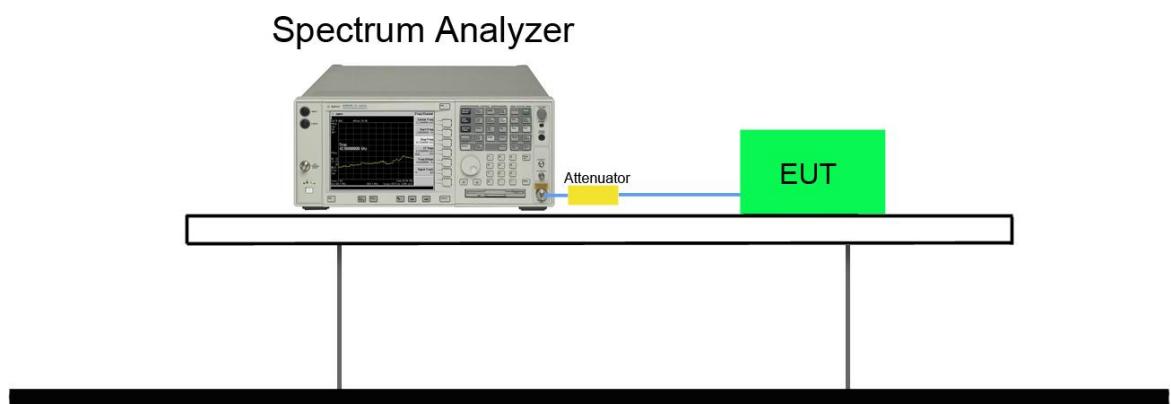


7.4.4. Test Setup



7.4.5. Test Result

Product	US WI-FI AP 4X4 OD ext. antenna	Temperature	25°C
Test Engineer	Johnson Liao	Relative Humidity	50 ~ 58%
Test Site	SR2	Test Date	2016/07/30
Test Item	Power Spectral Density	Antenna Model No.	FPMI2458-DP4RPSMA

Test Mode	Data Rate (Mbps)	Channel No.	Freq. (MHz)	AVG PSD (dBm / 10kHz)	Duty Cycle (%)	Constant Factor	Total AVG PSD (dBm / 3kHz)	Limit (dBm / 3kHz)	Result
Ant 0									
11b	1	1	2412	-4.07	99.20	-5.23	-9.30	≤ 7.30	Pass
11b	1	6	2437	-3.78	99.20	-5.23	-9.01	≤ 7.30	Pass
11b	1	11	2462	-4.12	99.20	-5.23	-9.35	≤ 7.30	Pass
11g	6	1	2412	-6.35	96.04	-5.23	-11.40	≤ 7.30	Pass
11g	6	6	2437	-6.28	96.04	-5.23	-11.33	≤ 7.30	Pass
11g	6	11	2462	-6.19	96.04	-5.23	-11.24	≤ 7.30	Pass
11n-HT20	6.5	1	2412	-6.22	98.16	-5.23	-11.45	≤ 7.30	Pass
11n-HT20	6.5	6	2437	-6.29	98.16	-5.23	-11.52	≤ 7.30	Pass
11n-HT20	6.5	11	2462	-6.34	98.16	-5.23	-11.57	≤ 7.30	Pass
11n-HT40	13.5	3	2422	-12.54	97.11	-5.23	-17.64	≤ 7.30	Pass
11n-HT40	13.5	6	2437	-9.23	97.11	-5.23	-14.33	≤ 7.30	Pass
11n-HT40	13.5	9	2452	-9.38	97.11	-5.23	-14.48	≤ 7.30	Pass

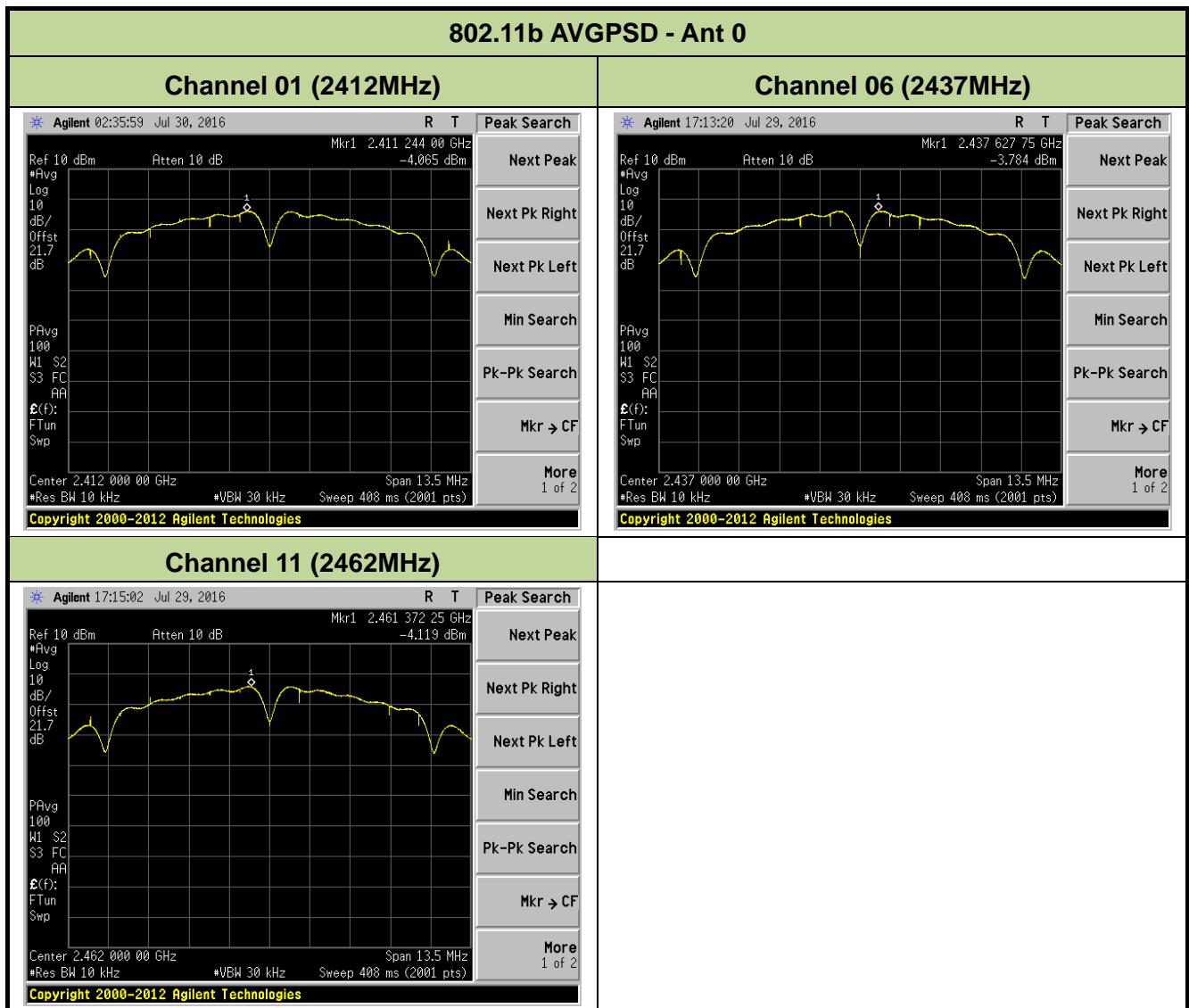
Test Mode	Data Rate (Mbps)	Channel No.	Freq. (MHz)	AVG PSD (dBm / 10kHz)	Duty Cycle (%)	Constant Factor	Total AVG PSD (dBm / 3kHz)	Limit (dBm / 3kHz)	Result
Ant 1									
11b	1	1	2412	-4.05	99.20	-5.23	-9.28	≤ 7.60	Pass
11b	1	6	2437	-4.07	99.20	-5.23	-9.30	≤ 7.60	Pass
11b	1	11	2462	-4.16	99.20	-5.23	-9.39	≤ 7.60	Pass
11g	6	1	2412	-6.40	96.04	-5.23	-11.45	≤ 7.60	Pass
11g	6	6	2437	-6.31	96.04	-5.23	-11.36	≤ 7.60	Pass
11g	6	11	2462	-6.39	96.04	-5.23	-11.44	≤ 7.60	Pass
11n-HT20	6.5	1	2412	-8.29	98.16	-5.23	-13.52	≤ 7.60	Pass
11n-HT20	6.5	6	2437	-6.61	98.16	-5.23	-11.84	≤ 7.60	Pass
11n-HT20	6.5	11	2462	-6.28	98.16	-5.23	-11.51	≤ 7.60	Pass
11n-HT40	13.5	3	2422	-13.74	97.11	-5.23	-18.84	≤ 7.60	Pass
11n-HT40	13.5	6	2437	-9.69	97.11	-5.23	-14.79	≤ 7.60	Pass
11n-HT40	13.5	9	2452	-9.41	97.11	-5.23	-14.51	≤ 7.60	Pass
Ant 2									
11b	1	1	2412	-4.03	99.20	-5.23	-9.26	≤ 7.20	Pass
11b	1	6	2437	-3.82	99.20	-5.23	-9.05	≤ 7.20	Pass
11b	1	11	2462	-4.47	99.20	-5.23	-9.70	≤ 7.20	Pass
11g	6	1	2412	-6.27	96.04	-5.23	-11.32	≤ 7.20	Pass
11g	6	6	2437	-6.00	96.04	-5.23	-11.05	≤ 7.20	Pass
11g	6	11	2462	-6.41	96.04	-5.23	-11.46	≤ 7.20	Pass
11n-HT20	6.5	1	2412	-7.90	98.16	-5.23	-13.13	≤ 7.20	Pass
11n-HT20	6.5	6	2437	-6.37	98.16	-5.23	-11.60	≤ 7.20	Pass
11n-HT20	6.5	11	2462	-6.46	98.16	-5.23	-11.69	≤ 7.20	Pass
11n-HT40	13.5	3	2422	-12.69	97.11	-5.23	-17.79	≤ 7.20	Pass
11n-HT40	13.5	6	2437	-9.30	97.11	-5.23	-14.40	≤ 7.20	Pass
11n-HT40	13.5	9	2452	-9.67	97.11	-5.23	-14.77	≤ 7.20	Pass

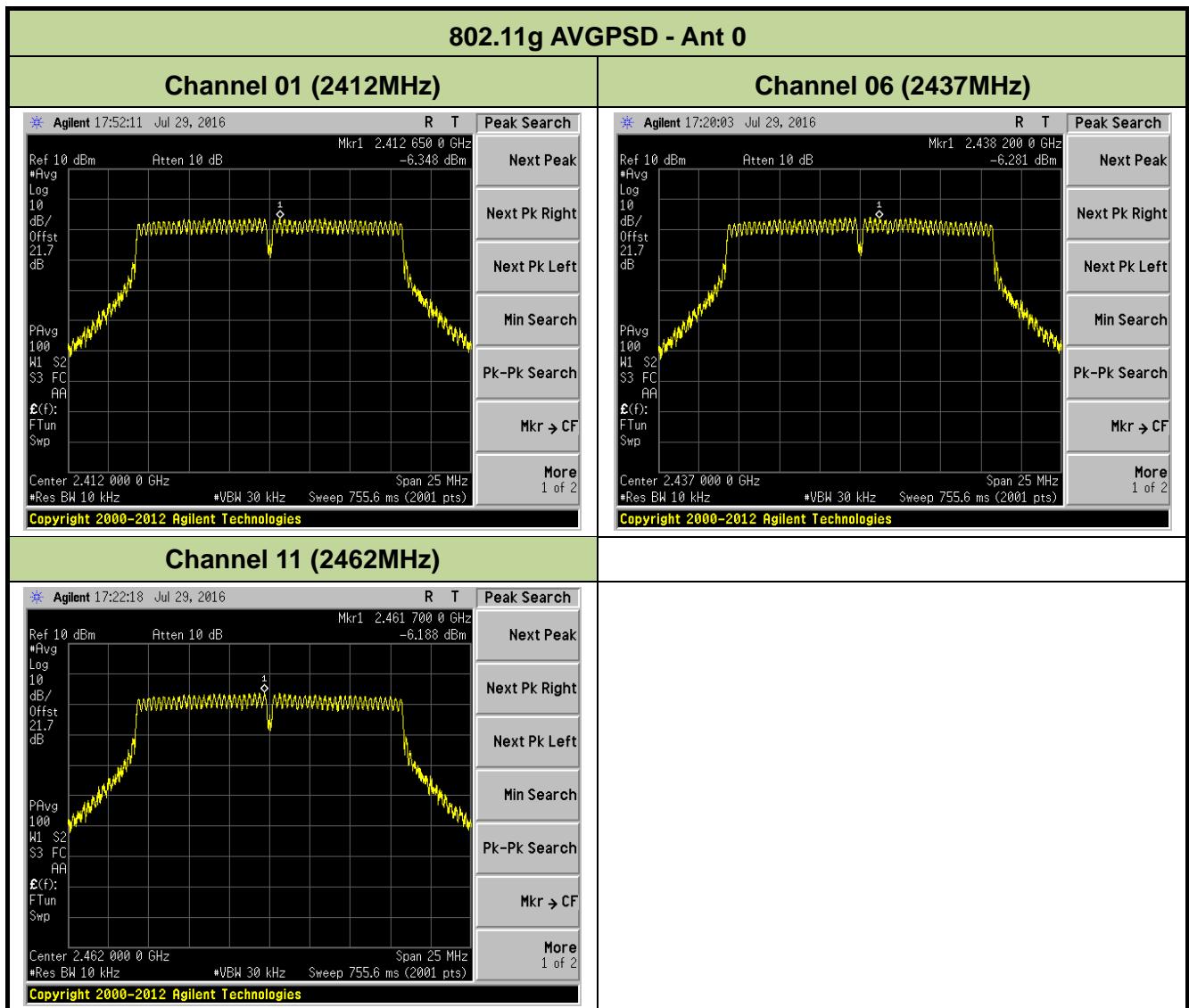
Test Mode	Data Rate (Mbps)	Channel No.	Freq. (MHz)	AVG PSD (dBm / 10kHz)	Duty Cycle (%)	Constant Factor	Total AVG PSD (dBm / 3kHz)	Limit (dBm / 3kHz)	Result
Ant 3									
11b	1	1	2412	-3.81	99.20	-5.23	-9.04	≤ 7.20	Pass
11b	1	6	2437	-3.70	99.20	-5.23	-8.93	≤ 7.20	Pass
11b	1	11	2462	-3.94	99.20	-5.23	-9.17	≤ 7.20	Pass
11g	6	1	2412	-5.92	96.04	-5.23	-10.97	≤ 7.20	Pass
11g	6	6	2437	-6.51	96.04	-5.23	-11.56	≤ 7.20	Pass
11g	6	11	2462	-5.98	96.04	-5.23	-11.03	≤ 7.20	Pass
11n-HT20	6.5	1	2412	-7.39	98.16	-5.23	-12.62	≤ 7.20	Pass
11n-HT20	6.5	6	2437	-5.98	98.16	-5.23	-11.21	≤ 7.20	Pass
11n-HT20	6.5	11	2462	-6.16	98.16	-5.23	-11.39	≤ 7.20	Pass
11n-HT40	13.5	3	2422	-12.34	97.11	-5.23	-17.44	≤ 7.20	Pass
11n-HT40	13.5	6	2437	-8.88	97.11	-5.23	-13.98	≤ 7.20	Pass
11n-HT40	13.5	9	2452	-9.33	97.11	-5.23	-14.43	≤ 7.20	Pass

