

Appendix-A LTE Cat M1 Band 5

Effective (Isotropic) Radiated Power Output Data for M1

Test Result

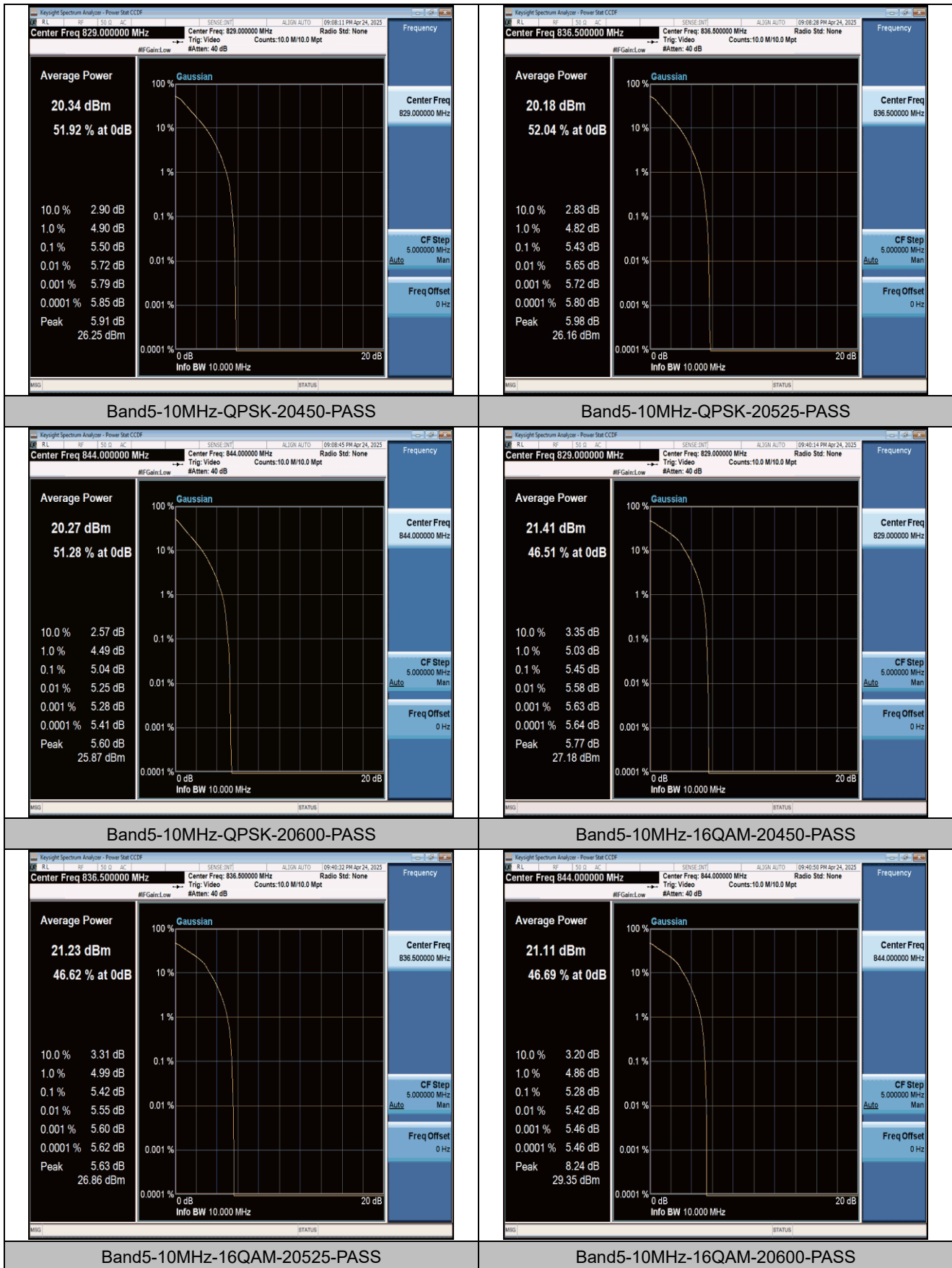
Band	Bandwidth	Modulation	Channel	RB Size	RB Start	NBIndex	Power (dBm)	ERP (dBm)	Limit (dBm)	Verdict
Band5	1.4MHz	QPSK	20407	1	0	Low	21.04	21.42	38.45	PASS
Band5	1.4MHz	QPSK	20407	1	5	Low	20.72	21.1	38.45	PASS
Band5	1.4MHz	QPSK	20407	6	0	Low	18.93	19.31	38.45	PASS
Band5	1.4MHz	QPSK	20525	1	0	Low	20.89	21.27	38.45	PASS
Band5	1.4MHz	QPSK	20525	1	5	Low	20.33	20.71	38.45	PASS
Band5	1.4MHz	QPSK	20525	6	0	Low	18.63	19.01	38.45	PASS
Band5	1.4MHz	QPSK	20643	1	0	High	20.58	20.96	38.45	PASS
Band5	1.4MHz	QPSK	20643	1	5	High	20.20	20.58	38.45	PASS
Band5	1.4MHz	QPSK	20643	6	0	High	18.51	18.89	38.45	PASS
Band5	3MHz	QPSK	20415	1	0	Low	21.09	21.47	38.45	PASS
Band5	3MHz	QPSK	20415	1	5	Low	20.76	21.14	38.45	PASS
Band5	3MHz	QPSK	20415	6	0	Low	18.96	19.34	38.45	PASS
Band5	3MHz	QPSK	20525	1	0	Low	20.85	21.23	38.45	PASS
Band5	3MHz	QPSK	20525	1	5	Low	20.31	20.69	38.45	PASS
Band5	3MHz	QPSK	20525	6	0	Low	18.68	19.06	38.45	PASS
Band5	3MHz	QPSK	20635	1	0	High	20.64	21.02	38.45	PASS
Band5	3MHz	QPSK	20635	1	5	High	20.29	20.67	38.45	PASS
Band5	3MHz	QPSK	20635	6	0	High	18.63	19.01	38.45	PASS
Band5	5MHz	QPSK	20425	1	0	Low	21.03	21.41	38.45	PASS
Band5	5MHz	QPSK	20425	1	5	Low	20.82	21.2	38.45	PASS
Band5	5MHz	QPSK	20425	6	0	Low	20.03	20.41	38.45	PASS
Band5	5MHz	QPSK	20525	1	0	Low	20.85	21.23	38.45	PASS
Band5	5MHz	QPSK	20525	1	5	Low	20.47	20.85	38.45	PASS
Band5	5MHz	QPSK	20525	6	0	Low	19.79	20.17	38.45	PASS
Band5	5MHz	QPSK	20625	1	0	High	20.57	20.95	38.45	PASS
Band5	5MHz	QPSK	20625	1	5	High	20.33	20.71	38.45	PASS
Band5	5MHz	QPSK	20625	6	0	High	19.69	20.07	38.45	PASS
Band5	10MHz	QPSK	20450	1	0	Low	20.99	21.37	38.45	PASS
Band5	10MHz	QPSK	20450	1	5	Low	20.77	21.15	38.45	PASS
Band5	10MHz	QPSK	20450	6	0	Low	20.05	20.43	38.45	PASS
Band5	10MHz	QPSK	20525	1	0	Low	20.91	21.29	38.45	PASS
Band5	10MHz	QPSK	20525	1	5	Low	20.62	21	38.45	PASS
Band5	10MHz	QPSK	20525	6	0	Low	19.84	20.22	38.45	PASS
Band5	10MHz	QPSK	20600	1	0	High	20.47	20.85	38.45	PASS
Band5	10MHz	QPSK	20600	1	5	High	20.24	20.62	38.45	PASS
Band5	10MHz	QPSK	20600	6	0	High	19.64	20.02	38.45	PASS
Band5	1.4MHz	16QAM	20407	1	0	Low	20.02	20.4	38.45	PASS

