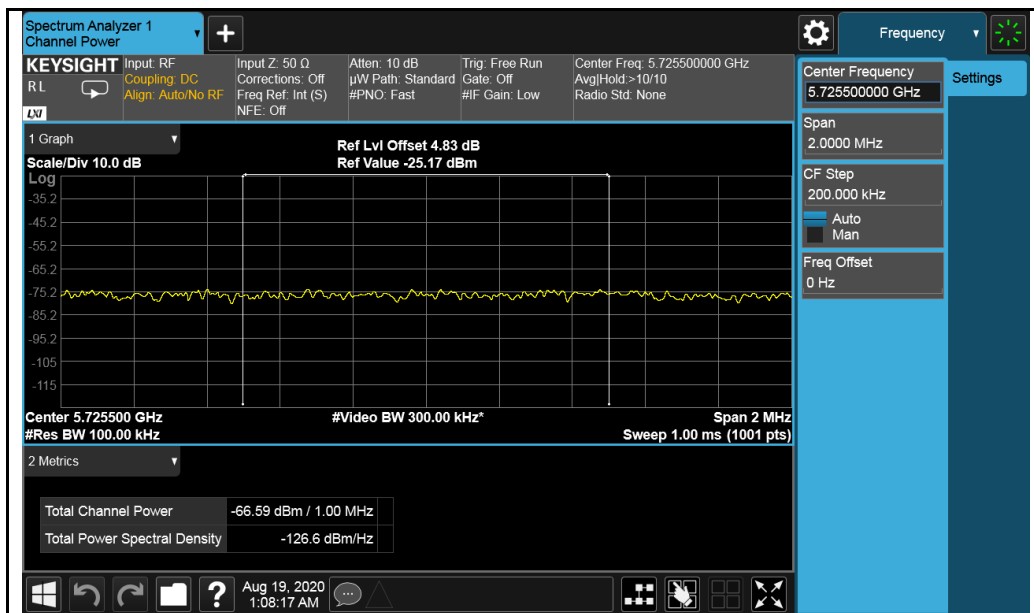
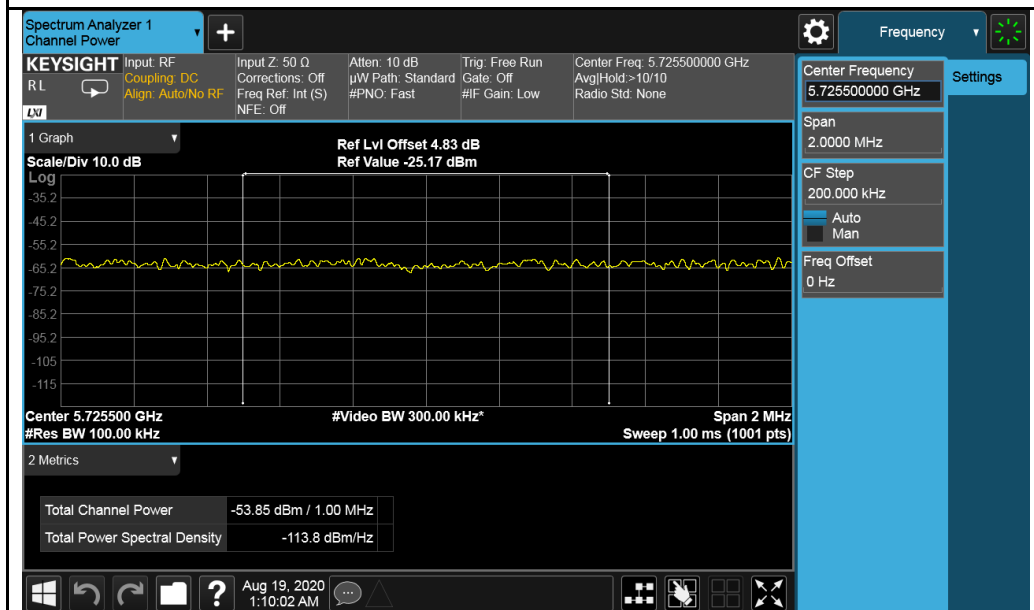


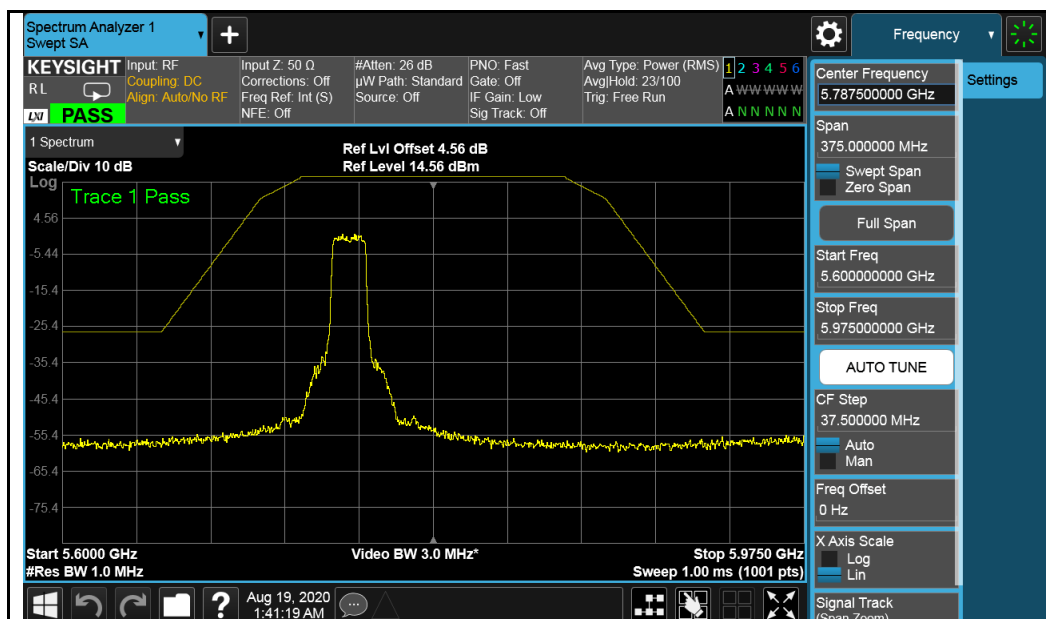


802.11n-HT40-5510MHz

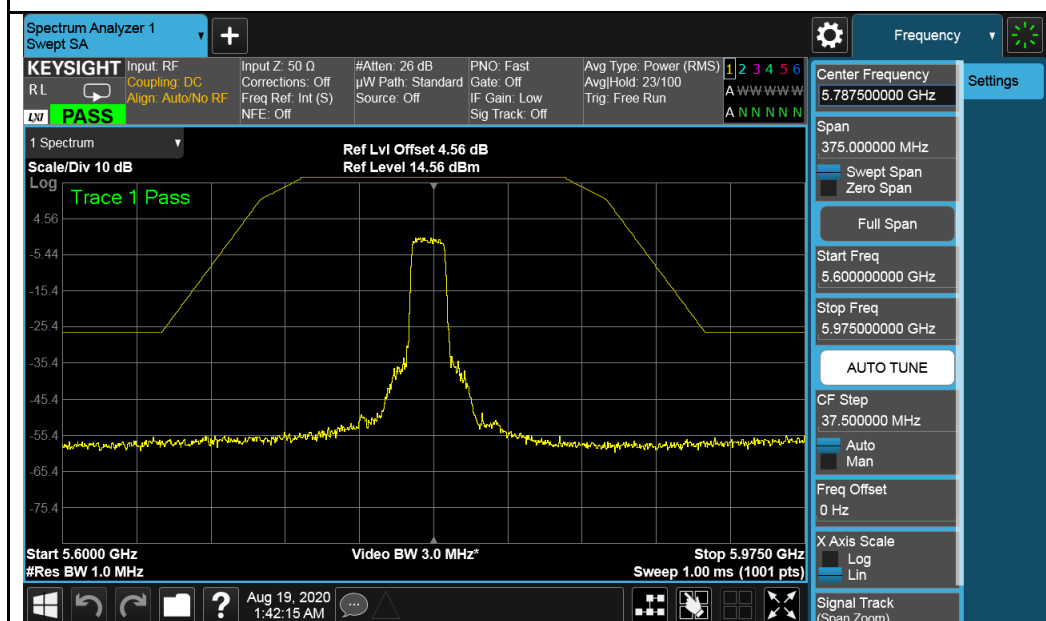


802.11n-HT40-5670MHz

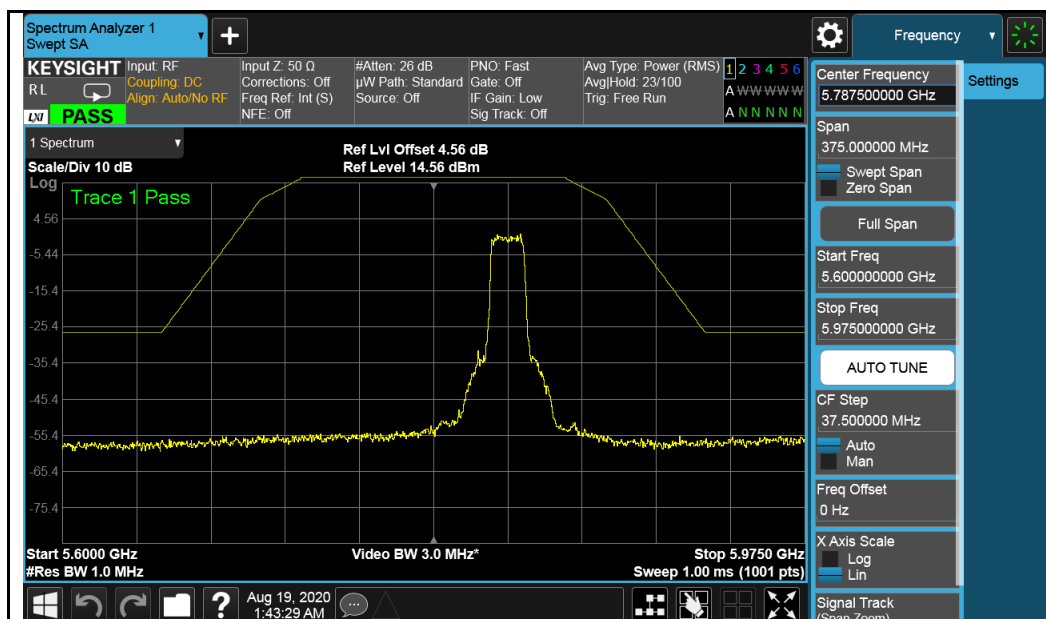
# MASK Test Plot for U-NII-3 Band:



