

## Appendix D

### RF Test Data for 5.8G WLAN (Conducted Measurement)

Product Name: Intelligent Diagnosis System

Trade Mark: XTOOL

Test Model: A80

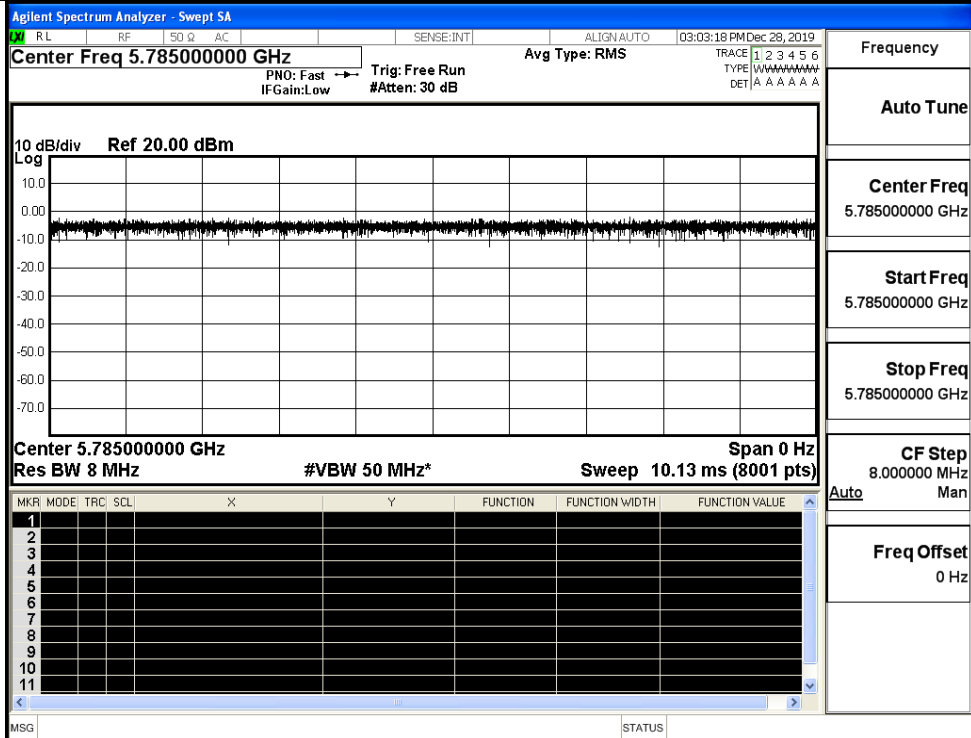
#### Environmental Conditions

|                    |             |
|--------------------|-------------|
| Temperature:       | 23.2 °C     |
| Relative Humidity: | 54.3%       |
| ATM Pressure:      | 100.0 kPa   |
| Test Engineer:     | Diamond Lu  |
| Supervised by:     | Wang Chuang |

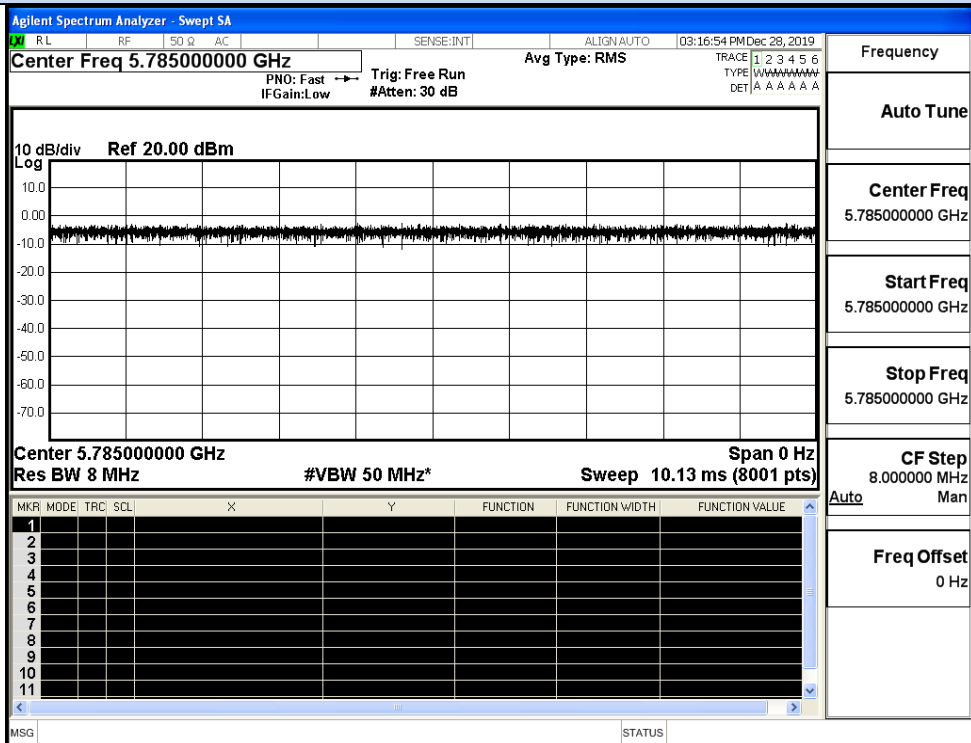
#### D.1 Duty Cycle

| Test Mode   | Test Frequency (MHz) | Duty Cycle (%) | 10log(1/x) Factor (dB) | 1/B Minimum VBW(KHz) |
|-------------|----------------------|----------------|------------------------|----------------------|
| 11A         | 5785                 | 100            | 0.00                   | 0.01                 |
| 11N20 SISO  | 5785                 | 100            | 0.00                   | 0.01                 |
| 11N40 SISO  | 5755                 | 100            | 0.00                   | 0.01                 |
| 11AC20 SISO | 5785                 | 100            | 0.00                   | 0.01                 |
| 11AC40 SISO | 5755                 | 100            | 0.00                   | 0.01                 |
| 11AC80 SISO | 5775                 | 100            | 0.00                   | 0.01                 |

