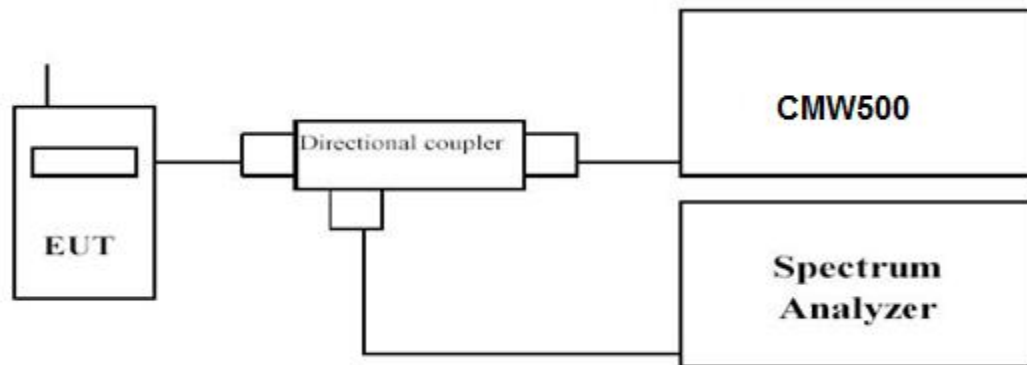


4.4 Band Edge compliance

LIMIT

Per FCC §24.238 the power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10\log(P)$ dB.

TEST CONFIGURATION



TEST PROCEDURE

1. The transmitter output port was connected to base station.
2. The RF output of EUT was connected to the power meter by RF cable and attenuator, the path loss was compensated to the results for each measurement.
3. Set EUT at maximum power through base station.
4. Select lowest and highest channels for each band and different modulation.
5. Measure Band edge using RMS (Average) detector by spectrum

TEST RESULTS

Band edge									
Band	Bandwidth (MHz)	UL Channel	RB Size	RB Position	Modulation	Spur Freq (MHz)	Spur Level (dBm)	Limit (dBm)	Verdict
Band5	1.4	20407	6	#0	QPSK	824.00	-40.49	-13	PASS
Band5	1.4	20407	6	#0	QAM16	824.00	-40.63	-13	PASS
Band5	1.4	20643	6	#0	QPSK	849.01	-36.51	-13	PASS
Band5	1.4	20643	6	#0	QAM16	849.00	-36.82	-13	PASS
Band5	3	20415	15	#0	QPSK	824.00	-30.21	-13	PASS
Band5	3	20415	15	#0	QAM16	824.00	-32.44	-13	PASS
Band5	3	20635	15	#0	QPSK	849.00	-30.24	-13	PASS
Band5	3	20635	15	#0	QAM16	849.01	-30.46	-13	PASS
Band5	5	20425	25	#0	QPSK	824.00	-36.11	-13	PASS
Band5	5	20425	25	#0	QAM16	824.00	-36.91	-13	PASS
Band5	5	20625	25	#0	QPSK	849.00	-33.52	-13	PASS
Band5	5	20625	25	#0	QAM16	849.03	-36.35	-13	PASS
Band5	10	20450	50	#0	QPSK	823.94	-32.84	-13	PASS
Band5	10	20450	50	#0	QAM16	824.00	-34.36	-13	PASS
Band5	10	20600	50	#0	QPSK	849.00	-36.15	-13	PASS
Band5	10	20600	50	#0	QAM16	849.00	-36.76	-13	PASS
Band38	5	37775	25	#0	QPSK	2569.00	-20.84	-10	PASS
Band38	5	37775	25	#0	QAM16	2568.99	-20.91	-10	PASS
Band38	5	38225	25	#0	QPSK	2621.01	-22.96	-10	PASS
Band38	5	38225	25	#0	QAM16	2621.04	-23.19	-10	PASS
Band38	10	37800	50	#0	QPSK	2558.66	-40.40	-25	PASS
Band38	10	37800	50	#0	QAM16	2559.77	-40.04	-25	PASS
Band38	10	38200	50	#0	QPSK	2630.23	-39.52	-25	PASS
Band38	10	38200	50	#0	QAM16	2630.16	-38.29	-25	PASS
Band38	15	37825	75	#0	QPSK	2551.44	-40.31	-25	PASS
Band38	15	37825	75	#0	QAM16	2554.19	-40.28	-25	PASS
Band38	15	38175	75	#0	QPSK	2635.59	-39.23	-25	PASS
Band38	15	38175	75	#0	QAM16	2638.23	-39.54	-25	PASS
Band38	20	37850	100	#0	QPSK	2549.68	-40.49	-25	PASS
Band38	20	37850	100	#0	QAM16	2548.28	-40.38	-25	PASS
Band38	20	38150	100	#0	QPSK	2642.35	-39.34	-25	PASS
Band38	20	38150	100	#0	QAM16	2643.72	-39.55	-25	PASS
Band40(2350-2360)	5	39175	25	#0	QPSK	2348.94	-17.55	-13	PASS
Band40(2350-2360)	5	39175	25	#0	QAM16	2348.99	-18.26	-13	PASS
Band40(2350-2360)	5	39225	25	#0	QPSK	2353.98	-15.46	-13	PASS
Band40(2350-2360)	5	39225	25	#0	QAM16	2361.07	-16.54	-13	PASS
Band40(2350-2360)	10	39200	50	#0	QPSK	2367.84	-45.13	-40	PASS
Band40(2350-2360)	10	39200	50	#0	QAM16	2365.24	-43.87	-40	PASS
Band40(2305-2315)	5	38725	25	#0	QPSK	2311.01	-25.27	-13	PASS
Band40(2305-2315)	5	38725	25	#0	QAM16	2304.00	-28.39	-13	PASS
Band40(2305-2315)	5	38775	25	#0	QPSK	2316.00	-27.19	-13	PASS
Band40(2305-2315)	5	38775	25	#0	QAM16	2308.98	-30.49	-13	PASS
Band40(2305-2315)	10	38750	50	#0	QPSK	2298.96	-44.01	-25	PASS
Band40(2305-2315)	10	38750	50	#0	QAM16	2299.37	-45.92	-25	PASS
Band41	5	39675	25	#0	QPSK	2489.22	-36.55	-25	PASS
Band41	5	39675	25	#0	QAM16	2489.45	-34.45	-25	PASS
Band41	5	41565	25	#0	QPSK	2691.00	-18.02	-10	PASS
Band41	5	41565	25	#0	QAM16	2691.00	-21.61	-10	PASS
Band41	10	39700	50	#0	QPSK	2485.67	-38.03	-25	PASS
Band41	10	39700	50	#0	QAM16	2485.99	-36.88	-25	PASS
Band41	10	41540	50	#0	QPSK	2700.42	-38.73	-25	PASS
Band41	10	41540	50	#0	QAM16	2700.91	-39.44	-25	PASS
Band41	15	39725	75	#0	QPSK	2480.88	-40.73	-25	PASS
Band41	15	39725	75	#0	QAM16	2480.80	-40.38	-25	PASS

Band41	15	41515	75	#0	QPSK	2705.41	-39.71	-25	PASS
Band41	15	41515	75	#0	QAM16	2706.49	-39.81	-25	PASS
Band41	20	39750	100	#0	QPSK	2473.95	-40.99	-25	PASS
Band41	20	39750	100	#0	QAM16	2471.33	-40.91	-25	PASS
Band41	20	41490	100	#0	QPSK	2711.55	-39.74	-25	PASS
Band41	20	41490	100	#0	QAM16	2711.44	-39.87	-25	PASS

Band5 QPSK BW=1.4MHz Channel=20407 RB Size=6 Position=#0

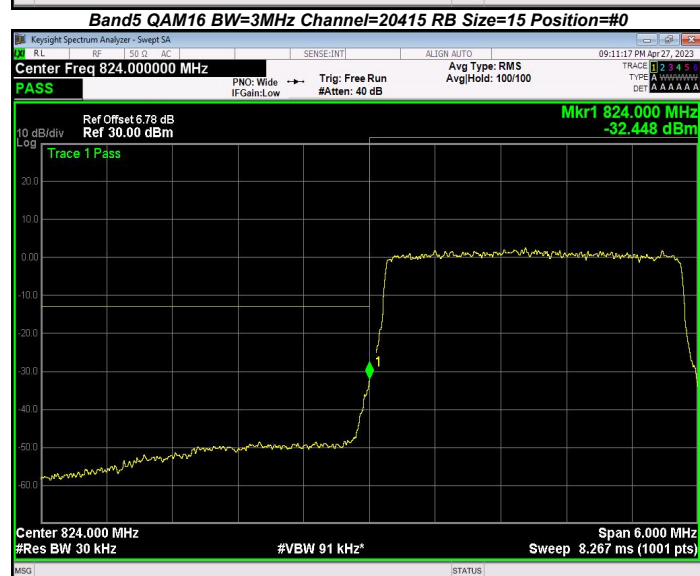
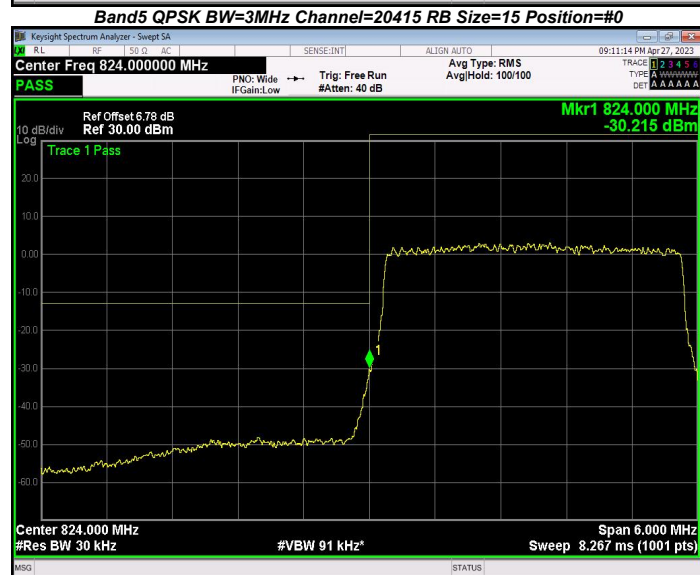


