



TD-LTE/LTE FDD terminal

M/N:HP-N323

FCC ID:2BN5N-HPN323

Applicant:HPYJ USA LLC

Appendix for LTE Band 5



Appendix A: Conducted Power Output Data

Test Result

Band	Bandwidth	Modulation	Channel	RB Configuration	Result(dBm)	Verdict
Band5	1.4MHz	QPSK	20407	1RB#0	23.81	PASS
Band5	1.4MHz	QPSK	20407	1RB#2	23.56	PASS
Band5	1.4MHz	QPSK	20407	1RB#5	23.54	PASS
Band5	1.4MHz	QPSK	20407	3RB#0	23.52	PASS
Band5	1.4MHz	QPSK	20407	3RB#1	23.52	PASS
Band5	1.4MHz	QPSK	20407	3RB#3	23.45	PASS
Band5	1.4MHz	QPSK	20407	6RB#0	22.59	PASS
Band5	1.4MHz	16QAM	20407	1RB#0	22.59	PASS
Band5	1.4MHz	16QAM	20407	1RB#2	22.55	PASS
Band5	1.4MHz	16QAM	20407	1RB#5	22.42	PASS
Band5	1.4MHz	16QAM	20407	3RB#0	22.40	PASS
Band5	1.4MHz	16QAM	20407	3RB#1	22.48	PASS
Band5	1.4MHz	16QAM	20407	3RB#3	22.35	PASS
Band5	1.4MHz	16QAM	20407	6RB#0	21.53	PASS
Band5	1.4MHz	QPSK	20525	1RB#0	24.58	PASS
Band5	1.4MHz	QPSK	20525	1RB#2	24.42	PASS
Band5	1.4MHz	QPSK	20525	1RB#5	24.35	PASS
Band5	1.4MHz	QPSK	20525	3RB#0	24.49	PASS
Band5	1.4MHz	QPSK	20525	3RB#1	24.49	PASS
Band5	1.4MHz	QPSK	20525	3RB#3	24.40	PASS
Band5	1.4MHz	QPSK	20525	6RB#0	23.48	PASS
Band5	1.4MHz	16QAM	20525	1RB#0	23.37	PASS
Band5	1.4MHz	16QAM	20525	1RB#2	23.22	PASS
Band5	1.4MHz	16QAM	20525	1RB#5	23.17	PASS
Band5	1.4MHz	16QAM	20525	3RB#0	23.33	PASS
Band5	1.4MHz	16QAM	20525	3RB#1	23.33	PASS
Band5	1.4MHz	16QAM	20525	3RB#3	23.21	PASS
Band5	1.4MHz	16QAM	20525	6RB#0	22.60	PASS
Band5	1.4MHz	QPSK	20643	1RB#0	24.40	PASS
Band5	1.4MHz	QPSK	20643	1RB#2	24.18	PASS
Band5	1.4MHz	QPSK	20643	1RB#5	24.14	PASS
Band5	1.4MHz	QPSK	20643	3RB#0	24.14	PASS
Band5	1.4MHz	QPSK	20643	3RB#1	24.12	PASS
Band5	1.4MHz	QPSK	20643	3RB#3	24.17	PASS
Band5	1.4MHz	QPSK	20643	6RB#0	23.30	PASS
Band5	1.4MHz	16QAM	20643	1RB#0	23.25	PASS
Band5	1.4MHz	16QAM	20643	1RB#2	23.27	PASS



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Band5	1.4MHz	16QAM	20643	1RB#5	23.15	PASS
Band5	1.4MHz	16QAM	20643	3RB#0	23.07	PASS
Band5	1.4MHz	16QAM	20643	3RB#1	23.05	PASS
Band5	1.4MHz	16QAM	20643	3RB#3	23.06	PASS
Band5	1.4MHz	16QAM	20643	6RB#0	22.44	PASS
Band5	3MHz	QPSK	20415	1RB#0	23.56	PASS
Band5	3MHz	QPSK	20415	1RB#8	23.38	PASS
Band5	3MHz	QPSK	20415	1RB#14	23.16	PASS
Band5	3MHz	QPSK	20415	8RB#0	22.52	PASS
Band5	3MHz	QPSK	20415	8RB#4	22.58	PASS
Band5	3MHz	QPSK	20415	8RB#7	22.40	PASS
Band5	3MHz	QPSK	20415	15RB#0	22.49	PASS
Band5	3MHz	16QAM	20415	1RB#0	22.57	PASS
Band5	3MHz	16QAM	20415	1RB#8	22.42	PASS
Band5	3MHz	16QAM	20415	1RB#14	22.20	PASS
Band5	3MHz	16QAM	20415	8RB#0	21.76	PASS
Band5	3MHz	16QAM	20415	8RB#4	21.71	PASS
Band5	3MHz	16QAM	20415	8RB#7	21.56	PASS
Band5	3MHz	16QAM	20415	15RB#0	21.66	PASS
Band5	3MHz	QPSK	20525	1RB#0	24.69	PASS
Band5	3MHz	QPSK	20525	1RB#8	24.47	PASS
Band5	3MHz	QPSK	20525	1RB#14	24.19	PASS
Band5	3MHz	QPSK	20525	8RB#0	23.58	PASS
Band5	3MHz	QPSK	20525	8RB#4	23.62	PASS
Band5	3MHz	QPSK	20525	8RB#7	23.39	PASS
Band5	3MHz	QPSK	20525	15RB#0	23.50	PASS
Band5	3MHz	16QAM	20525	1RB#0	23.48	PASS
Band5	3MHz	16QAM	20525	1RB#8	23.35	PASS
Band5	3MHz	16QAM	20525	1RB#14	23.10	PASS
Band5	3MHz	16QAM	20525	8RB#0	22.82	PASS
Band5	3MHz	16QAM	20525	8RB#4	22.83	PASS
Band5	3MHz	16QAM	20525	8RB#7	22.62	PASS
Band5	3MHz	16QAM	20525	15RB#0	22.57	PASS
Band5	3MHz	QPSK	20635	1RB#0	23.97	PASS
Band5	3MHz	QPSK	20635	1RB#8	24.30	PASS
Band5	3MHz	QPSK	20635	1RB#14	24.15	PASS
Band5	3MHz	QPSK	20635	8RB#0	23.10	PASS
Band5	3MHz	QPSK	20635	8RB#4	23.04	PASS
Band5	3MHz	QPSK	20635	8RB#7	23.30	PASS
Band5	3MHz	QPSK	20635	15RB#0	23.15	PASS
Band5	3MHz	16QAM	20635	1RB#0	22.67	PASS
Band5	3MHz	16QAM	20635	1RB#8	23.11	PASS

