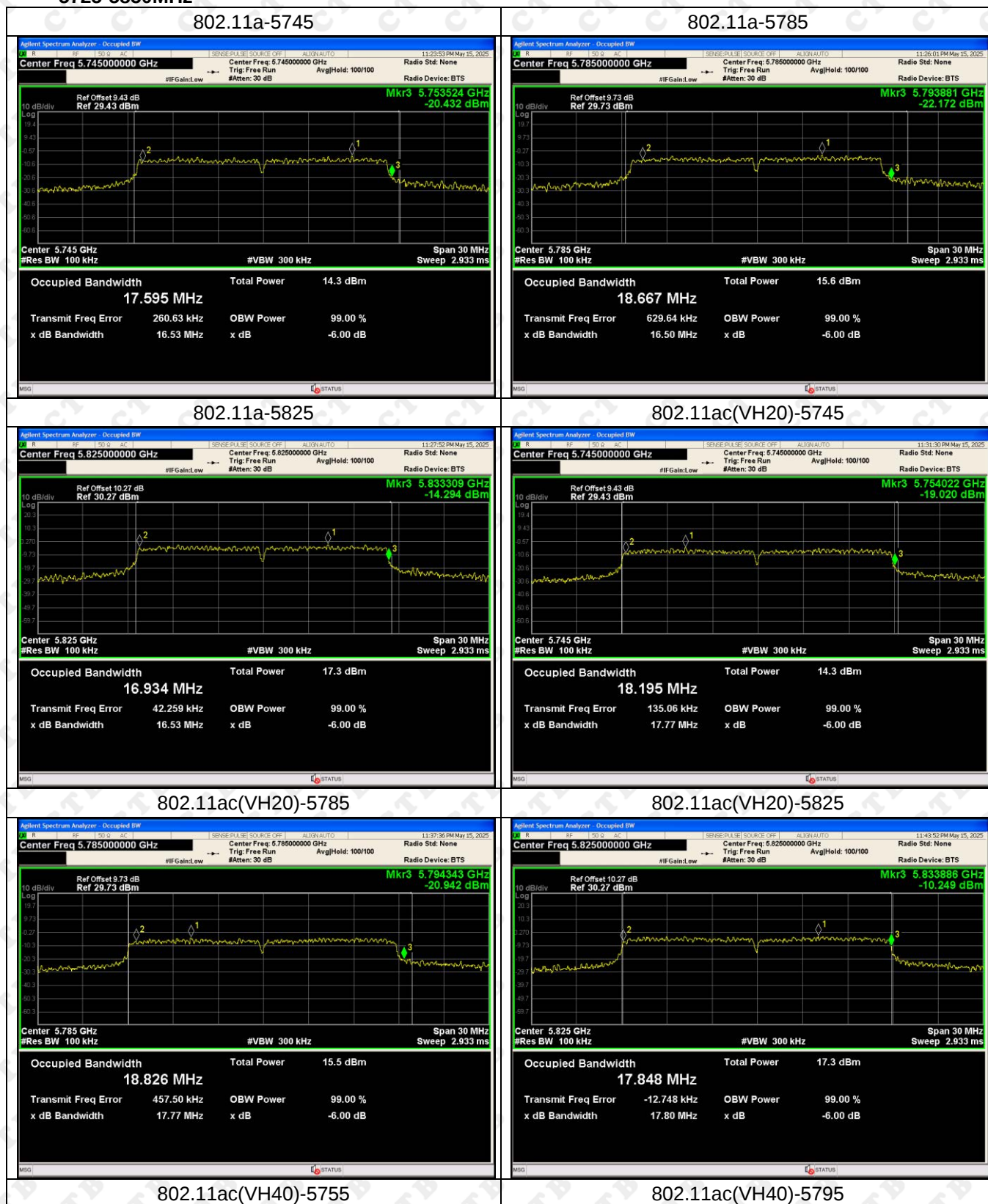
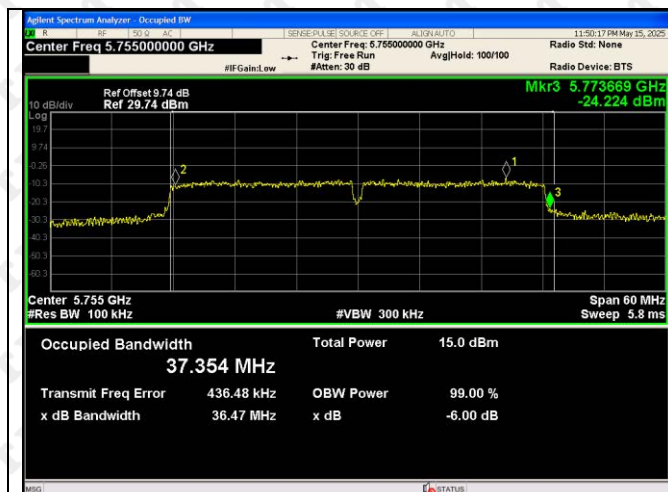


