



TD-LTE/LTE FDD terminal

M/N:HP-N323

FCC ID:2BN5N-HPN323

Applicant:HPYJ USA LLC

Appendix for LTE Band 12



Appendix A: Conducted Power Output Data

Test Result

Band	Bandwidth	Modulation	Channel	RB Configuration	Result(dBm)	Verdict
Band12	1.4MHz	QPSK	23017	1RB#0	22.71	PASS
Band12	1.4MHz	QPSK	23017	1RB#2	22.19	PASS
Band12	1.4MHz	QPSK	23017	1RB#5	22.01	PASS
Band12	1.4MHz	QPSK	23017	3RB#0	22.33	PASS
Band12	1.4MHz	QPSK	23017	3RB#1	22.34	PASS
Band12	1.4MHz	QPSK	23017	3RB#3	22.13	PASS
Band12	1.4MHz	QPSK	23017	6RB#0	21.34	PASS
Band12	1.4MHz	16QAM	23017	1RB#0	21.52	PASS
Band12	1.4MHz	16QAM	23017	1RB#2	21.21	PASS
Band12	1.4MHz	16QAM	23017	1RB#5	20.98	PASS
Band12	1.4MHz	16QAM	23017	3RB#0	21.26	PASS
Band12	1.4MHz	16QAM	23017	3RB#1	21.27	PASS
Band12	1.4MHz	16QAM	23017	3RB#3	21.05	PASS
Band12	1.4MHz	16QAM	23017	6RB#0	20.28	PASS
Band12	1.4MHz	QPSK	23095	1RB#0	24.29	PASS
Band12	1.4MHz	QPSK	23095	1RB#2	24.11	PASS
Band12	1.4MHz	QPSK	23095	1RB#5	24.01	PASS
Band12	1.4MHz	QPSK	23095	3RB#0	24.24	PASS
Band12	1.4MHz	QPSK	23095	3RB#1	24.23	PASS
Band12	1.4MHz	QPSK	23095	3RB#3	24.10	PASS
Band12	1.4MHz	QPSK	23095	6RB#0	23.27	PASS
Band12	1.4MHz	16QAM	23095	1RB#0	23.08	PASS
Band12	1.4MHz	16QAM	23095	1RB#2	22.98	PASS
Band12	1.4MHz	16QAM	23095	1RB#5	22.87	PASS
Band12	1.4MHz	16QAM	23095	3RB#0	23.06	PASS
Band12	1.4MHz	16QAM	23095	3RB#1	23.06	PASS
Band12	1.4MHz	16QAM	23095	3RB#3	22.92	PASS
Band12	1.4MHz	16QAM	23095	6RB#0	22.35	PASS
Band12	1.4MHz	QPSK	23173	1RB#0	23.65	PASS
Band12	1.4MHz	QPSK	23173	1RB#2	23.30	PASS
Band12	1.4MHz	QPSK	23173	1RB#5	22.93	PASS
Band12	1.4MHz	QPSK	23173	3RB#0	23.46	PASS
Band12	1.4MHz	QPSK	23173	3RB#1	23.44	PASS
Band12	1.4MHz	QPSK	23173	3RB#3	23.03	PASS
Band12	1.4MHz	QPSK	23173	6RB#0	22.43	PASS
Band12	1.4MHz	16QAM	23173	1RB#0	22.59	PASS
Band12	1.4MHz	16QAM	23173	1RB#2	22.45	PASS

**Shenzhen GUOREN Certification Technology Service Co.,Ltd Ltd.**

No.:GRCTR250202015-05

Band12	1.4MHz	16QAM	23173	1RB#5	22.03	PASS
Band12	1.4MHz	16QAM	23173	3RB#0	22.39	PASS
Band12	1.4MHz	16QAM	23173	3RB#1	22.37	PASS
Band12	1.4MHz	16QAM	23173	3RB#3	22.04	PASS
Band12	1.4MHz	16QAM	23173	6RB#0	21.67	PASS
Band12	3MHz	QPSK	23025	1RB#0	22.76	PASS
Band12	3MHz	QPSK	23025	1RB#8	22.05	PASS
Band12	3MHz	QPSK	23025	1RB#14	21.75	PASS
Band12	3MHz	QPSK	23025	8RB#0	21.46	PASS
Band12	3MHz	QPSK	23025	8RB#4	21.49	PASS
Band12	3MHz	QPSK	23025	8RB#7	20.94	PASS
Band12	3MHz	QPSK	23025	15RB#0	21.23	PASS
Band12	3MHz	16QAM	23025	1RB#0	21.67	PASS
Band12	3MHz	16QAM	23025	1RB#8	20.92	PASS
Band12	3MHz	16QAM	23025	1RB#14	20.64	PASS
Band12	3MHz	16QAM	23025	8RB#0	20.53	PASS
Band12	3MHz	16QAM	23025	8RB#4	20.56	PASS
Band12	3MHz	16QAM	23025	8RB#7	20.04	PASS
Band12	3MHz	16QAM	23025	15RB#0	20.19	PASS
Band12	3MHz	QPSK	23095	1RB#0	24.35	PASS
Band12	3MHz	QPSK	23095	1RB#8	24.28	PASS
Band12	3MHz	QPSK	23095	1RB#14	23.61	PASS
Band12	3MHz	QPSK	23095	8RB#0	23.46	PASS
Band12	3MHz	QPSK	23095	8RB#4	23.44	PASS
Band12	3MHz	QPSK	23095	8RB#7	23.24	PASS
Band12	3MHz	QPSK	23095	15RB#0	23.34	PASS
Band12	3MHz	16QAM	23095	1RB#0	23.13	PASS
Band12	3MHz	16QAM	23095	1RB#8	23.19	PASS
Band12	3MHz	16QAM	23095	1RB#14	22.52	PASS
Band12	3MHz	16QAM	23095	8RB#0	22.45	PASS
Band12	3MHz	16QAM	23095	8RB#4	22.45	PASS
Band12	3MHz	16QAM	23095	8RB#7	22.24	PASS
Band12	3MHz	16QAM	23095	15RB#0	22.24	PASS
Band12	3MHz	QPSK	23165	1RB#0	22.36	PASS
Band12	3MHz	QPSK	23165	1RB#8	23.59	PASS
Band12	3MHz	QPSK	23165	1RB#14	23.26	PASS
Band12	3MHz	QPSK	23165	8RB#0	22.07	PASS
Band12	3MHz	QPSK	23165	8RB#4	22.02	PASS
Band12	3MHz	QPSK	23165	8RB#7	22.72	PASS
Band12	3MHz	QPSK	23165	15RB#0	22.45	PASS
Band12	3MHz	16QAM	23165	1RB#0	21.42	PASS
Band12	3MHz	16QAM	23165	1RB#8	22.71	PASS

