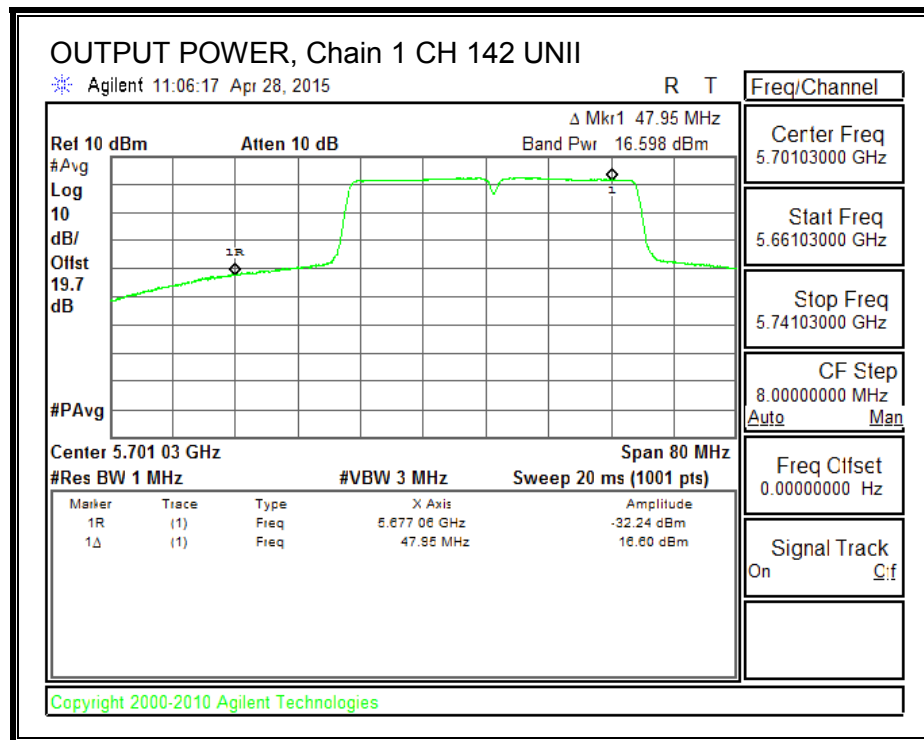
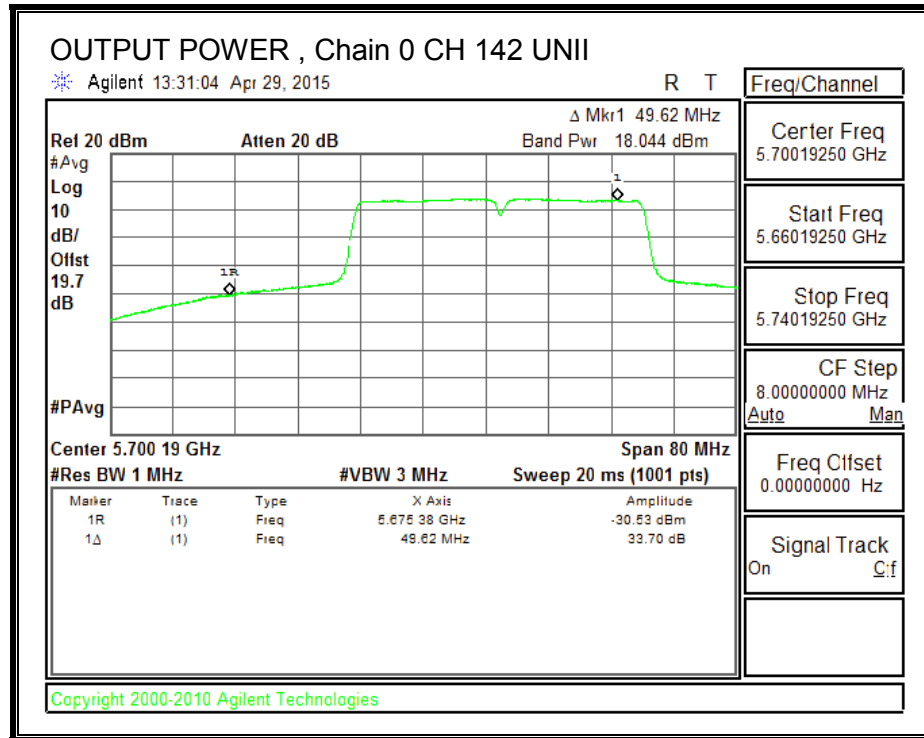
|                           |      |                                                           |
|---------------------------|------|-----------------------------------------------------------|
| <b>Duty Cycle CF (dB)</b> | 0.09 | <b>Included in Calculations of Corr'd Power &amp; PSD</b> |
|---------------------------|------|-----------------------------------------------------------|

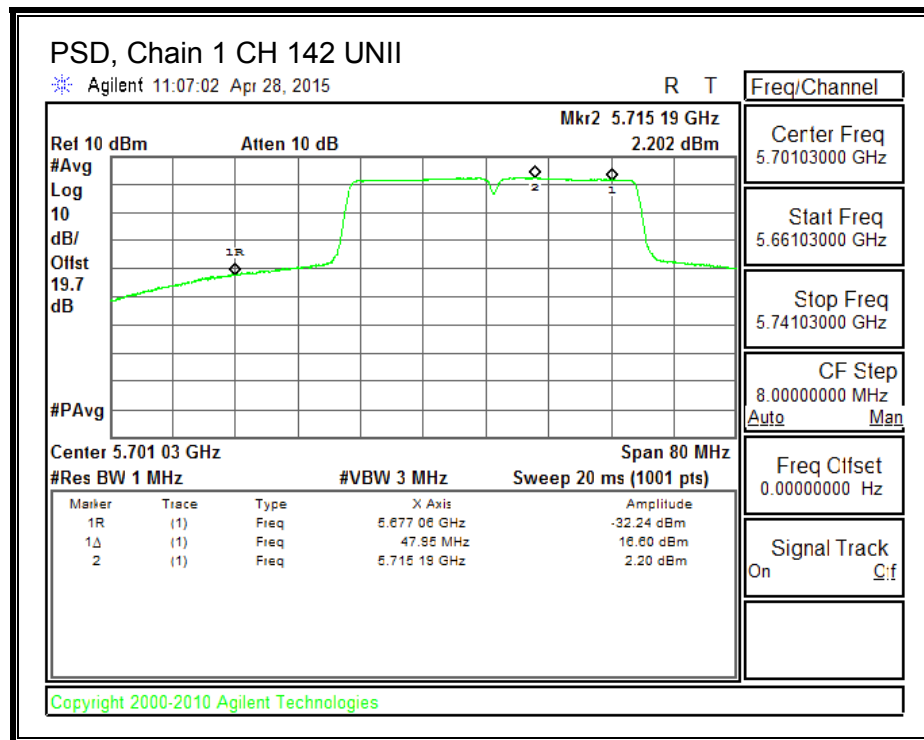
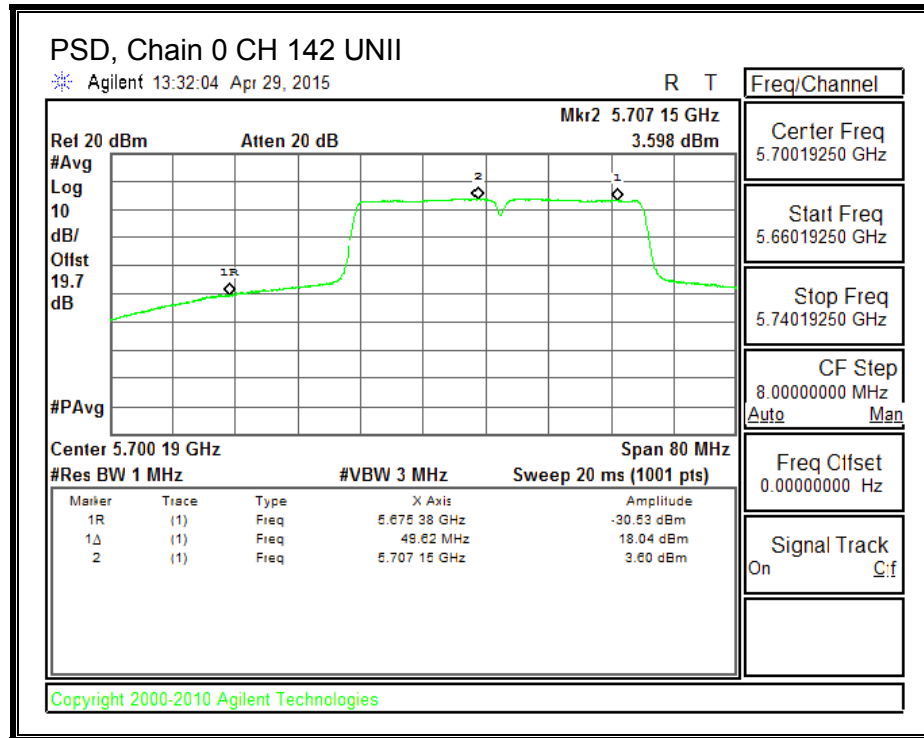
### **Output Power Results**

| Channel | Frequency<br>(MHz) | Chain 0<br>Meas<br>Power<br>(dBm) | Chain 1<br>Meas<br>Power<br>(dBm) | Total<br>Corr'd<br>Power<br>(dBm) | Power<br>Limit<br>(dBm) | Power<br>Margin<br>(dB) |
|---------|--------------------|-----------------------------------|-----------------------------------|-----------------------------------|-------------------------|-------------------------|
| 142     | 5710               | 18.044                            | 16.598                            | 20.48                             | 22.01                   | -1.53                   |

### **PSD Results**

| Channel | Frequency<br>(MHz) | Chain 0<br>Meas<br>PSD<br>(dBm) | Chain 1<br>Meas<br>PSD<br>(dBm) | Total<br>Corr'd<br>PSD<br>(dBm) | PSD<br>Limit<br>(dBm) | PSD<br>Margin<br>(dB) |
|---------|--------------------|---------------------------------|---------------------------------|---------------------------------|-----------------------|-----------------------|
| 142     | 5710               | 3.598                           | 2.202                           | 6.06                            | 9.01                  | -2.95                 |





**UNII-3 BAND**

| Channel | Frequency<br>(MHz) | Directional<br>Gain<br>for Power<br>(dBi) | Directional<br>Gain<br>for PSD<br>(dBi) | Power<br>Limit<br>(dBm) | PSD<br>Limit<br>(dBm) |
|---------|--------------------|-------------------------------------------|-----------------------------------------|-------------------------|-----------------------|
| 142     | 5710               | 7.03                                      | 8.03                                    | 28.97                   | 27.97                 |

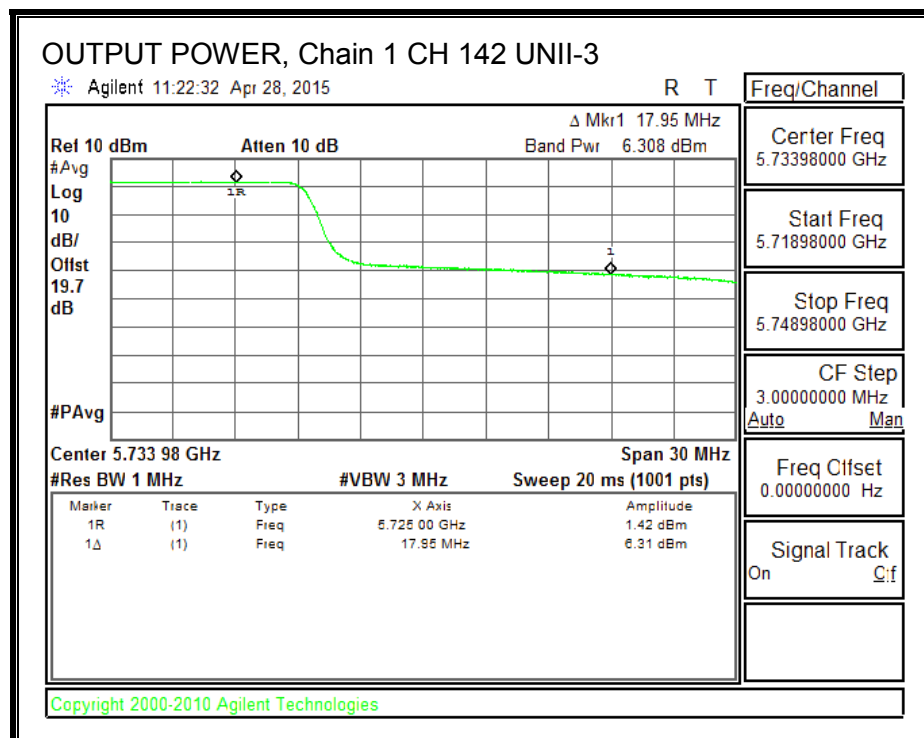
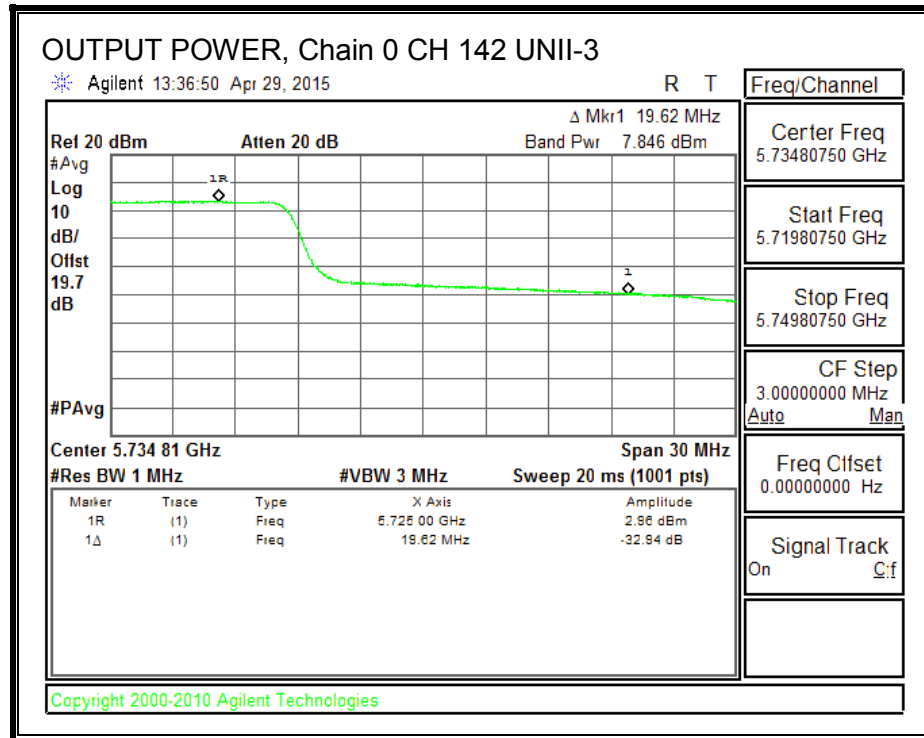
|                    |      |                                                |
|--------------------|------|------------------------------------------------|
| Duty Cycle CF (dB) | 0.09 | Included in Calculations of Corr'd Power & PSD |
|--------------------|------|------------------------------------------------|

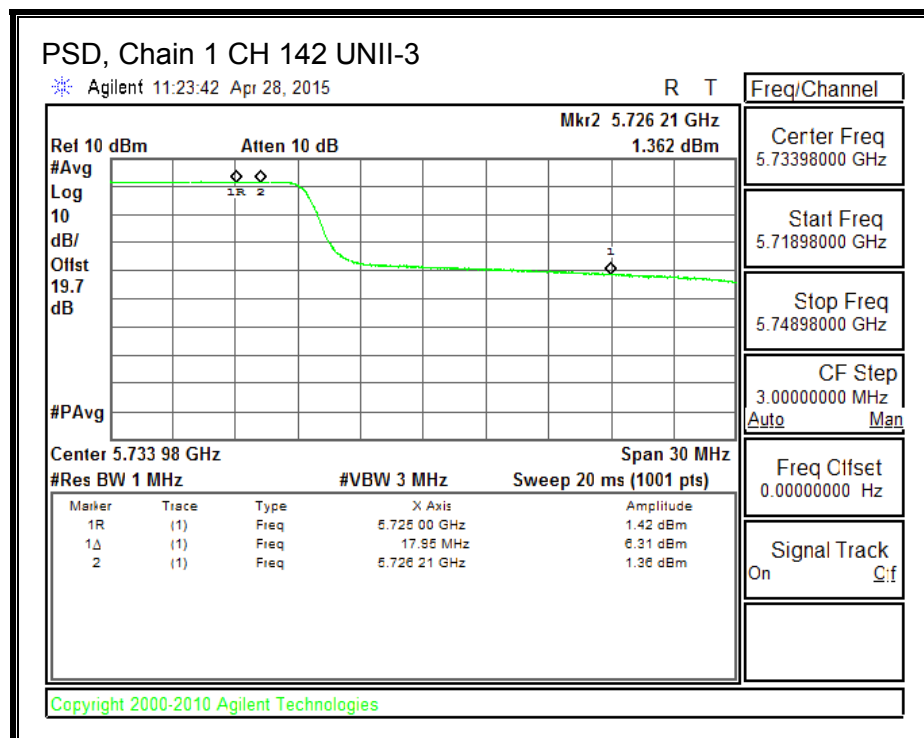
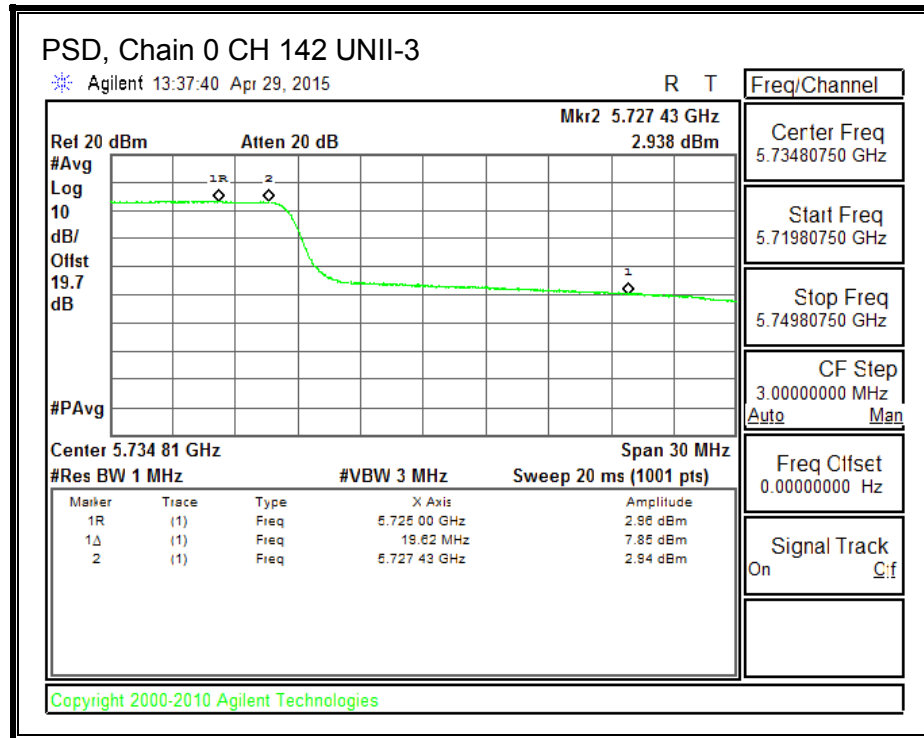
**Output Power Results**

| Channel | Frequency<br>(MHz) | Chain 0<br>Meas<br>Power<br>(dBm) | Chain 1<br>Meas<br>Power<br>(dBm) | Total<br>Corr'd<br>Power<br>(dBm) | Power<br>Limit<br>(dBm) | Power<br>Margin<br>(dB) |
|---------|--------------------|-----------------------------------|-----------------------------------|-----------------------------------|-------------------------|-------------------------|
| 142     | 5710               | 7.846                             | 6.308                             | 10.245                            | 28.97                   | -18.72                  |

**PSD Results**

| Channel | Frequency<br>(MHz) | Chain 0<br>Meas<br>PSD<br>(dBm) | Chain 1<br>Meas<br>PSD<br>(dBm) | Total<br>Corr'd<br>PSD<br>(dBm) | PSD<br>Limit<br>(dBm) | PSD<br>Margin<br>(dB) |
|---------|--------------------|---------------------------------|---------------------------------|---------------------------------|-----------------------|-----------------------|
| 142     | 5710               | 2.938                           | 1.362                           | 5.32                            | 27.97                 | -22.65                |





## 8.46.2. AVERAGE OUTPUT POWER (WHOLE FUNDAMENTAL)

### LIMITS

None; for reporting purposes only.

### TEST PROCEDURE

The transmitter output is connected to a power meter.

### RESULTS

#### Output Power Results

| Channel | Frequency<br>(MHz) | Chain 0<br>Meas<br>Power<br>(dBm) | Chain 1<br>Meas<br>Power<br>(dBm) | Total<br>Corr'd<br>Power<br>(dBm) |
|---------|--------------------|-----------------------------------|-----------------------------------|-----------------------------------|
| 142     | 5710               | 18.10                             | 17.70                             | 20.91                             |

**Note:** the power readings above were measured with gated method, and the measurement was taken only during the ON time. No duty cycle correction was necessary

## **8.47. 802.11n HT40 CDD 3TX MODE IN THE 5.6 GHz BAND**

### **8.47.1. 26 dB BANDWIDTH**

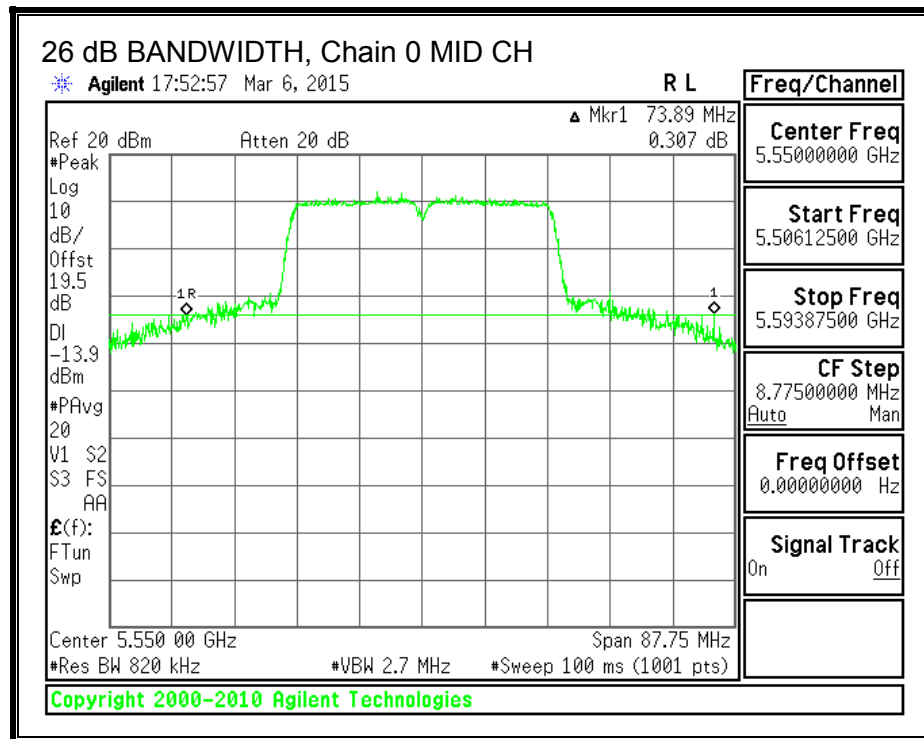
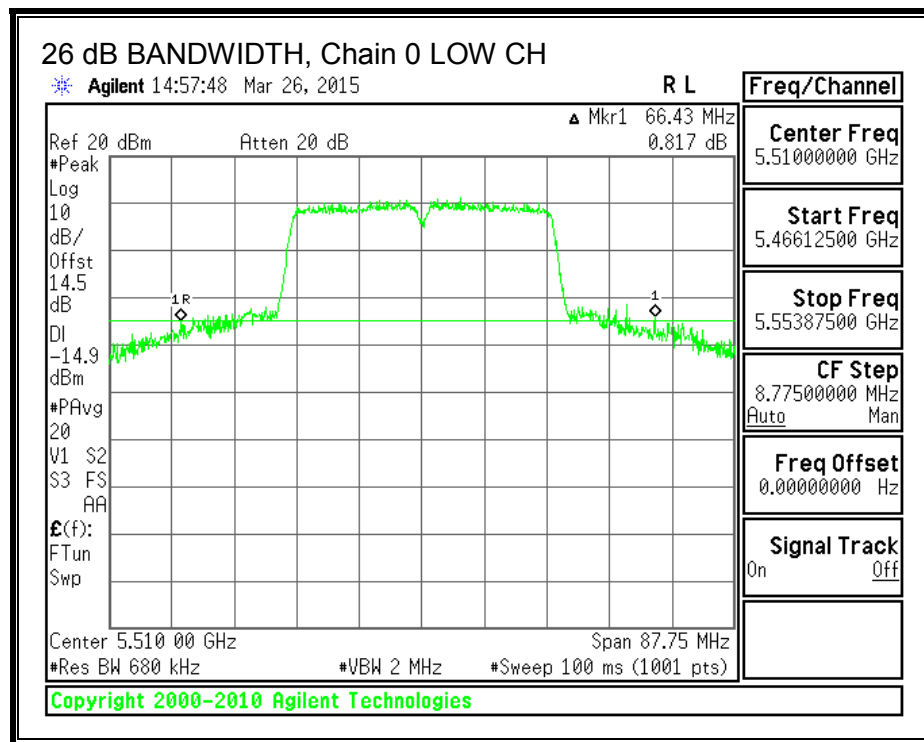
#### **LIMITS**

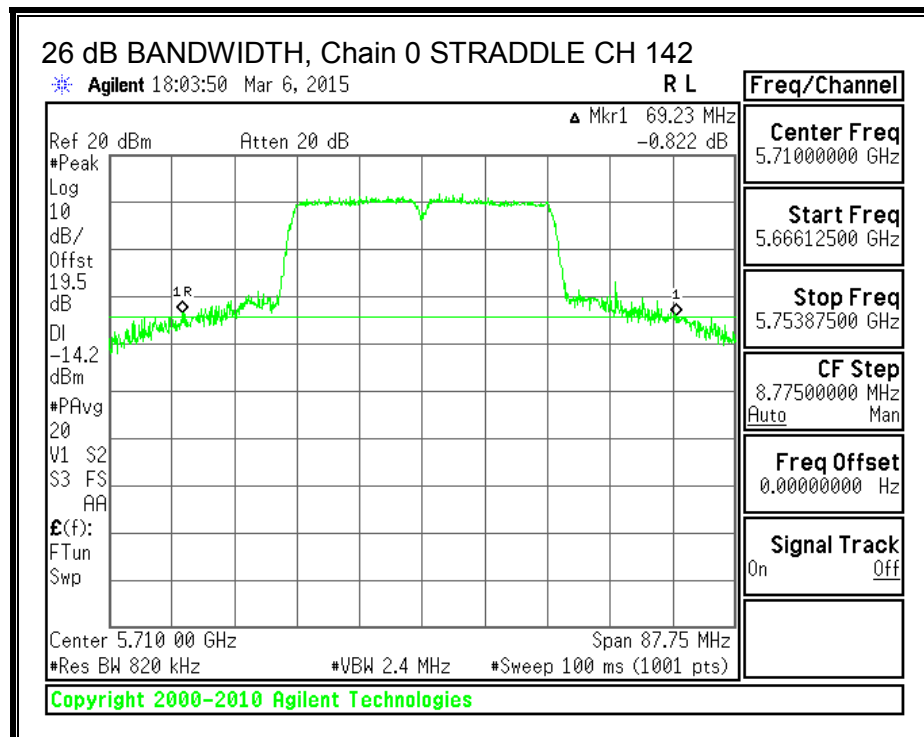
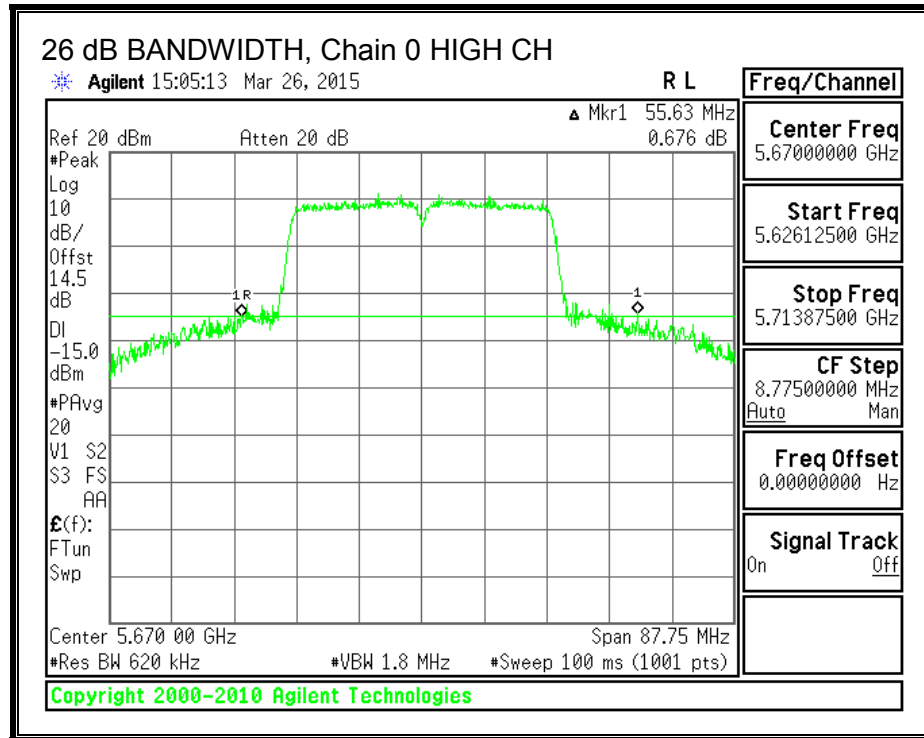
None; for reporting purposes only.

#### **RESULTS**

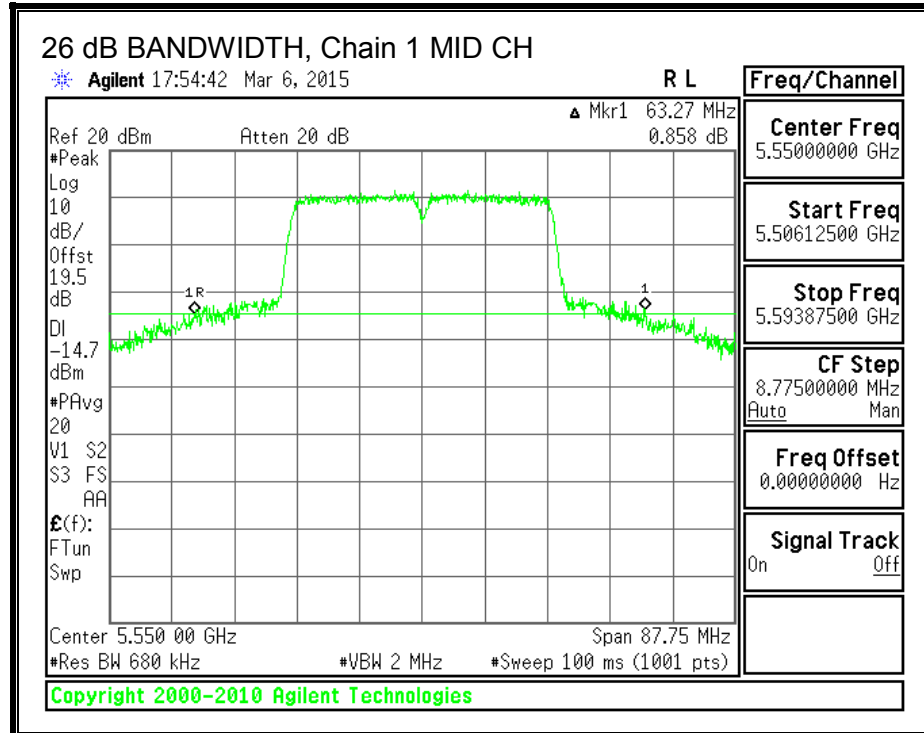
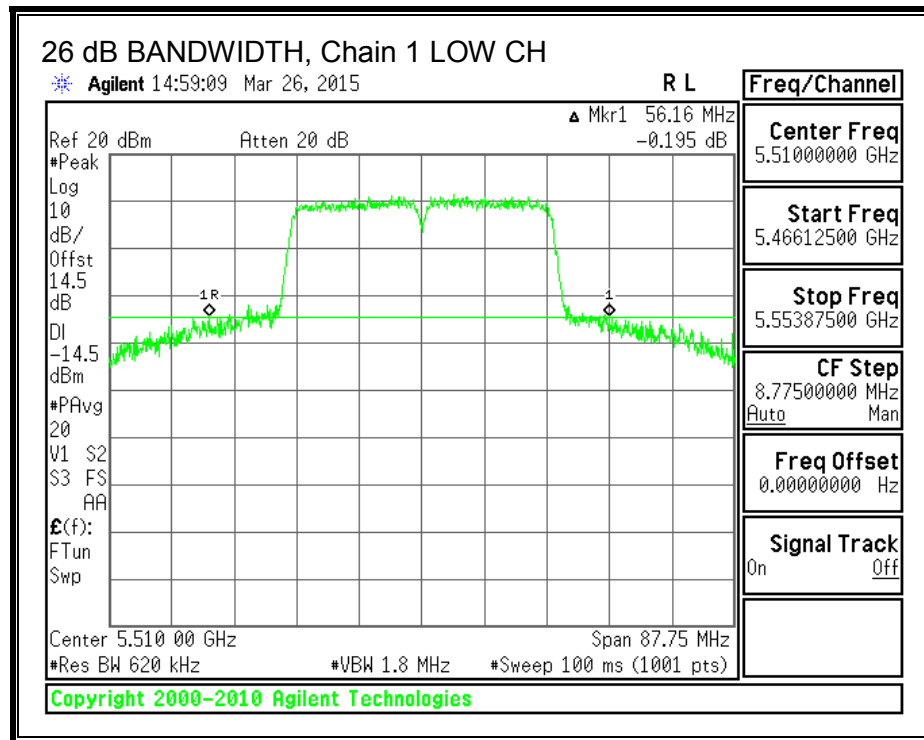
| Channel | Frequency<br>(MHz) | 26 dB BW<br>Chain 0<br>(MHz) | 26 dB BW<br>Chain 1<br>(MHz) | 26 dB BW<br>Chain 2<br>(MHz) |
|---------|--------------------|------------------------------|------------------------------|------------------------------|
| Low     | 5510               | 66.430                       | 56.160                       | 50.540                       |
| Mid     | 5550               | 73.890                       | 63.270                       | 62.390                       |
| High    | 5670               | 55.630                       | 50.836                       | 51.012                       |
| 142     | 5710               | 69.230                       | 65.900                       | 72.040                       |

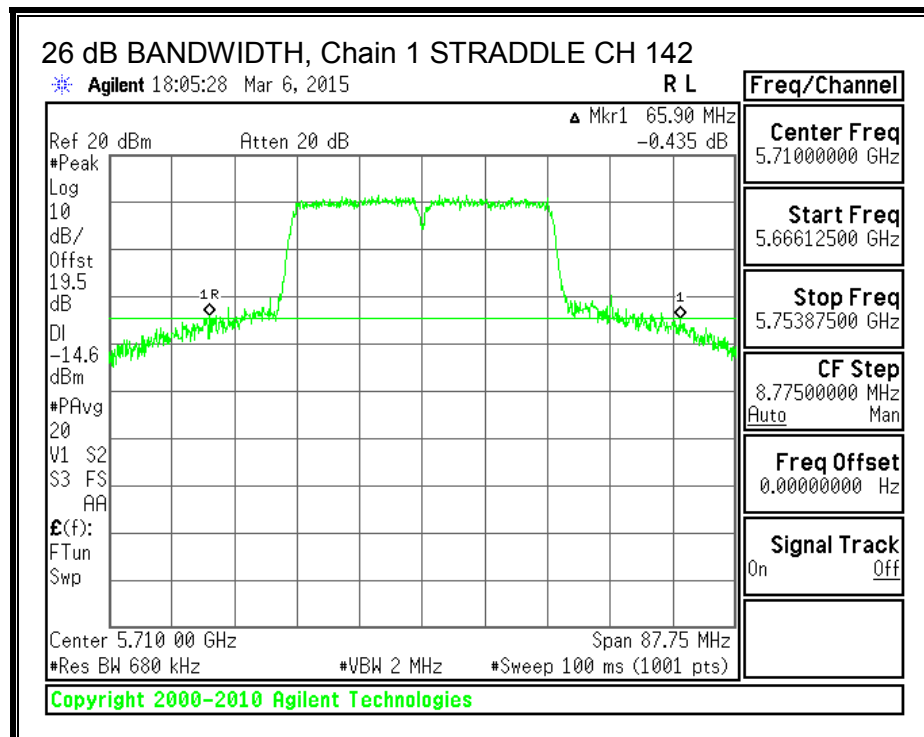
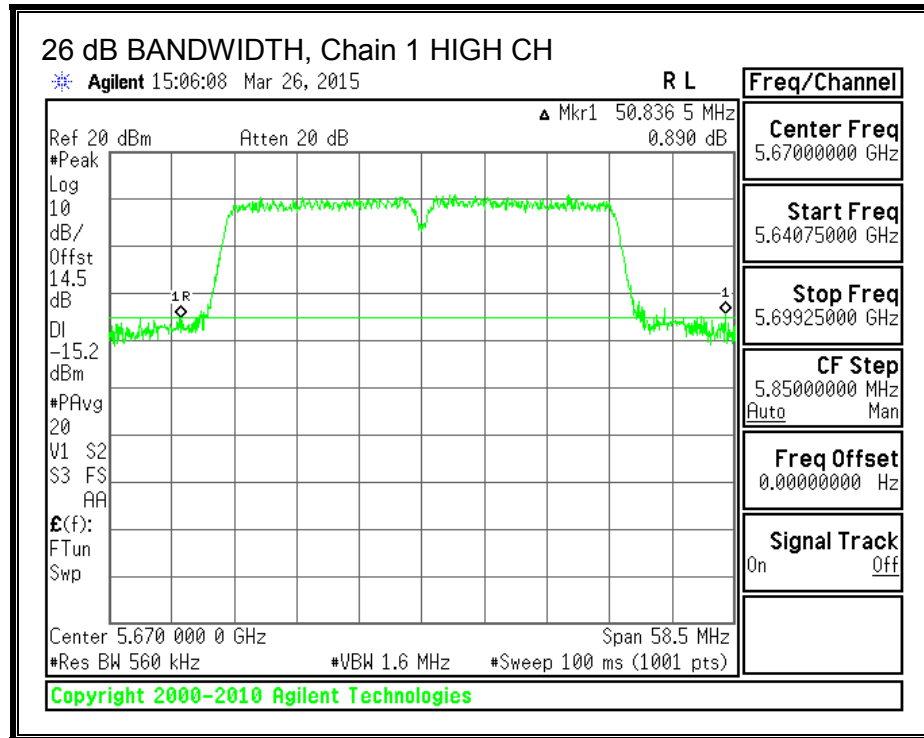
**26 dB BANDWIDTH, Chain 0**



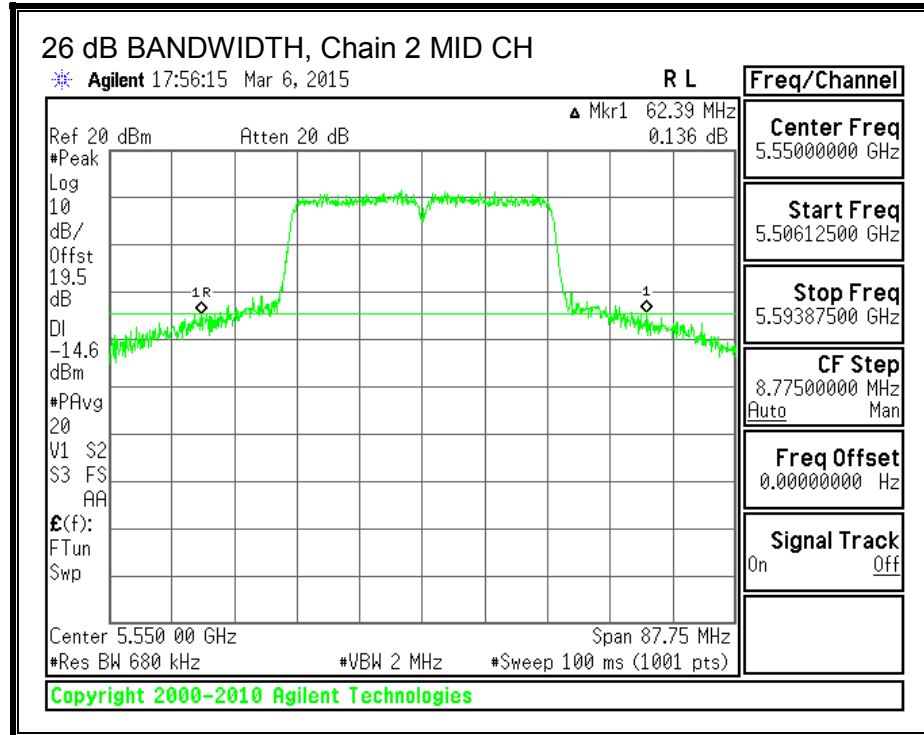
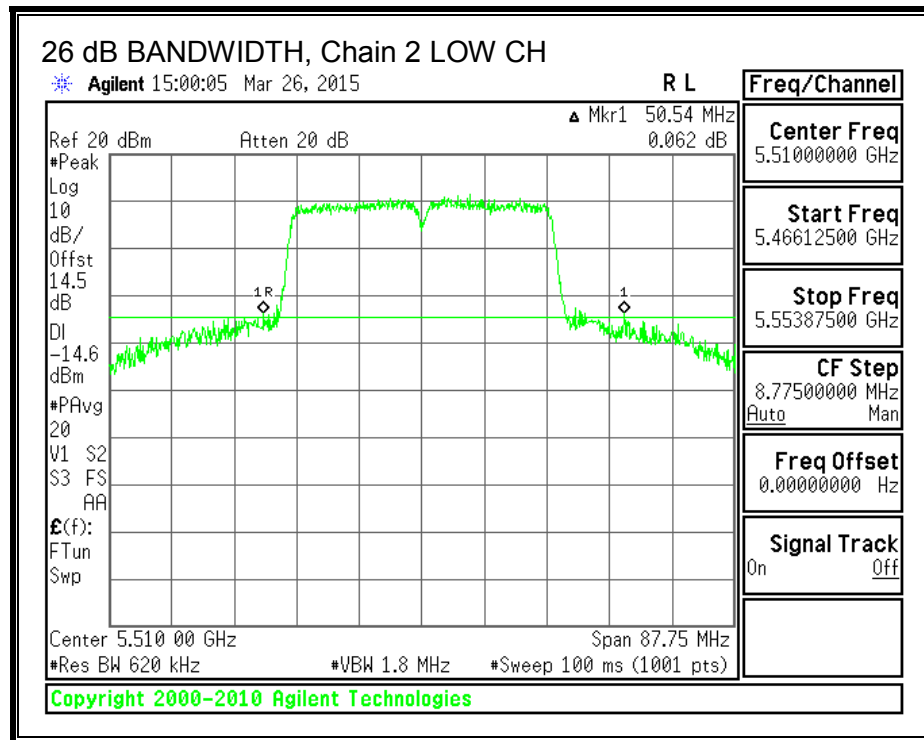


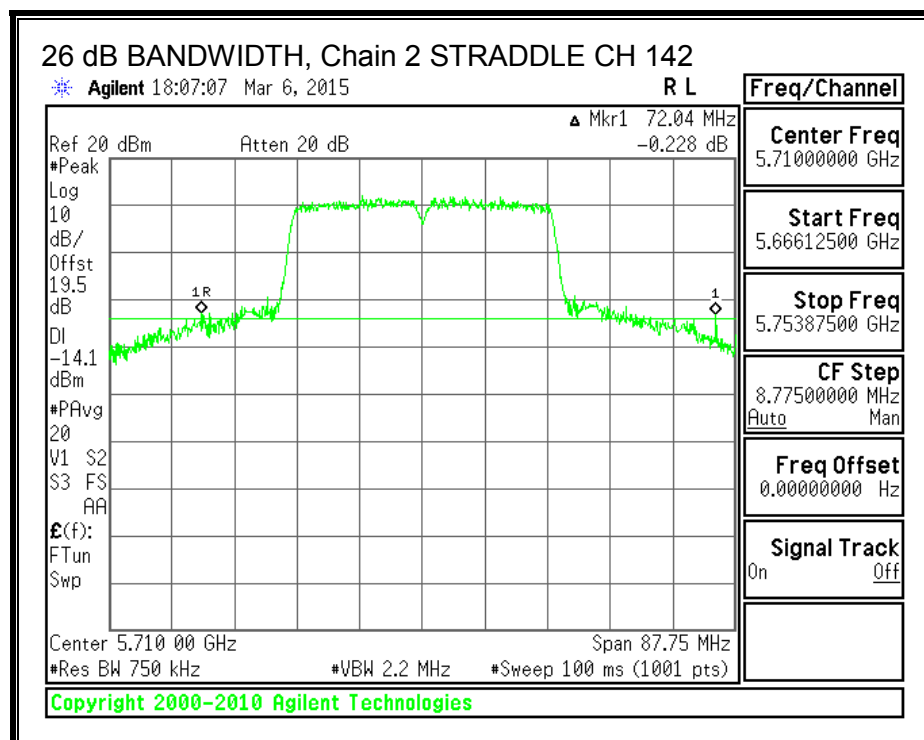
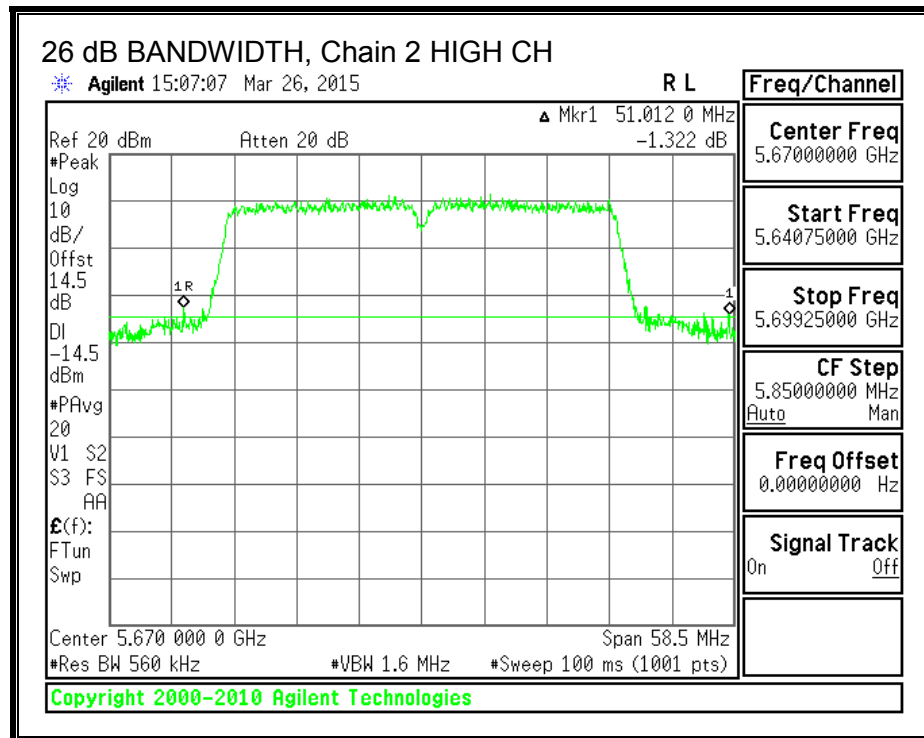
**26 dB BANDWIDTH, Chain 1**





**26 dB BANDWIDTH, Chain 2**





## 8.47.2. 99% BANDWIDTH

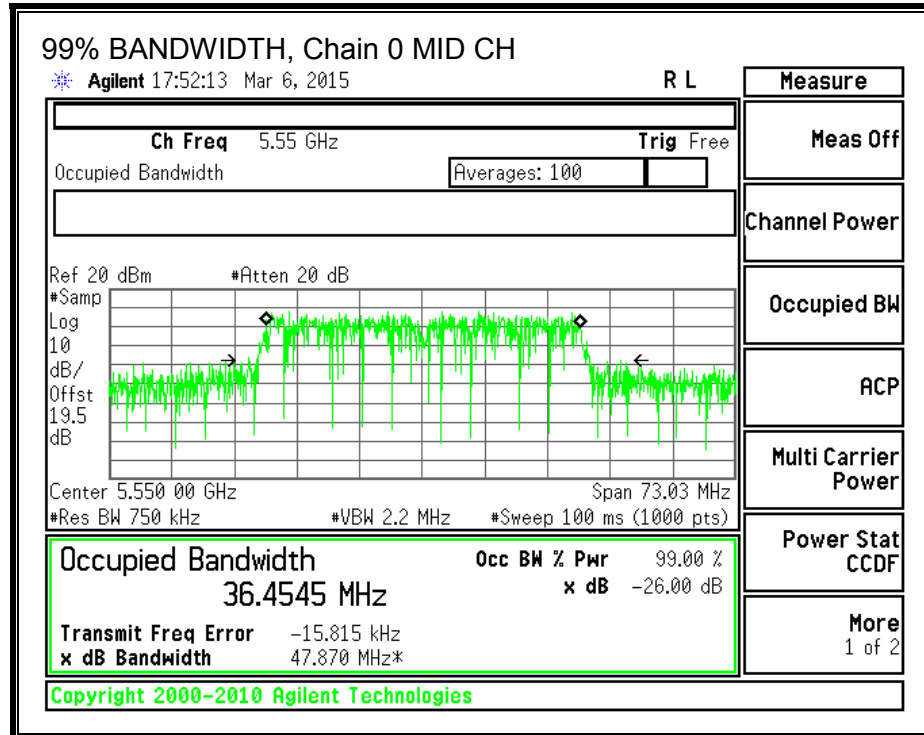
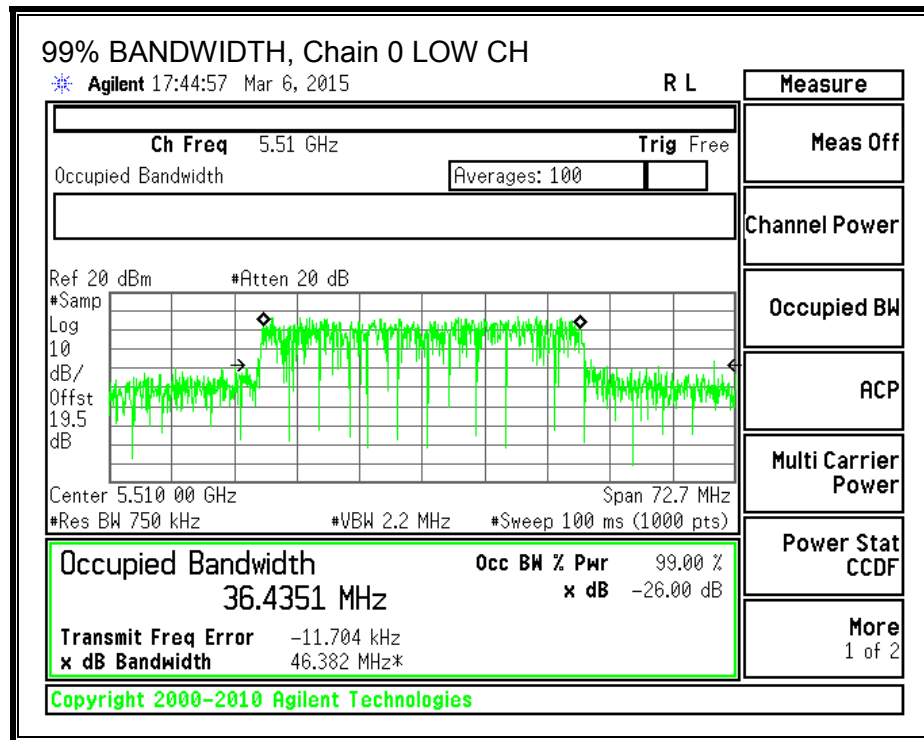
### LIMITS

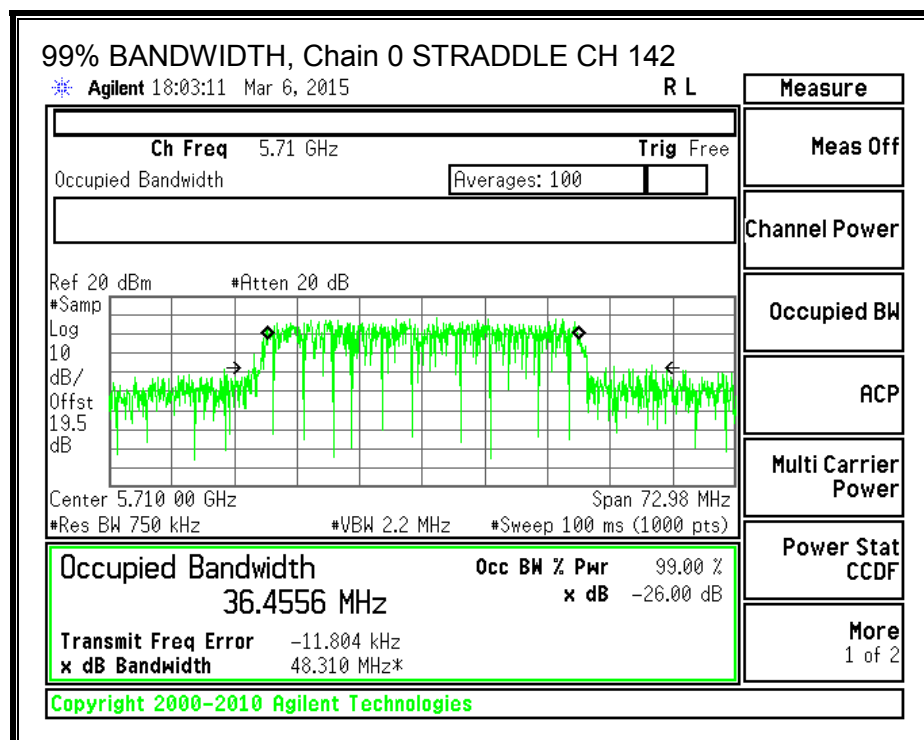
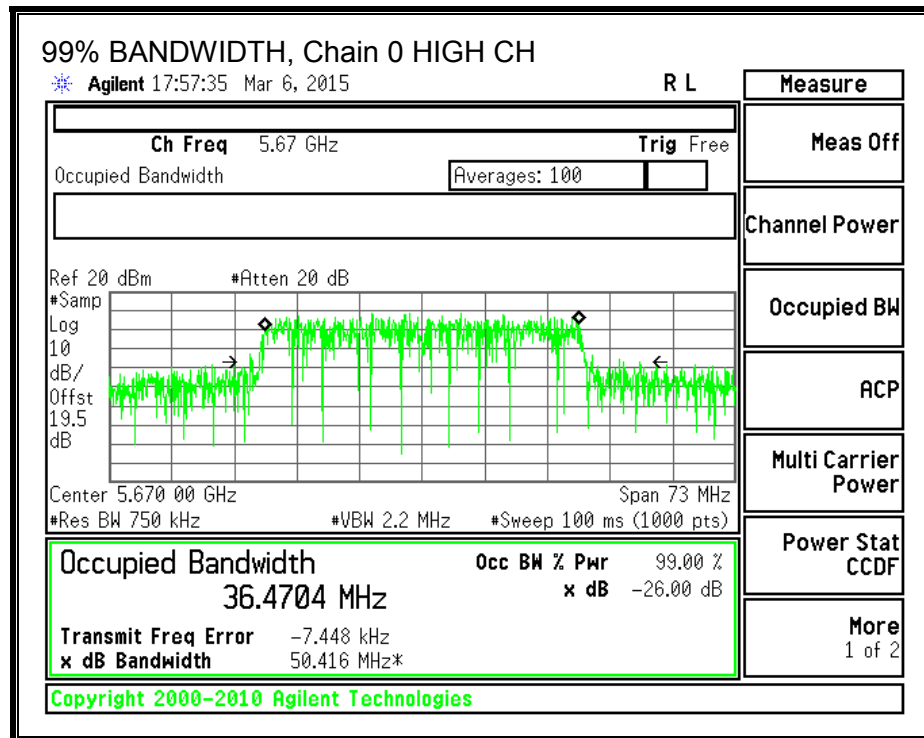
None; for reporting purposes only.

