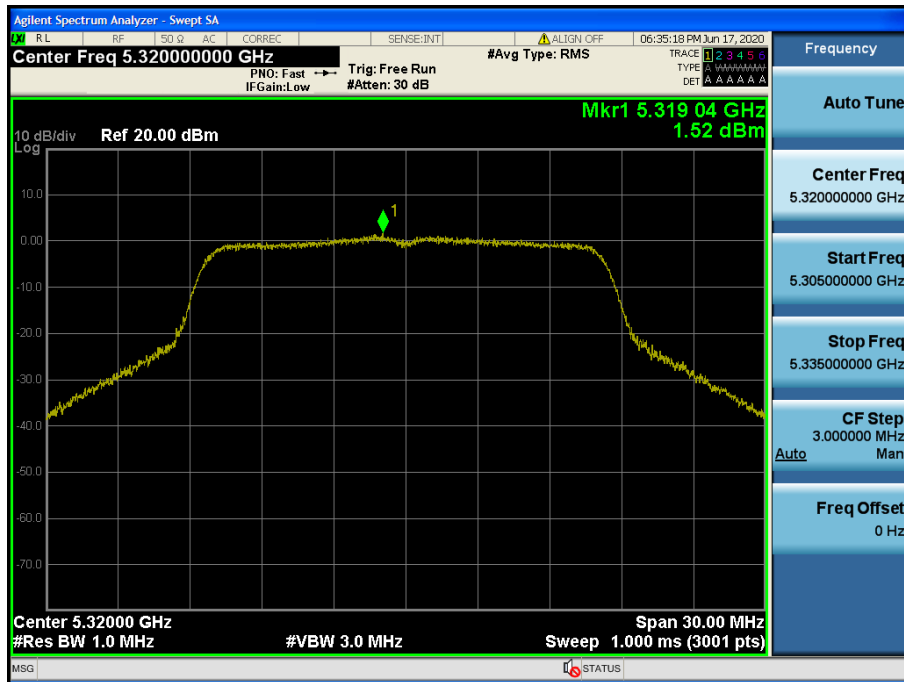


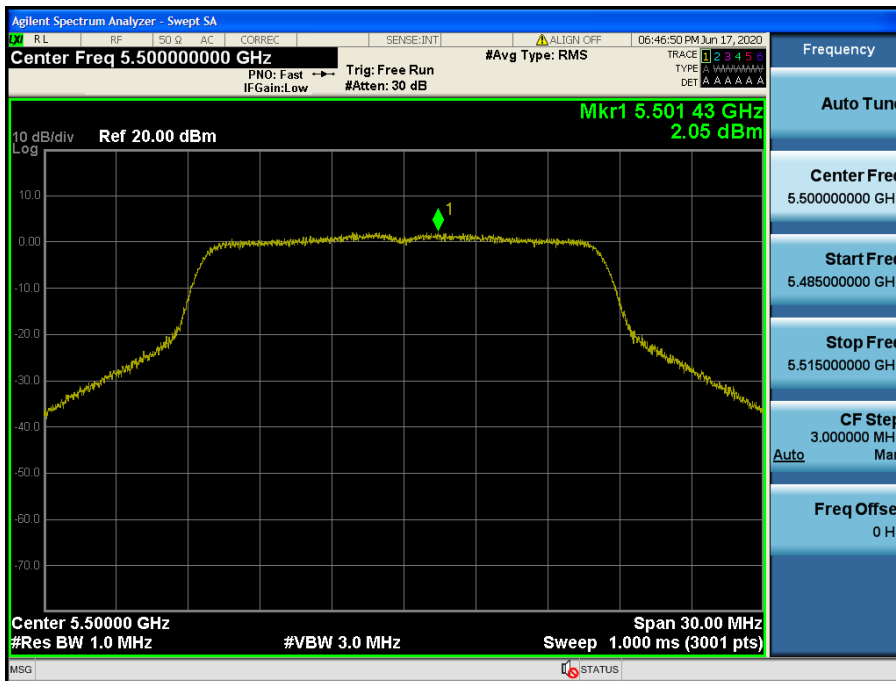
Maximum Power Spectral Density

Test Mode: 802.11a & ANT 2 & Ch.64



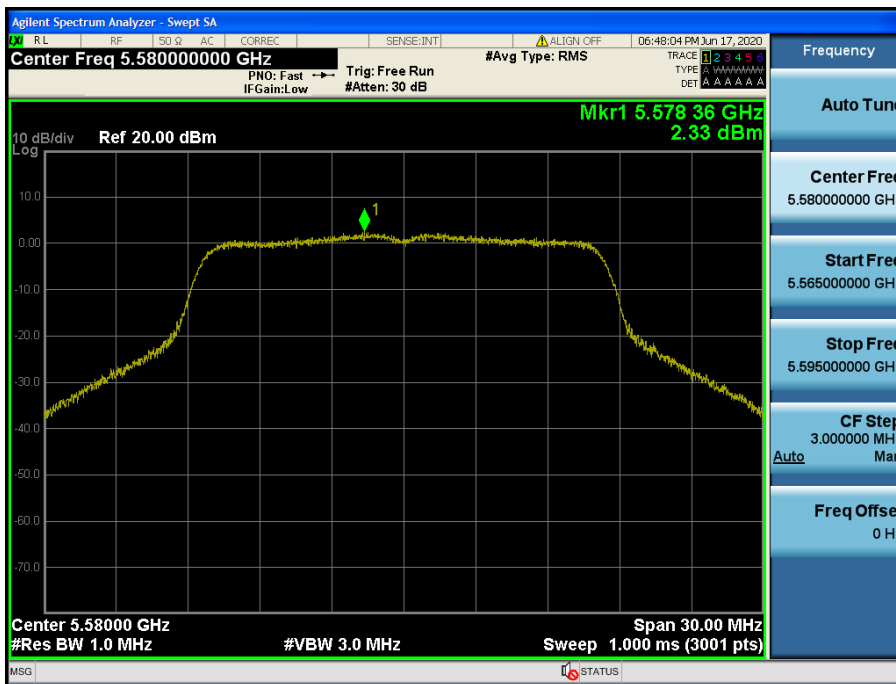
Maximum Power Spectral Density

Test Mode: 802.11a & ANT 2 & Ch.100



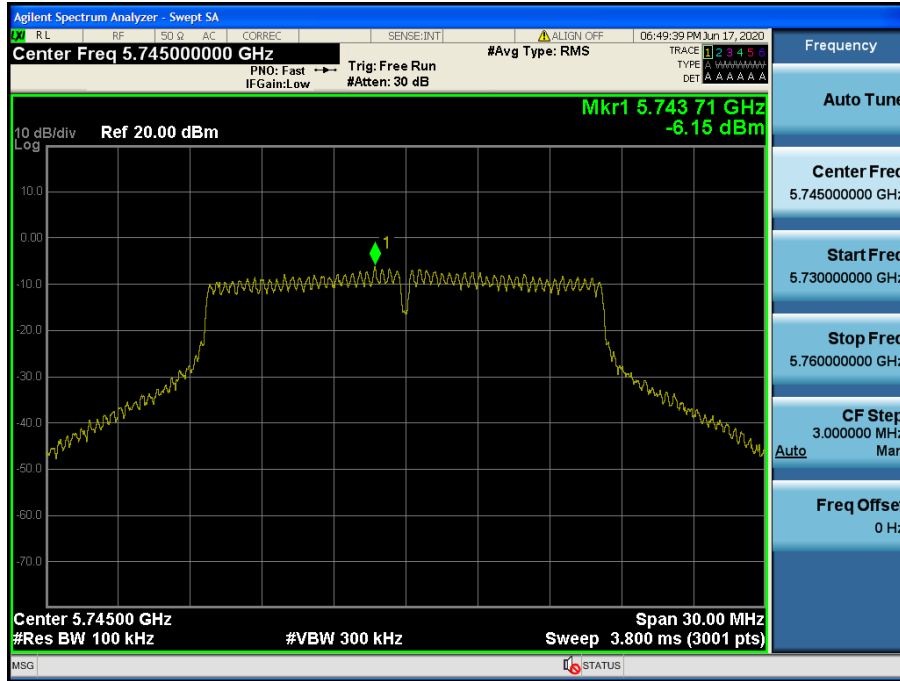
Maximum Power Spectral Density

Test Mode: 802.11a & ANT 2 & Ch.120



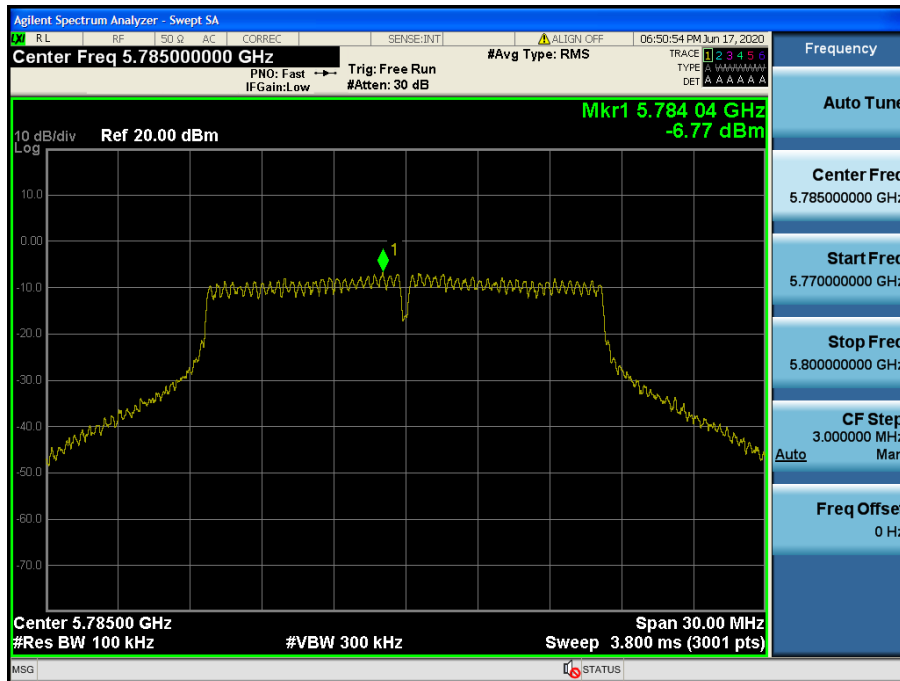
Maximum Power Spectral Density

Test Mode: 802.11a & ANT 2 & Ch.149



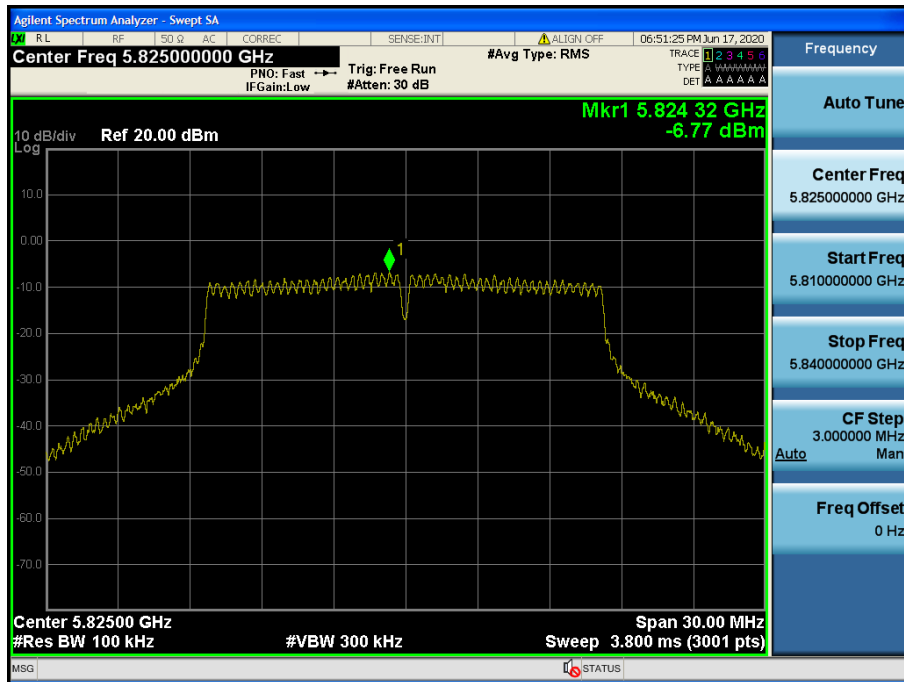
Maximum Power Spectral Density

Test Mode: 802.11a & ANT 2 & Ch.157



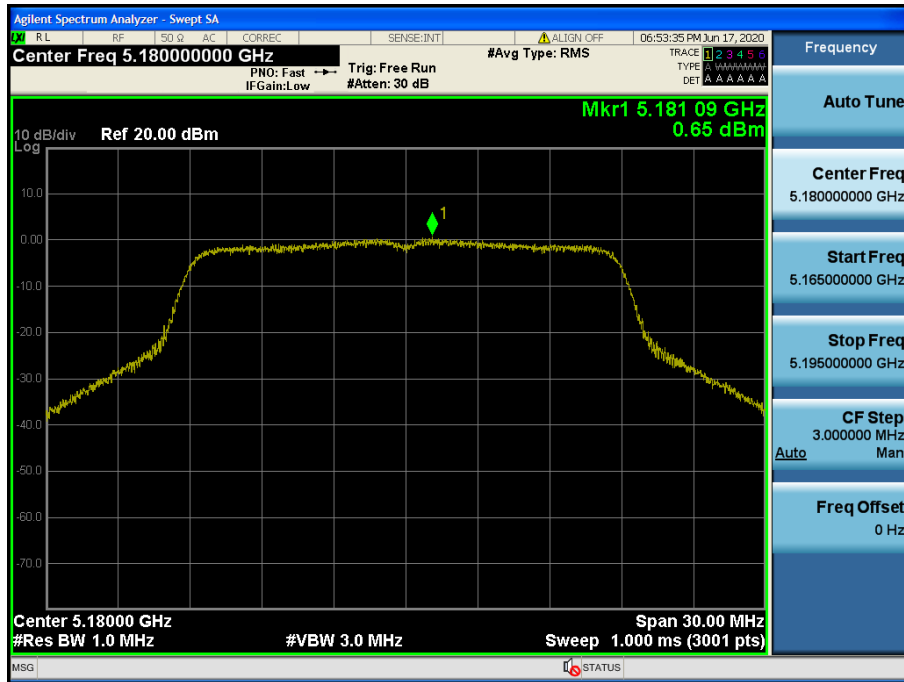
Maximum Power Spectral Density

Test Mode: 802.11a & ANT 2 & Ch.165



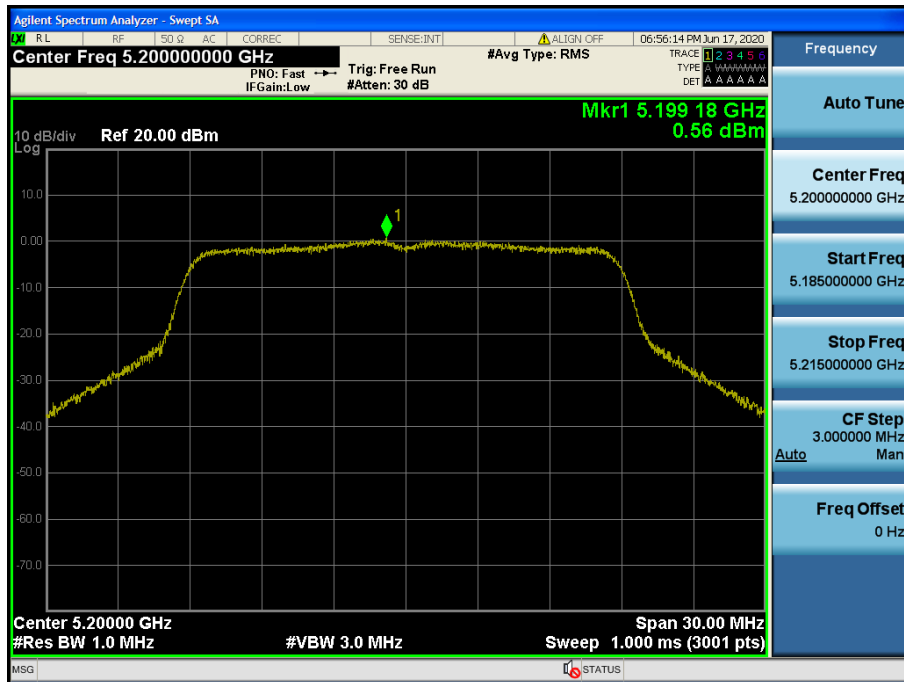
Maximum Power Spectral Density

Test Mode: 802.11ac VHT20 & ANT 2 & Ch.36



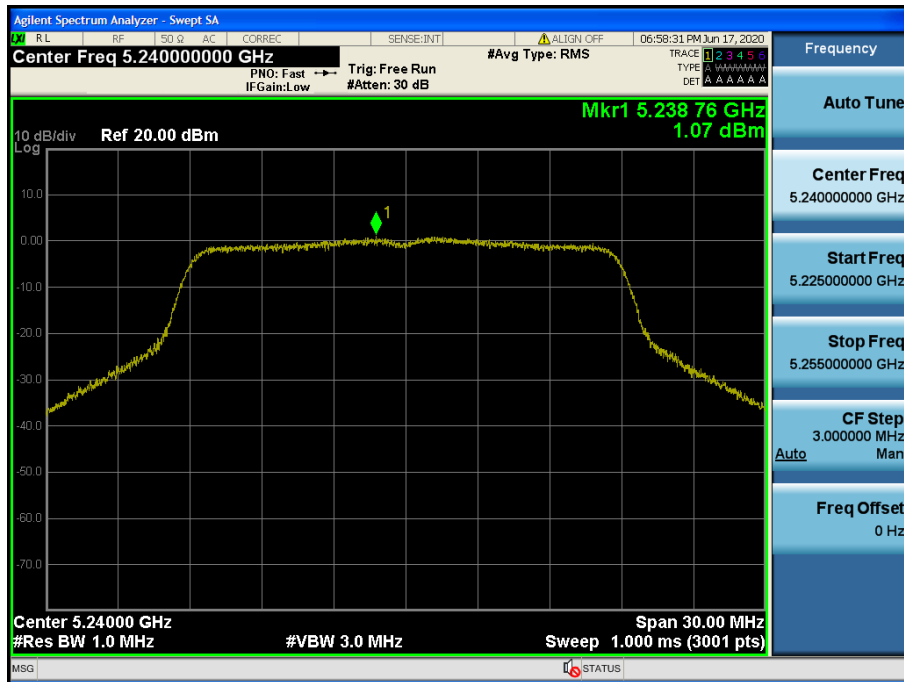
Maximum Power Spectral Density

Test Mode: 802.11ac VHT20 & ANT 2 & Ch.40



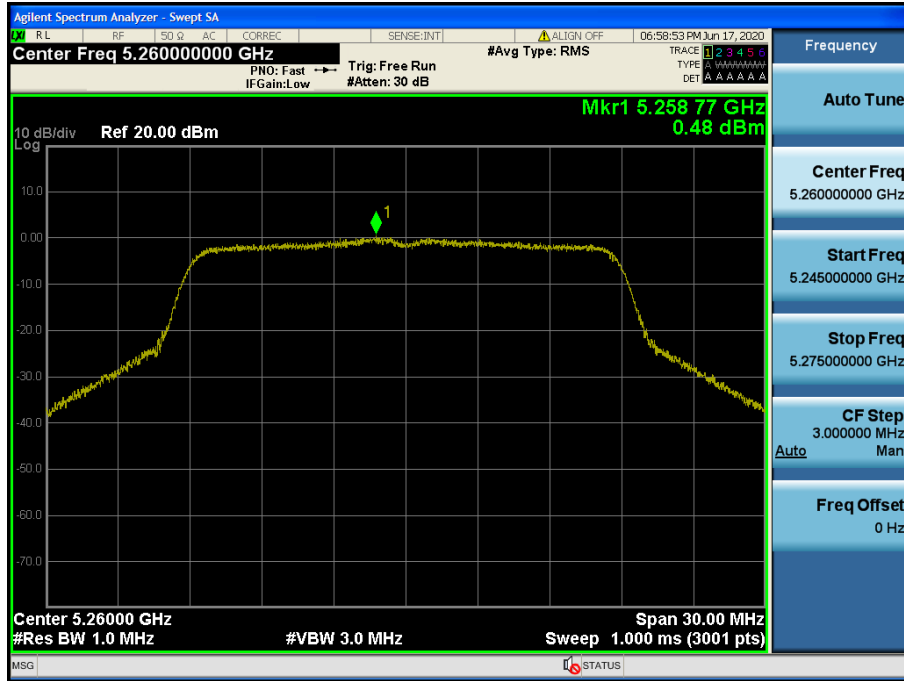
Maximum Power Spectral Density

Test Mode: 802.11ac VHT20 & ANT 2 & Ch.48



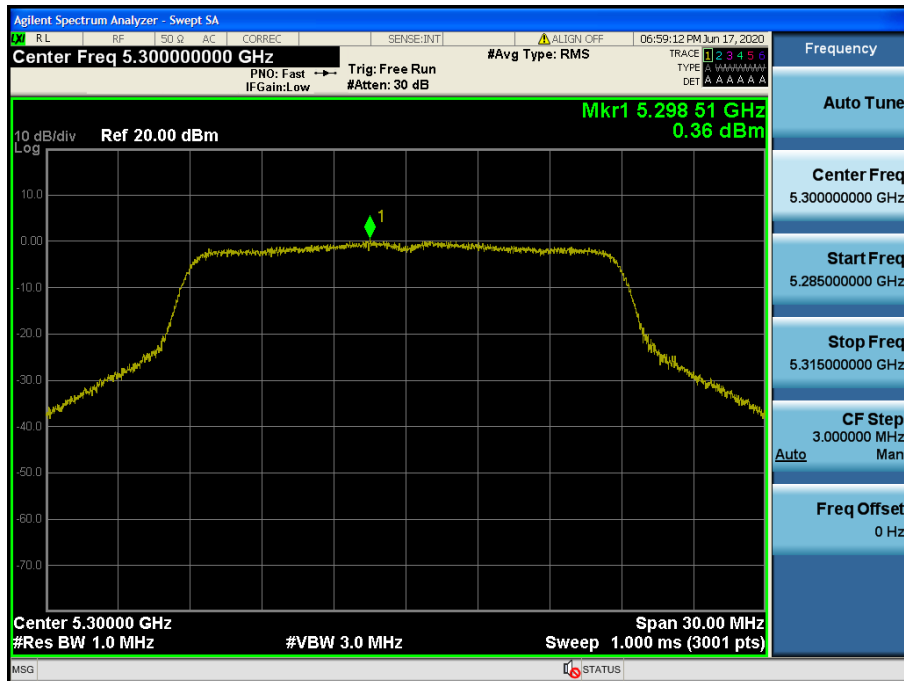
Maximum Power Spectral Density

Test Mode: 802.11ac VHT20 & ANT 2 & Ch.52



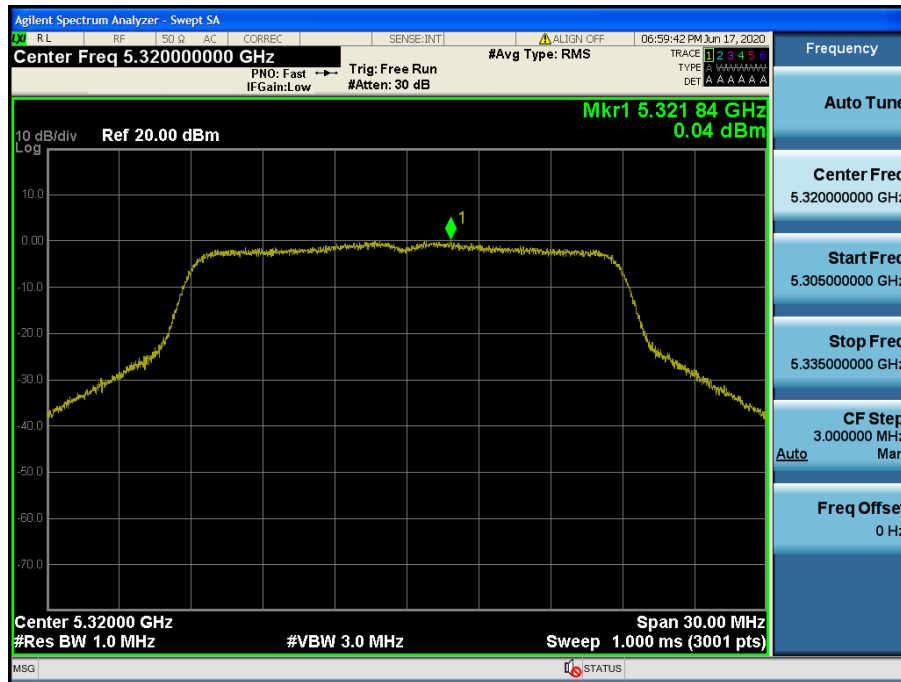
Maximum Power Spectral Density

Test Mode: 802.11ac VHT20 & ANT 2 & Ch.60



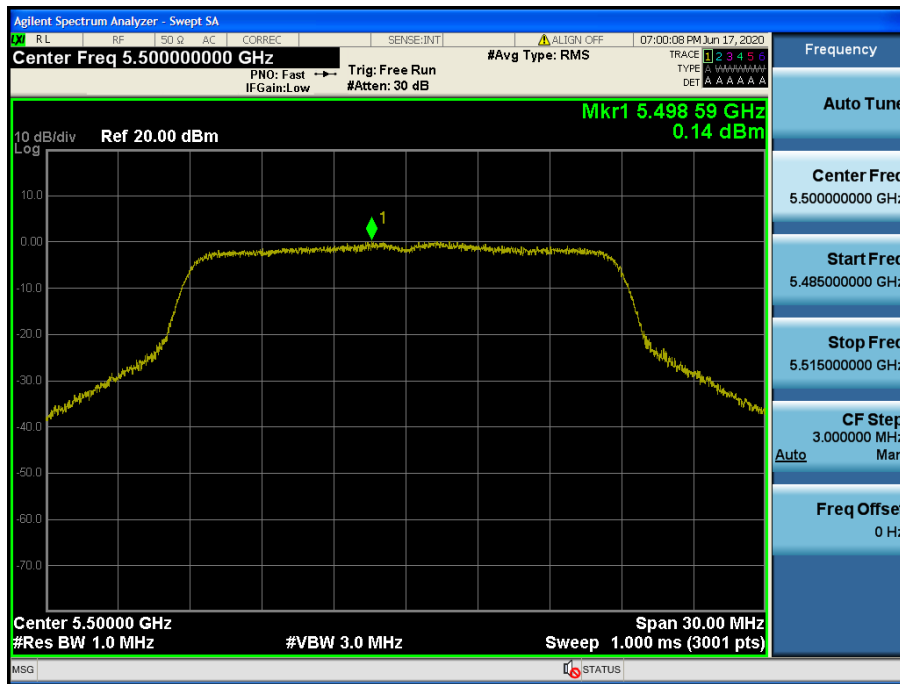
Maximum Power Spectral Density

Test Mode: 802.11ac VHT20 & ANT 2 & Ch.64



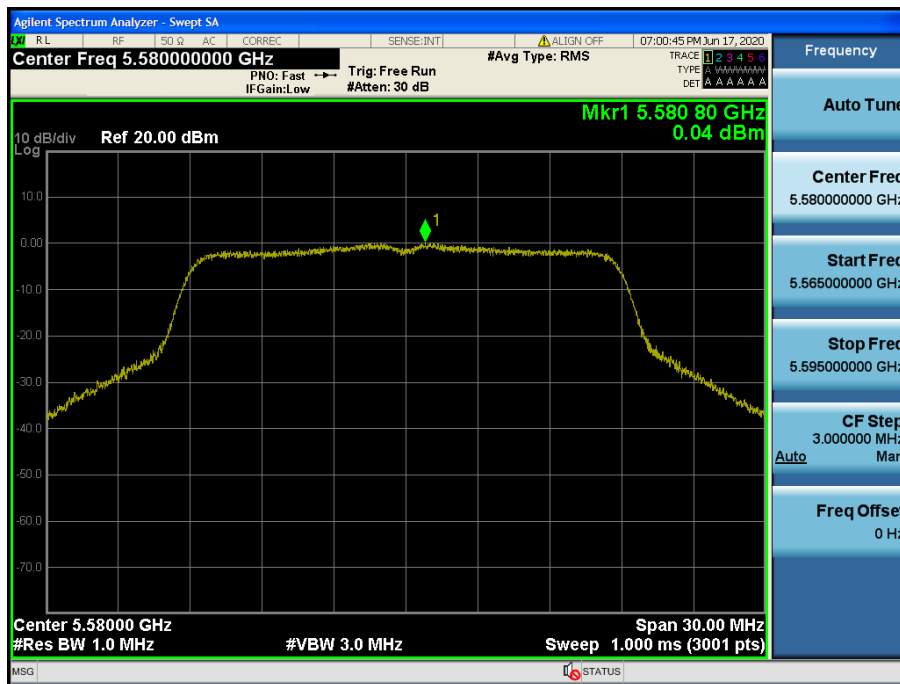
Maximum Power Spectral Density

Test Mode: 802.11ac VHT20 & ANT 2 & Ch.100



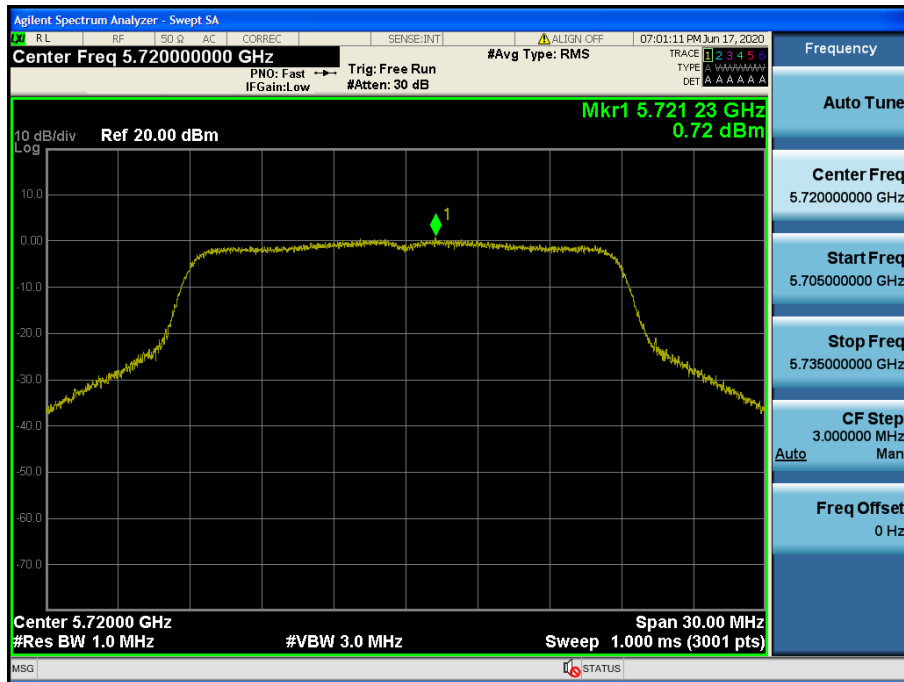
Maximum Power Spectral Density

Test Mode: 802.11ac VHT20 & ANT 2 & Ch.120



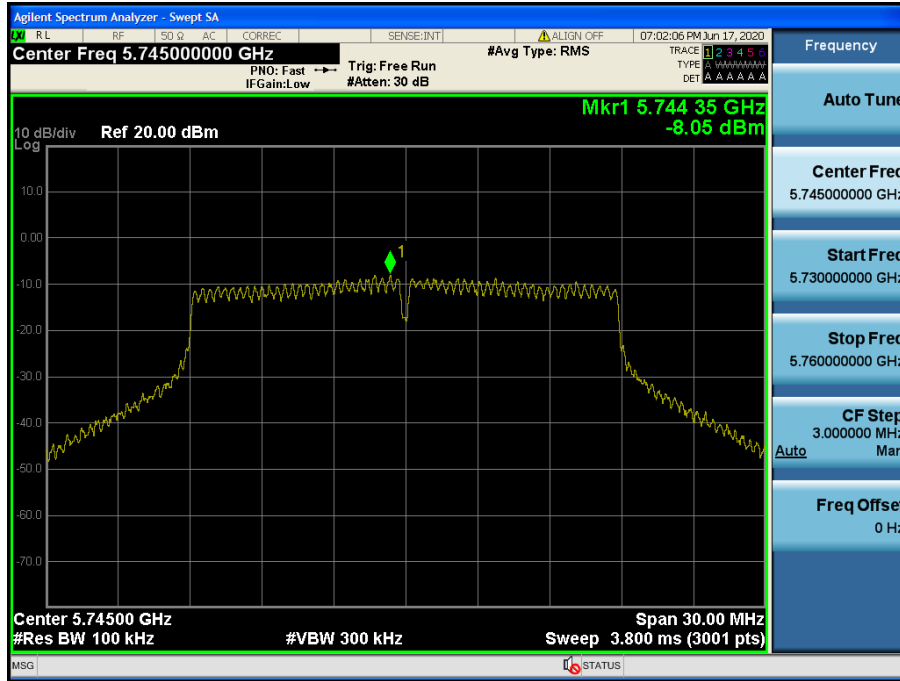
Maximum Power Spectral Density

Test Mode: 802.11ac VHT20 & ANT 2 & Ch.144



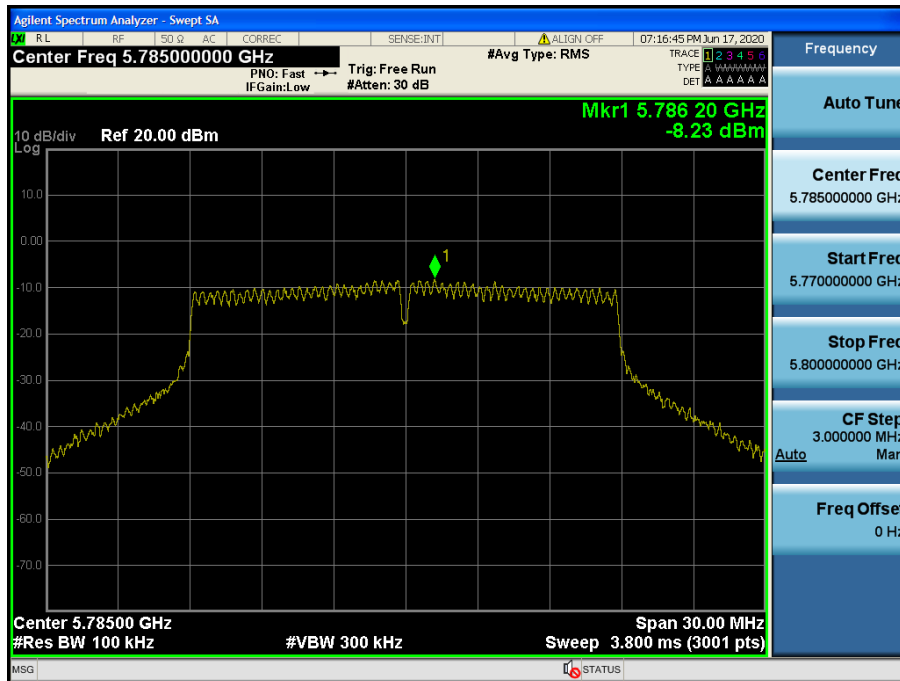
Maximum Power Spectral Density

Test Mode: 802.11ac VHT20 & ANT 2 & Ch.149



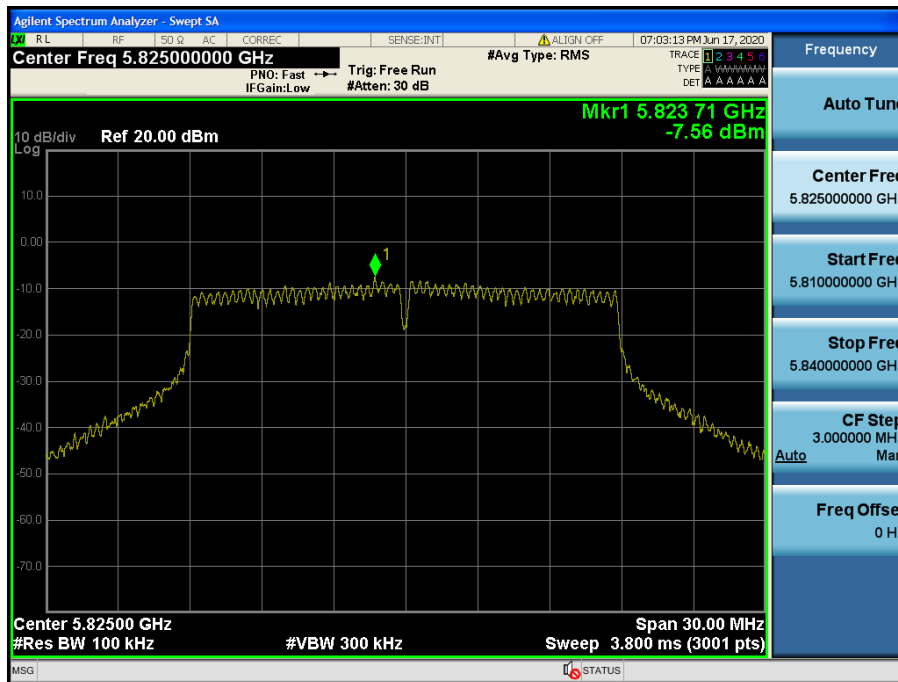
Maximum Power Spectral Density

Test Mode: 802.11ac VHT20 & ANT 2 & Ch.157



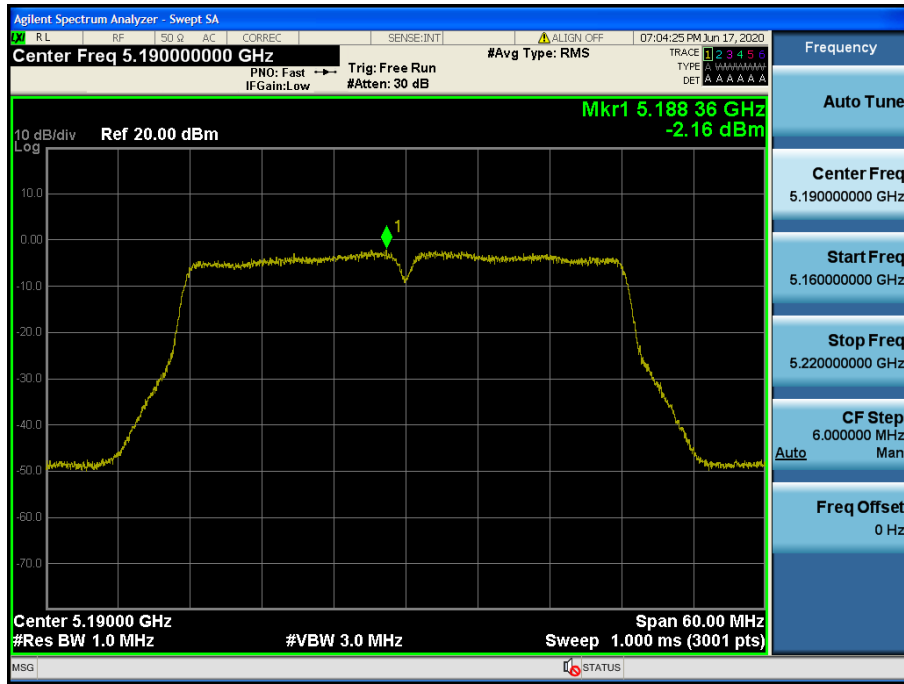
Maximum Power Spectral Density

Test Mode: 802.11ac VHT20 & ANT 2 & Ch.165



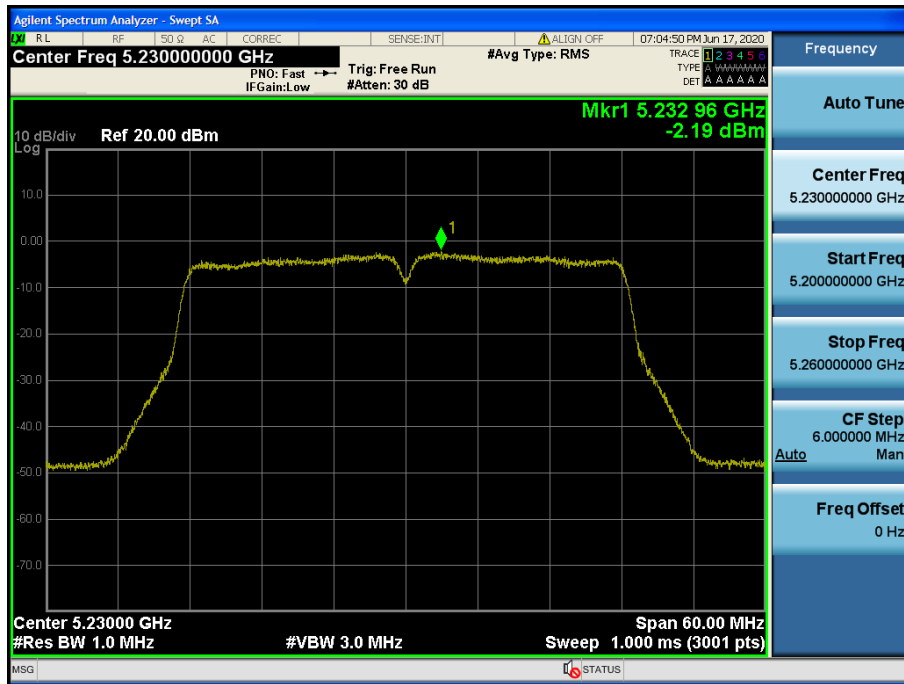
Maximum Power Spectral Density

Test Mode: 802.11n HT40 & ANT 2 & Ch.38



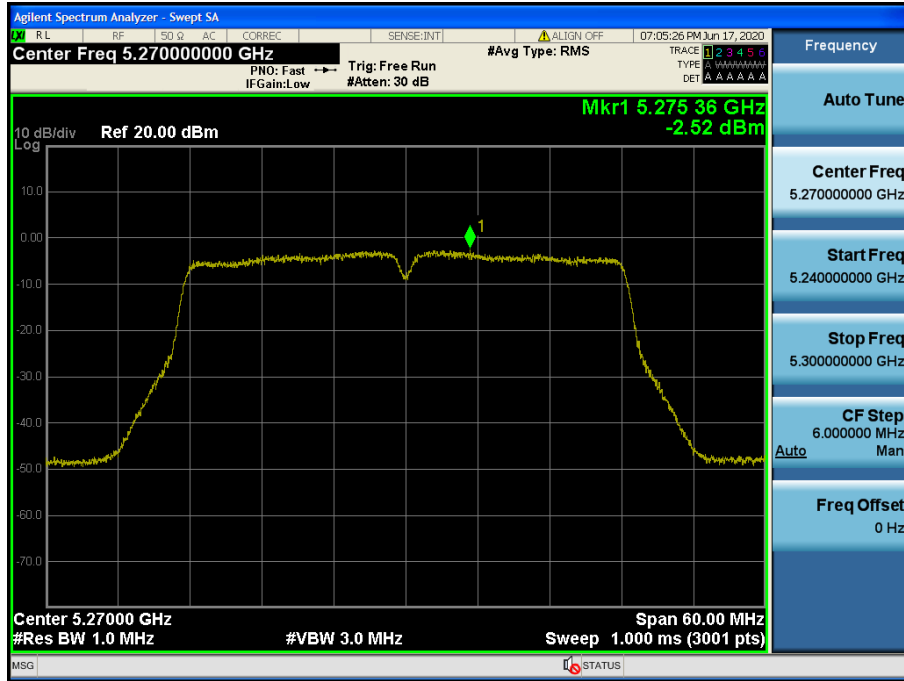
Maximum Power Spectral Density

Test Mode: 802.11n HT40 & ANT 2 & Ch.46



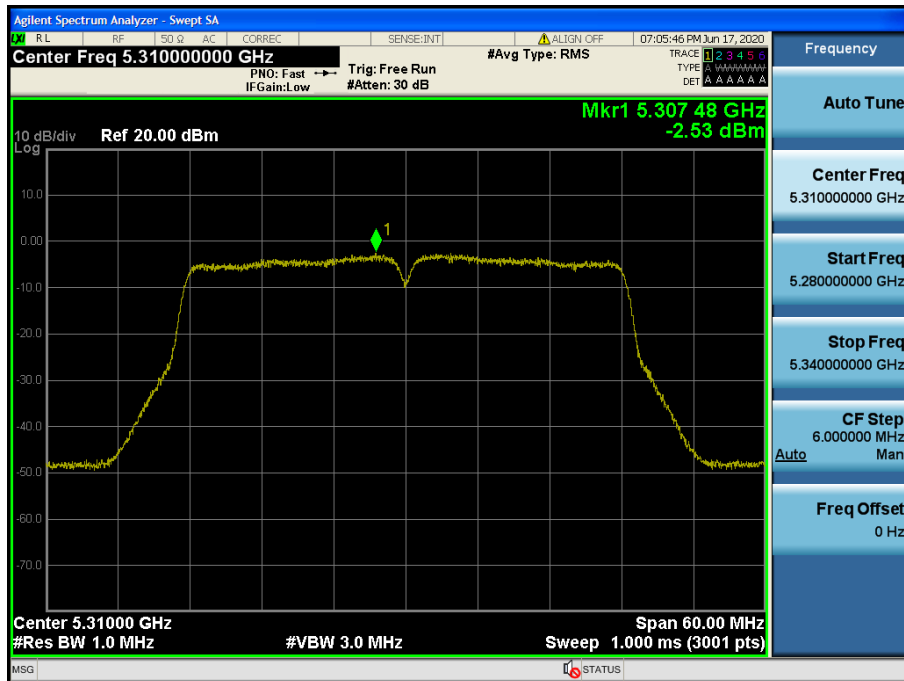
Maximum Power Spectral Density

Test Mode: 802.11n HT40 & ANT 2 & Ch.54



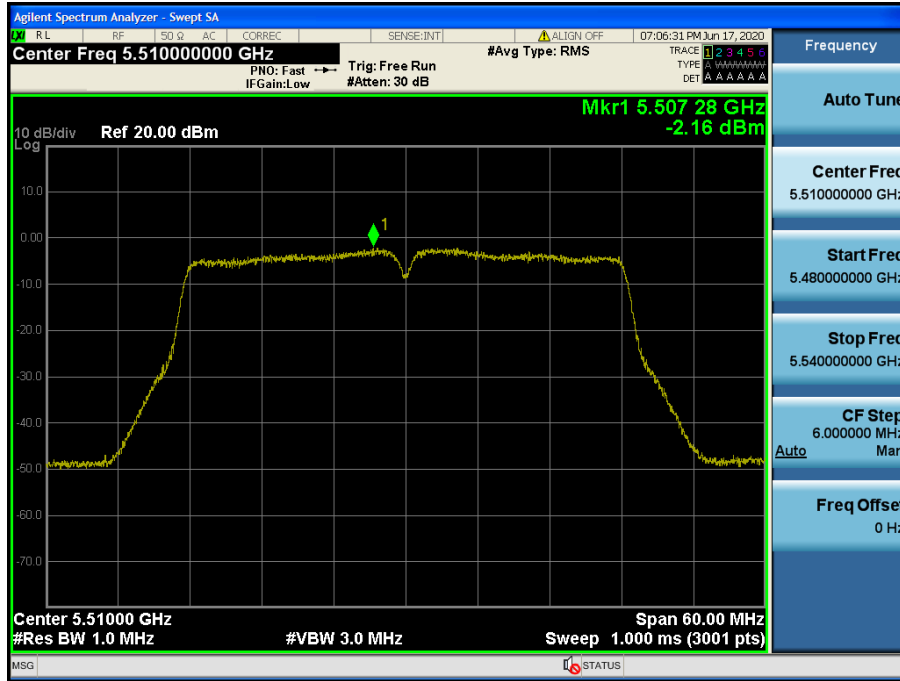
Maximum Power Spectral Density

Test Mode: 802.11n HT40 & ANT 2 & Ch.62



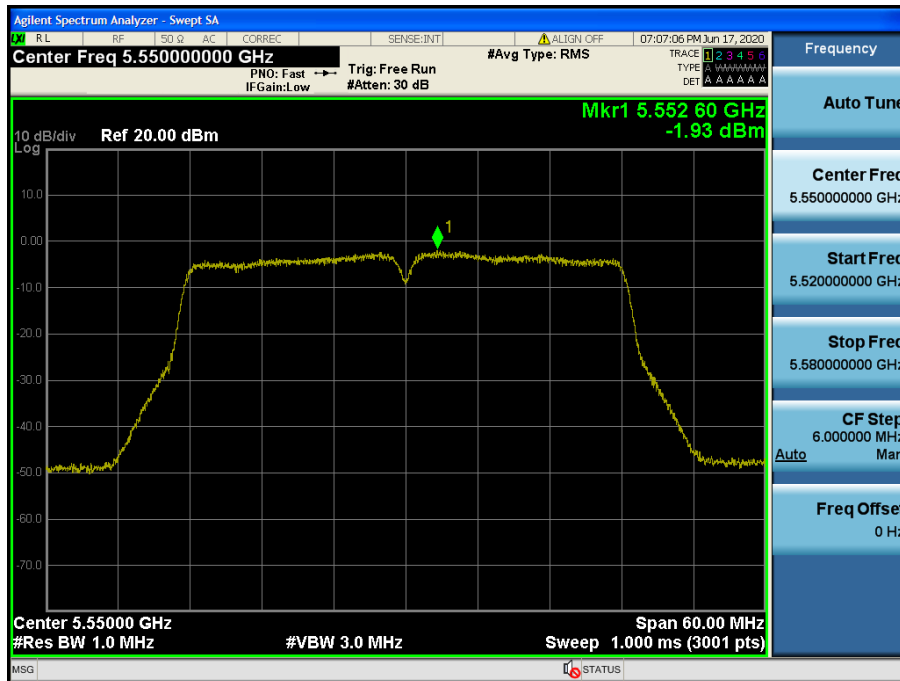
Maximum Power Spectral Density

Test Mode: 802.11n HT40 & ANT 2 & Ch.102



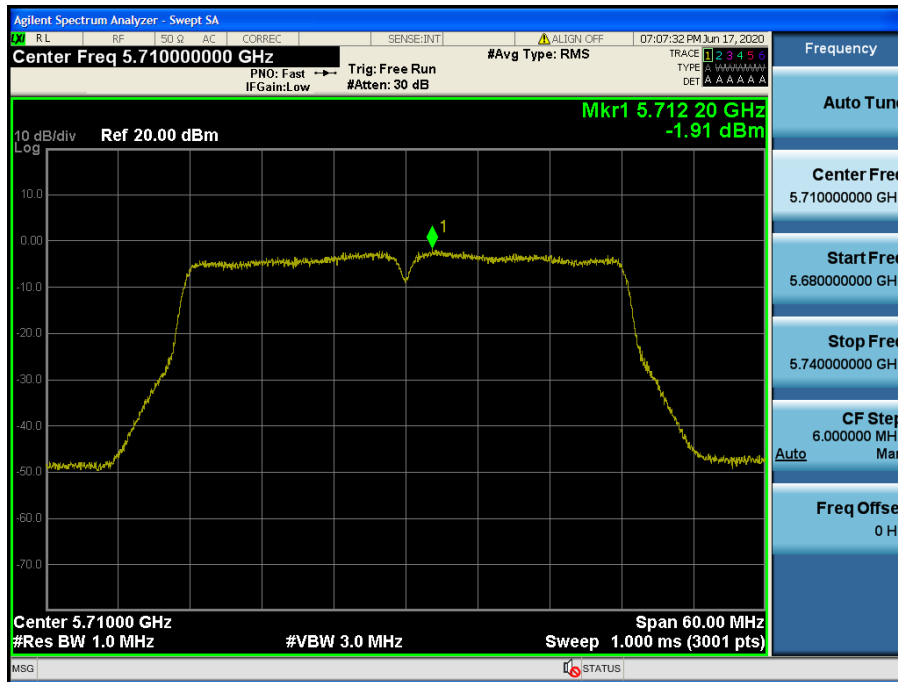
Maximum Power Spectral Density

Test Mode: 802.11n HT40 & ANT 2 & Ch.118



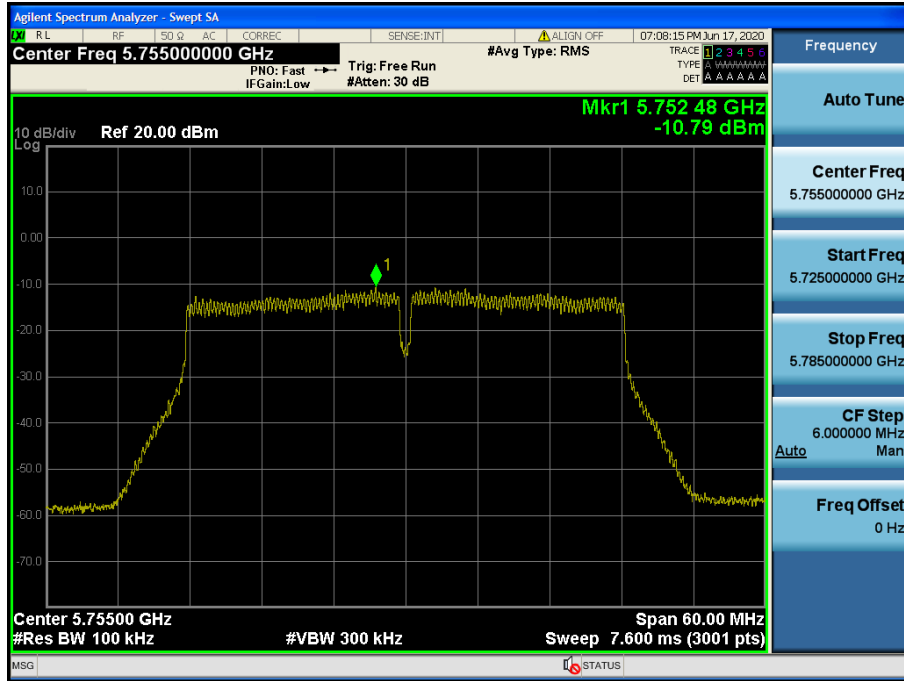
Maximum Power Spectral Density

Test Mode: 802.11n HT40 & ANT 2 & Ch.142



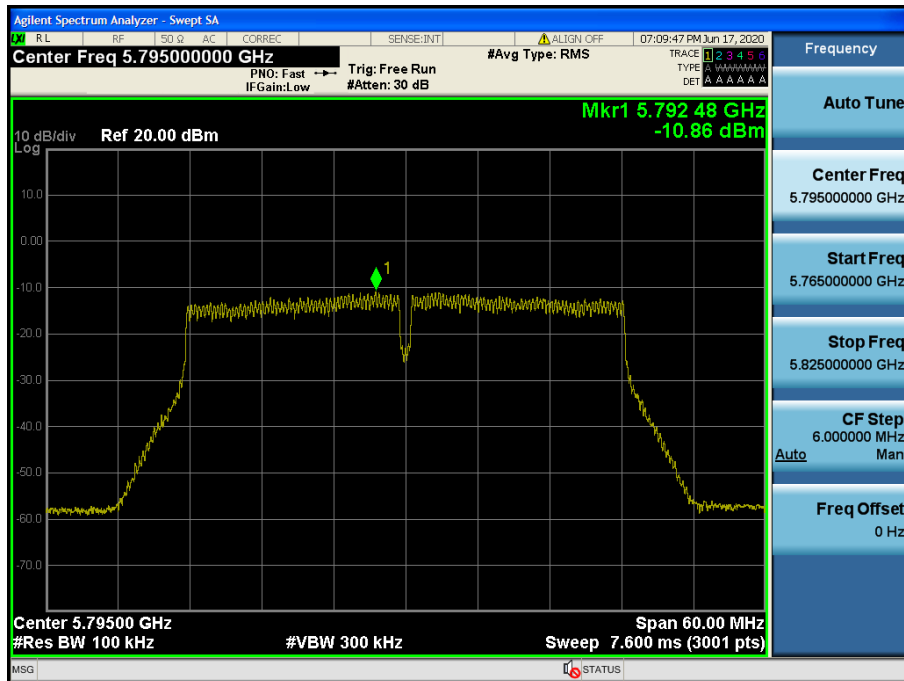
Maximum Power Spectral Density

Test Mode: 802.11n HT40 & ANT 2 & Ch.151



Maximum Power Spectral Density

Test Mode: 802.11n HT40 & ANT 2 & Ch.159



Maximum Power Spectral Density

Test Mode: 802.11ac VHT80 & ANT 2 & Ch.42



Maximum Power Spectral Density

Test Mode: 802.11ac VHT80 & ANT 2 & Ch.58



Maximum Power Spectral Density

Test Mode: 802.11ac VHT80 & ANT 2 & Ch.106

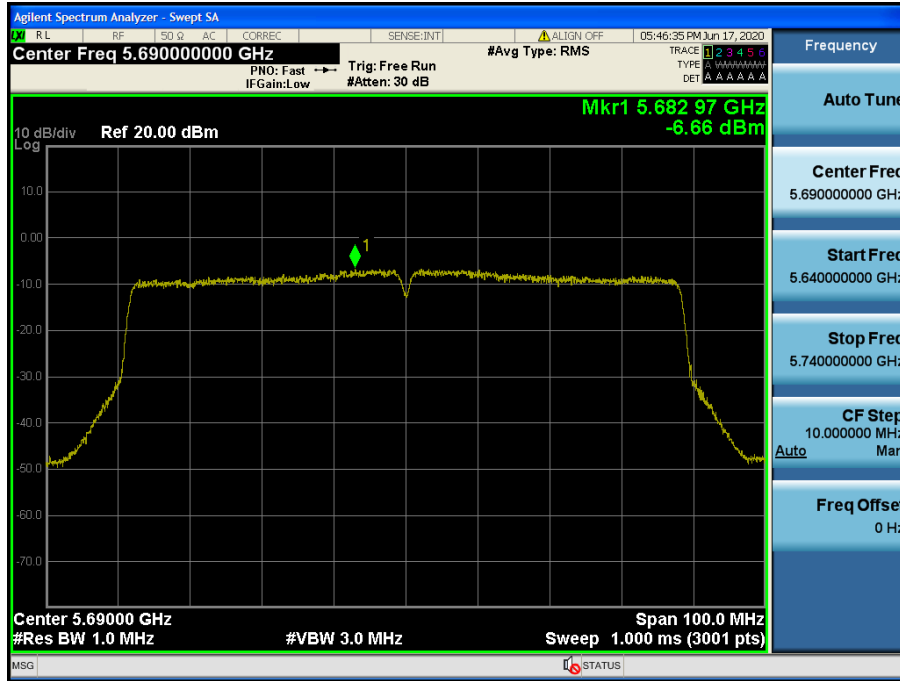


Maximum Power Spectral Density

Test Mode: 802.11ac VHT80 & ANT 2 & Ch.122

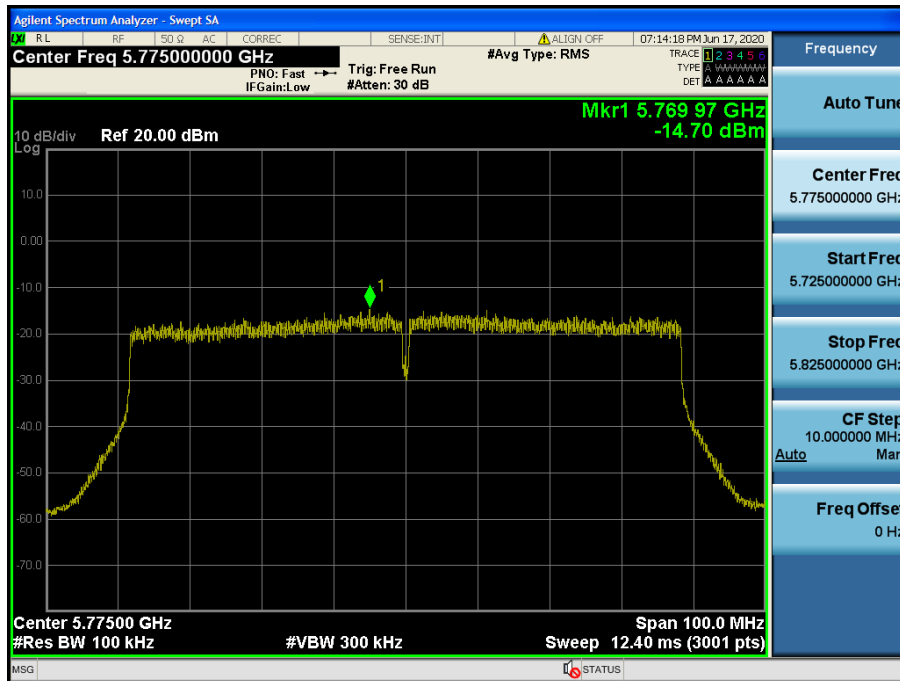
Maximum Power Spectral Density

Test Mode: 802.11ac VHT80 & ANT 2 & Ch.138



Maximum Power Spectral Density

Test Mode: 802.11ac VHT80 & ANT 2 & Ch.155



8.5 Radiated Spurious Emission Measurements

■ Test Requirements

• FCC Part 15.209(a) and (b)

| Frequency (MHz) | Limit (uV/m) | Measurement Distance (meter) |
|-----------------|--------------|------------------------------|
| 0.009 – 0.490 | 2400/F(KHz) | 300 |
| 0.490 – 1.705 | 24000/F(KHz) | 30 |
| 1.705 – 30.0 | 30 | 30 |
| 30 ~ 88 | 100 ** | 3 |
| 88 ~ 216 | 150 ** | 3 |
| 216 ~ 960 | 200 ** | 3 |
| Above 960 | 500 | 3 |

** Except as provided in 15.209(g), fundamental emissions from intentional radiators operating under this Section shall not be located in the frequency bands 54 MHz - 72 MHz, 76 MHz - 88 MHz, 174 MHz - 216 MHz or 470 MHz - 806 MHz. However, operation within these frequency bands is permitted under other sections of this Part, e.g. 15.231 and 15.241.

• FCC Part 15.205 (a): Only spurious emissions are permitted in any of the frequency bands listed below:

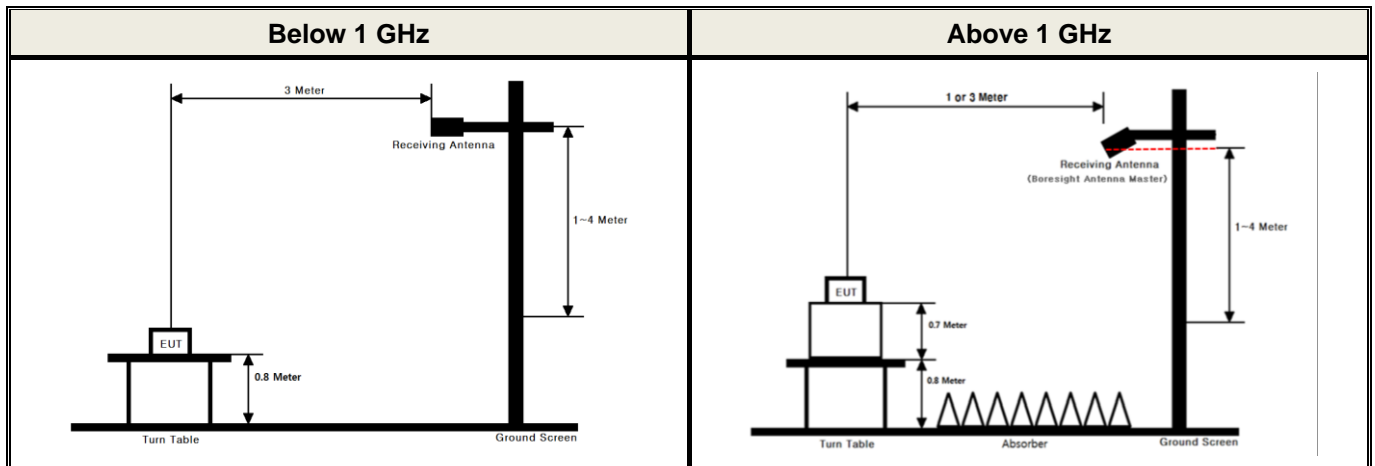
| MHz | MHz | MHz | MHz | GHz | GHz |
|-------------------|-------------------|-------------------|-----------------|--------------|---------------|
| 0.009 ~ 0.110 | 8.41425 ~ 8.41475 | 108 ~ 121.94 | 1300 ~ 1427 | 4.5 ~ 5.15 | 14.47 ~ 14.5 |
| 0.495 ~ 0.505 | 12.29 ~ 12.293 | 123 ~ 138 | 1435 ~ 1626.5 | 5.35 ~ 5.46 | 15.35 ~ 16.2 |
| 2.1735 ~ 2.1905 | 12.51975 ~ | 149.9 ~ 150.05 | 1645.5 ~ 1646.5 | 7.25 ~ 7.75 | 17.7 ~ 21.4 |
| 4.125 ~ 4.128 | 12.52025 | 160.52475 ~ | 1660 ~ 1710 | 8.025 ~ 8.5 | 22.01 ~ 23.12 |
| 4.17725 ~ 4.17775 | 12.57675 ~ | 160.52525 | 1718.8 ~ 1722.2 | 9.0 ~ 9.2 | 23.6 ~ 24.0 |
| 4.20725 ~ 4.20775 | 12.57725 | 160.7 ~ 160.9 | 2200 ~ 2300 | 9.3 ~ 9.5 | 31.2 ~ 31.8 |
| 6.215 ~ 6.218 | 13.36 ~ 13.41 | 162.0125 ~ 167.17 | 2310 ~ 2390 | 10.6 ~ 12.7 | 36.43 ~ 36.5 |
| 6.26775 ~ 6.26825 | 16.42 ~ 16.423 | 167.72 ~ 173.2 | 2483.5 ~ 2500 | 13.25 ~ 13.4 | Above 38.6 |
| 6.31175 ~ 6.31225 | 16.69475 ~ | 240 ~ 285 | 2655 ~ 2900 | | |
| 8.291 ~ 8.294 | 16.69525 | 322 ~ 335.4 | 3260 ~ 3267 | | |
| 8.362 ~ 8.366 | 16.80425 ~ | 399.90 ~ 410 | 3332 ~ 3339 | | |
| 8.37625 ~ 8.38675 | 16.80475 | 608 ~ 614 | 3345.8 ~ 3358 | | |
| | 25.5 ~ 25.67 | 960 ~ 1240 | 3600 ~ 4000 | | |
| | 37.5 ~ 38.25 | | | | |
| | 73 ~ 74.6 | | | | |
| | 74.8 ~ 75.2 | | | | |

• **FCC Part 15.205(b):** The field strength of emissions appearing within these frequency bands shall not exceed the limits shown in §15.209. At frequencies equal to or less than 1 000 MHz, compliance with the limits in §15.209 shall be demonstrated using measurement instrumentation employing a CISPR quasi-peak detector. Above 1 000 MHz, compliance with the emission limits in §15.209 shall be demonstrated based on the average value of the measured emissions. The provisions in §15.35 apply to these measurements.

• **FCC Part 15.407 (b):** Undesirable emission limits. Except as shown in paragraph (b)(7) of this section, the maximum emissions outside of the frequency bands of operation shall be attenuated in accordance with the following limits:

- (1) For transmitters operating in the **5.15 GHz - 5.25 GHz band**: all emissions outside of the **5.15 GHz - 5.35 GHz band** shall not exceed an **EIRP of -27 dBm/MHz**.
- (2) For transmitters operating in the **5.25 GHz - 5.35 GHz band**: all emissions outside of the **5.15 GHz - 5.35 GHz band** shall not exceed an **EIRP of -27 dBm/MHz**.
