

Appendix A: Effective (Isotropic) Radiated Power Output Data for NB1

Test Result

Band	OpMode	SCS	BW	Modulation	Channel	Tones	Conducted POWER(dBm)	ERP (dBm)	Verdict
Band 12	Stand-Alone	3.75k Hz	0.18	QPSK	23012	1@0	22.38	20.23	PASS
Band 12	Stand-Alone	3.75k Hz	0.18	QPSK	23012	1@47	22.43	20.28	PASS
Band 12	Stand-Alone	3.75k Hz	0.18	BPSK	23012	1@0	23.09	20.94	PASS
Band 12	Stand-Alone	3.75k Hz	0.18	BPSK	23012	1@47	22.44	20.29	PASS
Band 12	Stand-Alone	3.75k Hz	0.18	QPSK	23095	1@0	22.48	20.33	PASS
Band 12	Stand-Alone	3.75k Hz	0.18	QPSK	23095	1@47	22.42	20.27	PASS
Band 12	Stand-Alone	3.75k Hz	0.18	BPSK	23095	1@0	22.91	20.76	PASS
Band 12	Stand-Alone	3.75k Hz	0.18	BPSK	23095	1@47	22.43	20.28	PASS
Band 12	Stand-Alone	3.75k Hz	0.18	QPSK	23178	1@0	22.65	20.5	PASS
Band 12	Stand-Alone	3.75k Hz	0.18	QPSK	23178	1@47	22.69	20.54	PASS
Band 12	Stand-Alone	3.75k Hz	0.18	BPSK	23178	1@0	22.96	20.81	PASS
Band 12	Stand-Alone	3.75k Hz	0.18	BPSK	23178	1@47	22.63	20.48	PASS
Band 12	Stand-Alone	15kHz	0.18	QPSK	23012	1@0	22.5	20.35	PASS
Band 12	Stand-Alone	15kHz	0.18	QPSK	23012	1@11	22.51	20.36	PASS
Band 12	Stand-Alone	15kHz	0.18	QPSK	23012	3@3	23	20.85	PASS
Band 12	Stand-Alone	15kHz	0.18	BPSK	23012	1@0	22.46	20.31	PASS
Band 12	Stand-Alone	15kHz	0.18	BPSK	23012	1@11	22.47	20.32	PASS

Band 12	Stand- Alone	15kHz	0.18	QPSK	23095	1@0	22.54	20.39	PASS
Band 12	Stand- Alone	15kHz	0.18	QPSK	23095	1@11	22.58	20.43	PASS
Band 12	Stand- Alone	15kHz	0.18	QPSK	23095	3@3	23.08	20.93	PASS
Band 12	Stand- Alone	15kHz	0.18	BPSK	23095	1@0	22.55	20.4	PASS
Band 12	Stand- Alone	15kHz	0.18	BPSK	23095	1@11	22.51	20.36	PASS
Band 12	Stand- Alone	15kHz	0.18	QPSK	23178	1@0	22.7	20.55	PASS
Band 12	Stand- Alone	15kHz	0.18	QPSK	23178	1@11	22.73	20.58	PASS
Band 12	Stand- Alone	15kHz	0.18	QPSK	23178	3@3	23.22	21.07	PASS
Band 12	Stand- Alone	15kHz	0.18	BPSK	23178	1@0	22.73	20.58	PASS
Band 12	Stand- Alone	15kHz	0.18	BPSK	23178	1@11	22.71	20.56	PASS

Appendix B: Peak-to-Average Ratio(CCDF) for NB1

Test Result

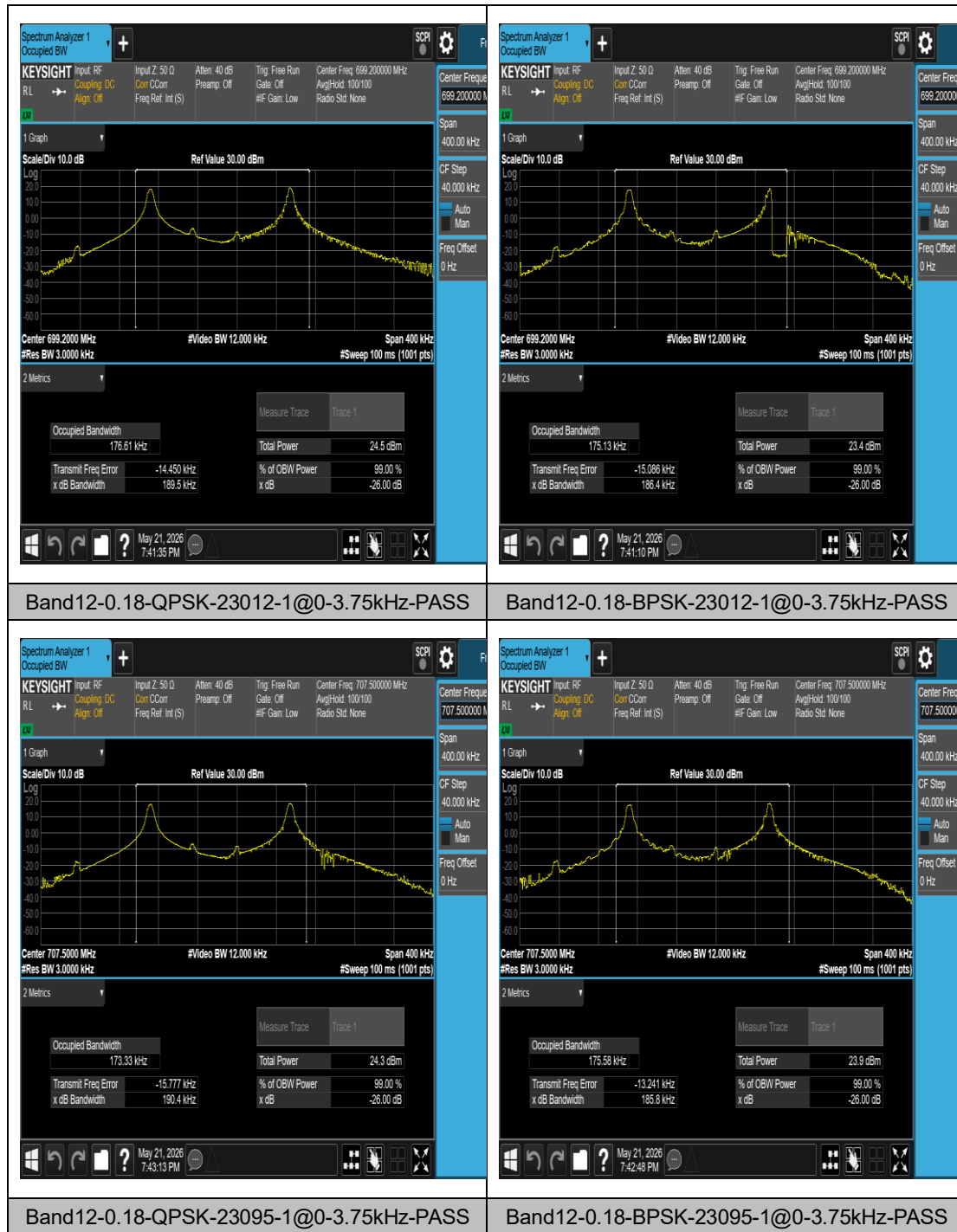
Band	OpMode	SCS	BW	Modulation	Channel	Tones	Result (dBm)	Limit (dBm)	Verdict
Band12	Stand-Alone	3.75kHz	0.18	QPSK	23095	1@0	4.75	<=13	PASS
Band12	Stand-Alone	3.75kHz	0.18	QPSK	23095	1@47	4.83	<=13	PASS
Band12	Stand-Alone	3.75kHz	0.18	BPSK	23095	1@0	4.83	<=13	PASS
Band12	Stand-Alone	3.75kHz	0.18	BPSK	23095	1@47	4.73	<=13	PASS
Band12	Stand-Alone	15kHz	0.18	QPSK	23095	1@0	6.13	<=13	PASS
Band12	Stand-Alone	15kHz	0.18	QPSK	23095	1@11	6.13	<=13	PASS
Band12	Stand-Alone	15kHz	0.18	QPSK	23095	3@3	11.93	<=13	PASS
Band12	Stand-Alone	15kHz	0.18	BPSK	23095	1@0	5.92	<=13	PASS
Band12	Stand-Alone	15kHz	0.18	BPSK	23095	1@11	5.87	<=13	PASS

