

Appendix for LTE Band 13

Product Name: 5G Indoor CPE

Model No: TITAN 5000

Appendix A: Average Power Output Data

Test Result

Band	Bandwidth	Modulation	Channel	RB Configuration	Result(dBm)	Verdict
Band13	5MHz	QPSK	23205	1RB#0	22.48	PASS
Band13	5MHz	16QAM	23205	1RB#0	21.58	PASS
Band13	5MHz	QPSK	23205	1RB#12	22.49	PASS
Band13	5MHz	16QAM	23205	1RB#12	21.52	PASS
Band13	5MHz	QPSK	23205	1RB#24	22.48	PASS
Band13	5MHz	16QAM	23205	1RB#24	21.33	PASS
Band13	5MHz	QPSK	23205	12RB#0	21.42	PASS
Band13	5MHz	16QAM	23205	12RB#0	20.41	PASS
Band13	5MHz	QPSK	23205	12RB#6	21.43	PASS
Band13	5MHz	16QAM	23205	12RB#6	20.49	PASS
Band13	5MHz	QPSK	23205	12RB#13	21.43	PASS
Band13	5MHz	16QAM	23205	12RB#13	20.50	PASS
Band13	5MHz	QPSK	23205	25RB#0	21.48	PASS
Band13	5MHz	16QAM	23205	25RB#0	20.44	PASS
Band13	5MHz	QPSK	23230	1RB#0	22.42	PASS
Band13	5MHz	16QAM	23230	1RB#0	21.48	PASS
Band13	5MHz	QPSK	23230	1RB#12	22.51	PASS
Band13	5MHz	16QAM	23230	1RB#12	21.55	PASS
Band13	5MHz	QPSK	23230	1RB#24	22.53	PASS
Band13	5MHz	16QAM	23230	1RB#24	21.71	PASS
Band13	5MHz	QPSK	23230	12RB#0	21.40	PASS
Band13	5MHz	16QAM	23230	12RB#0	20.34	PASS
Band13	5MHz	QPSK	23230	12RB#6	21.41	PASS
Band13	5MHz	16QAM	23230	12RB#6	20.25	PASS
Band13	5MHz	QPSK	23230	12RB#13	21.51	PASS
Band13	5MHz	16QAM	23230	12RB#13	20.41	PASS
Band13	5MHz	QPSK	23230	25RB#0	21.48	PASS
Band13	5MHz	16QAM	23230	25RB#0	20.41	PASS
Band13	5MHz	QPSK	23255	1RB#0	22.51	PASS
Band13	5MHz	16QAM	23255	1RB#0	21.49	PASS
Band13	5MHz	QPSK	23255	1RB#12	22.54	PASS
Band13	5MHz	16QAM	23255	1RB#12	21.67	PASS
Band13	5MHz	QPSK	23255	1RB#24	22.52	PASS
Band13	5MHz	16QAM	23255	1RB#24	21.54	PASS
Band13	5MHz	QPSK	23255	12RB#0	21.45	PASS

