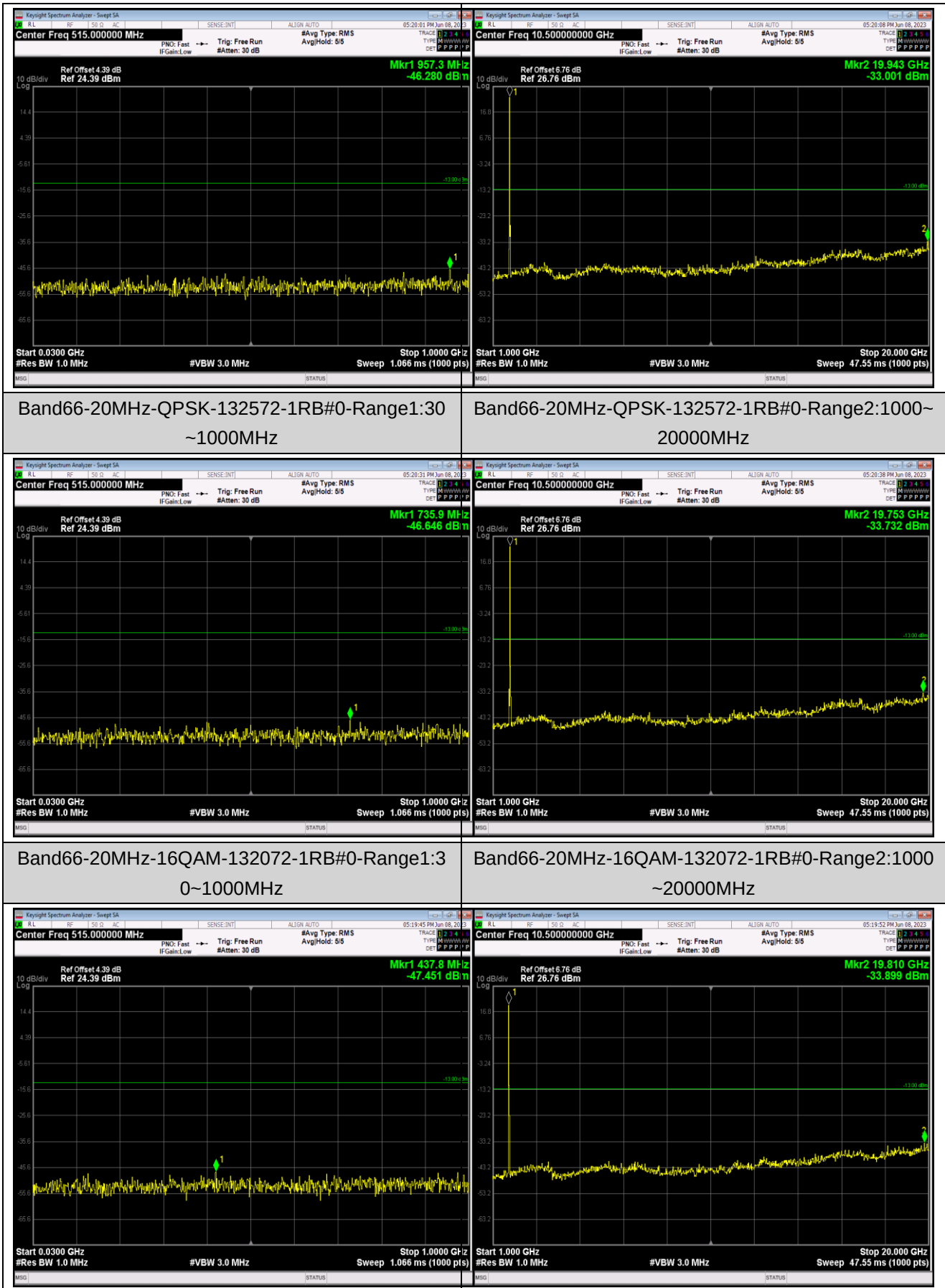
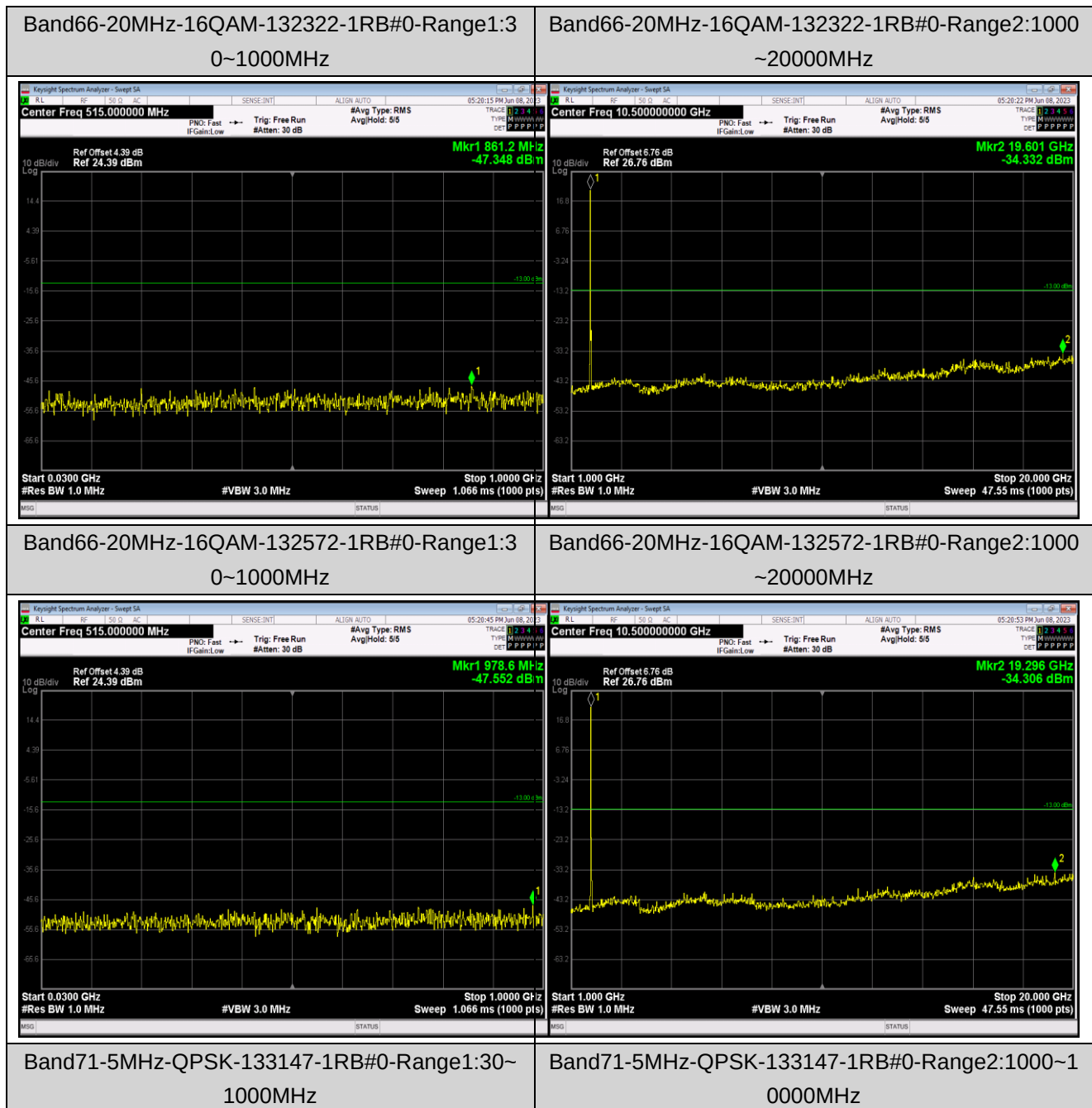
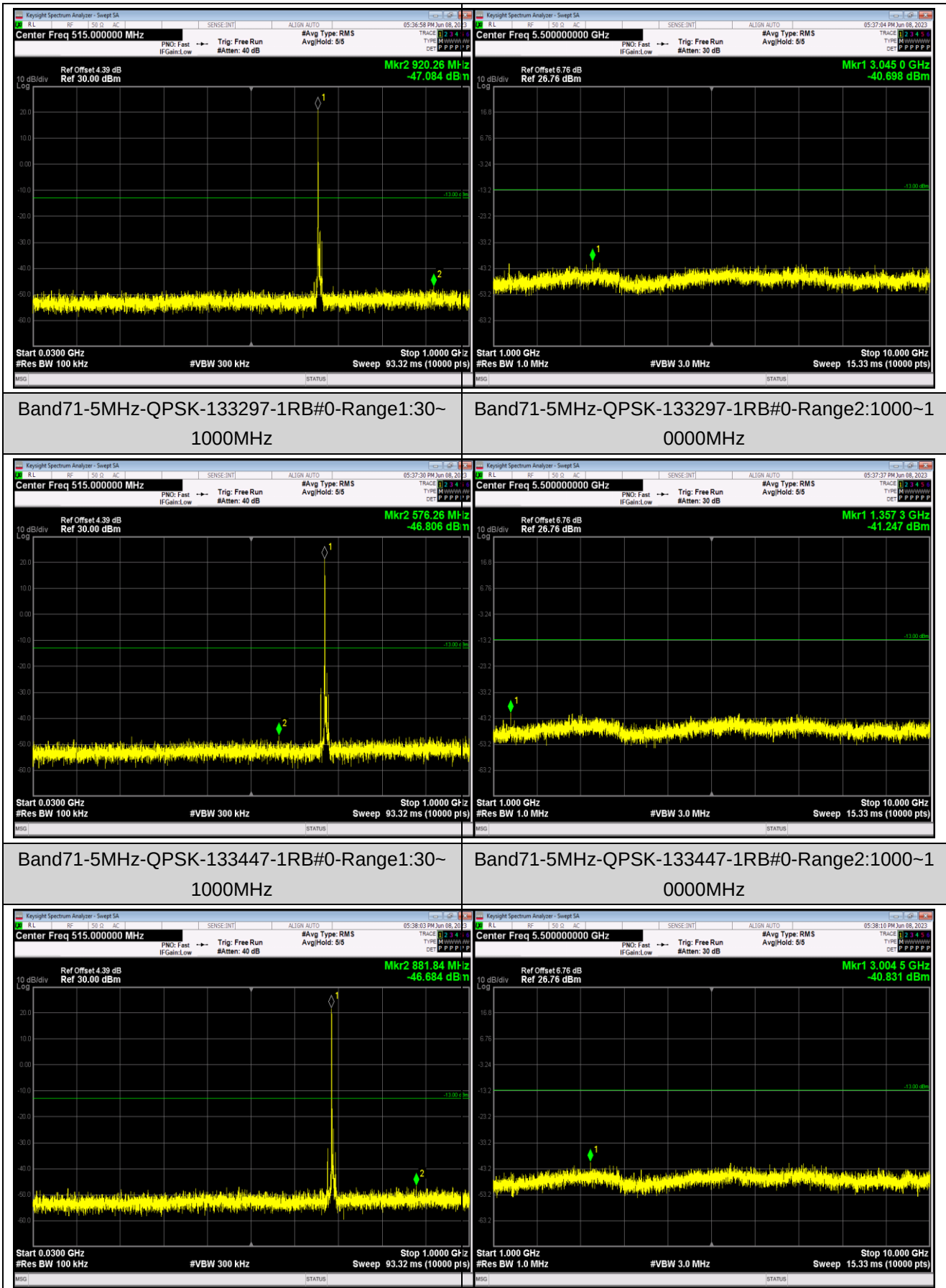
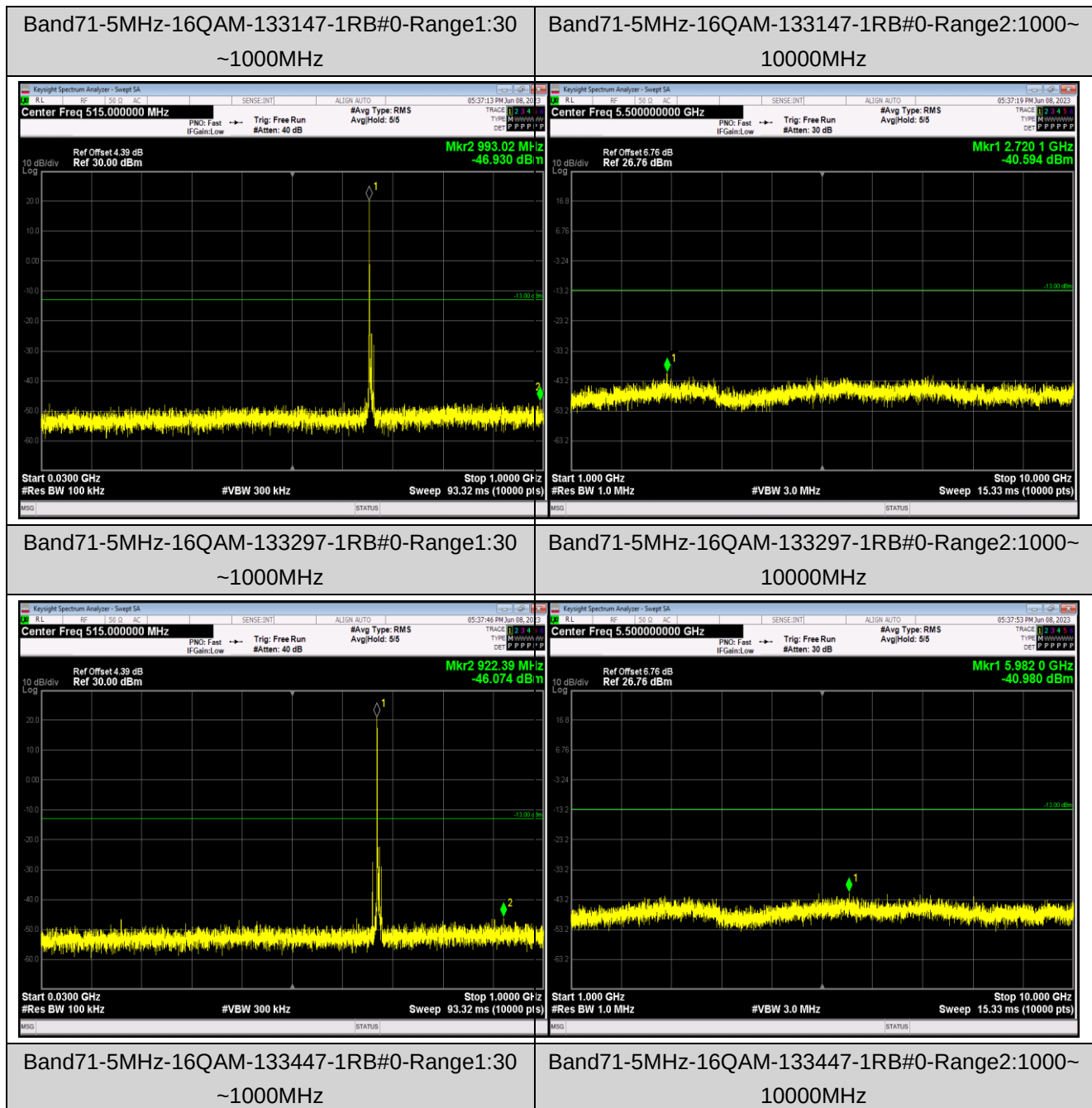
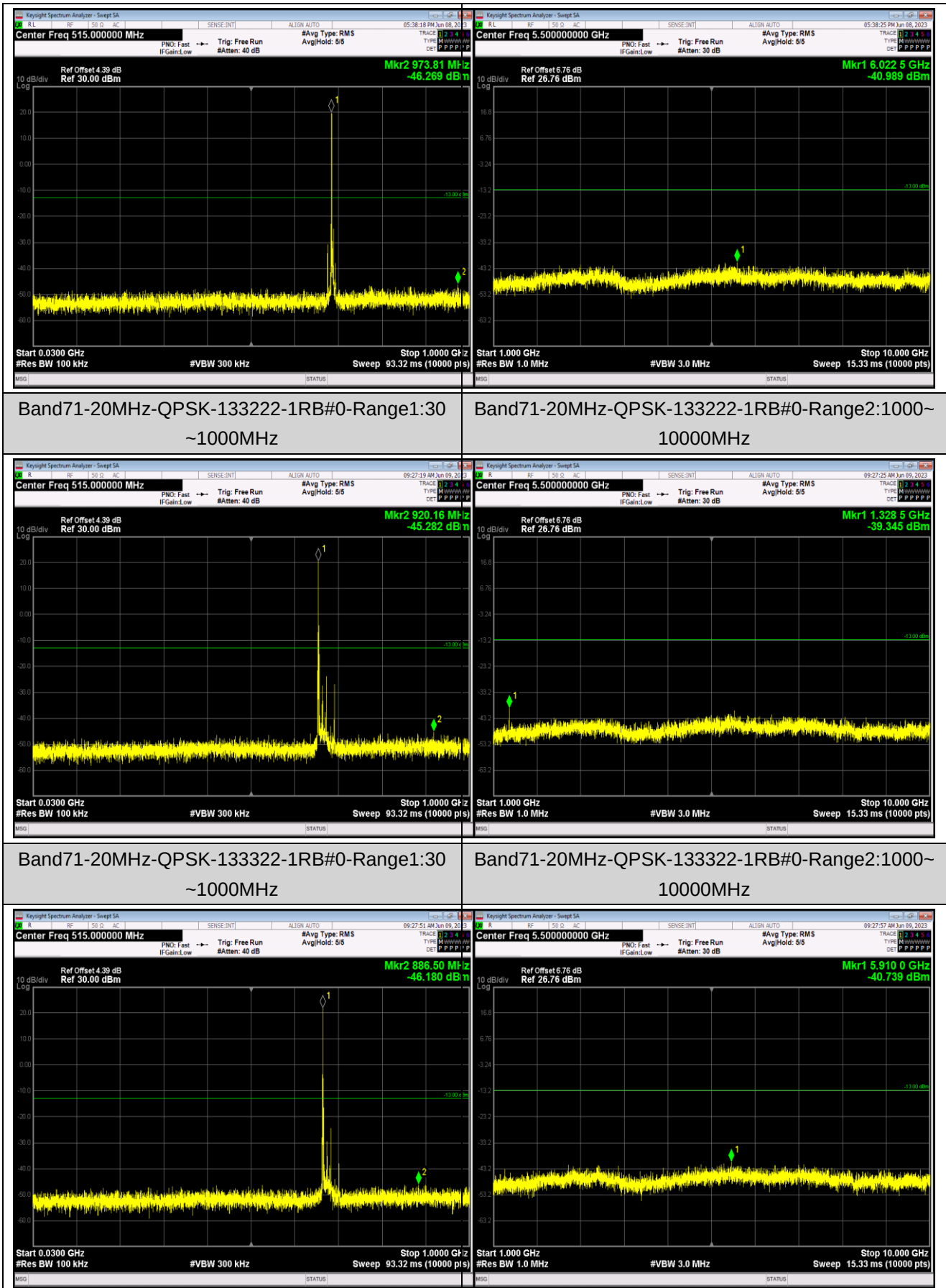


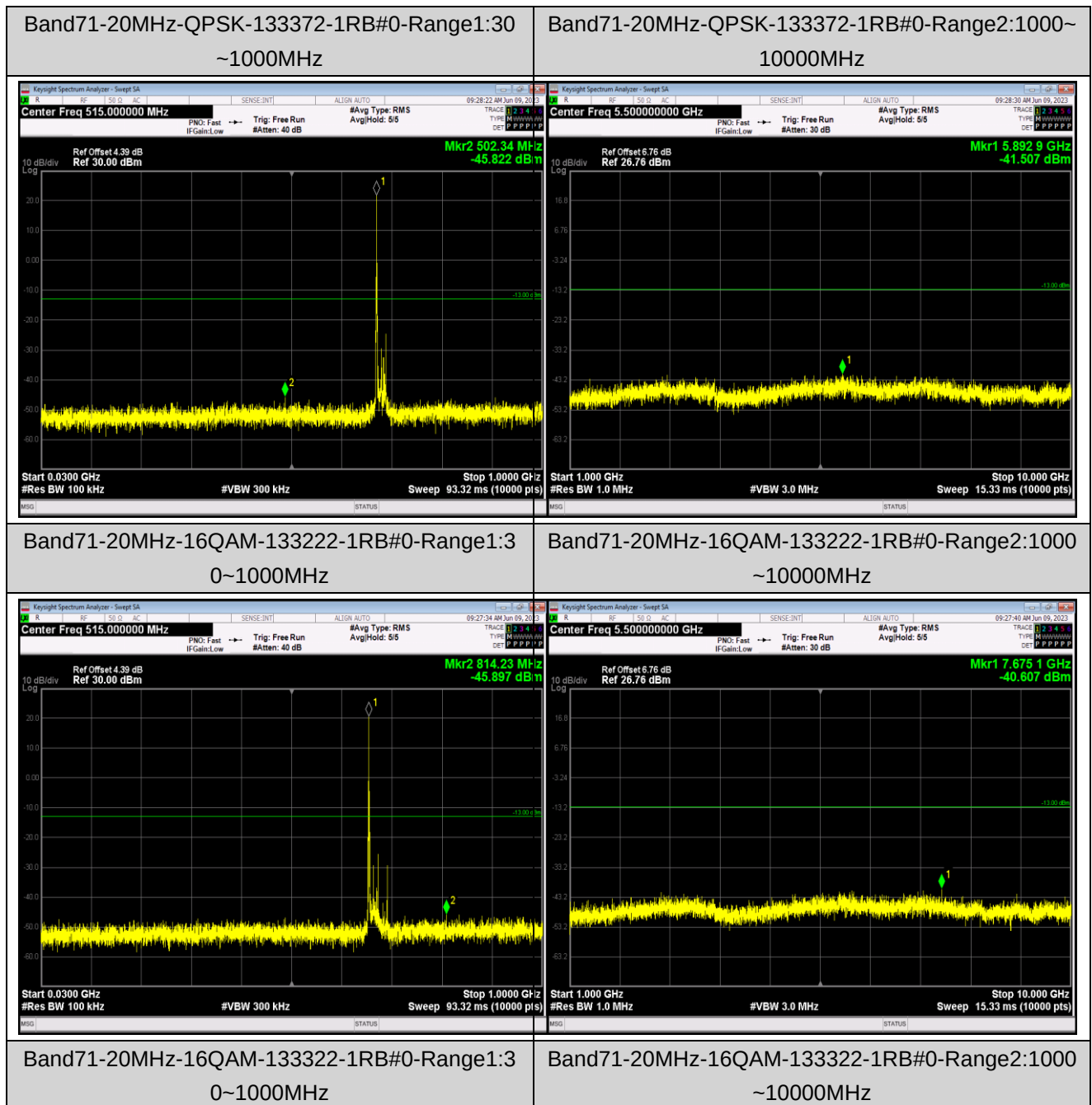


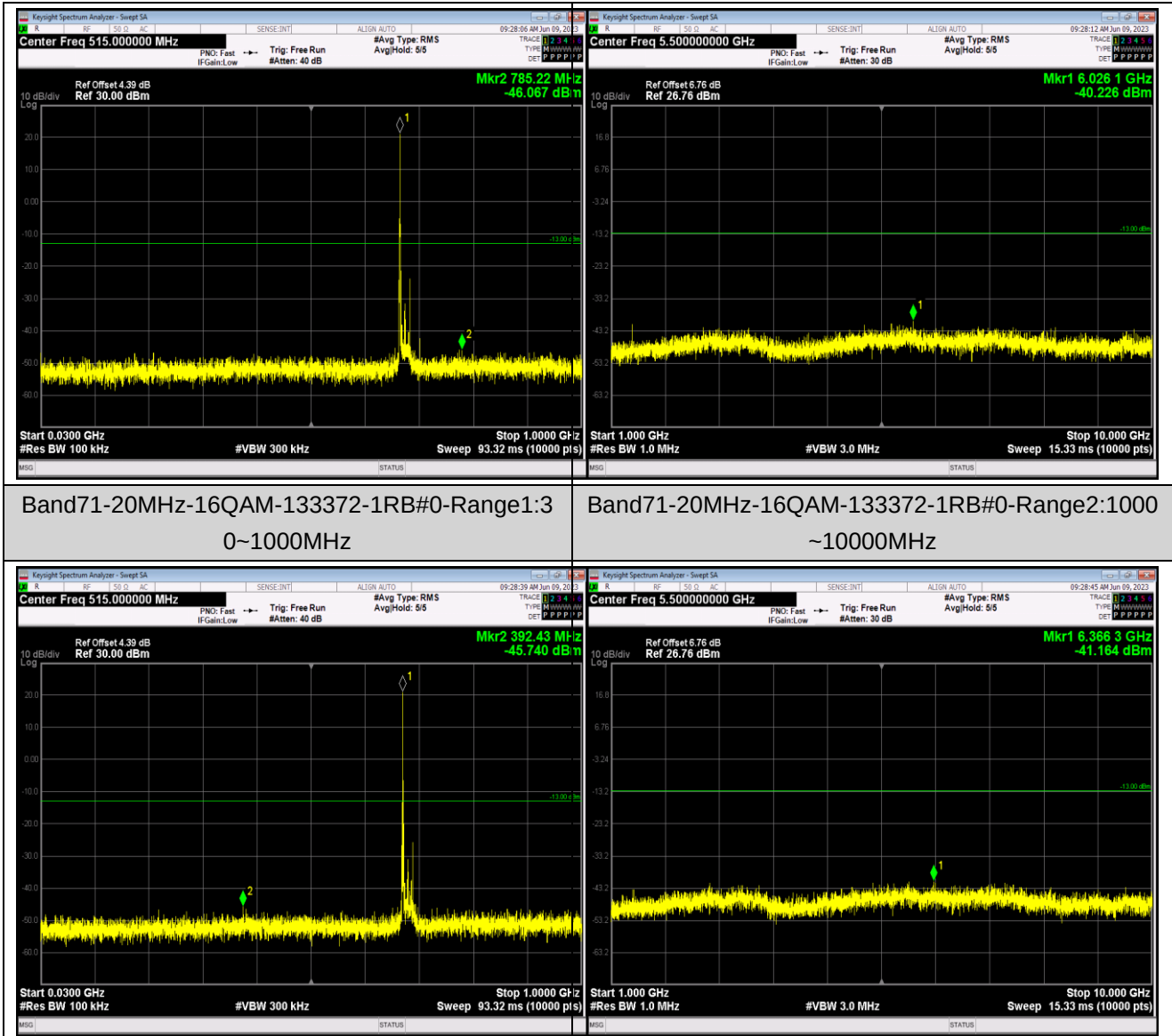












Appendix F: Frequency Stability

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	-13.59	-0.007229	Within authorized band for Band 2	Pass
	-20	-10.09	-0.005367		
	-10	-5.54	-0.002947		
	0	-8.41	-0.004473		
	10	-16.34	-0.008691		
	20	-8.87	-0.004718		
	30	-10.34	-0.005500		
	40	-19.58	-0.010415		
	50	-17.78	-0.009457		
16QAM					
3.80	-30	-10.90	-0.005798	Within authorized band for Band 2	Pass
