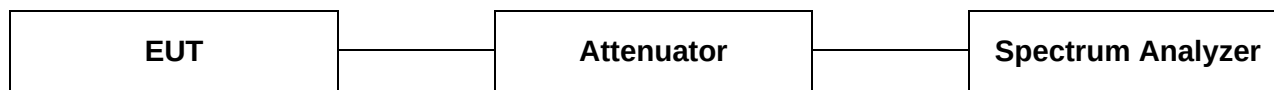


### 3. 26 dB Bandwidth & 99 % Bandwidth

#### 3.1. Test Setup



#### 3.2. Limit

None; for reporting purpose only.

#### 3.3. Test Procedure

##### 3.3.1. 26 dB Bandwidth

1. This measurement settings are specified in section II.C.1 of KDB 789033 D02 General UNII Test Procedures New Rules v02r01.
2. Set RBW = approximately 1 % of the emission bandwidth.
3. Set the VBW > RBW.
4. Detector = Peak.
5. Trace mode = max hold.
6. Measure the maximum width of the emission that is 26 dB down from the peak 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 %.

#### Remark;

In case of band crossing channels 138, 142 and 144, the measurement is complied with section III.A of KDB 789033 D02 General UNII Test Procedures New Rules v02r01.

### 3.3.2. 99 % Bandwidth

1. This measurement settings are specified in section II.D of KDB 789033 D02 General UNII Test Procedures New Rules v02r01.
2. Set center frequency to the nominal EUT channel center frequency.
3. Set span = 1.5 times to 5.0 times the OBW.
4. Set RBW = 1 % to 5 % of the OBW.
5. Set VBW  $\geq 3 \times$  RBW.
6. 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.
7. Use the 99 % power bandwidth function of the instrument (if available).
8. 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.

In the result,

- DFS requirements are not applicable in the 5 150 MHz ~ 5 250 MHz.

### 3.4. Test Result

Ambient temperature : (23 ± 1) °C  
Relative humidity : 47 % R.H.

#### Test mode: 11a

| Band     | Frequency (MHz) | Ch. | Data Rate (Mbps) | 26 dB Bandwidth (MHz) | 99 % Bandwidth (MHz) |
|----------|-----------------|-----|------------------|-----------------------|----------------------|
| U-NII 1  | 5 180           | 36  | 48               | 20.859                | 16.983               |
|          | 5 220           | 44  |                  | 20.819                | 16.903               |
|          | 5 240           | 48  |                  | 20.739                | 16.903               |
| U-NII 2A | 5 260           | 52  |                  | 20.899                | 16.903               |
|          | 5 300           | 60  |                  | 20.899                | 16.903               |
|          | 5 320           | 64  |                  | 20.939                | 16.943               |
| U-NII 2C | 5 500           | 100 |                  | 20.779                | 16.983               |
|          | 5 600           | 120 |                  | 20.659                | 16.903               |
|          | 5 700           | 140 |                  | 20.859                | 16.943               |
| U-NII 3  | 5 745           | 149 |                  | 20.819                | 16.943               |
|          | 5 785           | 157 |                  | 20.939                | 17.023               |
|          | 5 825           | 165 |                  | 21.019                | 17.023               |

#### Test mode: 11ac\_VHT20

| Band     | Frequency (MHz) | Ch. | Data Rate (Mbps) | 26 dB Bandwidth (MHz) | 99 % Bandwidth (MHz) |
|----------|-----------------|-----|------------------|-----------------------|----------------------|
| U-NII 1  | 5 180           | 36  | MCS5             | 21.459                | 18.022               |
|          | 5 220           | 44  |                  | 21.379                | 18.022               |
|          | 5 240           | 48  |                  | 21.179                | 18.062               |
| U-NII 2A | 5 260           | 52  |                  | 21.299                | 18.062               |
|          | 5 300           | 60  |                  | 21.179                | 18.022               |
|          | 5 320           | 64  |                  | 21.219                | 18.022               |
| U-NII 2C | 5 500           | 100 |                  | 21.339                | 18.022               |
|          | 5 600           | 120 |                  | 20.979                | 18.003               |
|          | 5 700           | 140 |                  | 21.139                | 18.022               |
| U-NII 3  | 5 745           | 149 |                  | 21.339                | 18.062               |
|          | 5 785           | 157 |                  | 21.339                | 18.062               |
|          | 5 825           | 165 |                  | 21.379                | 18.062               |

**Test mode: 11n\_HT40**

| Band     | Frequency (MHz) | Ch. | Data Rate (Mbps) | 26 dB Bandwidth (MHz) | 99 % Bandwidth (MHz) |
|----------|-----------------|-----|------------------|-----------------------|----------------------|
| U-NII 1  | 5 190           | 38  | MCS6             | 40.440                | 36.444               |
|          | 5 230           | 46  |                  | 40.440                | 36.444               |
| U-NII 2A | 5 270           | 54  |                  | 40.360                | 36.444               |
|          | 5 310           | 62  |                  | 40.200                | 36.444               |
| U-NII 2C | 5 510           | 102 |                  | 40.360                | 36.523               |
|          | 5 590           | 118 |                  | 39.750                | 36.353               |
|          | 5 670           | 134 |                  | 40.200                | 36.523               |
| U-NII 3  | 5 755           | 151 |                  | 40.280                | 36.523               |
|          | 5 795           | 159 |                  | 40.120                | 36.523               |

**Test mode: 11ac\_VHT80**

| Band     | Frequency (MHz) | Ch. | Data Rate (Mbps) | 26 dB Bandwidth (MHz) | 99 % Bandwidth (MHz) |
|----------|-----------------|-----|------------------|-----------------------|----------------------|
| U-NII 1  | 5 210           | 42  | MCS6             | 81.838                | 76.084               |
| U-NII 2A | 5 290           | 58  |                  | 81.838                | 75.924               |
| U-NII 2C | 5 530           | 106 |                  | 81.439                | 76.084               |
|          | 5 610           | 122 |                  | 82.200                | 75.948               |
| U-NII 3  | 5 775           | 155 |                  | 82.797                | 75.924               |

**Band-crossing channel**

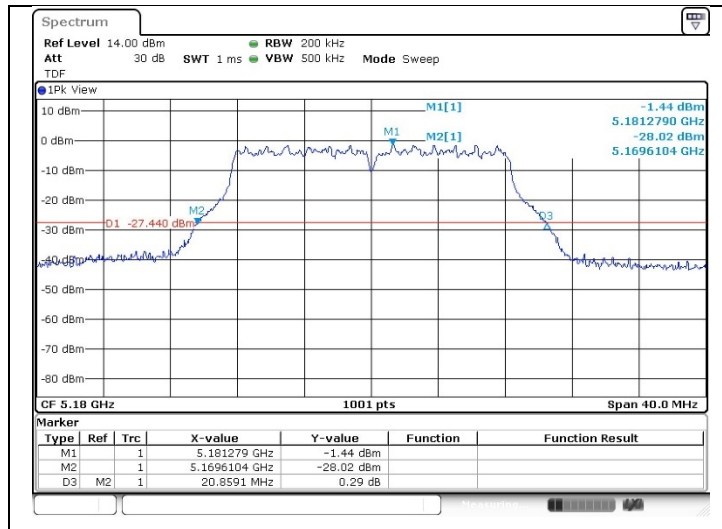
| Band       | Frequency (MHz) | Ch. | Data Rate (Mbps) | 26 dB Bandwidth (MHz) |
|------------|-----------------|-----|------------------|-----------------------|
| 11a        | 5 720           | 144 | 48               | 15.390                |
| 11ac_VHT20 | 5 720           | 144 | MCS5             | 15.589                |
| 11n_HT40   | 5 710           | 142 | MCS6             | 34.980                |
| 11ac_VHT80 | 5 690           | 138 | MCS6             | 76.239                |