### RESULTS

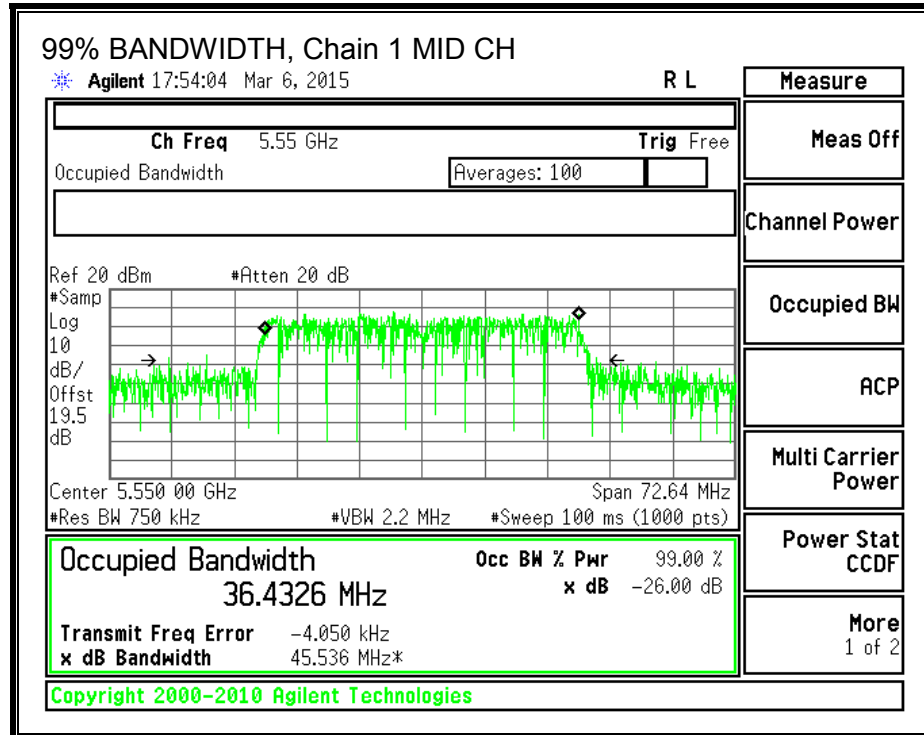
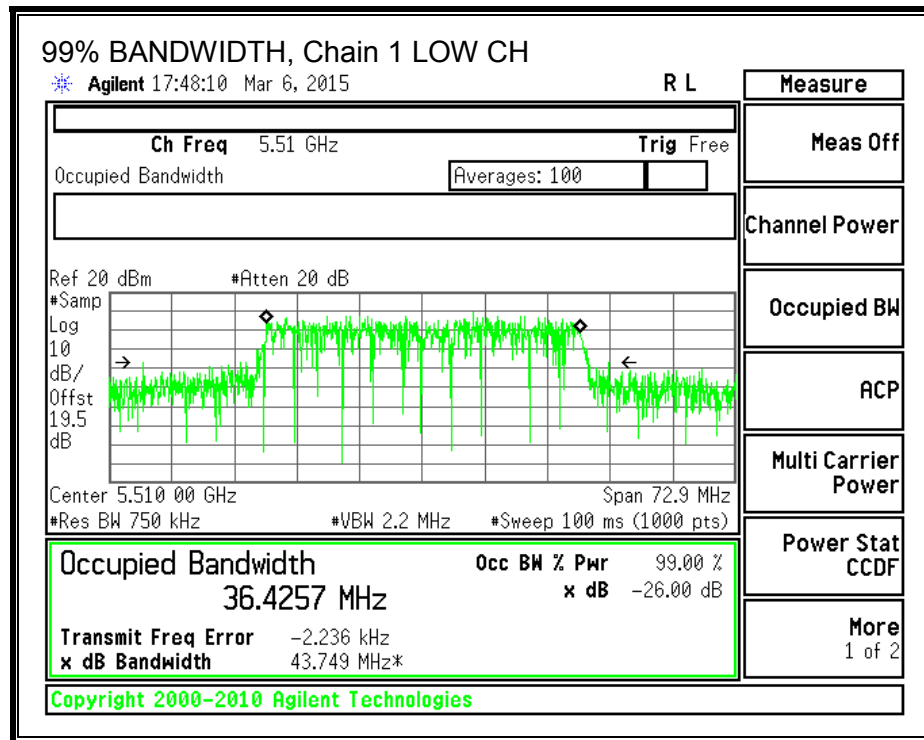
| Channel | Frequency<br>(MHz) | 99% BW<br>Chain 0<br>(MHz) | 99% BW<br>Chain 1<br>(MHz) | 99% BW<br>Chain 2<br>(MHz) |
|---------|--------------------|----------------------------|----------------------------|----------------------------|
| Low     | 5510               | 36.4351                    | 36.4257                    | 36.3987                    |
| Mid     | 5550               | 36.4545                    | 36.4326                    | 36.4222                    |
| High    | 5670               | 36.4704                    | 36.4718                    | 36.4566                    |
| 142     | 5710               | 36.4556                    | 36.3931                    | 36.4306                    |

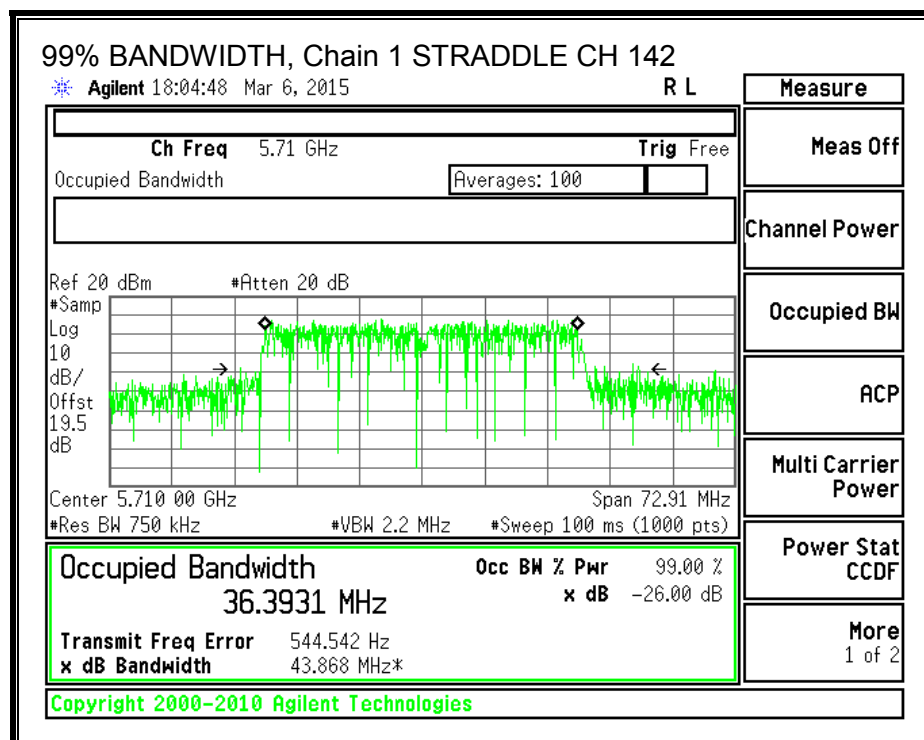
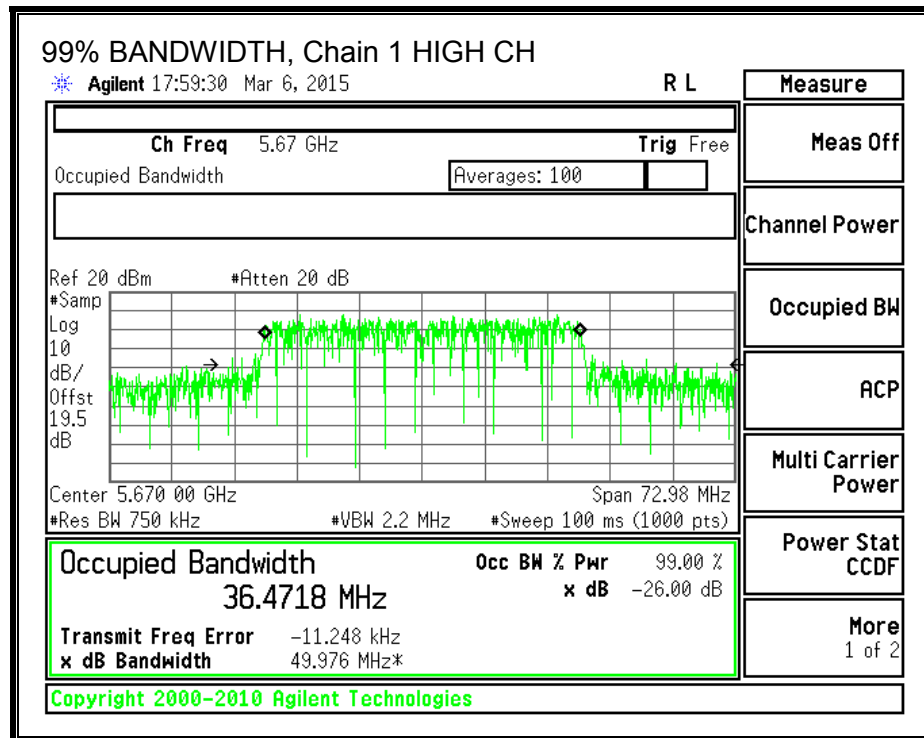
**99% BANDWIDTH, Chain 0**



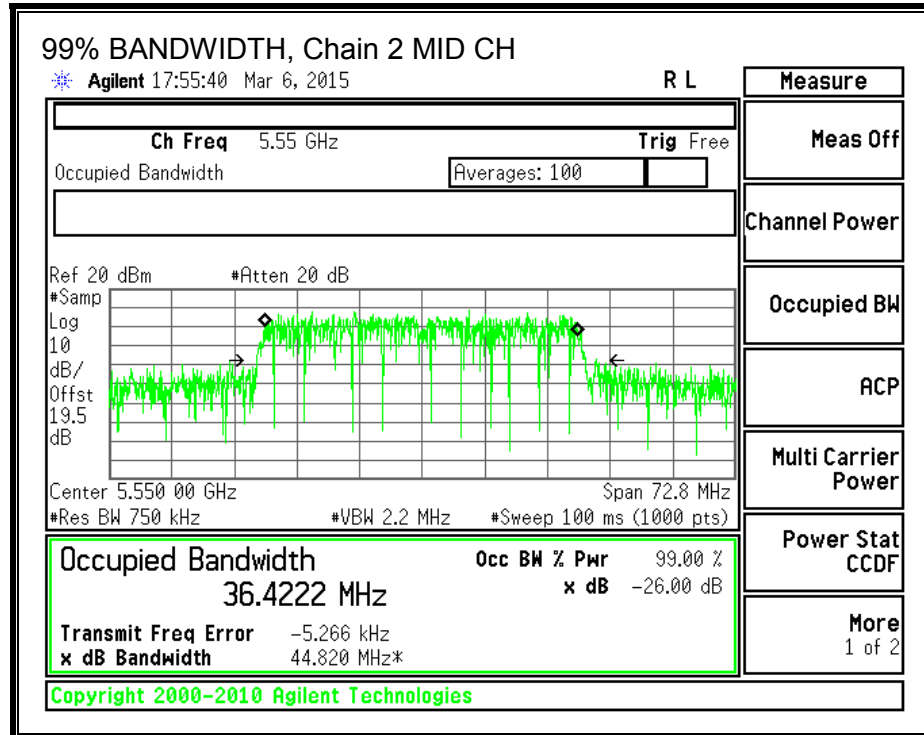
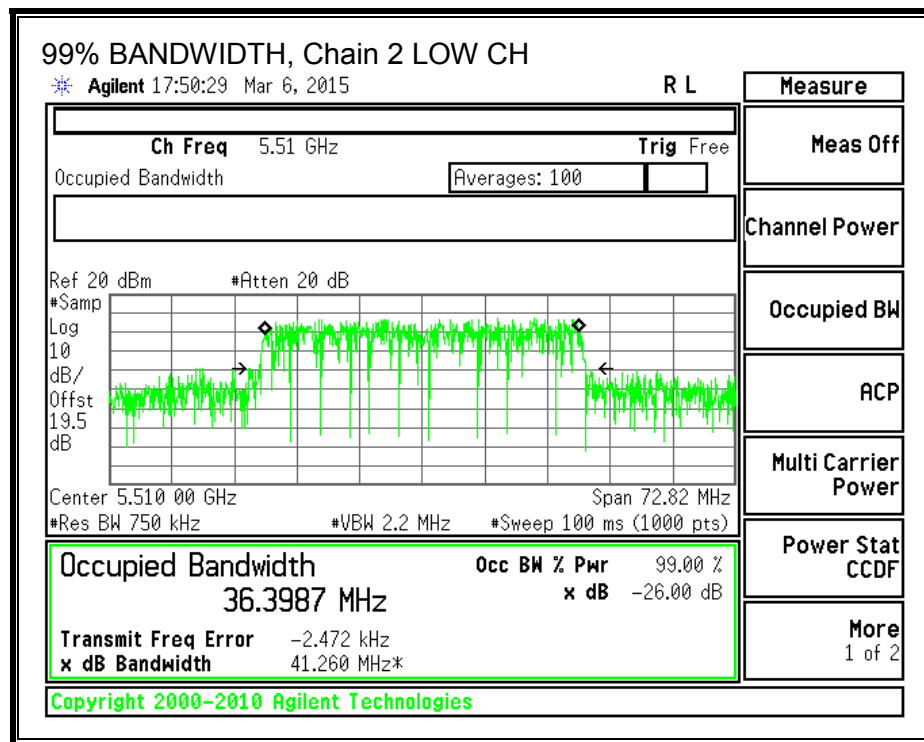


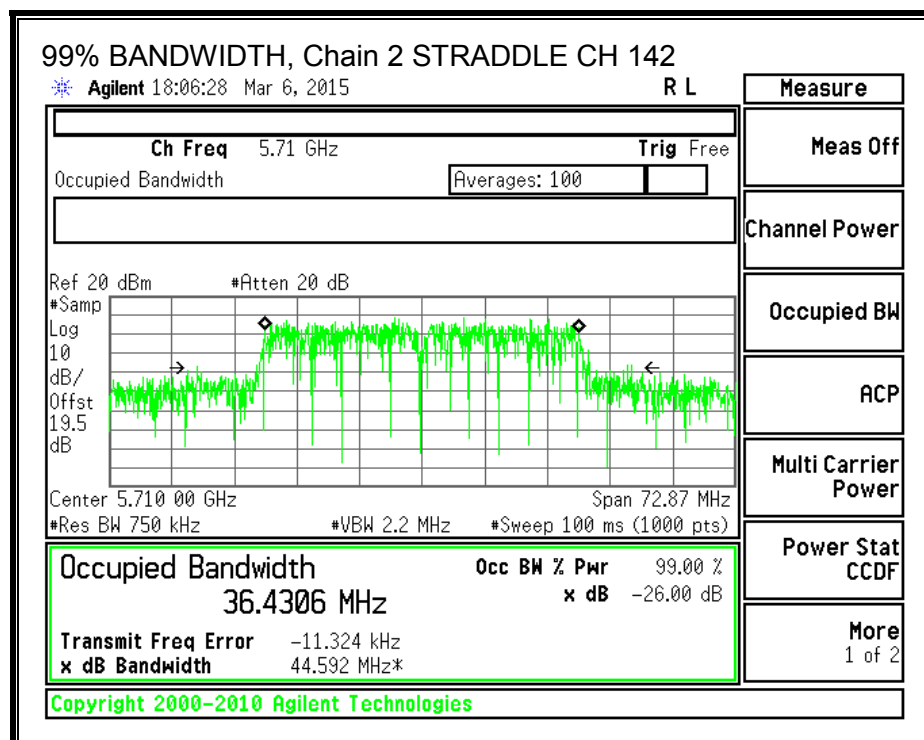
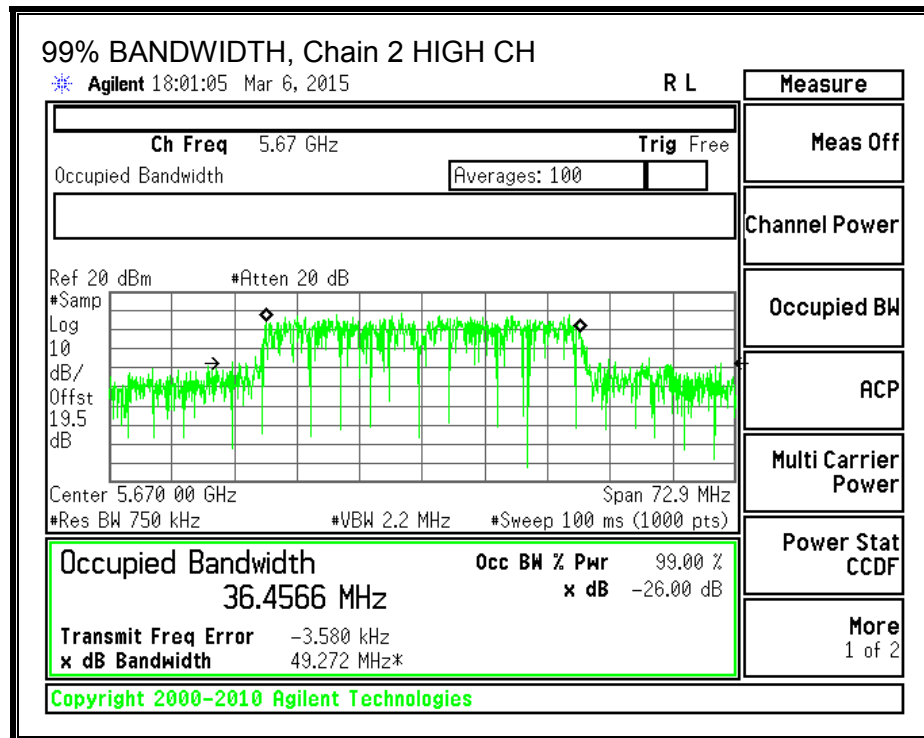
**99% BANDWIDTH, Chain 1**





**99% BANDWIDTH, Chain 2**





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

#### DIRECTIONAL ANTENNA GAIN

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

| Chain 0<br>Antenna<br>Gain<br>(dBi) | Chain 1<br>Antenna<br>Gain<br>(dBi) | Chain 2<br>Antenna<br>Gain<br>(dBi) | Uncorrelated Chains<br>Directional<br>Gain<br>(dBi) |
|-------------------------------------|-------------------------------------|-------------------------------------|-----------------------------------------------------|
| 3.17                                | 2.09                                | 4.72                                | 4.46                                                |

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

| Chain 0<br>Antenna<br>Gain<br>(dBi) | Chain 1<br>Antenna<br>Gain<br>(dBi) | Chain 2<br>Antenna<br>Gain<br>(dBi) | Correlated Chains<br>Directional<br>Gain<br>(dBi) |
|-------------------------------------|-------------------------------------|-------------------------------------|---------------------------------------------------|
| 3.17                                | 2.09                                | 4.72                                | 9.17                                              |

## RESULTS

### Bandwidth, Antenna Gain, and Limits

| Channel | Frequency<br>(MHz) | Min<br>26 dB<br>BW<br>(MHz) | Directional<br>Gain<br>for Power<br>(dBi) | Directional<br>Gain<br>for PSD<br>(dBi) | Power<br>Limit<br>(dBm) | PSD<br>Limit<br>(dBm) |
|---------|--------------------|-----------------------------|-------------------------------------------|-----------------------------------------|-------------------------|-----------------------|
| Low     | 5510               | 50.54                       | 4.46                                      | 9.17                                    | 24.00                   | 7.83                  |
| Mid     | 5550               | 62.39                       | 4.46                                      | 9.17                                    | 24.00                   | 7.83                  |
| High    | 5670               | 50.84                       | 4.46                                      | 9.17                                    | 24.00                   | 7.83                  |

|                    |      |                                        |
|--------------------|------|----------------------------------------|
| Duty Cycle CF (dB) | 0.09 | Included in Calculations of Corr'd PSD |
|--------------------|------|----------------------------------------|

### Output Power Results

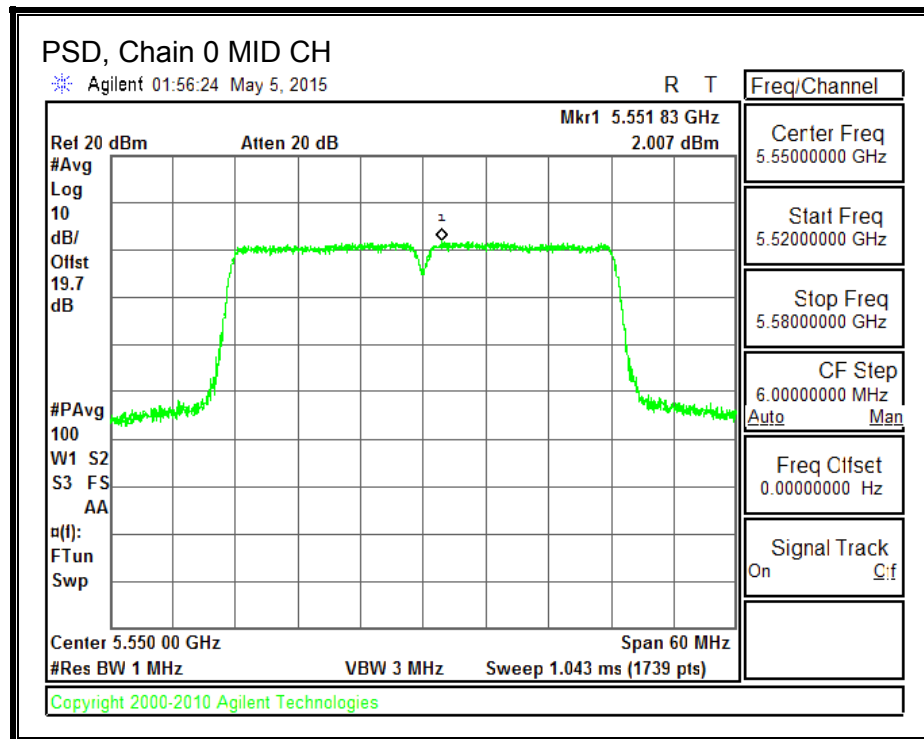
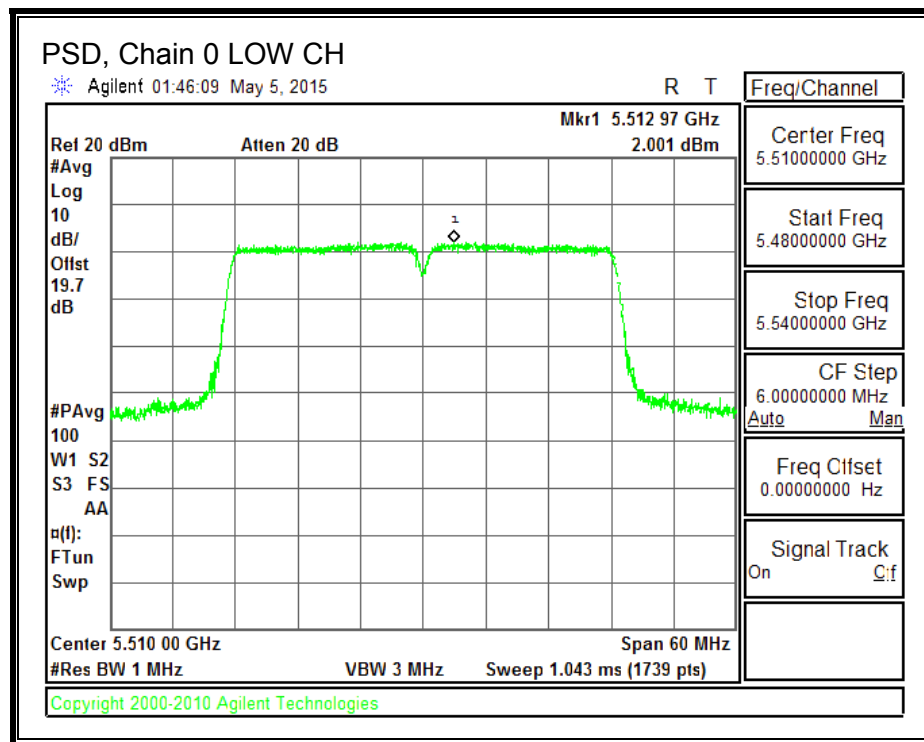
| Channel | Frequency<br>(MHz) | Chain 0<br>Meas<br>Power<br>(dBm) | Chain 1<br>Meas<br>Power<br>(dBm) | Chain 2<br>Meas<br>Power<br>(dBm) | Total<br>Corr'd<br>Power<br>(dBm) | Power<br>Limit<br>(dBm) | Power<br>Margin<br>(dB) |
|---------|--------------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|-------------------------|-------------------------|
| Low     | 5510               | 10.00                             | 9.80                              | 9.70                              | 14.61                             | 24.00                   | -9.39                   |
| Mid     | 5550               | 16.20                             | 16.30                             | 16.10                             | 20.97                             | 24.00                   | -3.03                   |
| High    | 5670               | 15.40                             | 15.60                             | 15.60                             | 20.31                             | 24.00                   | -3.69                   |

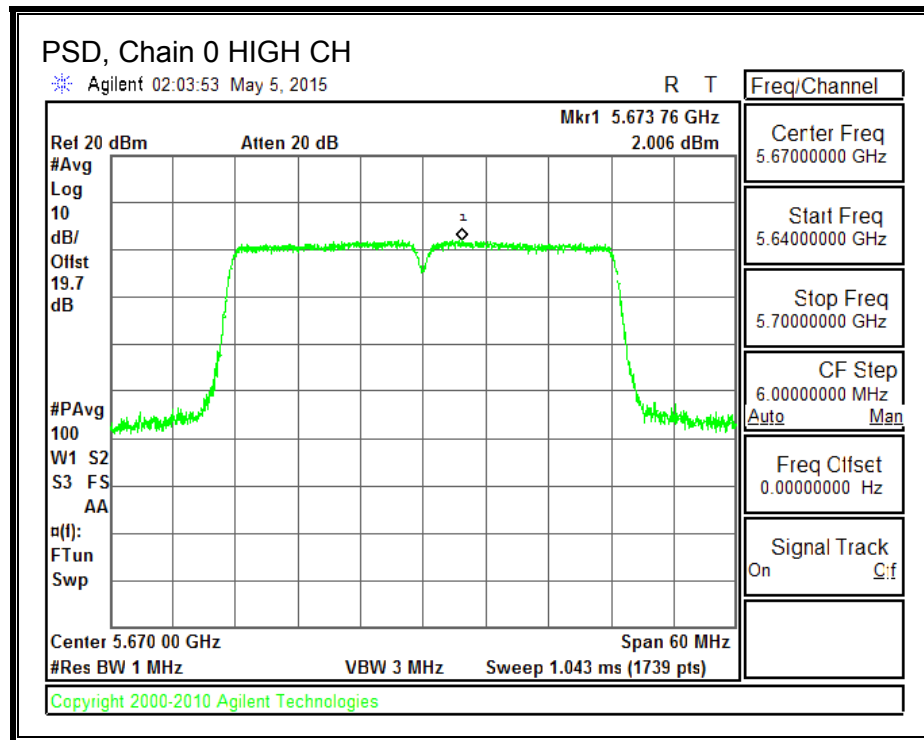
### PSD Results

| Channel | Frequency<br>(MHz) | Chain 0<br>Meas<br>PSD<br>(dBm) | Chain 1<br>Meas<br>PSD<br>(dBm) | Chain 2<br>Meas<br>PSD<br>(dBm) | Total<br>Corr'd<br>PSD<br>(dBm) | PSD<br>Limit<br>(dBm) | PSD<br>Margin<br>(dB) |
|---------|--------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|-----------------------|-----------------------|
| Low     | 5510               | 2.001                           | 2.015                           | 1.892                           | 6.83                            | 7.83                  | -1.00                 |
| Mid     | 5550               | 2.007                           | 2.100                           | 1.728                           | 6.81                            | 7.83                  | -1.02                 |
| High    | 5670               | 2.006                           | 1.933                           | 1.884                           | 6.80                            | 7.83                  | -1.03                 |

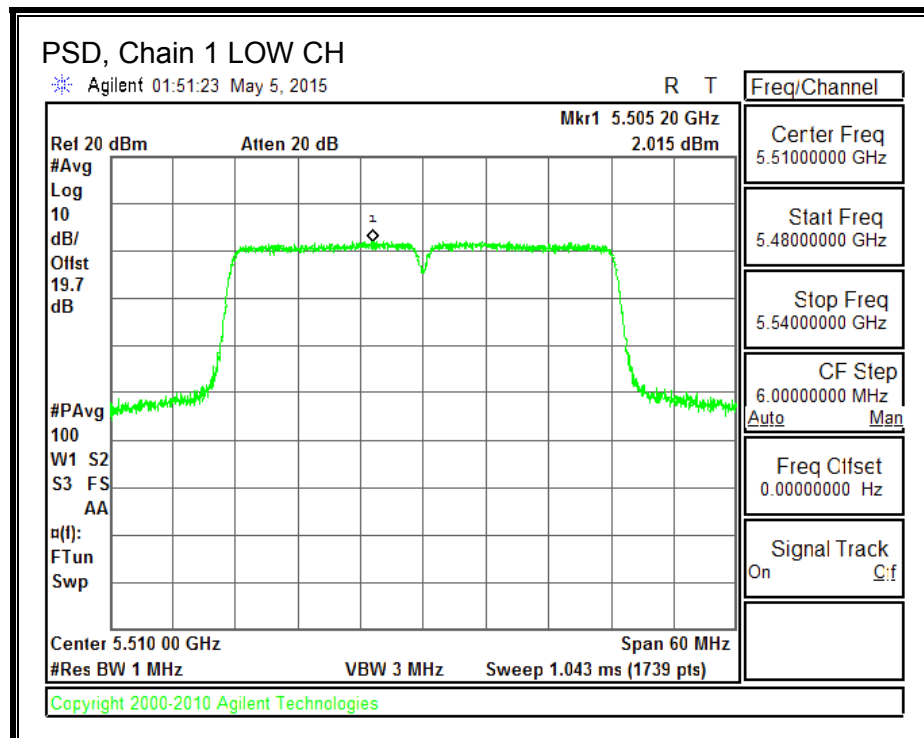
**Note:** the power readings above were measured with gated method, and the measurement was taken only during the ON time. No duty cycle correction was necessary.

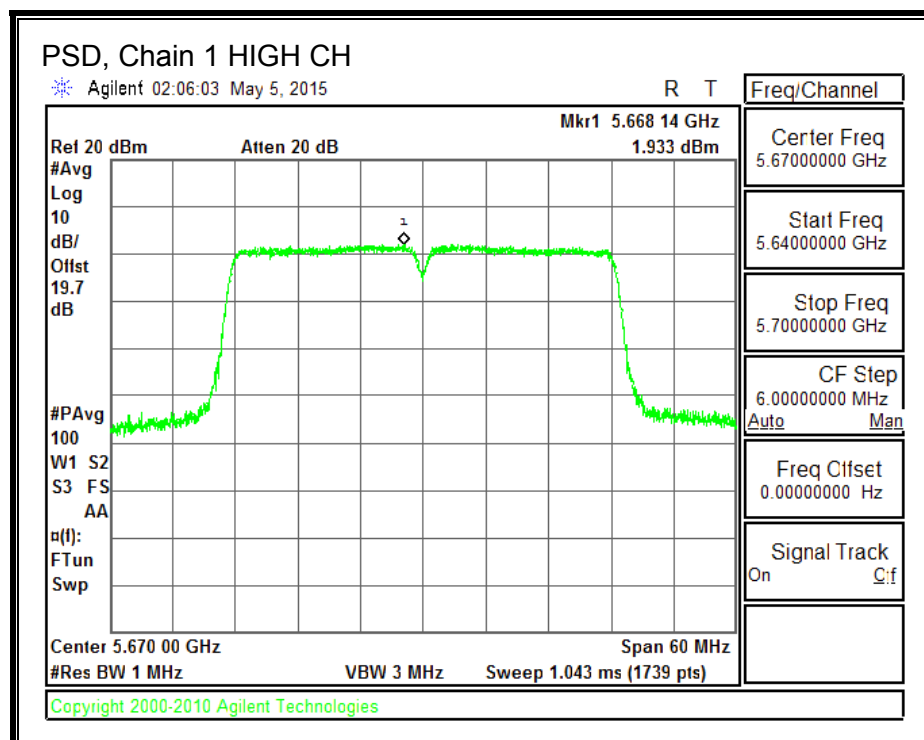
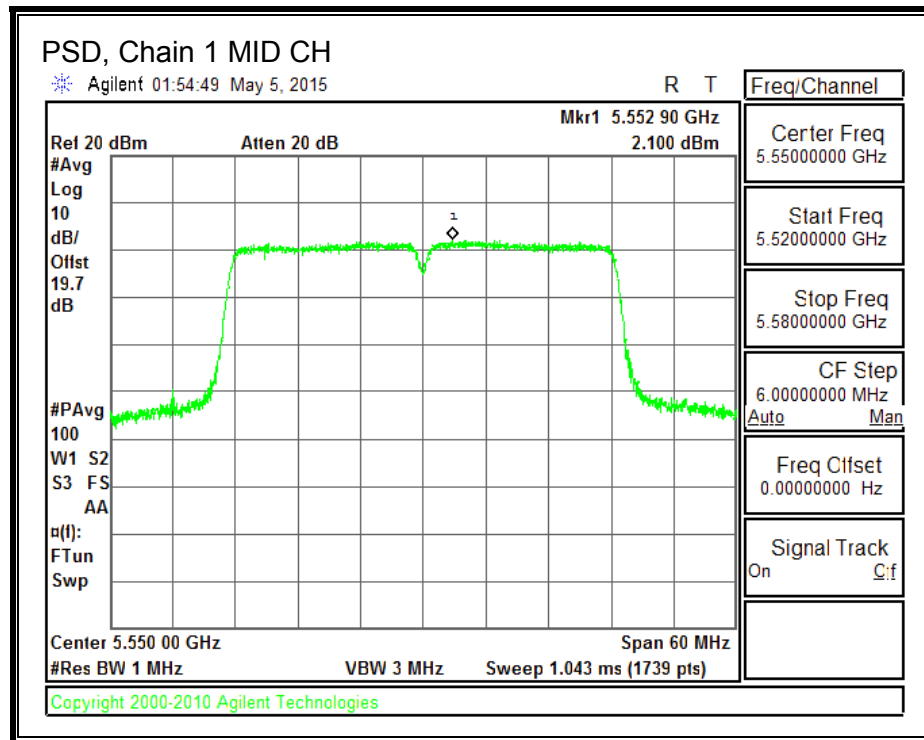
**PSD, Chain 0**



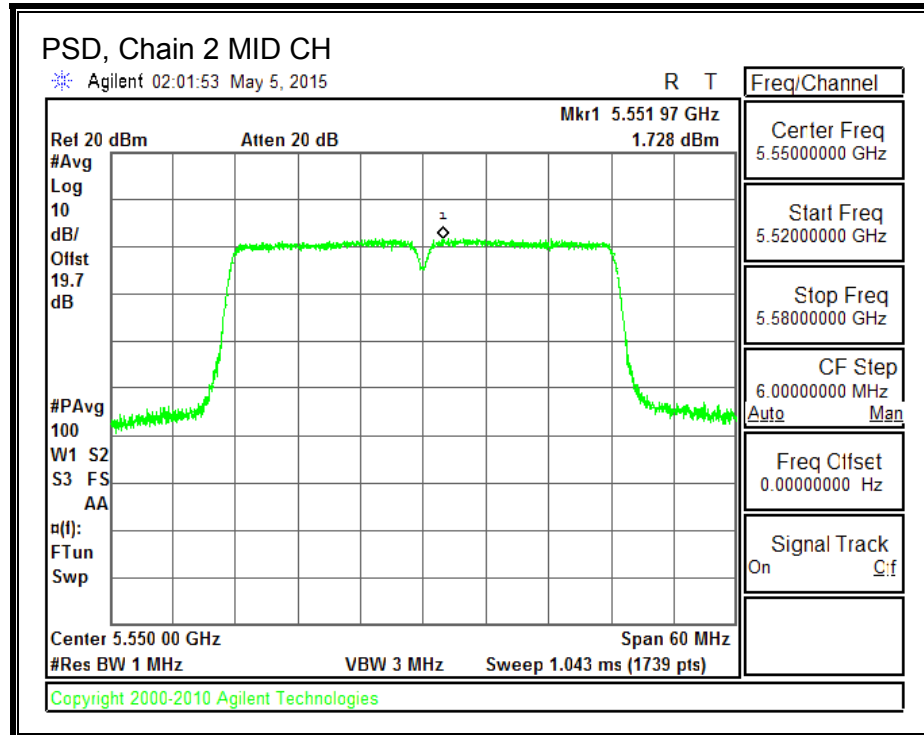
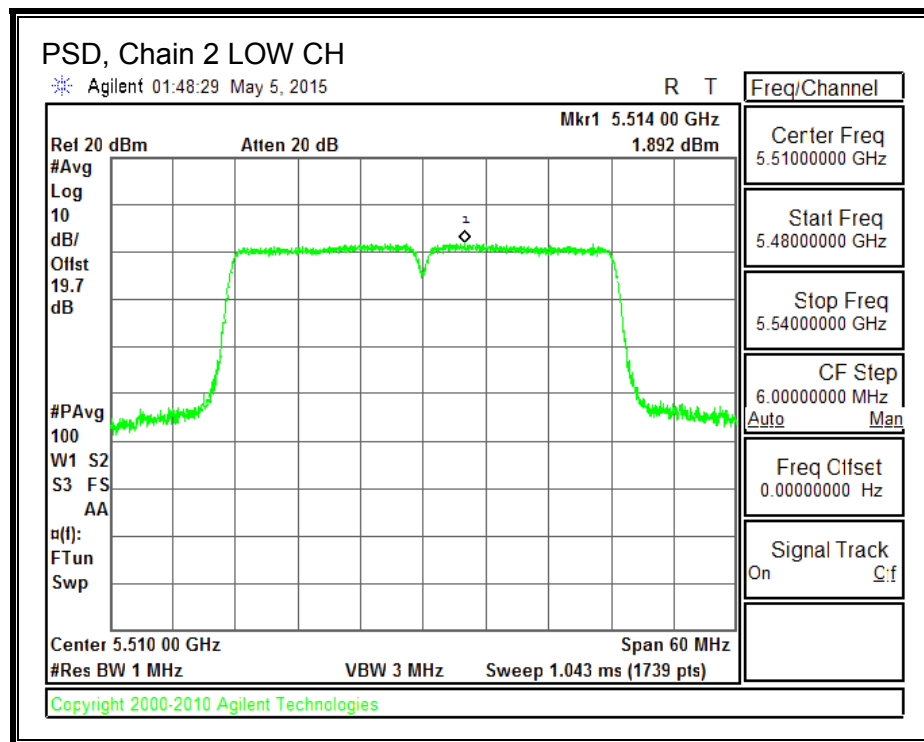


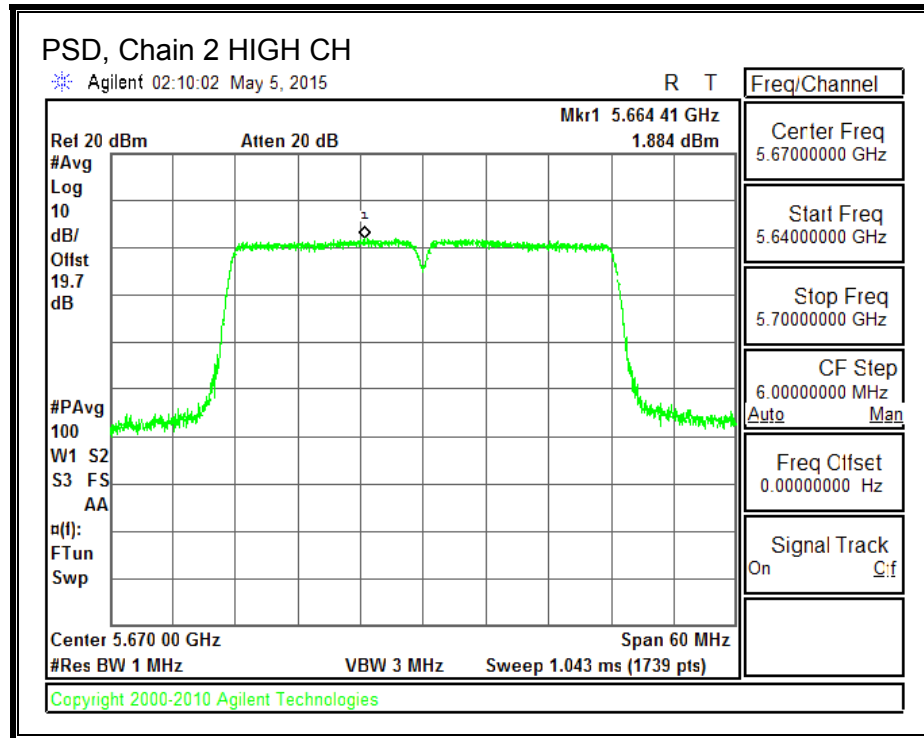
**PSD, Chain 1**





**PSD, Chain 2**





# **STRADDLE CHANNEL 142 RESULTS**

## **UNII-2C BAND**

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

| Channel | Frequency<br>(MHz) | Min<br>26 dB<br>BW<br>(MHz) | Directional<br>Gain<br>for Power<br>(dBi) | Directional<br>Gain<br>for PSD<br>(dBi) | Power<br>Limit<br>(dBm) | PSD<br>Limit<br>(dBm) |
|---------|--------------------|-----------------------------|-------------------------------------------|-----------------------------------------|-------------------------|-----------------------|
| 142     | 5710               | 47.95                       | 5.01                                      | 9.17                                    | 24.00                   | 7.83                  |

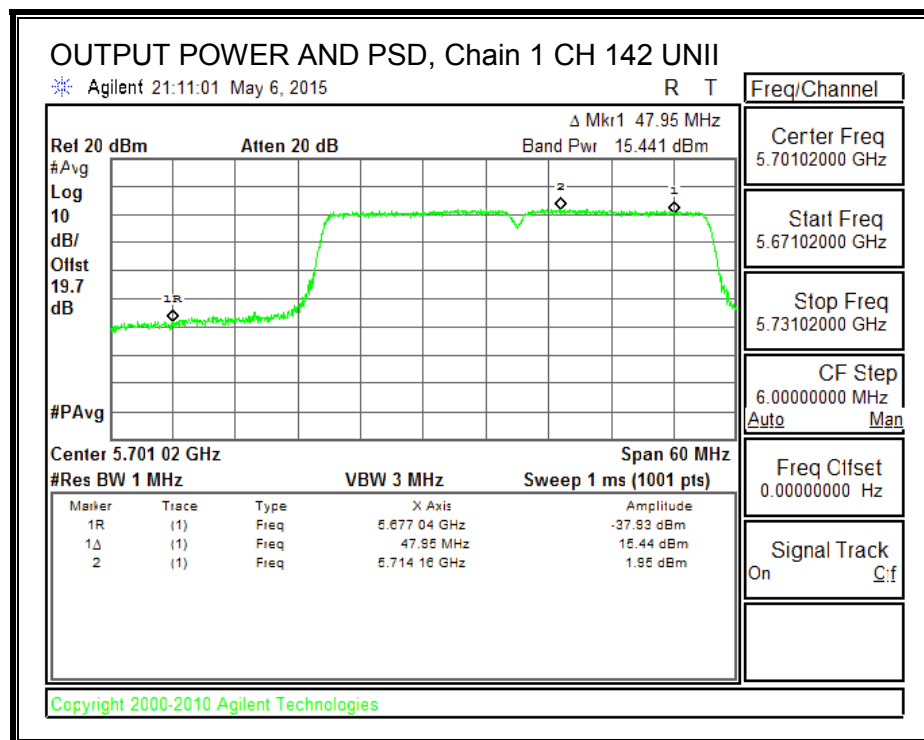
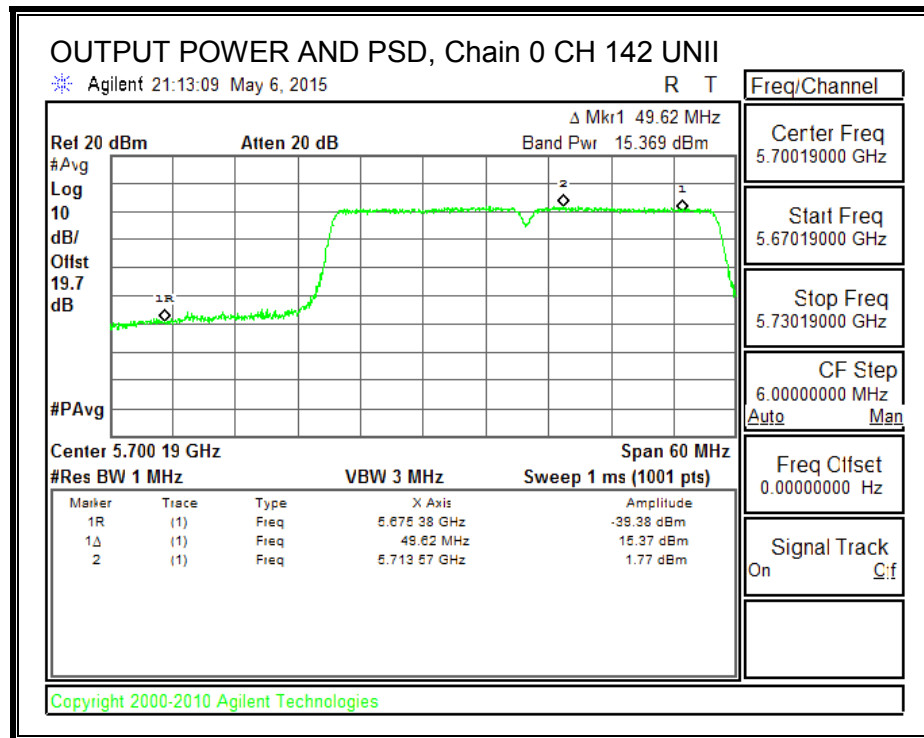
|                    |      |                                                |
|--------------------|------|------------------------------------------------|
| Duty Cycle CF (dB) | 0.09 | Included in Calculations of Corr'd Power & PSD |
|--------------------|------|------------------------------------------------|

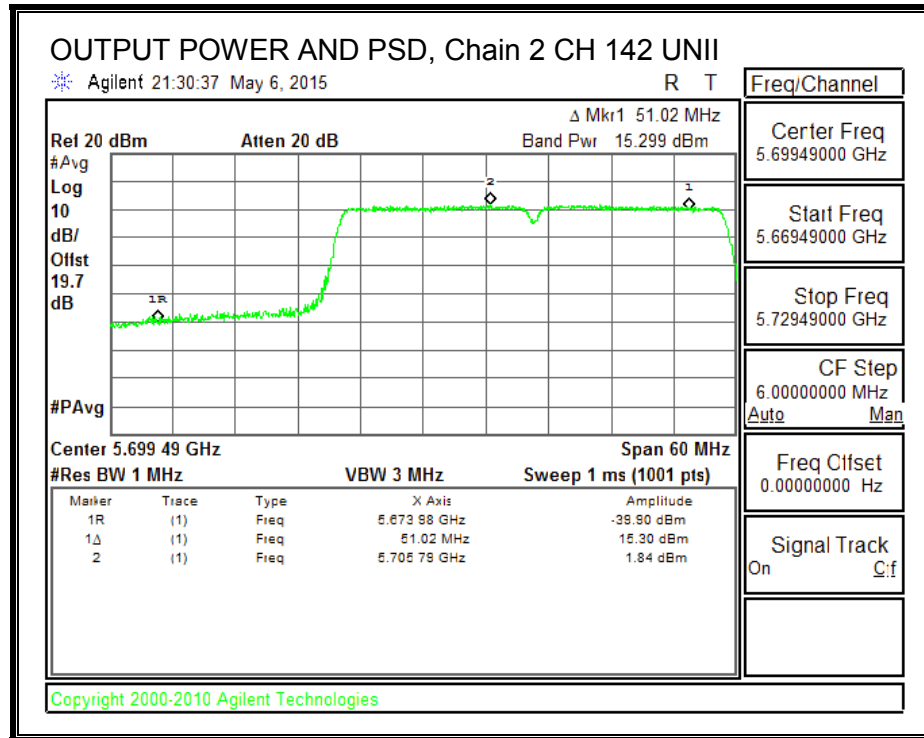
### **Output Power Results**

| Channel | Frequency<br>(MHz) | Chain 0<br>Meas<br>Power<br>(dBm) | Chain 1<br>Meas<br>Power<br>(dBm) | Chain 2<br>Meas<br>Power<br>(dBm) | Total<br>Corr'd<br>Power<br>(dBm) | Power<br>Limit<br>(dBm) | Power<br>Margin<br>(dB) |
|---------|--------------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|-------------------------|-------------------------|
| 142     | 5710               | 15.369                            | 15.441                            | 15.299                            | 20.23                             | 24.00                   | -3.77                   |

### **PSD Results**

| Channel | Frequency<br>(MHz) | Chain 0<br>Meas<br>PSD<br>(dBm) | Chain 1<br>Meas<br>PSD<br>(dBm) | Chain 2<br>Meas<br>PSD<br>(dBm) | Total<br>Corr'd<br>PSD<br>(dBm) | PSD<br>Limit<br>(dBm) | PSD<br>Margin<br>(dB) |
|---------|--------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|-----------------------|-----------------------|
| 142     | 5710               | 1.77                            | 1.95                            | 1.84                            | 6.72                            | 7.83                  | -1.11                 |





**UNII-3 BAND**

**Antenna Gain and Limit**

| Channel | Frequency<br>(MHz) | Directional<br>Gain<br>for Power<br>(dBi) | Directional<br>Gain<br>for PSD<br>(dBi) | Power<br>Limit<br>(dBm) | PSD<br>Limit<br>(dBm) |
|---------|--------------------|-------------------------------------------|-----------------------------------------|-------------------------|-----------------------|
| 142     | 5710               | 4.47                                      | 9.15                                    | 30.00                   | 26.85                 |

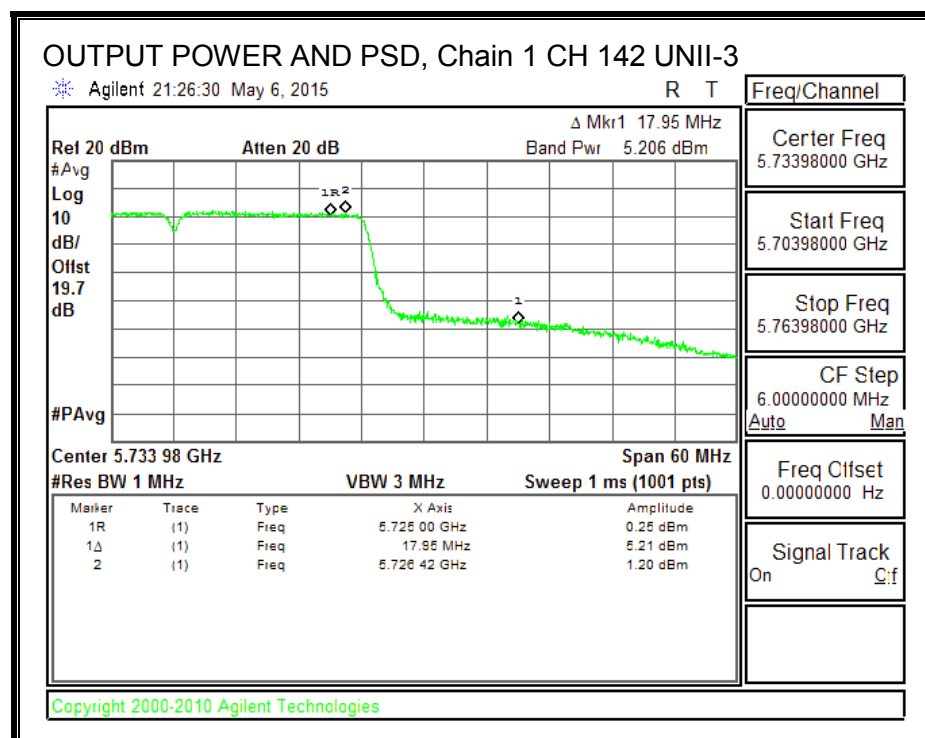
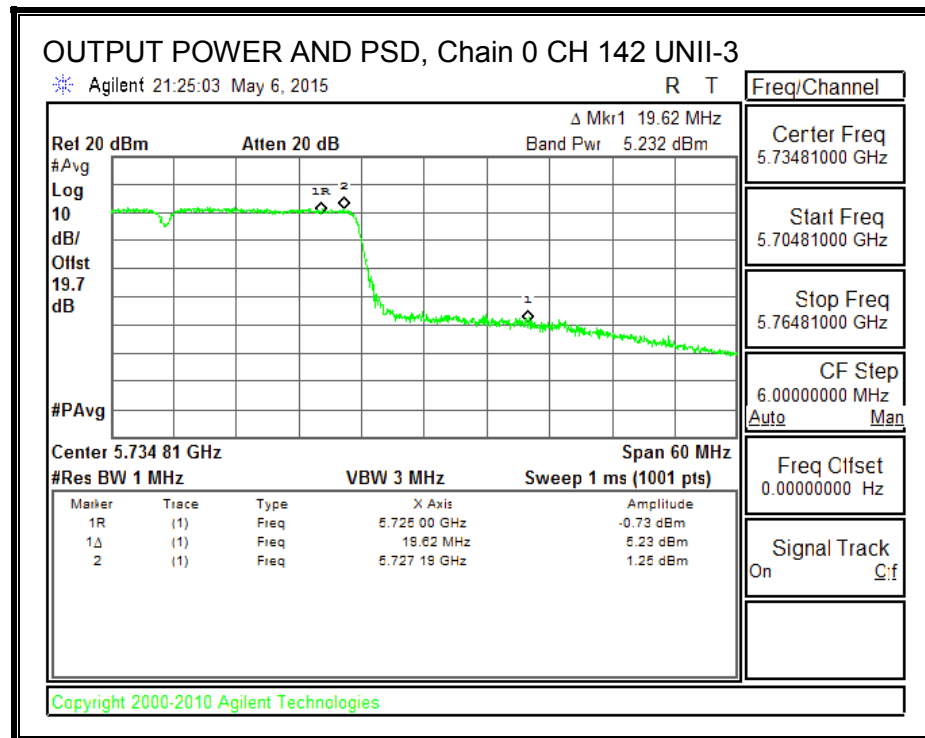
|                    |      |                                                |
|--------------------|------|------------------------------------------------|
| Duty Cycle CF (dB) | 0.09 | Included in Calculations of Corr'd Power & PSD |
|--------------------|------|------------------------------------------------|

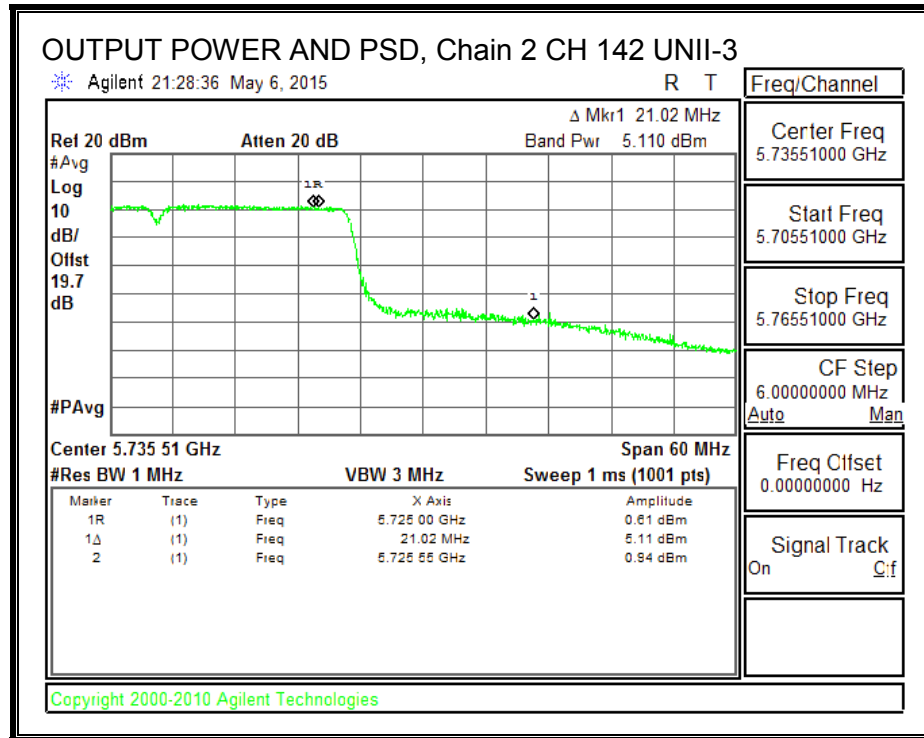
**Output Power Results**

| Channel | Frequency<br>(MHz) | Chain 0<br>Meas<br>Power<br>(dBm) | Chain 1<br>Meas<br>Power<br>(dBm) | Chain 2<br>Meas<br>Power<br>(dBm) | Total<br>Corr'd<br>Power<br>(dBm) | Power<br>Limit<br>(dBm) | Power<br>Margin<br>(dB) |
|---------|--------------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|-------------------------|-------------------------|
| 142     | 5710               | 5.232                             | 5.206                             | 5.110                             | 10.04                             | 30.00                   | -19.96                  |

**PSD Results**

| Channel | Frequency<br>(MHz) | Chain 0<br>Meas<br>PSD<br>(dBm) | Chain 1<br>Meas<br>PSD<br>(dBm) | Chain 2<br>Meas<br>PSD<br>(dBm) | Total<br>Corr'd<br>PSD<br>(dBm) | PSD<br>Limit<br>(dBm) | PSD<br>Margin<br>(dB) |
|---------|--------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|-----------------------|-----------------------|
| 142     | 5710               | 1.25                            | 1.20                            | 0.94                            | 5.99                            | 26.85                 | -20.86                |





#### 8.47.4. AVERAGE OUTPUT POWER (WHOLE FUNDAMENTAL)

##### LIMITS

None; for reporting purposes only.

