

Appendix for LTE Band 12

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
Band12	1.4MHz	QPSK	23017	1RB#0	21.85	PASS
Band12	1.4MHz	16QAM	23017	1RB#0	20.81	PASS
Band12	1.4MHz	QPSK	23017	1RB#2	21.93	PASS
Band12	1.4MHz	16QAM	23017	1RB#2	20.80	PASS
Band12	1.4MHz	QPSK	23017	1RB#5	21.85	PASS
Band12	1.4MHz	16QAM	23017	1RB#5	20.85	PASS
Band12	1.4MHz	QPSK	23017	3RB#0	21.89	PASS
Band12	1.4MHz	16QAM	23017	3RB#0	20.81	PASS
Band12	1.4MHz	QPSK	23017	3RB#1	21.87	PASS
Band12	1.4MHz	16QAM	23017	3RB#1	20.91	PASS
Band12	1.4MHz	QPSK	23017	3RB#3	21.87	PASS
Band12	1.4MHz	16QAM	23017	3RB#3	20.80	PASS
Band12	1.4MHz	QPSK	23017	6RB#0	20.92	PASS
Band12	1.4MHz	16QAM	23017	6RB#0	19.78	PASS
Band12	1.4MHz	QPSK	23095	1RB#0	21.87	PASS
Band12	1.4MHz	16QAM	23095	1RB#0	20.69	PASS
Band12	1.4MHz	QPSK	23095	1RB#2	21.87	PASS
Band12	1.4MHz	16QAM	23095	1RB#2	20.88	PASS
Band12	1.4MHz	QPSK	23095	1RB#5	21.89	PASS
Band12	1.4MHz	16QAM	23095	1RB#5	20.78	PASS
Band12	1.4MHz	QPSK	23095	3RB#0	21.91	PASS
Band12	1.4MHz	16QAM	23095	3RB#0	20.90	PASS
Band12	1.4MHz	QPSK	23095	3RB#1	21.90	PASS
Band12	1.4MHz	16QAM	23095	3RB#1	20.89	PASS
Band12	1.4MHz	QPSK	23095	3RB#3	21.94	PASS
Band12	1.4MHz	16QAM	23095	3RB#3	20.95	PASS
Band12	1.4MHz	QPSK	23095	6RB#0	20.93	PASS
Band12	1.4MHz	16QAM	23095	6RB#0	19.88	PASS
Band12	1.4MHz	QPSK	23173	1RB#0	21.92	PASS
Band12	1.4MHz	16QAM	23173	1RB#0	20.90	PASS
Band12	1.4MHz	QPSK	23173	1RB#2	21.84	PASS
Band12	1.4MHz	16QAM	23173	1RB#2	20.90	PASS
Band12	1.4MHz	QPSK	23173	1RB#5	21.87	PASS
Band12	1.4MHz	16QAM	23173	1RB#5	20.89	PASS
Band12	1.4MHz	QPSK	23173	3RB#0	21.87	PASS

Band12	1.4MHz	16QAM	23173	3RB#0	20.85	PASS
Band12	1.4MHz	QPSK	23173	3RB#1	21.89	PASS
Band12	1.4MHz	16QAM	23173	3RB#1	20.97	PASS
Band12	1.4MHz	QPSK	23173	3RB#3	21.87	PASS
Band12	1.4MHz	16QAM	23173	3RB#3	20.83	PASS
Band12	1.4MHz	QPSK	23173	6RB#0	20.91	PASS
Band12	1.4MHz	16QAM	23173	6RB#0	19.92	PASS
Band12	3MHz	QPSK	23025	1RB#0	21.84	PASS
Band12	3MHz	16QAM	23025	1RB#0	20.86	PASS
Band12	3MHz	QPSK	23025	1RB#8	21.95	PASS
Band12	3MHz	16QAM	23025	1RB#8	20.83	PASS
Band12	3MHz	QPSK	23025	1RB#14	21.89	PASS
Band12	3MHz	16QAM	23025	1RB#14	20.89	PASS
Band12	3MHz	QPSK	23025	8RB#0	20.97	PASS
Band12	3MHz	16QAM	23025	8RB#0	19.91	PASS
Band12	3MHz	QPSK	23025	8RB#4	20.97	PASS
Band12	3MHz	16QAM	23025	8RB#4	19.99	PASS
Band12	3MHz	QPSK	23025	8RB#7	20.96	PASS
Band12	3MHz	16QAM	23025	8RB#7	19.93	PASS
Band12	3MHz	QPSK	23025	15RB#0	20.96	PASS
Band12	3MHz	16QAM	23025	15RB#0	19.95	PASS
Band12	3MHz	QPSK	23095	1RB#0	21.87	PASS
Band12	3MHz	16QAM	23095	1RB#0	20.67	PASS
Band12	3MHz	QPSK	23095	1RB#8	21.97	PASS
Band12	3MHz	16QAM	23095	1RB#8	20.94	PASS
Band12	3MHz	QPSK	23095	1RB#14	21.89	PASS
Band12	3MHz	16QAM	23095	1RB#14	20.96	PASS
Band12	3MHz	QPSK	23095	8RB#0	20.89	PASS
Band12	3MHz	16QAM	23095	8RB#0	19.86	PASS
Band12	3MHz	QPSK	23095	8RB#4	20.93	PASS
Band12	3MHz	16QAM	23095	8RB#4	19.92	PASS
Band12	3MHz	QPSK	23095	8RB#7	20.98	PASS
Band12	3MHz	16QAM	23095	8RB#7	20.00	PASS
Band12	3MHz	QPSK	23095	15RB#0	20.91	PASS
Band12	3MHz	16QAM	23095	15RB#0	19.94	PASS
Band12	3MHz	QPSK	23165	1RB#0	21.88	PASS
Band12	3MHz	16QAM	23165	1RB#0	20.98	PASS
Band12	3MHz	QPSK	23165	1RB#8	21.93	PASS
Band12	3MHz	16QAM	23165	1RB#8	20.87	PASS
Band12	3MHz	QPSK	23165	1RB#14	21.84	PASS
Band12	3MHz	16QAM	23165	1RB#14	20.76	PASS
Band12	3MHz	QPSK	23165	8RB#0	20.87	PASS

