

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

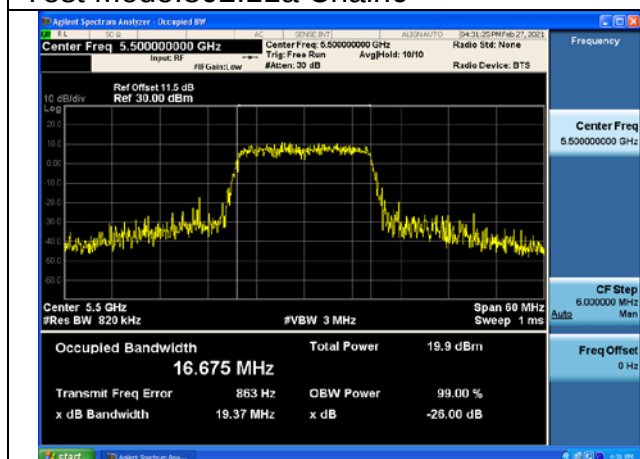
802.11ac40M	5510	Chain0	14.20
		Chain1	13.50
		Chain0+Chain1	16.87
	5590	Chain0	14.10
		Chain1	13.40
		Chain0+Chain1	16.77
	5670	Chain0	14.50
		Chain1	13.20
		Chain0+Chain1	16.91
802.11ac80M	5530	Chain0	13.70
		Chain1	13.00
		Chain0+Chain1	16.37
	5610	Chain0	13.40
		Chain1	13.80
		Chain0+Chain1	16.61

Emission Bandwidth

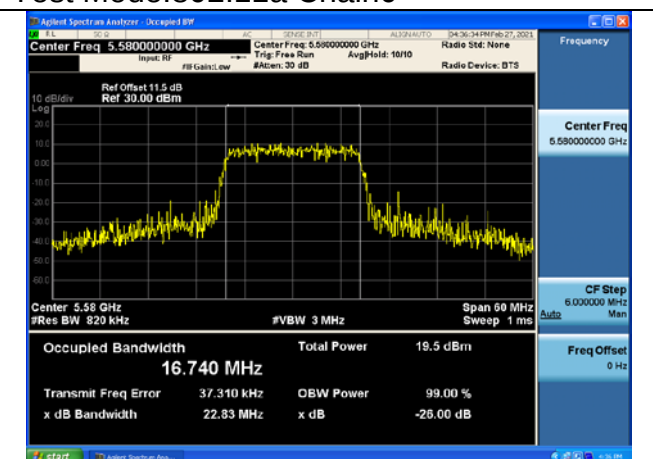
Offset 11.5dB =Attenuator 10dB+ Temporary antenna connector loss 0.5dB+ Cable loss 1dB
Test Mode:802.11a

