

Appendix-B LTE NB-IoT Band 5

Effective (Isotropic) Radiated Power Output Data for NB

Test Result

Band	OpMode	SCS	BW	Modulation	Channel	Tones	Result (dBm)	ERP (dBm)	Limit	Verdict
Band5	Stand-Alone	3.75kHz	0.18	BPSK	20402	1@0	21.44	21.82	38.45	PASS
Band5	Stand-Alone	3.75kHz	0.18	QPSK	20402	1@0	21.55	21.93	38.45	PASS
Band5	Stand-Alone	3.75kHz	0.18	BPSK	20402	1@47	21.34	21.72	38.45	PASS
Band5	Stand-Alone	3.75kHz	0.18	QPSK	20402	1@47	21.32	21.7	38.45	PASS
Band5	Stand-Alone	3.75kHz	0.18	BPSK	20525	1@0	21.24	21.62	38.45	PASS
Band5	Stand-Alone	3.75kHz	0.18	QPSK	20525	1@0	21.24	21.62	38.45	PASS
Band5	Stand-Alone	3.75kHz	0.18	BPSK	20525	1@47	21.22	21.6	38.45	PASS
Band5	Stand-Alone	3.75kHz	0.18	QPSK	20525	1@47	21.2	21.58	38.45	PASS
Band5	Stand-Alone	3.75kHz	0.18	BPSK	20648	1@0	21.41	21.79	38.45	PASS
Band5	Stand-Alone	3.75kHz	0.18	QPSK	20648	1@0	21.43	21.81	38.45	PASS
Band5	Stand-Alone	3.75kHz	0.18	BPSK	20648	1@47	21.38	21.76	38.45	PASS
Band5	Stand-Alone	3.75kHz	0.18	QPSK	20648	1@47	21.36	21.74	38.45	PASS
Band5	Stand-Alone	15kHz	0.18	BPSK	20402	1@0	20.61	20.99	38.45	PASS
Band5	Stand-Alone	15kHz	0.18	QPSK	20402	1@0	20.63	21.01	38.45	PASS
Band5	Stand-Alone	15kHz	0.18	BPSK	20402	1@11	20.54	20.92	38.45	PASS
Band5	Stand-Alone	15kHz	0.18	QPSK	20402	1@11	20.58	20.96	38.45	PASS
Band5	Stand-Alone	15kHz	0.18	BPSK	20525	1@0	21.29	21.67	38.45	PASS
Band5	Stand-Alone	15kHz	0.18	QPSK	20525	1@0	21.26	21.64	38.45	PASS
Band5	Stand-Alone	15kHz	0.18	BPSK	20525	1@11	21.17	21.55	38.45	PASS
Band5	Stand-Alone	15kHz	0.18	QPSK	20525	1@11	21.2	21.58	38.45	PASS
Band5	Stand-Alone	15kHz	0.18	BPSK	20648	1@0	20.68	21.06	38.45	PASS
Band5	Stand-Alone	15kHz	0.18	QPSK	20648	1@0	20.7	21.08	38.45	PASS
Band5	Stand-Alone	15kHz	0.18	BPSK	20648	1@11	20.58	20.96	38.45	PASS
Band5	Stand-Alone	15kHz	0.18	QPSK	20648	1@11	20.59	20.97	38.45	PASS
Band5	Stand-Alone	15kHz	0.18	QPSK	20402	3@3	20.62	21	38.45	PASS
Band5	Stand-Alone	15kHz	0.18	QPSK	20525	3@3	21.31	21.69	38.45	PASS
Band5	Stand-Alone	15kHz	0.18	QPSK	20648	3@3	20.74	21.12	38.45	PASS

Peak-to-Average Ratio(CCDF) for NB

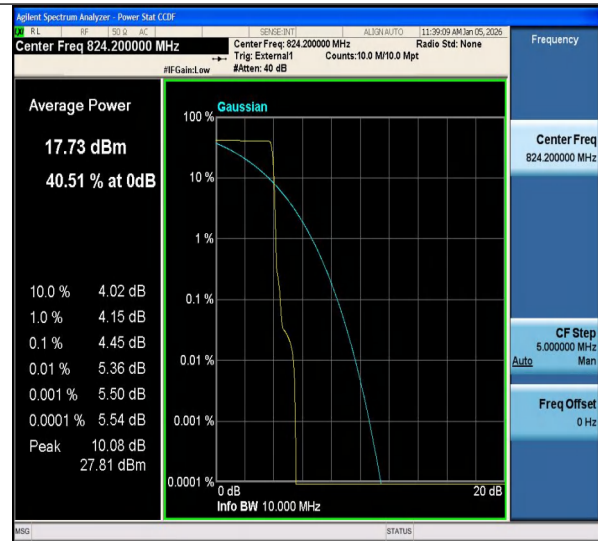
Test Result

Band	OpMode	SCS	BW	Modulation	Channel	Tones	Result (dBm)	Limit (dBm)	Verdict
Band5	Stand-Alone	3.75kHz	0.18	QPSK	20402	1@0	5.21	<=13	PASS
Band5	Stand-Alone	3.75kHz	0.18	QPSK	20402	1@47	4.45	<=13	PASS
Band5	Stand-Alone	3.75kHz	0.18	QPSK	20525	1@0	4.99	<=13	PASS
Band5	Stand-Alone	3.75kHz	0.18	QPSK	20525	1@47	4.54	<=13	PASS
Band5	Stand-Alone	3.75kHz	0.18	QPSK	20648	1@0	4.91	<=13	PASS
Band5	Stand-Alone	3.75kHz	0.18	QPSK	20648	1@47	4.62	<=13	PASS
Band5	Stand-Alone	15kHz	0.18	QPSK	20402	1@0	6.55	<=13	PASS
Band5	Stand-Alone	15kHz	0.18	QPSK	20402	1@11	6.73	<=13	PASS
Band5	Stand-Alone	15kHz	0.18	QPSK	20525	1@0	6.54	<=13	PASS
Band5	Stand-Alone	15kHz	0.18	QPSK	20525	1@11	6.3	<=13	PASS
Band5	Stand-Alone	15kHz	0.18	QPSK	20648	1@0	6.38	<=13	PASS
Band5	Stand-Alone	15kHz	0.18	QPSK	20648	1@11	6.28	<=13	PASS

