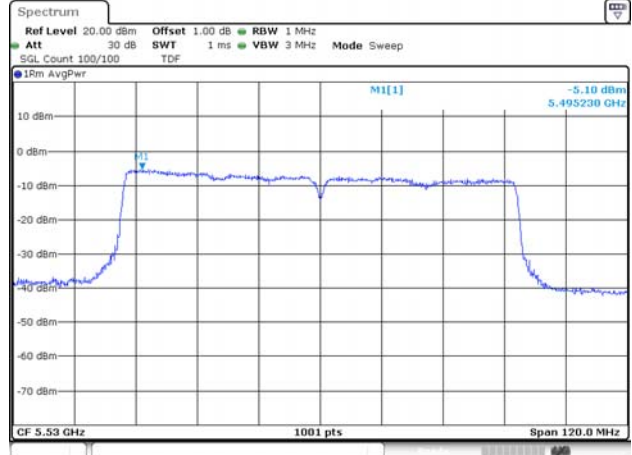
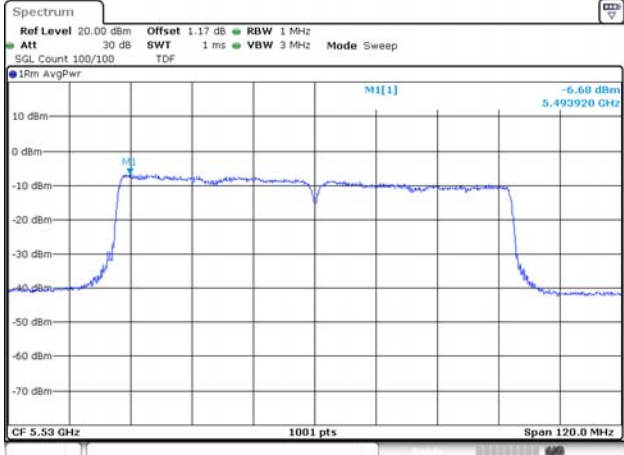


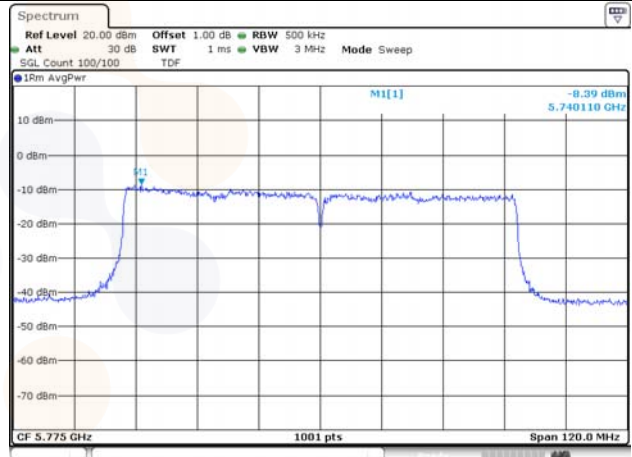
**ANT 1**

**ANT 2**

**UNII-2C / 802.11ac VHT80 / Low ch.**

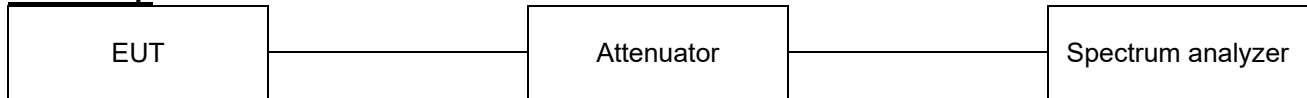


**UNII-3 / 802.11ac VHT80 / Mid ch.**



### 7.3. 26 dB Bandwidth & 99% Bandwidth

#### Test setup



#### Limit

N/A

#### Test procedure

ANSI C63.10-2013 Section 12.4

KDB 789033 D02 v02r01 - Section C.1 (26dB bandwidth)

KDB 789033 D02 v02r01 - Section D (99% bandwidth)

#### Test settings

##### 1. 26 dB Bandwidth

- a. Set RBW = approximately 1% of the emission bandwidth.
- b. Set the VBW > RBW.
- c. Detector = Peak.
- d. Trace mode = max hold.
- e. Measure the maximum width of the emission that is 26 dB down from the maximum of the emission. Compare this with the RBW setting of the analyzer. Readjust RBW and repeat measurement as needed until the RBW/EBW ratio is approximately 1%.

##### 2. 99% Occupied Bandwidth

- a. Set center frequency to the nominal EUT channel center frequency.
- b. Set span = 1.5 times to 5.0 times the OBW.
- c. Set RBW = 1% to 5% of the OBW
- d. Set VBW  $\geq 3 \times$  RBW
- e. Video averaging is not permitted. Where practical, a sample detection and single sweep mode shall be used. Otherwise, peak detection and max hold mode (until the trace stabilizes) shall be used.
- f. Use the 99% power bandwidth function of the instrument (if available).
- g. If the instrument does not have a 99% power bandwidth function, the trace data points are recovered and directly summed in power units. The recovered amplitude data points, beginning at the lowest frequency, are placed in a running sum until 0.5% of the total is reached; that frequency is recorded as the lower frequency. The process is repeated until 99.5% of the total is reached; that frequency is recorded as the upper frequency. The 99% occupied bandwidth is the difference between these two frequencies.

**Test results**

**SISO**

| Test mode       | Band    | Frequency(MHz) | 26 dB bandwidth (MHz) | 99% bandwidth (MHz) |
|-----------------|---------|----------------|-----------------------|---------------------|
|                 |         |                | ANT2                  | ANT2                |
| 802.11a         | UNII-1  | 5 180          | 25.42                 | 17.23               |
|                 |         | 5 200          | 25.67                 | 17.23               |
|                 |         | 5 240          | 24.98                 | 17.18               |
|                 | UNII-2A | 5 260          | 25.62                 | 17.28               |
|                 |         | 5 280          | 25.52                 | 17.28               |
|                 |         | 5 320          | 24.98                 | 17.18               |
|                 | UNII-2C | 5 500          | 25.52                 | 17.18               |
|                 |         | 5 600          | 25.82                 | 17.23               |
|                 |         | 5 700          | 24.83                 | 17.23               |
| 802.11n<br>HT20 | UNII-1  | 5 180          | 26.07                 | 18.38               |
|                 |         | 5 200          | 27.32                 | 18.38               |
|                 |         | 5 240          | 26.27                 | 18.33               |
|                 | UNII-2A | 5 260          | 26.42                 | 18.43               |
|                 |         | 5 280          | 26.42                 | 18.38               |
|                 |         | 5 320          | 28.67                 | 18.63               |
|                 | UNII-2C | 5 500          | 26.27                 | 18.43               |
|                 |         | 5 600          | 28.32                 | 18.63               |
|                 |         | 5 700          | 26.27                 | 18.48               |
| 802.11n<br>HT40 | UNII-1  | 5 190          | 71.33                 | 37.26               |
|                 |         | 5 230          | 62.04                 | 37.06               |
|                 | UNII-2A | 5 270          | 73.63                 | 37.36               |
|                 |         | 5 310          | 53.15                 | 37.06               |
|                 | UNII-2C | 5 510          | 57.14                 | 37.26               |
|                 |         | 5 590          | 57.94                 | 37.36               |
|                 |         | 5 670          | 62.54                 | 37.06               |

| Test mode         | Band    | Frequency(MHz) | 26 dB bandwidth (MHz) | 99% bandwidth (MHz) |
|-------------------|---------|----------------|-----------------------|---------------------|
|                   |         |                | ANT2                  | ANT2                |
| 802.11ac<br>VHT20 | UNII-1  | 5 180          | 26.52                 | 18.38               |
|                   |         | 5 200          | 26.37                 | 18.33               |
|                   |         | 5 240          | 26.02                 | 18.33               |
|                   | UNII-2A | 5 260          | 26.72                 | 18.48               |
|                   |         | 5 280          | 26.57                 | 18.48               |
|                   |         | 5 320          | 26.42                 | 18.33               |
|                   | UNII-2C | 5 500          | 26.37                 | 18.43               |
|                   |         | 5 600          | 28.87                 | 18.63               |
|                   |         | 5 700          | 26.12                 | 18.43               |
| 802.11ac<br>VHT40 | UNII-1  | 5 190          | 46.55                 | 36.96               |
|                   |         | 5 230          | 47.25                 | 37.06               |
|                   | UNII-2A | 5 270          | 52.25                 | 37.16               |
|                   |         | 5 310          | 46.25                 | 37.06               |
|                   | UNII-2C | 5 510          | 47.25                 | 37.16               |
|                   |         | 5 590          | 46.35                 | 37.36               |
| 802.11ac<br>VHT80 | UNII-1  | 5 210          | 97.82                 | 76.36               |
|                   | UNII-2A | 5 290          | 102.86                | 76.60               |
|                   |         | 5 530          | 97.94                 | 76.72               |
|                   | UNII-2C | 5 610          | 102.50                | 76.60               |

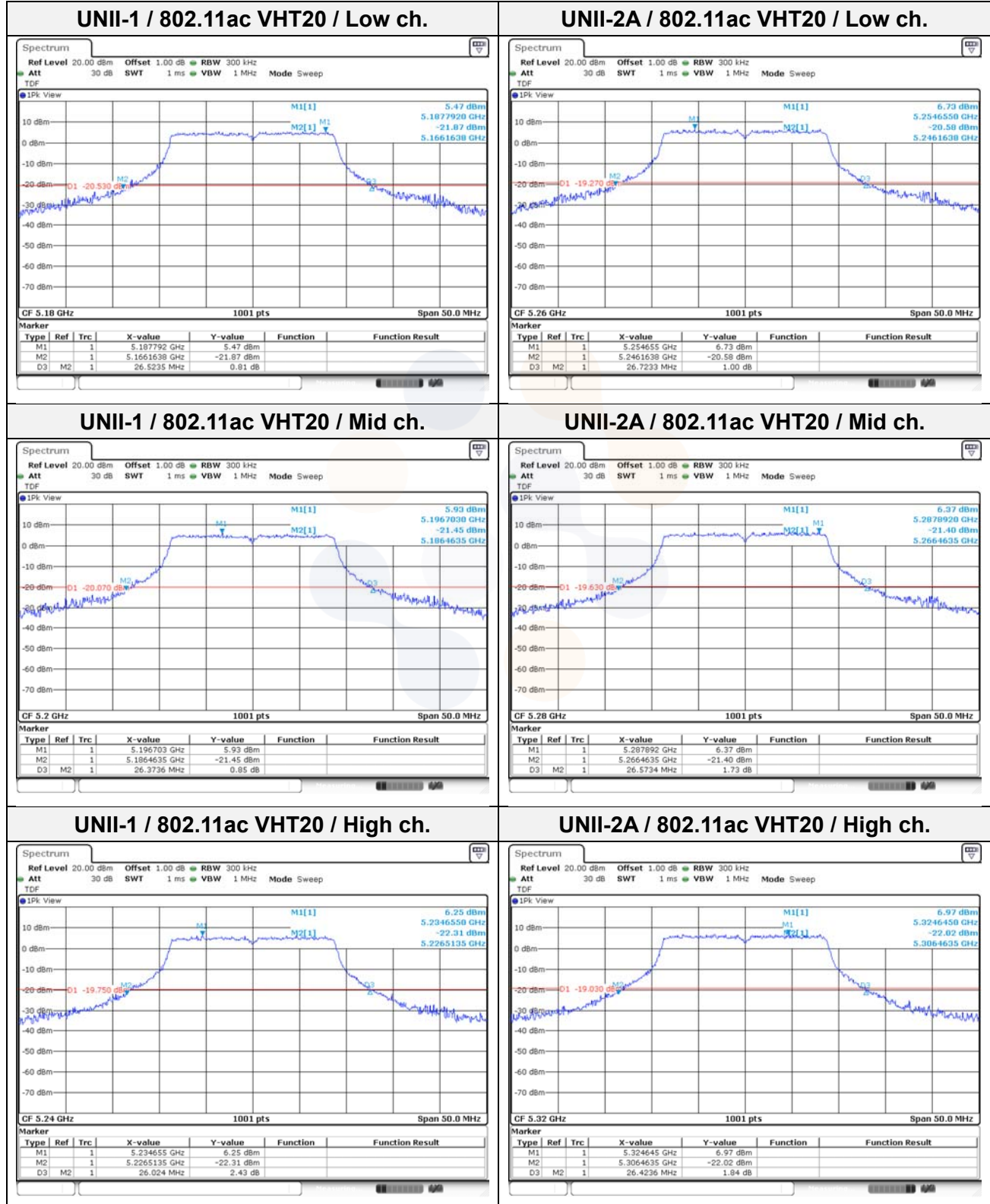
**MIMO**

| Test mode       | Band    | Frequency(MHz) | 26 dB bandwidth (MHz) |       | 99% bandwidth (MHz) |       |
|-----------------|---------|----------------|-----------------------|-------|---------------------|-------|
|                 |         |                | ANT1                  | ANT2  | ANT1                | ANT2  |
| 802.11a         | UNII-1  | 5 180          | 25.17                 | 23.08 | 17.18               | 17.03 |
|                 |         | 5 200          | 24.33                 | 23.58 | 17.23               | 17.03 |
|                 |         | 5 240          | 24.28                 | 23.68 | 17.23               | 17.03 |
|                 | UNII-2A | 5 260          | 26.37                 | 23.48 | 17.33               | 17.03 |
|                 |         | 5 280          | 24.28                 | 23.48 | 17.28               | 17.08 |
|                 |         | 5 320          | 24.38                 | 23.63 | 17.23               | 17.03 |
|                 | UNII-2C | 5 500          | 27.47                 | 24.13 | 17.38               | 17.08 |
|                 |         | 5 600          | 25.67                 | 25.07 | 17.28               | 17.23 |
|                 |         | 5 700          | 23.78                 | 24.23 | 16.98               | 17.08 |
| 802.11n<br>HT20 | UNII-1  | 5 180          | 25.97                 | 24.03 | 18.28               | 18.03 |
|                 |         | 5 200          | 26.07                 | 24.93 | 18.28               | 18.03 |
|                 |         | 5 240          | 26.12                 | 24.83 | 18.33               | 18.03 |
|                 | UNII-2A | 5 260          | 26.37                 | 24.83 | 18.33               | 17.98 |
|                 |         | 5 280          | 26.22                 | 24.78 | 18.33               | 18.03 |
|                 |         | 5 320          | 25.67                 | 24.98 | 18.33               | 18.03 |
|                 | UNII-2C | 5 500          | 26.97                 | 25.87 | 18.38               | 18.08 |
|                 |         | 5 600          | 28.67                 | 26.47 | 18.48               | 18.18 |
|                 |         | 5 700          | 25.97                 | 25.57 | 18.13               | 18.13 |
| 802.11n<br>HT40 | UNII-1  | 5 190          | 45.75                 | 44.66 | 36.96               | 36.56 |
|                 |         | 5 230          | 46.75                 | 44.46 | 36.96               | 36.66 |
|                 | UNII-2A | 5 270          | 46.25                 | 44.96 | 36.96               | 36.66 |
|                 |         | 5 310          | 46.15                 | 44.56 | 36.96               | 36.56 |
|                 | UNII-2C | 5 510          | 46.65                 | 44.36 | 37.16               | 36.66 |
|                 |         | 5 590          | 46.85                 | 44.86 | 36.96               | 36.66 |
|                 |         | 5 670          | 47.05                 | 47.15 | 37.06               | 36.76 |

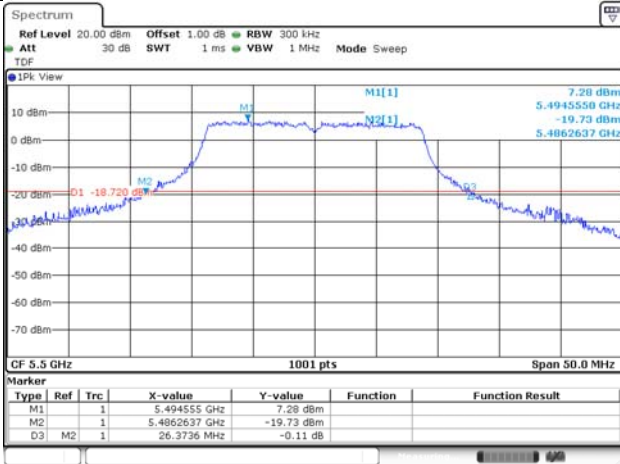
| Test mode         | Band    | Frequency(MHz) | 26 dB bandwidth (MHz) |       | 99% bandwidth (MHz) |       |
|-------------------|---------|----------------|-----------------------|-------|---------------------|-------|
|                   |         |                | ANT1                  | ANT2  | ANT1                | ANT2  |
| 802.11ac<br>VHT20 | UNII-1  | 5 180          | 26.02                 | 24.83 | 18.28               | 18.03 |
|                   |         | 5 200          | 25.87                 | 24.63 | 18.33               | 18.03 |
|                   |         | 5 240          | 25.87                 | 24.78 | 18.28               | 18.03 |
|                   | UNII-2A | 5 260          | 26.72                 | 24.88 | 18.38               | 18.03 |
|                   |         | 5 280          | 26.12                 | 24.63 | 18.33               | 18.03 |
|                   |         | 5 320          | 25.92                 | 24.88 | 18.28               | 17.98 |
|                   | UNII-2C | 5 500          | 28.52                 | 24.93 | 18.38               | 18.08 |
|                   |         | 5 600          | 29.72                 | 27.47 | 18.48               | 18.18 |
|                   |         | 5 700          | 24.73                 | 24.48 | 18.13               | 18.13 |
| 802.11ac<br>VHT40 | UNII-1  | 5 190          | 45.85                 | 44.26 | 36.96               | 36.56 |
|                   |         | 5 230          | 46.45                 | 44.16 | 36.86               | 36.56 |
|                   | UNII-2A | 5 270          | 46.55                 | 44.96 | 37.06               | 36.56 |
|                   |         | 5 310          | 46.25                 | 44.16 | 36.96               | 36.56 |
|                   | UNII-2C | 5 510          | 46.55                 | 44.26 | 37.16               | 36.66 |
|                   |         | 5 590          | 45.95                 | 46.75 | 37.06               | 36.66 |
|                   |         | 5 670          | 47.35                 | 46.65 | 37.06               | 36.56 |
| 802.11ac<br>VHT80 | UNII-1  | 5 210          | 85.36                 | 85.83 | 76.24               | 76.12 |
|                   | UNII-2A | 5 290          | 85.36                 | 86.55 | 76.24               | 76.12 |
|                   | UNII-2C | 5 530          | 86.67                 | 99.74 | 76.24               | 76.24 |
|                   |         | 5 610          | 86.91                 | 99.14 | 76.24               | 76.24 |

In order to simplify the report, only ac mode test plots are attached.