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

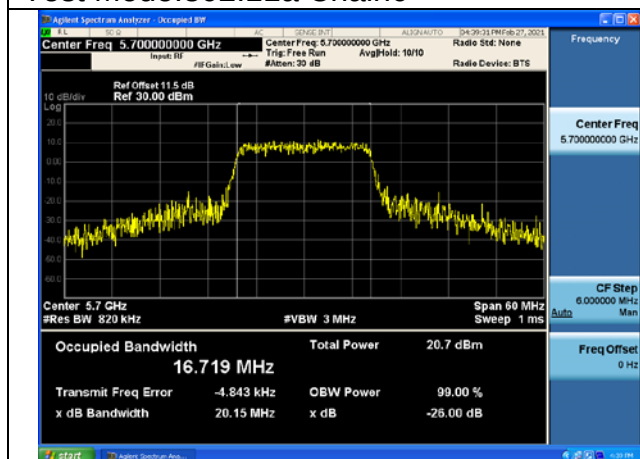
Test Mode:802.11a Chain0



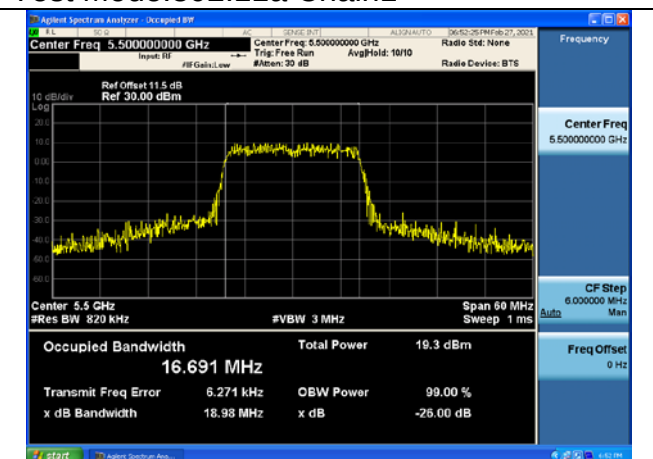
Test Mode:802.11a Chain0



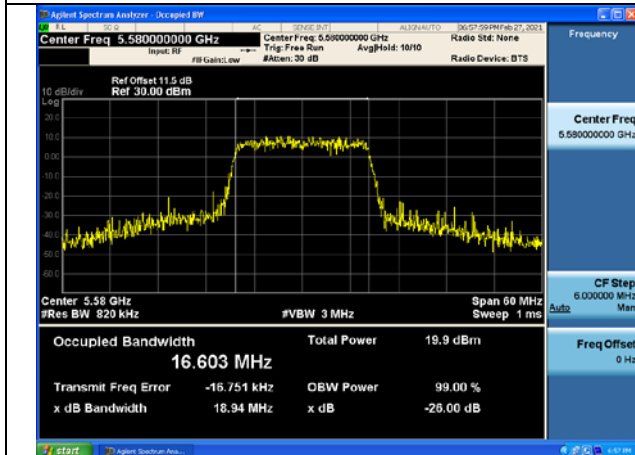
Test Mode:802.11a Chain0



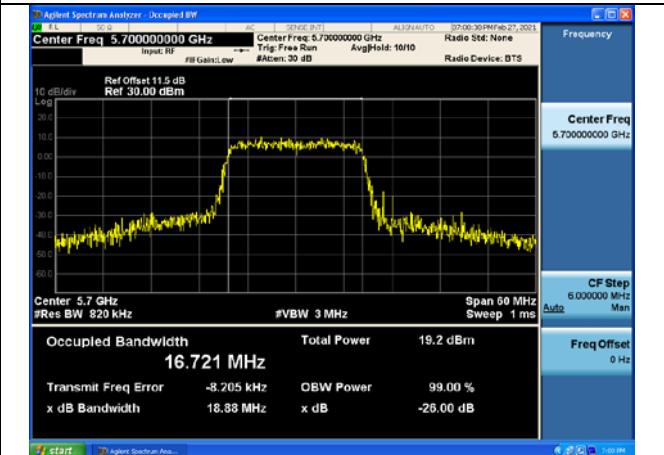
Test Mode:802.11a Chain1



Test Mode:802.11a Chain1



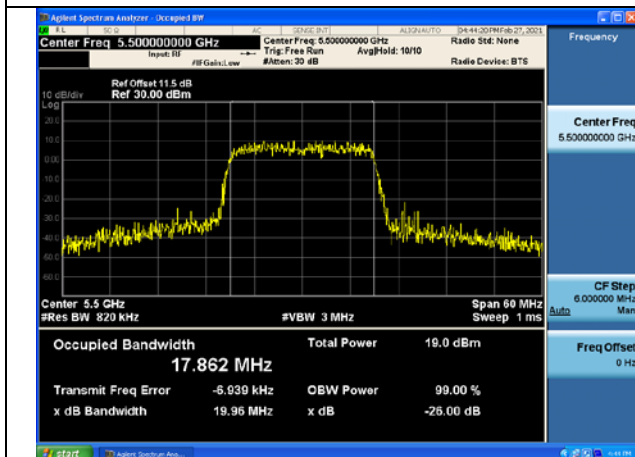
Test Mode:802.11a Chain1



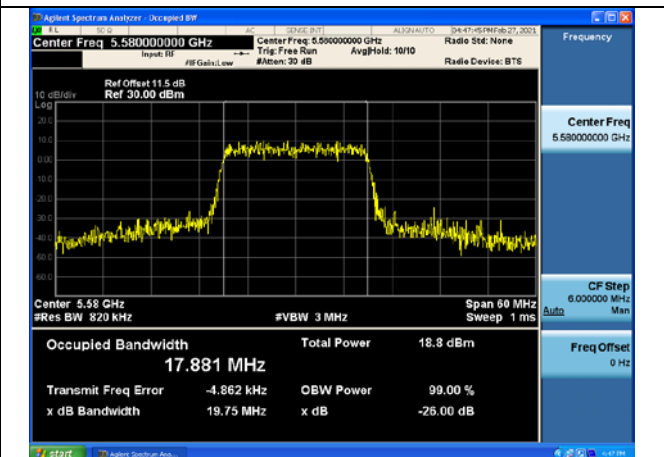
Test Mode:802.11n HT20

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

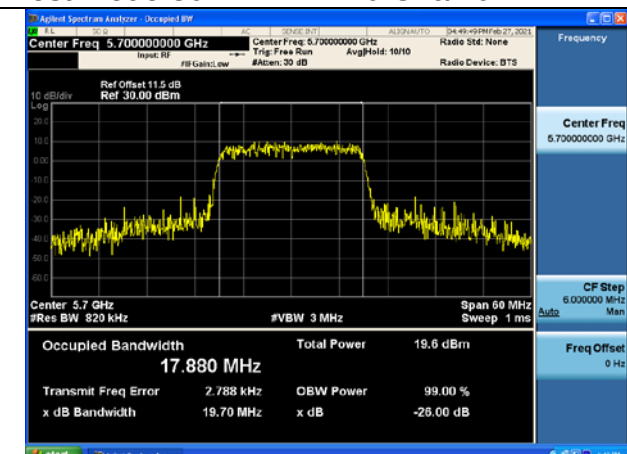
Test Mode:802.11n HT20 Chain0



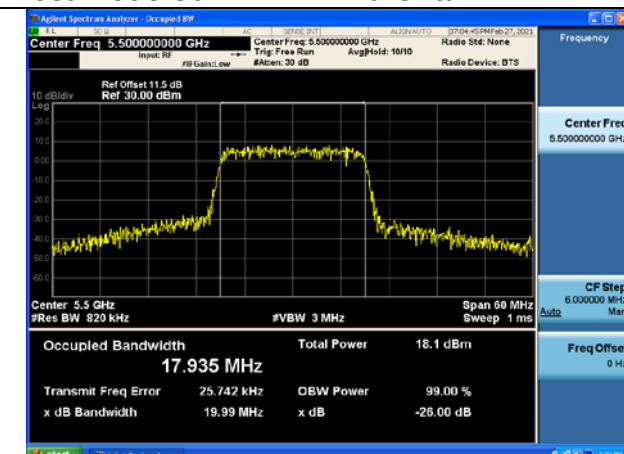
Test Mode:802.11n HT20 Chain0



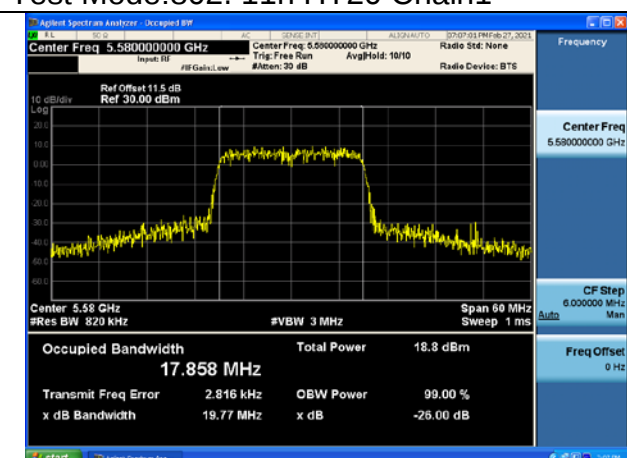
Test Mode:802. 11n HT20 Chain0



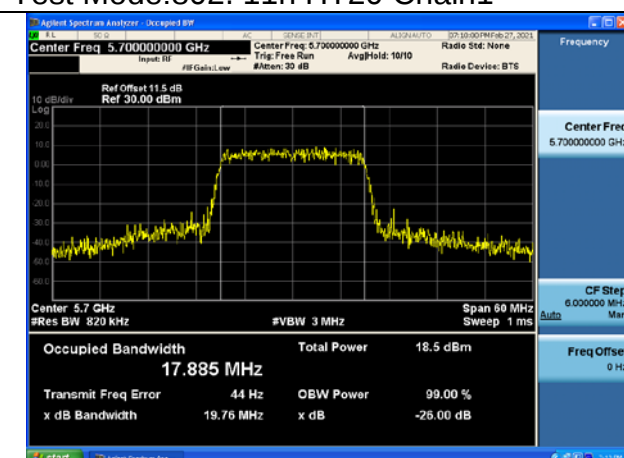
Test Mode:802. 11n HT20 Chain1



Test Mode:802. 11n HT20 Chain1



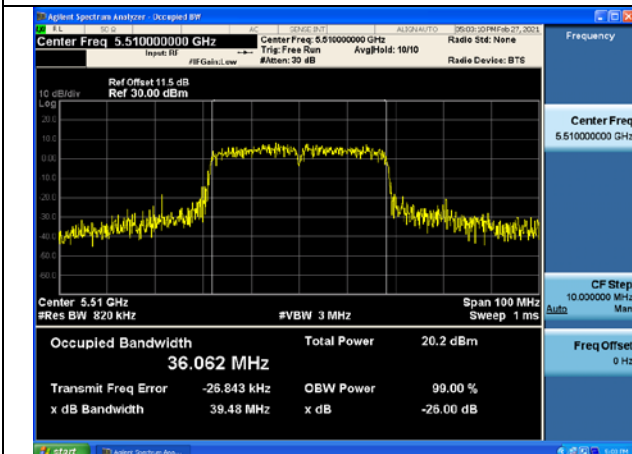
Test Mode:802. 11n HT20 Chain1



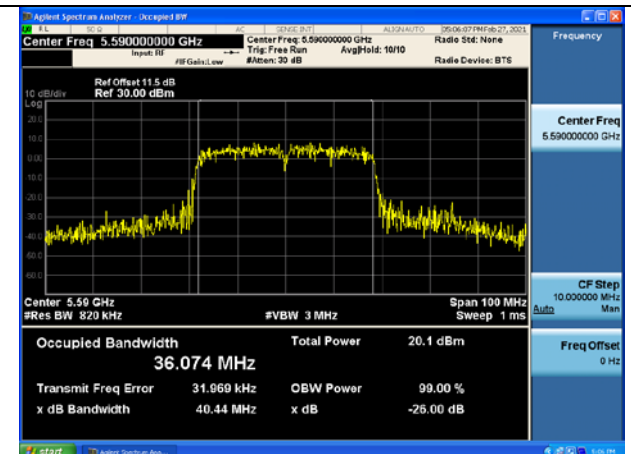
