Appendix-B LTE NB-IoT Band 4

Effective (Isotropic) Radiated Power Output Data for NB1

Test Result

Band	OpMode	SCS	BW	Modulation	Channel	Tones	Power (dBm)	EIRP (dBm)	Limit (dBm)	Verdict
Band4	Stand-Alone	3.75kHz	0.18	BPSK	19952	1@0	22.08	24.08	30	PASS
Band4	Stand-Alone	3.75kHz	0.18	QPSK	19952	1@0	22.08	24.08	30	PASS
Band4	Stand-Alone	3.75kHz	0.18	BPSK	19952	1@47	22.03	24.03	30	PASS
Band4	Stand-Alone	3.75kHz	0.18	QPSK	19952	1@47	21.98	23.98	30	PASS
Band4	Stand-Alone	3.75kHz	0.18	BPSK	20175	1@0	21.85	23.85	30	PASS
Band4	Stand-Alone	3.75kHz	0.18	QPSK	20175	1@0	21.96	23.96	30	PASS
Band4	Stand-Alone	3.75kHz	0.18	BPSK	20175	1@47	21.81	23.81	30	PASS
Band4	Stand-Alone	3.75kHz	0.18	QPSK	20175	1@47	21.75	23.75	30	PASS
Band4	Stand-Alone	3.75kHz	0.18	BPSK	20398	1@0	21.98	23.98	30	PASS
Band4	Stand-Alone	3.75kHz	0.18	QPSK	20398	1@0	22.00	24.00	30	PASS
Band4	Stand-Alone	3.75kHz	0.18	BPSK	20398	1@47	22.00	24.00	30	PASS
Band4	Stand-Alone	3.75kHz	0.18	QPSK	20398	1@47	21.98	23.98	30	PASS
Band4	Stand-Alone	15kHz	0.18	BPSK	19952	1@0	21.13	23.13	30	PASS
Band4	Stand-Alone	15kHz	0.18	QPSK	19952	1@0	21.15	23.15	30	PASS
Band4	Stand-Alone	15kHz	0.18	BPSK	19952	1@11	21.08	23.08	30	PASS
Band4	Stand-Alone	15kHz	0.18	QPSK	19952	1@11	21.08	23.08	30	PASS
Band4	Stand-Alone	15kHz	0.18	BPSK	20175	1@0	21.19	23.19	30	PASS
Band4	Stand-Alone	15kHz	0.18	QPSK	20175	1@0	21.21	23.21	30	PASS
Band4	Stand-Alone	15kHz	0.18	BPSK	20175	1@11	21.12	23.12	30	PASS
Band4	Stand-Alone	15kHz	0.18	QPSK	20175	1@11	21.11	23.11	30	PASS
Band4	Stand-Alone	15kHz	0.18	BPSK	20398	1@0	21.06	23.06	30	PASS
Band4	Stand-Alone	15kHz	0.18	QPSK	20398	1@0	21.08	23.08	30	PASS
Band4	Stand-Alone	15kHz	0.18	BPSK	20398	1@11	20.98	22.98	30	PASS
Band4	Stand-Alone	15kHz	0.18	QPSK	20398	1@11	20.97	22.97	30	PASS
Band4	Stand-Alone	15kHz	0.18	QPSK	19952	3@3	21.25	23.25	30	PASS
Band4	Stand-Alone	15kHz	0.18	QPSK	20175	3@3	21.14	23.14	30	PASS
Band4	Stand-Alone	15kHz	0.18	QPSK	20398	3@3	21.13	23.13	30	PASS

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Peak-to-Average Ratio(CCDF) for NB1

Test Result

Band	OpMode	SCS	BW	Modulation	Channel	Tones	Result (dBm)	Limit (dBm)	Verdict
Band4	Stand-Alone	3.75kHz	0.18	QPSK	19952	1@0	5.15	<=13	PASS
Band4	Stand-Alone	3.75kHz	0.18	QPSK	19952	1@47	4.95	<=13	PASS
Band4	Stand-Alone	3.75kHz	0.18	QPSK	20175	1@0	5.13	<=13	PASS
Band4	Stand-Alone	3.75kHz	0.18	QPSK	20175	1@47	4.7	<=13	PASS
Band4	Stand-Alone	3.75kHz	0.18	QPSK	20398	1@0	5.15	<=13	PASS
Band4	Stand-Alone	3.75kHz	0.18	QPSK	20398	1@47	4.64	<=13	PASS
Band4	Stand-Alone	15kHz	0.18	QPSK	19952	1@0	6.57	<=13	PASS
Band4	Stand-Alone	15kHz	0.18	QPSK	19952	1@11	6.55	<=13	PASS
Band4	Stand-Alone	15kHz	0.18	QPSK	20175	1@0	6.58	<=13	PASS
Band4	Stand-Alone	15kHz	0.18	QPSK	20175	1@11	6.56	<=13	PASS
Band4	Stand-Alone	15kHz	0.18	QPSK	20398	1@0	6.58	<=13	PASS
Band4	Stand-Alone	15kHz	0.18	QPSK	20398	1@11	6.57	<=13	PASS

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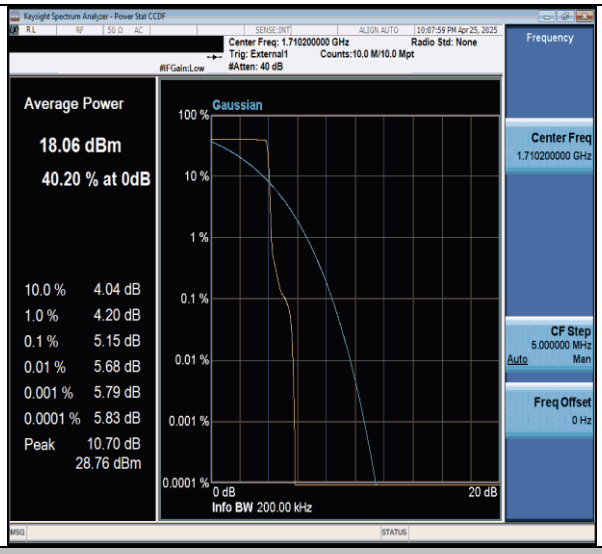
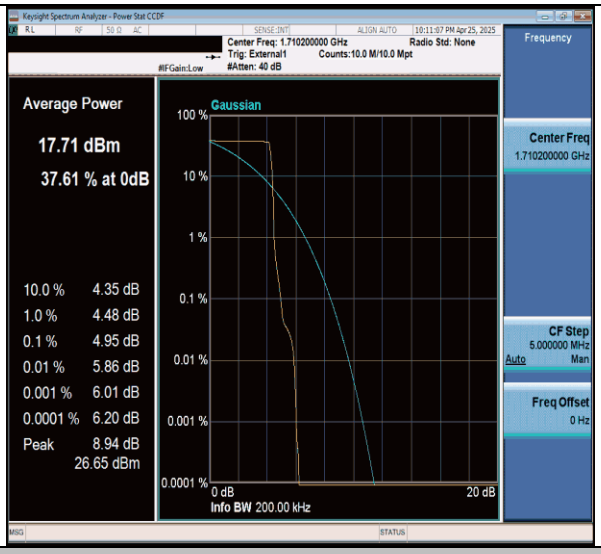
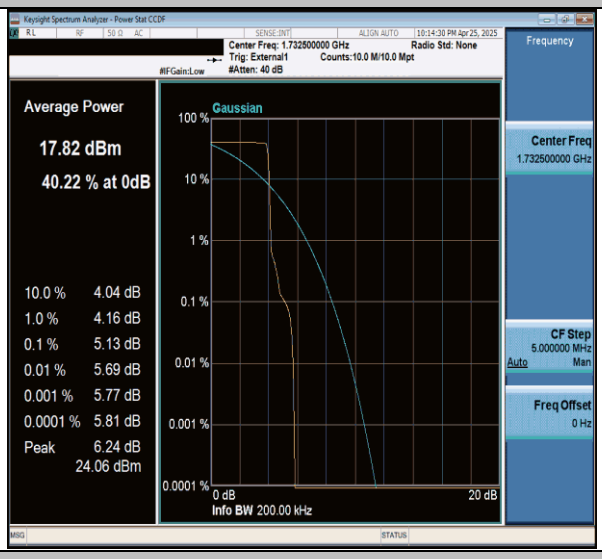
Test Graphs



