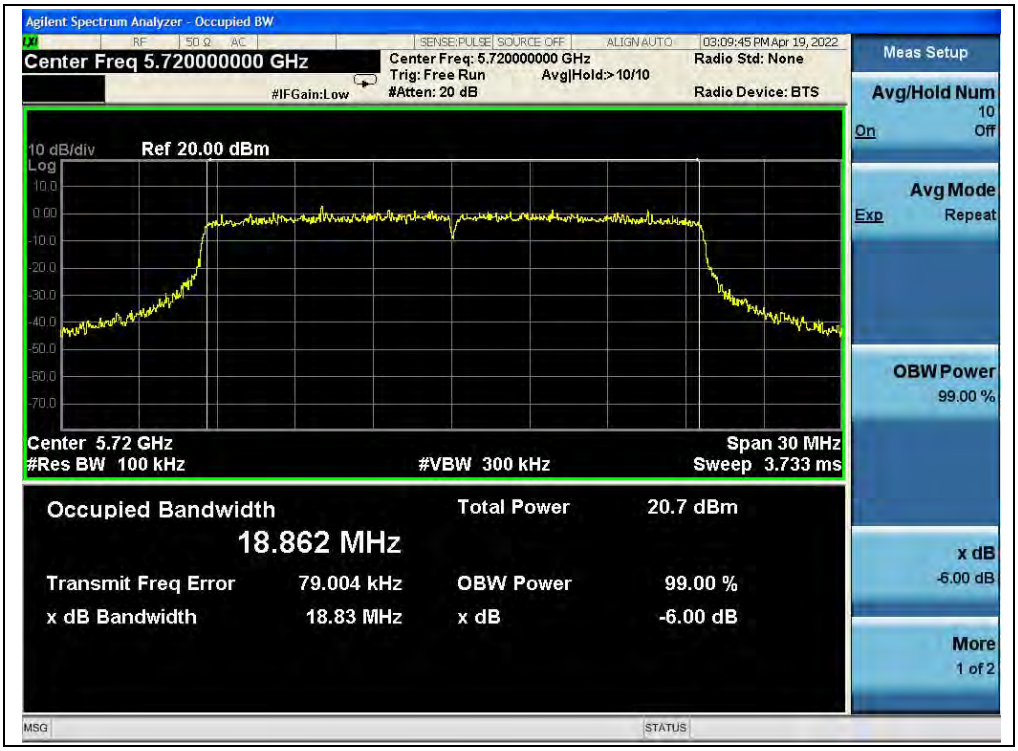
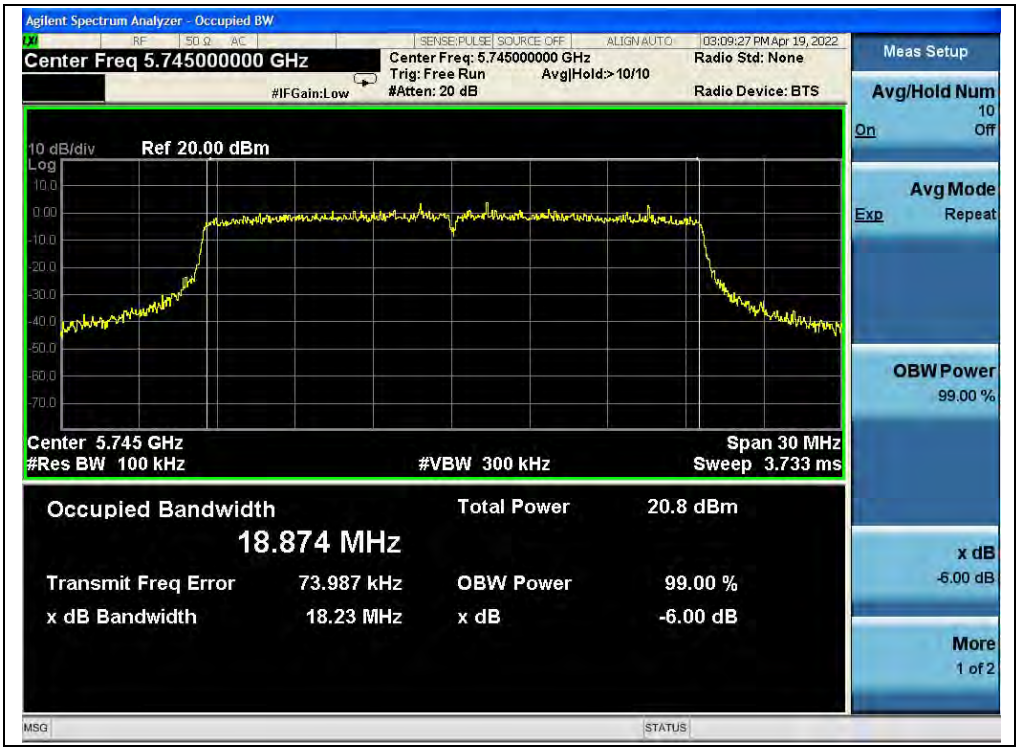
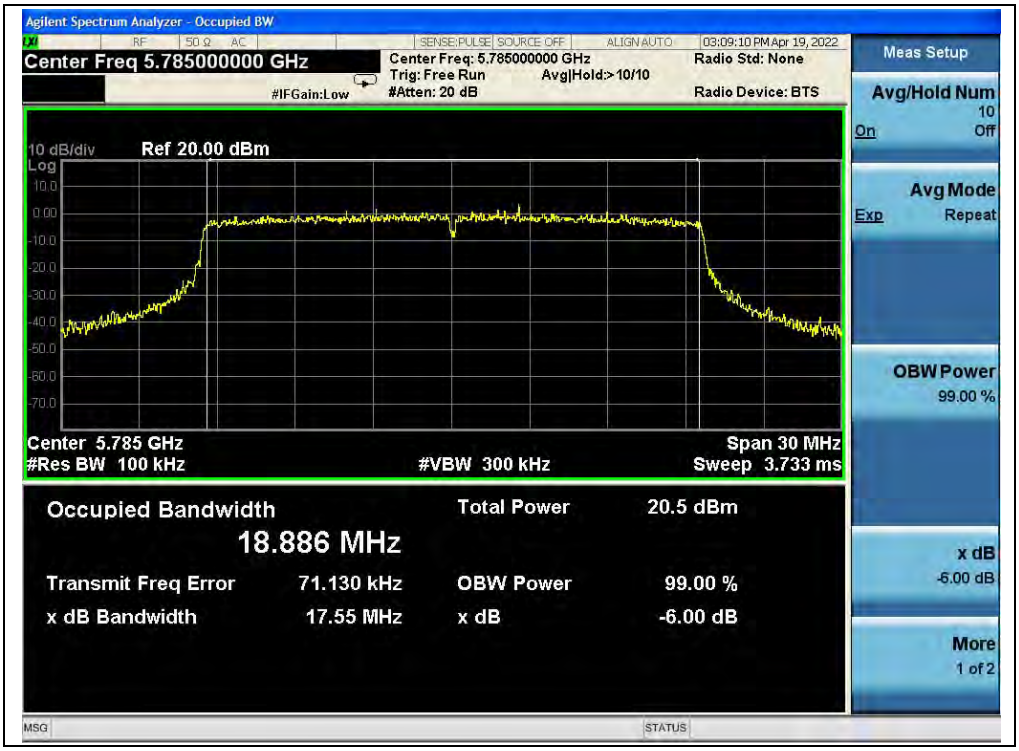



(Channel 144, 5720MHz, 802.11ax (HEW20))




(Channel 149, 5745MHz, 802.11ax (HEW20))




(Channel 157, 5785MHz, 802.11ax (HEW20))


(Channel 165, 5825MHz, 802.11ax (HEW20))

**802.11ax (HEW20) RU26 Mode**

**A.Test Verdict:**

| Channel | Frequency (MHz) | 26 dB Bandwidth (MHz) |
|---|---|---|
| 36 | 5180 | 20.08 |
| 44 | 5220 | 20.07 |
| 48 | 5240 | 20.16 |
| 52 | 5260 | 19.81 |
| 60 | 5300 | 20.01 |
| 64 | 5320 | 19.80 |
| 100 | 5500 | 19.84 |
| 120 | 5600 | 20.12 |
| 144 | 5720 | 19.95 |
| **Channel** | **Frequency (MHz)** | **6 dB Bandwidth (MHz)** |
| 144 | 5720 | 2.07 |
| 149 | 5745 | 2.06 |
| 157 | 5785 | 2.05 |
| 165 | 5825 | 2.09 |

**B.Test Plot:**


(Channel 36, 5180MHz, 802.11ax (HEW20) RU26)


(Channel 44, 5220MHz, 802.11ax (HEW20) RU26)


(Channel 48, 5240MHz, 802.11ax (HEW20) RU26)


(Channel 52, 5260MHz, 802.11ax (HEW20) RU26)

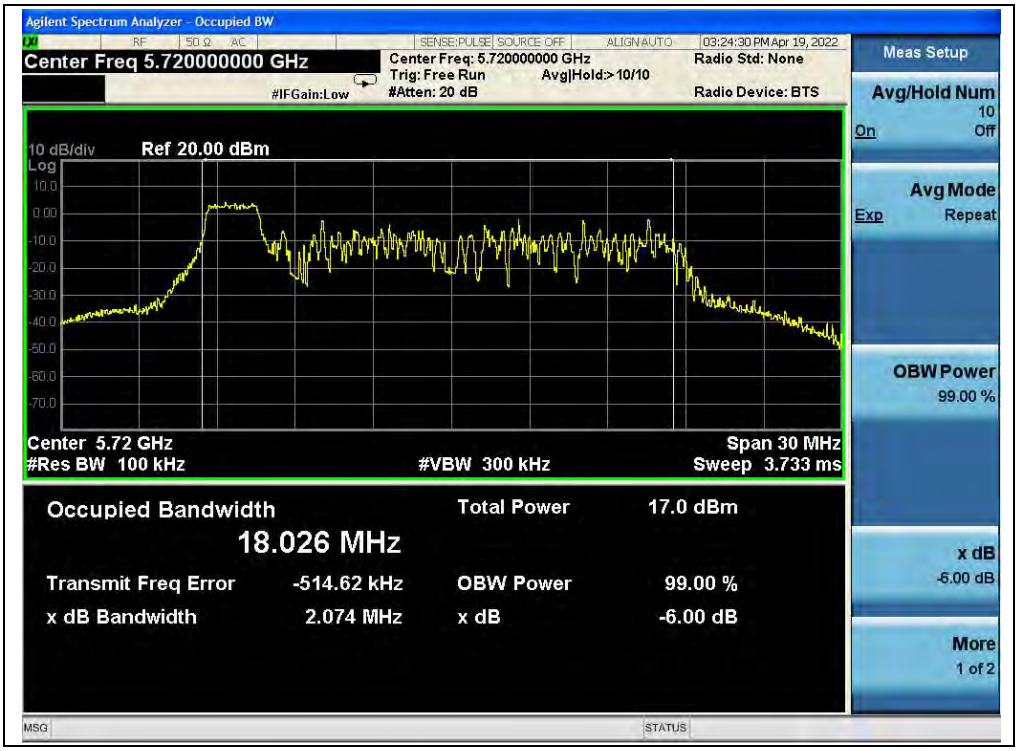

(Channel 60, 5300MHz, 802.11ax (HEW20) RU26)


(Channel 64, 5320MHz, 802.11ax (HEW20) RU26)

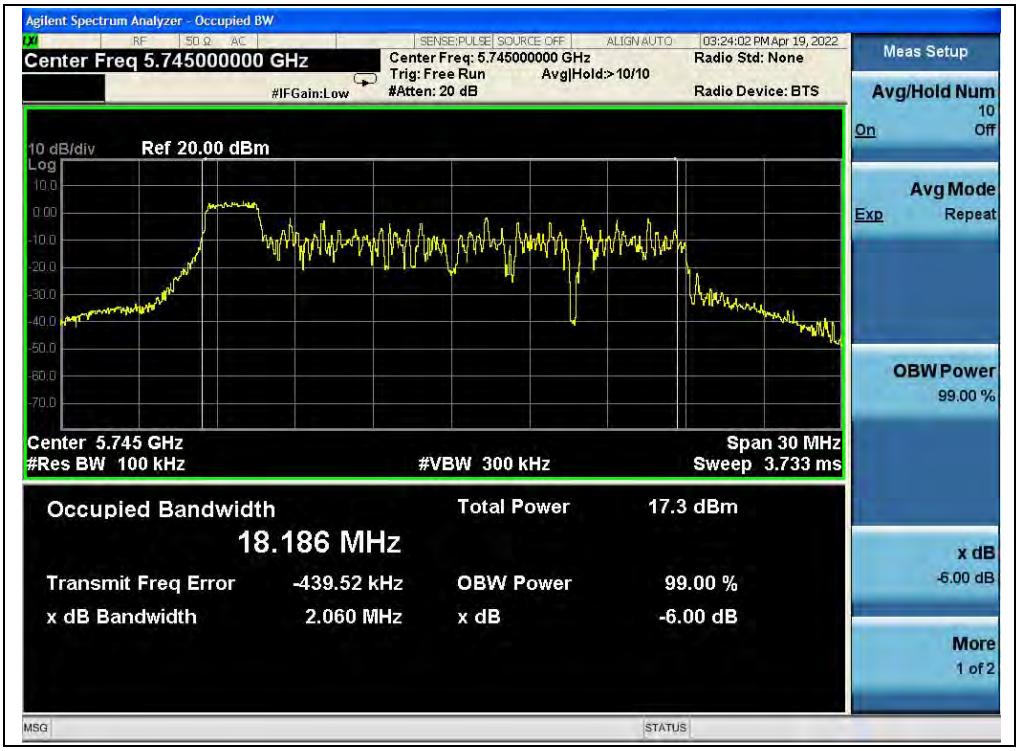

(Channel 100, 5500MHz, 802.11ax (HEW20) RU26)


(Channel 120, 5600MHz, 802.11ax (HEW20) RU26)

