

Product	AC220 Wi-Fi AP OD directional antenna US			Temperature	22°C		
Test Engineer	Lewis Huang			Relative Humidity	54%		
Test Site	TR3			Test Date	2017/08/03		
Test Item	Power Spectral Density (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
<b>Ant 1</b>								
11a	6Mbps	52	5260	5.36	95.80	5.55	≤ 6.00	Pass
11a	6Mbps	60	5300	5.31	95.80	5.50	≤ 6.00	Pass
11a	6Mbps	64	5320	5.43	95.80	5.62	≤ 6.00	Pass
11a	6Mbps	100	5500	6.06	95.80	6.25	≤ 6.50	Pass
11a	6Mbps	116	5580	5.91	95.80	6.10	≤ 6.50	Pass
11a	6Mbps	120	5600	5.91	95.80	6.10	≤ 6.50	Pass
11a	6Mbps	140	5700	5.91	95.80	6.10	≤ 6.50	Pass
11a	6Mbps	144	5720	5.79	95.80	5.98	≤ 6.50	Pass
11n-HT20	MCS0	52	5260	5.43	98.07	5.43	≤ 6.00	Pass
11n-HT20	MCS0	60	5300	5.56	98.07	5.56	≤ 6.00	Pass
11n-HT20	MCS0	64	5320	5.34	98.07	5.34	≤ 6.00	Pass
11n-HT20	MCS0	100	5500	5.95	98.07	5.95	≤ 6.50	Pass
11n-HT20	MCS0	116	5580	5.91	98.07	5.91	≤ 6.50	Pass
11n-HT20	MCS0	120	5600	5.90	98.07	5.90	≤ 6.50	Pass
11n-HT20	MCS0	140	5700	5.91	98.07	5.91	≤ 6.50	Pass
11n-HT20	MCS0	144	5720	5.96	98.07	5.96	≤ 6.50	Pass
11n-HT40	MCS0	54	5270	3.93	96.61	4.08	≤ 6.00	Pass
11n-HT40	MCS0	62	5310	3.79	96.61	3.94	≤ 6.00	Pass
11n-HT40	MCS0	102	5510	4.80	96.61	4.95	≤ 6.50	Pass
11n-HT40	MCS0	110	5550	5.10	96.61	5.25	≤ 6.50	Pass
11n-HT40	MCS0	118	5590	5.31	96.61	5.46	≤ 6.50	Pass
11n-HT40	MCS0	134	5670	4.91	96.61	5.06	≤ 6.50	Pass
11n-HT40	MCS0	142	5710	4.89	96.61	5.04	≤ 6.50	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								
11ac-VHT20	MCS0	52	5260	5.55	98.21	5.55	≤ 6.00	Pass
11ac-VHT20	MCS0	60	5300	5.53	98.21	5.53	≤ 6.00	Pass
11ac-VHT20	MCS0	64	5320	5.48	98.21	5.48	≤ 6.00	Pass
11ac-VHT20	MCS0	100	5500	6.18	98.21	6.18	≤ 6.50	Pass
11ac-VHT20	MCS0	116	5580	5.95	98.21	5.95	≤ 6.50	Pass
11ac-VHT20	MCS0	120	5600	5.99	98.21	5.99	≤ 6.50	Pass
11ac-VHT20	MCS0	140	5700	6.06	98.21	6.06	≤ 6.50	Pass
11ac-VHT20	MCS0	144	5720	5.91	98.21	5.91	≤ 6.50	Pass
11ac-VHT40	MCS0	54	5270	3.88	96.43	4.04	≤ 6.00	Pass
11ac-VHT40	MCS0	62	5310	3.84	96.43	4.00	≤ 6.00	Pass
11ac-VHT40	MCS0	102	5510	4.99	96.43	5.15	≤ 6.50	Pass
11ac-VHT40	MCS0	110	5550	5.17	96.43	5.33	≤ 6.50	Pass
11ac-VHT40	MCS0	118	5590	5.48	96.43	5.64	≤ 6.50	Pass
11ac-VHT40	MCS0	134	5670	4.97	96.43	5.13	≤ 6.50	Pass
11ac-VHT40	MCS0	142	5710	4.89	96.43	5.05	≤ 6.50	Pass
11ac-VHT80	MCS0	58	5290	0.59	91.40	0.98	≤ 6.00	Pass
11ac-VHT80	MCS0	106	5530	1.49	91.40	1.88	≤ 6.50	Pass
11ac-VHT80	MCS0	122	5610	2.06	91.40	2.45	≤ 6.50	Pass
11ac-VHT80	MCS0	138	5690	1.90	91.40	2.29	≤ 6.50	Pass

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

Note 2: When EUT duty cycle  $< 98\%$ , the Final PSD (dBm/MHz) = PSD (dBm/MHz) +  $10 \cdot \log(1/\text{Duty Cycle})$ .

