

APPENDIX A – TEST DATA OF CONDUCTED EMISSION

In order to find the worst case condition, Pre-tests are needed at the presence of different data rate. Data rate below means worst-case rate of each test item.

Worst-case data rates are shown as following table.

Test Mode	Data Rate
802.11a	6Mbps
802.11n HT20	MCS0
802.11n HT40	MCS0
802.11ac VHT20	MCS0
802.11ac VHT40	MCS0
802.11ac VHT80	MCS0

We chose the Worst-modes are shown as following table:

Test Mode	Chain	Note
802.11a	Chain0/Chain1	---
802.11n HT20	Chain0/Chain1	Cover 802.11ac VHT20
802.11n HT40	Chain0/Chain1	Cover 802.11ac VHT40
802.11ac VHT80	Chain0/Chain1	---

Directional gain

Band	Chain0 Ant Gain (dBi)	Chain1 Ant Gain (dBi)	Directional Gain (dBi)	Power Limit (dBm)	PSD Limit
5.2&5.3&5.6GHz	0.3	0.3	3.3	24.0	11.0(dBm/MHz)
5.8GHz	0.3	0.3	3.3	30.0	30.0(dBm/500kHz)

Duty cycle

Test Mode	Duty Cycle (%)	Correction Factor(dB)
802.11a	96.20	0.17
802.11n HT20	95.96	0.18
802.11n HT40	91.92	0.37
802.11ac VHT80	84.36	0.74

Output Power
UNII-1

Mode	Freq (MHz)	Chain	Conducted average power output(dBm)
802.11a	5180	Chain0	15.33
		Chain1	15.64
	5220	Chain0	15.35
		Chain1	15.66
	5240	Chain0	15.46
		Chain1	15.65
802.11n20M	5180	Chain0	15.17
		Chain1	14.99
		Chain0+Chain1	18.09
	5240	Chain0	14.67
		Chain1	15.02
		Chain0+Chain1	17.86
802.11n40M	5190	Chain0	13.89
		Chain1	14.05
		Chain0+Chain1	17.01
	5230	Chain0	13.89
		Chain1	14.05
		Chain0+Chain1	17.01
802.11ac20M	5180	Chain0	15.02
		Chain1	14.84
		Chain0+Chain1	17.94
	5220	Chain0	15.03
		Chain1	14.85
		Chain0+Chain1	17.95
	5240	Chain0	15.05
		Chain1	14.99
		Chain0+Chain1	18.03
802.11ac40M	5190	Chain0	14.20
		Chain1	13.97
		Chain0+Chain1	17.10
	5230	Chain0	14.18
		Chain1	13.96
		Chain0+Chain1	17.08
802.11ac80M	5210	Chain0	13.01
		Chain1	12.81
		Chain0+Chain1	15.92

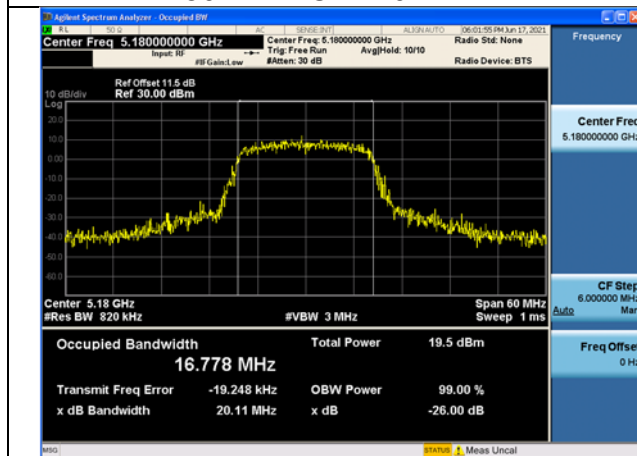
Emission Bandwidth

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

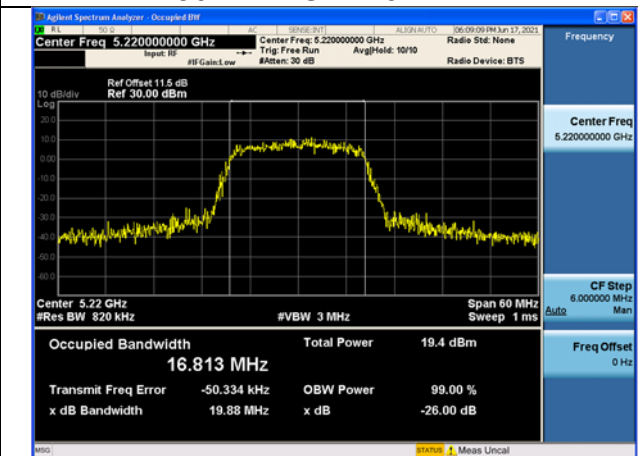
Test Mode:802.11a

Carrier frequency (MHz)	Chain	26dB Bandwidth (MHz)
5180	Chain0	20.11
	Chain1	20.10
5220	Chain0	19.88
	Chain1	20.09
5240	Chain0	19.70
	Chain1	20.28

