

Appendix B5: Frequency Stability

Test Result

LTE Band 2 QPSK (20 MHz)

Limit		1850 MHz	1910 MHz	Delta (Hz)	ppm
Temp	Voltage	FL	FH		
-10 C	Nomral	1850.156	1909.850	5.28	0.002809
0 C		1850.156	1909.850	6.39	0.003399
10 C		1850.156	1909.850	-3.28	-0.001745
20 C		1850.156	1909.850	8.97	0.004771
30 C		1850.156	1909.850	8.70	0.004579
40 C		1850.156	1909.850	-5.46	-0.002874
50 C		1850.156	1909.850	9.64	0.005074
25 C	15%	1850.156	1909.850	-2.55	-0.001342
	-15%	1850.156	1909.850	-10.29	-0.005416

LTE Band 4 QPSK (20 MHz)

Limit		1710 MHz	1755 MHz	Delta (Hz)	ppm
Temp	Voltage	FL	FH		
-10 C	Nomral	1710.156	1754.849	5.82	0.003359
0 C		1710.156	1754.849	10.51	0.006066
10 C		1710.156	1754.849	9.51	0.005489
20 C		1710.156	1754.849	15.16	0.008750
30 C		1710.156	1754.849	4.33	0.002481
40 C		1710.156	1754.849	-10.27	-0.005885
50 C		1710.156	1754.849	8.87	0.005083
25 C	15%	1710.156	1754.849	-6.28	-0.003599
	-15%	1710.156	1754.849	-6.59	-0.003777

LTE Band 5 QPSK (10 MHz)

Limit		824 MHz	849 MHz	Delta (Hz)	ppm
Temp	Voltage	FL	FH		
-10 C	Nomral	824.156	848.848	-1.96	-0.002343
0 C		824.156	848.848	-6.28	-0.007507
10 C		824.156	848.848	-9.44	-0.011185
20 C		824.156	848.848	-7.78	-0.009218
30 C		824.156	848.848	-7.51	-0.008898
40 C		824.156	848.848	-6.81	-0.008069
50 C		824.156	848.848	2.12	0.002512
25 C	15%	824.156	848.848	-7.82	-0.003125
	-15%	824.156	848.848	-2.89	-0.001155

LTE Band 7 QPSK (10 MHz)

Limit		2500 MHz	2570 MHz	Delta (Hz)	ppm
Temp	Voltage	FL	FH		
-10 C	Nomral	2500.247	2569.749	-8.20	-0.003235
0 C		2500.247	2569.749	13.45	0.005306
10 C		2500.247	2569.749	3.36	0.001325
20 C		2500.247	2569.749	8.54	0.003369
30 C		2500.247	2569.749	11.60	0.004531
40 C		2500.247	2569.749	11.36	0.004438
50 C		2500.247	2569.749	3.06	0.001195
25 C	15%	2500.247	2569.749	11.52	0.004500
	-15%	2500.247	2569.749	13.33	0.005207

LTE Band 12 QPSK (10 MHz)

Limit		699 MHz	716 MHz	Delta (Hz)	ppm
Temp	Voltage	FL	FH		
-10 C	Nomral	699.121	715.880	-2.10	-0.002968
0 C		699.121	715.880	1.96	0.002770
10 C		699.121	715.880	-6.90	-0.009753
20 C		699.121	715.880	-1.37	-0.001936
30 C		699.121	715.880	-4.66	-0.006554
40 C		699.121	715.880	-4.41	-0.006203
50 C		699.121	715.880	-5.97	-0.008397
25 C	15%	699.121	715.880	2.89	0.004065
	-15%	699.121	715.880	-4.73	-0.006653

LTE Band 13 QPSK (10 MHz)

Limit		779 MHz	785 MHz	Delta (Hz)	ppm
Temp	Voltage	FL	FH		
-10 C	Nomral	779.744	784.256	-3.06	-0.003913
0 C		779.744	784.256	-1.30	-0.001662
10 C		779.744	784.256	-6.95	-0.008887
20 C		779.744	784.256	-8.71	-0.011138
30 C		779.744	784.256	-7.05	-0.009015
40 C		779.744	784.256	-8.90	-0.011381
50 C		779.744	784.256	2.82	0.003606
25 C	15%	779.744	784.256	-4.41	-0.005639
	-15%	779.744	784.256	1.32	0.001688

LTE Band 17 QPSK (10 MHz)

Limit		706 MHz	714 MHz	Delta (kHz)	ppm
Temp	Voltage	FL	FH		
-10 C		707.745	712.250	-1.57	-0.002211

0 C	Nomral	707.745	712.250	4.15	0.005845
10 C		707.745	712.250	1.92	0.002704
20 C		707.745	712.250	5.74	0.008085
30 C		707.745	712.250	4.55	0.006399
40 C		707.745	712.250	-4.15	-0.005837
50 C		707.745	712.250	-4.62	-0.006498
25 C	15%	707.745	712.250	-3.98	-0.005598
	-15%	707.745	712.250	-5.55	-0.007806

LTE Band 25 QPSK (20 MHz)