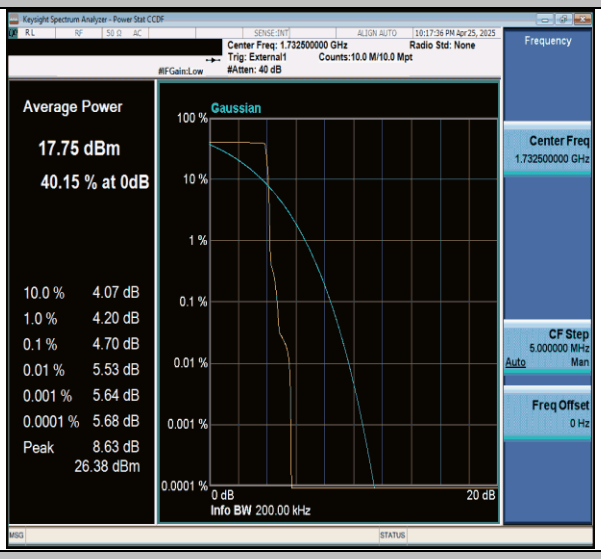
Band4-0.18-QPSK-19952-PASS



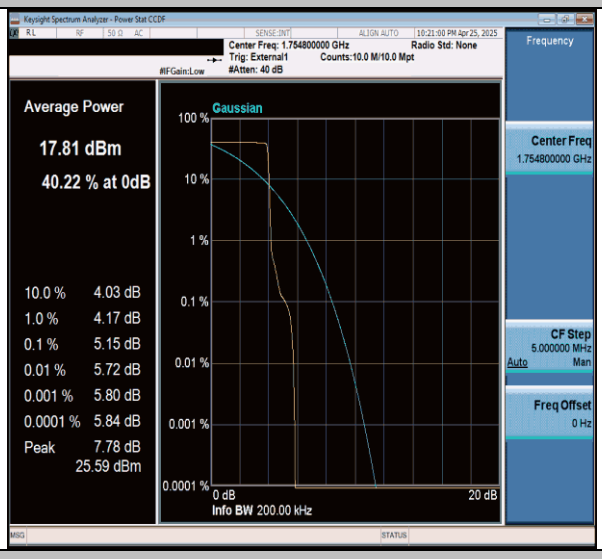
Band4-0.18-QPSK-19952-PASS



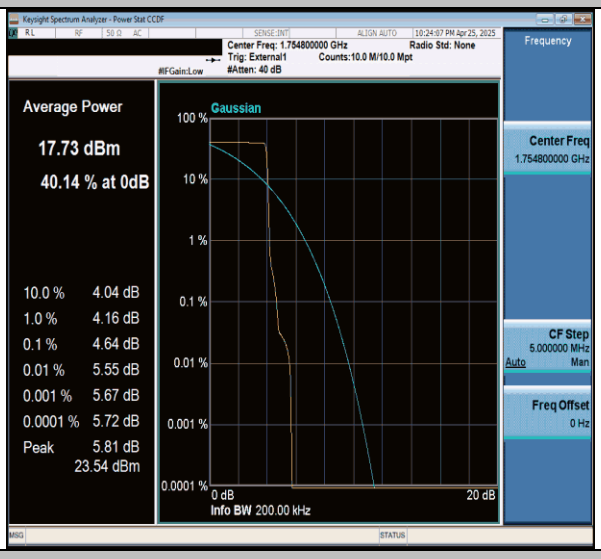
Band4-0.18-QPSK-20175-PASS



Band4-0.18-QPSK-20175-PASS



Band4-0.18-QPSK-20398-PASS



Band4-0.18-QPSK-20398-PASS

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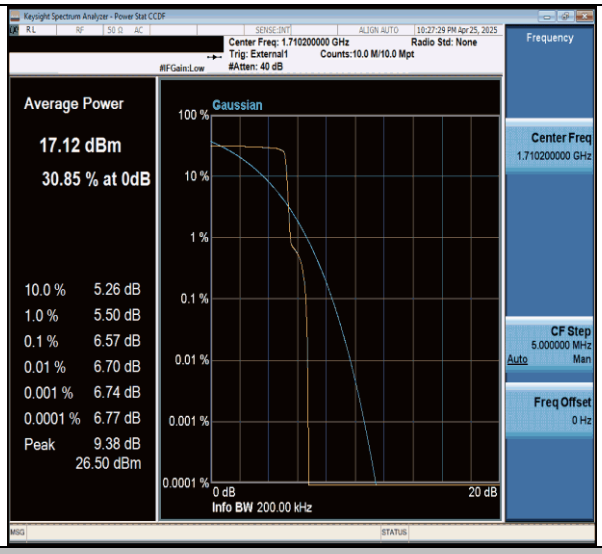
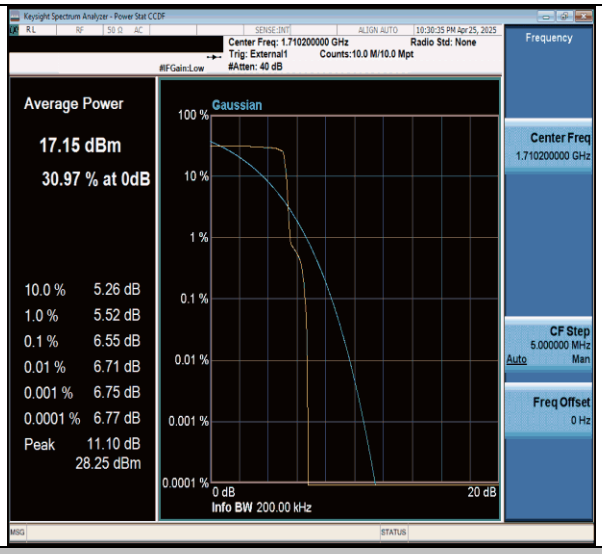
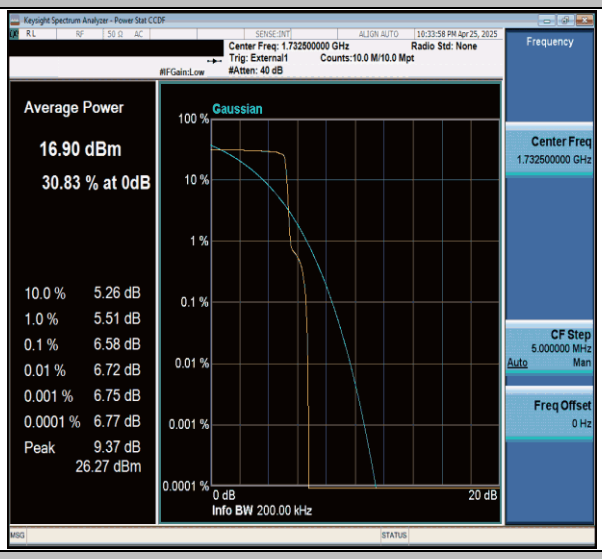


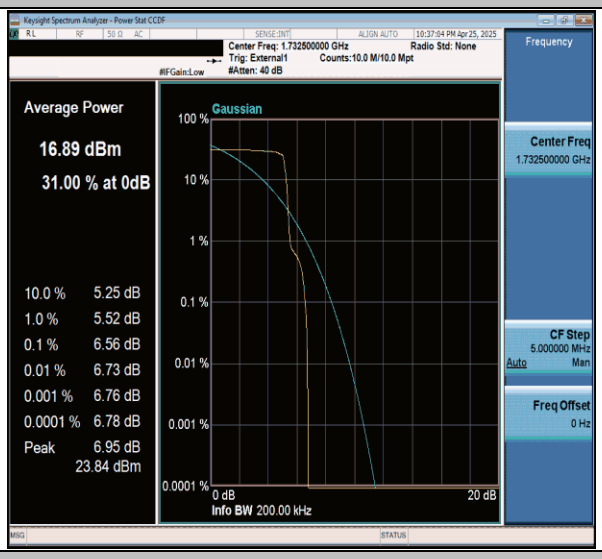
Band4-0.18-QPSK-19952-PASS



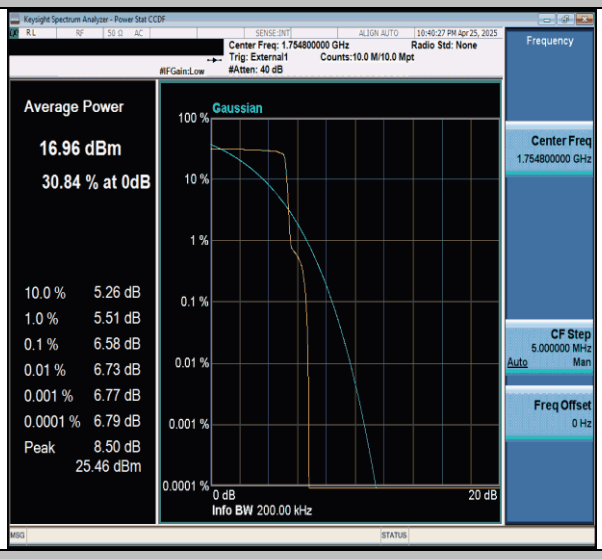
Band4-0.18-QPSK-19952-PASS



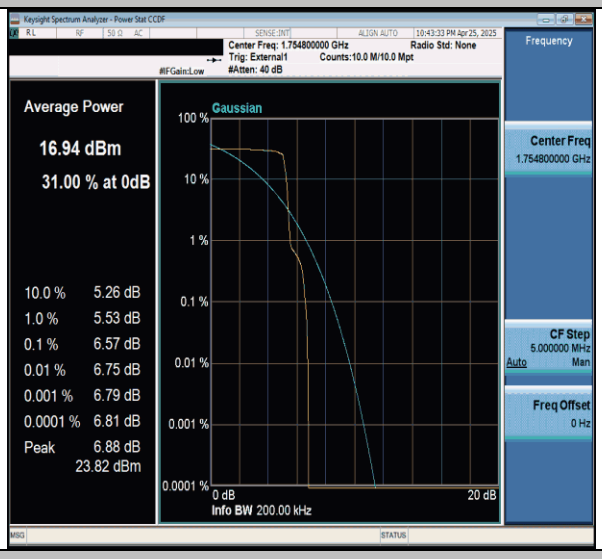
Band4-0.18-QPSK-20175-PASS



Band4-0.18-QPSK-20175-PASS



Band4-0.18-QPSK-20398-PASS



Band4-0.18-QPSK-20398-PASS

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Emission Bandwidth for NB1

Test Result

Band	OpMode	SCS	BW	Modulation	Channel	Tones	OBW(MHz)	EBW(MHz)	Verdict
Band4	Stand-Alone	3.75kHz	0.18	BPSK	19952	1@0	0.17703	0.1946	PASS
Band4	Stand-Alone	3.75kHz	0.18	QPSK	19952	1@0	0.17788	0.1935	PASS
Band4	Stand-Alone	3.75kHz	0.18	BPSK	20175	1@0	0.17783	0.1953	PASS
Band4	Stand-Alone	3.75kHz	0.18	QPSK	20175	1@0	0.17796	0.1934	PASS
Band4	Stand-Alone	3.75kHz	0.18	BPSK	20398	1@0	0.17704	0.1949	PASS
Band4	Stand-Alone	3.75kHz	0.18	QPSK	20398	1@0	0.17832	0.1931	PASS
Band4	Stand-Alone	15kHz	0.18	BPSK	19952	1@0	0.12804	0.1187	PASS
Band4	Stand-Alone	15kHz	0.18	QPSK	19952	1@0	0.11863	0.1113	PASS
Band4	Stand-Alone	15kHz	0.18	BPSK	19952	12@0	0.19415	0.2259	PASS
Band4	Stand-Alone	15kHz	0.18	QPSK	19952	12@0	0.19503	0.2138	PASS
Band4	Stand-Alone	15kHz	0.18	BPSK	20175	1@0	0.12730	0.1148	PASS
Band4	Stand-Alone	15kHz	0.18	QPSK	20175	1@0	0.11824	0.1138	PASS
Band4	Stand-Alone	15kHz	0.18	BPSK	20175	12@0	0.19426	0.2249	PASS
Band4	Stand-Alone	15kHz	0.18	QPSK	20175	12@0	0.19204	0.2129	PASS
Band4	Stand-Alone	15kHz	0.18	BPSK	20398	1@0	0.12093	0.1140	PASS
Band4	Stand-Alone	15kHz	0.18	QPSK	20398	1@0	0.11790	0.1143	PASS
Band4	Stand-Alone	15kHz	0.18	BPSK	20398	12@0	0.19277	0.2240	PASS
Band4	Stand-Alone	15kHz	0.18	QPSK	20398	12@0	0.19107	0.2134	PASS

