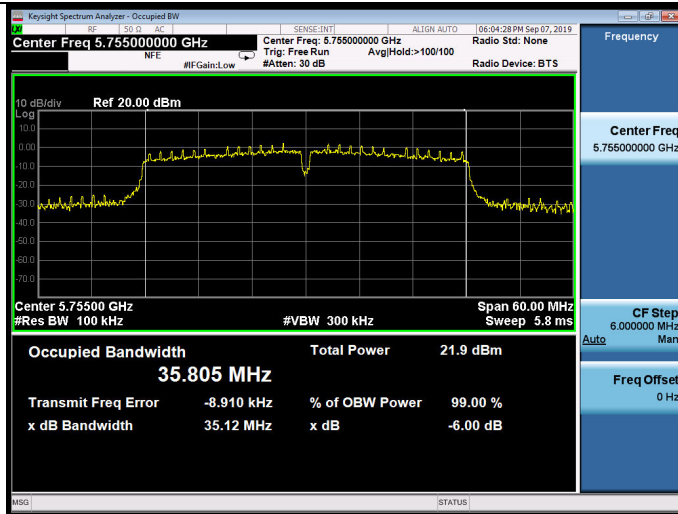


### 11n HT40

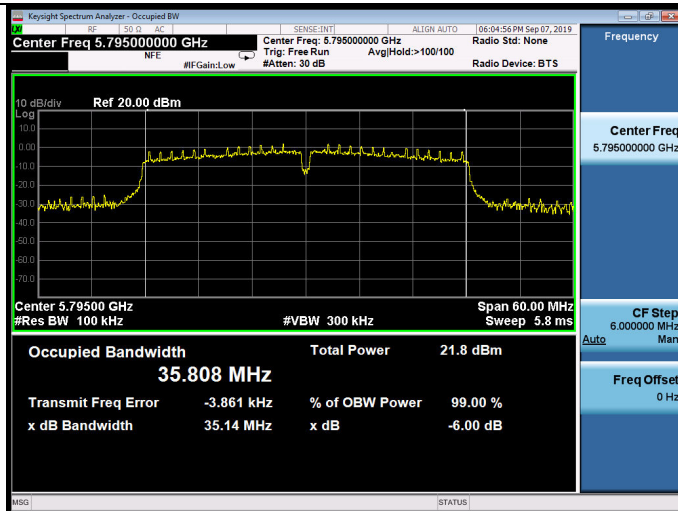
#### 5755MHz



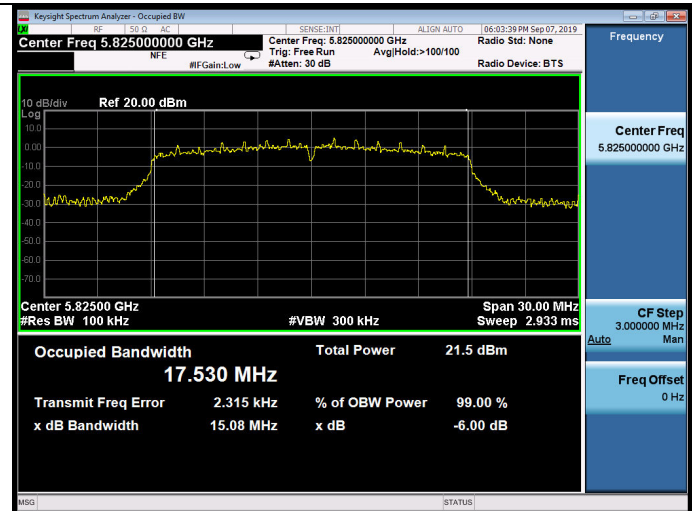
#### 5785MHz



#### 5795MHz

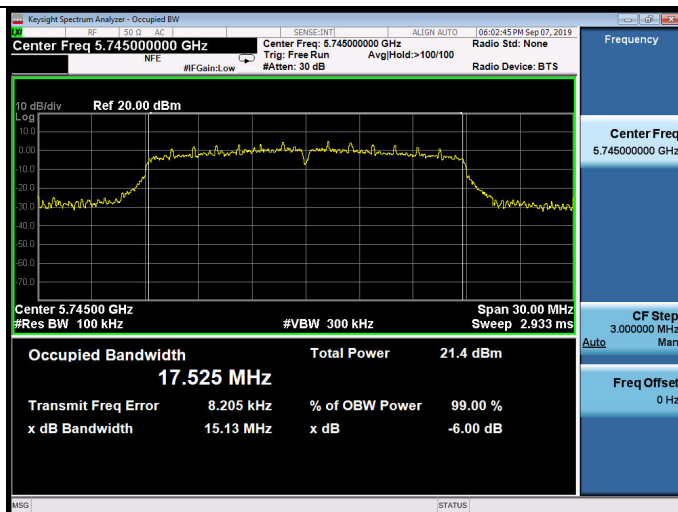


#### 5825MHz



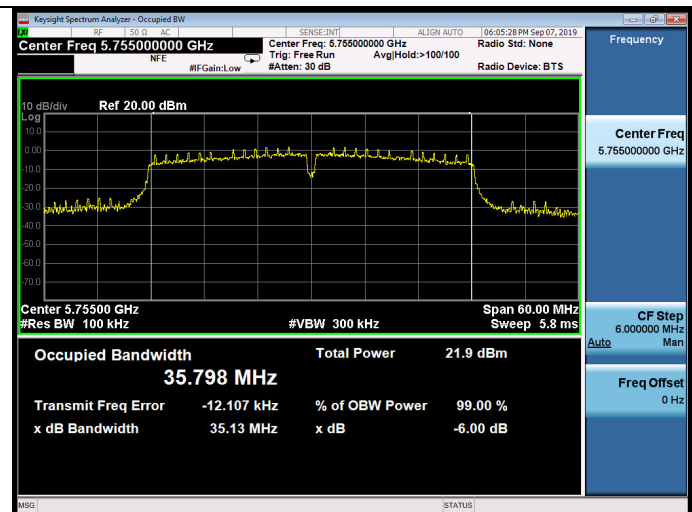
### 11ac VHT20

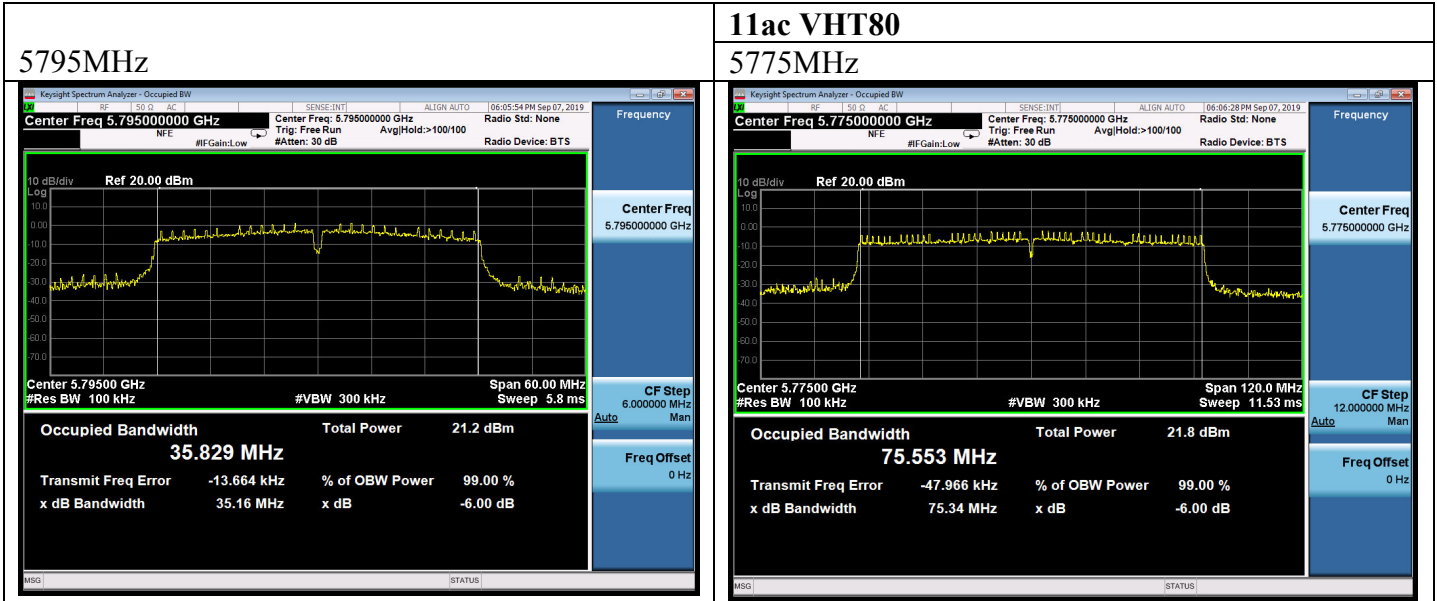
#### 5745MHz



### 11ac VHT40

#### 5755MHz



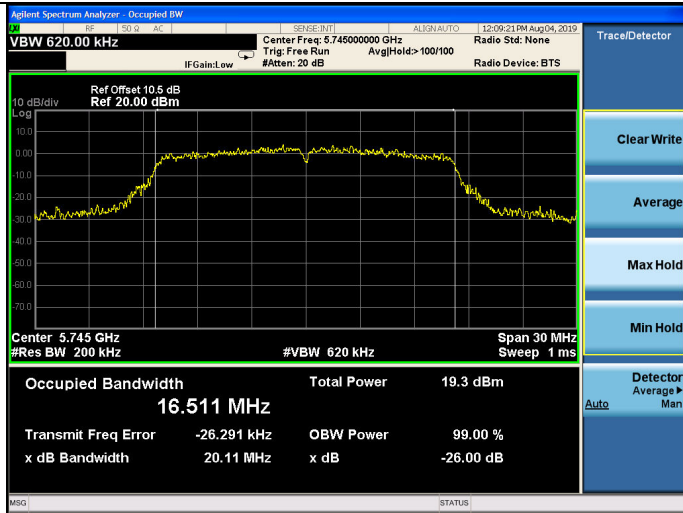


# U-NII-3 Band:

## 26dB bandwidth & 99% Occupied bandwidth

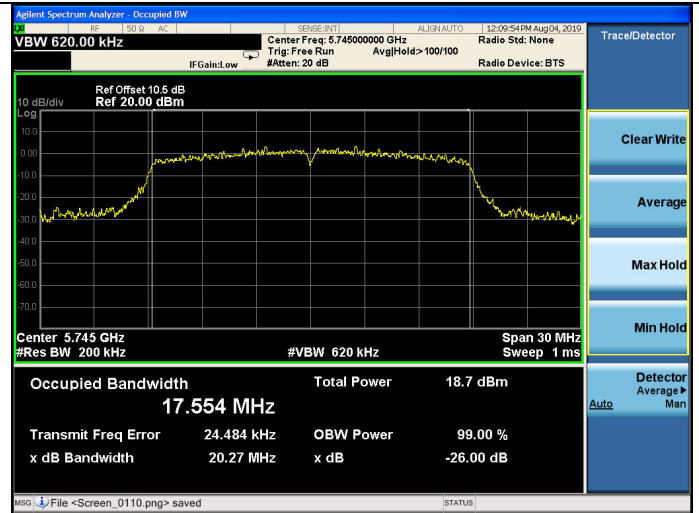
11a

5745MHz

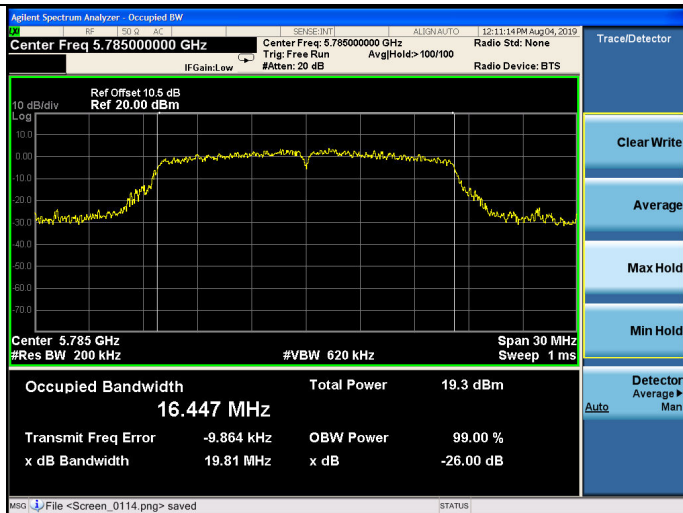


11n HT20

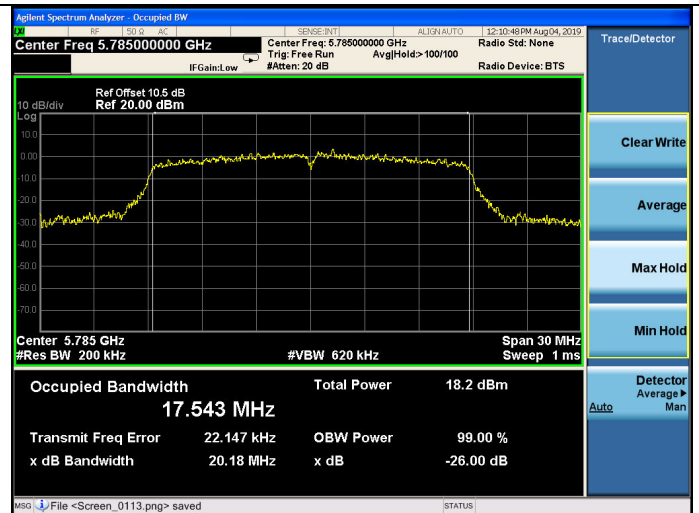
5745MHz



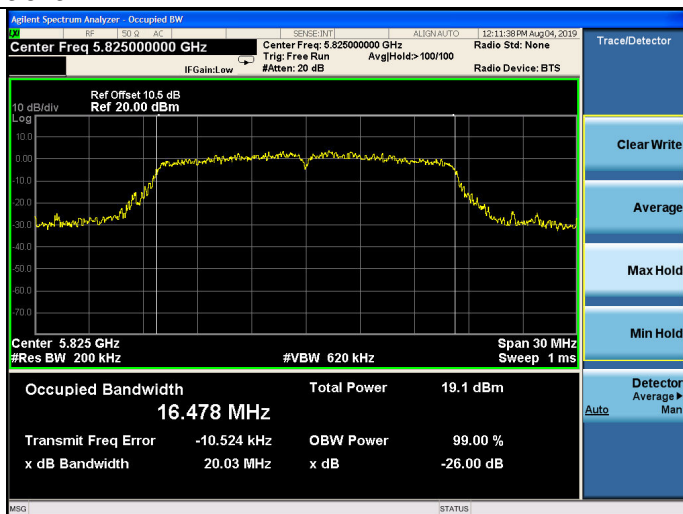
5785MHz



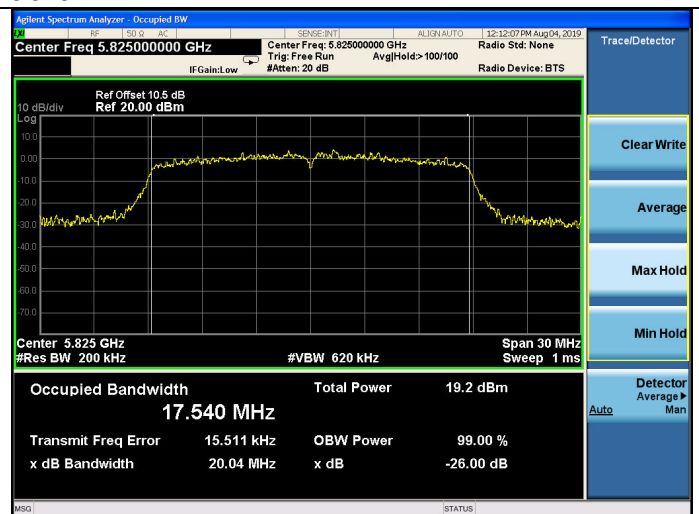
5785MHz



5825MHz

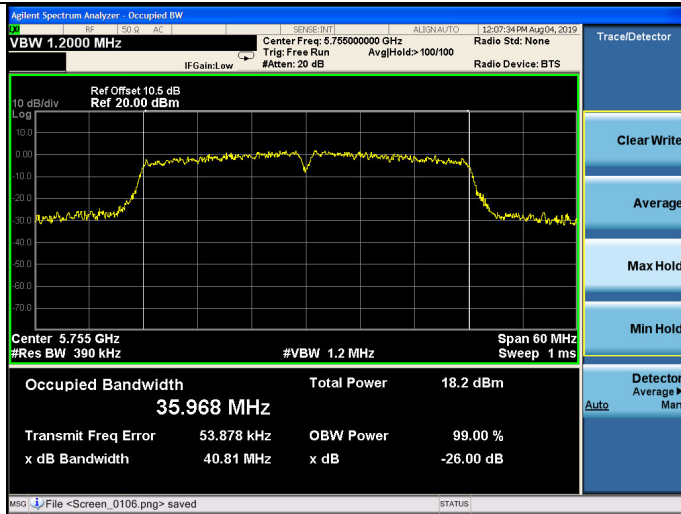


5825MHz

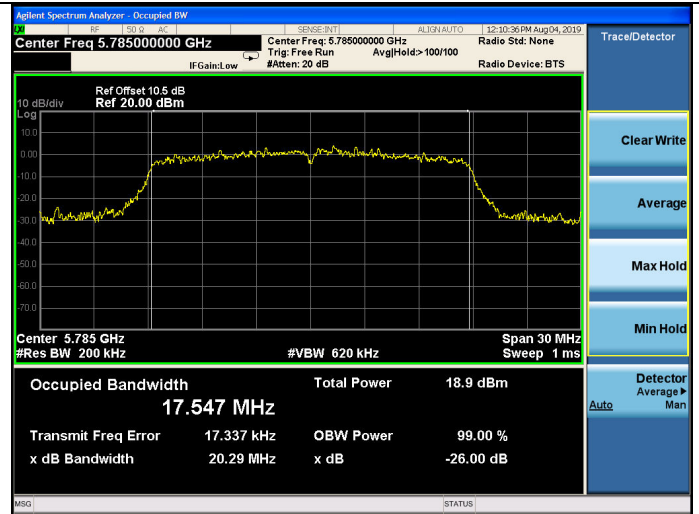


### 11n HT40

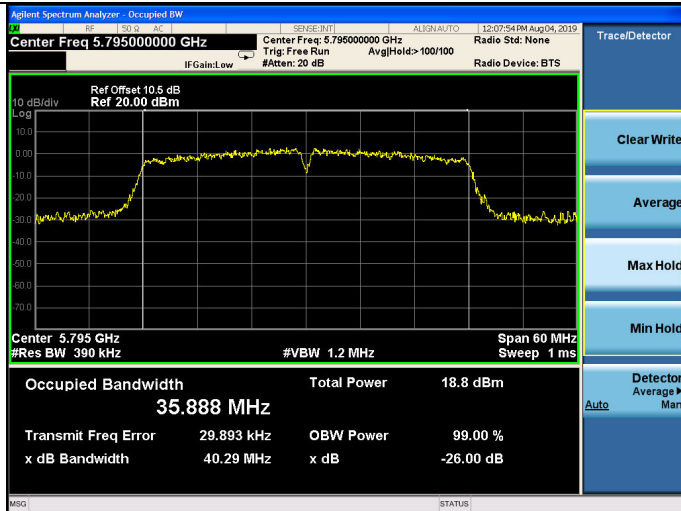
#### 5755MHz



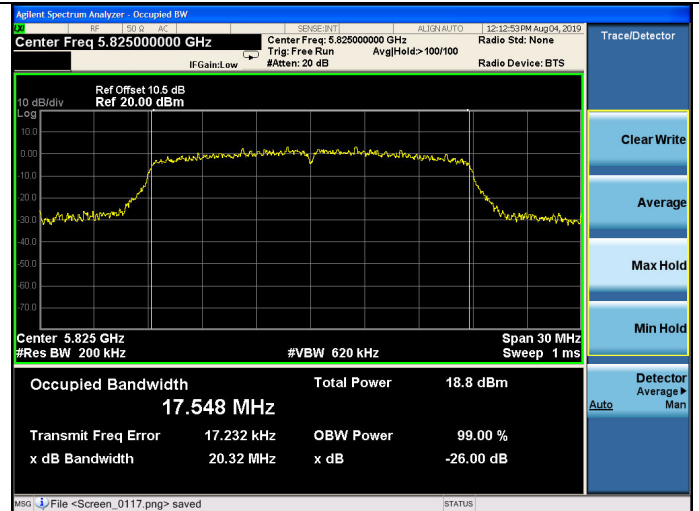
#### 5785MHz



#### 5795MHz

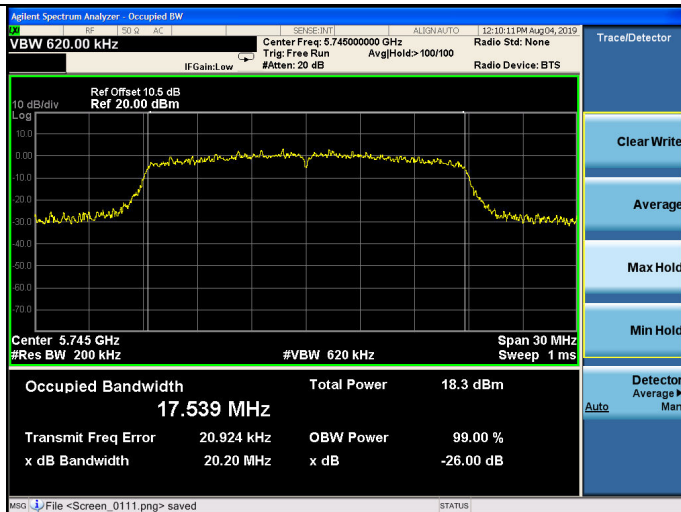


#### 5825MHz



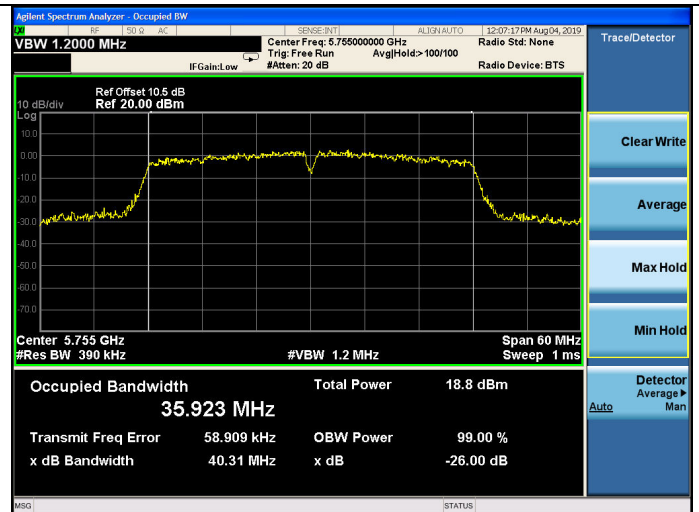
### 11ac VHT20

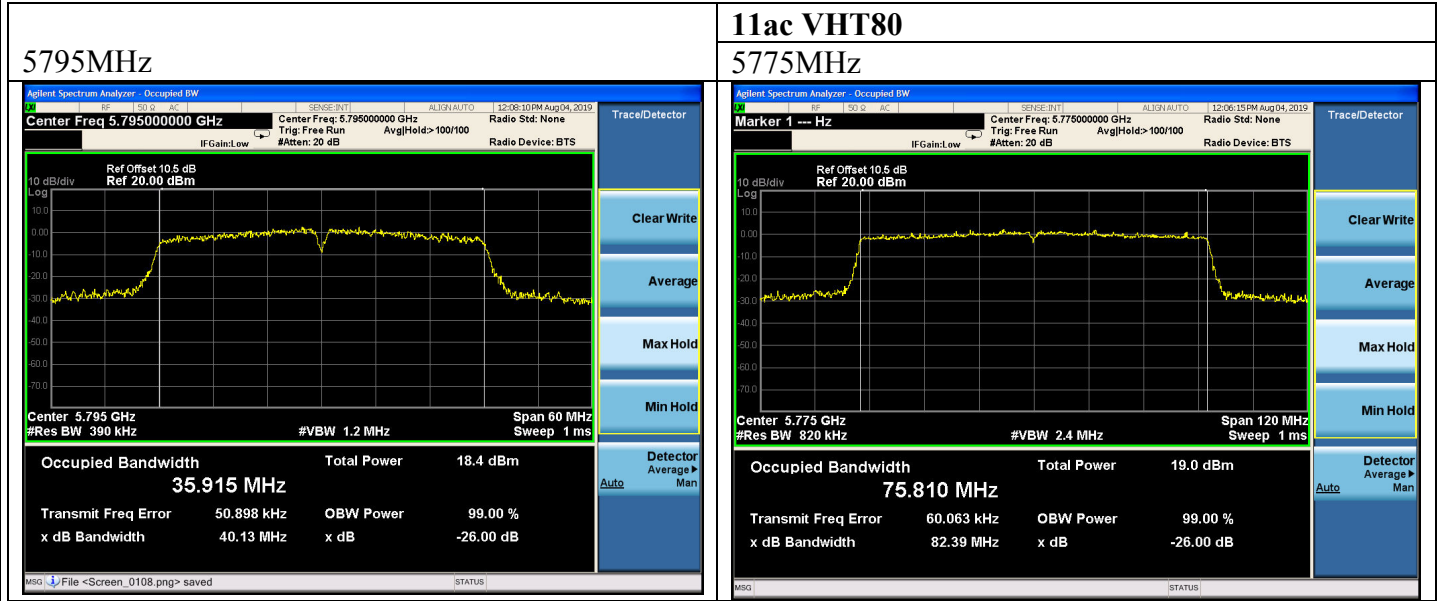
#### 5745MHz



### 11ac VHT40

#### 5755MHz





## 7. OUTPUT POWER TEST

### 7.1. Test Equipment

| Item | Equipment           | Manufacturer | Model No.         | Serial No. | Last Cal. | Cal. Interval |