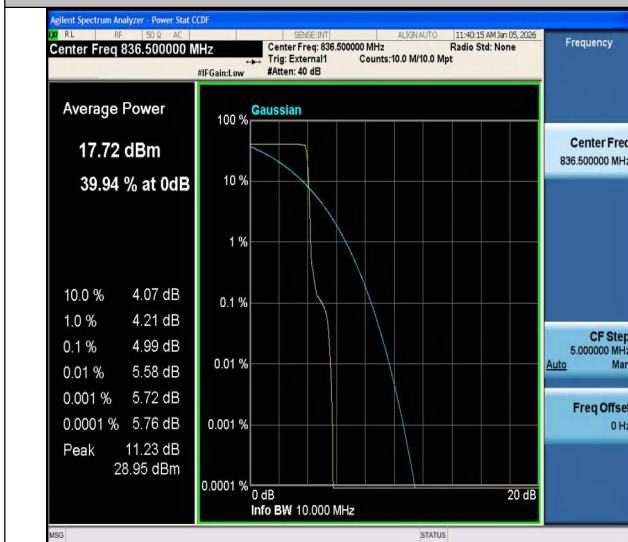
Test Graphs



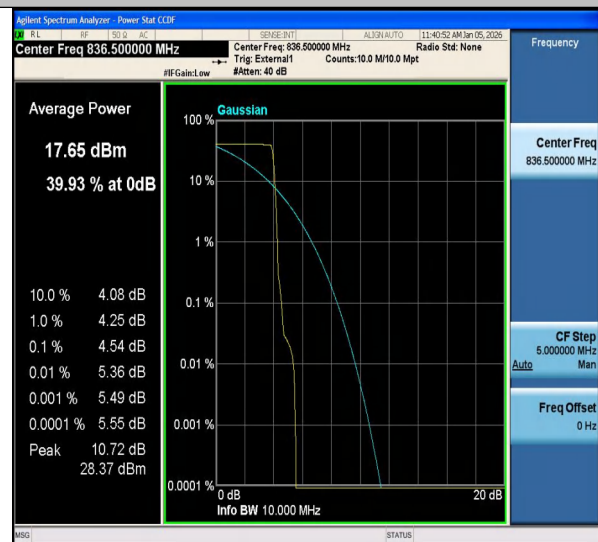
Band5-0.18-QPSK-20402-PASS



Band5-0.18-QPSK-20402-PASS



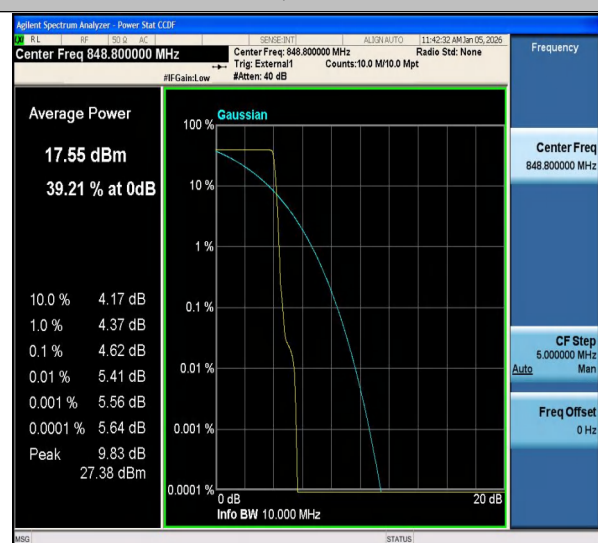
Band5-0.18-QPSK-20525-PASS



Band5-0.18-QPSK-20525-PASS



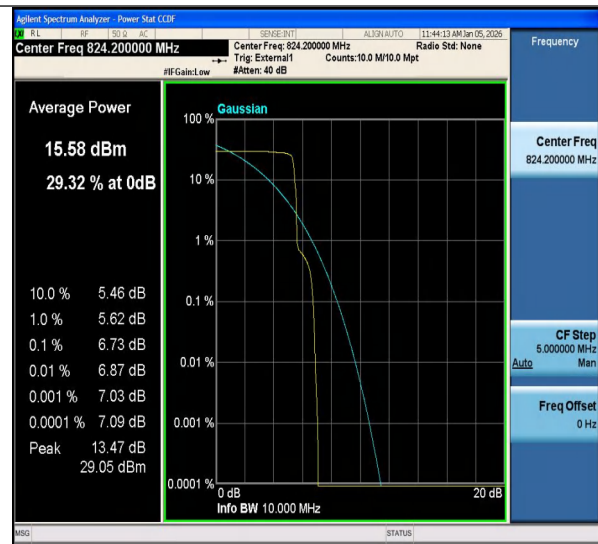
Band5-0.18-QPSK-20648-PASS



Band5-0.18-QPSK-20648-PASS



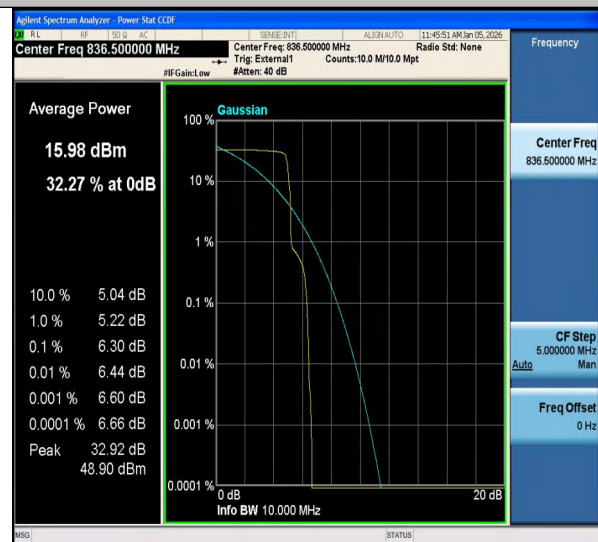
Band5-0.18-QPSK-20402-PASS



Band5-0.18-QPSK-20402-PASS



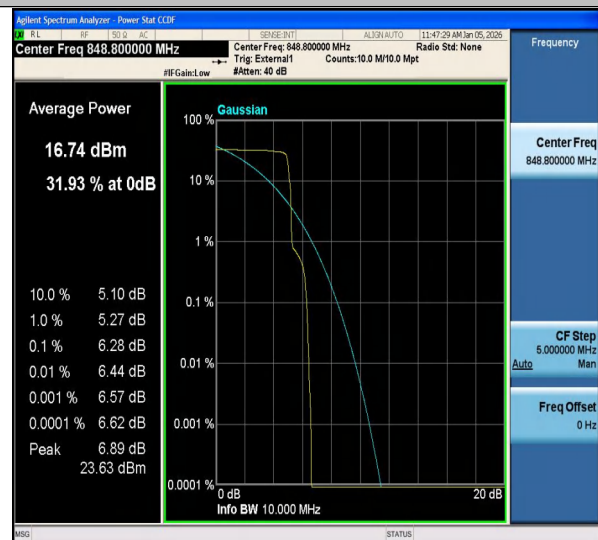
Band5-0.18-QPSK-20525-PASS



Band5-0.18-QPSK-20525-PASS



Band5-0.18-QPSK-20648-PASS



Band5-0.18-QPSK-20648-PASS

Emission Bandwidth for NB

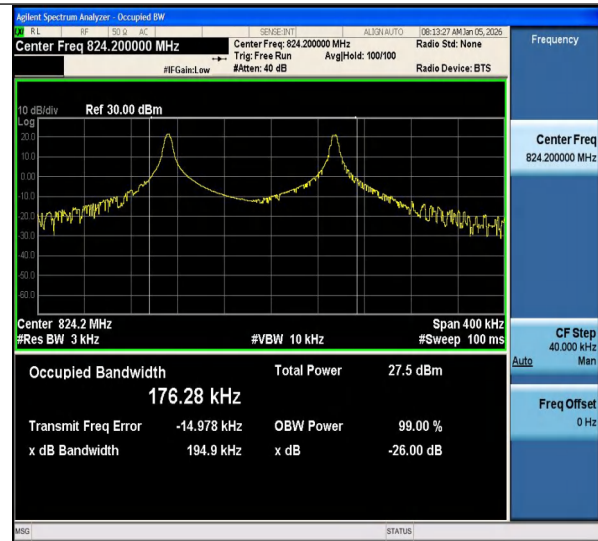
Test Result

Band	OpMode	SCS	BW	Modulation	Channel	Tones	OBW(MHz)	EBW(MHz)	Verdict
Band5	Stand-Alone	3.75kHz	0.18	BPSK	20402	1@0	0.17605	0.1950	PASS
Band5	Stand-Alone	3.75kHz	0.18	QPSK	20402	1@0	0.17628	0.1949	PASS
Band5	Stand-Alone	3.75kHz	0.18	BPSK	20525	1@0	0.17674	0.1890	PASS
Band5	Stand-Alone	3.75kHz	0.18	QPSK	20525	1@0	0.17662	0.1918	PASS
Band5	Stand-Alone	3.75kHz	0.18	BPSK	20648	1@0	0.17889	0.1914	PASS
Band5	Stand-Alone	3.75kHz	0.18	QPSK	20648	1@0	0.17602	0.1929	PASS
Band5	Stand-Alone	15kHz	0.18	BPSK	20648	1@0	0.12306	0.1030	PASS
Band5	Stand-Alone	15kHz	0.18	QPSK	20648	1@0	0.11580	0.1152	PASS
Band5	Stand-Alone	15kHz	0.18	BPSK	20648	12@0	0.19488	0.2264	PASS
Band5	Stand-Alone	15kHz	0.18	QPSK	20648	12@0	0.19374	0.2134	PASS
Band5	Stand-Alone	15kHz	0.18	BPSK	20525	12@0	0.19410	0.2268	PASS
Band5	Stand-Alone	15kHz	0.18	BPSK	20402	1@0	0.12638	0.1035	PASS
Band5	Stand-Alone	15kHz	0.18	QPSK	20402	1@0	0.11639	0.1147	PASS
Band5	Stand-Alone	15kHz	0.18	BPSK	20402	12@0	0.19516	0.2250	PASS
Band5	Stand-Alone	15kHz	0.18	QPSK	20402	12@0	0.19290	0.2110	PASS
Band5	Stand-Alone	15kHz	0.18	BPSK	20525	1@0	0.12553	0.1162	PASS
Band5	Stand-Alone	15kHz	0.18	QPSK	20525	1@0	0.11687	0.1150	PASS
Band5	Stand-Alone	15kHz	0.18	QPSK	20525	12@0	0.19229	0.2118	PASS