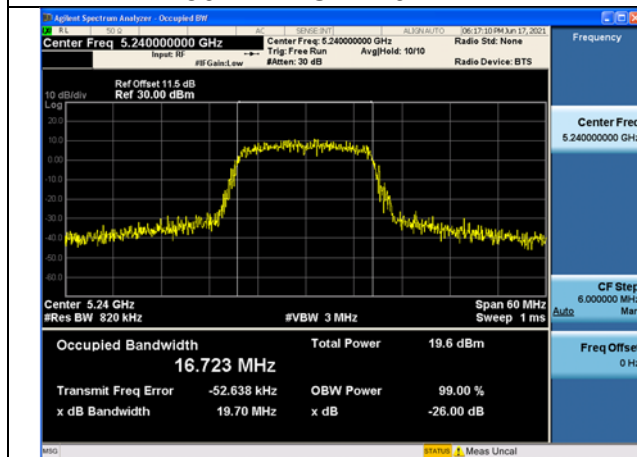
Test Mode:802.11a Chain0



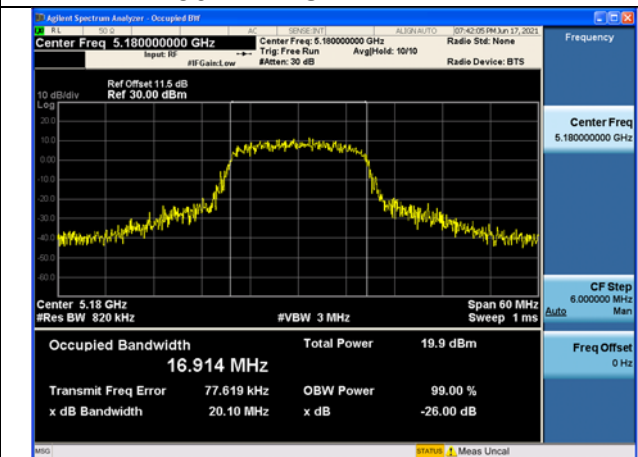
Test Mode:802.11a Chain0



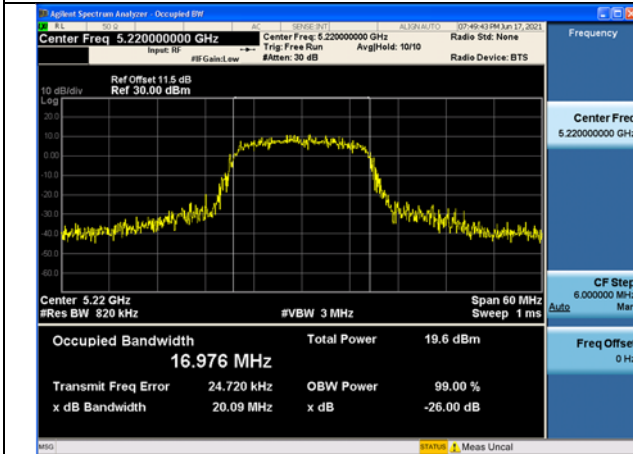
Test Mode:802.11a Chain0



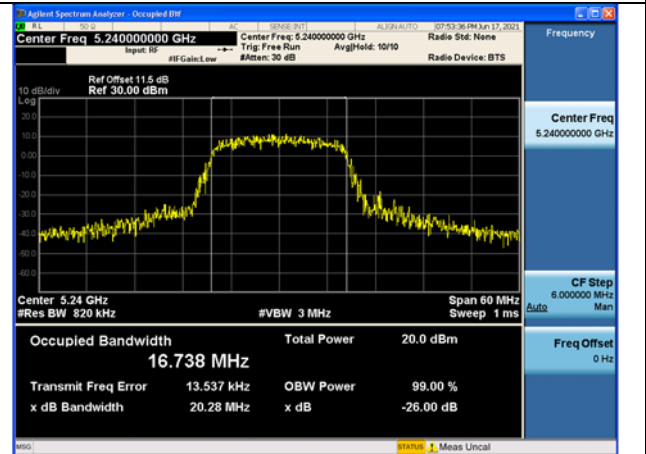
Test Mode:802.11a Chain1



Test Mode:802.11a Chain1



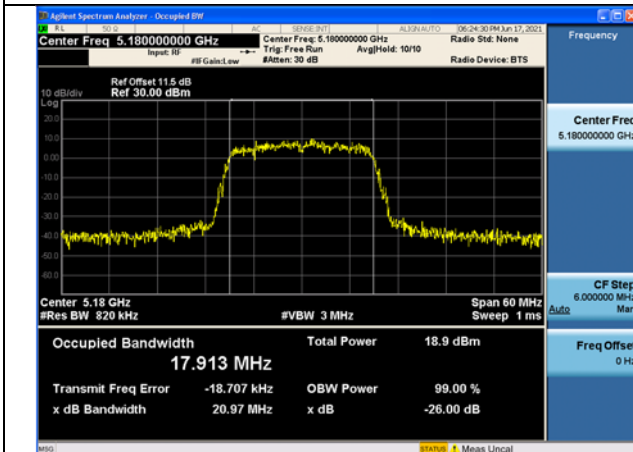
Test Mode:802.11a Chain1



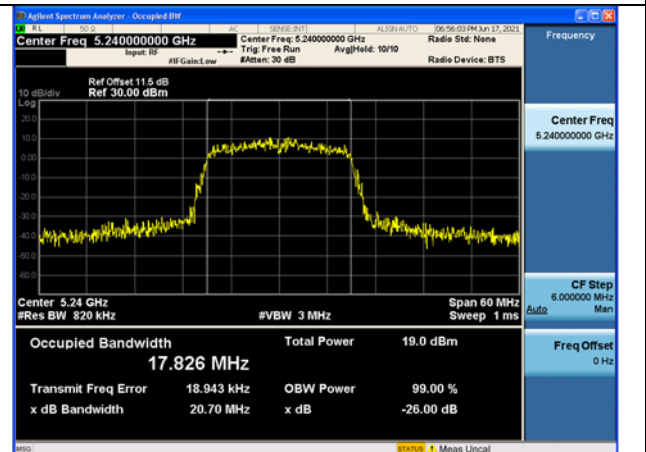
Test Mode:802.11n HT20

Carrier frequency (MHz)	Chain	26dB Bandwidth (MHz)
5180	Chain0	20.97
	Chain1	20.15
5240	Chain0	20.70
	Chain1	20.26