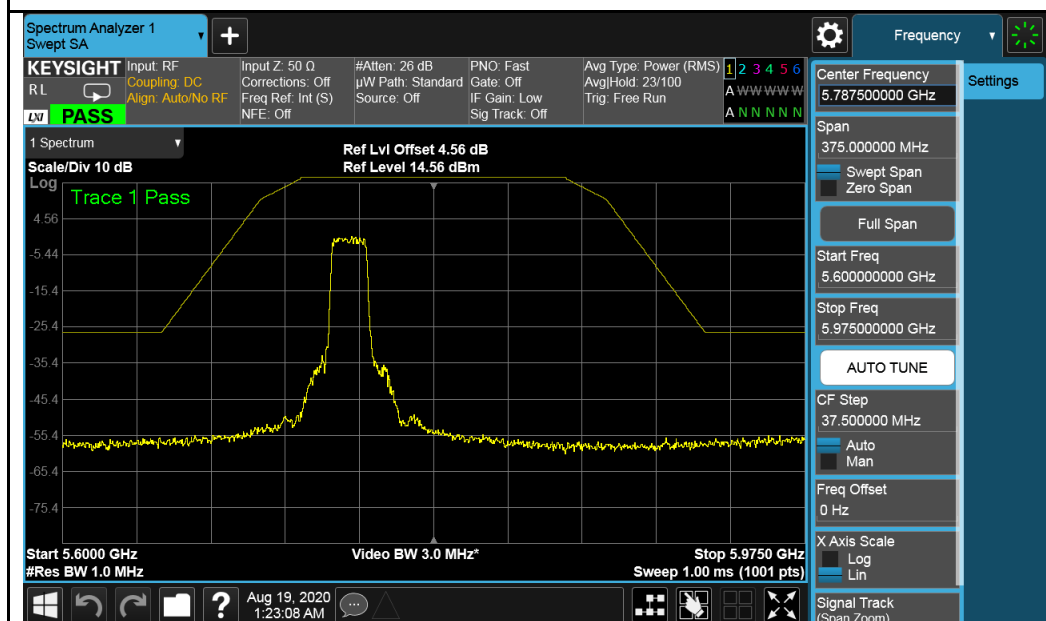
802.11a-5745MHz



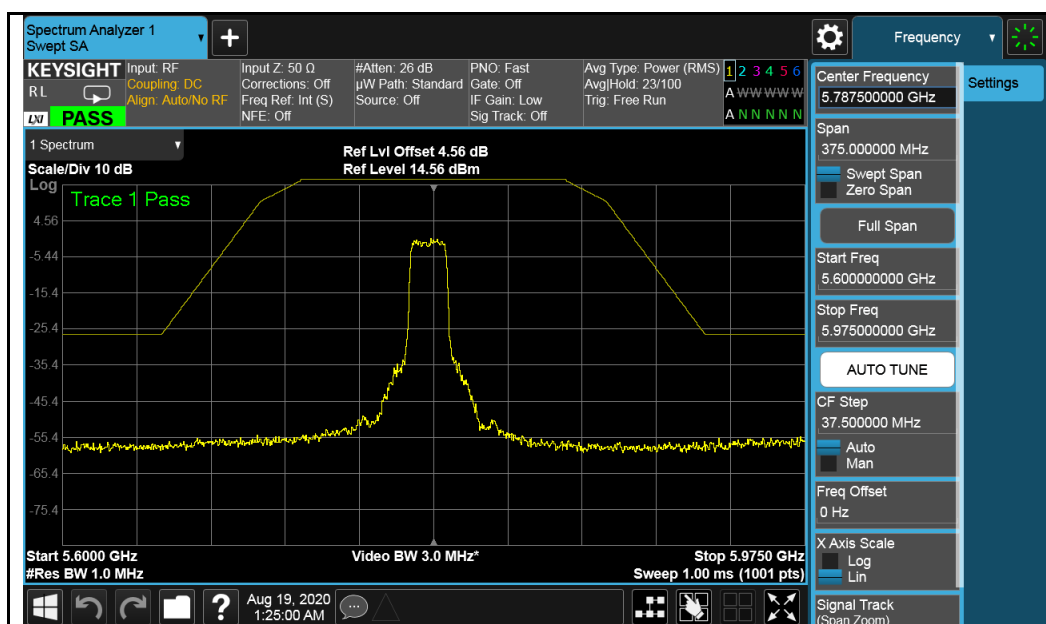
802.11a-5785MHz



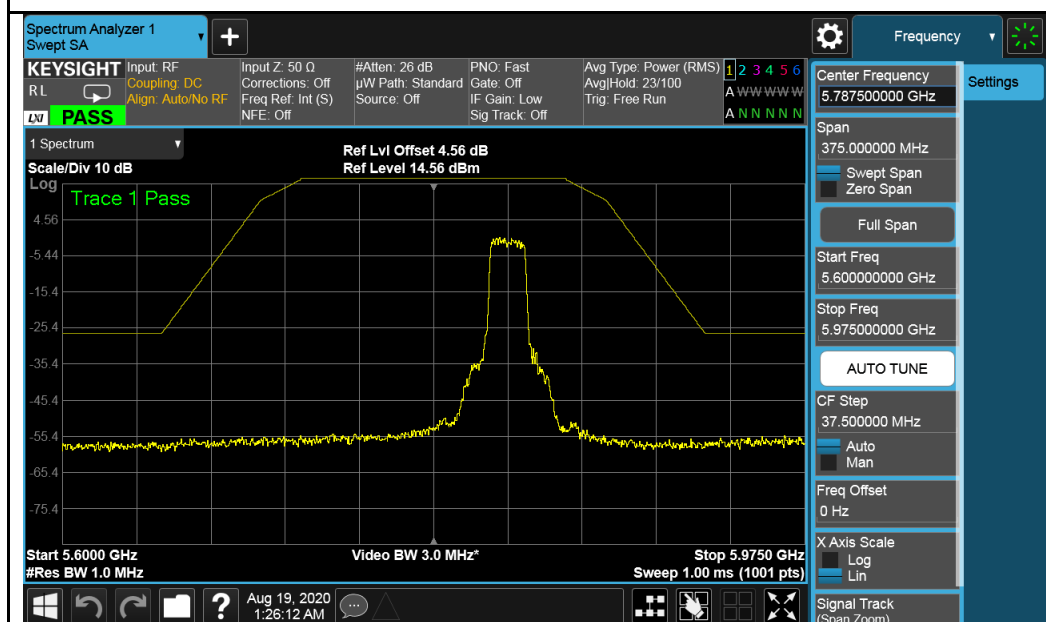
802.11a-5825MHz



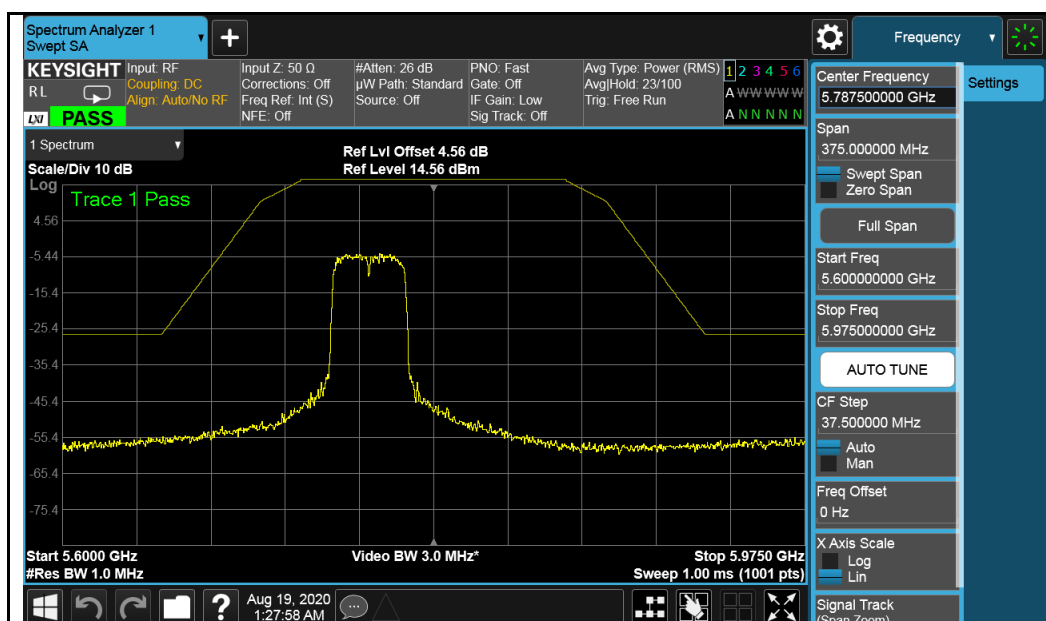
802.11n-HT20-5745MHz



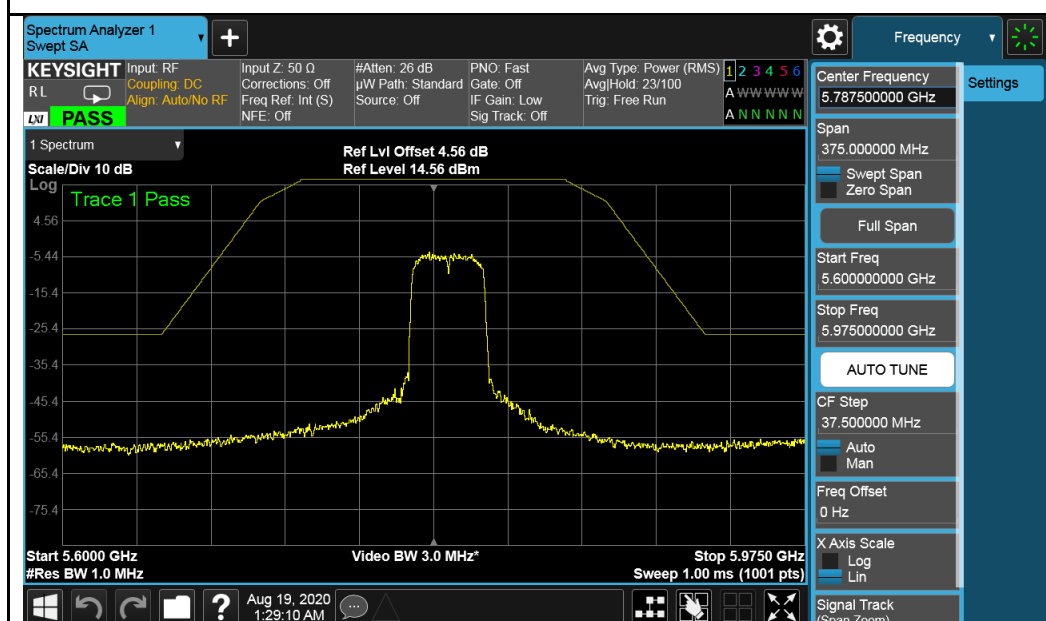
802.11n-HT20-5785MHz



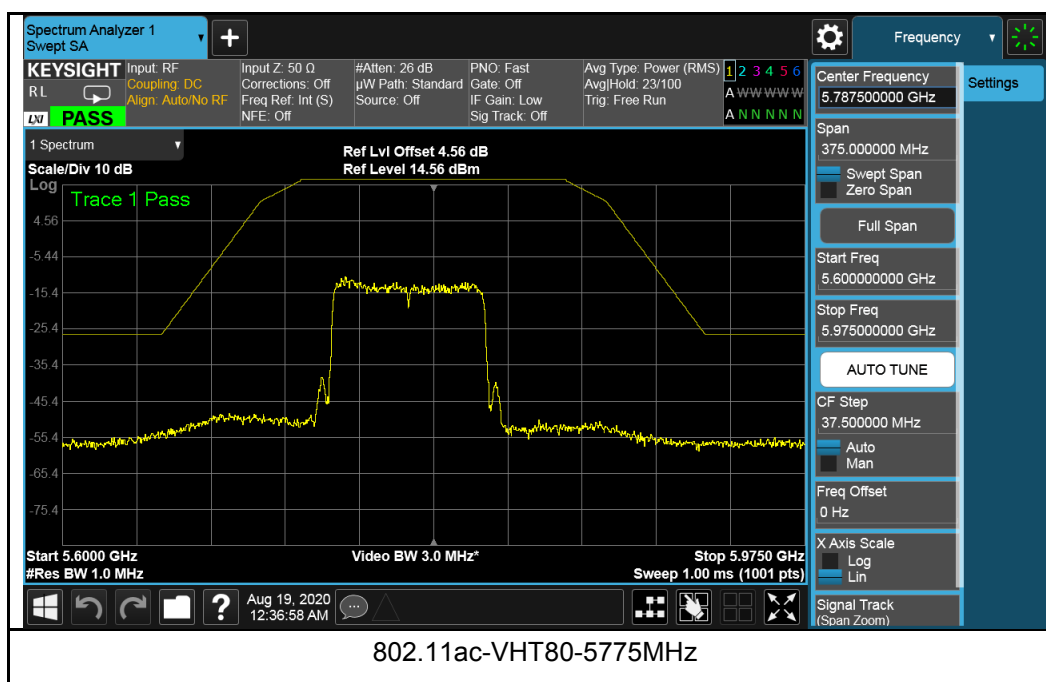
802.11n-HT20-5825MHz



802.11n-HT40-5755MHz



802.11n-HT40-5795MHz



### 4.3 Conducted Emission Measurement

#### 4.3.1 Limits of Conducted Emission Measurement

| Frequency (MHz) | Conducted Limit (dBuV) |         |
|-----------------|------------------------|---------|
|                 | Quasi-peak             | Average |
| 0.15 - 0.5      | 66 - 56                | 56 - 46 |
| 0.50 - 5.0      | 56                     | 46      |
| 5.0 - 30.0      | 60                     | 50      |

Note: 1. The lower limit shall apply at the transition frequencies.

2. The limit decreases in line with the logarithm of the frequency in the range of 0.15 to 0.50MHz.

#### 4.3.2 Test Instruments

| Description & Manufacturer           | Model No. | Serial No. | Date Of Calibration | Due Date Of Calibration |
|--------------------------------------|-----------|------------|---------------------|-------------------------|
| EMI Test Receiver<br>ROHDE & SCHWARZ | ESIB 40   | 100179     | 11/01/2019          | 11/01/2020              |
| Transient Limiter<br>ELECTRO-METRICS | EM-7600-5 | 106        | 12/31/2019          | 12/31/2020              |
| LISN<br>EMCO                         | 3816/2NM  | 214372     | 01/14/2020          | 01/14/2021              |

#### 4.3.3 Test Procedures

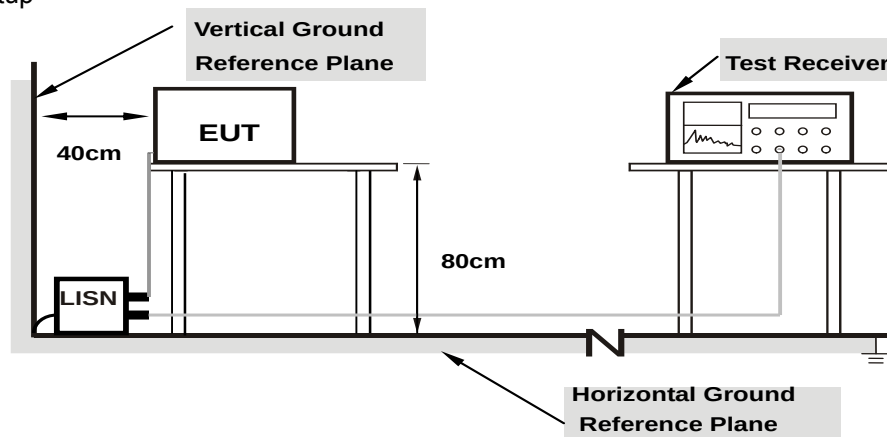
- The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling impedance for the measuring instrument.
- Both lines of the power mains connected to the EUT were checked for maximum conducted interference.
- The frequency range from 150 kHz to 30MHz was searched. Emission levels under (Limit - 20dB) was not recorded.

**NOTE:** The resolution bandwidth and video bandwidth of test receiver is 9 kHz for quasi-peak detection (QP) and average detection (AV) at frequency 0.15MHz-30MHz.

#### 4.3.4 Deviation from Test Standard

No deviation.

#### 4.3.5 Test Setup



**Note:** 1.Support units were connected to second LISN.

For the actual test configuration, please refer to the attached file (Test Setup Photo).

#### 4.3.6 EUT Operating Conditions

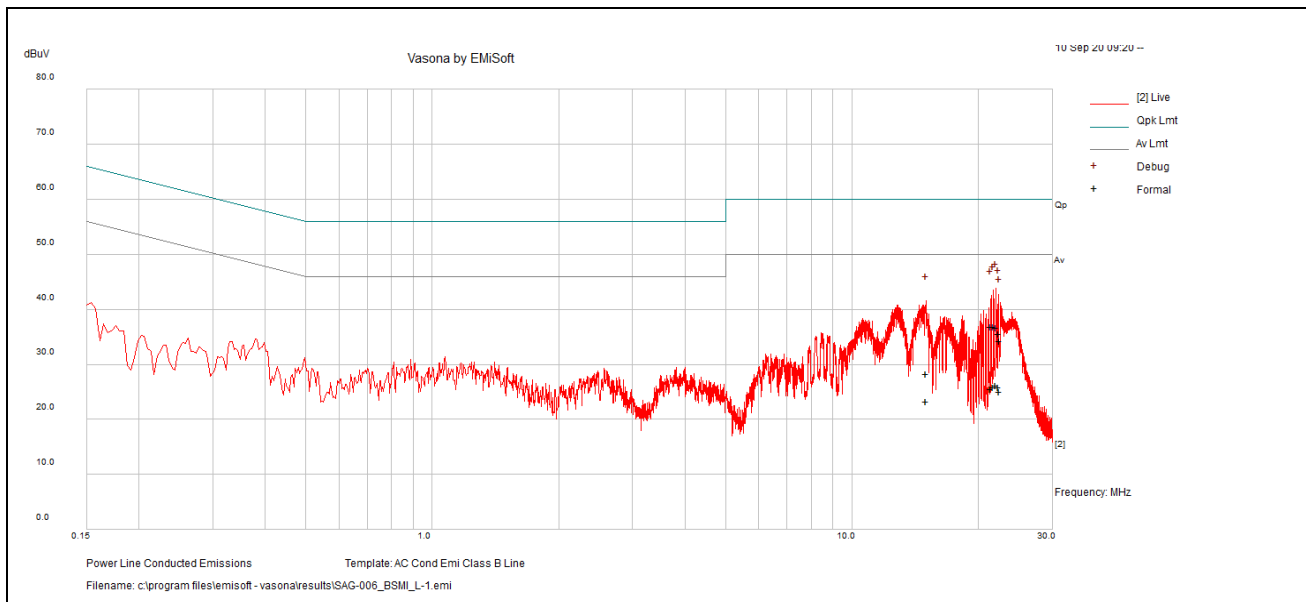
Same as 4.1.6.

#### 4.3.7 Test Results

| Phase |       | Line (L) |           |         |        | Detector Function |      | Quasi-Peak / Average |        |            |
|-------|-------|----------|-----------|---------|--------|-------------------|------|----------------------|--------|------------|
| No    | Freq. | Raw      | Cale Loss | Factors | Level  | Measurement Type  | Line | Limit                | Margin | Pass /Fail |
|       | [MHz] | (dBuV)   | (dB)      | (dB)    | (dBuV) |                   |      | (dBuV)               | (dB)   |            |
| 1     | 22.10 | 26.46    | 9.79      | 0.54    | 36.78  | Quasi Peak        | Line | 60                   | -23.22 | Pass       |
| 2     | 21.76 | 26.57    | 9.78      | 0.53    | 36.88  | Quasi Peak        | Line | 60                   | -23.12 | Pass       |
| 3     | 22.38 | 25.29    | 9.81      | 0.54    | 35.64  | Quasi Peak        | Line | 60                   | -24.36 | Pass       |
| 4     | 21.48 | 26.57    | 9.79      | 0.53    | 36.88  | Quasi Peak        | Line | 60                   | -23.12 | Pass       |
| 5     | 15.06 | 18.33    | 9.66      | 0.3     | 28.3   | Quasi Peak        | Line | 60                   | -31.7  | Pass       |
| 6     | 22.55 | 23.87    | 9.82      | 0.55    | 34.23  | Quasi Peak        | Line | 60                   | -25.77 | Pass       |
| 7     | 22.10 | 15.85    | 9.79      | 0.54    | 26.18  | Average           | Line | 50                   | -23.82 | Pass       |
| 8     | 21.76 | 15.48    | 9.78      | 0.53    | 25.8   | Average           | Line | 50                   | -24.2  | Pass       |
| 9     | 22.38 | 15.55    | 9.81      | 0.54    | 25.9   | Average           | Line | 50                   | -24.1  | Pass       |
| 10    | 21.48 | 15.24    | 9.79      | 0.53    | 25.56  | Average           | Line | 50                   | -24.44 | Pass       |
| 11    | 15.06 | 13.36    | 9.66      | 0.3     | 23.32  | Average           | Line | 50                   | -26.68 | Pass       |
| 12    | 22.55 | 14.67    | 9.82      | 0.55    | 25.04  | Average           | Line | 50                   | -24.96 | Pass       |

#### REMARKS:

1. The emission levels of other frequencies were very low against the limit.
2. Margin value = Emission level - Limit value
3. Emission Level = Correction Factor + Raw Value + Factors Value.

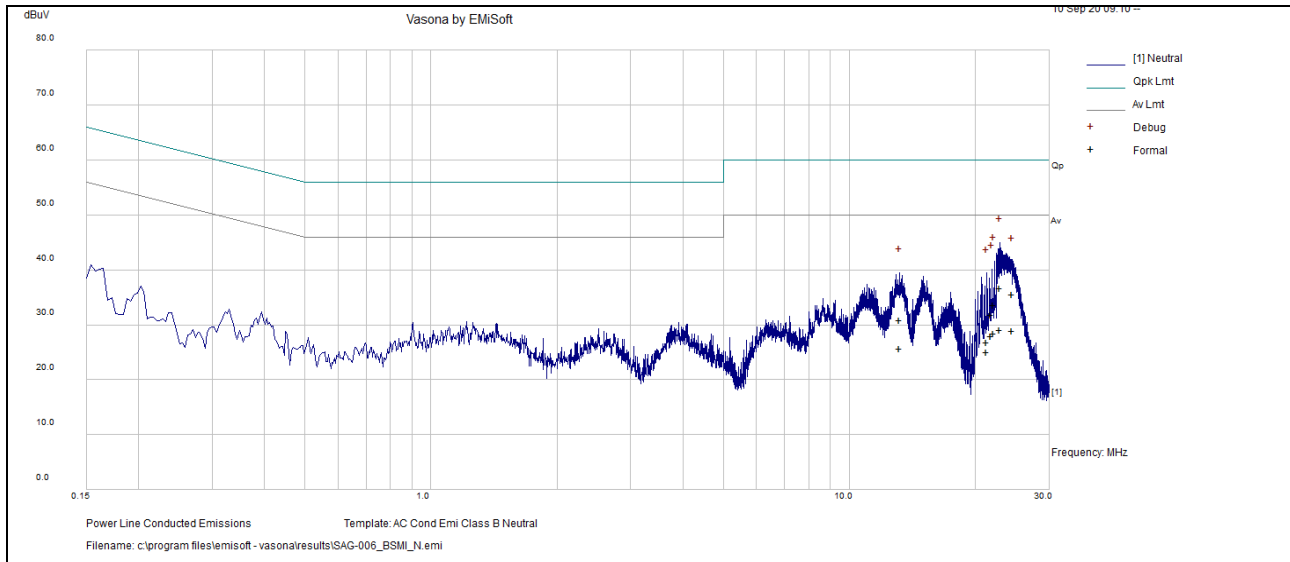


| Phase | Neutral (N) | Detector Function | Quasi-Peak / Average |
|-------|-------------|-------------------|----------------------|
|-------|-------------|-------------------|----------------------|

| No | Freq.<br>[MHz] | Raw<br>(dBuV) | Cale<br>Loss<br>(dB) | Factors<br>(dB) | Level<br>(dBuV) | Measurement<br>Type | Line    | Limit<br>(dBuV) | Margin<br>(dB) | Pass /Fail |
|----|----------------|---------------|----------------------|-----------------|-----------------|---------------------|---------|-----------------|----------------|------------|
| 1  | 22.92          | 26.34         | 9.84                 | 0.57            | 36.76           | Quasi Peak          | Neutral | 60.00           | -23.24         | Pass       |
| 2  | 22.23          | 23.25         | 9.80                 | 0.55            | 33.60           | Quasi Peak          | Neutral | 60.00           | -26.40         | Pass       |
| 3  | 24.61          | 25.20         | 9.82                 | 0.63            | 35.66           | Quasi Peak          | Neutral | 60.00           | -24.34         | Pass       |
| 4  | 21.93          | 21.49         | 9.78                 | 0.54            | 31.82           | Quasi Peak          | Neutral | 60.00           | -28.18         | Pass       |
| 5  | 13.20          | 21.00         | 9.66                 | 0.30            | 30.96           | Quasi Peak          | Neutral | 60.00           | -29.04         | Pass       |
| 6  | 21.31          | 16.50         | 9.79                 | 0.52            | 26.81           | Quasi Peak          | Neutral | 60.00           | -33.19         | Pass       |
| 7  | 22.92          | 18.75         | 9.84                 | 0.57            | 29.17           | Average             | Neutral | 50.00           | -20.83         | Pass       |
| 8  | 22.23          | 18.04         | 9.80                 | 0.55            | 28.39           | Average             | Neutral | 50.00           | -21.61         | Pass       |
| 9  | 24.61          | 18.47         | 9.82                 | 0.63            | 28.93           | Average             | Neutral | 50.00           | -21.07         | Pass       |
| 10 | 21.93          | 17.58         | 9.78                 | 0.54            | 27.90           | Average             | Neutral | 50.00           | -22.10         | Pass       |
| 11 | 13.20          | 15.83         | 9.66                 | 0.30            | 25.79           | Average             | Neutral | 50.00           | -24.21         | Pass       |
| 12 | 21.31          | 14.68         | 9.79                 | 0.52            | 24.99           | Average             | Neutral | 50.00           | -25.01         | Pass       |

#### REMARKS:

1. The emission levels of other frequencies were very low against the limit.
2. Margin value = Emission level - Limit value
3. Emission Level = Correction Factor + Raw Value + Factors Value.



#### 4.4 Transmit Power Measurement

##### 4.4.1 Limits of Transmit Power Measurement

| Operation Band | EUT Category |                                   | Limit                                                                                                                       |
|----------------|--------------|-----------------------------------|-----------------------------------------------------------------------------------------------------------------------------|
| U-NII-1        |              | Outdoor Access Point              | 1 Watt (30 dBm)<br>(Max. e.i.r.p $\leq$ 125mW(21 dBm) at any elevation angle above 30 degrees as measured from the horizon) |
|                |              | Fixed point-to-point Access Point | 1 Watt (30 dBm)                                                                                                             |
|                | √            | Indoor Access Point               | 1 Watt (30 dBm)                                                                                                             |
|                |              | Client device                     | 250mW (24 dBm)                                                                                                              |
| U-NII-2A       | ---          |                                   | 250mW (24 dBm) or 11 dBm+10 log B*                                                                                          |
| U-NII-2C       | ---          |                                   | 250mW (24 dBm) or 11 dBm+10 log B*                                                                                          |
| U-NII-3        | ---          |                                   | 1 Watt (30 dBm)                                                                                                             |

\*B is the 26 dB emission bandwidth in megahertz

Per KDB 662911 Method of conducted output power measurement on IEEE 802.11 devices,

Array Gain = 0 dB (i.e., no array gain) for  $N_{ANT} \leq 4$ ;

Array Gain = 0 dB (i.e., no array gain) for channel widths  $\geq 40$  MHz for any  $N_{ANT}$ ;

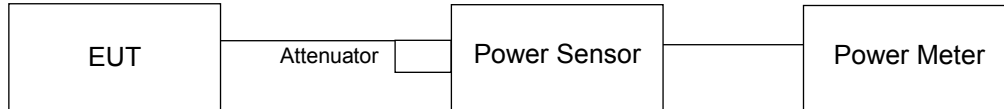
Array Gain =  $5 \log(N_{ANT}/N_{SS})$  dB or 3 dB, whichever is less for 20-MHz channel widths with  $N_{ANT} \geq 5$ .

