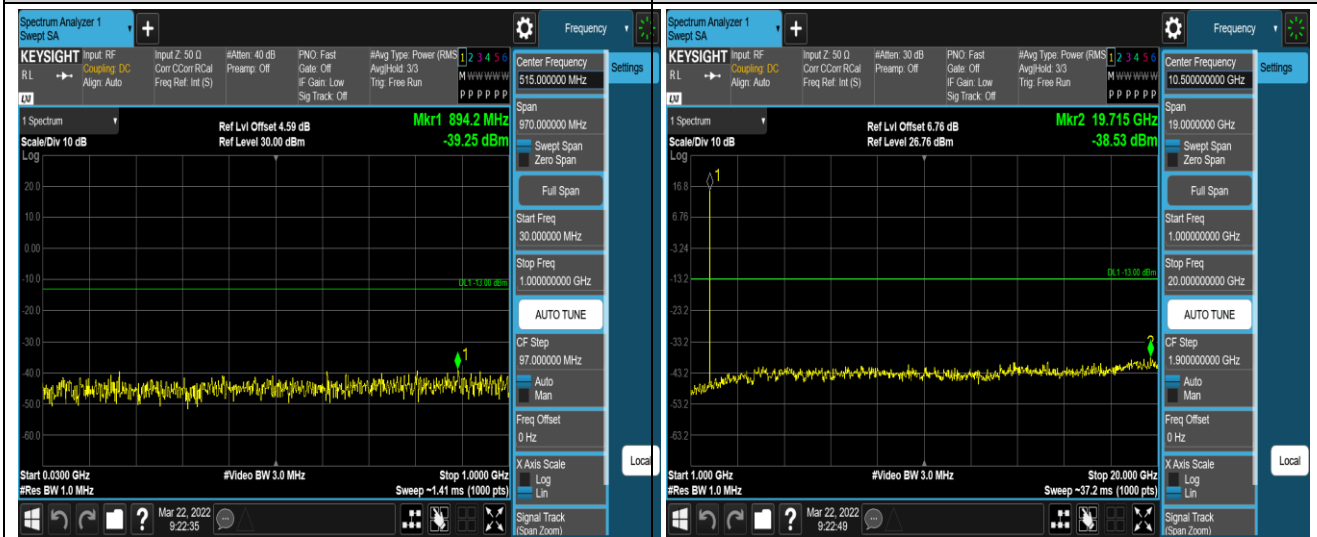




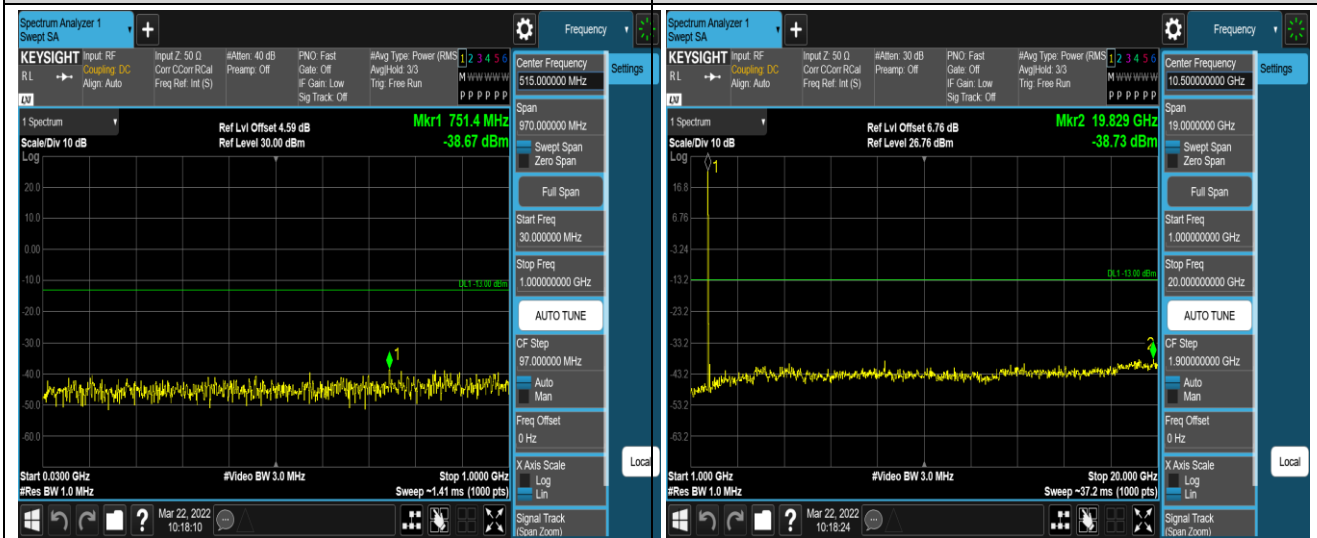
Band66-1.4MHz-16QAM-132665-1RB#0-Range1:3
0~1000MHz

