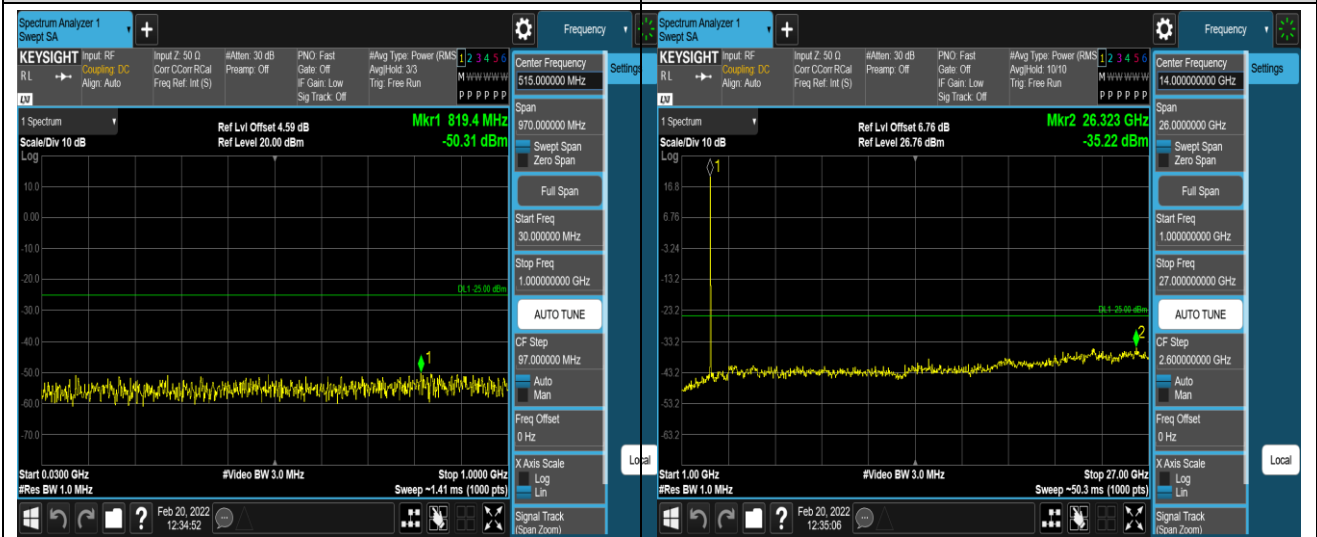


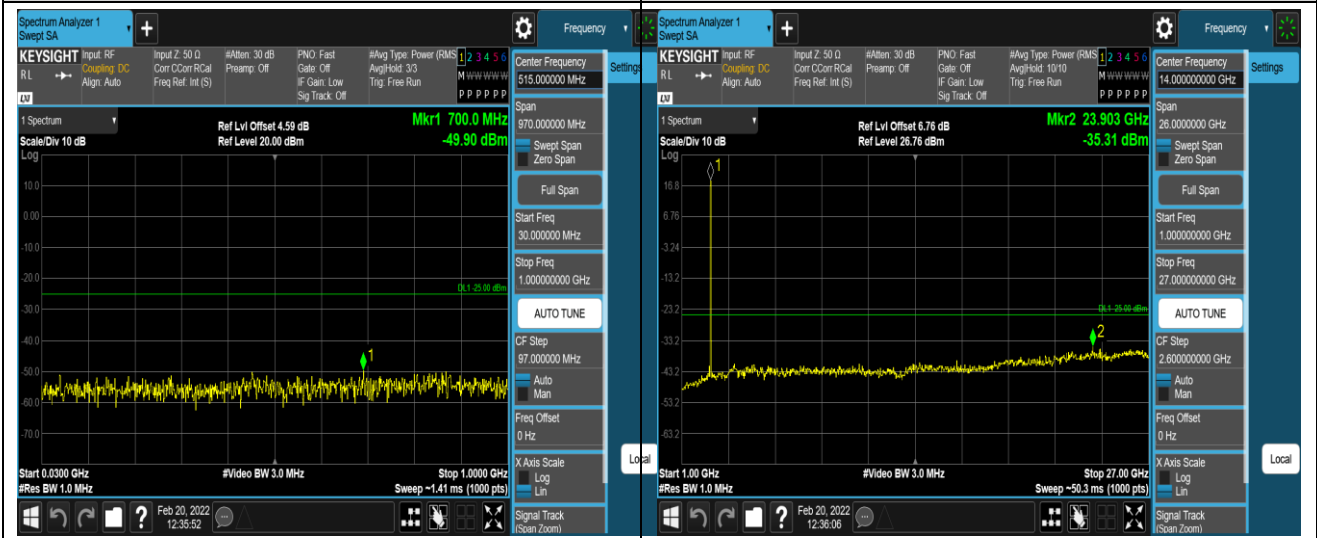
Band38-20MHz-16QAM-38000-1RB#0-Range1:30  
~1000MHz

