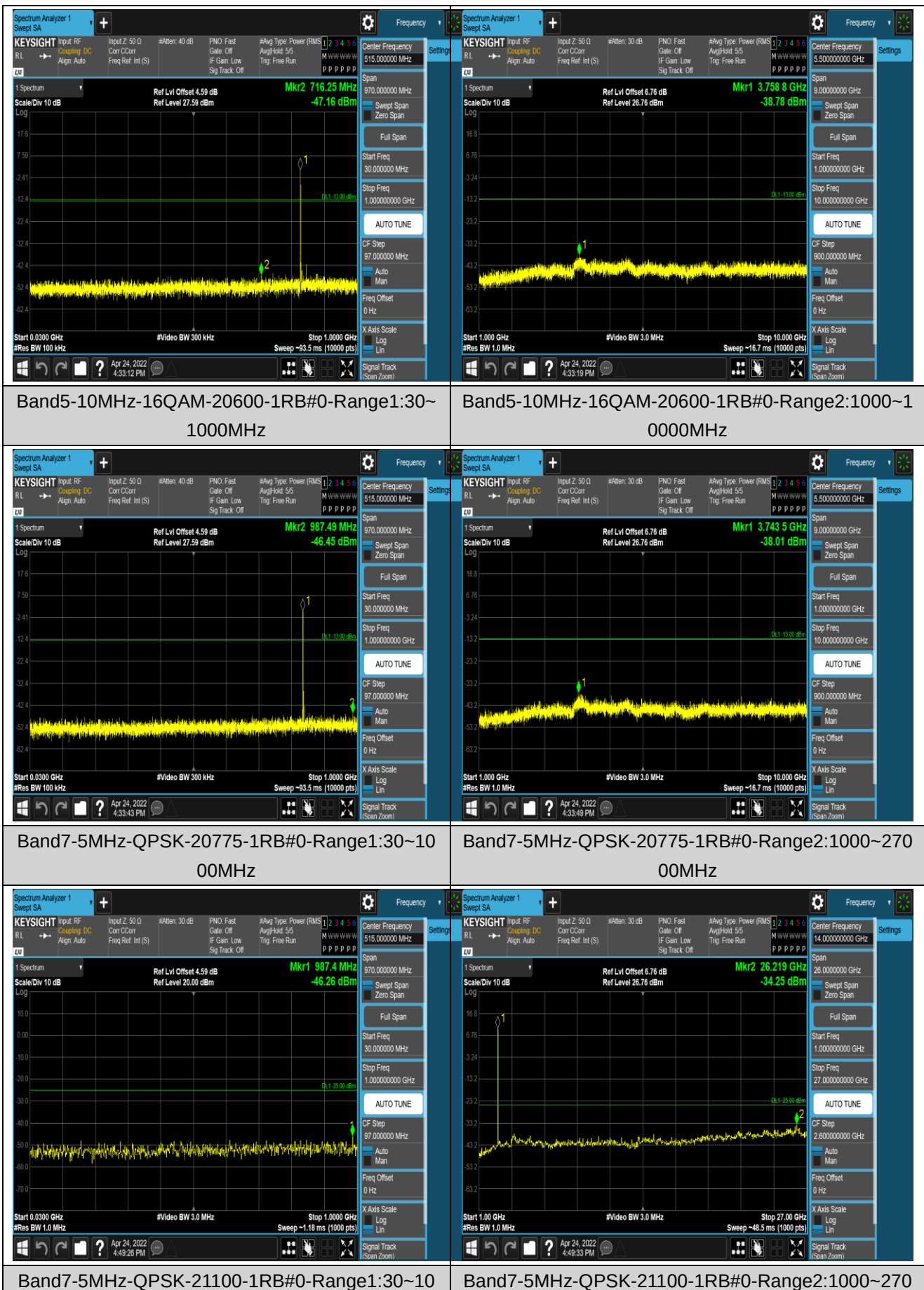
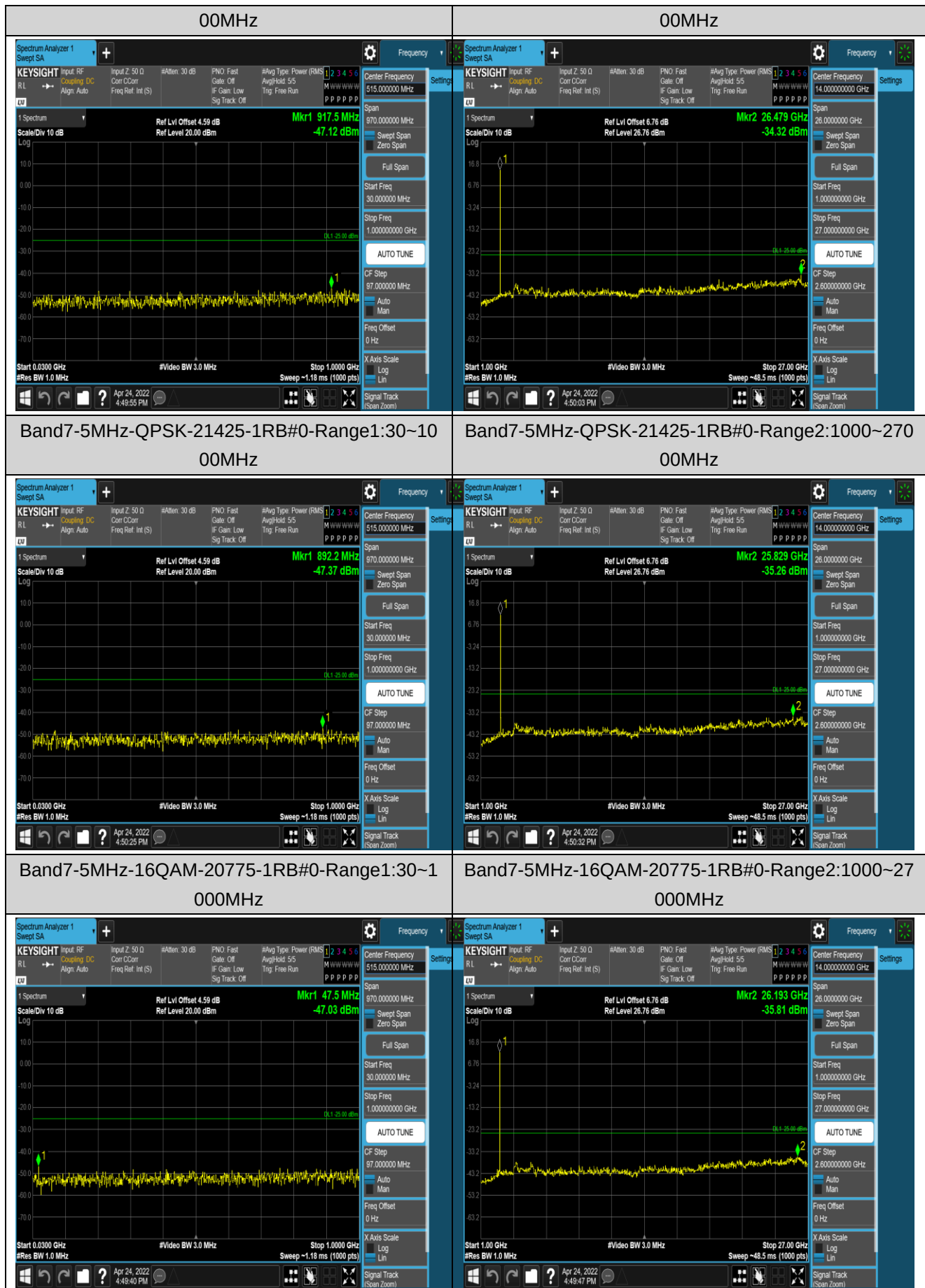
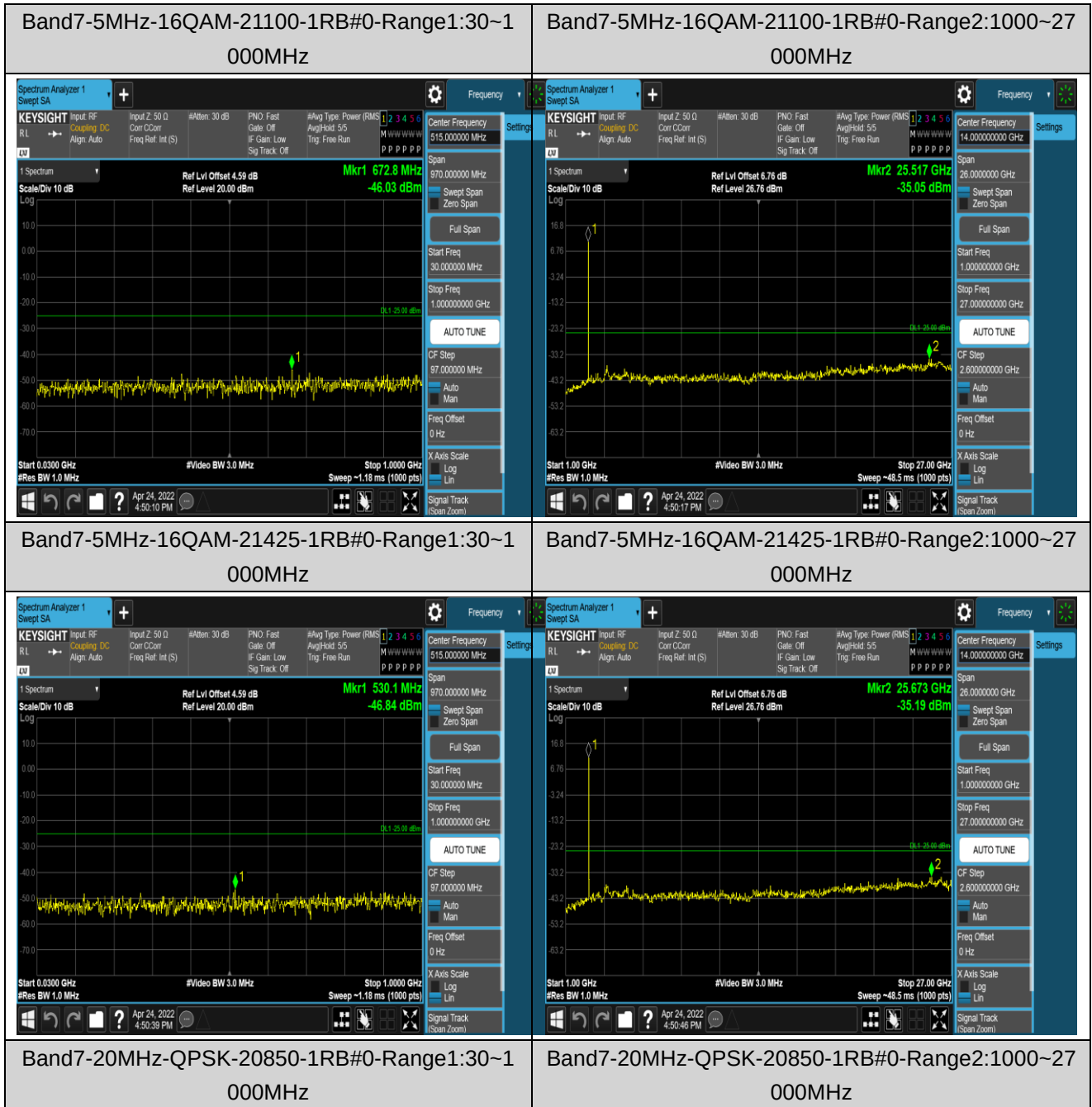
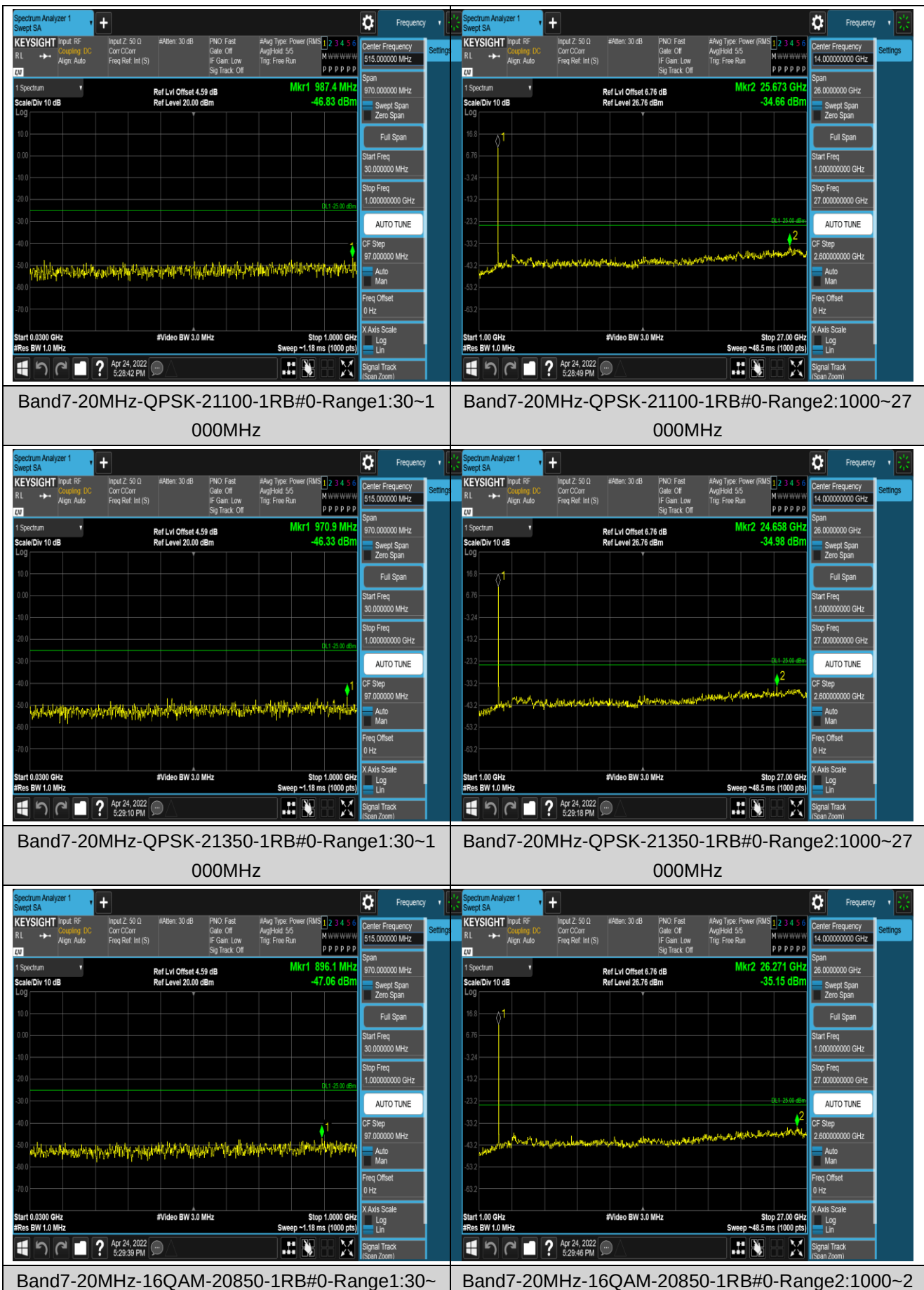
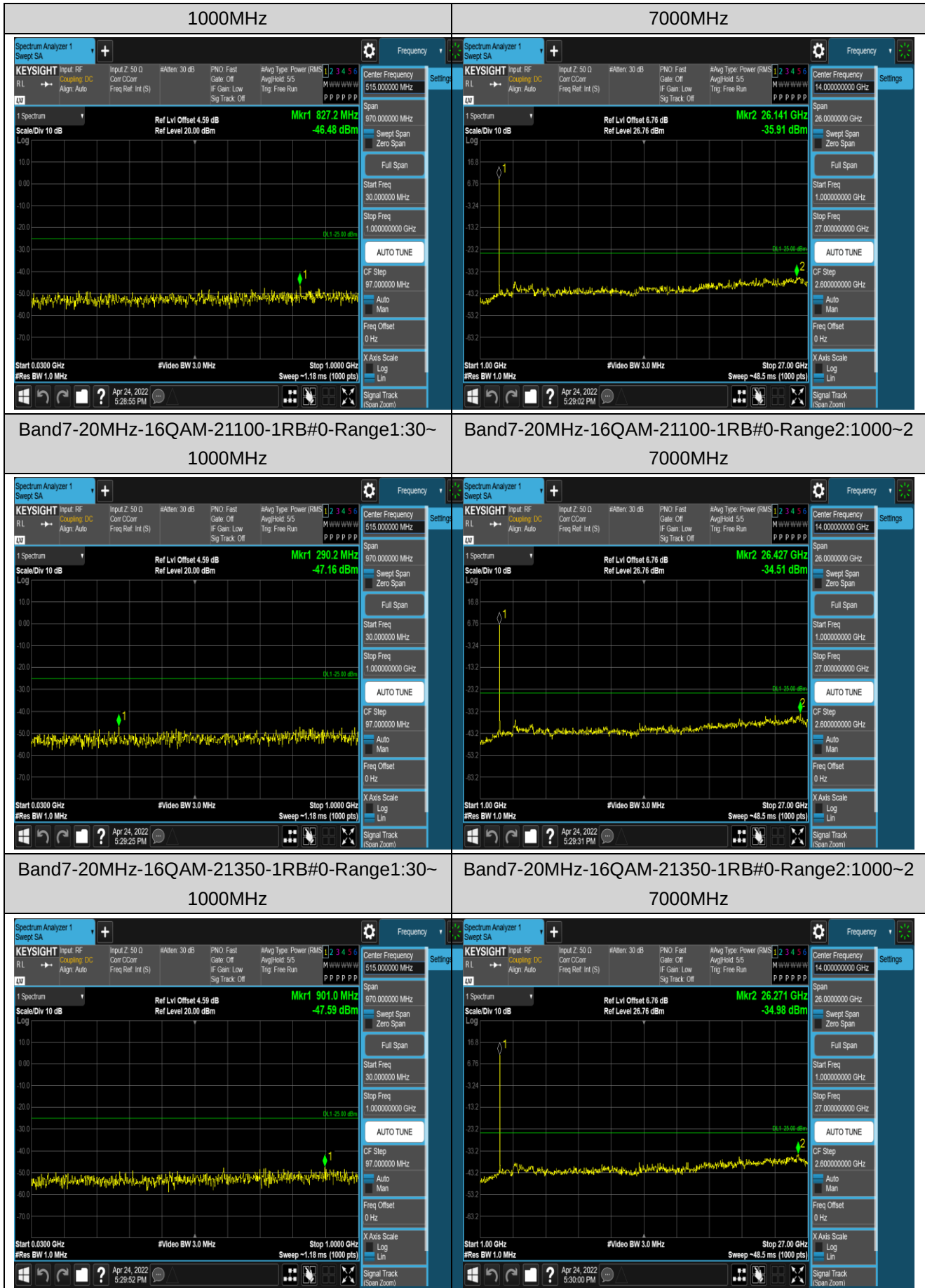












Appendix F: Frequency Stability

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					
3.80	-30	-11.89	-0.006324	Within authorized band for Band 2	Pass
	-20	-10.04	-0.005340		
	-10	-10.37	-0.005516		
	0	-30.04	-0.015979		
	10	-30.00	-0.015957		
	20	-20.80	-0.011064		
	30	-30.57	-0.016261		
	40	-9.21	-0.004899		
	50	-14.51	-0.007718		
16QAM					
3.80	-30	-18.80	-0.010000	Within authorized band for Band 2	Pass