**Shenzhen GUOREN Certification Technology Service Co.,Ltd Ltd.**

No.:GRCTR250202015-05

Band12	3MHz	16QAM	23165	1RB#14	22.42	PASS
Band12	3MHz	16QAM	23165	8RB#0	21.15	PASS
Band12	3MHz	16QAM	23165	8RB#4	21.15	PASS
Band12	3MHz	16QAM	23165	8RB#7	21.89	PASS
Band12	3MHz	16QAM	23165	15RB#0	21.56	PASS
Band12	5MHz	QPSK	23035	1RB#0	22.93	PASS
Band12	5MHz	QPSK	23035	1RB#12	21.85	PASS
Band12	5MHz	QPSK	23035	1RB#24	22.32	PASS
Band12	5MHz	QPSK	23035	12RB#0	21.22	PASS
Band12	5MHz	QPSK	23035	12RB#6	21.27	PASS
Band12	5MHz	QPSK	23035	12RB#13	21.04	PASS
Band12	5MHz	QPSK	23035	25RB#0	21.10	PASS
Band12	5MHz	16QAM	23035	1RB#0	22.00	PASS
Band12	5MHz	16QAM	23035	1RB#12	20.99	PASS
Band12	5MHz	16QAM	23035	1RB#24	21.47	PASS
Band12	5MHz	16QAM	23035	12RB#0	20.44	PASS
Band12	5MHz	16QAM	23035	12RB#6	20.42	PASS
Band12	5MHz	16QAM	23035	12RB#13	20.12	PASS
Band12	5MHz	16QAM	23035	25RB#0	20.13	PASS
Band12	5MHz	QPSK	23095	1RB#0	23.95	PASS
Band12	5MHz	QPSK	23095	1RB#12	24.36	PASS
Band12	5MHz	QPSK	23095	1RB#24	23.18	PASS
Band12	5MHz	QPSK	23095	12RB#0	23.28	PASS
Band12	5MHz	QPSK	23095	12RB#6	23.25	PASS
Band12	5MHz	QPSK	23095	12RB#13	22.78	PASS
Band12	5MHz	QPSK	23095	25RB#0	23.12	PASS
Band12	5MHz	16QAM	23095	1RB#0	22.79	PASS
Band12	5MHz	16QAM	23095	1RB#12	23.34	PASS
Band12	5MHz	16QAM	23095	1RB#24	22.20	PASS
Band12	5MHz	16QAM	23095	12RB#0	22.30	PASS
Band12	5MHz	16QAM	23095	12RB#6	22.28	PASS
Band12	5MHz	16QAM	23095	12RB#13	21.90	PASS
Band12	5MHz	16QAM	23095	25RB#0	22.11	PASS
Band12	5MHz	QPSK	23155	1RB#0	22.35	PASS
Band12	5MHz	QPSK	23155	1RB#12	22.86	PASS
Band12	5MHz	QPSK	23155	1RB#24	23.64	PASS
Band12	5MHz	QPSK	23155	12RB#0	21.11	PASS
Band12	5MHz	QPSK	23155	12RB#6	21.13	PASS
Band12	5MHz	QPSK	23155	12RB#13	22.59	PASS
Band12	5MHz	QPSK	23155	25RB#0	21.87	PASS
Band12	5MHz	16QAM	23155	1RB#0	21.29	PASS
Band12	5MHz	16QAM	23155	1RB#12	21.82	PASS

**Shenzhen GUOREN Certification Technology Service Co.,Ltd Ltd.**

No.:GRCTR250202015-05

Band12	5MHz	16QAM	23155	1RB#24	22.66	PASS
Band12	5MHz	16QAM	23155	12RB#0	20.16	PASS
Band12	5MHz	16QAM	23155	12RB#6	20.18	PASS
Band12	5MHz	16QAM	23155	12RB#13	21.61	PASS
Band12	5MHz	16QAM	23155	25RB#0	20.93	PASS
Band12	10MHz	QPSK	23060	1RB#0	22.65	PASS
Band12	10MHz	QPSK	23060	1RB#24	22.59	PASS
Band12	10MHz	QPSK	23060	1RB#49	23.93	PASS
Band12	10MHz	QPSK	23060	25RB#0	20.95	PASS
Band12	10MHz	QPSK	23060	25RB#12	20.94	PASS
Band12	10MHz	QPSK	23060	25RB#25	22.85	PASS
Band12	10MHz	QPSK	23060	50RB#0	22.01	PASS
Band12	10MHz	16QAM	23060	1RB#0	21.71	PASS
Band12	10MHz	16QAM	23060	1RB#24	21.60	PASS
Band12	10MHz	16QAM	23060	1RB#49	23.12	PASS
Band12	10MHz	16QAM	23060	25RB#0	20.02	PASS
Band12	10MHz	16QAM	23060	25RB#12	20.00	PASS
Band12	10MHz	16QAM	23060	25RB#25	21.86	PASS
Band12	10MHz	QPSK	23095	1RB#0	21.95	PASS
Band12	10MHz	QPSK	23095	1RB#24	24.32	PASS
Band12	10MHz	QPSK	23095	1RB#49	22.05	PASS
Band12	10MHz	QPSK	23095	25RB#0	22.45	PASS
Band12	10MHz	QPSK	23095	25RB#12	22.44	PASS
Band12	10MHz	QPSK	23095	25RB#25	22.06	PASS
Band12	10MHz	QPSK	23095	50RB#0	22.19	PASS
Band12	10MHz	16QAM	23095	1RB#0	20.82	PASS
Band12	10MHz	16QAM	23095	1RB#24	23.22	PASS
Band12	10MHz	16QAM	23095	1RB#49	20.90	PASS
Band12	10MHz	16QAM	23095	25RB#0	21.49	PASS
Band12	10MHz	16QAM	23095	25RB#12	21.50	PASS
Band12	10MHz	16QAM	23095	25RB#25	21.15	PASS
Band12	10MHz	QPSK	23130	1RB#0	24.40	PASS
Band12	10MHz	QPSK	23130	1RB#24	22.24	PASS
Band12	10MHz	QPSK	23130	1RB#49	23.90	PASS
Band12	10MHz	QPSK	23130	25RB#0	22.32	PASS
Band12	10MHz	QPSK	23130	25RB#12	22.41	PASS
Band12	10MHz	QPSK	23130	25RB#25	21.70	PASS
Band12	10MHz	QPSK	23130	50RB#0	22.14	PASS
Band12	10MHz	16QAM	23130	1RB#0	23.11	PASS
Band12	10MHz	16QAM	23130	1RB#24	21.14	PASS
Band12	10MHz	16QAM	23130	1RB#49	22.59	PASS
Band12	10MHz	16QAM	23130	25RB#0	21.44	PASS



Shenzhen GUOREN Certification Technology Service Co.,Ltd Ltd.

