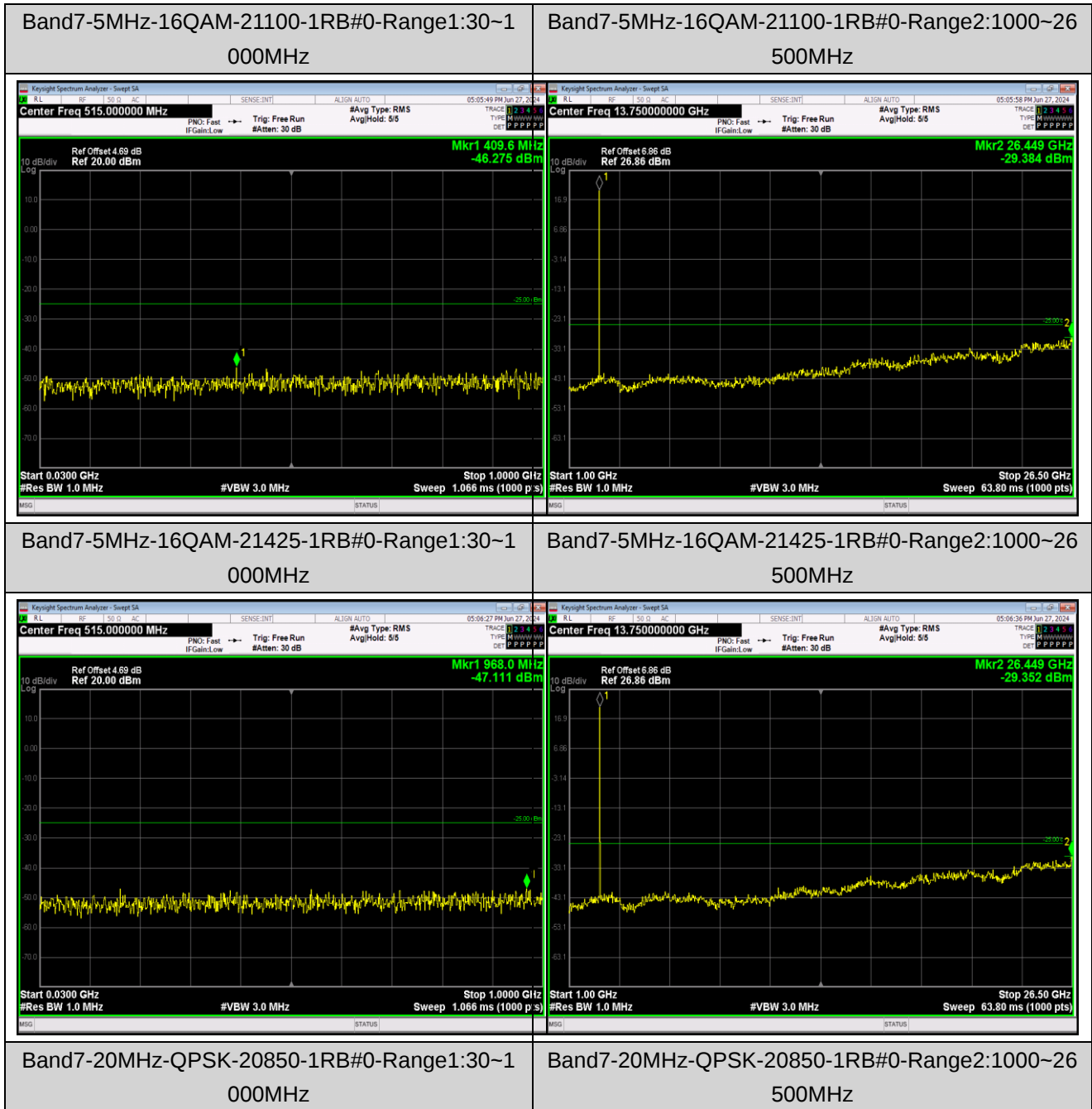
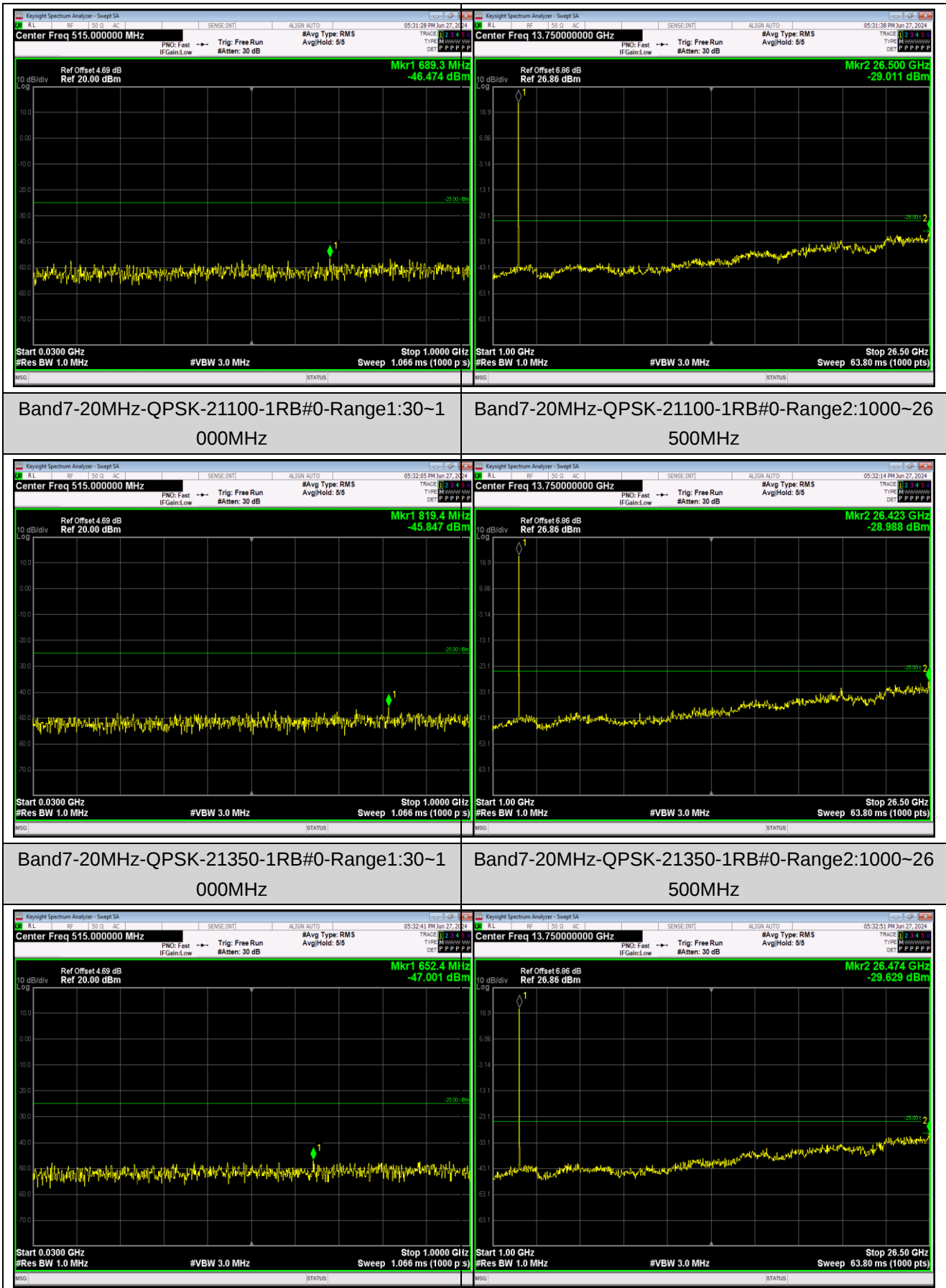
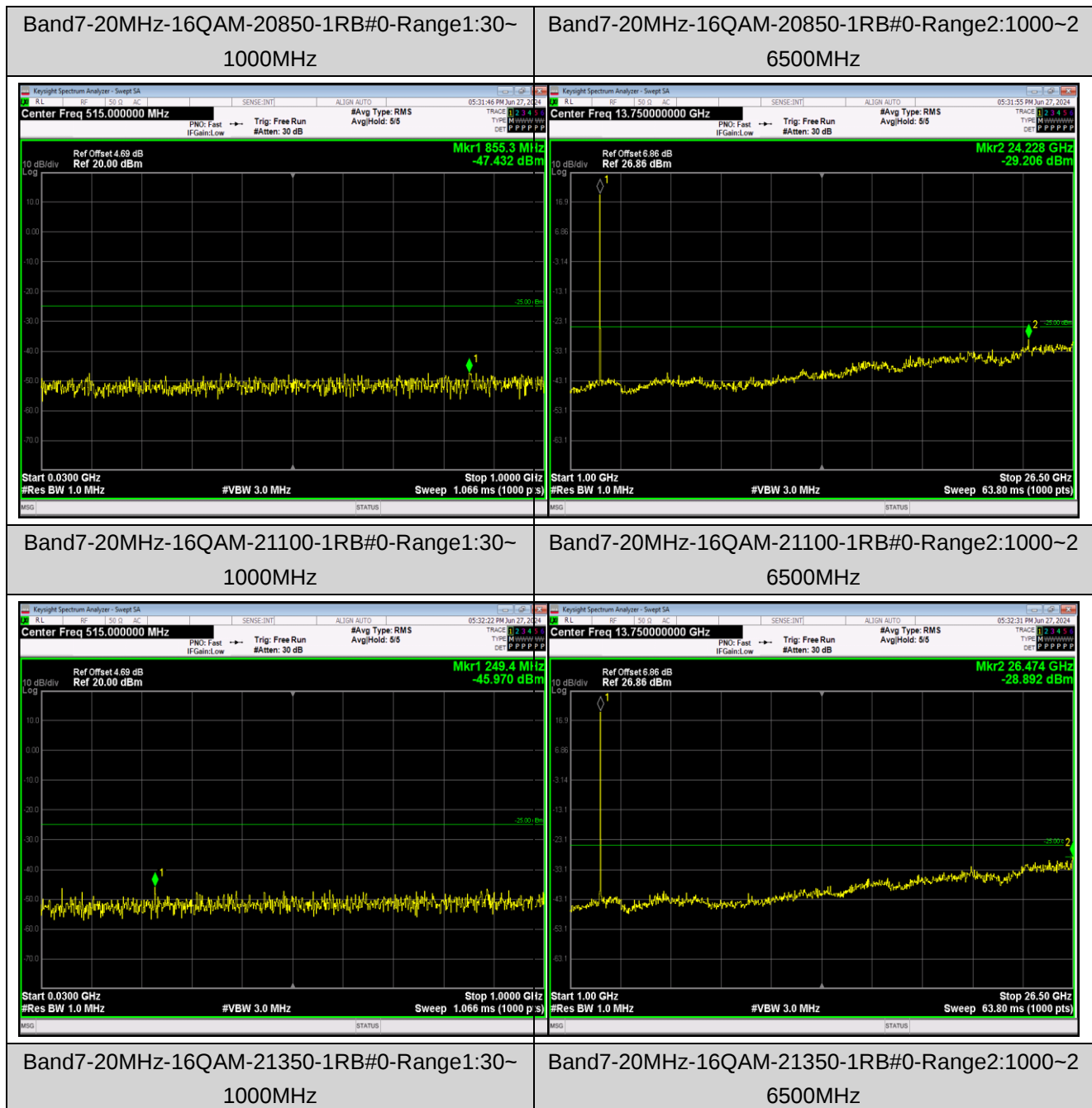
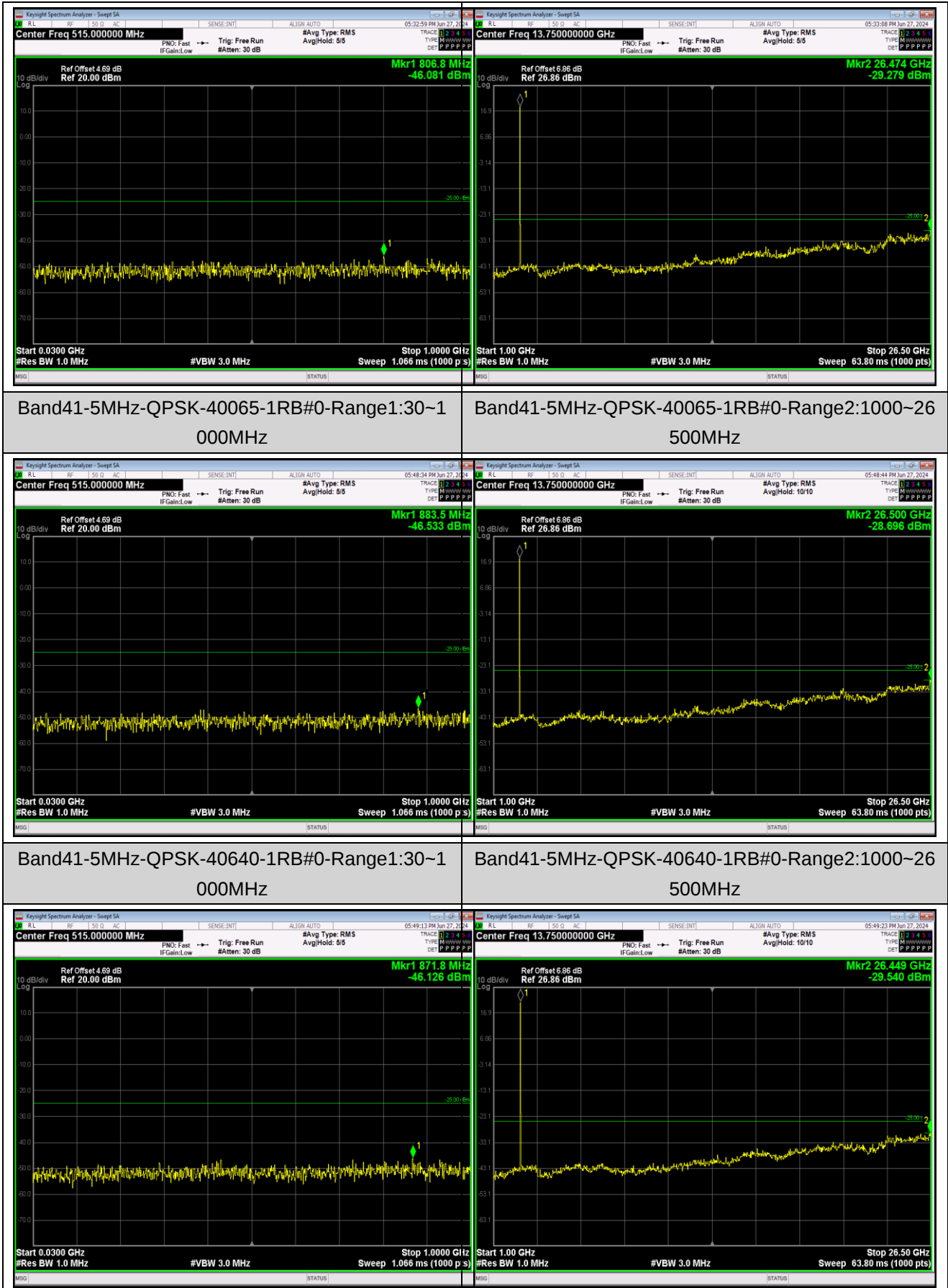
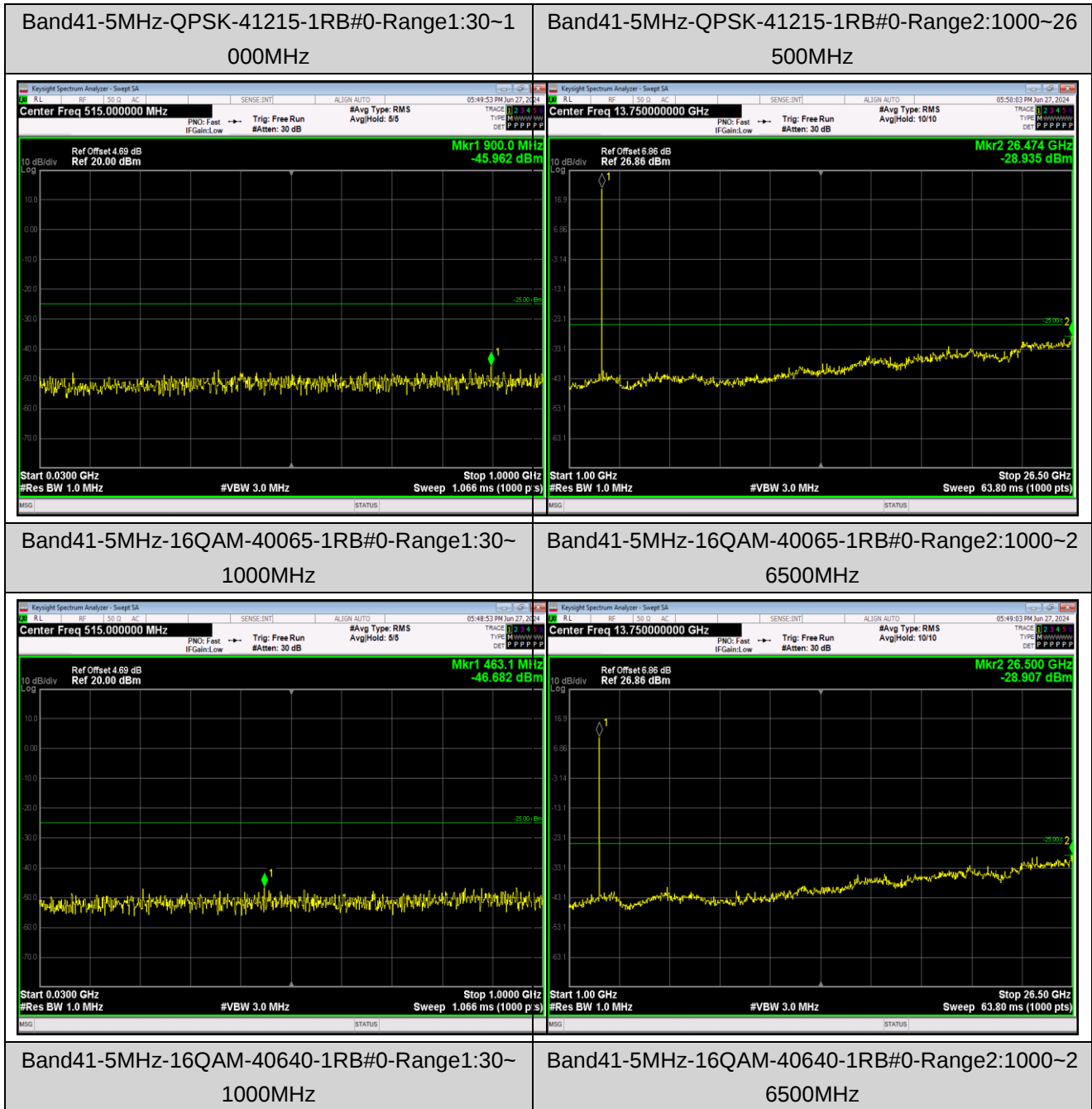