	-20	-9.91	-0.005271		
	-10	-11.82	-0.006287		
	0	-23.85	-0.012686		
	10	-28.57	-0.015197		
	20	-8.61	-0.004580		
	30	-33.76	-0.017957		
	40	-10.89	-0.005793		
	50	-10.39	-0.005527		
Voltage					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	3.50	-20.03	-0.010654	Within authorized band for Band 2	Pass
	3.80	-23.55	-0.012527		
	4.35	-20.23	-0.010761		
16QAM					
25	3.50	-26.26	-0.013968	Within authorized band for Band 2	Pass
	3.80	-7.93	-0.004218		
	4.35	-7.00	-0.003723		
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					
3.80	-30	9.28	0.005356	Within authorized band for Band 4	Pass
	-20	-1.66	-0.000958		
	-10	-15.74	-0.009085		
	0	-21.11	-0.012185		
	10	-11.23	-0.006482		
	20	6.41	0.003700		
	30	-14.71	-0.008491		
	40	-21.77	-0.012566		
	50	-13.96	-0.008058		
16QAM					
3.80	-30	-13.89	-0.008017	Within authorized band for Band 4	Pass
	-20	-12.73	-0.007348		
	-10	-13.03	-0.007521		
	0	-13.73	-0.007925		
	10	-13.78	-0.007954		
	20	-12.60	-0.007273		
	30	-9.71	-0.005605		
	40	-14.88	-0.008589		
	50	-14.46	-0.008346		
Voltage					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	3.50	5.08	0.002932	Within authorized band for Band 4	Pass
	3.80	8.03	0.004635		
	4.35	-7.87	-0.004543		