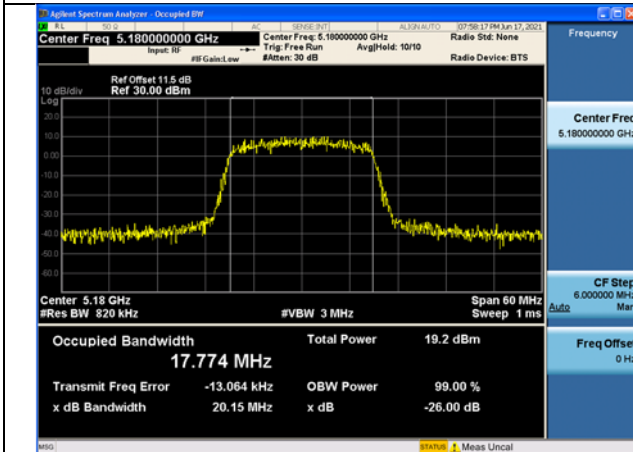
Test Mode:802.11n HT20 Chain0



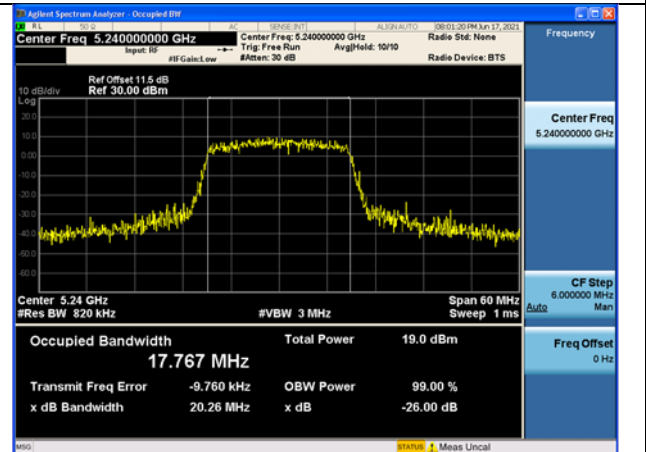
Test Mode:802.11n HT20 Chain0



Test Mode:802.11n HT20 Chain1



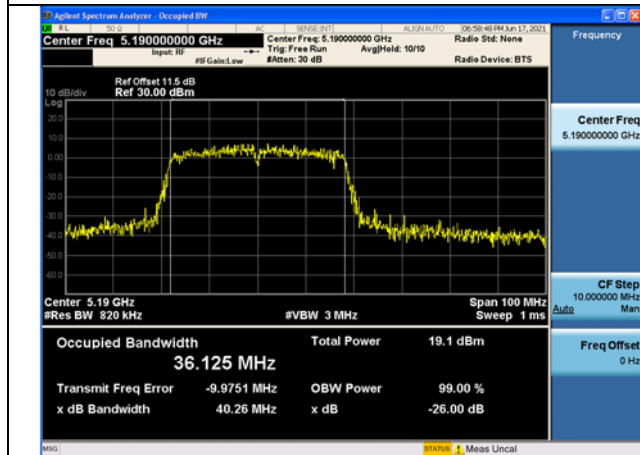
Test Mode:802.11n HT20 Chain1



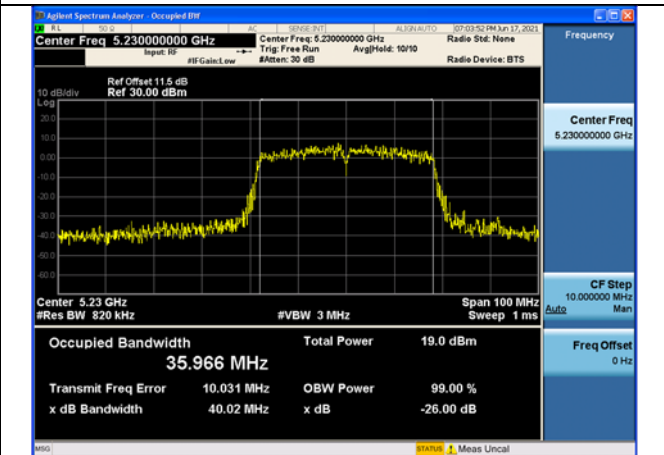
Test Mode:802. 11n HT40

Carrier frequency (MHz)	Chain	26dB Bandwidth (MHz)
5190	Chain0	40.26
	Chain1	40.46
5230	Chain0	40.02
	Chain1	40.11

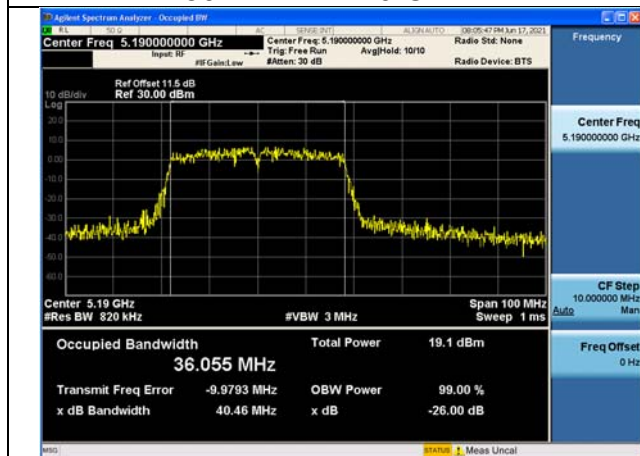
Test Mode:802. 11n HT40 Chain0



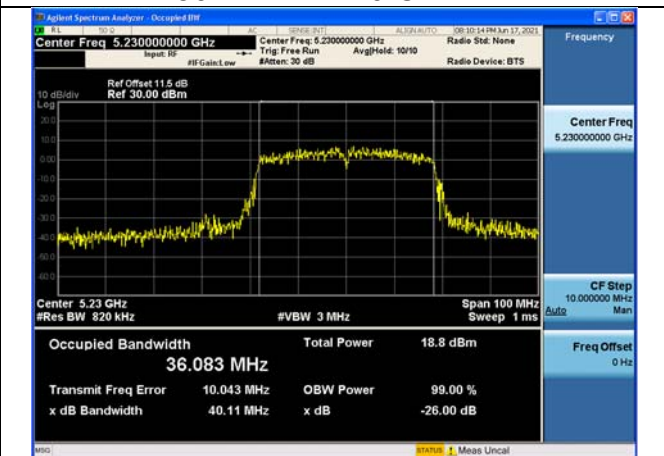
Test Mode:802. 11n HT40 Chain0



Test Mode:802. 11n HT40 Chain1



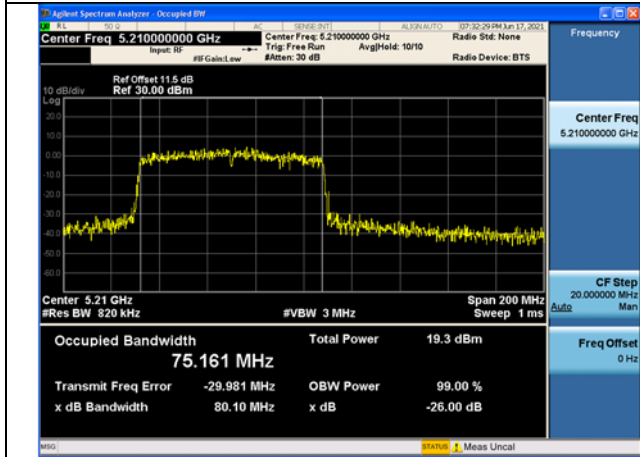
Test Mode:802. 11n HT40 Chain1



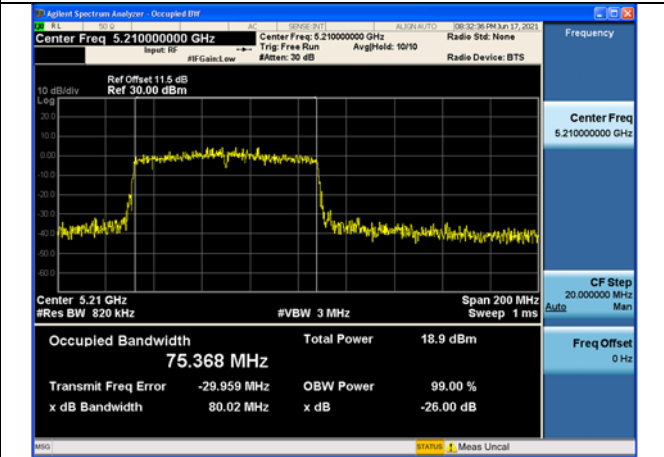
Test Mode:802. 11ac VHT80

Carrier frequency (MHz)	Chain	26dB Bandwidth (MHz)
5210	Chain0	80.10
	Chain1	80.02

