# APPENDIX A – TEST DATA OF CONDUCTED EMISSION

**Output Power**
**UNII-2C**

| Mode | Freq (MHz) | Chain | Conducted average power output(dBm) |
|---|---|---|---|
| 802.11a | 5500 | Chain0 | 15.20 |
| | | Chain1 | 14.40 |
| | 5580 | Chain0 | 15.10 |
| | | Chain1 | 14.70 |
| | 5700 | Chain0 | 15.50 |
| | | Chain1 | 14.20 |
| 802.11n20M | 5500 | Chain0 | 14.00 |
| | | Chain1 | 13.40 |
| | | Chain0+Chain1 | 16.72 |
| | 5580 | Chain0 | 14.20 |
| | | Chain1 | 13.70 |
| | | Chain0+Chain1 | 16.97 |
| | 5700 | Chain0 | 14.50 |
| | | Chain1 | 13.30 |
| | | Chain0+Chain1 | 16.95 |
| 802.11n40M | 5510 | Chain0 | 14.50 |
| | | Chain1 | 13.50 |
| | | Chain0+Chain1 | 17.04 |
| | 5590 | Chain0 | 14.10 |
| | | Chain1 | 13.60 |
| | | Chain0+Chain1 | 16.87 |
| | 5670 | Chain0 | 14.40 |
| | | Chain1 | 13.20 |
| | | Chain0+Chain1 | 16.85 |
| 802.11ac20M | 5500 | Chain0 | 14.10 |
| | | Chain1 | 13.30 |
| | | Chain0+Chain1 | 16.73 |
| | 5580 | Chain0 | 14.20 |
| | | Chain1 | 13.80 |
| | | Chain0+Chain1 | 17.01 |
| | 5700 | Chain0 | 14.50 |
| | | Chain1 | 13.30 |
| | | Chain0+Chain1 | 16.95 |

| | | | |
|---|---|---|---|
| 802.11ac40M | 5510 | Chain0 | 14.20 |
| | | Chain1 | 13.50 |
| | | Chain0+Chain1 | 16.87 |
| | 5590 | Chain0 | 14.10 |
| | | Chain1 | 13.40 |
| | | Chain0+Chain1 | 16.77 |
| | 5670 | Chain0 | 14.50 |
| | | Chain1 | 13.20 |
| | | Chain0+Chain1 | 16.91 |
| 802.11ac80M | 5530 | Chain0 | 13.70 |
| | | Chain1 | 13.00 |
| | | Chain0+Chain1 | 16.37 |
| | 5610 | Chain0 | 13.40 |
| | | Chain1 | 13.80 |
| | | Chain0+Chain1 | 16.61 |

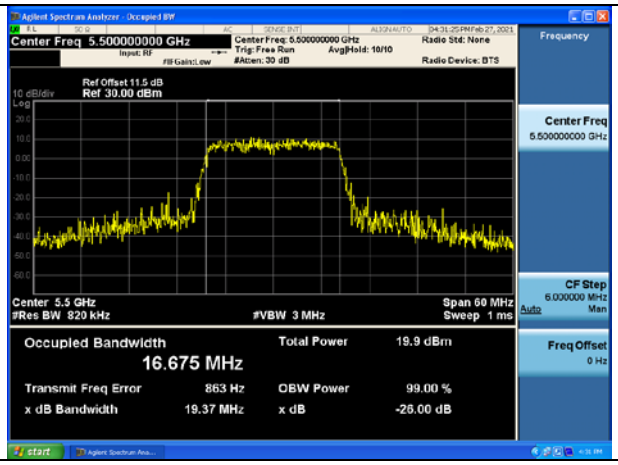
## Emission Bandwidth

Offset 11.5dB =Attenuator 10dB+ Temporary antenna connector loss 0.5dB+ Cable loss 1dB

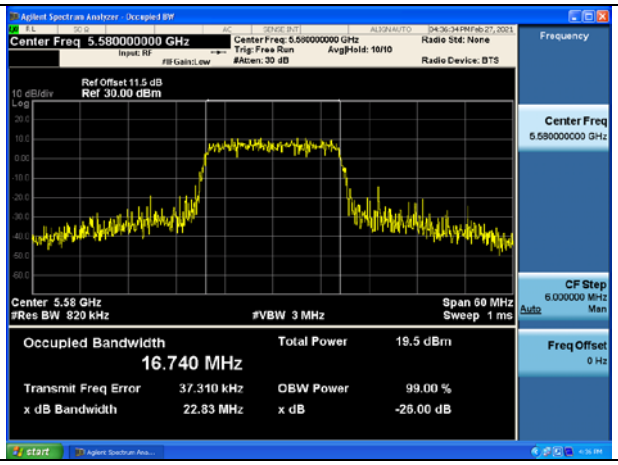
Test Mode:802.11a

| Carrier frequency (MHz) | Chain | 26dB Bandwidth (MHz) |
|---|---|---|
| 5500 | Chain0 | 19.37 |
| | Chain1 | 18.98 |
| 5580 | Chain0 | 22.83 |
| | Chain1 | 18.94 |
| 5700 | Chain0 | 20.15 |
| | Chain1 | 18.88 |

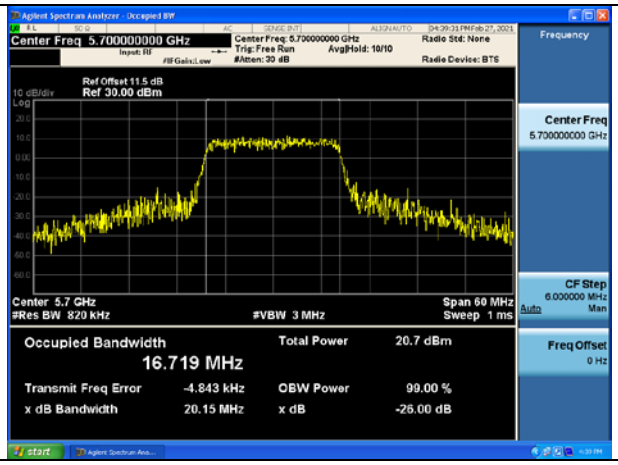
Test Mode:802.11a Chain0



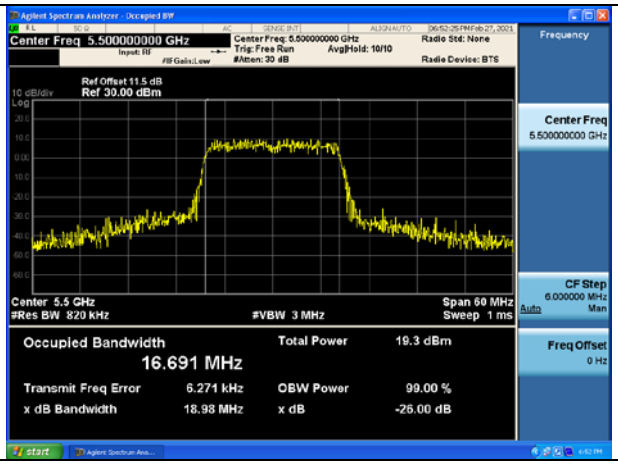

Test Mode:802.11a Chain0



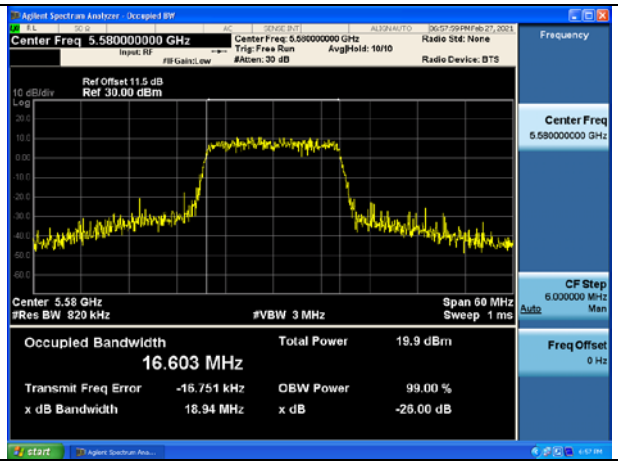

Test Mode:802.11a Chain0



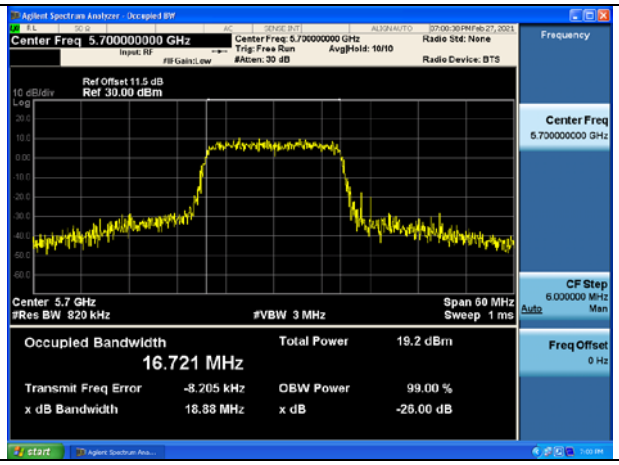

Test Mode:802.11a Chain1



Test Mode:802.11a Chain1



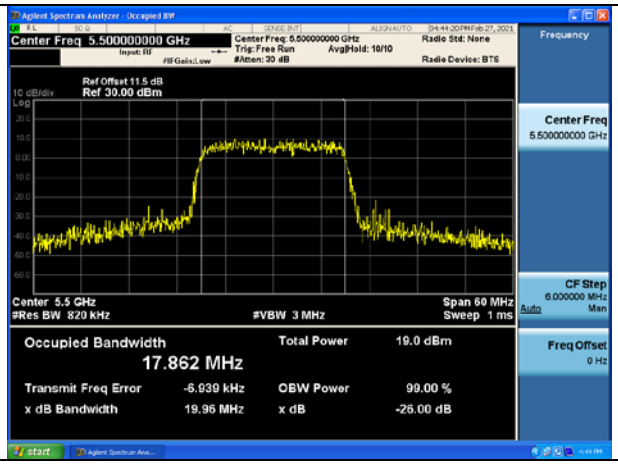

Test Mode:802.11a Chain1



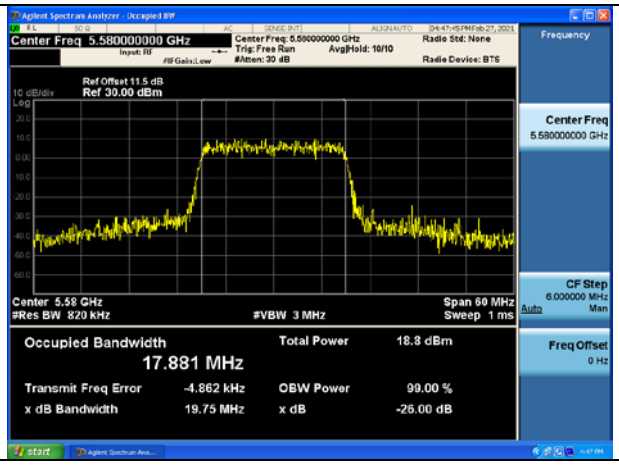

Test Mode:802. 11n HT20

| Carrier frequency (MHz) | Chain | 26dB Bandwidth (MHz) |
|---|---|---|
| 5500 | Chain0 | 19.96 |
| | Chain1 | 19.99 |
| 5580 | Chain0 | 19.75 |
| | Chain1 | 19.77 |
| 5700 | Chain0 | 19.70 |
| | Chain1 | 19.76 |

