4.2 6dB Bandwidth

Test Procedures(ANSI C63.10-2013 6.9.2)

Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

Test Settings :

Center frequency = the highest, middle and the lowest channels

a) RBW = 100 kHz

b) VBW ≥ 3 x RBW

c) Detector = peak

d) Trace mode = Max hold

e) Sweep = auto couple

f) Allow trace to fully stabilize

g) Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

Limit :

Within the 5.725-5.85 GHz band, the minimum 6 dB bandwidth of U-NII devices shall be at least 500 kHz.

Test Data:

[ANT 0]

802.11a

Frequency Band	Channel	Frequency [MHz]	6 dB Bandwidth [MHz]
UNII 1	Low	5 180	16.43
	Middle	5 200	16.43
	High	5 240	16.42
UNII 3	Low	5 745	16.41
	Middle	5 785	16.44
	High	5 825	16.43

802.11n(HT20)

Frequency Band	Channel	Frequency [MHz]	6 dB Bandwidth [MHz]
UNII 1	Low	5 180	17.62
	Middle	5 200	17.59
	High	5 240	17.62
UNII 3	Low	5 745	17.62
	Middle	5 785	17.59
	High	5 825	17.62

802.11n(HT40)

Frequency Band	Channel	Frequency [MHz]	6 dB Bandwidth [MHz]
UNII 1	Low	5 190	36.47
	High	5 230	36.45
UNII 3	Low	5 755	36.50
	High	5 795	36.46

802.11ac(VHT20)

Frequency Band	Channel	Frequency [MHz]	6 dB Bandwidth [MHz]
UNII 1	Low	5 180	17.64
	Middle	5 200	17.67
	High	5 240	17.67
UNII 3	Low	5 745	17.67
	Middle	5 785	17.65
	High	5 825	17.62

802.11ac(VHT40)

Frequency Band	Channel	Frequency [MHz]	6 dB Bandwidth [MHz]
UNII 1	Low	5 190	36.44
	High	5 230	36.38
UNII 3	Low	5 755	36.41
	High	5 795	36.41

802.11ac(VHT80)

Frequency Band	Channel	Frequency [MHz]	6 dB Bandwidth [MHz]
UNII 1	Low	5 210	76.40
UNII 3	Low	5 775	76.37

[ANT 1]

802.11a

Frequency Band	Channel	Frequency [MHz]	6 dB Bandwidth [MHz]
UNII 1	Low	5 180	16.43
	Middle	5 200	16.43
	High	5 240	16.41
UNII 3	Low	5 745	16.42
	Middle	5 785	16.43
	High	5 825	16.42

802.11n(HT20)

Frequency Band	Channel	Frequency [MHz]	6 dB Bandwidth [MHz]
UNII 1	Low	5 180	17.60
	Middle	5 200	17.67
	High	5 240	17.62
UNII 3	Low	5 745	17.65
	Middle	5 785	17.62
	High	5 825	17.66

802.11n(HT40)

Frequency Band	Channel	Frequency [MHz]	6 dB Bandwidth [MHz]
UNII 1	Low	5 190	36.37
	High	5 230	36.42
UNII 3	Low	5 755	36.39
	High	5 795	36.46

802.11ac(VHT20)

Frequency Band	Channel	Frequency [MHz]	6 dB Bandwidth [MHz]
UNII 1	Low	5 180	17.62
	Middle	5 200	17.65
	High	5 240	17.63
UNII 3	Low	5 745	17.61
	Middle	5 785	17.62
	High	5 825	17.63

802.11ac(VHT40)

Frequency Band	Channel	Frequency [MHz]	6 dB Bandwidth [MHz]
UNII 1	Low	5 190	36.41
	High	5 230	36.41
UNII 3	Low	5 755	36.41
	High	5 795	36.41

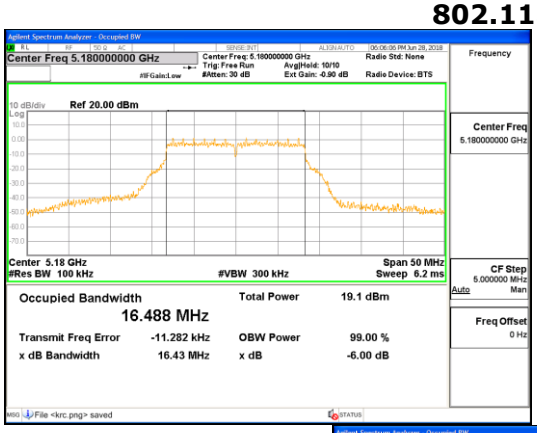
802.11ac(VHT80)

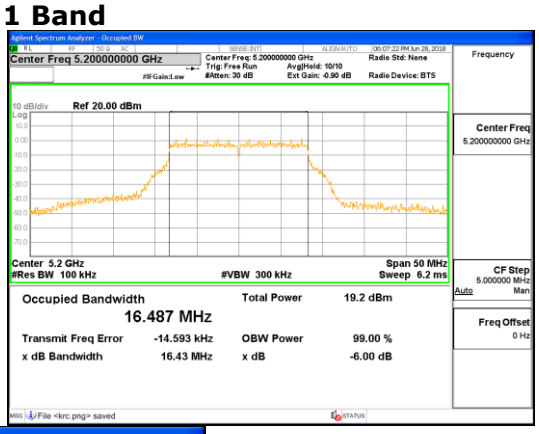
Frequency Band	Channel	Frequency [MHz]	6 dB Bandwidth [MHz]
UNII 1	Low	5 210	75.95
UNII 3	Low	5 775	76.38

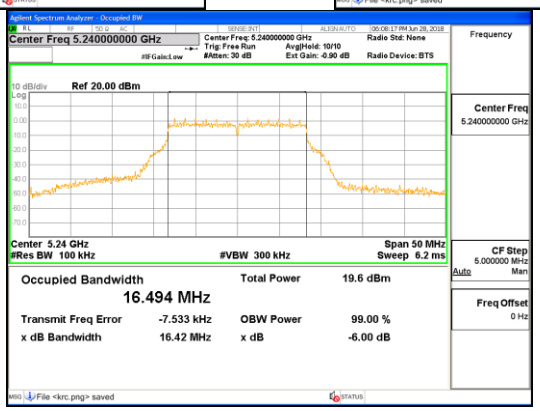
See next pages for actual measured spectrum plots.

[ANT 0]

