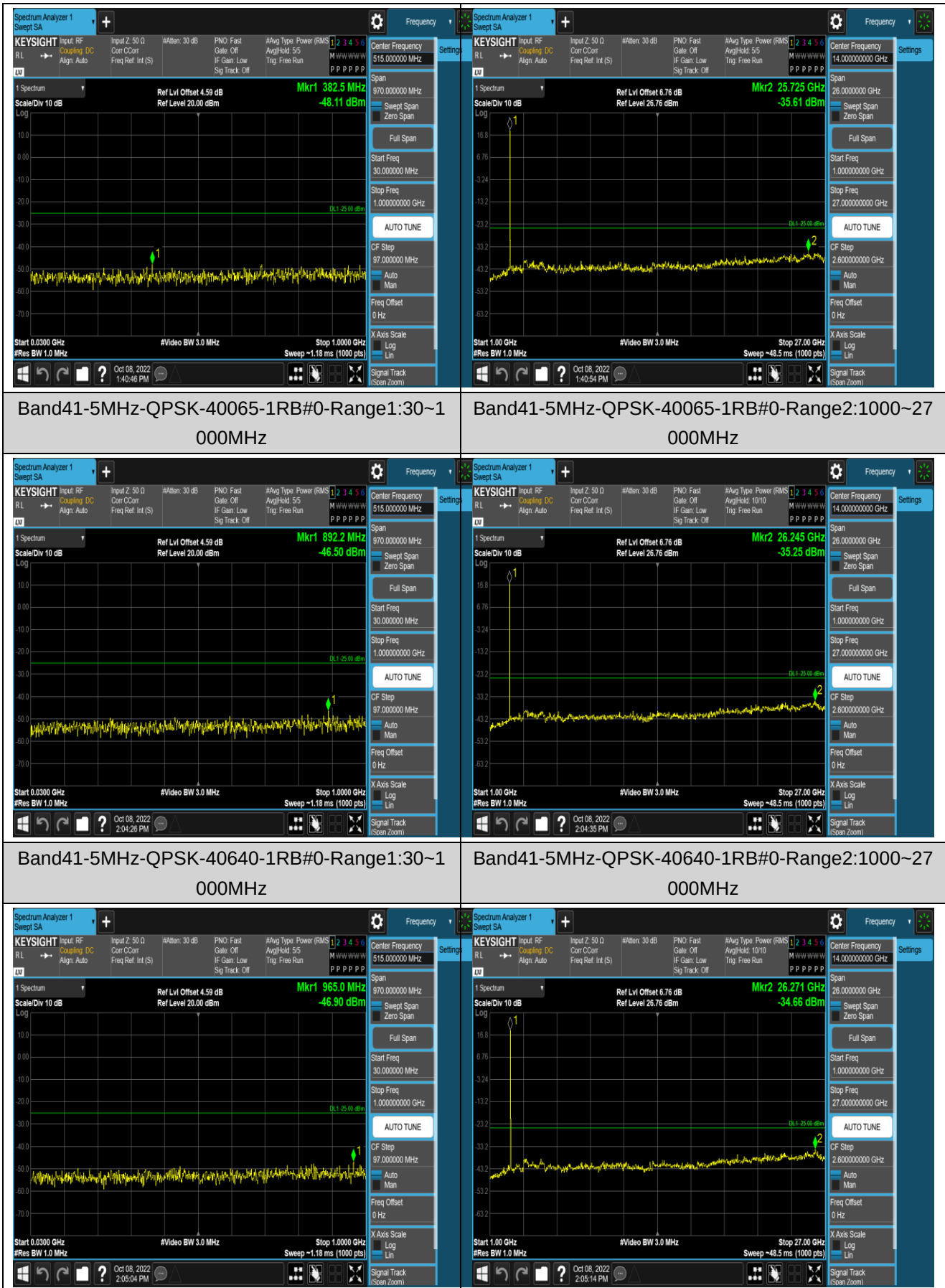
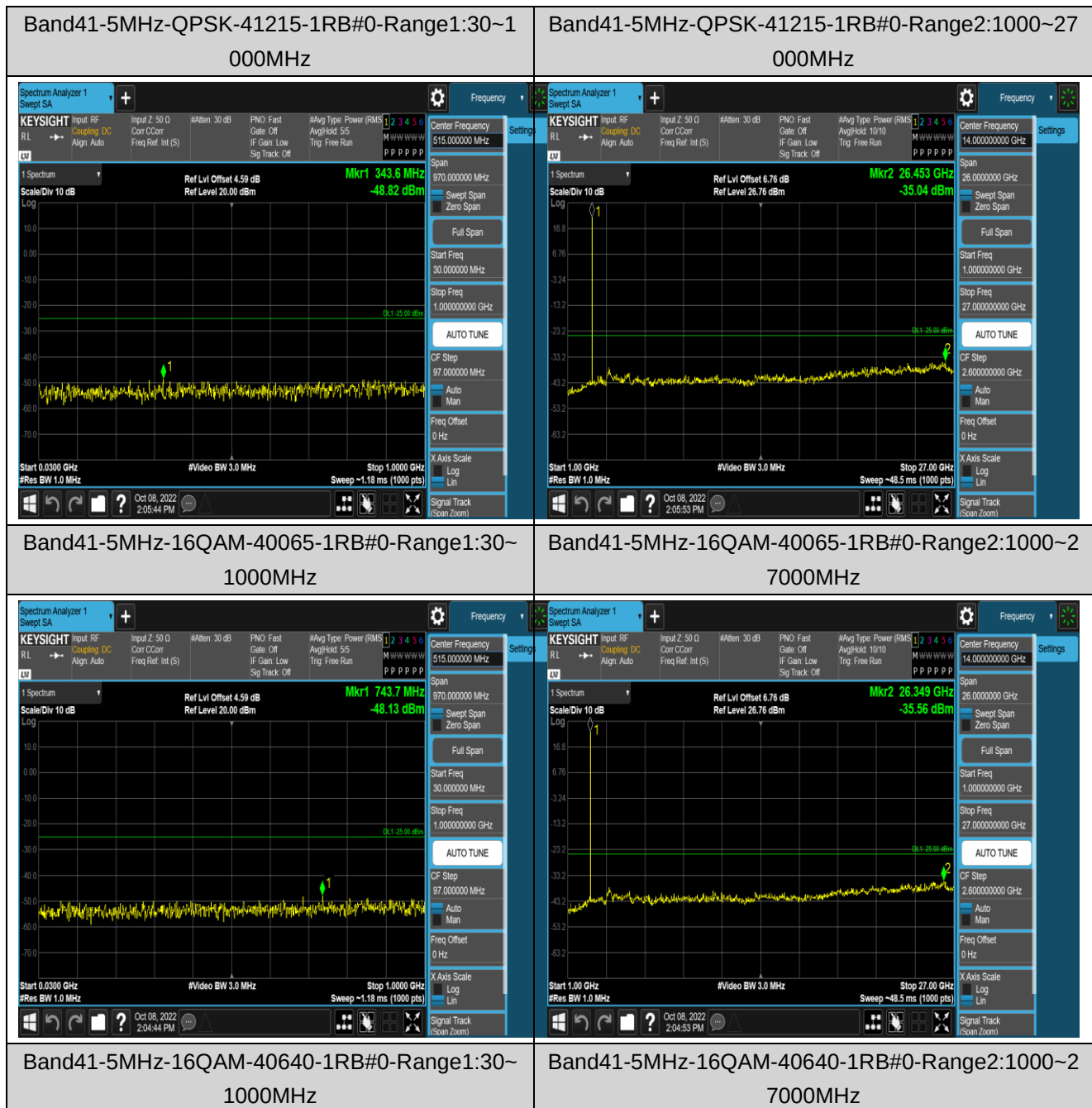
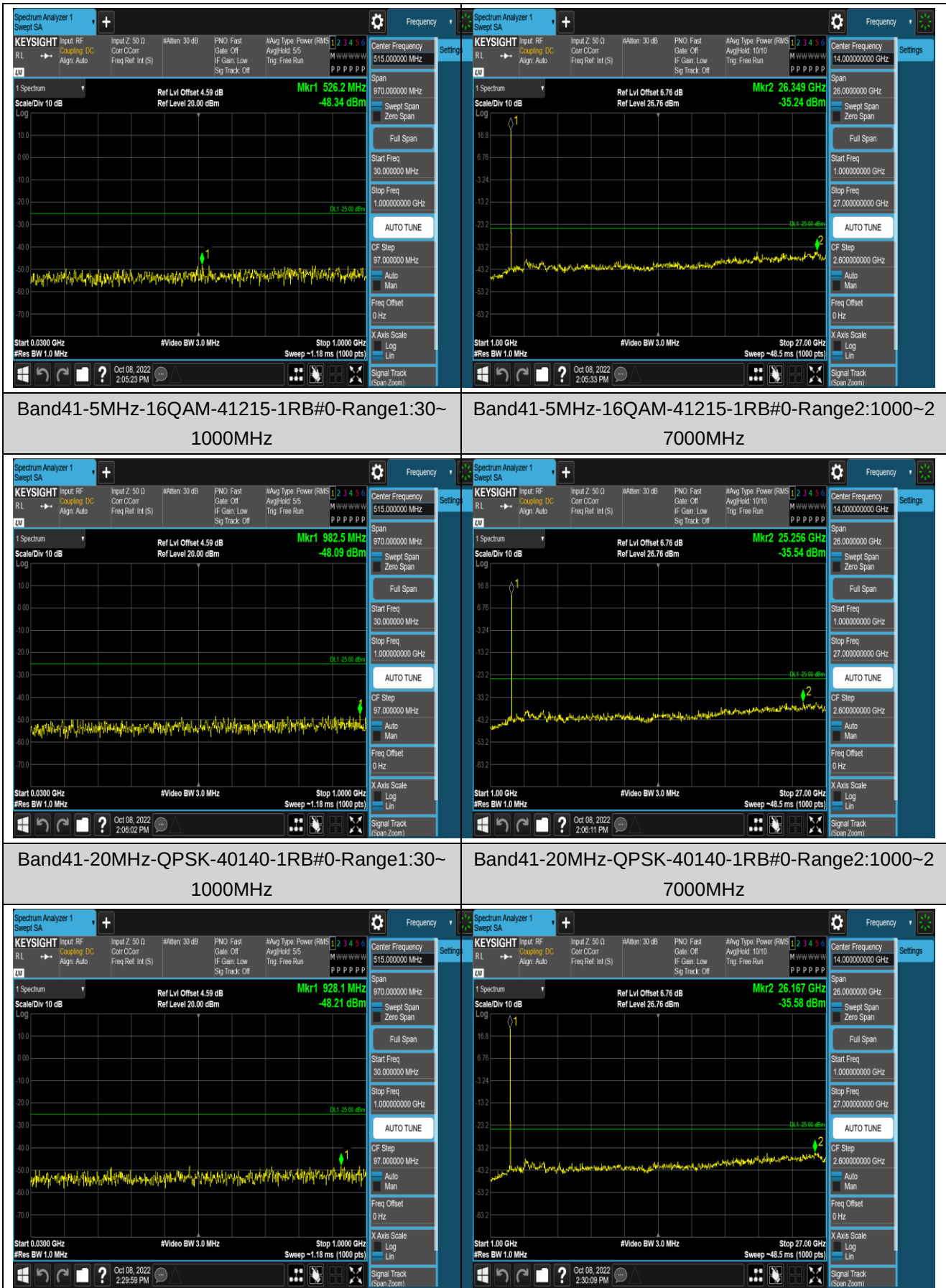






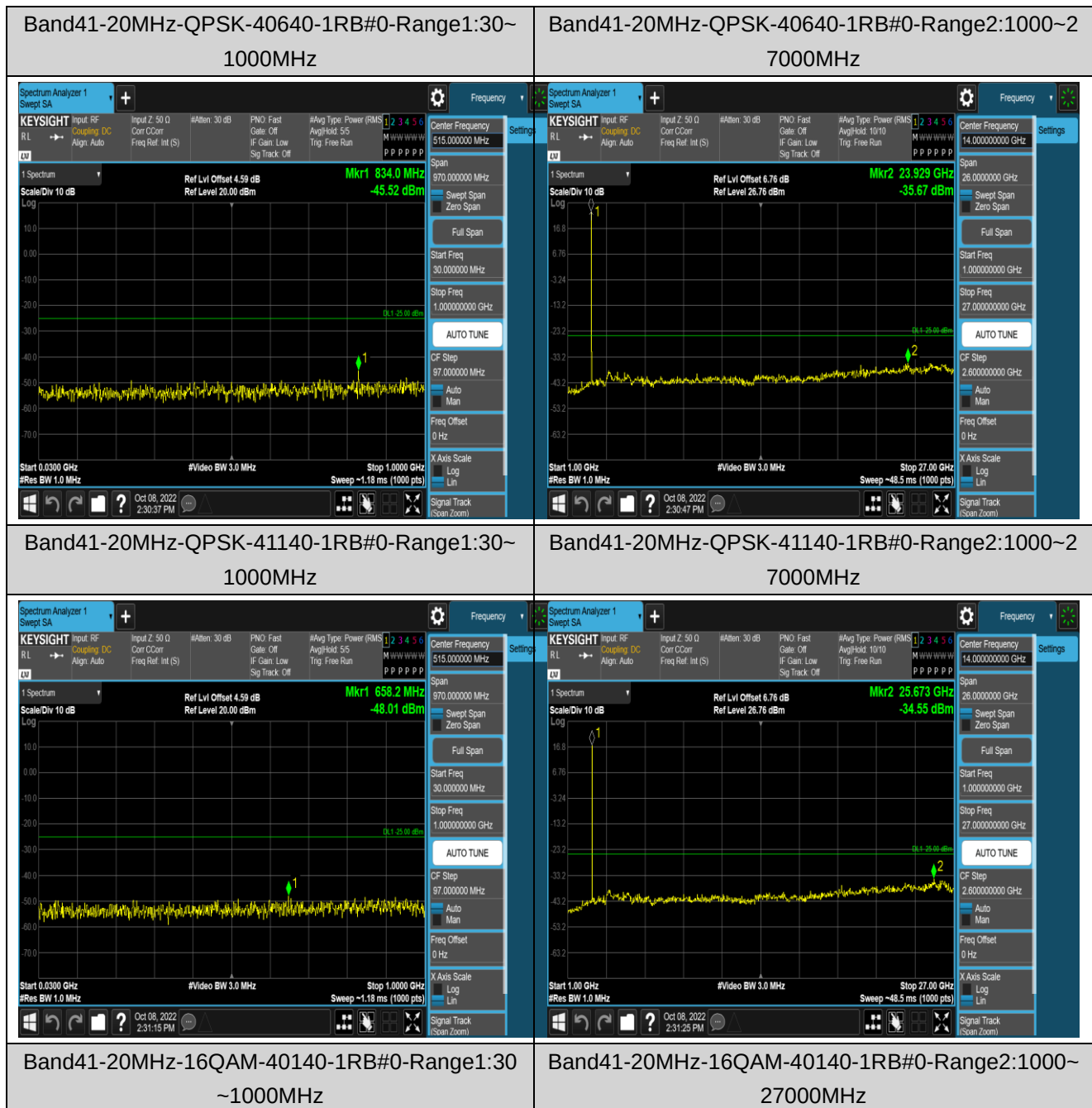


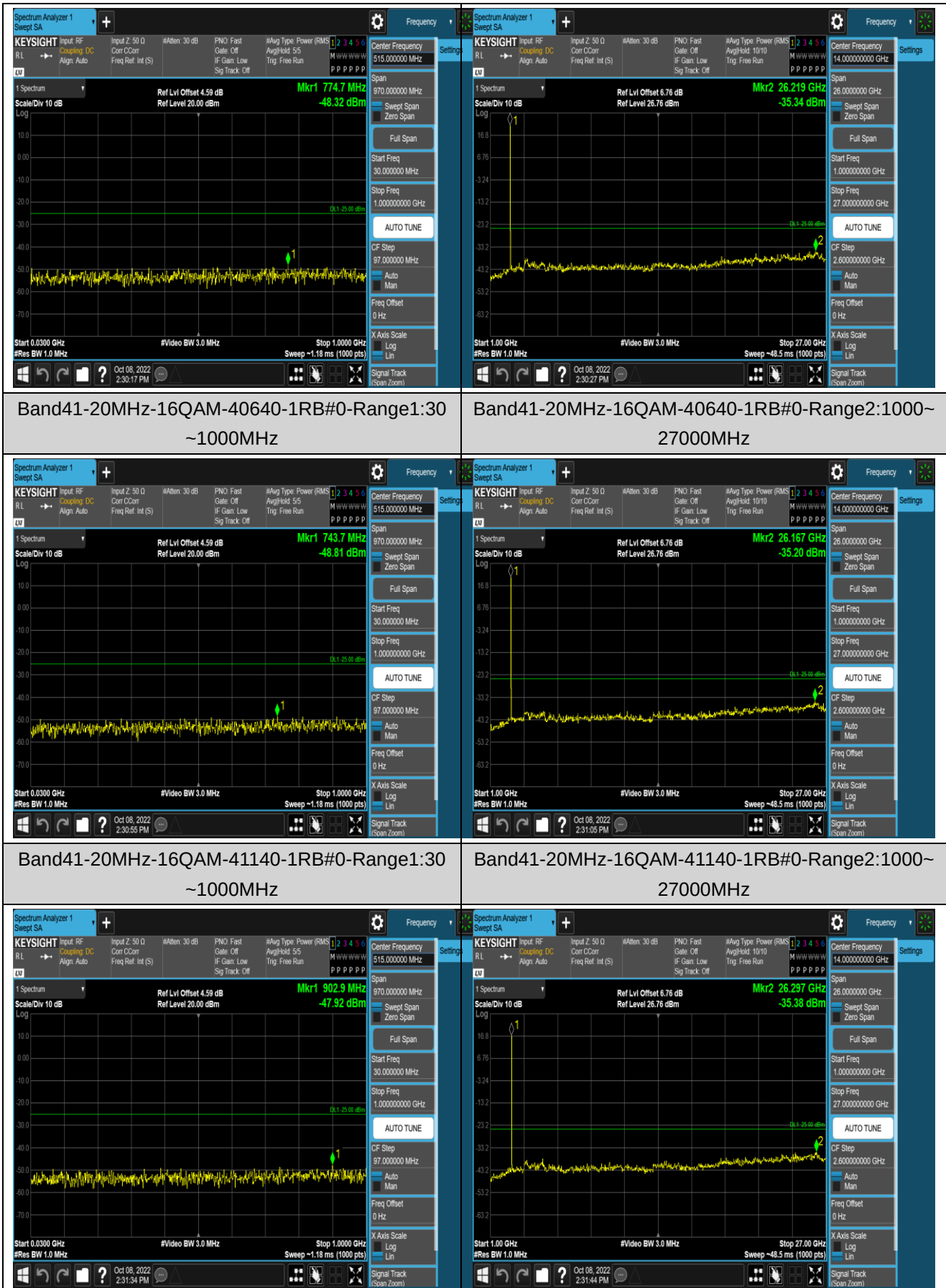
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Appendix F: Frequency Stability

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					
3.87	-30	-17.01	-0.009048	Within authorized band for Band 2	Pass
	-20	-9.27	-0.004931		
	-10	9.56	0.005085		
	0	-9.53	-0.005069		
	10	-17.64	-0.009383		
	20	2.30	0.001223		
	30	-7.44	-0.003957		
	40	-13.96	-0.007426		
	50	-14.98	-0.007968		
16QAM					
3.87	-30	-14.45	-0.007686	Within authorized band for Band 2	Pass
	-20	-16.44	-0.008745		
	-10	-14.16	-0.007532		
	0	-11.86	-0.006309		
