

Appendix for LTE Band 13

Product Name: TITAN 5400

Model No: G5G-X62O

Appendix A: Average Power Output Data

Test Result

Band	Bandwidth	Modulation	Channel	RB Configuration	Result(dBm)	Verdict
Band13	5MHz	QPSK	23205	1RB#0	22.50	PASS
Band13	5MHz	QPSK	23205	1RB#12	22.54	PASS
Band13	5MHz	QPSK	23205	1RB#24	22.40	PASS
Band13	5MHz	QPSK	23205	12RB#0	21.42	PASS
Band13	5MHz	QPSK	23205	12RB#6	21.43	PASS
Band13	5MHz	QPSK	23205	12RB#13	21.47	PASS
Band13	5MHz	QPSK	23205	25RB#0	21.52	PASS
Band13	5MHz	16QAM	23205	1RB#0	21.43	PASS
Band13	5MHz	16QAM	23205	1RB#12	21.51	PASS
Band13	5MHz	16QAM	23205	1RB#24	21.37	PASS
Band13	5MHz	16QAM	23205	12RB#0	20.49	PASS
Band13	5MHz	16QAM	23205	12RB#6	20.37	PASS
Band13	5MHz	16QAM	23205	12RB#13	20.48	PASS
Band13	5MHz	16QAM	23205	25RB#0	20.51	PASS
Band13	5MHz	QPSK	23230	1RB#0	22.45	PASS
Band13	5MHz	QPSK	23230	1RB#12	22.48	PASS
Band13	5MHz	QPSK	23230	1RB#24	22.49	PASS
Band13	5MHz	QPSK	23230	12RB#0	21.38	PASS
Band13	5MHz	QPSK	23230	12RB#6	21.37	PASS
Band13	5MHz	QPSK	23230	12RB#13	21.45	PASS
Band13	5MHz	QPSK	23230	25RB#0	21.44	PASS
Band13	5MHz	16QAM	23230	1RB#0	21.62	PASS
Band13	5MHz	16QAM	23230	1RB#12	21.65	PASS
Band13	5MHz	16QAM	23230	1RB#24	21.48	PASS
Band13	5MHz	16QAM	23230	12RB#0	20.41	PASS
Band13	5MHz	16QAM	23230	12RB#6	20.38	PASS
Band13	5MHz	16QAM	23230	12RB#13	20.48	PASS
Band13	5MHz	16QAM	23230	25RB#0	20.47	PASS
Band13	5MHz	QPSK	23255	1RB#0	22.44	PASS
Band13	5MHz	QPSK	23255	1RB#12	22.47	PASS
Band13	5MHz	QPSK	23255	1RB#24	22.44	PASS
Band13	5MHz	QPSK	23255	12RB#0	21.42	PASS
Band13	5MHz	QPSK	23255	12RB#6	21.43	PASS
Band13	5MHz	QPSK	23255	12RB#13	21.52	PASS
Band13	5MHz	QPSK	23255	25RB#0	21.39	PASS

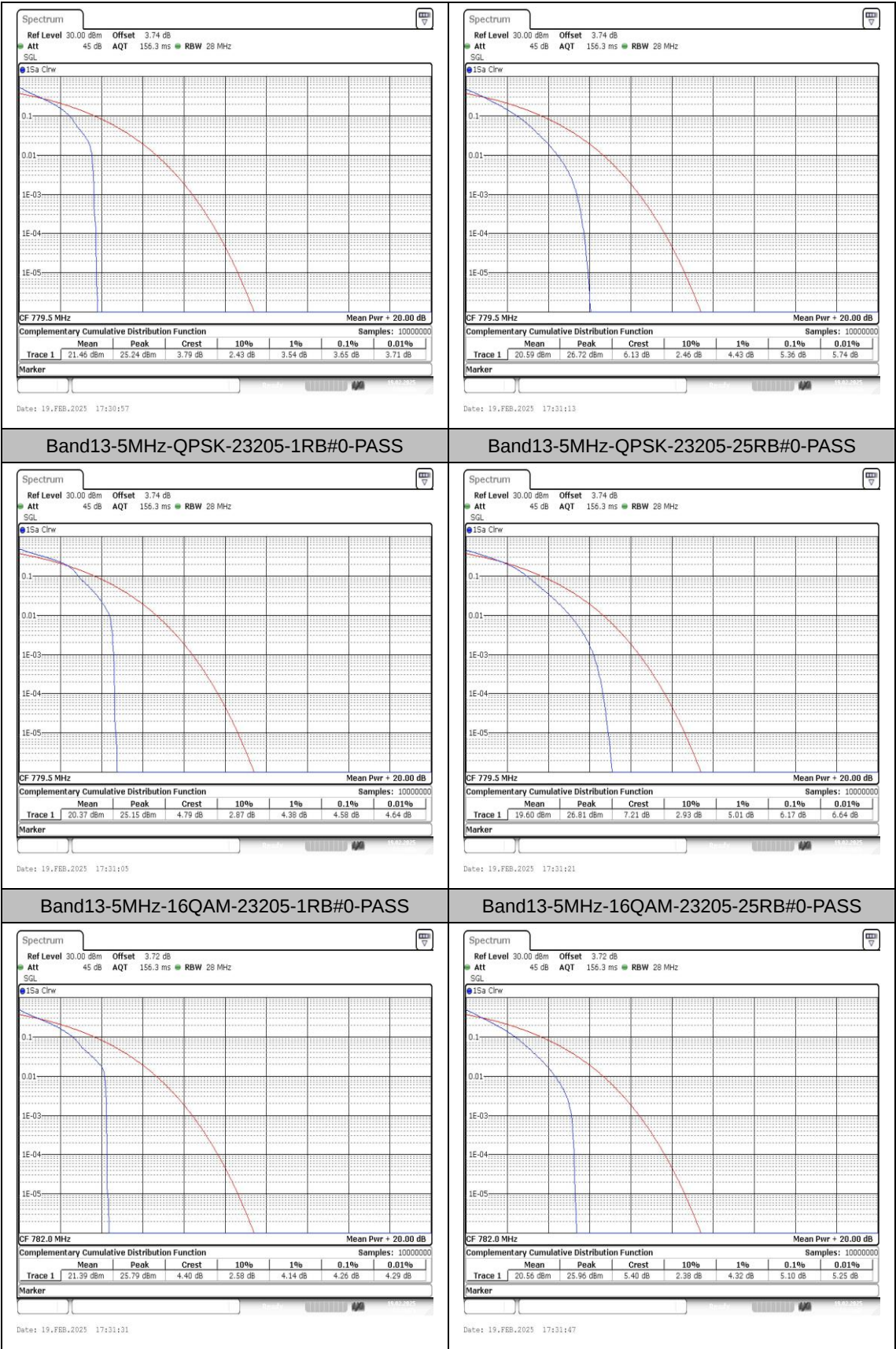
Band13	5MHz	16QAM	23255	1RB#0	21.44	PASS
Band13	5MHz	16QAM	23255	1RB#12	21.54	PASS
Band13	5MHz	16QAM	23255	1RB#24	21.35	PASS
Band13	5MHz	16QAM	23255	12RB#0	20.37	PASS
Band13	5MHz	16QAM	23255	12RB#6	20.35	PASS
Band13	5MHz	16QAM	23255	12RB#13	20.46	PASS
Band13	5MHz	16QAM	23255	25RB#0	20.39	PASS
Band13	10MHz	QPSK	23230	1RB#0	22.46	PASS
Band13	10MHz	QPSK	23230	1RB#24	22.40	PASS
Band13	10MHz	QPSK	23230	1RB#49	22.48	PASS
Band13	10MHz	QPSK	23230	25RB#0	21.46	PASS
Band13	10MHz	QPSK	23230	25RB#12	21.47	PASS
Band13	10MHz	QPSK	23230	25RB#25	21.47	PASS
Band13	10MHz	QPSK	23230	50RB#0	21.50	PASS
Band13	10MHz	16QAM	23230	1RB#0	21.38	PASS
Band13	10MHz	16QAM	23230	1RB#24	21.35	PASS
Band13	10MHz	16QAM	23230	1RB#49	21.43	PASS
Band13	10MHz	16QAM	23230	25RB#0	20.40	PASS
Band13	10MHz	16QAM	23230	25RB#12	20.47	PASS
Band13	10MHz	16QAM	23230	25RB#25	20.42	PASS
Band13	10MHz	16QAM	23230	50RB#0	20.51	PASS

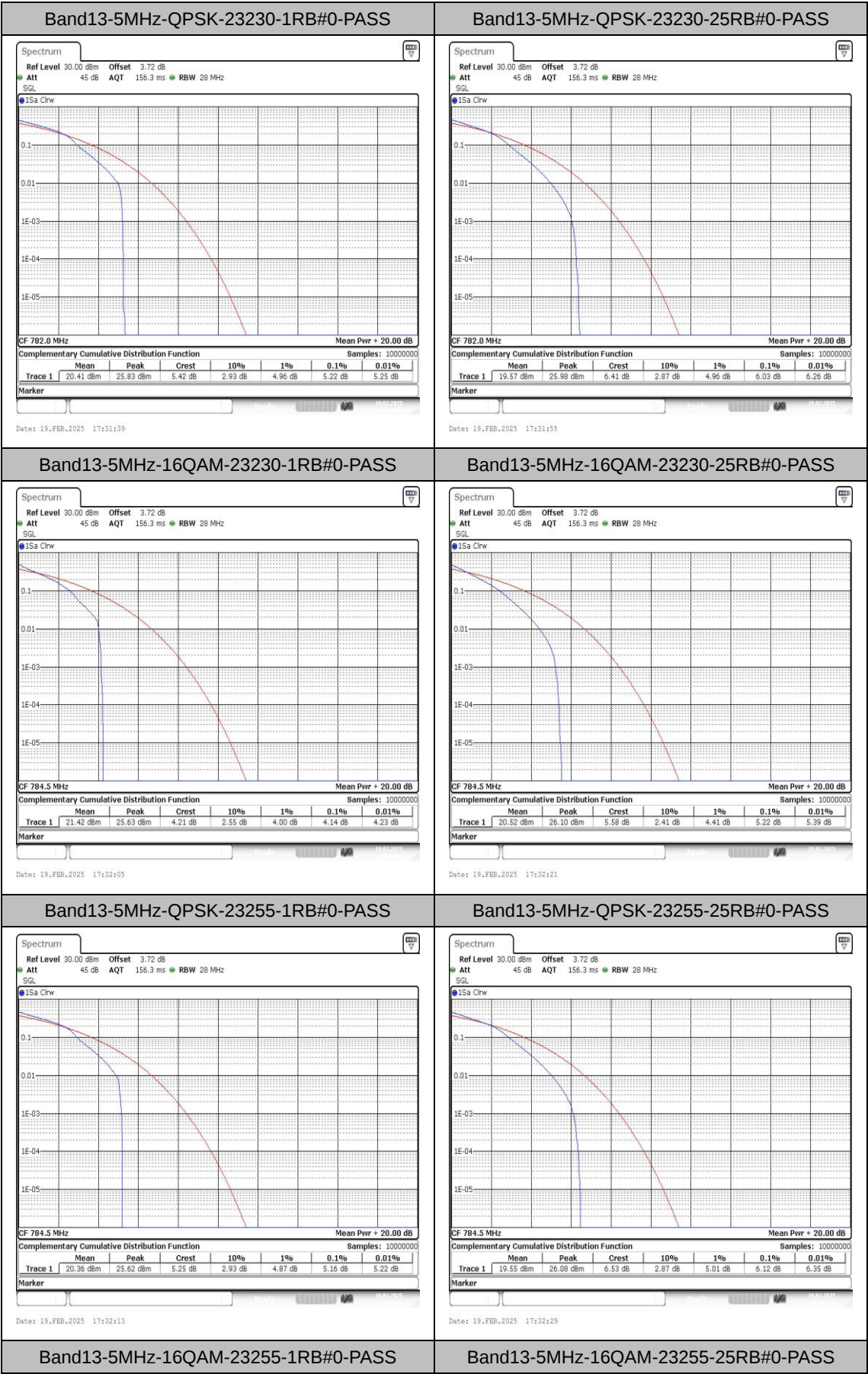
Appendix B: Peak-to-Average Ratio(CCDF)