Test Mode:802. 11n HT40

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

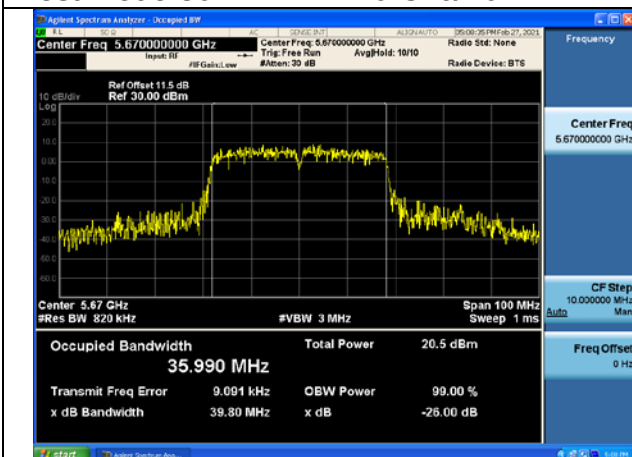
Test Mode:802. 11n HT40 Chain0



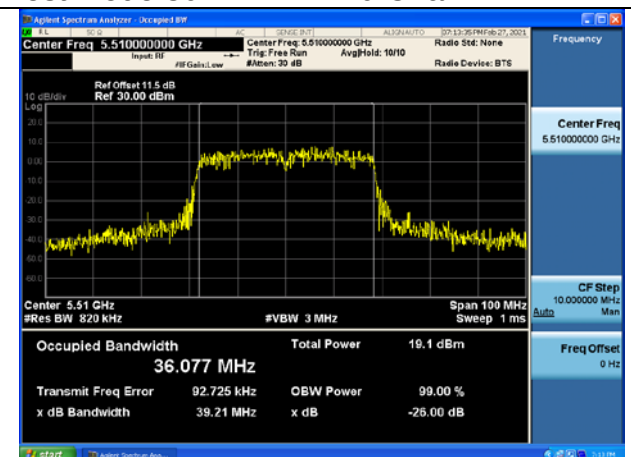
Test Mode:802. 11n HT40 Chain0



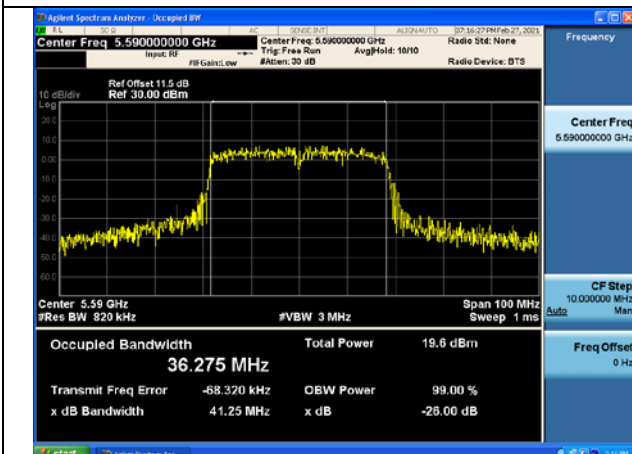
Test Mode:802. 11n HT40 Chain0



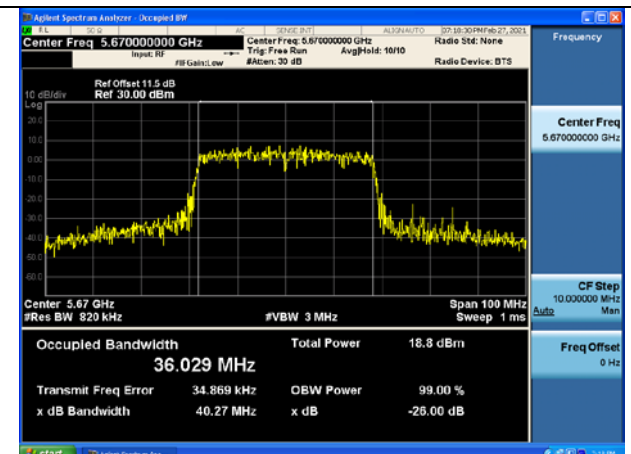
Test Mode:802. 11n HT40 Chain1



Test Mode:802. 11n HT40 Chain1



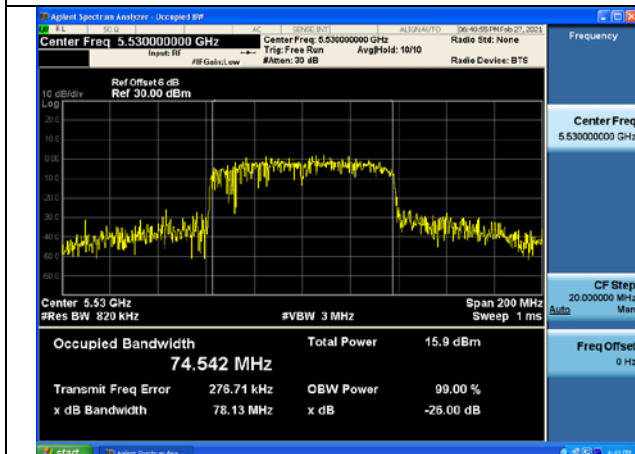
Test Mode:802. 11n HT40 Chain1



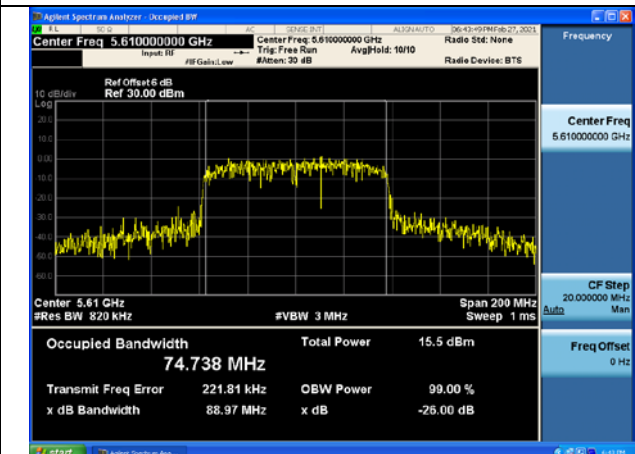
Test Mode:802. 11ac VHT80

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

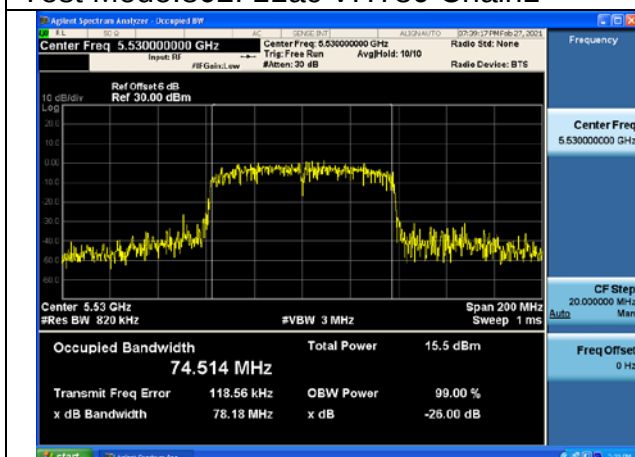
Test Mode:802. 11ac VHT80 Chain0



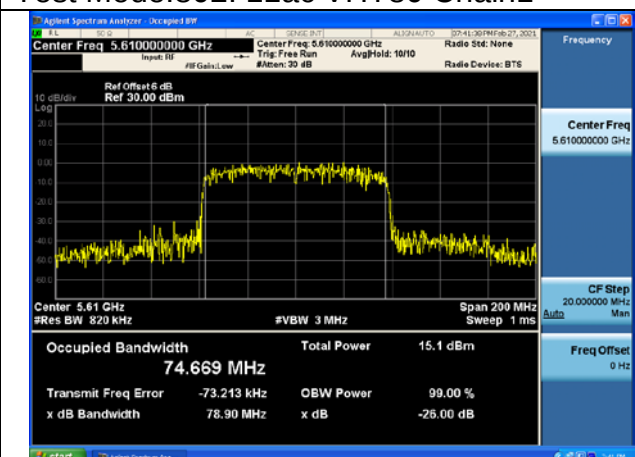
Test Mode:802. 11ac VHT80 Chain0



Test Mode:802. 11ac VHT80 Chain1



Test Mode:802. 11ac VHT80 Chain1



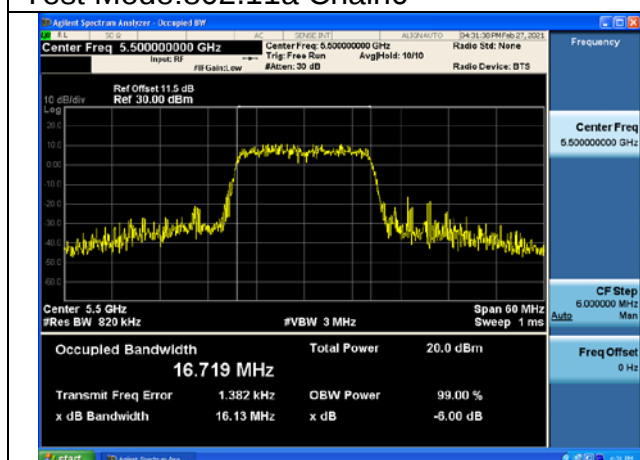
Occupied Bandwidth

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

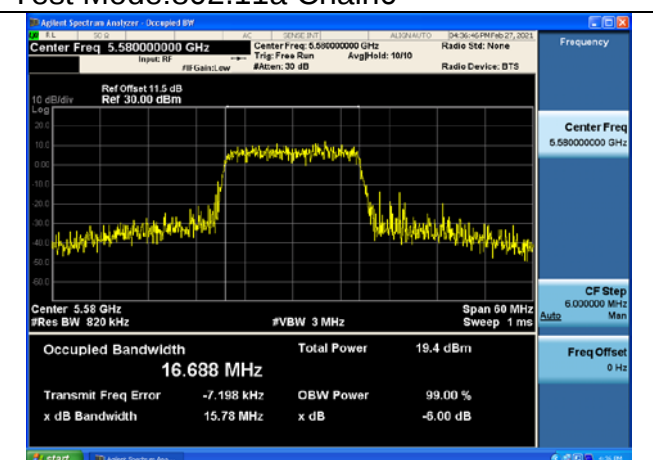
Test Mode:802.11a