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	5.53	95.80	5.72	≤ 6.00	Pass
11a	6Mbps	60	5300	5.43	95.80	5.62	≤ 6.00	Pass
11a	6Mbps	64	5320	5.33	95.80	5.52	≤ 6.00	Pass
11a	6Mbps	100	5500	6.16	95.80	6.35	≤ 6.50	Pass
11a	6Mbps	116	5580	5.95	95.80	6.14	≤ 6.50	Pass
11a	6Mbps	120	5600	5.88	95.80	6.07	≤ 6.50	Pass
11a	6Mbps	140	5700	6.06	95.80	6.25	≤ 6.50	Pass
11a	6Mbps	144	5720	6.04	95.80	6.23	≤ 6.50	Pass
11n-HT20	MCS0	52	5260	5.57	98.07	5.57	≤ 6.00	Pass
11n-HT20	MCS0	60	5300	5.38	98.07	5.38	≤ 6.00	Pass
11n-HT20	MCS0	64	5320	5.54	98.07	5.54	≤ 6.00	Pass
11n-HT20	MCS0	100	5500	5.86	98.07	5.86	≤ 6.50	Pass
11n-HT20	MCS0	116	5580	6.15	98.07	6.15	≤ 6.50	Pass
11n-HT20	MCS0	120	5600	5.88	98.07	5.88	≤ 6.50	Pass
11n-HT20	MCS0	140	5700	6.13	98.07	6.13	≤ 6.50	Pass
11n-HT20	MCS0	144	5720	5.89	98.07	5.89	≤ 6.50	Pass
11n-HT40	MCS0	54	5270	3.82	96.61	3.97	≤ 6.00	Pass
11n-HT40	MCS0	62	5310	3.87	96.61	4.02	≤ 6.00	Pass
11n-HT40	MCS0	102	5510	5.36	96.61	5.51	≤ 6.50	Pass
11n-HT40	MCS0	110	5550	5.36	96.61	5.51	≤ 6.50	Pass
11n-HT40	MCS0	118	5590	5.41	96.61	5.56	≤ 6.50	Pass
11n-HT40	MCS0	134	5670	5.94	96.61	6.09	≤ 6.50	Pass
11n-HT40	MCS0	142	5710	4.99	96.61	5.14	≤ 6.50	Pass
11ac-VHT20	MCS0	52	5260	5.62	98.21	5.62	≤ 6.00	Pass
11ac-VHT20	MCS0	60	5300	5.50	98.21	5.50	≤ 6.00	Pass
11ac-VHT20	MCS0	64	5320	5.41	98.21	5.41	≤ 6.00	Pass
11ac-VHT20	MCS0	100	5500	5.92	98.21	5.92	≤ 6.50	Pass
11ac-VHT20	MCS0	116	5580	5.89	98.21	5.89	≤ 6.50	Pass
11ac-VHT20	MCS0	120	5600	6.08	98.21	6.08	≤ 6.50	Pass
11ac-VHT20	MCS0	140	5700	6.02	98.21	6.02	≤ 6.50	Pass
11ac-VHT20	MCS0	144	5720	5.97	98.21	5.97	≤ 6.50	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								
11ac-VHT40	MCS0	54	5270	3.94	96.43	4.10	≤ 6.00	Pass
11ac-VHT40	MCS0	62	5310	3.76	96.43	3.92	≤ 6.00	Pass
11ac-VHT40	MCS0	102	5510	5.12	96.43	5.28	≤ 6.50	Pass
11ac-VHT40	MCS0	110	5550	5.44	96.43	5.60	≤ 6.50	Pass
11ac-VHT40	MCS0	118	5590	5.42	96.43	5.58	≤ 6.50	Pass
11ac-VHT40	MCS0	134	5670	5.09	96.43	5.25	≤ 6.50	Pass
11ac-VHT40	MCS0	142	5710	5.03	96.43	5.19	≤ 6.50	Pass
11ac-VHT80	MCS0	58	5290	0.95	91.40	1.34	≤ 6.00	Pass
11ac-VHT80	MCS0	106	5530	1.90	91.40	2.29	≤ 6.50	Pass
11ac-VHT80	MCS0	122	5610	2.21	91.40	2.60	≤ 6.50	Pass
11ac-VHT80	MCS0	138	5690	1.87	91.40	2.26	≤ 6.50	Pass

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

Note 2: When EUT duty cycle  $< 98\%$ , the Final PSD (dBm/MHz) = PSD (dBm/MHz) +  $10 \times \log(1/\text{Duty Cycle})$ .