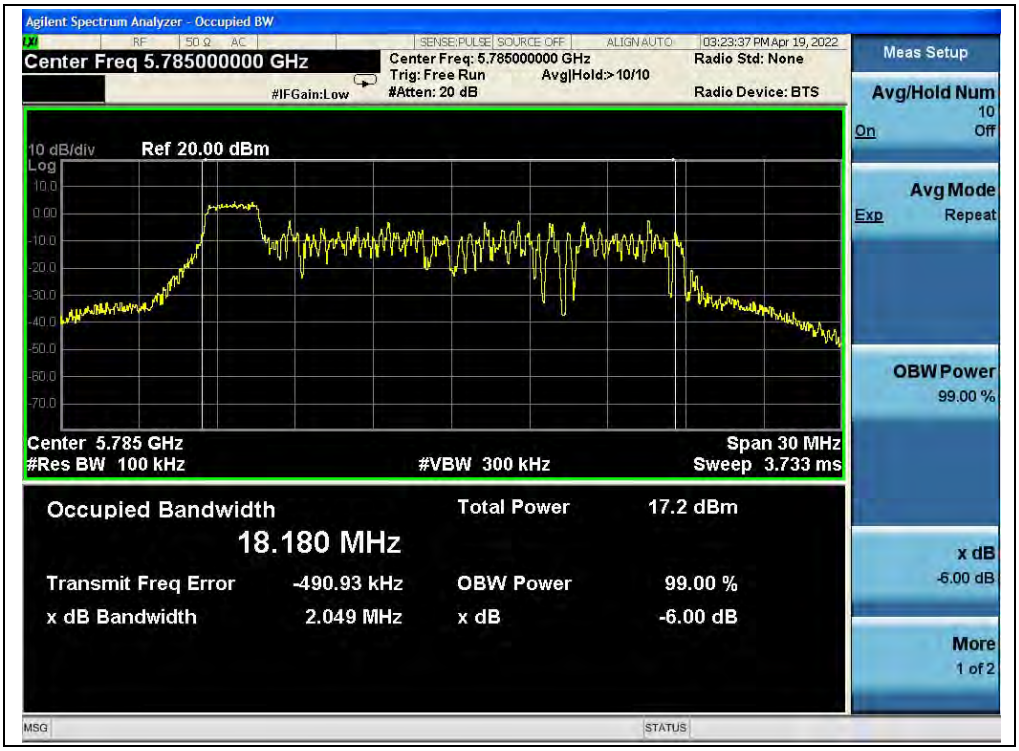

(Channel 144, 5720MHz, 802.11ax (HEW20) RU26)



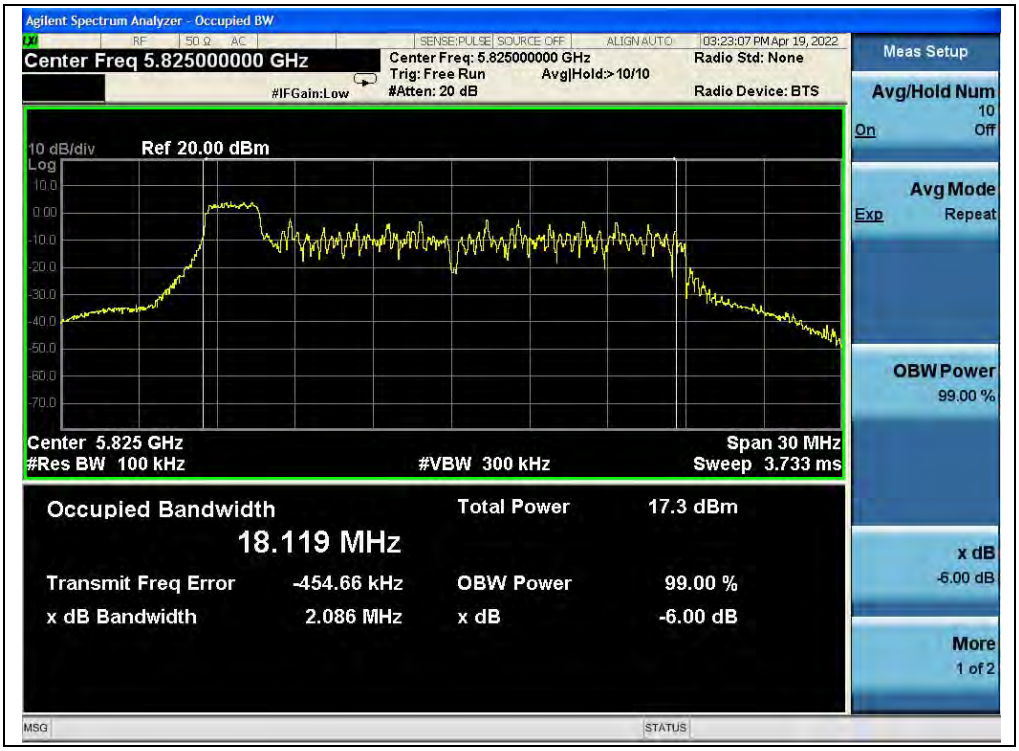

(Channel 144, 5720MHz, 802.11ax (HEW20) RU26)




(Channel 149, 5745MHz, 802.11ax (HEW20) RU26)




(Channel 157, 5785MHz, 802.11ax (HEW20) RU26)




(Channel 165, 5825MHz, 802.11ax (HEW20) RU26)

## 802.11ax (HEW20) RU52 Mode

### A.Test Verdict:

| Channel | Frequency (MHz) | 26 dB Bandwidth (MHz) |
|---|---|---|
| 36 | 5180 | 20.20 |
| 44 | 5220 | 20.00 |
| 48 | 5240 | 20.32 |
| 52 | 5260 | 20.04 |
| 60 | 5300 | 19.74 |
| 64 | 5320 | 20.01 |
| 100 | 5500 | 20.01 |
| 120 | 5600 | 20.28 |
| 144 | 5720 | 20.00 |
| **Channel** | **Frequency (MHz)** | **6 dB Bandwidth (MHz)** |
| 144 | 5720 | 17.04 |
| 149 | 5745 | 17.08 |
| 157 | 5785 | 16.99 |
| 165 | 5825 | 17.06 |

### B.Test Plot:


(Channel 36, 5180MHz, 802.11ax (HEW20) RU52)


(Channel 44, 5220MHz, 802.11ax (HEW20) RU52)


(Channel 48, 5240MHz, 802.11ax (HEW20) RU52)


(Channel 52, 5260MHz, 802.11ax (HEW20) RU52)

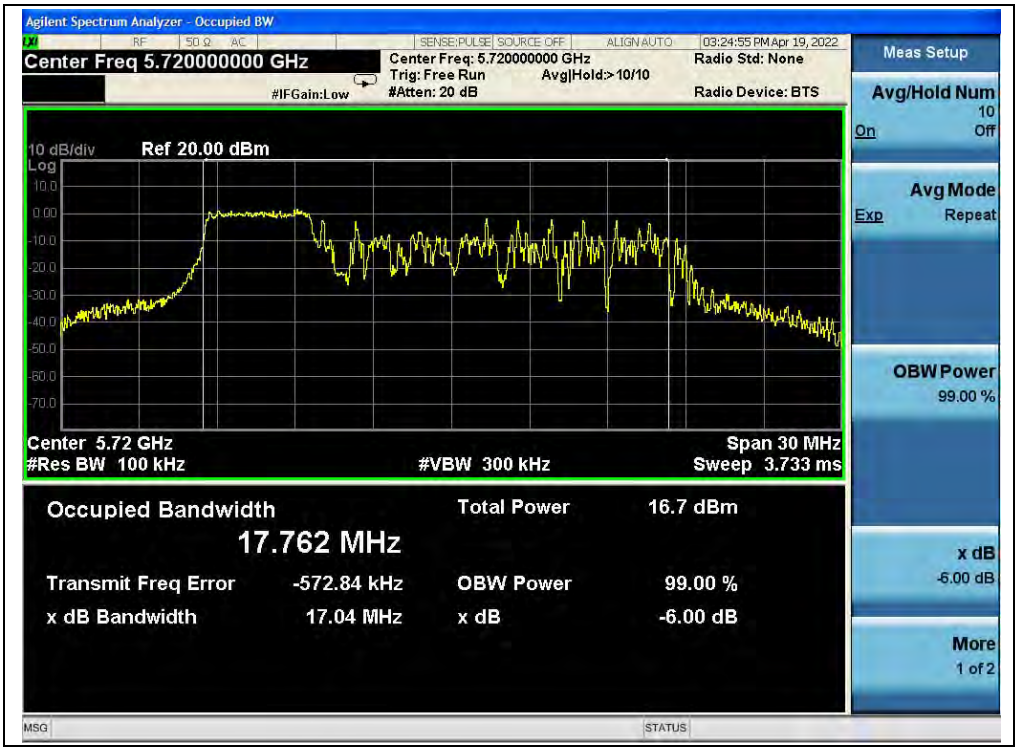

(Channel 60, 5300MHz, 802.11ax (HEW20) RU52)


(Channel 64, 5320MHz, 802.11ax (HEW20) RU52)


(Channel 100, 5500MHz, 802.11ax (HEW20) RU52)

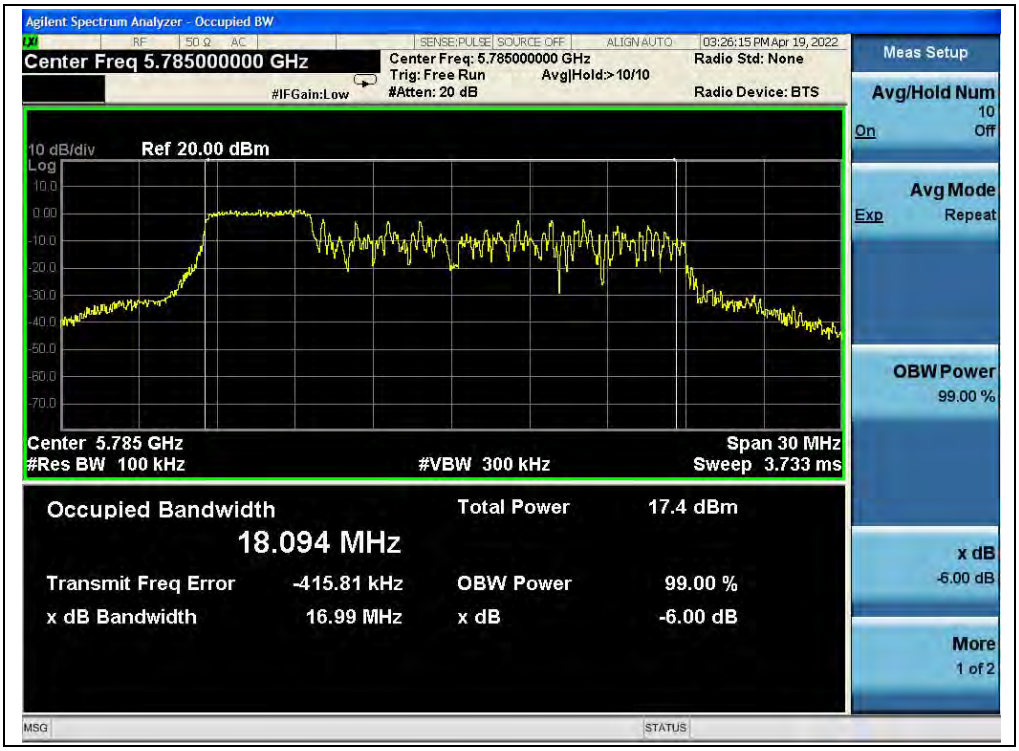

(Channel 120, 5600MHz, 802.11ax (HEW20) RU52)


(Channel 144, 5720MHz, 802.11ax (HEW20) RU52)




(Channel 144, 5720MHz, 802.11ax (HEW20) RU52)


(Channel 149, 5745MHz, 802.11ax (HEW20) RU52)




(Channel 157, 5785MHz, 802.11ax (HEW20) RU52)


(Channel 165, 5825MHz, 802.11ax (HEW20) RU52)

**802.11ax (HEW20) RU106 Mode**

**A.Test Verdict:**

| Channel | Frequency (MHz) | 26 dB Bandwidth (MHz) |
|---|---|---|
| 36 | 5180 | 21.05 |
| 44 | 5220 | 20.56 |
| 48 | 5240 | 21.18 |
| 52 | 5260 | 20.81 |
| 60 | 5300 | 20.93 |
| 64 | 5320 | 21.04 |
| 100 | 5500 | 20.71 |
| 120 | 5600 | 20.85 |
| 144 | 5720 | 21.15 |
| **Channel** | **Frequency (MHz)** | **6 dB Bandwidth (MHz)** |
| 144 | 5720 | 18.10 |
| 149 | 5745 | 18.09 |
| 157 | 5785 | 15.79 |
| 165 | 5825 | 17.13 |

**B.Test Plot:**


(Channel 36, 5180MHz, 802.11ax (HEW20) RU106)


(Channel 44, 5220MHz, 802.11ax (HEW20) RU106)


(Channel 48, 5240MHz, 802.11ax (HEW20) RU106)


(Channel 52, 5260MHz, 802.11ax (HEW20) RU106)


(Channel 60, 5300MHz, 802.11ax (HEW20) RU106)

