

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					
3.85	-30	6.39	0.007639	±2.5	Pass
	-20	3.72	0.004447		
	-10	8.27	0.009886		
	0	5.34	0.006384		
	10	-15.65	-0.018709		
	20	-28.48	-0.034047		
	30	-30.71	-0.036712		
	40	-40.14	-0.047986		
	50	-4.12	-0.004925		
16QAM					
3.85	-30	4.68	0.005595	±2.5	Pass
	-20	12.83	0.015338		
	-10	18.91	0.022606		
	0	36.06	0.043108		
	10	47.98	0.057358		
	20	47.85	0.057203		
	30	45.75	0.054692		
	40	-6.19	-0.007400		
	50	-11.70	-0.013987		
64QAM					
3.85	-30	17.88	0.021375	±2.5	Pass
	-20	33.69	0.040275		
	-10	36.78	0.043969		
	0	46.79	0.055935		
	10	5.58	0.006671		
	20	24.08	0.028787		
	30	20.64	0.024674		
	40	23.73	0.028368		
	50	22.86	0.027328		

Voltage					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	3.45	19.15	0.022893	±2.5	Pass
	3.85	31.39	0.037525		
	4.40	9.20	0.010998		
16QAM					
25	3.45	20.50	0.024507	±2.5	Pass
	3.85	-6.22	-0.007436		
	4.40	40.44	0.048344		
64QAM					
25	3.45	34.76	0.041554	±2.5	Pass
	3.85	15.86	0.018960		
	4.40	49.81	0.059546		
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 (℃)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
3.85	-30	-48.47	-0.019120	Within authorized band for Band 7	Pass
	-20	-21.67	-0.008548		
	-10	-29.61	-0.011680		
	0	-14.66	-0.005783		
	10	-56.52	-0.022296		
	20	-35.49	-0.014000		
	30	-54.22	-0.021389		
	40	-62.86	-0.024797		
	50	-34.52	-0.013617		
16QAM					
3.85	-30	29.54	0.011653	Within authorized band for Band 7	Pass
	-20	25.86	0.010201		
	-10	51.37	0.020264		
	0	-13.79	-0.005440		
	10	95.94	0.037846		
	20	25.62	0.010107		
	30	21.51	0.008485		
	40	35.10	0.013846		
	50	43.30	0.017081		
64QAM					
3.85	-30	49.55	0.019546	Within authorized band for Band 7	Pass
	-20	46.26	0.018249		
	-10	16.31	0.006434		
	0	43.73	0.017250		
	10	46.66	0.018406		
	20	47.31	0.018663		
	30	64.20	0.025325		
	40	42.43	0.016738		
	50	24.81	0.009787		

Voltage					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	3.45	-59.24	-0.023369	Within authorized band for Band 7	Pass
	3.85	29.10	0.011479		
	4.40	-70.95	-0.027988		
16QAM					
25	3.45	12.45	0.004911	Within authorized band for Band 7	Pass
	3.85	-44.37	-0.017503		
	4.40	35.82	0.014130		
64QAM					
25	3.45	48.94	0.019306	Within authorized band for Band 7	Pass
	3.85	53.70	0.021183		
	4.40	51.33	0.020249		
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					
3.85	-30	-27.64	-0.039067	Within authorized band for Band 12	Pass
	-20	-21.94	-0.031011		
	-10	-22.54	-0.031859		
	0	-28.31	-0.040014		
	10	-36.31	-0.051322		
	20	-35.66	-0.050403		
	30	-37.77	-0.053385		
	40	-35.93	-0.050784		
	50	-35.96	-0.050827		
16QAM					
3.85	-30	-14.55	-0.020565	Within authorized band for Band 12	Pass
	-20	-16.89	-0.023873		
	-10	-23.13	-0.032693		
	0	-26.51	-0.037470		
	10	-33.19	-0.046912		
	20	-37.08	-0.052410		
	30	-33.72	-0.047661		
	40	-30.28	-0.042799		
	50	-28.54	-0.040339		
64QAM					
3.85	-30	11.97	0.016919	Within authorized band for Band 12	Pass
	-20	23.35	0.033004		
	-10	28.40	0.040141		
	0	23.62	0.033385		
	10	15.65	0.022120		
	20	7.08	0.010007		
	30	-7.60	-0.010742		
	40	-10.26	-0.014502		
	50	-13.80	-0.019505		

