

Appendix for LTE Band 5

Product Name: Smart Phone

Model No: Black S

Appendix A: Average Power Output Data

Test Result

BW(MHz)	Ch	Freq(MHz)	Mode	UL RB Allocation	UL RB Offset	Average Power (dbm)	Tune up limited(dBm)	MPR (dB)
1.4MHz	20407	824.7	QPSK	1	0	23.63	23.5±1	/
				1	2	23.62	23.5±1	/
				1	5	23.71	23.5±1	/
				3	0	23.67	23.5±1	/
				3	1	23.64	23.5±1	/
				3	2	23.61	23.5±1	/
				6	0	22.54	23.5±1	1.0
			16QAM	1	0	23.42	23.5±1	1.0
				1	2	23.45	23.5±1	1.0
				1	5	23.45	23.5±1	1.0
				3	0	22.65	22.0±1	1.0
				3	1	22.65	22.0±1	1.0
				3	2	22.62	22.0±1	1.0
				6	0	21.62	22.0±1	1.0
	20525	836.5	QPSK	1	0	23.62	23.5±1	/
				1	2	23.61	23.5±1	/
				1	5	23.67	23.5±1	/
				3	0	23.62	23.5±1	/
				3	1	23.64	23.5±1	/
				3	2	23.56	23.5±1	/
				6	0	22.58	23.5±1	1.0
			16QAM	1	0	23.5	23.5±1	1.0
				1	2	23.39	23.5±1	1.0
				1	5	23.42	23.5±1	1.0
				3	0	22.52	22.0±1	1.0
				3	1	22.55	22.0±1	1.0
				3	2	22.51	22.0±1	1.0
				6	0	21.18	22.0±1	1.0
	20634	848.3	QPSK	1	0	23.65	23.5±1	/
				1	2	23.68	23.5±1	/
				1	5	23.72	23.5±1	/
				3	0	23.48	23.5±1	/
				3	1	23.5	23.5±1	/
				3	2	23.56	23.5±1	/
				6	0	22.42	22.5±1	1.0

			16QAM	1	0	22.81	22.5±1	1.0
				1	2	22.78	22.5±1	1.0
				1	5	22.79	22.5±1	1.0
				3	0	22.48	22.5±1	1.0
				3	1	22.43	22.5±1	1.0
				3	2	22.4	22.5±1	1.0
				6	0	21.9	22.0±1	1.0

BW(MHz)	Ch	Freq(MHz)	Mode	UL RB Allocation	UL RB Offset	Average Power (dbm)	Tune up limited(dBm)	MPR (dB)
3MHz	20415	825.5	QPSK	1	0	23.61	23.5±1	/
				1	8	23.6	23.5±1	/
				1	14	23.67	23.5±1	/
				6	0	22.53	22.5±1	1.0
				6	4	22.57	22.5±1	1.0
				6	9	22.62	22.5±1	1.0
				15	0	22.5	22.5±1	1.0
			16QAM	1	0	22.98	23.0±1	1.0
				1	8	22.97	23.0±1	1.0
				1	14	22.98	23.0±1	1.0
				8	0	21.57	21.5±1	1.0
				8	4	21.55	21.5±1	1.0
				8	9	21.56	21.5±1	1.0
				15	0	21.67	21.5±1	1.0
	20525	836.5	QPSK	1	0	23.59	23.5±1	/
				1	8	23.64	23.5±1	/
				1	14	23.59	23.5±1	/
				6	0	22.54	22.5±1	1.0
				6	4	22.61	22.5±1	1.0
				6	9	22.51	22.5±1	1.0
				15	0	22.48	22.5±1	1.0
			16QAM	1	0	23.36	23.5±1	1.0
				1	8	23.41	23.5±1	1.0
				1	14	23.38	23.5±1	1.0
				6	0	21.81	21.5±1	1.0
				6	4	21.74	21.5±1	1.0
				6	9	21.71	21.5±1	1.0
				15	0	21.6	21.5±1	1.0
	20635	847.5	QPSK	1	0	23.73	23.5±1	/
				1	8	23.75	23.5±1	/
				1	14	23.69	23.5±1	/

				6	0	22.54	22.5±1	1.0
				6	4	22.57	22.5±1	1.0
				6	9	22.53	22.5±1	1.0
				15	0	22.58	22.5±1	1.0
			16QAM	1	0	22.82	22.5±1	1.0
				1	8	22.8	22.5±1	1.0
				1	14	22.91	22.5±1	1.0
				8	0	21.65	21.5±1	1.0
				8	4	21.62	21.5±1	1.0
				8	9	21.99	21.5±1	1.0
				15	0	21.49	21.5±1	1.0

BW(MHz)	Ch	Freq(MHz)	Mode	UL RB Allocation	UL RB Offset	Average Power (dbm)	Tune up limited(dBm)	MPR (dB)
5MHz	20425	826.5	QPSK	1	0	23.48	23.5±1	/
				1	49	23.51	23.5±1	/
				1	99	23.43	23.5±1	/
				12	0	22.53	22.5±1	1.0
				12	24	22.58	22.5±1	1.0
				12	49	22.6	22.5±1	1.0
				25	0	22.66	22.5±1	1.0
			16QAM	1	0	22.36	22.0±1	1.0
				1	49	22.34	22.0±1	1.0
				1	99	22.28	22.0±1	1.0
				12	0	21.57	22.0±1	1.0
				12	24	21.56	22.0±1	1.0
				12	49	21.55	22.0±1	1.0
				25	0	21.64	22.0±1	1.0
	20525	836.5	QPSK	1	0	23.61	23.5±1	/
				1	49	23.6	23.5±1	/
				1	99	23.71	23.5±1	/
				12	0	22.58	22.5±1	1.0
				12	24	22.61	22.5±1	1.0
				12	49	22.49	22.5±1	1.0
				25	0	22.62	22.5±1	1.0
			16QAM	1	0	22.83	22.5±1	1.0
				1	49	22.83	22.5±1	1.0
				1	99	22.79	22.5±1	1.0
				12	0	21.6	21.5±1	1.0
				12	24	21.6	21.5±1	1.0
				12	49	21.6	21.5±1	1.0