Band5	1.4MHz	16QAM	20407	1	5	Low	19.79	20.17	38.45	PASS
Band5	1.4MHz	16QAM	20407	5	0	Low	19.21	19.59	38.45	PASS
Band5	1.4MHz	16QAM	20525	1	0	Low	19.83	20.21	38.45	PASS
Band5	1.4MHz	16QAM	20525	1	5	Low	19.32	19.7	38.45	PASS
Band5	1.4MHz	16QAM	20525	5	0	Low	18.83	19.21	38.45	PASS
Band5	1.4MHz	16QAM	20643	1	0	High	19.60	19.98	38.45	PASS
Band5	1.4MHz	16QAM	20643	1	5	High	19.16	19.54	38.45	PASS
Band5	1.4MHz	16QAM	20643	5	0	High	18.71	19.09	38.45	PASS
Band5	3MHz	16QAM	20415	1	0	Low	19.95	20.33	38.45	PASS
Band5	3MHz	16QAM	20415	1	5	Low	19.72	20.1	38.45	PASS
Band5	3MHz	16QAM	20415	5	0	Low	19.20	19.58	38.45	PASS
Band5	3MHz	16QAM	20525	1	0	Low	19.87	20.25	38.45	PASS
Band5	3MHz	16QAM	20525	1	5	Low	19.30	19.68	38.45	PASS
Band5	3MHz	16QAM	20525	5	0	Low	18.81	19.19	38.45	PASS
Band5	3MHz	16QAM	20635	1	0	High	19.66	20.04	38.45	PASS
Band5	3MHz	16QAM	20635	1	5	High	19.24	19.62	38.45	PASS
Band5	3MHz	16QAM	20635	5	0	High	18.78	19.16	38.45	PASS
Band5	5MHz	16QAM	20425	1	0	Low	21.31	21.69	38.45	PASS
Band5	5MHz	16QAM	20425	1	5	Low	20.98	21.36	38.45	PASS
Band5	5MHz	16QAM	20425	5	0	Low	20.03	20.41	38.45	PASS
Band5	5MHz	16QAM	20525	1	0	Low	20.86	21.24	38.45	PASS
Band5	5MHz	16QAM	20525	1	5	Low	20.59	20.97	38.45	PASS
Band5	5MHz	16QAM	20525	5	0	Low	19.72	20.1	38.45	PASS
Band5	5MHz	16QAM	20625	1	0	High	20.80	21.18	38.45	PASS
Band5	5MHz	16QAM	20625	1	5	High	20.43	20.81	38.45	PASS
Band5	5MHz	16QAM	20625	5	0	High	19.54	19.92	38.45	PASS
Band5	10MHz	16QAM	20450	1	0	Low	21.12	21.5	38.45	PASS
Band5	10MHz	16QAM	20450	1	5	Low	20.81	21.19	38.45	PASS
Band5	10MHz	16QAM	20450	5	0	Low	20.98	21.36	38.45	PASS
Band5	10MHz	16QAM	20525	1	0	Low	20.88	21.26	38.45	PASS
Band5	10MHz	16QAM	20525	1	5	Low	20.59	20.97	38.45	PASS
Band5	10MHz	16QAM	20525	5	0	Low	20.69	21.07	38.45	PASS
Band5	10MHz	16QAM	20600	1	0	High	20.44	20.82	38.45	PASS
Band5	10MHz	16QAM	20600	1	5	High	20.12	20.5	38.45	PASS
Band5	10MHz	16QAM	20600	5	0	High	20.26	20.64	38.45	PASS

Peak-to-Average Ratio(CCDF) for M1**Test Result**

Band	Bandwidth	Modulation	Channel	RB Size	RB Start	NBIndex	Result(dB)	Limit(dB)	Verdict
Band5	10MHz	QPSK	20450	6	0	Low	5.50	<=13	PASS
Band5	10MHz	QPSK	20525	6	0	Low	5.43	<=13	PASS
Band5	10MHz	QPSK	20600	6	0	High	5.04	<=13	PASS
Band5	10MHz	16QAM	20450	5	0	Low	5.45	<=13	PASS
Band5	10MHz	16QAM	20525	5	0	Low	5.42	<=13	PASS
Band5	10MHz	16QAM	20600	5	0	High	5.28	<=13	PASS