Band12	3MHz	16QAM	23165	8RB#0	19.79	PASS
Band12	3MHz	QPSK	23165	8RB#4	20.86	PASS
Band12	3MHz	16QAM	23165	8RB#4	19.89	PASS
Band12	3MHz	QPSK	23165	8RB#7	20.93	PASS
Band12	3MHz	16QAM	23165	8RB#7	19.89	PASS
Band12	3MHz	QPSK	23165	15RB#0	20.94	PASS
Band12	3MHz	16QAM	23165	15RB#0	19.98	PASS
Band12	5MHz	QPSK	23035	1RB#0	21.92	PASS
Band12	5MHz	16QAM	23035	1RB#0	21.17	PASS
Band12	5MHz	QPSK	23035	1RB#12	22.00	PASS
Band12	5MHz	16QAM	23035	1RB#12	20.96	PASS
Band12	5MHz	QPSK	23035	1RB#24	21.93	PASS
Band12	5MHz	16QAM	23035	1RB#24	21.02	PASS
Band12	5MHz	QPSK	23035	12RB#0	20.98	PASS
Band12	5MHz	16QAM	23035	12RB#0	19.99	PASS
Band12	5MHz	QPSK	23035	12RB#6	20.95	PASS
Band12	5MHz	16QAM	23035	12RB#6	19.80	PASS
Band12	5MHz	QPSK	23035	12RB#13	21.03	PASS
Band12	5MHz	16QAM	23035	12RB#13	19.97	PASS
Band12	5MHz	QPSK	23035	25RB#0	21.00	PASS
Band12	5MHz	16QAM	23035	25RB#0	19.97	PASS
Band12	5MHz	QPSK	23095	1RB#0	21.95	PASS
Band12	5MHz	16QAM	23095	1RB#0	21.10	PASS
Band12	5MHz	QPSK	23095	1RB#12	22.02	PASS
Band12	5MHz	16QAM	23095	1RB#12	21.01	PASS
Band12	5MHz	QPSK	23095	1RB#24	21.92	PASS
Band12	5MHz	16QAM	23095	1RB#24	20.83	PASS
Band12	5MHz	QPSK	23095	12RB#0	20.88	PASS
Band12	5MHz	16QAM	23095	12RB#0	19.95	PASS
Band12	5MHz	QPSK	23095	12RB#6	20.99	PASS
Band12	5MHz	16QAM	23095	12RB#6	19.88	PASS
Band12	5MHz	QPSK	23095	12RB#13	21.04	PASS
Band12	5MHz	16QAM	23095	12RB#13	20.17	PASS
Band12	5MHz	QPSK	23095	25RB#0	20.92	PASS
Band12	5MHz	16QAM	23095	25RB#0	19.93	PASS
Band12	5MHz	QPSK	23155	1RB#0	21.97	PASS
Band12	5MHz	16QAM	23155	1RB#0	21.09	PASS
Band12	5MHz	QPSK	23155	1RB#12	22.02	PASS
Band12	5MHz	16QAM	23155	1RB#12	20.88	PASS
Band12	5MHz	QPSK	23155	1RB#24	22.00	PASS
Band12	5MHz	16QAM	23155	1RB#24	20.80	PASS
Band12	5MHz	QPSK	23155	12RB#0	20.85	PASS

Band12	5MHz	16QAM	23155	12RB#0	19.95	PASS
Band12	5MHz	QPSK	23155	12RB#6	20.95	PASS
Band12	5MHz	16QAM	23155	12RB#6	20.00	PASS
Band12	5MHz	QPSK	23155	12RB#13	21.01	PASS
Band12	5MHz	16QAM	23155	12RB#13	20.10	PASS
Band12	5MHz	QPSK	23155	25RB#0	21.02	PASS
Band12	5MHz	16QAM	23155	25RB#0	20.03	PASS
Band12	10MHz	QPSK	23060	1RB#0	21.98	PASS
Band12	10MHz	16QAM	23060	1RB#0	20.96	PASS
Band12	10MHz	QPSK	23060	1RB#24	21.99	PASS
Band12	10MHz	16QAM	23060	1RB#24	21.06	PASS
Band12	10MHz	QPSK	23060	1RB#49	21.92	PASS
Band12	10MHz	16QAM	23060	1RB#49	20.91	PASS
Band12	10MHz	QPSK	23060	25RB#0	21.01	PASS
Band12	10MHz	16QAM	23060	25RB#0	19.98	PASS
Band12	10MHz	QPSK	23060	25RB#12	20.98	PASS
Band12	10MHz	16QAM	23060	25RB#12	19.95	PASS
Band12	10MHz	QPSK	23060	25RB#25	21.01	PASS
Band12	10MHz	16QAM	23060	25RB#25	20.02	PASS
Band12	10MHz	QPSK	23060	50RB#0	21.02	PASS
Band12	10MHz	16QAM	23060	50RB#0	20.02	PASS
Band12	10MHz	QPSK	23095	1RB#0	21.99	PASS
Band12	10MHz	16QAM	23095	1RB#0	20.85	PASS
Band12	10MHz	QPSK	23095	1RB#24	22.06	PASS
Band12	10MHz	16QAM	23095	1RB#24	20.99	PASS
Band12	10MHz	QPSK	23095	1RB#49	21.92	PASS
Band12	10MHz	16QAM	23095	1RB#49	20.96	PASS
Band12	10MHz	QPSK	23095	25RB#0	20.99	PASS
Band12	10MHz	16QAM	23095	25RB#0	19.97	PASS
Band12	10MHz	QPSK	23095	25RB#12	20.97	PASS
Band12	10MHz	16QAM	23095	25RB#12	19.98	PASS
Band12	10MHz	QPSK	23095	25RB#25	21.06	PASS
Band12	10MHz	16QAM	23095	25RB#25	20.05	PASS
Band12	10MHz	QPSK	23095	50RB#0	20.95	PASS
Band12	10MHz	16QAM	23095	50RB#0	20.03	PASS
Band12	10MHz	QPSK	23130	1RB#0	21.96	PASS
Band12	10MHz	16QAM	23130	1RB#0	21.05	PASS
Band12	10MHz	QPSK	23130	1RB#24	21.98	PASS
Band12	10MHz	16QAM	23130	1RB#24	20.88	PASS
Band12	10MHz	QPSK	23130	1RB#49	21.89	PASS
Band12	10MHz	16QAM	23130	1RB#49	20.83	PASS
Band12	10MHz	QPSK	23130	25RB#0	20.98	PASS

Band12	10MHz	16QAM	23130	25RB#0	19.97	PASS
Band12	10MHz	QPSK	23130	25RB#12	20.94	PASS
Band12	10MHz	16QAM	23130	25RB#12	19.96	PASS
Band12	10MHz	QPSK	23130	25RB#25	20.99	PASS
Band12	10MHz	16QAM	23130	25RB#25	19.99	PASS
Band12	10MHz	QPSK	23130	50RB#0	21.03	PASS
Band12	10MHz	16QAM	23130	50RB#0	20.04	PASS

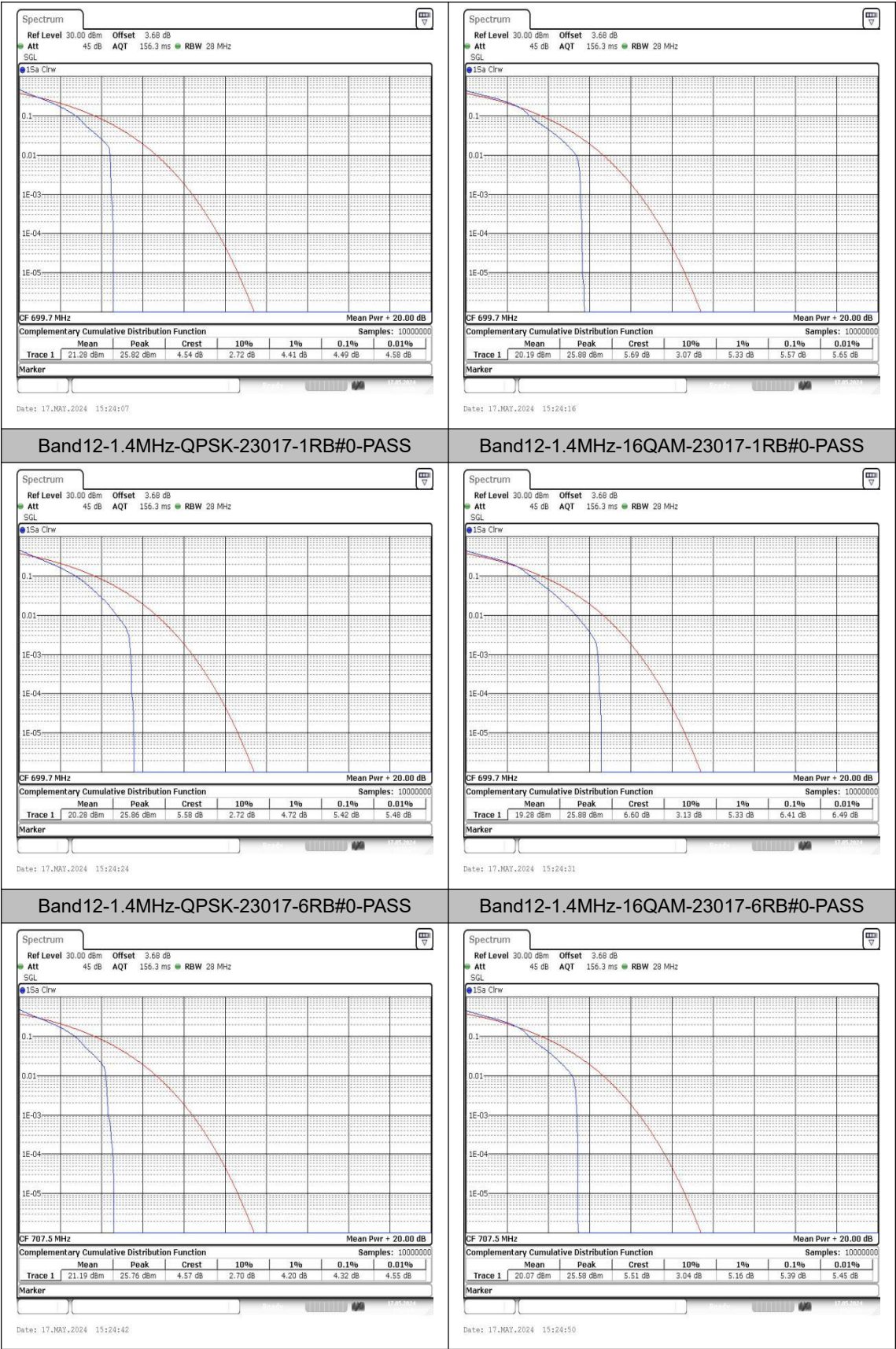
Appendix B: Peak-to-Average Ratio(CCDF)

