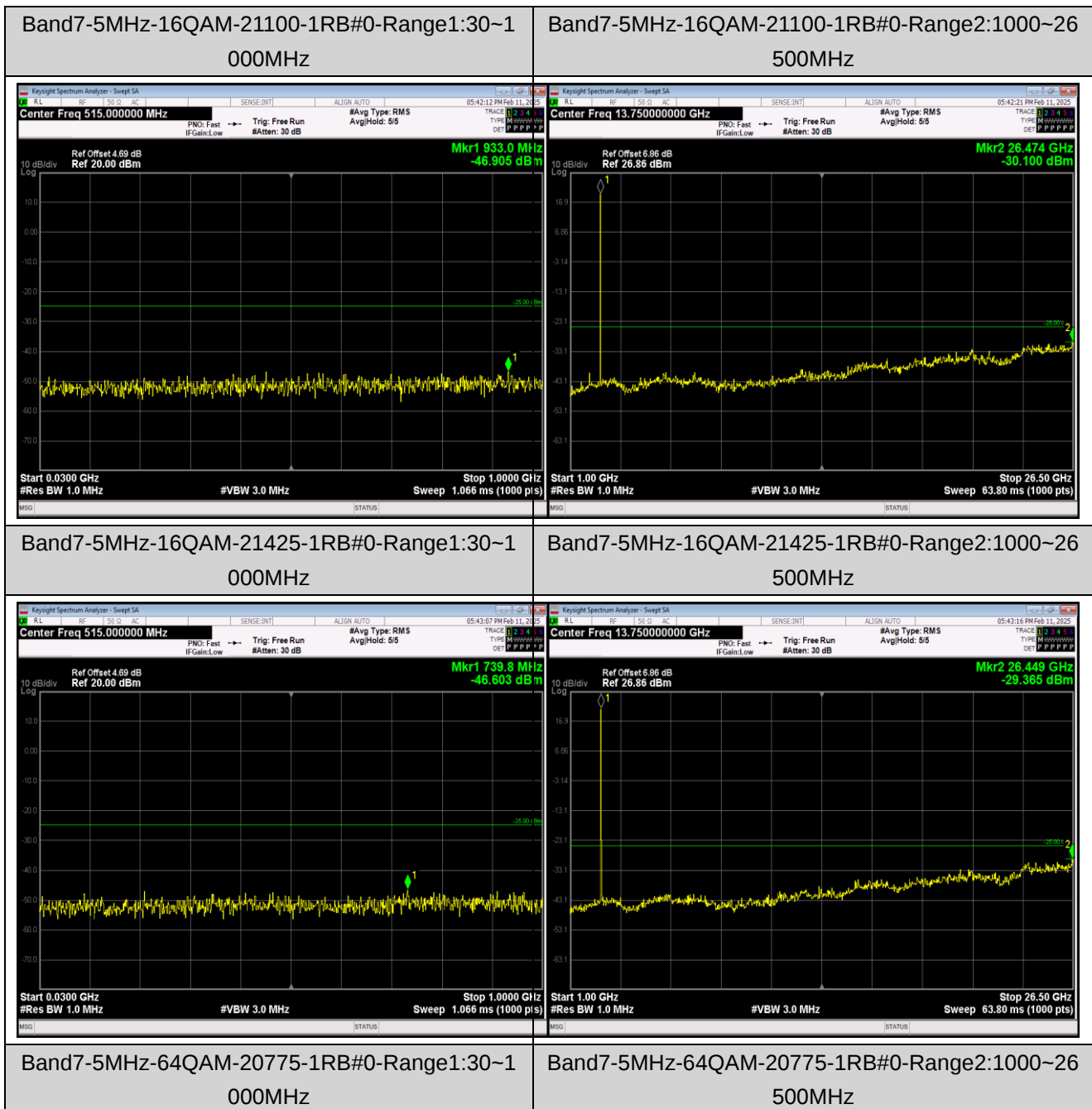
