





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					
11.1	-30	-5.58	-0.002968	Within authorized band for Band 2	Pass
	-20	-6.68	-0.003553		
	-10	-6.34	-0.003372		
	0	-14.10	-0.007500		
	10	-13.48	-0.007170		
	20	-12.10	-0.006436		
	30	-10.67	-0.005676		
	40	-11.93	-0.006346		
	50	-13.03	-0.006931		
16QAM					
11.1	-30	-12.43	-0.006612	Within authorized band for Band 2	Pass
	-20	2.95	0.001569		
	-10	-7.11	-0.003782		
	0	-5.19	-0.002761		
	10	-15.21	-0.008090		
	20	-10.16	-0.005404		
	30	-16.54	-0.008798		
	40	-14.89	-0.007920		
	50	-15.58	-0.008287		
Voltage					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	9.44	3.66	0.001947	Within authorized band for Band 2	Pass
	11.1	-13.10	-0.006968		
	12.77	-13.53	-0.007197		
16QAM					
25	9.44	-13.28	-0.007064	Within authorized band for Band 2	Pass
	11.1	-13.52	-0.007191		
	12.77	-15.28	-0.008128		

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					
11.1	-30	-14.69	-0.008479	Within authorized band for Band 4	Pass
	-20	-8.85	-0.005108		
	-10	-11.66	-0.006730		
	0	-12.35	-0.007128		
	10	-11.03	-0.006367		
	20	-4.88	-0.002817		
	30	-16.22	-0.009362		
	40	-16.81	-0.009703		
	50	-9.67	-0.005582		
16QAM					
11.1	-30	-10.49	-0.006055	Within authorized band for Band 4	Pass
	-20	-7.45	-0.004300		
	-10	-7.57	-0.004369		
	0	-9.71	-0.005605		
	10	-11.33	-0.006540		
	20	-10.63	-0.006136		
	30	-10.09	-0.005824		
	40	-11.42	-0.006592		
	50	-10.53	-0.006078		
Voltage					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	9.44	-12.69	-0.007325	Within authorized band for Band 4	Pass
	11.1	-10.80	-0.006234		
	12.77	-3.33	-0.001922		
16QAM					
25	9.44	-11.32	-0.006534	Within authorized band for Band 4	Pass
	11.1	-9.01	-0.005201		
	12.77	-4.79	-0.002765		

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					
11.1	-30	-8.91	-0.010652	±2.5	Pass
	-20	-8.78	-0.010496		
	-10	-5.04	-0.006025		
	0	-10.06	-0.012026		
	10	-3.71	-0.004435		
	20	-11.64	-0.013915		
	30	-8.47	-0.010126		
	40	-8.10	-0.009683		
	50	-11.77	-0.014071		
16QAM					
11.1	-30	-3.81	-0.004555	±2.5	Pass
	-20	-10.14	-0.012122		
	-10	-10.83	-0.012947		
	0	-7.77	-0.009289		
	10	-10.40	-0.012433		
	20	-7.80	-0.009325		
	30	-10.74	-0.012839		
	40	-10.80	-0.012911		
	50	-9.28	-0.011094		
Voltage					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	9.44	-8.31	-0.009934	±2.5	Pass
	11.1	-9.16	-0.010950		
	12.77	-3.78	-0.004519		
16QAM					
25	9.44	-7.70	-0.009205	±2.5	Pass
	11.1	-6.39	-0.007639		
	12.77	-7.50	-0.008966		
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					
11.1	-30	-11.74	-0.004631	Within authorized band for Band 7	Pass
	-20	-19.30	-0.007613		
	-10	-11.69	-0.004611		
	0	-9.94	-0.003921		
	10	-11.96	-0.004718		
	20	-12.29	-0.004848		
	30	-10.71	-0.004225		
	40	-13.02	-0.005136		
	50	-15.51	-0.006118		
16QAM					
11.1	-30	-9.04	-0.003566	Within authorized band for Band 7	Pass
	-20	-16.91	-0.006671		
	-10	-9.88	-0.003897		
	0	-12.69	-0.005006		
	10	-15.91	-0.006276		
	20	-15.65	-0.006174		
	30	-15.98	-0.006304		
	40	-22.66	-0.008939		
	50	6.49	0.002560		
Voltage					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	9.44	-11.17	-0.004406	Within authorized band for Band 7	Pass
	11.1	-18.64	-0.007353		
	12.77	-15.89	-0.006268		
16QAM					
25	9.44	-7.21	-0.002844	Within authorized band for Band 7	Pass
	11.1	-7.21	-0.002844		
	12.77	-26.39	-0.010410		

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