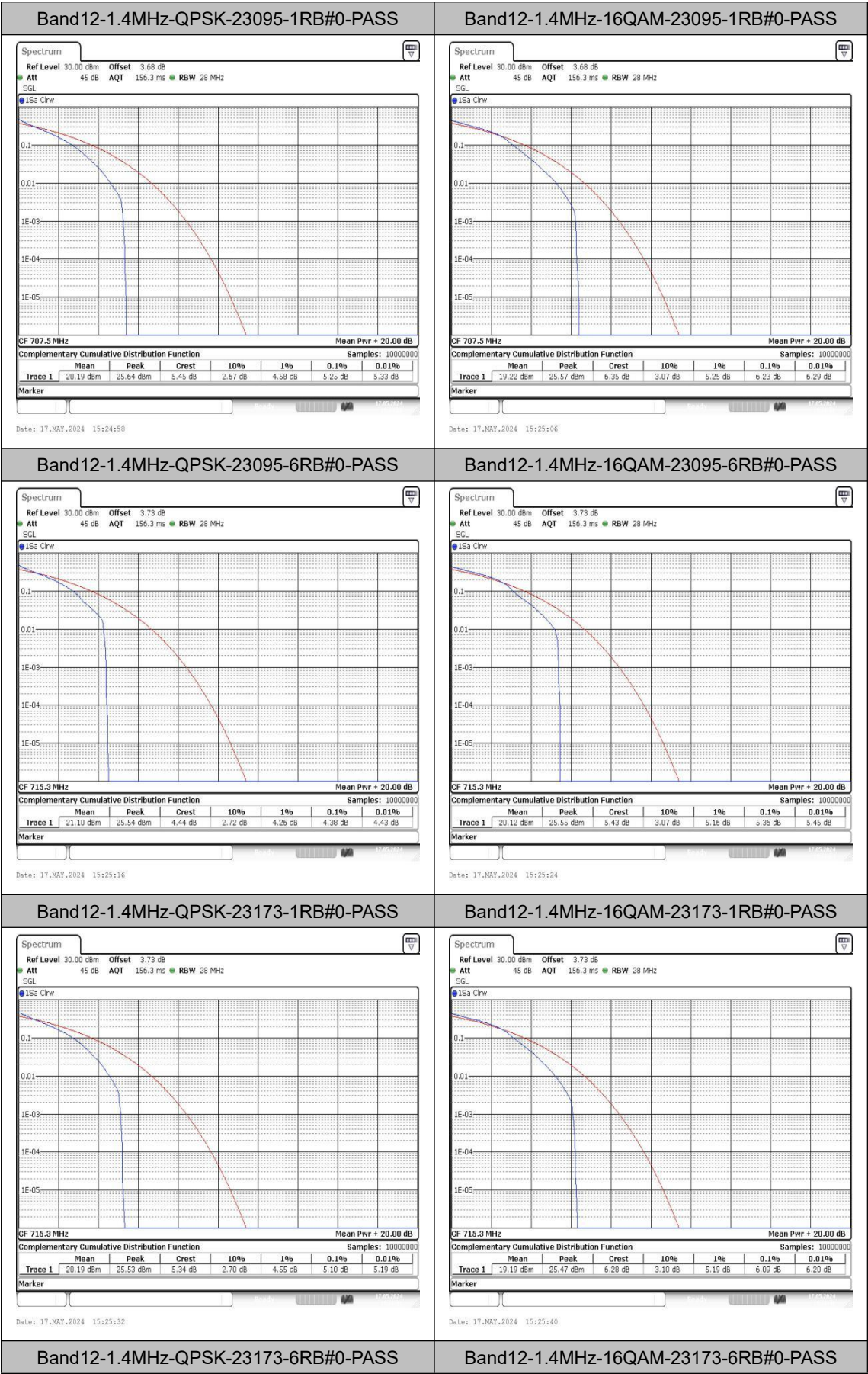
Test Result

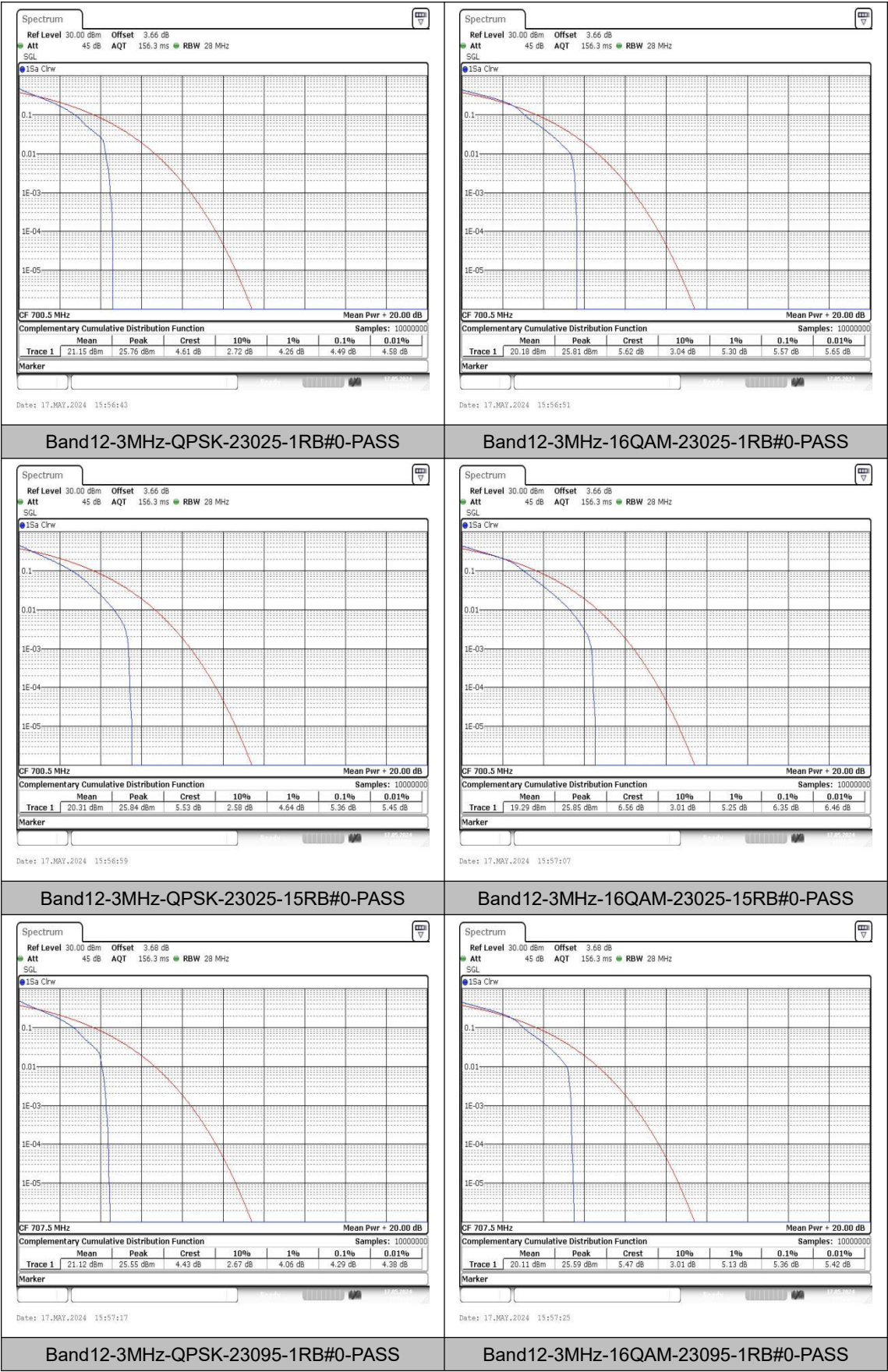
Band	Bandwidth	Modulation	Channel	RB Configuration	Result(dB)	Limit(dB)	Verdict
Band12	1.4MHz	QPSK	23017	1RB#0	4.49	13	PASS
Band12	1.4MHz	16QAM	23017	1RB#0	5.57	13	PASS
Band12	1.4MHz	QPSK	23017	6RB#0	5.42	13	PASS
Band12	1.4MHz	16QAM	23017	6RB#0	6.41	13	PASS
Band12	1.4MHz	QPSK	23095	1RB#0	4.32	13	PASS
Band12	1.4MHz	16QAM	23095	1RB#0	5.39	13	PASS
Band12	1.4MHz	QPSK	23095	6RB#0	5.25	13	PASS
Band12	1.4MHz	16QAM	23095	6RB#0	6.23	13	PASS
Band12	1.4MHz	QPSK	23173	1RB#0	4.38	13	PASS
Band12	1.4MHz	16QAM	23173	1RB#0	5.36	13	PASS
Band12	1.4MHz	QPSK	23173	6RB#0	5.10	13	PASS
Band12	1.4MHz	16QAM	23173	6RB#0	6.09	13	PASS
Band12	3MHz	QPSK	23025	1RB#0	4.49	13	PASS
Band12	3MHz	16QAM	23025	1RB#0	5.57	13	PASS
Band12	3MHz	QPSK	23025	15RB#0	5.36	13	PASS
Band12	3MHz	16QAM	23025	15RB#0	6.35	13	PASS
Band12	3MHz	QPSK	23095	1RB#0	4.29	13	PASS
Band12	3MHz	16QAM	23095	1RB#0	5.36	13	PASS
Band12	3MHz	QPSK	23095	15RB#0	5.28	13	PASS
Band12	3MHz	16QAM	23095	15RB#0	6.23	13	PASS
Band12	3MHz	QPSK	23165	1RB#0	4.61	13	PASS
Band12	3MHz	16QAM	23165	1RB#0	5.71	13	PASS