	-20	-11.86	-0.006309		
	-10	-7.85	-0.004176		
	0	-9.94	-0.005287		
	10	-9.11	-0.004846		
	20	-4.92	-0.002617		
	30	-16.44	-0.008745		
	40	-14.63	-0.007782		
	50	-19.86	-0.010564		
Voltage					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	3.50	-14.75	-0.007846	Within authorized band for Band 2	Pass
	3.80	-21.47	-0.011420		
	3.45	-21.21	-0.011282		
16QAM					
25	3.50	-7.20	-0.003830	Within authorized band for Band 2	Pass
	3.80	-12.43	-0.006612		
	3.45	-21.13	-0.011239		
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	-10.30	-0.012313	±2.5	Pass
	-20	-6.14	-0.007340		
	-10	-13.00	-0.015541		
	0	-10.47	-0.012516		
	10	-12.86	-0.015374		
	20	-7.38	-0.008822		
	30	-10.97	-0.013114		
	40	-8.10	-0.009683		
	50	-11.57	-0.013831		
16QAM					
3.80	-30	-7.40	-0.008846	±2.5	Pass
	-20	-3.68	-0.004399		
	-10	-17.19	-0.020550		
	0	-10.47	-0.012516		
	10	-10.30	-0.012313		
	20	-7.42	-0.008870		
	30	-11.93	-0.014262		
	40	-9.70	-0.011596		
	50	-7.02	-0.008392		
Voltage					
Temperature (℃)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	3.50	-5.74	-0.006862	±2.5	Pass
	3.80	-9.83	-0.011751		
	3.45	-6.48	-0.007747		
16QAM					
25	3.50	-10.71	-0.012803	±2.5	Pass
	3.80	-7.41	-0.008858		
	3.45	-6.58	-0.007866		
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					
3.80	-30	-11.39	-0.016099	Within authorized band for Band 12	Pass
	-20	-4.61	-0.006516		
	-10	-7.91	-0.011180		
