Channel 142 (5710MHz)

802.11ac-VHT20 Power Spectral Density - Ant 2 / Ant 1 + 2 (Beam-Forming Mode)

Channel 52 (5260MHz)
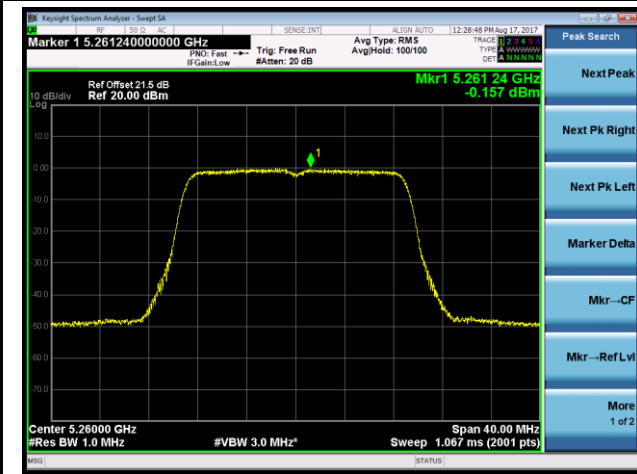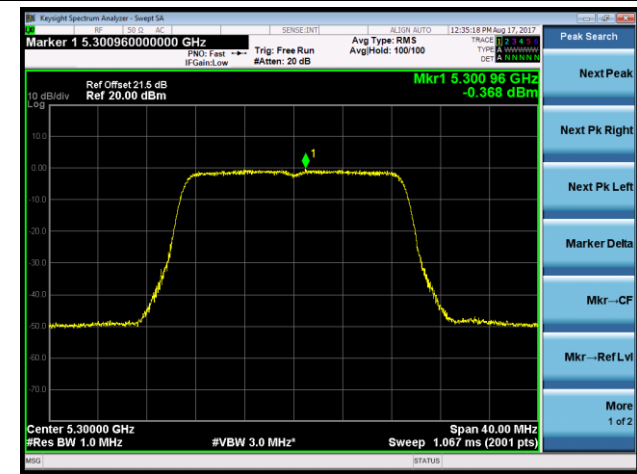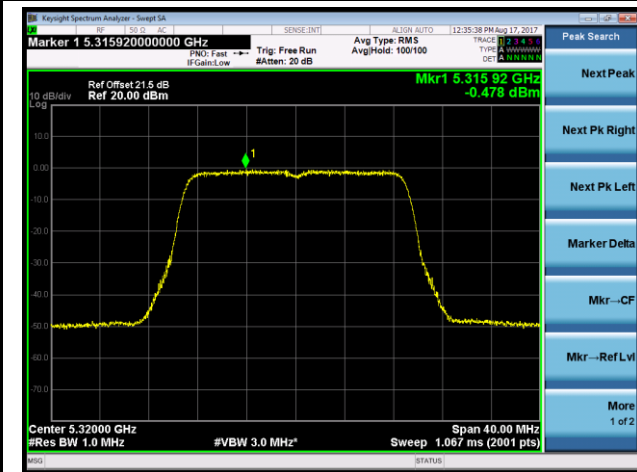
Channel 60 (5300MHz)

Channel 64 (5320MHz)

Channel 100 (5500MHz)

Channel 116 (5580MHz)

Channel 120 (5600MHz)

Channel 140 (5700MHz)	Channel 144 (5720MHz)
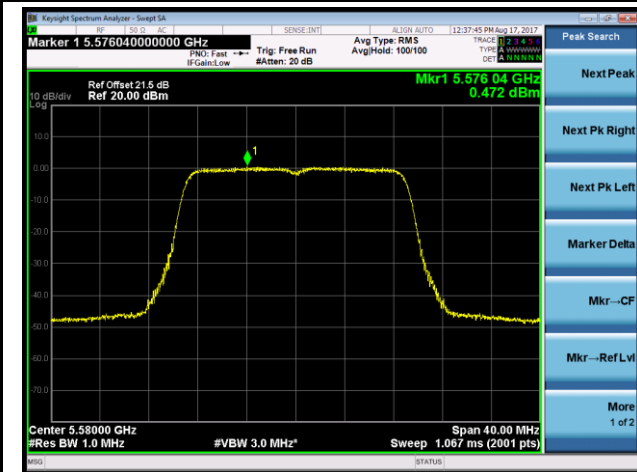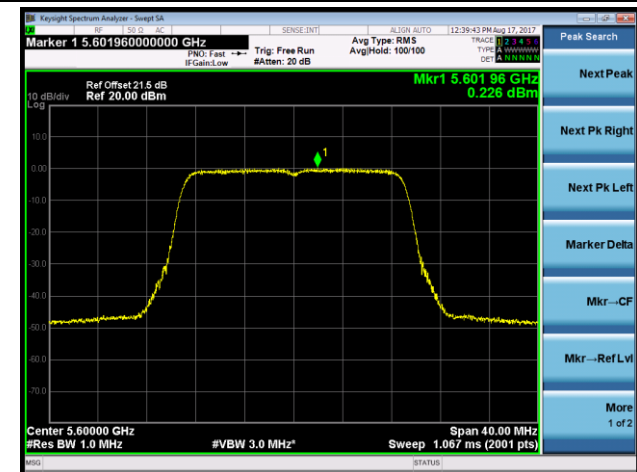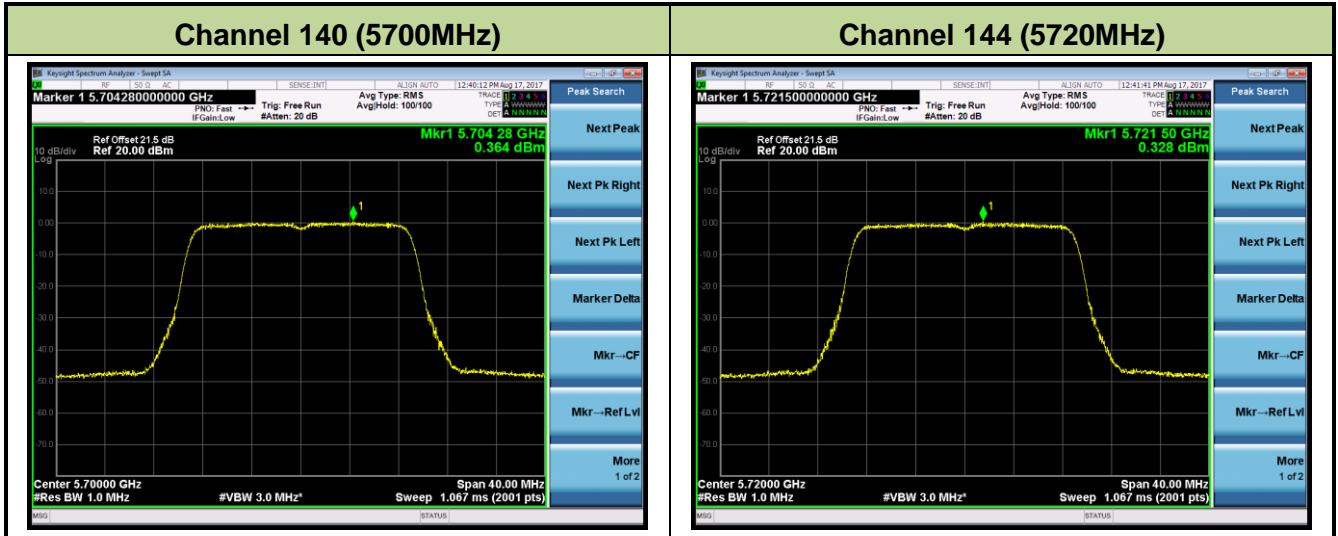
802.11ac-VHT40 Power Spectral Density - Ant 2 / Ant 1 + 2 (Beam-Forming Mode)

Channel 54 (5270MHz)
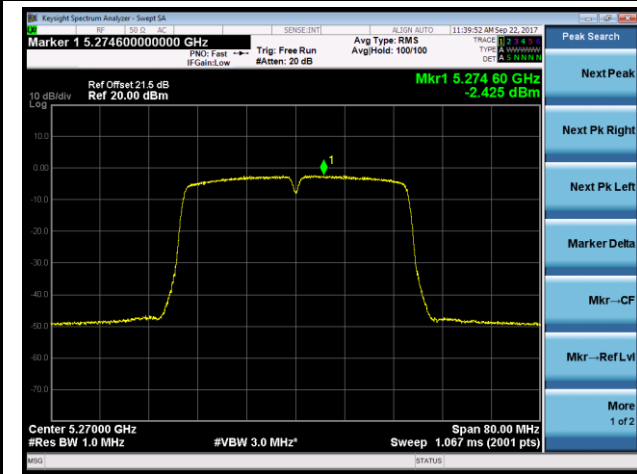
Channel 62 (5310MHz)
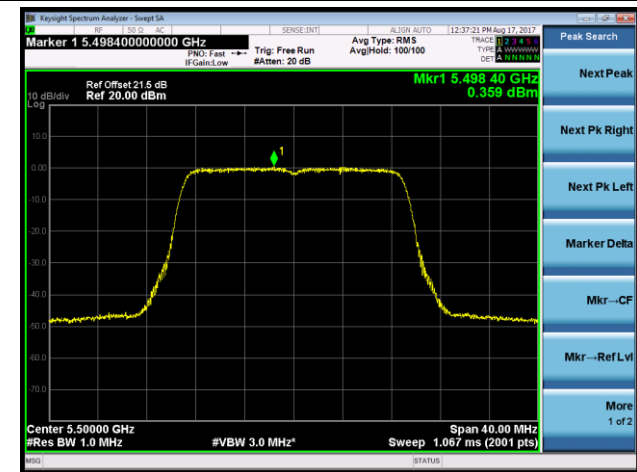

Channel 102 (5510MHz)
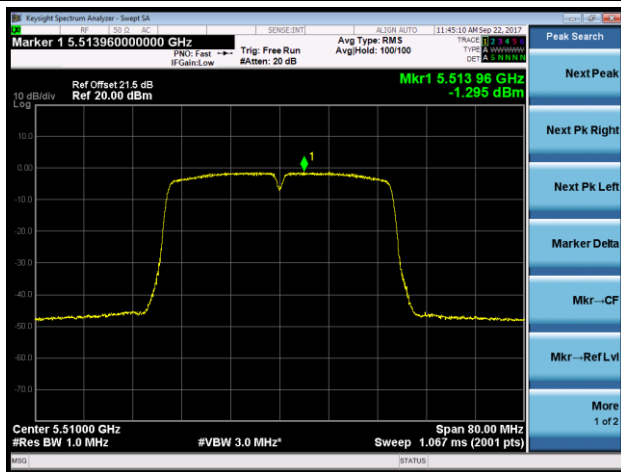
Channel 110 (5550MHz)

Channel 134 (5670MHz)

Channel 142 (5710MHz)

