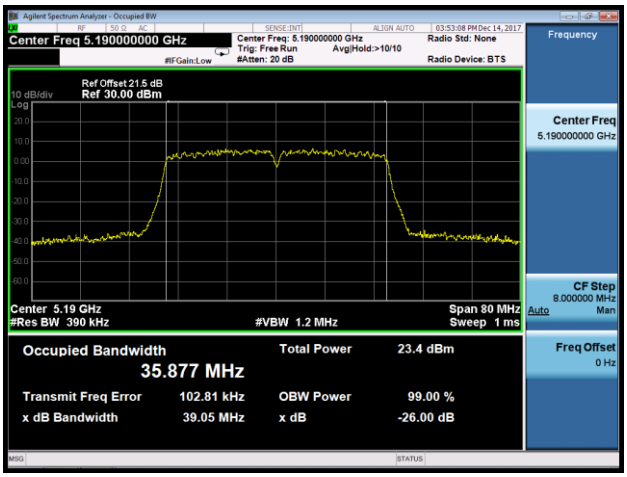
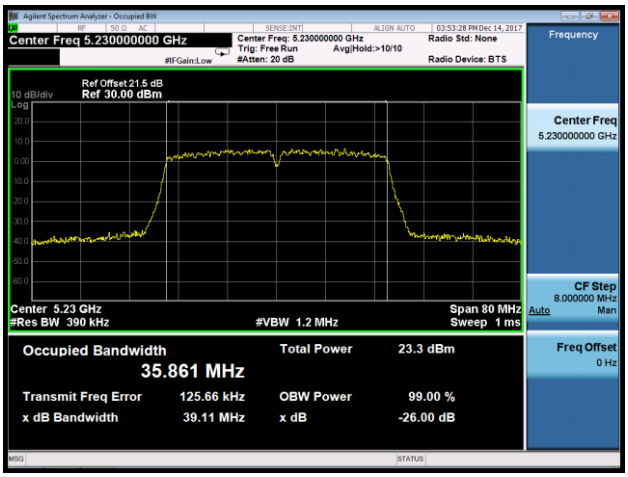
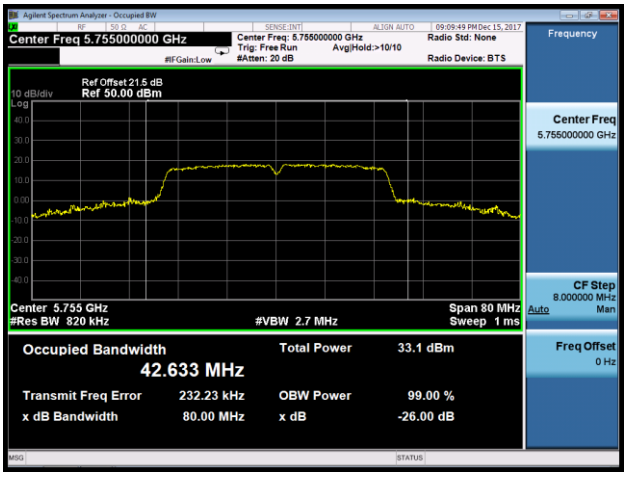
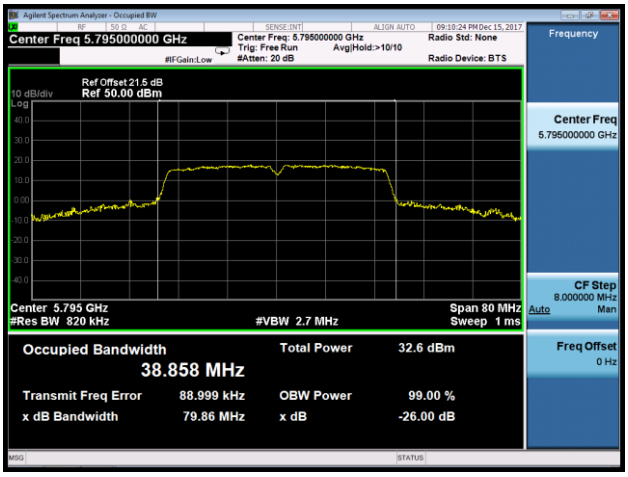
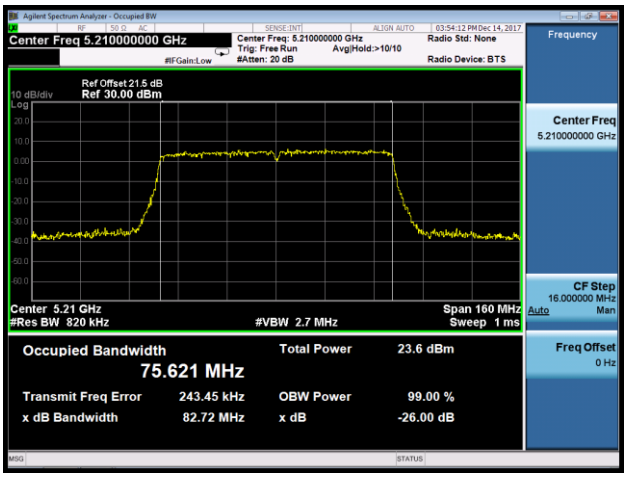
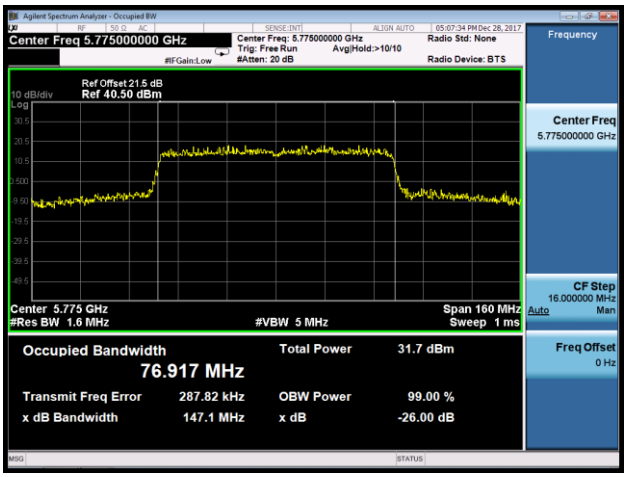
802.11ac-VHT40 26dB Bandwidth & 99% Bandwidth - Ant 1	
Channel 38 (5190MHz)	Channel 46 (5230MHz)
	
Channel 151 (5755MHz)	Channel 159 (5795MHz)
	

802.11ac-VHT80 26dB Bandwidth & 99% Bandwidth - Ant 1	
Channel 42 (5210MHz)	Channel 155 (5775MHz)
	

7.3. 6dB Bandwidth Measurement

7.3.1.Test Limit

The minimum 6dBbandwidth shall be at least 500 kHz.

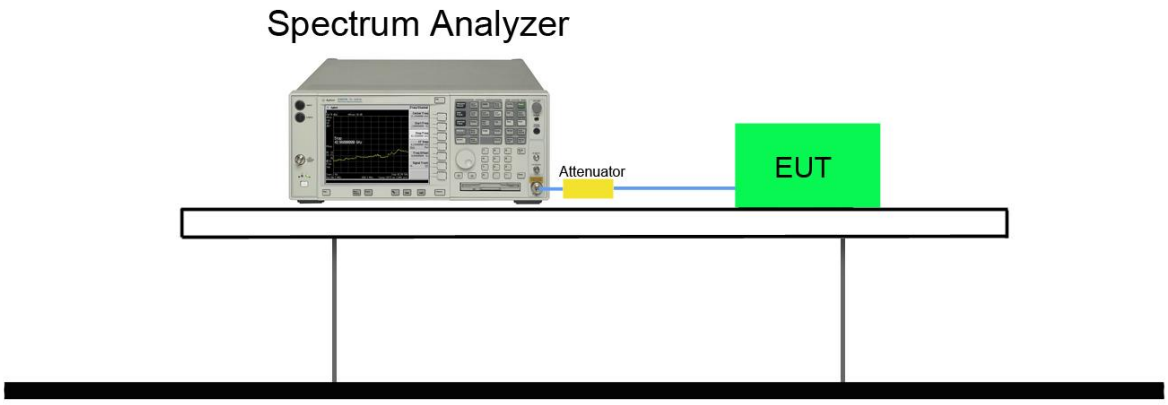
7.3.2.Test Procedure used

KDB 789033 D02v02r01–Section C.2

7.3.3.Test Setting

1. Set center frequency to the nominal EUT channel center frequency.
2. RBW = 100 kHz.
3. VBW≧ 3 × RBW.
4. Detector = Peak.
5. Trace mode = max hold.
6. Sweep = auto couple.
7. Allow the trace to stabilize.
8. 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.

7.3.4.Test Setup

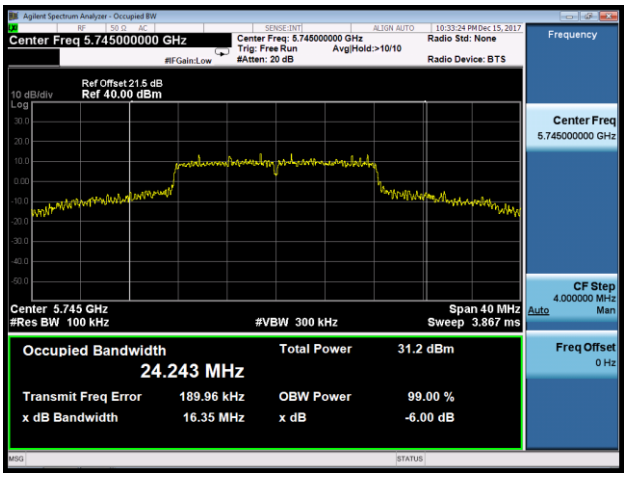
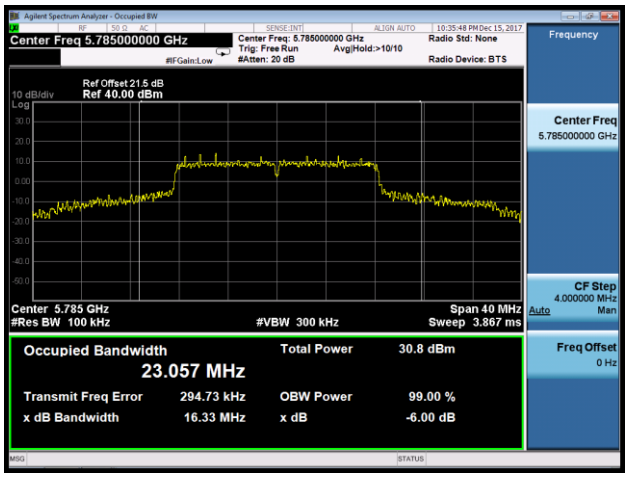
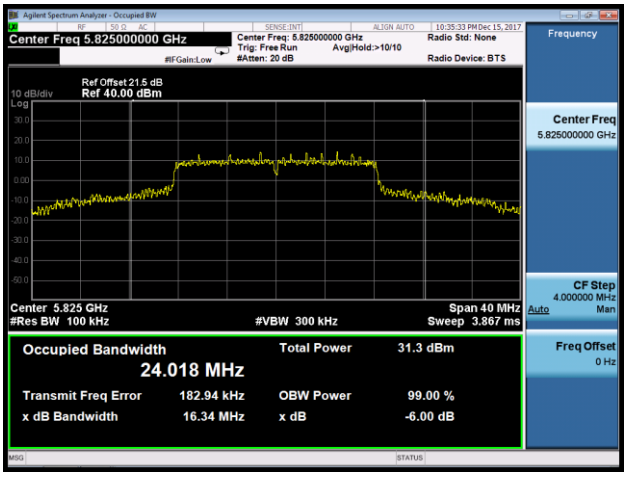