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Band5	3MHz	16QAM	20635	1RB#14	23.07	PASS
Band5	3MHz	16QAM	20635	8RB#0	22.13	PASS
Band5	3MHz	16QAM	20635	8RB#4	22.13	PASS
Band5	3MHz	16QAM	20635	8RB#7	22.38	PASS
Band5	3MHz	16QAM	20635	15RB#0	22.13	PASS
Band5	5MHz	QPSK	20425	1RB#0	23.96	PASS
Band5	5MHz	QPSK	20425	1RB#12	23.36	PASS
Band5	5MHz	QPSK	20425	1RB#24	23.36	PASS
Band5	5MHz	QPSK	20425	12RB#0	22.46	PASS
Band5	5MHz	QPSK	20425	12RB#6	22.50	PASS
Band5	5MHz	QPSK	20425	12RB#13	22.30	PASS
Band5	5MHz	QPSK	20425	25RB#0	22.40	PASS
Band5	5MHz	16QAM	20425	1RB#0	22.87	PASS
Band5	5MHz	16QAM	20425	1RB#12	22.32	PASS
Band5	5MHz	16QAM	20425	1RB#24	22.39	PASS
Band5	5MHz	16QAM	20425	12RB#0	21.62	PASS
Band5	5MHz	16QAM	20425	12RB#6	21.64	PASS
Band5	5MHz	16QAM	20425	12RB#13	21.39	PASS
Band5	5MHz	16QAM	20425	25RB#0	21.58	PASS
Band5	5MHz	QPSK	20525	1RB#0	24.75	PASS
Band5	5MHz	QPSK	20525	1RB#12	24.46	PASS
Band5	5MHz	QPSK	20525	1RB#24	24.15	PASS
Band5	5MHz	QPSK	20525	12RB#0	23.58	PASS
Band5	5MHz	QPSK	20525	12RB#6	23.57	PASS
Band5	5MHz	QPSK	20525	12RB#13	23.29	PASS
Band5	5MHz	QPSK	20525	25RB#0	23.41	PASS
Band5	5MHz	16QAM	20525	1RB#0	23.73	PASS
Band5	5MHz	16QAM	20525	1RB#12	23.61	PASS
Band5	5MHz	16QAM	20525	1RB#24	23.21	PASS
Band5	5MHz	16QAM	20525	12RB#0	22.85	PASS
Band5	5MHz	16QAM	20525	12RB#6	22.82	PASS
Band5	5MHz	16QAM	20525	12RB#13	22.52	PASS
Band5	5MHz	16QAM	20525	25RB#0	22.52	PASS
Band5	5MHz	QPSK	20625	1RB#0	23.67	PASS
Band5	5MHz	QPSK	20625	1RB#12	24.04	PASS
Band5	5MHz	QPSK	20625	1RB#24	24.40	PASS
Band5	5MHz	QPSK	20625	12RB#0	22.51	PASS
Band5	5MHz	QPSK	20625	12RB#6	22.55	PASS
Band5	5MHz	QPSK	20625	12RB#13	23.19	PASS
Band5	5MHz	QPSK	20625	25RB#0	22.89	PASS
Band5	5MHz	16QAM	20625	1RB#0	22.46	PASS
Band5	5MHz	16QAM	20625	1RB#12	22.97	PASS

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Band5	5MHz	16QAM	20625	1RB#24	23.35	PASS
Band5	5MHz	16QAM	20625	12RB#0	21.72	PASS
Band5	5MHz	16QAM	20625	12RB#6	21.73	PASS
Band5	5MHz	16QAM	20625	12RB#13	22.26	PASS
Band5	5MHz	16QAM	20625	25RB#0	22.03	PASS
Band5	10MHz	QPSK	20450	1RB#0	23.51	PASS
Band5	10MHz	QPSK	20450	1RB#24	23.32	PASS
Band5	10MHz	QPSK	20450	1RB#49	24.49	PASS
Band5	10MHz	QPSK	20450	25RB#0	22.20	PASS
Band5	10MHz	QPSK	20450	25RB#12	22.21	PASS
Band5	10MHz	QPSK	20450	25RB#25	22.77	PASS
Band5	10MHz	QPSK	20450	50RB#0	22.58	PASS
Band5	10MHz	16QAM	20450	1RB#0	22.59	PASS
Band5	10MHz	16QAM	20450	1RB#24	22.32	PASS
Band5	10MHz	16QAM	20450	1RB#49	23.62	PASS
Band5	10MHz	16QAM	20450	25RB#0	21.34	PASS
Band5	10MHz	16QAM	20450	25RB#12	21.34	PASS
Band5	10MHz	16QAM	20450	25RB#25	21.94	PASS
Band5	10MHz	QPSK	20525	1RB#0	24.29	PASS
Band5	10MHz	QPSK	20525	1RB#24	24.36	PASS
Band5	10MHz	QPSK	20525	1RB#49	23.44	PASS
Band5	10MHz	QPSK	20525	25RB#0	23.26	PASS
Band5	10MHz	QPSK	20525	25RB#12	23.32	PASS
Band5	10MHz	QPSK	20525	25RB#25	22.85	PASS
Band5	10MHz	QPSK	20525	50RB#0	22.96	PASS
Band5	10MHz	16QAM	20525	1RB#0	23.11	PASS
Band5	10MHz	16QAM	20525	1RB#24	23.27	PASS
Band5	10MHz	16QAM	20525	1RB#49	22.35	PASS
Band5	10MHz	16QAM	20525	25RB#0	22.51	PASS
Band5	10MHz	16QAM	20525	25RB#12	22.53	PASS
Band5	10MHz	16QAM	20525	25RB#25	22.06	PASS
Band5	10MHz	QPSK	20600	1RB#0	23.72	PASS
Band5	10MHz	QPSK	20600	1RB#24	23.31	PASS
Band5	10MHz	QPSK	20600	1RB#49	24.36	PASS
Band5	10MHz	QPSK	20600	25RB#0	22.10	PASS
Band5	10MHz	QPSK	20600	25RB#12	22.17	PASS
Band5	10MHz	QPSK	20600	25RB#25	22.68	PASS
Band5	10MHz	QPSK	20600	50RB#0	22.54	PASS
Band5	10MHz	16QAM	20600	1RB#0	22.44	PASS
Band5	10MHz	16QAM	20600	1RB#24	22.05	PASS
Band5	10MHz	16QAM	20600	1RB#49	23.12	PASS
Band5	10MHz	16QAM	20600	25RB#0	21.33	PASS