## - Test plots

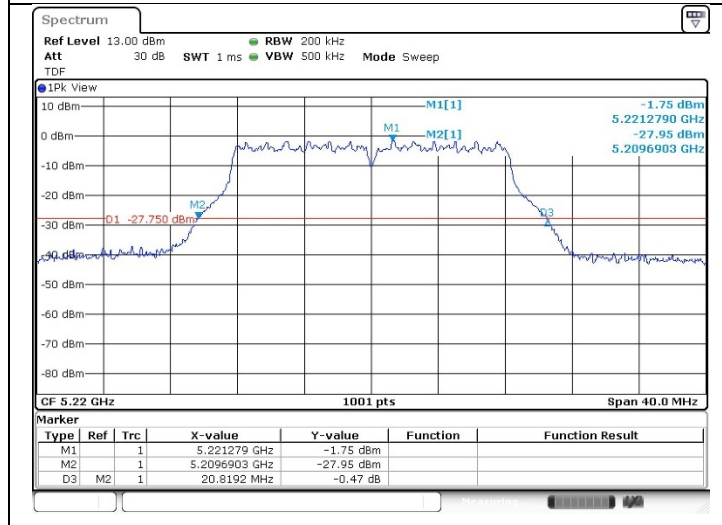
### 26 dB Bandwidth

### 802.11a (Band 1)

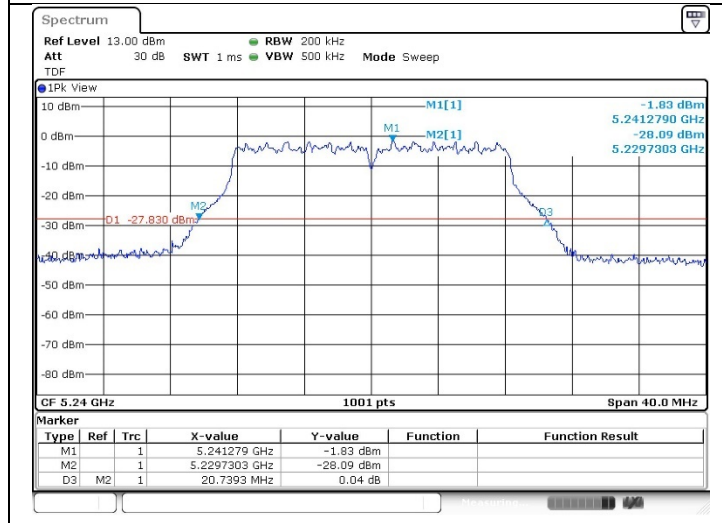
Low Channel  
(5 180 MHz)



Middle Channel  
(5 220 MHz)

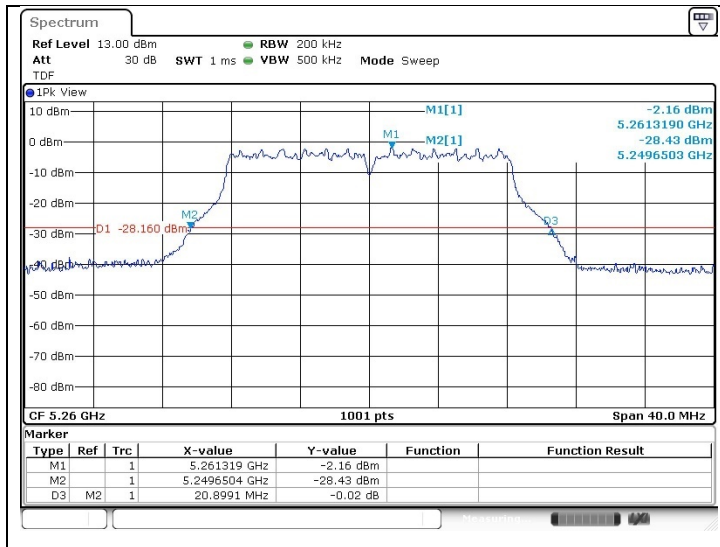


High Channel  
(5 240 MHz)

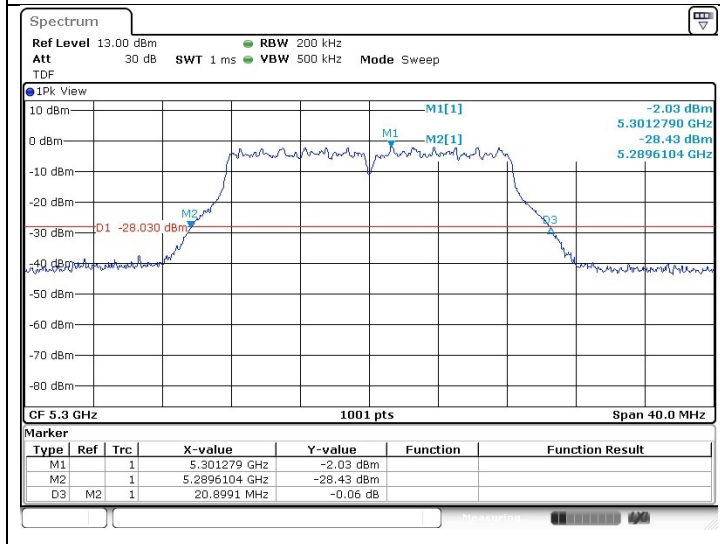


### 802.11a (Band 2A)

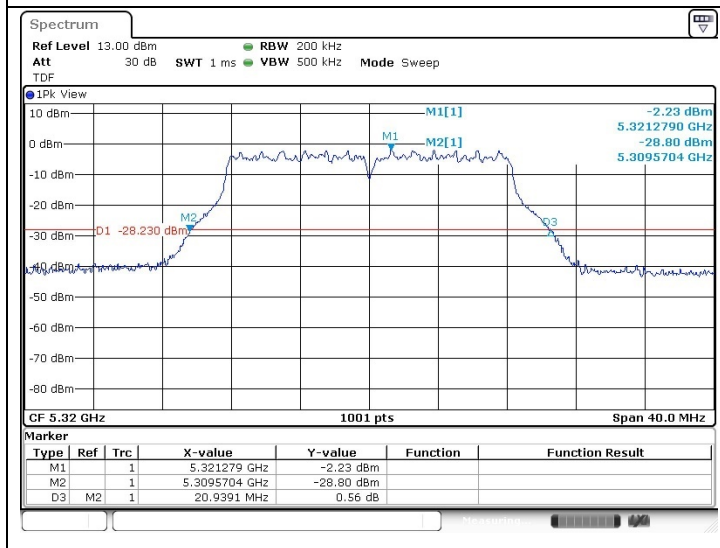
Low Channel  
(5 260 MHz)



Middle Channel  
(5 300 MHz)

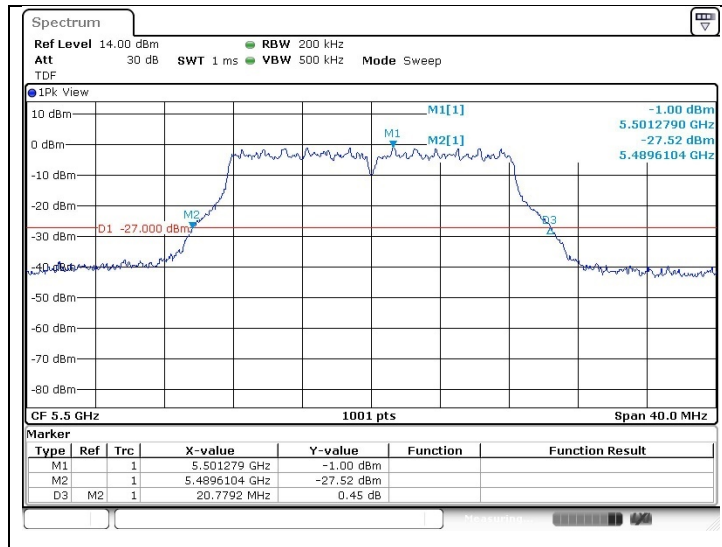


High Channel  
(5 320 MHz)