Test Graphs

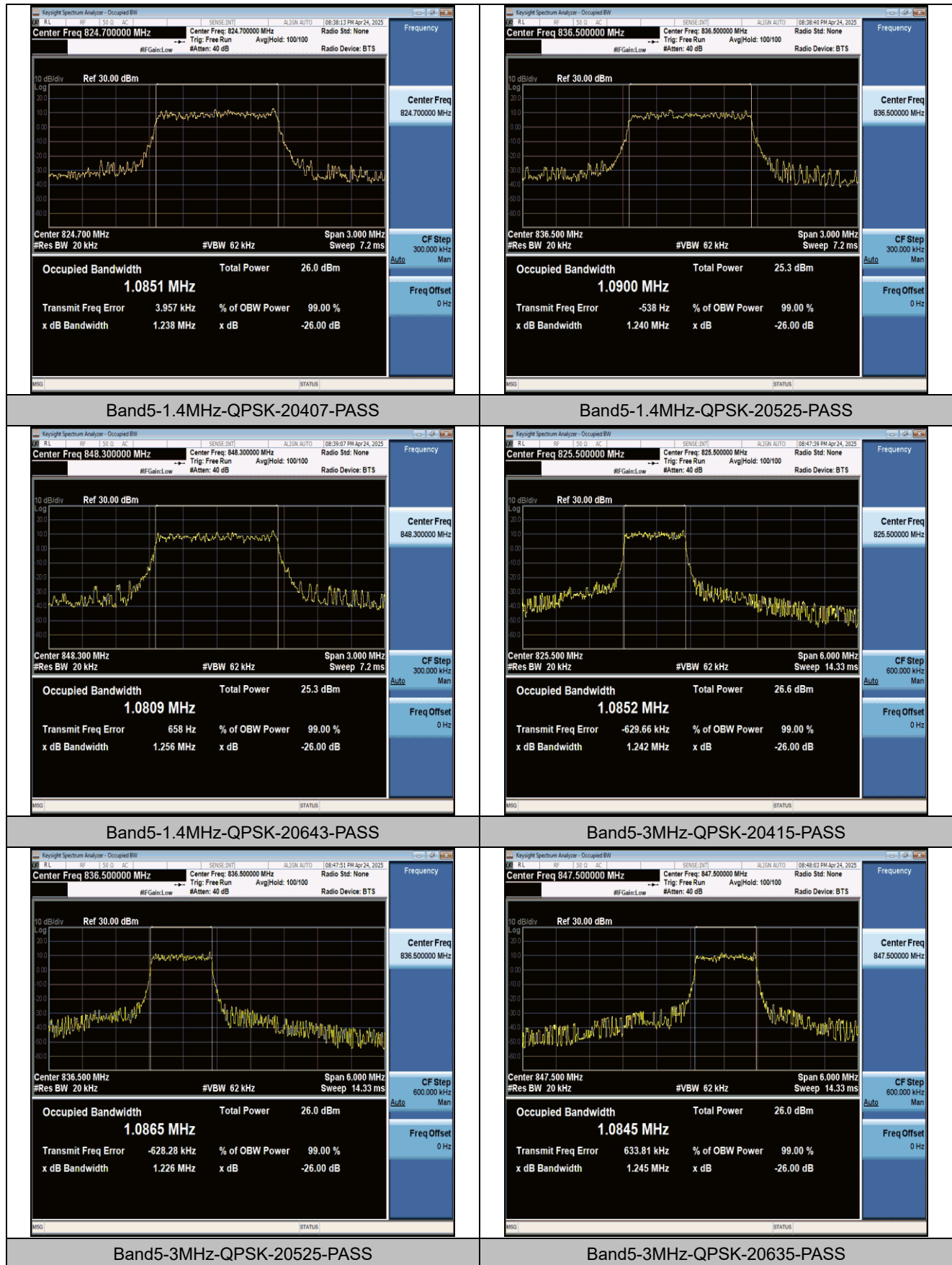


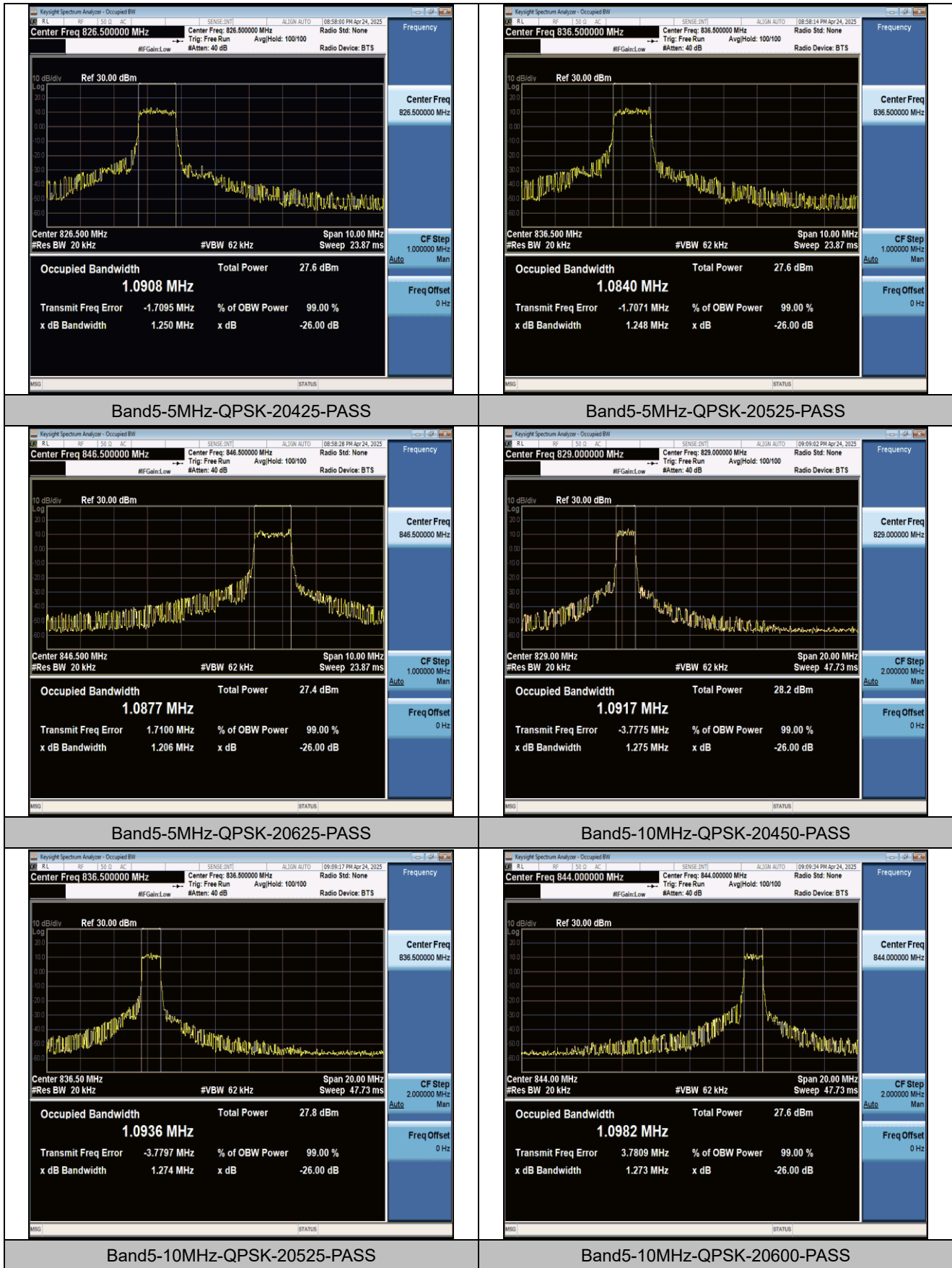
26dB Bandwidth and Occupied Bandwidth for M1