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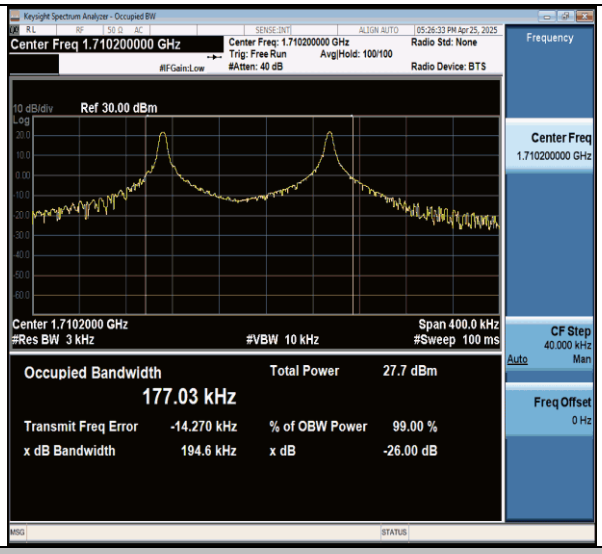
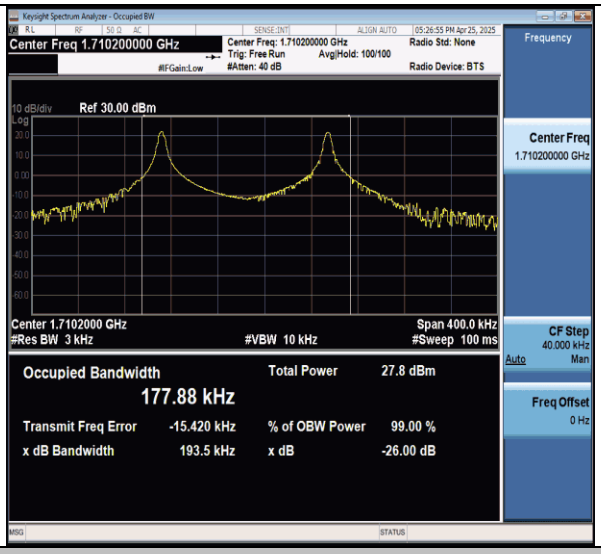
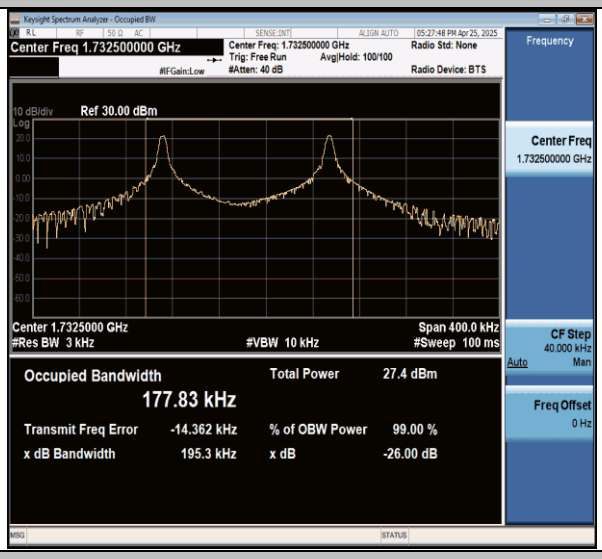
Test Graphs



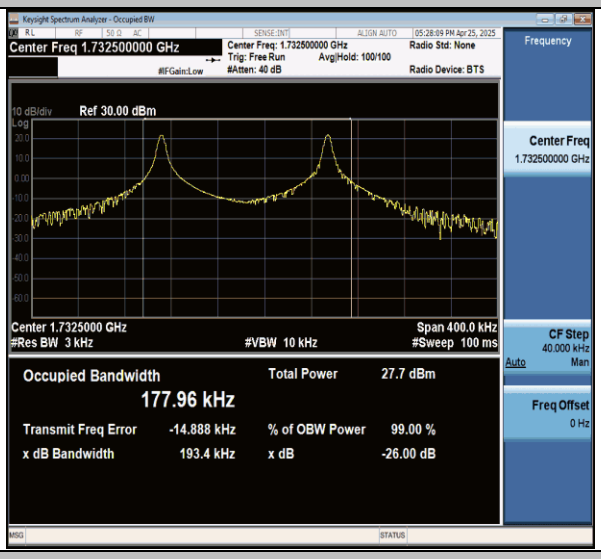
Band4-0.18-BPSK-19952-PASS



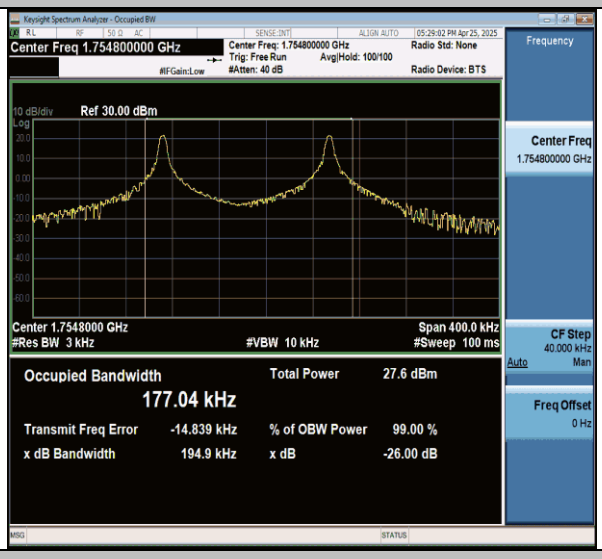
Band4-0.18-QPSK-19952-PASS



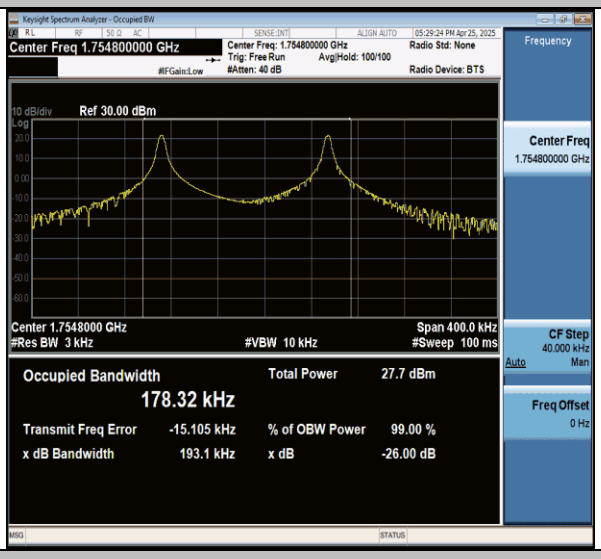
Band4-0.18-BPSK-20175-PASS



Band4-0.18-QPSK-20175-PASS



Band4-0.18-BPSK-20398-PASS



Band4-0.18-QPSK-20398-PASS

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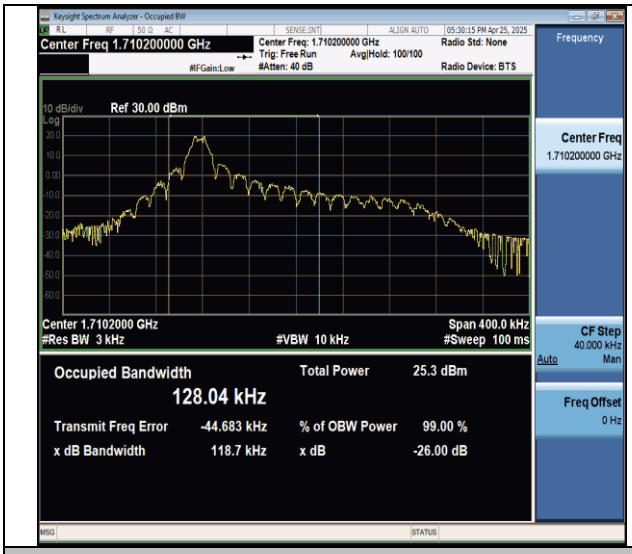
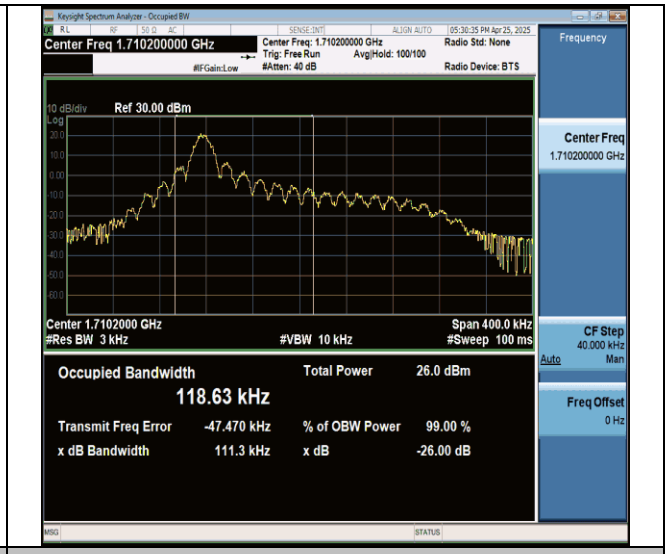
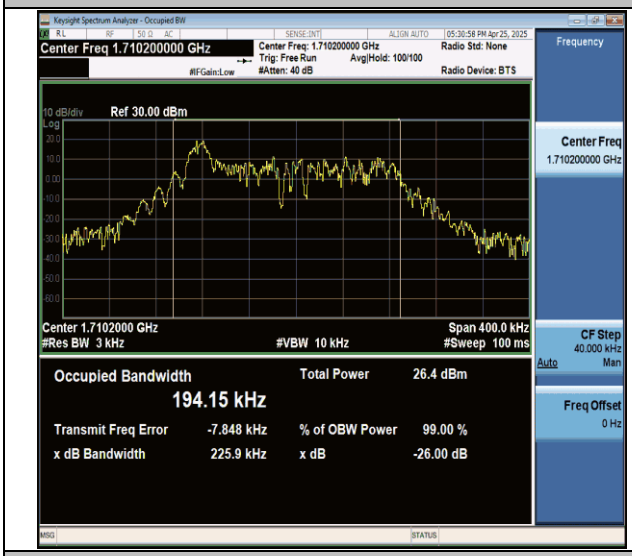


