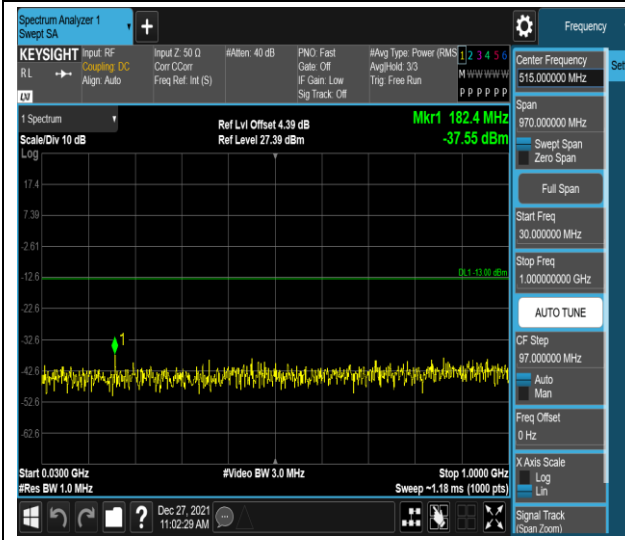


Band66-1.4MHz-QPSK-132322-1RB#0-Range1:30
~1000MHz

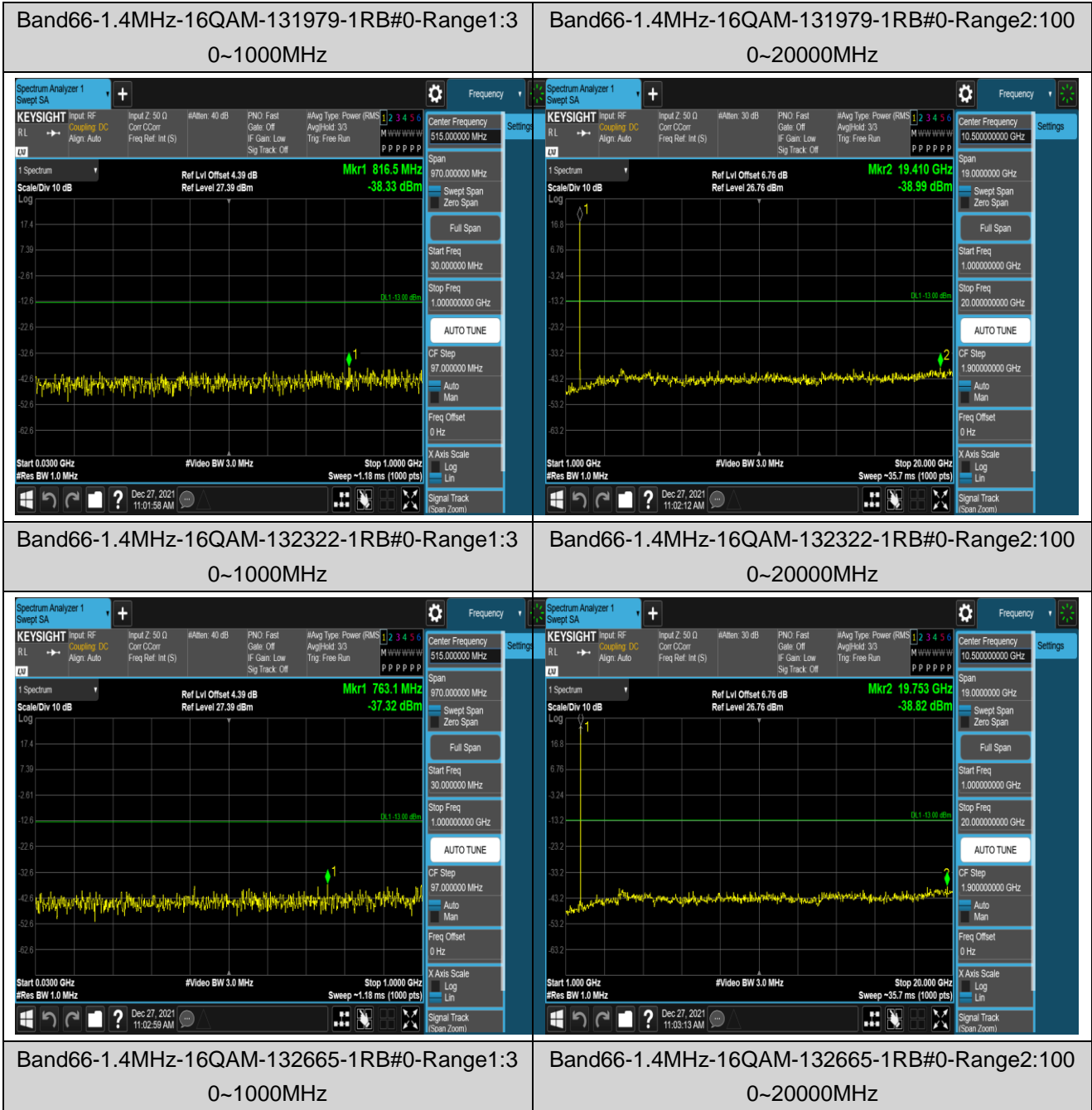
Band66-1.4MHz-QPSK-132322-1RB#0-Range2:1000
~20000MHz