	10	-13.70	-0.007287		
	20	-19.94	-0.010606		
	30	-10.81	-0.005750		
	40	-11.37	-0.006048		
	50	-24.45	-0.013005		
Voltage					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	3.45	-10.27	-0.005463	Within authorized band for Band 2	Pass
	3.87	-7.95	-0.004229		
	4.45	-16.79	-0.008931		
16QAM					
25	3.45	-15.99	-0.008505	Within authorized band for Band 2	Pass
	3.87	-17.37	-0.009239		
	4.45	-15.05	-0.008005		
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					
3.87	-30	-7.81	-0.004508	Within authorized band for Band 4	Pass
	-20	-16.92	-0.009766		
	-10	-16.72	-0.009651		
	0	-9.57	-0.005524		
	10	-8.65	-0.004993		
	20	6.44	0.003717		
	30	-10.21	-0.005893		
	40	-15.15	-0.008745		
	50	-12.93	-0.007463		
16QAM					
3.87	-30	-12.40	-0.007157	Within authorized band for Band 4	Pass
	-20	11.60	0.006696		
	-10	-9.90	-0.005714		
	0	-13.69	-0.007902		
	10	-15.42	-0.008900		
	20	-13.99	-0.008075		
	30	-7.37	-0.004254		
	40	-8.61	-0.004970		
	50	8.73	0.005039		
Voltage					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	3.45	-16.97	-0.009795	Within authorized band for Band 4	Pass
	3.87	-21.10	-0.012179		
	4.45	-12.79	-0.007382		
16QAM					
25	3.45	-12.07	-0.006967	Within authorized band for Band 4	Pass
	3.87	7.68	0.004433		
	4.45	8.81	0.005085		
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					
3.87	-30	-9.78	-0.011692	±2.5	Pass
	-20	-5.58	-0.006671		
	-10	-10.47	-0.012516		
	0	-14.25	-0.017035		
	10	-8.10	-0.009683		
	20	-11.30	-0.013509		
	30	-11.50	-0.013748		
	40	-8.38	-0.010018		
