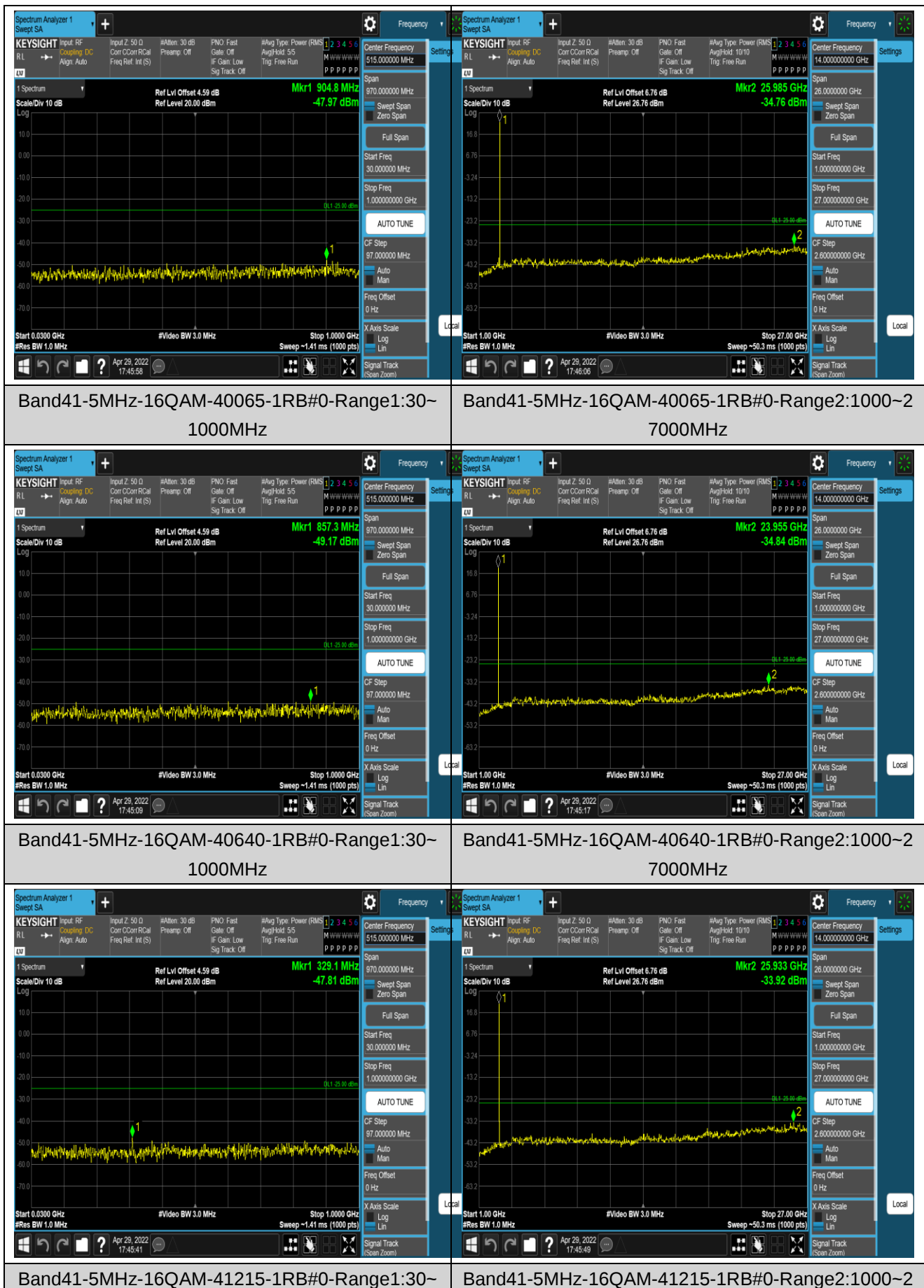
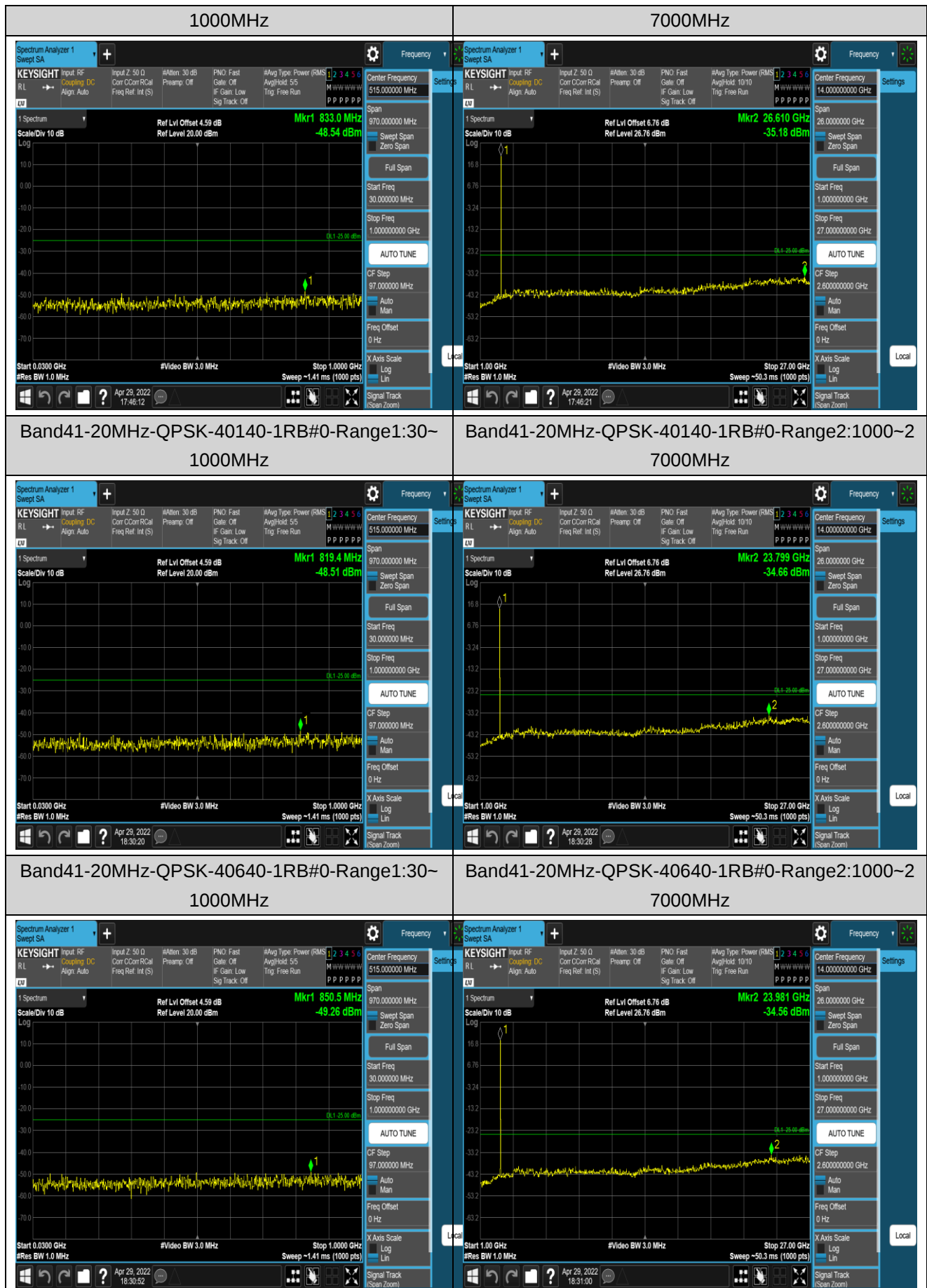
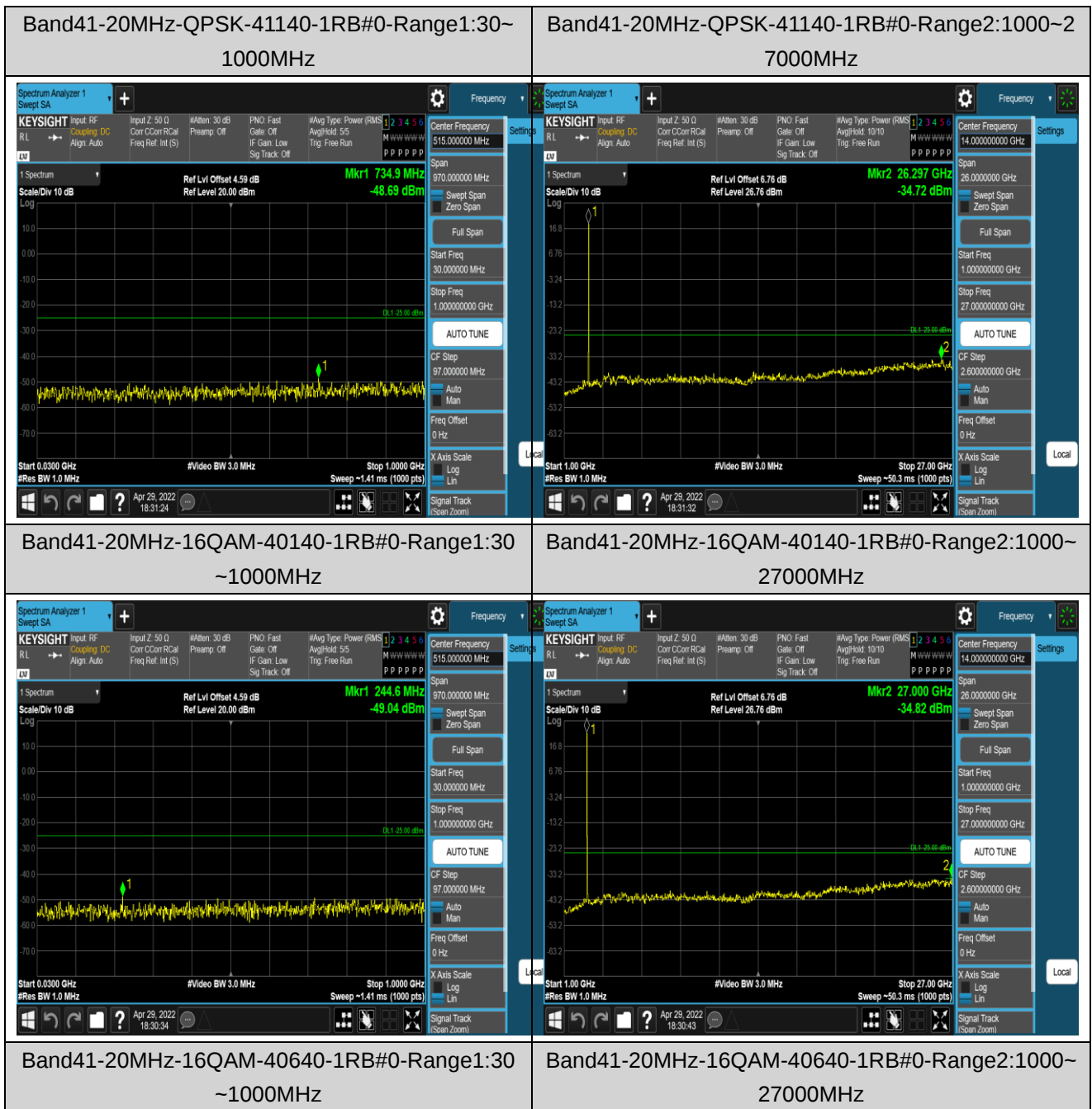










Appendix F: Frequency Stability

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	8.07	0.004293	Within authorized band for Band 2	Pass
	-20	11.84	0.006298		
	-10	8.57	0.004559		
	0	15.15	0.008059		
	10	-5.87	-0.003122		
	20	3.39	0.001803		
	30	6.32	0.003362		
	40	-8.67	-0.004612		
	50	-6.08	-0.003234		
16QAM					
3.87	-30	3.26	0.001734	Within authorized band for Band 2	Pass
	-20	8.04	0.004277		
	-10	2.05	0.001090		
	0	8.24	0.004383		
	10	-12.12	-0.006447		
	20	2.40	0.001277		
	30	7.44	0.003957		
	40	-14.32	-0.007617		
	50	16.11	0.008569		
Voltage					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	3.45	12.59	0.006697	Within authorized band for Band 2	Pass
	3.87	-12.19	-0.006484		
	4.45	-10.13	-0.005388		
16QAM					
25	3.45	-12.13	-0.006452	Within authorized band for Band 2	Pass
	3.87	-15.01	-0.007984		
	4.45	-4.28	-0.002277		
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	-9.28	-0.005356	Within authorized band for Band 4	Pass
