

Voltage					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	3.50	-8.71	-0.012311	Within authorized band for Band 12	Pass
	3.85	-11.22	-0.015859		
	4.40	-9.30	-0.013145		
16QAM					
25	3.50	-3.62	-0.005117	Within authorized band for Band 12	Pass
	3.85	-10.70	-0.015124		
	4.40	-7.88	-0.011138		
64QAM					
25	3.50	-7.12	-0.010064	Within authorized band for Band 12	Pass
	3.85	-9.38	-0.013258		
	4.40	-11.09	-0.015675		
Remark: All bandwidth and all modulation had been tested, but only the worst case data displayed in this report.					

LTE Band 13 part:

Reference Frequency: LTE Band 13(10MHz) Middle channel=23230 Frequency=782.0MHz					
Temperature					
Power supplied (Vdc)	Temperature (°C)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
3.85	-30	-12.19	-0.015588	Within authorized band for Band 13	Pass
	-20	-16.62	-0.021253		
	-10	-7.94	-0.010153		
	0	-3.62	-0.004629		
	10	-10.83	-0.013849		
	20	-6.92	-0.008849		
	30	-5.76	-0.007366		
	40	-6.19	-0.007916		
	50	-3.25	-0.004156		
16QAM					
3.85	-30	-4.26	-0.005448	Within authorized band for Band 13	Pass
	-20	-3.50	-0.004476		
	-10	5.56	0.007110		
	0	-9.14	-0.011688		
	10	-8.07	-0.010320		
	20	-10.49	-0.013414		
	30	-11.13	-0.014233		
	40	-8.60	-0.010997		
	50	-10.71	-0.013696		
64QAM					
3.85	-30	-2.89	-0.003696	Within authorized band for Band 13	Pass
	-20	-10.84	-0.013862		
	-10	-10.81	-0.013824		
	0	-10.20	-0.013043		
	10	-5.14	-0.006573		
	20	-6.48	-0.008286		
	30	-9.11	-0.011650		
	40	-9.28	-0.011867		
	50	-10.19	-0.013031		

Voltage					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	3.50	-8.73	-0.011164	Within authorized band for Band 13	Pass
	3.85	-9.48	-0.012123		
	4.40	-8.47	-0.010831		
16QAM					
25	3.50	-7.75	-0.009910	Within authorized band for Band 13	Pass
	3.85	-9.37	-0.011982		
	4.40	-3.53	-0.004514		
64QAM					
25	3.50	-11.60	-0.014834	Within authorized band for Band 13	Pass
	3.85	-6.91	-0.008836		
	4.40	-10.61	-0.013568		
Remark: All bandwidth and all modulation had been tested, but only the worst case data displayed in this report.					

LTE Band 25 part:

Reference Frequency: LTE Band 25 (10MHz) Middle channel=26365 Frequency=1882.5MHz					
Temperature					
Power supplied (Vdc)	Temperature (°C)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
3.85	-30	-8.15	-0.004329	Within authorized band for Band 25	Pass
	-20	-16.52	-0.008776		
	-10	-7.45	-0.003958		
	0	-14.51	-0.007708		
	10	-17.18	-0.009126		
	20	-16.95	-0.009004		
	30	-12.60	-0.006693		
	40	2.75	0.001461		
	50	-7.55	-0.004011		
16QAM					
3.85	-30	-13.29	-0.007060	Within authorized band for Band 25	Pass
	-20	-13.92	-0.007394		
	-10	-20.50	-0.010890		
	0	-13.52	-0.007182		
	10	-15.23	-0.008090		
	20	-16.42	-0.008722		
	30	-6.85	-0.003639		
	40	-3.39	-0.001801		
	50	-7.25	-0.003851		
64QAM					
3.85	-30	-13.96	-0.007416	Within authorized band for Band 25	Pass
	-20	-13.25	-0.007039		
	-10	3.99	0.002120		
	0	-9.64	-0.005121		
	10	-13.90	-0.007384		
	20	-16.01	-0.008505		
	30	-13.12	-0.006969		
	40	-11.29	-0.005997		
	50	-4.69	-0.002491		

Voltage					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	3.50	-15.88	-0.008436	Within authorized band for Band 25	Pass
	3.85	-8.45	-0.004489		
	4.40	-13.85	-0.007357		
16QAM					
25	3.50	-10.84	-0.005758	Within authorized band for Band 25	Pass
	3.85	-15.28	-0.008117		
	4.40	-15.22	-0.008085		
64QAM					
25	3.50	-8.48	-0.004505	Within authorized band for Band 25	Pass
	3.85	6.55	0.003479		
	4.40	1.50	0.000797		
Remark: All bandwidth and all modulation had been tested, but only the worst case data displayed in this report.					