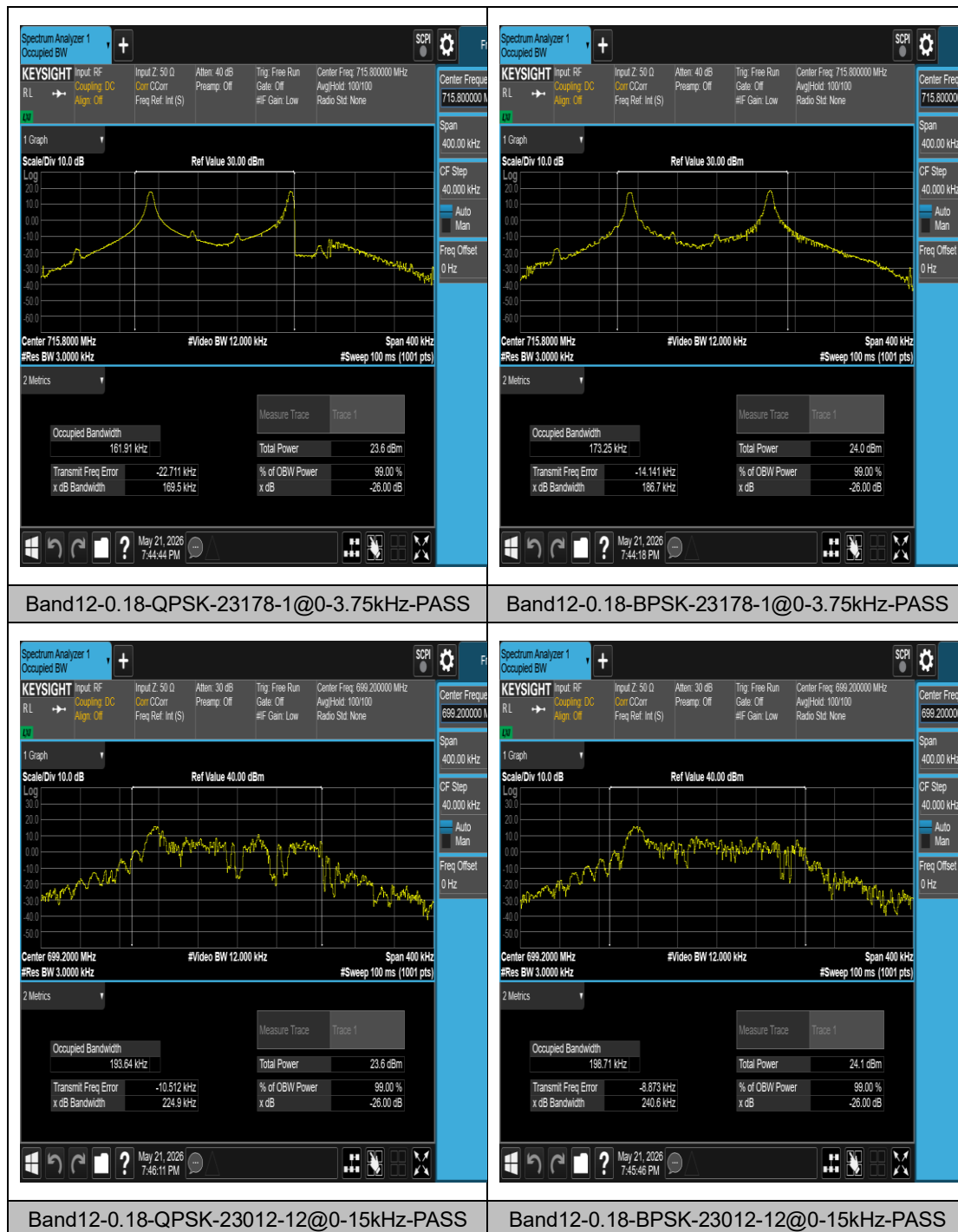
Appendix C: Emission Bandwidth for NB1

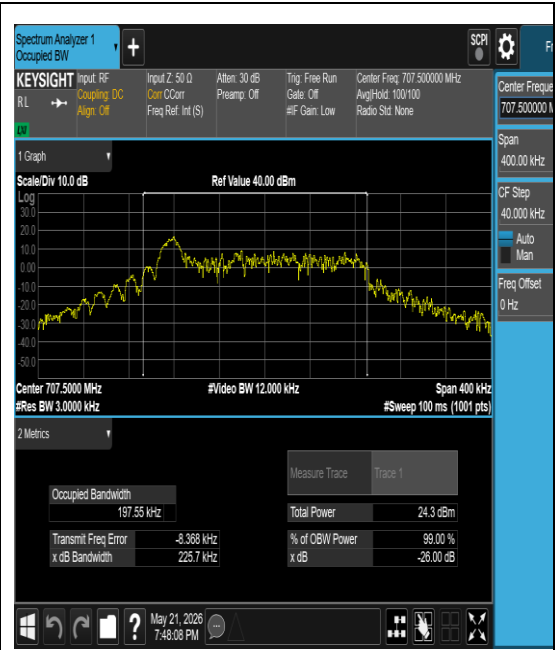
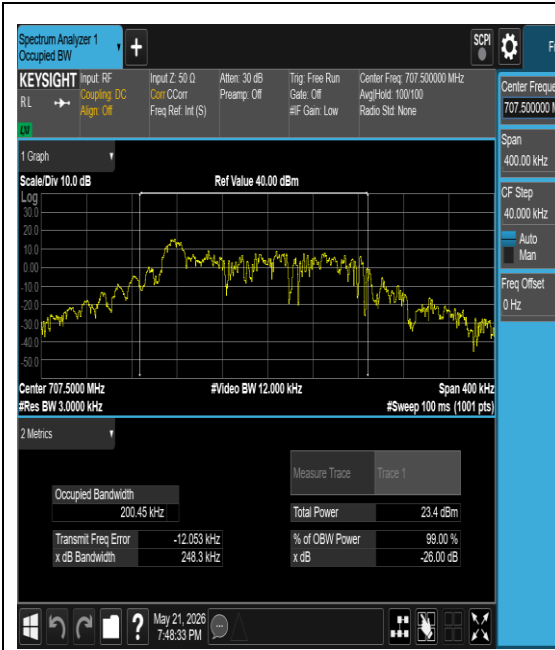
Test Result

Band	OpMode	SCS	BW	Modulation	Channel	Tones	OBW(MHz)	EBW(MHz)	Verdict
Band12	Stand-Alone	3.75kHz	0.18	QPSK	23012	1@0	0.17661	0.1895	PASS
Band12	Stand-Alone	3.75kHz	0.18	BPSK	23012	1@0	0.17513	0.1864	PASS
Band12	Stand-Alone	3.75kHz	0.18	QPSK	23095	1@0	0.17333	0.1904	PASS
Band12	Stand-Alone	3.75kHz	0.18	BPSK	23095	1@0	0.17558	0.1858	PASS
Band12	Stand-Alone	3.75kHz	0.18	QPSK	23178	1@0	0.16191	0.1695	PASS
Band12	Stand-Alone	3.75kHz	0.18	BPSK	23178	1@0	0.17325	0.1867	PASS
Band12	Stand-Alone	15kHz	0.18	QPSK	23012	12@0	0.19364	0.2249	PASS
Band12	Stand-Alone	15kHz	0.18	BPSK	23012	12@0	0.19871	0.2406	PASS
Band12	Stand-Alone	15kHz	0.18	QPSK	23095	12@0	0.20045	0.2483	PASS
Band12	Stand-Alone	15kHz	0.18	BPSK	23095	12@0	0.19755	0.2257	PASS
Band12	Stand-Alone	15kHz	0.18	QPSK	23178	12@0	0.20000	0.2360	PASS
Band12	Stand-Alone	15kHz	0.18	BPSK	23178	12@0	0.19633	0.2252	PASS