|------|---------------------|--------------|-------------------|------------|-----------|---------------|
| 1.   | PXA Signal Analyzer | Agilent      | N9030A            | MY51380221 | Jun.30,19 | 1 Year        |
| 2.   | Power meter         | Anritsu      | ML2487A           | 6K00002472 | Oct.14,18 | 1 Year        |
| 3.   | Power sensor        | Anritsu      | MA2491A           | 033005     | Oct.13,18 | 1 Year        |
| 4.   | Attenuator          | Agilent      | 8491B             | MY39262165 | Oct.14,18 | 1 Year        |
| 5.   | RF Cable            | EMCI         | EMC102-KM-KM 3500 | 170702     | May.13,19 | 1 Year        |

### 7.2. Limit

For the band 5.15–5.25 GHz.

For mobile and portable client devices in the 5.15–5.25 GHz band, the maximum conducted output power over the frequency band of operation shall not exceed 250 mW(23.98dBm) provided the maximum antenna gain does not exceed 6 dBi.

For the 5.25–5.35 GHz and 5.47–5.725 GHz bands, the maximum conducted output power over the frequency bands of operation shall not exceed the lesser of 250 mW (23.98dBm) or 11 dBm + 10 log B, where B is the 26 dB emission bandwidth in megahertz.

For the band 5.725-5.85 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W(30dBm).

### 7.3. Test Procedure

1. Connected the EUT's antenna port to measure device by 20dB attenuator.
2. Use the test method described in ANSI C63.10 clause 12.3 Method SA-1
  - 1) Set span to encompass the entire emission bandwidth (EBW) (or, alternatively, the entire 99% occupied bandwidth) of the signal.
  - 2) Set RBW = 1 MHz.
  - 3) Set VBW  $\geq$  3 MHz.
  - 4) Number of points in sweep  $\geq 2 \times \text{span} / \text{RBW}$ .
  - 5) Sweep time = auto.
  - 6) Detector = power averaging (rms), if available. Otherwise, use sample detector mode.
  - 7) If transmit duty cycle < 98%, use a video trigger with the trigger level set to enable triggering only on full power pulses. Transmitter must operate at maximum power control level for the entire duration of every sweep. If the EUT transmits continuously (i.e., with no off intervals) or at duty cycle  $\geq$  98%, and if each transmission is entirely at the maximum power control level, then the trigger shall be set to "free run."
  - 8) Trace average at least 100 traces in power averaging (rms) mode.
