

Appendix for LTE Band 13

Applicant: UCLOUDLINK (SINGAPORE) PTE.LTD

**Address: 80 ROBINSON ROAD #02-00
SINGAPORE(068898)**

Product Name: LTE Module

Model: GLMM24A01

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1. Appendix A: Conducted Power Output Data

Test Result

Band	Bandwidth	Modulation	Channel	RB Configuration	Result(dBm)	Verdict
Band13	5MHz	QPSK	23205	1RB#0	24.14	PASS
Band13	5MHz	16QAM	23205	1RB#0	22.89	PASS
Band13	5MHz	QPSK	23205	1RB#12	23.67	PASS
Band13	5MHz	16QAM	23205	1RB#12	22.68	PASS
Band13	5MHz	QPSK	23205	1RB#24	23.72	PASS
Band13	5MHz	16QAM	23205	1RB#24	22.58	PASS
Band13	5MHz	QPSK	23205	12RB#0	22.85	PASS
Band13	5MHz	16QAM	23205	12RB#0	22.83	PASS
Band13	5MHz	QPSK	23205	12RB#6	22.81	PASS
Band13	5MHz	16QAM	23205	12RB#6	22.80	PASS
Band13	5MHz	QPSK	23205	12RB#13	22.84	PASS
Band13	5MHz	16QAM	23205	12RB#13	22.93	PASS
Band13	5MHz	QPSK	23205	25RB#0	22.62	PASS
Band13	5MHz	16QAM	23205	25RB#0	21.52	PASS
Band13	5MHz	QPSK	23230	1RB#0	23.35	PASS
Band13	5MHz	16QAM	23230	1RB#0	22.38	PASS
Band13	5MHz	QPSK	23230	1RB#12	23.74	PASS
Band13	5MHz	16QAM	23230	1RB#12	22.72	PASS
Band13	5MHz	QPSK	23230	1RB#24	23.77	PASS
Band13	5MHz	16QAM	23230	1RB#24	22.53	PASS
Band13	5MHz	QPSK	23230	12RB#0	22.31	PASS
Band13	5MHz	16QAM	23230	12RB#0	22.37	PASS
Band13	5MHz	QPSK	23230	12RB#6	22.39	PASS
Band13	5MHz	16QAM	23230	12RB#6	22.40	PASS
Band13	5MHz	QPSK	23230	12RB#13	22.88	PASS
Band13	5MHz	16QAM	23230	12RB#13	22.78	PASS
Band13	5MHz	QPSK	23230	25RB#0	22.74	PASS
Band13	5MHz	16QAM	23230	25RB#0	21.78	PASS
Band13	5MHz	QPSK	23255	1RB#0	23.83	PASS
Band13	5MHz	16QAM	23255	1RB#0	22.85	PASS
Band13	5MHz	QPSK	23255	1RB#12	23.36	PASS
Band13	5MHz	16QAM	23255	1RB#12	22.37	PASS
Band13	5MHz	QPSK	23255	1RB#24	23.21	PASS
Band13	5MHz	16QAM	23255	1RB#24	22.26	PASS
Band13	5MHz	QPSK	23255	12RB#0	22.65	PASS
Band13	5MHz	16QAM	23255	12RB#0	22.60	PASS
Band13	5MHz	QPSK	23255	12RB#6	22.58	PASS

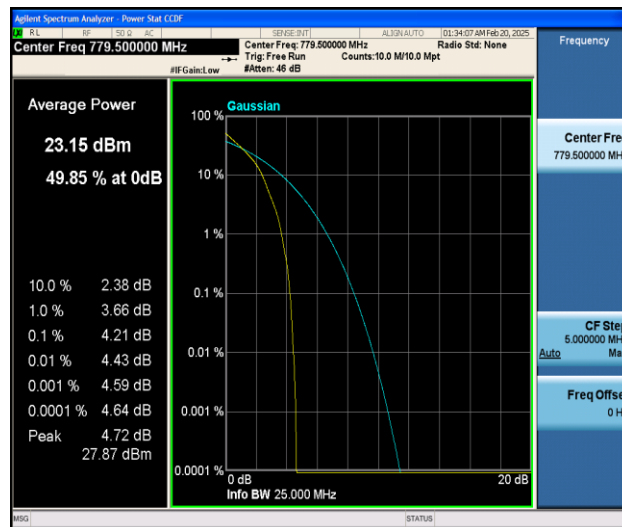
Band13	5MHz	16QAM	23255	12RB#6	22.57	PASS
Band13	5MHz	QPSK	23255	12RB#13	22.20	PASS
Band13	5MHz	16QAM	23255	12RB#13	22.19	PASS
Band13	5MHz	QPSK	23255	25RB#0	22.29	PASS
Band13	5MHz	16QAM	23255	25RB#0	21.28	PASS
Band13	10MHz	QPSK	23230	1RB#0	23.76	PASS
Band13	10MHz	16QAM	23230	1RB#0	22.49	PASS
Band13	10MHz	QPSK	23230	1RB#24	23.79	PASS
Band13	10MHz	16QAM	23230	1RB#24	22.60	PASS
Band13	10MHz	QPSK	23230	1RB#49	23.48	PASS
Band13	10MHz	16QAM	23230	1RB#49	22.16	PASS
Band13	10MHz	QPSK	23230	25RB#0	22.57	PASS
Band13	10MHz	16QAM	23230	25RB#0	22.58	PASS
Band13	10MHz	QPSK	23230	25RB#12	22.57	PASS
Band13	10MHz	16QAM	23230	25RB#12	22.59	PASS
Band13	10MHz	QPSK	23230	25RB#25	22.79	PASS
Band13	10MHz	16QAM	23230	25RB#25	22.70	PASS
Band13	10MHz	QPSK	23230	50RB#0	22.74	PASS

