

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					
3.80	-30	-3.20	-0.003825	±2.5	Pass
	-20	-5.44	-0.006503		
	-10	-9.58	-0.011452		
	0	-6.05	-0.007233		
	10	-12.30	-0.014704		
	20	-8.91	-0.010652		
	30	-7.80	-0.009325		
	40	-2.80	-0.003347		
	50	-4.33	-0.005176		
16QAM					
3.80	-30	-6.07	-0.007256	±2.5	Pass
	-20	-5.58	-0.006671		
	-10	-7.12	-0.008512		
	0	-3.03	-0.003622		
	10	-5.02	-0.006001		
	20	-4.76	-0.005690		
	30	-3.86	-0.004614		
	40	-9.38	-0.011213		
	50	-7.14	-0.008536		
64QAM					
3.80	-30	-8.80	-0.010520	±2.5	Pass
	-20	-9.66	-0.011548		
	-10	-4.01	-0.004794		
	0	-9.03	-0.010795		
	10	-3.39	-0.004053		
	20	-3.71	-0.004435		
	30	-2.93	-0.003503		
	40	-3.66	-0.004375		
	50	-3.91	-0.004674		

Voltage					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	3.50	-6.29	-0.007519	±2.5	Pass
	3.80	-1.72	-0.002056		
	4.35	-4.94	-0.005906		
16QAM					
25	3.50	-4.08	-0.004877	±2.5	Pass
	3.80	-5.99	-0.007161		
	4.35	-6.48	-0.007747		
64QAM					
25	3.50	-5.62	-0.006718	±2.5	Pass
	3.80	-9.21	-0.011010		
	4.35	-4.92	-0.005882		
Remark: All bandwidth and all modulation had been tested, but only the worst case data displayed in this report.					

LTE Band 12 part:

Reference Frequency: LTE Band 12(10MHz) Middle channel=23095 Frequency=707.5MHz					
Temperature					
Power supplied (Vdc)	Temperature (℃)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
3.80	-30	-7.44	-0.010516	Within authorized band for Band 12	Pass
	-20	-9.03	-0.012763		
	-10	-5.02	-0.007095		
	0	-8.88	-0.012551		
	10	-9.50	-0.013428		
	20	-12.49	-0.017654		
	30	-10.73	-0.015166		
	40	-12.73	-0.017993		
	50	-3.46	-0.004890		
16QAM					
3.80	-30	-9.37	-0.013244	Within authorized band for Band 12	Pass
	-20	-11.17	-0.015788		
	-10	-10.14	-0.014332		
	0	-5.61	-0.007929		
	10	-7.27	-0.010276		
	20	-5.81	-0.008212		
	30	-8.45	-0.011943		
	40	-10.97	-0.015505		
	50	-7.67	-0.010841		
64QAM					
3.80	-30	-7.18	-0.010148	Within authorized band for Band 12	Pass
	-20	-10.53	-0.014883		
	-10	-8.96	-0.012664		
	0	-8.08	-0.011420		
	10	-7.88	-0.011138		
	20	-5.14	-0.007265		
	30	-9.54	-0.013484		
	40	-8.18	-0.011562		
	50	-11.80	-0.016678		

Voltage					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	3.50	-9.37	-0.013244	Within authorized band for Band 12	Pass
	3.80	-9.46	-0.013371		
	4.35	-9.17	-0.012961		
16QAM					
25	3.50	-8.83	-0.012481	Within authorized band for Band 12	Pass
	3.80	-7.68	-0.010855		
	4.35	-4.96	-0.007011		
64QAM					
25	3.50	-7.20	-0.010177	Within authorized band for Band 12	Pass
	3.80	-7.34	-0.010375		
	4.35	-5.31	-0.007505		
Remark: All bandwidth and all modulation had been tested, but only the worst case data displayed in this report.					