##### TEST PROCEDURE

The transmitter output is connected to a power meter.

##### RESULTS

###### Output Power Results

| Channel | Frequency<br>(MHz) | Chain 0<br>Meas<br>Power<br>(dBm) | Chain 1<br>Meas<br>Power<br>(dBm) | Chain 2<br>Meas<br>Power<br>(dBm) | Total<br>Corr'd<br>Power<br>(dBm) |
|---------|--------------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|
| 142     | 5710               | 15.70                             | 15.70                             | 15.60                             | 20.44                             |

**Note:** the power readings above were measured with gated method, and the measurement was taken only during the ON time. No duty cycle correction was necessary.

## **8.48. 802.11n HT40 TxBF 3TX MODE IN THE 5.6 GHz BAND**

### **8.48.1. 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.

#### **DIRECTIONAL ANTENNA GAIN**

For Power and PSD, the TX chains are correlated and the antenna gain is unequal among the chains. The directional gain is:

| <b>Chain 0<br/>Antenna<br/>Gain<br/>(dBi)</b> | <b>Chain 1<br/>Antenna<br/>Gain<br/>(dBi)</b> | <b>Chain 2<br/>Antenna<br/>Gain<br/>(dBi)</b> | <b>Correlated Chains<br/>Directional<br/>Gain<br/>(dBi)</b> |
|-----------------------------------------------|-----------------------------------------------|-----------------------------------------------|-------------------------------------------------------------|
| 3.17                                          | 2.09                                          | 4.72                                          | 9.17                                                        |

## RESULTS

### Bandwidth, Antenna Gain, and Limits

| Channel | Frequency<br>(MHz) | Min<br>26 dB<br>BW<br>(MHz) | Directional<br>Gain<br>for Power<br>(dBi) | Directional<br>Gain<br>for PSD<br>(dBi) | Power<br>Limit<br>(dBm) | PSD<br>Limit<br>(dBm) |
|---------|--------------------|-----------------------------|-------------------------------------------|-----------------------------------------|-------------------------|-----------------------|
| Low     | 5510               | 50.54                       | 9.17                                      | 9.17                                    | 20.83                   | 7.83                  |
| Mid     | 5550               | 62.39                       | 9.17                                      | 9.17                                    | 20.83                   | 7.83                  |
| High    | 5670               | 50.84                       | 9.17                                      | 9.17                                    | 20.83                   | 7.83                  |

|                    |      |                                        |
|--------------------|------|----------------------------------------|
| Duty Cycle CF (dB) | 0.09 | Included in Calculations of Corr'd PSD |
|--------------------|------|----------------------------------------|

### Output Power Results

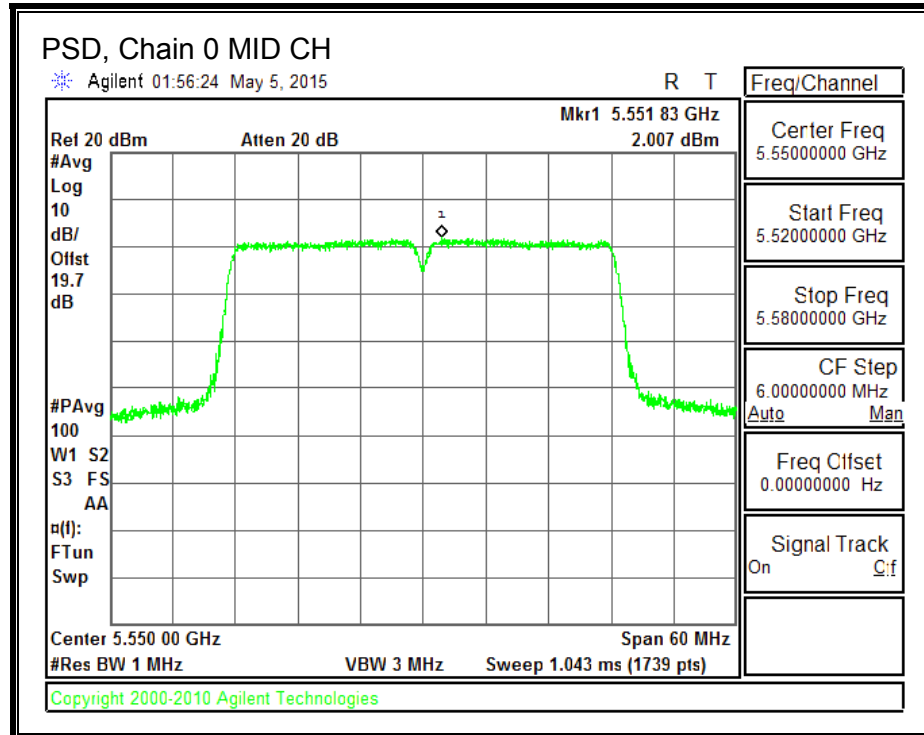
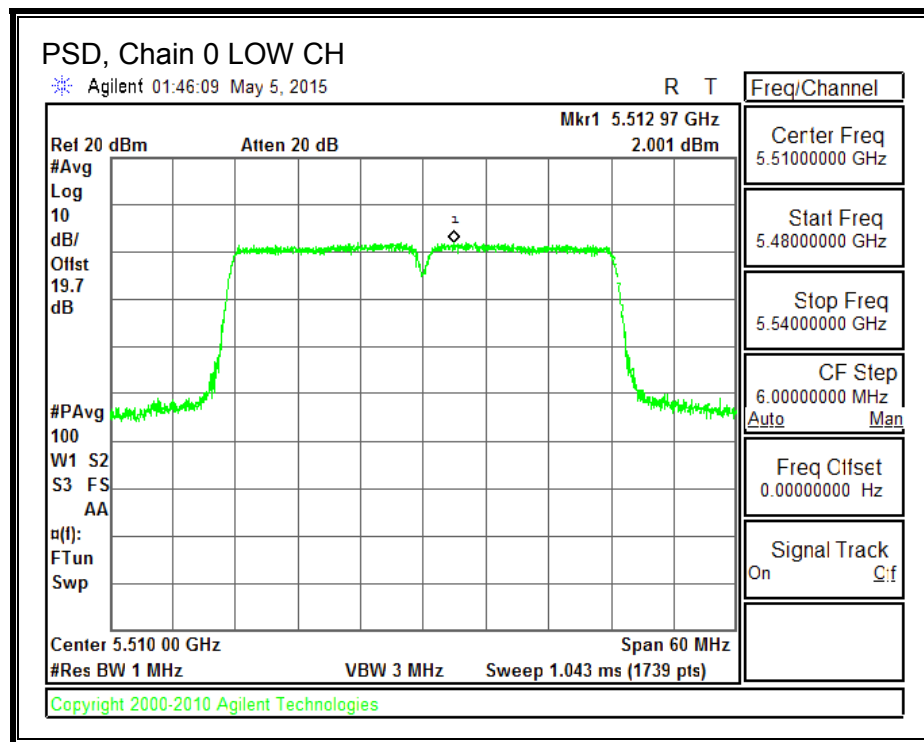
| Channel | Frequency<br>(MHz) | Chain 0<br>Meas<br>Power<br>(dBm) | Chain 1<br>Meas<br>Power<br>(dBm) | Chain 2<br>Meas<br>Power<br>(dBm) | Total<br>Corr'd<br>Power<br>(dBm) | Power<br>Limit<br>(dBm) | Power<br>Margin<br>(dB) |
|---------|--------------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|-------------------------|-------------------------|
| Low     | 5510               | 9.90                              | 9.40                              | 9.70                              | 14.44                             | 20.83                   | -6.39                   |
| Mid     | 5550               | 15.00                             | 14.80                             | 14.80                             | 19.64                             | 20.83                   | -1.19                   |
| High    | 5670               | 14.20                             | 14.00                             | 14.00                             | 18.84                             | 20.83                   | -1.99                   |

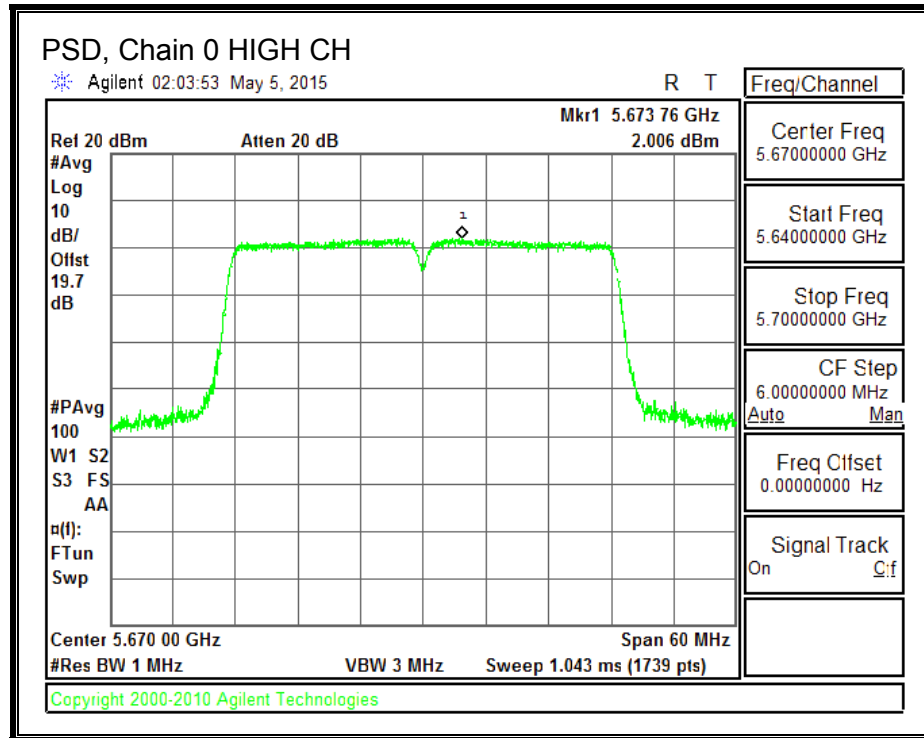
### PSD Results

| Channel | Frequency<br>(MHz) | Chain 0<br>Meas<br>PSD<br>(dBm) | Chain 1<br>Meas<br>PSD<br>(dBm) | Chain 2<br>Meas<br>PSD<br>(dBm) | Total<br>Corr'd<br>PSD<br>(dBm) | PSD<br>Limit<br>(dBm) | PSD<br>Margin<br>(dB) |
|---------|--------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|-----------------------|-----------------------|
| Low     | 5510               | 2.001                           | 2.015                           | 1.892                           | 6.83                            | 7.83                  | -1.00                 |
| Mid     | 5550               | 2.007                           | 2.100                           | 1.728                           | 6.81                            | 7.83                  | -1.02                 |
| High    | 5670               | 2.006                           | 1.933                           | 1.884                           | 6.80                            | 7.83                  | -1.03                 |

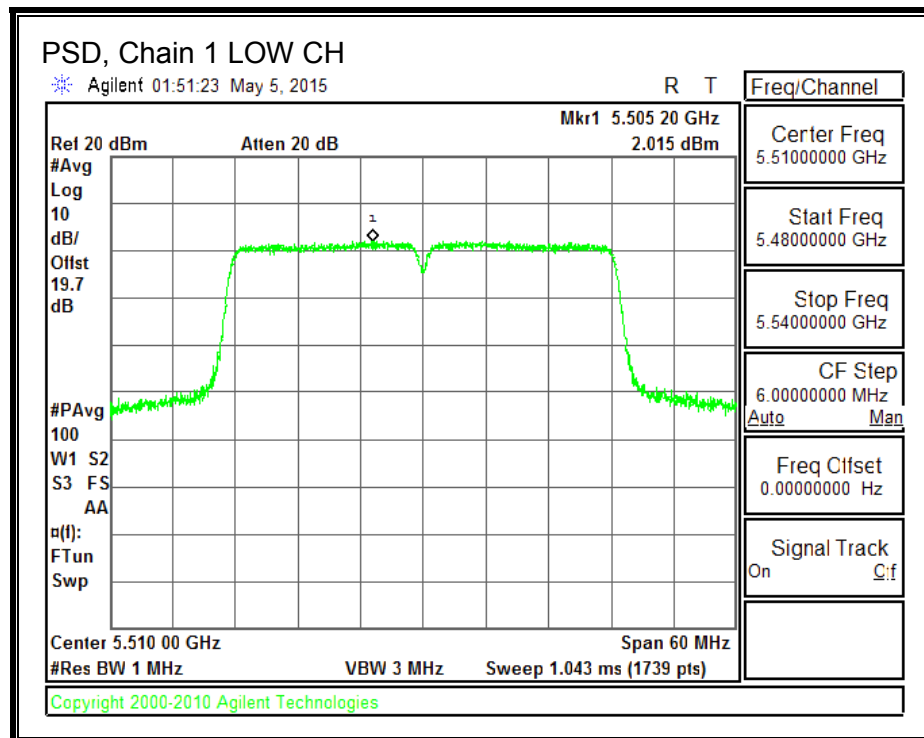
**Note:** the power readings above were measured with gated method, and the measurement was taken only during the ON time. No duty cycle correction was necessary.

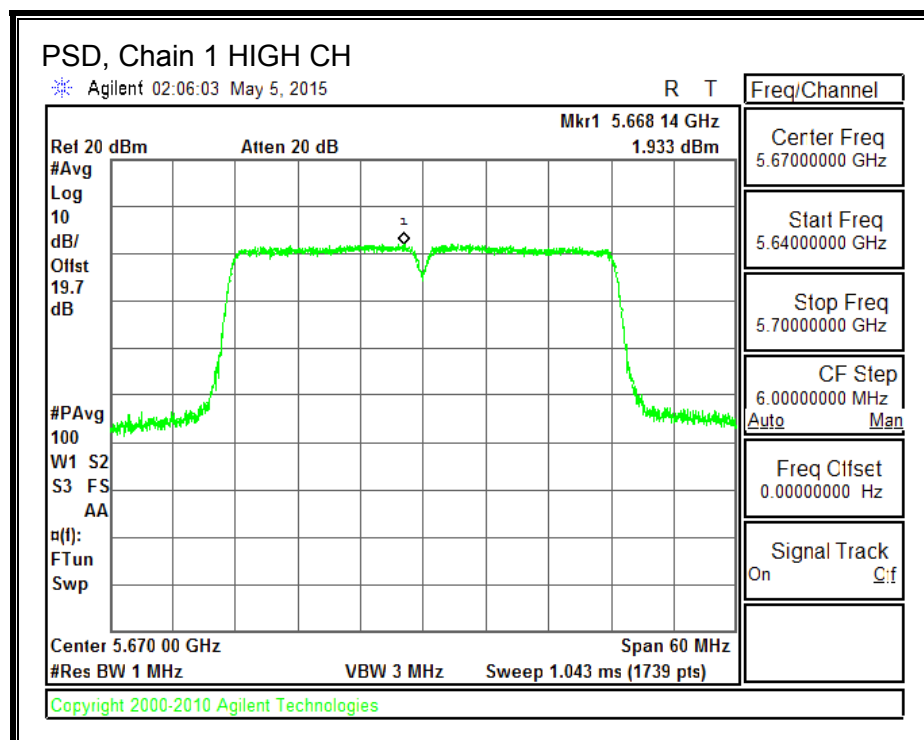
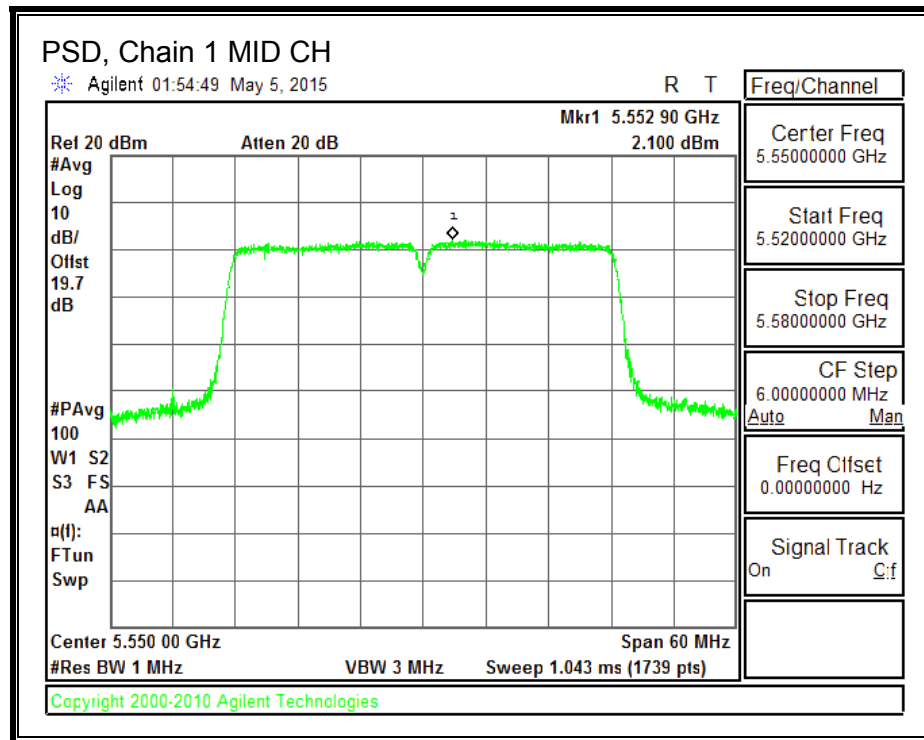
**PSD, Chain 0**



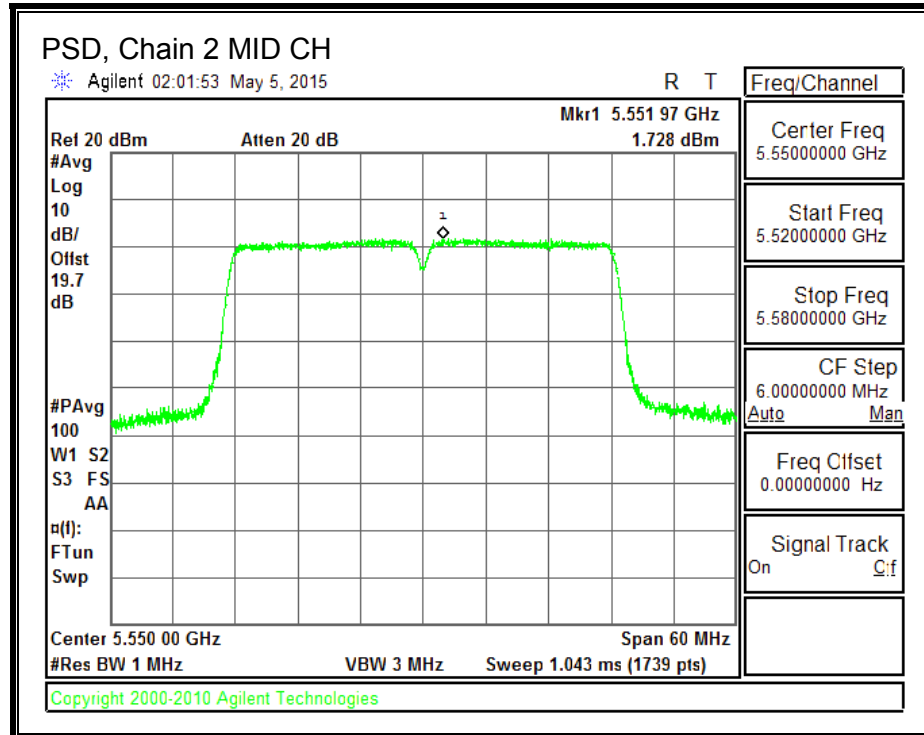
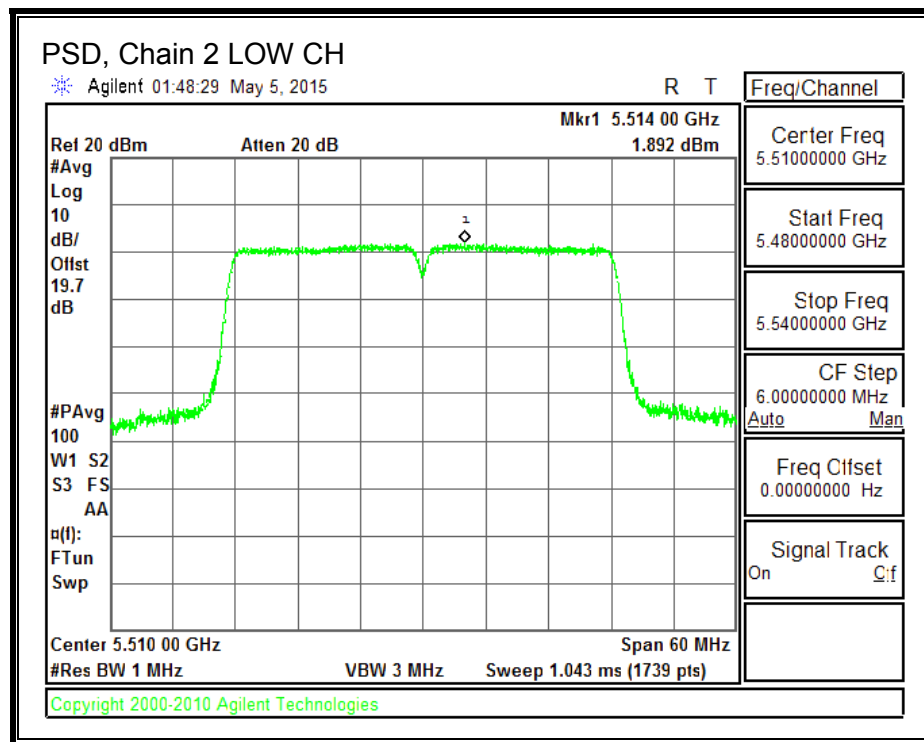


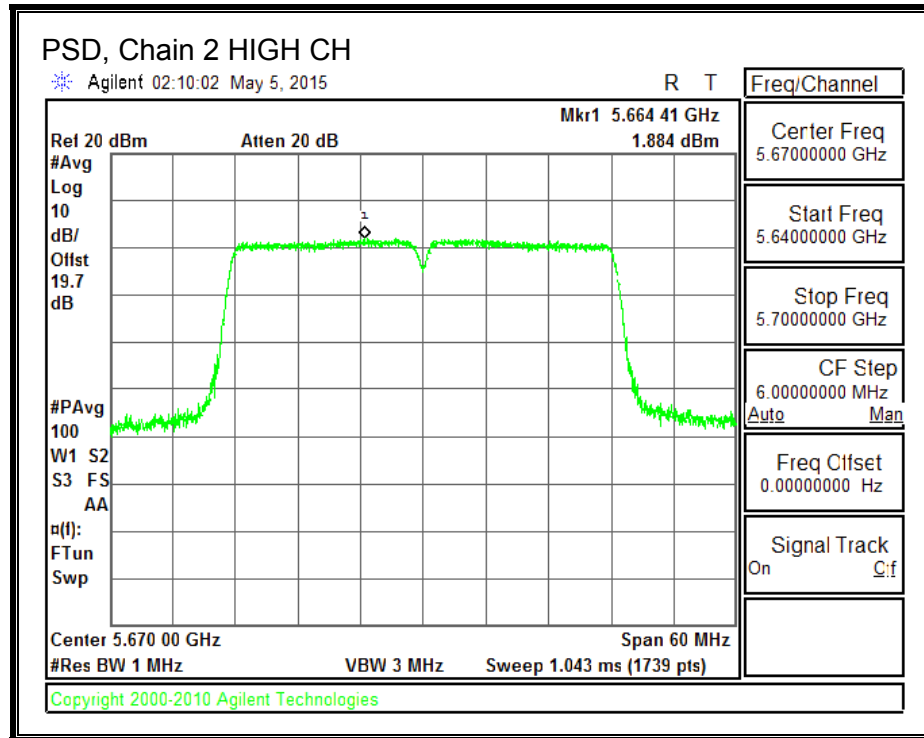
**PSD, Chain 1**





**PSD, Chain 2**





## **STRADDLE CHANNEL 142 RESULTS**

### **UNII-2C BAND**

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

| Channel | Frequency<br>(MHz) | Min<br>26 dB<br>BW<br>(MHz) | Directional<br>Gain<br>for Power<br>(dBi) | Directional<br>Gain<br>for PSD<br>(dBi) | Power<br>Limit<br>(dBm) | PSD<br>Limit<br>(dBm) |
|---------|--------------------|-----------------------------|-------------------------------------------|-----------------------------------------|-------------------------|-----------------------|
| 142     | 5710               | 47.95                       | 9.17                                      | 9.17                                    | 20.83                   | 7.83                  |

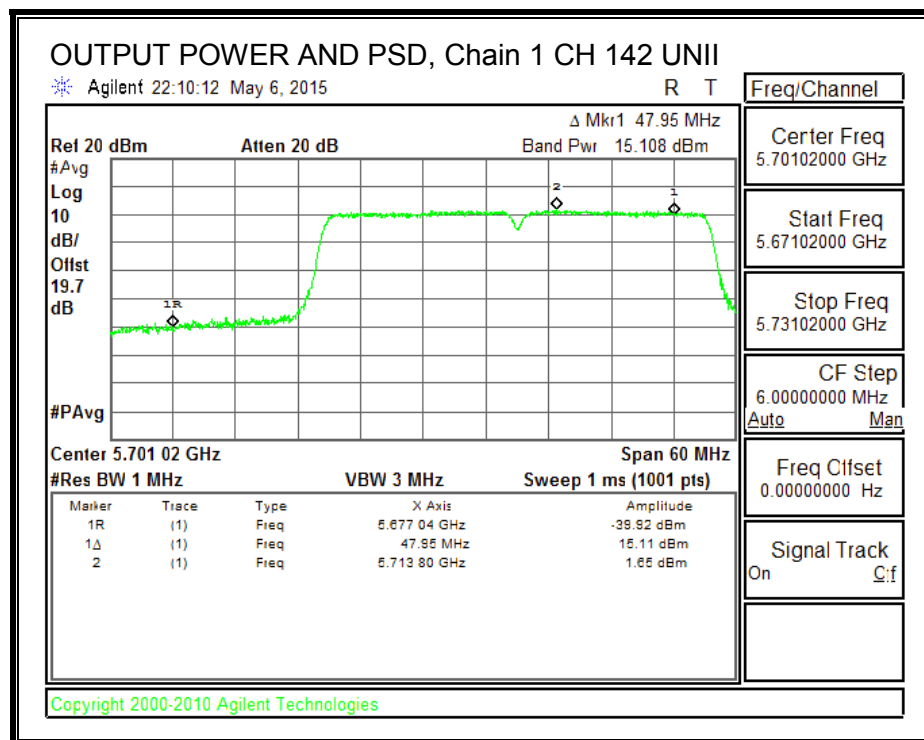
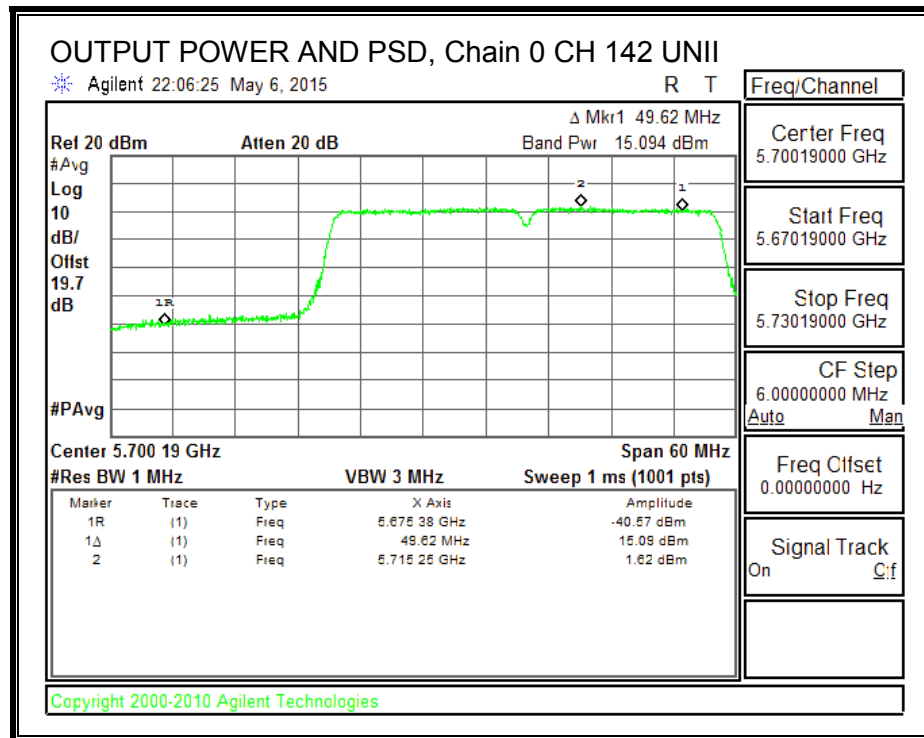
|                    |      |                                                |
|--------------------|------|------------------------------------------------|
| Duty Cycle CF (dB) | 0.09 | Included in Calculations of Corr'd Power & PSD |
|--------------------|------|------------------------------------------------|

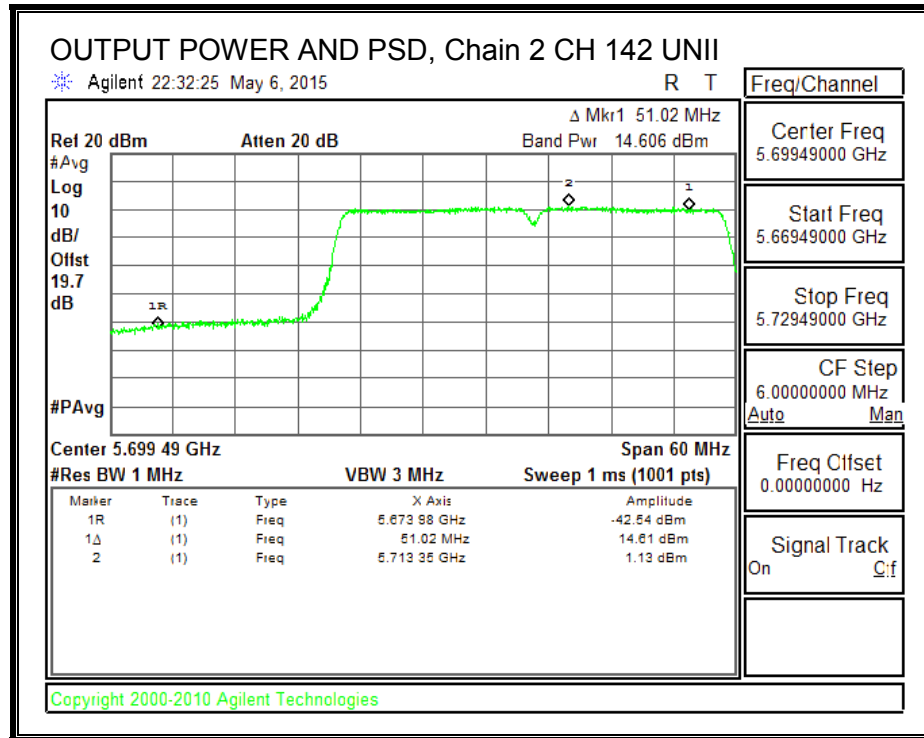
#### **Output Power Results**

| Channel | Frequency<br>(MHz) | Chain 0<br>Meas<br>Power<br>(dBm) | Chain 1<br>Meas<br>Power<br>(dBm) | Chain 2<br>Meas<br>Power<br>(dBm) | Total<br>Corr'd<br>Power<br>(dBm) | Power<br>Limit<br>(dBm) | Power<br>Margin<br>(dB) |
|---------|--------------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|-------------------------|-------------------------|
| 142     | 5710               | 15.094                            | 15.108                            | 14.606                            | 19.803                            | 20.83                   | -1.03                   |

#### **PSD Results**

| Channel | Frequency<br>(MHz) | Chain 0<br>Meas<br>PSD | Chain 1<br>Meas<br>PSD | Chain 2<br>Meas<br>PSD | Total<br>Corr'd<br>PSD<br>(dBm) | PSD<br>Limit<br>(dBm) | PSD<br>Margin<br>(dB) |
|---------|--------------------|------------------------|------------------------|------------------------|---------------------------------|-----------------------|-----------------------|
| 142     | 5710               | 1.62                   | 1.65                   | 1.13                   | 6.33                            | 7.83                  | -1.50                 |





**UNII-3 BAND**

**Antenna Gain and Limit**

| Channel | Frequency<br>(MHz) | Directional<br>Gain<br>for Power<br>(dBi) | Directional<br>Gain<br>for PSD<br>(dBi) | Power<br>Limit<br>(dBm) | PSD<br>Limit<br>(dBm) |
|---------|--------------------|-------------------------------------------|-----------------------------------------|-------------------------|-----------------------|
| 142     | 5710               | 9.15                                      | 9.15                                    | 26.85                   | 26.85                 |

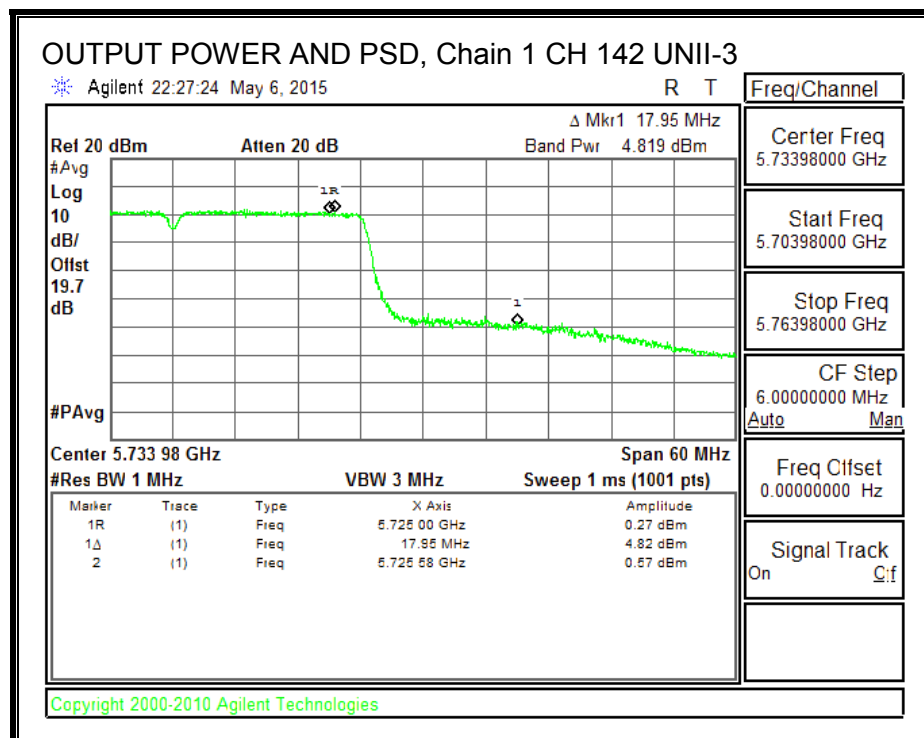
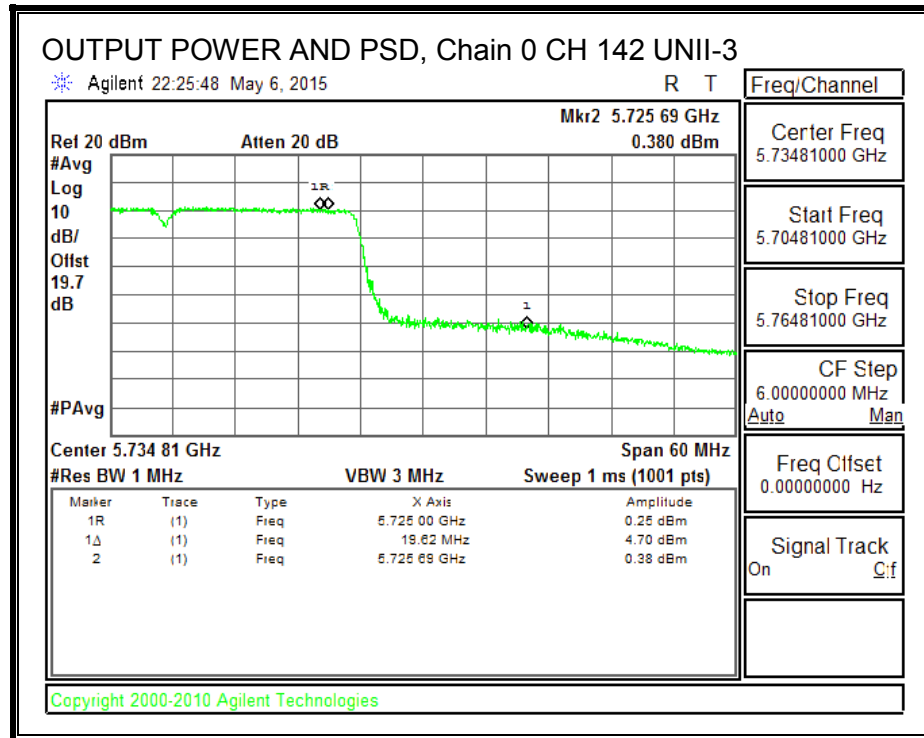
|                           |      |                                                           |
|---------------------------|------|-----------------------------------------------------------|
| <b>Duty Cycle CF (dB)</b> | 0.09 | <b>Included in Calculations of Corr'd Power &amp; PSD</b> |
|---------------------------|------|-----------------------------------------------------------|

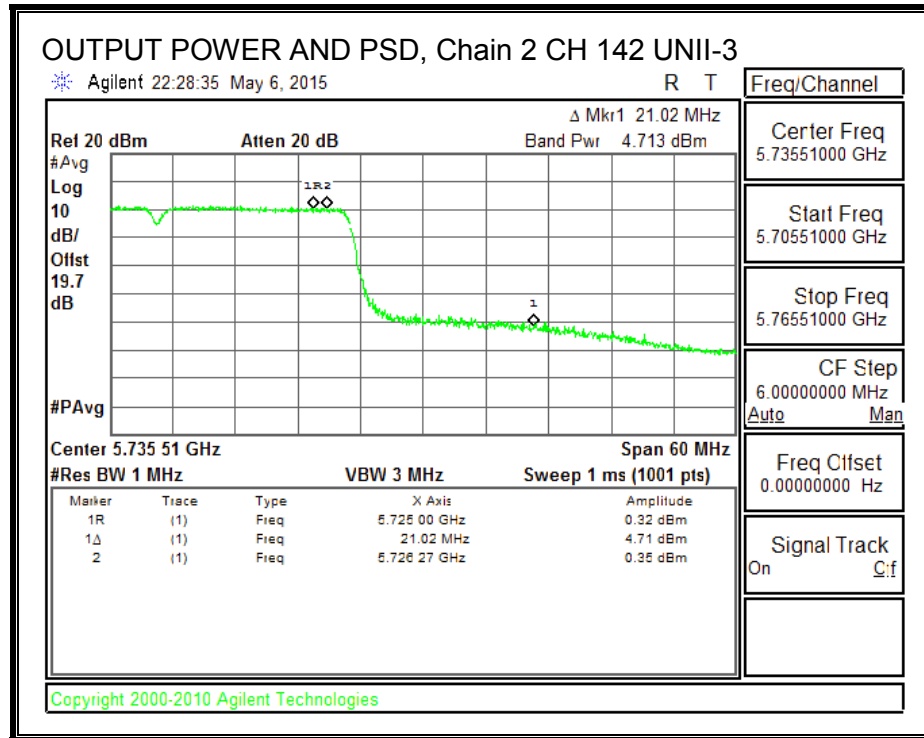
**Output Power Results**

| Channel | Frequency<br>(MHz) | Chain 0<br>Meas<br>Power<br>(dBm) | Chain 1<br>Meas<br>Power<br>(dBm) | Chain 2<br>Meas<br>Power<br>(dBm) | Total<br>Corr'd<br>Power<br>(dBm) | Power<br>Limit<br>(dBm) | Power<br>Margin<br>(dB) |
|---------|--------------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|-------------------------|-------------------------|
| 142     | 5710               | 4.700                             | 4.819                             | 4.713                             | 9.606                             | 26.85                   | -17.24                  |

**PSD Results**

| Channel | Frequency<br>(MHz) | Chain 0<br>Meas<br>PSD<br>(dBm) | Chain 1<br>Meas<br>PSD<br>(dBm) | Chain 2<br>Meas<br>PSD<br>(dBm) | Total<br>Corr'd<br>PSD<br>(dBm) | PSD<br>Limit<br>(dBm) | PSD<br>Margin<br>(dB) |
|---------|--------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|-----------------------|-----------------------|
| 142     | 5710               | 0.38                            | 0.57                            | 0.35                            | 5.30                            | 26.85                 | -21.55                |





## 8.48.2. AVERAGE OUTPUT POWER (WHOLE FUNDAMENTAL)

### LIMITS

None; for reporting purposes only.

### TEST PROCEDURE

The transmitter output is connected to a power meter.

### RESULTS

#### Output Power Results

| Channel | Frequency<br>(MHz) | Chain 0<br>Meas<br>Power<br>(dBm) | Chain 1<br>Meas<br>Power<br>(dBm) | Chain 2<br>Meas<br>Power<br>(dBm) | Total<br>Corr'd<br>Power<br>(dBm) |
|---------|--------------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|
| 142     | 5710               | 15.30                             | 15.30                             | 14.90                             | 19.94                             |

**Note:** the power readings above were measured with gated method, and the measurement was taken only during the ON time. No duty cycle correction was necessary.

## **8.49. 802.11ac VHT80 1TX MODE IN THE 5.6 GHz BAND**

### **8.49.1. OUTPUT POWER**

#### **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.

#### **DIRECTIONAL ANTENNA GAIN**

This is SISO mode, AG is the highest (worst-case) = 5.72 dBi

## **RESULTS**

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

| Channel | Frequency<br>(MHz) | Min<br>26 dB<br>BW<br>(MHz) | Directional<br>Gain<br>(dBi) | Power<br>Limit<br>(dBm) | PSD<br>Limit<br>(dBm) |
|---------|--------------------|-----------------------------|------------------------------|-------------------------|-----------------------|
| Low     | 5530               | 116.22                      | 5.72                         | 24.00                   | 11.00                 |
| Mid     | 5610               | 109.35                      | 5.72                         | 24.00                   | 11.00                 |

### **Output Power Results**

| Channel | Frequency<br>(MHz) | Chain 0<br>Meas<br>Power<br>(dBm) | Total<br>Corr'd<br>Power<br>(dBm) | Power<br>Limit<br>(dBm) | Power<br>Margin<br>(dB) |
|---------|--------------------|-----------------------------------|-----------------------------------|-------------------------|-------------------------|
| Low     | 5530               | 9.20                              | 9.20                              | 24.00                   | -14.80                  |
| Mid     | 5610               | 17.50                             | 17.50                             | 24.00                   | -6.50                   |

**Note:** for Chain 0, 26dB data & plots, see section 11ac HT80 CDD 3TX MODE IN THE 5.6 GHz BAND.

**Note:** the power readings above were measured with gated method, and the measurement was taken only during the ON time. No duty cycle correction was necessary.

## **8.50. 802.11n VHT80 CDD 2TX MODE IN THE 5.6 GHz BAND**

### **8.50.1. 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.

#### **DIRECTIONAL ANTENNA GAIN**

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

| <b>Chain 0<br/>Antenna<br/>Gain<br/>(dBi)</b> | <b>Chain 1<br/>Antenna<br/>Gain<br/>(dBi)</b> | <b>Uncorrelated Chains<br/>Directional<br/>Gain<br/>(dBi)</b> |
|-----------------------------------------------|-----------------------------------------------|---------------------------------------------------------------|
| 3.17                                          | 4.72                                          | 5.01                                                          |

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

| <b>Chain 0<br/>Antenna<br/>Gain<br/>(dBi)</b> | <b>Chain 1<br/>Antenna<br/>Gain<br/>(dBi)</b> | <b>Correlated Chains<br/>Directional<br/>Gain<br/>(dBi)</b> |
|-----------------------------------------------|-----------------------------------------------|-------------------------------------------------------------|
| 3.17                                          | 4.72                                          | 7.99                                                        |

## RESULTS

### Bandwidth, Antenna Gain, and Limits

| Channel | Frequency<br>(MHz) | Min<br>26 dB<br>BW<br>(MHz) | Directional<br>Gain<br>for Power<br>(dBi) | Directional<br>Gain<br>for PSD<br>(dBi) | Power<br>Limit<br>(dBm) | PSD<br>Limit<br>(dBm) |
|---------|--------------------|-----------------------------|-------------------------------------------|-----------------------------------------|-------------------------|-----------------------|
| Low     | 5530               | 145.91                      | 5.01                                      | 7.99                                    | 24.00                   | 9.01                  |
| Mid     | 5610               | 109.35                      | 5.01                                      | 7.99                                    | 24.00                   | 9.01                  |

|                    |      |                                        |
|--------------------|------|----------------------------------------|
| Duty Cycle CF (dB) | 0.18 | Included in Calculations of Corr'd PSD |
|--------------------|------|----------------------------------------|

### Output Power Results

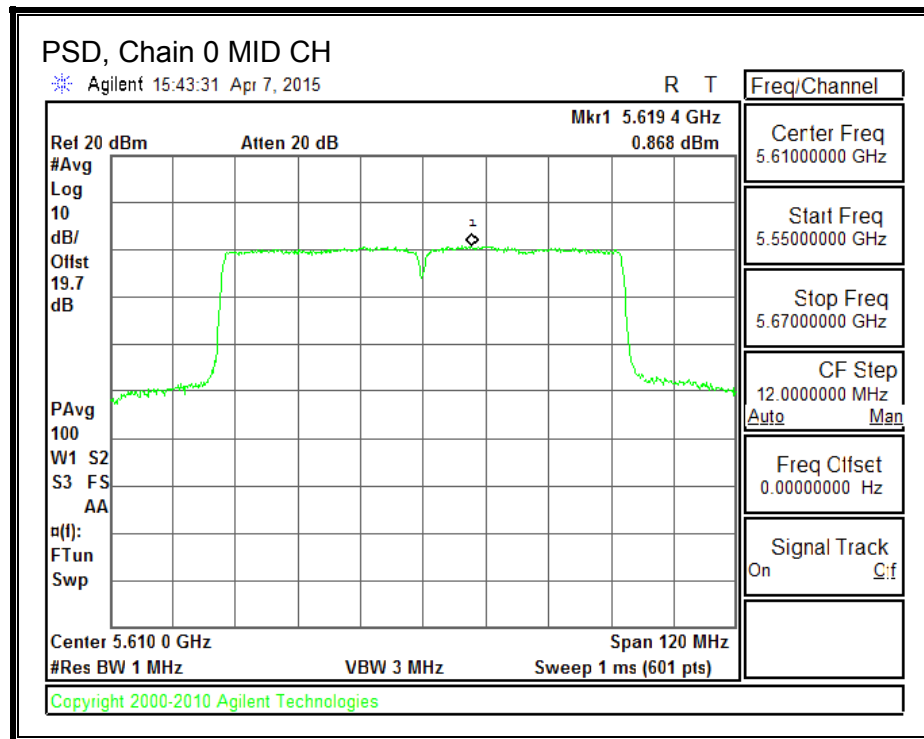
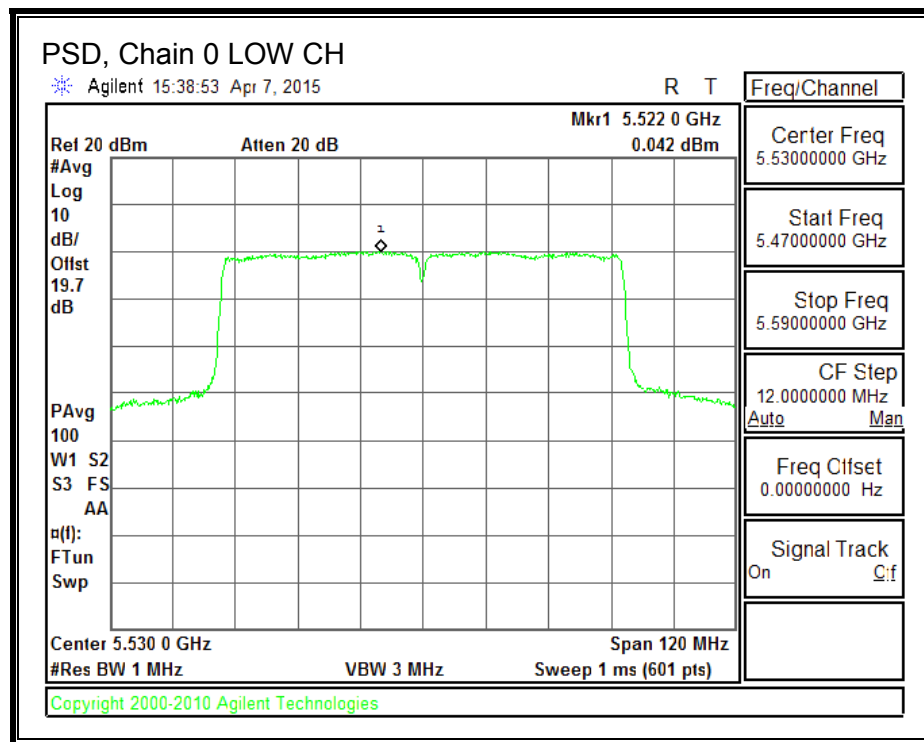
| Channel | Frequency<br>(MHz) | Chain 0<br>Meas<br>Power<br>(dBm) | Chain 1<br>Meas<br>Power<br>(dBm) | Total<br>Corr'd<br>Power<br>(dBm) | Power<br>Limit<br>(dBm) | Power<br>Margin<br>(dB) |
|---------|--------------------|-----------------------------------|-----------------------------------|-----------------------------------|-------------------------|-------------------------|
| Low     | 5530               | 9.70                              | 9.20                              | 12.47                             | 24.00                   | -11.53                  |
| Mid     | 5610               | 16.10                             | 16.10                             | 19.11                             | 24.00                   | -4.89                   |

### PSD Results

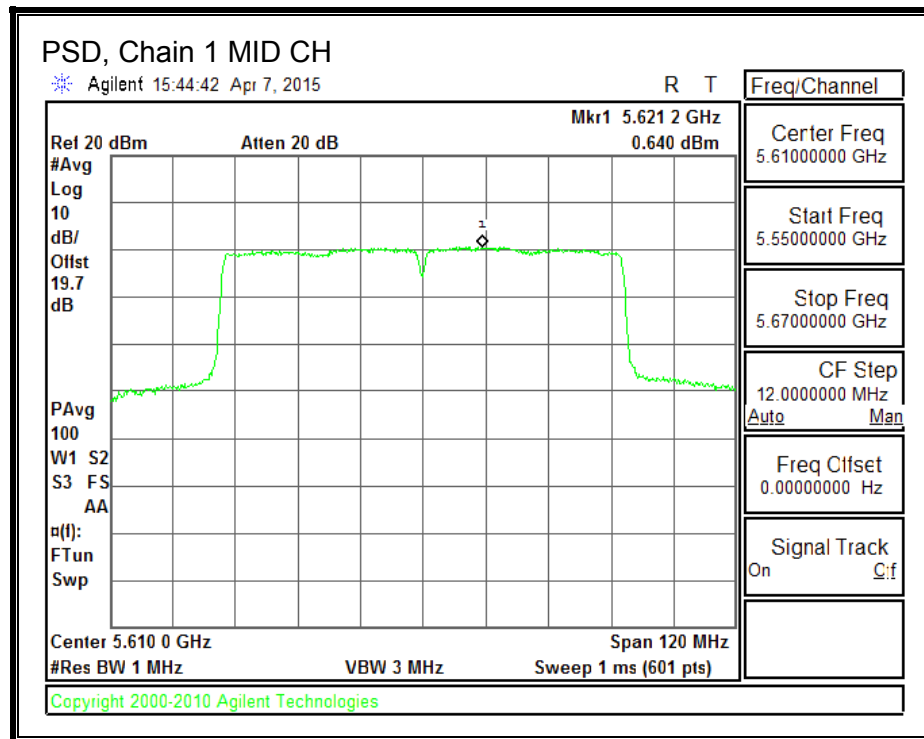
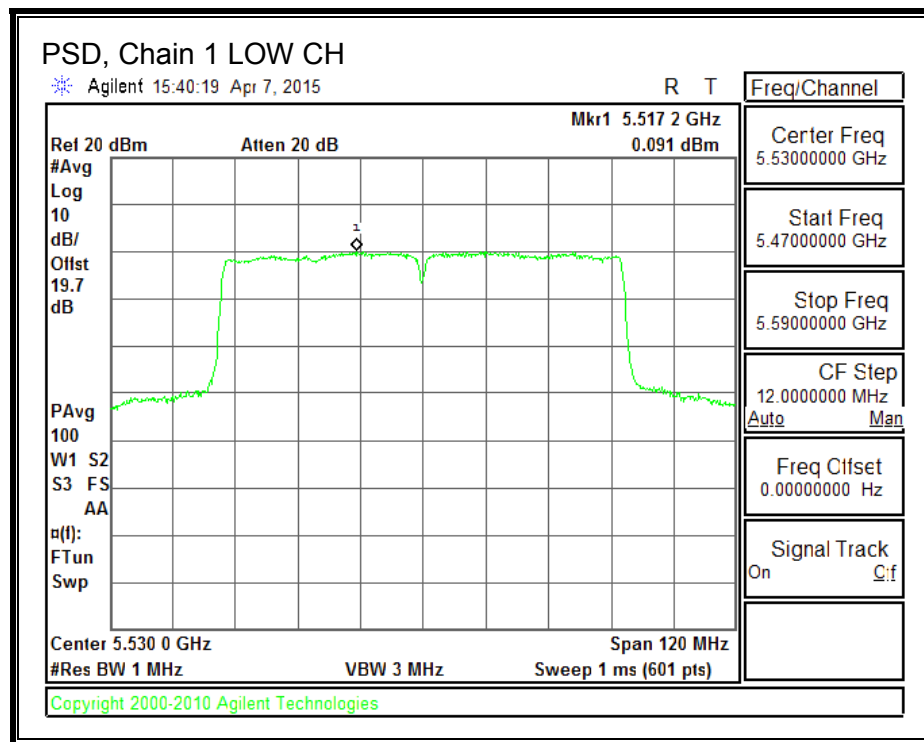
| Channel | Frequency<br>(MHz) | Chain 0<br>Meas<br>PSD<br>(dBm) | Chain 1<br>Meas<br>PSD<br>(dBm) | Total<br>Corr'd<br>PSD<br>(dBm) | PSD<br>Limit<br>(dBm) | PSD<br>Margin<br>(dB) |
|---------|--------------------|---------------------------------|---------------------------------|---------------------------------|-----------------------|-----------------------|
| Low     | 5530               | 0.042                           | 0.091                           | 3.26                            | 9.01                  | -5.75                 |
| Mid     | 5610               | 0.868                           | 0.640                           | 3.95                            | 9.01                  | -5.06                 |

**Note:** the power readings above were measured with gated method, and the measurement was taken only during the ON time. No duty cycle correction was necessary.