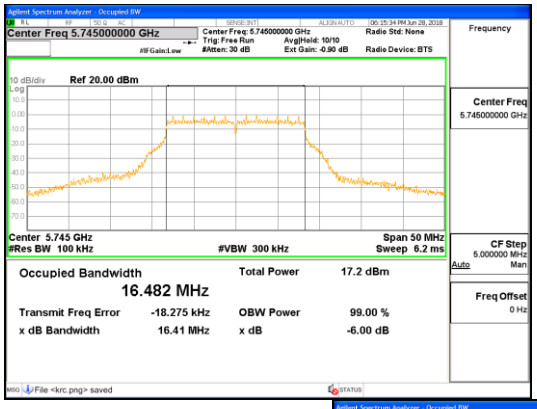
802.11a_UNII 1 Band

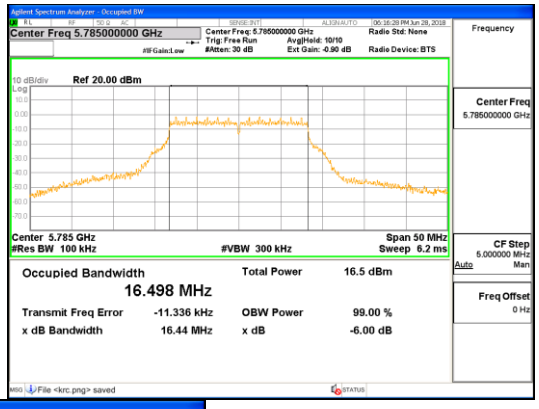


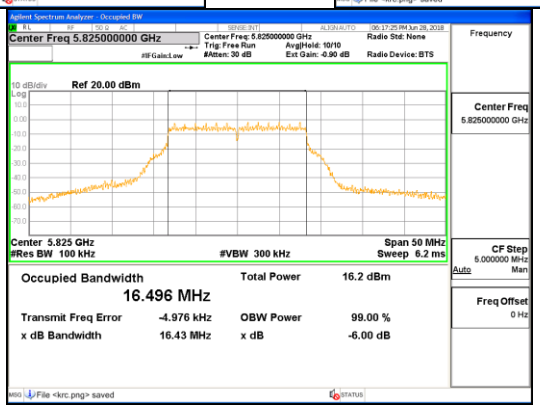




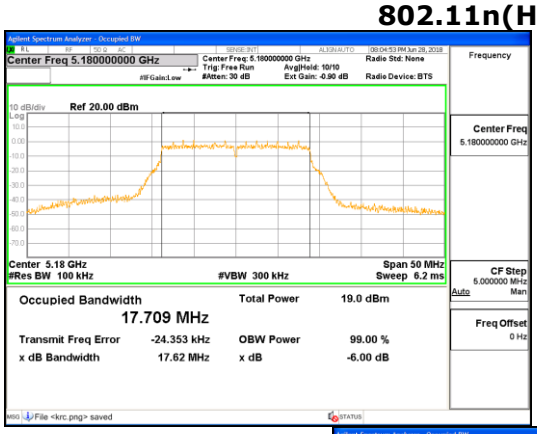
802.11a_UNII 3 Band

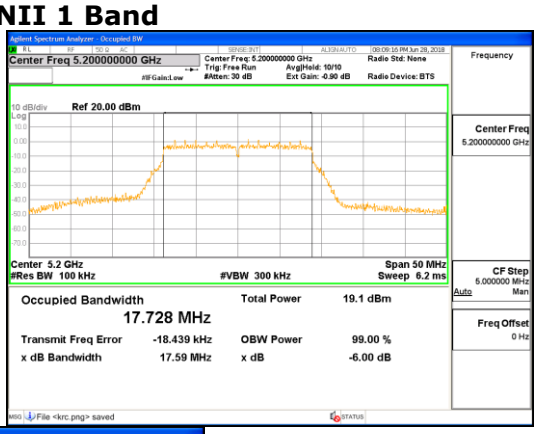


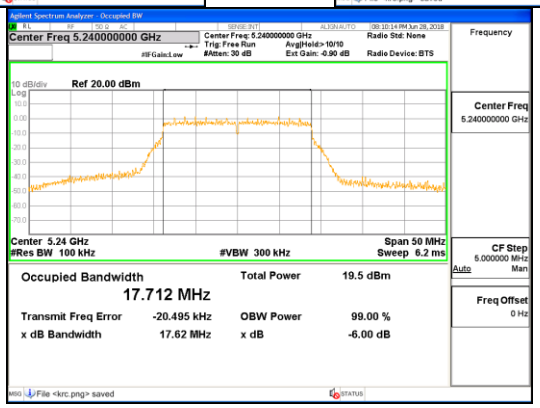




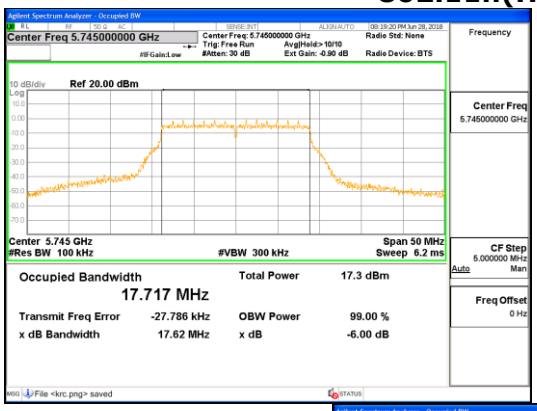
802.11n(HT20)_UNII 1 Band

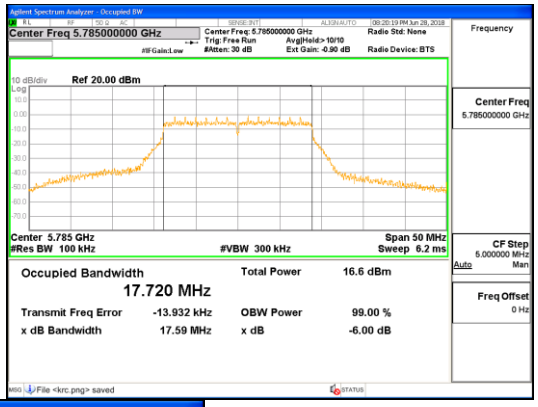


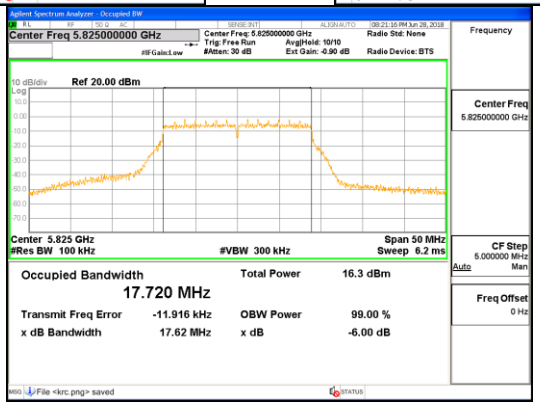




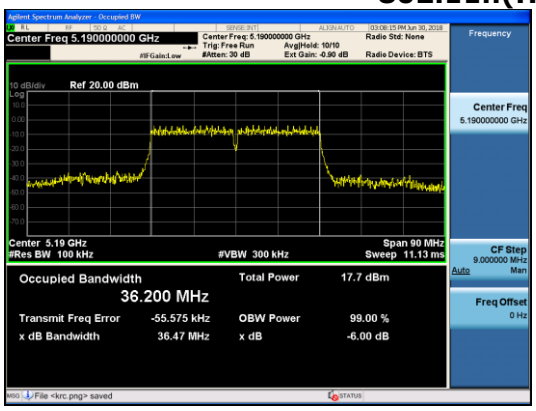
802.11n(HT20)_UNII 3 Band

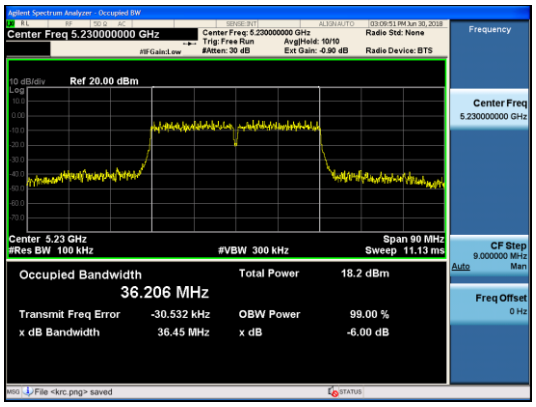




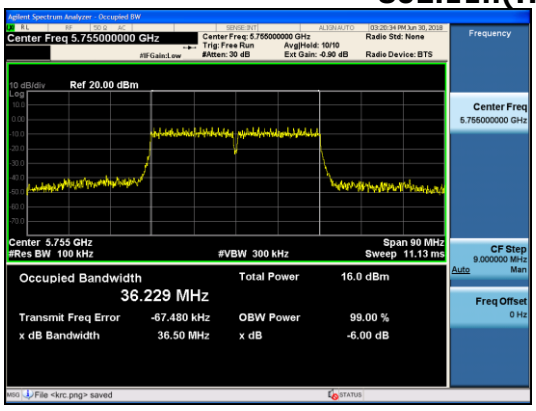


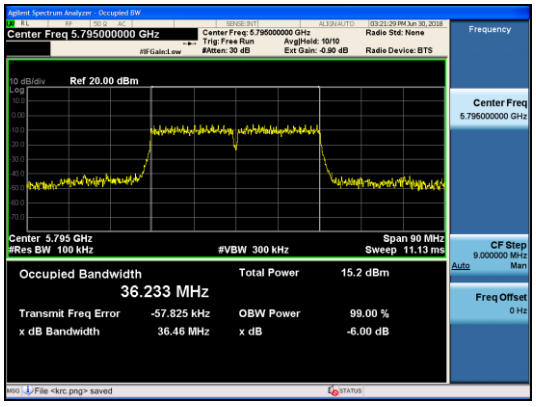
802.11n(HT40)_UNII 1 Band



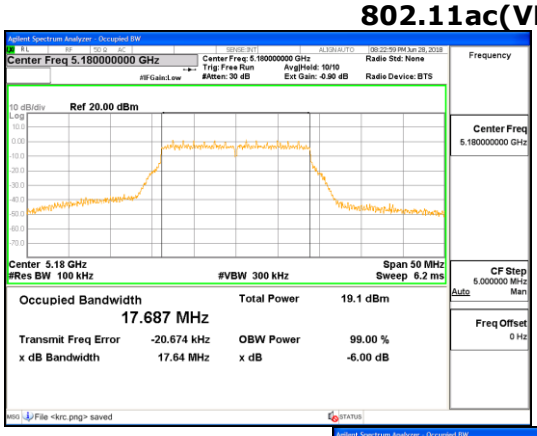


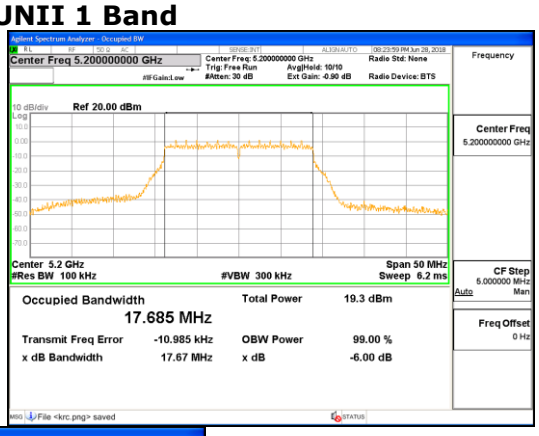