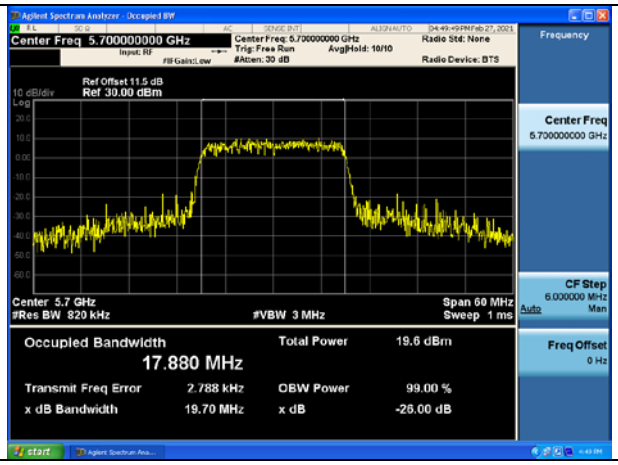
Test Mode:802. 11n HT20 Chain0



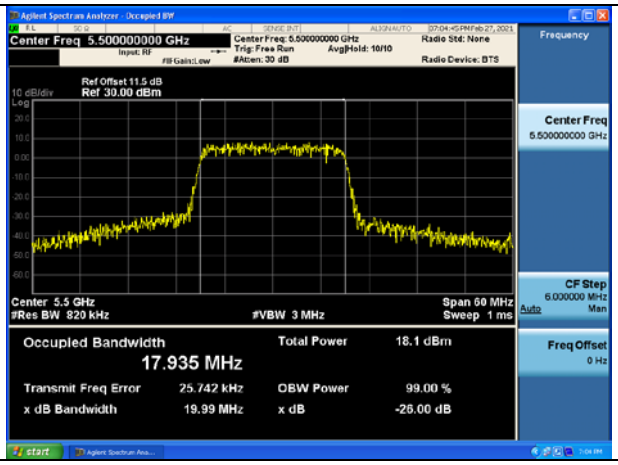

Test Mode:802. 11n HT20 Chain0



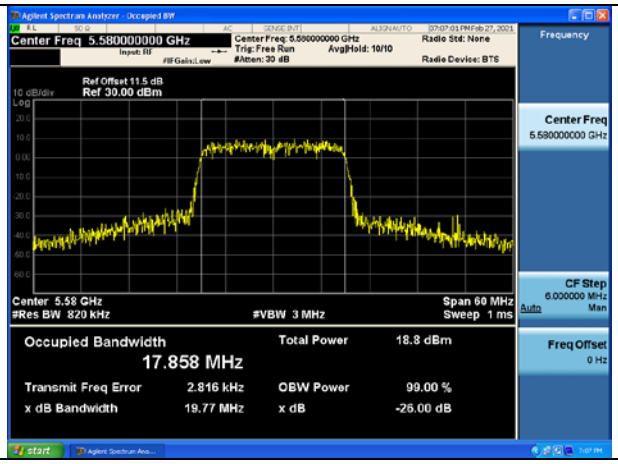
Test Mode:802. 11n HT20 Chain0



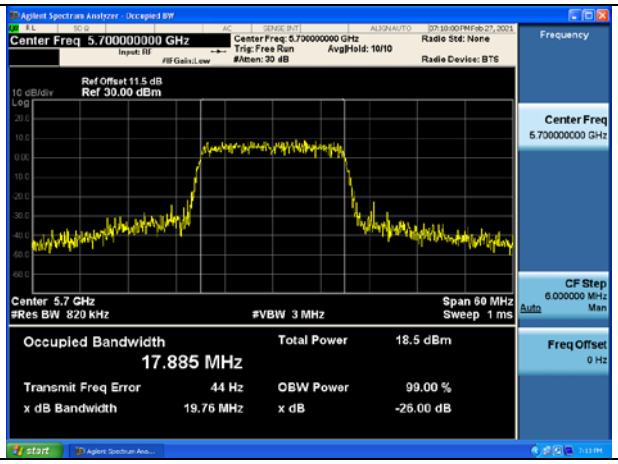

Test Mode:802. 11n HT20 Chain1




Test Mode:802. 11n HT20 Chain1



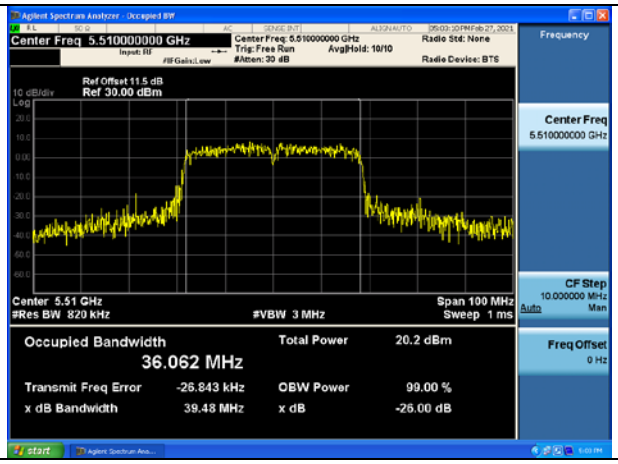

Test Mode:802. 11n HT20 Chain1



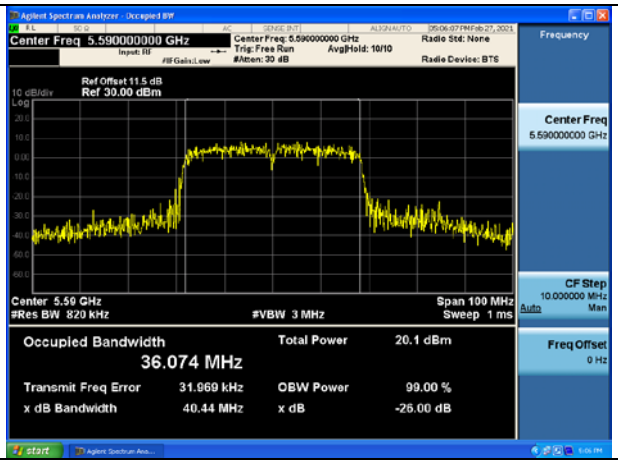

Test Mode:802. 11n HT40

| Carrier frequency (MHz) | Chain | 26dB Bandwidth (MHz) |
|---|---|---|
| 5510 | Chain0 | 39.48 |
| | Chain1 | 39.21 |
| 5590 | Chain0 | 40.44 |
| | Chain1 | 41.25 |
| 5670 | Chain0 | 39.80 |
| | Chain1 | 40.27 |