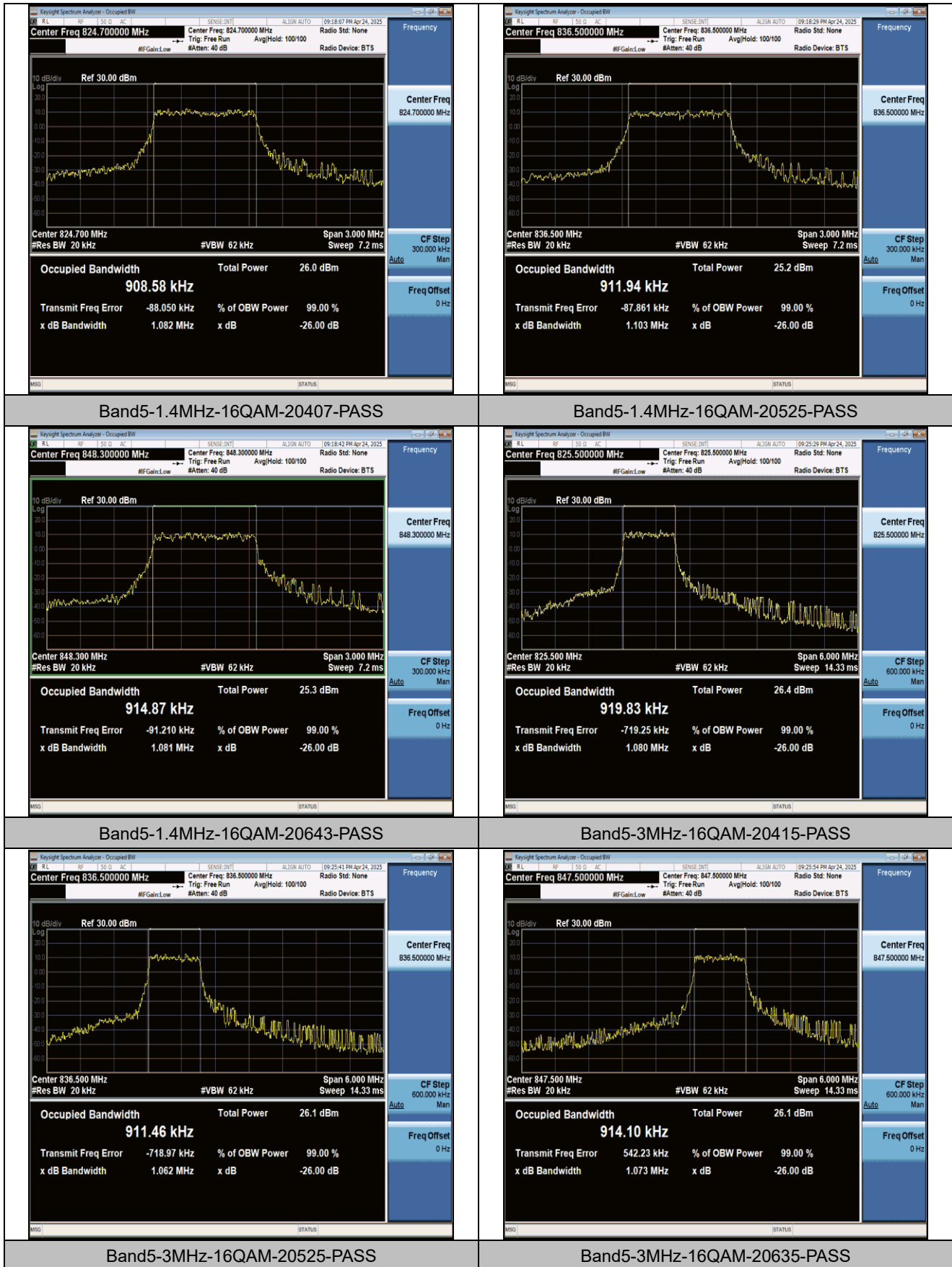
Test Result

Band	Bandwidth	Modulation	Channel	RB Size	RB Start	NB Index	Occupied Bandwidth (MHz)	26dB Bandwidth (MHz)	Verdict
Band5	1.4MHz	QPSK	20407	6	0	Low	1.0851	1.238	PASS
Band5	1.4MHz	QPSK	20525	6	0	Low	1.0900	1.240	PASS
Band5	1.4MHz	QPSK	20643	6	0	High	1.0809	1.256	PASS
Band5	3MHz	QPSK	20415	6	0	Low	1.0852	1.242	PASS
Band5	3MHz	QPSK	20525	6	0	Low	1.0865	1.226	PASS
Band5	3MHz	QPSK	20635	6	0	High	1.0845	1.245	PASS
Band5	5MHz	QPSK	20425	6	0	Low	1.0908	1.250	PASS
Band5	5MHz	QPSK	20525	6	0	Low	1.0840	1.248	PASS
Band5	5MHz	QPSK	20625	6	0	High	1.0877	1.206	PASS
Band5	10MHz	QPSK	20450	6	0	Low	1.0917	1.275	PASS
Band5	10MHz	QPSK	20525	6	0	Low	1.0936	1.274	PASS
Band5	10MHz	QPSK	20600	6	0	High	1.0982	1.273	PASS
Band5	1.4MHz	16QAM	20407	5	0	Low	0.90858	1.082	PASS
Band5	1.4MHz	16QAM	20525	5	0	Low	0.91194	1.103	PASS
Band5	1.4MHz	16QAM	20643	5	0	High	0.91487	1.081	PASS
Band5	3MHz	16QAM	20415	5	0	Low	0.91983	1.080	PASS
Band5	3MHz	16QAM	20525	5	0	Low	0.91146	1.062	PASS
Band5	3MHz	16QAM	20635	5	0	High	0.91410	1.073	PASS
Band5	5MHz	16QAM	20425	5	0	Low	0.92045	1.082	PASS
Band5	5MHz	16QAM	20525	5	0	Low	0.91406	1.080	PASS
Band5	5MHz	16QAM	20625	5	0	High	0.91657	1.084	PASS
Band5	10MHz	16QAM	20450	5	0	Low	0.92141	1.106	PASS
Band5	10MHz	16QAM	20525	5	0	Low	0.91703	1.089	PASS
Band5	10MHz	16QAM	20600	5	0	High	0.91667	1.098	PASS