**PSD, Chain 0**



**PSD, Chain 1**



## **STRADDLE CHANNEL 138 RESULTS**

### **UNII-2C BAND**

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

| Channel | Frequency<br>(MHz) | Min<br>26 dB<br>BW<br>(MHz) | Directional<br>Gain<br>for Power<br>(dBi) | Directional<br>Gain<br>for PSD<br>(dBi) | Power<br>Limit<br>(dBm) | PSD<br>Limit<br>(dBm) |
|---------|--------------------|-----------------------------|-------------------------------------------|-----------------------------------------|-------------------------|-----------------------|
| 138     | 5690               | 86.20                       | 4.01                                      | 7.99                                    | 24.00                   | 9.01                  |

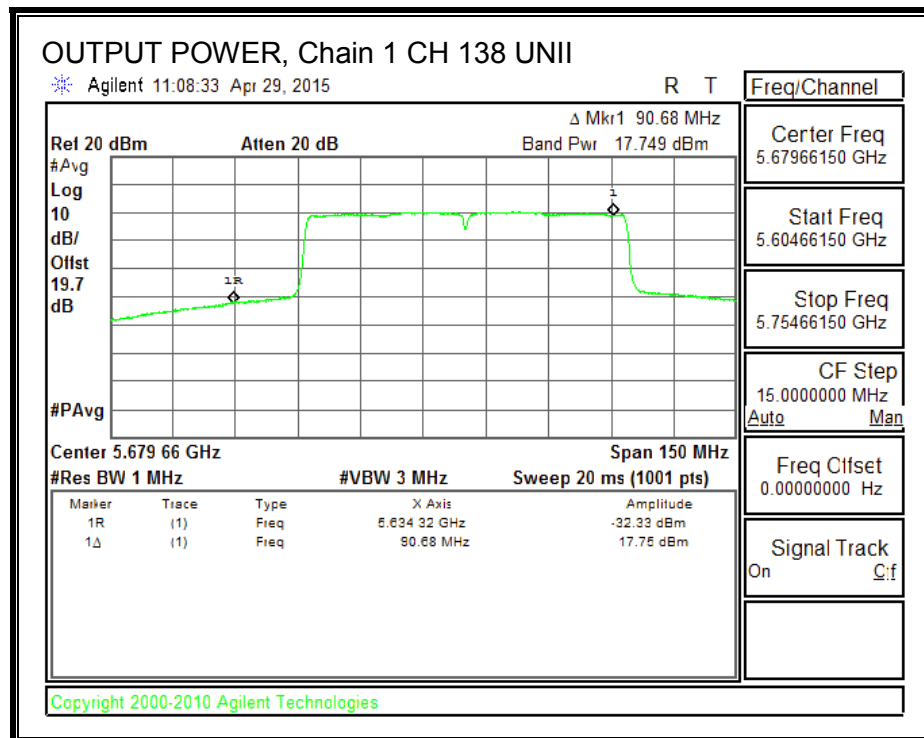
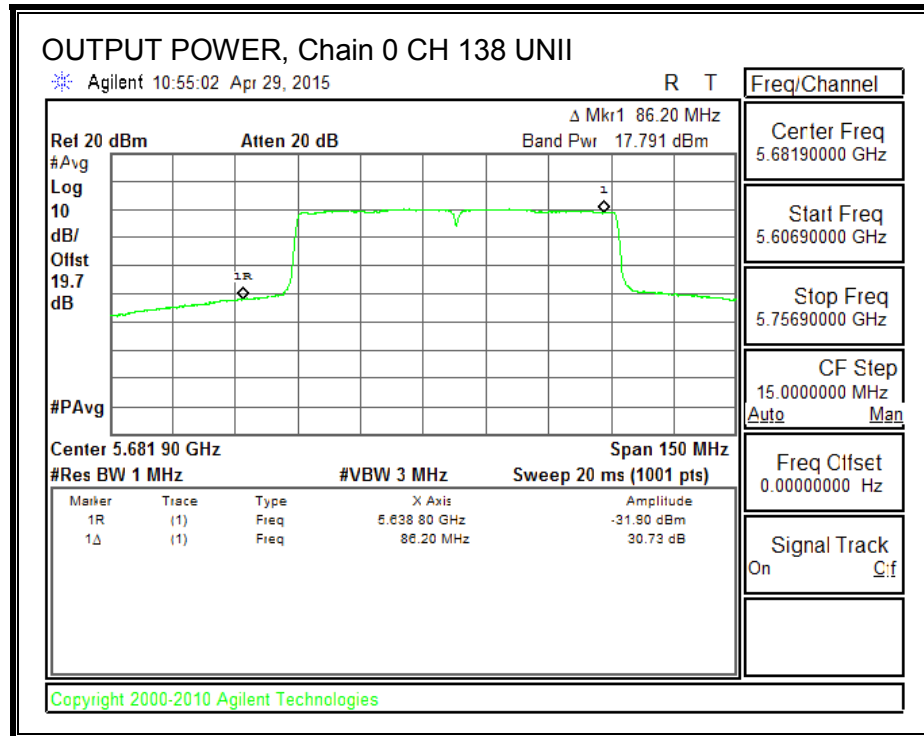
|                           |      |                                                           |
|---------------------------|------|-----------------------------------------------------------|
| <b>Duty Cycle CF (dB)</b> | 0.18 | <b>Included in Calculations of Corr'd Power &amp; PSD</b> |
|---------------------------|------|-----------------------------------------------------------|

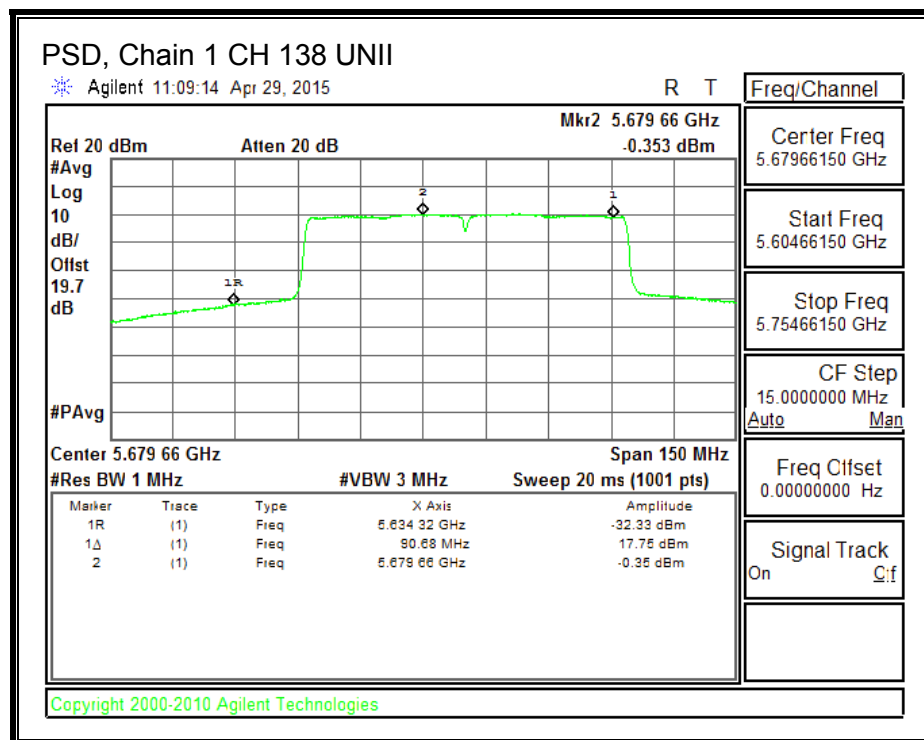
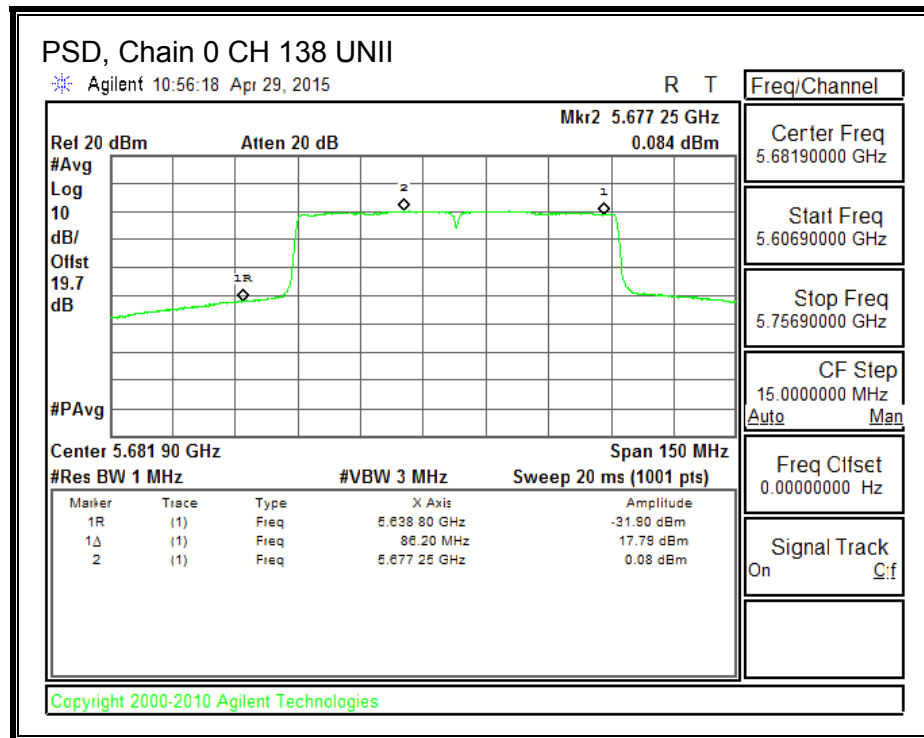
#### **Output Power Results**

| Channel | Frequency<br>(MHz) | Chain 0<br>Meas<br>Power<br>(dBm) | Chain 1<br>Meas<br>Power<br>(dBm) | Total<br>Corr'd<br>Power<br>(dBm) | Power<br>Limit<br>(dBm) | Power<br>Margin<br>(dB) |
|---------|--------------------|-----------------------------------|-----------------------------------|-----------------------------------|-------------------------|-------------------------|
| 138     | 5690               | 17.791                            | 17.749                            | 20.96                             | 24.00                   | -3.04                   |

#### **PSD Results**

| Channel | Frequency<br>(MHz) | Chain 0<br>Meas<br>PSD<br>(dBm) | Chain 1<br>Meas<br>PSD<br>(dBm) | Total<br>Corr'd<br>PSD<br>(dBm) | PSD<br>Limit<br>(dBm) | PSD<br>Margin<br>(dB) |
|---------|--------------------|---------------------------------|---------------------------------|---------------------------------|-----------------------|-----------------------|
| 138     | 5690               | 0.084                           | -0.353                          | 3.06                            | 9.01                  | -5.95                 |





### **UNII-3 BAND**

#### **Antenna Gain and Limit**

| Channel | Frequency<br>(MHz) | Directional<br>Gain<br>for Power<br>(dBi) | Directional<br>Gain<br>for PSD<br>(dBi) | Power<br>Limit<br>(dBm) | PSD<br>Limit<br>(dBm) |
|---------|--------------------|-------------------------------------------|-----------------------------------------|-------------------------|-----------------------|
| 138     | 5690               | 4.06                                      | 8.03                                    | 30.00                   | 27.97                 |

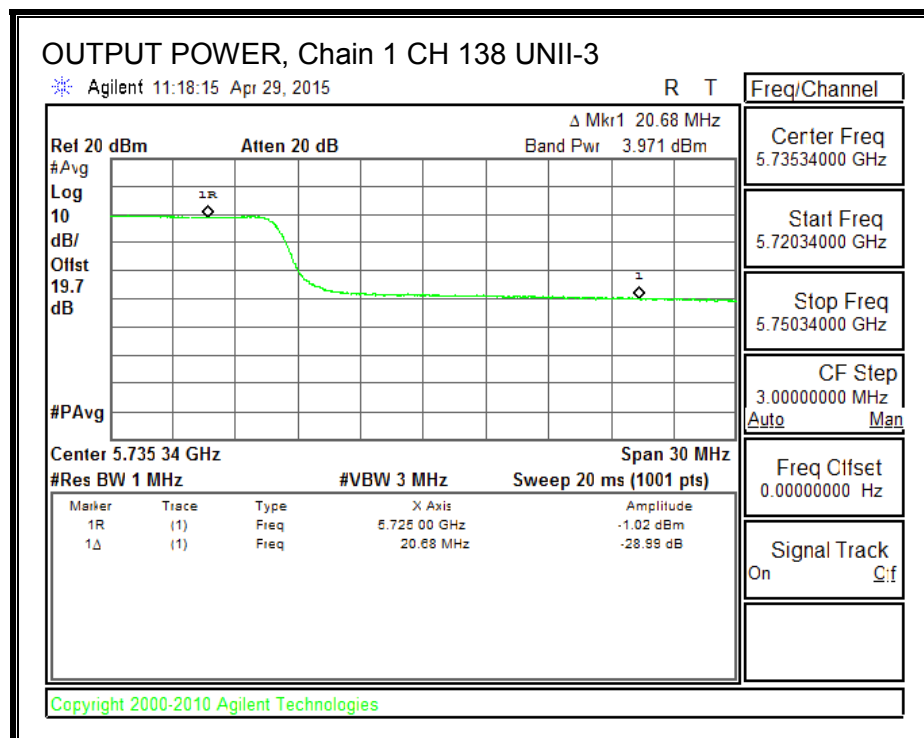
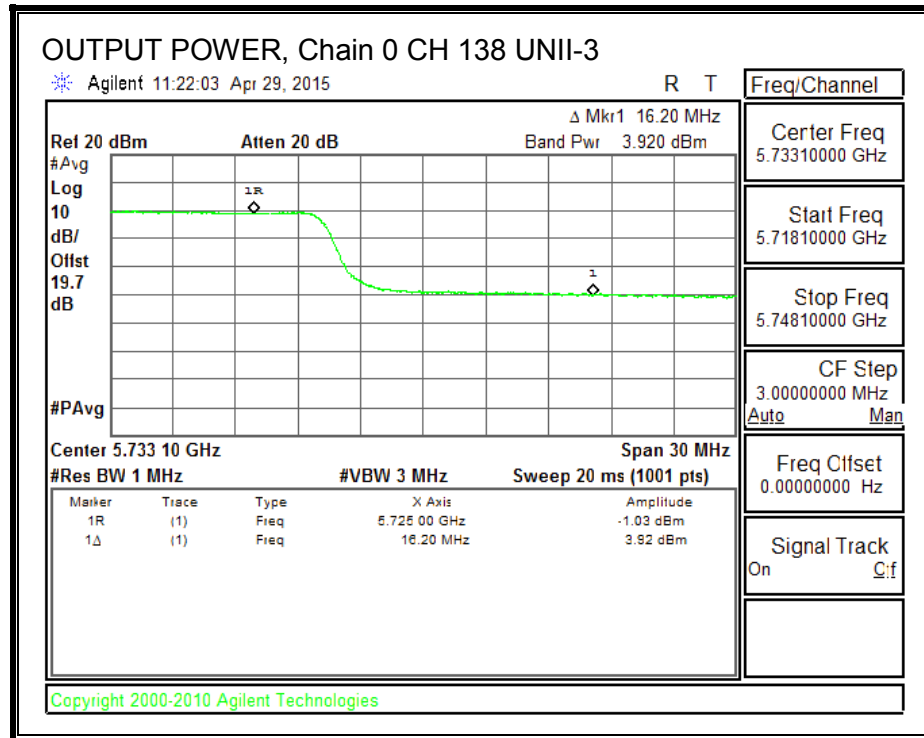
|                    |      |                                                |
|--------------------|------|------------------------------------------------|
| Duty Cycle CF (dB) | 0.18 | Included in Calculations of Corr'd Power & PSD |
|--------------------|------|------------------------------------------------|

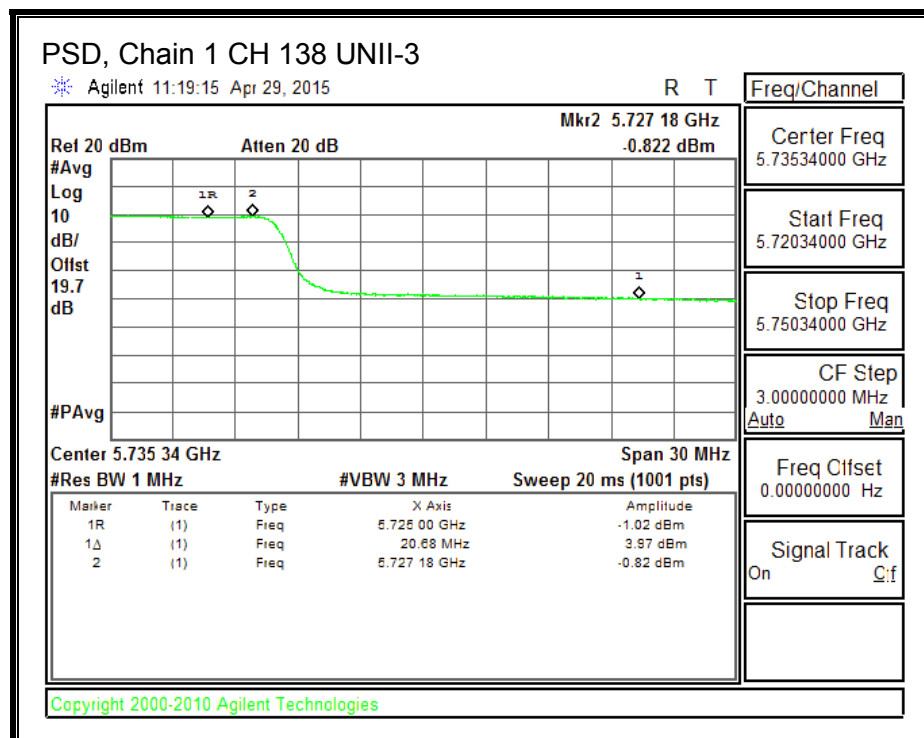
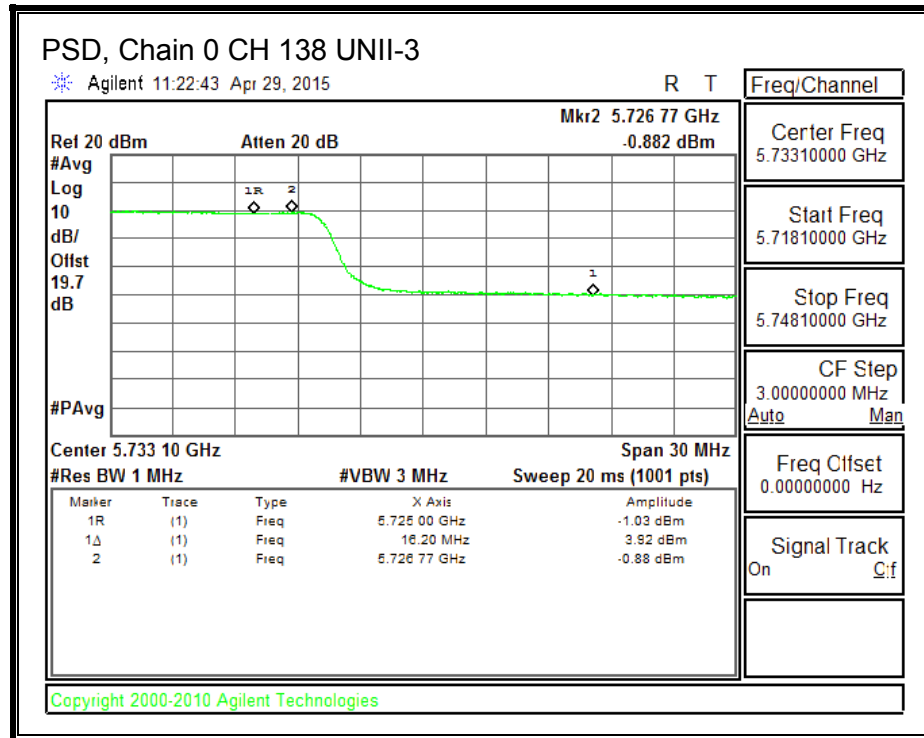
#### **Output Power Results**

| Channel | Frequency<br>(MHz) | Chain 0<br>Meas<br>Power<br>(dBm) | Chain 1<br>Meas<br>Power<br>(dBm) | Total<br>Corr'd<br>Power<br>(dBm) | Power<br>Limit<br>(dBm) | Power<br>Margin<br>(dB) |
|---------|--------------------|-----------------------------------|-----------------------------------|-----------------------------------|-------------------------|-------------------------|
| 138     | 5690               | 3.920                             | 3.971                             | 7.14                              | 30.00                   | -22.86                  |

#### **PSD Results**

| Channel | Frequency<br>(MHz) | Chain 0<br>Meas<br>PSD<br>(dBm) | Chain 1<br>Meas<br>PSD<br>(dBm) | Total<br>Corr'd<br>PSD<br>(dBm) | PSD<br>Limit<br>(dBm) | PSD<br>Margin<br>(dB) |
|---------|--------------------|---------------------------------|---------------------------------|---------------------------------|-----------------------|-----------------------|
| 138     | 5690               | -0.882                          | -0.822                          | 2.34                            | 27.97                 | -25.63                |





## 8.50.2. AVERAGE OUTPUT POWER (WHOLE FUNDAMENTAL)

### LIMITS

None; for reporting purposes only.

### TEST PROCEDURE

The transmitter output is connected to a power meter.

### RESULTS

#### Output Power Results

| Channel | Frequency<br>(MHz) | Chain 0<br>Meas<br>Power<br>(dBm) | Chain 1<br>Meas<br>Power<br>(dBm) | Total<br>Corr'd<br>Power<br>(dBm) |
|---------|--------------------|-----------------------------------|-----------------------------------|-----------------------------------|
| 138     | 5690               | 18.55                             | 17.60                             | 21.11                             |

**Note:** the power readings above were measured with gated method, and the measurement was taken only during the ON time. No duty cycle correction was necessary

## **8.51. 802.11n VHT80 TxBF 2TX MODE IN THE 5.6 GHz BAND**

### **8.51.1. 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.

#### **DIRECTIONAL ANTENNA GAIN**

For Power and PSD, the TX chains are correlated and the antenna gain is unequal among the chains. The directional gain is:

| <b>Chain 0<br/>Antenna<br/>Gain<br/>(dBi)</b> | <b>Chain 1<br/>Antenna<br/>Gain<br/>(dBi)</b> | <b>Correlated Chains<br/>Directional<br/>Gain<br/>(dBi)</b> |
|-----------------------------------------------|-----------------------------------------------|-------------------------------------------------------------|
| 3.17                                          | 4.72                                          | 7.99                                                        |

## RESULTS

### Bandwidth, Antenna Gain, and Limits

| Channel | Frequency<br>(MHz) | Min<br>26 dB<br>BW<br>(MHz) | Directional<br>Gain<br>for Power<br>(dBi) | Directional<br>Gain<br>for PSD<br>(dBi) | Power<br>Limit<br>(dBm) | PSD<br>Limit<br>(dBm) |
|---------|--------------------|-----------------------------|-------------------------------------------|-----------------------------------------|-------------------------|-----------------------|
| Low     | 5530               | 116.22                      | 7.99                                      | 7.99                                    | 22.01                   | 9.01                  |
| Mid     | 5610               | 109.35                      | 7.99                                      | 7.99                                    | 22.01                   | 9.01                  |

|                    |      |                                        |
|--------------------|------|----------------------------------------|
| Duty Cycle CF (dB) | 0.18 | Included in Calculations of Corr'd PSD |
|--------------------|------|----------------------------------------|

### Output Power Results

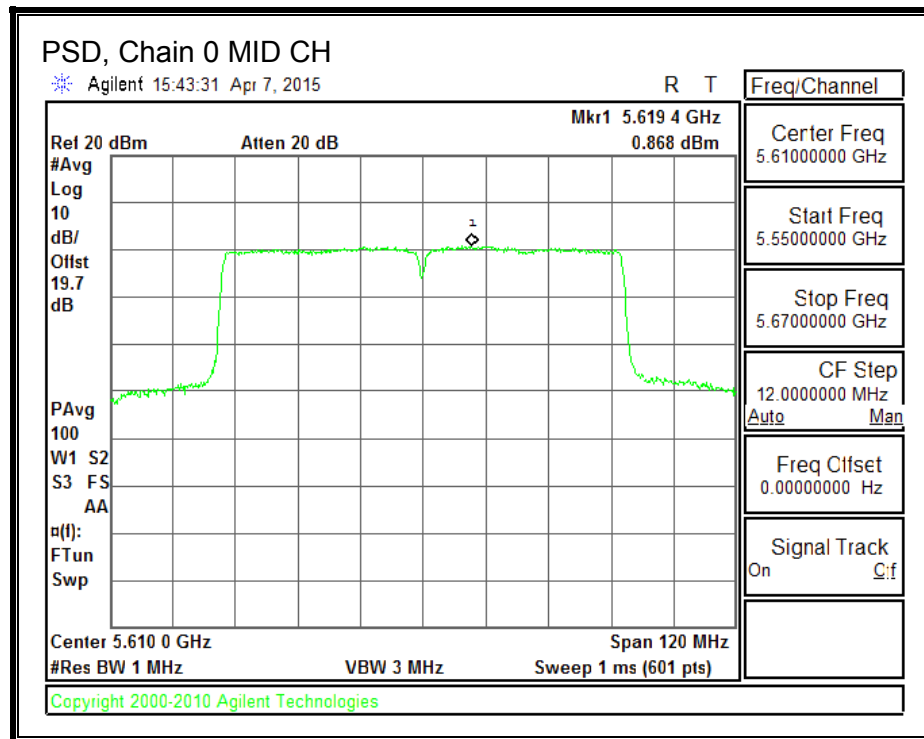
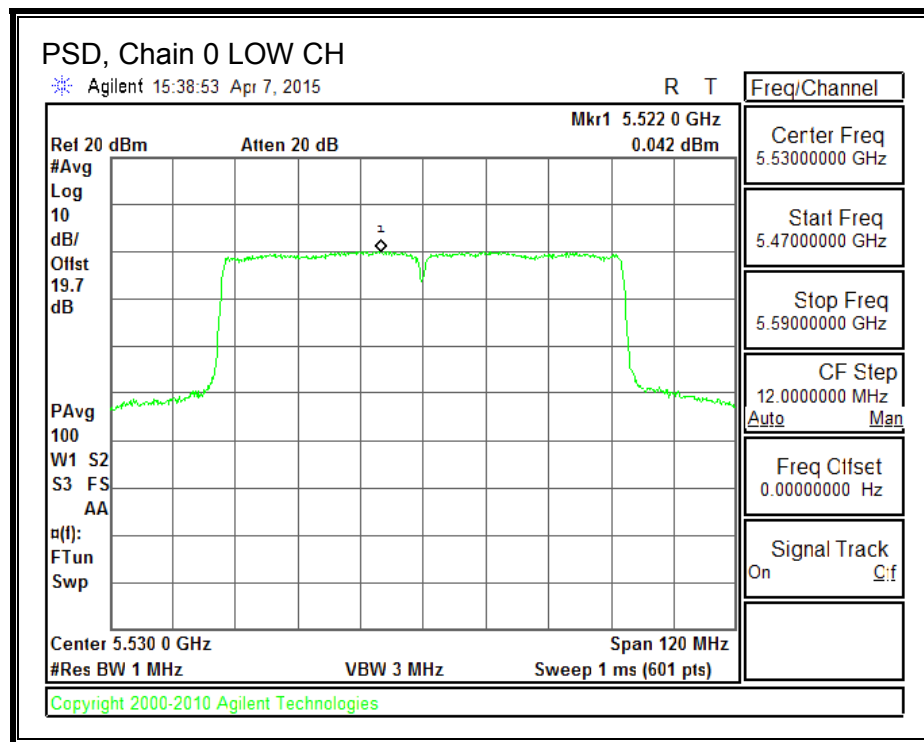
| Channel | Frequency<br>(MHz) | Chain 0<br>Meas<br>Power<br>(dBm) | Chain 1<br>Meas<br>Power<br>(dBm) | Total<br>Corr'd<br>Power<br>(dBm) | Power<br>Limit<br>(dBm) | Power<br>Margin<br>(dB) |
|---------|--------------------|-----------------------------------|-----------------------------------|-----------------------------------|-------------------------|-------------------------|
| Low     | 5530               | 8.30                              | 7.70                              | 11.02                             | 22.01                   | -10.99                  |
| Mid     | 5610               | 14.80                             | 14.20                             | 17.52                             | 22.01                   | -4.49                   |

### PSD Results

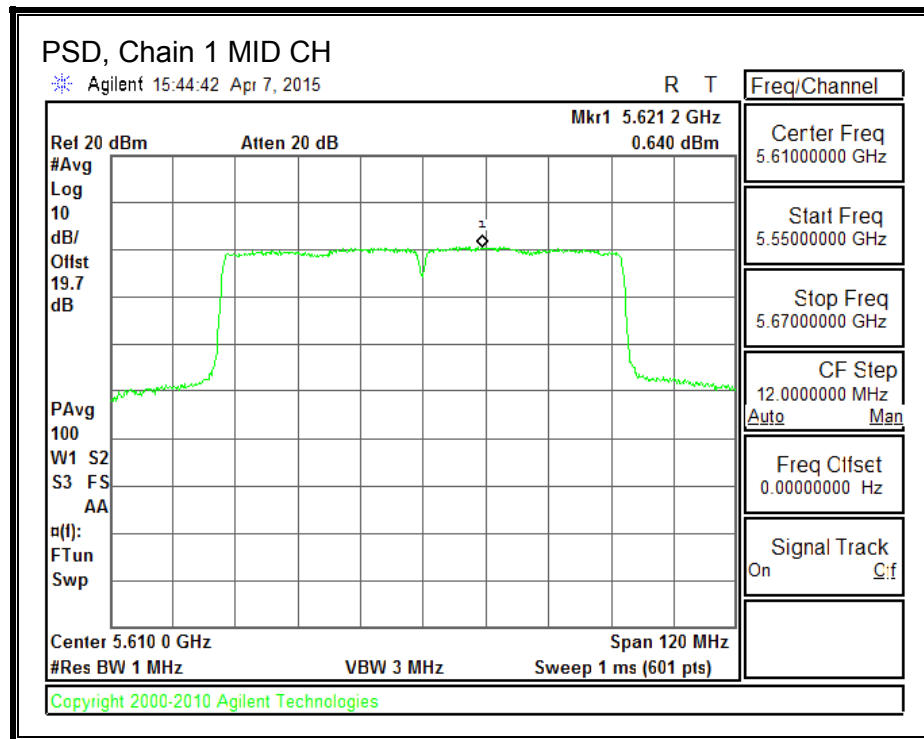
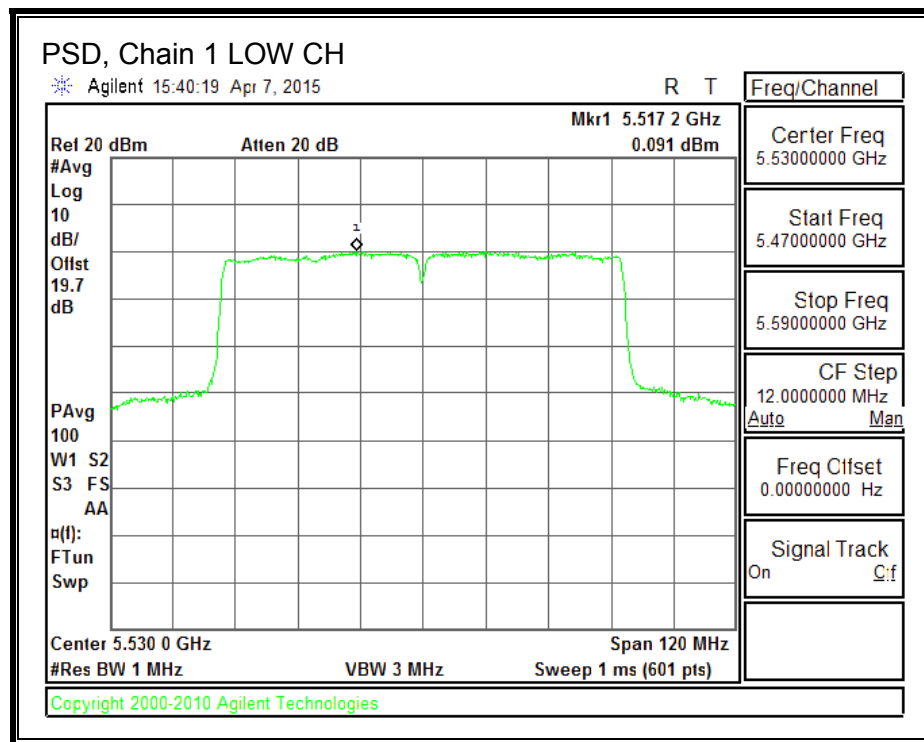
| Channel | Frequency<br>(MHz) | Chain 0<br>Meas<br>PSD<br>(dBm) | Chain 1<br>Meas<br>PSD<br>(dBm) | Total<br>Corr'd<br>PSD<br>(dBm) | PSD<br>Limit<br>(dBm) | PSD<br>Margin<br>(dB) |
|---------|--------------------|---------------------------------|---------------------------------|---------------------------------|-----------------------|-----------------------|
| Low     | 5530               | 0.04                            | 0.09                            | 3.26                            | 9.01                  | -5.75                 |
| Mid     | 5610               | 0.87                            | 0.64                            | 3.95                            | 9.01                  | -5.06                 |

**Note:** the power readings above were measured with gated method, and the measurement was taken only during the ON time. No duty cycle correction was necessary.

**PSD, Chain 0**



**PSD, Chain 1**



## **STRADDLE CHANNEL 138 RESULTS**

### **UNII-2C BAND**

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

| Channel | Frequency<br>(MHz) | Min<br>26 dB<br>BW<br>(MHz) | Directional<br>Gain<br>for Power<br>(dBi) | Directional<br>Gain<br>for PSD<br>(dBi) | Power<br>Limit<br>(dBm) | PSD<br>Limit<br>(dBm) |
|---------|--------------------|-----------------------------|-------------------------------------------|-----------------------------------------|-------------------------|-----------------------|
| 138     | 5690               | 86.20                       | 7.99                                      | 7.99                                    | 22.01                   | 9.01                  |

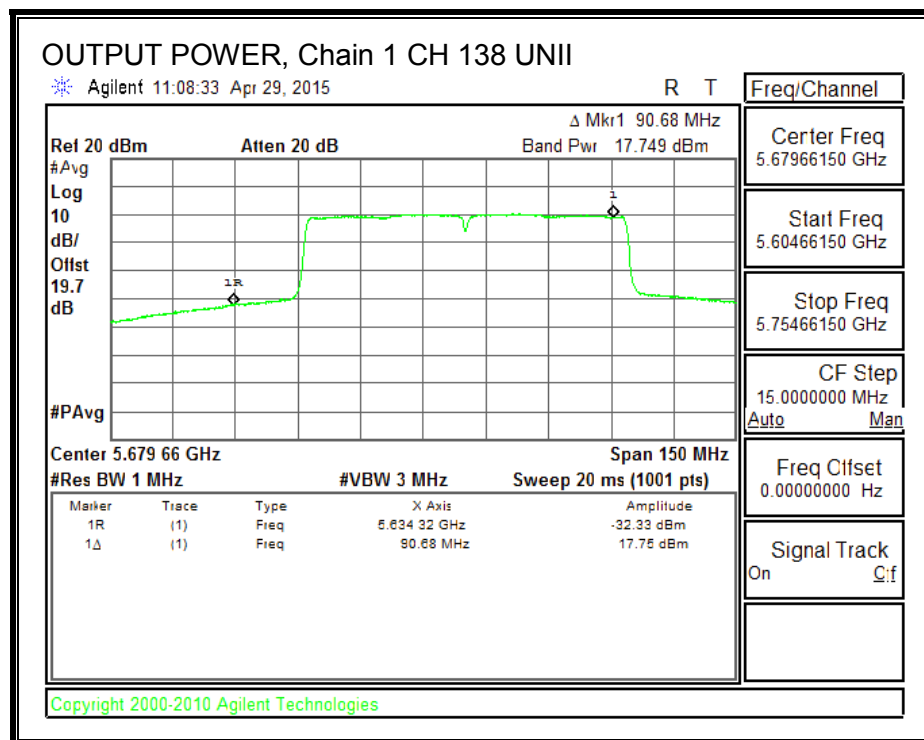
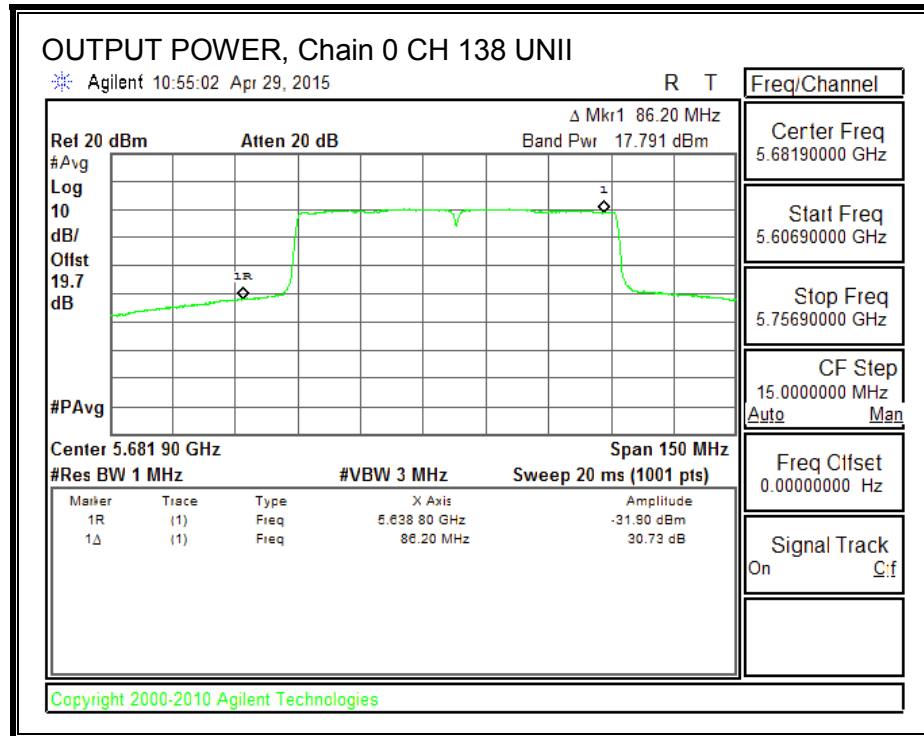
|                    |      |                                                |
|--------------------|------|------------------------------------------------|
| Duty Cycle CF (dB) | 0.18 | Included in Calculations of Corr'd Power & PSD |
|--------------------|------|------------------------------------------------|

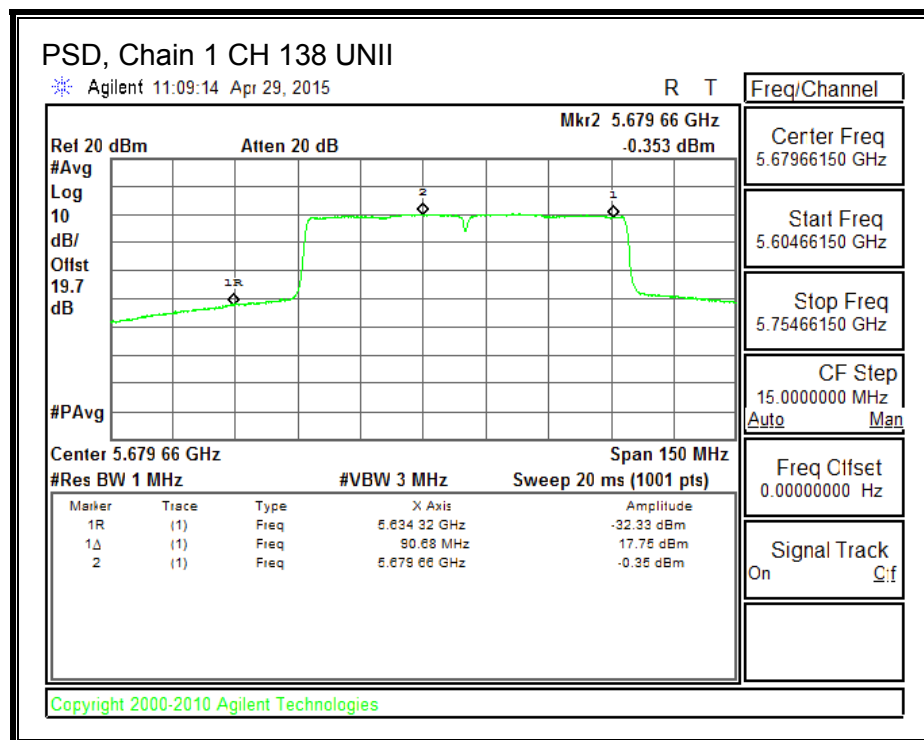
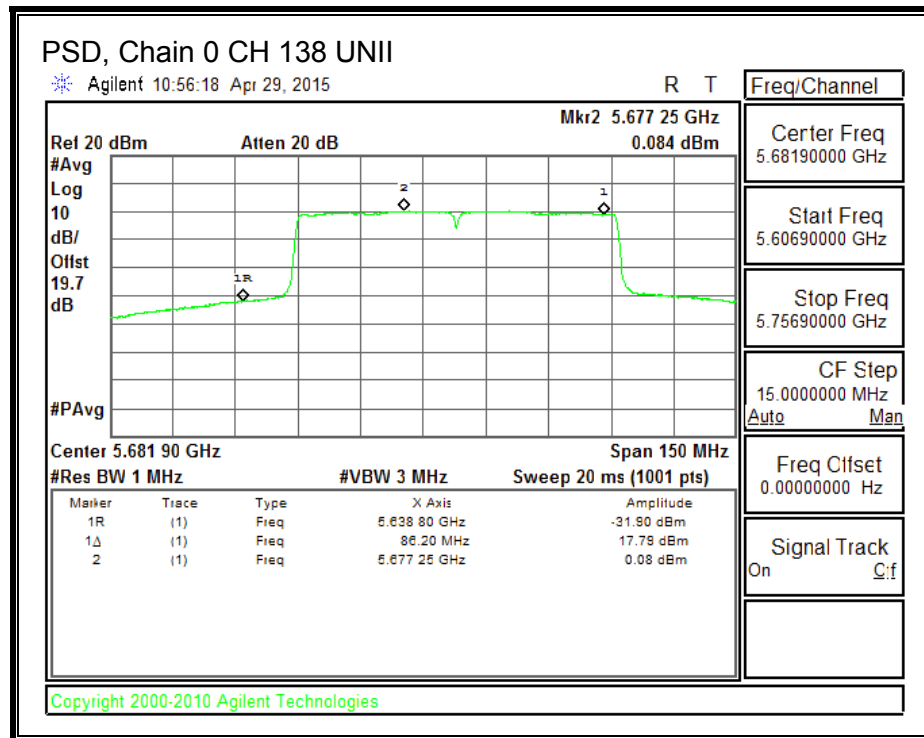
#### **Output Power Results**

| Channel | Frequency<br>(MHz) | Chain 0<br>Meas<br>Power<br>(dBm) | Chain 1<br>Meas<br>Power<br>(dBm) | Total<br>Corr'd<br>Power<br>(dBm) | Power<br>Limit<br>(dBm) | Power<br>Margin<br>(dB) |
|---------|--------------------|-----------------------------------|-----------------------------------|-----------------------------------|-------------------------|-------------------------|
| 138     | 5690               | 17.791                            | 17.749                            | 20.96                             | 22.01                   | -1.05                   |

#### **PSD Results**

| Channel | Frequency<br>(MHz) | Chain 0<br>Meas<br>PSD<br>(dBm) | Chain 1<br>Meas<br>PSD<br>(dBm) | Total<br>Corr'd<br>PSD<br>(dBm) | PSD<br>Limit<br>(dBm) | PSD<br>Margin<br>(dB) |
|---------|--------------------|---------------------------------|---------------------------------|---------------------------------|-----------------------|-----------------------|
| 138     | 5690               | 0.084                           | -0.353                          | 3.06                            | 9.01                  | -5.95                 |





**UNII-3 BAND**

**Antenna Gain and Limit**

| Channel | Frequency<br>(MHz) | Directional<br>Gain<br>for Power<br>(dBi) | Directional<br>Gain<br>for PSD<br>(dBi) | Power<br>Limit<br>(dBm) | PSD<br>Limit<br>(dBm) |
|---------|--------------------|-------------------------------------------|-----------------------------------------|-------------------------|-----------------------|
| 138     | 5690               | 8.03                                      | 8.03                                    | 27.97                   | 27.97                 |

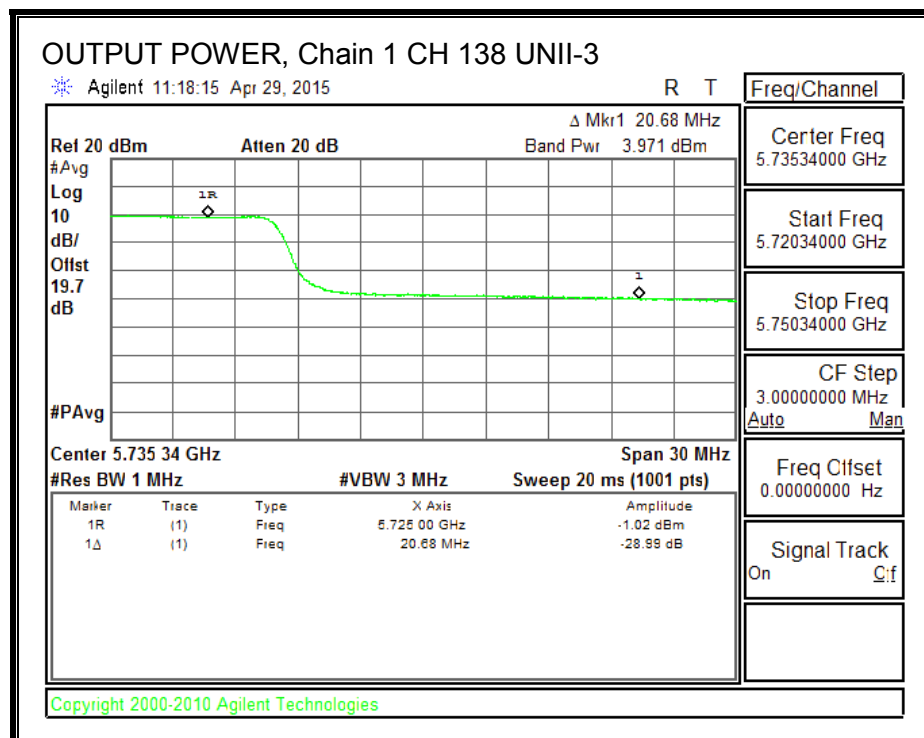
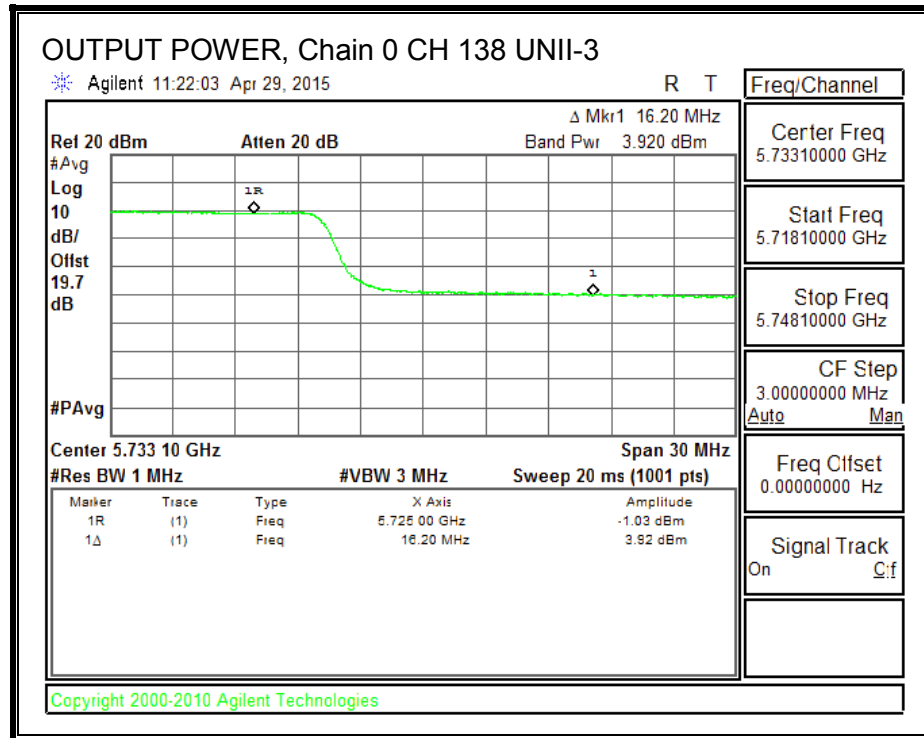
|                    |      |                                                |
|--------------------|------|------------------------------------------------|
| Duty Cycle CF (dB) | 0.18 | Included in Calculations of Corr'd Power & PSD |
|--------------------|------|------------------------------------------------|

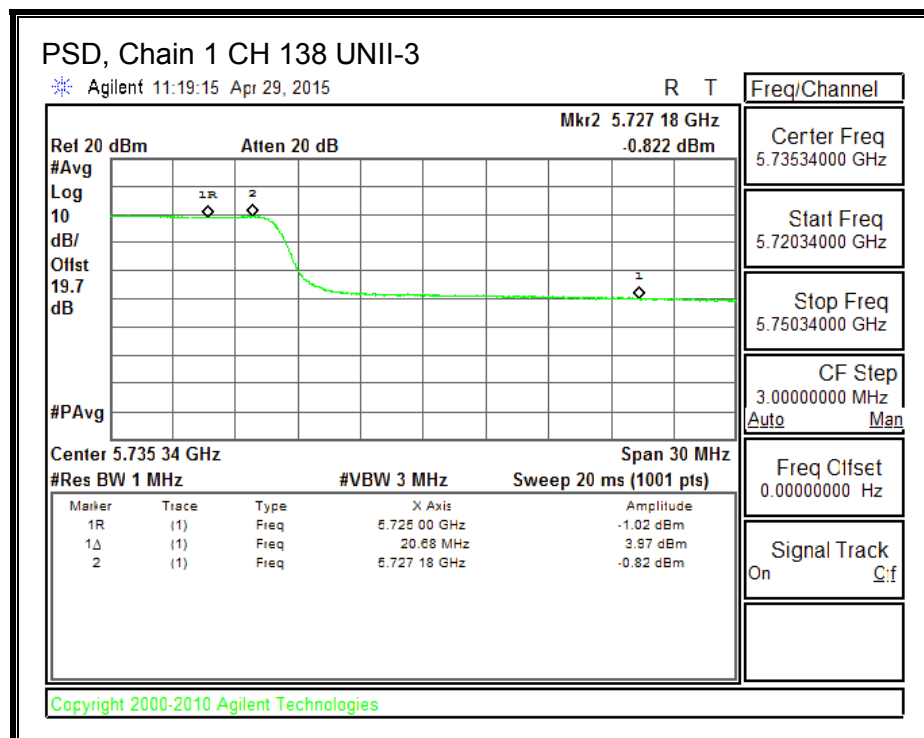
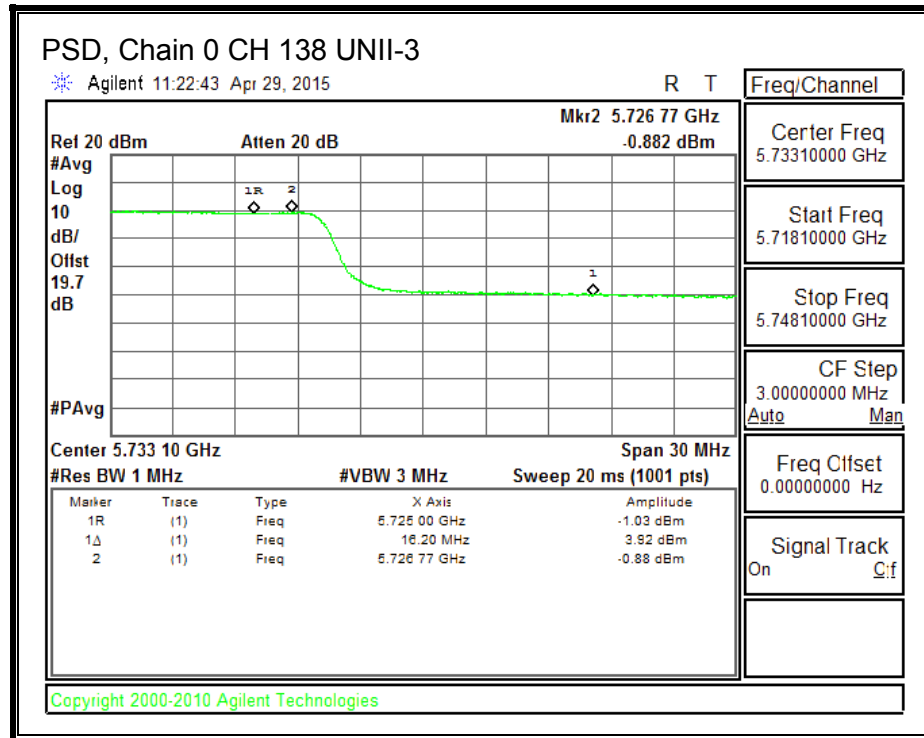
**Output Power Results**

| Channel | Frequency<br>(MHz) | Chain 0<br>Meas<br>Power<br>(dBm) | Chain 1<br>Meas<br>Power<br>(dBm) | Total<br>Corr'd<br>Power<br>(dBm) | Power<br>Limit<br>(dBm) | Power<br>Margin<br>(dB) |
|---------|--------------------|-----------------------------------|-----------------------------------|-----------------------------------|-------------------------|-------------------------|
| 138     | 5690               | 3.920                             | 3.971                             | 7.14                              | 27.97                   | -20.83                  |

**PSD Results**

| Channel | Frequency<br>(MHz) | Chain 0<br>Meas<br>PSD<br>(dBm) | Chain 1<br>Meas<br>PSD<br>(dBm) | Total<br>Corr'd<br>PSD<br>(dBm) | PSD<br>Limit<br>(dBm) | PSD<br>Margin<br>(dB) |
|---------|--------------------|---------------------------------|---------------------------------|---------------------------------|-----------------------|-----------------------|
| 138     | 5690               | -0.882                          | -0.822                          | 2.34                            | 27.97                 | -25.63                |





## 8.51.2. AVERAGE OUTPUT POWER (WHOLE FUNDAMENTAL)

### LIMITS

None; for reporting purposes only.

### TEST PROCEDURE

The transmitter output is connected to a power meter.

### RESULTS

#### Output Power Results

| Channel | Frequency<br>(MHz) | Chain 0<br>Meas<br>Power<br>(dBm) | Chain 1<br>Meas<br>Power<br>(dBm) | Total<br>Corr'd<br>Power<br>(dBm) |
|---------|--------------------|-----------------------------------|-----------------------------------|-----------------------------------|
| 138     | 5690               | 18.55                             | 17.45                             | 21.05                             |

**Note:** the power readings above were measured with gated method, and the measurement was taken only during the ON time. No duty cycle correction was necessary

## **8.52. 802.11ac VHT80 CDD 3TX MODE IN THE 5.6 GHz BAND**

### **8.52.1. 26 dB BANDWIDTH**

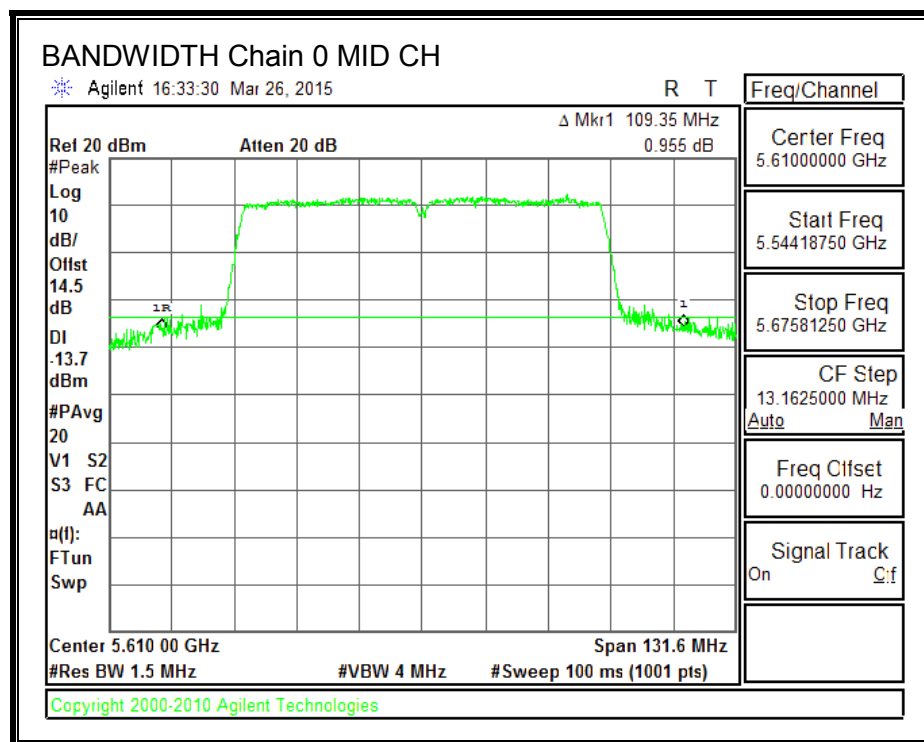
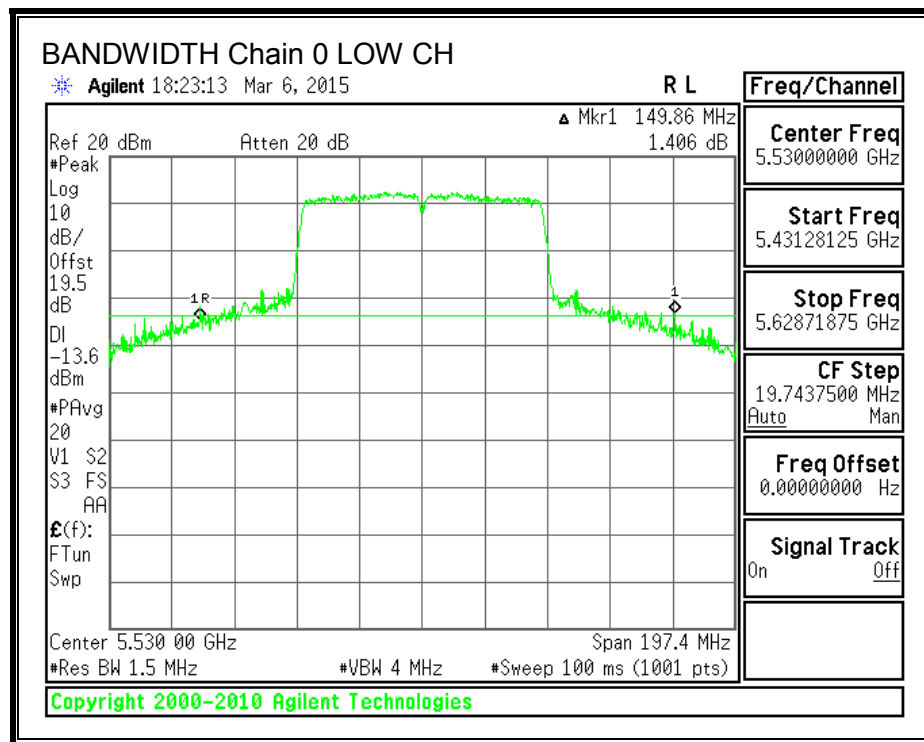
#### **LIMITS**

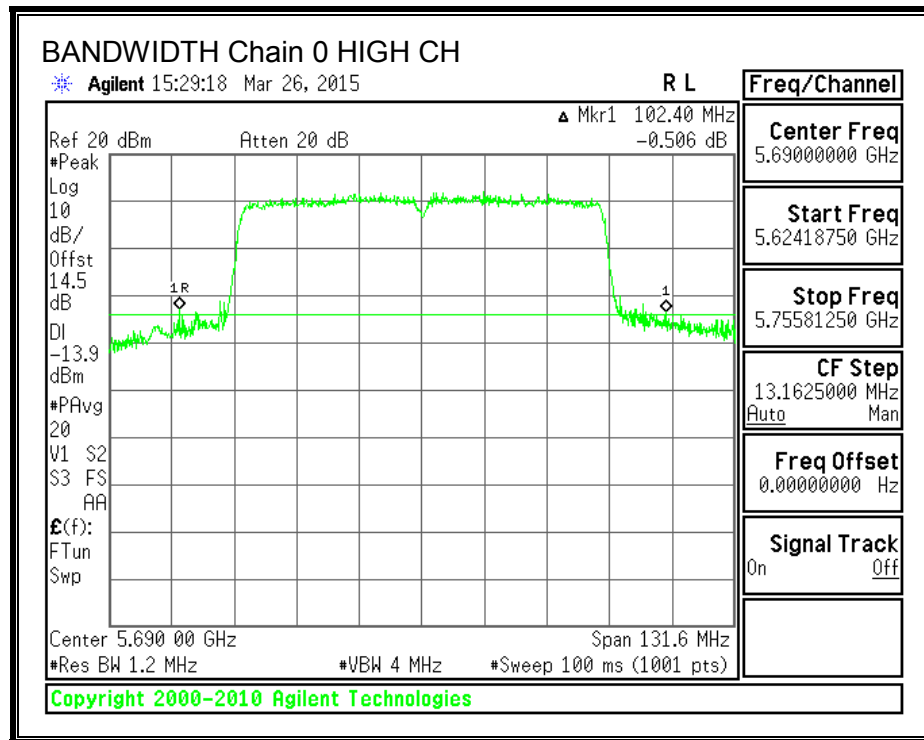
None; for reporting purposes only.