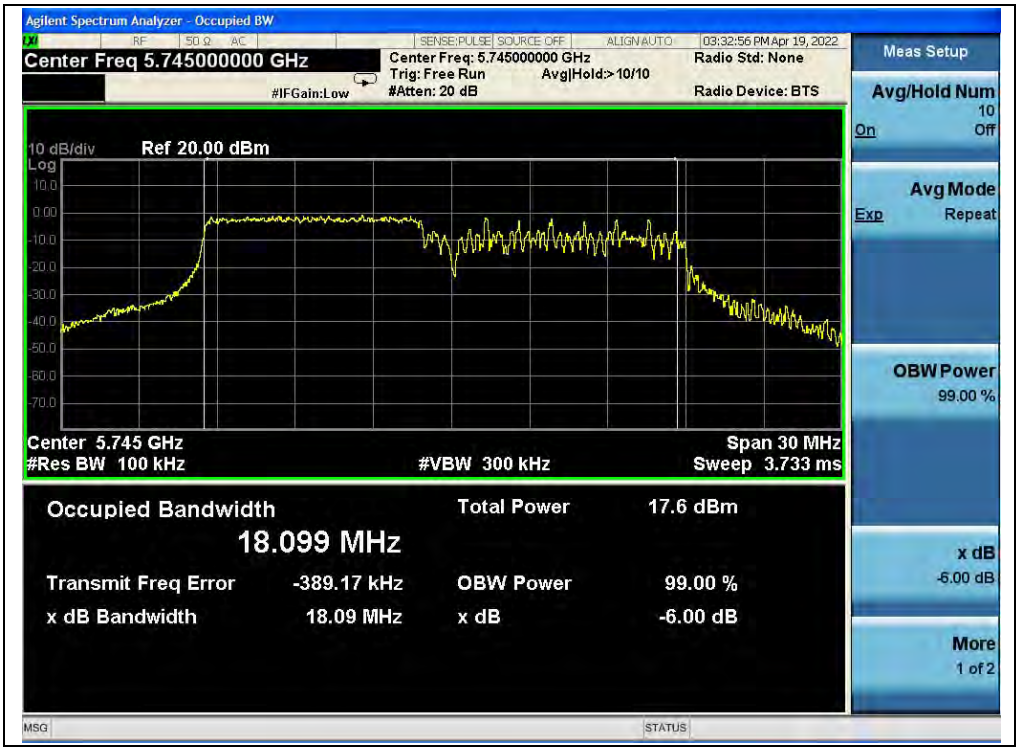

(Channel 64, 5320MHz, 802.11ax (HEW20) RU106)


(Channel 100, 5500MHz, 802.11ax (HEW20) RU106)


(Channel 120, 5600MHz, 802.11ax (HEW20) RU106)


(Channel 144, 5720MHz, 802.11ax (HEW20) RU106)


(Channel 144, 5720MHz, 802.11ax (HEW20) RU106)




(Channel 149, 5745MHz, 802.11ax (HEW20) RU106)


(Channel 157, 5785MHz, 802.11ax (HEW20) RU106)

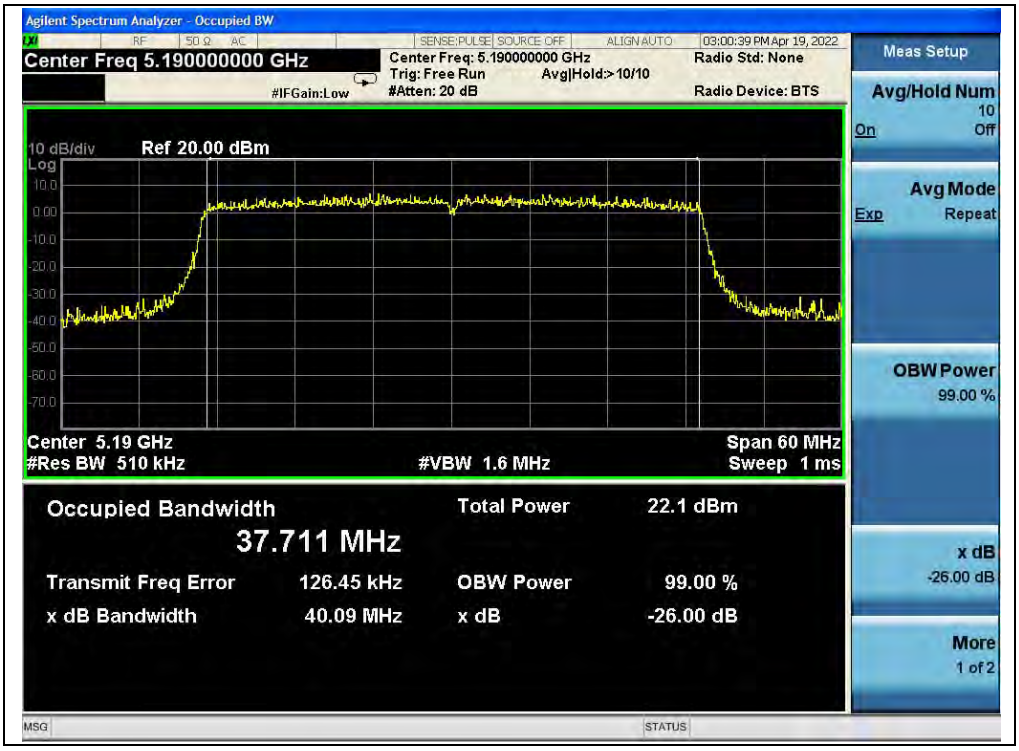

(Channel 165, 5825MHz, 802.11ax (HEW20) RU106)

**802.11ax (HEW40) Mode**

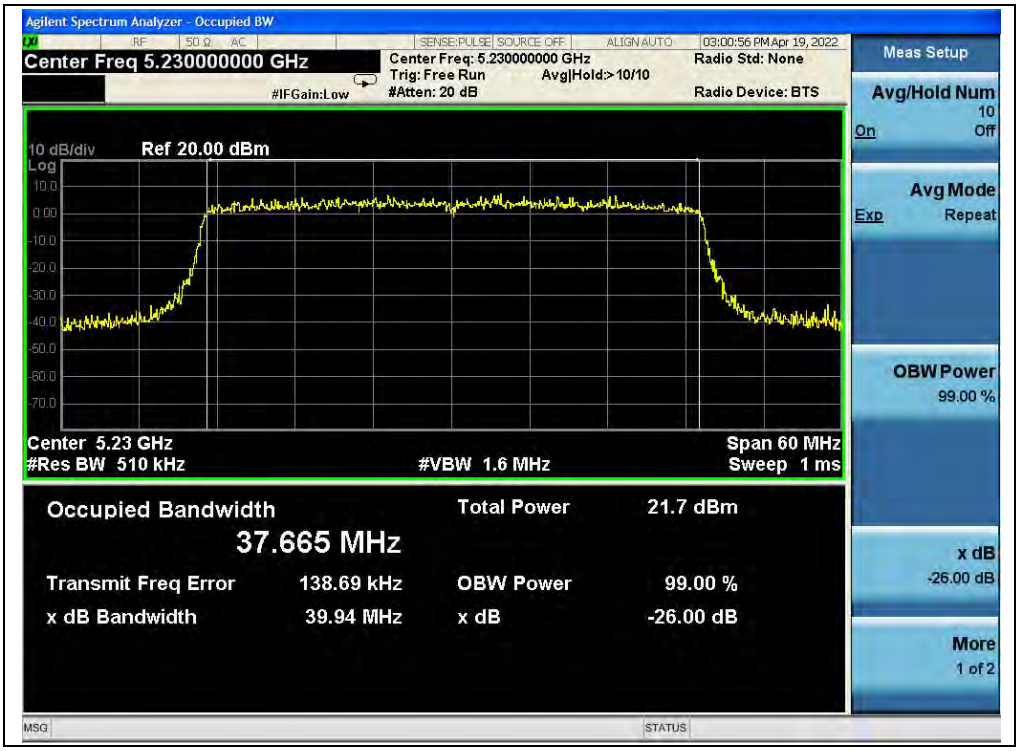
**A.Test Verdict:**

| Channel | Frequency (MHz) | 26 dB Bandwidth (MHz) |
|---|---|---|
| 38 | 5190 | 40.09 |
| 46 | 5230 | 39.94 |
| 54 | 5270 | 40.19 |
| 62 | 5310 | 40.18 |
| 102 | 5510 | 40.01 |
| 126 | 5630 | 40.14 |
| 142 | 5710 | 39.98 |
| **Channel** | **Frequency (MHz)** | **6 dB Bandwidth (MHz)** |
| 142 | 5710 | 36.95 |
| 151 | 5755 | 37.86 |
| 159 | 5795 | 37.86 |

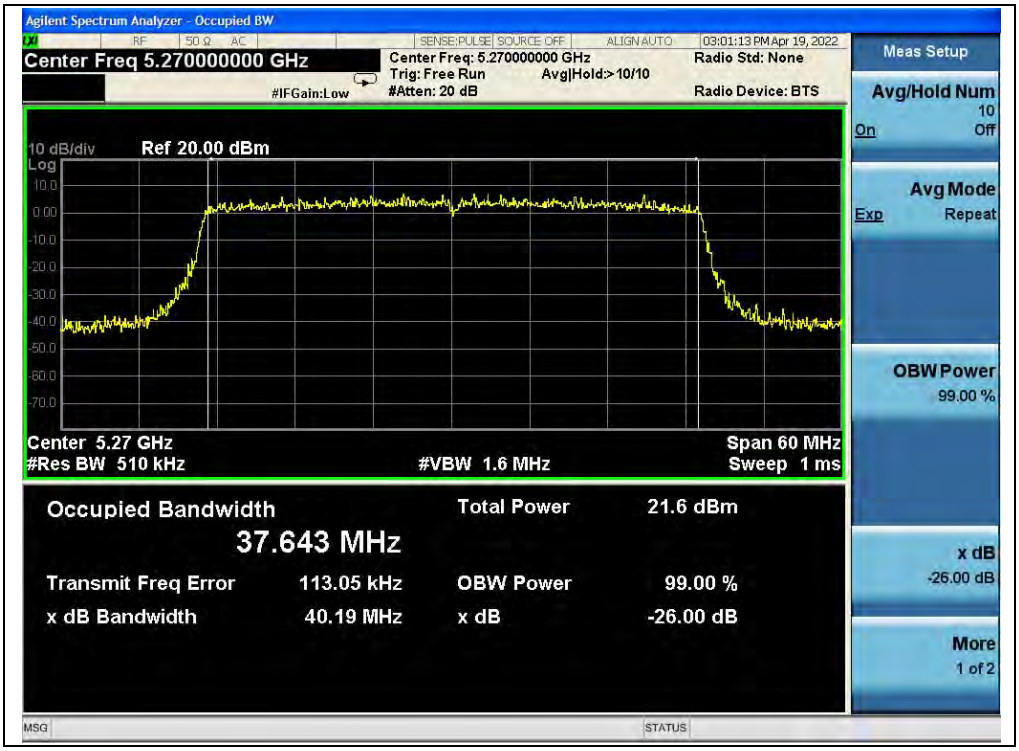
**B.Test Plot:**



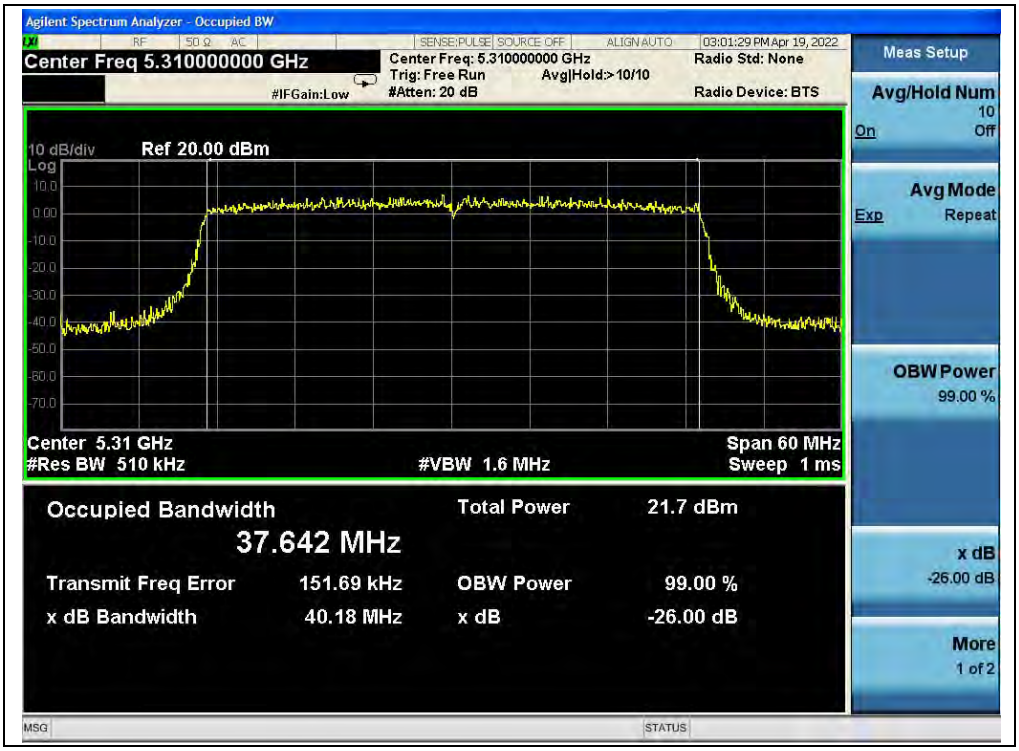

(Channel 38, 5190MHz, 802.11ax (HEW40))