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Band5	10MHz	16QAM	20600	25RB#12	21.28	PASS
Band5	10MHz	16QAM	20600	25RB#25	21.81	PASS



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	5.66	13	PASS
Band5	1.4MHz	QPSK	20407	6RB#0	5.87	13	PASS
Band5	1.4MHz	16QAM	20407	1RB#0	6.51	13	PASS
Band5	1.4MHz	16QAM	20407	6RB#0	6.57	13	PASS
Band5	1.4MHz	QPSK	20525	1RB#0	4.98	13	PASS
Band5	1.4MHz	QPSK	20525	6RB#0	5.49	13	PASS
Band5	1.4MHz	16QAM	20525	1RB#0	5.64	13	PASS
Band5	1.4MHz	16QAM	20525	6RB#0	6.24	13	PASS
Band5	1.4MHz	QPSK	20643	1RB#0	5.87	13	PASS
Band5	1.4MHz	QPSK	20643	6RB#0	6.00	13	PASS
Band5	1.4MHz	16QAM	20643	1RB#0	7.02	13	PASS
Band5	1.4MHz	16QAM	20643	6RB#0	6.75	13	PASS
Band5	3MHz	QPSK	20415	1RB#0	5.75	13	PASS
Band5	3MHz	QPSK	20415	15RB#0	5.92	13	PASS
Band5	3MHz	16QAM	20415	1RB#0	6.57	13	PASS
Band5	3MHz	16QAM	20415	15RB#0	6.65	13	PASS
Band5	3MHz	QPSK	20525	1RB#0	5.22	13	PASS
Band5	3MHz	QPSK	20525	15RB#0	5.64	13	PASS
Band5	3MHz	16QAM	20525	1RB#0	5.86	13	PASS
Band5	3MHz	16QAM	20525	15RB#0	6.36	13	PASS
Band5	3MHz	QPSK	20635	1RB#0	6.08	13	PASS
Band5	3MHz	QPSK	20635	15RB#0	5.86	13	PASS
Band5	3MHz	16QAM	20635	1RB#0	7.31	13	PASS
Band5	3MHz	16QAM	20635	15RB#0	6.65	13	PASS
Band5	5MHz	QPSK	20425	1RB#0	5.57	13	PASS
Band5	5MHz	QPSK	20425	25RB#0	6.04	13	PASS
Band5	5MHz	16QAM	20425	1RB#0	6.02	13	PASS
Band5	5MHz	16QAM	20425	25RB#0	6.64	13	PASS
Band5	5MHz	QPSK	20525	1RB#0	5.47	13	PASS
Band5	5MHz	QPSK	20525	25RB#0	5.63	13	PASS
Band5	5MHz	16QAM	20525	1RB#0	5.92	13	PASS
Band5	5MHz	16QAM	20525	25RB#0	6.29	13	PASS
Band5	5MHz	QPSK	20625	1RB#0	6.19	13	PASS
Band5	5MHz	QPSK	20625	25RB#0	5.95	13	PASS
Band5	5MHz	16QAM	20625	1RB#0	6.62	13	PASS
Band5	5MHz	16QAM	20625	25RB#0	6.58	13	PASS



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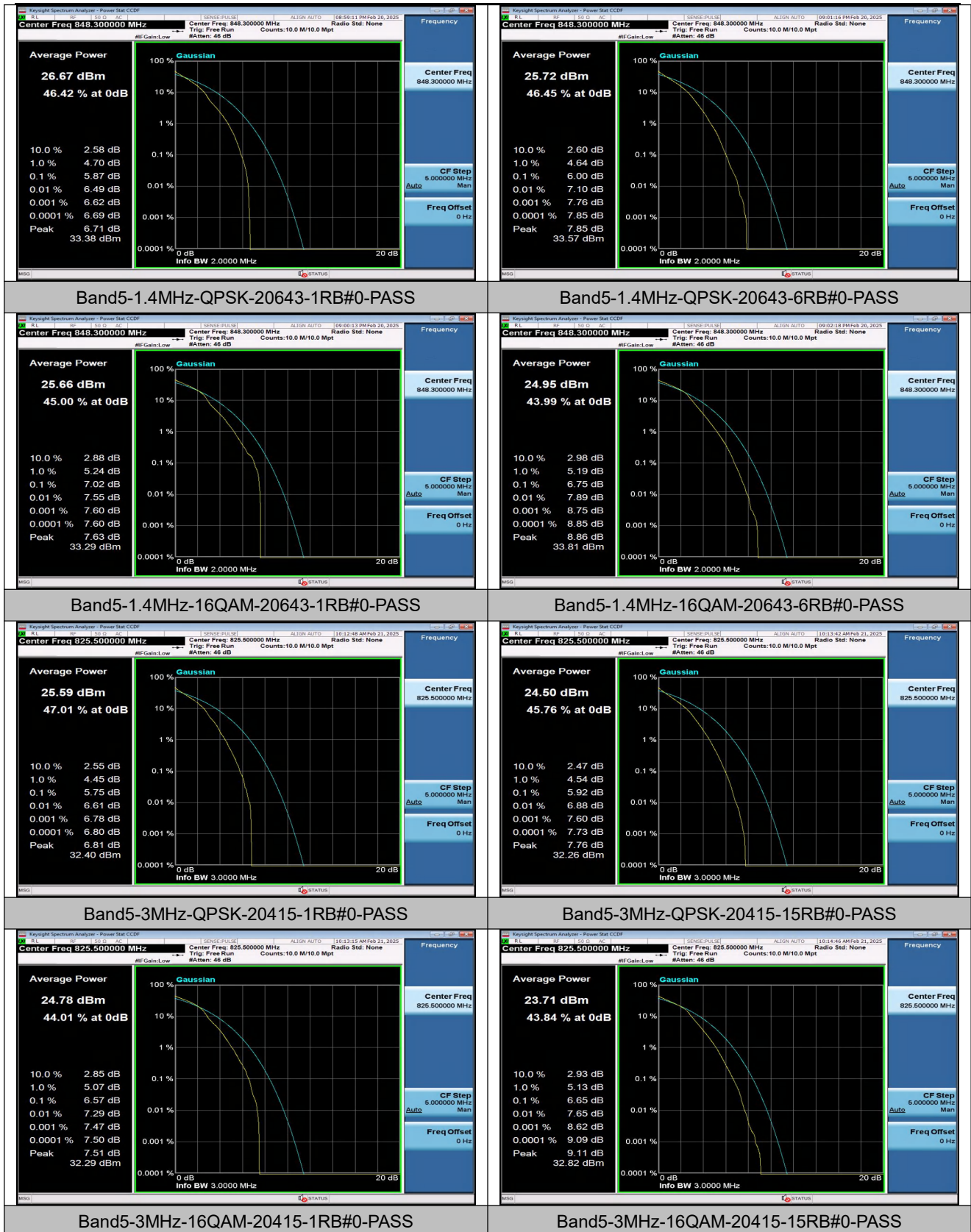
No.:GRCTR250202015-03