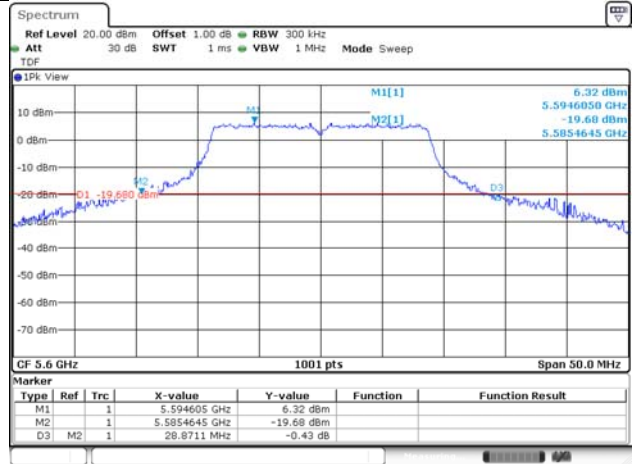
**26 dB bandwidth**  
**SISO**



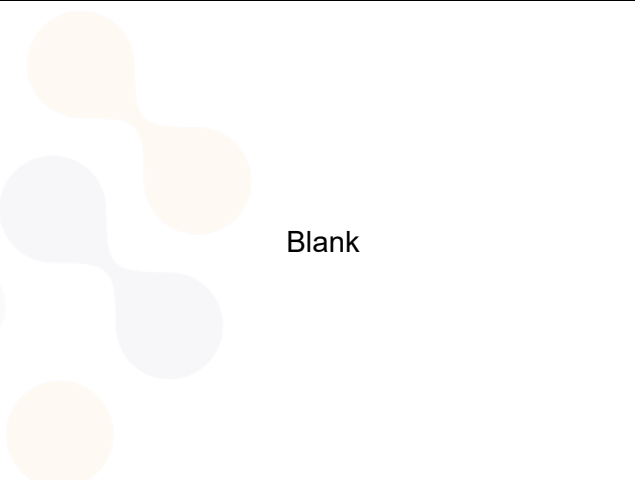
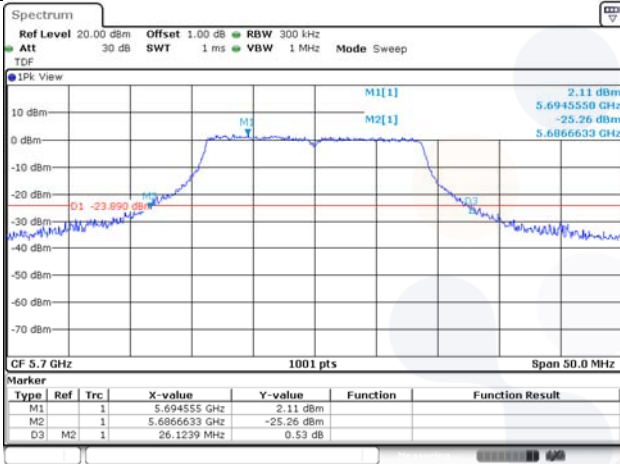
**UNII-2C / 802.11ac VHT20 / Low ch.**



**UNII-2C / 802.11ac VHT20 / Mid ch.**

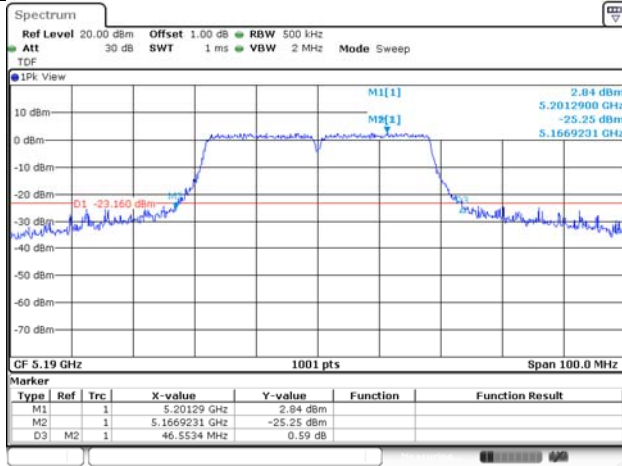


**UNII-2C / 802.11ac VHT20 / High ch.**

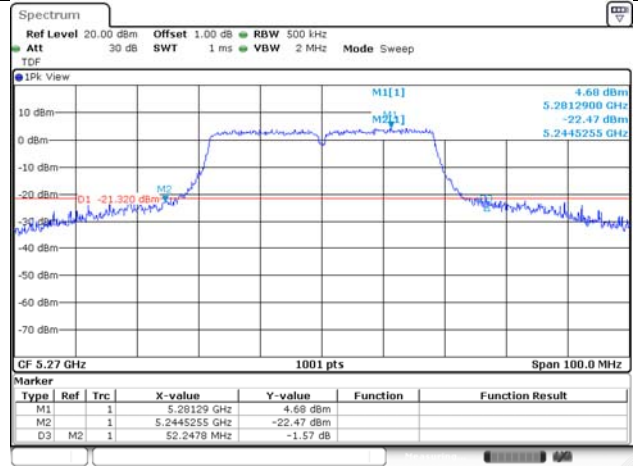




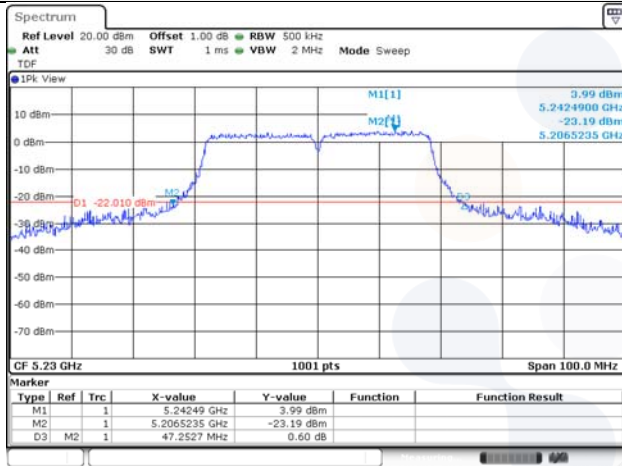
**UNII-1 / 802.11ac VHT40 / Low ch.**



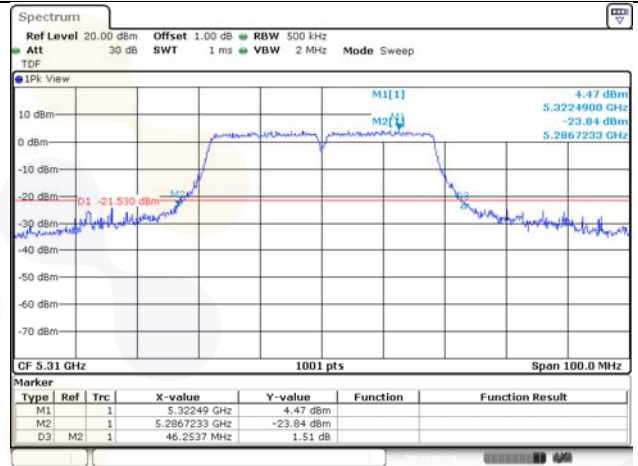
**UNII-2A / 802.11ac VHT40 / Low ch.**



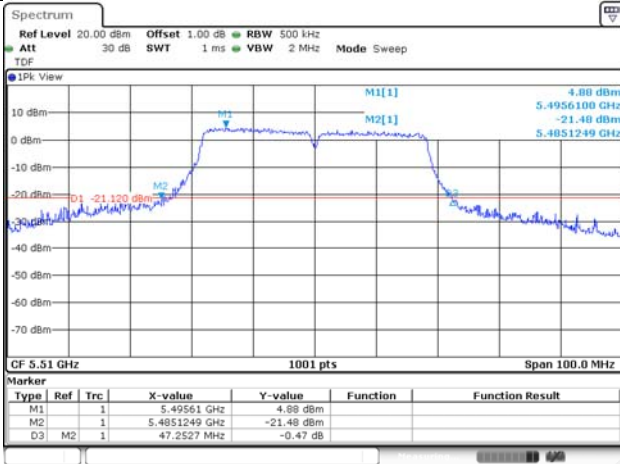
**UNII-1 / 802.11ac VHT40 / High ch.**



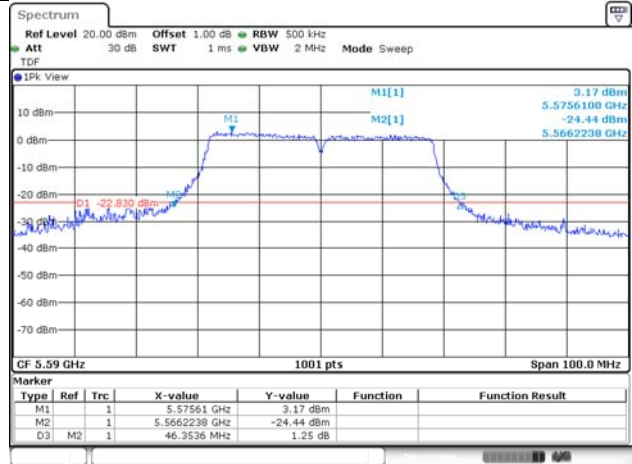
**UNII-2A / 802.11ac VHT40 / High ch.**



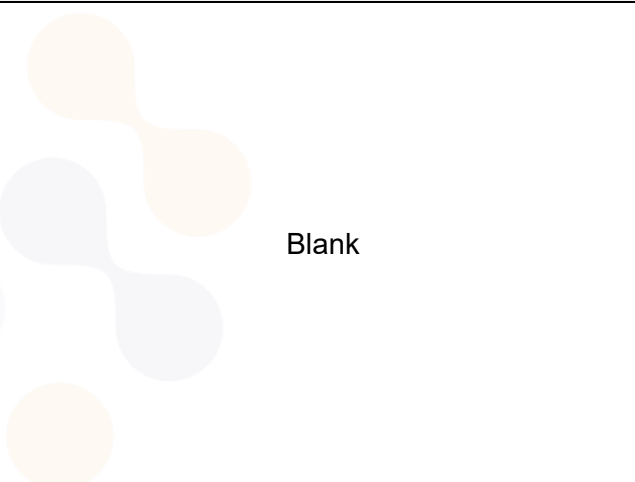
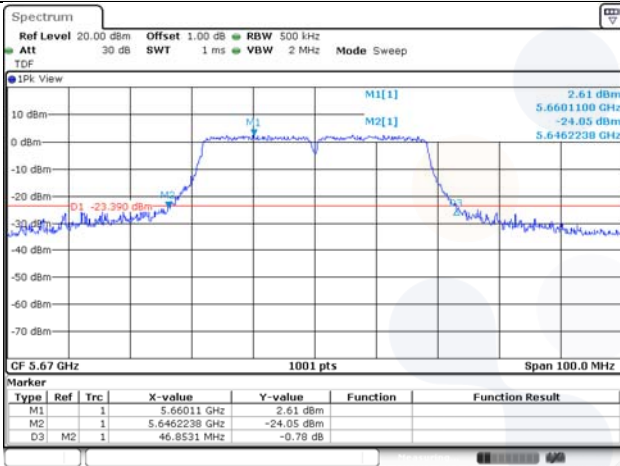
**UNII-2C / 802.11ac VHT40 / Low ch.**



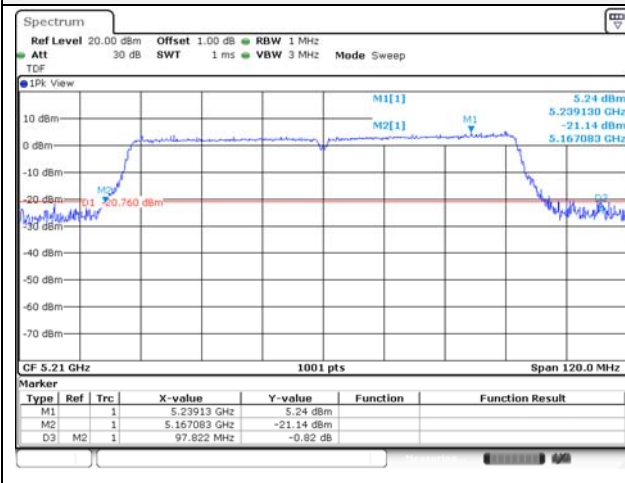
**UNII-2C / 802.11ac VHT40 / Mid ch.**



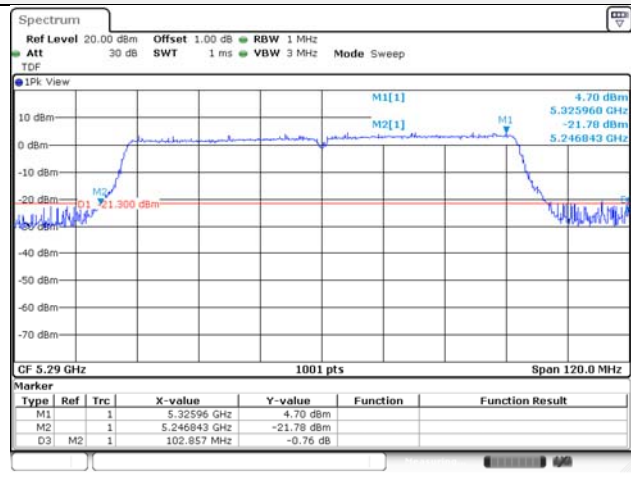
**UNII-2C / 802.11ac VHT40 / High ch.**



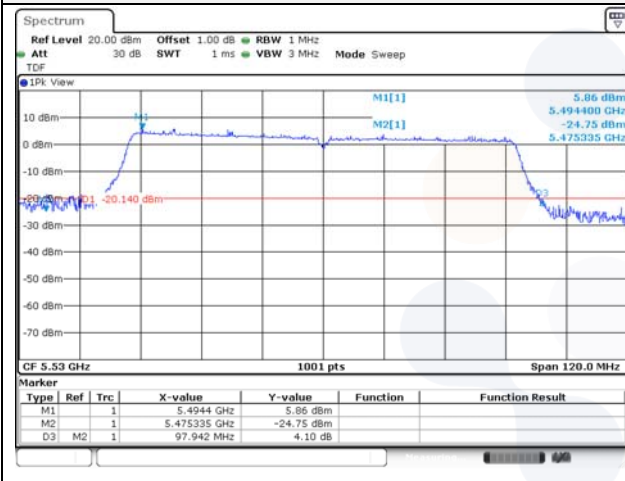
**UNII-1 / 802.11ac VHT80 / Mid ch.**



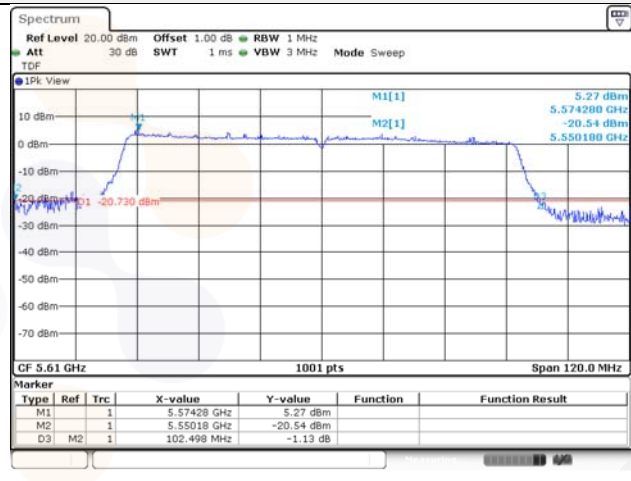
**UNII-2A / 802.11ac VHT80 / Mid ch.**



**UNII-2C / 802.11ac VHT80 / Low ch.**

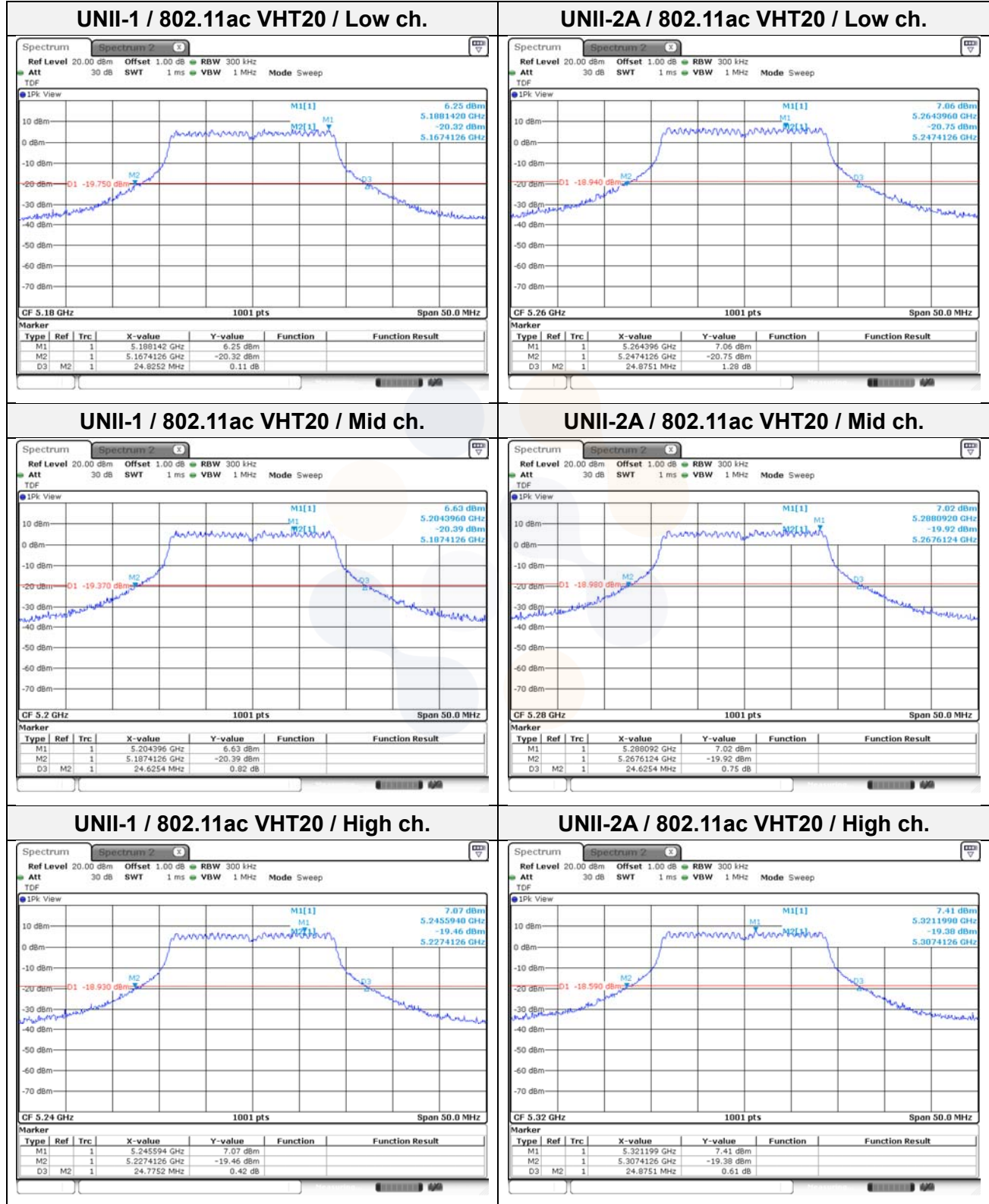


**UNII-2C / 802.11ac VHT80 / High ch.**

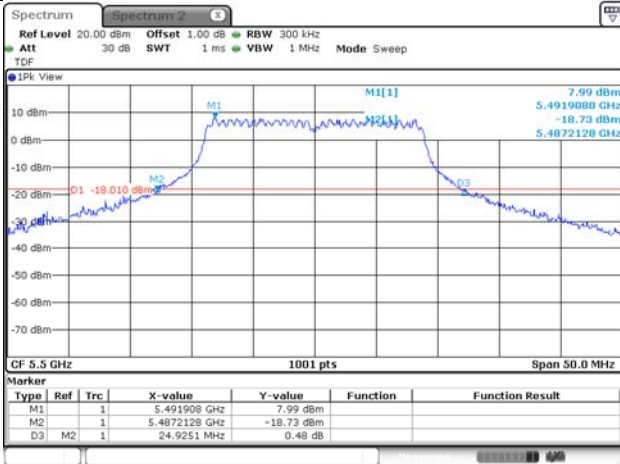


In order to simplify the report, only ANT 2 ac mode test plots are attached.

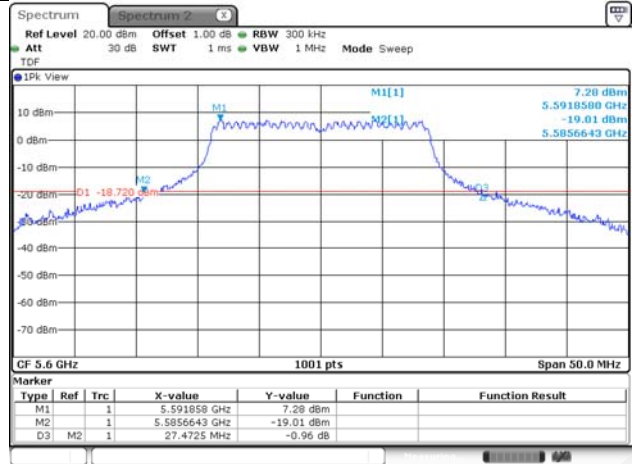
**MIMO**



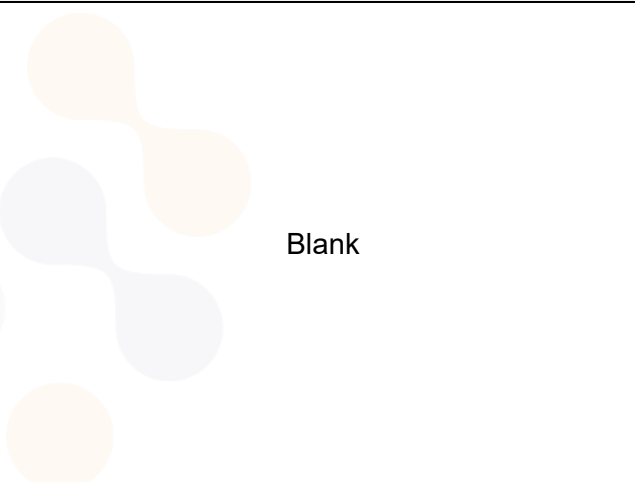
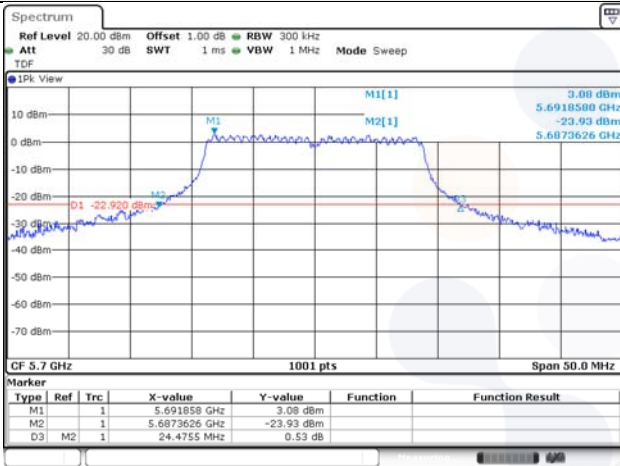
**UNII-2C / 802.11ac VHT20 / Low ch.**