No.:GRCTR250202015-05

Band12	10MHz	16QAM	23130	25RB#12	21.46	PASS
Band12	10MHz	16QAM	23130	25RB#25	20.79	PASS



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

Test Result

Band	Bandwidth	Modulation	Channel	RB Configuration	Result(dB)	Limit(dB)	Verdict
Band12	1.4MHz	QPSK	23017	1RB#0	4.96	13	PASS
Band12	1.4MHz	QPSK	23017	6RB#0	5.56	13	PASS
Band12	1.4MHz	16QAM	23017	1RB#0	5.84	13	PASS
Band12	1.4MHz	16QAM	23017	6RB#0	6.26	13	PASS
Band12	1.4MHz	QPSK	23095	1RB#0	4.45	13	PASS
Band12	1.4MHz	QPSK	23095	6RB#0	5.01	13	PASS
Band12	1.4MHz	16QAM	23095	1RB#0	5.18	13	PASS
Band12	1.4MHz	16QAM	23095	6RB#0	5.80	13	PASS
Band12	1.4MHz	QPSK	23173	1RB#0	5.00	13	PASS
Band12	1.4MHz	QPSK	23173	6RB#0	5.35	13	PASS
Band12	1.4MHz	16QAM	23173	1RB#0	6.12	13	PASS
Band12	1.4MHz	16QAM	23173	6RB#0	6.09	13	PASS
Band12	3MHz	QPSK	23025	1RB#0	5.09	13	PASS
Band12	3MHz	QPSK	23025	15RB#0	5.75	13	PASS
Band12	3MHz	16QAM	23025	1RB#0	5.86	13	PASS
Band12	3MHz	16QAM	23025	15RB#0	6.48	13	PASS
Band12	3MHz	QPSK	23095	1RB#0	4.99	13	PASS
Band12	3MHz	QPSK	23095	15RB#0	5.30	13	PASS
Band12	3MHz	16QAM	23095	1RB#0	5.64	13	PASS
Band12	3MHz	16QAM	23095	15RB#0	6.05	13	PASS
Band12	3MHz	QPSK	23165	1RB#0	5.57	13	PASS
Band12	3MHz	QPSK	23165	15RB#0	5.50	13	PASS
Band12	3MHz	16QAM	23165	1RB#0	6.73	13	PASS
Band12	3MHz	16QAM	23165	15RB#0	6.33	13	PASS
Band12	5MHz	QPSK	23035	1RB#0	5.13	13	PASS
Band12	5MHz	QPSK	23035	25RB#0	5.85	13	PASS
Band12	5MHz	16QAM	23035	1RB#0	5.57	13	PASS
Band12	5MHz	16QAM	23035	25RB#0	6.43	13	PASS
Band12	5MHz	QPSK	23095	1RB#0	5.67	13	PASS
Band12	5MHz	QPSK	23095	25RB#0	5.30	13	PASS
Band12	5MHz	16QAM	23095	1RB#0	6.16	13	PASS
Band12	5MHz	16QAM	23095	25RB#0	6.02	13	PASS
Band12	5MHz	QPSK	23155	1RB#0	5.12	13	PASS
Band12	5MHz	QPSK	23155	25RB#0	5.73	13	PASS
Band12	5MHz	16QAM	23155	1RB#0	5.66	13	PASS
Band12	5MHz	16QAM	23155	25RB#0	6.39	13	PASS



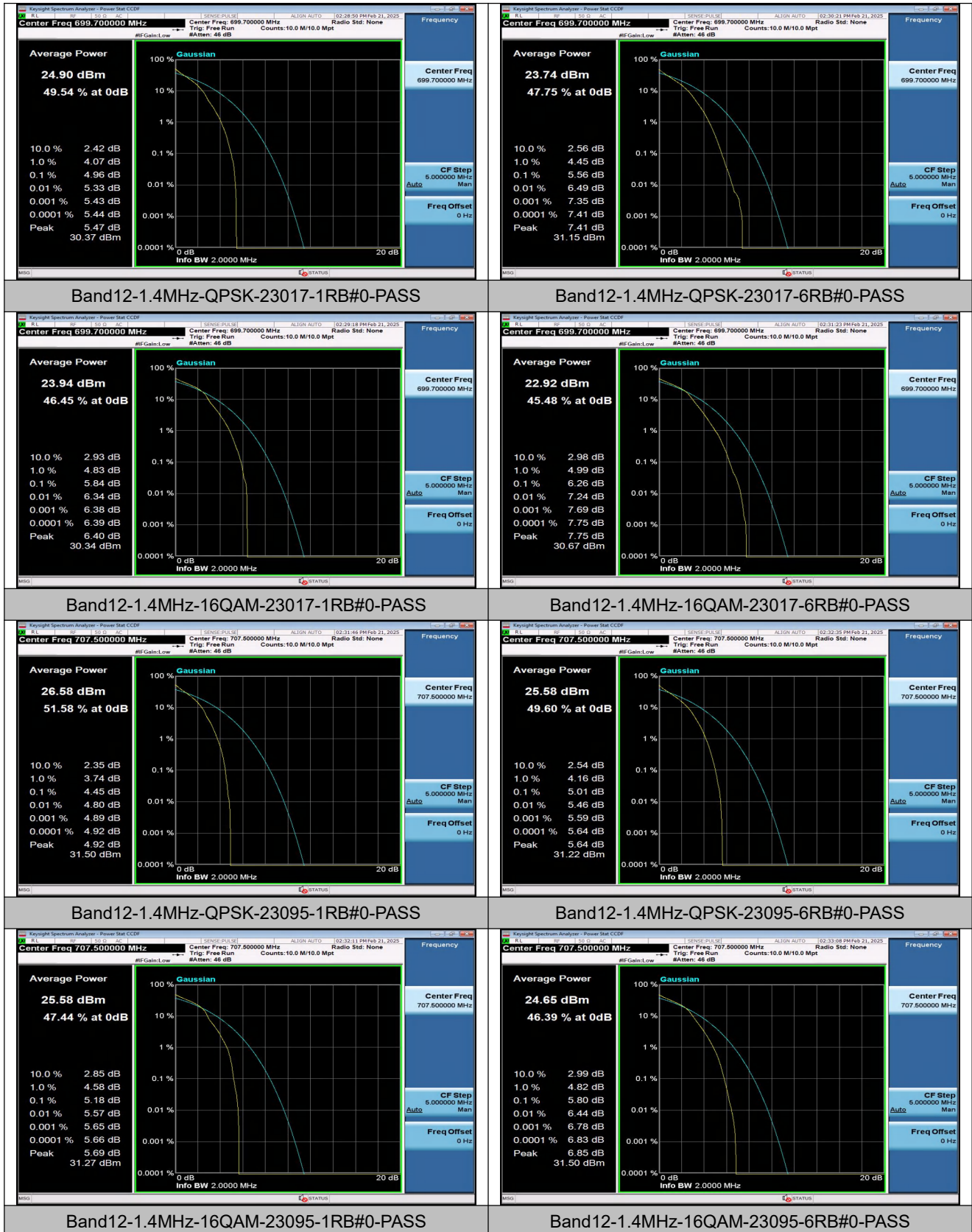
Shenzhen GUOREN Certification Technology Service Co.,Ltd Ltd.

