

Appendix-B LTE NB-IoT Band 12

Effective (Isotropic) Radiated Power Output Data for NB1

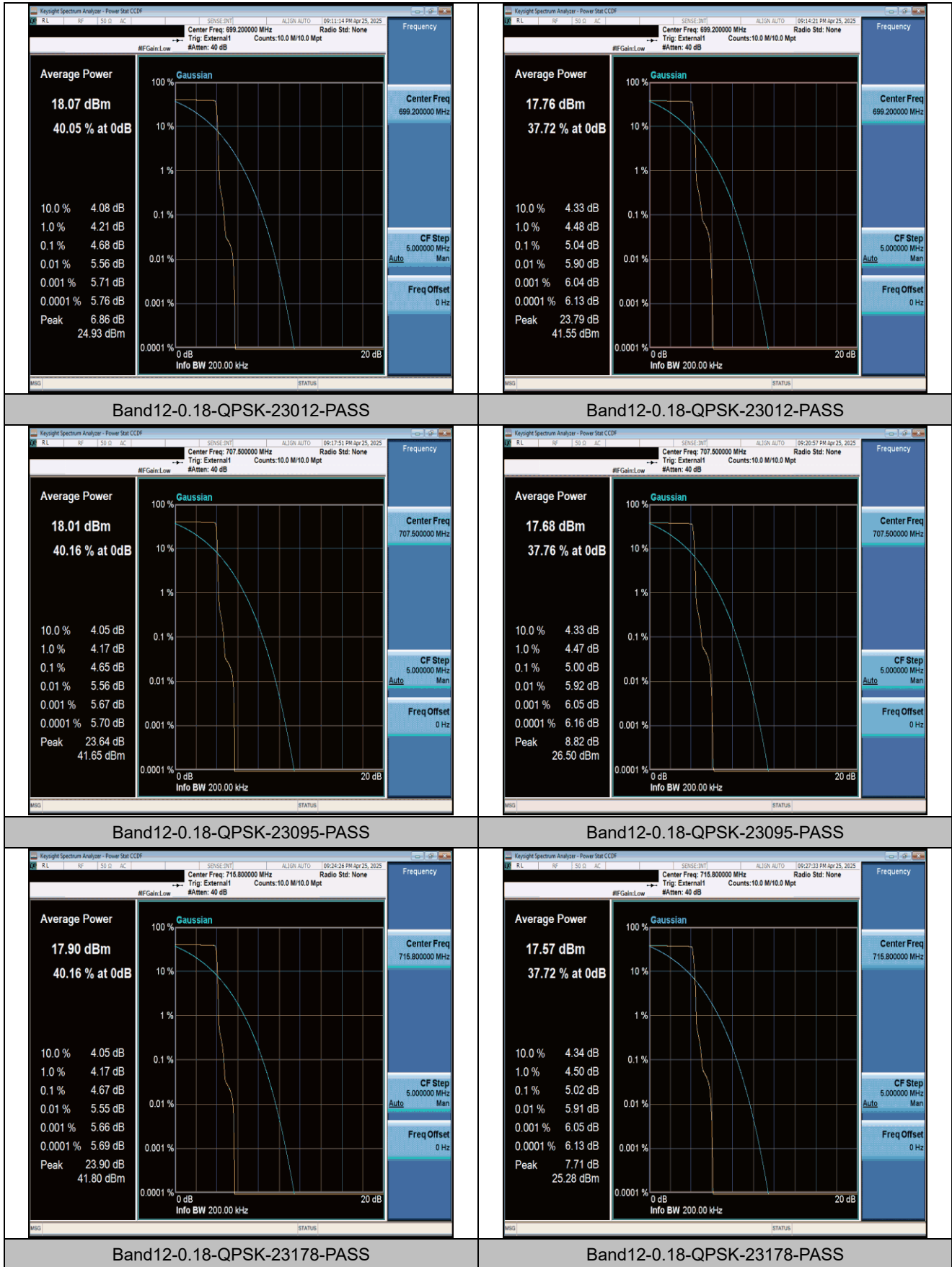
Test Result

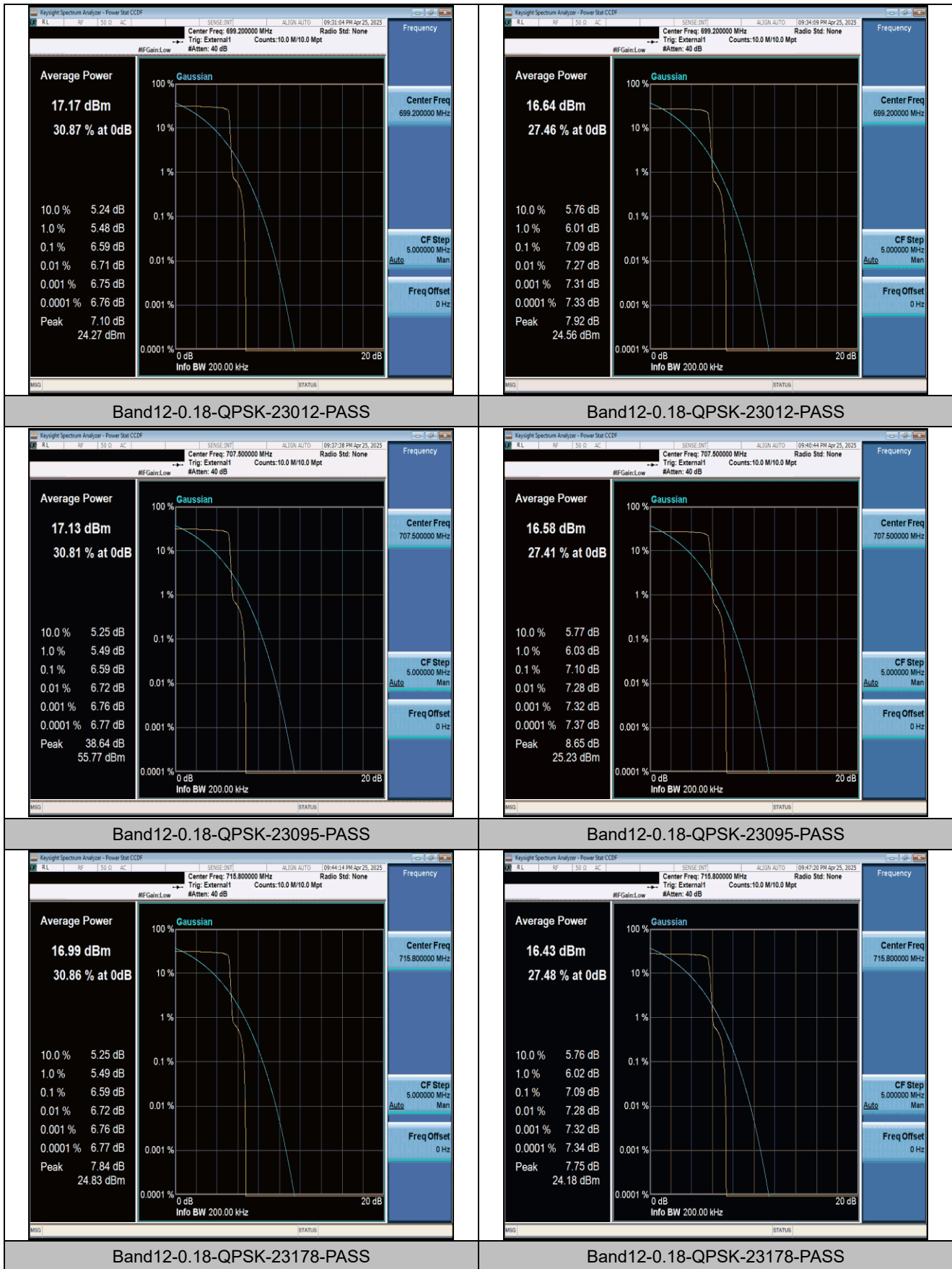
Band	OpMode	SCS	BW	Modulation	Channel	Tones	Power (dBm)	ERP (dBm)	Limit (dBm)	Verdict
Band12	Stand-Alone	3.75kHz	0.18	BPSK	23012	1@0	21.31	23.11	34.77	PASS
Band12	Stand-Alone	3.75kHz	0.18	QPSK	23012	1@0	21.36	23.16	34.77	PASS
Band12	Stand-Alone	3.75kHz	0.18	BPSK	23012	1@47	21.27	23.07	34.77	PASS
Band12	Stand-Alone	3.75kHz	0.18	QPSK	23012	1@47	21.24	23.04	34.77	PASS
Band12	Stand-Alone	3.75kHz	0.18	BPSK	23095	1@0	21.44	23.24	34.77	PASS
Band12	Stand-Alone	3.75kHz	0.18	QPSK	23095	1@0	21.49	23.29	34.77	PASS
Band12	Stand-Alone	3.75kHz	0.18	BPSK	23095	1@47	21.37	23.17	34.77	PASS
Band12	Stand-Alone	3.75kHz	0.18	QPSK	23095	1@47	21.36	23.16	34.77	PASS
Band12	Stand-Alone	3.75kHz	0.18	BPSK	23178	1@0	21.01	22.81	34.77	PASS
Band12	Stand-Alone	3.75kHz	0.18	QPSK	23178	1@0	20.94	22.74	34.77	PASS
Band12	Stand-Alone	3.75kHz	0.18	BPSK	23178	1@47	20.85	22.65	34.77	PASS
Band12	Stand-Alone	3.75kHz	0.18	QPSK	23178	1@47	20.94	22.74	34.77	PASS
Band12	Stand-Alone	15kHz	0.18	BPSK	23012	1@0	20.33	22.13	34.77	PASS
Band12	Stand-Alone	15kHz	0.18	QPSK	23012	1@0	20.34	22.14	34.77	PASS
Band12	Stand-Alone	15kHz	0.18	BPSK	23012	1@11	20.27	22.07	34.77	PASS
Band12	Stand-Alone	15kHz	0.18	QPSK	23012	1@11	20.29	22.09	34.77	PASS
Band12	Stand-Alone	15kHz	0.18	BPSK	23095	1@0	20.42	22.22	34.77	PASS
Band12	Stand-Alone	15kHz	0.18	QPSK	23095	1@0	20.43	22.23	34.77	PASS
Band12	Stand-Alone	15kHz	0.18	BPSK	23095	1@11	20.33	22.13	34.77	PASS
Band12	Stand-Alone	15kHz	0.18	QPSK	23095	1@11	20.35	22.15	34.77	PASS
Band12	Stand-Alone	15kHz	0.18	BPSK	23178	1@0	21.10	22.9	34.77	PASS
Band12	Stand-Alone	15kHz	0.18	QPSK	23178	1@0	21.12	22.92	34.77	PASS
Band12	Stand-Alone	15kHz	0.18	BPSK	23178	1@11	21.02	22.82	34.77	PASS
Band12	Stand-Alone	15kHz	0.18	QPSK	23178	1@11	21.03	22.83	34.77	PASS
Band12	Stand-Alone	15kHz	0.18	QPSK	23012	3@3	20.53	22.33	34.77	PASS
Band12	Stand-Alone	15kHz	0.18	QPSK	23095	3@3	20.46	22.26	34.77	PASS
Band12	Stand-Alone	15kHz	0.18	QPSK	23178	3@3	19.97	21.77	34.77	PASS

