

Voltage					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	3.50	-11.44	-0.006085	Within authorized band for Band 2	Pass
	3.80	3.99	0.002122		
	4.40	-14.89	-0.007920		
16QAM					
25	3.50	-9.43	-0.005016	Within authorized band for Band 2	Pass
	3.80	-11.92	-0.006340		
	4.40	-6.02	-0.003202		
64QAM					
25	3.50	-14.05	-0.007473	Within authorized band for Band 2	Pass
	3.80	-8.94	-0.004755		
	4.40	-10.64	-0.005660		
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					
3.80	-30	-3.96	-0.002286	Within authorized band for Band 4	Pass
	-20	-11.12	-0.006418		
	-10	2.69	0.001553		
	0	-9.50	-0.005483		
	10	4.85	0.002799		
	20	-2.86	-0.001651		
	30	-11.01	-0.006355		
	40	-5.89	-0.003400		
	50	-4.75	-0.002742		
16QAM					
3.80	-30	-5.34	-0.003082	Within authorized band for Band 4	Pass
	-20	-8.43	-0.004866		
	-10	-11.64	-0.006719		
	0	-10.49	-0.006055		
	10	1.70	0.000981		
	20	-8.78	-0.005068		
	30	-4.02	-0.002320		
	40	-9.78	-0.005645		
	50	-2.13	-0.001229		
64QAM					
3.80	-30	-4.43	-0.002557	Within authorized band for Band 4	Pass
	-20	-8.71	-0.005027		
	-10	4.32	0.002494		
	0	-7.05	-0.004069		
	10	-3.16	-0.001824		
	20	-13.12	-0.007573		
	30	-2.40	-0.001385		
	40	-6.58	-0.003798		
	50	-8.73	-0.005039		

Voltage					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	3.50	-4.68	-0.002701	Within authorized band for Band 4	Pass
	3.80	-12.13	-0.007001		
	4.40	-5.41	-0.003123		
16QAM					
25	3.50	-5.72	-0.003302	Within authorized band for Band 4	Pass
	3.80	-7.61	-0.004392		
	4.40	-11.56	-0.006672		
64QAM					
25	3.50	-10.97	-0.006332	Within authorized band for Band 4	Pass
	3.80	-7.94	-0.004583		
	4.40	-9.34	-0.005391		
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 (℃)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
3.80	-30	-10.30	-0.012313	±2.5	Pass
	-20	-10.11	-0.012086		
	-10	-10.73	-0.012827		
	0	-9.60	-0.011476		
	10	-10.33	-0.012349		
	20	-10.21	-0.012206		
	30	-9.51	-0.011369		
	40	-9.14	-0.010926		
	50	-12.17	-0.014549		
16QAM					
3.80	-30	-6.68	-0.007986	±2.5	Pass
	-20	-7.54	-0.009014		
	-10	-6.48	-0.007747		
	0	-6.52	-0.007794		
	10	-6.37	-0.007615		
	20	-6.48	-0.007747		
	30	-6.87	-0.008213		
	40	-7.15	-0.008548		
	50	-1.85	-0.002212		
64QAM					
3.80	-30	-2.06	-0.002463	±2.5	Pass
	-20	-5.66	-0.006766		
	-10	-10.63	-0.012708		
	0	-9.17	-0.010962		
	10	-5.92	-0.007077		
	20	-5.02	-0.006001		
	30	-5.68	-0.006790		
	40	-8.30	-0.009922		
	50	-8.17	-0.009767		

Voltage					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	3.50	-10.06	-0.012026	±2.5	Pass
	3.80	-8.37	-0.010006		
	4.40	-11.30	-0.013509		
16QAM					
25	3.50	-8.15	-0.009743	±2.5	Pass
	3.80	-6.91	-0.008261		
	4.40	-8.70	-0.010400		
64QAM					
25	3.50	-10.83	-0.012947	±2.5	Pass
	3.80	-6.87	-0.008213		
	4.40	-6.29	-0.007519		
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	-8.14	-0.011505	Within authorized band for Band 12	Pass
	-20	-7.54	-0.010657		
	-10	-7.80	-0.011025		
	0	-4.68	-0.006615		
	10	-8.90	-0.012580		
	20	-4.95	-0.006996		
	30	-9.90	-0.013993		
	40	-11.96	-0.016905		
	50	-12.33	-0.017428		
16QAM					
3.80	-30	-11.13	-0.015731	Within authorized band for Band 12	Pass
	-20	-7.74	-0.010940		
	-10	-10.14	-0.014332		
	0	-9.48	-0.013399		
	10	-10.54	-0.014898		
	20	-7.47	-0.010558		
	30	-8.70	-0.012297		
	40	-11.19	-0.015816		
	50	-6.94	-0.009809		
64QAM					
3.80	-30	-8.31	-0.011746	Within authorized band for Band 12	Pass
	-20	-6.18	-0.008735		
	-10	-10.81	-0.015279		
	0	-12.73	-0.017993		
	10	-12.97	-0.018332		
	20	-6.48	-0.009159		
	30	-7.51	-0.010615		
	40	-4.22	-0.005965		
	50	-4.43	-0.006261		