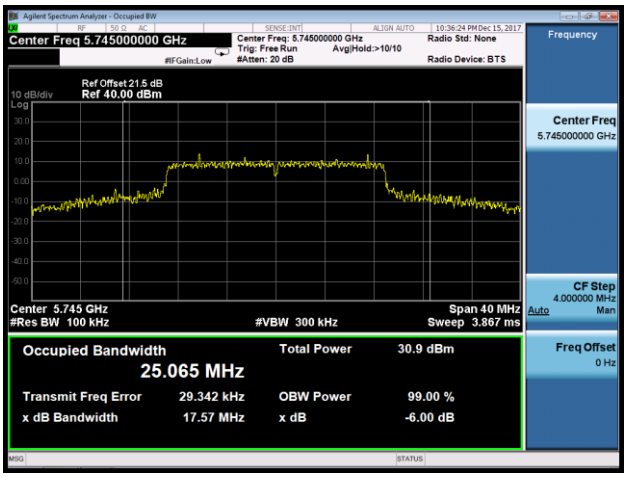
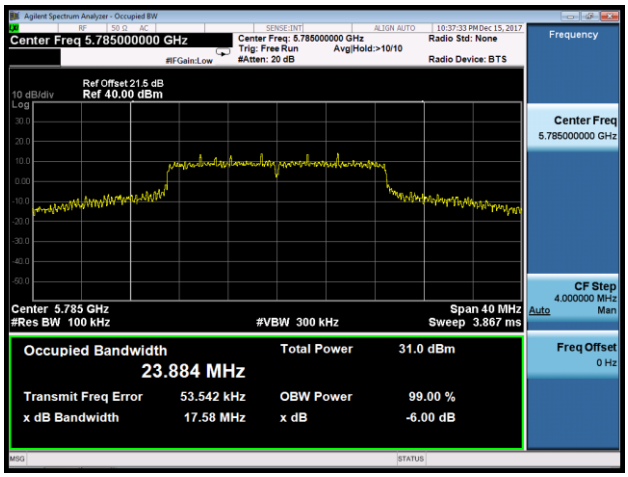
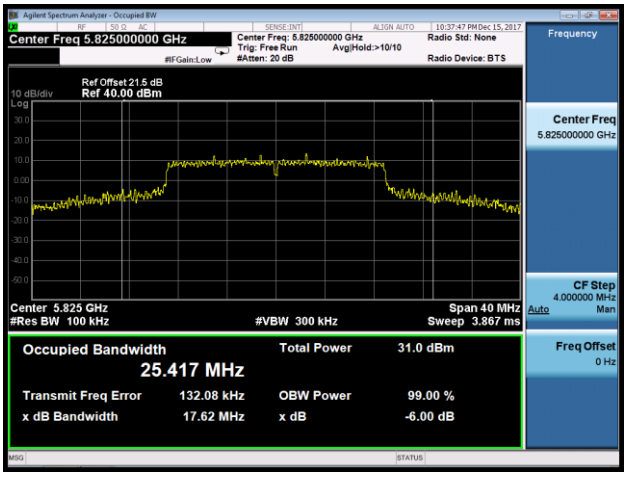
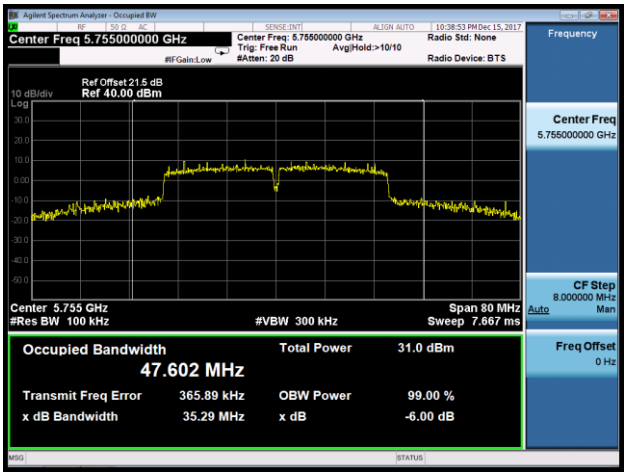
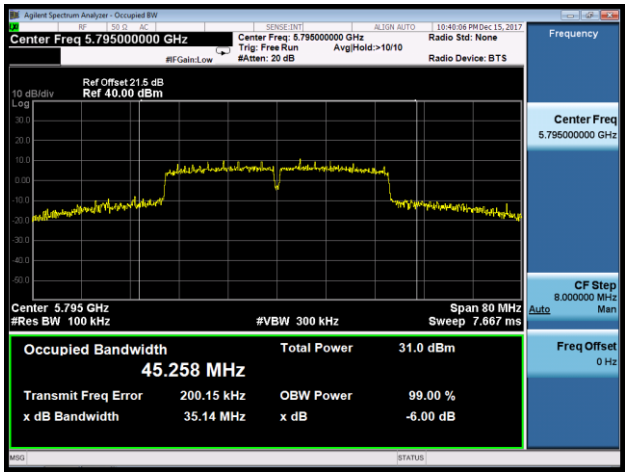
7.3.5.Test Result

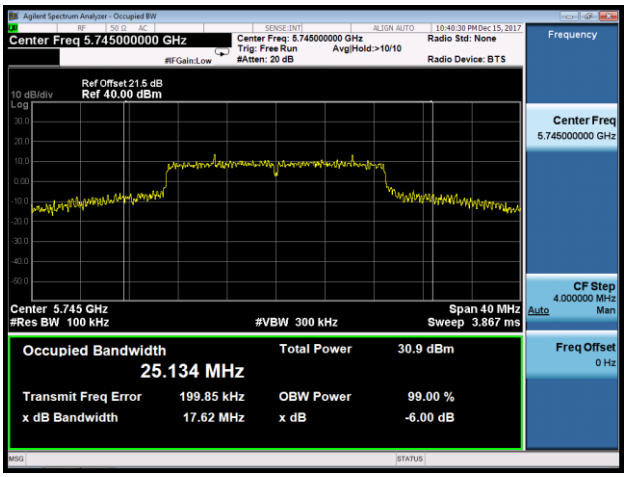
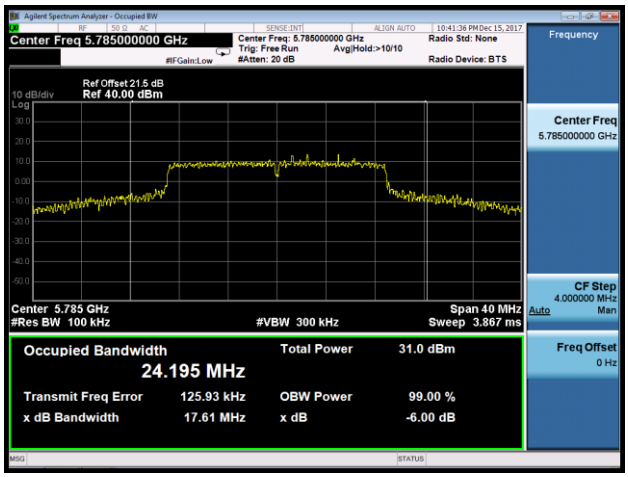
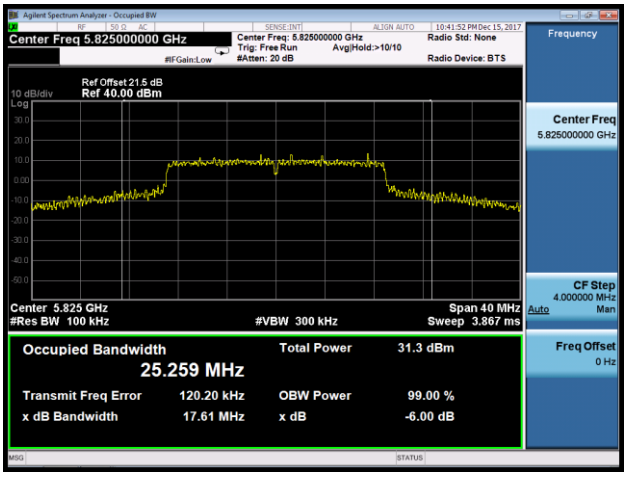
Product	AC220m Wi-Fi module ID US	Temperature	24°C
Test Engineer	Peter Xu	Relative Humidity	59%
Test Site	SR2	Test Date	2017/12/15

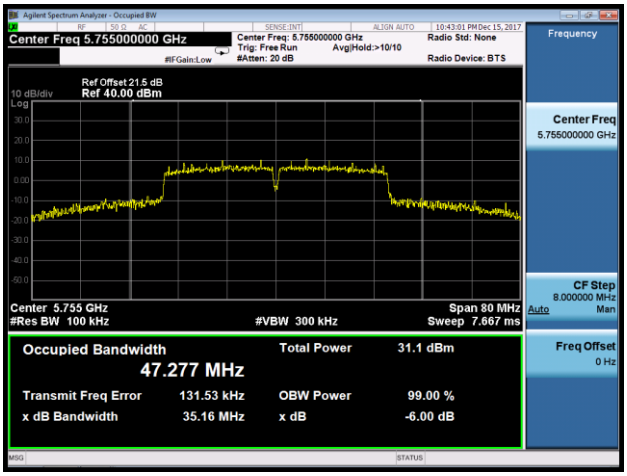
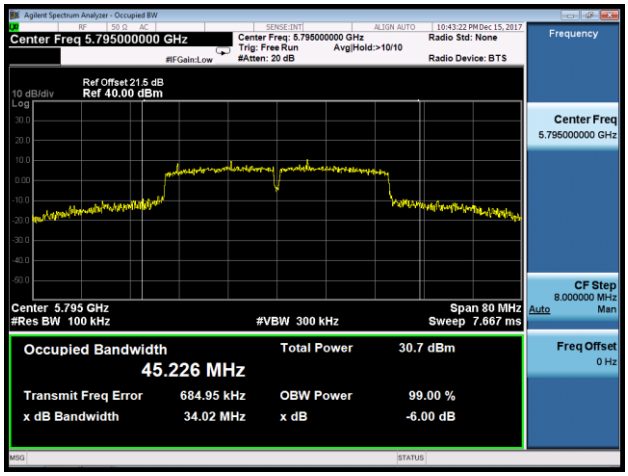
Test Mode	Data Rate/ MCS	Channel No.	Frequency (MHz)	6dB Bandwidth(MHz)	Limit (MHz)	Result
Ant 0						
802.11a	6Mbps	149	5745	16.35	≥ 0.5	Pass
802.11a	6Mbps	157	5785	16.33	≥ 0.5	Pass
802.11a	6Mbps	165	5825	16.34	≥ 0.5	Pass
802.11n-HT20	MCS0	149	5745	17.57	≥ 0.5	Pass
802.11n-HT20	MCS0	157	5785	17.58	≥ 0.5	Pass
802.11n-HT20	MCS0	165	5825	17.62	≥ 0.5	Pass
802.11n-HT40	MCS0	151	5755	35.29	≥ 0.5	Pass
802.11n-HT40	MCS0	159	5795	35.14	≥ 0.5	Pass
802.11ac-VHT20	MCS0	149	5745	17.62	≥ 0.5	Pass
802.11ac-VHT20	MCS0	157	5785	17.61	≥ 0.5	Pass
802.11ac-VHT20	MCS0	165	5825	17.61	≥ 0.5	Pass
802.11ac-VHT40	MCS0	151	5755	35.16	≥ 0.5	Pass
802.11ac-VHT40	MCS0	159	5795	34.02	≥ 0.5	Pass
802.11ac-VHT80	MCS0	155	5775	75.93	≥ 0.5	Pass

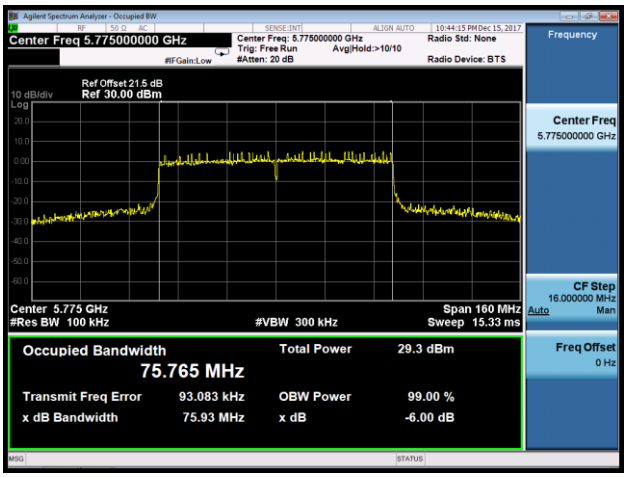
Test Mode	Data Rate/ MCS	Channel No.	Frequency (MHz)	6dB Bandwidth(MHz)	Limit (MHz)	Result
Ant 1						
802.11a	6Mbps	149	5745	16.35	≥ 0.5	Pass
802.11a	6Mbps	157	5785	16.34	≥ 0.5	Pass
802.11a	6Mbps	165	5825	16.33	≥ 0.5	Pass
802.11n-HT20	MCS0	149	5745	17.69	≥ 0.5	Pass
802.11n-HT20	MCS0	157	5785	17.57	≥ 0.5	Pass
802.11n-HT20	MCS0	165	5825	17.58	≥ 0.5	Pass
802.11n-HT40	MCS0	151	5755	34.14	≥ 0.5	Pass
802.11n-HT40	MCS0	159	5795	33.95	≥ 0.5	Pass
802.11ac-VHT20	MCS0	149	5745	17.60	≥ 0.5	Pass
802.11ac-VHT20	MCS0	157	5785	17.59	≥ 0.5	Pass
802.11ac-VHT20	MCS0	165	5825	17.54	≥ 0.5	Pass
802.11ac-VHT40	MCS0	151	5755	33.63	≥ 0.5	Pass
802.11ac-VHT40	MCS0	159	5795	35.12	≥ 0.5	Pass
802.11ac-VHT80	MCS0	155	5775	75.66	≥ 0.5	Pass