802.11n(HT40)_UNII 3 Band

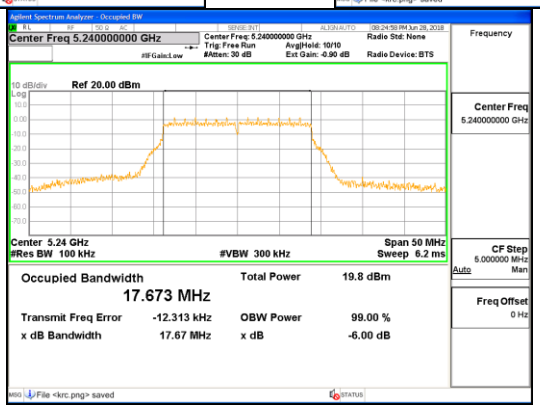




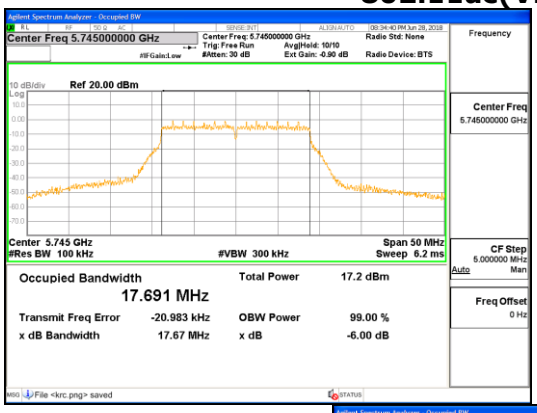
802.11ac(VHT20)_UNII 1 Band

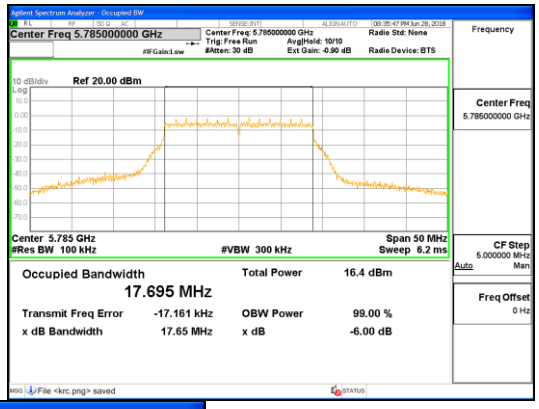


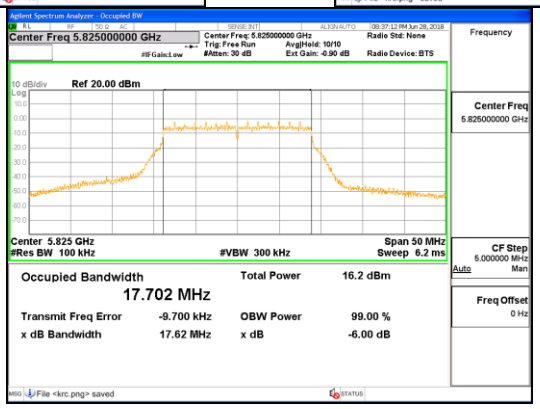




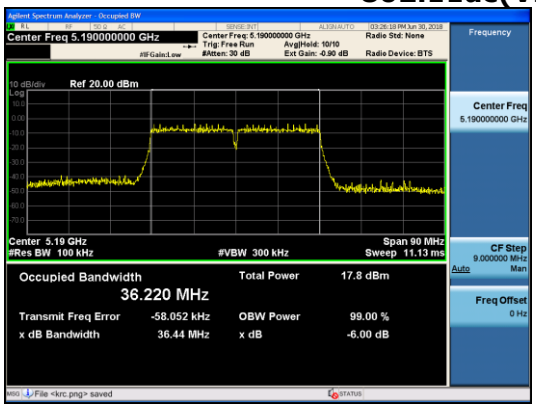
802.11ac(VHT20)_UNII 3 Band

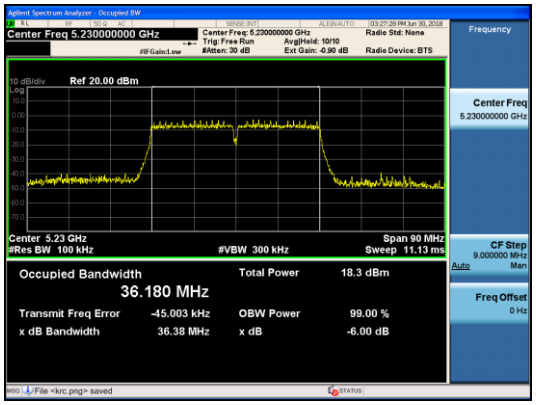




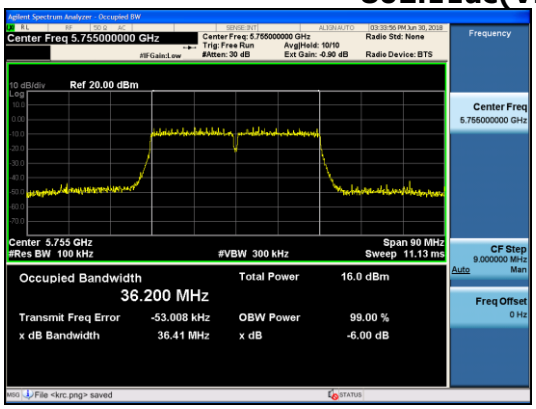


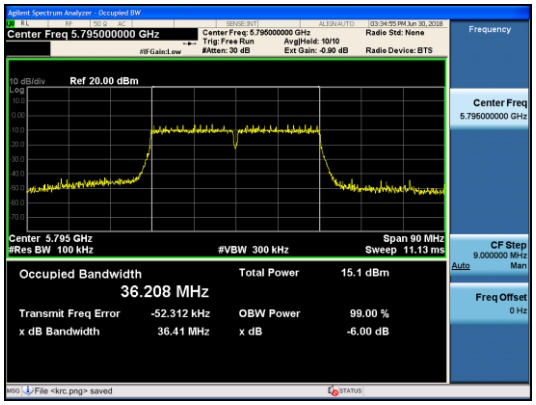
802.11ac(VHT40)_UNII 1 Band



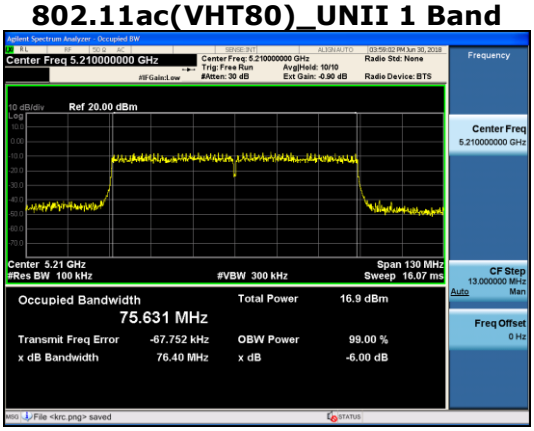


802.11ac(VHT40)_UNII 3 Band

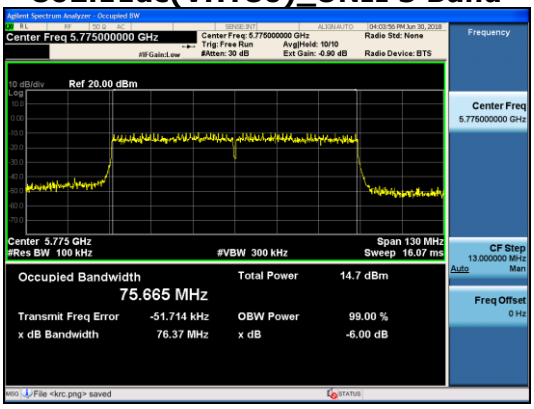




802.11ac(VHT80)_UNII 1 Band

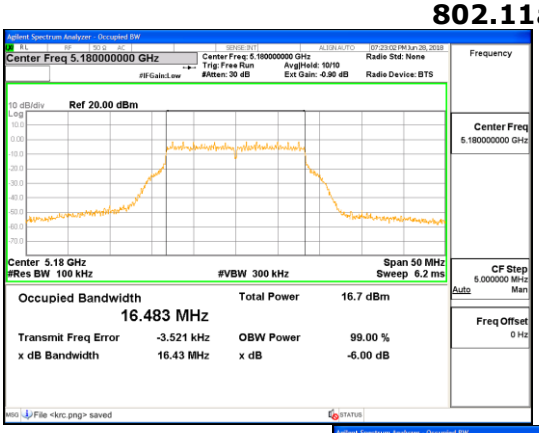


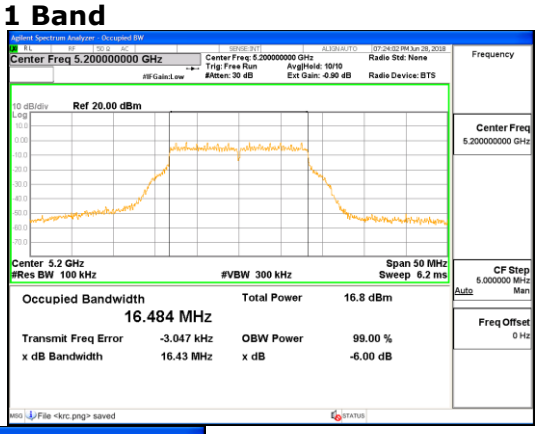
802.11ac(VHT80)_UNII 3 Band

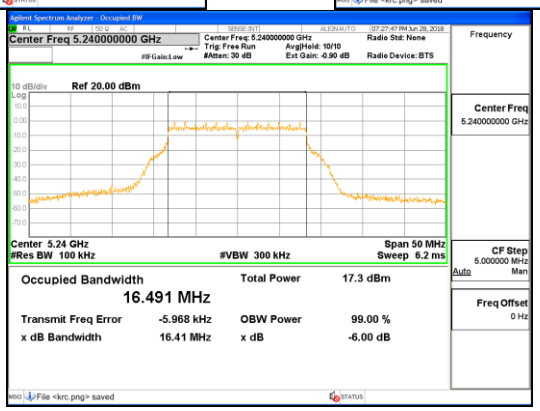


[ANT 1]