Test Mode:802. 11ac VHT80 Chain0



Test Mode:802. 11ac VHT80 Chain1



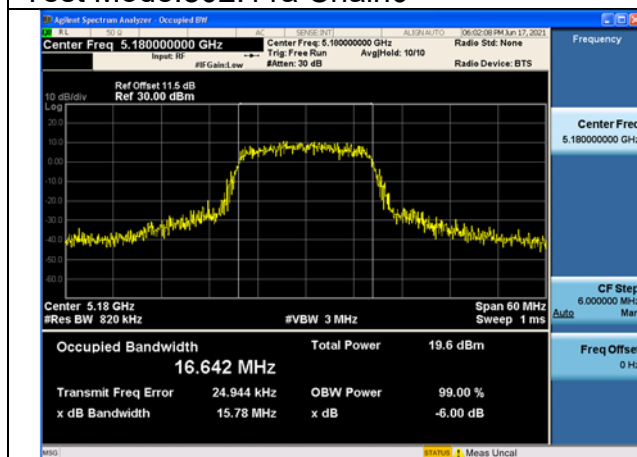
Occupied Bandwidth

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

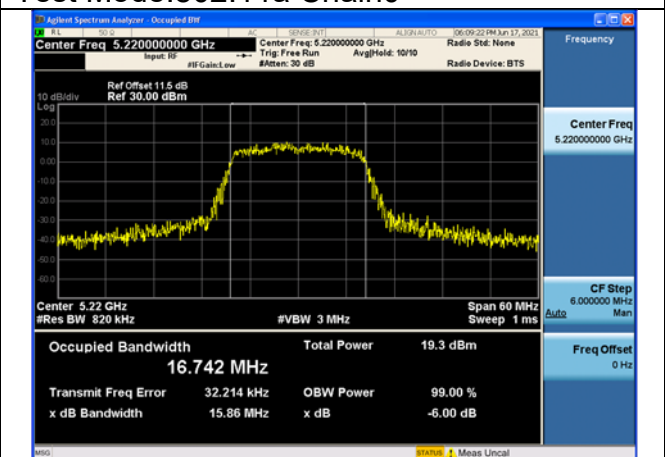
Test Mode:802.11a

Carrier frequency (MHz)	Chain	Occupied Bandwidth (MHz)
5180	Chain0	16.642
	Chain1	16.741
5220	Chain0	16.742
	Chain1	16.884
5240	Chain0	16.681
	Chain1	16.693