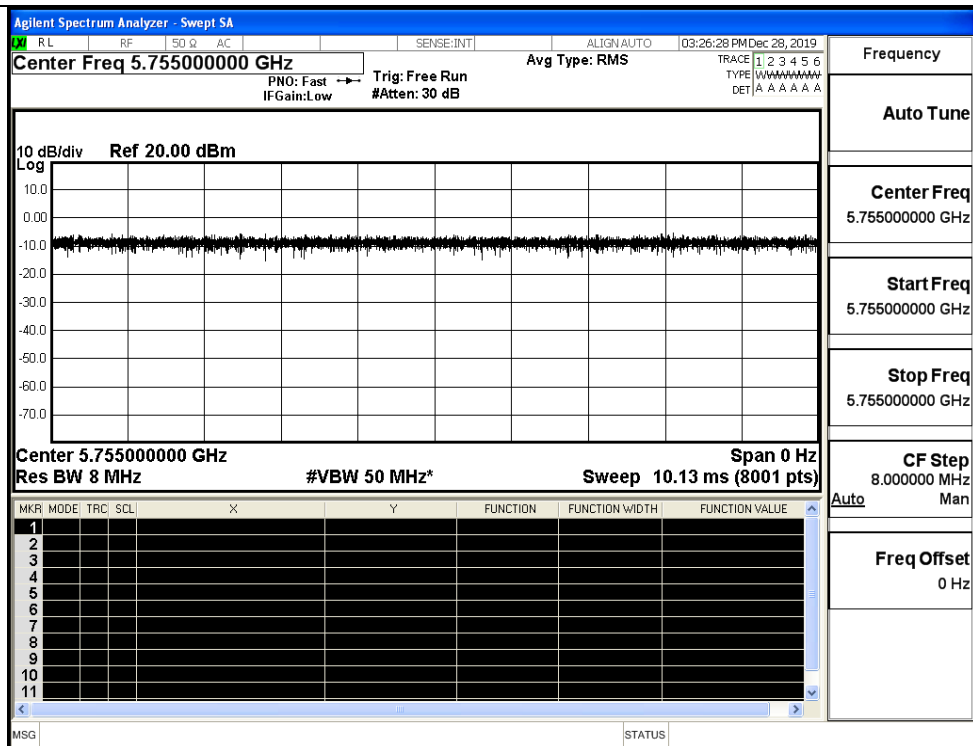
## On Time and Duty Cycle



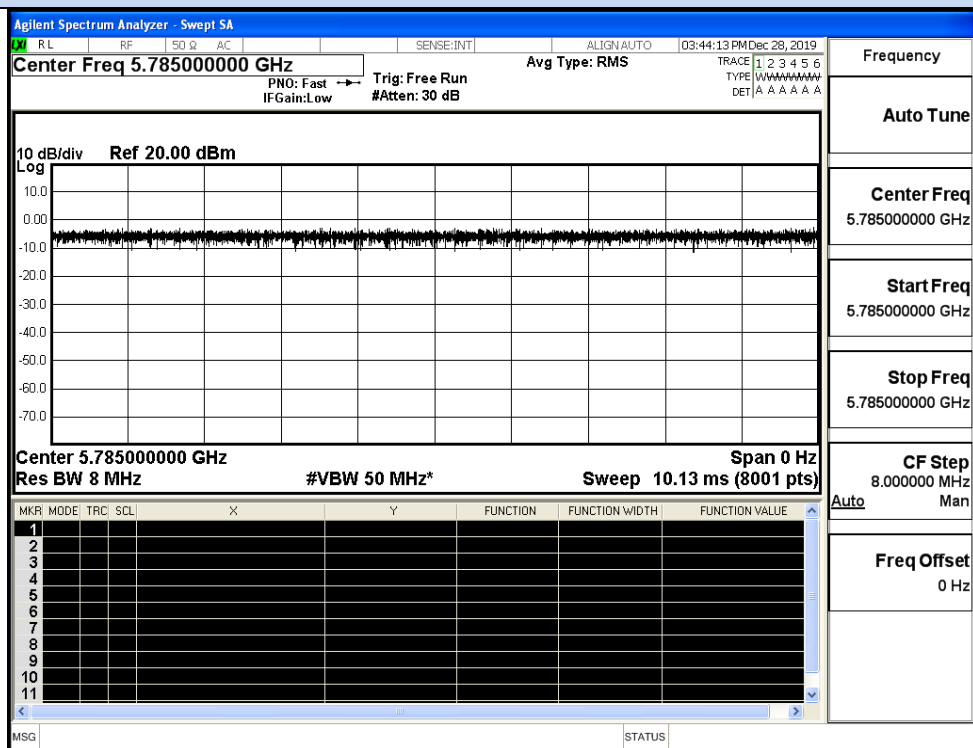
## IEEE 802.11a



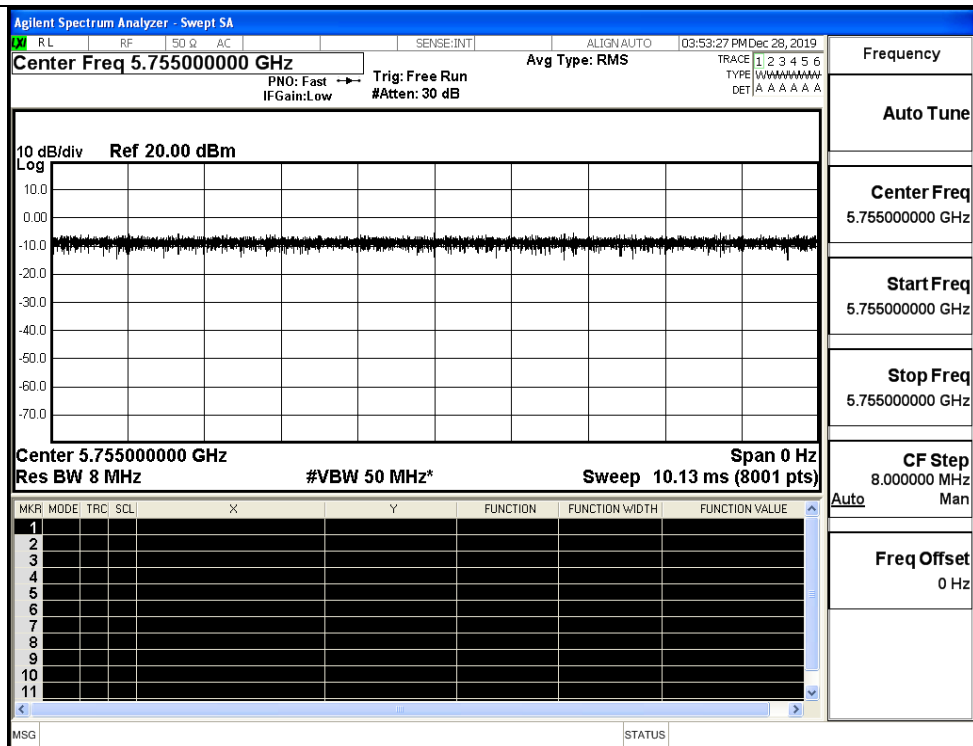
## IEEE 802.11n HT20



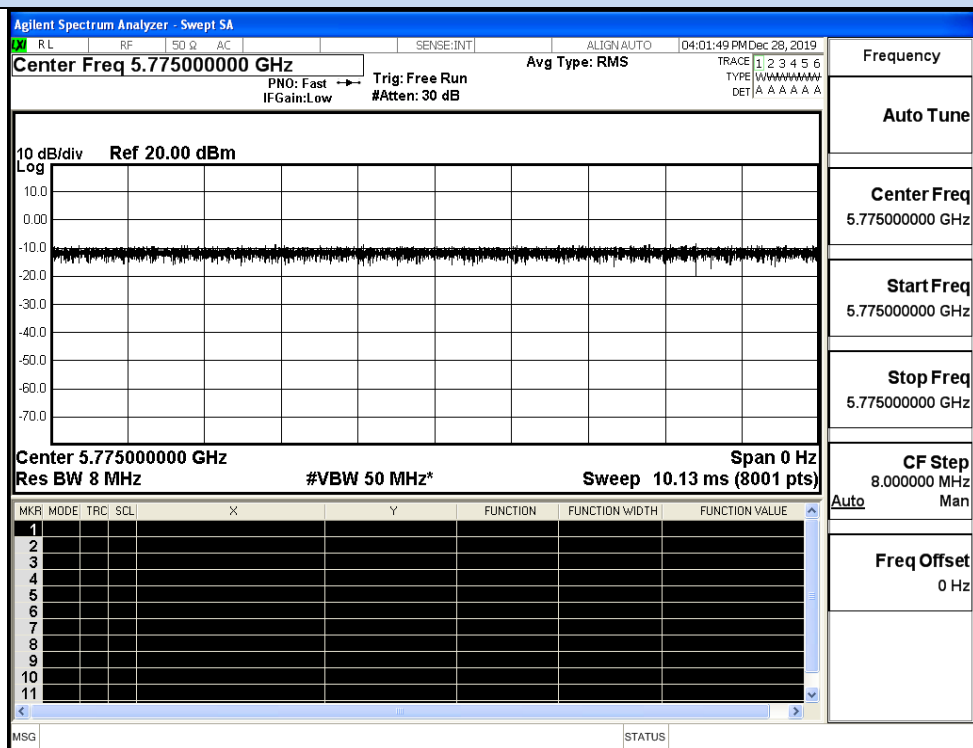
IEEE 802.11n HT40



IEEE 802.11AC20



IEEE 802.11AC40



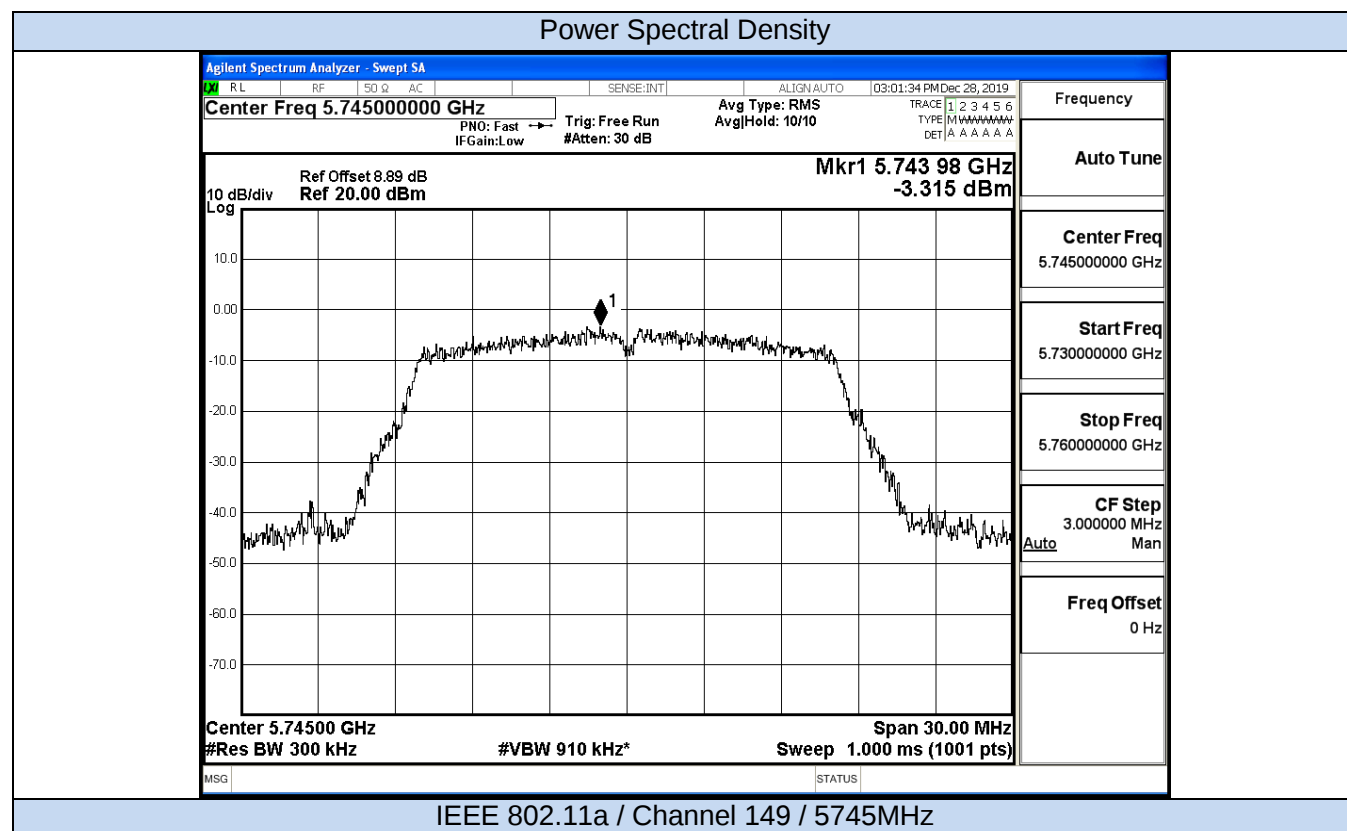
IEEE 802.11AC80

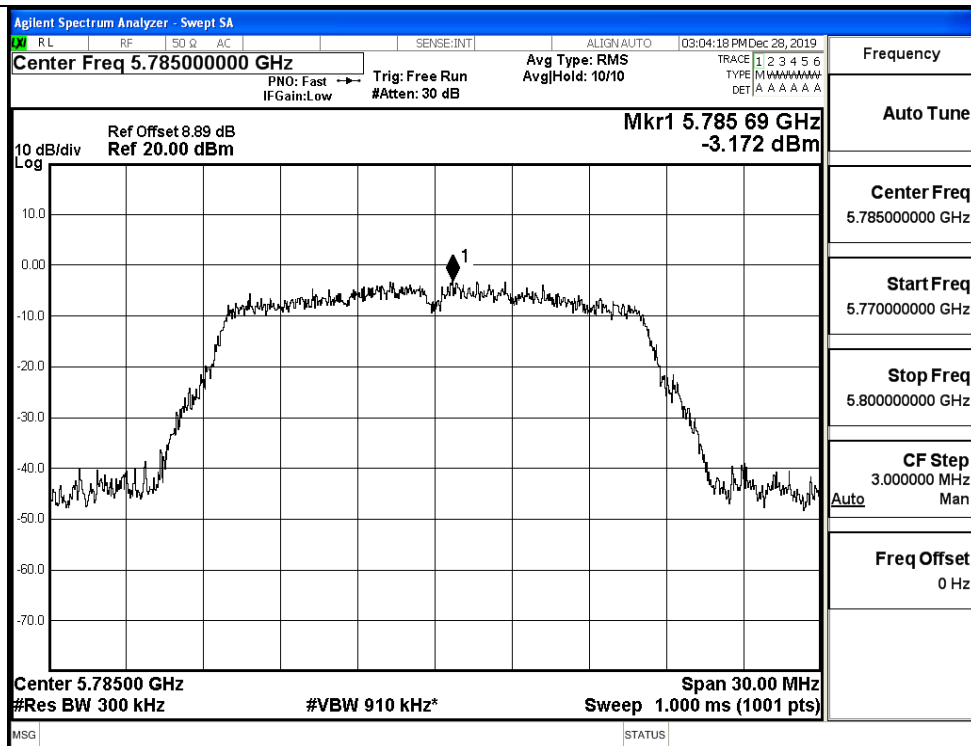
**D.2 Maximum Conduct Output Power**

| Test Mode   | Channel | Frequency (MHz) | AVG Conducted Power (dBm) | Duty Cycle Factor(dB) | Report Conducted Power(dBm) | Limit (dBm) | Verdict |
|-------------|---------|-----------------|---------------------------|-----------------------|-----------------------------|-------------|---------|
| 11A         | 149     | 5745            | 6.47                      | 0                     | 6.47                        | 30          | Pass    |
|             | 157     | 5785            | 6.46                      | 0                     | 6.46                        |             | Pass    |
|             | 165     | 5825            | 6.29                      | 0                     | 6.29                        |             | Pass    |
| 11N20 SISO  | 149     | 5745            | 6.28                      | 0                     | 6.28                        | 30          | Pass    |
|             | 157     | 5785            | 6.19                      | 0                     | 6.19                        |             | Pass    |
|             | 165     | 5825            | 6.11                      | 0                     | 6.11                        |             | Pass    |
| 11N40 SISO  | 151     | 5755            | 6.33                      | 0                     | 6.33                        | 30          | Pass    |
|             | 159     | 5795            | 6.16                      | 0                     | 6.16                        |             | Pass    |
| 11AC20 SISO | 149     | 5745            | 6.85                      | 0                     | 6.85                        | 30          | Pass    |
|             | 157     | 5785            | 6.09                      | 0                     | 6.09                        |             | Pass    |
|             | 165     | 5825            | 6.83                      | 0                     | 6.83                        |             | Pass    |
| 11AC40 SISO | 151     | 5755            | 6.53                      | 0                     | 6.53                        | 30          | Pass    |
|             | 159     | 5795            | 6.06                      | 0                     | 6.06                        |             | Pass    |
| 11AC80 SISO | 155     | 5775            | 6.52                      | 0                     | 6.52                        | 30          | Pass    |

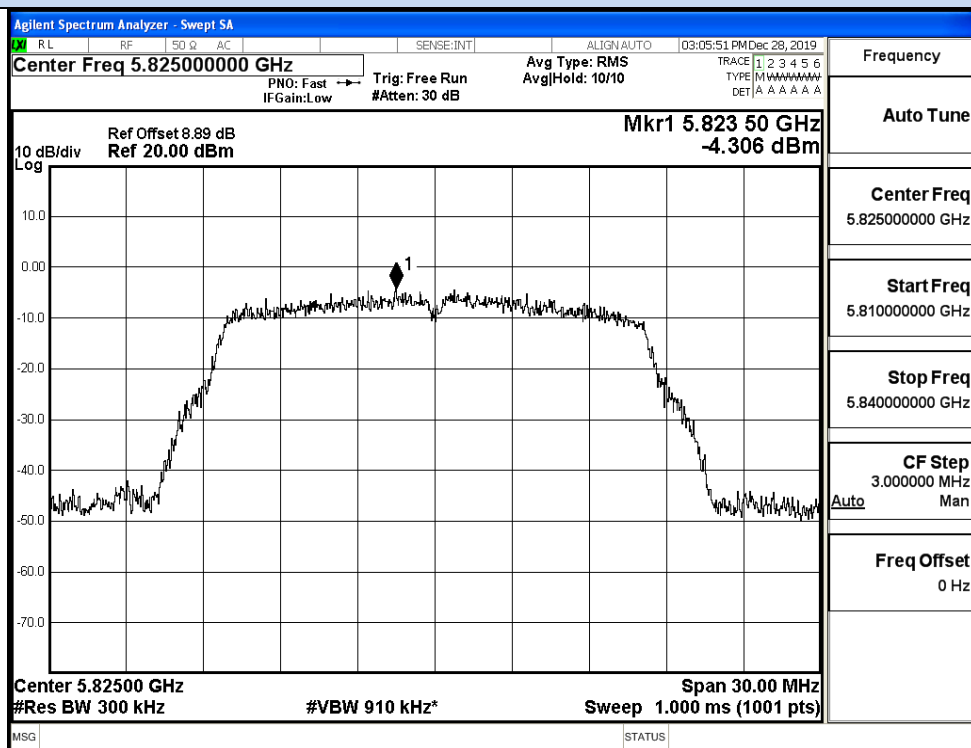
### D.3 Power Spectral Density

| Test Mode   | Channel | Frequency (MHz) | Power Density (dBm/300KHz) | Duty Cycle Factor (dB) | RBW Factor (dB) | Report Power Density (dBm/500KHz) | Limit (dBm/500KHz) | Verdict |
|-------------|---------|-----------------|----------------------------|------------------------|-----------------|-----------------------------------|--------------------|---------|
| 11A         | 149     | 5745            | -3.32                      | 0                      | 2.218           | -1.10                             | 30                 | Pass    |
|             | 157     | 5785            | -3.17                      | 0                      | 2.218           | -0.95                             |                    | Pass    |
|             | 165     | 5825            | -4.31                      | 0                      | 2.218           | -2.09                             |                    | Pass    |
| 11N20 SISO  | 149     | 5745            | -3.93                      | 0                      | 2.218           | -1.71                             | 30                 | Pass    |
|             | 157     | 5785            | -3.47                      | 0                      | 2.218           | -1.26                             |                    | Pass    |
|             | 165     | 5825            | -4.34                      | 0                      | 2.218           | -2.12                             |                    | Pass    |
| 11N40 SISO  | 151     | 5755            | -6.18                      | 0                      | 2.218           | -3.96                             | 30                 | Pass    |
|             | 159     | 5795            | -6.95                      | 0                      | 2.218           | -4.73                             |                    | Pass    |
| 11AC20 SISO | 149     | 5745            | -3.71                      | 0                      | 2.218           | -1.50                             | 30                 | Pass    |
|             | 157     | 5785            | -3.76                      | 0                      | 2.218           | -1.55                             |                    | Pass    |
|             | 165     | 5825            | -4.07                      | 0                      | 2.218           | -1.85                             |                    | Pass    |
| 11AC40 SISO | 151     | 5755            | -6.43                      | 0                      | 2.218           | -4.21                             | 30                 | Pass    |
|             | 159     | 5795            | -6.60                      | 0                      | 2.218           | -4.38                             |                    | Pass    |
| 11AC80 SISO | 155     | 5775            | -9.92                      | 0                      | 2.218           | -7.70                             | 30                 | Pass    |