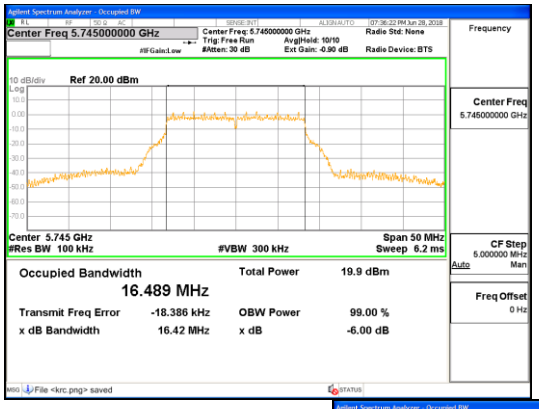
802.11a_UNII 1 Band

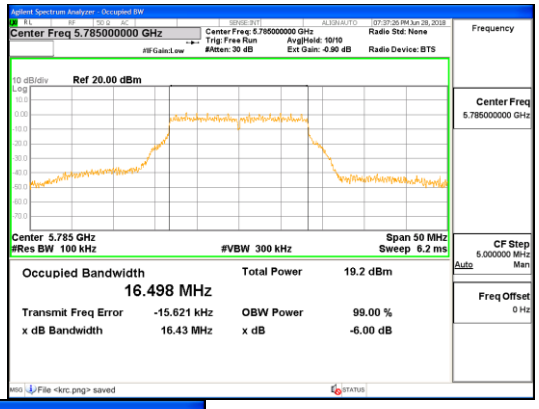


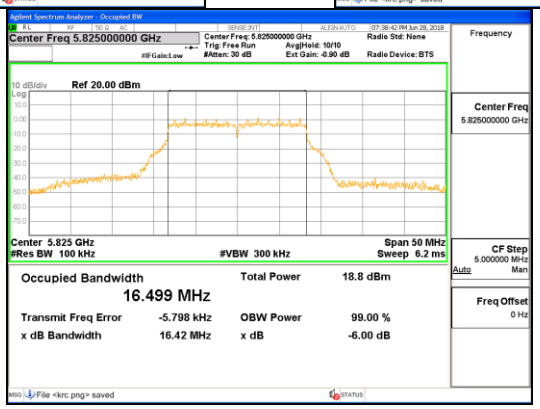




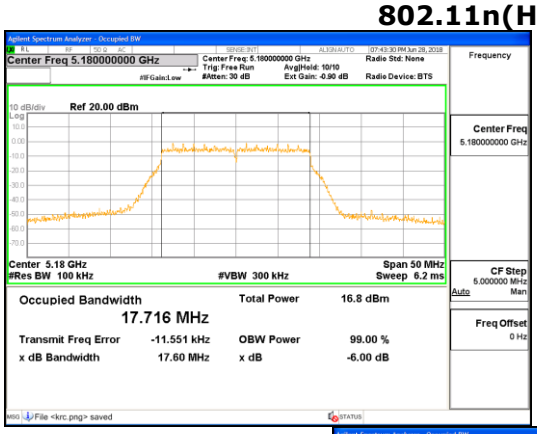
802.11a_UNII 3 Band

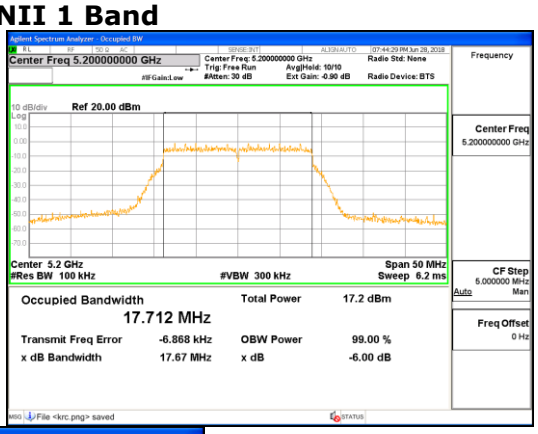


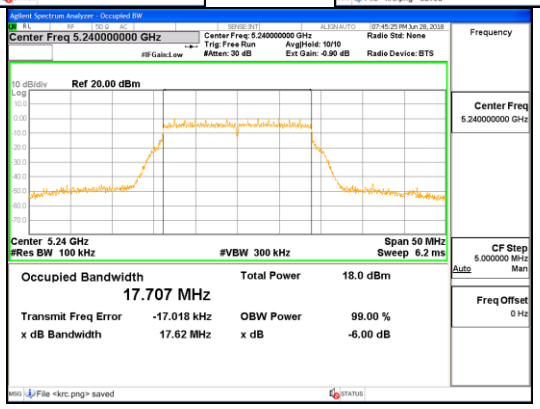




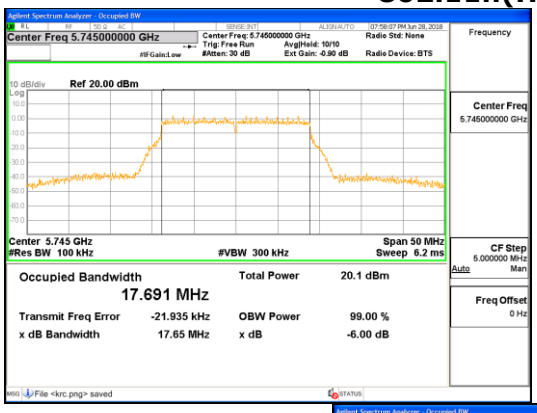
802.11n(HT20)_UNII 1 Band

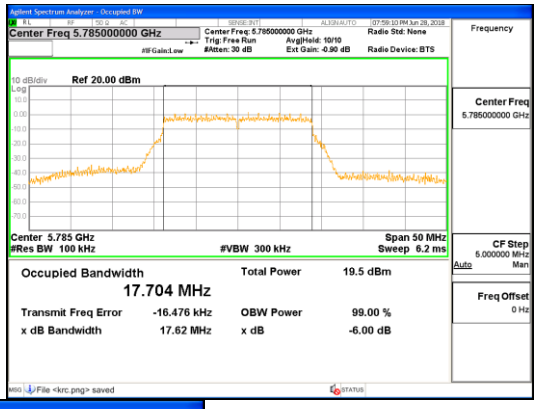


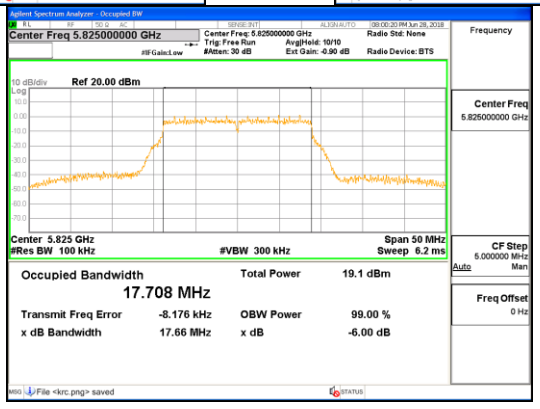




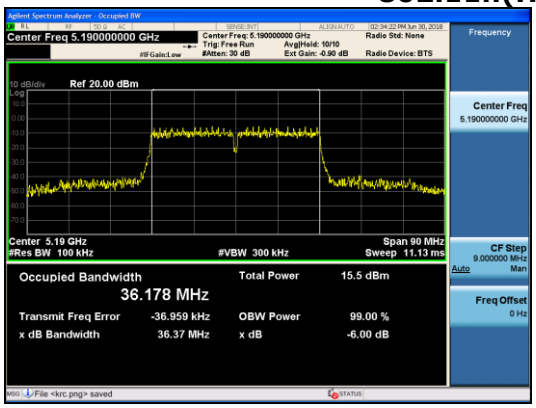
802.11n(HT20)_UNII 3 Band

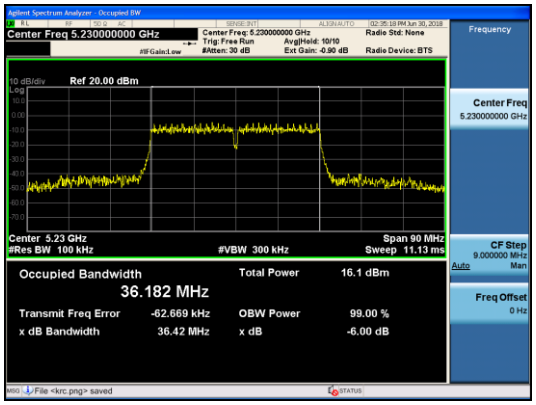




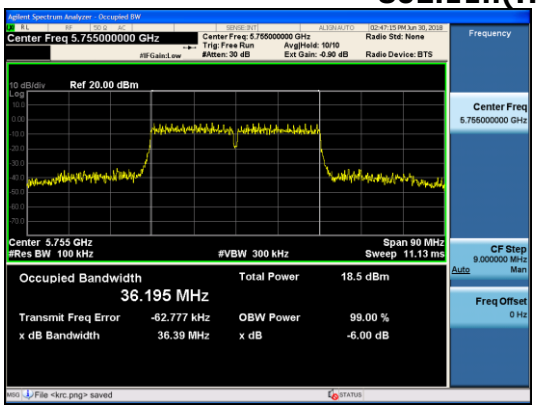


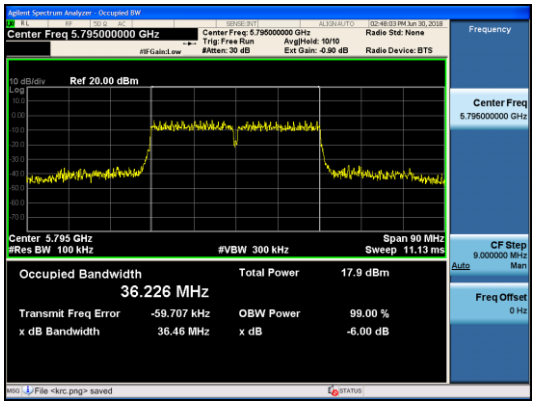
802.11n(HT40)_UNII 1 Band



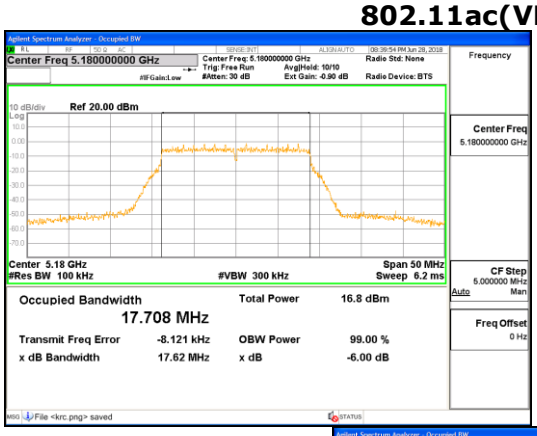


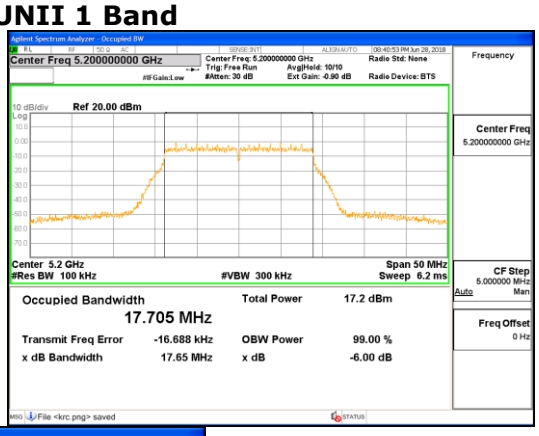
802.11n(HT40)_UNII 3 Band

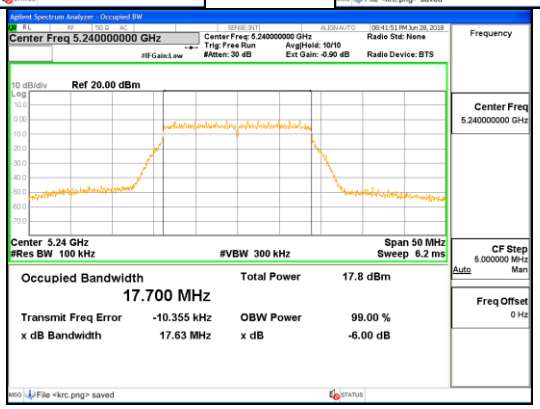




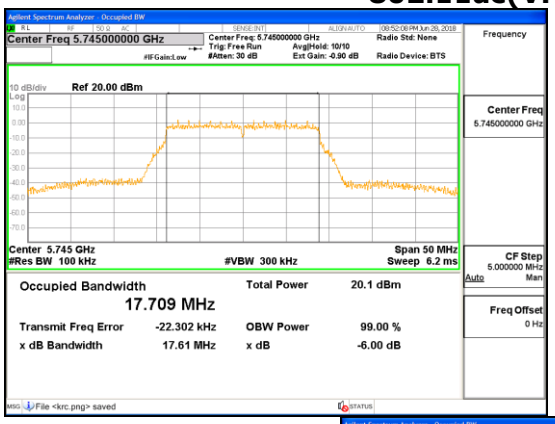
802.11ac(VHT20)_UNII 1 Band

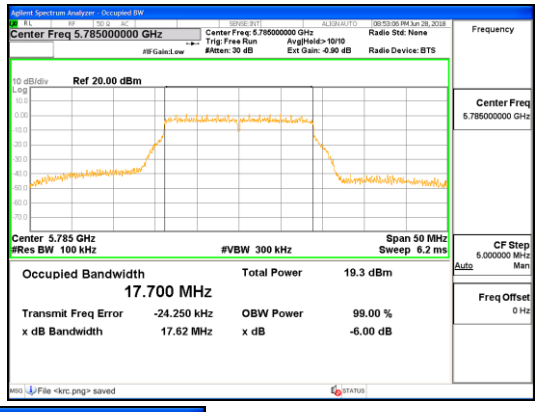


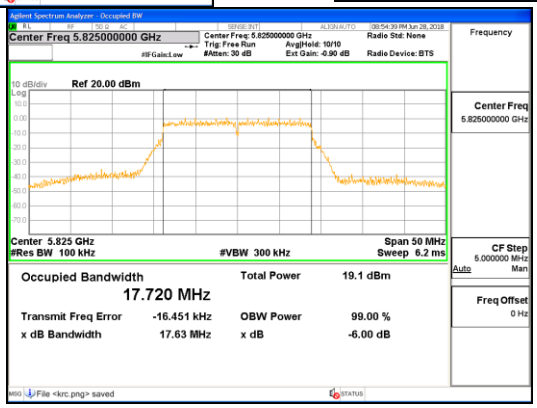




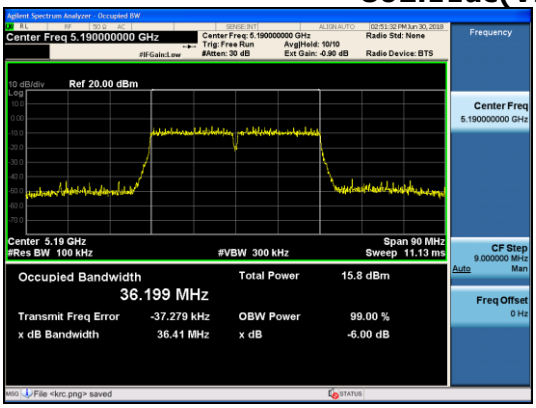
802.11ac(VHT20)_UNII 3 Band

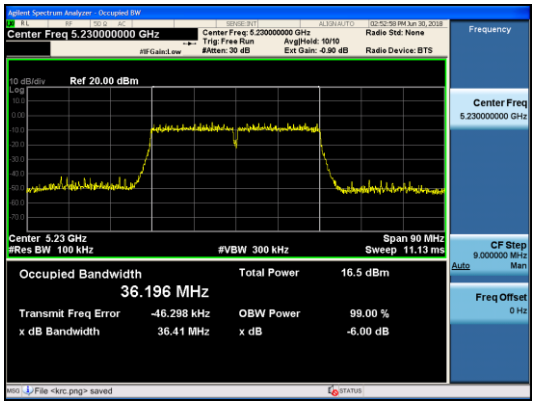




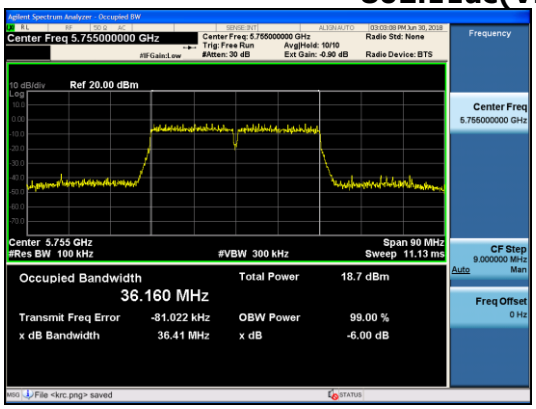


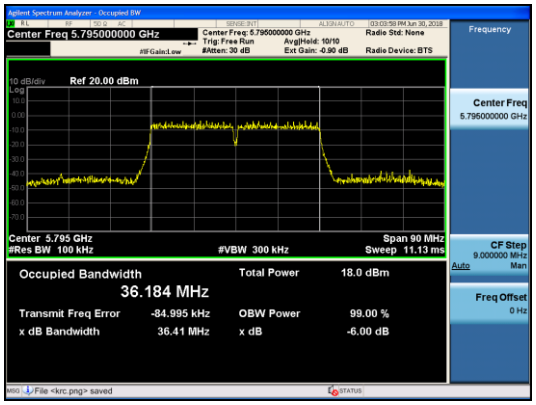
802.11ac(VHT40)_UNII 1 Band



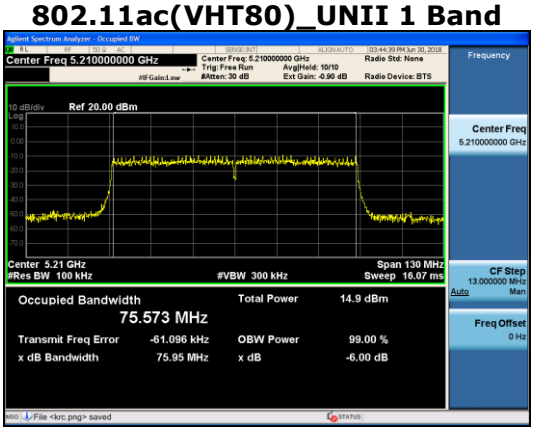


802.11ac(VHT40)_UNII 3 Band

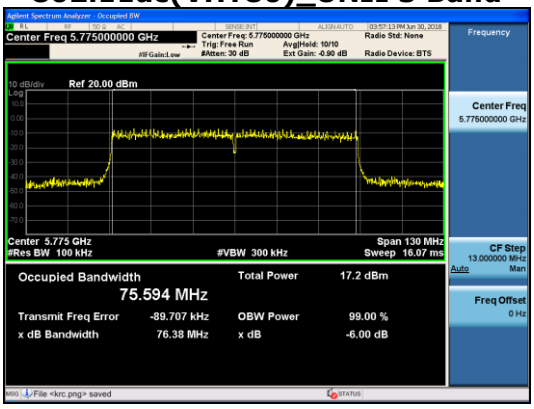




802.11ac(VHT80)_UNII 1 Band



802.11ac(VHT80)_UNII 3 Band

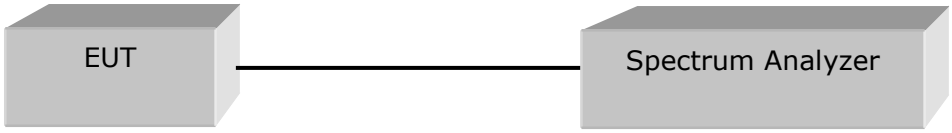


4.3 Maximum Conducted Output Power

Test Procedures

Maximum Conducted Output Power(KDB 789033, Method SA-1)

The transmitter output is connected to a spectrum analyzer and the analyzer's internal channel power integration function is used to integrate the power over a bandwidth greater than or equal to the 99% bandwidth.