#### **RESULTS**

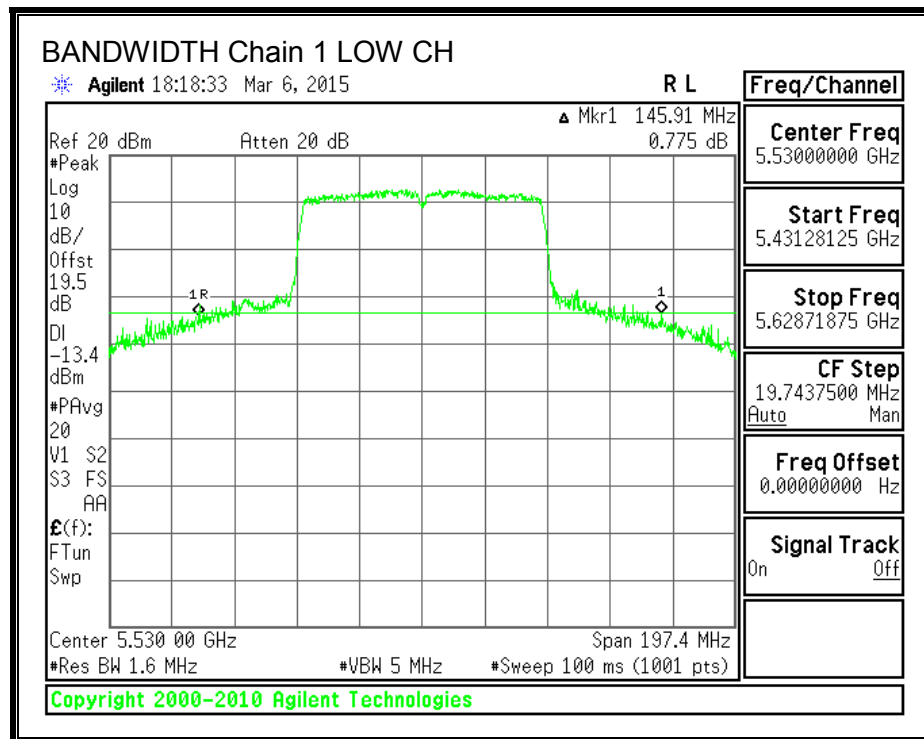
| Channel | Frequency<br>(MHz) | 26 dB BW<br>Chain 0<br>(MHz) | 26 dB BW<br>Chain 1<br>(MHz) | 26 dB BW<br>Chain 2<br>(MHz) |
|---------|--------------------|------------------------------|------------------------------|------------------------------|
| Low     | 5530               | 149.86                       | 145.91                       | 116.22                       |
| Mid     | 5610               | 109.35                       | 111.71                       | 115.40                       |
| High    | 5690               | 102.40                       | 111.354                      | 99.964                       |

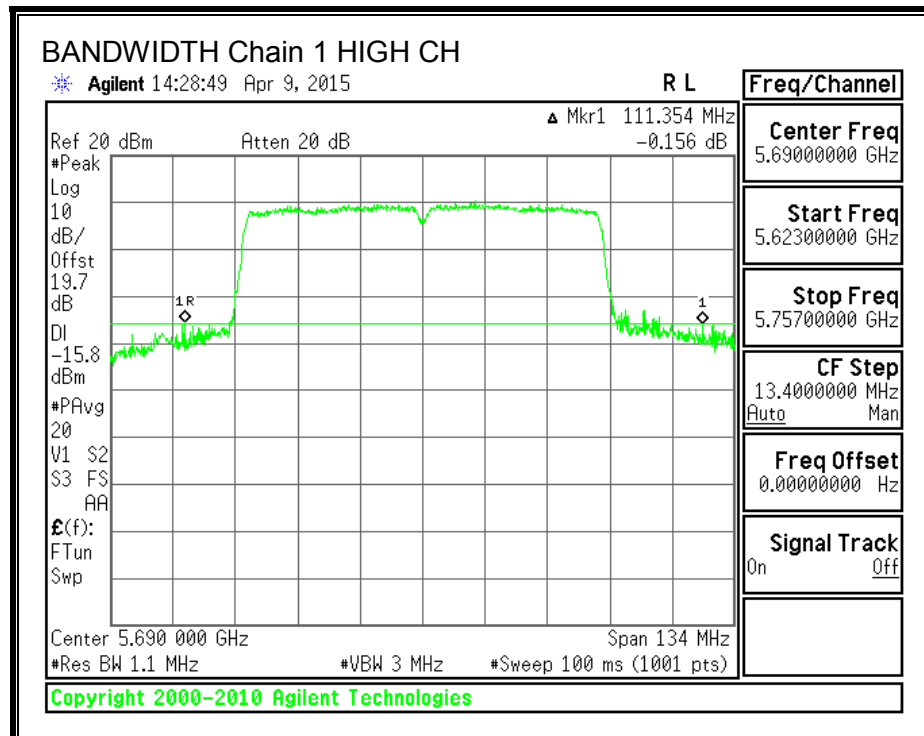
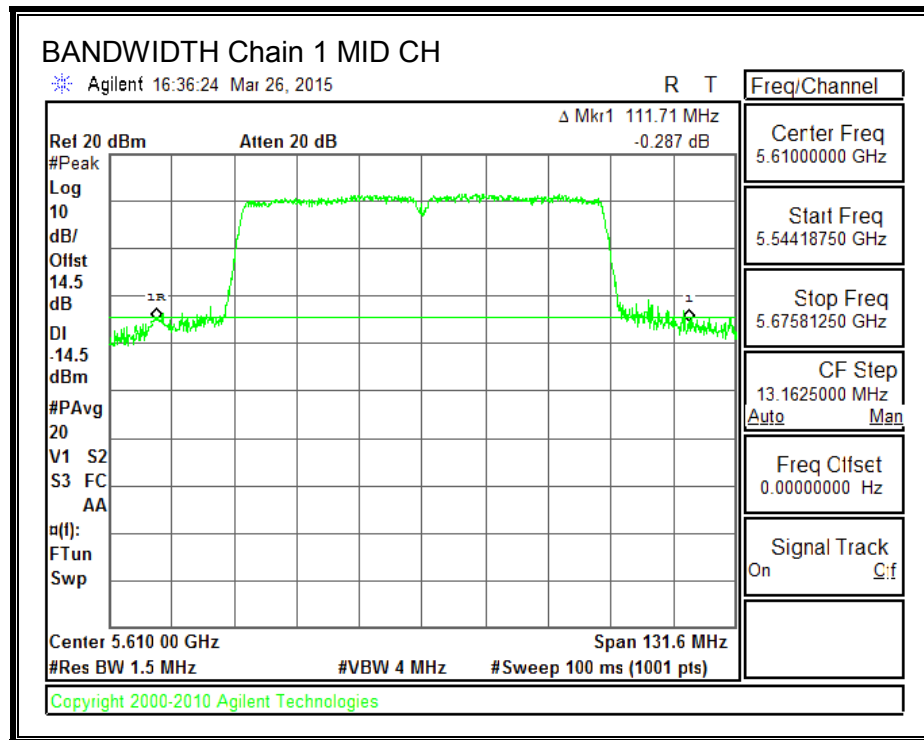
**26 dB BANDWIDTH, Chain 0**



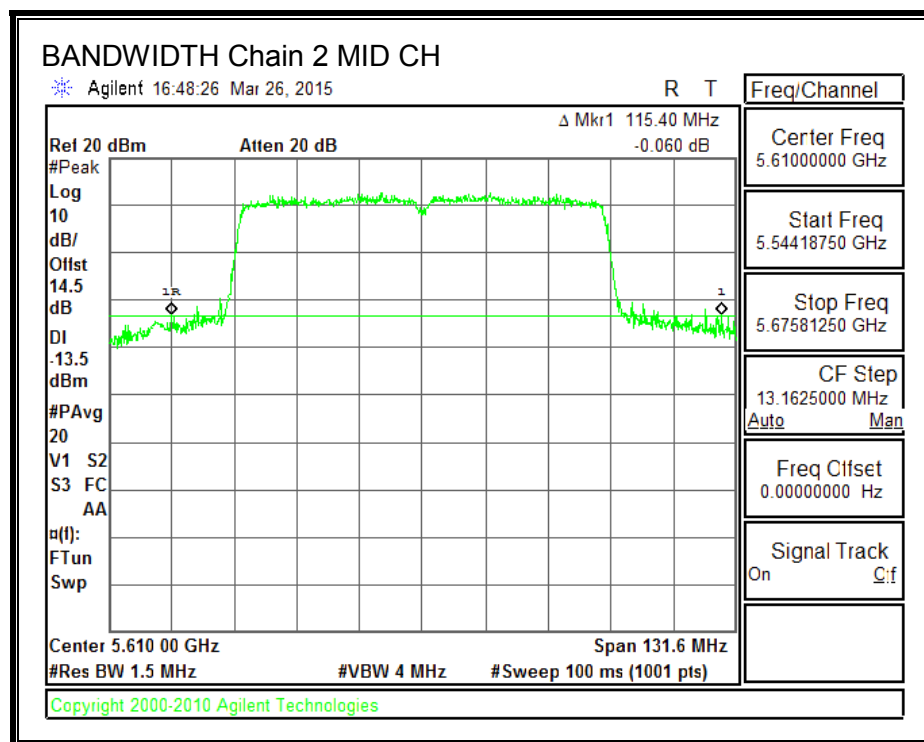
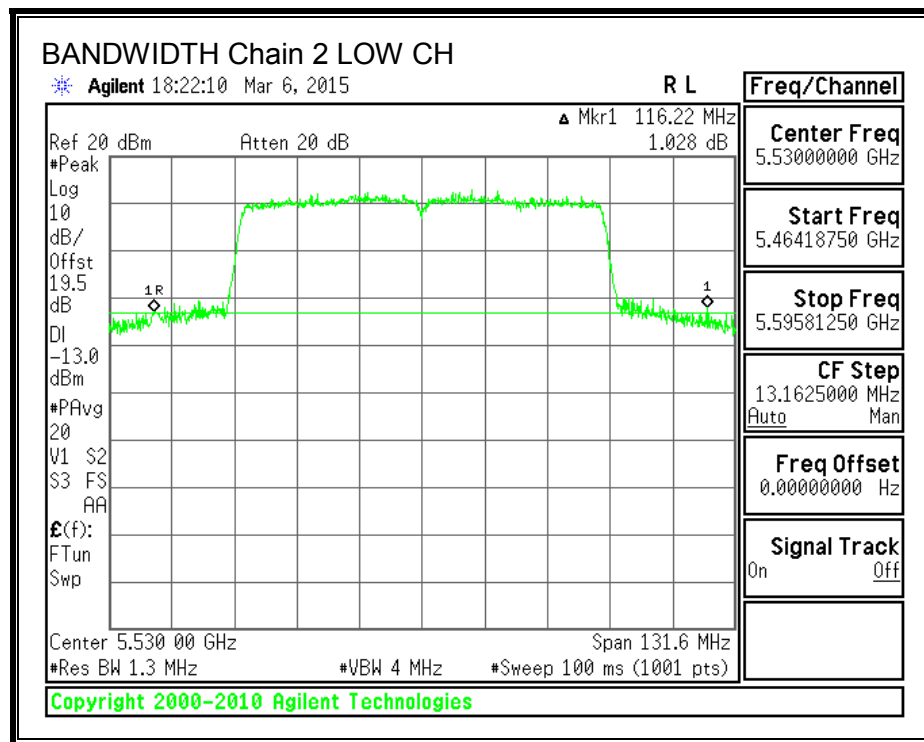


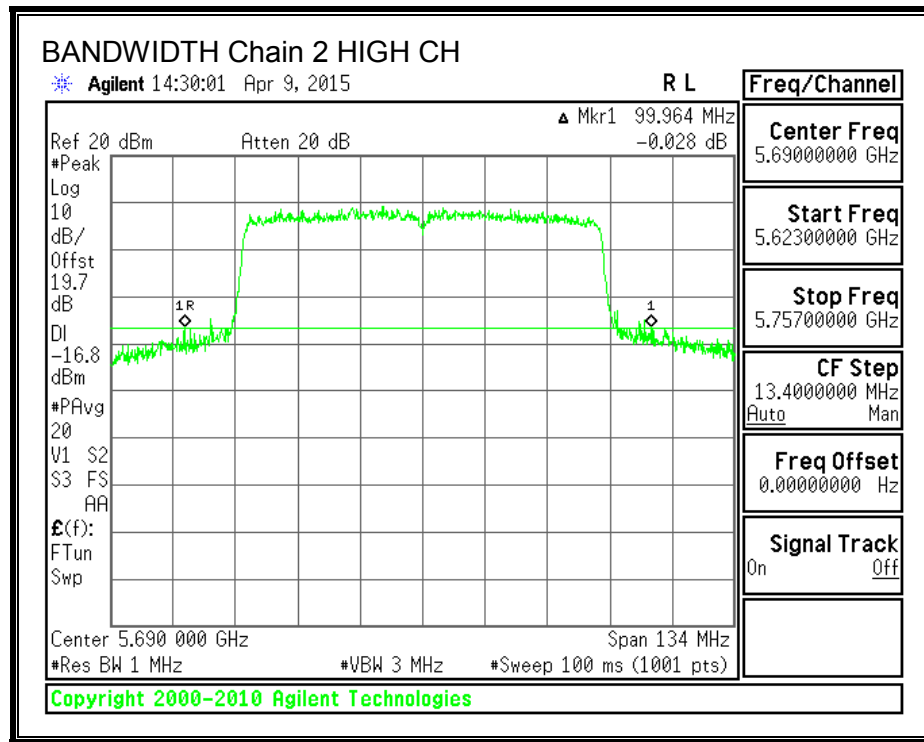
**26 dB BANDWIDTH, Chain 1**





**26 dB BANDWIDTH, Chain 2**





## 8.52.2. 99% BANDWIDTH

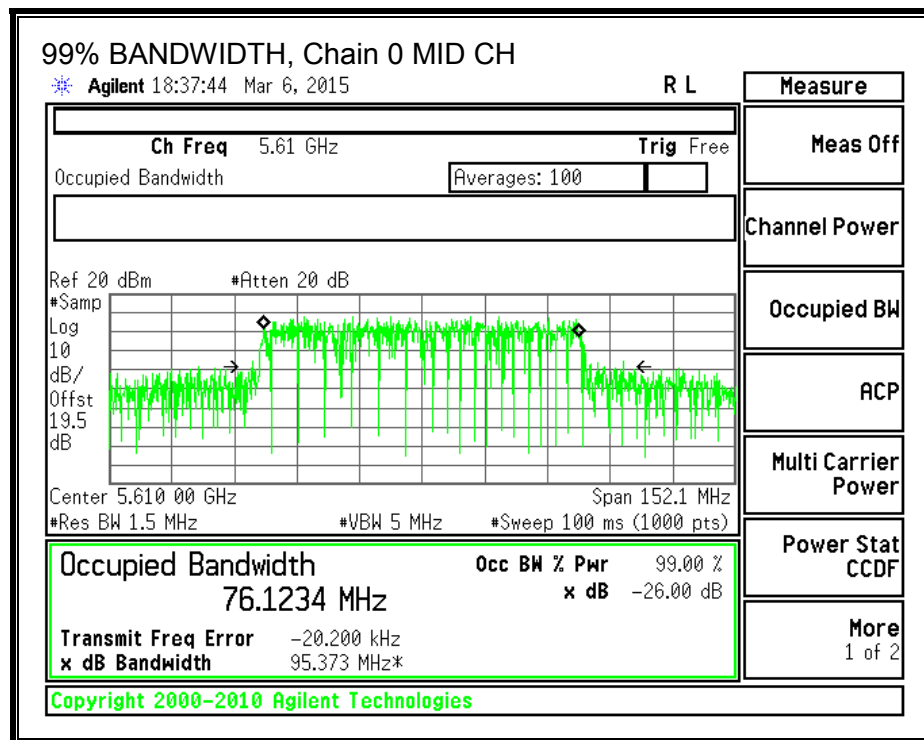
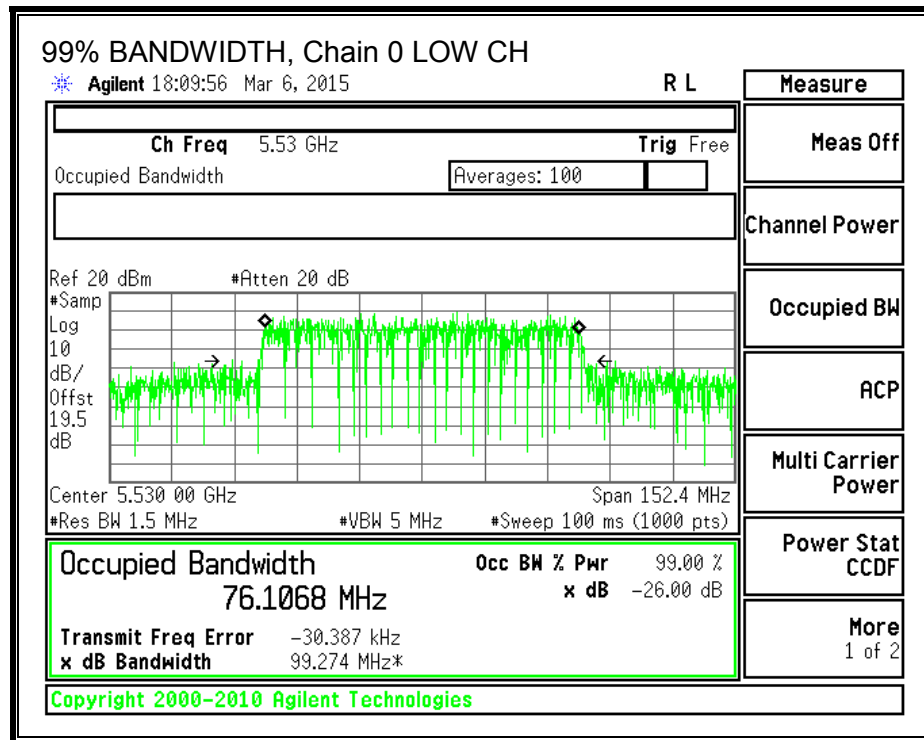
### LIMITS

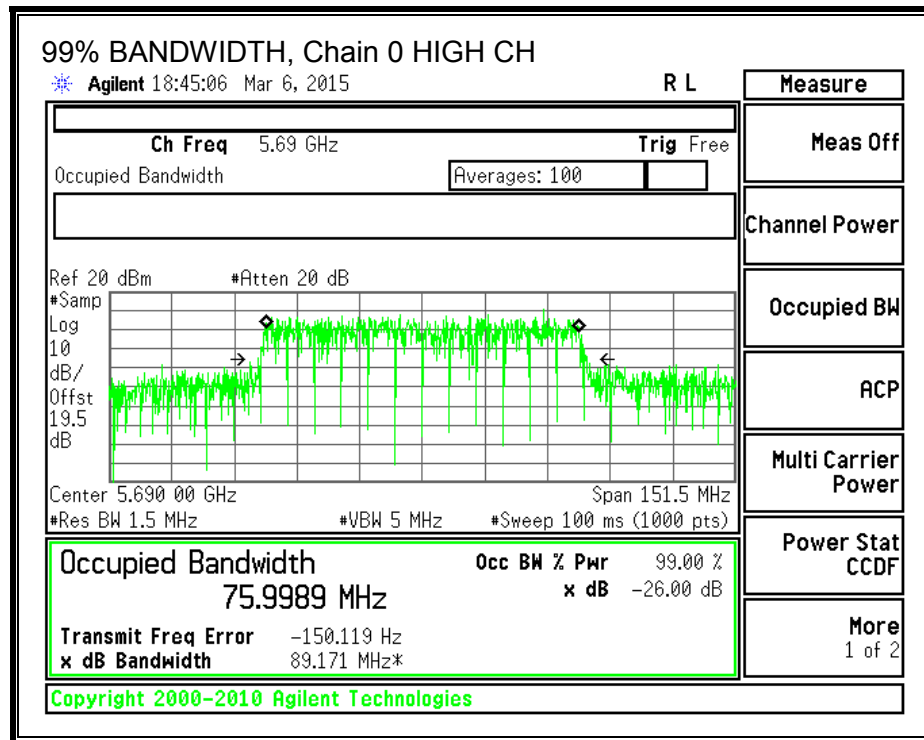
None; for reporting purposes only.

### RESULTS

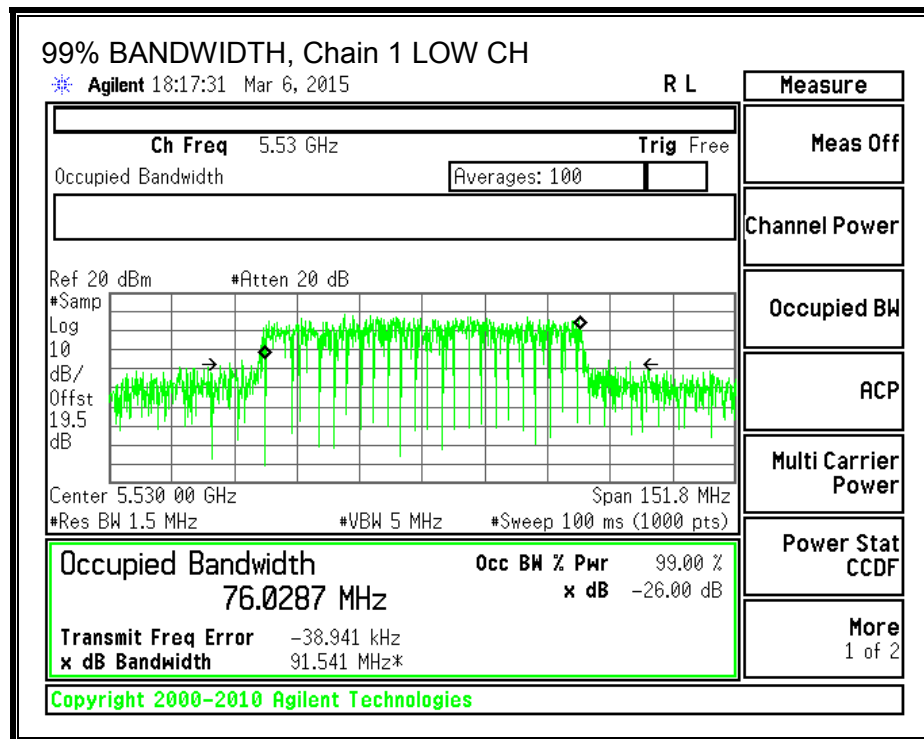
| Channel | Frequency<br>(MHz) | 99% BW<br>Chain 0<br>(MHz) | 99% BW<br>Chain 1<br>(MHz) | 99% BW<br>Chain 2<br>(MHz) |
|---------|--------------------|----------------------------|----------------------------|----------------------------|
| Low     | 5530               | 76.1068                    | 76.0287                    | 75.9534                    |
| Mid     | 5610               | 76.1234                    | 76.0641                    | 76.0862                    |
| High    | 5690               | 75.9989                    | 75.9891                    | 76.0230                    |

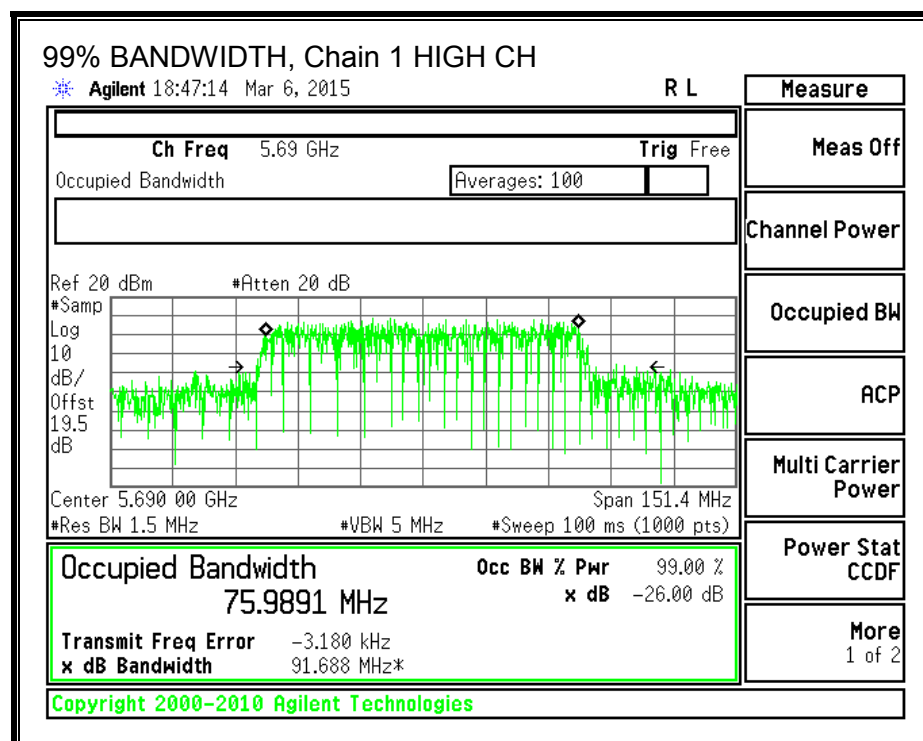
**99% BANDWIDTH, Chain 0**

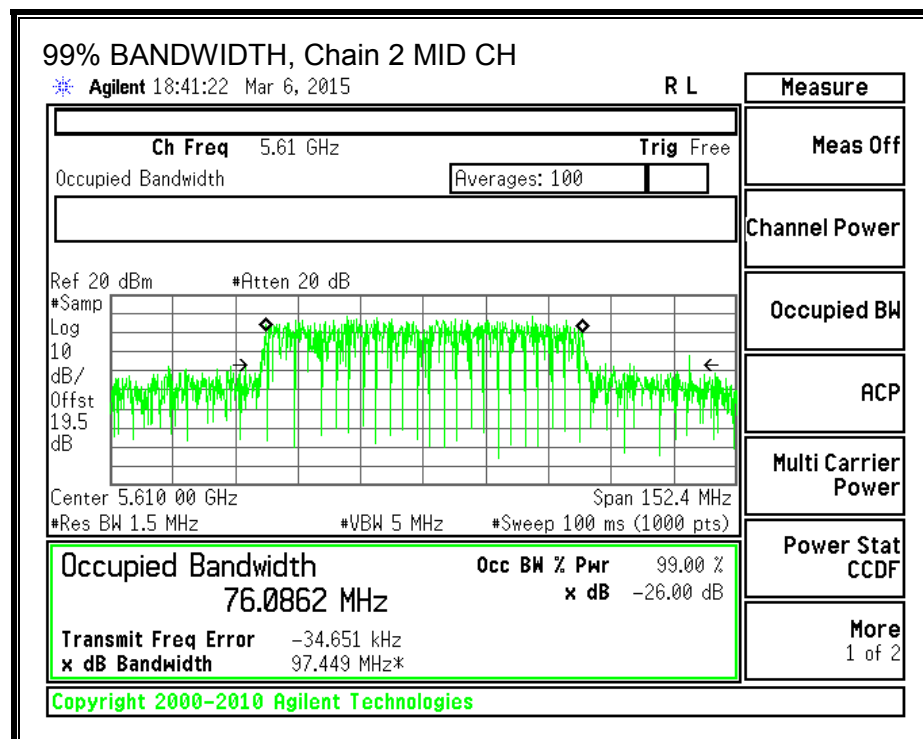
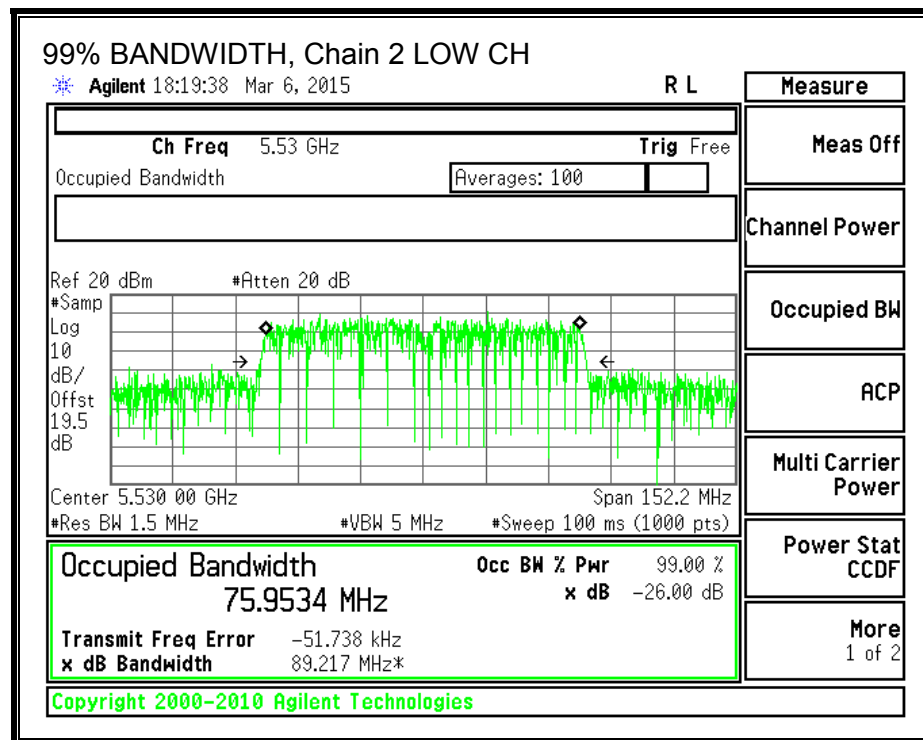


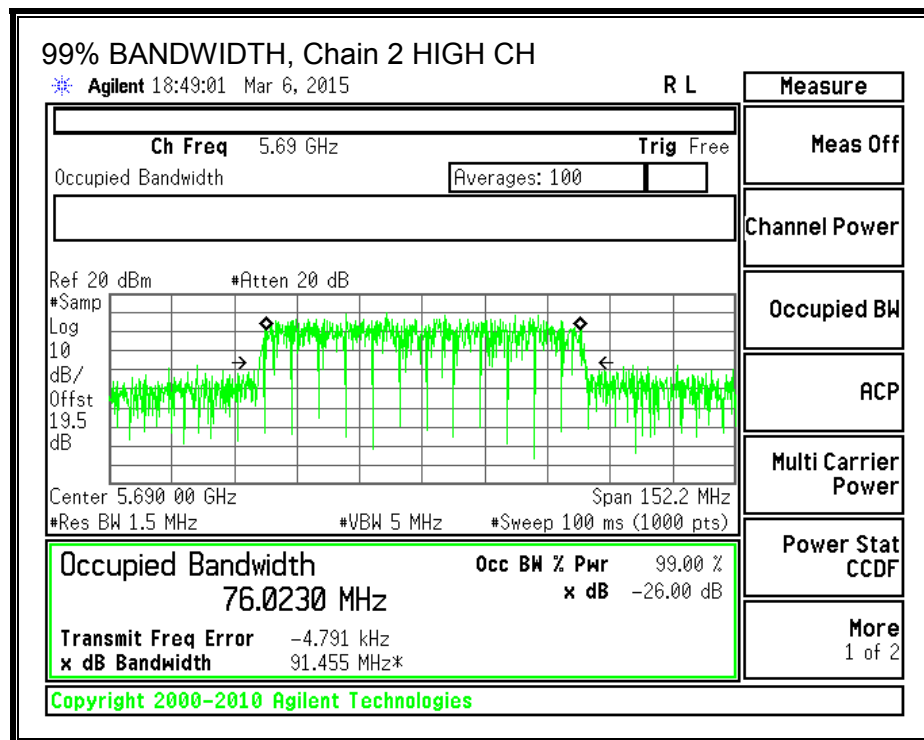


**99% BANDWIDTH, Chain 1**









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

#### DIRECTIONAL ANTENNA GAIN

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

| Chain 0<br>Antenna<br>Gain<br>(dBi) | Chain 1<br>Antenna<br>Gain<br>(dBi) | Chain 2<br>Antenna<br>Gain<br>(dBi) | Uncorrelated Chains<br>Directional<br>Gain<br>(dBi) |
|-------------------------------------|-------------------------------------|-------------------------------------|-----------------------------------------------------|
| 3.17                                | 2.09                                | 4.72                                | 4.46                                                |

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

| Chain 0<br>Antenna<br>Gain<br>(dBi) | Chain 1<br>Antenna<br>Gain<br>(dBi) | Chain 2<br>Antenna<br>Gain<br>(dBi) | Correlated Chains<br>Directional<br>Gain<br>(dBi) |
|-------------------------------------|-------------------------------------|-------------------------------------|---------------------------------------------------|
| 3.17                                | 2.09                                | 4.72                                | 9.17                                              |

## RESULTS

### Bandwidth, Antenna Gain, and Limits

| Channel | Frequency<br>(MHz) | Min<br>26 dB<br>BW<br>(MHz) | Directional<br>Gain<br>for Power<br>(dBi) | Directional<br>Gain<br>for PSD<br>(dBi) | Power<br>Limit<br>(dBm) | PSD<br>Limit<br>(dBm) |
|---------|--------------------|-----------------------------|-------------------------------------------|-----------------------------------------|-------------------------|-----------------------|
| Low     | 5530               | 116.22                      | 4.46                                      | 9.17                                    | 24.00                   | 7.83                  |
| Mid     | 5610               | 109.35                      | 4.46                                      | 9.17                                    | 24.00                   | 7.83                  |

|                    |      |                                        |
|--------------------|------|----------------------------------------|
| Duty Cycle CF (dB) | 0.18 | Included in Calculations of Corr'd PSD |
|--------------------|------|----------------------------------------|

### Output Power Results

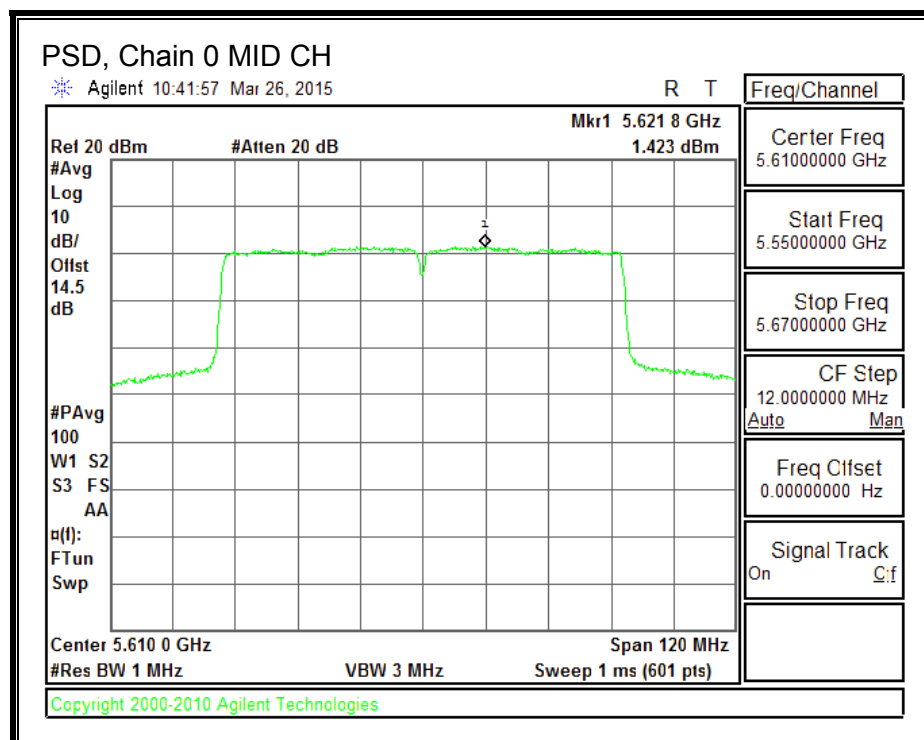
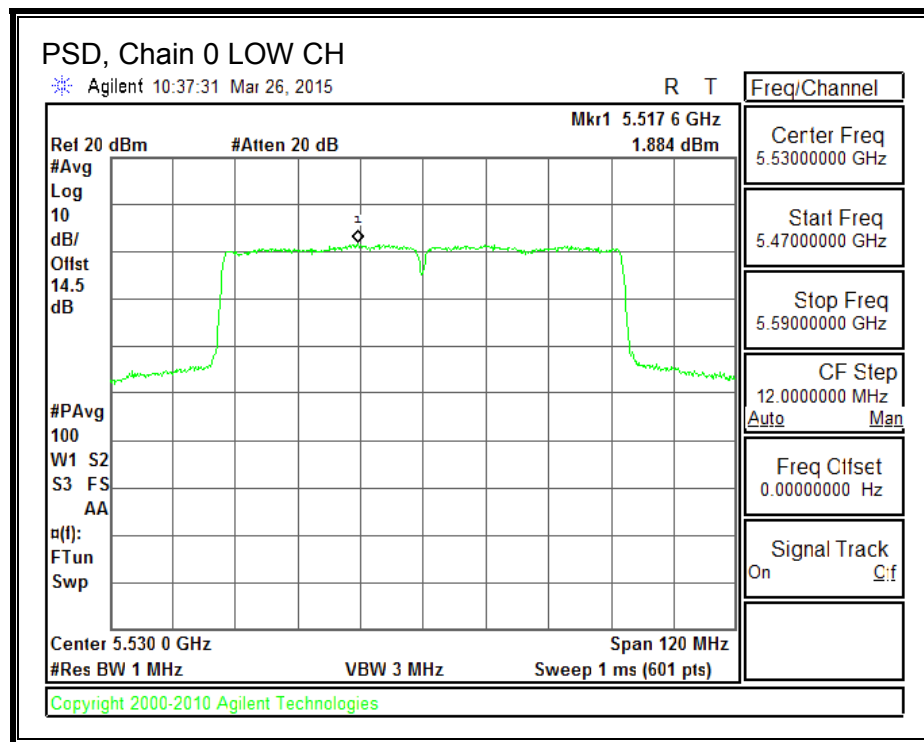
| Channel | Frequency<br>(MHz) | Chain 0<br>Meas<br>Power<br>(dBm) | Chain 1<br>Meas<br>Power<br>(dBm) | Chain 2<br>Meas<br>Power<br>(dBm) | Total<br>Corr'd<br>Power<br>(dBm) | Power<br>Limit<br>(dBm) | Power<br>Margin<br>(dB) |
|---------|--------------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|-------------------------|-------------------------|
| Low     | 5530               | 8.70                              | 8.70                              | 8.60                              | 13.44                             | 24.00                   | -10.56                  |
| Mid     | 5610               | 16.00                             | 15.40                             | 15.90                             | 20.55                             | 24.00                   | -3.45                   |

### PSD Results

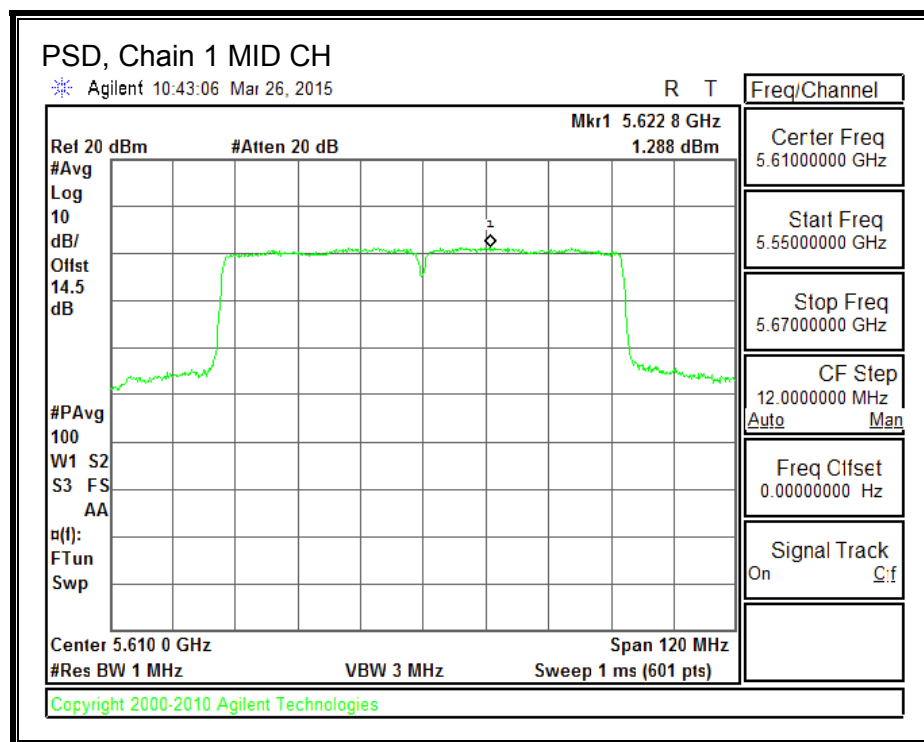
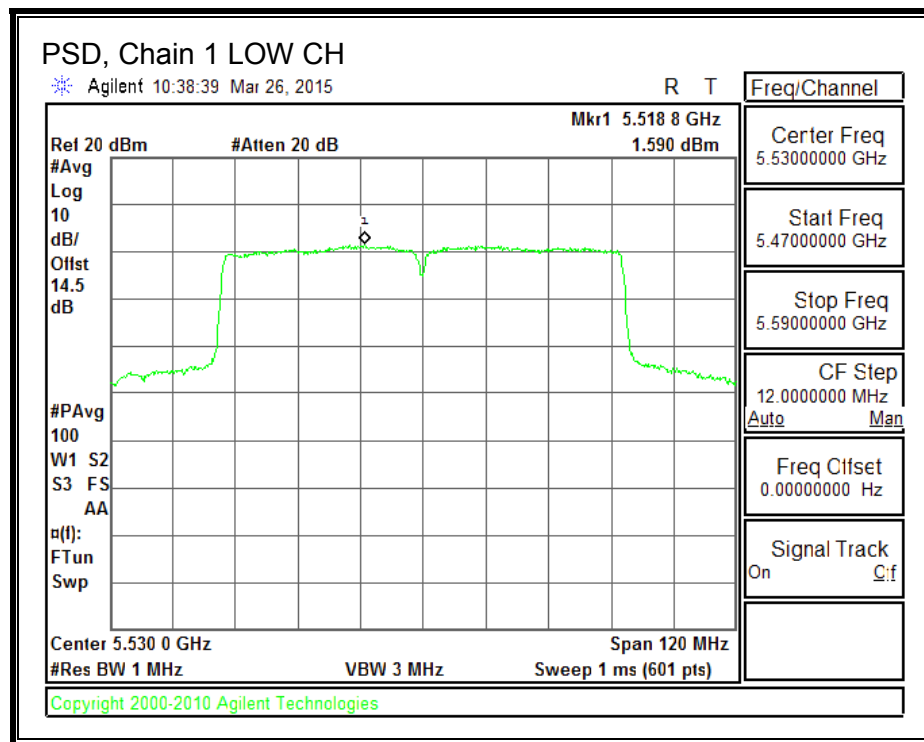
| Channel | Frequency<br>(MHz) | Chain 0<br>Meas<br>PSD<br>(dBm) | Chain 1<br>Meas<br>PSD<br>(dBm) | Chain 2<br>Meas<br>PSD<br>(dBm) | Total<br>Corr'd<br>PSD<br>(dBm) | PSD<br>Limit<br>(dBm) | PSD<br>Margin<br>(dB) |
|---------|--------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|-----------------------|-----------------------|
| Low     | 5530               | 1.884                           | 1.590                           | 1.194                           | 6.52                            | 7.83                  | -1.31                 |
| Mid     | 5610               | 1.423                           | 1.288                           | 1.234                           | 6.27                            | 7.83                  | -1.56                 |

**Note:** the power readings above were measured with gated method, and the measurement was taken only during the ON time. No duty cycle correction was necessary.

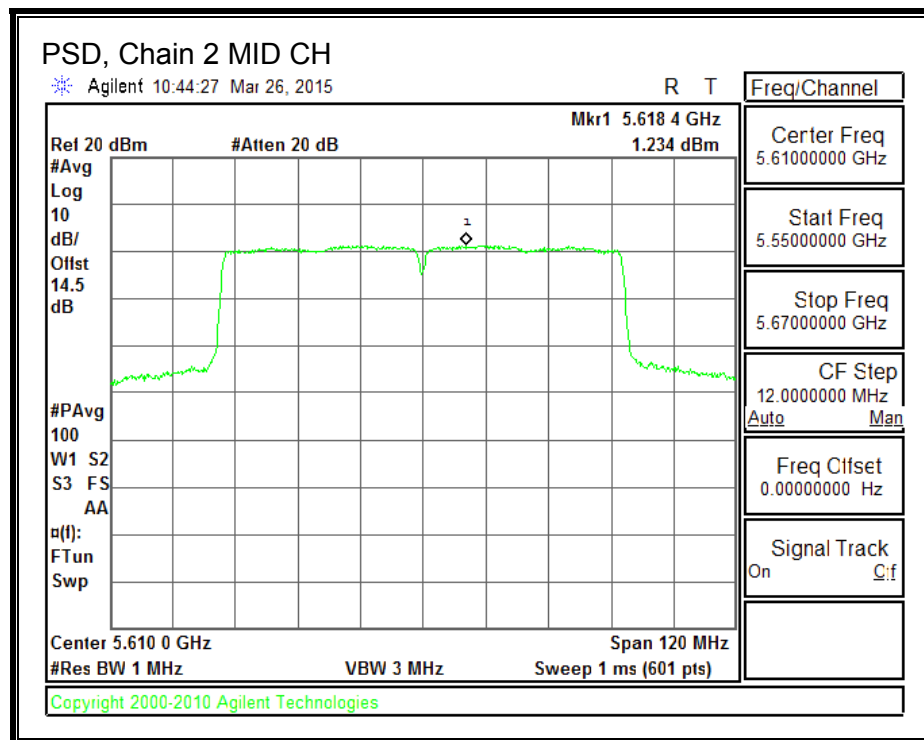
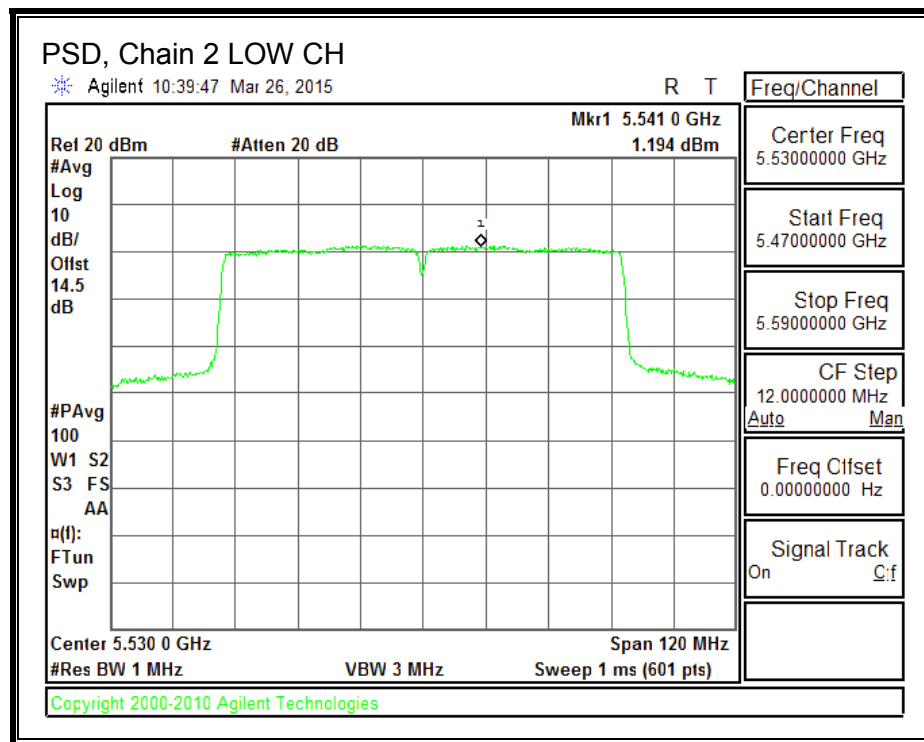
**PSD, Chain 0**



**PSD, Chain 1**



**PSD, Chain 2**



# **STRADDLE CHANNEL 138 RESULTS**

## **UNII-2C BAND**

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

| Channel | Frequency<br>(MHz) | Min<br>26 dB<br>BW<br>(MHz) | Directional<br>Gain<br>for Power<br>(dBi) | Directional<br>Gain<br>for PSD<br>(dBi) | Power<br>Limit<br>(dBm) | PSD<br>Limit<br>(dBm) |
|---------|--------------------|-----------------------------|-------------------------------------------|-----------------------------------------|-------------------------|-----------------------|
| 138     | 5690               | 84.98                       | 4.46                                      | 9.17                                    | 24.00                   | 7.83                  |

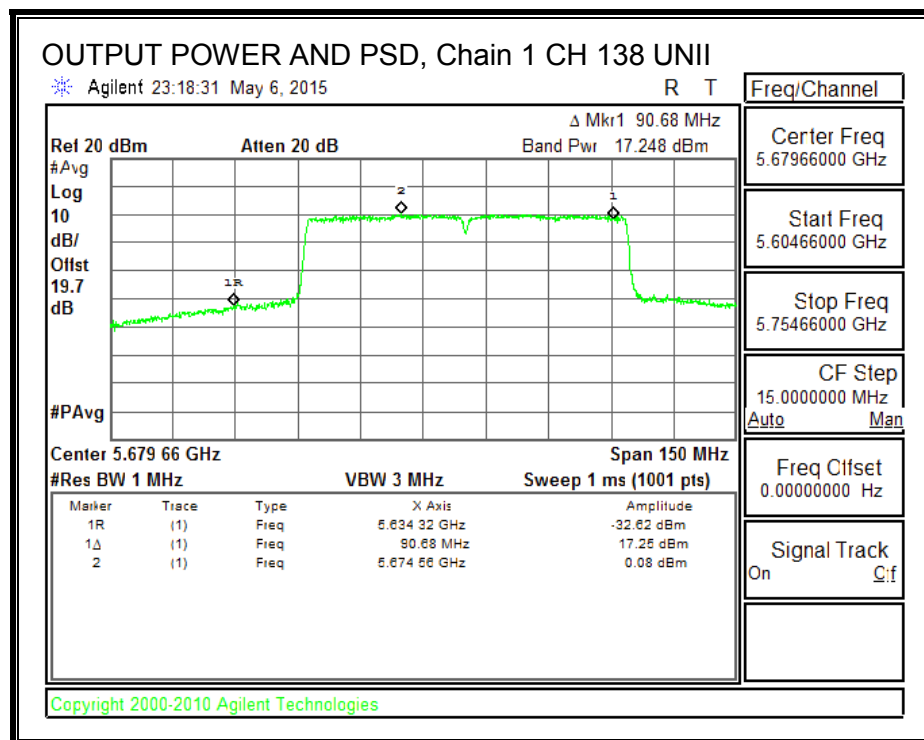
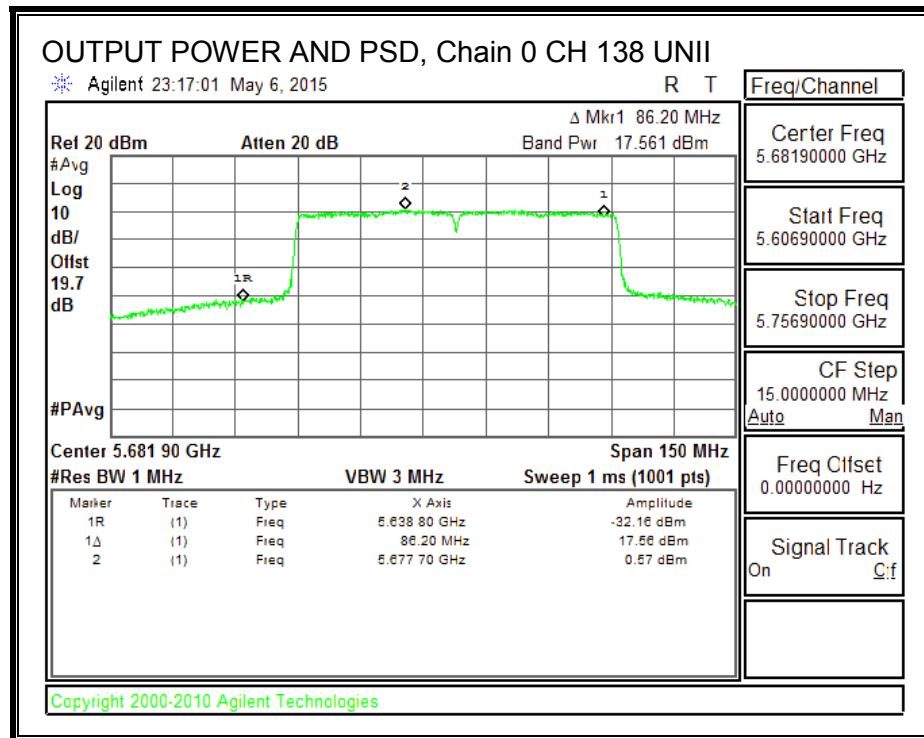
|                    |      |                                        |
|--------------------|------|----------------------------------------|
| Duty Cycle CF (dB) | 0.18 | Included in Calculations of Corr'd PSD |
|--------------------|------|----------------------------------------|

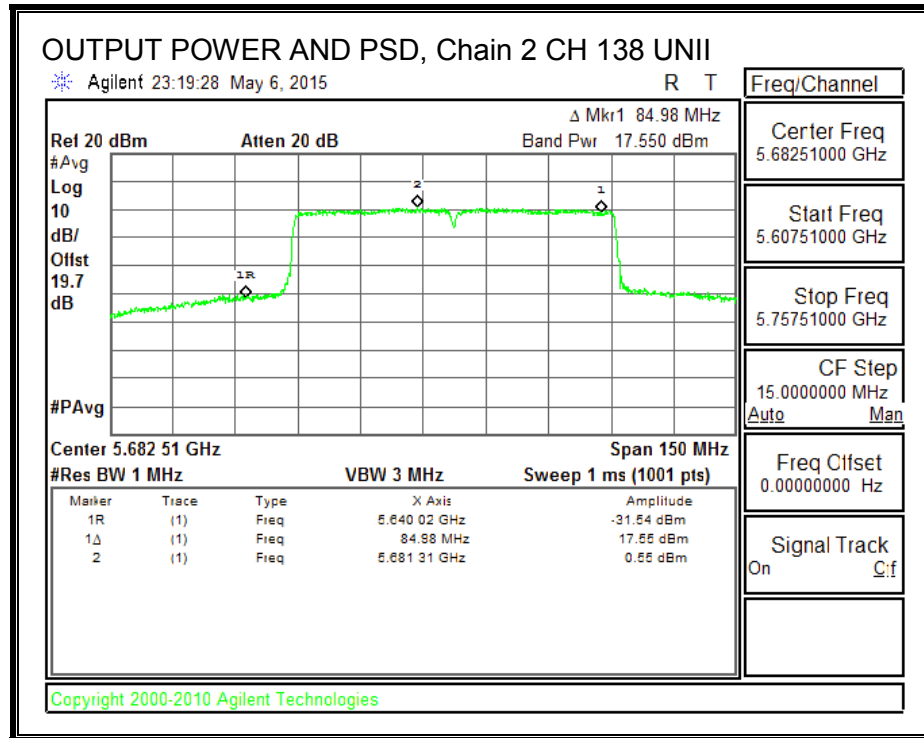
### **Output Power Results**

| Channel | Frequency<br>(MHz) | Chain 0<br>Meas<br>Power<br>(dBm) | Chain 1<br>Meas<br>Power<br>(dBm) | Chain 2<br>Meas<br>Power<br>(dBm) | Total<br>Corr'd<br>Power<br>(dBm) | Power<br>Limit<br>(dBm) | Power<br>Margin<br>(dB) |
|---------|--------------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|-------------------------|-------------------------|
| 138     | 5690               | 17.561                            | 17.248                            | 17.550                            | 22.407                            | 24.00                   | -1.59                   |