LTE Band 17 part:

Reference Frequency: LTE Band 17(10MHz) Middle channel=23790 Frequency=710.0MHz					
Temperature					
Power supplied (Vdc)	Temperature (℃)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
3.80	-30	-14.09	-0.019845	Within authorized band for Band 17	Pass
	-20	-9.81	-0.013817		
	-10	-2.66	-0.003746		
	0	-5.85	-0.008239		
	10	-7.77	-0.010944		
	20	-8.58	-0.012085		
	30	-10.27	-0.014465		
	40	-8.45	-0.011901		
	50	-6.32	-0.008901		
16QAM					
3.80	-30	-5.65	-0.007958	Within authorized band for Band 17	Pass
	-20	-6.97	-0.009817		
	-10	-9.43	-0.013282		
	0	-10.91	-0.015366		
	10	-8.24	-0.011606		
	20	-3.42	-0.004817		
	30	-13.12	-0.018479		
	40	-11.23	-0.015817		
	50	-7.41	-0.010437		
64QAM					
3.80	-30	-9.21	-0.012972	Within authorized band for Band 17	Pass
	-20	-8.31	-0.011704		
	-10	-8.18	-0.011521		
	0	-6.21	-0.008746		
	10	-13.10	-0.018451		
	20	-8.68	-0.012225		
	30	-5.36	-0.007549		
	40	-7.08	-0.009972		
	50	-2.73	-0.003845		

Voltage					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	3.50	-11.09	-0.015620	Within authorized band for Band 17	Pass
	3.80	-11.43	-0.016099		
	4.35	-10.27	-0.014465		
16QAM					
25	3.50	-11.64	-0.016394	Within authorized band for Band 17	Pass
	3.80	-12.77	-0.017986		
	4.35	-8.05	-0.011338		
64QAM					
25	3.50	-5.31	-0.007479	Within authorized band for Band 17	Pass
	3.80	-9.04	-0.012732		
	4.35	-4.43	-0.006239		
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					
3.80	-30	-13.19	-0.005083	Within authorized band for Band 41	Pass
	-20	-25.18	-0.009703		
	-10	-15.06	-0.005803		
	0	21.13	0.008143		
	10	-19.30	-0.007437		
	20	-17.07	-0.006578		
	30	-11.36	-0.004378		
	40	-13.02	-0.005017		
	50	18.54	0.007145		
16QAM					
3.80	-30	-16.75	-0.006455	Within authorized band for Band 41	Pass
	-20	-23.43	-0.009029		
	-10	-20.27	-0.007811		
	0	-25.86	-0.009965		
	10	-25.96	-0.010004		
	20	-16.75	-0.006455		
	30	-18.73	-0.007218		
	40	-16.69	-0.006432		
	50	-26.21	-0.010100		
64QAM					
3.80	-30	-25.52	-0.009834	Within authorized band for Band 41	Pass
	-20	-13.35	-0.005145		
	-10	-30.53	-0.011765		
	0	-11.84	-0.004563		
	10	-29.03	-0.011187		
	20	-17.15	-0.006609		
	30	-12.46	-0.004802		
	40	-16.85	-0.006493		
	50	-20.84	-0.008031		

Voltage					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	3.50	-13.95	-0.005376	Within authorized band for Band 41	Pass
	3.80	8.93	0.003441		
	4.35	-18.85	-0.007264		
16QAM					
25	3.50	-13.99	-0.005391	Within authorized band for Band41	Pass
	3.80	-18.68	-0.007198		
	4.35	-27.97	-0.010778		
64QAM					
25	3.50	-16.19	-0.006239	Within authorized band for Band41	Pass
	3.80	-32.57	-0.012551		
	4.35	-20.79	-0.008012		
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					
3.80	-30	-20.79	-0.011914	Within authorized band for Band 66	Pass
	-20	-20.37	-0.011673		
	-10	-22.77	-0.013049		
	0	-13.26	-0.007599		
	10	26.92	0.015427		
	20	-41.24	-0.023633		
	30	-3.02	-0.001731		
	40	-9.73	-0.005576		
	50	-16.84	-0.009650		
16QAM					
3.80	-30	-16.97	-0.009725	Within authorized band for Band 66	Pass
	-20	28.50	0.016332		
	-10	16.45	0.009427		
	0	3.36	0.001926		
	10	-13.72	-0.007862		
	20	-15.99	-0.009163		
	30	14.61	0.008372		
	40	-29.13	-0.016693		
	50	-25.21	-0.014447		
64QAM					
3.80	-30	-16.89	-0.009679	Within authorized band for Band 66	Pass
	-20	-22.89	-0.013117		
	-10	-14.10	-0.008080		
	0	25.61	0.014676		
	10	-20.46	-0.011725		
	20	-16.68	-0.009559		
	30	-9.11	-0.005221		
	40	-13.35	-0.007650		
	50	20.40	0.011691		