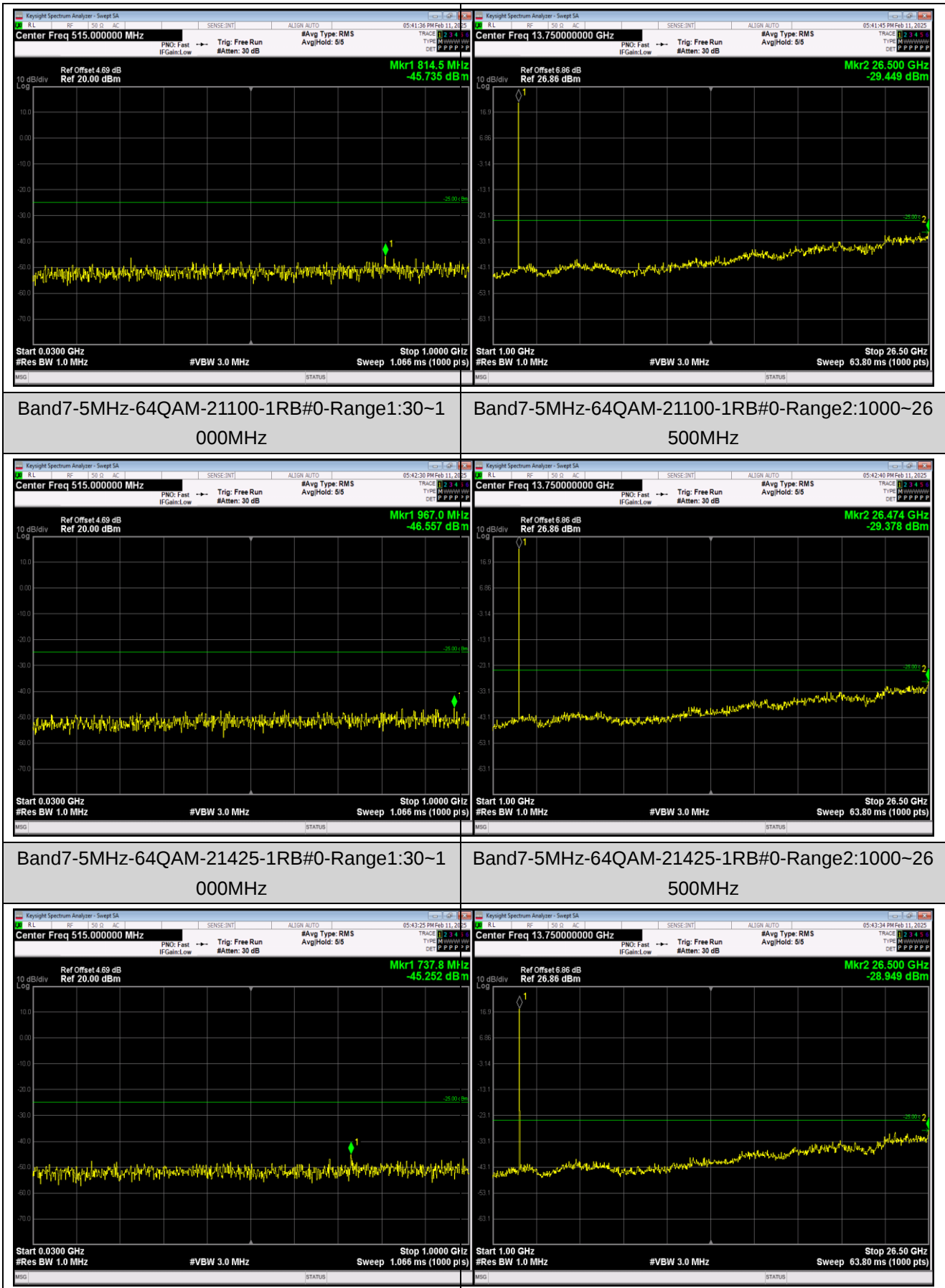