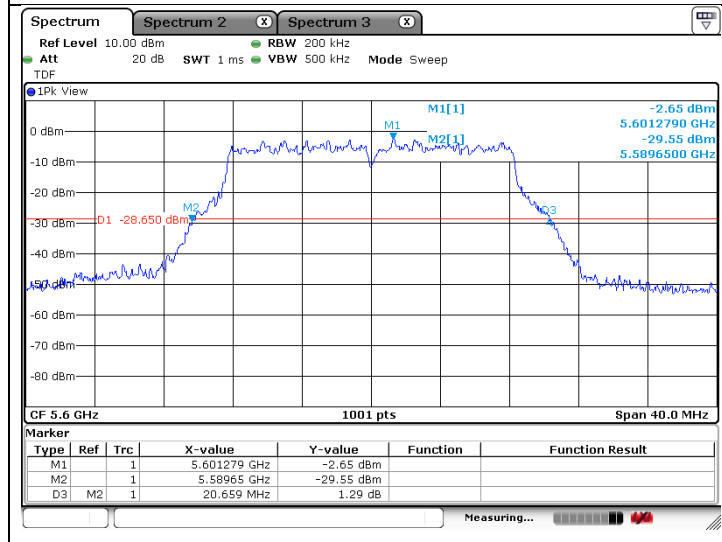


### 802.11a (Band 2C)

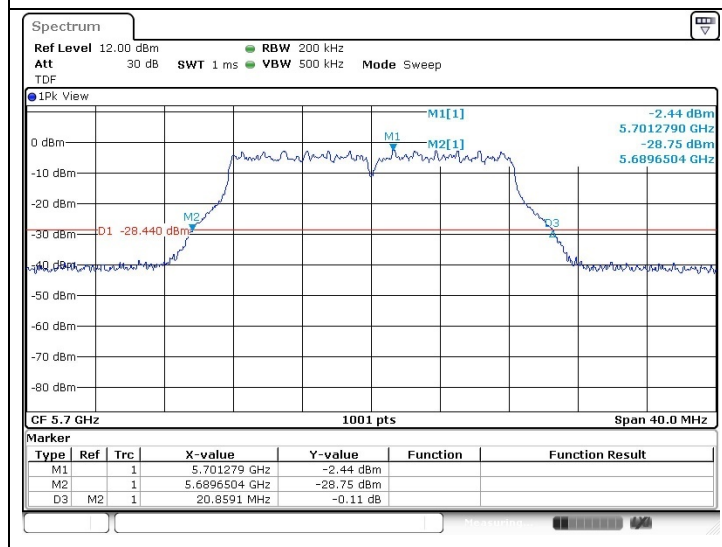
Low Channel  
(5 500 MHz)



Middle Channel  
(5 600 MHz)

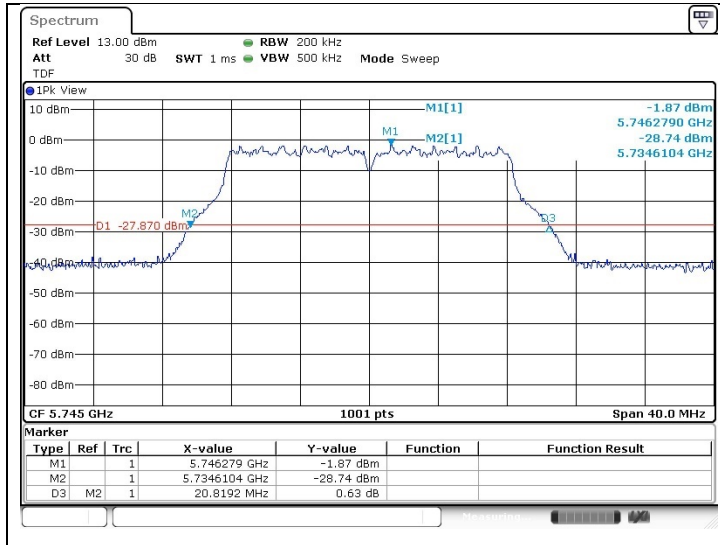


High Channel  
(5 700 MHz)

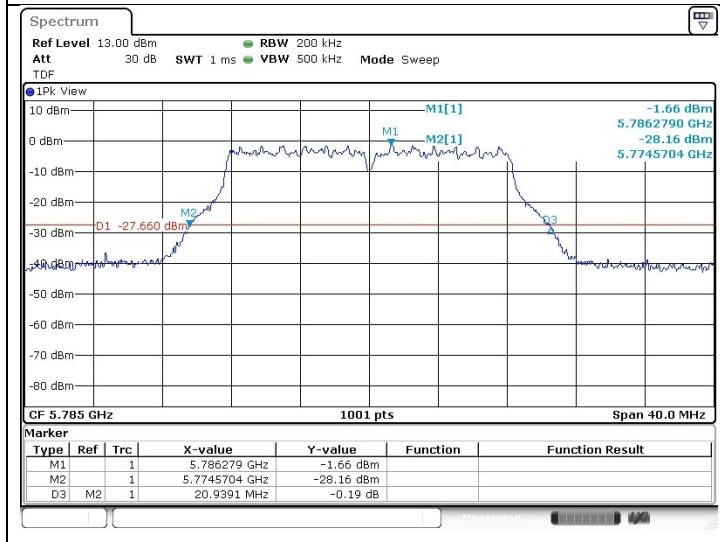


## 802.11a (Band 3)

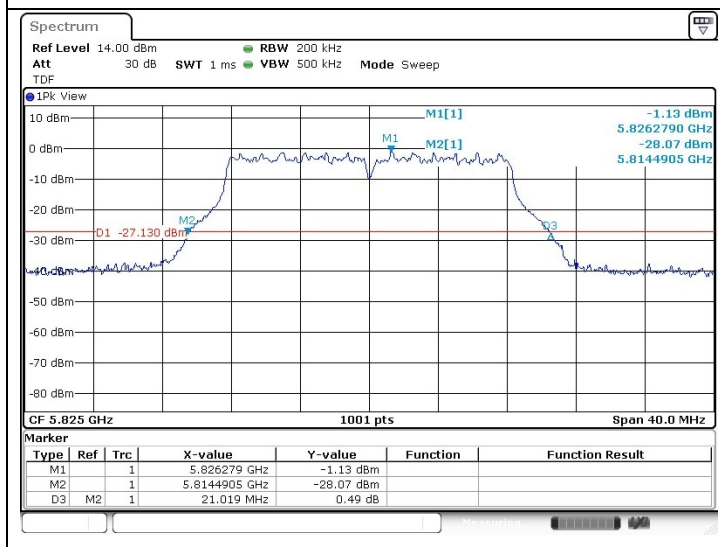
Low Channel  
(5 745 MHz)



Middle Channel  
(5 785 MHz)



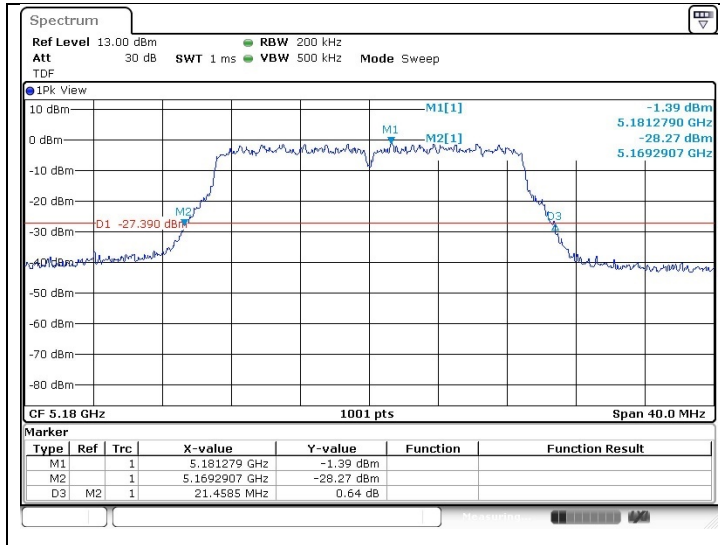
High Channel  
(5 825 MHz)



