



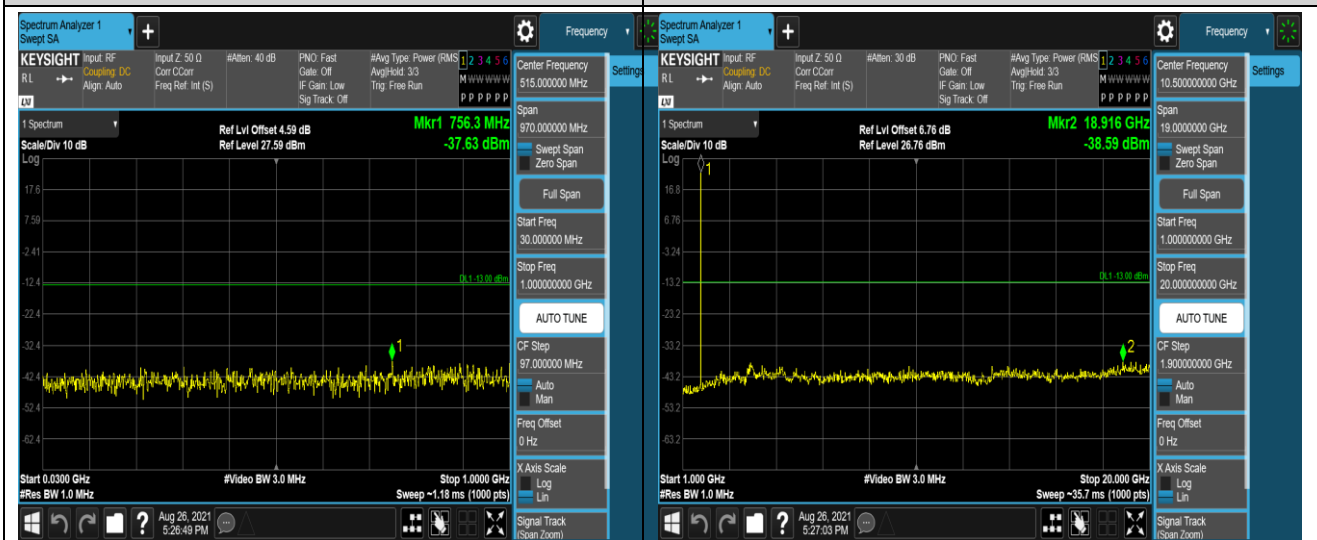
Band66-1.4MHz-QPSK-132665-1RB#0-Range1:30
~1000MHz