Band12	3MHz	QPSK	23165	15RB#0	5.36	13	PASS
Band12	3MHz	16QAM	23165	15RB#0	6.32	13	PASS
Band12	5MHz	QPSK	23035	1RB#0	4.52	13	PASS
Band12	5MHz	16QAM	23035	1RB#0	5.59	13	PASS
Band12	5MHz	QPSK	23035	25RB#0	5.33	13	PASS
Band12	5MHz	16QAM	23035	25RB#0	6.29	13	PASS
Band12	5MHz	QPSK	23095	1RB#0	4.29	13	PASS
Band12	5MHz	16QAM	23095	1RB#0	5.33	13	PASS
Band12	5MHz	QPSK	23095	25RB#0	5.28	13	PASS
Band12	5MHz	16QAM	23095	25RB#0	6.23	13	PASS
Band12	5MHz	QPSK	23155	1RB#0	4.70	13	PASS
Band12	5MHz	16QAM	23155	1RB#0	5.71	13	PASS
Band12	5MHz	QPSK	23155	25RB#0	5.57	13	PASS

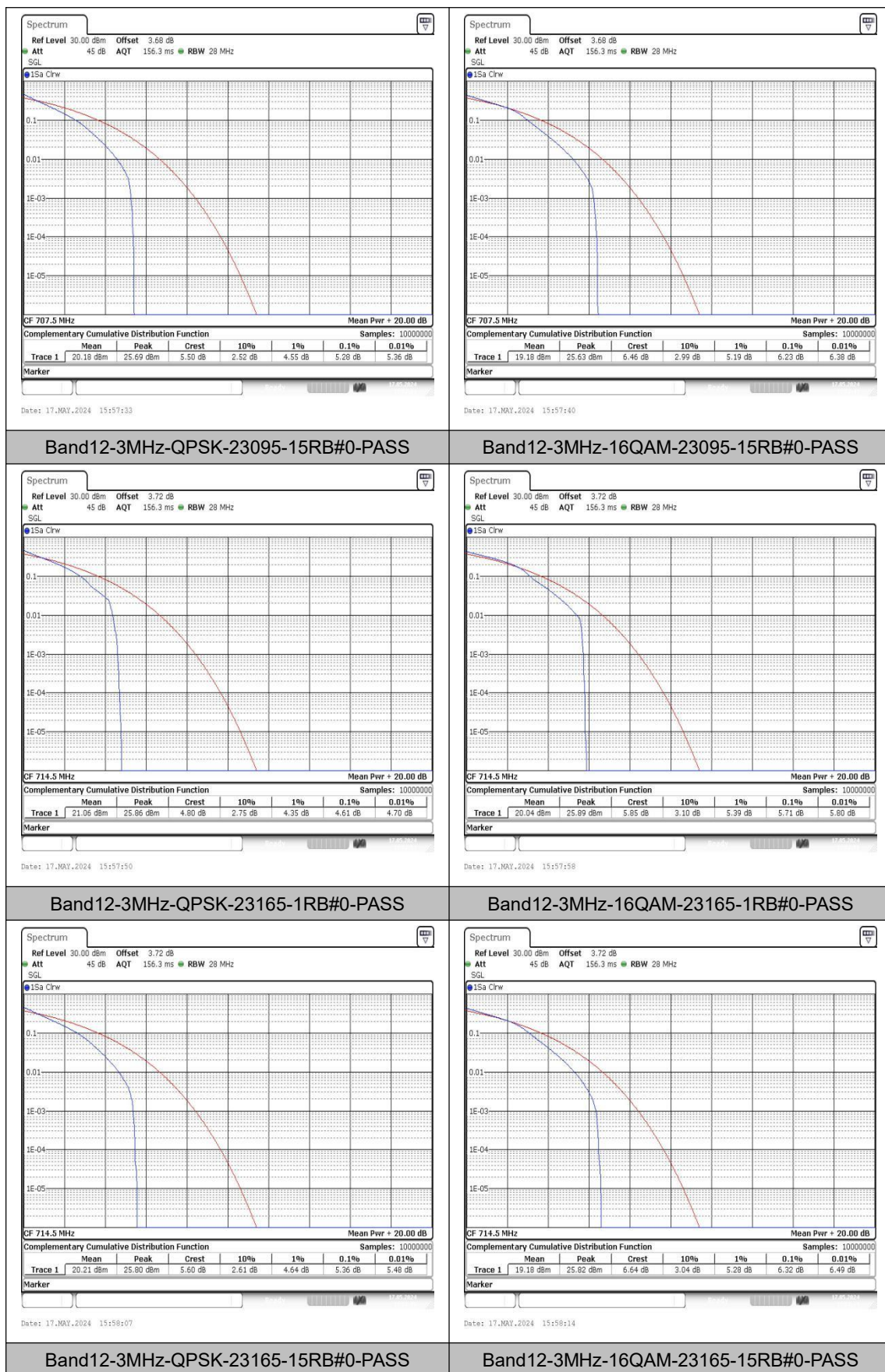
Band12	5MHz	16QAM	23155	25RB#0	6.49	13	PASS
Band12	10MHz	QPSK	23060	1RB#0	4.52	13	PASS
Band12	10MHz	16QAM	23060	1RB#0	5.51	13	PASS
Band12	10MHz	QPSK	23060	50RB#0	5.25	13	PASS
Band12	10MHz	16QAM	23060	50RB#0	6.17	13	PASS
Band12	10MHz	QPSK	23095	1RB#0	4.29	13	PASS
Band12	10MHz	16QAM	23095	1RB#0	5.30	13	PASS
Band12	10MHz	QPSK	23095	50RB#0	5.28	13	PASS
Band12	10MHz	16QAM	23095	50RB#0	6.23	13	PASS
Band12	10MHz	QPSK	23130	1RB#0	4.35	13	PASS
Band12	10MHz	16QAM	23130	1RB#0	5.33	13	PASS
Band12	10MHz	QPSK	23130	50RB#0	5.59	13	PASS
Band12	10MHz	16QAM	23130	50RB#0	6.46	13	PASS