- (3) For transmitters operating in the **5.47 GHz - 5.725 GHz band**: all emissions outside of the **5.47 GHz - 5.725 GHz band** shall not exceed an **EIRP of -27 dBm/MHz**.
- (4) For transmitters operating in the **5.725 GHz - 5.85 GHz band**: All emissions shall be limited to a level of -27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.
- (5) The emission measurements shall be performed using a minimum resolution bandwidth of 1 MHz. A lower resolution bandwidth may be employed near the band edge, when necessary, provided the measured energy is integrated to show the total power over 1 MHz.
- (6) Unwanted emissions **below 1 GHz** must comply with the general field strength limits set forth in **Section 15.209**. Further, any U-NII devices using an **AC power line** are required to comply also with the conducted limits set forth in **Section 15.207**.
- (7) The provisions of §15.205 apply to intentional radiators operating under this section
- (8) When measuring the emission limits, the nominal carrier frequency shall be adjusted as close to the upper and lower frequency band edges as the design of the equipment permits.

■ Test Configuration



■ Test Procedure

1. The EUT is placed on a non-conductive table. For emission measurements at or below 1 GHz, the table height is 80 cm. For emission measurements above 1 GHz, the table height is 1.5 m.
2. The turn table shall be rotated for 360 degrees to determine the position of maximum emission level.
3. EUT is set 1 m or 3 m away from the receiving antenna, which is varied from 1 m to 4 m to find out the highest emissions.
4. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
5. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
6. Repeat above procedures until the measurements for all frequencies are complete.

Radiated spurious emission measured using following Measurement Procedure of **KDB789033 D02v02r01**

► General Requirements for Unwanted Emissions Measurements

The following requirements apply to all unwanted emissions measurements, both in and outside of the restricted bands:

▪ EUT Duty Cycle

- (1) The EUT shall be configured or modified to **transmit continuously** except as stated in (ii), below. The intent is to test at 100 percent duty cycle; however a small reduction in duty cycle (**to no lower than 98 percent**) is permitted if required by the EUT for amplitude control purposes. Manufacturers are expected to provide software to the test lab to permit such continuous operation.
- (2) If **continuous transmission (or at least 98 percent duty cycle) cannot be achieved** due to hardware limitations of the EUT (e.g., overheating), the following additions to the measurement and reporting procedures are required:
 - The EUT shall be configured to operate at the maximum achievable duty cycle.
 - Measure the duty cycle, x, of the transmitter output signal.
 - Adjustments to measurement procedures (e.g., increasing test time and number of traces averaged) shall be performed as described in the procedures below.
 - The test report shall include the following additional information:
 - The reason for the duty cycle limitation.
 - The duty cycle achieved for testing and the associated transmit duration and interval between transmissions.
 - The sweep time and the amount of time used for trace stabilization during max-hold measurements for peak emission measurements.
- (3) Reduction of the measured emission amplitude levels to account for operational duty factor is not permitted. Compliance is based on emission levels occurring during transmission - not on an average across on and off times of the transmitter.

► Measurements below 1 000 MHz

- a) Follow the requirements in section II.G.3, “General Requirements for Unwanted Emissions Measurements”.
- b) Compliance shall be demonstrated using **CISPR quasi-peak detection**; however, **peak detection** is permitted as an alternative to quasi-peak detection.

► Measurements Above 1 000 MHz (Peak)

- a) Follow the requirements in section II.G.3, “General Requirements for Unwanted Emissions Measurements”.
- b) Peak emission levels are measured by setting the analyzer as follows:
 - (i) **RBW = 1 MHz.**
 - (ii) **VBW ≥ 3 MHz.**
 - (iii) **Detector = Peak.**
 - (iv) Sweep time = Auto.
 - (v) Trace mode = Max hold.
 - (vi) Allow sweeps to continue until the trace stabilizes. Note that if the transmission is not continuous, the time required for the trace to stabilize will increase by a factor of approximately $1/x$, where x is the duty cycle. For example, at 50 percent duty cycle, the measurement time will increase by a factor of two relative to measurement time for continuous transmission.

► Measurements Above 1 000 MHz (Method VB)

- (i) **RBW = 1 MHz.**
- (ii) **VBW.**
 - If the EUT is configured to transmit with duty cycle $\geq 98\%$, set $VBW \leq RBW / 100$ (i.e., 10 kHz) but not less than 10 Hz.
 - If the EUT duty cycle is $< 98\%$, set $VBW \geq 1 / T$, (T refers to the minimum transmission duration over which the transmitter is on and is transmitting at its maximum power control level for the tested mode of operation).
- (iii) Video bandwidth mode or display mode
 - The instrument shall be set to ensure that video filtering is applied in the power domain. Typically, this requires setting the detector mode to rms and setting the Average-VBW Type to power averaging (rms).
 - As an alternative, the analyzer may be set to linear detector mode. Ensure that video filtering is applied in linear voltage domain (rather than in a log or dB domain). Some analyzers require linear display mode in order to accomplish this. Others have a setting for Average-VBW Type, which can be set to “Voltage” regardless of the display mode.
- (iv) Detector = Peak.
- (v) Sweep time = auto.
- (vi) Trace mode = max hold.
- (vii) Allow max hold to run for at least 50 traces if the transmitted signal is continuous or has at least 98 % duty cycle. For lower duty cycles, increase the minimum number of traces by a factor of $1/x$, where x is the duty cycle. For example, use at least 200 traces if the duty cycle is 25 %. (If a specific emission is demonstrated to be continuous—i.e., 100 % duty cycle—rather than turning on and off with the transmit cycle, at least 50 traces shall be averaged.)

Note: Please refer to Appendix II for actual VBW setting according to method VB.

Test Results

Test Notes

1. No other spurious and harmonic emissions were found greater than listed emissions on below table.

2. Sample Calculation.

$$\text{Margin} = \text{Limit} - \text{Result} \quad / \quad \text{Result} = \text{Reading} + \text{T.F} + \text{DCCF} + \text{DCF} \quad / \quad \text{T.F} = \text{AF} + \text{CL} - \text{AG}$$

Where, T.F = Total Factor, AF = Antenna Factor, CL = Cable Loss, AG = Amplifier Gain,

DCCF = Duty Cycle Correction Factor, DCF = Distance Correction Factor

3. Information of Distance Factor