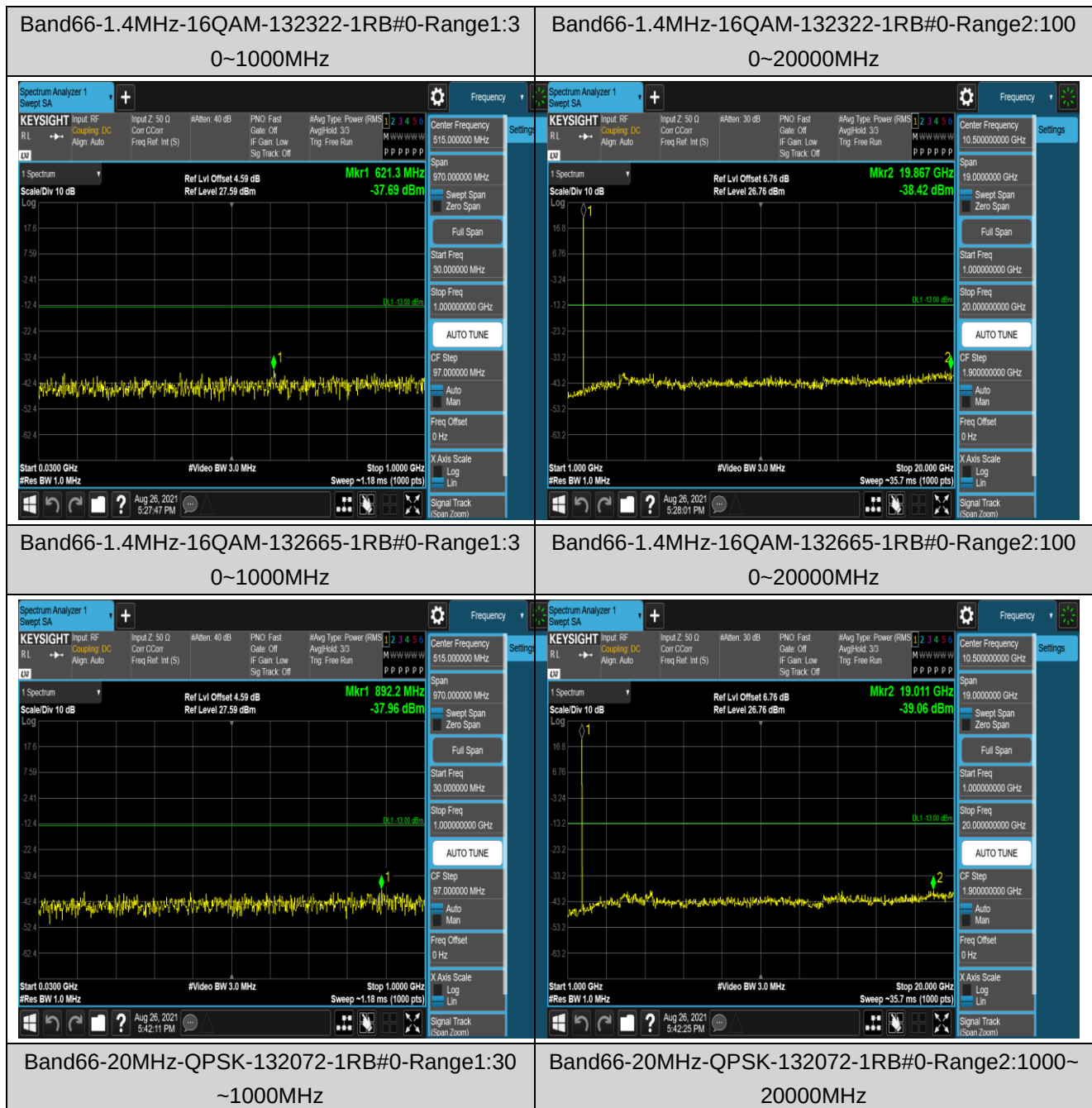
Band66-1.4MHz-QPSK-132665-1RB#0-Range2:1000
~20000MHz