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	23012	1@0	4.68	<=13	PASS
Band12	Stand-Alone	3.75kHz	0.18	QPSK	23012	1@47	5.04	<=13	PASS
Band12	Stand-Alone	3.75kHz	0.18	QPSK	23095	1@0	4.65	<=13	PASS
Band12	Stand-Alone	3.75kHz	0.18	QPSK	23095	1@47	5	<=13	PASS
Band12	Stand-Alone	3.75kHz	0.18	QPSK	23178	1@0	4.67	<=13	PASS
Band12	Stand-Alone	3.75kHz	0.18	QPSK	23178	1@47	5.02	<=13	PASS
Band12	Stand-Alone	15kHz	0.18	QPSK	23012	1@0	6.59	<=13	PASS
Band12	Stand-Alone	15kHz	0.18	QPSK	23012	1@11	7.09	<=13	PASS
Band12	Stand-Alone	15kHz	0.18	QPSK	23095	1@0	6.59	<=13	PASS
Band12	Stand-Alone	15kHz	0.18	QPSK	23095	1@11	7.1	<=13	PASS
Band12	Stand-Alone	15kHz	0.18	QPSK	23178	1@0	6.59	<=13	PASS
Band12	Stand-Alone	15kHz	0.18	QPSK	23178	1@11	7.09	<=13	PASS