2. Appendix B: Peak-to-Average Ratio(CCDF)

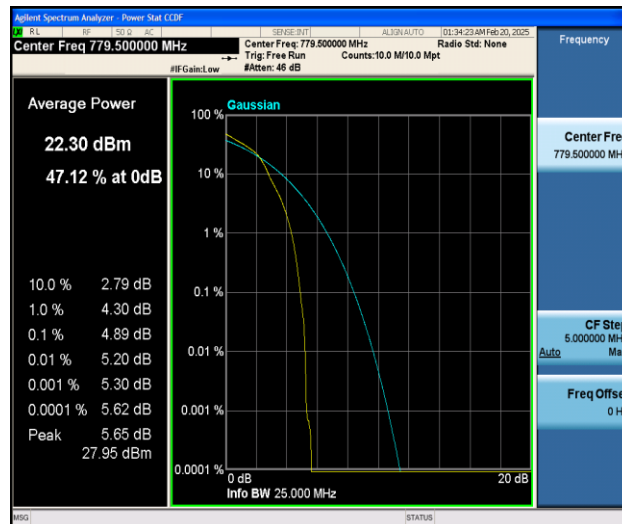
Test Result

Band	Bandwidth	Modulation	Channel	RB Configuration	Result(dB)	Limit(dB)	Verdict
Band13	5MHz	QPSK	23205	1RB#0	4.21	13	PASS
Band13	5MHz	16QAM	23205	1RB#0	4.89	13	PASS
Band13	5MHz	QPSK	23205	25RB#0	5.22	13	PASS
Band13	5MHz	16QAM	23205	25RB#0	6.02	13	PASS
Band13	5MHz	QPSK	23230	1RB#0	4.80	13	PASS
Band13	5MHz	16QAM	23230	1RB#0	5.47	13	PASS
Band13	5MHz	QPSK	23230	25RB#0	5.26	13	PASS
Band13	5MHz	16QAM	23230	25RB#0	6.00	13	PASS
Band13	5MHz	QPSK	23255	1RB#0	4.52	13	PASS
Band13	5MHz	16QAM	23255	1RB#0	5.29	13	PASS
Band13	5MHz	QPSK	23255	25RB#0	5.59	13	PASS
Band13	5MHz	16QAM	23255	25RB#0	6.31	13	PASS
Band13	10MHz	QPSK	23230	1RB#0	4.31	13	PASS
Band13	10MHz	16QAM	23230	1RB#0	5.19	13	PASS
Band13	10MHz	QPSK	23230	50RB#0	5.36	13	PASS