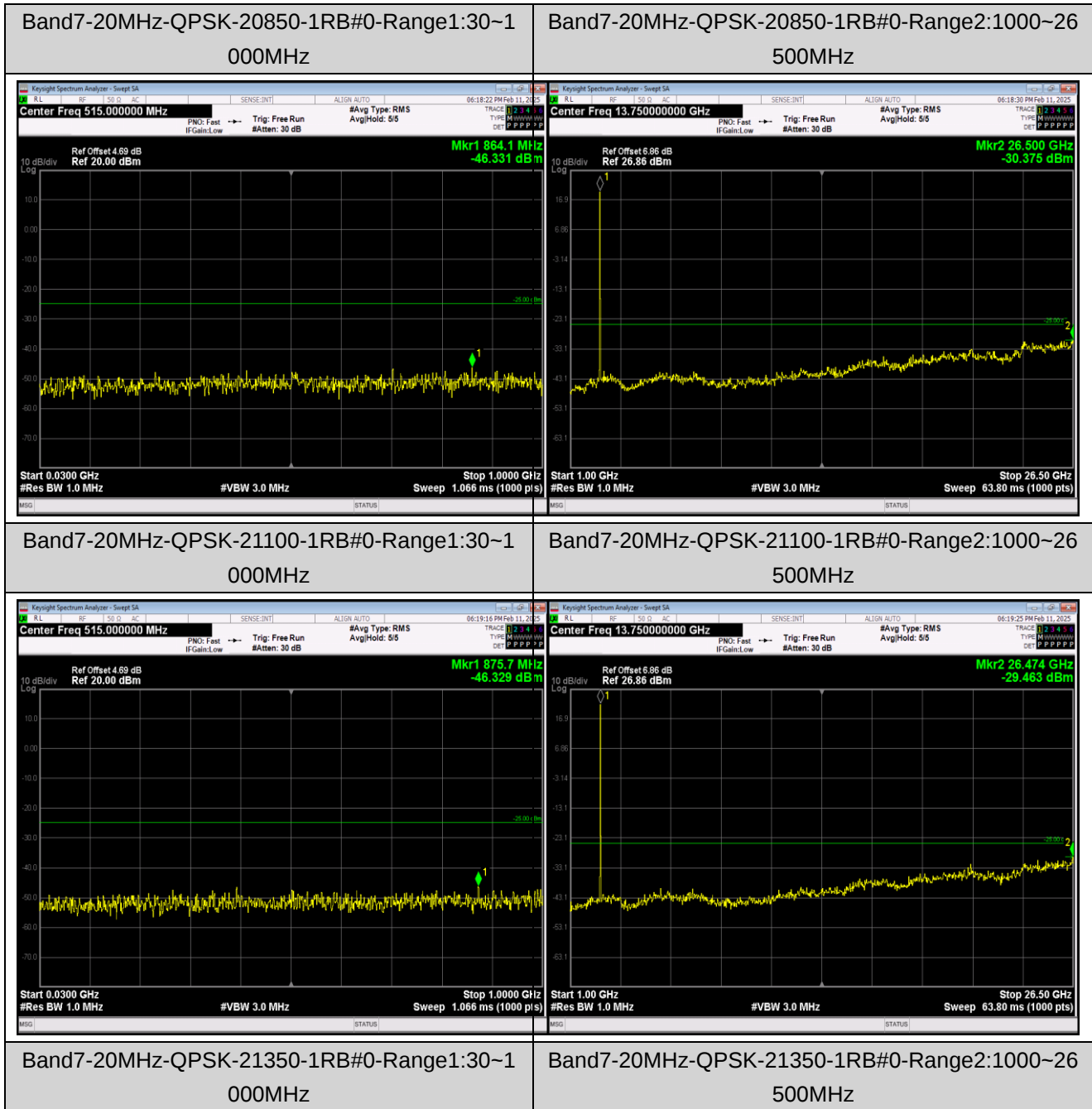