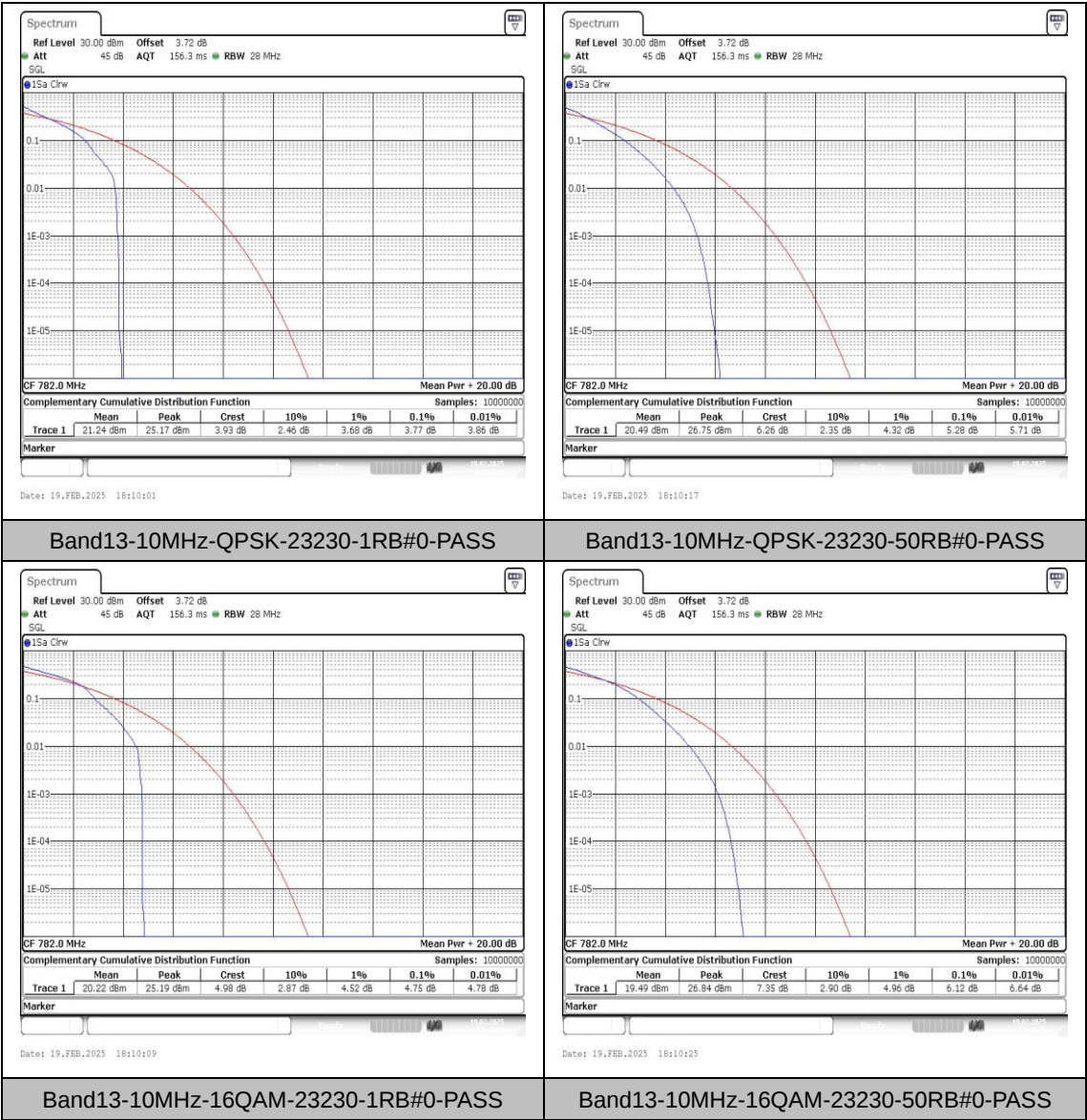
Test Result

Band	Bandwidth	Modulation	Channel	RB Configuration	Result(dB)	Limit(dB)	Verdict
Band13	5MHz	QPSK	23205	1RB#0	3.65	13	PASS
Band13	5MHz	QPSK	23205	25RB#0	5.36	13	PASS
Band13	5MHz	16QAM	23205	1RB#0	4.58	13	PASS
Band13	5MHz	16QAM	23205	25RB#0	6.17	13	PASS
Band13	5MHz	QPSK	23230	1RB#0	4.26	13	PASS
Band13	5MHz	QPSK	23230	25RB#0	5.10	13	PASS
Band13	5MHz	16QAM	23230	1RB#0	5.22	13	PASS
Band13	5MHz	16QAM	23230	25RB#0	6.03	13	PASS
Band13	5MHz	QPSK	23255	1RB#0	4.14	13	PASS
Band13	5MHz	QPSK	23255	25RB#0	5.22	13	PASS
Band13	5MHz	16QAM	23255	1RB#0	5.16	13	PASS
Band13	5MHz	16QAM	23255	25RB#0	6.12	13	PASS
Band13	10MHz	QPSK	23230	1RB#0	3.77	13	PASS
Band13	10MHz	QPSK	23230	50RB#0	5.28	13	PASS
Band13	10MHz	16QAM	23230	1RB#0	4.75	13	PASS
Band13	10MHz	16QAM	23230	50RB#0	6.12	13	PASS