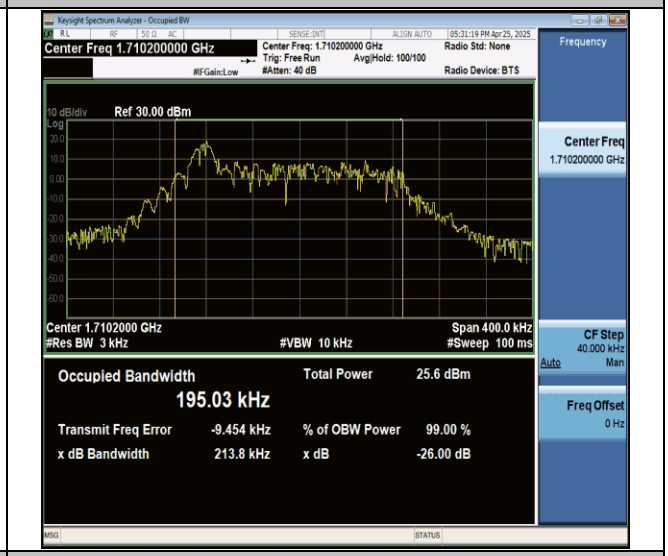
Band4-0.18-BPSK-19952-PASS



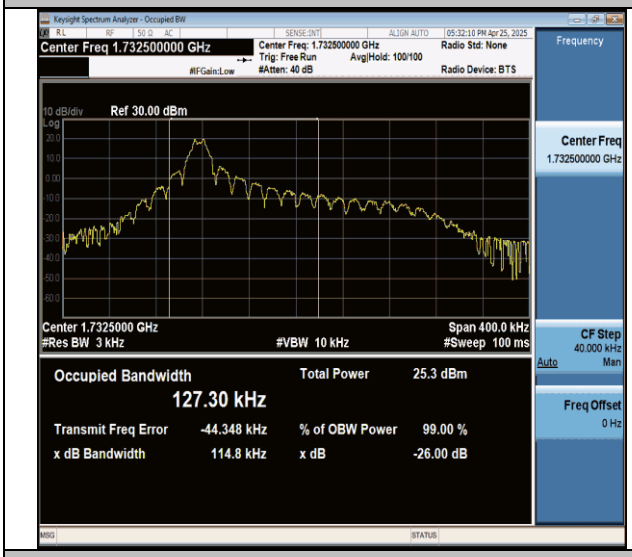
Band4-0.18-QPSK-19952-PASS



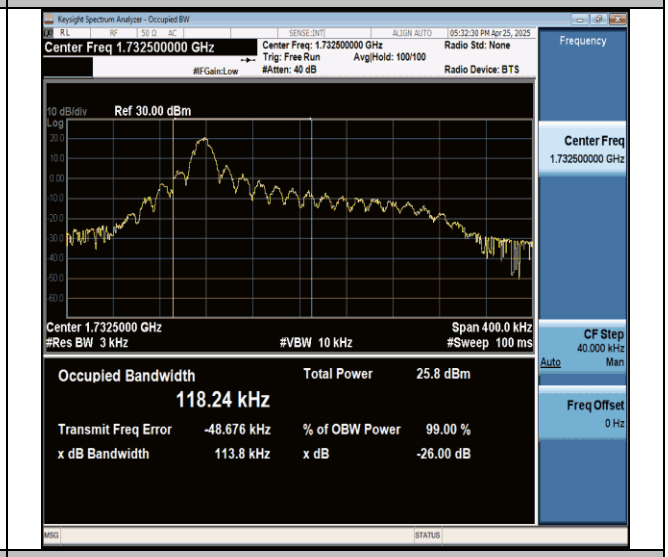
Band4-0.18-BPSK-19952-PASS



Band4-0.18-QPSK-19952-PASS



Band4-0.18-BPSK-20175-PASS



Band4-0.18-QPSK-20175-PASS

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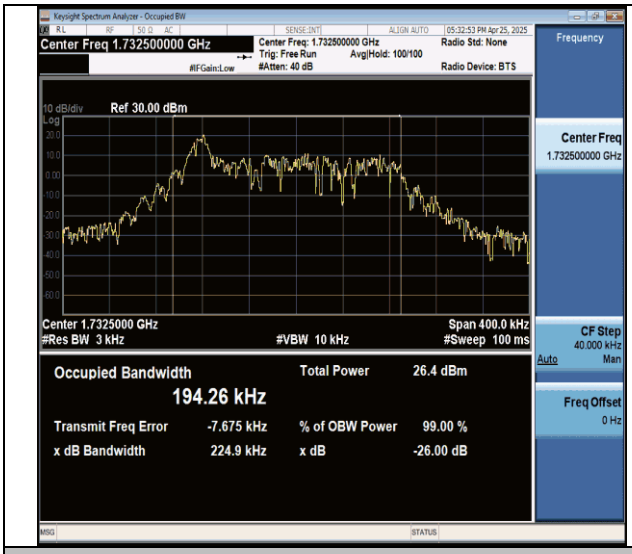
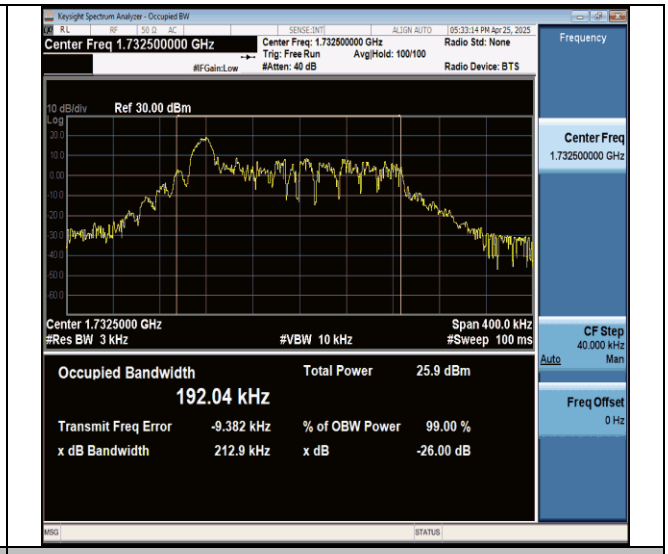
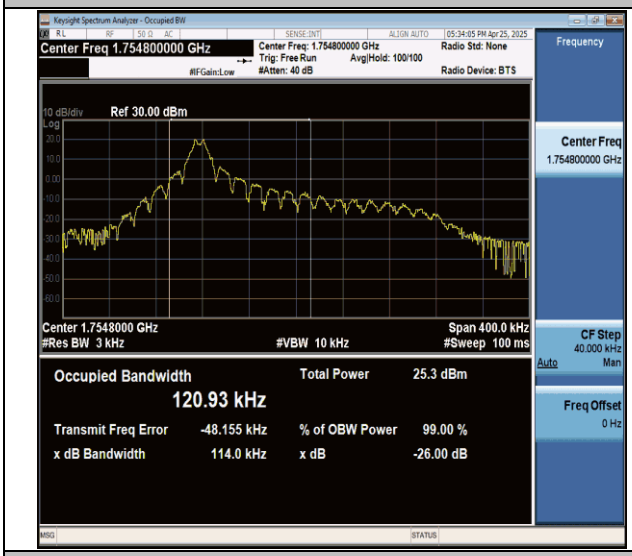


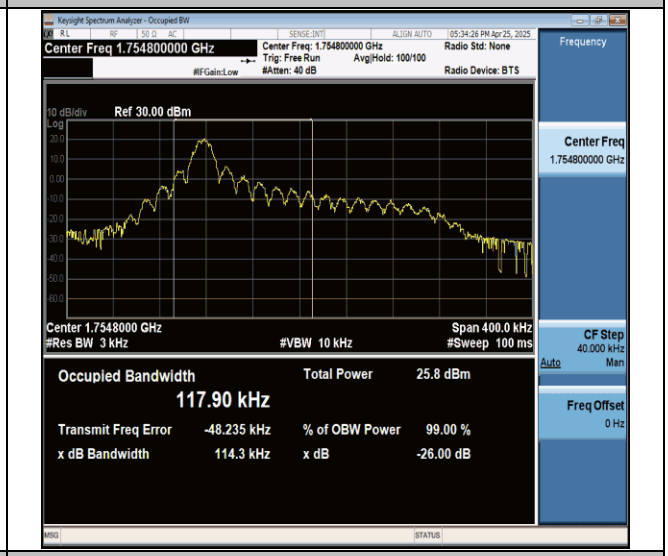
Band4-0.18-BPSK-20175-PASS



Band4-0.18-QPSK-20175-PASS



Band4-0.18-BPSK-20398-PASS



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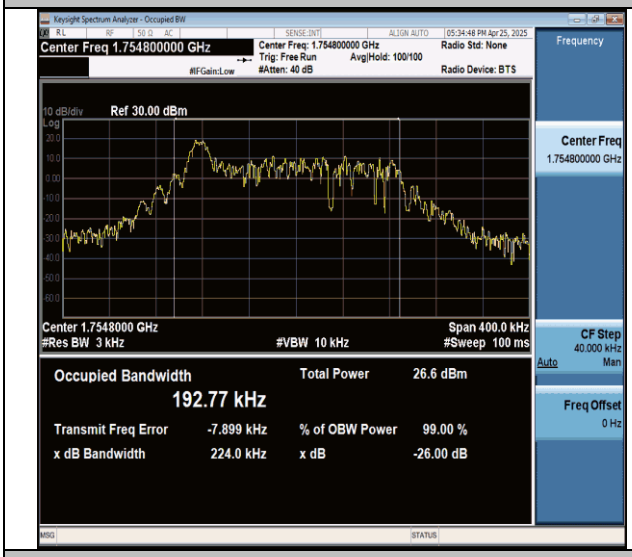
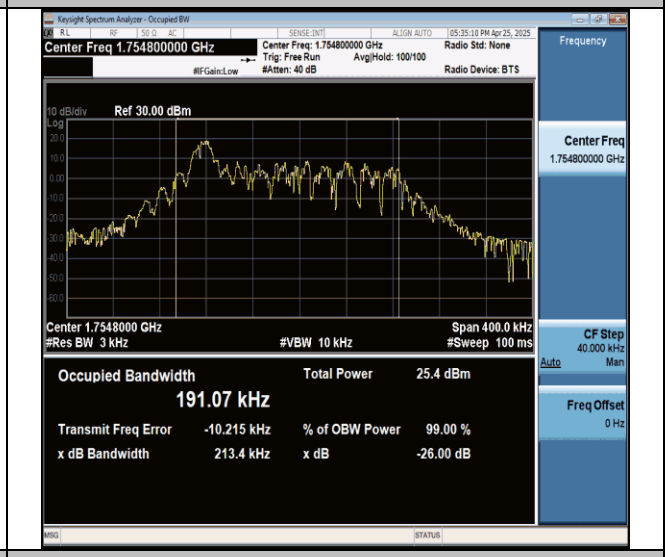


