

Appendix-C LTE NB-IoT Band 13

Effective (Isotropic) Radiated Power Output Data for NB1

Test Result

Band	OpMode	SCS	BW	Modulation	Channel	Tones	POWER (dBm)	ERP (dBm)	Limit (dBm)	Verdict
Band13	Stand-Alone	3.75kHz	0.18	BPSK	23182	1@0	21.38	23.68	34.77	PASS
Band13	Stand-Alone	3.75kHz	0.18	QPSK	23182	1@0	21.41	23.71	34.77	PASS
Band13	Stand-Alone	3.75kHz	0.18	BPSK	23182	1@47	21.25	23.55	34.77	PASS
Band13	Stand-Alone	3.75kHz	0.18	QPSK	23182	1@47	21.31	23.61	34.77	PASS
Band13	Stand-Alone	3.75kHz	0.18	BPSK	23230	1@0	21.1	23.4	34.77	PASS
Band13	Stand-Alone	3.75kHz	0.18	QPSK	23230	1@0	21.12	23.42	34.77	PASS
Band13	Stand-Alone	3.75kHz	0.18	BPSK	23230	1@47	21.12	23.42	34.77	PASS
Band13	Stand-Alone	3.75kHz	0.18	QPSK	23230	1@47	21.11	23.41	34.77	PASS
Band13	Stand-Alone	3.75kHz	0.18	BPSK	23278	1@0	21.14	23.44	34.77	PASS
Band13	Stand-Alone	3.75kHz	0.18	QPSK	23278	1@0	21.18	23.48	34.77	PASS
Band13	Stand-Alone	3.75kHz	0.18	BPSK	23278	1@47	21.08	23.38	34.77	PASS
Band13	Stand-Alone	3.75kHz	0.18	QPSK	23278	1@47	21.08	23.38	34.77	PASS
Band13	Stand-Alone	15kHz	0.18	BPSK	23182	1@0	20.93	23.23	34.77	PASS
Band13	Stand-Alone	15kHz	0.18	QPSK	23182	1@0	20.97	23.27	34.77	PASS
Band13	Stand-Alone	15kHz	0.18	BPSK	23182	1@11	20.9	23.2	34.77	PASS
Band13	Stand-Alone	15kHz	0.18	QPSK	23182	1@11	20.92	23.22	34.77	PASS
Band13	Stand-Alone	15kHz	0.18	BPSK	23230	1@0	21.07	23.37	34.77	PASS
Band13	Stand-Alone	15kHz	0.18	QPSK	23230	1@0	21.12	23.42	34.77	PASS
Band13	Stand-Alone	15kHz	0.18	BPSK	23230	1@11	21.03	23.33	34.77	PASS
Band13	Stand-Alone	15kHz	0.18	QPSK	23230	1@11	21.03	23.33	34.77	PASS
Band13	Stand-Alone	15kHz	0.18	BPSK	23278	1@0	21.01	23.31	34.77	PASS
Band13	Stand-Alone	15kHz	0.18	QPSK	23278	1@0	21.05	23.35	34.77	PASS
Band13	Stand-Alone	15kHz	0.18	BPSK	23278	1@11	20.94	23.24	34.77	PASS
Band13	Stand-Alone	15kHz	0.18	QPSK	23278	1@11	20.96	23.26	34.77	PASS
Band13	Stand-Alone	15kHz	0.18	QPSK	23182	3@3	20.48	22.78	34.77	PASS
Band13	Stand-Alone	15kHz	0.18	QPSK	23230	3@3	21.2	23.5	34.77	PASS
Band13	Stand-Alone	15kHz	0.18	QPSK	23278	3@3	21.14	23.44	34.77	PASS