	20625	846.5	QPSK	25	0	21.65	21.5±1	1.0
				1	0	23.56	23.5±1	/
				1	49	23.5	23.5±1	/
				1	99	23.55	23.5±1	/
				12	0	22.6	22.5±1	1.0
				12	24	22.45	22.5±1	1.0
				12	49	22.62	22.5±1	1.0
			16QAM	25	0	22.46	22.5±1	1.0
				1	0	22.86	23.0±1	1.0
				1	49	22.9	23.0±1	1.0
				1	99	22.94	23.0±1	1.0
				12	0	21.55	21.5±1	1.0
				12	24	21.49	21.5±1	1.0
				12	49	21.56	21.5±1	1.0
				25	0	21.67	21.5±1	1.0

BW(MHz)	Ch	Freq(MHz)	Mode	UL RB Allocation	UL RB Offset	Average Power (dbm)	Tune up limited(dBm)	MPR (dB)
10MHz	20450	829	QPSK	1	0	23.6	23.5±1	/
				1	49	23.54	23.5±1	/
				1	99	23.51	23.5±1	/
				25	0	22.53	22.5±1	1.0
				25	24	22.73	22.5±1	1.0
				25	49	22.5	22.5±1	1.0
				50	0	22.69	22.5±1	1.0
			16QAM	1	0	23.25	23.0±1	1.0
				1	49	23.25	23.0±1	1.0
				1	99	23.19	23.0±1	1.0
				25	0	21.47	21.5±1	1.0
				25	24	21.54	21.5±1	1.0
				25	49	21.52	21.5±1	1.0
				50	0	21.63	21.5±1	1.0
	20525	836.5	QPSK	1	0	23.59	23.5±1	/
				1	49	23.65	23.5±1	/
				1	99	23.59	23.5±1	/
				25	0	22.72	22.5±1	1.0
				25	24	22.63	22.5±1	1.0
				25	49	22.61	22.5±1	1.0
				50	0	22.66	22.5±1	1.0
			16QAM	1	0	22.67	22.5±1	1.0
				1	49	22.79	22.5±1	1.0

				1	99	22.71	22.5±1	1.0
				25	0	21.72	21.5±1	1.0
				25	24	21.64	21.5±1	1.0
				25	49	21.62	21.5±1	1.0
				50	0	21.64	21.5±1	1.0
	20600	844	QPSK	1	0	23.86	24.0±1	/
				1	49	23.69	24.0±1	/
				1	99	23.72	24.0±1	/
				25	0	22.54	22.5±1	1.0
				25	24	22.55	22.5±1	1.0
				25	49	22.59	22.5±1	1.0
				50	0	22.56	22.5±1	1.0
			16QAM	1	0	22.92	23.0±1	1.0
				1	49	22.83	23.0±1	1.0
				1	99	22.8	23.0±1	1.0
				25	0	21.71	22.5±1	1.0
				25	24	21.79	22.5±1	1.0
				25	49	21.69	22.5±1	1.0
				50	0	21.61	22.5±1	1.0

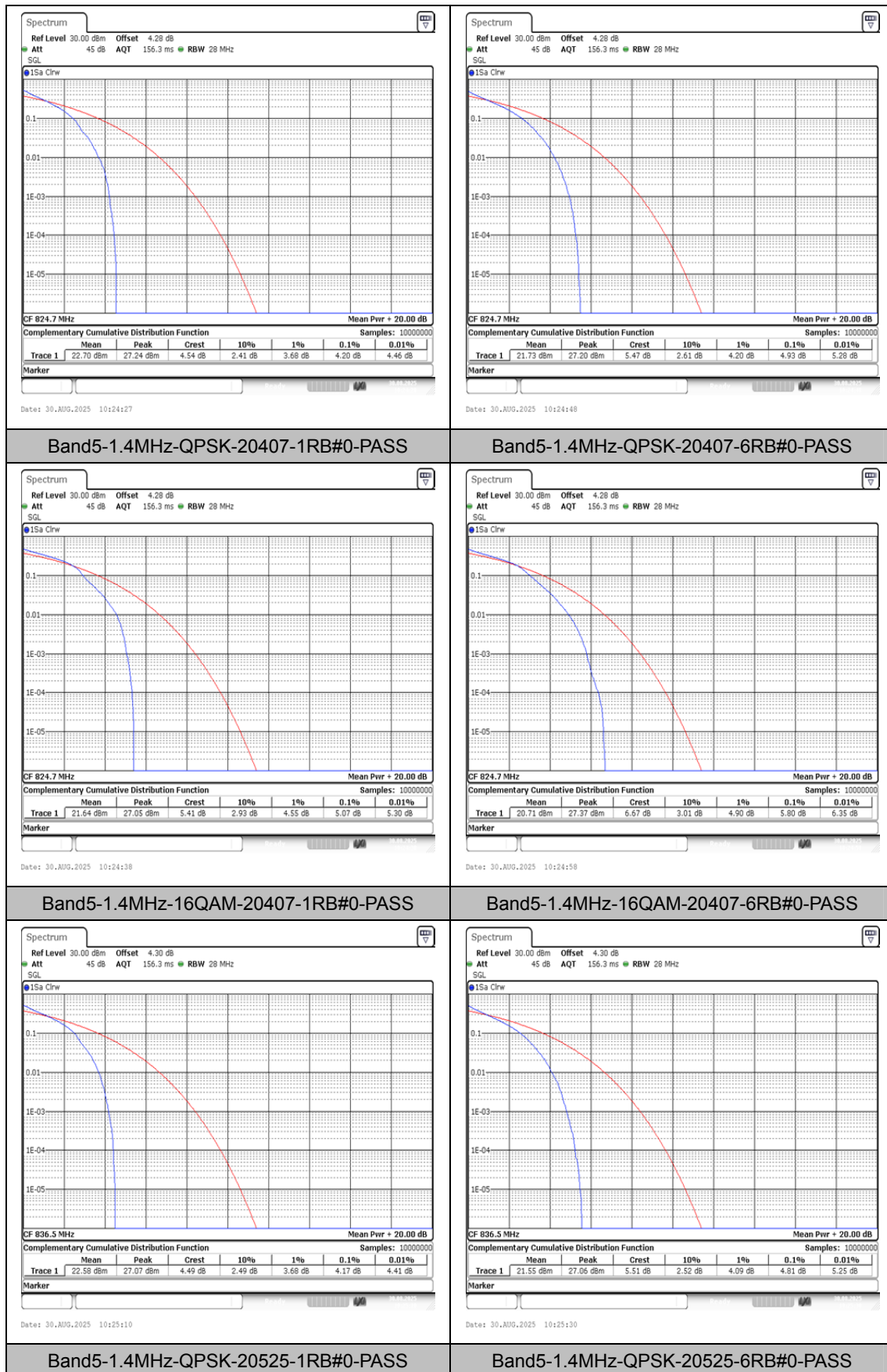
Appendix B: Peak-to-Average Ratio(CCDF)