Test Graphs







Band5-1.4MHz-16QAM-20407-PASS

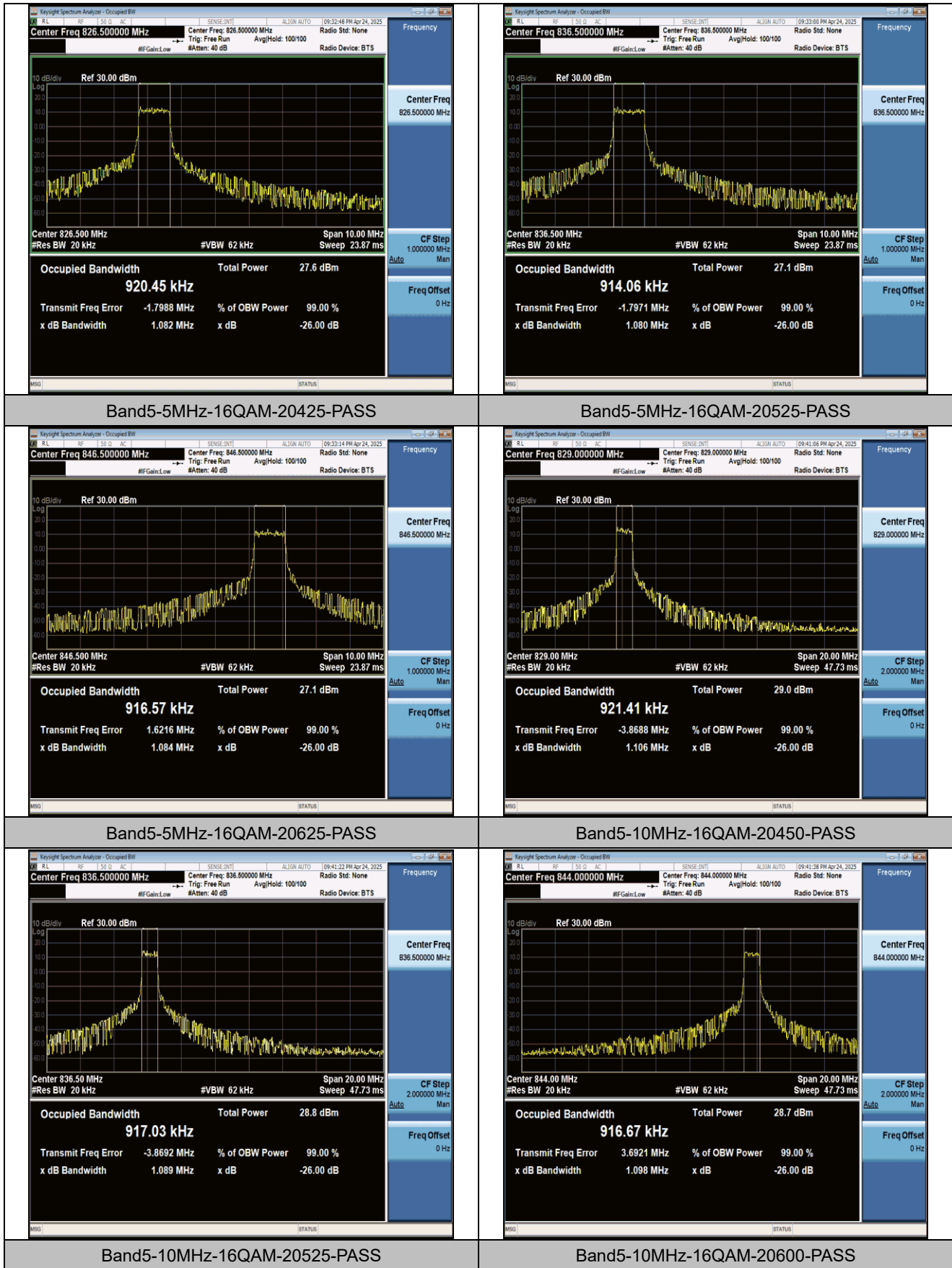
Band5-1.4MHz-16QAM-20525-PASS

Band5-1.4MHz-16QAM-20643-PASS

Band5-3MHz-16QAM-20415-PASS

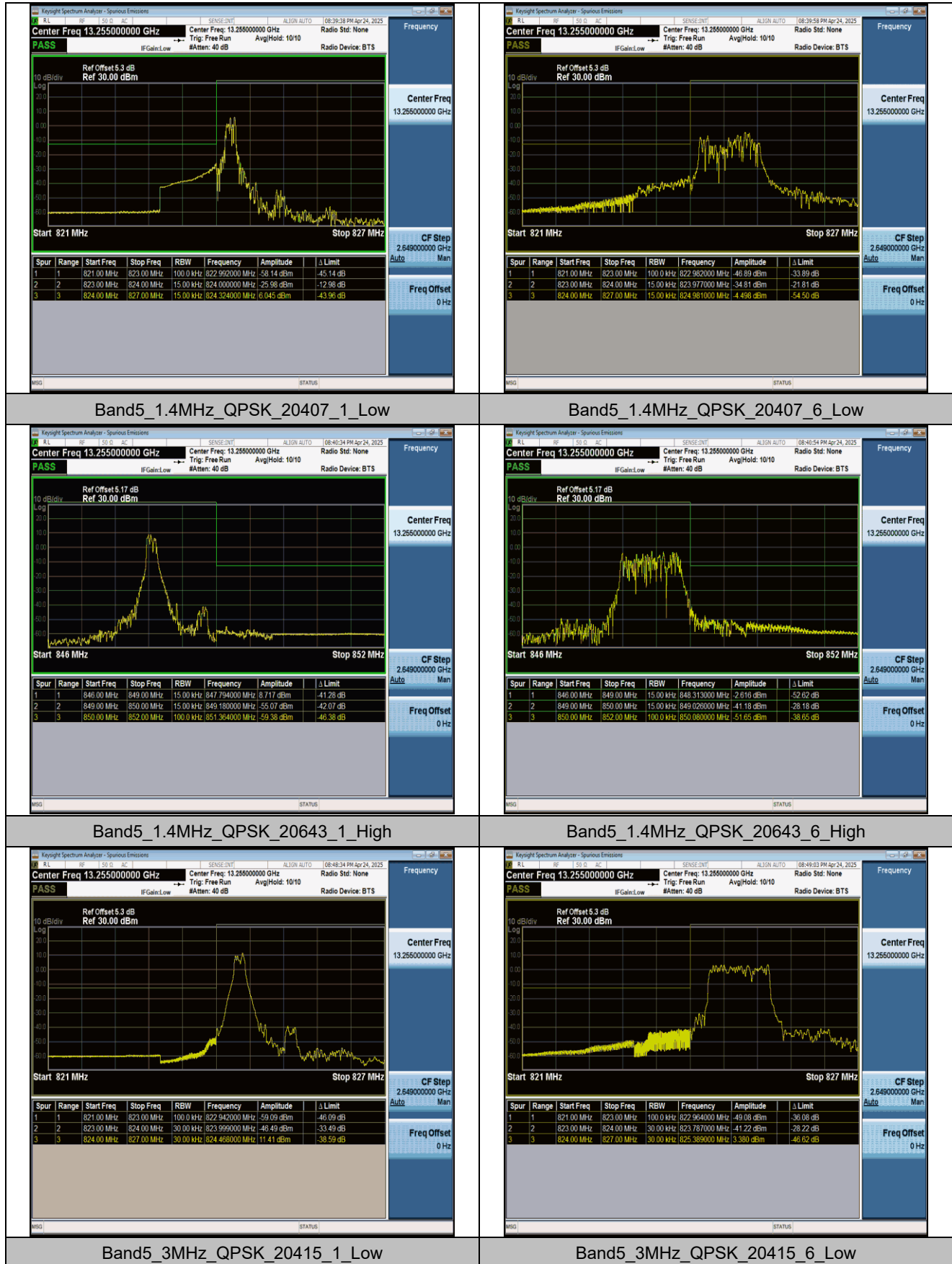
Band5-3MHz-16QAM-20525-PASS

Band5-3MHz-16QAM-20635-PASS



Band Edge for M1

Test Graphs





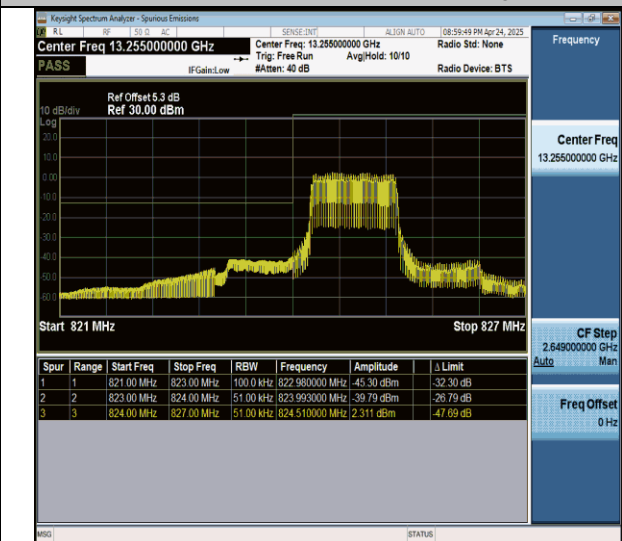
Band5_3MHz_QPSK_20635_1_High



Band5_3MHz_QPSK_20635_6_High



Band5_5MHz_QPSK_20425_1_Low