Limit		1850 MHz	1915 MHz	Delta (kHz)	ppm
Temp	Voltage	FL	FH		
-10 C	Nomral	1851.123	1914.499	-11.66	-0.006194
0 C		1851.123	1914.499	-8.98	-0.004770
10 C		1851.123	1914.499	-14.10	-0.007490
20 C		1851.123	1914.499	-5.65	-0.003001
30 C		1851.123	1914.499	-15.49	-0.008131
40 C		1851.123	1914.499	-4.18	-0.002194
50 C		1851.123	1914.499	2.26	0.001186
25 C	15%	1851.123	1914.499	-10.56	-0.005543
	-15%	1851.123	1914.499	-2.52	-0.001323

LTE Band 26 Lower QPSK (10 MHz)

Limit		814 MHz	824 MHz	Delta (kHz)	ppm
Temp	Voltage	FL	FH		
-10 C	Nomral	814.213	823.798	-9.83	-0.012002
0 C		814.213	823.798	-1.27	-0.001551
10 C		814.213	823.798	1.59	0.001941
20 C		814.213	823.798	-7.18	-0.008767
30 C		814.213	823.798	-9.58	-0.011697
40 C		814.213	823.798	-5.97	-0.007201
50 C		814.213	823.798	2.53	0.003052
25 C	15%	814.213	823.798	1.95	0.002352
	-15%	814.213	823.798	-6.64	-0.008010

LTE Band 26 Upper QPSK (15 MHz)

Limit		824 MHz	849 MHz	Delta (kHz)	ppm
Temp	Voltage	FL	FH		
-10 C	Nomral	824.198	848.812	-5.19	-0.006318
0 C		824.198	848.812	2.17	0.002642
10 C		824.198	848.812	3.09	0.003716
20 C		824.198	848.812	7.91	0.009513
30 C		824.198	848.812	6.02	0.007240

40 C		824.198	848.812	-2.68	-0.003223
50 C		824.198	848.812	4.21	0.005063
25 C	15%	824.198	848.812	-5.44	-0.006503
	-15%	824.198	848.812	1.83	0.002188

LTE Band 38 QPSK (20 MHz)

Limit		2570 MHz	2620 MHz	Delta (kHz)	ppm
Temp	Voltage	FL	FH		
-10 C	Nomral	2570.244	2619.755	4.45	0.001725
0 C		2570.244	2619.755	-8.20	-0.003178
10 C		2570.244	2619.755	6.88	0.002667
20 C		2570.244	2619.755	3.73	0.001437
30 C		2570.244	2619.755	-11.03	-0.004250
40 C		2570.244	2619.755	-1.93	-0.000744
50 C		2570.244	2619.755	-6.72	-0.002590
25 C		15%	2570.244	2619.755	5.09
	-15%	2570.244	2619.755	-5.22	-0.002000

LTE Band 40 Lower QPSK (10 MHz)

Limit		2305 MHz	2315 MHz	Delta (kHz)	ppm
Temp	Voltage	FL	FH		
-10 C	Nomral	2305.121	2314.899	-7.17	-0.003104
0 C		2305.121	2314.899	3.85	0.001667
10 C		2305.121	2314.899	2.17	0.000939
20 C		2305.121	2314.899	4.42	0.001913
30 C		2305.121	2314.899	-9.54	-0.004130
40 C		2305.121	2314.899	-10.99	-0.004667
50 C		2305.121	2314.899	9.03	0.003834
25 C		15%	2305.121	2314.899	-11.14
	-15%	2305.121	2314.899	2.25	0.000955

LTE Band 40 Upper QPSK (10 MHz)

Limit		2350 MHz	2360 MHz	Delta (kHz)	ppm
Temp	Voltage	FL	FH		
-10 C	Nomral	2305.121	2314.899	-4.53	-0.001924
0 C		2305.121	2314.899	-8.24	-0.003567
10 C		2305.121	2314.899	8.15	0.003528
20 C		2305.121	2314.899	9.30	0.004026
30 C		2305.121	2314.899	-4.49	-0.001944
40 C		2305.121	2314.899	8.71	0.003771
50 C		2305.121	2314.899	10.77	0.004573
25 C		15%	2305.121	2314.899	-6.11
	-15%	2305.121	2314.899	2.85	0.001210

LTE Band 41 QPSK (20 MHz)

Limit		2496 MHz	2690 MHz	Delta (kHz)	ppm
Temp	Voltage	FL	FH		
-10 C	Nomral	2496.254	2689.758	12.93	0.005160
0 C		2496.254	2689.758	5.54	0.002137
10 C		2496.254	2689.758	12.77	0.004925
20 C		2496.254	2689.758	11.23	0.004331
30 C		2496.254	2689.758	15.02	0.005793
40 C		2496.254	2689.758	2.60	0.001003
50 C		2496.254	2689.758	14.20	0.005299
25 C	15%	2496.254	2689.758	11.66	0.004351
	-15%	2496.254	2689.758	5.95	0.002220

LTE Band 66 QPSK (20 MHz)

Limit		1710 MHz	1780 MHz	Delta (kHz)	ppm
Temp	Voltage	FL	FH		
-10 C	Nomral	1711.081	1778.918	2.59	0.001506
0 C		1711.081	1778.918	2.63	0.001507
10 C		1711.081	1778.918	-4.72	-0.002705
20 C		1711.081	1778.918	5.82	0.003335
30 C		1711.081	1778.918	10.21	0.005851
40 C		1711.081	1778.918	9.91	0.005679
50 C		1711.081	1778.918	5.59	0.003158
25 C	15%	1711.081	1778.918	15.29	0.008638
	-15%	1711.081	1778.918	12.73	0.007192