Test Graphs



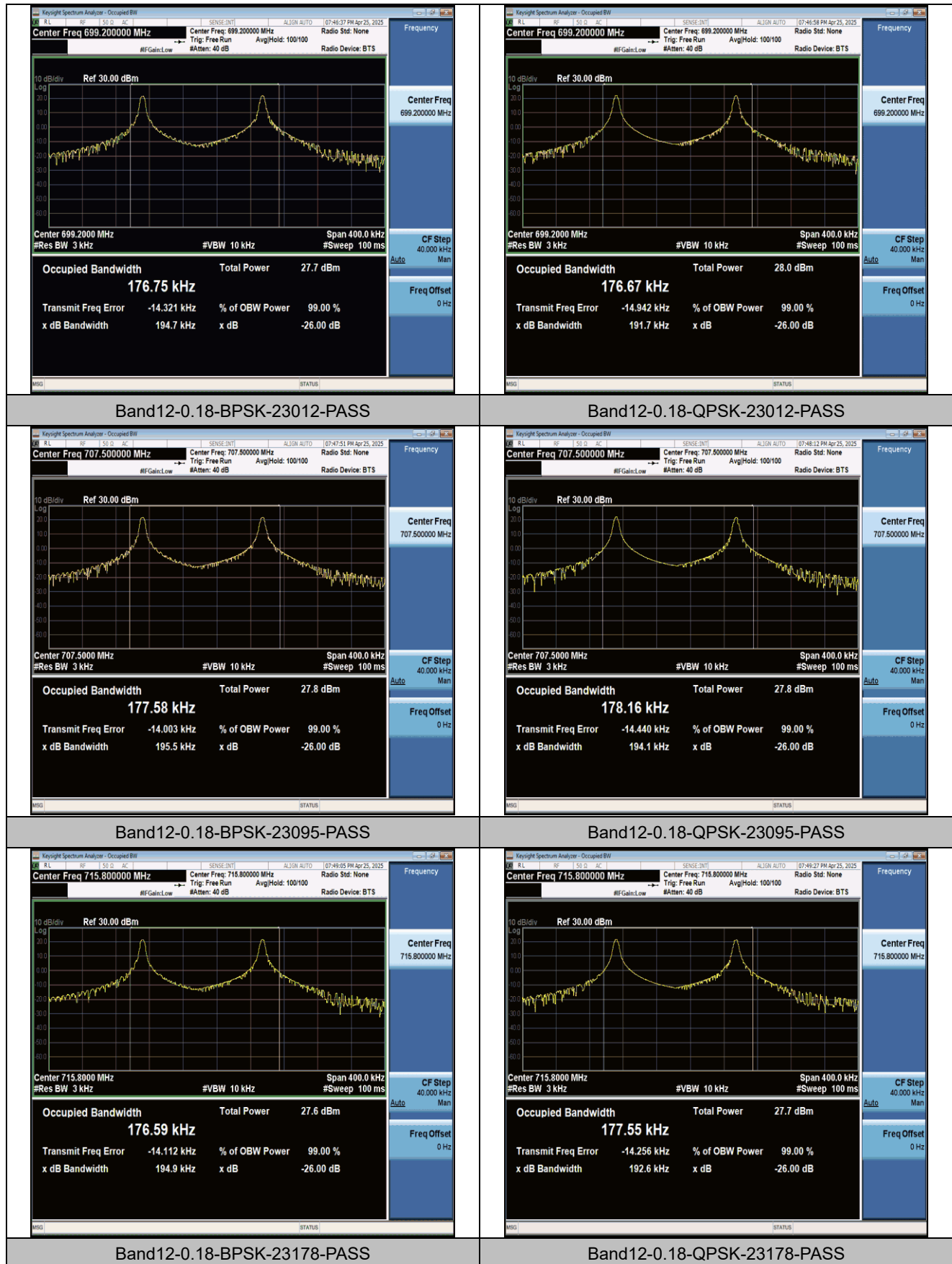


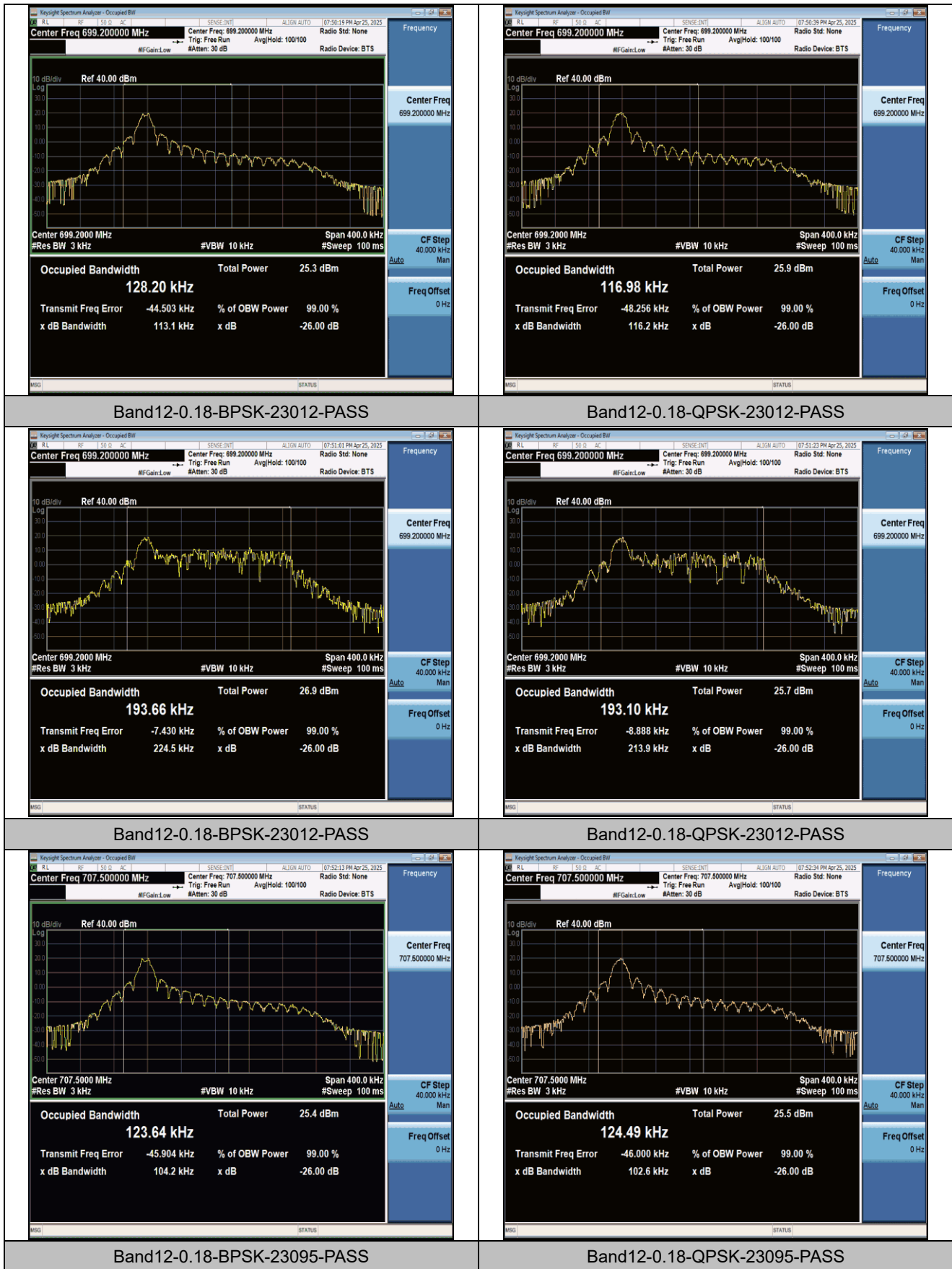
Emission Bandwidth for NB1

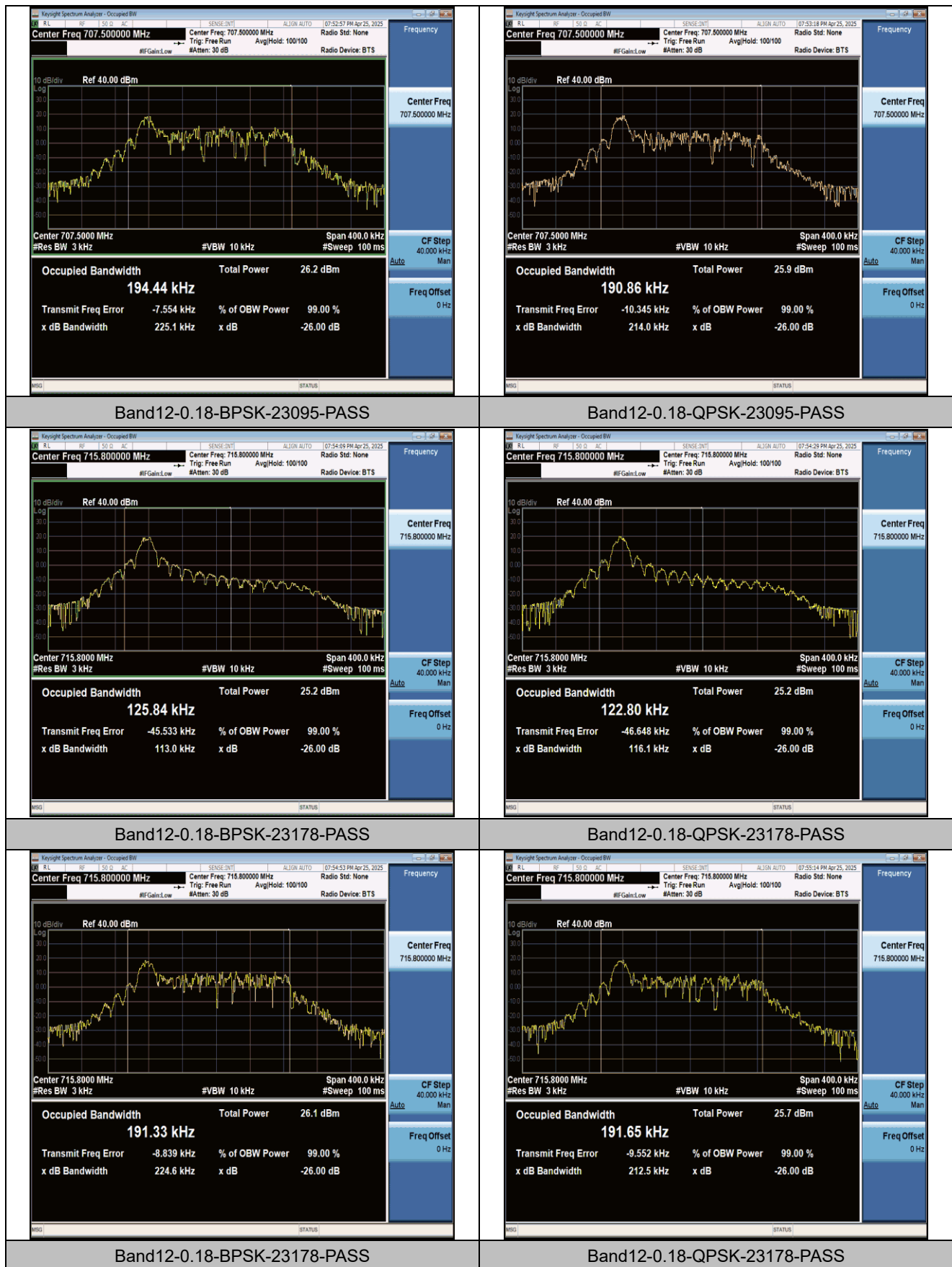
Test Result

Band	OpMode	SCS	BW	Modulation	Channel	Tones	OBW(MHz)	EBW(MHz)	Verdict
Band12	Stand-Alone	3.75kHz	0.18	BPSK	23012	1@0	0.17675	0.1947	PASS
Band12	Stand-Alone	3.75kHz	0.18	QPSK	23012	1@0	0.17667	0.1917	PASS
Band12	Stand-Alone	3.75kHz	0.18	BPSK	23095	1@0	0.17758	0.1955	PASS
Band12	Stand-Alone	3.75kHz	0.18	QPSK	23095	1@0	0.17816	0.1941	PASS
Band12	Stand-Alone	3.75kHz	0.18	BPSK	23178	1@0	0.17659	0.1949	PASS
Band12	Stand-Alone	3.75kHz	0.18	QPSK	23178	1@0	0.17755	0.1926	PASS
Band12	Stand-Alone	15kHz	0.18	BPSK	23012	1@0	0.12820	0.1131	PASS
Band12	Stand-Alone	15kHz	0.18	QPSK	23012	1@0	0.11698	0.1162	PASS
Band12	Stand-Alone	15kHz	0.18	BPSK	23012	12@0	0.19366	0.2245	PASS
Band12	Stand-Alone	15kHz	0.18	QPSK	23012	12@0	0.19310	0.2139	PASS
Band12	Stand-Alone	15kHz	0.18	BPSK	23095	1@0	0.12364	0.1042	PASS
Band12	Stand-Alone	15kHz	0.18	QPSK	23095	1@0	0.12449	0.1026	PASS
Band12	Stand-Alone	15kHz	0.18	BPSK	23095	12@0	0.19444	0.2251	PASS
Band12	Stand-Alone	15kHz	0.18	QPSK	23095	12@0	0.19086	0.2140	PASS
Band12	Stand-Alone	15kHz	0.18	BPSK	23178	1@0	0.12584	0.1130	PASS
Band12	Stand-Alone	15kHz	0.18	QPSK	23178	1@0	0.12280	0.1161	PASS
Band12	Stand-Alone	15kHz	0.18	BPSK	23178	12@0	0.19133	0.2246	PASS
Band12	Stand-Alone	15kHz	0.18	QPSK	23178	12@0	0.19165	0.2125	PASS