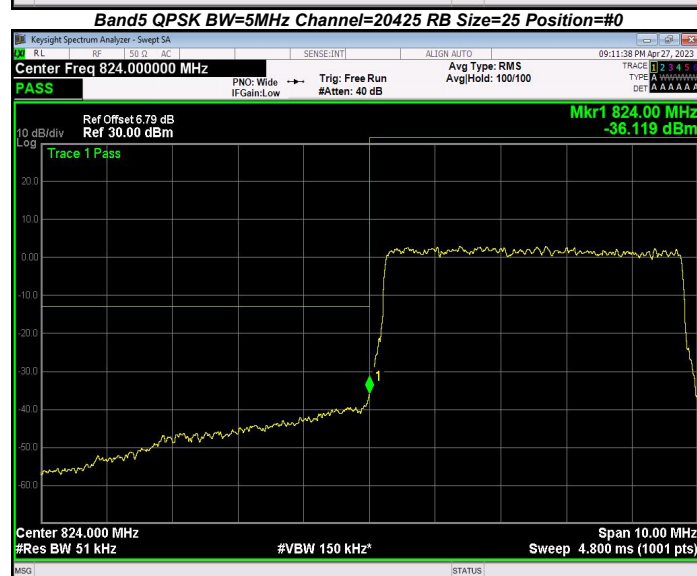
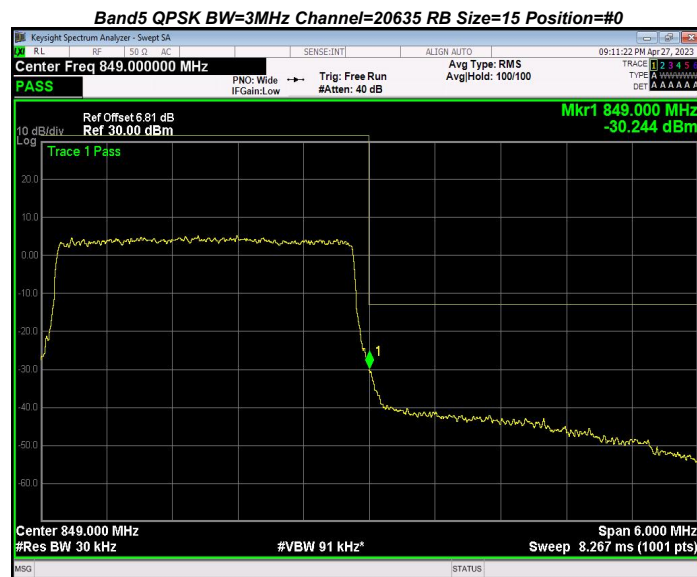
Band5 QAM16 BW=1.4MHz Channel=20407 RB Size=6 Position=#0

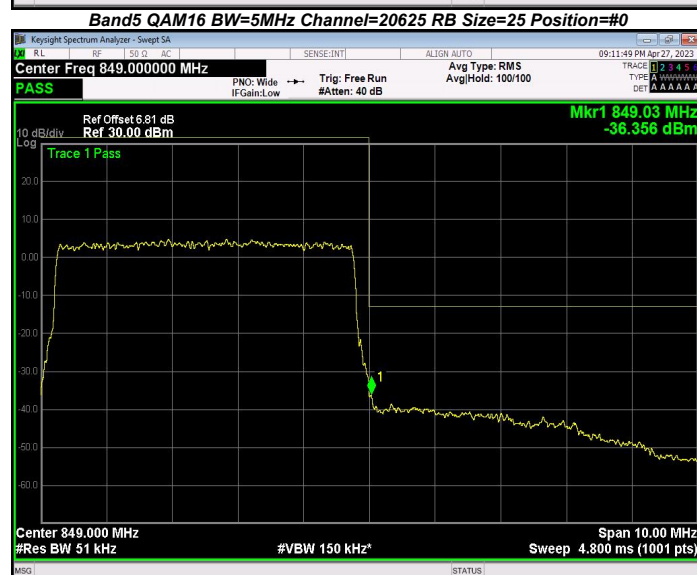
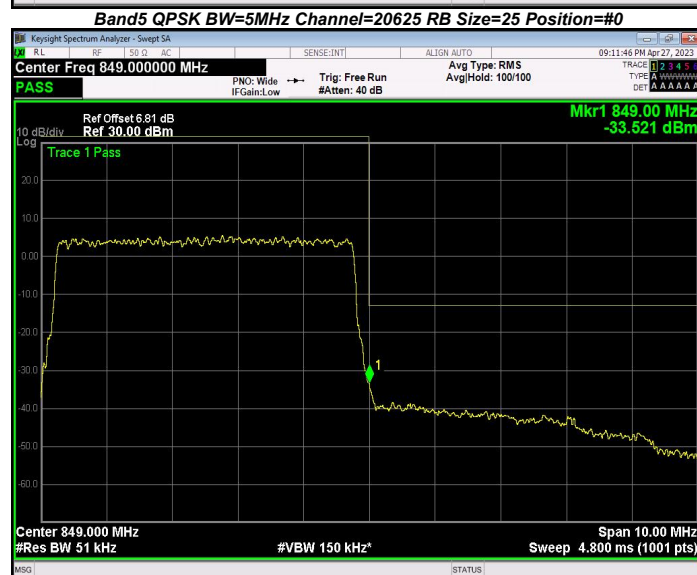
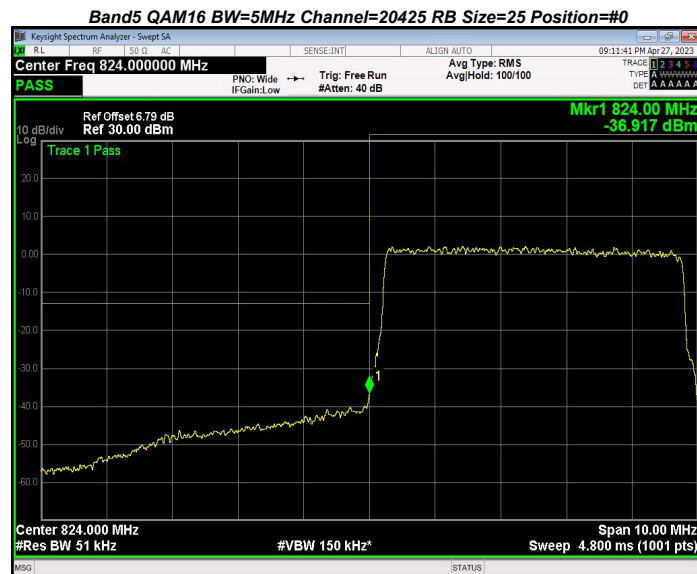