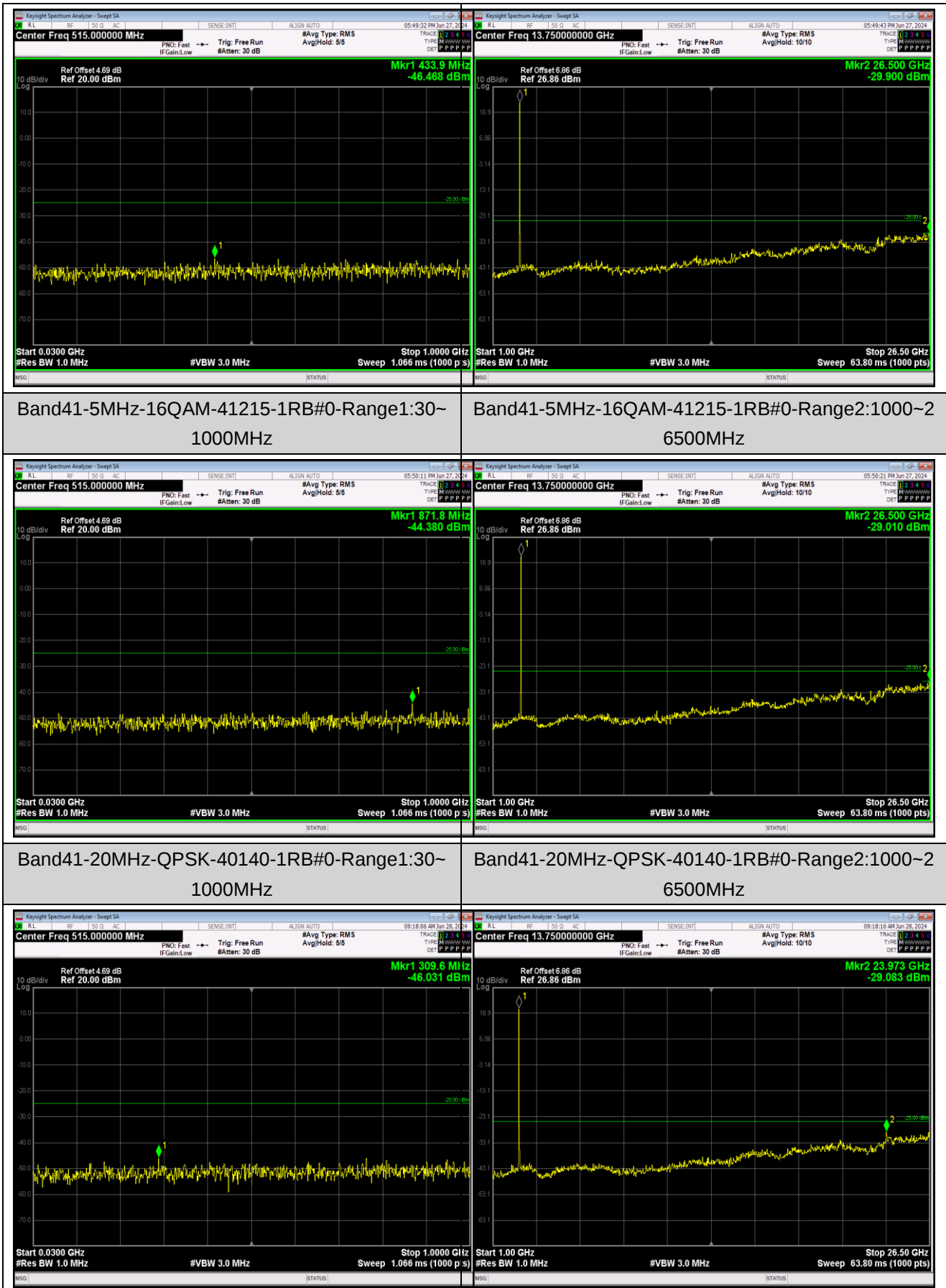


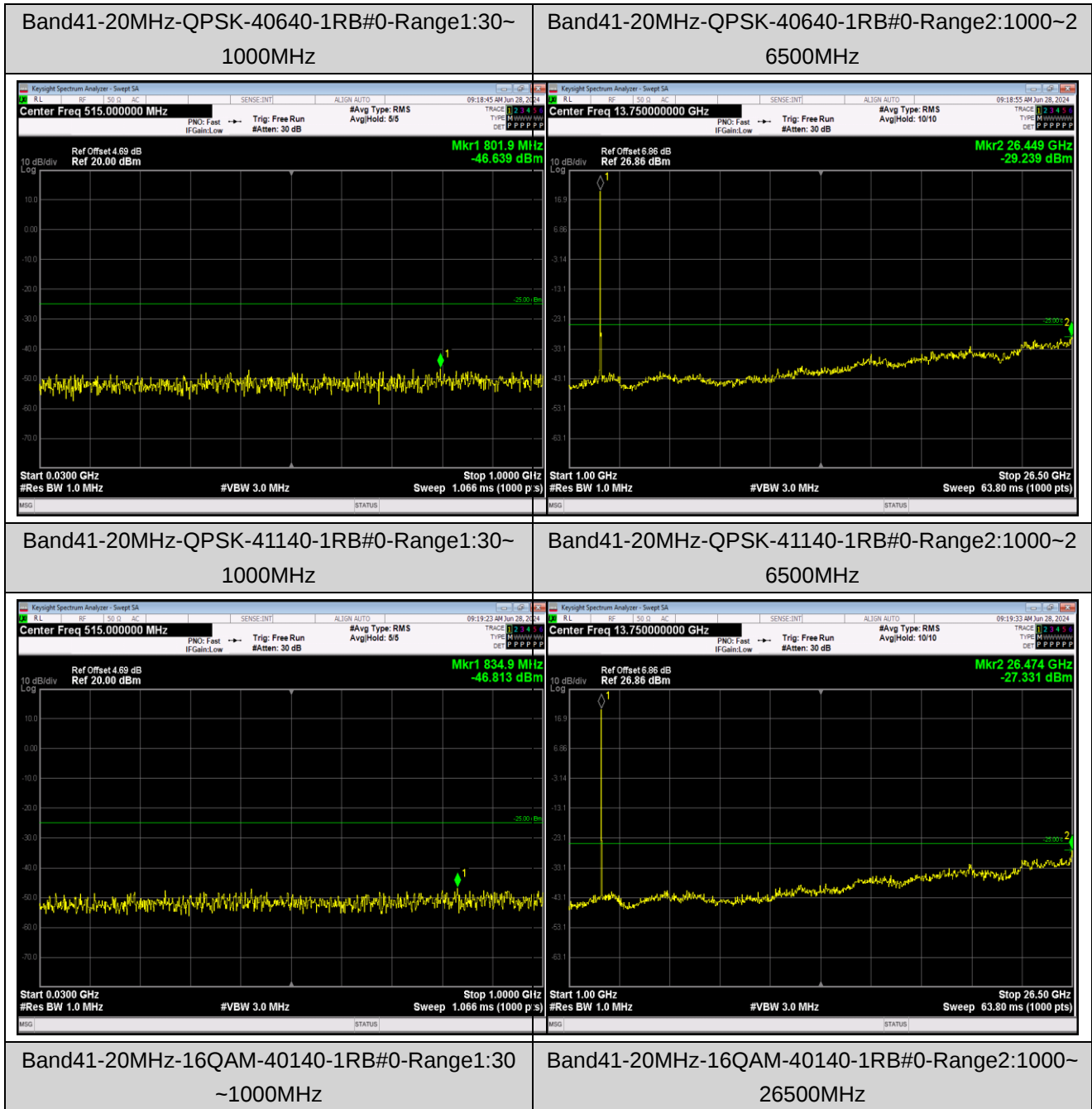


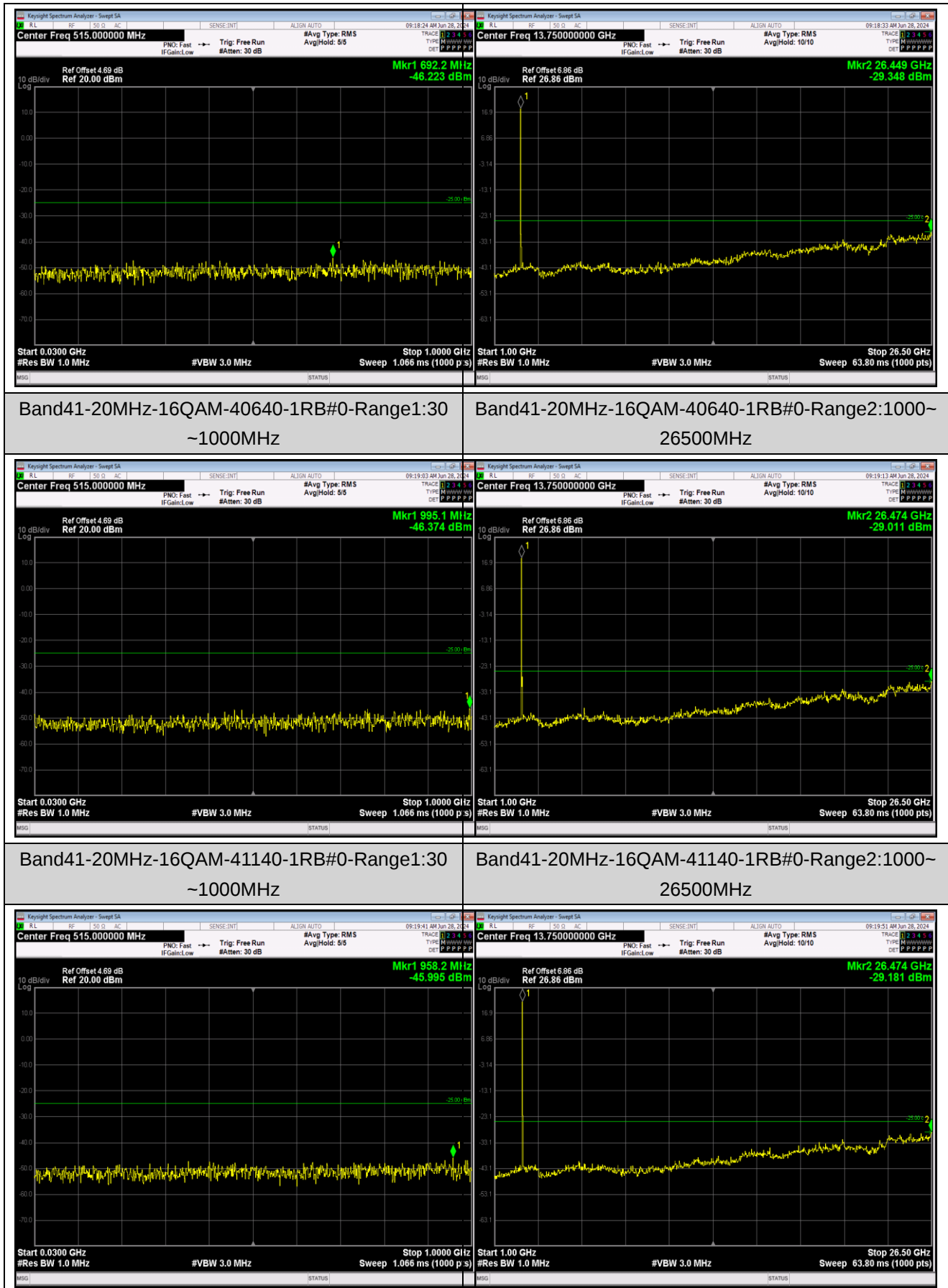












Appendix F: Frequency Stability

Test Result

LTE Band 2 part:

Reference Frequency: LTE Band 2 (10MHz) Middle channel=18900 Frequency=1880.0MHz					
Temperature					
Power supplied (Vdc)	Temperature (°C)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
3.85	-30	-13.96	-0.007426	Within authorized band for Band 2	Pass
	-20	-12.57	-0.006686		
	-10	-14.35	-0.007633		
	0	-10.61	-0.005644		
	10	-15.61	-0.008303		
	20	-17.51	-0.009314		
	30	-10.63	-0.005654		
	40	-16.64	-0.008851		
	50	-12.63	-0.006718		
16QAM					
3.85	-30	-7.38	-0.003926	Within authorized band for Band 2	Pass
	-20	-10.36	-0.005511		
	-10	-15.81	-0.008410		
	0	-10.49	-0.005580		
	10	-16.81	-0.008941		
	20	-15.31	-0.008144		
	30	-6.01	-0.003197		
	40	-10.29	-0.005473		
	50	-13.40	-0.007128		
Voltage					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	3.40	-17.52	-0.009319	Within authorized band for Band 2	Pass
	3.85	-10.21	-0.005431		
	4.40	-18.10	-0.009628		
16QAM					
25	3.40	-10.26	-0.005457	Within authorized band for Band 2	Pass
	3.85	-12.33	-0.006559		
	4.40	-8.28	-0.004404		
Remark: All bandwidth and all modulation had been tested, but only the worst case data displayed in this report.					