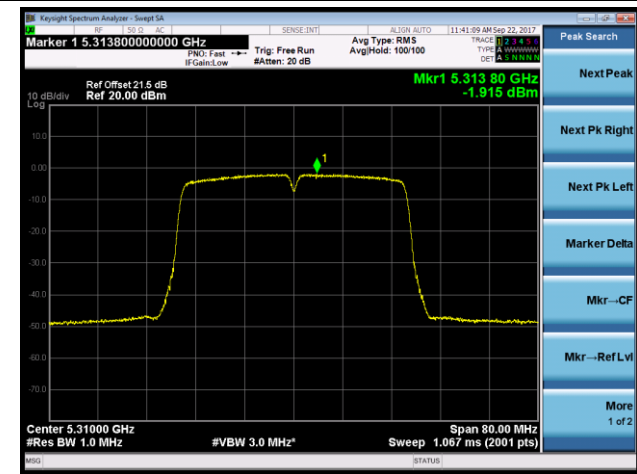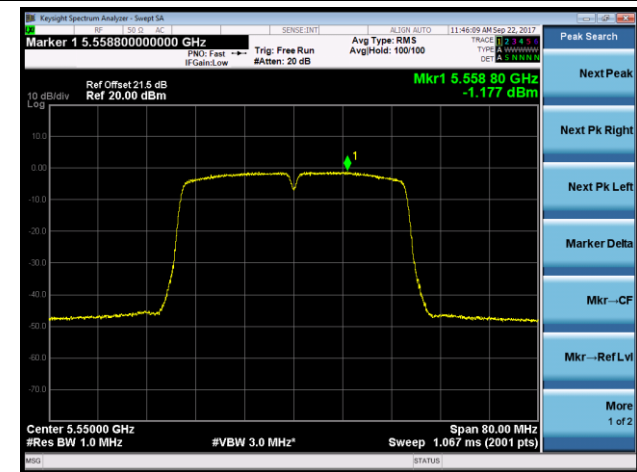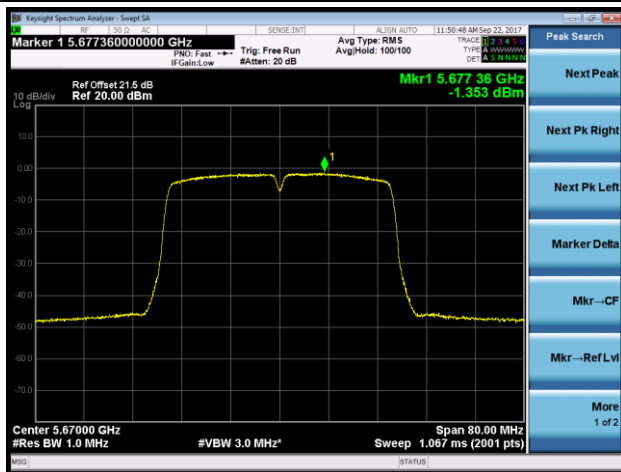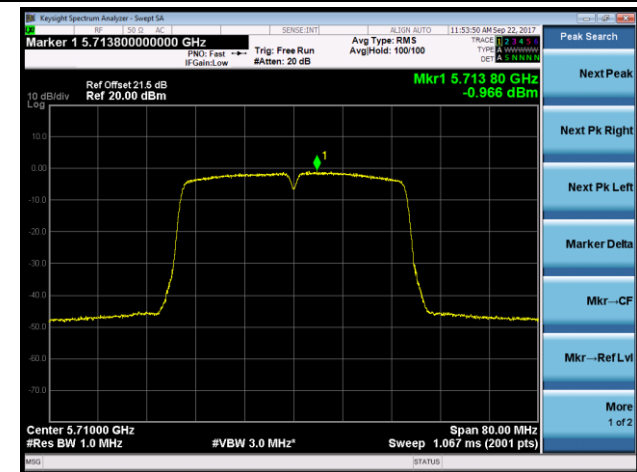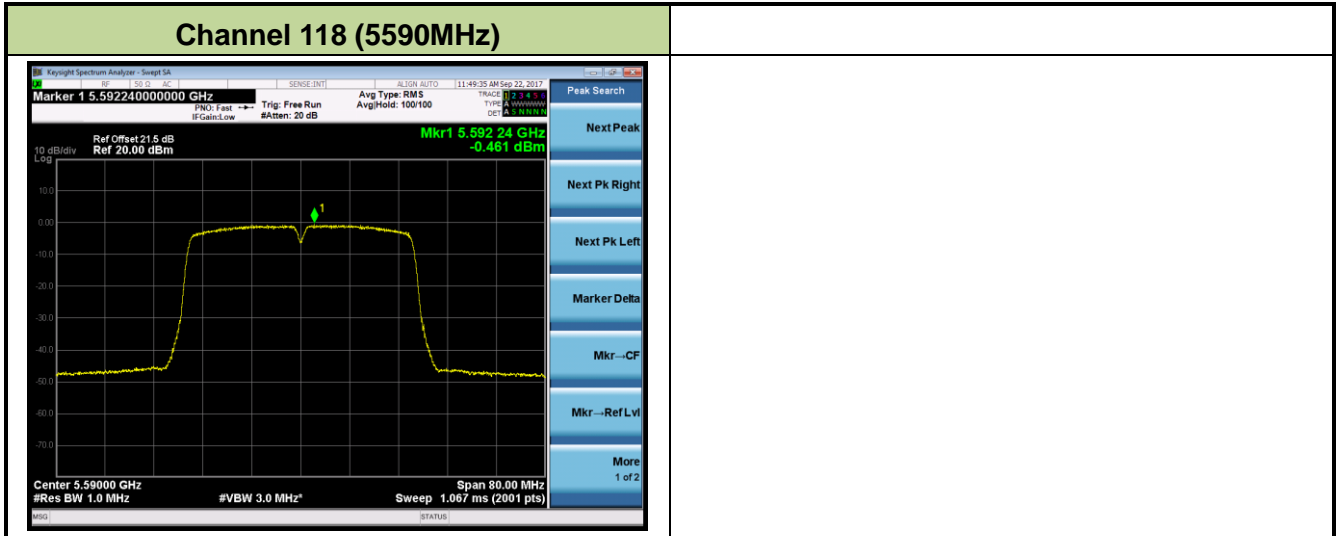| Channel 118 (5590MHz)	

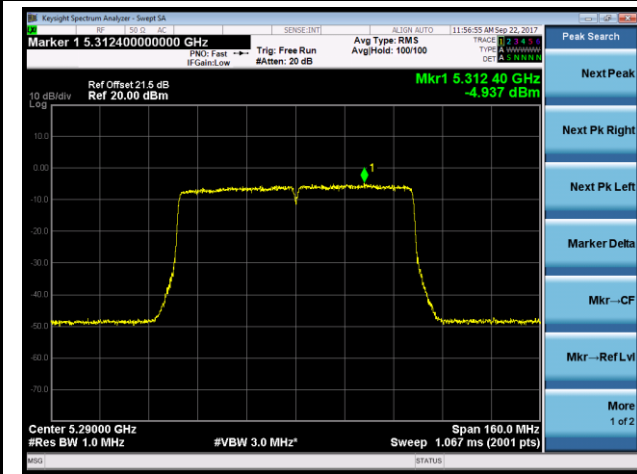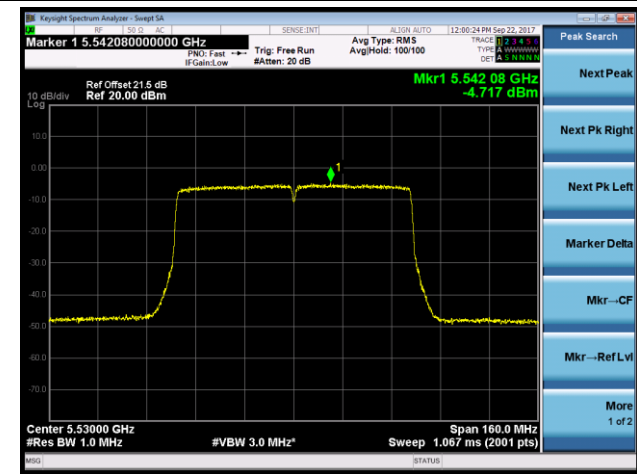## 802.11ac-VHT80 Power Spectral Density - Ant 2 / Ant 1 + 2 (Beam-Forming Mode)

Channel 58 (5290MHz)

Channel 106 (5530MHz)

Channel 122 (5610MHz)
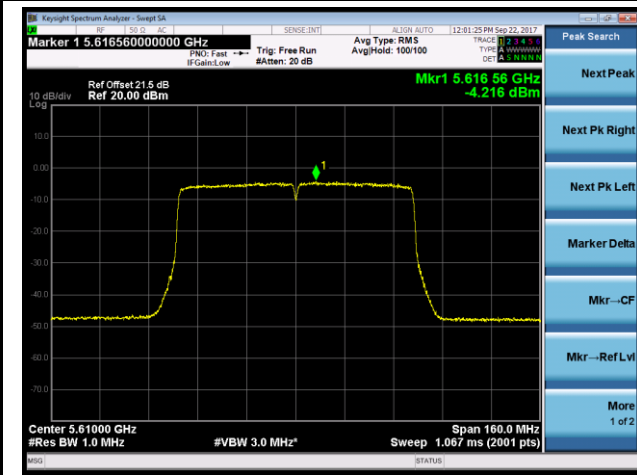
Channel 138 (5690MHz)
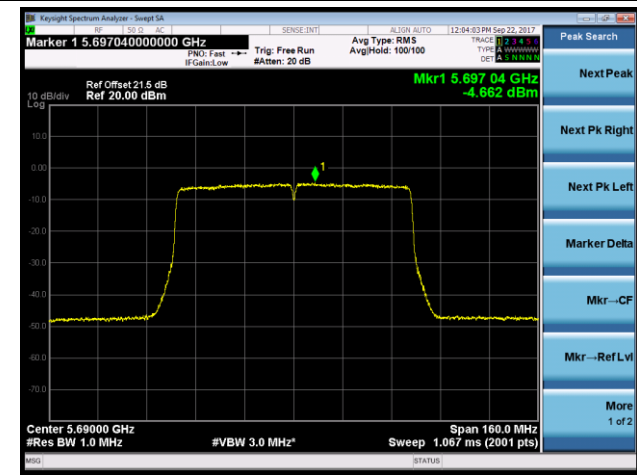
Product	AC220 Wi-Fi AP OD external antenna US	Temperature	22°C
Test Engineer	Lewis Huang	Relative Humidity	54%
Test Site	TR3	Test Date	2017/08/27
Test Item	Power Spectral Dencity (For FCC bands UNII-2A & UNII-2C)		

Test Mode	Data Rate/ MCS	Channel No.	Freq. (MHz)	PSD (dBm/ MHz)	Duty Cycle (%)	Final PSD (dBm/ MHz)	PSD Limit (dBm/ MHz)	Result
Ant 1								
11a	6Mbps	52	5260	10.46	95.80	10.65	≤ 11.00	Pass
11a	6Mbps	60	5300	10.02	95.80	10.21	≤ 11.00	Pass
11a	6Mbps	64	5320	10.21	95.80	10.39	≤ 11.00	Pass
11a	6Mbps	100	5500	9.97	95.80	10.16	≤ 11.00	Pass
11a	6Mbps	116	5580	10.25	95.80	10.44	≤ 11.00	Pass
11a	6Mbps	120	5600	10.49	95.80	10.68	≤ 11.00	Pass
11a	6Mbps	140	5700	10.37	95.80	10.55	≤ 11.00	Pass
11a	6Mbps	144	5720	10.28	95.80	10.47	≤ 11.00	Pass
11n-HT20	MCS0	52	5260	10.22	98.07	10.22	≤ 11.00	Pass
11n-HT20	MCS0	60	5300	9.95	98.07	9.95	≤ 11.00	Pass
11n-HT20	MCS0	64	5320	10.04	98.07	10.04	≤ 11.00	Pass
11n-HT20	MCS0	100	5500	9.98	98.07	9.98	≤ 11.00	Pass
11n-HT20	MCS0	116	5580	10.07	98.07	10.07	≤ 11.00	Pass
11n-HT20	MCS0	120	5600	10.15	98.07	10.15	≤ 11.00	Pass
11n-HT20	MCS0	140	5700	10.20	98.07	10.20	≤ 11.00	Pass
11n-HT20	MCS0	144	5720	10.42	98.07	10.42	≤ 11.00	Pass