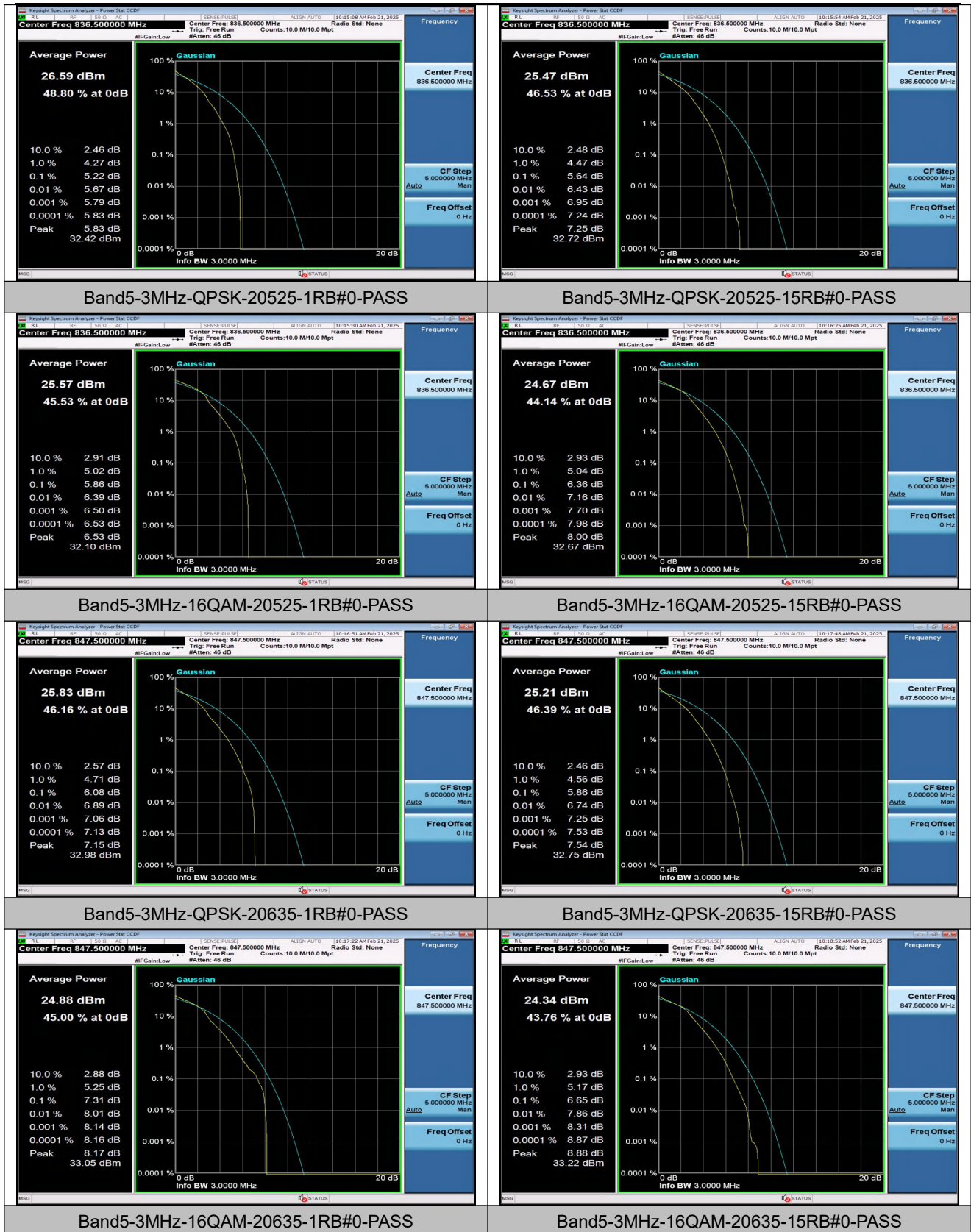
Band5	10MHz	QPSK	20450	1RB#0	5.72	13	PASS
Band5	10MHz	QPSK	20450	50RB#0	5.91	13	PASS
Band5	10MHz	16QAM	20450	1RB#0	6.25	13	PASS
Band5	10MHz	QPSK	20525	1RB#0	6.00	13	PASS
Band5	10MHz	QPSK	20525	50RB#0	5.60	13	PASS
Band5	10MHz	16QAM	20525	1RB#0	7.14	13	PASS
Band5	10MHz	QPSK	20600	1RB#0	5.40	13	PASS
Band5	10MHz	QPSK	20600	50RB#0	5.88	13	PASS
Band5	10MHz	16QAM	20600	1RB#0	6.23	13	PASS