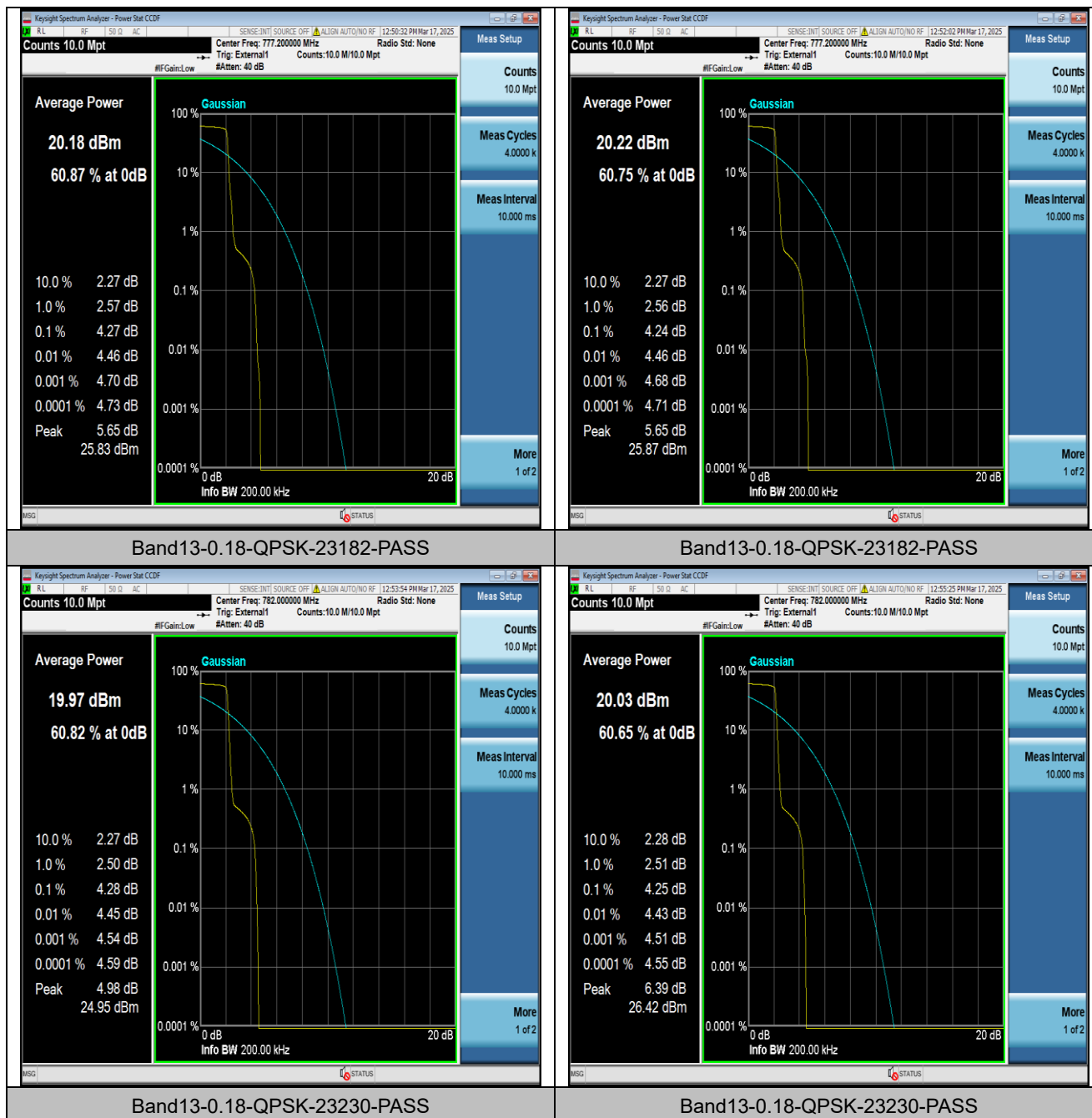
Band 13-3.75kHz-1@0-BPSK-23182-PASS

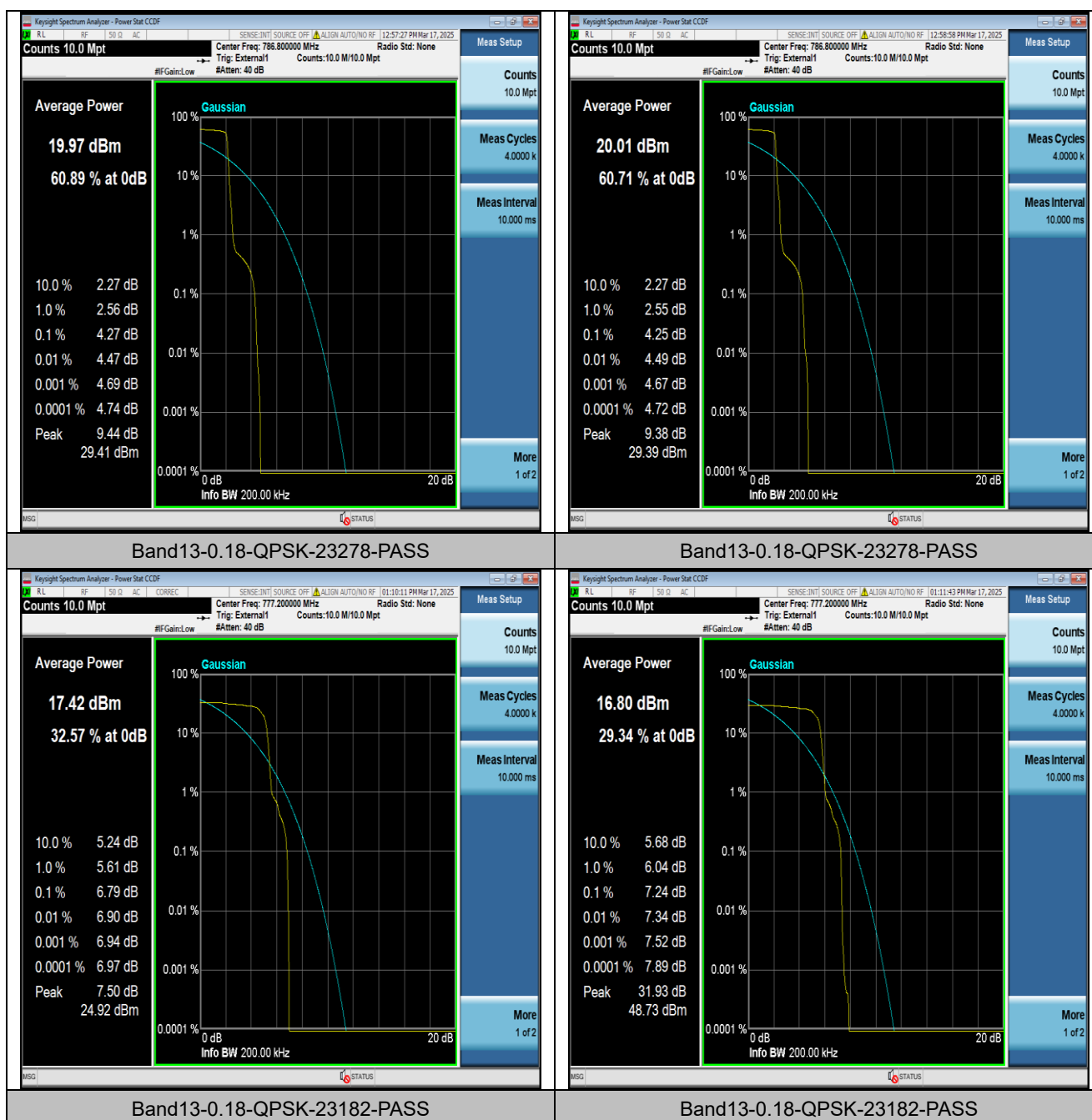
Band 13-3.75kHz-1@0-QPSK-23182-PASS

Peak-to-Average Ratio(CCDF) for NB1**Test Result**

Band	OpMode	SCS	BW	Modulation	Channel	Tones	Result (dBm)	Limit (dBm)	Verdict
Band13	Stand-Alone	3.75kHz	0.18	QPSK	23182	1@0	4.27	<=13	PASS
Band13	Stand-Alone	3.75kHz	0.18	QPSK	23182	1@47	4.24	<=13	PASS
Band13	Stand-Alone	3.75kHz	0.18	QPSK	23230	1@0	4.28	<=13	PASS
Band13	Stand-Alone	3.75kHz	0.18	QPSK	23230	1@47	4.25	<=13	PASS
Band13	Stand-Alone	3.75kHz	0.18	QPSK	23278	1@0	4.27	<=13	PASS
Band13	Stand-Alone	3.75kHz	0.18	QPSK	23278	1@47	4.25	<=13	PASS
Band13	Stand-Alone	15kHz	0.18	QPSK	23182	1@0	6.79	<=13	PASS
Band13	Stand-Alone	15kHz	0.18	QPSK	23182	1@11	7.24	<=13	PASS
Band13	Stand-Alone	15kHz	0.18	QPSK	23230	1@0	6.91	<=13	PASS
Band13	Stand-Alone	15kHz	0.18	QPSK	23230	1@11	7.39	<=13	PASS
Band13	Stand-Alone	15kHz	0.18	QPSK	23278	1@0	6.76	<=13	PASS
Band13	Stand-Alone	15kHz	0.18	QPSK	23278	1@11	7.54	<=13	PASS