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	-0.83	-0.59	95.80	2.49	≤ 2.99	Pass
11a	6Mbps	60	5300	-1.05	-0.72	95.80	2.31	≤ 2.99	Pass
11a	6Mbps	64	5320	-1.11	-0.42	95.80	2.45	≤ 2.99	Pass
11a	6Mbps	100	5500	-0.65	0.09	95.80	2.93	≤ 3.49	Pass
11a	6Mbps	116	5580	-0.42	0.12	95.80	3.06	≤ 3.49	Pass
11a	6Mbps	120	5600	-0.38	0.21	95.80	3.12	≤ 3.49	Pass
11a	6Mbps	140	5700	-0.62	-0.05	95.80	2.87	≤ 3.49	Pass
11a	6Mbps	144	5720	-0.61	-0.02	95.80	2.89	≤ 3.49	Pass
11n-HT20	MCS0	52	5260	-0.71	-0.06	98.07	2.64	≤ 2.99	Pass
11n-HT20	MCS0	60	5300	-0.77	-0.48	98.07	2.39	≤ 2.99	Pass
11n-HT20	MCS0	64	5320	-1.19	-0.28	98.07	2.30	≤ 2.99	Pass
11n-HT20	MCS0	100	5500	-0.69	-0.03	98.07	2.66	≤ 3.49	Pass
11n-HT20	MCS0	116	5580	-0.36	0.10	98.07	2.89	≤ 3.49	Pass
11n-HT20	MCS0	120	5600	-0.54	0.22	98.07	2.87	≤ 3.49	Pass
11n-HT20	MCS0	140	5700	-0.07	0.35	98.07	3.16	≤ 3.49	Pass
11n-HT20	MCS0	144	5720	-0.11	0.14	98.07	3.03	≤ 3.49	Pass
11n-HT40	MCS0	54	5270	-1.04	-0.19	96.61	2.57	≤ 2.99	Pass
11n-HT40	MCS0	62	5310	-0.90	0.12	96.61	2.80	≤ 2.99	Pass
11n-HT40	MCS0	102	5510	0.15	0.31	96.61	3.39	≤ 3.49	Pass
11n-HT40	MCS0	110	5550	0.22	0.30	96.61	3.42	≤ 3.49	Pass
11n-HT40	MCS0	118	5590	0.13	0.35	96.61	3.40	≤ 3.49	Pass
11n-HT40	MCS0	134	5670	-0.26	0.05	96.61	3.06	≤ 3.49	Pass
11n-HT40	MCS0	142	5710	-0.10	0.40	96.61	3.32	≤ 3.49	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	-0.73	-0.16	98.21	2.57	≤ 2.99	Pass
11ac-VHT20	MCS0	60	5300	-0.80	-0.37	98.21	2.43	≤ 2.99	Pass
11ac-VHT20	MCS0	64	5320	-0.63	-0.48	98.21	2.46	≤ 2.99	Pass
11ac-VHT20	MCS0	100	5500	-0.40	0.36	98.21	3.01	≤ 3.49	Pass
11ac-VHT20	MCS0	116	5580	-0.21	0.47	98.21	3.15	≤ 3.49	Pass
11ac-VHT20	MCS0	120	5600	-0.49	0.23	98.21	2.90	≤ 3.49	Pass
11ac-VHT20	MCS0	140	5700	-0.12	0.36	98.21	3.14	≤ 3.49	Pass
11ac-VHT20	MCS0	144	5720	-0.22	0.33	98.21	3.07	≤ 3.49	Pass
11ac-VHT40	MCS0	54	5270	-0.42	-0.52	96.43	2.70	≤ 2.99	Pass
11ac-VHT40	MCS0	62	5310	-0.62	-0.87	96.43	2.42	≤ 2.99	Pass
11ac-VHT40	MCS0	102	5510	-0.65	0.28	96.43	3.01	≤ 3.49	Pass
11ac-VHT40	MCS0	110	5550	0.30	0.24	96.43	3.44	≤ 3.49	Pass
11ac-VHT40	MCS0	118	5590	-0.13	0.35	96.43	3.29	≤ 3.49	Pass
11ac-VHT40	MCS0	134	5670	-0.38	0.31	96.43	3.14	≤ 3.49	Pass
11ac-VHT40	MCS0	142	5710	-0.35	0.13	96.43	3.06	≤ 3.49	Pass
11ac-VHT80	MCS0	58	5290	-2.37	-1.97	91.40	1.24	≤ 2.99	Pass
11ac-VHT80	MCS0	106	5530	-1.75	-1.30	91.40	1.88	≤ 3.49	Pass
11ac-VHT80	MCS0	122	5610	-1.29	-0.74	91.40	2.39	≤ 3.49	Pass
11ac-VHT80	MCS0	138	5690	-0.76	-0.59	91.40	2.73	≤ 3.49	Pass