Test Graphs





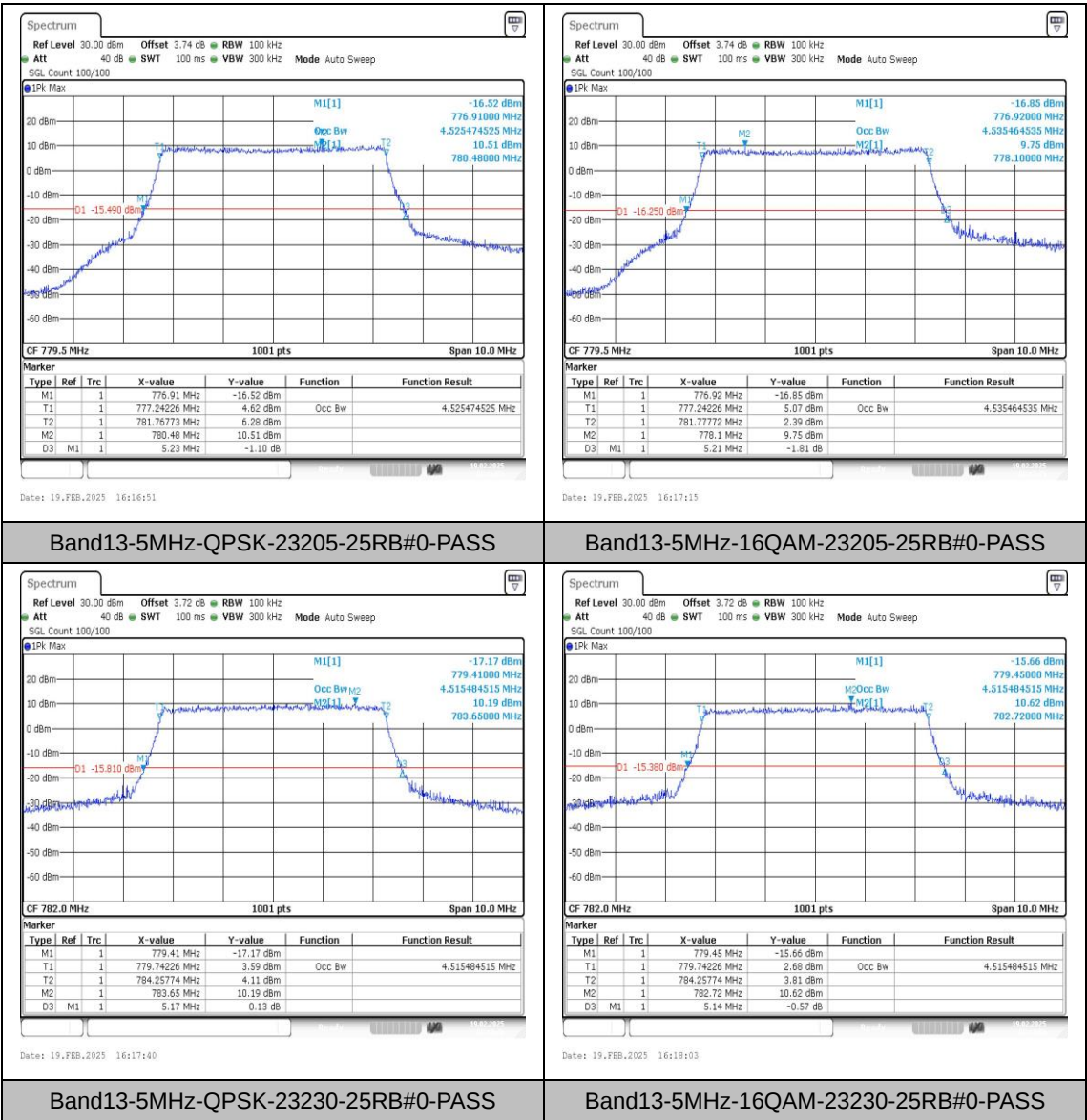


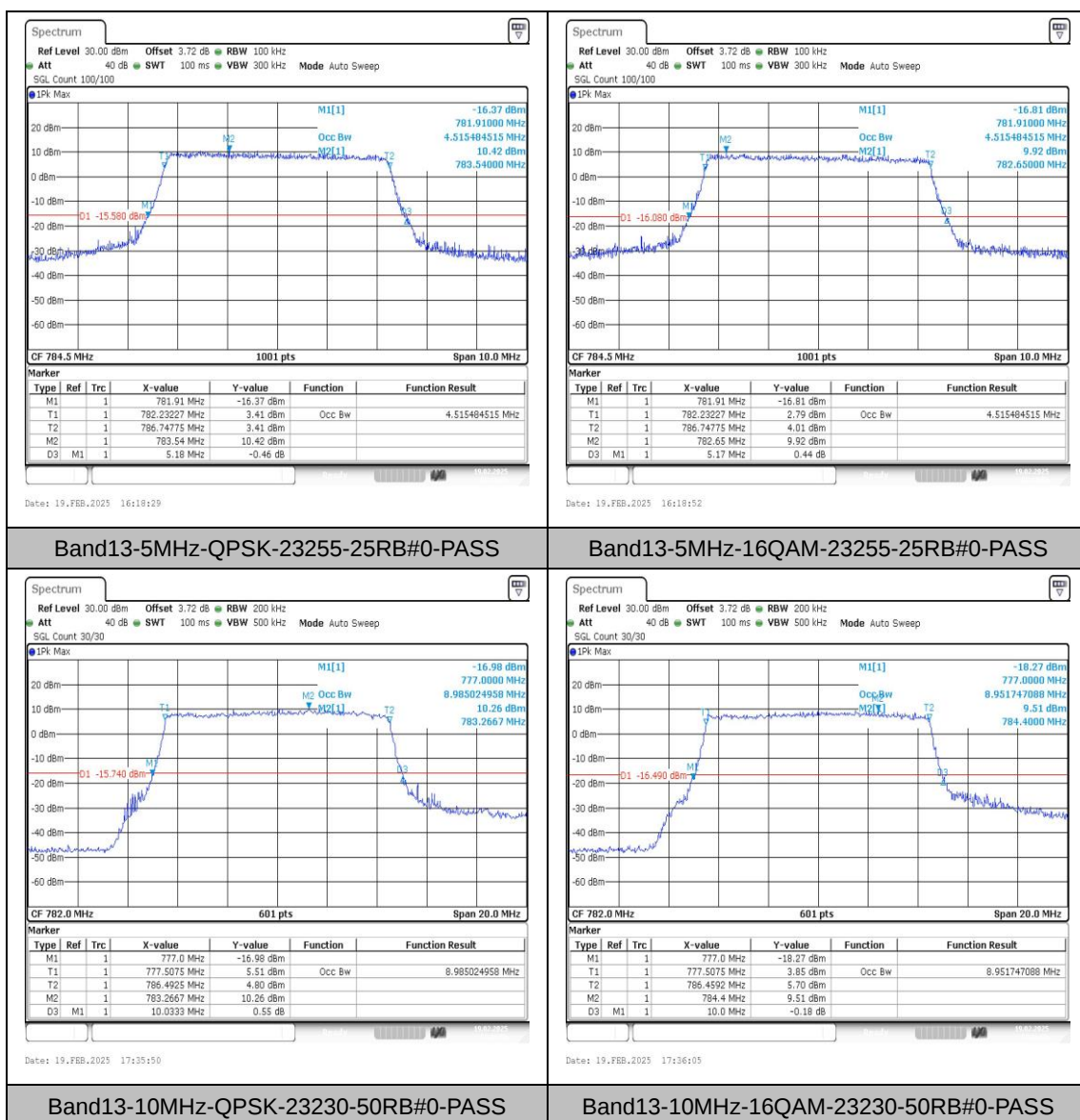
Appendix C: 26dB Bandwidth and Occupied Bandwidth

Test Result

Band	Bandwidth	Modulation	Channel	RB Configuration	Occupied Bandwidth (MHz)	26dB Bandwidth (MHz)	Verdict
Band13	5MHz	QPSK	23205	25RB#0	4.525	5.23	PASS
Band13	5MHz	16QAM	23205	25RB#0	4.535	5.21	PASS
Band13	5MHz	QPSK	23230	25RB#0	4.515	5.17	PASS
Band13	5MHz	16QAM	23230	25RB#0	4.515	5.14	PASS
Band13	5MHz	QPSK	23255	25RB#0	4.515	5.18	PASS
Band13	5MHz	16QAM	23255	25RB#0	4.515	5.17	PASS
Band13	10MHz	QPSK	23230	50RB#0	8.985	10.03	PASS
Band13	10MHz	16QAM	23230	50RB#0	8.952	10.00	PASS