Test Settings :

Center frequency = the highest, middle and the lowest channels

a) RBW = 1 MHz

b) VBW ≥ 3 x RBW

c) Sweep time = auto

d) Detector = power averaging (rms)

e) Trace mode = Average at least 100

Limit

For client devices **in the 5.15-5.25 GHz band**, the maximum conducted output power over the frequency band of operation shall **not exceed 250 mW** provided the maximum antenna gain does not exceed 6 dBi.

For the **band 5.725-5.85 GHz**, the maximum conducted output power over the frequency band of operation shall **not exceed 1 W**.

Test Data

802.11a

ANT 0

Frequency Band	Channel	Frequency [MHz]	Measurement data [dBm]	Limit [dBm]	Result
UNII 1	Low	5 180	13.30	24	Complies
	Middle	5 200	13.34		
	High	5 240	13.72		
UNII 3	Low	5 745	11.38	30	Complies
	Middle	5 785	10.74		
	High	5 825	10.36		

ANT 1

Frequency Band	Channel	Frequency [MHz]	Measurement data [dBm]	Limit [dBm]	Result
UNII 1	Low	5 180	10.84	24	Complies
	Middle	5 200	11.01		
	High	5 240	11.55		
UNII 3	Low	5 745	13.92	30	Complies
	Middle	5 785	13.30		
	High	5 825	12.89		

802.11n(HT20)

ANT 0 + ANT 1

Frequency Band	Frequency [MHz]	ANT 0 [dBm]	ANT 1 [dBm]	ANT 0 + ANT 1 [dBm]	Limit [dBm]	Result
UNII 1	5 180	13.30	10.72	15.21	24	Complies
	5 200	13.43	11.18	15.46		
	5 240	13.85	12.05	16.05		
UNII 3	5 745	11.51	13.94	15.90	30	Complies
	5 785	10.85	13.37	15.30		
	5 825	10.55	13.11	15.03		

802.11n(HT40)

ANT 0 + ANT 1

Frequency Band	Frequency [MHz]	ANT 0 [dBm]	ANT 1 [dBm]	ANT 0 + ANT 1 [dBm]	Limit [dBm]	Result
UNII 1	5 190	9.38	7.14	11.41	24	Complies
	5 230	9.69	7.73	11.83		
UNII 3	5 755	7.45	10.07	11.96	30	Complies
	5 795	6.73	9.36	11.25		

802.11ac(VHT20)

ANT 0 + ANT 1

Frequency Band	Frequency [MHz]	ANT 0 [dBm]	ANT 1 [dBm]	ANT 0 + ANT 1 [dBm]	Limit [dBm]	Result
UNII 1	5 180	12.86	10.88	14.99	24	Complies
	5 200	12.98	11.15	15.17		
	5 240	13.36	11.87	15.69		
UNII 3	5 745	10.97	14.03	15.77	30	Complies
	5 785	10.21	13.26	15.01		
	5 825	9.89	13.09	14.79		

802.11ac(VHT40)

ANT 0 + ANT 1

Frequency Band	Frequency [MHz]	ANT 0 [dBm]	ANT 1 [dBm]	ANT 0 + ANT 1 [dBm]	Limit [dBm]	Result
UNII 1	5 190	12.00	9.68	14.00	24	Complies
	5 230	12.57	10.37	14.62		
UNII 3	5 755	10.15	12.42	14.44	30	Complies
	5 795	9.29	11.89	13.79		

802.11ac(VHT80)

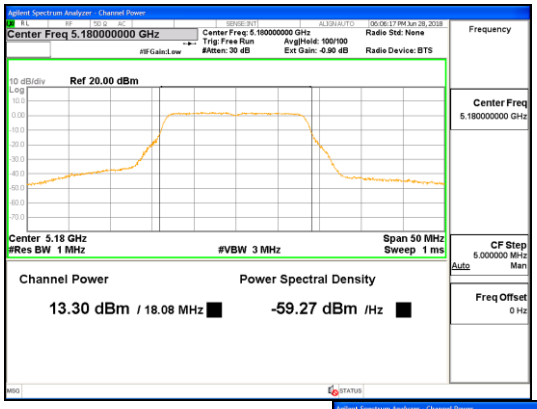
ANT 0 + ANT 1

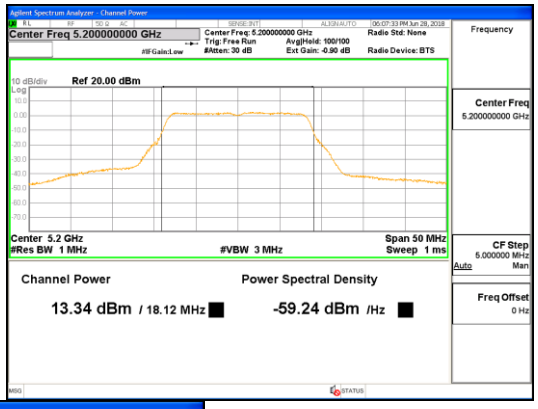
Frequency Band	Frequency [MHz]	ANT 0 [dBm]	ANT 1 [dBm]	ANT 0 + ANT 1 [dBm]	Limit [dBm]	Result
UNII 1	5 210	9.28	6.96	11.28	24	Complies
UNII 3	5 775	6.89	9.34	11.30	30	Complies

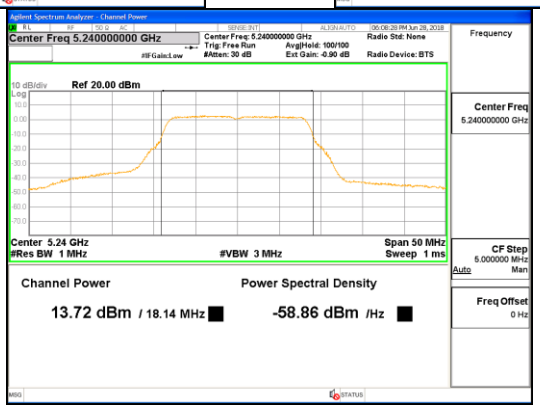
See next pages for actual measured spectrum plots.