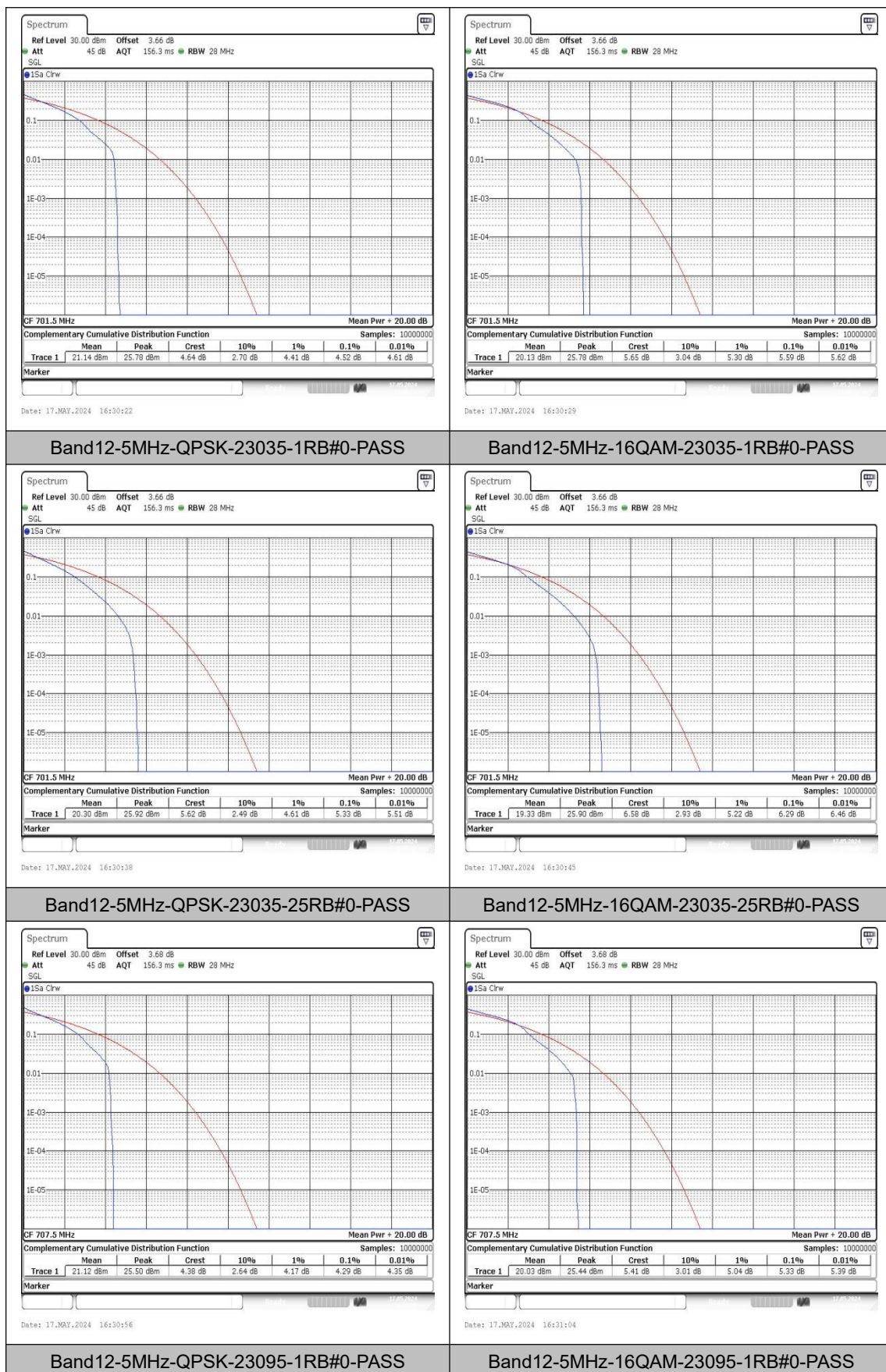
Test Graphs

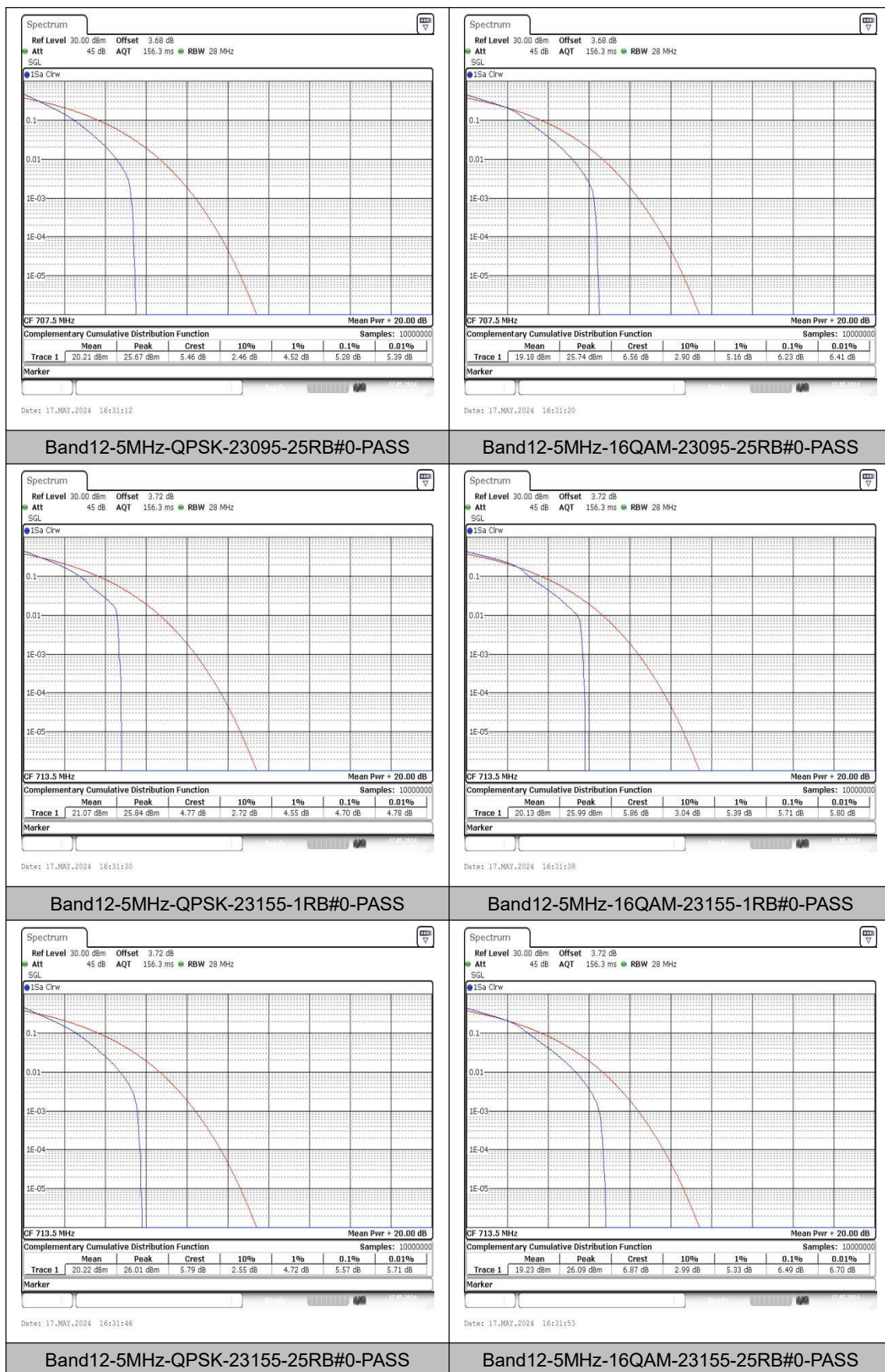


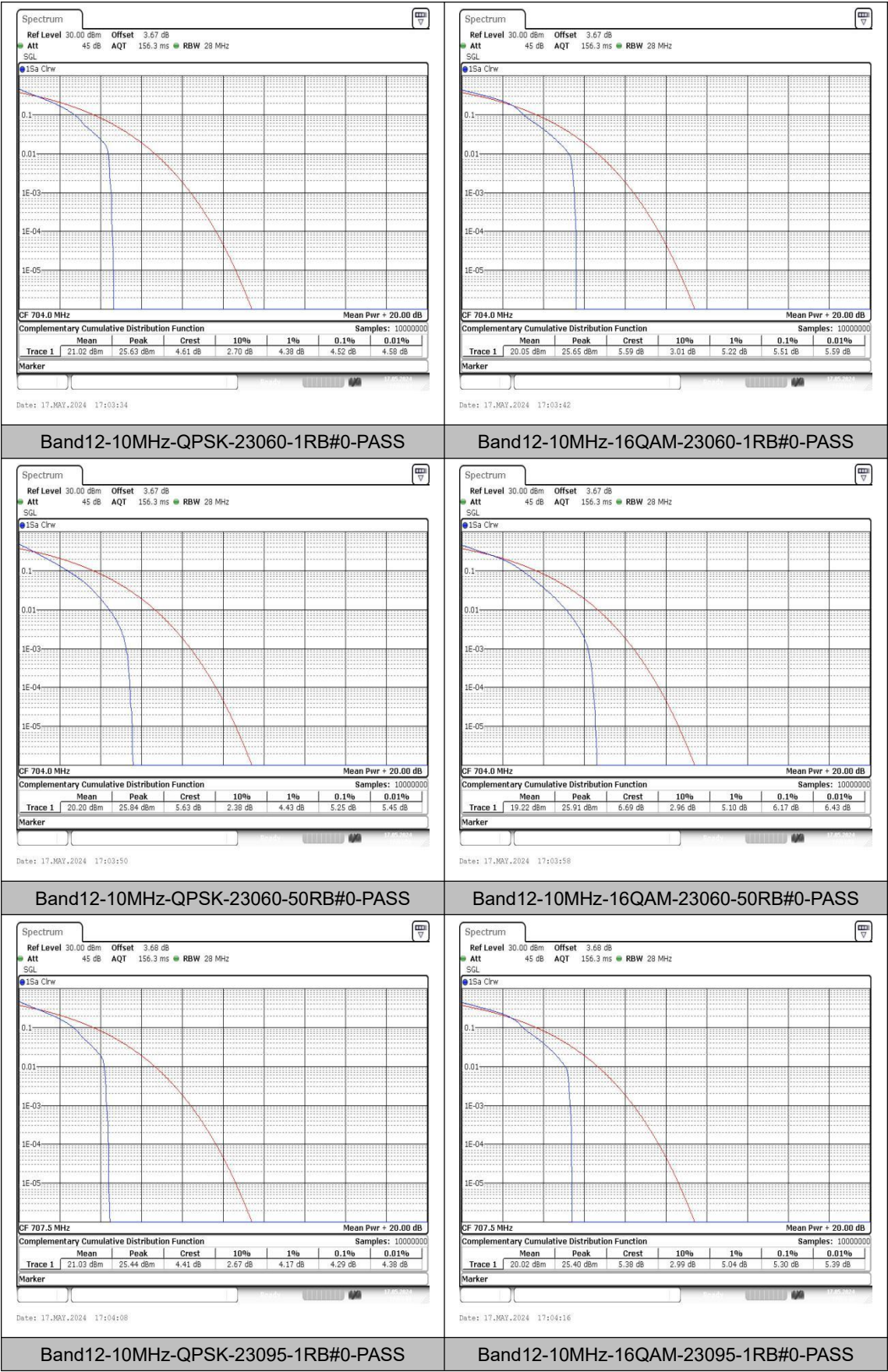


