

(°C)	(Vdc)	Hz	ppm		
QPSK					
25	3.45	27.51	0.014633	Within authorized band for Band 2	Pass
	3.85	29.38	0.015628		
	4.40	58.71	0.031229		
16QAM					
25	3.45	41.93	0.022303	Within authorized band for Band 2	Pass
	3.85	22.43	0.011931		
	4.40	49.08	0.026106		
64QAM					
25	3.45	20.77	0.011048	Within authorized band for Band 2	Pass
	3.85	65.02	0.034585		
	4.40	39.95	0.021250		
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	-14.75	-0.017633	Within authorized band for Band 5	Pass
	-20	-14.66	-0.017525		
	-10	-10.26	-0.012265		
	0	-7.47	-0.008930		
	10	-20.30	-0.024268		
	20	-17.41	-0.020813		
	30	-14.79	-0.017681		
	40	-15.49	-0.018518		
	50	-10.97	-0.013114		
16QAM					
3.85	-30	-15.02	-0.017956	Within authorized band for Band 5	Pass
	-20	-15.13	-0.018087		
	-10	14.28	0.017071		
	0	-16.25	-0.019426		
	10	-14.91	-0.017824		
	20	-9.48	-0.011333		
	30	-32.36	-0.038685		
	40	-14.36	-0.017167		
	50	-24.53	-0.029325		
64QAM					
3.85	-30	-9.74	-0.011644	Within authorized band for Band 5	Pass
	-20	-13.32	-0.015923		
	-10	-17.24	-0.020610		
	0	-21.06	-0.025176		
	10	-19.58	-0.023407		
	20	-16.51	-0.019737		
	30	-18.44	-0.022044		
	40	-11.47	-0.013712		
	50	-23.16	-0.027687		
Voltage					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					

25	3.45	-24.68	-0.029504	Within authorized band for Band 5	Pass
	3.85	-49.84	-0.059582		
	4.40	-29.10	-0.034788		
16QAM					
25	3.45	-14.72	-0.017597	Within authorized band for Band 5	Pass
	3.85	-13.86	-0.016569		
	4.40	-15.13	-0.018087		
64QAM					
25	3.45	12.19	0.014573	Within authorized band for Band 5	Pass
	3.85	-14.00	-0.016736		
	4.40	-8.90	-0.010640		
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	-46.51	-0.018347	Within authorized band for Band 7	Pass
	-20	-22.43	-0.008848		
	-10	-24.75	-0.009763		
	0	-22.86	-0.009018		
	10	-55.55	-0.021913		
	20	-25.39	-0.010016		
	30	-26.09	-0.010292		
	40	-25.23	-0.009953		
	50	15.21	0.006000		
16QAM					
3.85	-30	-18.48	-0.007290	Within authorized band for Band 7	Pass
	-20	15.25	0.006016		
	-10	-21.33	-0.008414		
	0	23.00	0.009073		
	10	-31.23	-0.012320		
	20	-25.38	-0.010012		
	30	-13.26	-0.005231		
	40	62.54	0.024671		
	50	-25.42	-0.010028		
64QAM					
3.85	-30	14.28	0.005633	Within authorized band for Band 7	Pass
	-20	20.51	0.008091		
	-10	25.35	0.010000		
	0	31.66	0.012489		
	10	38.65	0.015247		
	20	18.24	0.007195		
	30	18.32	0.007227		
	40	-17.50	-0.006903		
	50	24.96	0.009846		
Voltage					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					

25	3.45	-25.56	-0.010083	Within authorized band for Band 7	Pass
	3.85	38.65	0.015247		
	4.40	-29.28	-0.011550		
16QAM					
25	3.45	-33.97	-0.013400	Within authorized band for Band 7	Pass
	3.85	20.23	0.007980		
	4.40	-23.79	-0.009385		
64QAM					
25	3.45	33.69	0.013290	Within authorized band for Band 7	Pass
	3.85	-25.36	-0.010004		
	4.40	22.23	0.008769		
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 (°C)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
3.85	-30	-15.39	-0.021753	Within authorized band for Band 12	Pass
	-20	-20.61	-0.029131		
	-10	-21.00	-0.029682		
	0	-31.49	-0.044509		
	10	-30.64	-0.043307		
	20	-22.14	-0.031293		
	30	-18.42	-0.026035		
	40	-22.47	-0.031760		
	50	-23.45	-0.033145		
16QAM					
3.85	-30	-18.11	-0.025597	Within authorized band for Band 12	Pass
	-20	7.98	0.011279		
	-10	11.94	0.016876		
	0	18.48	0.026120		
	10	23.98	0.033894		
	20	26.76	0.037823		
	30	36.41	0.051463		
	40	32.17	0.045470		
	50	32.04	0.045286		
64QAM					
3.85	-30	33.83	0.047816	Within authorized band for Band 12	Pass
	-20	42.76	0.060438		
	-10	53.24	0.075251		
	0	9.04	0.012777		
	10	15.21	0.021498		
	20	23.09	0.032636		
	30	32.06	0.045314		
	40	37.47	0.052961		
	50	40.98	0.057922		
Voltage					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					