Test Graphs

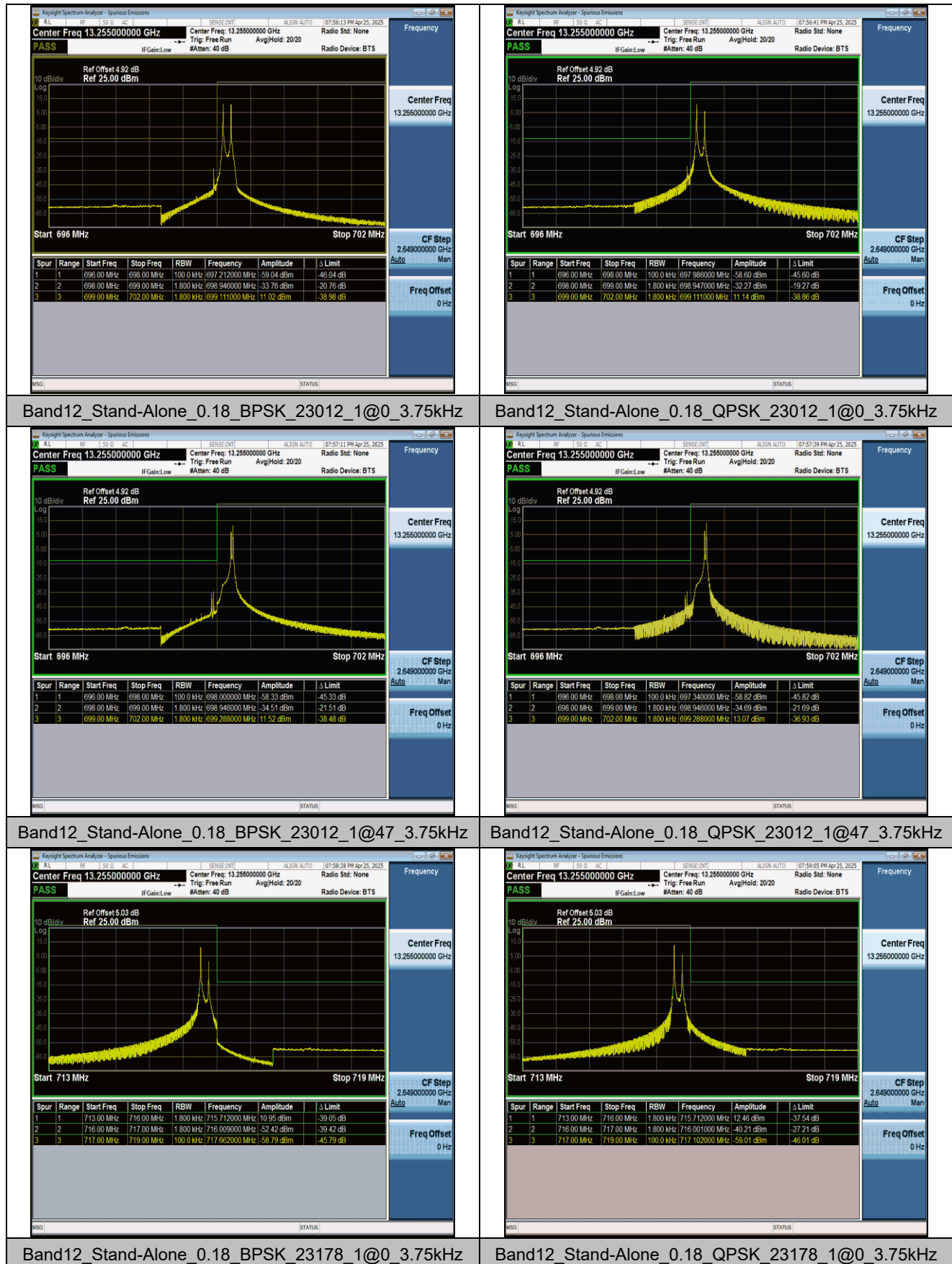


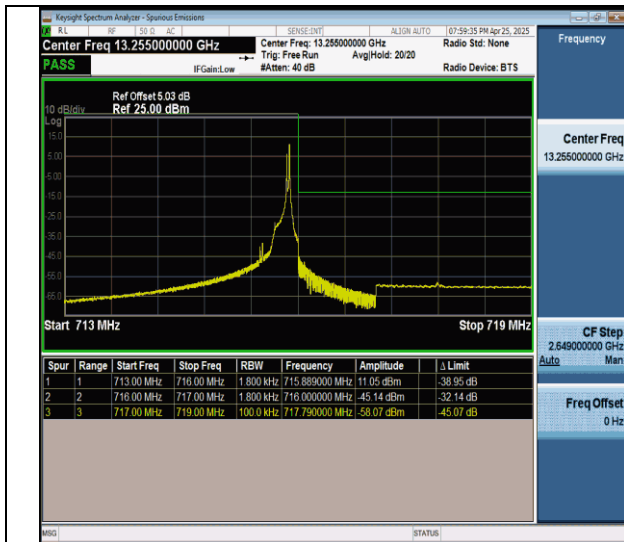




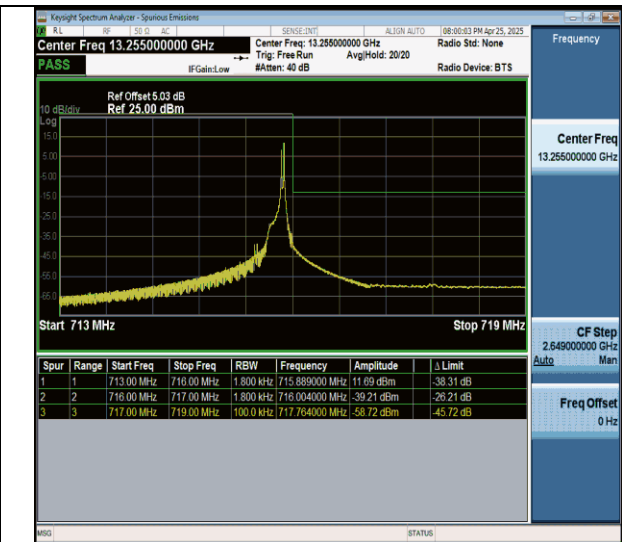
Band Edge for NB1

Test Graphs

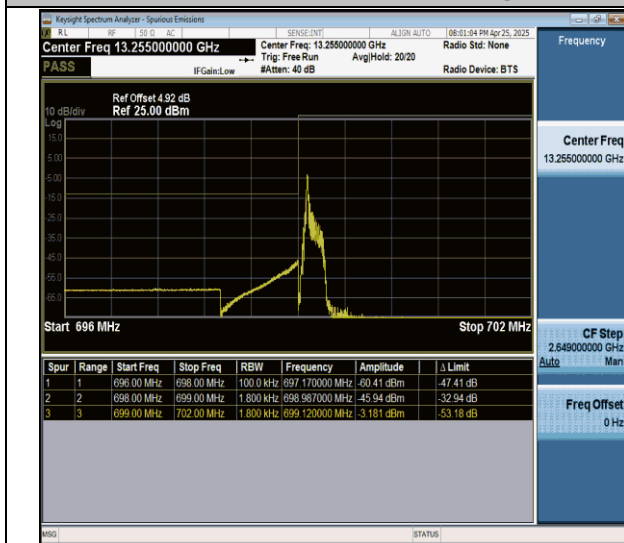




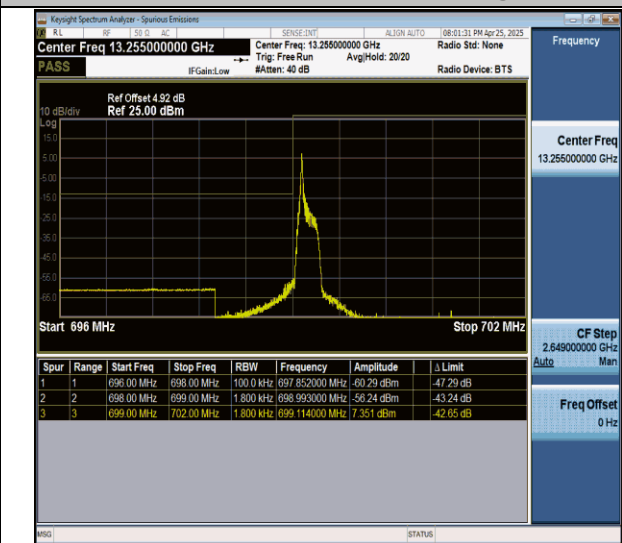
Band12_Stand-Alone_0.18_BPSK_23178_1@47_3.75kHz



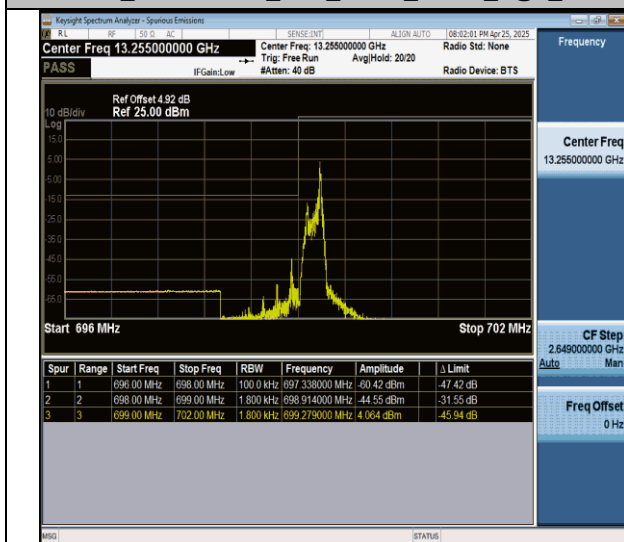
Band12_Stand-Alone_0.18_QPSK_23178_1@47_3.75kHz