  - 9) Compute power by integrating the spectrum across the EBW (or, alternatively, the entire 99% occupied bandwidth) of the signal using the instrument's band power measurement function with band limits set equal to the EBW (or occupied bandwidth) band edges. If the instrument does not have a band power function, sum the spectrum levels (in power units) at 1 MHz intervals extending across the EBW (or, alternatively, the entire 99% occupied bandwidth) of the spectrum.

Note: The cable loss and attenuator loss were offset into measure device as an amplitude offset.

## 7.4.Test Results

### U-NII-1 Band:

|                            |                         |                         |
|----------------------------|-------------------------|-------------------------|
| EUT: COSMO                 |                         |                         |
| M/N: COSMO COMMUNICATOR VE |                         |                         |
| Test date: 2019-07-22~23   | Pressure: 102.3±1.0 kpa | Humidity: 53.6±3.0%     |
| Tested by: Garry           | Test site: RF site      | Temperature:25.5±0.6 °C |

| Test Mode        | Frequency (MHz) | Maximum Conducted output power (dBm) | Limit (dBm) |
|------------------|-----------------|--------------------------------------|-------------|
| 11a              | 5180            | 12.88                                | 23.98       |
|                  | 5200            | 12.93                                |             |
|                  | 5240            | 13.31                                |             |
| 11n HT20         | 5180            | 12.55                                | 23.98       |
|                  | 5200            | 12.51                                |             |
|                  | 5240            | 12.95                                |             |
| 11n HT40         | 5190            | 12.52                                | 23.98       |
|                  | 5230            | 12.78                                |             |
| 11ac VHT20       | 5180            | 12.47                                | 23.98       |
|                  | 5200            | 12.67                                |             |
|                  | 5240            | 12.92                                |             |
| 11ac VHT40       | 5190            | 12.54                                | 23.98       |
|                  | 5230            | 12.77                                |             |
| 11ac VHT80       | 5210            | 12.53                                | 23.98       |
| Conclusion: PASS |                 |                                      |             |

Note: Antenna Gain= 0.6dBi<6dBi.

