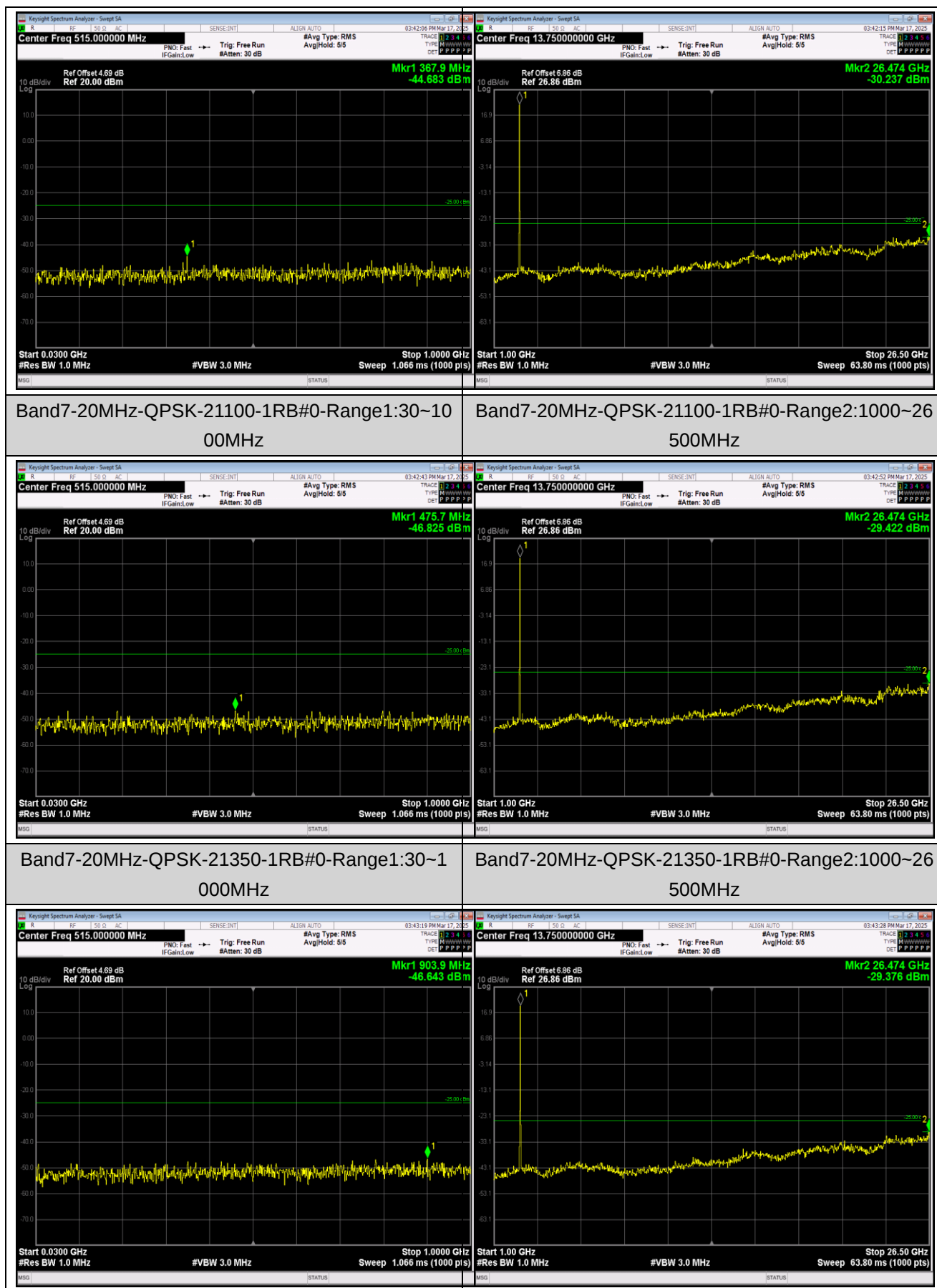
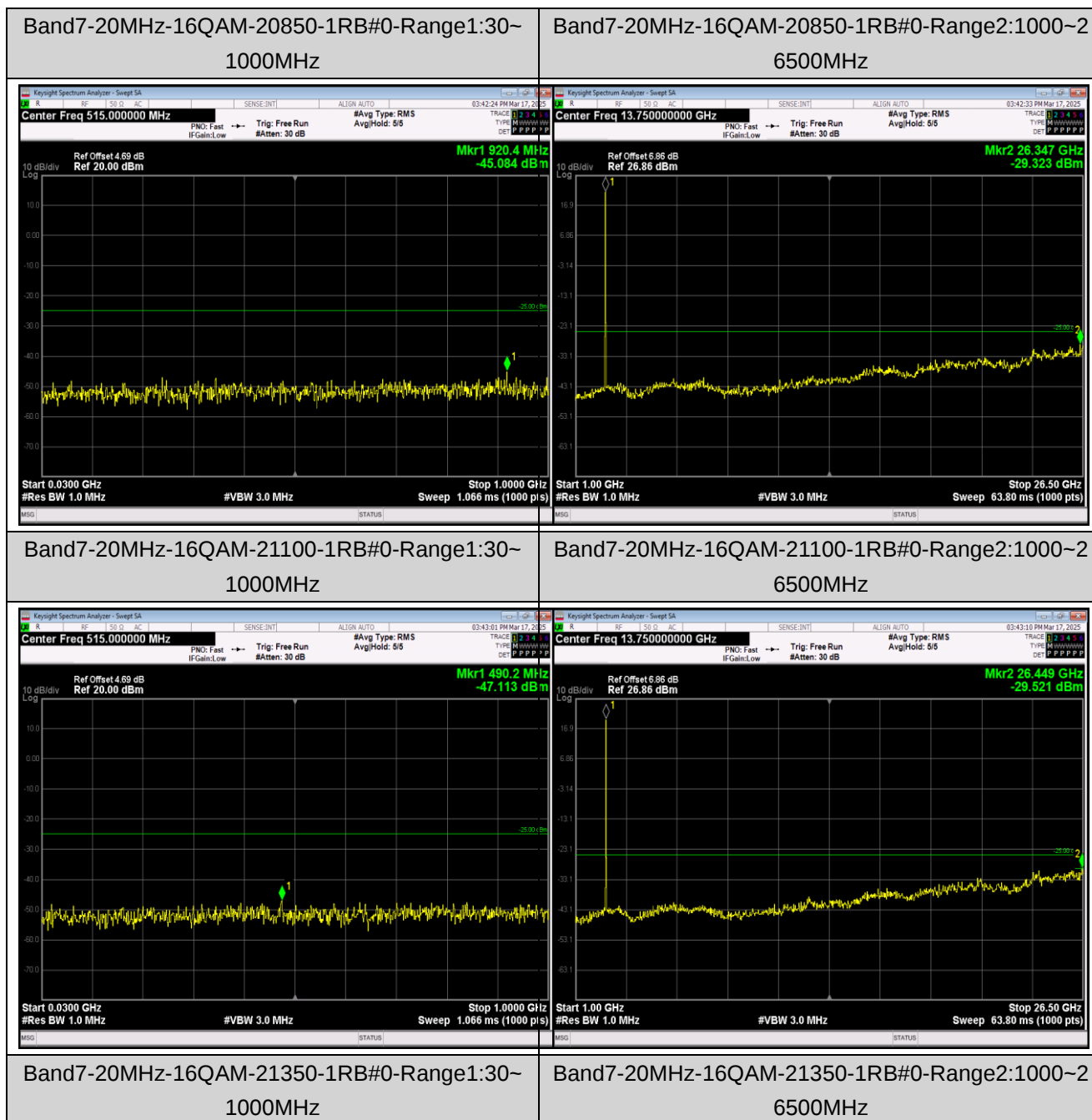
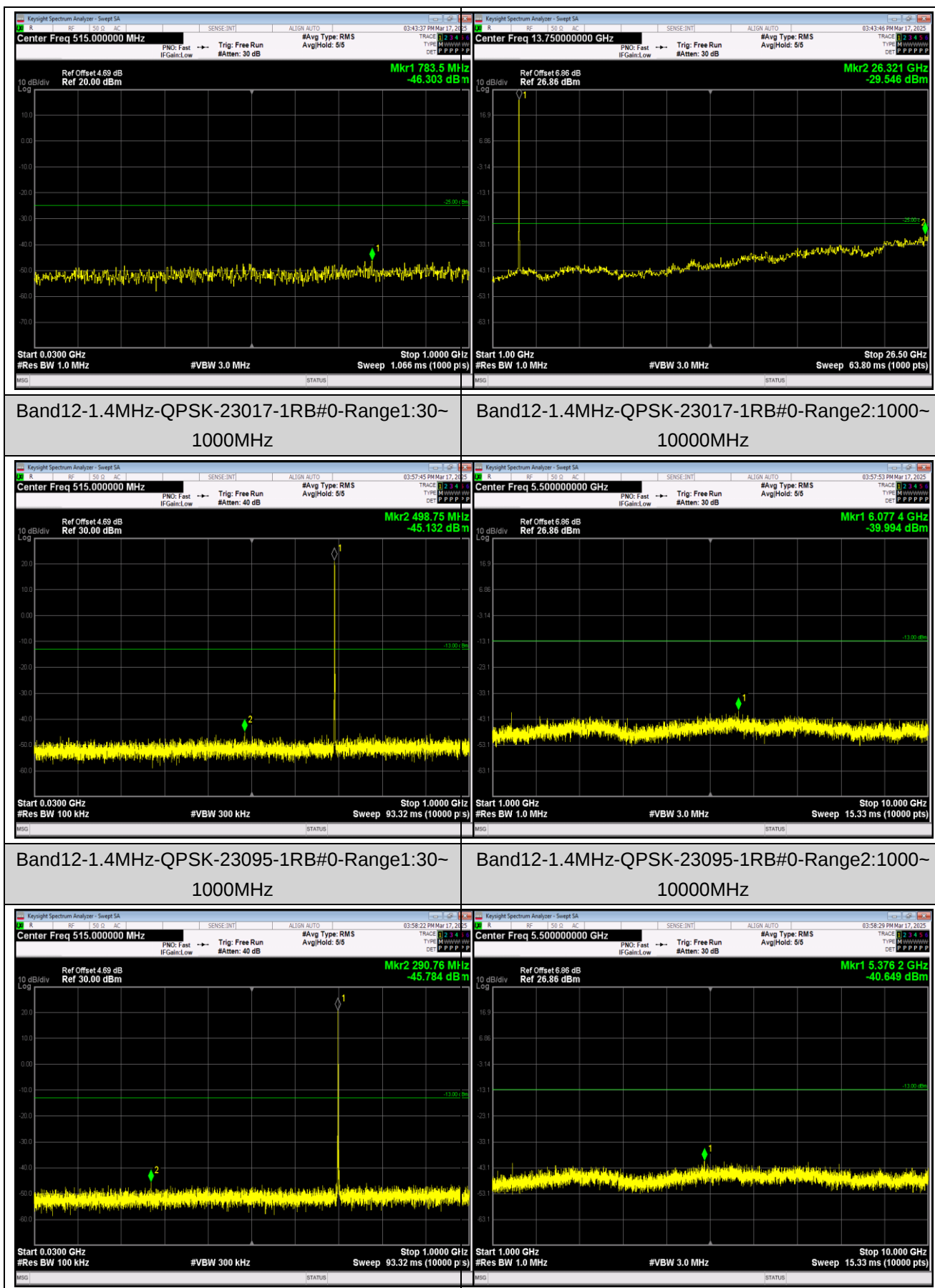
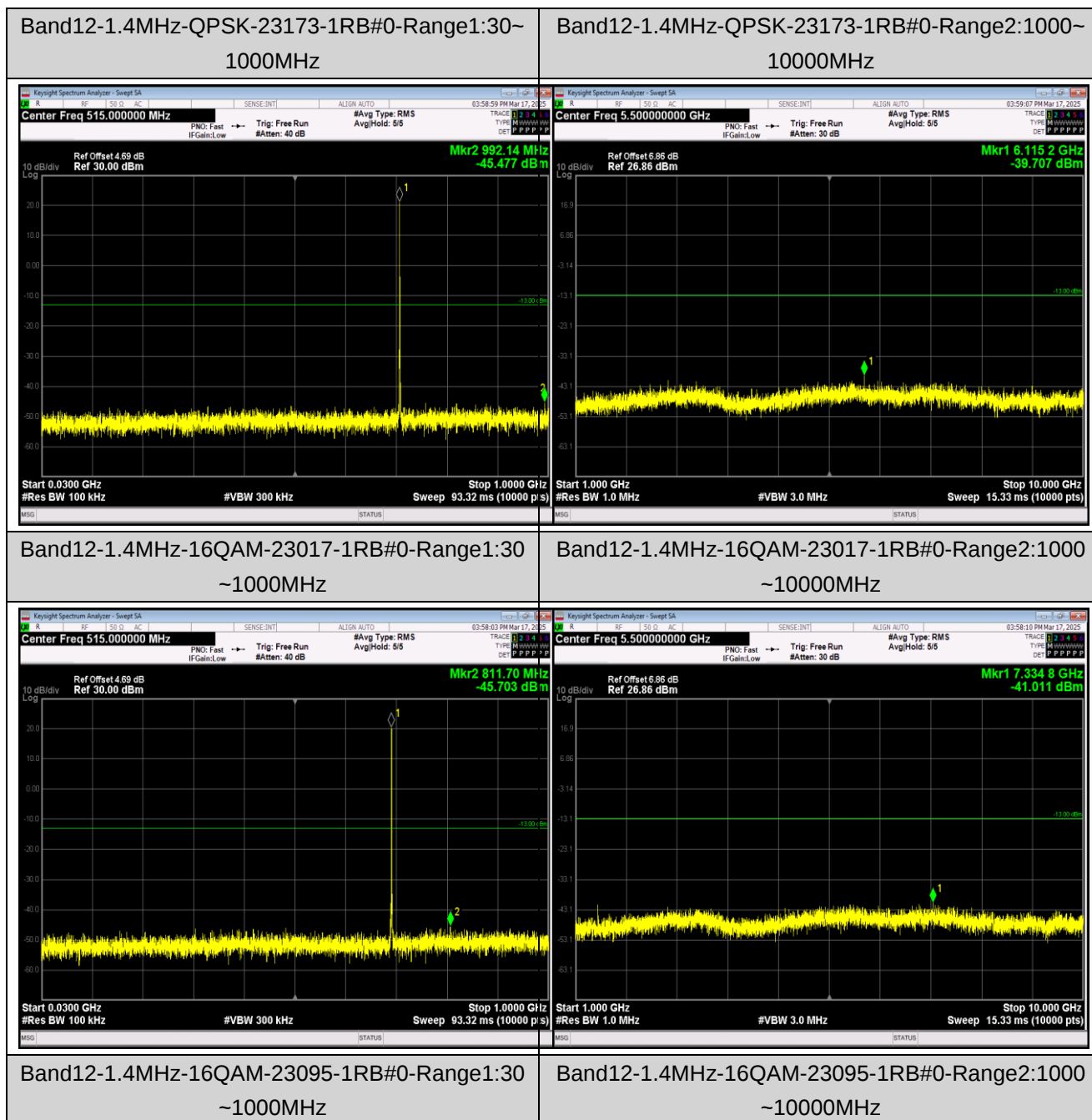
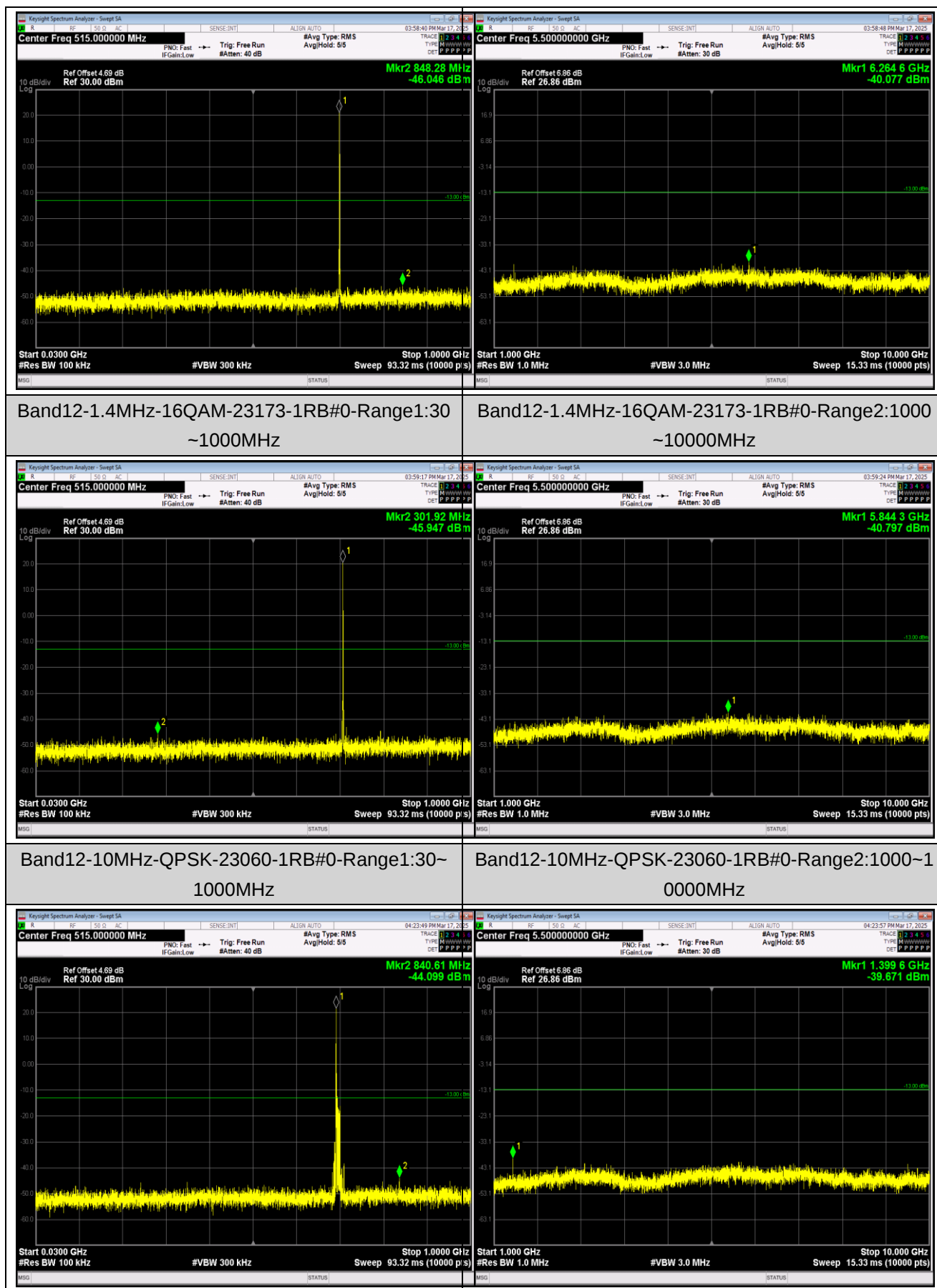


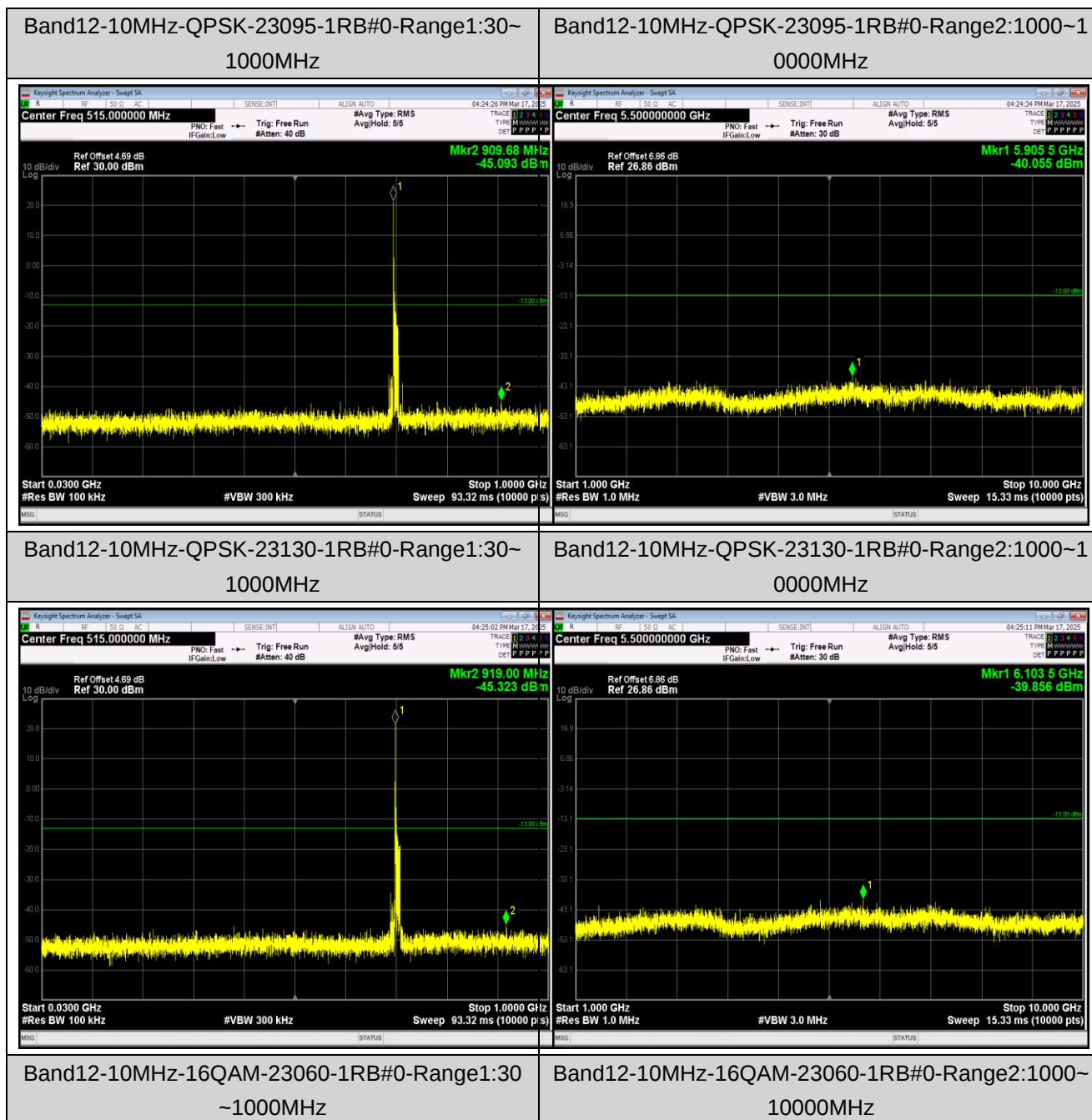


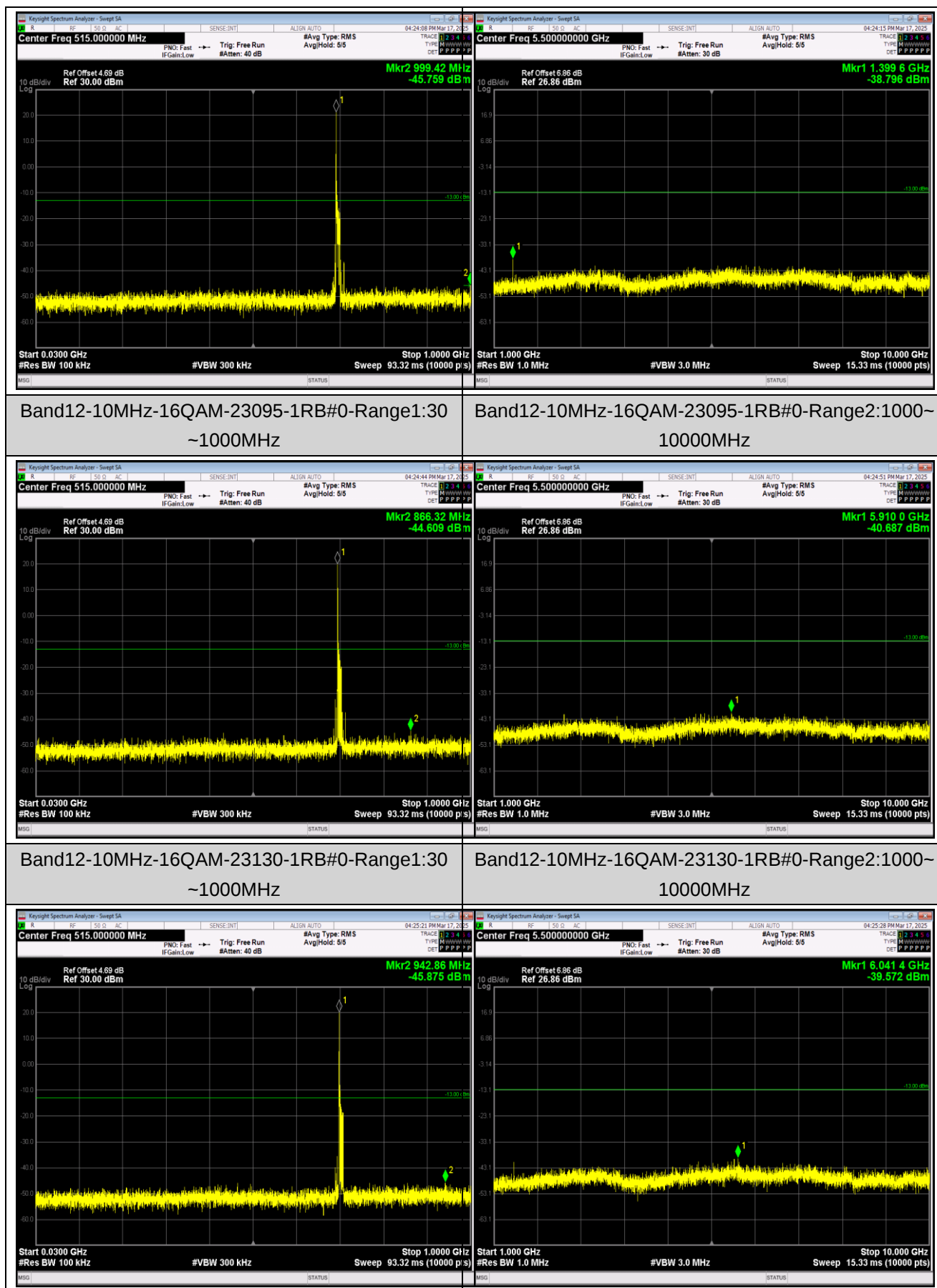












Appendix F: Frequency Stability

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					
3.70	-30	-43.23	-0.022995	Within authorized band for Band 2	Pass
	-20	9.86	0.005245		
	-10	-20.30	-0.010798		
	0	-27.17	-0.014452		
	10	-36.41	-0.019367		
	20	-42.99	-0.022867		
	30	-12.76	-0.006787		
	40	-12.45	-0.006622		