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

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

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

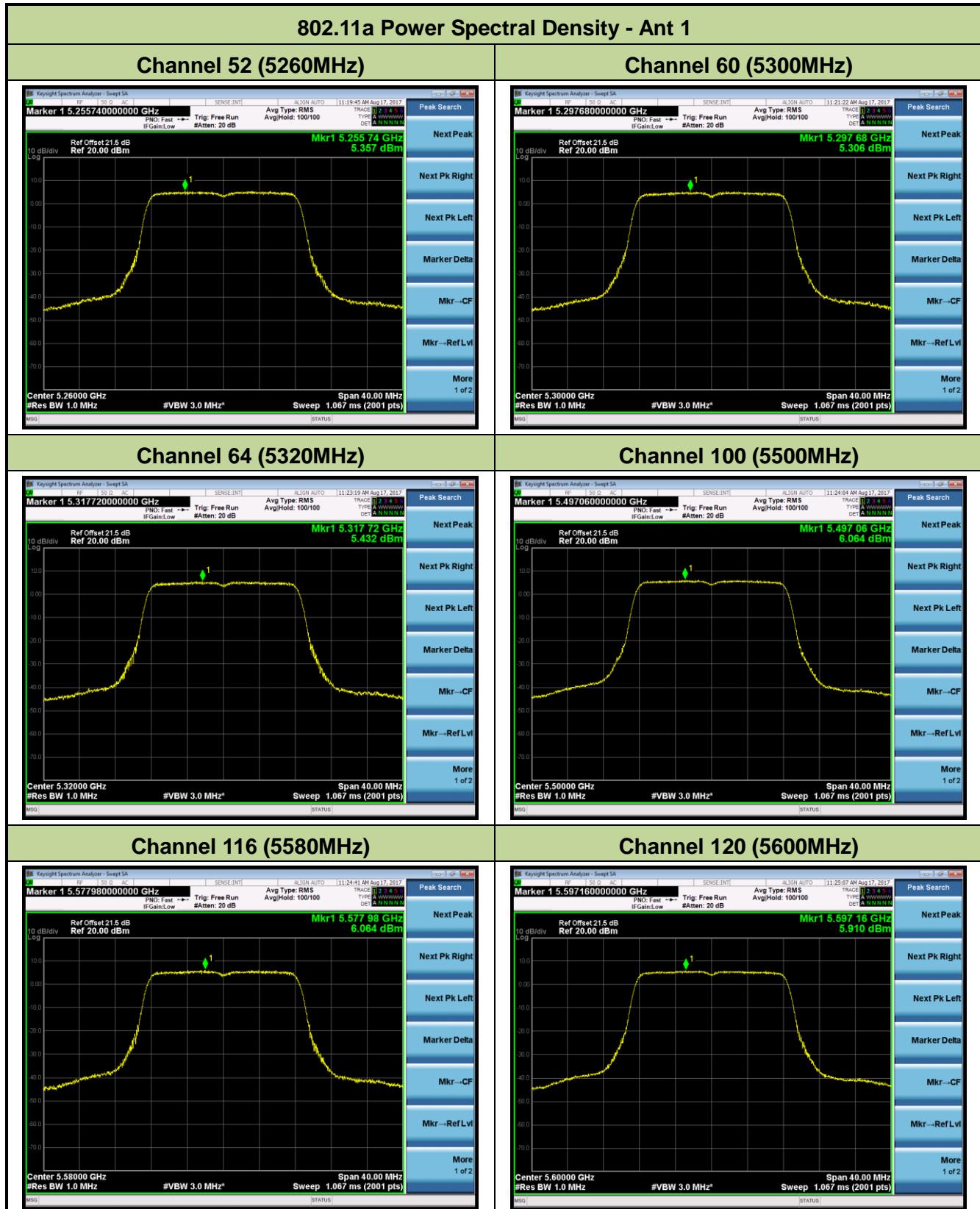
Test Mode	Data Rate/ MCS	Channel No.	Freq. (MHz)	Ant 1 PSD (dBm/ MHz)	Ant 2 PSD (dBm/ MHz)	Duty Cycle (%)	Total PSD (dBm/ MHz)	PSD Limit (dBm/ MHz)	Result
Ant 1 + 2 (Beam-Forming Mode)									
11n-HT20	MCS0	52	5260	-0.71	-0.06	98.07	2.64	≤ 2.99	Pass
11n-HT20	MCS0	60	5300	-0.77	-0.48	98.07	2.39	≤ 2.99	Pass
11n-HT20	MCS0	64	5320	-1.19	-0.28	98.07	2.30	≤ 2.99	Pass
11n-HT20	MCS0	100	5500	-0.69	-0.03	98.07	2.66	≤ 3.49	Pass
11n-HT20	MCS0	116	5580	-0.36	0.10	98.07	2.89	≤ 3.49	Pass
11n-HT20	MCS0	120	5600	-0.54	0.22	98.07	2.87	≤ 3.49	Pass
11n-HT20	MCS0	140	5700	-0.07	0.35	98.07	3.16	≤ 3.49	Pass
11n-HT20	MCS0	144	5720	-0.11	0.14	98.07	3.03	≤ 3.49	Pass
11n-HT40	MCS0	54	5270	-2.36	-2.34	96.61	0.81	≤ 2.99	Pass
11n-HT40	MCS0	62	5310	-2.33	-2.58	96.61	0.71	≤ 2.99	Pass
11n-HT40	MCS0	102	5510	-1.55	-1.03	96.61	1.88	≤ 3.49	Pass
11n-HT40	MCS0	110	5550	-1.39	-1.15	96.61	1.90	≤ 3.49	Pass
11n-HT40	MCS0	118	5590	-1.53	-0.97	96.61	1.92	≤ 3.49	Pass
11n-HT40	MCS0	134	5670	-1.62	-1.50	96.61	1.60	≤ 3.49	Pass
11n-HT40	MCS0	142	5710	-1.20	-0.78	96.61	2.18	≤ 3.49	Pass
11ac-VHT20	MCS0	52	5260	-0.73	-0.16	98.21	2.57	≤ 2.99	Pass
11ac-VHT20	MCS0	60	5300	-0.80	-0.37	98.21	2.43	≤ 2.99	Pass
11ac-VHT20	MCS0	64	5320	-0.63	-0.48	98.21	2.46	≤ 2.99	Pass
11ac-VHT20	MCS0	100	5500	-0.40	0.36	98.21	3.01	≤ 3.49	Pass
11ac-VHT20	MCS0	116	5580	-0.21	0.47	98.21	3.15	≤ 3.49	Pass
11ac-VHT20	MCS0	120	5600	-0.49	0.23	98.21	2.90	≤ 3.49	Pass
11ac-VHT20	MCS0	140	5700	-0.12	0.36	98.21	3.14	≤ 3.49	Pass
11ac-VHT20	MCS0	144	5720	-0.22	0.33	98.21	3.07	≤ 3.49	Pass
11ac-VHT40	MCS0	54	5270	-2.06	-2.43	96.43	0.93	≤ 2.99	Pass
11ac-VHT40	MCS0	62	5310	-1.82	-1.92	96.43	1.30	≤ 2.99	Pass
11ac-VHT40	MCS0	102	5510	-1.47	-1.30	96.43	1.78	≤ 3.49	Pass
11ac-VHT40	MCS0	110	5550	-1.37	-1.18	96.43	1.90	≤ 3.49	Pass
11ac-VHT40	MCS0	118	5590	-0.56	-0.46	96.43	2.66	≤ 3.49	Pass
11ac-VHT40	MCS0	134	5670	-1.27	-1.35	96.43	1.86	≤ 3.49	Pass
11ac-VHT40	MCS0	142	5710	-1.36	-0.97	96.43	2.01	≤ 3.49	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-VHT80	MCS0	58	5290	-5.15	-4.94	91.40	-1.64	≤ 2.99	Pass
11ac-VHT80	MCS0	106	5530	-4.87	-4.72	91.40	-1.39	≤ 3.49	Pass
11ac-VHT80	MCS0	122	5610	-4.43	-4.22	91.40	-0.92	≤ 3.49	Pass
11ac-VHT80	MCS0	138	5690	-4.57	-4.66	91.40	-1.21	≤ 3.49	Pass