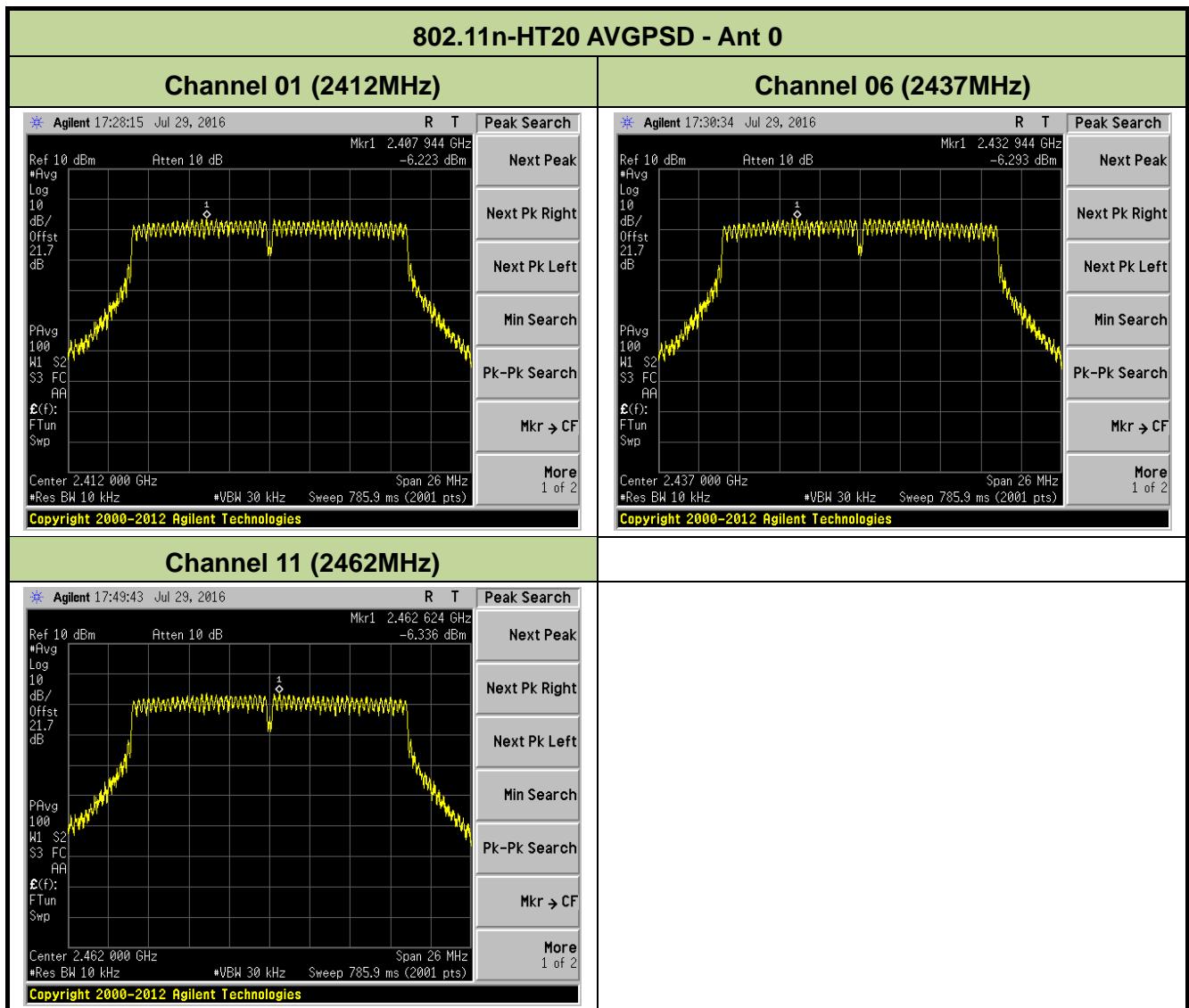
Test Mode	Data Rate (Mbps)	Channel No.	Freq. (MHz)	Ant 0 AVGPSD (dBm / 10kHz)	Ant 1 AVGPSD (dBm / 10kHz)	Ant 2 AVGPSD (dBm / 10kHz)	Ant 3 AVGPSD (dBm / 10kHz)	Duty Cycle (%)	Constant Factor	Total AVGPSD (dBm / 3kHz)	Limit (dBm / 3kHz)	Result
Ant 0 + 1 + 2 + 3												
11b	1	1	2412	-9.36	-9.21	-9.06	-8.72	99.20	-5.23	-8.29	≤ 1.3	Pass
11b	1	6	2437	-9.06	-9.13	-8.85	-8.79	99.20	-5.23	-8.16	≤ 1.3	Pass
11b	1	11	2462	-9.27	-9.14	-9.49	-9.06	99.20	-5.23	-8.45	≤ 1.3	Pass
11g	6	1	2412	-11.93	-12.18	-11.71	-11.19	96.04	-5.23	-10.77	≤ 1.3	Pass
11g	6	6	2437	-11.51	-11.43	-11.37	-11.36	96.04	-5.23	-10.45	≤ 1.3	Pass
11g	6	11	2462	-11.72	-11.60	-11.79	-11.97	96.04	-5.23	-10.80	≤ 1.3	Pass
11n-HT20	26	1	2412	-11.92	-11.87	-11.46	-11.26	98.16	-5.23	-10.83	≤ 1.3	Pass
11n-HT20	26	6	2437	-11.93	-11.52	-11.43	-11.16	98.16	-5.23	-10.71	≤ 1.3	Pass
11n-HT20	26	11	2462	-12.20	-11.13	-11.72	-11.88	98.16	-5.23	-10.92	≤ 1.3	Pass
11n-HT40	54	3	2422	-16.41	-16.56	-16.61	-15.68	97.11	-5.23	-15.38	≤ 1.3	Pass
11n-HT40	54	6	2437	-14.80	-14.78	-14.67	-14.16	97.11	-5.23	-13.68	≤ 1.3	Pass
11n-HT40	54	9	2452	-15.77	-15.24	-15.50	-15.16	97.11	-5.23	-14.49	≤ 1.3	Pass

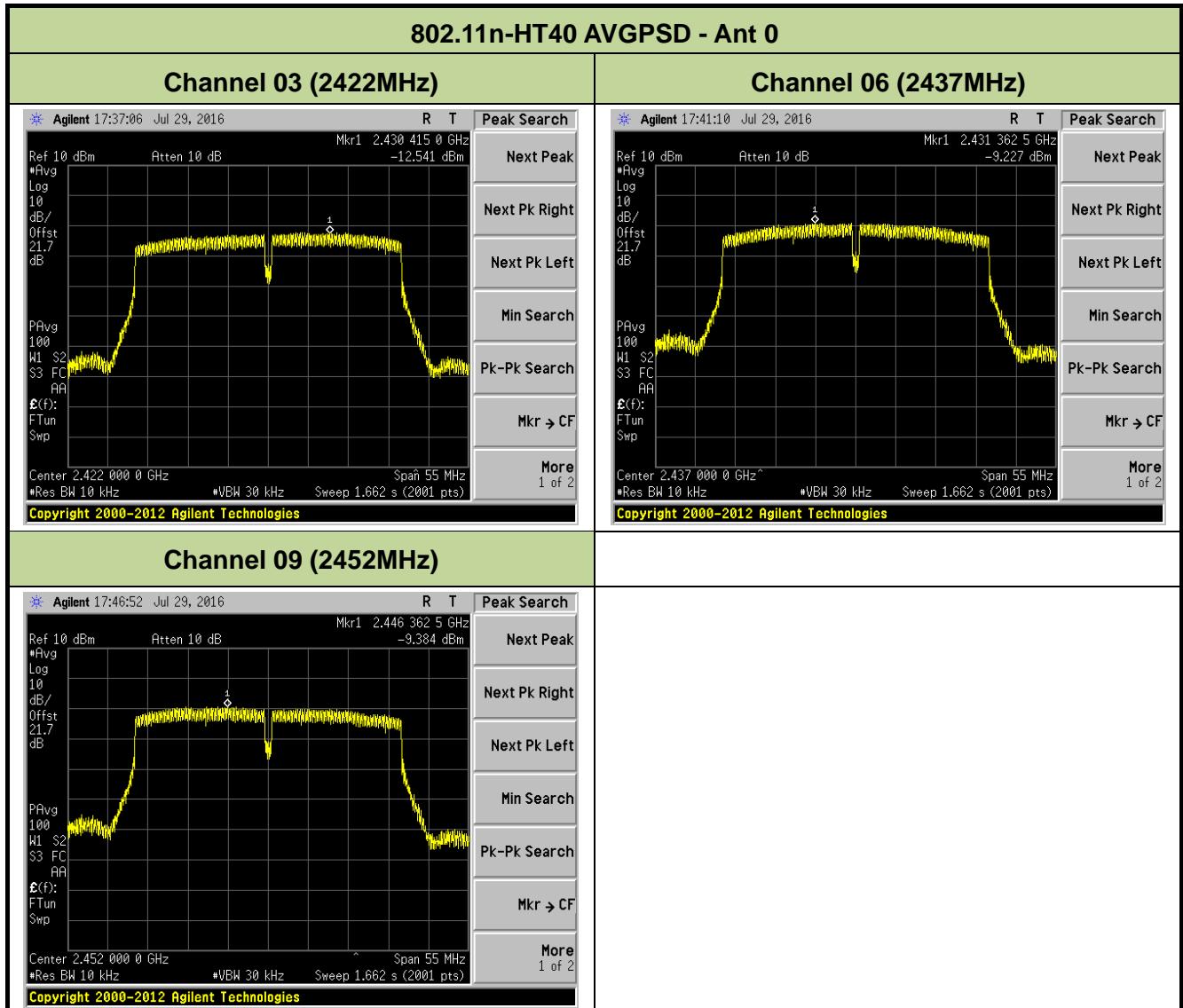
Note 1: When EUT duty cycle < 98%, the total AVGPSD = $10^{\log(10^{(\text{Ant 0 AVGPSD}/10)})} + 10^{\log(10^{(\text{Ant 1 AVGPSD}/10)})} + 10^{\log(10^{(\text{Ant 2 AVGPSD}/10)})} + 10^{\log(10^{(\text{Ant 3 AVGPSD}/10)})} + 10^{\log(1/\text{duty cycle})} + \text{Constant Factor.}$

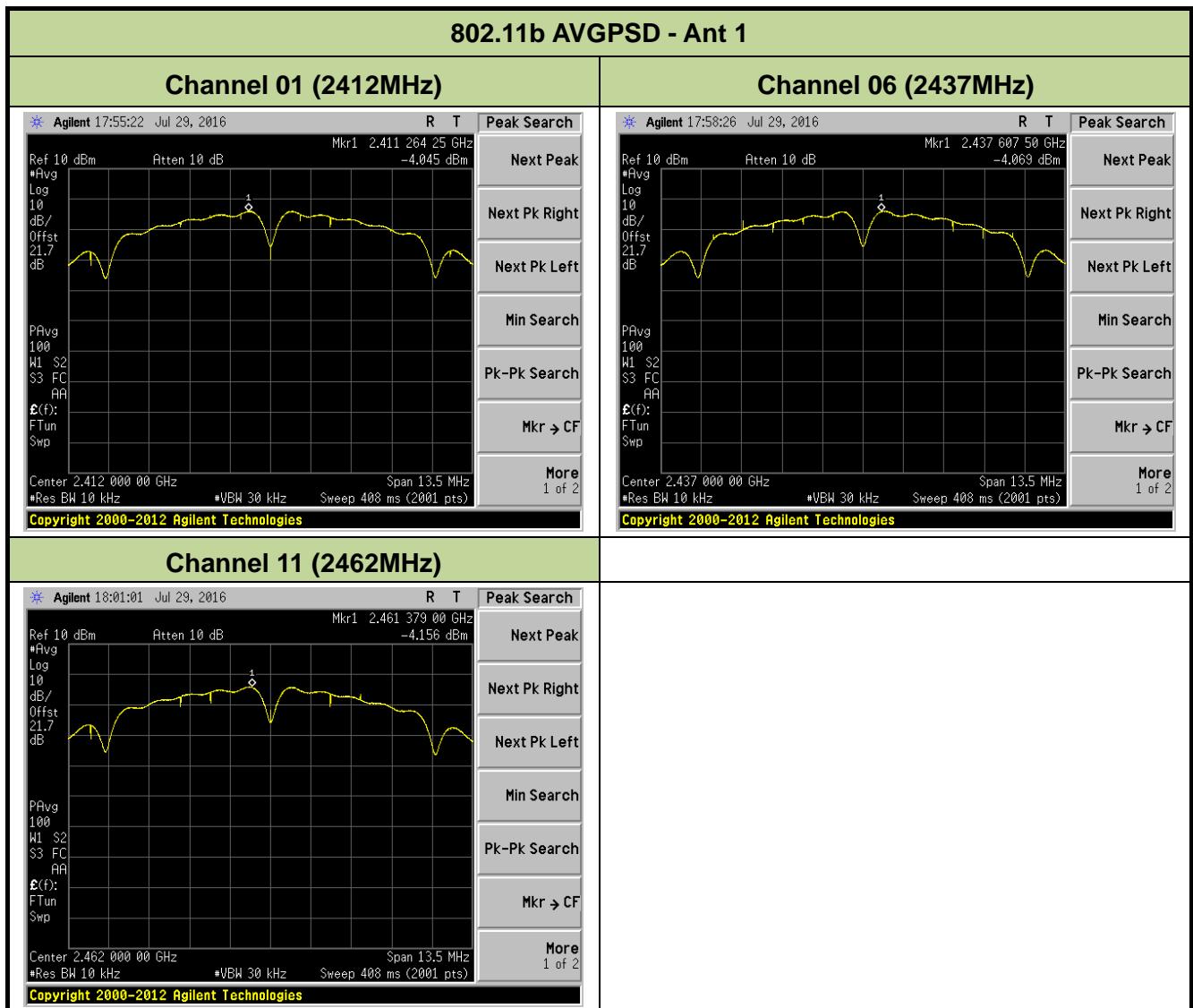
Note 2: When EUT duty cycle > 98%, the total AVGPSD = $10^{\log(10^{(\text{Ant 0 AVGPSD}/10)})} + 10^{\log(10^{(\text{Ant 1 AVGPSD}/10)})} + 10^{\log(10^{(\text{Ant 2 AVGPSD}/10)})} + 10^{\log(10^{(\text{Ant 3 AVGPSD}/10)})} + \text{Constant Factor.}$

