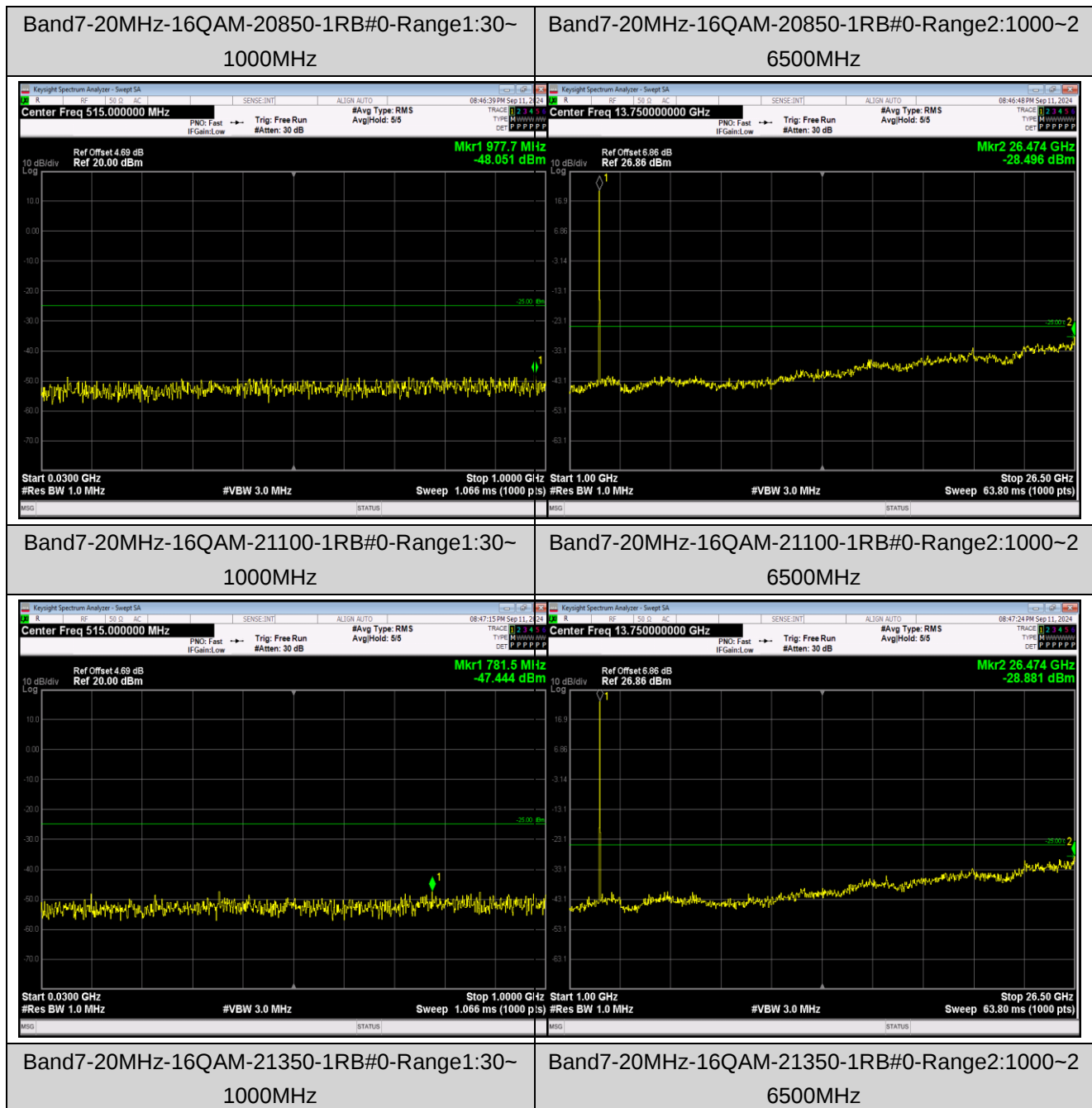
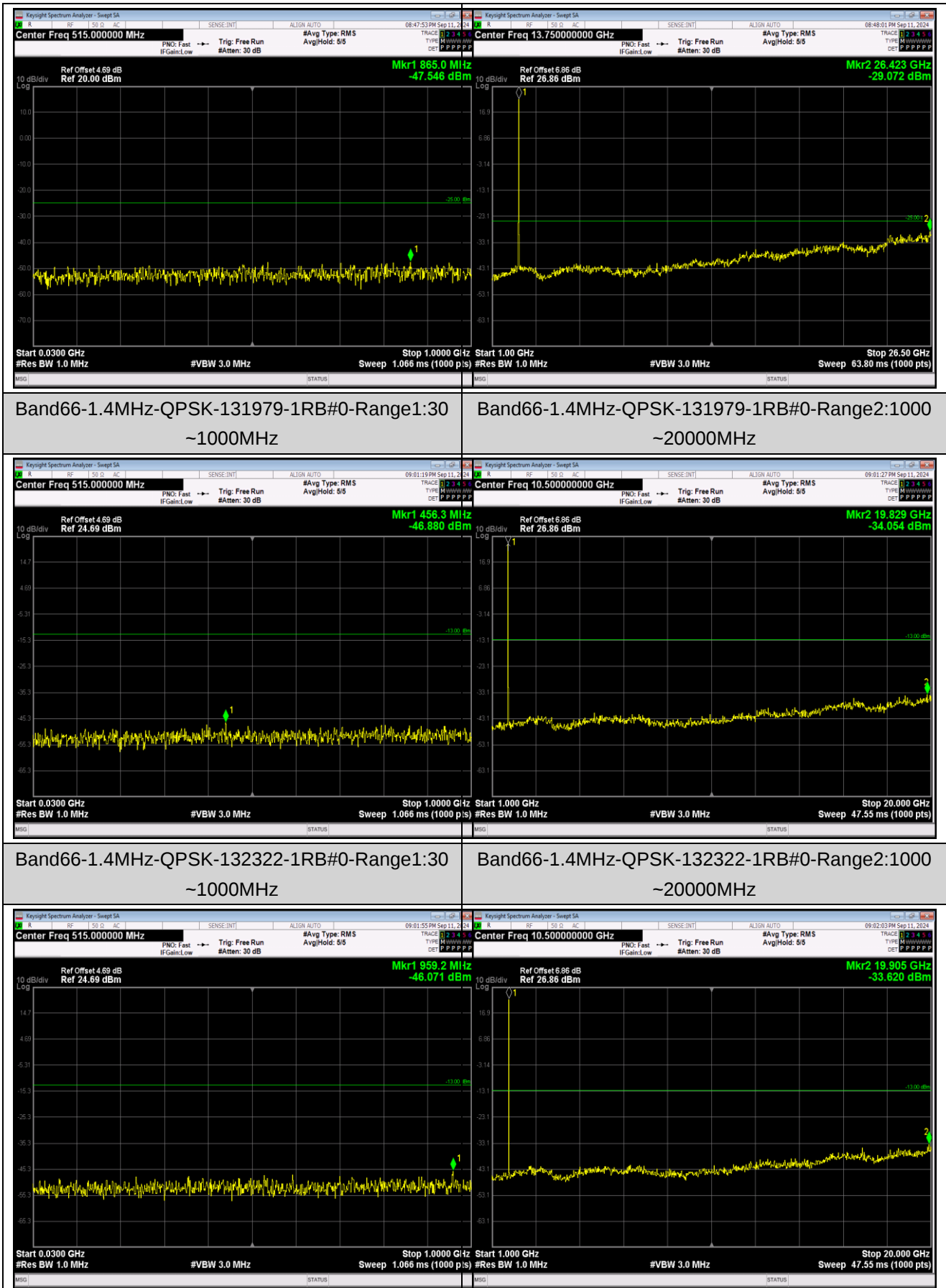
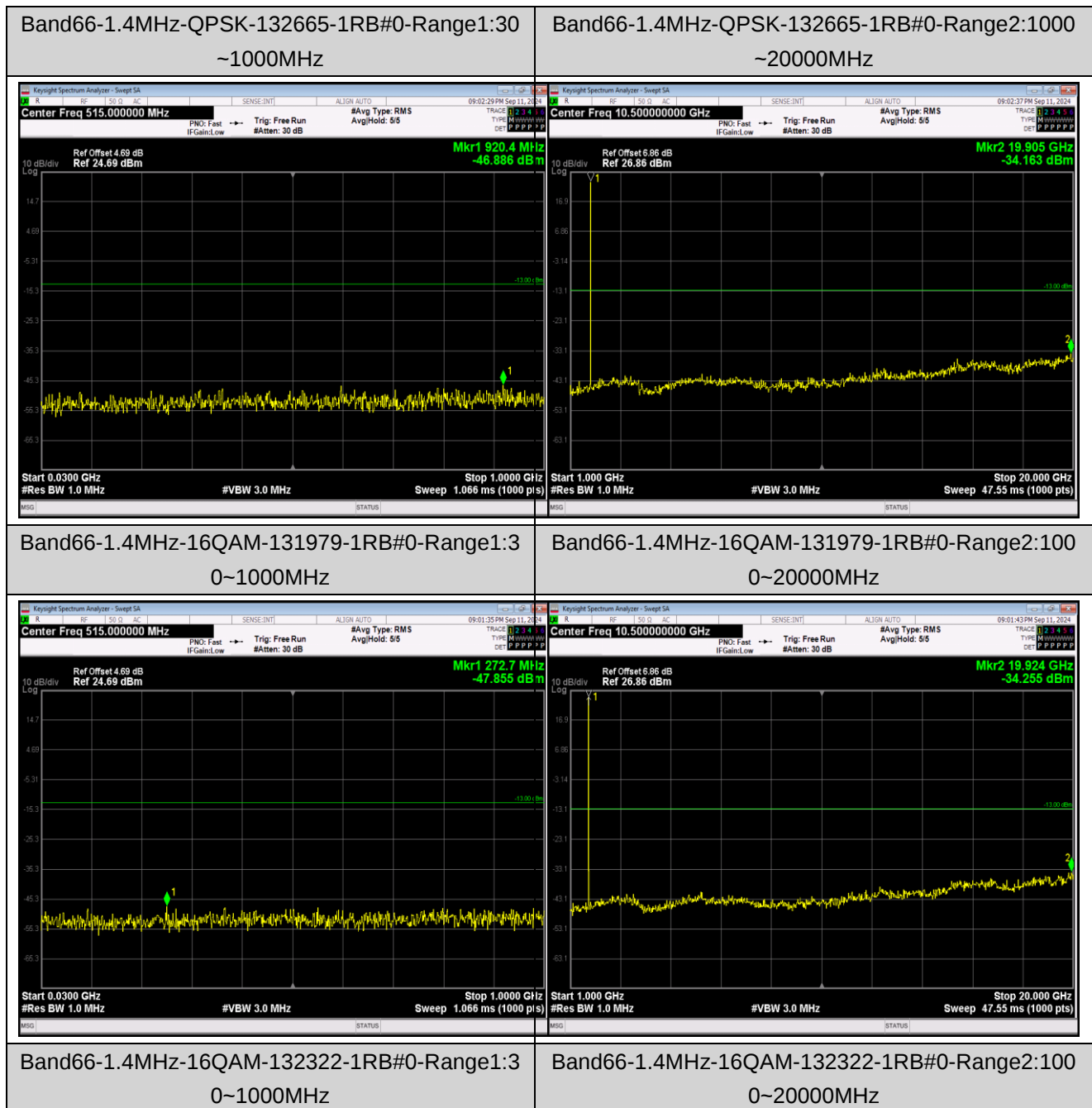
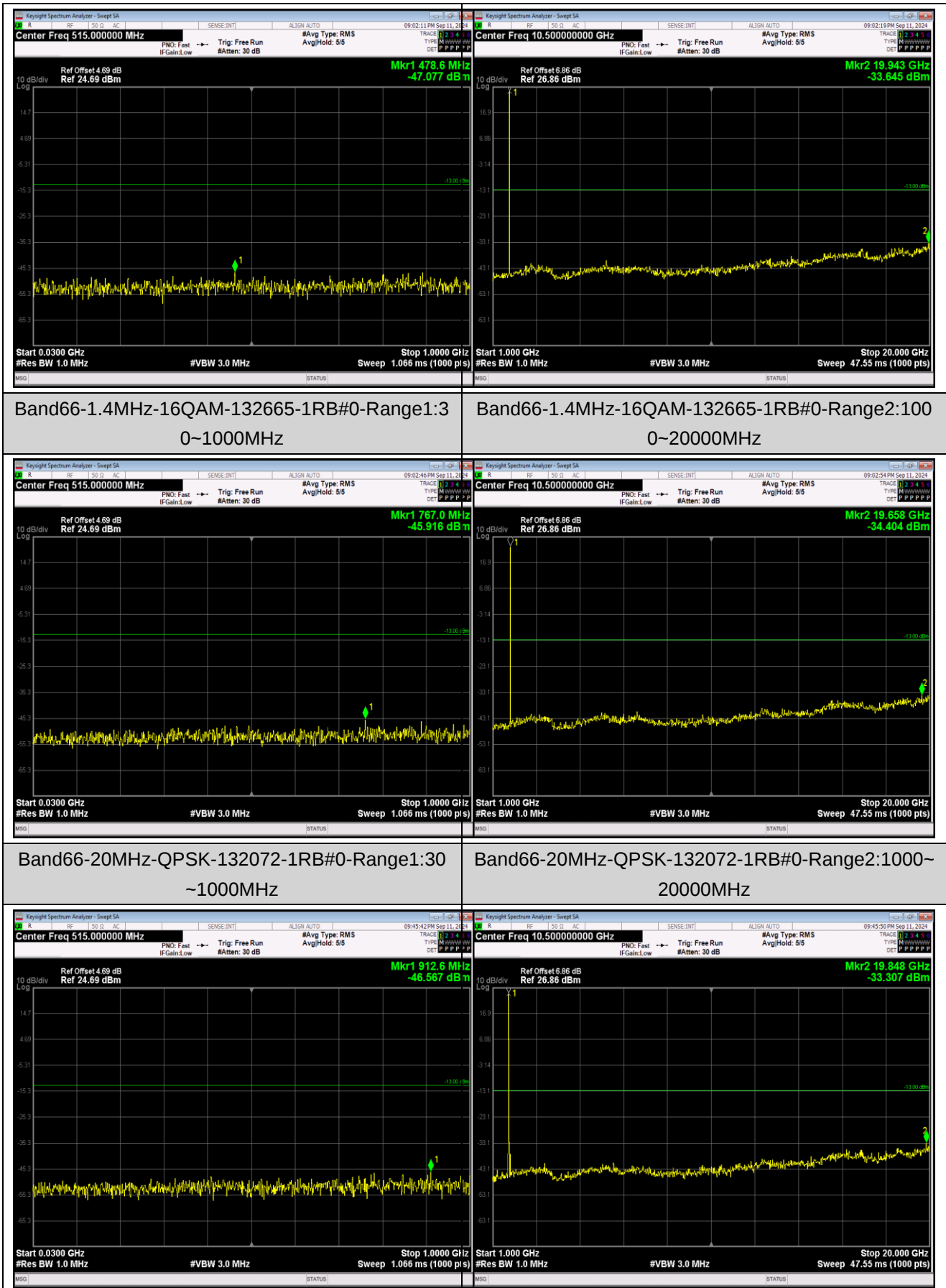
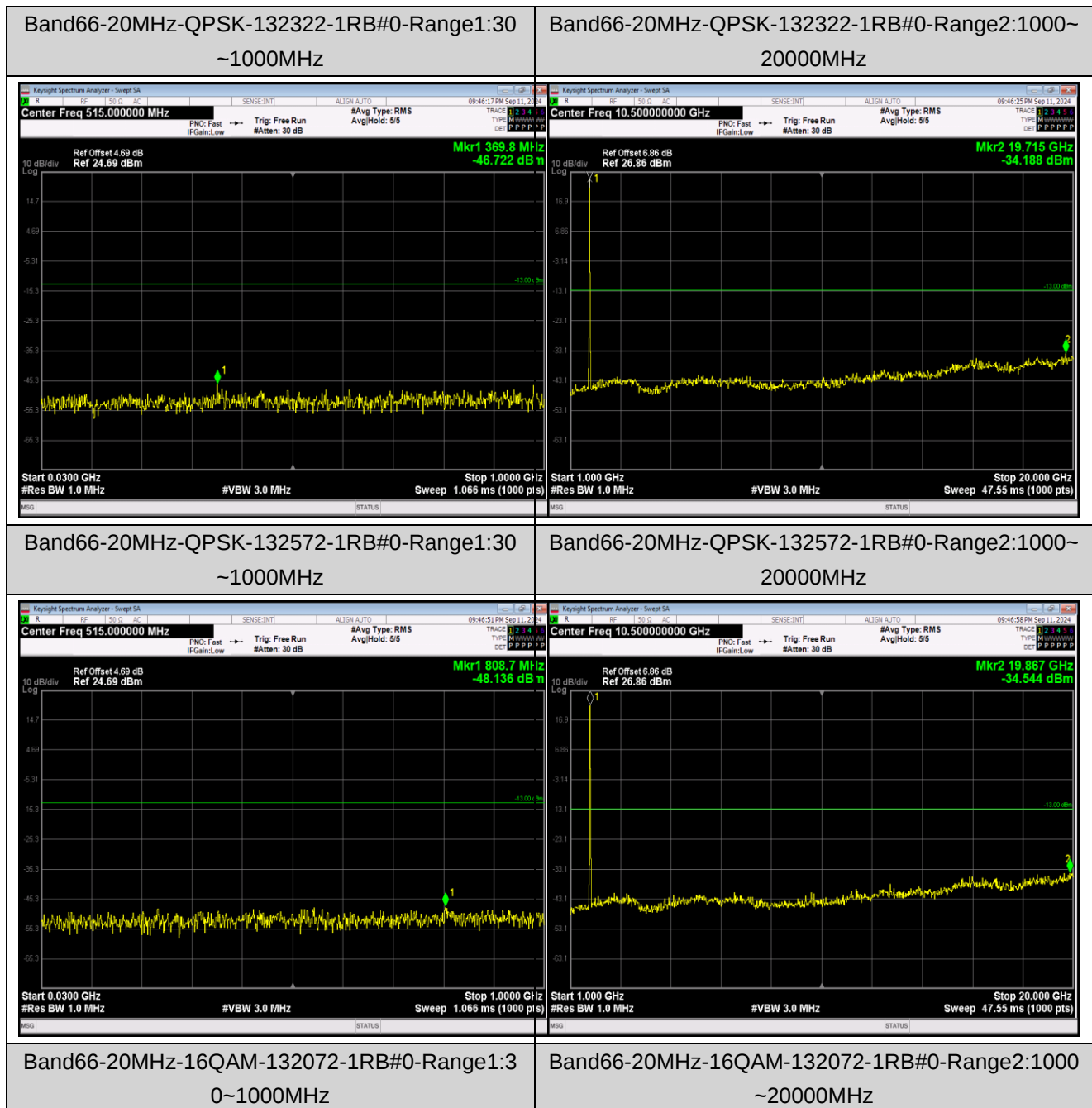


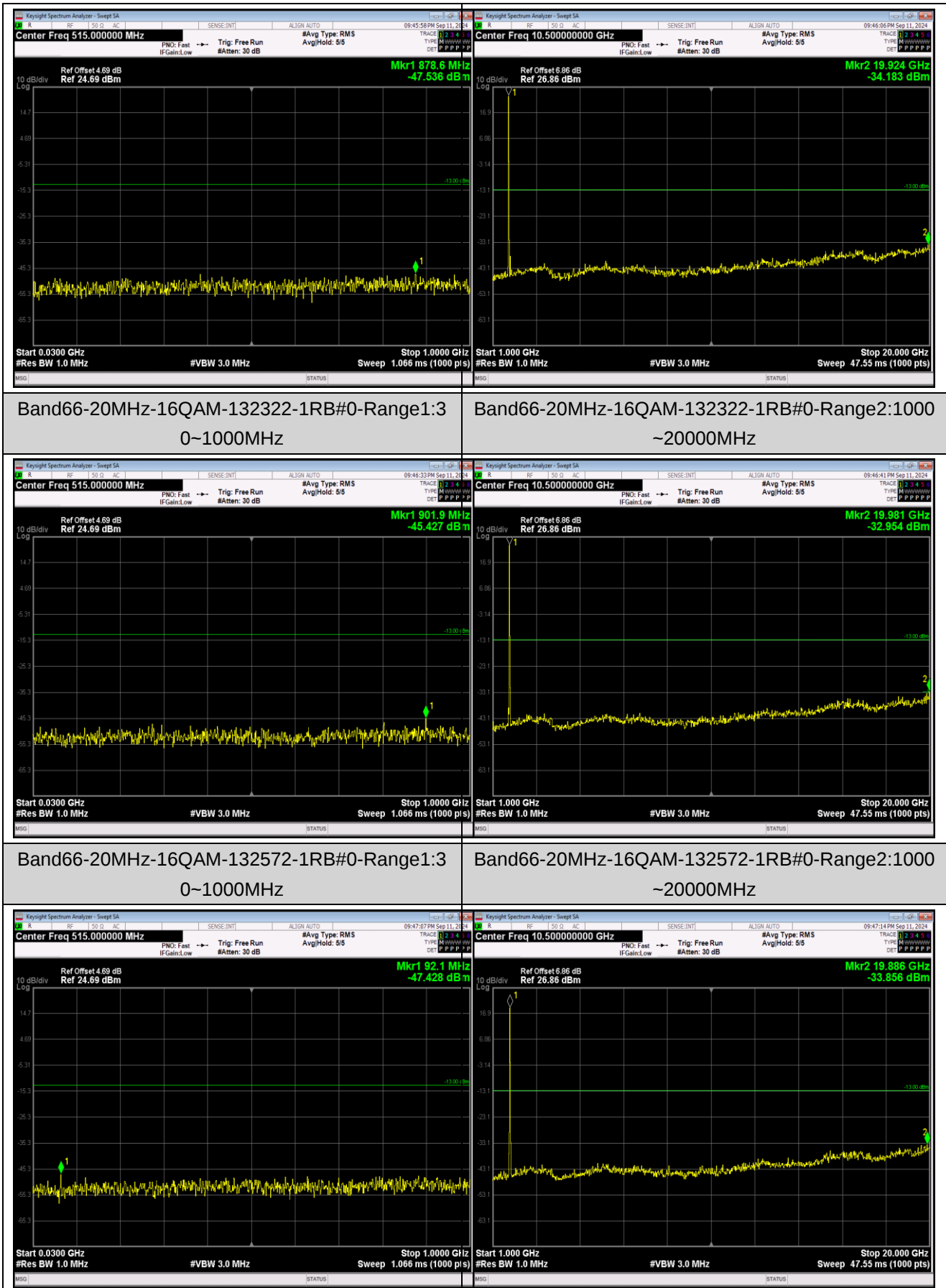












Appendix F: Frequency Stability

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	-15.88	-0.008447	Within authorized band for Band 2	Pass
	-20	-43.70	-0.023245		
	-10	-36.25	-0.019282		
	0	-13.79	-0.007335		
	10	-34.22	-0.018202		
	20	-13.13	-0.006984		
	30	-30.17	-0.016048		
	40	-51.88	-0.027596		
	50	-20.50	-0.010904		
16QAM					
3.87	-30	-24.42	-0.012989	Within authorized band for Band 2	Pass