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

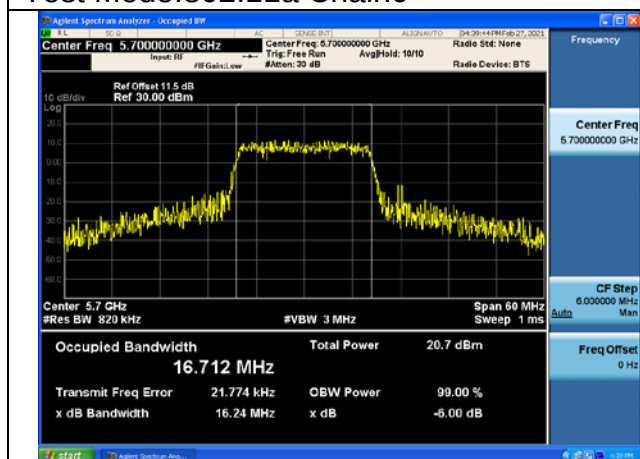
Test Mode:802.11a Chain0



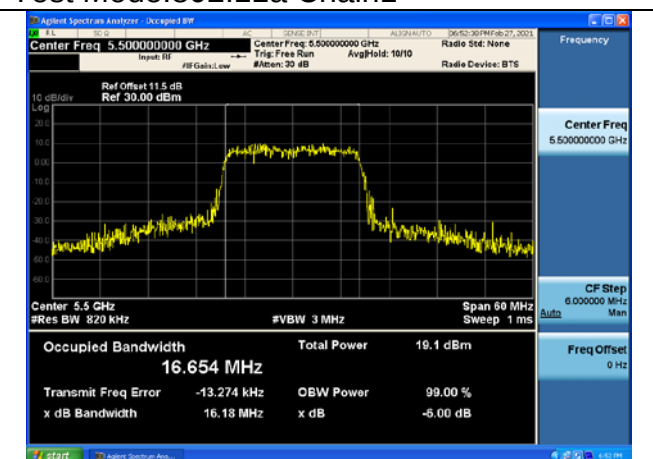
Test Mode:802.11a Chain0



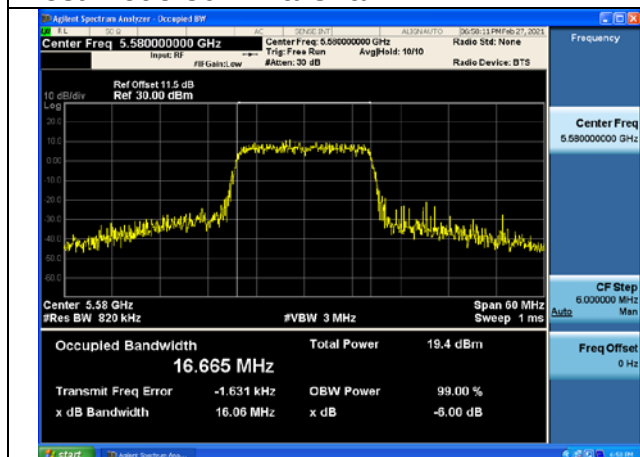
Test Mode:802.11a Chain0



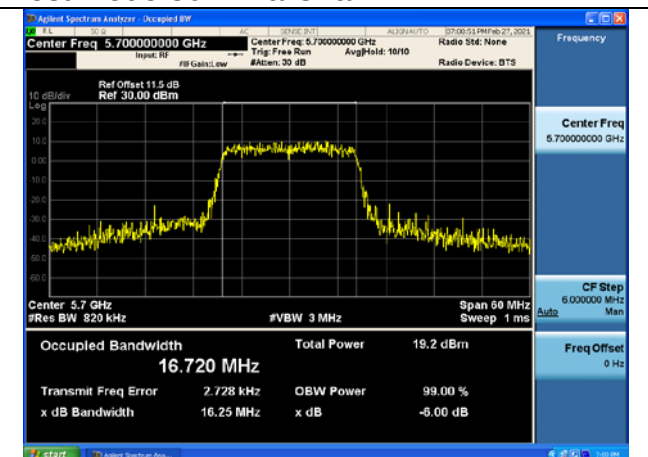
Test Mode:802.11a Chain1



Test Mode:802.11a Chain1



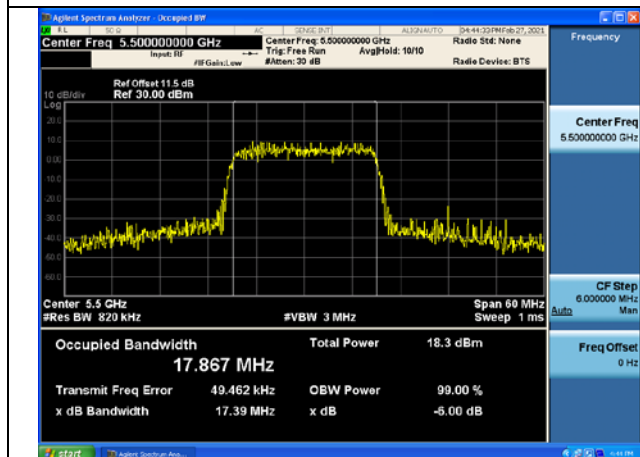
Test Mode:802.11a Chain1



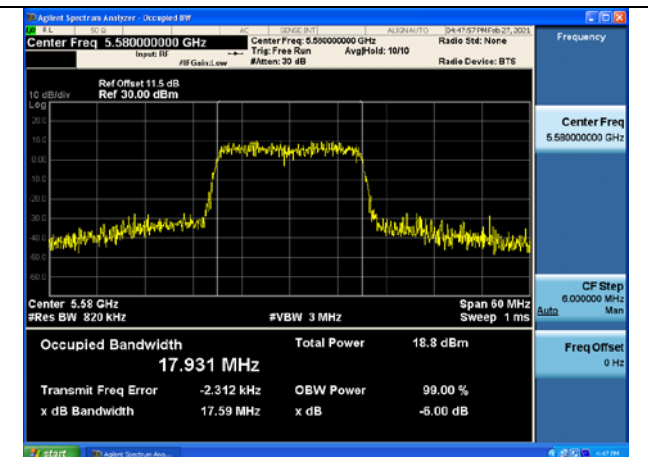
Test Mode:802.11n HT20

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

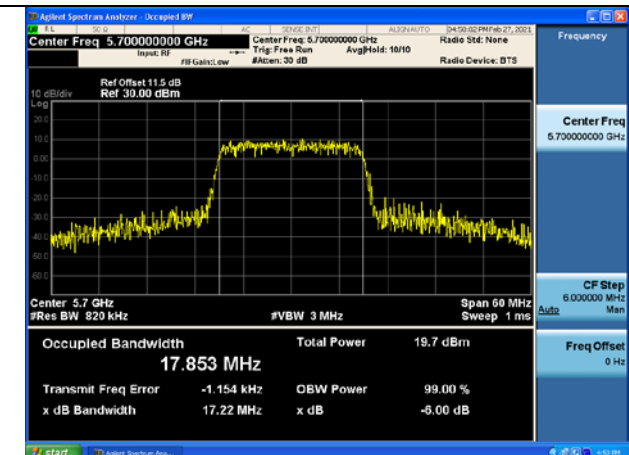
Test Mode:802.11n HT20 Chain0



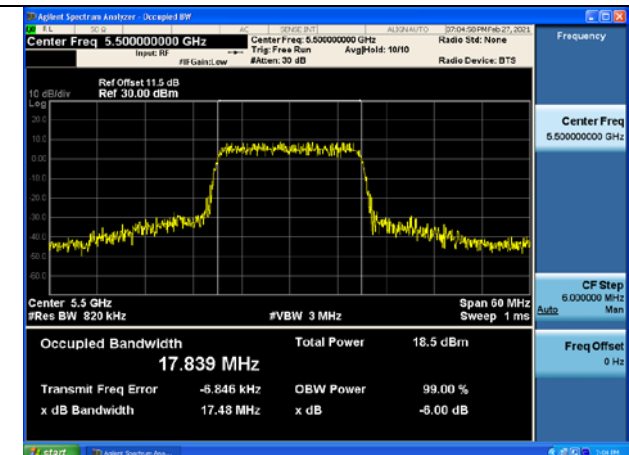
Test Mode:802.11n HT20 Chain0



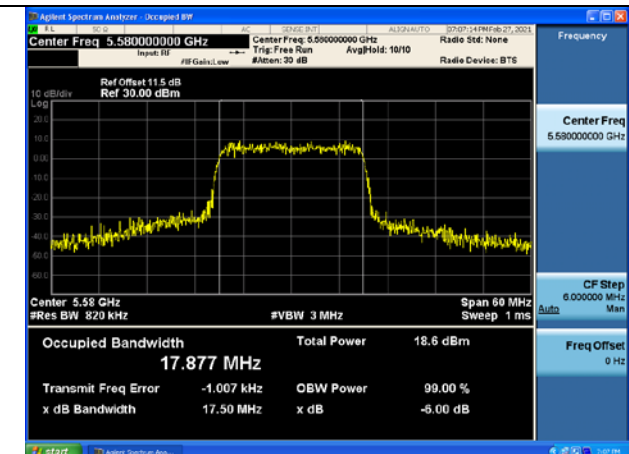
Test Mode:802. 11n HT20 Chain0



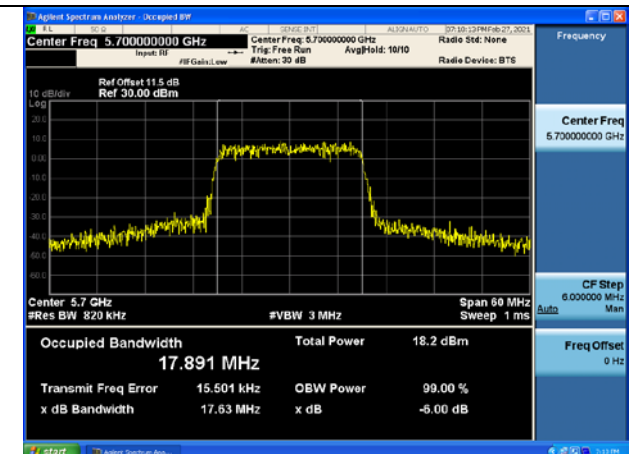
Test Mode:802. 11n HT20 Chain1



Test Mode:802. 11n HT20 Chain1



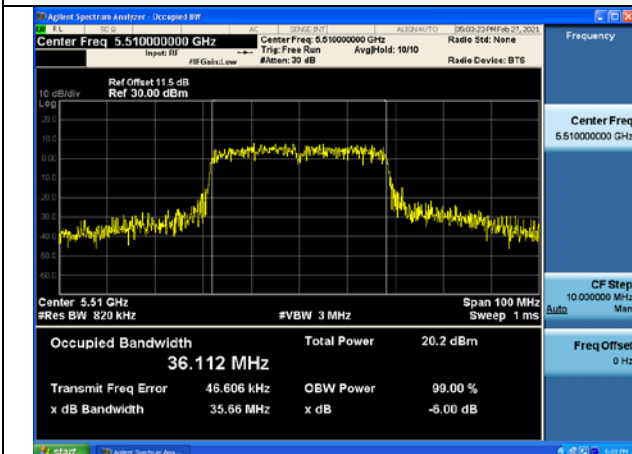
Test Mode:802. 11n HT20 Chain1



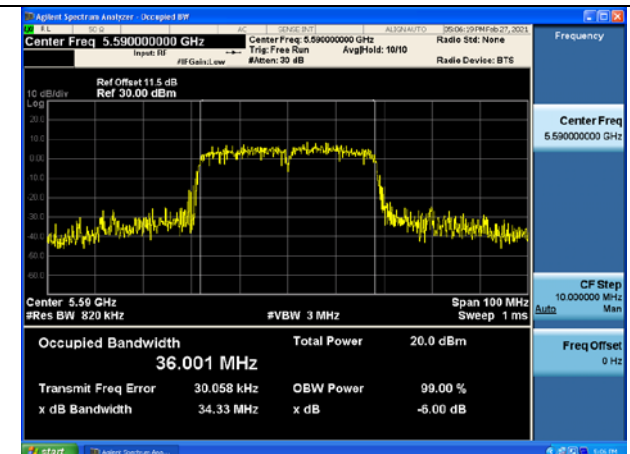