For finding emissions, the test distance might be reduced from 3m to 1m. In this case, the distance factor (-9.54 dB) is applied to the result.

- Calculation of distance factor = $20 \log(\text{applied distance} / \text{required distance}) = 20 \log(1 \text{ m} / 3 \text{ m}) = -9.54 \text{ dB}$

When distance factor is "N/A", the distance is 3 m and distance factor is not applied.

4. The limit is converted to field strength.

$$E[\text{dBuV/m}] = \text{EIRP}[\text{dBm}] + 95.2 \text{ dB} = -27 \text{ dBm} + 95.2 = 68.2 \text{ dBuV/m}$$

Radiated Spurious Emissions data(9 kHz ~ 40 GHz) : **TM1 Normal**

| Band | Tested Channel | Freq. (MHz) | ANT Pol | EUT Position (Axis) | Detector Mode | Reading (dBuV) | T.F (dB/m) | DCCF (dB) | DCF (dB) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) |
|-----------|--------------------|-------------|---------|---------------------|---------------|----------------|------------|-----------|----------|-----------------|----------------|-------------|
| U-NII 1 | 36 (5 180 MHz) | 5 146.73 | H | Y | PK | 54.27 | 1.78 | N/A | N/A | 56.05 | 74.00 | 17.95 |
| | | 5 146.43 | H | Y | AV | 41.97 | 1.78 | 0.24 | N/A | 43.99 | 54.00 | 10.01 |
| | | 10 359.57 | V | Y | PK | 43.66 | 10.68 | N/A | N/A | 54.34 | 68.20 | 13.86 |
| | 40 (5 200 MHz) | 10 399.66 | V | Y | PK | 43.95 | 10.73 | N/A | N/A | 54.68 | 68.20 | 13.52 |
| | 48 (5 240 MHz) | 10 480.39 | V | Y | PK | 43.51 | 10.72 | N/A | N/A | 54.23 | 68.20 | 13.97 |
| U-NII 2A | 52 (5 260 MHz) | 10 520.16 | V | Y | PK | 43.99 | 10.78 | N/A | N/A | 54.77 | 68.20 | 13.43 |
| | 60 (5 300 MHz) | 10 600.09 | V | Y | PK | 43.75 | 10.84 | N/A | N/A | 54.59 | 74.00 | 19.41 |
| | | 10 600.07 | V | Y | AV | 33.53 | 10.84 | 0.24 | N/A | 44.61 | 54.00 | 9.39 |
| | 64 (5 320 MHz) | 5 351.45 | H | Y | PK | 49.21 | 3.33 | N/A | N/A | 52.54 | 74.00 | 21.46 |
| | | 5 351.19 | H | Y | AV | 38.63 | 3.33 | 0.24 | N/A | 42.20 | 54.00 | 11.80 |
| | | 10 639.58 | V | Y | PK | 43.87 | 10.84 | N/A | N/A | 54.71 | 74.00 | 19.29 |
| 10 639.94 | V | Y | AV | 32.47 | 10.84 | 0.24 | N/A | 43.55 | 54.00 | 10.45 | | |
| U-NII 2C | 100 (5 500 MHz) | 5 459.38 | H | Y | PK | 52.59 | 3.43 | N/A | N/A | 56.02 | 74.00 | 17.98 |
| | | 5 459.38 | H | Y | AV | 41.27 | 3.43 | 0.24 | N/A | 44.94 | 54.00 | 9.06 |
| | | 5 466.80 | H | Y | PK | 52.61 | 3.43 | N/A | N/A | 56.04 | 68.20 | 12.16 |
| | | 11 000.17 | V | Y | PK | 43.63 | 10.95 | N/A | N/A | 54.58 | 74.00 | 19.42 |
| | | 11 000.29 | V | Y | AV | 33.58 | 10.95 | 0.24 | N/A | 44.77 | 54.00 | 9.23 |
| | 120 (5 580 MHz) | 11 160.42 | V | Y | PK | 43.25 | 10.99 | N/A | N/A | 54.24 | 74.00 | 19.76 |
| | | 11 160.15 | V | Y | AV | 33.67 | 10.99 | 0.24 | N/A | 44.90 | 54.00 | 9.10 |
| | 144 (5 720 MHz) | 11 439.69 | V | Y | PK | 44.13 | 11.06 | N/A | N/A | 55.19 | 74.00 | 18.81 |
| 11 439.55 | | V | Y | AV | 33.60 | 11.06 | 0.24 | N/A | 44.90 | 54.00 | 9.10 | |
| U-NII 3 | 149 (5 745 MHz) | 5 712.87 | H | Y | PK | 56.12 | 3.29 | N/A | N/A | 59.41 | 68.20 | 8.79 |
| | | 5 722.11 | H | Y | PK | 54.26 | 3.17 | N/A | N/A | 57.43 | 78.20 | 20.77 |
| | | 11 490.32 | V | Y | PK | 44.40 | 11.14 | N/A | N/A | 55.54 | 74.00 | 18.46 |
| | | 11 490.39 | V | Y | AV | 33.89 | 11.14 | 0.24 | N/A | 45.27 | 54.00 | 8.73 |
| | 157 (5 785 MHz) | 11 569.66 | V | Y | PK | 44.86 | 11.53 | N/A | N/A | 56.39 | 74.00 | 17.61 |
| | | 11 569.62 | V | Y | AV | 34.12 | 11.53 | 0.24 | N/A | 45.89 | 54.00 | 8.11 |
| | 165 (5 825 MHz) | 5 853.57 | H | Y | PK | 54.69 | 3.71 | N/A | N/A | 58.40 | 78.20 | 19.80 |
| | | 5 862.39 | H | Y | PK | 55.04 | 3.71 | N/A | N/A | 58.75 | 68.20 | 9.45 |
| | | 11 650.16 | V | Y | PK | 44.76 | 11.86 | N/A | N/A | 56.62 | 74.00 | 17.38 |
| 11 650.37 | | V | Y | AV | 33.96 | 11.86 | 0.24 | N/A | 46.06 | 54.00 | 7.94 | |

Radiated Spurious Emissions data(9 kHz ~ 40 GHz) : *TM2 Normal*

| Band | Tested Channel | Freq. (MHz) | ANT Pol | EUT Position (Axis) | Detector Mode | Reading (dBuV) | T.F (dB/m) | DCCF (dB) | DCF (dB) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) |
|-----------|--------------------|-------------|---------|---------------------|---------------|----------------|------------|-----------|----------|-----------------|----------------|-------------|
| U-NII 1 | 36 (5 180 MHz) | 5 148.41 | H | Y | PK | 53.56 | 1.78 | N/A | N/A | 55.34 | 74.00 | 18.66 |
| | | 5 148.72 | H | Y | AV | 41.62 | 1.79 | 0.23 | N/A | 43.64 | 54.00 | 10.36 |
| | | 10 360.02 | V | Y | PK | 43.29 | 10.68 | N/A | N/A | 53.97 | 68.20 | 14.23 |
| | 40 (5 200 MHz) | 10 400.35 | V | Y | PK | 42.82 | 10.73 | N/A | N/A | 53.55 | 68.20 | 14.65 |
| | 48 (5 240 MHz) | 10 480.25 | V | Y | PK | 43.68 | 10.72 | N/A | N/A | 54.40 | 68.20 | 13.80 |
| U-NII 2A | 52 (5 260 MHz) | 10 520.32 | V | Y | PK | 44.47 | 10.78 | N/A | N/A | 55.25 | 68.20 | 12.95 |
| | 60 (5 300 MHz) | 10 600.35 | V | Y | PK | 44.53 | 10.84 | N/A | N/A | 55.37 | 74.00 | 18.63 |
| | | 10 600.16 | V | Y | AV | 33.71 | 10.84 | 0.23 | N/A | 44.78 | 54.00 | 9.22 |
| | 64 (5 320 MHz) | 5 352.26 | H | Y | PK | 49.46 | 3.33 | N/A | N/A | 52.79 | 74.00 | 21.21 |
| | | 5 352.24 | H | Y | AV | 39.01 | 3.33 | 0.23 | N/A | 42.57 | 54.00 | 11.43 |
| | | 10 639.96 | V | Y | PK | 42.93 | 10.84 | N/A | N/A | 53.77 | 74.00 | 20.23 |
| | | 10 639.80 | V | Y | AV | 32.69 | 10.84 | 0.23 | N/A | 43.76 | 54.00 | 10.24 |
| U-NII 2C | 100 (5 500 MHz) | 5 457.45 | H | Y | PK | 50.77 | 3.43 | N/A | N/A | 54.20 | 74.00 | 19.80 |
| | | 5 457.12 | H | Y | AV | 40.97 | 3.43 | 0.23 | N/A | 44.63 | 54.00 | 9.37 |
| | | 5 469.53 | H | Y | PK | 50.17 | 3.43 | N/A | N/A | 53.60 | 68.20 | 14.60 |
| | | 11 000.15 | V | Y | PK | 43.63 | 10.95 | N/A | N/A | 54.58 | 74.00 | 19.42 |
| | | 11 000.17 | V | Y | AV | 33.40 | 10.95 | 0.23 | N/A | 44.58 | 54.00 | 9.42 |
| | 120 (5 580 MHz) | 11 160.18 | V | Y | PK | 44.22 | 10.99 | N/A | N/A | 55.21 | 74.00 | 18.79 |
| | | 11 160.23 | V | Y | AV | 33.47 | 10.99 | 0.23 | N/A | 44.69 | 54.00 | 9.31 |
| | 144 (5 720 MHz) | 11 439.89 | V | Y | PK | 44.52 | 11.06 | N/A | N/A | 55.58 | 74.00 | 18.42 |
| | | 11 439.75 | V | Y | AV | 33.67 | 11.06 | 0.23 | N/A | 44.96 | 54.00 | 9.04 |
| U-NII 3 | 149 (5 745 MHz) | 5 714.52 | H | Y | PK | 54.19 | 3.30 | N/A | N/A | 57.49 | 68.20 | 10.71 |
| | | 5 723.48 | H | Y | PK | 55.66 | 3.15 | N/A | N/A | 58.81 | 78.20 | 19.39 |
| | | 11 490.30 | V | Y | PK | 45.53 | 11.14 | N/A | N/A | 56.67 | 74.00 | 17.33 |
| | | 11 490.25 | V | Y | AV | 34.18 | 11.14 | 0.23 | N/A | 45.55 | 54.00 | 8.45 |
| | 157 (5 785 MHz) | 11 570.10 | V | Y | PK | 44.79 | 11.53 | N/A | N/A | 56.32 | 74.00 | 17.68 |
| | | 11 570.30 | V | Y | AV | 34.25 | 11.53 | 0.23 | N/A | 46.01 | 54.00 | 7.99 |
| | 165 (5 825 MHz) | 5 853.87 | H | Y | PK | 51.89 | 3.71 | N/A | N/A | 55.60 | 78.20 | 22.60 |
| | | 5 861.97 | H | Y | PK | 51.60 | 3.72 | N/A | N/A | 55.32 | 68.20 | 12.88 |
| 11 650.37 | | V | Y | PK | 44.60 | 11.86 | N/A | N/A | 56.46 | 74.00 | 17.54 | |
| 11 650.09 | | V | Y | AV | 34.12 | 11.86 | 0.23 | N/A | 46.21 | 54.00 | 7.79 | |