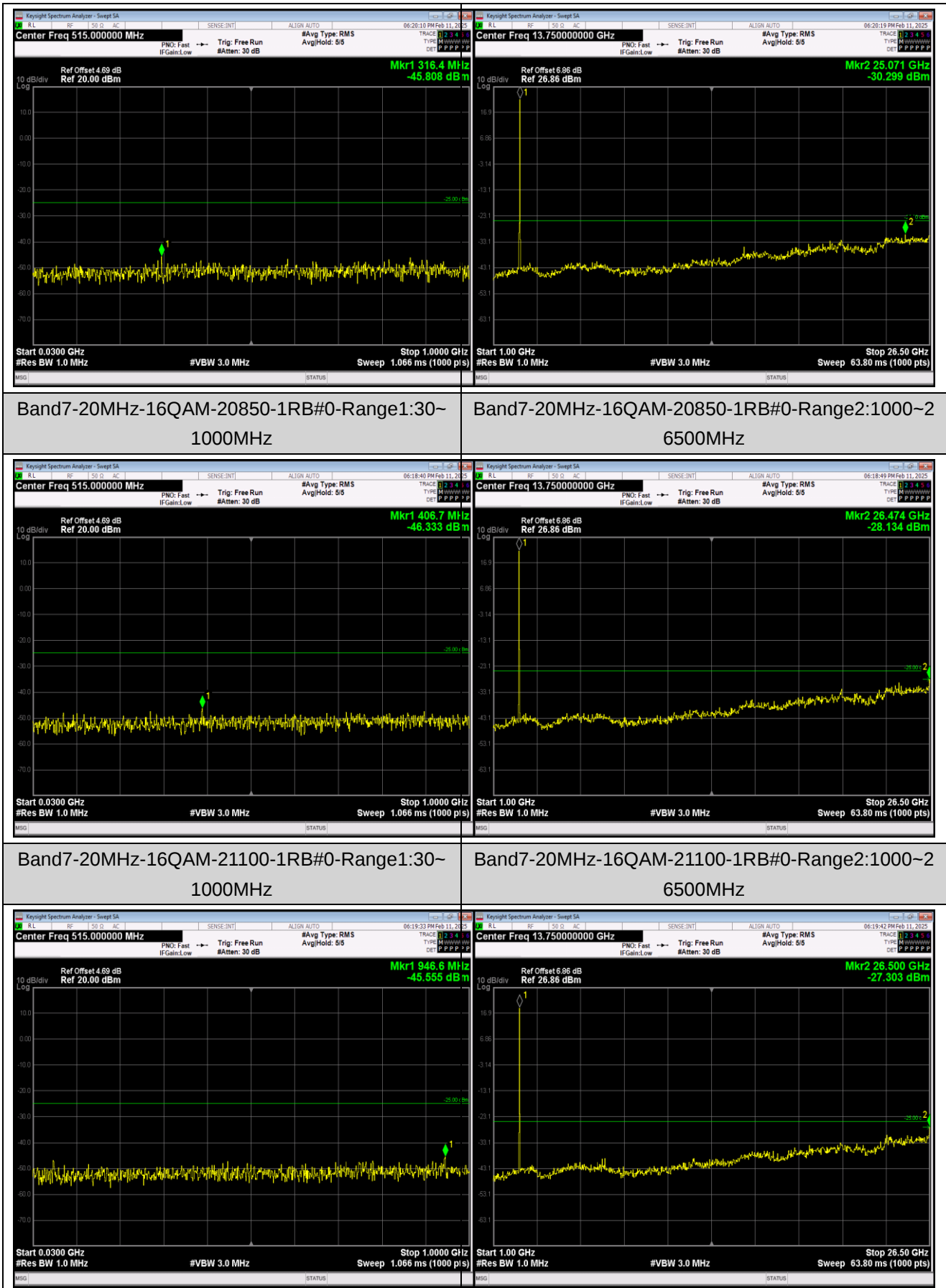