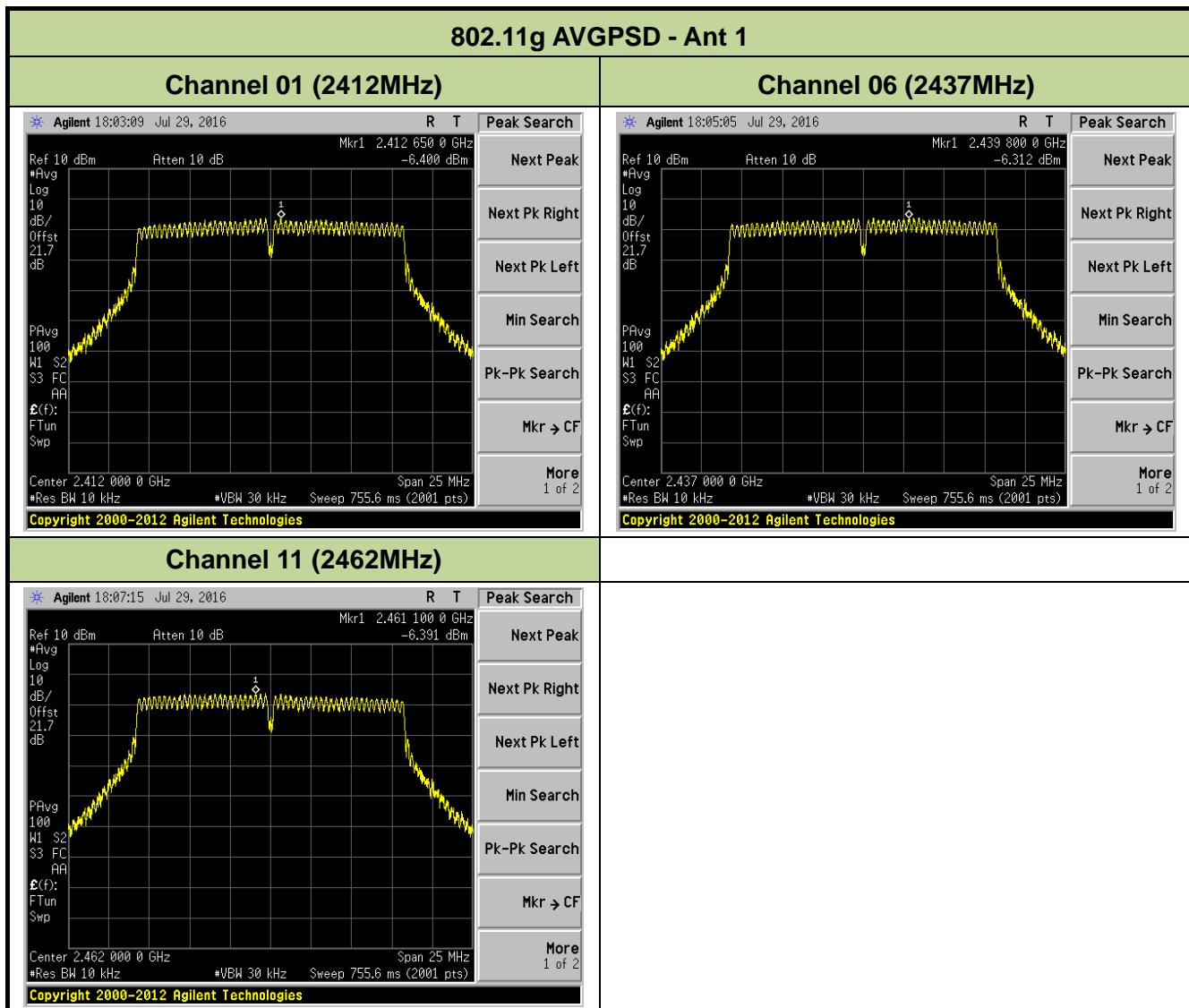


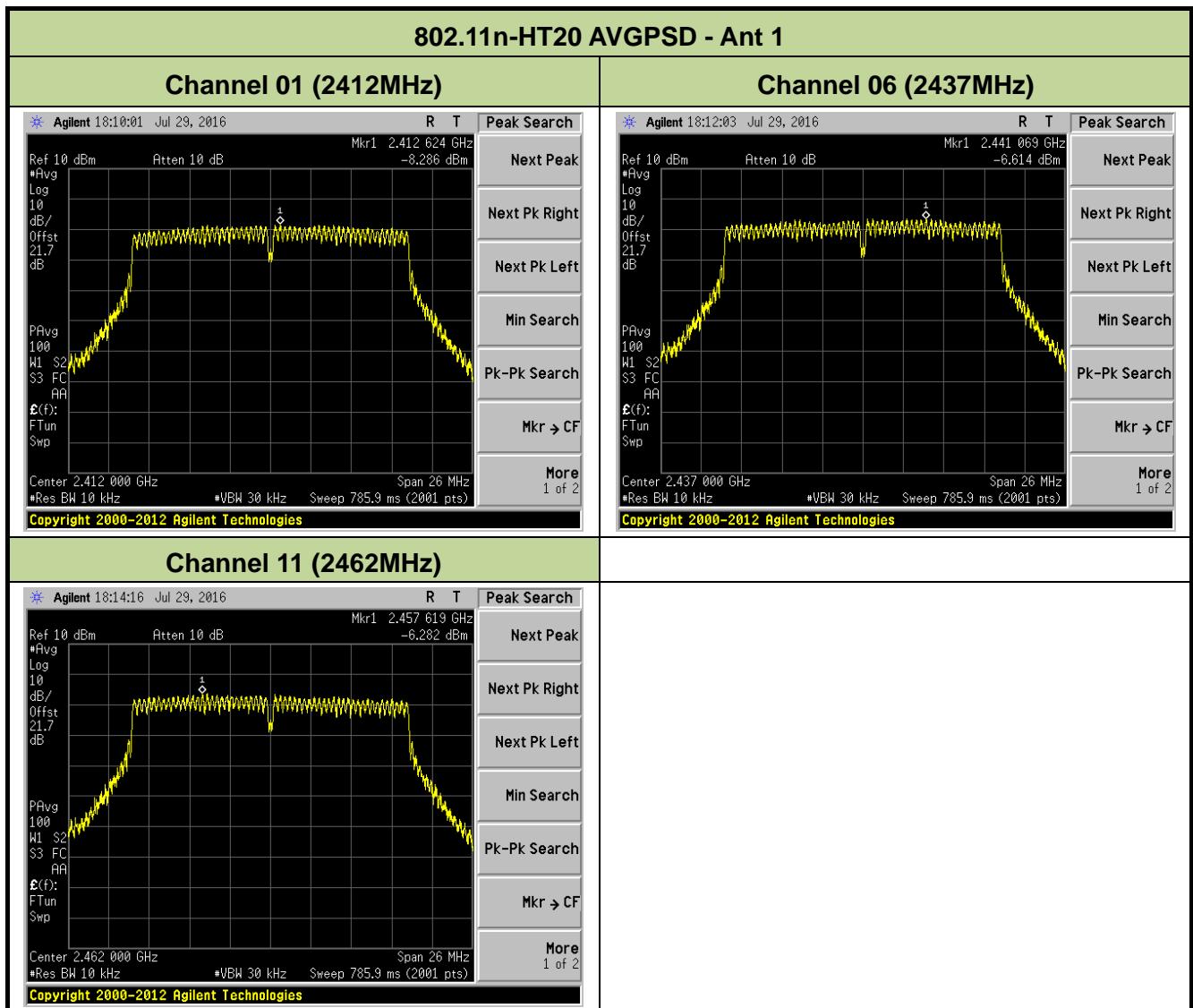


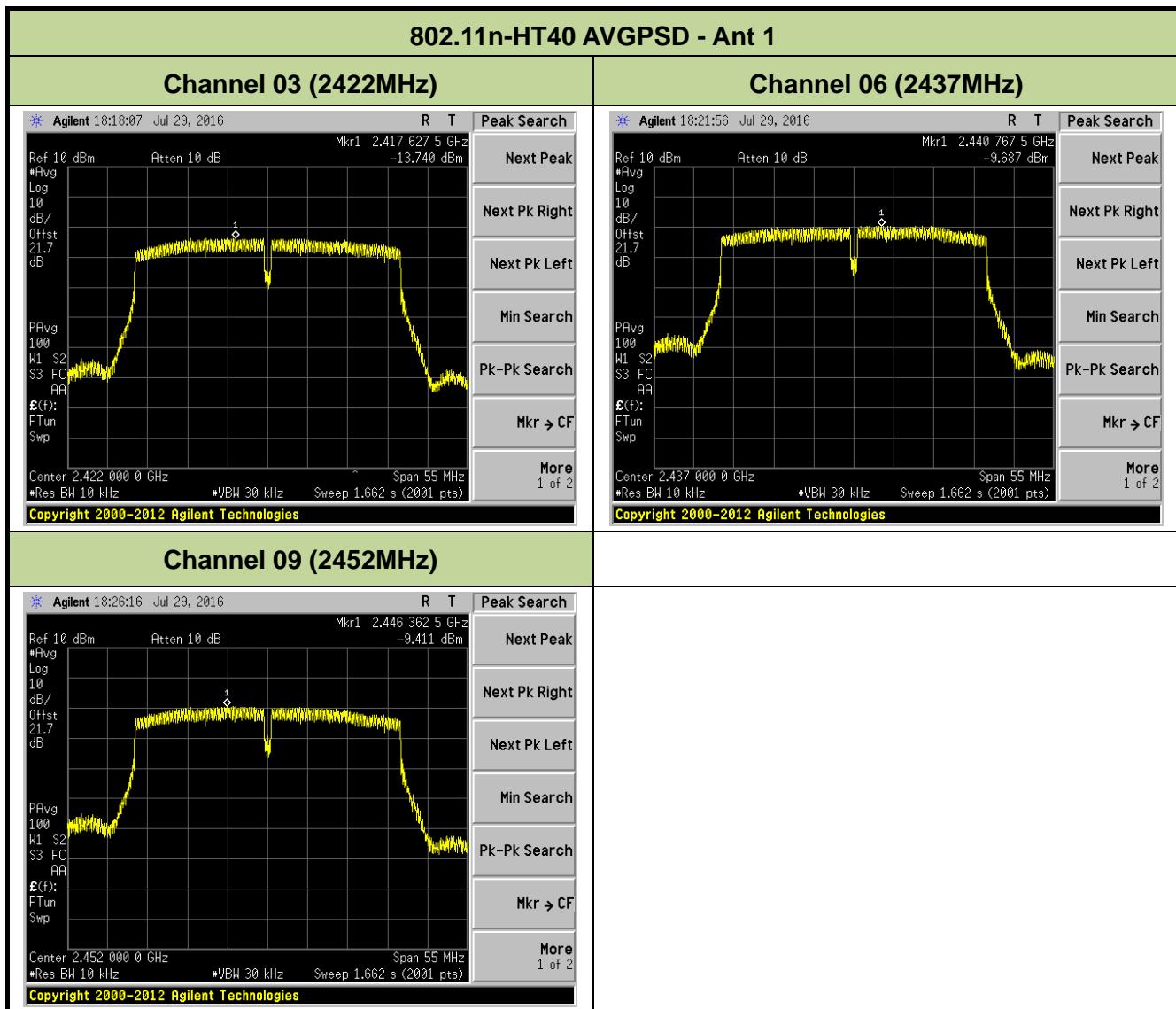


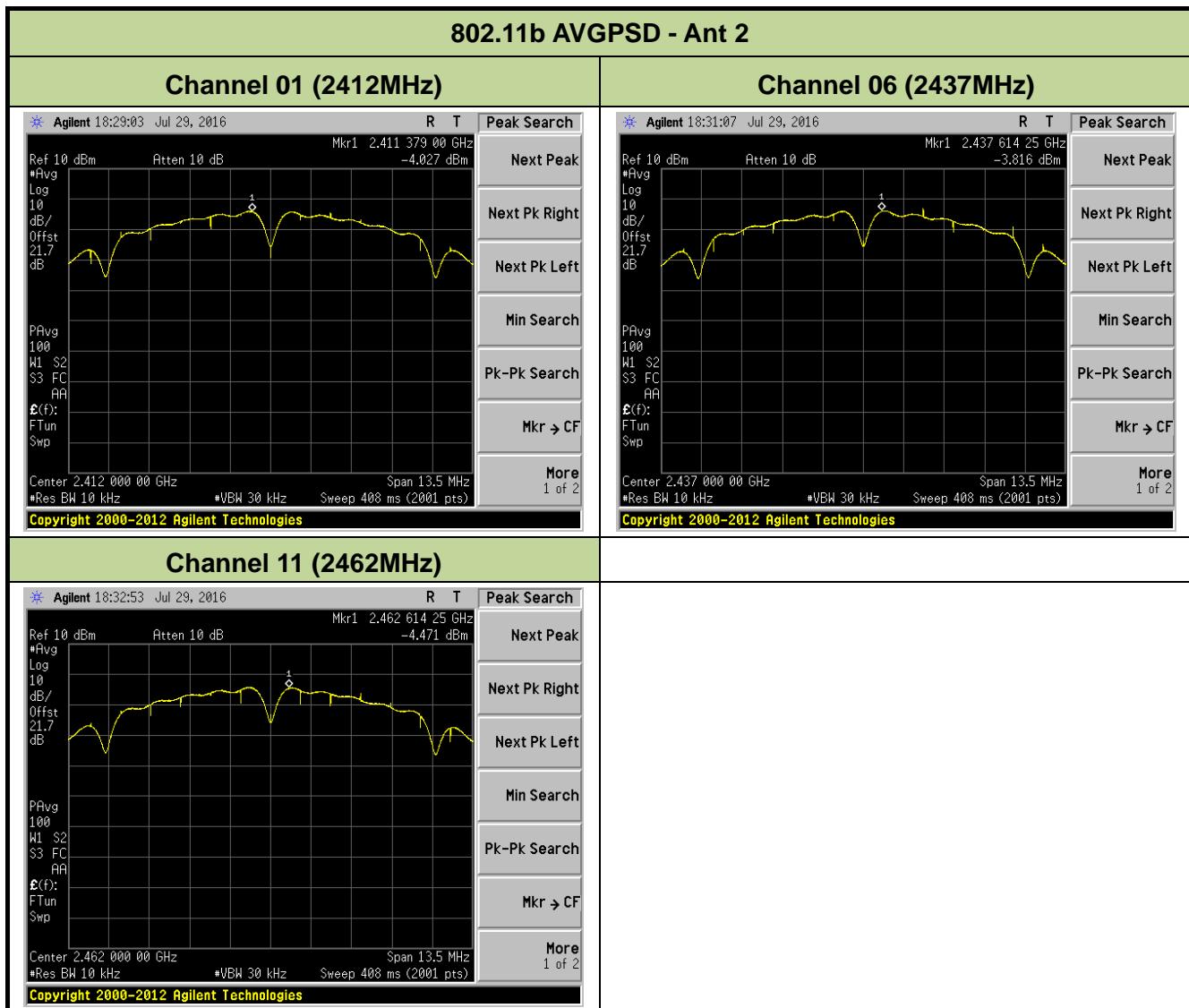


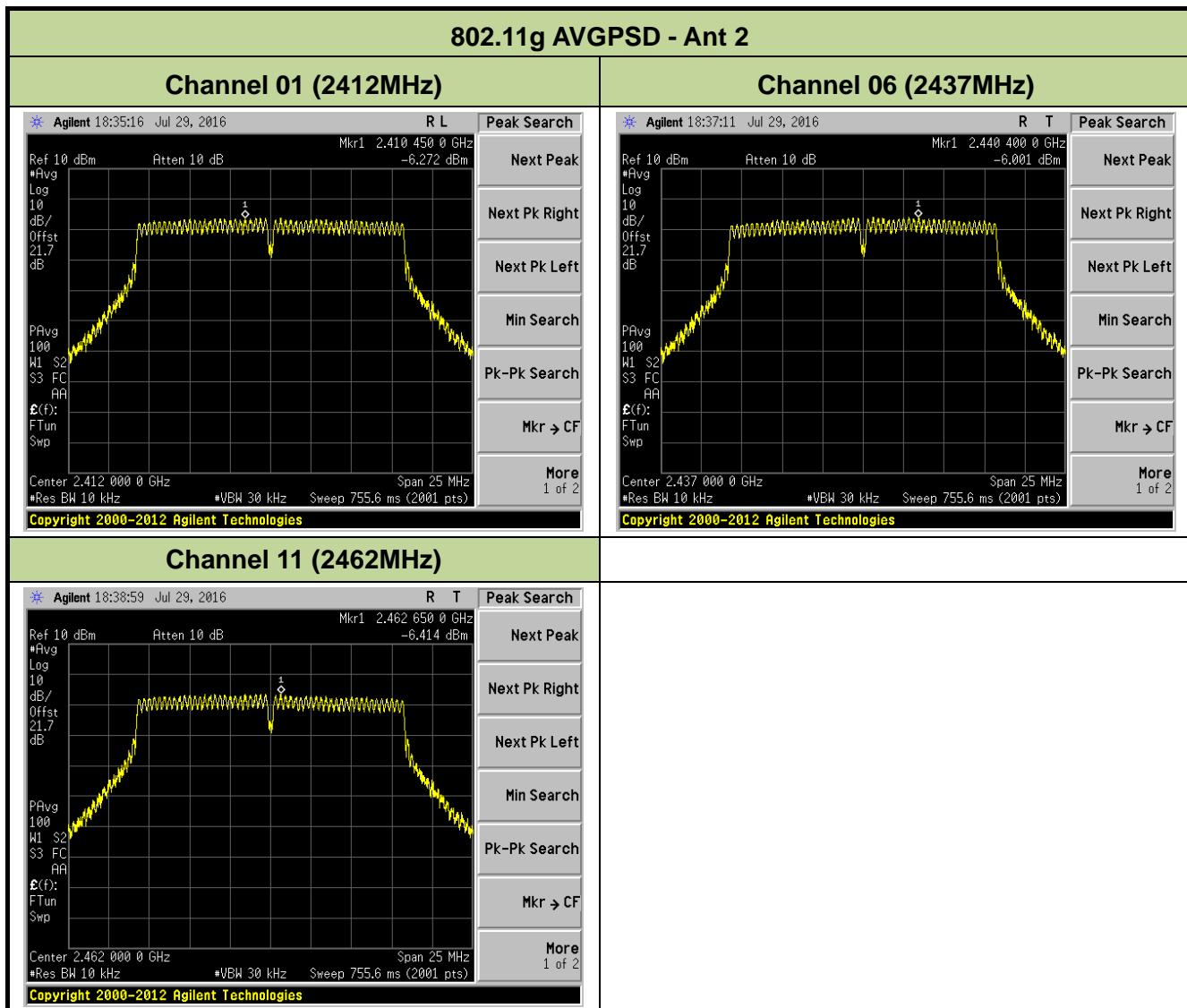


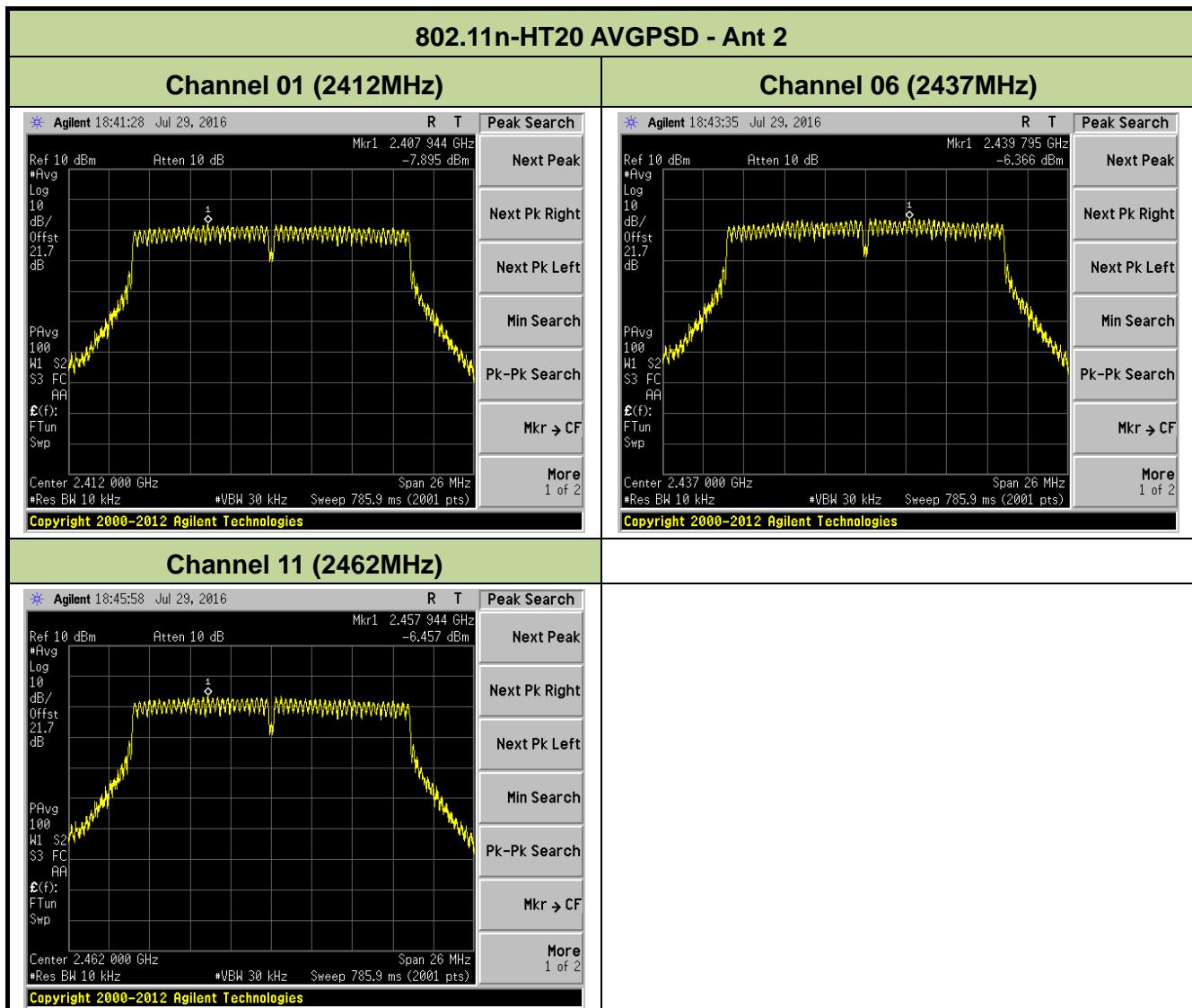


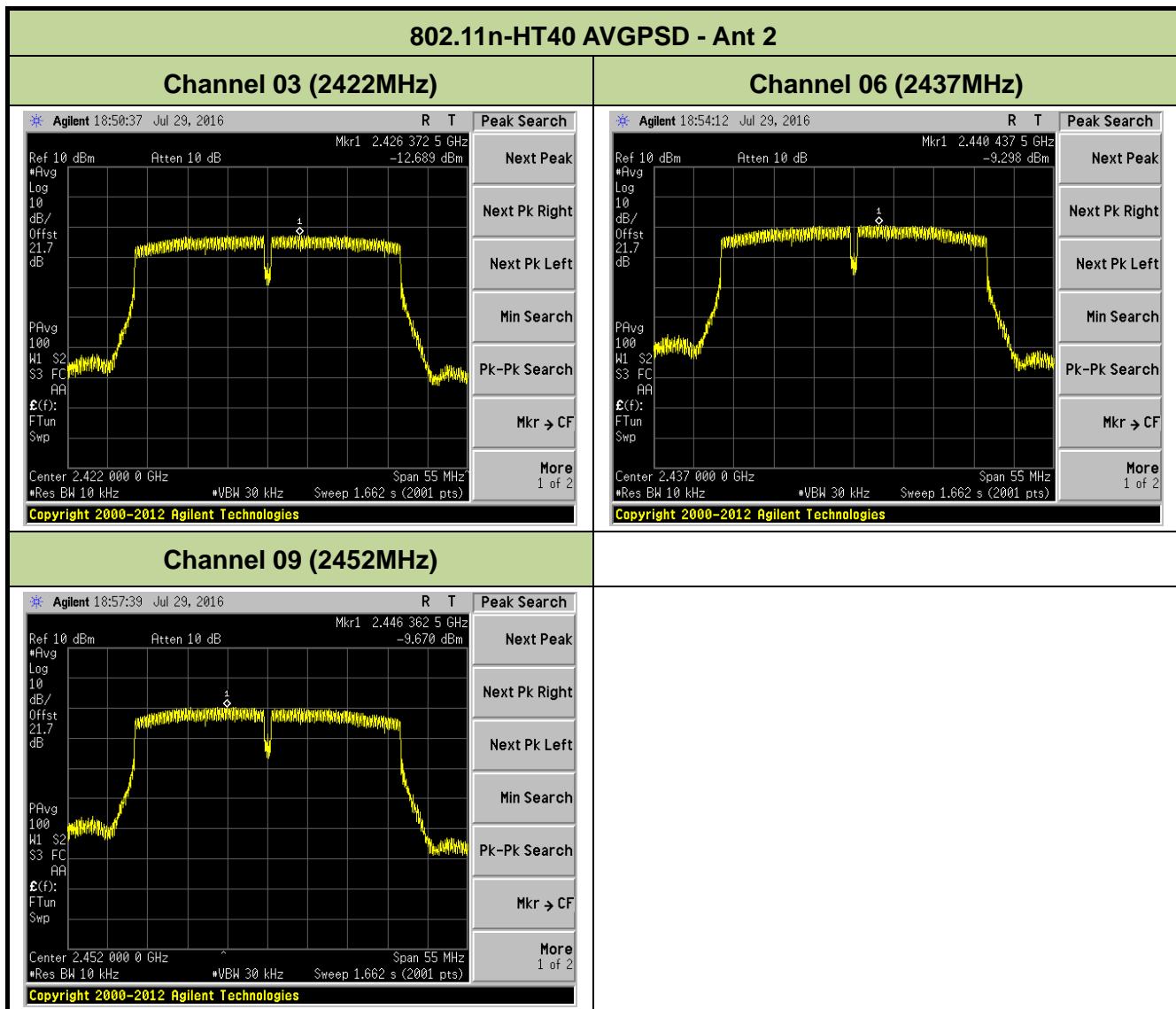


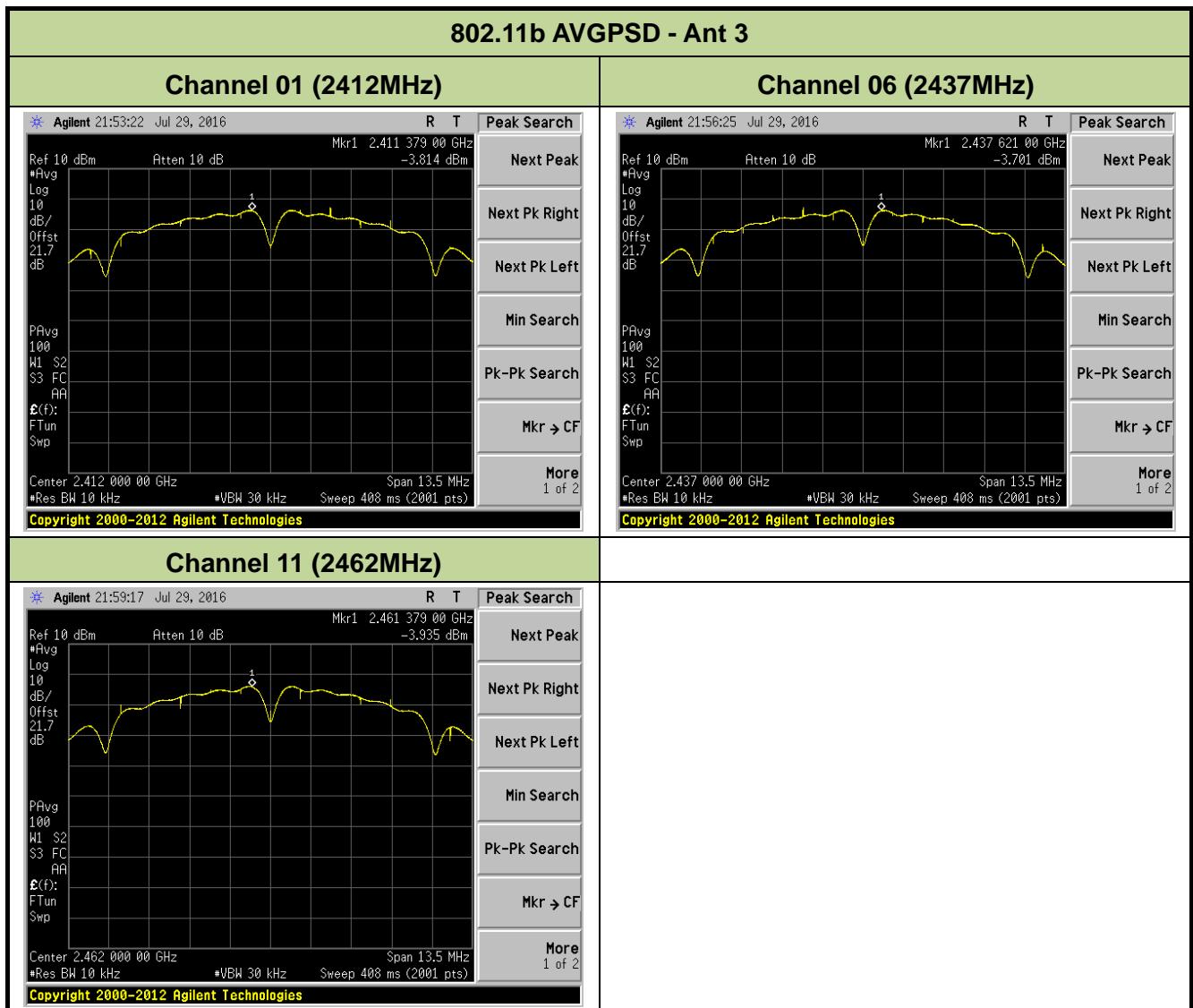


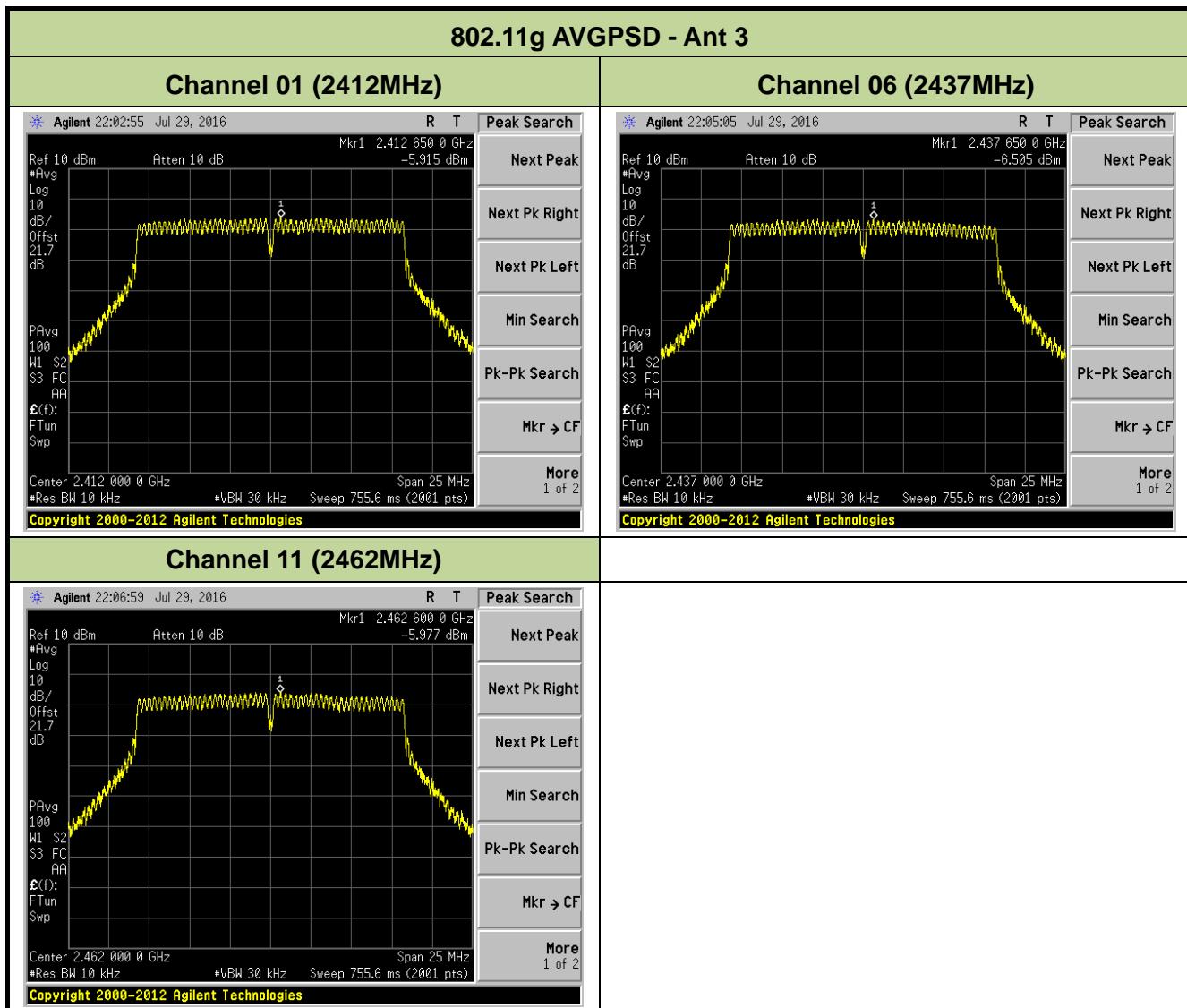


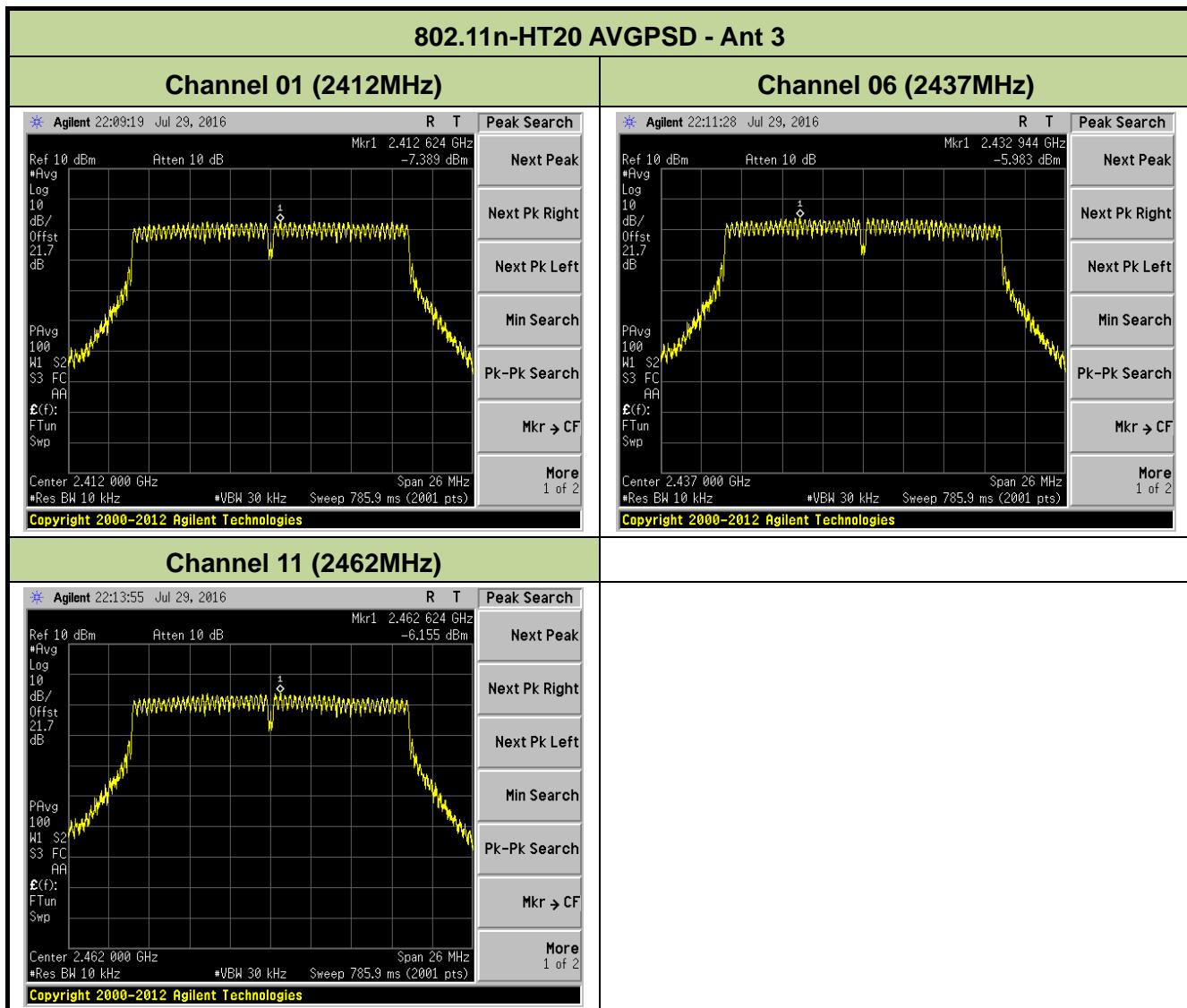


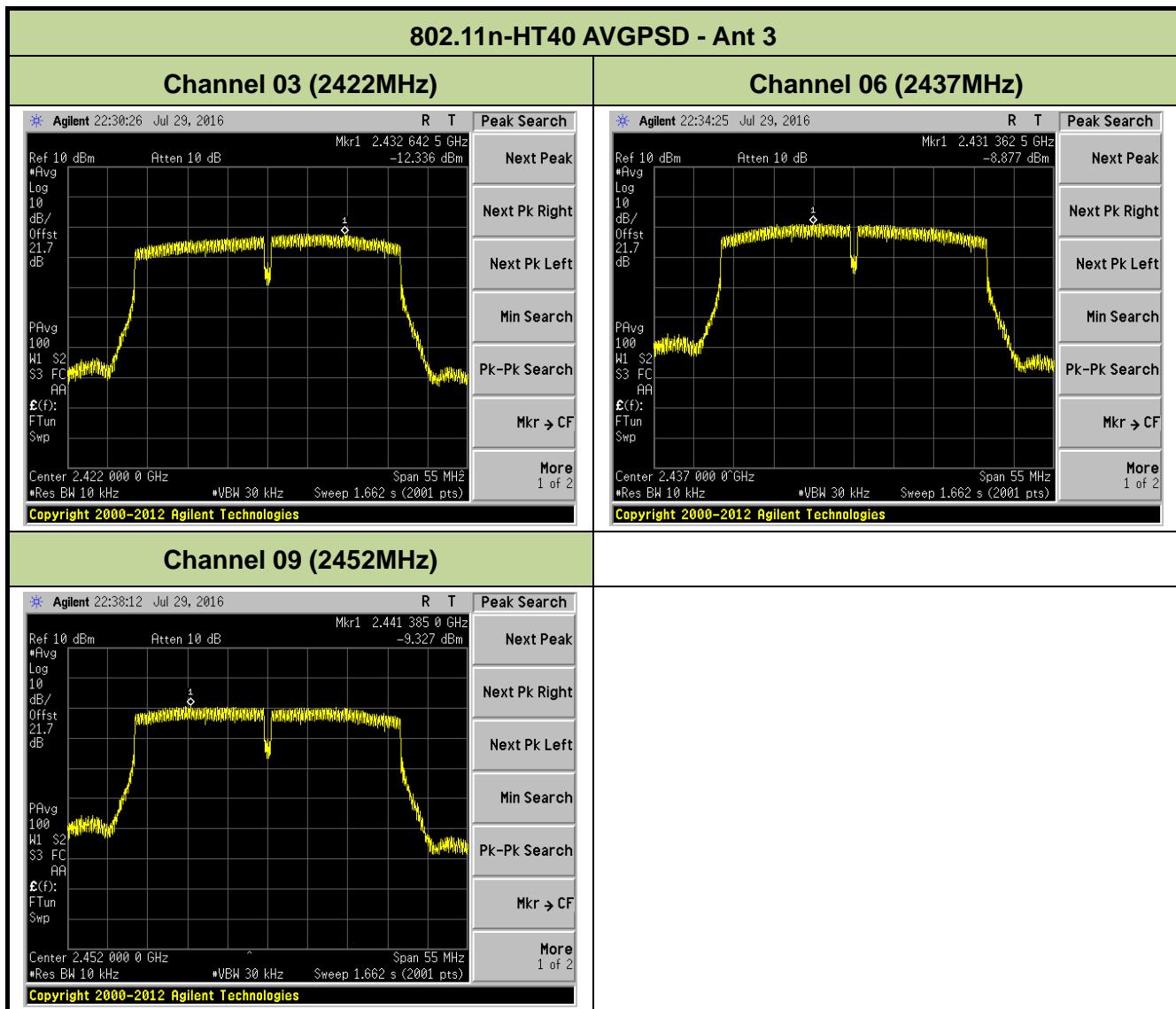


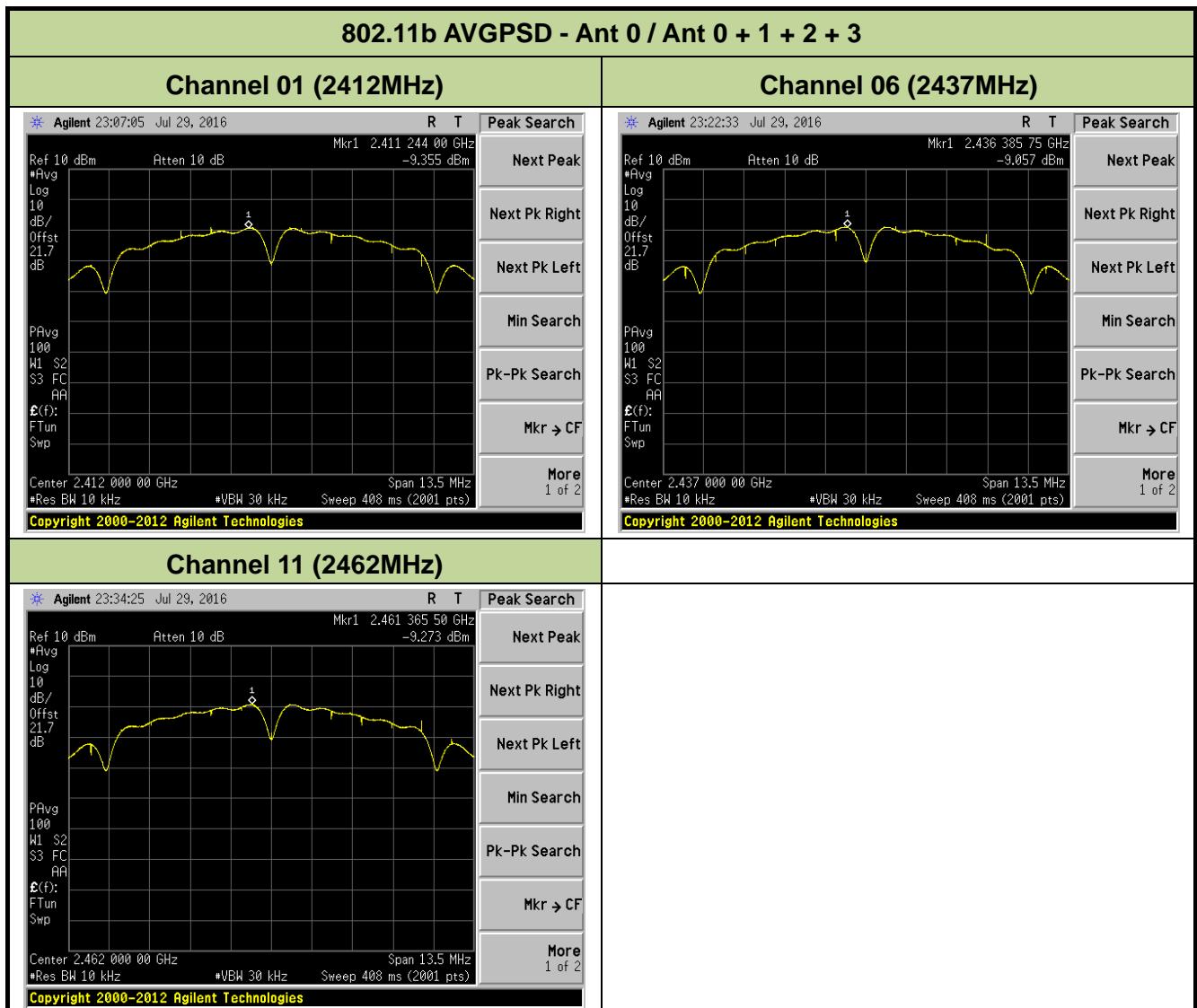


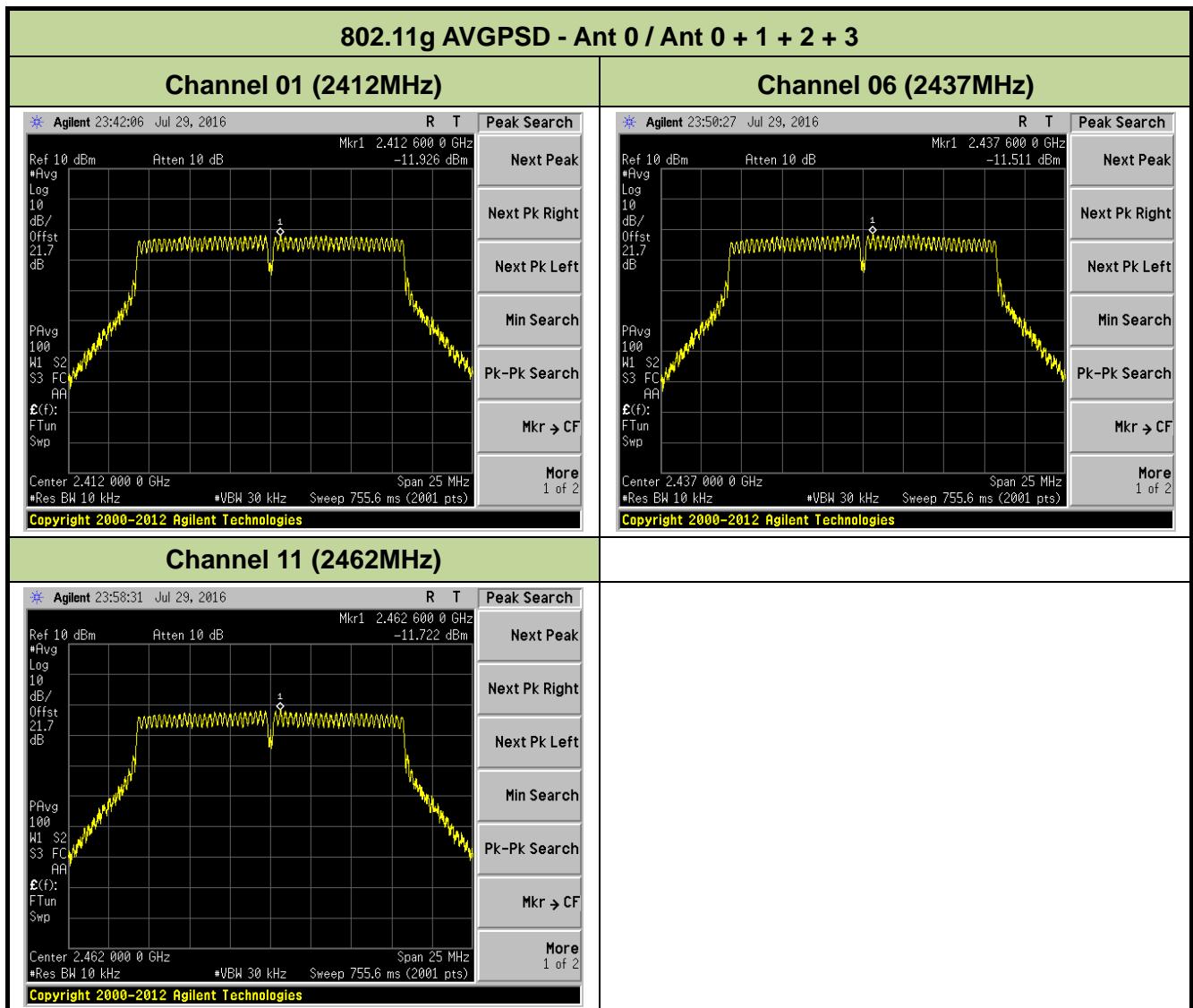


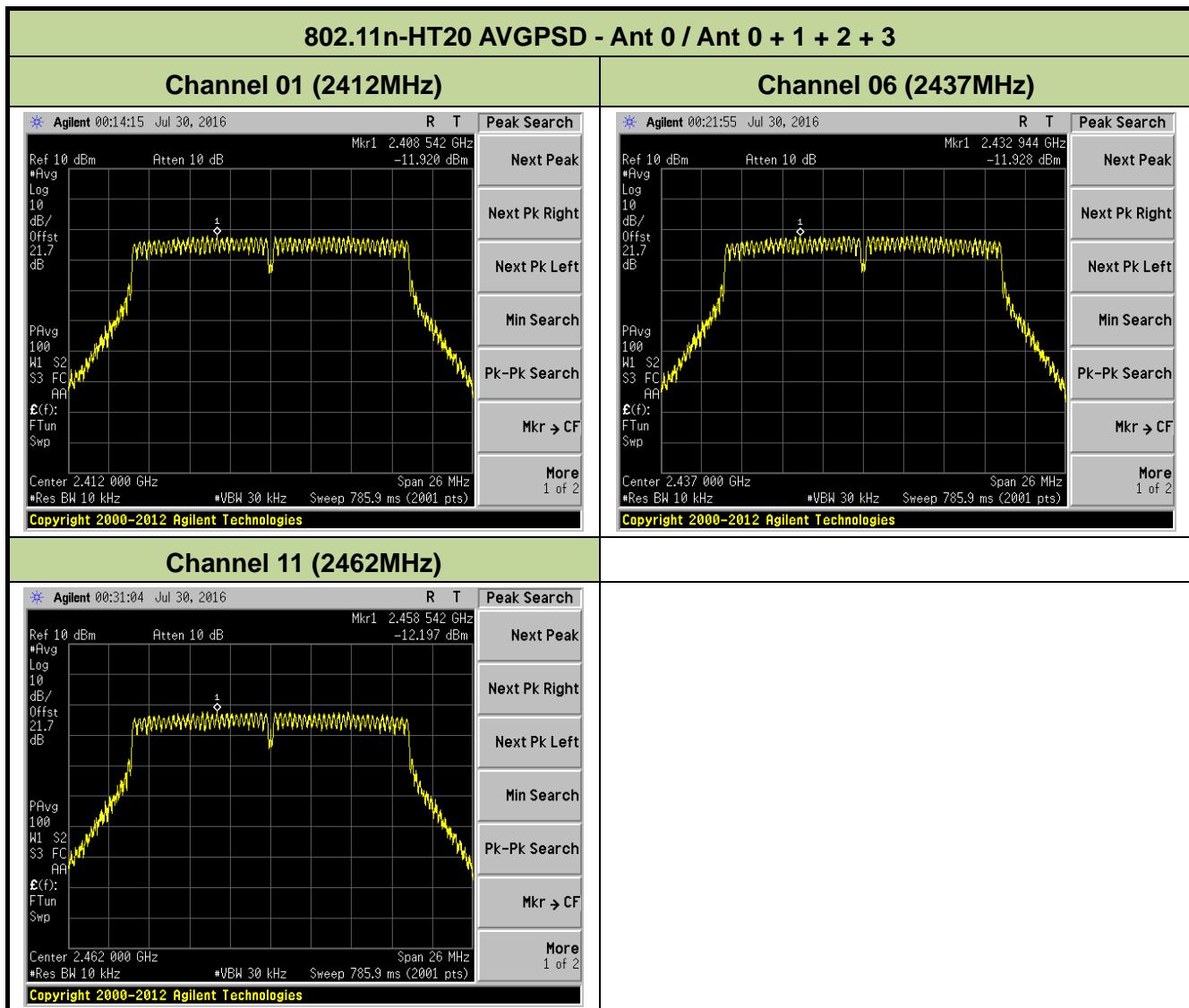


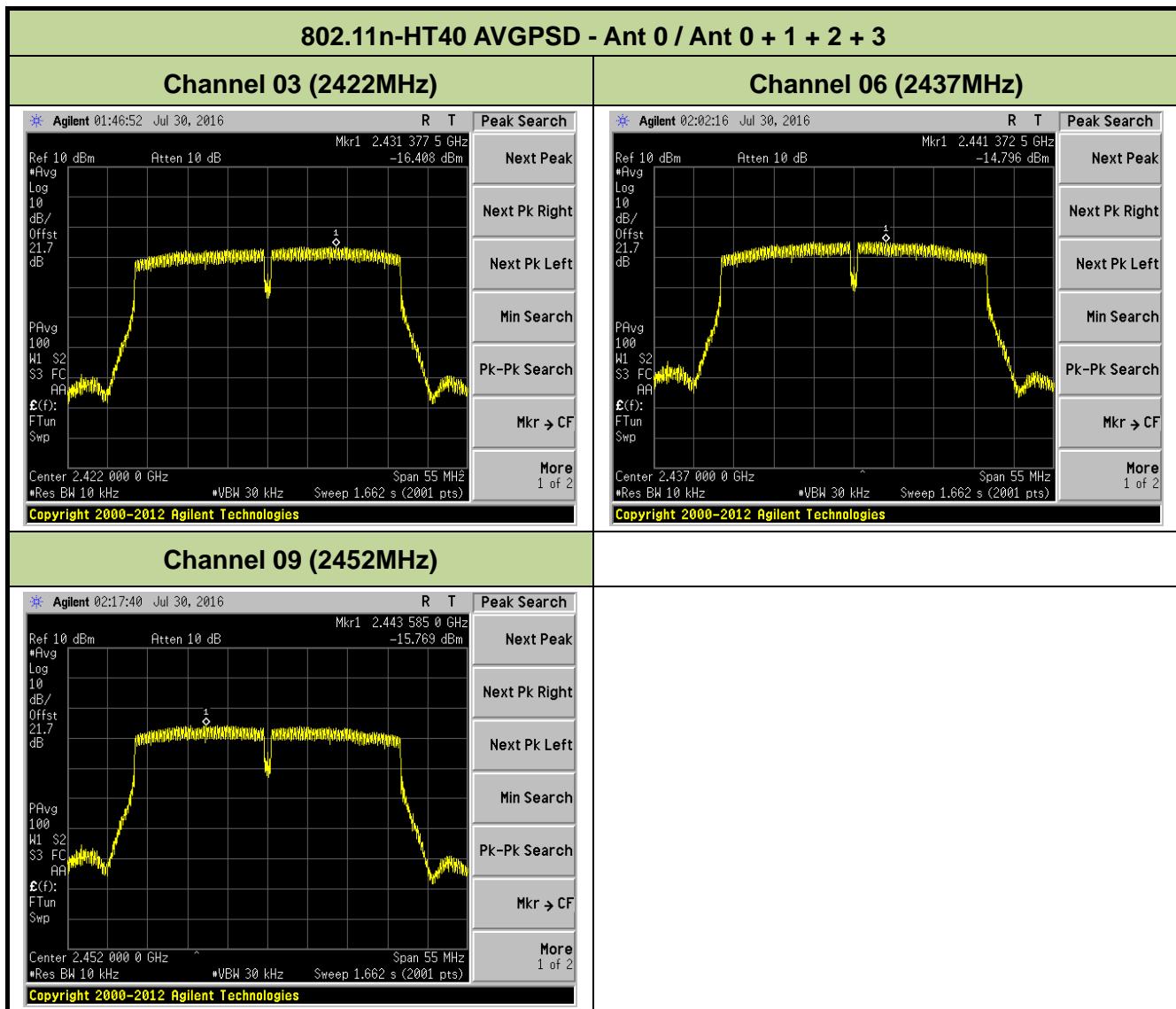


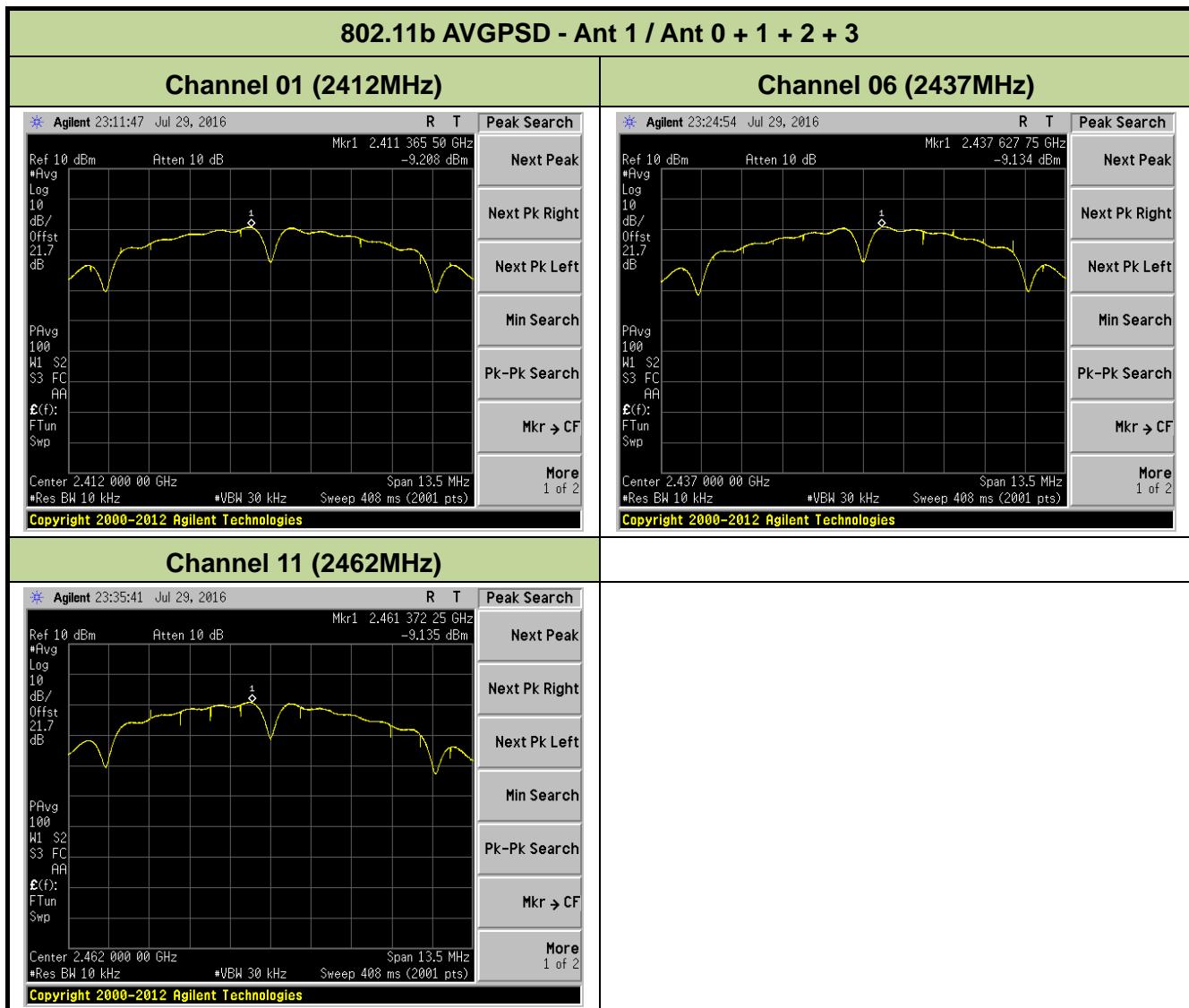


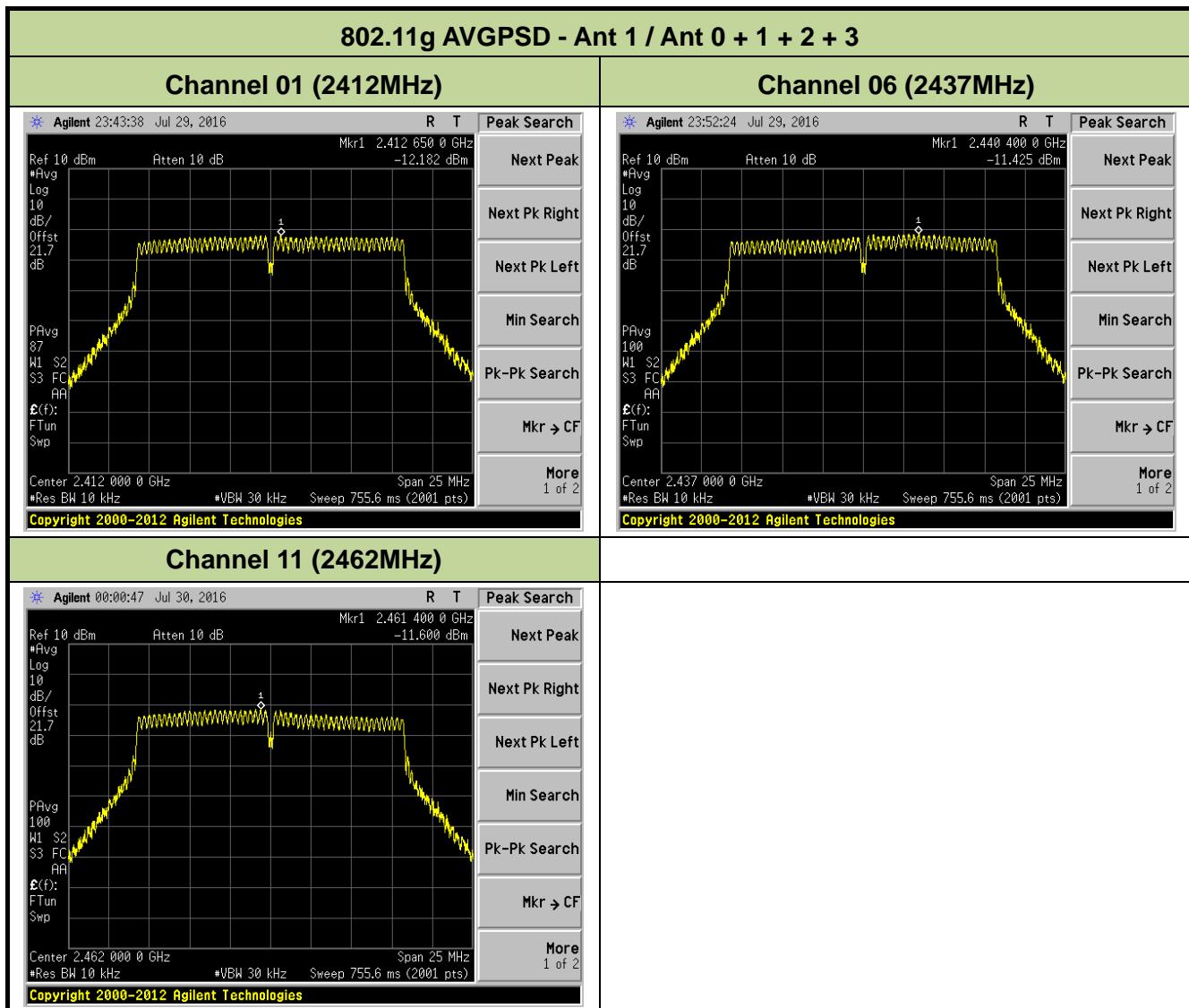


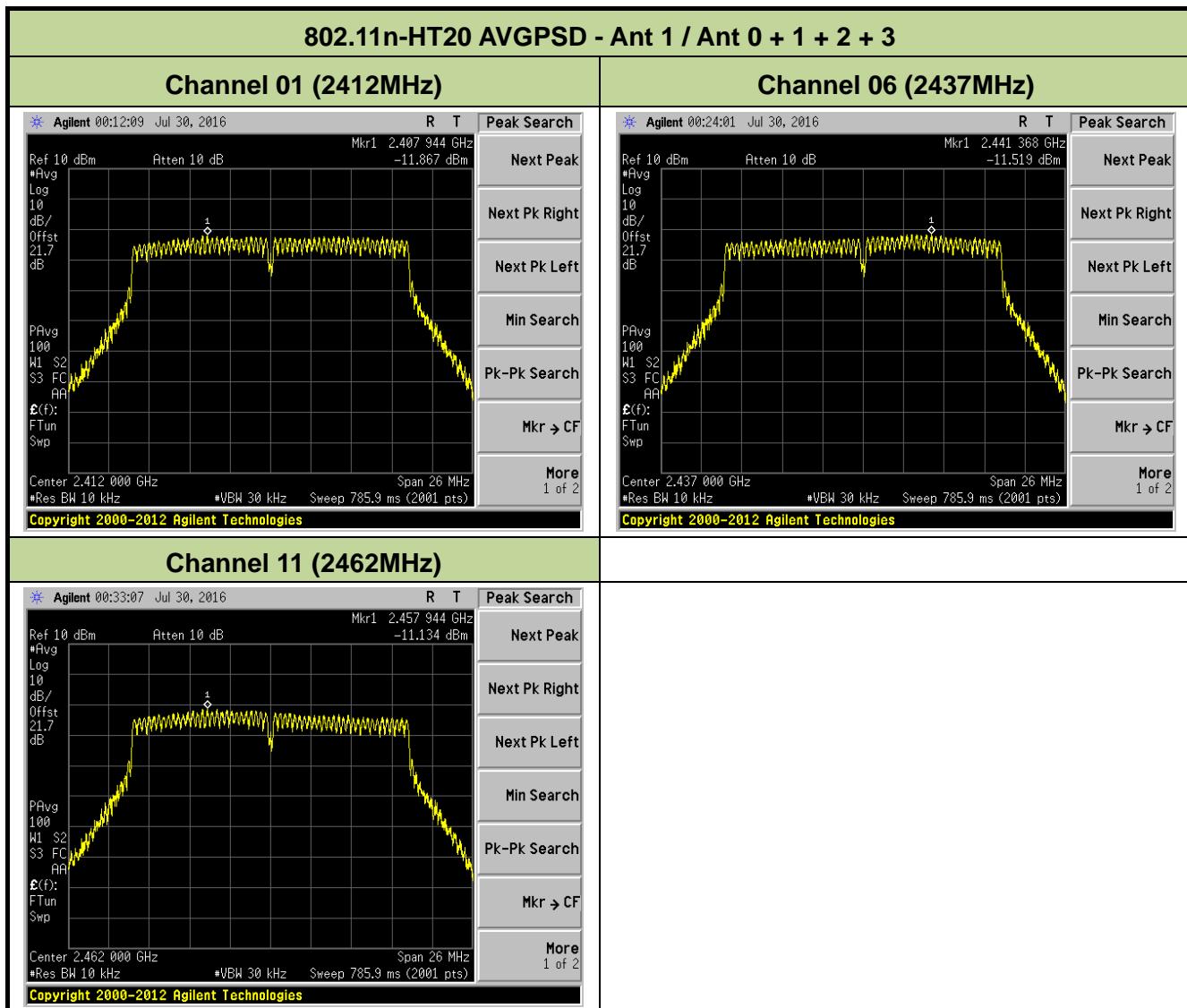


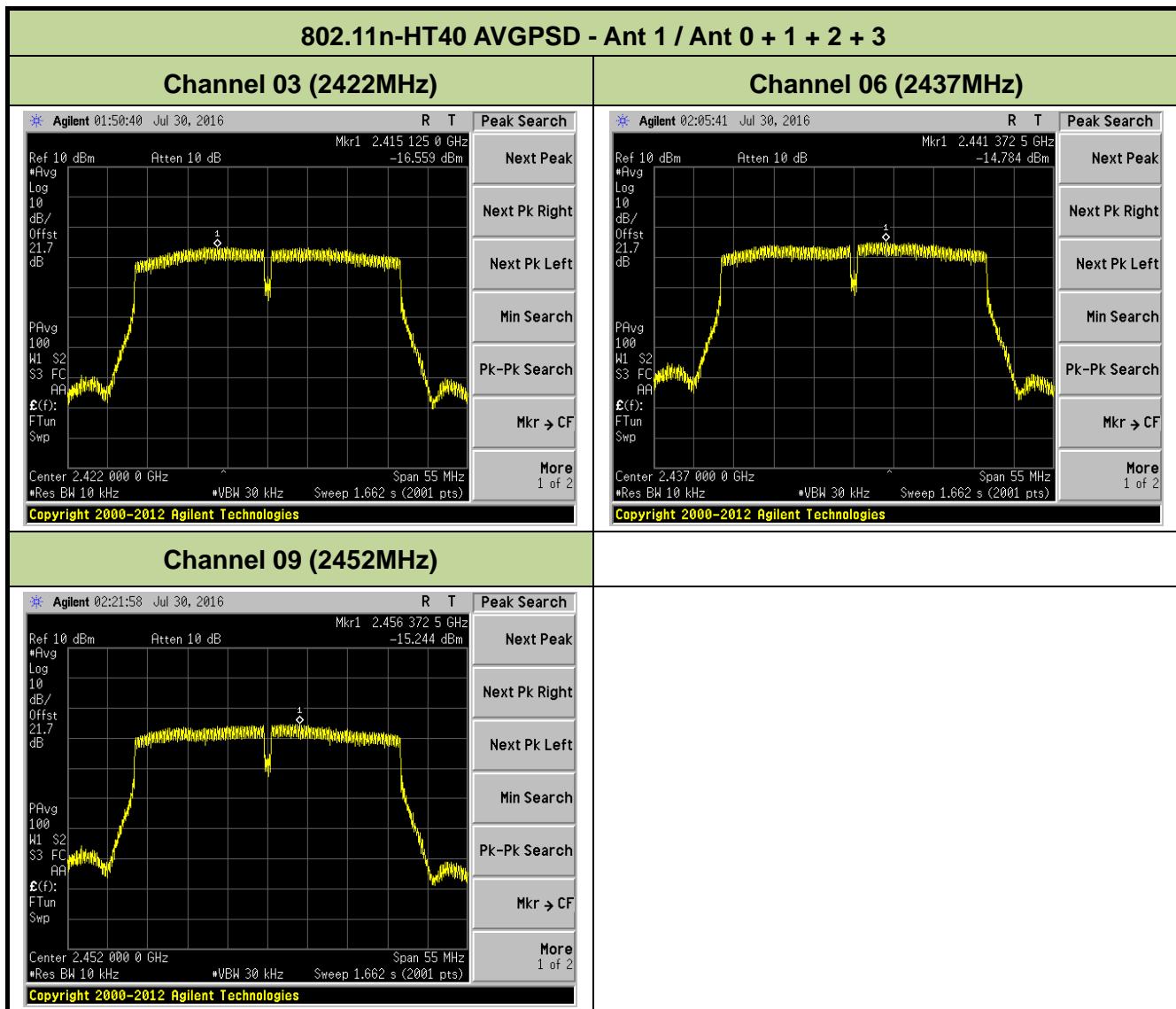


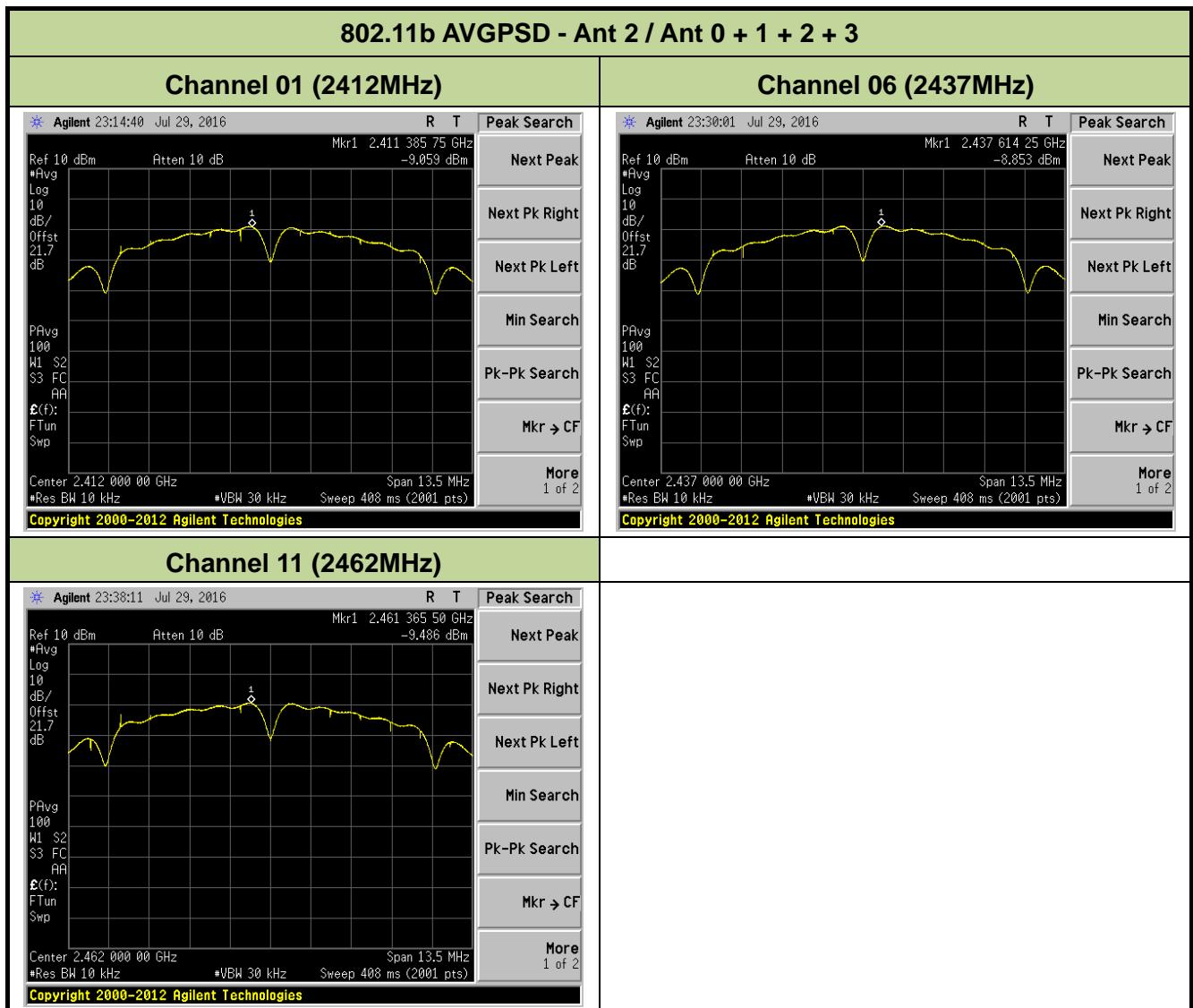


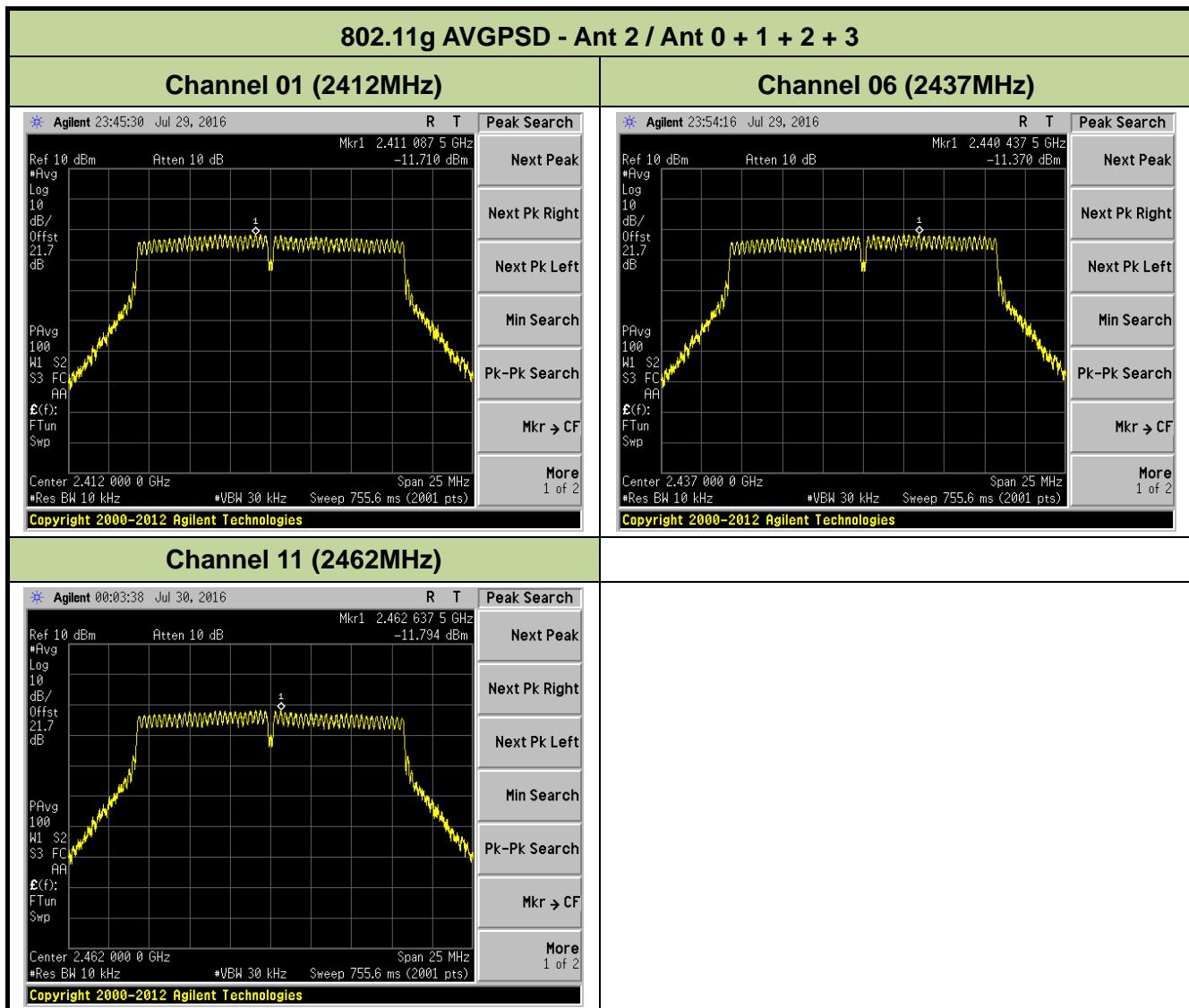


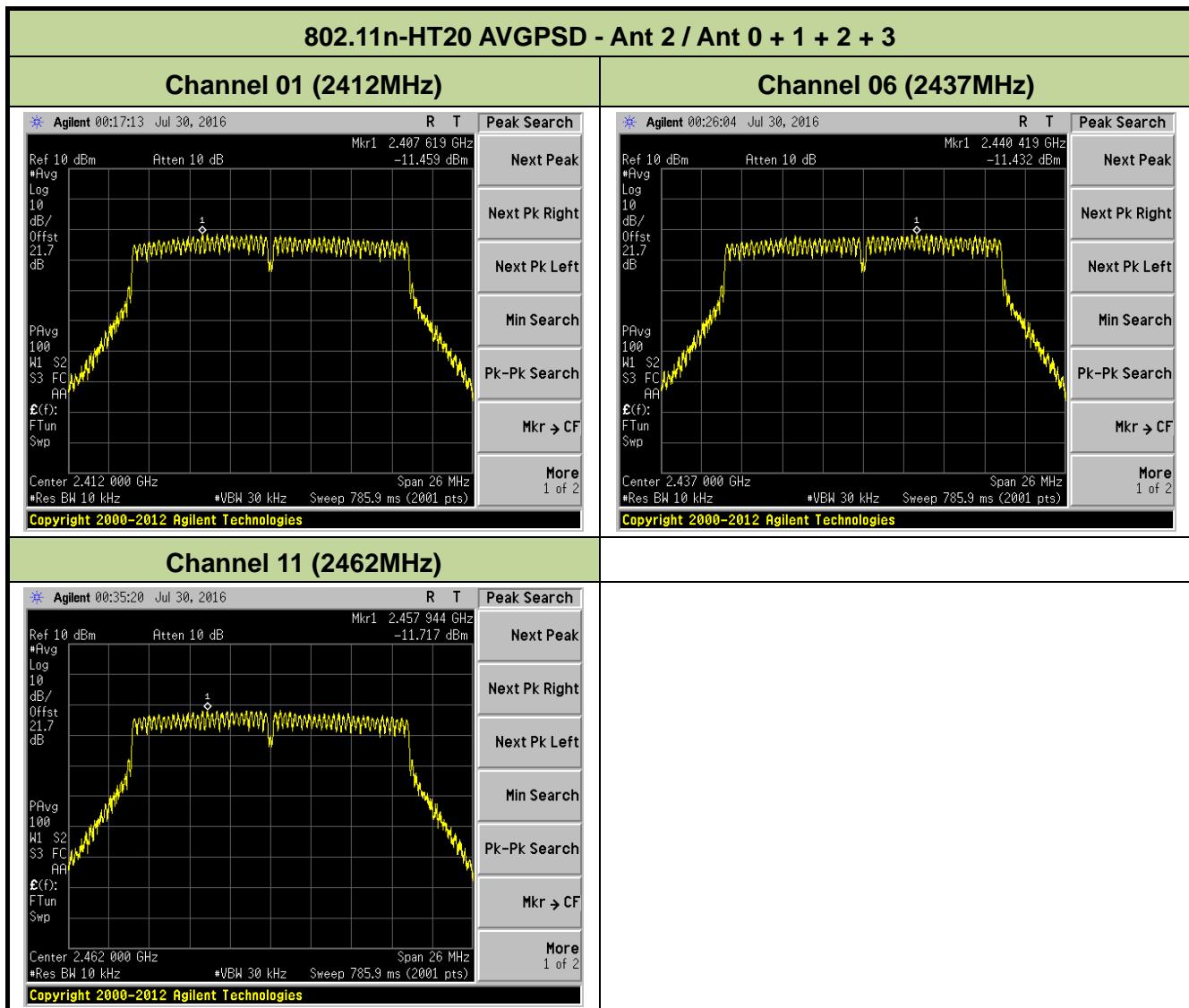


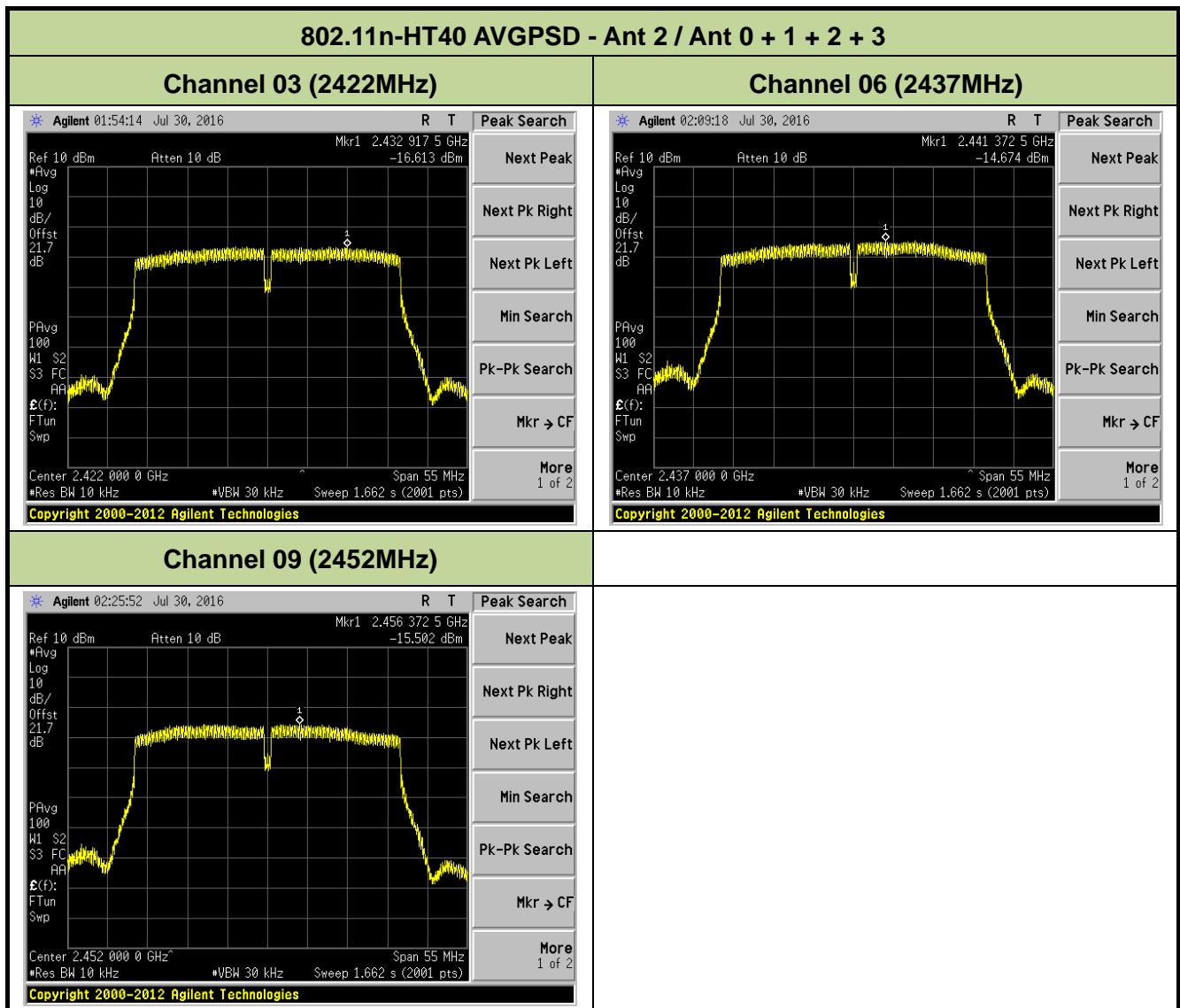


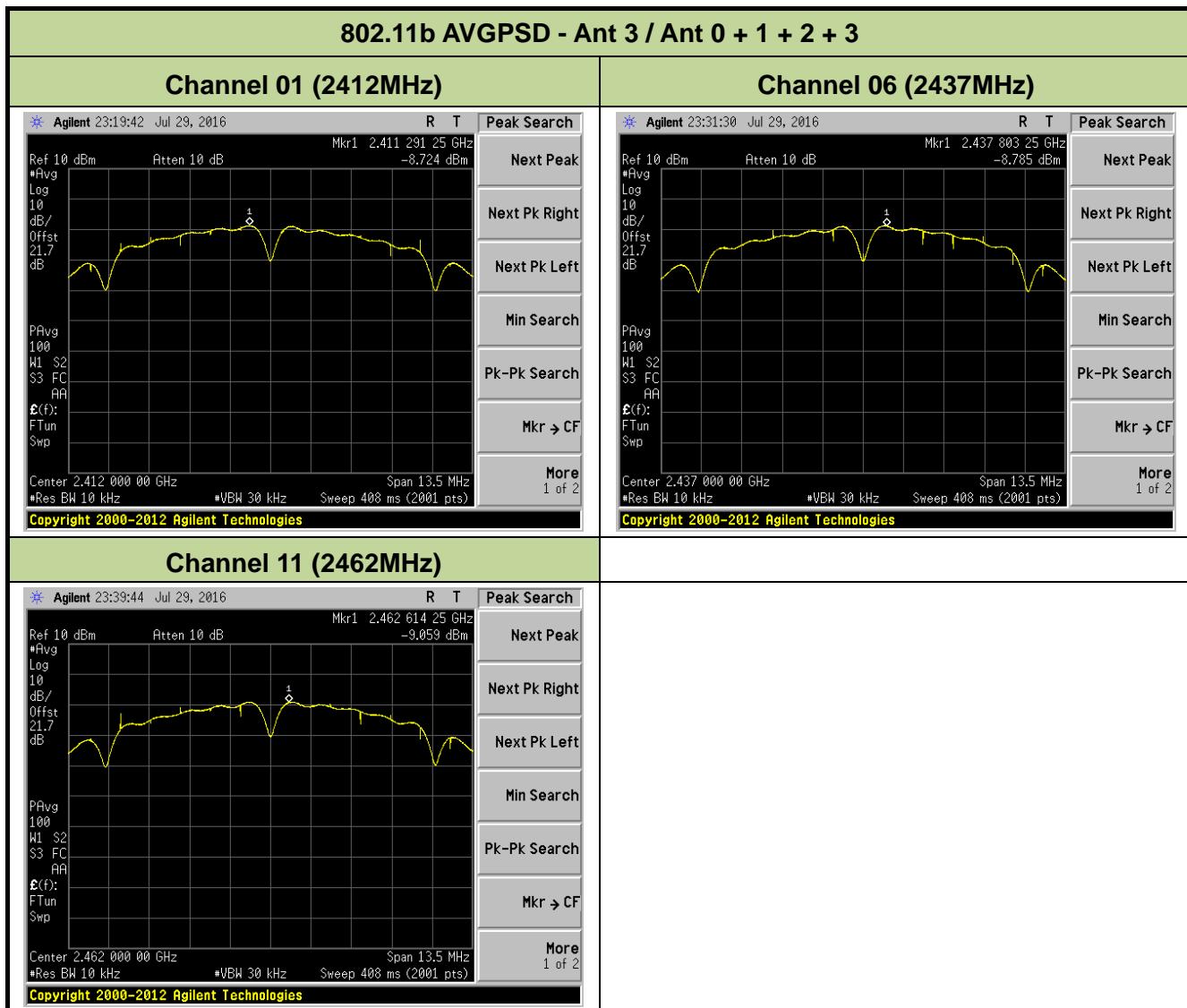


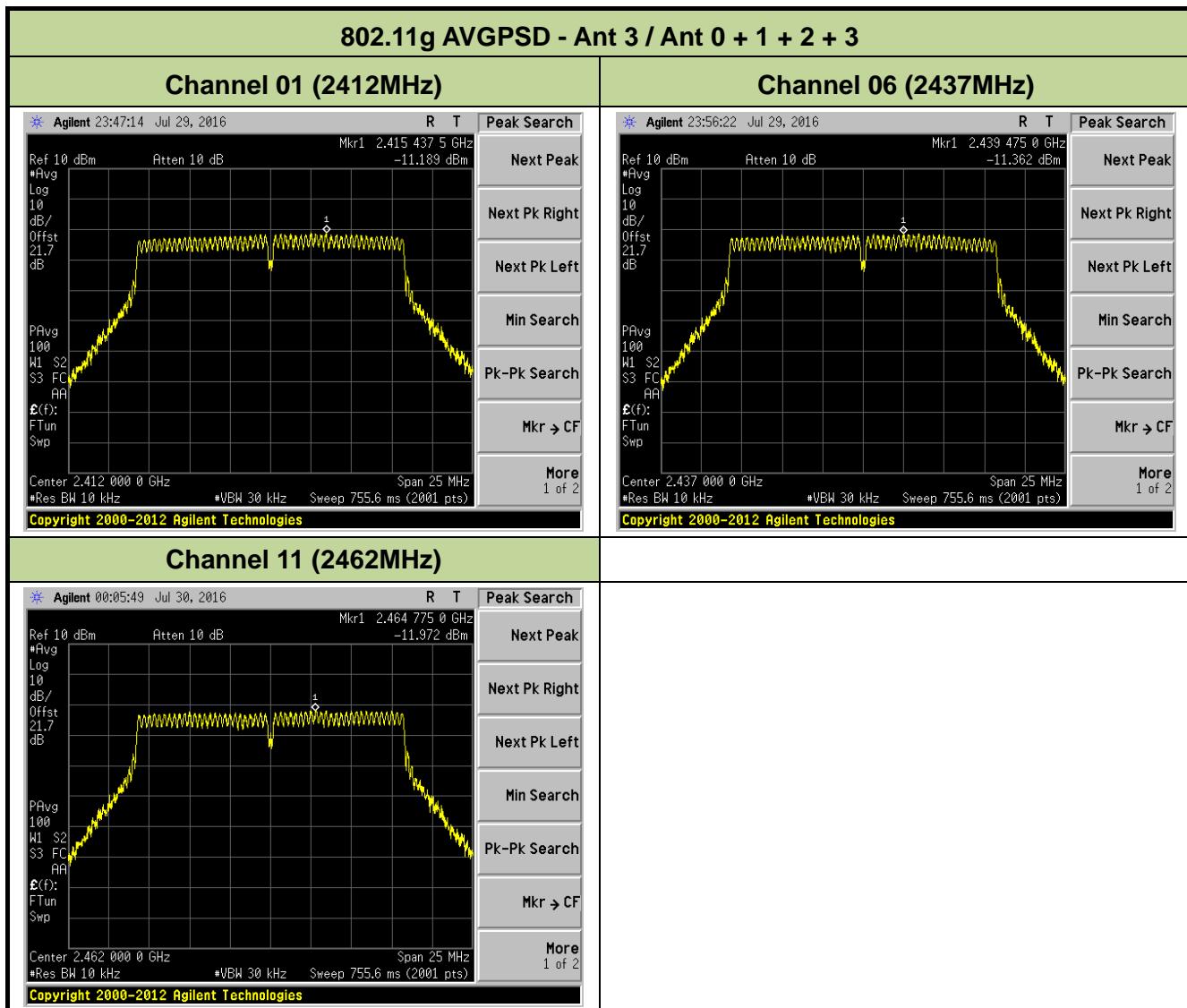


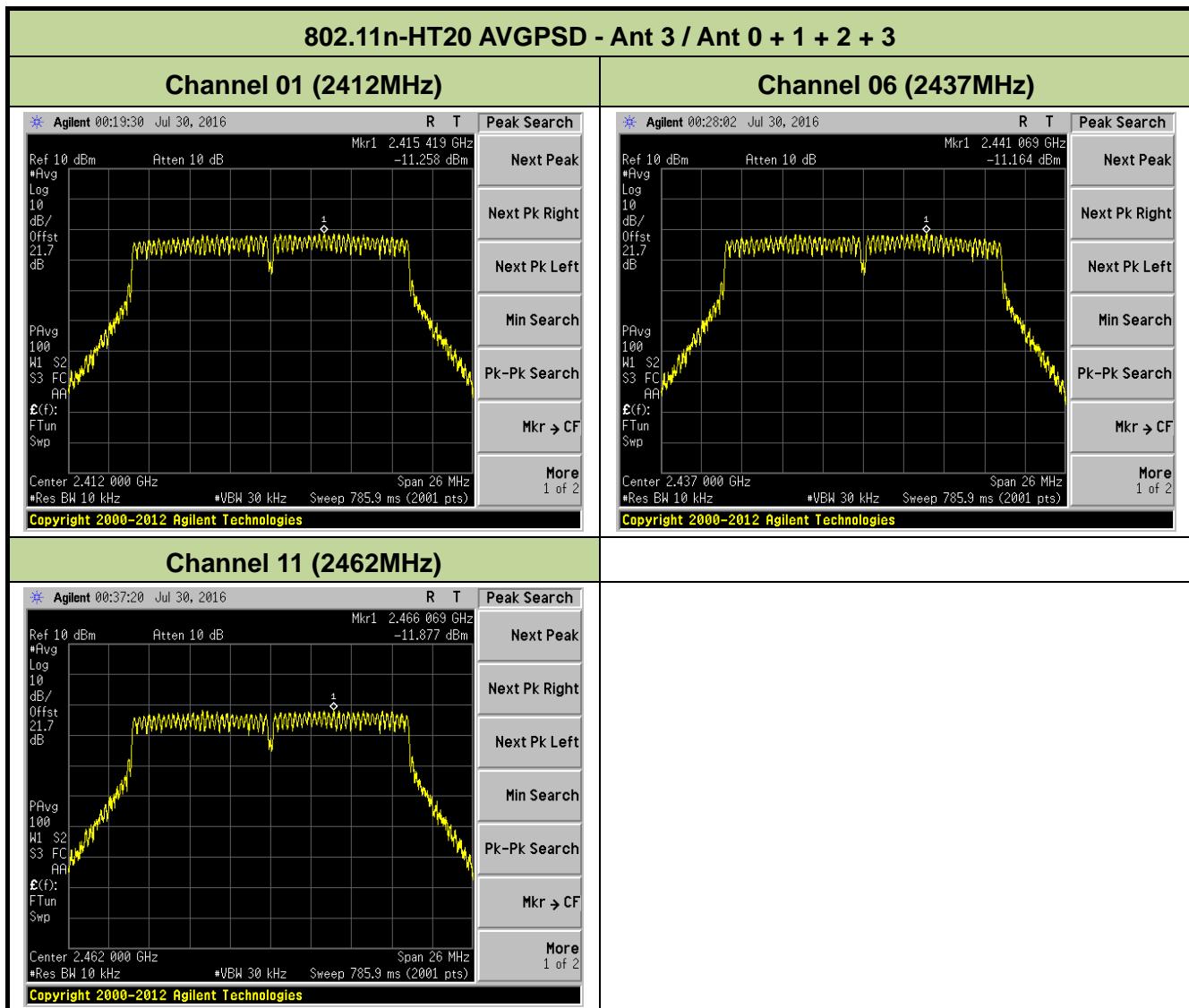