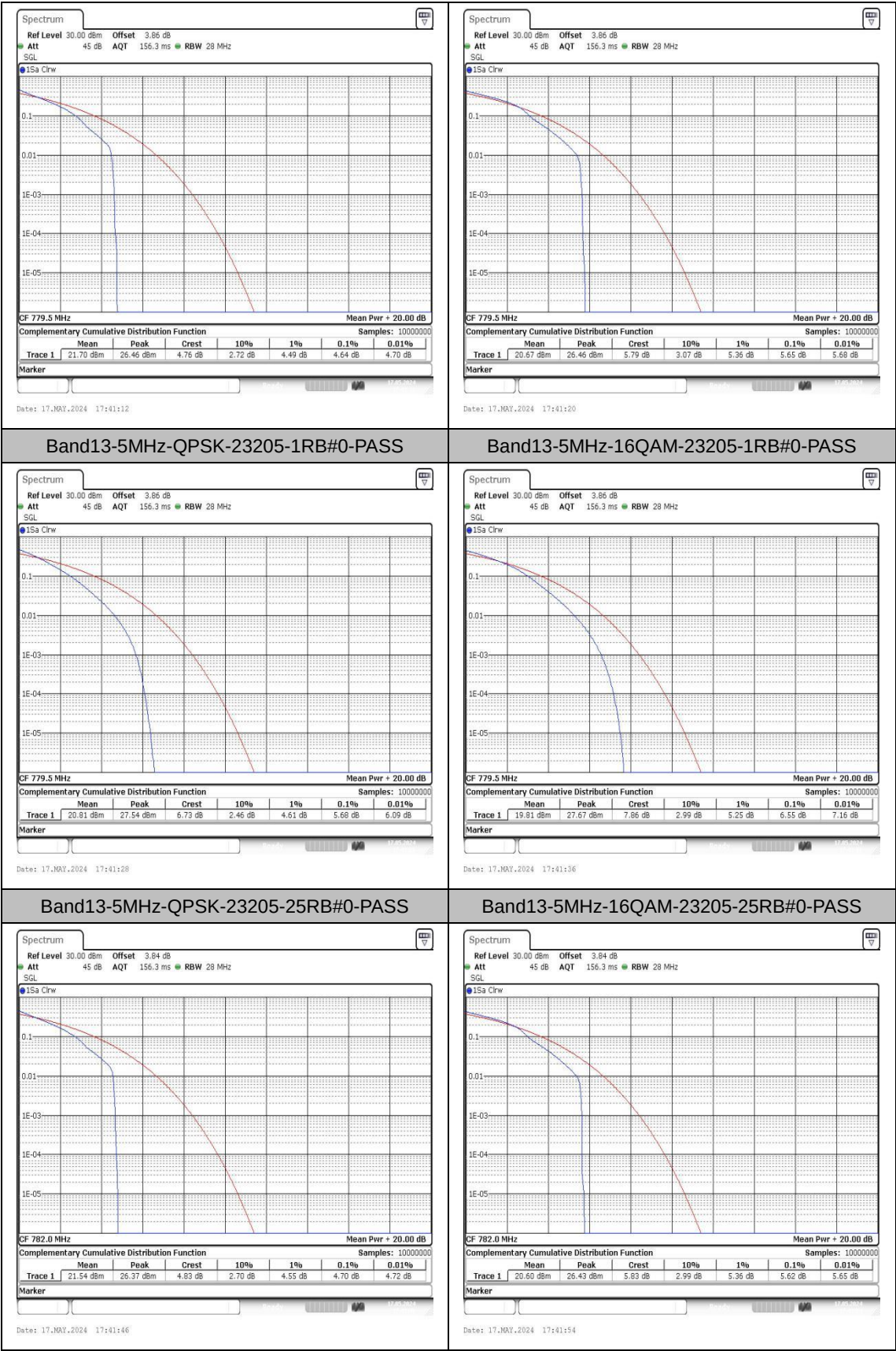
Band13	5MHz	16QAM	23255	12RB#0	20.43	PASS
Band13	5MHz	QPSK	23255	12RB#6	21.43	PASS
Band13	5MHz	16QAM	23255	12RB#6	20.40	PASS
Band13	5MHz	QPSK	23255	12RB#13	21.54	PASS
Band13	5MHz	16QAM	23255	12RB#13	20.60	PASS
Band13	5MHz	QPSK	23255	25RB#0	21.49	PASS
Band13	5MHz	16QAM	23255	25RB#0	20.43	PASS
Band13	10MHz	QPSK	23230	1RB#0	22.47	PASS
Band13	10MHz	16QAM	23230	1RB#0	21.55	PASS
Band13	10MHz	QPSK	23230	1RB#24	22.45	PASS
Band13	10MHz	16QAM	23230	1RB#24	21.44	PASS
Band13	10MHz	QPSK	23230	1RB#49	22.46	PASS
Band13	10MHz	16QAM	23230	1RB#49	21.62	PASS
Band13	10MHz	QPSK	23230	25RB#0	21.49	PASS
Band13	10MHz	16QAM	23230	25RB#0	20.48	PASS
Band13	10MHz	QPSK	23230	25RB#12	21.51	PASS
Band13	10MHz	16QAM	23230	25RB#12	20.49	PASS
Band13	10MHz	QPSK	23230	25RB#25	21.55	PASS
Band13	10MHz	16QAM	23230	25RB#25	20.57	PASS
Band13	10MHz	QPSK	23230	50RB#0	21.60	PASS
Band13	10MHz	16QAM	23230	50RB#0	20.58	PASS

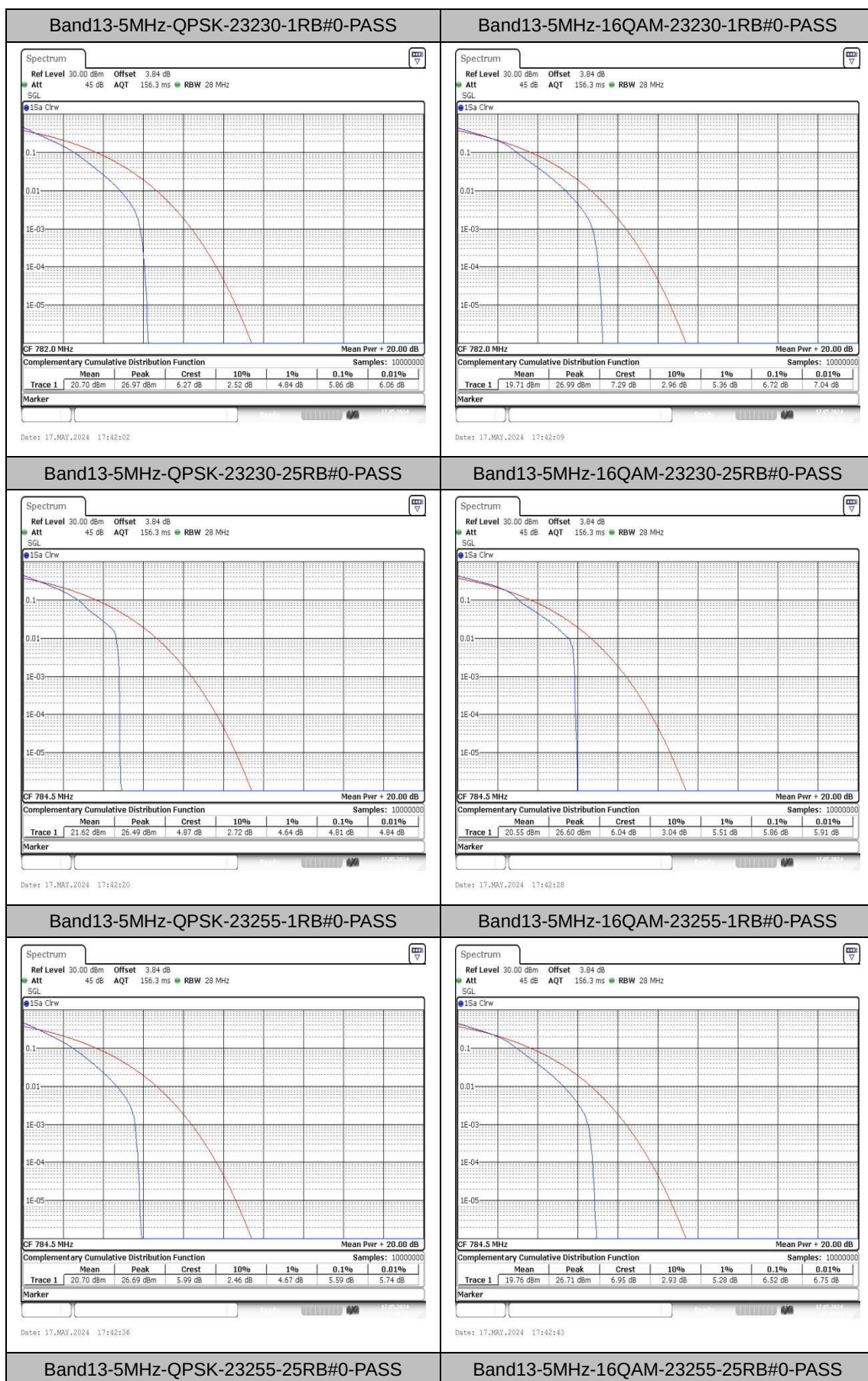
Appendix B: Peak-to-Average Ratio(CCDF)