Test Graphs





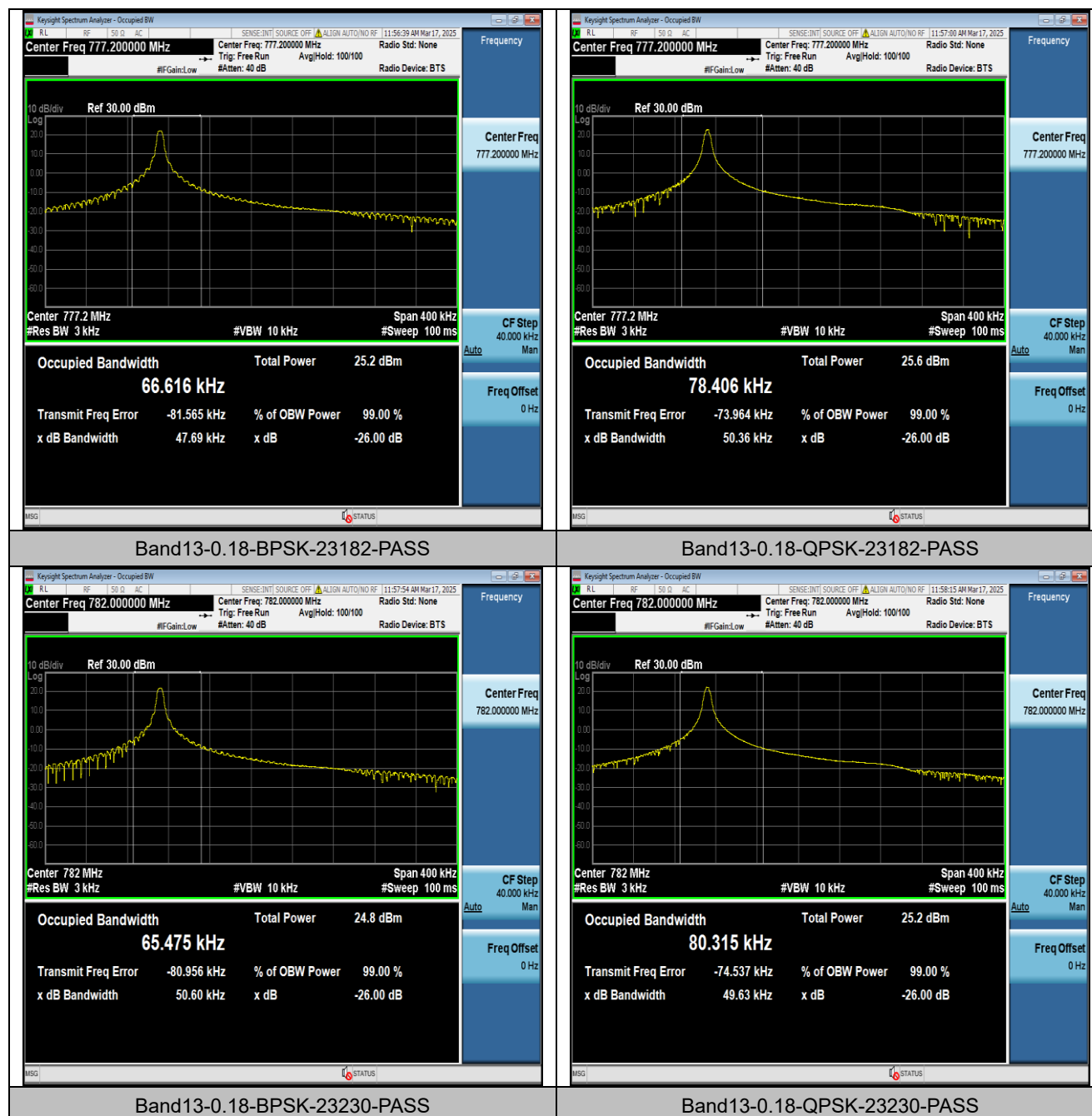


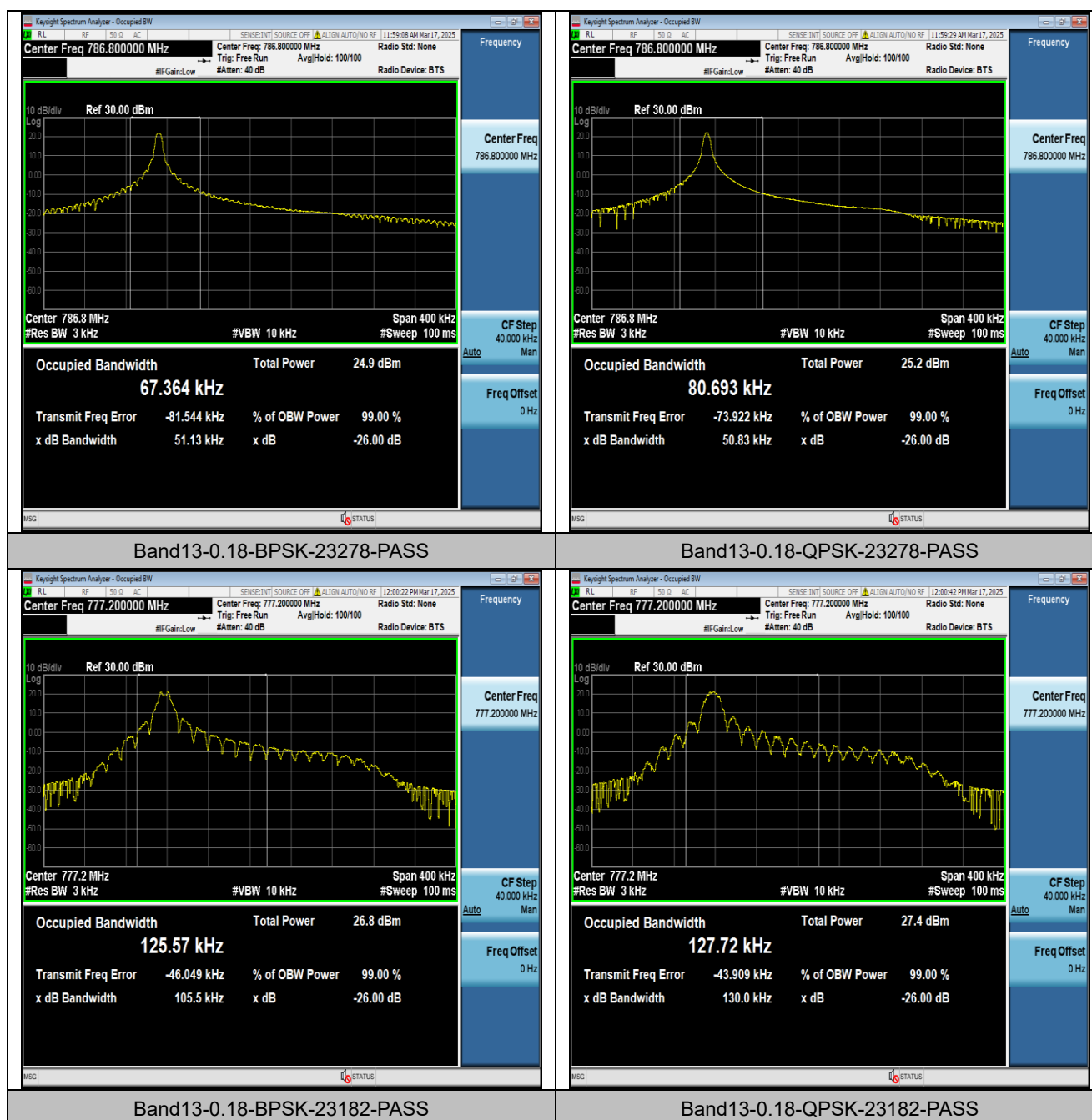
Emission Bandwidth for NB1

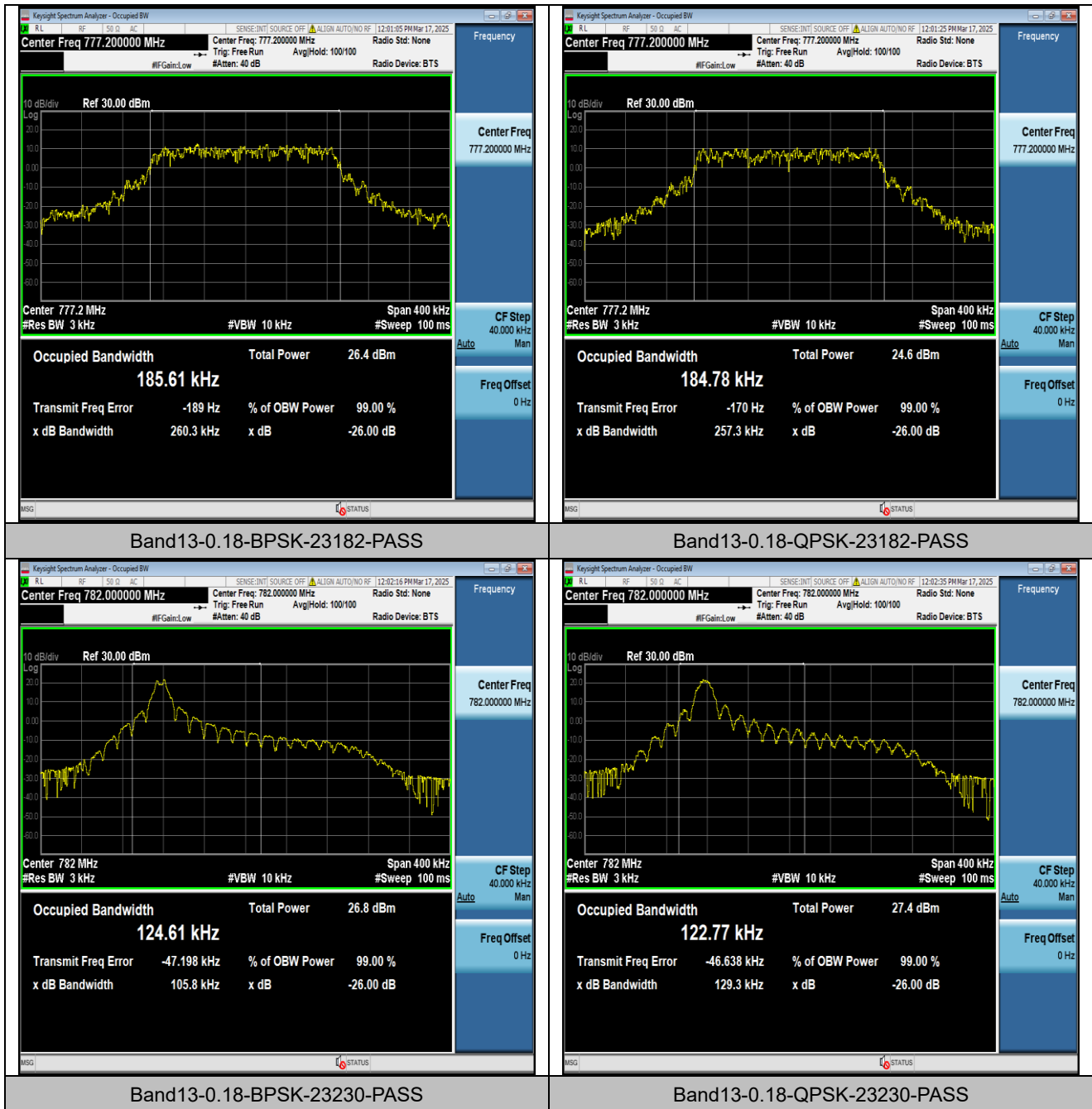
Test Result

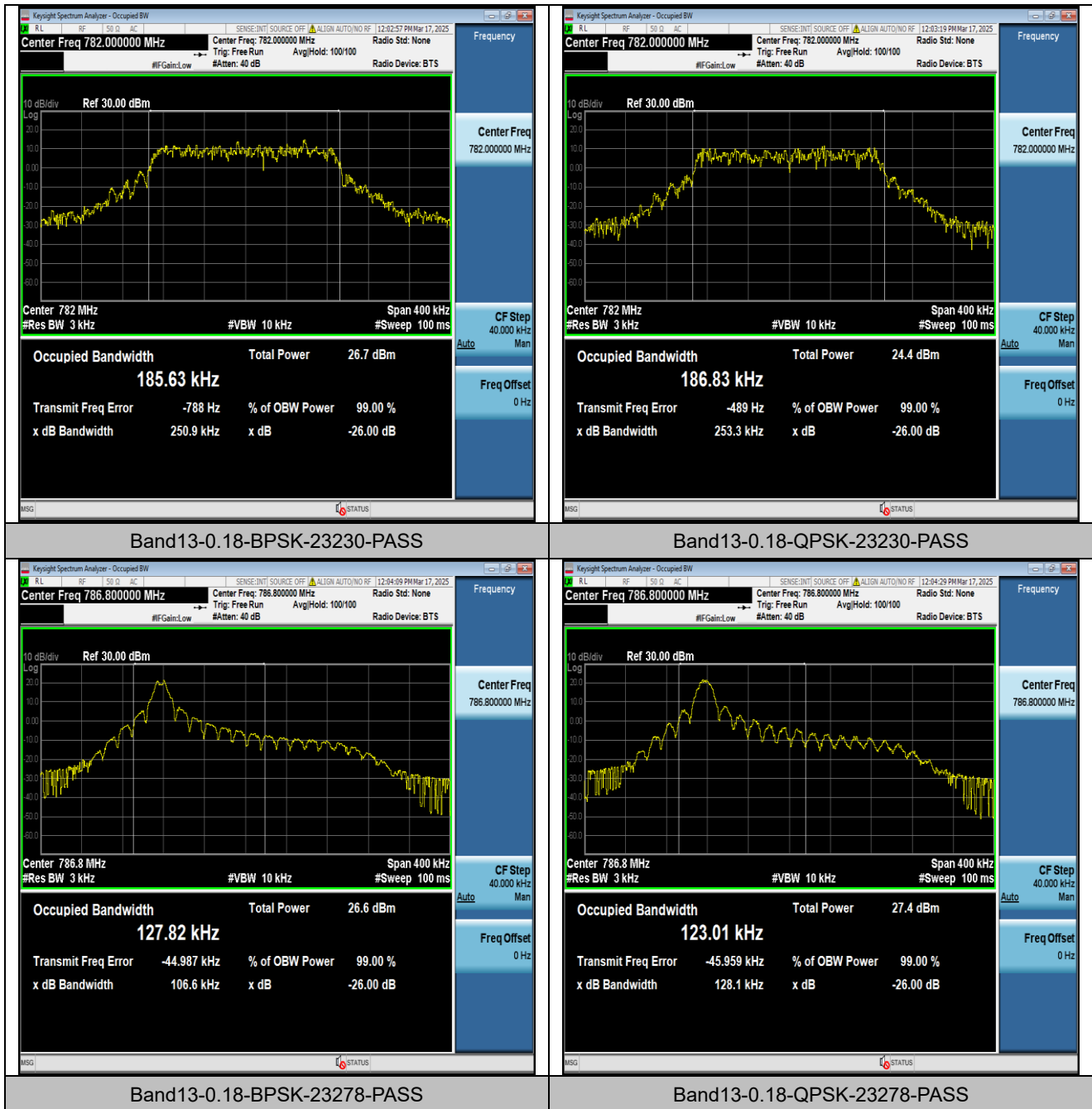
Band	OpMode	SCS	BW	Modulation	Channel	Tones	OBW(MHz)	EBW(MHz)	Verdict
Band13	Stand-Alone	3.75kHz	0.18	BPSK	23182	1@0	0.06662	0.0477	PASS
Band13	Stand-Alone	3.75kHz	0.18	QPSK	23182	1@0	0.07841	0.0504	PASS
Band13	Stand-Alone	3.75kHz	0.18	BPSK	23230	1@0	0.06547	0.0506	PASS
Band13	Stand-Alone	3.75kHz	0.18	QPSK	23230	1@0	0.08031	0.0496	PASS
Band13	Stand-Alone	3.75kHz	0.18	BPSK	23278	1@0	0.06736	0.0511	PASS
Band13	Stand-Alone	3.75kHz	0.18	QPSK	23278	1@0	0.08069	0.0508	PASS
Band13	Stand-Alone	15kHz	0.18	BPSK	23182	1@0	0.12557	0.1055	PASS
Band13	Stand-Alone	15kHz	0.18	QPSK	23182	1@0	0.12772	0.1300	PASS
Band13	Stand-Alone	15kHz	0.18	BPSK	23182	12@0	0.18561	0.2603	PASS
Band13	Stand-Alone	15kHz	0.18	QPSK	23182	12@0	0.18478	0.2573	PASS
Band13	Stand-Alone	15kHz	0.18	BPSK	23230	1@0	0.12461	0.1058	PASS
Band13	Stand-Alone	15kHz	0.18	QPSK	23230	1@0	0.12277	0.1293	PASS
Band13	Stand-Alone	15kHz	0.18	BPSK	23230	12@0	0.18563	0.2509	PASS
Band13	Stand-Alone	15kHz	0.18	QPSK	23230	12@0	0.18683	0.2533	PASS
Band13	Stand-Alone	15kHz	0.18	BPSK	23278	1@0	0.12782	0.1066	PASS
Band13	Stand-Alone	15kHz	0.18	QPSK	23278	1@0	0.12301	0.1281	PASS
Band13	Stand-Alone	15kHz	0.18	BPSK	23278	12@0	0.18692	0.2595	PASS
Band13	Stand-Alone	15kHz	0.18	QPSK	23278	12@0	0.18809	0.2597	PASS