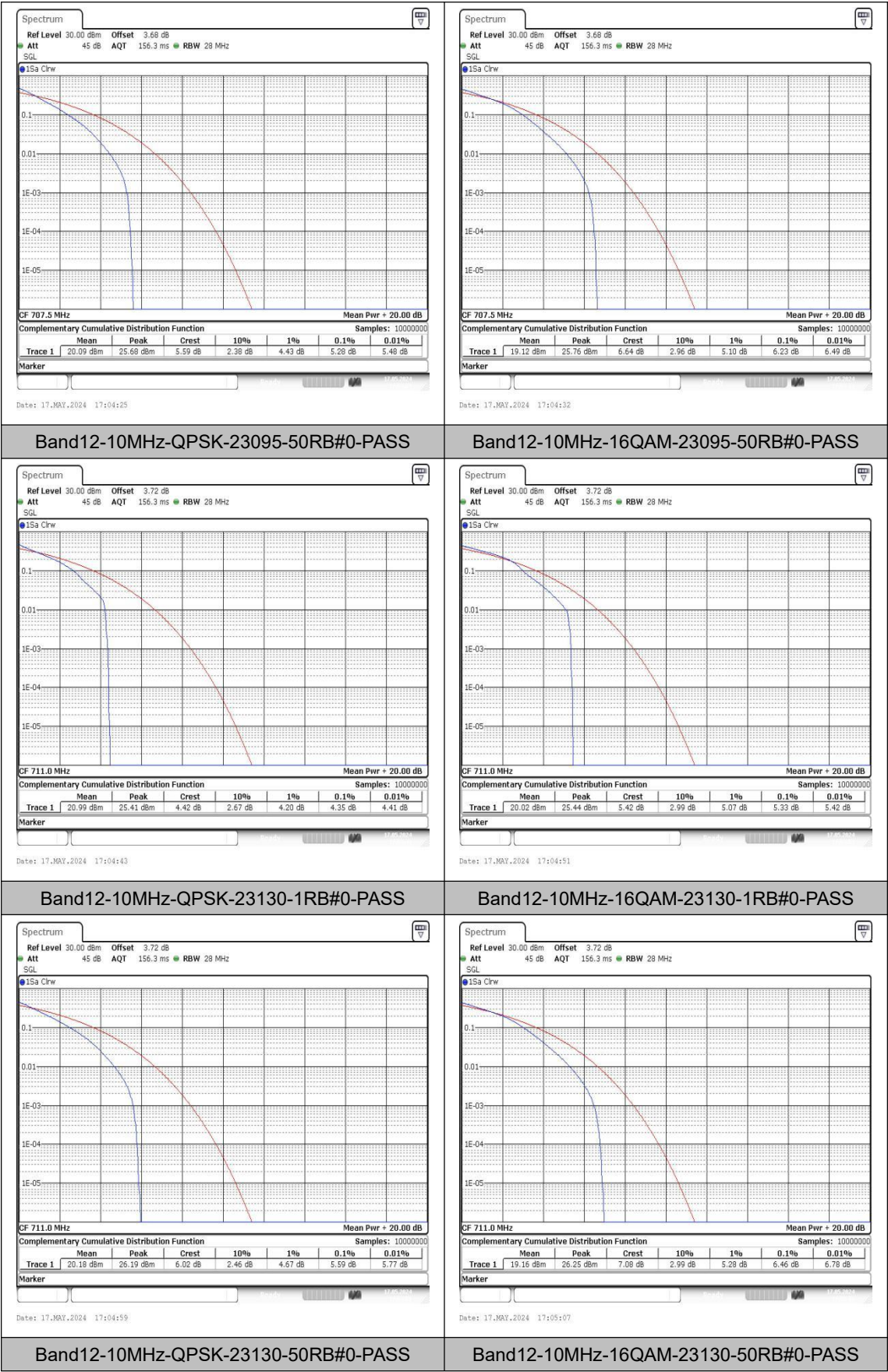










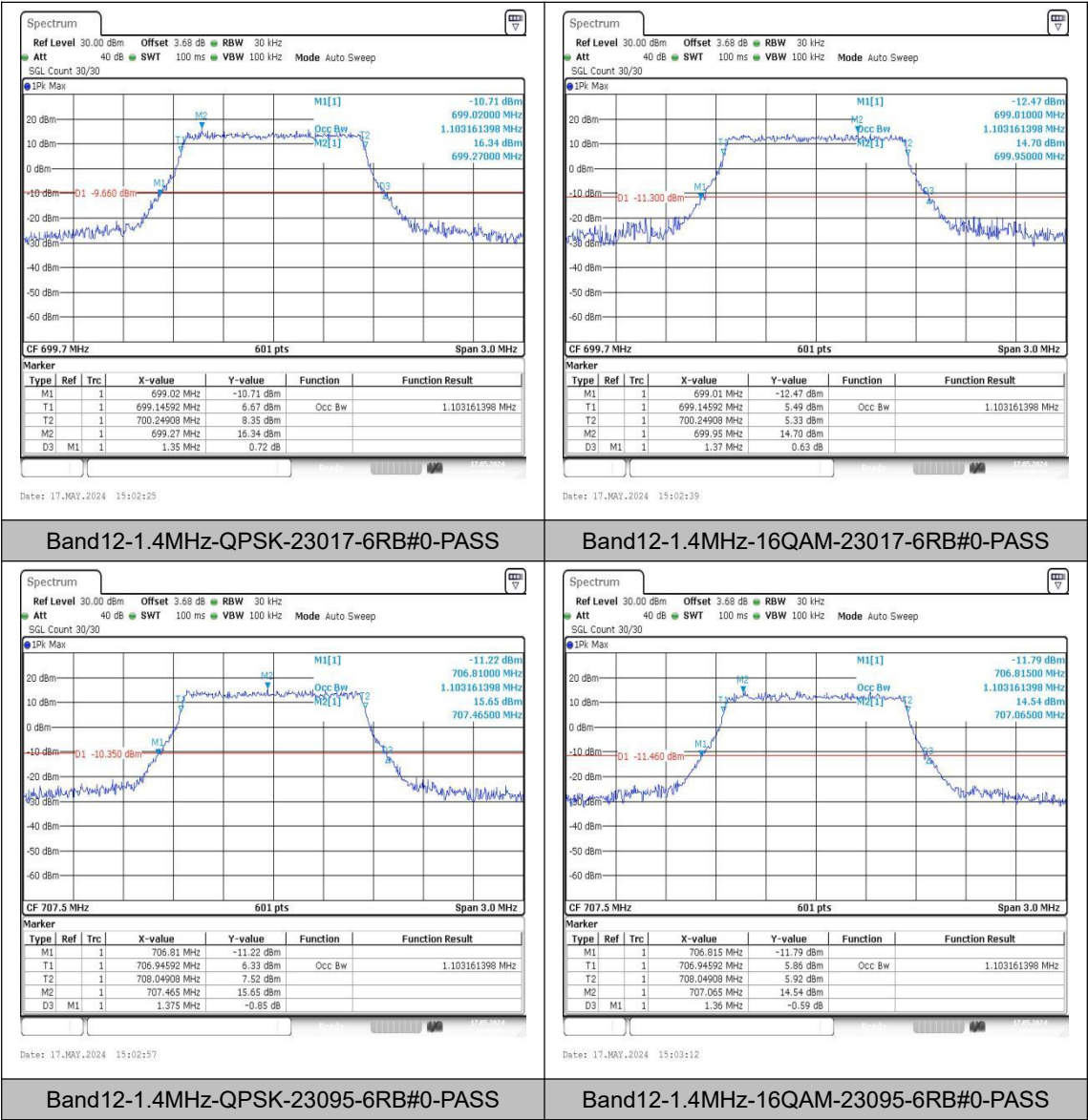