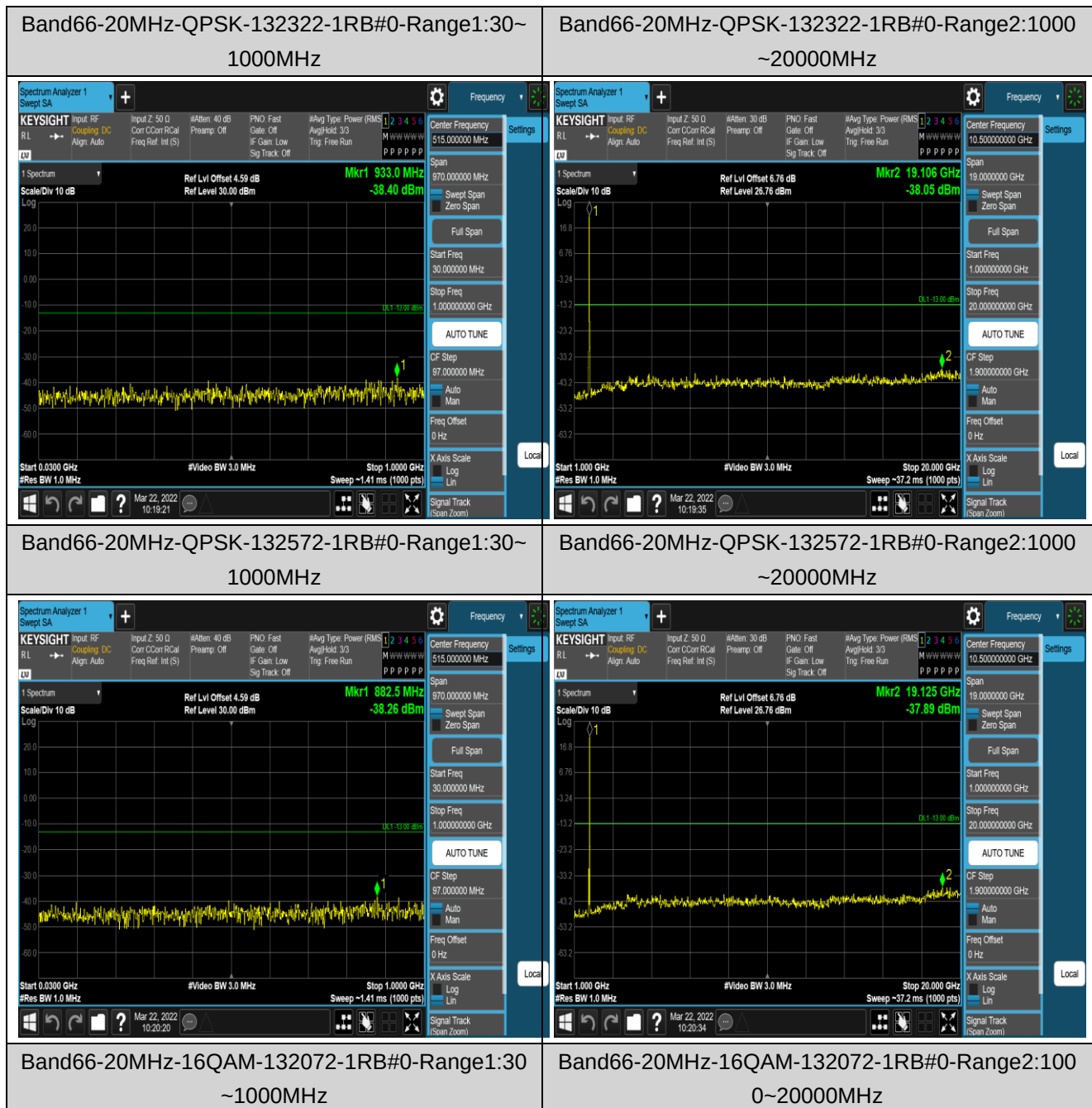
Band66-1.4MHz-16QAM-132665-1RB#0-Range2:100
0~20000MHz