Test Graphs



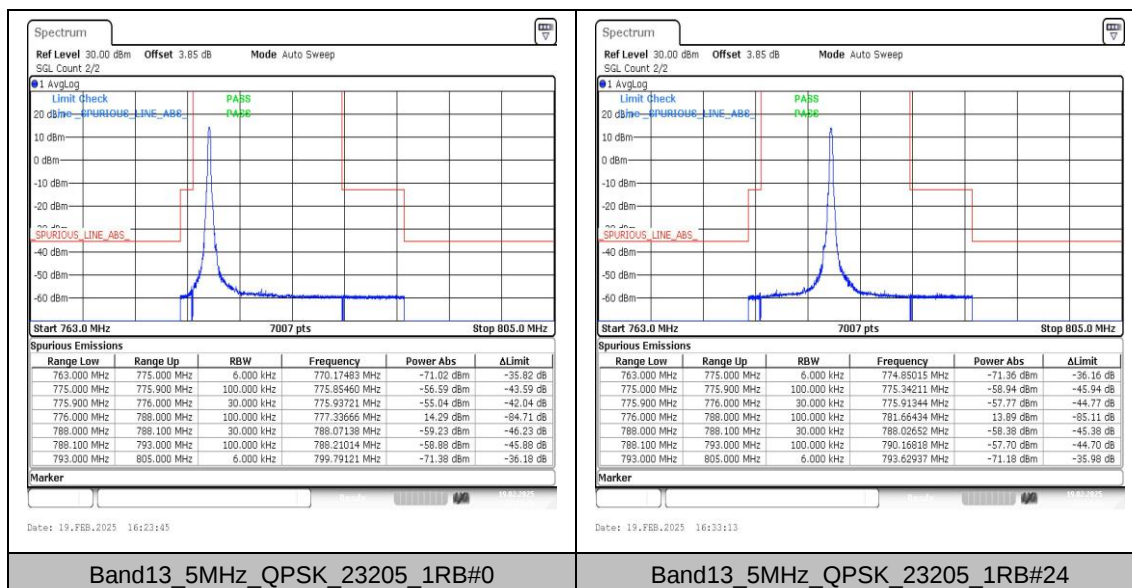


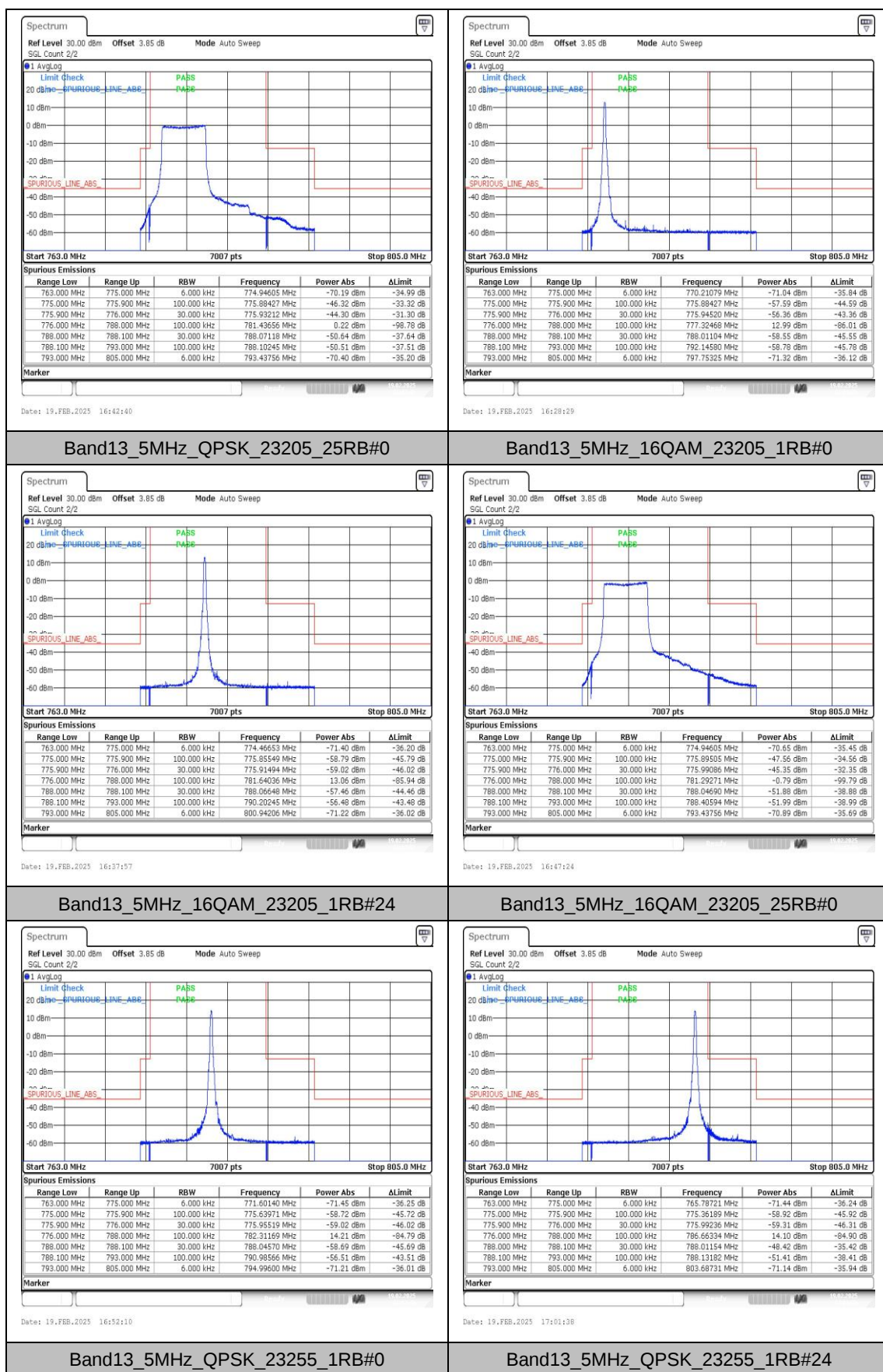
Appendix D: Band Edge

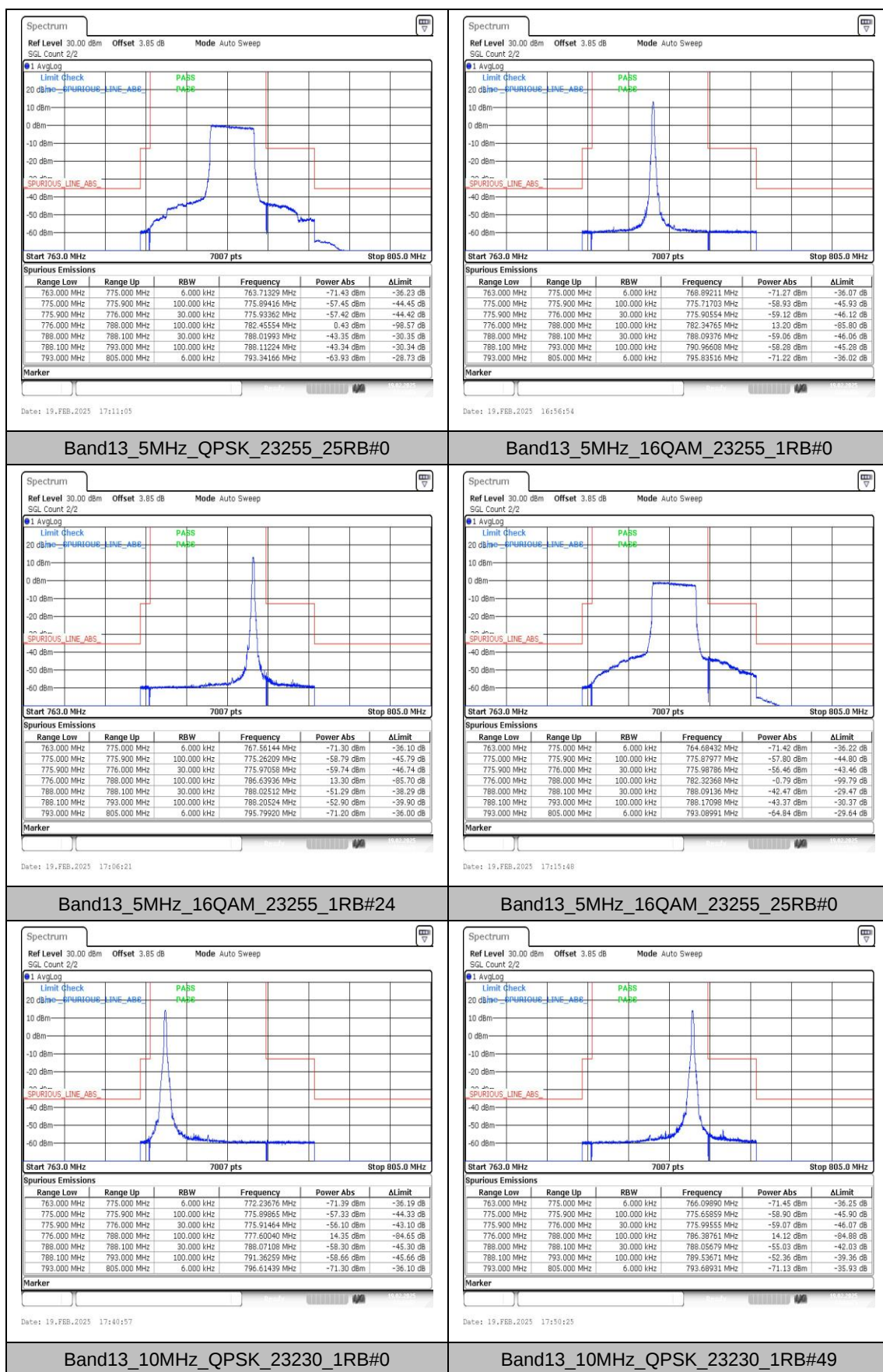
Test Result

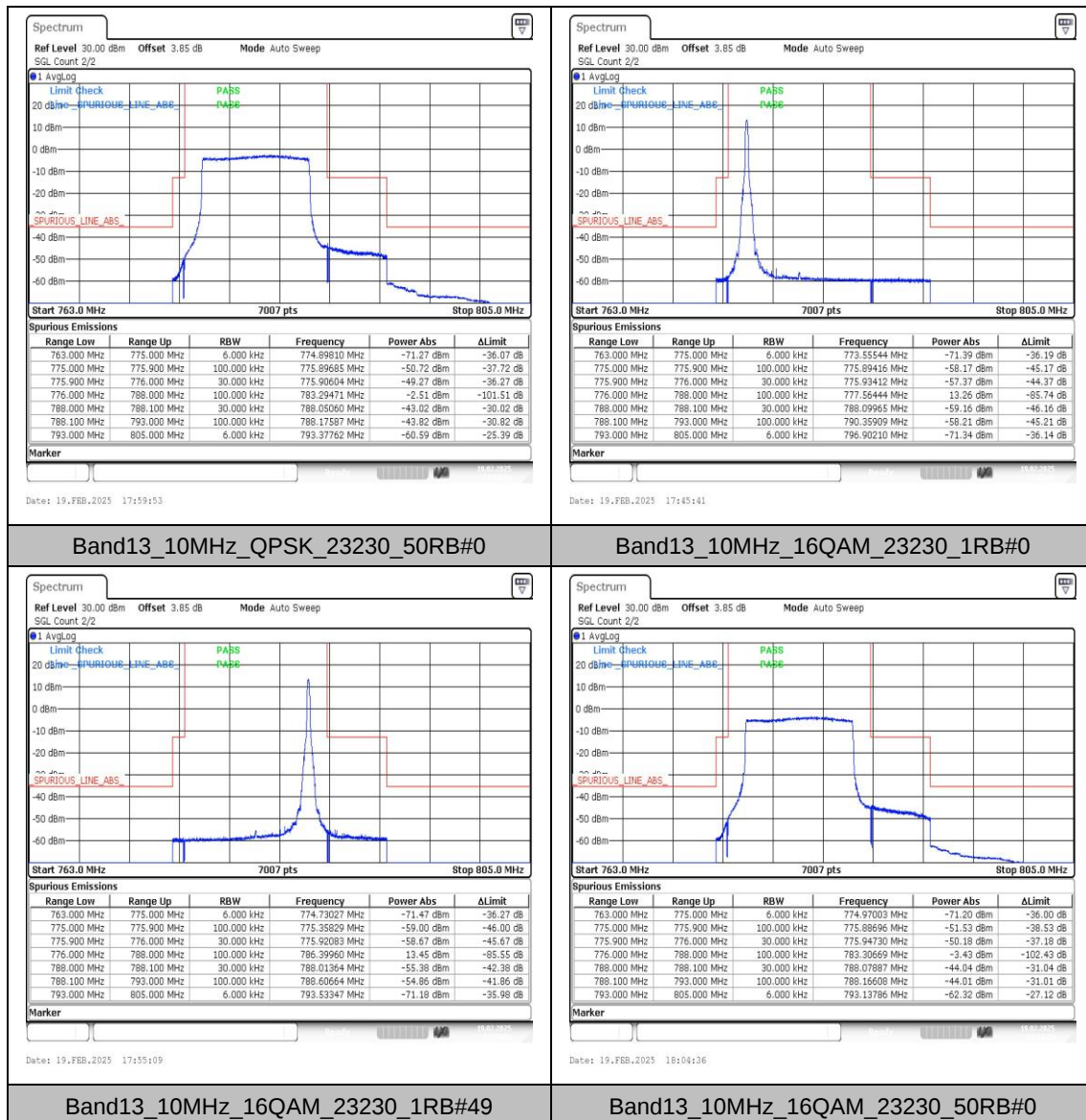
Band	Bandwidth	Modulation	Channel	RB Configuration	Result(dBm)	Verdict
Band13	5MHz	QPSK	23205	1RB#0	-71.02	PASS
Band13	5MHz	QPSK	23205	1RB#24	-71.18	PASS
Band13	5MHz	QPSK	23205	25RB#0	-44.30	PASS
Band13	5MHz	16QAM	23205	1RB#0	-71.04	PASS
Band13	5MHz	16QAM	23205	1RB#24	-71.22	PASS
Band13	5MHz	16QAM	23205	25RB#0	-45.35	PASS
Band13	5MHz	QPSK	23255	1RB#0	-71.21	PASS
Band13	5MHz	QPSK	23255	1RB#24	-48.42	PASS
Band13	5MHz	QPSK	23255	25RB#0	-63.93	PASS
Band13	5MHz	16QAM	23255	1RB#0	-71.22	PASS
Band13	5MHz	16QAM	23255	1RB#24	-71.20	PASS
Band13	5MHz	16QAM	23255	25RB#0	-42.47	PASS
Band13	10MHz	QPSK	23230	1RB#0	-71.30	PASS
Band13	10MHz	QPSK	23230	1RB#49	-71.13	PASS
Band13	10MHz	QPSK	23230	50RB#0	-60.59	PASS
Band13	10MHz	16QAM	23230	1RB#0	-71.34	PASS
Band13	10MHz	16QAM	23230	1RB#49	-71.18	PASS
Band13	10MHz	16QAM	23230	50RB#0	-62.32	PASS