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								
11n-HT40	MCS0	54	5270	7.63	96.61	7.78	≤ 11.00	Pass
11n-HT40	MCS0	62	5310	6.35	96.61	6.50	≤ 11.00	Pass
11n-HT40	MCS0	102	5510	5.20	96.61	5.35	≤ 11.00	Pass
11n-HT40	MCS0	110	5550	7.37	96.61	7.51	≤ 11.00	Pass
11n-HT40	MCS0	118	5590	7.88	96.61	8.03	≤ 11.00	Pass
11n-HT40	MCS0	134	5670	7.95	96.61	8.10	≤ 11.00	Pass
11n-HT40	MCS0	142	5710	7.74	96.61	7.89	≤ 11.00	Pass
11ac-VHT20	MCS0	52	5260	10.31	98.21	10.31	≤ 11.00	Pass
11ac-VHT20	MCS0	60	5300	9.88	98.21	9.88	≤ 11.00	Pass
11ac-VHT20	MCS0	64	5320	9.90	98.21	9.90	≤ 11.00	Pass
11ac-VHT20	MCS0	100	5500	9.79	98.21	9.79	≤ 11.00	Pass
11ac-VHT20	MCS0	116	5580	10.21	98.21	10.21	≤ 11.00	Pass
11ac-VHT20	MCS0	120	5600	10.10	98.21	10.10	≤ 11.00	Pass
11ac-VHT20	MCS0	140	5700	10.21	98.21	10.21	≤ 11.00	Pass
11ac-VHT20	MCS0	144	5720	10.62	98.21	10.62	≤ 11.00	Pass
11ac-VHT40	MCS0	54	5270	7.56	96.43	7.72	≤ 11.00	Pass
11ac-VHT40	MCS0	62	5310	6.20	96.43	6.36	≤ 11.00	Pass
11ac-VHT40	MCS0	102	5510	5.68	96.43	5.84	≤ 11.00	Pass
11ac-VHT40	MCS0	110	5550	7.55	96.43	7.70	≤ 11.00	Pass
11ac-VHT40	MCS0	118	5590	7.68	96.43	7.83	≤ 11.00	Pass
11ac-VHT40	MCS0	134	5670	7.96	96.43	8.12	≤ 11.00	Pass
11ac-VHT40	MCS0	142	5710	7.83	96.43	7.99	≤ 11.00	Pass
11ac-VHT80	MCS0	58	5290	2.72	91.40	3.11	≤ 11.00	Pass
11ac-VHT80	MCS0	106	5530	0.91	91.40	1.30	≤ 11.00	Pass
11ac-VHT80	MCS0	122	5610	3.94	91.40	4.33	≤ 11.00	Pass
11ac-VHT80	MCS0	138	5690	4.31	91.40	4.70	≤ 11.00	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 2								
11a	6Mbps	52	5260	10.28	95.80	10.46	≤ 11.00	Pass
11a	6Mbps	60	5300	10.31	95.80	10.50	≤ 11.00	Pass
11a	6Mbps	64	5320	10.17	95.80	10.36	≤ 11.00	Pass
11a	6Mbps	100	5500	10.28	95.80	10.46	≤ 11.00	Pass
11a	6Mbps	116	5580	10.32	95.80	10.51	≤ 11.00	Pass
11a	6Mbps	120	5600	10.15	95.80	10.33	≤ 11.00	Pass
11a	6Mbps	140	5700	10.40	95.80	10.59	≤ 11.00	Pass
11a	6Mbps	144	5720	10.33	95.80	10.52	≤ 11.00	Pass
11n-HT20	MCS0	52	5260	10.42	98.07	10.42	≤ 11.00	Pass
11n-HT20	MCS0	60	5300	10.24	98.07	10.24	≤ 11.00	Pass
11n-HT20	MCS0	64	5320	10.31	98.07	10.31	≤ 11.00	Pass
11n-HT20	MCS0	100	5500	10.29	98.07	10.29	≤ 11.00	Pass
11n-HT20	MCS0	116	5580	10.57	98.07	10.57	≤ 11.00	Pass
11n-HT20	MCS0	120	5600	10.31	98.07	10.31	≤ 11.00	Pass
11n-HT20	MCS0	140	5700	10.59	98.07	10.59	≤ 11.00	Pass
11n-HT20	MCS0	144	5720	10.62	98.07	10.62	≤ 11.00	Pass

Test Mode	Data Rate/ MCS	Channel No.	Freq. (MHz)	PSD (dBm/ MHz)	Duty Cycle (%)	Final PSD (dBm/ MHz)	PSD Limit (dBm/ MHz)	Result
Ant 2								
11n-HT40	MCS0	54	5270	8.14	96.61	8.28	≤ 11.00	Pass
11n-HT40	MCS0	62	5310	6.07	96.61	6.22	≤ 11.00	Pass
11n-HT40	MCS0	102	5510	5.72	96.61	5.86	≤ 11.00	Pass
11n-HT40	MCS0	110	5550	8.02	96.61	8.17	≤ 11.00	Pass
11n-HT40	MCS0	118	5590	8.25	96.61	8.39	≤ 11.00	Pass
11n-HT40	MCS0	134	5670	8.32	96.61	8.47	≤ 11.00	Pass
11n-HT40	MCS0	142	5710	8.67	96.61	8.82	≤ 11.00	Pass
11ac-VHT20	MCS0	52	5260	10.21	98.21	10.21	≤ 11.00	Pass
11ac-VHT20	MCS0	60	5300	10.41	98.21	10.41	≤ 11.00	Pass
11ac-VHT20	MCS0	64	5320	10.69	98.21	10.69	≤ 11.00	Pass
11ac-VHT20	MCS0	100	5500	10.53	98.21	10.53	≤ 11.00	Pass
11ac-VHT20	MCS0	116	5580	10.29	98.21	10.29	≤ 11.00	Pass
11ac-VHT20	MCS0	120	5600	10.44	98.21	10.44	≤ 11.00	Pass
11ac-VHT20	MCS0	140	5700	10.58	98.21	10.58	≤ 11.00	Pass
11ac-VHT20	MCS0	144	5720	10.43	98.21	10.43	≤ 11.00	Pass
11ac-VHT40	MCS0	54	5270	7.94	96.43	8.10	≤ 11.00	Pass
11ac-VHT40	MCS0	62	5310	6.63	96.43	6.79	≤ 11.00	Pass
11ac-VHT40	MCS0	102	5510	6.19	96.43	6.35	≤ 11.00	Pass
11ac-VHT40	MCS0	110	5550	8.08	96.43	8.24	≤ 11.00	Pass
11ac-VHT40	MCS0	118	5590	8.14	96.43	8.29	≤ 11.00	Pass
11ac-VHT40	MCS0	134	5670	8.35	96.43	8.51	≤ 11.00	Pass
11ac-VHT40	MCS0	142	5710	8.47	96.43	8.63	≤ 11.00	Pass
11ac-VHT80	MCS0	58	5290	2.50	91.40	2.89	≤ 11.00	Pass
11ac-VHT80	MCS0	106	5530	1.68	91.40	2.07	≤ 11.00	Pass
11ac-VHT80	MCS0	122	5610	4.58	91.40	4.97	≤ 11.00	Pass
11ac-VHT80	MCS0	138	5690	4.53	91.40	4.92	≤ 11.00	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)	Ant 1 PSD (dBm/ MHz)	Ant 2 PSD (dBm/ MHz)	Duty Cycle (%)	Total PSD (dBm/ MHz)	PSD Limit (dBm/ MHz)	Result
Ant 1 + 2 (CDD Mode)									
11a	6Mbps	52	5260	4.80	5.47	95.80	8.35	≤ 8.99	Pass
11a	6Mbps	60	5300	5.07	5.59	95.80	8.53	≤ 8.99	Pass
11a	6Mbps	64	5320	5.03	5.84	95.80	8.65	≤ 8.99	Pass
11a	6Mbps	100	5500	4.53	5.60	95.80	8.29	≤ 8.99	Pass
11a	6Mbps	116	5580	4.87	5.44	95.80	8.36	≤ 8.99	Pass
11a	6Mbps	120	5600	4.83	5.36	95.80	8.30	≤ 8.99	Pass
11a	6Mbps	140	5700	5.02	5.65	95.80	8.54	≤ 8.99	Pass
11a	6Mbps	144	5720	4.82	5.57	95.80	8.41	≤ 8.99	Pass
11n-HT20	MCS0	52	5260	5.15	5.59	98.07	8.38	≤ 8.99	Pass
11n-HT20	MCS0	60	5300	5.02	5.37	98.07	8.21	≤ 8.99	Pass
11n-HT20	MCS0	64	5320	5.28	5.95	98.07	8.64	≤ 8.99	Pass
11n-HT20	MCS0	100	5500	4.73	5.89	98.07	8.36	≤ 8.99	Pass
11n-HT20	MCS0	116	5580	5.07	5.71	98.07	8.41	≤ 8.99	Pass
11n-HT20	MCS0	120	5600	4.97	5.73	98.07	8.38	≤ 8.99	Pass
11n-HT20	MCS0	140	5700	4.78	5.64	98.07	8.24	≤ 8.99	Pass
11n-HT20	MCS0	144	5720	4.92	5.65	98.07	8.31	≤ 8.99	Pass
11n-HT40	MCS0	54	5270	4.83	5.60	96.61	8.39	≤ 8.99	Pass
11n-HT40	MCS0	62	5310	5.03	5.57	96.61	8.47	≤ 8.99	Pass
11n-HT40	MCS0	102	5510	4.53	5.27	96.61	8.07	≤ 8.99	Pass
11n-HT40	MCS0	110	5550	4.72	5.47	96.61	8.27	≤ 8.99	Pass
11n-HT40	MCS0	118	5590	4.89	5.61	96.61	8.42	≤ 8.99	Pass
11n-HT40	MCS0	134	5670	5.05	5.56	96.61	8.47	≤ 8.99	Pass
11n-HT40	MCS0	142	5710	4.92	5.48	96.61	8.37	≤ 8.99	Pass