For power measurements on all other devices: Array Gain =  $10 \log(N_{ANT}/N_{SS})$  dB.

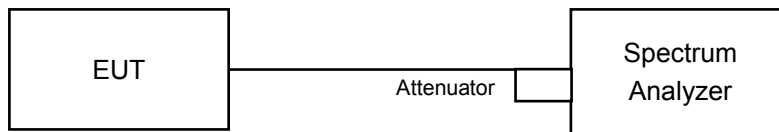
#### 4.4.2 Test Setup

##### FOR POWER OUTPUT MEASUREMENT

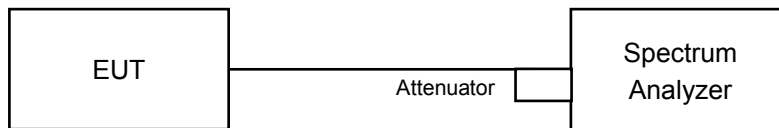
###### ◆ Power Meter Measurement



###### ◆ Spectrum Measurement



##### FOR 26dB OCCUPIED BANDWIDTH



#### 4.4.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

#### 4.4.4 Test Procedure

##### For Average Power Measurement

###### For 802.11a, 802.11n (HT20), 802.11n (HT40)

Method PM is used to perform output power measurement, trigger and gating function of wide band power meter is enabled to measure max output power of TX on burst and set the detector to AVERAGE. Duty factor is not added to measured value.

###### For 802.11ac (VHT80)

- 1) Set span to encompass the entire 26 dB EBW (or, alternatively, the entire 99% occupied bandwidth) of the signal.
- 2) Set sweep trigger to "free run".
- 3) Set RBW = 1 MHz.
- 4) Set VBW  $\geq$  3 MHz
- 5) Number of points in sweep  $\geq$  2 Span / RBW.
- 6) Sweep time  $\leq$  (number of points in sweep) \* T
- 7) Using emission bandwidth to determine the frequency span for integration the channel bandwidth.
- 8) Detector = RMS.
- 9) Trace mode = max hold.
- 10) Allow max hold to run for at least 60 seconds, or longer as needed to allow the trace to stabilize.

#### ◆ Power Meter Measurement

Method PM is used to perform output power measurement, trigger and gating function of wide band power meter is enabled to measure max output power of TX on burst. Duty factor is not added to measured value.

#### ◆ Spectrum Measurement

Follow FCC KDB 789033 UNII test procedure:

Method SA-1

1. Set span to encompass the entire emission bandwidth (EBW) of the signal.
2. Set RBW = 1MHz.
3. Set the VBW  $\geq 3 \times$  RBW.
4. Number of points in sweep  $\geq 2$  Span / RBW.
5. Sweep time = auto.
6. Set trigger to free run (duty cycle  $\geq 98$  percent)
7. Detector = RMS.
8. Trace average at least 100 traces in power averaging mode
9. Compute power by integrating the spectrum across the 26 dB EBW of the signal.

Follow FCC KDB 789033 UNII test procedure:

Method SA-2

1. Set span to encompass the emission bandwidth (EBW) of the signal.
2. Set RBW = 1MHz.
3. Set the VBW  $\geq 3 \times$  RBW.
4. Number of points in sweep  $\geq 2$  Span / RBW.
5. Sweep time = auto.
6. Detector = RMS.
7. Trace average at least 100 traces in power averaging mode
8. Compute power by integrating the spectrum across the 26 dB EBW of the signal.
9. Duty factor need added to measured value (duty cycle  $< 98$  percent).

#### FOR 26dB OCCUPIED BANDWIDTH

1. Set RBW = approximately 1% of the emission bandwidth.
2. Set the VBW  $>$  RBW.
3. Detector = Peak.
4. Trace mode = max hold.
5. 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%.

#### 4.4.5 Deviation from Test Standard

No deviation.

#### 4.4.6 EUT Operating Condition

The software provided by client to enable the EUT under transmission condition continuously at lowest, middle and highest channel frequencies individually.

#### 4.4.7 Test Results

##### Output Power measurement result for U-NII-1 Band

| Type         | Test mode      | Freq (MHz) | CH   | Conducted Power (dBm) | Limit (dBm) | Result |
|--------------|----------------|------------|------|-----------------------|-------------|--------|
| Output Power | 802.11a        | 5180       | Low  | 17.45                 | 30          | Pass   |
|              |                | 5200       | Mid  | 17.24                 | 30          | Pass   |
|              |                | 5240       | High | 17.88                 | 30          | Pass   |
|              | 802.11n-HT20   | 5180       | Low  | 17.99                 | 30          | Pass   |
|              |                | 5200       | Mid  | 17.44                 | 30          | Pass   |
|              |                | 5240       | High | 17.97                 | 30          | Pass   |
|              | 802.11n-HT40   | 5190       | Low  | 15.99                 | 30          | Pass   |
|              |                | 5230       | High | 16.49                 | 30          | Pass   |
|              | 802.11ac-VHT80 | 5210       | Mid  | 12.36                 | 30          | Pass   |

##### Output Power measurement result for U-NII-2A

| Type         | Test mode      | Freq (MHz) | CH   | Conducted Power (dBm) | Limit (dBm) | Result |
|--------------|----------------|------------|------|-----------------------|-------------|--------|
| Output Power | 802.11a        | 5260       | Low  | 18.27                 | 23.93       | Pass   |
|              |                | 5280       | Mid  | 18.93                 | 23.93       | Pass   |
|              |                | 5320       | High | 14.59                 | 23.93       | Pass   |
|              | 802.11n-HT20   | 5260       | Low  | 18.62                 | 23.93       | Pass   |
|              |                | 5280       | Mid  | 18.71                 | 23.93       | Pass   |
|              |                | 5320       | High | 14.57                 | 23.93       | Pass   |
|              | 802.11n-HT40   | 5270       | Low  | 17.21                 | 23.93       | Pass   |
|              |                | 5310       | High | 14.23                 | 23.93       | Pass   |
|              | 802.11ac-VHT80 | 5290       | Mid  | 10.24                 | 23.93       | Pass   |

Note:

**For U-NII-2A:**

Channel 64 Limit:  $11\text{dBm} + 10 \log (B) = 11 + 12.93 = 23.93 < 24\text{dBm}$

## Output Power measurement result for U-NII-2C

| Type         | Test mode      | Freq (MHz) | CH   | Conducted Power (dBm) | Limit (dBm) | Result |
|--------------|----------------|------------|------|-----------------------|-------------|--------|
| Output Power | 802.11a        | 5500       | Low  | 17.64                 | 23.78       | Pass   |
|              |                | 5580       | Mid  | 17.46                 | 23.78       | Pass   |
|              |                | 5700       | High | 18.08                 | 23.78       | Pass   |
|              | 802.11n-HT20   | 5500       | Low  | 17.70                 | 23.78       | Pass   |
|              |                | 5580       | Mid  | 17.28                 | 23.78       | Pass   |
|              |                | 5700       | High | 17.81                 | 23.78       | Pass   |
|              | 802.11n-HT40   | 5510       | Low  | 13.95                 | 23.78       | Pass   |
|              |                | 5550       | Mid  | 14.93                 | 23.78       | Pass   |
|              |                | 5670       | High | 15.62                 | 23.78       | Pass   |
|              | 802.11ac-VHT80 | 5530       | Low  | 10.35                 | 23.78       | Pass   |
|              |                | 5610       | High | 12.05                 | 23.78       | Pass   |

### For U-NII-2C:

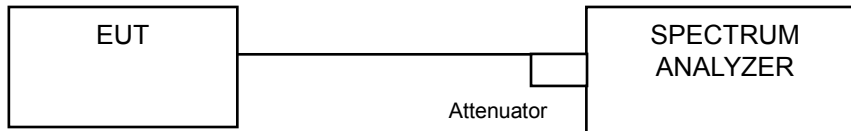
Channel 140 Limit:  $11\text{dBm} + 10 \log (B) = 11+12.78 = 23.78 < 24\text{dBm}$

## Output Power measurement result for U-NII-3 Band

| Type         | Test mode      | Freq (MHz) | CH   | Conducted Power (dBm) | Limit (dBm) | Result |
|--------------|----------------|------------|------|-----------------------|-------------|--------|
| Output Power | 802.11a        | 5745       | Low  | 16.44                 | 30          | Pass   |
|              |                | 5785       | Mid  | 16.38                 | 30          | Pass   |
|              |                | 5825       | High | 16.33                 | 30          | Pass   |
|              | 802.11n-HT20   | 5745       | Low  | 17.55                 | 30          | Pass   |
|              |                | 5785       | Mid  | 17.55                 | 30          | Pass   |
|              |                | 5825       | High | 17.67                 | 30          | Pass   |
|              | 802.11n-HT40   | 5755       | Low  | 16.33                 | 30          | Pass   |
|              |                | 5795       | High | 16.03                 | 30          | Pass   |
|              | 802.11ac-VHT80 | 5775       | Mid  | 12.57                 | 30          | Pass   |

## 4.5 26dB Bandwidth & 6dB Bandwidth Measurement

### 4.5.1 Test Setup



### 4.5.2 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

### 4.5.3 Test Procedure

26dB Emission bandwidth measurement procedure (Other than 5.725-5.85 GHz)

- Allow the trace to stabilize.
- Use the spectrum analyzer built-in measurement function to determine the 26dB BW.  
Set RBW = around 1% of emission bandwidth  
Set VBW > RBW  
Detector = Peak  
Trace mode = max hold
- Capture the plot.
- Repeat above steps for different test channel and other modulation type.

6 dB Minimum emission bandwidth measurement procedure (for 5.725-5.85 GHz)

- Allow the trace to stabilize.
- Use the spectrum analyzer built-in measurement function to determine the 6dB BW.  
Set RBW = 100 KHz  
Set VBW  $\geq 3 \times$  RBW  
Detector = Peak  
Trace mode = max hold  
Sweep = auto couple
- Capture the plot.
- Repeat above steps for different test channel and other modulation type.

#### 4.5.4 Test Results

##### 26dB Bandwidth measurement result for U-NII-1 BAND

| Type    | Test mode      | Freq (MHz) | CH   | Result (MHz) | 10Log(B) (dB) |
|---------|----------------|------------|------|--------------|---------------|
| 26dB BW | 802.11a        | 5180       | Low  | 19.81        | 12.97         |
|         |                | 5200       | Mid  | 20.10        | 13.03         |
|         |                | 5240       | High | 19.36        | 12.87         |
|         | 802.11n-HT20   | 5180       | Low  | 19.99        | 13.01         |
|         |                | 5200       | Mid  | 21.35        | 13.29         |
|         |                | 5240       | High | 20.45        | 13.11         |
|         | 802.11n-HT40   | 5190       | Low  | 38.59        | 15.86         |
|         |                | 5230       | High | 39.14        | 15.93         |
|         | 802.11ac-VHT80 | 5210       | Mid  | 80.84        | 19.08         |

##### 26dB Bandwidth measurement result for U-NII-2A

| Type    | Test mode      | Freq (MHz) | CH   | Result (MHz) | 10Log(B) (dB) |
|---------|----------------|------------|------|--------------|---------------|
| 26dB BW | 802.11a        | 5260       | Low  | 20.06        | 13.02         |
|         |                | 5280       | Mid  | 20.09        | 13.03         |
|         |                | 5320       | High | 19.64        | 12.93         |
|         | 802.11n-HT20   | 5260       | Low  | 20.55        | 13.13         |
|         |                | 5280       | Mid  | 21.47        | 13.32         |
|         |                | 5320       | High | 20.64        | 13.15         |
|         | 802.11n-HT40   | 5270       | Low  | 39.33        | 15.95         |
|         |                | 5310       | High | 39.00        | 15.91         |
|         | 802.11ac-VHT80 | 5290       | Mid  | 80.55        | 19.06         |

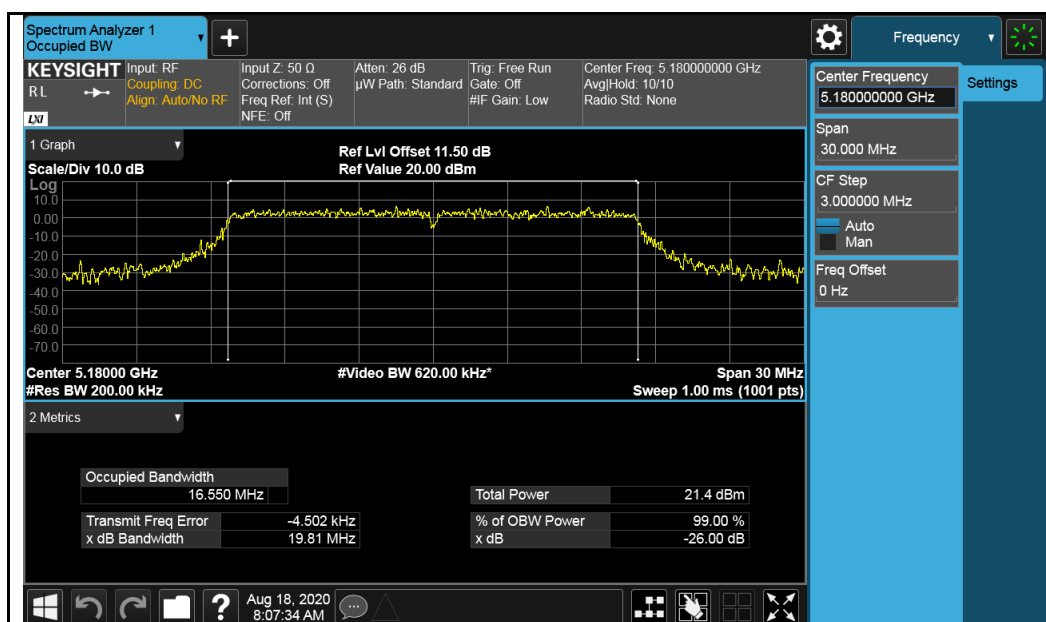
## 26dB Bandwidth measurement result for U-NII-2C

| Type    | Test mode      | Freq (MHz) | CH   | Result (MHz) | 10Log(B) (dB) |
|---------|----------------|------------|------|--------------|---------------|
| 26dB BW | 802.11a        | 5500       | Low  | 19.12        | 12.81         |
|         |                | 5580       | Mid  | 19.90        | 12.99         |
|         |                | 5700       | High | 18.95        | 12.78         |
|         | 802.11n-HT20   | 5500       | Low  | 20.18        | 13.05         |
|         |                | 5580       | Mid  | 20.57        | 13.13         |
|         |                | 5700       | High | 20.51        | 13.12         |
|         | 802.11n-HT40   | 5510       | Low  | 39.02        | 15.91         |
|         |                | 5590       | Mid  | 38.89        | 15.90         |
|         |                | 5670       | High | 38.58        | 15.86         |
|         | 802.11ac-VHT80 | 5530       | Low  | 80.62        | 19.06         |
|         |                | 5610       | High | 79.96        | 19.03         |

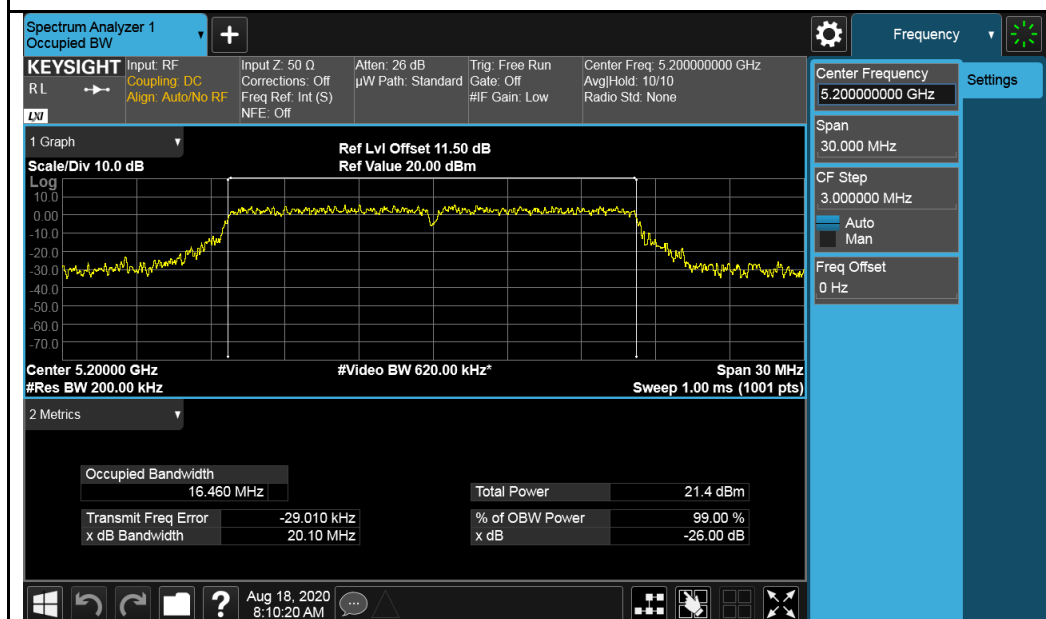
## 6dB Bandwidth measurement result for U-NII-3 BAND

| Type   | Test mode      | Freq (MHz) | CH   | Result (MHz) | 10Log(B) (dB) |
|--------|----------------|------------|------|--------------|---------------|
| 6dB BW | 802.11a        | 5745       | Low  | 16.44        | 12.16         |
|        |                | 5785       | Mid  | 16.38        | 12.14         |
|        |                | 5825       | High | 16.33        | 12.13         |
|        | 802.11n-HT20   | 5745       | Low  | 17.67        | 12.47         |
|        |                | 5785       | Mid  | 17.56        | 12.45         |
|        |                | 5825       | High | 17.63        | 12.46         |
|        | 802.11n-HT40   | 5755       | Low  | 35.08        | 15.45         |
|        |                | 5795       | High | 34.16        | 15.34         |
|        | 802.11ac-VHT80 | 5775       | Mid  | 75.26        | 18.77         |