Test Graphs

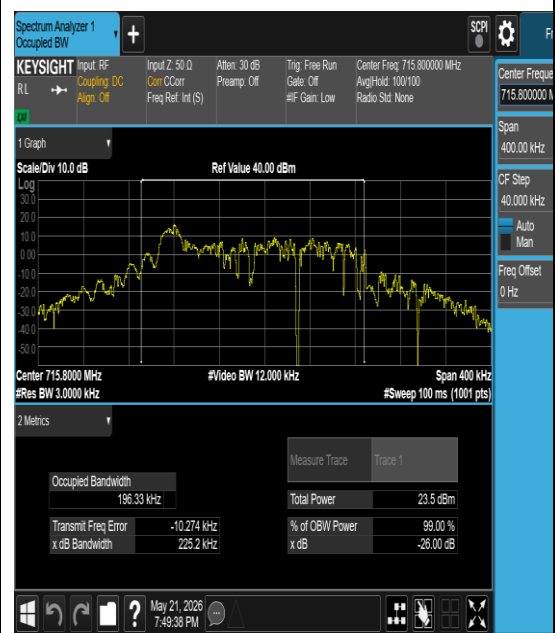






Band12-0.18-QPSK-23095-12@0-15kHz-PASS

Band12-0.18-BPSK-23095-12@0-15kHz-PASS



Band12-0.18-QPSK-23178-12@0-15kHz-PASS

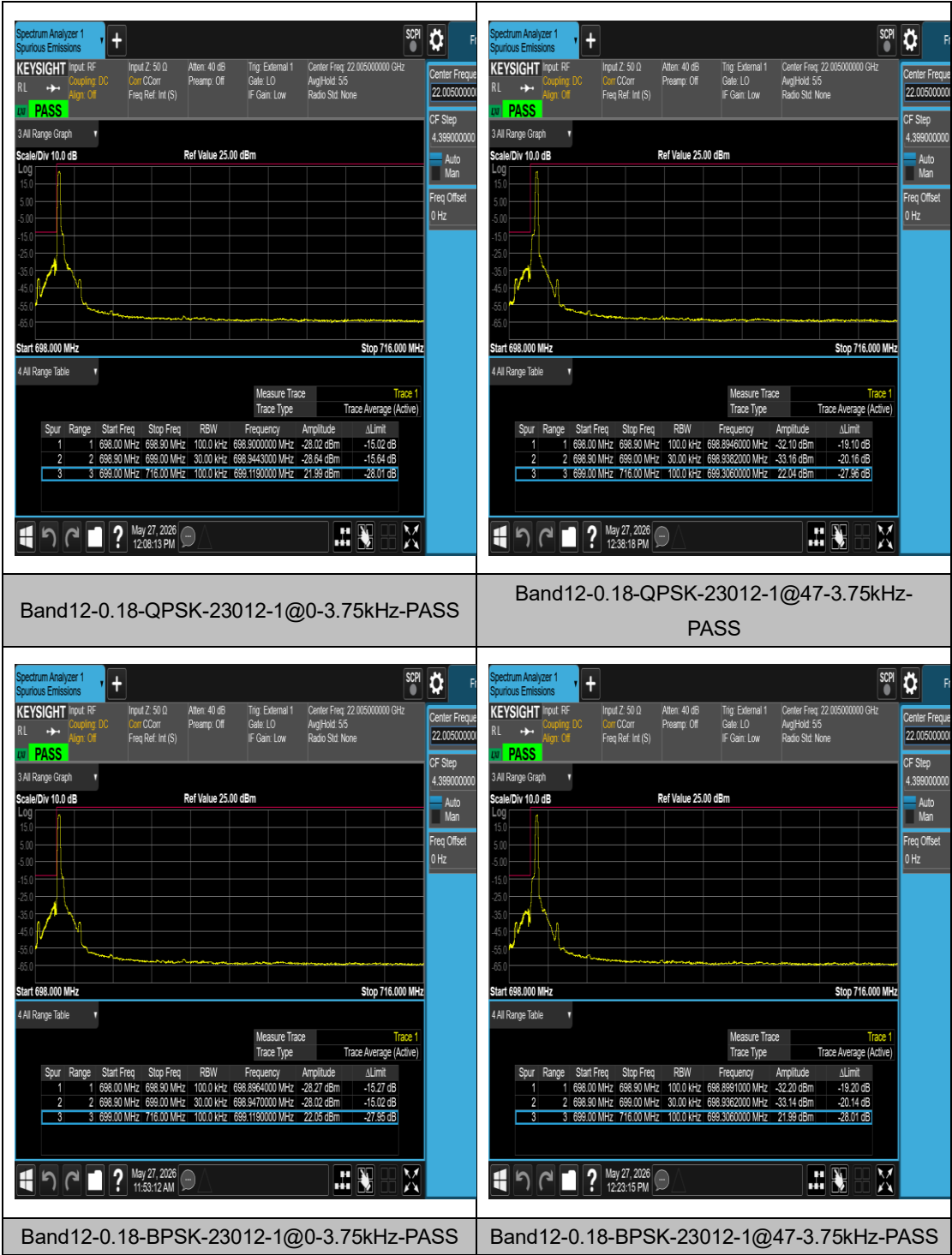
Band12-0.18-BPSK-23178-12@0-15kHz-PASS

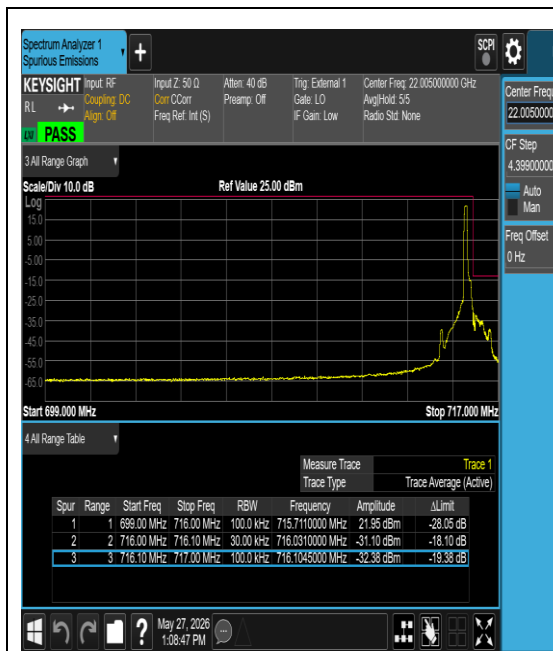
Appendix D: Band Edge for NB1

Test Result

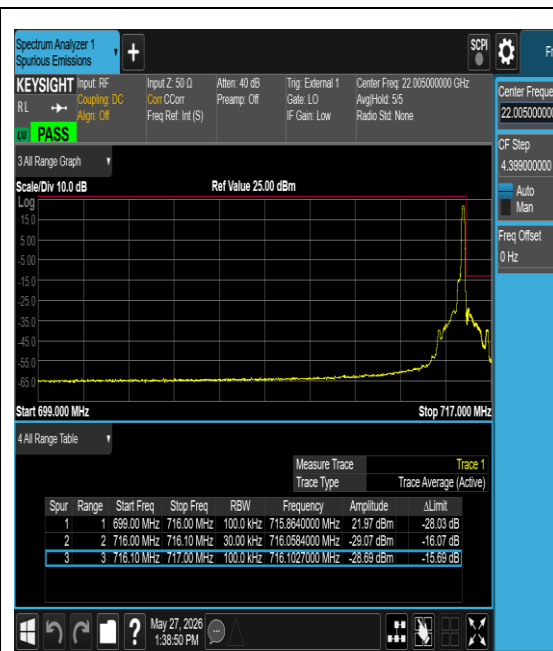
Band	OpMode	SCS	BW	Modulation	Channel	Tones	Result (dBm)	Verdict
Band12	Stand-Alone	3.75kHz	0.18	QPSK	23012	1@0	-28.02	PASS
Band12	Stand-Alone	3.75kHz	0.18	QPSK	23012	1@47	-32.10	PASS
Band12	Stand-Alone	3.75kHz	0.18	BPSK	23012	1@0	-28.02	PASS
Band12	Stand-Alone	3.75kHz	0.18	BPSK	23012	1@47	-32.20	PASS
Band12	Stand-Alone	3.75kHz	0.18	QPSK	23178	1@0	-31.10	PASS
Band12	Stand-Alone	3.75kHz	0.18	QPSK	23178	1@47	-28.69	PASS
Band12	Stand-Alone	3.75kHz	0.18	BPSK	23178	1@0	-29.71	PASS
Band12	Stand-Alone	3.75kHz	0.18	BPSK	23178	1@47	-28.47	PASS
Band12	Stand-Alone	15kHz	0.18	QPSK	23012	1@0	-24.00	PASS
Band12	Stand-Alone	15kHz	0.18	QPSK	23012	1@11	-30.78	PASS
Band12	Stand-Alone	15kHz	0.18	QPSK	23012	12@0	-23.70	PASS
Band12	Stand-Alone	15kHz	0.18	BPSK	23012	1@0	-24.72	PASS
Band12	Stand-Alone	15kHz	0.18	BPSK	23012	1@11	-30.44	PASS
Band12	Stand-Alone	15kHz	0.18	QPSK	23178	1@0	-31.59	PASS
Band12	Stand-Alone	15kHz	0.18	QPSK	23178	1@11	-24.88	PASS
Band12	Stand-Alone	15kHz	0.18	QPSK	23178	12@0	-21.98	PASS
Band12	Stand-Alone	15kHz	0.18	BPSK	23178	1@0	-31.98	PASS
Band12	Stand-Alone	15kHz	0.18	BPSK	23178	1@11	-24.66	PASS

Test Graphs

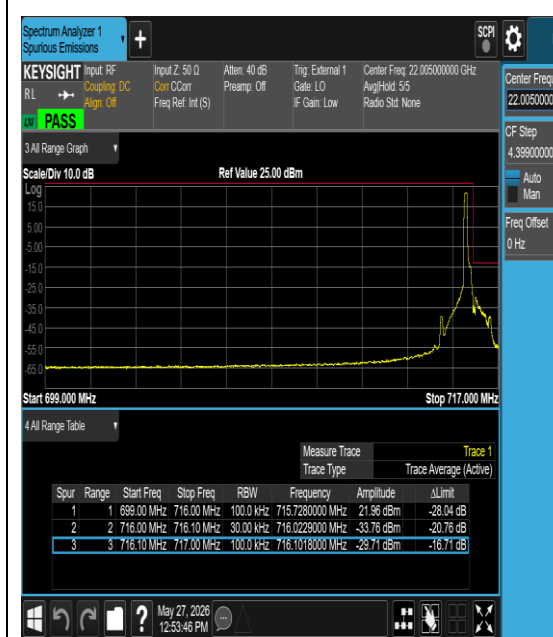




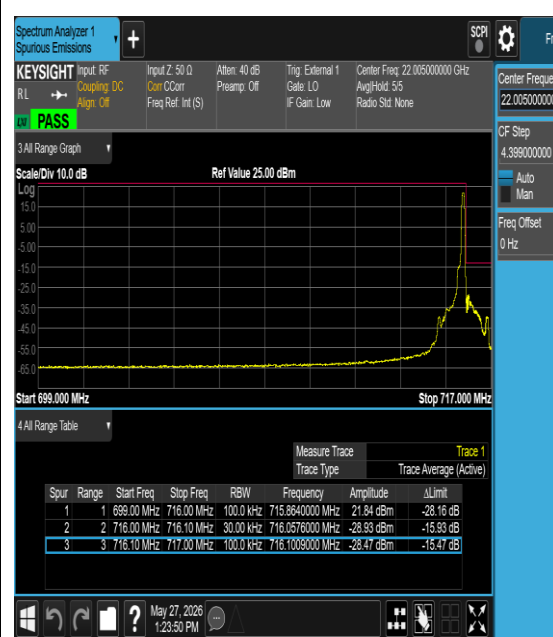
Band12-0.18-QPSK-23178-1@0-3.75kHz-PASS



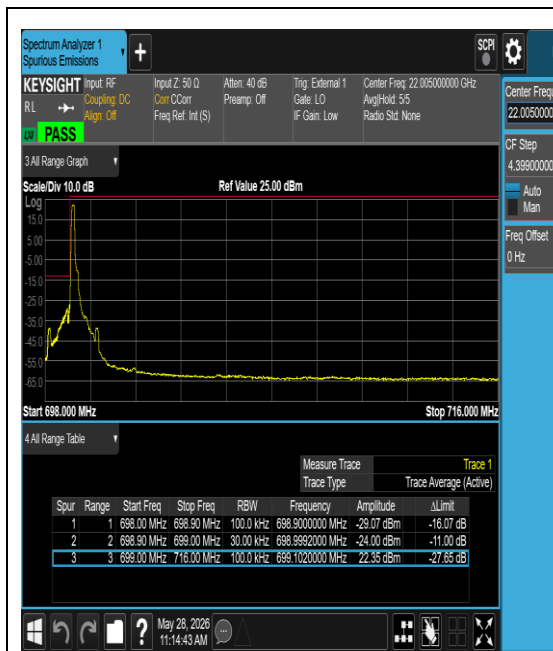
Band12-0.18-QPSK-23178-1@47-3.75kHz-PASS