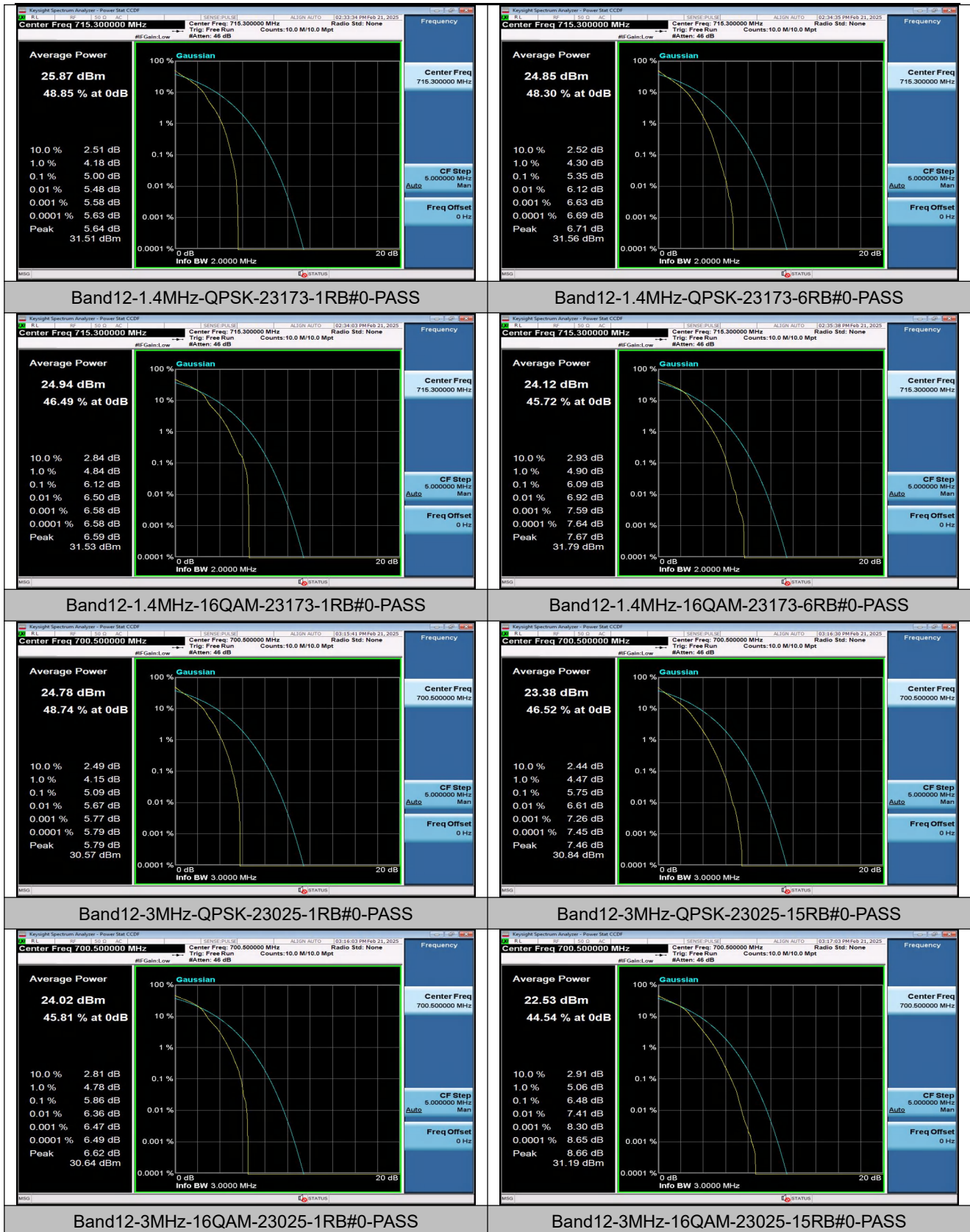
No.:GRCTR250202015-05

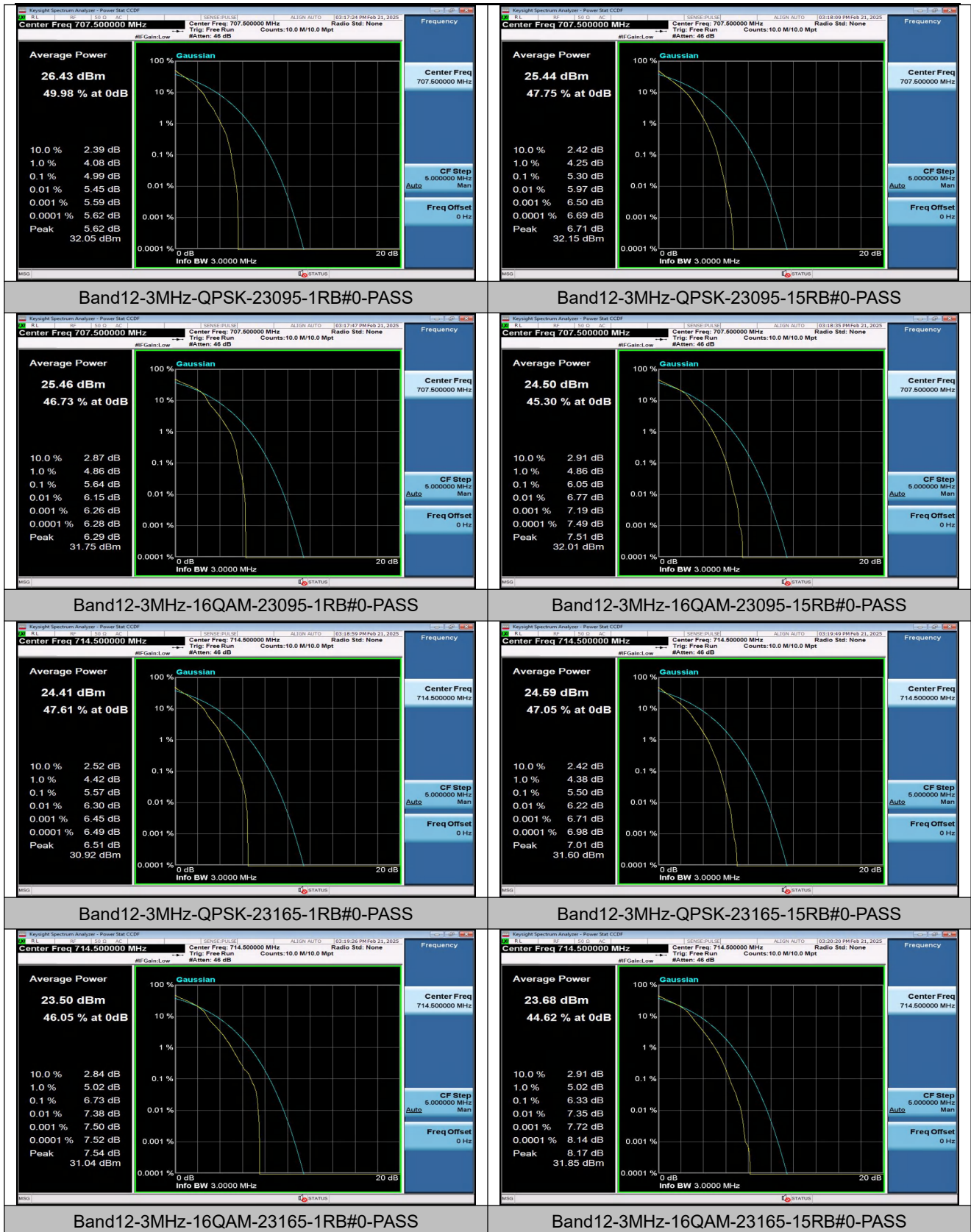
Band12	10MHz	QPSK	23060	1RB#0	5.11	13	PASS
Band12	10MHz	QPSK	23060	50RB#0	5.60	13	PASS
Band12	10MHz	16QAM	23060	1RB#0	5.75	13	PASS
Band12	10MHz	QPSK	23095	1RB#0	5.59	13	PASS
Band12	10MHz	QPSK	23095	50RB#0	5.16	13	PASS
Band12	10MHz	16QAM	23095	1RB#0	6.74	13	PASS
Band12	10MHz	QPSK	23130	1RB#0	4.71	13	PASS
Band12	10MHz	QPSK	23130	50RB#0	5.70	13	PASS
Band12	10MHz	16QAM	23130	1RB#0	5.58	13	PASS