Radiated Spurious Emissions data(9 kHz ~ 40 GHz) : TM3 Normal

| Band | Tested Channel | Freq. (MHz) | ANT Pol | EUT Position (Axis) | Detector Mode | Reading (dBuV) | T.F (dB/m) | DCCF (dB) | DCF (dB) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) |
|-----------|--------------------|-------------|---------|---------------------|---------------|----------------|------------|-----------|----------|-----------------|----------------|-------------|
| U-NII 1 | 38 (5 190 MHz) | 5 149.25 | H | Y | PK | 52.65 | 1.79 | N/A | N/A | 54.44 | 74.00 | 19.56 |
| | | 5 149.37 | H | Y | AV | 39.73 | 1.79 | 0.41 | N/A | 41.93 | 54.00 | 12.07 |
| | | 10 379.61 | V | Y | PK | 43.09 | 10.70 | N/A | N/A | 53.79 | 68.20 | 14.41 |
| | 46 (5 230 MHz) | 10 460.48 | V | Y | PK | 43.80 | 10.69 | N/A | N/A | 54.49 | 68.20 | 13.71 |
| U-NII 2A | 54 (5 270 MHz) | 10 540.26 | V | Y | PK | 43.51 | 10.82 | N/A | N/A | 54.33 | 68.20 | 13.87 |
| | 62 (5 310 MHz) | 5 350.93 | H | Y | PK | 49.30 | 3.33 | N/A | N/A | 52.63 | 74.00 | 21.37 |
| | | 5 351.19 | H | Y | AV | 38.44 | 3.33 | 0.41 | N/A | 42.18 | 54.00 | 11.82 |
| | | 10 620.44 | V | Y | PK | 43.51 | 10.84 | N/A | N/A | 54.35 | 74.00 | 19.65 |
| | | 10 620.38 | V | Y | AV | 33.02 | 10.84 | 0.41 | N/A | 44.27 | 54.00 | 9.73 |
| U-NII 2C | 102 (5 510 MHz) | 5 458.19 | H | Y | PK | 48.62 | 3.43 | N/A | N/A | 52.05 | 74.00 | 21.95 |
| | | 5 458.66 | H | Y | AV | 38.44 | 3.43 | 0.41 | N/A | 42.28 | 54.00 | 11.72 |
| | | 5 467.92 | H | Y | PK | 48.96 | 3.43 | N/A | N/A | 52.39 | 68.20 | 15.81 |
| | | 11 019.80 | V | Y | PK | 44.57 | 10.94 | N/A | N/A | 55.51 | 74.00 | 18.49 |
| | | 11 019.86 | V | Y | AV | 33.83 | 10.94 | 0.41 | N/A | 45.18 | 54.00 | 8.82 |
| | 118 (5 590 MHz) | 11 099.66 | V | Y | PK | 43.89 | 10.91 | N/A | N/A | 54.80 | 74.00 | 19.20 |
| | | 11 099.64 | V | Y | AV | 33.64 | 10.91 | 0.41 | N/A | 44.96 | 54.00 | 9.04 |
| | 142 (5 710 MHz) | 11 420.09 | V | Y | PK | 44.39 | 11.03 | N/A | N/A | 55.42 | 74.00 | 18.58 |
| 11 420.23 | | V | Y | AV | 33.98 | 11.03 | 0.41 | N/A | 45.42 | 54.00 | 8.58 | |
| U-NII 3 | 151 (5 755 MHz) | 5 713.78 | H | Y | PK | 52.28 | 3.30 | N/A | N/A | 55.58 | 68.20 | 12.62 |
| | | 5 719.14 | H | Y | PK | 54.79 | 3.23 | N/A | N/A | 58.02 | 78.20 | 20.18 |
| | | 11 510.41 | V | Y | PK | 44.36 | 11.22 | N/A | N/A | 55.58 | 74.00 | 18.42 |
| | | 11 510.11 | V | Y | AV | 33.88 | 11.21 | 0.41 | N/A | 45.50 | 54.00 | 8.50 |
| | 159 (5 795 MHz) | 5 850.97 | H | Y | PK | 49.13 | 3.68 | N/A | N/A | 52.81 | 78.20 | 25.39 |
| | | 5 862.23 | H | Y | PK | 49.38 | 3.72 | N/A | N/A | 53.10 | 68.20 | 15.10 |
| | | 11 589.53 | V | Y | PK | 44.70 | 11.63 | N/A | N/A | 56.33 | 74.00 | 17.67 |
| | | 11 589.88 | V | Y | AV | 34.07 | 11.64 | 0.41 | N/A | 46.12 | 54.00 | 7.88 |

Radiated Spurious Emissions data(9 kHz ~ 40 GHz) : *TM4 Normal*

| Band | Tested Channel | Freq. (MHz) | ANT Pol | EUT Position (Axis) | Detector Mode | Reading (dBuV) | T.F (dB/m) | DCCF (dB) | DCF (dB) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) |
|----------|--------------------|-------------|---------|---------------------|---------------|----------------|------------|-----------|----------|-----------------|----------------|-------------|
| U-NII 1 | 42 (5 210 MHz) | 5 149.32 | H | Y | PK | 49.31 | 1.79 | N/A | N/A | 51.10 | 74.00 | 22.90 |
| | | 5 149.58 | H | Y | AV | 40.13 | 1.79 | 0.77 | N/A | 42.69 | 54.00 | 11.31 |
| | | 10 419.56 | V | Y | PK | 44.19 | 10.71 | N/A | N/A | 54.90 | 68.20 | 13.30 |
| U-NII 2A | 58 (5 290 MHz) | 5 351.52 | H | Y | PK | 49.21 | 3.33 | N/A | N/A | 52.54 | 74.00 | 21.46 |
| | | 5 352.05 | H | Y | AV | 39.36 | 3.33 | 0.77 | N/A | 43.46 | 54.00 | 10.54 |
| | | 10 579.77 | V | Y | PK | 43.71 | 10.84 | N/A | N/A | 54.55 | 68.20 | 13.65 |
| U-NII 2C | 106 (5 530 MHz) | 5 457.63 | H | Y | PK | 49.17 | 3.43 | N/A | N/A | 52.60 | 74.00 | 21.40 |
| | | 5 457.38 | H | Y | AV | 38.99 | 3.43 | 0.77 | N/A | 43.19 | 54.00 | 10.81 |
| | | 5 469.49 | H | Y | PK | 49.09 | 3.43 | N/A | N/A | 52.52 | 68.20 | 15.68 |
| | | 11 060.28 | V | Y | PK | 44.14 | 10.93 | N/A | N/A | 55.07 | 74.00 | 18.93 |
| | | 11 060.43 | V | Y | AV | 33.80 | 10.93 | 0.77 | N/A | 45.50 | 54.00 | 8.50 |
| | 138 (5 690 MHz) | 11 380.12 | V | Y | PK | 45.11 | 10.97 | N/A | N/A | 56.08 | 74.00 | 17.92 |
| | | 11 380.27 | V | Y | AV | 33.58 | 10.97 | 0.77 | N/A | 45.32 | 54.00 | 8.68 |
| U-NII 3 | 155 (5 775 MHz) | 5 713.99 | H | Y | PK | 51.52 | 3.30 | N/A | N/A | 54.82 | 68.20 | 13.38 |
| | | 5 720.89 | H | Y | PK | 52.69 | 3.19 | N/A | N/A | 55.88 | 78.20 | 22.32 |
| | | 5 856.07 | H | Y | PK | 53.14 | 3.73 | N/A | N/A | 56.87 | 78.20 | 21.33 |
| | | 5 862.67 | H | Y | PK | 51.66 | 3.71 | N/A | N/A | 55.37 | 68.20 | 12.83 |
| | | 11 549.72 | V | Y | PK | 43.76 | 11.42 | N/A | N/A | 55.18 | 74.00 | 18.82 |
| | | 11 549.75 | V | Y | AV | 33.37 | 11.42 | 0.77 | N/A | 45.56 | 54.00 | 8.44 |

- WiFi DBS(Dual-Band Simultaneous) Test Results
Radiated Spurious Emissions data(9 kHz ~ 40 GHz) :
Simultaneously transmission - Normal

| | Antenna | Band | Mode | TX Frequency(MHz) |
|----------------------------|---------|---------|-----------------|-------------------|
| Transmitting Configuration | 1 | 2.4GHz | 802.11n(HT40) | 2 452 MHz |
| | 2 | U-NII 3 | 802.11ac(VHT20) | 5 825 MHz |

| Freq. (MHz) | ANT Pol | EUT Position (Axis) | Detector Mode | Reading (dBuV) | T.F (dB/m) | DCCF (dB) | DCF (dB) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) |
|-------------|---------|---------------------|---------------|----------------|------------|-----------|----------|-----------------|----------------|-------------|
| 2 485.09 | H | Z | PK | 57.97 | 5.27 | N/A | N/A | 63.24 | 74.00 | 10.76 |
| 2 484.99 | H | Z | AV | 43.35 | 5.27 | 2.37 | N/A | 50.99 | 54.00 | 3.01 |
| 4 903.95 | H | Z | PK | 49.94 | 1.35 | N/A | N/A | 51.29 | 74.00 | 22.71 |
| 4 903.62 | H | Z | AV | 39.36 | 1.35 | 2.37 | N/A | 43.08 | 54.00 | 10.92 |
| 5 852.87 | H | Y | PK | 51.20 | 3.70 | N/A | N/A | 54.90 | 78.20 | 23.30 |
| 5 861.46 | H | Y | PK | 50.96 | 3.73 | N/A | N/A | 54.69 | 68.20 | 13.51 |
| 11 650.27 | V | Y | PK | 44.72 | 11.86 | N/A | N/A | 56.58 | 74.00 | 17.42 |
| 11 650.21 | V | Y | AV | 33.95 | 11.86 | 0.41 | N/A | 46.22 | 54.00 | 7.78 |

8.6 AC Conducted Emissions

■ Test Requirements and limit, §15.207

For an intentional radiator that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies, within the band 150 kHz to 30 MHz, shall not exceed the limits in the following table, as measured using a 50 μ H/50 ohms line impedance stabilization network (LISN).

| Frequency Range (MHz) | Conducted Limit (dBuV) | |
|-----------------------|------------------------|------------|
| | Quasi-Peak | Average |
| 0.15 ~ 0.5 | 66 to 56 * | 56 to 46 * |
| 0.5 ~ 5 | 56 | 46 |
| 5 ~ 30 | 60 | 50 |

* Decreases with the logarithm of the frequency

Compliance with this provision shall be based on the measurement of the radio frequency voltage between each power line (LINE and NEUTRAL) and ground at the power terminals.

■ Test Configuration

See test photographs for the actual connections between EUT and support equipment.

■ Test Procedure

Conducted emissions from the EUT were measured according to the ANSI C63.10-2013.

1. The test procedure is performed in a 6.5 m \times 3.5 m \times 3.5 m (L \times W \times H) shielded room. The EUT along with its peripherals were placed on a 1.0 m (W) \times 1.5 m (L) and 0.8 m in height wooden table and the EUT was adjusted to maintain a 0.4 meter space from a vertical reference plane.
2. The EUT was connected to power mains through a line impedance stabilization network (LISN) which provides 50 ohm coupling impedance for measuring instrument and the chassis ground was bounded to the horizontal ground plane of shielded room.
3. All peripherals were connected to the second LISN and the chassis ground also bounded to the horizontal ground plane of shielded room.
4. The excess power cable between the EUT and the LISN was bundled. The power cables of peripherals were unbundled. All connecting cables of EUT and peripherals were moved to find the maximum emission.

■ Test Results: **Comply**

Note 1: See next pages for actual measured spectrum plots and data for worst case result.

AC Line Conducted Emissions (Graph)

Test Mode: U-NII 1 & 802.11a & MIMO(CDD) & 5 240 MHz

Results of Conducted Emission

DTNC

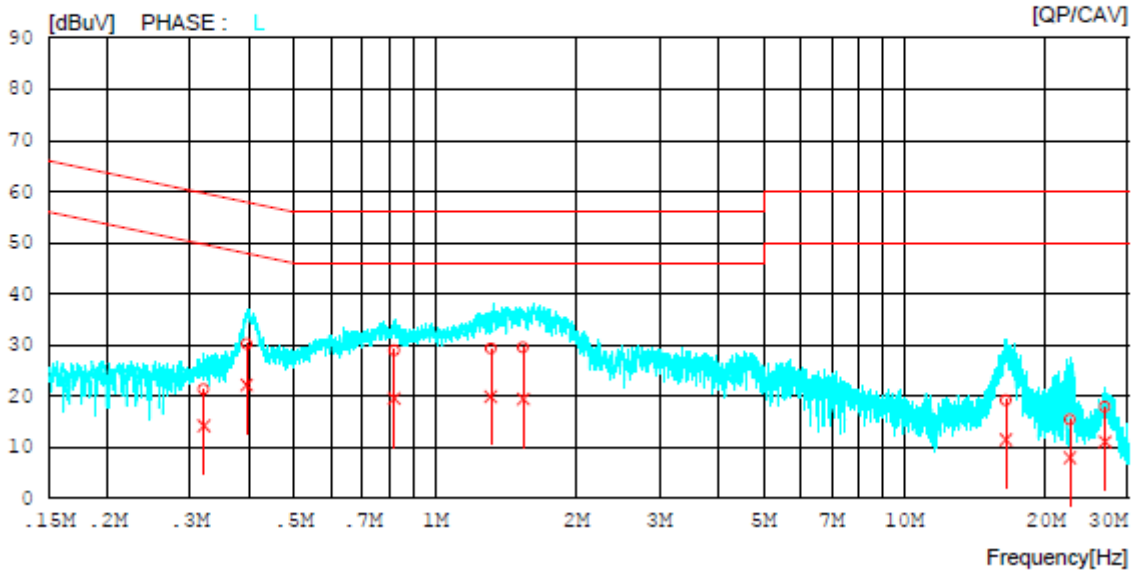
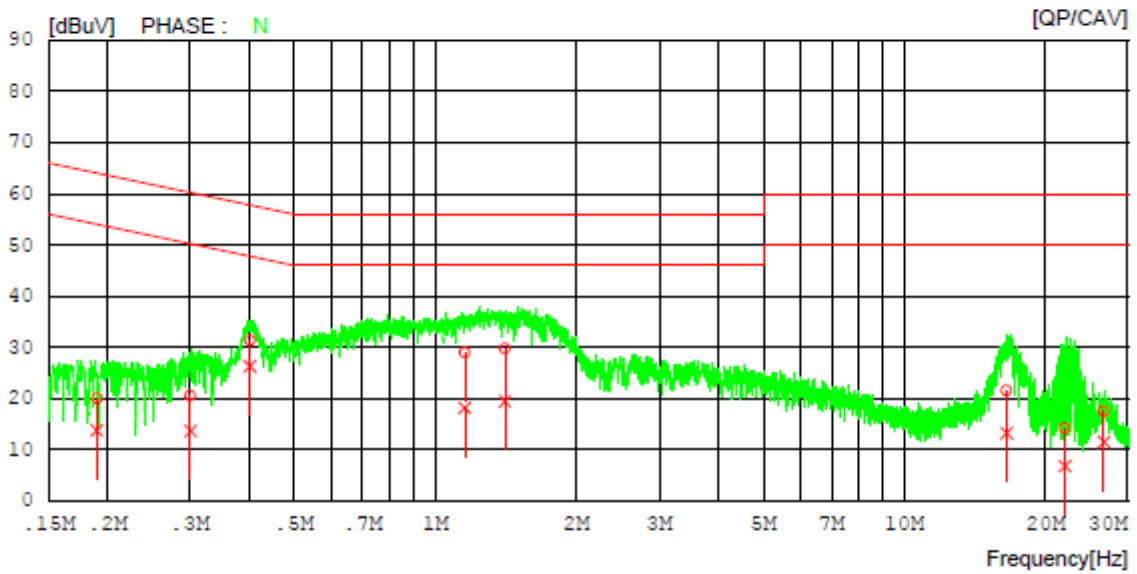
Date 2020-06-15

Order No.
Model No. PM451
Serial No.
Test Condition 5.1G WLAN

Reference No.
Power Supply 120 V, 60 Hz
Temp/Humi. 23 °C / 35 %
Operator J.H. Bang

Memo

LIMIT : FCC P15.207 QP
FCC P15.207 AV



AC Line Conducted Emissions (Data List)

Test Mode: U-NII 1 & 802.11a & MIMO(CDD) & 5 240 MHz

Results of Conducted Emission

DTNC

Date 2020-06-15

| | | | |
|----------------|-----------|---------------|--------------|
| Order No. | | Reference No. | |
| Model No. | PM451 | Power Supply | 120 V, 60 Hz |
| Serial No. | | Temp/Humi. | 23 °C / 35 % |
| Test Condition | 5.1G WLAN | Operator | J.H. Bang |

Memo

 LIMIT : FCC P15.207 QP
 FCC P15.207 AV

| NO | FREQ [MHz] | READING | | C. FACTOR [dB] | RESULT | | LIMIT | | MARGIN | | PHASE |
|----|---------------|--------------|---------------|-------------------|--------------|---------------|--------------|---------------|--------------|---------------|-------|
| | | QP [dBuV] | CAV [dBuV] | | QP [dBuV] | CAV [dBuV] | QP [dBuV] | CAV [dBuV] | QP [dBuV] | CAV [dBuV] | |
| 1 | 0.18983 | 10.02 | 3.83 | 9.95 | 19.97 | 13.78 | 64.04 | 54.04 | 44.07 | 40.26 | N |
| 2 | 0.30045 | 10.63 | 3.75 | 9.95 | 20.58 | 13.70 | 60.23 | 50.23 | 39.65 | 36.53 | N |
| 3 | 0.40288 | 21.42 | 16.36 | 9.97 | 31.39 | 26.33 | 57.79 | 47.79 | 26.40 | 21.46 | N |
| 4 | 1.15536 | 19.01 | 8.20 | 9.98 | 28.99 | 18.18 | 56.00 | 46.00 | 27.01 | 27.82 | N |
| 5 | 1.40785 | 19.76 | 9.49 | 9.99 | 29.75 | 19.48 | 56.00 | 46.00 | 26.25 | 26.52 | N |
| 6 | 16.53679 | 11.08 | 2.77 | 10.47 | 21.55 | 13.24 | 60.00 | 50.00 | 38.45 | 36.76 | N |
| 7 | 21.98579 | 3.72 | -3.71 | 10.53 | 14.25 | 6.82 | 60.00 | 50.00 | 45.75 | 43.18 | N |
| 8 | 26.62282 | 6.90 | 0.92 | 10.61 | 17.51 | 11.53 | 60.00 | 50.00 | 42.49 | 38.47 | N |
| 9 | 0.32104 | 11.33 | 4.23 | 9.95 | 21.28 | 14.18 | 59.68 | 49.68 | 38.40 | 35.50 | L |
| 10 | 0.39612 | 20.23 | 12.24 | 9.95 | 30.18 | 22.19 | 57.93 | 47.93 | 27.75 | 25.74 | L |
| 11 | 0.81761 | 18.98 | 9.53 | 9.98 | 28.96 | 19.51 | 56.00 | 46.00 | 27.04 | 26.49 | L |
| 12 | 1.31390 | 19.26 | 9.95 | 9.99 | 29.25 | 19.94 | 56.00 | 46.00 | 26.75 | 26.06 | L |
| 13 | 1.54040 | 19.54 | 9.40 | 10.02 | 29.56 | 19.42 | 56.00 | 46.00 | 26.44 | 26.58 | L |
| 14 | 16.46397 | 8.67 | 1.06 | 10.45 | 19.12 | 11.51 | 60.00 | 50.00 | 40.88 | 38.49 | L |
| 15 | 22.54258 | 4.91 | -2.50 | 10.51 | 15.42 | 8.01 | 60.00 | 50.00 | 44.58 | 41.99 | L |
| 16 | 26.78802 | 7.38 | 0.53 | 10.56 | 17.94 | 11.09 | 60.00 | 50.00 | 42.06 | 38.91 | L |

AC Line Conducted Emissions (Graph)

Test Mode: U-NII 2A & 802.11a & MIMO(CDD) & 5 320 MHz

Results of Conducted Emission

DTNC

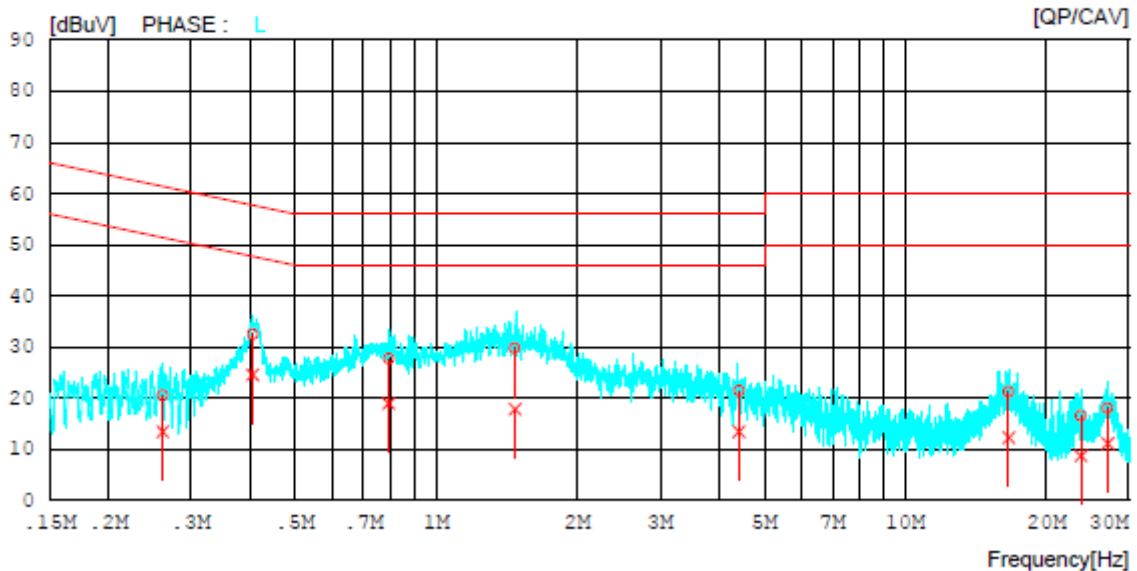
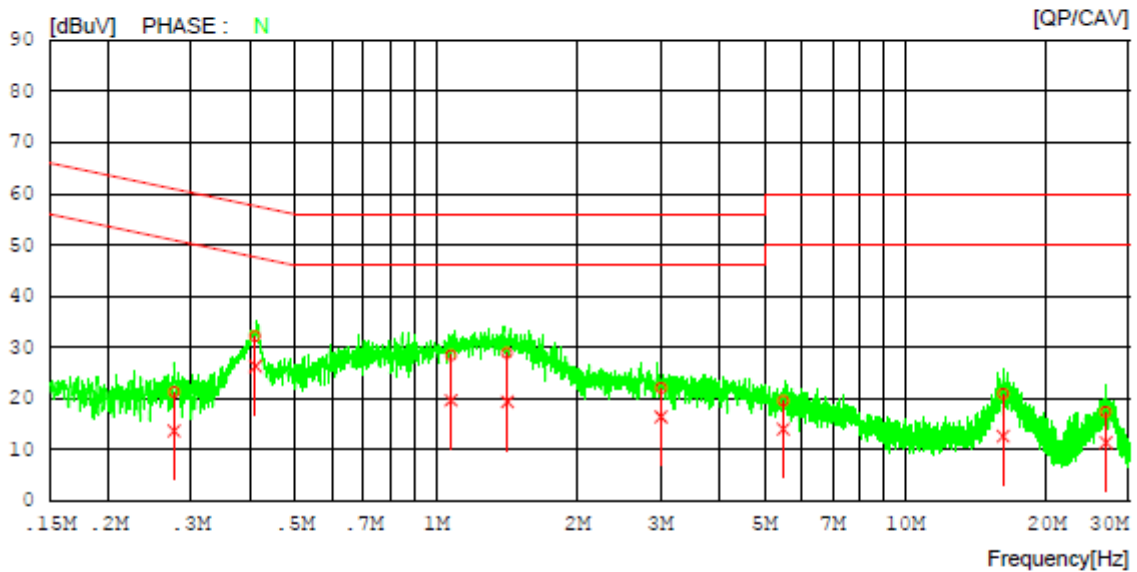
Date 2020-06-15

Order No.
Model No. PM451
Serial No.
Test Condition 5.3G WLAN

Reference No.
Power Supply 120 V, 60 Hz
Temp/Humi. 23 °C / 35 %
Operator J.H. Bang

Memo

LIMIT : FCC P15.207 QP
FCC P15.207 AV



AC Line Conducted Emissions (Data List)

Test Mode: U-NII 2A & 802.11a & MIMO(CDD) & 5 320 MHz

Results of Conducted Emission

DTNC

Date 2020-06-15

| | | | |
|----------------|-----------|---------------|--------------|
| Order No. | | Reference No. | |
| Model No. | PM451 | Power Supply | 120 V, 60 Hz |
| Serial No. | | Temp/Humi. | 23 °C / 35 % |
| Test Condition | 5.3G WLAN | Operator | J.H. Bang |

Memo

LIMIT : FCC P15.207 QP
FCC P15.207 AV

| NO | FREQ [MHz] | READING | | C. FACTOR [dB] | RESULT | | LIMIT | | MARGIN | | PHASE |
|----|---------------|--------------|---------------|-------------------|--------------|---------------|--------------|---------------|--------|-------|-------|
| | | QP [dBuV] | CAV [dBuV] | | QP [dBuV] | CAV [dBuV] | QP [dBuV] | CAV [dBuV] | | | |
| 1 | 0.27620 | 11.27 | 3.72 | 9.95 | 21.22 | 13.67 | 60.93 | 50.93 | 39.71 | 37.26 | N |
| 2 | 0.41135 | 22.23 | 16.30 | 9.97 | 32.20 | 26.27 | 57.62 | 47.62 | 25.42 | 21.35 | N |
| 3 | 1.07613 | 18.39 | 9.68 | 9.98 | 28.37 | 19.66 | 56.00 | 46.00 | 27.63 | 26.34 | N |
| 4 | 1.41708 | 18.92 | 9.41 | 9.99 | 28.91 | 19.40 | 56.00 | 46.00 | 27.09 | 26.60 | N |
| 5 | 3.01658 | 11.95 | 6.37 | 10.07 | 22.02 | 16.44 | 56.00 | 46.00 | 33.98 | 29.56 | N |
| 6 | 5.49695 | 9.38 | 3.87 | 10.18 | 19.56 | 14.05 | 60.00 | 50.00 | 40.44 | 35.95 | N |
| 7 | 16.17276 | 10.51 | 2.25 | 10.45 | 20.96 | 12.70 | 60.00 | 50.00 | 39.04 | 37.30 | N |
| 8 | 26.78222 | 6.76 | 0.84 | 10.61 | 17.37 | 11.45 | 60.00 | 50.00 | 42.63 | 38.55 | N |
| 9 | 0.26098 | 10.57 | 3.50 | 9.94 | 20.51 | 13.44 | 61.40 | 51.40 | 40.89 | 37.96 | L |
| 10 | 0.40605 | 22.53 | 14.62 | 9.95 | 32.48 | 24.57 | 57.73 | 47.73 | 25.25 | 23.16 | L |
| 11 | 0.79251 | 17.72 | 8.94 | 9.98 | 27.70 | 18.92 | 56.00 | 46.00 | 28.30 | 27.08 | L |
| 12 | 1.47087 | 19.69 | 7.84 | 10.00 | 29.69 | 17.84 | 56.00 | 46.00 | 26.31 | 28.16 | L |
| 13 | 4.42351 | 11.34 | 3.31 | 10.13 | 21.47 | 13.44 | 56.00 | 46.00 | 34.53 | 32.56 | L |
| 14 | 16.62006 | 10.73 | 1.86 | 10.45 | 21.18 | 12.31 | 60.00 | 50.00 | 38.82 | 37.69 | L |
| 15 | 23.68055 | 5.98 | -1.83 | 10.52 | 16.50 | 8.69 | 60.00 | 50.00 | 43.50 | 41.31 | L |
| 16 | 27.01332 | 7.41 | 0.57 | 10.57 | 17.98 | 11.14 | 60.00 | 50.00 | 42.02 | 38.86 | L |

