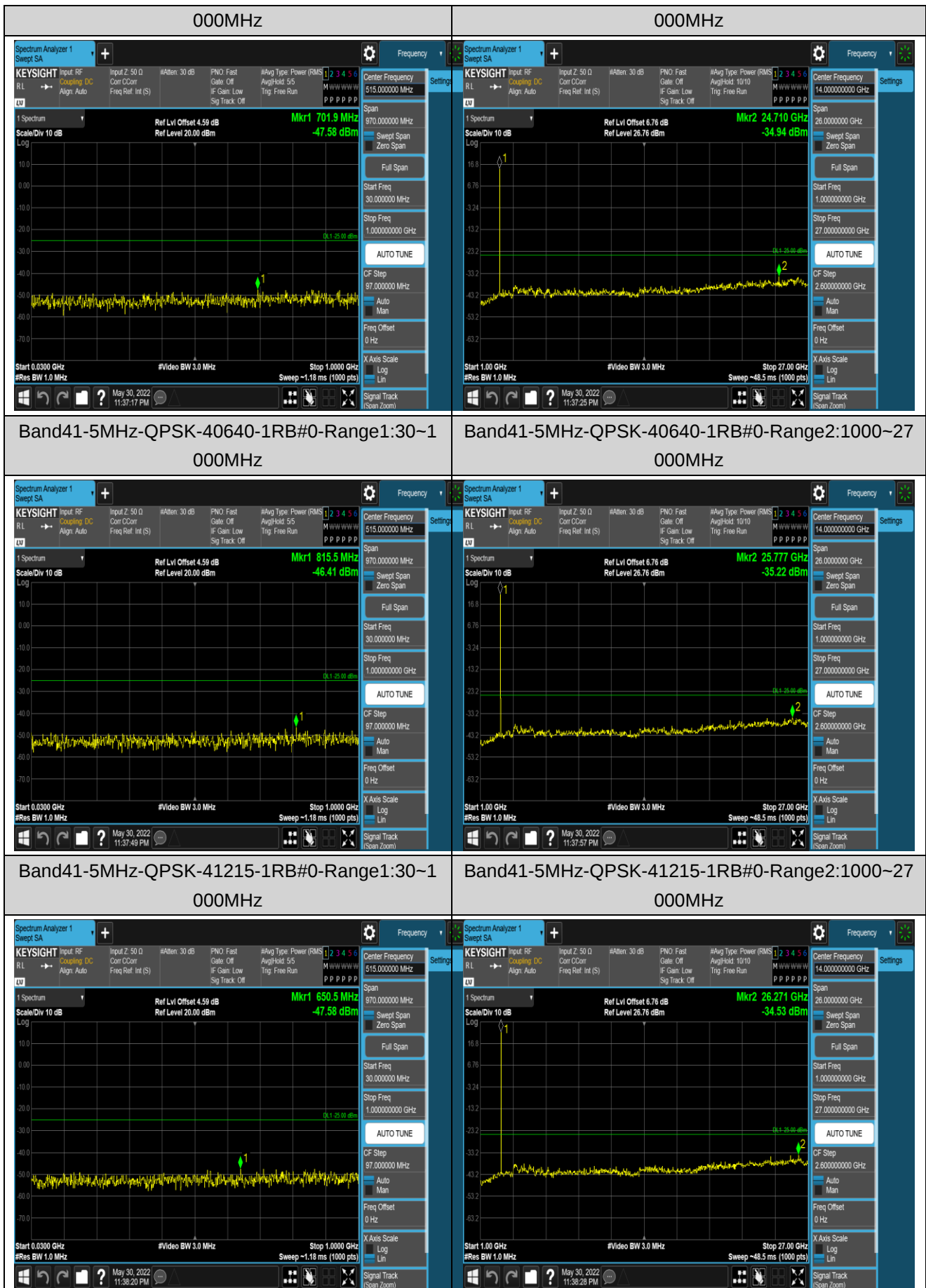
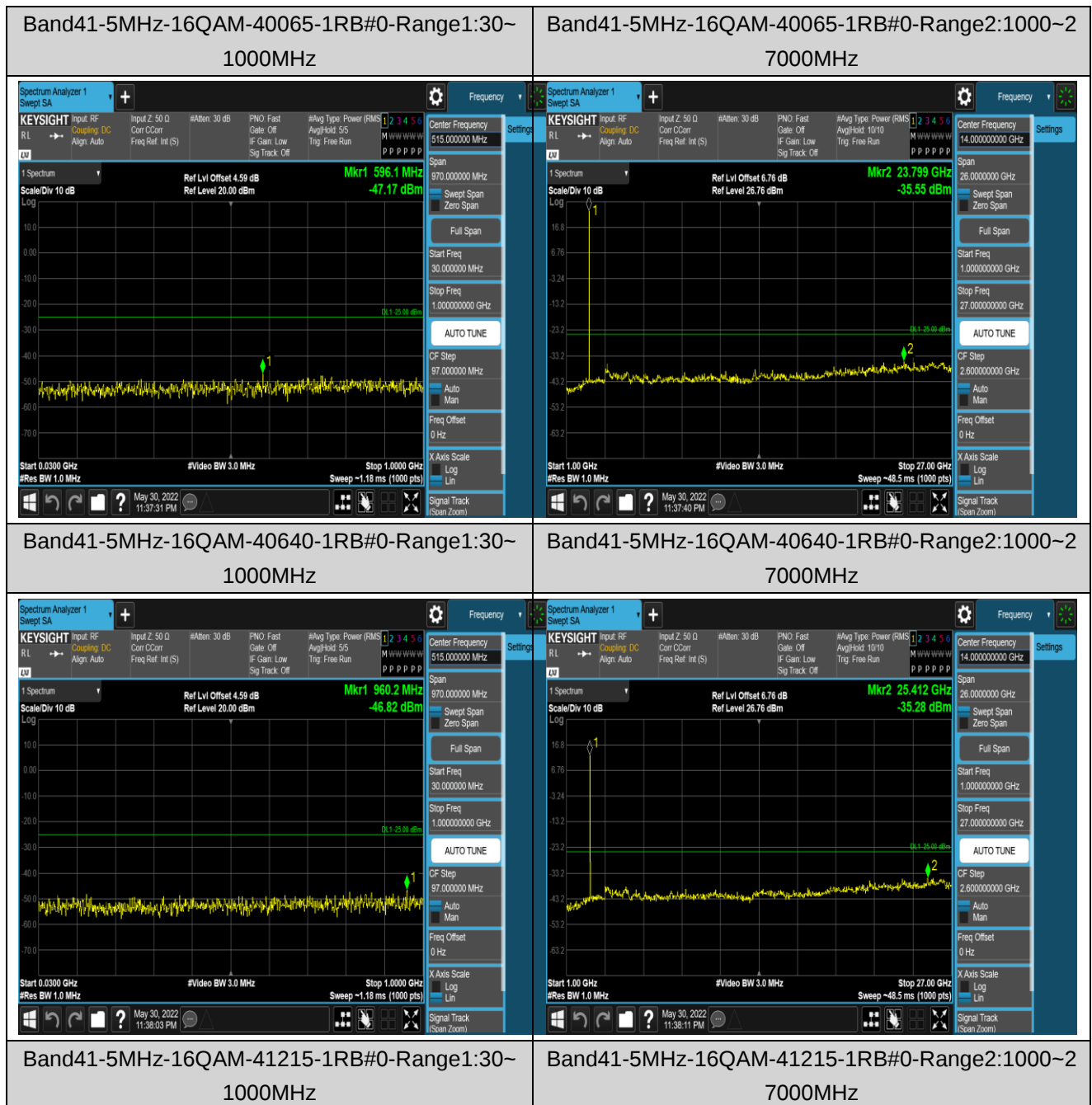
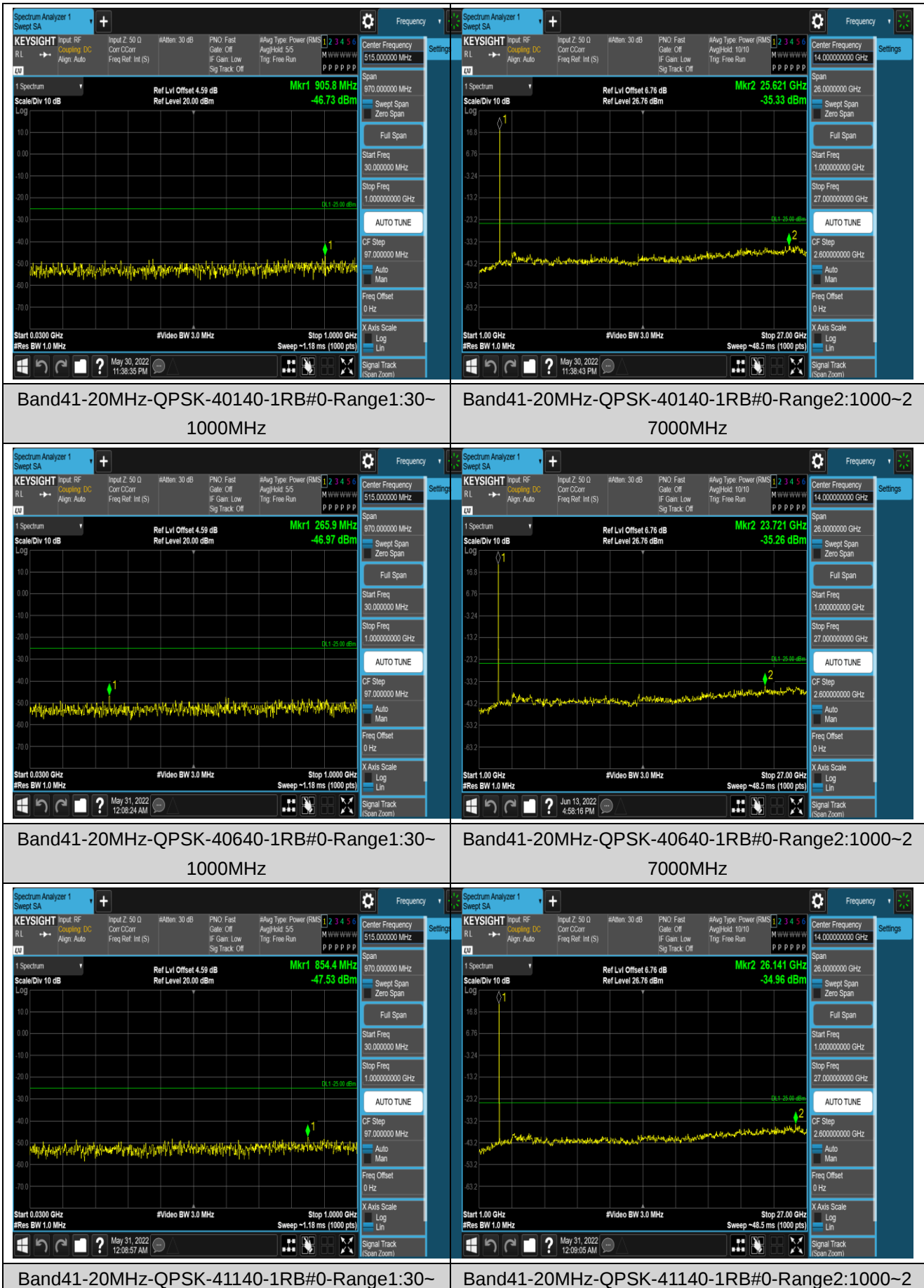
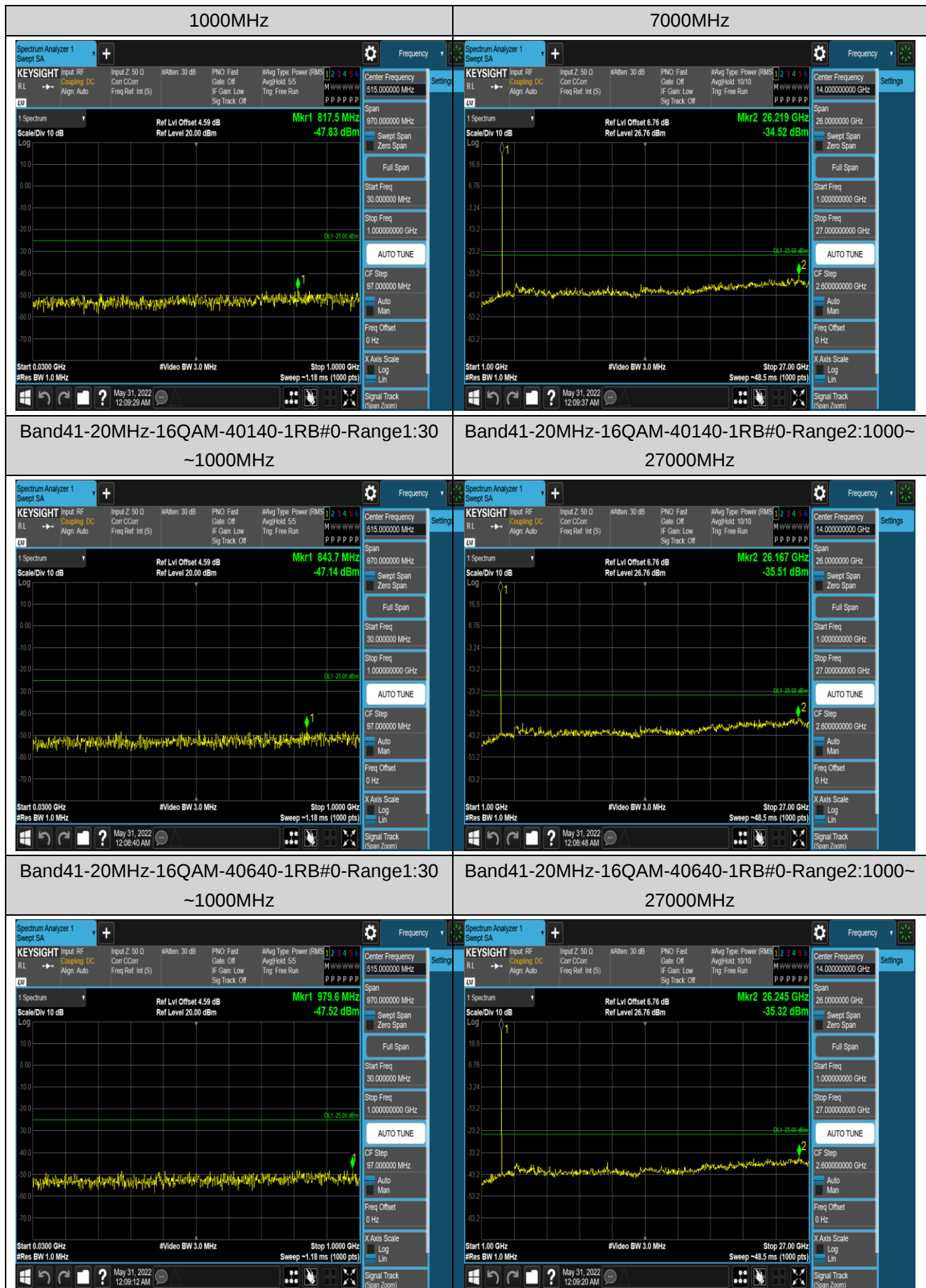
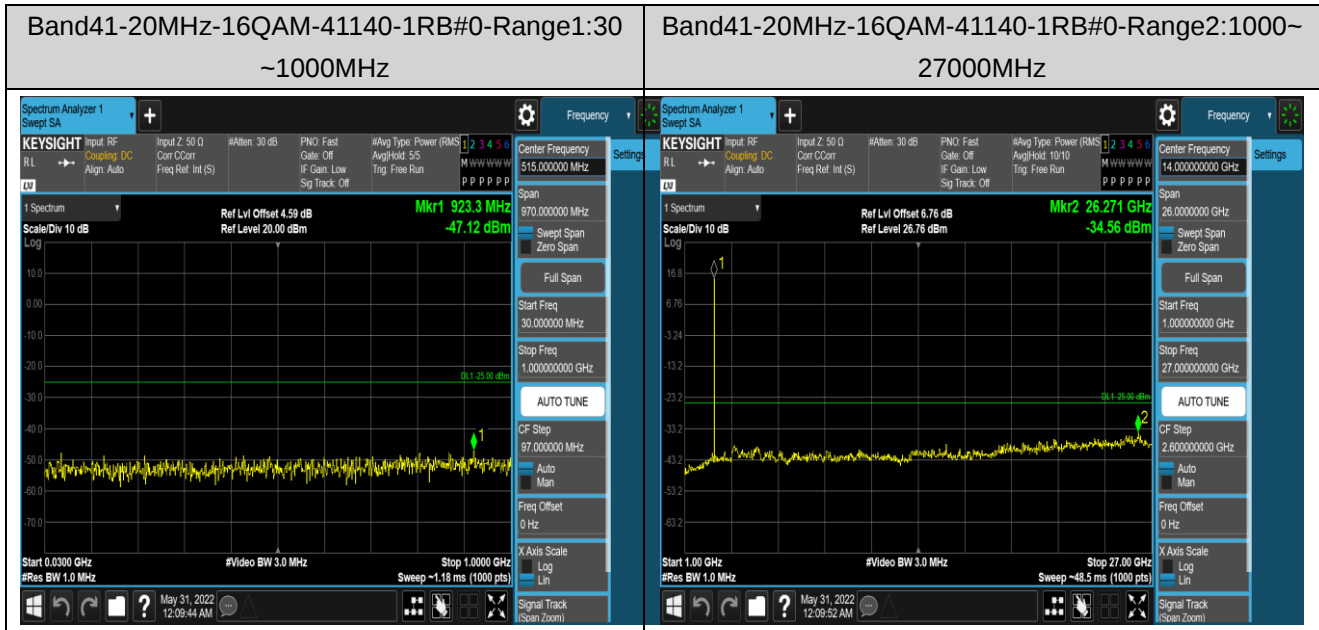












Appendix F: Frequency Stability

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	-6.71	-0.003569	Within authorized band for Band 2	Pass
	-20	-9.77	-0.005197		
	-10	-2.30	-0.001223		
	0	-11.64	-0.006191		
	10	-7.81	-0.004154		
	20	-14.82	-0.007883		
	30	-8.80	-0.004681		
	40	-6.41	-0.003410		
	50	-10.41	-0.005537		
16QAM					
3.85	-30	-10.57	-0.005622	Within authorized band for Band 2	Pass
	-20	-10.49	-0.005580		
	-10	-13.09	-0.006963		
	0	-7.84	-0.004170		
	10	-14.36	-0.007638		
	20	-12.46	-0.006628		