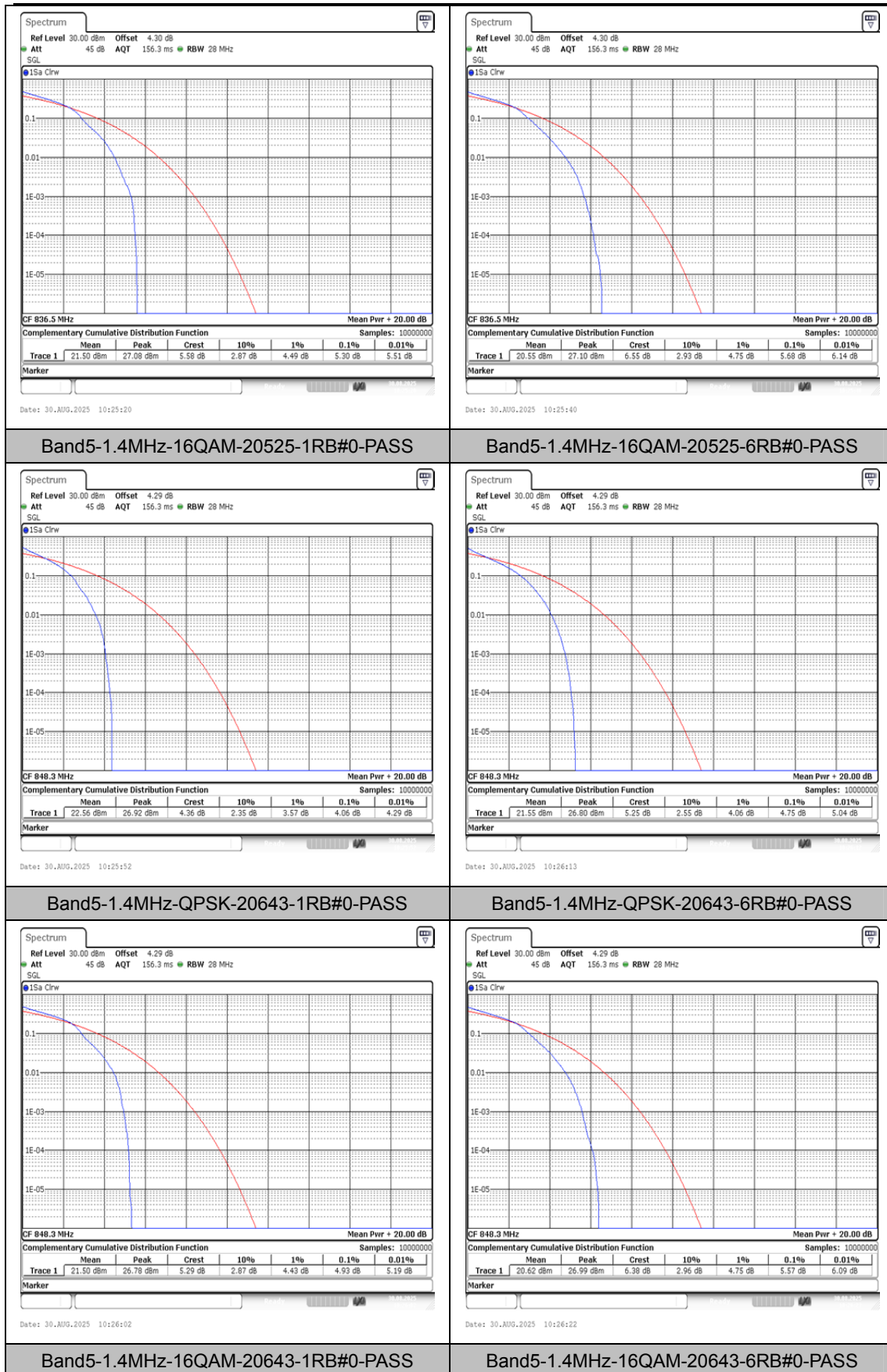
Test Result

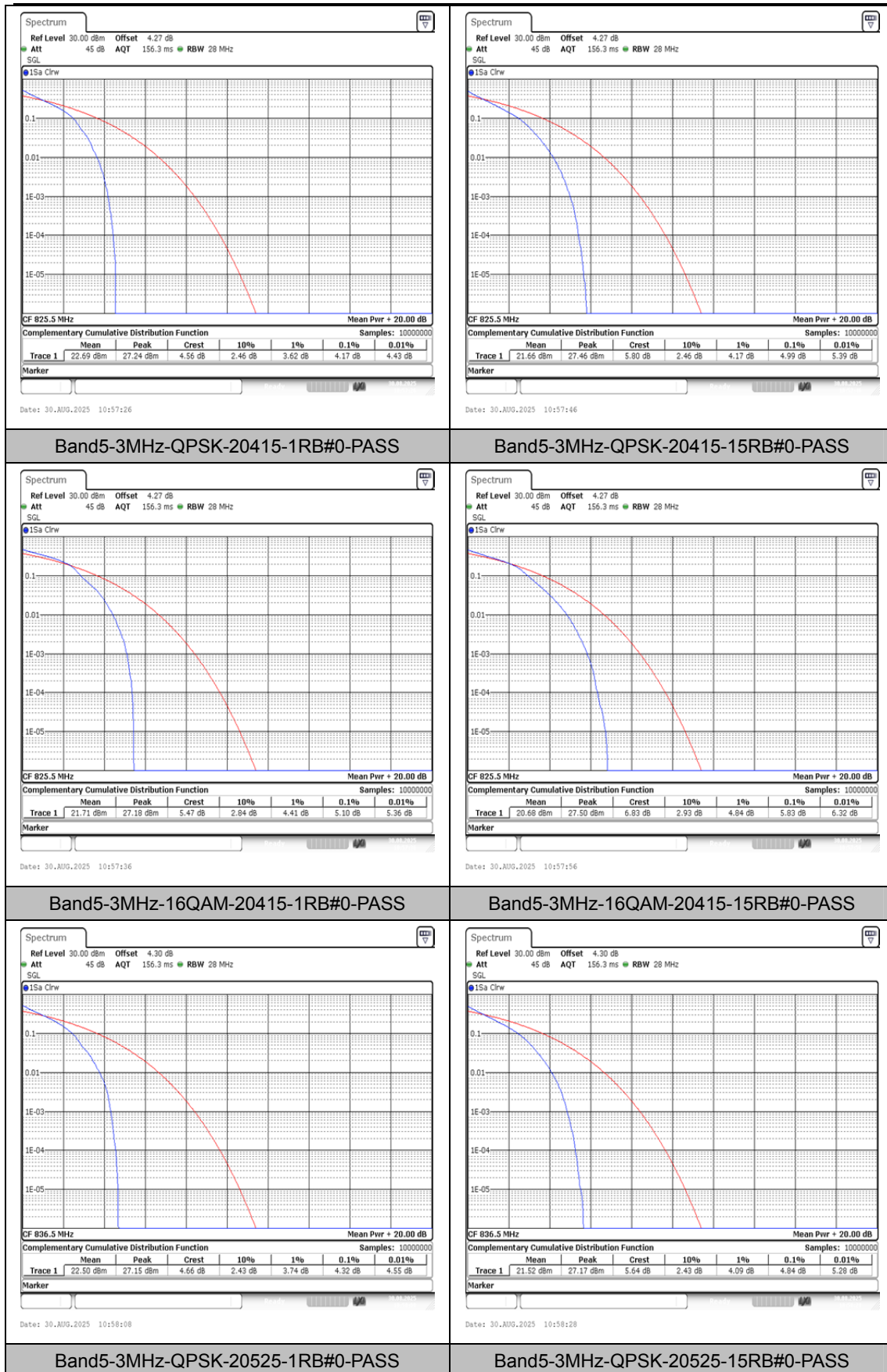
Band	Bandwidth	Modulation	Channel	RB Configuration	Result(dB)	Limit(dB)	Verdict
Band5	1.4MHz	QPSK	20407	1RB#0	4.20	13	PASS
Band5	1.4MHz	QPSK	20407	6RB#0	4.93	13	PASS
Band5	1.4MHz	16QAM	20407	1RB#0	5.07	13	PASS
Band5	1.4MHz	16QAM	20407	6RB#0	5.80	13	PASS
Band5	1.4MHz	QPSK	20525	1RB#0	4.17	13	PASS
Band5	1.4MHz	QPSK	20525	6RB#0	4.81	13	PASS
Band5	1.4MHz	16QAM	20525	1RB#0	5.30	13	PASS
Band5	1.4MHz	16QAM	20525	6RB#0	5.68	13	PASS
Band5	1.4MHz	QPSK	20643	1RB#0	4.06	13	PASS
Band5	1.4MHz	QPSK	20643	6RB#0	4.75	13	PASS
Band5	1.4MHz	16QAM	20643	1RB#0	4.93	13	PASS
Band5	1.4MHz	16QAM	20643	6RB#0	5.57	13	PASS
Band5	3MHz	QPSK	20415	1RB#0	4.17	13	PASS
Band5	3MHz	QPSK	20415	15RB#0	4.99	13	PASS
Band5	3MHz	16QAM	20415	1RB#0	5.10	13	PASS
Band5	3MHz	16QAM	20415	15RB#0	5.83	13	PASS