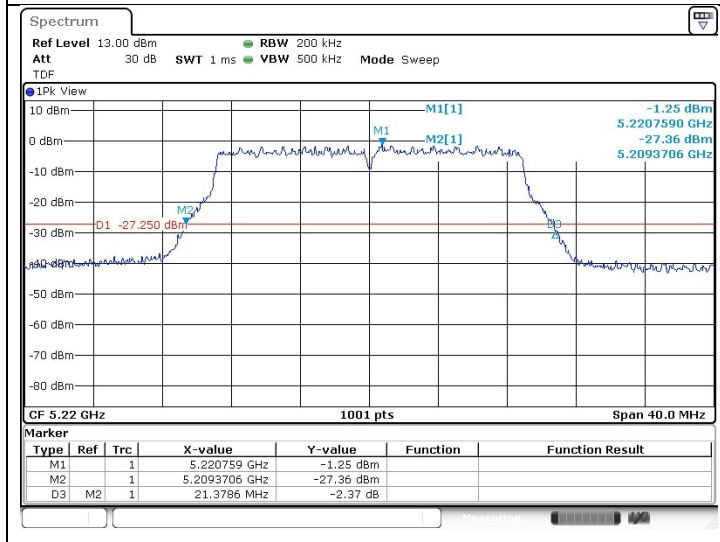


### 802.11ac\_VHT20 (Band 1)

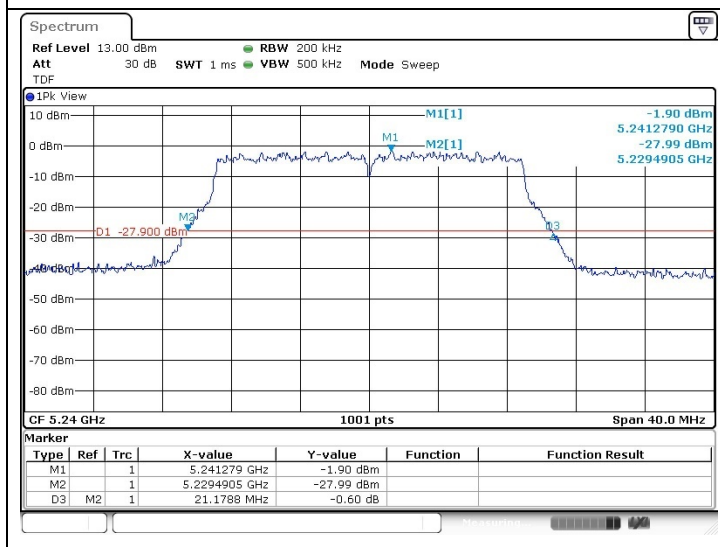
Low Channel  
(5 180 MHz)



Middle Channel  
(5 220 MHz)

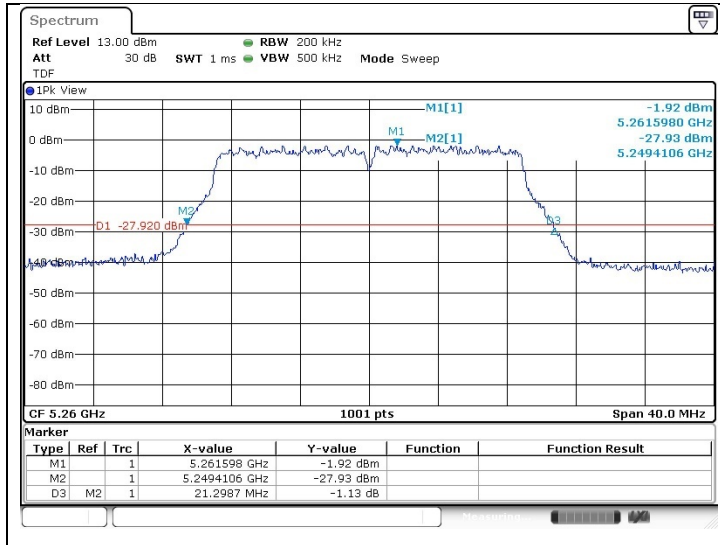


High Channel  
(5 240 MHz)

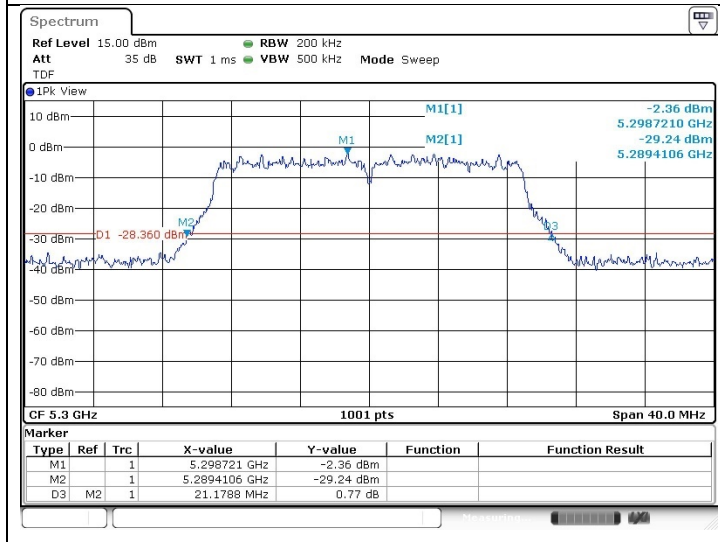


### 802.11ac\_VHT20 (Band 2A)

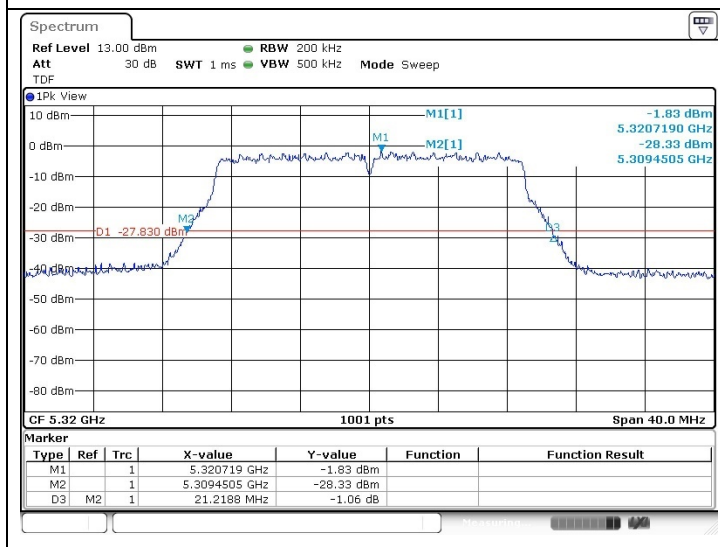
Low Channel  
(5 260 MHz)



Middle Channel  
(5 300 MHz)

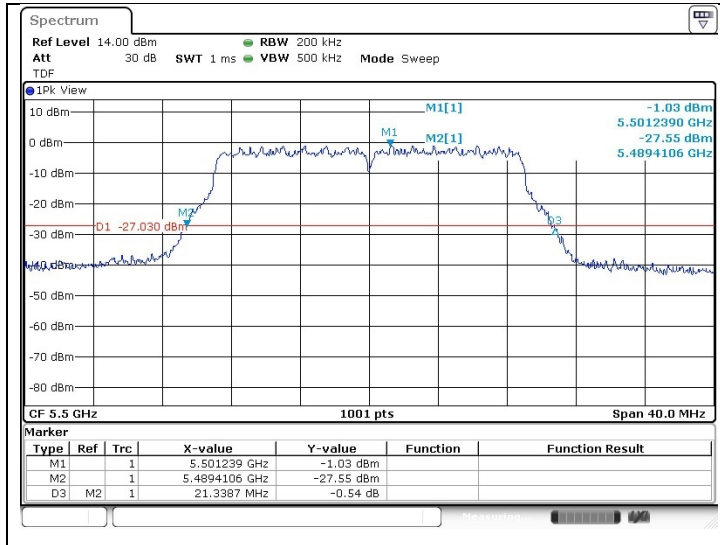


High Channel  
(5 320 MHz)