**UNII-2C / 802.11ac VHT20 / High ch.**

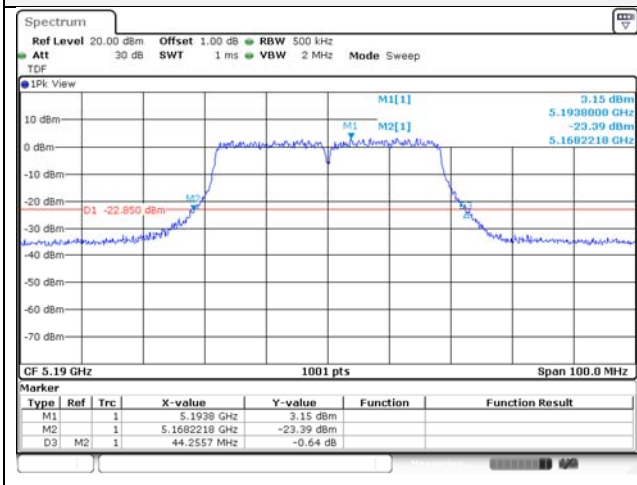


**UNII-2C / 802.11ac VHT20 / Mid ch.**

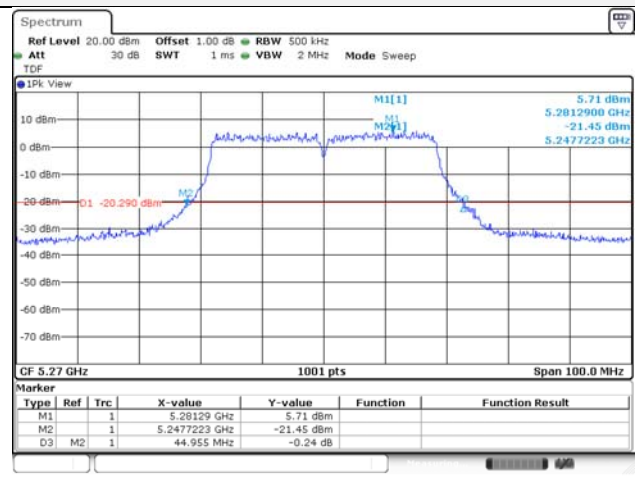


Blank

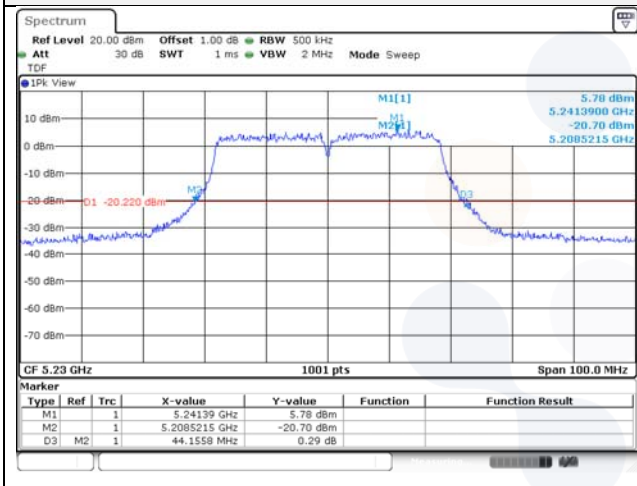
**UNII-1 / 802.11ac VHT40 / Low ch.**



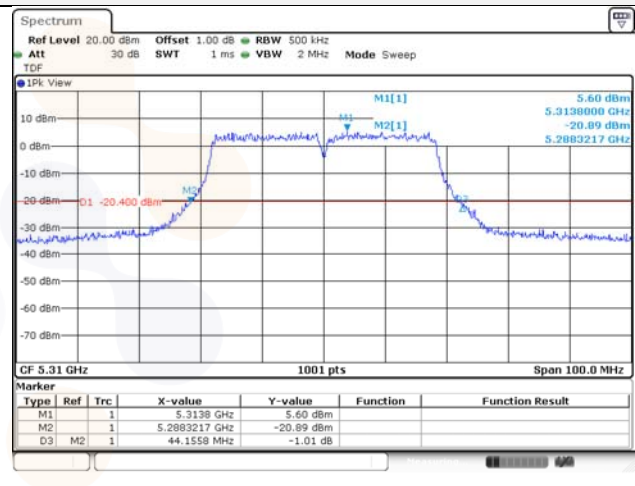
**UNII-2A / 802.11ac VHT40 / Low ch.**



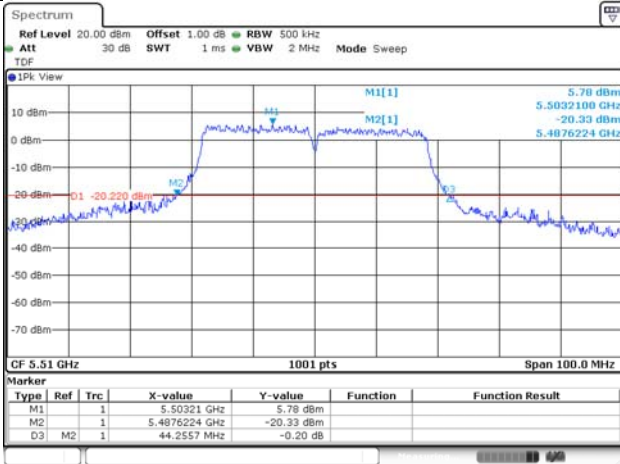
**UNII-1 / 802.11ac VHT40 / High ch.**



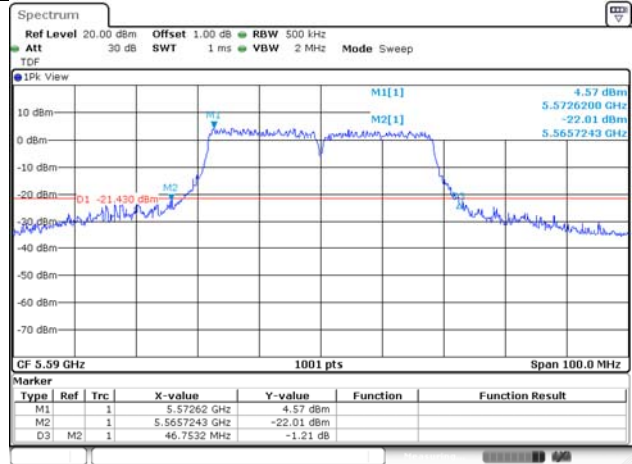
**UNII-2A / 802.11ac VHT40 / High ch.**



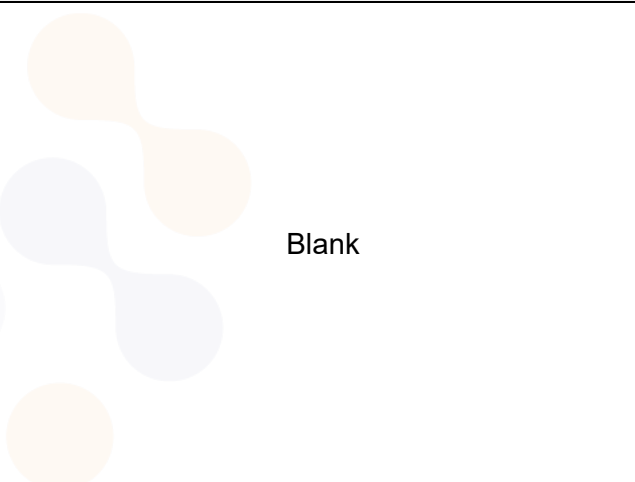
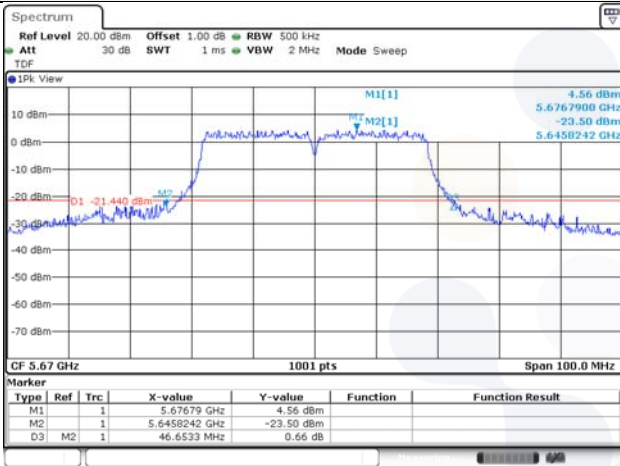
**UNII-2C / 802.11ac VHT40 / Low ch.**



**UNII-2C / 802.11ac VHT40 / Mid ch.**

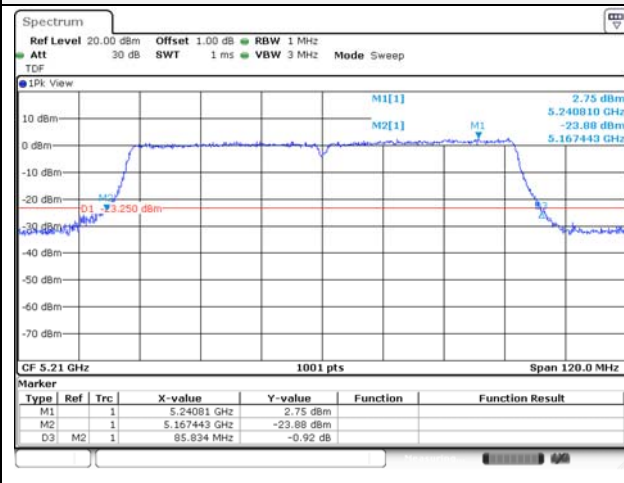


**UNII-2C / 802.11ac VHT40 / High ch.**

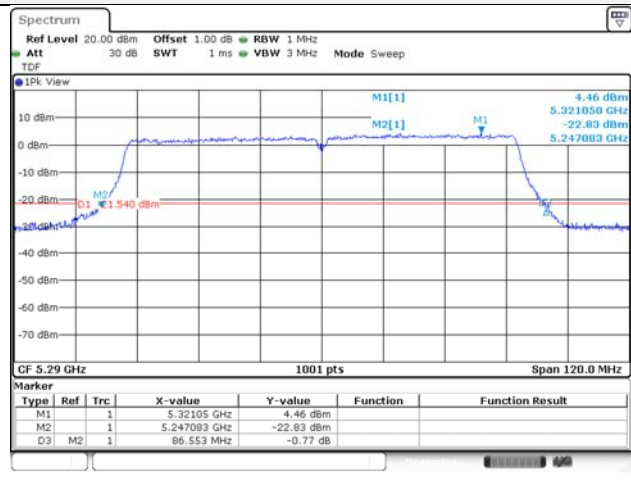


Blank

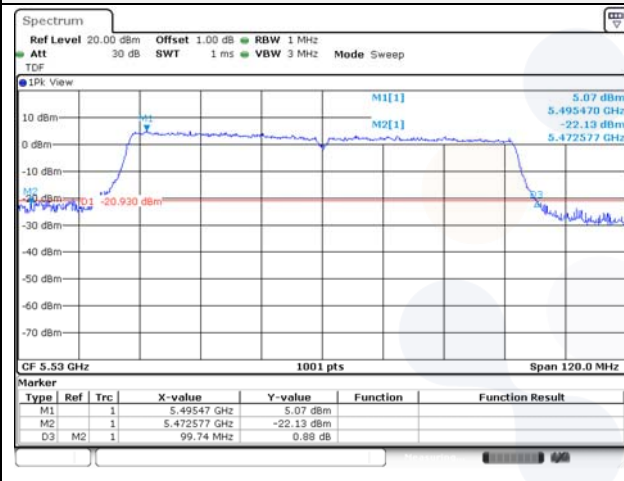
**UNII-1 / 802.11ac VHT80 / Mid ch.**



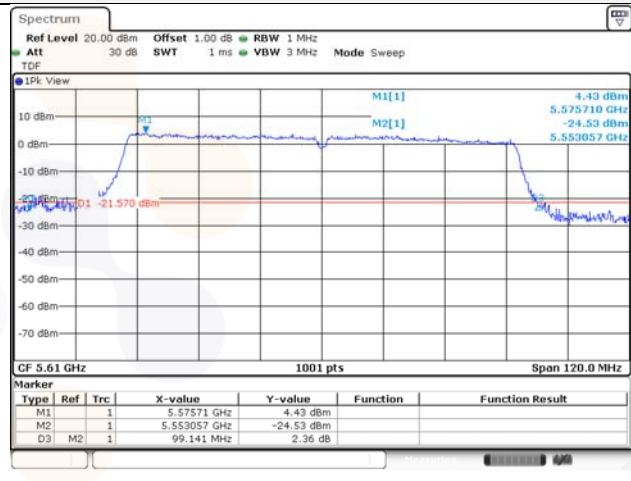
**UNII-2A / 802.11ac VHT80 / Mid ch.**



**UNII-2C / 802.11ac VHT80 / Low ch.**



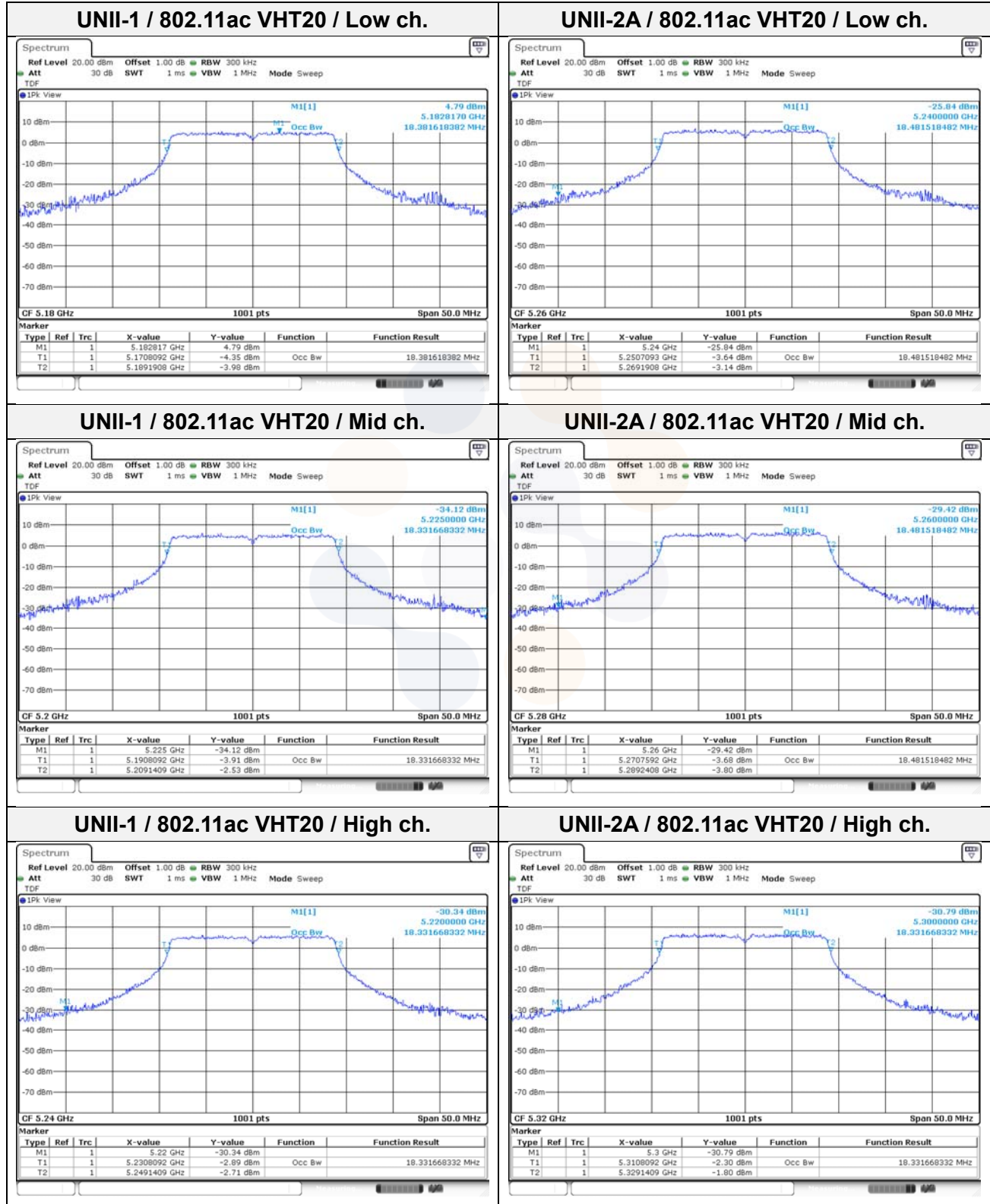
**UNII-2C / 802.11ac VHT80 / High ch.**



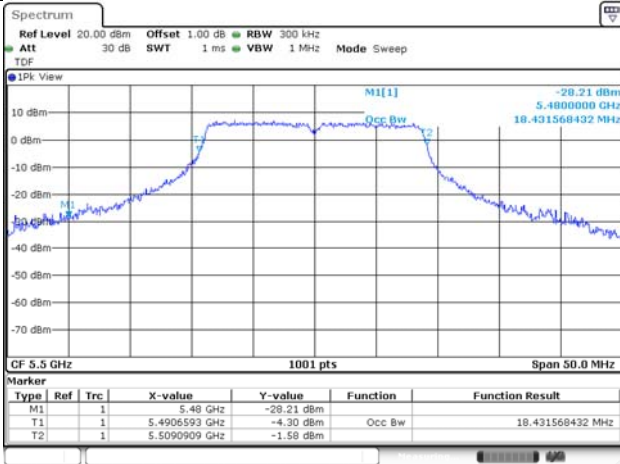


In order to simplify the report, only ac mode test plots are attached.

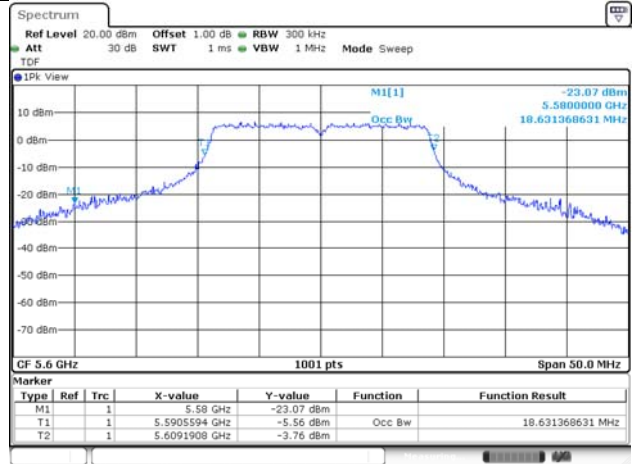
**99% bandwidth**  
**SISO**



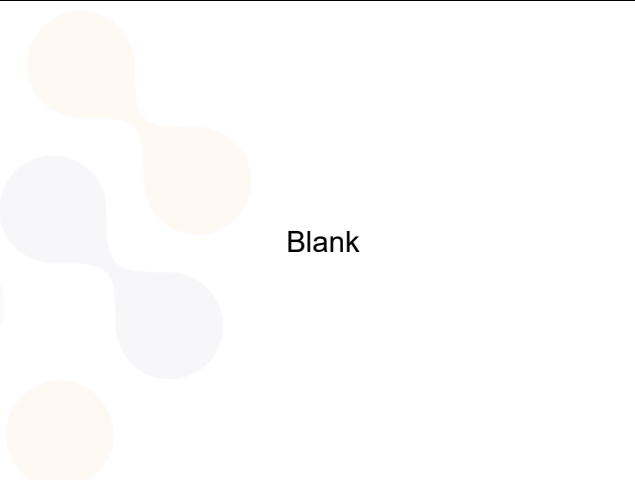
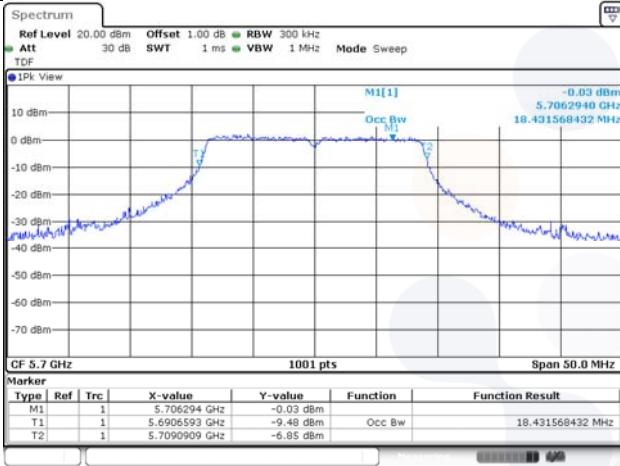
**UNII-2C / 802.11ac VHT20 / Low ch.**