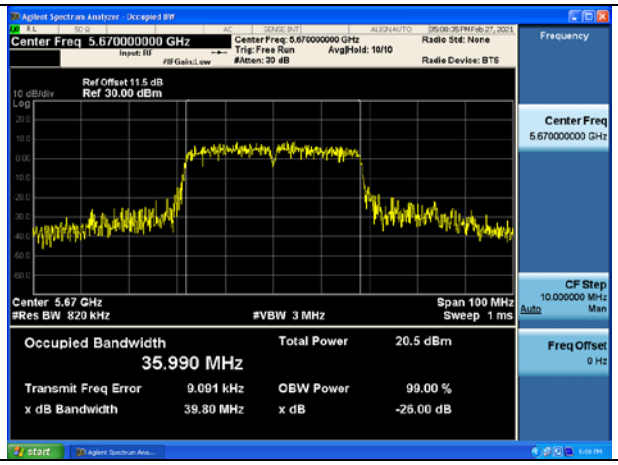
Test Mode:802. 11n HT40 Chain0



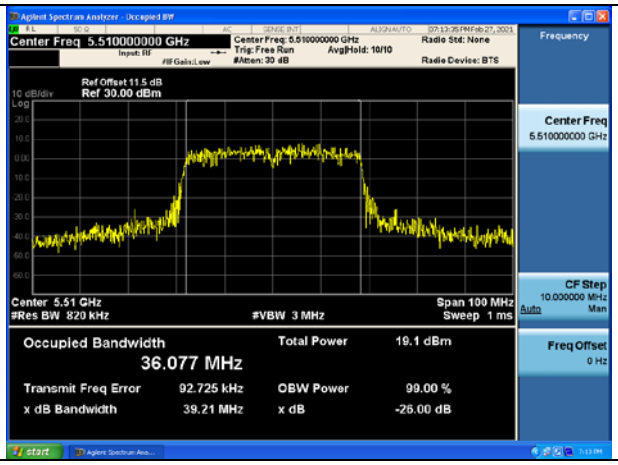

Test Mode:802. 11n HT40 Chain0



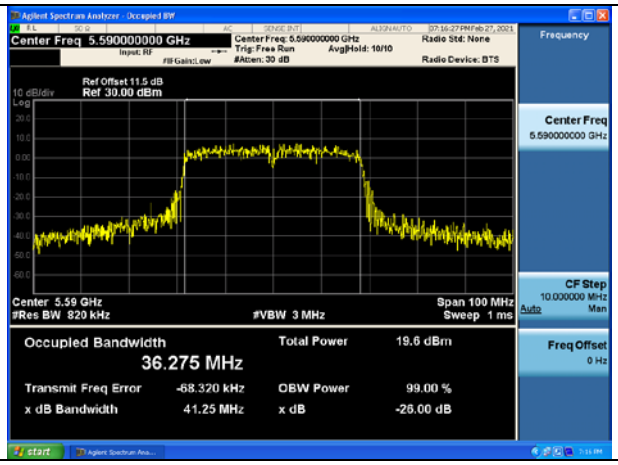

Test Mode:802. 11n HT40 Chain0



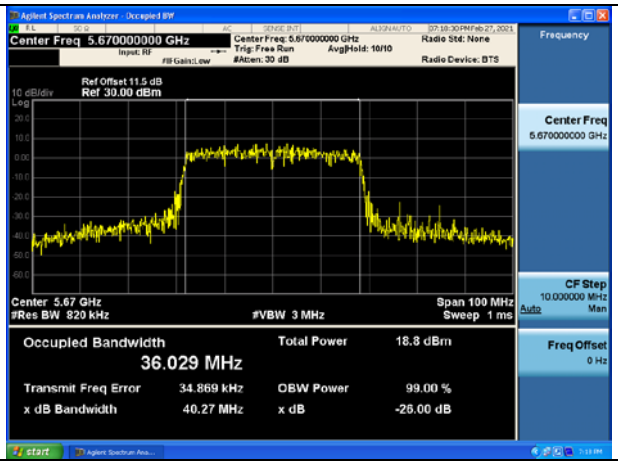

Test Mode:802. 11n HT40 Chain1




Test Mode:802. 11n HT40 Chain1



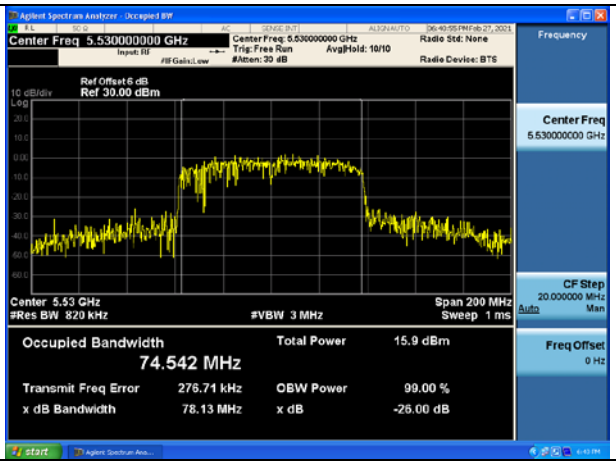

Test Mode:802. 11n HT40 Chain1



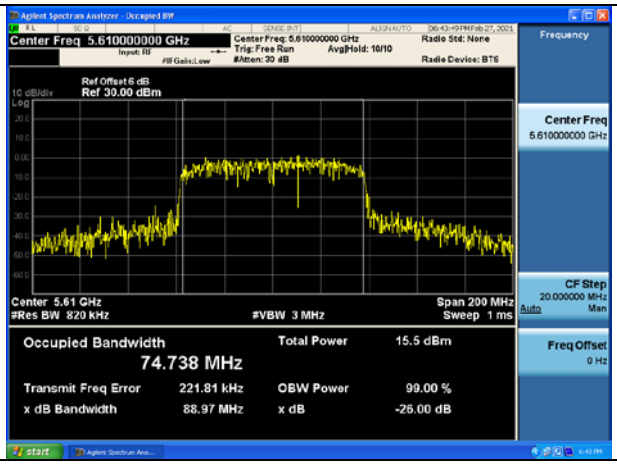
Test Mode:802. 11ac VHT80

| Carrier frequency (MHz) | Chain | 26dB Bandwidth (MHz) |
|---|---|---|
| 5530 | Chain0 | 78.13 |
| | Chain1 | 78.18 |
| 5610 | Chain0 | 88.97 |
| | Chain1 | 78.90 |

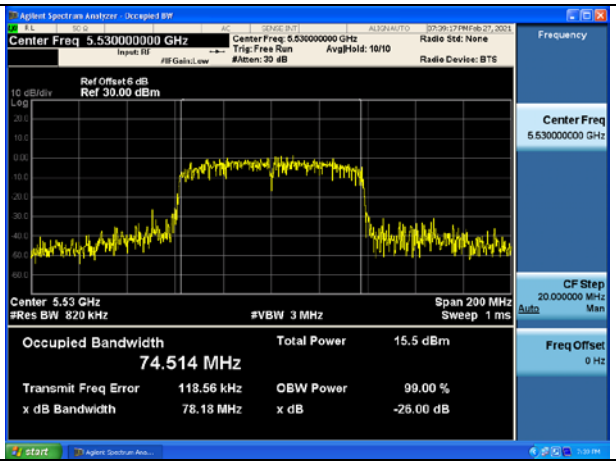
Test Mode:802. 11ac VHT80 Chain0



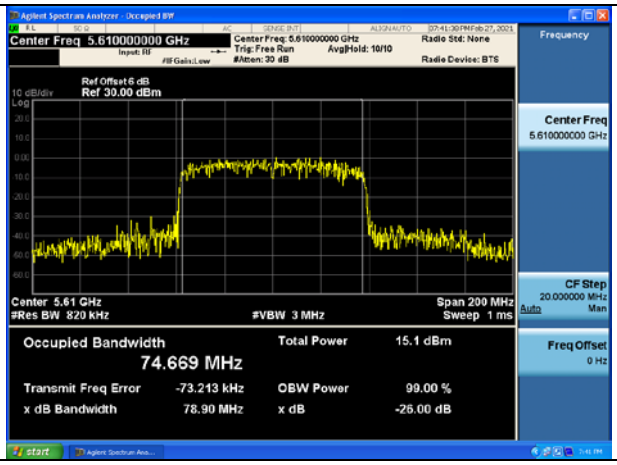

Test Mode:802. 11ac VHT80 Chain0




Test Mode:802. 11ac VHT80 Chain1




Test Mode:802. 11ac VHT80 Chain1



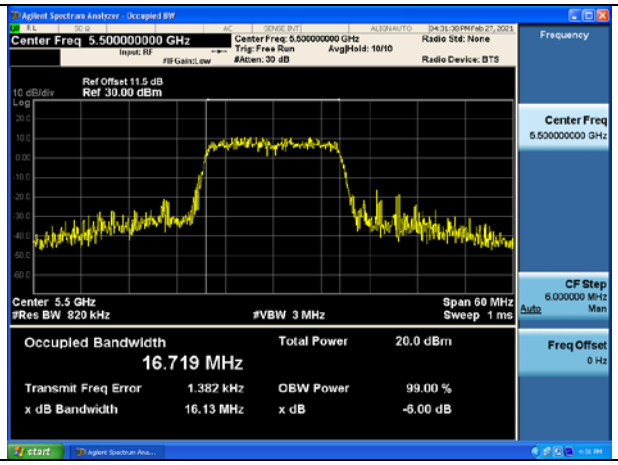
## Occupied Bandwidth

Offset 11.5dB =Attenuator 10dB+ Temporary antenna connector loss 0.5dB+ Cable loss 1dB

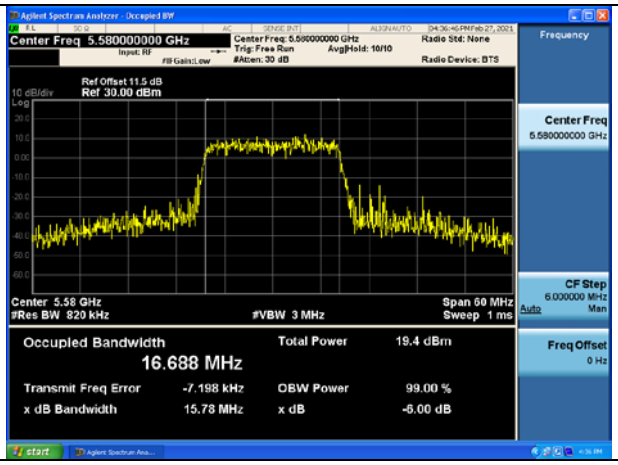
Test Mode:802.11a

| Carrier frequency (MHz) | Chain | Occupied Bandwidth (MHz) |
|---|---|---|
| 5500 | Chain0 | 16.719 |
| | Chain1 | 16.654 |
| 5580 | Chain0 | 16.688 |
| | Chain1 | 16.665 |
| 5700 | Chain0 | 16.712 |
| | Chain1 | 16.720 |