	50	-6.94	-0.008296		
16QAM					
3.87	-30	-12.37	-0.014788	±2.5	Pass
	-20	-6.57	-0.007854		
	-10	-6.94	-0.008296		
	0	-8.97	-0.010723		
	10	-6.19	-0.007400		
	20	-6.25	-0.007472		
	30	-11.47	-0.013712		
	40	-12.36	-0.014776		
	50	-6.97	-0.008332		
Voltage					
Temperature (℃)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	3.45	-5.65	-0.006754	±2.5	Pass
	3.87	-6.05	-0.007233		
	4.45	-7.90	-0.009444		
16QAM					
25	3.45	-10.53	-0.012588	±2.5	Pass
	3.87	-7.04	-0.008416		
	4.45	-3.99	-0.004770		
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					
3.87	-30	-9.18	-0.003621	Within authorized band for Band 7	Pass
	-20	-14.22	-0.005609		
	-10	-12.80	-0.005049		
	0	8.75	0.003452		
	10	10.03	0.003957		
	20	3.25	0.001282		
	30	-9.34	-0.003684		
	40	5.39	0.002126		
	50	-11.46	-0.004521		
16QAM					
3.87	-30	-11.07	-0.004367	Within authorized band for Band 7	Pass
	-20	10.91	0.004304		
	-10	8.87	0.003499		
	0	11.37	0.004485		
	10	13.92	0.005491		
	20	6.87	0.002710		
	30	-17.71	-0.006986		
	40	3.03	0.001195		
	50	9.64	0.003803		
Voltage					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	3.45	-10.60	-0.004181	Within authorized band for Band 7	Pass
	3.87	-11.89	-0.004690		
	4.45	-9.24	-0.003645		
16QAM					
25	3.45	-10.29	-0.004059	Within authorized band for Band 7	Pass
	3.87	-14.33	-0.005653		
	4.45	-10.33	-0.004075		
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					
3.87	-30	-4.23	-0.001630	Within authorized band for Band 41	Pass
	-20	5.91	0.002277		
	-10	-9.98	-0.003846		
	0	-19.01	-0.007326		
	10	-6.84	-0.002636		
	20	-6.47	-0.002493		
	30	-19.14	-0.007376		
	40	2.22	0.000855		
	50	-11.73	-0.004520		
16QAM					
3.87	-30	4.39	0.001692	Within authorized band for Band 41	Pass
	-20	7.97	0.003071		
	-10	-13.50	-0.005202		
	0	-15.03	-0.005792		
	10	-18.41	-0.007094		
	20	7.07	0.002724		
	30	-14.95	-0.005761		
	40	-27.15	-0.010462		
	50	6.12	0.002358		
Voltage					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	3.45	-6.05	-0.002331	Within authorized band for Band 41	Pass
	3.87	-9.78	-0.003769		
	4.45	11.20	0.004316		
16QAM					
25	3.45	-15.69	-0.006046	Within authorized band for Band41	Pass
	3.87	-12.07	-0.004651		
	4.45	-23.09	-0.008898		
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