802.11a_UNII 1 Band

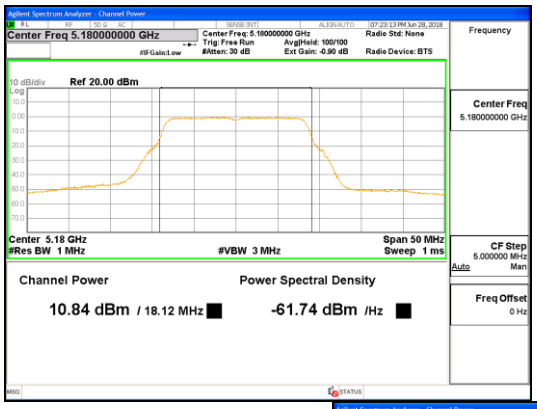
ANT 0

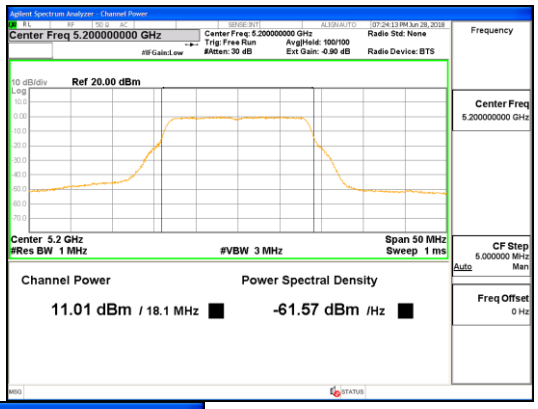


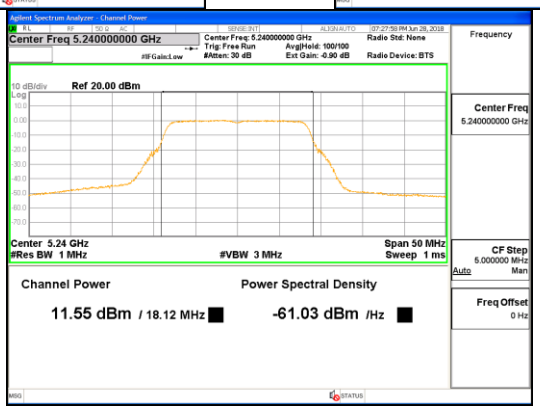




ANT 1

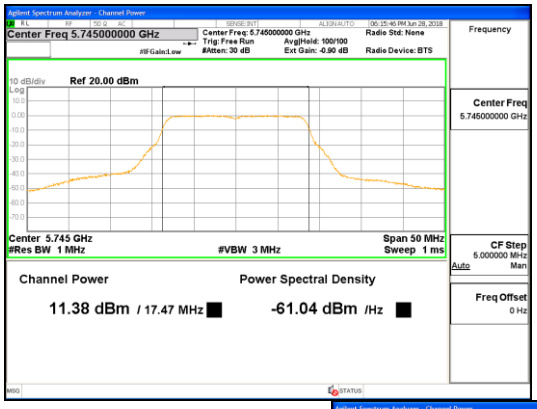


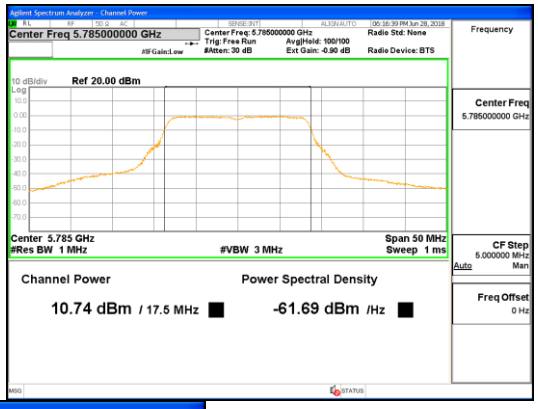


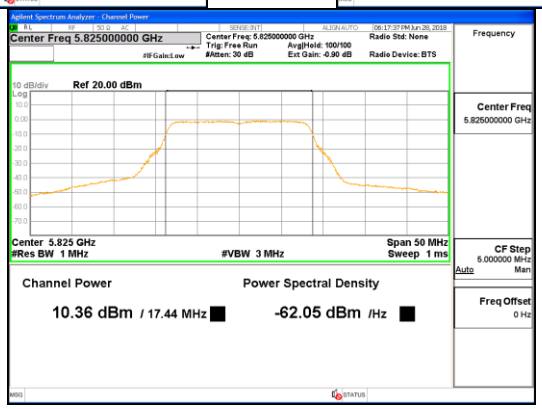


802.11a_UNII 3 Band

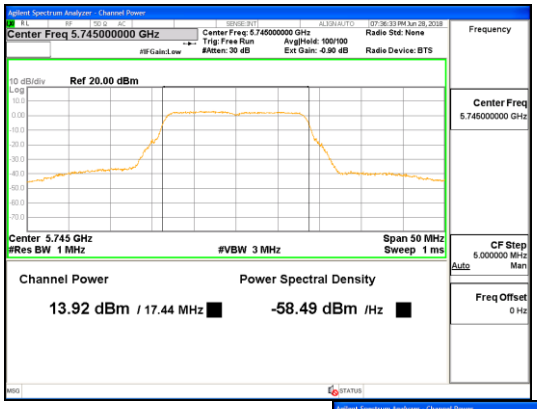
ANT 0

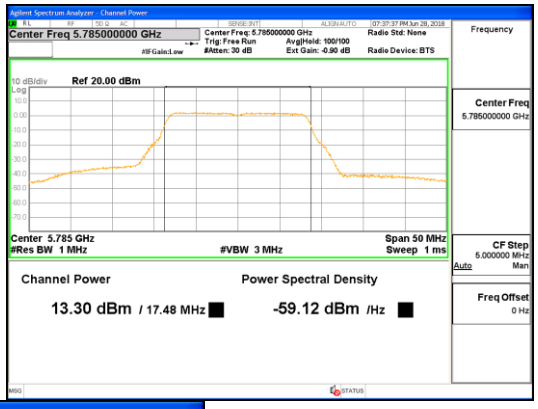


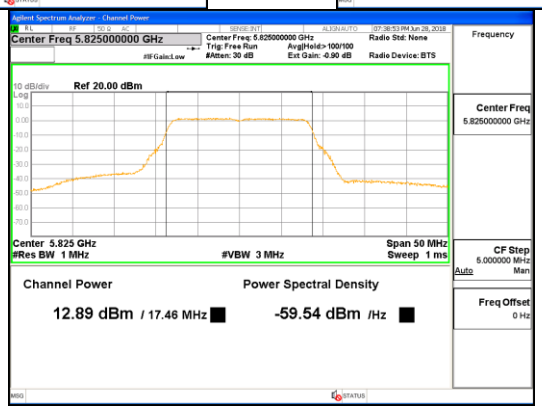




ANT 1

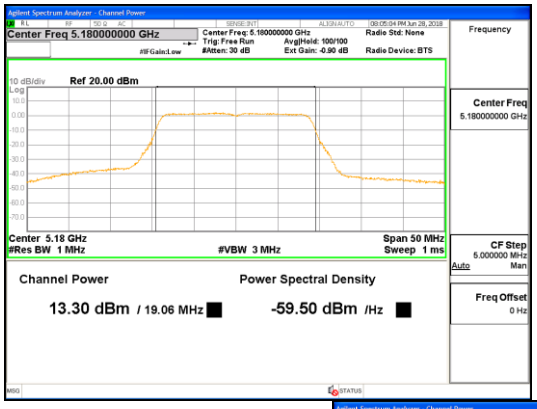


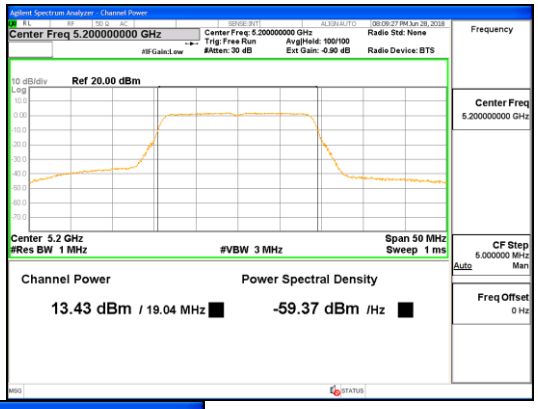


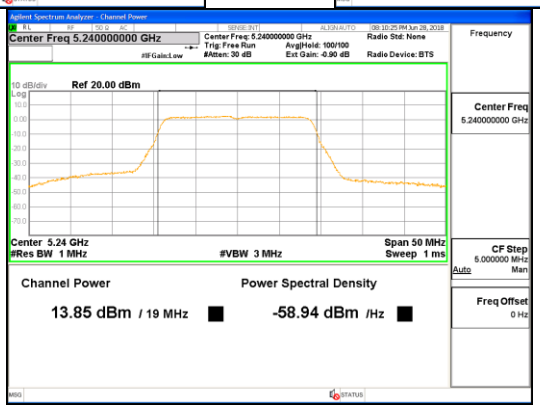


802.11n(HT20)_UNII 1 Band

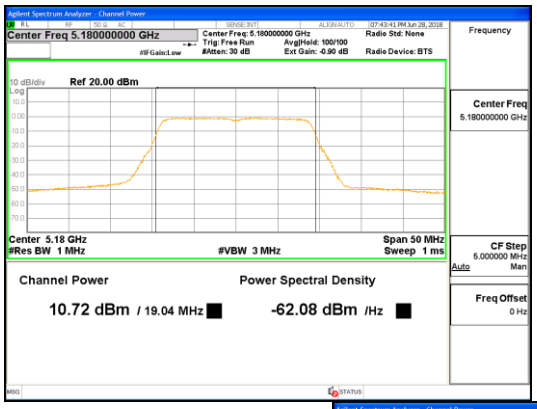
ANT 0

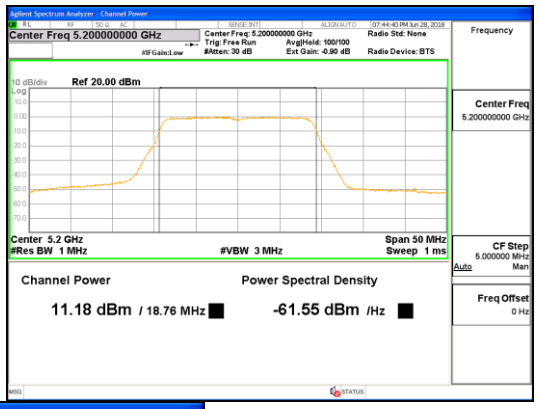


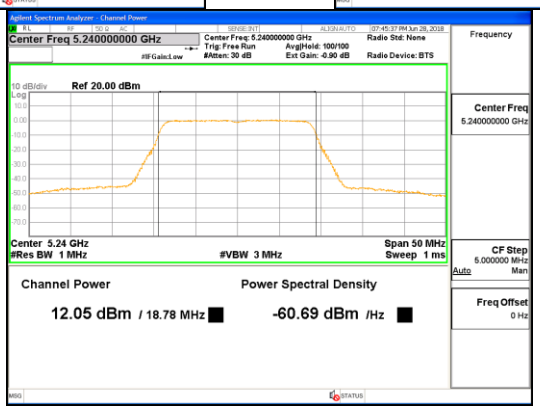




ANT 1

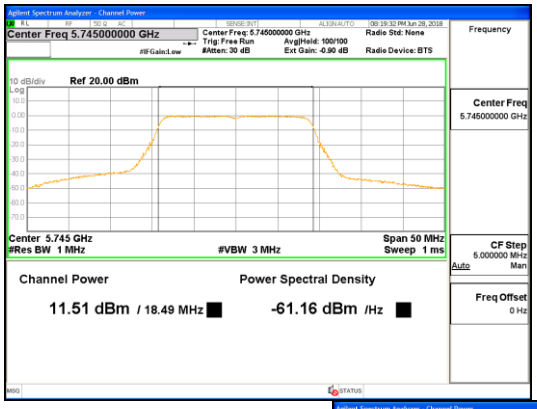


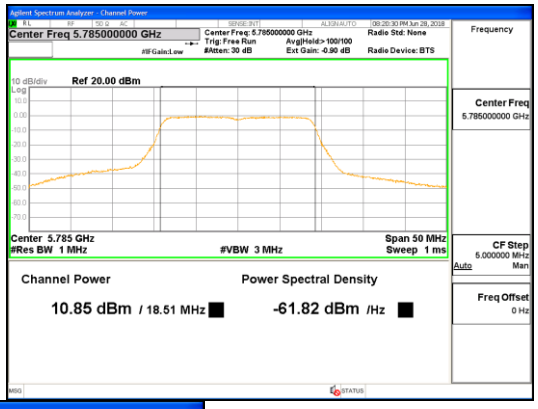


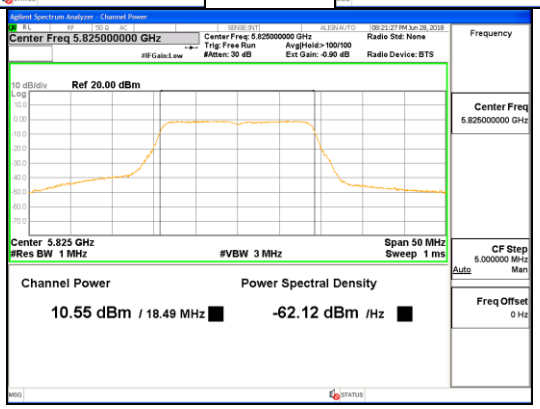


802.11n(HT20)_UNII 3 Band

ANT 0







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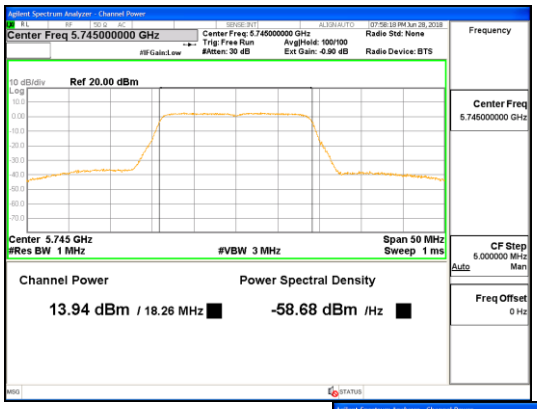
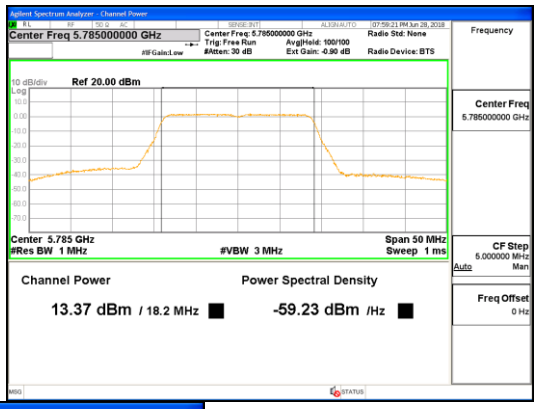
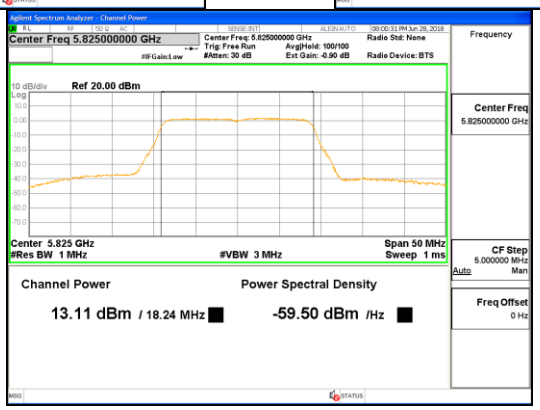
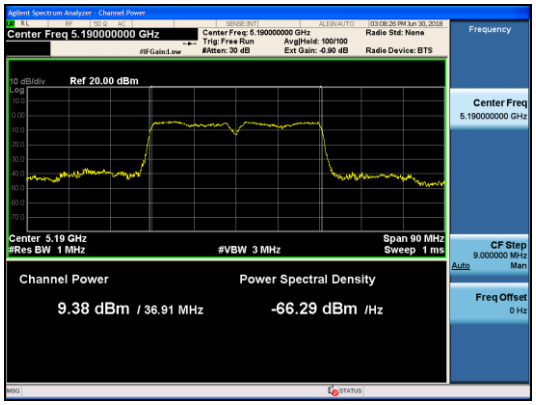