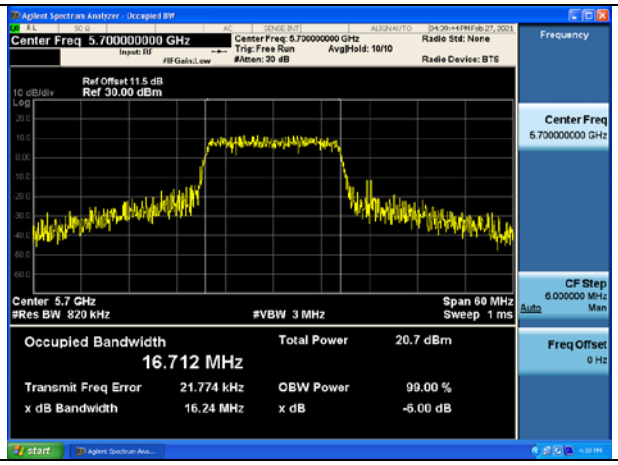
Test Mode:802.11a Chain0



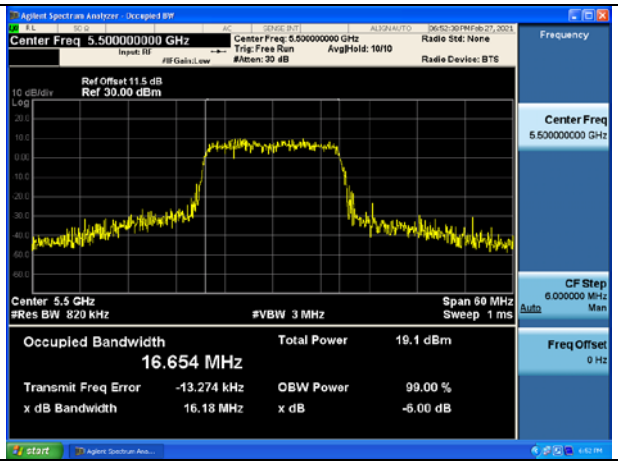

Test Mode:802.11a Chain0



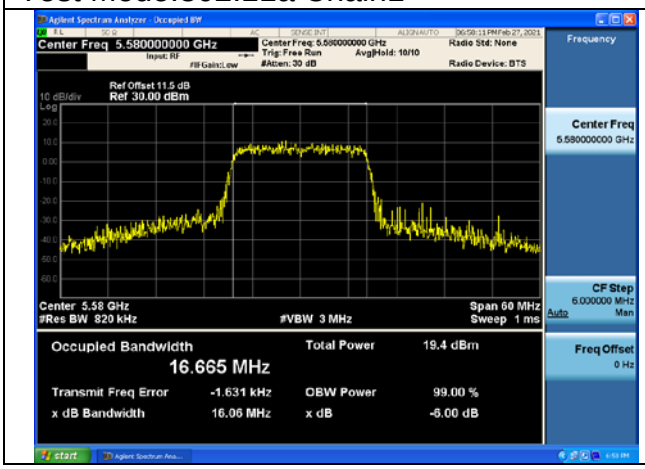

Test Mode:802.11a Chain0



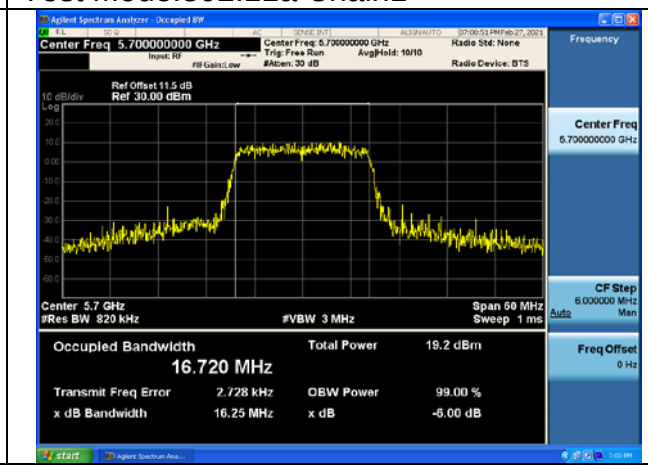

Test Mode:802.11a Chain1



Test Mode:802.11a Chain1



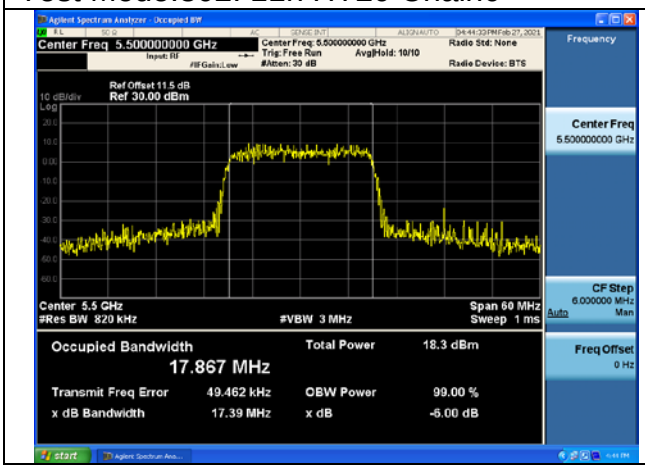

Test Mode:802.11a Chain1



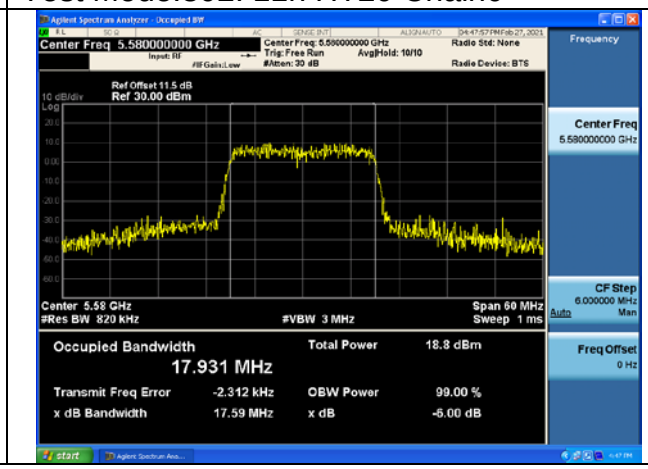

Test Mode:802. 11n HT20

| Carrier frequency (MHz) | Chain | Occupied Bandwidth (MHz) |
|---|---|---|
| 5500 | Chain0 | 17.867 |
| | Chain1 | 17.839 |
| 5580 | Chain0 | 17.931 |
| | Chain1 | 17.877 |
| 5700 | Chain0 | 17.853 |
| | Chain1 | 17.891 |

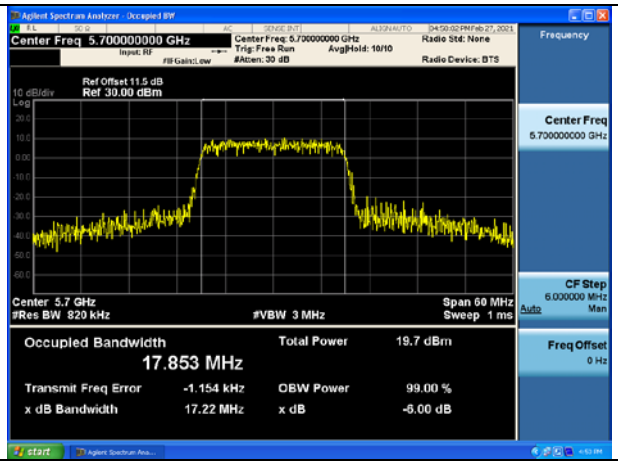
Test Mode:802. 11n HT20 Chain0



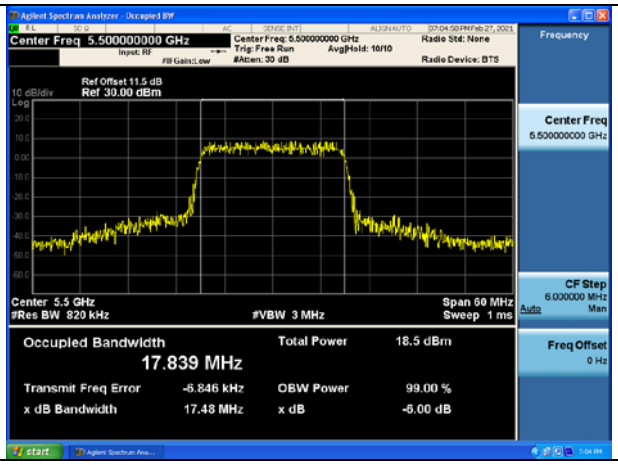

Test Mode:802. 11n HT20 Chain0



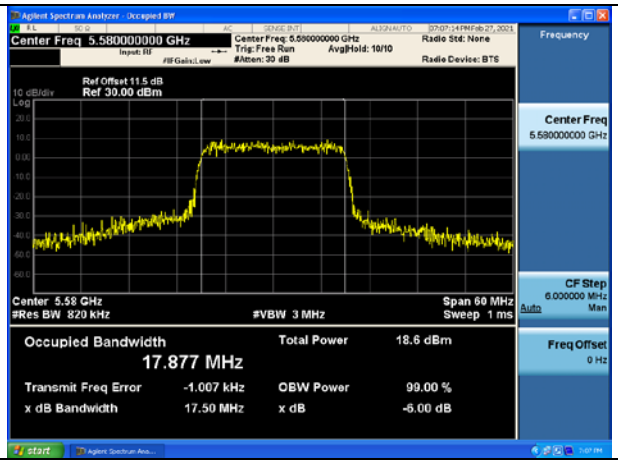
Test Mode:802. 11n HT20 Chain0



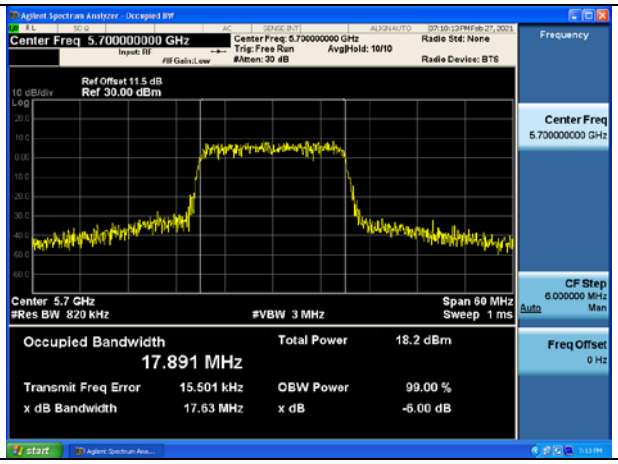

Test Mode:802. 11n HT20 Chain1




Test Mode:802. 11n HT20 Chain1



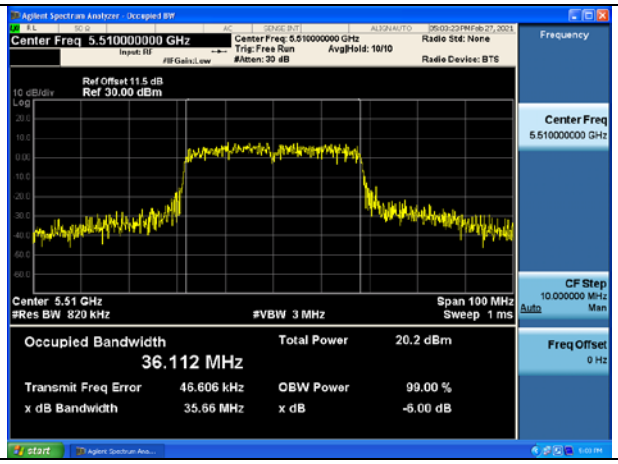

Test Mode:802. 11n HT20 Chain1



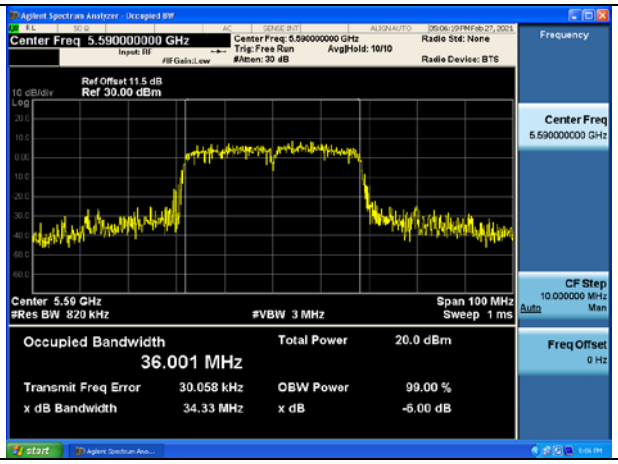

Test Mode:802. 11n HT40

| Carrier frequency (MHz) | Chain | Occupied Bandwidth (MHz) |
|---|---|---|
| 5510 | Chain0 | 36.112 |
| | Chain1 | 36.130 |
| 5590 | Chain0 | 36.001 |
| | Chain1 | 36.085 |
| 5670 | Chain0 | 36.182 |
| | Chain1 | 36.058 |