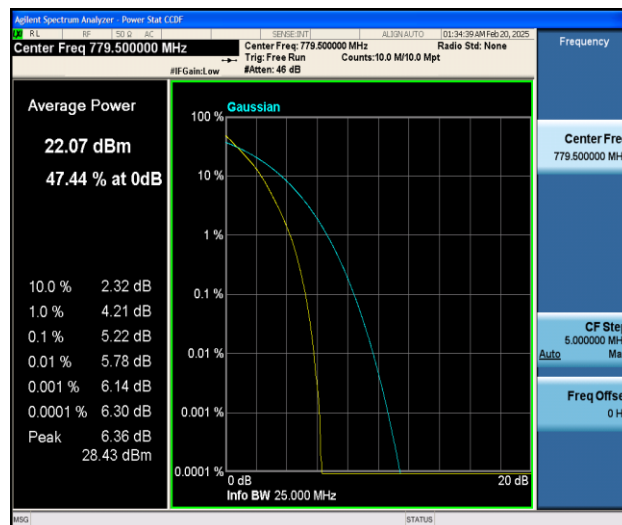
Test Graphs



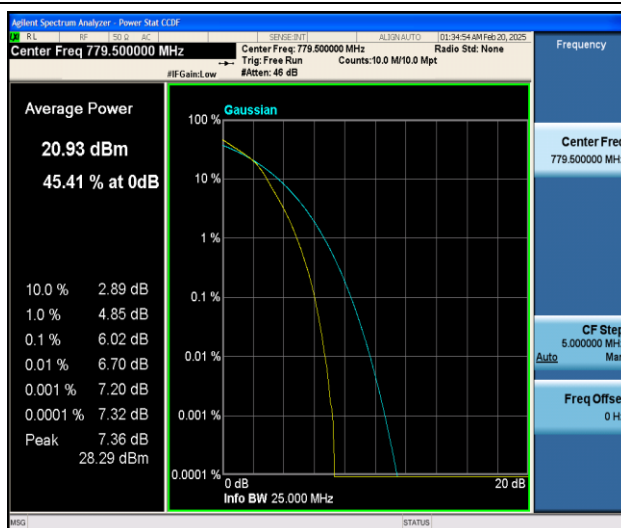
Band13-5MHz-QPSK-23205-1RB#0-PASS



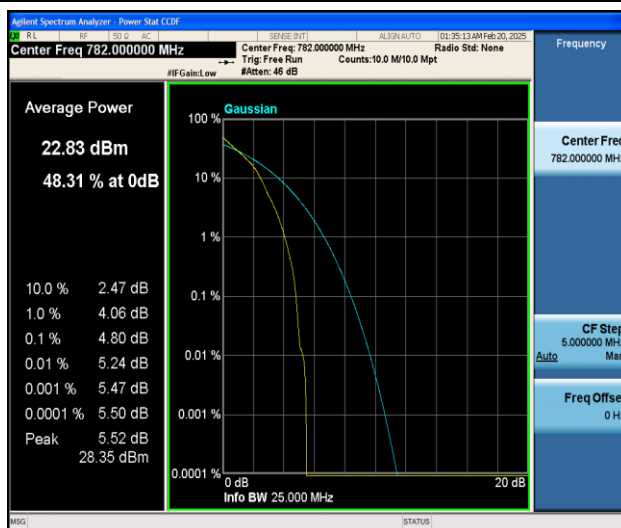
Band13-5MHz-16QAM-23205-1RB#0-PASS



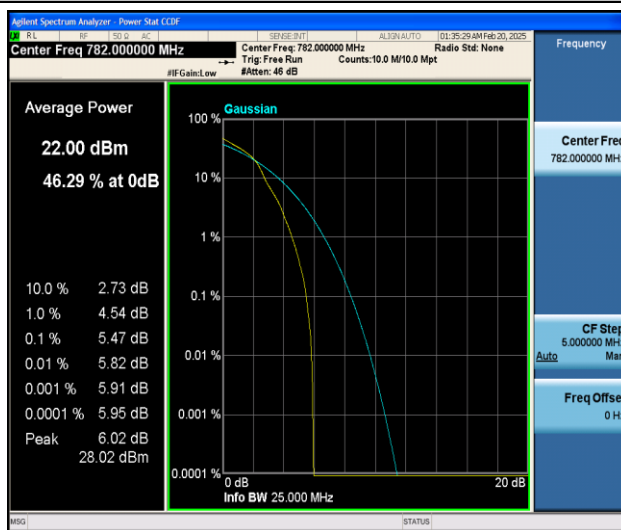
Band13-5MHz-QPSK-23205-25RB#0-PASS



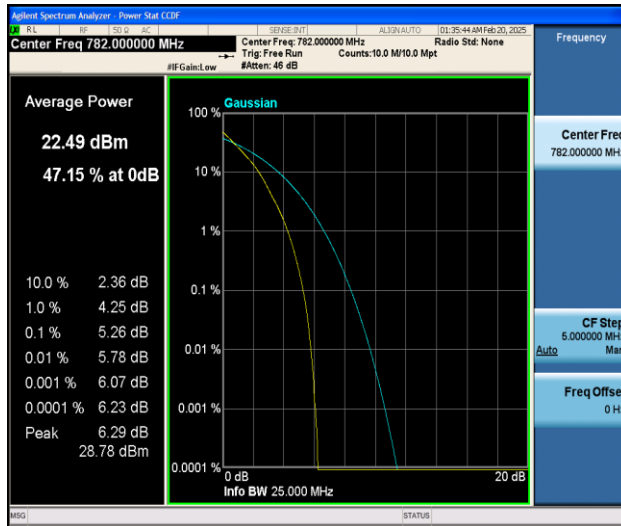
Band13-5MHz-16QAM-23205-25RB#0-PASS



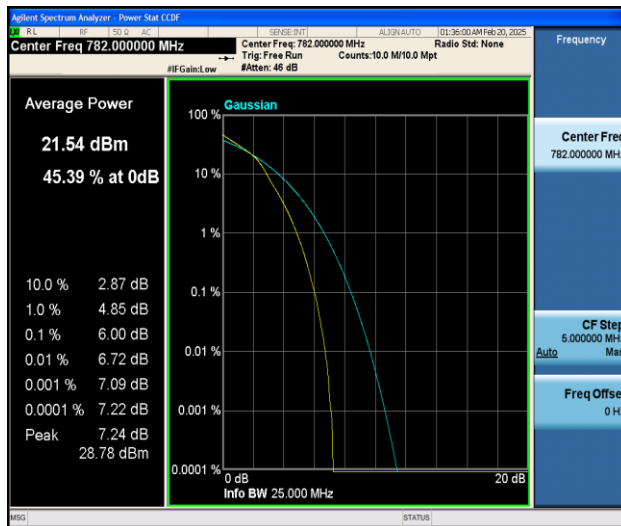
Band13-5MHz-QPSK-23230-1RB#0-PASS



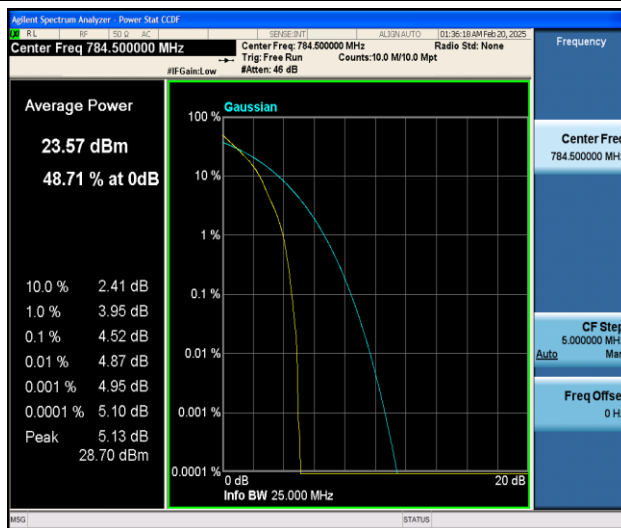
Band13-5MHz-16QAM-23230-1RB#0-PASS



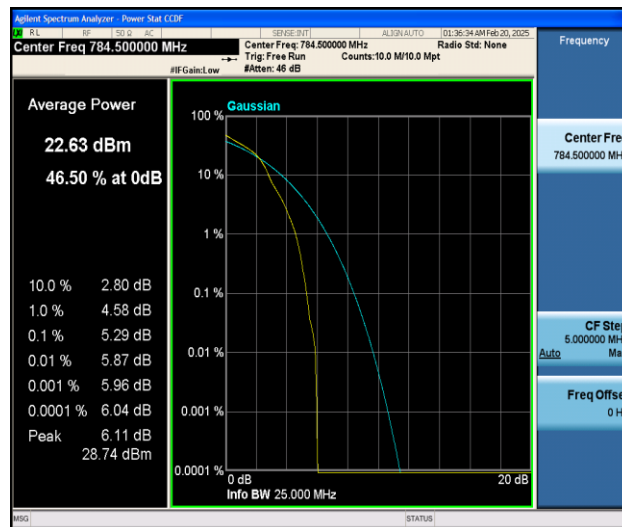