	30	-10.19	-0.005420		
	40	-7.08	-0.003766		
	50	-13.66	-0.007266		
Voltage					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	3.45	-6.42	-0.003415	Within authorized band for Band 2	Pass
	3.85	-12.60	-0.006702		
	4.40	-6.21	-0.003303		
16QAM					
25	3.45	-6.55	-0.003484	Within authorized band for Band 2	Pass
	3.85	-14.91	-0.007931		
	4.40	-11.83	-0.006293		
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	-8.87	-0.005120	Within authorized band for Band 4	Pass
	-20	-6.29	-0.003631		
	-10	-7.28	-0.004202		
	0	-10.39	-0.005997		
	10	-6.45	-0.003723		
	20	-8.31	-0.004797		
	30	-10.06	-0.005807		
	40	-4.36	-0.002517		
	50	-10.50	-0.006061		
16QAM					
3.85	-30	-2.33	-0.001345	Within authorized band for Band 4	Pass
	-20	-6.12	-0.003532		
	-10	-6.28	-0.003625		
	0	-2.72	-0.001570		
	10	-7.25	-0.004185		
	20	-7.25	-0.004185		
	30	-9.00	-0.005195		
	40	-8.73	-0.005039		
	50	-5.84	-0.003371		
Voltage					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	3.45	1.66	0.000958	Within authorized band for Band 4	Pass
	3.85	-9.90	-0.005714		
	4.40	-9.07	-0.005235		
16QAM					
25	3.45	-10.24	-0.005911	Within authorized band for Band 4	Pass
	3.85	-10.40	-0.006003		
	4.40	-9.87	-0.005697		
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					
3.85	-30	-11.22	-0.013413	±2.5	Pass
	-20	-8.31	-0.009934		
	-10	-8.44	-0.010090		
	0	-7.47	-0.008930		
	10	-4.16	-0.004973		
	20	-5.92	-0.007077		
	30	-6.94	-0.008296		
	40	-5.97	-0.007137		
	50	-10.70	-0.012791		
16QAM					