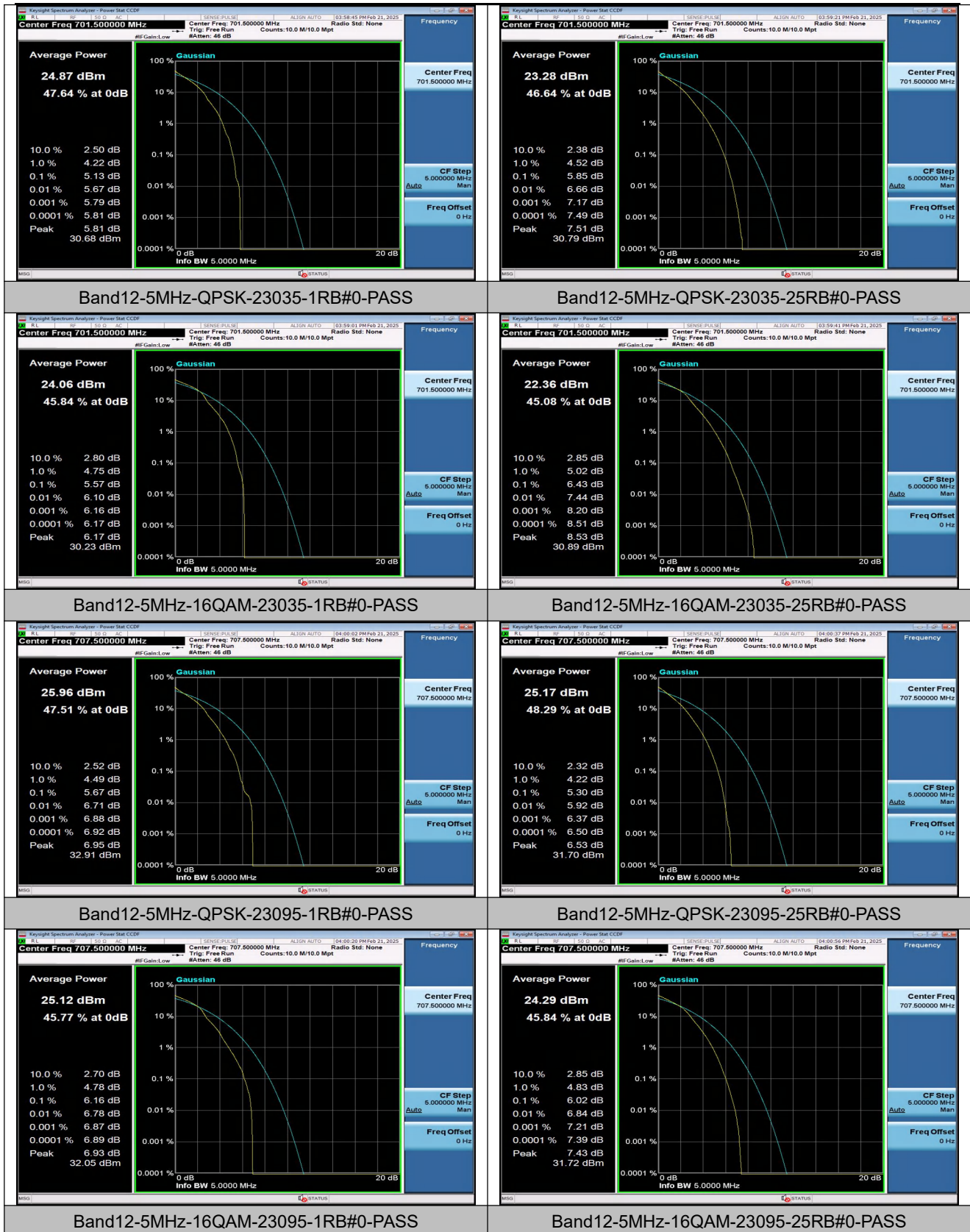


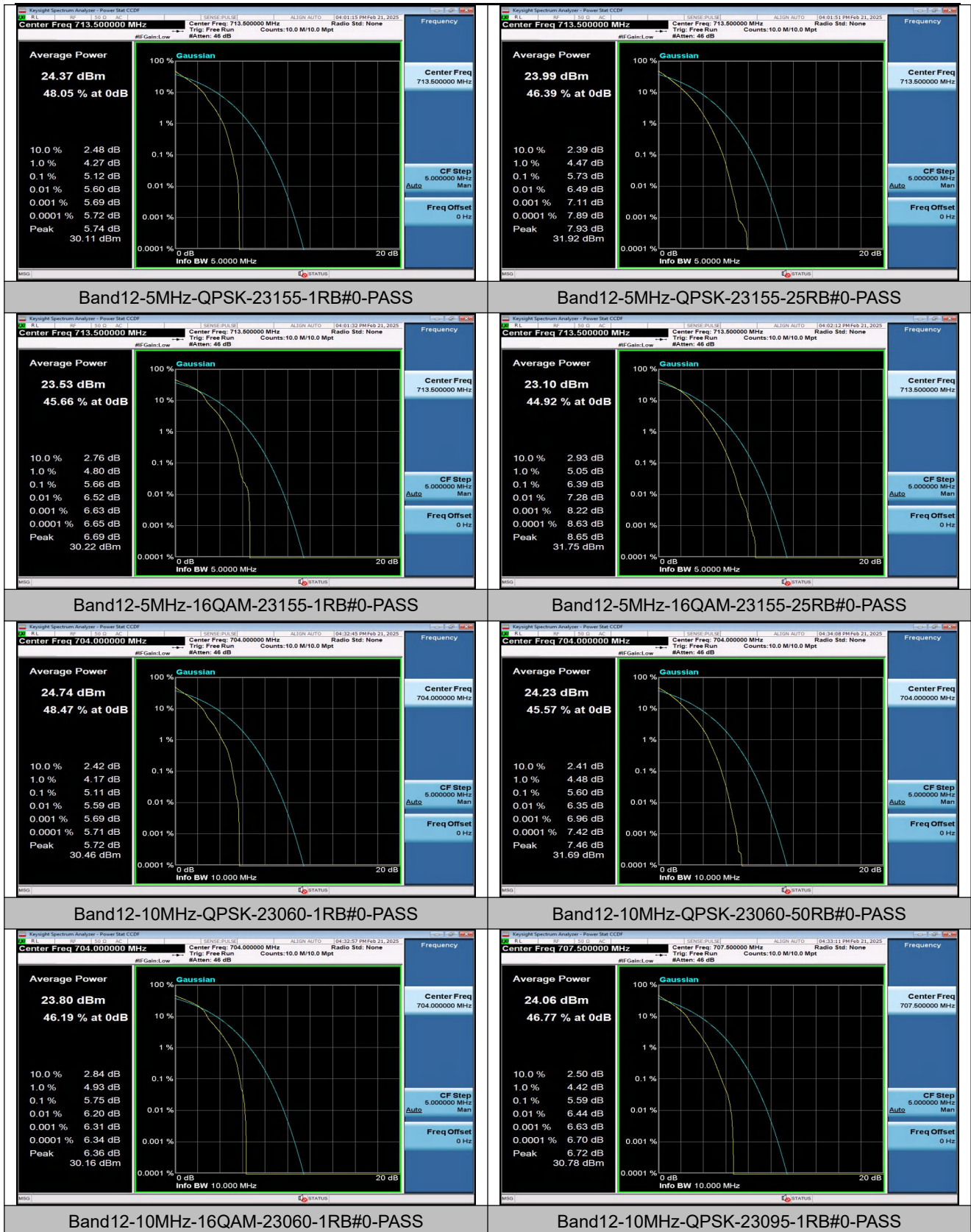
Test Graphs

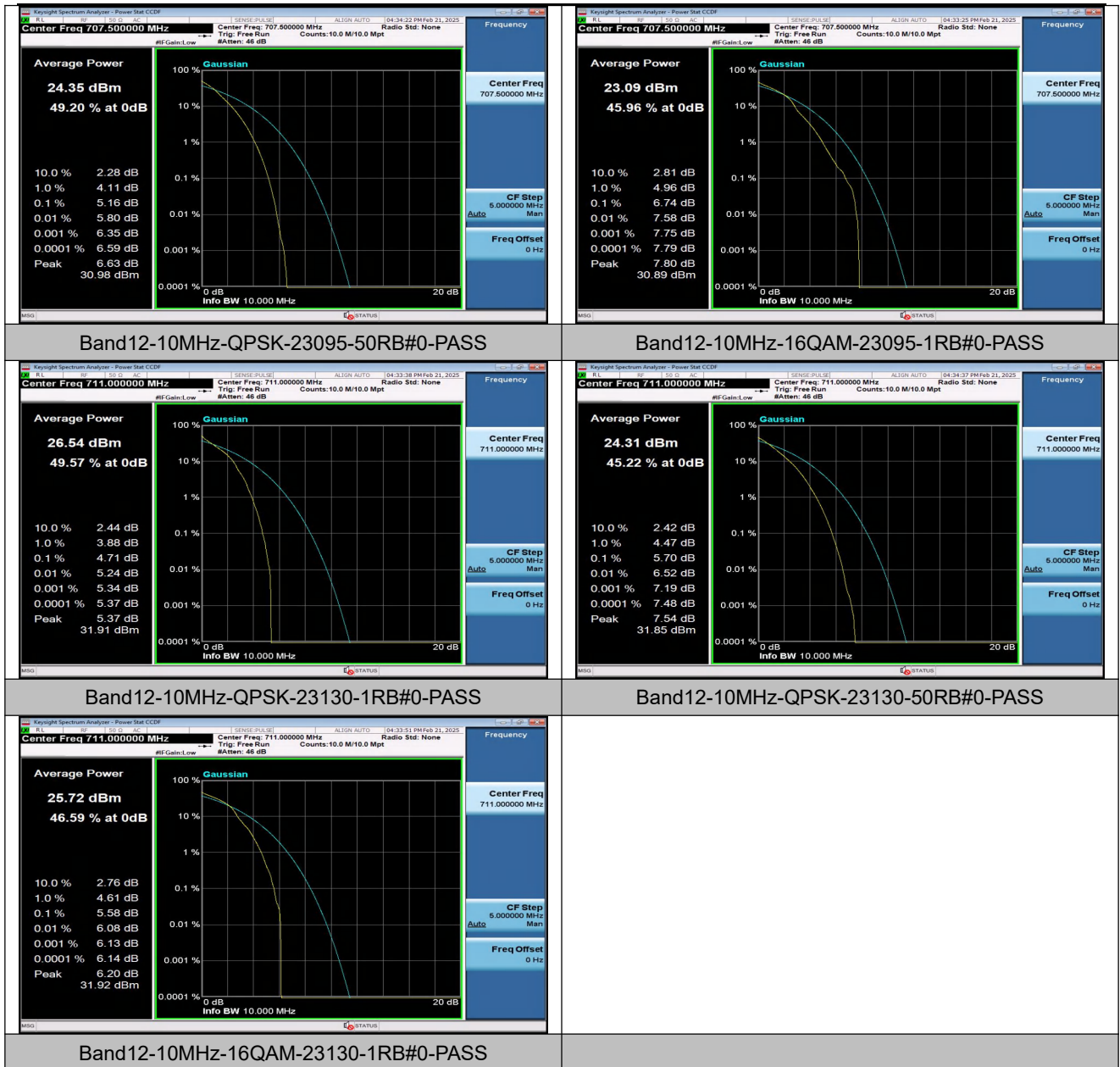