Voltage					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	3.50	-7.85	-0.004499	Within authorized band for Band 66	Pass
	3.80	43.52	0.024940		
	4.35	26.29	0.015066		
16QAM					
25	3.50	-16.22	-0.009295	Within authorized band for Band 66	Pass
	3.80	16.91	0.009691		
	4.35	-23.33	-0.013370		
64QAM					
25	3.50	25.06	0.014361	Within authorized band for Band 66	Pass
	3.80	-28.85	-0.016533		
	4.35	-17.82	-0.010212		
Remark: All bandwidth and all modulation had been tested, but only the worst case data displayed in this report.					

LTE Band 71 part:

Reference Frequency: LTE Band 71 (10MHz) Middle channel=133297 Frequency=680.5MHz					
Temperature					
Power supplied (Vdc)	Temperature (°C)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
3.80	-30	-9.18	-0.013490	Within authorized band for Band 71	Pass
	-20	-11.57	-0.017002		
	-10	-5.92	-0.008699		
	0	-8.44	-0.012403		
	10	-7.44	-0.010933		
	20	-12.09	-0.017766		
	30	-6.24	-0.009170		
	40	-14.72	-0.021631		
	50	-8.30	-0.012197		
16QAM					
3.80	-30	-14.43	-0.021205	Within authorized band for Band 71	Pass
	-20	-8.03	-0.011800		
	-10	-6.32	-0.009287		
	0	-3.52	-0.005173		
	10	-11.20	-0.016458		
	20	-15.18	-0.022307		
	30	-10.51	-0.015445		
	40	-8.87	-0.013035		
	50	-8.60	-0.012638		
64QAM					
3.80	-30	-7.47	-0.010977	Within authorized band for Band 71	Pass
	-20	-11.59	-0.017032		
	-10	-6.72	-0.009875		
	0	-14.63	-0.021499		
	10	-12.02	-0.017663		
	20	-6.52	-0.009581		
	30	-9.83	-0.014445		
	40	-11.94	-0.017546		
	50	-10.47	-0.015386		

Voltage					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	3.50	-5.12	-0.007524	Within authorized band for Band 71	Pass
	3.80	-9.60	-0.014107		
	4.35	-7.60	-0.011168		
16QAM					
25	3.50	-5.61	-0.008244	Within authorized band for Band 71	Pass
	3.80	-10.06	-0.014783		
	4.35	-6.72	-0.009875		
64QAM					
25	3.50	-7.75	-0.011389	Within authorized band for Band 71	Pass
	3.80	-9.71	-0.014269		
	4.35	-7.88	-0.011580		
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
Band2	20MHz	64QAM	18900	100RB#0	PASS	PASS
Band4	20MHz	QPSK	20175	100RB#0	PASS	PASS
Band4	20MHz	16QAM	20175	100RB#0	PASS	PASS
Band4	20MHz	64QAM	20175	100RB#0	PASS	PASS
Band5	10MHz	QPSK	20525	50RB#0	PASS	PASS
Band5	10MHz	16QAM	20525	50RB#0	PASS	PASS
Band5	10MHz	64QAM	20525	50RB#0	PASS	PASS
Band12	10MHz	QPSK	23095	50RB#0	PASS	PASS
Band12	10MHz	16QAM	23095	50RB#0	PASS	PASS
Band12	10MHz	64QAM	23095	50RB#0	PASS	PASS
Band17	10MHz	QPSK	23790	50RB#0	PASS	PASS
Band17	10MHz	16QAM	23790	50RB#0	PASS	PASS
Band17	10MHz	64QAM	23790	50RB#0	PASS	PASS
Band41	20MHz	QPSK	40640	100RB#0	PASS	PASS
Band41	20MHz	16QAM	40640	100RB#0	PASS	PASS
Band41	20MHz	64QAM	40640	100RB#0	PASS	PASS
Band66	20MHz	QPSK	132322	100RB#0	PASS	PASS
Band66	20MHz	16QAM	132322	100RB#0	PASS	PASS
Band66	20MHz	64QAM	132322	100RB#0	PASS	PASS
Band71	20MHz	QPSK	133322	100RB#0	PASS	PASS
Band71	20MHz	16QAM	133322	100RB#0	PASS	PASS
Band71	20MHz	64QAM	133322	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