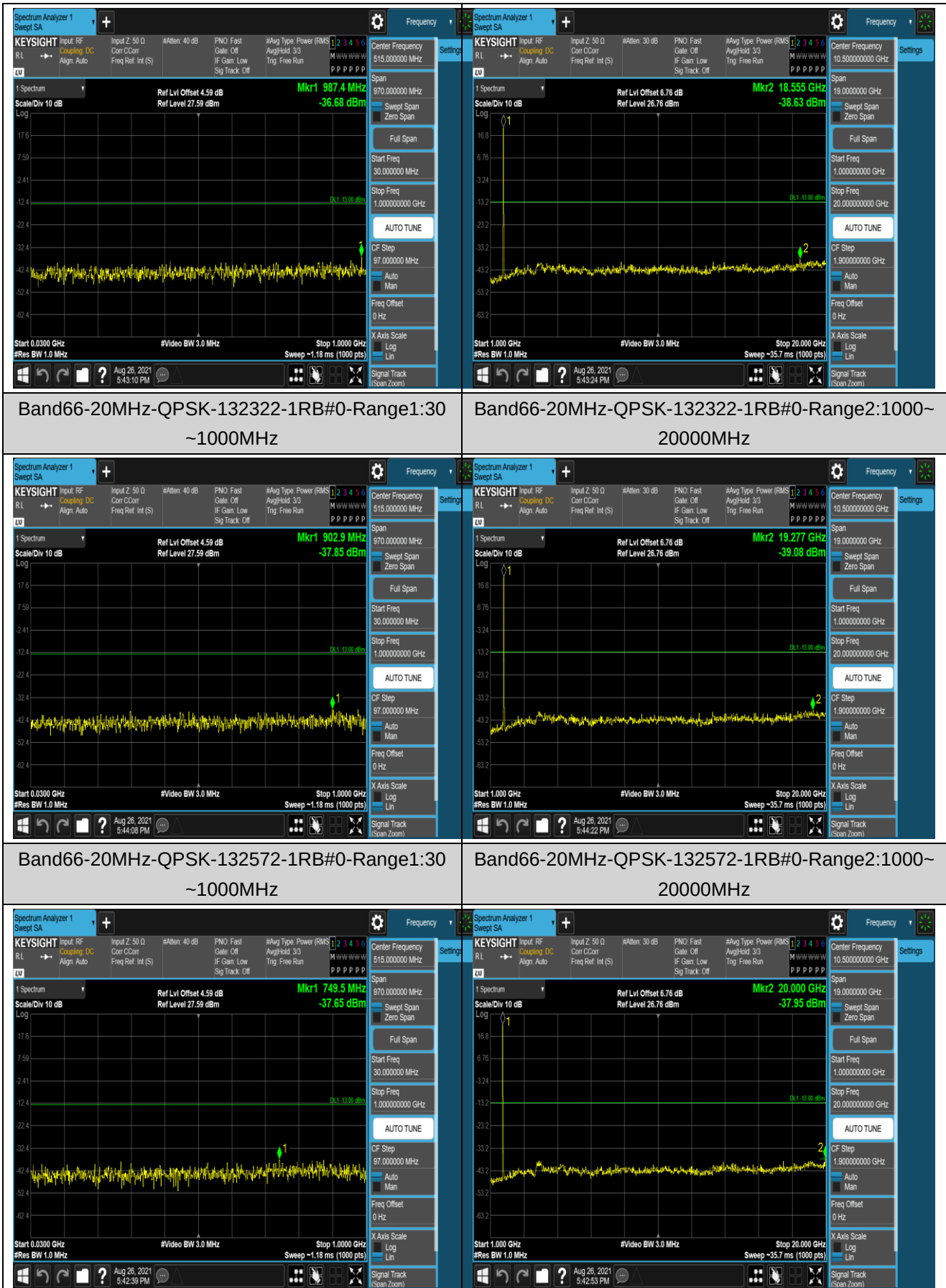


Band66-1.4MHz-16QAM-131979-1RB#0-Range1:3
0~1000MHz

Band66-1.4MHz-16QAM-131979-1RB#0-Range2:100
0~20000MHz





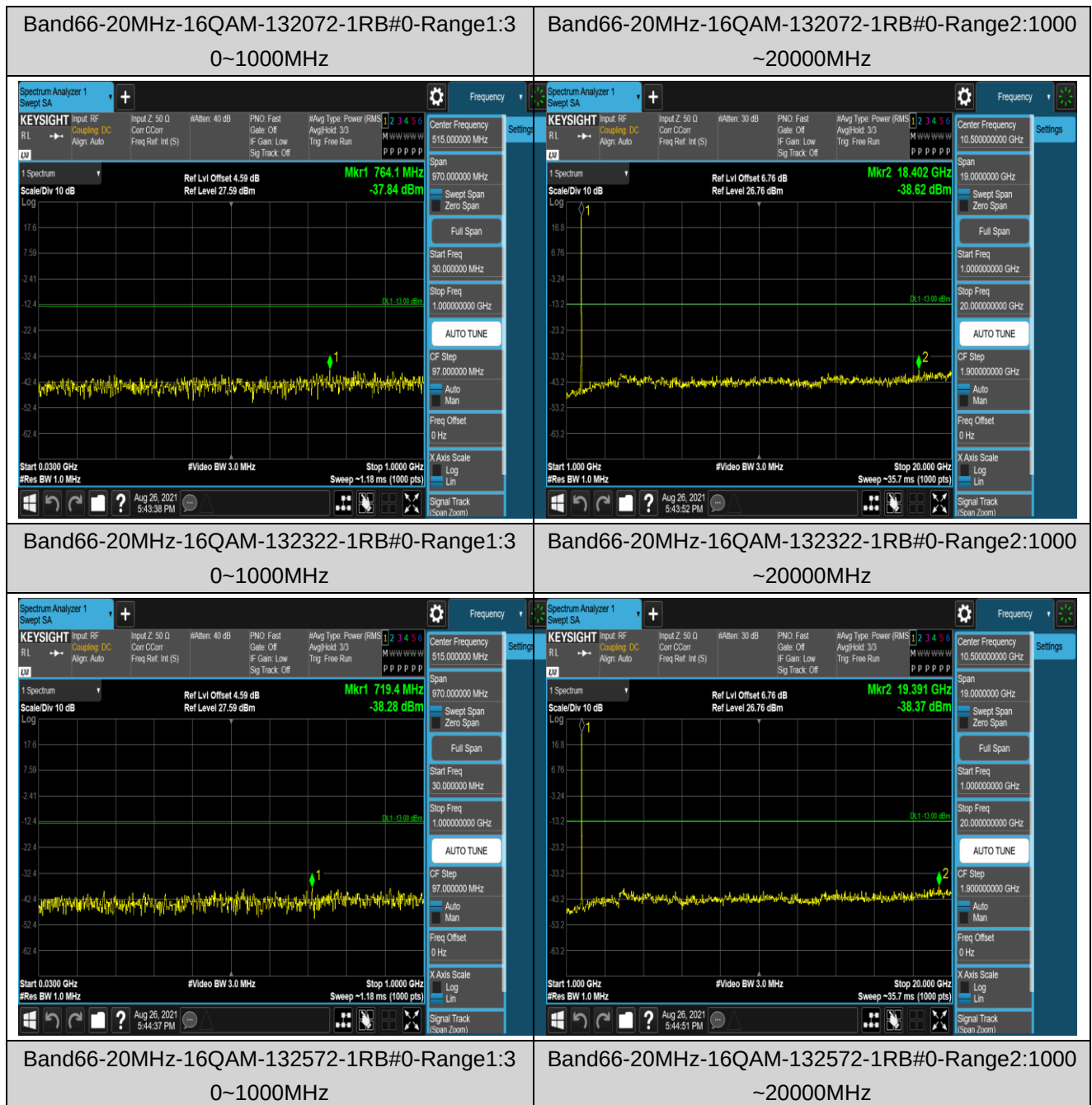


Band66-20MHz-QPSK-132322-1RB#0-Range1:30
~1000MHz

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

Band66-20MHz-QPSK-132572-1RB#0-Range1:30
~1000MHz

Band66-20MHz-QPSK-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					
3.70	-30	-19.23	-0.010229	Within authorized band for Band 2	Pass
	-20	-33.66	-0.017904		
	-10	-50.17	-0.026686		
	0	-23.89	-0.012707		
	10	-32.00	-0.017021		
	20	-38.35	-0.020399		
	30	-6.09	-0.003239		
	40	-28.34	-0.015074		
	50	-51.10	-0.027181		
16QAM					
3.70	-30	23.82	0.012670	Within authorized band for Band 2	Pass
	-20	57.45	0.030559		
	-10	14.13	0.007516		
	0	18.84	0.010021		
	10	17.21	0.009154		
	20	25.48	0.013553		
	30	16.09	0.008559		
	40	23.66	0.012585		
	50	16.22	0.008628		
Voltage					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	3.50	21.73	0.011559	Within authorized band for Band 2	Pass
	3.70	-10.07	-0.005356		
	4.20	7.61	0.004048		
16QAM					
25	3.50	-17.07	-0.009080	Within authorized band for Band 2	Pass
	3.70	-8.47	-0.004505		
	4.20	9.54	0.005074		
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					
3.70	-30	-6.71	-0.003873	Within authorized band for Band 4	Pass
	-20	-33.93	-0.019584		
	-10	-22.42	-0.012941		
	0	-19.76	-0.011405		
	10	-40.71	-0.023498		
	20	15.45	0.008918		
	30	4.76	0.002747		
	40	-9.38	-0.005414		
	50	-4.69	-0.002707		
16QAM					
3.70	-30	4.35	0.002511	Within authorized band for Band 4	Pass
	-20	4.69	0.002707		
	-10	12.02	0.006938		
	0	11.04	0.006372		
	10	6.34	0.003659		
	20	2.90	0.001674		
	30	8.91	0.005143		
	40	12.40	0.007157		
	50	6.67	0.003850		