**U-NII-2A Band:**

|                            |                         |                          |
|----------------------------|-------------------------|--------------------------|
| EUT: COSMO                 |                         |                          |
| M/N: COSMO COMMUNICATOR VE |                         |                          |
| Test date: 2019-07-22~23   | Pressure: 102.3±1.0 kpa | Humidity: 53.6±3.0%      |
| Tested by: Garry           | Test site: RF site      | Temperature: 25.5±0.6 °C |

| Test Mode        | Frequency (MHz) | Maximum Conducted output power (dBm) | Limit (dBm) |
|------------------|-----------------|--------------------------------------|-------------|
| 11a              | 5260            | 13.28                                | 23.94       |
|                  | 5300            | 13.30                                |             |
|                  | 5320            | 13.60                                |             |
| 11n HT20         | 5260            | 13.05                                | 23.94       |
|                  | 5300            | 13.42                                |             |
|                  | 5320            | 13.33                                |             |
| 11n HT40         | 5270            | 12.85                                | 23.98       |
|                  | 5310            | 13.01                                |             |
| 11ac VHT20       | 5260            | 13.01                                | 23.96       |
|                  | 5300            | 13.45                                |             |
|                  | 5320            | 12.92                                |             |
| 11ac VHT40       | 5270            | 12.89                                | 23.98       |
|                  | 5310            | 13.05                                |             |
| 11ac VHT80       | 5290            | 12.96                                | 23.98       |
| Conclusion: PASS |                 |                                      |             |

Note: 1. Antenna Gain= 0.6dBi<6dBi

2. For 11a Mode

Limit=11 dBm + 10 log B

where B is the 26 dB emission bandwidth in megahertz.

For 11n HT20/11ac VHT20/11n HT40/11ac VHT40/ 11ac VHT80 Mode

Limit=23.98 dBm

**U-NII-2C Band:**

|                            |                         |                          |
|----------------------------|-------------------------|--------------------------|
| EUT: COSMO                 |                         |                          |
| M/N: COSMO COMMUNICATOR VE |                         |                          |
| Test date: 2019-07-22~23   | Pressure: 102.3±1.0 kpa | Humidity: 53.6±3.0%      |
| Tested by: Garry           | Test site: RF site      | Temperature: 25.5±0.6 °C |

| Test Mode        | Frequency ( MHz ) | Maximum Conducted output power ( dBm ) | Limit (dBm) |
|------------------|-------------------|----------------------------------------|-------------|
| 11a              | 5500              | 13.87                                  | 23.96       |
|                  | 5600              | 13.92                                  |             |
|                  | 5700              | 14.00                                  |             |
| 11n HT20         | 5500              | 13.75                                  | 23.98       |
|                  | 5600              | 13.77                                  |             |
|                  | 5700              | 13.71                                  |             |
| 11n HT40         | 5510              | 13.30                                  | 23.98       |
|                  | 5590              | 13.40                                  |             |
|                  | 5670              | 13.26                                  |             |
| 11ac VHT20       | 5500              | 13.75                                  | 23.97       |
|                  | 5600              | 13.73                                  |             |
|                  | 5700              | 13.70                                  |             |
| 11ac VHT40       | 5510              | 13.34                                  | 23.98       |
|                  | 5590              | 13.44                                  |             |
|                  | 5670              | 13.31                                  |             |
| 11ac VHT80       | 5530              | 13.23                                  | 23.98       |
|                  | 5610              | 13.31                                  |             |
| Conclusion: PASS |                   |                                        |             |

Notes: 1. Antenna Gain= 0.4dBi<6dBi.

2. For 11a Mode

Limit=11 dBm + 10 log B

where B is the 26 dB emission bandwidth in megahertz.

For 11n HT20/11ac VHT20/11n HT40/11ac VHT40/ 11ac VHT80 Mode

Limit=23.98 dBm

**U-NII-3 Band:**

|                            |                         |                          |
|----------------------------|-------------------------|--------------------------|
| EUT: COSMO                 |                         |                          |
| M/N: COSMO COMMUNICATOR VE |                         |                          |
| Test date: 2019-07-22~23   | Pressure: 102.3±1.0 kpa | Humidity: 53.6±3.0%      |
| Tested by: Garry           | Test site: RF site      | Temperature: 25.5±0.6 °C |

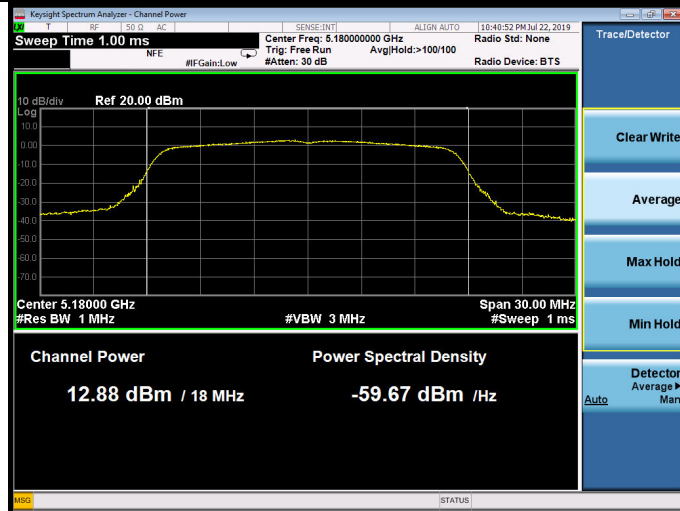
| Test Mode        | Frequency ( MHz ) | Maximum Conducted output power ( dBm ) | Limit (dBm) |
|------------------|-------------------|----------------------------------------|-------------|
| 11a              | 5745              | 13.82                                  | 30          |
|                  | 5785              | 13.98                                  |             |
|                  | 5825              | 14.21                                  |             |
| 11n HT20         | 5745              | 13.56                                  | 30          |
|                  | 5785              | 13.76                                  |             |
|                  | 5825              | 13.97                                  |             |
| 11n HT40         | 5755              | 13.52                                  | 30          |
|                  | 5795              | 13.50                                  |             |
| 11ac VHT20       | 5745              | 13.65                                  | 30          |
|                  | 5785              | 13.76                                  |             |
|                  | 5825              | 14.03                                  |             |
| 11ac VHT40       | 5755              | 13.23                                  | 30          |
|                  | 5795              | 13.48                                  |             |
| 11ac VHT80       | 5775              | 13.38                                  | 30          |
| Conclusion: PASS |                   |                                        |             |

Note: Antenna Gain= 0.3dBi<6dBi.