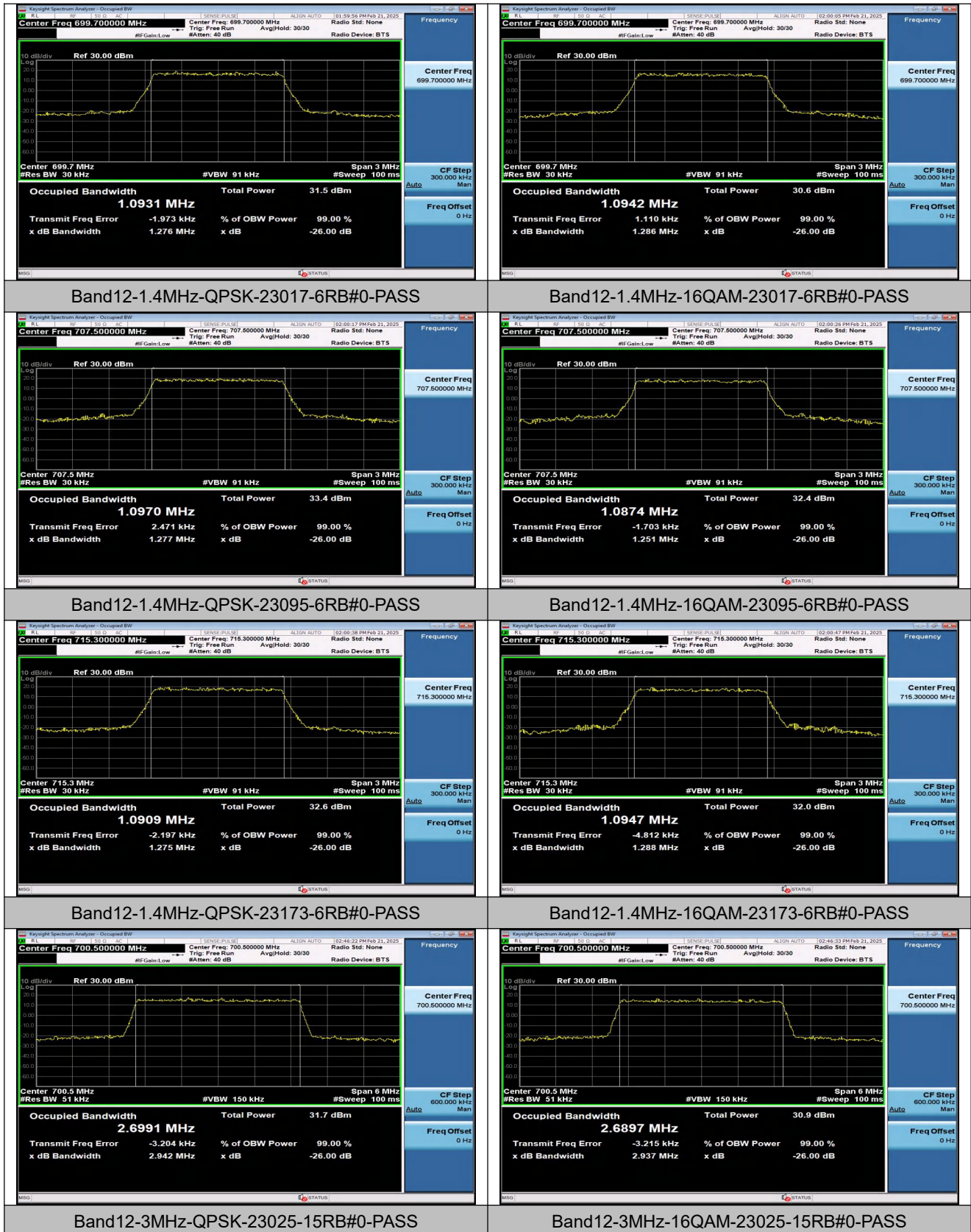
Appendix C: 26dB Bandwidth and Occupied Bandwidth