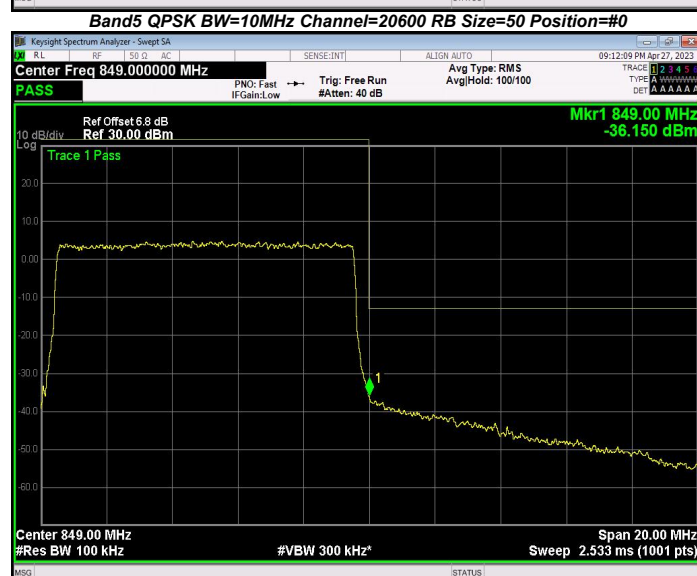
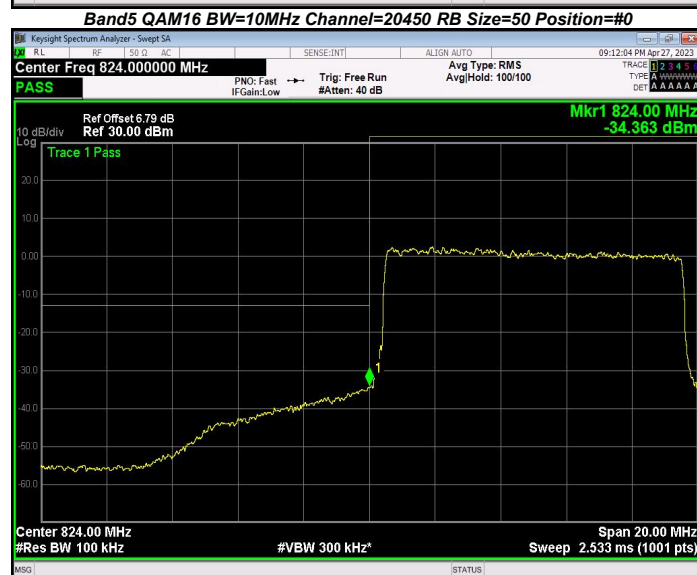
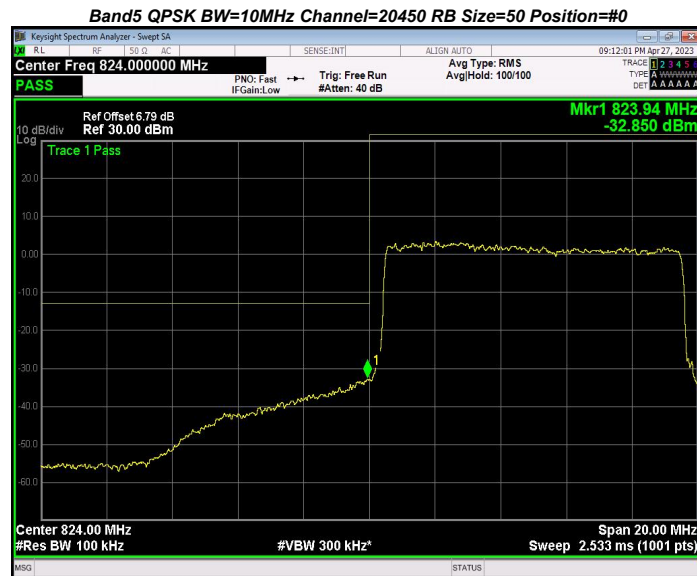
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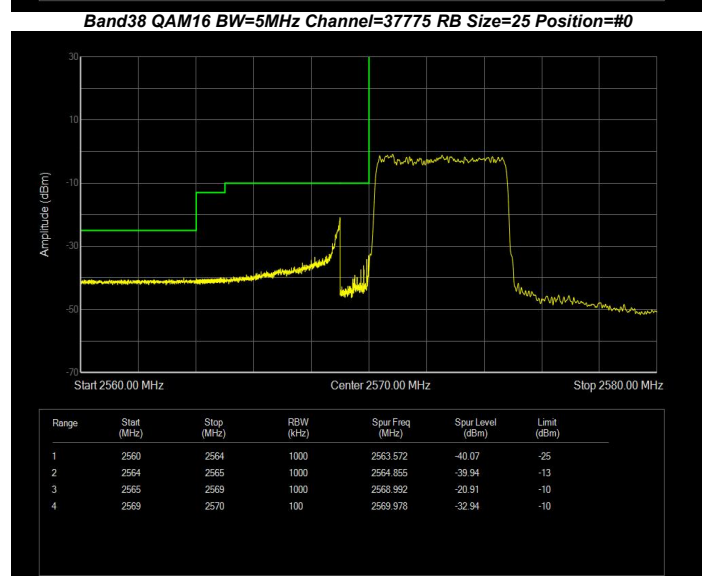
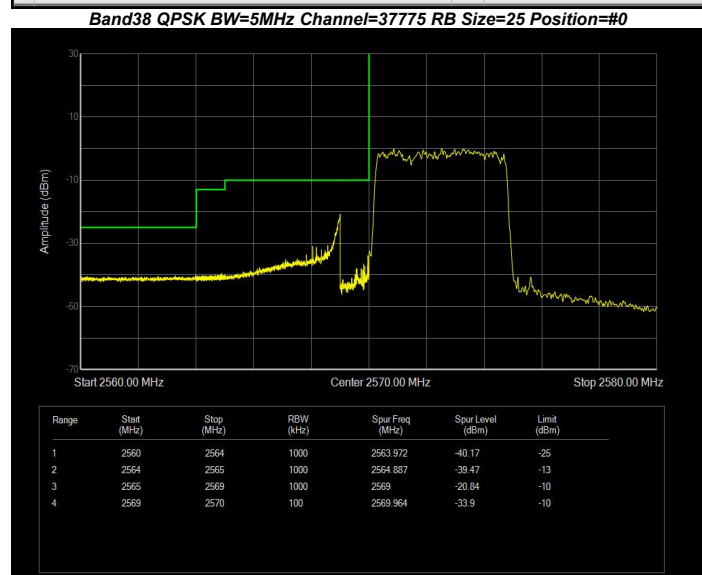
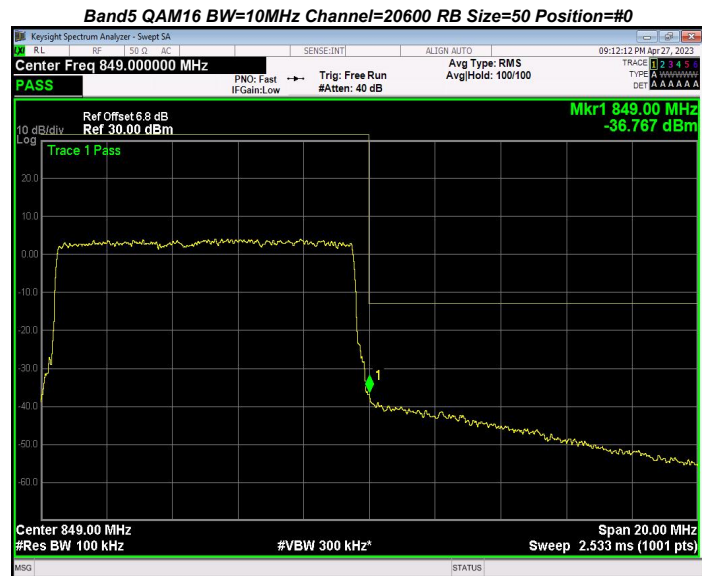


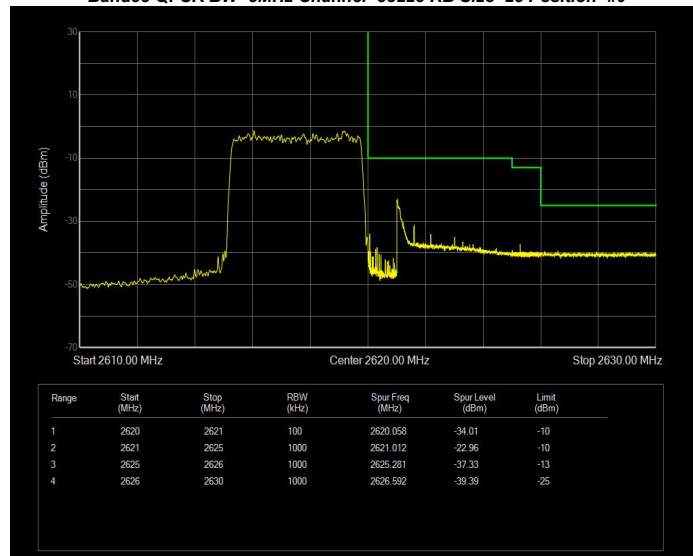
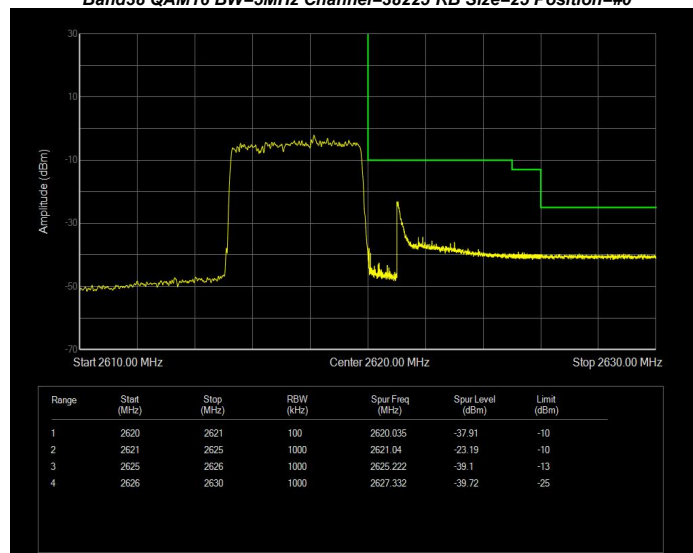
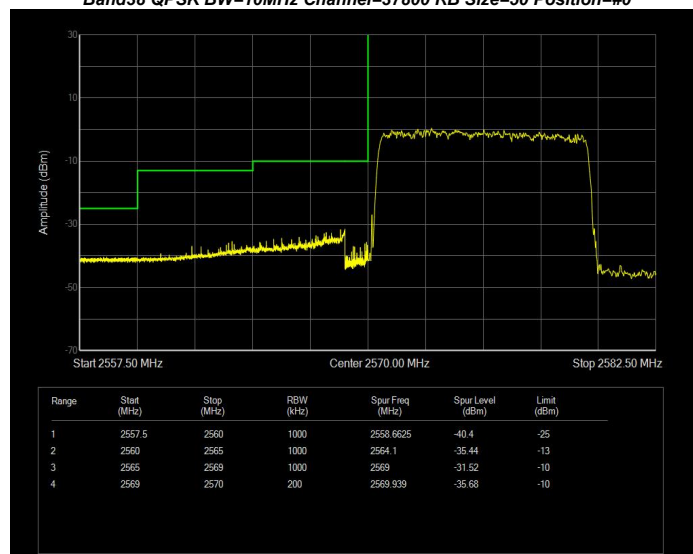