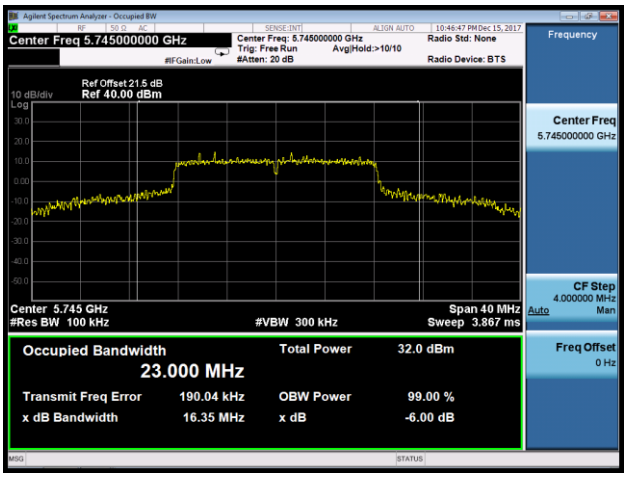
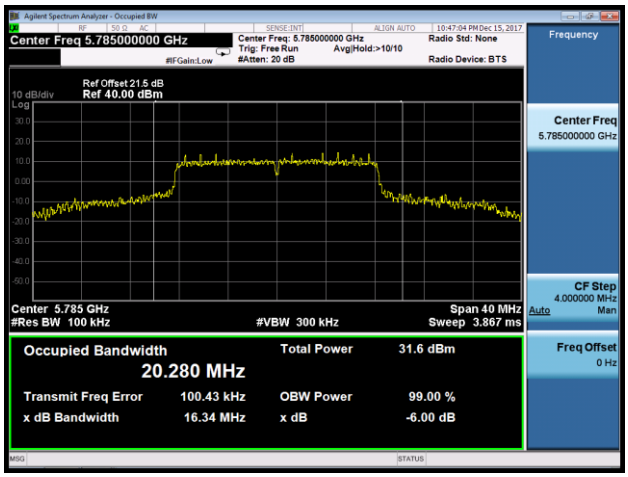
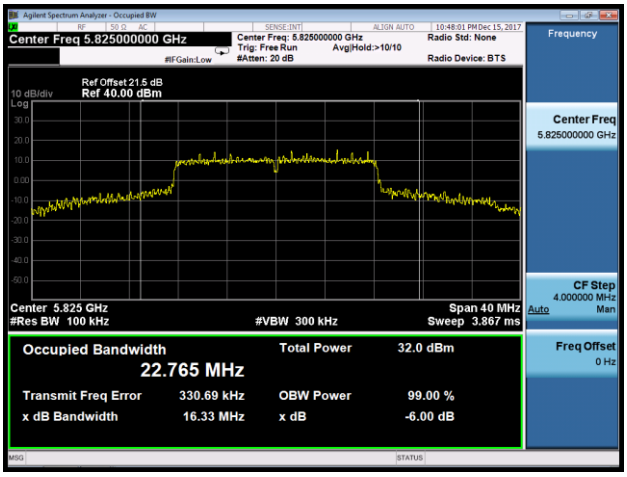
802.11a 6dB Bandwidth - Ant 0	
Channel 149 (5745MHz)	Channel 157 (5785MHz)
	
Channel 165 (5825MHz)	
	

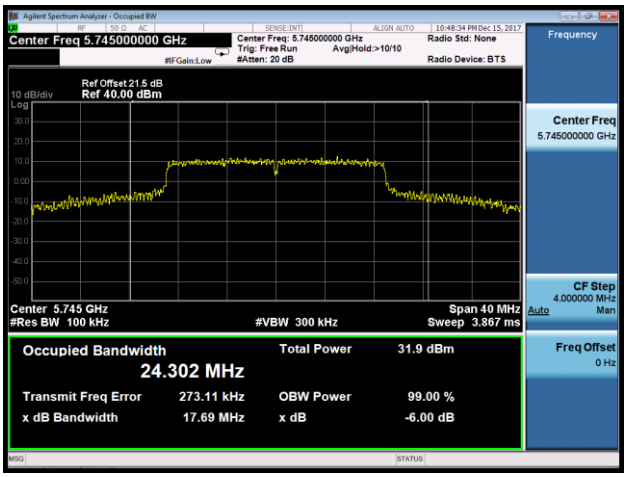
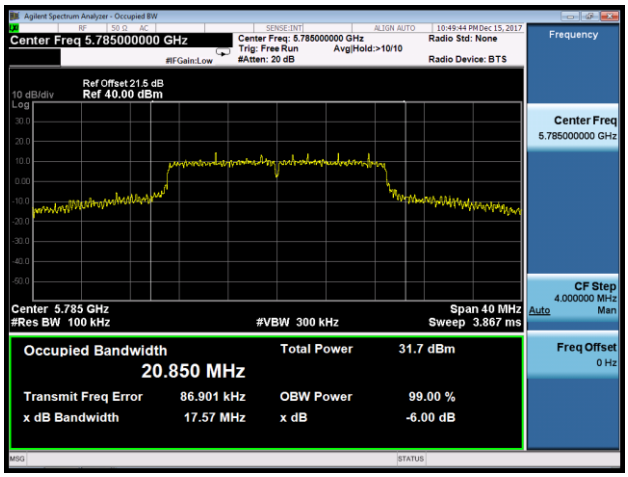
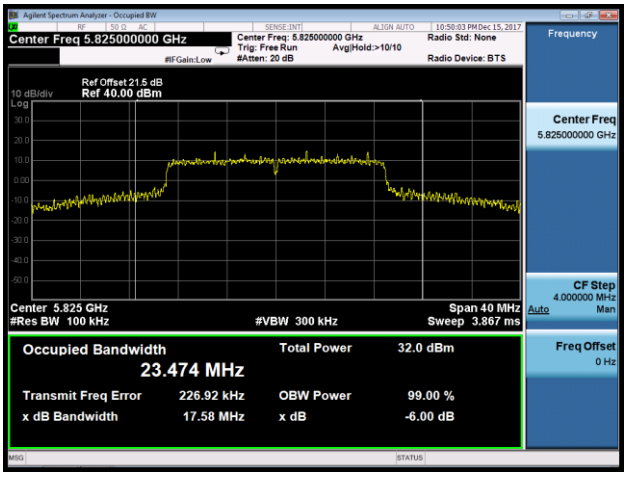
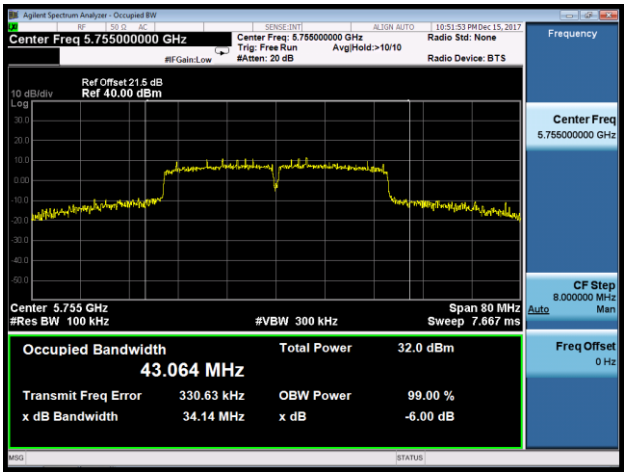
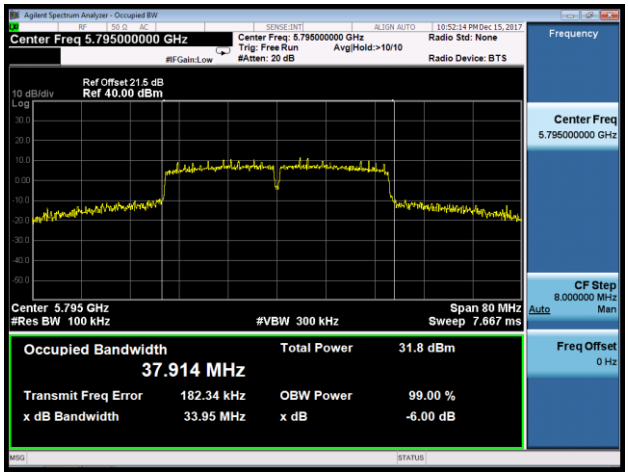
802.11n-HT20 6dB Bandwidth - Ant 0	
Channel 149 (5745MHz)	Channel 157 (5785MHz)
	
Channel 165 (5825MHz)	
	
802.11n-HT40 6dB Bandwidth - Ant 0	
Channel 151 (5755MHz)	Channel 159 (5795MHz)
	

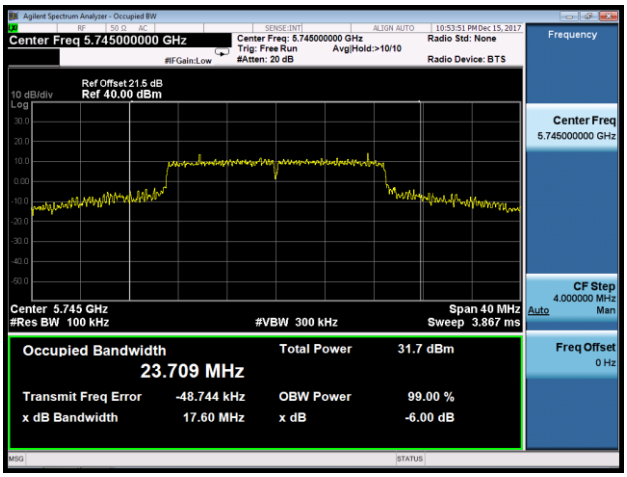
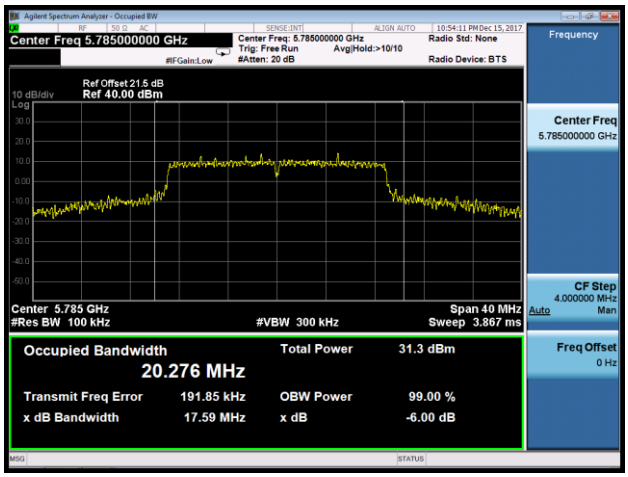
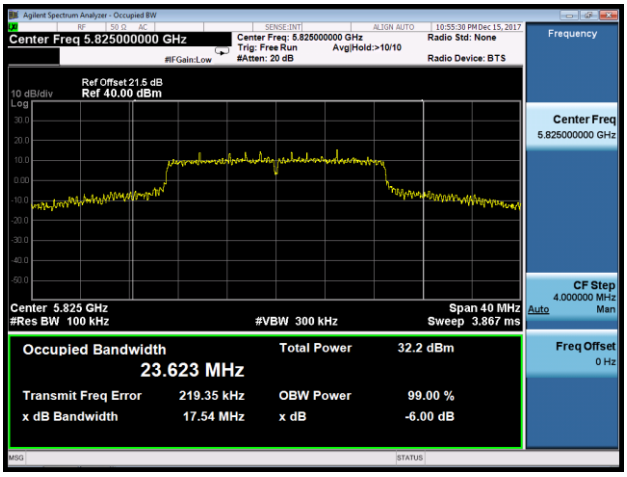
802.11ac-VHT20 6dB Bandwidth - Ant 0	
Channel 149 (5745MHz)	Channel 157 (5785MHz)
	
Channel 165 (5825MHz)	
	