Voltage					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	3.50	15.12	0.008727	Within authorized band for Band 4	Pass
	3.70	8.28	0.004779		
	4.20	-4.98	-0.002874		
16QAM					
25	3.50	-12.86	-0.007423	Within authorized band for Band 4	Pass
	3.70	-15.74	-0.009085		
	4.20	-10.53	-0.006078		
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					
3.70	-30	9.78	0.011692	±2.5	Pass
	-20	2.60	0.003108		
	-10	-6.38	-0.007627		
	0	-11.44	-0.013676		
	10	-13.89	-0.016605		
	20	-11.92	-0.014250		
	30	17.21	0.020574		
	40	-9.01	-0.010771		
	50	-10.64	-0.012720		
16QAM					
3.70	-30	15.02	0.017956	±2.5	Pass
	-20	23.75	0.028392		
	-10	31.00	0.037059		
	0	41.91	0.050102		
	10	1.66	0.001984		
	20	-20.54	-0.024555		
	30	4.82	0.005762		
	40	6.05	0.007233		
	50	12.92	0.015445		
Voltage					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	3.50	14.81	0.017705	±2.5	Pass
	3.70	-6.01	-0.007185		
	4.20	13.00	0.015541		
16QAM					
25	3.50	-9.78	-0.011692	±2.5	Pass
	3.70	-13.59	-0.016246		
	4.20	7.71	0.009217		
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					
3.70	-30	7.67	0.010841	Within authorized band for Band 12	Pass
	-20	4.98	0.007039		
	-10	2.73	0.003859		
	0	-9.14	-0.012919		
	10	-8.14	-0.011505		
	20	-7.72	-0.010912		
	30	-4.99	-0.007053		
	40	-11.43	-0.016155		
	50	-10.94	-0.015463		
16QAM					
3.70	-30	25.05	0.035406	Within authorized band for Band 12	Pass
	-20	35.65	0.050389		
	-10	43.75	0.061837		
	0	7.78	0.010996		
	10	12.55	0.017739		
	20	18.51	0.026163		
	30	15.45	0.021837		
	40	22.36	0.031604		
	50	22.63	0.031986		
Voltage					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	3.50	8.08	0.011420	Within authorized band for Band 12	Pass
	3.70	-12.67	-0.017908		
	4.20	10.57	0.014940		
16QAM					
25	3.50	9.01	0.012735	Within authorized band for Band 12	Pass
	3.70	3.82	0.005399		