	0	-7.21	-0.010191		
	10	-7.48	-0.010572		
	20	-8.30	-0.011731		
	30	-13.75	-0.019435		
	40	-11.17	-0.015788		
	50	-11.83	-0.016721		
16QAM					
3.80	-30	-10.90	-0.015406	Within authorized band for Band 12	Pass
	-20	-9.17	-0.012961		
	-10	-13.42	-0.018968		
	0	-4.29	-0.006064		
	10	-9.67	-0.013668		
	20	-6.39	-0.009032		
	30	-7.57	-0.010700		
	40	-6.74	-0.009527		
	50	-11.20	-0.015830		
Voltage					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	3.50	-11.50	-0.016254	Within authorized band for Band 12	Pass
	3.80	-7.35	-0.010389		
	3.45	-10.57	-0.014940		
16QAM					
25	3.50	-11.29	-0.015958	Within authorized band for Band 12	Pass
	3.80	4.15	0.005866		
	3.45	-1.46	-0.002064		
Remark: All bandwidth and all modulation had been tested, but only the worst case data displayed in this report.					

LTE Band 17 part:

Reference Frequency: LTE Band 17(10MHz) Middle channel=23790 Frequency=710.0MHz					
Temperature					
Power supplied (Vdc)	Temperature (°C)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
3.80	-30	-8.91	-0.012549	Within authorized band for Band 17	Pass
	-20	-5.99	-0.008437		
	-10	-8.00	-0.011268		
	0	-8.71	-0.012268		
	10	-7.10	-0.010000		
	20	-9.27	-0.013056		
	30	-7.88	-0.011099		
	40	-11.00	-0.015493		
	50	-8.53	-0.012014		
16QAM					
3.80	-30	-3.66	-0.005155	Within authorized band for Band 17	Pass
	-20	-9.47	-0.013338		
	-10	-12.40	-0.017465		
	0	-9.56	-0.013465		