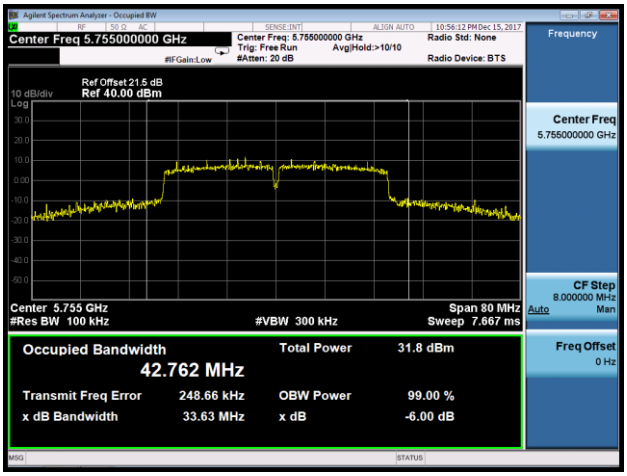
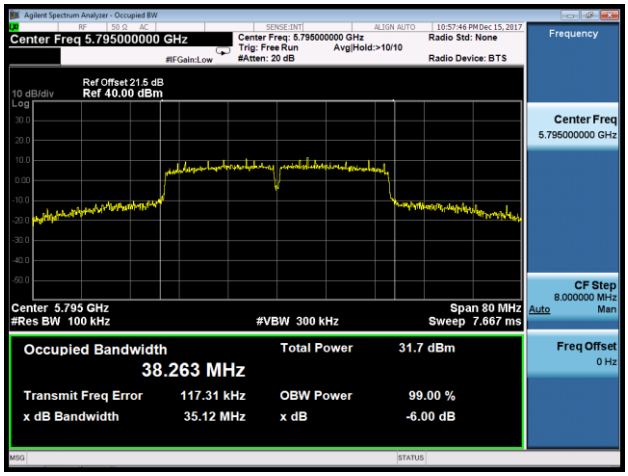
802.11ac-VHT40 6dB Bandwidth - Ant 0	
Channel 151 (5755MHz)	Channel 159 (5795MHz)
	

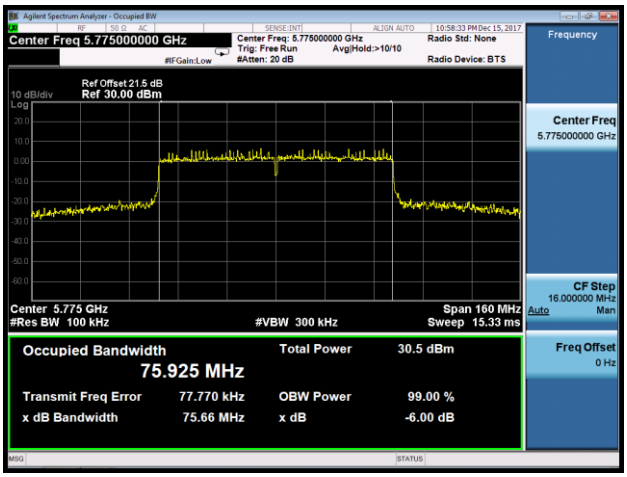
802.11ac-VHT80 6dB Bandwidth - Ant 0	
Channel 155 (5775MHz)	
	

802.11a 6dB Bandwidth - Ant 1	
Channel 149 (5745MHz)	Channel 157 (5785MHz)
	
Channel 165 (5825MHz)	
	

802.11n-HT20 6dB Bandwidth - Ant 1	
Channel 149 (5745MHz)	Channel 157 (5785MHz)
	
Channel 165 (5825MHz)	
	
802.11n-HT40 6dB Bandwidth - Ant 1	
Channel 151 (5755MHz)	Channel 159 (5795MHz)
	

802.11ac-VHT20 6dB Bandwidth - Ant 1	
Channel 149 (5745MHz)	Channel 157 (5785MHz)
	
Channel 165 (5825MHz)	
	

802.11ac-VHT40 6dB Bandwidth - Ant 1	
Channel 151 (5755MHz)	Channel 159 (5795MHz)
	

802.11ac-VHT80 6dB Bandwidth - Ant 1	
Channel 155 (5775MHz)	
	

7.4. Output Power Measurement

7.4.1.Test Limit

For an indoor access point operating in the band 5.15-5.25 GHz, the maximum conductedoutput power over the frequency band of operation shall not exceed 1 W provided the maximumantenna 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 (30dBm).

If transmitting antennas of directional gain greater than 6dBi are used, the maximumconducted output power shall be reduced by the amount in dB that the directional gain of theantenna exceeds 6dBi.

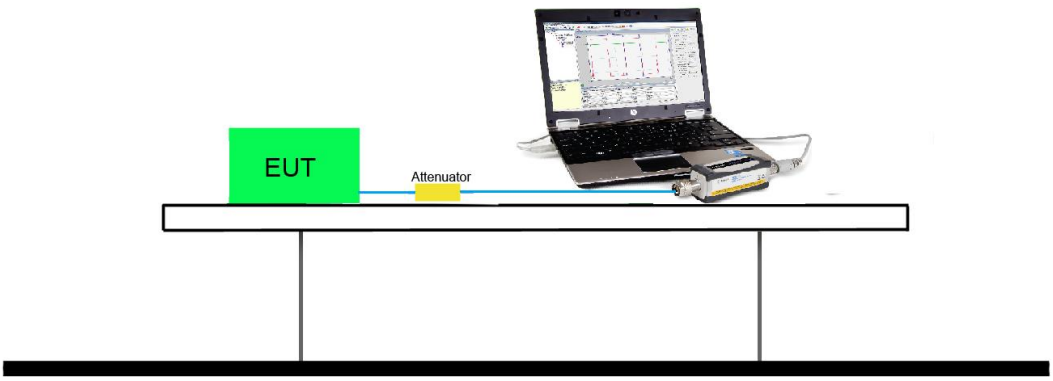
7.4.2.Test Procedure Used

KDB 789033D02v01r04- Section E)3)b) Method PM-G

7.4.3.Test Setting

Average power measurements were perform only when the EUT was transmitting at its maximum power control level using a broadband power meter with a pulse sensor. The power meter implemented triggering and gating capabilities which were set up such that power measurements were recorded only during the ON time of the transmitter.

7.4.4.Test Setup



7.4.5.Test Result

Power output test was verified over all data rates of each mode shown as below table, and then choose the maximum power output (gray marker) for final test of each channel.

For Ant 0 port:

Test Mode	Bandwidth	Channel	Frequency (MHz)	Data Rate/ MCS	Average Power (dBm)
802.11a	20	36	5180	6Mbps	22.28
				24Mbps	22.17
				54Mbps	22.03
802.11n	20	36	5180	MCS0	20.55
				MCS3	20.42
				MCS7	20.36
802.11n	40	38	5190	MCS0	19.46
				MCS3	19.42
				MCS7	19.37
802.11ac	20	36	5180	MCS0	22.41
				MCS4	22.33
				MCS8	22.27
802.11ac	40	38	5190	MCS0	19.92
				MCS4	19.87
				MCS9	19.72
802.11ac	80	42	5210	MCS0	19.29
				MCS4	19.18
				MCS9	19.12

Product Name	AC220m Wi-Fi module ID US	Temperature	24°C
Test Engineer	Kevin Ker	Relative Humidity	59%
Test Site	SR2	Test Date	2012/12/11
Test Item	Output Power		

Test Mode	Data Rate/ MCS	Channel No.	Freq. (MHz)	Average Power (dBm)	Power Limit (dBm)	Result
Ant 0						
11a	6Mbps	36	5180	22.28	≤ 30.00	Pass
11a	6Mbps	44	5220	24.58	≤ 30.00	Pass
11a	6Mbps	48	5240	24.69	≤ 30.00	Pass
11a	6Mbps	149	5745	24.75	≤ 30.00	Pass
11a	6Mbps	157	5785	24.52	≤ 30.00	Pass
11a	6Mbps	165	5825	24.69	≤ 30.00	Pass
11n-HT20	MCS0	36	5180	20.55	≤ 30.00	Pass
11n-HT20	MCS0	44	5220	24.97	≤ 30.00	Pass
11n-HT20	MCS0	48	5240	25.14	≤ 30.00	Pass
11n-HT20	MCS0	149	5745	24.96	≤ 30.00	Pass
11n-HT20	MCS0	157	5785	24.53	≤ 30.00	Pass
11n-HT20	MCS0	165	5825	24.64	≤ 30.00	Pass
11n-HT40	MCS0	38	5190	19.46	≤ 30.00	Pass
11n-HT40	MCS0	46	5230	24.45	≤ 30.00	Pass
11n-HT40	MCS0	151	5755	24.58	≤ 30.00	Pass
11n-HT40	MCS0	159	5795	24.36	≤ 30.00	Pass
11ac-VHT20	MCS0	36	5180	22.41	≤ 30.00	Pass
11ac-VHT20	MCS0	44	5220	24.96	≤ 30.00	Pass
11ac-VHT20	MCS0	48	5240	25.12	≤ 30.00	Pass
11ac-VHT20	MCS0	149	5745	24.35	≤ 30.00	Pass
11ac-VHT20	MCS0	157	5785	24.19	≤ 30.00	Pass
11ac-VHT20	MCS0	165	5825	24.24	≤ 30.00	Pass
11ac-VHT40	MCS0	38	5190	19.92	≤ 30.00	Pass
11ac-VHT40	MCS0	46	5230	24.41	≤ 30.00	Pass
11ac-VHT40	MCS0	151	5755	24.27	≤ 30.00	Pass
11ac-VHT40	MCS0	159	5795	24.51	≤ 30.00	Pass
11ac-VHT80	MCS0	42	5210	19.29	≤ 30.00	Pass
11ac-VHT80	MCS0	155	5775	21.31	≤ 30.00	Pass

Test Mode	Data Rate/ MCS	Channel No.	Freq. (MHz)	Average Power (dBm)	Power Limit (dBm)	Result
Ant 1						
11a	6Mbps	36	5180	25.15	≤ 29.97	Pass
11a	6Mbps	44	5220	25.20	≤ 29.97	Pass
11a	6Mbps	48	5240	25.34	≤ 29.97	Pass
11a	6Mbps	149	5745	25.78	≤ 30.00	Pass
11a	6Mbps	157	5785	25.27	≤ 30.00	Pass
11a	6Mbps	165	5825	25.47	≤ 30.00	Pass
11n-HT20	MCS0	36	5180	25.24	≤ 29.97	Pass
11n-HT20	MCS0	44	5220	25.30	≤ 29.97	Pass
11n-HT20	MCS0	48	5240	25.39	≤ 29.97	Pass
11n-HT20	MCS0	149	5745	25.70	≤ 30.00	Pass
11n-HT20	MCS0	157	5785	25.29	≤ 30.00	Pass
11n-HT20	MCS0	165	5825	25.54	≤ 30.00	Pass
11n-HT40	MCS0	38	5190	21.49	≤ 29.97	Pass
11n-HT40	MCS0	46	5230	24.68	≤ 29.97	Pass
11n-HT40	MCS0	151	5755	24.85	≤ 30.00	Pass
11n-HT40	MCS0	159	5795	25.07	≤ 30.00	Pass
11ac-VHT20	MCS0	36	5180	23.85	≤ 29.97	Pass
11ac-VHT20	MCS0	44	5220	25.26	≤ 29.97	Pass
11ac-VHT20	MCS0	48	5240	25.38	≤ 29.97	Pass
11ac-VHT20	MCS0	149	5745	25.71	≤ 30.00	Pass
11ac-VHT20	MCS0	157	5785	25.32	≤ 30.00	Pass
11ac-VHT20	MCS0	165	5825	25.56	≤ 30.00	Pass
11ac-VHT40	MCS0	38	5190	21.06	≤ 29.97	Pass
11ac-VHT40	MCS0	46	5230	24.71	≤ 29.97	Pass
11ac-VHT40	MCS0	151	5755	25.50	≤ 30.00	Pass
11ac-VHT40	MCS0	159	5795	25.05	≤ 30.00	Pass
11ac-VHT80	MCS0	42	5210	20.93	≤ 29.97	Pass
11ac-VHT80	MCS0	155	5775	23.35	≤ 30.00	Pass