Test Graphs









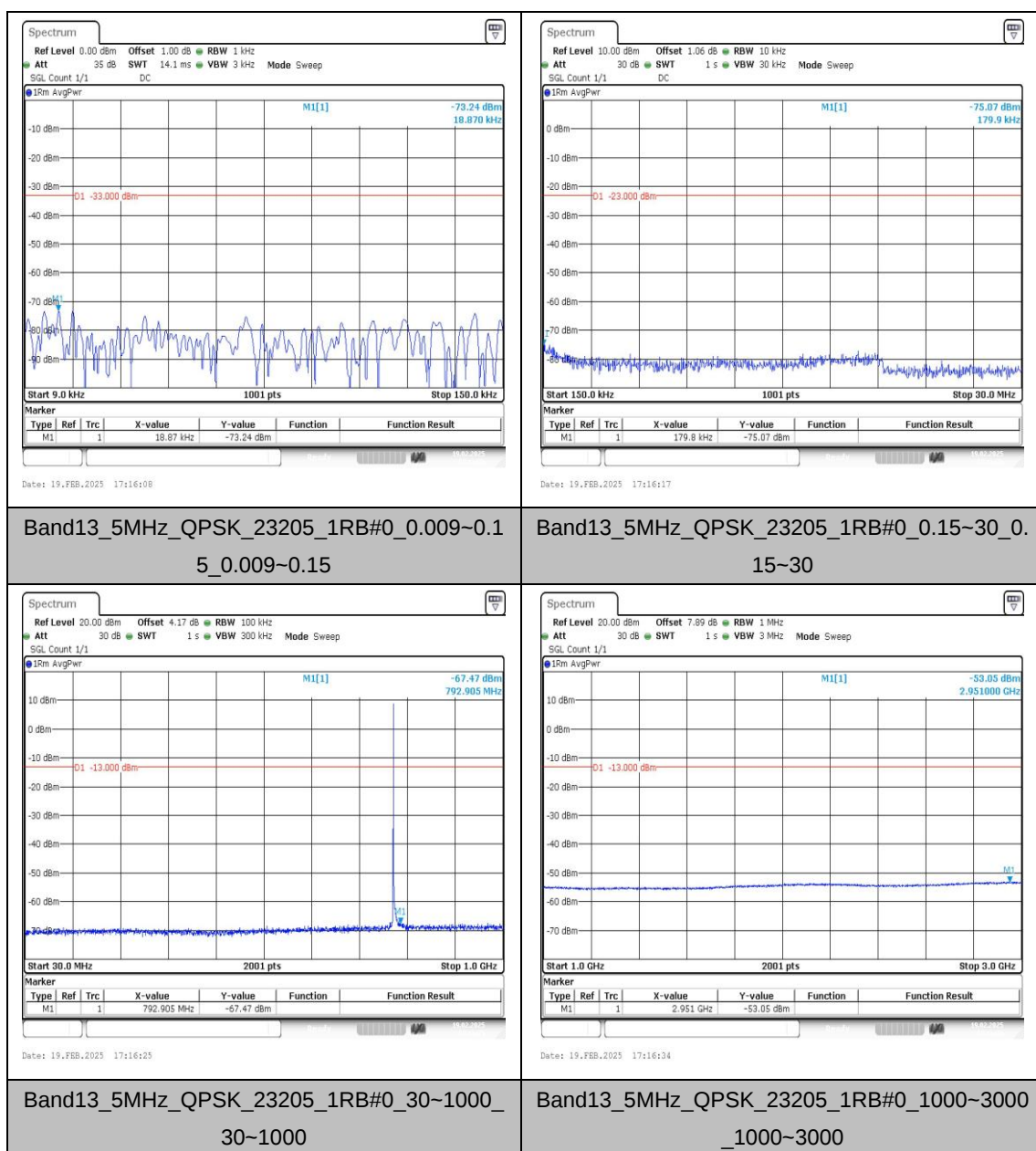
Appendix E: Conducted Spurious Emission

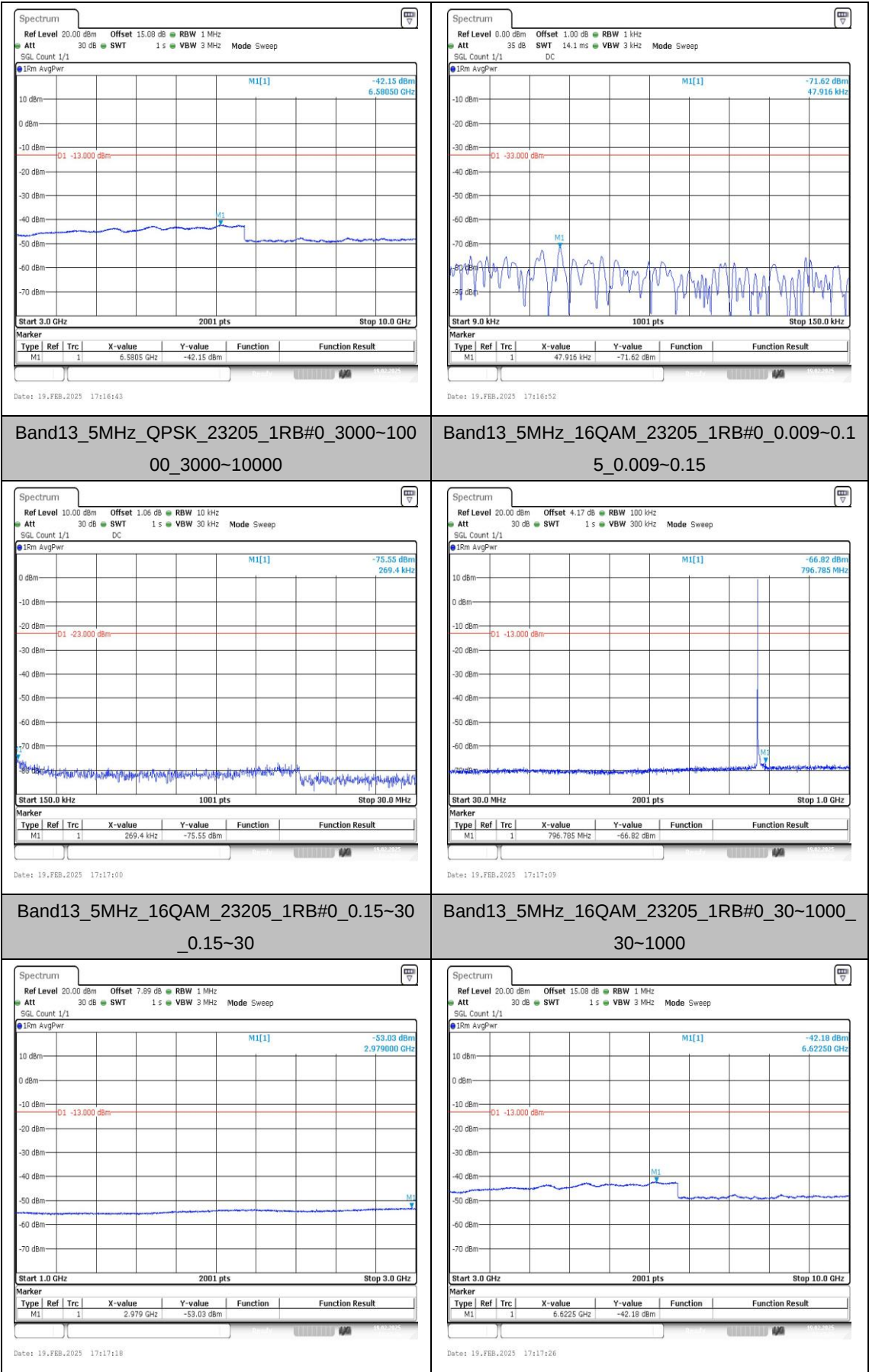
Test Result

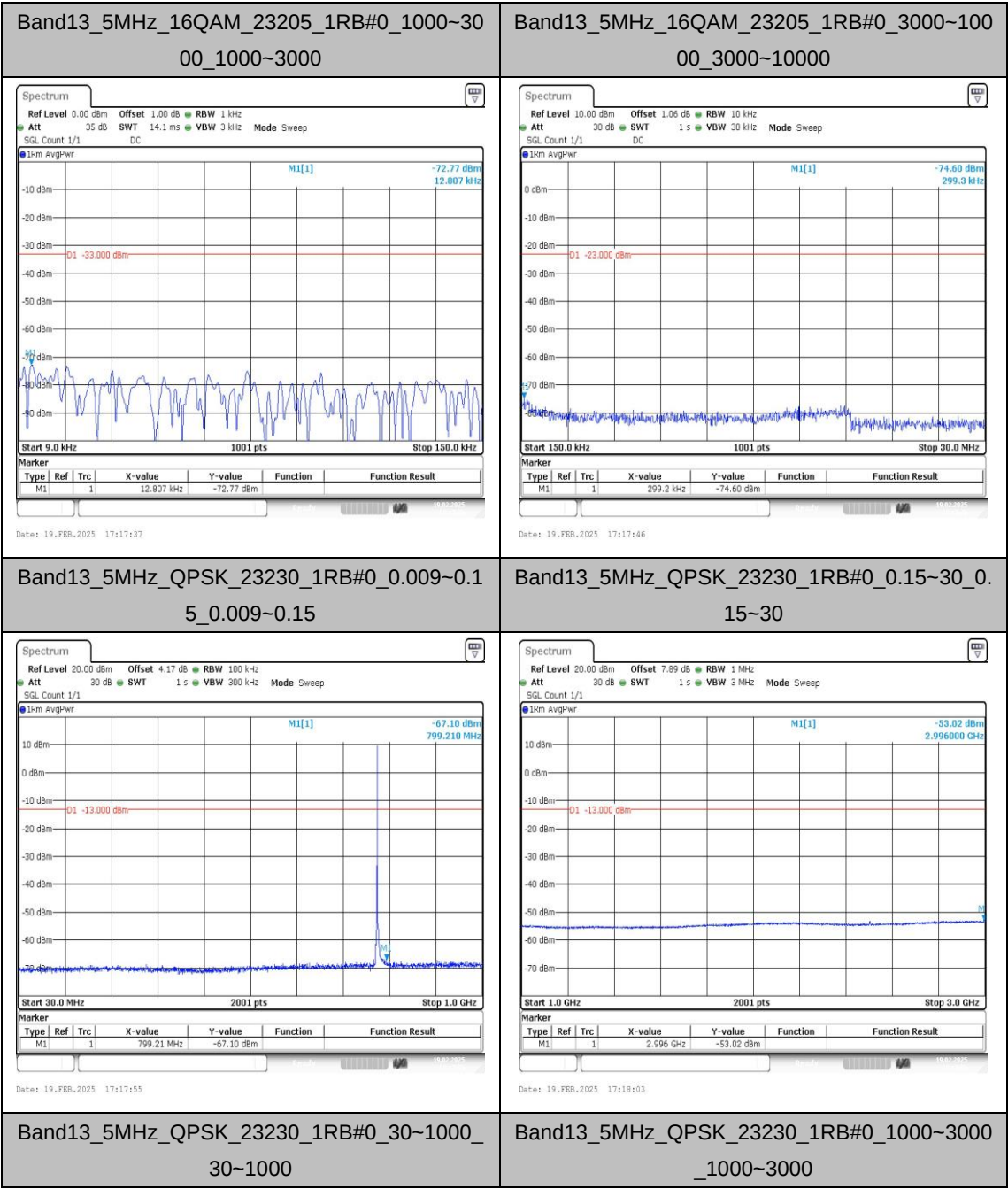
Band	Bandwidth	Modulation	Channel	RB Configuration	Frequency Range	Result (dBm)	Verdict
Band13	5MHz	QPSK	23205	1RB#0	0.009~0.15	-73.24	PASS
Band13	5MHz	QPSK	23205	1RB#0	0.15~30	-75.07	PASS
Band13	5MHz	QPSK	23205	1RB#0	30~1000	-67.47	PASS
Band13	5MHz	QPSK	23205	1RB#0	1000~3000	-53.05	PASS
Band13	5MHz	QPSK	23205	1RB#0	3000~10000	-42.15	PASS
Band13	5MHz	16QAM	23205	1RB#0	0.009~0.15	-71.62	PASS
Band13	5MHz	16QAM	23205	1RB#0	0.15~30	-75.55	PASS
Band13	5MHz	16QAM	23205	1RB#0	30~1000	-66.82	PASS
Band13	5MHz	16QAM	23205	1RB#0	1000~3000	-53.03	PASS
Band13	5MHz	16QAM	23205	1RB#0	3000~10000	-42.18	PASS
Band13	5MHz	QPSK	23230	1RB#0	0.009~0.15	-72.77	PASS
Band13	5MHz	QPSK	23230	1RB#0	0.15~30	-74.60	PASS
Band13	5MHz	QPSK	23230	1RB#0	30~1000	-67.10	PASS
Band13	5MHz	QPSK	23230	1RB#0	1000~3000	-53.02	PASS
Band13	5MHz	QPSK	23230	1RB#0	3000~10000	-42.10	PASS
Band13	5MHz	16QAM	23230	1RB#0	0.009~0.15	-71.89	PASS
Band13	5MHz	16QAM	23230	1RB#0	0.15~30	-73.40	PASS
Band13	5MHz	16QAM	23230	1RB#0	30~1000	-67.38	PASS
Band13	5MHz	16QAM	23230	1RB#0	1000~3000	-52.68	PASS
Band13	5MHz	16QAM	23230	1RB#0	3000~10000	-42.20	PASS
Band13	5MHz	QPSK	23255	1RB#0	0.009~0.15	-71.66	PASS
Band13	5MHz	QPSK	23255	1RB#0	0.15~30	-75.09	PASS
Band13	5MHz	QPSK	23255	1RB#0	30~1000	-66.03	PASS
Band13	5MHz	QPSK	23255	1RB#0	1000~3000	-51.26	PASS
Band13	5MHz	QPSK	23255	1RB#0	3000~10000	-42.20	PASS
Band13	5MHz	16QAM	23255	1RB#0	0.009~0.15	-72.93	PASS
Band13	5MHz	16QAM	23255	1RB#0	0.15~30	-74.49	PASS
Band13	5MHz	16QAM	23255	1RB#0	30~1000	-67.12	PASS
Band13	5MHz	16QAM	23255	1RB#0	1000~3000	-51.21	PASS
Band13	5MHz	16QAM	23255	1RB#0	3000~10000	-42.25	PASS
Band13	10MHz	QPSK	23230	1RB#0	0.009~0.15	-71.69	PASS
Band13	10MHz	QPSK	23230	1RB#0	0.15~30	-74.14	PASS
Band13	10MHz	QPSK	23230	1RB#0	30~1000	-67.74	PASS
Band13	10MHz	QPSK	23230	1RB#0	1000~3000	-53.10	PASS
Band13	10MHz	QPSK	23230	1RB#0	3000~10000	-42.21	PASS