| Test Mode	Data Rate/ MCS	Channel No.	Freq. (MHz)	Ant 1 PSD (dBm/ MHz)	Ant 2 PSD (dBm/ MHz)	Duty Cycle (%)	Total PSD (dBm/ MHz)	PSD Limit (dBm/ MHz)	Result
Ant 1 + 2 (CDD Mode)									
11ac-VHT20	MCS0	52	5260	5.05	5.88	98.21	8.50	≤ 8.99	Pass
11ac-VHT20	MCS0	60	5300	5.03	5.48	98.21	8.27	≤ 8.99	Pass
11ac-VHT20	MCS0	64	5320	5.05	5.51	98.21	8.29	≤ 8.99	Pass
11ac-VHT20	MCS0	100	5500	4.98	5.73	98.21	8.38	≤ 8.99	Pass
11ac-VHT20	MCS0	116	5580	5.10	5.80	98.21	8.47	≤ 8.99	Pass
11ac-VHT20	MCS0	120	5600	5.06	5.79	98.21	8.45	≤ 8.99	Pass
11ac-VHT20	MCS0	140	5700	4.94	5.56	98.21	8.27	≤ 8.99	Pass
11ac-VHT20	MCS0	144	5720	4.95	5.66	98.21	8.33	≤ 8.99	Pass
11ac-VHT40	MCS0	54	5270	4.81	5.63	96.43	8.41	≤ 8.99	Pass
11ac-VHT40	MCS0	62	5310	5.15	5.78	96.43	8.65	≤ 8.99	Pass
11ac-VHT40	MCS0	102	5510	4.59	5.44	96.43	8.20	≤ 8.99	Pass
11ac-VHT40	MCS0	110	5550	5.23	5.89	96.43	8.74	≤ 8.99	Pass
11ac-VHT40	MCS0	118	5590	4.78	5.42	96.43	8.28	≤ 8.99	Pass
11ac-VHT40	MCS0	134	5670	4.94	5.45	96.43	8.37	≤ 8.99	Pass
11ac-VHT40	MCS0	142	5710	5.21	5.61	96.43	8.59	≤ 8.99	Pass
11ac-VHT80	MCS0	58	5290	2.19	2.71	91.40	5.86	≤ 8.99	Pass
11ac-VHT80	MCS0	106	5530	-0.43	0.18	91.40	3.29	≤ 8.99	Pass
11ac-VHT80	MCS0	122	5610	2.96	3.76	91.40	6.78	≤ 8.99	Pass
11ac-VHT80	MCS0	138	5690	2.92	3.30	91.40	6.52	≤ 8.99	Pass

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

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

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

Test Mode	Data Rate/ MCS	Channel No.	Freq. (MHz)	Ant 1 PSD (dBm/ MHz)	Ant 2 PSD (dBm/ MHz)	Duty Cycle (%)	Total PSD (dBm/ MHz)	PSD Limit (dBm/ MHz)	Result
Ant 1 + 2 (Beam-Forming Mode)									
11n-HT20	MCS0	52	5260	5.15	5.59	98.07	8.38	≤ 8.99	Pass
11n-HT20	MCS0	60	5300	5.02	5.37	98.07	8.21	≤ 8.99	Pass
11n-HT20	MCS0	64	5320	5.28	5.95	98.07	8.64	≤ 8.99	Pass
11n-HT20	MCS0	100	5500	4.73	5.89	98.07	8.36	≤ 8.99	Pass
11n-HT20	MCS0	116	5580	5.07	5.71	98.07	8.50	≤ 8.99	Pass
11n-HT20	MCS0	120	5600	4.97	5.73	98.07	8.38	≤ 8.99	Pass
11n-HT20	MCS0	140	5700	4.78	5.64	98.07	8.24	≤ 8.99	Pass
11n-HT20	MCS0	144	5720	4.92	5.65	98.07	8.31	≤ 8.99	Pass
11n-HT40	MCS0	54	5270	4.30	4.63	96.61	7.63	≤ 8.99	Pass
11n-HT40	MCS0	62	5310	4.05	4.61	96.61	7.50	≤ 8.99	Pass
11n-HT40	MCS0	102	5510	4.28	5.26	96.61	7.96	≤ 8.99	Pass
11n-HT40	MCS0	110	5550	4.58	5.05	96.61	7.98	≤ 8.99	Pass
11n-HT40	MCS0	118	5590	4.38	4.99	96.61	7.86	≤ 8.99	Pass
11n-HT40	MCS0	134	5670	3.88	4.19	96.61	7.20	≤ 8.99	Pass
11n-HT40	MCS0	142	5710	3.98	4.53	96.61	7.42	≤ 8.99	Pass

Test Mode	Data Rate/ MCS	Channel No.	Freq. (MHz)	Ant 1 PSD (dBm/ MHz)	Ant 2 PSD (dBm/ MHz)	Duty Cycle (%)	Total PSD (dBm/ MHz)	PSD Limit (dBm/ MHz)	Result
Ant 1 + 2 (Beam-Forming Mode)									
11ac-VHT20	MCS0	52	5260	5.05	5.88	98.21	8.50	≤ 8.99	Pass
11ac-VHT20	MCS0	60	5300	5.03	5.48	98.21	8.27	≤ 8.99	Pass
11ac-VHT20	MCS0	64	5320	5.05	5.51	98.21	8.29	≤ 8.99	Pass
11ac-VHT20	MCS0	100	5500	4.98	5.73	98.21	8.38	≤ 8.99	Pass
11ac-VHT20	MCS0	116	5580	5.10	5.80	98.21	8.47	≤ 8.99	Pass
11ac-VHT20	MCS0	120	5600	5.06	5.79	98.21	8.45	≤ 8.99	Pass
11ac-VHT20	MCS0	140	5700	4.94	5.56	98.21	8.27	≤ 8.99	Pass
11ac-VHT20	MCS0	144	5720	4.95	5.66	98.21	8.33	≤ 8.99	Pass
11ac-VHT40	MCS0	54	5270	4.19	4.92	96.43	7.74	≤ 8.99	Pass
11ac-VHT40	MCS0	62	5310	4.02	4.70	96.43	7.54	≤ 8.99	Pass
11ac-VHT40	MCS0	102	5510	4.32	5.48	96.43	8.11	≤ 8.99	Pass
11ac-VHT40	MCS0	110	5550	4.42	5.27	96.43	8.03	≤ 8.99	Pass
11ac-VHT40	MCS0	118	5590	4.41	5.00	96.43	7.88	≤ 8.99	Pass
11ac-VHT40	MCS0	134	5670	3.59	4.50	96.43	7.24	≤ 8.99	Pass
11ac-VHT40	MCS0	142	5710	3.96	4.40	96.43	7.35	≤ 8.99	Pass
11ac-VHT80	MCS0	58	5290	0.94	1.51	91.40	4.64	≤ 8.99	Pass
11ac-VHT80	MCS0	106	5530	0.57	1.39	91.40	4.40	≤ 8.99	Pass
11ac-VHT80	MCS0	122	5610	0.27	1.21	91.40	4.17	≤ 8.99	Pass
11ac-VHT80	MCS0	138	5690	0.10	0.80	91.40	3.86	≤ 8.99	Pass

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

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

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

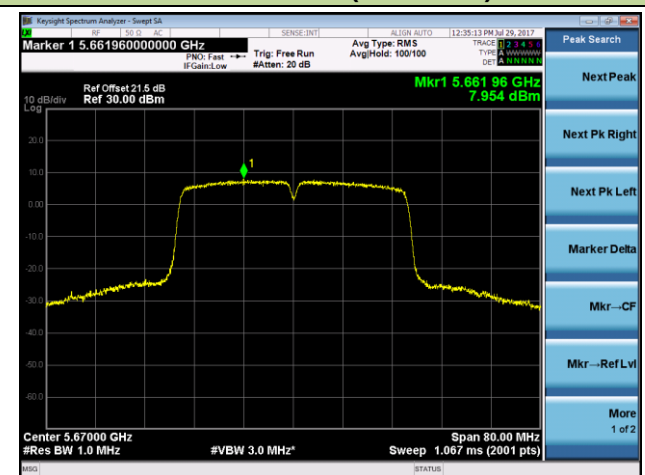## 802.11a Power Spectral Density - Ant 1
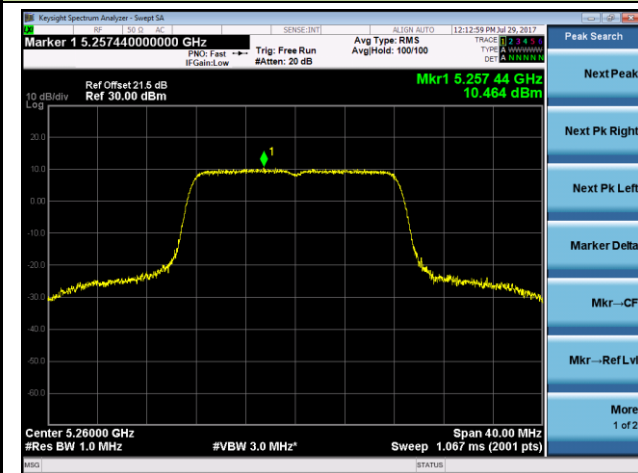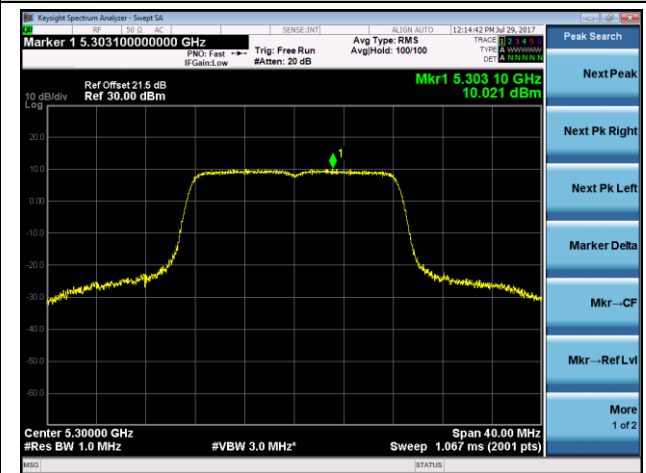
Channel 52 (5260MHz)

Channel 60 (5300MHz)

