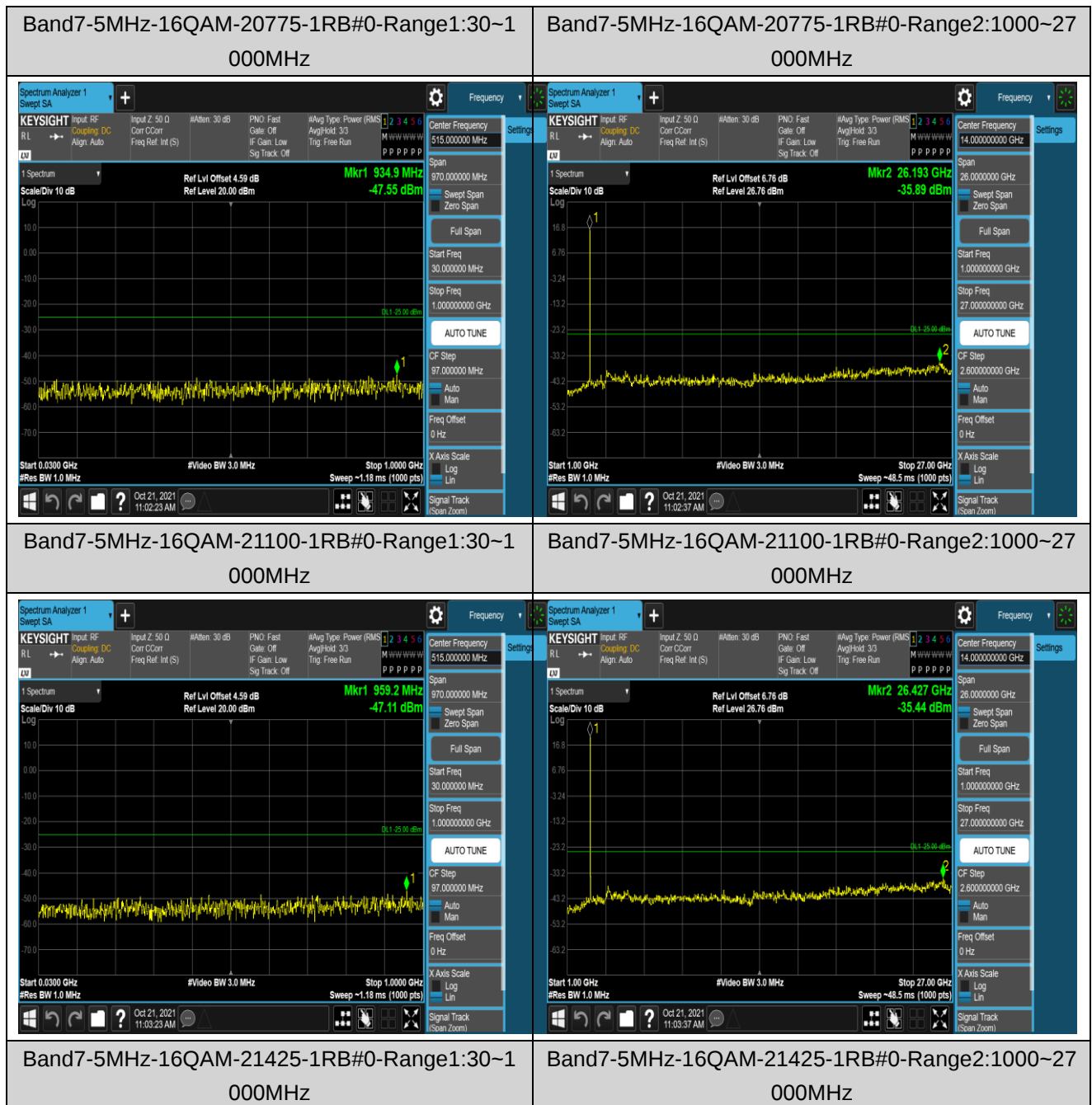
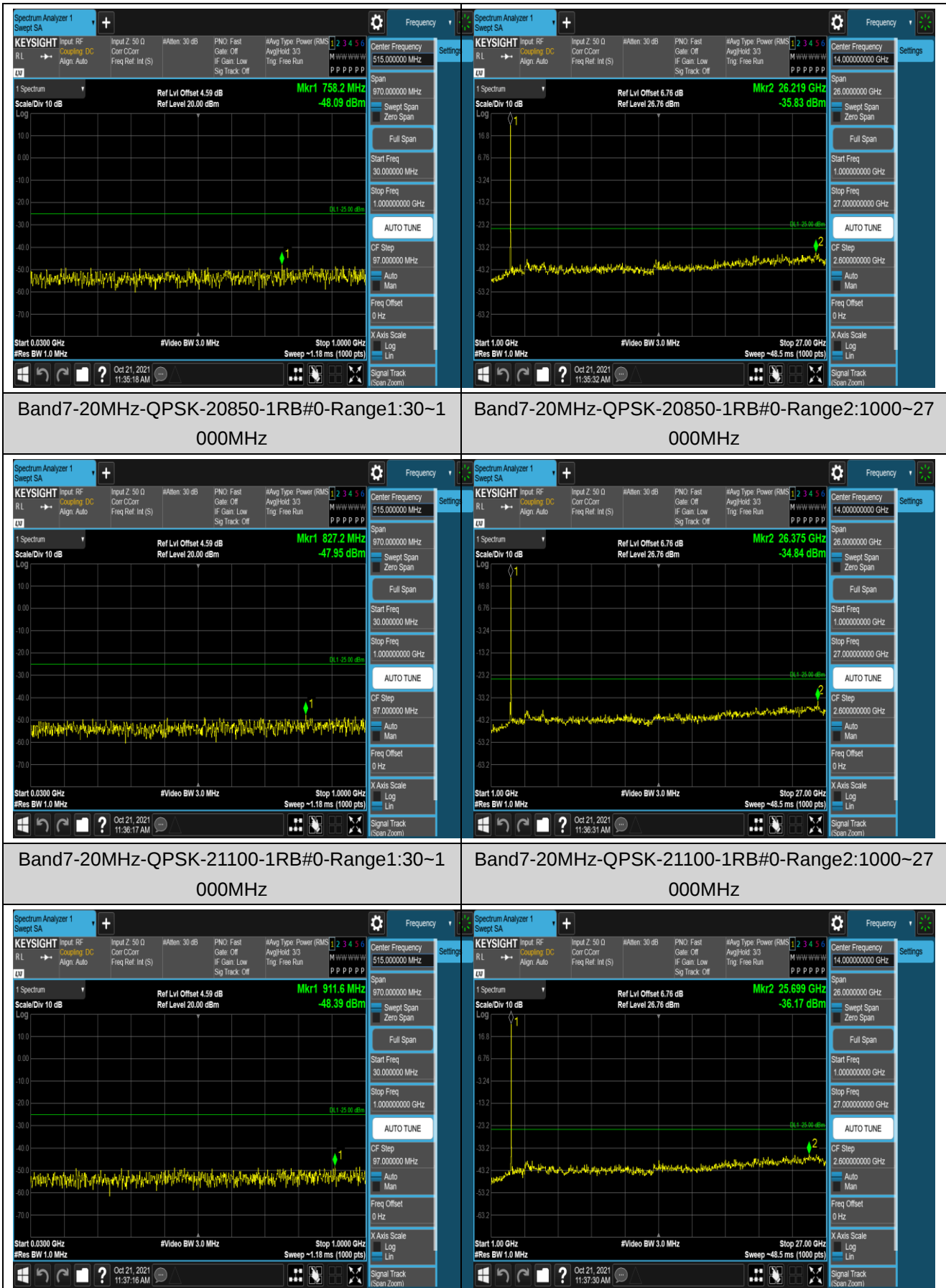
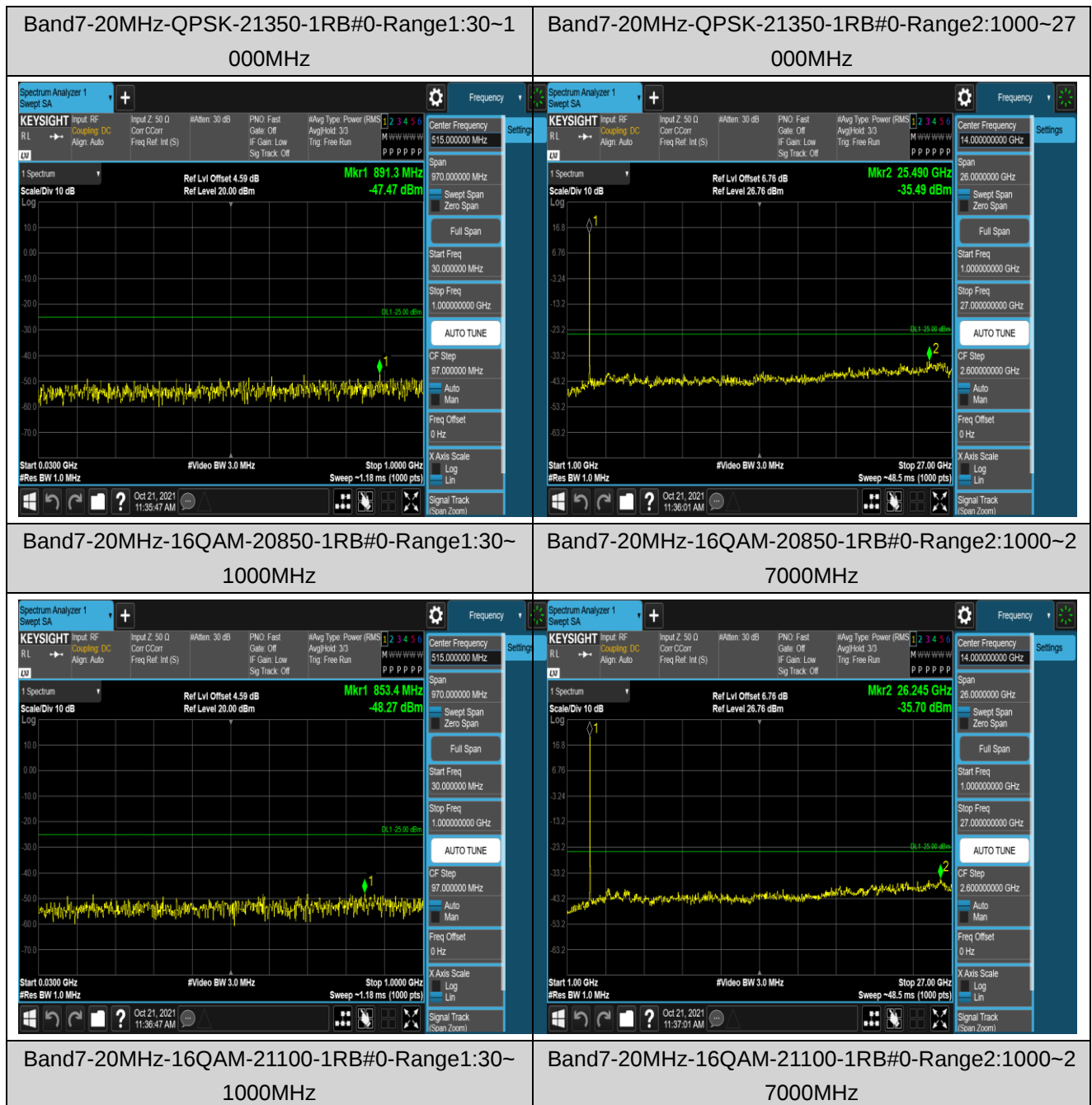
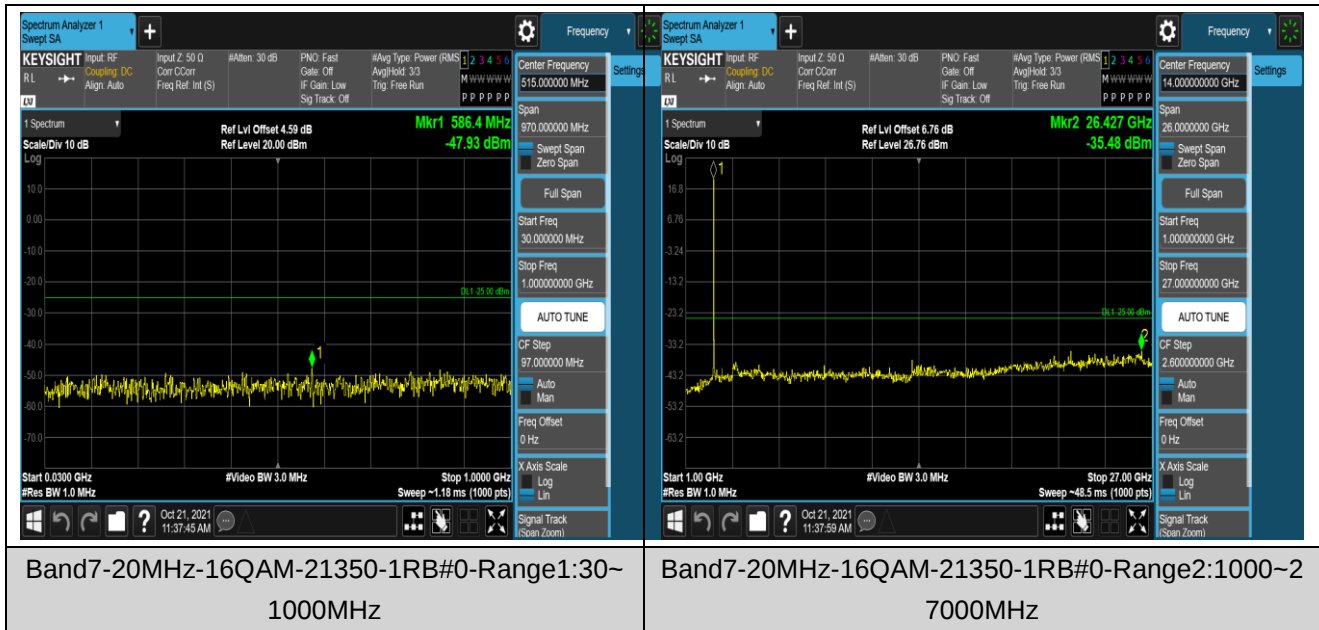










Appendix F: Frequency Stability

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					
3.85	-30	-12.03	-0.006399	Within authorized band for Band 2	Pass
	-20	-21.06	-0.011202		
	-10	-9.84	-0.005234		
	0	-10.54	-0.005606		
	10	-17.61	-0.009367		
	20	-15.03	-0.007995		
	30	-19.00	-0.010106		
	40	-15.92	-0.008468		
	50	-15.71	-0.008356		
16QAM					
3.85	-30	-15.61	-0.008303	Within authorized band for Band 2	Pass
	-20	-22.73	-0.012090		
	-10	-8.34	-0.004436		
	0	-14.33	-0.007622		
	10	-14.39	-0.007654		
	20	-13.83	-0.007356		
	30	-7.05	-0.003750		
	40	-8.14	-0.004330		
	50	-12.66	-0.006734		
Voltage					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	3.50	-7.12	-0.003787	Within authorized band for Band 2	Pass
	3.85	-21.33	-0.011346		