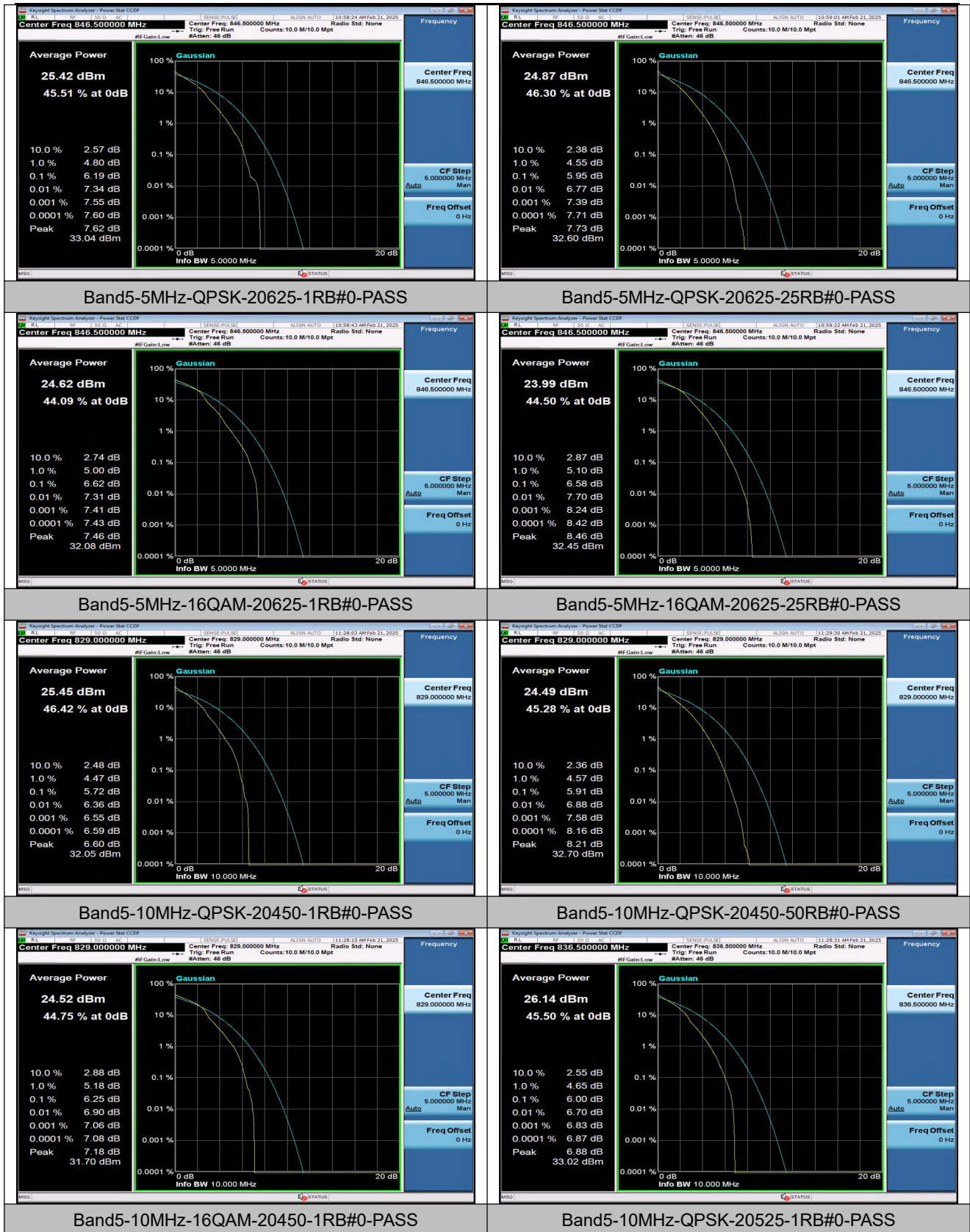
Test Graphs

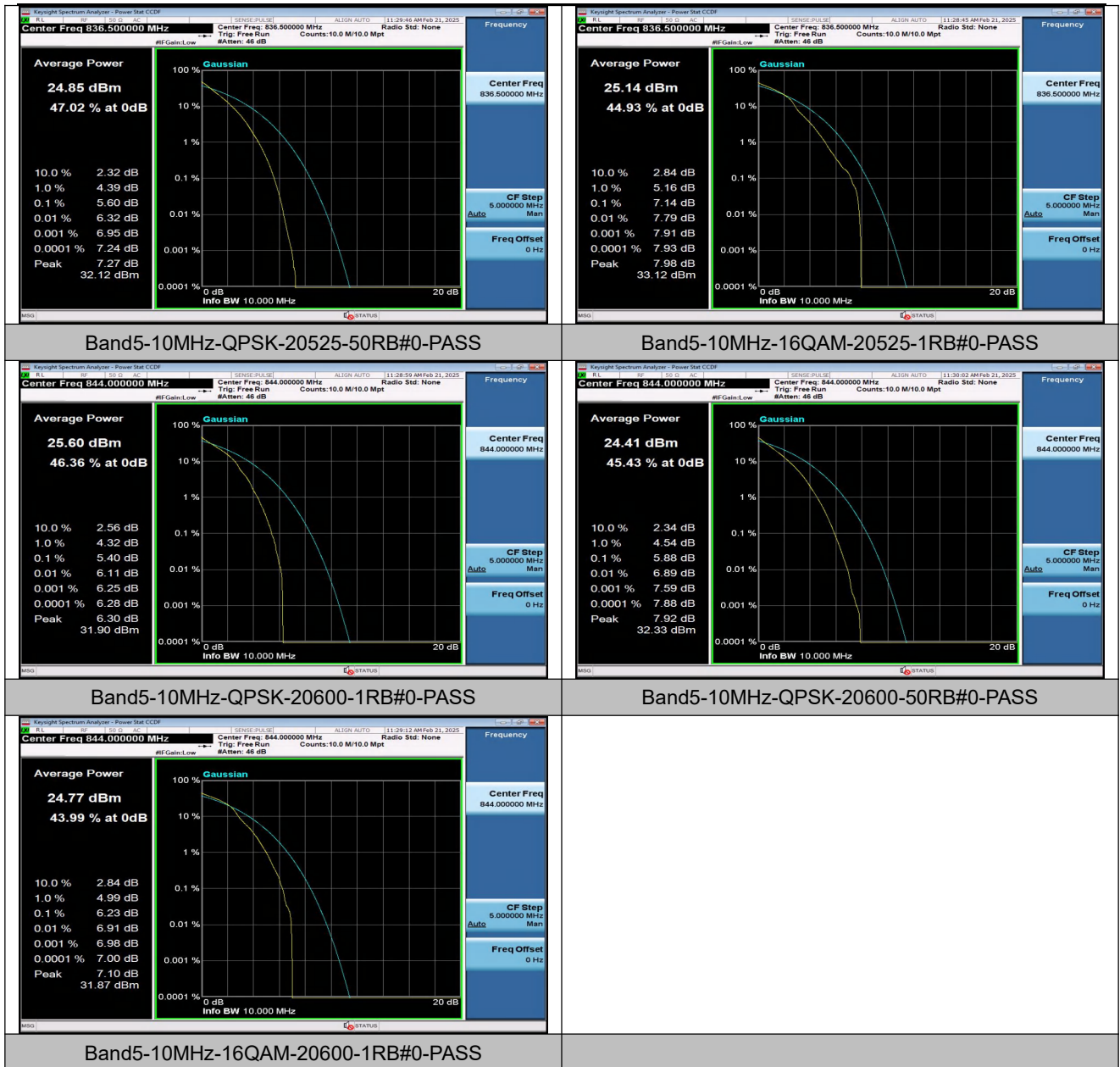