Band4-0.18-BPSK-20398-PASS



Band4-0.18-QPSK-20398-PASS

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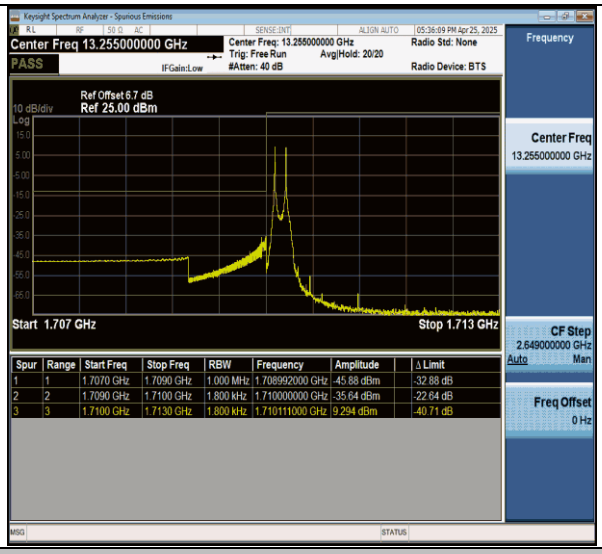
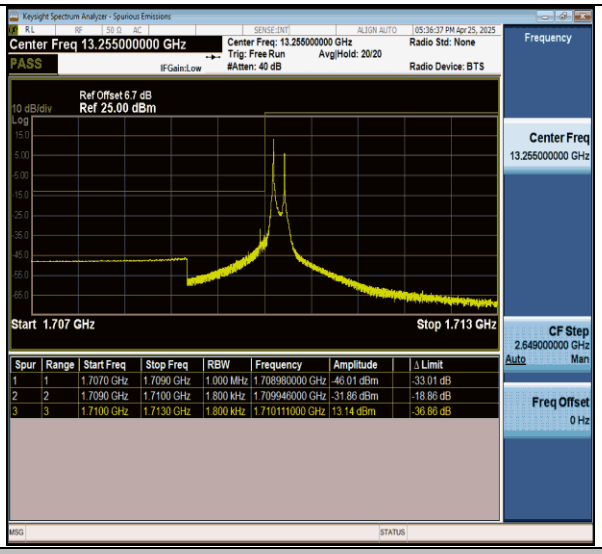
Band Edge for NB1

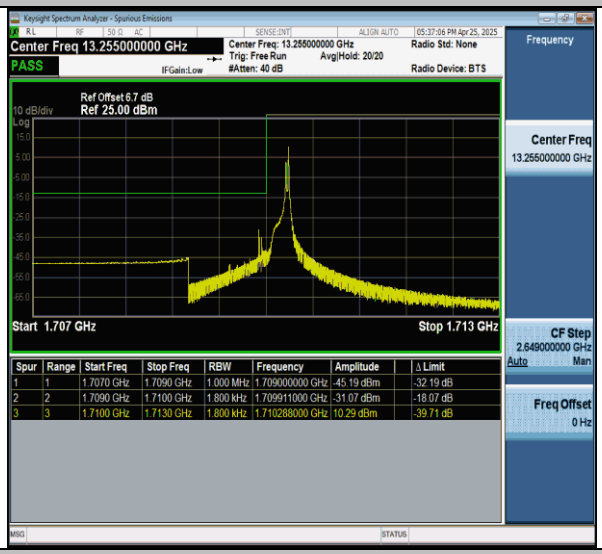
Test Graphs



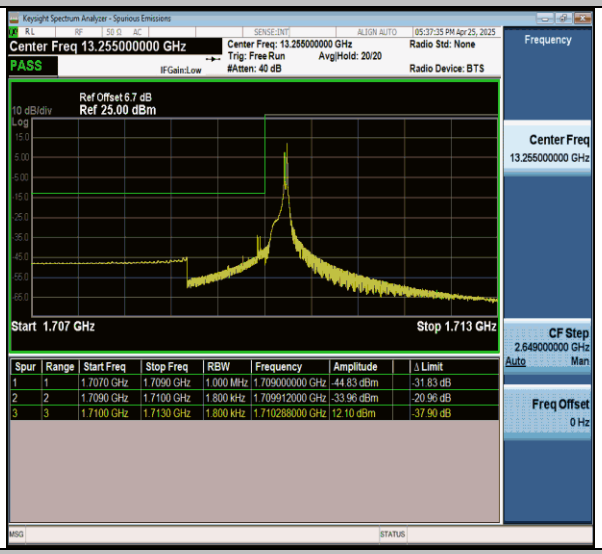
Band4_Stand-Alone_0.18_BPSK_19952_1@0_3.75kHz



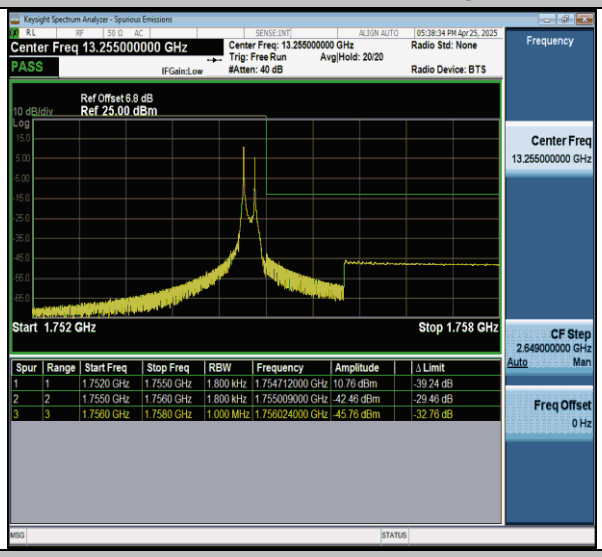
Band4_Stand-Alone_0.18_QPSK_19952_1@0_3.75kHz



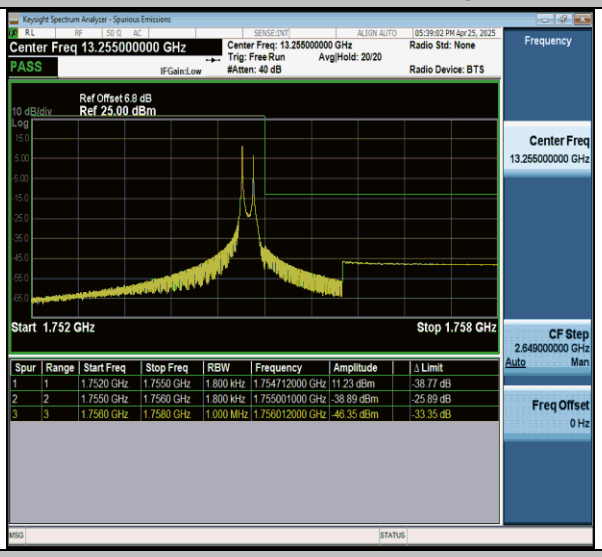
Band4_Stand-Alone_0.18_BPSK_19952_1@47_3.75kHz



Band4_Stand-Alone_0.18_QPSK_19952_1@47_3.75kHz



Band4_Stand-Alone_0.18_BPSK_20398_1@0_3.75kHz



Band4_Stand-Alone_0.18_QPSK_20398_1@0_3.75kHz

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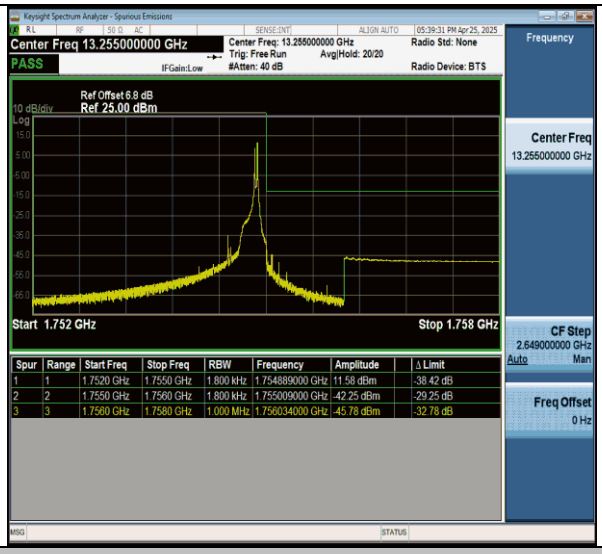
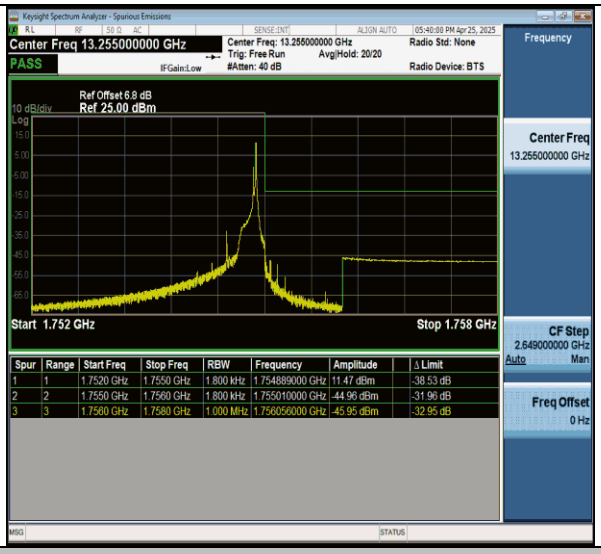
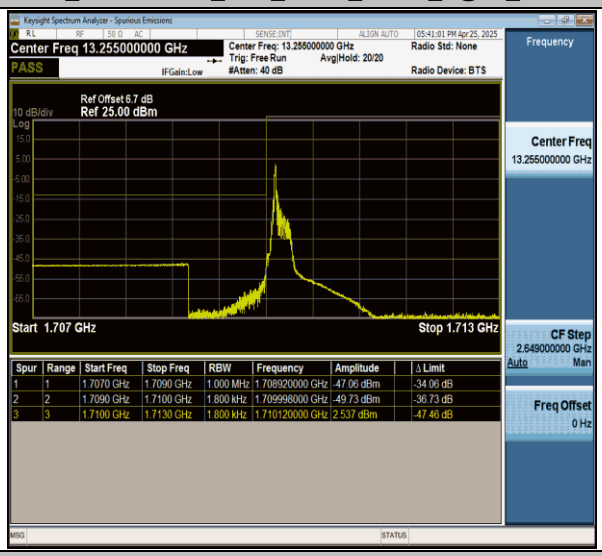


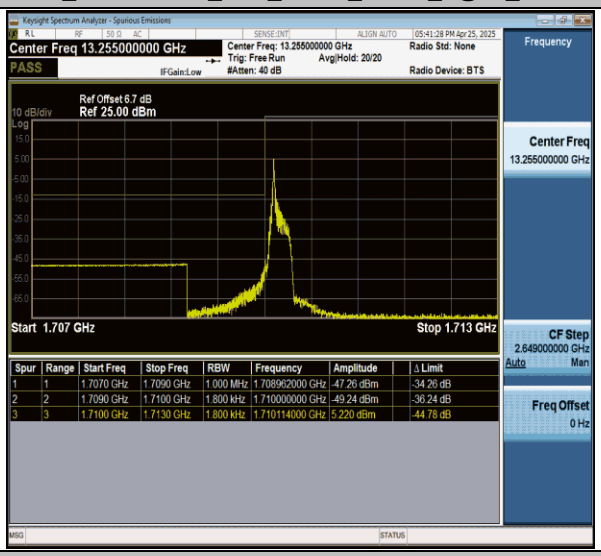
Band4_Stand-Alone_0.18_BPSK_20398_1@47_3.75kHz