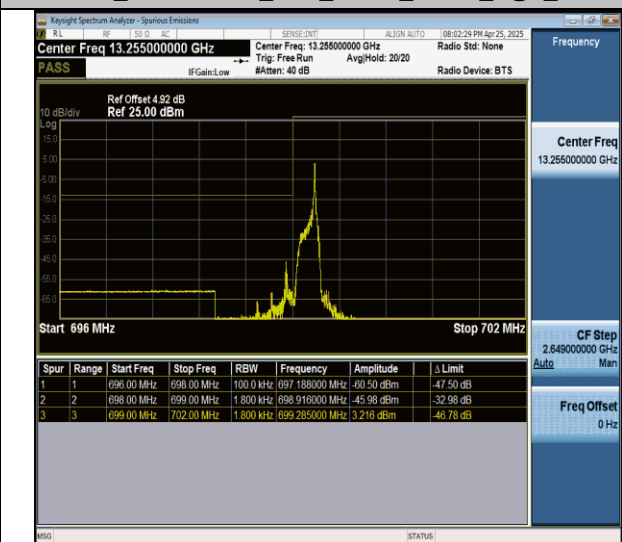
Band12_Stand-Alone_0.18_BPSK_23012_1@0_15kHz



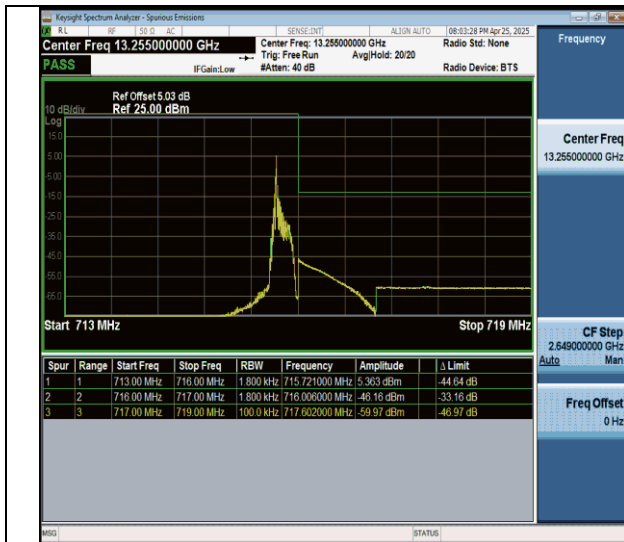
Band12_Stand-Alone_0.18_QPSK_23012_1@0_15kHz



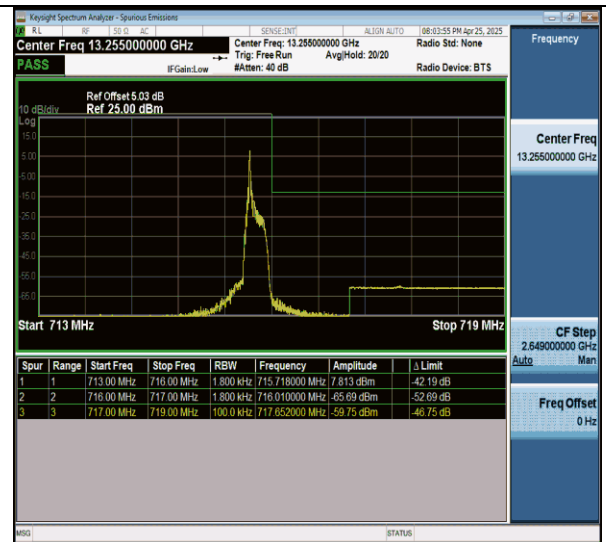
Band12_Stand-Alone_0.18_BPSK_23012_1@11_15kHz



Band12_Stand-Alone_0.18_QPSK_23012_1@11_15kHz



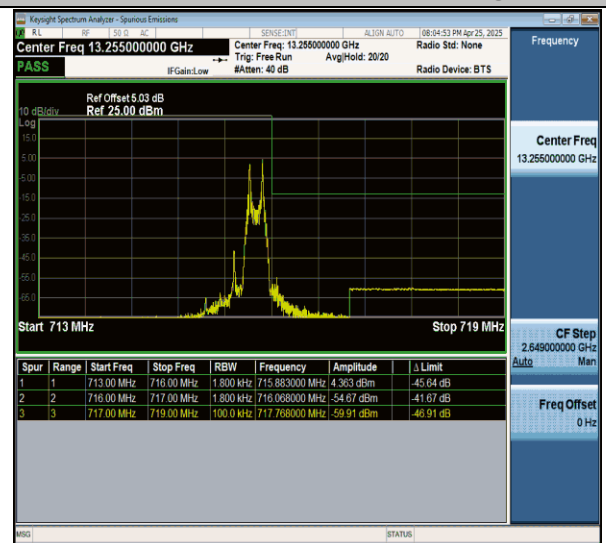
Band12_Stand-Alone_0.18_BPSK_23178_1@0_15kHz