### **PSD Results**

| Channel | Frequency<br>(MHz) | Chain 0<br>Meas<br>PSD<br>(dBm) | Chain 1<br>Meas<br>PSD<br>(dBm) | Chain 2<br>Meas<br>PSD<br>(dBm) | Total<br>Corr'd<br>PSD<br>(dBm) | PSD<br>Limit<br>(dBm) | PSD<br>Margin<br>(dB) |
|---------|--------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|-----------------------|-----------------------|
| 138     | 5690               | 0.57                            | 0.08                            | 0.55                            | 5.36                            | 7.83                  | -2.47                 |





### UNII-3 BAND

#### Antenna Gain and Limit

| Channel | Frequency<br>(MHz) | Directional<br>Gain<br>for Power<br>(dBi) | Directional<br>Gain<br>for PSD<br>(dBi) | Power<br>Limit<br>(dBm) | PSD<br>Limit<br>(dBm) |
|---------|--------------------|-------------------------------------------|-----------------------------------------|-------------------------|-----------------------|
| 138     | 5690               | 4.47                                      | 9.15                                    | 30.00                   | 26.85                 |

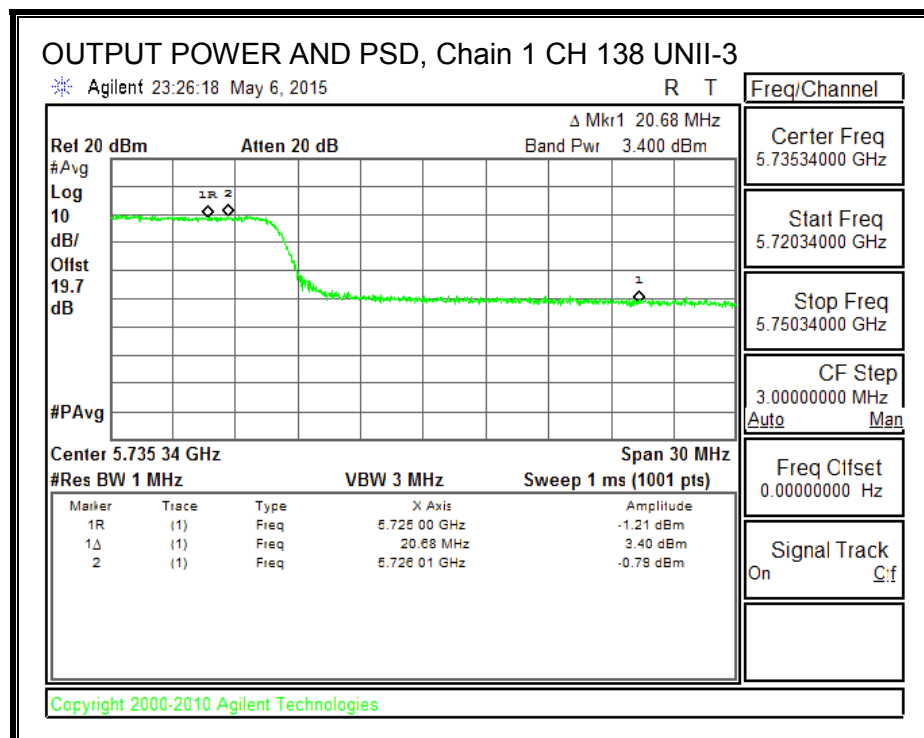
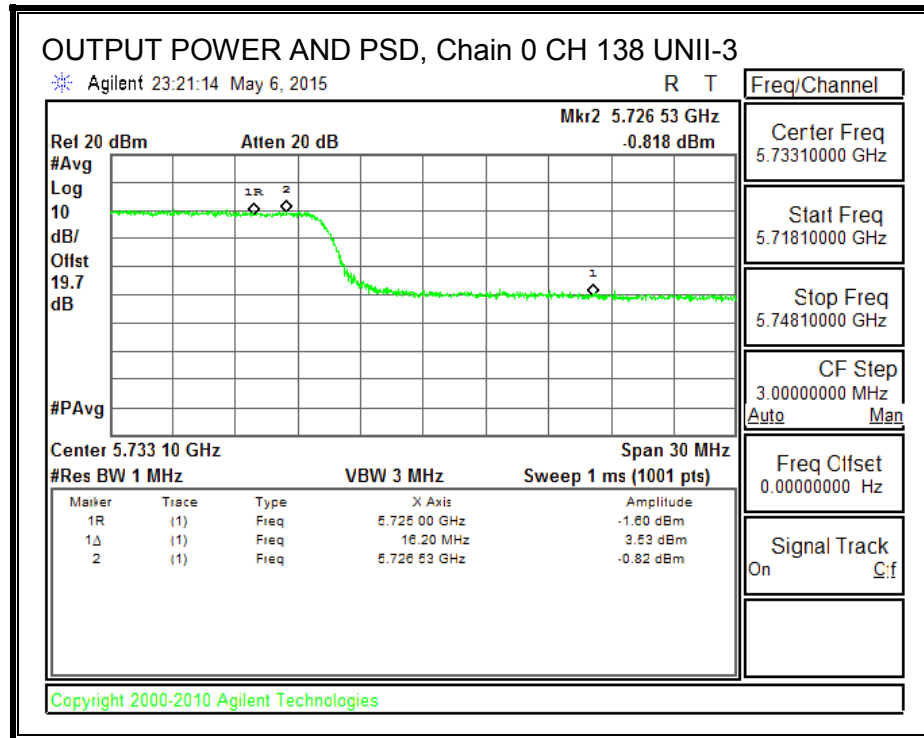
|                    |      |                                                |
|--------------------|------|------------------------------------------------|
| Duty Cycle CF (dB) | 0.18 | Included in Calculations of Corr'd Power & PSD |
|--------------------|------|------------------------------------------------|

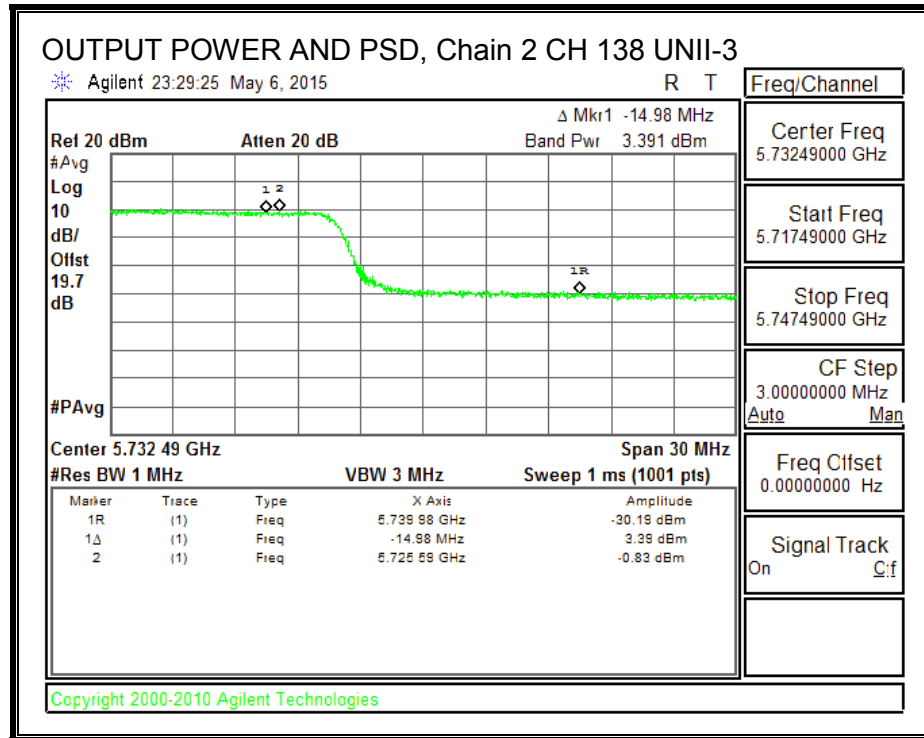
#### Output Power Results

| Channel | Frequency<br>(MHz) | Chain 0<br>Meas<br>Power<br>(dBm) | Chain 1<br>Meas<br>Power<br>(dBm) | Chain 2<br>Meas<br>Power<br>(dBm) | Total<br>Corr'd<br>Power<br>(dBm) | Power<br>Limit<br>(dBm) | Power<br>Margin<br>(dB) |
|---------|--------------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|-------------------------|-------------------------|
| 138     | 5690               | 3.530                             | 3.400                             | 3.391                             | 8.39                              | 30.00                   | -21.61                  |

#### PSD Results

| Channel | Frequency<br>(MHz) | Chain 0<br>Meas<br>PSD<br>(dBm) | Chain 1<br>Meas<br>PSD<br>(dBm) | Chain 2<br>Meas<br>PSD<br>(dBm) | Total<br>Corr'd<br>PSD<br>(dBm) | PSD<br>Limit<br>(dBm) | PSD<br>Margin<br>(dB) |
|---------|--------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|-----------------------|-----------------------|
| 138     | 5690               | -0.82                           | -0.79                           | -0.83                           | 4.14                            | 26.85                 | -22.71                |





#### **8.52.4. AVERAGE OUTPUT POWER (WHOLE FUNDAMENTAL)**

##### **LIMITS**

None; for reporting purposes only.

##### **TEST PROCEDURE**

The transmitter output is connected to a power meter.

##### **RESULTS**

###### **Output Power Results**

| <b>Channel</b> | <b>Frequency<br/>(MHz)</b> | <b>Chain 0<br/>Meas<br/>Power<br/>(dBm)</b> | <b>Chain 1<br/>Meas<br/>Power<br/>(dBm)</b> | <b>Chain 2<br/>Meas<br/>Power<br/>(dBm)</b> | <b>Total<br/>Corr'd<br/>Power<br/>(dBm)</b> |
|----------------|----------------------------|---------------------------------------------|---------------------------------------------|---------------------------------------------|---------------------------------------------|
| 138            | 5690                       | 18.00                                       | 17.90                                       | 18.00                                       | 22.74                                       |

## **8.53. 802.11ac VHT80 TxBF 3TX MODE IN THE 5.6 GHz BAND**

### **8.53.1. 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.

#### **DIRECTIONAL ANTENNA GAIN**

For Power and PSD, the TX chains are correlated and the antenna gain is unequal among the chains. The directional gain is:

| <b>Chain 0<br/>Antenna<br/>Gain<br/>(dBi)</b> | <b>Chain 1<br/>Antenna<br/>Gain<br/>(dBi)</b> | <b>Chain 2<br/>Antenna<br/>Gain<br/>(dBi)</b> | <b>Correlated Chains<br/>Directional<br/>Gain<br/>(dBi)</b> |
|-----------------------------------------------|-----------------------------------------------|-----------------------------------------------|-------------------------------------------------------------|
| 3.17                                          | 2.09                                          | 4.72                                          | 9.17                                                        |

## RESULTS

### Bandwidth, Antenna Gain, and Limits

| Channel | Frequency<br>(MHz) | Min<br>26 dB<br>BW<br>(MHz) | Directional<br>Gain<br>for Power<br>(dBi) | Directional<br>Gain<br>for PSD<br>(dBi) | Power<br>Limit<br>(dBm) | PSD<br>Limit<br>(dBm) |
|---------|--------------------|-----------------------------|-------------------------------------------|-----------------------------------------|-------------------------|-----------------------|
| Low     | 5530               | 116.22                      | 9.17                                      | 9.17                                    | 20.83                   | 7.83                  |
| Mid     | 5610               | 109.35                      | 9.17                                      | 9.17                                    | 20.83                   | 7.83                  |

|                    |      |                                        |
|--------------------|------|----------------------------------------|
| Duty Cycle CF (dB) | 0.18 | Included in Calculations of Corr'd PSD |
|--------------------|------|----------------------------------------|

### Output Power Results

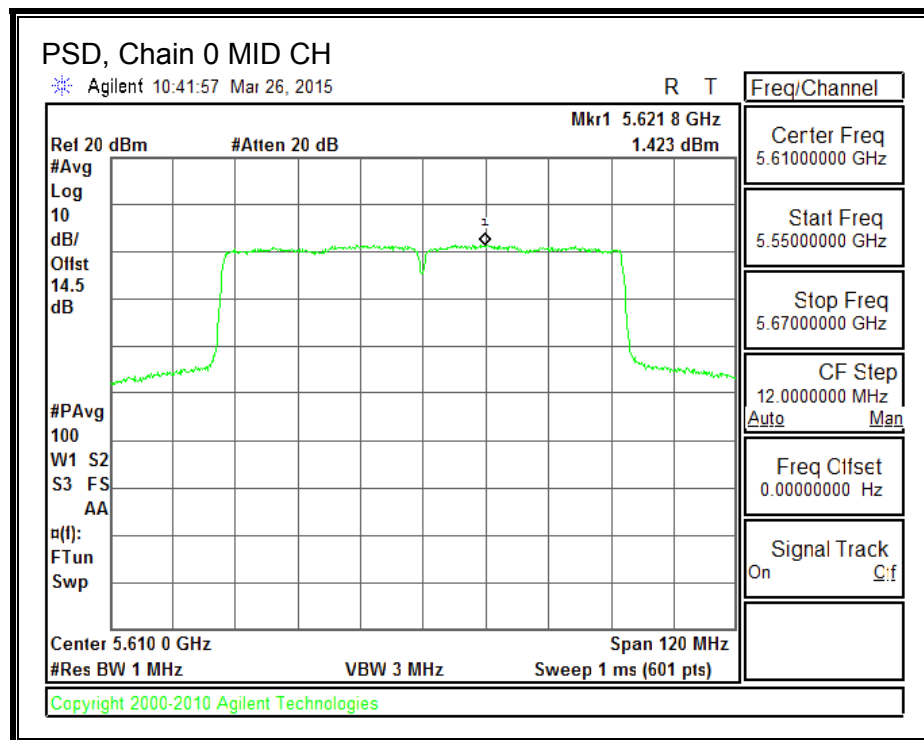
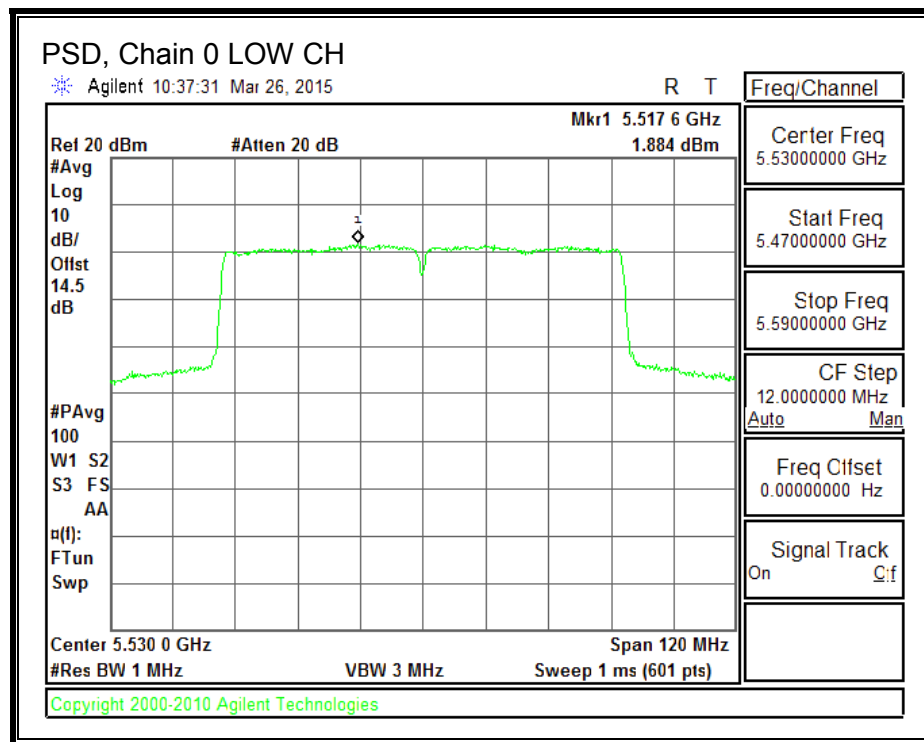
| Channel | Frequency<br>(MHz) | Chain 0<br>Meas<br>Power<br>(dBm) | Chain 1<br>Meas<br>Power<br>(dBm) | Chain 2<br>Meas<br>Power<br>(dBm) | Total<br>Corr'd<br>Power<br>(dBm) | Power<br>Limit<br>(dBm) | Power<br>Margin<br>(dB) |
|---------|--------------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|-------------------------|-------------------------|
| Low     | 5530               | 8.70                              | 8.60                              | 8.60                              | 13.40                             | 20.83                   | -7.43                   |
| Mid     | 5610               | 14.00                             | 13.90                             | 14.00                             | 18.74                             | 20.83                   | -2.09                   |

### PSD Results

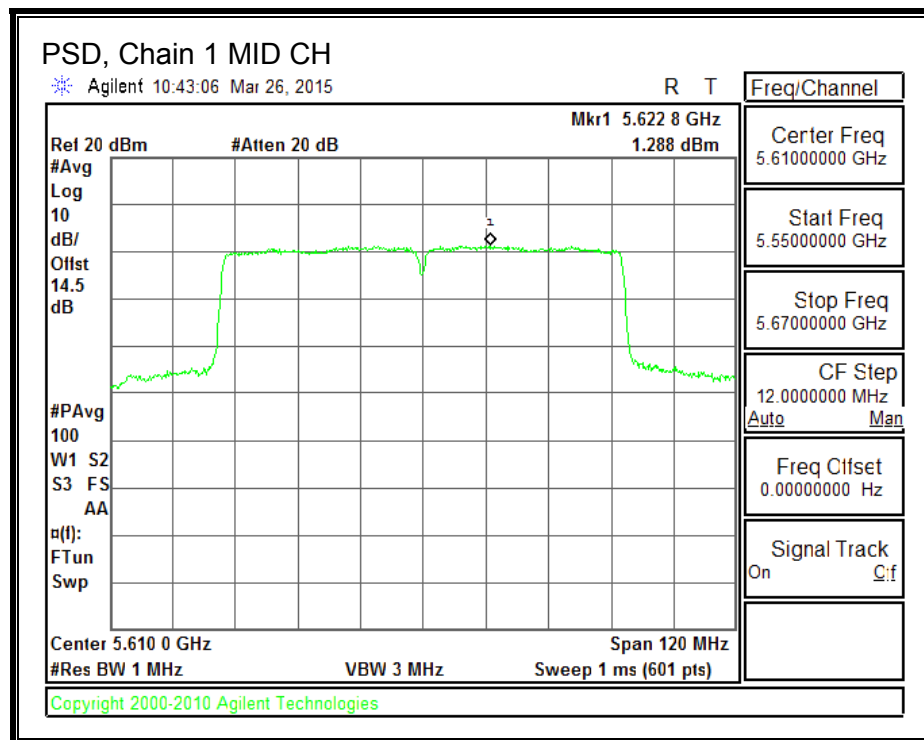
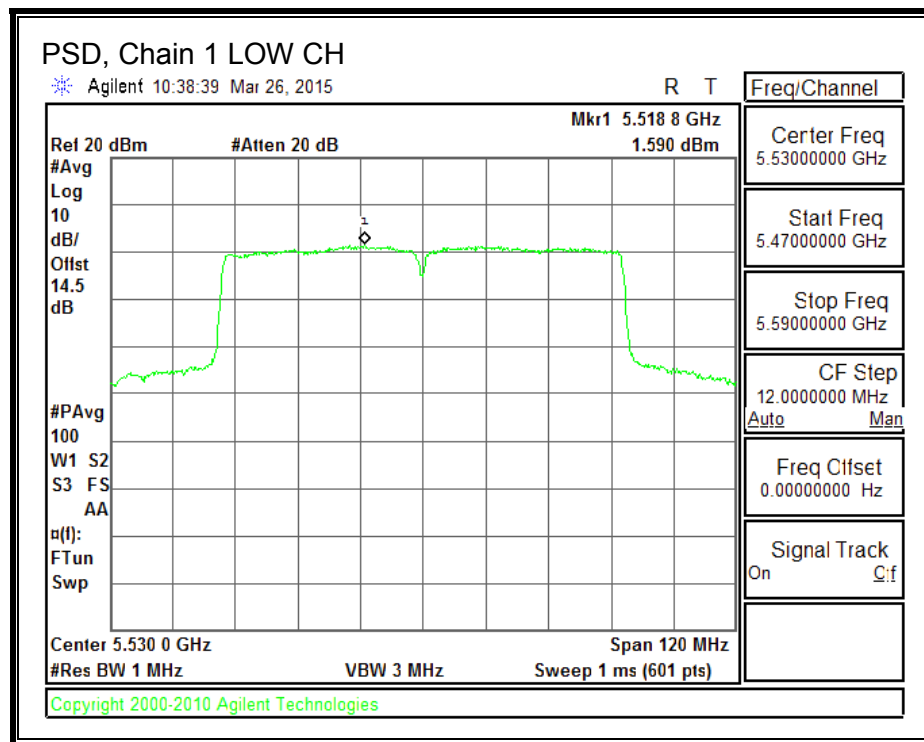
| Channel | Frequency<br>(MHz) | Chain 0<br>Meas<br>PSD<br>(dBm) | Chain 1<br>Meas<br>PSD<br>(dBm) | Chain 2<br>Meas<br>PSD<br>(dBm) | Total<br>Corr'd<br>PSD<br>(dBm) | PSD<br>Limit<br>(dBm) | PSD<br>Margin<br>(dB) |
|---------|--------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|-----------------------|-----------------------|
| Low     | 5530               | 1.884                           | 1.590                           | 1.194                           | 6.52                            | 7.83                  | -1.31                 |
| Mid     | 5610               | 1.423                           | 1.288                           | 1.234                           | 6.27                            | 7.83                  | -1.56                 |

**Note:** the power readings above were measured with gated method, and the measurement was taken only during the ON time. No duty cycle correction was necessary.

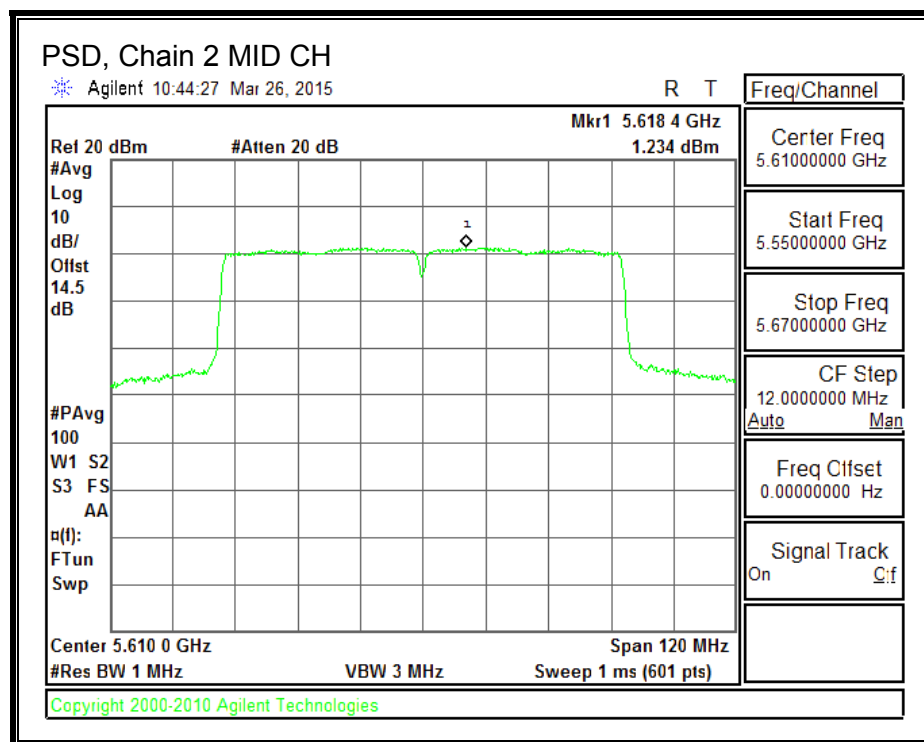
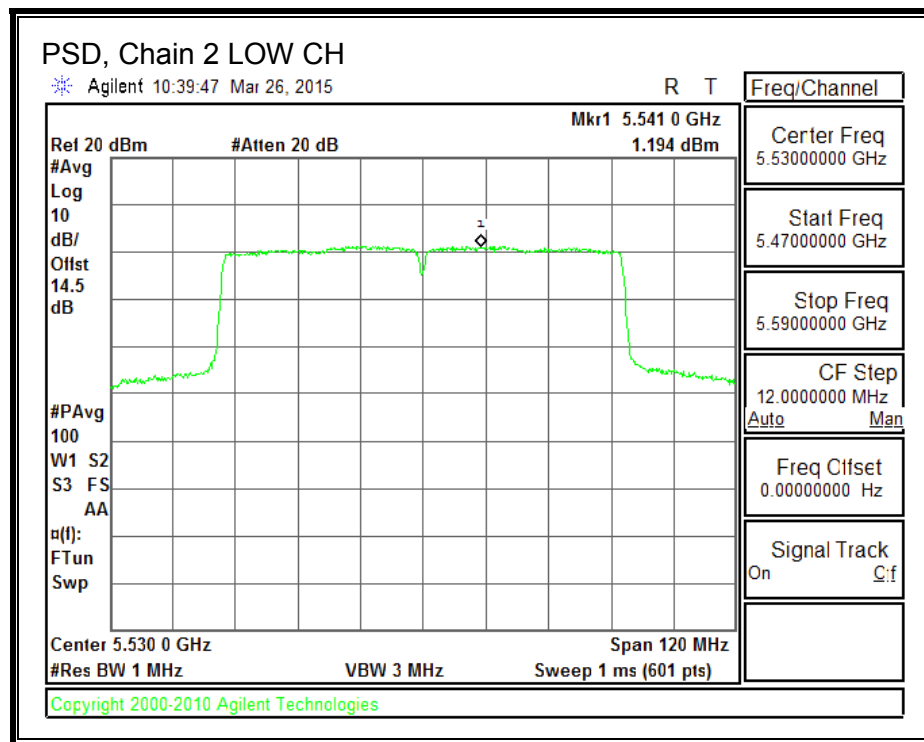
**PSD, Chain 0**



**PSD, Chain 1**



**PSD, Chain 2**



# **STRADDLE CHANNEL 138 RESULTS**

## **UNII-2C BAND**

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

| Channel | Frequency<br>(MHz) | Min<br>26 dB<br>BW<br>(MHz) | Directional<br>Gain<br>for Power<br>(dBi) | Directional<br>Gain<br>for PSD<br>(dBi) | Power<br>Limit<br>(dBm) | PSD<br>Limit<br>(dBm) |
|---------|--------------------|-----------------------------|-------------------------------------------|-----------------------------------------|-------------------------|-----------------------|
| 138     | 5690               | 84.98                       | 9.17                                      | 9.17                                    | 20.83                   | 7.83                  |

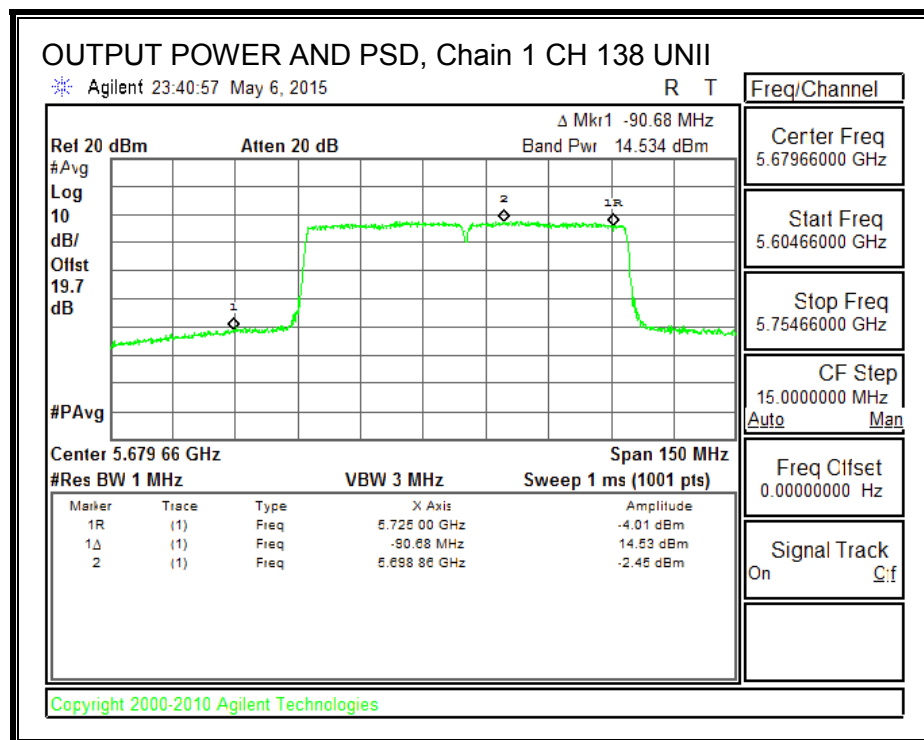
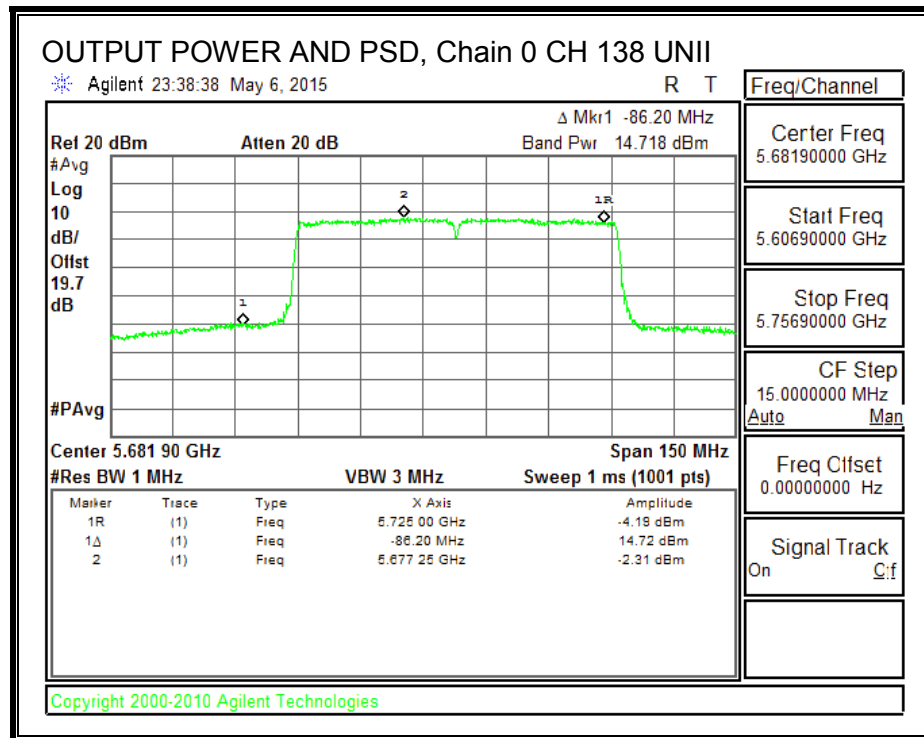
|                    |      |                                        |
|--------------------|------|----------------------------------------|
| Duty Cycle CF (dB) | 0.18 | Included in Calculations of Corr'd PSD |
|--------------------|------|----------------------------------------|

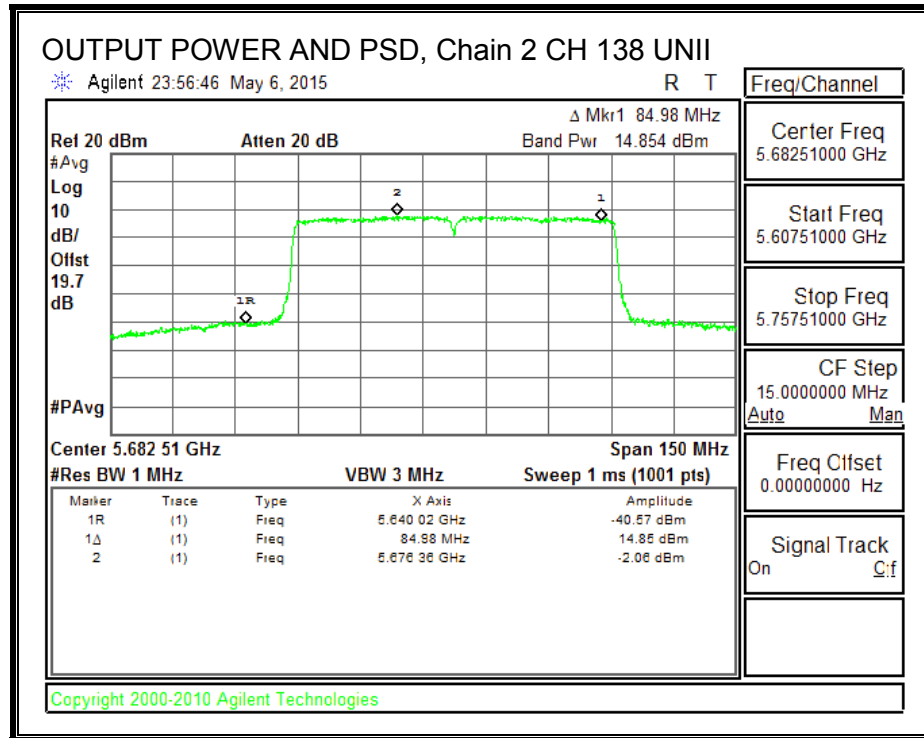
### **Output Power Results**

| Channel | Frequency<br>(MHz) | Chain 0<br>Meas<br>Power<br>(dBm) | Chain 1<br>Meas<br>Power<br>(dBm) | Chain 2<br>Meas<br>Power<br>(dBm) | Total<br>Corr'd<br>Power<br>(dBm) | Power<br>Limit<br>(dBm) | Power<br>Margin<br>(dB) |
|---------|--------------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|-------------------------|-------------------------|
| 138     | 5690               | 14.718                            | 14.534                            | 14.854                            | 19.66                             | 20.83                   | -1.17                   |

### **PSD Results**

| Channel | Frequency<br>(MHz) | Chain 0<br>Meas<br>PSD<br>(dBm) | Chain 1<br>Meas<br>PSD<br>(dBm) | Chain 2<br>Meas<br>PSD<br>(dBm) | Total<br>Corr'd<br>PSD<br>(dBm) | PSD<br>Limit<br>(dBm) | PSD<br>Margin<br>(dB) |
|---------|--------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|-----------------------|-----------------------|
| 138     | 5690               | -2.31                           | -2.45                           | -2.06                           | 2.68                            | 7.83                  | -5.15                 |





**UNII-3 BAND**

**Antenna Gain and Limit**

| Channel | Frequency<br>(MHz) | Directional<br>Gain<br>for Power<br>(dBi) | Directional<br>Gain<br>for PSD<br>(dBi) | Power<br>Limit<br>(dBm) | PSD<br>Limit<br>(dBm) |
|---------|--------------------|-------------------------------------------|-----------------------------------------|-------------------------|-----------------------|
| 138     | 5690               | 9.15                                      | 9.15                                    | 26.85                   | 26.85                 |

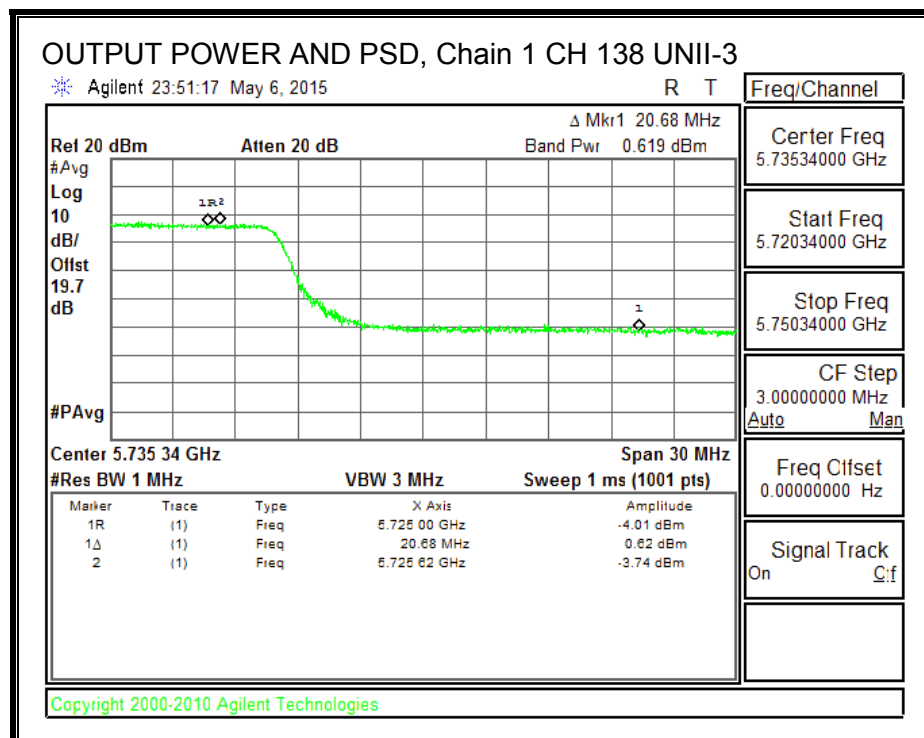
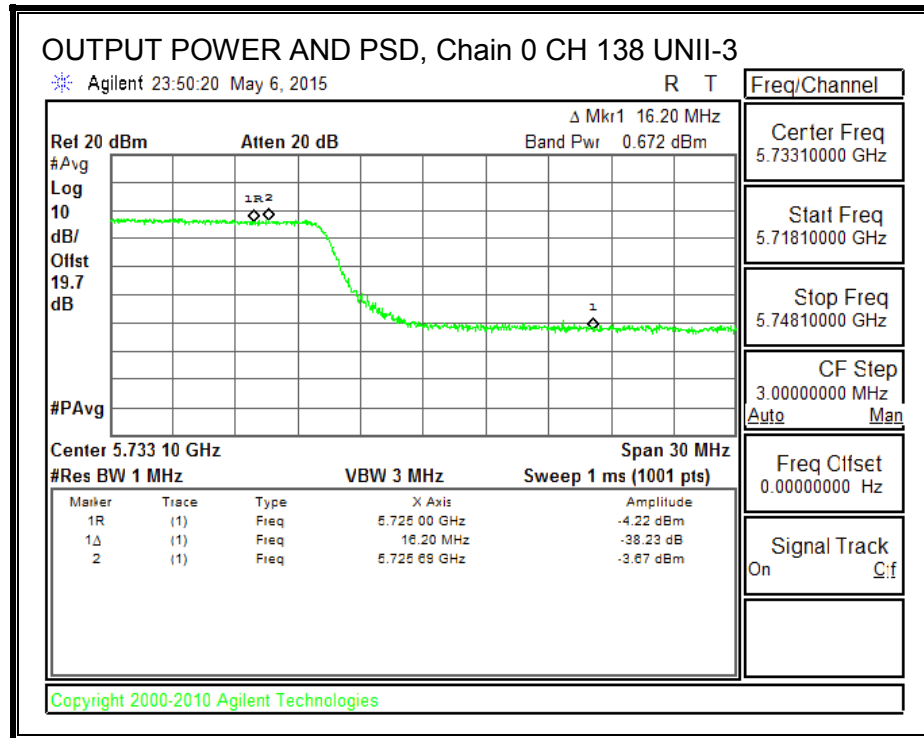
|                    |      |                                                |
|--------------------|------|------------------------------------------------|
| Duty Cycle CF (dB) | 0.18 | Included in Calculations of Corr'd Power & PSD |
|--------------------|------|------------------------------------------------|

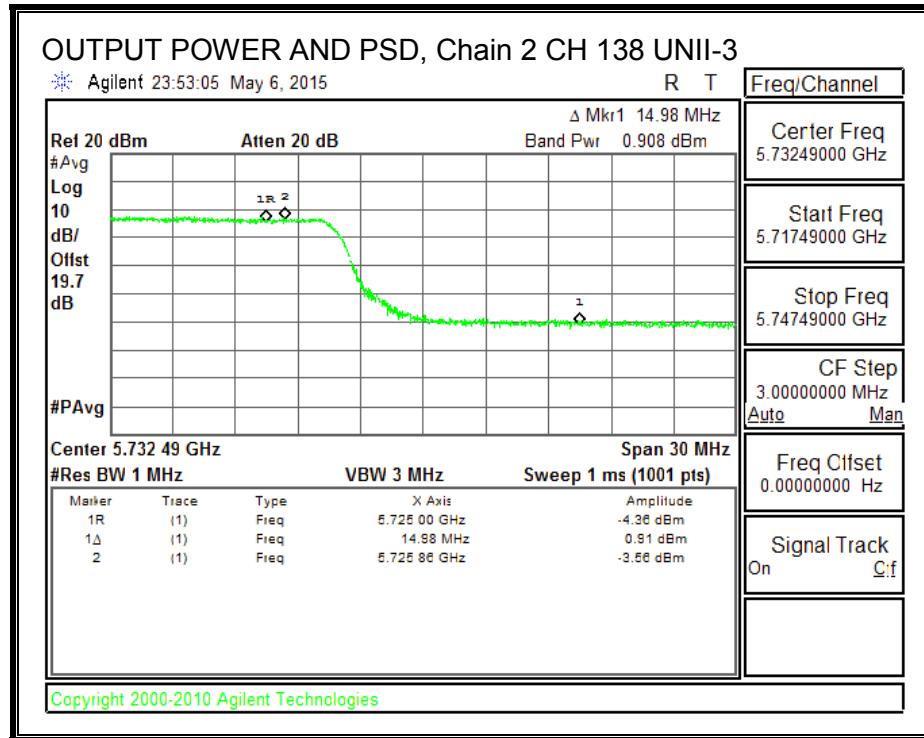
**Output Power Results**

| Channel | Frequency<br>(MHz) | Chain 0<br>Meas<br>Power<br>(dBm) | Chain 1<br>Meas<br>Power<br>(dBm) | Chain 2<br>Meas<br>Power<br>(dBm) | Total<br>Corr'd<br>Power<br>(dBm) | Power<br>Limit<br>(dBm) | Power<br>Margin<br>(dB) |
|---------|--------------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|-------------------------|-------------------------|
| 138     | 5690               | 0.672                             | 0.619                             | 0.908                             | 5.69                              | 26.85                   | -21.16                  |

**PSD Results**

| Channel | Frequency<br>(MHz) | Chain 0<br>Meas<br>PSD<br>(dBm) | Chain 1<br>Meas<br>PSD<br>(dBm) | Chain 2<br>Meas<br>PSD<br>(dBm) | Total<br>Corr'd<br>PSD<br>(dBm) | PSD<br>Limit<br>(dBm) | PSD<br>Margin<br>(dB) |
|---------|--------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|-----------------------|-----------------------|
| 138     | 5690               | -3.67                           | -3.74                           | -3.56                           | 1.30                            | 26.85                 | -25.55                |





## 8.53.2. AVERAGE OUTPUT POWER (WHOLE FUNDAMENTAL)

### LIMITS

None; for reporting purposes only.

### TEST PROCEDURE

The transmitter output is connected to a power meter.

### RESULTS

#### Output Power Results

| Channel | Frequency<br>(MHz) | Chain 0<br>Meas<br>Power<br>(dBm) | Chain 1<br>Meas<br>Power<br>(dBm) | Chain 2<br>Meas<br>Power<br>(dBm) | Total<br>Corr'd<br>Power<br>(dBm) |
|---------|--------------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|
| 138     | 5690               | 14.90                             | 14.80                             | 15.00                             | 19.67                             |

## **8.54. 802.11a LEGACY MODE IN THE 5.8 GHz BAND**

### **8.54.1. OUTPUT POWER**

#### **LIMITS**

FCC §15.407 (a) (3)

For the band 5.725-5.85 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. In addition, the maximum power spectral density shall not exceed 30 dBm in any 500-kHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

#### **DIRECTIONAL ANTENNA GAIN**

This is SISO mode, AG is the highest (worst-case) = 5.86 dBi

## **RESULTS**

### **Antenna Gain and Limit**

| Channel | Frequency<br>(MHz) | Directional<br>Gain<br>for Power<br>(dBi) | Power<br>Limit<br>(dBm) |
|---------|--------------------|-------------------------------------------|-------------------------|
| Low     | 5745               | 5.86                                      | 30.00                   |
| Mid     | 5785               | 5.86                                      | 30.00                   |
| High    | 5825               | 5.86                                      | 30.00                   |

### **Output Power Results**

| Channel | Frequency<br>(MHz) | Chain 0<br>Meas<br>Power<br>(dBm) | Total<br>Corr'd<br>Power<br>(dBm) | Power<br>Limit<br>(dBm) | Power<br>Margin<br>(dB) |
|---------|--------------------|-----------------------------------|-----------------------------------|-------------------------|-------------------------|
| Low     | 5745               | 14.30                             | 14.30                             | 30.00                   | -15.70                  |
| Mid     | 5785               | 18.00                             | 18.00                             | 30.00                   | -12.00                  |
| High    | 5825               | 17.10                             | 17.10                             | 30.00                   | -12.90                  |

**Note:** the power readings above were measured with gated method, and the measurement was taken only during the ON time. No duty cycle correction was necessary.

## **8.54.2. Maximum Power Spectral Density (PSD)**

### **LIMITS**

FCC §15.407 (a) (3)

For the band 5.725-5.85 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. In addition, the maximum power spectral density shall not exceed 30 dBm in any 500-kHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

### **DIRECTIONAL ANTENNA GAIN**

This is SISO mode, AG is the highest (worst-case) = 5.86 dBi

## **RESULTS**

### **Antenna Gain and Limits**

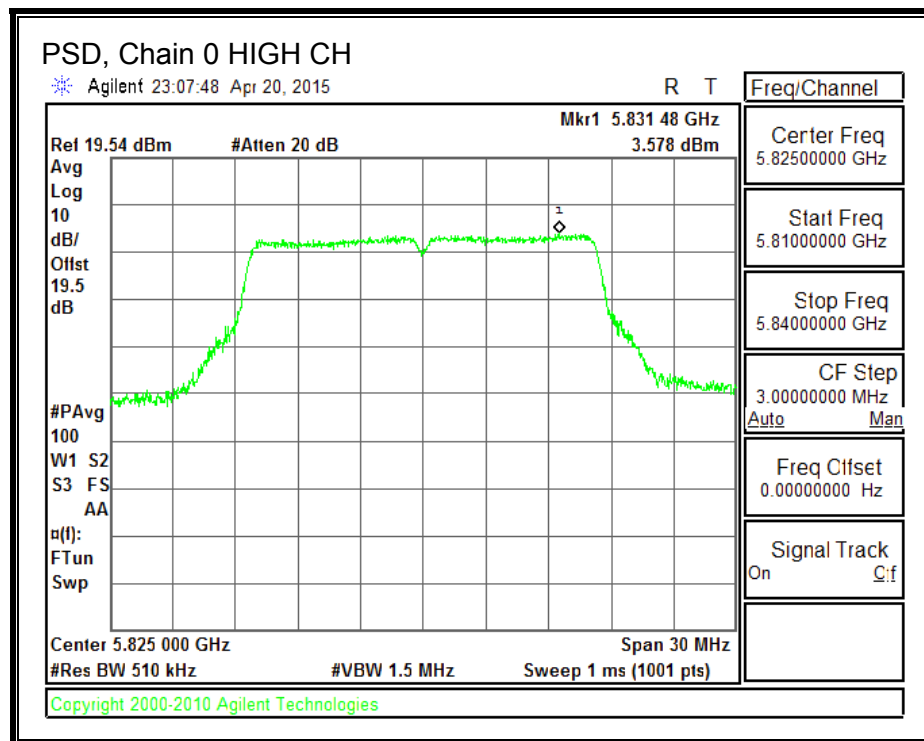
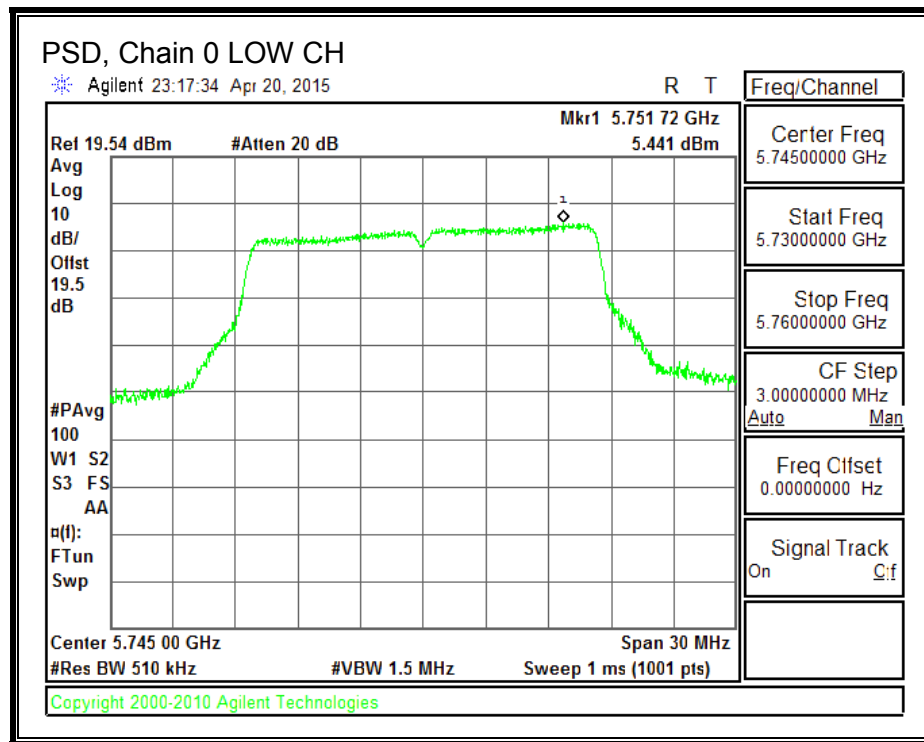
| <b>Channel</b> | <b>Frequency<br/>(MHz)</b> | <b>Directional<br/>Gain<br/>(dBi)</b> | <b>PSD<br/>Limit<br/>(dBm)</b> |
|----------------|----------------------------|---------------------------------------|--------------------------------|
| Low            | 5745                       | 5.86                                  | 30.00                          |
| High           | 5825                       | 5.86                                  | 30.00                          |

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

### **PSD Results**

| <b>Channel</b> | <b>Frequency<br/>(MHz)</b> | <b>Chain 0<br/>Meas<br/>PSD<br/>(dBm)</b> | <b>Total<br/>Corr'd<br/>PSD<br/>(dBm)</b> | <b>PSD<br/>Limit<br/>(dBm)</b> | <b>PSD<br/>Margin<br/>(dB)</b> |
|----------------|----------------------------|-------------------------------------------|-------------------------------------------|--------------------------------|--------------------------------|
| Low            | 5745                       | 5.441                                     | 5.441                                     | 30.00                          | -24.56                         |
| High           | 5825                       | 3.578                                     | 3.578                                     | 30.00                          | -26.42                         |

**PSD, Chain 0**



## **8.55. 802.11n HT20 CDD 2TX MODE IN THE 5.8 GHz BAND**

### **8.55.1. OUTPUT POWER**

#### **LIMITS**

FCC §15.407 (a) (3)

For the band 5.725-5.85 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. In addition, the maximum power spectral density shall not exceed 30 dBm in any 500-kHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

#### **DIRECTIONAL ANTENNA GAIN**

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

| <b>Chain 0<br/>Antenna<br/>Gain<br/>(dBi)</b> | <b>Chain 2<br/>Antenna<br/>Gain<br/>(dBi)</b> | <b>Uncorrelated Chains<br/>Directional<br/>Gain<br/>(dBi)</b> |
|-----------------------------------------------|-----------------------------------------------|---------------------------------------------------------------|
| 3.09                                          | 4.86                                          | 5.06                                                          |

## **RESULTS**

### **Antenna Gain and Limit**

| Channel | Frequency<br>(MHz) | Directional<br>Gain<br>for Power<br>(dBi) | Power<br>Limit<br>(dBm) |
|---------|--------------------|-------------------------------------------|-------------------------|
| Low     | 5745               | 5.06                                      | 30.00                   |
| Mid     | 5785               | 5.06                                      | 30.00                   |
| High    | 5825               | 5.06                                      | 30.00                   |

### **Output Power Results**

| Channel | Frequency<br>(MHz) | Chain 0<br>Meas<br>Power<br>(dBm) | Chain 1<br>Meas<br>Power<br>(dBm) | Total<br>Corr'd<br>Power<br>(dBm) | Power<br>Limit<br>(dBm) | Power<br>Margin<br>(dB) |
|---------|--------------------|-----------------------------------|-----------------------------------|-----------------------------------|-------------------------|-------------------------|
| Low     | 5745               | 13.00                             | 13.10                             | 16.06                             | 30.00                   | -13.94                  |
| Mid     | 5785               | 17.52                             | 17.58                             | 20.56                             | 30.00                   | -9.44                   |
| High    | 5825               | 16.10                             | 16.20                             | 19.16                             | 30.00                   | -10.84                  |

**Note:** the power readings above were measured with gated method, and the measurement was taken only during the ON time. No duty cycle correction was necessary.