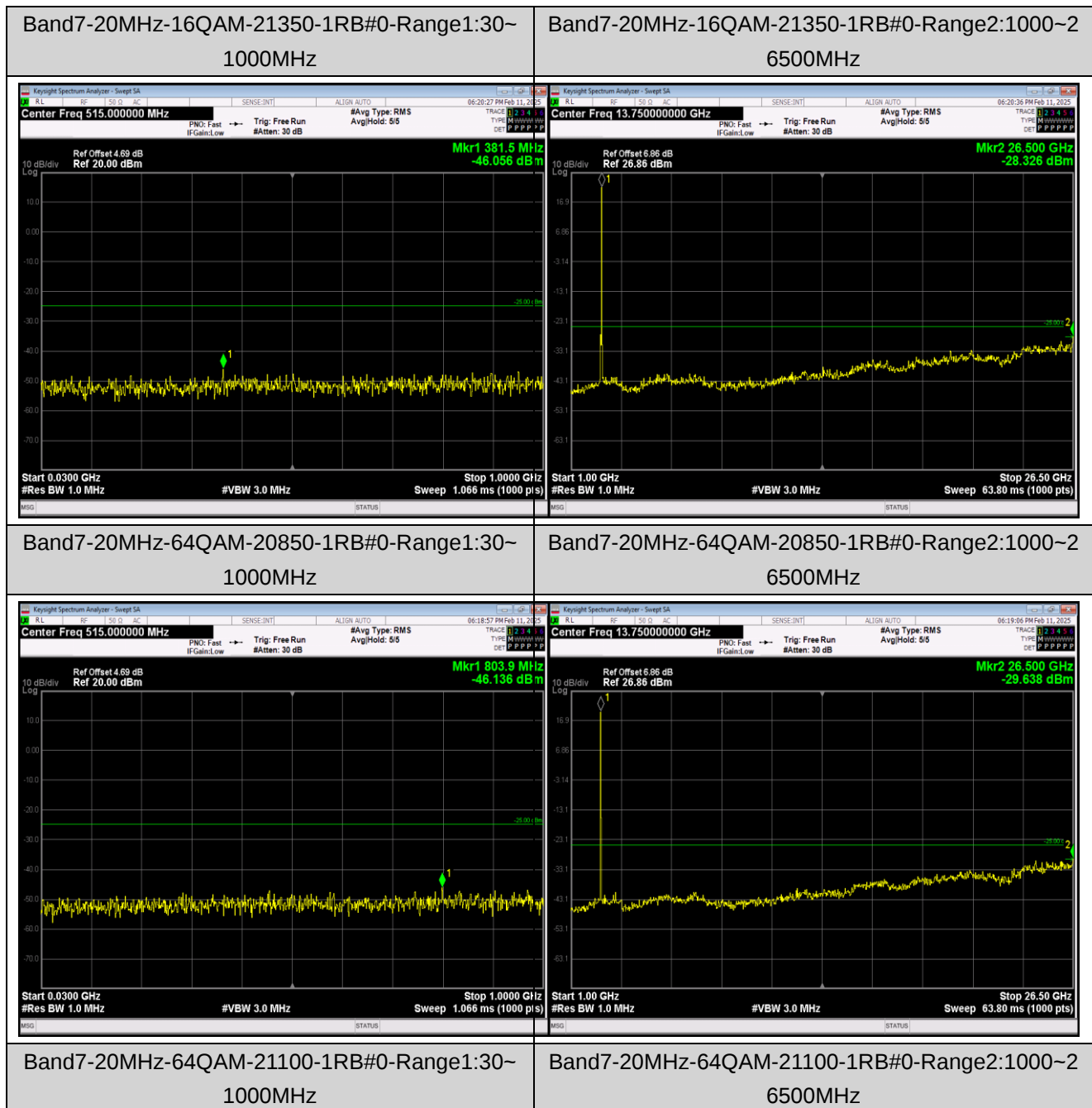