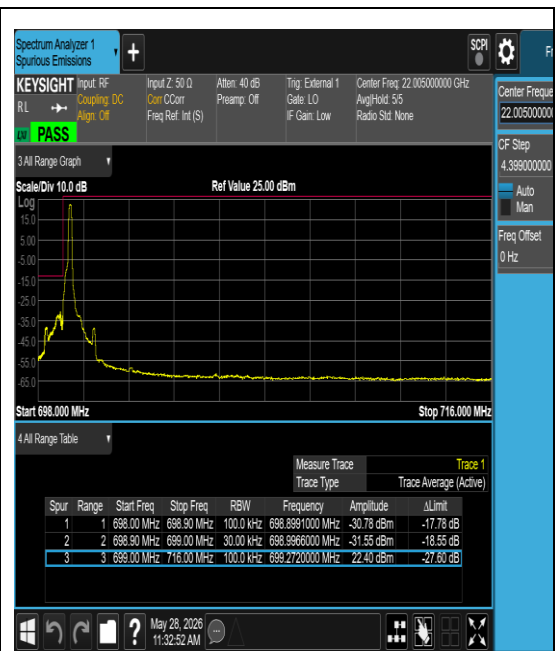
Band12-0.18-BPSK-23178-1@0-3.75kHz-PASS



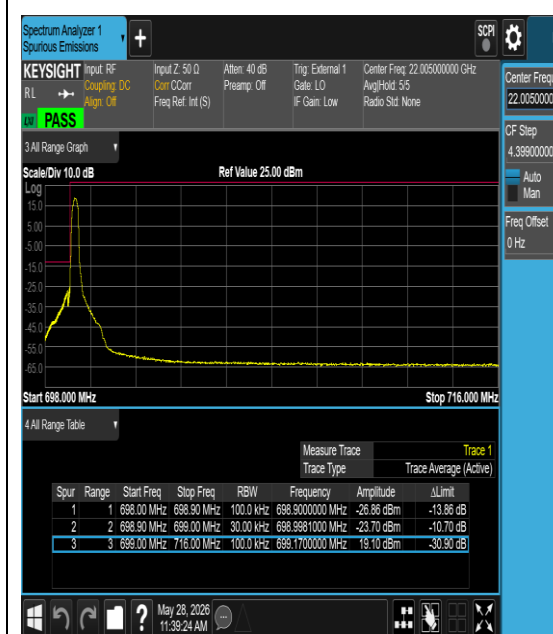
Band12-0.18-BPSK-23178-1@47-3.75kHz-PASS