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

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

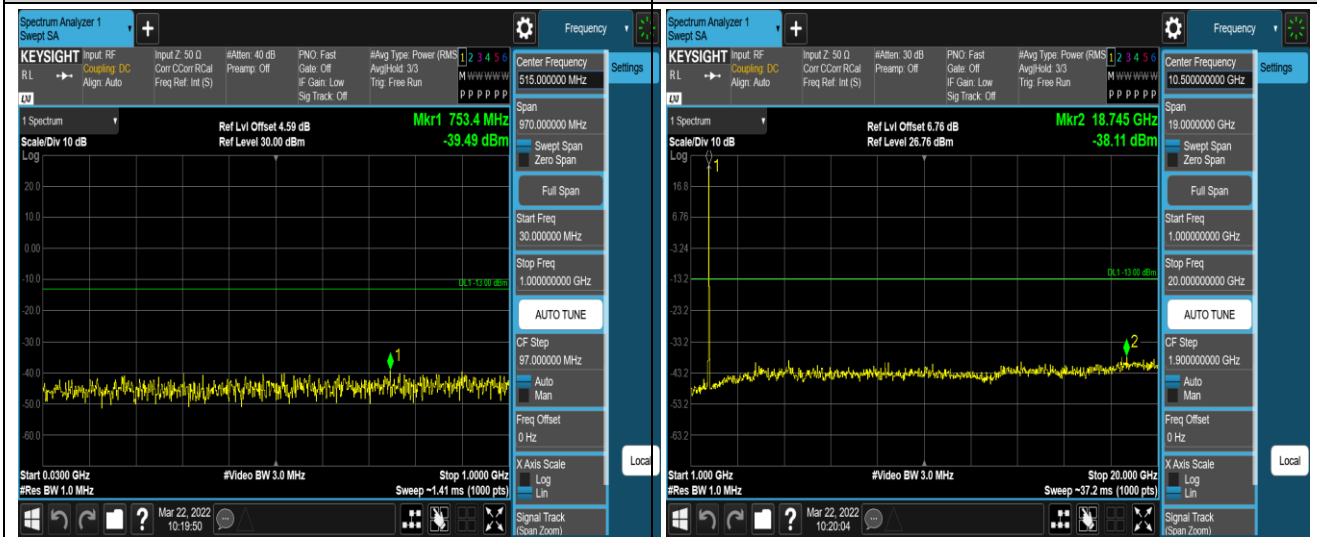






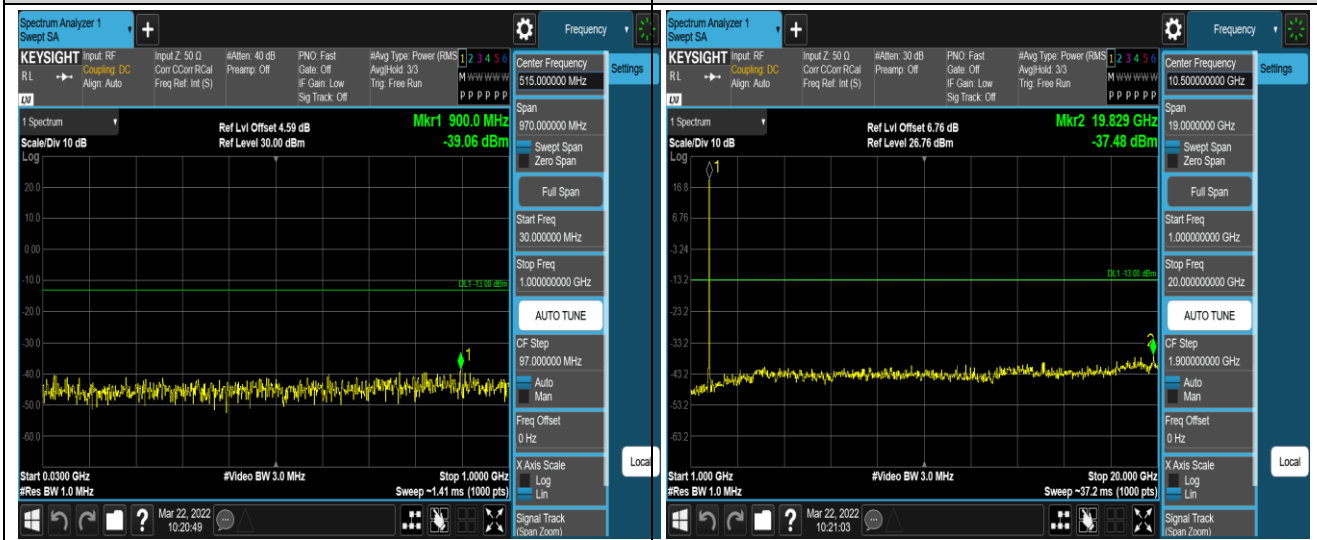
Band66-20MHz-16QAM-132322-1RB#0-Range1:30
~1000MHz

Band66-20MHz-16QAM-132322-1RB#0-Range2:100
0~20000MHz



Band66-20MHz-16QAM-132572-1RB#0-Range1:30
~1000MHz

Band66-20MHz-16QAM-132572-1RB#0-Range2:100
0~20000MHz



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Project No.: JYTSZR2203081

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	-20.16	-0.010723	Within authorized band for Band 2	Pass
	-20	8.03	0.004271		
	-10	-36.58	-0.019457		
	0	-45.69	-0.024303		
	10	-25.95	-0.013803		
	20	-41.08	-0.021851		
	30	4.65	0.002473		
	40	-6.68	-0.003553		
	50	-13.82	-0.007351		
16QAM					
3.85	-30	-39.05	-0.020771	Within authorized band for Band 2	Pass
	-20	-40.63	-0.021612		
	-10	-38.87	-0.020676		
	0	-42.26	-0.022479		
	10	-38.32	-0.020383		
	20	-40.23	-0.021399		
	30	-34.88	-0.018553		
	40	-35.61	-0.018941		
	50	-27.68	-0.014723		