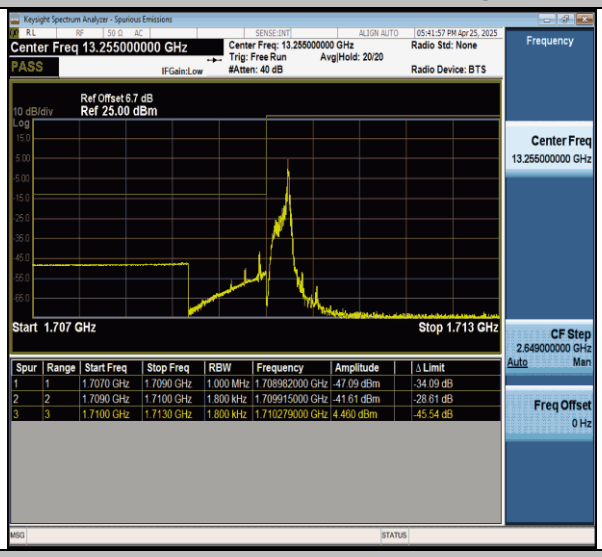
Band4_Stand-Alone_0.18_QPSK_20398_1@47_3.75kHz



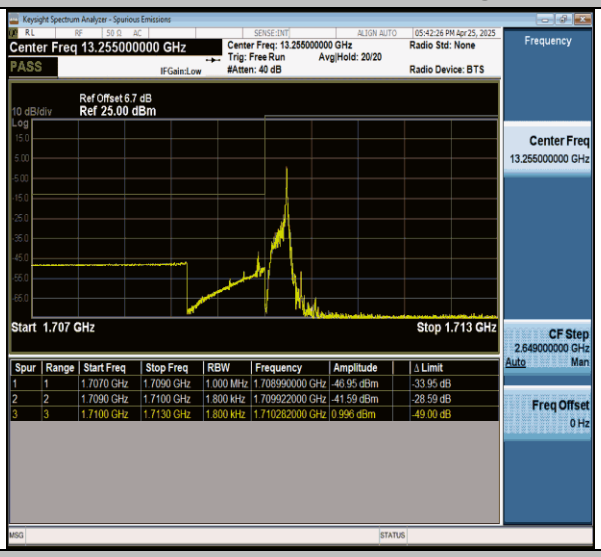
Band4_Stand-Alone_0.18_BPSK_19952_1@0_15kHz



Band4_Stand-Alone_0.18_QPSK_19952_1@0_15kHz



Band4_Stand-Alone_0.18_BPSK_19952_1@11_15kHz



Band4_Stand-Alone_0.18_QPSK_19952_1@11_15kHz

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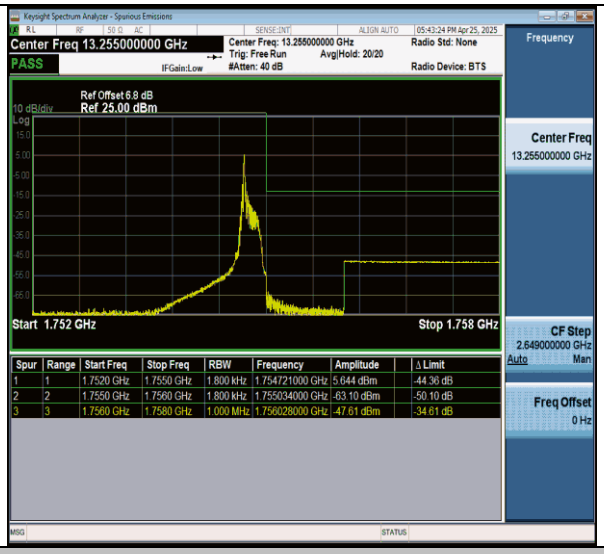
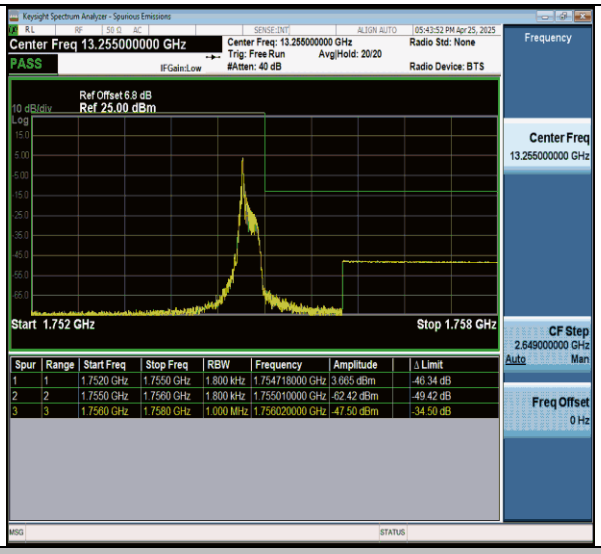
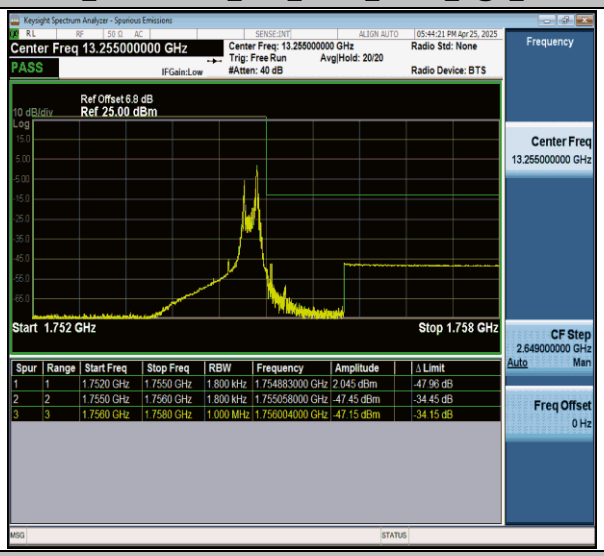


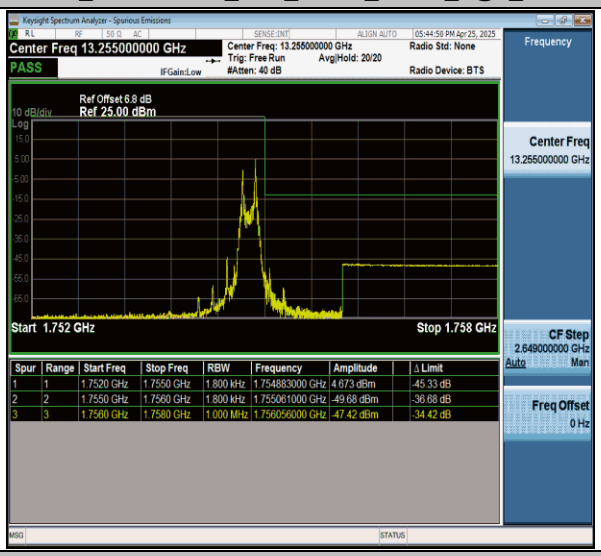
Band4_Stand-Alone_0.18_BPSK_20398_1@0_15kHz



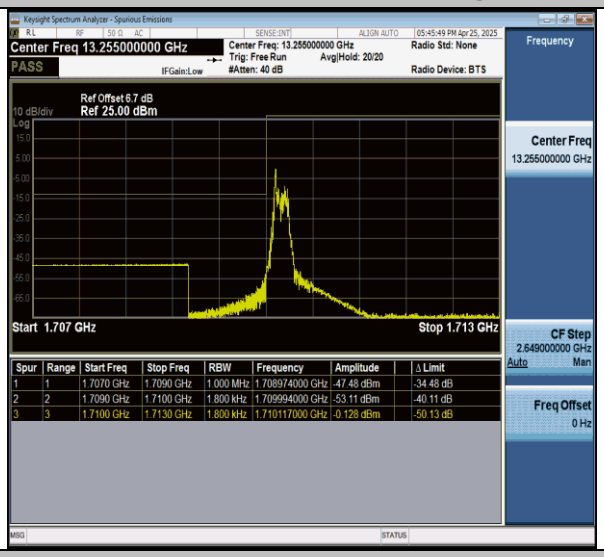
Band4_Stand-Alone_0.18_QPSK_20398_1@0_15kHz



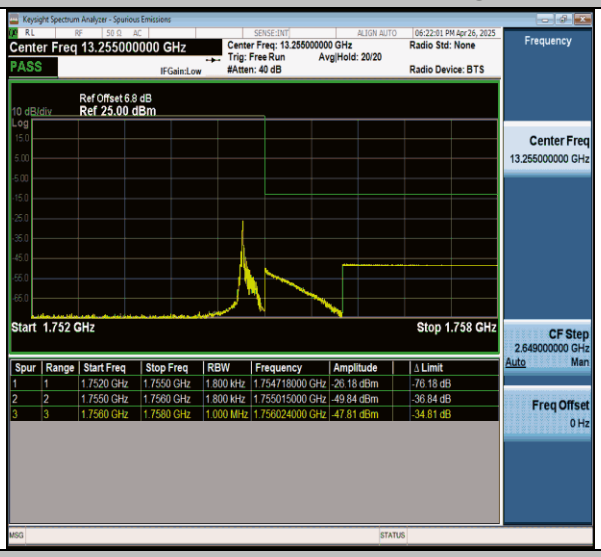
Band4_Stand-Alone_0.18_BPSK_20398_1@11_15kHz



Band4_Stand-Alone_0.18_QPSK_20398_1@11_15kHz



Band4_Stand-Alone_0.18_QPSK_19952_12@0_15kHz



Band4_Stand-Alone_0.18_BPSK_20398_12@0_15kHz

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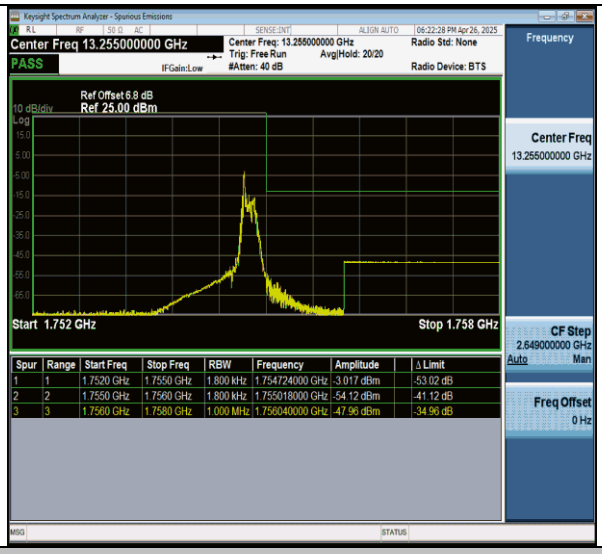