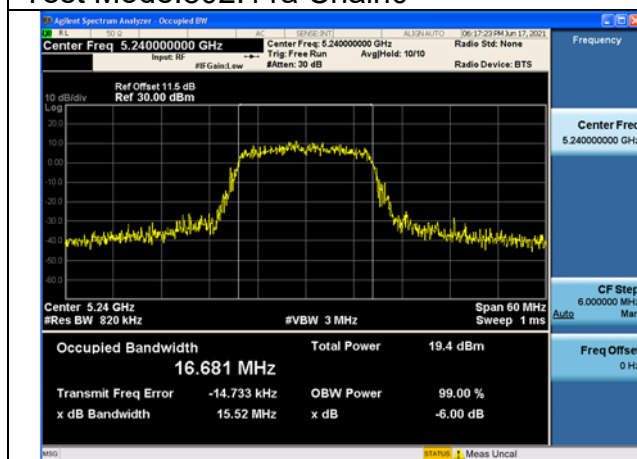
Test Mode:802.11a Chain0



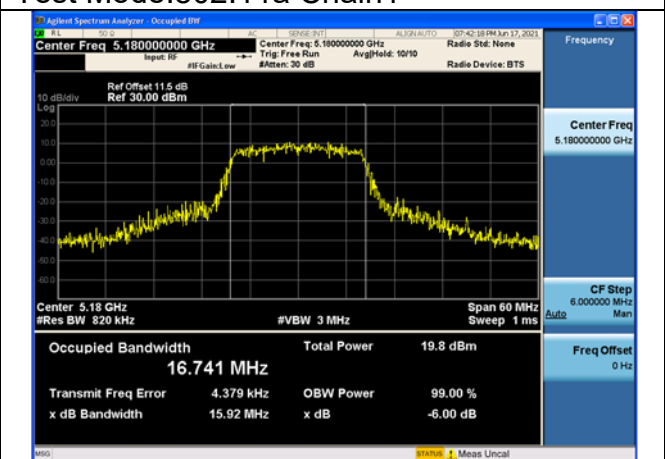
Test Mode:802.11a Chain0



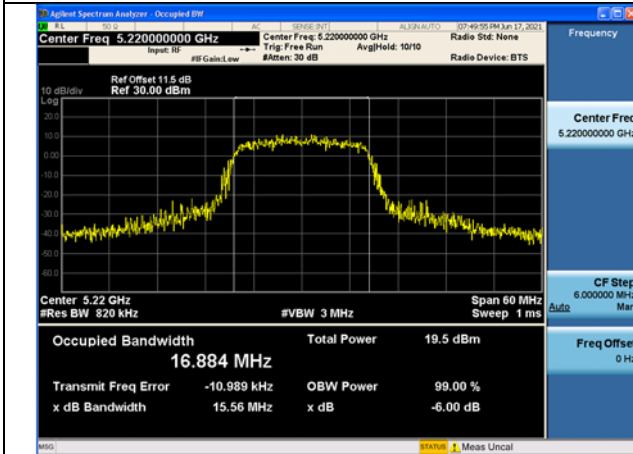
Test Mode:802.11a Chain0



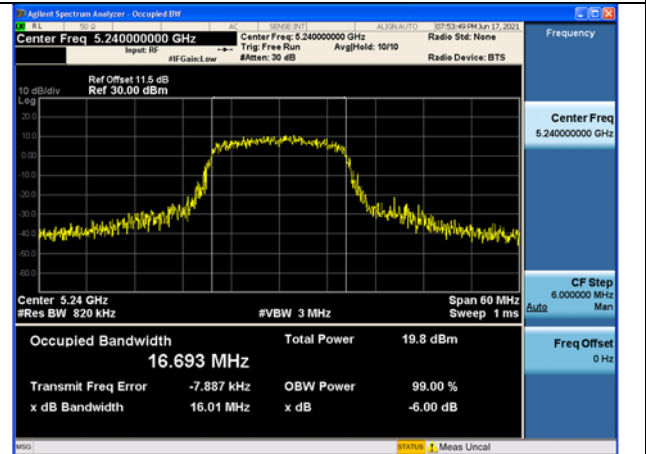
Test Mode:802.11a Chain1



Test Mode:802.11a Chain1



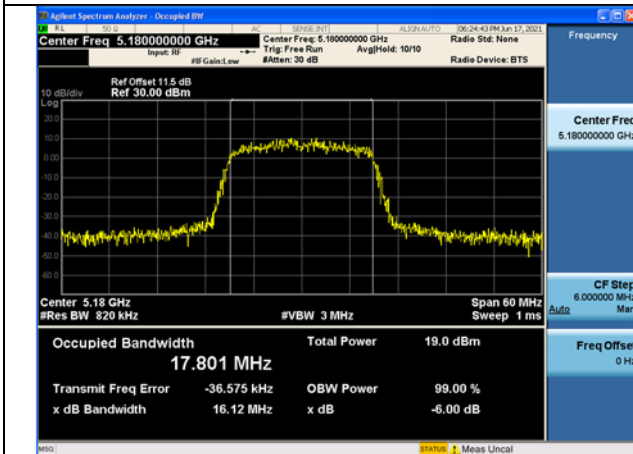
Test Mode:802.11a Chain1



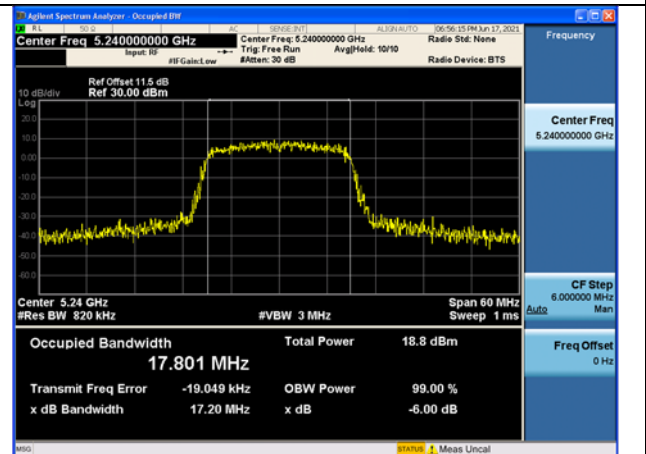
Test Mode:802.11n HT20

Carrier frequency (MHz)	Chain	Occupied Bandwidth (MHz)
5180	Chain0	17.801
	Chain1	17.867
5240	Chain0	17.801
	Chain1	17.814

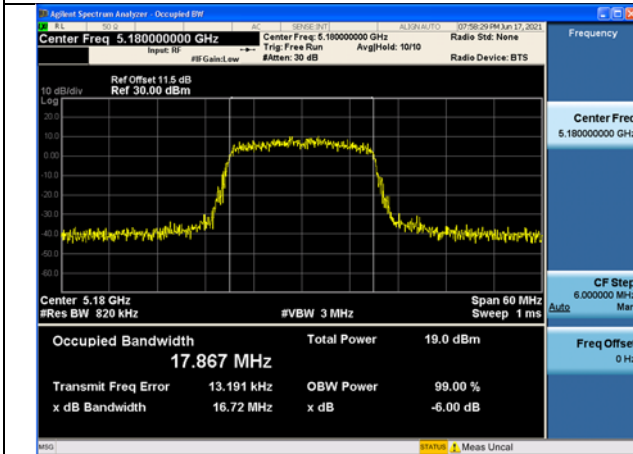
Test Mode:802.11n HT20 Chain0



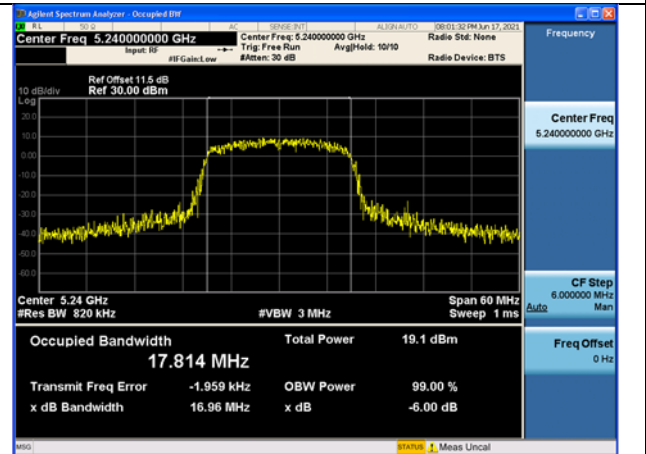
Test Mode:802.11n HT20 Chain0



Test Mode:802.11n HT20 Chain1



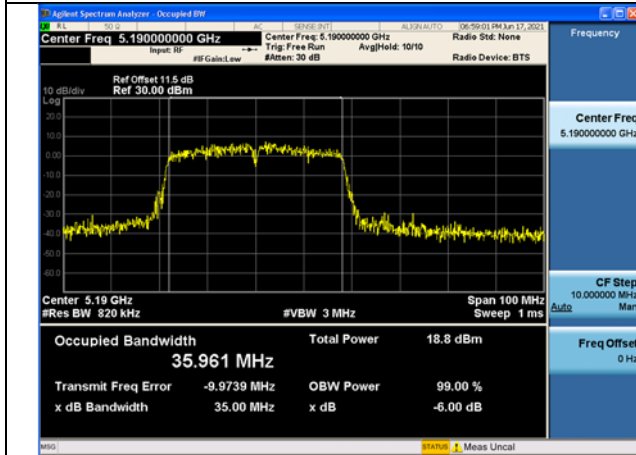
Test Mode:802.11n HT20 Chain1



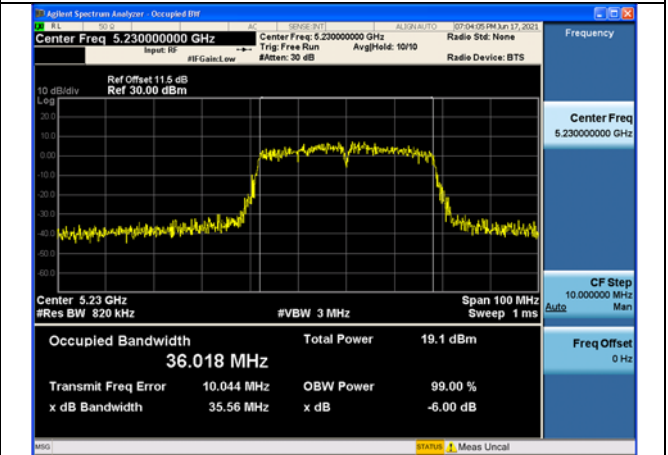
Test Mode:802. 11n HT40

Carrier frequency (MHz)	Chain	Occupied Bandwidth (MHz)
5190	Chain0	35.961
	Chain1	35.987
5230	Chain0	36.018
	Chain1	36.132