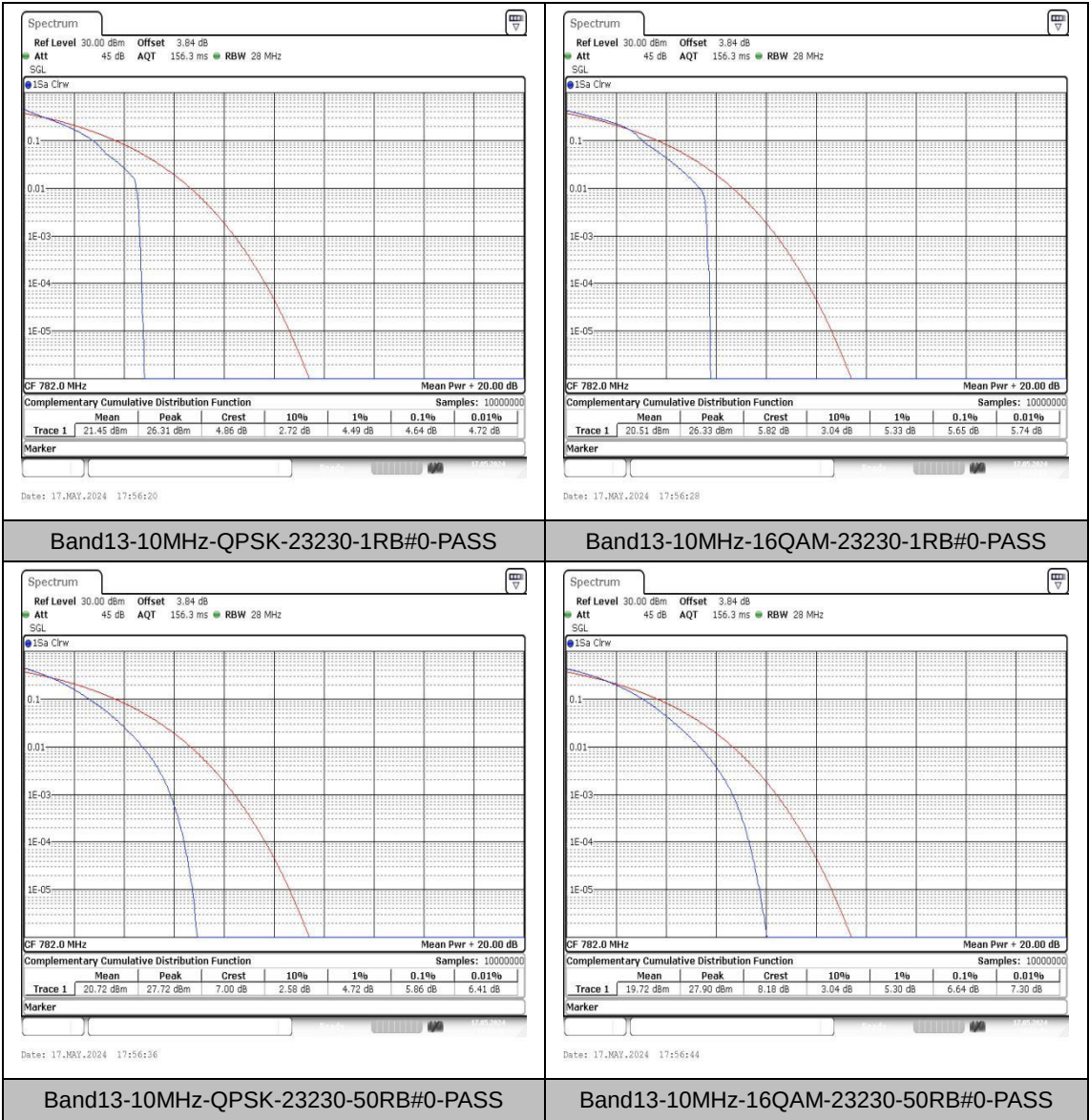
Test Result

Band	Bandwidth	Modulation	Channel	RB Configuration	Result(dB)	Limit(dB)	Verdict
Band13	5MHz	QPSK	23205	1RB#0	4.64	13	PASS
Band13	5MHz	16QAM	23205	1RB#0	5.65	13	PASS
Band13	5MHz	QPSK	23205	25RB#0	5.68	13	PASS
Band13	5MHz	16QAM	23205	25RB#0	6.55	13	PASS
Band13	5MHz	QPSK	23230	1RB#0	4.70	13	PASS
Band13	5MHz	16QAM	23230	1RB#0	5.62	13	PASS
Band13	5MHz	QPSK	23230	25RB#0	5.86	13	PASS
Band13	5MHz	16QAM	23230	25RB#0	6.72	13	PASS
Band13	5MHz	QPSK	23255	1RB#0	4.81	13	PASS
Band13	5MHz	16QAM	23255	1RB#0	5.86	13	PASS
Band13	5MHz	QPSK	23255	25RB#0	5.59	13	PASS
Band13	5MHz	16QAM	23255	25RB#0	6.52	13	PASS
Band13	10MHz	QPSK	23230	1RB#0	4.64	13	PASS
Band13	10MHz	16QAM	23230	1RB#0	5.65	13	PASS
Band13	10MHz	QPSK	23230	50RB#0	5.86	13	PASS
Band13	10MHz	16QAM	23230	50RB#0	6.64	13	PASS