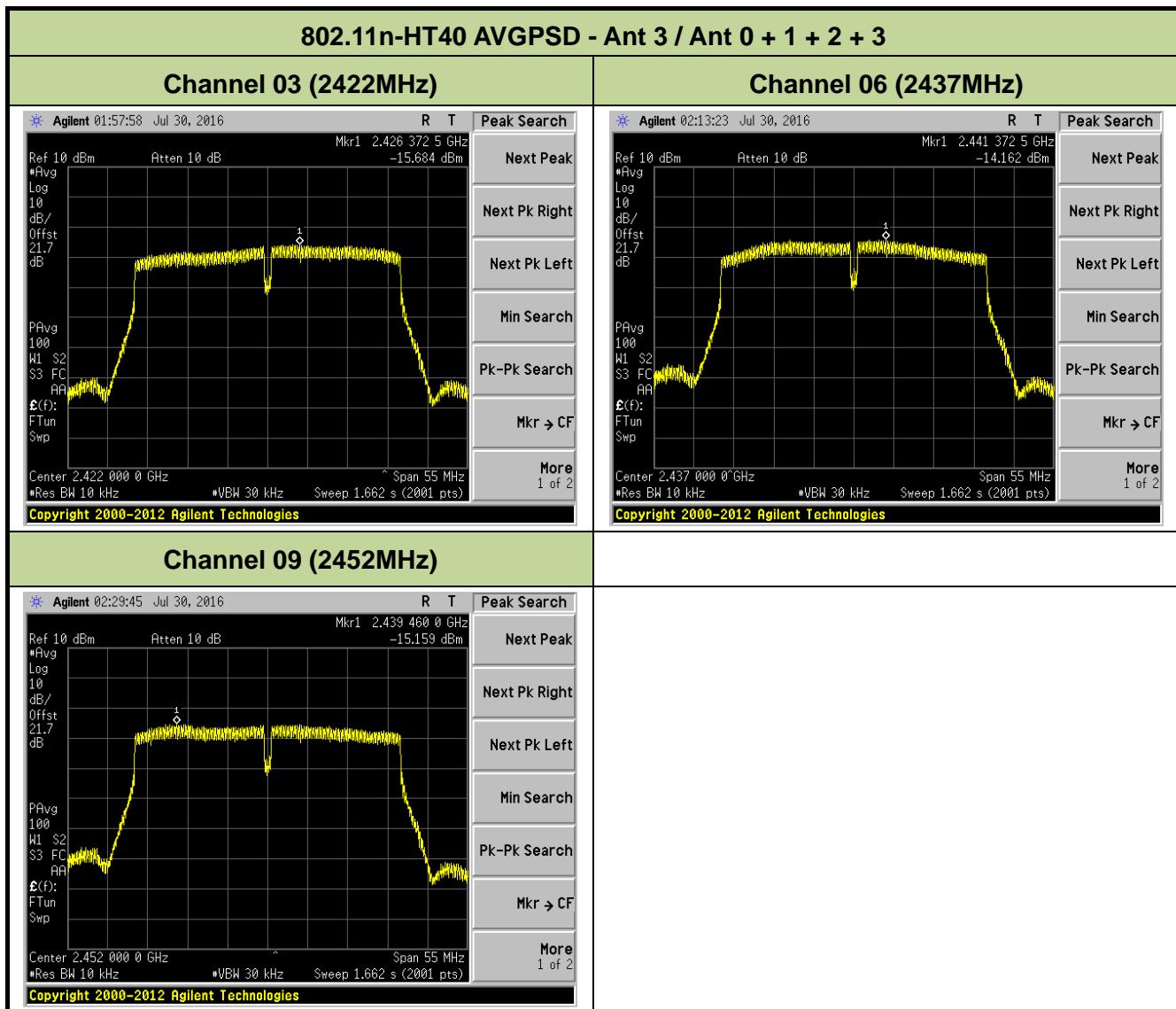












Product	US WI-FI AP 4X4 OD ext. antenna			Temperature	25°C			
Test Engineer	Johnson Liao			Relative Humidity	50 ~ 58%			
Test Site	SR2			Test Date	2016/09/22			
Test Item	Power Spectral Density			Antenna Model No.	FPMI2458-DP2RPSMA			

Test Mode	Data Rate (Mbps)	Channel No.	Freq. (MHz)	AVG PSD (dBm / 10kHz)	Duty Cycle (%)	Constant Factor	Total AVG PSD (dBm / 3kHz)	Limit (dBm / 3kHz)	Result
Ant 0									
11b	1	1	2412	-3.53	99.20	-5.23	-8.76	≤ 7.30	Pass
11b	1	6	2437	-3.32	99.20	-5.23	-8.55	≤ 7.30	Pass
11b	1	11	2462	-3.33	99.20	-5.23	-8.56	≤ 7.30	Pass
11g	6	1	2412	-7.54	96.04	-5.23	-12.59	≤ 7.30	Pass
11g	6	6	2437	-5.55	96.04	-5.23	-10.60	≤ 7.30	Pass
11g	6	11	2462	-5.94	96.04	-5.23	-10.99	≤ 7.30	Pass
11n-HT20	6.5	1	2412	-7.85	98.16	-5.23	-13.08	≤ 7.30	Pass
11n-HT20	6.5	6	2437	-6.14	98.16	-5.23	-11.37	≤ 7.30	Pass
11n-HT20	6.5	11	2462	-6.41	98.16	-5.23	-11.64	≤ 7.30	Pass
11n-HT40	13.5	3	2422	-11.92	97.11	-5.23	-17.02	≤ 7.30	Pass
11n-HT40	13.5	6	2437	-8.76	97.11	-5.23	-13.86	≤ 7.30	Pass
11n-HT40	13.5	9	2452	-9.29	97.11	-5.23	-14.39	≤ 7.30	Pass
Ant 1									