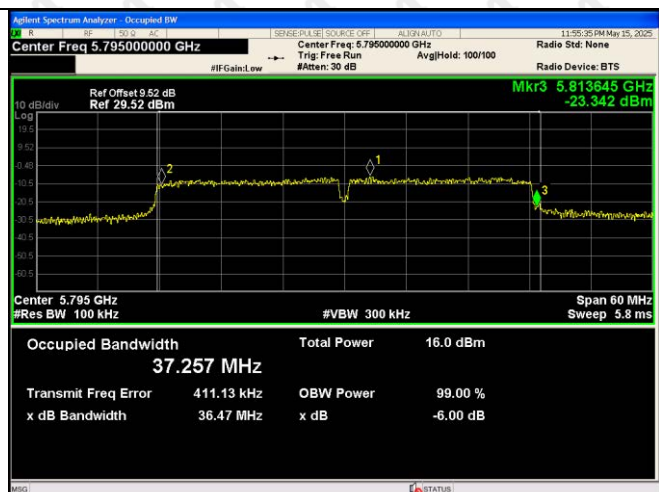


## ANT1: 5725-5850MHz

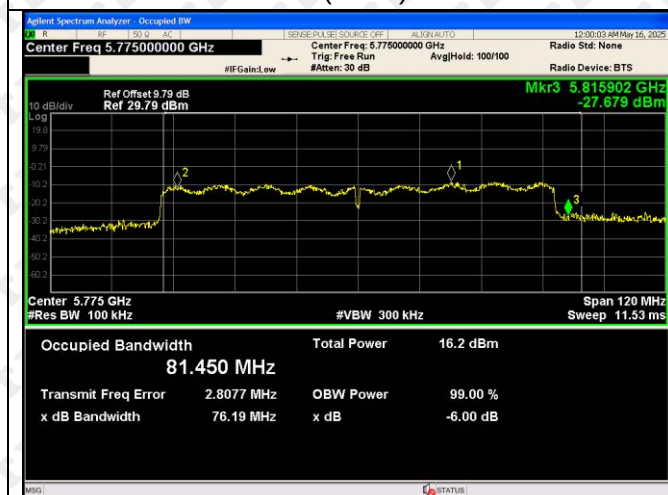




802.11ac(VH80)-5775



802.11n(HT20)-5745



802.11n(HT20)-5785



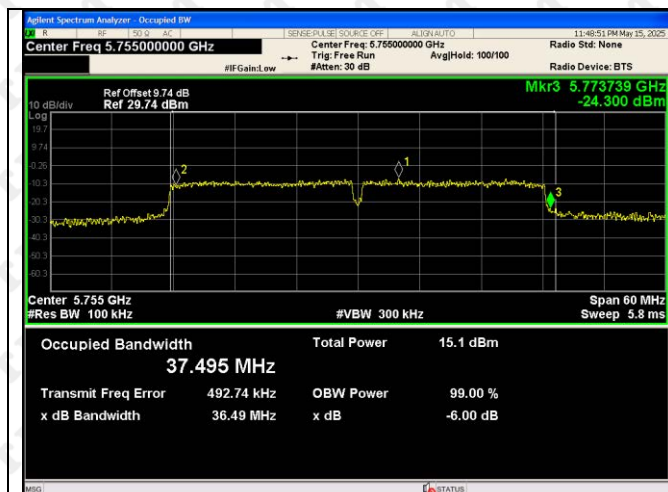
802.11n(HT20)-5745



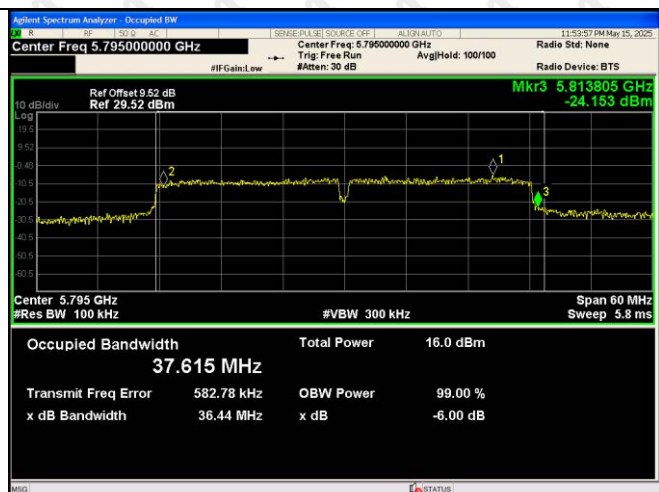
5802.11n(HT40)-5755



802.11n(HT40)-5795



802.11ax(VH20)-5745



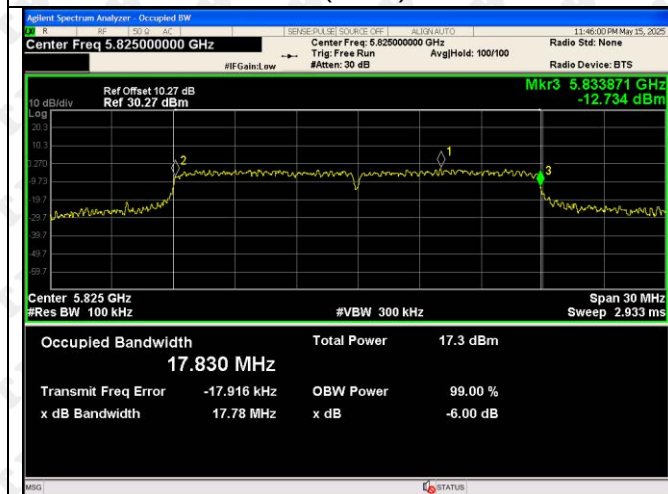
802.11ax(VH20)-5785



802.11ax(VH20)-5825



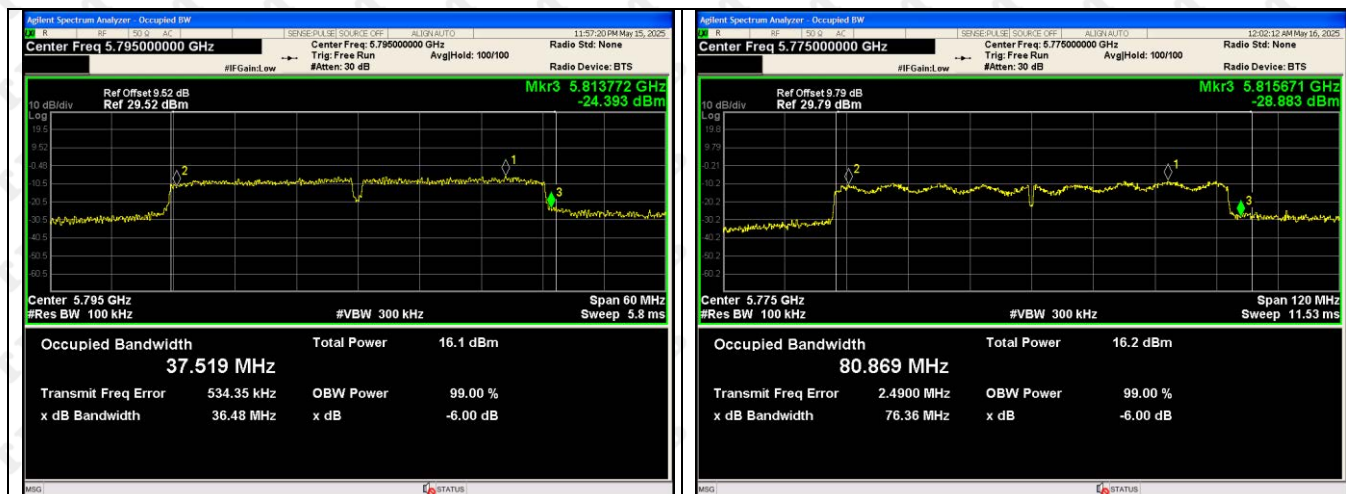
802.11ax(VH40)-5755



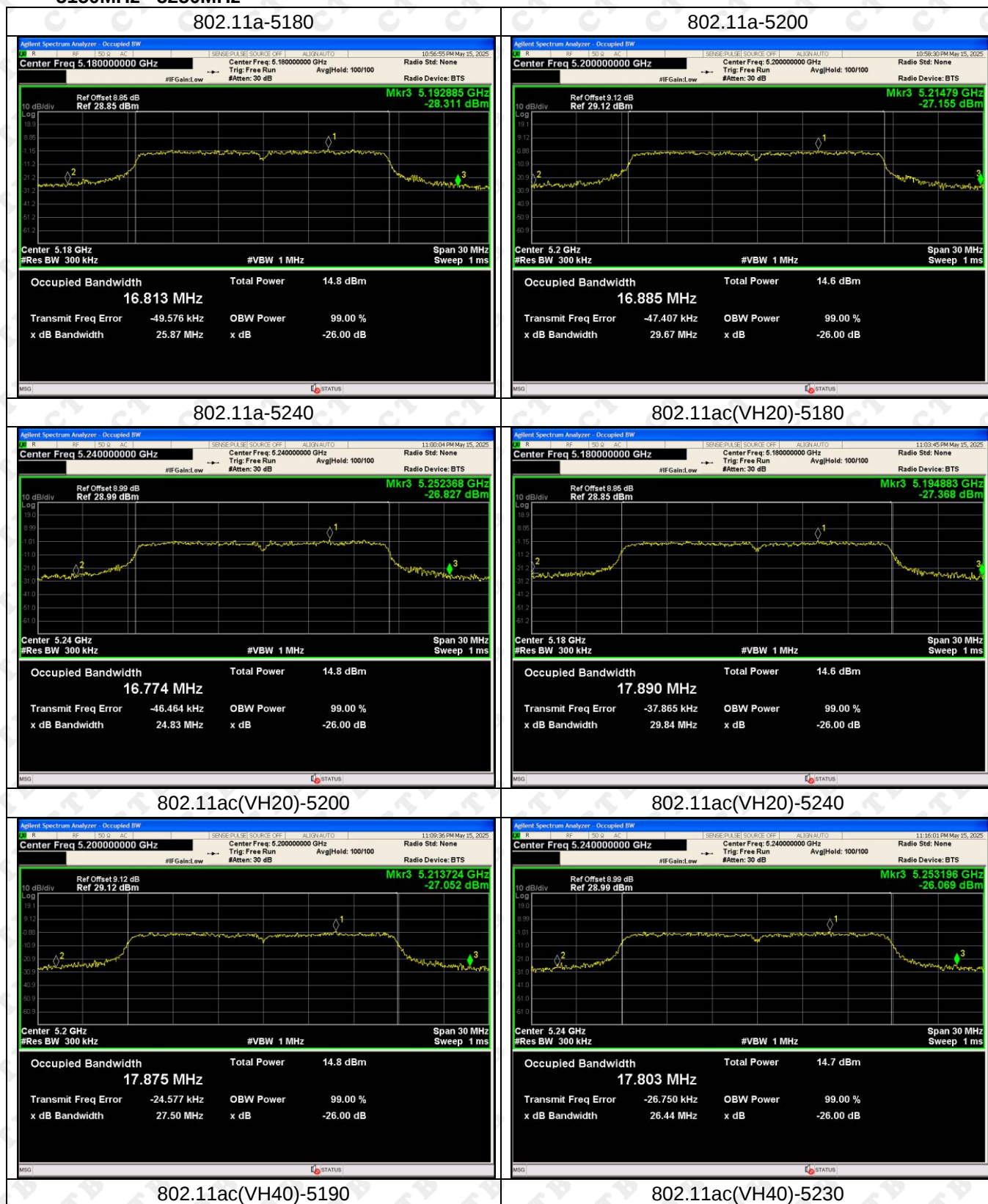
802.11ax(VH40)-5795

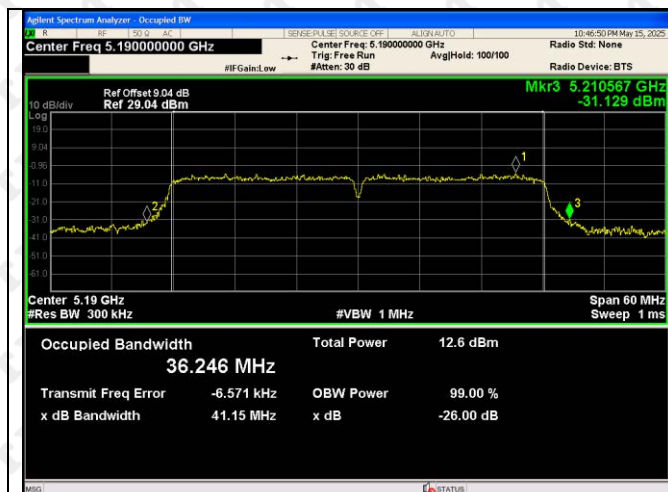


802.11ax(VH80)-5775



# Test Graph ANT 2: 5150MHz ~5250MHz

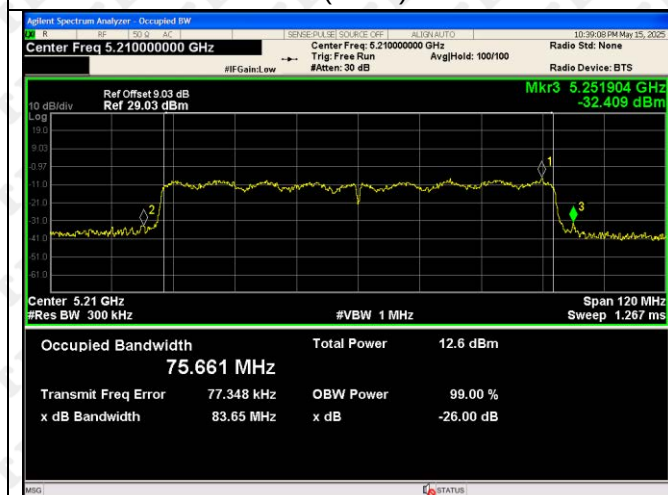




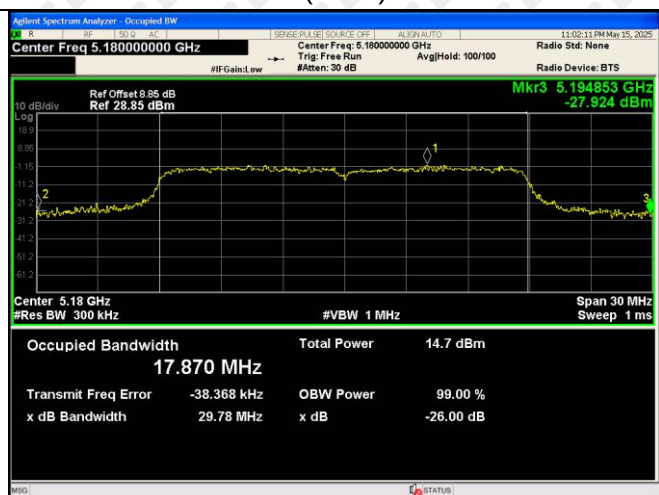