Band4_Stand-Alone_0.18_QPSK_20398_12@0_15kHz

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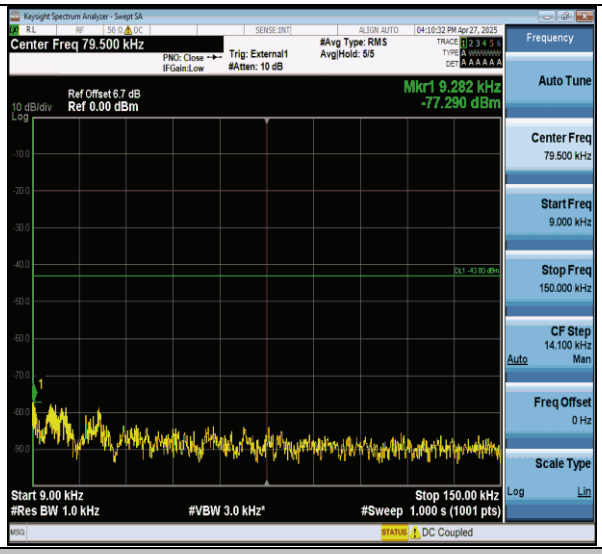
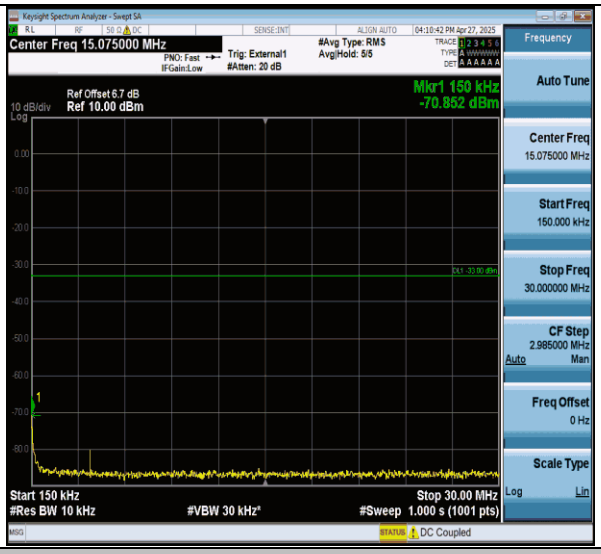
Conducted Spurious Emission for NB1

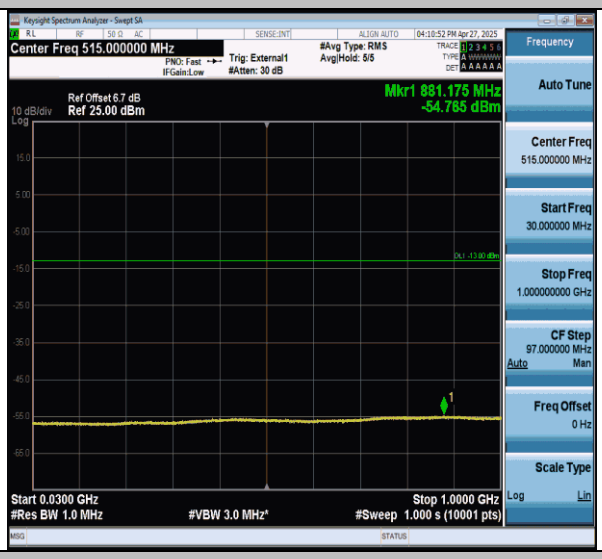
Test Graphs



Band4-0.18-BPSK-19952-PASS

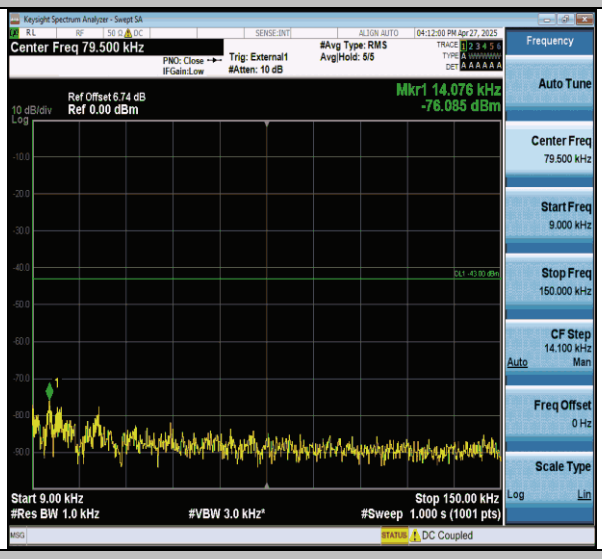


Band4-0.18-BPSK-19952-PASS

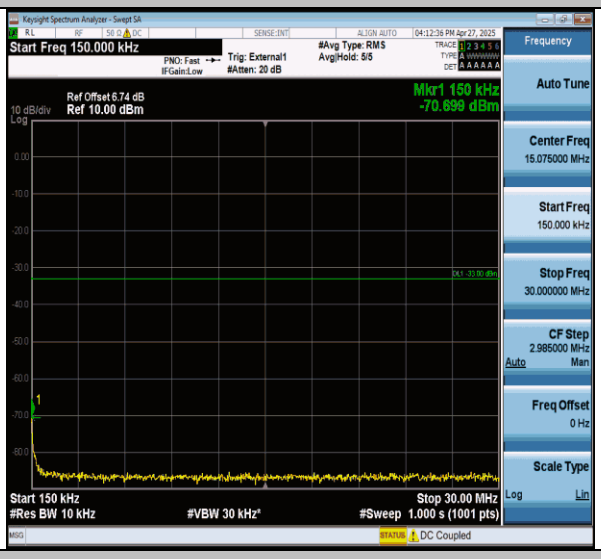


Band4-0.18-BPSK-19952-PASS

Band4-0.18-BPSK-19952-PASS



Band4-0.18-BPSK-20175-PASS



Band4-0.18-BPSK-20175-PASS

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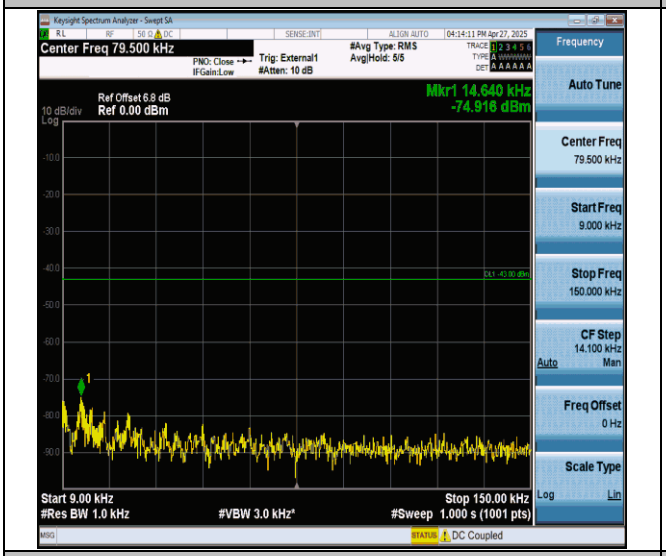
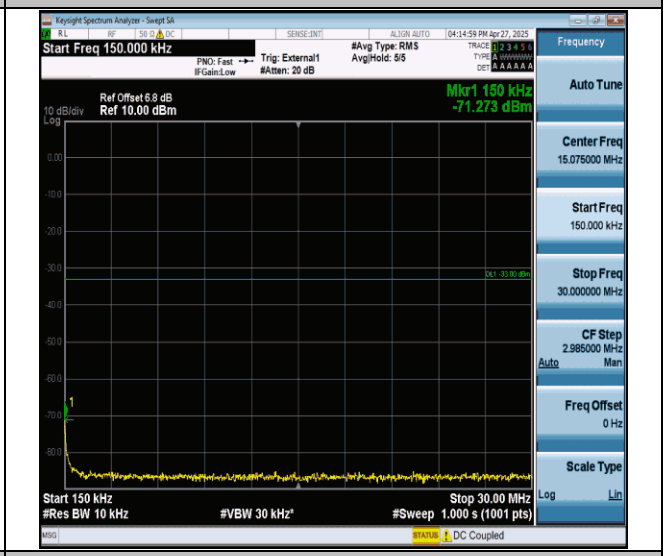
Band4-0.18-BPSK-20175-PASS

Band4-0.18-BPSK-20175-PASS



Band4-0.18-BPSK-20398-PASS



Band4-0.18-BPSK-20398-PASS

Band4-0.18-BPSK-20398-PASS

Band4-0.18-BPSK-20398-PASS

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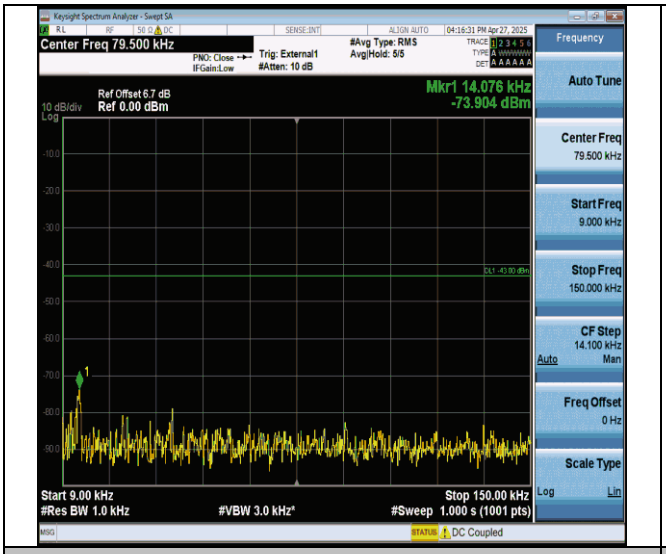
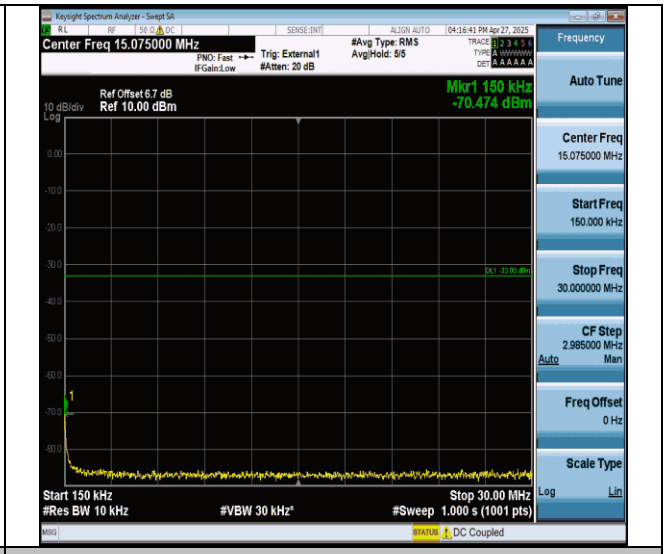