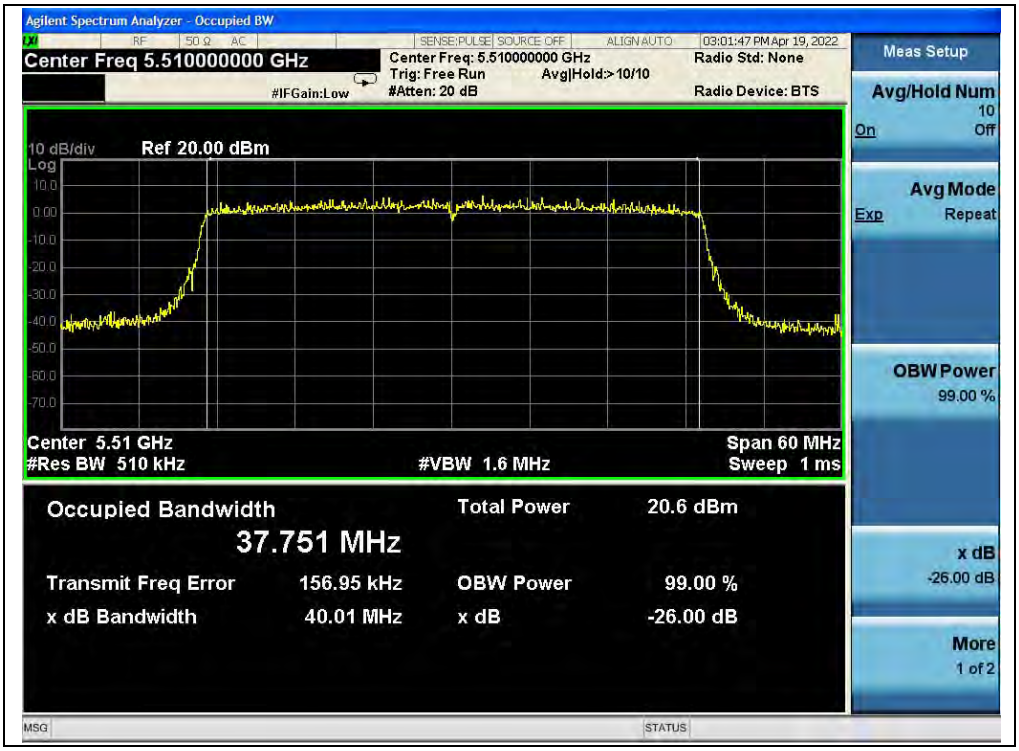

(Channel 46, 5230MHz, 802.11ax (HEW40))




(Channel 54, 5270MHz, 802.11ax (HEW40))

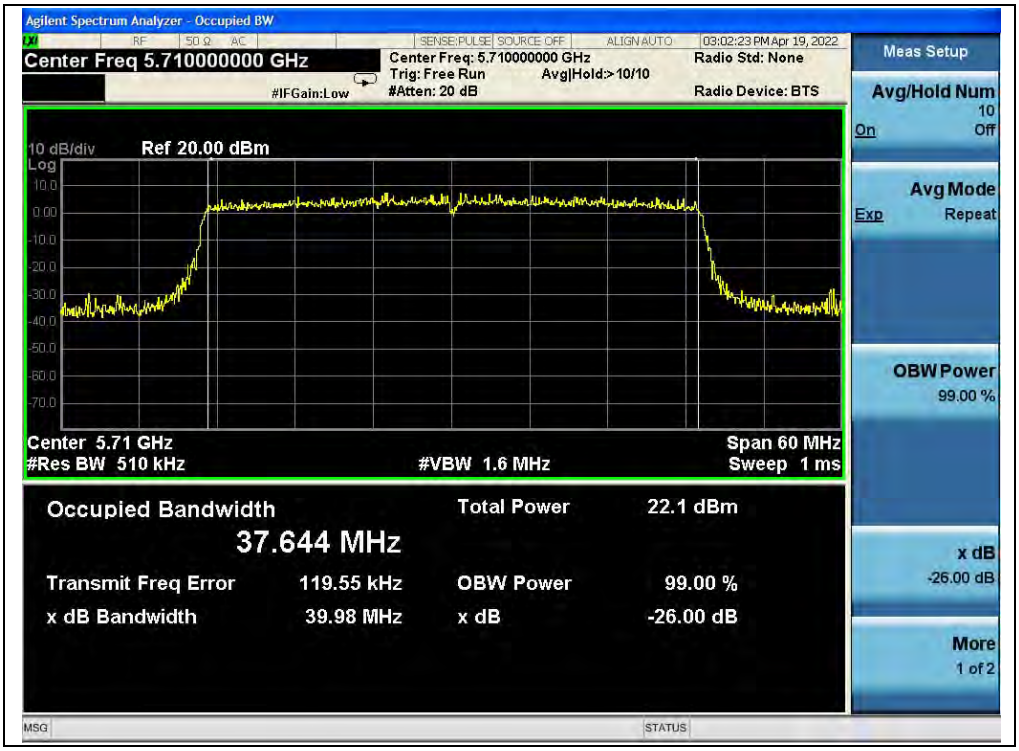



(Channel 62, 5310MHz, 802.11ax (HEW40))




(Channel 102, 5510MHz, 802.11ax (HEW40))


(Channel 126, 5630MHz, 802.11ax (HEW40))




(Channel 142, 5710MHz, 802.11ax (HEW40))


(Channel 142, 5710MHz, 802.11ax (HEW40))


(Channel 151, 5755MHz, 802.11ax (HEW40))


(Channel 159, 5795MHz, 802.11ax (HEW40))

## 802.11ax (HEW80) Mode

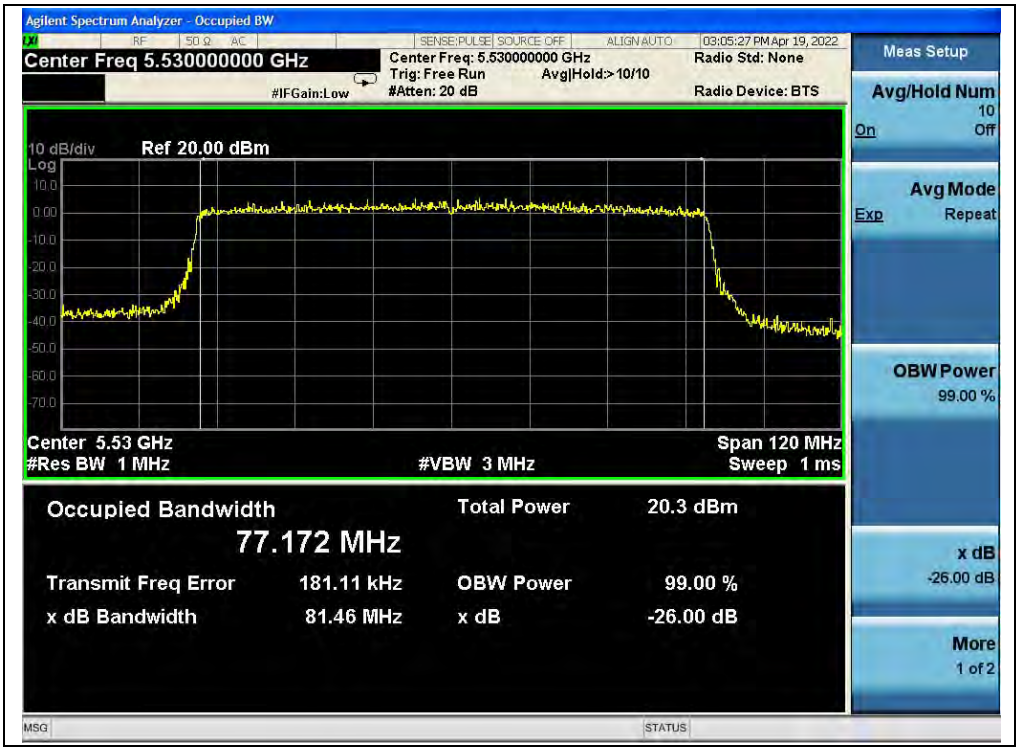
### A.Test Verdict:

| Channel | Frequency (MHz) | 26 dB Bandwidth (MHz) |
|---|---|---|
| 42 | 5210 | 81.18 |
| 58 | 5290 | 81.08 |
| 106 | 5530 | 81.46 |
| 122 | 5610 | 81.23 |
| 138 | 5690 | 82.04 |
| **Channel** | **Frequency (MHz)** | **6 dB Bandwidth (MHz)** |
| 138 | 5690 | 75.16 |
| 155 | 5775 | 78.07 |

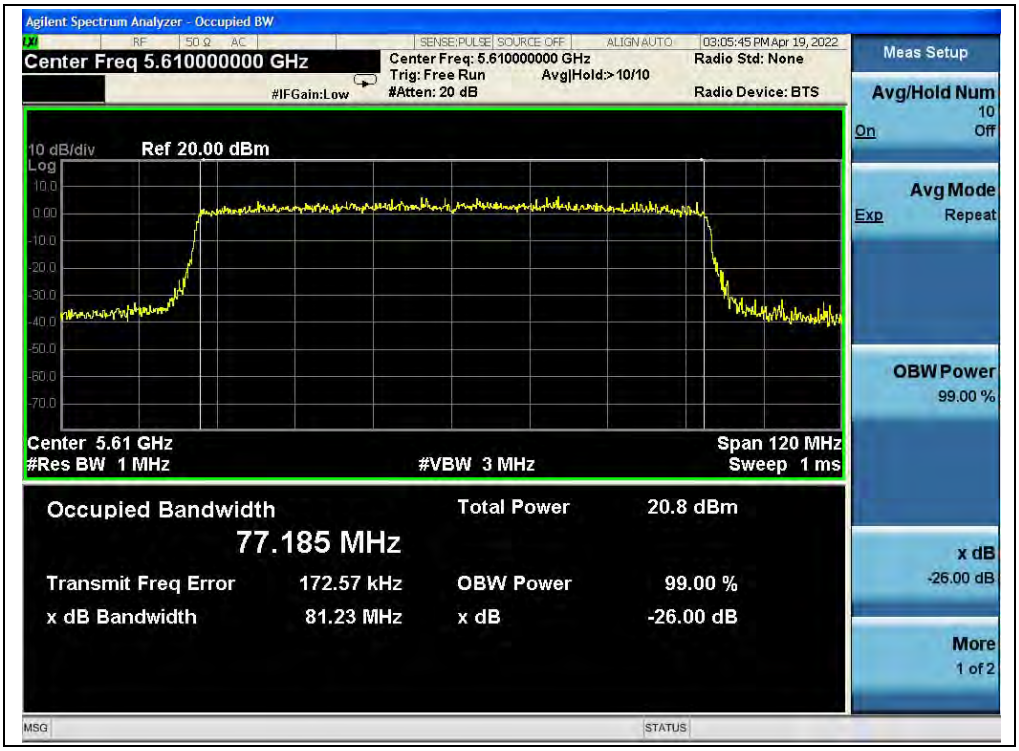
### B.Test Plot:


(Channel 42, 5210MHz, 802.11ax (HEW80))

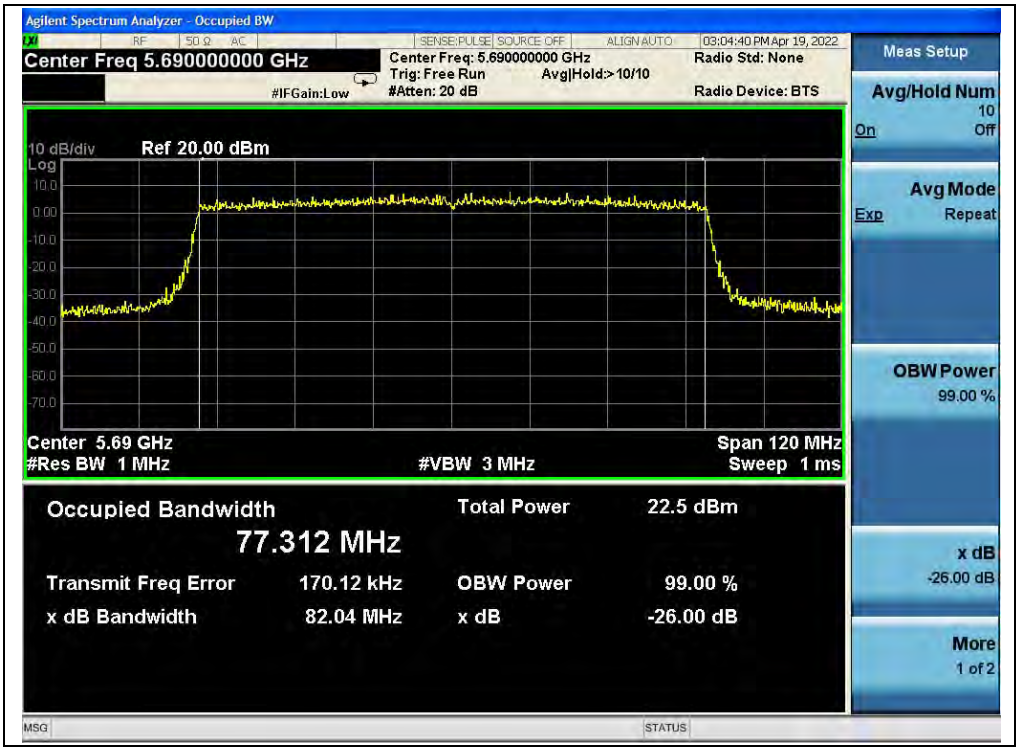

(Channel 58, 5290MHz, 802.11ax (HEW80))



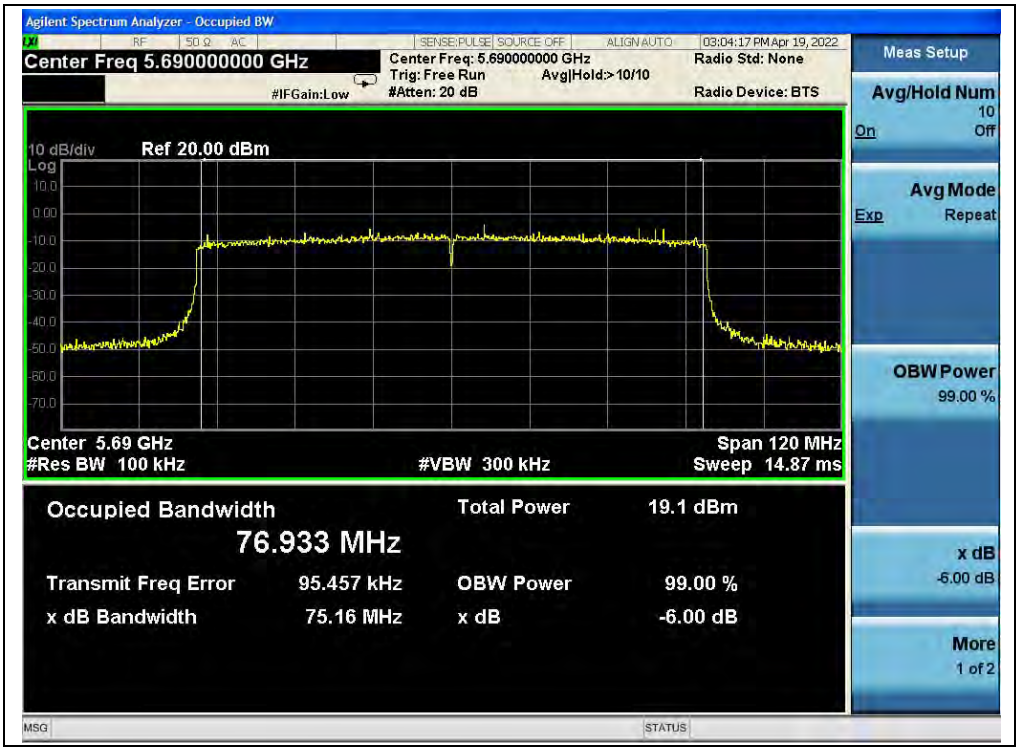

(Channel 106, 5530MHz, 802.11ax (HEW80))