Channel 64 (5320MHz)
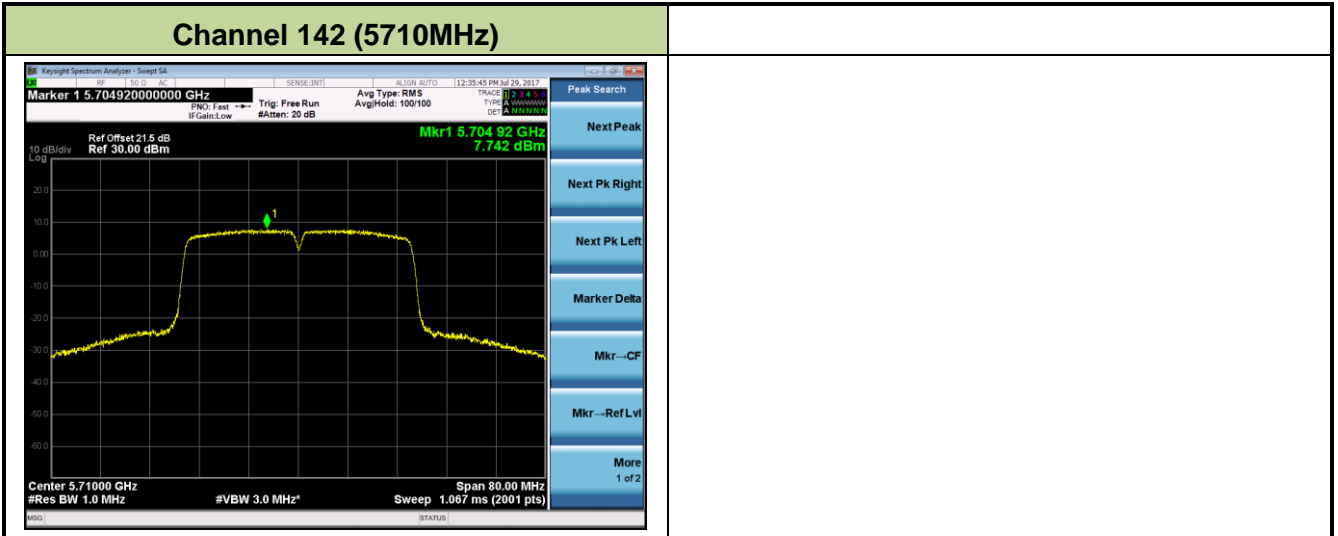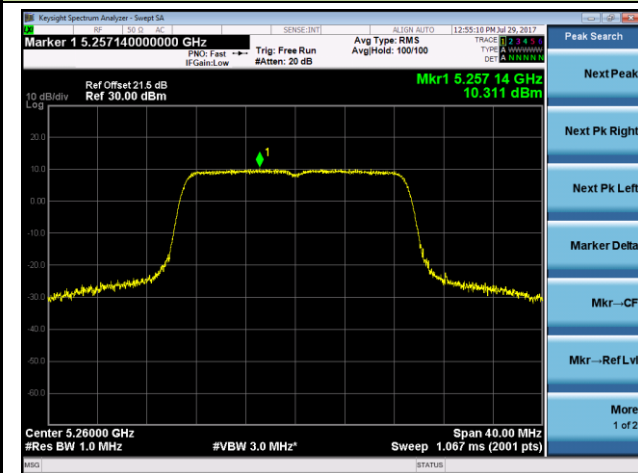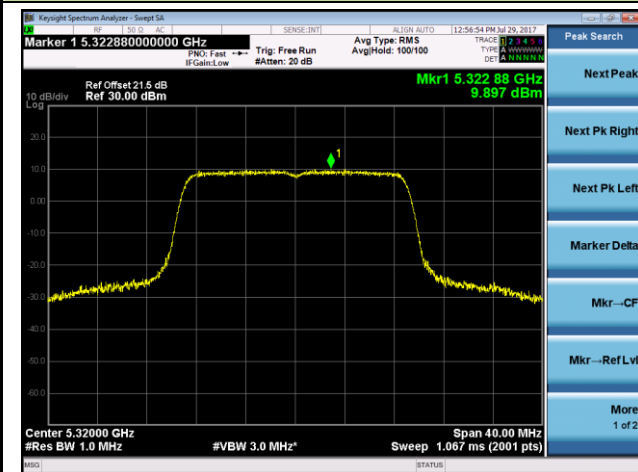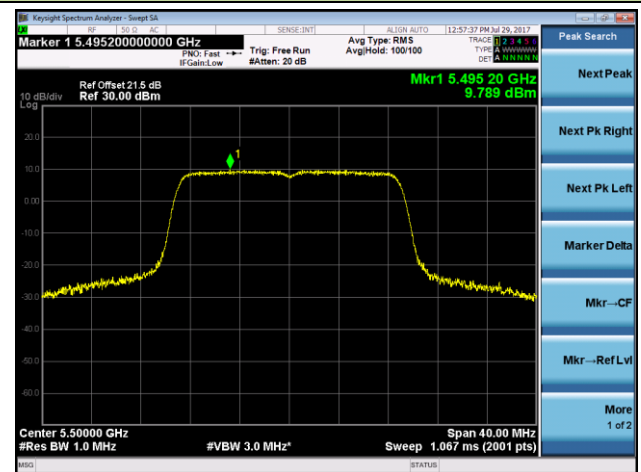

Channel 100 (5500MHz)

Channel 116 (5580MHz)
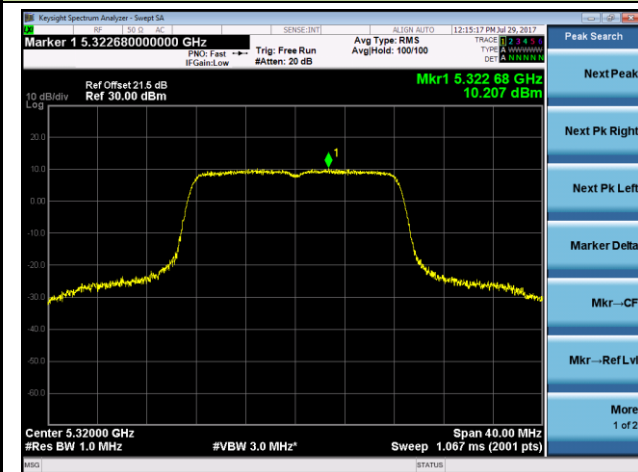
Channel 120 (5600MHz)
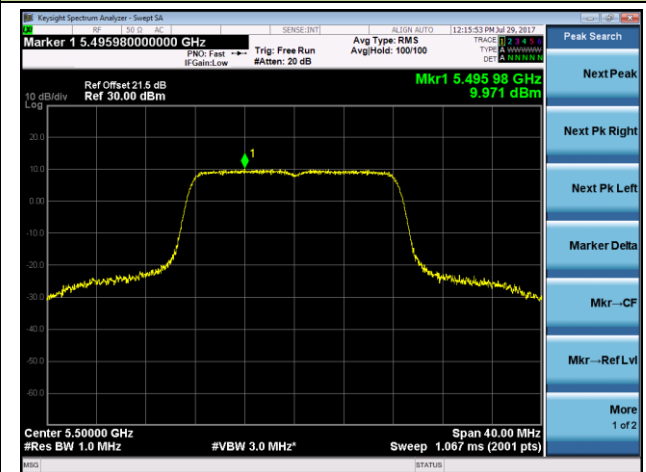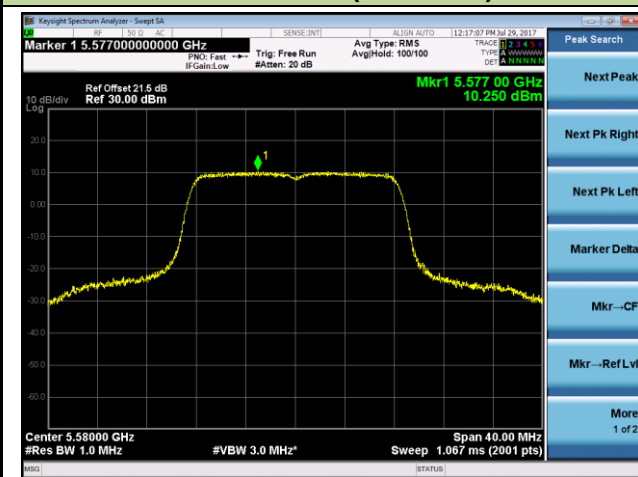
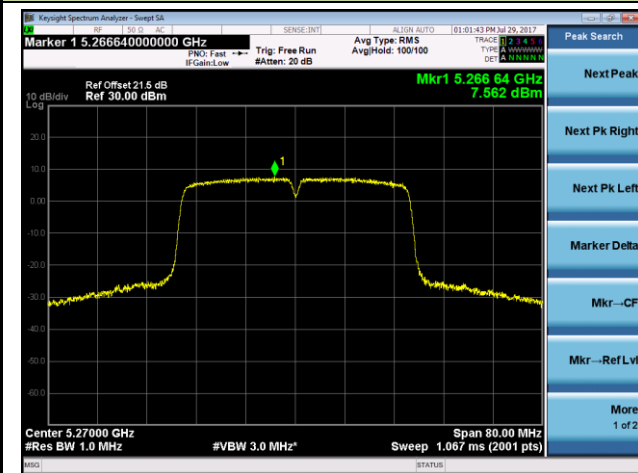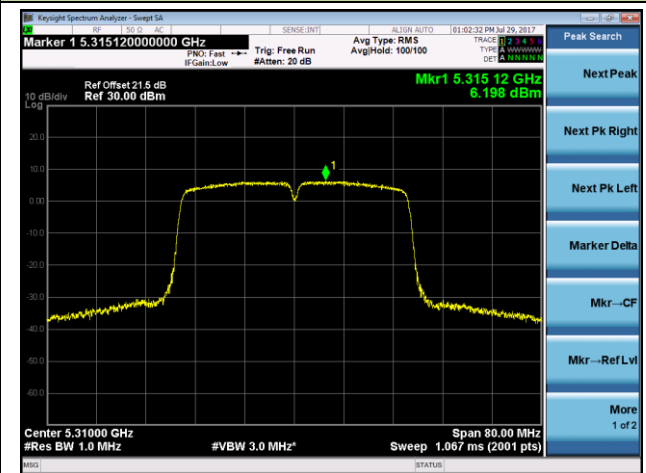