Test Mode:802. 11n HT40

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

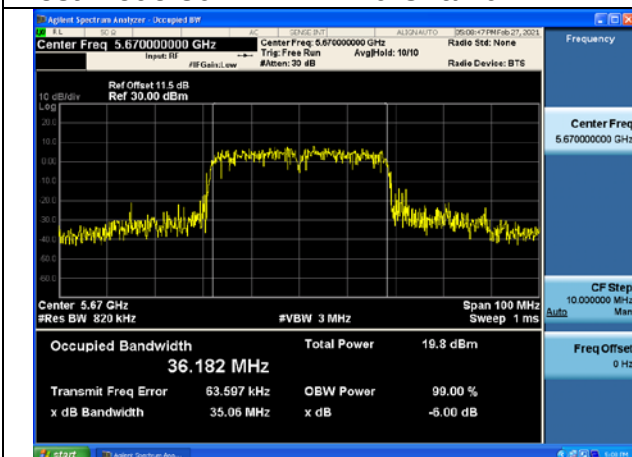
Test Mode:802. 11n HT40 Chain0



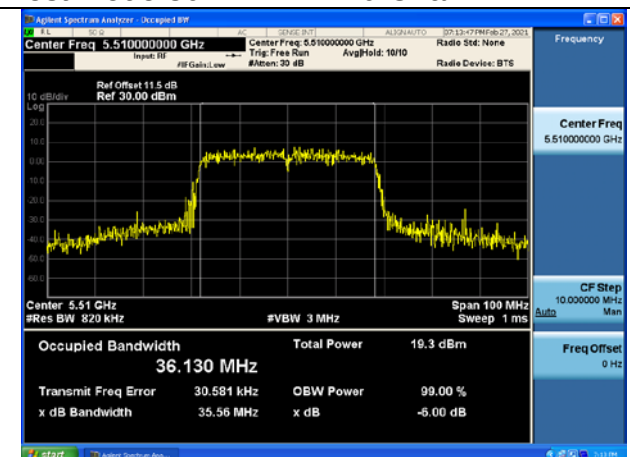
Test Mode:802. 11n HT40 Chain0



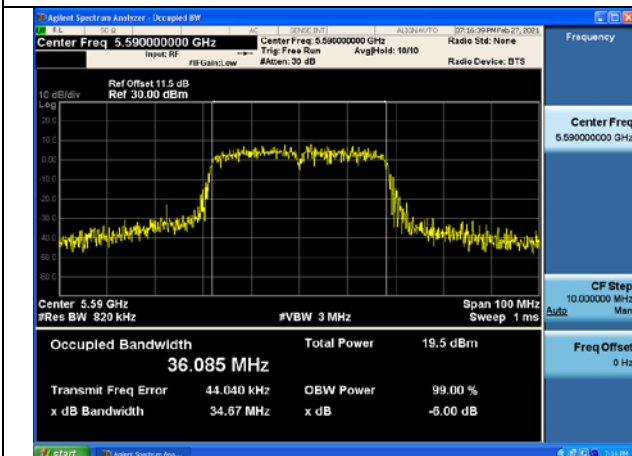
Test Mode:802. 11n HT40 Chain0



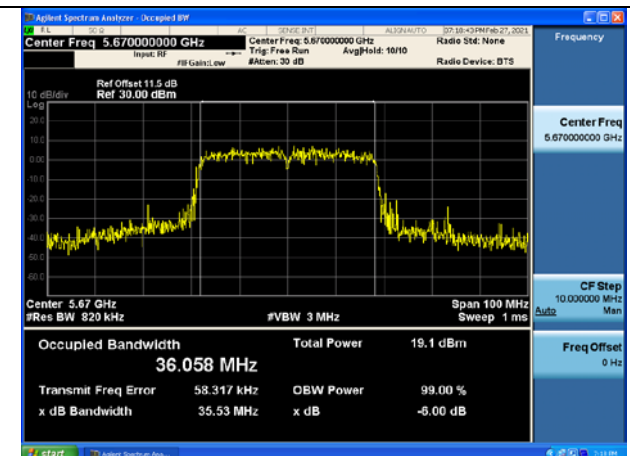
Test Mode:802. 11n HT40 Chain1



Test Mode:802. 11n HT40 Chain1



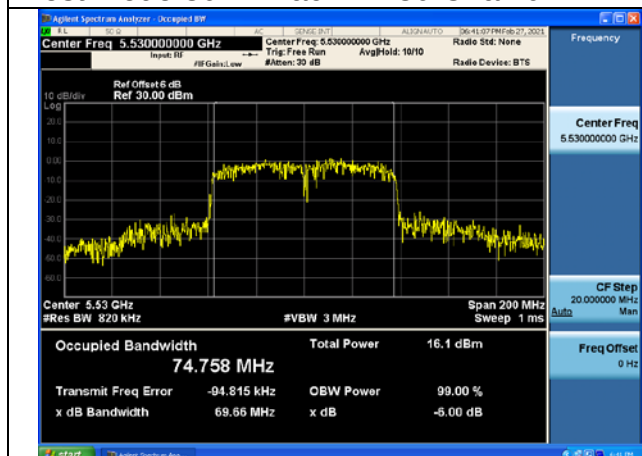
Test Mode:802. 11n HT40 Chain1



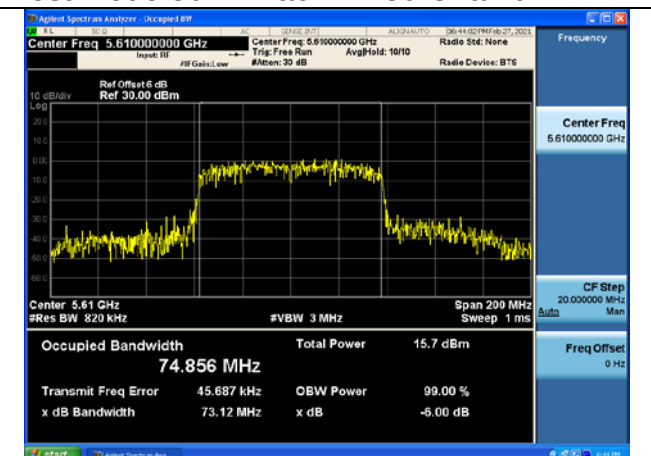
Test Mode:802. 11ac VHT80

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

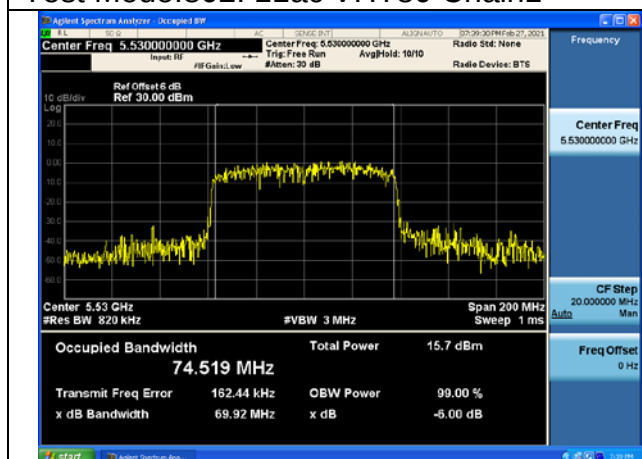
Test Mode:802. 11ac VHT80 Chain0



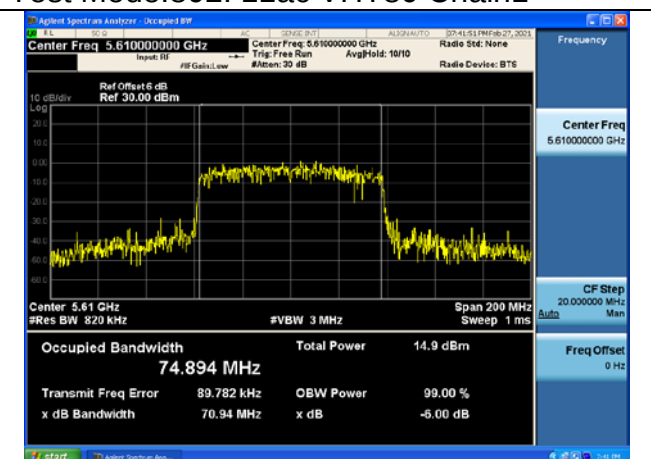
Test Mode:802. 11ac VHT80 Chain0



Test Mode:802. 11ac VHT80 Chain1



Test Mode:802. 11ac VHT80 Chain1



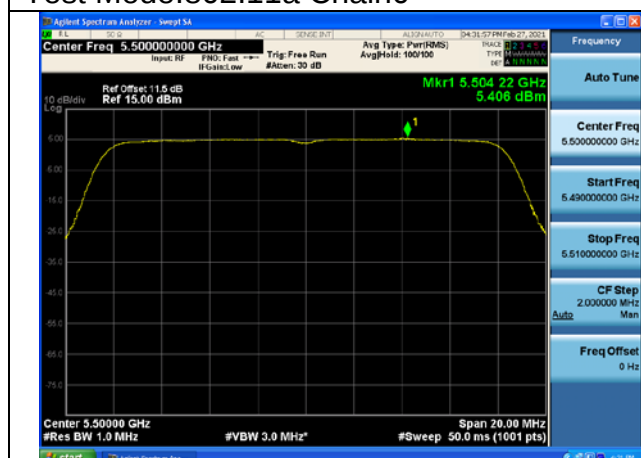
Transmitter Power Spectral Density

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

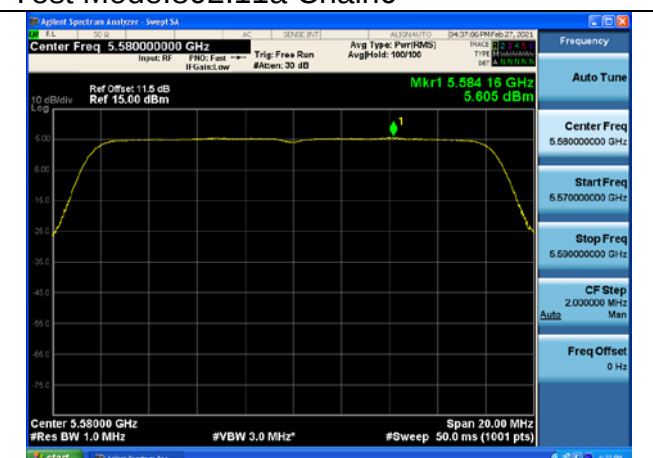