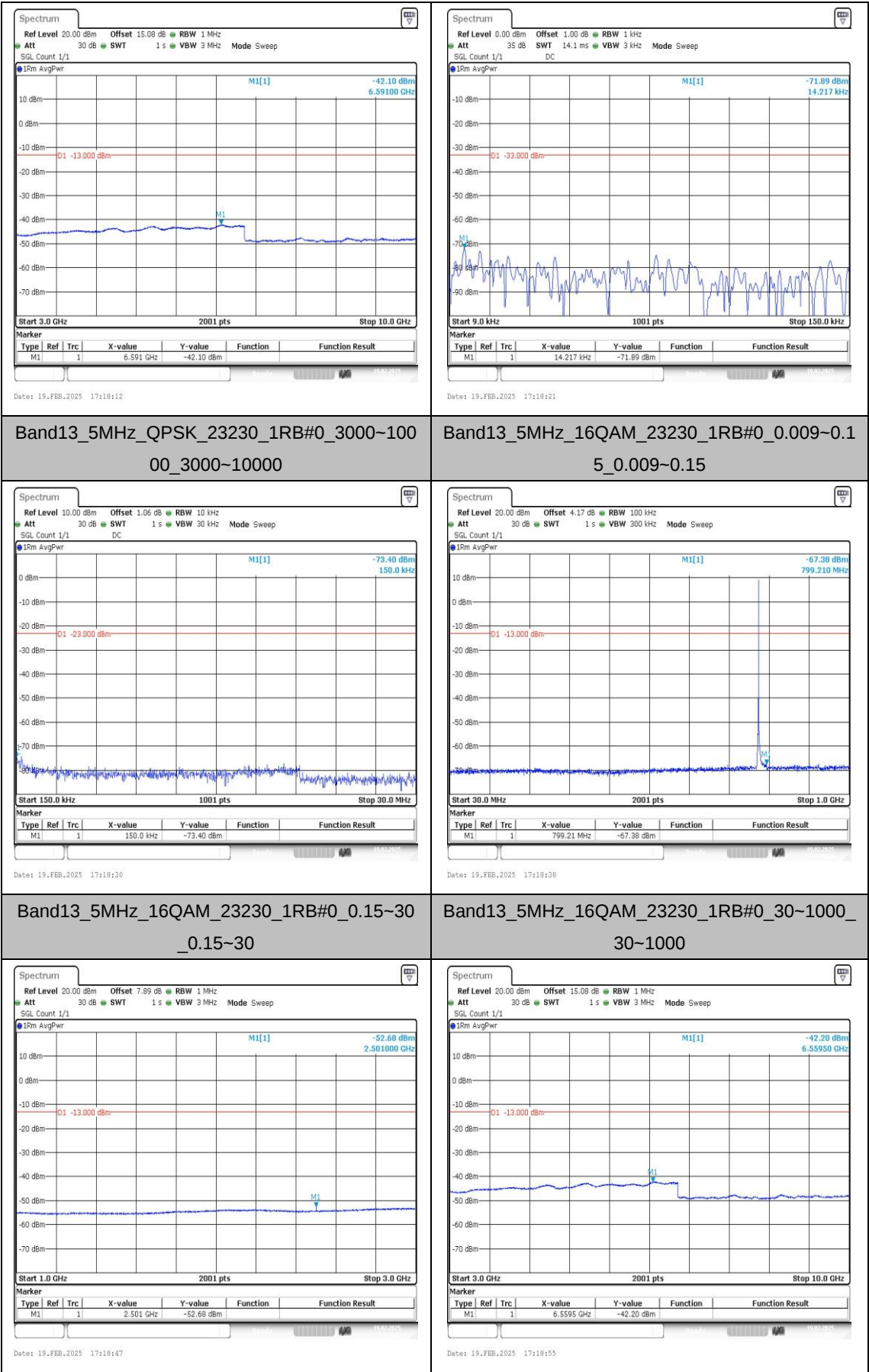
Band13	10MHz	16QAM	23230	1RB#0	0.009~0.15	-73.26	PASS
Band13	10MHz	16QAM	23230	1RB#0	0.15~30	-74.08	PASS
Band13	10MHz	16QAM	23230	1RB#0	30~1000	-67.78	PASS
Band13	10MHz	16QAM	23230	1RB#0	1000~3000	-53.00	PASS
Band13	10MHz	16QAM	23230	1RB#0	3000~10000	-42.14	PASS