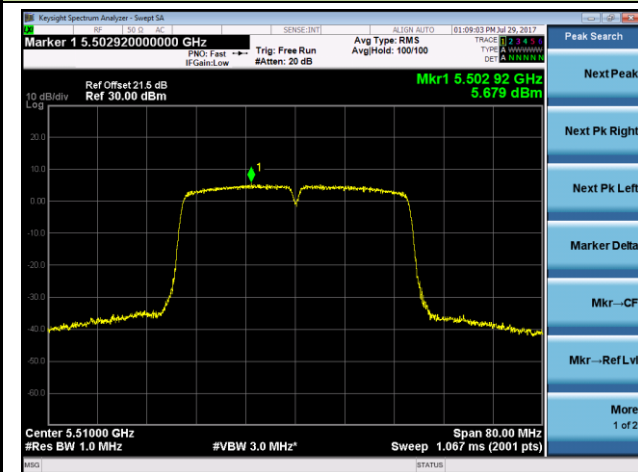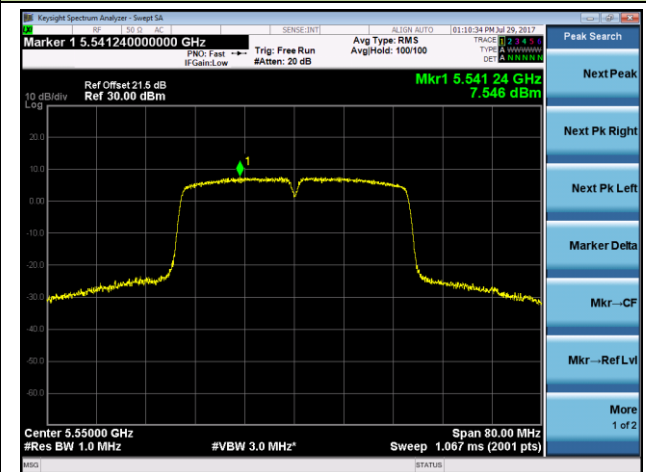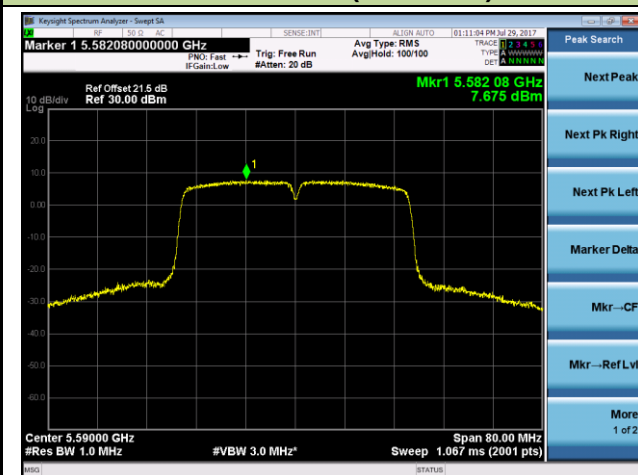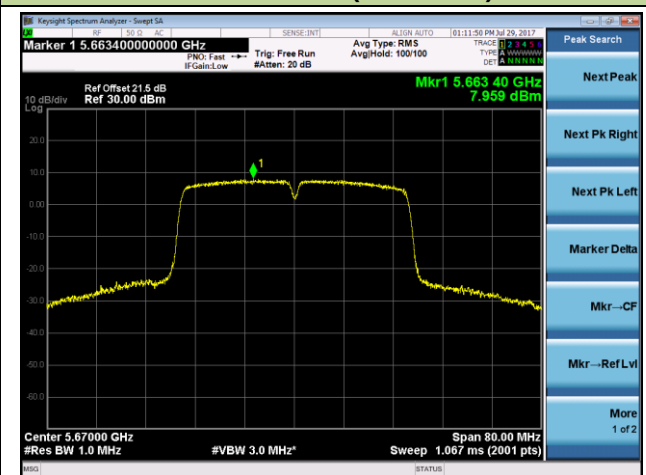| Channel 140 (5700MHz)	Channel 144 (5720MHz)
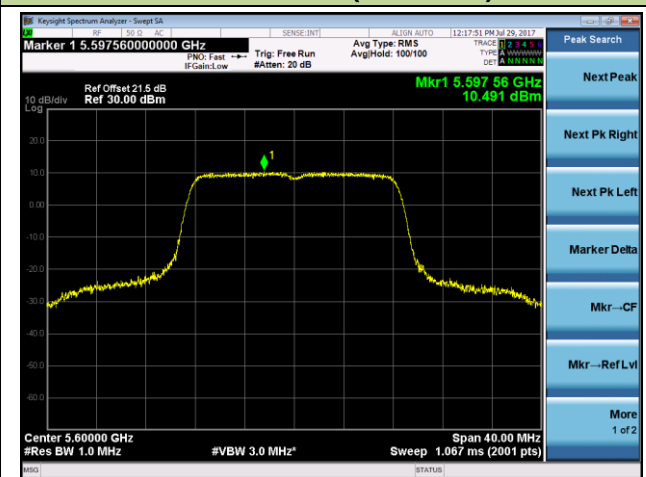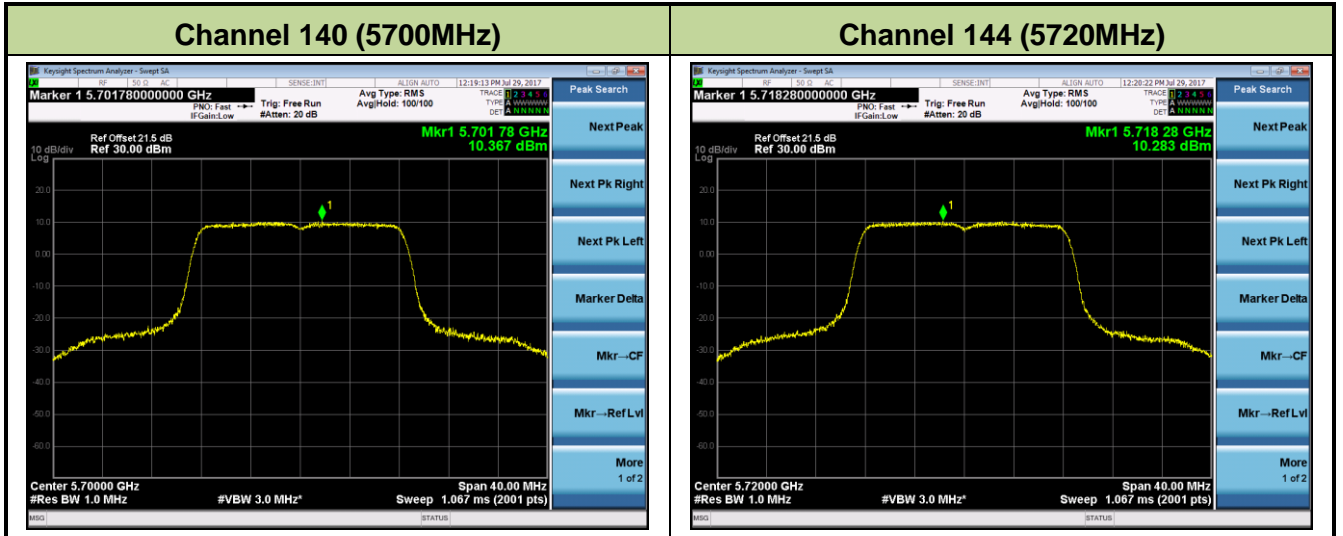
802.11n-HT20 Power Spectral Density - Ant 1
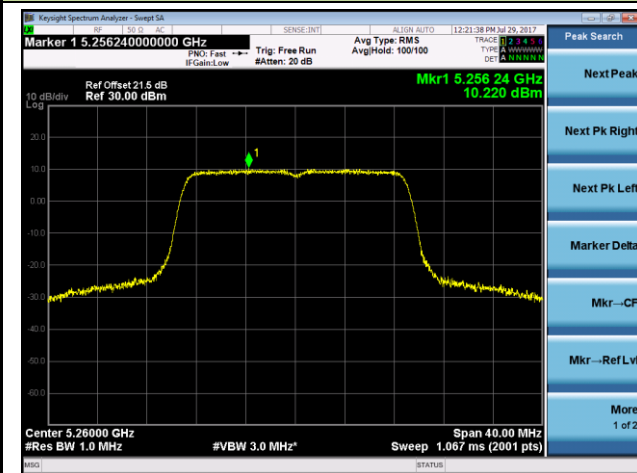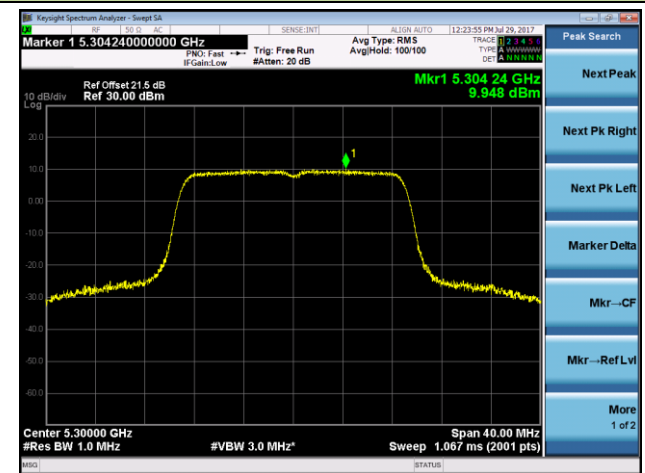
Channel 52 (5260MHz)