802.11ac(VH80)-5210



802.11n(HT20)-5180



802.11n(HT20)-5200



802.11n(HT20)-5240



802.11n(HT40)-5190



802.11n(HT40)-5230



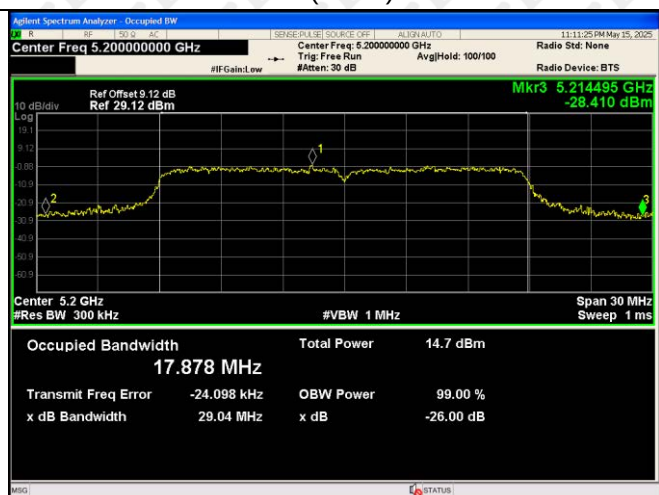
802.11ax(VH20)-5180



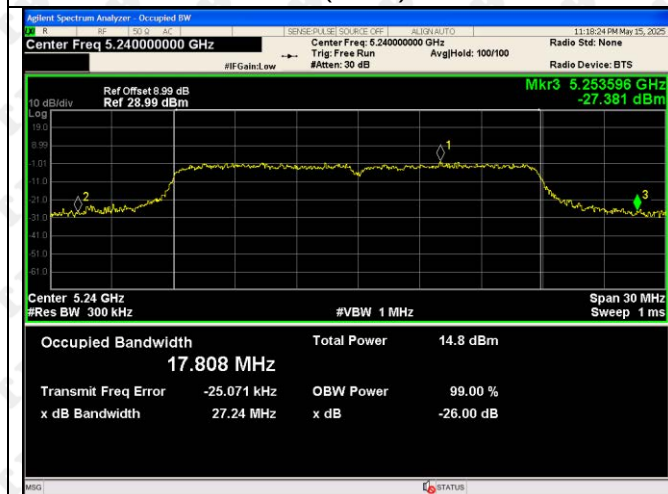
802.11ax(VH20)-5200



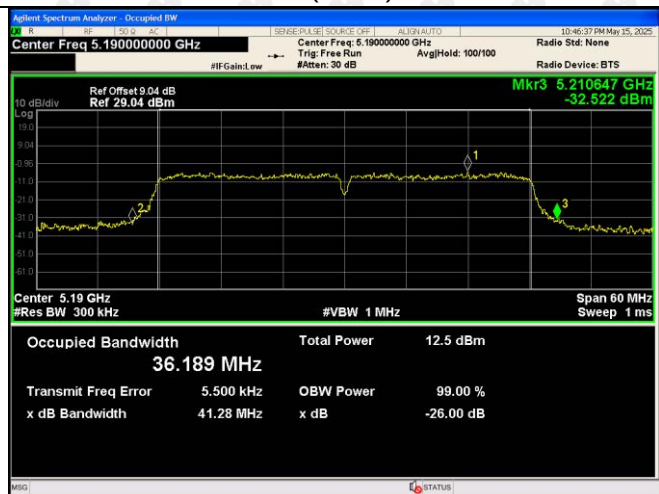
802.11ax(VH20)-5240



802.11ax(VH40)-5190

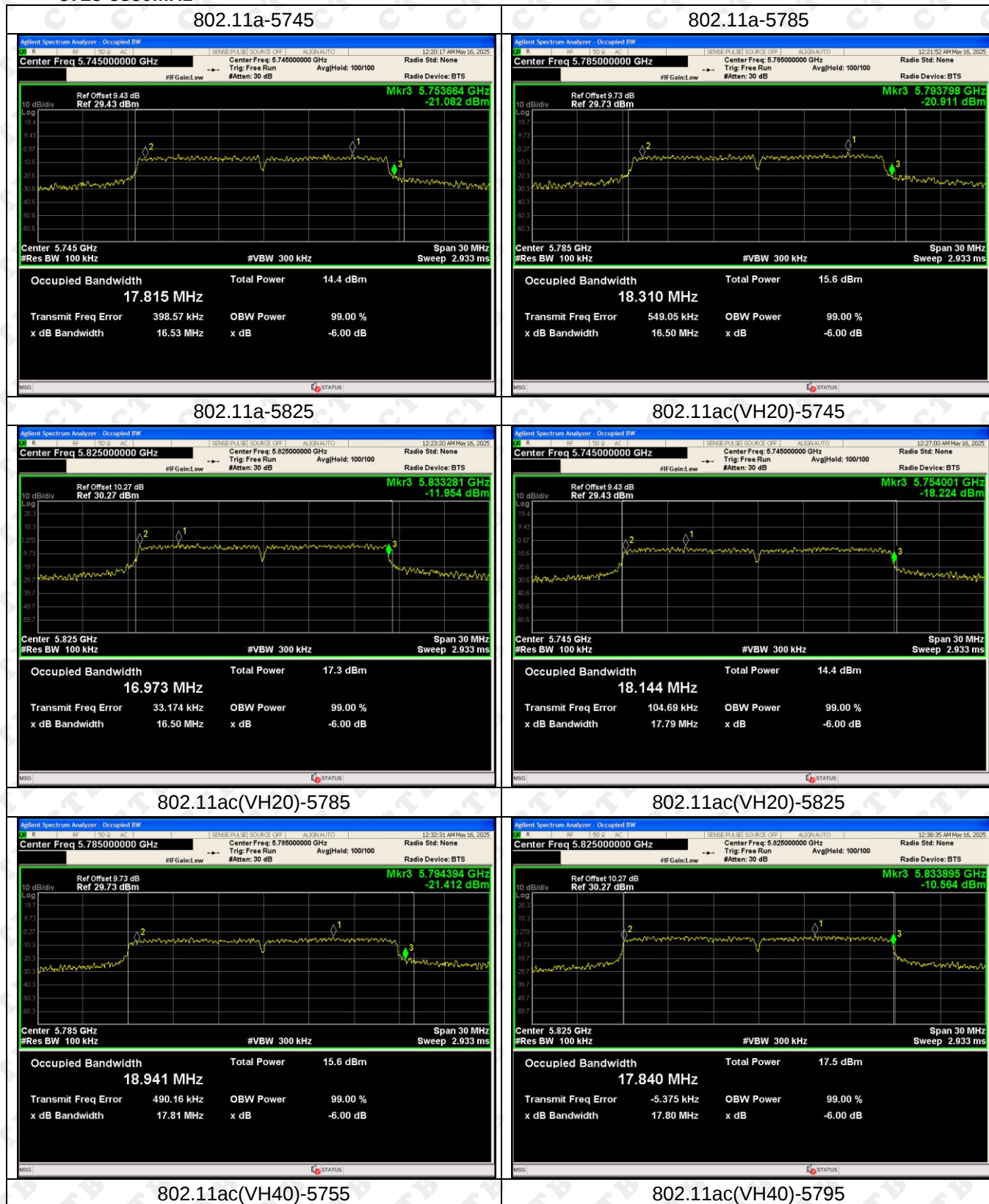


802.11ax(VH40)-5230



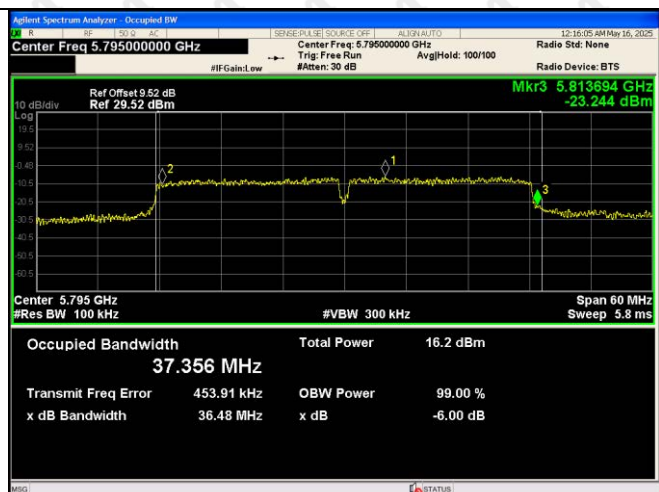
802.11ax(VH80)-5210



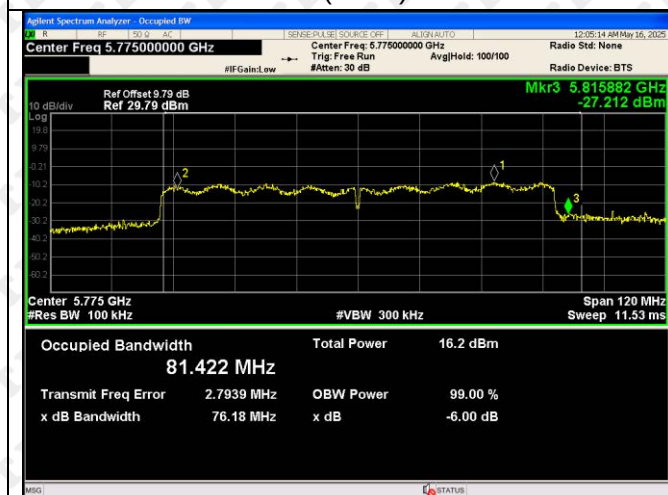
**ANT2:  
5725-5850MHz**




802.11ac(VH80)-5775



802.11n(HT20)-5745



802.11n(HT20)-5785



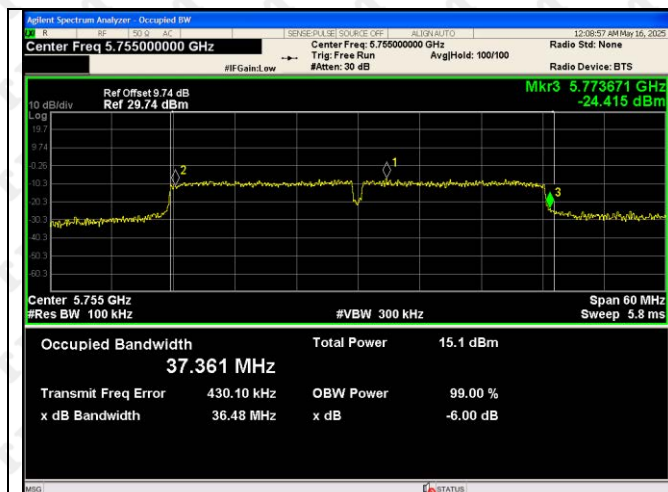
802.11n(HT20)-5745



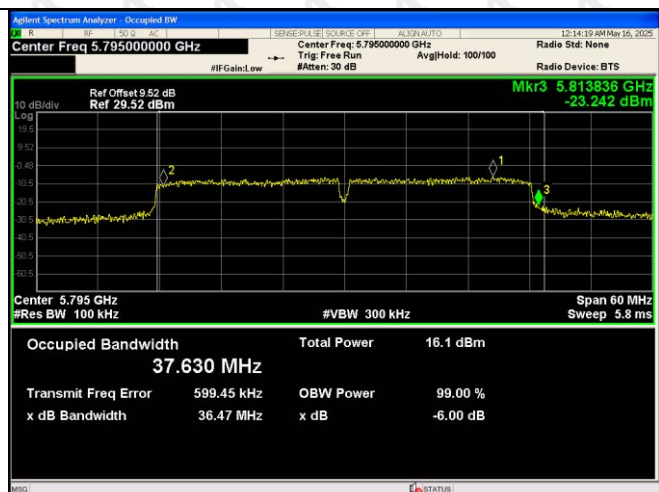
5802.11n(HT40)-5755



802.11n(HT40)-5795