Test Mode	Data Rate/ MCS	Channel No.	Freq. (MHz)	Ant1 Average Power (dBm)	Ant2 Average Power (dBm)	Total Average Power (dBm)	Power Limit (dBm)	Result
Ant 0 + 1 (CDD Mode)								
11a	6Mbps	36	5180	20.66	20.93	23.81	≤ 29.97	Pass
11a	6Mbps	44	5220	22.18	22.35	25.28	≤ 29.97	Pass
11a	6Mbps	48	5240	22.20	22.21	25.22	≤ 29.97	Pass
11a	6Mbps	149	5745	23.94	25.20	27.63	≤ 30.00	Pass
11a	6Mbps	157	5785	24.34	24.83	27.60	≤ 30.00	Pass
11a	6Mbps	165	5825	23.35	24.52	26.98	≤ 30.00	Pass
11n-HT20	MCS0	36	5180	20.25	20.93	23.61	≤ 29.97	Pass
11n-HT20	MCS0	44	5220	21.83	22.34	25.10	≤ 29.97	Pass
11n-HT20	MCS0	48	5240	21.89	22.24	25.08	≤ 29.97	Pass
11n-HT20	MCS0	149	5745	24.44	25.25	27.87	≤ 30.00	Pass
11n-HT20	MCS0	157	5785	24.26	24.76	27.53	≤ 30.00	Pass
11n-HT20	MCS0	165	5825	24.17	25.15	27.70	≤ 30.00	Pass
11n-HT40	MCS0	38	5190	18.88	19.10	22.00	≤ 29.97	Pass
11n-HT40	MCS0	46	5230	24.31	24.32	27.33	≤ 29.97	Pass
11n-HT40	MCS0	151	5755	23.82	25.01	27.47	≤ 30.00	Pass
11n-HT40	MCS0	159	5795	23.68	24.20	26.96	≤ 30.00	Pass
11ac-VHT20	MCS0	36	5180	21.11	21.32	24.23	≤ 29.97	Pass
11ac-VHT20	MCS0	44	5220	22.02	22.34	25.19	≤ 29.97	Pass
11ac-VHT20	MCS0	48	5240	21.77	21.86	24.83	≤ 29.97	Pass
11ac-VHT20	MCS0	149	5745	24.35	25.08	27.74	≤ 30.00	Pass
11ac-VHT20	MCS0	157	5785	24.22	24.93	27.60	≤ 30.00	Pass
11ac-VHT20	MCS0	165	5825	23.77	25.31	27.62	≤ 30.00	Pass
11ac-VHT40	MCS0	38	5190	18.36	18.68	21.53	≤ 29.97	Pass
11ac-VHT40	MCS0	46	5230	24.35	24.52	27.45	≤ 29.97	Pass
11ac-VHT40	MCS0	151	5755	24.24	24.56	27.41	≤ 30.00	Pass
11ac-VHT40	MCS0	159	5795	23.38	24.45	26.96	≤ 30.00	Pass
11ac-VHT80	MCS0	42	5210	17.56	18.05	20.82	≤ 29.97	Pass
11ac-VHT80	MCS0	155	5775	20.10	20.44	23.28	≤ 30.00	Pass

Note: The Total Average Power (dBm) = $10*\log\{10^{(\text{Ant 1 Average Power }/10)} +10^{(\text{Ant 2 Average Power }/10)}\}$.

Test Mode	Data Rate/ MCS	Channel No.	Freq. (MHz)	Ant1 Average Power (dBm)	Ant2 Average Power (dBm)	Total Average Power (dBm)	Power Limit (dBm)	Result
Ant 0 + 1 (Beam-forming Mode)								
11n-HT20	MCS0	36	5180	22.18	22.22	25.21	≤ 27.41	Pass
11n-HT20	MCS0	44	5220	21.83	22.34	25.10	≤ 27.41	Pass
11n-HT20	MCS0	48	5240	21.89	22.24	25.08	≤ 27.41	Pass
11n-HT20	MCS0	149	5745	23.55	24.35	26.98	≤ 27.53	Pass
11n-HT20	MCS0	157	5785	23.66	24.42	27.07	≤ 27.53	Pass
11n-HT20	MCS0	165	5825	23.83	24.70	27.30	≤ 27.53	Pass
11n-HT40	MCS0	38	5190	20.68	20.57	23.64	≤ 27.41	Pass
11n-HT40	MCS0	46	5230	23.59	23.32	26.47	≤ 27.41	Pass
11n-HT40	MCS0	151	5755	24.23	24.27	27.26	≤ 27.53	Pass
11n-HT40	MCS0	159	5795	23.78	24.29	27.05	≤ 27.53	Pass
11ac-VHT20	MCS0	36	5180	22.16	22.08	25.13	≤ 27.41	Pass
11ac-VHT20	MCS0	44	5220	22.02	22.34	25.19	≤ 27.41	Pass
11ac-VHT20	MCS0	48	5240	21.77	21.86	24.83	≤ 27.41	Pass
11ac-VHT20	MCS0	149	5745	23.65	24.28	26.99	≤ 27.53	Pass
11ac-VHT20	MCS0	157	5785	23.72	24.20	26.98	≤ 27.53	Pass
11ac-VHT20	MCS0	165	5825	23.66	24.24	26.97	≤ 27.53	Pass
11ac-VHT40	MCS0	38	5190	19.73	19.62	22.69	≤ 27.41	Pass
11ac-VHT40	MCS0	46	5230	23.61	23.35	26.49	≤ 27.41	Pass
11ac-VHT40	MCS0	151	5755	24.02	24.12	27.08	≤ 27.53	Pass
11ac-VHT40	MCS0	159	5795	23.56	24.05	26.82	≤ 27.53	Pass
11ac-VHT80	MCS0	42	5210	18.41	18.51	21.47	≤ 27.41	Pass
11ac-VHT80	MCS0	155	5775	24.23	24.14	27.20	≤ 27.53	Pass

Note: The Total Average Power (dBm) = $10*\log\{10^{(\text{Ant 1 Average Power }/10)} +10^{(\text{Ant 2 Average Power }/10)}\}$.

7.5. Transmit Power Control

7.5.1.Test Limit

The U-NII device is required to have the capability to operate at least 6 dB below the mean EIRP value of 30 dBm.

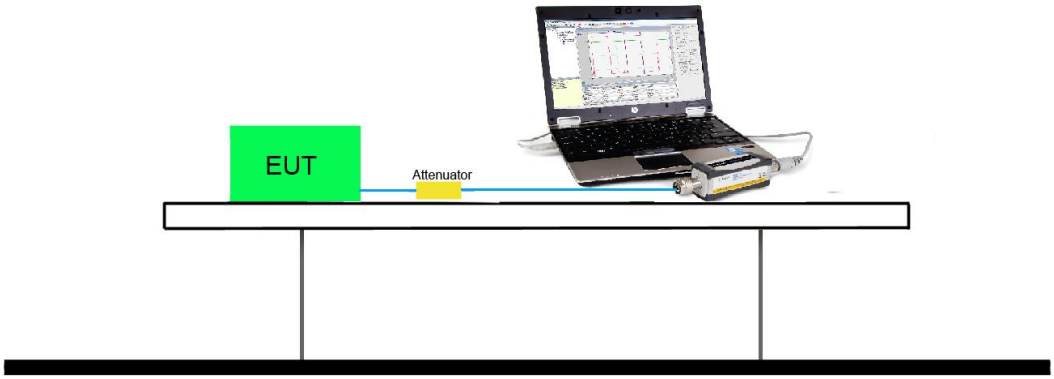
7.5.2.Test Procedure Used

KDB 789033 D02v01- Section E)3)b) Method PM-G

7.5.3.Test Setting

Average power measurements were perform only when the EUT was transmitting at its maximum power control level using a broadband power meter with a pulse sensor. The power meter implemented triggering and gating capabilities which were set up such that power measurements were recorded only during the ON time of the transmitter.

7.5.4.Test Setup



7.5.5.Test Result

Not Applicable.

7.6. Power Spectral Density Measurement

7.6.1.Test Limit

For an indoor access point operating in the band 5.15-5.25 GHz, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band.

For the band 5.725-5.85 GHz, the maximum power spectral density shall not exceed 30 dBm in any 500-kHz band.

If transmitting antennas of directional gain greater than 6dBi are used, the peak power spectral density shall be reduced by the amount in dB that the directional gain of theantenna exceeds 6dBi.

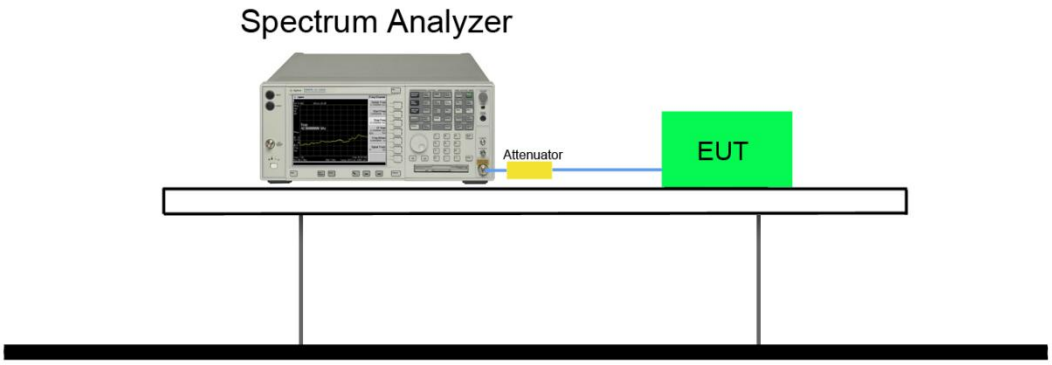
7.6.2.Test Procedure Used

KDB 789033 D02v02r01-SectionF

7.6.3.Test Setting

1. Analyzer was set to the center frequency of the UNII channel under investigation
2. Span was set to encompass the entire 26dB EBW of the signal.
3. RBW = 1MHz, if measurement bandwidth of Maximum PSD is specified in 500 kHz, RBW = 100 kHz
4. VBW = 3MHz
5. Number of sweep points ≥ 2 × (span / RBW)
6. Detector = power averaging (Average)
7. Sweep time = auto
8. Trigger = free run
9. Use the peak search function on the instrument to find the peak of the spectrum and record its value.
10. Add 10*log(1/x), where x is the duty cycle, to the measured power in order to compute the average power during the actual transmission times (because the measurement represents an average over both the on and off times of the transmission). For example, add 10*log(1/0.25) = 6 dB if the duty cycle is 25 percent.
11. When the measurement bandwidth of Maximum PSD is specified in 500 kHz, add a constant factor 10*log(500kHz/100kHz) = 6.99 dB to the measured result.

7.6.4.Test Setup



7.6.5.Test Result

Product	AC220m Wi-Fi module ID US	Temperature	22°C
Test Engineer	Kervin Ker	Relative Humidity	54%
Test Site	TR3	Test Date	2017/12/18
Test Item	Power Spectral Density (NII-Band 1, NII-Band 2A & NII-Band 2C)		

Test Mode	Data Rate/ MCS	Channel No.	Freq. (MHz)	PSD (dBm/ MHz)	Duty Cycle (%)	Final PSD (dBm/ MHz)	PSD Limit (dBm/ MHz)	Result
Ant 0								
11a	6Mbps	36	5180	11.53	96.04	11.71	≤ 17.00	Pass
11a	6Mbps	44	5220	13.62	96.04	13.80	≤ 17.00	Pass
11a	6Mbps	48	5240	13.73	96.04	13.90	≤ 17.00	Pass
11n-HT20	MCS0	36	5180	9.41	98.23	9.41	≤ 17.00	Pass
11n-HT20	MCS0	44	5220	13.30	98.23	13.30	≤ 17.00	Pass
11n-HT20	MCS0	48	5240	13.34	98.23	13.34	≤ 17.00	Pass
11n-HT40	MCS0	38	5190	5.48	96.61	5.63	≤ 17.00	Pass
11n-HT40	MCS0	46	5230	10.36	96.61	10.51	≤ 17.00	Pass
11ac-VHT20	MCS0	36	5180	11.35	98.23	11.35	≤ 17.00	Pass
11ac-VHT20	MCS0	44	5220	13.67	98.23	13.67	≤ 17.00	Pass
11ac-VHT20	MCS0	48	5240	13.73	98.23	13.73	≤ 17.00	Pass
11ac-VHT40	MCS0	38	5190	6.28	96.62	6.42	≤ 17.00	Pass
11ac-VHT40	MCS0	46	5230	10.42	96.62	10.57	≤ 17.00	Pass
11ac-VHT80	MCS0	42	5210	1.59	93.17	1.87	≤ 17.00	Pass

Note 1: When EUT duty cycle ≥ 98%, the Final PSD (dBm/MHz) = PSD (dBm/MHz).

Note 2: When EUT duty cycle < 98%, the Final PSD (dBm/MHz) = PSD (dBm/MHz) + 10*log(1/Duty Cycle).

Note 3: EIRP PSD (dBm/MHz) = Final PSD (dBm/MHz) + Antenna Gain (dBi).