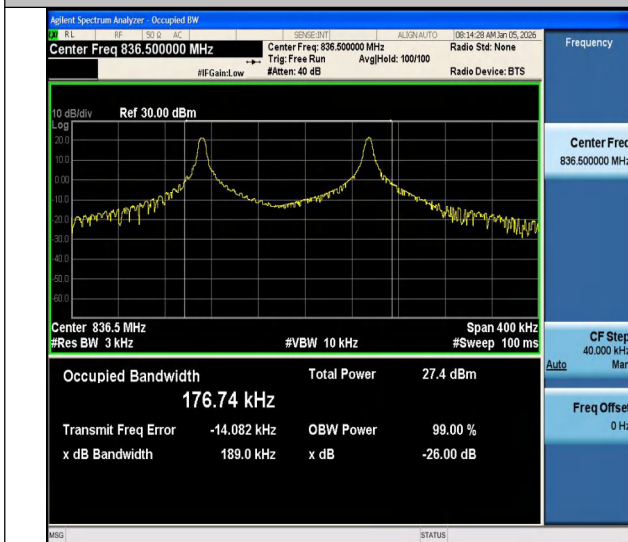
Test Graphs



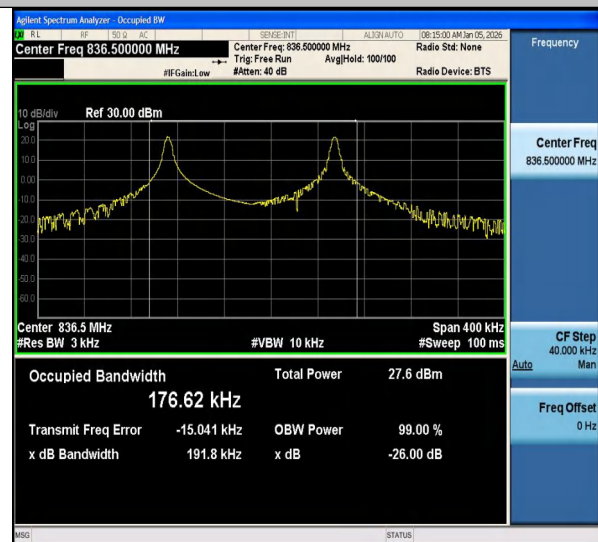
Band5-0.18-BPSK-20402-PASS



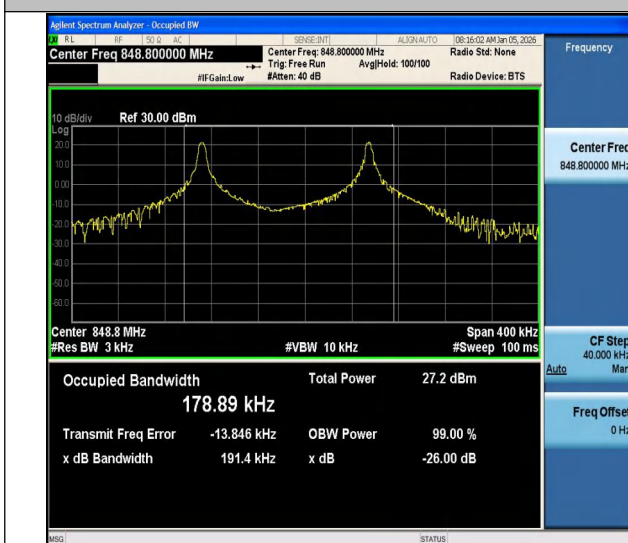
Band5-0.18-QPSK-20402-PASS



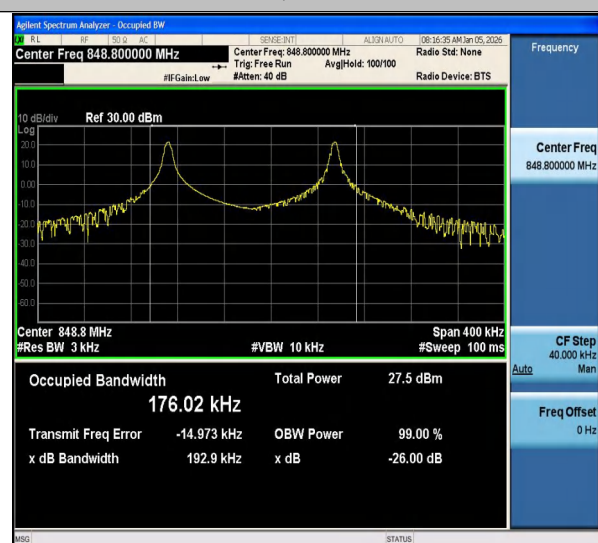
Band5-0.18-BPSK-20525-PASS



Band5-0.18-QPSK-20525-PASS



Band5-0.18-BPSK-20648-PASS



Band5-0.18-QPSK-20648-PASS



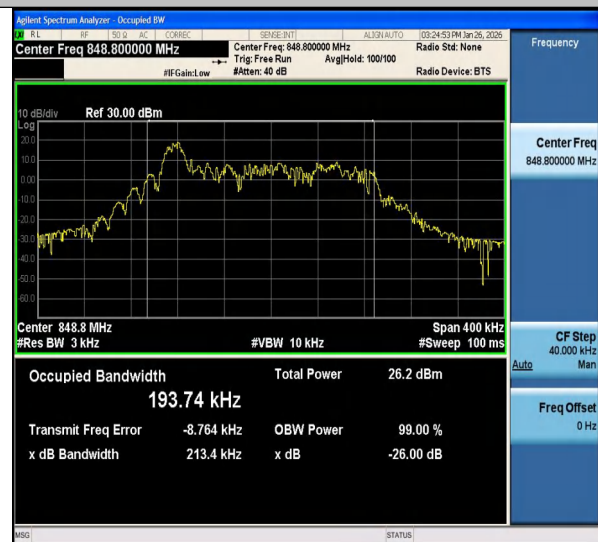
Band5-0.18-BPSK-20648-PASS



Band5-0.18-QPSK-20648-PASS



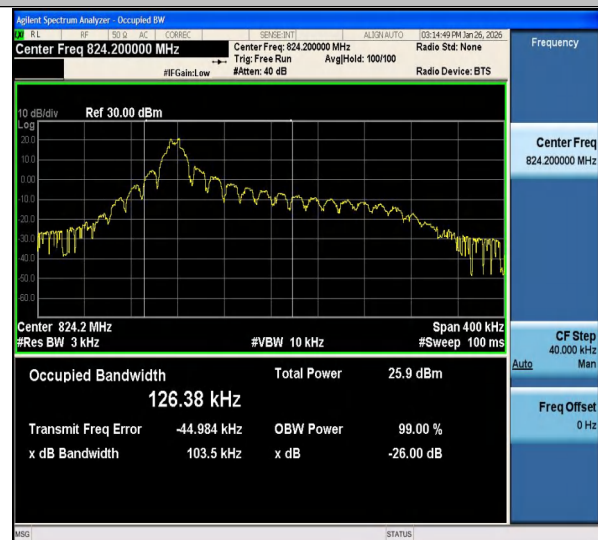
Band5-0.18-BPSK-20648-PASS



Band5-0.18-QPSK-20648-PASS



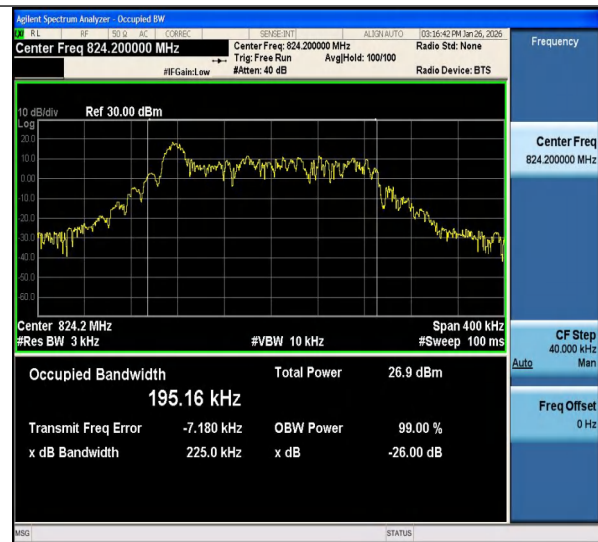
Band5-0.18-BPSK-20525-PASS



Band5-0.18-BPSK-20402-PASS



Band5-0.18-QPSK-20402-PASS



Band5-0.18-BPSK-20402-PASS



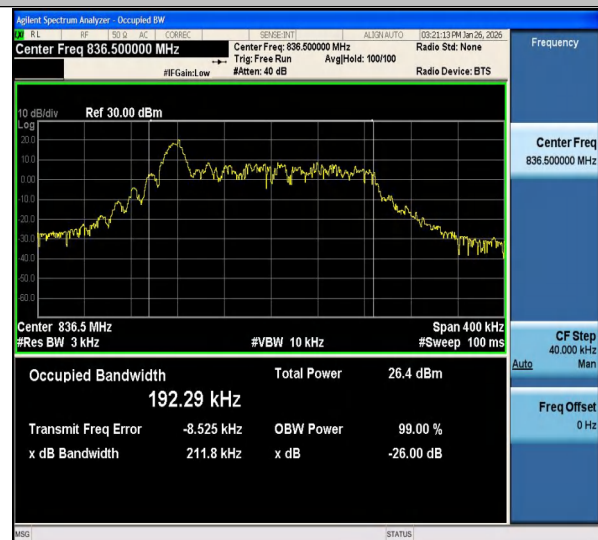
Band5-0.18-QPSK-20402-PASS



Band5-0.18-BPSK-20525-PASS



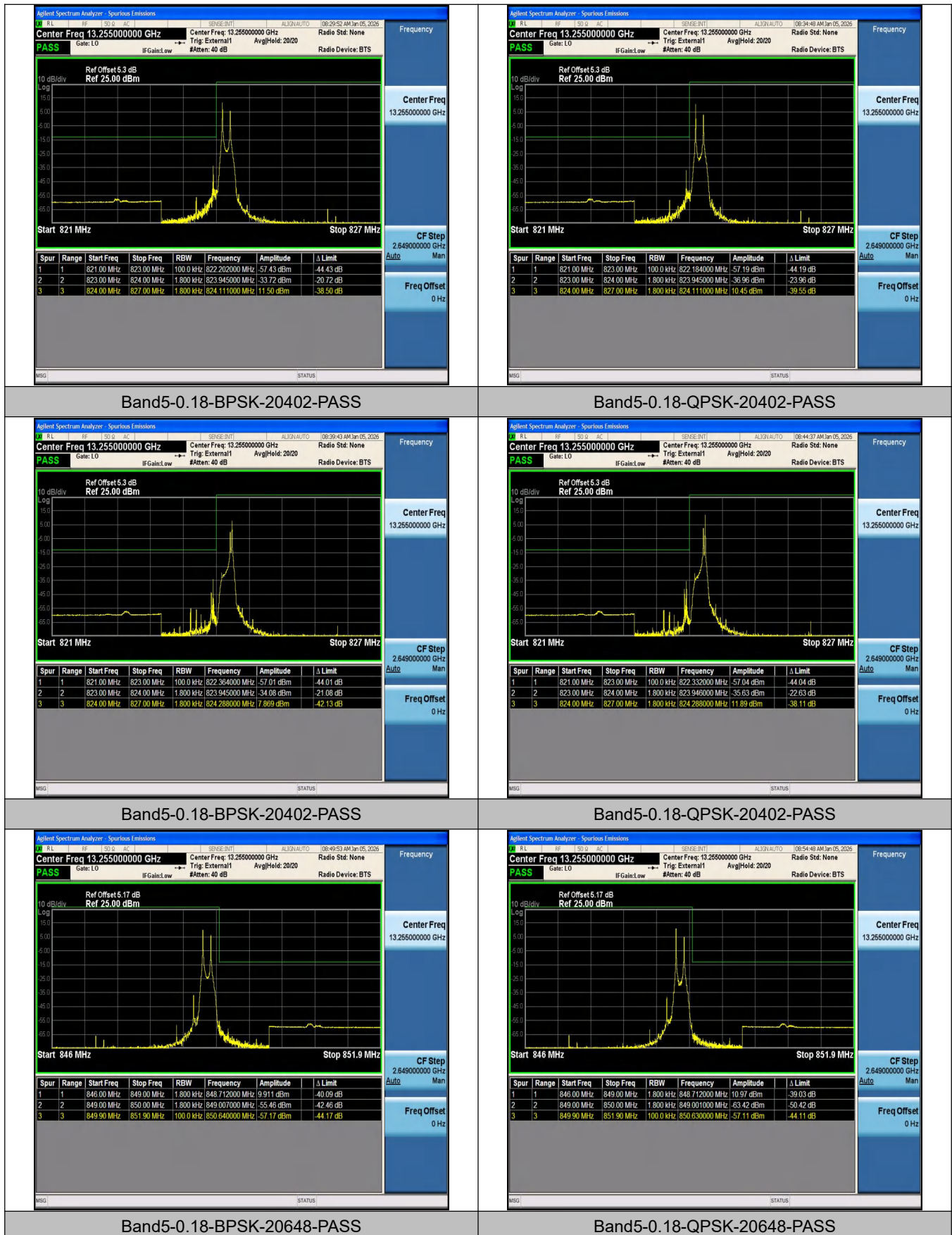
Band5-0.18-QPSK-20525-PASS



Band5-0.18-QPSK-20525-PASS