Band13-5MHz-QPSK-23230-25RB#0-PASS



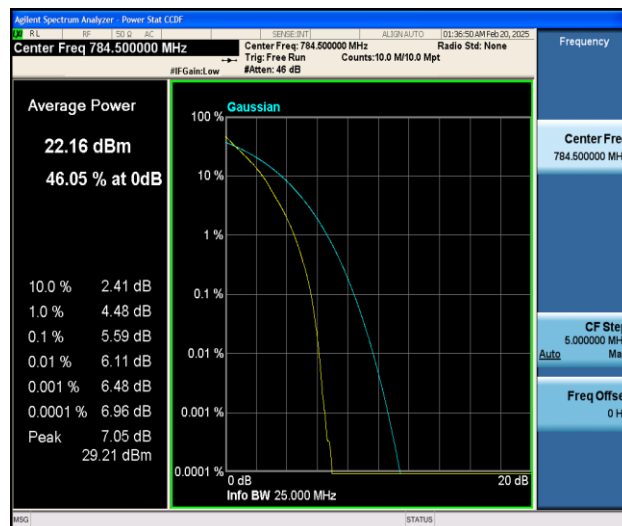
Band13-5MHz-16QAM-23230-25RB#0-PASS



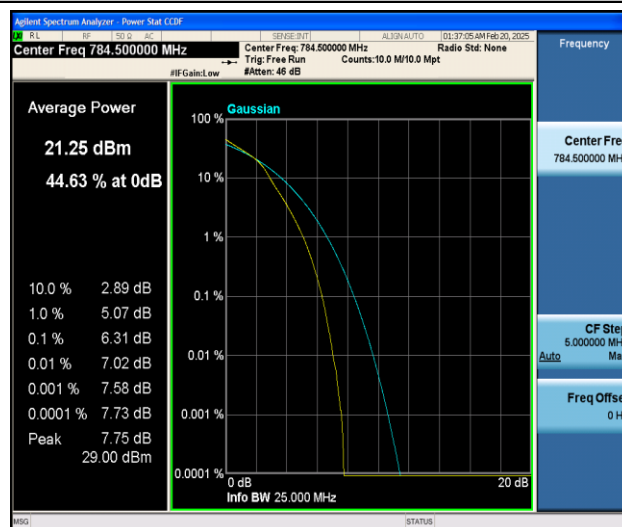
Band13-5MHz-QPSK-23255-1RB#0-PASS



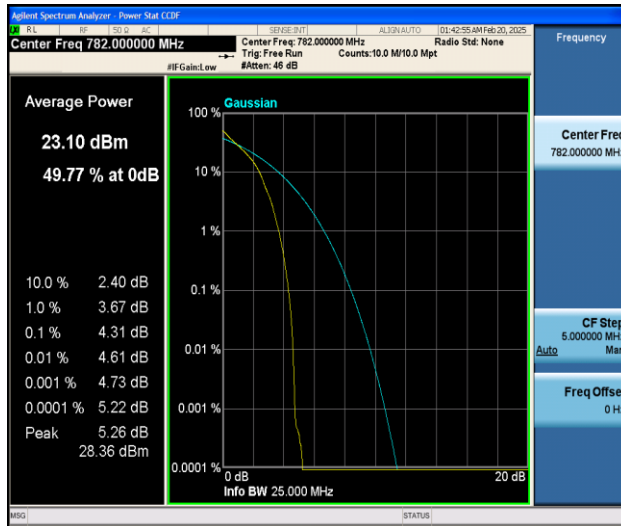
Band13-5MHz-16QAM-23255-1RB#0-PASS



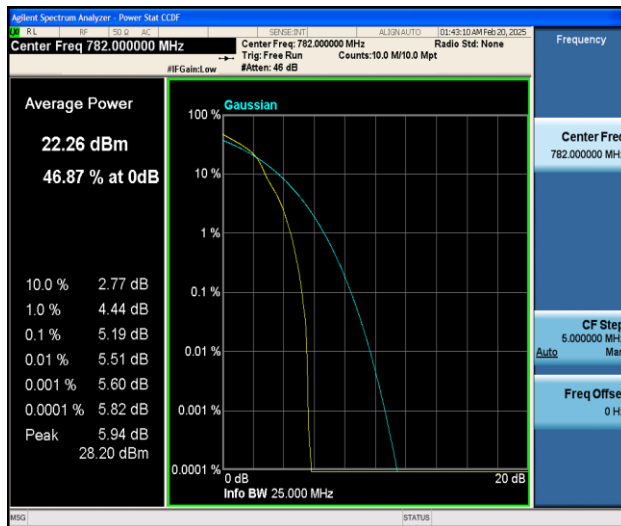
Band13-5MHz-QPSK-23255-25RB#0-PASS



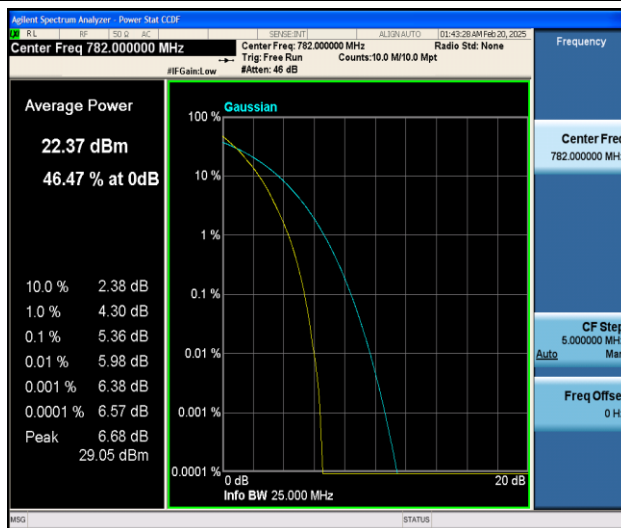
Band13-5MHz-16QAM-23255-25RB#0-PASS



Band13-10MHz-QPSK-23230-1RB#0-PASS



Band13-10MHz-16QAM-23230-1RB#0-PASS



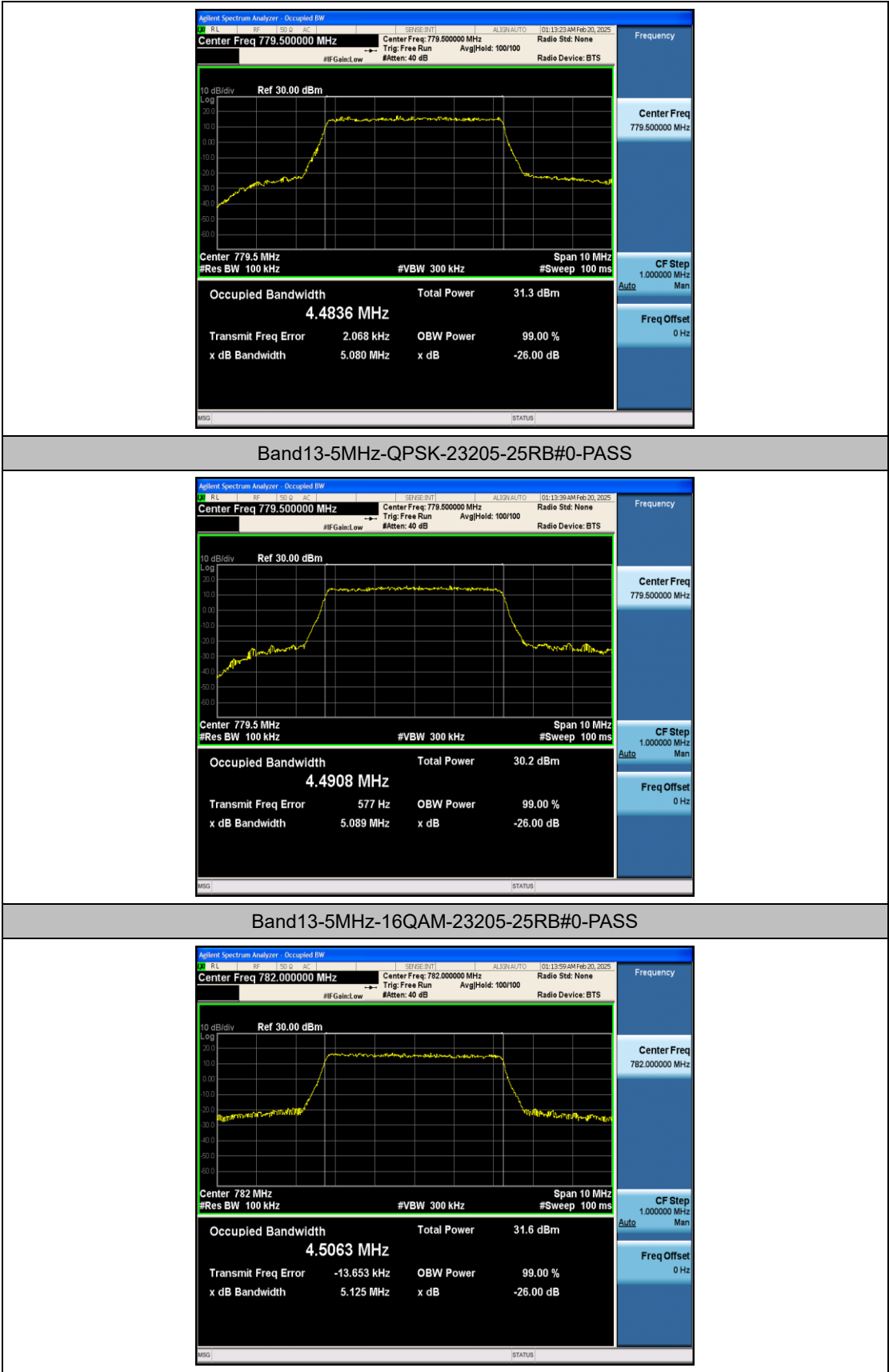
Band13-10MHz-QPSK-23230-50RB#0-PASS