	-20	-11.00	-0.006349		
	-10	2.37	0.001368		
	0	8.65	0.004993		
	10	-6.48	-0.003740		
	20	7.47	0.004312		
	30	-17.28	-0.009974		
	40	-3.48	-0.002009		
	50	-3.69	-0.002130		
16QAM					
3.87	-30	-8.97	-0.005177	Within authorized band for Band 4	Pass
	-20	-3.62	-0.002089		
	-10	-10.01	-0.005778		
	0	7.95	0.004589		
	10	7.44	0.004294		
	20	4.06	0.002343		
	30	-11.22	-0.006476		
	40	-7.98	-0.004606		
	50	9.13	0.005270		
Voltage					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	3.45	-9.57	-0.005524	Within authorized band for Band 4	Pass
	3.87	10.31	0.005951		
	4.45	-10.26	-0.005922		
16QAM					
25	3.45	-9.51	-0.005489	Within authorized band for Band 4	Pass
	3.87	-6.91	-0.003988		
	4.45	-13.59	-0.007844		
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	-9.48	-0.011333	±2.5	Pass
	-20	-7.98	-0.009540		
	-10	3.23	0.003861		
	0	-4.18	-0.004997		
	10	-3.20	-0.003825		
	20	3.69	0.004411		
	30	-8.85	-0.010580		
	40	-4.76	-0.005690		
	50	-7.62	-0.009109		
16QAM					
3.87	-30	3.49	0.004172	±2.5	Pass
	-20	-9.51	-0.011369		