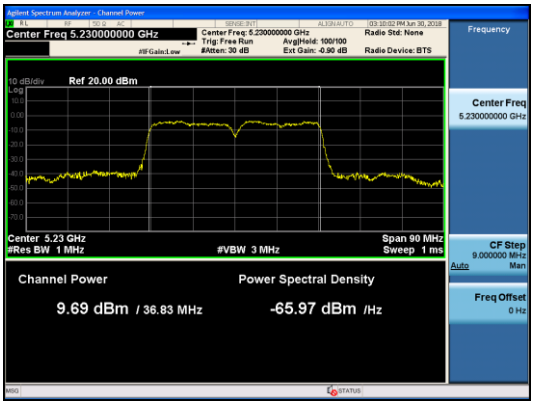




802.11n(HT40)_UNII 1 Band

ANT 0





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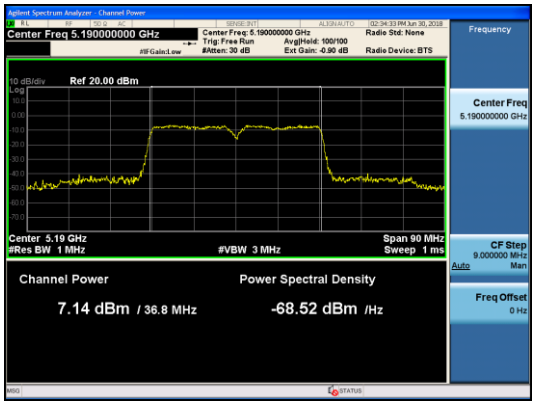
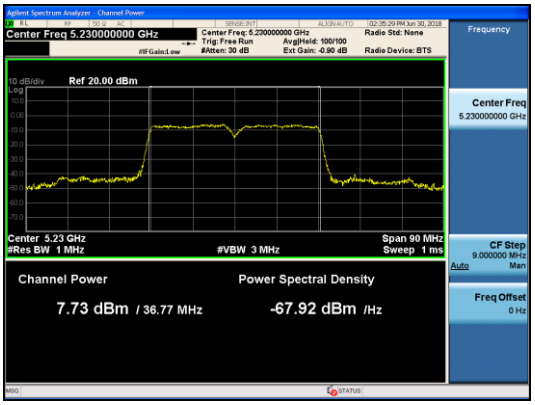
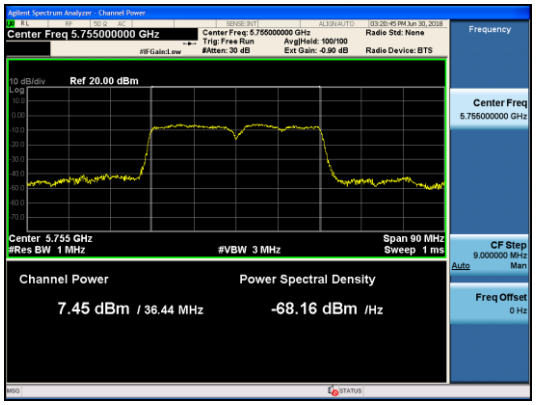
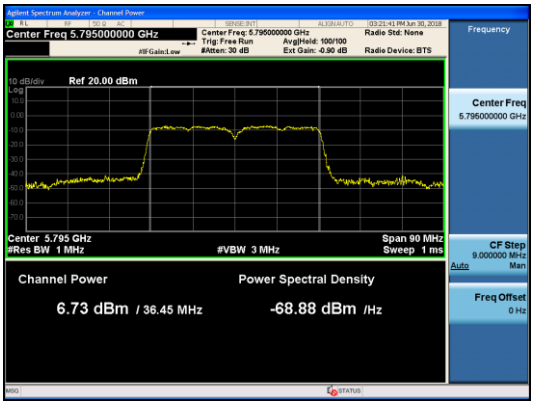




802.11n(HT40)_UNII 3 Band

ANT 0





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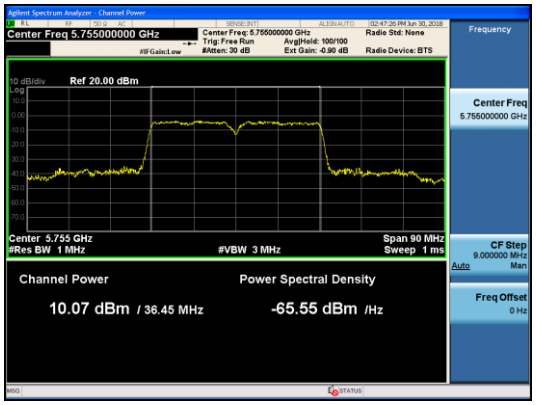
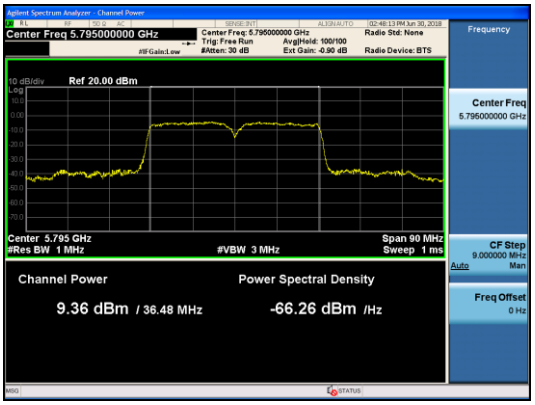
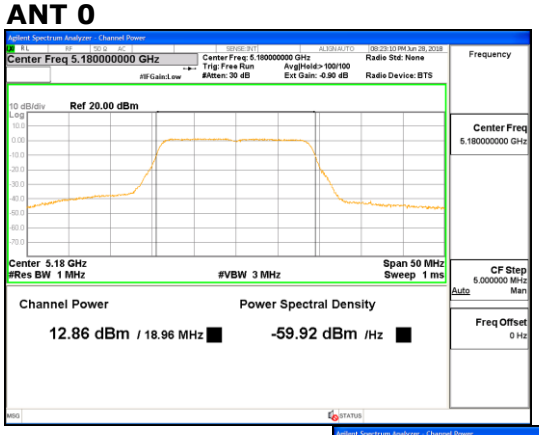
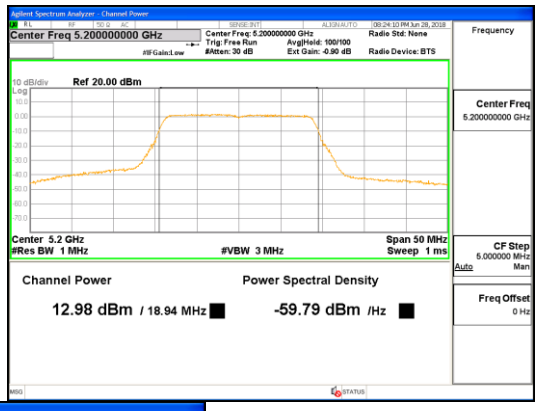