	10	-3.49	-0.004915		
	20	-8.71	-0.012268		
	30	-9.34	-0.013155		
	40	-7.51	-0.010577		
	50	-9.04	-0.012732		
Voltage					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	3.50	-3.96	-0.005577	Within authorized band for Band 17	Pass
	3.80	-9.61	-0.013535		
	3.45	-6.35	-0.008944		
16QAM					
25	3.50	-10.59	-0.014915	Within authorized band for Band 17	Pass
	3.80	-7.32	-0.010310		
	3.45	-9.81	-0.013817		
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					
3.80	-30	-23.80	-0.009136	Within authorized band for Band 41	Pass
	-20	-15.45	-0.005931		
	-10	-14.33	-0.005501		
	0	-26.09	-0.010015		
	10	-9.70	-0.003724		
	20	-4.16	-0.001597		
	30	-7.38	-0.002833		
	40	-21.00	-0.008061		
	50	-17.31	-0.006645		
16QAM					
3.80	-30	-21.44	-0.008230	Within authorized band for Band 41	Pass
	-20	12.04	0.004622		
	-10	-19.66	-0.007547		
	0	-19.34	-0.007424		
	10	-16.58	-0.006365		
	20	-15.36	-0.005896		
	30	-19.63	-0.007536		
	40	-18.85	-0.007236		
	50	-11.77	-0.004518		
Voltage					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	3.50	-17.01	-0.006530	Within authorized band for Band 41	Pass
	3.80	-16.14	-0.006196		
	3.45	-21.36	-0.008200		
16QAM					
25	3.50	-20.23	-0.007766	Within authorized band for Band41	Pass
	3.80	-16.58	-0.006365		
	3.45	-14.12	-0.005420		
Remark: All bandwidth and all modulation had been tested, but only the worst case data displayed in this report.					