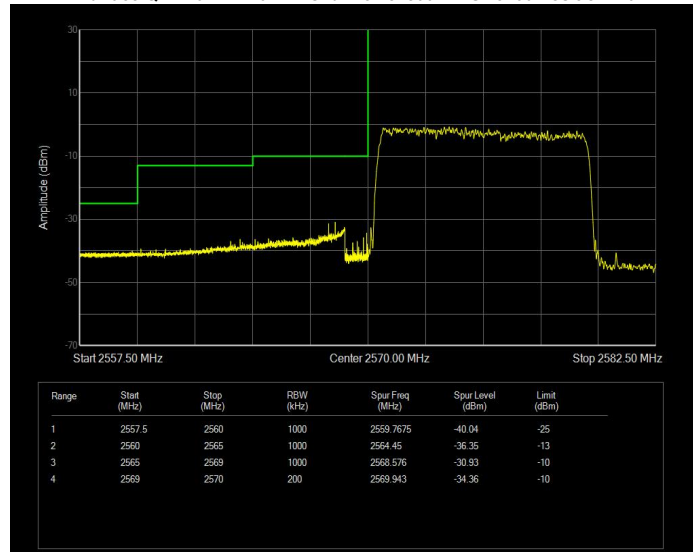
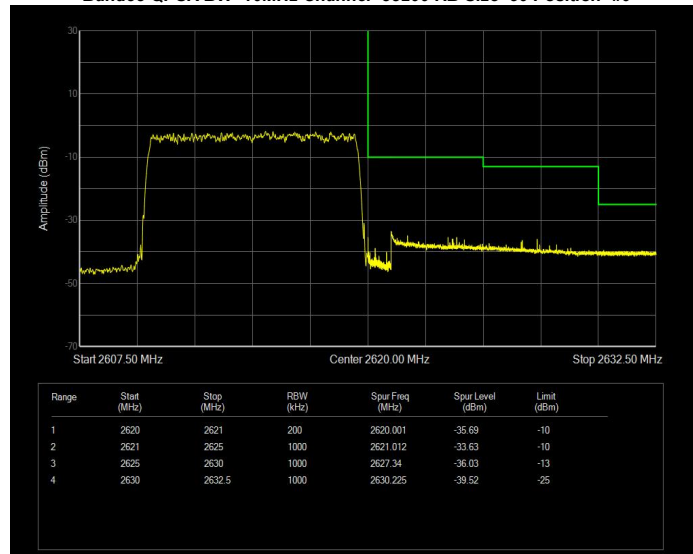
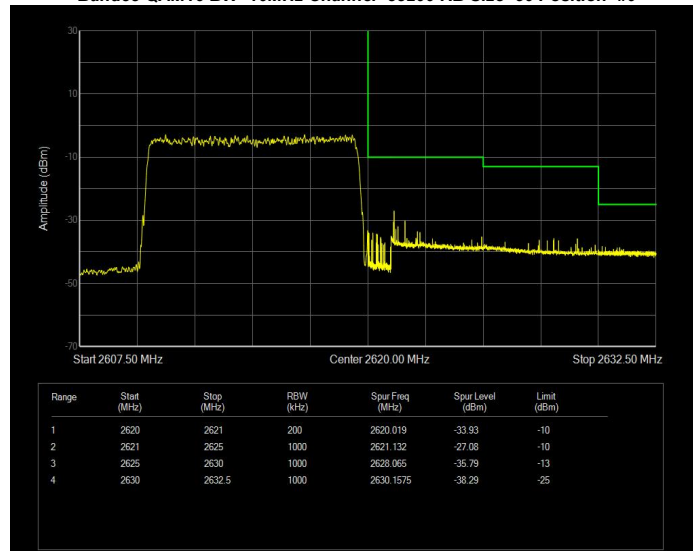


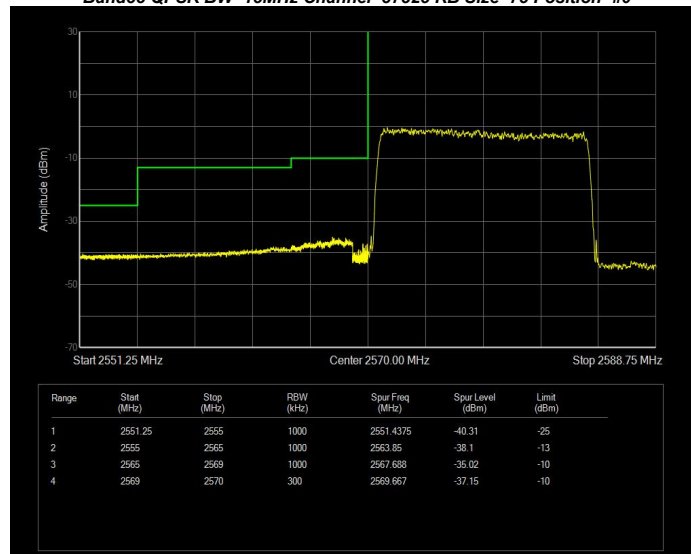
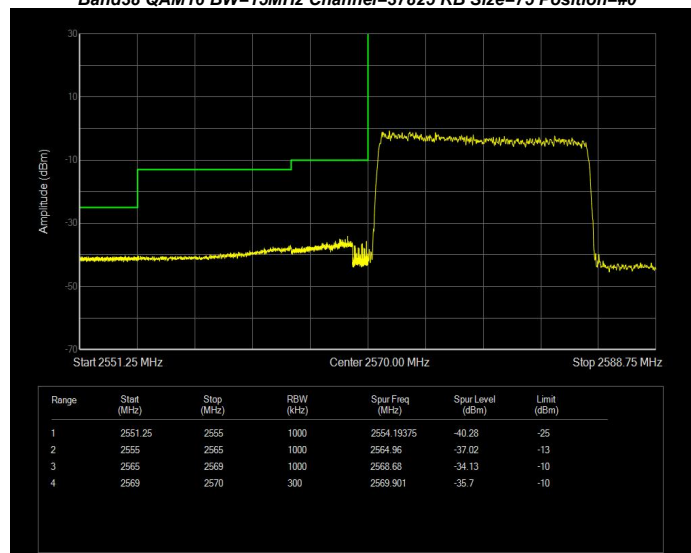
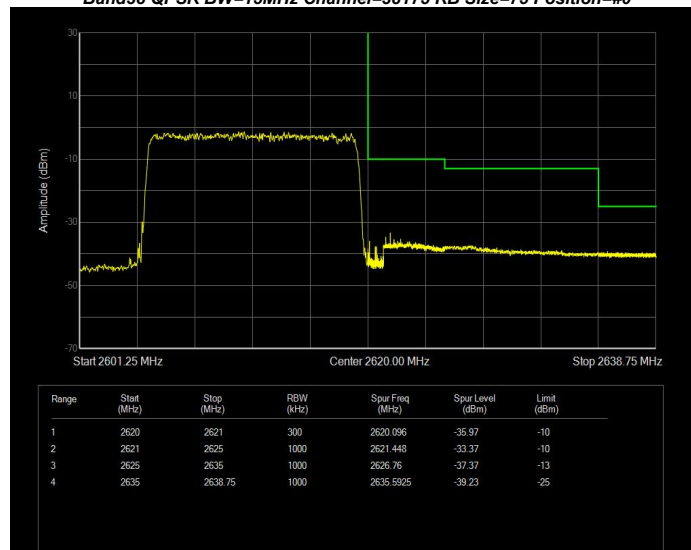


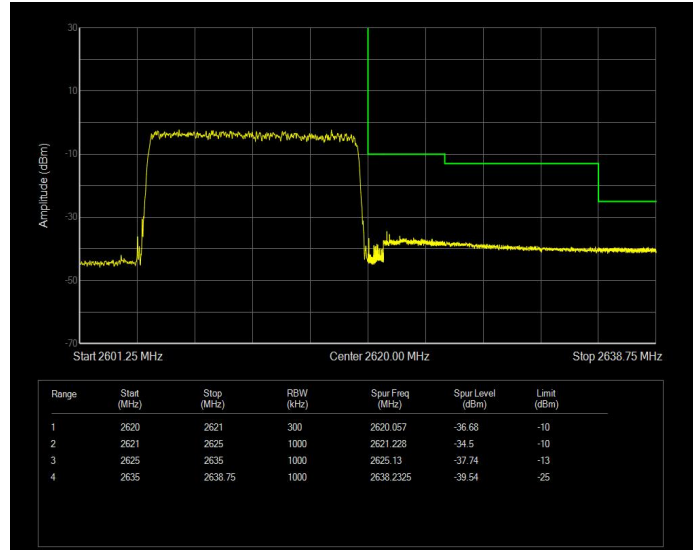
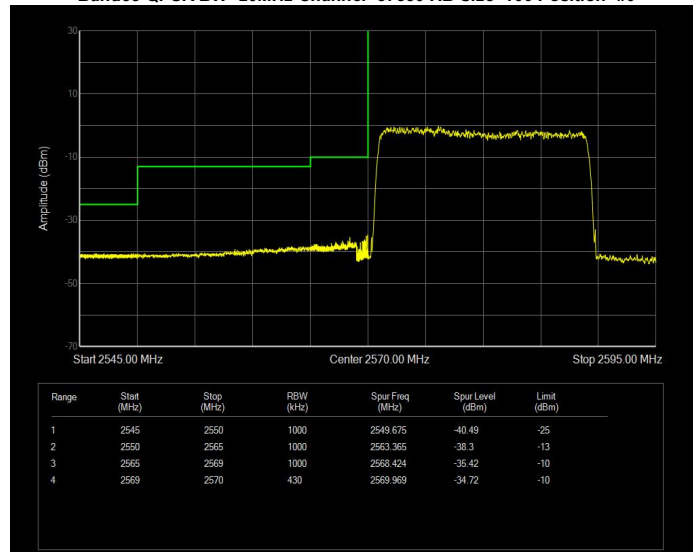
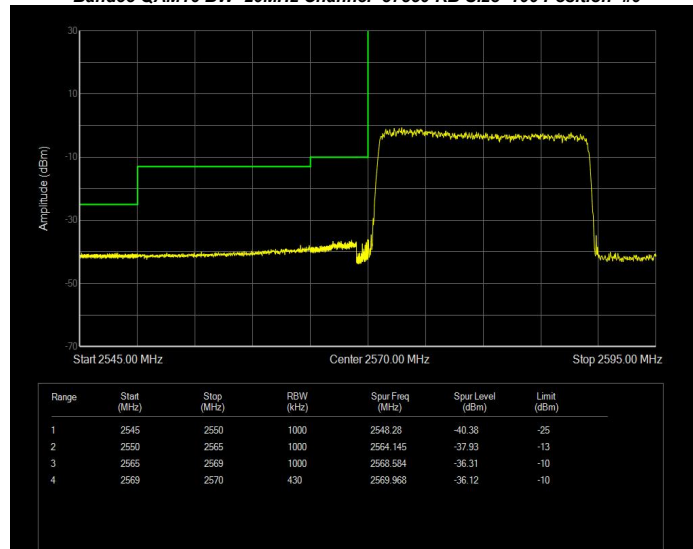