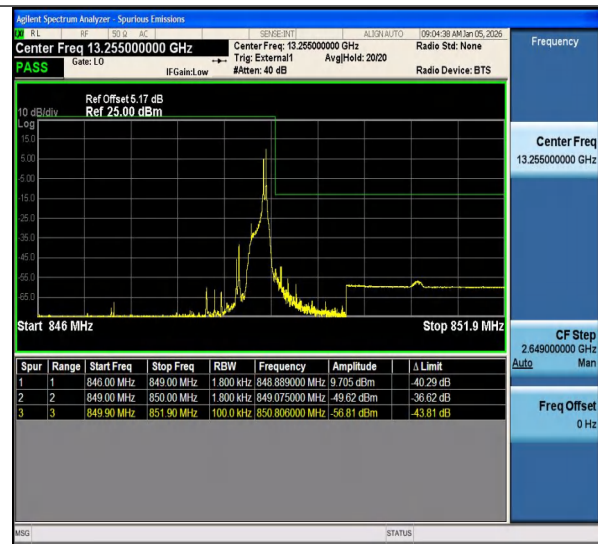
Band Edge for NB

Test Graphs

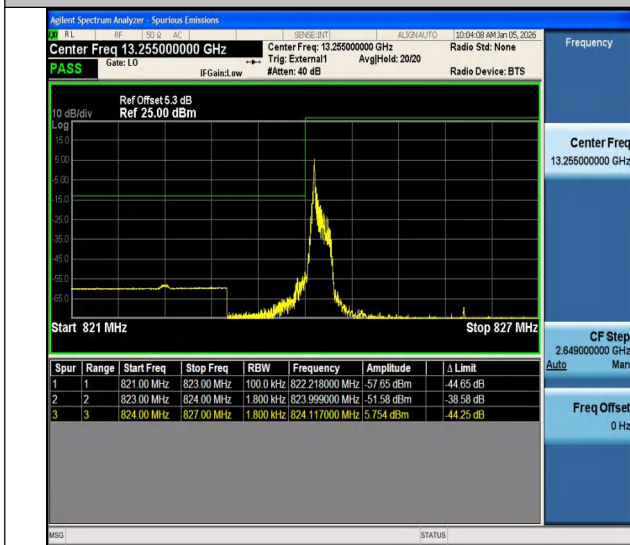




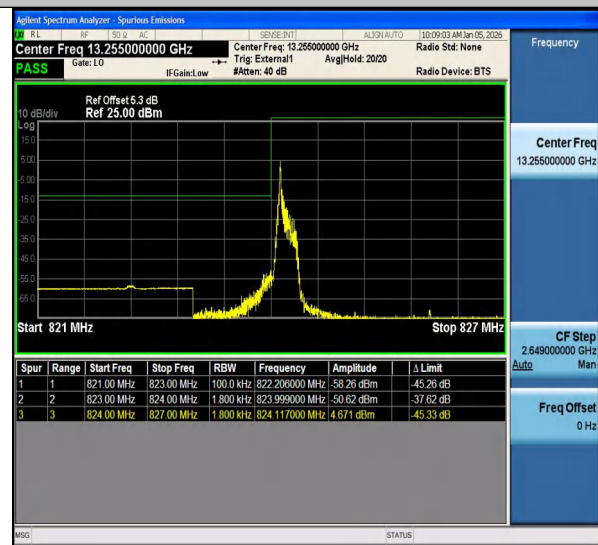
Band5-0.18-BPSK-20648-PASS



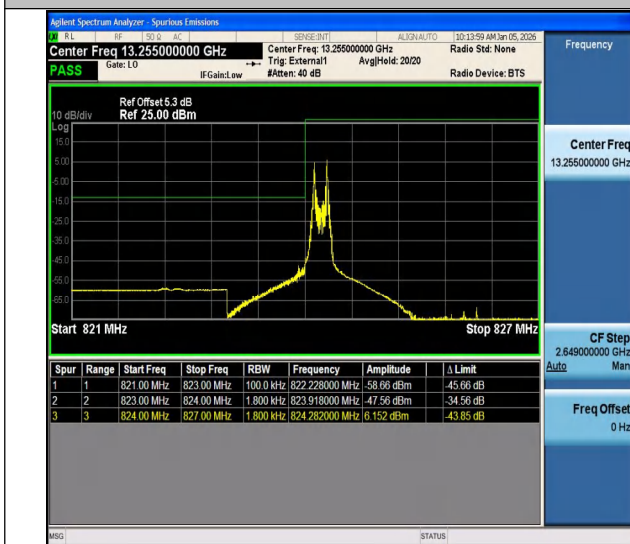
Band5-0.18-QPSK-20648-PASS



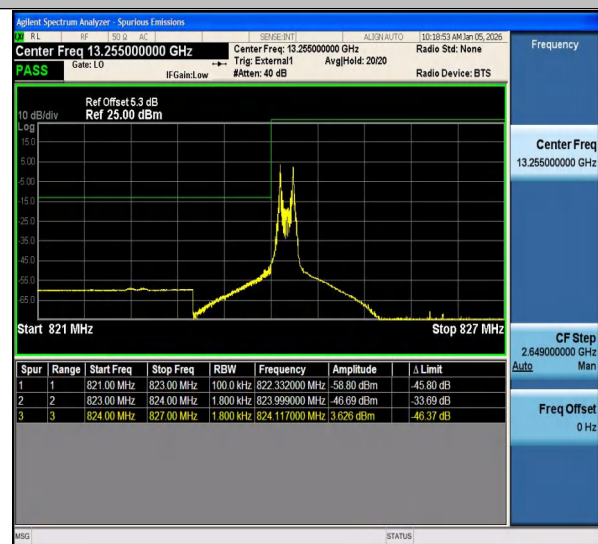
Band5-0.18-BPSK-20402-PASS



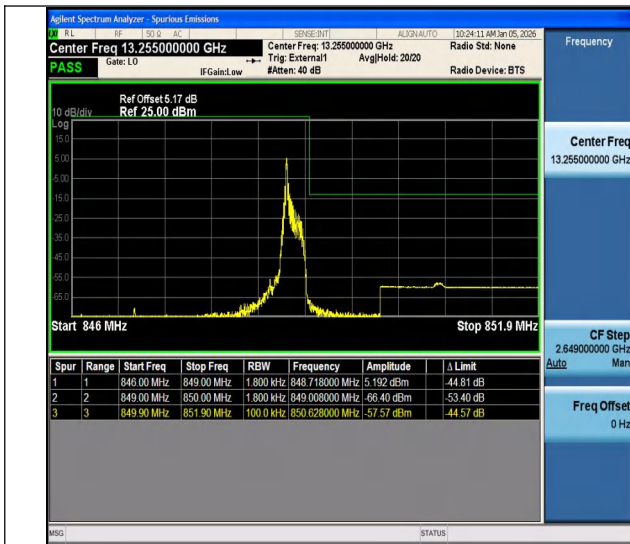
Band5-0.18-QPSK-20402-PASS



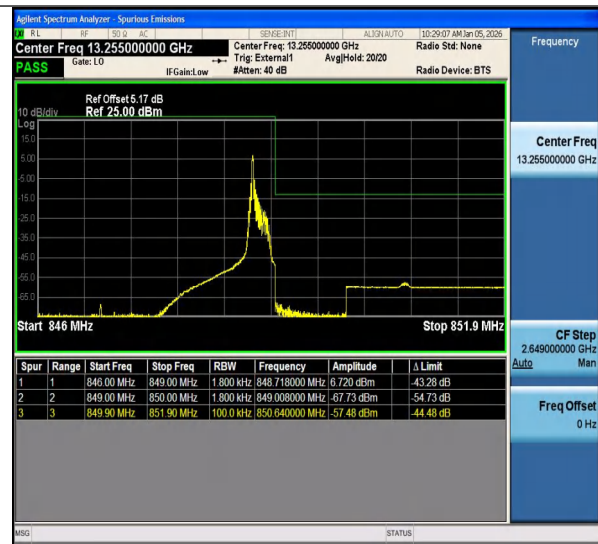
Band5-0.18-BPSK-20402-PASS



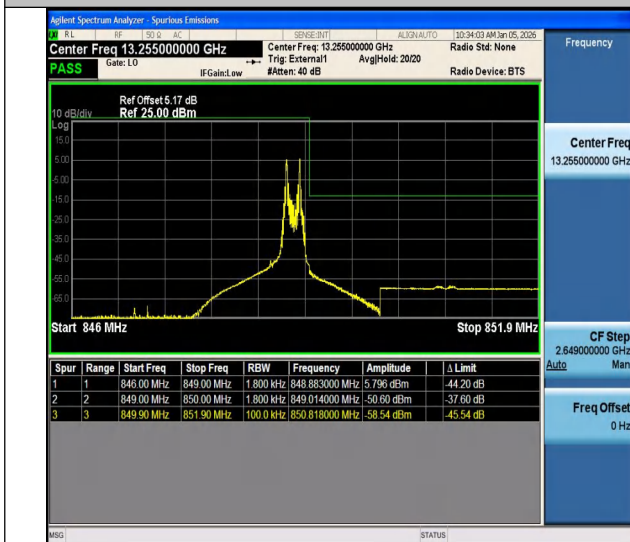
Band5-0.18-QPSK-20402-PASS



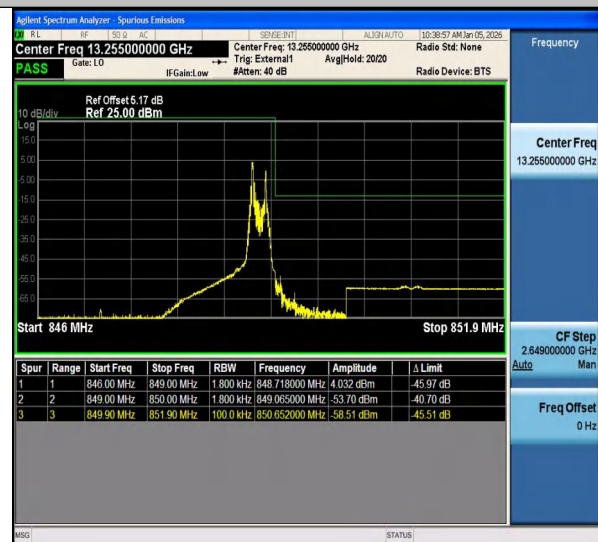
Band5-0.18-BPSK-20648-PASS



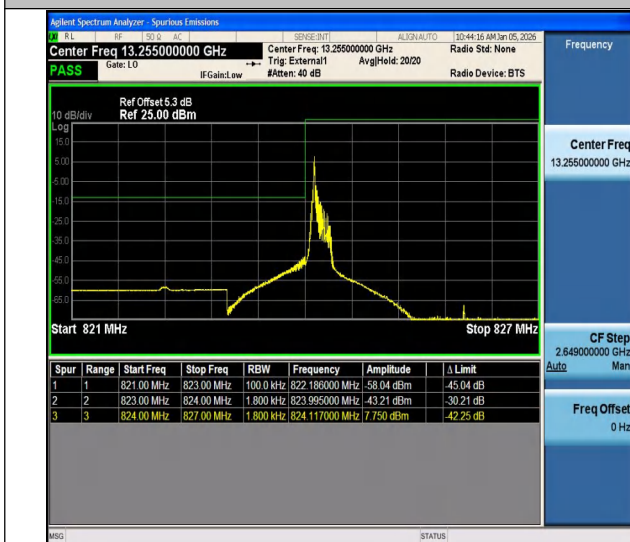
Band5-0.18-QPSK-20648-PASS



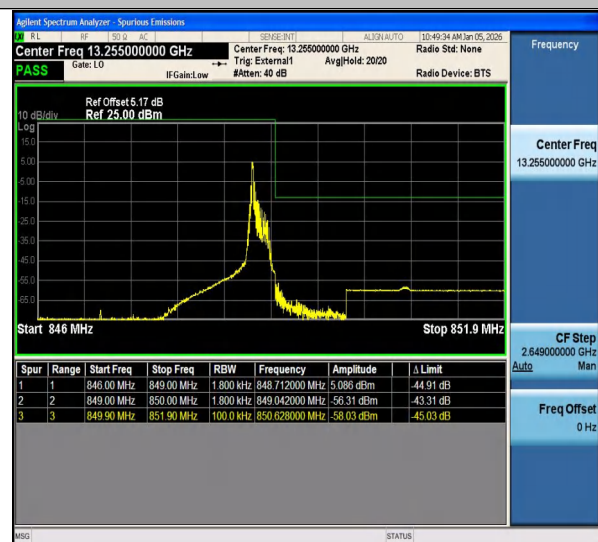
Band5-0.18-BPSK-20648-PASS



Band5-0.18-QPSK-20648-PASS



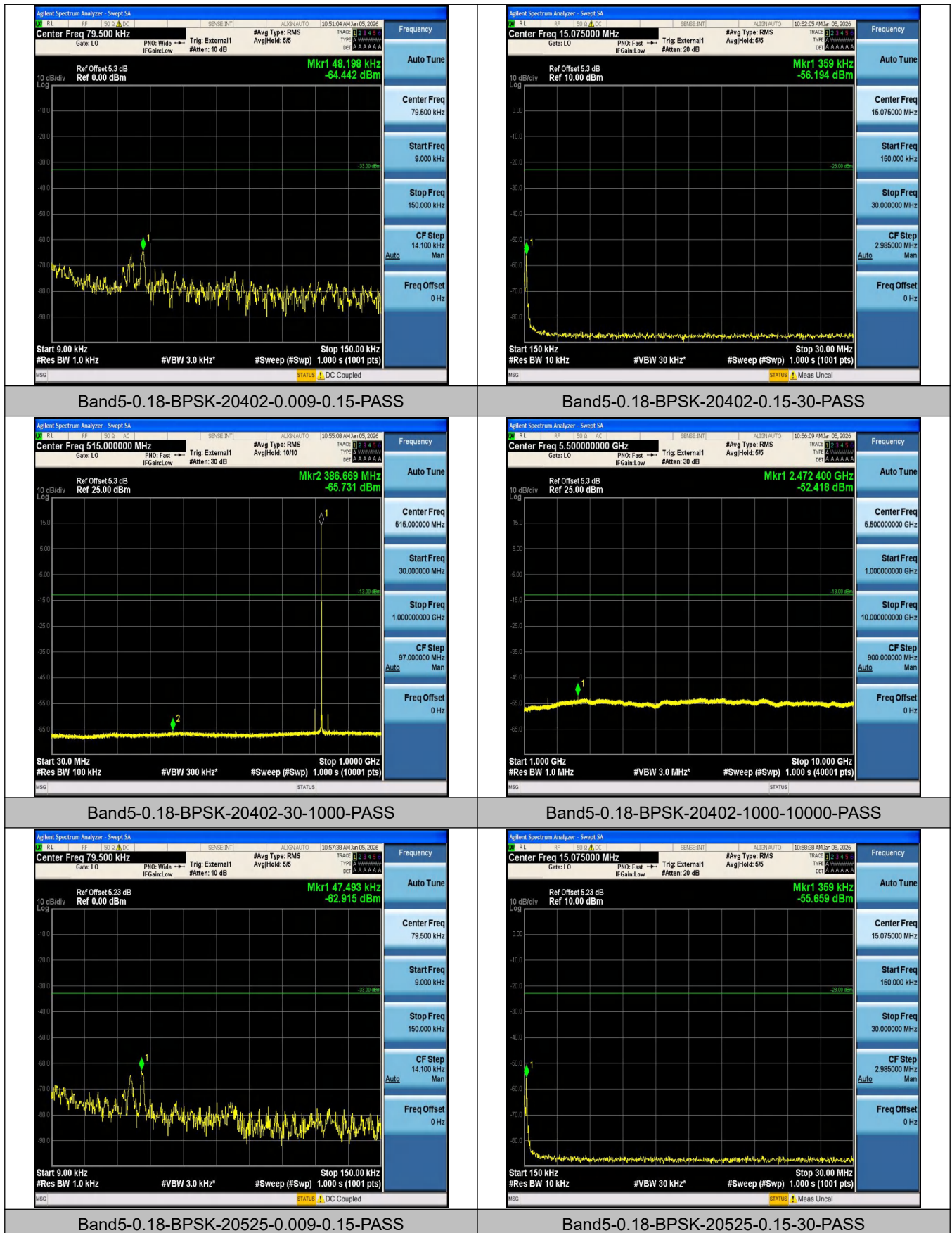
Band5-0.18-QPSK-20402-PASS

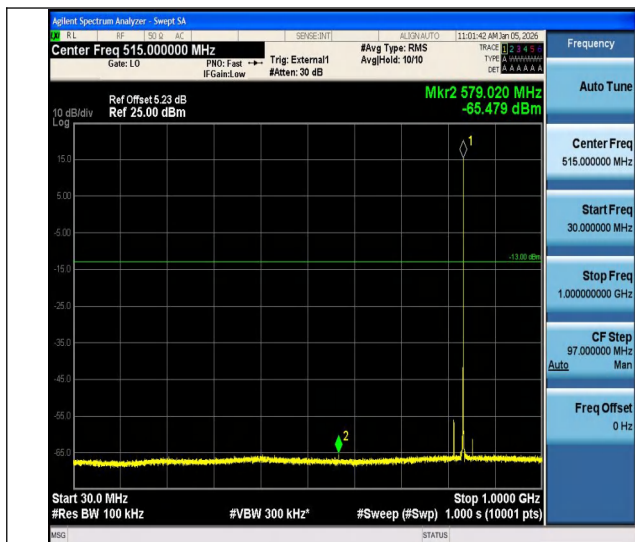


Band5-0.18-QPSK-20648-PASS