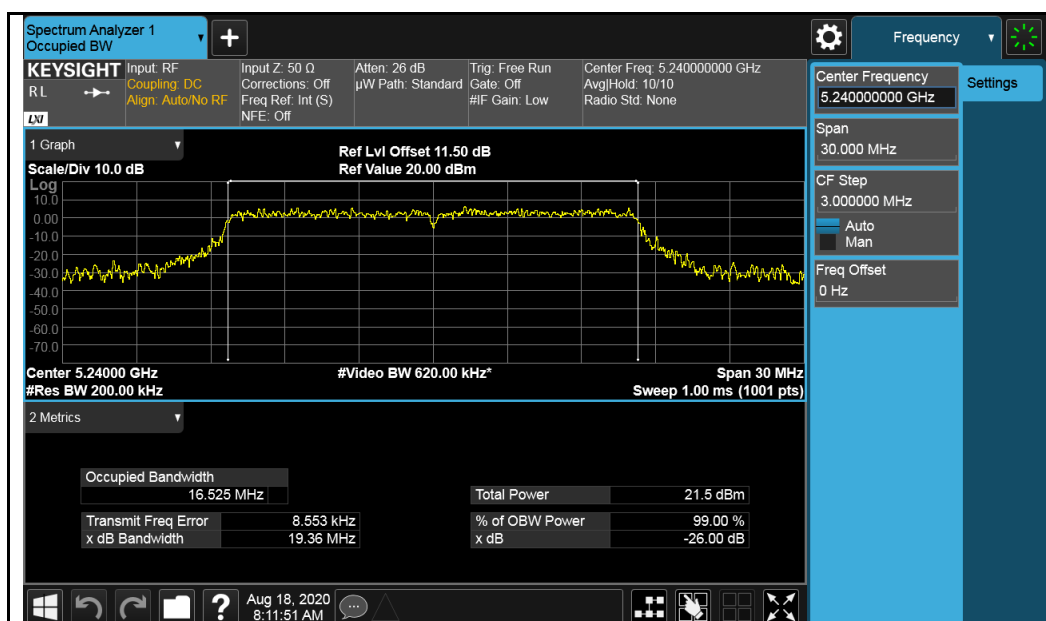
## 26dB Bandwidth Test Plots U-NII-1 Band:



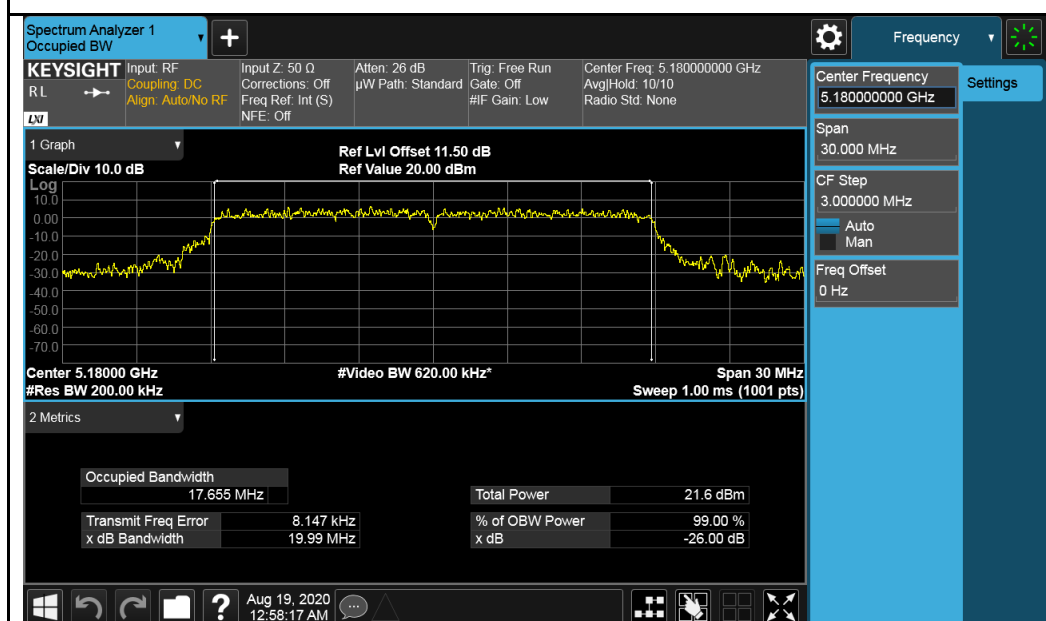
802.11a-5180MHz



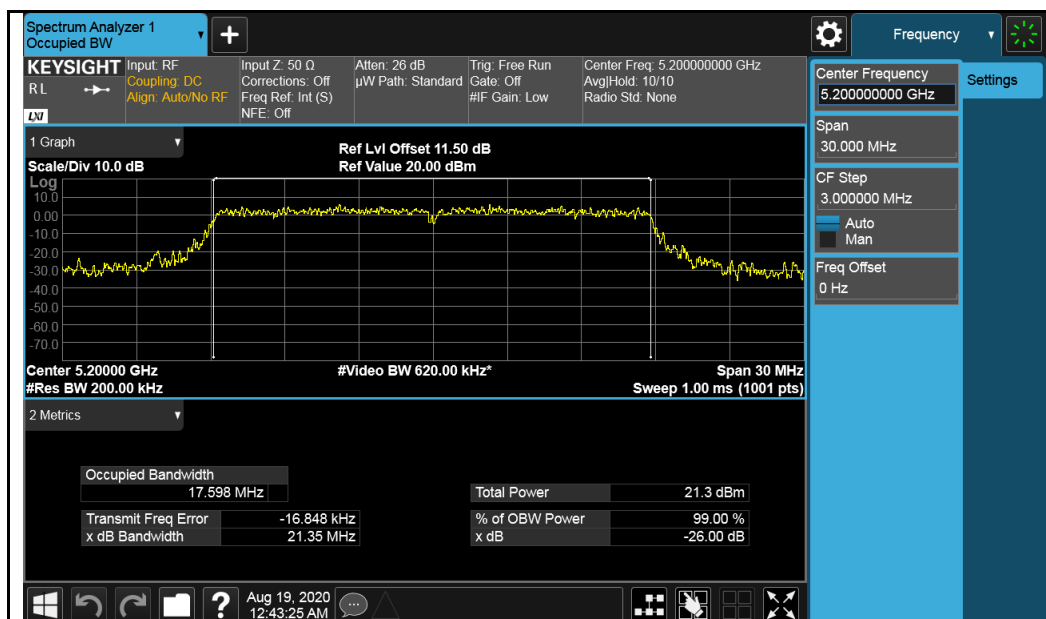
802.11a-5200MHz



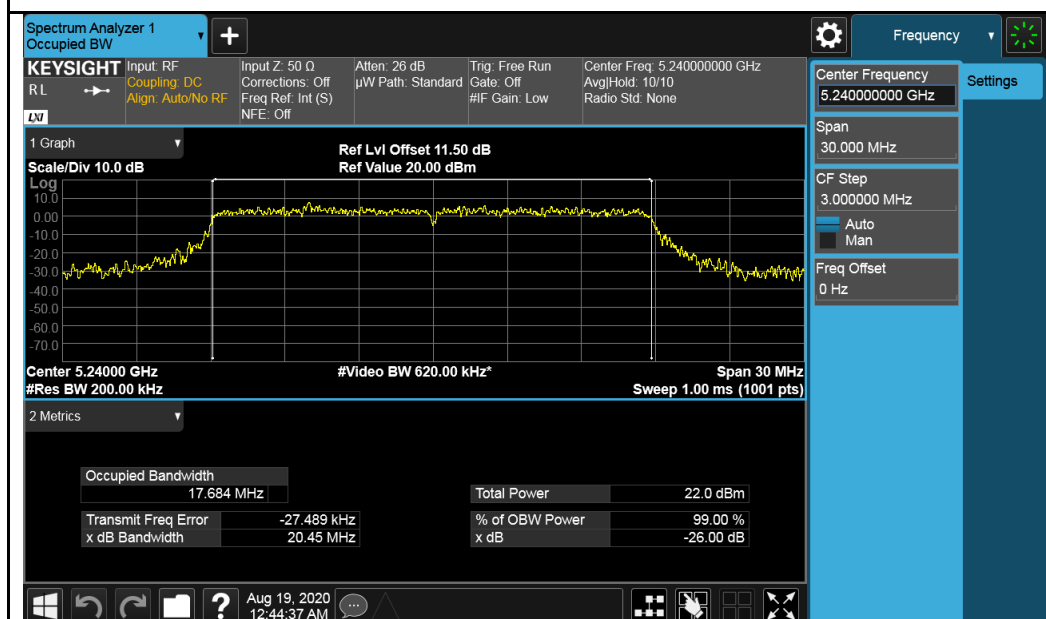
802.11a-5240MHz



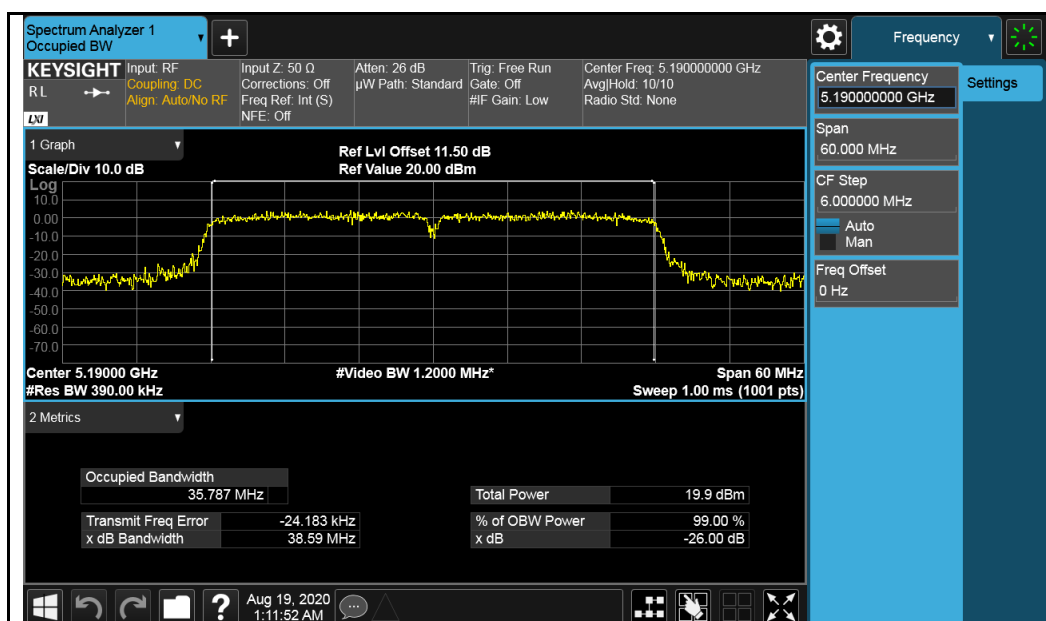
802.11n-HT20-5180MHz



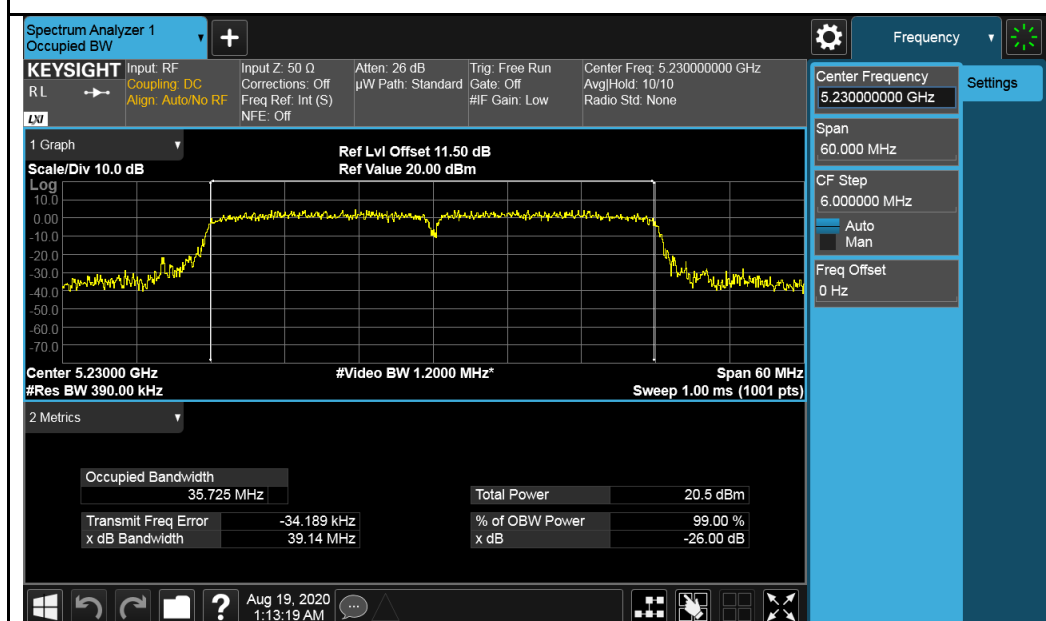
802.11n-HT20-5200MHz



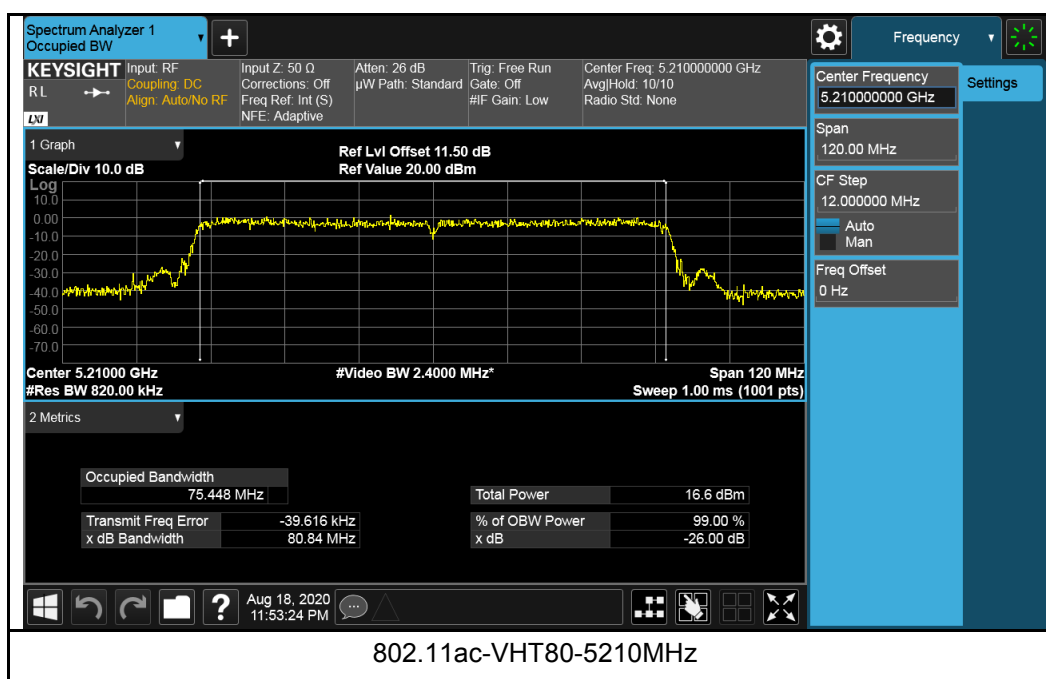
802.11n-HT20-5240MHz



802.11n-HT40-5190MHz

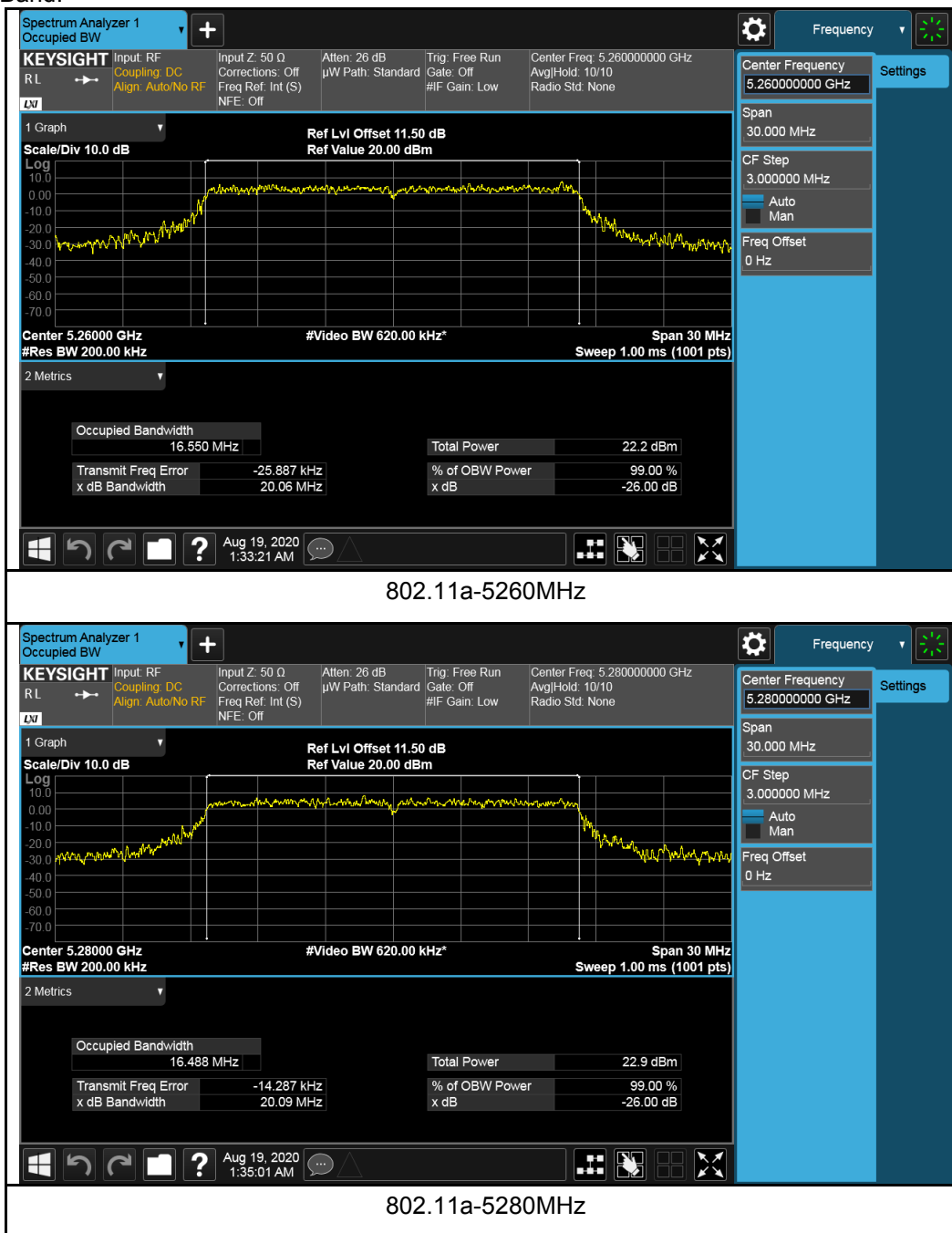


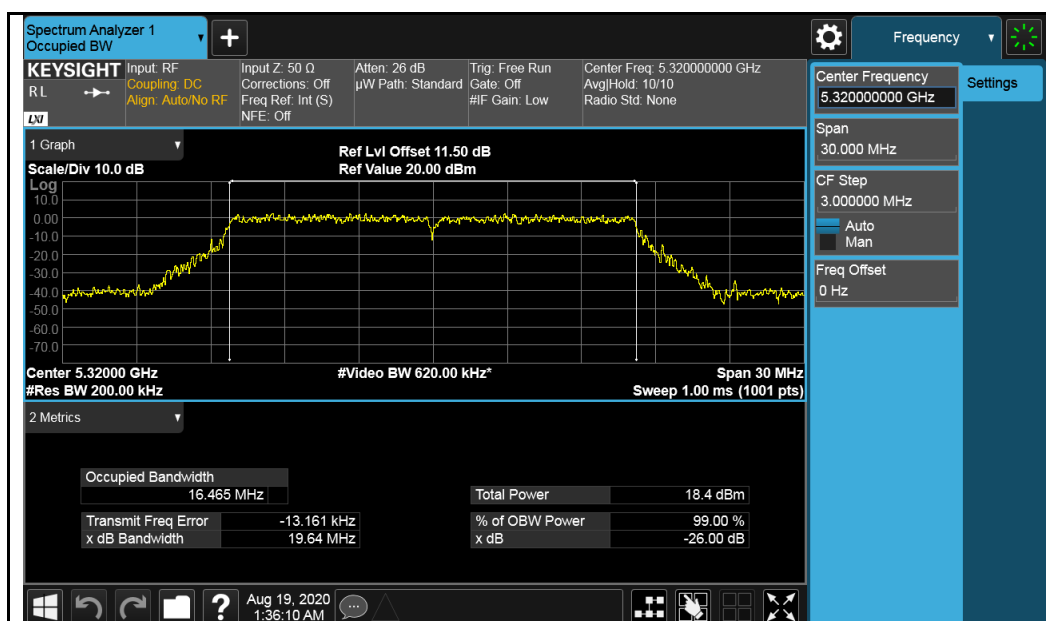
802.11n-HT40-5230MHz



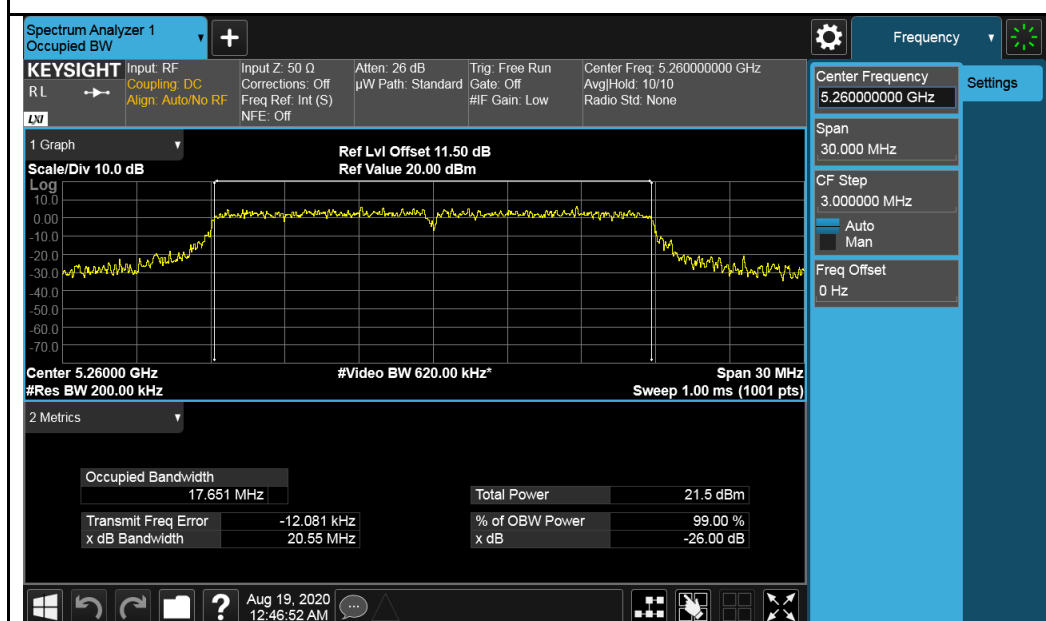
## 26dB Bandwidth Test Plots

### U-NII-2A Band:

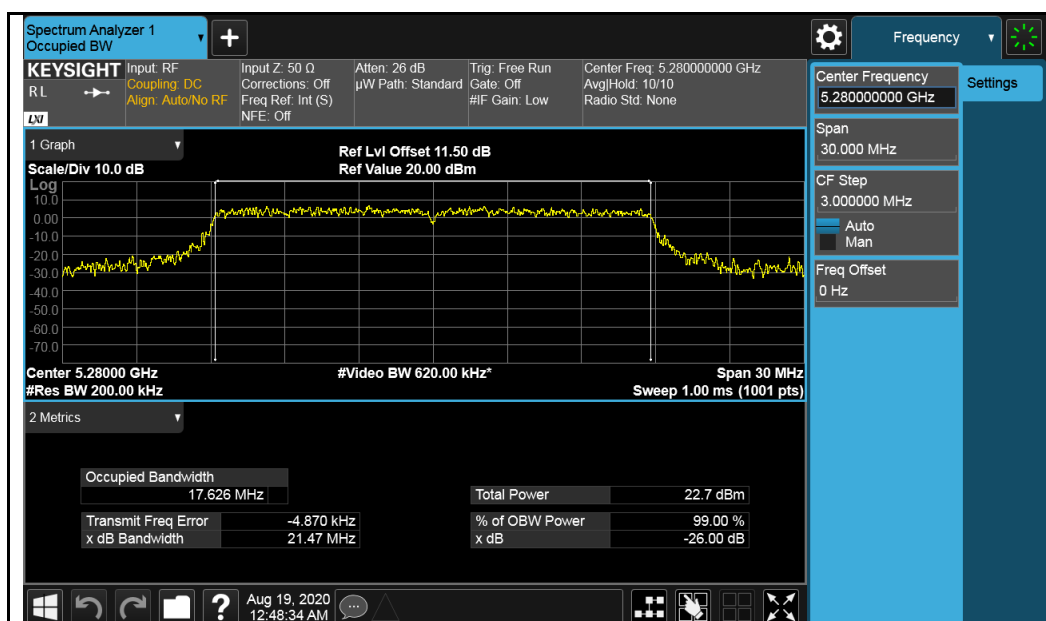




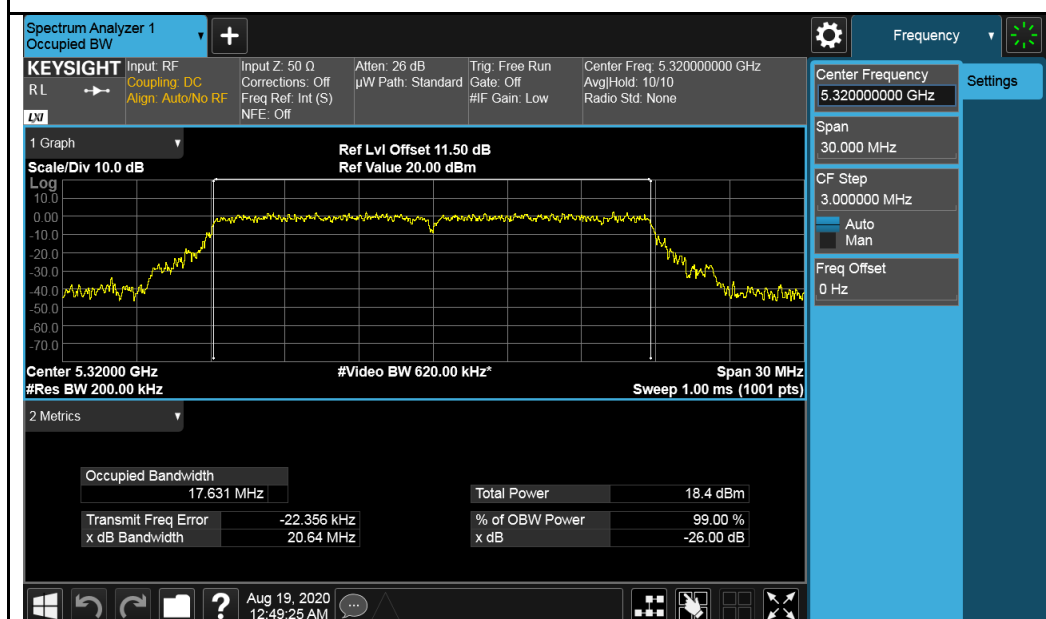
802.11a-5320MHz



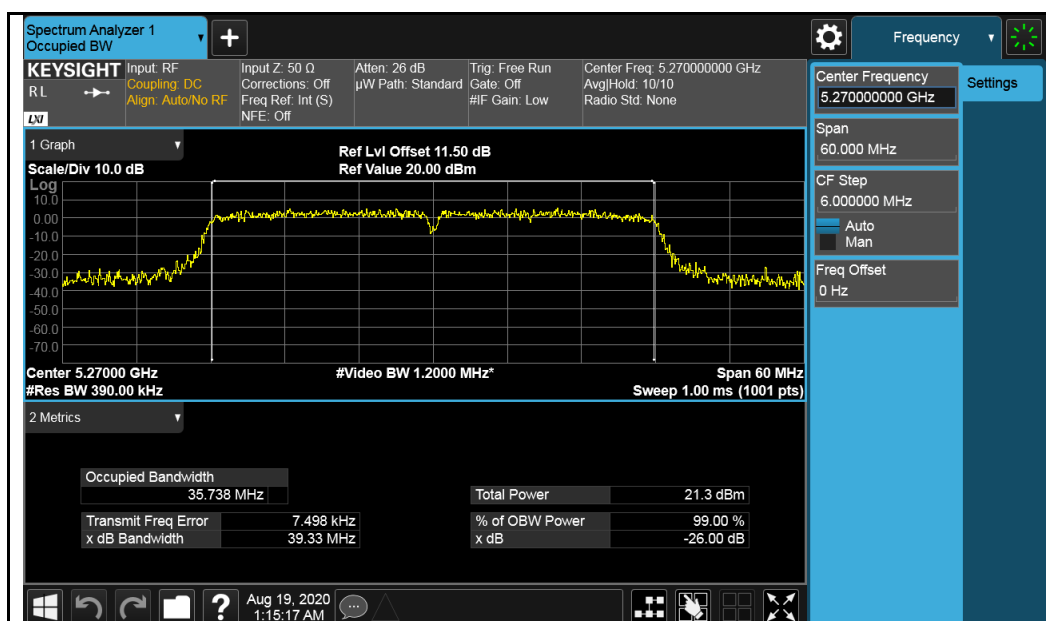
802.11n-HT20-5260MHz



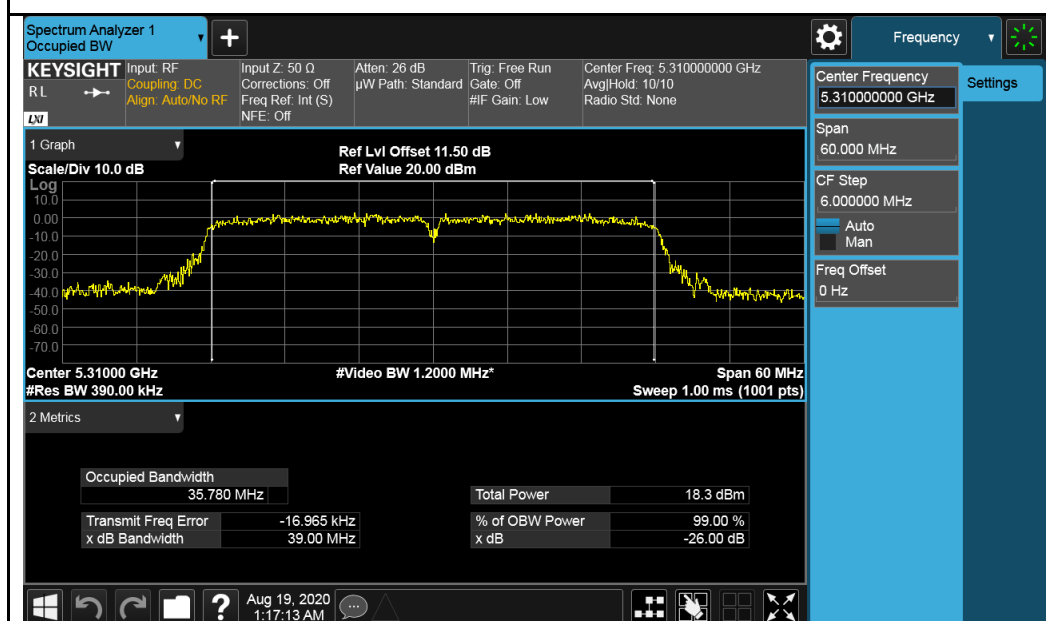
802.11n-HT20-5280MHz



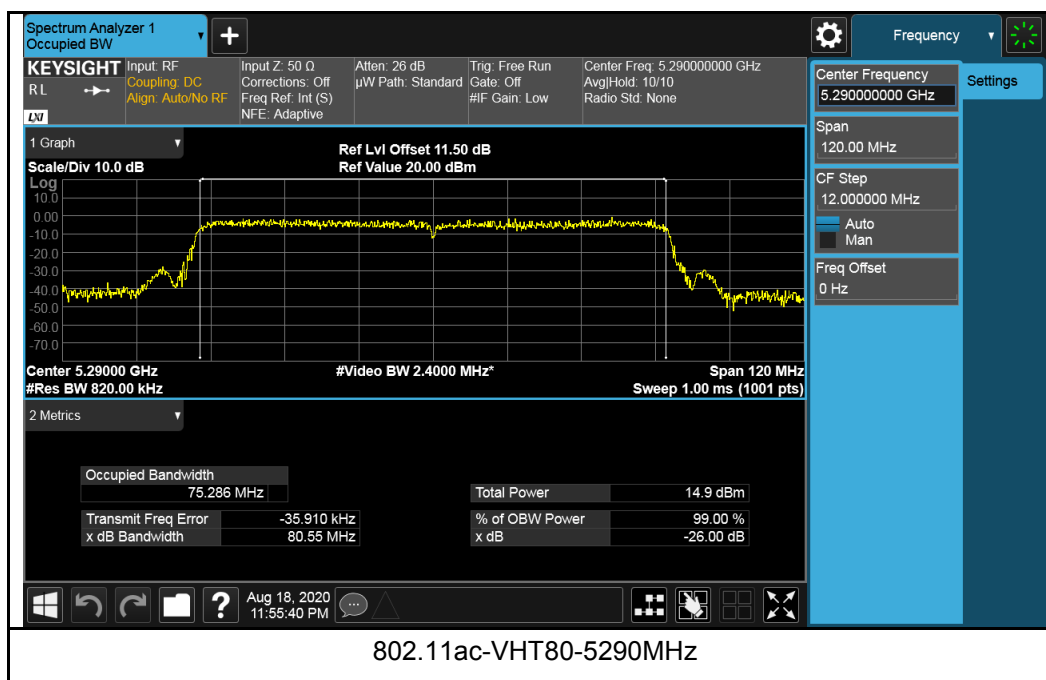
802.11n-HT20-5320MHz



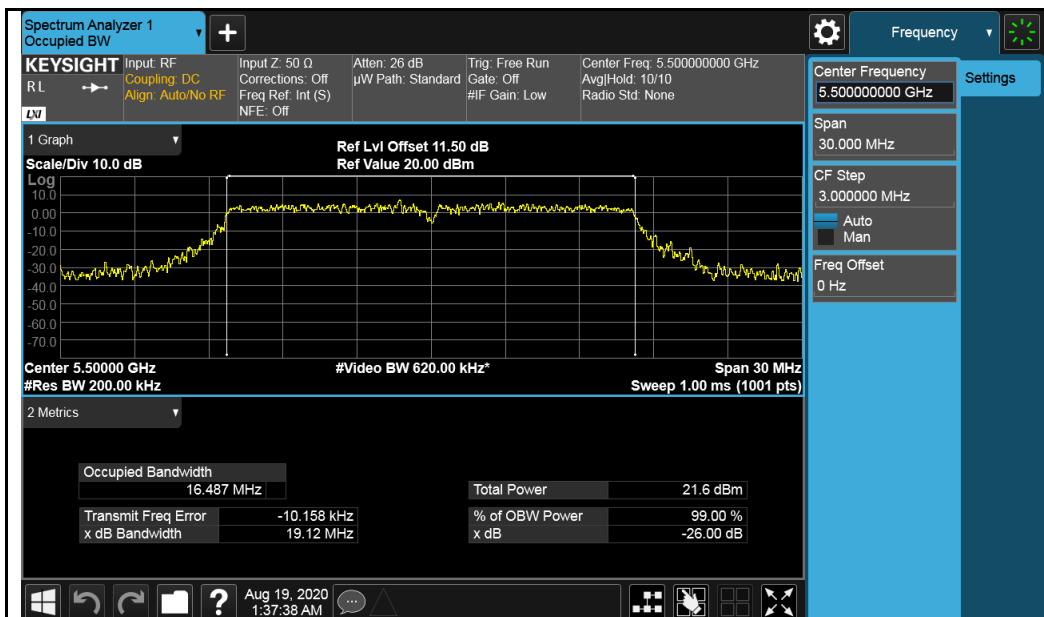
802.11n-HT40-5270MHz



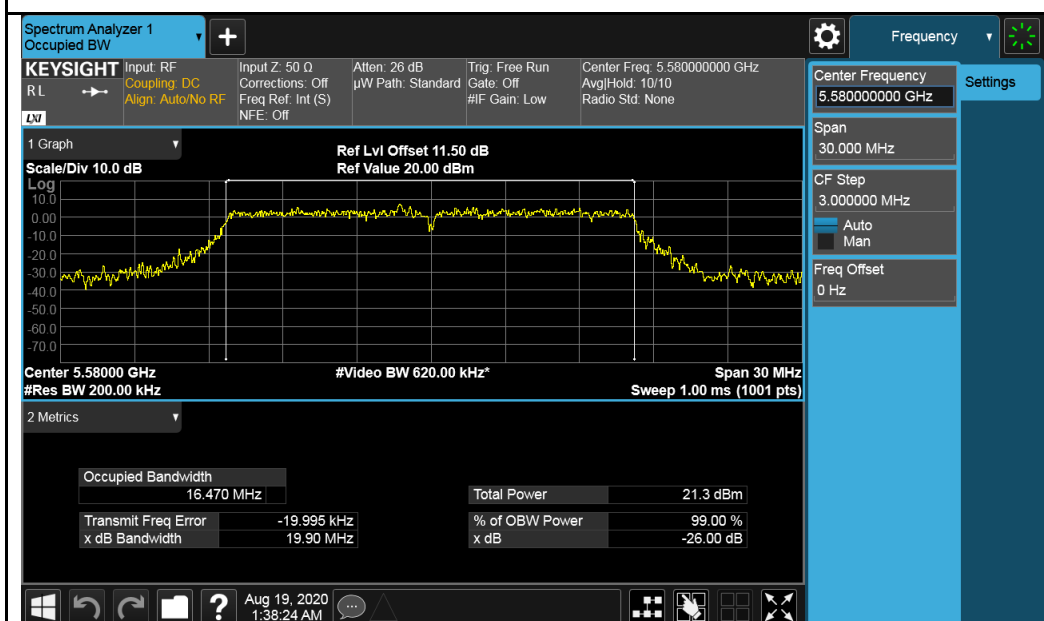
802.11n-HT40-5310MHz



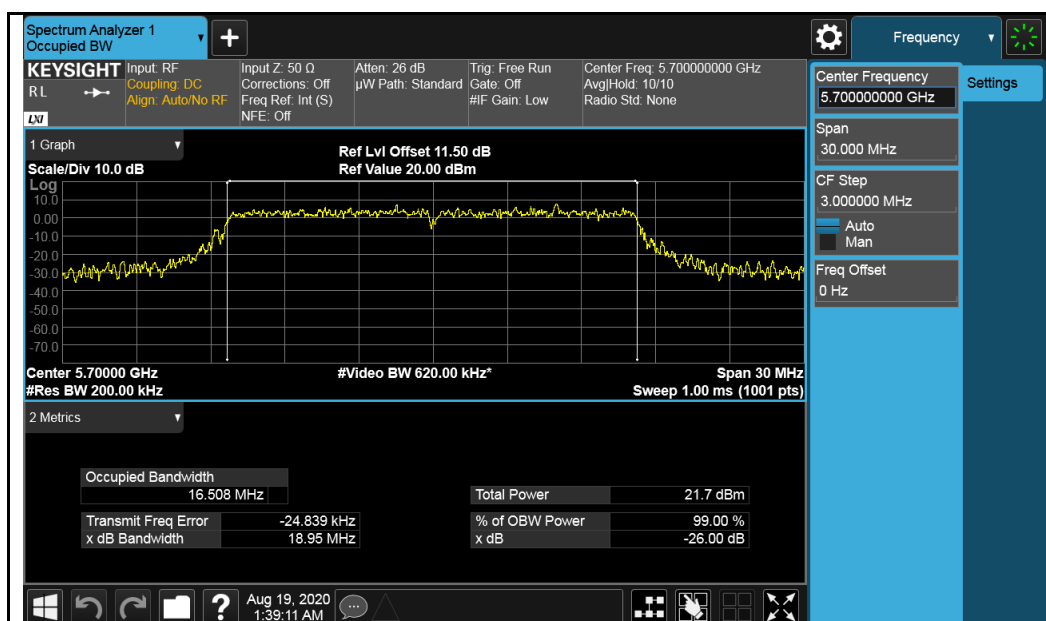
## U-NII-2C Band:



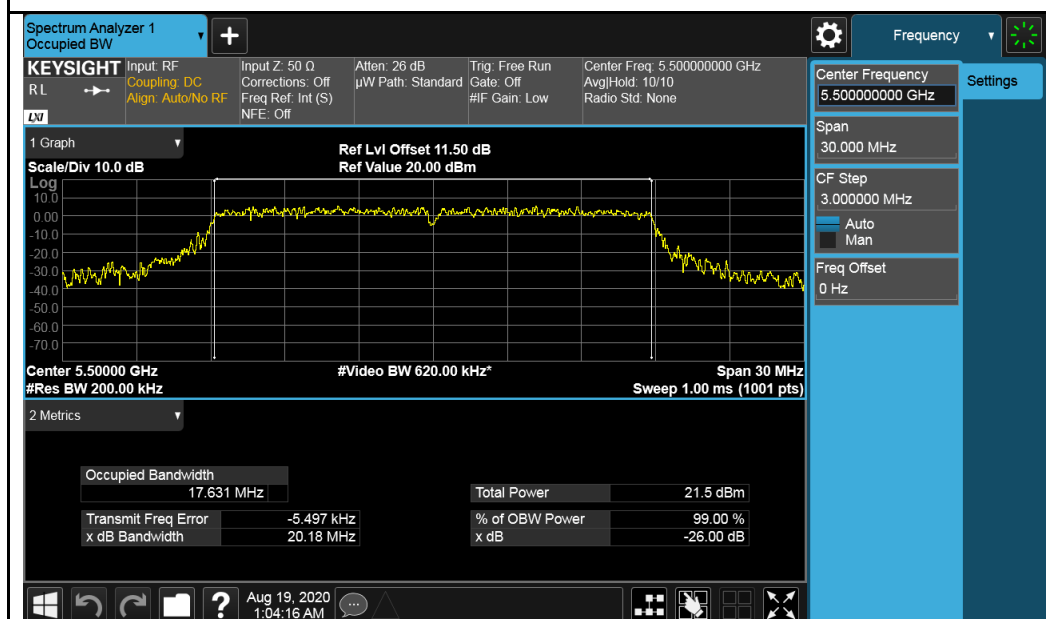
802.11a-5500MHz



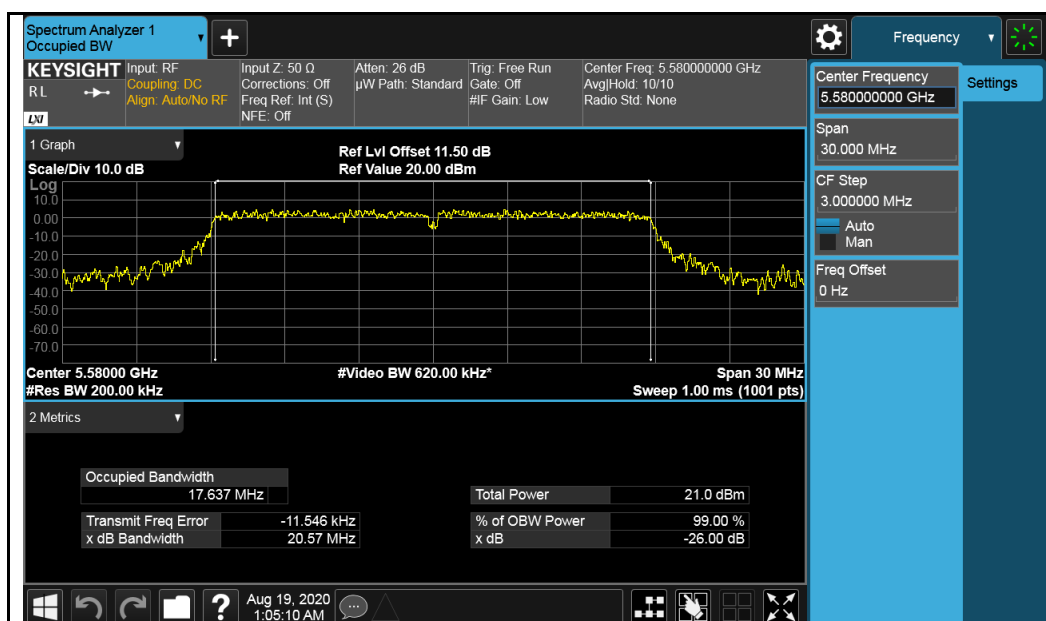
802.11a-5580MHz



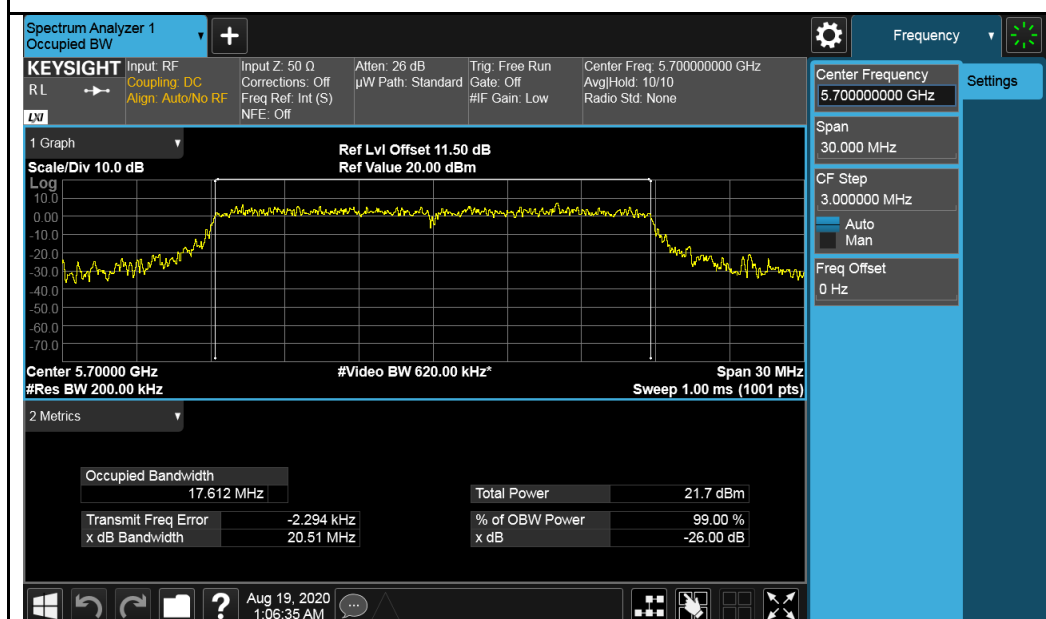
802.11a-5700MHz



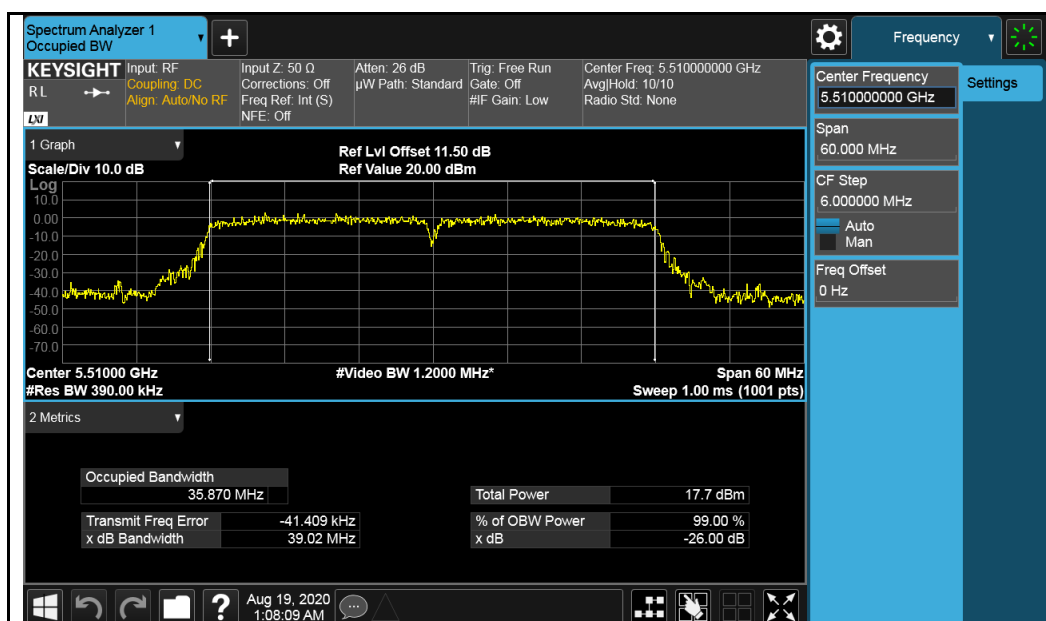
802.11n-HT20-5500MHz



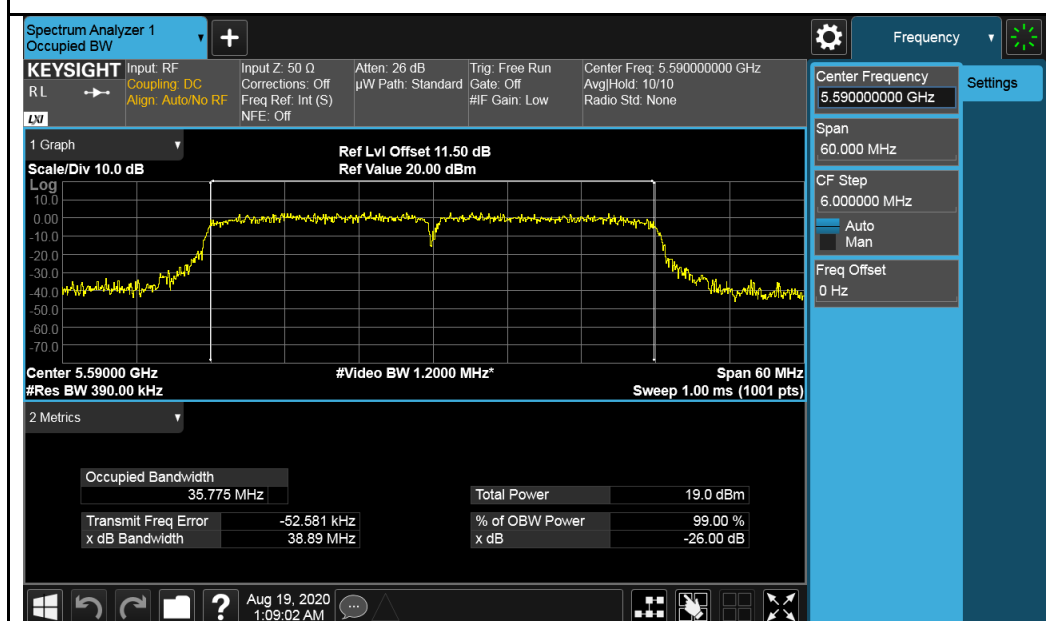
802.11n-HT20-5580MHz



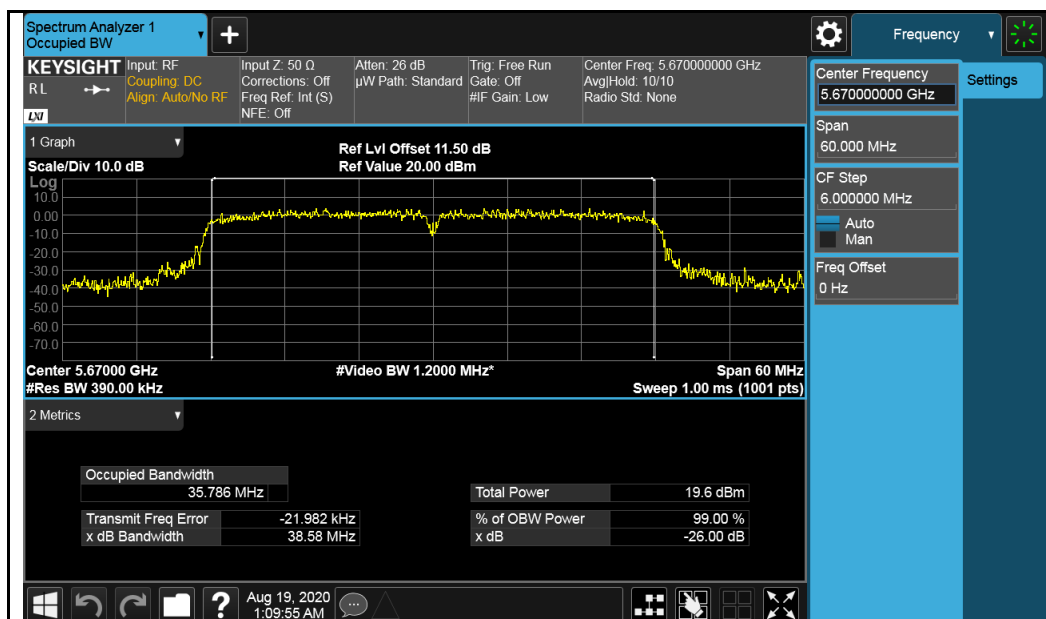
802.11n-HT20-5700MHz



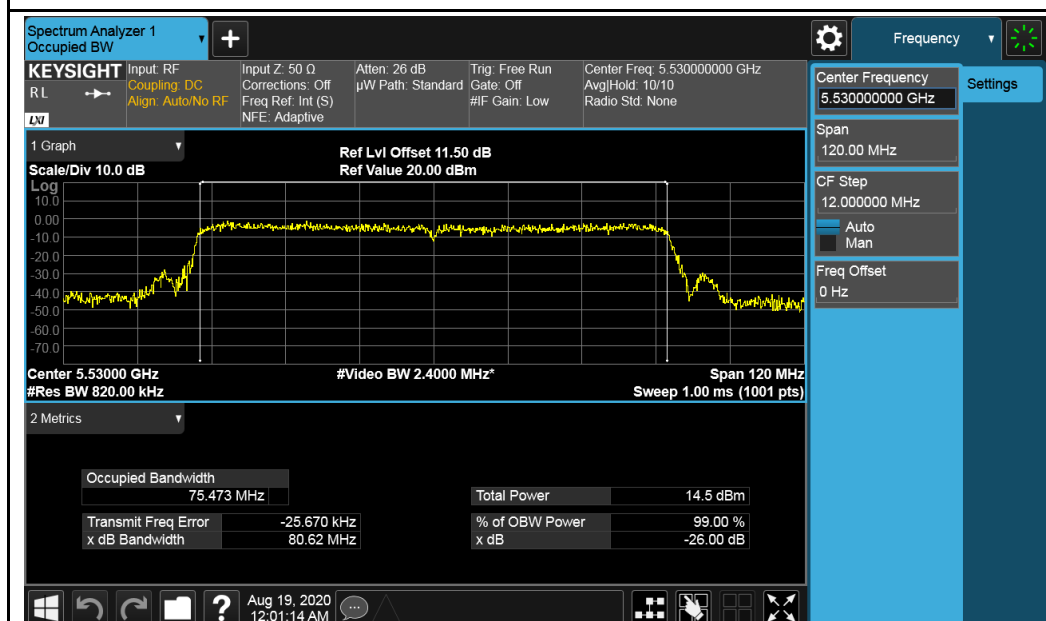
802.11n-HT40-5510MHz



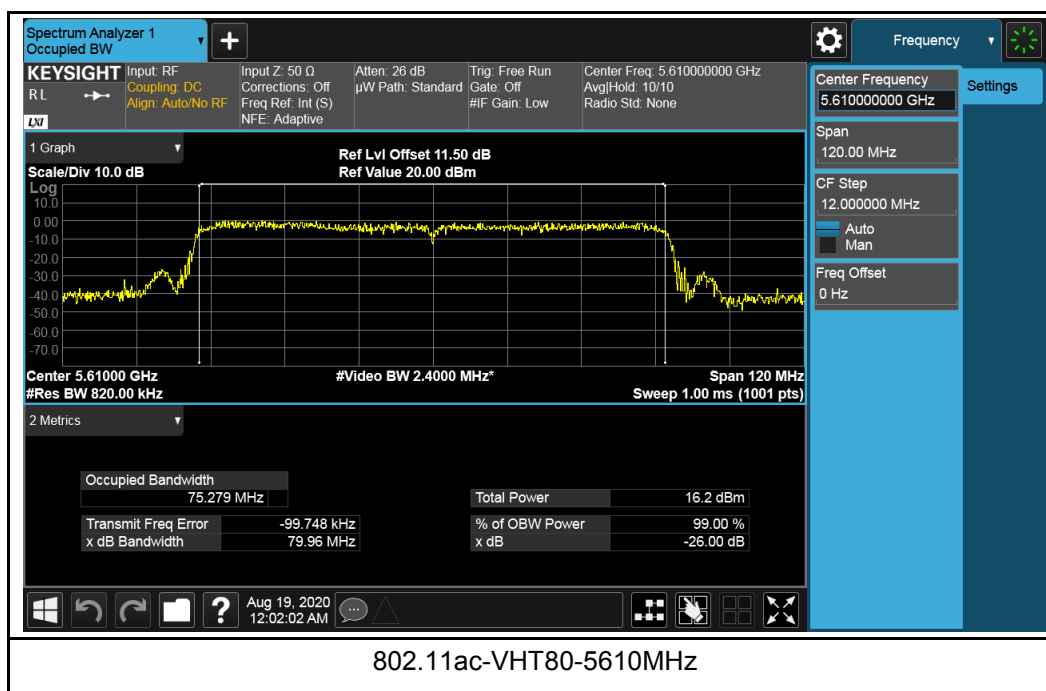
802.11n-HT40-5590MHz



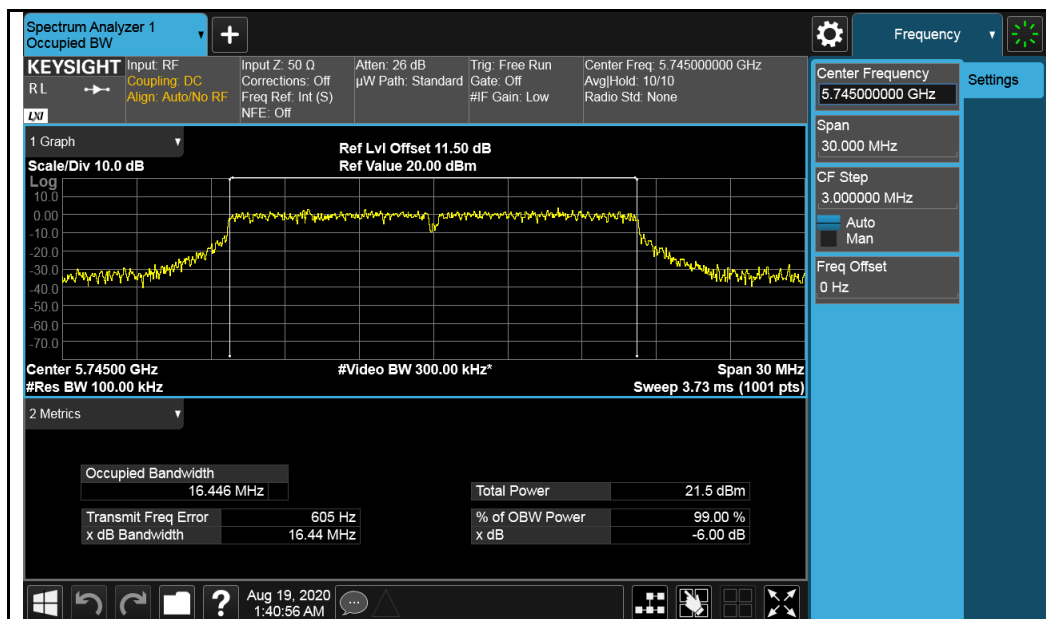
802.11n-HT40-5670MHz



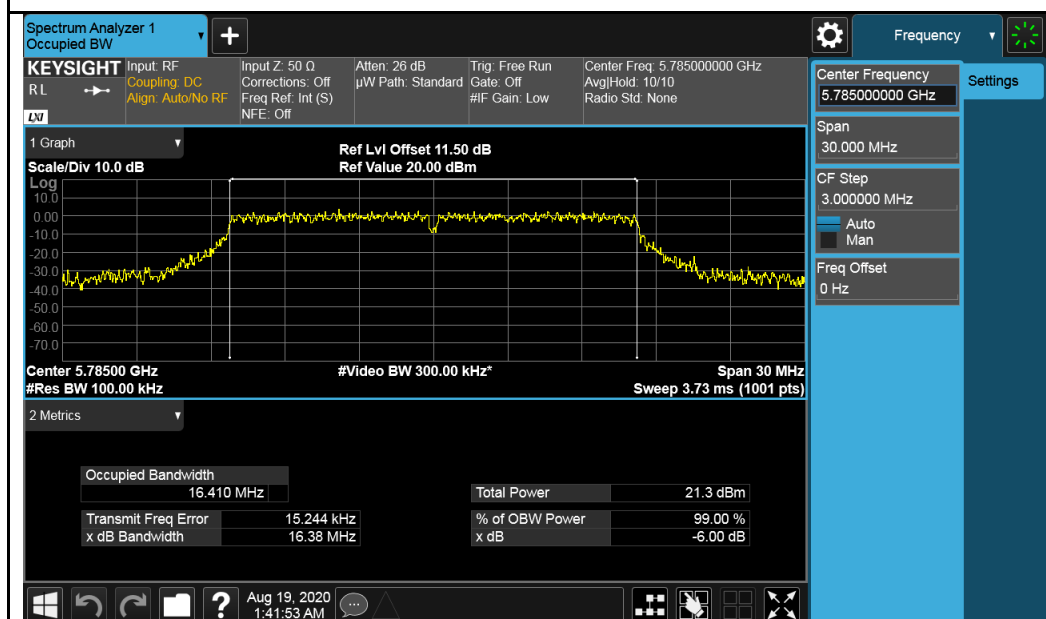
802.11ac-VHT80-5530MHz



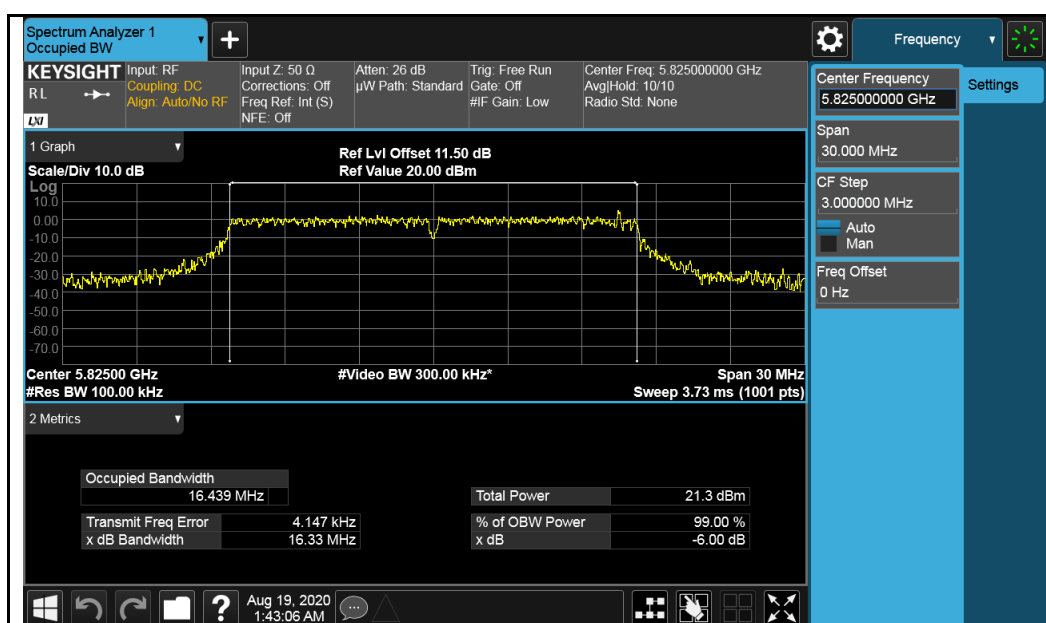
## 6dB Bandwidth Test Plots U-NII-3 Band:



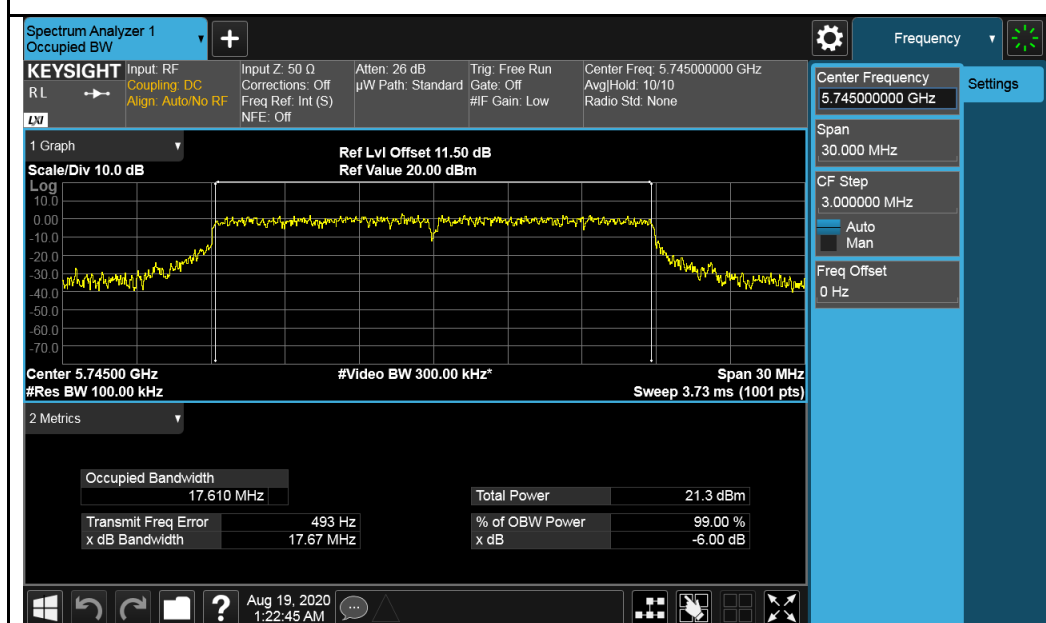
802.11a-5745MHz



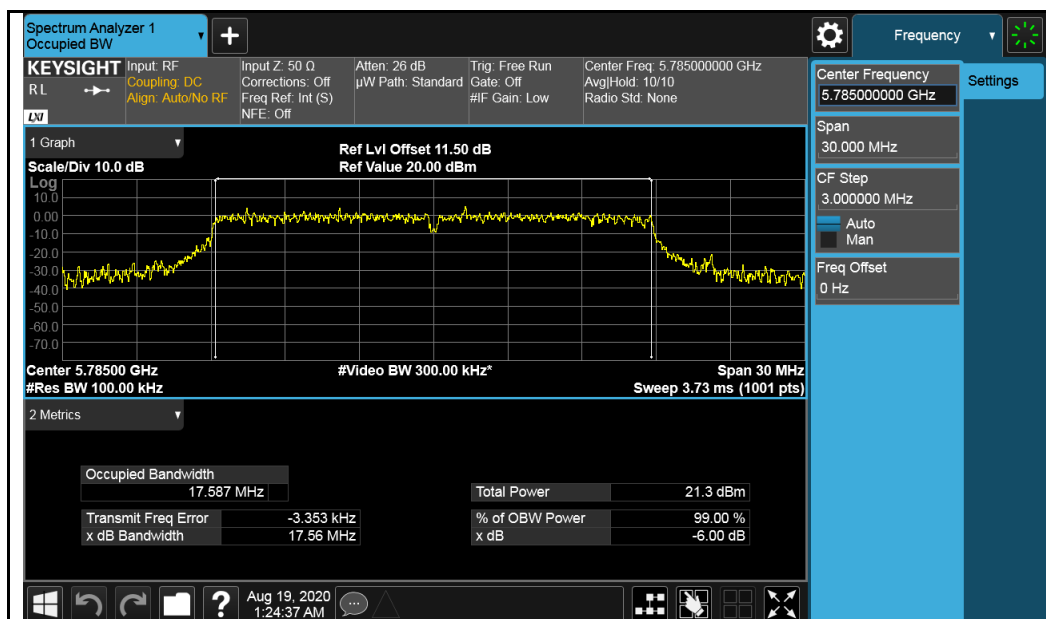
802.11a-5785MHz



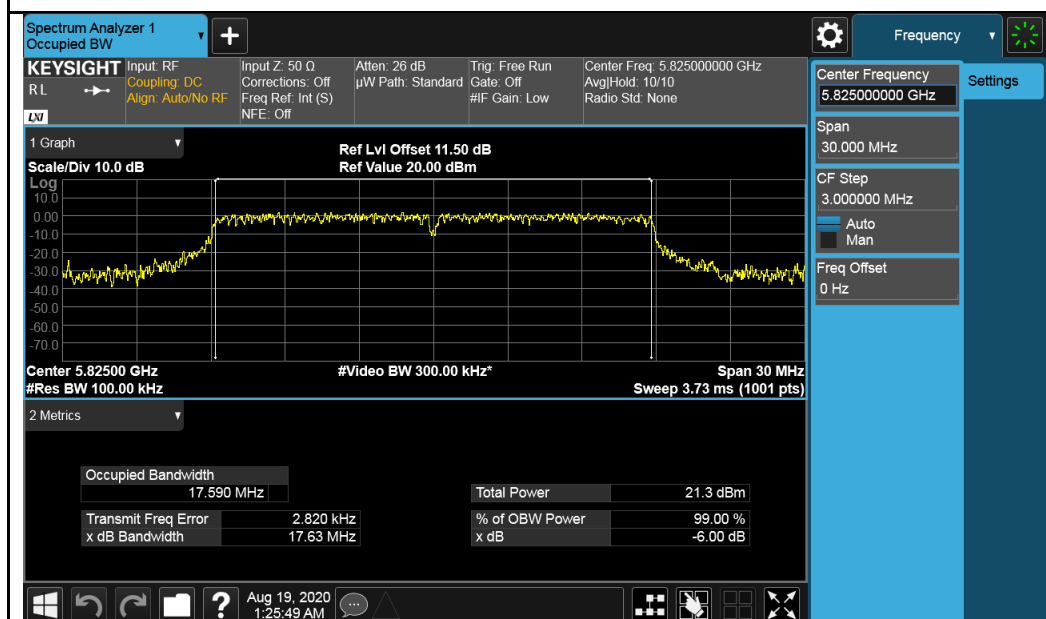
802.11a-5825MHz



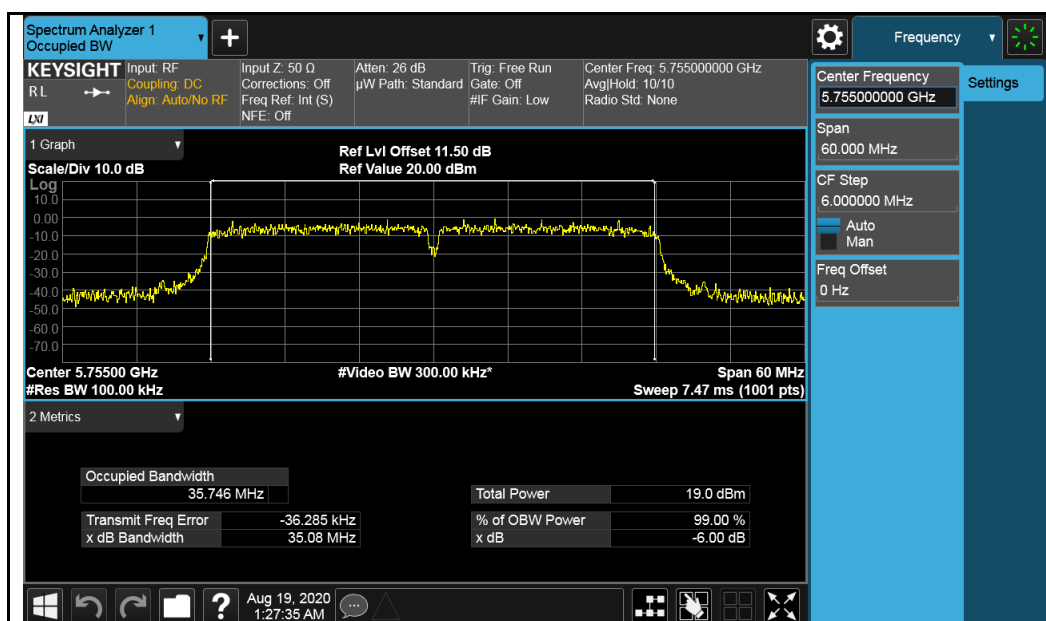
802.11n-HT20-5745MHz



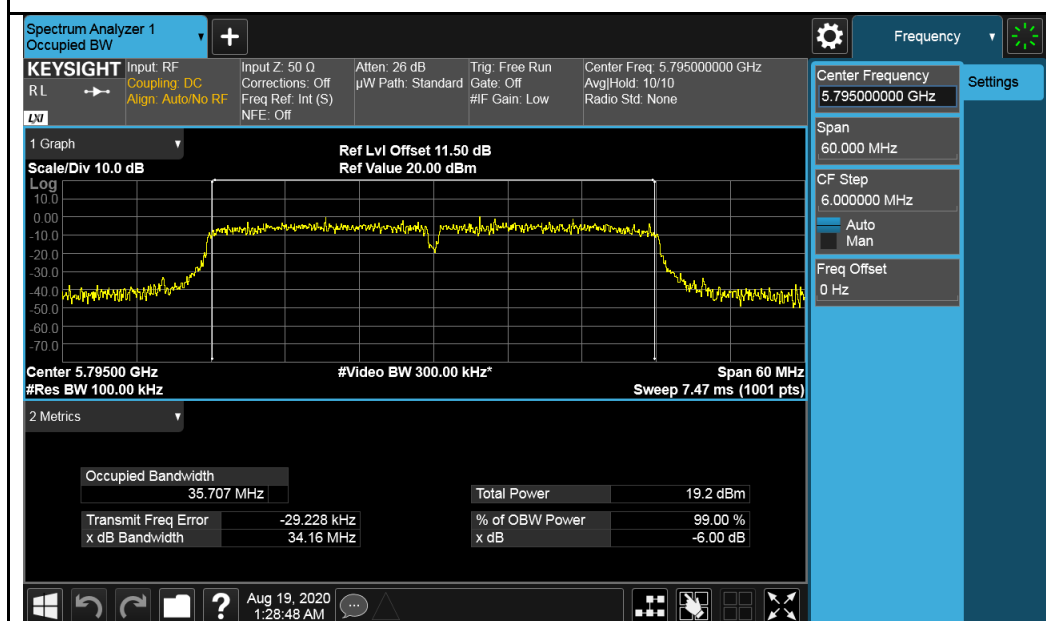
802.11n-HT20-5785MHz



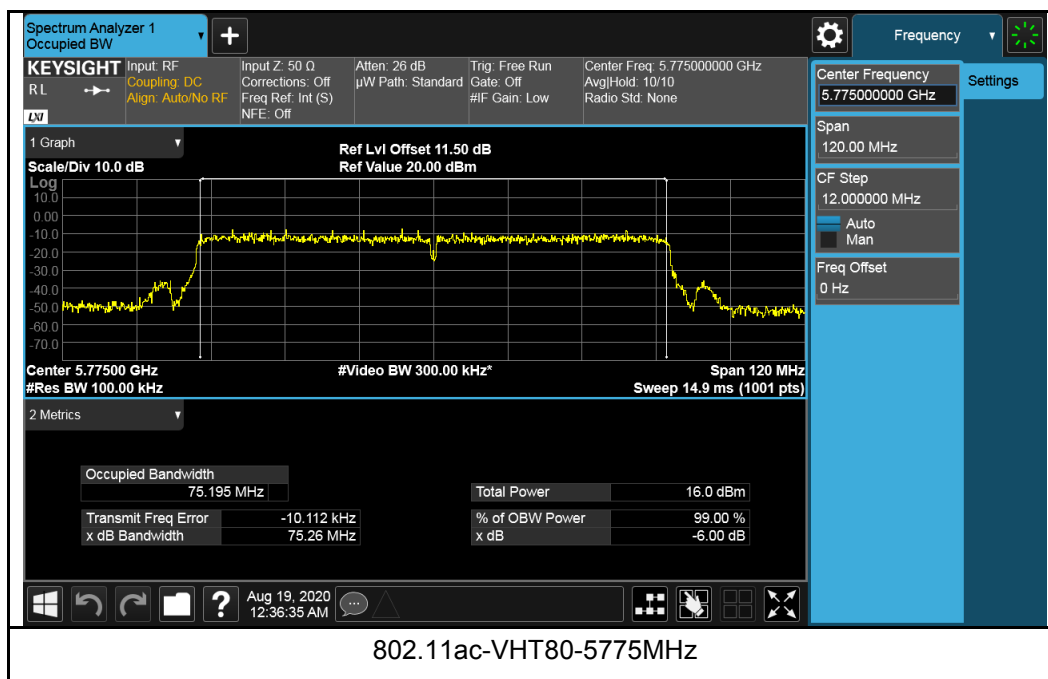
802.11n-HT20-5825MHz



802.11n-HT40-5755MHz



802.11n-HT40-5795MHz



## 4.6 Peak Power Spectral Density Measurement

### 4.6.1 Limits of Peak Power Spectral Density Measurement

| Operation Band | EUT Category |                                   | Limit         |
|----------------|--------------|-----------------------------------|---------------|
| U-NII-1        |              | Outdoor Access Point              | 17dBm/ MHz    |
|                |              | Fixed point-to-point Access Point |               |