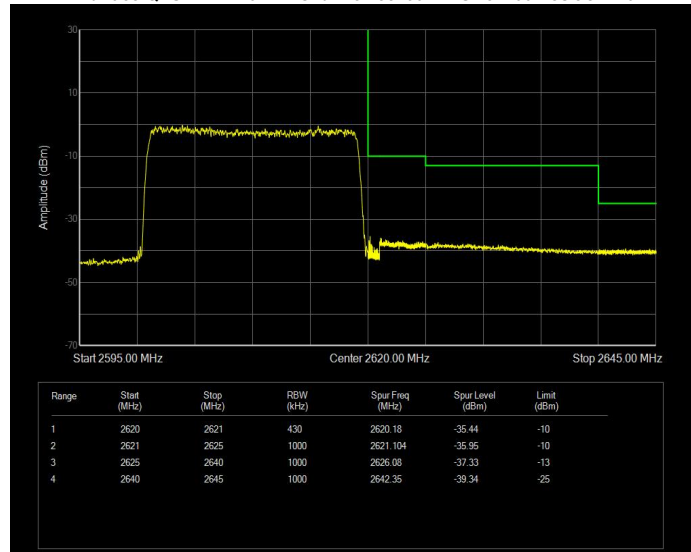
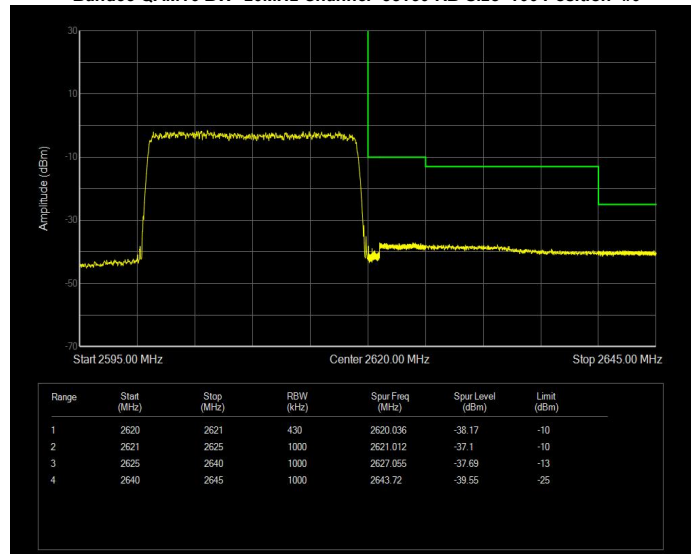
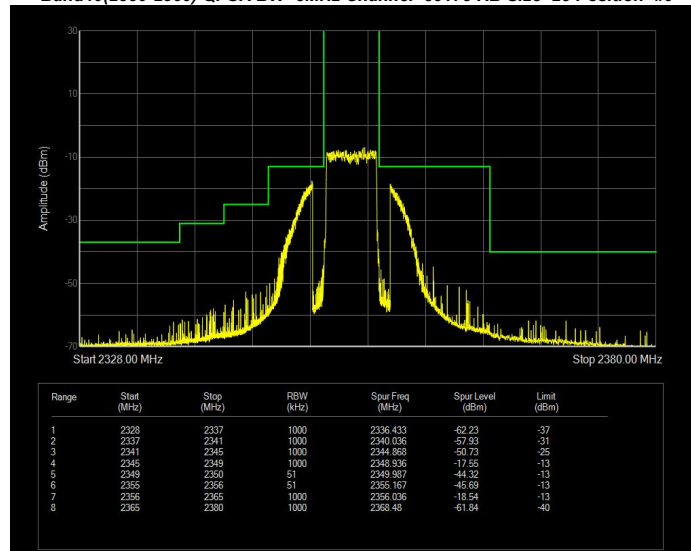


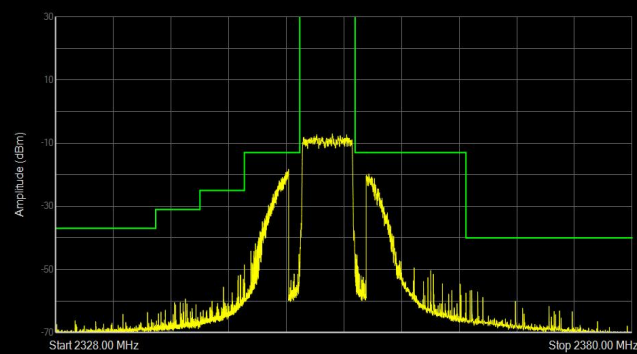
Band38 QPSK BW=5MHz Channel=38225 RB Size=25 Position=#0**Band38 QAM16 BW=5MHz Channel=38225 RB Size=25 Position=#0****Band38 QPSK BW=10MHz Channel=37800 RB Size=50 Position=#0**

Band38 QAM16 BW=10MHz Channel=37800 RB Size=50 Position=#0**Band38 QPSK BW=10MHz Channel=38200 RB Size=50 Position=#0****Band38 QAM16 BW=10MHz Channel=38200 RB Size=50 Position=#0**

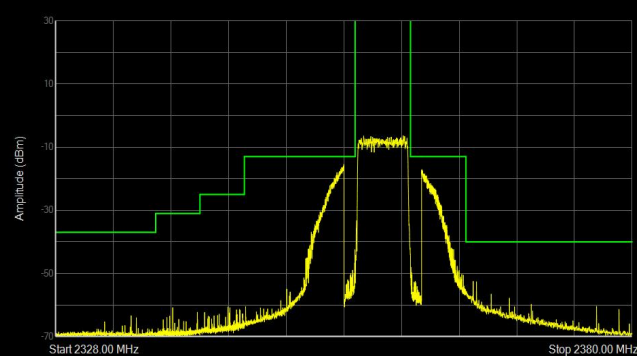
Band38 QPSK BW=15MHz Channel=37825 RB Size=75 Position=#0**Band38 QAM16 BW=15MHz Channel=37825 RB Size=75 Position=#0****Band38 QPSK BW=15MHz Channel=38175 RB Size=75 Position=#0**

Band38 QAM16 BW=15MHz Channel=38175 RB Size=75 Position=#0**Band38 QPSK BW=20MHz Channel=37850 RB Size=100 Position=#0****Band38 QAM16 BW=20MHz Channel=37850 RB Size=100 Position=#0**

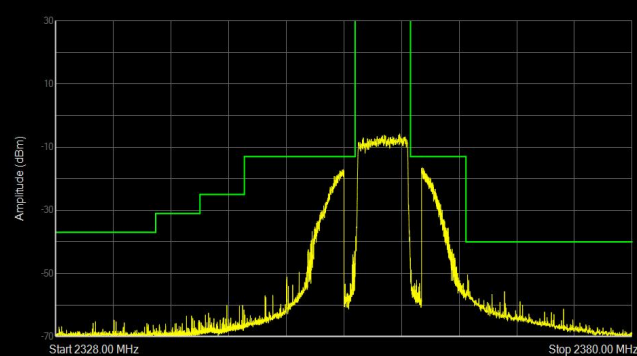
Band38 QPSK BW=20MHz Channel=38150 RB Size=100 Position=#0**Band38 QAM16 BW=20MHz Channel=38150 RB Size=100 Position=#0****Band40(2350-2360) QPSK BW=5MHz Channel=39175 RB Size=25 Position=#0**

Band40(2350-2360) QAM16 BW=5MHz Channel=39175 RB Size=25 Position=#0

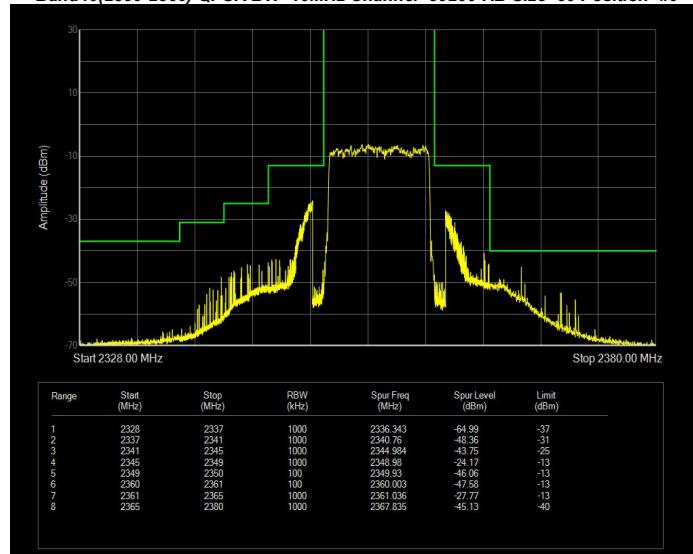
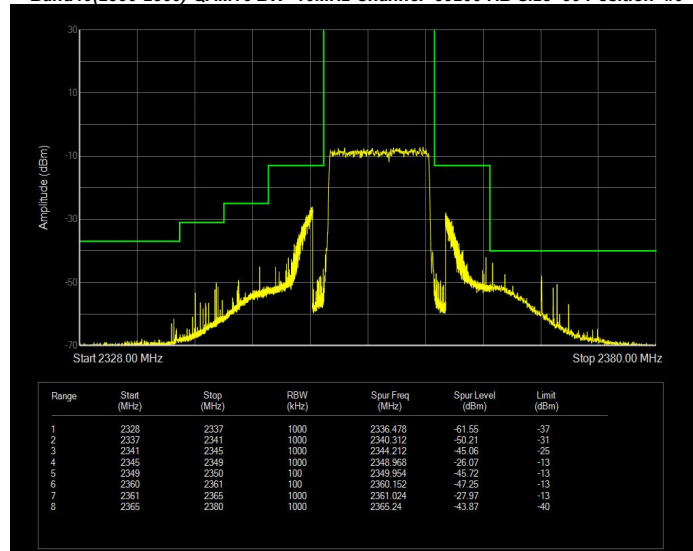
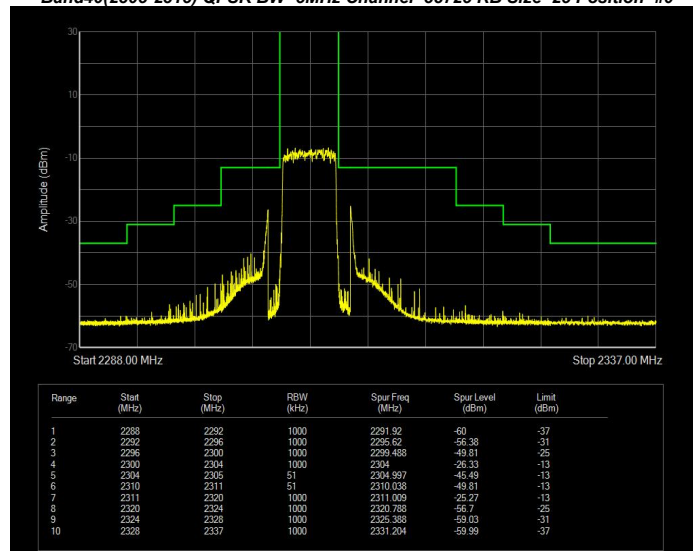
Range	Start (MHz)	Stop (MHz)	RBW (kHz)	Spur Freq (MHz)	Spur Level (dBm)	Limit (dBm)
1	2328	2337	1000	2336.262	-63.62	-37
2	2337	2341	1000	2339.68	-59.34	-31
3	2341	2345	1000	2344.648	-51.71	-25
4	2345	2349	1000	2348.992	-18.26	-13
5	2349	2350	51	2349.937	-45.83	-13
6	2350	2355	51	2350.059	-45.22	-13
7	2355	2365	1000	2356.243	-19.78	-13
8	2365	2380	1000	2365.525	-56.63	-40