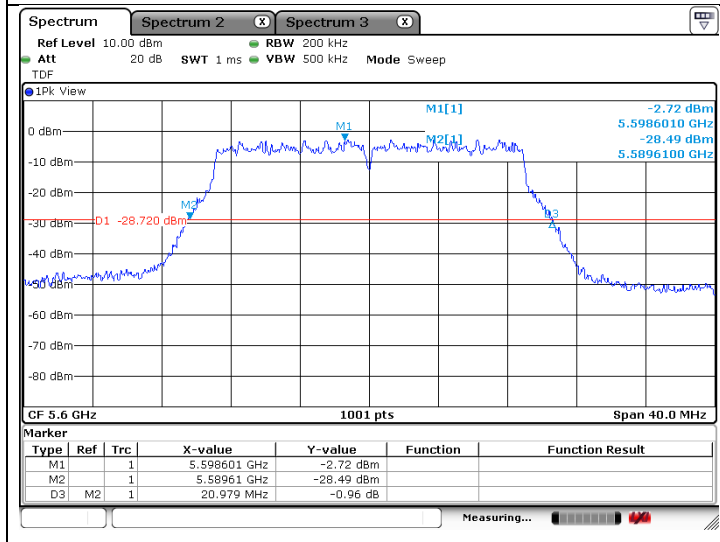


### 802.11ac\_VHT20 (Band 2C)

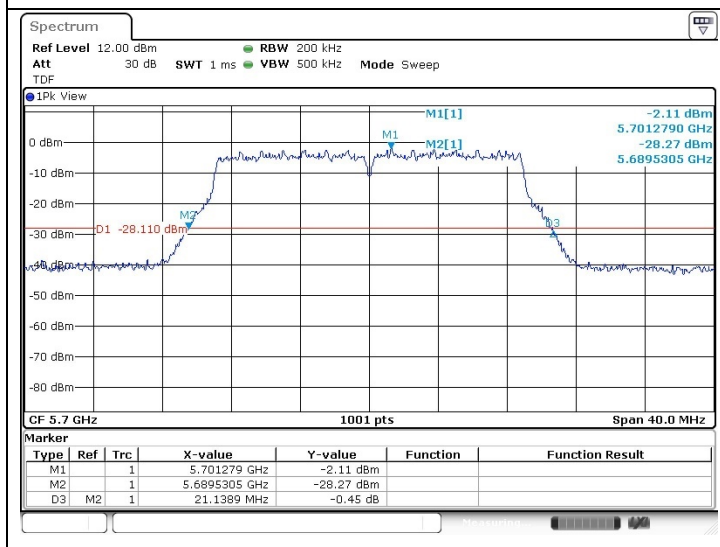
Low Channel  
(5 500 MHz)



Middle Channel  
(5 600 MHz)

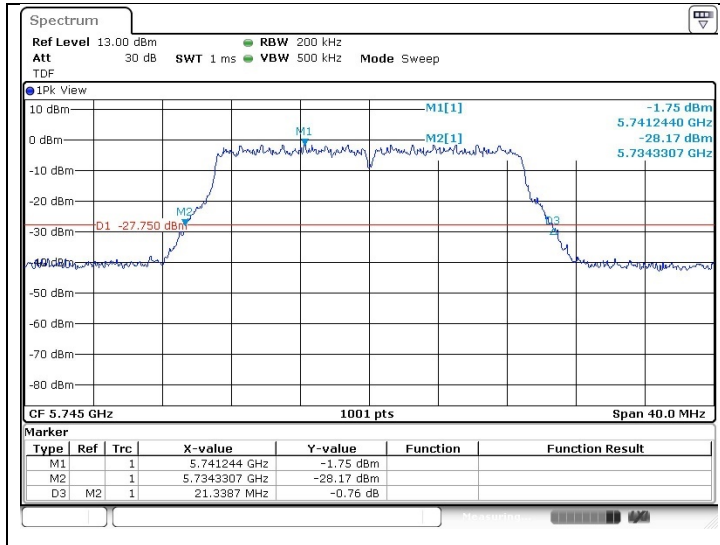


High Channel  
(5 700 MHz)

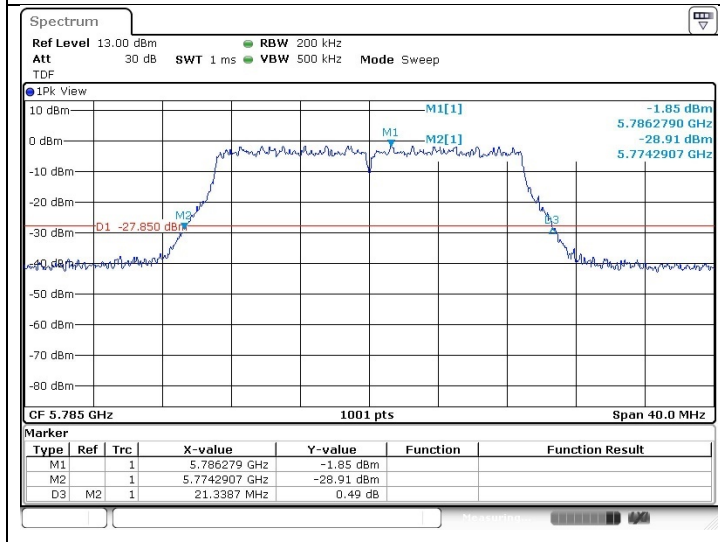


### 802.11ac\_VHT20 (Band 3)

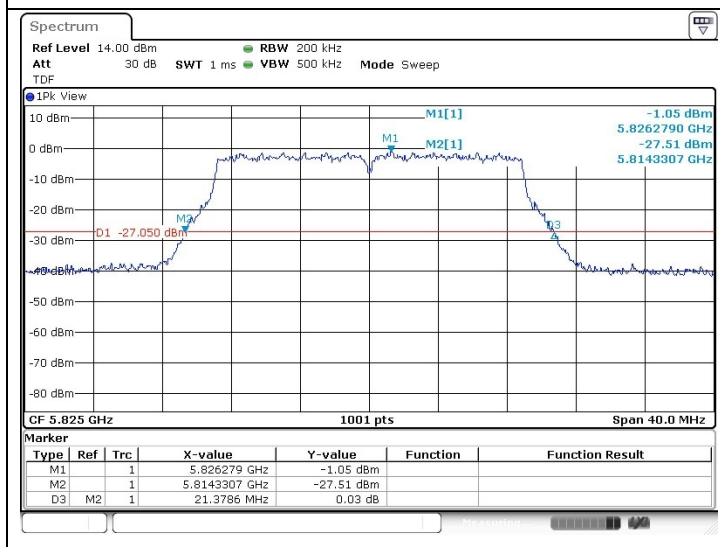
Low Channel  
(5 745 MHz)



Middle Channel  
(5 785 MHz)

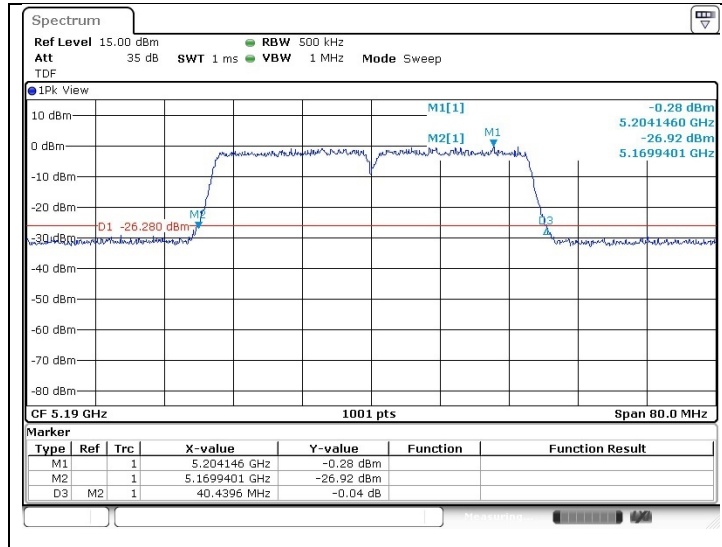


High Channel  
(5 825 MHz)