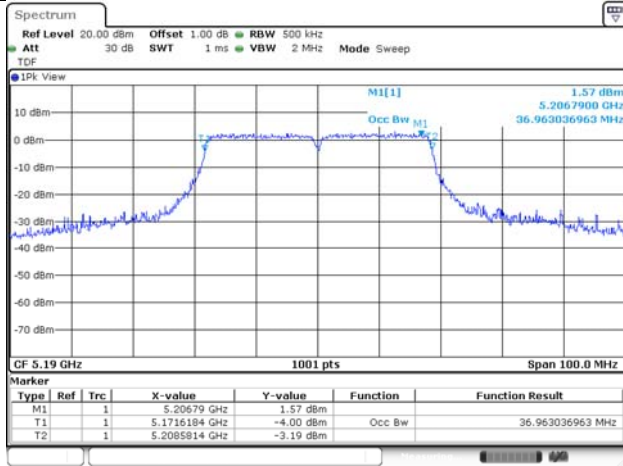
**UNII-2C / 802.11ac VHT20 / Mid ch.**



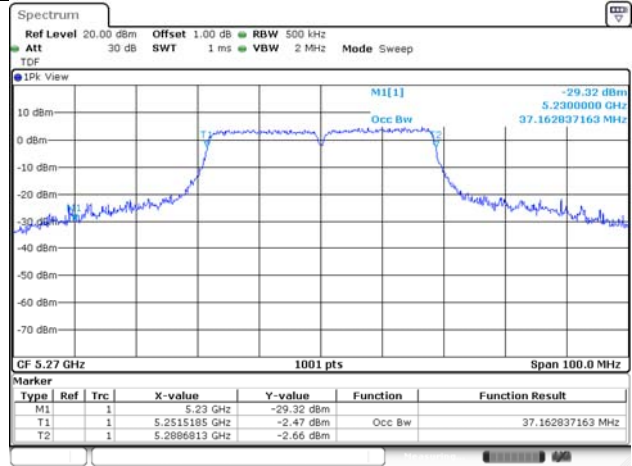
**UNII-2C / 802.11ac VHT20 / High ch.**



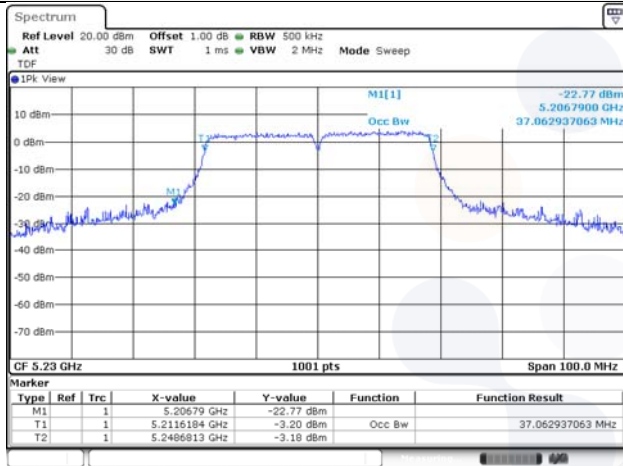
**UNII-1 / 802.11ac VHT40 / Low ch.**



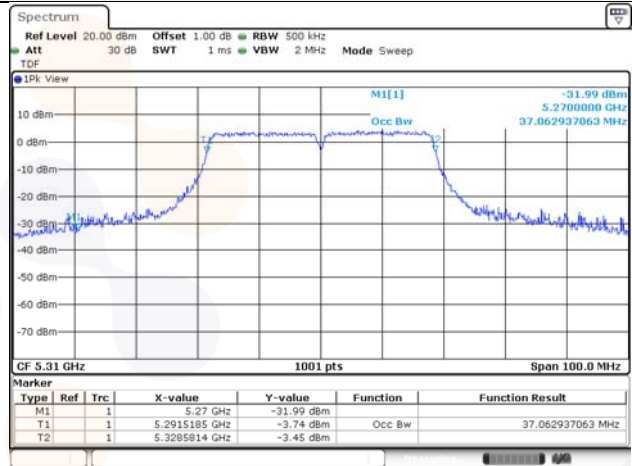
**UNII-2A / 802.11ac VHT40 / Low ch.**



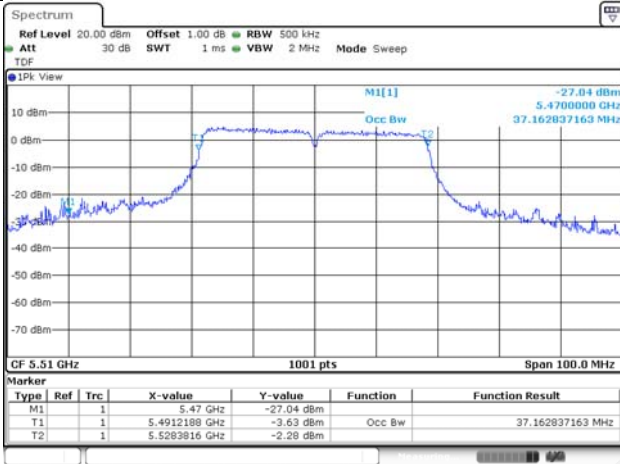
**UNII-1 / 802.11ac VHT40 / High ch.**



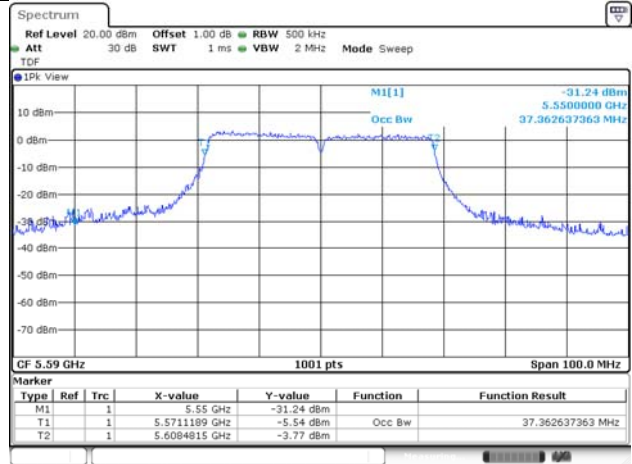
**UNII-2A / 802.11ac VHT40 / High ch.**



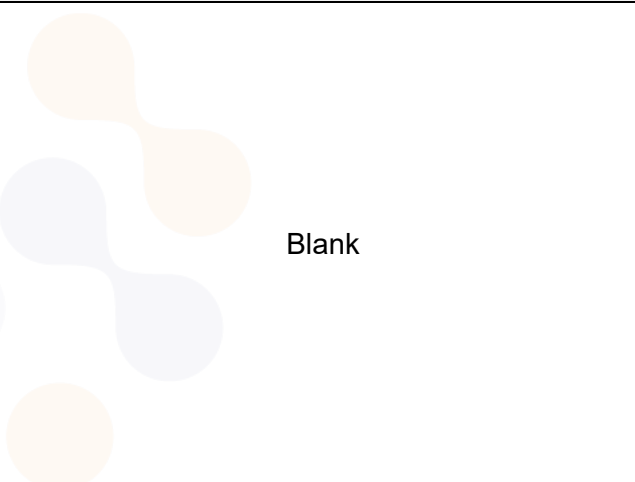
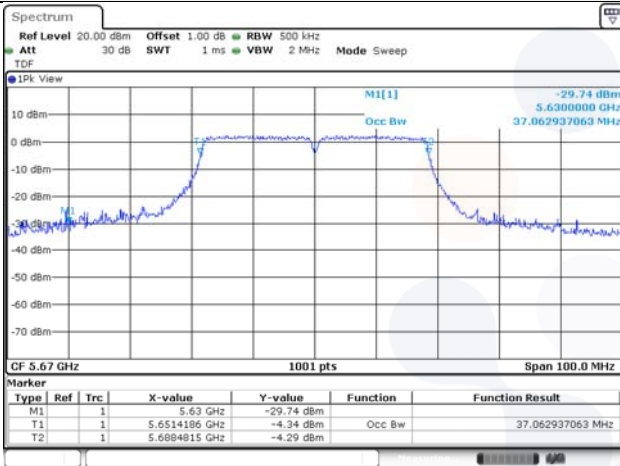
**UNII-2C / 802.11ac VHT40 / Low ch.**



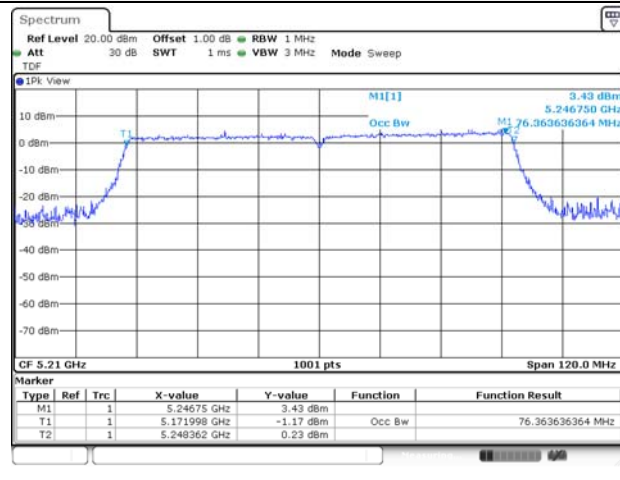
**UNII-2C / 802.11ac VHT40 / Mid ch.**



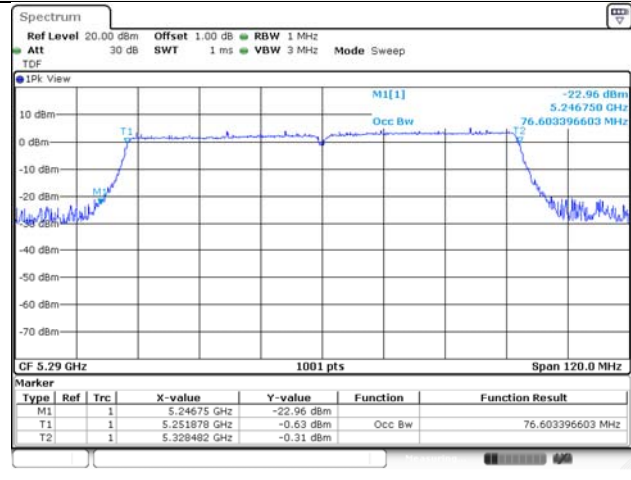
**UNII-2C / 802.11ac VHT40 / High ch.**



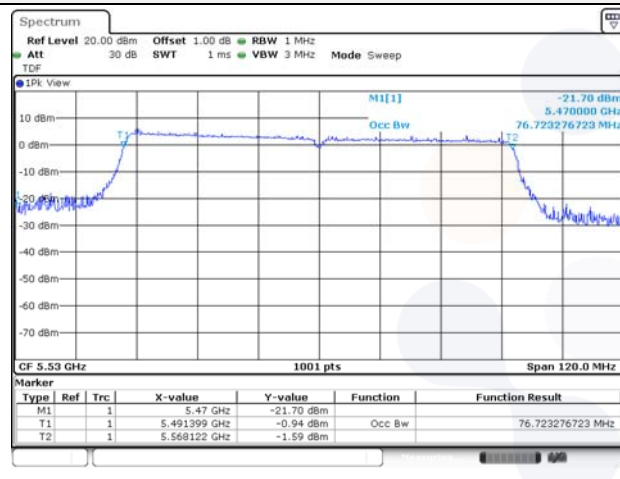
**UNII-1 / 802.11ac VHT80 / Mid ch.**



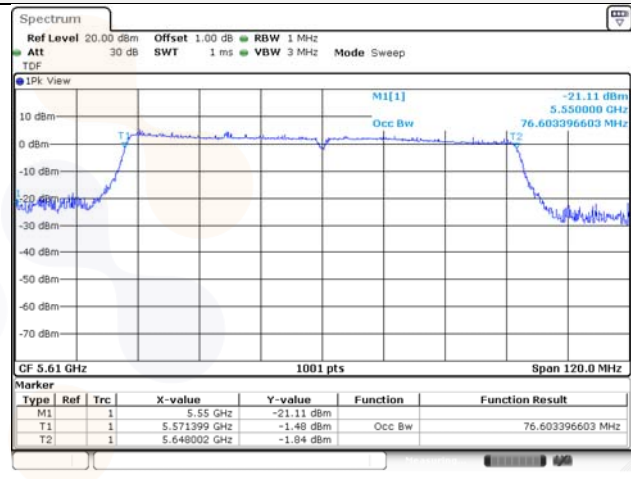
**UNII-2A / 802.11ac VHT80 / Mid ch.**



**UNII-2C / 802.11ac VHT80 / Low ch.**

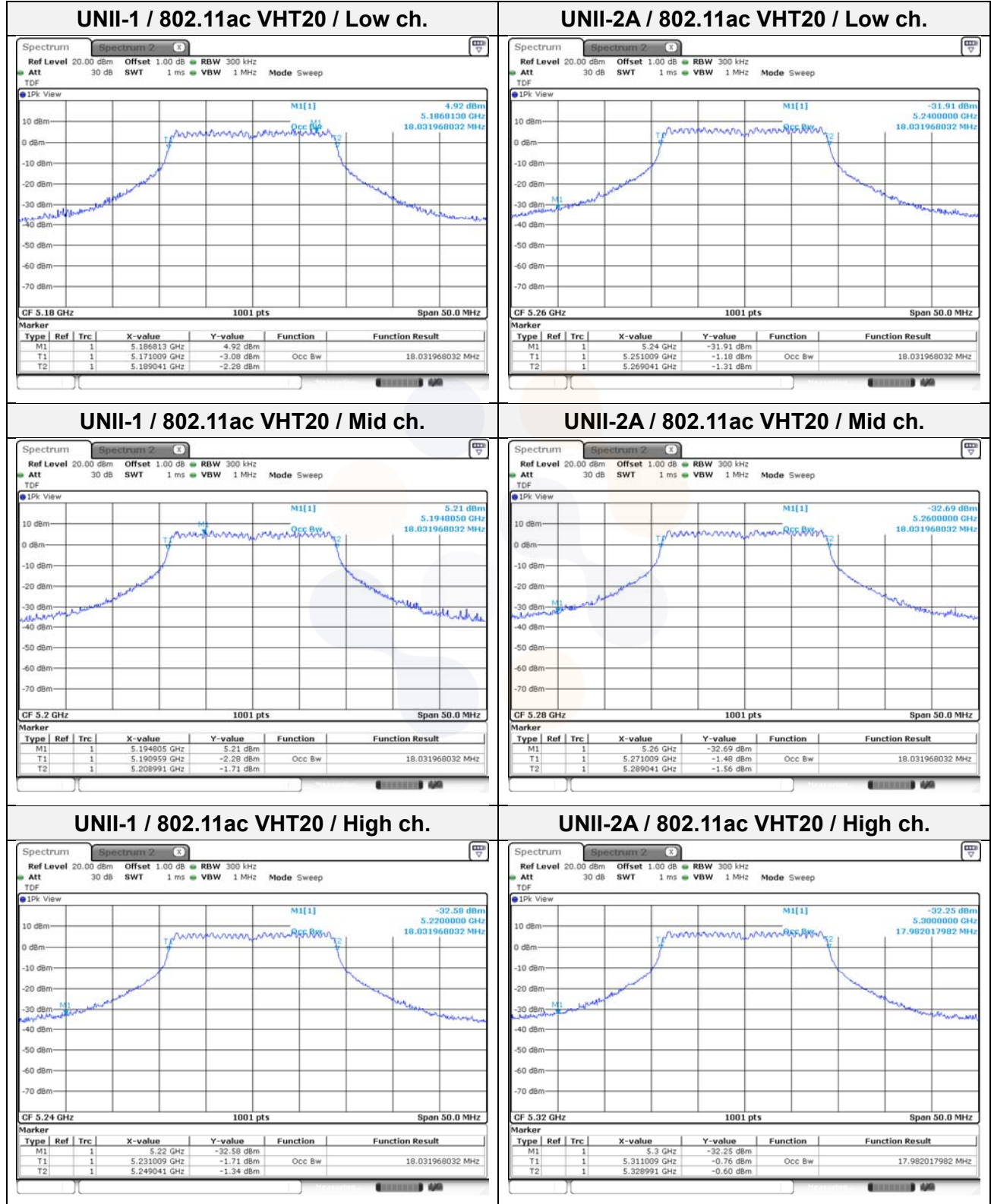


**UNII-2C / 802.11ac VHT80 / High ch.**

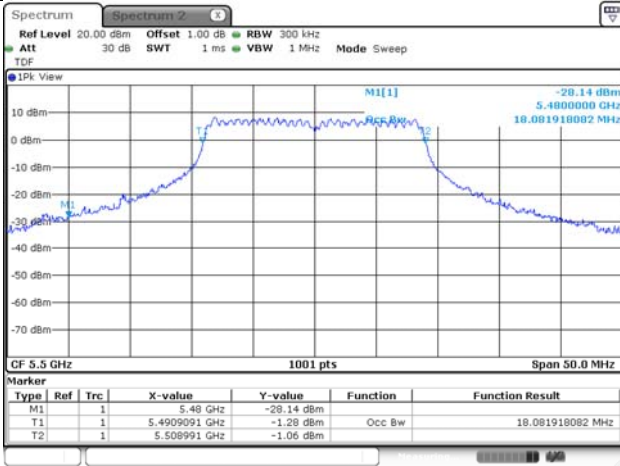


In order to simplify the report, only ANT 2 ac mode test plots are attached.

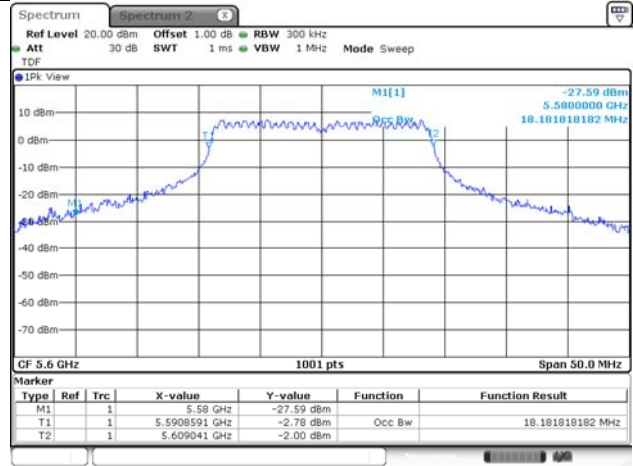
**MIMO**



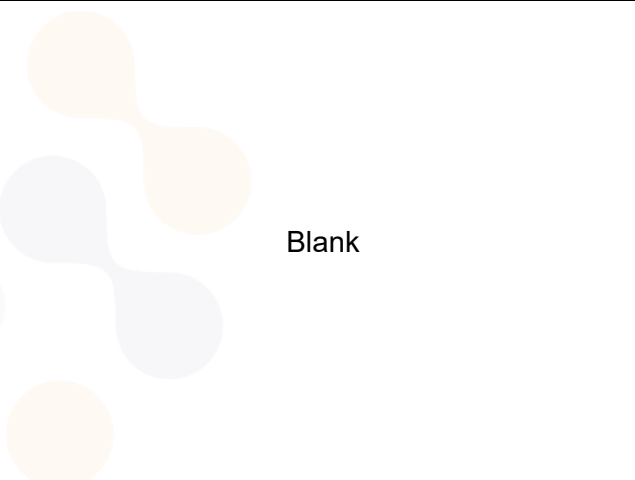
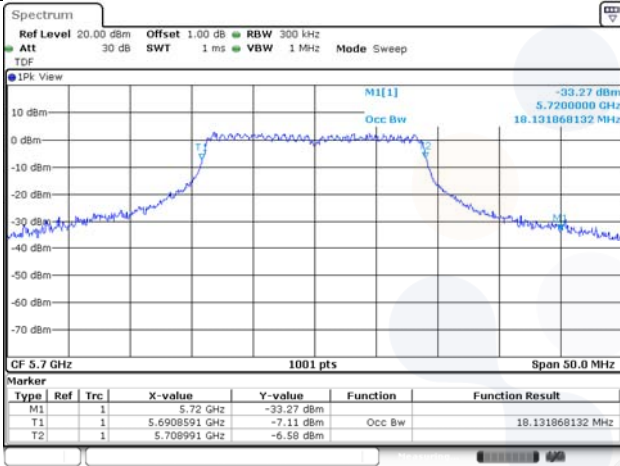
**UNII-2C / 802.11ac VHT20 / Low ch.**