Band40(2350-2360) QPSK BW=5MHz Channel=39225 RB Size=25 Position=#0

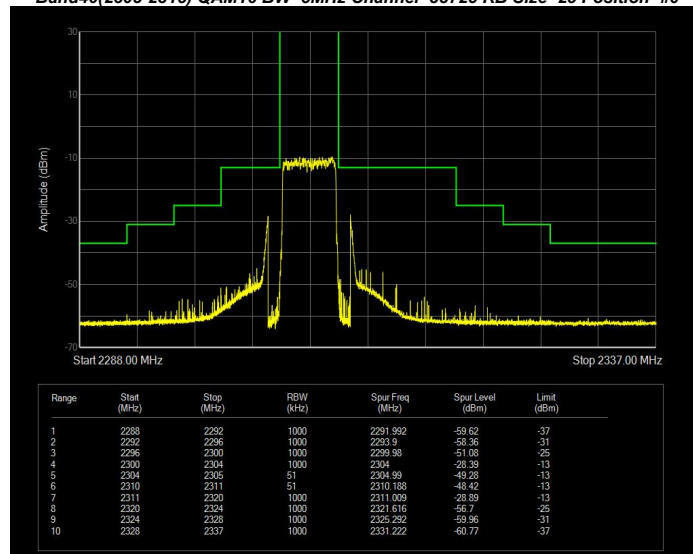
Range	Start (MHz)	Stop (MHz)	RBW (kHz)	Spur Freq (MHz)	Spur Level (dBm)	Limit (dBm)
1	2328	2337	1000	2334.786	-63.41	-37
2	2337	2341	1000	2338.54	-60.85	-31
3	2341	2345	1000	2343.52	-60.62	-25
4	2345	2349	1000	2353.982	-15.46	-13
5	2349	2350	51	2354.894	-42.5	-13
6	2350	2361	51	2360.033	-48.06	-13
7	2361	2365	1000	2361.028	-17.1	-13
8	2365	2380	1000	2365.66	-52.51	-40

Band40(2350-2360) QAM16 BW=5MHz Channel=39225 RB Size=25 Position=#0

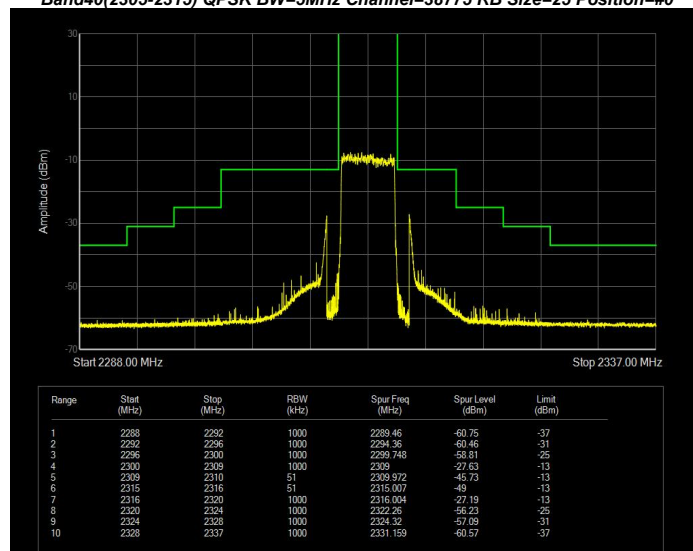
Range	Start (MHz)	Stop (MHz)	RBW (kHz)	Spur Freq (MHz)	Spur Level (dBm)	Limit (dBm)
1	2328	2337	1000	2333.247	-64.78	-37
2	2337	2341	1000	2340.236	-63.49	-31
3	2341	2345	1000	2344.844	-60.1	-25
4	2345	2349	1000	2353.919	-17.12	-13
5	2349	2350	51	2354.529	-42.86	-13
6	2350	2361	51	2360.001	-45.52	-13
7	2361	2365	1000	2361.069	-16.54	-13
8	2365	2380	1000	2365.15	-50.43	-40

Band40(2350-2360) QPSK BW=10MHz Channel=39200 RB Size=50 Position=#0**Band40(2350-2360) QAM16 BW=10MHz Channel=39200 RB Size=50 Position=#0****Band40(2305-2315) QPSK BW=5MHz Channel=38725 RB Size=25 Position=#0**

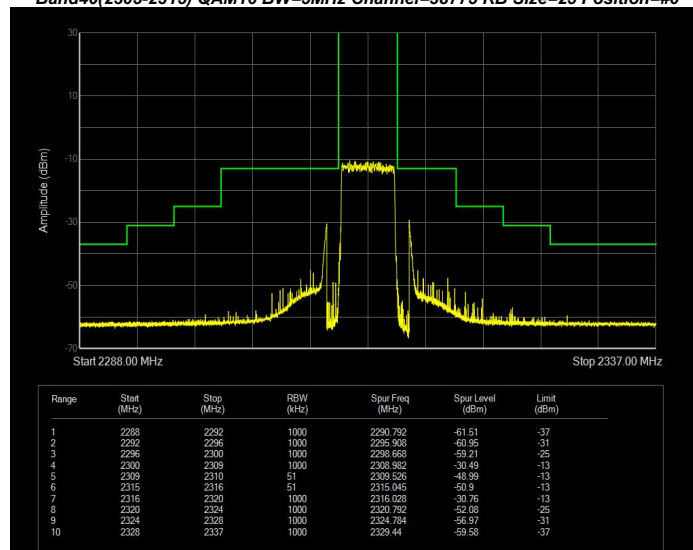
Band40(2305-2315) QAM16 BW=5MHz Channel=38725 RB Size=25 Position=#0

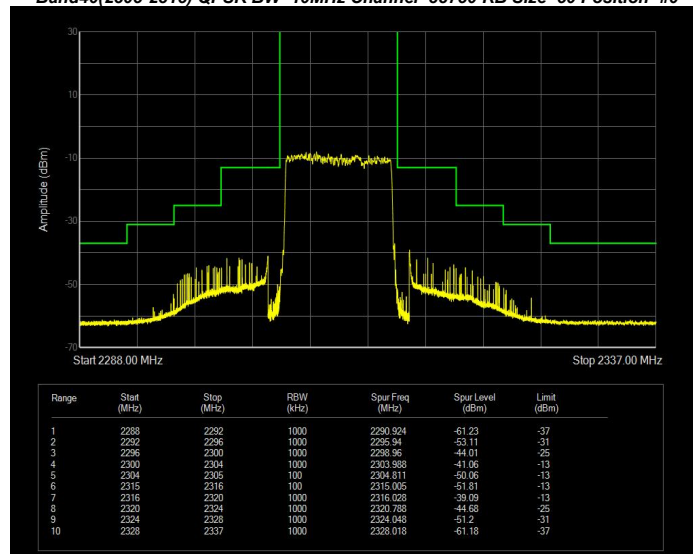
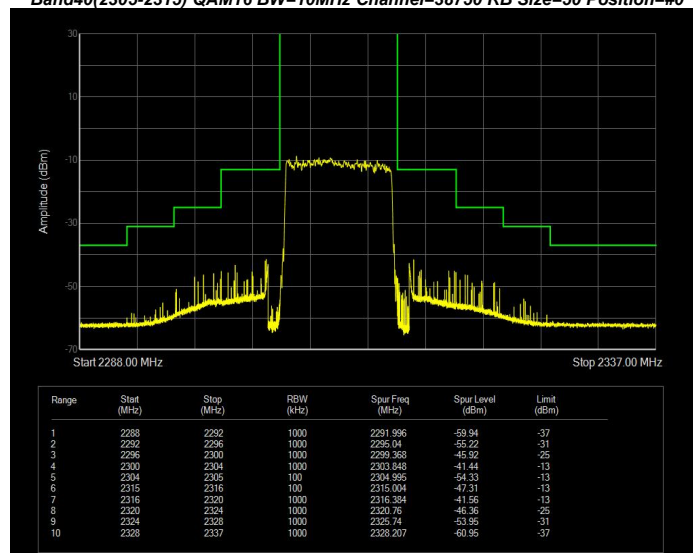
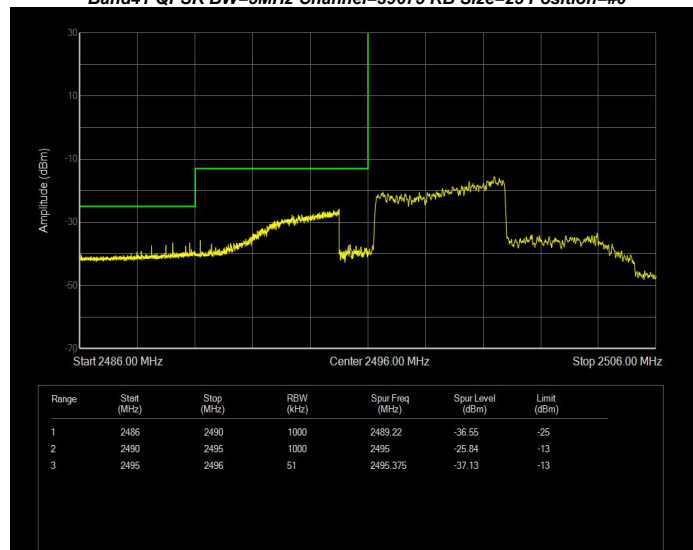