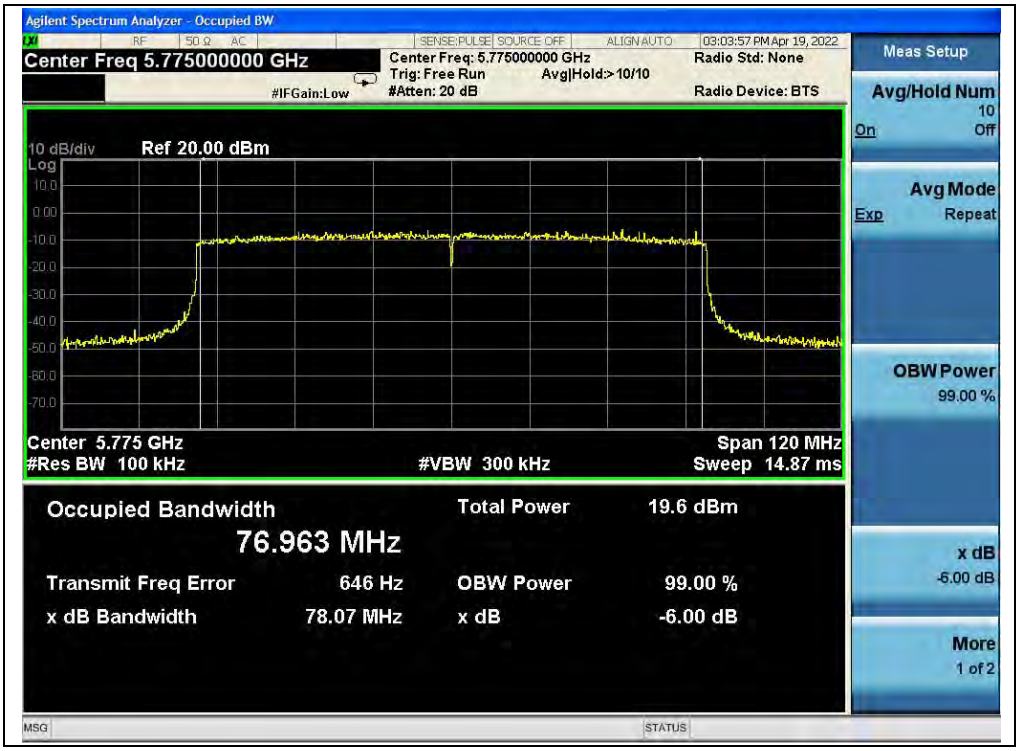

(Channel 122, 5610MHz, 802.11ax (HEW80))




(Channel 138, 5690MHz, 802.11ax (HEW80))




(Channel 138, 5690MHz, 802.11ax (HEW80))




(Channel 155, 5775MHz, 802.11ax (HEW80))

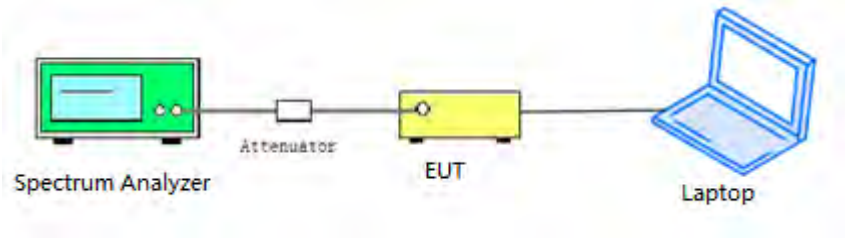
# 2.5. Peak Power Spectral Density

### 2.5.1. Requirement

(1)For client devices in the 5.15-5.25 GHz band, the maximum power spectral density shall not exceed 11dBm in any 1 megahertz band.
(2)For the 5.25-5.35 GHz and 5.47-5.725 GHz bands, the maximum power spectral density shall not exceed 11dBm in any 1 megahertz band.
(3) For the band 5.725-5.85 GHz, the maximum power spectral density shall not exceed 30dBm in any 500kHz band.
If transmitting antennas of directional gain greater than 6dBi are used, the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.
(4) According to KDB662911D01Measure-and-sum technique, the conducted emission level (e.g., transmit power or power in specified bandwidth) is measured at each antenna port. The measured results at the various antenna ports are then summed mathematically to determine the total emission level from the device. Summing is performed in units that are directly proportional to power.
(5) According to KDB 662911 D01, the directional gain = $G_{ANT}$ +10log($N_{ANT}$) dBi, where $G_{ANT}$ is the antenna gain in dBi, $N_{ANT}$ is the number of outputs.

### 2.5.2. Test Description

**Test Setup:**




The EUT is coupled to the Spectrum Analyzer; the RF load attached to the EUT antenna terminal is 50Ohm; the path loss as the factor is calibrated to correct the reading.

### 2.5.3. Test Procedure

KDB 789033 Section F) Maximum Power Spectral Density (PSD) Method SA-3 was used in order to prove compliance

1) Set span to encompass the entire 26-dB emission bandwidth
2) Set RBW = 1MHz. Set VBW ≥ 3MHz
3) Number of points in sweep ≥ 2 Span / RBW. Sweep time = auto
4) Detector = Average
5) Trace mode=Max hold
6) Record the max value

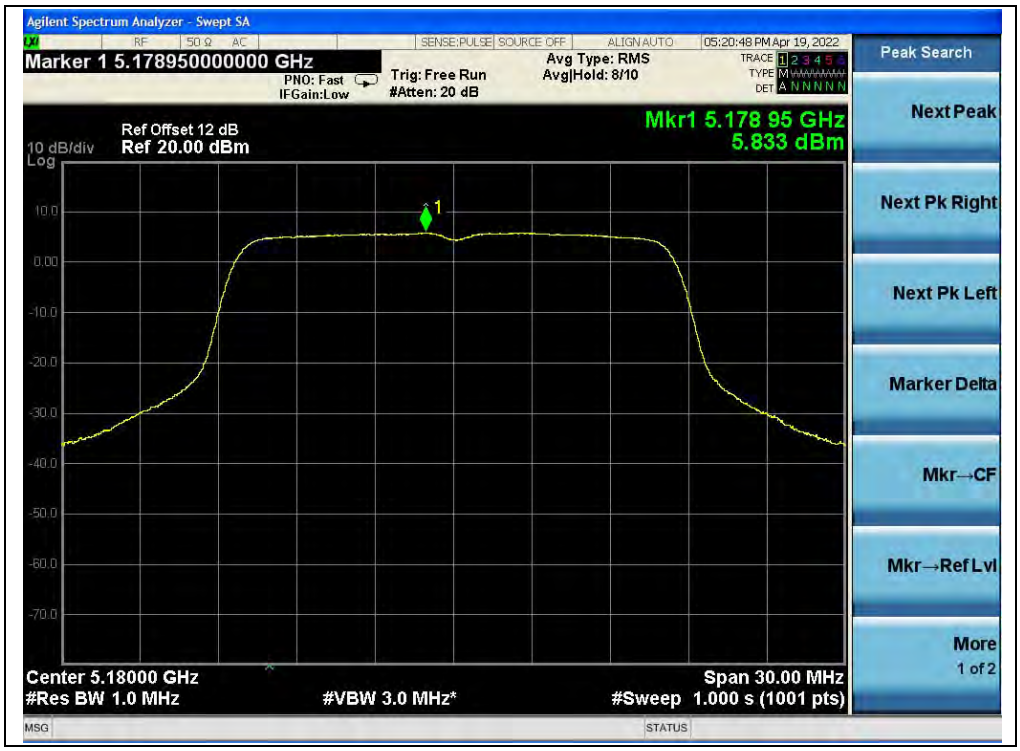
### 2.5.4. Test Result

### 802.11a Mode

**A.Test Verdict:**

| Frequency (MHz) | Measured PPSD (dBm/MHz) | | Duty Factor | Corrected PPSD (dBm/MHz) | | Limit (dBm/MHz) | Verdict |
|---|---|---|---|---|---|---|---|
| | ANT0 | ANT1 | | ANT0 | ANT1 | | |
| 5180 | 5.83 | 4.90 | 0.04 | 5.87 | 4.94 | 11 | PASS |
| 5220 | 5.89 | 5.53 | | 5.93 | 5.57 | | |
| 5240 | 5.74 | 5.77 | | 5.78 | 5.81 | | |
| 5260 | 5.71 | 5.88 | | 5.75 | 5.92 | | |
| 5300 | 5.69 | 5.82 | | 5.73 | 5.86 | | |
| 5320 | 5.68 | 5.54 | | 5.72 | 5.58 | | |
| 5500 | 4.34 | 4.18 | | 4.38 | 4.22 | | |
| 5600 | 5.11 | 4.11 | | 5.15 | 4.15 | | |
| 5720 | 6.09 | 5.11 | | 6.13 | 5.15 | | |
| Frequency (MHz) | Measured PPSD (dBm/500KHz) | | Duty Factor | Total PPSD (dBm/500KHz) | | Limit (dBm/500KHz) | Verdict |
| | ANT0 | ANT1 | | ANT0 | ANT1 | | |
| 5720 | 3.31 | 2.26 | 0.04 | 3.35 | 2.30 | 30 | PASS |
| 5745 | 3.29 | 2.23 | | 3.33 | 2.27 | | |
| 5785 | 3.02 | 2.46 | | 3.06 | 2.50 | | |
| 5825 | 2.45 | 2.25 | | 2.49 | 2.29 | | |

**B.Test Plot:**

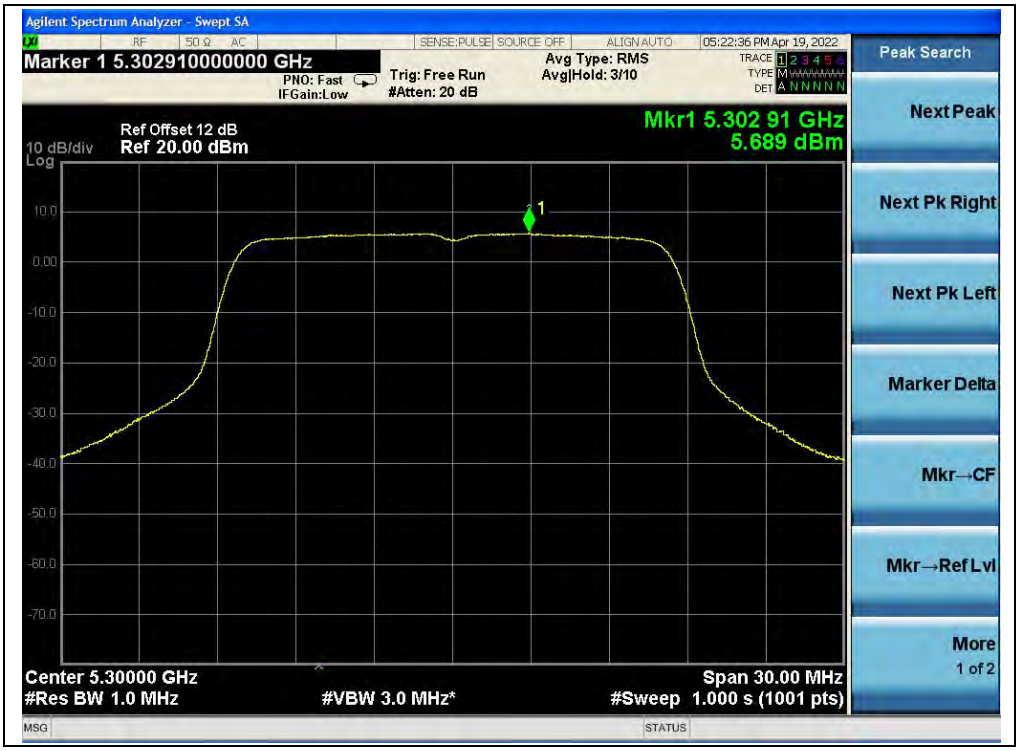



(Channel 36, 5180MHz, 802.11a, ANT0)


(Channel 44, 5220MHz, 802.11a, ANT0)