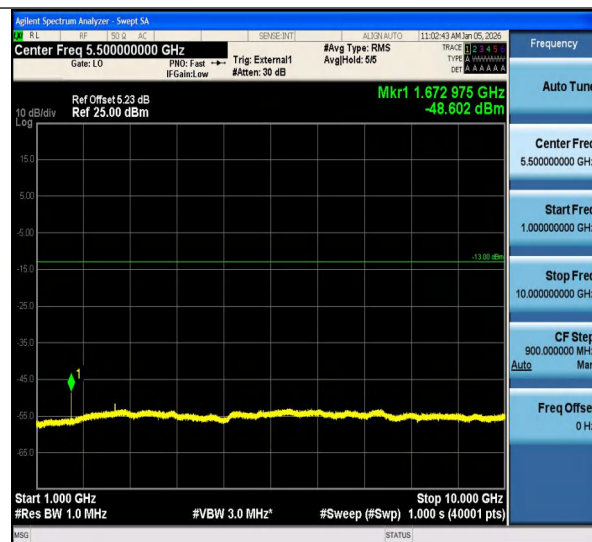
Conducted Spurious Emission for NB

Test Graphs

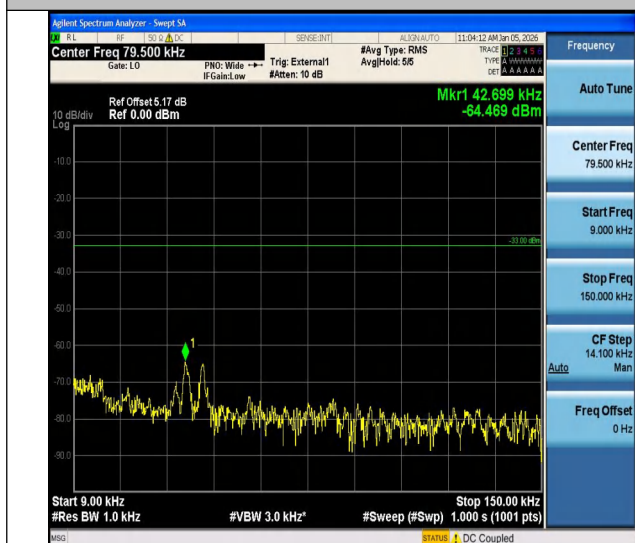




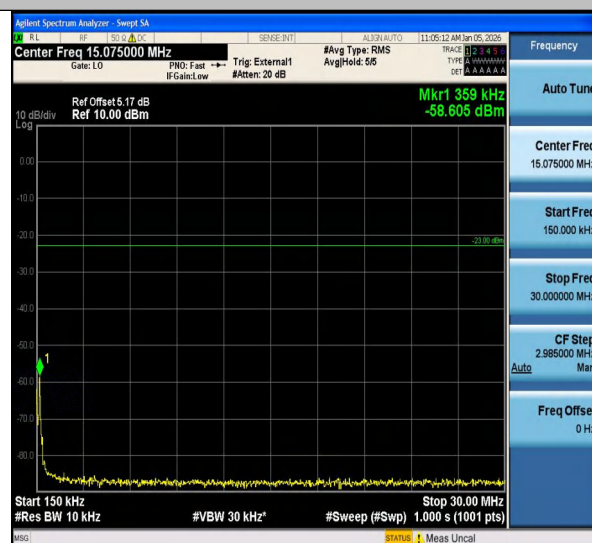
Band5-0.18-BPSK-20525-30-1000-PASS



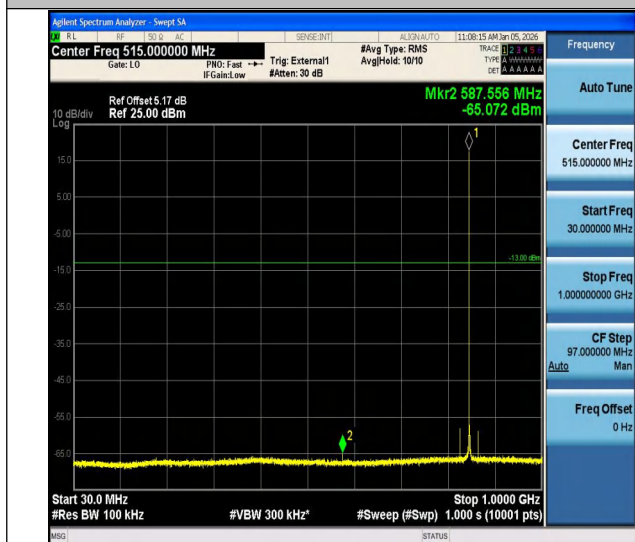
Band5-0.18-BPSK-20525-1000-10000-PASS



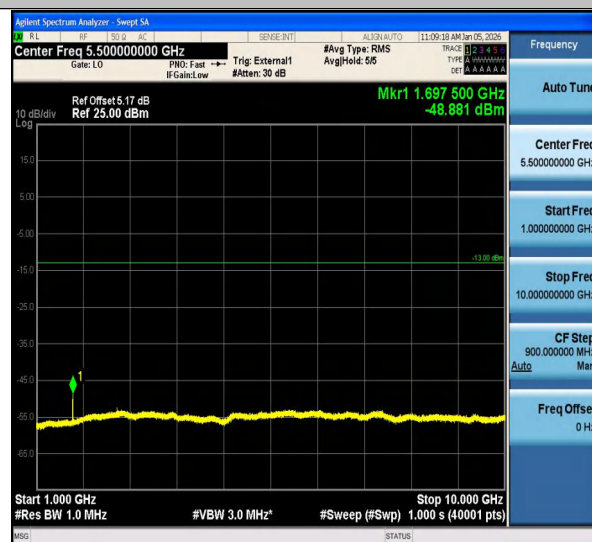
Band5-0.18-BPSK-20648-0.009-0.15-PASS



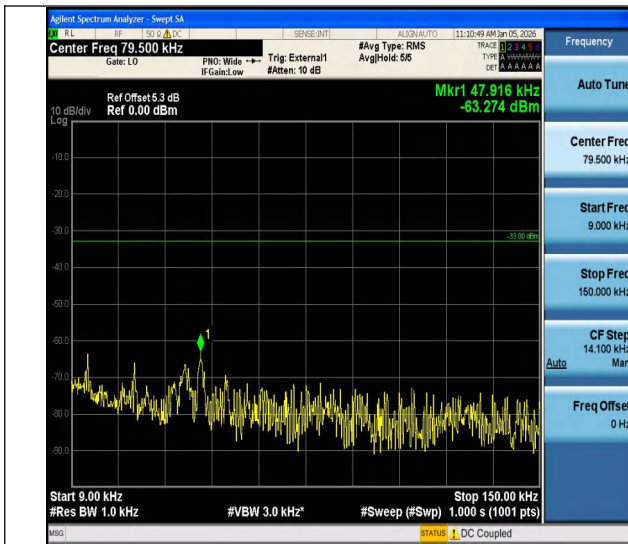
Band5-0.18-BPSK-20648-0.15-30-PASS



Band5-0.18-BPSK-20648-30-1000-PASS



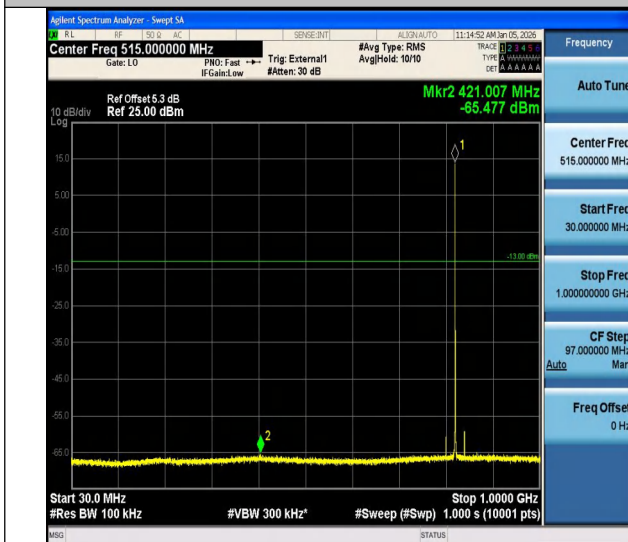
Band5-0.18-BPSK-20648-1000-10000-PASS



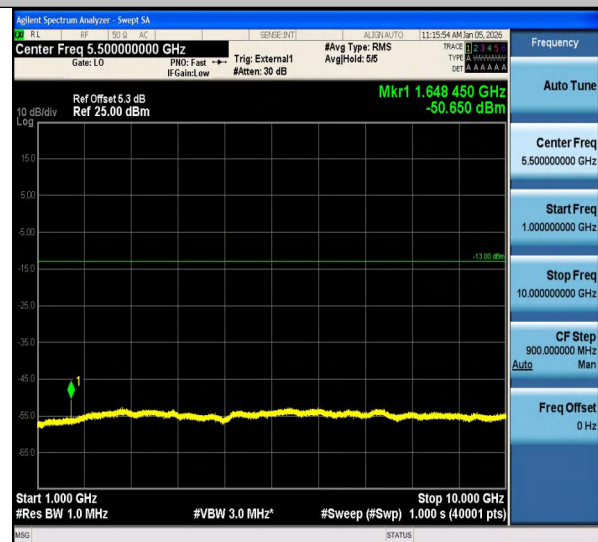
Band5-0.18-BPSK-20402-0.009-0.15-PASS



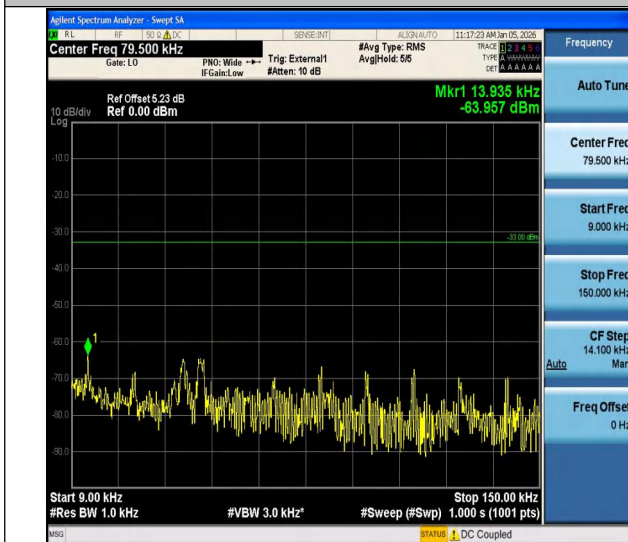
Band5-0.18-BPSK-20402-0.15-30-PASS



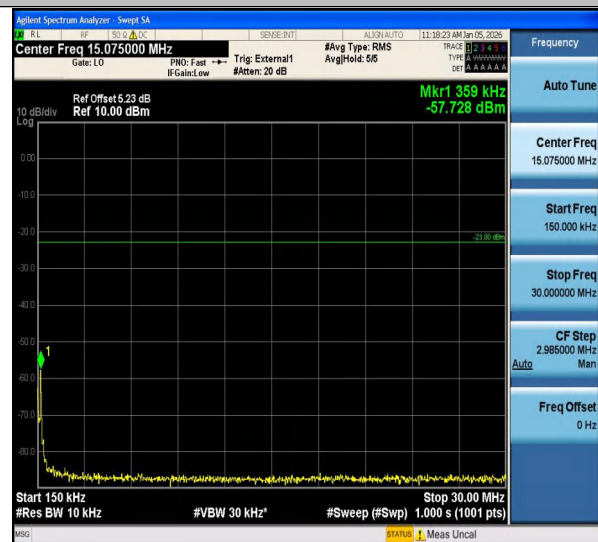
Band5-0.18-BPSK-20402-30-1000-PASS



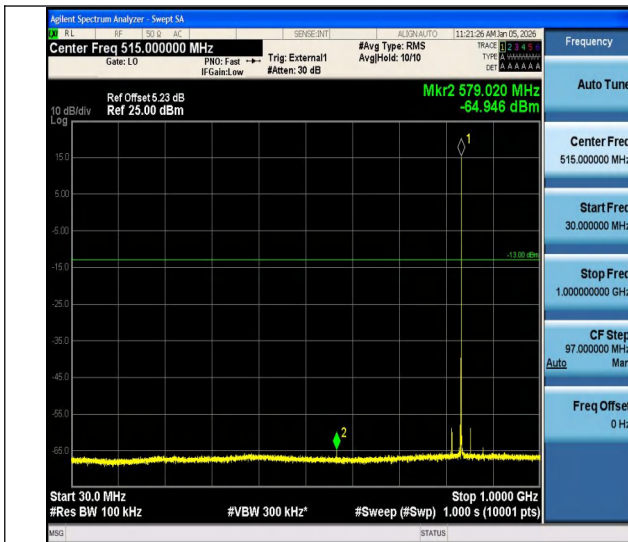
Band5-0.18-BPSK-20402-1000-10000-PASS