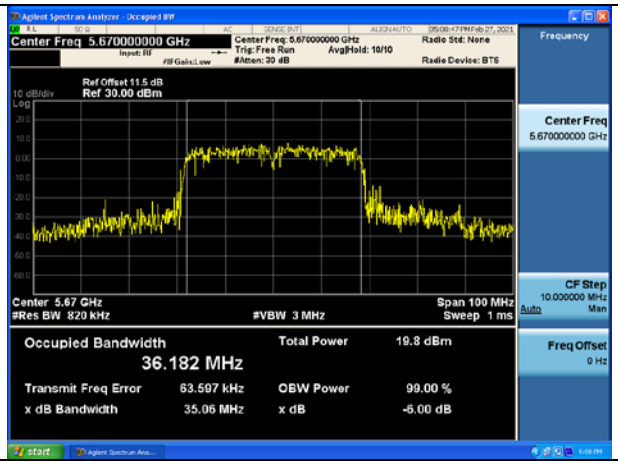
Test Mode:802. 11n HT40 Chain0



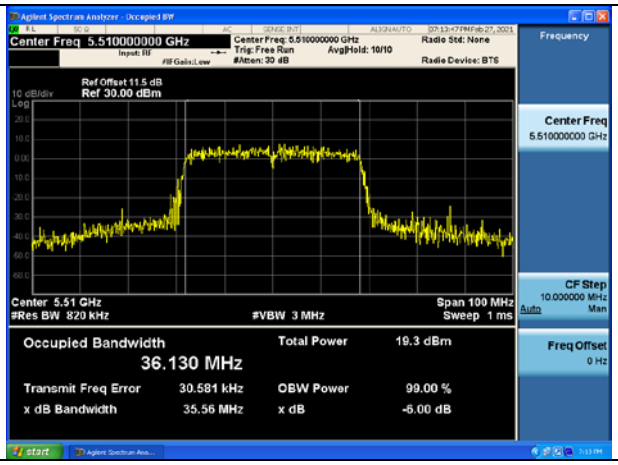

Test Mode:802. 11n HT40 Chain0



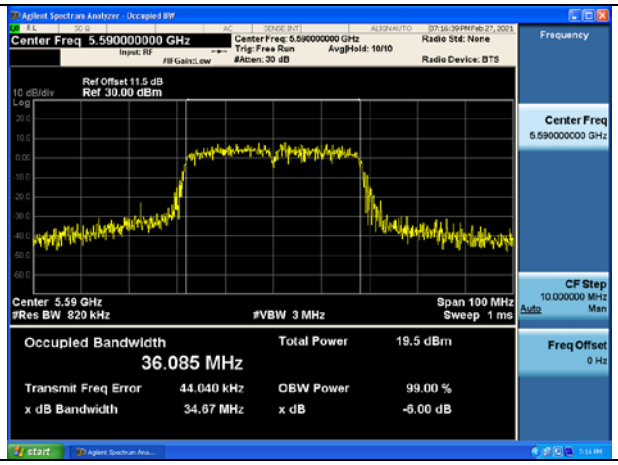

Test Mode:802. 11n HT40 Chain0



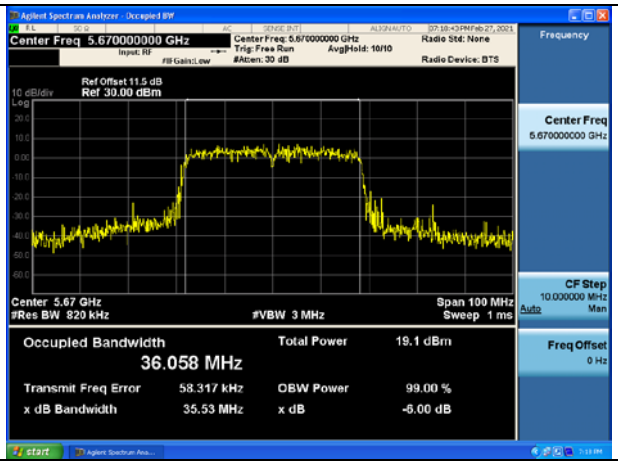

Test Mode:802. 11n HT40 Chain1




Test Mode:802. 11n HT40 Chain1



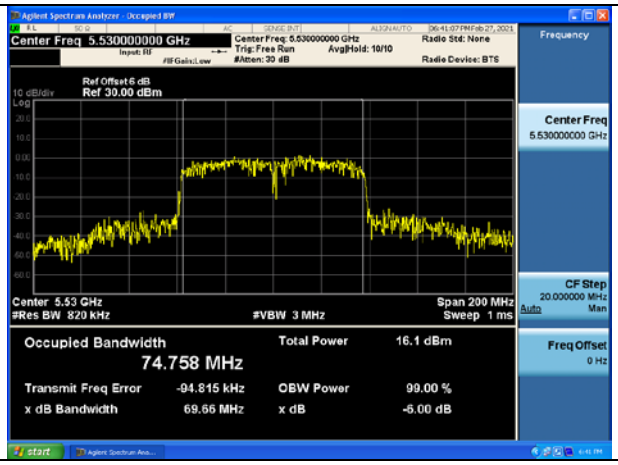

Test Mode:802. 11n HT40 Chain1



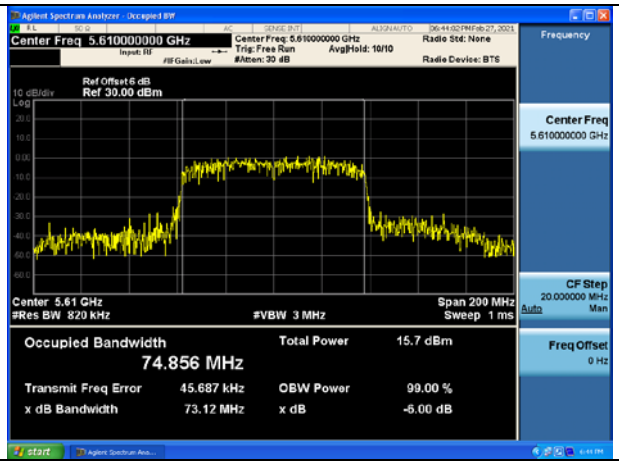
Test Mode:802. 11ac VHT80

| Carrier frequency (MHz) | Chain | Occupied Bandwidth (MHz) |
|---|---|---|
| 5530 | Chain0 | 74.758 |
| | Chain1 | 74.519 |
| 5610 | Chain0 | 74.856 |
| | Chain1 | 74.894 |

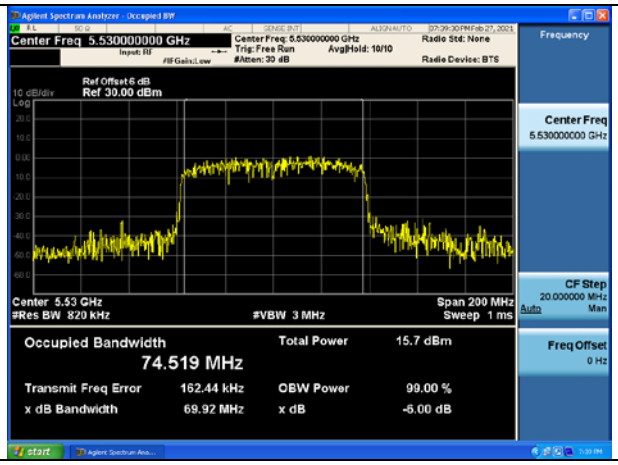
Test Mode:802. 11ac VHT80 Chain0



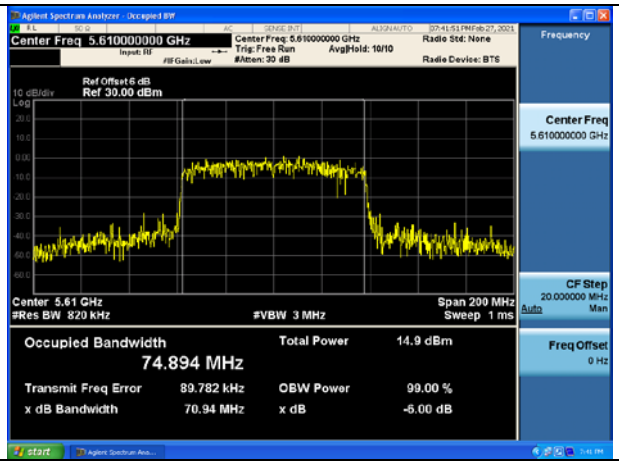

Test Mode:802. 11ac VHT80 Chain0




Test Mode:802. 11ac VHT80 Chain1




Test Mode:802. 11ac VHT80 Chain1



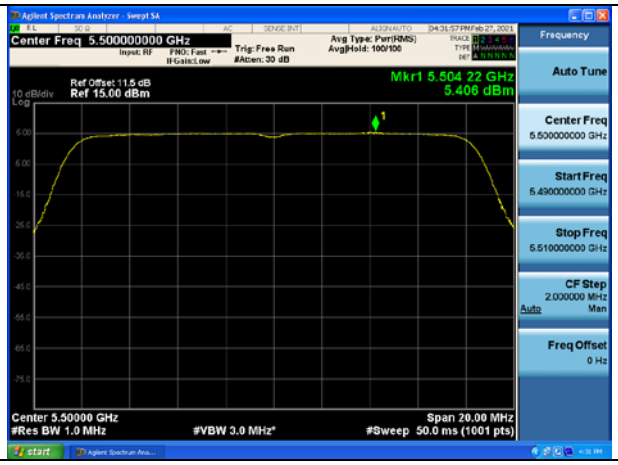
**Transmitter Power Spectral Density**

Offset 11.5dB =Attenuator 10dB+ Temporary antenna connector loss 0.5dB+ Cable loss 1dB

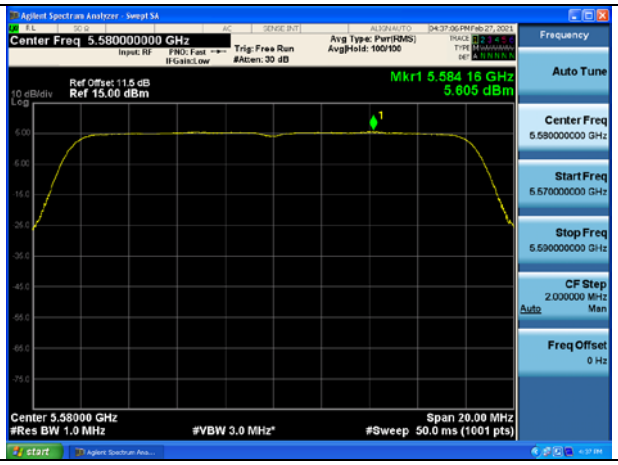
Test Mode:802.11a

| Carrier frequency (MHz) | Correction Factor(dB) | Chain | Power Density (dBm) |
|---|---|---|---|
| 5500 | 2.85 | Chain0 | 6.766 |
| | | Chain1 | 6.119 |
| 5580 | | Chain0 | 6.965 |
| | | Chain1 | 6.448 |
| 5700 | | Chain0 | 7.477 |
| | | Chain1 | 6.014 |