11b	1	1	2412	-3.46	99.20	-5.23	-8.69	≤ 7.60	Pass
11b	1	6	2437	-3.30	99.20	-5.23	-8.53	≤ 7.60	Pass
11b	1	11	2462	-3.43	99.20	-5.23	-8.66	≤ 7.60	Pass
11g	6	1	2412	-6.47	96.04	-5.23	-11.52	≤ 7.60	Pass
11g	6	6	2437	-5.79	96.04	-5.23	-10.84	≤ 7.60	Pass
11g	6	11	2462	-5.85	96.04	-5.23	-10.90	≤ 7.60	Pass
11n-HT20	6.5	1	2412	-7.47	98.16	-5.23	-12.70	≤ 7.60	Pass
11n-HT20	6.5	6	2437	-6.34	98.16	-5.23	-11.57	≤ 7.60	Pass
11n-HT20	6.5	11	2462	-6.21	98.16	-5.23	-11.44	≤ 7.60	Pass
11n-HT40	13.5	3	2422	-13.22	97.11	-5.23	-18.32	≤ 7.60	Pass
11n-HT40	13.5	6	2437	-9.28	97.11	-5.23	-14.38	≤ 7.60	Pass
11n-HT40	13.5	9	2452	-11.00	97.11	-5.23	-16.10	≤ 7.60	Pass

Test Mode	Data Rate (Mbps)	Channel No.	Freq. (MHz)	AVG PSD (dBm / 10kHz)	Duty Cycle (%)	Constant Factor	Total AVG PSD (dBm / 3kHz)	Limit (dBm / 3kHz)	Result
Ant 2									
11b	1	1	2412	-3.81	99.20	-5.23	-9.04	≤ 7.30	Pass
11b	1	6	2437	-3.53	99.20	-5.23	-8.76	≤ 7.30	Pass
11b	1	11	2462	-3.64	99.20	-5.23	-8.87	≤ 7.30	Pass
11g	6	1	2412	-6.35	96.04	-5.23	-11.40	≤ 7.30	Pass
11g	6	6	2437	-6.11	96.04	-5.23	-11.16	≤ 7.30	Pass
11g	6	11	2462	-6.20	96.04	-5.23	-11.25	≤ 7.30	Pass