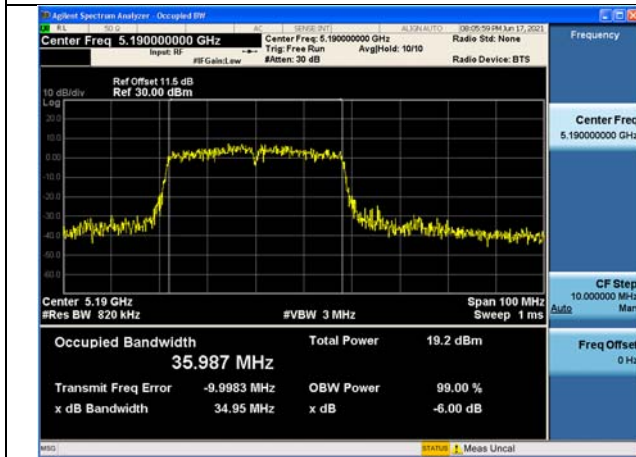
Test Mode:802. 11n HT40 Chain0



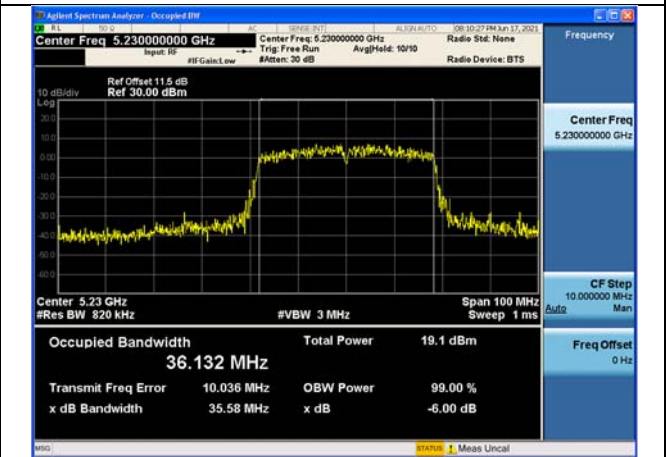
Test Mode:802. 11n HT40 Chain0



Test Mode:802. 11n HT40 Chain1



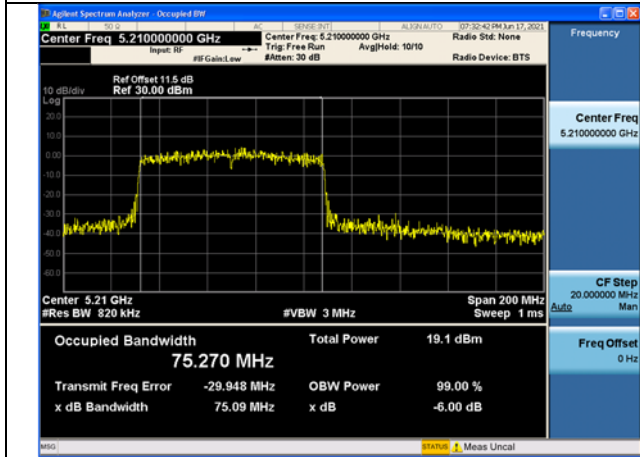
Test Mode:802. 11n HT40 Chain1



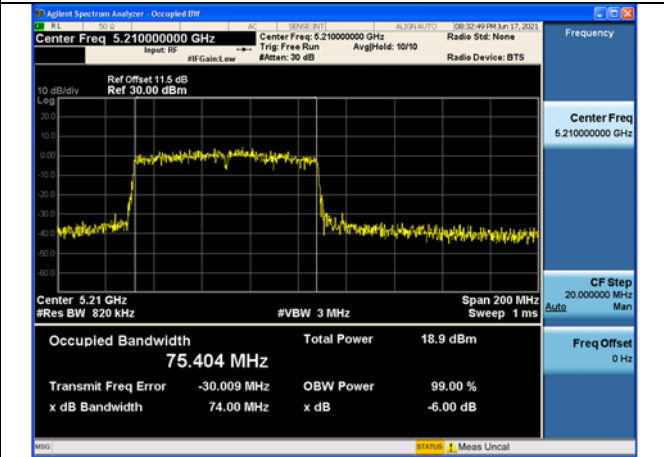
Test Mode:802. 11ac VHT80

Carrier frequency (MHz)	Chain	Occupied Bandwidth (MHz)
5210	Chain0	75.270
	Chain1	75.404

Test Mode:802. 11ac VHT80 Chain0



Test Mode:802. 11ac VHT80 Chain1



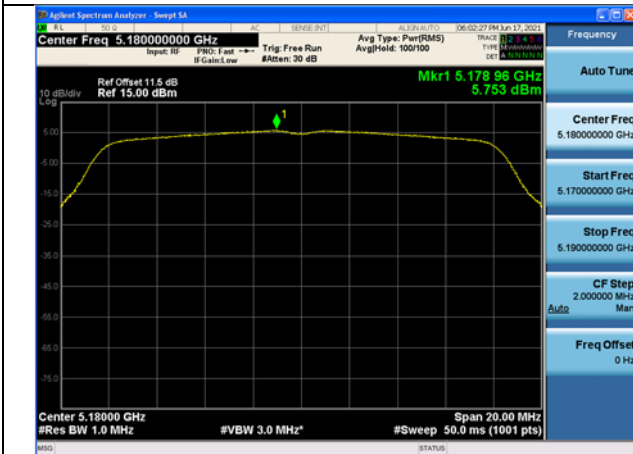
Transmitter Power Spectral Density

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)
5180	0.17	Chain0	5.923
		Chain1	6.082
5220		Chain0	5.573
		Chain1	6.043
5240		Chain0	5.771
		Chain1	5.975