Channel 60 (5300MHz)

Channel 64 (5320MHz)

Channel 100 (5500MHz)

Channel 116 (5580MHz)
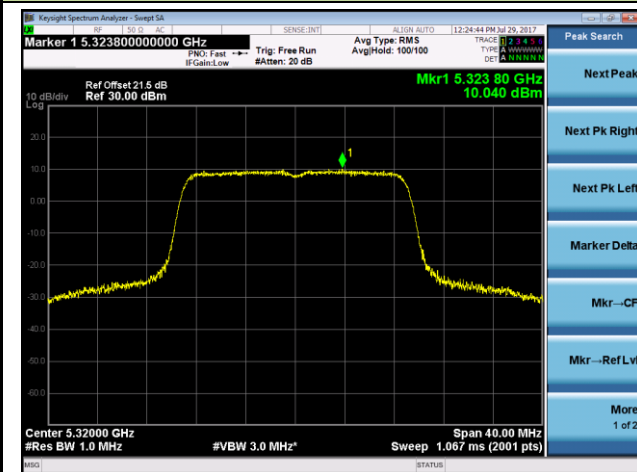
Channel 120 (5600MHz)
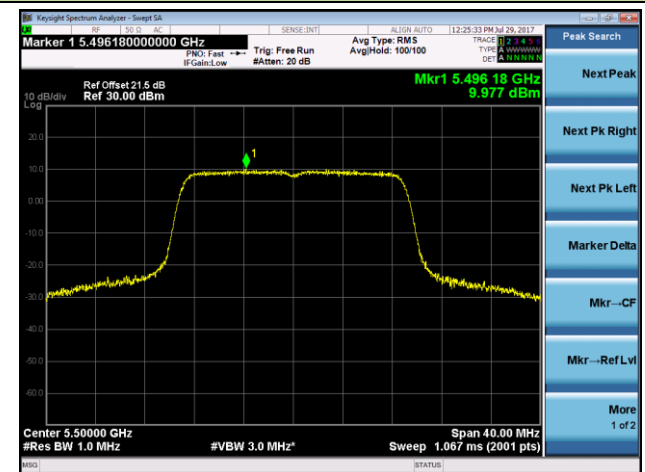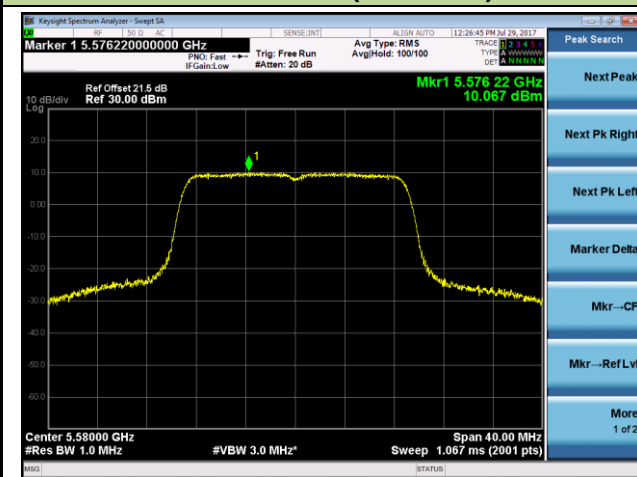
Channel 140 (5700MHz)	Channel 144 (5720MHz)
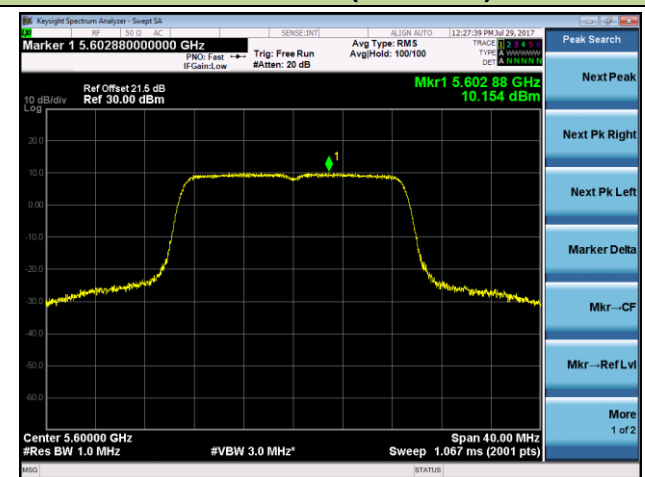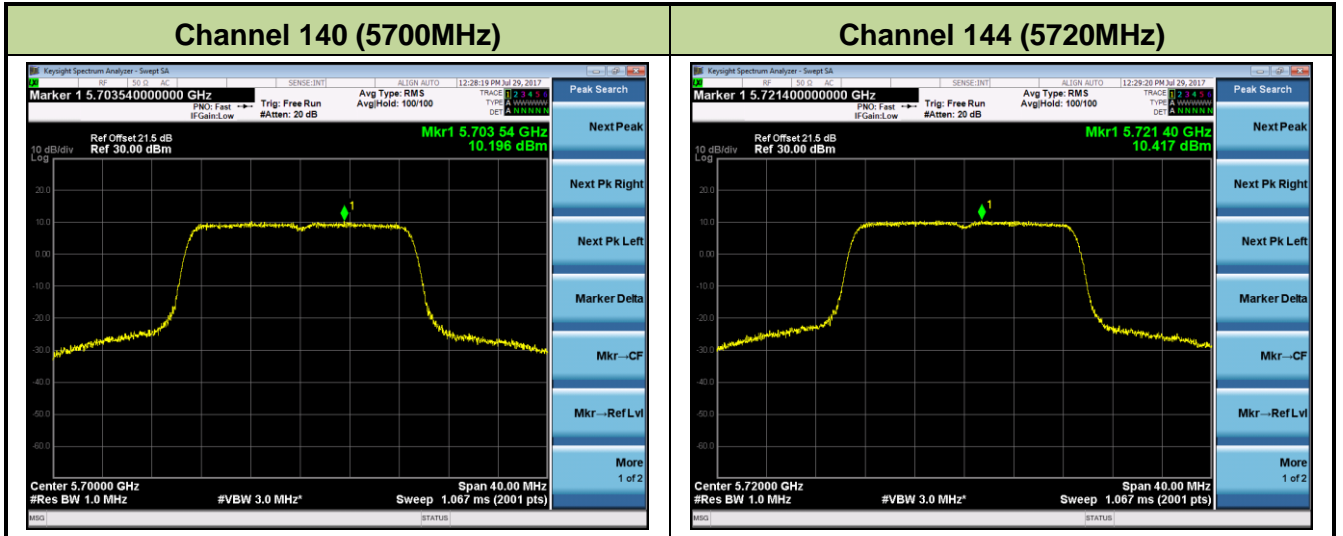
802.11n-HT40 Power Spectral Density - Ant 1
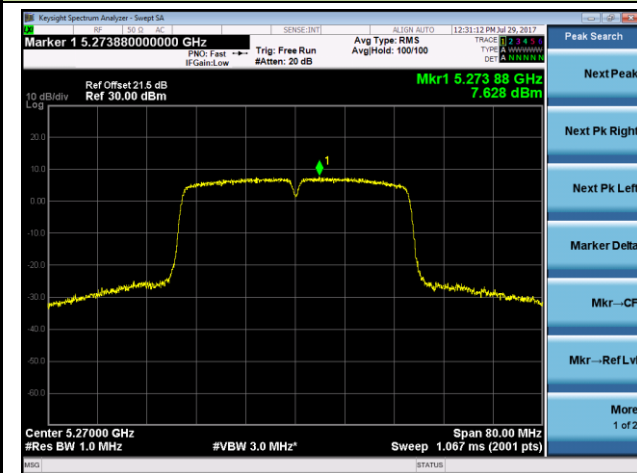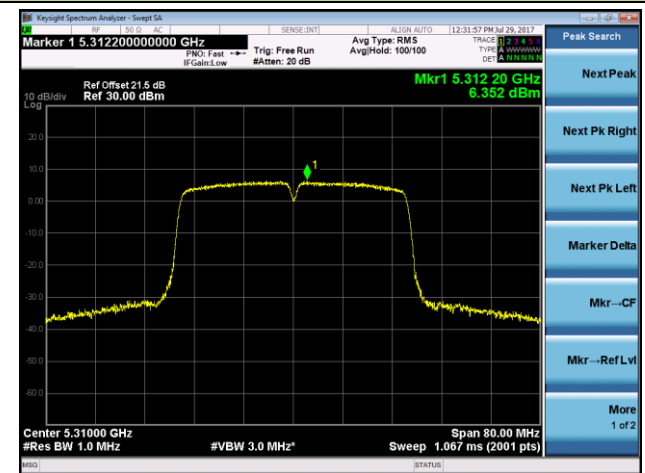
Channel 54 (5270MHz)

Channel 62 (5310MHz)

Channel 102 (5510MHz)

Channel 110 (5550MHz)

Channel 118 (5590MHz)

Channel 134 (5670MHz)

Channel 142 (5710MHz)

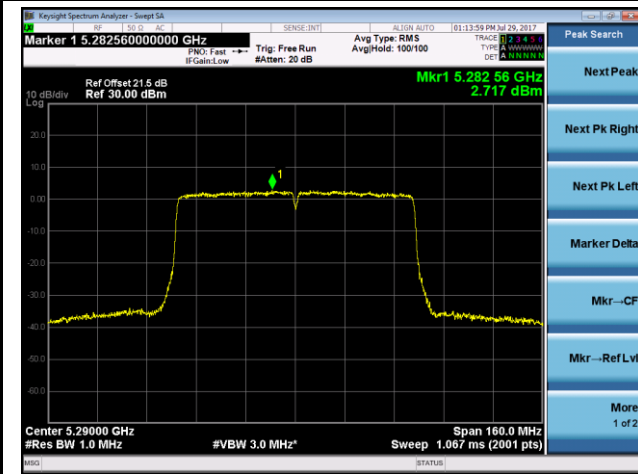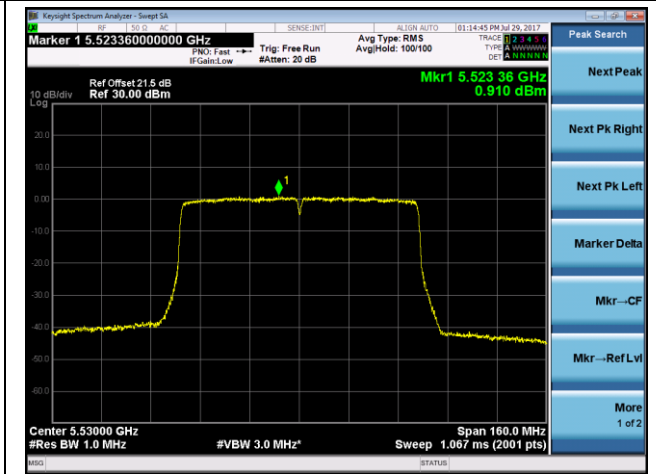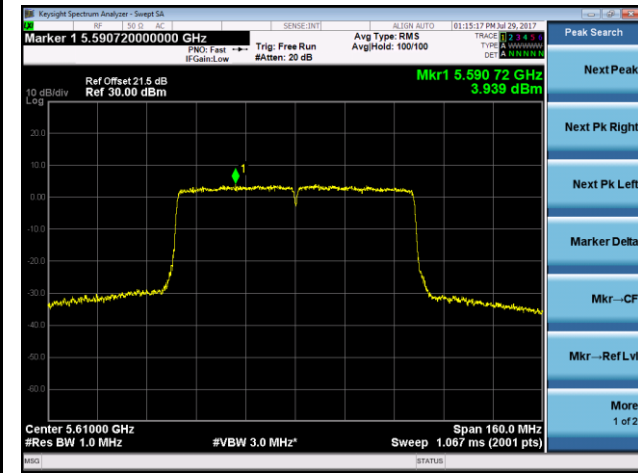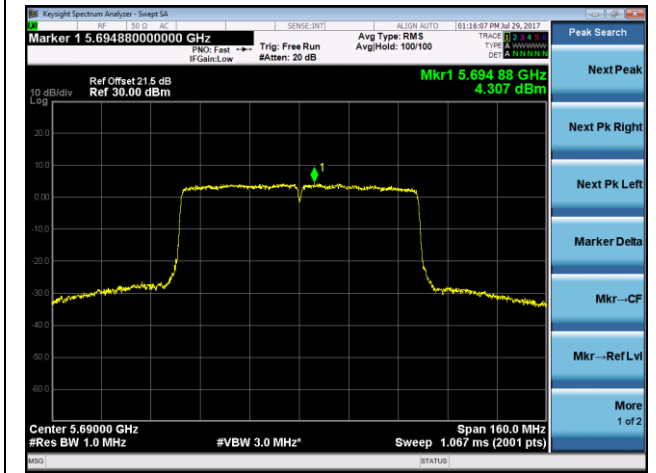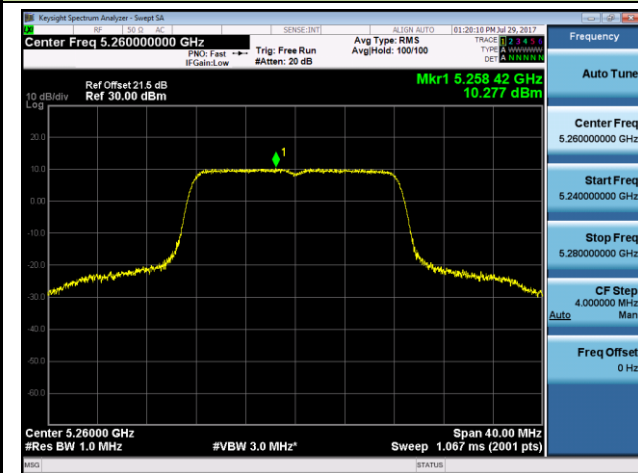## 802.11ac-VHT20 Power Spectral Density - Ant 1

Channel 52 (5260MHz)

Channel 60 (5300MHz)

Channel 64 (5320MHz)

Channel 100 (5500MHz)

Channel 116 (5580MHz)

Channel 120 (5600MHz)

Channel 140 (5700MHz)	Channel 144 (5720MHz)

802.11ac-VHT40 Power Spectral Density - Ant 1

Channel 54 (5270MHz)

Channel 62 (5310MHz)

Channel 102 (5510MHz)

Channel 110 (5550MHz)

Channel 118 (5590MHz)

Channel 134 (5670MHz)