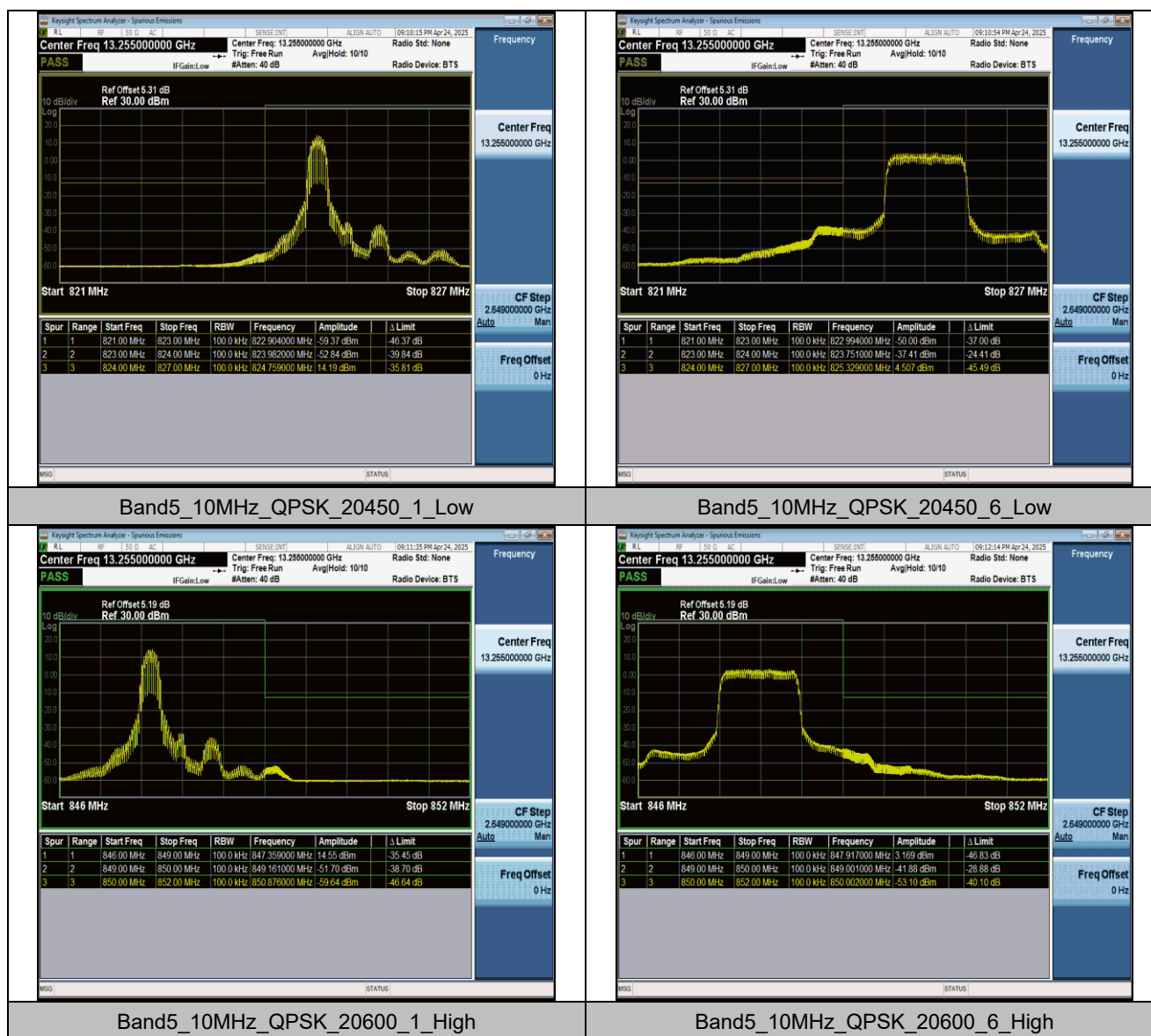
Band5_5MHz_QPSK_20425_6_Low



Band5_5MHz_QPSK_20625_1_High

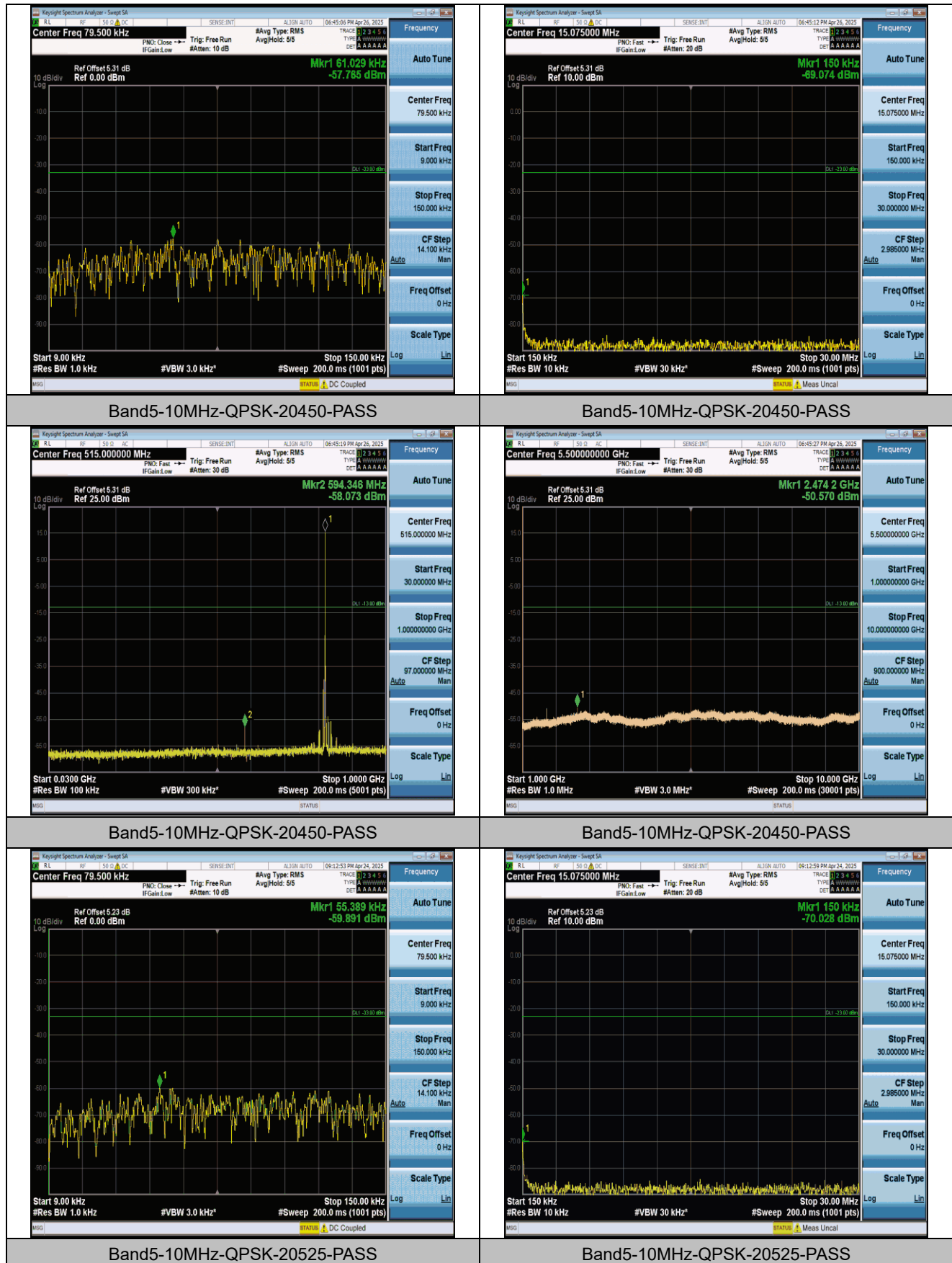


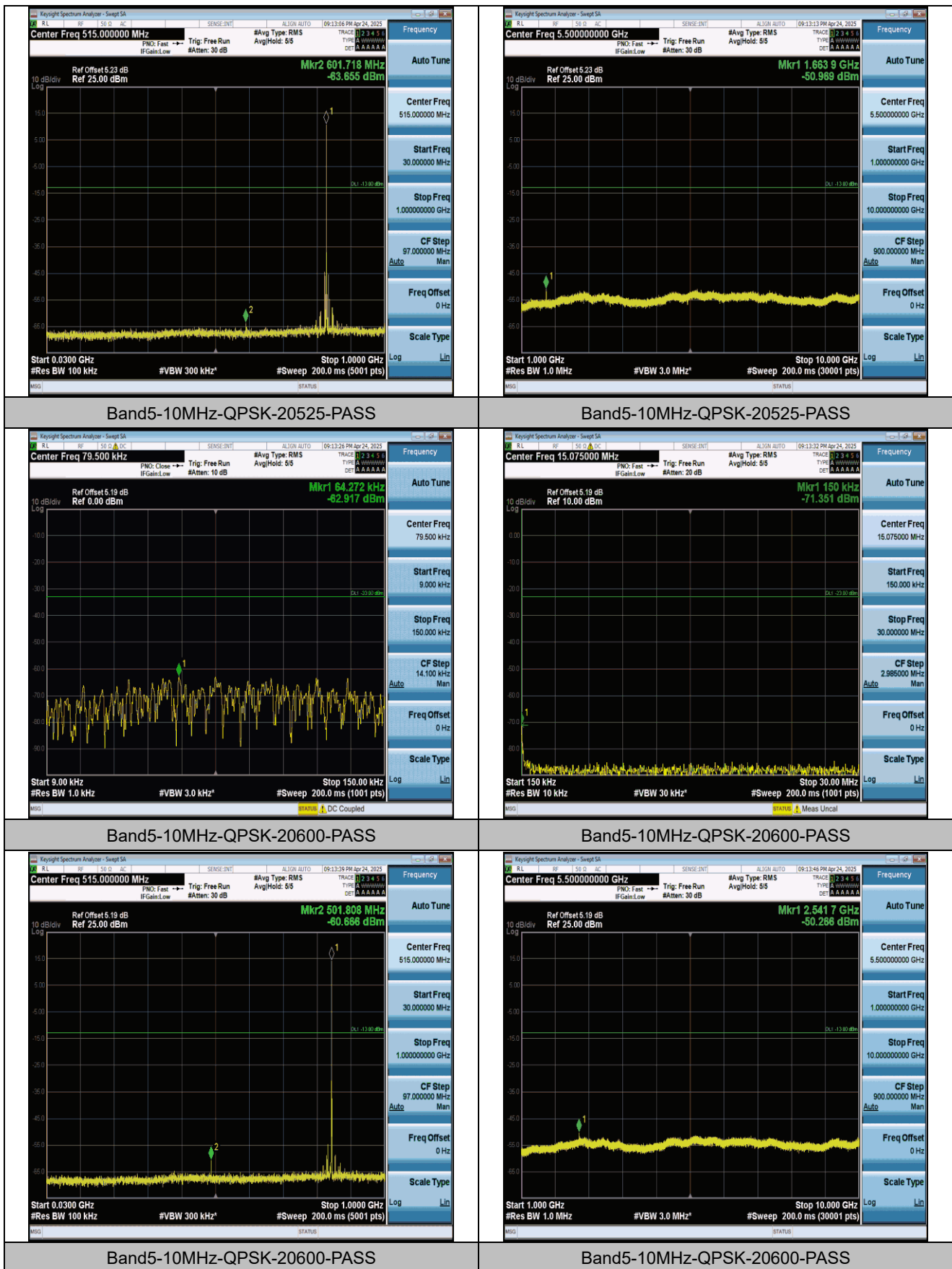
Band5_5MHz_QPSK_20625_6_High



Conducted Spurious Emission for M1

Test Graphs





Frequency Stability for M1

Test Result

Voltage												
Band	Bandwidth	Modulation	Channel	RB Size	RB Start	NB Index	Voltage [Vdc]	Temperature (°C)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)	Verdict