Test Mode:802.11a

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

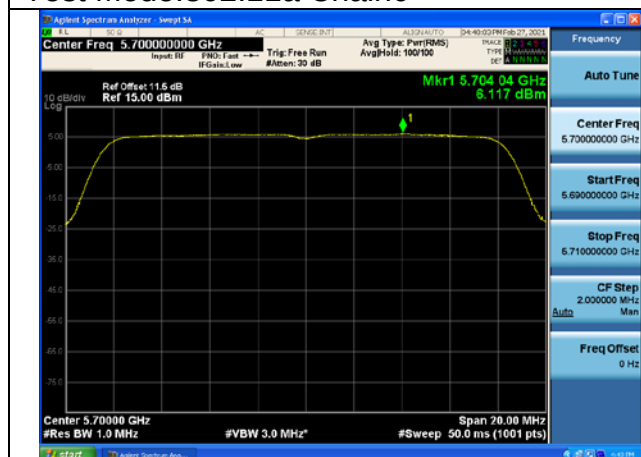
Test Mode:802.11a Chain0



Test Mode:802.11a Chain0



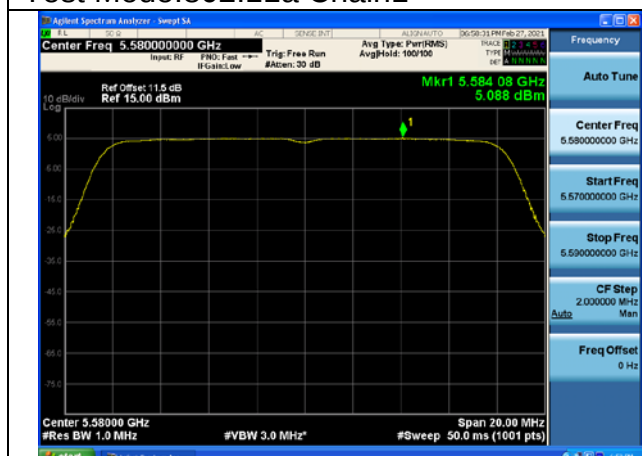
Test Mode:802.11a Chain0



Test Mode:802.11a Chain1



Test Mode:802.11a Chain1



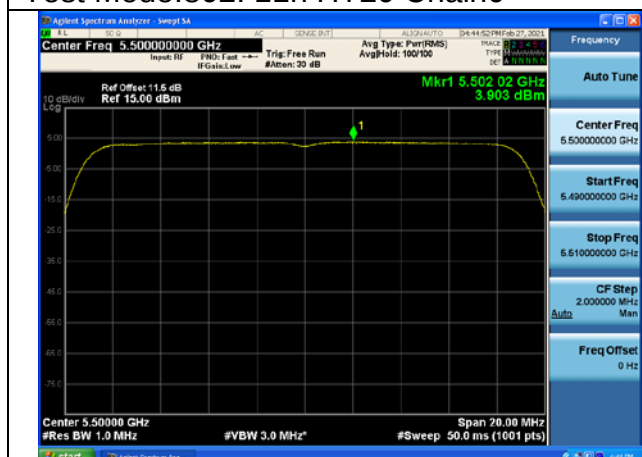
Test Mode:802.11a Chain1



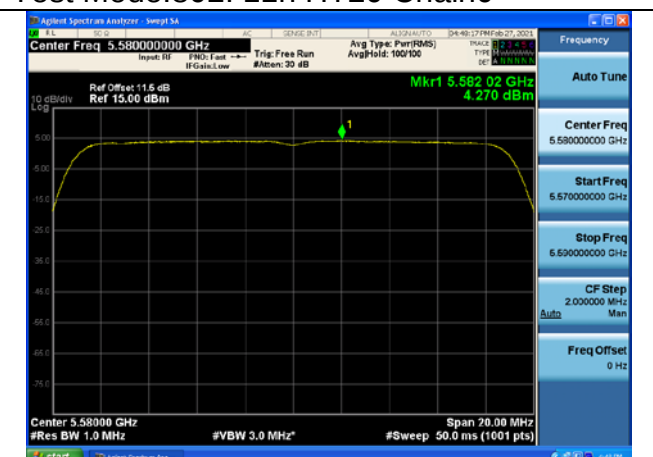
Test Mode:802. 11n HT20

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

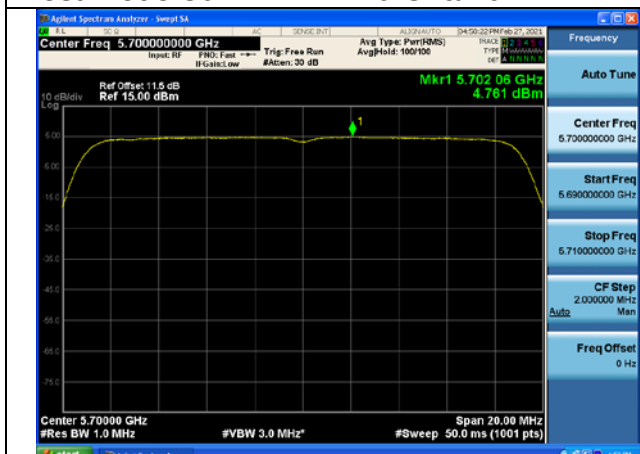
Test Mode:802. 11n HT20 Chain0



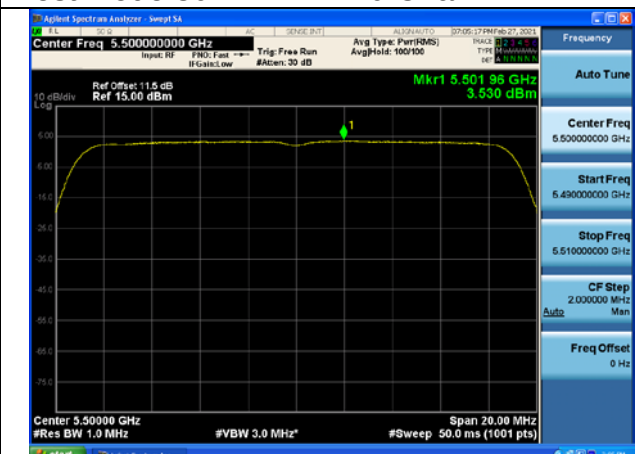
Test Mode:802. 11n HT20 Chain0



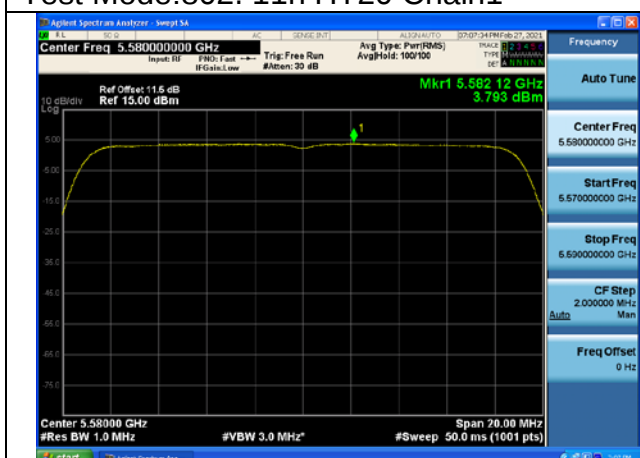
Test Mode:802. 11n HT20 Chain0



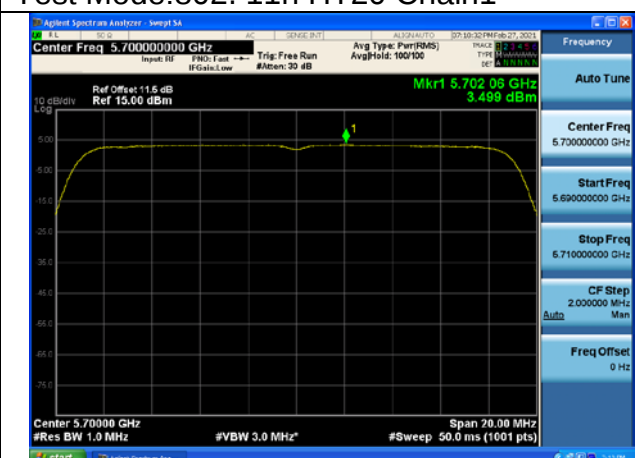
Test Mode:802. 11n HT20 Chain1



Test Mode:802. 11n HT20 Chain1



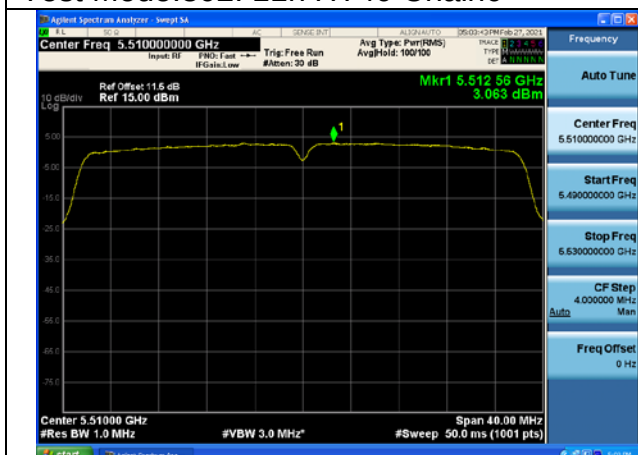
Test Mode:802. 11n HT20 Chain1



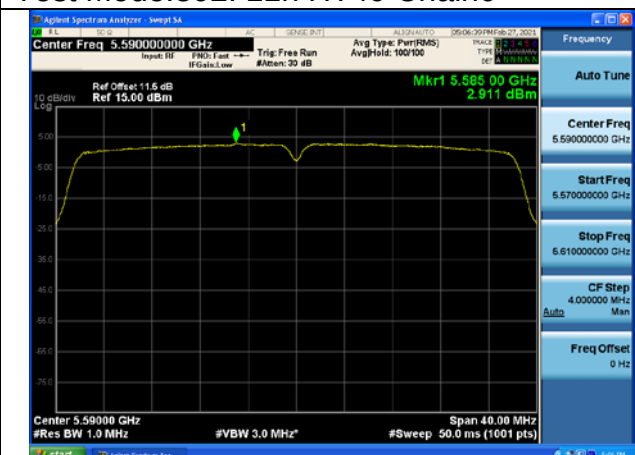
Test Mode:802. 11n HT40

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