AC Line Conducted Emissions (Graph)

Test Mode: U-NII 2C & 802.11a & MIMO(CDD) & 5 500 MHz

Results of Conducted Emission

DTNC

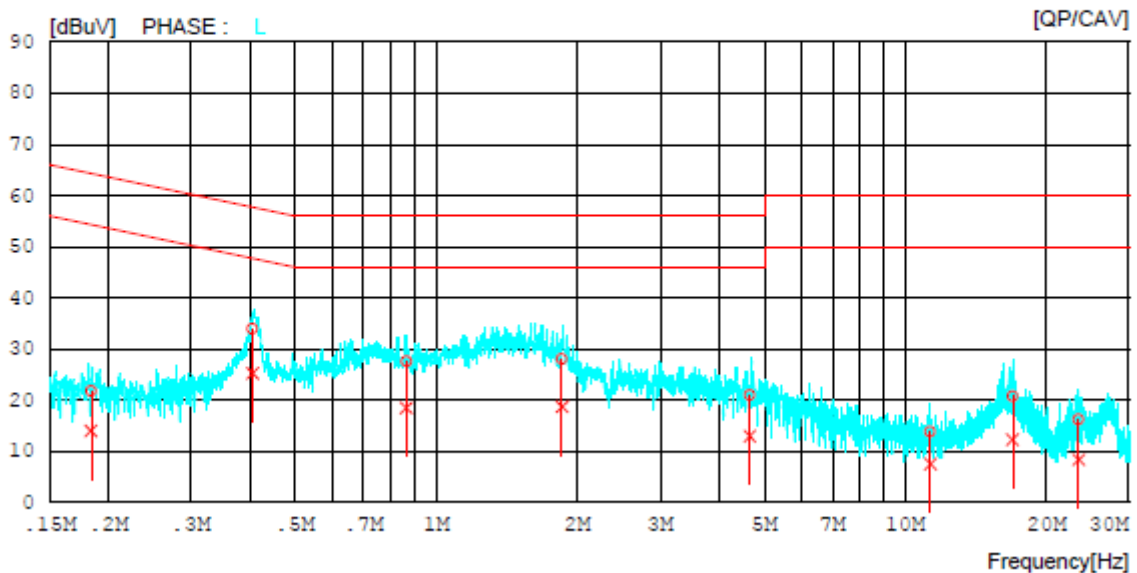
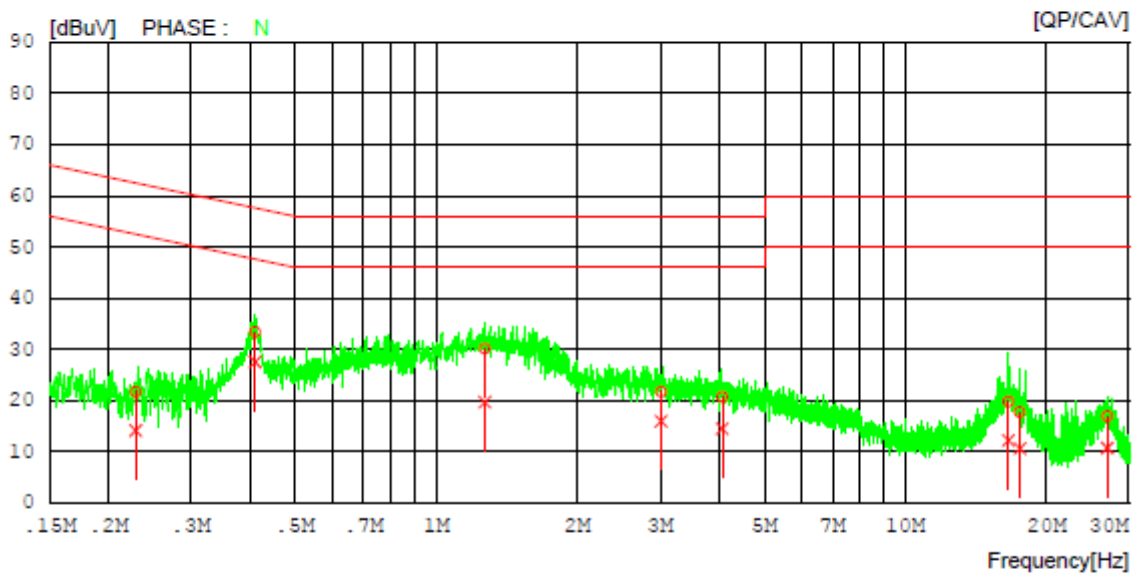
Date 2020-06-15

Order No.
Model No. PM451
Serial No.
Test Condition 5.5G WLAN

Reference No.
Power Supply 120 V, 60 Hz
Temp/Humi. 23 °C / 35 %
Operator J.H. Bang

Memo

LIMIT : FCC P15.207 QP
FCC P15.207 AV



AC Line Conducted Emissions (Data List)

Test Mode: U-NII 2C & 802.11a & MIMO(CDD) & 5 500 MHz

Results of Conducted Emission

DTNC

Date 2020-06-15

| | | | |
|----------------|-----------|---------------|--------------|
| Order No. | | Reference No. | |
| Model No. | PM451 | Power Supply | 120 V, 60 Hz |
| Serial No. | | Temp/Humi. | 23 °C / 35 % |
| Test Condition | 5.5G WLAN | Operator | J.H. Bang |

Memo

 LIMIT : FCC P15.207 QP
 FCC P15.207 AV

| NO | FREQ [MHz] | READING | | C. FACTOR [dB] | RESULT | | LIMIT | | MARGIN | | PHASE |
|----|---------------|--------------|---------------|-------------------|--------------|---------------|--------------|---------------|--------------|---------------|-------|
| | | QP [dBuV] | CAV [dBuV] | | QP [dBuV] | CAV [dBuV] | QP [dBuV] | CAV [dBuV] | QP [dBuV] | CAV [dBuV] | |
| 1 | 0.22878 | 11.77 | 4.25 | 9.94 | 21.71 | 14.19 | 62.49 | 52.49 | 40.78 | 38.30 | N |
| 2 | 0.41074 | 23.49 | 17.62 | 9.98 | 33.47 | 27.60 | 57.63 | 47.63 | 24.16 | 20.03 | N |
| 3 | 1.26904 | 20.13 | 9.77 | 9.99 | 30.12 | 19.76 | 56.00 | 46.00 | 25.88 | 26.24 | N |
| 4 | 3.01676 | 11.59 | 5.87 | 10.07 | 21.66 | 15.94 | 56.00 | 46.00 | 34.34 | 30.06 | N |
| 5 | 4.07137 | 10.55 | 4.39 | 10.12 | 20.67 | 14.51 | 56.00 | 46.00 | 35.33 | 31.49 | N |
| 6 | 16.59436 | 9.31 | 1.67 | 10.49 | 19.80 | 12.16 | 60.00 | 50.00 | 40.20 | 37.84 | N |
| 7 | 17.54594 | 7.25 | 0.08 | 10.50 | 17.75 | 10.58 | 60.00 | 50.00 | 42.25 | 39.42 | N |
| 8 | 26.94578 | 6.31 | 0.10 | 10.62 | 16.93 | 10.72 | 60.00 | 50.00 | 43.07 | 39.28 | N |
| 9 | 0.18366 | 11.77 | 4.04 | 9.94 | 21.71 | 13.98 | 64.32 | 54.32 | 42.61 | 40.34 | L |
| 10 | 0.40561 | 23.96 | 15.29 | 9.96 | 33.92 | 25.25 | 57.74 | 47.74 | 23.82 | 22.49 | L |
| 11 | 0.86285 | 17.64 | 8.51 | 9.97 | 27.61 | 18.48 | 56.00 | 46.00 | 28.39 | 27.52 | L |
| 12 | 1.85291 | 18.03 | 8.67 | 10.04 | 28.07 | 18.71 | 56.00 | 46.00 | 27.93 | 27.29 | L |
| 13 | 4.65749 | 10.80 | 2.84 | 10.14 | 20.94 | 12.98 | 56.00 | 46.00 | 35.06 | 33.02 | L |
| 14 | 11.30773 | 3.48 | -2.83 | 10.34 | 13.82 | 7.51 | 60.00 | 50.00 | 46.18 | 42.49 | L |
| 15 | 16.93955 | 10.27 | 1.80 | 10.48 | 20.75 | 12.28 | 60.00 | 50.00 | 39.25 | 37.72 | L |
| 16 | 23.41785 | 5.65 | -2.18 | 10.53 | 16.18 | 8.35 | 60.00 | 50.00 | 43.82 | 41.65 | L |

AC Line Conducted Emissions (Graph)

Test Mode: U-NII 2C & 802.11a & MIMO(CDD) & 5.785 MHz

Results of Conducted Emission

DTNC

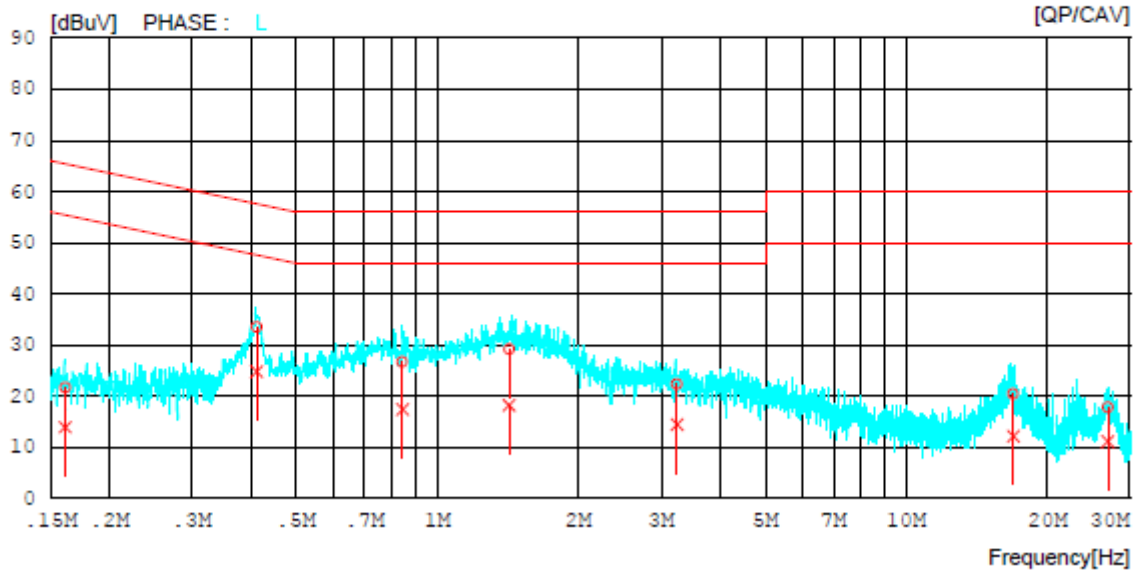
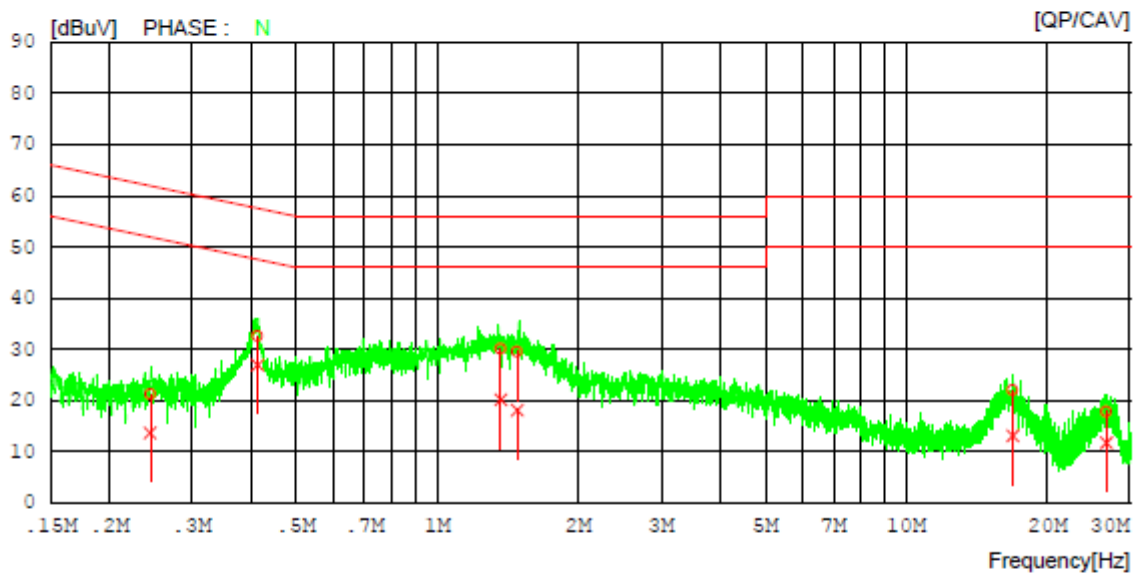
Date 2020-06-15

Order No.
Model No. PM451
Serial No.
Test Condition 5.7G WLAN

Reference No.
Power Supply 120 V, 60 Hz
Temp/Humi. 23 °C / 35 %
Operator J.H. Bang

Memo

LIMIT : FCC P15.207 QP
FCC P15.207 AV



AC Line Conducted Emissions (Data List)

Test Mode: U-NII 2C & 802.11a & MIMO(CDD) & 5 785 MHz

Results of Conducted Emission

DTNC

Date 2020-06-15

| | | | |
|----------------|-----------|---------------|--------------|
| Order No. | | Reference No. | |
| Model No. | PM451 | Power Supply | 120 V, 60 Hz |
| Serial No. | | Temp/Humi. | 23 °C / 35 % |
| Test Condition | 5.7G WLAN | Operator | J.H. Bang |

Memo

LIMIT : FCC P15.207 QP
FCC P15.207 AV

| NO | FREQ [MHz] | READING | | C. FACTOR [dB] | RESULT | | LIMIT | | MARGIN | | PHASE |
|----|---------------|--------------|---------------|-------------------|--------------|---------------|--------------|---------------|--------------|---------------|-------|
| | | QP [dBuV] | CAV [dBuV] | | QP [dBuV] | CAV [dBuV] | QP [dBuV] | CAV [dBuV] | QP [dBuV] | CAV [dBuV] | |
| 1 | 0.24441 | 11.25 | 3.72 | 9.95 | 21.20 | 13.67 | 61.95 | 51.95 | 40.76 | 38.28 | N |
| 2 | 0.41391 | 22.66 | 16.95 | 9.98 | 32.64 | 26.93 | 57.57 | 47.57 | 24.93 | 20.64 | N |
| 3 | 1.36567 | 20.14 | 10.20 | 9.99 | 30.13 | 20.19 | 56.00 | 46.00 | 25.87 | 25.81 | N |
| 4 | 1.47922 | 19.51 | 8.14 | 9.99 | 29.50 | 18.13 | 56.00 | 46.00 | 26.50 | 27.87 | N |
| 5 | 16.85551 | 11.57 | 2.66 | 10.49 | 22.06 | 13.15 | 60.00 | 50.00 | 37.94 | 36.85 | N |
| 6 | 26.70037 | 7.24 | 1.18 | 10.60 | 17.84 | 11.78 | 60.00 | 50.00 | 42.16 | 38.22 | N |
| 7 | 0.16087 | 11.67 | 3.99 | 9.94 | 21.61 | 13.93 | 65.42 | 55.42 | 43.81 | 41.49 | L |
| 8 | 0.41211 | 23.48 | 14.85 | 9.96 | 33.44 | 24.81 | 57.61 | 47.61 | 24.17 | 22.80 | L |
| 9 | 0.84287 | 16.67 | 7.46 | 9.98 | 26.65 | 17.44 | 56.00 | 46.00 | 29.35 | 28.56 | L |
| 10 | 1.42296 | 19.19 | 8.16 | 10.00 | 29.19 | 18.16 | 56.00 | 46.00 | 26.81 | 27.84 | L |
| 11 | 3.24621 | 12.24 | 4.37 | 10.07 | 22.31 | 14.44 | 56.00 | 46.00 | 33.69 | 31.56 | L |
| 12 | 16.91192 | 9.97 | 1.72 | 10.48 | 20.45 | 12.20 | 60.00 | 50.00 | 39.55 | 37.80 | L |
| 13 | 26.88555 | 7.22 | 0.56 | 10.57 | 17.79 | 11.13 | 60.00 | 50.00 | 42.21 | 38.87 | L |

8.7 Occupied Bandwidth (99 %)

■ Test Requirements

When an occupied bandwidth value is not specified in the applicable RSS, the transmitted signal bandwidth to be reported is to be its 99 % emission bandwidth, as calculated or measured

■ Test Configuration

Refer to the APPENDIX I.

■ Test Procedure

RSS-Gen[6.7]

- The transmitter shall be operated at its maximum carrier power measured under normal test conditions.
- The span of the analyzer shall be set to capture all products of the modulation process, including the emission skirts.
- The resolution bandwidth (RBW) shall be in the range of 1 % to 5 % of the occupied bandwidth (OBW) and video bandwidth (VBW) shall be approximately 3 x RBW.

■ Test Results : **Comply**

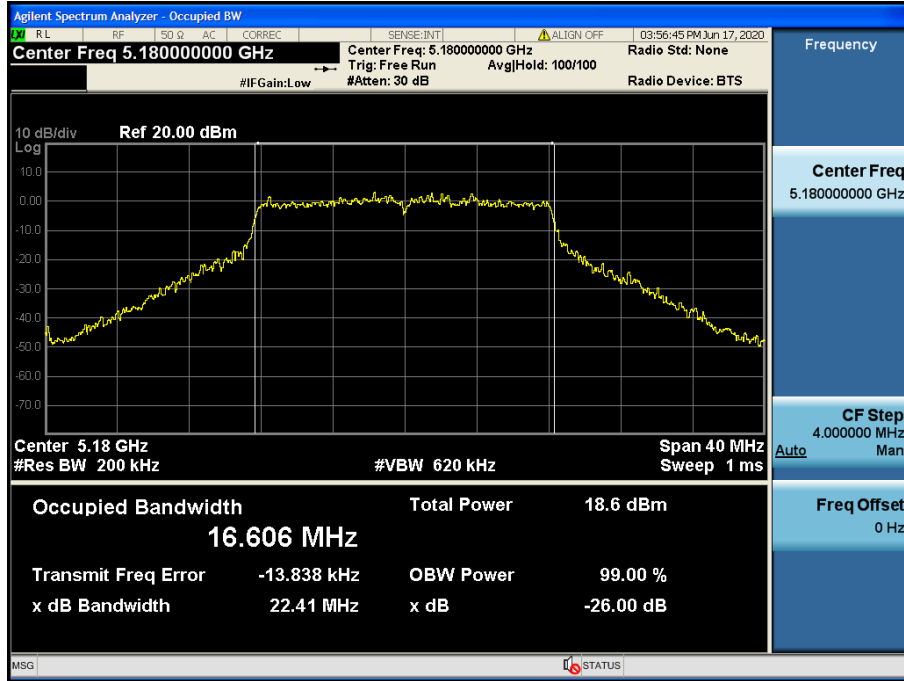
| Mode | Channel | Frequency [MHz] | Test Result [dBm] | |
|------------------|---------|-----------------|-------------------|-------|
| | | | ANT 1 | ANT 2 |
| 802.11a | 36 | 5 180 | 16.61 | 16.56 |
| | 40 | 5 200 | 16.65 | 16.52 |
| | 48 | 5 240 | 16.60 | 16.60 |
| | 52 | 5 260 | 16.58 | 16.54 |
| | 60 | 5 300 | 16.60 | 16.60 |
| | 64 | 5 320 | 16.59 | 16.54 |
| | 100 | 5 500 | 16.58 | 16.58 |
| | 116 | 5 580 | 16.57 | 16.58 |
| | 144 | 5 720 | 16.62 | 16.59 |
| | 149 | 5 745 | 16.58 | 16.54 |
| | 157 | 5 785 | 16.61 | 16.58 |
| | 165 | 5 825 | 16.60 | 16.56 |
| 802.11ac (VHT20) | 36 | 5 180 | 17.80 | 17.74 |
| | 40 | 5 200 | 17.76 | 17.76 |
| | 48 | 5 240 | 17.73 | 17.74 |
| | 52 | 5 260 | 17.78 | 17.73 |
| | 60 | 5 300 | 17.79 | 17.73 |
| | 64 | 5 320 | 17.73 | 17.76 |
| | 100 | 5 500 | 17.73 | 17.71 |
| | 116 | 5 580 | 17.81 | 17.78 |
| | 144 | 5 720 | 17.75 | 17.71 |
| | 149 | 5 745 | 17.79 | 17.75 |
| | 157 | 5 785 | 17.80 | 17.81 |
| | 165 | 5 825 | 17.77 | 17.73 |
| 802.11n (HT40) | 38 | 5 190 | 36.27 | 36.20 |
| | 46 | 5 230 | 36.28 | 36.20 |
| | 54 | 5 270 | 36.24 | 36.29 |
| | 62 | 5 310 | 36.21 | 36.26 |
| | 102 | 5 510 | 36.20 | 36.20 |
| | 110 | 5 550 | 36.22 | 36.23 |
| | 142 | 5 710 | 36.21 | 36.20 |
| | 151 | 5 755 | 36.21 | 36.23 |
| 802.11ac (VHT80) | 159 | 5 795 | 36.26 | 36.20 |
| | 42 | 5 210 | 75.64 | 75.58 |
| | 58 | 5 290 | 75.67 | 75.55 |
| | 106 | 5 530 | 75.59 | 75.59 |
| | 122 | 5 610 | - | - |
| | 138 | 5 690 | 75.53 | 75.58 |
| | 155 | 5 775 | 75.74 | 75.69 |