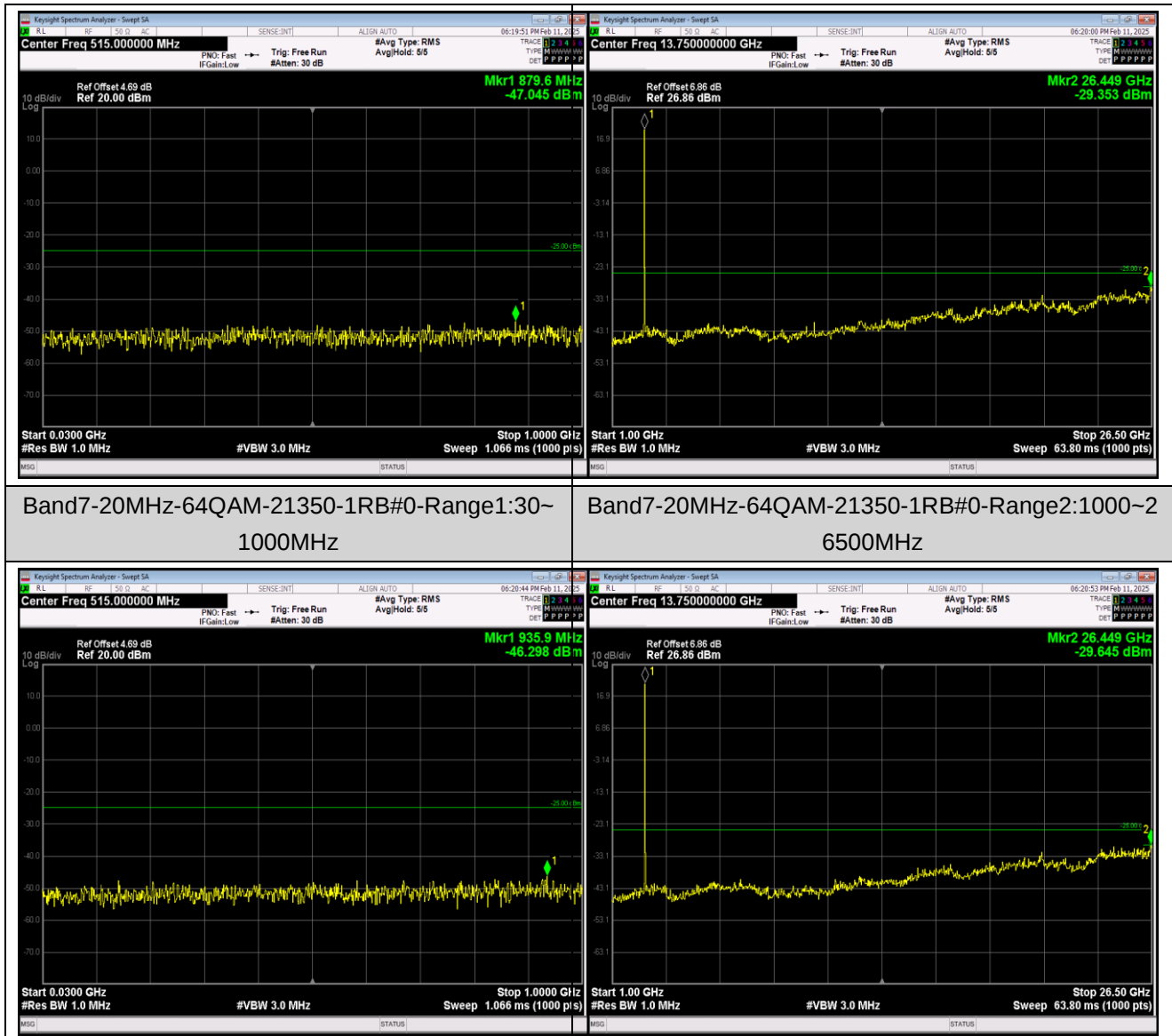












Appendix F: Frequency Stability

Test Result

LTE Band 4 part:

Reference Frequency: LTE Band 4(10MHz) Middle channel=20175 Frequency=1732.5MHz					
Temperature					
Power supplied (Vdc)	Temperature (°C)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
3.80	-30	6.55	0.003781	Within authorized band for Band 4	Pass
	-20	-12.30	-0.007100		
	-10	-11.26	-0.006499		
	0	-20.18	-0.011648		
	10	-11.24	-0.006488		
	20	-16.47	-0.009506		
	30	-2.23	-0.001287		
	40	11.37	0.006563		
	50	-18.54	-0.010701		
16QAM					
3.80	-30	-10.81	-0.006240	Within authorized band for Band 4	Pass
	-20	-10.26	-0.005922		
	-10	-13.07	-0.007544		
	0	-21.33	-0.012312		
	10	-13.89	-0.008017		
	20	-5.74	-0.003313		
	30	-10.81	-0.006240		
	40	-13.86	-0.008000		
	50	-15.19	-0.008768		
64QAM					
3.80	-30	-13.06	-0.007538	Within authorized band for Band 4	Pass
	-20	-11.27	-0.006505		
	-10	-3.40	-0.001962		
	0	-16.42	-0.009478		
	10	-17.70	-0.010216		
	20	-10.20	-0.005887		
	30	-18.14	-0.010470		
	40	-17.18	-0.009916		
	50	-10.01	-0.005778		

Voltage					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	3.50	-16.04	-0.009258	Within authorized band for Band 4	Pass
	3.80	-6.22	-0.003590		
	4.35	8.65	0.004993		
16QAM					
25	3.50	-17.04	-0.009835	Within authorized band for Band 4	Pass
	3.80	-6.25	-0.003608		
	4.35	10.26	0.005922		
64QAM					
25	3.50	-14.86	-0.008577	Within authorized band for Band 4	Pass
	3.80	-7.11	-0.004104		
	4.35	-18.77	-0.010834		
Remark: All bandwidth and all modulation had been tested, but only the worst case data displayed in this report.					