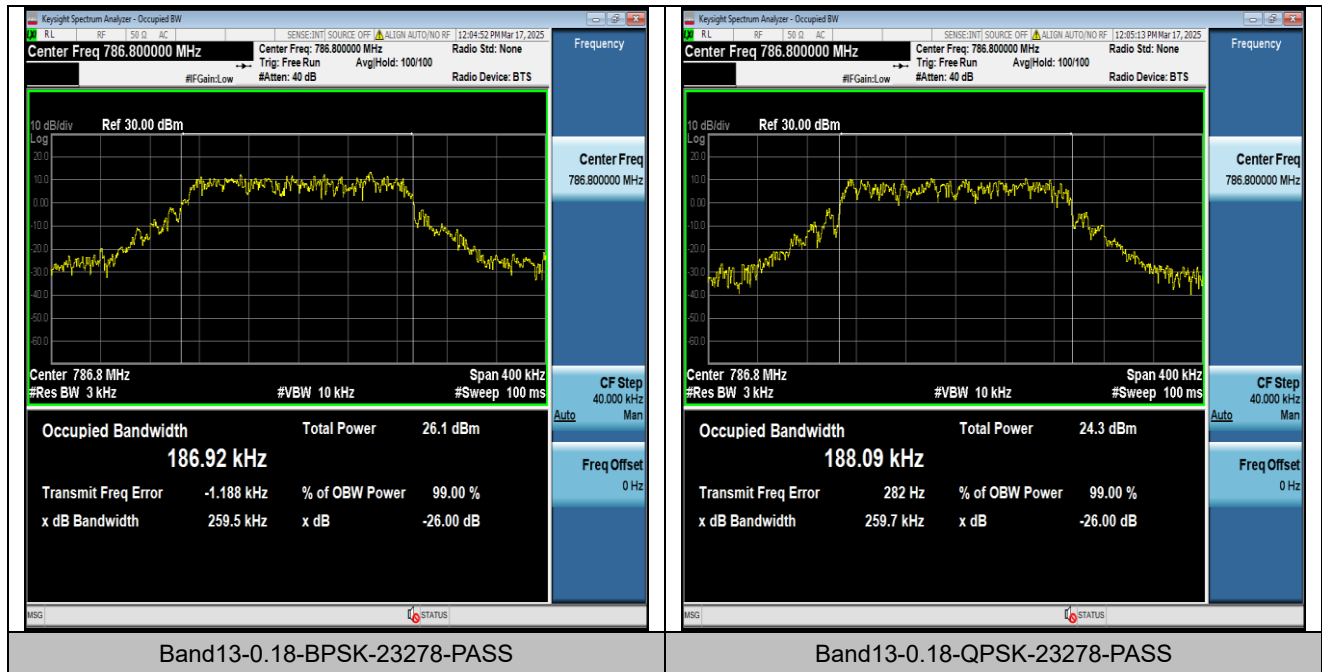
Test Graphs





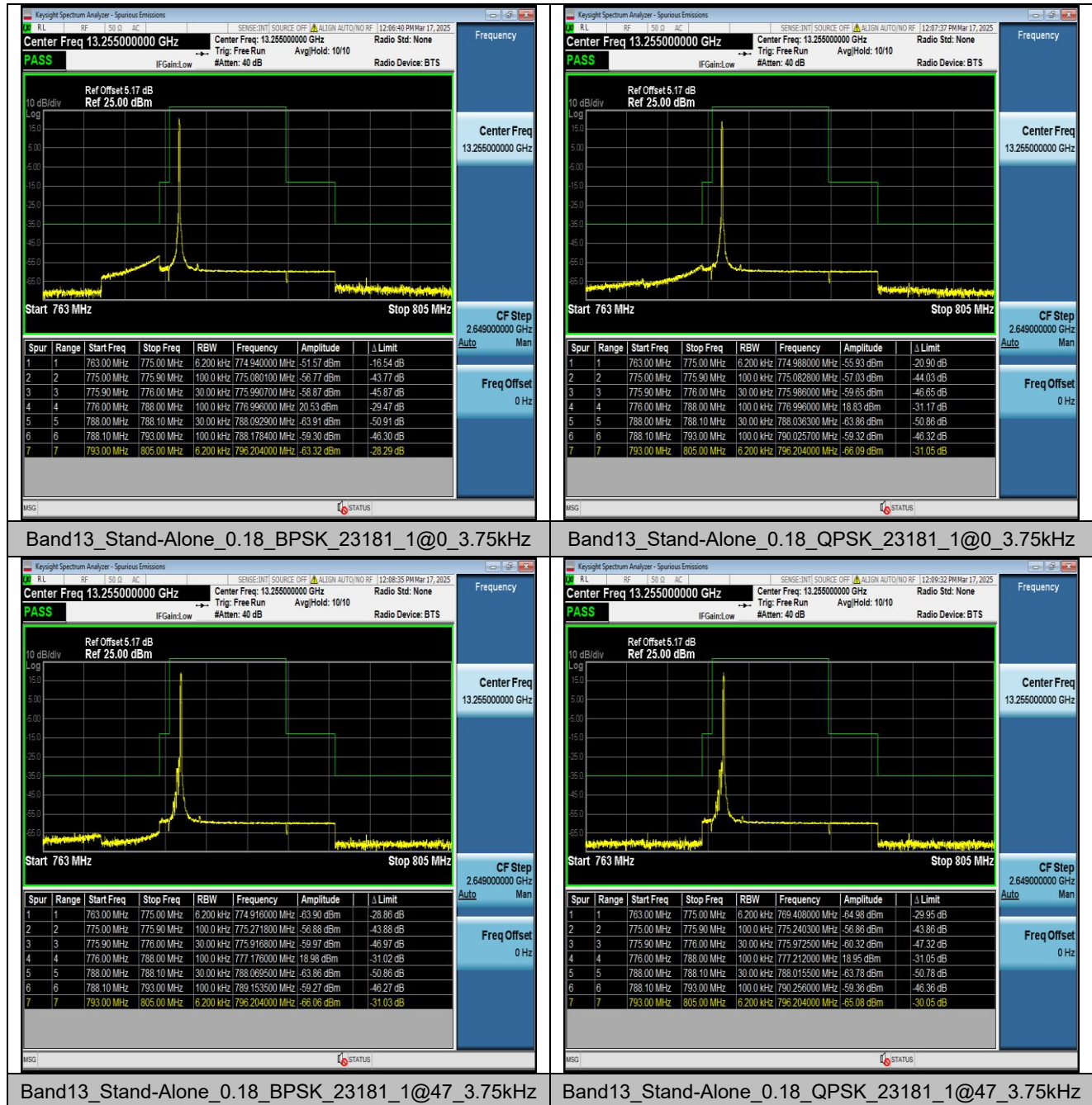


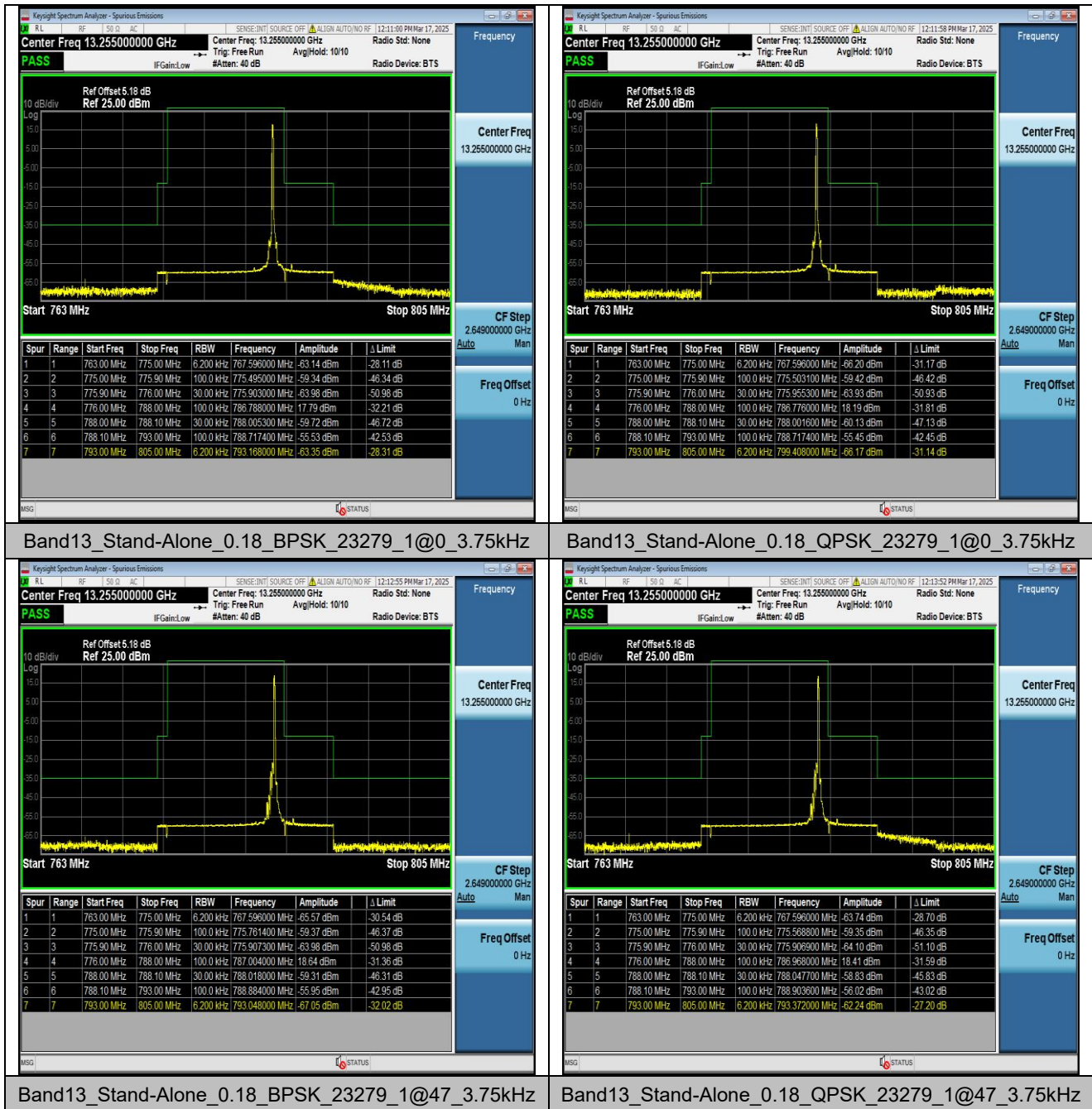


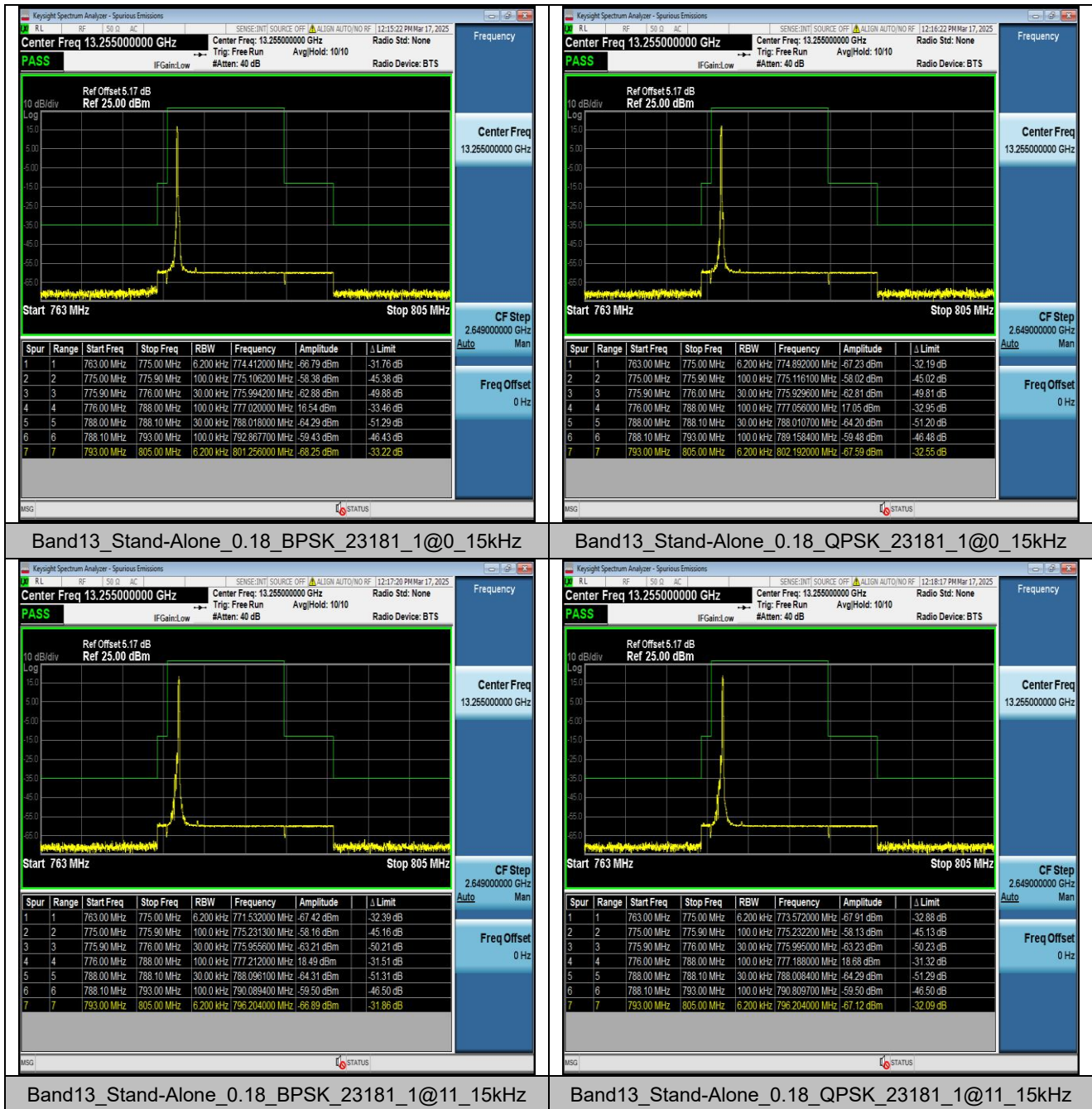


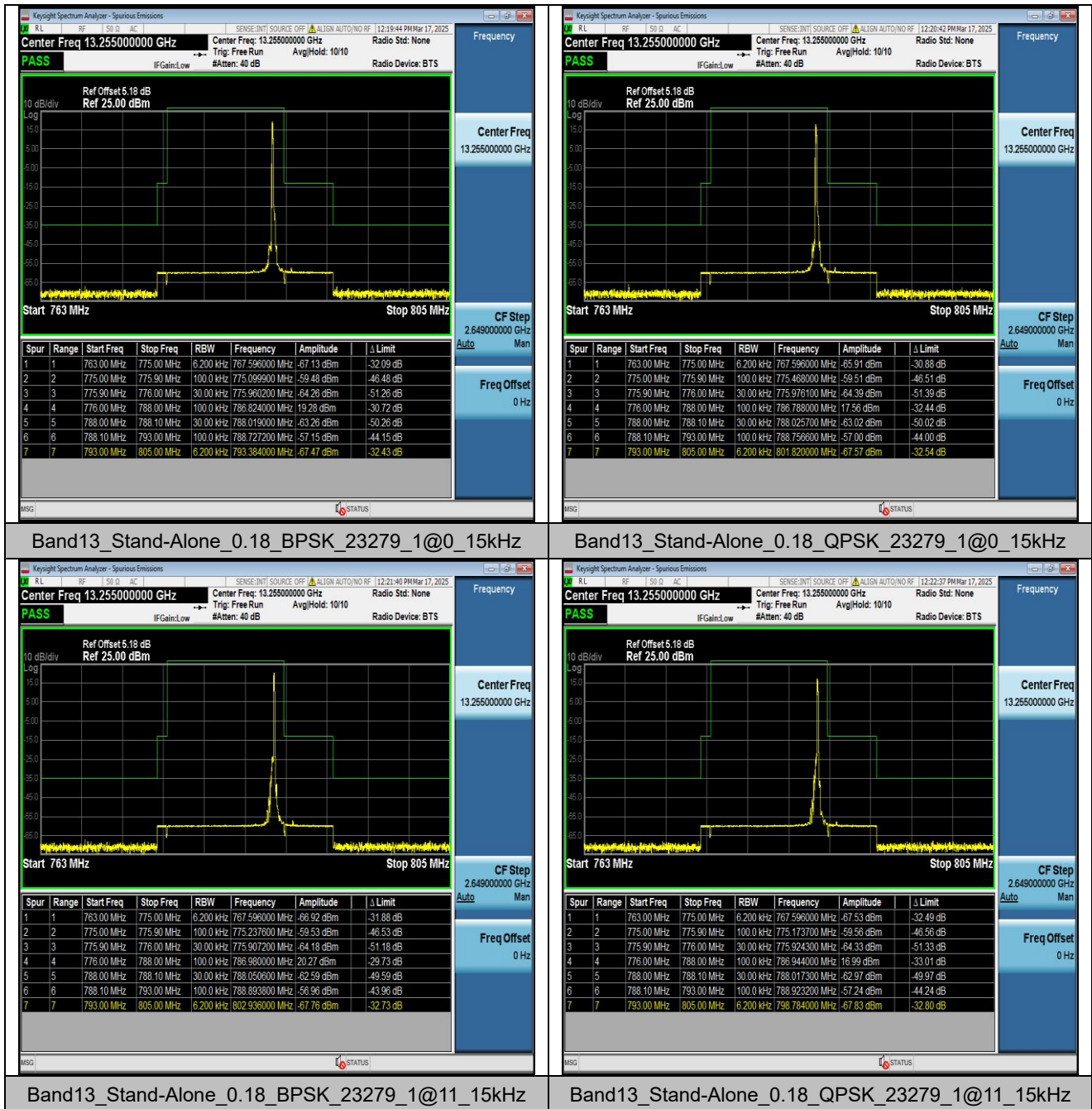
Band Edge for NB1

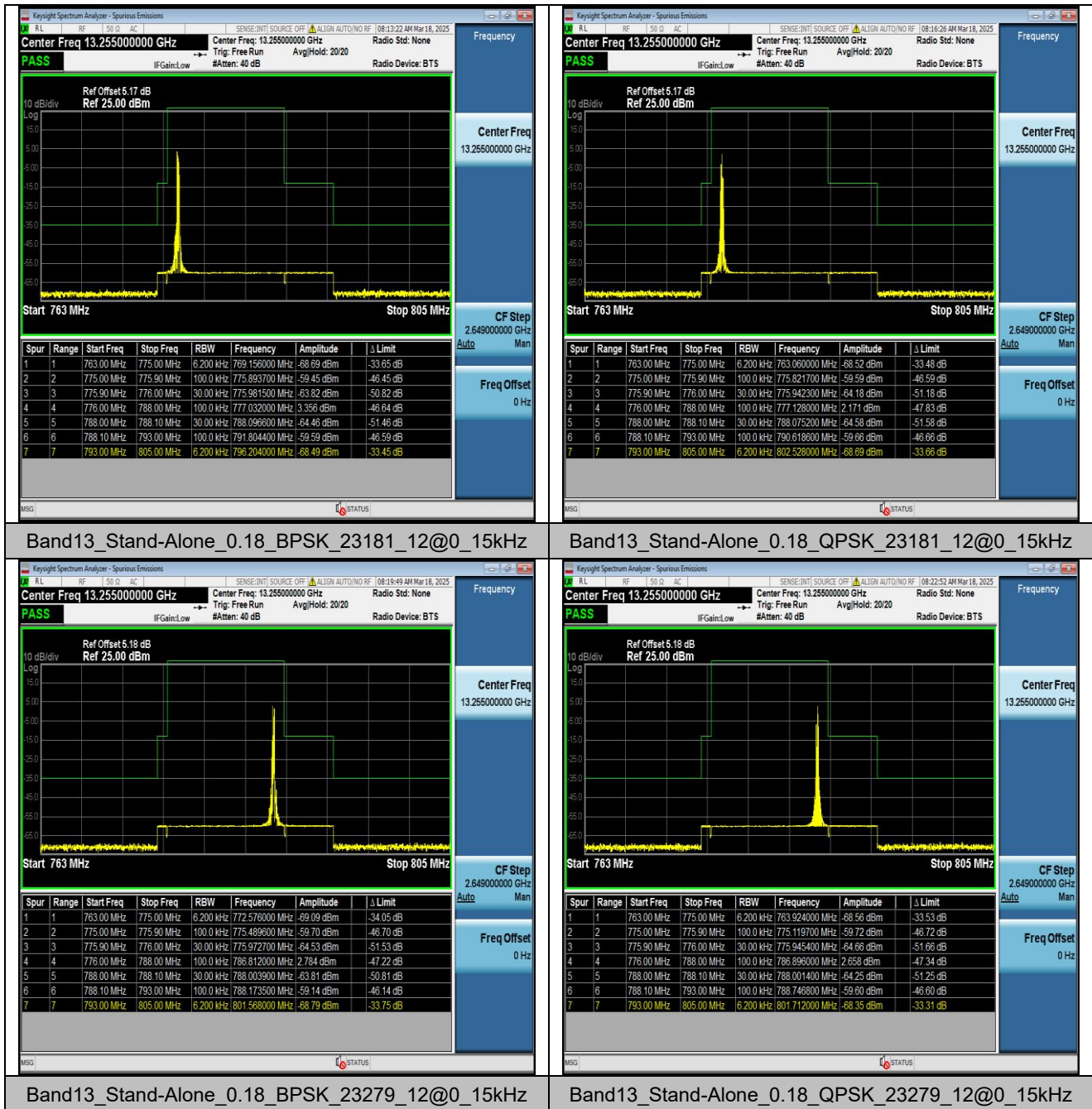
Test Graphs





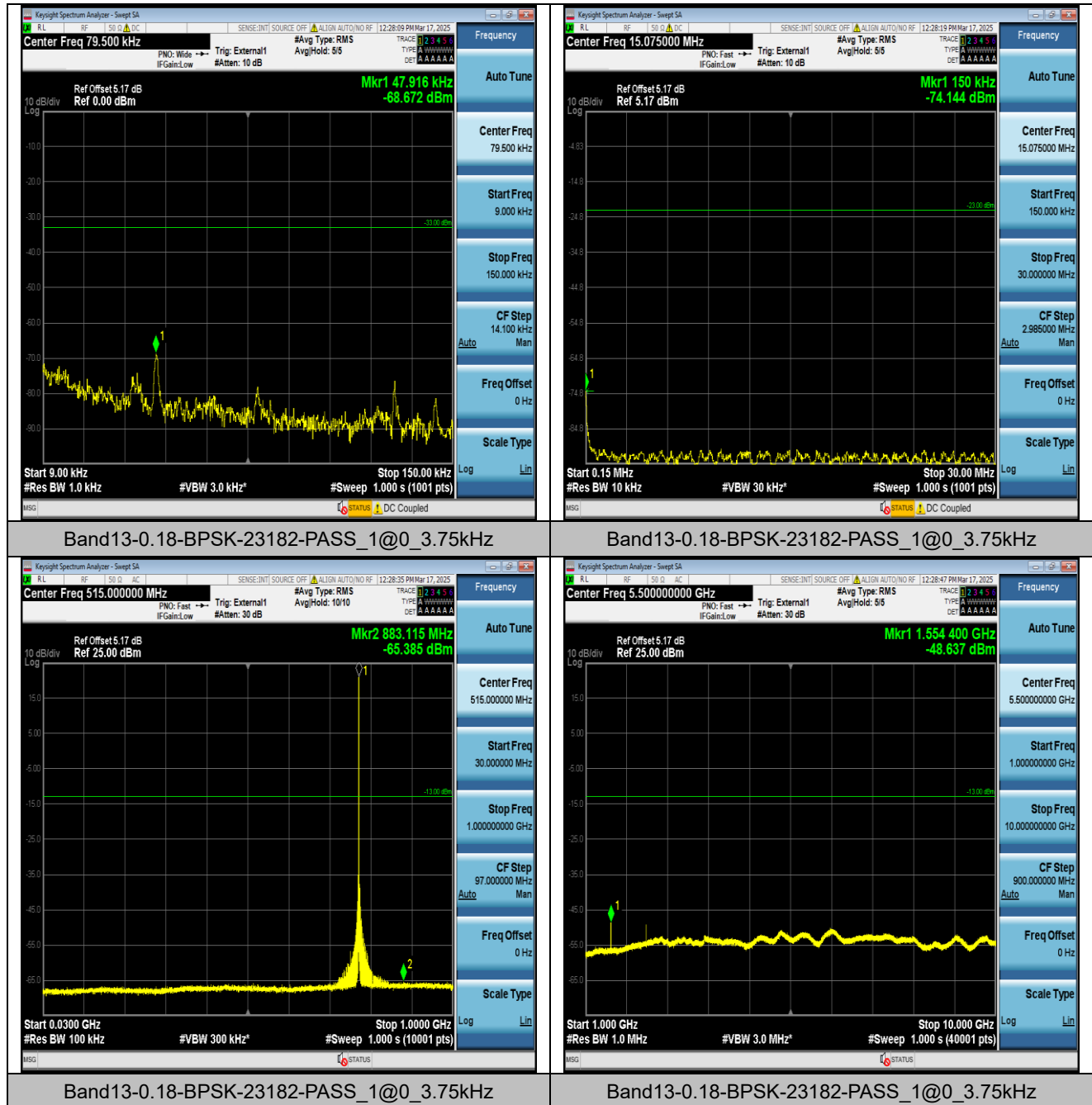


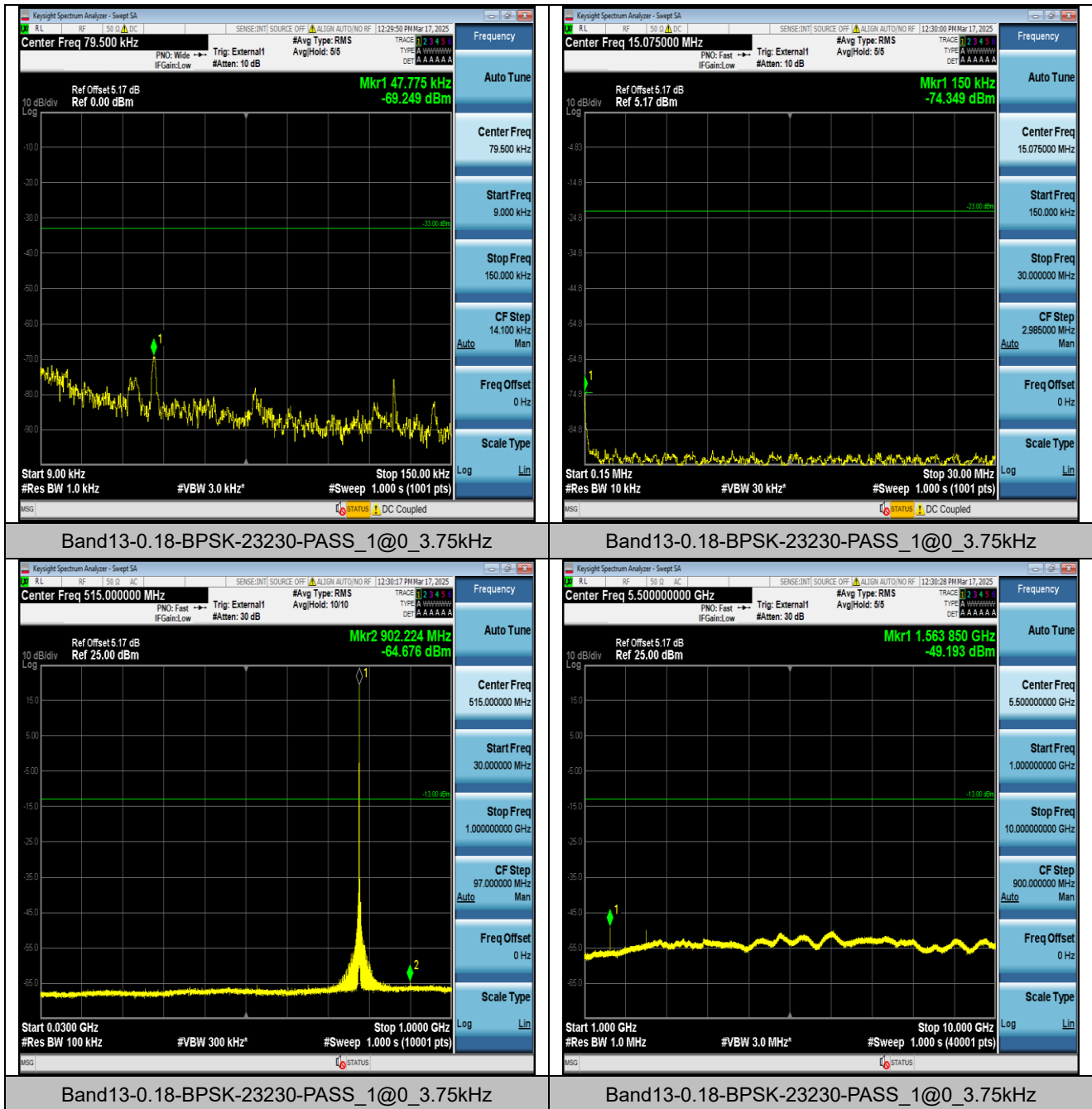


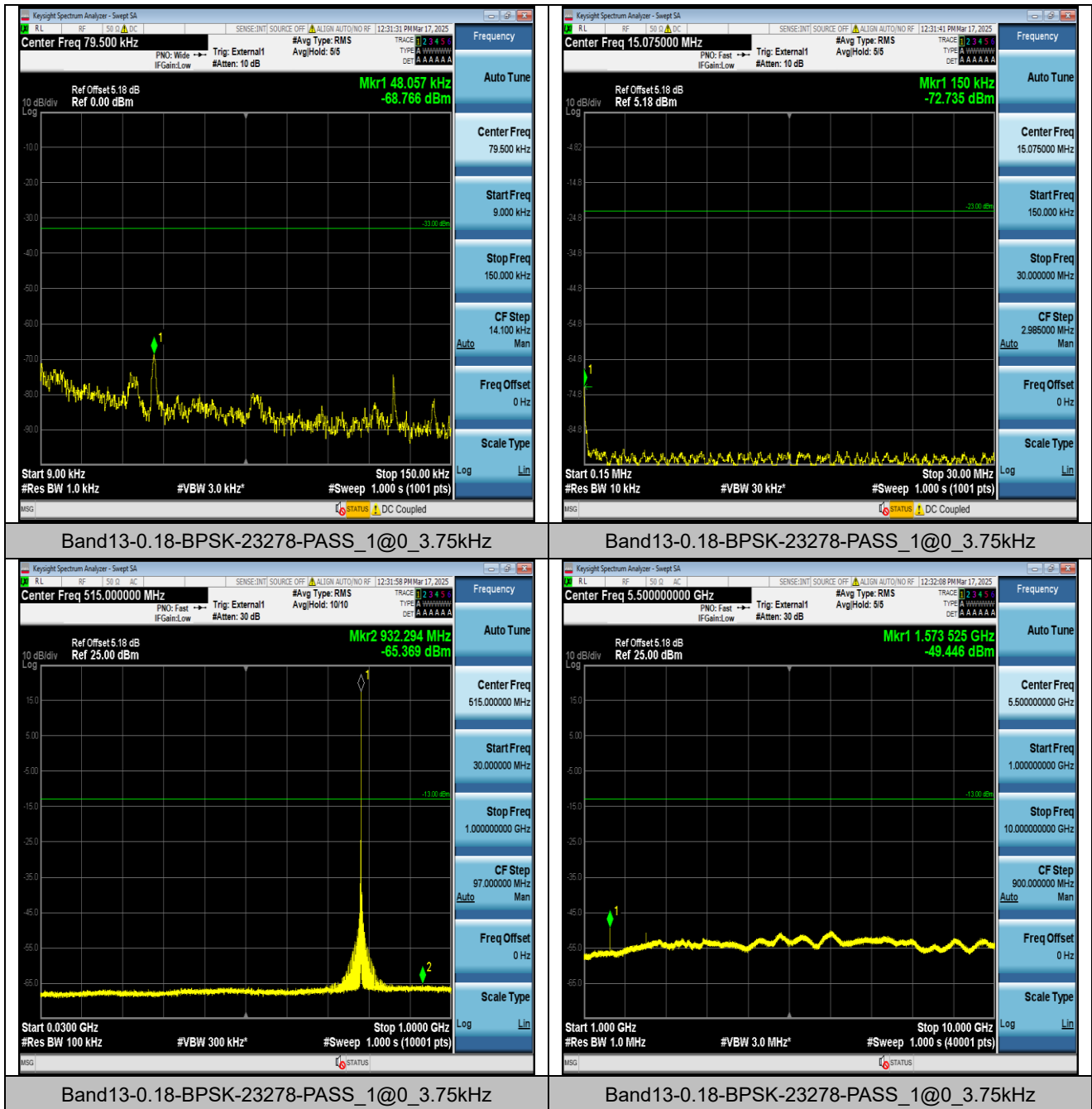


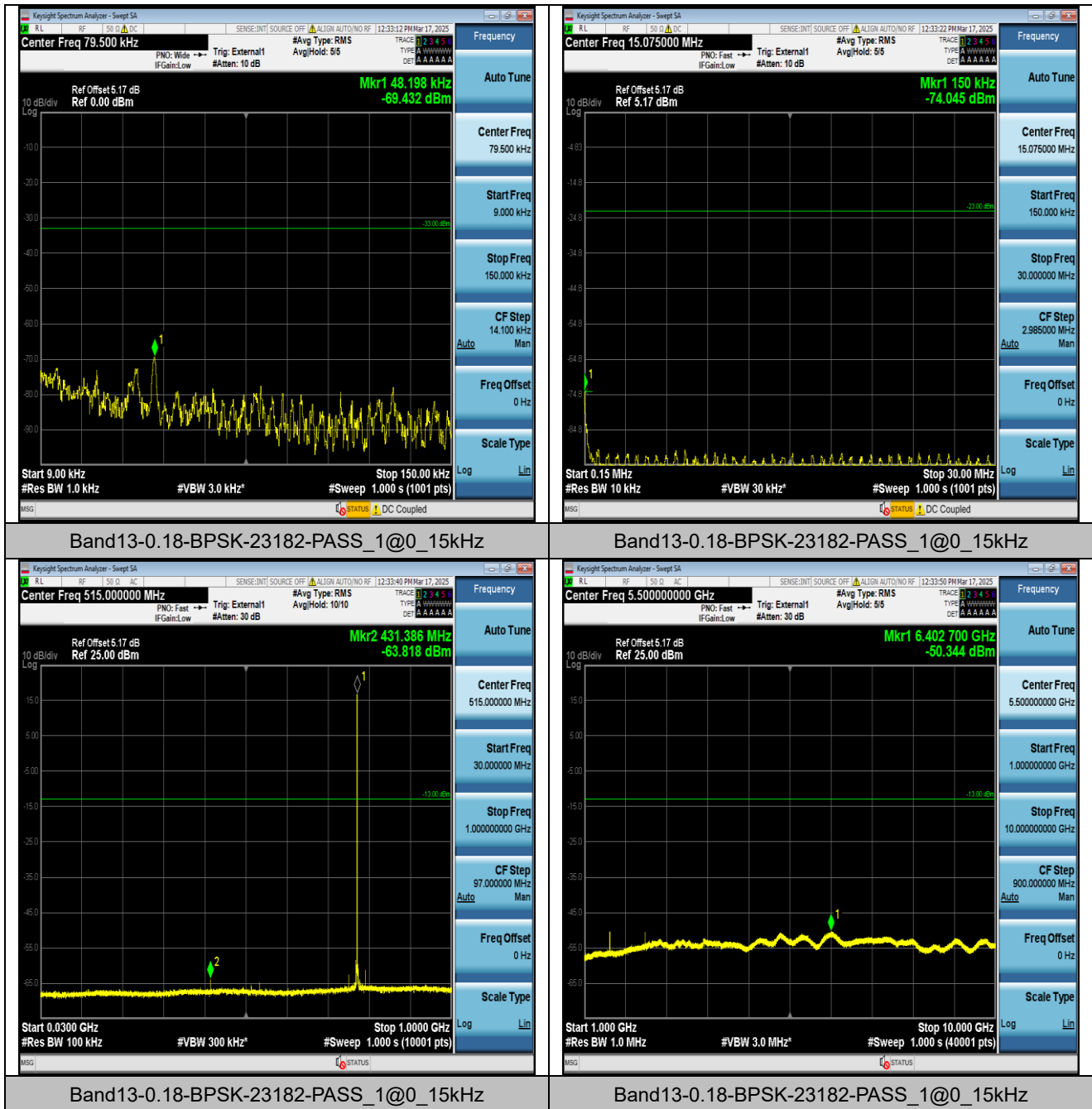
Conducted Spurious Emission for NB1

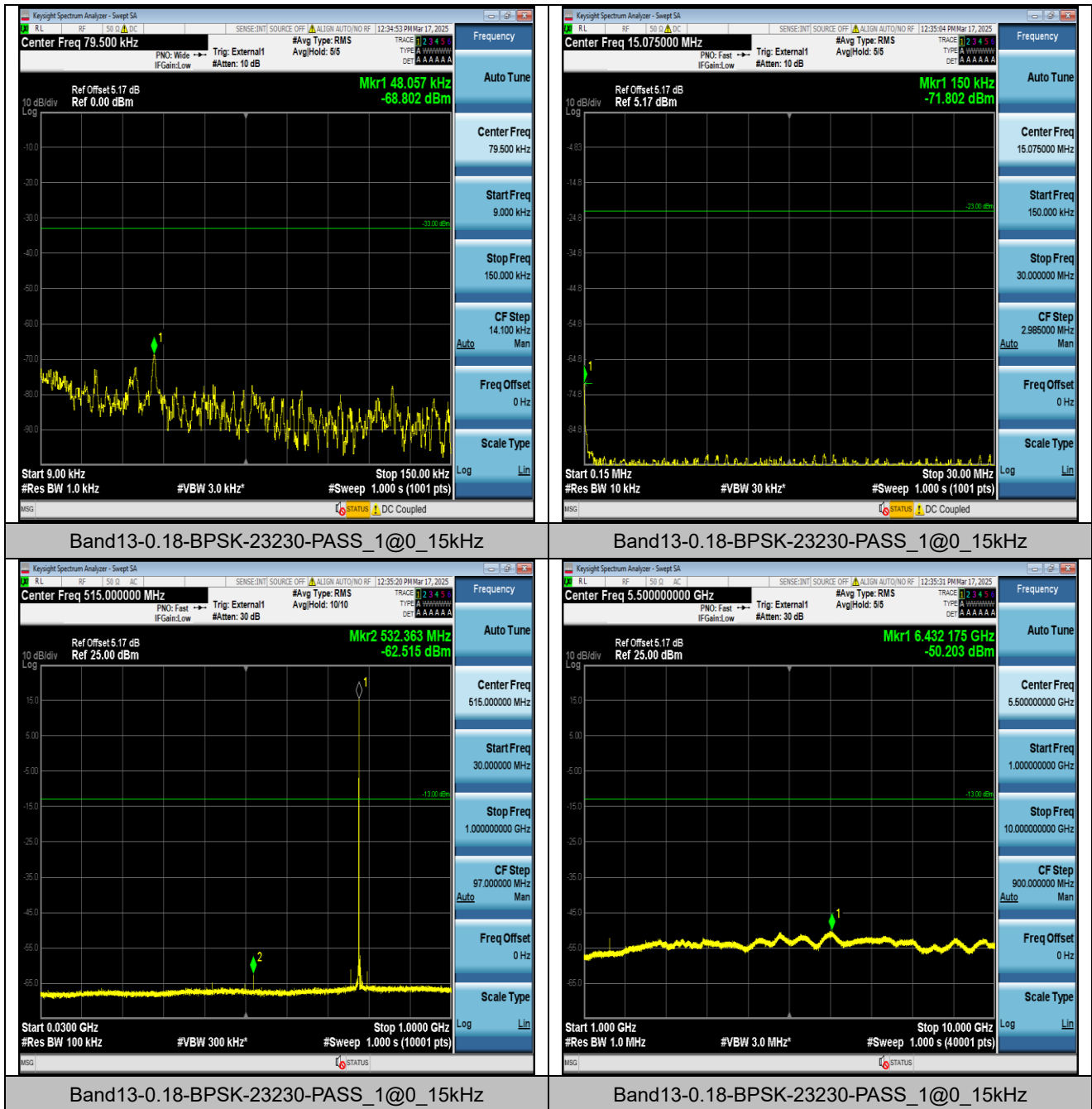