Voltage					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	3.45	-29.88	-0.042233	Within authorized band for Band 12	Pass
	3.85	-32.63	-0.046120		
	4.40	-30.77	-0.043491		
16QAM					
25	3.45	-25.16	-0.035562	Within authorized band for Band 12	Pass
	3.85	-31.20	-0.044099		
	4.40	-20.34	-0.028749		
64QAM					
25	3.45	-11.40	-0.016113	Within authorized band for Band 12	Pass
	3.85	-18.18	-0.025696		
	4.40	3.52	0.004975		
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					
3.85	-30	50.78	0.019568	Within authorized band for Band 41	Pass
	-20	23.72	0.009141		
	-10	47.69	0.018378		
	0	35.13	0.013538		
	10	52.27	0.020143		
	20	-37.97	-0.014632		
	30	-23.78	-0.009164		
	40	39.30	0.015145		
	50	-23.62	-0.009102		
16QAM					
3.85	-30	38.47	0.014825	Within authorized band for Band 41	Pass
	-20	23.46	0.009040		
	-10	38.57	0.014863		
	0	33.06	0.012740		
	10	23.66	0.009118		
	20	29.81	0.011487		
	30	64.19	0.024736		
	40	-37.82	-0.014574		
	50	23.02	0.008871		
64QAM					
3.85	-30	27.44	0.010574	Within authorized band for Band 41	Pass
	-20	56.15	0.021638		
	-10	28.31	0.010909		
	0	42.06	0.016208		
	10	64.52	0.024863		
	20	26.92	0.010374		
	30	39.87	0.015364		
	40	33.46	0.012894		
	50	43.43	0.016736		

Voltage					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	3.45	42.39	0.016335	Within authorized band for Band 41	Pass
	3.85	57.82	0.022281		
	4.40	30.84	0.011884		
16QAM					
25	3.45	47.91	0.018462	Within authorized band for Band41	Pass
	3.85	57.81	0.022277		
	4.40	-31.19	-0.012019		
64QAM					
25	3.45	-26.95	-0.010385	Within authorized band for Band41	Pass
	3.85	42.33	0.016312		
	4.40	79.38	0.030590		
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					
3.85	-30	-27.84	-0.015954	Within authorized band for Band 66	Pass
	-20	-48.01	-0.027513		
	-10	-39.70	-0.022751		
	0	-13.69	-0.007845		
	10	-16.48	-0.009444		
	20	-23.57	-0.013507		
	30	-26.79	-0.015352		
	40	-26.62	-0.015255		
	50	-23.10	-0.013238		
16QAM					
3.85	-30	25.02	0.014338	Within authorized band for Band 66	Pass
	-20	37.34	0.021398		
	-10	30.11	0.017255		
	0	28.00	0.016046		
	10	29.43	0.016865		
	20	43.62	0.024997		
	30	37.78	0.021650		
	40	42.49	0.024350		
	50	12.09	0.006928		
64QAM					
3.85	-30	20.03	0.011479	Within authorized band for Band 66	Pass
	-20	29.30	0.016791		
	-10	17.65	0.010115		
	0	25.25	0.014470		
	10	47.84	0.027415		
	20	37.58	0.021536		
	30	45.91	0.026309		
	40	50.61	0.029003		
	50	20.48	0.011736		

Voltage					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	3.45	8.91	0.005106	Within authorized band for Band 66	Pass
	3.85	-30.20	-0.017307		
	4.40	-14.63	-0.008384		
16QAM					
25	3.45	-27.34	-0.015668	Within authorized band for Band 66	Pass
	3.85	-34.26	-0.019633		
	4.40	14.03	0.008040		
64QAM					
25	3.45	19.78	0.011335	Within authorized band for Band 66	Pass
	3.85	22.03	0.012625		
	4.40	43.09	0.024693		
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
Band5	10MHz	QPSK	20525	50RB#0	PASS	PASS
Band5	10MHz	16QAM	20525	50RB#0	PASS	PASS
Band5	10MHz	64QAM	20525	50RB#0	PASS	PASS
Band7	20MHz	QPSK	21100	100RB#0	PASS	PASS
Band7	20MHz	16QAM	21100	100RB#0	PASS	PASS
Band7	20MHz	64QAM	21100	100RB#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
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

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

Test Graphs