|                | √            | Indoor Access Point               |               |
|                |              | Client device                     | 11dBm/ MHz    |
| U-NII-2A       | ---          |                                   | 11dBm/ MHz    |
| U-NII-2C       | ---          |                                   | 11dBm/ MHz    |
| U-NII-3        | ---          |                                   | 30dBm/ 500kHz |

### 4.6.2 Test Setup



### 4.6.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

### 4.6.4 Test Procedure

#### For U-NII-1, U-NII-2A, U-NII-2C band:

Using method SA-1

1. Set span to encompass the entire emission bandwidth (EBW) of the signal.
2. Set RBW = 1 MHz, Set VBW ≥ 3 MHz, Detector = RMS
3. Sweep time = auto, trigger set to “free run”.
4. Trace average at least 100 traces in power averaging mode.
5. Record the max value

#### For U-NII-3:

1. Set span to encompass the entire emission bandwidth (EBW) of the signal.
2. Set RBW = 300 kHz, Set VBW ≥ 1 MHz, Detector = RMS
3. Use the peak marker function to determine the maximum power level in any 300 kHz band segment within the fundamental EBW.
4. Scale the observed power level to an equivalent value in 500 kHz by adjusting (reducing) the measured power by a bandwidth correction factor (BWCF) where  $BWCF = 10\log(500\text{ kHz}/300\text{ kHz})$
5. Sweep time = auto, trigger set to “free run”.
6. Trace average at least 100 traces in power averaging mode.
7. Record the max value

### 4.6.5 Deviation from Test Standard

No deviation.