	50	-25.09	-0.013346		
16QAM					
3.70	-30	-29.97	-0.015941	Within authorized band for Band 2	Pass
	-20	-25.28	-0.013447		
	-10	-36.03	-0.019165		
	0	-36.84	-0.019596		
	10	-32.11	-0.017080		
	20	-29.07	-0.015463		
	30	-34.53	-0.018367		
	40	-42.10	-0.022394		
	50	-41.48	-0.022064		
Voltage					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	3.50	-7.42	-0.003947	Within authorized band for Band 2	Pass
	3.70	13.95	0.007420		
	4.20	-29.27	-0.015569		
16QAM					
25	3.50	-32.14	-0.017096	Within authorized band for Band 2	Pass
	3.70	-32.54	-0.017309		
	4.20	-35.75	-0.019016		
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					
3.70	-30	29.81	0.017206	Within authorized band for Band 4	Pass
	-20	24.70	0.014257		
	-10	37.69	0.021755		
	0	37.08	0.021403		
	10	38.84	0.022418		
	20	44.95	0.025945		
	30	-21.17	-0.012219		
	40	5.02	0.002898		
	50	12.36	0.007134		
16QAM					
3.70	-30	12.36	0.007134	Within authorized band for Band 4	Pass
	-20	7.62	0.004398		
	-10	-5.24	-0.003025		
	0	-12.04	-0.006949		
	10	-8.14	-0.004698		
	20	-9.90	-0.005714		
	30	-13.75	-0.007937		
	40	-17.50	-0.010101		
	50	-20.56	-0.011867		
Voltage					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	3.50	23.32	0.013460	Within authorized band for Band 4	Pass