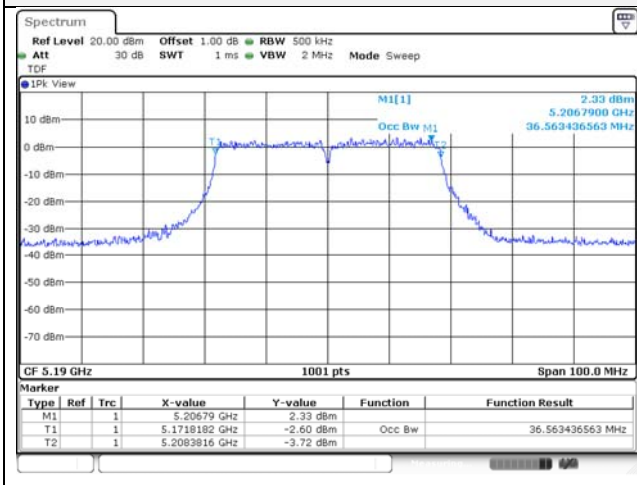
**UNII-2C / 802.11ac VHT20 / Mid ch.**



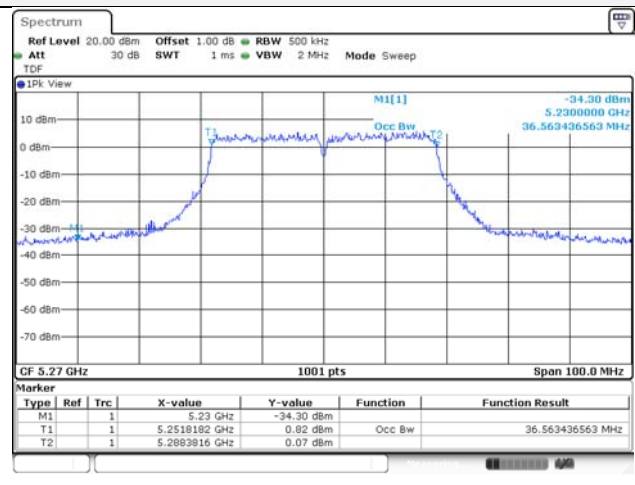
**UNII-2C / 802.11ac VHT20 / High ch.**



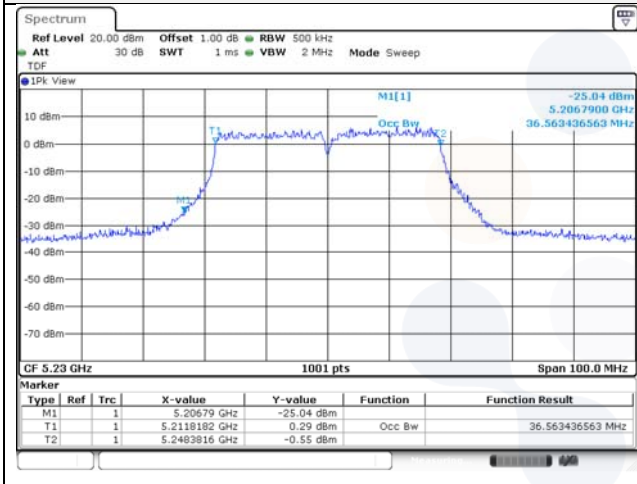
**UNII-1 / 802.11ac VHT40 / Low ch.**



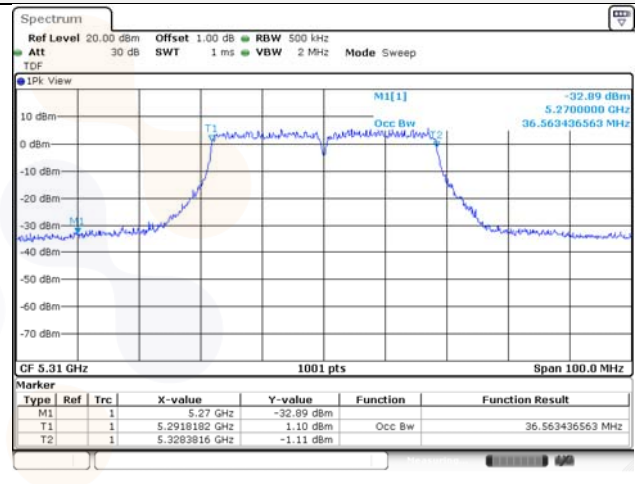
**UNII-2A / 802.11ac VHT40 / Low ch.**



**UNII-1 / 802.11ac VHT40 / High ch.**

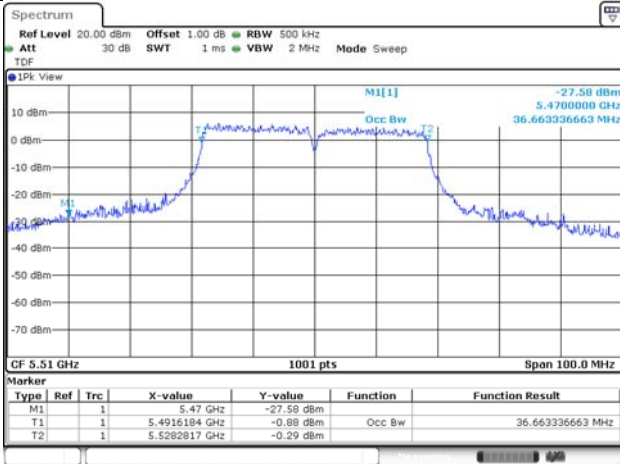


**UNII-2A / 802.11ac VHT40 / High ch.**

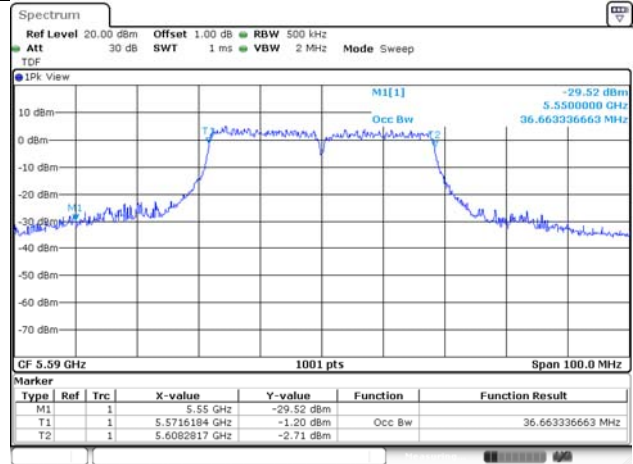




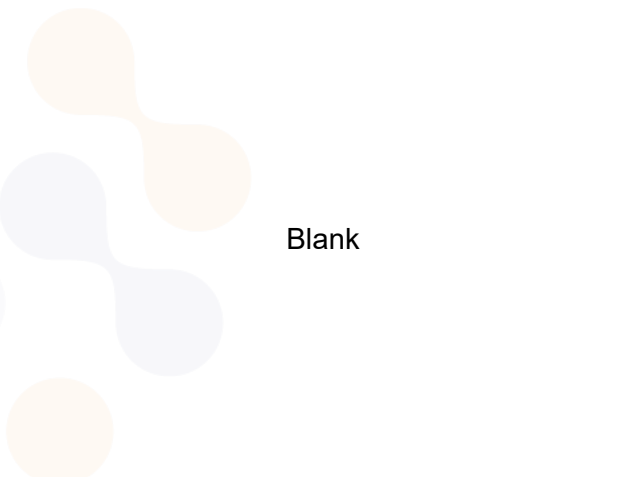
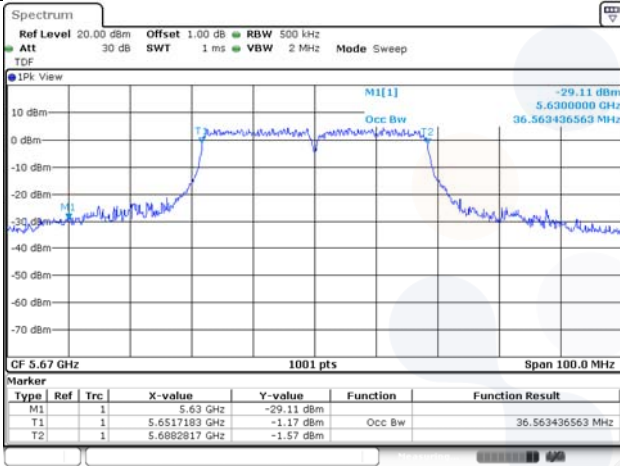
**UNII-2C / 802.11ac VHT40 / Low ch.**



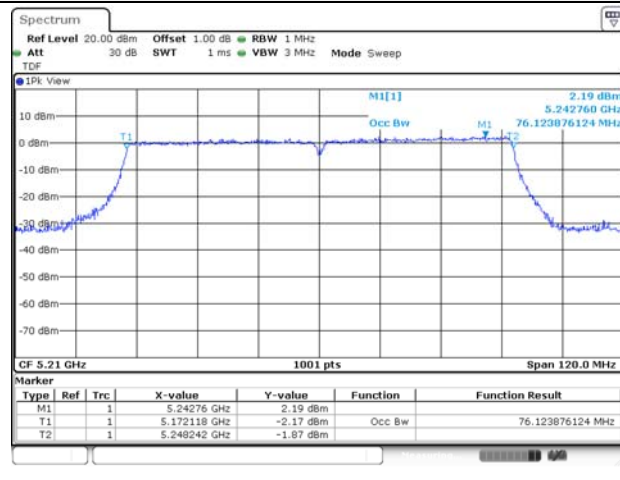
**UNII-2C / 802.11ac VHT40 / Mid ch.**



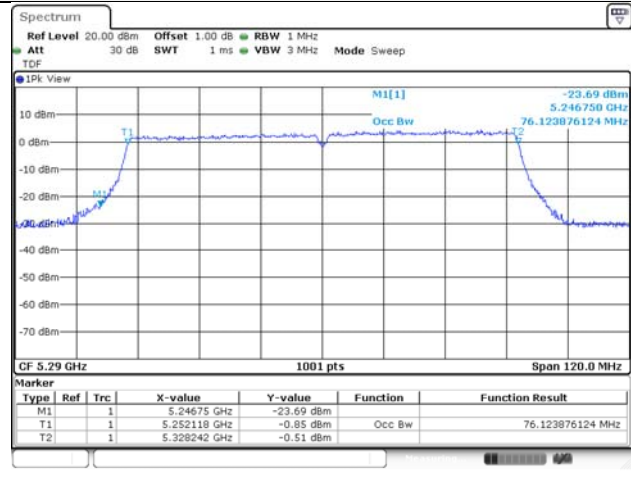
**UNII-2C / 802.11ac VHT40 / High ch.**



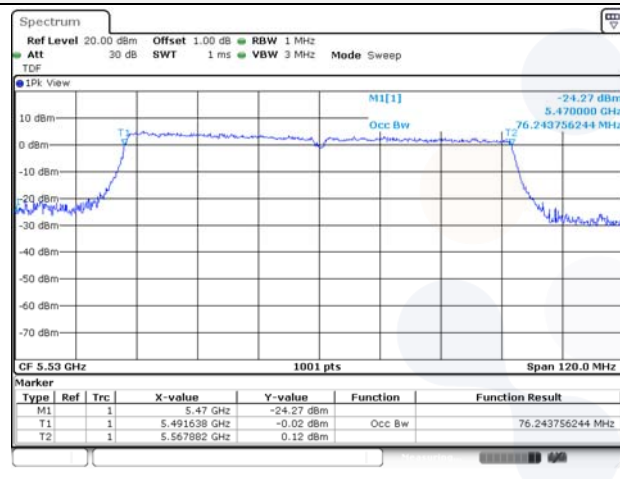
**UNII-1 / 802.11ac VHT80 / Mid ch.**



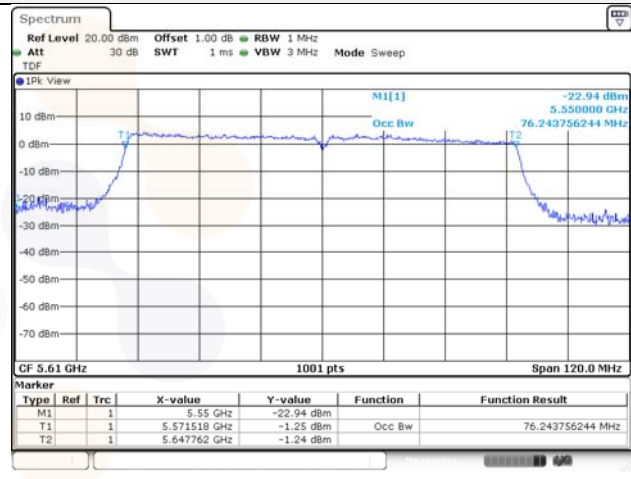
**UNII-2A / 802.11ac VHT80 / Mid ch.**



**UNII-2C / 802.11ac VHT80 / Low ch.**

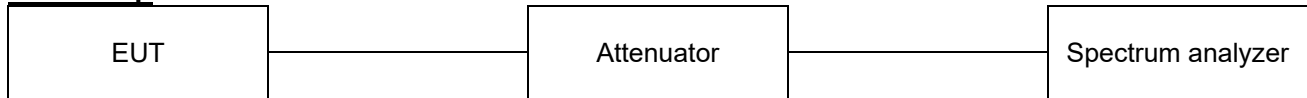


**UNII-2C / 802.11ac VHT80 / High ch.**



## 7.4. 6 dB Bandwidth & 99% Bandwidth

### Test setup



### Limit

According to §15.407(e), Within the 5.725-5.850 GHz band, the minimum 6 dB bandwidth of U-NII devices shall be at least 500kHz.

### Test procedure

ANSI C63.10-2013 Section 6.9.2  
KDB 789033 D02 v02r01 - Section C.2

### Test settings

Minimum Emission Bandwidth for the band 5.725–5.85 GHz.

Section 15.407(e) specifies the minimum 6 dB emission bandwidth of at least 500 kHz for the band 5.725–5.85 GHz band. The following procedure shall be used for measuring this Bandwidth:

1. Set RBW = 100 kHz.
2. Set the video bandwidth (VBW)  $\geq 3$  RBW.
3. Detector = Peak.
4. Trace mode = max hold.
5. Sweep = auto couple.
6. Allow the trace to stabilize.
7. Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

## Test results

### SISO

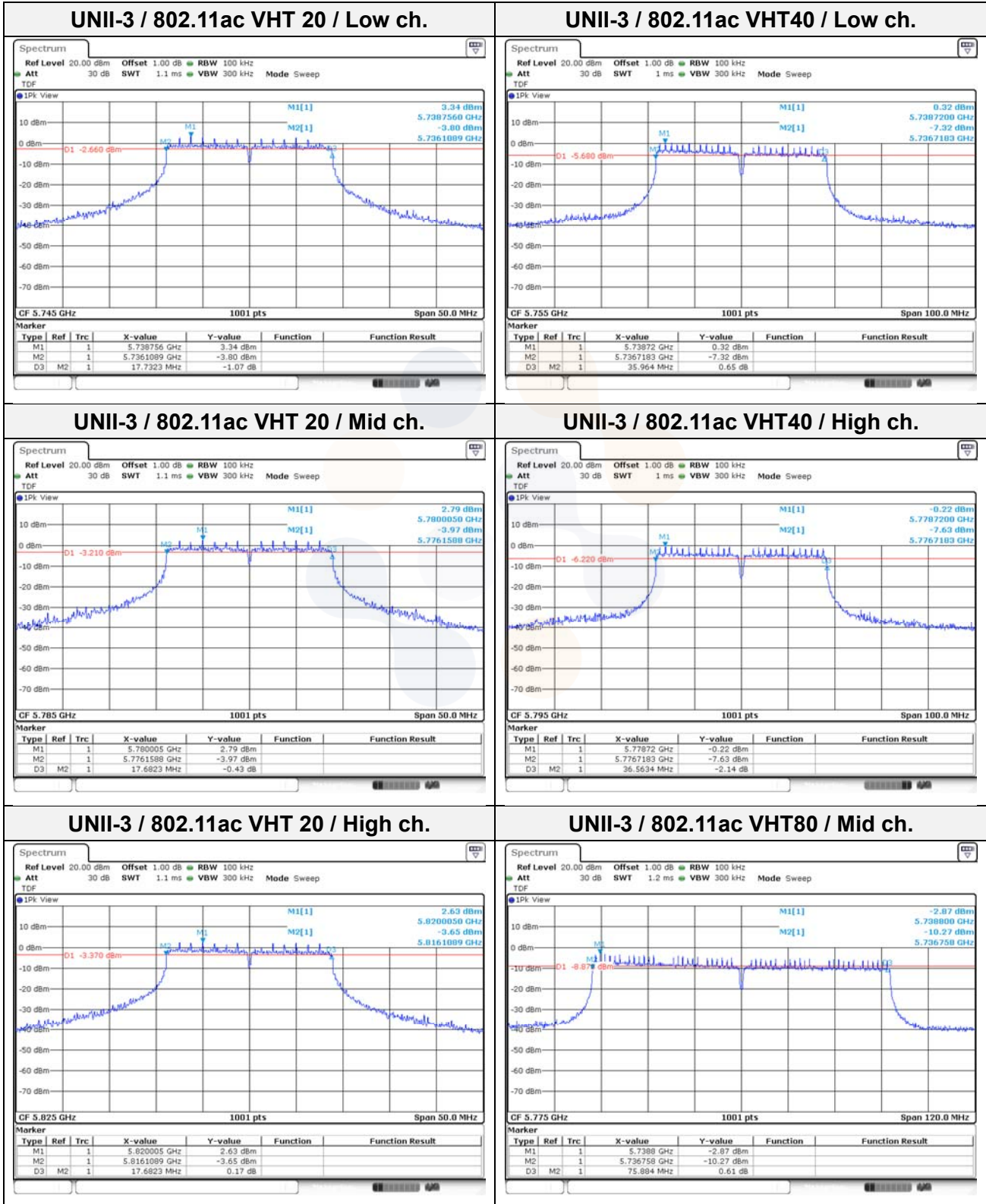
| Test mode      | Band   | Frequency (MHz) | 6dB bandwidth (MHz) |       | Limit (MHz) | 99% bandwidth (MHz) |       |
|----------------|--------|-----------------|---------------------|-------|-------------|---------------------|-------|
|                |        |                 | ANT1                | ANT2  |             | ANT1                | ANT2  |
| 802.11a        | UNII-3 | 5 745           | 16.43               | 16.43 | 0.50        | 17.28               | 17.28 |
|                |        | 5 785           | 16.43               | 16.43 | 0.50        | 17.28               | 17.28 |
|                |        | 5 825           | 16.43               | 16.43 | 0.50        | 17.33               | 17.33 |
| 802.11n HT20   | UNII-3 | 5 745           | 17.68               | 17.68 | 0.50        | 18.48               | 18.48 |
|                |        | 5 785           | 17.68               | 17.68 | 0.50        | 18.48               | 18.48 |
|                |        | 5 825           | 17.63               | 17.63 | 0.50        | 18.88               | 18.88 |
| 802.11n HT40   | UNII-3 | 5 755           | 36.26               | 36.26 | 0.50        | 37.16               | 37.16 |
|                |        | 5 795           | 36.56               | 36.56 | 0.50        | 37.06               | 37.06 |
| 802.11ac VHT20 | UNII-3 | 5 745           | 17.73               | 17.73 | 0.50        | 18.53               | 18.53 |
|                |        | 5 785           | 17.68               | 17.68 | 0.50        | 18.53               | 18.53 |
|                |        | 5 825           | 17.68               | 17.68 | 0.50        | 18.83               | 18.83 |
| 802.11ac VHT40 | UNII-3 | 5 755           | 35.96               | 35.96 | 0.50        | 37.06               | 37.06 |
|                |        | 5 795           | 36.56               | 36.56 | 0.50        | 37.06               | 37.06 |
| 802.11ac VHT80 | UNII-3 | 5 775           | 75.88               | 75.88 | 0.50        | 76.60               | 76.60 |

### MIMO

| Test mode      | Band   | Frequency (MHz) | 6dB bandwidth (MHz) |       | Limit (MHz) | 99% bandwidth (MHz) |       |
|----------------|--------|-----------------|---------------------|-------|-------------|---------------------|-------|
|                |        |                 | ANT1                | ANT2  |             | ANT1                | ANT2  |
| 802.11a        | UNII-3 | 5 745           | 16.43               | 16.43 | 0.50        | 17.43               | 17.03 |
|                |        | 5 785           | 16.43               | 16.43 | 0.50        | 17.38               | 17.28 |
|                |        | 5 825           | 16.43               | 16.43 | 0.50        | 17.48               | 17.23 |
| 802.11n HT20   | UNII-3 | 5 745           | 17.63               | 17.73 | 0.50        | 18.33               | 18.08 |
|                |        | 5 785           | 17.63               | 17.73 | 0.50        | 18.48               | 18.13 |
|                |        | 5 825           | 17.68               | 17.68 | 0.50        | 18.48               | 18.18 |
| 802.11n HT40   | UNII-3 | 5 755           | 36.46               | 36.46 | 0.50        | 37.06               | 36.56 |
|                |        | 5 795           | 36.46               | 36.56 | 0.50        | 36.96               | 36.66 |
| 802.11ac VHT20 | UNII-3 | 5 745           | 17.63               | 17.73 | 0.50        | 18.38               | 18.03 |
|                |        | 5 785           | 17.63               | 17.63 | 0.50        | 18.53               | 18.13 |
|                |        | 5 825           | 17.68               | 17.68 | 0.50        | 18.48               | 18.18 |
| 802.11ac VHT40 | UNII-3 | 5 755           | 36.46               | 36.46 | 0.50        | 37.16               | 36.66 |
|                |        | 5 795           | 36.46               | 36.56 | 0.50        | 37.06               | 36.56 |
| 802.11ac VHT80 | UNII-3 | 5 775           | 75.88               | 75.88 | 0.50        | 76.36               | 76.24 |

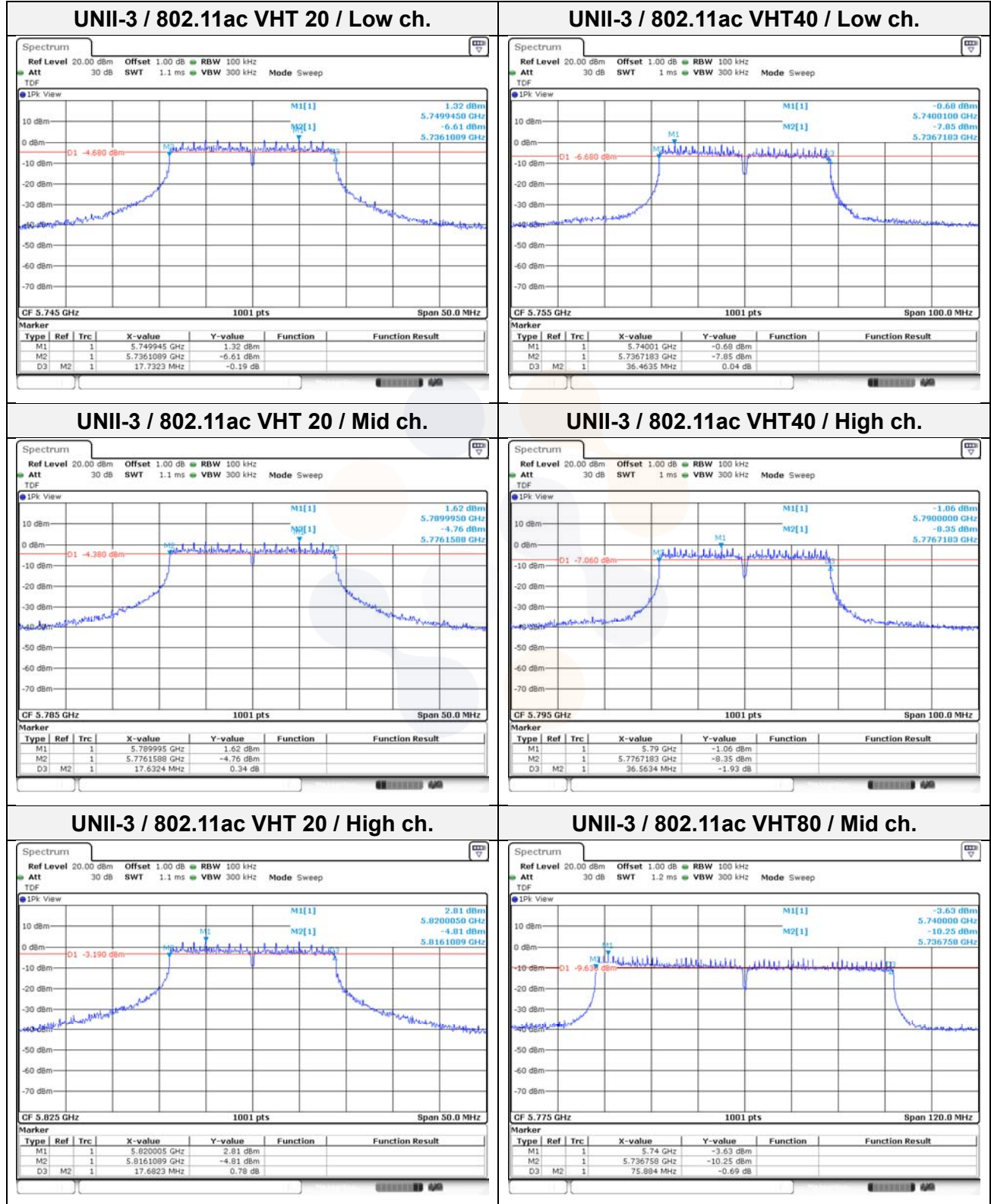
In order to simplify the report, only ac mode test plots are attached.