Band40(2305-2315) QPSK BW=5MHz Channel=38775 RB Size=25 Position=#0

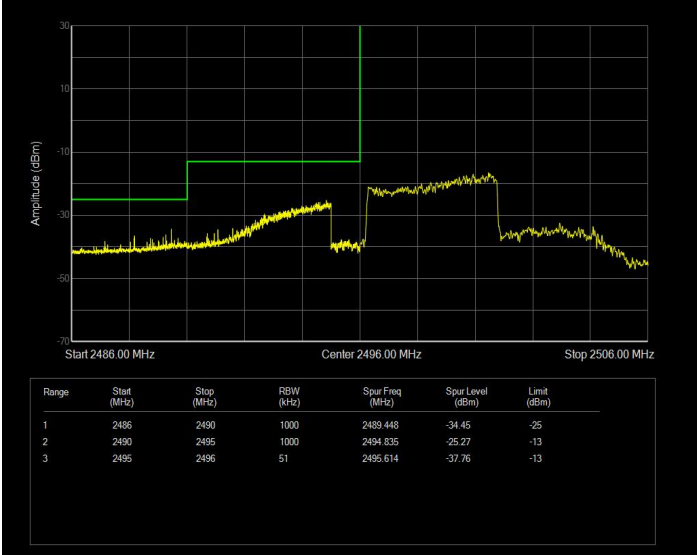


Band40(2305-2315) QAM16 BW=5MHz Channel=38775 RB Size=25 Position=#0

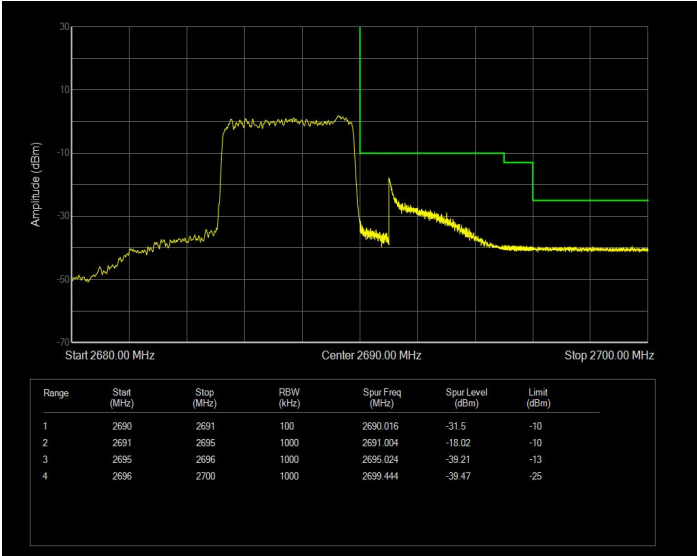


Band40(2305-2315) QPSK BW=10MHz Channel=38750 RB Size=50 Position=#0**Band40(2305-2315) QAM16 BW=10MHz Channel=38750 RB Size=50 Position=#0****Band41 QPSK BW=5MHz Channel=39675 RB Size=25 Position=#0**

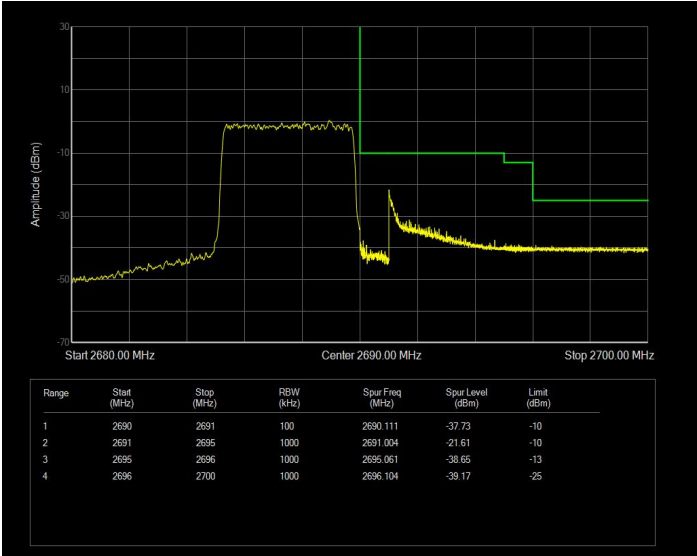
Band41 QAM16 BW=5MHz Channel=39675 RB Size=25 Position=#0

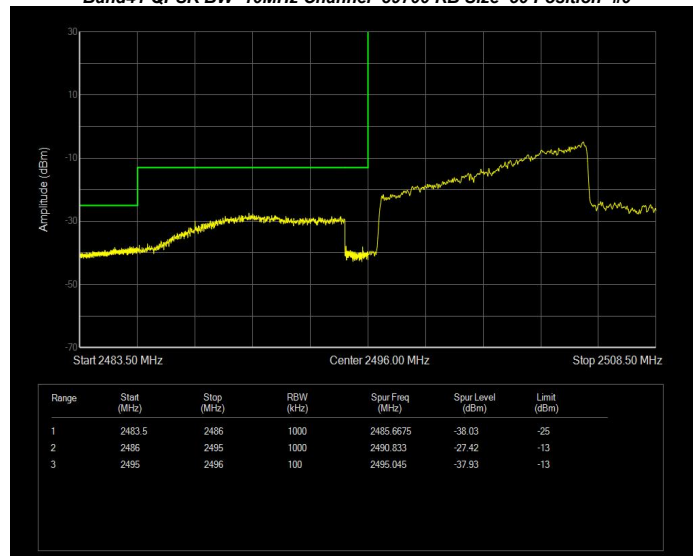
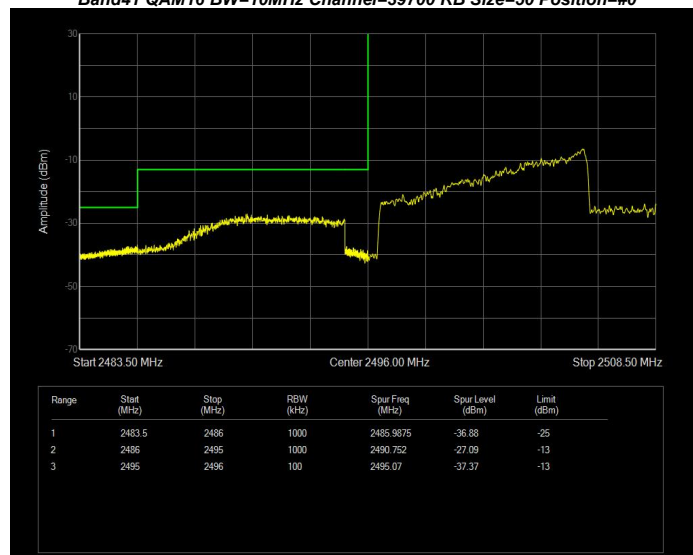
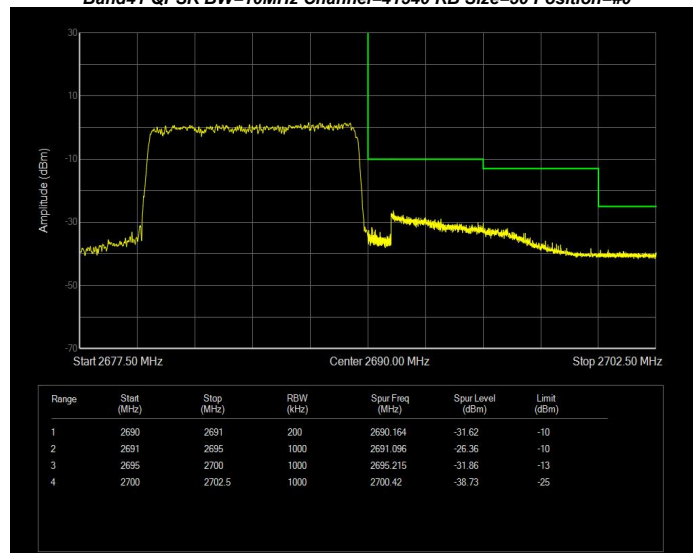