Result Plots

- Occupied Bandwidth: Antenna 1

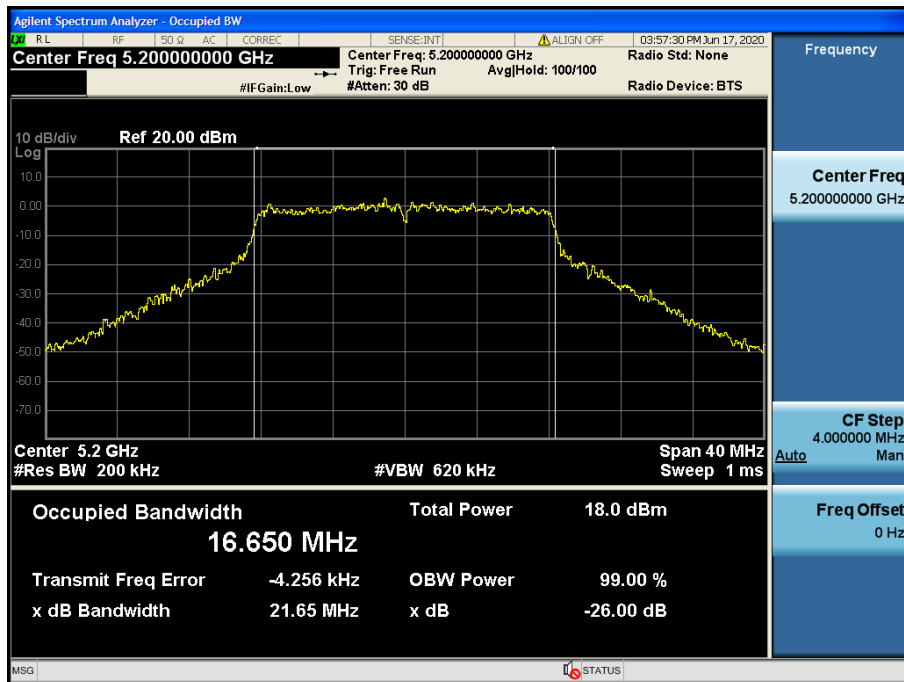
Occupied Bandwidth 99 %

Test Mode: 802.11a & ANT 1 & Ch.36



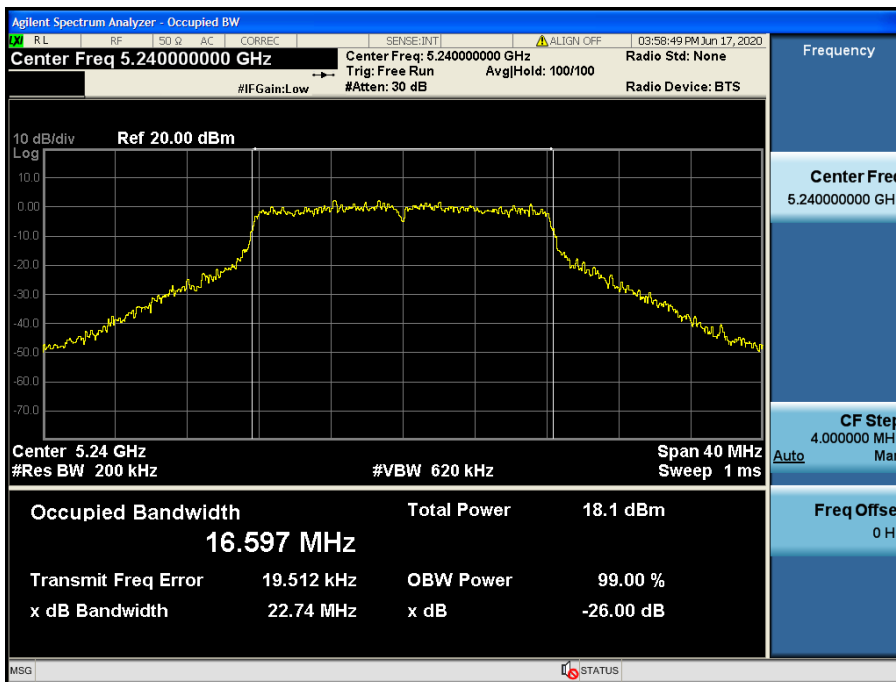
Occupied Bandwidth 99 %

Test Mode: 802.11a & ANT 1 & Ch.40



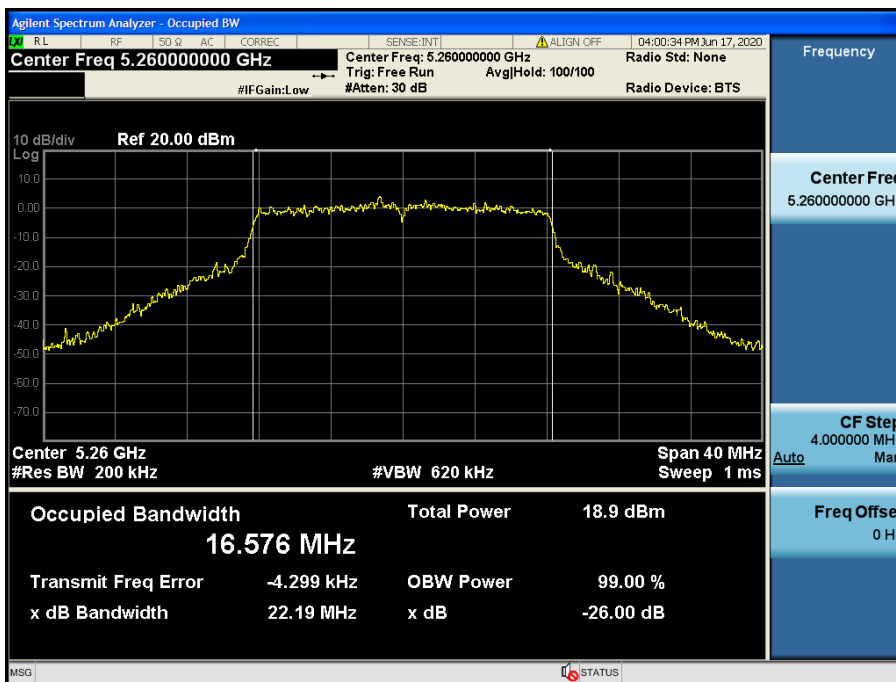
Occupied Bandwidth 99 %

Test Mode: 802.11a & ANT 1 & Ch.48



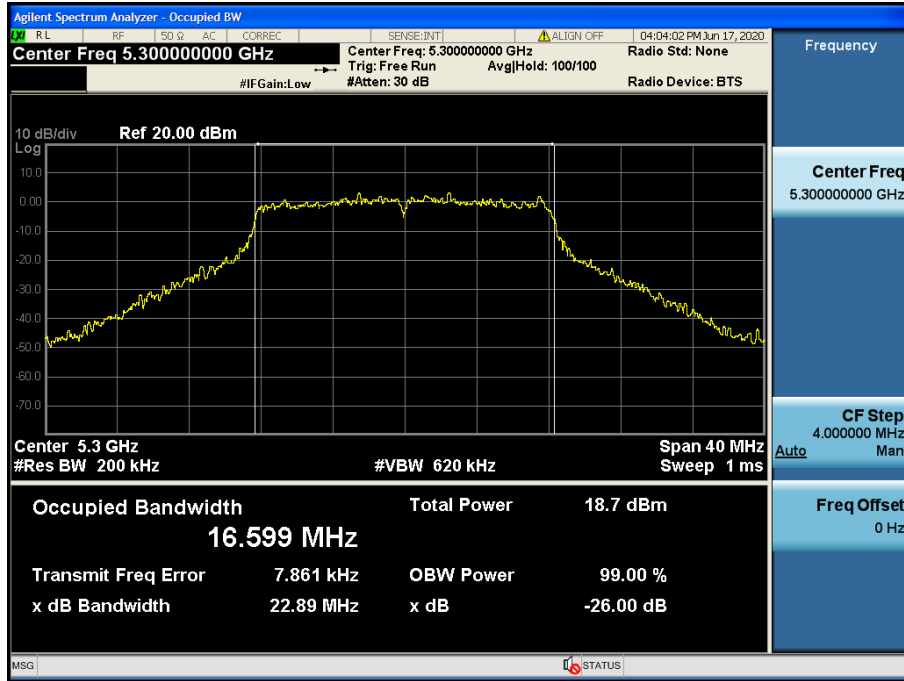
Occupied Bandwidth 99 %

Test Mode: 802.11a & ANT 1 & Ch.52



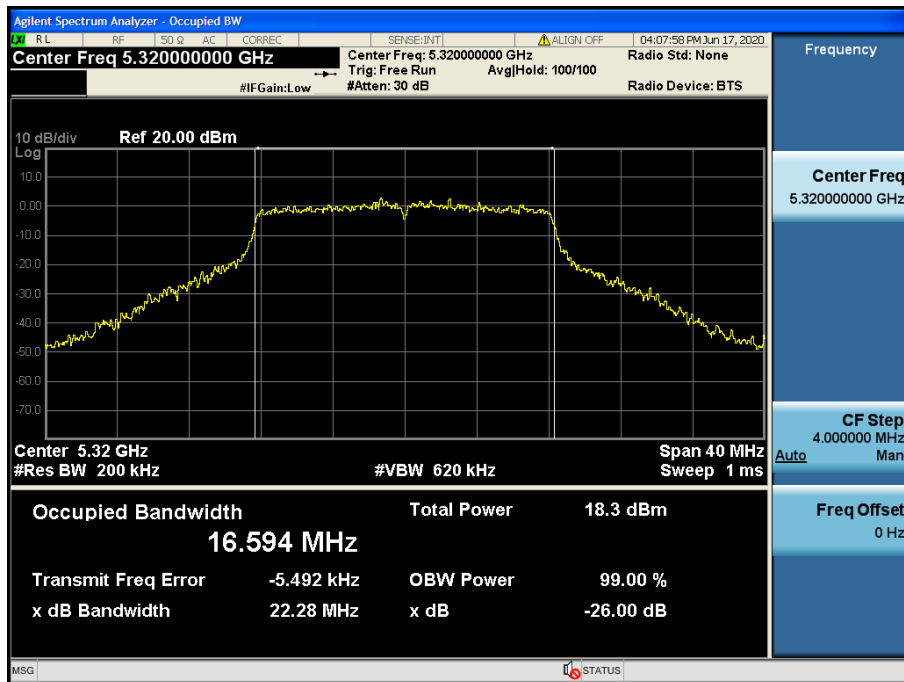
Occupied Bandwidth 99 %

Test Mode: 802.11a & ANT 1 & Ch.60



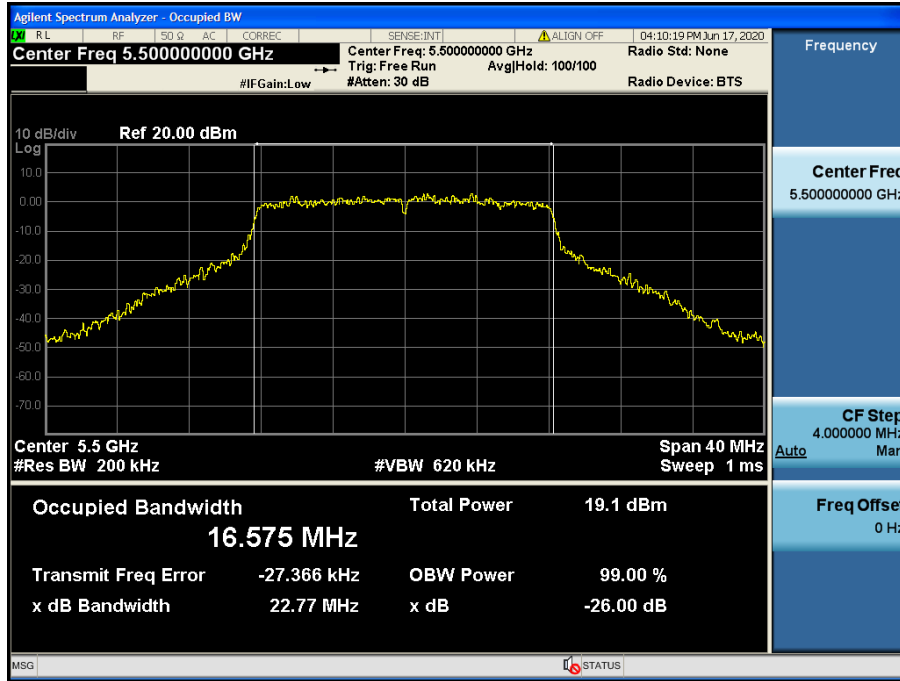
Occupied Bandwidth 99 %

Test Mode: 802.11a & ANT 1 & Ch.64



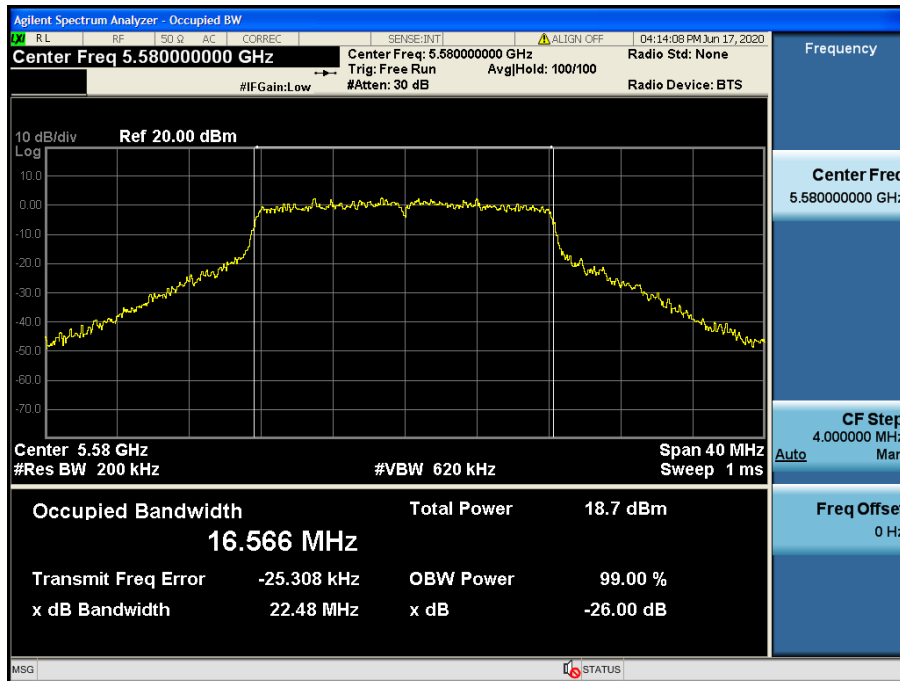
Occupied Bandwidth 99 %

Test Mode: 802.11a & ANT 1 & Ch.100



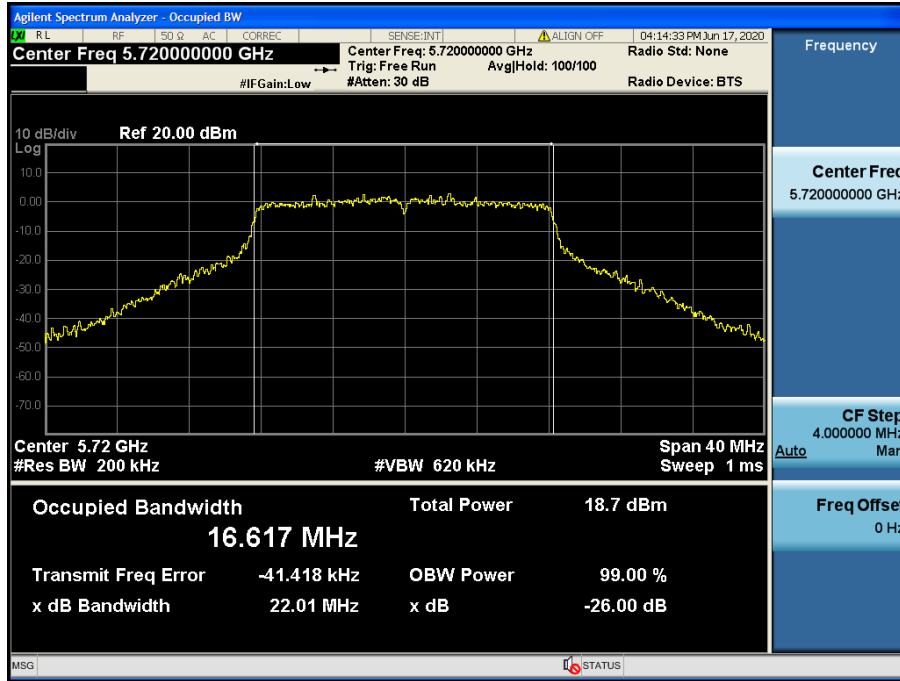
Occupied Bandwidth 99 %

Test Mode: 802.11a & ANT 1 & Ch.120



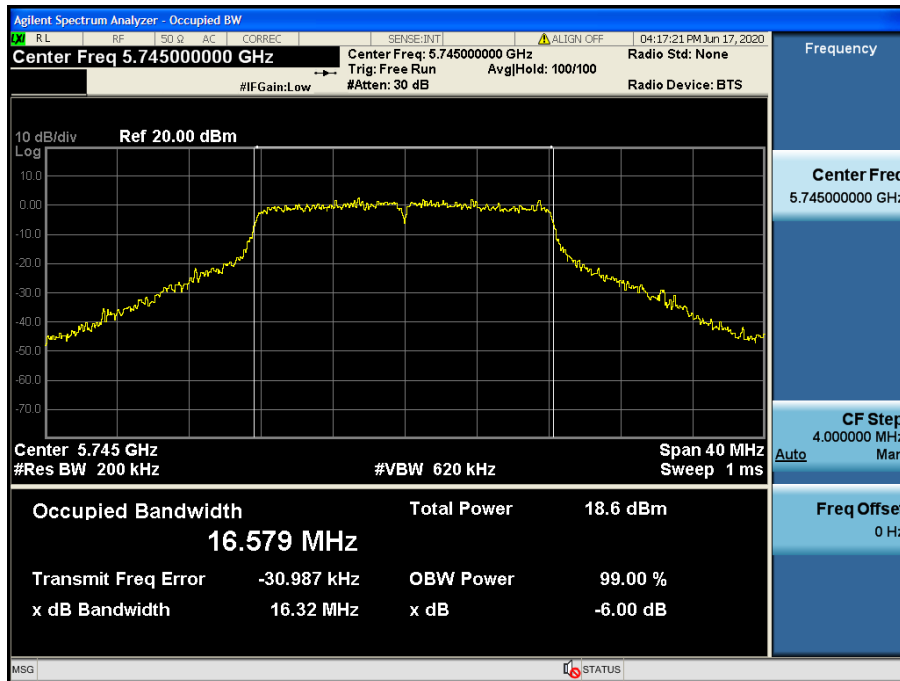
Occupied Bandwidth 99 %

Test Mode: 802.11a & ANT 1 & Ch.144



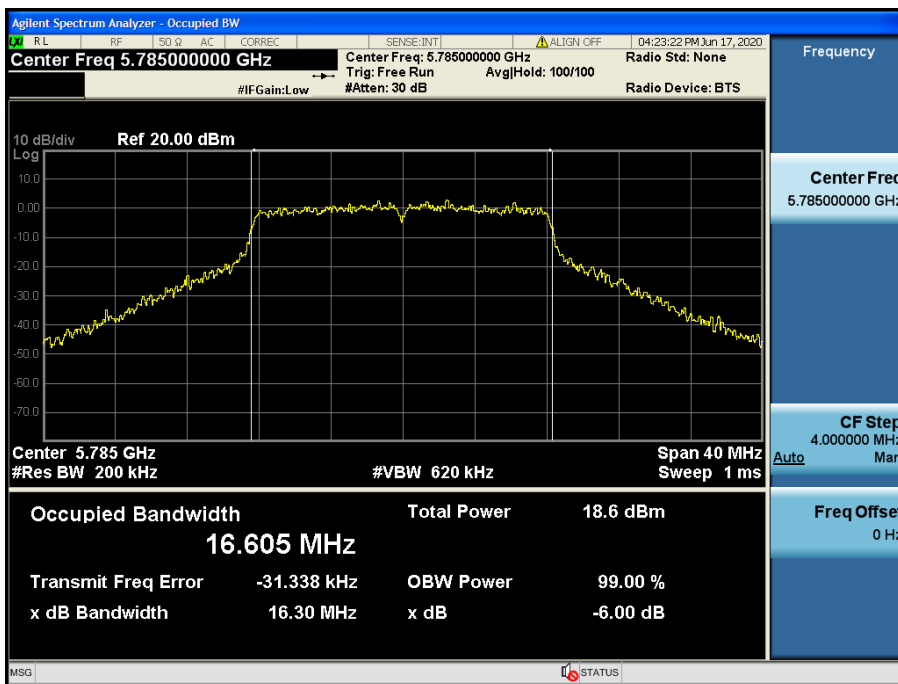
Occupied Bandwidth 99 %

Test Mode: 802.11a & ANT 1 & Ch.149



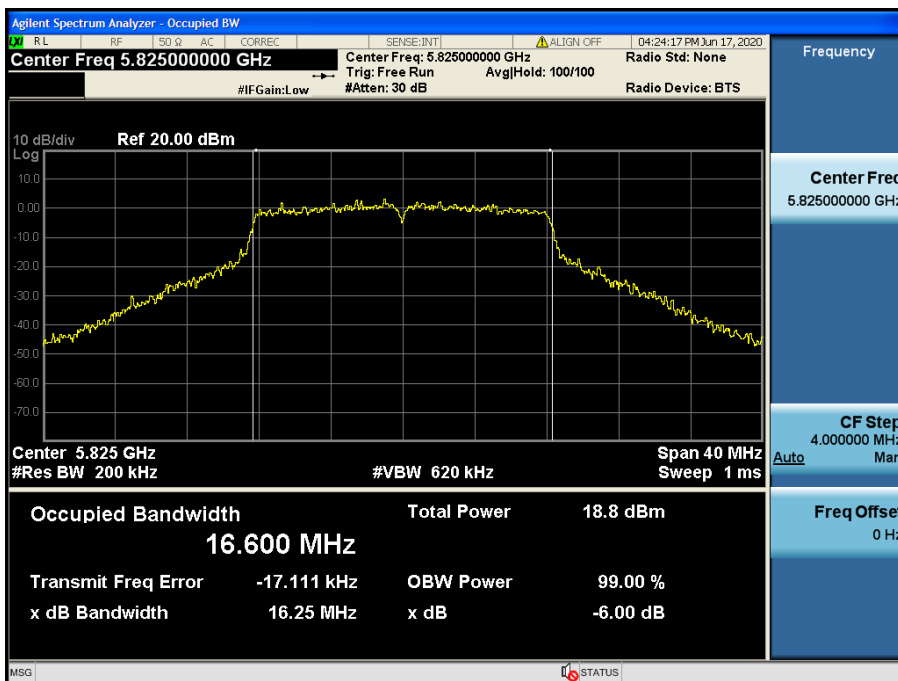
Occupied Bandwidth 99 %

Test Mode: 802.11a & ANT 1 & Ch.157



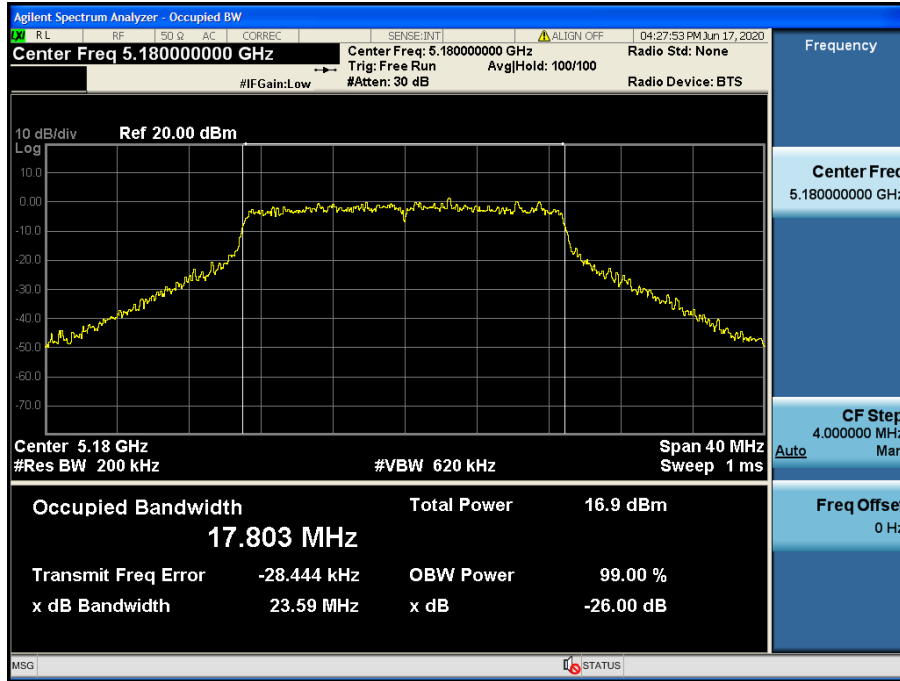
Occupied Bandwidth 99 %

Test Mode: 802.11a & ANT 1 & Ch.165



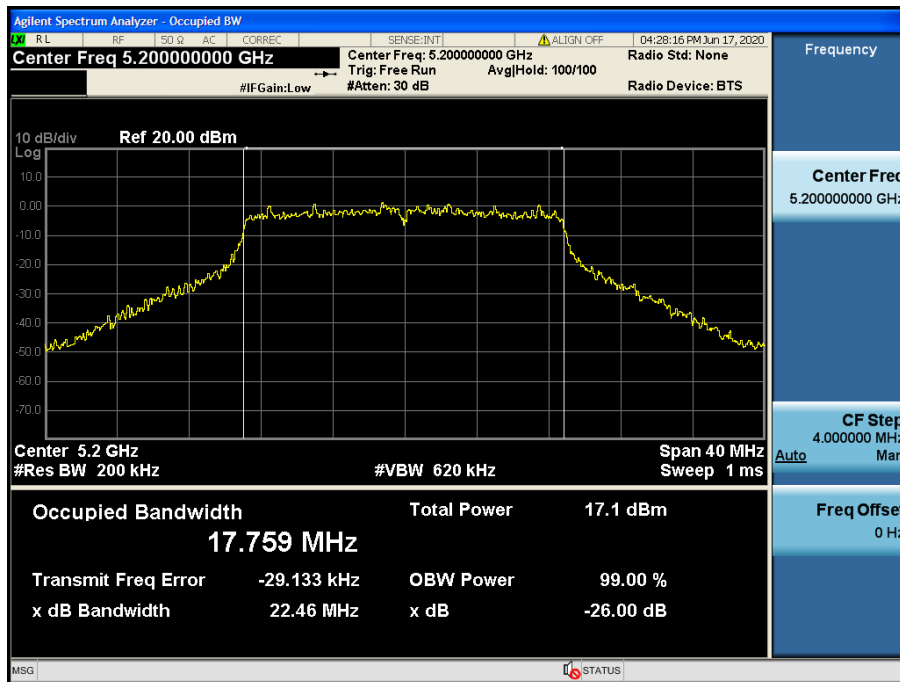
Occupied Bandwidth 99 %

Test Mode: 802.11ac VHT20 & ANT 1 & Ch.36



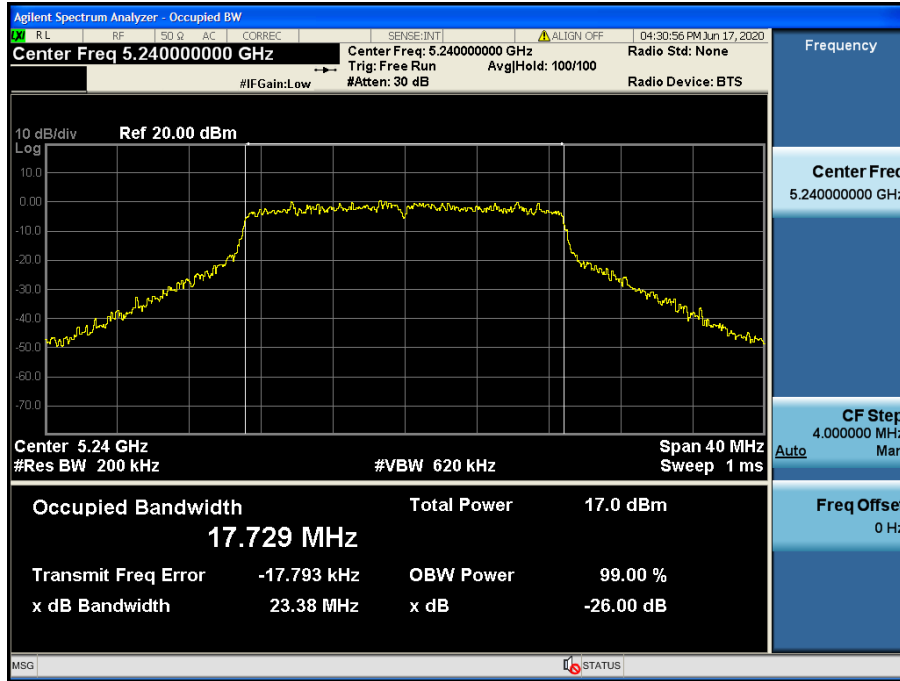
Occupied Bandwidth 99 %

Test Mode: 802.11ac VHT20 & ANT 1 & Ch.40



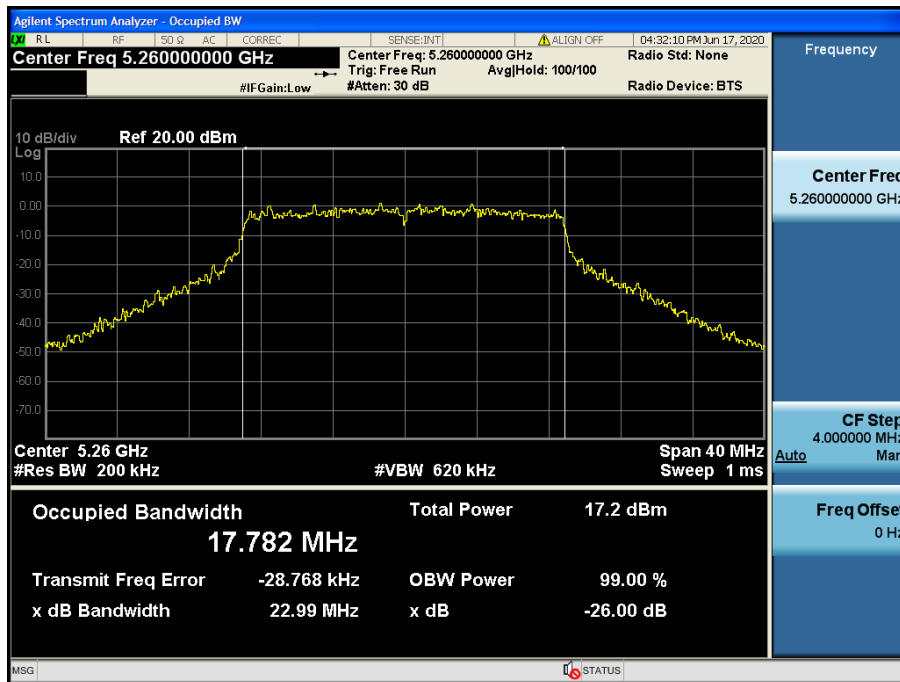
Occupied Bandwidth 99 %