## 8.55.2. Maximum Power Spectral Density (PSD)

### LIMITS

FCC §15.407 (a) (3)

For the band 5.725-5.85 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. In addition, the maximum power spectral density shall not exceed 30 dBm in any 500-kHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

### DIRECTIONAL ANTENNA GAIN

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

| Chain 0<br>Antenna<br>Gain<br>(dBi) | Chain 1<br>Antenna<br>Gain<br>(dBi) | Correlated Chains<br>Directional<br>Gain<br>(dBi) |
|-------------------------------------|-------------------------------------|---------------------------------------------------|
| 3.09                                | 4.86                                | 8.03                                              |

## RESULTS

### Antenna Gain and Limits

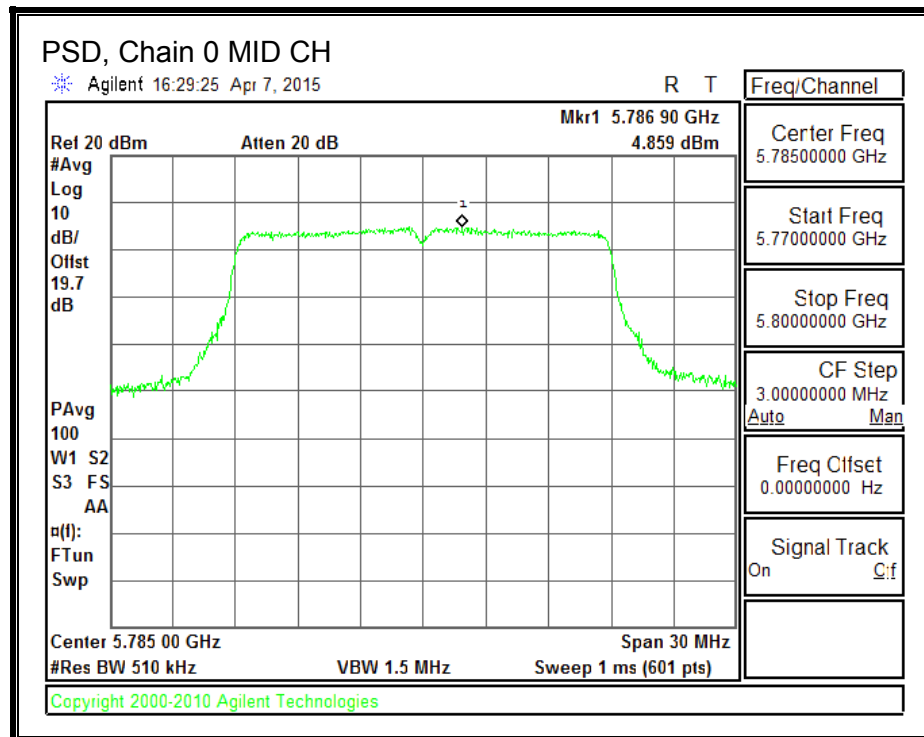
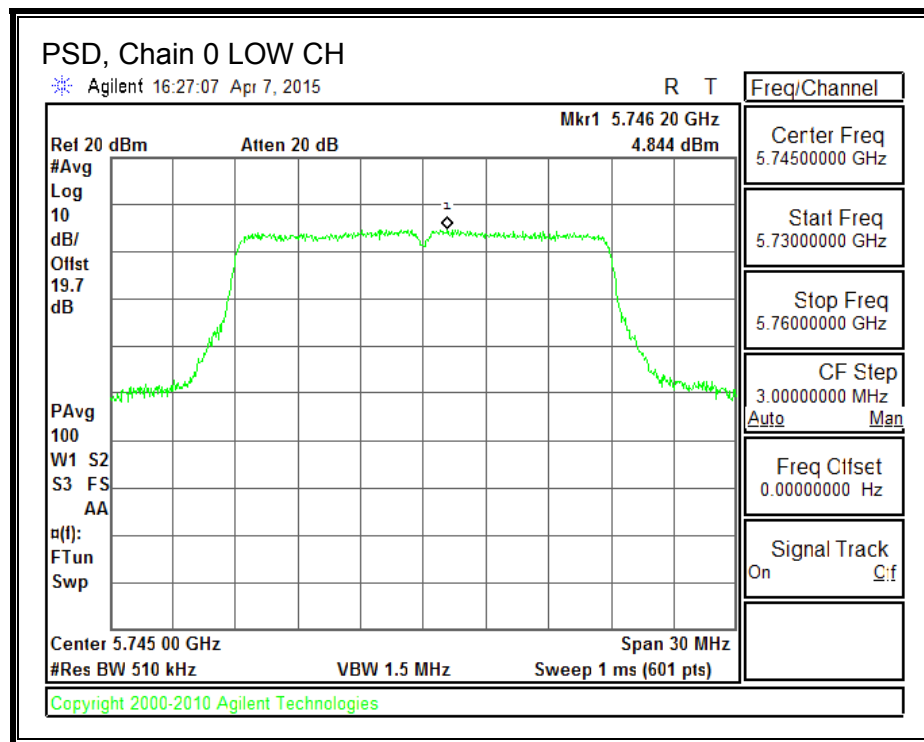
| Channel | Frequency<br>(MHz) | Directional<br>Gain<br>(dBi) | PSD<br>Limit<br>(dBm) |
|---------|--------------------|------------------------------|-----------------------|
| Low     | 5745               | 8.03                         | 27.97                 |
| Mid     | 5785               | 8.03                         | 27.97                 |
| High    | 5825               | 8.03                         | 27.97                 |

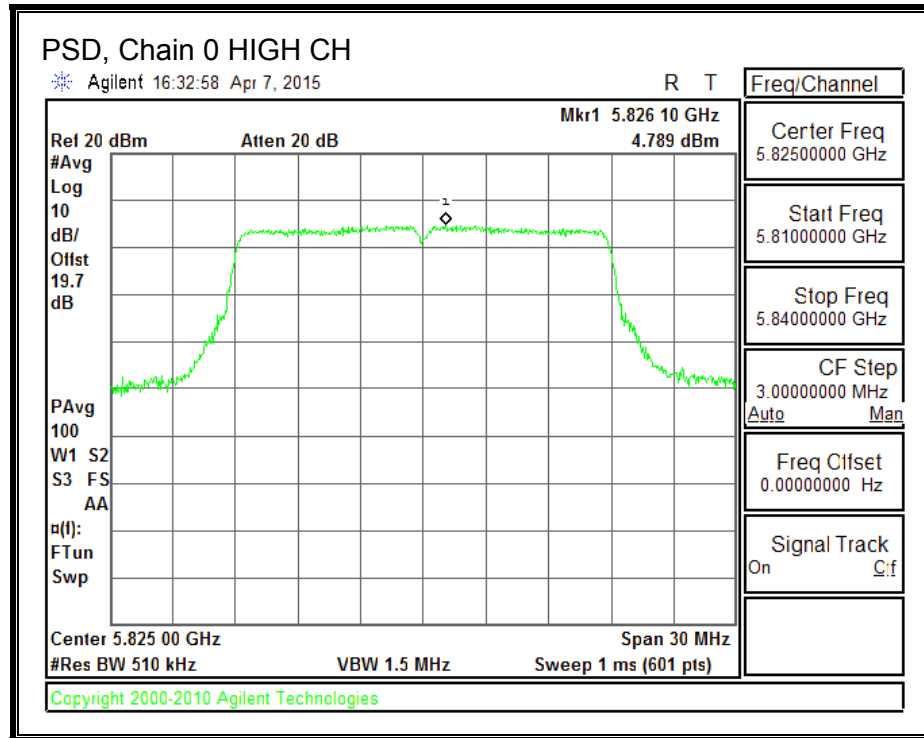
|                    |      |                                        |
|--------------------|------|----------------------------------------|
| Duty Cycle CF (dB) | 0.00 | Included in Calculations of Corr'd PSD |
|--------------------|------|----------------------------------------|

### PSD Results

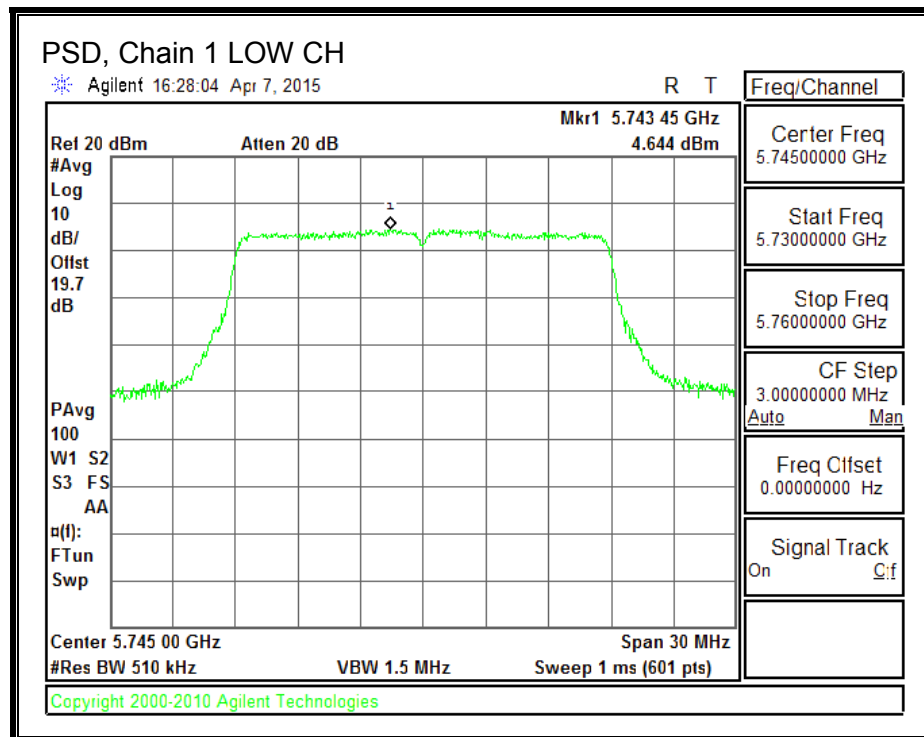
| Channel | Frequency<br>(MHz) | Chain 0<br>Meas<br>PSD<br>(dBm) | Chain 1<br>Meas<br>PSD<br>(dBm) | Total<br>Corr'd<br>PSD<br>(dBm) | PSD<br>Limit<br>(dBm) | PSD<br>Margin<br>(dB) |
|---------|--------------------|---------------------------------|---------------------------------|---------------------------------|-----------------------|-----------------------|
| Low     | 5745               | 4.844                           | 4.644                           | 7.755                           | 27.97                 | -20.21                |
| Mid     | 5785               | 4.859                           | 4.977                           | 7.929                           | 27.97                 | -20.04                |
| High    | 5825               | 4.789                           | 5.083                           | 7.949                           | 27.97                 | -20.02                |

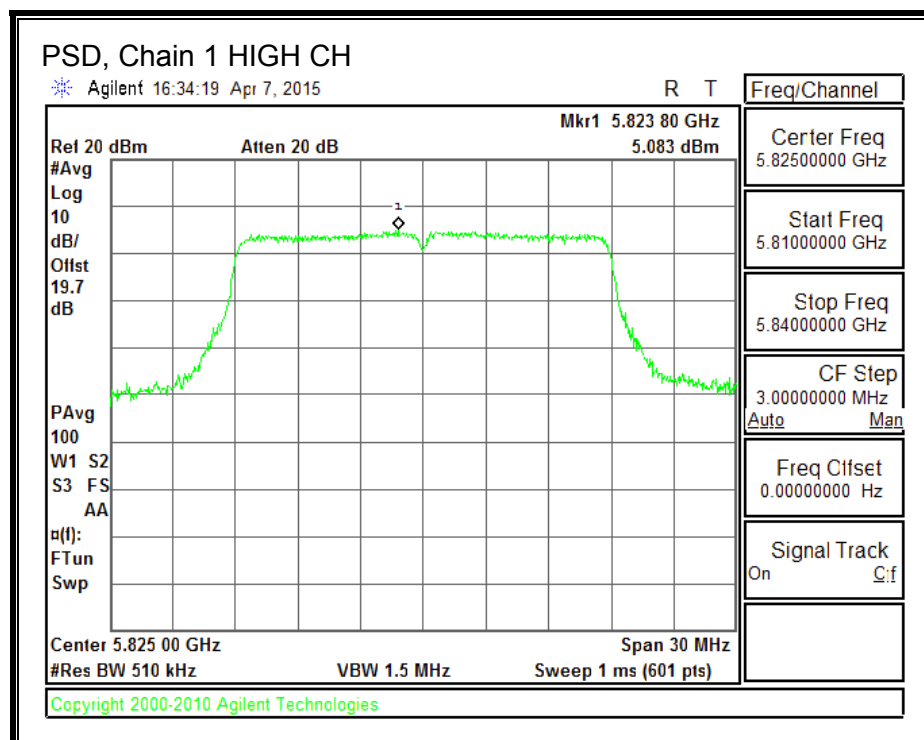
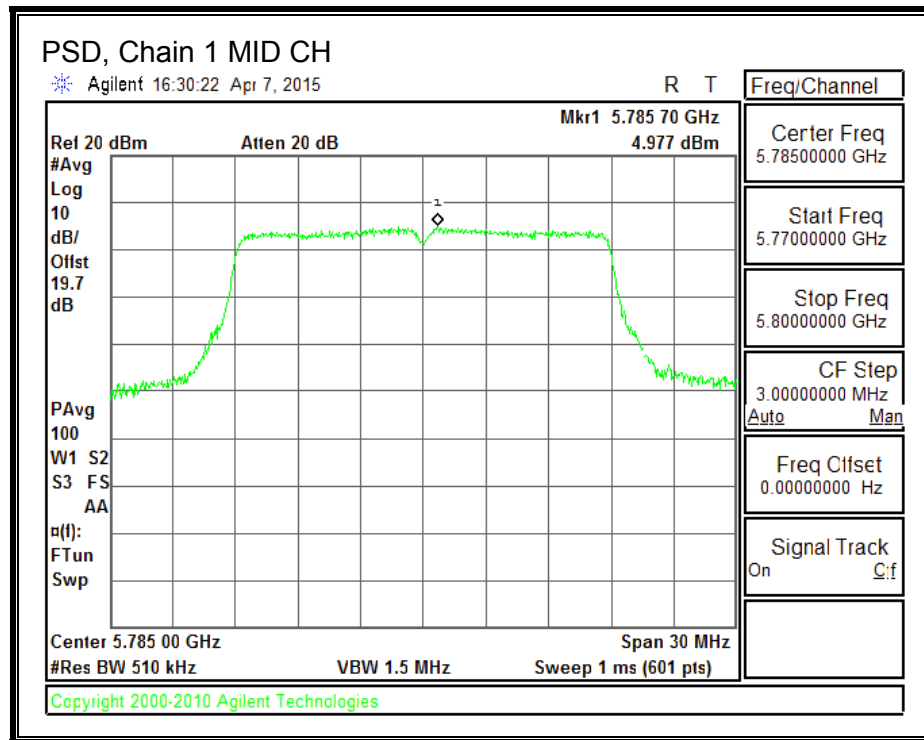
**PSD, Chain 0**





**PSD, Chain 1**





## **8.56. 802.11n HT20 STBC 2TX MODE IN THE 5.8 GHz BAND**

### **8.56.1. OUTPUT POWER**

#### **LIMITS**

FCC §15.407 (a) (3)

For the band 5.725-5.85 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. In addition, the maximum power spectral density shall not exceed 30 dBm in any 500-kHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

#### **DIRECTIONAL ANTENNA GAIN**

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

| <b>Chain 0<br/>Antenna<br/>Gain<br/>(dBi)</b> | <b>Chain 2<br/>Antenna<br/>Gain<br/>(dBi)</b> | <b>Uncorrelated Chains<br/>Directional<br/>Gain<br/>(dBi)</b> |
|-----------------------------------------------|-----------------------------------------------|---------------------------------------------------------------|
| 3.09                                          | 4.86                                          | 5.06                                                          |

## **RESULTS**

### **Antenna Gain and Limit**

| Channel | Frequency<br>(MHz) | Directional<br>Gain<br>for Power<br>(dBi) | Power<br>Limit<br>(dBm) |
|---------|--------------------|-------------------------------------------|-------------------------|
| Low     | 5745               | 5.06                                      | 30.00                   |
| Mid     | 5785               | 5.06                                      | 30.00                   |
| High    | 5825               | 5.06                                      | 30.00                   |

### **Output Power Results**

| Channel | Frequency<br>(MHz) | Chain 0<br>Meas<br>Power<br>(dBm) | Chain 1<br>Meas<br>Power<br>(dBm) | Total<br>Corr'd<br>Power<br>(dBm) | Power<br>Limit<br>(dBm) | Power<br>Margin<br>(dB) |
|---------|--------------------|-----------------------------------|-----------------------------------|-----------------------------------|-------------------------|-------------------------|
| Low     | 5745               | 13.00                             | 13.10                             | 16.06                             | 30.00                   | -13.94                  |
| Mid     | 5785               | 17.45                             | 17.60                             | 20.54                             | 30.00                   | -9.46                   |
| High    | 5825               | 16.10                             | 16.20                             | 19.16                             | 30.00                   | -10.84                  |

**Note:** the power readings above were measured with gated method, and the measurement was taken only during the ON time. No duty cycle correction was necessary.

## 8.56.2. Maximum Power Spectral Density (PSD)

### LIMITS

FCC §15.407 (a) (3)

For the band 5.725-5.85 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. In addition, the maximum power spectral density shall not exceed 30 dBm in any 500-kHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

### DIRECTIONAL ANTENNA GAIN

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

| Chain 0<br>Antenna<br>Gain<br>(dBi) | Chain 2<br>Antenna<br>Gain<br>(dBi) | Uncorrelated Chains<br>Directional<br>Gain<br>(dBi) |
|-------------------------------------|-------------------------------------|-----------------------------------------------------|
| 3.09                                | 4.86                                | 5.06                                                |

## **RESULTS**

### **Antenna Gain and Limits**

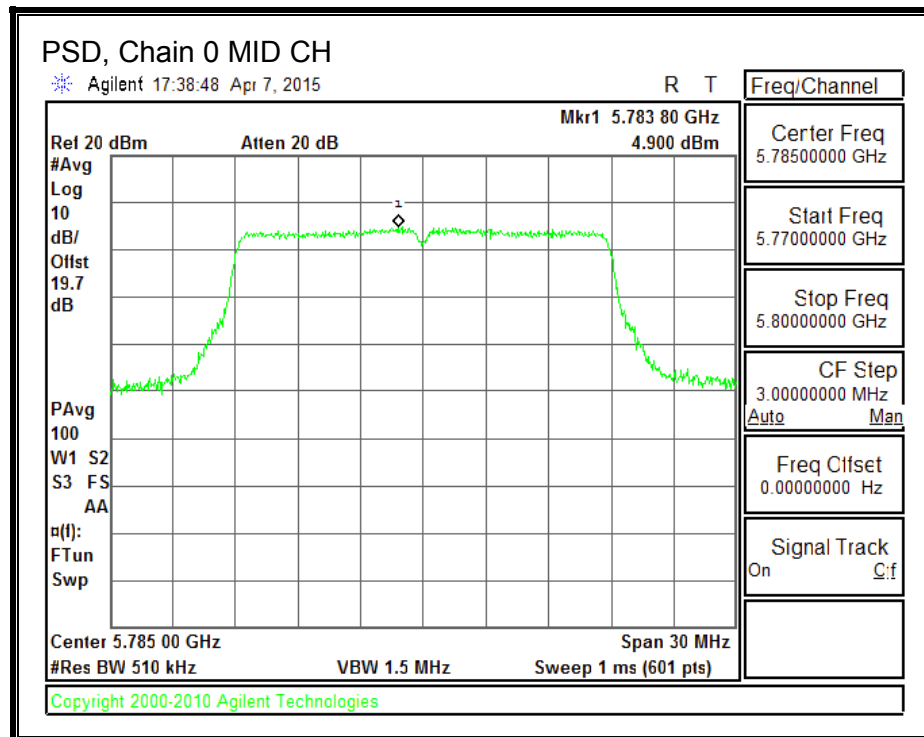
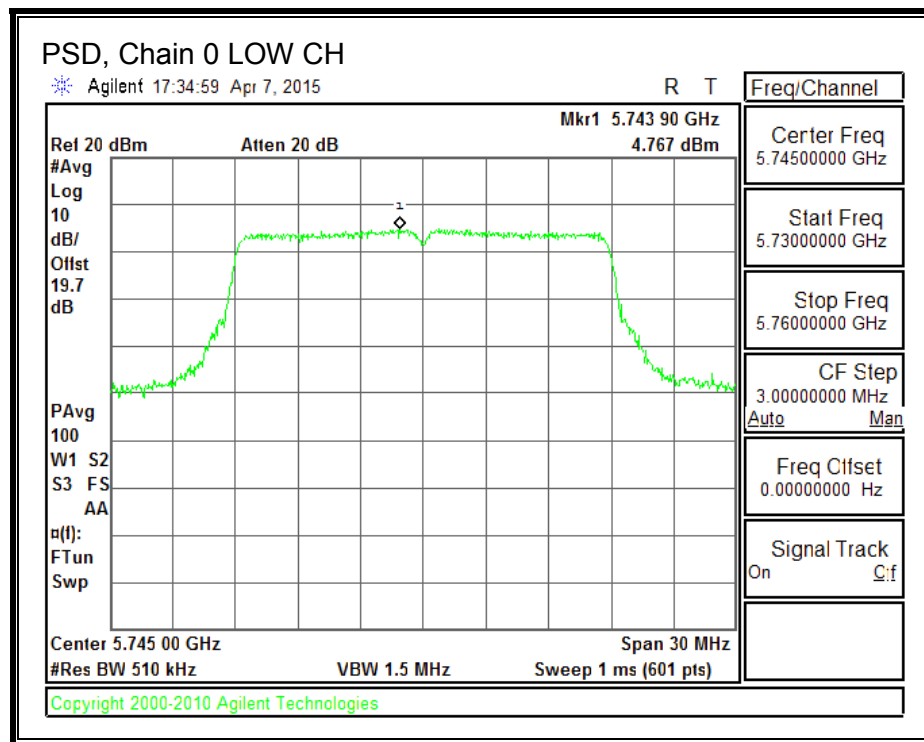
| Channel | Frequency<br>(MHz) | Directional<br>Gain<br>(dBi) | PSD<br>Limit<br>(dBm) |
|---------|--------------------|------------------------------|-----------------------|
| Low     | 5745               | 5.06                         | 30.00                 |
| Mid     | 5785               | 5.06                         | 30.00                 |
| High    | 5825               | 5.06                         | 30.00                 |

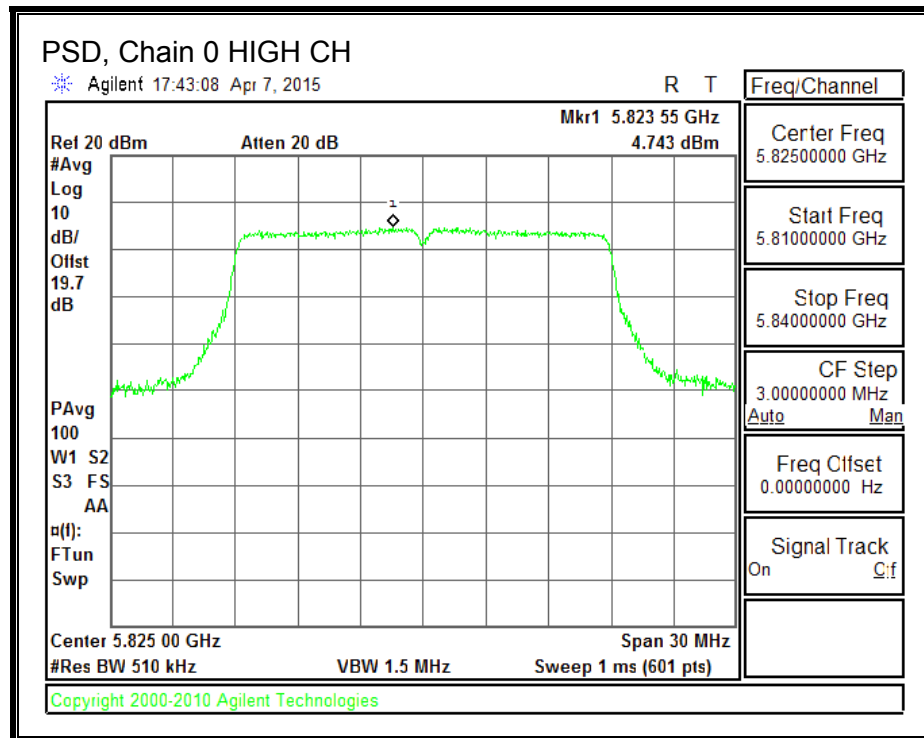
|                           |      |                                               |
|---------------------------|------|-----------------------------------------------|
| <b>Duty Cycle CF (dB)</b> | 0.00 | <b>Included in Calculations of Corr'd PSD</b> |
|---------------------------|------|-----------------------------------------------|

### **PSD Results**

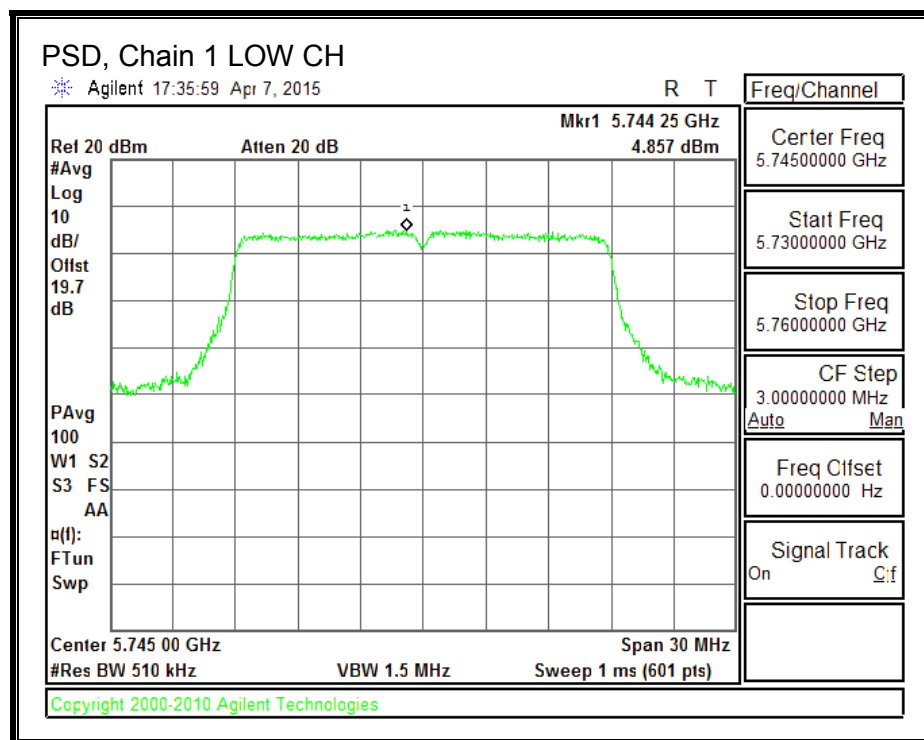
| Channel | Frequency<br>(MHz) | Chain 0<br>Meas<br>PSD<br>(dBm) | Chain 1<br>Meas<br>PSD<br>(dBm) | Total<br>Corr'd<br>PSD<br>(dBm) | PSD<br>Limit<br>(dBm) | PSD<br>Margin<br>(dB) |
|---------|--------------------|---------------------------------|---------------------------------|---------------------------------|-----------------------|-----------------------|
| Low     | 5745               | 4.767                           | 4.857                           | 7.823                           | 30.00                 | -22.18                |
| Mid     | 5785               | 4.900                           | 4.777                           | 7.849                           | 30.00                 | -22.15                |
| High    | 5825               | 4.743                           | 5.017                           | 7.892                           | 30.00                 | -22.11                |

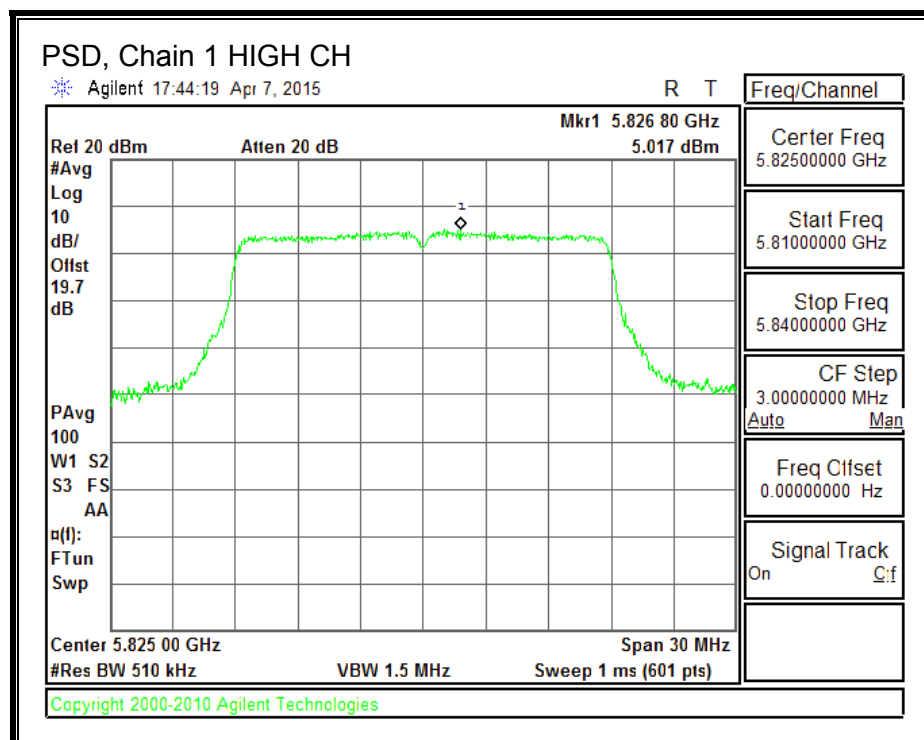
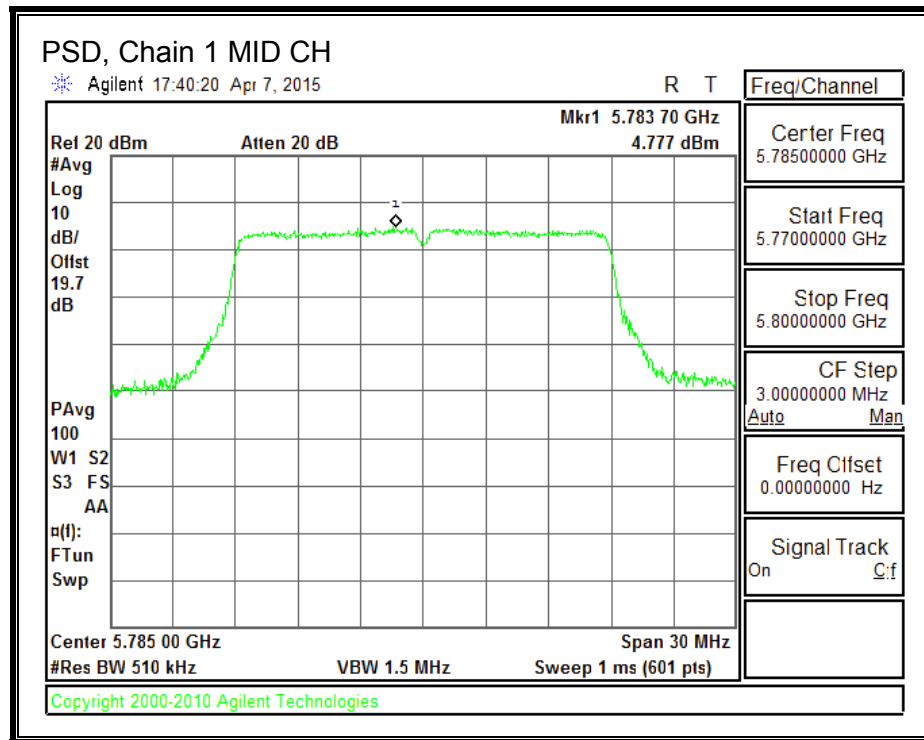
**PSD, Chain 0**





**PSD, Chain 1**





## **8.57. 802.11n HT20 TxBF 2TX MODE IN THE 5.8 GHz BAND**

### **8.57.1. OUTPUT POWER**

#### **LIMITS**

FCC §15.407 (a) (3)

For the band 5.725-5.85 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. In addition, the maximum power spectral density shall not exceed 30 dBm in any 500-kHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

#### **DIRECTIONAL ANTENNA GAIN**

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

| <b>Chain 0<br/>Antenna<br/>Gain<br/>(dBi)</b> | <b>Chain 1<br/>Antenna<br/>Gain<br/>(dBi)</b> | <b>Correlated Chains<br/>Directional<br/>Gain<br/>(dBi)</b> |
|-----------------------------------------------|-----------------------------------------------|-------------------------------------------------------------|
| 3.09                                          | 4.86                                          | 8.03                                                        |

## **RESULTS**

### **Antenna Gain and Limit**

| Channel | Frequency<br>(MHz) | Directional<br>Gain<br>for Power<br>(dBi) | Power<br>Limit<br>(dBm) |
|---------|--------------------|-------------------------------------------|-------------------------|
| Low     | 5745               | 8.03                                      | 27.97                   |
| High    | 5825               | 8.03                                      | 27.97                   |

### **Output Power Results**

| Channel | Frequency<br>(MHz) | Chain 0<br>Meas<br>Power<br>(dBm) | Chain 1<br>Meas<br>Power<br>(dBm) | Total<br>Corr'd<br>Power<br>(dBm) | Power<br>Limit<br>(dBm) | Power<br>Margin<br>(dB) |
|---------|--------------------|-----------------------------------|-----------------------------------|-----------------------------------|-------------------------|-------------------------|
| Low     | 5745               | 12.10                             | 12.00                             | 15.06                             | 27.97                   | -12.91                  |
| Mid     | 5785               | 17.52                             | 17.58                             | 20.56                             | 28.97                   | -8.41                   |
| High    | 5825               | 15.60                             | 15.80                             | 18.71                             | 27.97                   | -9.26                   |

**Note:** the power readings above were measured with gated method, and the measurement was taken only during the ON time. No duty cycle correction was necessary.

## 8.57.2. Maximum Power Spectral Density (PSD)

### LIMITS

FCC §15.407 (a) (3)

For the band 5.725-5.85 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. In addition, the maximum power spectral density shall not exceed 30 dBm in any 500-kHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

### DIRECTIONAL ANTENNA GAIN

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

| Chain 0<br>Antenna<br>Gain<br>(dBi) | Chain 1<br>Antenna<br>Gain<br>(dBi) | Correlated Chains<br>Directional<br>Gain<br>(dBi) |
|-------------------------------------|-------------------------------------|---------------------------------------------------|
| 3.09                                | 4.86                                | 8.03                                              |

## RESULTS

### Antenna Gain and Limits

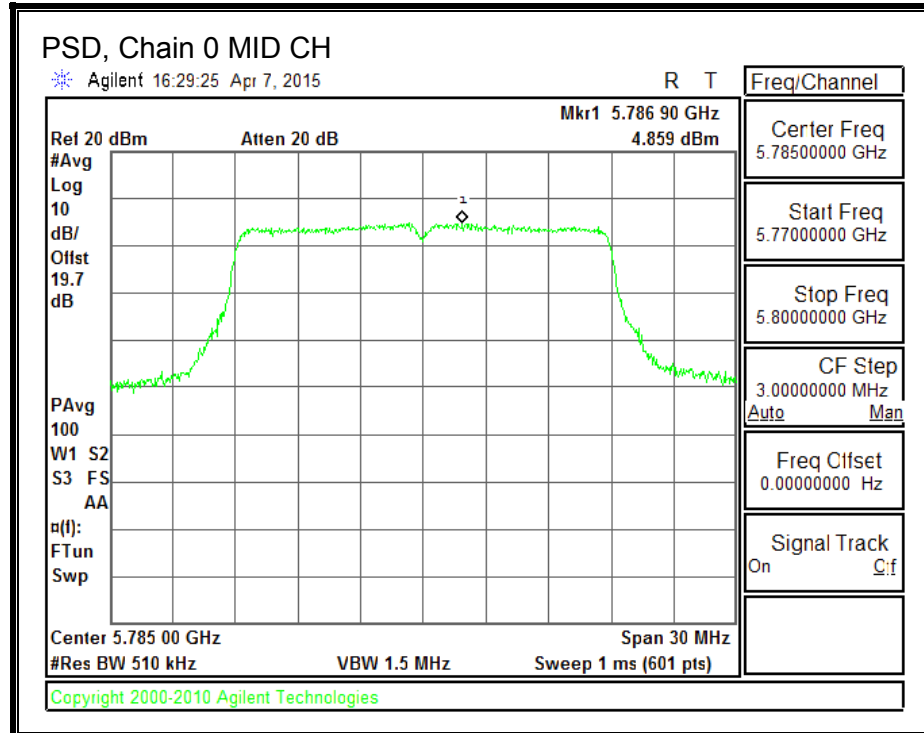
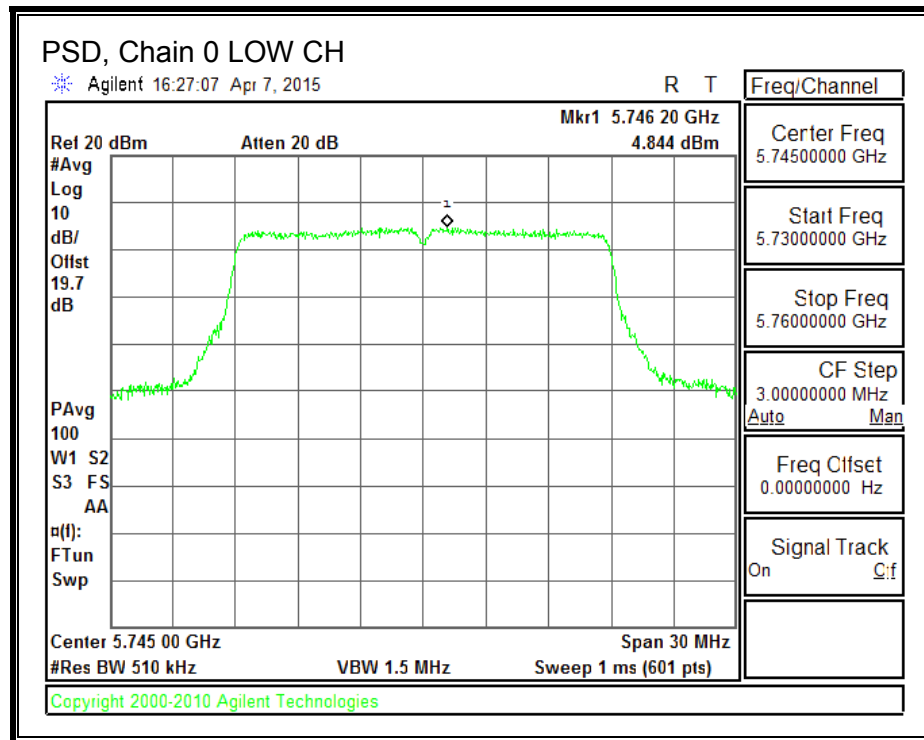
| Channel | Frequency<br>(MHz) | Directional<br>Gain<br>(dBi) | PSD<br>Limit<br>(dBm) |
|---------|--------------------|------------------------------|-----------------------|
| Low     | 5745               | 8.03                         | 27.97                 |
| Mid     | 5785               | 8.03                         | 27.97                 |
| High    | 5825               | 8.03                         | 27.97                 |

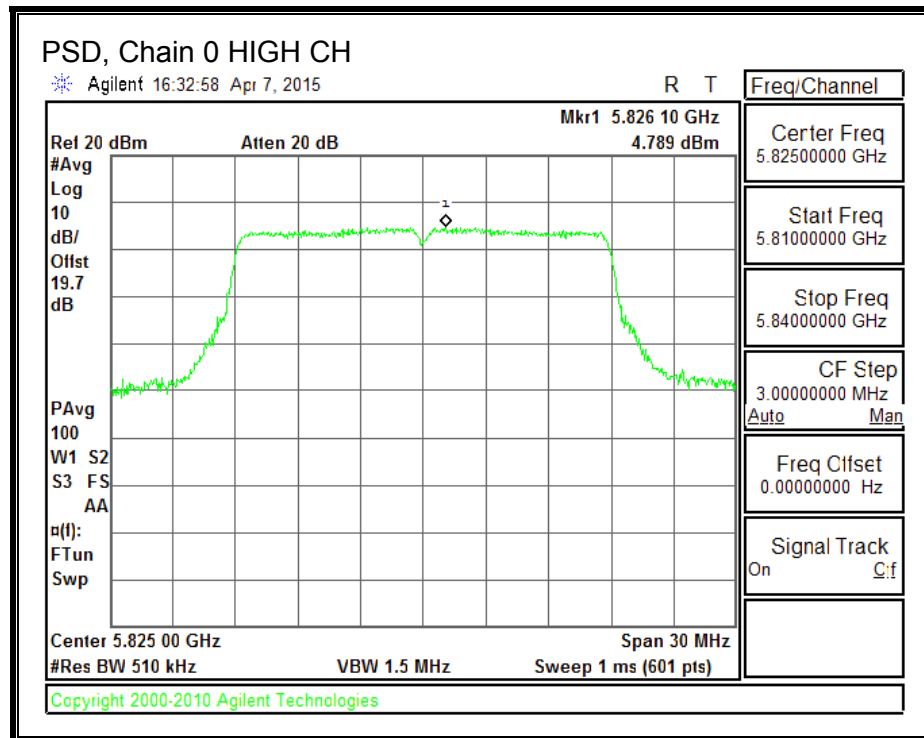
|                    |      |                                        |
|--------------------|------|----------------------------------------|
| Duty Cycle CF (dB) | 0.00 | Included in Calculations of Corr'd PSD |
|--------------------|------|----------------------------------------|

### PSD Results

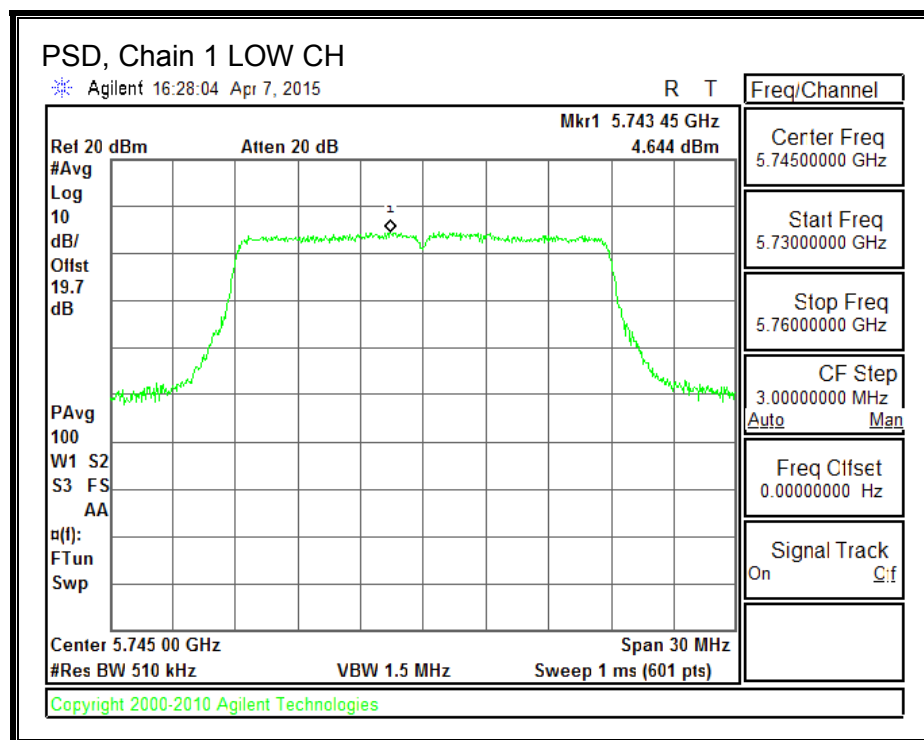
| Channel | Frequency<br>(MHz) | Chain 0<br>Meas<br>PSD<br>(dBm) | Chain 1<br>Meas<br>PSD<br>(dBm) | Total<br>Corr'd<br>PSD<br>(dBm) | PSD<br>Limit<br>(dBm) | PSD<br>Margin<br>(dB) |
|---------|--------------------|---------------------------------|---------------------------------|---------------------------------|-----------------------|-----------------------|
| Low     | 5745               | 4.844                           | 4.644                           | 7.755                           | 27.97                 | -20.21                |
| Mid     | 5785               | 4.859                           | 4.977                           | 7.929                           | 27.97                 | -20.04                |
| High    | 5825               | 4.789                           | 5.083                           | 7.949                           | 27.97                 | -20.02                |

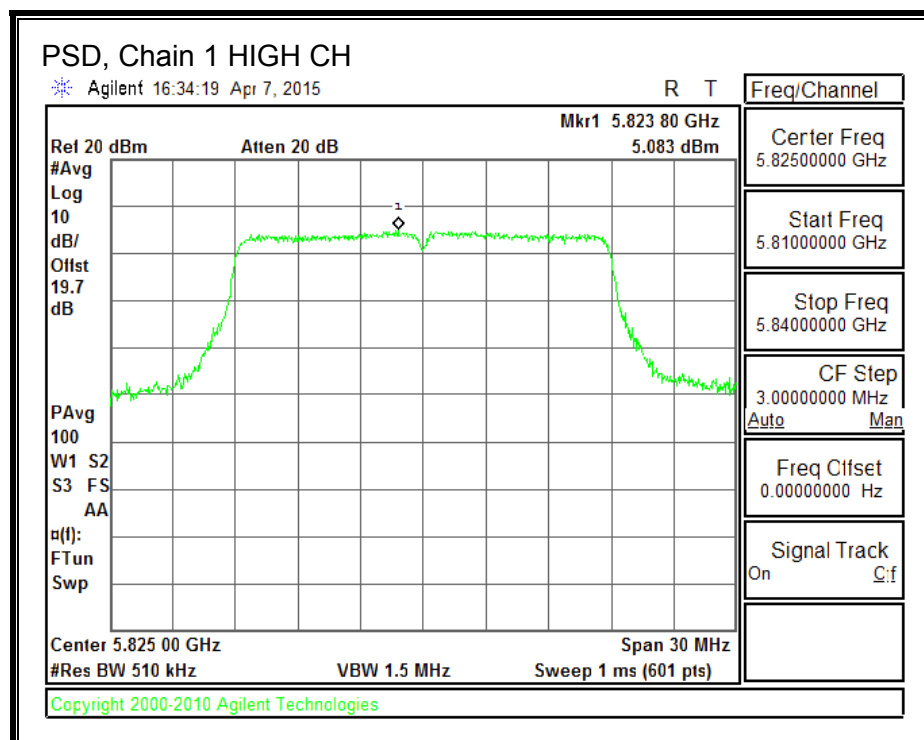
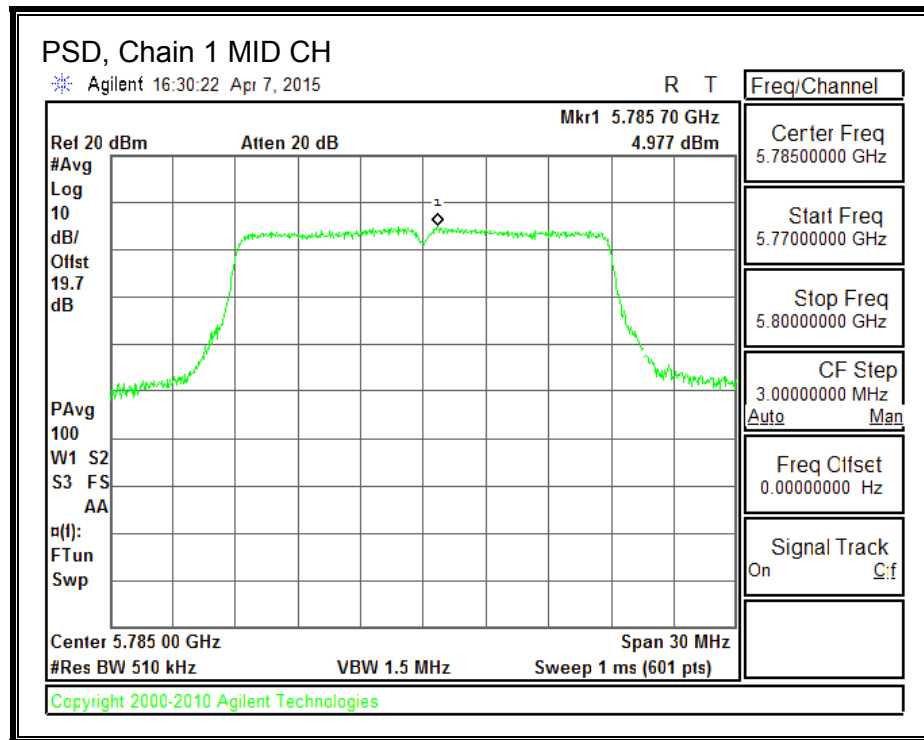
**PSD, Chain 0**





**PSD, Chain 1**





## **8.58. 802.11n HT20 CDD 3TX MODE IN THE 5.8 GHz BAND**

### **8.58.1. 6 dB BANDWIDTH**

#### **LIMITS**

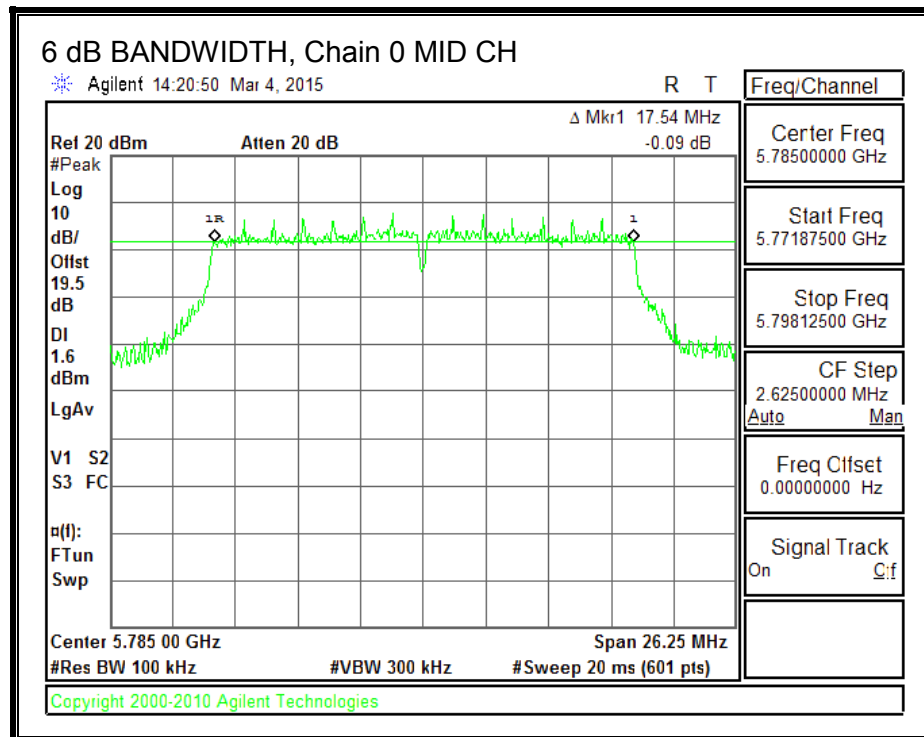
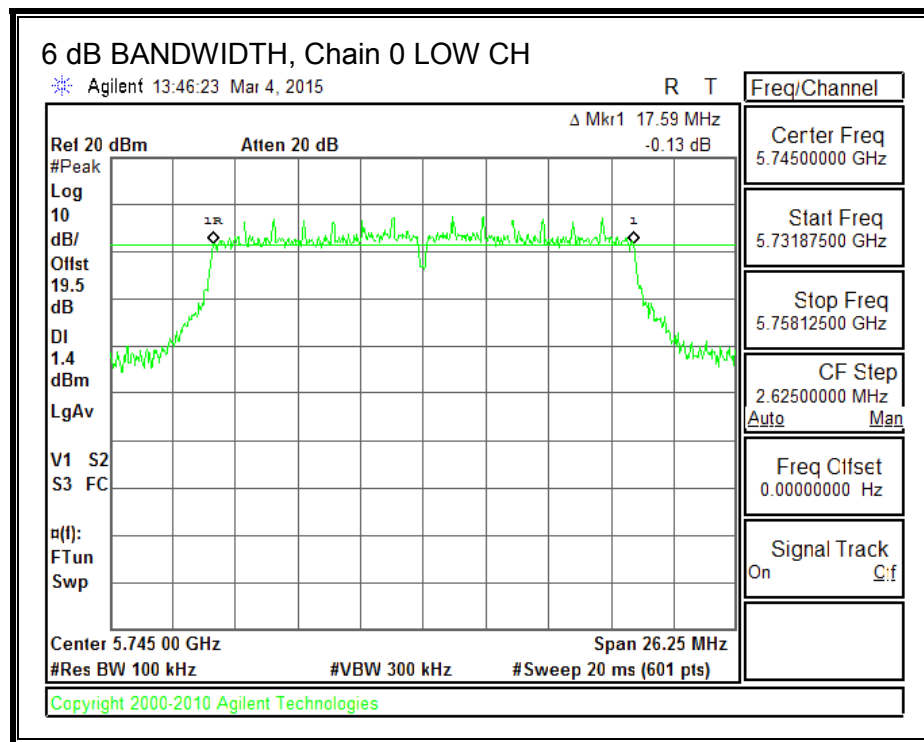
FCC §15.407 (e)

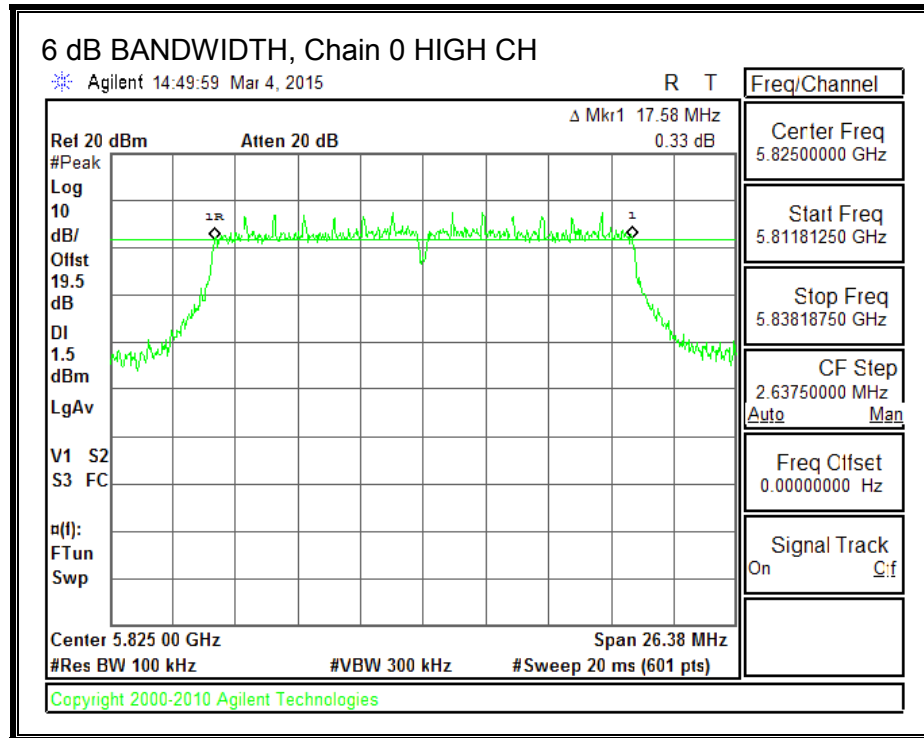
The minimum 6 dB bandwidth shall be at least 500 kHz.