16QAM					
25	3.50	-12.25	-0.007071	Within authorized band for Band 4	Pass
	3.80	-12.63	-0.007290		
	4.35	-14.96	-0.008635		
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	-10.04	-0.012002	±2.5	Pass
	-20	-3.65	-0.004363		
	-10	-11.09	-0.013258		
	0	-8.74	-0.010448		
	10	-8.83	-0.010556		
	20	-10.59	-0.012660		
	30	-11.82	-0.014130		
	40	-10.03	-0.011990		
	50	-10.29	-0.012301		
16QAM					
3.80	-30	-7.82	-0.009348	±2.5	Pass
	-20	-8.25	-0.009863		
	-10	-7.61	-0.009097		
	0	-5.22	-0.006240		
	10	-8.37	-0.010006		
	20	-9.67	-0.011560		
	30	-10.03	-0.011990		
	40	-6.44	-0.007699		
	50	-8.30	-0.009922		
Voltage					
Temperature (℃)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	3.50	-10.16	-0.012146	±2.5	Pass
	3.80	-9.97	-0.011919		
	4.35	-4.32	-0.005164		
16QAM					
25	3.50	-4.12	-0.004925	±2.5	Pass
	3.80	-7.55	-0.009026		
	4.35	-11.90	-0.014226		
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	21.96	0.008663	Within authorized band for Band 7	Pass
	-20	-16.88	-0.006659		
	-10	-23.82	-0.009396		
	0	-22.57	-0.008903		
	10	-21.59	-0.008517		
	20	-25.61	-0.010103		
	30	-27.55	-0.010868		
	40	22.36	0.008821		
	50	28.64	0.011298		
16QAM					
3.80	-30	-7.48	-0.002951	Within authorized band for Band 7	Pass
	-20	25.23	0.009953		
	-10	-21.79	-0.008596		
	0	-11.43	-0.004509		
	10	23.00	0.009073		
	20	-20.07	-0.007917		
	30	-11.83	-0.004667		
	40	-11.93	-0.004706		
	50	-16.44	-0.006485		
Voltage					
Temperature (℃)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	3.50	32.47	0.012809	Within authorized band for Band 7	Pass
	3.80	25.94	0.010233		
	4.35	29.14	0.011495		
16QAM					
25	3.50	21.69	0.008556	Within authorized band for Band 7	Pass
	3.80	21.09	0.008320		
	4.35	-22.43	-0.008848		
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

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

Test Graphs