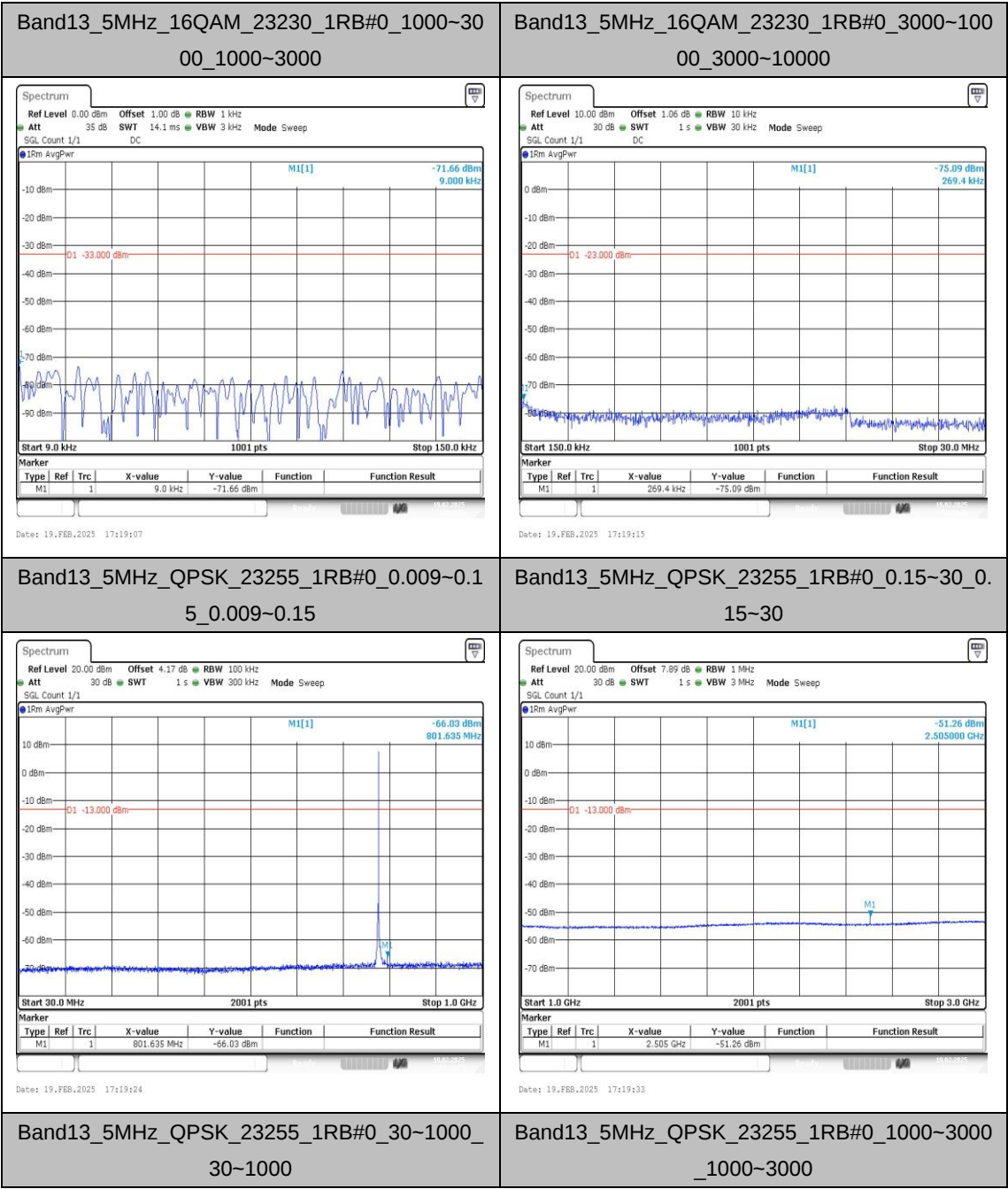
Test Graphs

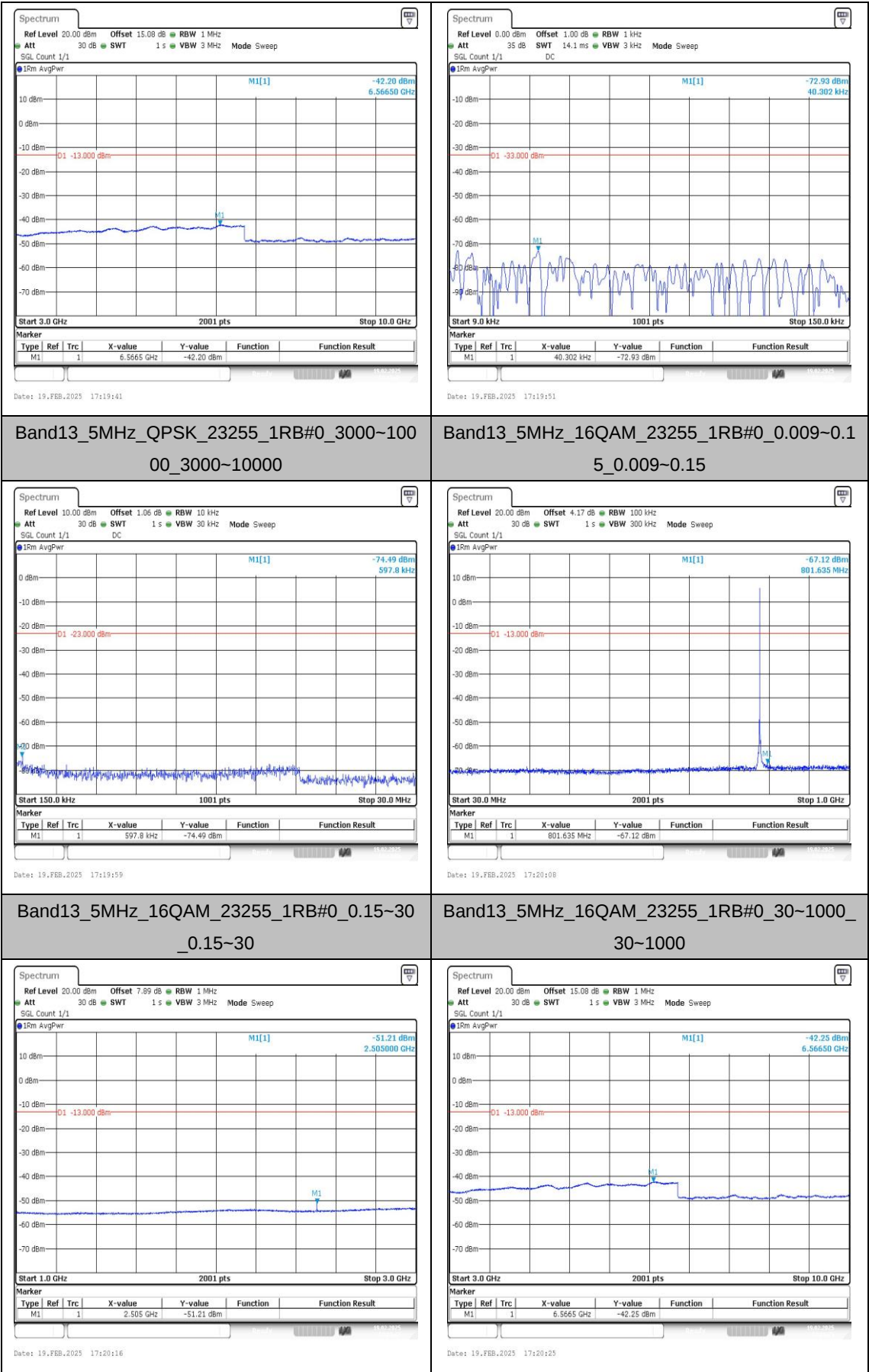


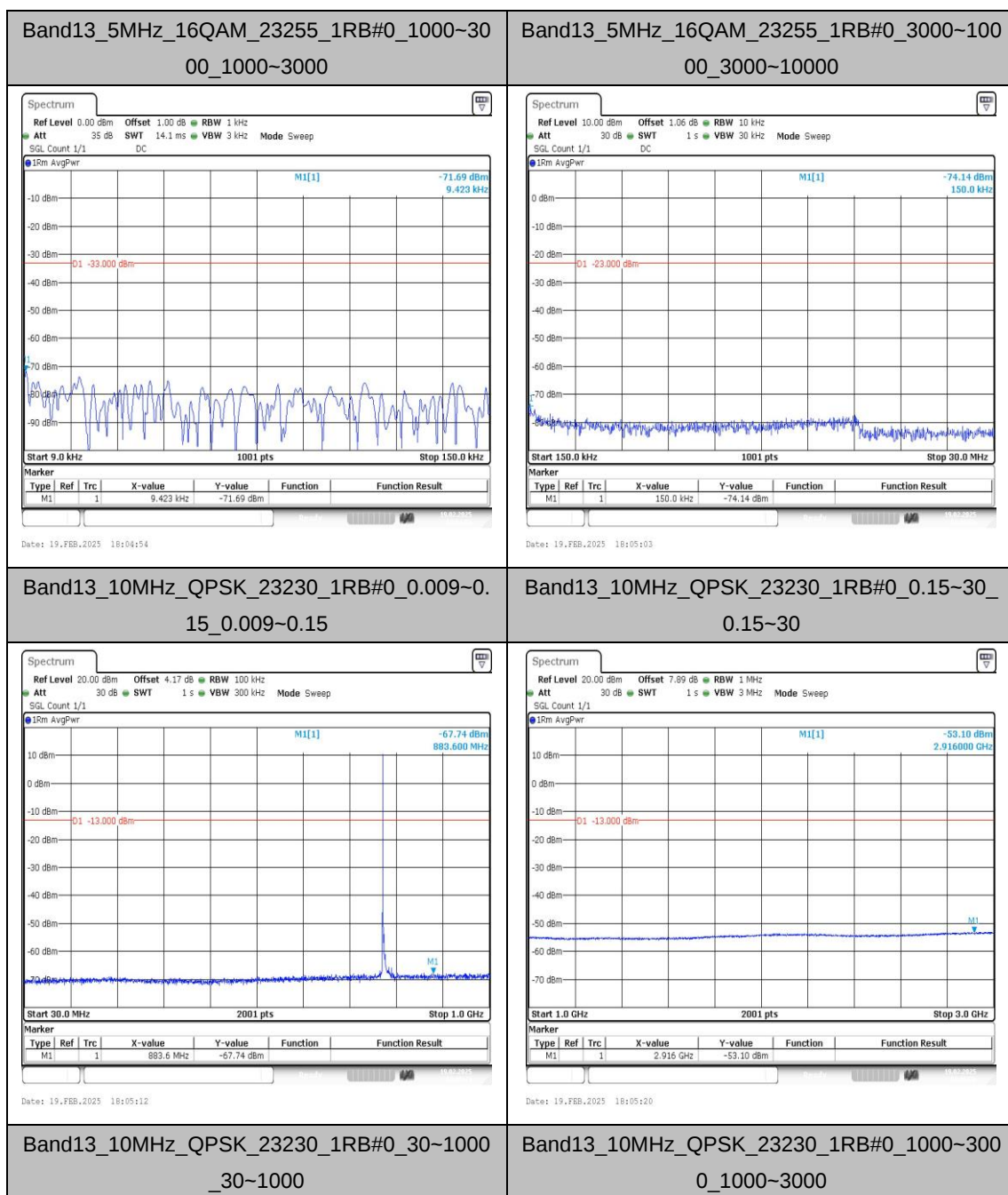


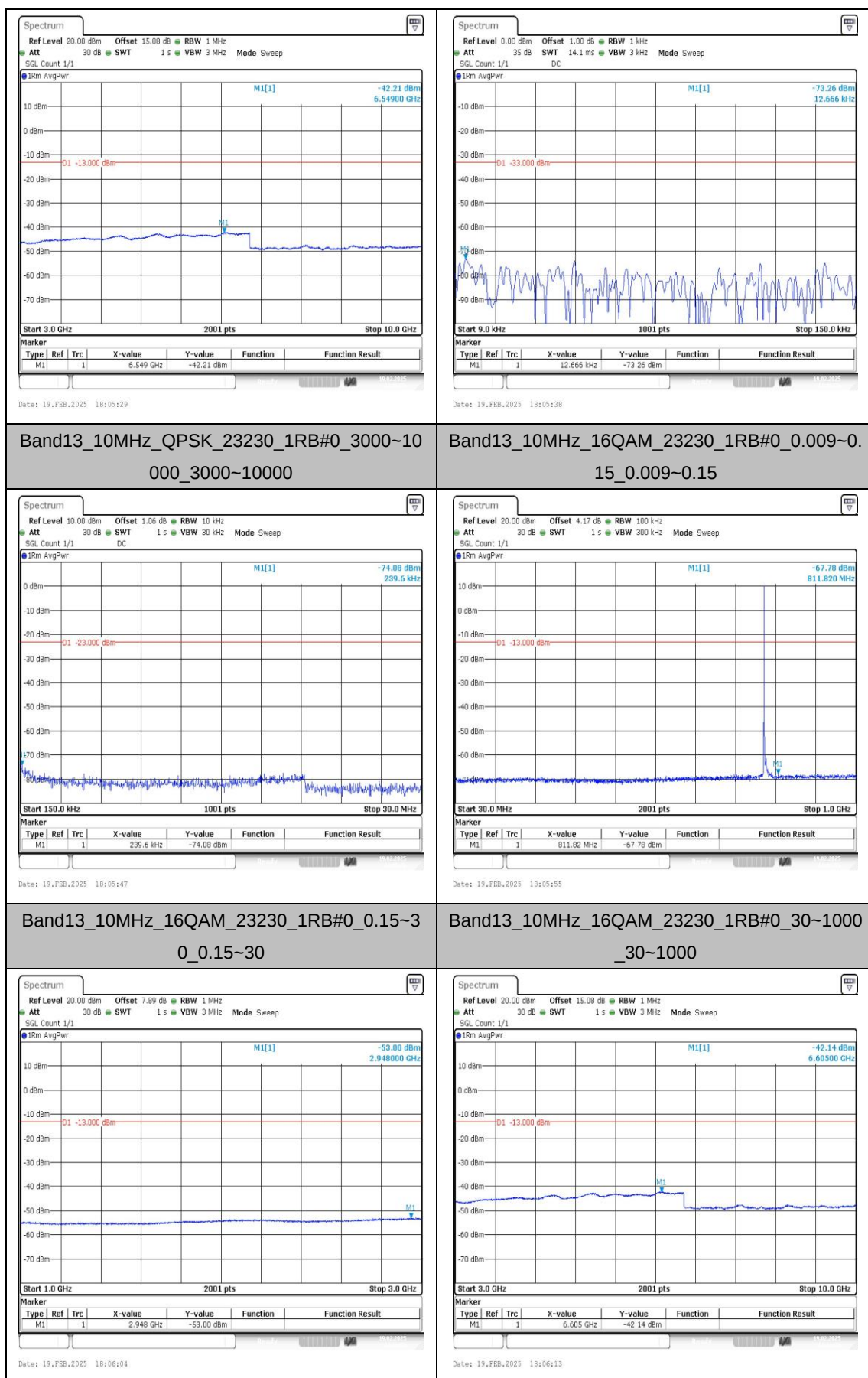












Band13_10MHz_16QAM_23230_1RB#0_1000~3000_1000~3000	Band13_10MHz_16QAM_23230_1RB#0_3000~10000_3000~10000
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Appendix F: Frequency Stability