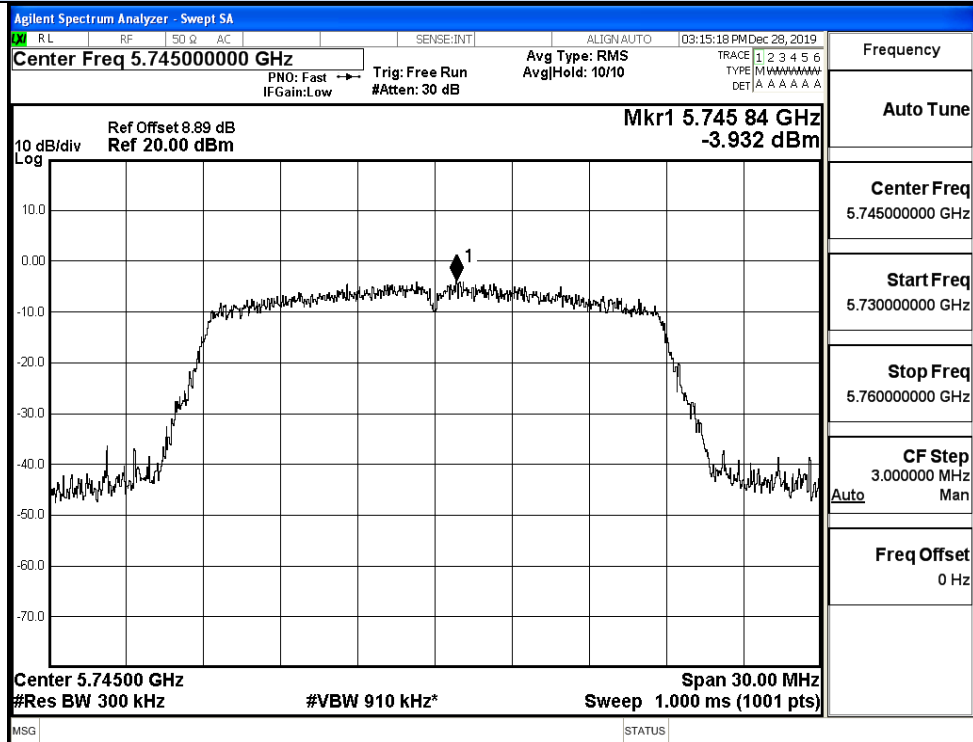


IEEE 802.11na / Channel 157 / 5785MHz

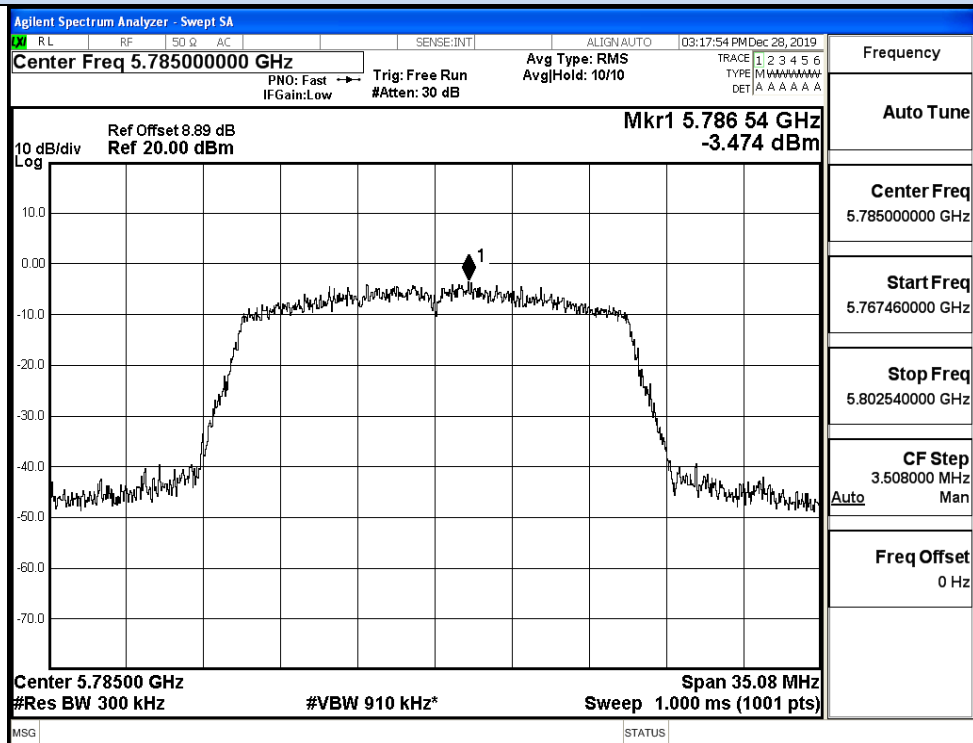


IEEE 802.11na / Channel 165 / 5825MHz

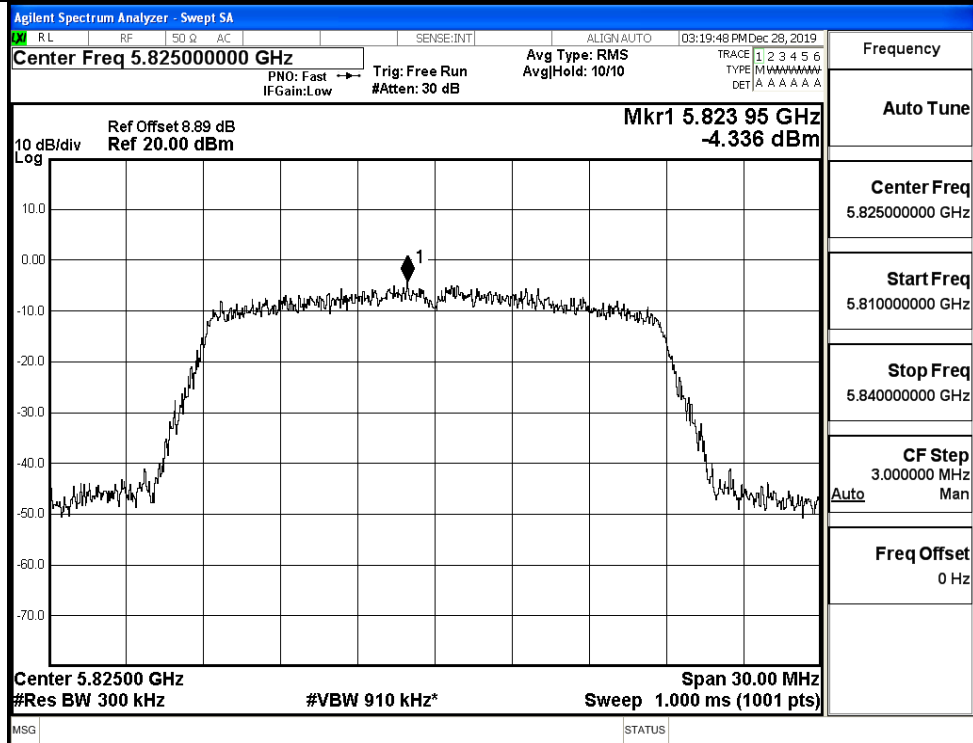
## Power Spectral Density



IEEE 802.11n20 / Channel 149 / 5745MHz

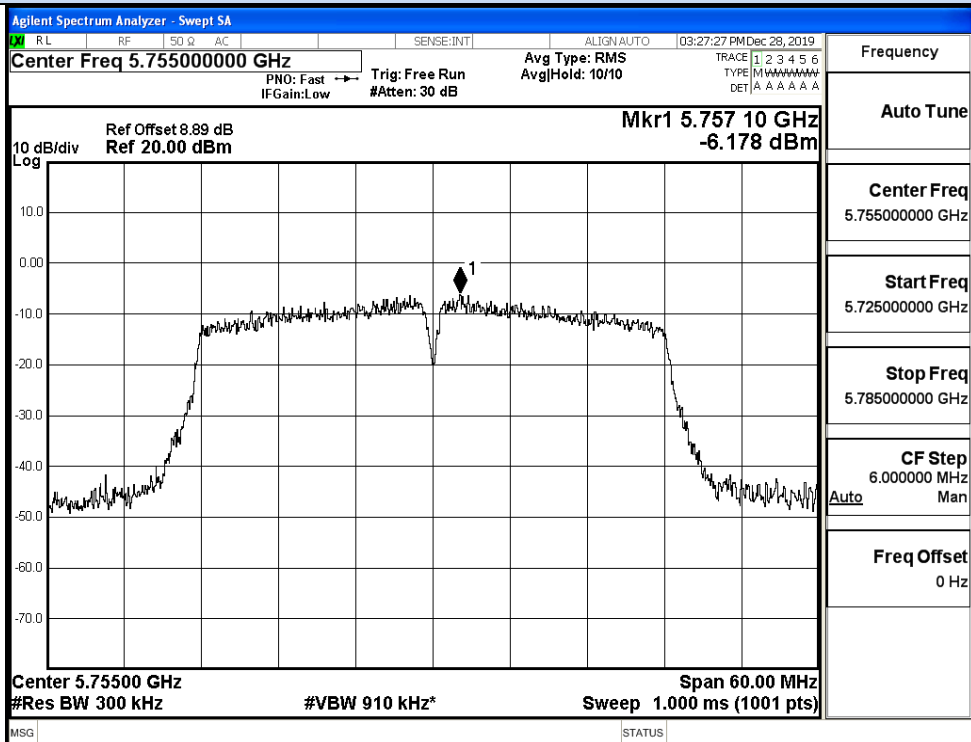


IEEE 802.11n20 / Channel 157 / 5785MHz

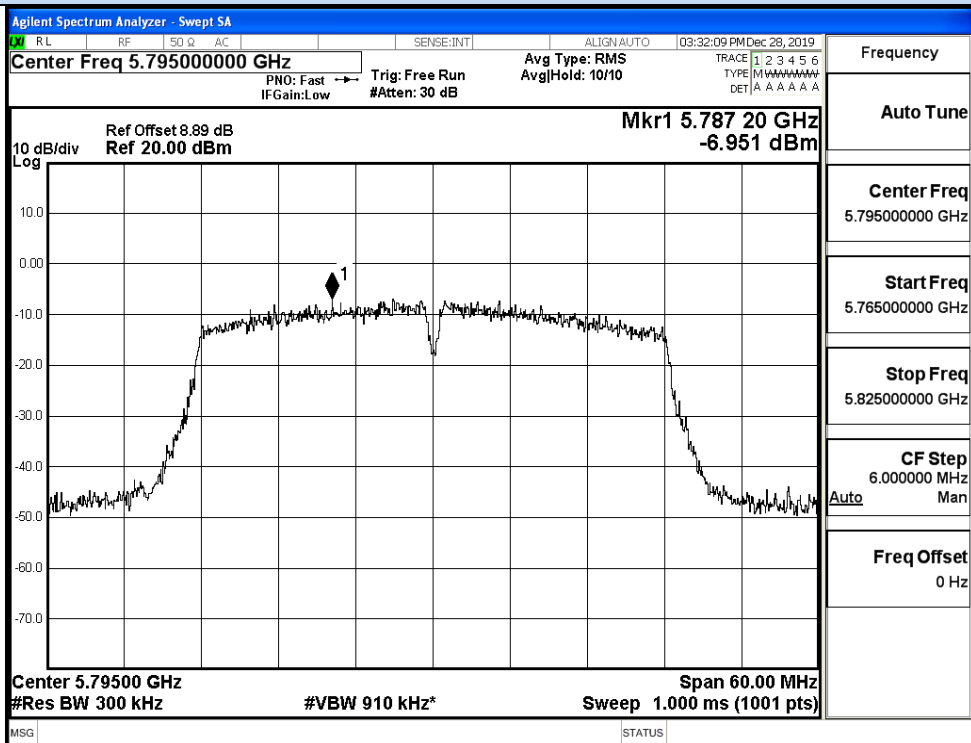


IEEE 802.11n20 / Channel 165 / 5825MHz

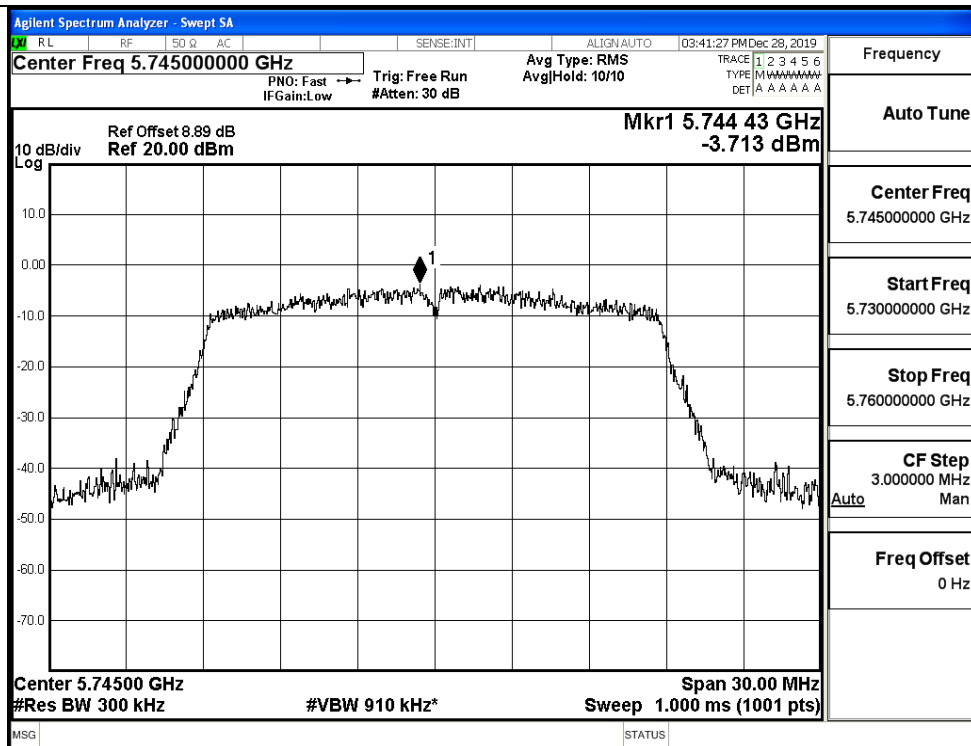
## Power Spectral Density



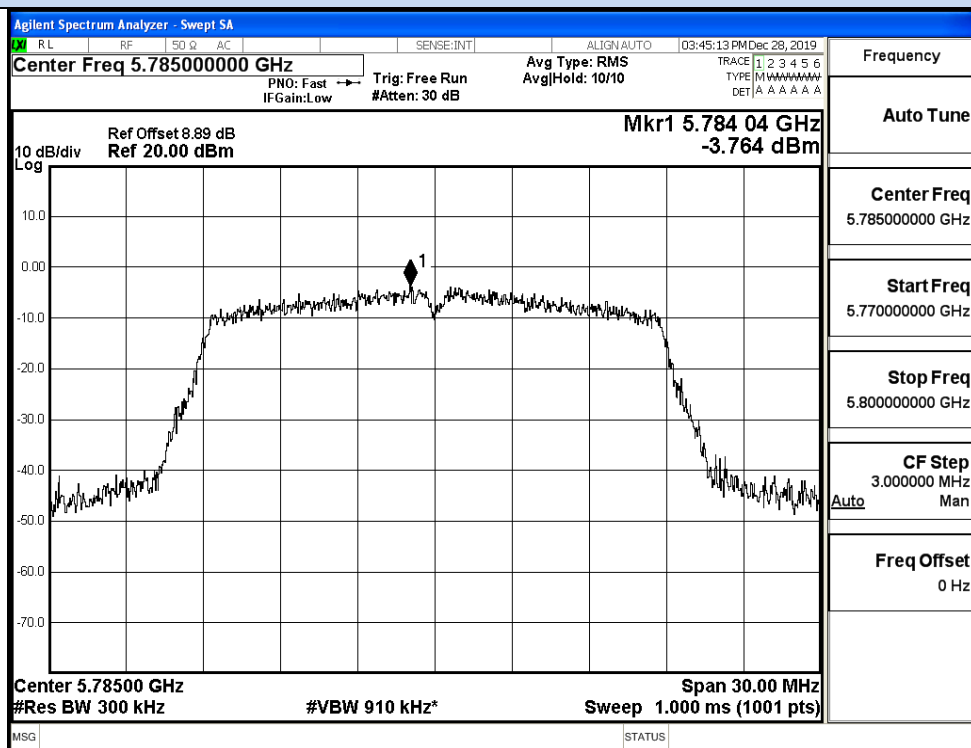
IEEE 802.11n40 / Channel 151 / 5755MHz



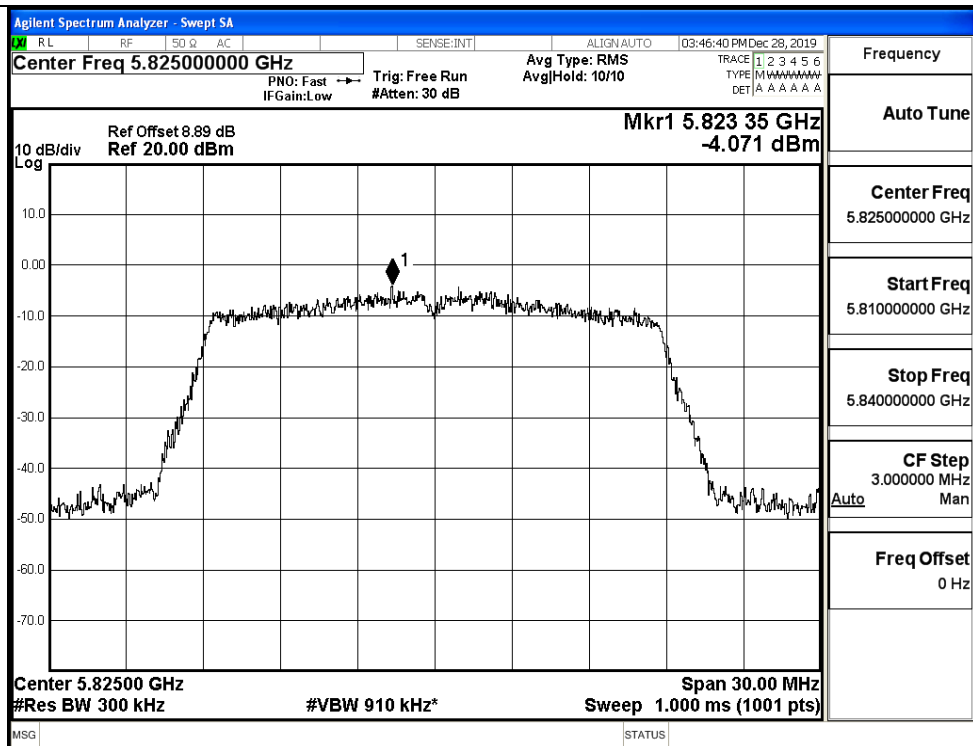
IEEE 802.11n40 / Channel 159 / 5795MHz



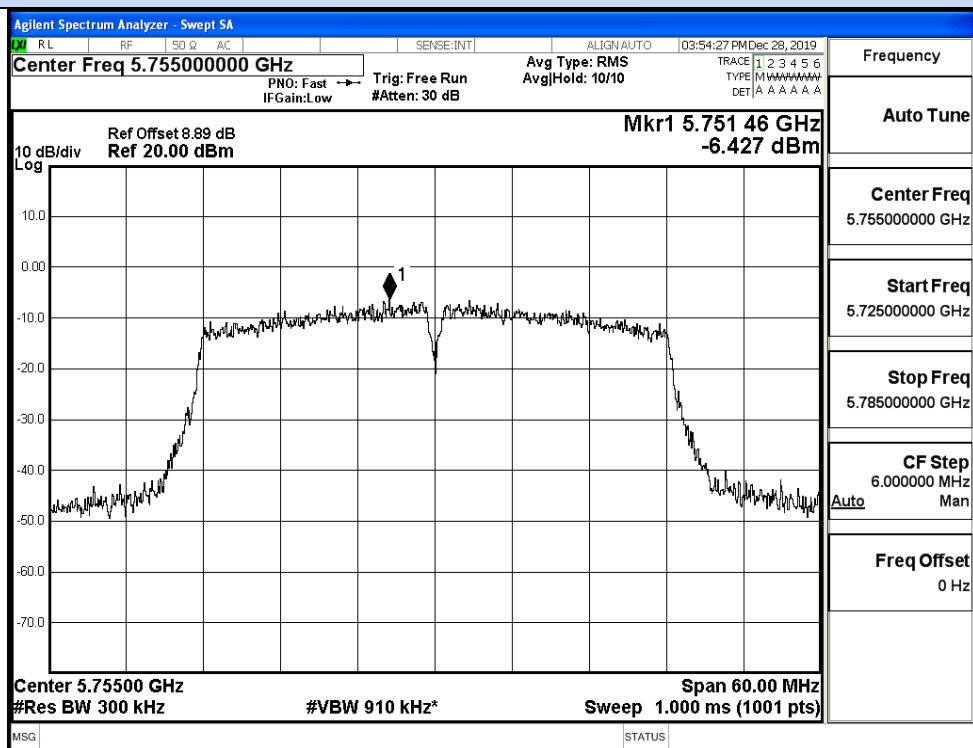
IEEE 802.11ac20 / Channel 149 / 5745MHz



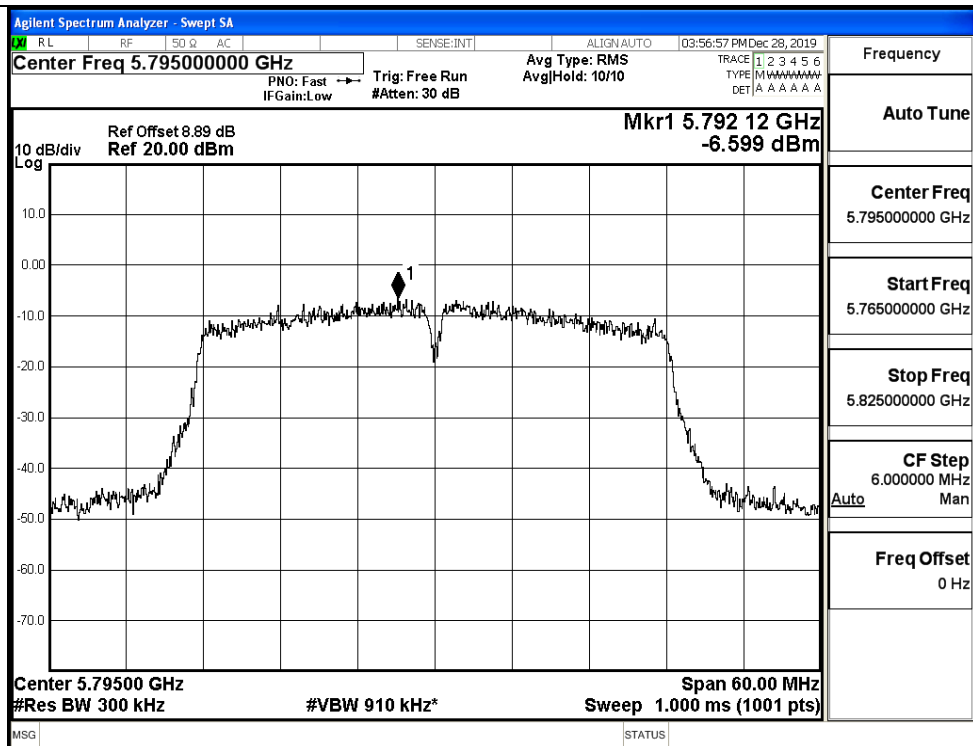
IEEE 802.11ac20 / Channel 157 / 5785MHz



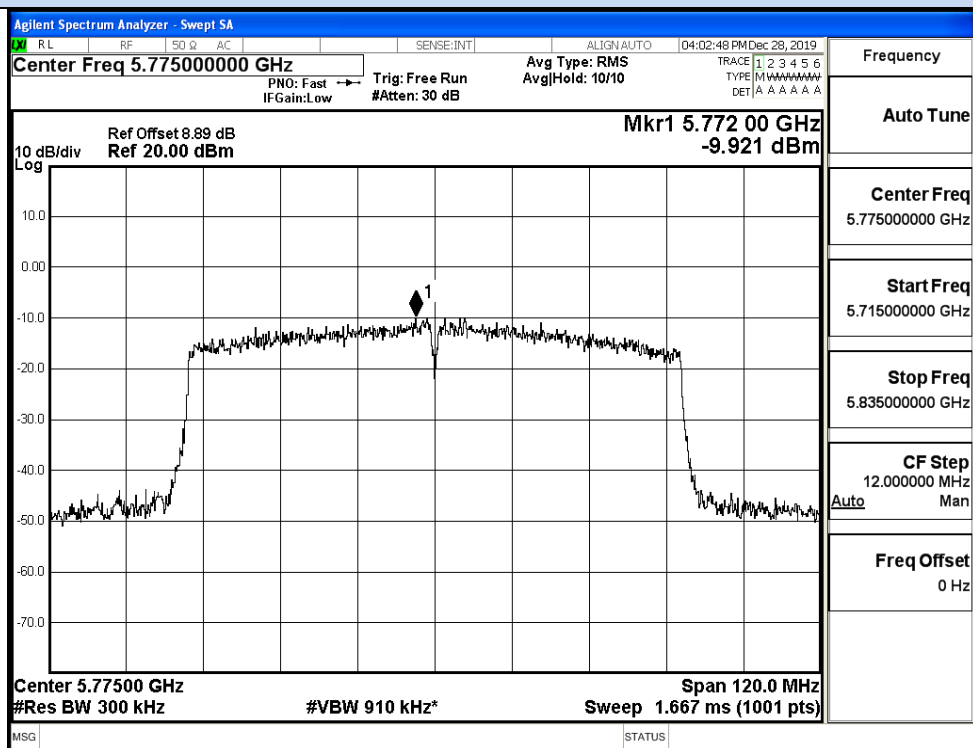
IEEE 802.11ac20 / Channel 165 / 5825MHz



IEEE 802.11ac40 / Channel 151 / 5755MHz



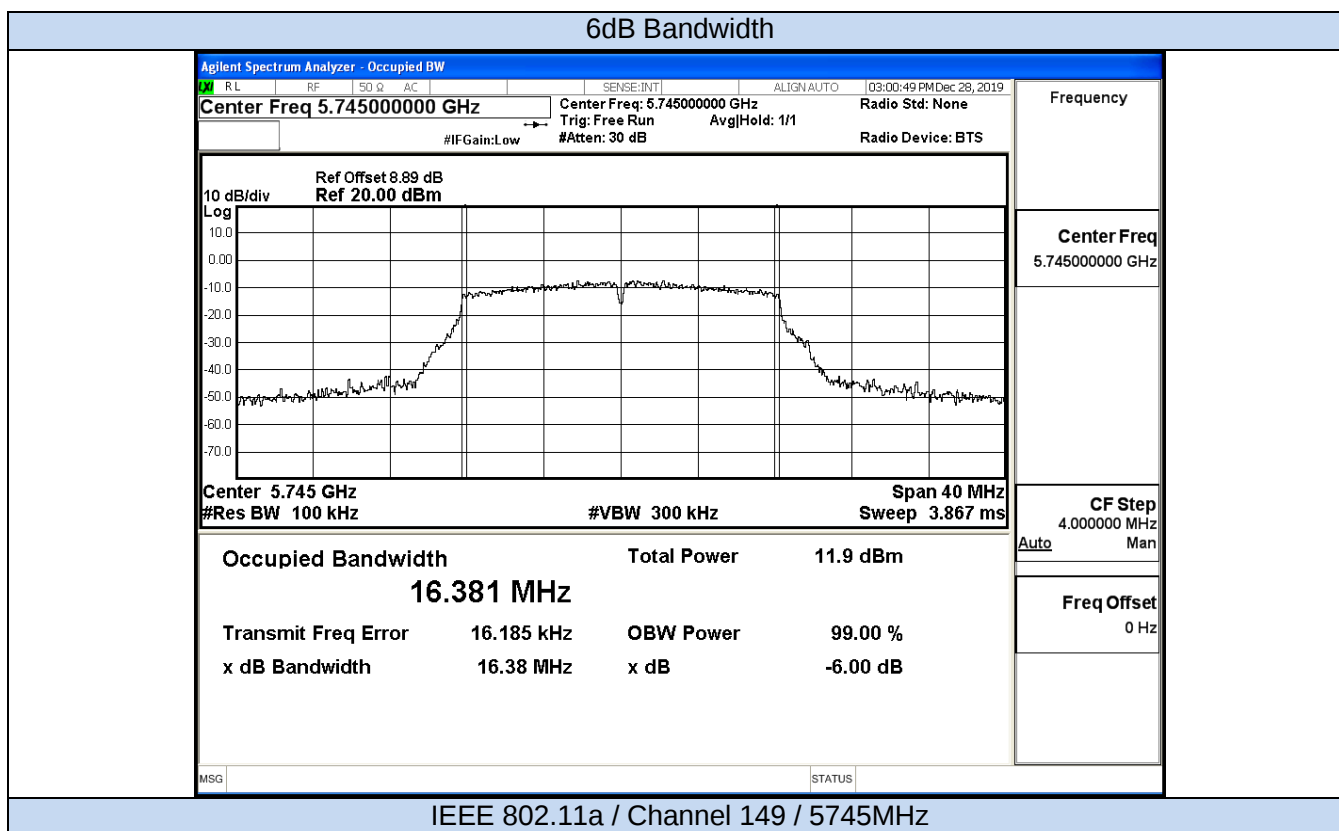
IEEE 802.11ac40 / Channel 159 / 5795MHz

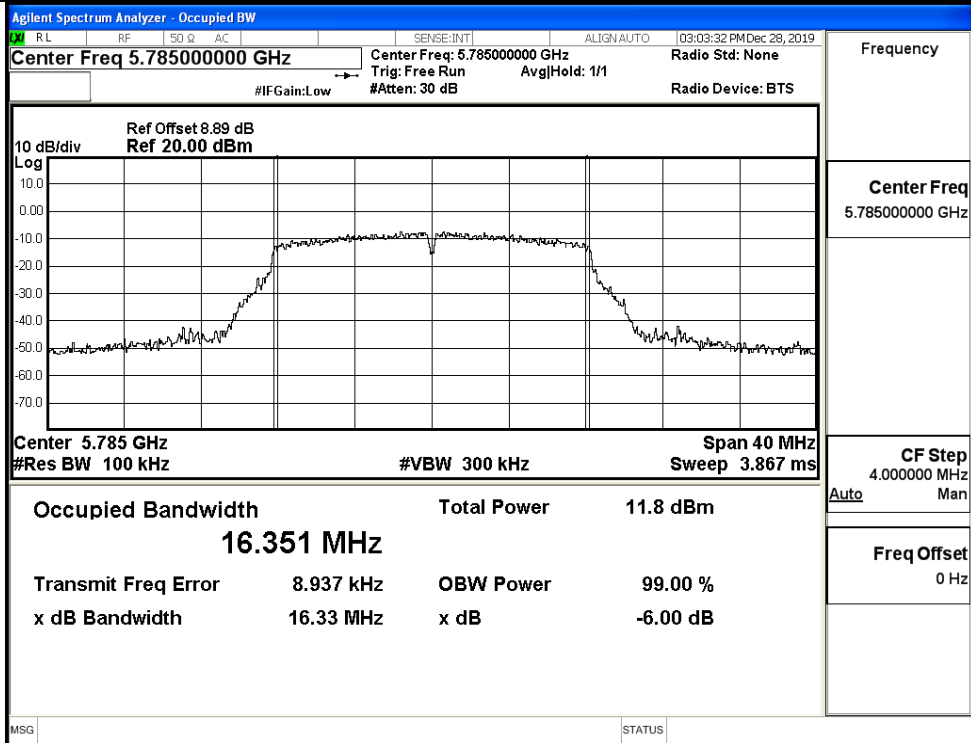


IEEE 802.11ac80 / Channel 155/ 5775MHz

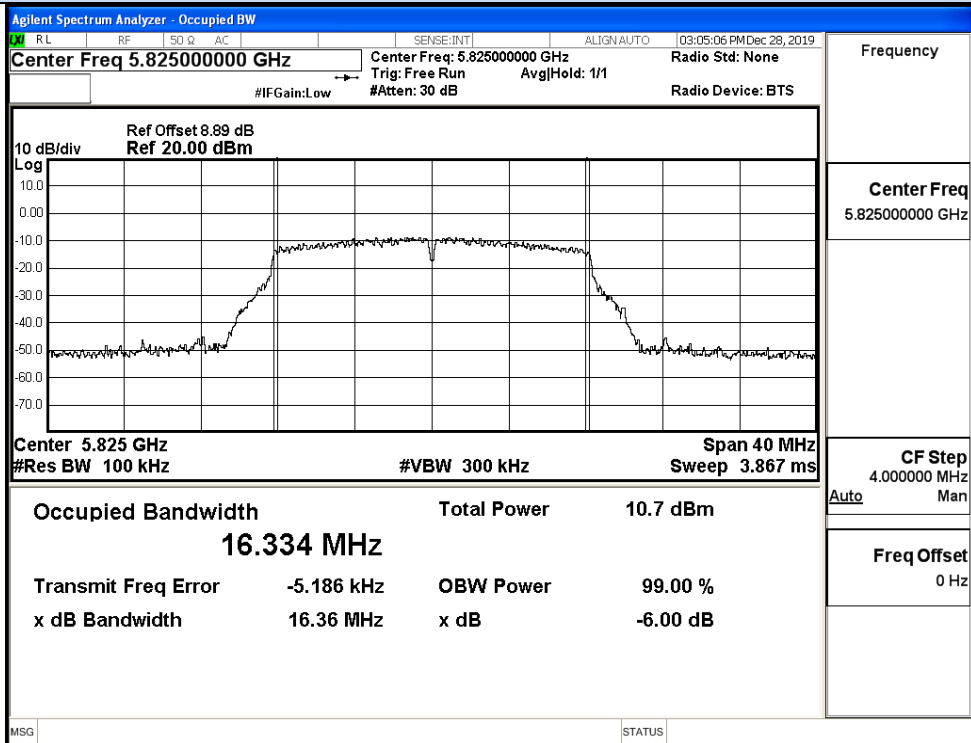
## D.4 Emission Bandwidth

| Test Mode   | Channel | Frequency (MHz) | 6dB Bandwidth (MHz) | Limit (MHz) | Verdict |
|-------------|---------|-----------------|---------------------|-------------|---------|
| 11A         | 149     | 5745            | 16.38               | >=0.5       | Pass    |
|             | 157     | 5785            | 16.33               |             | Pass    |
|             | 165     | 5825            | 16.36               |             | Pass    |