	4.20	12.80	0.018092		
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					
3.70	-30	16.26	0.022901	Within authorized band for Band 17	Pass
	-20	9.91	0.013958		
	-10	9.83	0.013845		
	0	11.70	0.016479		
	10	17.18	0.024197		
	20	17.64	0.024845		
	30	19.43	0.027366		
	40	23.09	0.032521		
	50	22.37	0.031507		
16QAM					
3.70	-30	40.24	0.056676	Within authorized band for Band 17	Pass
	-20	3.68	0.005183		
	-10	11.32	0.015944		
	0	11.54	0.016254		
	10	17.77	0.025028		
	20	22.49	0.031676		
	30	24.28	0.034197		
	40	30.70	0.043239		
	50	34.92	0.049183		
Voltage					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	3.50	10.26	0.014451	Within authorized band for Band 17	Pass
	3.70	-1.42	-0.002000		
	4.20	15.19	0.021394		
16QAM					
25	3.50	25.38	0.035746	Within authorized band for Band 17	Pass
	3.70	23.78	0.033493		
	4.20	35.02	0.049324		
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					
3.70	-30	32.90	0.018854	Within authorized band for Band 66	Pass
	-20	2.98	0.001708		
	-10	20.04	0.011484		
	0	29.83	0.017095		
	10	-3.72	-0.002132		
	20	24.76	0.014189		
	30	20.73	0.011880		
	40	16.14	0.009249		
	50	19.43	0.011135		
16QAM					
3.70	-30	40.10	0.022980	Within authorized band for Band 66	Pass
	-20	17.34	0.009937		
	-10	22.23	0.012739		
	0	37.49	0.021484		
	10	47.49	0.027215		
	20	16.94	0.009708		
	30	36.66	0.021009		
	40	10.69	0.006126		
	50	21.29	0.012201		
Voltage					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	3.50	23.59	0.013519	Within authorized band for Band 66	Pass
	3.70	-8.28	-0.004745		
	4.20	23.23	0.013312		
16QAM					
25	3.50	41.33	0.023685	Within authorized band for Band 66	Pass
	3.70	33.17	0.019009		
	4.20	22.57	0.012934		
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
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