Band66-1.4MHz-QPSK-132665-1RB#0-Range1:30
~1000MHz

Band66-1.4MHz-QPSK-132665-1RB#0-Range2:1000
~20000MHz

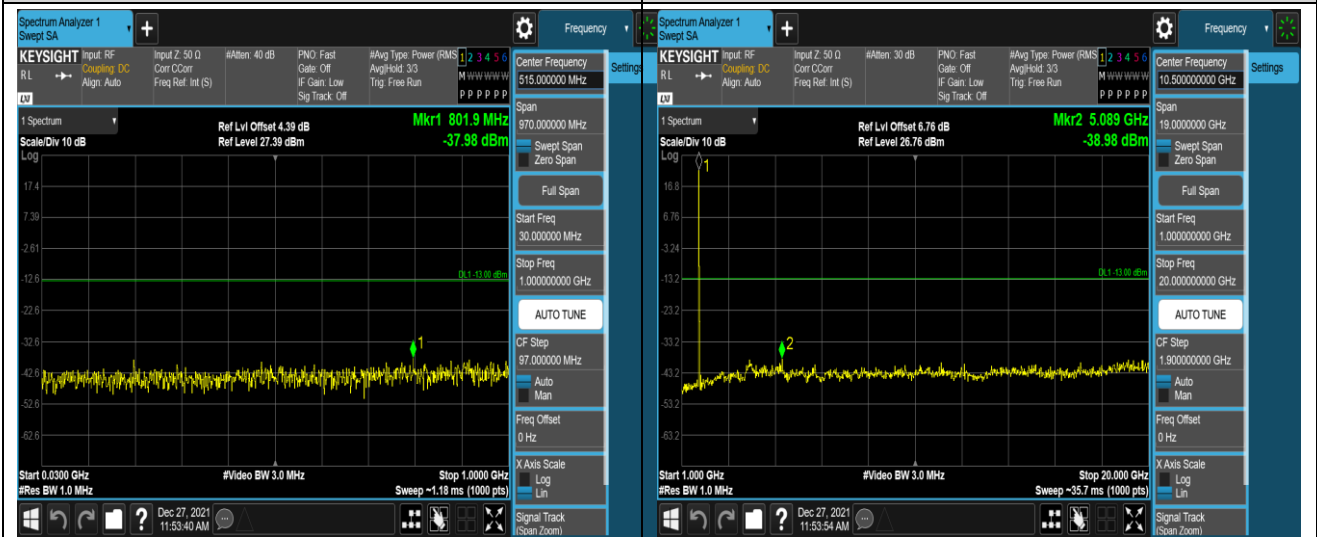