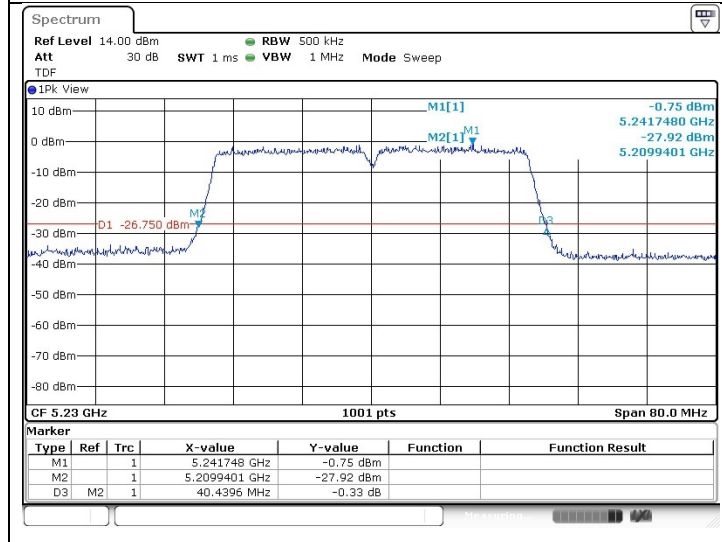


### 802.11n\_HT40 (Band 1)

Low Channel  
 (5 190 MHz)

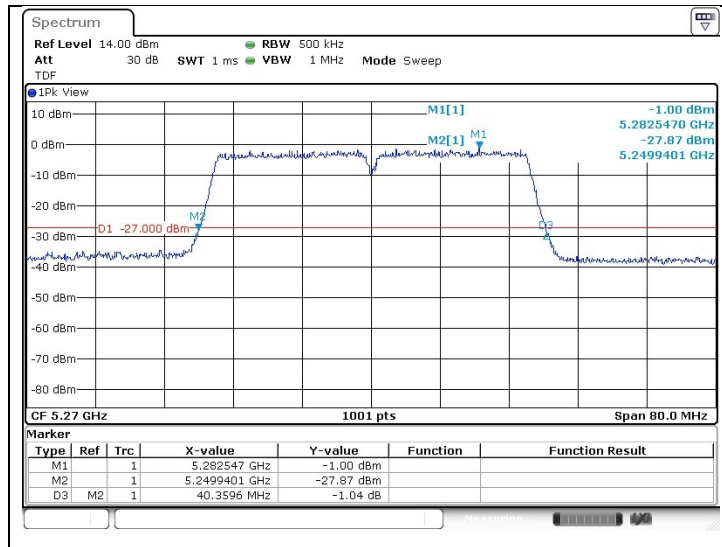


High Channel  
 (5 230 MHz)

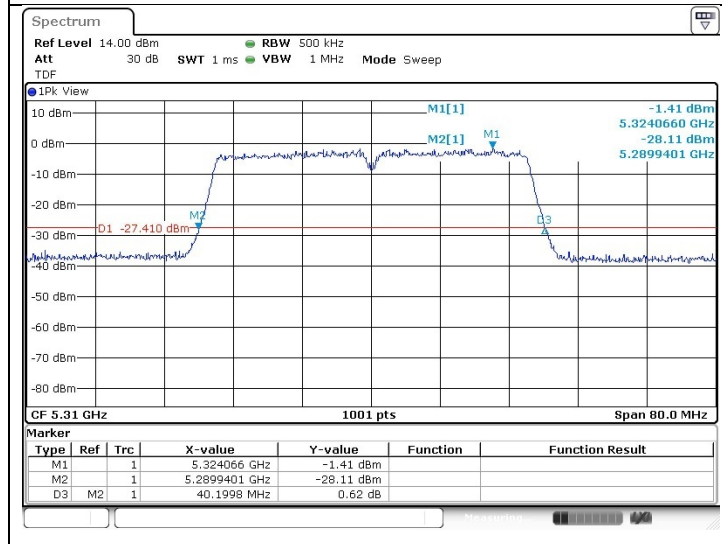


### 802.11n\_HT40 (Band 2A)

Low Channel  
 (5 270 MHz)

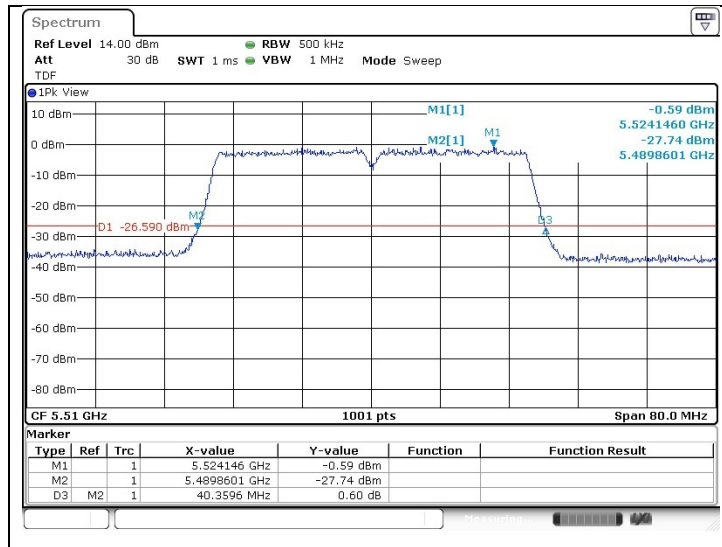


High Channel  
 (5 310 MHz)

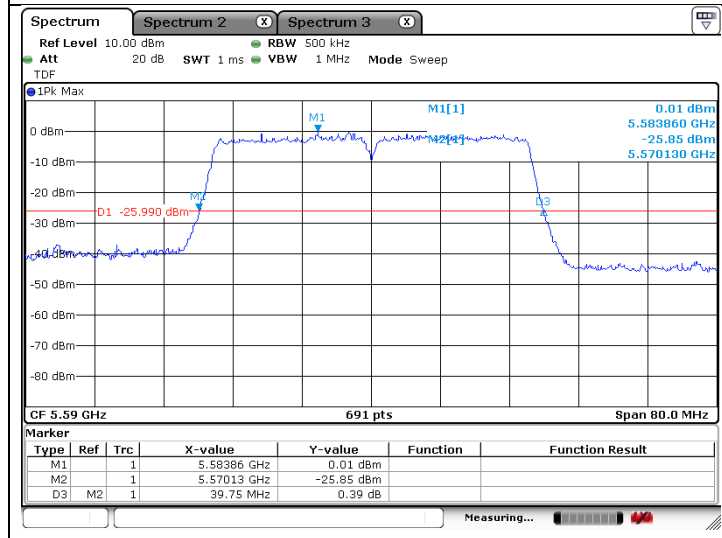


### 802.11n\_HT40 (Band 2C)

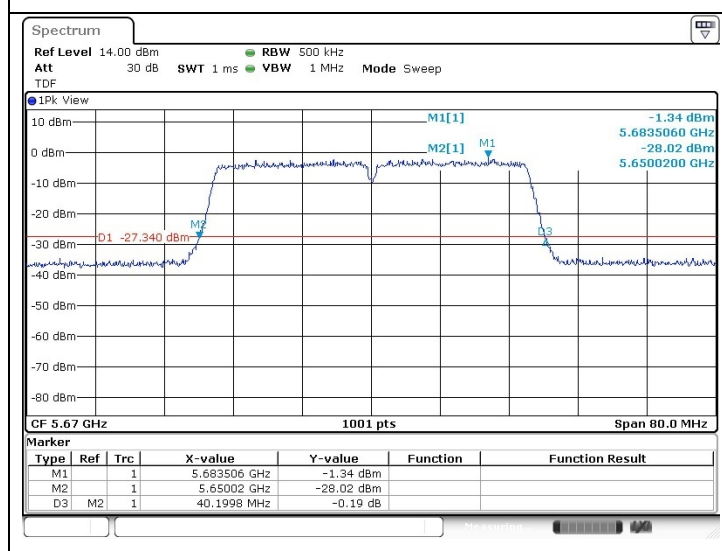
Low Channel  
(5 510 MHz)



Middle Channel  
(5 590 MHz)