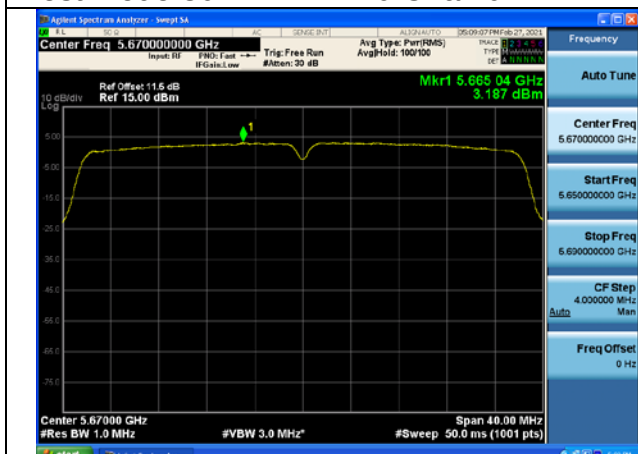
Test Mode:802. 11n HT40 Chain0



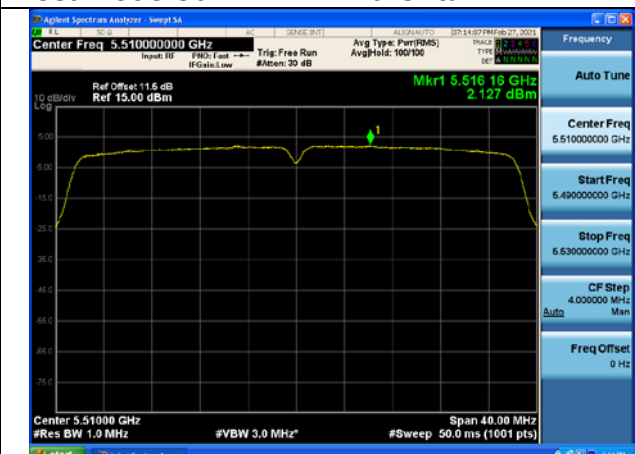
Test Mode:802. 11n HT40 Chain0



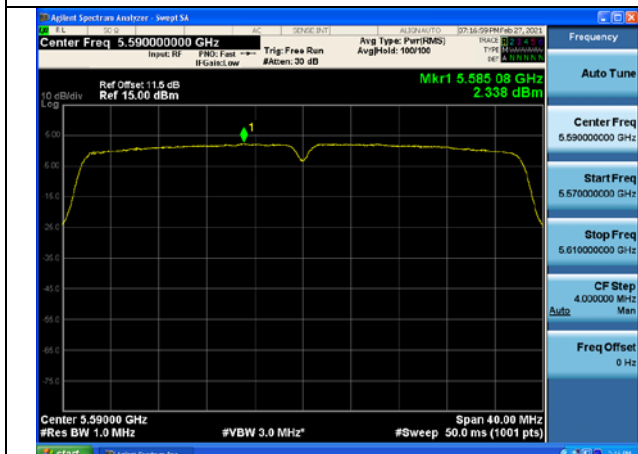
Test Mode:802. 11n HT40 Chain0



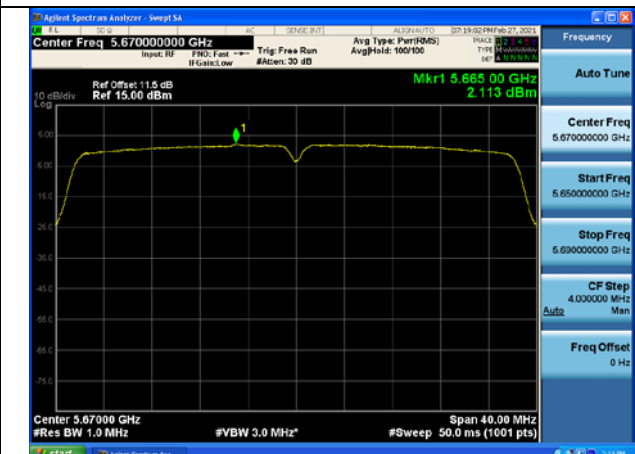
Test Mode:802. 11n HT40 Chain1



Test Mode:802. 11n HT40 Chain1



Test Mode:802. 11n HT40 Chain1



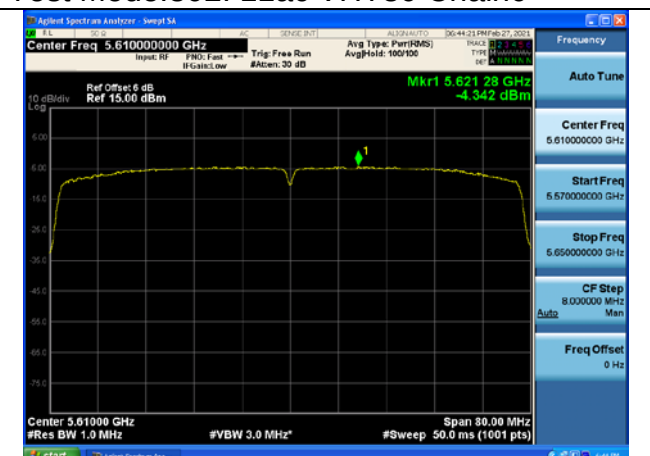
Test Mode:802. 11ac VHT80

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



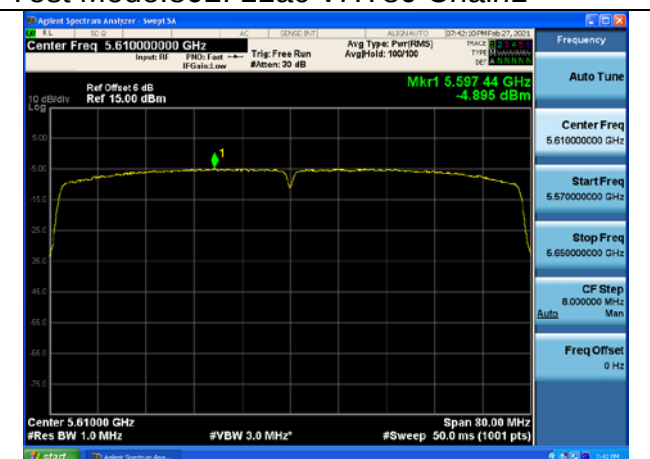
Test Mode:802. 11ac VHT80 Chain0



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
		Chain1	5500	5499.94549	-9.91	NV	+70
			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

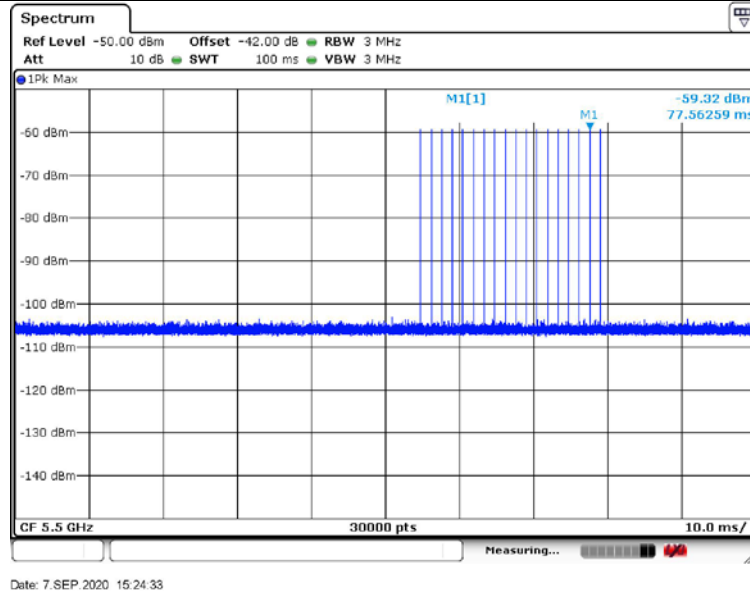
The Master Device is a SKSpruce Technologies Co., Ltd., Indoor Access Point, FCC ID: 2AHKT-WIA3300-20. The rated output power of the Master unit is > 23dBm (EIRP).

Therefore the required interference threshold level is -60 dBm.