**U-NII-1 Band:**

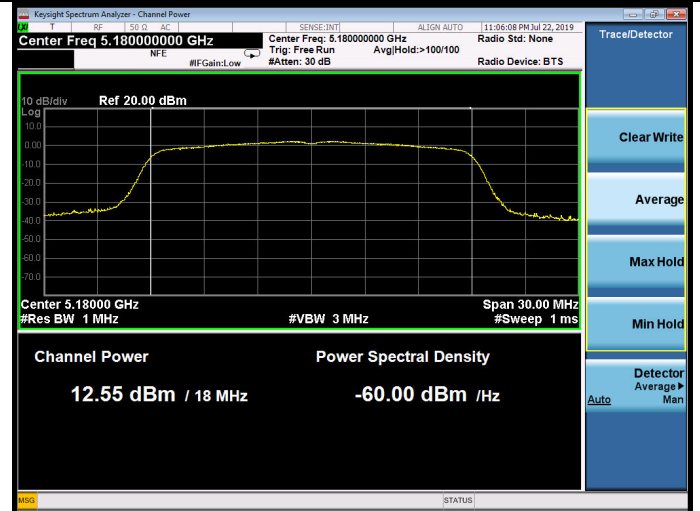
**11a**

**5180MHz**

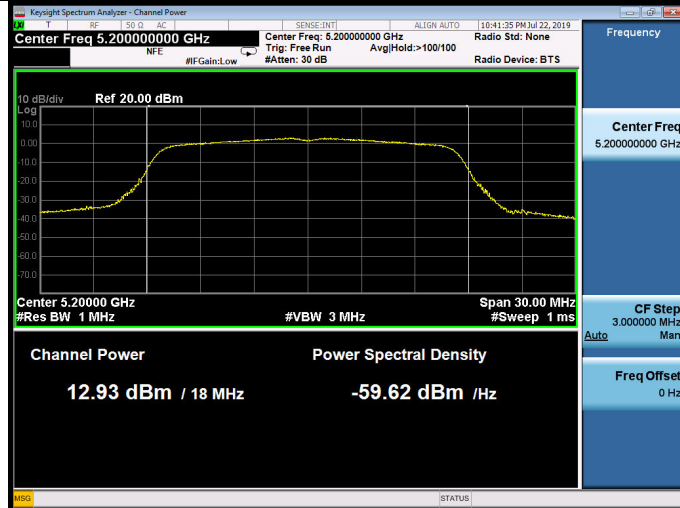


**11n HT20**

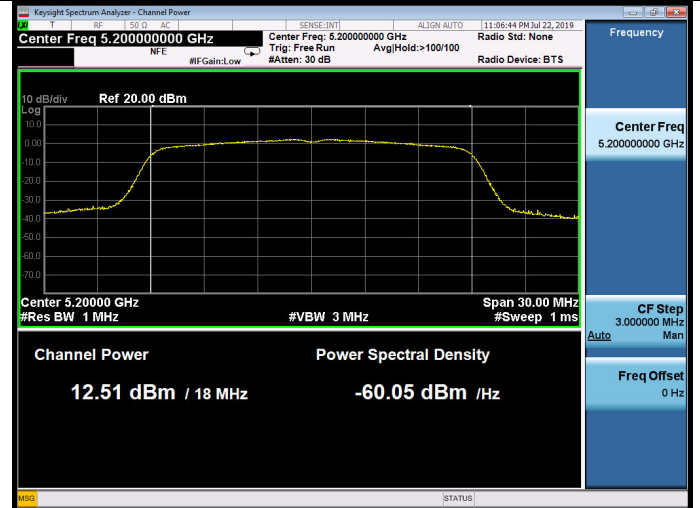
**5180MHz**



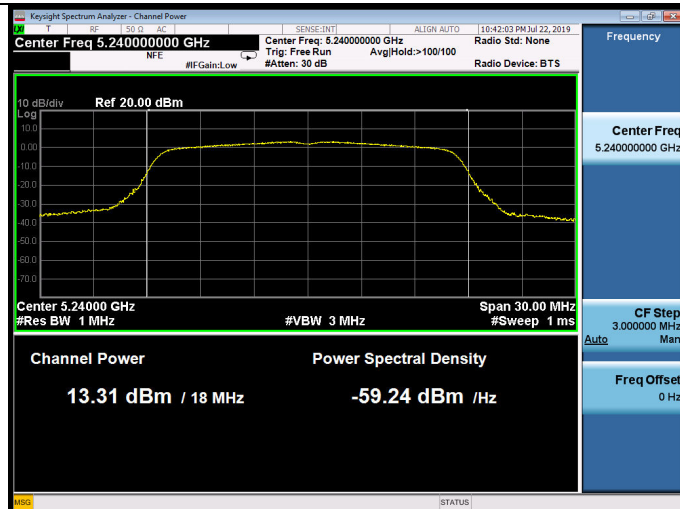
**5200MHz**



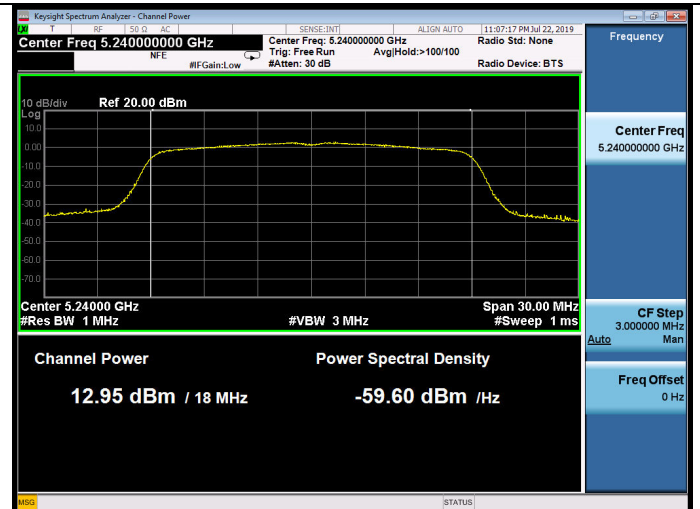
**5200MHz**



**5240MHz**

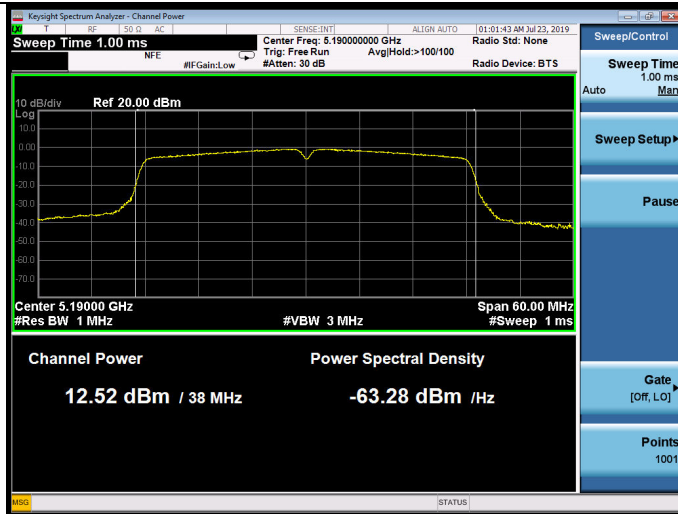