11n-HT20	6.5	1	2412	-7.88	98.16	-5.23	-13.11	≤ 7.30	Pass
11n-HT20	6.5	6	2437	-6.36	98.16	-5.23	-11.59	≤ 7.30	Pass
11n-HT20	6.5	11	2462	-6.60	98.16	-5.23	-11.83	≤ 7.30	Pass
11n-HT40	13.5	3	2422	-13.88	97.11	-5.23	-18.98	≤ 7.30	Pass
11n-HT40	13.5	6	2437	-9.09	97.11	-5.23	-14.19	≤ 7.30	Pass
11n-HT40	13.5	9	2452	-9.66	97.11	-5.23	-14.76	≤ 7.30	Pass
Ant 3									
11b	1	1	2412	-3.38	99.20	-5.23	-8.61	≤ 7.60	Pass
11b	1	6	2437	-3.50	99.20	-5.23	-8.73	≤ 7.60	Pass
11b	1	11	2462	-3.60	99.20	-5.23	-8.83	≤ 7.60	Pass
11g	6	1	2412	-6.55	96.04	-5.23	-11.60	≤ 7.60	Pass
11g	6	6	2437	-5.70	96.04	-5.23	-10.75	≤ 7.60	Pass
11g	6	11	2462	-5.78	96.04	-5.23	-10.83	≤ 7.60	Pass
11n-HT20	6.5	1	2412	-9.10	98.16	-5.23	-14.33	≤ 7.60	Pass
11n-HT20	6.5	6	2437	-6.42	98.16	-5.23	-11.65	≤ 7.60	Pass
11n-HT20	6.5	11	2462	-6.50	98.16	-5.23	-11.73	≤ 7.60	Pass
11n-HT40	13.5	3	2422	-11.58	97.11	-5.23	-16.68	≤ 7.60	Pass
11n-HT40	13.5	6	2437	-9.05	97.11	-5.23	-14.15	≤ 7.60	Pass
11n-HT40	13.5	9	2452	-9.34	97.11	-5.23	-14.44	≤ 7.60	Pass

Test Mode	Data Rate (Mbps)	Channel No.	Freq. (MHz)	Ant 0 AVGPSD (dBm / 10kHz)	Ant 1 AVGPSD (dBm / 10kHz)	Ant 2 AVGPSD (dBm / 10kHz)	Ant 3 AVGPSD (dBm / 10kHz)	Duty Cycle (%)	Constant Factor	Total AVGPSD (dBm / 3kHz)	Limit (dBm / 3kHz)	Result