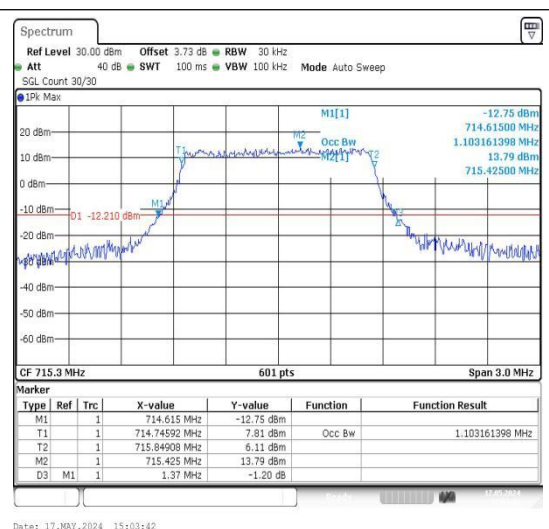
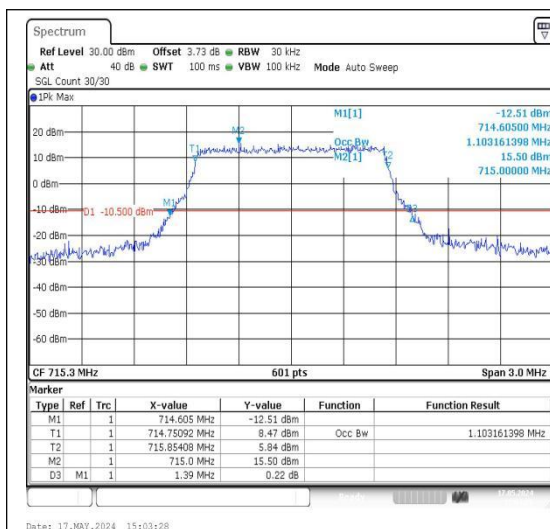
Appendix C: 26dB Bandwidth and Occupied Bandwidth