Test Mode	Data Rate/ MCS	Channel No.	Freq. (MHz)	PSD (dBm/ MHz)	Duty Cycle (%)	Final PSD (dBm/ MHz)	PSD Limit (dBm/ MHz)	Result
Ant 1								
11a	6Mbps	36	5180	13.53	96.04	13.71	≤ 16.97	Pass
11a	6Mbps	44	5220	13.90	96.04	14.07	≤ 16.97	Pass
11a	6Mbps	48	5240	13.93	96.04	14.10	≤ 16.97	Pass
11n-HT20	MCS0	36	5180	13.97	98.23	13.97	≤ 16.97	Pass
11n-HT20	MCS0	44	5220	13.77	98.23	13.77	≤ 16.97	Pass
11n-HT20	MCS0	48	5240	14.09	98.23	14.09	≤ 16.97	Pass
11n-HT40	MCS0	38	5190	7.83	96.61	7.98	≤ 16.97	Pass
11n-HT40	MCS0	46	5230	10.59	96.61	10.74	≤ 16.97	Pass
11ac-VHT20	MCS0	36	5180	12.77	98.23	12.77	≤ 16.97	Pass
11ac-VHT20	MCS0	44	5220	13.48	98.23	13.48	≤ 16.97	Pass
11ac-VHT20	MCS0	48	5240	13.68	98.23	13.68	≤ 16.97	Pass
11ac-VHT40	MCS0	38	5190	7.24	96.62	7.39	≤ 16.97	Pass
11ac-VHT40	MCS0	46	5230	10.59	96.62	10.74	≤ 16.97	Pass
11ac-VHT80	MCS0	42	5210	3.63	93.79	3.91	≤ 16.97	Pass

Note 1: When EUT duty cycle ≥ 98%, the Final PSD (dBm/MHz) = PSD (dBm/MHz).

Note 2: When EUT duty cycle < 98%, the Final PSD (dBm/MHz) = PSD (dBm/MHz) + 10*log(1/Duty Cycle).

Note 3: EIRP PSD (dBm/MHz) = Final PSD (dBm/MHz) + Antenna Gain (dBi)

Test Mode	Data Rate/ MCS	Channel No.	Freq. (MHz)	Ant 0 PSD (dBm/ MHz)	Ant 1 PSD (dBm/ MHz)	Duty Cycle (%)	Total PSD (dBm/ MHz)	PSD Limit (dBm/ MHz)	Result
Ant 0 + 1 (CDD Mode)									
11a	6Mbps	36	5180	8.58	9.58	96.04	12.30	≤ 13.96	Pass
11a	6Mbps	44	5220	10.49	10.80	96.04	13.83	≤ 13.96	Pass
11a	6Mbps	48	5240	10.61	10.80	96.04	13.89	≤ 13.96	Pass
11n-HT20	MCS0	36	5180	8.67	9.61	98.23	12.17	≤ 13.96	Pass
11n-HT20	MCS0	44	5220	10.32	10.83	98.23	13.59	≤ 13.96	Pass
11n-HT20	MCS0	48	5240	10.14	10.90	98.23	13.55	≤ 13.96	Pass
11n-HT40	MCS0	38	5190	4.64	4.64	96.61	7.80	≤ 13.96	Pass
11n-HT40	MCS0	46	5230	10.79	10.69	96.61	13.90	≤ 13.96	Pass
11ac-VHT20	MCS0	36	5180	9.66	9.95	98.23	12.82	≤ 13.96	Pass
11ac-VHT20	MCS0	44	5220	10.23	10.96	98.23	13.62	≤ 13.96	Pass
11ac-VHT20	MCS0	48	5240	10.10	10.88	98.23	13.52	≤ 13.96	Pass
11ac-VHT40	MCS0	38	5190	4.11	4.40	96.62	7.42	≤ 13.96	Pass
11ac-VHT40	MCS0	46	5230	10.59	10.62	96.62	13.76	≤ 13.96	Pass
11ac-VHT80	MCS0	42	5210	0.07	0.39	93.79	3.52	≤ 13.96	Pass

Note 1: When EUT duty cycle ≥ 98%, the total PSD = $10*\log\{10^{(\text{Ant 0 PSD}/10)} + 10^{(\text{Ant 1 PSD}/10)}\}$

Note 2: When EUT duty cycle < 98%, the total PSD = $10*\log\{10^{(\text{Ant 0 PSD}/10)} + 10^{(\text{Ant 1 PSD}/10)}\}$ + 10*log(1/duty cycle)

Note 3: EIRP PSD (dBm/MHz) = Total PSD (dBm/MHz) + Antenna Gain (dBi)

Test Mode	Data Rate/ MCS	Channel No.	Freq. (MHz)	Ant 0 PSD (dBm/ MHz)	Ant 1 PSD (dBm/ MHz)	Duty Cycle (%)	Total PSD (dBm/ MHz)	PSD Limit (dBm/ MHz)	Result
Ant 0 + 1 (Beam-Forming Mode)									
11n-HT20	MCS0	36	5180	10.56	11.37	98.23	13.99	≤ 14.41	Pass
11n-HT20	MCS0	44	5220	10.32	10.83	98.23	13.59	≤ 14.41	Pass
11n-HT20	MCS0	48	5240	10.14	10.90	98.23	13.55	≤ 14.41	Pass
11n-HT40	MCS0	38	5190	6.52	6.60	96.61	9.72	≤ 14.41	Pass
11n-HT40	MCS0	46	5230	9.39	9.66	96.61	12.69	≤ 14.41	Pass
11ac-VHT20	MCS0	36	5180	10.74	11.37	98.23	14.08	≤ 14.41	Pass
11ac-VHT20	MCS0	44	5220	10.23	10.96	98.23	13.62	≤ 14.41	Pass
11ac-VHT20	MCS0	48	5240	10.10	10.88	98.23	13.52	≤ 14.41	Pass
11ac-VHT40	MCS0	38	5190	5.60	6.08	96.62	9.01	≤ 14.41	Pass
11ac-VHT40	MCS0	46	5230	8.97	9.27	96.62	12.28	≤ 14.41	Pass
11ac-VHT80	MCS0	42	5210	0.68	1.21	93.79	4.24	≤ 14.41	Pass

Note 1: When EUT duty cycle ≥ 98%, the total PSD = $10*\log\{10^{(\text{Ant 0 PSD}/10)} + 10^{(\text{Ant 1 PSD}/10)}\}$

Note 2: When EUT duty cycle < 98%, the total PSD = $10*\log\{10^{(\text{Ant 0 PSD}/10)} + 10^{(\text{Ant 1 PSD}/10)}\} + 10*\log(1/\text{duty cycle})$

Note 3: EIRP PSD (dBm/MHz) = Total PSD (dBm/MHz) + Directional Gain (dBi)

Product	AC220m Wi-Fi module ID US	Temperature	22°C
Test Engineer	Kevin Ker	Relative Humidity	54%
Test Site	SR2	Test Date	2017/12/18
Test Item	Power Spectral Density (NII-Band 3)		

Test Mode	Data Rate/ MCS	Channel No.	Freq. (MHz)	PSD (dBm/ 100KHz)	Duty Cycle (%)	Constant Factor	Final PSD (dBm/ MHz)	PSD Limit (dBm/ MHz)	Result
Ant 0									
11a	6Mbps	149	5745	4.33	96.04	6.99	11.49	≤ 30.00	Pass
11a	6Mbps	157	5785	4.13	96.04	6.99	11.30	≤ 30.00	Pass
11a	6Mbps	165	5825	4.54	96.04	6.99	11.71	≤ 30.00	Pass
11n-HT20	MCS0	149	5745	4.09	98.23	6.99	11.08	≤ 30.00	Pass
11n-HT20	MCS0	157	5785	4.14	98.23	6.99	11.13	≤ 30.00	Pass
11n-HT20	MCS0	165	5825	4.48	98.23	6.99	11.47	≤ 30.00	Pass
11n-HT40	MCS0	151	5755	1.30	96.61	6.99	8.44	≤ 30.00	Pass
11n-HT40	MCS0	159	5795	1.27	96.61	6.99	8.41	≤ 30.00	Pass
11ac-VHT20	MCS0	149	5745	3.96	98.23	6.99	10.95	≤ 30.00	Pass
11ac-VHT20	MCS0	157	5785	4.26	98.23	6.99	11.25	≤ 30.00	Pass
11ac-VHT20	MCS0	165	5825	4.20	98.23	6.99	11.19	≤ 30.00	Pass
11ac-VHT40	MCS0	151	5755	0.98	96.62	6.99	8.12	≤ 30.00	Pass
11ac-VHT40	MCS0	159	5795	0.82	96.62	6.99	7.96	≤ 30.00	Pass
11ac-VHT80	MCS0	155	5775	-4.99	93.79	6.99	2.28	≤ 30.00	Pass

Note 1: When EUT duty cycle ≥ 98%, the Final PSD (dBm/MHz) = PSD (dBm/100kHz) + Constant Factor.

Note 2: When EUT duty cycle < 98%, the Final PSD (dBm/MHz) = PSD (dBm/100k Hz) + 10*log(1/Duty Cycle) + Constant Factor.

Test Mode	Data Rate/ MCS	Channel No.	Freq. (MHz)	PSD (dBm/ 100KHz)	Duty Cycle (%)	Constant Factor	Final PSD (dBm/ MHz)	PSD Limit (dBm/ MHz)	Result
Ant 1									
11a	6Mbps	149	5745	5.15	96.04	6.99	12.31	≤ 30.00	Pass
11a	6Mbps	157	5785	5.10	96.04	6.99	12.26	≤ 30.00	Pass
11a	6Mbps	165	5825	5.48	96.04	6.99	12.65	≤ 30.00	Pass
11n-HT20	MCS0	149	5745	4.93	98.23	6.99	11.92	≤ 30.00	Pass
11n-HT20	MCS0	157	5785	4.87	98.23	6.99	11.86	≤ 30.00	Pass
11n-HT20	MCS0	165	5825	5.41	98.23	6.99	12.40	≤ 30.00	Pass
11n-HT40	MCS0	151	5755	2.04	96.61	6.99	9.18	≤ 30.00	Pass
11n-HT40	MCS0	159	5795	1.61	96.61	6.99	8.75	≤ 30.00	Pass
11ac-VHT20	MCS0	149	5745	5.01	98.23	6.99	12.00	≤ 30.00	Pass
11ac-VHT20	MCS0	157	5785	5.04	98.23	6.99	12.03	≤ 30.00	Pass
11ac-VHT20	MCS0	165	5825	5.02	98.23	6.99	12.01	≤ 30.00	Pass
11ac-VHT40	MCS0	151	5755	1.91	96.62	6.99	9.05	≤ 30.00	Pass
11ac-VHT40	MCS0	159	5795	1.78	96.62	6.99	8.92	≤ 30.00	Pass
11ac-VHT80	MCS0	155	5775	-3.52	93.79	6.99	3.74	≤ 30.00	Pass

Note 1: When EUT duty cycle ≥ 98%, the Final PSD (dBm/MHz) = PSD (dBm/100kHz) + Constant Factor.

Note 2: When EUT duty cycle < 98%, the Final PSD (dBm/MHz) = PSD (dBm/100k Hz) + 10*log(1/Duty Cycle) + Constant Factor.

Test Mode	Data Rate/ MCS	Channel No.	Freq. (MHz)	Ant 0 PSD (dBm/ 100kHz)	Ant 1 PSD (dBm/ 100kHz)	Duty Cycle (%)	Constant Factor	Total PSD(dBm/ 500kHz)	Limit (dBm/ 500kHz)	Result
Ant 0 + 1 (CDD Mode)										
11a	6	149	5745	4.17	4.89	96.04	6.99	14.72	≤ 27.26	Pass
11a	6	157	5785	3.59	4.46	96.04	6.99	14.22	≤ 27.26	Pass
11a	6	165	5825	4.15	5.00	96.04	6.99	14.77	≤ 27.26	Pass
11n-HT20	MCS0	149	5745	3.88	4.80	98.23	6.99	14.36	≤ 27.26	Pass
11n-HT20	MCS0	157	5785	3.44	4.93	98.23	6.99	14.25	≤ 27.26	Pass
11n-HT20	MCS0	165	5825	4.27	4.78	98.23	6.99	14.53	≤ 27.26	Pass
11n-HT40	MCS0	151	5755	0.33	1.88	96.61	6.99	11.32	≤ 27.26	Pass
11n-HT40	MCS0	159	5795	1.02	1.45	96.61	6.99	11.39	≤ 27.26	Pass
11ac-VHT20	MCS0	149	5745	3.98	5.11	98.23	6.99	14.58	≤ 27.26	Pass
11ac-VHT20	MCS0	157	5785	3.58	4.99	98.23	6.99	14.34	≤ 27.26	Pass
11ac-VHT20	MCS0	165	5825	3.90	4.80	98.23	6.99	14.37	≤ 27.26	Pass
11ac-VHT40	MCS0	151	5755	0.77	1.88	96.62	6.99	11.51	≤ 27.26	Pass
11ac-VHT40	MCS0	159	5795	0.79	1.17	96.62	6.99	11.13	≤ 27.26	Pass
11ac-VHT80	MCS0	155	5775	-6.25	-5.73	93.79	6.99	4.30	≤ 27.26	Pass