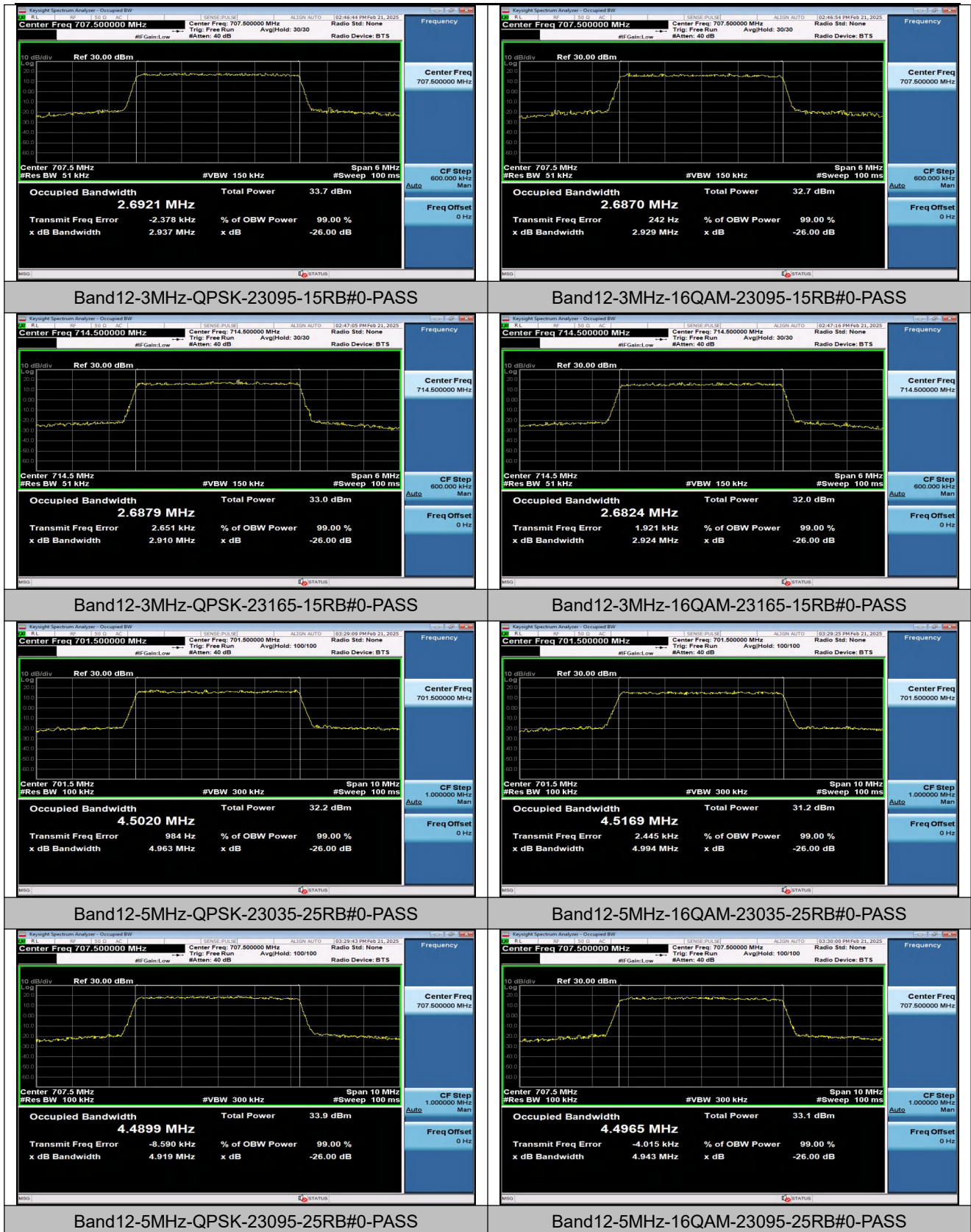
Test Result

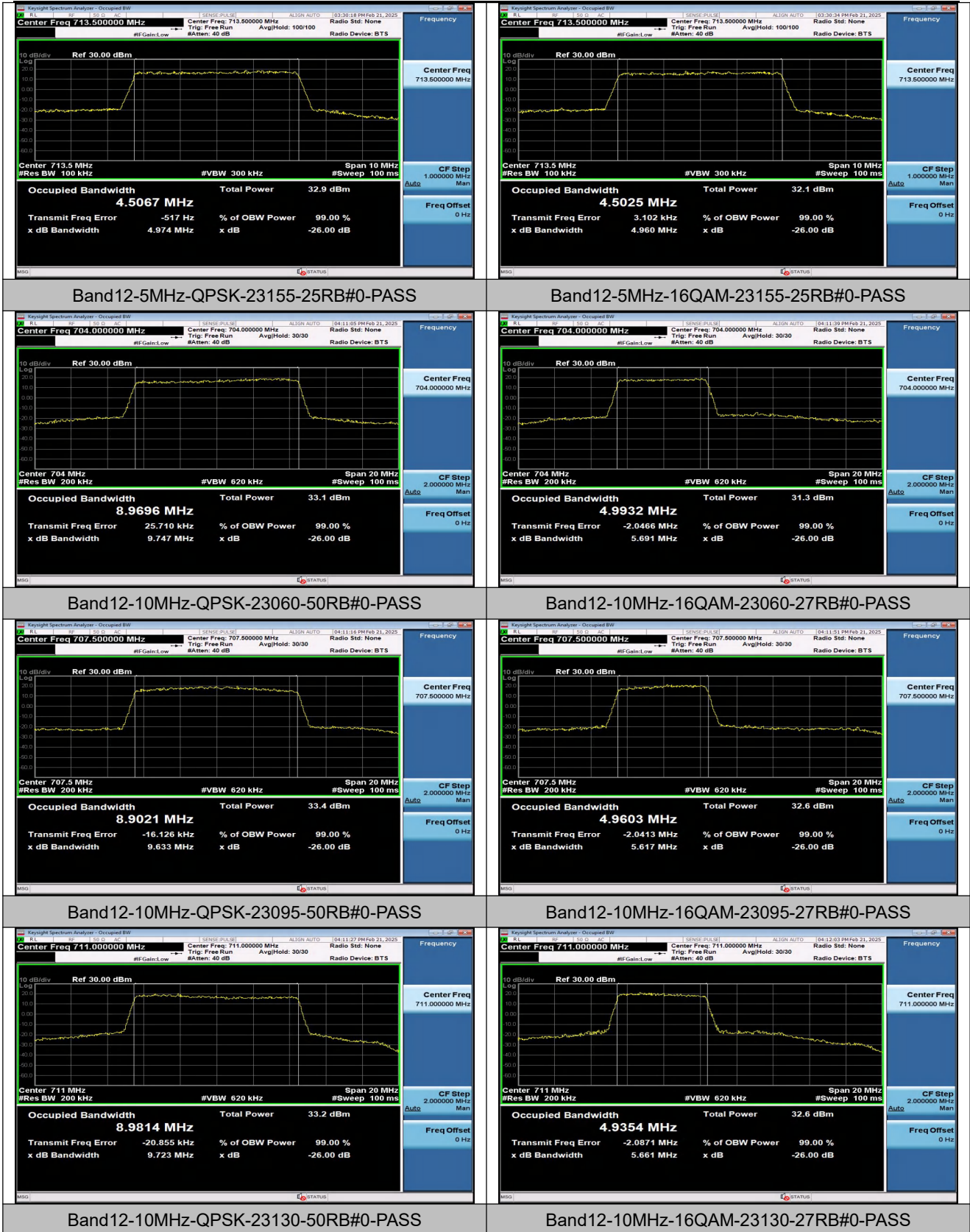
Band	Bandwidth	Modulation	Channel	RB Configuration	Occupied Bandwidth (MHz)	26dB Bandwidth (MHz)	Verdict
Band12	1.4MHz	QPSK	23017	6RB#0	1.0931	1.276	PASS
Band12	1.4MHz	16QAM	23017	6RB#0	1.0942	1.286	PASS
Band12	1.4MHz	QPSK	23095	6RB#0	1.0970	1.277	PASS
Band12	1.4MHz	16QAM	23095	6RB#0	1.0874	1.251	PASS
Band12	1.4MHz	QPSK	23173	6RB#0	1.0909	1.275	PASS
Band12	1.4MHz	16QAM	23173	6RB#0	1.0947	1.288	PASS
Band12	3MHz	QPSK	23025	15RB#0	2.6991	2.942	PASS
Band12	3MHz	16QAM	23025	15RB#0	2.6897	2.937	PASS
Band12	3MHz	QPSK	23095	15RB#0	2.6921	2.937	PASS
Band12	3MHz	16QAM	23095	15RB#0	2.6870	2.929	PASS
Band12	3MHz	QPSK	23165	15RB#0	2.6879	2.910	PASS
Band12	3MHz	16QAM	23165	15RB#0	2.6824	2.924	PASS
Band12	5MHz	QPSK	23035	25RB#0	4.5020	4.963	PASS
Band12	5MHz	16QAM	23035	25RB#0	4.5169	4.994	PASS
Band12	5MHz	QPSK	23095	25RB#0	4.4899	4.919	PASS
Band12	5MHz	16QAM	23095	25RB#0	4.4965	4.943	PASS
Band12	5MHz	QPSK	23155	25RB#0	4.5067	4.974	PASS
Band12	5MHz	16QAM	23155	25RB#0	4.5025	4.960	PASS
Band12	10MHz	QPSK	23060	50RB#0	8.9696	9.747	PASS
Band12	10MHz	16QAM	23060	27RB#0	4.9932	5.691	PASS
Band12	10MHz	QPSK	23095	50RB#0	8.9021	9.633	PASS
Band12	10MHz	16QAM	23095	27RB#0	4.9603	5.617	PASS
Band12	10MHz	QPSK	23130	50RB#0	8.9814	9.723	PASS
Band12	10MHz	16QAM	23130	27RB#0	4.9354	5.661	PASS



Test Graphs









Appendix D: Band Edge

Test Result

Band	Bandwidth	Modulation	Channel	RB Configuration	Result(dBm)	Verdict