802.11ax(VH20)-5745



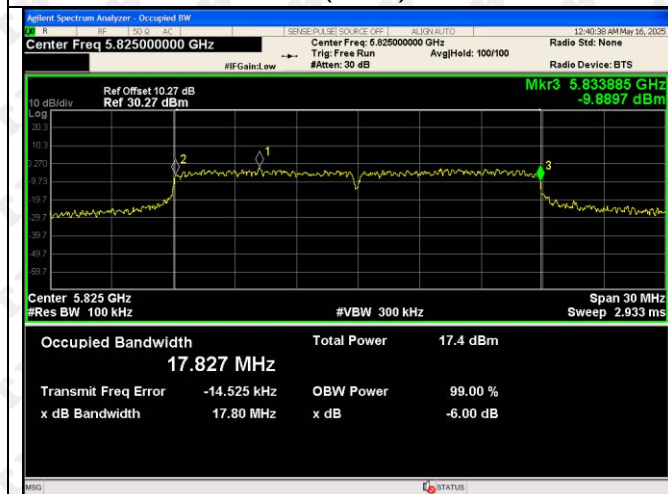
802.11ax(VH20)-5785



802.11ax(VH20)-5825



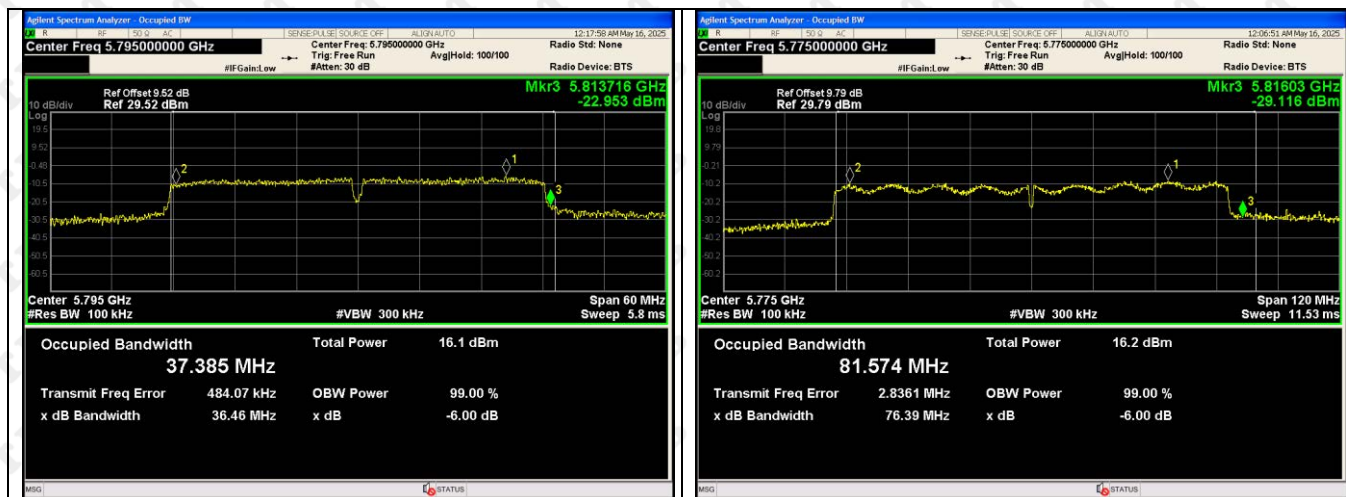
802.11ax(VH40)-5755



802.11ax(VH40)-5795

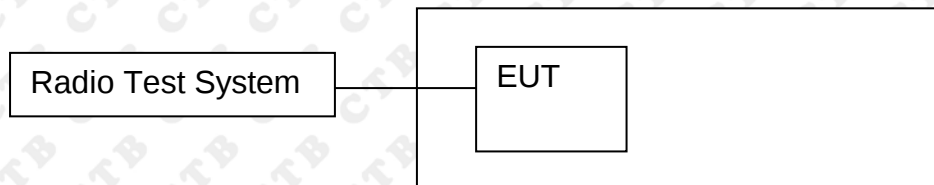


802.11ax(VH80)-5775



## 11. POWER SPECTRAL DENSITY

### 11.1 Block Diagram Of Test Setup



### 11.2 Limit

#### (1) For the band 5.15-5.25 GHz.

(iv) 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 provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

(2) 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 or 11 dBm + 10 log B, where B is the 26 dB emission bandwidth in megahertz. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