**6 dB bandwidth**  
**SISO**



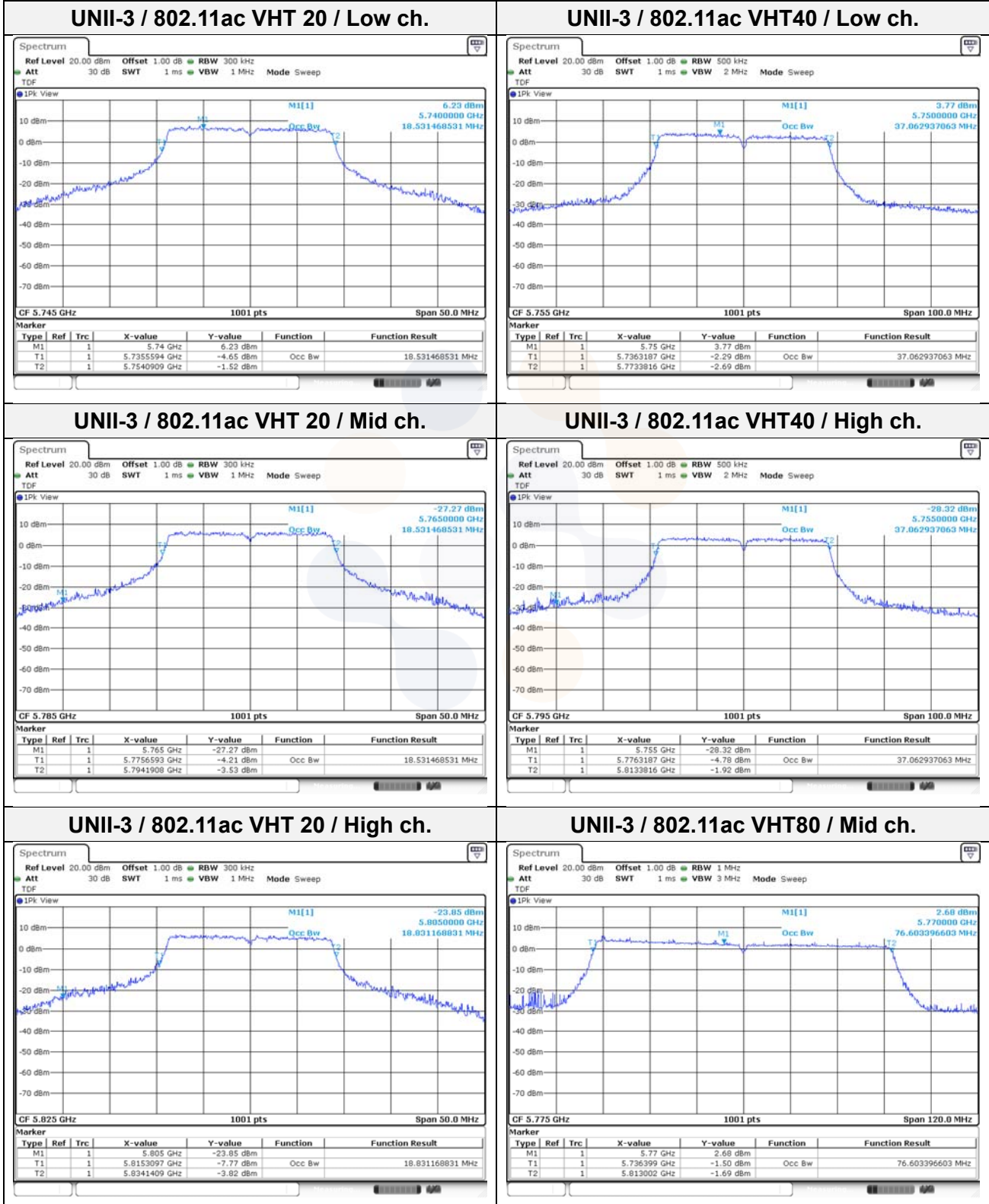
In order to simplify the report, only ANT 2 ac mode test plots are attached.

**MIMO**



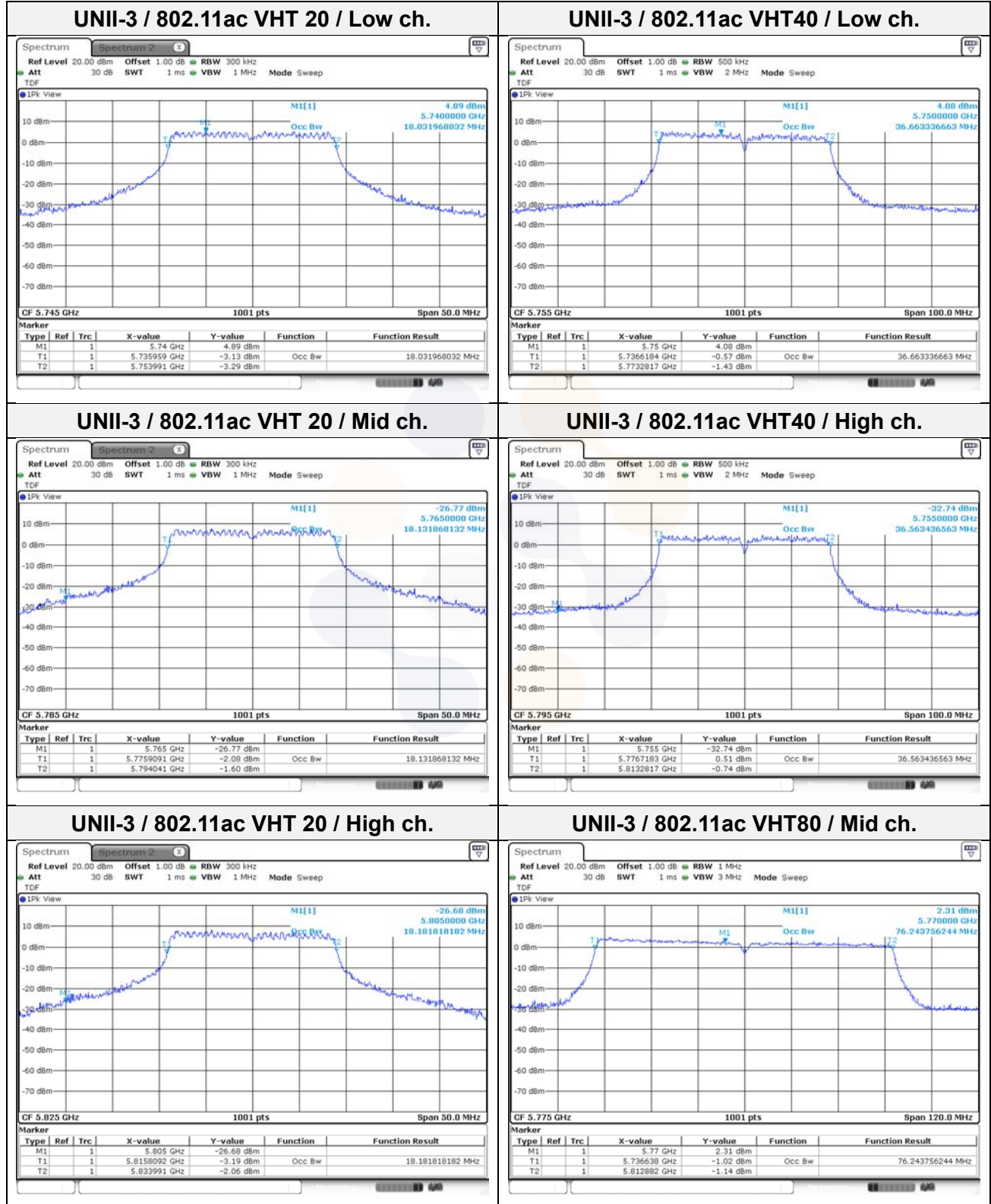
In order to simplify the report, only ac mode test plots are attached.

**99% bandwidth**  
**SISO**



In order to simplify the report, only ANT 2 ac mode test plots are attached.

**MIMO**





## 7.5. Straddle channel

### 26dB bandwidth & 99% Bandwidth

#### SISO

| Test mode      | Band    | Frequency (MHz) | 26dB Bandwidth (MHz) | 99% Bandwidth (MHz) |
|----------------|---------|-----------------|----------------------|---------------------|
|                |         |                 | ANT2                 | ANT2                |
| 802.11a        | UNII-2C | 5 720           | 17.99                | 13.64               |
| 802.11n HT20   |         |                 | 19.64                | 14.44               |
| 802.11ac VHT20 |         |                 | 19.54                | 14.49               |
| 802.11a        | UNII-3  | 5 720           | 7.54                 | 3.59                |
| 802.11n HT20   |         |                 | 8.74                 | 4.19                |
| 802.11ac VHT20 |         |                 | 8.89                 | 4.24                |
| 802.11n HT40   | UNII-2C | 5 710           | 50.16                | 33.88               |
| 802.11ac VHT40 |         |                 | 39.68                | 33.78               |
| 802.11n HT40   | UNII-3  | 5 710           | 13.77                | 3.58                |
| 802.11ac VHT40 |         |                 | 7.88                 | 3.48                |
| 802.11ac VHT80 | UNII-2C | 5 690           | 94.94                | 73.48               |
|                | UNII-3  | 5 690           | 19.07                | 3.12                |

#### Notes:

- For 99% Bandwidth, measured 99% occupied bandwidth is separated as below.
  - For UNII band 2C = 5 725 MHz – T1 (Measured frequency on the marker table)
  - For UNII band 3 = T2 (Measured frequency on the marker table) – 5 725 MHz

**MIMO**

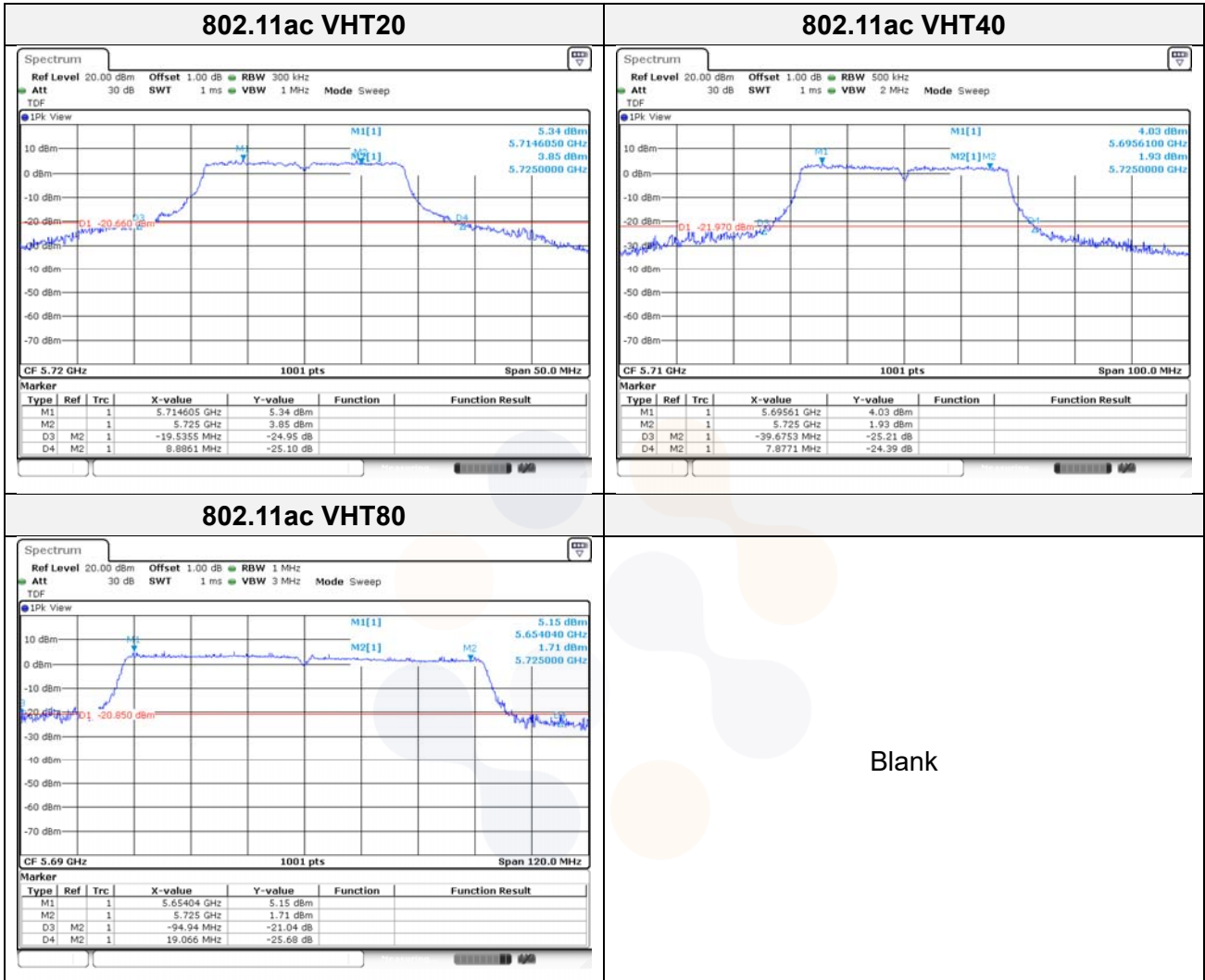
| Test mode      | Band    | Frequency (MHz) | 26dB Bandwidth (MHz) |       | 99% Bandwidth (MHz) |       |
|----------------|---------|-----------------|----------------------|-------|---------------------|-------|
|                |         |                 | ANT1                 | ANT2  | ANT1                | ANT2  |
| 802.11a        | UNII-2C | 5 720           | 17.94                | 16.99 | 13.84               | 13.49 |
| 802.11n HT20   |         |                 | 18.99                | 17.39 | 14.29               | 14.04 |
| 802.11ac VHT20 |         |                 | 17.99                | 17.44 | 14.29               | 14.04 |
| 802.11a        | UNII-3  | 5 720           | 7.59                 | 7.14  | 3.69                | 3.59  |
| 802.11n HT20   |         |                 | 8.24                 | 7.34  | 4.14                | 3.99  |
| 802.11ac VHT20 |         |                 | 7.84                 | 7.44  | 4.19                | 4.04  |
| 802.11n HT40   | UNII-2C | 5 710           | 38.48                | 37.48 | 33.58               | 33.38 |
| 802.11ac VHT40 |         |                 | 38.38                | 37.38 | 33.68               | 33.38 |
| 802.11n HT40   | UNII-3  | 5 710           | 7.98                 | 7.38  | 3.48                | 3.38  |
| 802.11ac VHT40 |         |                 | 7.88                 | 7.58  | 3.48                | 3.28  |
| 802.11ac VHT80 | UNII-2C | 5 690           | 78.64                | 91.34 | 73.36               | 73.24 |
|                | UNII-3  | 5 690           | 8.16                 | 7.92  | 2.88                | 3.00  |

**Notes:**

- For 99% Bandwidth, measured 99% occupied bandwidth is separated as below.
  - For UNII band 2C = 5 725 MHz – T1 (Measured frequency on the marker table)
  - For UNII band 3 = T2 (Measured frequency on the marker table) – 5 725 MHz

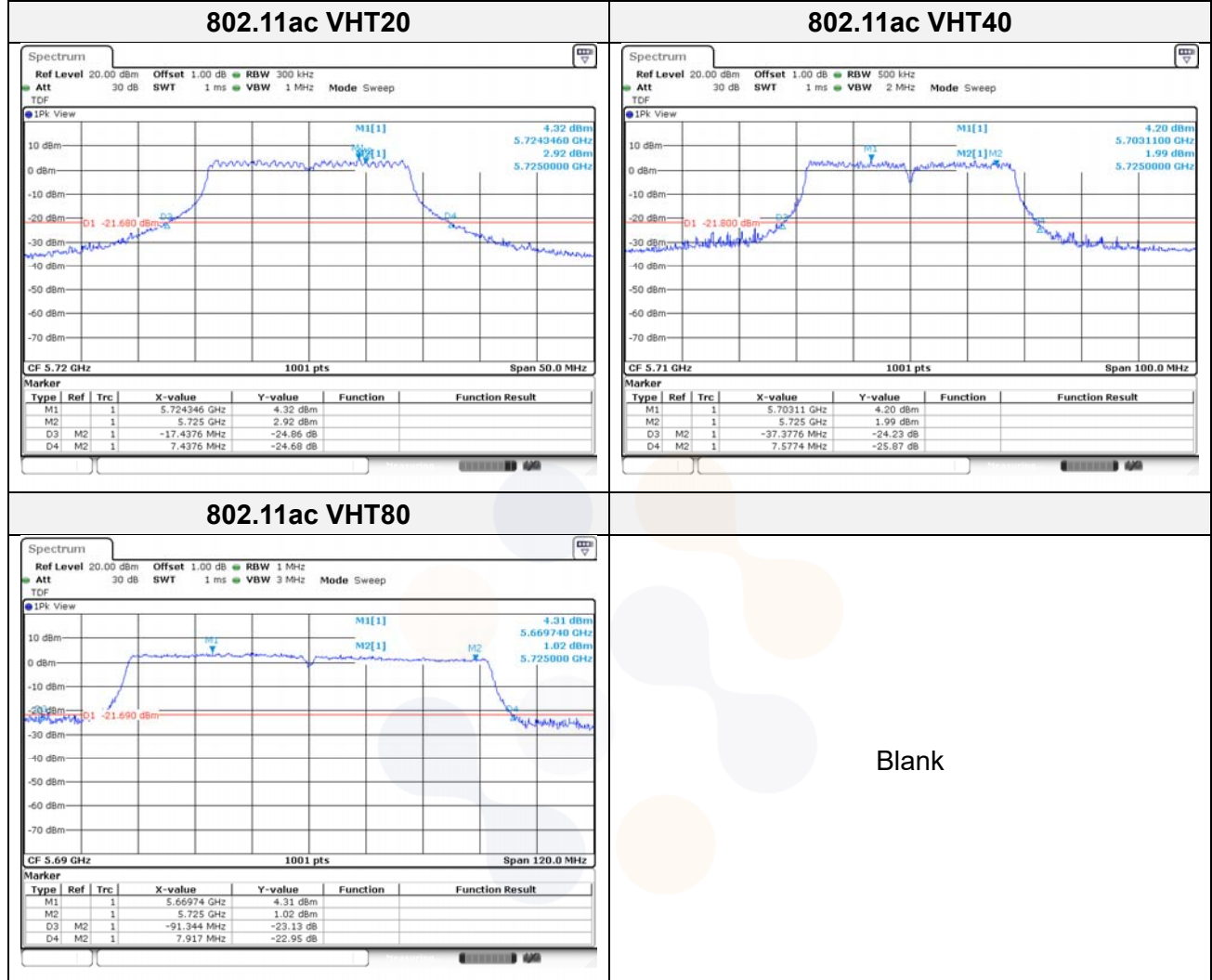
In order to simplify the report, only ac mode test plots are attached.