Test Mode: 802.11ac VHT20 & ANT 1 & Ch.48



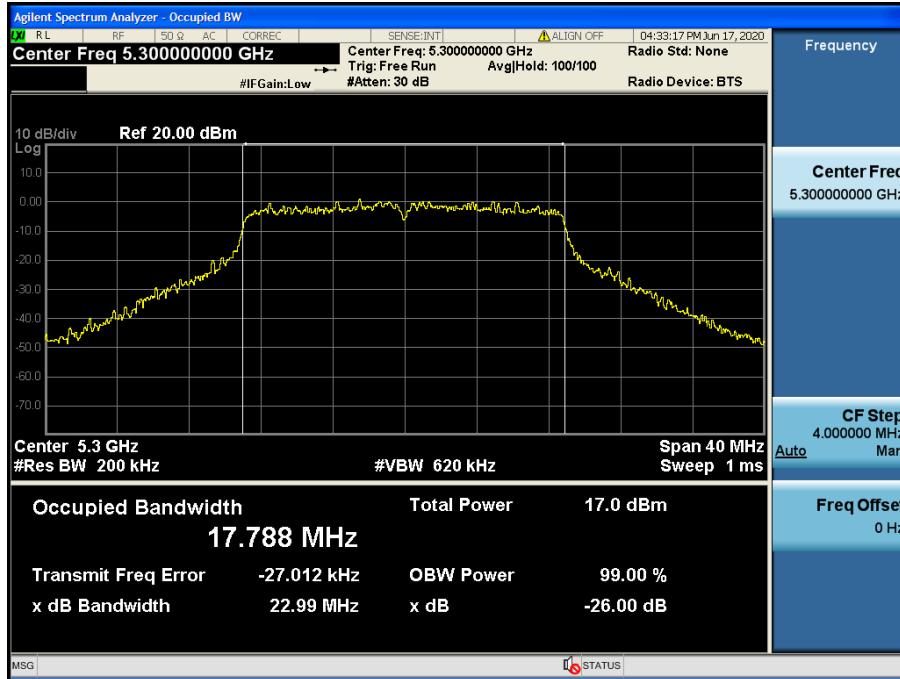
Occupied Bandwidth 99 %

Test Mode: 802.11ac VHT20 & ANT 1 & Ch.52



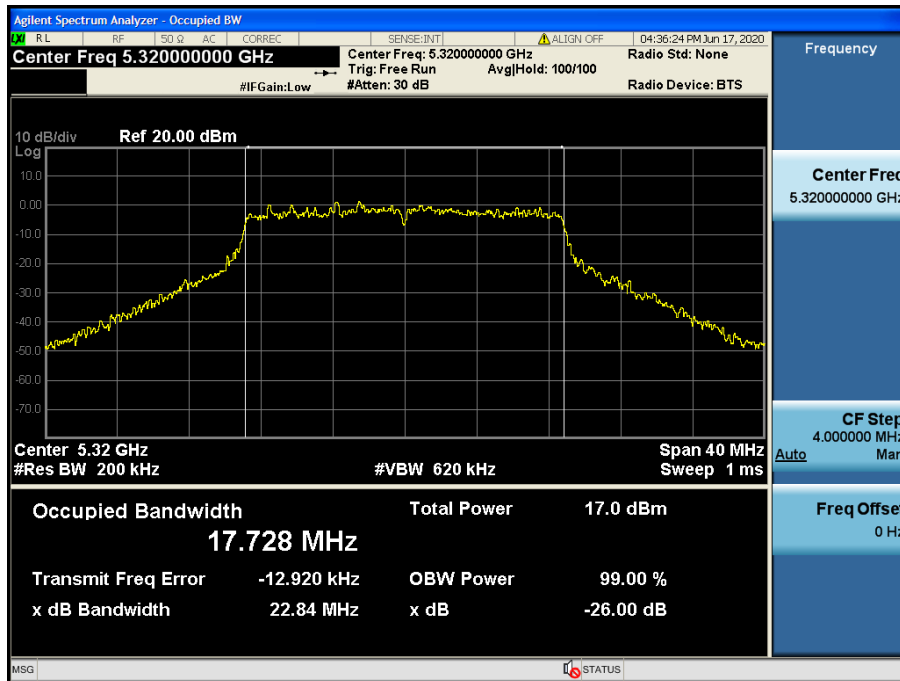
Occupied Bandwidth 99 %

Test Mode: 802.11ac VHT20 & ANT 1 & Ch.60



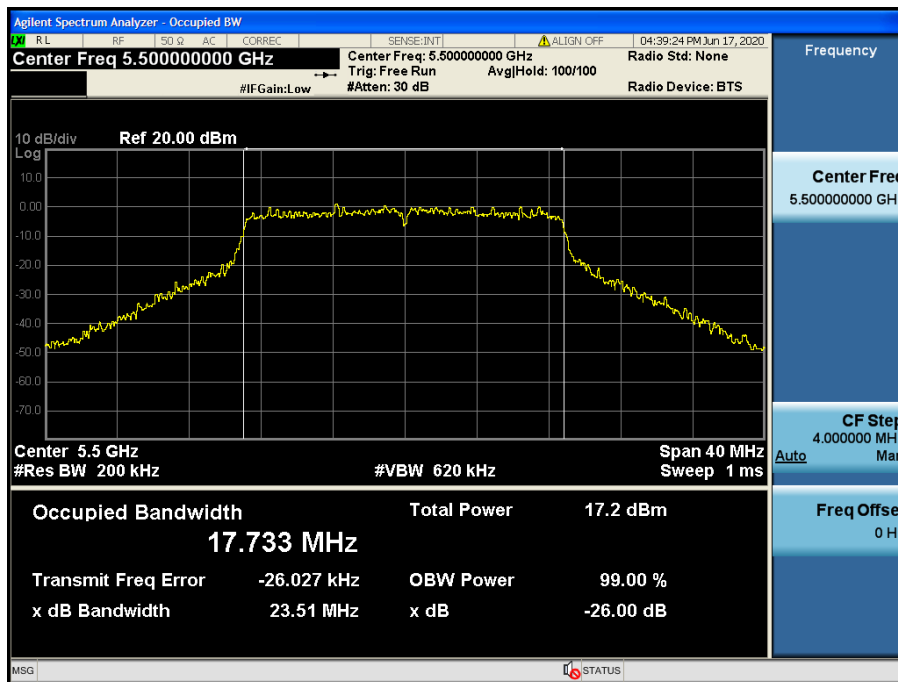
Occupied Bandwidth 99 %

Test Mode: 802.11ac VHT20 & ANT 1 & Ch.64



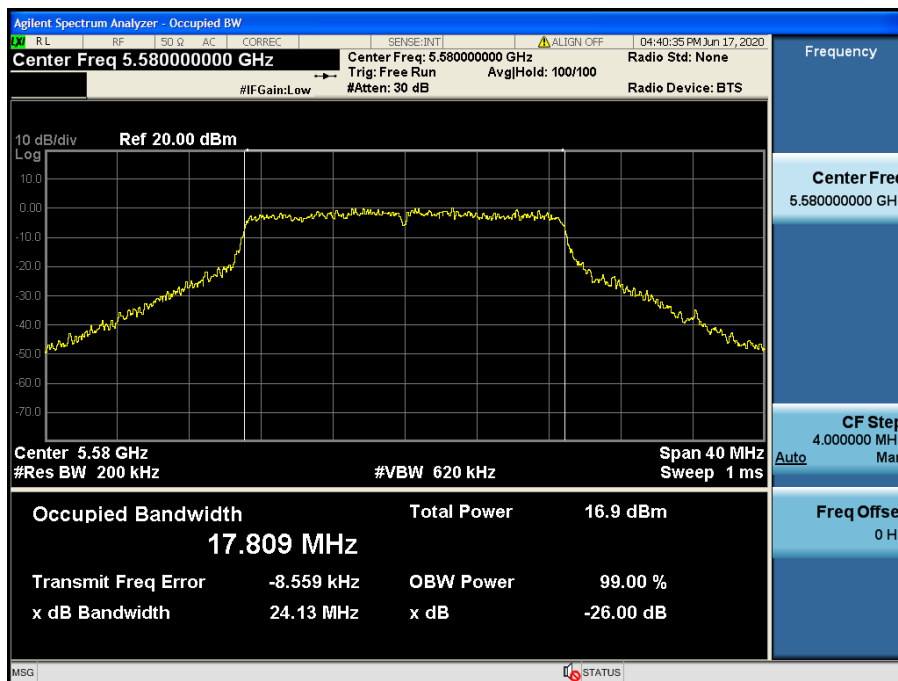
Occupied Bandwidth 99 %

Test Mode: 802.11ac VHT20 & ANT 1 & Ch.100



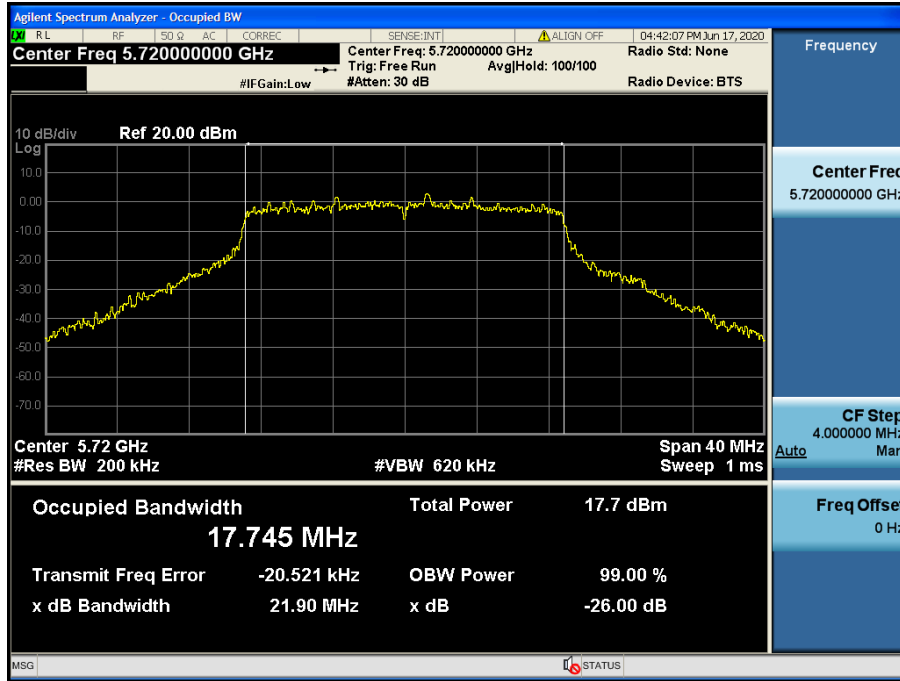
Occupied Bandwidth 99 %

Test Mode: 802.11ac VHT20 & ANT 1 & Ch.120



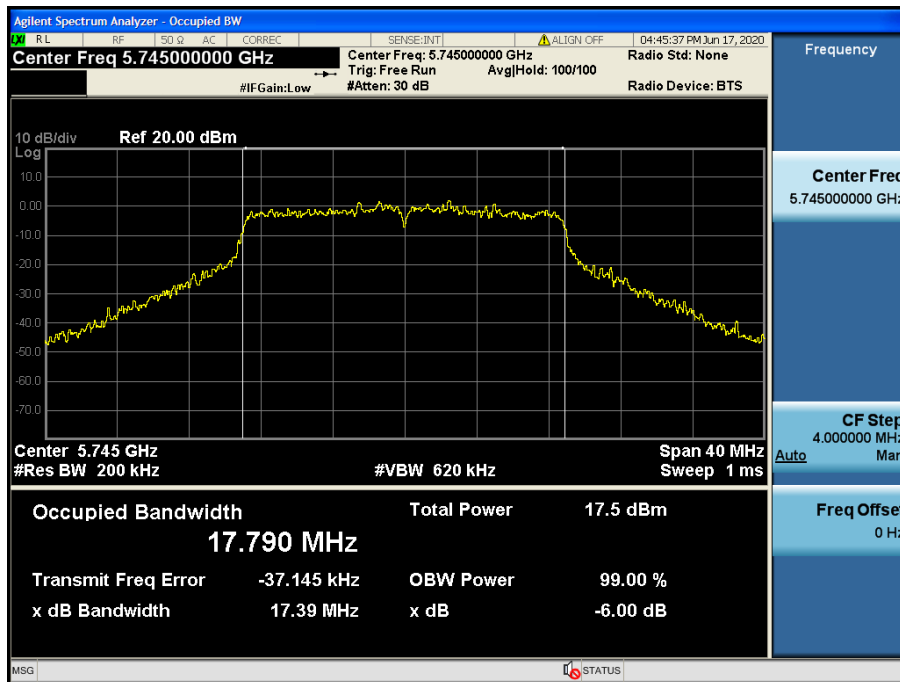
Occupied Bandwidth 99 %

Test Mode: 802.11ac VHT20 & ANT 1 & Ch.144



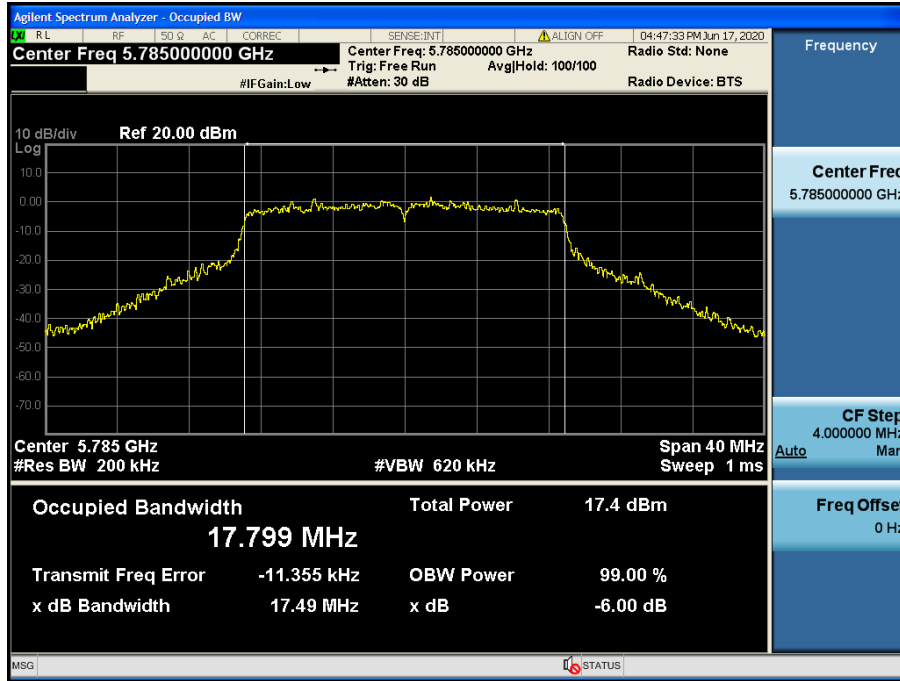
Occupied Bandwidth 99 %

Test Mode: 802.11ac VHT20 & ANT 1 & Ch.149



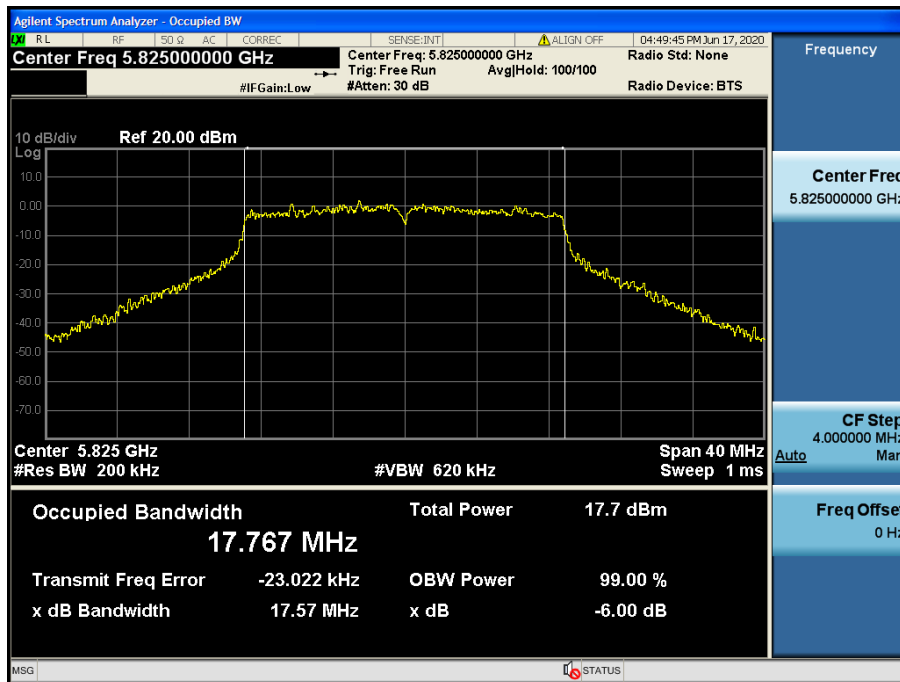
Occupied Bandwidth 99 %

Test Mode: 802.11ac VHT20 & ANT 1 & Ch.157



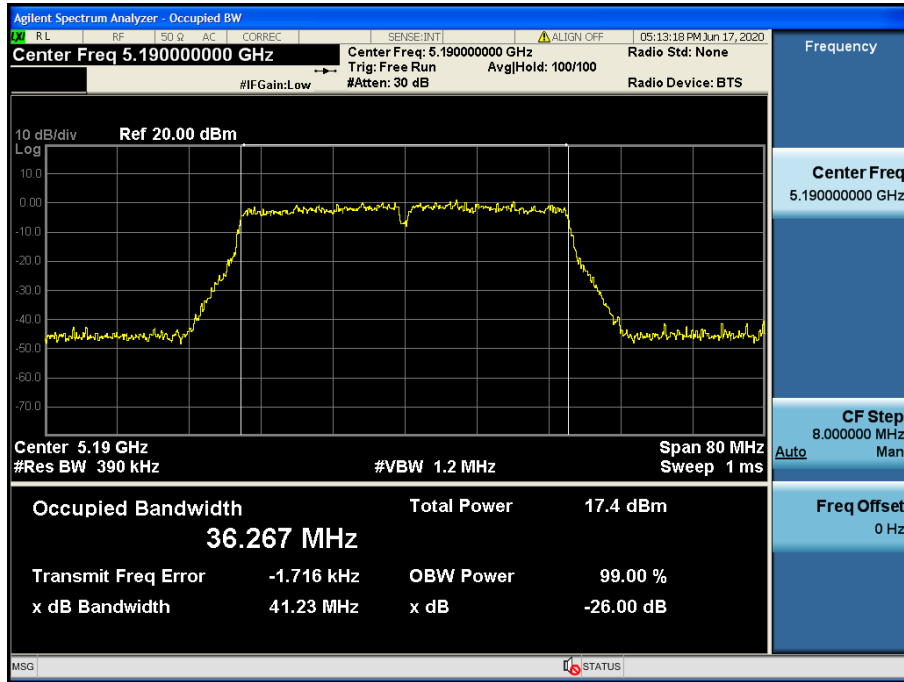
Occupied Bandwidth 99 %

Test Mode: 802.11ac VHT20 & ANT 1 & Ch.165



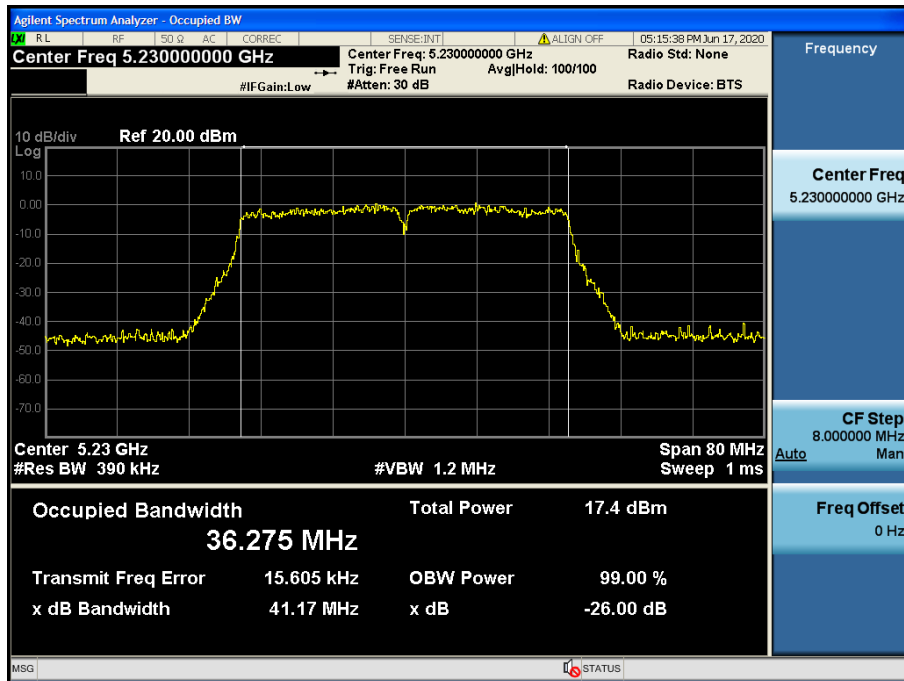
Occupied Bandwidth 99 %

Test Mode: 802.11n HT40 & ANT 1 & Ch.38



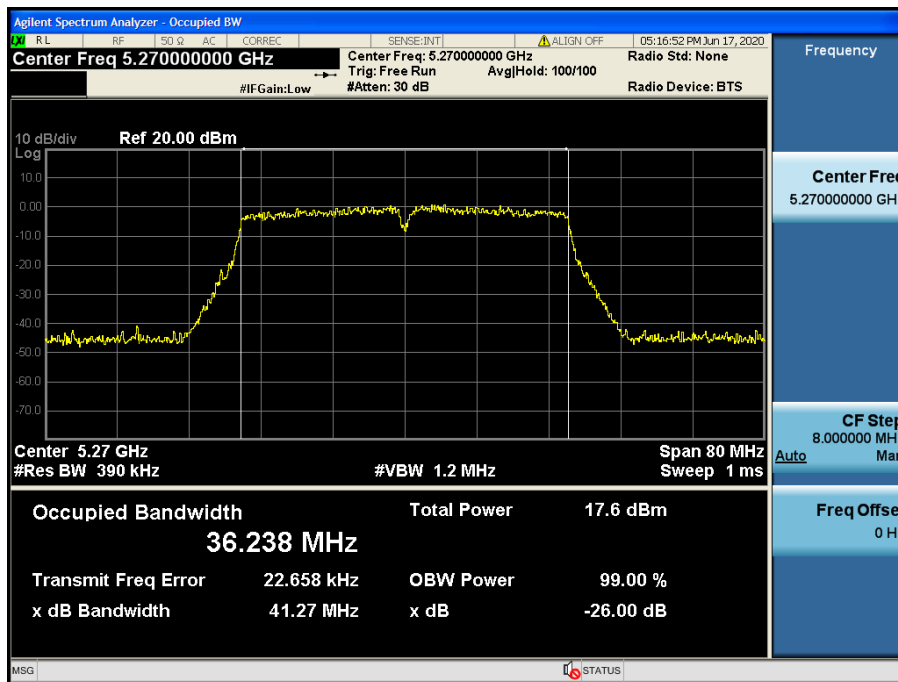
Occupied Bandwidth 99 %

Test Mode: 802.11n HT40 & ANT 1 & Ch.46



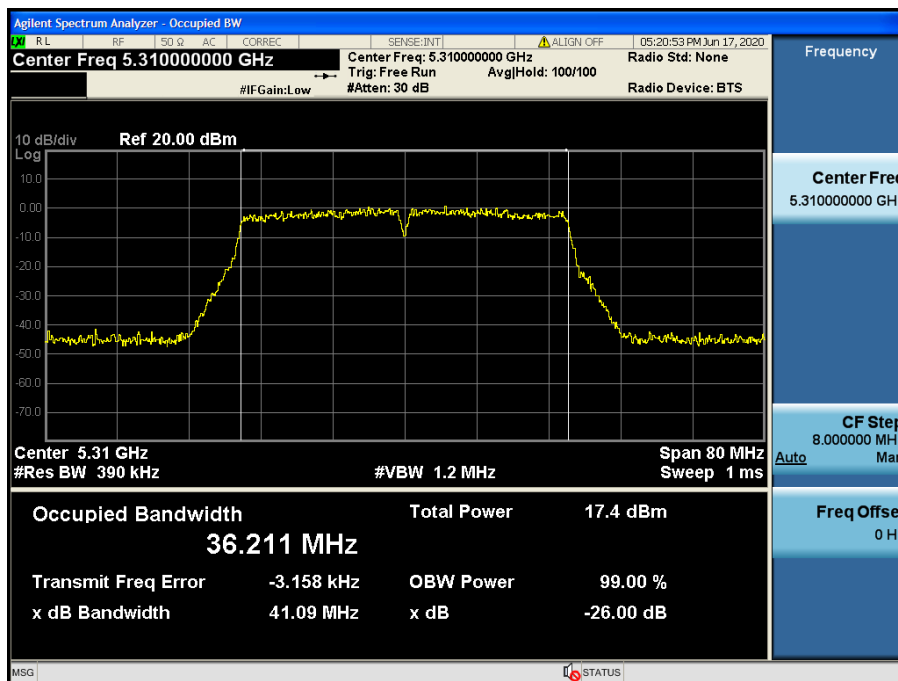
Occupied Bandwidth 99 %

Test Mode: 802.11n HT40 & ANT 1 & Ch.54



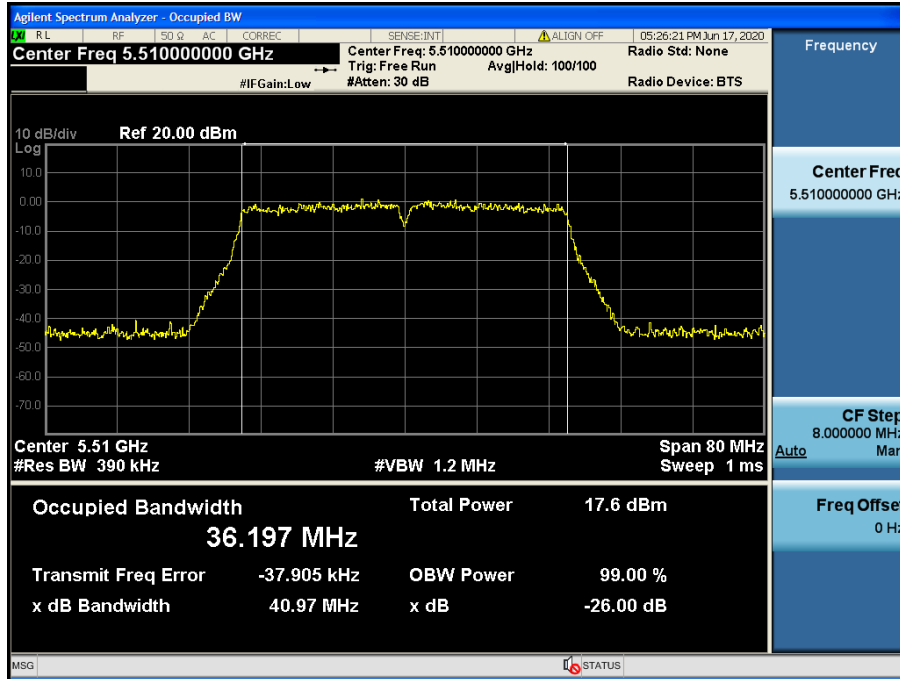
Occupied Bandwidth 99 %

Test Mode: 802.11n HT40 & ANT 1 & Ch.62



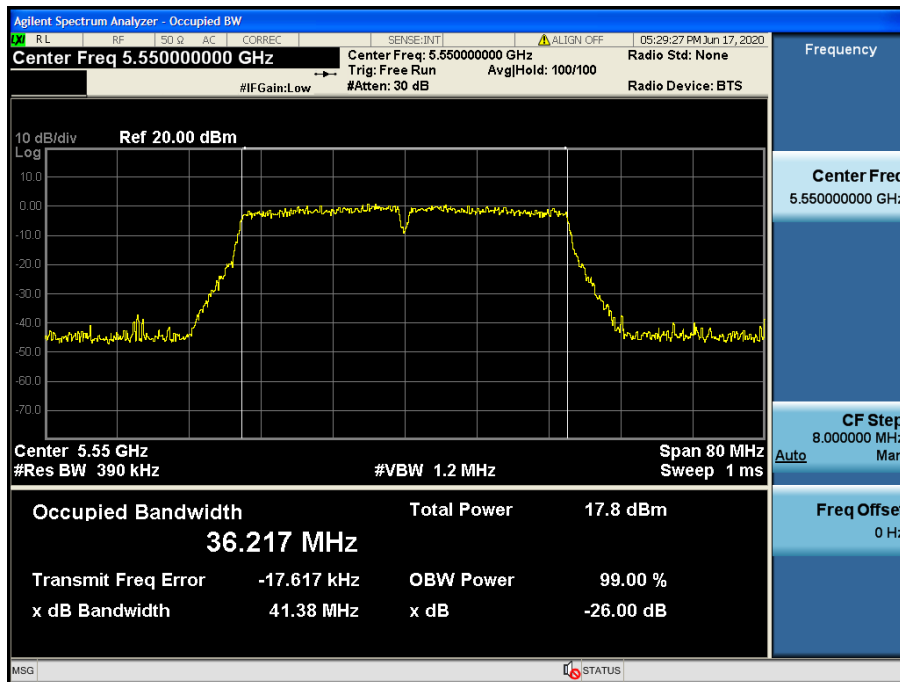
Occupied Bandwidth 99 %

Test Mode: 802.11n HT40 & ANT 1 & Ch.102



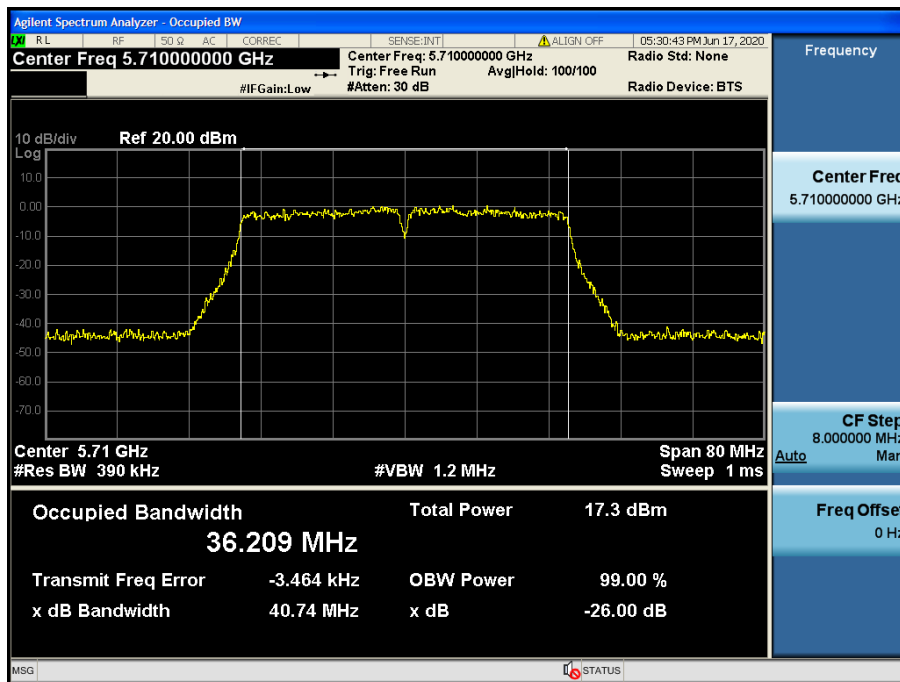