Band12	1.4MHz	QPSK	23017	1RB#0	-24.20	PASS
Band12	1.4MHz	QPSK	23017	1RB#5	-17.72	PASS
Band12	1.4MHz	QPSK	23017	6RB#0	-24.86	PASS
Band12	1.4MHz	16QAM	23017	1RB#0	-25.39	PASS
Band12	1.4MHz	16QAM	23017	1RB#5	-19.07	PASS
Band12	1.4MHz	16QAM	23017	6RB#0	-25.20	PASS
Band12	1.4MHz	QPSK	23173	1RB#0	-23.06	PASS
Band12	1.4MHz	QPSK	23173	1RB#5	-23.93	PASS
Band12	1.4MHz	QPSK	23173	6RB#0	-26.18	PASS
Band12	1.4MHz	16QAM	23173	1RB#0	-23.38	PASS
Band12	1.4MHz	16QAM	23173	1RB#5	-26.07	PASS
Band12	1.4MHz	16QAM	23173	6RB#0	-26.09	PASS
Band12	3MHz	QPSK	23025	1RB#0	-21.70	PASS
Band12	3MHz	QPSK	23025	1RB#14	-33.04	PASS
Band12	3MHz	QPSK	23025	15RB#0	-27.80	PASS
Band12	3MHz	16QAM	23025	1RB#0	-22.92	PASS
Band12	3MHz	16QAM	23025	1RB#14	-34.11	PASS
Band12	3MHz	16QAM	23025	15RB#0	-28.56	PASS
Band12	3MHz	QPSK	23165	1RB#0	-36.29	PASS
Band12	3MHz	QPSK	23165	1RB#14	-21.73	PASS
Band12	3MHz	QPSK	23165	15RB#0	-28.87	PASS
Band12	3MHz	16QAM	23165	1RB#0	-36.98	PASS
Band12	3MHz	16QAM	23165	1RB#14	-23.59	PASS
Band12	3MHz	16QAM	23165	15RB#0	-29.49	PASS
Band12	5MHz	QPSK	23035	1RB#0	-21.96	PASS
Band12	5MHz	QPSK	23035	1RB#24	-45.82	PASS
Band12	5MHz	QPSK	23035	25RB#0	-29.52	PASS
Band12	5MHz	16QAM	23035	1RB#0	-24.32	PASS
Band12	5MHz	16QAM	23035	1RB#24	-46.07	PASS
Band12	5MHz	16QAM	23035	25RB#0	-30.43	PASS
Band12	5MHz	QPSK	23155	1RB#0	-45.62	PASS
Band12	5MHz	QPSK	23155	1RB#24	-23.28	PASS
Band12	5MHz	QPSK	23155	25RB#0	-31.23	PASS
Band12	5MHz	16QAM	23155	1RB#0	-46.45	PASS
Band12	5MHz	16QAM	23155	1RB#24	-23.87	PASS
Band12	5MHz	16QAM	23155	25RB#0	-31.58	PASS