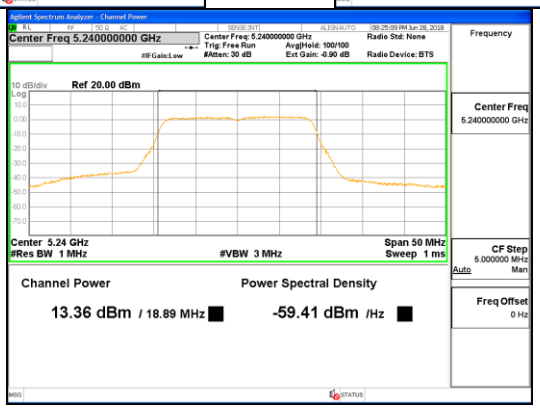


802.11ac(VHT20)_UNII 1 Band

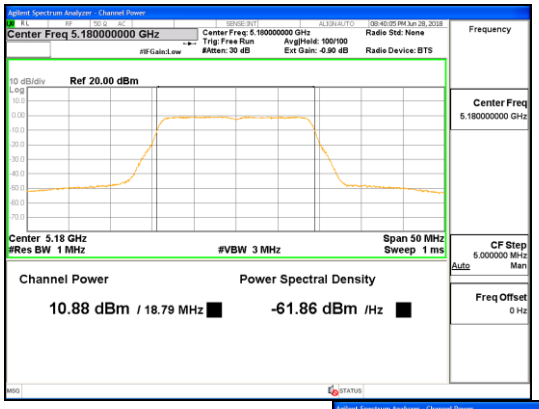
ANT 0

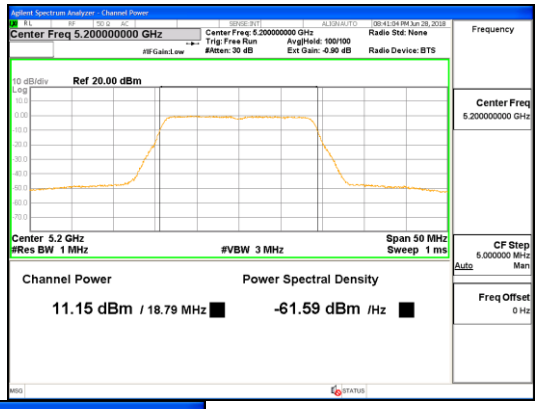


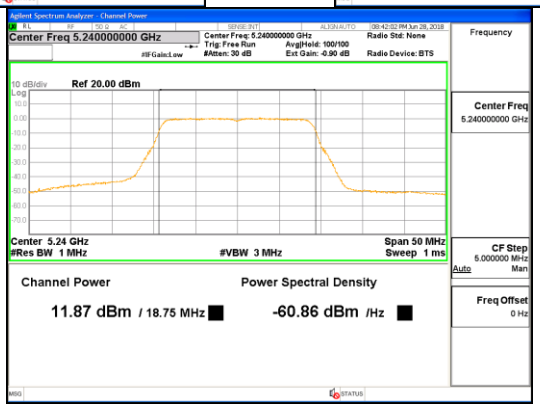




ANT 1

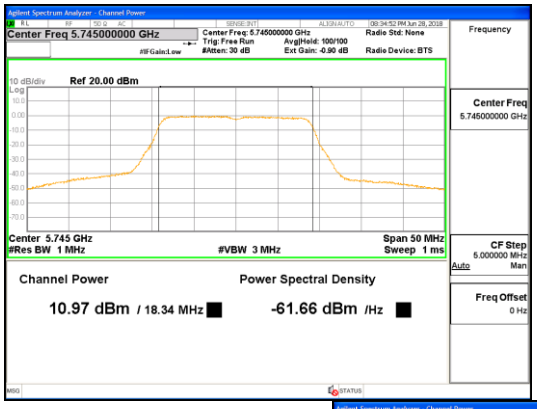


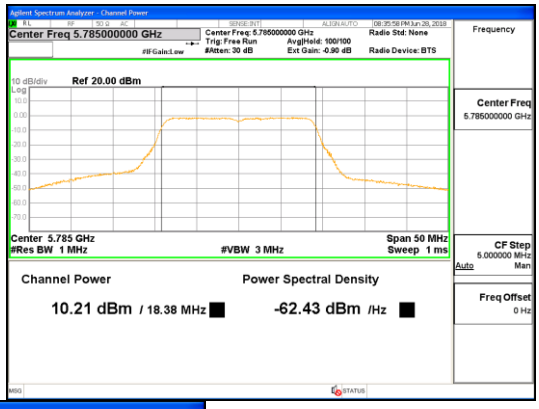


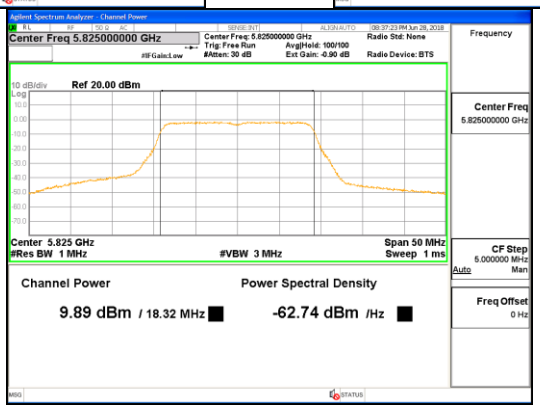


802.11ac(VHT20)_UNII 3 Band

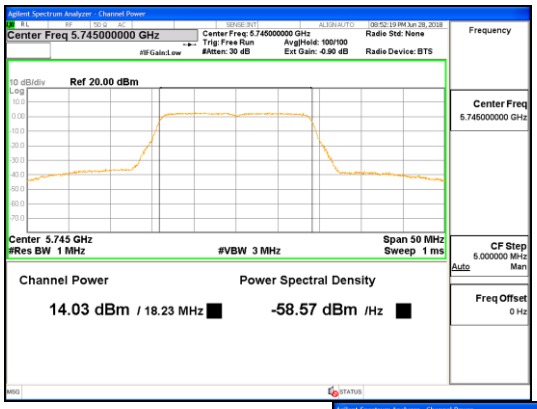
ANT 0

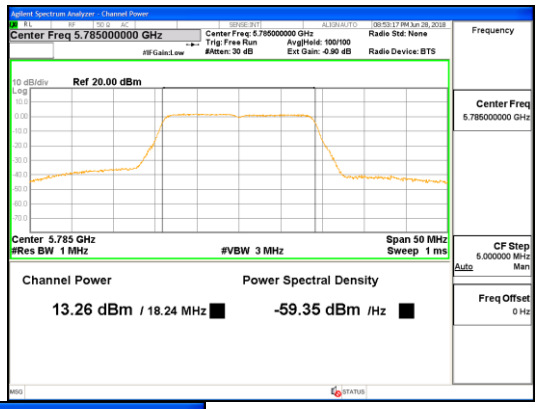


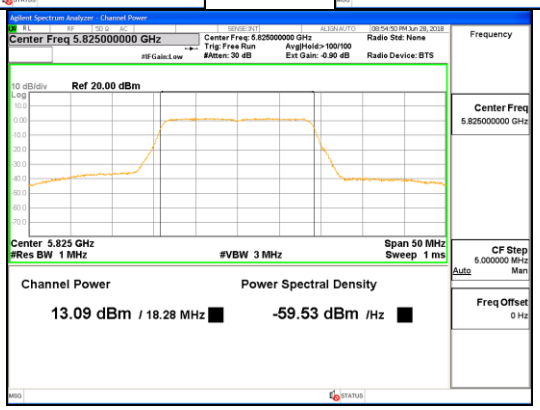




ANT 1

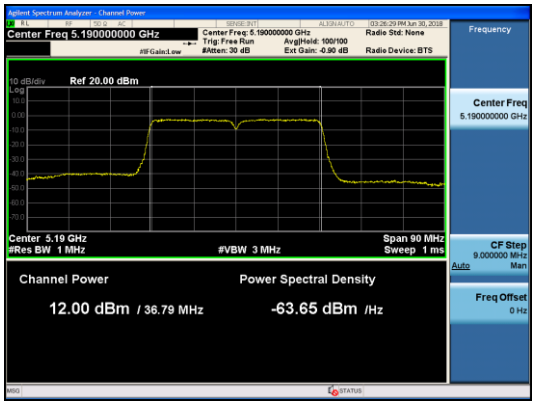


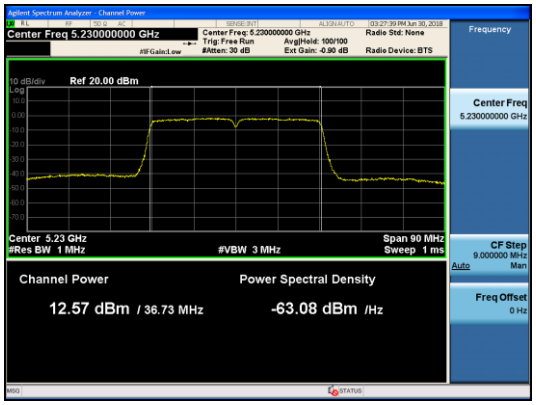




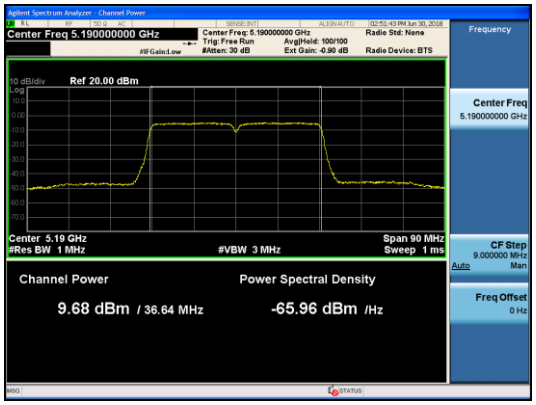
802.11ac(VHT40)_UNII 1 Band

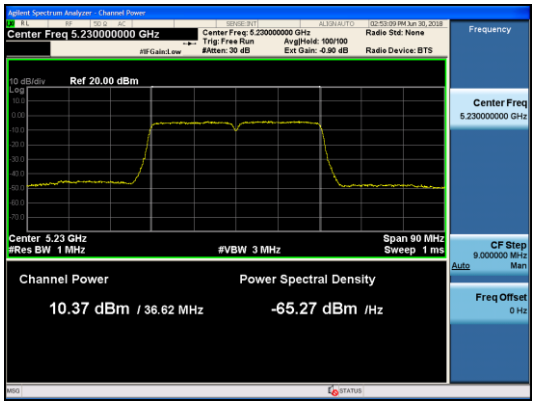
ANT 0





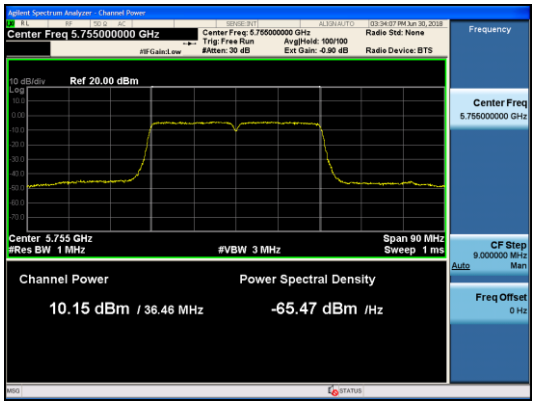
ANT 1

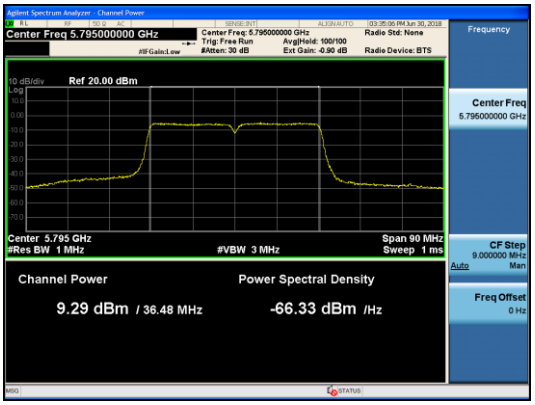




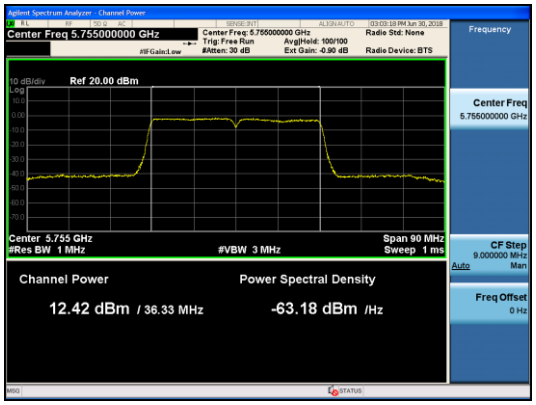
802.11ac(VHT40)_UNII 3 Band

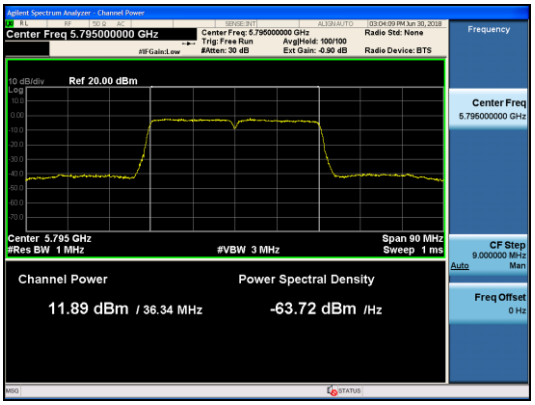
ANT 0





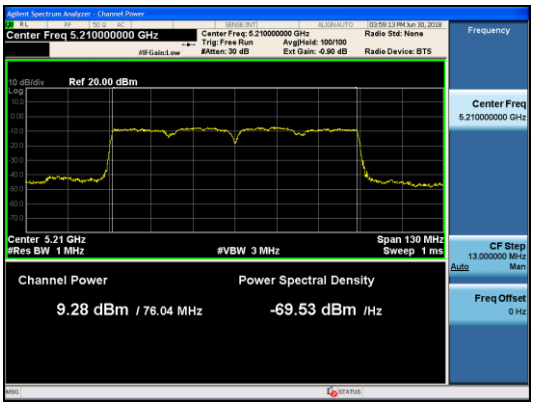
ANT 1



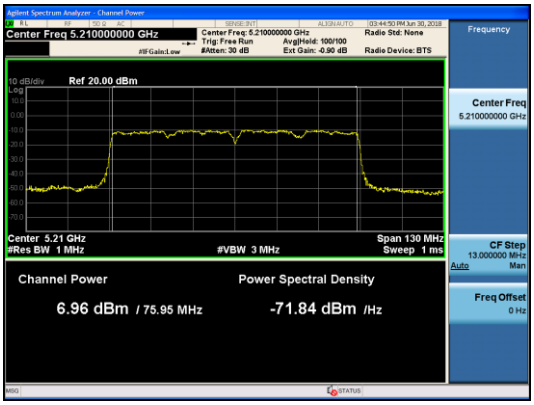


802.11ac(VHT80)_UNII 1 Band

ANT 0



ANT 1



802.11ac(VHT80)_UNII 3 Band

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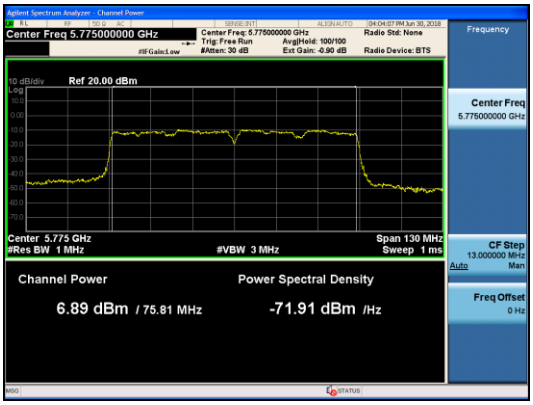

ANT 1