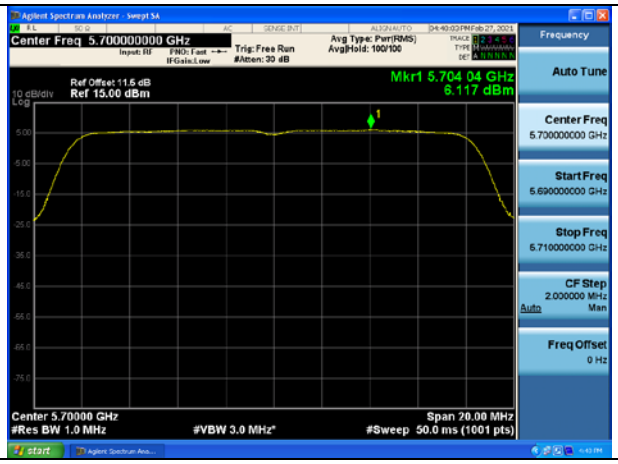
Test Mode:802.11a Chain0



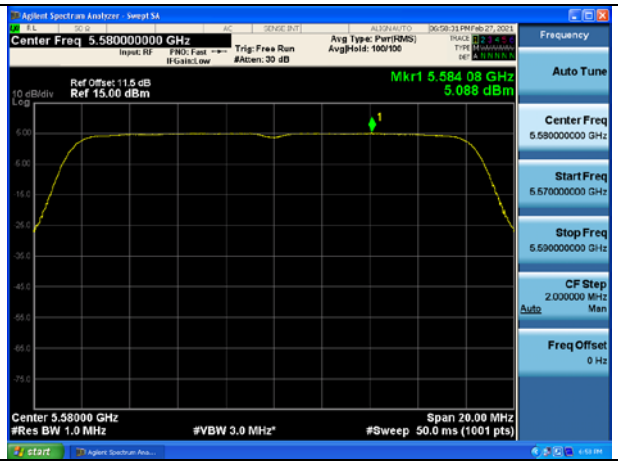

Test Mode:802.11a Chain0




Test Mode:802.11a Chain0




Test Mode:802.11a Chain1

| Test Mode:802.11a Chain1 | Test Mode:802.11a Chain1 |
|---|---|
|  | |

Test Mode:802. 11n HT20

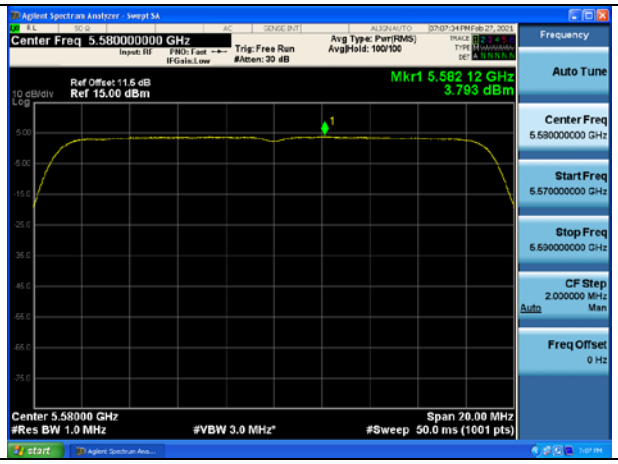
| Carrier frequency (MHz) | Correction Factor(dB) | Chain | Power Density (dBm) |
|---|---|---|---|
| 5500 | 1.44 | Chain0 | 5.343 |
| | | Chain1 | 4.970 |
| | | Chain0+Chain1 | 8.171 |
| 5580 | | Chain0 | 5.710 |
| | | Chain1 | 5.233 |
| | | Chain0+Chain1 | 8.488 |
| 5700 | | Chain0 | 6.201 |
| | | Chain1 | 4.939 |
| | | Chain0+Chain1 | 8.626 |

| Test Mode:802. 11n HT20 Chain0 | Test Mode:802. 11n HT20 Chain0 |
|---|---|
| | |

Test Mode:802. 11n HT20 Chain0

Test Mode:802. 11n HT20 Chain1

Test Mode:802. 11n HT20 Chain1



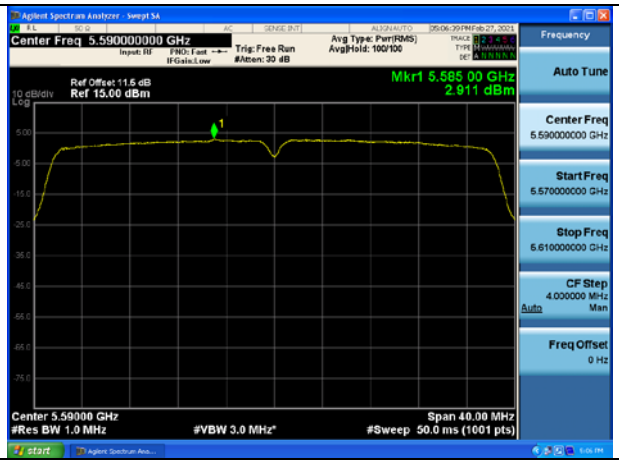

Test Mode:802. 11n HT20 Chain1

Test Mode:802. 11n HT40

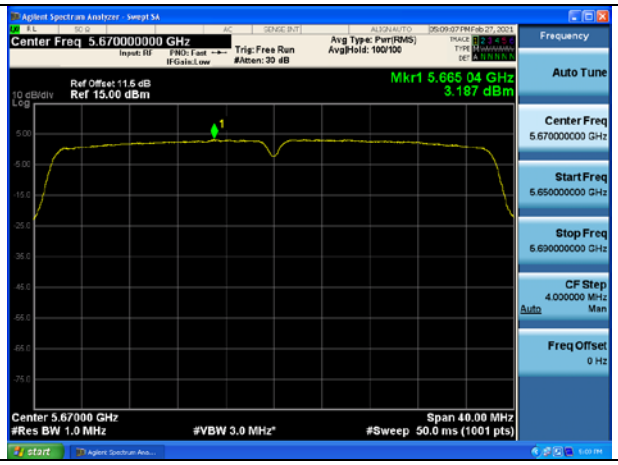
| Carrier frequency (MHz) | Correction Factor(dB) | Chain | Power Density (dBm) |
|---|---|---|---|
| 5510 | 1.81 | Chain0 | 4.873 |
| | | Chain1 | 3.937 |
| | | Chain0+Chain1 | 7.440 |
| 5590 | | Chain0 | 4.721 |
| | | Chain1 | 4.148 |
| | | Chain0+Chain1 | 7.454 |
| 5670 | | Chain0 | 4.997 |
| | | Chain1 | 3.923 |
| | | Chain0+Chain1 | 7.503 |

Test Mode:802. 11n HT40 Chain0

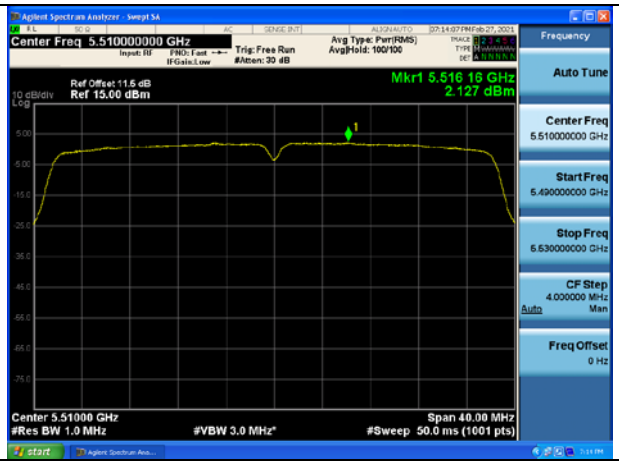
Test Mode:802. 11n HT40 Chain0



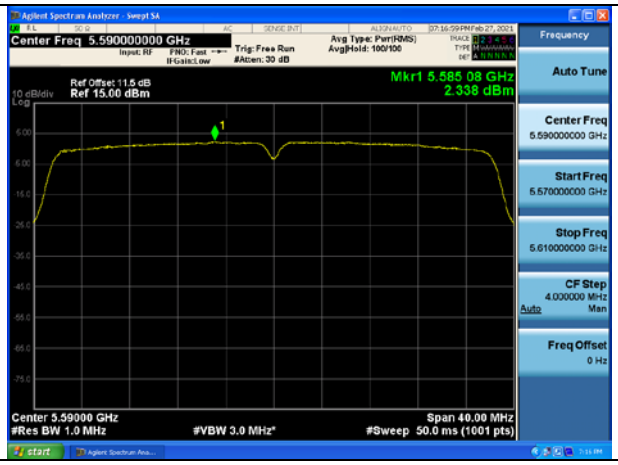

Test Mode:802. 11n HT40 Chain0




Test Mode:802. 11n HT40 Chain1




Test Mode:802. 11n HT40 Chain1

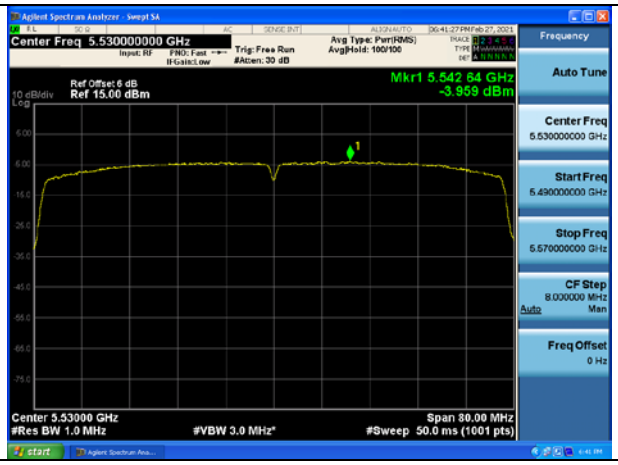



Test Mode:802. 11n HT40 Chain1

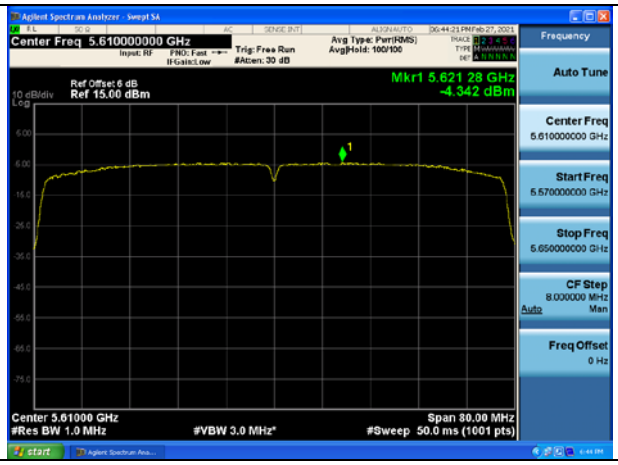
Test Mode:802. 11ac VHT80

| Carrier frequency (MHz) | Correction Factor(dB) | Chain | Power Density (dBm) |
|---|---|---|---|
| 5530 | 2.70 | Chain0 | -1.259 |
| | | Chain1 | -1.908 |
| | | Chain0+Chain1 | 1.439 |
| 5610 | | Chain0 | -1.642 |
| | | Chain1 | -2.195 |
| | | Chain0+Chain1 | 1.101 |