Channel 142 (5710MHz)	
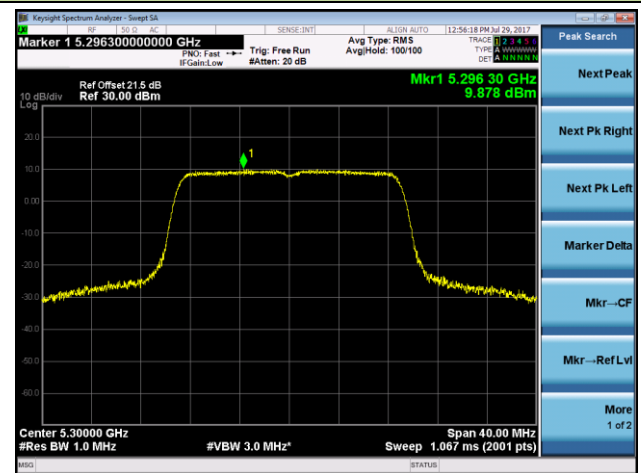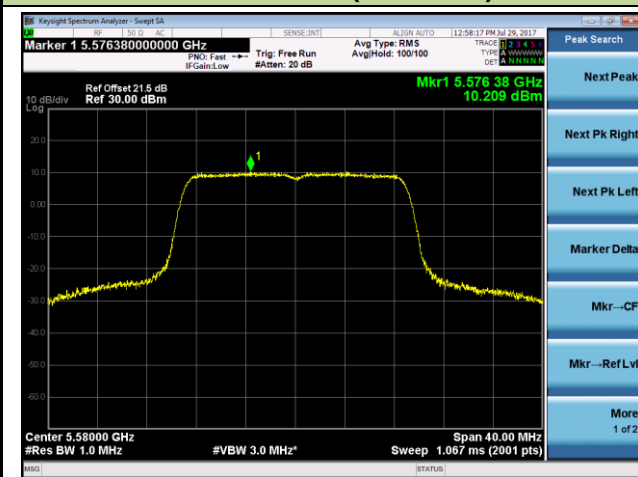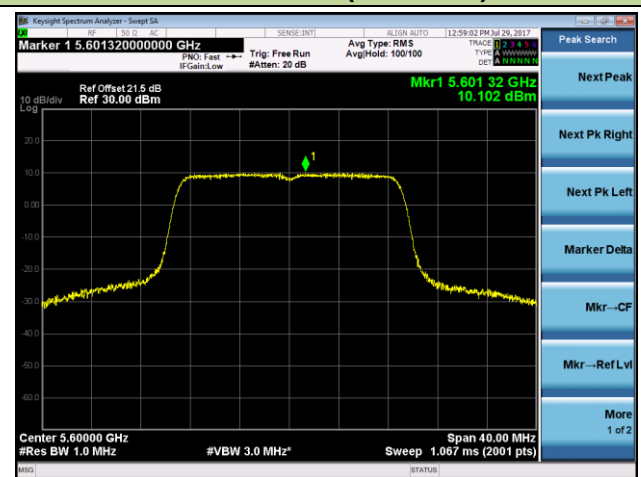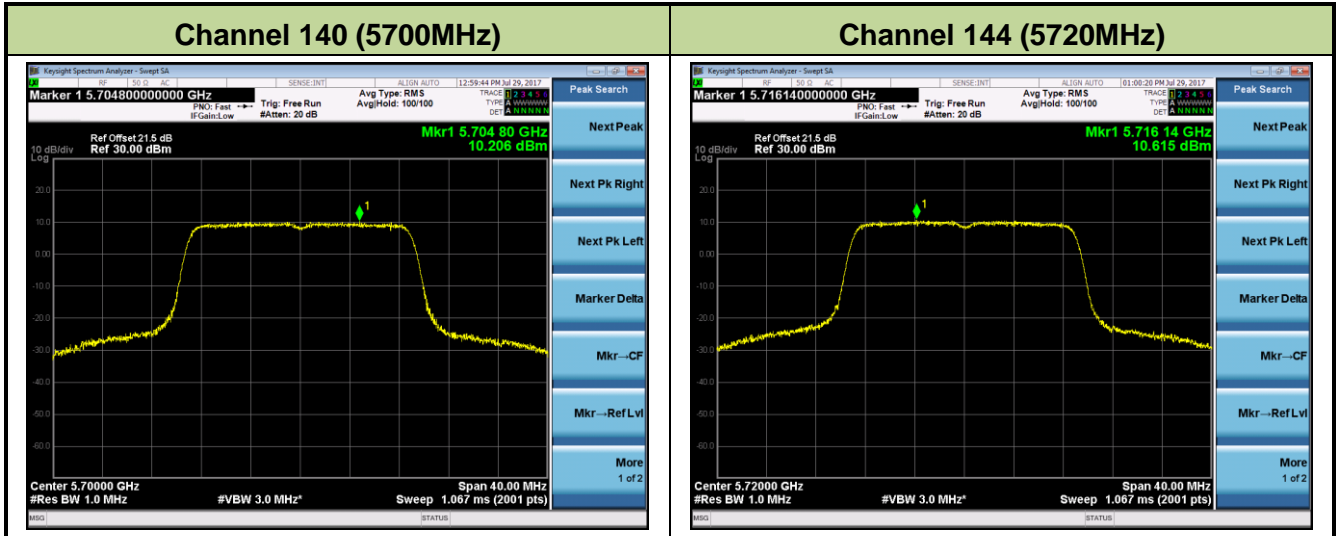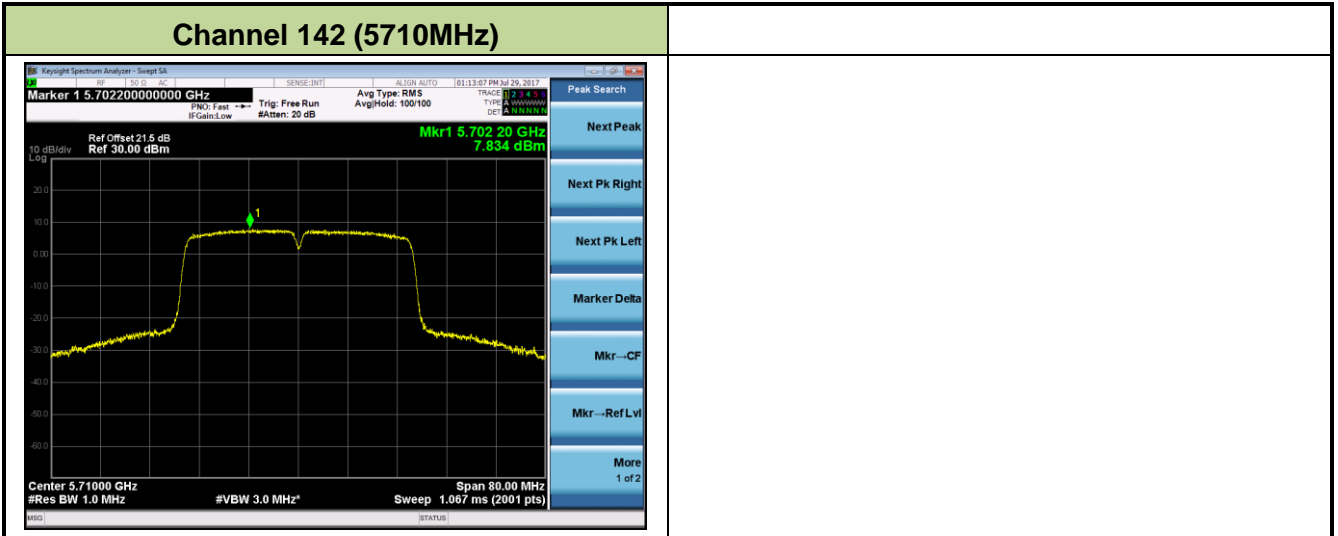
802.11ac-VHT80 Power Spectral Density - Ant 1

Channel 58 (5290MHz)

Channel 106 (5530MHz)

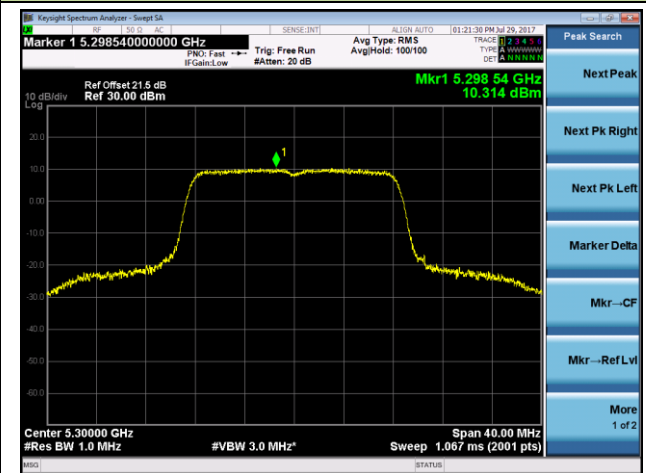

Channel 122 (5610MHz)

Channel 138 (5690MHz)

802.11a Power Spectral Density - Ant 2
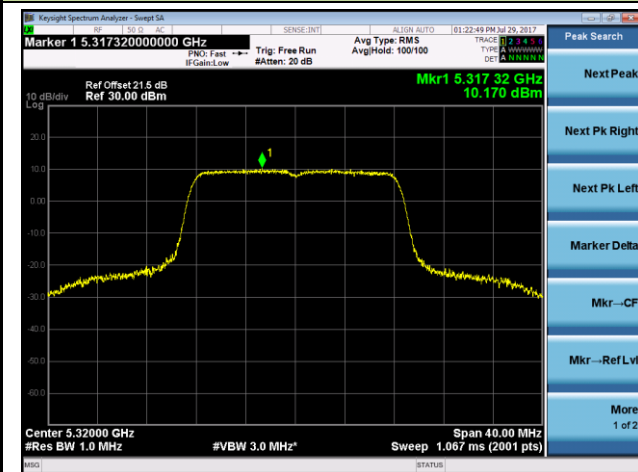
Channel 52 (5260MHz)
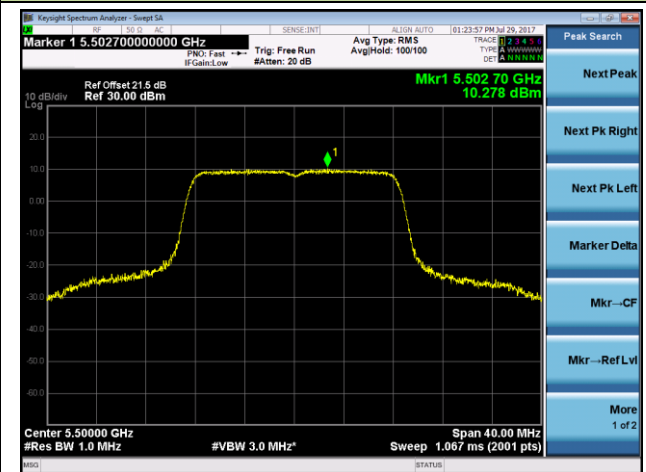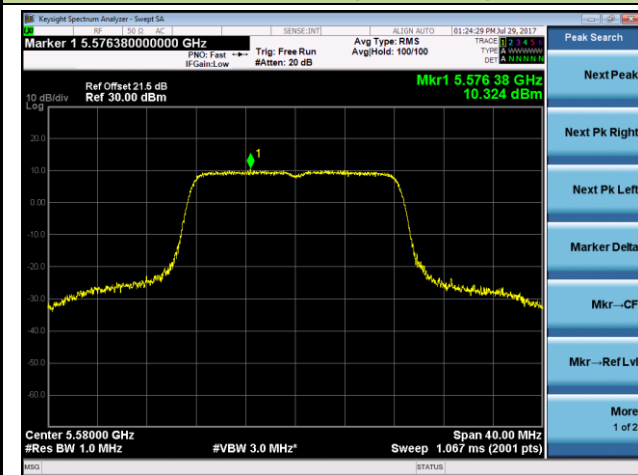

Channel 60 (5300MHz)

Channel 64 (5320MHz)

Channel 100 (5500MHz)

Channel 116 (5580MHz)

Channel 120 (5600MHz)

Channel 140 (5700MHz)

Channel 144 (5720MHz)