Test Result

Band	Bandwidth	Modulation	Channel	RB Configuration	Occupied Bandwidth (MHz)	26dB Bandwidth (MHz)	Verdict
Band12	1.4MHz	QPSK	23017	6RB#0	1.103	1.35	PASS
Band12	1.4MHz	16QAM	23017	6RB#0	1.103	1.37	PASS
Band12	1.4MHz	QPSK	23095	6RB#0	1.103	1.38	PASS
Band12	1.4MHz	16QAM	23095	6RB#0	1.103	1.36	PASS
Band12	1.4MHz	QPSK	23173	6RB#0	1.103	1.39	PASS
Band12	1.4MHz	16QAM	23173	6RB#0	1.103	1.37	PASS
Band12	3MHz	QPSK	23025	15RB#0	2.696	3.08	PASS
Band12	3MHz	16QAM	23025	15RB#0	2.705	3.05	PASS
Band12	3MHz	QPSK	23095	15RB#0	2.705	3.08	PASS
Band12	3MHz	16QAM	23095	15RB#0	2.705	3.07	PASS
Band12	3MHz	QPSK	23165	15RB#0	2.696	3.06	PASS
Band12	3MHz	16QAM	23165	15RB#0	2.705	3.08	PASS
Band12	5MHz	QPSK	23035	25RB#0	4.535	5.23	PASS
Band12	5MHz	16QAM	23035	25RB#0	4.515	5.20	PASS
Band12	5MHz	QPSK	23095	25RB#0	4.525	5.23	PASS
Band12	5MHz	16QAM	23095	25RB#0	4.515	5.18	PASS
Band12	5MHz	QPSK	23155	25RB#0	4.545	5.21	PASS
Band12	5MHz	16QAM	23155	25RB#0	4.535	5.21	PASS
Band12	10MHz	QPSK	23060	50RB#0	8.985	9.97	PASS
Band12	10MHz	16QAM	23060	50RB#0	8.985	9.97	PASS
Band12	10MHz	QPSK	23095	50RB#0	8.952	9.97	PASS
Band12	10MHz	16QAM	23095	50RB#0	8.952	10.00	PASS
Band12	10MHz	QPSK	23130	50RB#0	9.018	10.03	PASS
Band12	10MHz	16QAM	23130	50RB#0	9.018	10.10	PASS

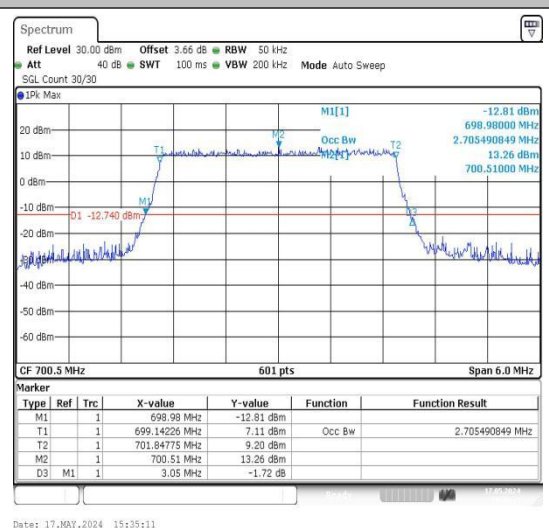
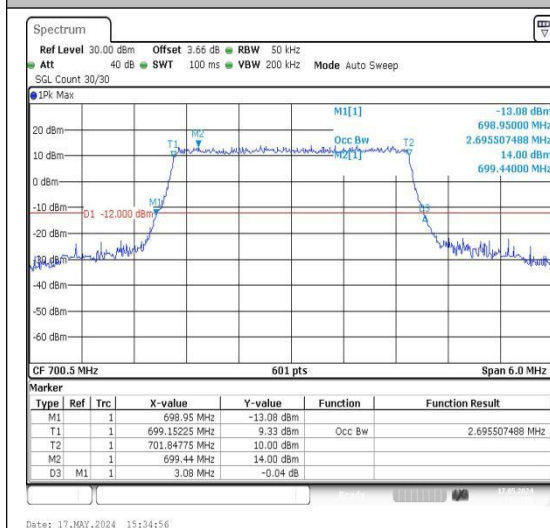
Test Graphs





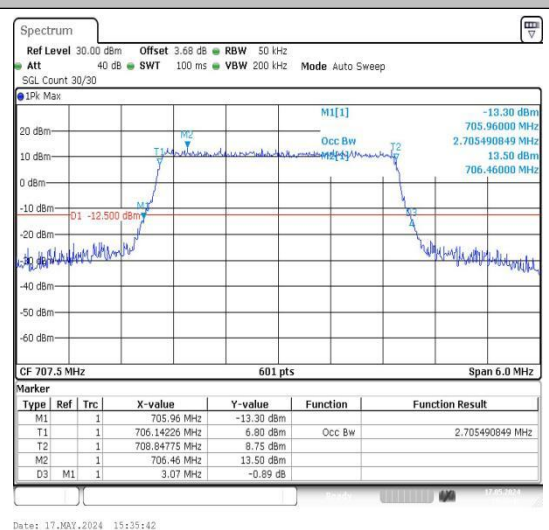
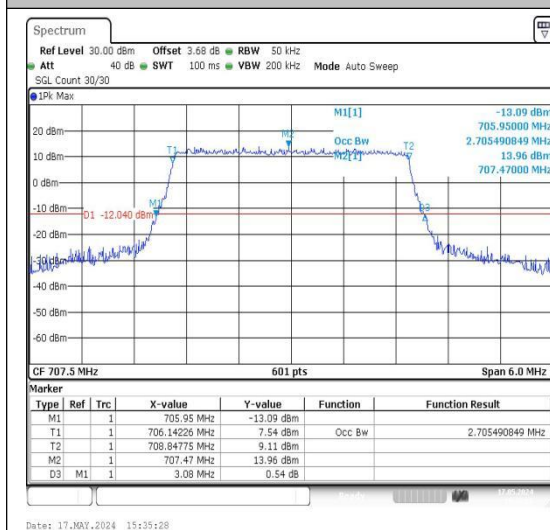
Band12-1.4MHz-QPSK-23173-6RB#0-PASS

Band12-1.4MHz-16QAM-23173-6RB#0-PASS



Band12-3MHz-QPSK-23025-15RB#0-PASS

Band12-3MHz-16QAM-23025-15RB#0-PASS



Band12-3MHz-QPSK-23095-15RB#0-PASS

Band12-3MHz-16QAM-23095-15RB#0-PASS