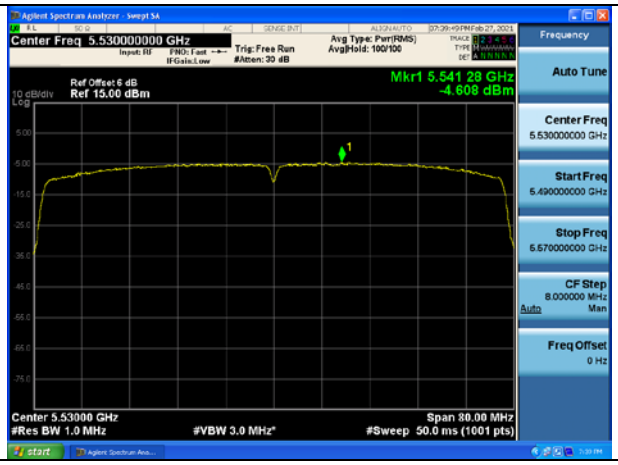
Test Mode:802. 11ac VHT80 Chain0



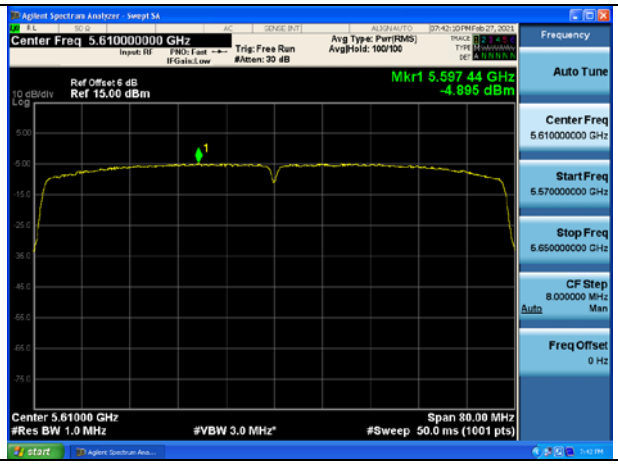

Test Mode:802. 11ac VHT80 Chain0




Test Mode:802. 11ac VHT80 Chain1




Test Mode:802. 11ac VHT80 Chain1



**Frequency Stability**

UNII-2C

| Mode | Data Rate | Chain | Center Frequency (MHz) | Measured Frequency (MHz) | Frequency Stability (ppm) | Voltage (V) | Temperature (°C) |
|---|---|---|---|---|---|---|---|
| 802.11a | 6Mbps | Chain0 | 5500 | 5500.03409 | 6.20 | NV | -10 |
| | | | 5500 | 5500.00231 | 0.42 | NV | 0 |
| | | | 5500 | 5499.99871 | -0.23 | NV | +10 |
| | | | 5500 | 5500.00019 | 0.03 | NV | +20 |
| | | | 5500 | 5499.97400 | -4.73 | HV | +20 |
| | | | 5500 | 5500.01991 | 3.62 | LV | +20 |
| | | | 5500 | 5499.96213 | -6.89 | NV | +30 |
| | | | 5500 | 5499.96655 | -6.08 | NV | +40 |
| | | | 5500 | 5500.05084 | 9.24 | NV | +50 |
| | | | 5500 | 5499.98768 | -2.24 | NV | +60 |
| | | | 5500 | 5499.94549 | -9.91 | NV | +70 |
| | | Chain1 | 5500 | 5500.01490 | 2.71 | NV | -10 |
| | | | 5500 | 5500.04258 | 7.74 | NV | 0 |
| | | | 5500 | 5500.00953 | 1.73 | NV | +10 |
| | | | 5500 | 5499.96437 | -6.48 | HV | +20 |
| | | | 5500 | 5500.05080 | 9.24 | LV | +20 |
| | | | 5500 | 5500.00572 | 1.04 | NV | +20 |
| | | | 5500 | 5500.03238 | 5.89 | NV | +30 |
| | | | 5500 | 5500.01416 | 2.58 | NV | +40 |
| | | | 5500 | 5500.05076 | 9.23 | NV | +50 |
| | | | 5500 | 5500.01758 | 3.20 | NV | +60 |
| | | | 5500 | 5499.97336 | -4.84 | NV | +70 |

## Dynamic Frequency Selection

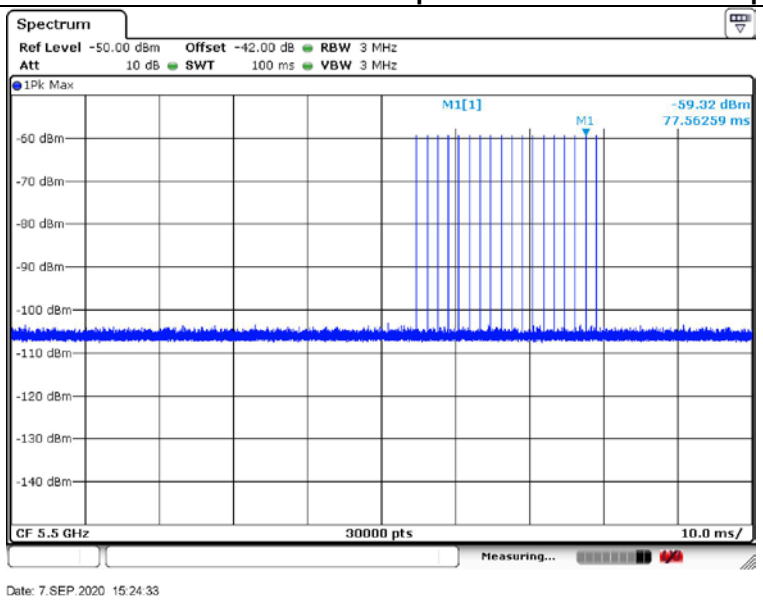
### DESCRIPTION OF Master Device

The Master Device is a SKSpruce Technologies Co., Ltd., Indoor Access Point, FCC ID: 2AHKT-WIA3300-20. The rated output power of the Master unit is > 23dBm (EIRP). Therefore the required interference threshold level is –60 dBm.

### Radar Waveform Calibration Result

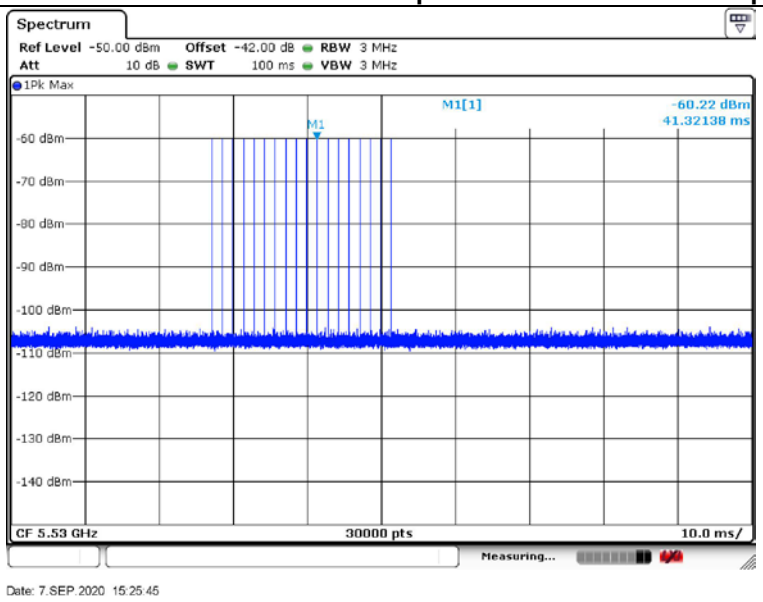
**<20MHz / 5500 MHz> Radar Type 0**

**Radar / DFS detection threshold level and the burst of pulses on the Channel frequency**

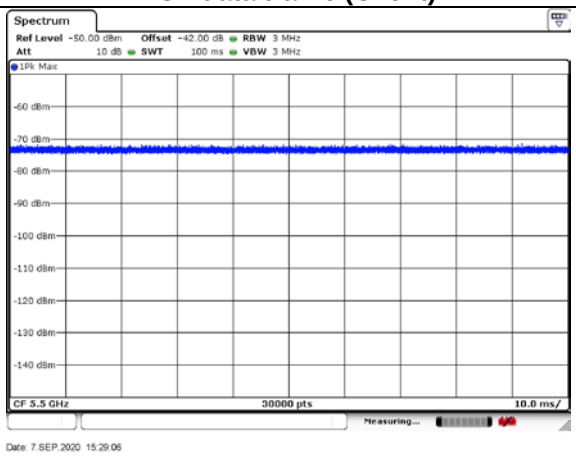
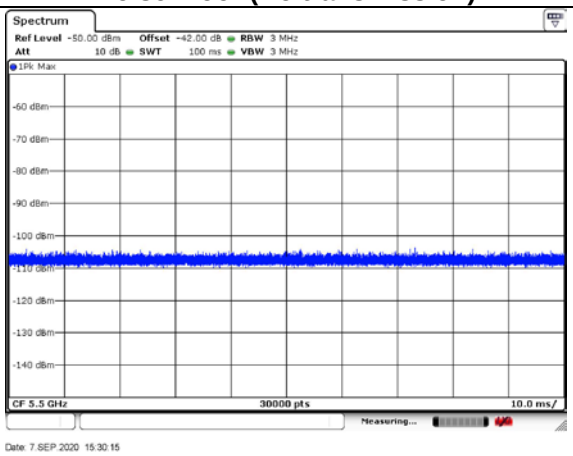
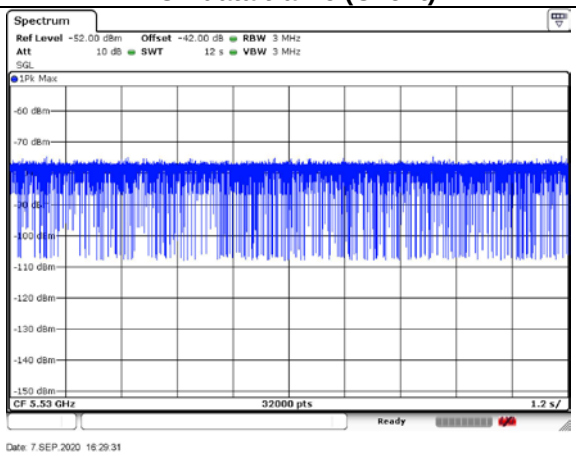
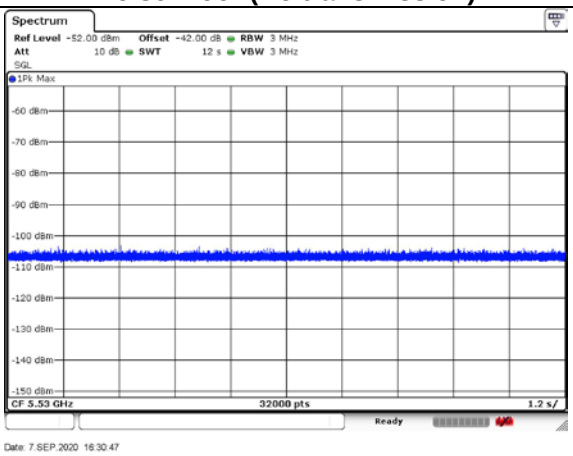