	3.70	35.26	0.020352		
	4.20	25.63	0.014794		
16QAM					
25	3.50	11.06	0.006384	Within authorized band for Band 4	Pass
	3.70	8.03	0.004635		
	4.20	7.21	0.004162		
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					
3.70	-30	16.94	0.020251	±2.5	Pass
	-20	15.85	0.018948		
	-10	6.44	0.007699		
	0	-4.42	-0.005284		
	10	-4.82	-0.005762		
	20	-9.24	-0.011046		
	30	-14.93	-0.017848		
	40	-21.46	-0.025655		
	50	-22.43	-0.026814		
16QAM					
3.70	-30	-24.86	-0.029719	±2.5	Pass
	-20	-29.85	-0.035684		
	-10	-29.20	-0.034907		
	0	-29.65	-0.035445		
	10	-31.73	-0.037932		
	20	-37.64	-0.044997		
	30	-35.49	-0.042427		
	40	-42.94	-0.051333		
	50	-43.75	-0.052301		
Voltage					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	3.50	32.43	0.038769	±2.5	Pass
	3.70	29.53	0.035302		
	4.20	27.68	0.033090		
16QAM					
25	3.50	-30.61	-0.036593	±2.5	Pass
	3.70	-26.19	-0.031309		
	4.20	-26.52	-0.031704		
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					
3.70	-30	11.62	0.004584	Within authorized band for Band 7	Pass
	-20	23.22	0.009160		
	-10	19.07	0.007523		
	0	34.88	0.013759		
	10	40.58	0.016008		
	20	45.42	0.017917		
	30	-25.82	-0.010185		
	40	-26.85	-0.010592		
	50	-28.05	-0.011065		