3. Appendix C: 26dB Bandwidth and Occupied Bandwidth

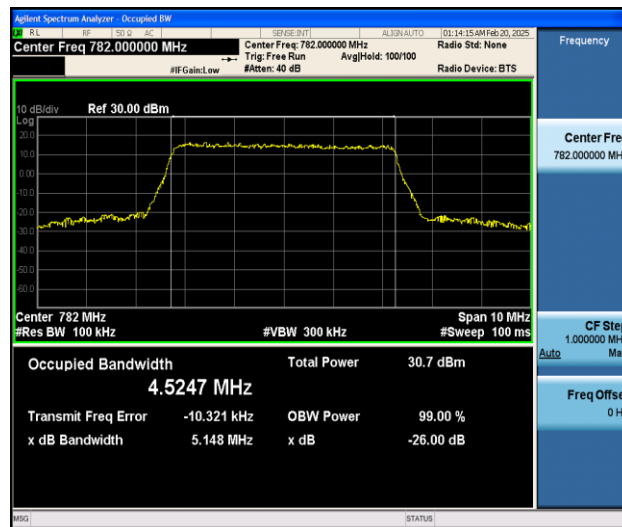
Test Result

Band	Bandwidth	Modulation	Channel	RB Configuration	Occupied Bandwidth (MHz)	26dB Bandwidth (MHz)	Verdict
Band13	5MHz	QPSK	23205	25RB#0	4.4836	5.080	PASS
Band13	5MHz	16QAM	23205	25RB#0	4.4908	5.089	PASS
Band13	5MHz	QPSK	23230	25RB#0	4.5063	5.125	PASS
Band13	5MHz	16QAM	23230	25RB#0	4.5247	5.148	PASS
Band13	5MHz	QPSK	23255	25RB#0	4.5025	5.112	PASS
Band13	5MHz	16QAM	23255	25RB#0	4.4997	5.084	PASS
Band13	10MHz	QPSK	23230	50RB#0	8.9747	9.808	PASS