Test Graphs

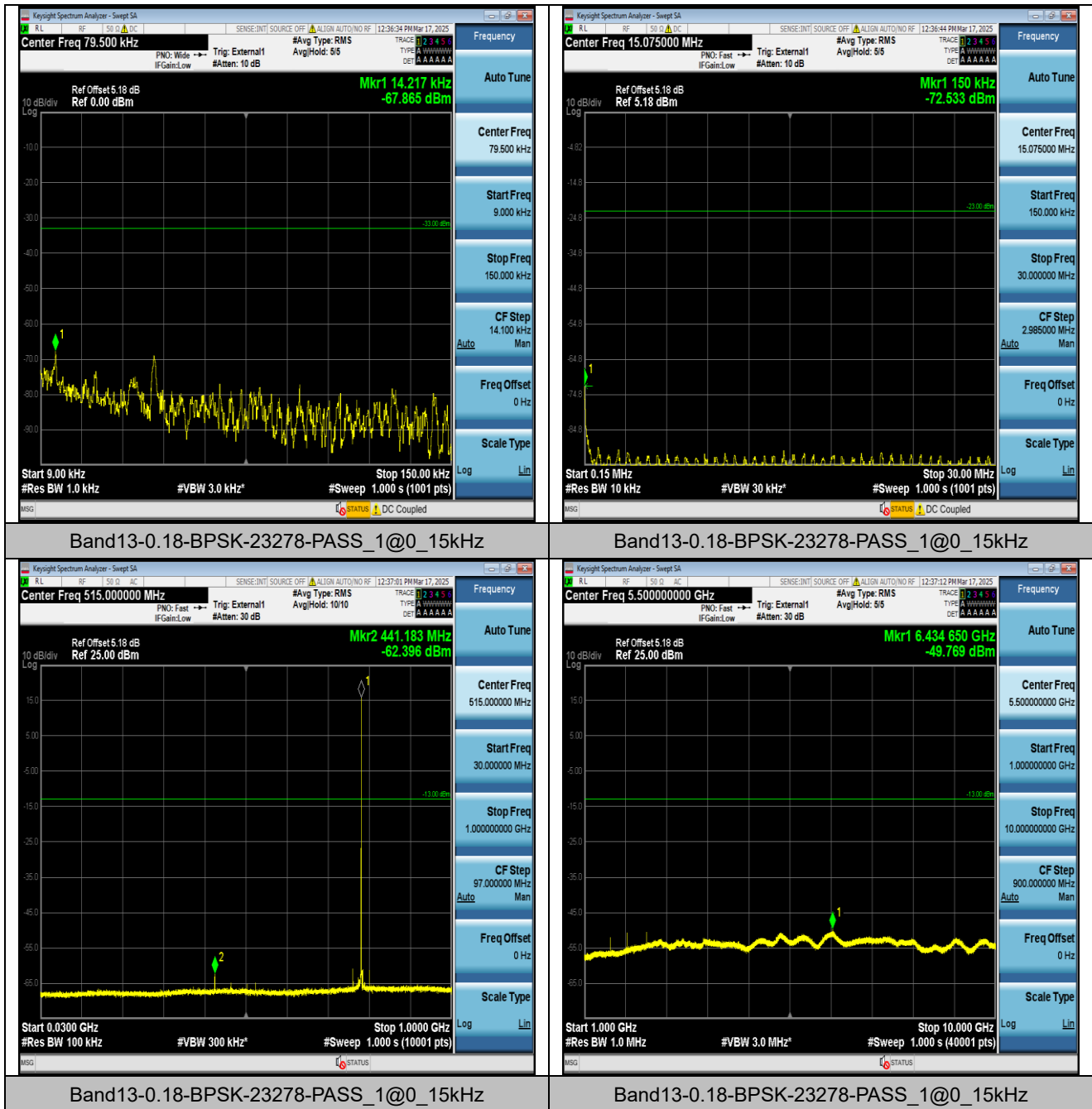












Frequency Stability for NB1

Test Result

Voltage											
Band	OpMode	SCS	Bandwidth	Modulation	Channel	Tones	Voltage [Vdc]	Temperature (°C)	Deviation (Hz)	Deviation (ppm)	Verdict
Band13	Stand-Alone	3.75kHz	0.18	QPSK	23230	1@0	VN	NT	-5.90	-0.007545	PASS
Band13	Stand-Alone	3.75kHz	0.18	QPSK	23230	1@0	VL	NT	-3.00	-0.003836	PASS
Band13	Stand-Alone	3.75kHz	0.18	QPSK	23230	1@0	VH	NT	-2.00	-0.002558	PASS
Band13	Stand-Alone	15kHz	0.18	QPSK	23230	12@0	VN	NT	-4.90	-0.006266	PASS