25	3.45	-13.98	-0.019760	Within authorized band for Band 12	Pass
	3.85	-16.16	-0.022841		
	4.40	-11.16	-0.015774		
16QAM					
25	3.45	-34.86	-0.049272	Within authorized band for Band 12	Pass
	3.85	-34.99	-0.049456		
	4.40	-27.01	-0.038177		
64QAM					
25	3.45	49.81	0.070403	Within authorized band for Band 12	Pass
	3.85	35.99	0.050869		
	4.40	21.34	0.030163		
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					
3.85	-30	12.79	0.018014	Within authorized band for Band 17	Pass
	-20	4.76	0.006704		
	-10	-8.54	-0.012028		
	0	-13.10	-0.018451		
	10	-20.20	-0.028451		
	20	-24.82	-0.034958		
	30	-31.19	-0.043930		
	40	-31.26	-0.044028		
	50	-33.29	-0.046887		
16QAM					
3.85	-30	-16.51	-0.023254	Within authorized band for Band 17	Pass
	-20	-9.64	-0.013577		
	-10	6.78	0.009549		
	0	17.71	0.024944		
	10	26.92	0.037915		
	20	28.95	0.040775		
	30	39.22	0.055239		
	40	39.93	0.056239		
	50	43.03	0.060606		
64QAM					
3.85	-30	27.89	0.039282	Within authorized band for Band 17	Pass
	-20	31.00	0.043662		
	-10	44.02	0.062000		
	0	49.18	0.069268		
	10	16.72	0.023549		
	20	20.38	0.028704		
	30	24.12	0.033972		
	40	32.04	0.045127		
	50	39.14	0.055127		
Voltage					
Temperature (℃)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					

25	3.45	5.99	0.008437	Within authorized band for Band 17	Pass
	3.85	-11.40	-0.016056		
	4.40	12.63	0.017789		
16QAM					
25	3.45	-29.24	-0.041183	Within authorized band for Band 17	Pass
	3.85	-33.13	-0.046662		
	4.40	-23.55	-0.033169		
64QAM					
25	3.45	-8.71	-0.012268	Within authorized band for Band 17	Pass
	3.85	48.75	0.068662		
	4.40	9.10	0.012817		
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	33.92	0.013071	Within authorized band for Band 41	Pass
	-20	55.90	0.021541		
	-10	24.38	0.009395		
	0	48.32	0.018620		
	10	57.19	0.022039		
	20	59.88	0.023075		
	30	-29.03	-0.011187		
	40	14.68	0.005657		
	50	19.43	0.007487		
16QAM					
3.85	-30	20.56	0.007923	Within authorized band for Band 41	Pass
	-20	39.18	0.015098		
	-10	33.90	0.013064		
	0	49.82	0.019198		
	10	26.87	0.010355		
	20	41.48	0.015985		
	30	50.37	0.019410		
	40	19.38	0.007468		
	50	36.29	0.013985		
64QAM					
3.85	-30	21.26	0.008193	Within authorized band for Band 41	Pass
	-20	51.00	0.019653		
	-10	27.42	0.010566		
	0	49.67	0.019141		
	10	-25.15	-0.009692		
	20	23.98	0.009241		
	30	41.83	0.016119		
	40	-15.66	-0.006035		
	50	35.38	0.013634		
Voltage					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					

25	3.45	-44.50	-0.017148	Within authorized band for Band 41	Pass
	3.85	-58.06	-0.022374		
	4.40	-14.29	-0.005507		
16QAM					
25	3.45	33.32	0.012840	Within authorized band for Band41	Pass
	3.85	27.47	0.010586		
	4.40	56.65	0.021830		
64QAM					
25	3.45	23.92	0.009218	Within authorized band for Band41	Pass
	3.85	56.53	0.021784		
	4.40	37.89	0.014601		
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	25.38	0.014544	Within authorized band for Band 66	Pass
	-20	37.39	0.021427		
	-10	23.70	0.013582		
	0	13.69	0.007845		
	10	12.59	0.007215		
	20	14.79	0.008476		
	30	37.48	0.021479		
	40	22.75	0.013037		
	50	13.22	0.007576		
16QAM					
3.85	-30	26.88	0.015404	Within authorized band for Band 66	Pass
	-20	39.57	0.022676		
	-10	54.45	0.031203		
	0	22.46	0.012871		
	10	37.16	0.021295		
	20	-21.34	-0.012229		
	30	39.31	0.022527		
	40	57.88	0.033169		
	50	13.49	0.007731		
64QAM					
3.85	-30	23.42	0.013421	Within authorized band for Band 66	Pass
	-20	48.11	0.027570		
	-10	45.02	0.025799		
	0	15.52	0.008894		
	10	35.36	0.020264		
	20	38.55	0.022092		
	30	-19.58	-0.011221		
	40	17.68	0.010132		
	50	-17.14	-0.009822		
Voltage					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					

25	3.45	39.14	0.022430	Within authorized band for Band 66	Pass
	3.85	-14.03	-0.008040		
	4.40	28.50	0.016332		
16QAM					
25	3.45	19.64	0.011255	Within authorized band for Band 66	Pass
	3.85	27.04	0.015496		
	4.40	29.20	0.016734		
64QAM					
25	3.45	41.17	0.023593	Within authorized band for Band 66	Pass
	3.85	20.38	0.011679		
	4.40	26.06	0.014934		
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
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

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

Test Graphs