Band5	3MHz	QPSK	20525	1RB#0	4.32	13	PASS
Band5	3MHz	QPSK	20525	15RB#0	4.84	13	PASS
Band5	3MHz	16QAM	20525	1RB#0	5.16	13	PASS
Band5	3MHz	16QAM	20525	15RB#0	5.68	13	PASS
Band5	3MHz	QPSK	20635	1RB#0	4.38	13	PASS
Band5	3MHz	QPSK	20635	15RB#0	4.87	13	PASS
Band5	3MHz	16QAM	20635	1RB#0	5.30	13	PASS
Band5	3MHz	16QAM	20635	15RB#0	5.71	13	PASS
Band5	5MHz	QPSK	20425	1RB#0	4.20	13	PASS
Band5	5MHz	QPSK	20425	25RB#0	5.01	13	PASS
Band5	5MHz	16QAM	20425	1RB#0	4.96	13	PASS
Band5	5MHz	16QAM	20425	25RB#0	5.80	13	PASS
Band5	5MHz	QPSK	20525	1RB#0	4.41	13	PASS
Band5	5MHz	QPSK	20525	25RB#0	4.81	13	PASS
Band5	5MHz	16QAM	20525	1RB#0	5.19	13	PASS
Band5	5MHz	16QAM	20525	25RB#0	5.68	13	PASS
Band5	5MHz	QPSK	20625	1RB#0	4.72	13	PASS
Band5	5MHz	QPSK	20625	25RB#0	5.01	13	PASS
Band5	5MHz	16QAM	20625	1RB#0	5.39	13	PASS
Band5	5MHz	16QAM	20625	25RB#0	5.80	13	PASS