(3) For the band 5.725-5.85 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. In addition, the maximum power spectral density shall not exceed 30 dBm in any 500-kHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. However, fixed point-to-point U-NII devices operating in this band may employ transmitting antennas with directional gain greater than 6 dBi without any corresponding reduction in transmitter conducted power. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.

### 11.3 Test procedure

According to KDB789033 D02v02r01 sectionE, the following is the measurement procedure.

For devices operating in the bands 5.15–5.25 GHz, 5.25–5.35 GHz, and 5.47–5.725 GHz, the preceding procedures make use of 1 MHz RBW to satisfy directly the 1 MHz reference bandwidth specified in Section 15.407(a)(5). For devices operating in the band 5.725–5.85 GHz, the rules specify a measurement bandwidth of 500 kHz. Many spectrum analyzers do not have 500 kHz RBW, thus a narrower RBW may need to be used. The rules permit the use of RBWs less than 1 MHz, or 500 kHz, “provided that the measured power is integrated over the full reference bandwidth” to show the total power over the specified measurement bandwidth (i.e., 1 MHz, or 500 kHz). If measurements are performed using a reduced resolution bandwidth (< 1 MHz, or < 500 kHz) and integrated over 1 MHz, or 500 kHz bandwidth, the following adjustments to the procedures apply:

a) Set  $RBW \geq 1/T$ , where  $T$  is defined in II.B.I.a).

b) Set  $VBW \geq 3 RBW$ .

c) If measurement bandwidth of Maximum PSD is specified in 500 kHz, add  $10 \log (500 \text{ kHz}/RBW)$  to the

measured result, whereas RBW ( $< 500$  kHz) is the reduced resolution bandwidth of the spectrum analyzer set during measurement.

d) If measurement bandwidth of Maximum PSD is specified in 1 MHz, add  $10 \log (1\text{MHz}/\text{RBW})$  to the measured result, whereas RBW ( $< 1$  MHz) is the reduced resolution bandwidth of spectrum analyzer set during measurement.

e) Care must be taken to ensure that the measurements are performed during a period of continuous transmission or are corrected upward for duty cycle.

Note: As a practical matter, it is recommended to use reduced RBW of 100 kHz for the II.F.5.c) and II.F.5.d), since RBW=100 kHz is available on nearly all spectrum analyzers.