Band66-20MHz-QPSK-132072-1RB#0-Range1:30
~1000MHz

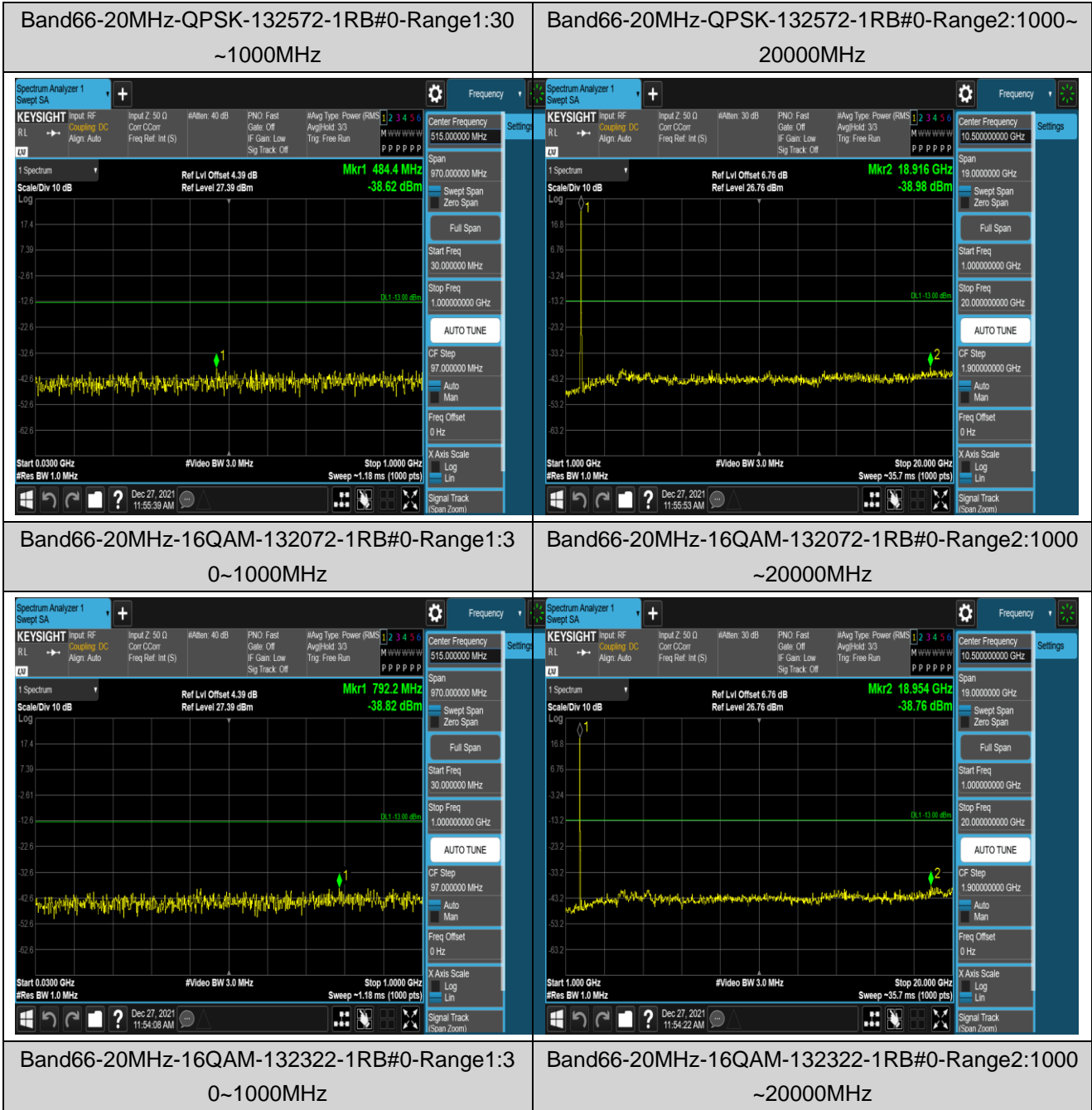
Band66-20MHz-QPSK-132072-1RB#0-Range2:1000~
20000MHz