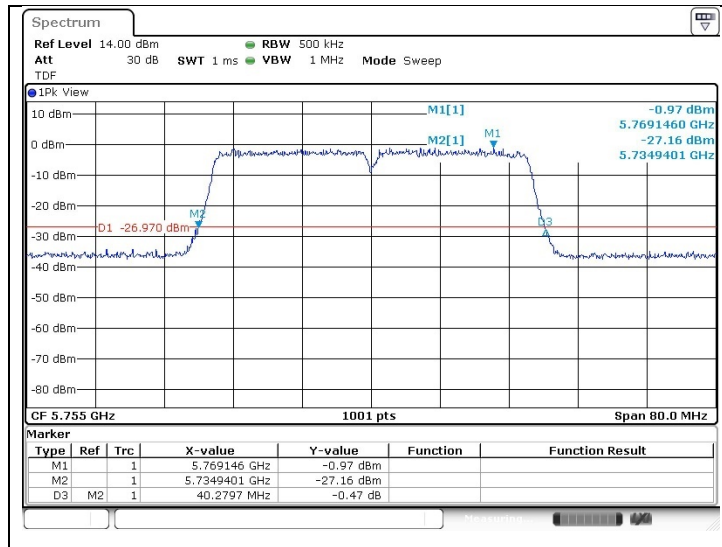


High Channel  
(5 670 MHz)

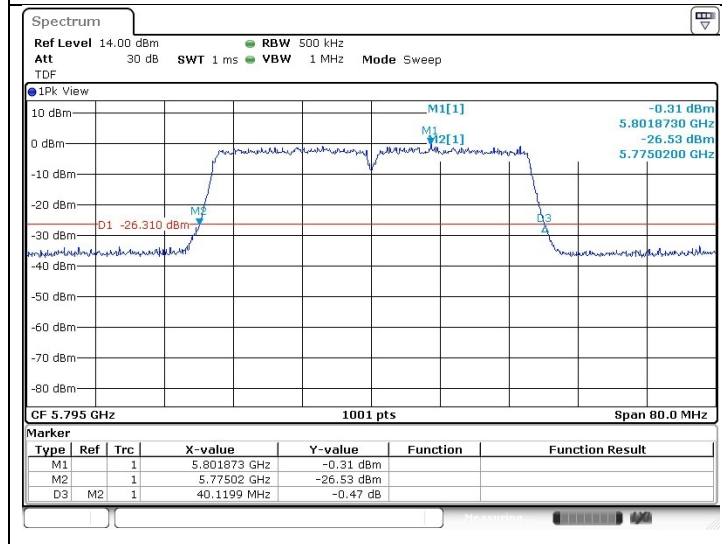


## 802.11n\_HT40 (Band 3)

Low Channel  
(5 755 MHz)



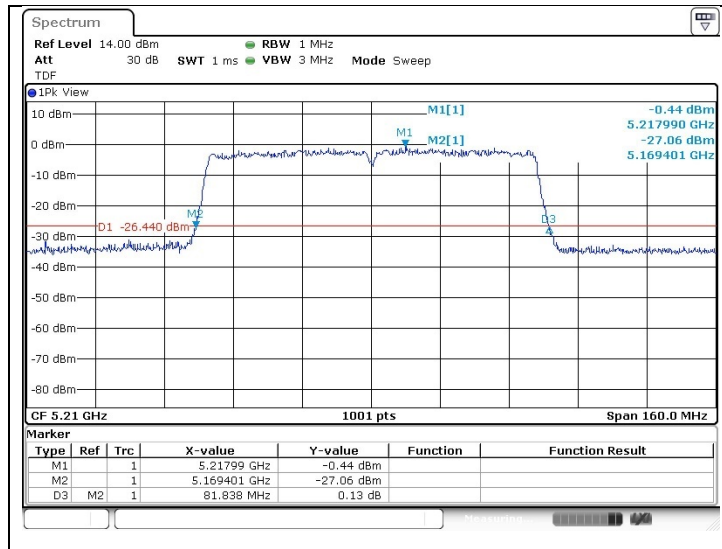
High Channel  
(5 795 MHz)





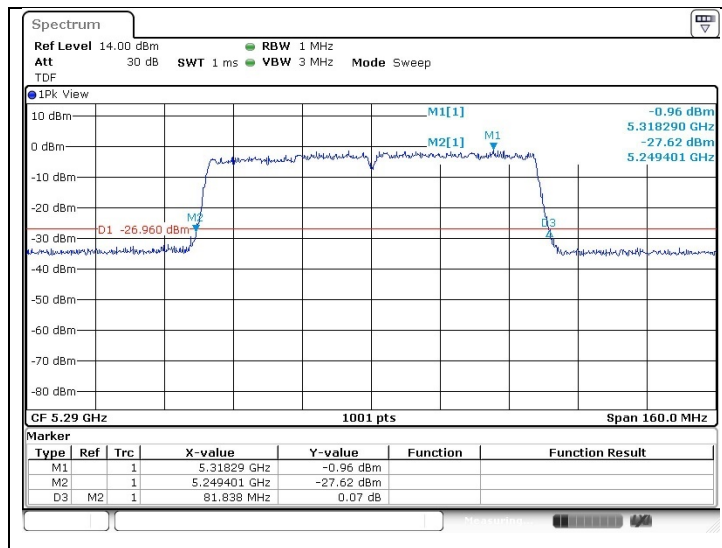
### 802.11ac\_VHT80 (Band 1)

Middle Channel  
 (5 210 MHz)



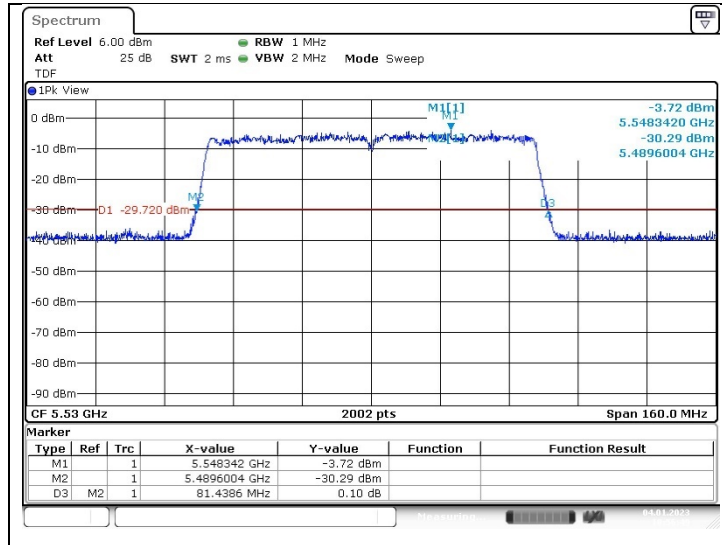
### 802.11ac\_VHT80 (Band 2A)

Middle Channel  
 (5 290 MHz)

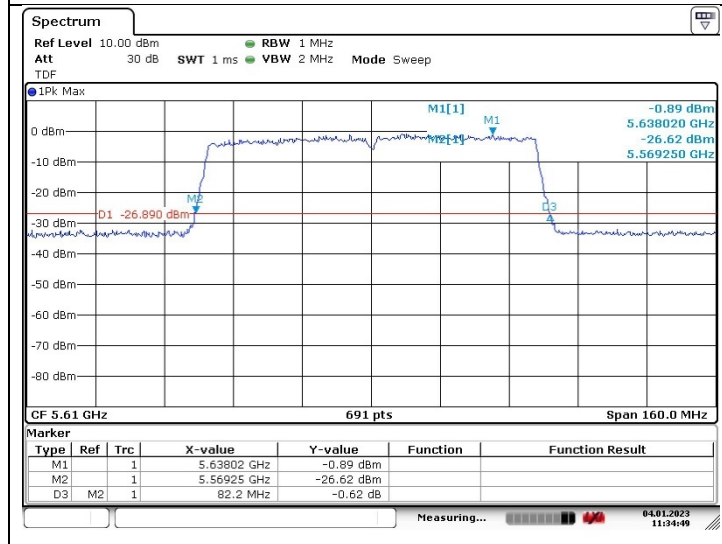


### 802.11ac\_VHT80 (Band 2C)

Low Channel  
 (5 530 MHz)