	4.40	-11.92	-0.006340		
16QAM					
25	3.50	-15.19	-0.008080	Within authorized band for Band 2	Pass
	3.85	-14.93	-0.007941		
	4.40	-14.62	-0.007777		
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					
3.85	-30	-13.43	-0.007752	Within authorized band for Band 4	Pass
	-20	-9.34	-0.005391		
	-10	-14.19	-0.008190		
	0	-12.96	-0.007481		
	10	-12.23	-0.007059		
	20	7.82	0.004514		
	30	-13.66	-0.007885		
	40	-11.10	-0.006407		
	50	-5.08	-0.002932		
16QAM					
3.85	-30	-13.72	-0.007919	Within authorized band for Band 4	Pass
	-20	-11.72	-0.006765		
	-10	-15.46	-0.008924		
	0	-14.66	-0.008462		
	10	-9.90	-0.005714		
	20	-13.07	-0.007544		
	30	-10.80	-0.006234		
	40	-4.82	-0.002782		
	50	-13.86	-0.008000		
Voltage					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	3.50	-11.93	-0.006886	Within authorized band for Band 4	Pass
	3.85	-17.94	-0.010355		
	4.40	-12.95	-0.007475		
16QAM					
25	3.50	-8.70	-0.005022	Within authorized band for Band 4	Pass
	3.85	-6.08	-0.003509		
	4.40	-13.60	-0.007850		
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					
3.85	-30	-11.12	-0.013293	±2.5	Pass
	-20	-7.60	-0.009085		
	-10	-9.46	-0.011309		
	0	-3.03	-0.003622		
	10	-10.63	-0.012708		
	20	-12.72	-0.015206		
	30	-8.64	-0.010329		
	40	-9.17	-0.010962		
	50	-9.81	-0.011727		
16QAM					
3.85	-30	-8.33	-0.009958	±2.5	Pass
	-20	-10.26	-0.012265		
	-10	-13.70	-0.016378		
	0	-10.64	-0.012720		
	10	-11.20	-0.013389		
	20	-7.82	-0.009348		
	30	-12.73	-0.015218		
	40	-10.70	-0.012791		
	50	-11.13	-0.013305		
Voltage					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	3.50	-2.89	-0.003455	±2.5	Pass
	3.85	-12.72	-0.015206		
	4.40	-11.83	-0.014142		
16QAM					
25	3.50	-8.07	-0.009647	±2.5	Pass
	3.85	-12.16	-0.014537		
	4.40	-8.30	-0.009922		
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					
3.85	-30	-12.85	-0.005069	Within authorized band for Band 7	Pass
	-20	5.35	0.002110		
	-10	-15.08	-0.005949		
	0	-4.78	-0.001886		
	10	-12.76	-0.005034		
	20	-8.96	-0.003535		
	30	-16.68	-0.006580		
	40	-15.28	-0.006028		
	50	9.84	0.003882		
16QAM					
3.85	-30	4.89	0.001929	Within authorized band for Band 7	Pass
	-20	11.24	0.004434		
	-10	-9.23	-0.003641		
	0	-13.79	-0.005440		
	10	-11.84	-0.004671		
	20	-13.02	-0.005136		
	30	-11.74	-0.004631		
	40	-8.53	-0.003365		
	50	-8.48	-0.003345		
Voltage					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	3.50	-15.99	-0.006308	Within authorized band for Band 7	Pass
	3.85	-10.23	-0.004036		
	4.40	-13.62	-0.005373		
16QAM					
25	3.50	-10.67	-0.004209	Within authorized band for Band 7	Pass
	3.85	-13.25	-0.005227		
	4.40	-11.60	-0.004576		
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

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

Test Graphs