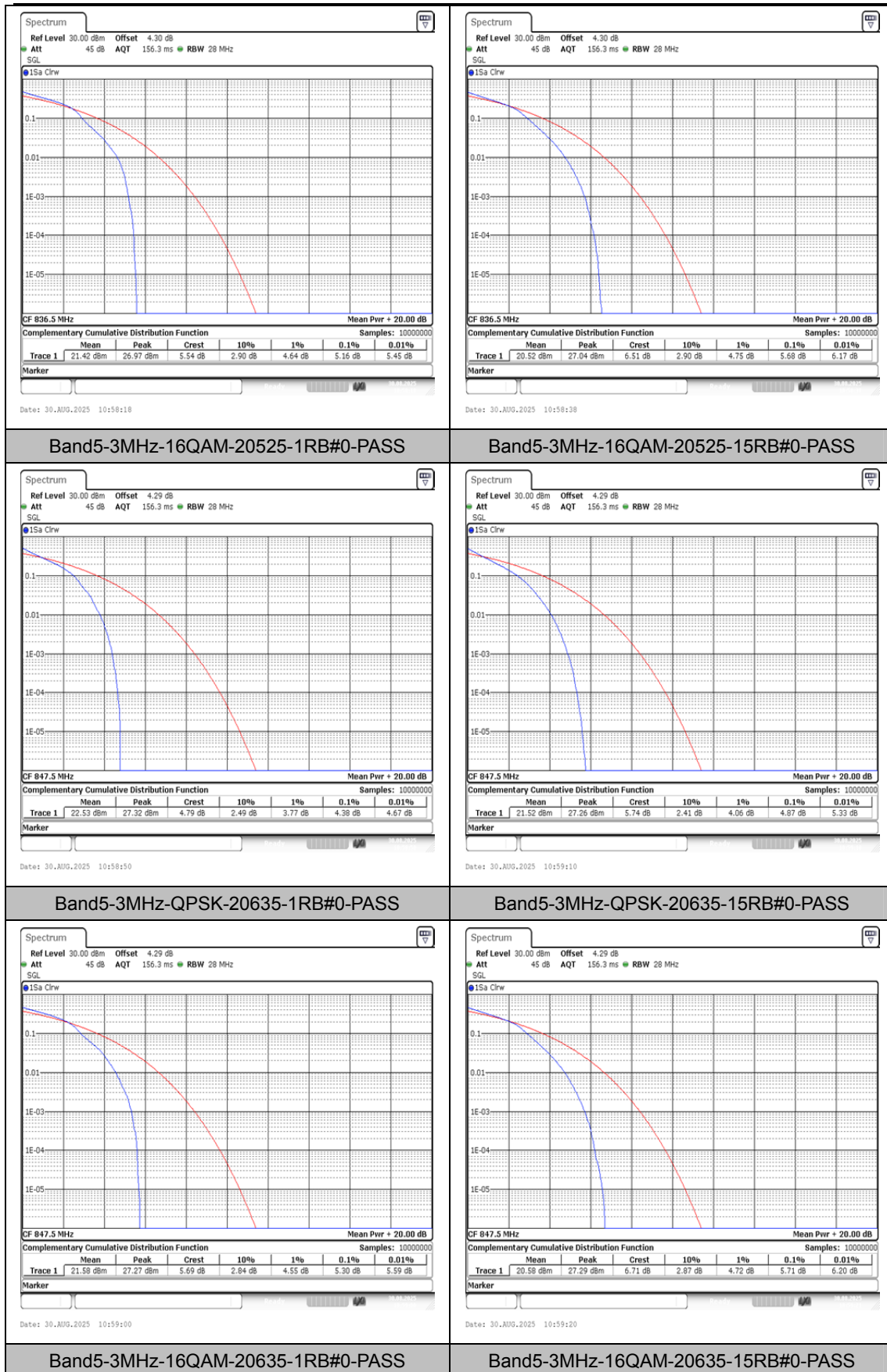
Band5	10MHz	QPSK	20450	1RB#0	4.17	13	PASS
Band5	10MHz	QPSK	20450	50RB#0	5.13	13	PASS
Band5	10MHz	16QAM	20450	1RB#0	5.07	13	PASS
Band5	10MHz	16QAM	20450	50RB#0	5.94	13	PASS
Band5	10MHz	QPSK	20525	1RB#0	4.64	13	PASS
Band5	10MHz	QPSK	20525	50RB#0	4.87	13	PASS
Band5	10MHz	16QAM	20525	1RB#0	5.48	13	PASS
Band5	10MHz	16QAM	20525	50RB#0	5.77	13	PASS
Band5	10MHz	QPSK	20600	1RB#0	3.77	13	PASS
Band5	10MHz	QPSK	20600	50RB#0	5.01	13	PASS
Band5	10MHz	16QAM	20600	1RB#0	4.72	13	PASS
Band5	10MHz	16QAM	20600	50RB#0	5.83	13	PASS