16QAM					
3.70	-30	-12.96	-0.005112	Within authorized band for Band 7	Pass
	-20	-19.31	-0.007617		
	-10	-24.68	-0.009736		
	0	-29.54	-0.011653		
	10	-26.94	-0.010627		
	20	-27.67	-0.010915		
	30	-27.07	-0.010679		
	40	-26.48	-0.010446		
	50	-25.43	-0.010032		
Voltage					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	3.50	-11.96	-0.004718	Within authorized band for Band 7	Pass
	3.70	36.84	0.014533		
	4.20	-19.17	-0.007562		
16QAM					
25	3.50	-17.28	-0.006817	Within authorized band for Band 7	Pass
	3.70	-24.96	-0.009846		
	4.20	-24.88	-0.009815		
Remark: All bandwidth and all modulation had been tested, but only the worst case data displayed in this report.					

LTE Band 12 part:

Reference Frequency: LTE Band 12(10MHz) Middle channel=23095 Frequency=707.5MHz					
Temperature					
Power supplied (Vdc)	Temperature (°C)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
3.70	-30	3.52	0.004975	Within authorized band for Band 12	Pass
	-20	5.75	0.008127		
	-10	6.57	0.009286		
	0	5.88	0.008311		
	10	8.74	0.012353		
	20	7.88	0.011138		
	30	8.50	0.012014		
	40	8.10	0.011449		
	50	8.44	0.011929		
16QAM					
3.70	-30	9.90	0.013993	Within authorized band for Band 12	Pass
	-20	7.64	0.010799		
	-10	5.44	0.007689		
	0	6.01	0.008495		
	10	4.73	0.006686		
	20	6.49	0.009173		
	30	5.92	0.008367		
	40	4.88	0.006898		
	50	2.75	0.003887		
Voltage					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	3.50	5.62	0.007943	Within authorized band for Band 12	Pass
	3.70	9.31	0.013159		
	4.20	6.14	0.008678		
16QAM					
25	3.50	8.97	0.012678	Within authorized band for Band 12	Pass
	3.70	10.86	0.015350		
	4.20	7.64	0.010799		
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
Band12	10MHz	QPSK	23095	50RB#0	PASS	PASS
Band12	10MHz	16QAM	23095	50RB#0	PASS	PASS

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

Test Graphs