#### **RESULTS**

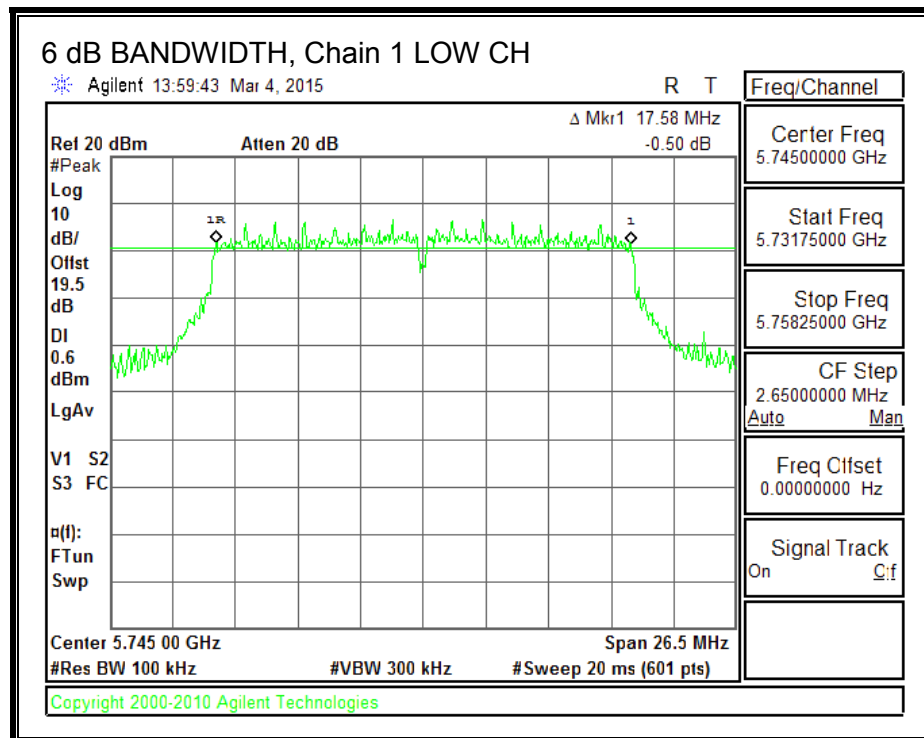
| Channel | Frequency<br>(MHz) | 6 dB BW<br>Chain 0<br>(MHz) | 6 dB BW<br>Chain 1<br>(MHz) | 6 dB BW<br>Chain 2<br>(MHz) | Minimum<br>Limit<br>(MHz) |
|---------|--------------------|-----------------------------|-----------------------------|-----------------------------|---------------------------|
| Low     | 5745               | 17.59                       | 17.58                       | 17.58                       | 0.5                       |
| Mid     | 5785               | 17.54                       | 17.58                       | 17.58                       | 0.5                       |
| High    | 5825               | 17.58                       | 17.62                       | 17.58                       | 0.5                       |

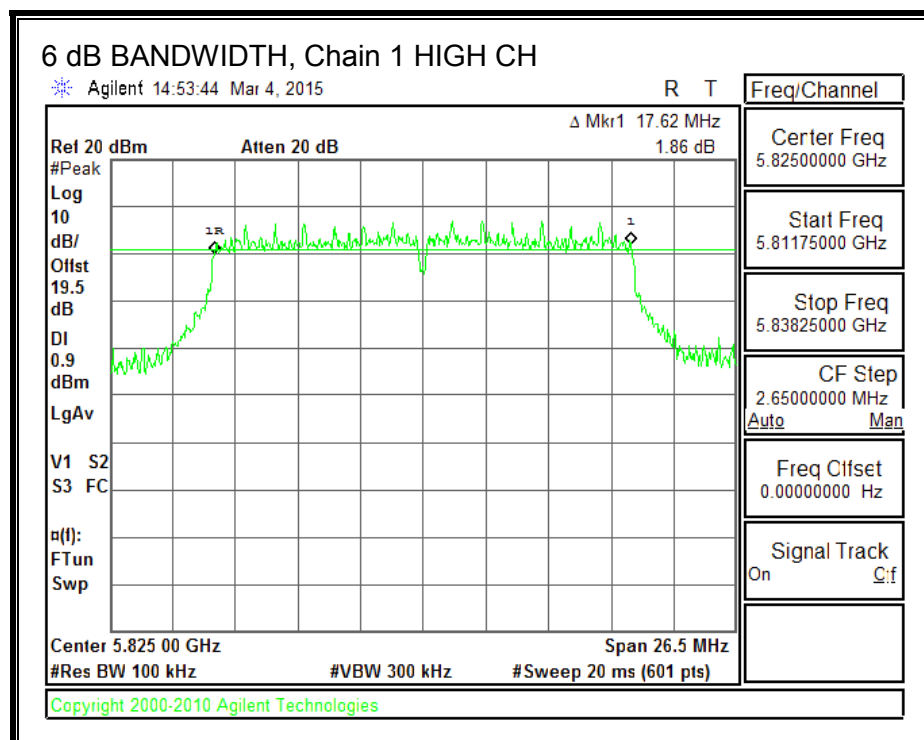
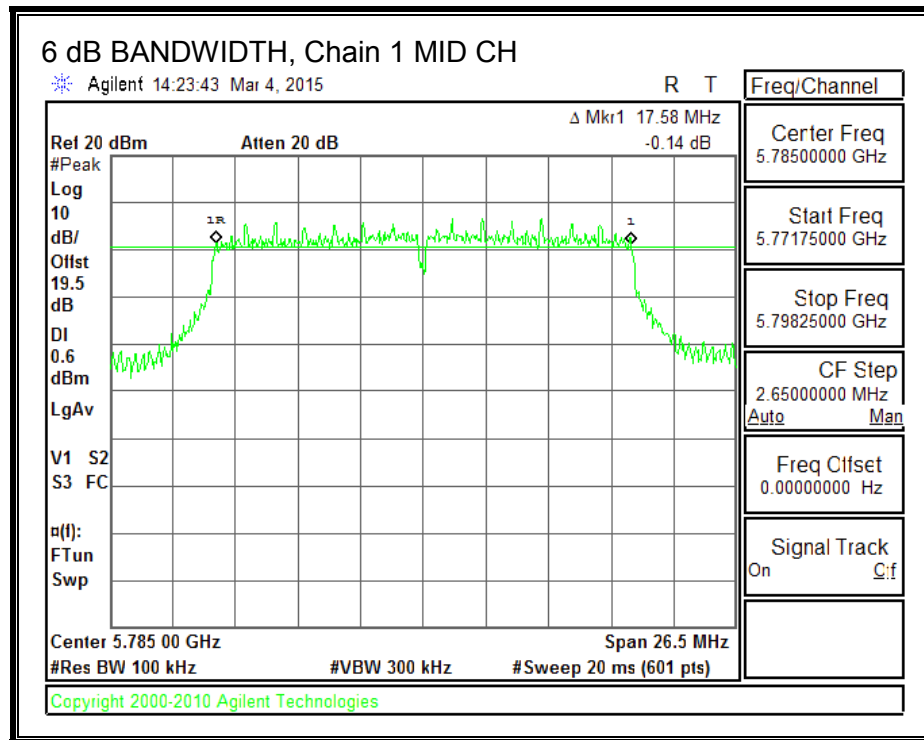
**6 dB BANDWIDTH, Chain 0**



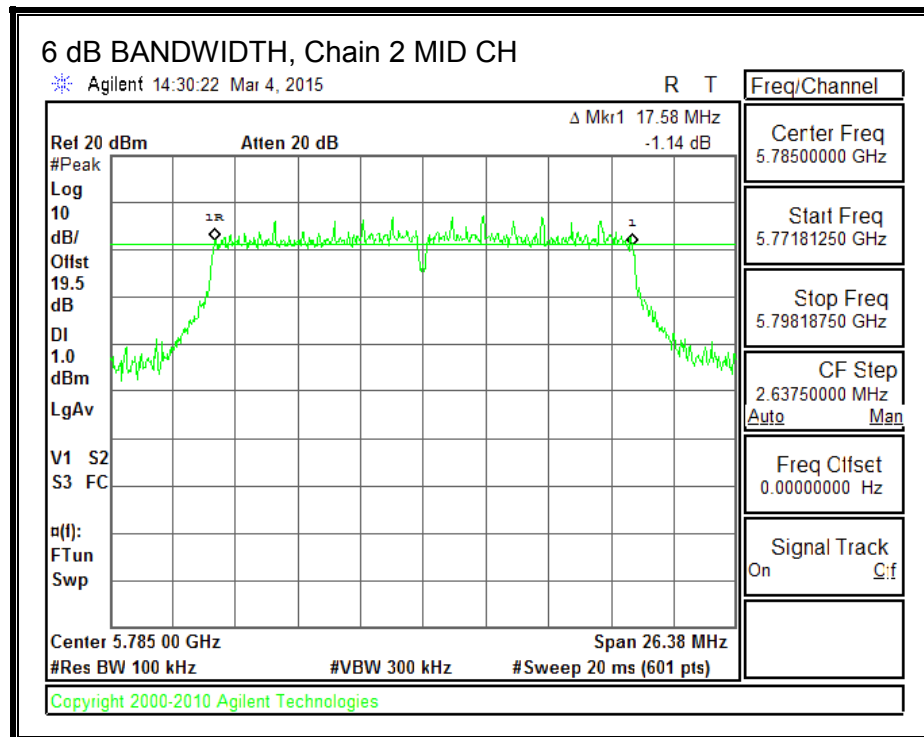
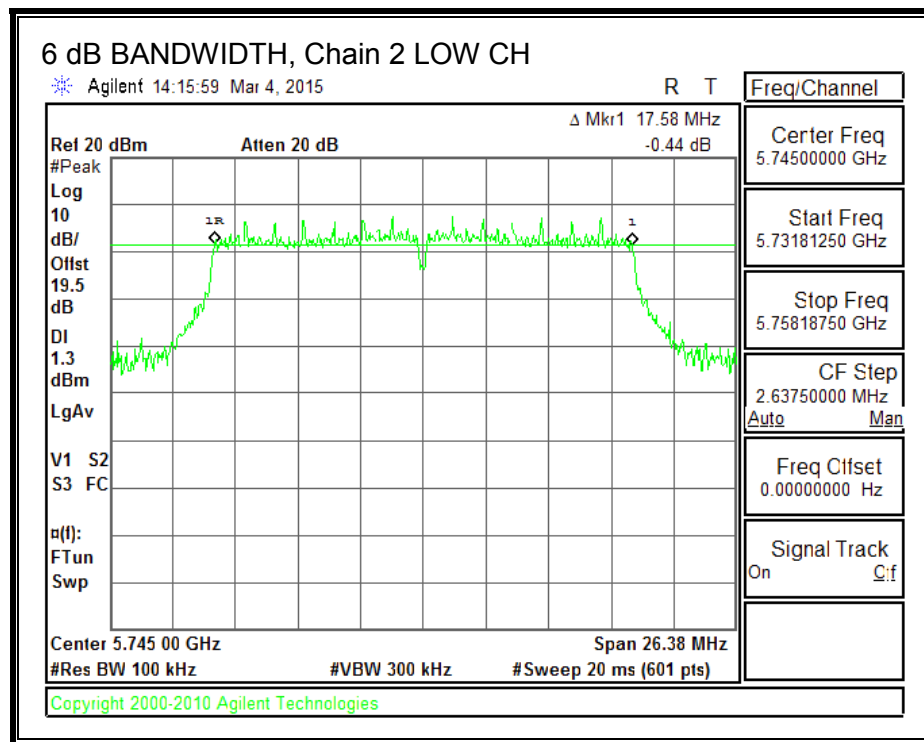


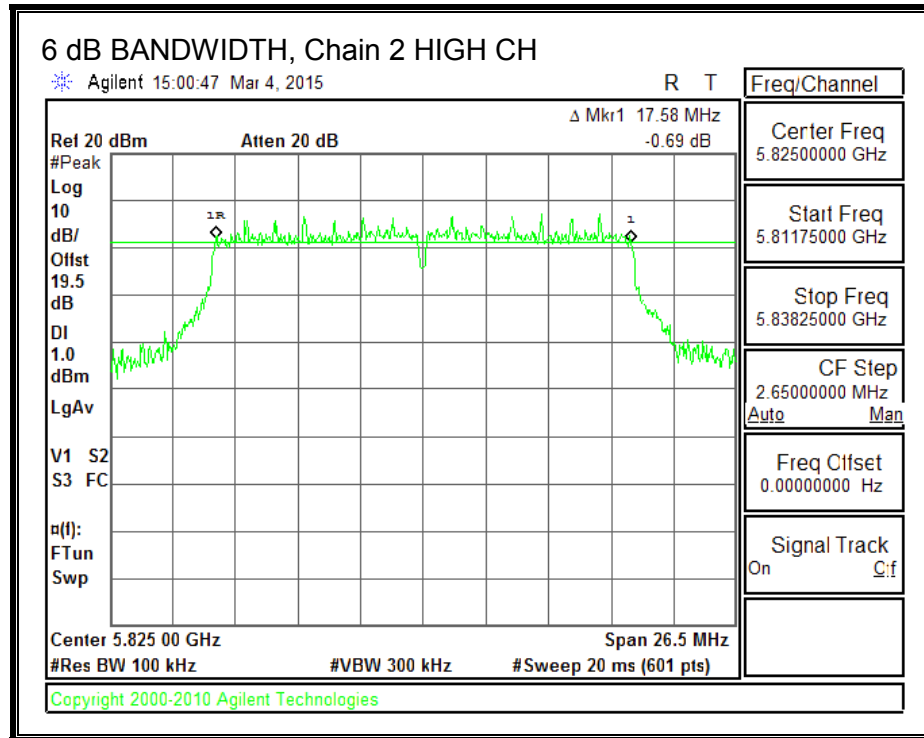
**6 dB BANDWIDTH, Chain 1**





**6 dB BANDWIDTH, Chain 2**





## 8.58.2. 99% BANDWIDTH

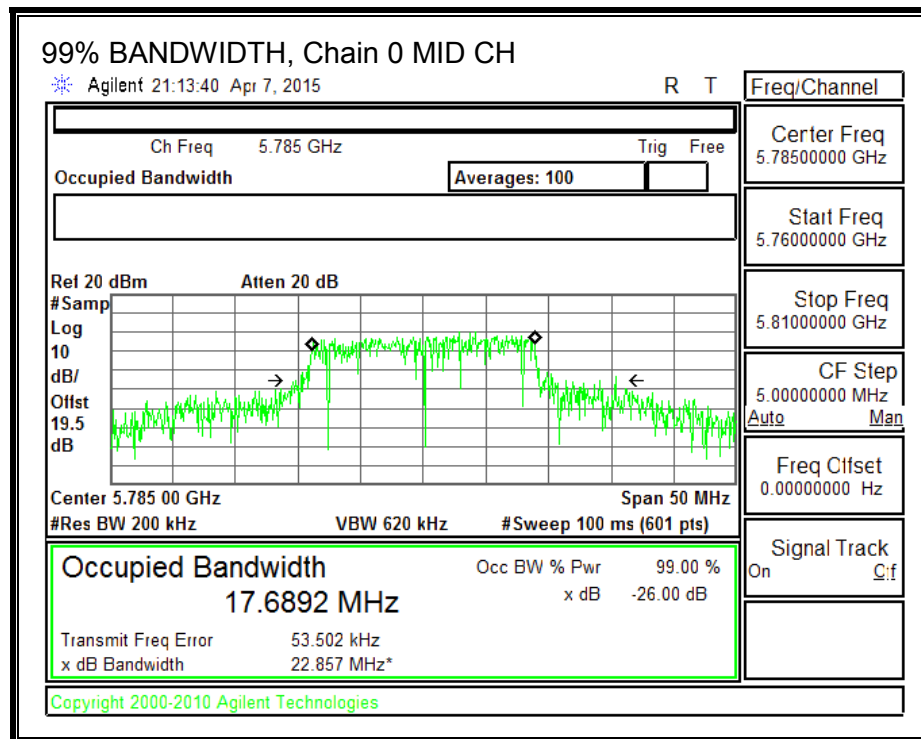
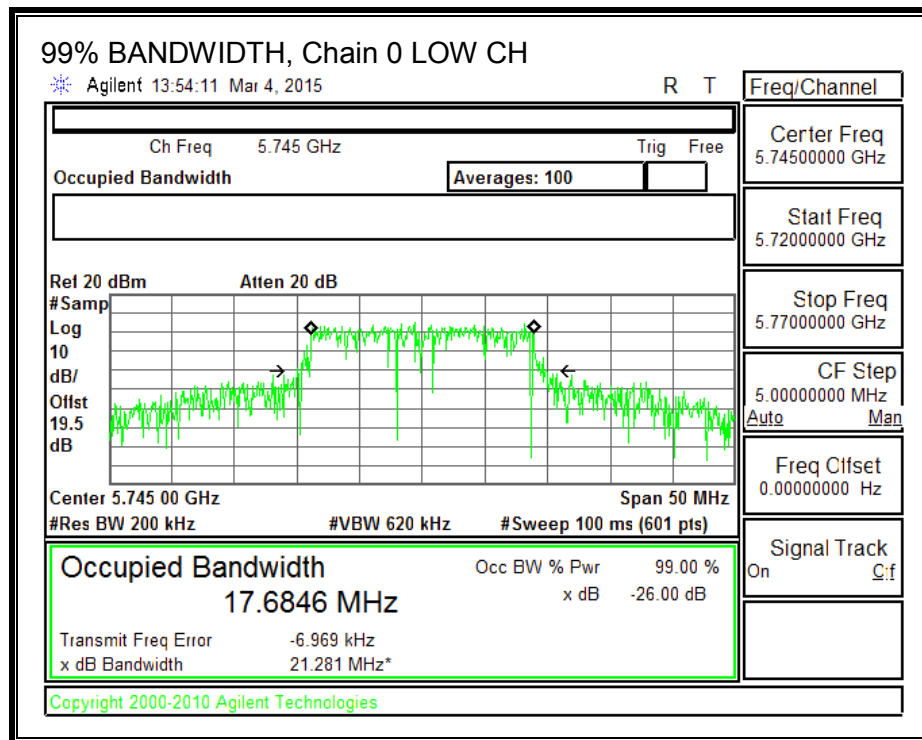
### LIMITS

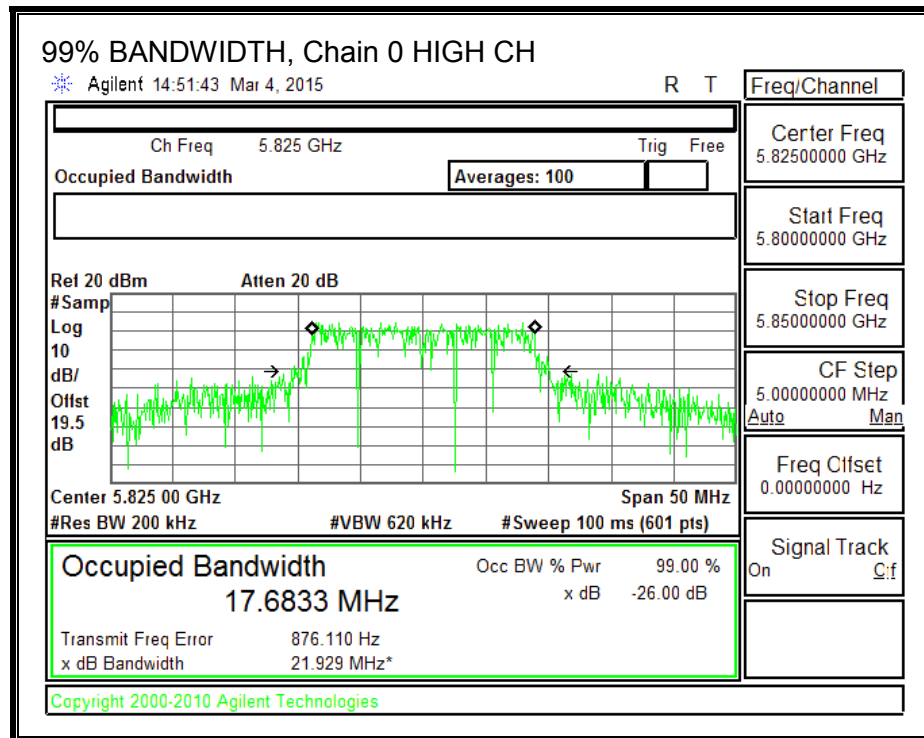
None; for reporting purposes only.

### RESULTS

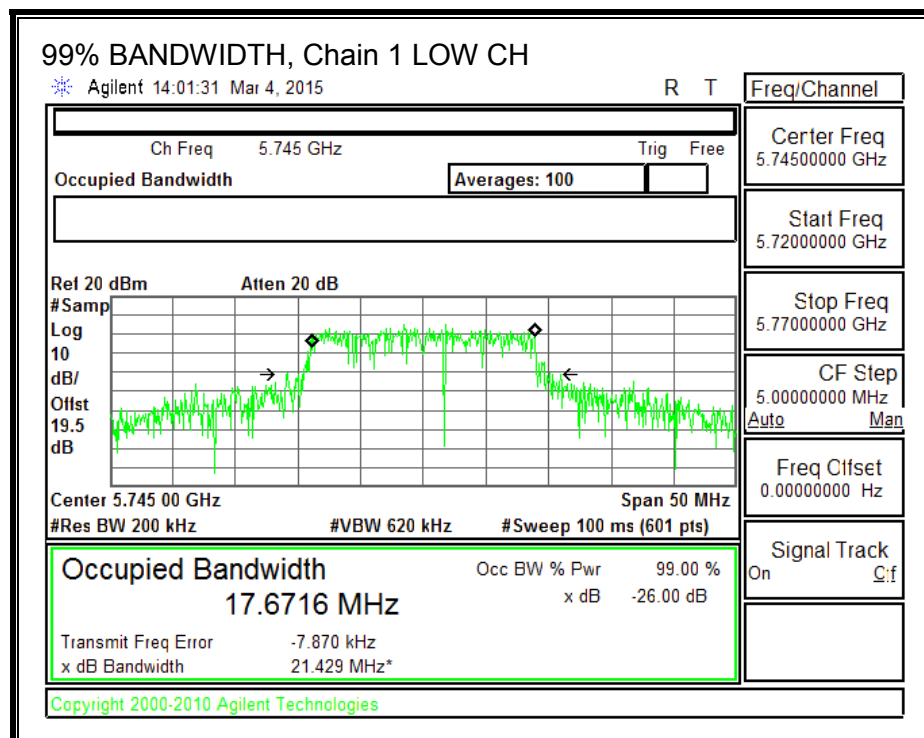
| Channel | Frequency<br>(MHz) | 99% BW<br>Chain 0<br>(MHz) | 99% BW<br>Chain 1<br>(MHz) | 99% BW<br>Chain 2<br>(MHz) |
|---------|--------------------|----------------------------|----------------------------|----------------------------|
| Low     | 5745               | 17.6846                    | 17.6716                    | 17.6789                    |
| Mid     | 5785               | 17.6892                    | 17.6777                    | 17.6715                    |
| High    | 5825               | 17.6833                    | 17.6817                    | 17.6782                    |

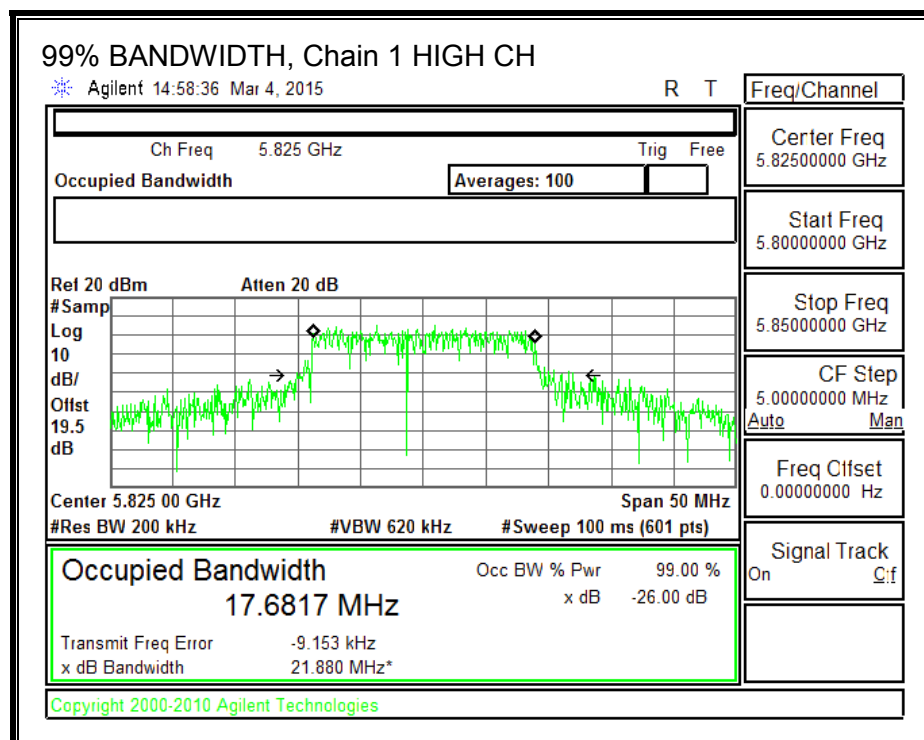
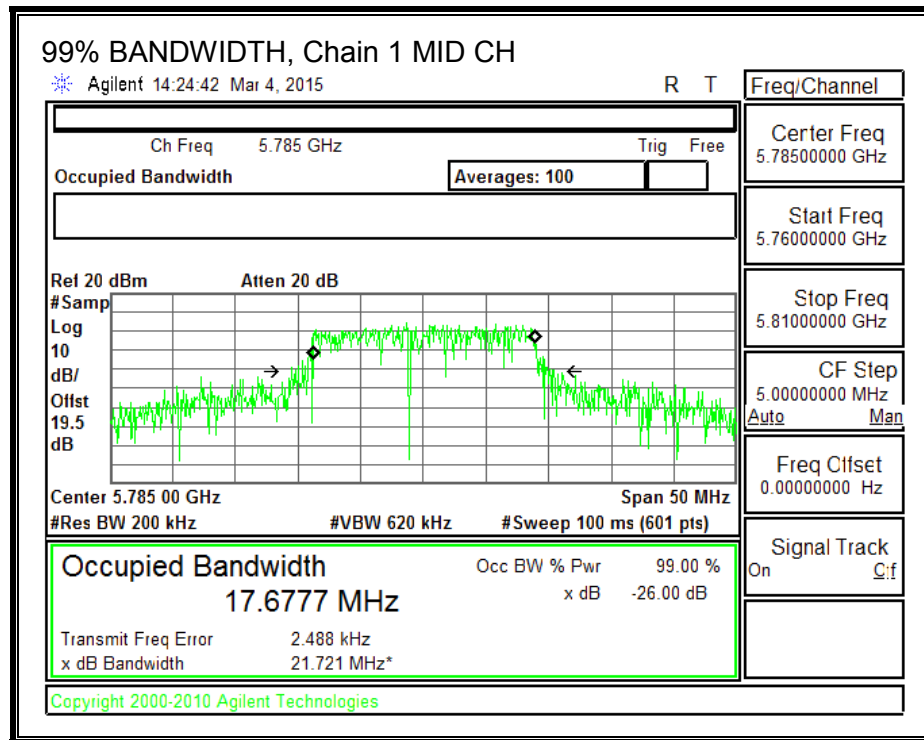
**99% BANDWIDTH, Chain 0**



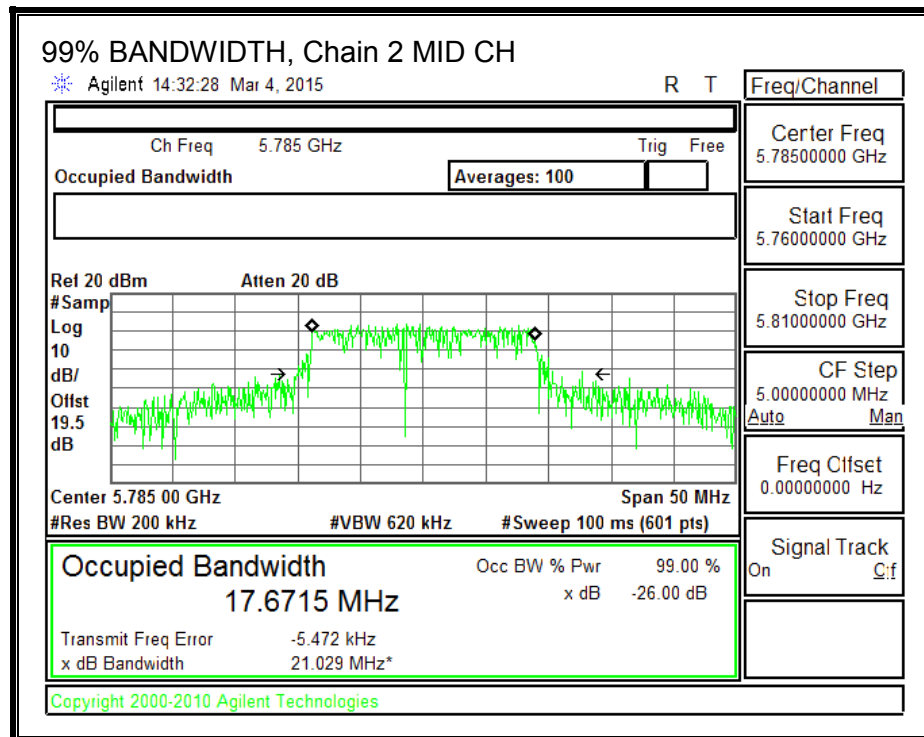
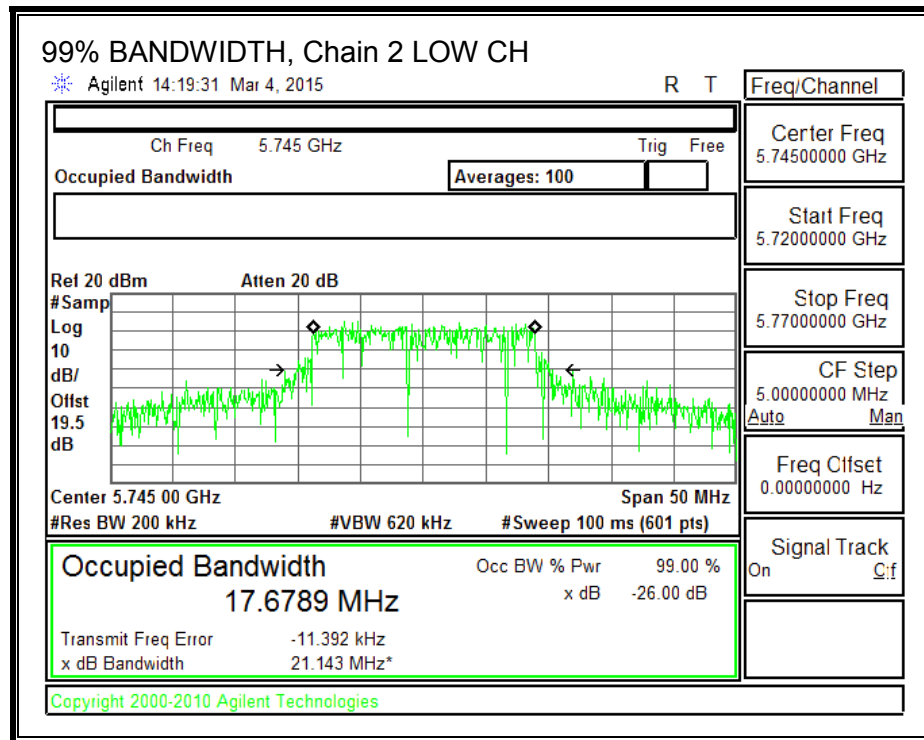


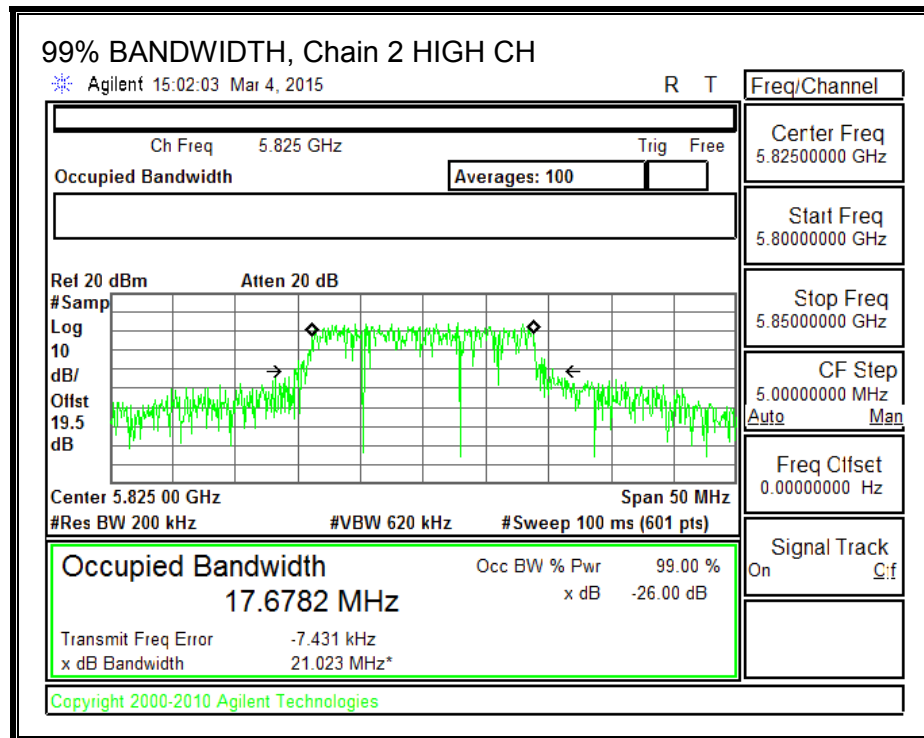
**99% BANDWIDTH, Chain 1**





**99% BANDWIDTH, Chain 2**





### 8.58.3. OUTPUT POWER

#### LIMITS

FCC §15.407 (a) (3)

For the band 5.725-5.85 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. In addition, the maximum power spectral density shall not exceed 30 dBm in any 500-kHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

#### DIRECTIONAL ANTENNA GAIN

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

| Chain 0<br>Antenna<br>Gain<br>(dBi) | Chain 1<br>Antenna<br>Gain<br>(dBi) | Chain 2<br>Antenna<br>Gain<br>(dBi) | Uncorrelated Chains<br>Directional<br>Gain<br>(dBi) |
|-------------------------------------|-------------------------------------|-------------------------------------|-----------------------------------------------------|
| 3.09                                | 1.95                                | 4.86                                | 4.47                                                |

## **RESULTS**

### **Antenna Gain and Limit**

| Channel | Frequency<br>(MHz) | Directional<br>Gain<br>(dBi) | Power<br>Limit<br>(dBm) |
|---------|--------------------|------------------------------|-------------------------|
| Low     | 5745               | 3.47                         | 30.00                   |
| 153     | 5765               | 3.47                         | 30.00                   |
| Mid     | 5785               | 3.47                         | 30.00                   |
| High    | 5825               | 3.47                         | 30.00                   |

### **Output Power Results**

| Channel | Frequency<br>(MHz) | Chain 0<br>Meas<br>Power<br>(dBm) | Chain 1<br>Meas<br>Power<br>(dBm) | Chain 2<br>Meas<br>Power<br>(dBm) | Total<br>Corr'd<br>Power<br>(dBm) | Power<br>Limit<br>(dBm) | Power<br>Margin<br>(dB) |
|---------|--------------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|-------------------------|-------------------------|
| Low     | 5745               | 12.60                             | 12.80                             | 12.30                             | 17.34                             | 30.00                   | -12.66                  |
| 153     | 5765               | 18.30                             | 18.20                             | 17.60                             | 22.82                             | 30.00                   | -7.18                   |
| Mid     | 5785               | 18.60                             | 18.48                             | 17.85                             | 23.09                             | 30.00                   | -6.91                   |
| High    | 5825               | 16.50                             | 16.60                             | 15.80                             | 21.09                             | 30.00                   | -8.91                   |

**Note:** the power readings above were measured with gated method, and the measurement was taken only during the ON time. No duty cycle correction was necessary.

#### **8.58.4. Maximum Power Spectral Density (PSD)**

##### **LIMITS**

FCC §15.407 (a) (3)

For the band 5.725-5.85 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. In addition, the maximum power spectral density shall not exceed 30 dBm in any 500-kHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

##### **DIRECTIONAL ANTENNA GAIN**

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

| <b>Chain 0<br/>Antenna<br/>Gain<br/>(dBi)</b> | <b>Chain 1<br/>Antenna<br/>Gain<br/>(dBi)</b> | <b>Chain 2<br/>Antenna<br/>Gain<br/>(dBi)</b> | <b>Correlated Chains<br/>Directional<br/>Gain<br/>(dBi)</b> |
|-----------------------------------------------|-----------------------------------------------|-----------------------------------------------|-------------------------------------------------------------|
| 3.09                                          | 1.95                                          | 4.86                                          | 9.15                                                        |

## **RESULTS**

### **Antenna Gain and Limit**

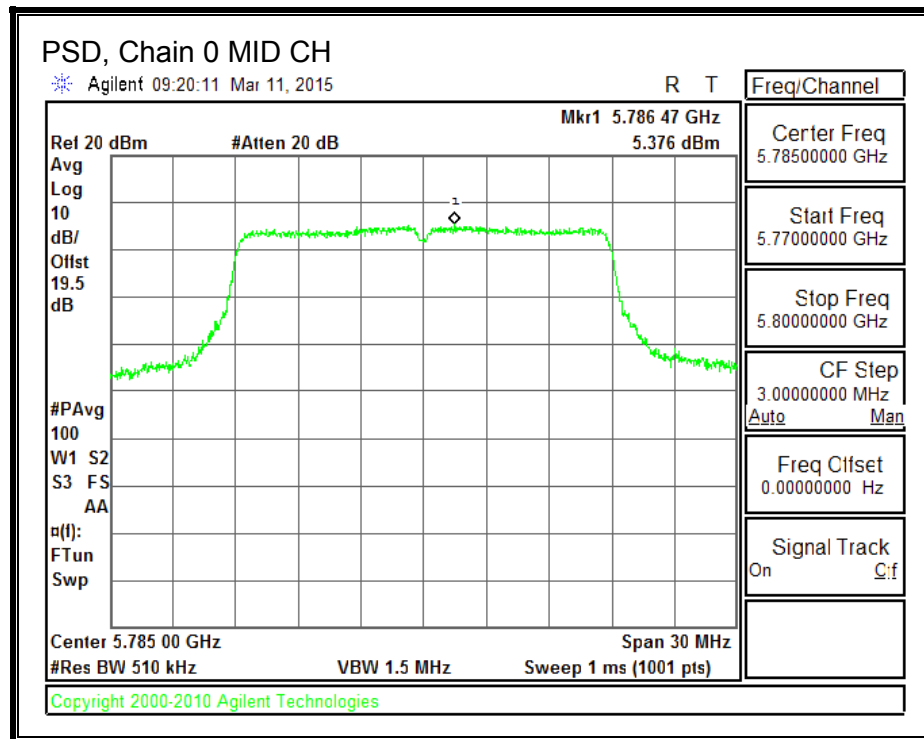
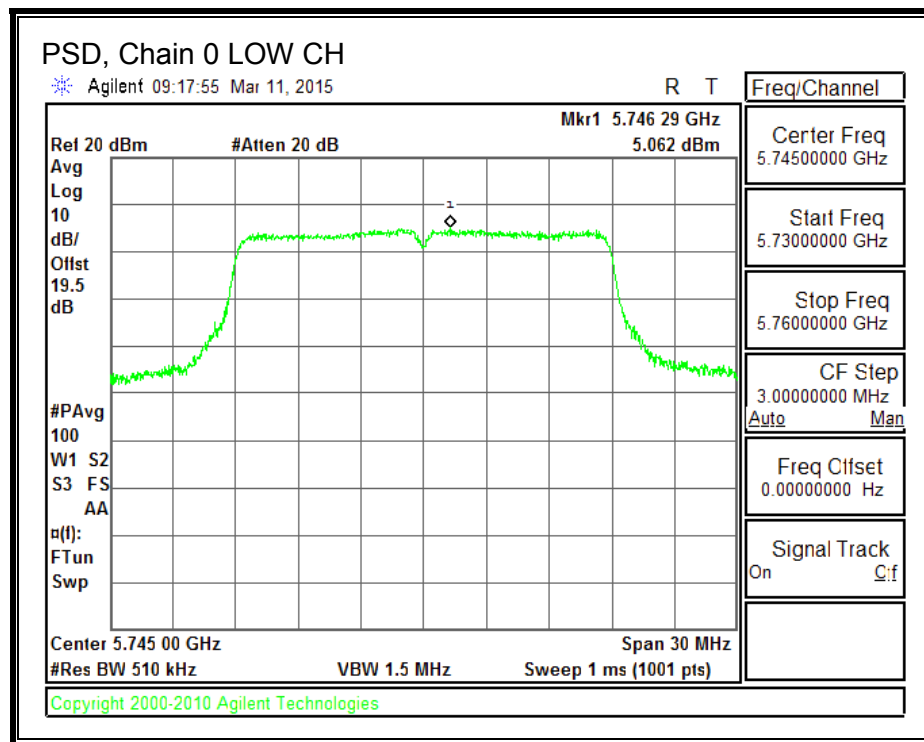
| Channel | Frequency<br>(MHz) | Directional<br>Gain<br>(dBi) | PSD<br>Limit<br>(dBm) |
|---------|--------------------|------------------------------|-----------------------|
| Low     | 5745               | 9.15                         | 26.85                 |
| Mid     | 5785               | 9.15                         | 26.85                 |
| High    | 5825               | 9.15                         | 26.85                 |

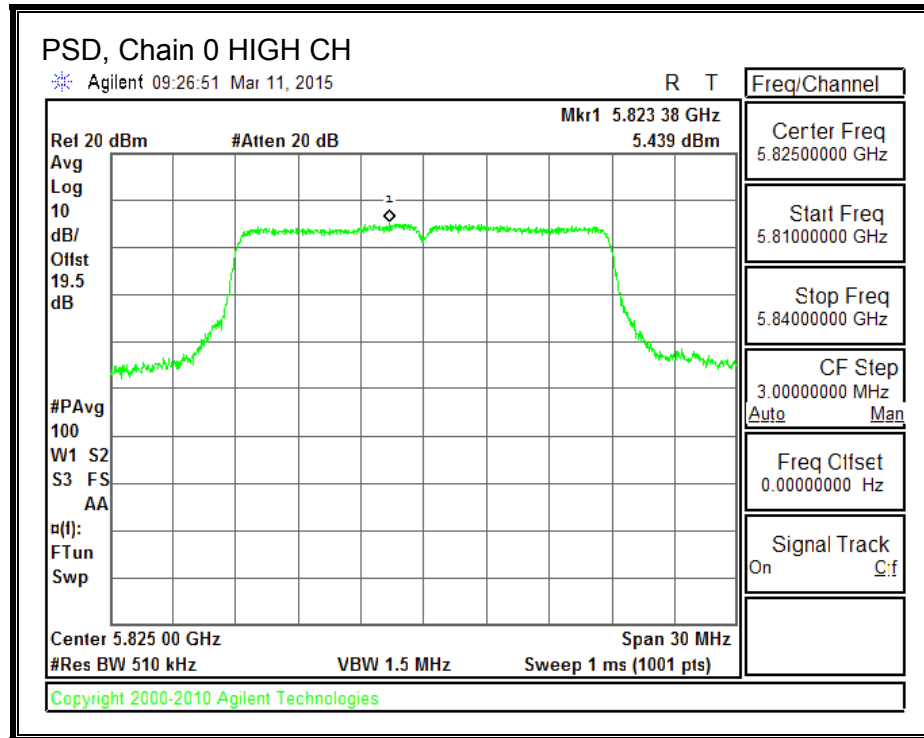
|                           |      |                                               |
|---------------------------|------|-----------------------------------------------|
| <b>Duty Cycle CF (dB)</b> | 0.00 | <b>Included in Calculations of Corr'd PSD</b> |
|---------------------------|------|-----------------------------------------------|

### **PSD Results**

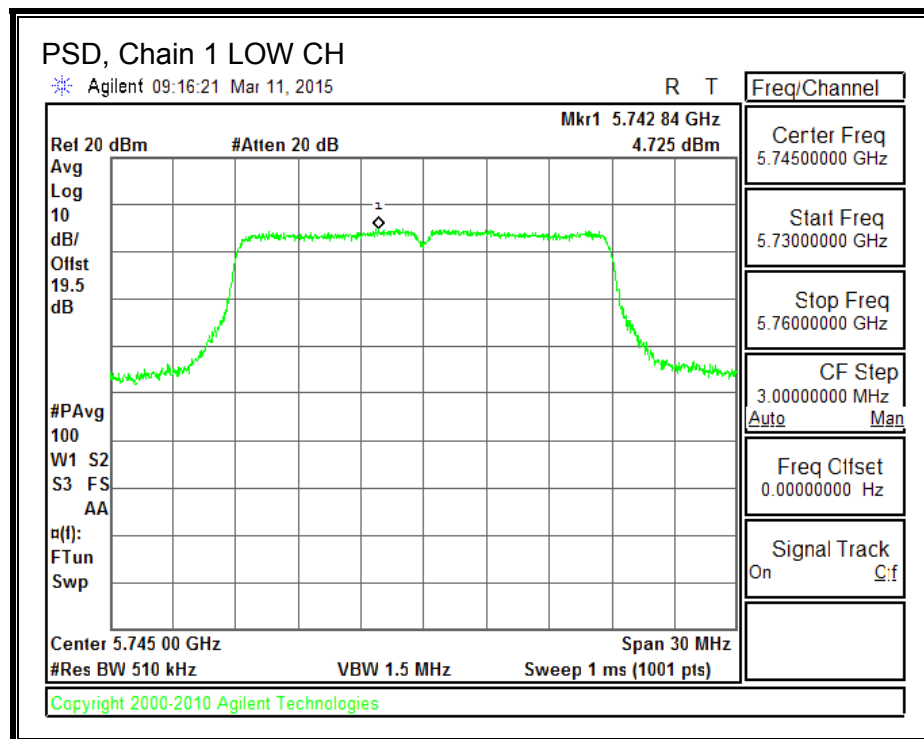
| Channel | Frequency<br>(MHz) | Chain 0<br>Meas<br>PSD<br>(dBm) | Chain 1<br>Meas<br>PSD<br>(dBm) | Chain 2<br>Meas<br>PSD<br>(dBm) | Total<br>Corr'd<br>PSD<br>(dBm) | PSD<br>Limit<br>(dBm) | PSD<br>Margin<br>(dB) |
|---------|--------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|-----------------------|-----------------------|
| Low     | 5745               | 5.062                           | 4.725                           | 4.316                           | 9.48                            | 26.85                 | -17.37                |
| Mid     | 5785               | 5.376                           | 5.159                           | 4.710                           | 9.86                            | 26.85                 | -16.99                |
| High    | 5825               | 5.439                           | 5.073                           | 5.008                           | 9.95                            | 26.85                 | -16.90                |

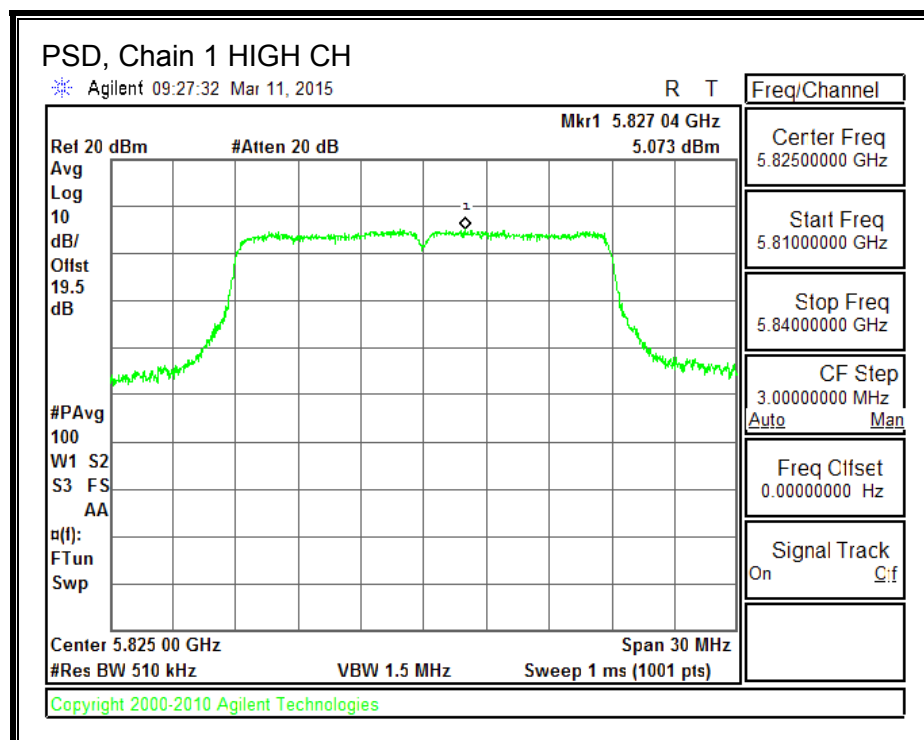
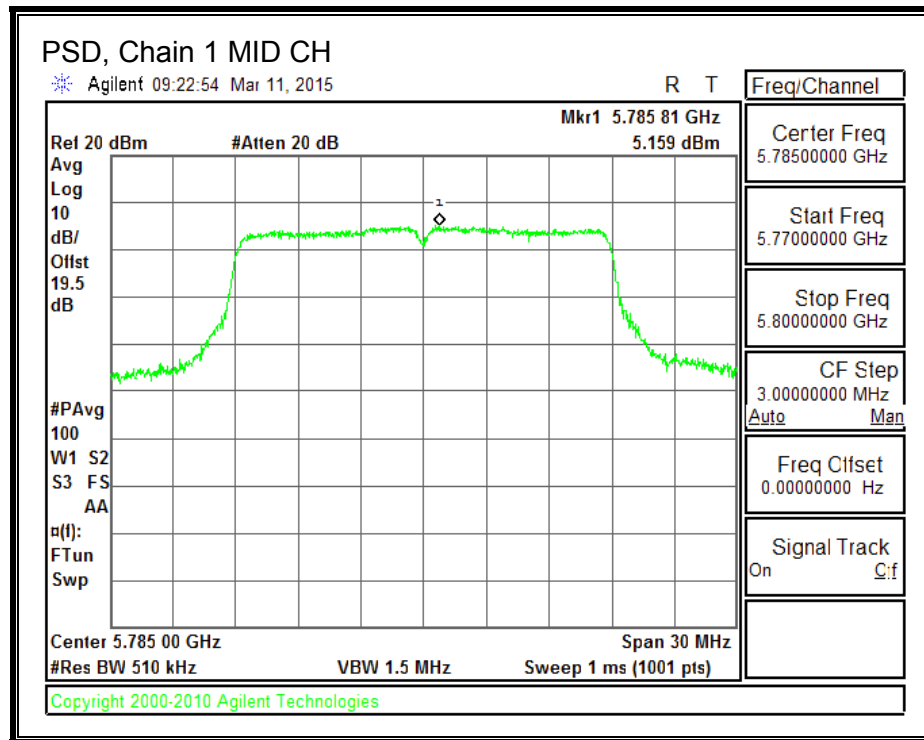
**PSD, Chain 0**



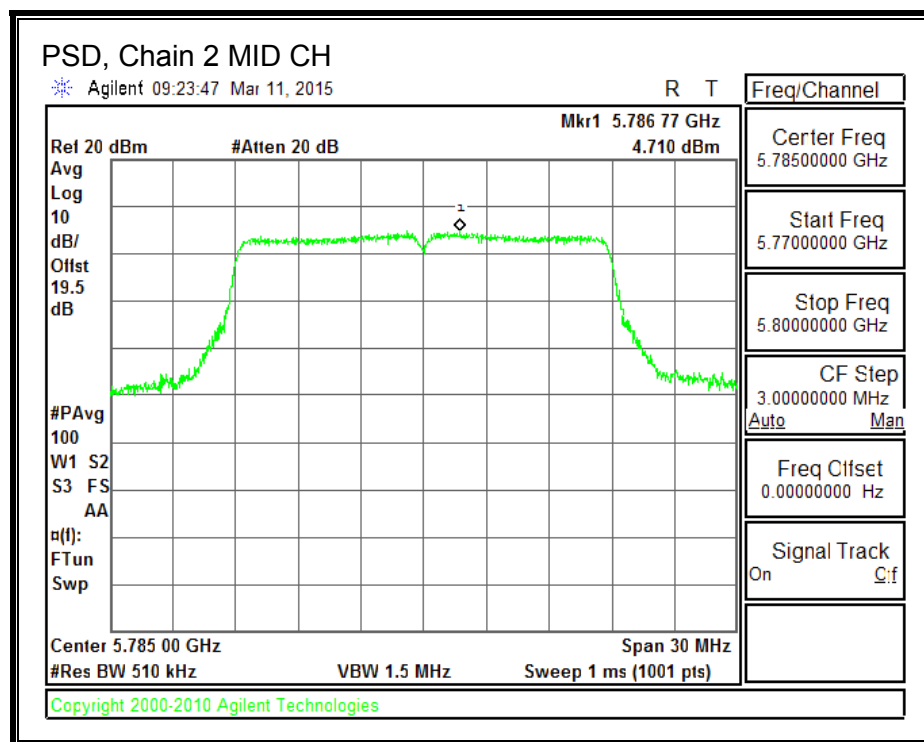
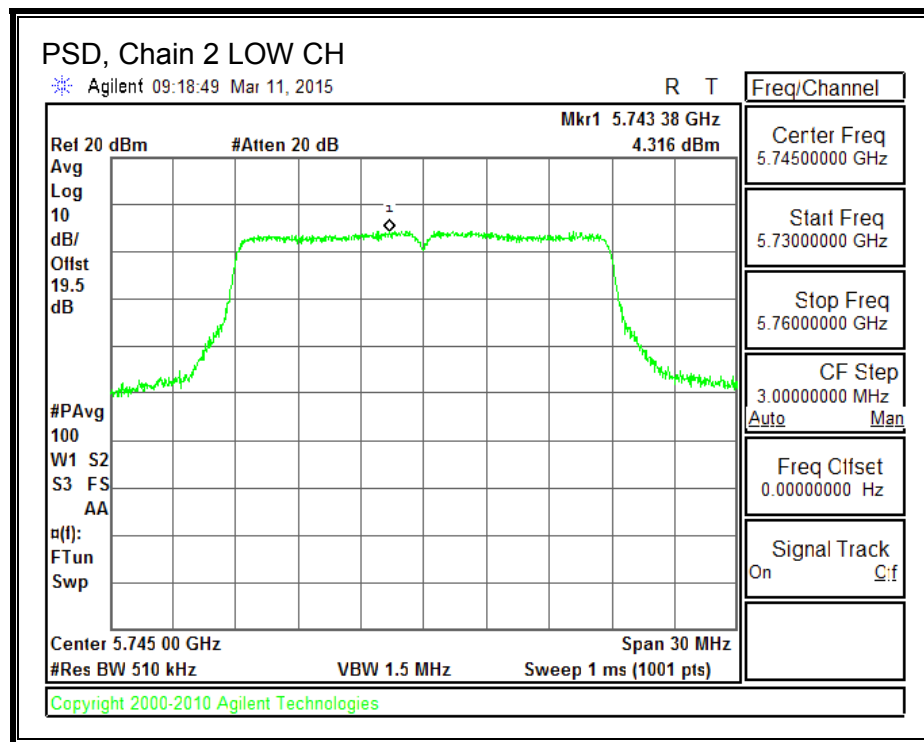


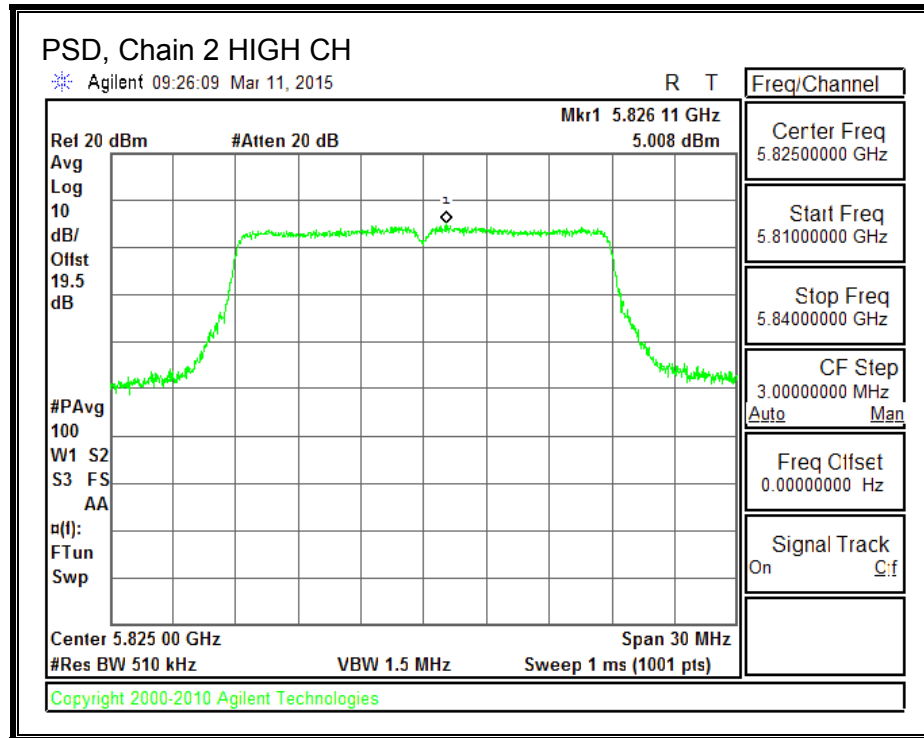
**PSD, Chain 1**





**PSD, Chain 2**





## **8.59. 802.11n HT20 TxBF 3TX MODE IN THE 5.8 GHz BAND**

### **8.59.1. OUTPUT POWER**

#### **LIMITS**

FCC §15.407 (a) (3)

For the band 5.725-5.85 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. In addition, the maximum power spectral density shall not exceed 30 dBm in any 500-kHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

#### **DIRECTIONAL ANTENNA GAIN**

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

| <b>Chain 0<br/>Antenna<br/>Gain<br/>(dBi)</b> | <b>Chain 1<br/>Antenna<br/>Gain<br/>(dBi)</b> | <b>Chain 2<br/>Antenna<br/>Gain<br/>(dBi)</b> | <b>Correlated Chains<br/>Directional<br/>Gain<br/>(dBi)</b> |
|-----------------------------------------------|-----------------------------------------------|-----------------------------------------------|-------------------------------------------------------------|
| 3.09                                          | 1.95                                          | 4.86                                          | 9.15                                                        |

## **RESULTS**

### **Antenna Gain and Limit**

| Channel | Frequency<br>(MHz) | Directional<br>Gain<br>(dBi) | Power<br>Limit<br>(dBm) |
|---------|--------------------|------------------------------|-------------------------|
| Low     | 5745               | 8.15                         | 27.85                   |
| Mid     | 5785               | 8.15                         | 27.85                   |
| High    | 5825               | 8.15                         | 27.85                   |

### **Output Power Results**

| Channel | Frequency<br>(MHz) | Chain 0<br>Meas<br>Power<br>(dBm) | Chain 1<br>Meas<br>Power<br>(dBm) | Chain 2<br>Meas<br>Power<br>(dBm) | Total<br>Corr'd<br>Power<br>(dBm) | Power<br>Limit<br>(dBm) | Power<br>Margin<br>(dB) |
|---------|--------------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|-------------------------|-------------------------|
| Low     | 5745               | 12.30                             | 12.10                             | 11.90                             | 16.87                             | 27.85                   | -10.98                  |
| Mid     | 5785               | 18.60                             | 18.48                             | 17.85                             | 23.09                             | 27.85                   | -4.76                   |
| High    | 5825               | 16.50                             | 16.30                             | 16.10                             | 21.07                             | 27.85                   | -6.78                   |

**Note:** the power readings above were measured with gated method, and the measurement was taken only during the ON time. No duty cycle correction was necessary.

## **8.60. 802.11n HT40 1TX MODE IN THE 5.8 GHz BAND**

### **8.60.1. OUTPUT POWER**

#### **LIMITS**

FCC §15.407 (a) (3)

For the band 5.725-5.85 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. In addition, the maximum power spectral density shall not exceed 30 dBm in any 500-kHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

#### **DIRECTIONAL ANTENNA GAIN**

This is SISO mode, AG is the highest (worst-case) = 5.86 dBi

## **RESULTS**

### **Antenna Gain and Limit**

| Channel | Frequency<br>(MHz) | Directional<br>Gain<br>(dBi) | Power<br>Limit<br>(dBm) |
|---------|--------------------|------------------------------|-------------------------|
| Low     | 5755               | 5.86                         | 30.00                   |
| High    | 5795               | 5.96                         | 30.00                   |

### **Output Power Results**

| Channel | Frequency<br>(MHz) | Chain 1<br>Meas<br>Power<br>(dBm) | Total<br>Corr'd<br>Power<br>(dBm) | Power<br>Limit<br>(dBm) | Power<br>Margin<br>(dB) |
|---------|--------------------|-----------------------------------|-----------------------------------|-------------------------|-------------------------|
| Low     | 5755               | 10.50                             | 10.50                             | 30.00                   | -19.50                  |
| High    | 5795               | 16.60                             | 16.60                             | 30.00                   | -13.40                  |

**Note:** the power readings above were measured with gated method, and the measurement was taken only during the ON time. No duty cycle correction was necessary.

## **8.61. 802.11n HT40 CDD 2TX MODE IN THE 5.8 GHz BAND**

### **8.61.1. OUTPUT POWER**

#### **LIMITS**

FCC §15.407 (a) (3)

For the band 5.725-5.85 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. In addition, the maximum power spectral density shall not exceed 30 dBm in any 500-kHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

#### **DIRECTIONAL ANTENNA GAIN**

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

| <b>Chain 0<br/>Antenna<br/>Gain<br/>(dBi)</b> | <b>Chain 2<br/>Antenna<br/>Gain<br/>(dBi)</b> | <b>Uncorrelated Chains<br/>Directional<br/>Gain<br/>(dBi)</b> |
|-----------------------------------------------|-----------------------------------------------|---------------------------------------------------------------|
| 3.09                                          | 4.86                                          | 5.06                                                          |