# 11.4 Test Result

## ANT 1+ANT2

| Test mode      | Test Channel (MHz) | PSD [dBm/MHz] ANT 1 | PSD [dBm/MHz] ANT 2 | PSD [dBm/MHz] Total | Limit (dBm/MHz) | Result |
|----------------|--------------------|---------------------|---------------------|---------------------|-----------------|--------|
| 802.11a        | 5180               | -2.367              | -2.212              | /                   | 11              | Pass   |
|                | 5200               | -2.433              | -2.413              | /                   | 11              | Pass   |
|                | 5240               | -2.403              | -2.313              | /                   | 11              | Pass   |
| 802.11ac(VH20) | 5180               | -2.588              | -2.852              | 0.292               | 11              | Pass   |
|                | 5200               | -2.872              | -2.758              | 0.196               | 11              | Pass   |
|                | 5240               | -2.626              | -2.627              | 0.384               | 11              | Pass   |
| 802.11ac(VH40) | 5190               | -5.783              | -5.71               | -2.736              | 11              | Pass   |
|                | 5230               | -5.611              | -5.905              | -2.745              | 11              | Pass   |
| 802.11n(VH20)  | 5180               | -2.694              | -2.963              | 0.184               | 11              | Pass   |
|                | 5200               | -2.867              | -2.625              | 0.266               | 11              | Pass   |
|                | 5240               | -2.755              | -2.616              | 0.325               | 11              | Pass   |
| 802.11n(VH40)  | 5190               | -5.914              | -5.876              | -2.885              | 11              | Pass   |
|                | 5230               | -5.648              | -5.855              | -2.740              | 11              | Pass   |
| 802.11ac(VH80) | 5230               | -7.91               | -8.16               | -5.023              | 11              | Pass   |
| 802.11ax(VH20) | 5180               | -2.852              | -2.915              | 0.127               | 11              | Pass   |
|                | 5200               | -2.766              | -2.842              | 0.206               | 11              | Pass   |
|                | 5240               | -2.791              | -2.837              | 0.196               | 11              | Pass   |
| 802.11ax(VH40) | 5190               | -5.798              | -5.859              | -2.818              | 11              | Pass   |
|                | 5230               | -5.802              | -5.792              | -2.787              | 11              | Pass   |
| 802.11ax(VH80) | 5210               | -7.818              | -7.97               | -4.883              | 11              | Pass   |

| Test mode      | Test Channel (MHz) | PSD [dBm/MHz] ANT 1 | PSD [dBm/MHz] ANT 2 | PSD [dBm/MHz] Total | Limit (dBm) | Result |
|----------------|--------------------|---------------------|---------------------|---------------------|-------------|--------|
| 802.11a        | 5745               | -5.814              | -5.858              | /                   | 30          | Pass   |
|                | 5785               | -4.317              | -4.232              | /                   | 30          | Pass   |
|                | 5825               | -3.04               | -3.026              | /                   | 30          | Pass   |
| 802.11ac(VH20) | 5745               | -6.319              | -6.05               | -3.172              | 30          | Pass   |
|                | 5785               | -4.916              | -4.823              | -1.859              | 30          | Pass   |
|                | 5825               | -3.39               | -3.185              | -0.276              | 30          | Pass   |
| 802.11ac(VH40) | 5755               | -8.868              | -8.756              | -5.801              | 30          | Pass   |
|                | 5795               | -7.663              | -7.671              | -4.657              | 30          | Pass   |
| 802.11n(VH20)  | 5775               | -6.288              | -6.091              | -3.178              | 30          | Pass   |
|                | 5745               | -4.89               | -4.637              | -1.751              | 30          | Pass   |
|                | 5785               | -3.286              | -2.943              | -0.101              | 30          | Pass   |
| 802.11n(VH40)  | 5825               | -9.057              | -8.733              | -5.882              | 30          | Pass   |
|                | 5755               | -7.766              | -7.5                | -4.621              | 30          | Pass   |
| 802.11ac(VH80) | 5795               | -9.895              | -9.927              | -6.901              | 30          | Pass   |
| 802.11ax(VH20) | 5745               | -6.252              | -6.28               | -3.256              | 30          | Pass   |
|                | 5785               | -4.987              | -4.782              | -1.873              | 30          | Pass   |
|                | 5825               | -3.482              | -3.153              | -0.304              | 30          | Pass   |
| 802.11ax(VH40) | 5755               | -9.016              | -8.916              | -5.955              | 30          | Pass   |
|                | 5795               | -7.735              | -7.834              | -4.774              | 30          | Pass   |
| 802.11ax(VH80) | 5775               | -10.042             | -9.95               | -6.985              | 30          | Pass   |

## ANT 1:





802.11ac(VH80)-5210



802.11n(HT20)-5180



802.11n(HT20)-5200



802.11n(HT20)-5240



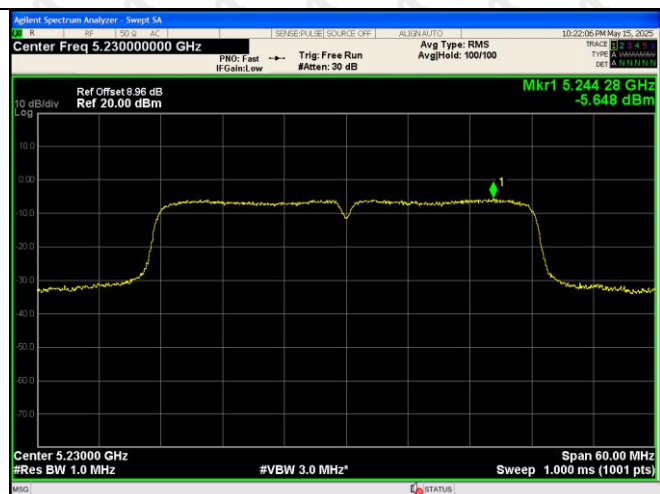
802.11n(HT40)-5190



802.11n(HT40)-5230



802.11ax(VH20)-5180



802.11ax(VH20)-5200



802.11ax(VH20)-5240



802.11ax(VH40)-5190



802.11ax(VH40)-5230



802.11ax(VH80)-5210



ANT1:

802.11a-5745



802.11a-5785



802.11a-5825



802.11ac(VH20)-5745



802.11ac(VH20)-5785

802.11ac(VH20)-5825



802.11ac(VH40)-5755



802.11ac(VH40)-5795



802.11ac(VH80)-5775



802.11n(HT20)-5745



802.11n(HT20)-5785



802.11n(HT20)-5825



5802.11n(HT40)-5755



802.11n(HT40)-5795



802.11ax(VH20)-5745



802.11ax(VH20)-5785



802.11ax(VH20)-5825



802.11ax(VH40)-5755