Test Graphs





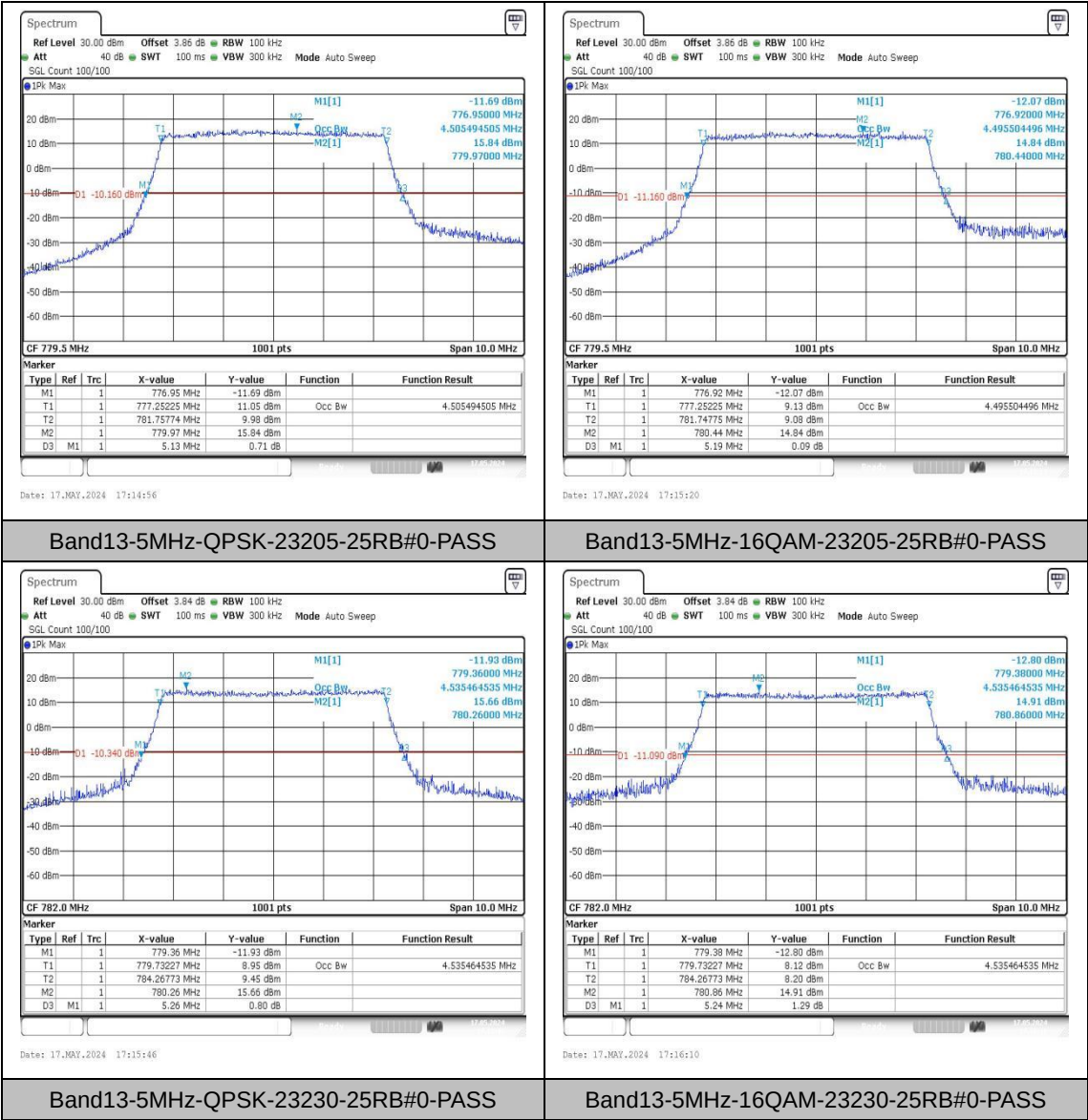


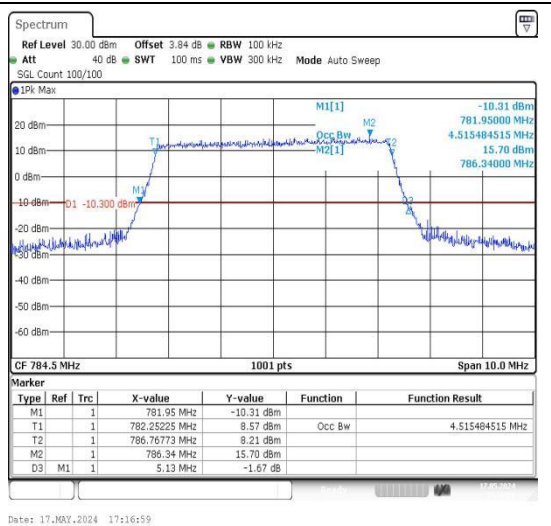
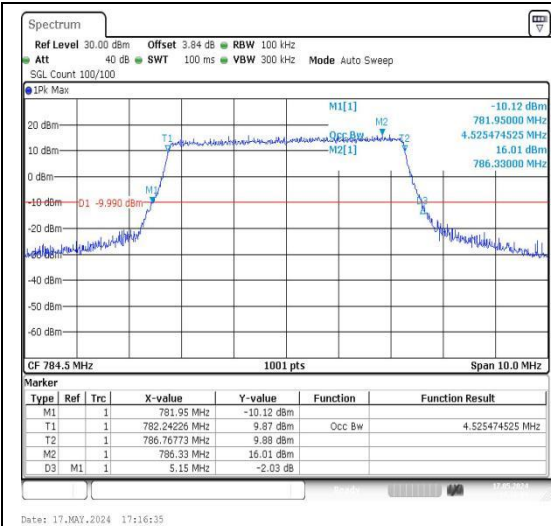
Appendix C: 26dB Bandwidth and Occupied Bandwidth