LTE Band 66 part:

Reference Frequency: LTE Band 66 (10MHz) Middle channel=132322 Frequency=1745.0MHz					
Temperature					
Power supplied (Vdc)	Temperature (°C)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
3.80	-30	12.09	0.006928	Within authorized band for Band 66	Pass
	-20	-6.97	-0.003994		
	-10	-5.94	-0.003404		
	0	-5.31	-0.003043		
	10	-20.57	-0.011788		
	20	-14.51	-0.008315		
	30	-3.96	-0.002269		
	40	-7.28	-0.004172		
	50	-8.45	-0.004842		
16QAM					
3.80	-30	-10.51	-0.006023	Within authorized band for Band 66	Pass
	-20	-6.14	-0.003519		
	-10	-2.49	-0.001427		
	0	-13.12	-0.007519		
	10	-6.29	-0.003605		
	20	-5.45	-0.003123		
	30	-15.84	-0.009077		
	40	-18.14	-0.010395		
	50	-19.66	-0.011266		
Voltage					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	3.50	-9.98	-0.005719	Within authorized band for Band 66	Pass
	3.80	-11.84	-0.006785		
	3.45	-14.03	-0.008040		
16QAM					
25	3.50	-16.37	-0.009381	Within authorized band for Band 66	Pass
	3.80	-12.99	-0.007444		
	3.45	-4.62	-0.002648		
Remark: All bandwidth and all modulation had been tested, but only the worst case data displayed in this report.					

LTE Band 71 part:

Reference Frequency: LTE Band 71 (10MHz) Middle channel=13297 Frequency=680.5MHz					
Temperature					
Power supplied (Vdc)	Temperature (°C)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
3.80	-30	-11.50	-0.016899	Within authorized band for Band 71	Pass
	-20	-8.67	-0.012741		
	-10	-11.54	-0.016958		
	0	-3.63	-0.005334		
	10	-6.91	-0.010154		
	20	-14.65	-0.021528		
	30	-13.69	-0.020118		
	40	-12.36	-0.018163		
	50	-10.36	-0.015224		
16QAM					
3.80	-30	-9.11	-0.013387	Within authorized band for Band 71	Pass
	-20	-13.62	-0.020015		
	-10	-7.52	-0.011051		
	0	-7.12	-0.010463		
	10	-8.13	-0.011947		
	20	-8.25	-0.012123		
	30	-6.29	-0.009243		
	40	-7.75	-0.011389		
	50	-12.36	-0.018163		
Voltage					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	3.50	-10.81	-0.015885	Within authorized band for Band 71	Pass
	3.80	-10.17	-0.014945		
	3.45	-7.78	-0.011433		
16QAM					
25	3.50	-4.86	-0.007142	Within authorized band for Band 71	Pass
	3.80	-5.01	-0.007362		
	3.45	-8.45	-0.012417		
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
Band5	10MHz	QPSK	20525	50RB#0	PASS	PASS
Band5	10MHz	16QAM	20525	50RB#0	PASS	PASS
Band12	10MHz	QPSK	23095	50RB#0	PASS	PASS
Band12	10MHz	16QAM	23095	50RB#0	PASS	PASS
Band17	10MHz	QPSK	23790	50RB#0	PASS	PASS
Band17	10MHz	16QAM	23790	50RB#0	PASS	PASS
Band41	20MHz	QPSK	40740	100RB#0	PASS	PASS
Band41	20MHz	16QAM	40740	100RB#0	PASS	PASS
Band66	20MHz	QPSK	132322	100RB#0	PASS	PASS
Band66	20MHz	16QAM	132322	100RB#0	PASS	PASS
Band71	20MHz	QPSK	133322	100RB#0	PASS	PASS
Band71	20MHz	16QAM	133322	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