Band13	Stand-Alone	15kHz	0.18	QPSK	23230	12@0	VL	NT	-4.40	-0.005627	PASS
Band13	Stand-Alone	15kHz	0.18	QPSK	23230	12@0	VH	NT	-2.60	-0.003325	PASS

Temperature											
Band	OpMode	SCS	Bandwidth	Modulation	Channel	Tones	Voltage [Vdc]	Temperature (°C)	Deviation (Hz)	Deviation (ppm)	Verdict
Band13	Stand-Alone	3.75kHz	0.18	QPSK	23230	1@0	NV	-30	-4.30	-0.005499	PASS
Band13	Stand-Alone	3.75kHz	0.18	QPSK	23230	1@0	NV	-20	-4.40	-0.005627	PASS
Band13	Stand-Alone	3.75kHz	0.18	QPSK	23230	1@0	NV	-10	-4.00	-0.005115	PASS
Band13	Stand-Alone	3.75kHz	0.18	QPSK	23230	1@0	NV	0	-3.40	-0.004348	PASS
Band13	Stand-Alone	3.75kHz	0.18	QPSK	23230	1@0	NV	10	-3.60	-0.004604	PASS
Band13	Stand-Alone	3.75kHz	0.18	QPSK	23230	1@0	NV	20	-4.70	-0.006010	PASS
Band13	Stand-Alone	3.75kHz	0.18	QPSK	23230	1@0	NV	30	-4.30	-0.005499	PASS
Band13	Stand-Alone	3.75kHz	0.18	QPSK	23230	1@0	NV	40	-3.20	-0.004092	PASS
Band13	Stand-Alone	3.75kHz	0.18	QPSK	23230	1@0	NV	50	-3.00	-0.003836	PASS
Band13	Stand-Alone	15kHz	0.18	QPSK	23230	12@0	NV	-30	-3.60	-0.004604	PASS
Band13	Stand-Alone	15kHz	0.18	QPSK	23230	12@0	NV	-20	-3.40	-0.004348	PASS
Band13	Stand-Alone	15kHz	0.18	QPSK	23230	12@0	NV	-10	-2.70	-0.003453	PASS
Band13	Stand-Alone	15kHz	0.18	QPSK	23230	12@0	NV	0	-1.90	-0.002430	PASS
Band13	Stand-Alone	15kHz	0.18	QPSK	23230	12@0	NV	10	-3.30	-0.004220	PASS
Band13	Stand-Alone	15kHz	0.18	QPSK	23230	12@0	NV	20	-3.30	-0.004220	PASS
Band13	Stand-Alone	15kHz	0.18	QPSK	23230	12@0	NV	30	-2.00	-0.002558	PASS
Band13	Stand-Alone	15kHz	0.18	QPSK	23230	12@0	NV	40	-3.70	-0.004731	PASS
Band13	Stand-Alone	15kHz	0.18	QPSK	23230	12@0	NV	50	-3.90	-0.004987	PASS

~The End~