	-20	22.70	0.012074		
	-10	28.32	0.015064		
	0	34.60	0.018404		
	10	45.72	0.024319		
	20	25.99	0.013824		
	30	22.10	0.011755		
	40	27.79	0.014782		
	50	33.32	0.017723		
Voltage					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	3.00	-31.01	-0.016495	Within authorized band for Band 2	Pass
	3.87	-10.09	-0.005367		
	4.45	-44.66	-0.023755		
16QAM					
25	3.00	-31.91	-0.016973	Within authorized band for Band 2	Pass
	3.87	-38.70	-0.020585		
	4.45	-37.41	-0.019899		
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	-39.04	-0.022534	Within authorized band for Band 4	Pass
	-20	-14.35	-0.008283		
	-10	-24.82	-0.014326		
	0	-33.75	-0.019481		
	10	-35.31	-0.020381		
	20	-42.14	-0.024323		
	30	-18.30	-0.010563		
	40	-20.28	-0.011706		
	50	-23.62	-0.013633		
16QAM					
3.87	-30	28.80	0.016623	Within authorized band for Band 4	Pass
	-20	32.16	0.018563		
	-10	13.28	0.007665		
	0	19.30	0.011140		
	10	26.16	0.015100		
	20	46.94	0.027094		
	30	52.04	0.030038		
	40	23.82	0.013749		
	50	31.81	0.018361		
Voltage					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	3.00	-11.29	-0.006517	Within authorized band for Band 4	Pass
	3.87	8.74	0.005045		
	4.45	-22.12	-0.012768		
16QAM					
25	3.00	-14.43	-0.008329	Within authorized band for Band 4	Pass
	3.87	-32.42	-0.018713		
	4.45	13.29	0.007671		