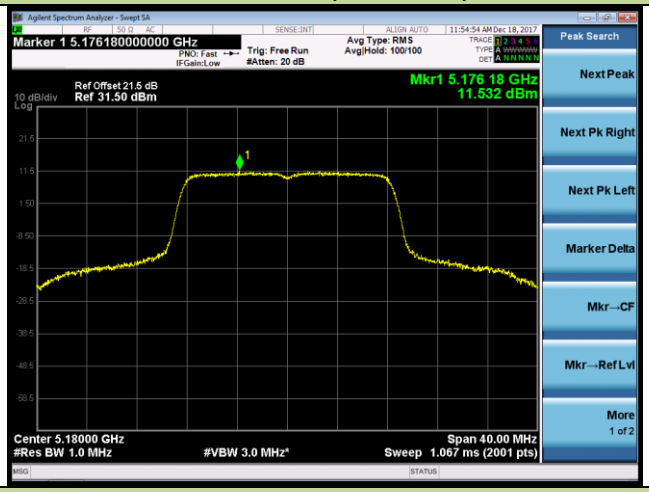
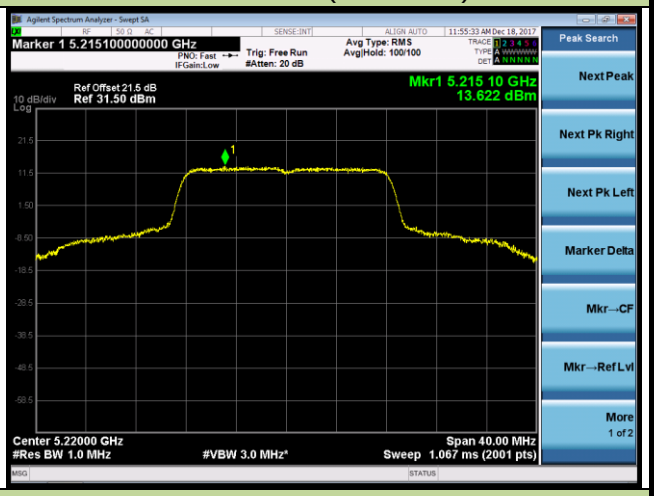
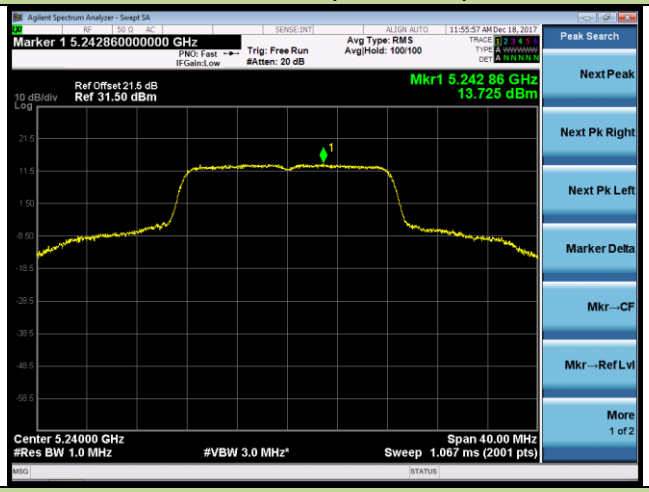
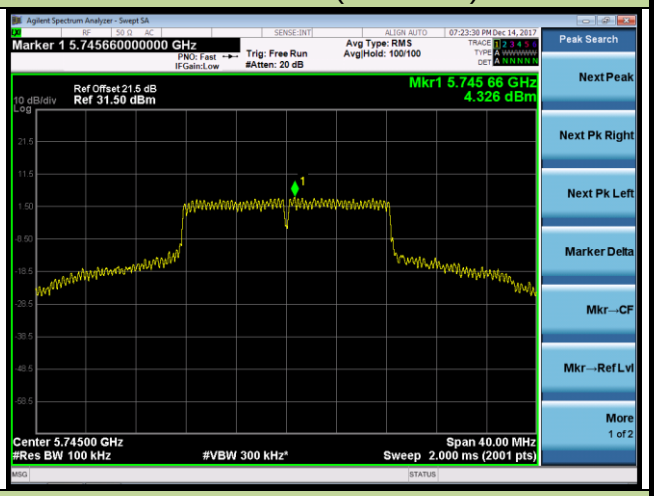
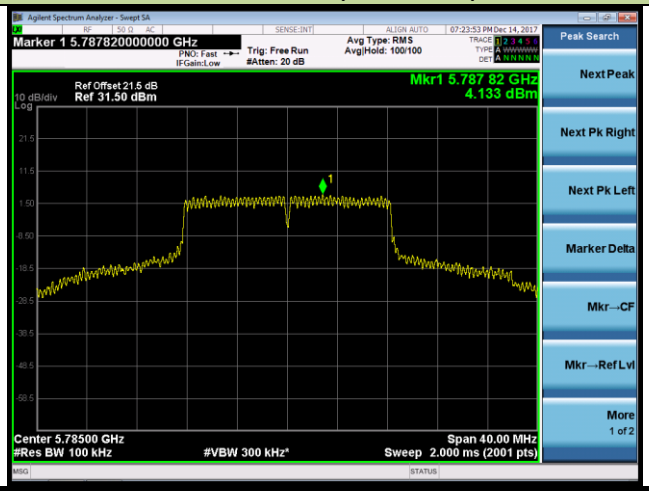
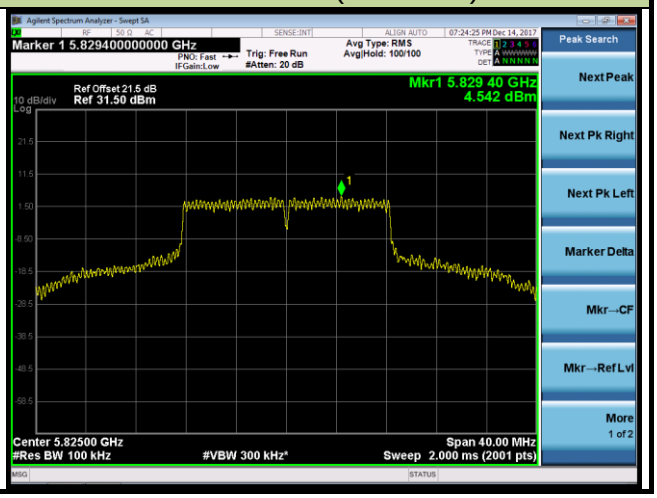
Note 1: When EUT duty cycle ≥ 98%, Total PSD (dBm/500kHz) = $10*\log\{10^{(\text{Ant 0 PSD}/10)}+10^{(\text{Ant 1 PSD}/10)}\}$ + Constant Factor.

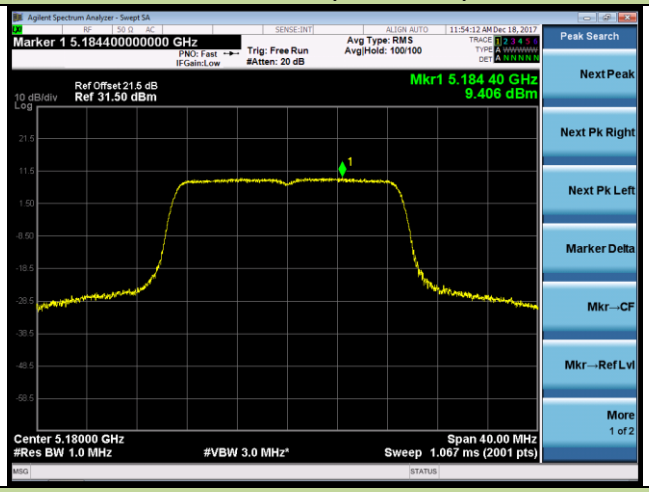
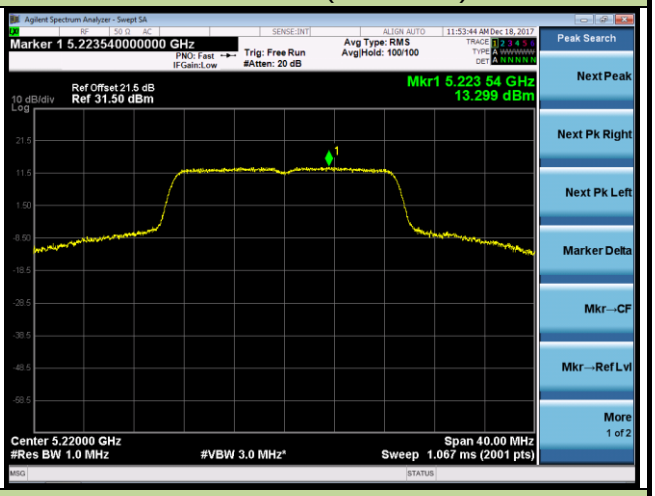
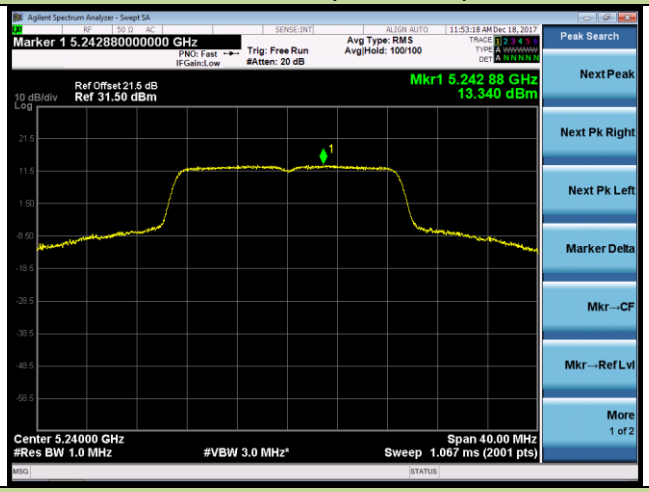
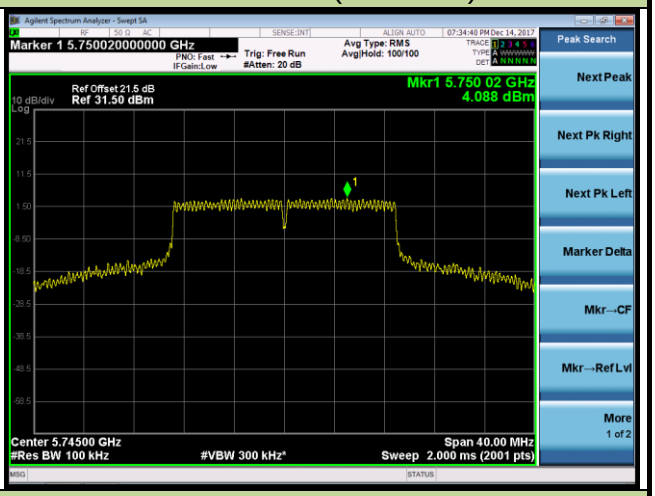
Note 2: When EUT duty cycle < 98%, Total PSD (dBm/500kHz) = $10*\log\{10^{(\text{Ant 0 PSD}/10)}+10^{(\text{Ant 1 PSD}/10)}\}$ + 10*log(1/duty cycle) + Constant Factor.