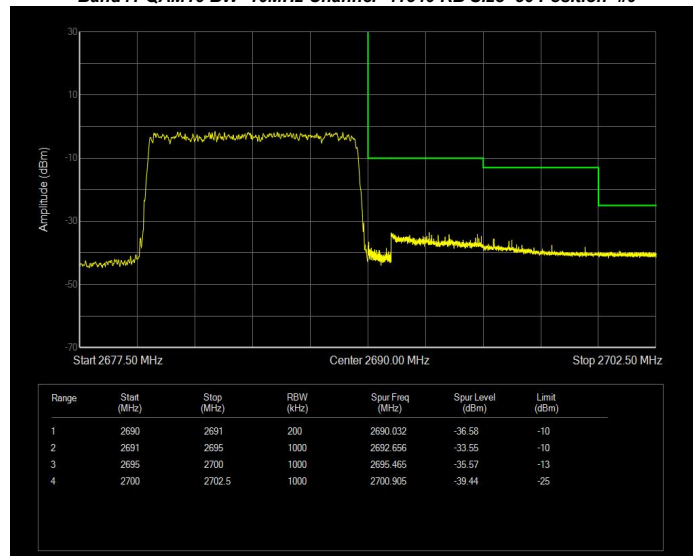
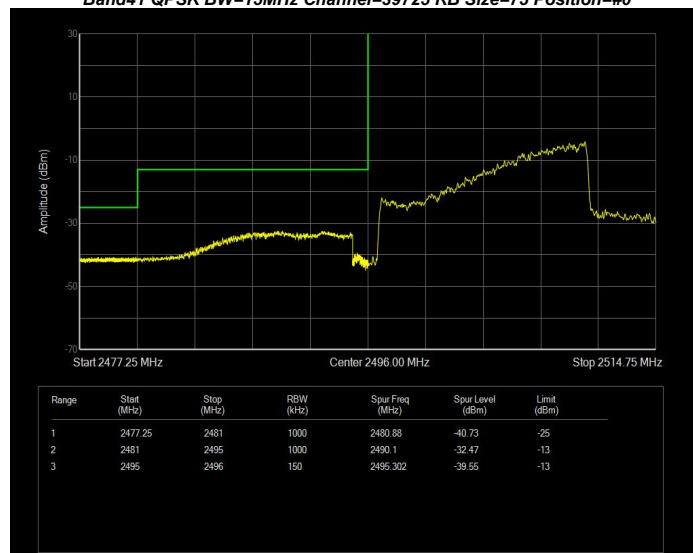
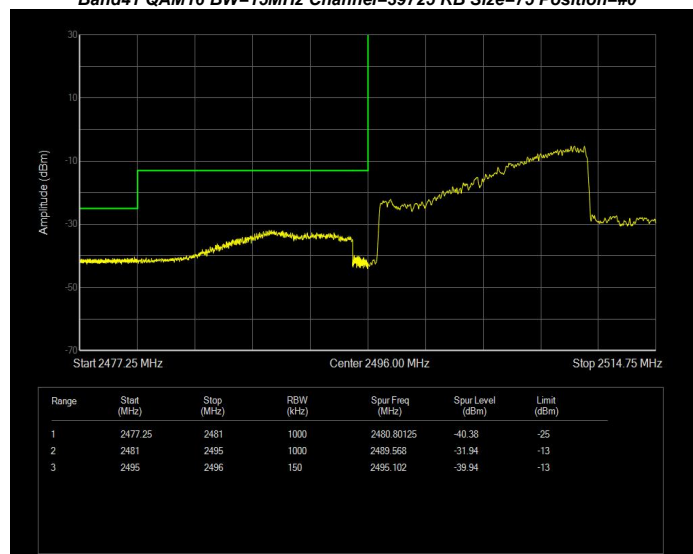
Band41 QPSK BW=5MHz Channel=41565 RB Size=25 Position=#0

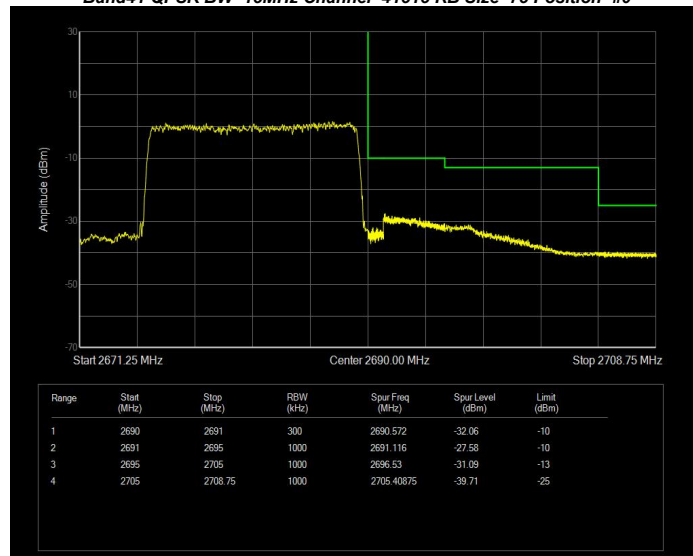
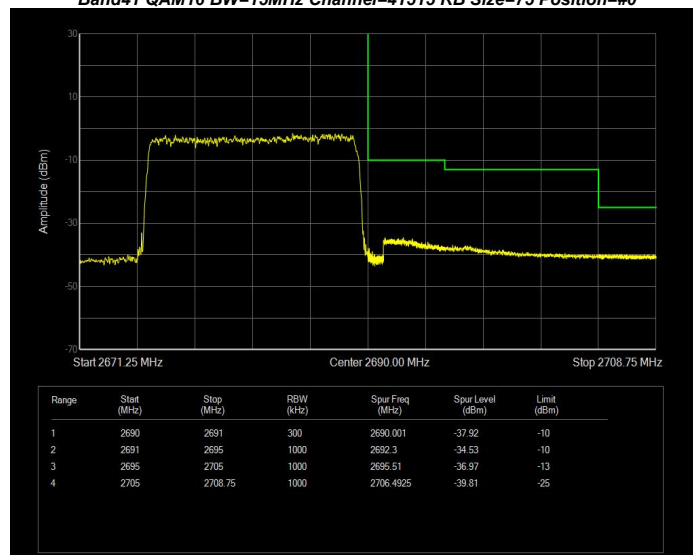
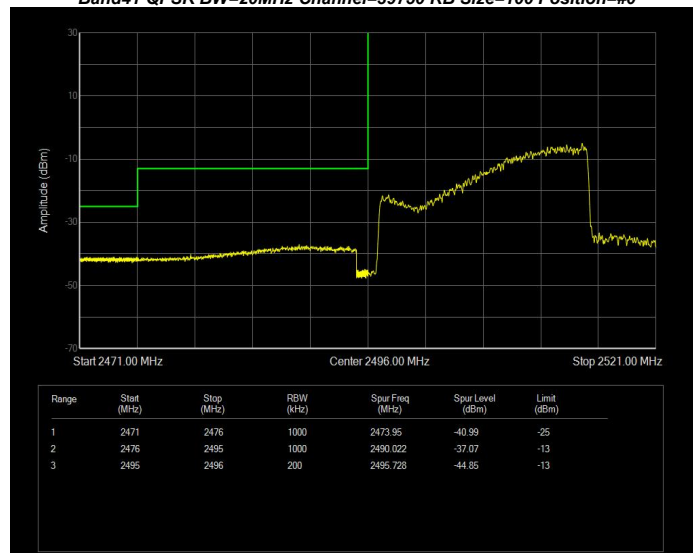


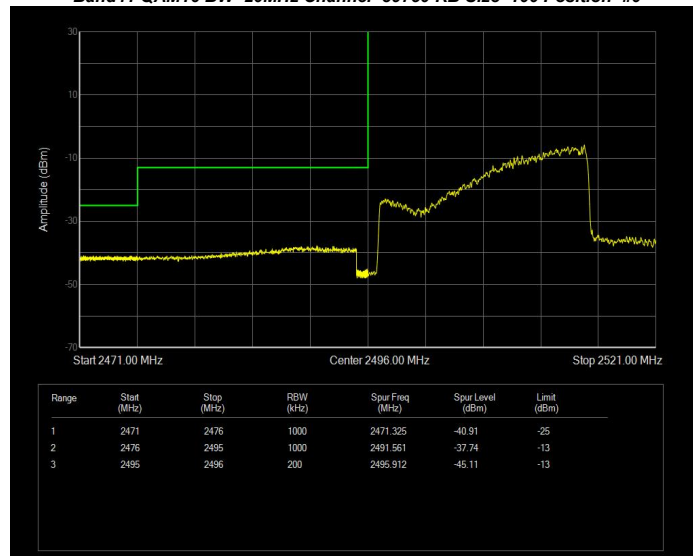
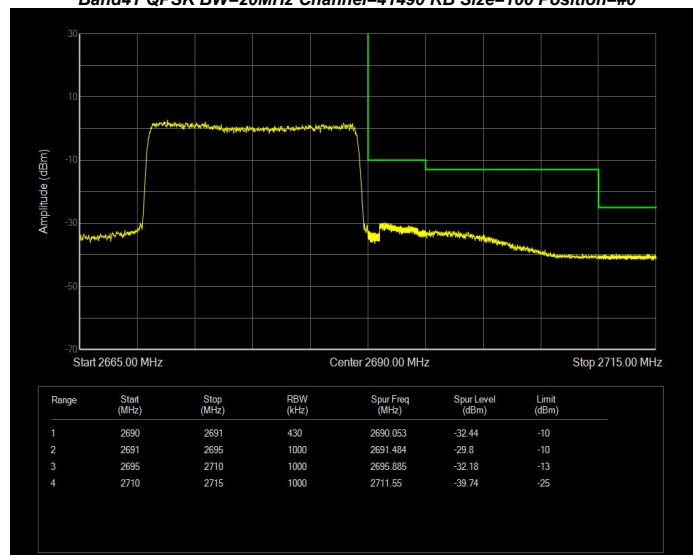
Band41 QAM16 BW=5MHz Channel=41565 RB Size=25 Position=#0



Band41 QPSK BW=10MHz Channel=39700 RB Size=50 Position=#0**Band41 QAM16 BW=10MHz Channel=39700 RB Size=50 Position=#0****Band41 QPSK BW=10MHz Channel=41540 RB Size=50 Position=#0**

Band41 QAM16 BW=10MHz Channel=41540 RB Size=50 Position=#0**Band41 QPSK BW=15MHz Channel=39725 RB Size=75 Position=#0****Band41 QAM16 BW=15MHz Channel=39725 RB Size=75 Position=#0**

Band41 QPSK BW=15MHz Channel=41515 RB Size=75 Position=#0**Band41 QAM16 BW=15MHz Channel=41515 RB Size=75 Position=#0****Band41 QPSK BW=20MHz Channel=39750 RB Size=100 Position=#0**

Band41 QAM16 BW=20MHz Channel=39750 RB Size=100 Position=#0**Band41 QPSK BW=20MHz Channel=41490 RB Size=100 Position=#0****Band41 QAM16 BW=20MHz Channel=41490 RB Size=100 Position=#0**