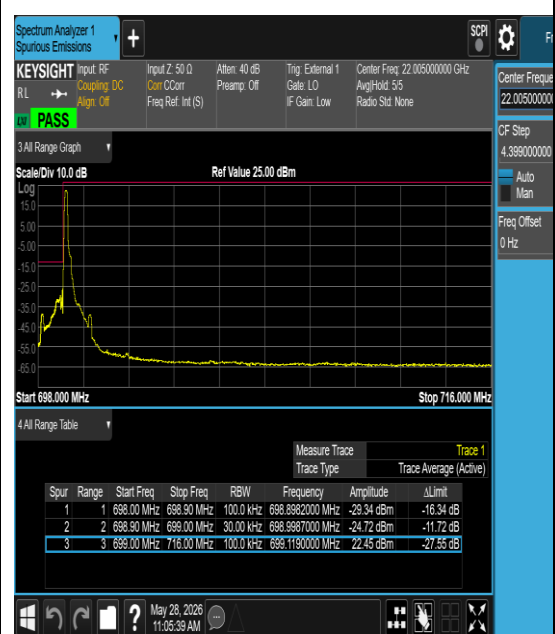
Band12-0.18-QPSK-23012-1@0-15kHz-PASS



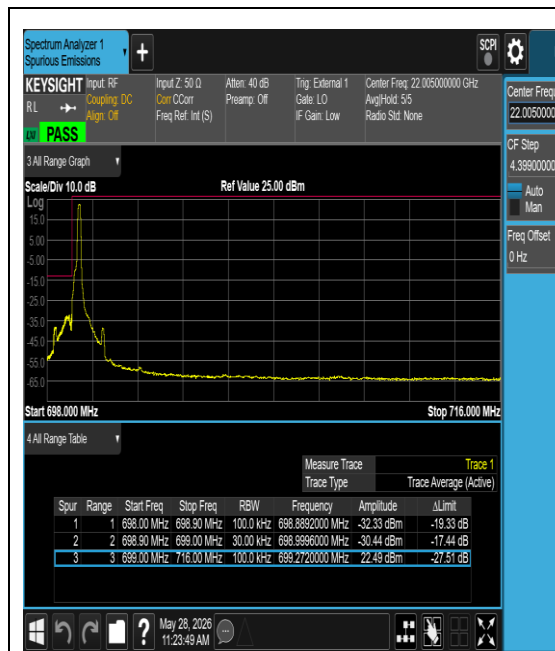
Band12-0.18-QPSK-23012-1@11-15kHz-PASS



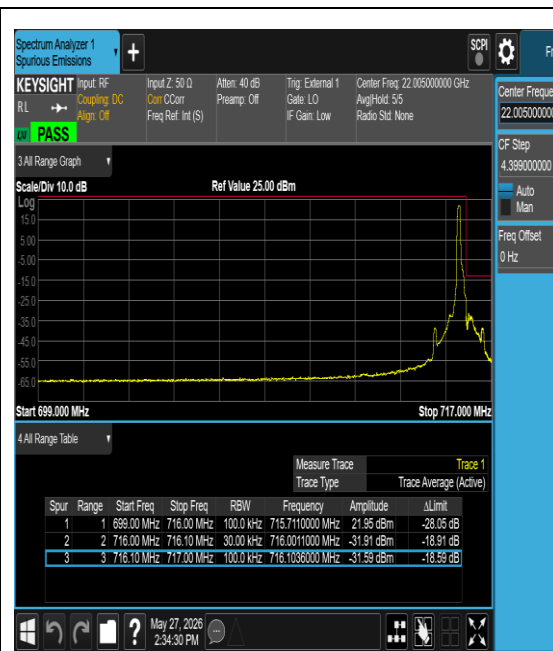
Band12-0.18-QPSK-23012-12@0-15kHz-PASS



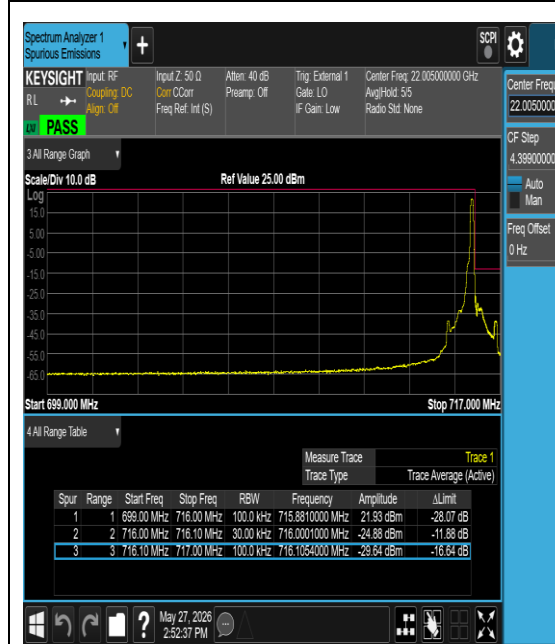
Band12-0.18-BPSK-23012-1@0-15kHz-PASS



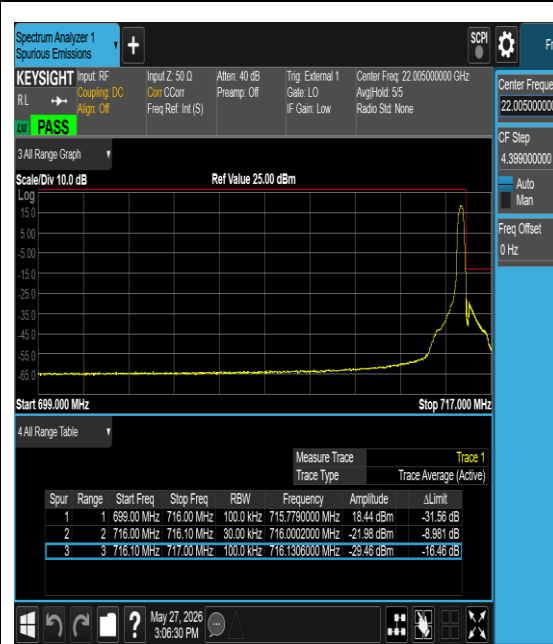
Band12-0.18-BPSK-23012-1@11-15kHz-PASS



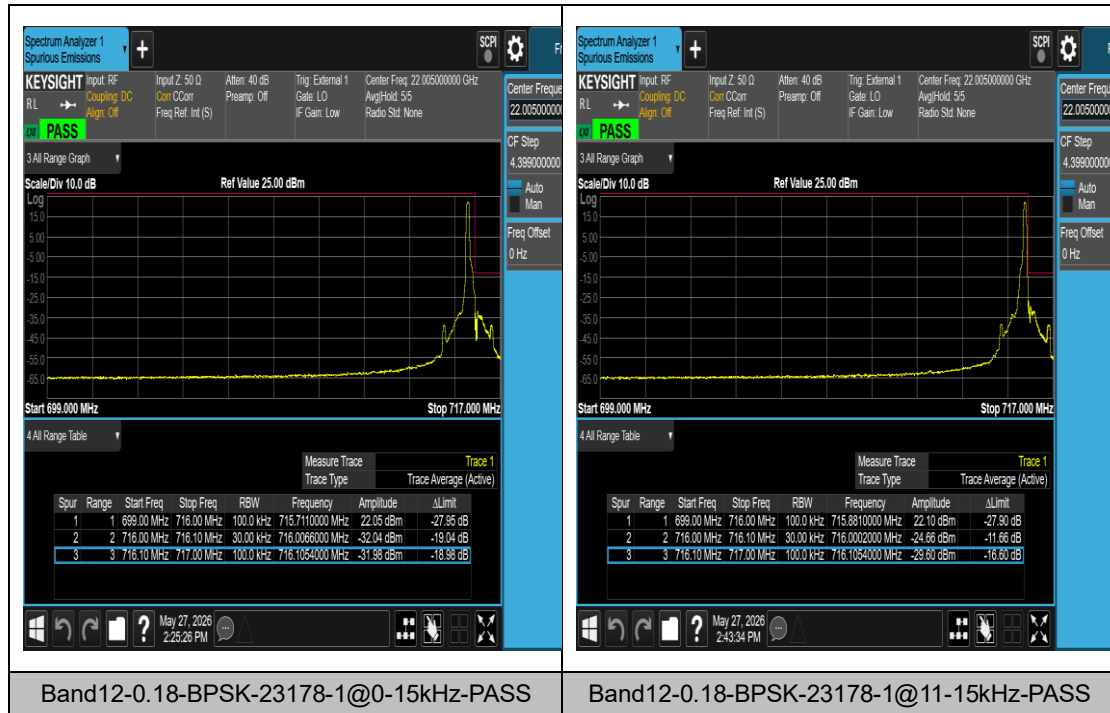
Band12-0.18-QPSK-23178-1@0-15kHz-PASS



Band12-0.18-QPSK-23178-1@11-15kHz-PASS



Band12-0.18-QPSK-23178-12@0-15kHz-PASS



Appendix E: Conducted Spurious Emission for NB1

Test Result

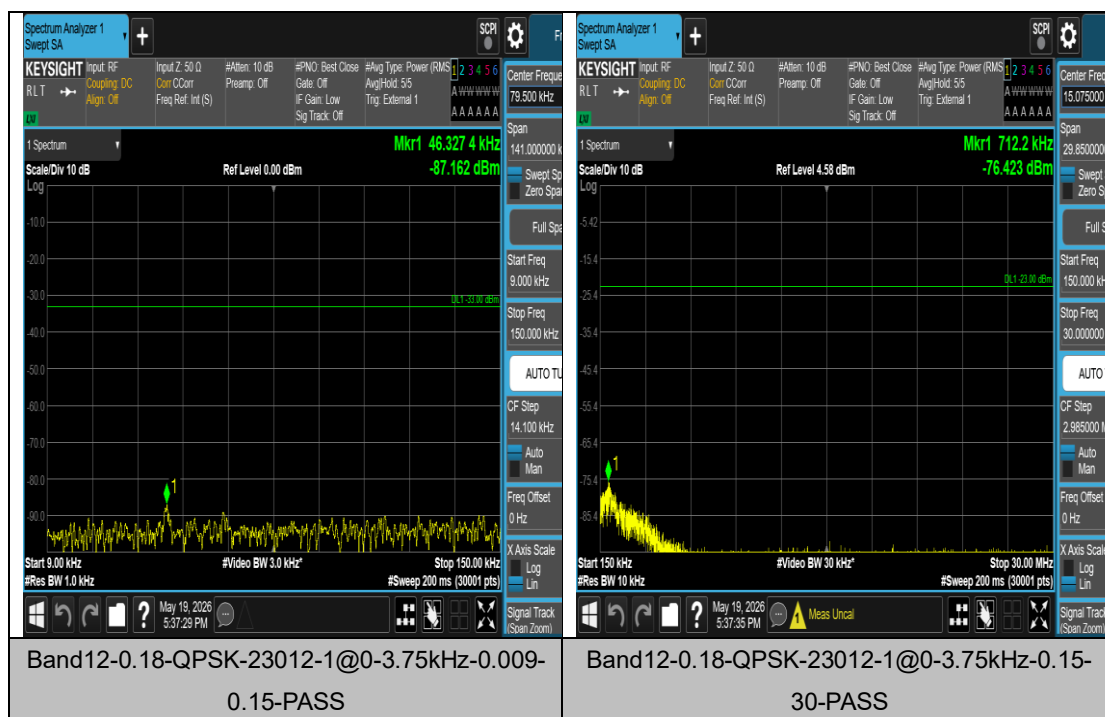
Band	OpMode	SCS	BW	Modulation	Channel	Tones	Freq Start [MHz]	Freq Stop [MHz]	Result (dBm)	Limit (dBm)	Verdict
Band1 2	Stand-Alone	3.75kHz	0.18	QPSK	23012	1@0	0.009	0.15	-87.16	-33	PASS
Band1 2	Stand-Alone	3.75kHz	0.18	QPSK	23012	1@0	0.15	30	-76.42	-23	PASS
Band1 2	Stand-Alone	3.75kHz	0.18	QPSK	23012	1@0	30	1000	-63.35	-13	PASS
Band1 2	Stand-Alone	3.75kHz	0.18	QPSK	23012	1@0	1000	10000	-51	-13	PASS
Band1 2	Stand-Alone	3.75kHz	0.18	QPSK	23012	1@47	0.009	0.15	-85.29	-33	PASS
Band1 2	Stand-Alone	3.75kHz	0.18	QPSK	23012	1@47	0.15	30	-76.92	-23	PASS
Band1 2	Stand-Alone	3.75kHz	0.18	QPSK	23012	1@47	30	1000	-63.16	-13	PASS
Band1 2	Stand-Alone	3.75kHz	0.18	QPSK	23012	1@47	1000	10000	-50.73	-13	PASS
Band1 2	Stand-Alone	3.75kHz	0.18	QPSK	23095	1@0	0.009	0.15	-61.78	-33	PASS