	-10	-6.82	-0.008153		
	0	-1.69	-0.002020		
	10	-5.46	-0.006527		
	20	-11.17	-0.013353		
	30	-11.54	-0.013796		
	40	-5.38	-0.006432		
	50	-7.28	-0.008703		
Voltage					
Temperature (℃)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	3.45	-7.90	-0.009444	±2.5	Pass
	3.87	-7.90	-0.009444		
	4.45	-8.70	-0.010400		
16QAM					
25	3.45	-4.41	-0.005272	±2.5	Pass
	3.87	-7.42	-0.008870		
	4.45	-8.48	-0.010137		
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	-18.35	-0.007239	Within authorized band for Band 7	Pass
	-20	-3.98	-0.001570		
	-10	-6.59	-0.002600		
	0	-16.34	-0.006446		
	10	18.97	0.007483		
	20	8.34	0.003290		
	30	-15.49	-0.006110		
	40	-20.34	-0.008024		
	50	-21.19	-0.008359		
16QAM					
3.87	-30	12.62	0.004978	Within authorized band for Band 7	Pass
	-20	-14.00	-0.005523		
	-10	-21.70	-0.008560		
	0	-21.72	-0.008568		
	10	15.11	0.005961		
	20	-9.53	-0.003759		
	30	4.41	0.001740		
	40	-19.28	-0.007606		
	50	-15.32	-0.006043		
Voltage					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	3.45	-7.27	-0.002868	Within authorized band for Band 7	Pass