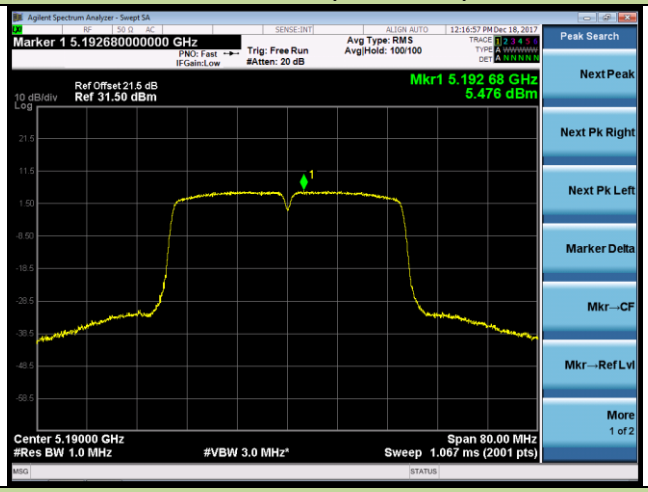
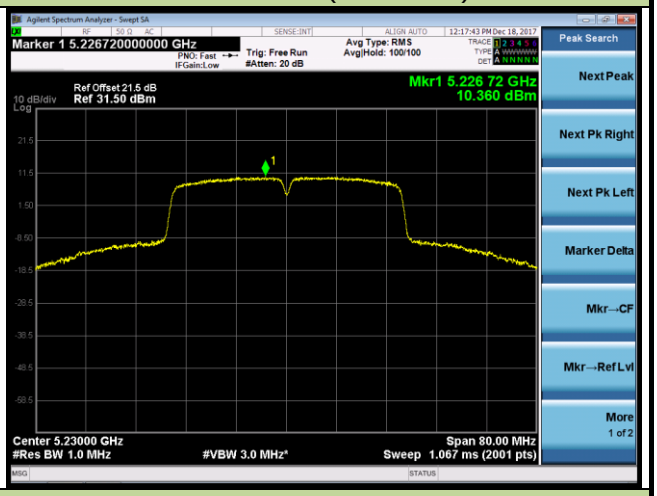
Test Mode	Data Rate/ MCS	Channel No.	Freq. (MHz)	Ant 0 PSD (dBm/ 100kHz)	Ant 1 PSD (dBm/ 100kHz)	Duty Cycle (%)	Constant Factor	Total PSD(dBm/ 500kHz)	Limit (dBm/ 500kHz)	Result
Ant 0 + 1 (Beam-Forming Mode)										
11n-HT20	MCS0	149	5745	3.22	4.03	98.23	6.99	13.64	≤ 27.53	Pass
11n-HT20	MCS0	157	5785	3.09	4.61	98.23	6.99	13.92	≤ 27.53	Pass
11n-HT20	MCS0	165	5825	3.12	4.24	98.23	6.99	13.72	≤ 27.53	Pass
11n-HT40	MCS0	151	5755	0.03	1.10	96.61	6.99	10.75	≤ 27.53	Pass
11n-HT40	MCS0	159	5795	-0.36	1.30	96.61	6.99	10.70	≤ 27.53	Pass
11ac-VHT20	MCS0	149	5745	2.81	4.02	98.23	6.99	13.46	≤ 27.53	Pass
11ac-VHT20	MCS0	157	5785	3.00	4.29	98.23	6.99	13.69	≤ 27.53	Pass
11ac-VHT20	MCS0	165	5825	3.28	4.41	98.23	6.99	13.88	≤ 27.53	Pass
11ac-VHT40	MCS0	151	5755	0.54	0.66	96.62	6.99	10.75	≤ 27.53	Pass
11ac-VHT40	MCS0	159	5795	0.04	0.97	96.62	6.99	10.68	≤ 27.53	Pass
11ac-VHT80	MCS0	155	5775	-2.83	-2.60	93.79	6.99	7.57	≤ 27.53	Pass

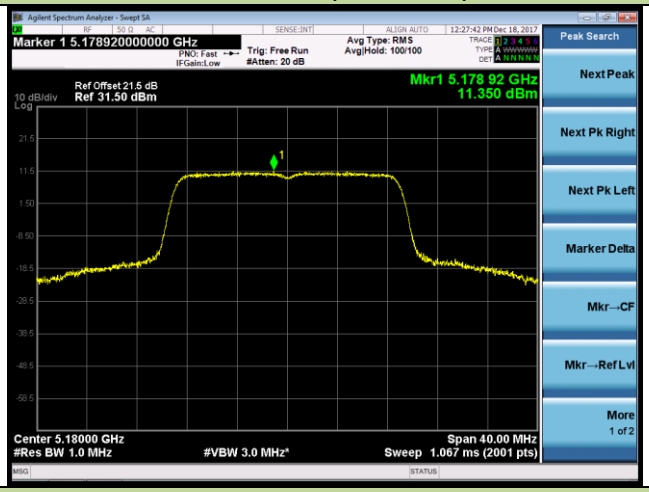
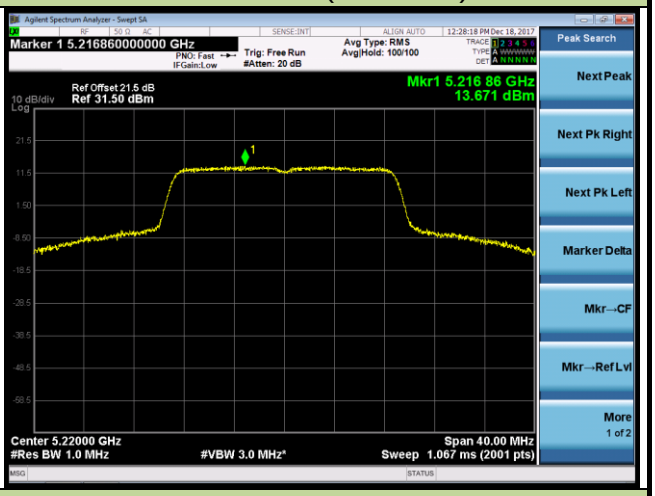
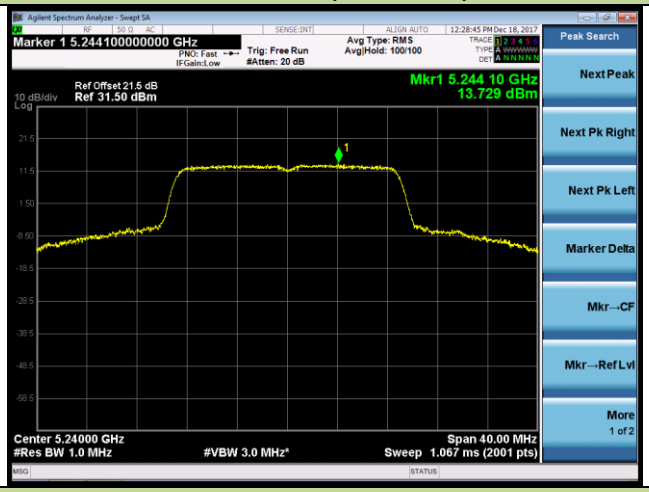
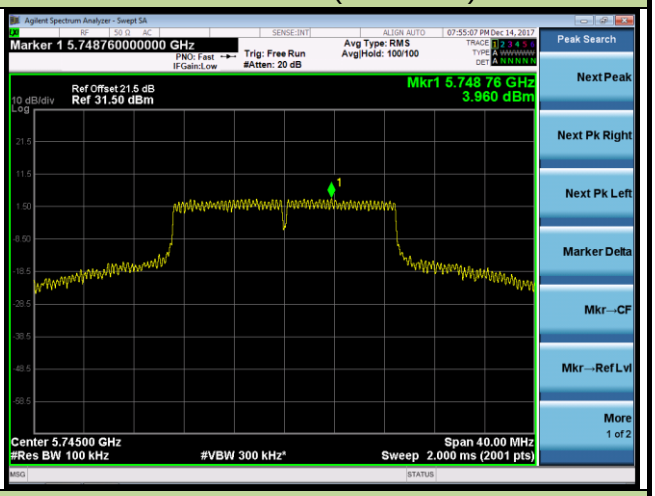
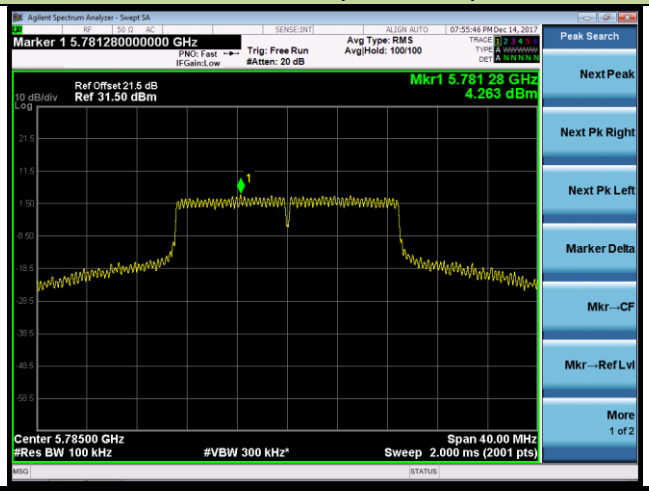
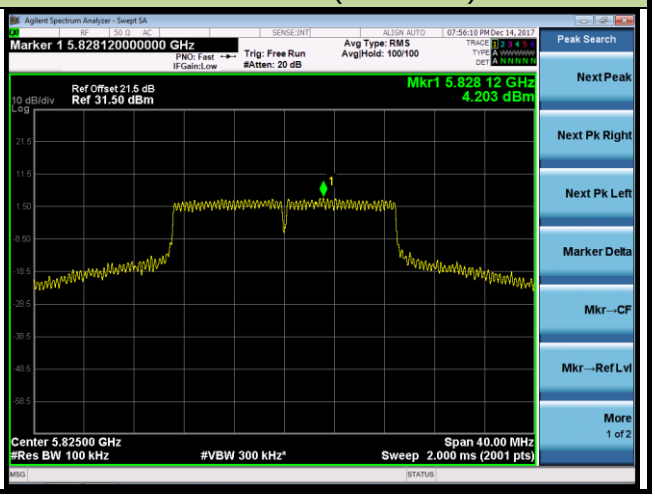
Note 1: When EUT duty cycle ≥ 98%, Total PSD (dBm/500kHz) = $10*\log\{10^{(\text{Ant 0 PSD}/10)}+10^{(\text{Ant 1 PSD}/10)}\}$ + Constant Factor.

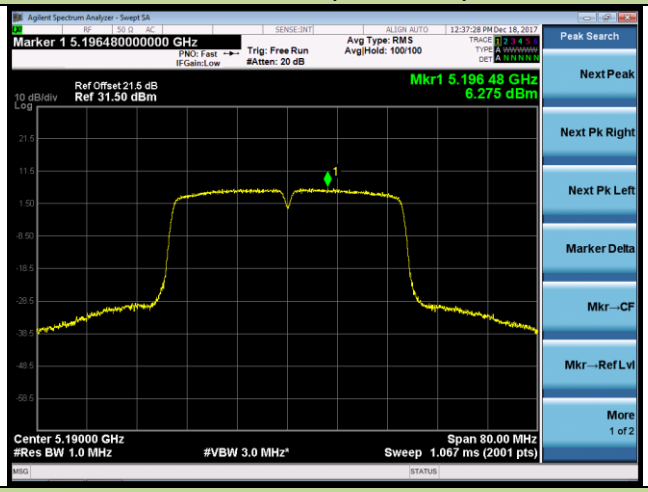
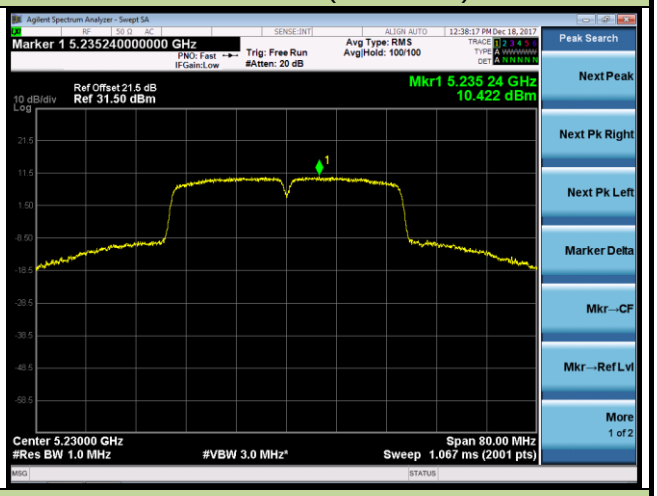
Note 2: When EUT duty cycle < 98%, Total PSD (dBm/500kHz) = $10*\log\{10^{(\text{Ant 0 PSD}/10)}+10^{(\text{Ant 1 PSD}/10)}\}$ + 10*log(1/duty cycle) + Constant Factor.

802.11a Power Spectral Density - Ant 0	
Channel 36 (5180MHz)	Channel 44 (5220MHz)
	
Channel 48 (5240MHz)	Channel 149 (5745MHz)
	
Channel 157 (5785MHz)	Channel 165 (5825MHz)
	

802.11n-HT20 Power Spectral Density - Ant 0	
Channel 36 (5180MHz)	Channel 44 (5220MHz)
	
Channel 48 (5240MHz)	Channel 149 (5745MHz)
	
Channel 157 (5785MHz)	Channel 165 (5825MHz)
	

802.11n-HT40 Power Spectral Density - Ant 0	
Channel 38 (5190MHz)	Channel 46 (5230MHz)
	
Channel 151 (5755MHz)	Channel 159 (5795MHz)
	

802.11ac-VHT20 Power Spectral Density - Ant 0	
Channel 36 (5180MHz)	Channel 44 (5220MHz)
	
Channel 48 (5240MHz)	Channel 149 (5745MHz)
	
Channel 157 (5785MHz)	Channel 165 (5825MHz)
	

802.11ac-VHT40 Power Spectral Density - Ant 0	
Channel 38 (5190MHz)	Channel 46 (5230MHz)
	
Channel 151 (5755MHz)	Channel 159 (5795MHz)