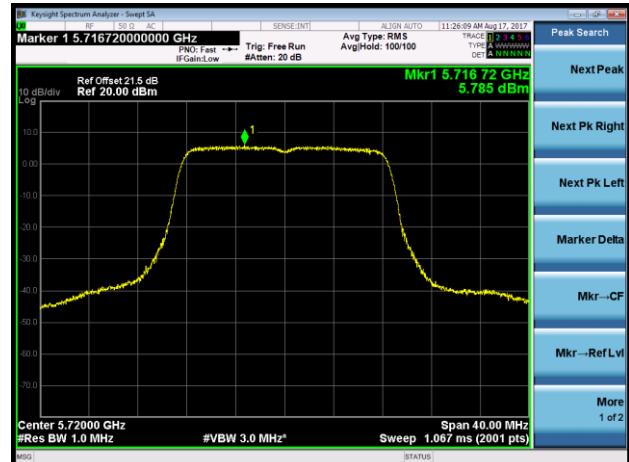
Note 1: When EUT duty cycle  $\geq 98\%$ , the total PSD =  $10^{\log\{10^{(\text{Ant 1 PSD}/10)} + 10^{(\text{Ant 2 PSD}/10)}\}}$

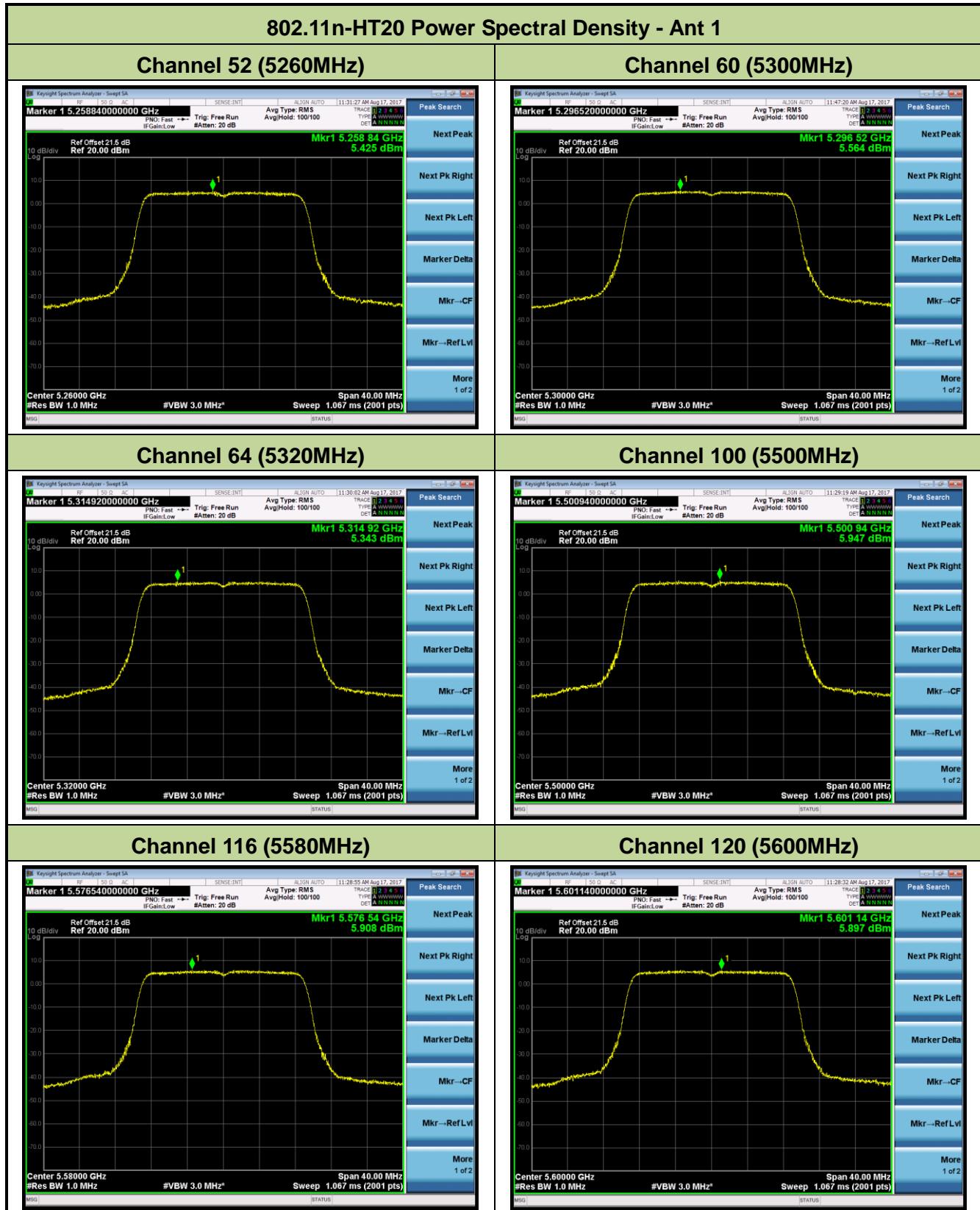
Note 2: When EUT duty cycle  $< 98\%$ , the total PSD =  $10^{\log\{10^{(\text{Ant 1 PSD}/10)} + 10^{(\text{Ant 2 PSD}/10)}\}} + 10^{\log(1/\text{duty cycle})}$