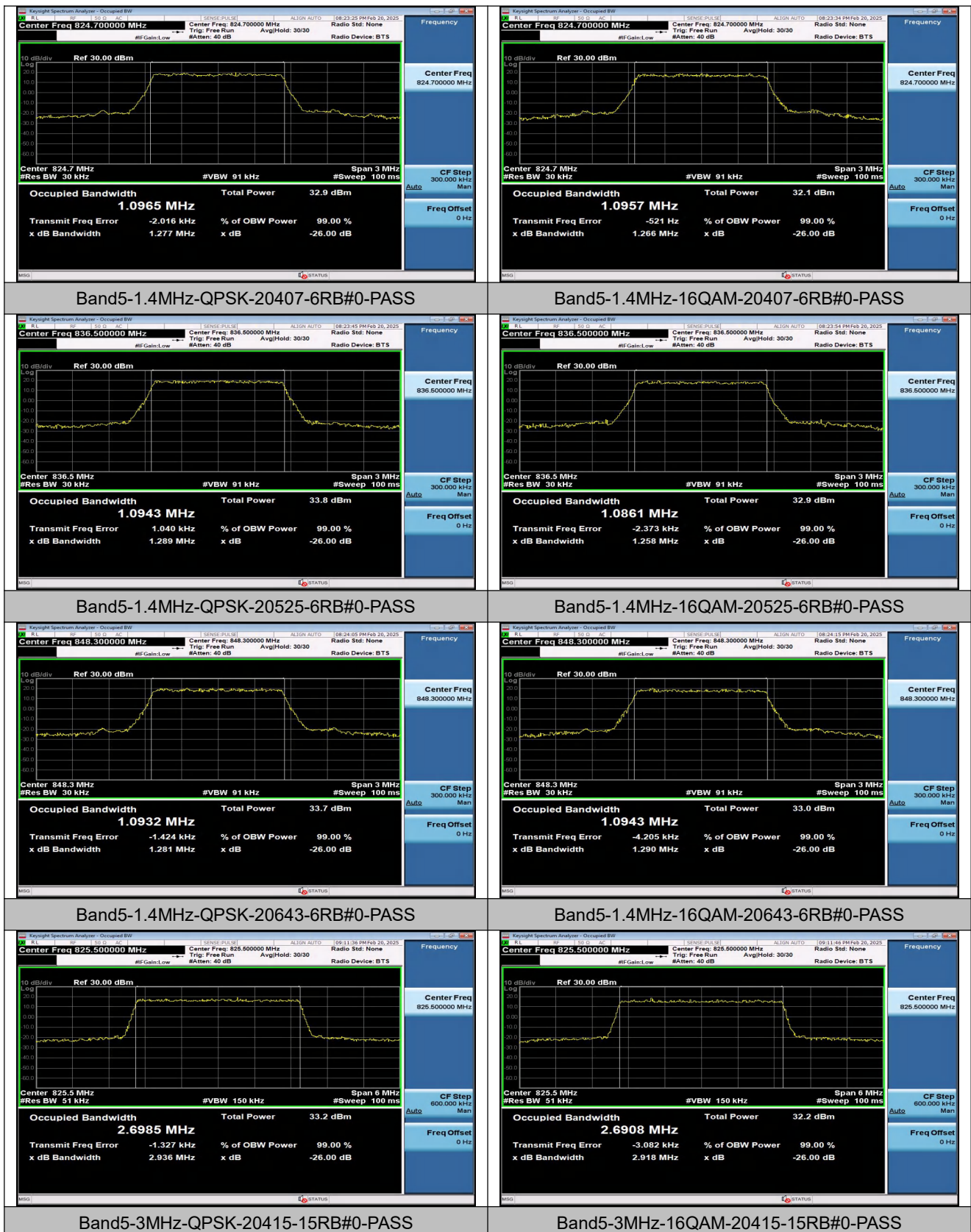
Appendix C: 26dB Bandwidth and Occupied Bandwidth