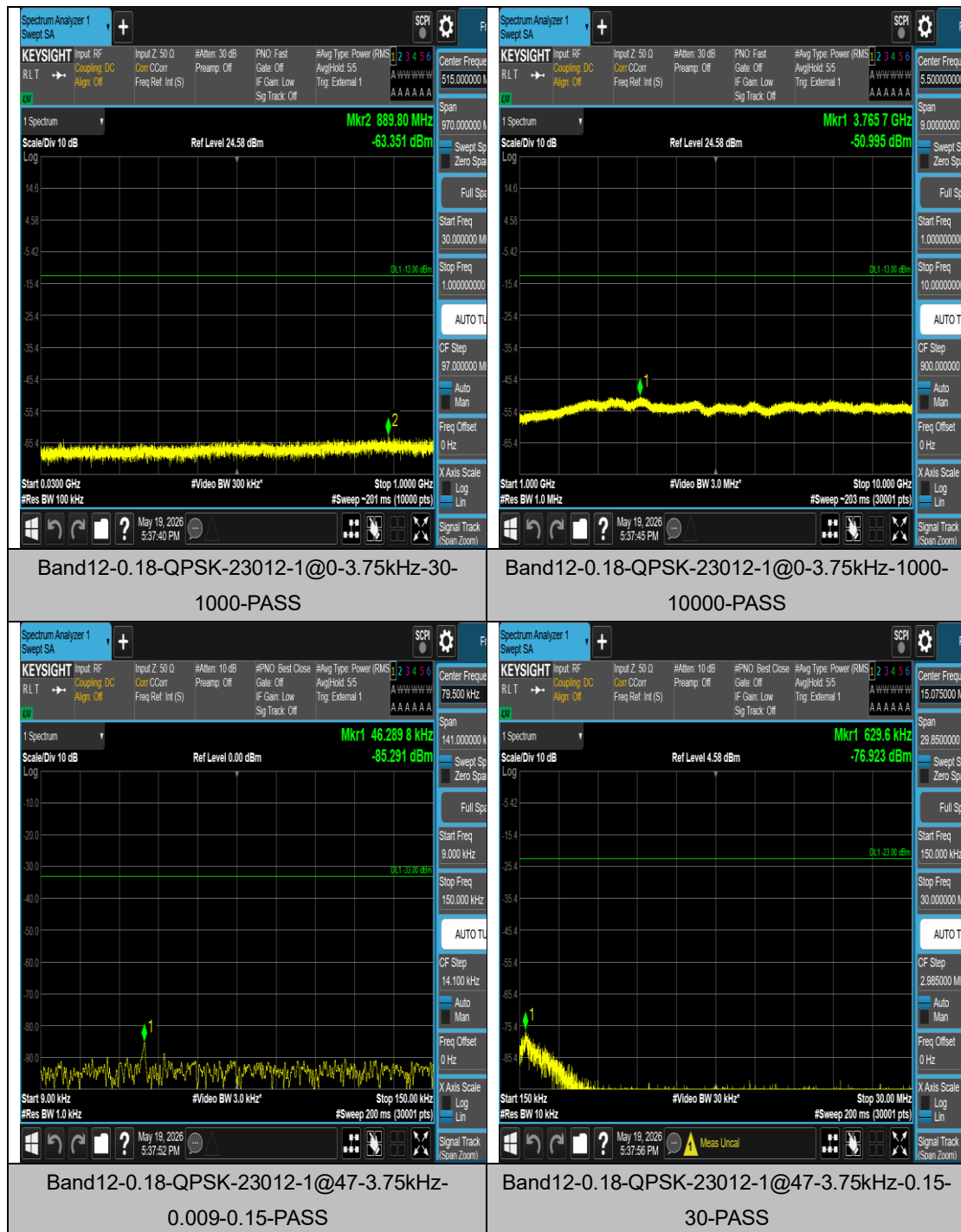
Band1 2	Stand-Alone	3.75kHz	0.18	QPSK	23095	1@0	0.15	30	-74.04	-23	PASS
Band1 2	Stand-Alone	3.75kHz	0.18	QPSK	23095	1@0	30	1000	-63.52	-13	PASS
Band1 2	Stand-Alone	3.75kHz	0.18	QPSK	23095	1@0	1000	1000 0	-49.15	-13	PASS
Band1 2	Stand-Alone	3.75kHz	0.18	QPSK	23095	1@47	0.009	0.15	-62.26	-33	PASS
Band1 2	Stand-Alone	3.75kHz	0.18	QPSK	23095	1@47	0.15	30	-76.95	-23	PASS
Band1 2	Stand-Alone	3.75kHz	0.18	QPSK	23095	1@47	30	1000	-62.99	-13	PASS
Band1 2	Stand-Alone	3.75kHz	0.18	QPSK	23095	1@47	1000	1000 0	-49.41	-13	PASS
Band1 2	Stand-Alone	3.75kHz	0.18	QPSK	23178	1@0	0.009	0.15	-64.76	-33	PASS
Band1 2	Stand-Alone	3.75kHz	0.18	QPSK	23178	1@0	0.15	30	-69.25	-23	PASS
Band1 2	Stand-Alone	3.75kHz	0.18	QPSK	23178	1@0	30	1000	-62.7	-13	PASS
Band1 2	Stand-Alone	3.75kHz	0.18	QPSK	23178	1@0	1000	1000 0	-50.85	-13	PASS
Band1 2	Stand-Alone	3.75kHz	0.18	QPSK	23178	1@47	0.009	0.15	-62.86	-33	PASS
Band1 2	Stand-Alone	3.75kHz	0.18	QPSK	23178	1@47	0.15	30	-76.66	-23	PASS
Band1 2	Stand-Alone	3.75kHz	0.18	QPSK	23178	1@47	30	1000	-62.95	-13	PASS
Band1 2	Stand-Alone	3.75kHz	0.18	QPSK	23178	1@47	1000	1000 0	-50.91	-13	PASS
Band1 2	Stand-Alone	15kHz	0.18	QPSK	23012	12@0	0.009	0.15	-65.13	-33	PASS
Band1 2	Stand-Alone	15kHz	0.18	QPSK	23012	12@0	0.15	30	-68.41	-23	PASS
Band1 2	Stand-Alone	15kHz	0.18	QPSK	23012	12@0	30	1000	-63.39	-13	PASS
Band1 2	Stand-Alone	15kHz	0.18	QPSK	23012	12@0	1000	1000 0	-50.92	-13	PASS
Band1 2	Stand-Alone	15kHz	0.18	BPSK	23012	1@0	0.009	0.15	-53.34	-33	PASS
Band1 2	Stand-Alone	15kHz	0.18	BPSK	23012	1@0	0.15	30	-59.76	-23	PASS
Band1 2	Stand-Alone	15kHz	0.18	BPSK	23012	1@0	30	1000	-63.64	-13	PASS

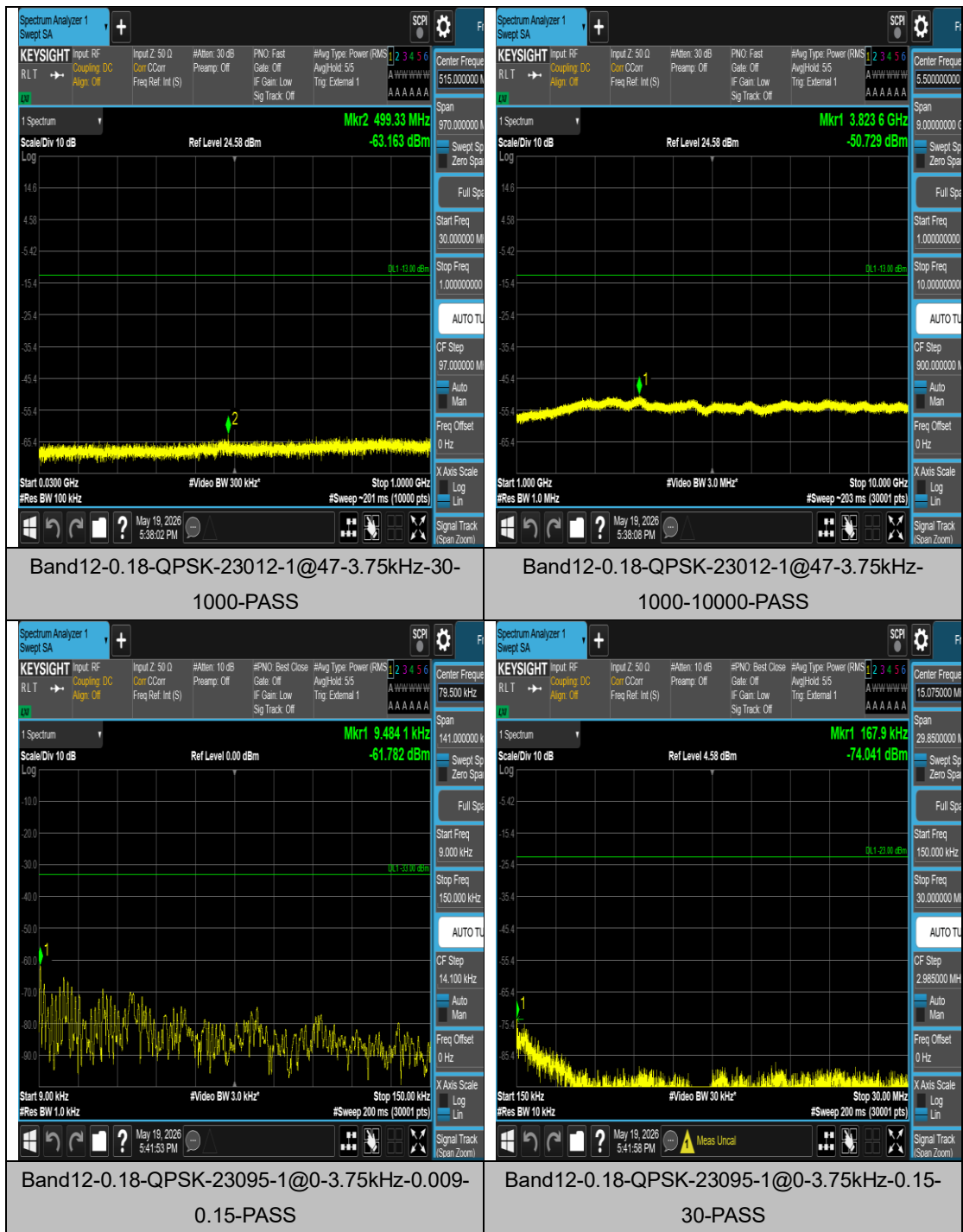
Band1 2	Stand-Alone	15kHz	0.18	BPSK	23012	1@0	1000	1000 0	-50.86	-13	PASS
Band1 2	Stand-Alone	15kHz	0.18	BPSK	23012	1@11	0.009	0.15	-55.21	-33	PASS
Band1 2	Stand-Alone	15kHz	0.18	BPSK	23012	1@11	0.15	30	-61.28	-23	PASS
Band1 2	Stand-Alone	15kHz	0.18	BPSK	23012	1@11	30	1000	-61.68	-13	PASS
Band1 2	Stand-Alone	15kHz	0.18	BPSK	23012	1@11	1000	1000 0	-50.69	-13	PASS
Band1 2	Stand-Alone	15kHz	0.18	QPSK	23095	12@0	0.009	0.15	-85.87	-33	PASS
Band1 2	Stand-Alone	15kHz	0.18	QPSK	23095	12@0	0.15	30	-77.63	-23	PASS
Band1 2	Stand-Alone	15kHz	0.18	QPSK	23095	12@0	30	1000	-63.04	-13	PASS
Band1 2	Stand-Alone	15kHz	0.18	QPSK	23095	12@0	1000	1000 0	-50.75	-13	PASS
Band1 2	Stand-Alone	15kHz	0.18	BPSK	23095	1@0	0.009	0.15	-55.9	-33	PASS
Band1 2	Stand-Alone	15kHz	0.18	BPSK	23095	1@0	0.15	30	-60.69	-23	PASS
Band1 2	Stand-Alone	15kHz	0.18	BPSK	23095	1@0	30	1000	-63.13	-13	PASS
Band1 2	Stand-Alone	15kHz	0.18	BPSK	23095	1@0	1000	1000 0	-50.88	-13	PASS
Band1 2	Stand-Alone	15kHz	0.18	BPSK	23095	1@11	0.009	0.15	-55.93	-33	PASS
Band1 2	Stand-Alone	15kHz	0.18	BPSK	23095	1@11	0.15	30	-62.72	-23	PASS
Band1 2	Stand-Alone	15kHz	0.18	BPSK	23095	1@11	30	1000	-62.77	-13	PASS
Band1 2	Stand-Alone	15kHz	0.18	BPSK	23095	1@11	1000	1000 0	-50.96	-13	PASS
Band1 2	Stand-Alone	15kHz	0.18	QPSK	23178	12@0	0.009	0.15	-65.15	-33	PASS
Band1 2	Stand-Alone	15kHz	0.18	QPSK	23178	12@0	0.15	30	-72.87	-23	PASS
Band1 2	Stand-Alone	15kHz	0.18	QPSK	23178	12@0	30	1000	-62.77	-13	PASS
Band1 2	Stand-Alone	15kHz	0.18	QPSK	23178	12@0	1000	1000 0	-50.89	-13	PASS
Band1 2	Stand-Alone	15kHz	0.18	BPSK	23178	1@0	0.009	0.15	-55.34	-33	PASS