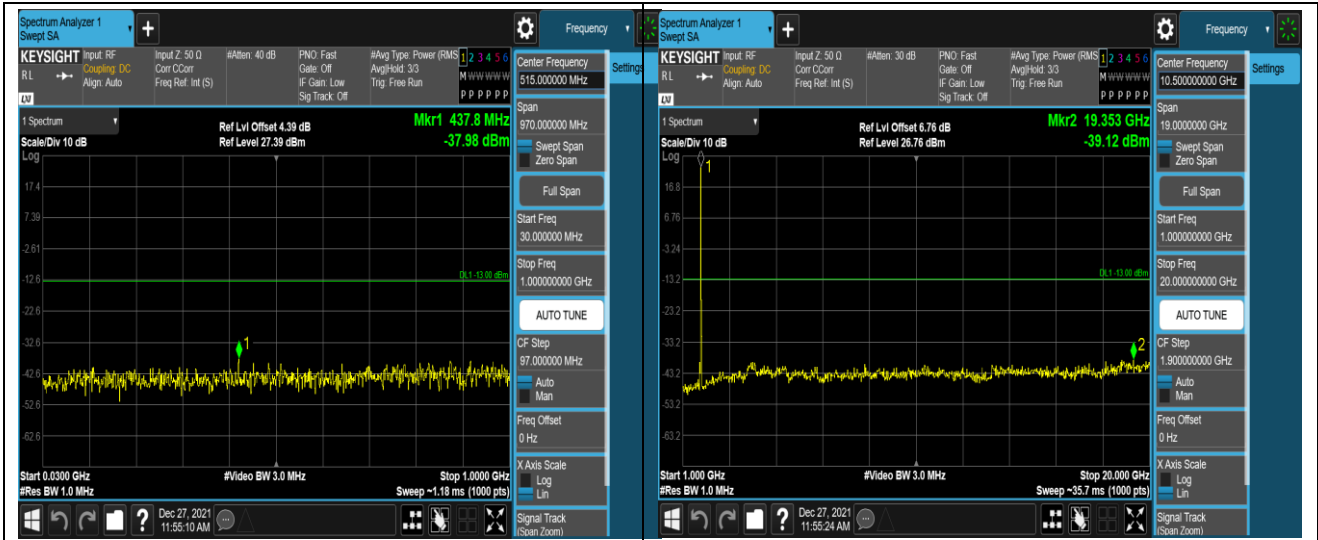


Band66-20MHz-QPSK-132322-1RB#0-Range1:30
~1000MHz

Band66-20MHz-QPSK-132322-1RB#0-Range2:1000~
20000MHz

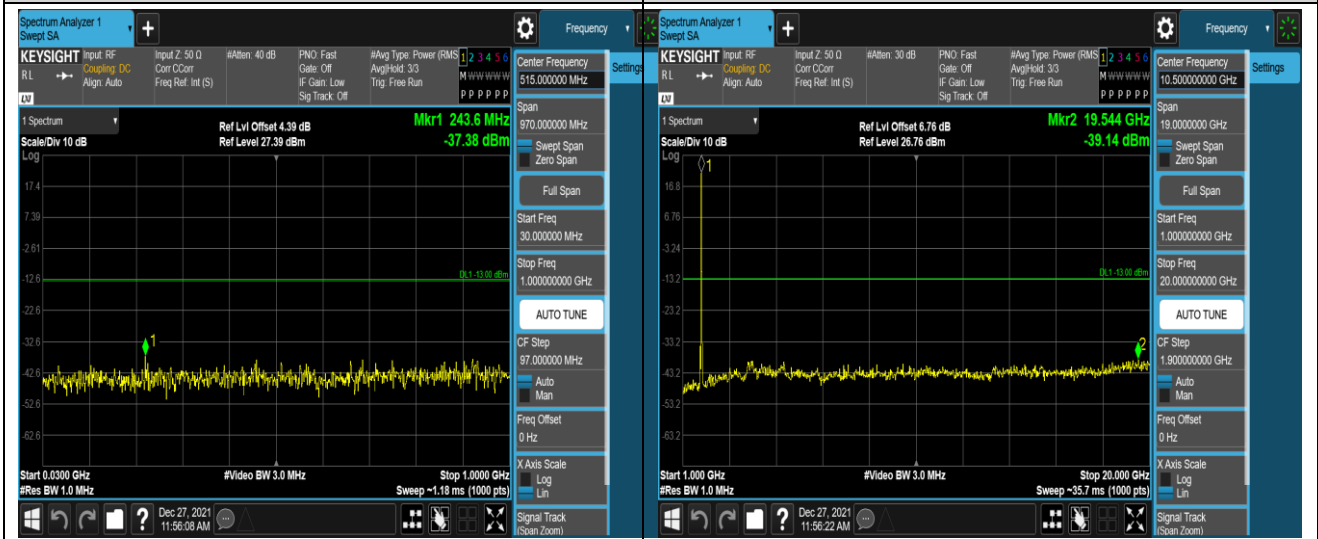






Band66-20MHz-16QAM-132572-1RB#0-Range1:3
0~1000MHz

Band66-20MHz-16QAM-132572-1RB#0-Range2:1000
~20000MHz



Appendix F: Frequency Stability

Test Result

LTE Band 2 part:

Reference Frequency: LTE Band 2 (10MHz) Middle channel=18900 Frequency=1880.0MHz					
Temperature					
Power supplied (Vdc)	Temperature (°C)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
3.85	-30	-51.77	-0.027537	Within authorized band for Band 2	Pass
	-20	-4.75	-0.002527		
	-10	-19.71	-0.010484		
	0	-5.19	-0.002761		
	10	-21.50	-0.011436		
	20	-40.07	-0.021314		
	30	23.09	0.012282		
	40	3.86	0.002053		
	50	-8.81	-0.004686		
16QAM					
3.85	-30	9.87	0.005250	Within authorized band for Band 2	Pass
	-20	28.75	0.015293		
	-10	45.29	0.024090		
	0	-8.63	-0.004590		
	10	3.36	0.001787		
	20	12.36	0.006574		
	30	-11.47	-0.006101		
	40	4.15	0.002207		
	50	-10.13	-0.005388		
Voltage					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	3.50	15.03	0.007995	Within authorized band for Band 2	Pass
	3.85	16.05	0.008537		
	4.24	-14.79	-0.007867		
16QAM					
25	3.50	38.44	0.020447	Within authorized band for Band 2	Pass
	3.85	-13.06	-0.006947		
	4.24	25.53	0.013580		

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					
3.85	-30	-25.71	-0.014840	Within authorized band for Band 4	Pass
	-20	-6.39	-0.003688		
	-10	-8.04	-0.004641		
	0	17.48	0.010089		
	10	24.29	0.014020		
	20	11.03	0.006367		
	30	17.41	0.010049		
	40	23.79	0.013732		
	50	30.57	0.017645		
16QAM					
3.85	-30	14.75	0.008514	Within authorized band for Band 4	Pass
	-20	11.44	0.006603		
	-10	28.75	0.016595		
	0	11.23	0.006482		
	10	36.46	0.021045		
	20	8.45	0.004877		
	30	17.57	0.010141		
	40	32.22	0.018597		
	50	38.25	0.022078		
Voltage					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	3.50	-9.43	-0.005443	Within authorized band for Band 4	Pass
	3.85	11.49	0.006632		
	4.24	-10.06	-0.005807		
16QAM					
25	3.50	11.20	0.006465	Within authorized band for Band 4	Pass
	3.85	-10.44	-0.006026		
	4.24	38.38	0.022153		

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	-7.40	-0.008846	±2.5	Pass
	-20	-8.94	-0.010687		
	-10	-4.73	-0.005655		
	0	-8.20	-0.009803		
	10	-8.67	-0.010365		
	20	-8.65	-0.010341		
	30	-6.15	-0.007352		
	40	-6.27	-0.007496		
	50	-5.42	-0.006479		
16QAM					
3.85	-30	13.59	0.016246	±2.5	Pass
	-20	35.19	0.042068		
	-10	46.05	0.055051		
	0	3.36	0.004017		
	10	12.63	0.015099		
	20	16.79	0.020072		
	30	-4.49	-0.005368		
	40	4.75	0.005678		
	50	9.57	0.011441		
Voltage					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	3.50	19.87	0.023754	±2.5	Pass
	3.85	32.04	0.038302		
	4.24	-2.96	-0.003539		
16QAM					
25	3.50	12.49	0.014931	±2.5	Pass
	3.85	-5.68	-0.006790		
	4.24	37.75	0.045129		

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	-5.52	-0.002178	Within authorized band for Band 7	Pass
	-20	8.81	0.003475		
	-10	-12.83	-0.005061		
	0	9.56	0.003771		
	10	17.55	0.006923		
	20	-3.92	-0.001546		
	30	9.04	0.003566		
	40	6.15	0.002426		
	50	4.65	0.001834		
16QAM					
3.85	-30	47.79	0.018852	Within authorized band for Band 7	Pass
	-20	24.09	0.009503		
	-10	37.21	0.014679		
	0	23.86	0.009412		
	10	39.51	0.015586		
	20	7.45	0.002939		
	30	18.97	0.007483		
	40	-10.11	-0.003988		
	50	25.84	0.010193		
Voltage					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	3.50	-17.01	-0.006710	Within authorized band for Band 7	Pass
	3.85	18.60	0.007337		
	4.24	-12.60	-0.004970		
16QAM					
25	3.50	9.23	0.003641	Within authorized band for Band 7	Pass
	3.85	11.60	0.004576		
	4.24	23.88	0.009420		