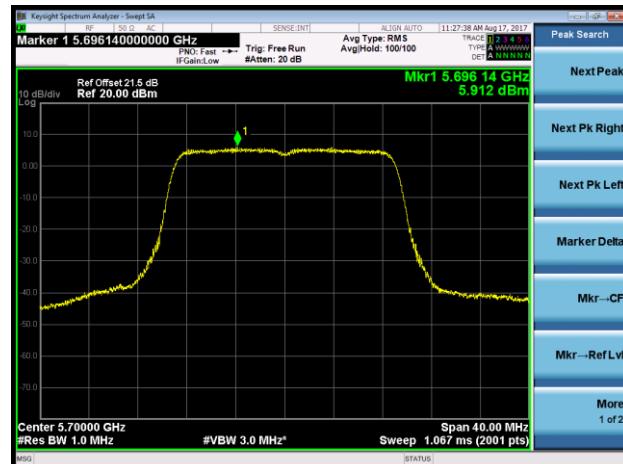
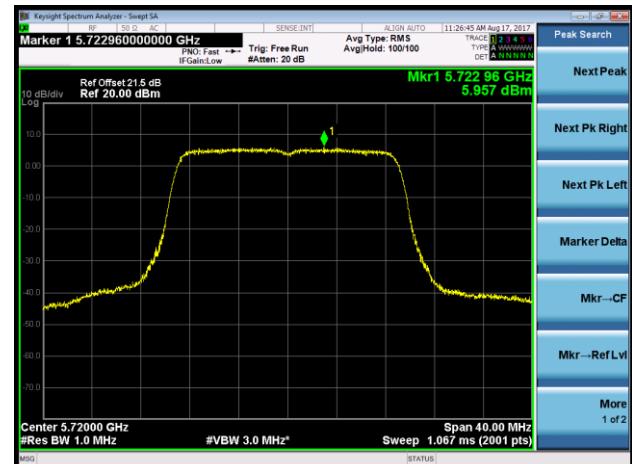
Note 3: EIRP PSD (dBm/MHz) = Total PSD (dBm/MHz) + Antenna Gain (dBi)