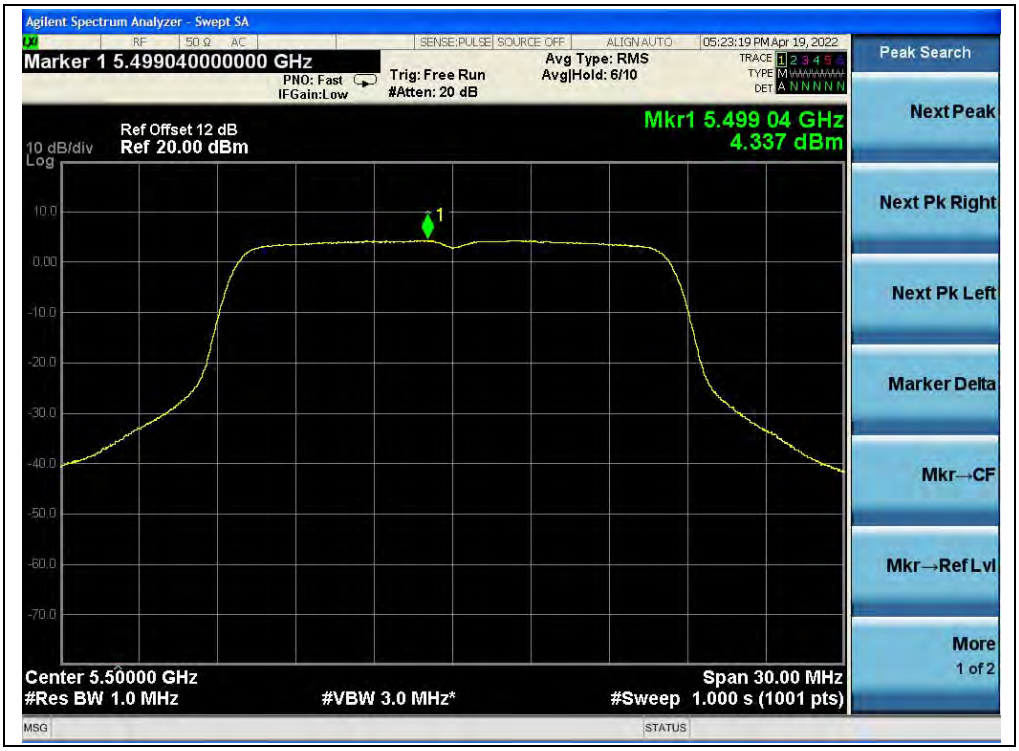

(Channel 48, 5240MHz, 802.11a, ANT0)


(Channel 52, 5260MHz, 802.11a, ANT0)



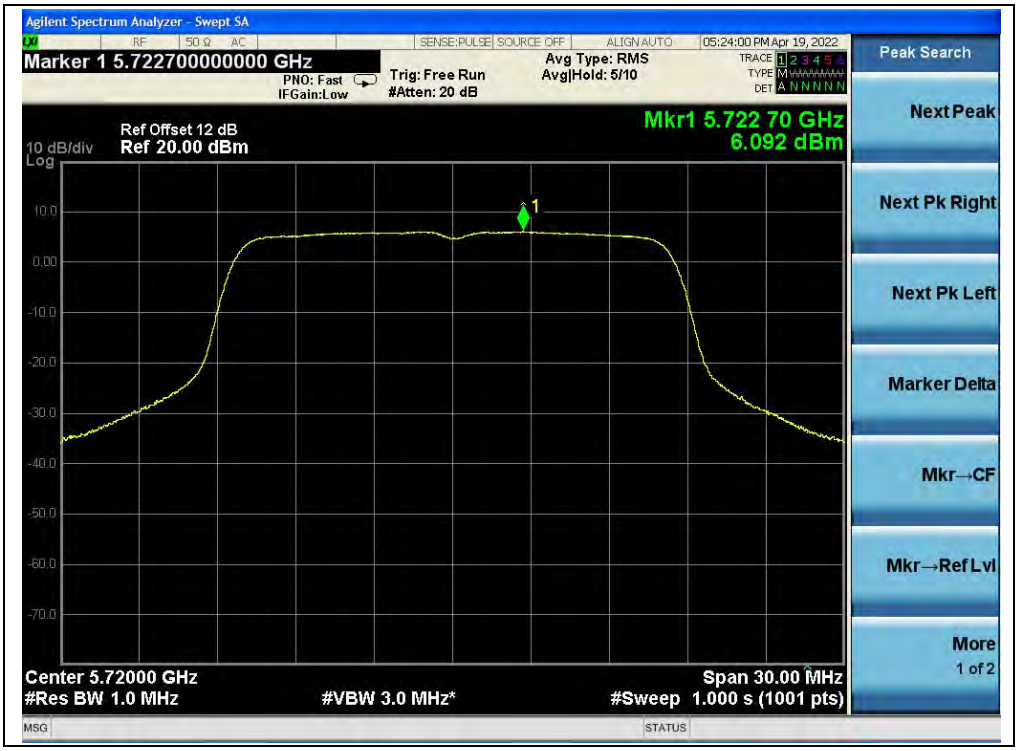

(Channel 60, 5300MHz, 802.11a, ANT0)


(Channel 64, 5320MHz, 802.11a, ANT0)

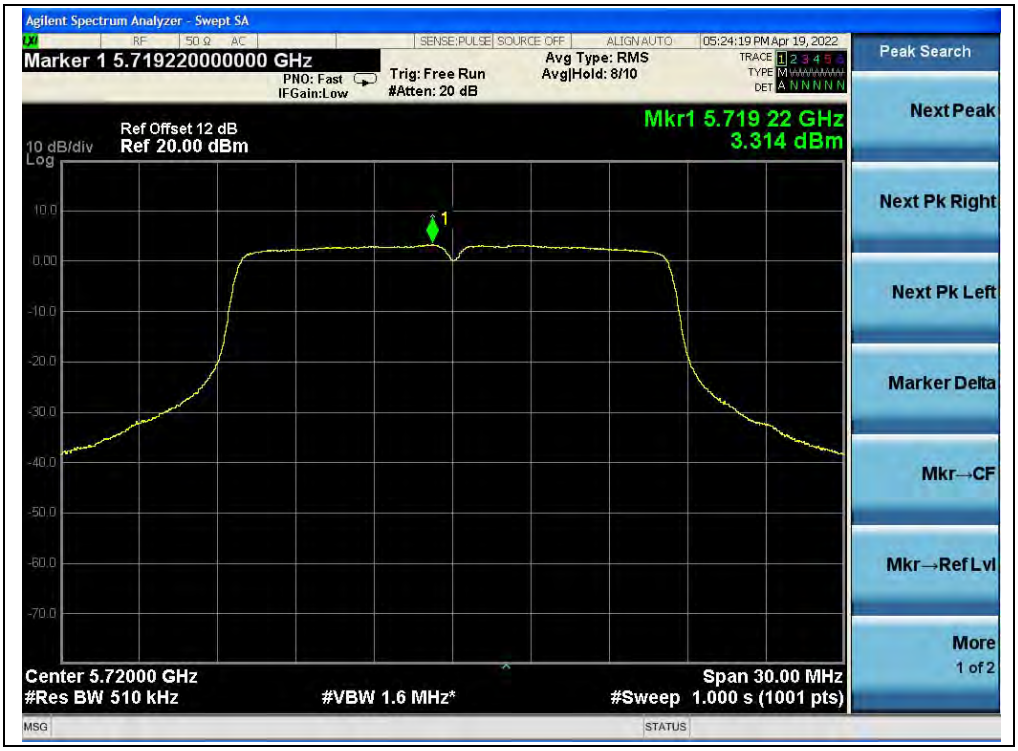



(Channel 100, 5500MHz, 802.11a, ANT0)


(Channel 120, 5600MHz, 802.11a, ANT0)




(Channel 144, 5720MHz, 802.11a, ANT0)




(Channel 144, 5720MHz, 802.11a, ANT0)


(Channel 149, 5745MHz, 802.11a, ANT0)


(Channel 157, 5785MHz, 802.11a, ANT0)

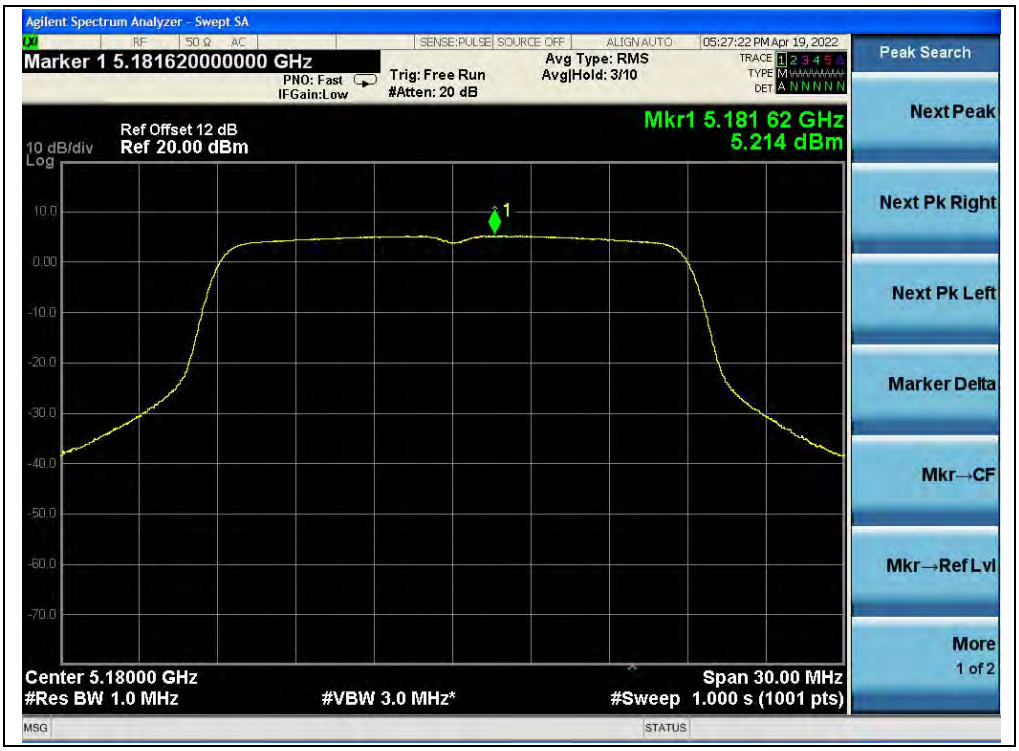

(Channel 165, 5825MHz, 802.11a, ANT0)

**802.11n (HT20) Mode**

**A.Test Verdict:**

| Frequency (MHz) | Measured PPSD (dBm/MHz) | | Duty Factor | Total PPSD (dBm/MHz) | Limit (dBm/MHz) | Verdict |
|---|---|---|---|---|---|---|
| | ANT0 | ANT1 | | | | |
| 5180 | 5.21 | 4.25 | 0.02 | 7.79 | 10.08 | PASS |
| 5220 | 5.38 | 4.99 | | 8.22 | | |
| 5240 | 5.21 | 5.26 | | 8.27 | | |
| 5260 | 5.21 | 5.32 | | 8.30 | | |
| 5300 | 5.23 | 5.34 | | 8.32 | | |
| 5320 | 5.20 | 5.07 | | 8.17 | | |
| 5500 | 3.85 | 3.65 | | 6.78 | | |
| 5600 | 4.70 | 3.55 | | 7.19 | | |
| 5720 | 5.56 | 4.61 | | 8.14 | | |
| Frequency (MHz) | Measured PPSD (dBm/500KHz) | | Duty Factor | Total PPSD (dBm/500KHz) | Limit (dBm/500KHz) | Verdict |
| | ANT0 | ANT1 | | | | |
| 5720 | 2.73 | 1.72 | 0.02 | 5.28 | 29.08 | PASS |
| 5745 | 2.76 | 1.74 | | 5.31 | | |
| 5785 | 2.53 | 1.92 | | 5.27 | | |
| 5825 | 2.03 | 1.74 | | 4.92 | | |
| **Note:** Directional gain = 3.91dBi +10log(2) = 6.92dBi＞6dBi, so the limit shall be reduced to 11-(6.92-6) = 10.08dBm for 5.18-5.24GHz, 5.260-5.320GHz, 5.500-5.720GHz band and reduced to 30-(6.92-6) = 29.08dBm for 5.745-5.825GHz band. | | | | | | |

**B.Test Plot:**

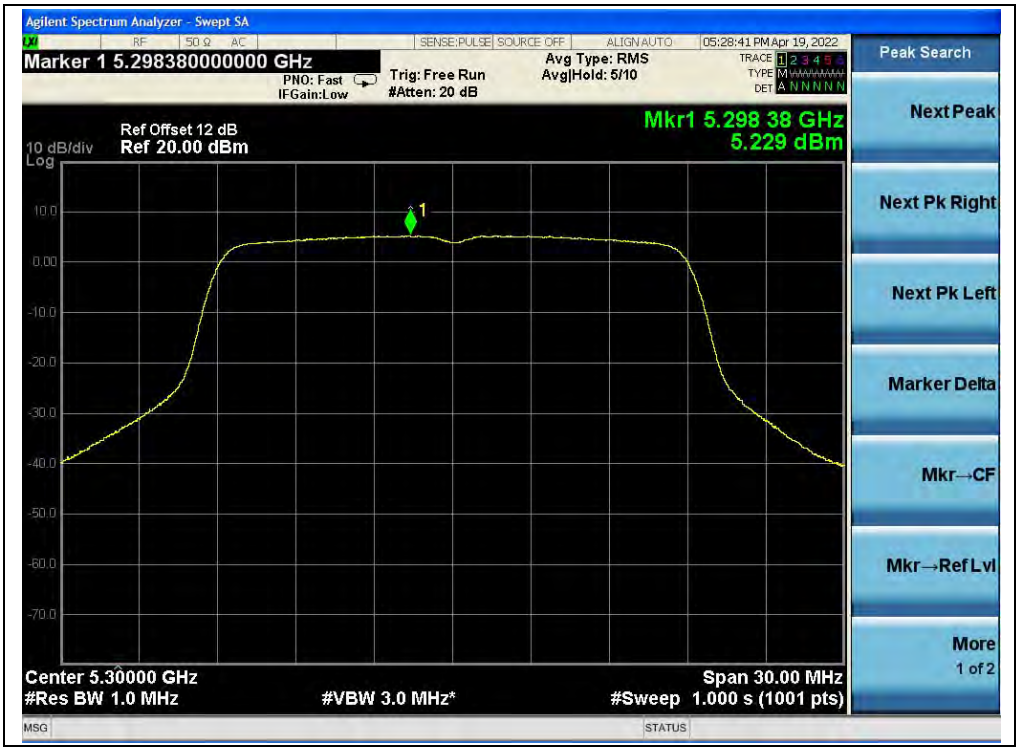



(Channel 36, 5180MHz, 802.11n (HT20), ANT0)