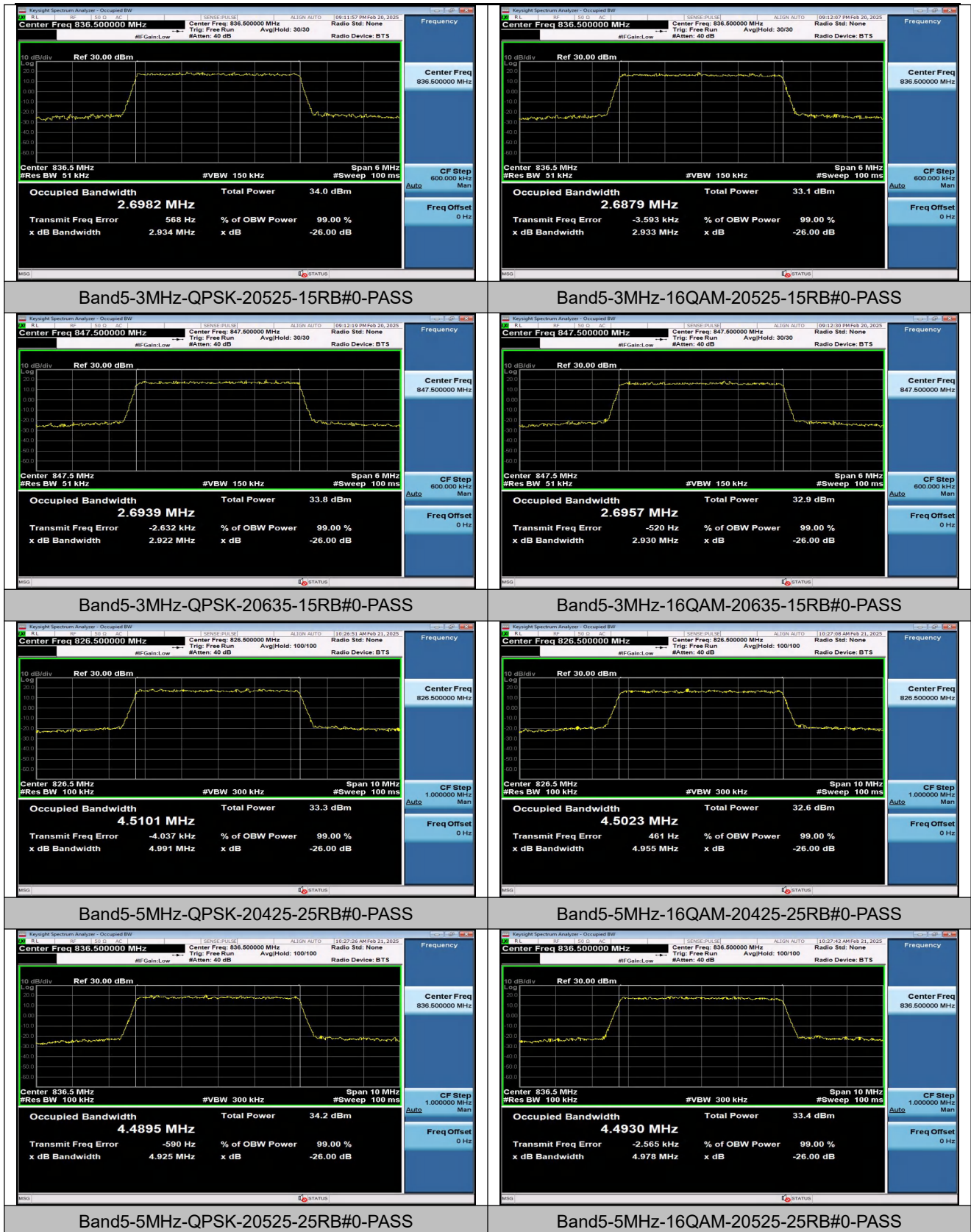
Test Result

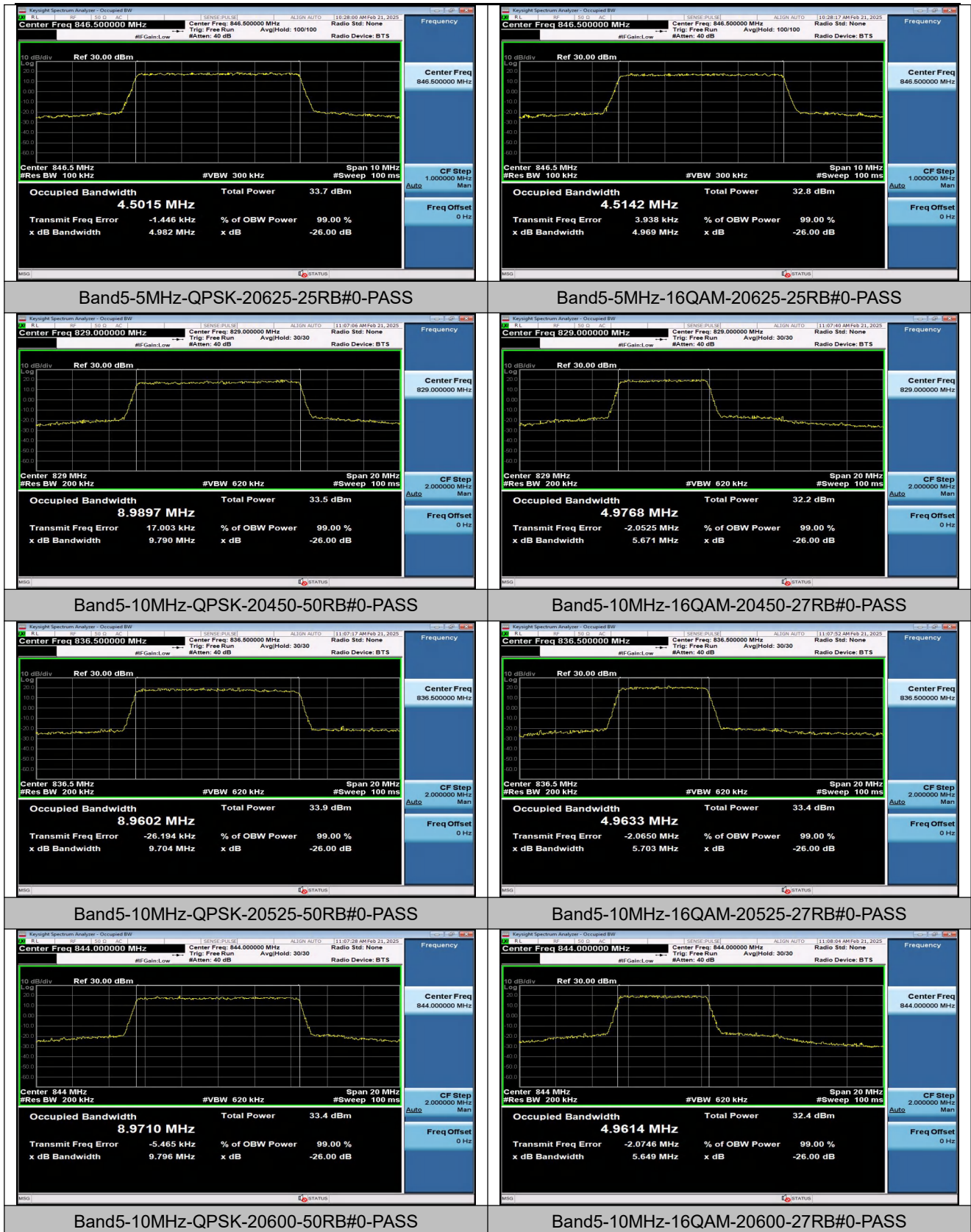
Band	Bandwidth	Modulation	Channel	RB Configuration	Occupied Bandwidth (MHz)	26dB Bandwidth (MHz)	Verdict
Band5	1.4MHz	QPSK	20407	6RB#0	1.0965	1.277	PASS
Band5	1.4MHz	16QAM	20407	6RB#0	1.0957	1.266	PASS
Band5	1.4MHz	QPSK	20525	6RB#0	1.0943	1.289	PASS
Band5	1.4MHz	16QAM	20525	6RB#0	1.0861	1.258	PASS
Band5	1.4MHz	QPSK	20643	6RB#0	1.0932	1.281	PASS
Band5	1.4MHz	16QAM	20643	6RB#0	1.0943	1.290	PASS
Band5	3MHz	QPSK	20415	15RB#0	2.6985	2.936	PASS
Band5	3MHz	16QAM	20415	15RB#0	2.6908	2.918	PASS
Band5	3MHz	QPSK	20525	15RB#0	2.6982	2.934	PASS
Band5	3MHz	16QAM	20525	15RB#0	2.6879	2.933	PASS
Band5	3MHz	QPSK	20635	15RB#0	2.6939	2.922	PASS
Band5	3MHz	16QAM	20635	15RB#0	2.6957	2.930	PASS
Band5	5MHz	QPSK	20425	25RB#0	4.5101	4.991	PASS
Band5	5MHz	16QAM	20425	25RB#0	4.5023	4.955	PASS
Band5	5MHz	QPSK	20525	25RB#0	4.4895	4.925	PASS
Band5	5MHz	16QAM	20525	25RB#0	4.4930	4.978	PASS
Band5	5MHz	QPSK	20625	25RB#0	4.5015	4.982	PASS
Band5	5MHz	16QAM	20625	25RB#0	4.5142	4.969	PASS
Band5	10MHz	QPSK	20450	50RB#0	8.9897	9.790	PASS
Band5	10MHz	16QAM	20450	27RB#0	4.9768	5.671	PASS
Band5	10MHz	QPSK	20525	50RB#0	8.9602	9.704	PASS
Band5	10MHz	16QAM	20525	27RB#0	4.9633	5.703	PASS
Band5	10MHz	QPSK	20600	50RB#0	8.9710	9.796	PASS
Band5	10MHz	16QAM	20600	27RB#0	4.9614	5.649	PASS



Test Graphs









Appendix D: Band Edge

Test Result

Band	Bandwidth	Modulation	Channel	RB Configuration	Result(dBm)	Verdict