Ant 0 + 1 + 2 + 3												
11b	1	1	2412	-4.00	-3.87	---	---	99.20	-5.23	-6.15	≤ 4.44	Pass
11b	1	6	2437	-3.72	-4.20	---	---	99.20	-5.23	-6.17	≤ 4.44	Pass
11b	1	11	2462	-3.97	-4.42	---	---	99.20	-5.23	-6.41	≤ 4.44	Pass
11b	1	1	2412	---	---	-3.88	-3.21	99.20	-5.23	-5.75	≤ 4.44	Pass
11b	1	6	2437	---	---	-3.89	-4.12	99.20	-5.23	-6.22	≤ 4.44	Pass
11b	1	11	2462	---	---	-4.21	-4.37	99.20	-5.23	-6.51	≤ 4.44	Pass
11g	6	1	2412	-6.72	-7.03	---	---	96.04	-5.23	-8.92	≤ 4.44	Pass
11g	6	6	2437	-6.39	-6.96	---	---	96.04	-5.23	-8.71	≤ 4.44	Pass
11g	6	11	2462	-8.04	-6.27	---	---	96.04	-5.23	-9.11	≤ 4.44	Pass
11g	6	1	2412	---	---	-6.77	-5.93	96.04	-5.23	-8.37	≤ 4.44	Pass
11g	6	6	2437	---	---	-6.07	-6.31	96.04	-5.23	-8.23	≤ 4.44	Pass
11g	6	11	2462	---	---	-6.52	-6.21	96.04	-5.23	-8.41	≤ 4.44	Pass
11n-HT20	26	1	2412	-8.66	-8.28	---	---	98.16	-5.23	-10.60	≤ 4.44	Pass
11n-HT20	26	6	2437	-6.61	-6.72	---	---	98.16	-5.23	-8.80	≤ 4.44	Pass
11n-HT20	26	11	2462	-7.03	-6.04	---	---	98.16	-5.23	-8.65	≤ 4.44	Pass