(Channel 44, 5220MHz, 802.11n (HT20), ANT0)

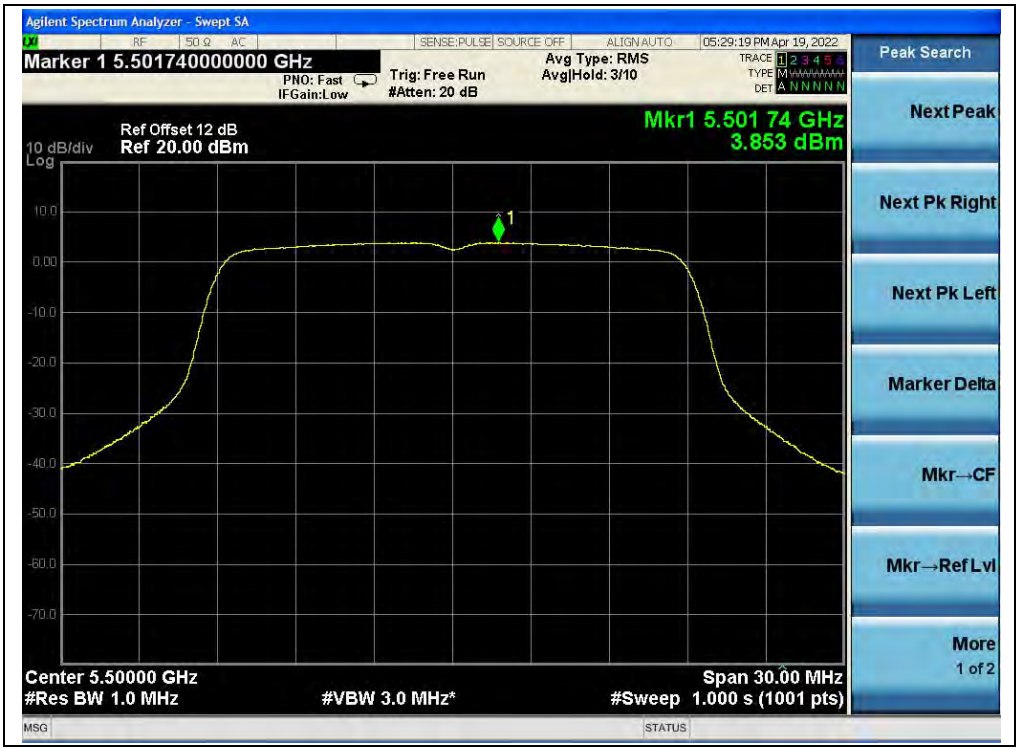

(Channel 48, 5240MHz, 802.11n (HT20), ANT0)


(Channel 52, 5260MHz, 802.11n (HT20), ANT0)

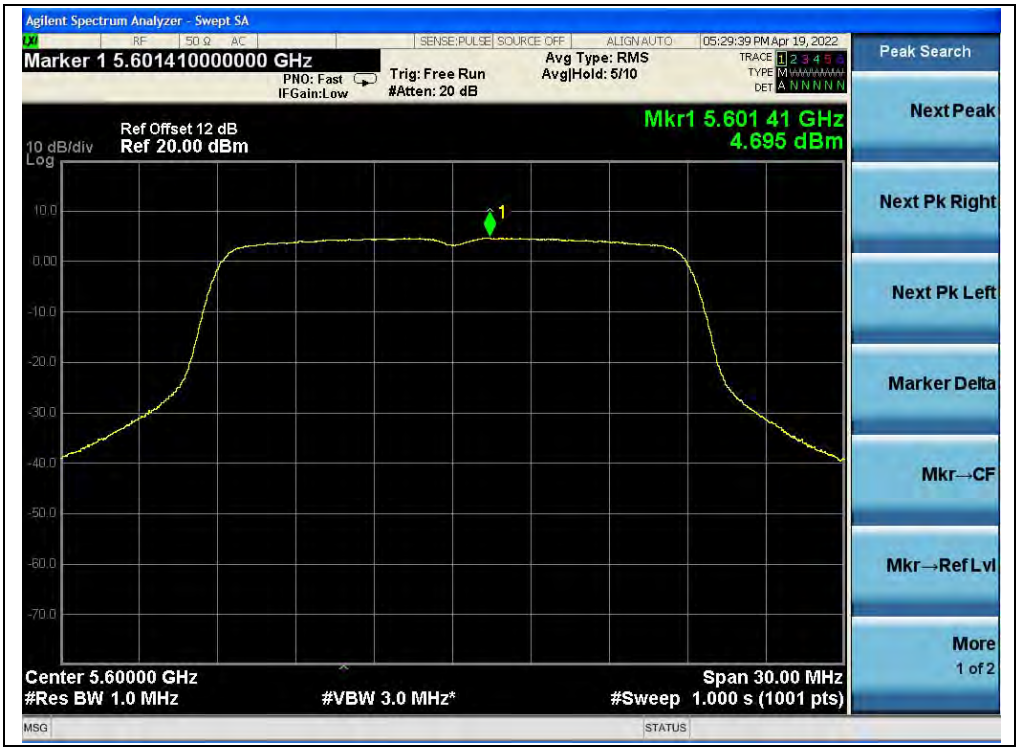



(Channel 60, 5300MHz, 802.11n (HT20), ANT0)


(Channel 64, 5320MHz, 802.11n (HT20), ANT0)

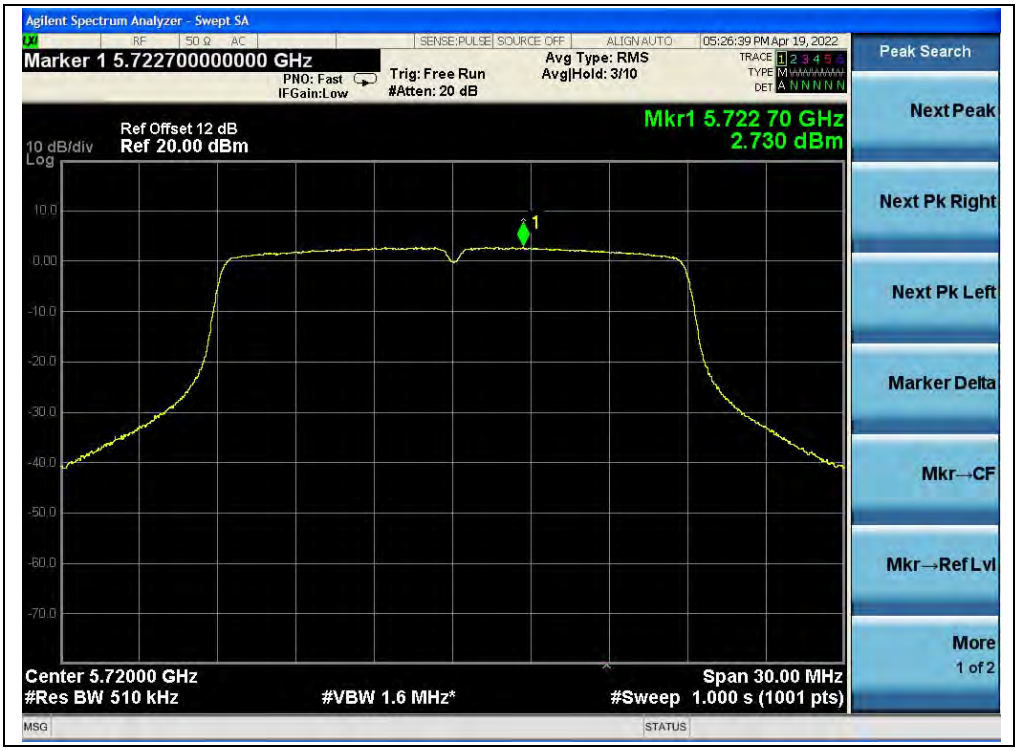



(Channel 100, 5500MHz, 802.11n (HT20), ANT0)

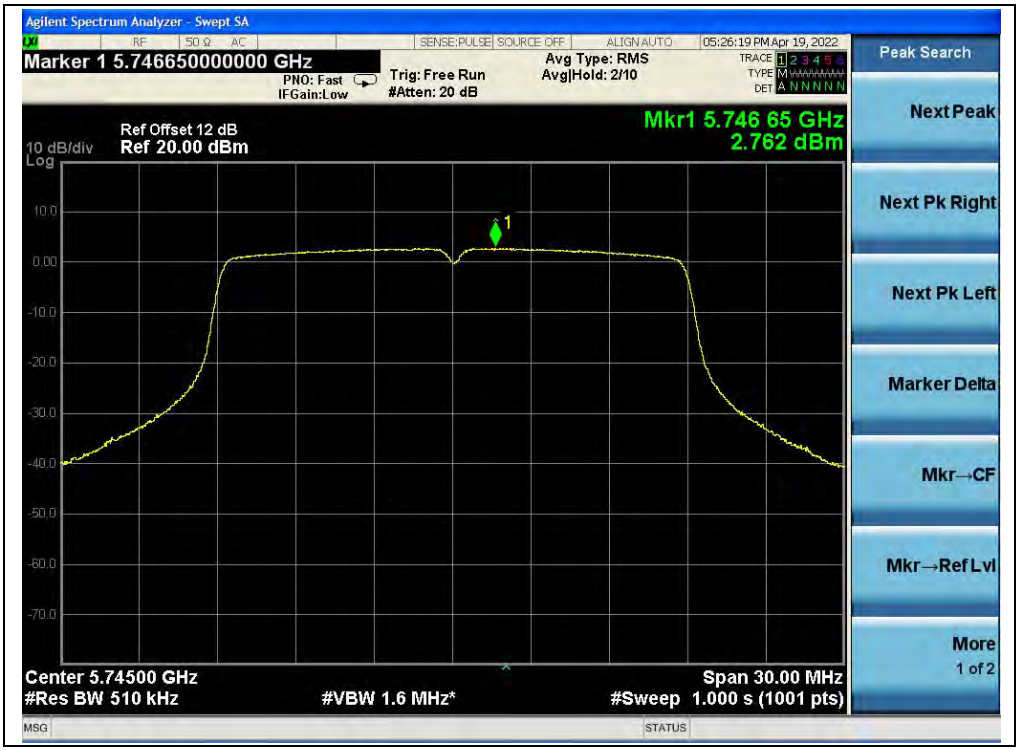



(Channel 120, 5600MHz, 802.11n (HT20), ANT0)

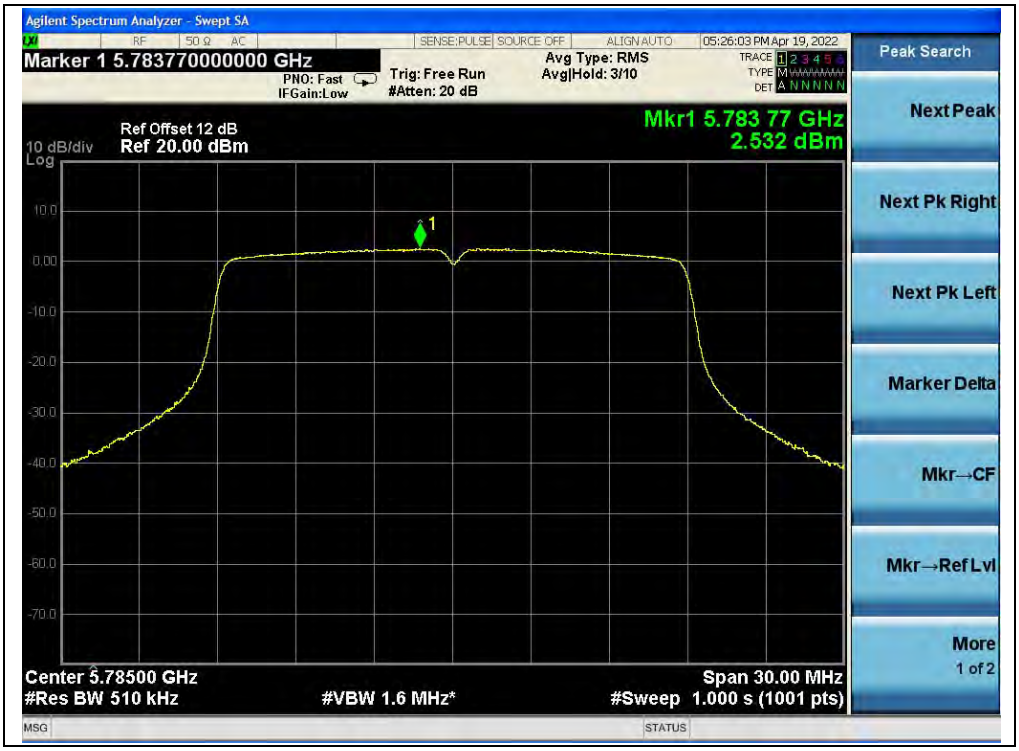

(Channel 144, 5720MHz, 802.11n (HT20), ANT0)