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					
3.87	-30	-48.28	-0.057717	±2.5	Pass
	-20	-38.80	-0.046384		
	-10	-25.62	-0.030628		
	0	-12.43	-0.014860		
	10	-36.18	-0.043252		
	20	-23.67	-0.028296		
	30	-46.55	-0.055649		
	40	-16.87	-0.020167		
	50	-33.60	-0.040167		
16QAM					
3.87	-30	-4.58	-0.005475	±2.5	Pass
	-20	-6.98	-0.008344		
	-10	-17.92	-0.021423		
	0	-19.37	-0.023156		
	10	-18.54	-0.022164		
	20	-19.77	-0.023634		
	30	-29.14	-0.034836		
	40	-38.72	-0.046288		
	50	-39.31	-0.046993		
Voltage					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	3.00	-51.61	-0.061698	±2.5	Pass
	3.87	-8.07	-0.009647		
	4.45	-8.14	-0.009731		
16QAM					
25	3.00	7.37	0.008811	±2.5	Pass
	3.87	4.42	0.005284		
	4.45	6.54	0.007818		
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	-38.97	-0.015373	Within authorized band for Band 7	Pass
	-20	9.23	0.003641		
	-10	-31.77	-0.012533		
	0	-47.08	-0.018572		
	10	-64.09	-0.025282		
	20	15.06	0.005941		
	30	-13.52	-0.005333		
	40	-20.51	-0.008091		
	50	-23.20	-0.009152		
16QAM					
3.87	-30	67.33	0.026560	Within authorized band for Band 7	Pass
	-20	-10.46	-0.004126		
	-10	33.10	0.013057		
	0	42.80	0.016884		
	10	33.42	0.013183		
	20	48.24	0.019030		
	30	-18.85	-0.007436		
	40	25.48	0.010051		
	50	10.70	0.004221		