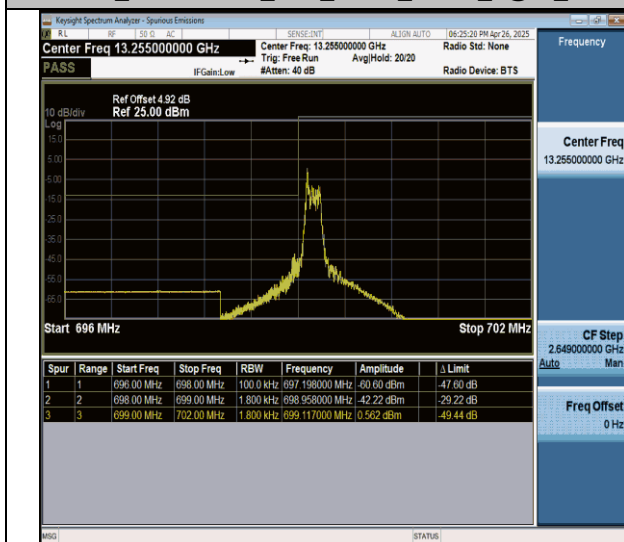
Band12_Stand-Alone_0.18_QPSK_23178_1@0_15kHz



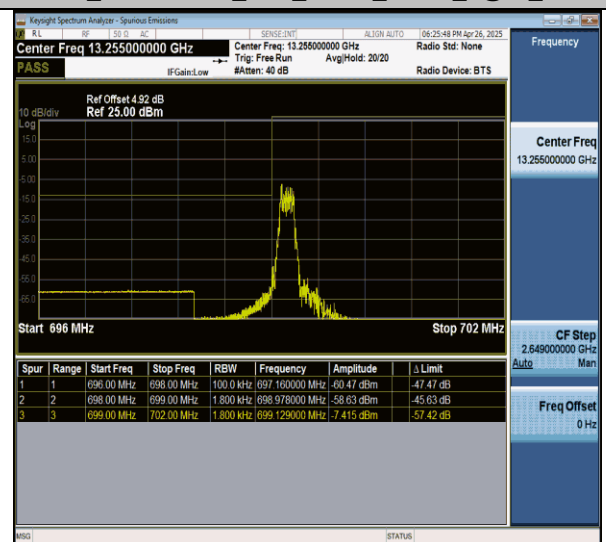
Band12_Stand-Alone_0.18_BPSK_23178_1@11_15kHz



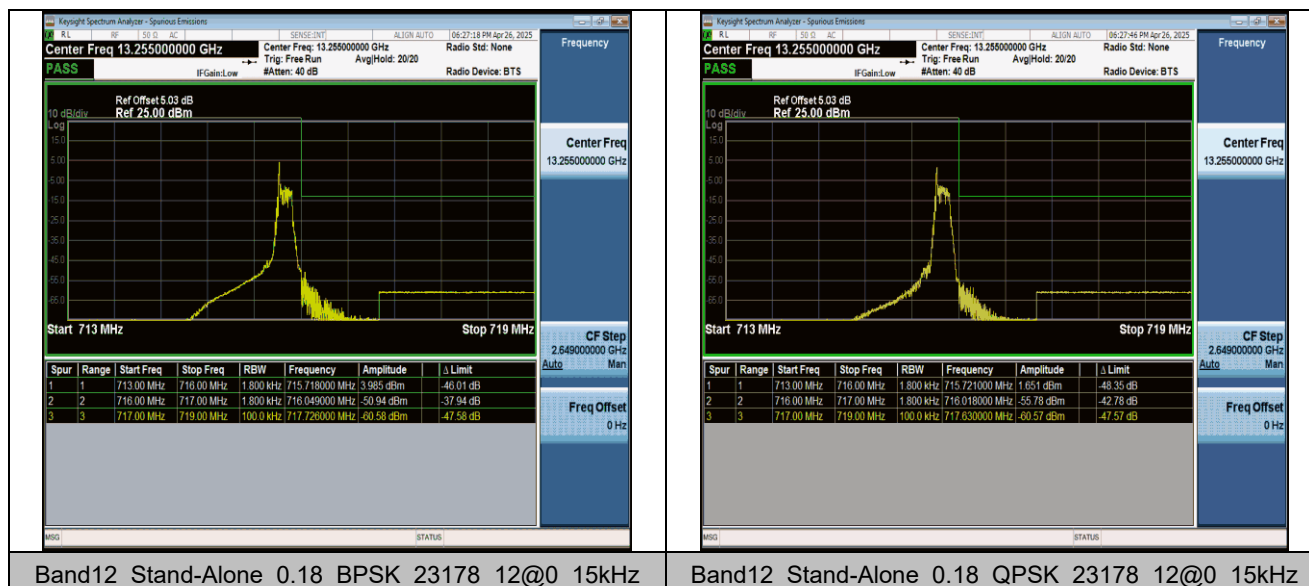
Band12_Stand-Alone_0.18_QPSK_23178_1@11_15kHz