| 11N20 SISO  | 149     | 5745            | 17.60               | >=0.5       | Pass    |
|             | 157     | 5785            | 17.54               |             | Pass    |
|             | 165     | 5825            | 17.37               |             | Pass    |
| 11N40 SISO  | 151     | 5755            | 35.88               | >=0.5       | Pass    |
|             | 159     | 5795            | 35.70               |             | Pass    |
| 11AC20S ISO | 149     | 5745            | 17.62               | >=0.5       | Pass    |
|             | 157     | 5785            | 17.59               |             | Pass    |
|             | 165     | 5825            | 17.59               |             | Pass    |
| 11AC40S ISO | 151     | 5755            | 35.51               | >=0.5       | Pass    |
|             | 159     | 5795            | 35.45               |             | Pass    |
| 11AC80S ISO | 155     | 5775            | 76.05               | >=0.5       | Pass    |



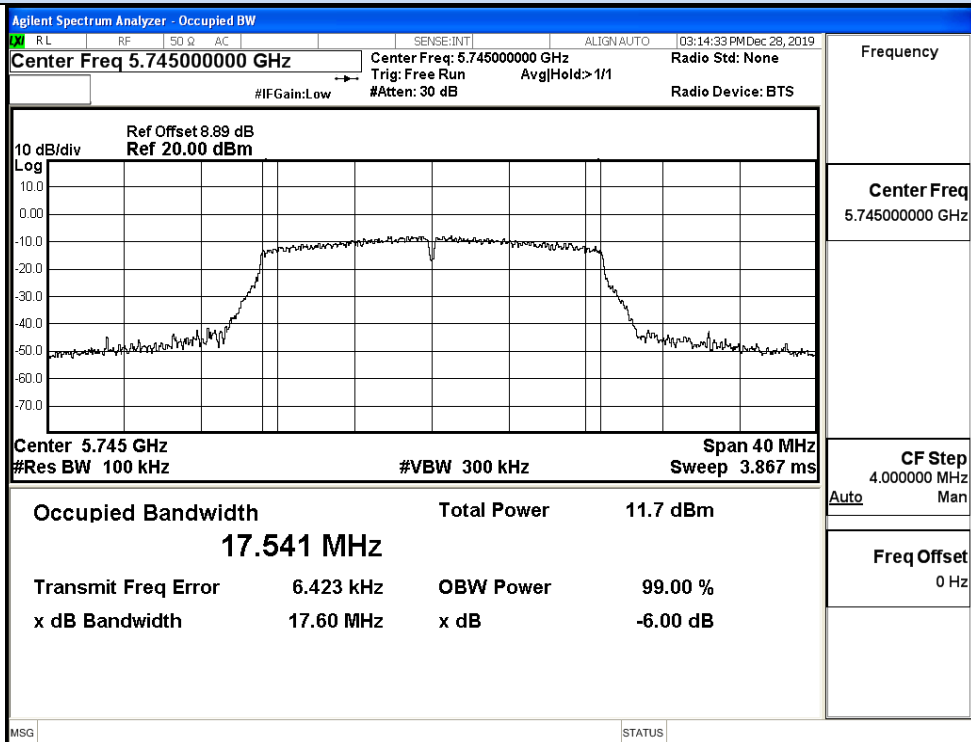


IEEE 802.11a / Channel 157 / 5785MHz

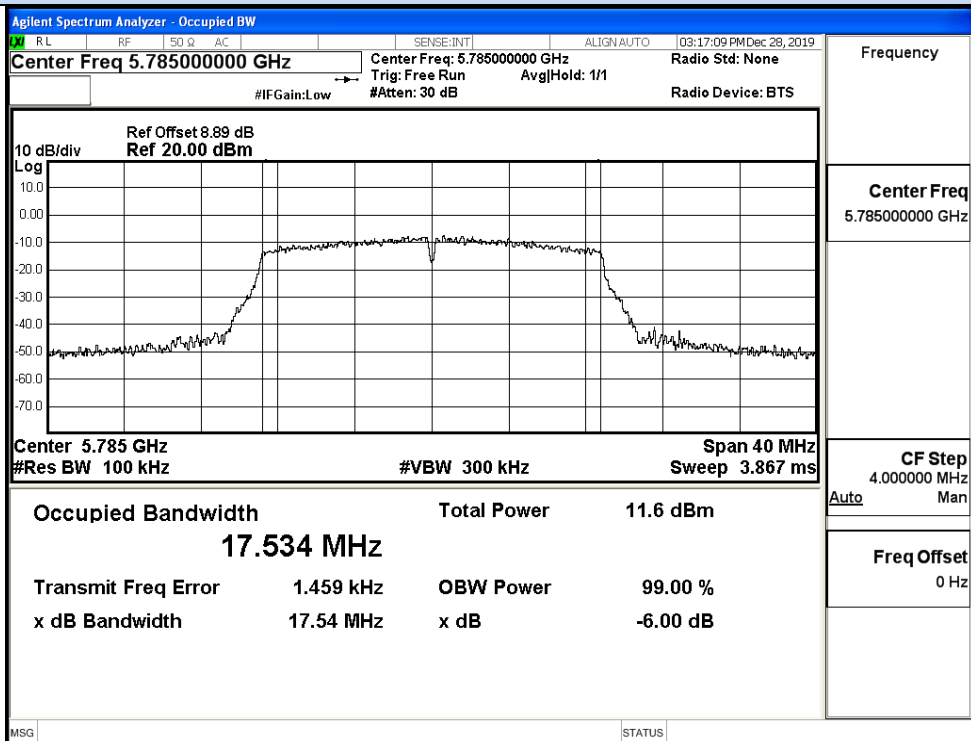


IEEE 802.11a / Channel 165 / 5825MHz

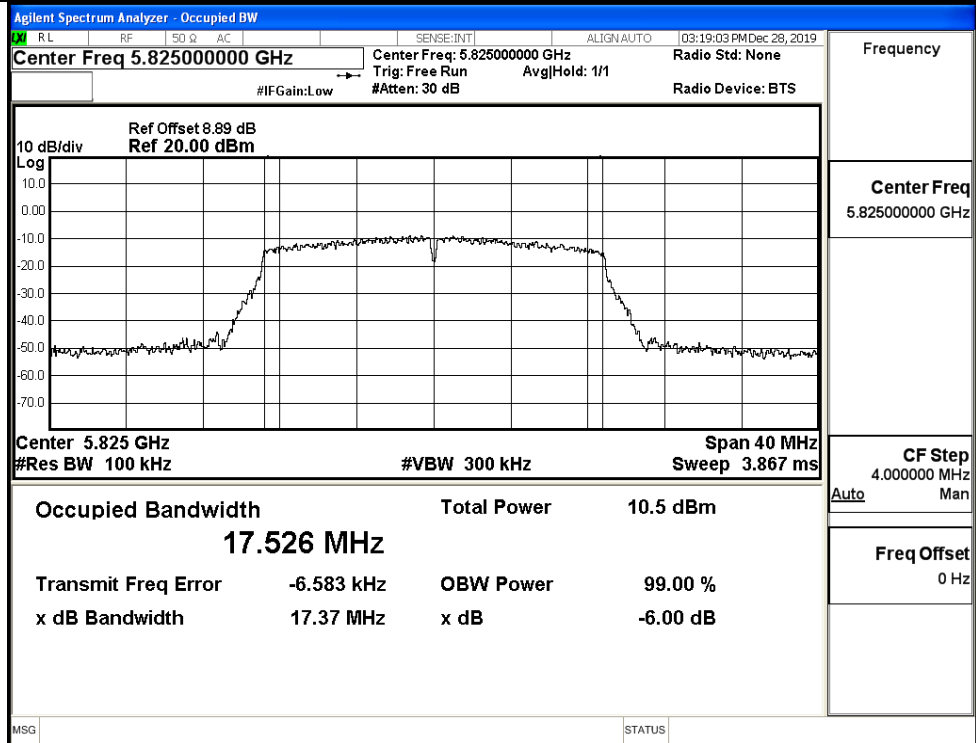
## 6dB Bandwidth



## IEEE 802.11n20 / Channel 149 / 5745MHz

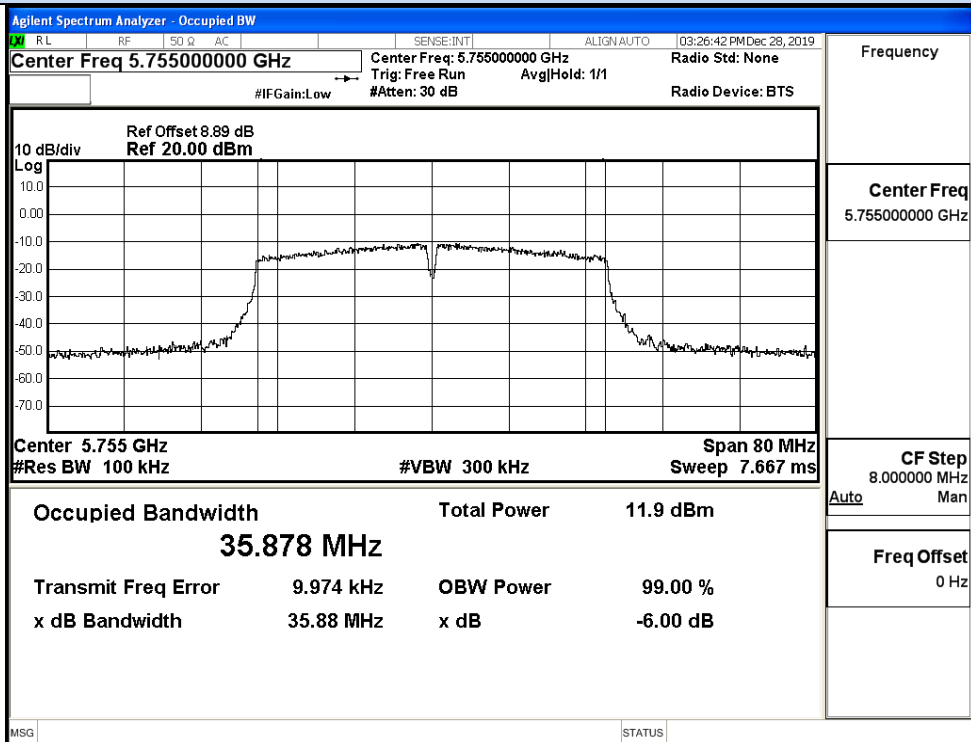


## IEEE 802.11n20 / Channel 157 / 5785MHz

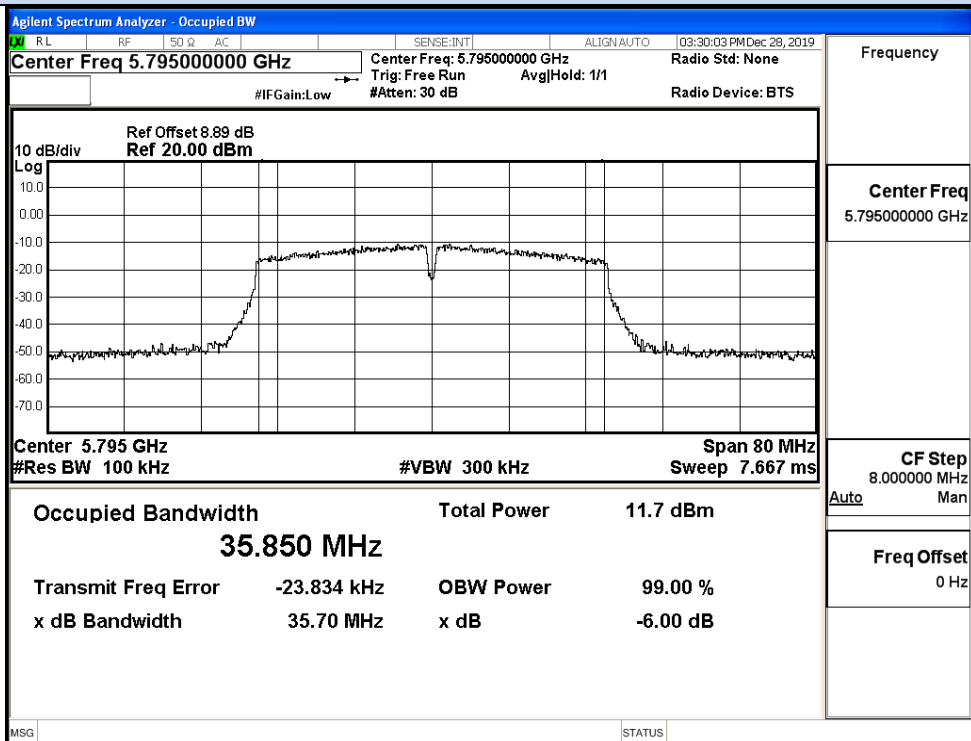


IEEE 802.11n20 / Channel 165 / 5825MHz

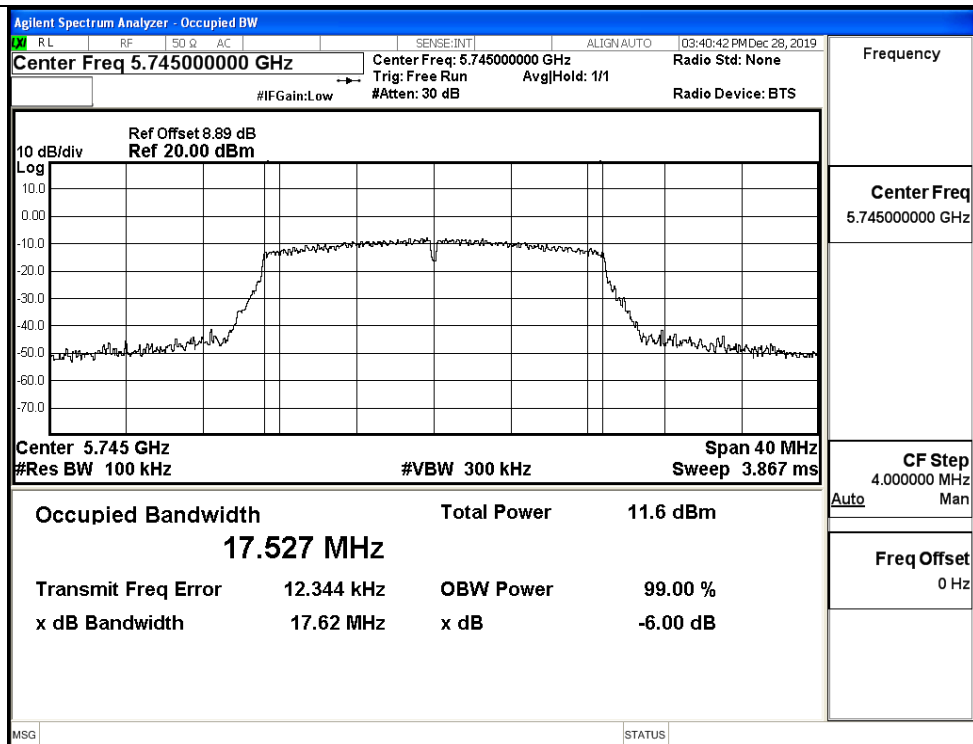
## 26dB Bandwidth



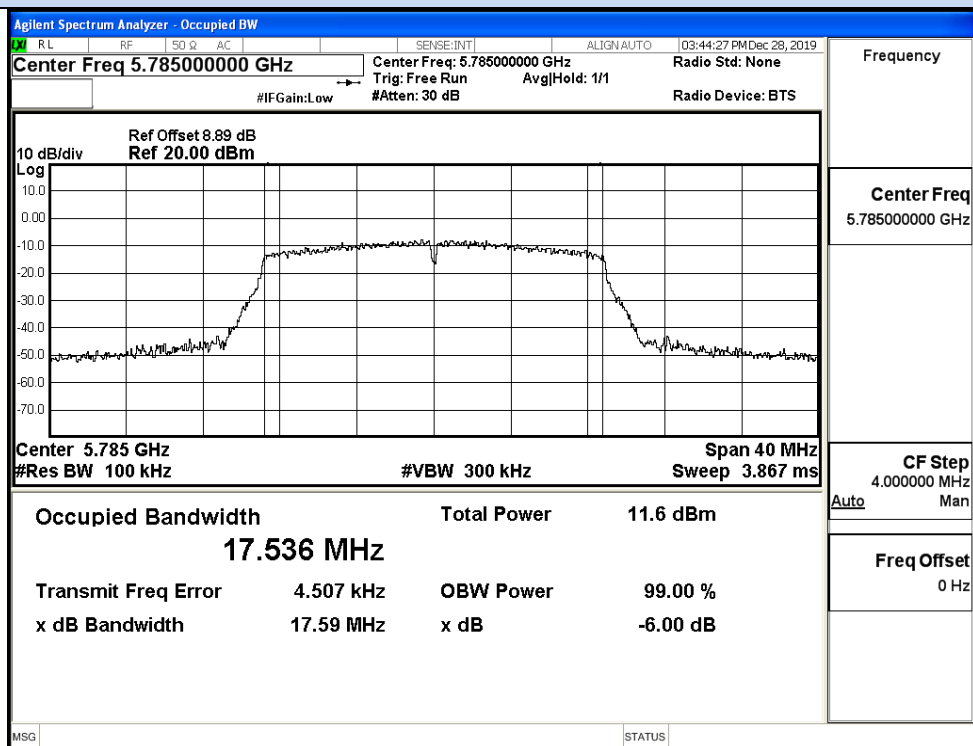
## IEEE 802.11n40 / Channel 151 / 5755MHz