Voltage					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	3.00	13.23	0.005219	Within authorized band for Band 7	Pass
	3.87	18.53	0.007310		
	4.45	-13.29	-0.005243		
16QAM					
25	3.00	30.63	0.012083	Within authorized band for Band 7	Pass
	3.87	-28.95	-0.011420		
	4.45	22.66	0.008939		
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					
3.87	-30	-35.63	-0.020418	Within authorized band for Band 66	Pass
	-20	-33.49	-0.019192		
	-10	-21.20	-0.012149		
	0	-40.73	-0.023341		
	10	-20.91	-0.011983		
	20	-15.31	-0.008774		
	30	-39.10	-0.022407		
	40	-16.59	-0.009507		
	50	-9.10	-0.005215		
16QAM					
3.87	-30	-33.57	-0.019238	Within authorized band for Band 66	Pass
	-20	-28.52	-0.016344		
	-10	-28.51	-0.016338		
	0	-36.64	-0.020997		
	10	-35.16	-0.020149		
	20	-26.59	-0.015238		
	30	-21.04	-0.012057		
	40	-23.69	-0.013576		
	50	-29.97	-0.017175		
Voltage					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	3.00	-9.61	-0.005507	Within authorized band for Band 66	Pass
	3.87	32.72	0.018751		
	4.45	-42.40	-0.024298		
16QAM					
25	3.00	-30.31	-0.017370	Within authorized band for Band 66	Pass
	3.87	-25.49	-0.014607		
	4.45	-33.33	-0.019100		
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
Band66	20MHz	QPSK	132322	100RB#0	PASS	PASS
Band66	20MHz	16QAM	132322	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