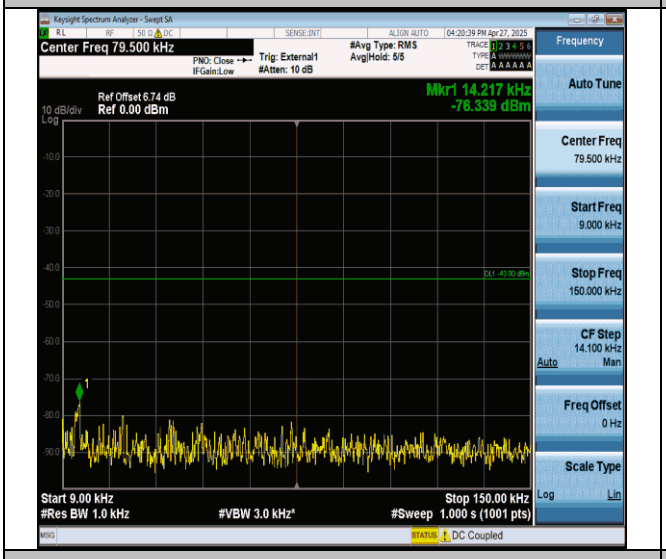
Band4-0.18-BPSK-19952-PASS



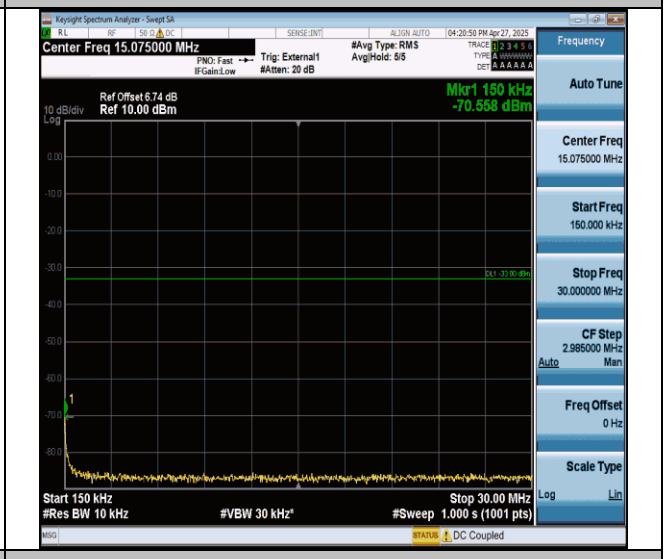
Band4-0.18-BPSK-19952-PASS

Band4-0.18-BPSK-19952-PASS

Band4-0.18-BPSK-19952-PASS



Band4-0.18-BPSK-20175-PASS



Band4-0.18-BPSK-20175-PASS

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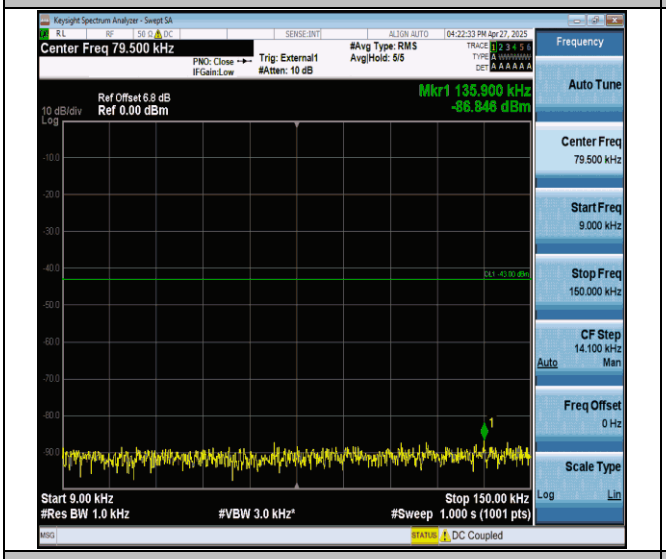
Band4-0.18-BPSK-20175-PASS

Band4-0.18-BPSK-20175-PASS



Band4-0.18-BPSK-20398-PASS

Band4-0.18-BPSK-20398-PASS

Band4-0.18-BPSK-20398-PASS

Band4-0.18-BPSK-20398-PASS

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Frequency Stability for NB1

Test Result

Voltage											
Band	OpMode	SCS	Bandwidth	Modulation	Channel	Tones	Voltage [Vdc]	Temperature (℃)	Deviation (Hz)	Deviation (ppm)	Verdict
Band4	Stand-Alone	3.75kHz	0.18	QPSK	20175	1@0	VN	NT	-9.10	-0.005253	PASS
Band4	Stand-Alone	3.75kHz	0.18	QPSK	20175	1@0	VL	NT	-7.00	-0.004040	PASS
Band4	Stand-Alone	3.75kHz	0.18	QPSK	20175	1@0	VH	NT	-7.50	-0.004329	PASS
Band4	Stand-Alone	3.75kHz	0.18	QPSK	20175	1@47	VN	NT	-6.80	-0.003925	PASS
Band4	Stand-Alone	3.75kHz	0.18	QPSK	20175	1@47	VL	NT	-8.70	-0.005022	PASS
Band4	Stand-Alone	3.75kHz	0.18	QPSK	20175	1@47	VH	NT	-6.50	-0.003752	PASS
Band4	Stand-Alone	15kHz	0.18	QPSK	20175	1@0	VN	NT	-8.00	-0.004618	PASS
Band4	Stand-Alone	15kHz	0.18	QPSK	20175	1@0	VL	NT	-4.80	-0.002771	PASS
Band4	Stand-Alone	15kHz	0.18	QPSK	20175	1@0	VH	NT	-9.50	-0.005483	PASS
Band4	Stand-Alone	15kHz	0.18	QPSK	20175	1@11	VN	NT	-4.40	-0.002540	PASS
Band4	Stand-Alone	15kHz	0.18	QPSK	20175	1@11	VL	NT	-7.10	-0.004098	PASS
Band4	Stand-Alone	15kHz	0.18	QPSK	20175	1@11	VH	NT	-9.10	-0.005253	PASS

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Temperature											
Band	OpMode	Bandwidth	Modulation	Channel	Tones	SCS	Voltage [Vdc]	Temperature (℃)	Deviation (Hz)	Deviation (ppm)	Verdict
Band4	Stand-Alone	3.75kHz	0.18	QPSK	20175	1@0	NV	-30	-3.60	-0.002078	PASS
Band4	Stand-Alone	3.75kHz	0.18	QPSK	20175	1@0	NV	-20	-10.50	-0.006061	PASS
Band4	Stand-Alone	3.75kHz	0.18	QPSK	20175	1@0	NV	-10	-8.30	-0.004791	PASS
Band4	Stand-Alone	3.75kHz	0.18	QPSK	20175	1@0	NV	0	-9.00	-0.005195	PASS
Band4	Stand-Alone	3.75kHz	0.18	QPSK	20175	1@0	NV	10	-9.60	-0.005541	PASS
Band4	Stand-Alone	3.75kHz	0.18	QPSK	20175	1@0	NV	20	-7.10	-0.004098	PASS
Band4	Stand-Alone	3.75kHz	0.18	QPSK	20175	1@0	NV	30	-7.60	-0.004387	PASS
Band4	Stand-Alone	3.75kHz	0.18	QPSK	20175	1@0	NV	40	-10.50	-0.006061	PASS
Band4	Stand-Alone	3.75kHz	0.18	QPSK	20175	1@0	NV	50	-9.30	-0.005368	PASS
Band4	Stand-Alone	3.75kHz	0.18	QPSK	20175	1@47	NV	-30	-4.90	-0.002828	PASS
Band4	Stand-Alone	3.75kHz	0.18	QPSK	20175	1@47	NV	-20	-5.50	-0.003175	PASS
Band4	Stand-Alone	3.75kHz	0.18	QPSK	20175	1@47	NV	-10	-7.80	-0.004502	PASS
Band4	Stand-Alone	3.75kHz	0.18	QPSK	20175	1@47	NV	0	-3.50	-0.002020	PASS
Band4	Stand-Alone	3.75kHz	0.18	QPSK	20175	1@47	NV	10	-7.20	-0.004156	PASS
Band4	Stand-Alone	3.75kHz	0.18	QPSK	20175	1@47	NV	20	-10.00	-0.005772	PASS
Band4	Stand-Alone	3.75kHz	0.18	QPSK	20175	1@47	NV	30	-7.70	-0.004444	PASS
Band4	Stand-Alone	3.75kHz	0.18	QPSK	20175	1@47	NV	40	-6.60	-0.003810	PASS
Band4	Stand-Alone	3.75kHz	0.18	QPSK	20175	1@47	NV	50	-10.80	-0.006234	PASS
Band4	Stand-Alone	15kHz	0.18	QPSK	20175	1@0	NV	-30	-9.10	-0.005253	PASS
Band4	Stand-Alone	15kHz	0.18	QPSK	20175	1@0	NV	-20	-6.50	-0.003752	PASS
Band4	Stand-Alone	15kHz	0.18	QPSK	20175	1@0	NV	-10	-5.00	-0.002886	PASS
Band4	Stand-Alone	15kHz	0.18	QPSK	20175	1@0	NV	0	-9.10	-0.005253	PASS
Band4	Stand-Alone	15kHz	0.18	QPSK	20175	1@0	NV	10	-5.90	-0.003405	PASS
Band4	Stand-Alone	15kHz	0.18	QPSK	20175	1@0	NV	20	-5.00	-0.002886	PASS
Band4	Stand-Alone	15kHz	0.18	QPSK	20175	1@0	NV	30	-10.30	-0.005945	PASS
Band4	Stand-Alone	15kHz	0.18	QPSK	20175	1@0	NV	40	-5.70	-0.003290	PASS
Band4	Stand-Alone	15kHz	0.18	QPSK	20175	1@0	NV	50	-9.50	-0.005483	PASS
Band4	Stand-Alone	15kHz	0.18	QPSK	20175	1@11	NV	-30	-7.50	-0.004329	PASS
Band4	Stand-Alone	15kHz	0.18	QPSK	20175	1@11	NV	-20	-7.30	-0.004214	PASS
Band4	Stand-Alone	15kHz	0.18	QPSK	20175	1@11	NV	-10	-7.60	-0.004387	PASS
Band4	Stand-Alone	15kHz	0.18	QPSK	20175	1@11	NV	0	-4.60	-0.002655	PASS
Band4	Stand-Alone	15kHz	0.18	QPSK	20175	1@11	NV	10	-7.80	-0.004502	PASS
Band4	Stand-Alone	15kHz	0.18	QPSK	20175	1@11	NV	20	-8.20	-0.004733	PASS
Band4	Stand-Alone	15kHz	0.18	QPSK	20175	1@11	NV	30	-10.20	-0.005887	PASS
Band4	Stand-Alone	15kHz	0.18	QPSK	20175	1@11	NV	40	-5.70	-0.003290	PASS
Band4	Stand-Alone	15kHz	0.18	QPSK	20175	1@11	NV	50	-7.30	-0.004214	PASS

~The End~

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