Band38-20MHz-16QAM-38000-1RB#0-Range2:1000~  
27000MHz



Band38-20MHz-16QAM-38150-1RB#0-Range1:30  
~1000MHz

Band38-20MHz-16QAM-38150-1RB#0-Range2:1000~  
27000MHz



## 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					
3.80	-30	-39.81	-0.021176	Within authorized band for Band 2	Pass
	-20	7.34	0.003904		
	-10	41.30	0.021968		
	0	-8.18	-0.004351		
	10	6.54	0.003479		
	20	9.93	0.005282		
	30	21.83	0.011612		
	40	22.60	0.012021		
	50	14.45	0.007686		
16QAM					
3.80	-30	-50.70	-0.026968	Within authorized band for Band 2	Pass
	-20	10.64	0.005660		
	-10	19.35	0.010293		
	0	32.14	0.017096		
	10	7.30	0.003883		
	20	27.95	0.014867		
	30	10.79	0.005739		
	40	23.06	0.012266		
	50	35.88	0.019085		
Voltage					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	3.50	6.98	0.003713	Within authorized band for Band 2	Pass
	3.80	4.18	0.002223		
	4.37	-34.49	-0.018346		
16QAM					
25	3.50	-19.76	-0.010511	Within authorized band for Band 2	Pass
	3.80	-19.28	-0.010255		
	4.37	22.86	0.012160		

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		
<b>QPSK</b>					
3.80	-30	12.40	0.007157	Within authorized band for Band 4	Pass
	-20	37.35	0.021558		
	-10	18.21	0.010511		
	0	9.21	0.005316		
	10	-32.39	-0.018696		
	20	2.95	0.001703		
	30	-10.87	-0.006274		
	40	13.09	0.007556		
	50	35.81	0.020670		
<b>16QAM</b>					
3.80	-30	10.11	0.005835	Within authorized band for Band 4	Pass
	-20	13.10	0.007561		
	-10	10.51	0.006066		
	0	24.59	0.014193		
	10	-35.00	-0.020202		
	20	24.85	0.014343		
	30	3.68	0.002124		
	40	5.26	0.003036		
	50	15.31	0.008837		
<b>Voltage</b>					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
<b>QPSK</b>					
25	3.50	36.11	0.020843	Within authorized band for Band 4	Pass
	3.80	-19.38	-0.011186		
	4.37	13.36	0.007711		
<b>16QAM</b>					
25	3.50	8.31	0.004797	Within authorized band for Band 4	Pass
	3.80	31.69	0.018291		
	4.37	-9.97	-0.005755		

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					
3.80	-30	-14.61	-0.017466	±2.5	Pass
	-20	-6.85	-0.008189		
	-10	14.72	0.017597		
	0	44.80	0.053556		
	10	46.31	0.055362		
	20	9.78	0.011692		
	30	17.88	0.021375		
	40	29.41	0.035158		
	50	44.67	0.053401		
16QAM					
3.80	-30	20.86	0.024937	±2.5	Pass
	-20	28.00	0.033473		
	-10	10.81	0.012923		
	0	7.60	0.009085		
	10	-3.35	-0.004005		
	20	-14.56	-0.017406		
	30	9.28	0.011094		
	40	16.18	0.019342		
	50	-14.56	-0.017406		
Voltage					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	3.50	10.11	0.005835	±2.5	Pass
	3.80	13.10	0.007561		
	4.37	10.51	0.006066		
16QAM					
25	3.50	-6.51	-0.007782	±2.5	Pass
	3.80	-10.69	-0.012779		
	4.37	13.20	0.015780		

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		
<b>QPSK</b>					
3.80	-30	8.41	0.003318	Within authorized band for Band 7	Pass
	-20	27.58	0.010880		
	-10	36.28	0.014312		
	0	-17.08	-0.006738		
	10	-40.38	-0.015929		
	20	12.15	0.004793		
	30	-19.25	-0.007594		
	40	-14.45	-0.005700		
	50	31.09	0.012264		
<b>16QAM</b>					
3.80	-30	27.35	0.010789	Within authorized band for Band 7	Pass
	-20	-50.83	-0.020051		
	-10	-9.03	-0.003562		
	0	20.04	0.007905		
	10	4.65	0.001834		
	20	36.95	0.014576		
	30	33.04	0.013034		
	40	-38.62	-0.015235		
	50	-34.03	-0.013424		
<b>Voltage</b>					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
<b>QPSK</b>					
25	3.50	24.86	0.009807	Within authorized band for Band 7	Pass
	3.80	27.87	0.010994		
	4.37	10.03	0.003957		
<b>16QAM</b>					
25	3.50	8.68	0.003424	Within authorized band for Band 7	Pass
	3.80	45.43	0.017921		
	4.37	16.48	0.006501		

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

**LTE Band 38 part:**

Reference Frequency: LTE Band 38(10MHz) Middle channel=38000 Frequency=2595.0MHz					
Temperature					
Power supplied (Vdc)	Temperature (°C)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
<b>QPSK</b>					
3.80	-30	3.60	3.60	Within authorized band for Band 38	Pass
	-20	3.80	3.80		
	-10	4.35	4.35		
	0	3.60	3.60		
	10	3.80	3.80		
	20	4.35	4.35		
	30	3.60	3.60		
	40	3.80	3.80		
	50	4.35	4.35		
<b>16QAM</b>					
3.80	-30	19.47	0.007503	Within authorized band for Band 38	Pass
	-20	35.82	0.013803		
	-10	24.19	0.009322		
	0	-10.40	-0.004008		
	10	-12.95	-0.004990		
	20	6.38	0.002459		
	30	18.74	0.007222		
	40	25.22	0.009719		
	50	15.86	0.006112		
<b>Voltage</b>					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
<b>QPSK</b>					
25	3.50	4.94	0.001904	Within authorized band for Band 38	Pass
	3.80	20.70	0.007977		
	4.37	-26.61	-0.010254		
<b>16QAM</b>					
25	3.50	5.02	0.001934	Within authorized band for Band 38	Pass
	3.80	-12.29	-0.004736		
	4.37	-22.62	-0.008717		

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
Band38	20MHz	QPSK	38000	100RB#0	PASS	PASS
Band38	20MHz	16QAM	38000	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