Band12_Stand-Alone_0.18_BPSK_23012_12@0_15kHz



Band12_Stand-Alone_0.18_QPSK_23012_12@0_15kHz

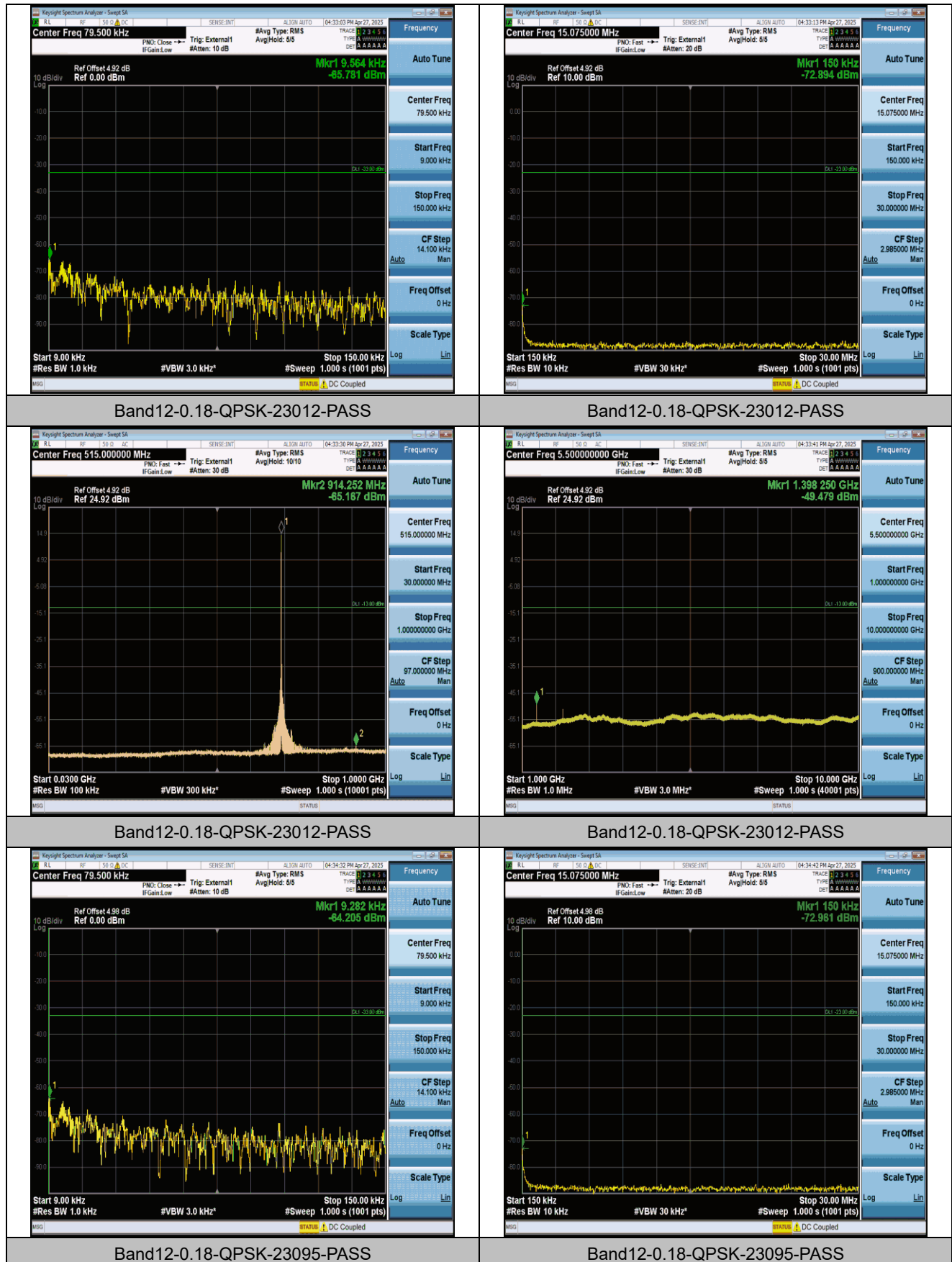


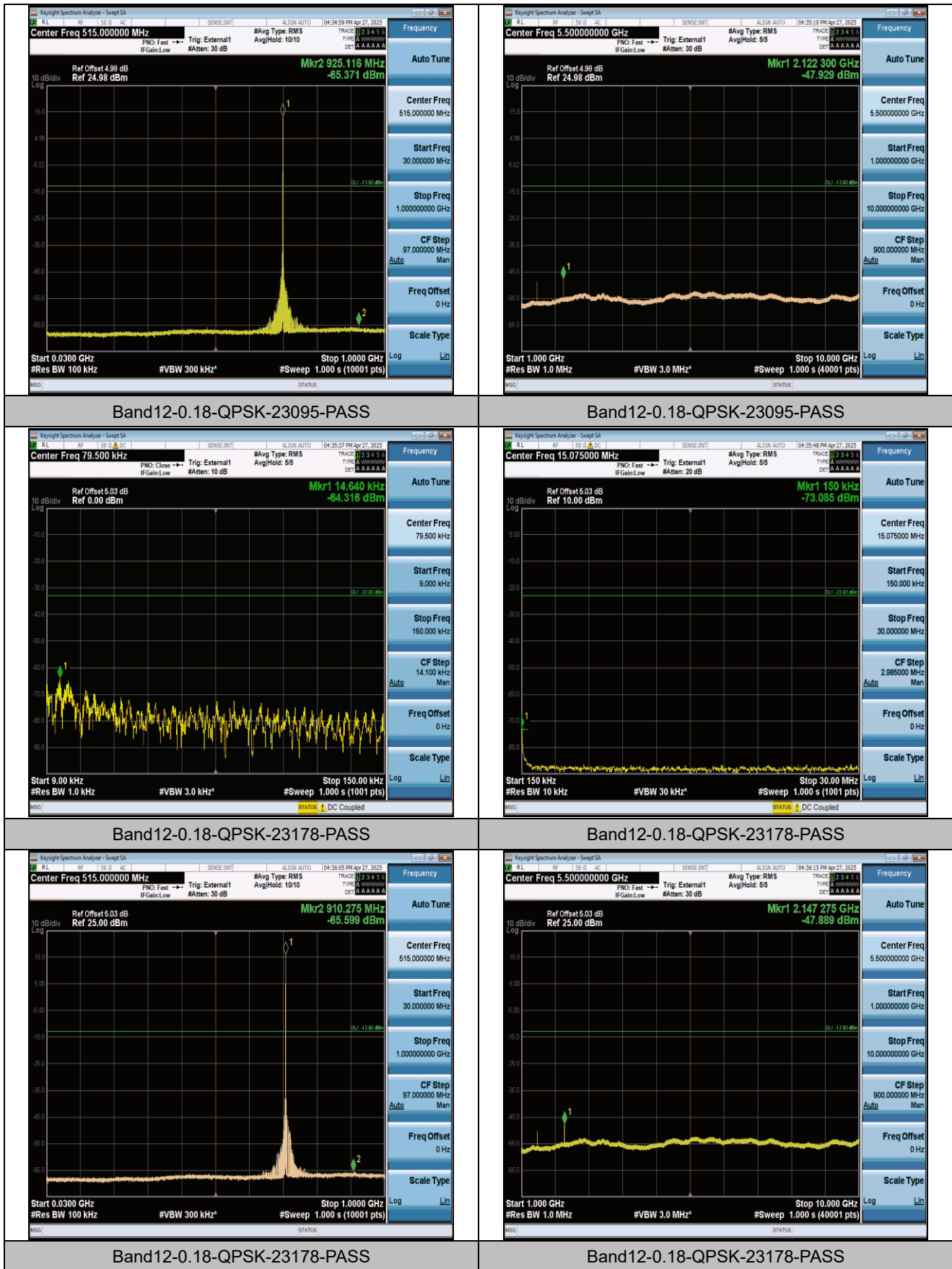
Band12_Stand-Alone_0.18_BPSK_23178_12@0_15kHz

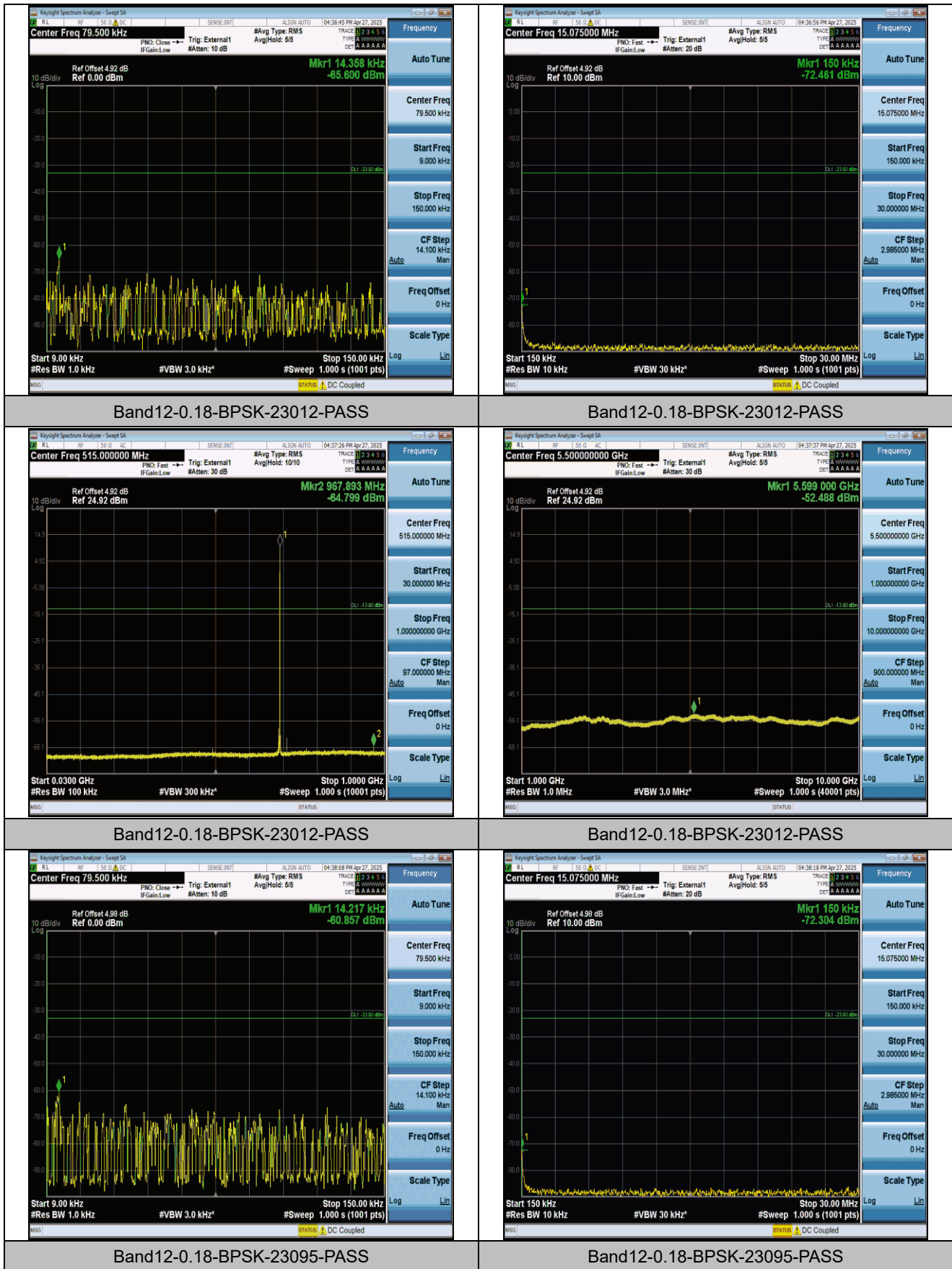
Band12_Stand-Alone_0.18_QPSK_23178_12@0_15kHz