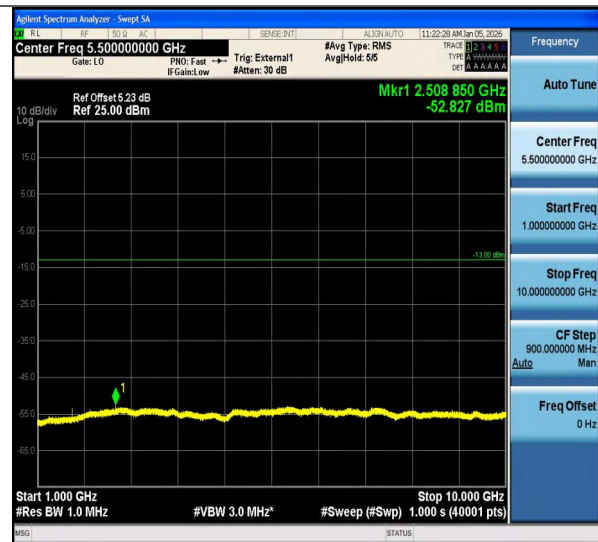
Band5-0.18-BPSK-20525-0.009-0.15-PASS



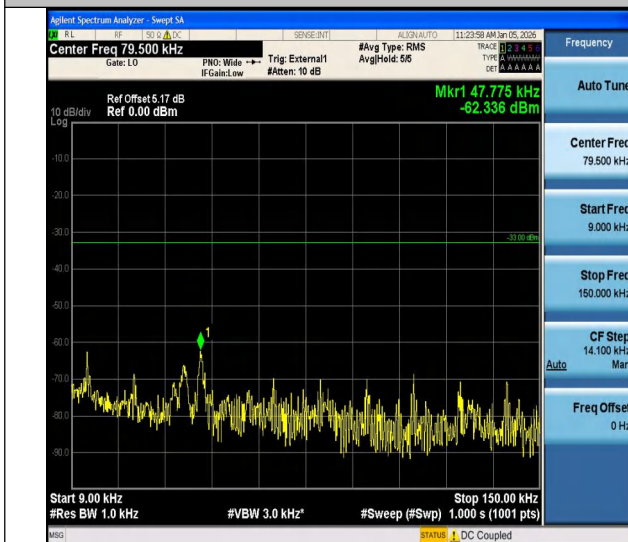
Band5-0.18-BPSK-20525-0.15-30-PASS



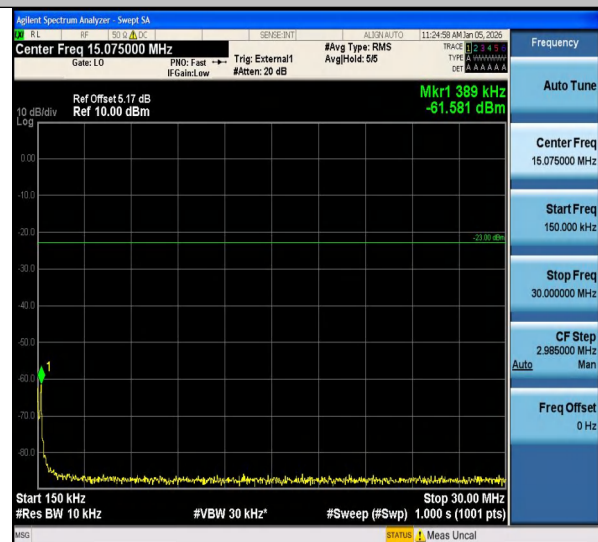
Band5-0.18-BPSK-20525-30-1000-PASS



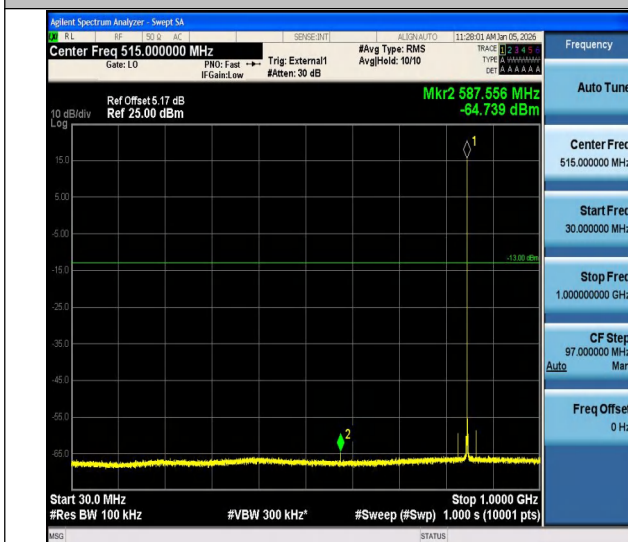
Band5-0.18-BPSK-20525-1000-10000-PASS



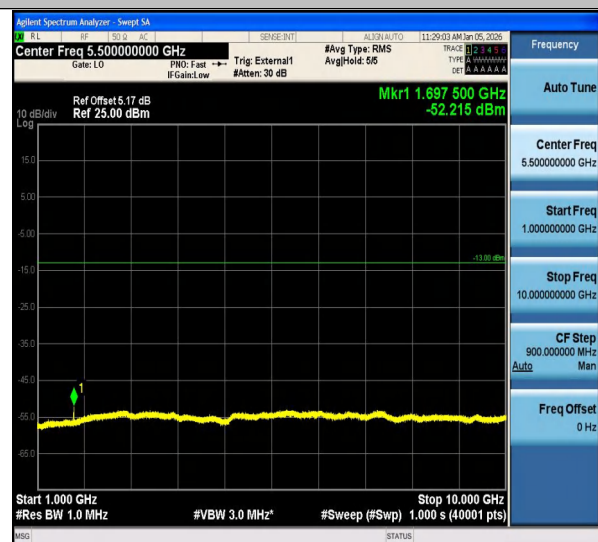
Band5-0.18-BPSK-20648-0.009-0.15-PASS



Band5-0.18-BPSK-20648-0.15-30-PASS



Band5-0.18-BPSK-20648-30-1000-PASS



Band5-0.18-BPSK-20648-1000-10000-PASS

Frequency Stability for NB

Test Result

Voltage												
Band	OpMode	SCS	Bandwidth	Modulation	Channel	Tones	Voltage [Vdc]	Temperature (°C)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)	Verdict
Band5	Stand-Alone	3.75kHz	0.18	QPSK	20525	1@0	VN	NT	-6.10	-0.007292	±2.5	PASS
Band5	Stand-Alone	3.75kHz	0.18	QPSK	20525	1@0	VL	NT	-5.10	-0.006097	±2.5	PASS
Band5	Stand-Alone	3.75kHz	0.18	QPSK	20525	1@0	VH	NT	-5.60	-0.006695	±2.5	PASS