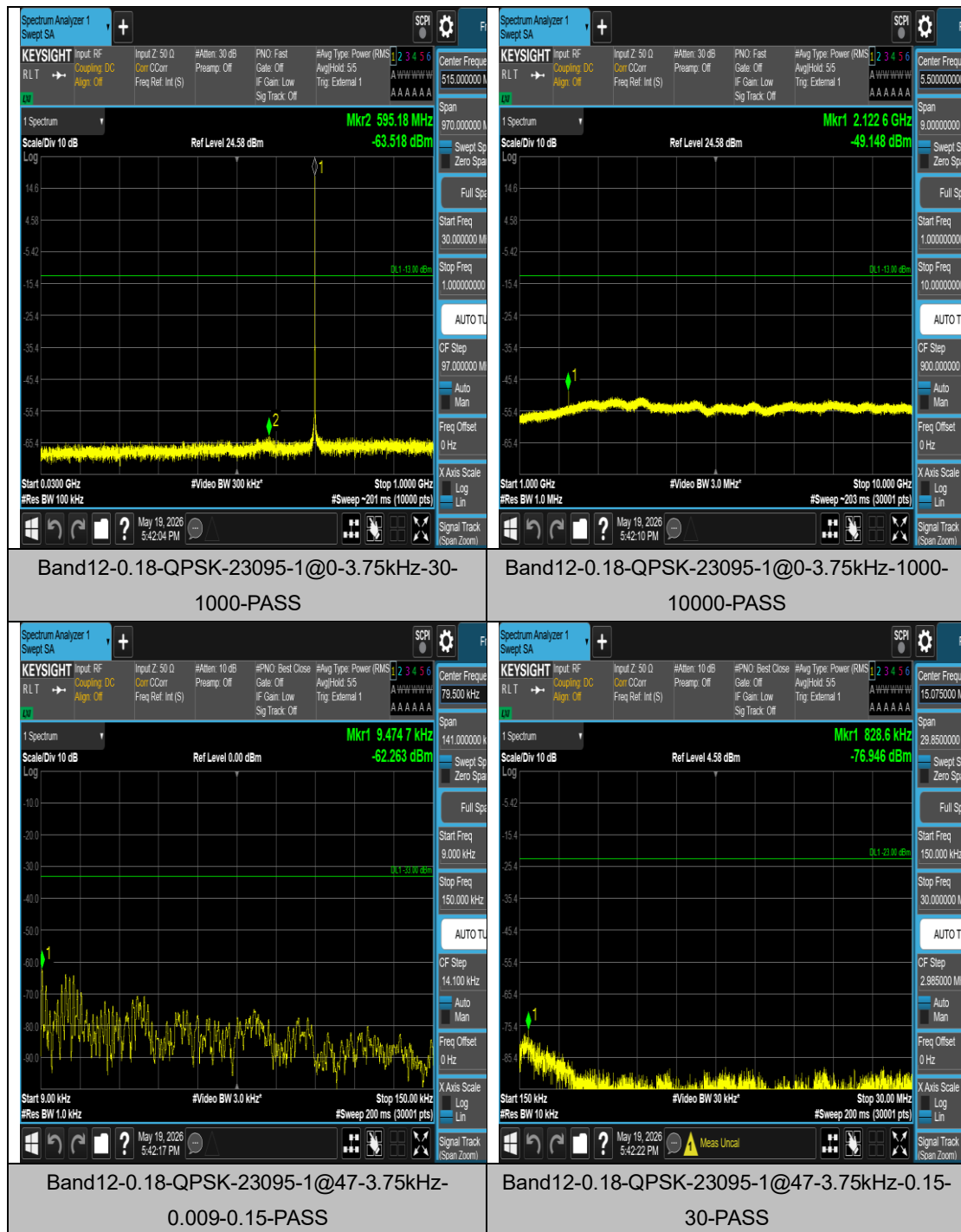
Band1 2	Stand-Alone	15kHz	0.18	BPSK	23178	1@0	0.15	30	-60.62	-23	PASS
Band1 2	Stand-Alone	15kHz	0.18	BPSK	23178	1@0	30	1000	-61.38	-13	PASS
Band1 2	Stand-Alone	15kHz	0.18	BPSK	23178	1@0	1000	1000 0	-50.23	-13	PASS
Band1 2	Stand-Alone	15kHz	0.18	BPSK	23178	1@11	0.009	0.15	-55.79	-33	PASS
Band1 2	Stand-Alone	15kHz	0.18	BPSK	23178	1@11	0.15	30	-63.03	-23	PASS
Band1 2	Stand-Alone	15kHz	0.18	BPSK	23178	1@11	30	1000	-63.41	-13	PASS
Band1 2	Stand-Alone	15kHz	0.18	BPSK	23178	1@11	1000	1000 0	-50.95	-13	PASS

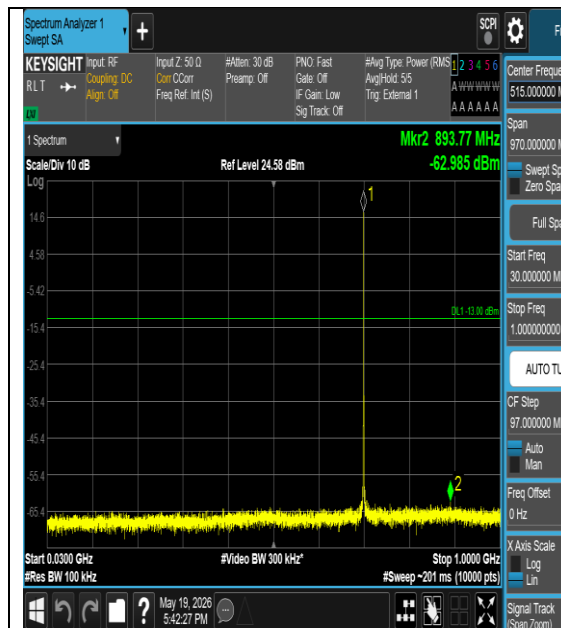
Test Graphs



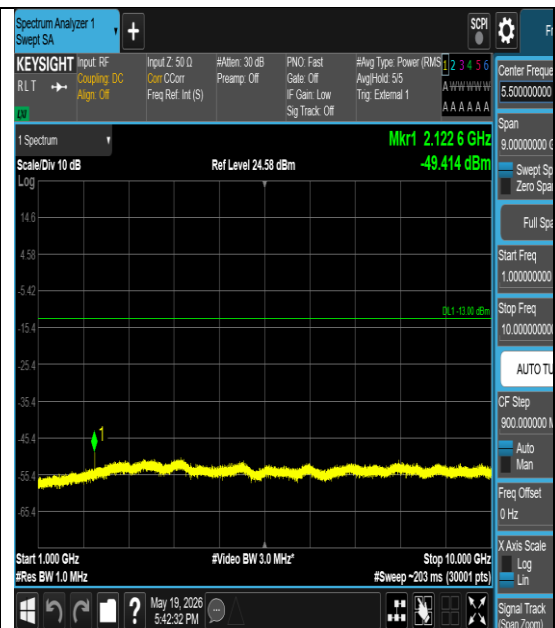




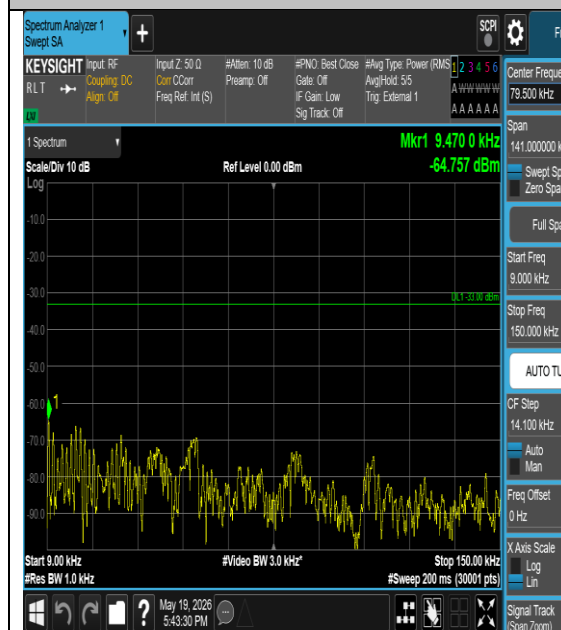




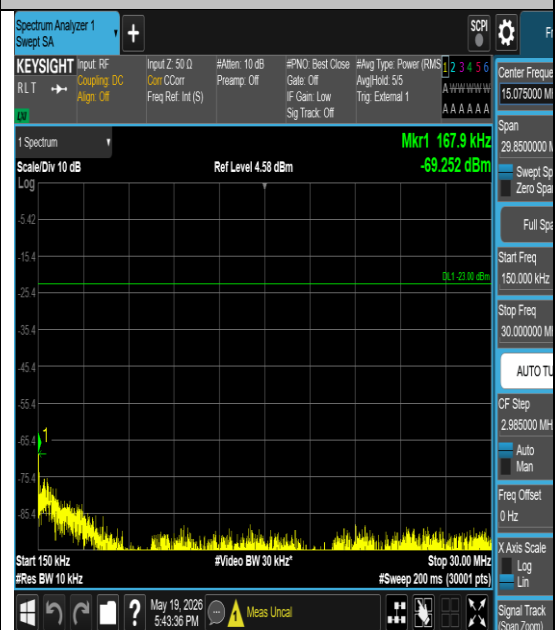
Band12-0.18-QPSK-23095-1@47-3.75kHz-30-1000-PASS