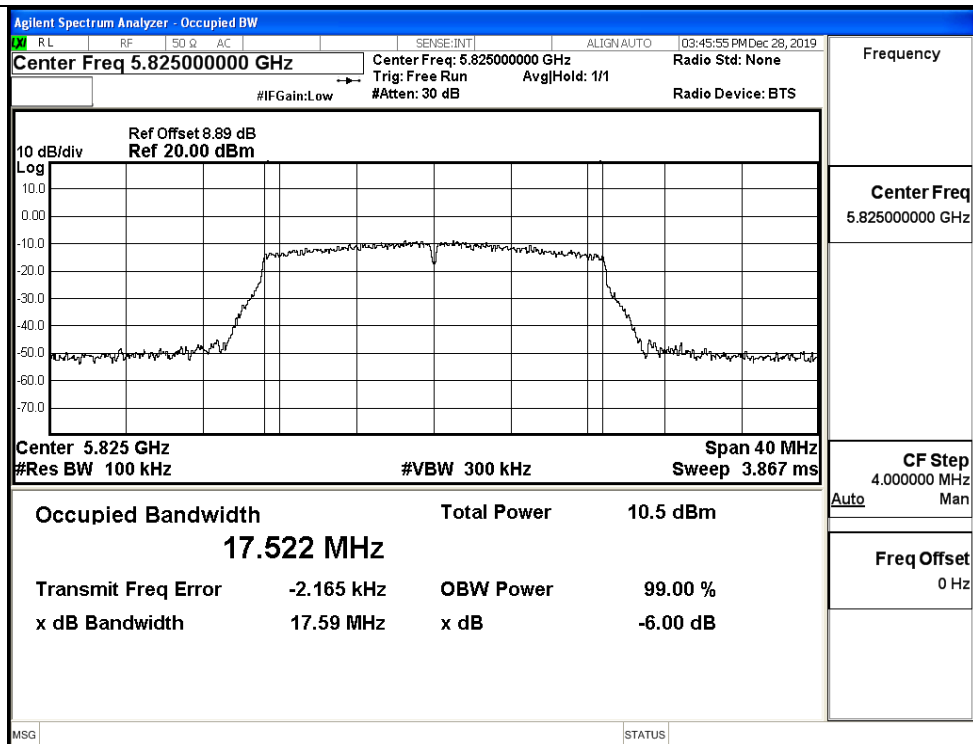
## IEEE 802.11n40 / Channel 159 / 5795MHz



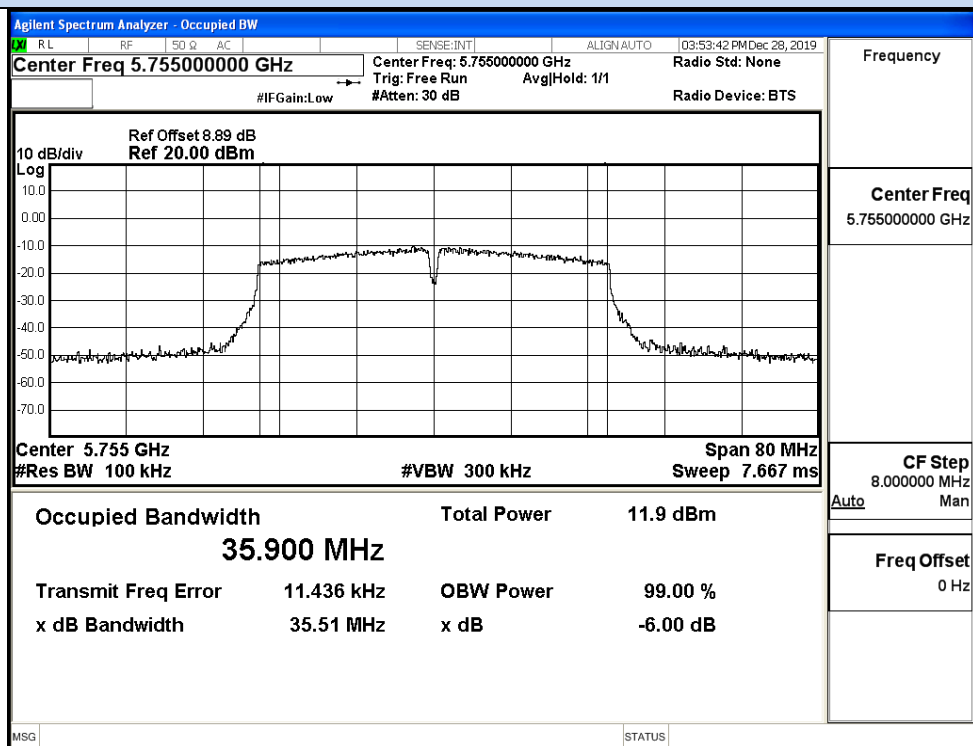
IEEE 802.11ac20 / Channel 149 / 5745MHz



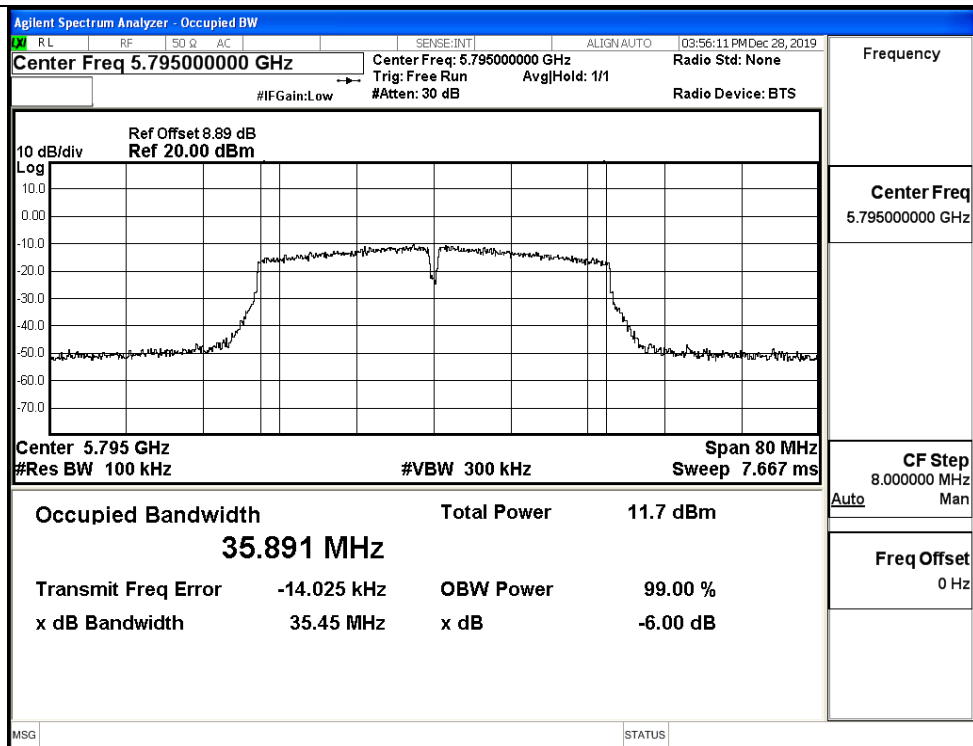
IEEE 802.11ac20 / Channel 157/ 5785MHz



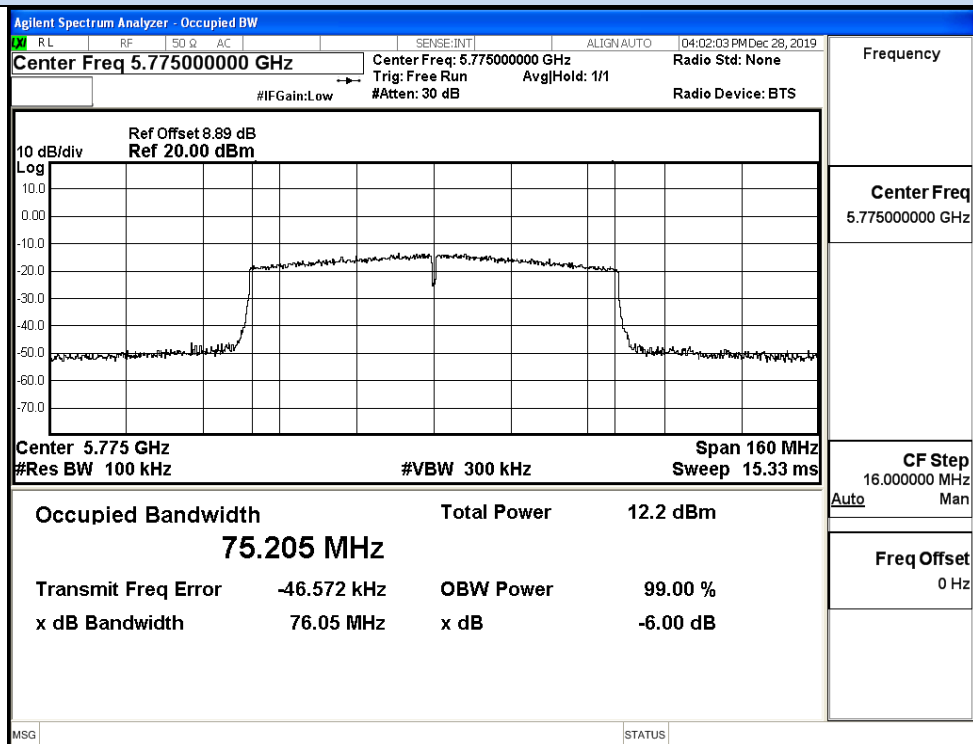
IEEE 802.11ac20 / Channel 165 / 5825MHz



IEEE 802.11ac40 / Channel 151 / 5755MHz



IEEE 802.11ac40 / Channel 159 / 5795MHz



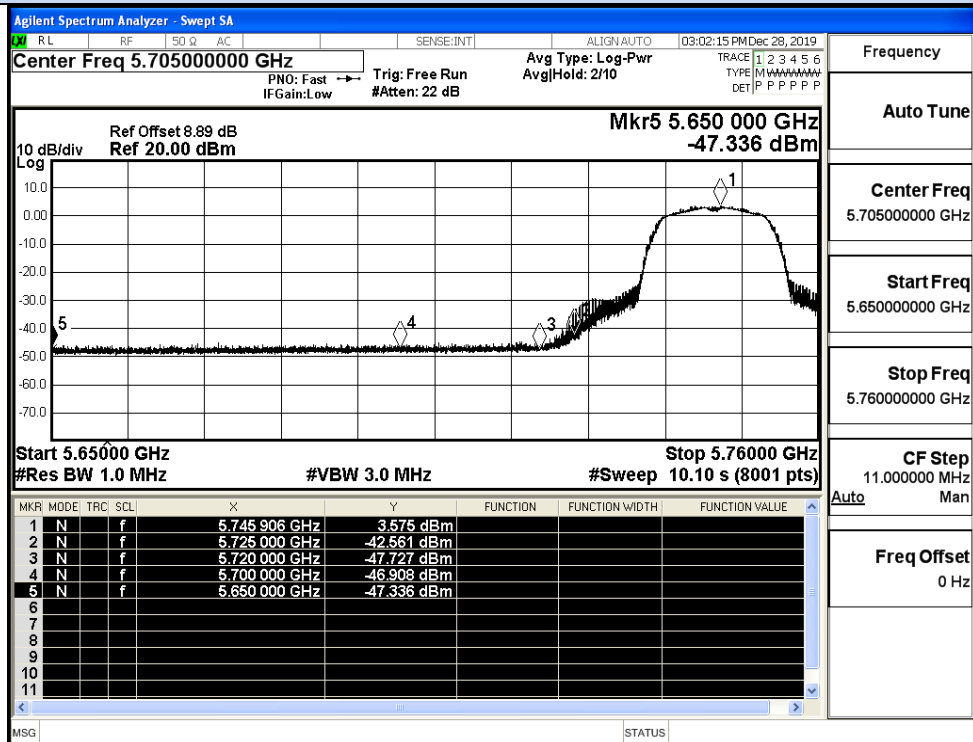
IEEE 802.11ac80 / Channel 155 / 5775MHz

## D.5 Undesirable Emissions Measurement

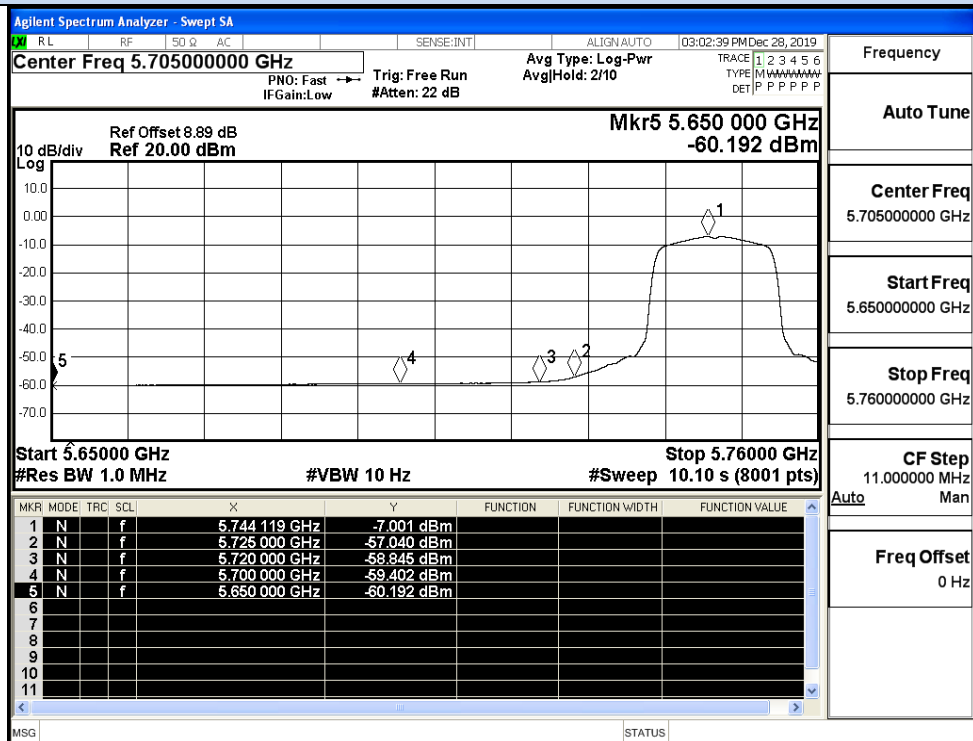
| Test Mode  | Channel | Frequency (MHz) | Conducted Power (dBm) | Antenna Gain (dBi) | EIRP (dBm/MHz) | Detector | Limit (dBm/MHz) | Verdict |
|------------|---------|-----------------|-----------------------|--------------------|----------------|----------|-----------------|---------|
| 11A        | 149     | 5650.0          | -47.34                | 2.00               | -45.34         | Peak     | -27.0           | Pass    |
|            |         | 5650.0          | -60.19                | 2.00               | -58.19         | Average  | -27.0           | Pass    |
|            |         | 5700.0          | -46.91                | 2.00               | -44.91         | Peak     | 10              | Pass    |
|            |         | 5700.0          | -59.40                | 2.00               | -57.40         | Average  | 10              | Pass    |
|            |         | 5720.0          | -47.73                | 2.00               | -45.73         | Peak     | 15.6            | Pass    |
|            |         | 5720.0          | -58.85                | 2.00               | -56.85         | Average  | 15.6            | Pass    |
|            |         | 5725.0          | -42.56                | 2.00               | -40.56         | Peak     | 27.0            | Pass    |
|            |         | 5725.0          | -57.04                | 2.00               | -55.04         | Average  | 27.0            | Pass    |
|            | 165     | 5850.0          | -47.93                | 2.00               | -45.93         | Peak     | 27.0            | Pass    |
|            |         | 5850.0          | -59.04                | 2.00               | -57.04         | Average  | 27.0            | Pass    |
|            |         | 5855.0          | -48.33                | 2.00               | -46.33         | Peak     | 15.6            | Pass    |
|            |         | 5855.0          | -59.35                | 2.00               | -57.35         | Average  | 15.6            | Pass    |
|            |         | 5875.0          | -48.50                | 2.00               | -46.50         | Peak     | 10              | Pass    |
|            |         | 5875.0          | -59.61                | 2.00               | -57.61         | Average  | 10              | Pass    |
|            |         | 5925.0          | -47.98                | 2.00               | -45.98         | Peak     | -27.0           | Pass    |
|            |         | 5925.0          | -60.14                | 2.00               | -58.14         | Average  | -27.0           | Pass    |
| 11N20 SISO | 149     | 5650.0          | -47.41                | 2.00               | -45.41         | Peak     | -27.0           | Pass    |
|            |         | 5650.0          | -60.21                | 2.00               | -58.21         | Average  | -27.0           | Pass    |
|            |         | 5700.0          | -46.29                | 2.00               | -44.29         | Peak     | 10              | Pass    |
|            |         | 5700.0          | -58.75                | 2.00               | -56.75         | Average  | 10              | Pass    |
|            |         | 5720.0          | -46.53                | 2.00               | -44.53         | Peak     | 15.6            | Pass    |
|            |         | 5720.0          | -59.39                | 2.00               | -57.39         | Average  | 15.6            | Pass    |
|            |         | 5725.0          | -42.36                | 2.00               | -40.36         | Peak     | 27.0            | Pass    |
|            |         | 5725.0          | -56.61                | 2.00               | -54.61         | Average  | 27.0            | Pass    |
|            | 165     | 5850.0          | -46.84                | 2.00               | -44.84         | Peak     | 27.0            | Pass    |
|            |         | 5850.0          | -59.01                | 2.00               | -57.01         | Average  | 27.0            | Pass    |
|            |         | 5855.0          | -47.34                | 2.00               | -45.34         | Peak     | 15.6            | Pass    |
|            |         | 5855.0          | -59.33                | 2.00               | -57.33         | Average  | 15.6            | Pass    |
|            |         | 5875.0          | -48.04                | 2.00               | -46.04         | Peak     | 10              | Pass    |
|            |         | 5875.0          | -59.60                | 2.00               | -57.60         | Average  | 10              | Pass    |
|            |         | 5925.0          | -48.95                | 2.00               | -46.95         | Peak     | -27.0           | Pass    |
|            |         | 5925.0          | -60.14                | 2.00               | -58.14         | Average  | -27.0           | Pass    |