Occupied Bandwidth 99 %

Test Mode: 802.11n HT40 & ANT 1 & Ch.118



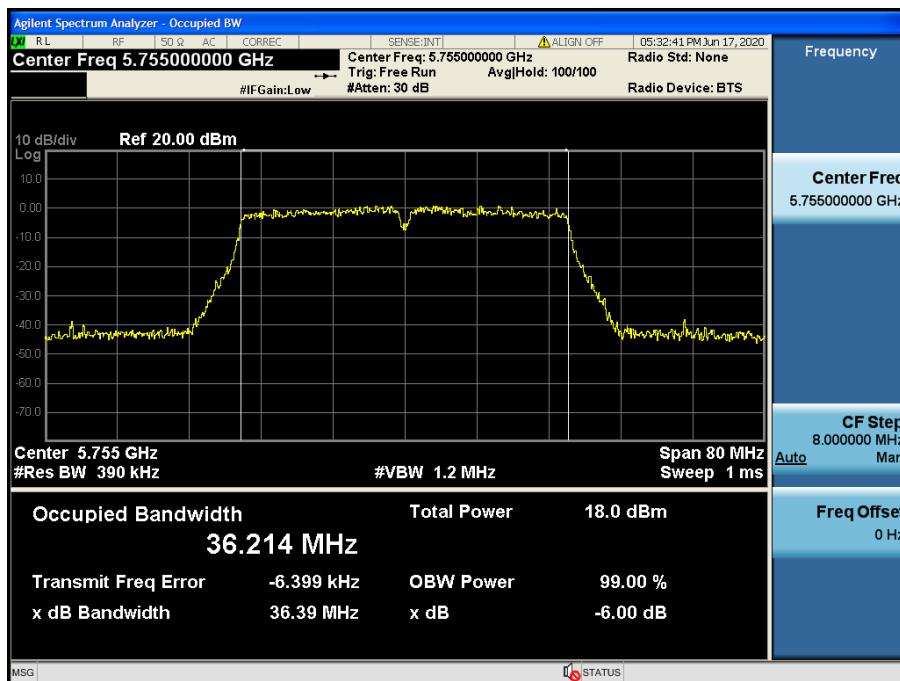
Occupied Bandwidth 99 %

Test Mode: 802.11n HT40 & ANT 1 & Ch.142



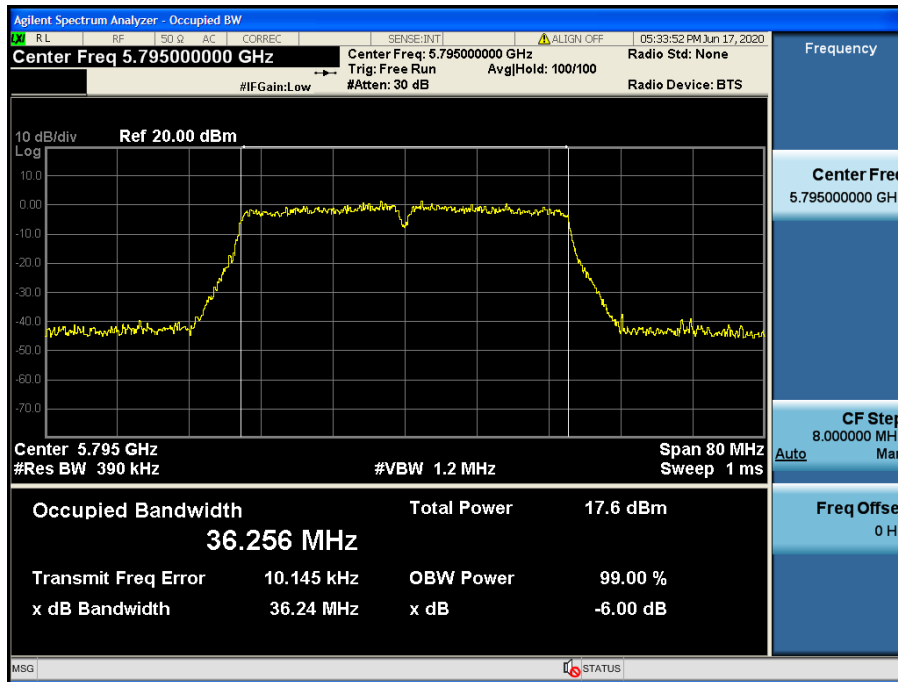
Occupied Bandwidth 99 %

Test Mode: 802.11n HT40 & ANT 1 & Ch.151



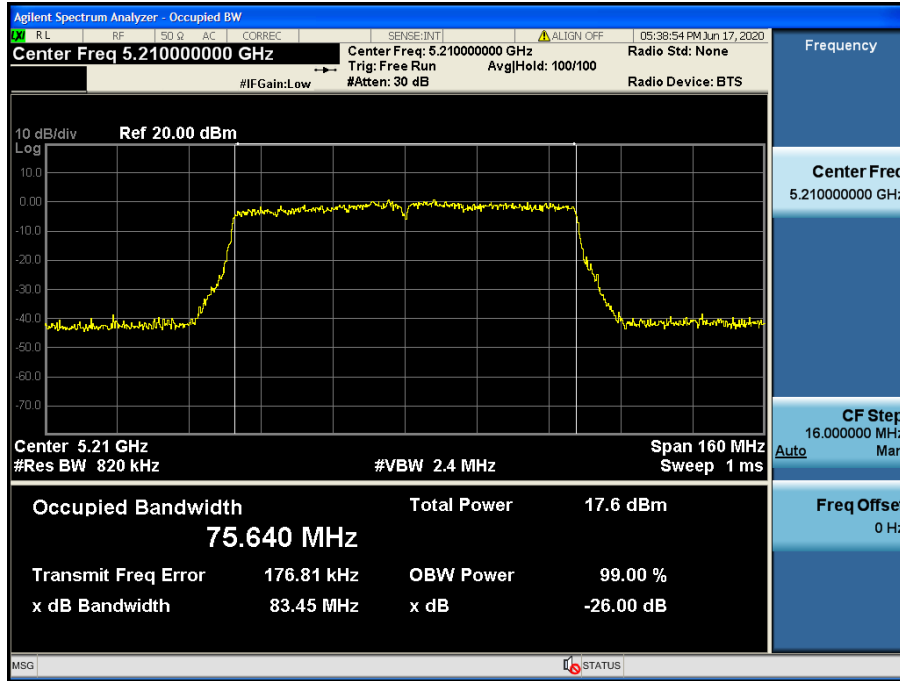
Occupied Bandwidth 99 %

Test Mode: 802.11n HT40 & ANT 1 & Ch.159



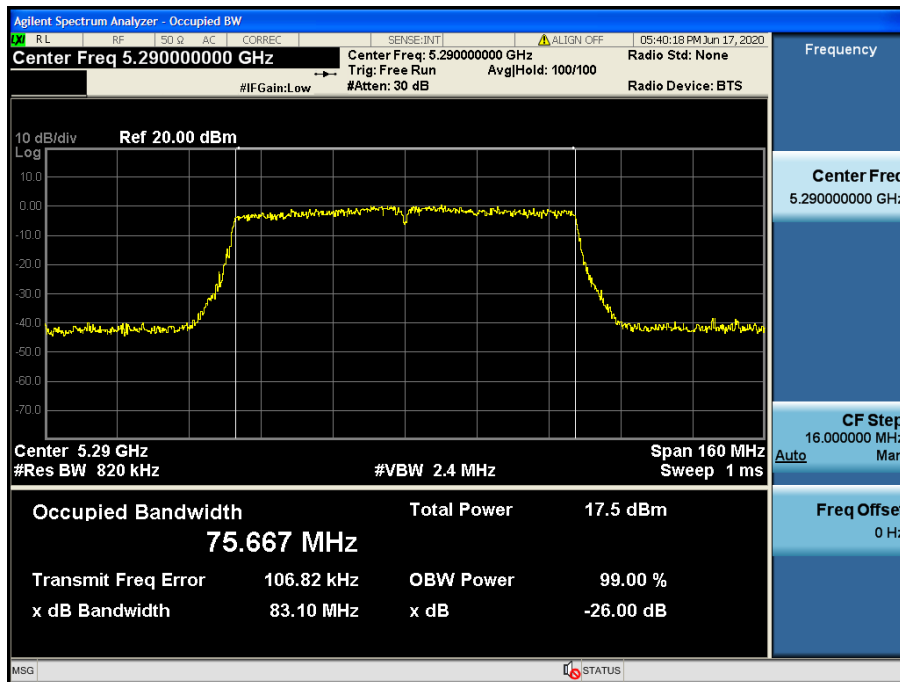
Occupied Bandwidth 99 %

Test Mode: 802.11ac VHT80 & ANT 1 & Ch.42



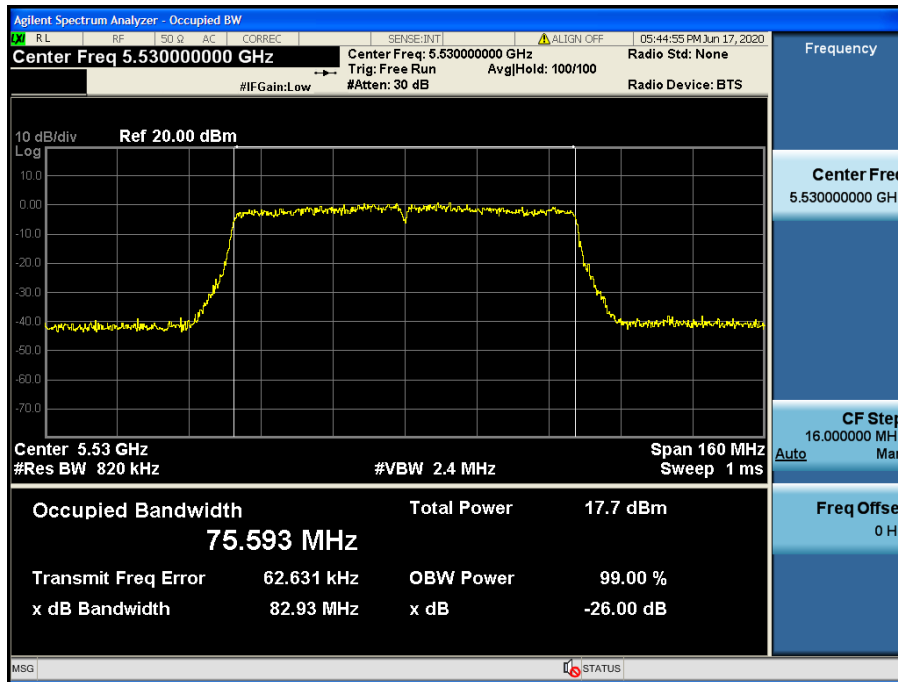
Occupied Bandwidth 99 %

Test Mode: 802.11ac VHT80 & ANT 1 & Ch.58



Occupied Bandwidth 99 %

Test Mode: 802.11ac VHT80 & ANT 1 & Ch.106

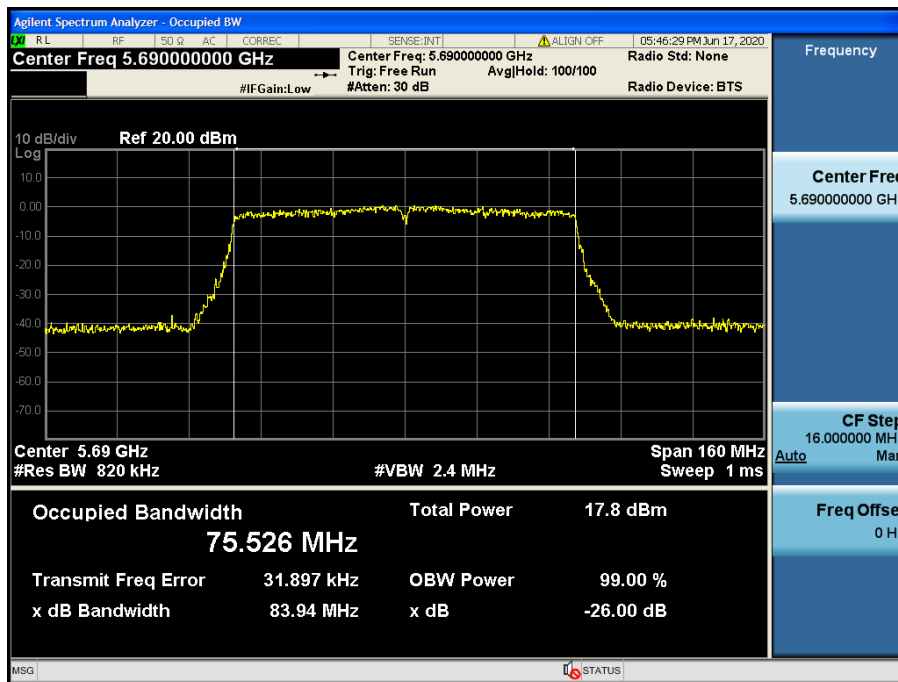


Occupied Bandwidth 99 %

Test Mode: 802.11ac VHT80 & ANT 1 & Ch.122

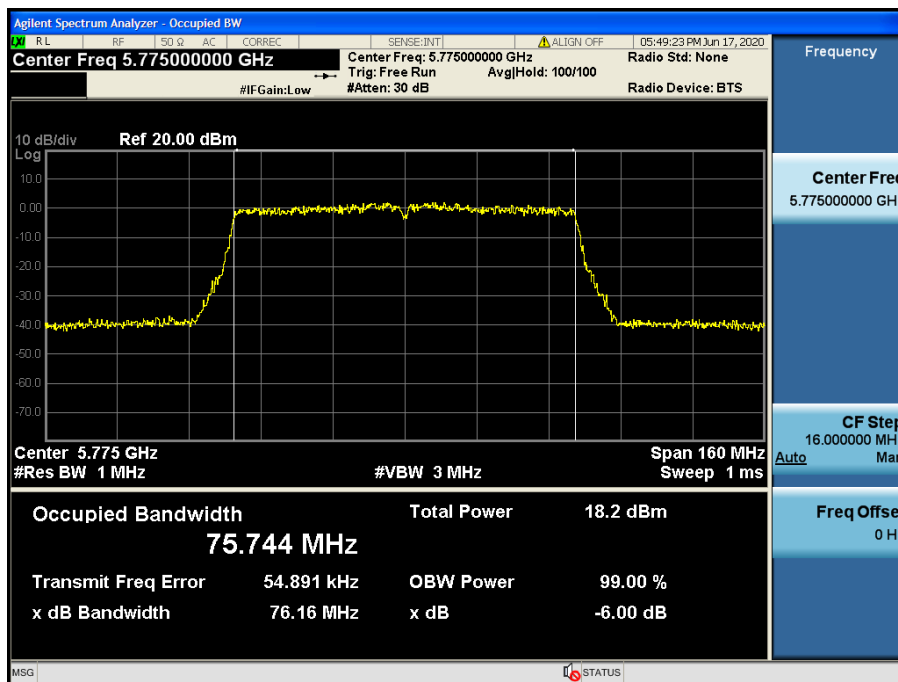
Occupied Bandwidth 99 %

Test Mode: 802.11ac VHT80 & ANT 1 & Ch.138



Occupied Bandwidth 99 %

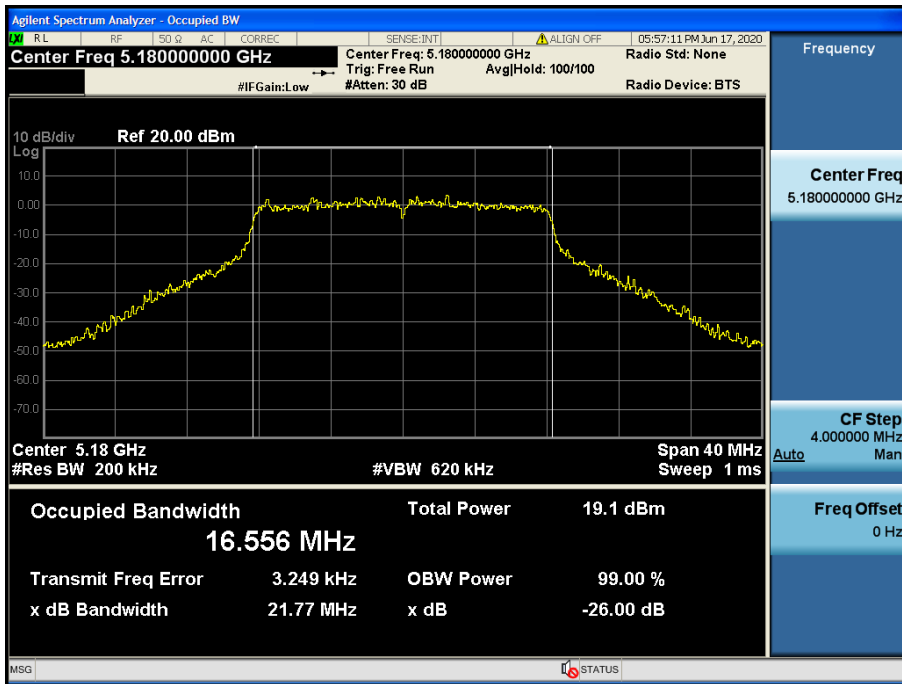
Test Mode: 802.11ac VHT80 & ANT 1 & Ch.155



- Occupied Bandwidth: Antenna 2

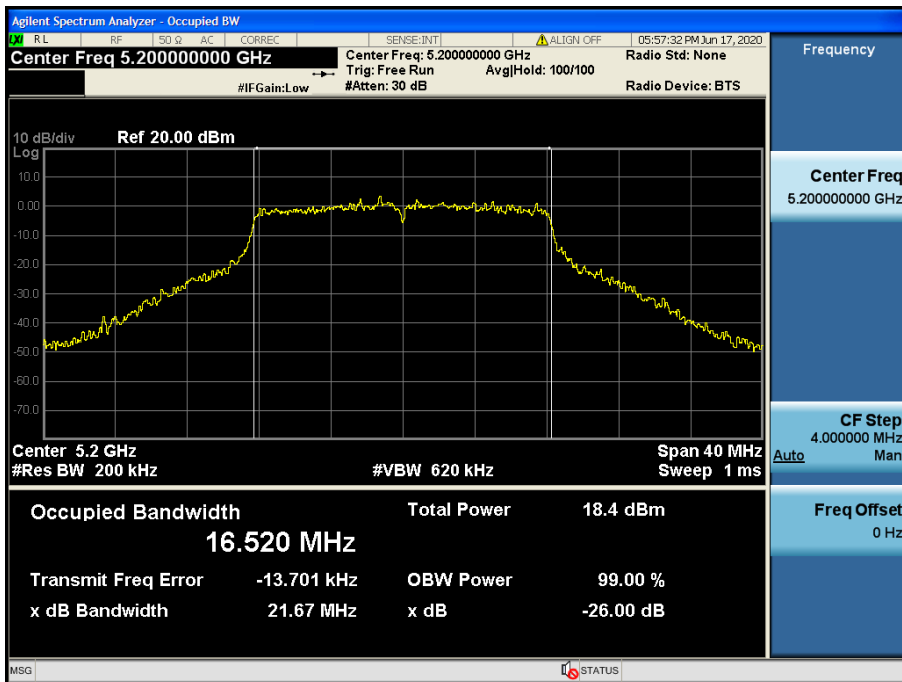
Occupied Bandwidth 99 %

Test Mode: 802.11a & ANT 2 & Ch.36



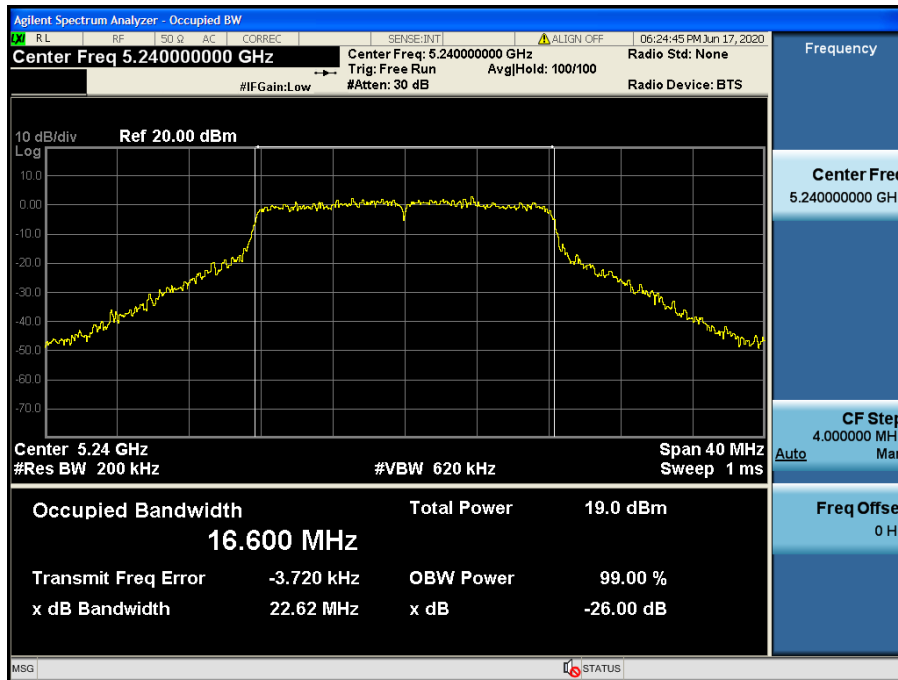
Occupied Bandwidth 99 %

Test Mode: 802.11a & ANT 2 & Ch.40



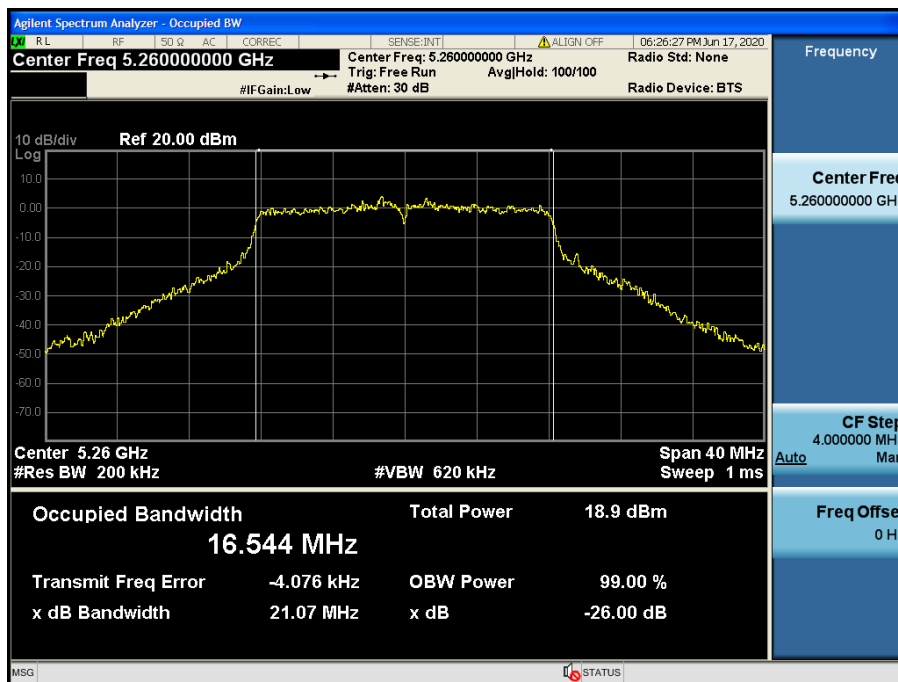
Occupied Bandwidth 99 %

Test Mode: 802.11a & ANT 2 & Ch.48



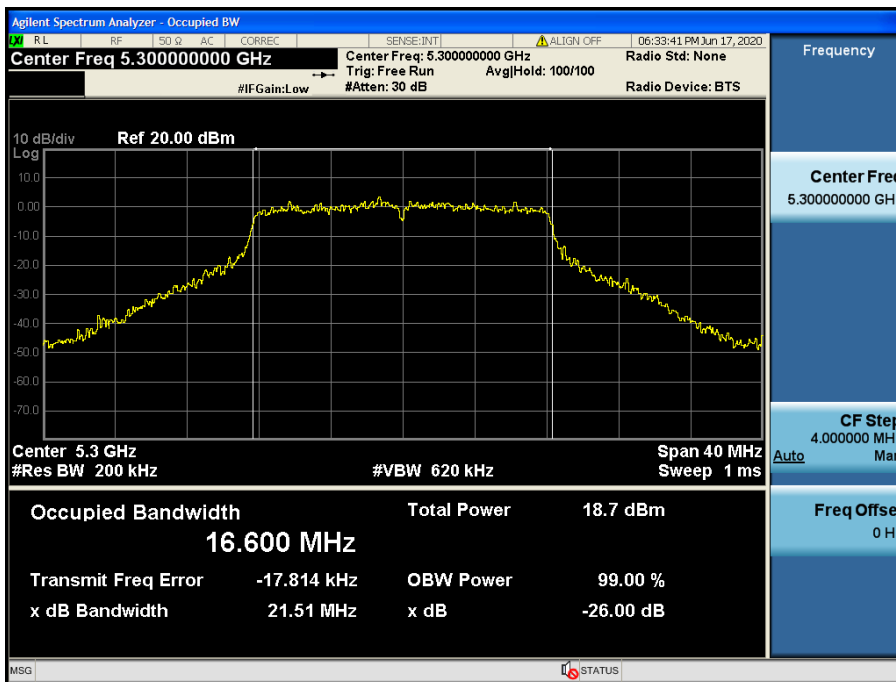
Occupied Bandwidth 99 %

Test Mode: 802.11a & ANT 2 & Ch.52



Occupied Bandwidth 99 %

Test Mode: 802.11a & ANT 2 & Ch.60



Occupied Bandwidth 99 %

Test Mode: 802.11a & ANT 2 & Ch.64