3.85	-30	-6.64	-0.007938	±2.5	Pass
	-20	-7.58	-0.009062		
	-10	-10.23	-0.012230		
	0	-9.38	-0.011213		
	10	-5.44	-0.006503		
	20	-5.98	-0.007149		
	30	-9.11	-0.010891		
	40	-10.04	-0.012002		
	50	-8.51	-0.010173		
Voltage					
Temperature (℃)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	3.45	-9.27	-0.011082	±2.5	Pass
	3.85	-9.06	-0.010831		
	4.40	-8.21	-0.009815		
16QAM					
25	3.45	-6.48	-0.007747	±2.5	Pass
	3.85	-7.02	-0.008392		
	4.40	-7.71	-0.009217		
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	8.00	0.003156	Within authorized band for Band 7	Pass
	-20	-6.17	-0.002434		
	-10	-13.29	-0.005243		
	0	-8.73	-0.003444		
	10	-6.37	-0.002513		
	20	-8.74	-0.003448		
	30	6.68	0.002635		
	40	-5.97	-0.002355		
	50	-13.65	-0.005385		
16QAM					
3.85	-30	-9.13	-0.003602	Within authorized band for Band 7	Pass
	-20	-7.77	-0.003065		
	-10	-13.56	-0.005349		
	0	-12.76	-0.005034		
	10	-17.90	-0.007061		
	20	-10.89	-0.004296		
	30	-16.81	-0.006631		
	40	-13.42	-0.005294		
	50	-12.87	-0.005077		
Voltage					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	3.45	-10.33	-0.004075	Within authorized band for Band 7	Pass
	3.85	-8.25	-0.003254		
	4.40	-4.09	-0.001613		
16QAM					
25	3.45	-10.43	-0.004114	Within authorized band for Band 7	Pass
	3.85	-5.04	-0.001988		
	4.40	9.38	0.003700		
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	-4.71	-0.001815	Within authorized band for Band 41	Pass
	-20	-9.13	-0.003518		
	-10	-9.53	-0.003672		
	0	-10.96	-0.004224		
	10	-9.63	-0.003711		
	20	-9.74	-0.003753		
	30	-10.91	-0.004204		
	40	-7.81	-0.003010		
	50	-10.54	-0.004062		
16QAM					
3.85	-30	-10.83	-0.004173	Within authorized band for Band 41	Pass
	-20	-13.38	-0.005156		
	-10	-10.61	-0.004089		
	0	-11.12	-0.004285		
	10	-7.25	-0.002794		
	20	-9.64	-0.003715		
	30	-5.78	-0.002227		
	40	-9.58	-0.003692		
	50	-9.90	-0.003815		
Voltage					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	3.45	-6.78	-0.002613	Within authorized band for Band 41	Pass
	3.85	-13.29	-0.005121		
	4.40	-7.34	-0.002829		
16QAM					
25	3.45	-18.41	-0.007094	Within authorized band for Band41	Pass
	3.85	-8.60	-0.003314		
	4.40	-15.69	-0.006046		
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