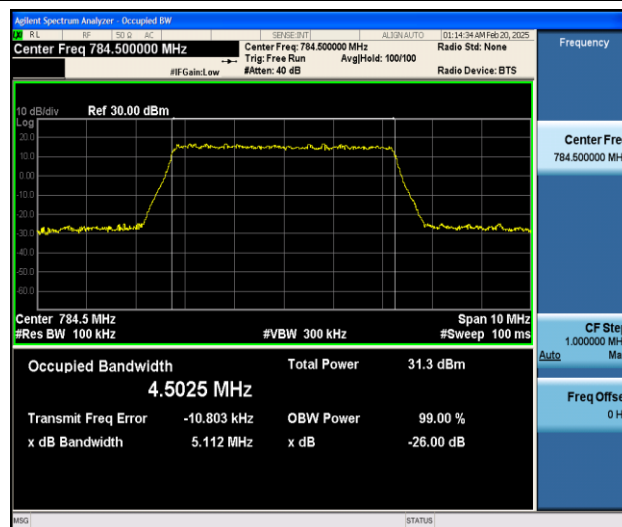
Test Graphs



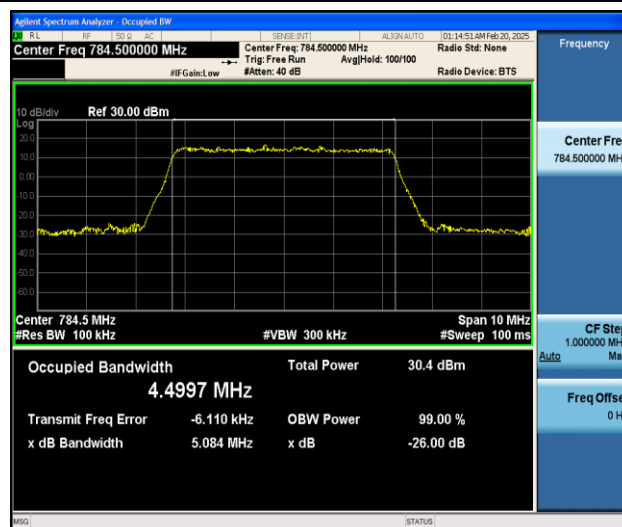
Band13-5MHz-QPSK-23230-25RB#0-PASS



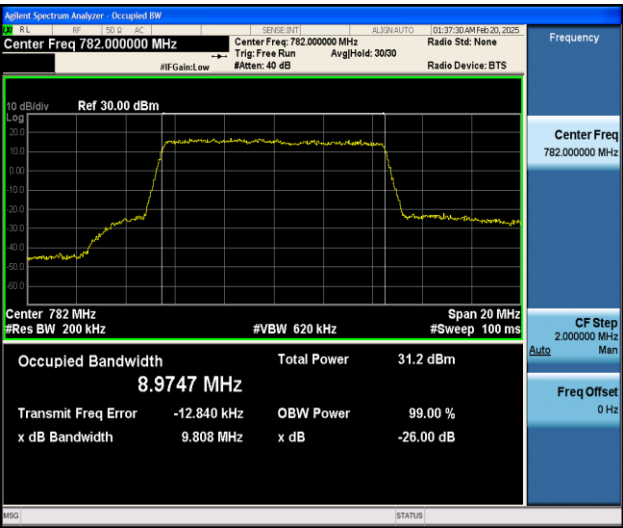
Band13-5MHz-16QAM-23230-25RB#0-PASS



Band13-5MHz-QPSK-23255-25RB#0-PASS



Band13-5MHz-16QAM-23255-25RB#0-PASS



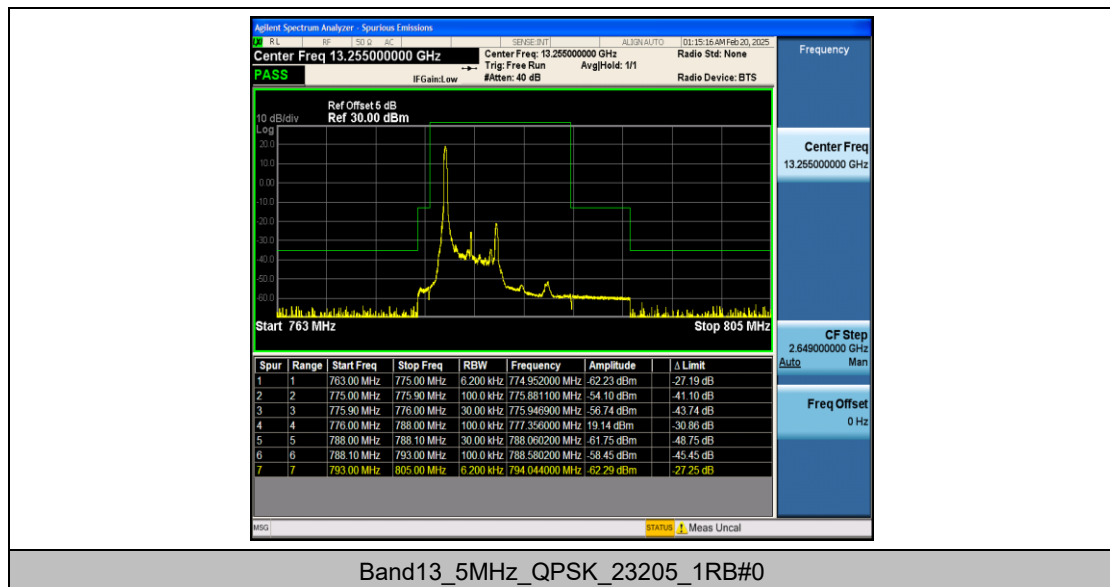
Band13-10MHz-QPSK-23230-50RB#0-PASS

4. Appendix D: Band Edge

Test Result

Band	Bandwidth	Modulation	Channel	RB Configuration	Result(dBm)	Verdict
Band13	5MHz	QPSK	23205	1RB#0	-62.23	PASS
Band13	5MHz	16QAM	23205	1RB#0	-62.74	PASS
Band13	5MHz	QPSK	23205	1RB#24	-64.12	PASS
Band13	5MHz	16QAM	23205	1RB#24	-63.98	PASS
Band13	5MHz	QPSK	23205	25RB#0	-55.02	PASS
Band13	5MHz	16QAM	23205	25RB#0	-52.67	PASS
Band13	5MHz	QPSK	23255	1RB#0	-63.34	PASS
Band13	5MHz	16QAM	23255	1RB#0	-63.71	PASS
Band13	5MHz	QPSK	23255	1RB#24	-60.62	PASS
Band13	5MHz	16QAM	23255	1RB#24	-58.96	PASS
Band13	5MHz	QPSK	23255	25RB#0	-57.62	PASS
Band13	5MHz	16QAM	23255	25RB#0	-56.70	PASS
Band13	10MHz	QPSK	23230	1RB#0	-62.05	PASS
Band13	10MHz	16QAM	23230	1RB#0	-61.59	PASS
Band13	10MHz	QPSK	23230	1RB#49	-62.92	PASS
Band13	10MHz	16QAM	23230	1RB#49	-63.07	PASS
Band13	10MHz	QPSK	23230	50RB#0	-51.11	PASS