Test Result

Band	Bandwidth	Modulation	Channel	RB Configuration	Occupied Bandwidth (MHz)	26dB Bandwidth (MHz)	Verdict
Band13	5MHz	QPSK	23205	25RB#0	4.505	5.13	PASS
Band13	5MHz	16QAM	23205	25RB#0	4.496	5.19	PASS
Band13	5MHz	QPSK	23230	25RB#0	4.535	5.26	PASS
Band13	5MHz	16QAM	23230	25RB#0	4.535	5.24	PASS
Band13	5MHz	QPSK	23255	25RB#0	4.525	5.15	PASS
Band13	5MHz	16QAM	23255	25RB#0	4.515	5.13	PASS
Band13	10MHz	QPSK	23230	50RB#0	9.018	10.03	PASS
Band13	10MHz	16QAM	23230	50RB#0	8.985	10.07	PASS

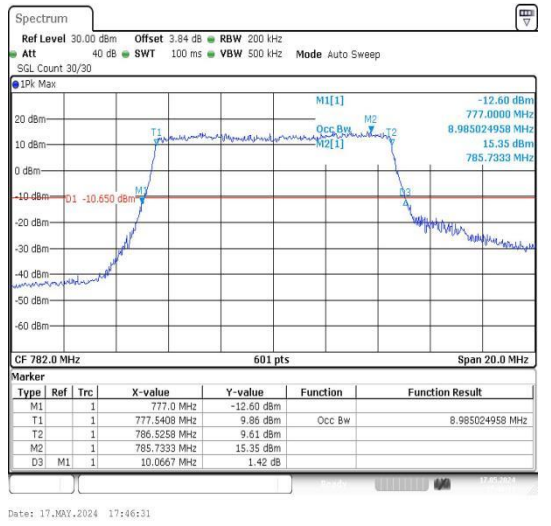
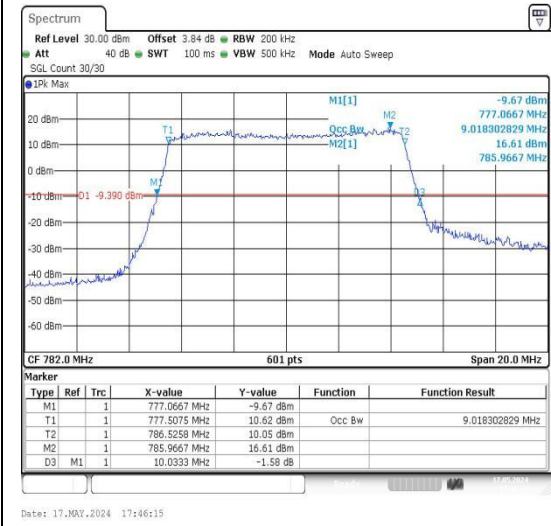
Test Graphs