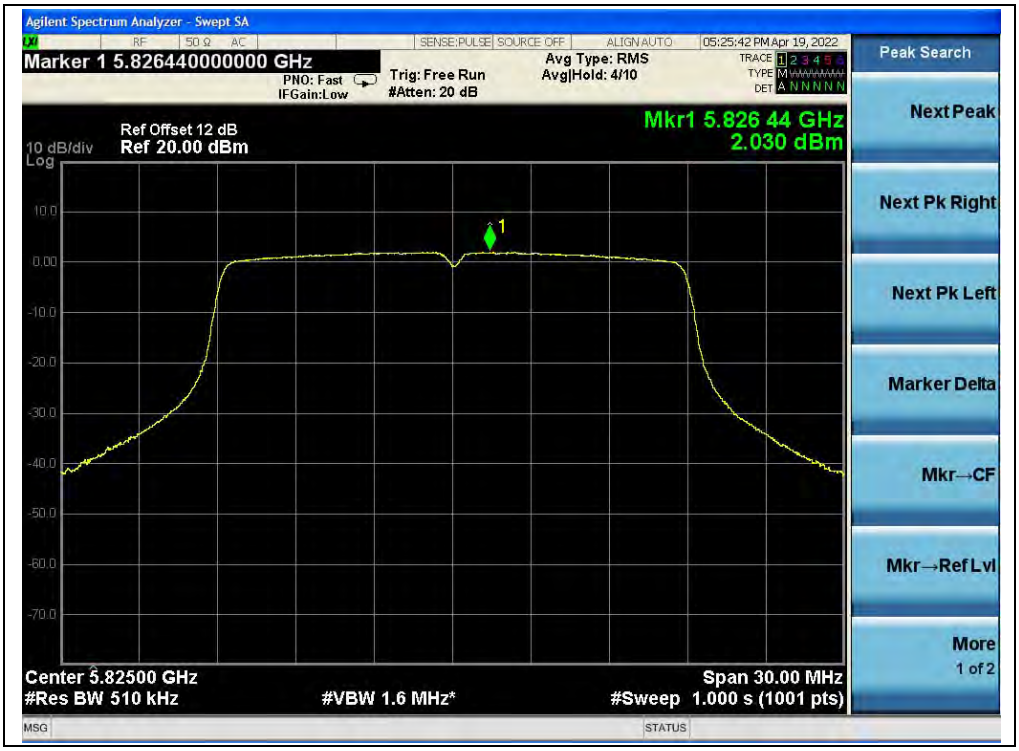

(Channel 144, 5720MHz, 802.11n (HT20), ANT0)




(Channel 149, 5745MHz, 802.11n (HT20), ANT0)




(Channel 157, 5785MHz, 802.11n (HT20), ANT0)




(Channel 165, 5825MHz, 802.11n (HT20), ANT0)

**802.11n (HT40) Mode**

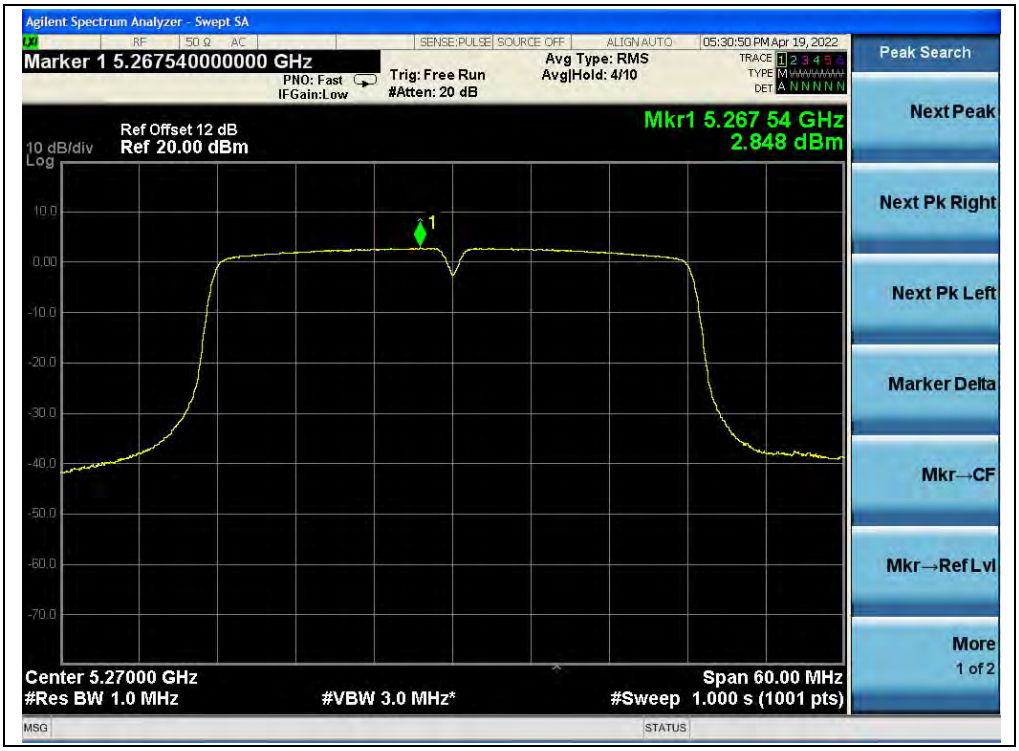
**A.Test Verdict:**

| Frequency (MHz) | Measured PPSD (dBm/MHz) | | Duty Factor | Total PPSD (dBm/MHz) | Limit (dBm/MHz) | Verdict |
|---|---|---|---|---|---|---|
| | ANT0 | ANT1 | | | | |
| 5190 | 2.61 | 1.98 | 0.02 | 5.34 | 10.08 | PASS |
| 5230 | 2.95 | 2.57 | | 5.79 | | |
| 5270 | 2.85 | 2.82 | | 5.87 | | |
| 5310 | 2.83 | 2.74 | | 5.82 | | |
| 5510 | 1.53 | 1.03 | | 4.32 | | |
| 5630 | 2.55 | 1.41 | | 5.05 | | |
| 5710 | 3.32 | 2.18 | | 5.82 | | |
| Frequency (MHz) | Measured PPSD (dBm/500KHz) | | Duty Factor | Total PPSD (dBm/500KHz) | Limit (dBm/500KHz) | Verdict |
| | ANT0 | ANT1 | | | | |
| 5710 | 0.43 | -0.71 | 0.02 | 2.93 | 29.08 | PASS |
| 5755 | 0.52 | -0.85 | | 2.92 | | |
| 5795 | -0.06 | -0.73 | | 2.65 | | |
| **Note:** Directional gain = 3.91dBi +10log(2) = 6.92dBi＞6dBi, so the limit shall be reduced to 11-(6.92-6) = 10.08dBm for 5.18-5.24GHz, 5.260-5.320GHz, 5.500-5.720GHz band and reduced to 30-(6.92-6) = 29.08dBm for 5.745-5.825GHz band. | | | | | | |

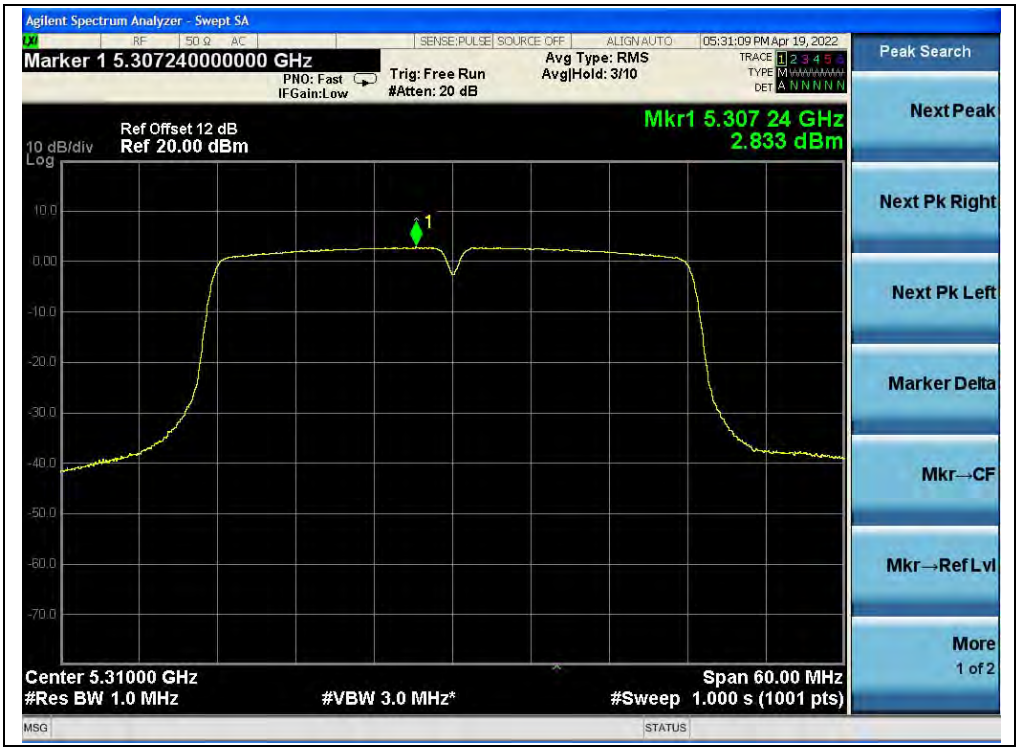
**B.Test Plot:**


(Channel 38, 5190MHz, 802.11n (HT40), ANT0)

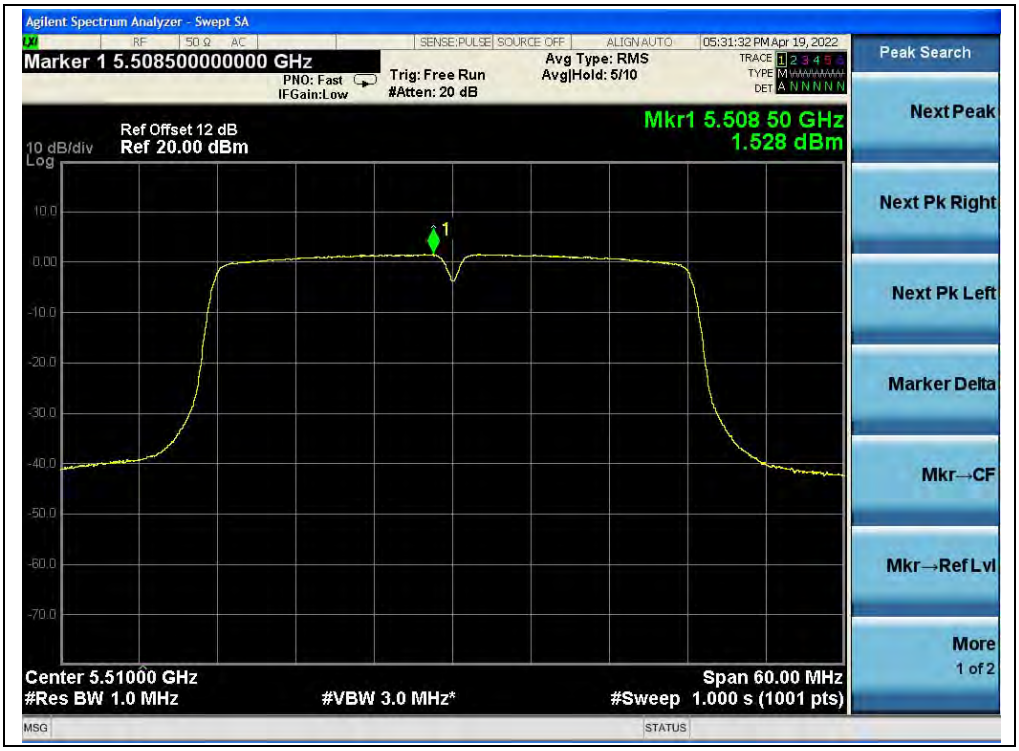

(Channel 46, 5230MHz, 802.11n (HT40), ANT0)




(Channel 54, 5270MHz, 802.11n (HT40), ANT0)

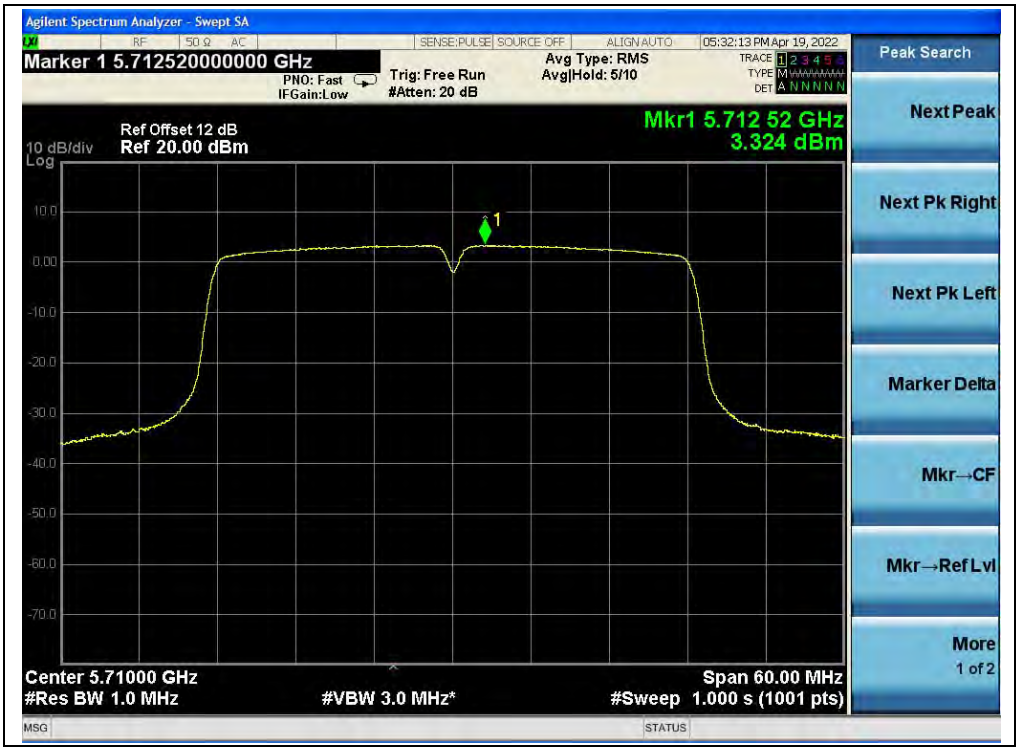



(Channel 62, 5310MHz, 802.11n (HT40), ANT0)




(Channel 102, 5510MHz, 802.11n (HT40), ANT0)


(Channel 126, 5630 MHz, 802.11n (HT40), ANT0)




(Channel 142, 5710MHz, 802.11n (HT40), ANT0)


(Channel 142, 5710MHz, 802.11n (HT40), ANT0)