Band5	10MHz	QPSK	20525	6	0	Low	VN	NT	-4.60	-0.005499	±2.5	PASS
Band5	10MHz	QPSK	20525	6	0	Low	VL	NT	-3.90	-0.004662	±2.5	PASS
Band5	10MHz	QPSK	20525	6	0	Low	VH	NT	-3.50	-0.004184	±2.5	PASS

Temperature												
Band	Bandwidth	Modulation	Channel	RB Size	RB Start	NB Index	Voltage [Vdc]	Temperature (°C)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)	Verdict
Band5	10MHz	QPSK	20525	6	0	Low	NV	-30	-5.20	-0.006216	±2.5	PASS
Band5	10MHz	QPSK	20525	6	0	Low	NV	-20	-5.90	-0.007053	±2.5	PASS
Band5	10MHz	QPSK	20525	6	0	Low	NV	-10	-4.20	-0.005021	±2.5	PASS
Band5	10MHz	QPSK	20525	6	0	Low	NV	0	-4.60	-0.005499	±2.5	PASS
Band5	10MHz	QPSK	20525	6	0	Low	NV	10	-5.60	-0.006695	±2.5	PASS
Band5	10MHz	QPSK	20525	6	0	Low	NV	20	-4.60	-0.005499	±2.5	PASS
Band5	10MHz	QPSK	20525	6	0	Low	NV	30	-5.10	-0.006097	±2.5	PASS
Band5	10MHz	QPSK	20525	6	0	Low	NV	40	-5.80	-0.006934	±2.5	PASS
Band5	10MHz	QPSK	20525	6	0	Low	NV	50	-5.40	-0.006455	±2.5	PASS

~The End~