**<80MHz / 5530 MHz> Radar Type 0**

**Radar / DFS detection threshold level and the burst of pulses on the Channel frequency**



## Data Traffic and Noise Floor Plots

| <20MHz / 5500 MHz><br>EUT data traffic (Client) | <20MHz / 5500 MHz><br>Noise Floor (No transmission) |
|---|---|
|  |  |
| **<80MHz / 5530 MHz><br>EUT data traffic (Client)** | **<80MHz / 5530 MHz><br>Noise Floor (No transmission)** |
|  |  |

**Channel Move Time, Channel Closing Transmission Time and Non-Occupancy Period for Client Beacon Test**

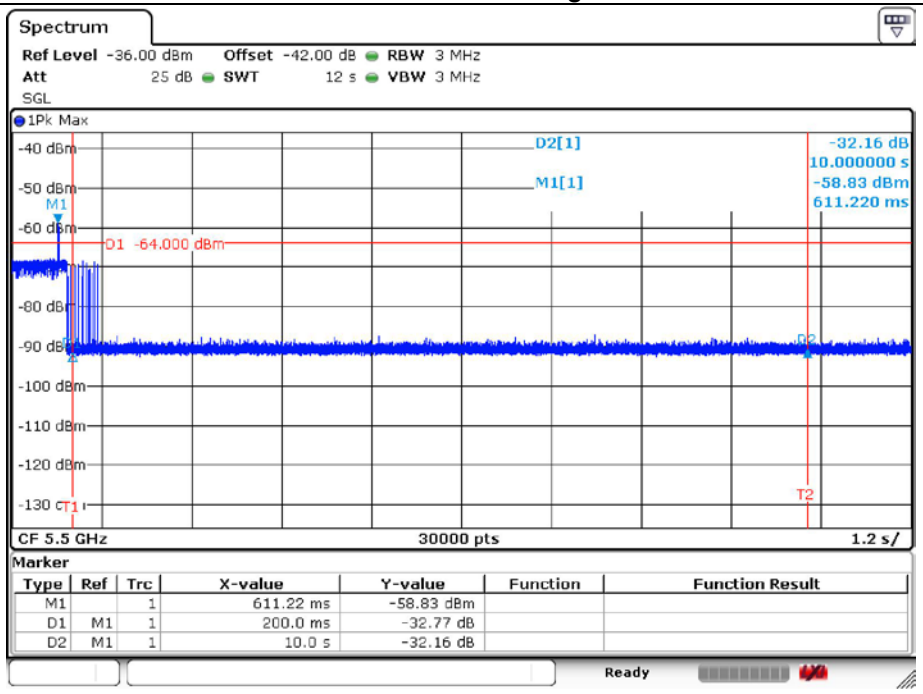
| Frequency | Test Item | Test Result | Limit | Pass/Fail |
|---|---|---|---|---|
| 5500MHz | Channel Move Time | ＜ 10s* | ＜ 10s | Pass |
| | Channel Closing Transmission Time | 200ms +4ms | ＜ 260ms | Pass |
| | Non-Occupancy Period | ≥ 30 | ≥ 30 min | Pass |
| 5530MHz | Channel Move Time | ＜ 10s* | ＜ 10s | Pass |
| | Channel Closing Transmission Time | 200ms +2.4ms | ＜ 260ms | Pass |
| | Non-Occupancy Period | ≥ 30 | ≥ 30 min | Pass |

Note*: We notice clearly that “Channel Move Time” is less than 10s from the figure.
The Channel Closing Transmission Time is comprised of 200 milliseconds starting at the beginning of the Channel Move Time plus any additional intermittent control signals required to facilitate a Channel move (an aggregate of 60 milliseconds) during the remainder of the 10 seconds period. The aggregate duration of control signals will not count quiet periods in between transmissions.

# Channel Move Time, Channel Closing Transmission Time and Non-Occupancy Period for Client Beacon Test Plots

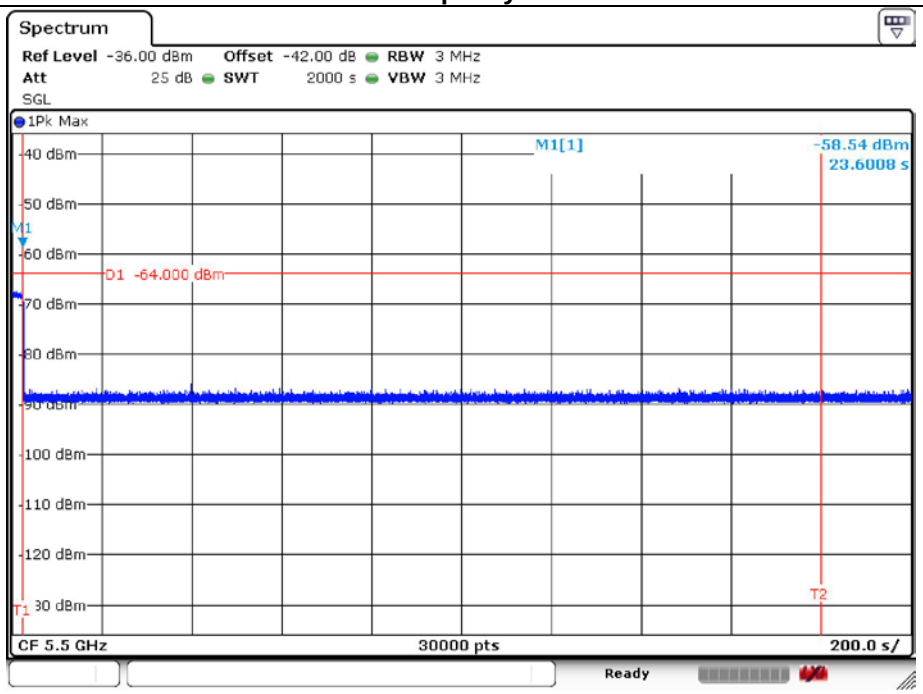
**<20MHz / 5500 MHz>**

**Channel Move Time & Channel Closing Transmission Time**




Date: 7.SEP.2020 15:40:39

**Non-Occupancy Period**

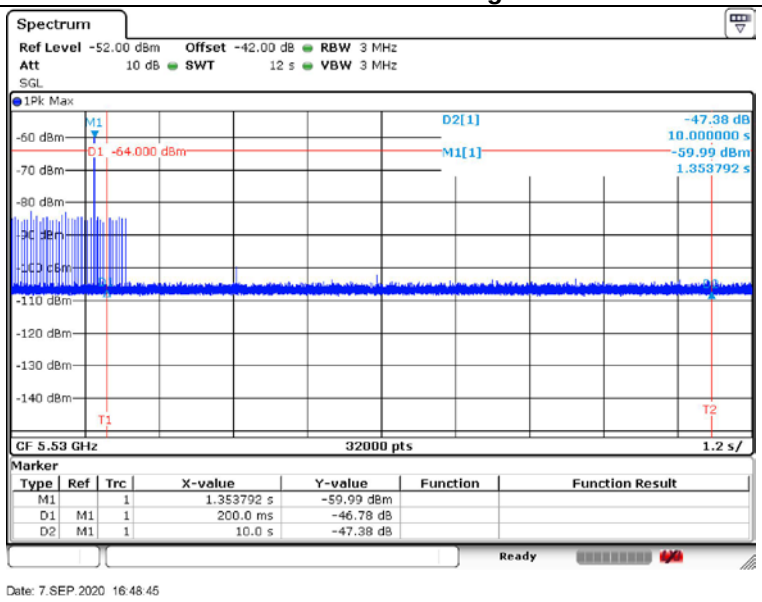



Date: 7.SEP.2020 16:19:49

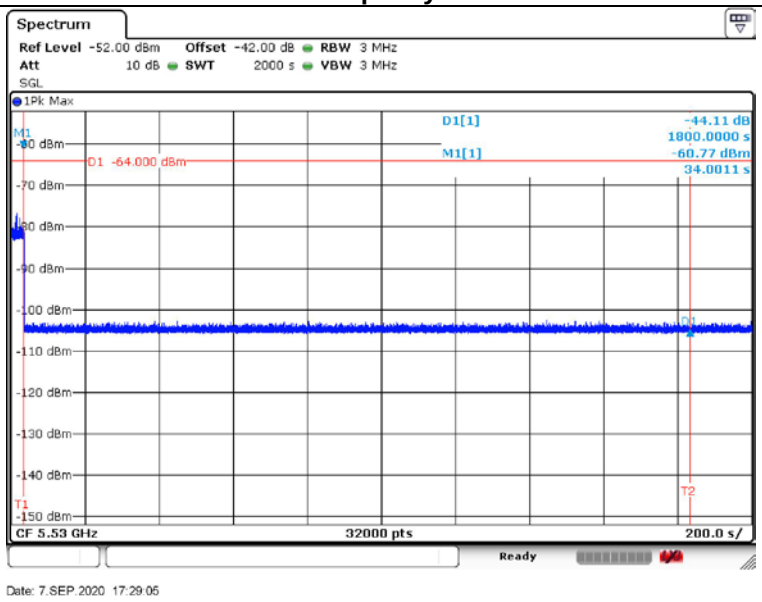
**Note:**
Dwell (0.4 ms)= Sweep Time (12000 ms) / Sweep Point Bins (30000)
Channel Closing Transmission Time (200 + 4 ms) = 200 + Number of beacon after 200ms(10) X Dwell (0.4 ms) < 260ms

**<80MHz / 5530MHz>**

**Channel Move Time & Channel Closing Transmission Time**




**Non-Occupancy Period**




**Note:**

Dwell (0.4 ms)= Sweep Time (12000 ms) / Sweep Point Bins (30000)

Channel Closing Transmission Time (200 + 2.4 ms) = 200 + Number of beacon after 200ms(6) X Dwell (0.4 ms) < 260ms