Test Graphs





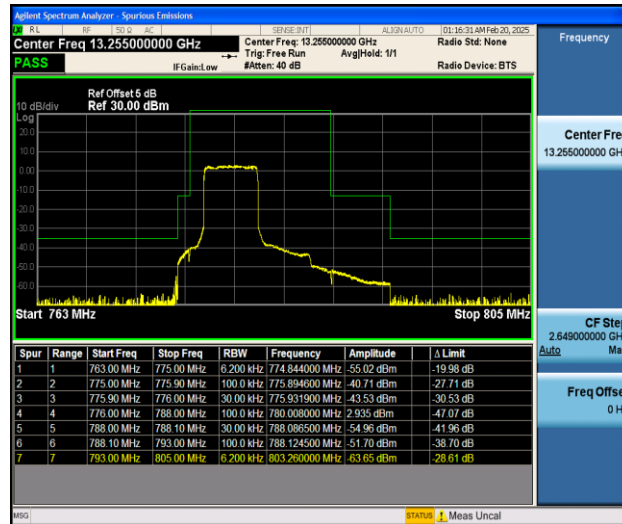
Band13_5MHz_16QAM_23205_1RB#0



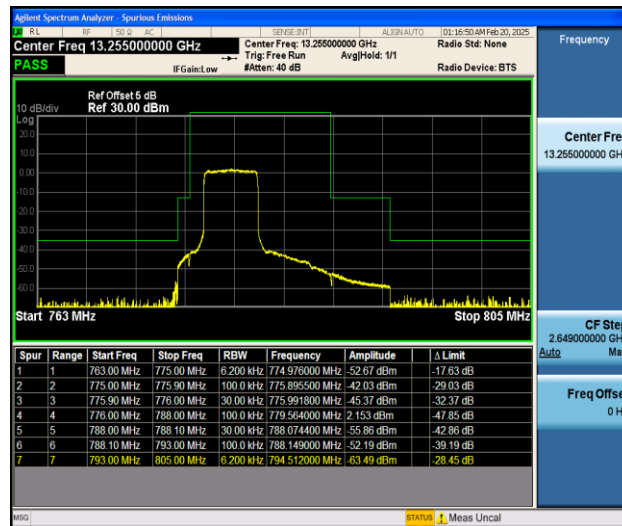
Band13_5MHz_QPSK_23205_1RB#24



Band13_5MHz_16QAM_23205_1RB#24



Band13_5MHz_QPSK_23205_25RB#0



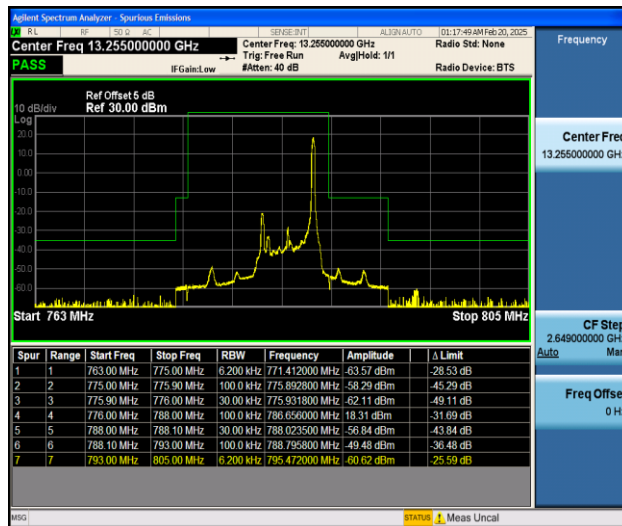
Band13_5MHz_16QAM_23205_25RB#0



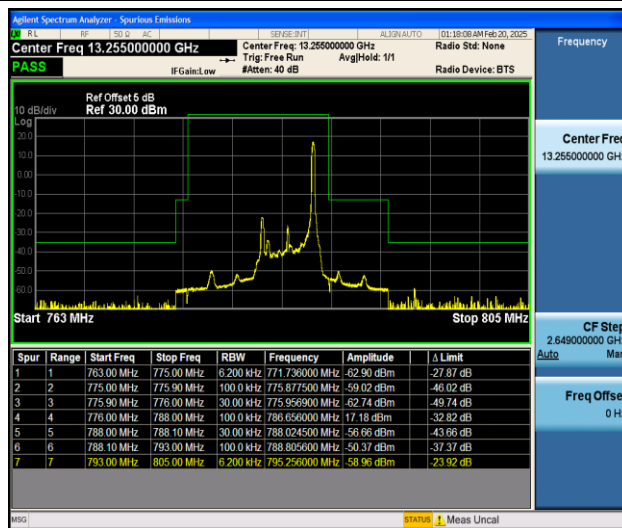
Band13_5MHz_QPSK_23255_1RB#0



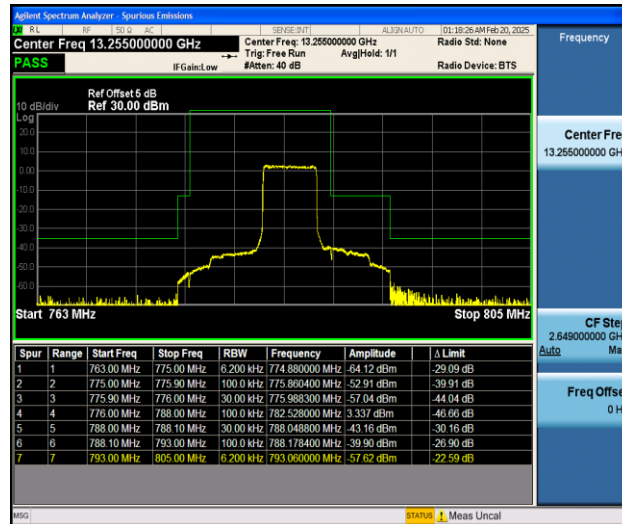
Band13_5MHz_16QAM_23255_1RB#0



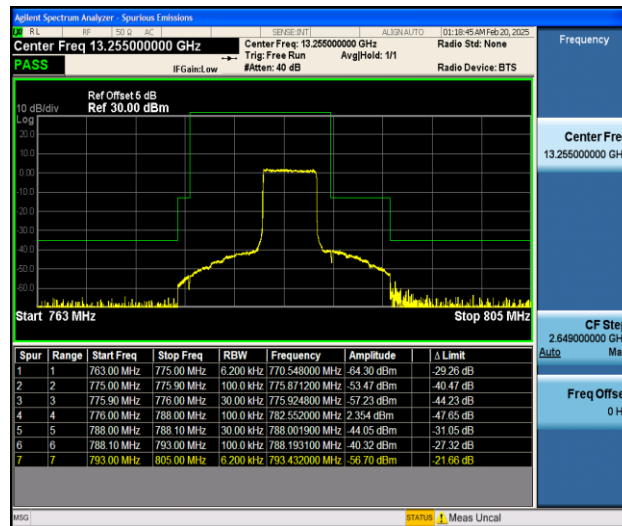
Band13_5MHz_QPSK_23255_1RB#24



Band13_5MHz_16QAM_23255_1RB#24



Band13_5MHz_QPSK_23255_25RB#0



Band13_5MHz_16QAM_23255_25RB#0



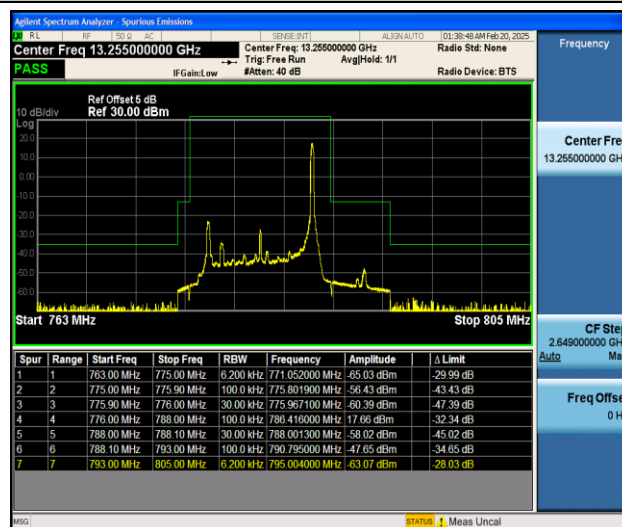
Band13_10MHz_QPSK_23230_1RB#0



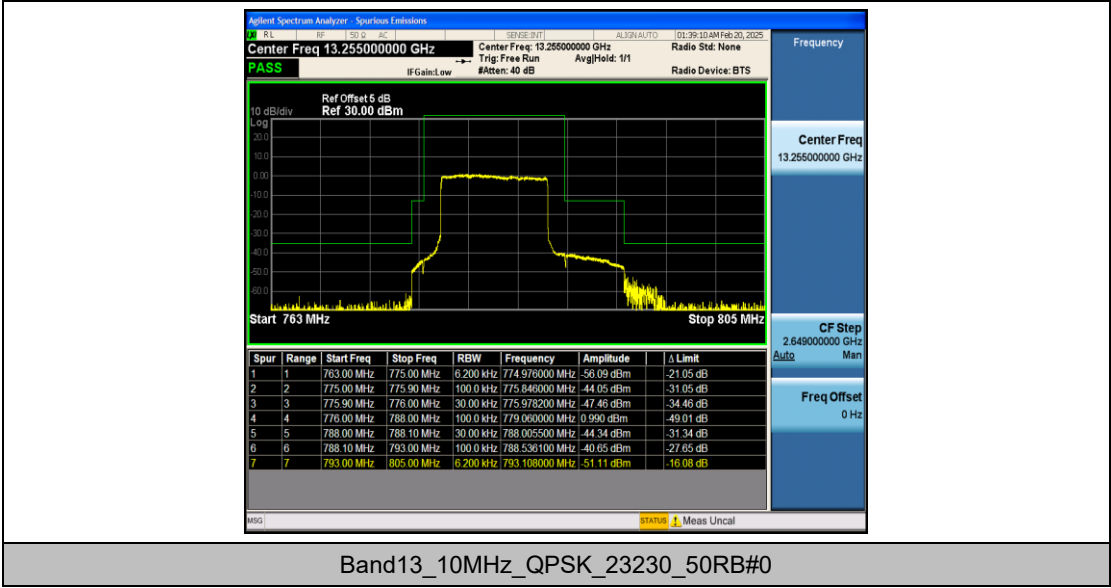
Band13_10MHz_16QAM_23230_1RB#0



Band13_10MHz_QPSK_23230_1RB#49



Band13_10MHz_16QAM_23230_1RB#49



5. Appendix E: Conducted Spurious Emission

Test Result

Band	Bandwidth	Modulation	Channel	RB Configuration	Frequency Range	Result (dBm)	Verdict
Band13	5MHz	QPSK	23205	1RB#0	0.009~0.15	-42.38	PASS
Band13	5MHz	QPSK	23205	1RB#0	0.15~30	-53.70	PASS
Band13	5MHz	QPSK	23205	1RB#0	30~1000	-62.05	PASS
Band13	5MHz	QPSK	23205	1RB#0	1000~3000	-41.94	PASS
Band13	5MHz	QPSK	23205	1RB#0	3000~10000	-50.33	PASS
Band13	5MHz	16QAM	23205	1RB#0	0.009~0.15	-42.22	PASS
Band13	5MHz	16QAM	23205	1RB#0	0.15~30	-53.25	PASS
Band13	5MHz	16QAM	23205	1RB#0	30~1000	-64.26	PASS
Band13	5MHz	16QAM	23205	1RB#0	1000~3000	-42.48	PASS
Band13	5MHz	16QAM	23205	1RB#0	3000~10000	-50.54	PASS
Band13	5MHz	QPSK	23230	1RB#0	0.009~0.15	-42.56	PASS