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	-33.70	-0.047633	Within authorized band for Band 12	Pass
	-20	-34.00	-0.048057		
	-10	-36.02	-0.050912		
	0	-43.39	-0.061329		
	10	-44.26	-0.062558		
	20	-49.10	-0.069399		
	30	-48.55	-0.068622		
	40	-3.71	-0.005244		
	50	-4.39	-0.006205		
16QAM					
3.85	-30	2.02	0.002855	Within authorized band for Band 12	Pass
	-20	14.79	0.020905		
	-10	30.01	0.042417		
	0	38.70	0.054700		
	10	44.57	0.062996		
	20	6.01	0.008495		
	30	10.91	0.015420		
	40	9.36	0.013230		
	50	11.16	0.015774		
Voltage					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	3.50	-1.99	-0.002813	Within authorized band for Band 12	Pass
	3.85	33.77	0.047731		
	4.24	-24.72	-0.034940		
16QAM					
25	3.50	23.00	0.032509	Within authorized band for Band 12	Pass
	3.85	-1.93	-0.002728		
	4.24	36.06	0.050968		

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 (°C)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
3.85	-30	11.26	0.015859	Within authorized band for Band 17	Pass
	-20	11.20	0.015775		
	-10	12.27	0.017282		
	0	14.91	0.021000		
	10	20.33	0.028634		
	20	23.98	0.033775		
	30	24.69	0.034775		
	40	28.20	0.039718		
	50	29.31	0.041282		
16QAM					
3.85	-30	10.27	0.014465	Within authorized band for Band 17	Pass
	-20	20.93	0.029479		
	-10	33.29	0.046887		
	0	43.16	0.060789		
	10	2.05	0.002887		
	20	9.41	0.013254		
	30	19.76	0.027831		
	40	28.24	0.039775		
	50	35.81	0.050437		
Voltage					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	3.50	20.94	0.029493	Within authorized band for Band 17	Pass
	3.85	43.95	0.061901		
	4.24	11.64	0.016394		
16QAM					
25	3.50	14.88	0.020958	Within authorized band for Band 17	Pass
	3.85	41.07	0.057845		
	4.24	35.18	0.049549		

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	-32.40	-0.018567	Within authorized band for Band 66	Pass
	-20	-27.87	-0.015971		
	-10	-12.60	-0.007221		
	0	-30.51	-0.017484		
	10	-6.22	-0.003564		
	20	-10.17	-0.005828		
	30	2.33	0.001335		
	40	3.95	0.002264		
	50	3.78	0.002166		
16QAM					
3.85	-30	25.36	0.014533	Within authorized band for Band 66	Pass
	-20	46.55	0.026676		
	-10	19.61	0.011238		
	0	38.29	0.021943		
	10	-2.95	-0.001691		
	20	17.42	0.009983		
	30	1.72	0.000986		
	40	20.64	0.011828		
	50	16.85	0.009656		
Voltage					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	3.50	-37.89	-0.021713	Within authorized band for Band 66	Pass
	3.85	40.35	0.023123		
	4.24	-20.87	-0.011960		
16QAM					
25	3.50	24.75	0.014183	Within authorized band for Band 66	Pass
	3.85	-12.10	-0.006934		
	4.24	22.37	0.012819		

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
Band4	20MHz	QPSK	20175	100RB#0	PASS	PASS
Band4	20MHz	16QAM	20175	100RB#0	PASS	PASS
Band5	10MHz	QPSK	20525	50RB#0	PASS	PASS
Band5	10MHz	16QAM	20525	50RB#0	PASS	PASS
Band7	20MHz	QPSK	21100	100RB#0	PASS	PASS
Band7	20MHz	16QAM	21100	100RB#0	PASS	PASS
Band12	10MHz	QPSK	23095	50RB#0	PASS	PASS
Band12	10MHz	16QAM	23095	50RB#0	PASS	PASS
Band17	10MHz	QPSK	23790	50RB#0	PASS	PASS
Band17	10MHz	16QAM	23790	50RB#0	PASS	PASS
Band66	20MHz	QPSK	132322	100RB#0	PASS	PASS
Band66	20MHz	16QAM	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