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

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



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

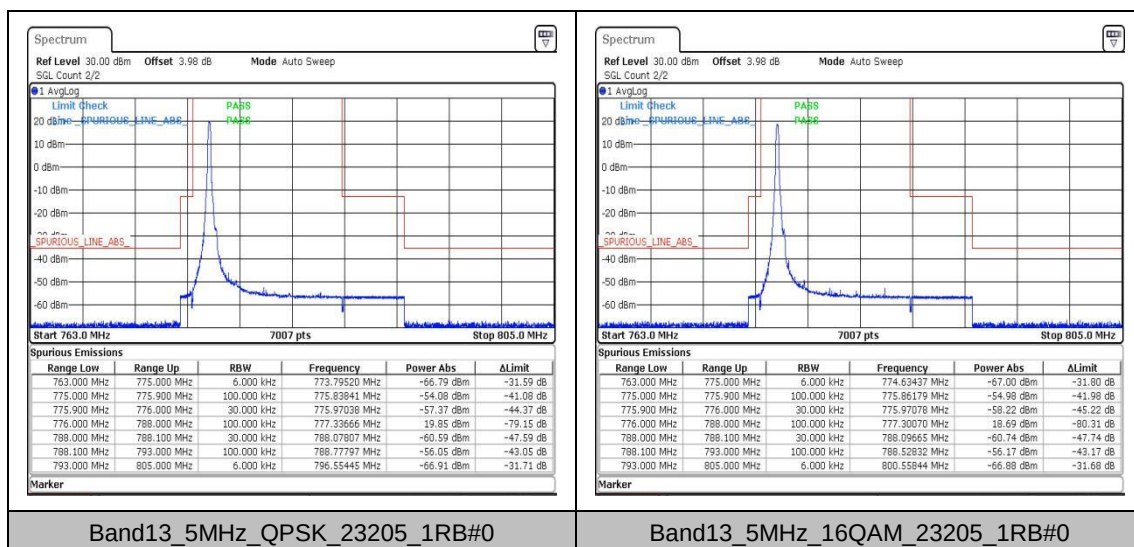
Band13-10MHz-16QAM-23230-50RB#0-PASS

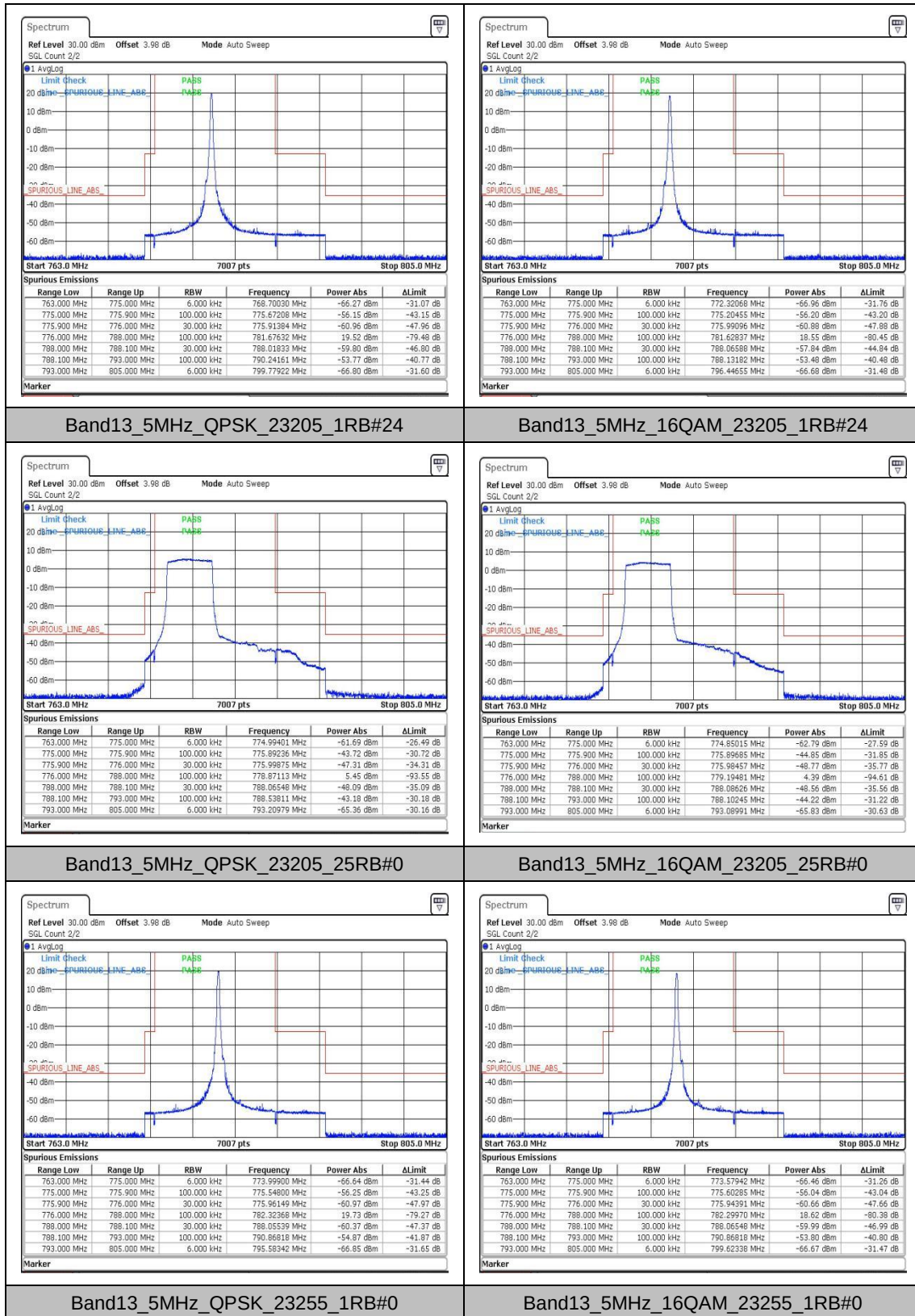
Appendix D: Band Edge

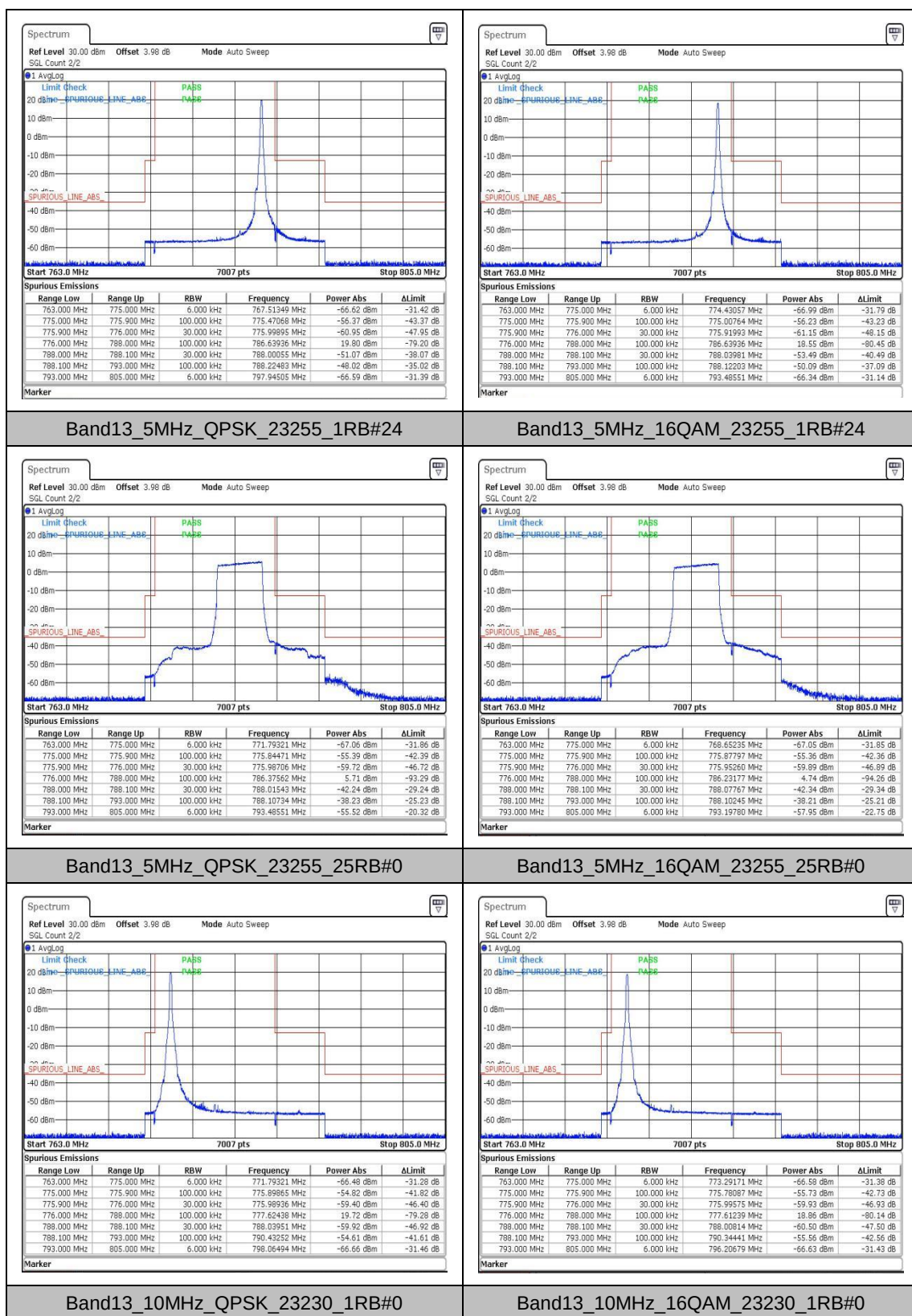
Test Result

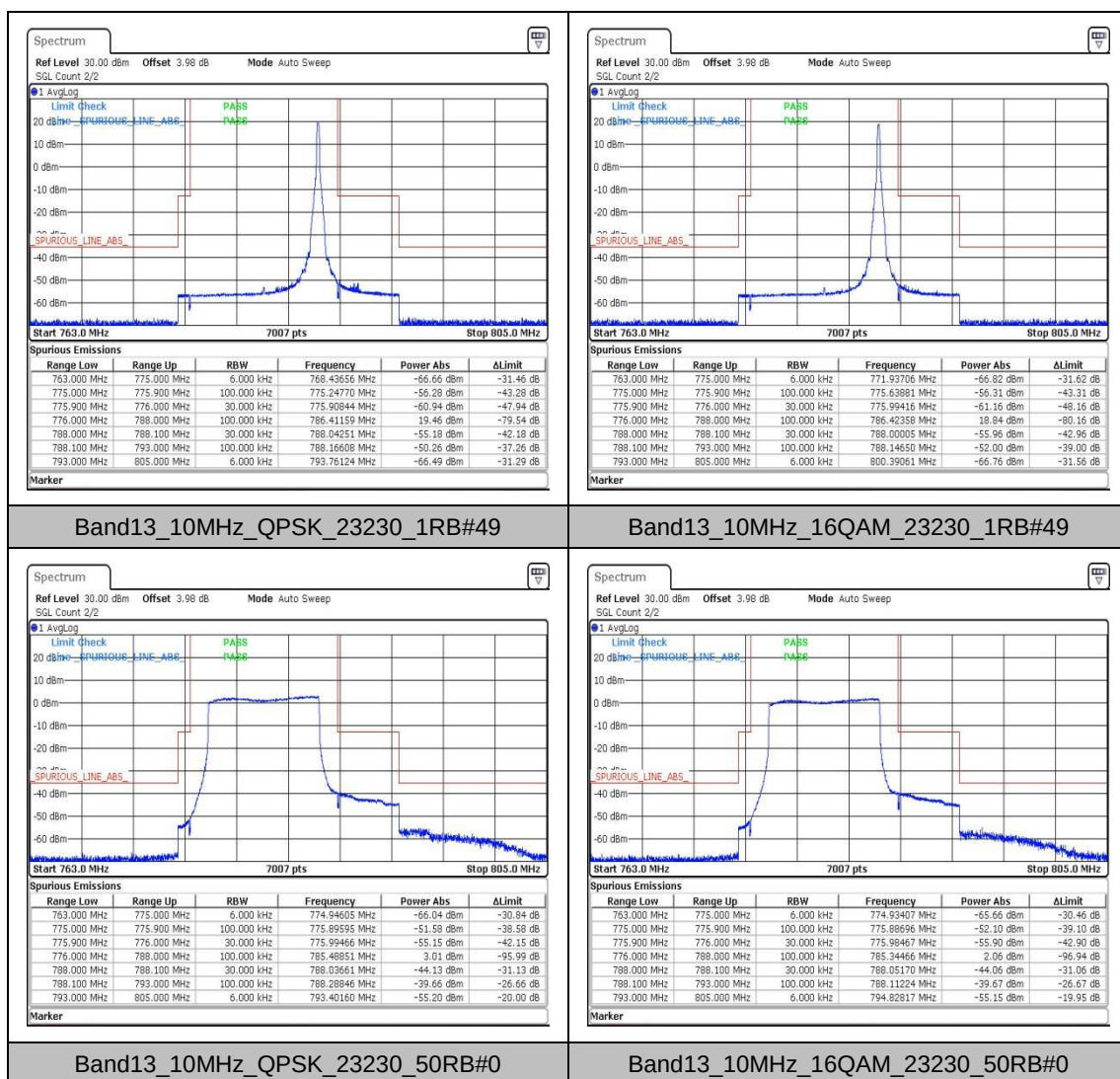
Band	Bandwidth	Modulation	Channel	RB Configuration	Result(dBm)	Verdict
Band13	5MHz	QPSK	23205	1RB#0	-66.79	PASS
Band13	5MHz	16QAM	23205	1RB#0	-66.88	PASS
Band13	5MHz	QPSK	23205	1RB#24	-66.27	PASS
Band13	5MHz	16QAM	23205	1RB#24	-66.68	PASS
Band13	5MHz	QPSK	23205	25RB#0	-61.69	PASS
Band13	5MHz	16QAM	23205	25RB#0	-62.79	PASS
Band13	5MHz	QPSK	23255	1RB#0	-66.64	PASS
Band13	5MHz	16QAM	23255	1RB#0	-66.46	PASS
Band13	5MHz	QPSK	23255	1RB#24	-66.59	PASS
Band13	5MHz	16QAM	23255	1RB#24	-66.34	PASS
Band13	5MHz	QPSK	23255	25RB#0	-55.52	PASS
Band13	5MHz	16QAM	23255	25RB#0	-57.95	PASS
Band13	10MHz	QPSK	23230	1RB#0	-66.48	PASS
Band13	10MHz	16QAM	23230	1RB#0	-66.58	PASS
Band13	10MHz	QPSK	23230	1RB#49	-66.49	PASS
Band13	10MHz	16QAM	23230	1RB#49	-66.76	PASS
Band13	10MHz	QPSK	23230	50RB#0	-55.20	PASS
Band13	10MHz	16QAM	23230	50RB#0	-55.15	PASS