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					
3.85	-30	7.74	0.004468	Within authorized band for Band 4	Pass
	-20	7.20	0.004156		
	-10	-8.75	-0.005051		
	0	-12.19	-0.007036		
	10	6.62	0.003821		
	20	-13.13	-0.007579		
	30	-6.82	-0.003937		
	40	-9.24	-0.005333		
	50	7.85	0.004531		
16QAM					
3.85	-30	-8.35	-0.004820	Within authorized band for Band 4	Pass
	-20	-10.41	-0.006009		
	-10	4.32	0.002494		
	0	4.59	0.002649		
	10	-7.82	-0.004514		
	20	2.68	0.001547		
	30	-9.26	-0.005345		
	40	-12.65	-0.007302		
	50	-6.68	-0.003856		
Voltage					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	3.40	-7.22	-0.004167	Within authorized band for Band 4	Pass
	3.85	-13.92	-0.008035		
	4.40	-9.86	-0.005691		
16QAM					
25	3.40	-8.77	-0.005062	Within authorized band for Band 4	Pass
	3.85	-13.18	-0.007608		
	4.40	3.53	0.002038		
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 (°C)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
3.85	-30	-8.24	-0.009851	±2.5	Pass
	-20	-9.80	-0.011715		
	-10	-7.62	-0.009109		
	0	-5.44	-0.006503		
	10	-10.34	-0.012361		
	20	-10.10	-0.012074		
	30	-6.61	-0.007902		
	40	-3.92	-0.004686		
	50	-9.13	-0.010915		
16QAM					
3.85	-30	-6.67	-0.007974	±2.5	Pass
	-20	-5.99	-0.007161		
	-10	-9.51	-0.011369		
	0	-10.07	-0.012038		
	10	-8.43	-0.010078		
	20	-5.35	-0.006396		
	30	-10.87	-0.012995		
	40	-8.75	-0.010460		
	50	-9.98	-0.011931		
Voltage					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	3.40	-10.74	-0.012839	±2.5	Pass
	3.85	-13.45	-0.016079		
	4.40	-8.33	-0.009958		
16QAM					
25	3.40	-10.59	-0.012660	±2.5	Pass
	3.85	-8.91	-0.010652		
	4.40	-7.82	-0.009348		
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 (°C)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
3.85	-30	-15.76	-0.006217	Within authorized band for Band 7	Pass
	-20	-14.93	-0.005890		
	-10	-5.46	-0.002154		
	0	-15.89	-0.006268		
	10	9.74	0.003842		
	20	-18.85	-0.007436		
	30	-4.88	-0.001925		
	40	10.37	0.004091		
	50	-9.30	-0.003669		
16QAM					
3.85	-30	-13.69	-0.005400	Within authorized band for Band 7	Pass
	-20	-12.67	-0.004998		
	-10	-12.70	-0.005010		
	0	-19.38	-0.007645		
	10	5.81	0.002292		
	20	-11.59	-0.004572		
	30	6.11	0.002410		
	40	4.12	0.001625		
	50	-9.84	-0.003882		
Voltage					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	3.40	-9.31	-0.003673	Within authorized band for Band 7	Pass
	3.85	-23.33	-0.009203		
	4.40	-13.88	-0.005475		
16QAM					
25	3.40	-19.53	-0.007704	Within authorized band for Band 7	Pass
	3.85	-11.82	-0.004663		
	4.40	-6.29	-0.002481		
Remark: All bandwidth and all modulation had been tested, but only the worst case data displayed in this report.					

LTE Band 41 part:

Reference Frequency: LTE Band 41 (10MHz) Middle channel=40640 Frequency=2595.0MHz					
Temperature					
Power supplied (Vdc)	Temperature (°C)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
3.85	-30	-9.88	-0.003807	Within authorized band for Band 41	Pass
	-20	-11.24	-0.004331		
	-10	-10.94	-0.004216		
	0	-9.87	-0.003803		
	10	-13.22	-0.005094		
	20	-10.17	-0.003919		
	30	-13.32	-0.005133		
	40	-13.75	-0.005299		
	50	-11.10	-0.004277		
16QAM					
3.85	-30	-12.07	-0.004651	Within authorized band for Band 41	Pass
	-20	-10.34	-0.003985		
	-10	-4.89	-0.001884		
	0	-9.97	-0.003842		
	10	-11.52	-0.004439		
	20	-6.64	-0.002559		
	30	-11.54	-0.004447		
	40	-11.84	-0.004563		
	50	-12.52	-0.004825		
Voltage					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	3.40	-11.16	-0.004301	Within authorized band for Band 41	Pass
	3.85	-11.34	-0.004370		
	4.40	-13.56	-0.005225		
16QAM					
25	3.40	-7.05	-0.002717	Within authorized band for Band41	Pass
	3.85	-10.56	-0.004069		
	4.40	-9.44	-0.003638		
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
Band2	20MHz	QPSK	18900	100RB#0	PASS	PASS
Band2	20MHz	16QAM	18900	100RB#0	PASS	PASS
Band4	20MHz	QPSK	20175	100RB#0	PASS	PASS
Band4	20MHz	16QAM	20175	100RB#0	PASS	PASS
Band5	10MHz	QPSK	20525	50RB#0	PASS	PASS
Band5	10MHz	16QAM	20525	50RB#0	PASS	PASS
Band7	20MHz	QPSK	21100	100RB#0	PASS	PASS
Band7	20MHz	16QAM	21100	100RB#0	PASS	PASS
Band41	20MHz	QPSK	40640	100RB#0	PASS	PASS
Band41	20MHz	16QAM	40640	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