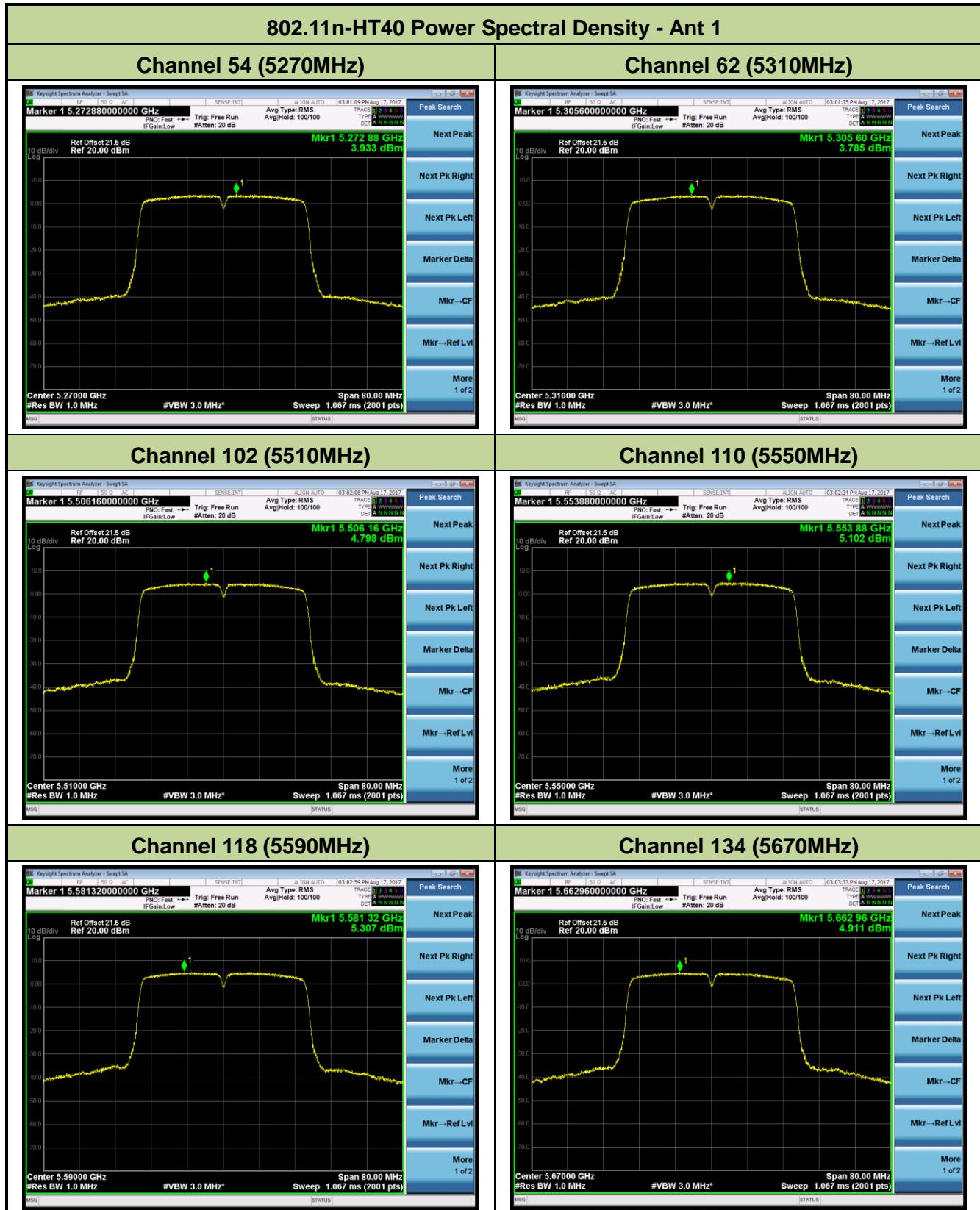


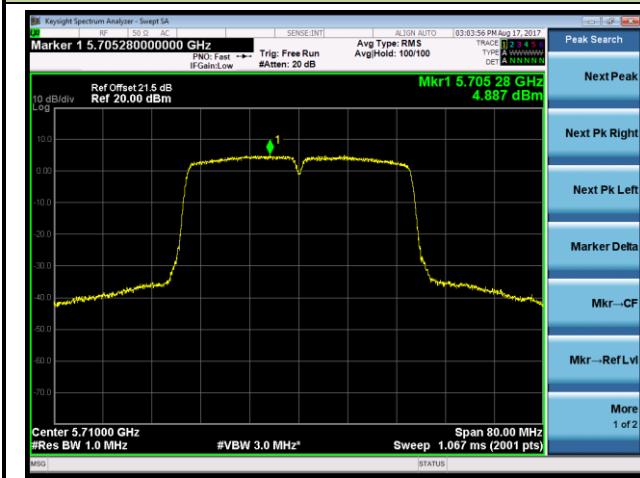
**Channel 140 (5700MHz)**

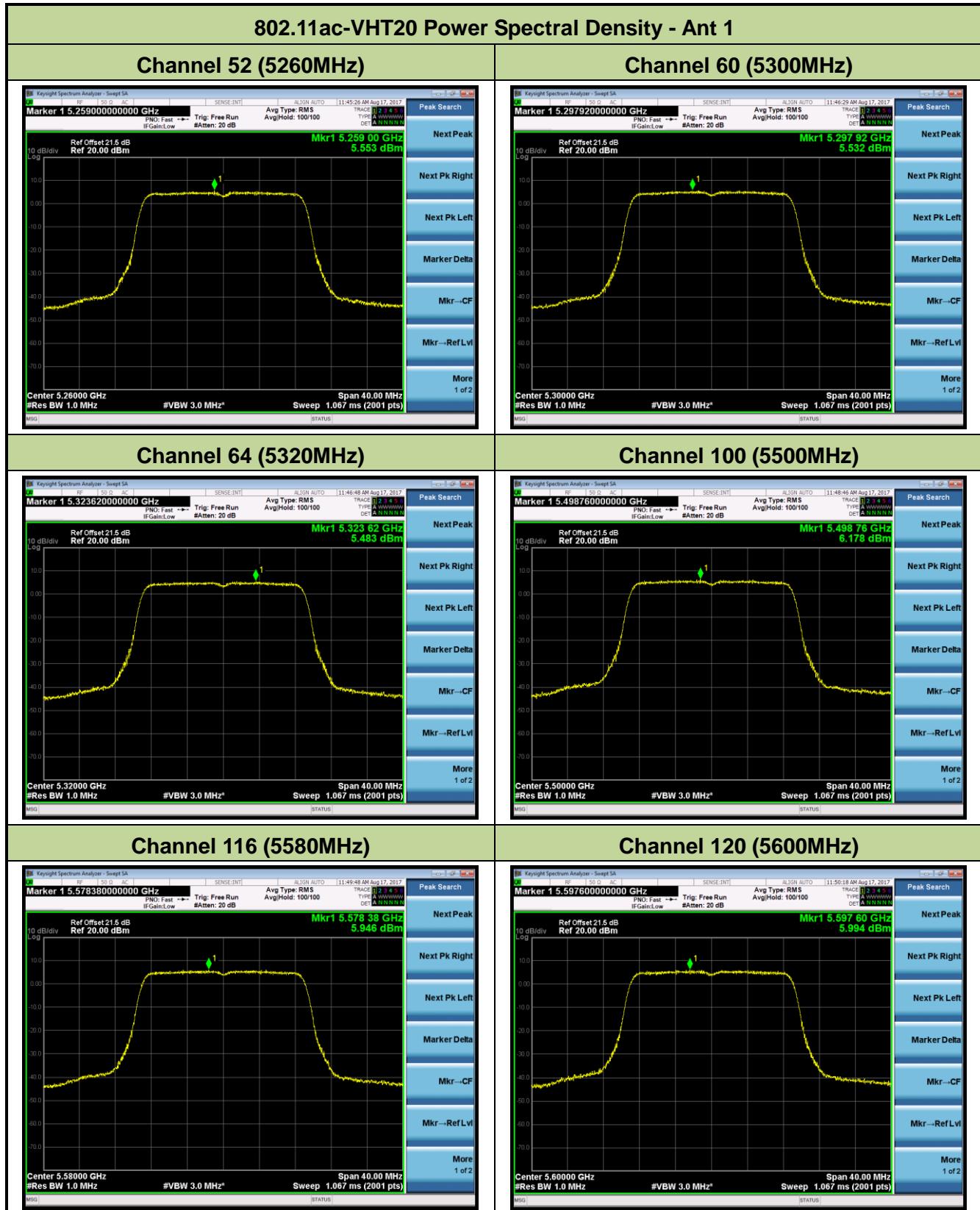
**Channel 144 (5720MHz)**