Band5	Stand-Alone	15kHz	0.18	QPSK	20525	12@0	VN	NT	-8.60	-0.010281	±2.5	PASS
Band5	Stand-Alone	15kHz	0.18	QPSK	20525	12@0	VL	NT	-8.90	-0.010640	±2.5	PASS
Band5	Stand-Alone	15kHz	0.18	QPSK	20525	12@0	VH	NT	-7.90	-0.009444	±2.5	PASS

Temperature												
Band	OpMode	Bandwidth	Modulation	Channel	Tones	SCS	Voltage [Vdc]	Temperature (°C)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)	Verdict
Band5	Stand-Alone	3.75kHz	0.18	QPSK	20525	1@0	NV	-30	-6.30	-0.007531	±2.5	PASS
Band5	Stand-Alone	3.75kHz	0.18	QPSK	20525	1@0	NV	-20	-6.50	-0.007770	±2.5	PASS
Band5	Stand-Alone	3.75kHz	0.18	QPSK	20525	1@0	NV	-10	-5.80	-0.006934	±2.5	PASS
Band5	Stand-Alone	3.75kHz	0.18	QPSK	20525	1@0	NV	0	-6.50	-0.007770	±2.5	PASS
Band5	Stand-Alone	3.75kHz	0.18	QPSK	20525	1@0	NV	10	-5.10	-0.006097	±2.5	PASS
Band5	Stand-Alone	3.75kHz	0.18	QPSK	20525	1@0	NV	20	-4.70	-0.005619	±2.5	PASS