**26dB bandwidth**  
**SISO**



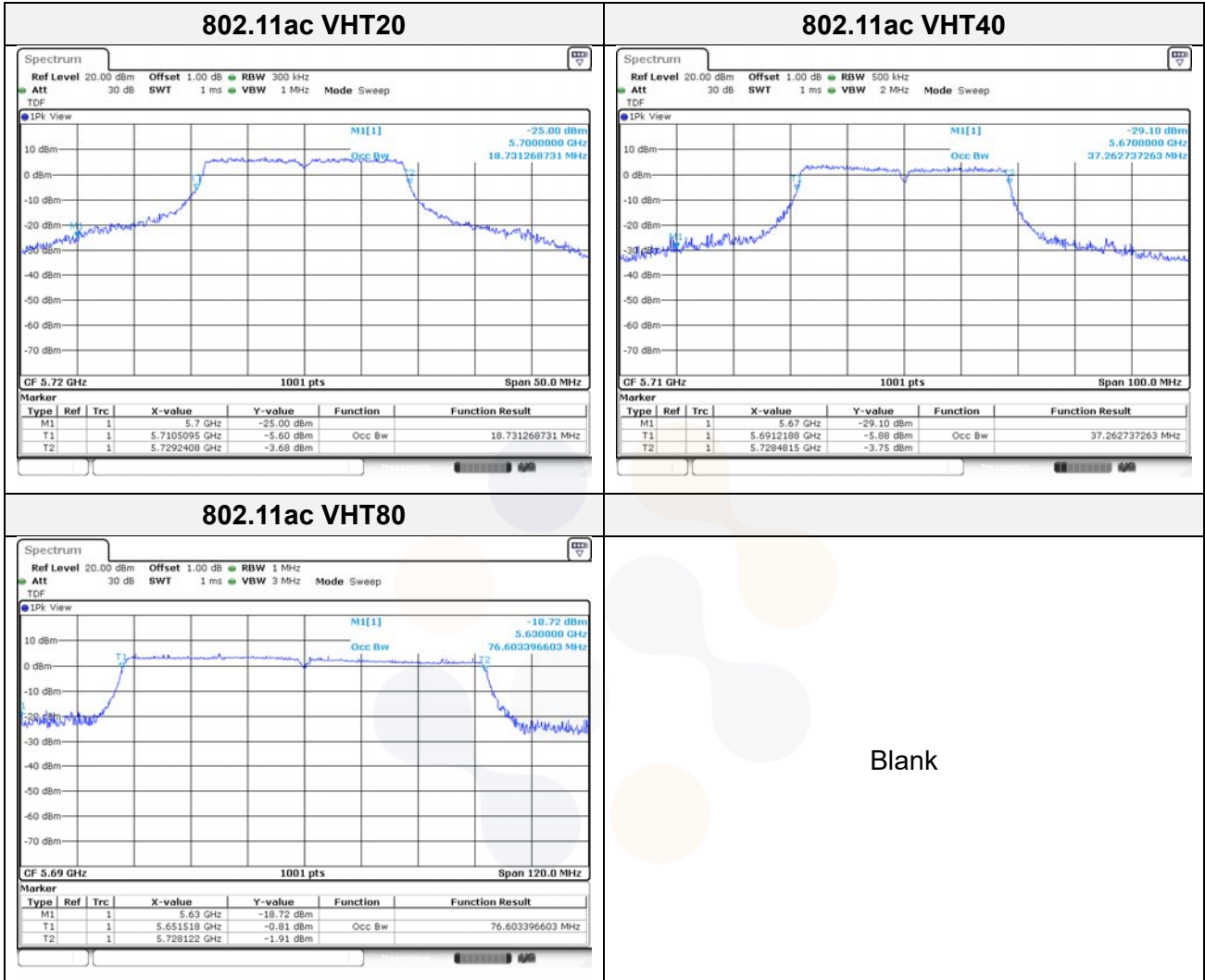
In order to simplify the report, only ANT2 ac mode test plots are attached.

**MIMO**



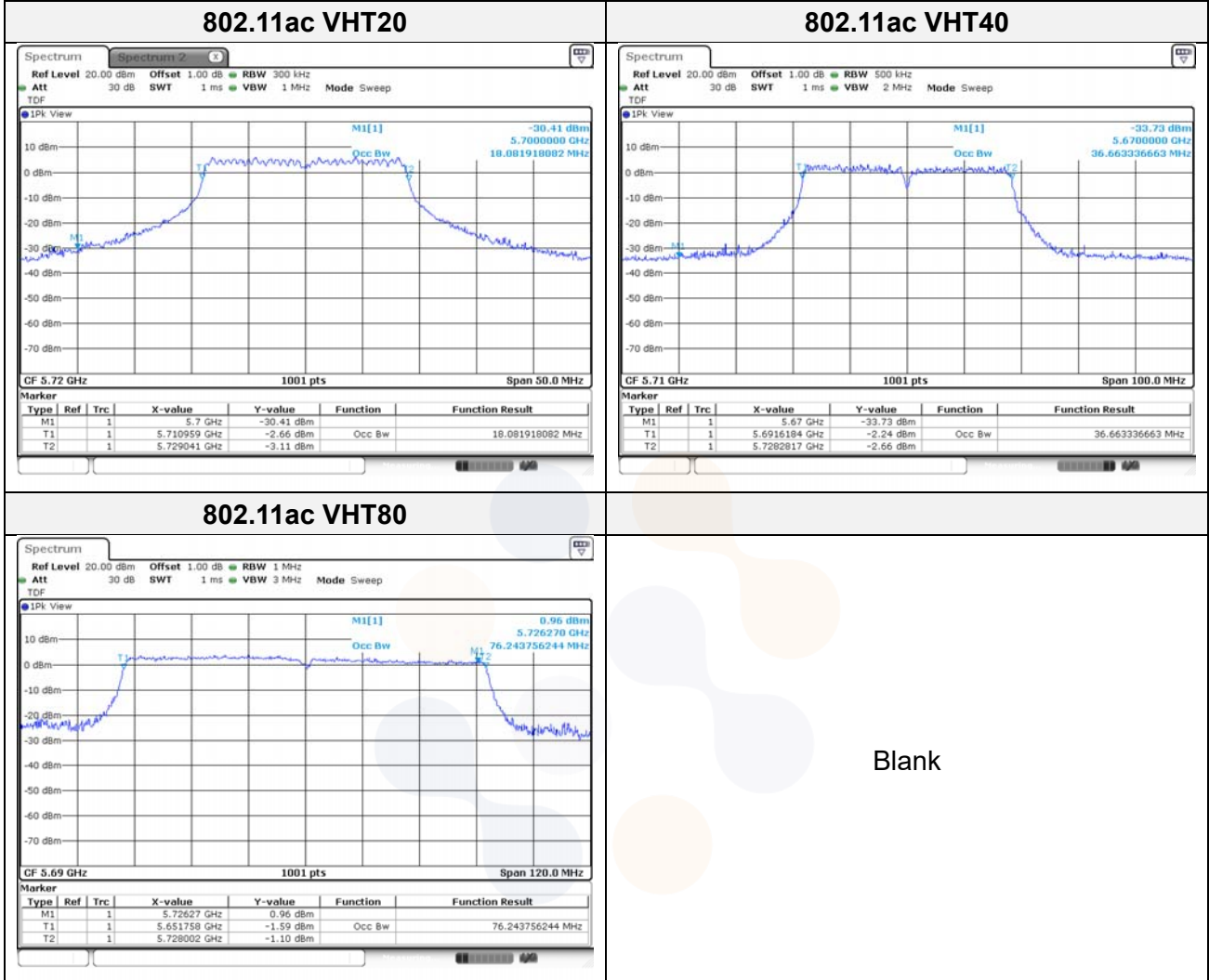
In order to simplify the report, only ac mode test plots are attached.

**99% bandwidth**  
**SISO**



In order to simplify the report, only ANT2 ac mode test plots are attached.

**MIMO**



**6dB bandwidth**

**SISO**

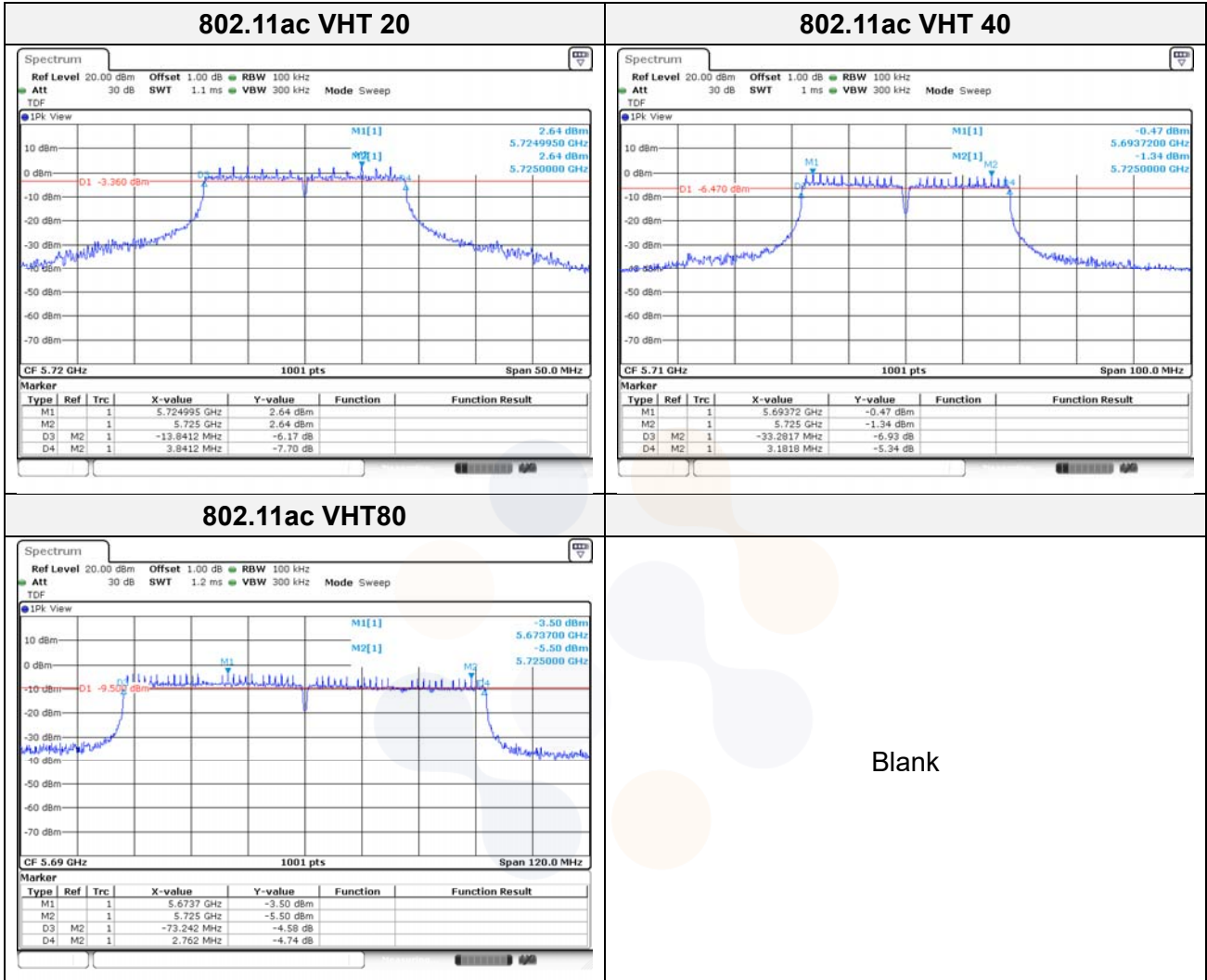
| Test mode      | Band   | Frequency (MHz) | 6dB Bandwidth (MHz) |  | Limit (MHz) |
|----------------|--------|-----------------|---------------------|--|-------------|
|                |        |                 | ANT2                |  |             |
| 802.11a        | UNII-3 | 5 720           | 3.24                |  | 0.50        |
| 802.11n HT20   |        |                 | 3.84                |  | 0.50        |
| 802.11ac VHT20 |        |                 | 3.84                |  | 0.50        |
| 802.11n HT40   | UNII-3 | 5 710           | 3.28                |  | 0.50        |
| 802.11ac VHT40 |        |                 | 3.18                |  | 0.50        |
| 802.11ac VHT80 | UNII-3 | 5 690           | 2.76                |  | 0.50        |

**MIMO**

| Test mode      | Band   | Frequency (MHz) | 6dB Bandwidth (MHz) |      | Limit (MHz) |
|----------------|--------|-----------------|---------------------|------|-------------|
|                |        |                 | ANT1                | ANT2 |             |
| 802.11a        | UNII-3 | 5 720           | 3.19                | 3.19 | 0.50        |
| 802.11n HT20   |        |                 | 3.79                | 3.79 | 0.50        |
| 802.11ac VHT20 |        |                 | 3.79                | 3.79 | 0.50        |
| 802.11n HT40   | UNII-3 | 5 710           | 3.18                | 3.18 | 0.50        |
| 802.11ac VHT40 |        |                 | 3.18                | 3.28 | 0.50        |
| 802.11ac VHT80 | UNII-3 | 5 690           | 2.64                | 2.88 | 0.50        |

In order to simplify the report, only ac mode test plots are attached.

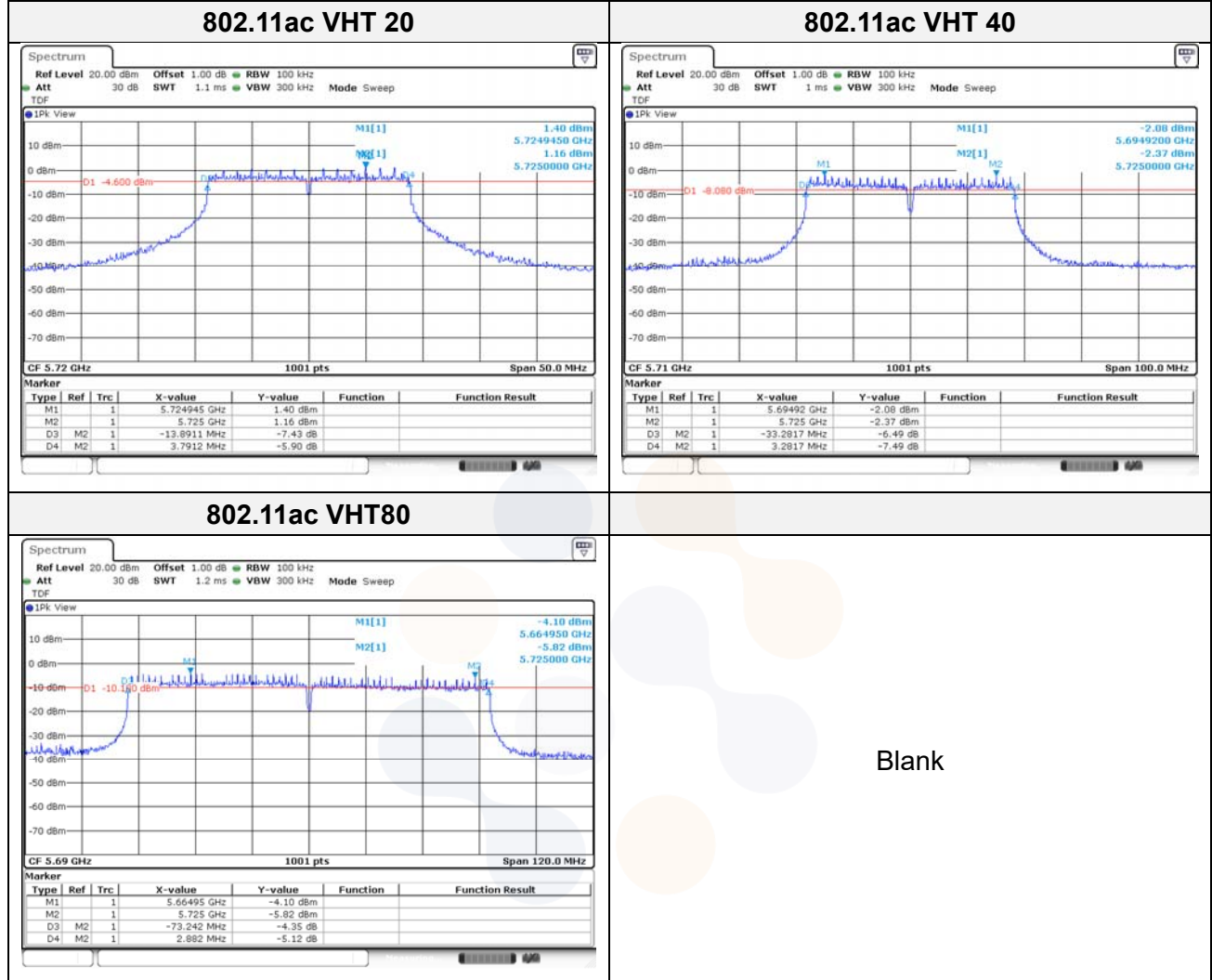
**6dB bandwidth**  
**SISO**





In order to simplify the report, only ANT2 ac mode test plots are attached.

**MIMO**



**Conducted Output Power**

**SISO**

| Test mode      | Band    | Frequency (MHz) | Measured output power |          |              | FCC Limit (dBm) | IC Limit (dBm) |
|----------------|---------|-----------------|-----------------------|----------|--------------|-----------------|----------------|
|                |         |                 | Reading (dBm)         | DCF (dB) | Result (dBm) |                 |                |
|                |         |                 | ANT2                  |          |              |                 |                |
| 802.11a        | UNII-2C | 5 720           | 12.73                 | 0.27     | 13.00        | 23.55           | 23.36          |
| 802.11n HT20   |         |                 | 12.71                 | 0.32     | 13.03        | 23.93           | 23.70          |
| 802.11ac VHT20 |         |                 | 12.69                 | 0.29     | 12.98        | 23.91           | 23.73          |
| 802.11a        | UNII-3  | 5 720           | 6.81                  | 0.27     | 7.08         | 30.00           | 30.00          |
| 802.11n HT20   |         |                 | 7.13                  | 0.32     | 7.45         | 30.00           | 30.00          |
| 802.11ac VHT20 |         |                 | 7.24                  | 0.29     | 7.53         | 30.00           | 30.00          |
| 802.11n HT40   | UNII-2C | 5 710           | 12.13                 | 0.61     | 12.74        | 23.98           | 23.98          |
| 802.11ac VHT40 |         |                 | 12.05                 | 0.66     | 12.71        | 23.98           | 23.98          |
| 802.11n HT40   | UNII-3  | 5 710           | 2.01                  | 0.61     | 2.62         | 30.00           | 30.00          |
| 802.11ac VHT40 |         |                 | 1.73                  | 0.66     | 2.39         | 30.00           | 30.00          |
| 802.11ac VHT80 | UNII-2C | 5 690           | 11.50                 | 1.15     | 12.65        | 23.98           | 23.98          |
|                | UNII-3  | 5 690           | -3.07                 | 1.15     | -1.92        | 30.00           | 30.00          |

**Note:**

1. Conducted Output power(dBm) = Average Reading (dBm) + DCF(dB)

**E.I.R.P.**

| Test mode      | Band    | Frequency (MHz) | Measured output power        |               |                   | MAX e.i.r.p Limit (dBm) |
|----------------|---------|-----------------|------------------------------|---------------|-------------------|-------------------------|
|                |         |                 | Conducted Output Power (dBm) | ANT gain (dB) | MAX e.i.r.p (dBm) |                         |
|                |         |                 | ANT2                         | ANT2          | ANT2              |                         |
| 802.11a        | UNII-2C | 5 720           | 13.00                        | -5.00         | 8.00              | 29.36                   |
| 802.11n HT20   |         |                 | 13.03                        |               | 8.03              | 29.70                   |
| 802.11ac VHT20 |         |                 | 12.98                        |               | 7.98              | 29.73                   |
| 802.11a        | UNII-3  | 5 720           | 7.08                         | -4.40         | 2.68              | 30.00                   |
| 802.11n HT20   |         |                 | 7.45                         |               | 3.05              | 30.00                   |
| 802.11ac VHT20 |         |                 | 7.53                         |               | 3.13              | 30.00                   |
| 802.11n HT40   | UNII-2C | 5 710           | 12.74                        | -5.00         | 7.74              | 30.00                   |
| 802.11ac VHT40 |         |                 | 12.71                        |               | 7.71              | 30.00                   |
| 802.11n HT40   | UNII-3  | 5 710           | 2.62                         | -4.40         | -1.78             | 30.00                   |
| 802.11ac VHT40 |         |                 | 2.39                         |               | -2.01             | 30.00                   |
| 802.11ac VHT80 | UNII-2C | 5 690           | 12.65                        | -5.00         | 7.65              | 30.00                   |
|                | UNII-3  | 5 690           | -1.92                        | -4.40         | -6.32             | 30.00                   |

**Notes:**

1. E.I.R.P. Calculation: E.I.R.P. (dBm) = Conducted output power (dBm) + Antenna gain (dBi)

**MIMO**

| Test mode      | Band    | Frequency (MHz) | Measured output power |       |          |              | FCC Limit (dBm) | IC Limit (dBm) |
|----------------|---------|-----------------|-----------------------|-------|----------|--------------|-----------------|----------------|
|                |         |                 | Reading (dBm)         |       | DCF (dB) | Result (dBm) |                 |                |
|                |         |                 | ANT1                  | ANT2  |          |              |                 |                |
| 802.11a        | UNII-2C | 5 720           | 13.11                 | 12.42 | 0.25     | 16.04        | 23.33           | 23.32          |
| 802.11n HT20   |         |                 | 11.77                 | 10.94 | 0.54     | 14.93        | 23.40           | 23.56          |
| 802.11ac VHT20 |         |                 | 11.58                 | 10.90 | 0.64     | 14.90        | 23.42           | 23.57          |
| 802.11a        | UNII-3  | 5 720           | 6.94                  | 6.41  | 0.25     | 9.94         | 30.00           | 30.00          |
| 802.11n HT20   |         |                 | 6.14                  | 5.39  | 0.54     | 9.33         | 30.00           | 30.00          |
| 802.11ac VHT20 |         |                 | 6.06                  | 5.14  | 0.64     | 9.27         | 30.00           | 30.00          |
| 802.11n HT40   | UNII-2C | 5 710           | 11.40                 | 11.02 | 1.17     | 15.39        | 23.98           | 23.98          |
| 802.11ac VHT40 |         |                 | 10.94                 | 10.89 | 0.90     | 14.83        | 23.98           | 23.98          |
| 802.11n HT40   | UNII-3  | 5 710           | 1.26                  | 0.64  | 1.17     | 5.14         | 30.00           | 30.00          |
| 802.11ac VHT40 |         |                 | 0.62                  | 0.60  | 0.90     | 4.52         | 30.00           | 30.00          |
| 802.11ac VHT80 | UNII-2C | 5 690           | 9.13                  | 10.13 | 1.87     | 14.54        | 23.98           | 23.98          |
|                | UNII-3  | 5 690           | -5.06                 | -4.29 | 1.87     | 0.22         | 30.00           | 30.00          |