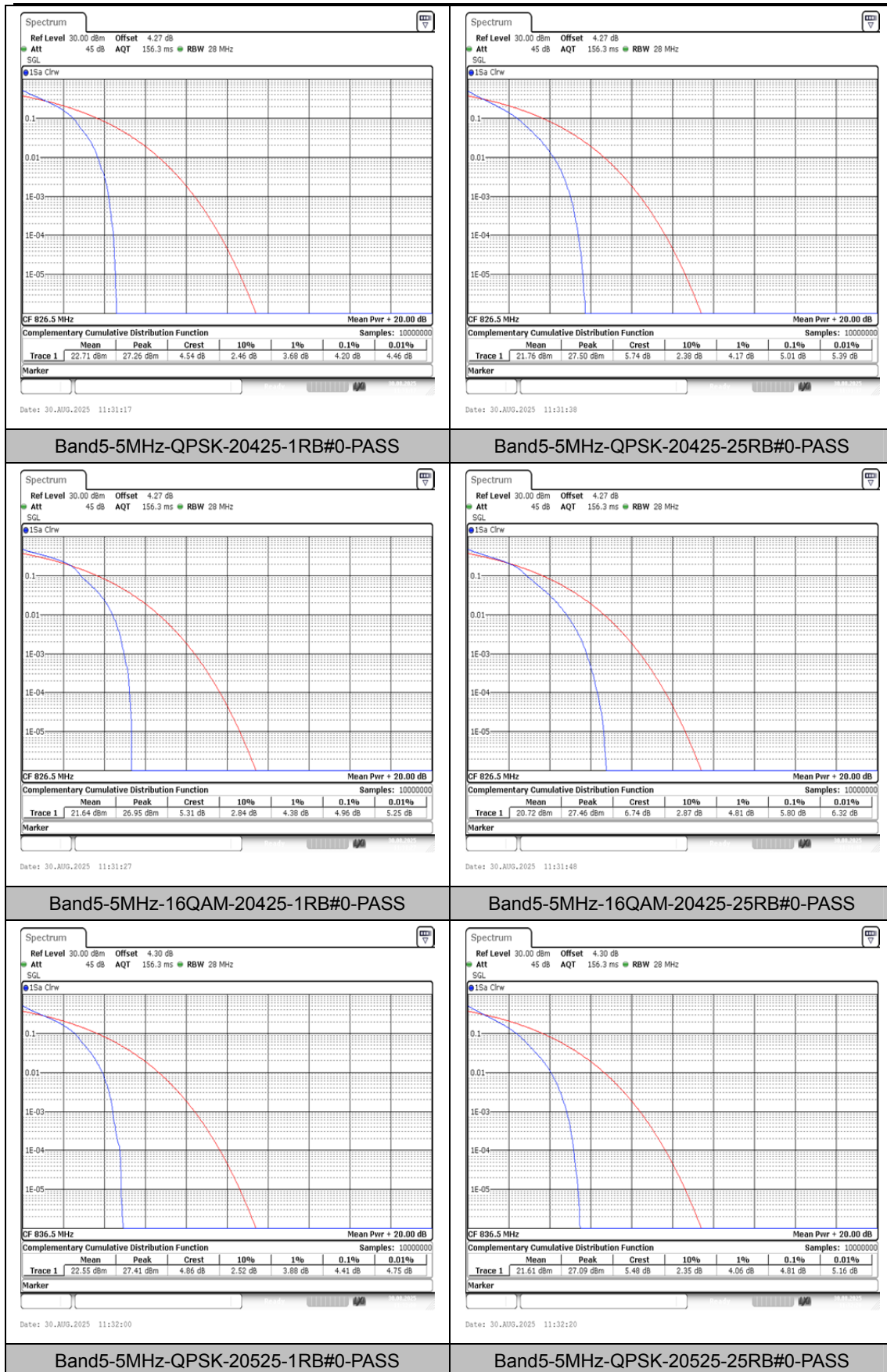
Test Graphs

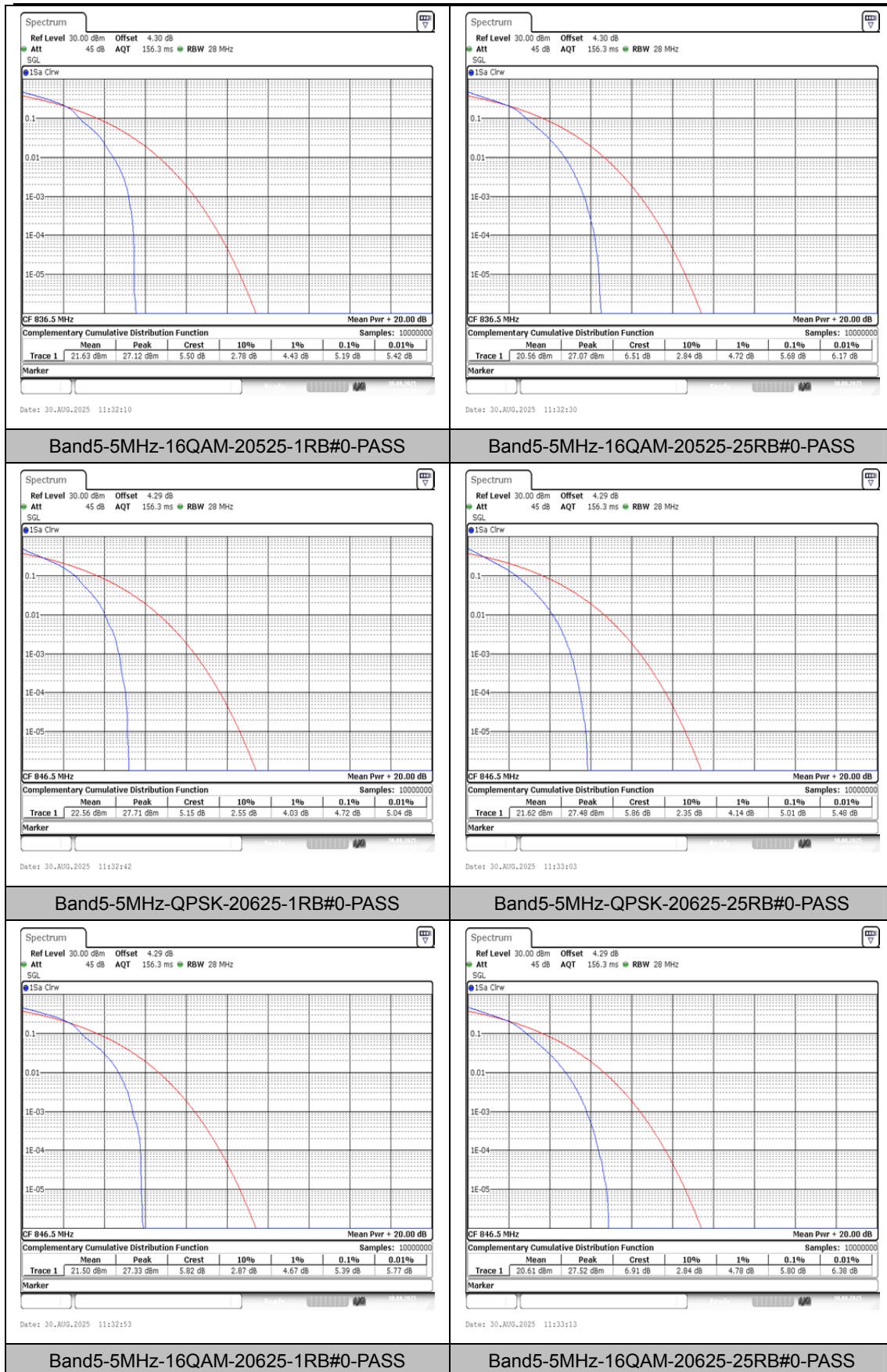


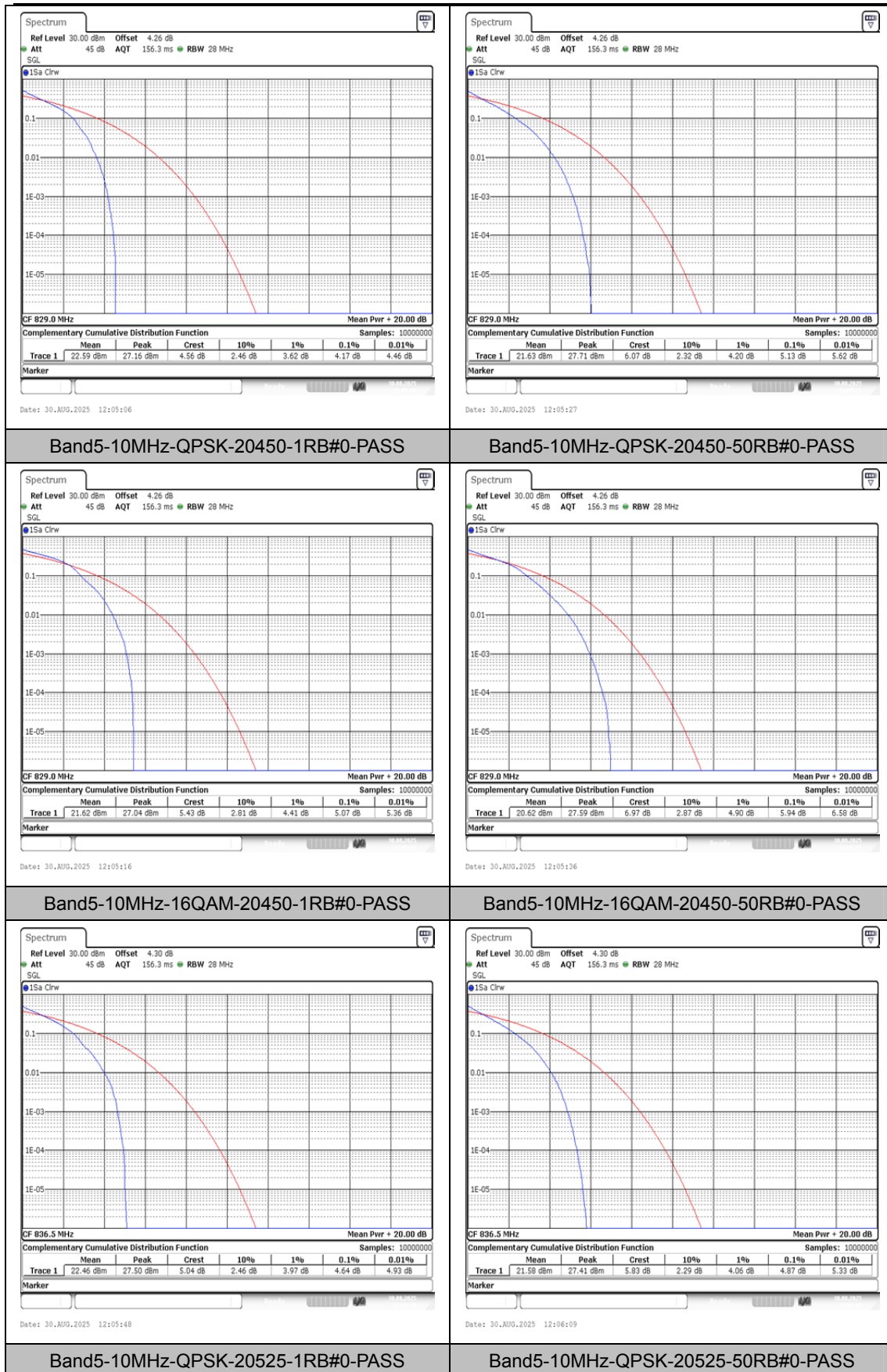


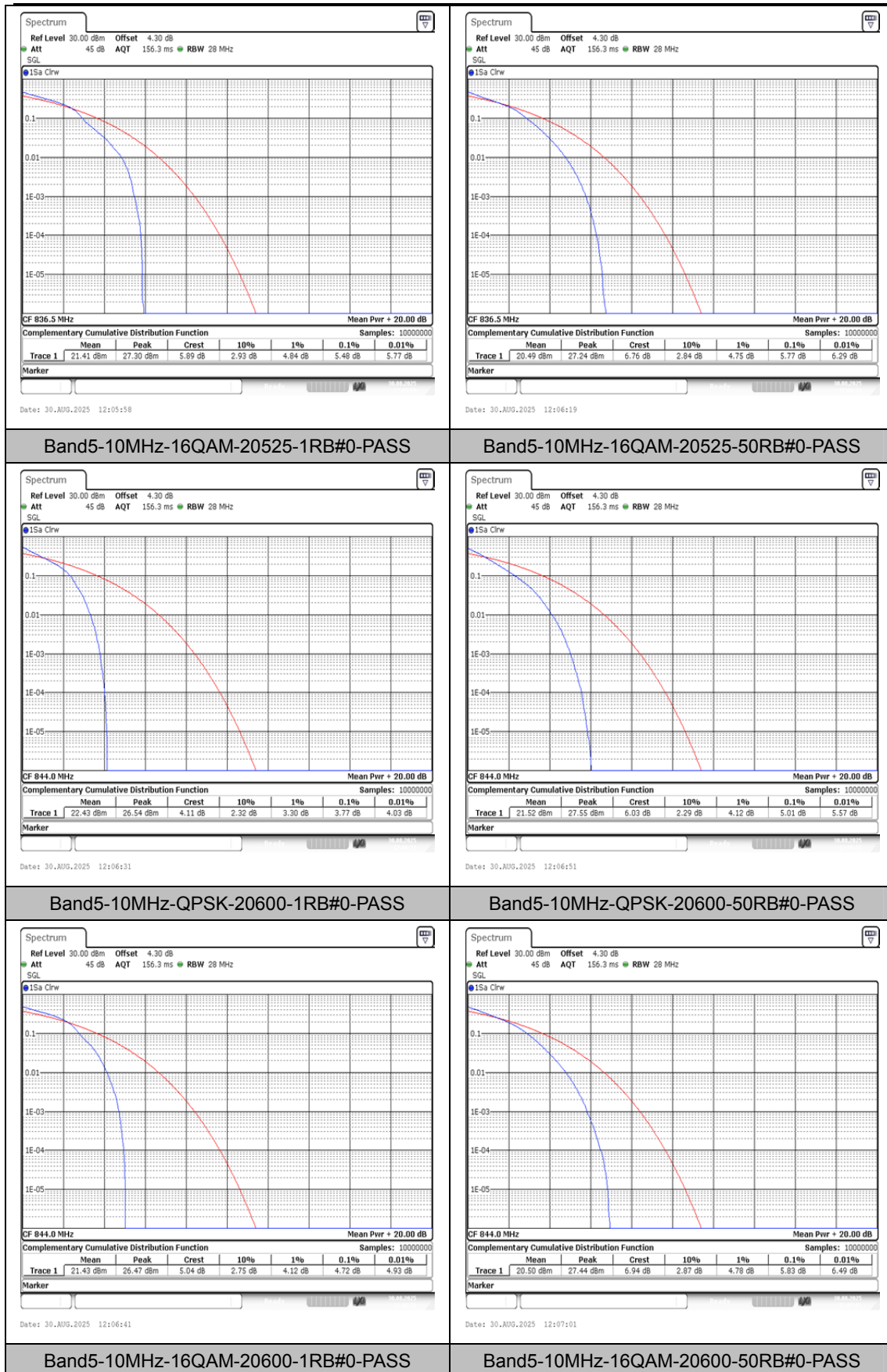












Appendix C: 26dB Bandwidth and Occupied Bandwidth

Test Result

Band	Bandwidth	Modulation	Channel	RB Configuration	Occupied Bandwidth (MHz)	26dB Bandwidth (MHz)	Verdict
Band5	1.4MHz	QPSK	20407	6RB#0	1.093	1.32	PASS
Band5	1.4MHz	16QAM	20407	6RB#0	1.103	1.31	PASS
Band5	1.4MHz	QPSK	20525	6RB#0	1.098	1.30	PASS