	3.87	-14.93	-0.005890		
	4.45	13.39	0.005282		
16QAM					
25	3.45	-17.28	-0.006817	Within authorized band for Band 7	Pass
	3.87	14.88	0.005870		
	4.45	-10.84	-0.004276		
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	-12.39	-0.004775	Within authorized band for Band 41	Pass
	-20	11.33	0.004366		
	-10	-8.01	-0.003087		
	0	-7.62	-0.002936		
	10	3.28	0.001264		
	20	-10.54	-0.004062		
	30	-9.64	-0.003715		
	40	-8.08	-0.003114		
	50	-6.07	-0.002339		
16QAM					
3.87	-30	-17.15	-0.006609	Within authorized band for Band 41	Pass
	-20	-9.34	-0.003599		
	-10	8.65	0.003333		
	0	9.48	0.003653		
	10	-15.12	-0.005827		
	20	-13.78	-0.005310		
	30	-6.62	-0.002551		
	40	8.57	0.003303		
	50	-10.51	-0.004050		
Voltage					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	3.45	-2.45	-0.000944	Within authorized band for Band 41	Pass
	3.87	-10.24	-0.003946		
	4.45	-8.77	-0.003380		
16QAM					
25	3.45	-14.58	-0.005618	Within authorized band for Band41	Pass
	3.87	-11.39	-0.004389		
	4.45	-10.64	-0.004100		
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