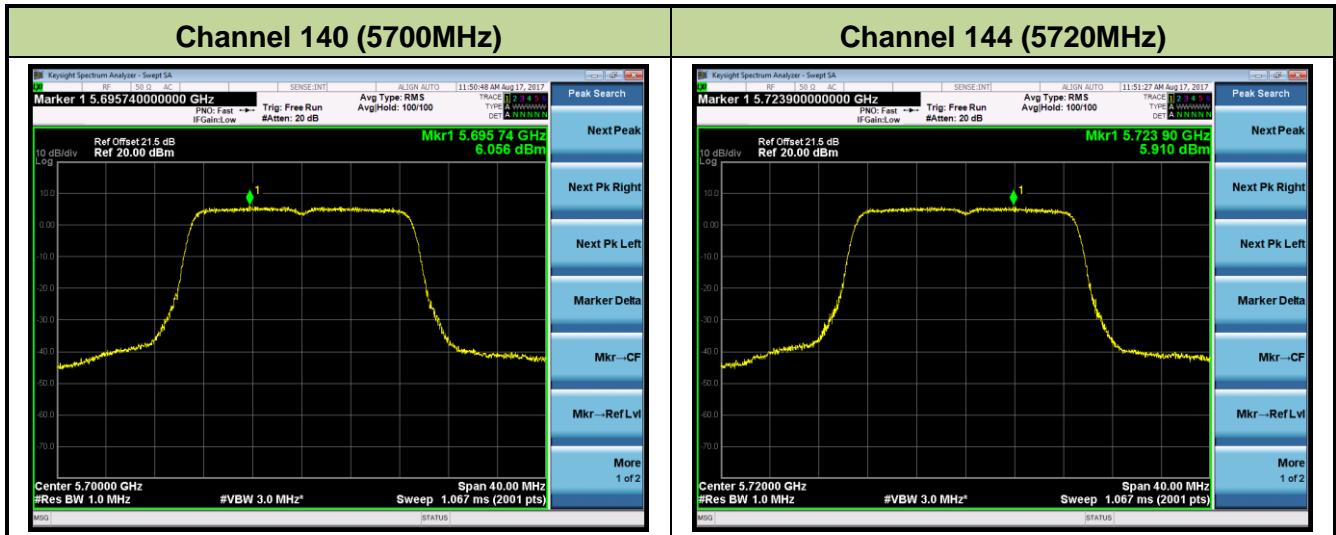


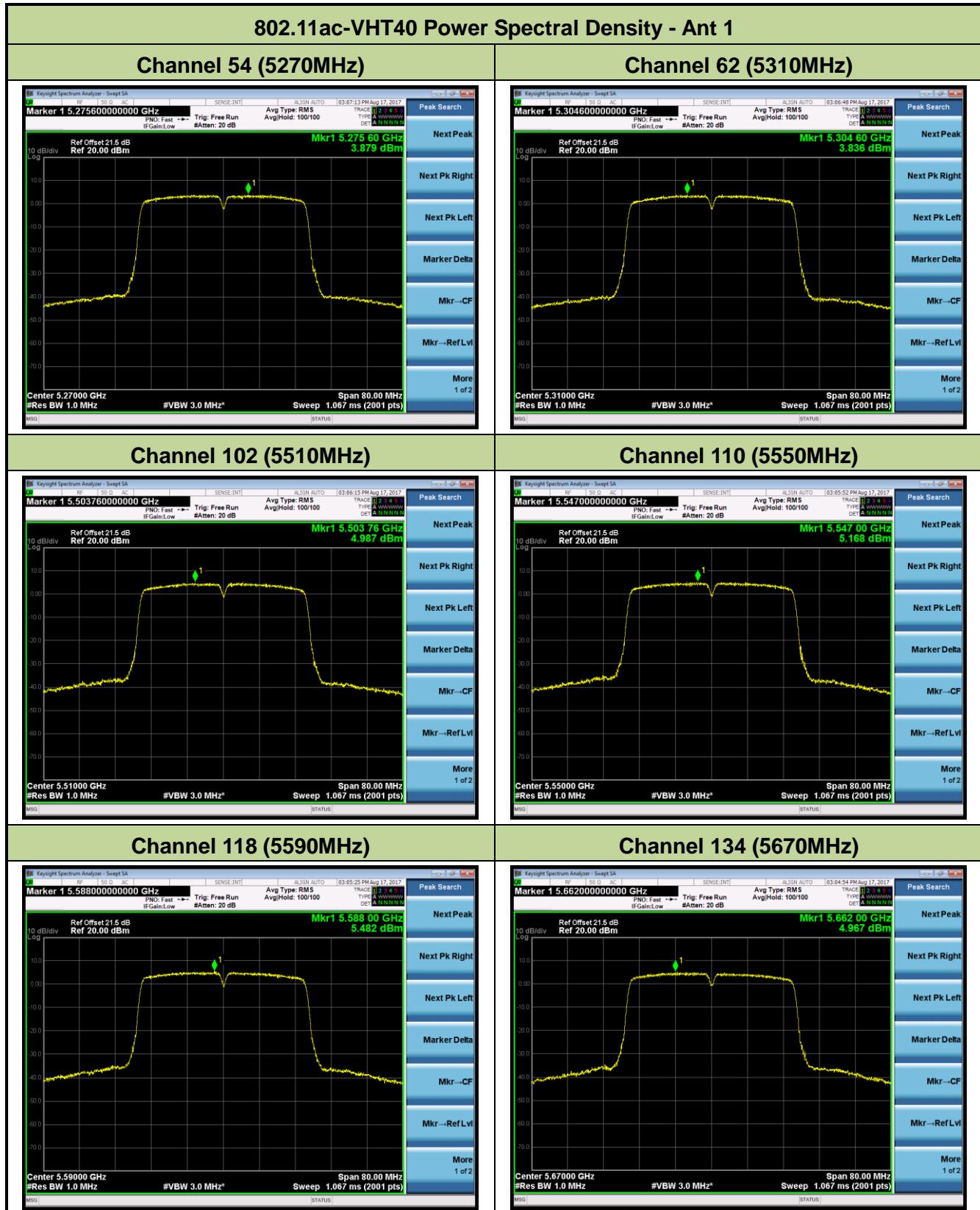
**Channel 140 (5700MHz)**

**Channel 144 (5720MHz)**




**Channel 142 (5710MHz)**








**Channel 142 (5710MHz)**