Band5	1.4MHz	16QAM	20525	6RB#0	1.098	1.32	PASS
Band5	1.4MHz	QPSK	20643	6RB#0	1.093	1.33	PASS
Band5	1.4MHz	16QAM	20643	6RB#0	1.098	1.33	PASS
Band5	3MHz	QPSK	20415	15RB#0	2.696	2.95	PASS
Band5	3MHz	16QAM	20415	15RB#0	2.696	2.94	PASS
Band5	3MHz	QPSK	20525	15RB#0	2.696	2.93	PASS
Band5	3MHz	16QAM	20525	15RB#0	2.686	2.95	PASS
Band5	3MHz	QPSK	20635	15RB#0	2.696	2.95	PASS
Band5	3MHz	16QAM	20635	15RB#0	2.686	2.96	PASS
Band5	5MHz	QPSK	20425	25RB#0	4.505	5.02	PASS
Band5	5MHz	16QAM	20425	25RB#0	4.505	4.97	PASS
Band5	5MHz	QPSK	20525	25RB#0	4.496	5.01	PASS
Band5	5MHz	16QAM	20525	25RB#0	4.505	5.11	PASS
Band5	5MHz	QPSK	20625	25RB#0	4.496	5.01	PASS
Band5	5MHz	16QAM	20625	25RB#0	4.496	4.98	PASS
Band5	10MHz	QPSK	20450	50RB#0	8.985	9.93	PASS
Band5	10MHz	16QAM	20450	50RB#0	8.985	9.87	PASS
Band5	10MHz	QPSK	20525	50RB#0	9.018	9.87	PASS
Band5	10MHz	16QAM	20525	50RB#0	8.985	9.87	PASS
Band5	10MHz	QPSK	20600	50RB#0	8.985	9.93	PASS
Band5	10MHz	16QAM	20600	50RB#0	8.985	9.83	PASS

Test Graphs