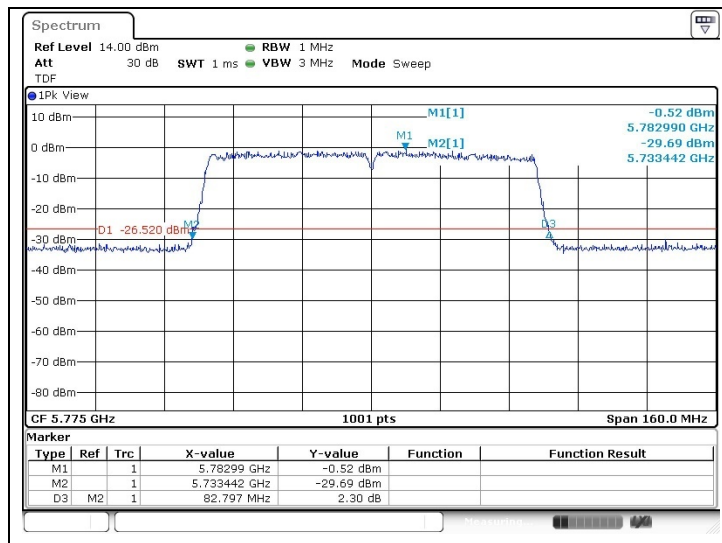


Middle Channel  
 (5 610 MHz)



### 802.11ac\_VHT80 (Band 3)

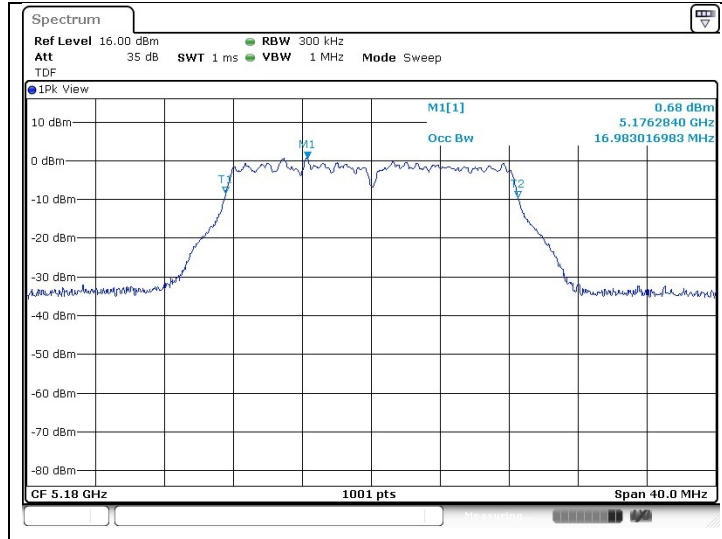
Middle Channel  
 (5 775 MHz)



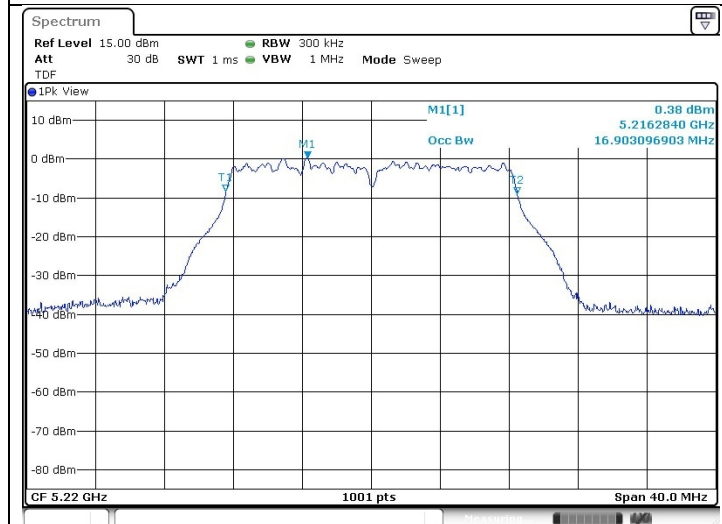
**99 % Bandwidth**

**802.11a (Band 1)**

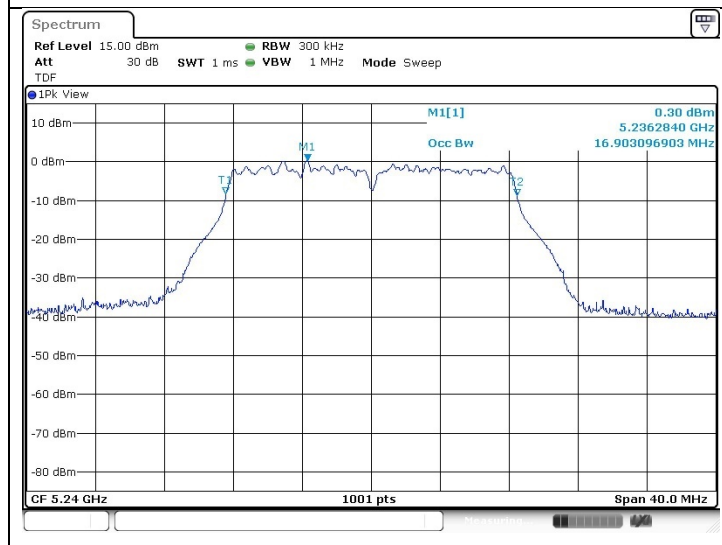
Low Channel  
 (5 180 MHz)



Middle Channel  
 (5 220 MHz)

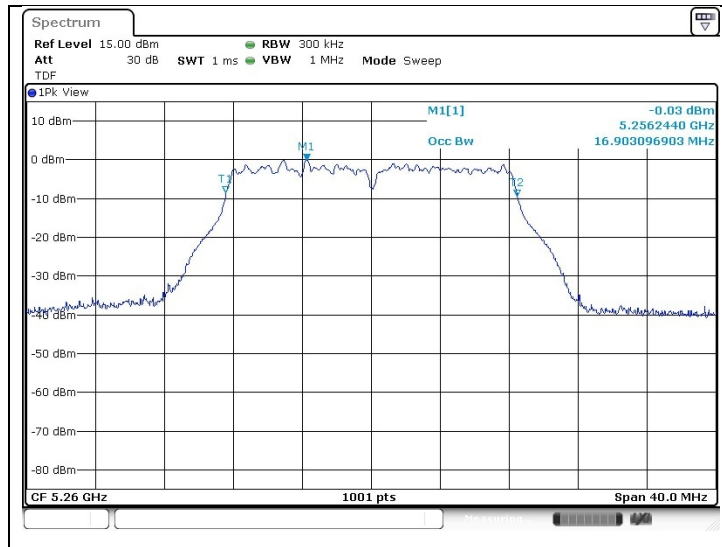


High Channel  
 (5 240 MHz)

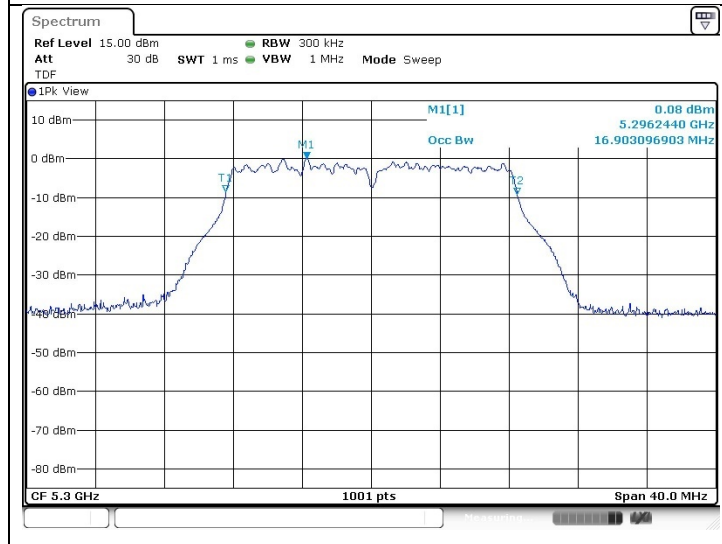


### 802.11a (Band 2A)

Low Channel  
(5 260 MHz)



Middle Channel  
(5 300 MHz)



High Channel  
(5 320 MHz)