LTE Band 5 part:

Reference Frequency: LTE Band 5(10MHz) Middle channel=20525 Frequency=836.5MHz					
Temperature					
Power supplied (Vdc)	Temperature (℃)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
3.80	-30	-11.63	-0.013903	±2.5	Pass
	-20	-11.74	-0.014035		
	-10	-4.18	-0.004997		
	0	-3.43	-0.004100		
	10	-9.98	-0.011931		
	20	-11.42	-0.013652		
	30	-17.24	-0.020610		
	40	-11.90	-0.014226		
	50	4.69	0.005607		
16QAM					
3.80	-30	-5.89	-0.007041	±2.5	Pass
	-20	-11.01	-0.013162		
	-10	-10.01	-0.011967		
	0	-14.38	-0.017191		
	10	-4.78	-0.005714		
	20	-5.34	-0.006384		
	30	-5.24	-0.006264		
	40	-13.49	-0.016127		
	50	-8.64	-0.010329		
64QAM					
3.80	-30	-11.44	-0.013676	±2.5	Pass
	-20	-10.31	-0.012325		
	-10	-6.27	-0.007496		
	0	-8.73	-0.010436		
	10	-6.91	-0.008261		
	20	-7.38	-0.008822		
	30	-10.41	-0.012445		
	40	-10.60	-0.012672		
	50	-10.61	-0.012684		

Voltage					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	3.50	-11.82	-0.014130	±2.5	Pass
	3.80	-9.44	-0.011285		
	4.35	-9.00	-0.010759		
16QAM					
25	3.50	-11.53	-0.013784	±2.5	Pass
	3.80	-12.76	-0.015254		
	4.35	-4.13	-0.004937		
64QAM					
25	3.50	-9.67	-0.011560	±2.5	Pass
	3.80	-9.18	-0.010974		
	4.35	-6.74	-0.008057		
Remark: All bandwidth and all modulation had been tested, but only the worst case data displayed in this report.					

LTE Band 7 part:

Reference Frequency: LTE Band 7(10MHz) Middle channel=21100 Frequency=2535.0MHz					
Temperature					
Power supplied (Vdc)	Temperature (℃)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
3.80	-30	5.31	0.002095	Within authorized band for Band 7	Pass
	-20	-11.06	-0.004363		
	-10	19.93	0.007862		
	0	16.35	0.006450		
	10	7.18	0.002832		
	20	18.17	0.007168		
	30	-20.18	-0.007961		
	40	8.90	0.003511		
	50	18.27	0.007207		
16QAM					
3.80	-30	-6.39	-0.002521	Within authorized band for Band 7	Pass
	-20	-25.08	-0.009893		
	-10	-22.69	-0.008951		
	0	-18.27	-0.007207		
	10	-18.98	-0.007487		
	20	11.82	0.004663		
	30	17.50	0.006903		
	40	-21.09	-0.008320		
	50	4.96	0.001957		
64QAM					
3.80	-30	-5.01	-0.001976	Within authorized band for Band 7	Pass
	-20	-22.14	-0.008734		
	-10	-21.04	-0.008300		
	0	16.77	0.006615		
	10	9.48	0.003740		
	20	-22.27	-0.008785		
	30	-19.61	-0.007736		
	40	6.27	0.002473		
	50	-18.78	-0.007408		

Voltage					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	3.50	21.77	0.008588	Within authorized band for Band 7	Pass
	3.80	-14.29	-0.005637		
	4.35	-25.09	-0.009897		
16QAM					
25	3.50	-15.68	-0.006185	Within authorized band for Band 7	Pass
	3.80	-12.70	-0.005010		
	4.35	-15.69	-0.006189		
64QAM					
25	3.50	-23.33	-0.009203	Within authorized band for Band 7	Pass
	3.80	16.62	0.006556		
	4.35	-23.25	-0.009172		
Remark: All bandwidth and all modulation had been tested, but only the worst case data displayed in this report.					

Appendix G: Modulation Characteristics

Test Result

Band	Bandwidth	Modulation	Channel	RB Configuration	Result	Verdict
Band4	20MHz	QPSK	20175	100RB#0	PASS	PASS
Band4	20MHz	16QAM	20175	100RB#0	PASS	PASS
Band4	20MHz	64QAM	20175	100RB#0	PASS	PASS
Band5	10MHz	QPSK	20525	50RB#0	PASS	PASS
Band5	10MHz	16QAM	20525	50RB#0	PASS	PASS
Band5	10MHz	64QAM	20525	50RB#0	PASS	PASS
Band7	20MHz	QPSK	21100	100RB#0	PASS	PASS
Band7	20MHz	16QAM	21100	100RB#0	PASS	PASS
Band7	20MHz	64QAM	21100	100RB#0	PASS	PASS

Remark: All bandwidth and all modulation had been tested, but only the worst case data displayed in this report.

Test Graphs