| Test Mode   | Channel | Frequency (MHz) | Conducted Power (dBm) | Antenna Gain (dBi) | EIRP (dBm/MHz) | Detector | Limit (dBm/MHz) | Verdict |
|-------------|---------|-----------------|-----------------------|--------------------|----------------|----------|-----------------|---------|
| 11N40 SISO  | 151     | 5650.0          | -48.40                | 2.00               | -46.40         | Peak     | -27.0           | Pass    |
|             |         | 5650.0          | -60.07                | 2.00               | -58.07         | Average  | -27.0           | Pass    |
|             |         | 5700.0          | -47.71                | 2.00               | -45.71         | Peak     | 10              | Pass    |
|             |         | 5700.0          | -59.23                | 2.00               | -57.23         | Average  | 10              | Pass    |
|             |         | 5720.0          | -41.76                | 2.00               | -39.76         | Peak     | 15.6            | Pass    |
|             |         | 5720.0          | -56.29                | 2.00               | -54.29         | Average  | 15.6            | Pass    |
|             |         | 5725.0          | -37.19                | 2.00               | -35.19         | Peak     | 27.0            | Pass    |
|             |         | 5725.0          | -54.10                | 2.00               | -52.10         | Average  | 27.0            | Pass    |
|             | 159     | 5850.0          | -47.13                | 2.00               | -45.13         | Peak     | 27.0            | Pass    |
|             |         | 5850.0          | -58.73                | 2.00               | -56.73         | Average  | 27.0            | Pass    |
|             |         | 5855.0          | -47.43                | 2.00               | -45.43         | Peak     | 15.6            | Pass    |
|             |         | 5855.0          | -58.86                | 2.00               | -56.86         | Average  | 15.6            | Pass    |
|             |         | 5875.0          | -48.27                | 2.00               | -46.27         | Peak     | 10              | Pass    |
|             |         | 5875.0          | -59.16                | 2.00               | -57.16         | Average  | 10              | Pass    |
|             |         | 5925.0          | -48.71                | 2.00               | -46.71         | Peak     | -27.0           | Pass    |
|             |         | 5925.0          | -59.67                | 2.00               | -57.67         | Average  | -27.0           | Pass    |
| 11AC20 SISO | 149     | 5650.0          | -47.24                | 2.00               | -45.24         | Peak     | -27.0           | Pass    |
|             |         | 5650.0          | -60.21                | 2.00               | -58.21         | Average  | -27.0           | Pass    |
|             |         | 5700.0          | -47.98                | 2.00               | -45.98         | Peak     | 10              | Pass    |
|             |         | 5700.0          | -58.75                | 2.00               | -56.75         | Average  | 10              | Pass    |
|             |         | 5720.0          | -46.78                | 2.00               | -44.78         | Peak     | 15.6            | Pass    |
|             |         | 5720.0          | -59.44                | 2.00               | -57.44         | Average  | 15.6            | Pass    |
|             |         | 5725.0          | -40.65                | 2.00               | -38.65         | Peak     | 27.0            | Pass    |
|             |         | 5725.0          | -56.66                | 2.00               | -54.66         | Average  | 27.0            | Pass    |
|             | 165     | 5850.0          | -47.98                | 2.00               | -45.98         | Peak     | 27.0            | Pass    |
|             |         | 5850.0          | -59.06                | 2.00               | -57.06         | Average  | 27.0            | Pass    |
|             |         | 5855.0          | -48.16                | 2.00               | -46.16         | Peak     | 15.6            | Pass    |
|             |         | 5855.0          | -59.36                | 2.00               | -57.36         | Average  | 15.6            | Pass    |
|             |         | 5875.0          | -48.54                | 2.00               | -46.54         | Peak     | 10              | Pass    |
|             |         | 5875.0          | -59.65                | 2.00               | -57.65         | Average  | 10              | Pass    |
|             |         | 5925.0          | -48.08                | 2.00               | -46.08         | Peak     | -27.0           | Pass    |
|             |         | 5925.0          | -60.18                | 2.00               | -58.18         | Average  | -27.0           | Pass    |
| 11AC40 SISO | 151     | 5650.0          | -47.42                | 2.00               | -45.42         | Peak     | -27.0           | Pass    |
|             |         | 5650.0          | -60.08                | 2.00               | -58.08         | Average  | -27.0           | Pass    |
|             |         | 5700.0          | -47.26                | 2.00               | -45.26         | Peak     | 10              | Pass    |
|             |         | 5700.0          | -59.21                | 2.00               | -57.21         | Average  | 10              | Pass    |
|             |         | 5720.0          | -41.27                | 2.00               | -39.27         | Peak     | 15.6            | Pass    |
|             |         | 5720.0          | -56.31                | 2.00               | -54.31         | Average  | 15.6            | Pass    |
|             |         | 5725.0          | -41.18                | 2.00               | -39.18         | Peak     | 27.0            | Pass    |
|             |         | 5725.0          | -54.04                | 2.00               | -52.04         | Average  | 27.0            | Pass    |
|             | 159     | 5850.0          | -46.13                | 2.00               | -44.13         | Peak     | 27.0            | Pass    |
|             |         | 5850.0          | -58.72                | 2.00               | -56.72         | Average  | 27.0            | Pass    |
|             |         | 5855.0          | -47.61                | 2.00               | -45.61         | Peak     | 15.6            | Pass    |
|             |         | 5855.0          | -58.86                | 2.00               | -56.86         | Average  | 15.6            | Pass    |
|             |         | 5875.0          | -46.26                | 2.00               | -44.26         | Peak     | 10              | Pass    |
|             |         | 5875.0          | -59.19                | 2.00               | -57.19         | Average  | 10              | Pass    |
|             |         | 5925.0          | -48.59                | 2.00               | -46.59         | Peak     | -27.0           | Pass    |
|             |         | 5925.0          | -59.67                | 2.00               | -57.67         | Average  | -27.0           | Pass    |
| 11AC80 SISO | 155     | 5725.0          | -42.21                | 2.00               | -40.21         | Peak     | 27.0            | Pass    |
|             |         | 5720.0          | -46.68                | 2.00               | -44.68         | Peak     | 15.6            | Pass    |
|             |         | 5700.0          | -46.50                | 2.00               | -44.5          | Peak     | 10              | Pass    |
|             |         | 5650.0          | -50.32                | 2.00               | -48.32         | Peak     | -27.0           | Pass    |
|             |         | 5725.0          | -54.68                | 2.00               | -52.68         | Average  | 27.0            | Pass    |
|             |         | 5720.0          | -55.86                | 2.00               | -53.86         | Average  | 15.6            | Pass    |
|             |         | 5700.0          | -57.99                | 2.00               | -55.99         | Average  | 10              | Pass    |
|             |         | 5650.0          | 60.14                 | 2.00               | 62.14          | Average  | -27.0           | Pass    |
|             |         | 5850.0          | -46.26                | 2.00               | -44.26         | Peak     | 27.0            | Pass    |
|             |         | 5855.0          | -45.42                | 2.00               | -43.42         | Peak     | 15.6            | Pass    |
|             |         | 5875.0          | -46.93                | 2.00               | -44.93         | Peak     | 10              | Pass    |
|             |         | 5925.0          | -48.28                | 2.00               | -46.28         | Peak     | -27.0           | Pass    |
|             |         | 5850.0          | -57.30                | 2.00               | -55.3          | Average  | 27.0            | Pass    |
|             |         | 5855.0          | -57.69                | 2.00               | -55.69         | Average  | 15.6            | Pass    |
|             |         | 5875.0          | -58.76                | 2.00               | -56.76         | Average  | 10              | Pass    |
|             |         | 5925.0          | -59.51                | 2.00               | -57.51         | Average  | -27.0           | Pass    |