LTE Band 26(Part90) part:

Reference Frequency: LTE Band 26 (10MHz) Middle channel=26740 Frequency=819.0MHz					
Temperature					
Power supplied (Vdc)	Temperature (℃)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
3.85	-30	-8.58	-0.010476	±2.5	Pass
	-20	-8.61	-0.010513		
	-10	-12.12	-0.014799		
	0	-9.97	-0.012173		
	10	-11.09	-0.013541		
	20	-8.48	-0.010354		
	30	-7.27	-0.008877		
	40	-10.20	-0.012454		
	50	-7.47	-0.009121		
16QAM					
3.85	-30	-5.91	-0.007216	±2.5	Pass
	-20	-11.17	-0.013639		
	-10	-6.65	-0.008120		
	0	-10.06	-0.012283		
	10	-7.65	-0.009341		
	20	-6.87	-0.008388		
	30	-8.17	-0.009976		
	40	-9.58	-0.011697		
	50	-11.99	-0.014640		
64QAM					
3.85	-30	-15.22	-0.018584	±2.5	Pass
	-20	-7.78	-0.009499		
	-10	-8.73	-0.010659		
	0	-10.84	-0.013236		
	10	-9.80	-0.011966		
	20	-9.77	-0.011929		
	30	15.38	0.018779		
	40	-11.03	-0.013468		
	50	-14.19	-0.017326		

Voltage					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	3.50	-12.77	-0.015592	±2.5	Pass
	3.85	-6.67	-0.008144		
	4.40	-7.45	-0.009096		
16QAM					
25	3.50	-6.48	-0.007912	±2.5	Pass
	3.85	-6.17	-0.007534		
	4.40	-8.84	-0.010794		
64QAM					
25	3.50	-3.91	-0.004774	±2.5	Pass
	3.85	-10.83	-0.013223		
	4.40	-10.30	-0.012576		
Remark: All bandwidth and all modulation had been tested, but only the worst case data displayed in this report.					

LTE Band 26(Part22) part:

Reference Frequency: LTE Band 26 (10MHz) Middle channel=26915 Frequency=836.5MHz					
Temperature					
Power supplied (Vdc)	Temperature (℃)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
3.85	-30	-9.30	-0.011118	±2.5	Pass
	-20	-11.13	-0.013305		
	-10	-5.46	-0.006527		
	0	-11.74	-0.014035		
	10	-11.17	-0.013353		
	20	-8.47	-0.010126		
	30	-7.52	-0.008990		
	40	-10.26	-0.012265		
	50	-8.01	-0.009576		
16QAM					
3.85	-30	-4.52	-0.005403	±2.5	Pass
	-20	-6.11	-0.007304		
	-10	-7.91	-0.009456		
	0	-4.33	-0.005176		
	10	-7.72	-0.009229		
	20	-11.83	-0.014142		
	30	-8.67	-0.010365		
	40	-15.06	-0.018004		
	50	-8.84	-0.010568		
64QAM					
3.85	-30	-7.91	-0.009456	±2.5	Pass
	-20	-7.08	-0.008464		
	-10	-11.82	-0.014130		
	0	-11.24	-0.013437		
	10	-10.17	-0.012158		
	20	-4.13	-0.004937		
	30	-9.40	-0.011237		
	40	-6.52	-0.007794		
	50	-10.34	-0.012361		

Voltage					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	3.50	-3.69	-0.004411	±2.5	Pass
	3.85	-8.51	-0.010173		
	4.40	-11.72	-0.014011		
16QAM					
25	3.50	-9.73	-0.011632	±2.5	Pass
	3.85	-9.24	-0.011046		
	4.40	-8.04	-0.009611		
64QAM					
25	3.50	-6.67	-0.007974	±2.5	Pass
	3.85	-10.63	-0.012708		
	4.40	-11.20	-0.013389		
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	-7.85	-0.003027	Within authorized band for Band 41	Pass
	-20	-8.48	-0.003270		
	-10	-8.81	-0.003398		
	0	-12.72	-0.004906		
	10	-9.07	-0.003498		
	20	-10.99	-0.004238		
	30	-8.54	-0.003293		
	40	-14.09	-0.005434		
	50	-9.81	-0.003783		
16QAM					
3.85	-30	-13.35	-0.005148	Within authorized band for Band 41	Pass
	-20	7.77	0.002997		
	-10	-10.43	-0.004022		
	0	-8.21	-0.003166		
	10	-7.90	-0.003047		
	20	-6.45	-0.002487		
	30	-12.87	-0.004963		
	40	-13.85	-0.005341		
	50	-10.71	-0.004130		
64QAM					
3.85	-30	8.01	0.003089	Within authorized band for Band 41	Pass
	-20	1.67	0.000644		
	-10	-11.90	-0.004589		
	0	10.71	0.004130		
	10	5.66	0.002183		
	20	12.77	0.004925		
	30	-10.74	-0.004142		
	40	-13.86	-0.005345		
	50	-11.03	-0.004254		