11n-HT20	26	1	2412	---	---	-8.66	-7.88	98.16	-5.23	-10.39	≤ 4.44	Pass
11n-HT20	26	6	2437	---	---	-7.06	-6.79	98.16	-5.23	-9.06	≤ 4.44	Pass
11n-HT20	26	11	2462	---	---	-6.40	-6.37	98.16	-5.23	-8.52	≤ 4.44	Pass
11n-HT40	54	3	2422	-15.95	-16.41	---	---	97.11	-5.23	-18.27	≤ 4.44	Pass
11n-HT40	54	6	2437	-9.59	-9.90	---	---	97.11	-5.23	-11.83	≤ 4.44	Pass
11n-HT40	54	9	2452	-9.30	-8.96	---	---	97.11	-5.23	-11.22	≤ 4.44	Pass
11n-HT40	54	3	2422	---	---	-16.87	-15.53	97.11	-5.23	-18.24	≤ 4.44	Pass
11n-HT40	54	6	2437	---	---	-10.36	-9.94	97.11	-5.23	-12.24	≤ 4.44	Pass
11n-HT40	54	9	2452	---	---	-9.56	-9.22	97.11	-5.23	-11.48	≤ 4.44	Pass

Note 1: When EUT duty cycle < 98%, the total AVGPSD = $10^{\log\{10^{(Ant 0 \text{ AVGPSD}/10)} + 10^{(Ant 1 \text{ AVGPSD}/10)}\}}$ or $10^{(Ant 2 \text{ AVGPSD}/10) + 10^{(Ant 3 \text{ AVGPSD}/10)}} + 10^{\log(1/\text{duty cycle})} + \text{Constant Factor.}$

Note 2: When EUT duty cycle > 98%, the total AVGPSD = $10^{\log\{10^{(Ant 0 \text{ AVGPSD}/10)} + 10^{(Ant 1 \text{ AVGPSD}/10)}\}}$ or $10^{(Ant 2 \text{ AVGPSD}/10) + 10^{(Ant 3 \text{ AVGPSD}/10)}} + \text{Constant Factor.}$