## Undesirable Emissions Measurement

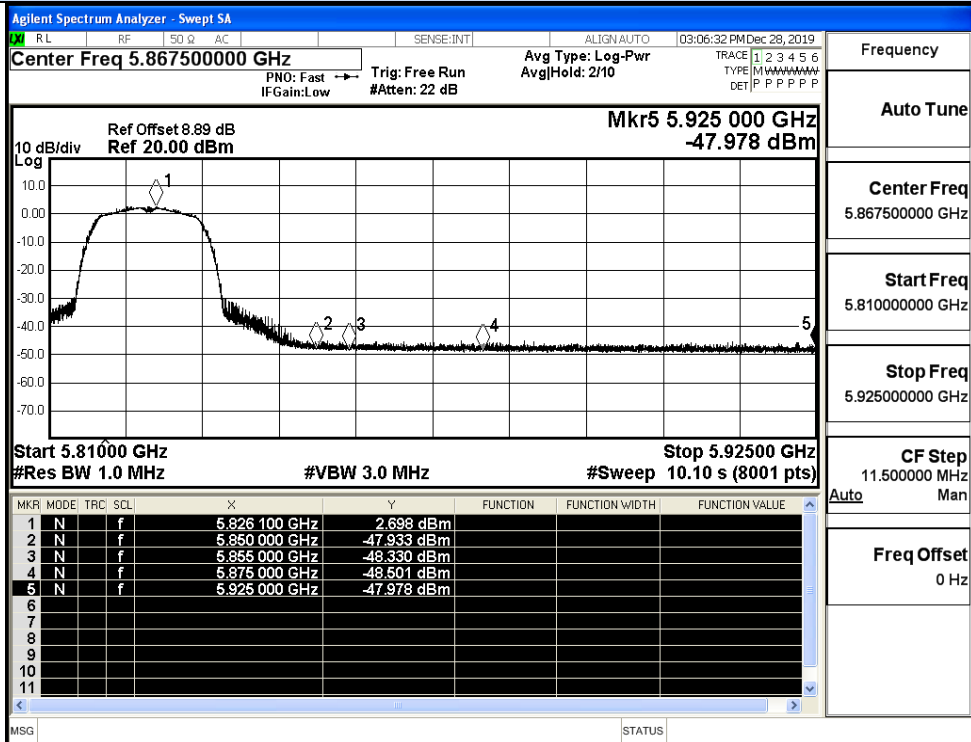


## IEEE 802.11a / Channel 149 / 5745MHz / Peak

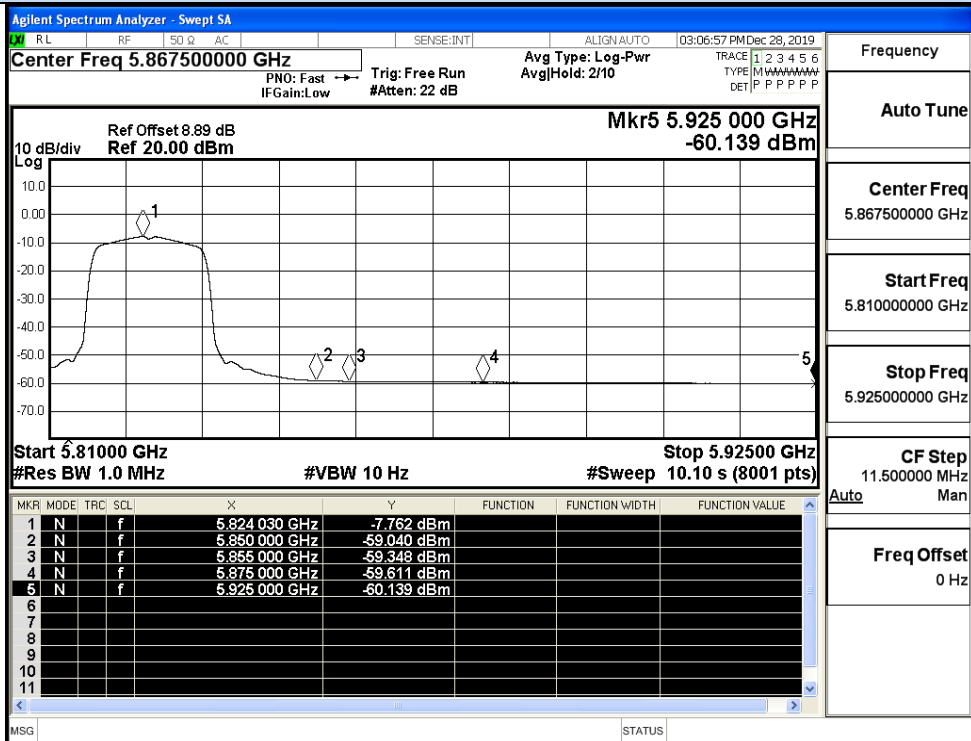


## IEEE 802.11a / Channel 148 / 5745MHz / Average

## Undesirable Emissions Measurement

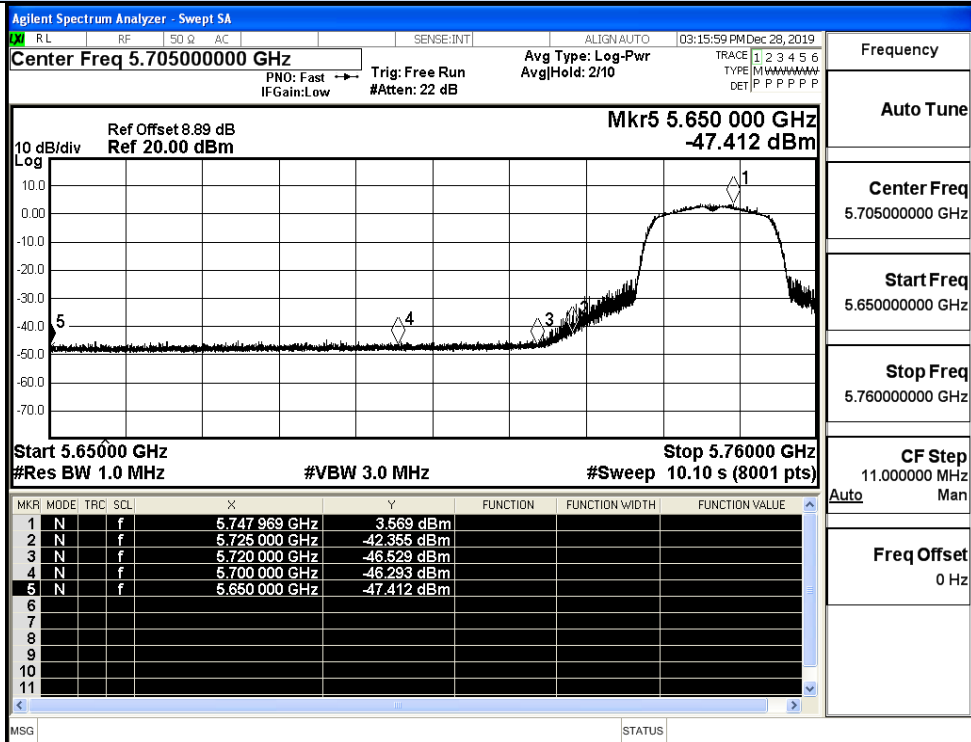


## IEEE 802.11a / Channel 165 / 5825MHz / Peak

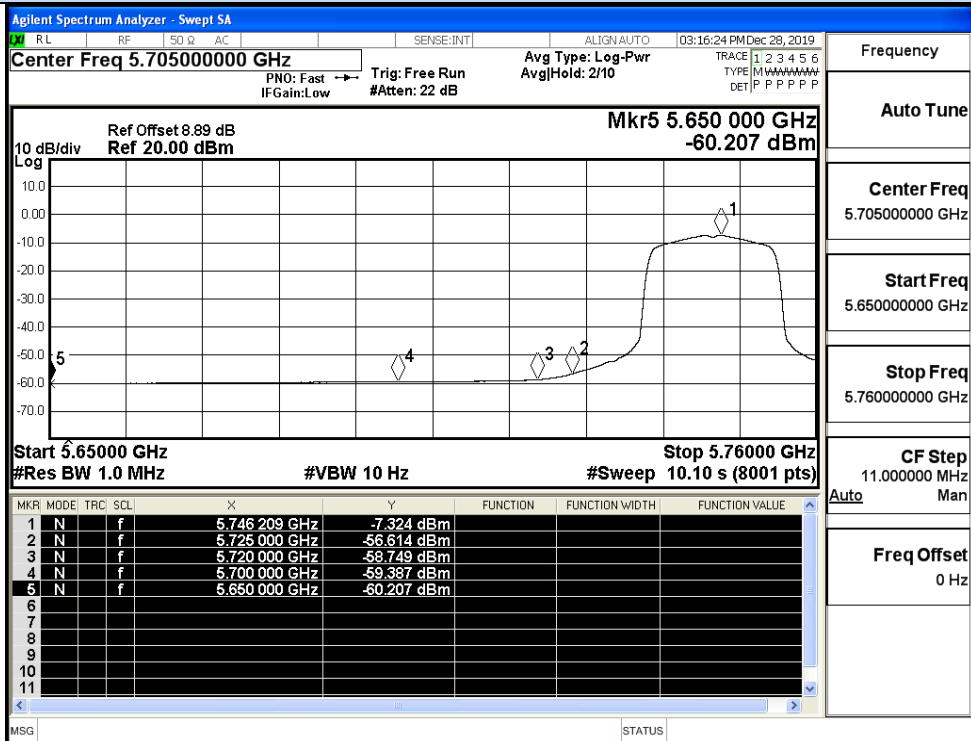


## IEEE 802.11a / Channel 165 / 5825MHz / Average

## Undesirable Emissions Measurement

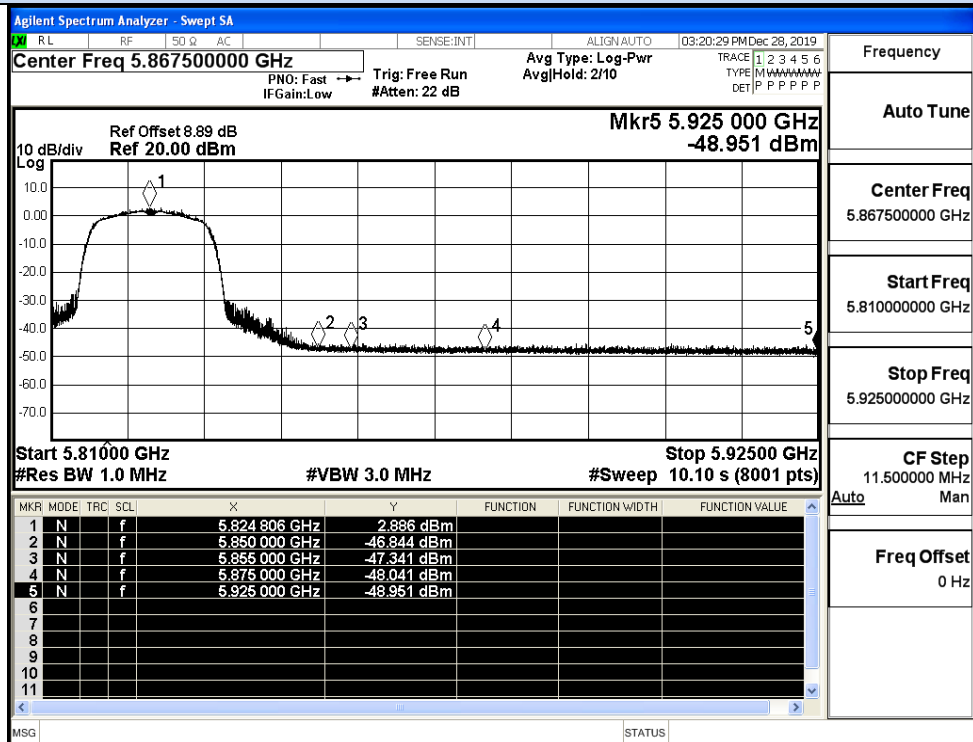


## IEEE 802.11n20 / Channel 149 / 5745MHz / Peak

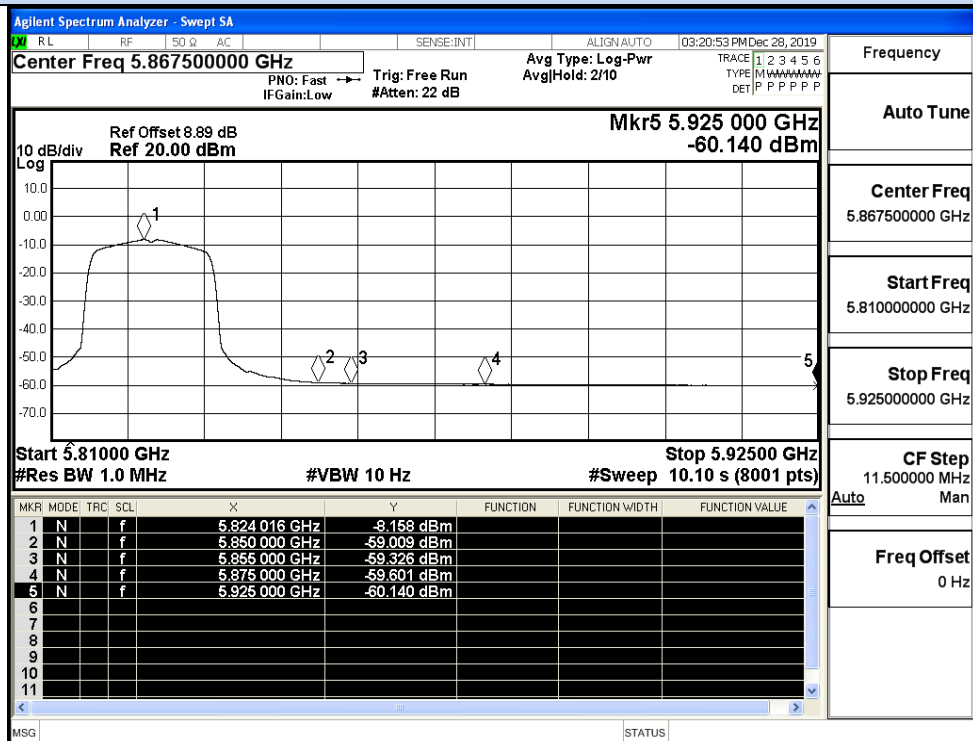


## IEEE 802.11n20 / Channel 149 / 5745MHz / Average

## Undesirable Emissions Measurement

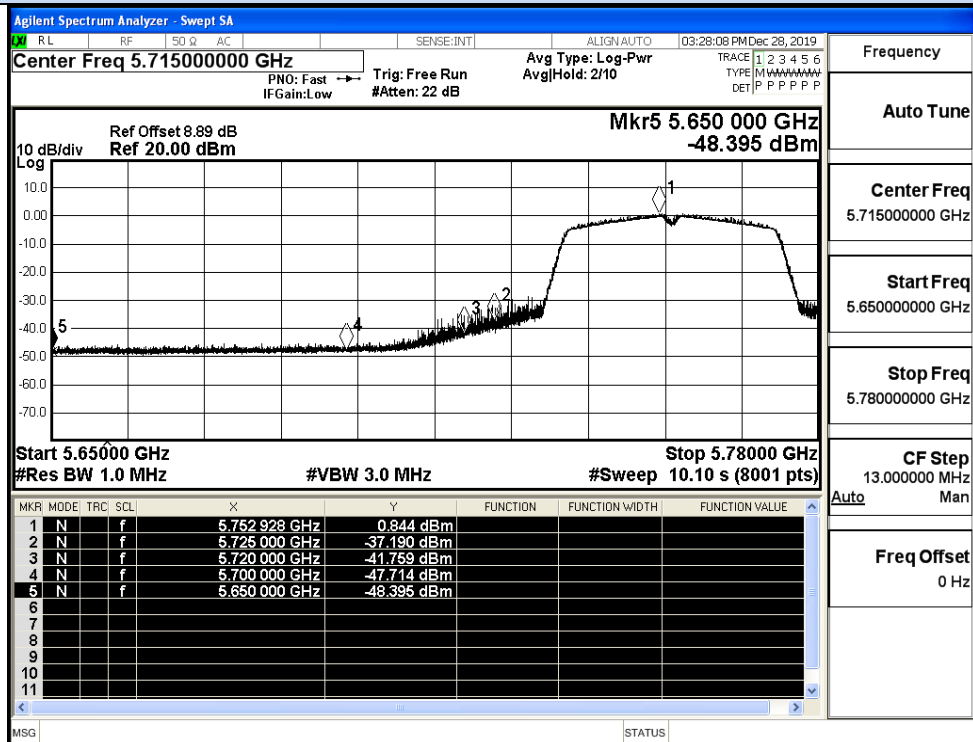


## IEEE 802.11n20 / Channel 165 / 5825MHz / Peak

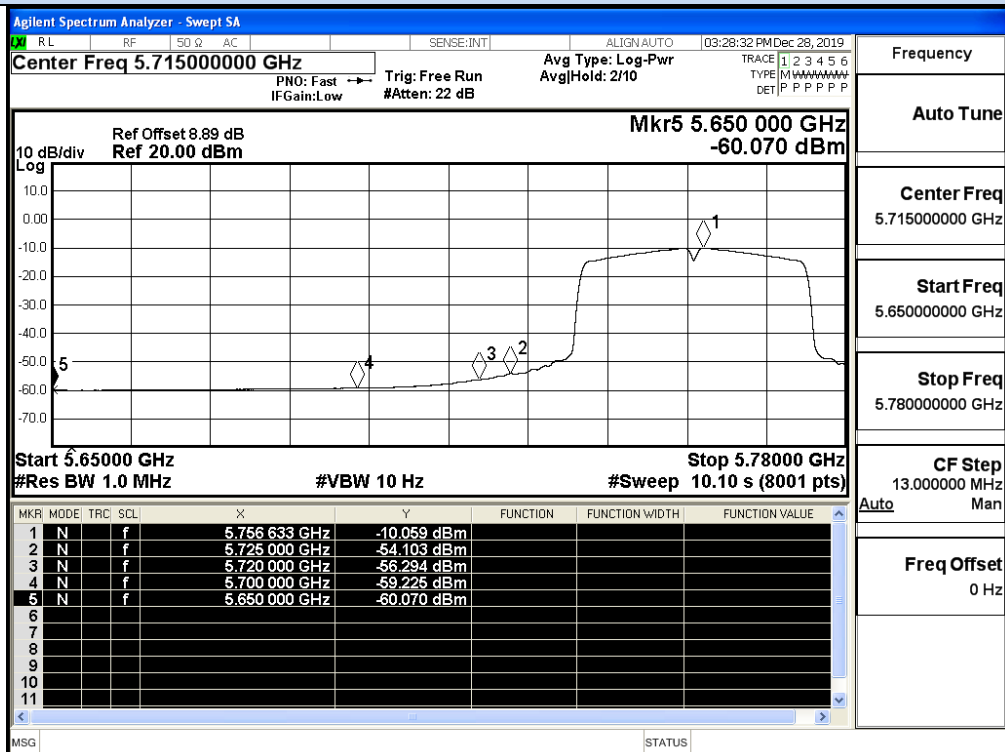


## IEEE 802.11n20 / Channel 165 / 5825MHz / Average

## Undesirable Emissions Measurement

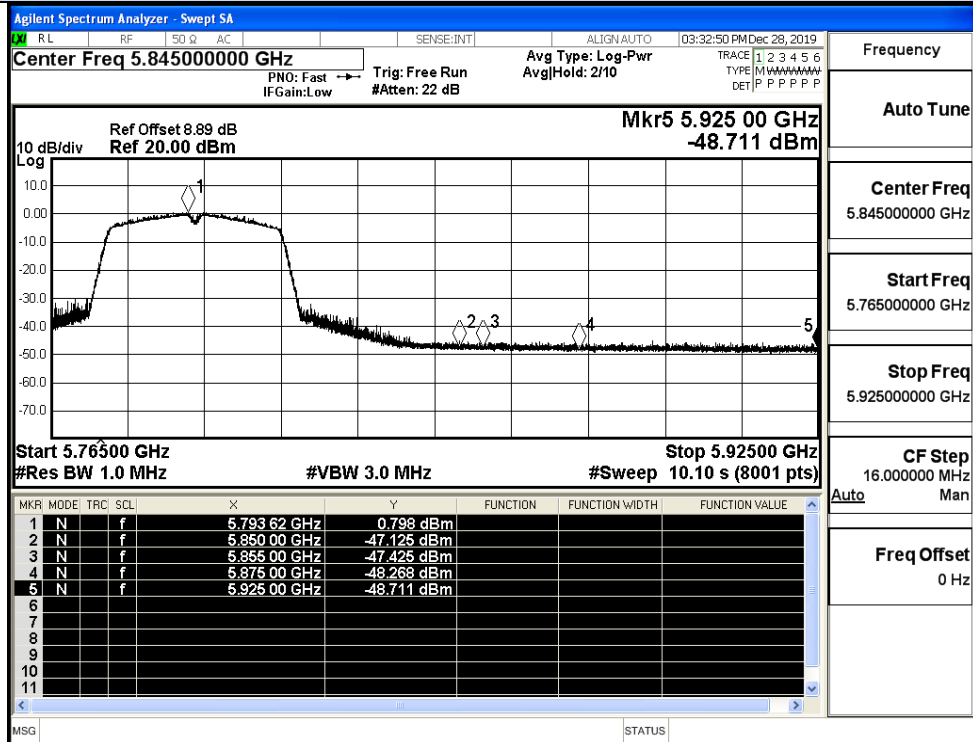


## IEEE 802.11n40 / Channel 151 / 5755MHz / Peak

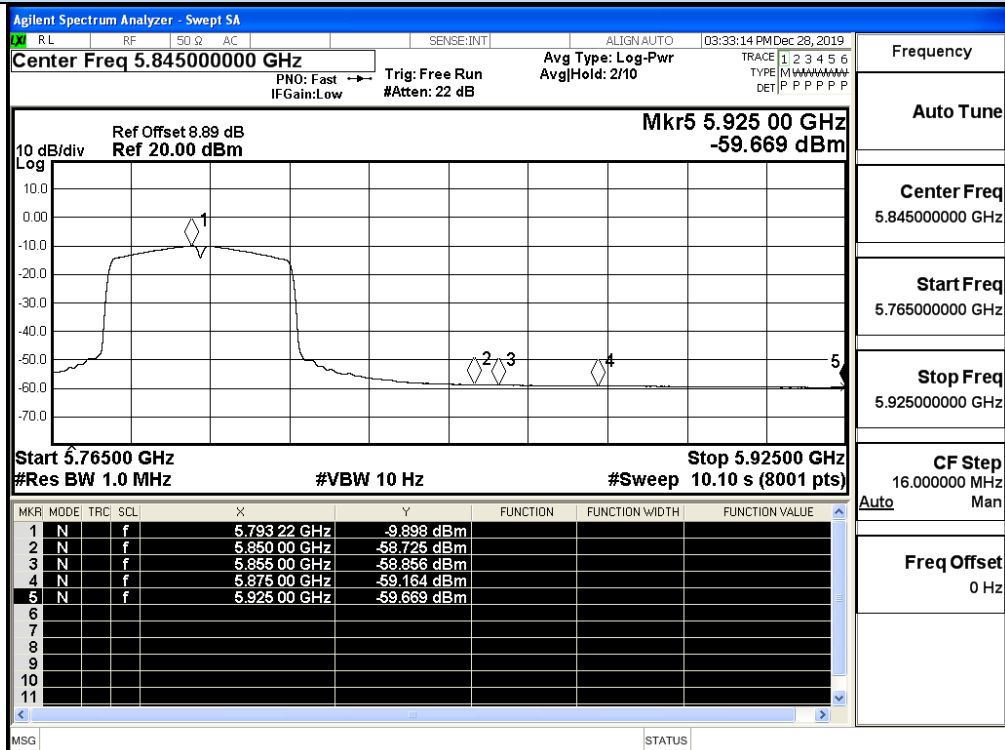


## IEEE 802.11n40 / Channel 151 / 5755MHz / Average

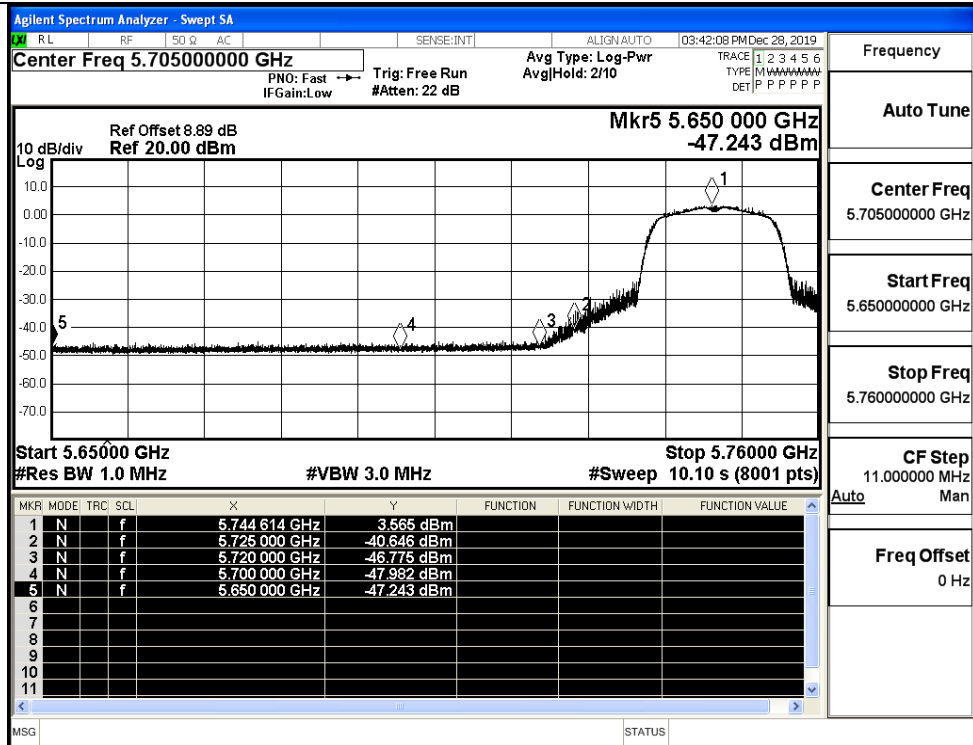
## Undesirable Emissions Measurement



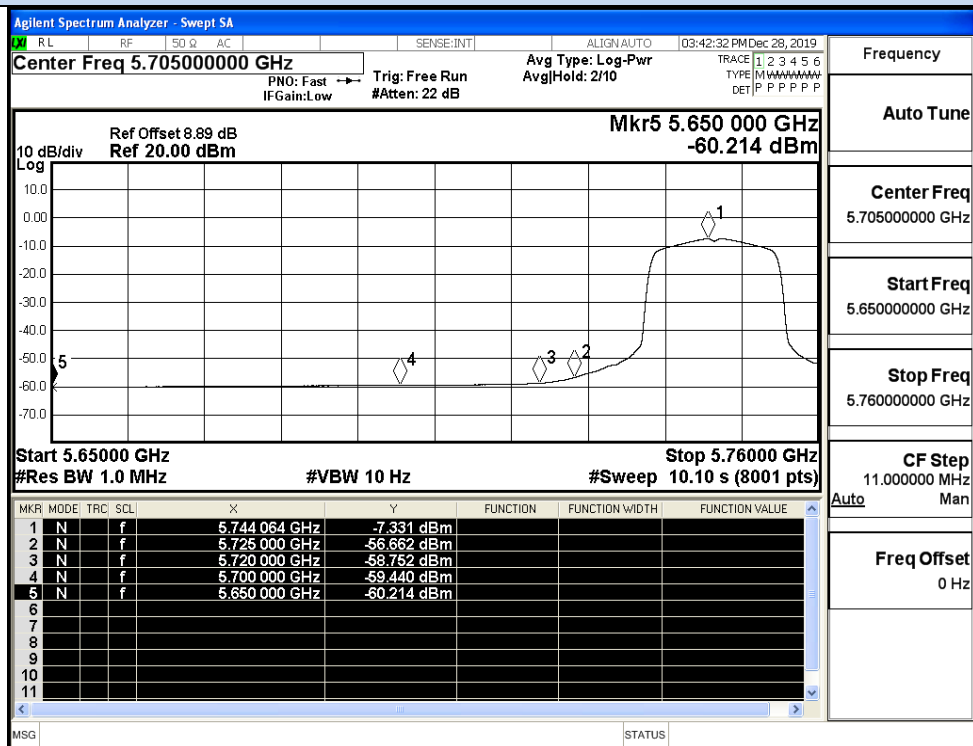
## IEEE 802.11n40 / Channel 159 / 5795MHz / Peak



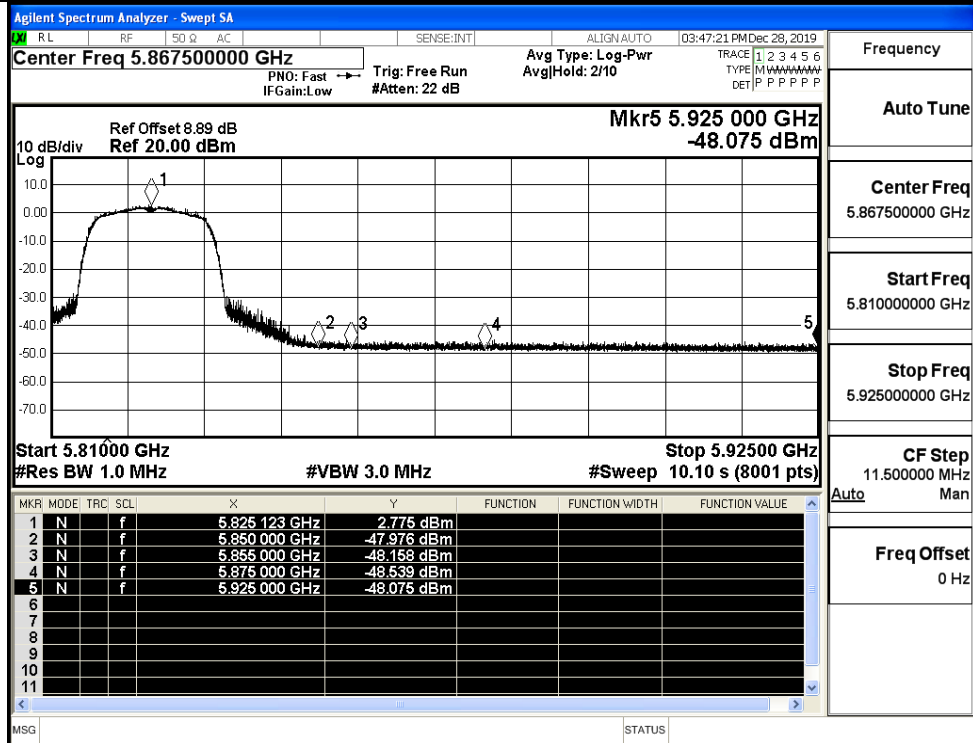
## IEEE 802.11n40 / Channel 159 / 5795MHz / Average



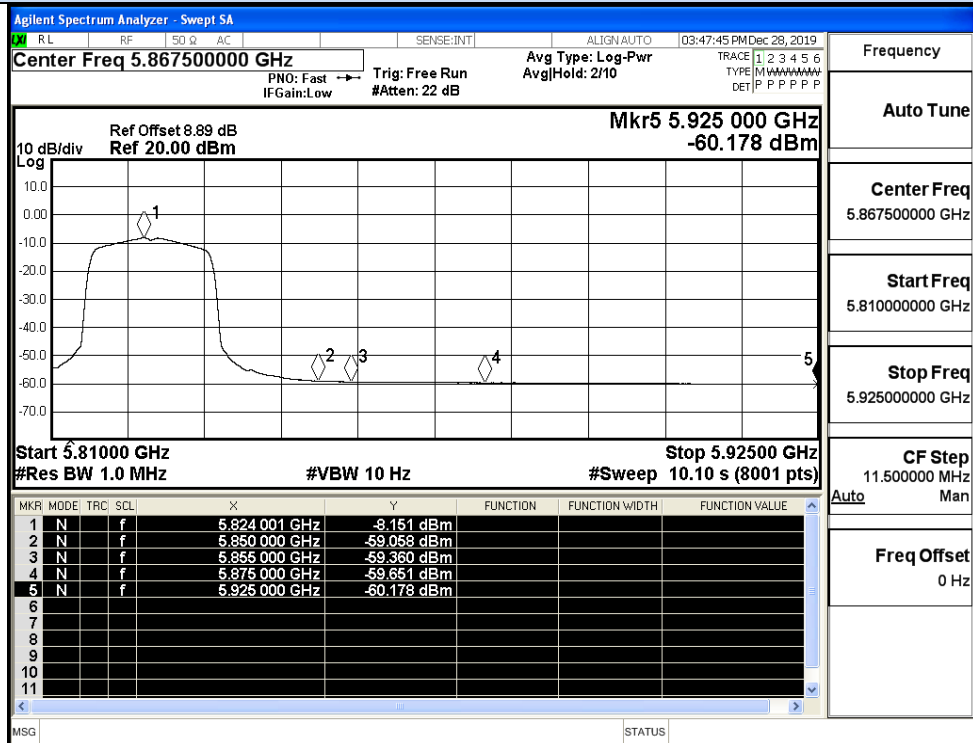
IEEE 802.11ac20 / Channel 149 / 5745MHz / Peak