Voltage					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	3.50	-7.87	-0.011124	Within authorized band for Band 12	Pass
	3.80	-5.62	-0.007943		
	4.40	-8.00	-0.011307		
16QAM					
25	3.50	-11.67	-0.016495	Within authorized band for Band 12	Pass
	3.80	-12.55	-0.017739		
	4.40	-12.32	-0.017413		
64QAM					
25	3.50	-7.30	-0.010318	Within authorized band for Band 12	Pass
	3.80	-10.70	-0.015124		
	4.40	-6.01	-0.008495		
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=40740 Frequency=2605.0MHz					
Temperature					
Power supplied (Vdc)	Temperature (°C)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
3.80	-30	-9.83	-0.003774	Within authorized band for Band 41	Pass
	-20	-10.03	-0.003850		
	-10	-5.71	-0.002192		
	0	-12.47	-0.004787		
	10	-11.86	-0.004553		
	20	-10.06	-0.003862		
	30	-8.20	-0.003148		
	40	-7.72	-0.002964		
	50	-6.61	-0.002537		
16QAM					
3.80	-30	-3.78	-0.001451	Within authorized band for Band 41	Pass
	-20	-6.95	-0.002668		
	-10	-9.04	-0.003470		
	0	-9.97	-0.003827		
	10	-6.54	-0.002511		
	20	-7.17	-0.002752		
	30	-6.72	-0.002580		
	40	-5.61	-0.002154		
	50	-7.02	-0.002695		
64QAM					
3.80	-30	-7.88	-0.003025	Within authorized band for Band 41	Pass
	-20	-8.21	-0.003152		
	-10	-6.47	-0.002484		
	0	-5.52	-0.002119		
	10	-5.58	-0.002142		
	20	-11.84	-0.004545		
	30	-7.34	-0.002818		
	40	-6.25	-0.002399		
	50	-7.95	-0.003052		

Voltage					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	3.50	-14.89	-0.005716	Within authorized band for Band 41	Pass
	3.80	-12.00	-0.004607		
	4.40	-11.07	-0.004250		
16QAM					
25	3.50	6.55	0.002514	Within authorized band for Band41	Pass
	3.80	-10.67	-0.004096		
	4.40	-7.84	-0.003010		
64QAM					
25	3.50	-3.88	-0.001489	Within authorized band for Band41	Pass
	3.80	-4.45	-0.001708		
	4.40	-8.80	-0.003378		
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	-7.42	-0.004252	Within authorized band for Band 66	Pass
	-20	-9.24	-0.005295		
	-10	-9.86	-0.005650		
	0	2.82	0.001616		
	10	-6.62	-0.003794		
	20	-7.20	-0.004126		
	30	-13.79	-0.007903		
	40	-3.08	-0.001765		
	50	-10.70	-0.006132		
16QAM					
3.80	-30	-11.76	-0.006739	Within authorized band for Band 66	Pass
	-20	-8.40	-0.004814		
	-10	-6.48	-0.003713		
	0	-9.00	-0.005158		
	10	-7.74	-0.004436		
	20	-11.36	-0.006510		
	30	-5.82	-0.003335		
	40	-6.08	-0.003484		
	50	-9.20	-0.005272		
64QAM					
3.80	-30	-4.98	-0.002854	Within authorized band for Band 66	Pass
	-20	-8.41	-0.004819		
	-10	-9.08	-0.005203		
	0	-6.05	-0.003467		
	10	-12.72	-0.007289		
	20	-12.00	-0.006877		
	30	-9.56	-0.005479		
	40	-5.68	-0.003255		
	50	-10.23	-0.005862		

Voltage					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	3.50	-11.10	-0.006361	Within authorized band for Band 66	Pass
	3.80	-5.05	-0.002894		
	4.40	-7.27	-0.004166		
16QAM					
25	3.50	-7.37	-0.004223	Within authorized band for Band 66	Pass
	3.80	-10.37	-0.005943		
	4.40	-6.38	-0.003656		
64QAM					
25	3.50	-9.10	-0.005215	Within authorized band for Band 66	Pass
	3.80	-9.66	-0.005536		
	4.40	-12.09	-0.006928		
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	-10.66	-0.015665	Within authorized band for Band 71	Pass
	-20	-5.75	-0.008450		
	-10	-13.55	-0.019912		
	0	-9.41	-0.013828		
	10	-12.50	-0.018369		
	20	-5.66	-0.008317		
	30	-11.69	-0.017179		
	40	-13.13	-0.019295		
	50	-12.12	-0.017810		
16QAM					
3.80	-30	-9.23	-0.013564	Within authorized band for Band 71	Pass
	-20	-7.07	-0.010389		
	-10	-8.75	-0.012858		
	0	-10.63	-0.015621		
	10	-13.16	-0.019339		
	20	-11.32	-0.016635		
	30	-11.74	-0.017252		
	40	-7.81	-0.011477		
	50	-2.68	-0.003938		
64QAM					
3.80	-30	-10.91	-0.016032	Within authorized band for Band 71	Pass
	-20	-8.53	-0.012535		
	-10	-10.71	-0.015738		
	0	-12.77	-0.018766		
	10	-11.52	-0.016929		
	20	-9.61	-0.014122		
	30	-4.98	-0.007318		
	40	-4.28	-0.006289		
	50	-6.95	-0.010213		

Voltage					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	3.50	-5.59	-0.008215	Within authorized band for Band 71	Pass
	3.80	-8.94	-0.013137		
	4.40	-6.54	-0.009611		
16QAM					
25	3.50	-7.25	-0.010654	Within authorized band for Band 71	Pass
	3.80	-10.56	-0.015518		
	4.40	-5.06	-0.007436		
64QAM					
25	3.50	-8.01	-0.011771	Within authorized band for Band 71	Pass
	3.80	-7.15	-0.010507		
	4.40	-7.07	-0.010389		
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
Band41	20MHz	QPSK	40740	100RB#0	PASS	PASS
Band41	20MHz	16QAM	40740	100RB#0	PASS	PASS
Band41	20MHz	64QAM	40740	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