#### 4.6.6 EUT Operating Condition

Same as Item 4.3.6.

#### 4.6.7 Test Results

##### PSD measurement result for U-NII-1 Band

| Type | Test mode      | Freq (MHz) | CH   | Conducted PSD (dBm/MHz) | Limit (dBm/MHz) | Result |
|------|----------------|------------|------|-------------------------|-----------------|--------|
| PSD  | 802.11a        | 5180       | Low  | 5.69                    | 17              | Pass   |
|      |                | 5200       | Mid  | 5.57                    | 17              | Pass   |
|      |                | 5240       | High | 6.06                    | 17              | Pass   |
|      | 802.11n-HT20   | 5180       | Low  | 5.74                    | 17              | Pass   |
|      |                | 5200       | Mid  | 5.54                    | 17              | Pass   |
|      |                | 5240       | High | 5.94                    | 17              | Pass   |
|      | 802.11n-HT40   | 5190       | Low  | 1.55                    | 17              | Pass   |
|      |                | 5230       | High | 1.79                    | 17              | Pass   |
|      | 802.11ac-VHT80 | 5210       | Mid  | -5.42                   | 17              | Pass   |

##### PSD measurement result for U-NII-2A Band

| Type | Test mode      | Freq (MHz) | CH   | Conducted PSD (dBm/MHz) | Limit (dBm/MHz) | Result |
|------|----------------|------------|------|-------------------------|-----------------|--------|
| PSD  | 802.11a        | 5260       | Low  | 6.59                    | 11              | Pass   |
|      |                | 5280       | Mid  | 6.98                    | 11              | Pass   |
|      |                | 5320       | High | 2.74                    | 11              | Pass   |
|      | 802.11n-HT20   | 5260       | Low  | 6.87                    | 11              | Pass   |
|      |                | 5280       | Mid  | 7.30                    | 11              | Pass   |
|      |                | 5320       | High | 2.64                    | 11              | Pass   |
|      | 802.11n-HT40   | 5270       | Low  | 2.54                    | 11              | Pass   |
|      |                | 5310       | High | 0.22                    | 11              | Pass   |
|      | 802.11ac-VHT80 | 5290       | Mid  | -7.06                   | 11              | Pass   |

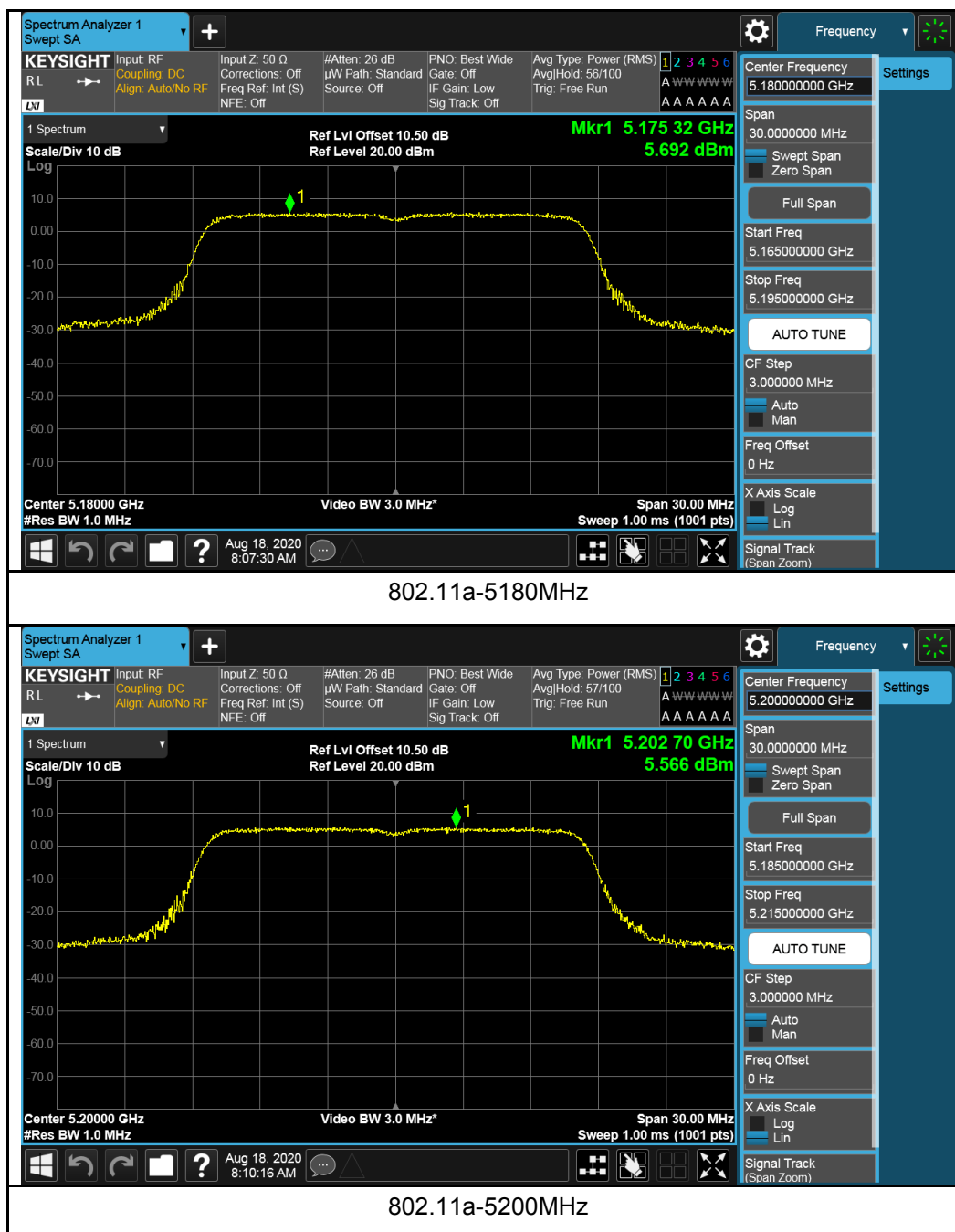
### PSD measurement result for U-NII-2C Band

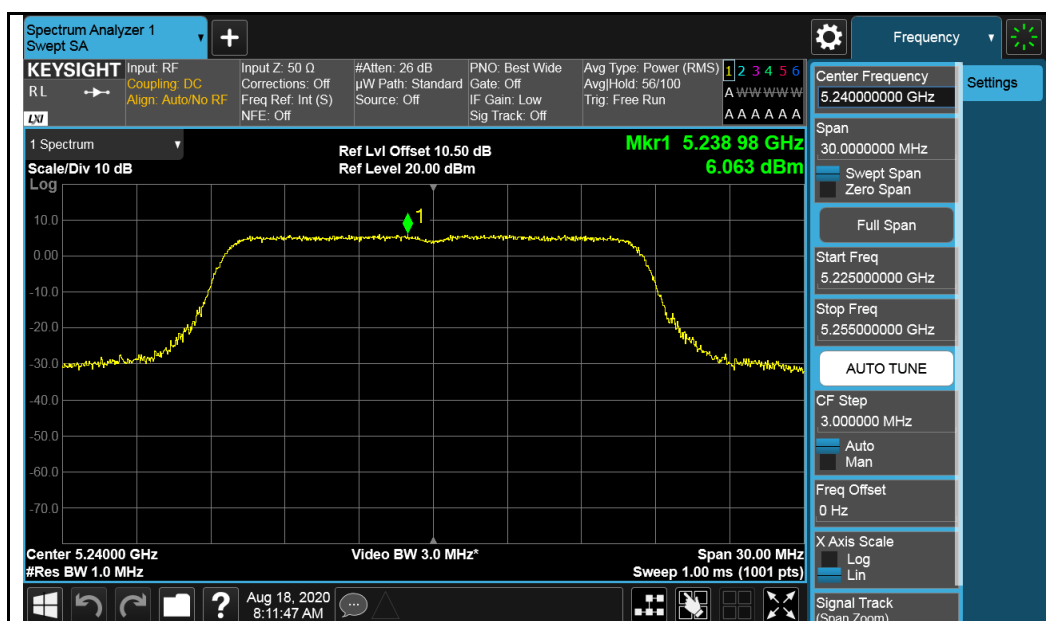
| Type | Test mode      | Freq (MHz) | CH   | Conducted PSD (dBm/MHz) | Limit (dBm/MHz) | Result |
|------|----------------|------------|------|-------------------------|-----------------|--------|
| PSD  | 802.11a        | 5500       | Low  | 5.86                    | 11              | Pass   |
|      |                | 5580       | Mid  | 5.77                    | 11              | Pass   |
|      |                | 5700       | High | 6.41                    | 11              | Pass   |
|      | 802.11n-HT20   | 5500       | Low  | 5.57                    | 11              | Pass   |
|      |                | 5580       | Mid  | 5.37                    | 11              | Pass   |
|      |                | 5700       | High | 6.14                    | 11              | Pass   |
|      | 802.11n-HT40   | 5510       | Low  | -0.69                   | 11              | Pass   |
|      |                | 5550       | Mid  | 0.24                    | 11              | Pass   |
|      |                | 5670       | High | 0.94                    | 11              | Pass   |
|      | 802.11ac-VHT80 | 5530       | Low  | -7.19                   | 11              | Pass   |
|      |                | 5610       | High | -5.70                   | 11              | Pass   |

### PSD measurement result for U-NII-3 Band

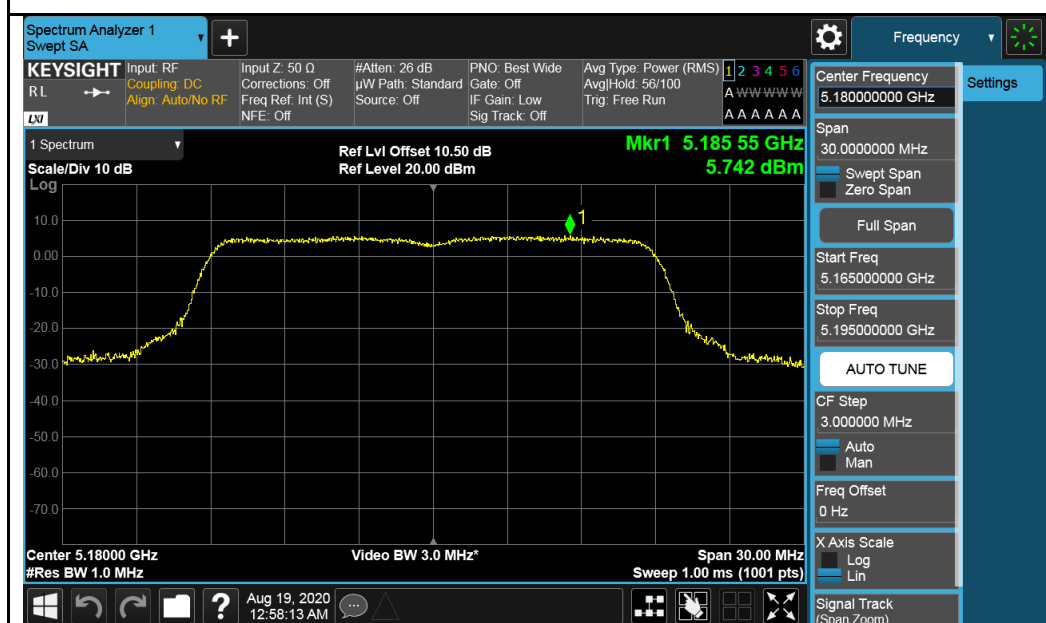
| Type | Test mode                                                                                      | Freq (MHz) | CH   | Conducted PSD (dBm/100kHz) | Correction factor | PSD (dBm/500kHz) | Limit (dBm/500kHz) | Result |
|------|------------------------------------------------------------------------------------------------|------------|------|----------------------------|-------------------|------------------|--------------------|--------|
| PSD  | 802.11a                                                                                        | 5745       | Low  | -1.66                      | 6.99              | 5.33             | 30                 | Pass   |
|      |                                                                                                | 5785       | Mid  | -1.35                      | 6.99              | 5.64             | 30                 | Pass   |
|      |                                                                                                | 5825       | High | -1.94                      | 6.99              | 5.05             | 30                 | Pass   |
|      | 802.11n-HT20                                                                                   | 5745       | Low  | -2.16                      | 6.99              | 4.83             | 30                 | Pass   |
|      |                                                                                                | 5785       | Mid  | -2.40                      | 6.99              | 4.59             | 30                 | Pass   |
|      |                                                                                                | 5825       | High | -2.22                      | 6.99              | 4.77             | 30                 | Pass   |
|      | 802.11n-HT40                                                                                   | 5745       | Low  | -6.46                      | 6.99              | 0.53             | 30                 | Pass   |
|      |                                                                                                | 5785       | High | -6.90                      | 6.99              | 0.09             | 30                 | Pass   |
|      | 802.11ac-VHT80                                                                                 | 5785       | Mid  | -12.35                     | 6.99              | -5.36            | 30                 | Pass   |
| Note | BW correction factor = $10\log(500\text{kHz}/\text{RBW})$ , RBW was set to 100kHz during test. |            |      |                            |                   |                  |                    |        |

## Test Plot for U-NII-1 Band:

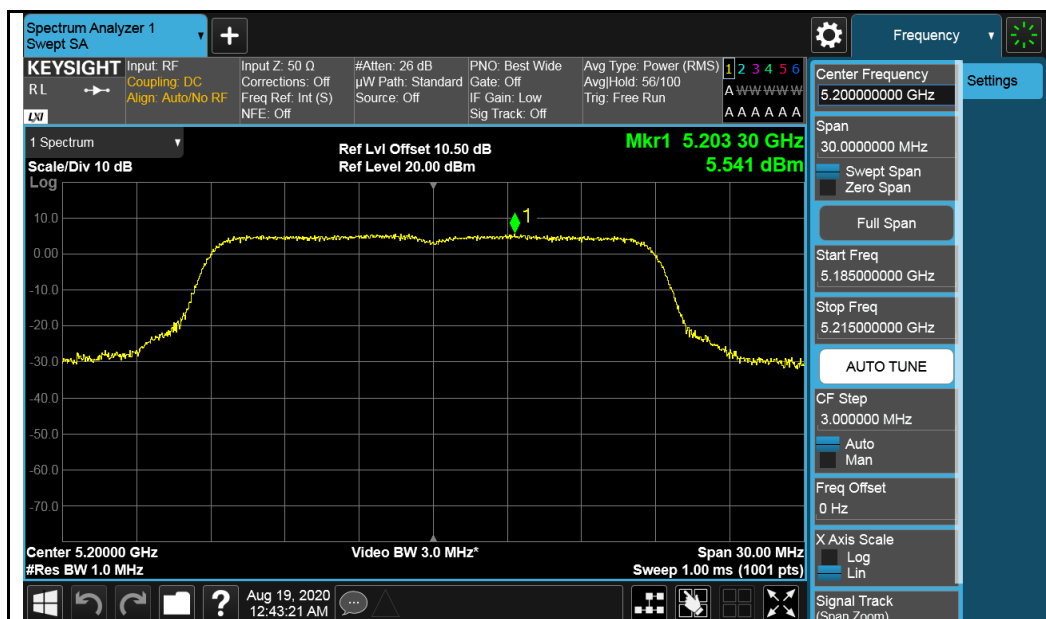




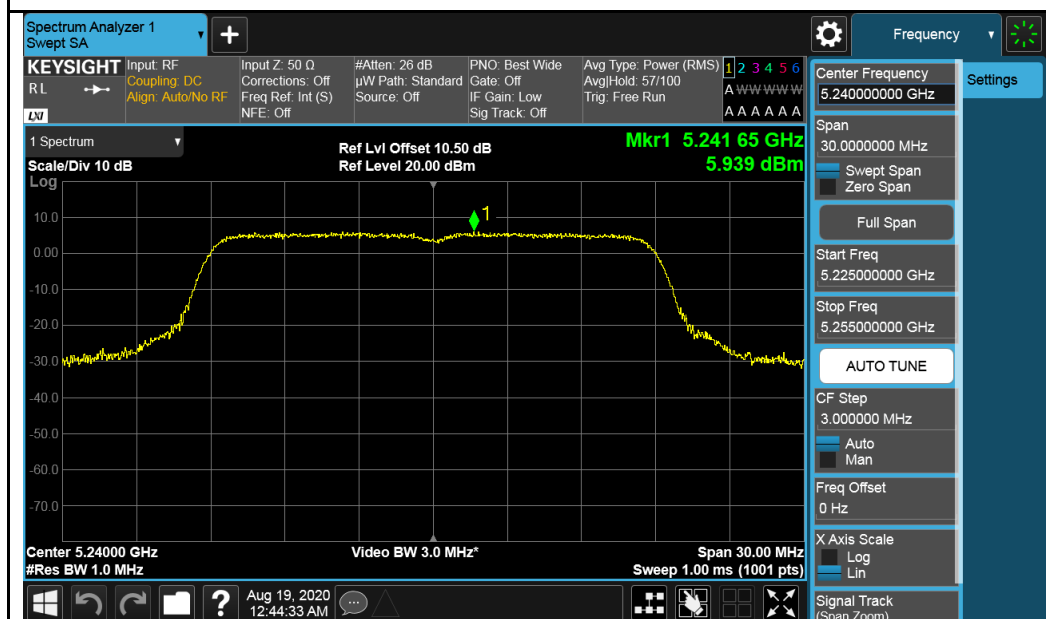
802.11a-5240MHz



802.11n-HT20-5180MHz



802.11n-HT20-5200MHz



802.11n-HT20-5240MHz