**5240MHz**

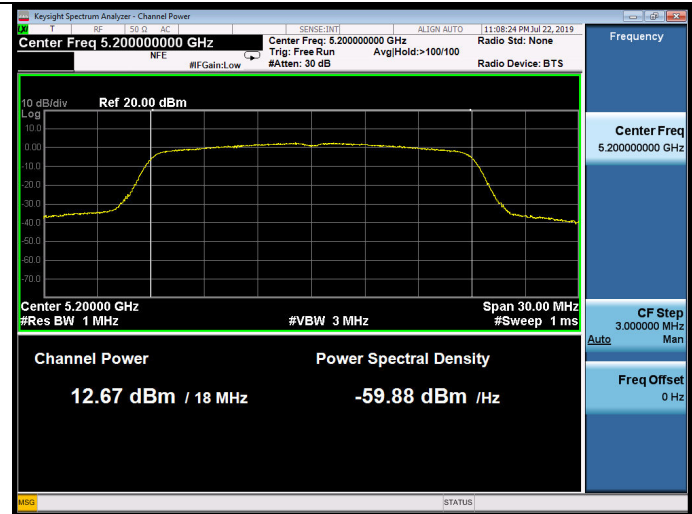


### 11n HT40

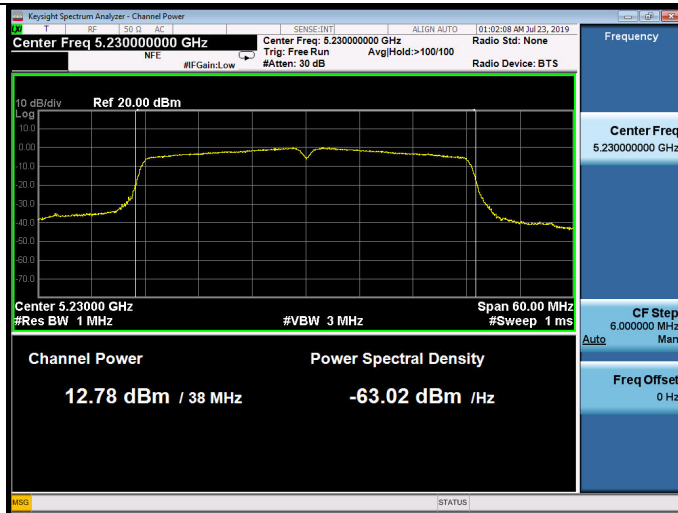
#### 5190MHz



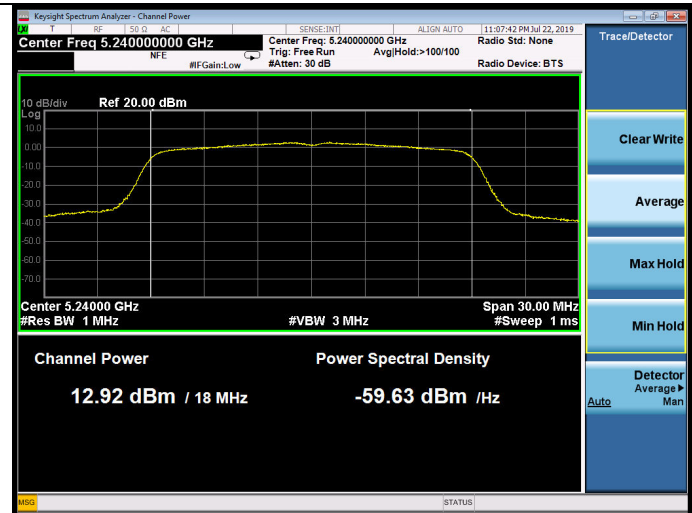
#### 5200MHz



#### 5230MHz

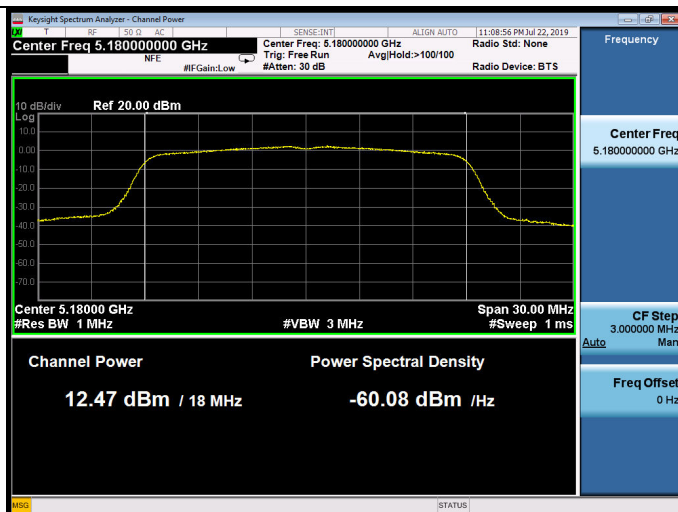


#### 5240MHz



### 11ac VHT20

#### 5180MHz



### 11ac VHT40

#### 5190MHz