Band5	1.4MHz	QPSK	20407	1RB#0	-23.07	PASS
Band5	1.4MHz	QPSK	20407	1RB#5	-27.60	PASS
Band5	1.4MHz	QPSK	20407	6RB#0	-25.38	PASS
Band5	1.4MHz	16QAM	20407	1RB#0	-24.46	PASS
Band5	1.4MHz	16QAM	20407	1RB#5	-25.36	PASS
Band5	1.4MHz	16QAM	20407	6RB#0	-25.94	PASS
Band5	1.4MHz	QPSK	20643	1RB#0	-27.39	PASS
Band5	1.4MHz	QPSK	20643	1RB#5	-24.84	PASS
Band5	1.4MHz	QPSK	20643	6RB#0	-26.14	PASS
Band5	1.4MHz	16QAM	20643	1RB#0	-27.83	PASS
Band5	1.4MHz	16QAM	20643	1RB#5	-25.81	PASS
Band5	1.4MHz	16QAM	20643	6RB#0	-27.34	PASS
Band5	3MHz	QPSK	20415	1RB#0	-22.13	PASS
Band5	3MHz	QPSK	20415	1RB#14	-38.41	PASS
Band5	3MHz	QPSK	20415	15RB#0	-29.63	PASS
Band5	3MHz	16QAM	20415	1RB#0	-23.34	PASS
Band5	3MHz	16QAM	20415	1RB#14	-37.64	PASS
Band5	3MHz	16QAM	20415	15RB#0	-31.14	PASS
Band5	3MHz	QPSK	20635	1RB#0	-38.35	PASS
Band5	3MHz	QPSK	20635	1RB#14	-23.21	PASS
Band5	3MHz	QPSK	20635	15RB#0	-30.37	PASS
Band5	3MHz	16QAM	20635	1RB#0	-38.55	PASS
Band5	3MHz	16QAM	20635	1RB#14	-25.26	PASS
Band5	3MHz	16QAM	20635	15RB#0	-31.49	PASS
Band5	5MHz	QPSK	20425	1RB#0	-24.43	PASS
Band5	5MHz	QPSK	20425	1RB#24	-47.35	PASS
Band5	5MHz	QPSK	20425	25RB#0	-30.95	PASS
Band5	5MHz	16QAM	20425	1RB#0	-25.60	PASS
Band5	5MHz	16QAM	20425	1RB#24	-48.22	PASS
Band5	5MHz	16QAM	20425	25RB#0	-31.35	PASS
Band5	5MHz	QPSK	20625	1RB#0	-47.19	PASS
Band5	5MHz	QPSK	20625	1RB#24	-24.49	PASS
Band5	5MHz	QPSK	20625	25RB#0	-31.32	PASS
Band5	5MHz	16QAM	20625	1RB#0	-47.15	PASS
Band5	5MHz	16QAM	20625	1RB#24	-25.76	PASS
Band5	5MHz	16QAM	20625	25RB#0	-30.61	PASS