**Note:**

1. Conducted Output power(dB m) = 10log(10<sup>(ANT 1/10)</sup> + 10<sup>(ANT 2/10)</sup>) (dB m) + DCF(dB)

**E.I.R.P.**

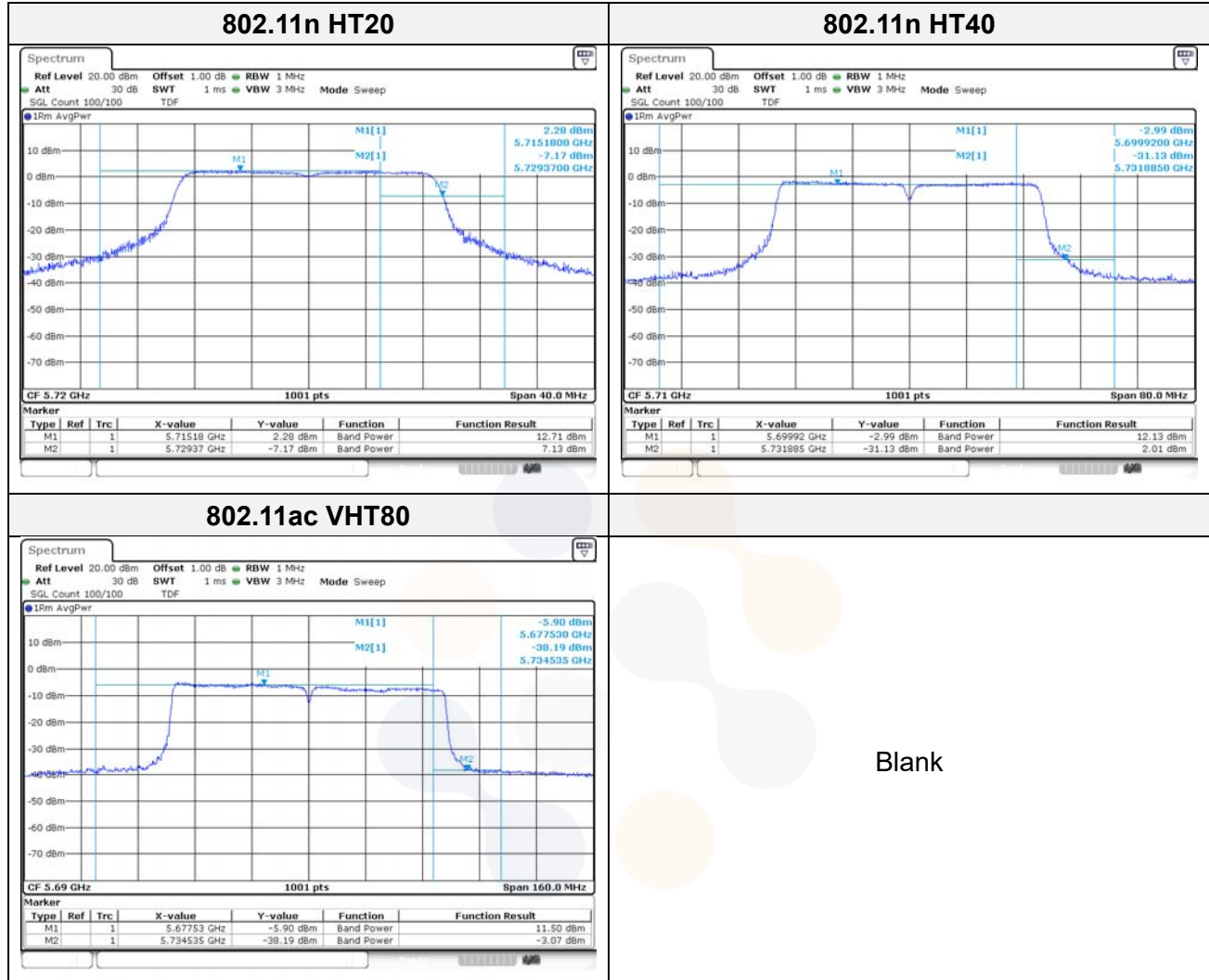
| Test mode      | Band    | Frequency (MHz) | Measured output power        |                |                   | Limit (dBm) |
|----------------|---------|-----------------|------------------------------|----------------|-------------------|-------------|
|                |         |                 | Conducted output Power (dBm) | ANT gain (dBi) | MAX e.i.r.p (dBm) |             |
| 802.11a        | UNII-2C | 5 720           | 16.04                        | -1.54          | 14.50             | 29.32       |
| 802.11n HT20   |         |                 | 14.93                        | -4.55          | 10.38             | 29.56       |
| 802.11ac VHT20 |         |                 | 14.90                        |                | 10.35             | 29.57       |
| 802.11a        | UNII-3  | 5 720           | 9.94                         | -2.06          | 7.88              | 30.00       |
| 802.11n HT20   |         |                 | 9.33                         | -5.04          | 4.29              |             |
| 802.11ac VHT20 |         |                 | 9.27                         |                | 4.23              |             |
| 802.11n HT40   | UNII-2C | 5 710           | 15.39                        | -4.55          | 10.84             | 30.00       |
| 802.11ac VHT40 |         |                 | 14.83                        |                | 10.28             |             |
| 802.11n HT40   | UNII-3  | 5 710           | 5.14                         | -5.04          | 0.10              | 30.00       |
| 802.11ac VHT40 |         |                 | 4.52                         |                | -0.52             |             |
| 802.11ac VHT80 | UNII-2C | 5 690           | 14.54                        | -4.55          | 9.99              | 30.00       |
|                | UNII-3  | 5 690           | 0.22                         | -5.04          | -4.82             | 30.00       |

**Notes:**

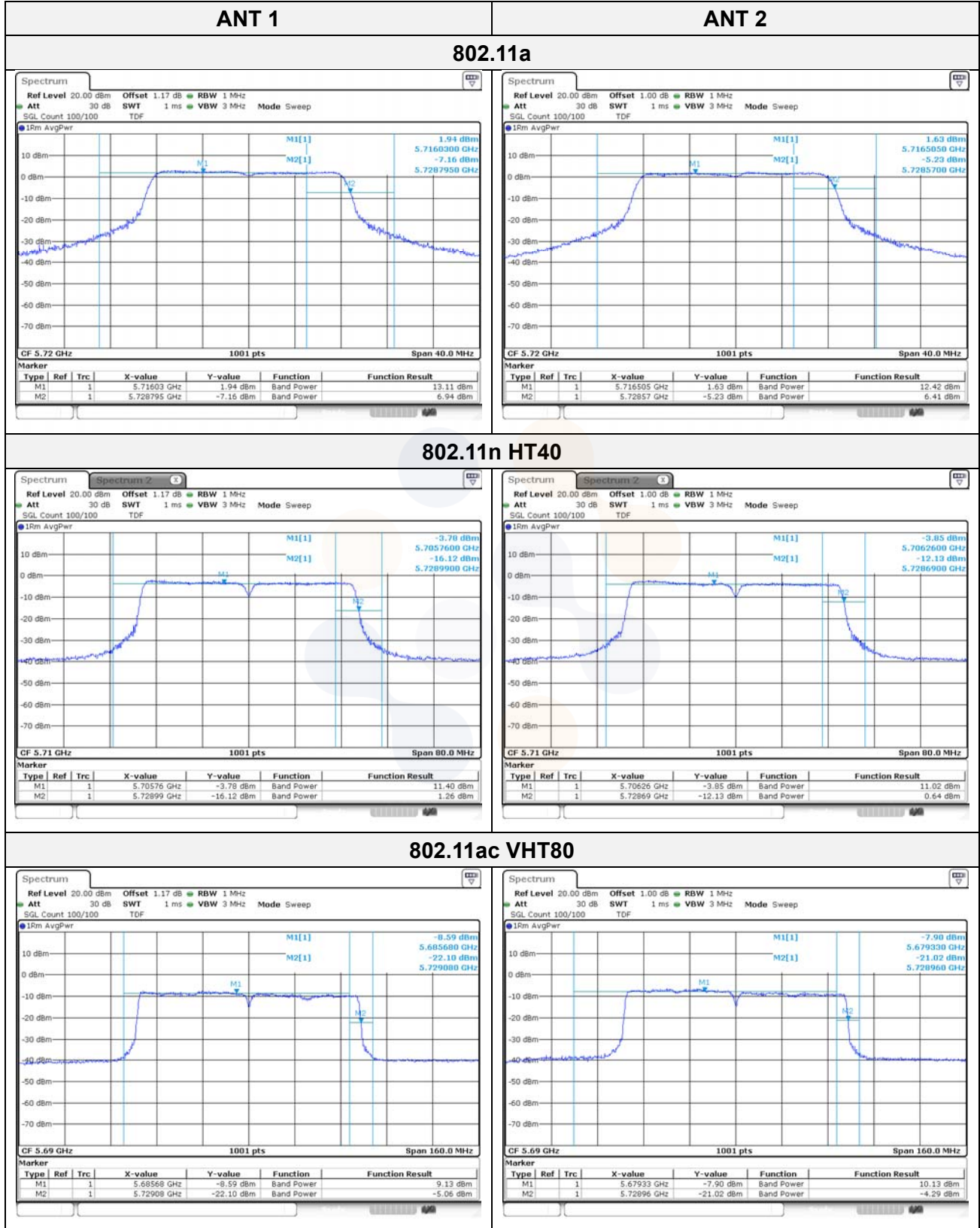
- E.I.R.P. Calculation: E.I.R.P. (dBm) = Conducted output power (dBm) + Antenna gain (dBi)
- The max e.i.r.p. limit has reported Ant1 or Ant2, whichever is less

In order to simplify the report, attached plots were the worst case per bandwidth

**SISO**



**MIMO**



## Power Spectral Density

### SISO

| Test mode      | Band    | Frequency (MHz) | Measured PSD (dBm/MHz) | DCF (dB) | Maximum PSD (dB m/MHz) | Limit (dBm/MHz) |
|----------------|---------|-----------------|------------------------|----------|------------------------|-----------------|
|                |         |                 | ANT2                   |          |                        |                 |
| 802.11a        | UNII-2C | 5 720           | 2.81                   | 0.27     | 3.08                   | 11.00           |
| 802.11n HT20   |         |                 | 2.34                   | 0.32     | 2.66                   |                 |
| 802.11ac VHT20 |         |                 | 2.46                   | 0.29     | 2.75                   |                 |
| 802.11n HT40   |         | 5 710           | -1.39                  | 0.61     | -0.78                  |                 |
| 802.11ac VHT40 |         |                 | -0.84                  | 0.66     | -0.18                  |                 |
| 802.11ac VHT80 |         |                 | 5 690                  | -5.23    | 1.15                   |                 |

| Test mode      | Band   | Frequency (MHz) | Measured PSD (dBm/MHz) | DCF (dB) | Maximum PSD (dB m/MHz) | Limit (dBm/MHz) |
|----------------|--------|-----------------|------------------------|----------|------------------------|-----------------|
|                |        |                 | ANT2                   |          |                        |                 |
| 802.11a        | UNII-3 | 5 720           | -0.38                  | 0.27     | -0.11                  | 11.00           |
| 802.11n HT20   |        |                 | -0.74                  | 0.32     | -0.42                  |                 |
| 802.11ac VHT20 |        |                 | -0.39                  | 0.29     | -0.10                  |                 |
| 802.11n HT40   |        | 5 710           | -5.36                  | 0.61     | -4.75                  |                 |
| 802.11ac VHT40 |        |                 | -5.25                  | 0.66     | -4.59                  |                 |
| 802.11ac VHT80 |        |                 | 5 690                  | -10.00   | 1.15                   |                 |

#### Note:

- Maximum PSD(dB m/MHz) = Reading (dB m/MHz) + DCF(dB)
- The Unit of UNII-2C is (dB m / MHz) and Unit of UNII-3 is (dB m / 500kHz)

**MIMO**

| Test mode      | Band    | Frequency (MHz) | Measured PSD (dBm/MHz) |       | DCF (dB) | Maximum PSD (dB m/MHz) | Limit (dBm/MHz) |
|----------------|---------|-----------------|------------------------|-------|----------|------------------------|-----------------|
|                |         |                 | ANT1                   | ANT2  |          |                        |                 |
| 802.11a        | UNII-2C | 5 720           | 2.86                   | 2.40  | 0.25     | 5.90                   | 11.00           |
| 802.11n HT20   |         |                 | 1.43                   | 0.95  | 0.54     | 4.75                   |                 |
| 802.11ac VHT20 |         |                 | 1.45                   | 0.20  | 0.64     | 4.52                   |                 |
| 802.11n HT40   |         | 5 710           | -2.09                  | -1.89 | 1.17     | 2.19                   |                 |
| 802.11ac VHT40 |         |                 | -2.96                  | -3.58 | 0.90     | 0.65                   |                 |
| 802.11ac VHT80 |         | 5 690           | -7.38                  | -6.19 | 1.87     | -1.87                  |                 |

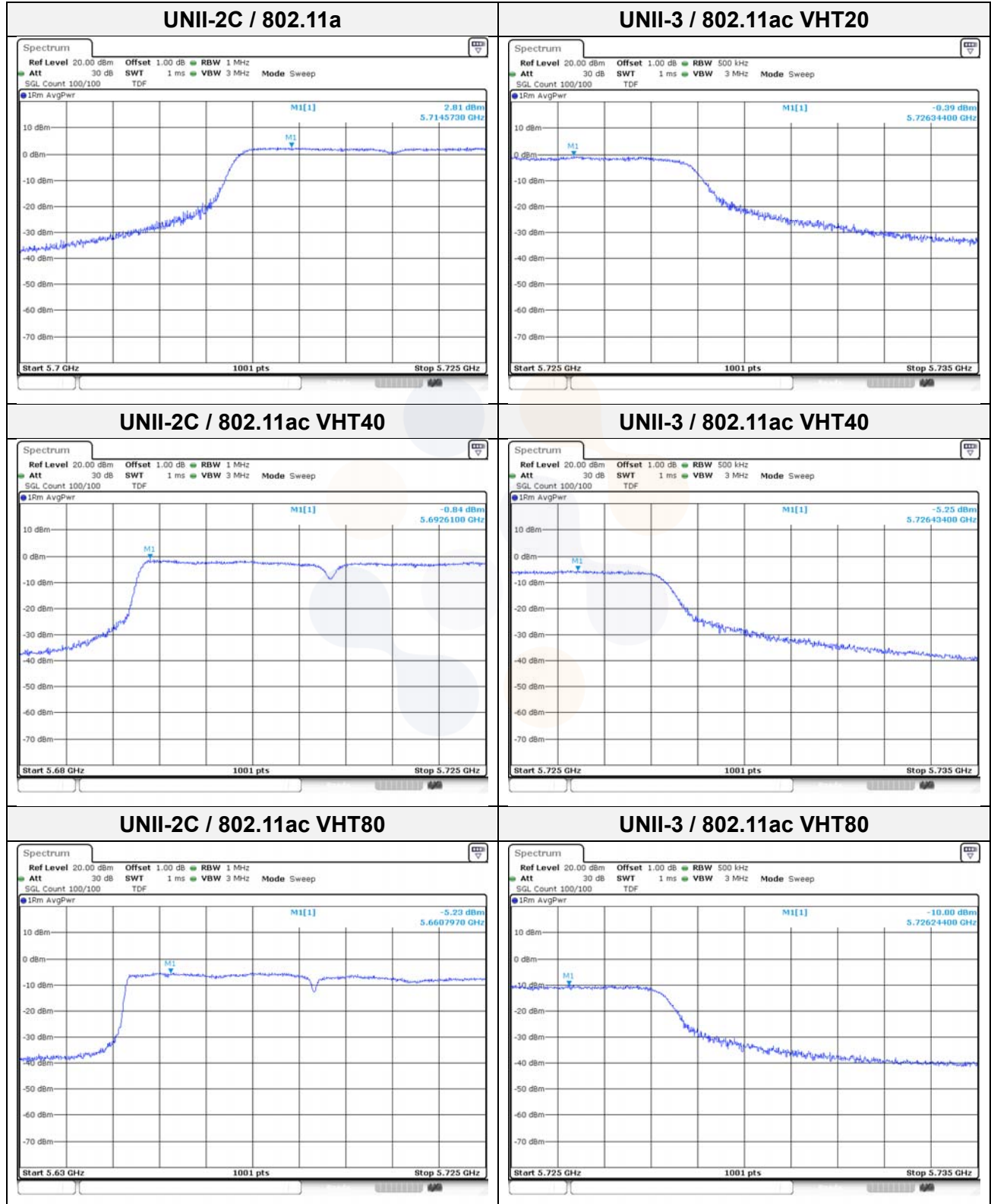
| Test mode      | Band   | Frequency (MHz) | Measured PSD (dBm/MHz) |        | DCF (dB) | Maximum PSD (dB m/MHz) | Limit (dBm/MHz) |
|----------------|--------|-----------------|------------------------|--------|----------|------------------------|-----------------|
|                |        |                 | ANT1                   | ANT2   |          |                        |                 |
| 802.11a        | UNII-3 | 5 720           | -0.32                  | -0.53  | 0.25     | 2.84                   | 11.00           |
| 802.11n HT20   |        |                 | -1.80                  | -2.09  | 0.54     | 1.61                   |                 |
| 802.11ac VHT20 |        |                 | -1.65                  | -2.95  | 0.64     | 1.40                   |                 |
| 802.11n HT40   |        | 5 710           | -6.15                  | -5.94  | 1.17     | -1.86                  |                 |
| 802.11ac VHT40 |        |                 | -6.70                  | -7.71  | 0.90     | -3.26                  |                 |
| 802.11ac VHT80 |        | 5 690           | -12.12                 | -10.52 | 1.87     | -6.37                  |                 |

**Note:**

- Maximum PSD(dB m/MHz) =  $10\log(10^{(ANT\ 1/10)} + 10^{(ANT\ 2/10)})$  (dB m/MHz) + DCF(dB)
- The Unit of UNII-2C is (dB m / MHz) and Unit of UNII-3 is (dB m / 500 kHz)

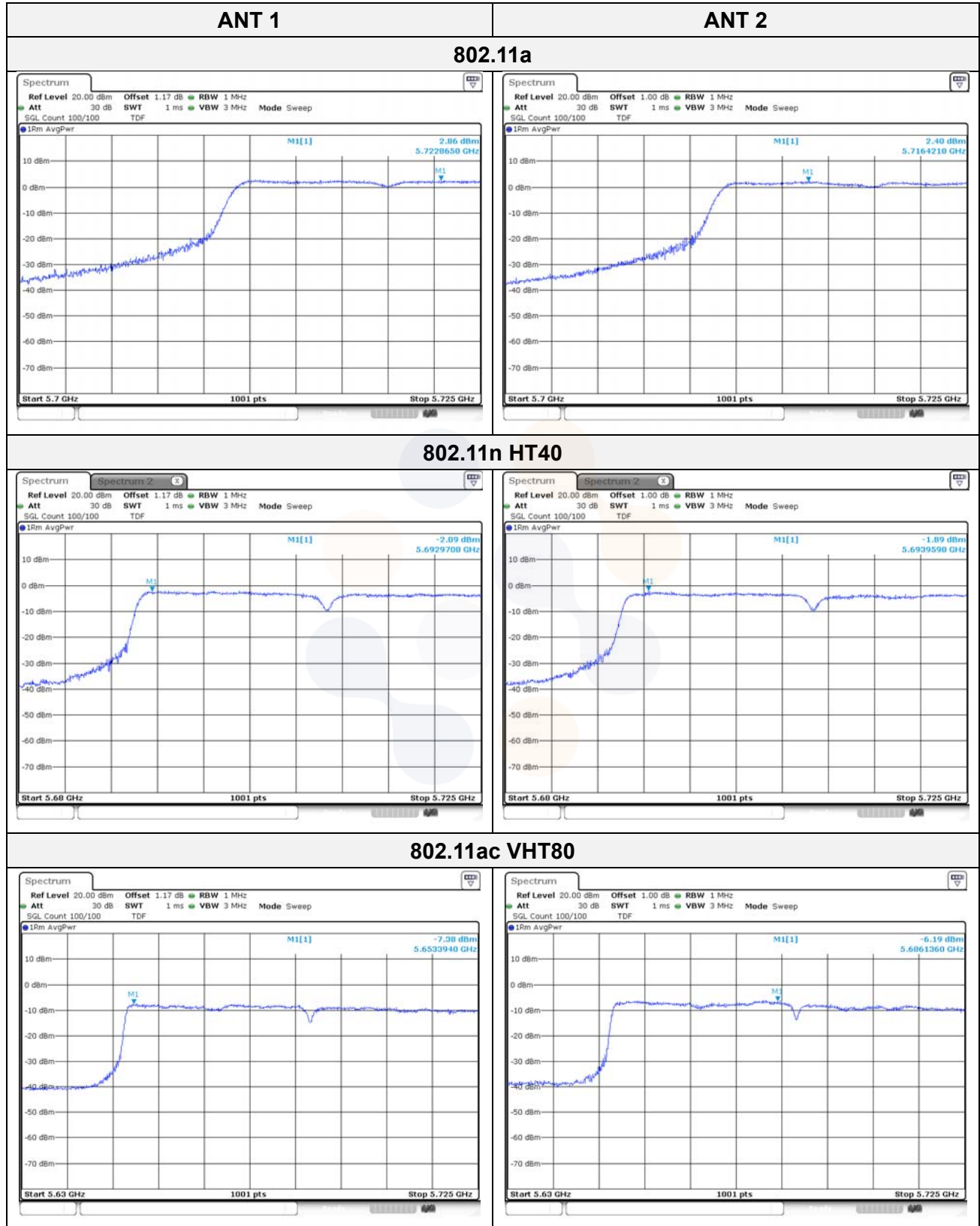
In order to simplify the report, attached plots were the worst case per bandwidth

**SISO**





**MIMO UNII-2C**



**MIMO UNII-3**