Radar Waveform Calibration Result

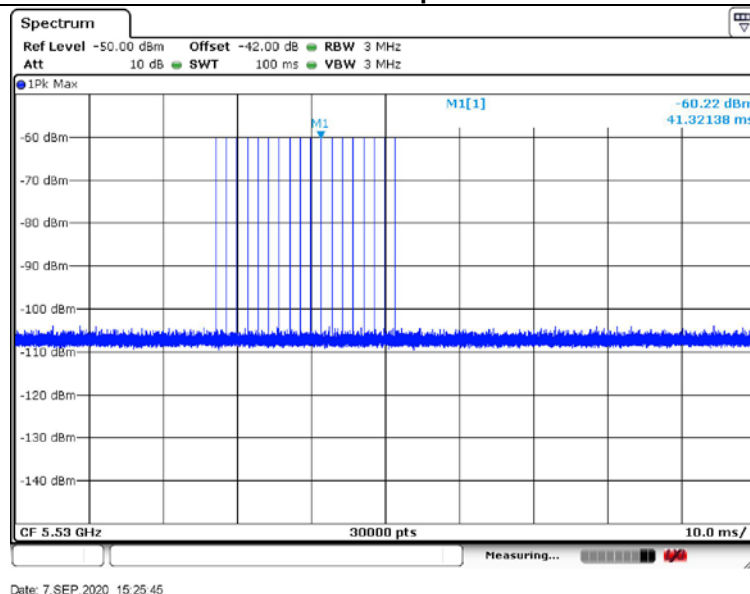
<20MHz / 5500 MHz> Radar Type 0

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

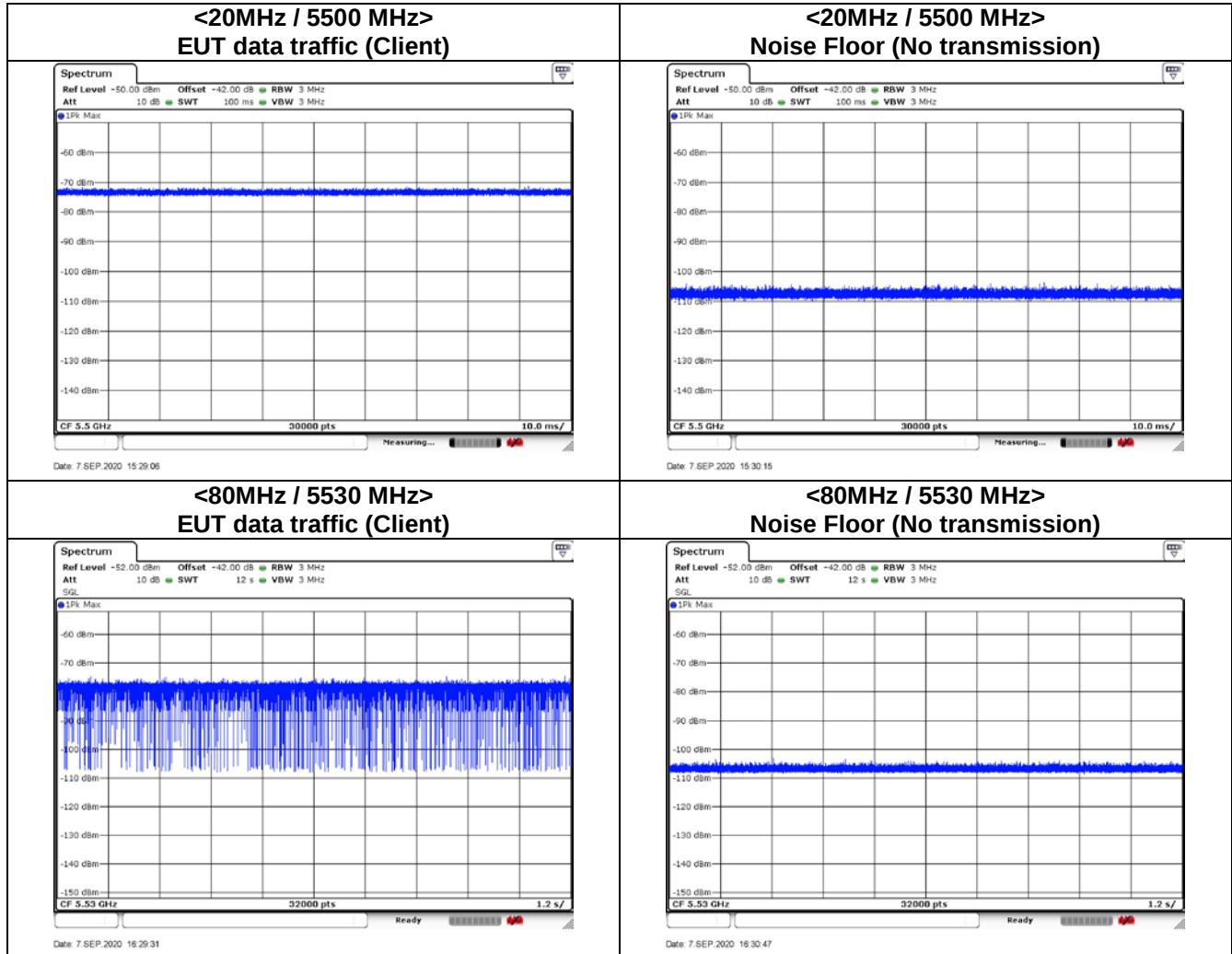


<80MHz / 5530 MHz> Radar Type 0

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



Data Traffic and Noise Floor Plots

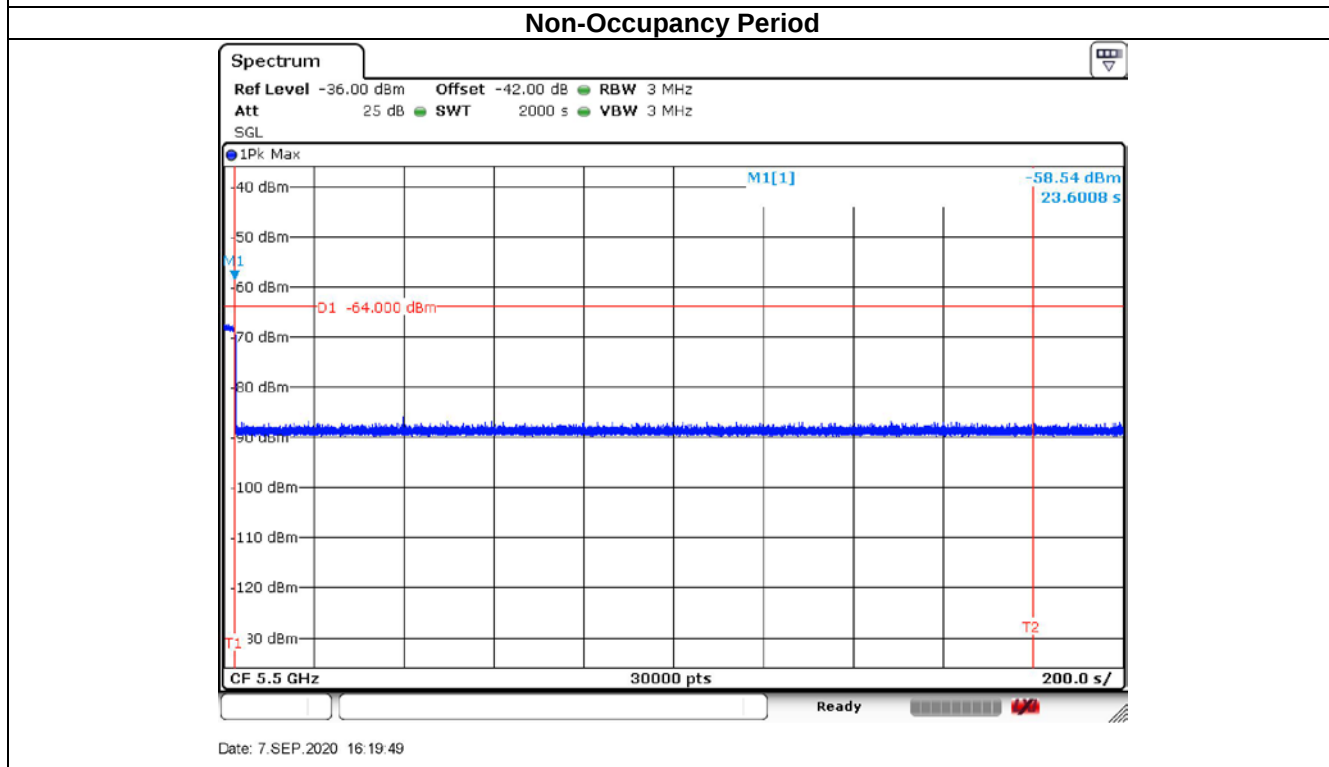
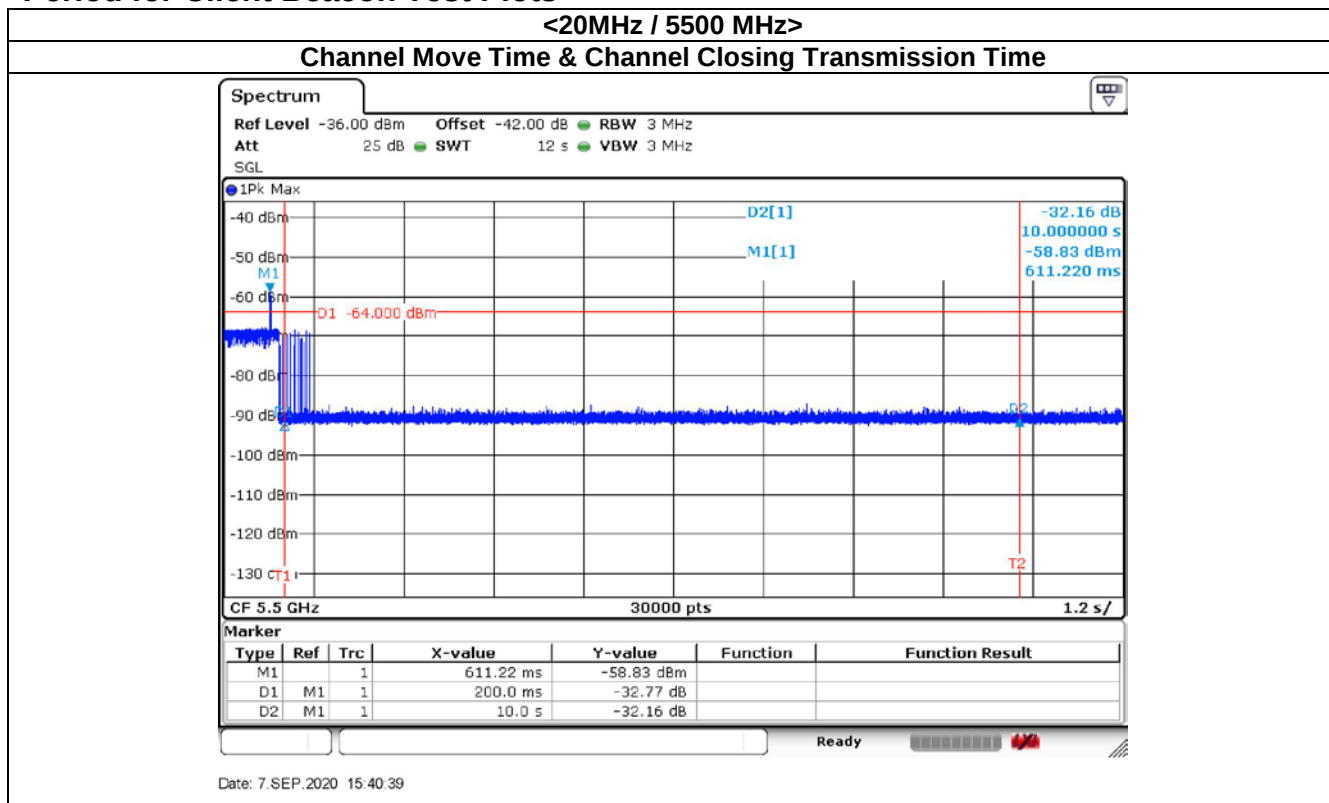


Channel Move Time, Channel Closing Transmission Time and Non-Occupancy Period for Client Beacon Test

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



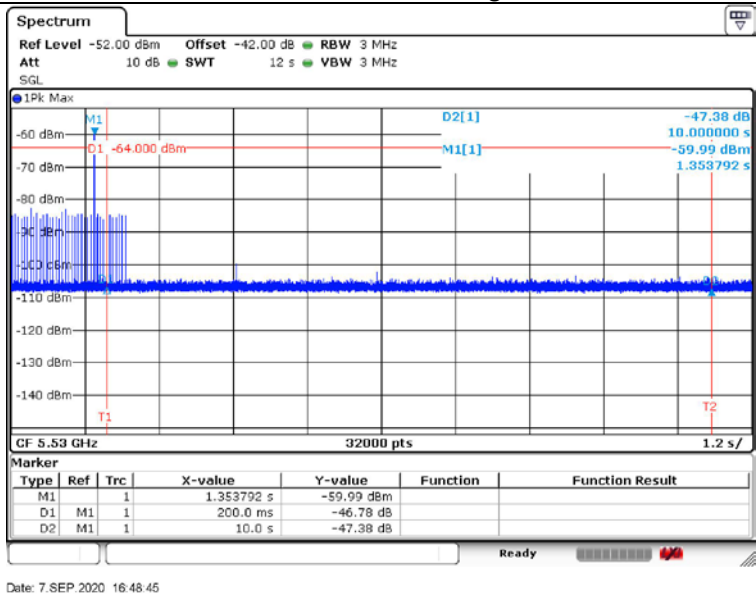
Note:

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

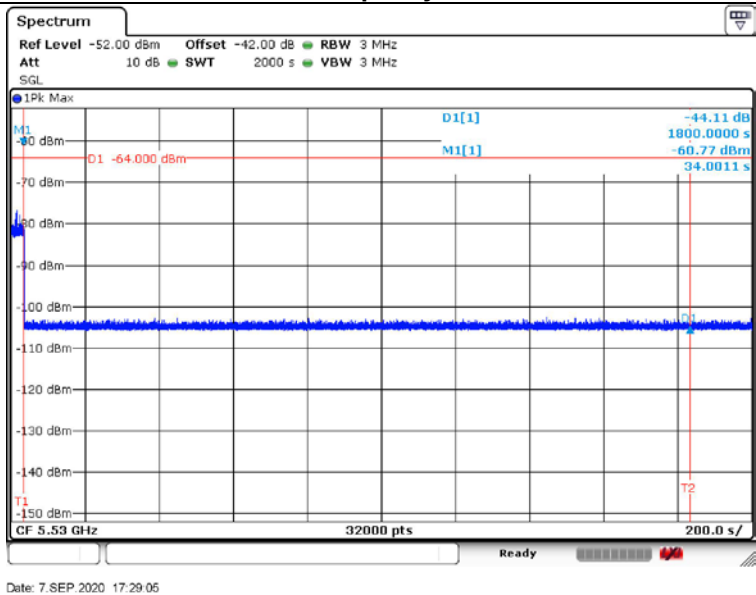
Channel Closing Transmission Time (200 + 4 ms) = 200 + Number of beacon after 200ms(10) X Dwell (0.4 ms)
< 260ms

<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