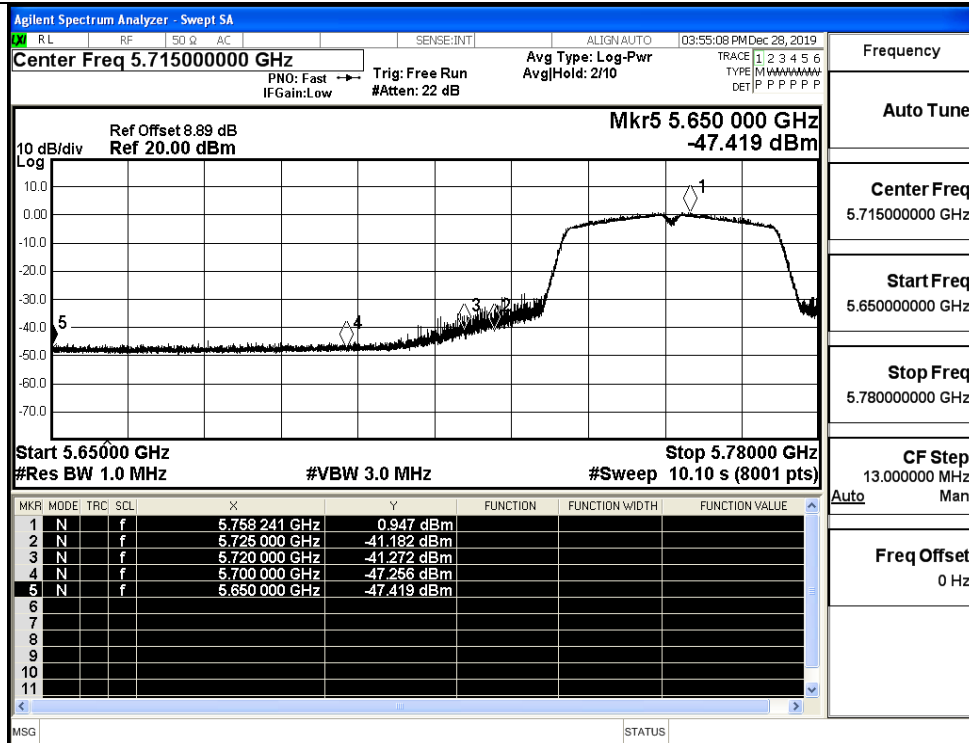
IEEE 802.11ac20 / Channel 149 / 5745MHz / Average



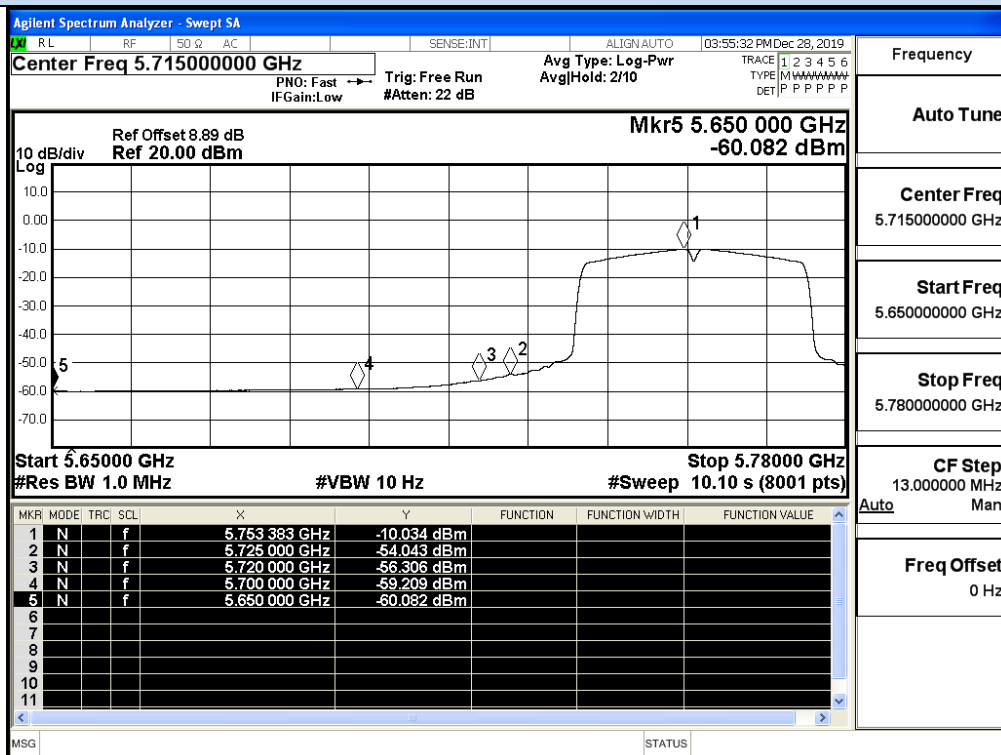
IEEE 802.11ac20 / Channel 165 / 5825MHz / Peak



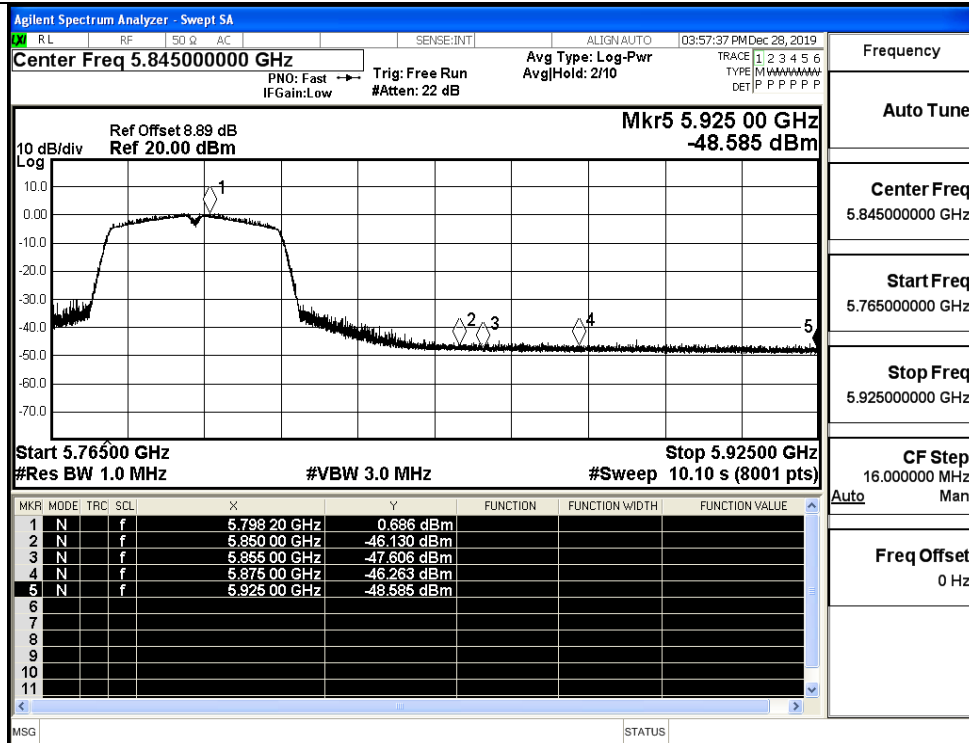
IEEE 802.11ac20 / Channel 165 / 5825MHz / Average



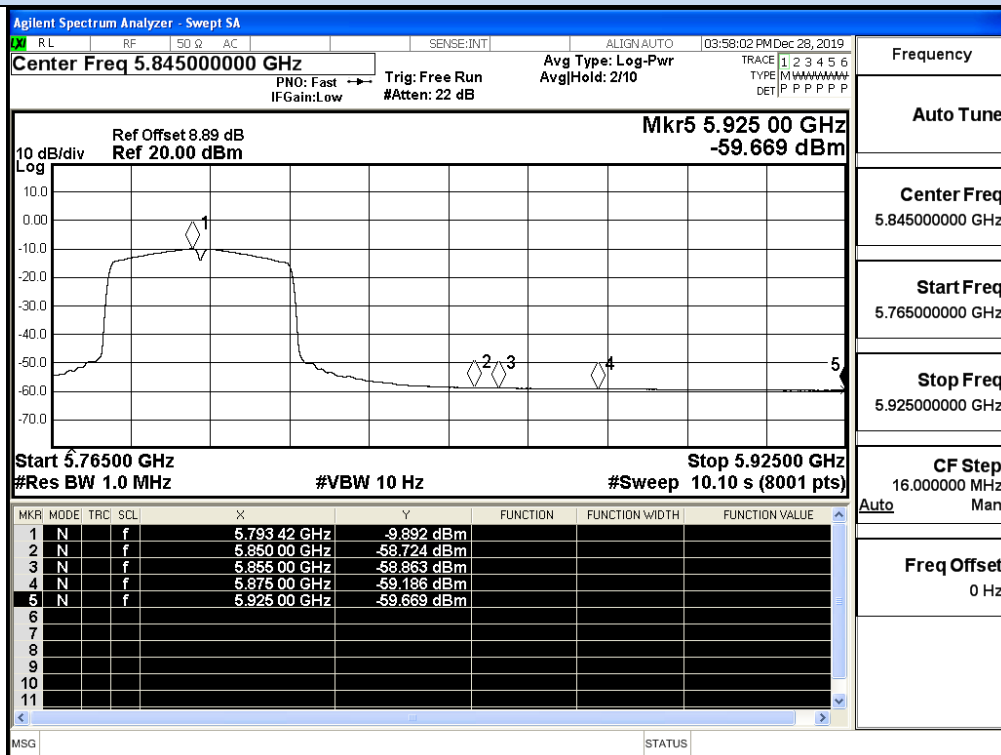
IEEE 802.11ac40 / Channel 151 / 5755MHz / Peak



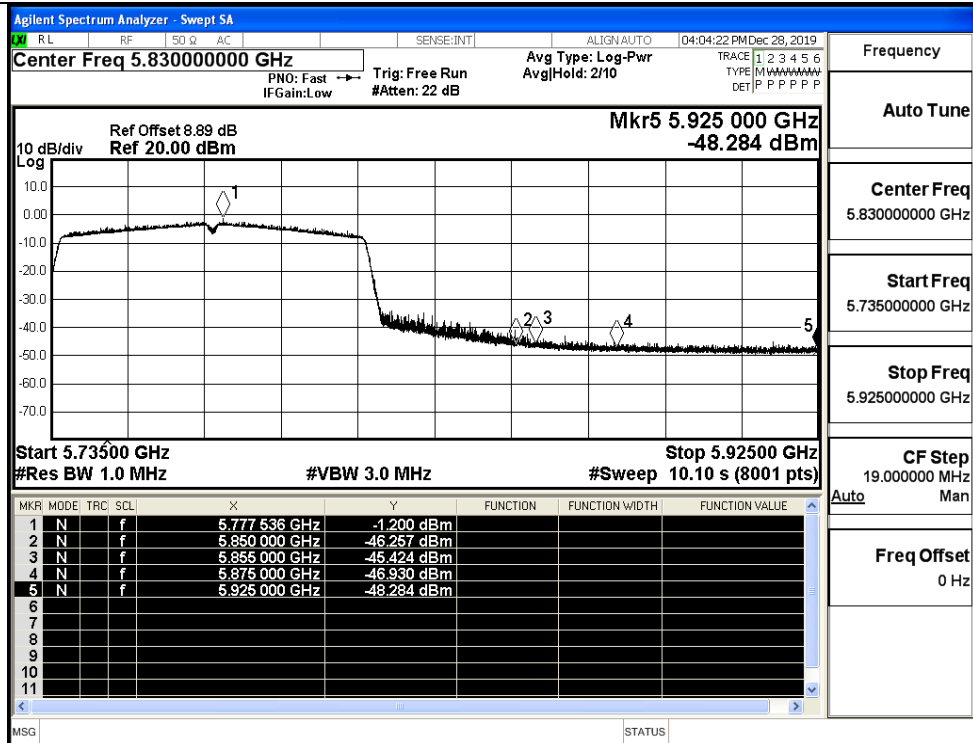
IEEE 802.11ac40 / Channel 151 / 5755MHz / Average



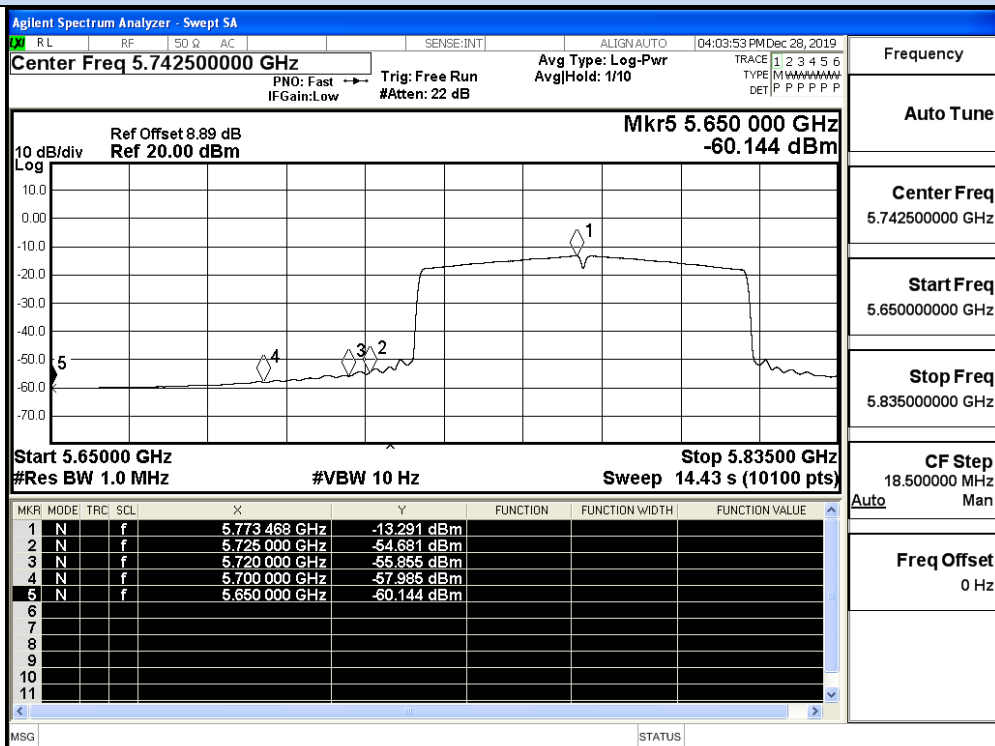
IEEE 802.11ac40 / Channel 159 / 5795MHz / Peak



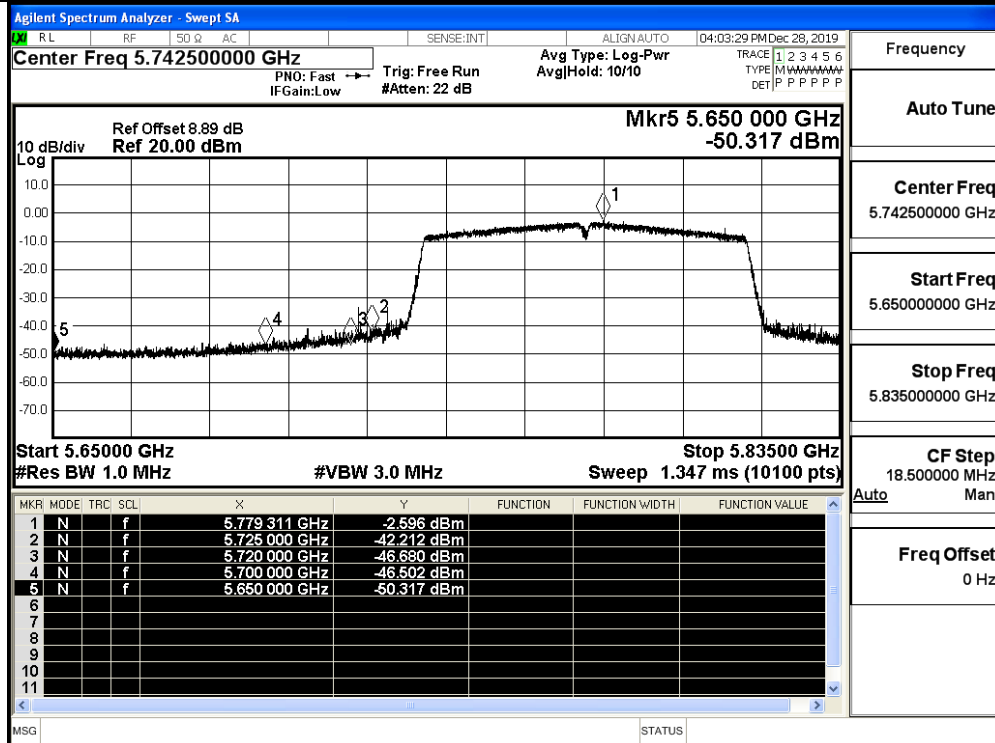
IEEE 802.11ac40 / Channel 159 / 5795MHz / Average



IEEE 802.11ac80 / Channel 155 / 5775MHz / Peak



IEEE 802.11ac80 / Channel 155 / 5775MHz / Average



Frequency

Auto Tune

Center Freq  
5.742500000 GHz

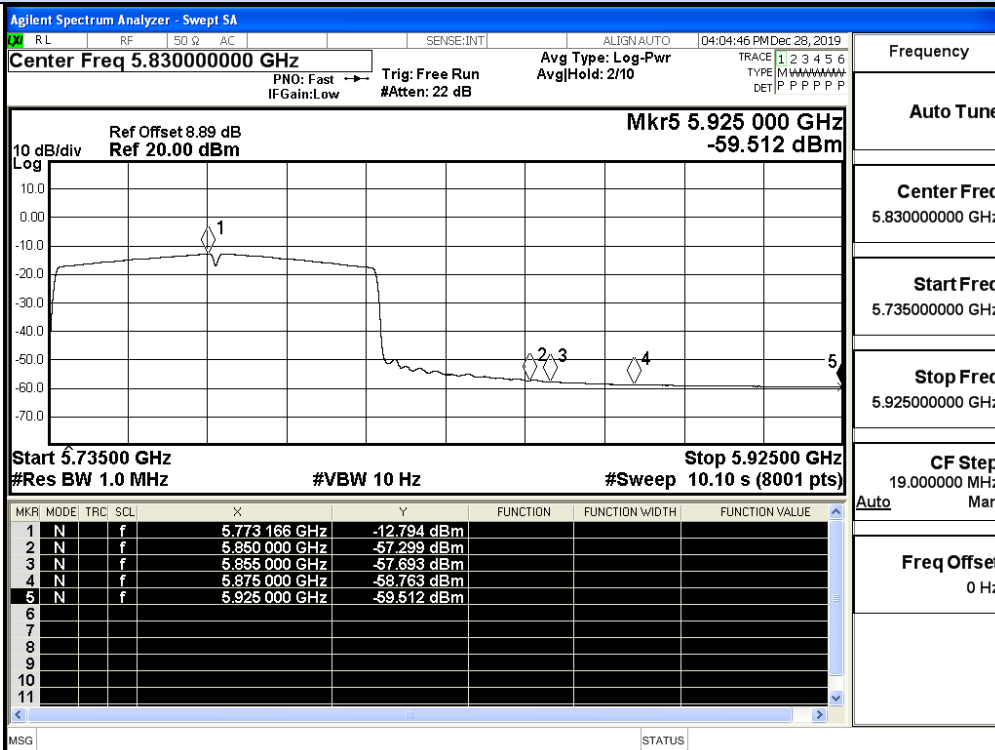
Start Freq  
5.650000000 GHz

Stop Freq  
5.835000000 GHz

CF Step  
18.500000 MHz  
Auto Man

Freq Offset  
0 Hz

## IEEE 802.11ac80 / Channel 155/ 5775MHz / Peak



Frequency

Auto Tune

Center Freq  
5.830000000 GHz

Start Freq  
5.735000000 GHz

Stop Freq  
5.925000000 GHz

CF Step  
19.000000 MHz  
Auto Man

Freq Offset  
0 Hz

## IEEE 802.11ac80 / Channel 155 / 5775MHz / Average