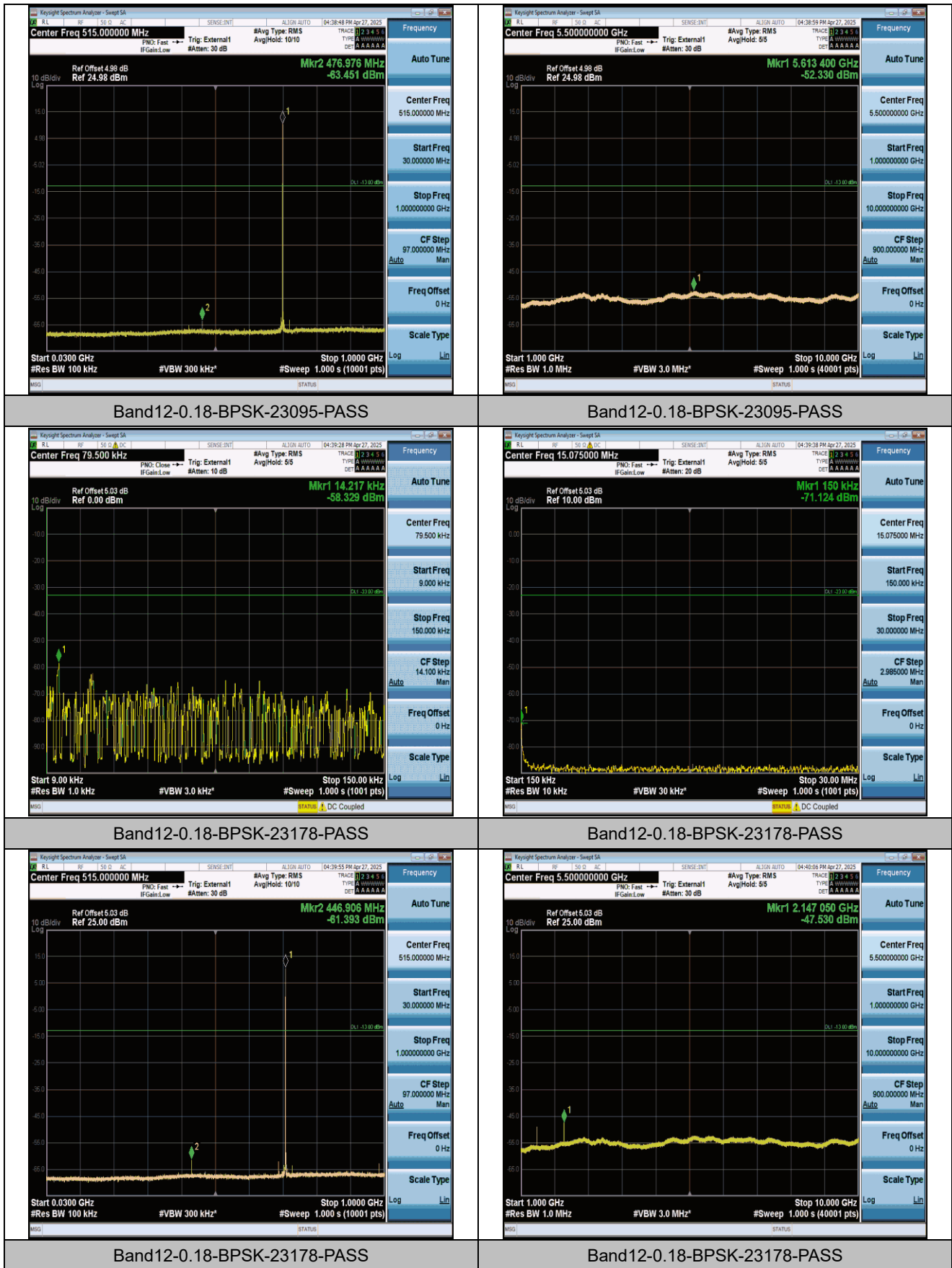
Conducted Spurious Emission for NB1

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
Band12	Stand-Alone	3.75kHz	0.18	QPSK	23095	1@0	VN	NT	1.70	0.002403	PASS
Band12	Stand-Alone	3.75kHz	0.18	QPSK	23095	1@0	VL	NT	2.60	0.003675	PASS
Band12	Stand-Alone	3.75kHz	0.18	QPSK	23095	1@0	VH	NT	0.80	0.001131	PASS
Band12	Stand-Alone	15kHz	0.18	QPSK	23095	12@0	VN	NT	1.40	0.001979	PASS
Band12	Stand-Alone	15kHz	0.18	QPSK	23095	12@0	VL	NT	1.40	0.001979	PASS
Band12	Stand-Alone	15kHz	0.18	QPSK	23095	12@0	VH	NT	1.60	0.002261	PASS

Temperature											
Band	OpMode	Bandwidth	Modulation	Channel	Tones	SCS	Voltage [Vdc]	Temperature (°C)	Deviation (Hz)	Deviation (ppm)	Verdict
Band12	Stand-Alone	3.75kHz	0.18	QPSK	23095	1@0	NV	-30	-0.10	-0.000141	PASS
Band12	Stand-Alone	3.75kHz	0.18	QPSK	23095	1@0	NV	-20	1.20	0.001696	PASS
Band12	Stand-Alone	3.75kHz	0.18	QPSK	23095	1@0	NV	-10	2.00	0.002827	PASS
Band12	Stand-Alone	3.75kHz	0.18	QPSK	23095	1@0	NV	0	0.30	0.000424	PASS
Band12	Stand-Alone	3.75kHz	0.18	QPSK	23095	1@0	NV	10	0.20	0.000283	PASS
Band12	Stand-Alone	3.75kHz	0.18	QPSK	23095	1@0	NV	20	1.30	0.001837	PASS
Band12	Stand-Alone	3.75kHz	0.18	QPSK	23095	1@0	NV	30	0.00	0.000000	PASS
Band12	Stand-Alone	3.75kHz	0.18	QPSK	23095	1@0	NV	40	1.90	0.002686	PASS
Band12	Stand-Alone	3.75kHz	0.18	QPSK	23095	1@0	NV	50	2.50	0.003534	PASS
Band12	Stand-Alone	15kHz	0.18	QPSK	23095	12@0	NV	-30	1.40	0.001979	PASS
Band12	Stand-Alone	15kHz	0.18	QPSK	23095	12@0	NV	-20	1.10	0.001555	PASS
Band12	Stand-Alone	15kHz	0.18	QPSK	23095	12@0	NV	-10	1.20	0.001696	PASS
Band12	Stand-Alone	15kHz	0.18	QPSK	23095	12@0	NV	0	1.60	0.002261	PASS
Band12	Stand-Alone	15kHz	0.18	QPSK	23095	12@0	NV	10	1.10	0.001555	PASS
Band12	Stand-Alone	15kHz	0.18	QPSK	23095	12@0	NV	20	1.30	0.001837	PASS
Band12	Stand-Alone	15kHz	0.18	QPSK	23095	12@0	NV	30	1.60	0.002261	PASS
Band12	Stand-Alone	15kHz	0.18	QPSK	23095	12@0	NV	40	2.00	0.002827	PASS
Band12	Stand-Alone	15kHz	0.18	QPSK	23095	12@0	NV	50	1.80	0.002544	PASS

~The End~