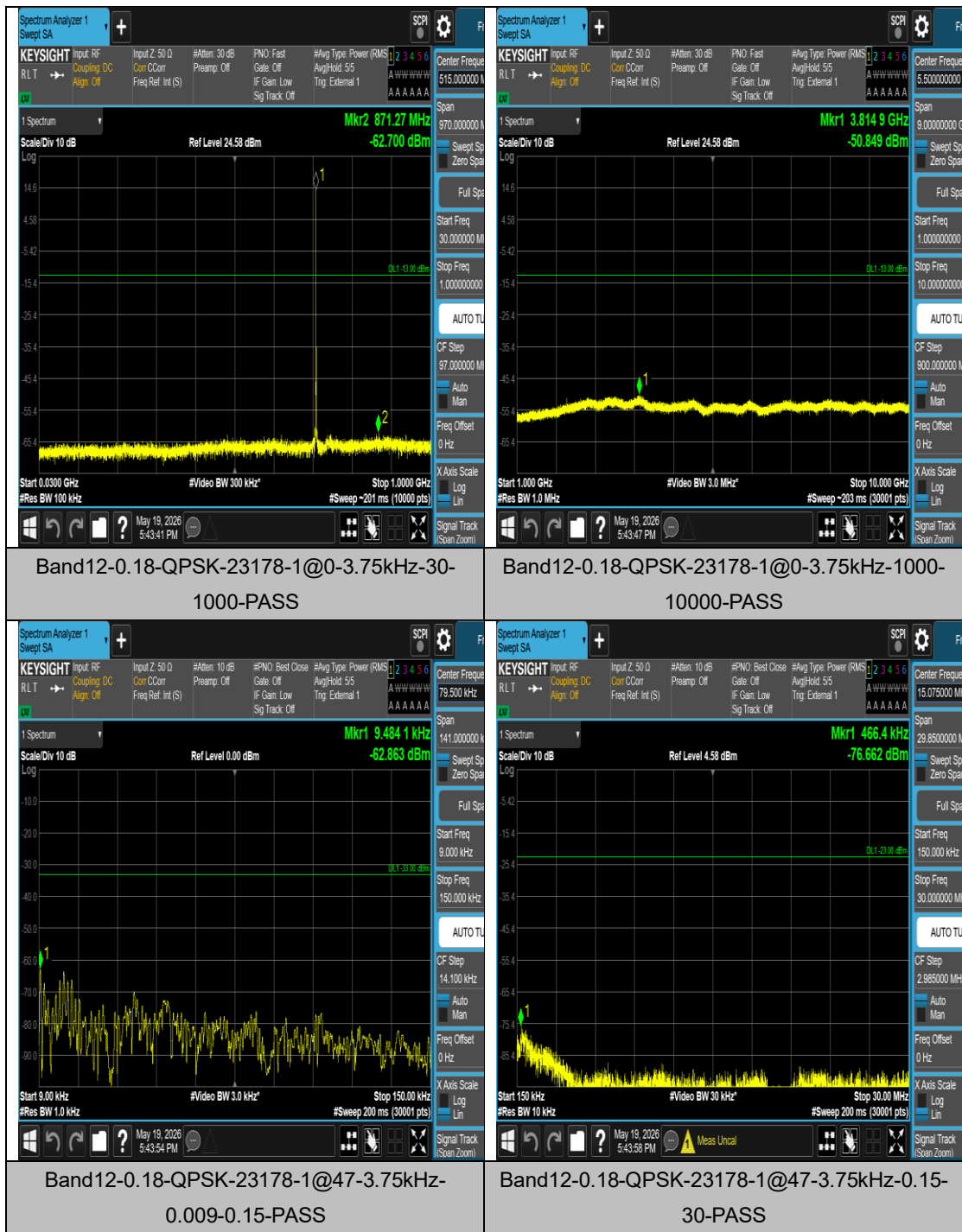
Band12-0.18-QPSK-23095-1@47-3.75kHz-1000-10000-PASS

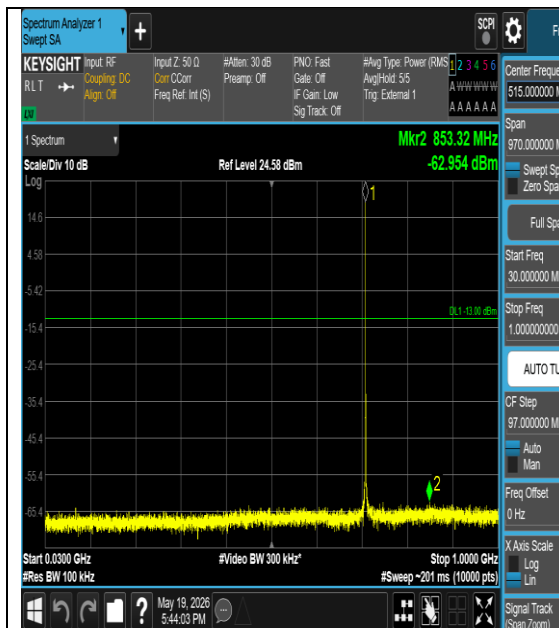


Band12-0.18-QPSK-23178-1@0-3.75kHz-0.009-0.15-PASS

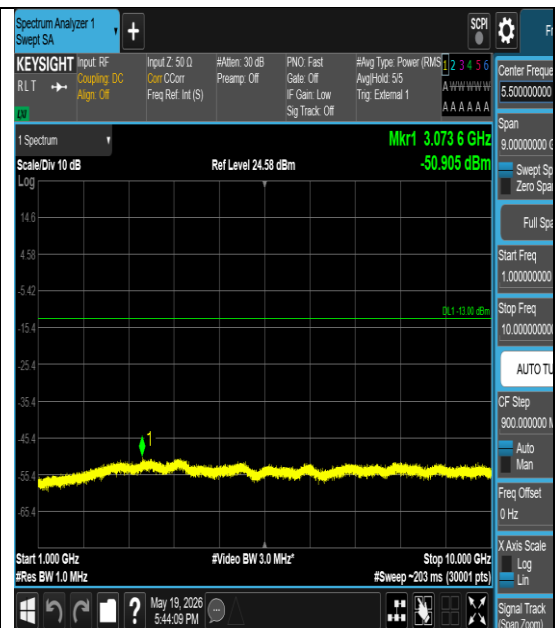


Band12-0.18-QPSK-23178-1@0-3.75kHz-0.15-30-PASS

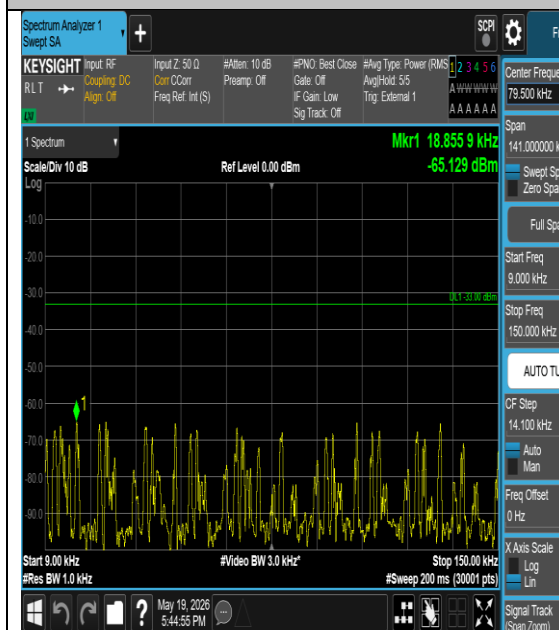




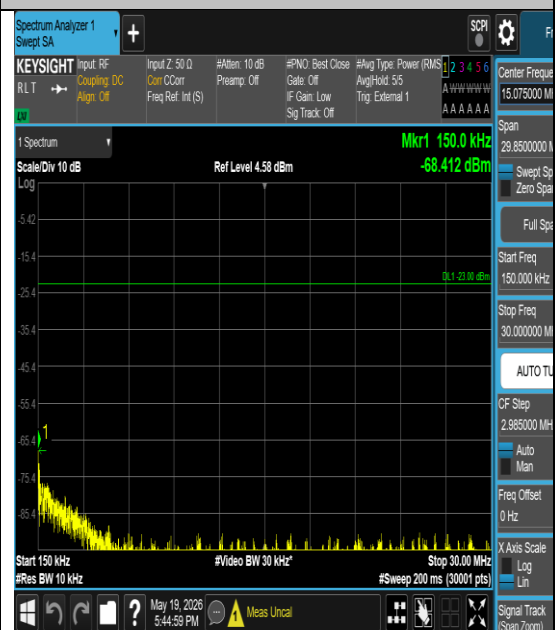
Band12-0.18-QPSK-23178-1@47-3.75kHz-30-1000-PASS



Band12-0.18-QPSK-23178-1@47-3.75kHz-1000-10000-PASS



Band12-0.18-QPSK-23012-12@0-15kHz-0.009-0.15-PASS



Band12-0.18-QPSK-23012-12@0-15kHz-0.15-30-PASS