Test Graphs









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	-71.45	PASS
Band13	5MHz	QPSK	23205	1RB#0	0.15~30	-73.63	PASS
Band13	5MHz	QPSK	23205	1RB#0	30~1000	-64.75	PASS
Band13	5MHz	QPSK	23205	1RB#0	1000~3000	-50.17	PASS
Band13	5MHz	QPSK	23205	1RB#0	3000~10000	-39.39	PASS
Band13	5MHz	16QAM	23205	1RB#0	0.009~0.15	-72.25	PASS
Band13	5MHz	16QAM	23205	1RB#0	0.15~30	-75.87	PASS
Band13	5MHz	16QAM	23205	1RB#0	30~1000	-63.66	PASS
Band13	5MHz	16QAM	23205	1RB#0	1000~3000	-50.18	PASS
Band13	5MHz	16QAM	23205	1RB#0	3000~10000	-39.23	PASS
Band13	5MHz	QPSK	23230	1RB#0	0.009~0.15	-72.43	PASS
Band13	5MHz	QPSK	23230	1RB#0	0.15~30	-75.52	PASS
Band13	5MHz	QPSK	23230	1RB#0	30~1000	-64.47	PASS
Band13	5MHz	QPSK	23230	1RB#0	1000~3000	-50.19	PASS
Band13	5MHz	QPSK	23230	1RB#0	3000~10000	-38.99	PASS
Band13	5MHz	16QAM	23230	1RB#0	0.009~0.15	-72.35	PASS
Band13	5MHz	16QAM	23230	1RB#0	0.15~30	-74.37	PASS
Band13	5MHz	16QAM	23230	1RB#0	30~1000	-64.43	PASS
Band13	5MHz	16QAM	23230	1RB#0	1000~3000	-50.21	PASS
Band13	5MHz	16QAM	23230	1RB#0	3000~10000	-39.16	PASS
Band13	5MHz	QPSK	23255	1RB#0	0.009~0.15	-71.89	PASS
Band13	5MHz	QPSK	23255	1RB#0	0.15~30	-74.81	PASS
Band13	5MHz	QPSK	23255	1RB#0	30~1000	-64.88	PASS
Band13	5MHz	QPSK	23255	1RB#0	1000~3000	-50.22	PASS
Band13	5MHz	QPSK	23255	1RB#0	3000~10000	-39.24	PASS
Band13	5MHz	16QAM	23255	1RB#0	0.009~0.15	-71.48	PASS
Band13	5MHz	16QAM	23255	1RB#0	0.15~30	-75.16	PASS
Band13	5MHz	16QAM	23255	1RB#0	30~1000	-64.76	PASS
Band13	5MHz	16QAM	23255	1RB#0	1000~3000	-50.22	PASS
Band13	5MHz	16QAM	23255	1RB#0	3000~10000	-39.26	PASS
Band13	10MHz	QPSK	23230	1RB#0	0.009~0.15	-72.25	PASS
Band13	10MHz	QPSK	23230	1RB#0	0.15~30	-75.11	PASS
Band13	10MHz	QPSK	23230	1RB#0	30~1000	-64.84	PASS
Band13	10MHz	QPSK	23230	1RB#0	1000~3000	-50.12	PASS
Band13	10MHz	QPSK	23230	1RB#0	3000~10000	-39.07	PASS

Band13	10MHz	16QAM	23230	1RB#0	0.009~0.15	-74.05	PASS
Band13	10MHz	16QAM	23230	1RB#0	0.15~30	-74.17	PASS
Band13	10MHz	16QAM	23230	1RB#0	30~1000	-64.41	PASS
Band13	10MHz	16QAM	23230	1RB#0	1000~3000	-50.25	PASS
Band13	10MHz	16QAM	23230	1RB#0	3000~10000	-39.28	PASS

Test Graphs