Test Result

Voltage										
Band	Bandwidth	Modulation	Channel	RB Configure	Voltage [Vdc]	Temperature (°C)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)	Verdict
Band13	5MHz	QPSK	23205	25RB#0	VN	NT	-1.69	-0.002168	±2.5	PASS
Band13	5MHz	QPSK	23205	25RB#0	VL	NT	2.10	0.002694	±2.5	PASS
Band13	5MHz	QPSK	23205	25RB#0	VH	NT	3.36	0.004310	±2.5	PASS
Band13	5MHz	16QAM	23205	25RB#0	VN	NT	4.81	0.006171	±2.5	PASS
Band13	5MHz	16QAM	23205	25RB#0	VL	NT	3.72	0.004772	±2.5	PASS
Band13	5MHz	16QAM	23205	25RB#0	VH	NT	3.86	0.004952	±2.5	PASS
Band13	5MHz	QPSK	23230	25RB#0	VN	NT	2.52	0.003223	±2.5	PASS
Band13	5MHz	QPSK	23230	25RB#0	VL	NT	-1.06	-0.001355	±2.5	PASS
Band13	5MHz	QPSK	23230	25RB#0	VH	NT	0.93	0.001189	±2.5	PASS
Band13	5MHz	16QAM	23230	25RB#0	VN	NT	1.96	0.002506	±2.5	PASS
Band13	5MHz	16QAM	23230	25RB#0	VL	NT	-2.03	-0.002596	±2.5	PASS
Band13	5MHz	16QAM	23230	25RB#0	VH	NT	-2.88	-0.003683	±2.5	PASS
Band13	5MHz	QPSK	23255	25RB#0	VN	NT	3.56	0.004538	±2.5	PASS
Band13	5MHz	QPSK	23255	25RB#0	VL	NT	1.30	0.001657	±2.5	PASS
Band13	5MHz	QPSK	23255	25RB#0	VH	NT	1.44	0.001836	±2.5	PASS
Band13	5MHz	16QAM	23255	25RB#0	VN	NT	3.20	0.004079	±2.5	PASS
Band13	5MHz	16QAM	23255	25RB#0	VL	NT	3.52	0.004487	±2.5	PASS
Band13	5MHz	16QAM	23255	25RB#0	VH	NT	1.46	0.001861	±2.5	PASS
Band13	10MHz	QPSK	23230	50RB#0	VN	NT	2.40	0.003069	±2.5	PASS
Band13	10MHz	QPSK	23230	50RB#0	VL	NT	3.65	0.004668	±2.5	PASS
Band13	10MHz	QPSK	23230	50RB#0	VH	NT	3.78	0.004834	±2.5	PASS
Band13	10MHz	16QAM	23230	50RB#0	VN	NT	-2.23	-0.002852	±2.5	PASS
Band13	10MHz	16QAM	23230	50RB#0	VL	NT	-1.47	-0.001880	±2.5	PASS
Band13	10MHz	16QAM	23230	50RB#0	VH	NT	-1.67	-0.002136	±2.5	PASS

Temperature										
Band	Bandwidth	Modulation	Channel	RB Configure	Voltage [Vdc]	Temperature (°C)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)	Verdict
Band13	5MHz	QPSK	23205	25RB#0	NV	-30	1.83	0.002348	±2.5	PASS
Band13	5MHz	QPSK	23205	25RB#0	NV	-20	2.53	0.003246	±2.5	PASS
Band13	5MHz	QPSK	23205	25RB#0	NV	-10	-0.74	-0.000949	±2.5	PASS
Band13	5MHz	QPSK	23205	25RB#0	NV	0	2.16	0.002771	±2.5	PASS
Band13	5MHz	QPSK	23205	25RB#0	NV	10	2.40	0.003079	±2.5	PASS

Band13	5MHz	QPSK	23205	25RB#0	NV	20	3.09	0.003964	±2.5	PASS
Band13	5MHz	QPSK	23205	25RB#0	NV	30	2.52	0.003233	±2.5	PASS
Band13	5MHz	QPSK	23205	25RB#0	NV	40	2.00	0.002566	±2.5	PASS
Band13	5MHz	QPSK	23205	25RB#0	NV	50	2.03	0.002604	±2.5	PASS
Band13	5MHz	16QAM	23205	25RB#0	NV	-30	2.50	0.003207	±2.5	PASS
Band13	5MHz	16QAM	23205	25RB#0	NV	-20	0.84	0.001078	±2.5	PASS
Band13	5MHz	16QAM	23205	25RB#0	NV	-10	3.93	0.005042	±2.5	PASS
Band13	5MHz	16QAM	23205	25RB#0	NV	0	2.92	0.003746	±2.5	PASS
Band13	5MHz	16QAM	23205	25RB#0	NV	10	2.93	0.003759	±2.5	PASS
Band13	5MHz	16QAM	23205	25RB#0	NV	20	1.72	0.002207	±2.5	PASS
Band13	5MHz	16QAM	23205	25RB#0	NV	30	3.23	0.004144	±2.5	PASS
Band13	5MHz	16QAM	23205	25RB#0	NV	40	2.15	0.002758	±2.5	PASS
Band13	5MHz	16QAM	23205	25RB#0	NV	50	3.23	0.004144	±2.5	PASS
Band13	5MHz	QPSK	23230	25RB#0	NV	-30	1.32	0.001688	±2.5	PASS
Band13	5MHz	QPSK	23230	25RB#0	NV	-20	1.36	0.001739	±2.5	PASS
Band13	5MHz	QPSK	23230	25RB#0	NV	-10	1.40	0.001790	±2.5	PASS
Band13	5MHz	QPSK	23230	25RB#0	NV	0	1.46	0.001867	±2.5	PASS
Band13	5MHz	QPSK	23230	25RB#0	NV	10	1.70	0.002174	±2.5	PASS
Band13	5MHz	QPSK	23230	25RB#0	NV	20	1.27	0.001624	±2.5	PASS
Band13	5MHz	QPSK	23230	25RB#0	NV	30	-1.13	-0.001445	±2.5	PASS
Band13	5MHz	QPSK	23230	25RB#0	NV	40	1.87	0.002391	±2.5	PASS
Band13	5MHz	QPSK	23230	25RB#0	NV	50	1.90	0.002430	±2.5	PASS
Band13	5MHz	16QAM	23230	25RB#0	NV	-30	-3.00	-0.003836	±2.5	PASS
Band13	5MHz	16QAM	23230	25RB#0	NV	-20	2.88	0.003683	±2.5	PASS
Band13	5MHz	16QAM	23230	25RB#0	NV	-10	-1.02	-0.001304	±2.5	PASS
Band13	5MHz	16QAM	23230	25RB#0	NV	0	-2.47	-0.003159	±2.5	PASS
Band13	5MHz	16QAM	23230	25RB#0	NV	10	-2.75	-0.003517	±2.5	PASS
Band13	5MHz	16QAM	23230	25RB#0	NV	20	-1.12	-0.001432	±2.5	PASS
Band13	5MHz	16QAM	23230	25RB#0	NV	30	2.36	0.003018	±2.5	PASS
Band13	5MHz	16QAM	23230	25RB#0	NV	40	-2.53	-0.003235	±2.5	PASS
Band13	5MHz	16QAM	23230	25RB#0	NV	50	1.43	0.001829	±2.5	PASS
Band13	5MHz	QPSK	23255	25RB#0	NV	-30	1.60	0.002040	±2.5	PASS
Band13	5MHz	QPSK	23255	25RB#0	NV	-20	3.26	0.004156	±2.5	PASS
Band13	5MHz	QPSK	23255	25RB#0	NV	-10	3.38	0.004308	±2.5	PASS
Band13	5MHz	QPSK	23255	25RB#0	NV	0	3.05	0.003888	±2.5	PASS
Band13	5MHz	QPSK	23255	25RB#0	NV	10	4.02	0.005124	±2.5	PASS
Band13	5MHz	QPSK	23255	25RB#0	NV	20	4.02	0.005124	±2.5	PASS
Band13	5MHz	QPSK	23255	25RB#0	NV	30	4.23	0.005392	±2.5	PASS
Band13	5MHz	QPSK	23255	25RB#0	NV	40	3.32	0.004232	±2.5	PASS
Band13	5MHz	QPSK	23255	25RB#0	NV	50	1.39	0.001772	±2.5	PASS

Band13	5MHz	16QAM	23255	25RB#0	NV	-30	2.79	0.003556	±2.5	PASS
Band13	5MHz	16QAM	23255	25RB#0	NV	-20	2.80	0.003569	±2.5	PASS
Band13	5MHz	16QAM	23255	25RB#0	NV	-10	0.80	0.001020	±2.5	PASS
Band13	5MHz	16QAM	23255	25RB#0	NV	0	2.06	0.002626	±2.5	PASS
Band13	5MHz	16QAM	23255	25RB#0	NV	10	3.38	0.004308	±2.5	PASS
Band13	5MHz	16QAM	23255	25RB#0	NV	20	1.93	0.002460	±2.5	PASS
Band13	5MHz	16QAM	23255	25RB#0	NV	30	1.65	0.002103	±2.5	PASS
Band13	5MHz	16QAM	23255	25RB#0	NV	40	-1.89	-0.002409	±2.5	PASS
Band13	5MHz	16QAM	23255	25RB#0	NV	50	-1.22	-0.001555	±2.5	PASS
Band13	10MHz	QPSK	23230	50RB#0	NV	-30	-1.75	-0.002238	±2.5	PASS
Band13	10MHz	QPSK	23230	50RB#0	NV	-20	-2.93	-0.003747	±2.5	PASS
Band13	10MHz	QPSK	23230	50RB#0	NV	-10	-2.05	-0.002621	±2.5	PASS
Band13	10MHz	QPSK	23230	50RB#0	NV	0	-1.93	-0.002468	±2.5	PASS
Band13	10MHz	QPSK	23230	50RB#0	NV	10	-0.90	-0.001151	±2.5	PASS
Band13	10MHz	QPSK	23230	50RB#0	NV	20	-2.15	-0.002749	±2.5	PASS
Band13	10MHz	QPSK	23230	50RB#0	NV	30	-1.66	-0.002123	±2.5	PASS
Band13	10MHz	QPSK	23230	50RB#0	NV	40	1.54	0.001969	±2.5	PASS
Band13	10MHz	QPSK	23230	50RB#0	NV	50	-3.46	-0.004425	±2.5	PASS
Band13	10MHz	16QAM	23230	50RB#0	NV	-30	3.30	0.004220	±2.5	PASS
Band13	10MHz	16QAM	23230	50RB#0	NV	-20	2.16	0.002762	±2.5	PASS
Band13	10MHz	16QAM	23230	50RB#0	NV	-10	1.06	0.001355	±2.5	PASS
Band13	10MHz	16QAM	23230	50RB#0	NV	0	-1.46	-0.001867	±2.5	PASS
Band13	10MHz	16QAM	23230	50RB#0	NV	10	-2.57	-0.003286	±2.5	PASS
Band13	10MHz	16QAM	23230	50RB#0	NV	20	1.76	0.002251	±2.5	PASS
Band13	10MHz	16QAM	23230	50RB#0	NV	30	-1.53	-0.001957	±2.5	PASS
Band13	10MHz	16QAM	23230	50RB#0	NV	40	-2.60	-0.003325	±2.5	PASS
Band13	10MHz	16QAM	23230	50RB#0	NV	50	-1.69	-0.002161	±2.5	PASS