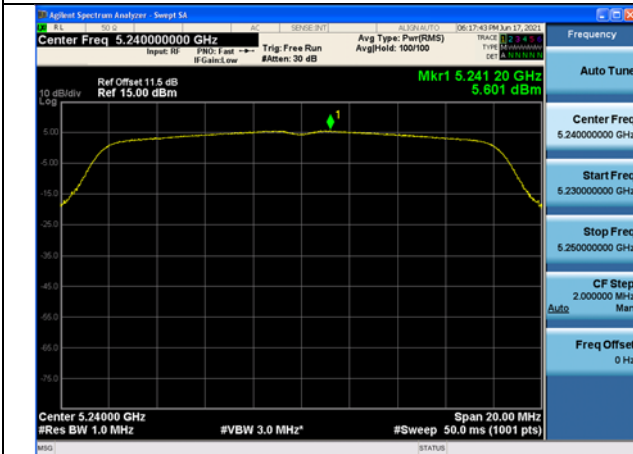
Test Mode:802.11a Chain0



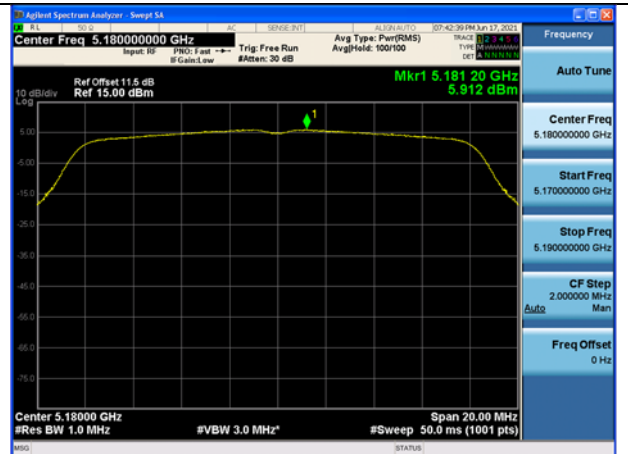
Test Mode:802.11a Chain0



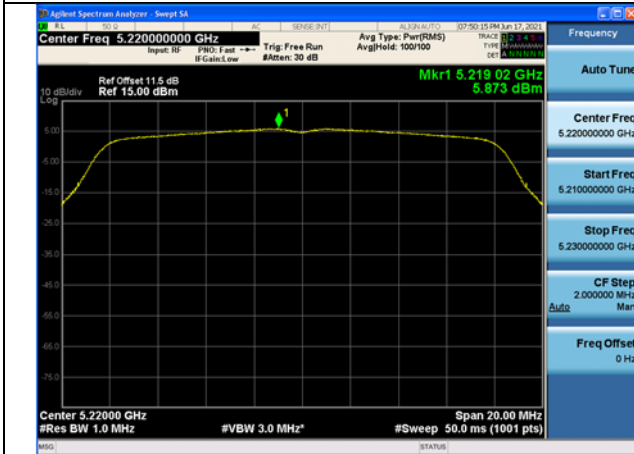
Test Mode:802.11a Chain0



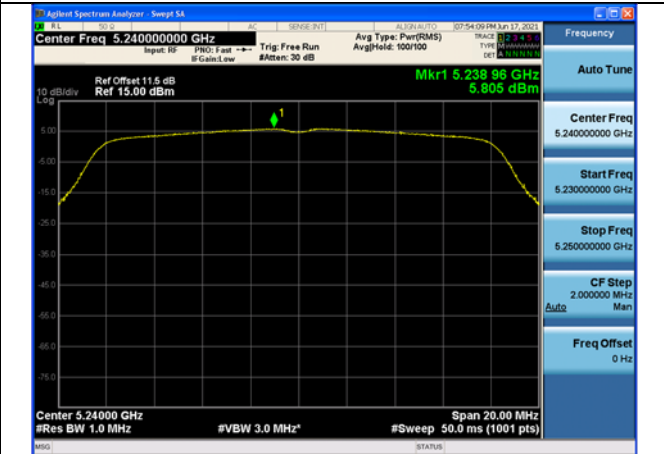
Test Mode:802.11a Chain1



Test Mode:802.11a Chain1



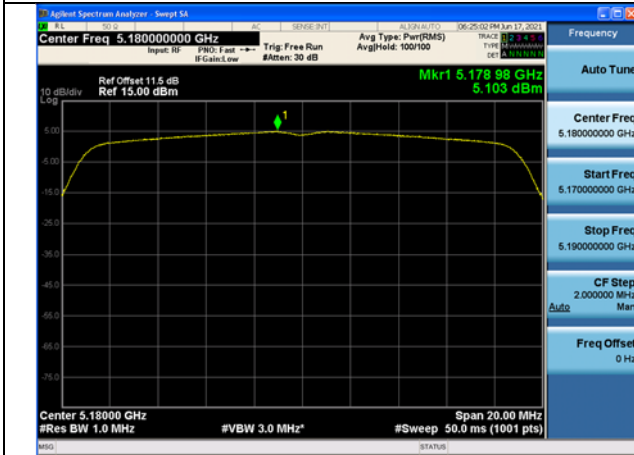
Test Mode:802.11a Chain1



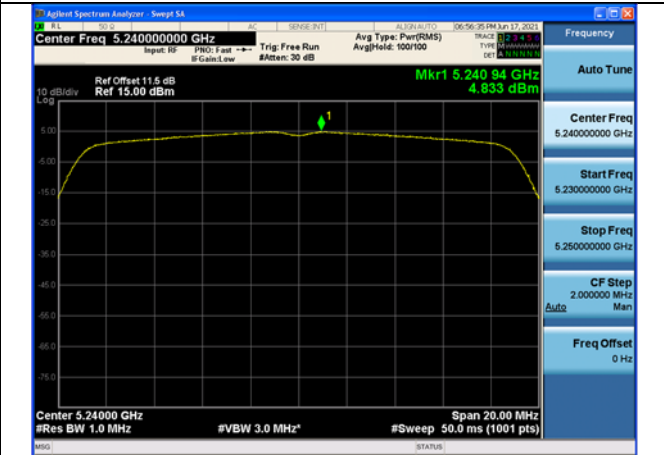
Test Mode:802.11n HT20

Carrier frequency (MHz)	Correction Factor(dB)	Chain	Power Density (dBm)
5180	0.18	Chain0	5.283
		Chain1	5.268
		Chain0+Chain1	8.286
5240		Chain0	5.013
		Chain1	5.320
		Chain0+Chain1	8.180

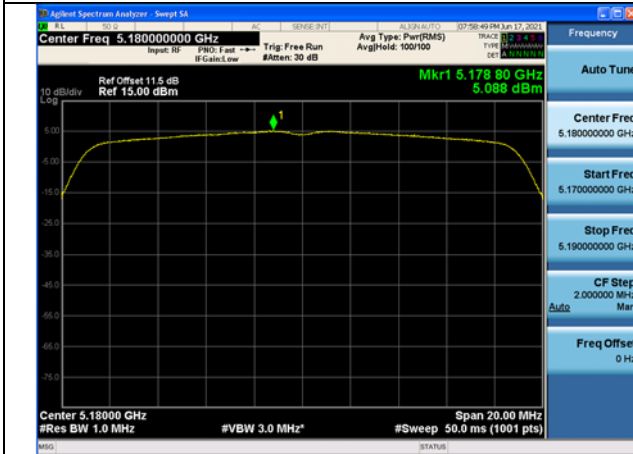
Test Mode:802.11n HT20 Chain0



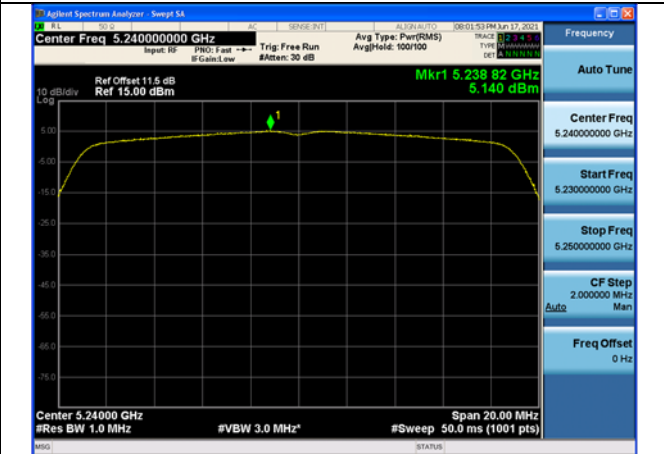
Test Mode:802.11n HT20 Chain0



Test Mode:802. 11n HT20 Chain1



Test Mode:802. 11n HT20 Chain1



Test Mode:802. 11n HT40

Carrier frequency (MHz)	Correction Factor(dB)	Chain	Power Density (dBm)
5190	0.33	Chain0	2.943
		Chain1	2.471
		Chain0+Chain1	5.724
5230		Chain0	3.232
		Chain1	2.710
		Chain0+Chain1	5.989