Band13	5MHz	QPSK	23230	1RB#0	0.15~30	-54.40	PASS
Band13	5MHz	QPSK	23230	1RB#0	30~1000	-64.34	PASS
Band13	5MHz	QPSK	23230	1RB#0	1000~3000	-43.17	PASS
Band13	5MHz	QPSK	23230	1RB#0	3000~10000	-50.38	PASS
Band13	5MHz	16QAM	23230	1RB#0	0.009~0.15	-42.34	PASS
Band13	5MHz	16QAM	23230	1RB#0	0.15~30	-54.81	PASS
Band13	5MHz	16QAM	23230	1RB#0	30~1000	-64.51	PASS
Band13	5MHz	16QAM	23230	1RB#0	1000~3000	-43.67	PASS
Band13	5MHz	16QAM	23230	1RB#0	3000~10000	-50.35	PASS
Band13	5MHz	QPSK	23255	1RB#0	0.009~0.15	-39.07	PASS
Band13	5MHz	QPSK	23255	1RB#0	0.15~30	-54.54	PASS
Band13	5MHz	QPSK	23255	1RB#0	30~1000	-64.70	PASS
Band13	5MHz	QPSK	23255	1RB#0	1000~3000	-41.55	PASS
Band13	5MHz	QPSK	23255	1RB#0	3000~10000	-49.81	PASS
Band13	5MHz	16QAM	23255	1RB#0	0.009~0.15	-43.77	PASS
Band13	5MHz	16QAM	23255	1RB#0	0.15~30	-53.77	PASS
Band13	5MHz	16QAM	23255	1RB#0	30~1000	-64.48	PASS
Band13	5MHz	16QAM	23255	1RB#0	1000~3000	-41.10	PASS
Band13	5MHz	16QAM	23255	1RB#0	3000~10000	-50.73	PASS
Band13	10MHz	QPSK	23230	1RB#0	0.009~0.15	-42.99	PASS
Band13	10MHz	QPSK	23230	1RB#0	0.15~30	-55.81	PASS
Band13	10MHz	QPSK	23230	1RB#0	30~1000	-64.61	PASS
Band13	10MHz	QPSK	23230	1RB#0	1000~3000	-42.00	PASS
Band13	10MHz	QPSK	23230	1RB#0	3000~10000	-50.53	PASS
Band13	10MHz	16QAM	23230	1RB#0	0.009~0.15	-42.37	PASS

Band13	10MHz	16QAM	23230	1RB#0	0.15~30	-53.11	PASS
Band13	10MHz	16QAM	23230	1RB#0	30~1000	-64.45	PASS
Band13	10MHz	16QAM	23230	1RB#0	1000~3000	-42.63	PASS
Band13	10MHz	16QAM	23230	1RB#0	3000~10000	-50.00	PASS

Test Graphs