Band5	Stand-Alone	3.75kHz	0.18	QPSK	20525	1@0	NV	30	-4.40	-0.005260	±2.5	PASS
Band5	Stand-Alone	3.75kHz	0.18	QPSK	20525	1@0	NV	40	-5.10	-0.006097	±2.5	PASS
Band5	Stand-Alone	3.75kHz	0.18	QPSK	20525	1@0	NV	50	-3.70	-0.004423	±2.5	PASS
Band5	Stand-Alone	15kHz	0.18	QPSK	20525	12@0	NV	-30	-7.90	-0.009444	±2.5	PASS
Band5	Stand-Alone	15kHz	0.18	QPSK	20525	12@0	NV	-20	-8.00	-0.009564	±2.5	PASS
Band5	Stand-Alone	15kHz	0.18	QPSK	20525	12@0	NV	-10	-7.80	-0.009325	±2.5	PASS
Band5	Stand-Alone	15kHz	0.18	QPSK	20525	12@0	NV	0	-8.40	-0.010042	±2.5	PASS
Band5	Stand-Alone	15kHz	0.18	QPSK	20525	12@0	NV	10	-7.10	-0.008488	±2.5	PASS
Band5	Stand-Alone	15kHz	0.18	QPSK	20525	12@0	NV	20	-8.30	-0.009922	±2.5	PASS
Band5	Stand-Alone	15kHz	0.18	QPSK	20525	12@0	NV	30	-7.80	-0.009325	±2.5	PASS
Band5	Stand-Alone	15kHz	0.18	QPSK	20525	12@0	NV	40	-7.00	-0.008368	±2.5	PASS
Band5	Stand-Alone	15kHz	0.18	QPSK	20525	12@0	NV	50	-6.50	-0.007770	±2.5	PASS

~The End~