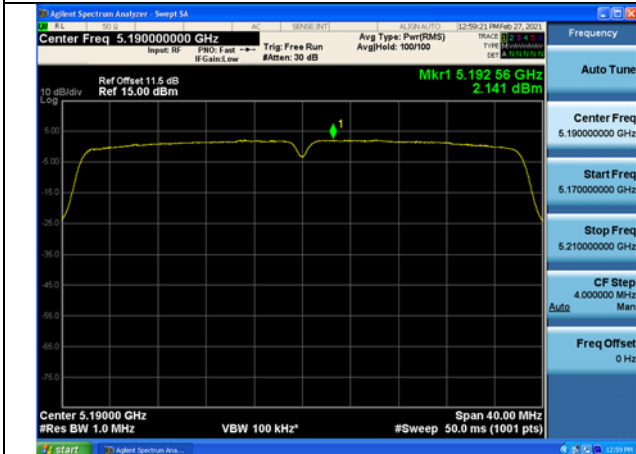
Test Mode:802. 11n HT40 Chain0



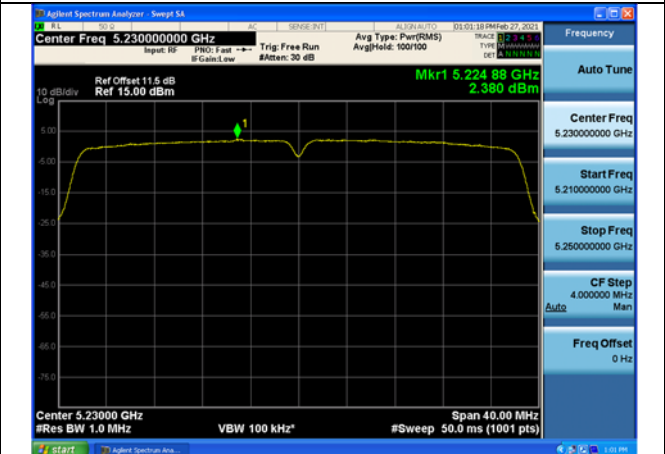
Test Mode:802. 11n HT40 Chain0



Test Mode:802. 11n HT40 Chain1



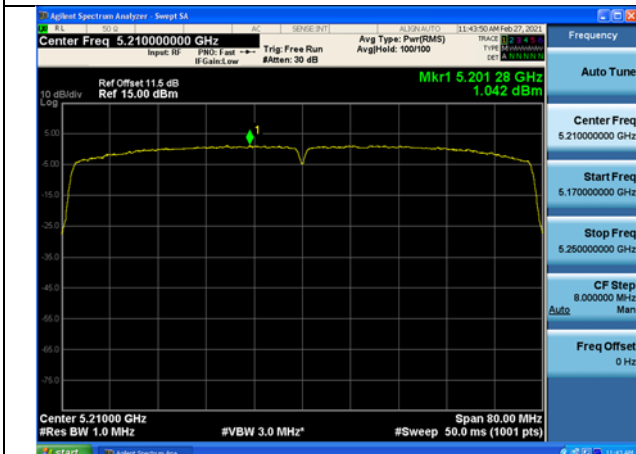
Test Mode:802. 11n HT40 Chain1



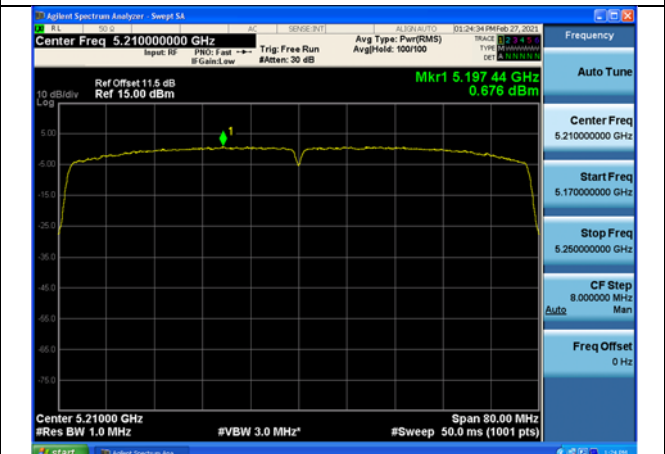
Test Mode:802. 11ac VHT80

Carrier frequency (MHz)	Correction Factor(dB)	Chain	Power Density (dBm)
5210	0.74	Chain0	1.782
		Chain1	1.416
		Chain0+Chain1	4.613

Test Mode:802. 11ac VHT80 Chain0



Test Mode:802. 11ac VHT80 Chain1



Frequency Stability

Mode	Data Rate	Chain	Center Frequency (MHz)	Measured Frequency (MHz)	Frequency Stability (ppm)	Voltage (V)	Temperature (°C)
802.11a	6Mbps	Chain0	5180	5180.003638	0.70	HV	-10
			5180	5180.048075	9.28	LV	0
			5180	5180.060348	11.65	NV	+10
			5180	5179.978153	-4.22	NV	+20
			5180	5180.079359	15.32	NV	+20
			5180	5180.015830	3.06	NV	+20
			5180	5180.050425	9.73	NV	+30
			5180	5180.018715	3.61	NV	+40
			5180	5180.029479	5.69	NV	+50
			5180	5179.926593	-14.17	NV	+60
		Chain1	5180	5179.974541	-4.91	NV	+70
			5180	5180.003626	0.70	HV	-10
			5180	5180.012661	2.44	LV	0
			5180	5180.076292	14.73	NV	+10
			5180	5180.051553	9.95	NV	+20
			5180	5179.948729	-9.90	NV	+20
			5180	5179.924548	-14.57	NV	+20
			5180	5180.068686	13.26	NV	+30
			5180	5180.033356	6.44	NV	+40
			5180	5180.020579	3.97	NV	+50
			5180	5179.986141	-2.68	NV	+60
			5180	5180.050058	9.66	NV	+70