Voltage					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	3.50	7.64	0.002946	Within authorized band for Band 41	Pass
	3.85	-13.73	-0.005295		
	4.40	-8.25	-0.003182		
16QAM					
25	3.50	11.20	0.004319	Within authorized band for Band41	Pass
	3.85	-10.91	-0.004207		
	4.40	6.49	0.002503		
64QAM					
25	3.50	-8.64	-0.003332	Within authorized band for Band41	Pass
	3.85	-16.65	-0.006421		
	4.40	8.10	0.003124		
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 (℃)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
3.85	-30	-7.00	-0.004011	Within authorized band for Band 66	Pass
	-20	-10.37	-0.005943		
	-10	-10.44	-0.005983		
	0	-7.51	-0.004304		
	10	-13.58	-0.007782		
	20	-15.05	-0.008625		
	30	4.82	0.002762		
	40	7.81	0.004476		
	50	2.39	0.001370		
16QAM					
3.85	-30	-8.91	-0.005106	Within authorized band for Band 66	Pass
	-20	6.57	0.003765		
	-10	-9.78	-0.005605		
	0	-9.00	-0.005158		
	10	-13.63	-0.007811		
	20	5.66	0.003244		
	30	9.24	0.005295		
	40	-3.75	-0.002149		
	50	-6.14	-0.003519		
64QAM					
3.85	-30	-11.43	-0.006550	Within authorized band for Band 66	Pass
	-20	-2.46	-0.001410		
	-10	-10.56	-0.006052		
	0	-10.84	-0.006212		
	10	-11.47	-0.006573		
	20	-5.18	-0.002968		
	30	-10.37	-0.005943		
	40	-10.54	-0.006040		
	50	-7.88	-0.004516		

Voltage					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	3.50	-7.17	-0.004109	Within authorized band for Band 66	Pass
	3.85	2.22	0.001272		
	4.40	6.39	0.003662		
16QAM					
25	3.50	-6.48	-0.003713	Within authorized band for Band 66	Pass
	3.85	2.53	0.001450		
	4.40	-2.10	-0.001203		
64QAM					
25	3.50	1.72	0.000986	Within authorized band for Band 66	Pass
	3.85	-6.79	-0.003891		
	4.40	-9.83	-0.005633		
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					
3.85	-30	-8.73	-0.012829	Within authorized band for Band 71	Pass
	-20	-6.29	-0.009243		
	-10	-9.00	-0.013226		
	0	-10.30	-0.015136		
	10	-10.49	-0.015415		
	20	-6.34	-0.009317		
	30	-10.51	-0.015445		
	40	-10.14	-0.014901		
	50	-11.87	-0.017443		
16QAM					
3.85	-30	-3.93	-0.005775	Within authorized band for Band 71	Pass
	-20	-10.56	-0.015518		
	-10	-7.68	-0.011286		
	0	-4.13	-0.006069		
	10	-10.01	-0.014710		
	20	-11.49	-0.016885		
	30	-8.40	-0.012344		
	40	-5.36	-0.007877		
	50	-6.07	-0.008920		
64QAM					
3.85	-30	-13.00	-0.019104	Within authorized band for Band 71	Pass
	-20	-8.60	-0.012638		
	-10	-12.43	-0.018266		
	0	-13.59	-0.019971		
	10	-5.46	-0.008024		
	20	-9.14	-0.013431		
	30	-10.17	-0.014945		
	40	-9.57	-0.014063		
	50	-10.21	-0.015004		

Voltage					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	3.50	-14.22	-0.020896	Within authorized band for Band 71	Pass
	3.85	-6.64	-0.009758		
	4.40	-14.41	-0.021176		
16QAM					
25	3.50	-8.71	-0.012799	Within authorized band for Band 71	Pass
	3.85	-7.65	-0.011242		
	4.40	-4.81	-0.007068		
64QAM					
25	3.50	-9.86	-0.014489	Within authorized band for Band 71	Pass
	3.85	-12.39	-0.018207		
	4.40	-8.97	-0.013181		
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
Band13	10MHz	QPSK	23230	50RB#0	PASS	PASS
Band13	10MHz	16QAM	23230	50RB#0	PASS	PASS
Band13	10MHz	64QAM	23230	50RB#0	PASS	PASS
Band25	20MHz	QPSK	26365	100RB#0	PASS	PASS
Band25	20MHz	16QAM	26365	100RB#0	PASS	PASS
Band25	20MHz	64QAM	26365	100RB#0	PASS	PASS
Band26	10MHz	QPSK	26740	50RB#0	PASS	PASS
Band26	10MHz	16QAM	26740	50RB#0	PASS	PASS
Band26	10MHz	64QAM	26740	50RB#0	PASS	PASS
Band26	15MHz	QPSK	26915	75RB#0	PASS	PASS
Band26	15MHz	16QAM	26915	75RB#0	PASS	PASS
Band26	15MHz	64QAM	26915	75RB#0	PASS	PASS
Band41	20MHz	QPSK	40620	100RB#0	PASS	PASS
Band41	20MHz	16QAM	40620	100RB#0	PASS	PASS
Band41	20MHz	64QAM	40620	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