Voltage					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	3.50	-13.52	-0.007191	Within authorized band for Band 2	Pass
	3.85	23.39	0.012441		
	4.40	5.69	0.003027		
16QAM					
25	3.50	-27.68	-0.014723	Within authorized band for Band 2	Pass
	3.85	-17.82	-0.009479		
	4.40	-32.84	-0.017468		

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	-37.41	-0.044722	±2.5	Pass
	-20	-22.09	-0.026408		
	-10	-44.00	-0.052600		
	0	-16.49	-0.019713		
	10	-27.31	-0.032648		
	20	-37.84	-0.045236		
	30	-42.03	-0.050245		
	40	-46.08	-0.055087		
	50	1.97	0.002355		
16QAM					
3.85	-30	7.21	0.008619	±2.5	Pass
	-20	9.67	0.011560		
	-10	9.90	0.011835		
	0	15.75	0.018828		
	10	16.34	0.019534		
	20	18.70	0.022355		
	30	17.60	0.021040		
	40	17.92	0.021423		
	50	19.63	0.023467		
Voltage					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	3.50	-5.99	-0.007161	±2.5	Pass
	3.85	40.90	0.048894		
	4.40	-41.08	-0.049109		
16QAM					
25	3.50	-3.56	-0.004256	±2.5	Pass
	3.85	-5.05	-0.006037		
	4.40	5.28	0.006312		
Remark: All bandwidth and all modulation had been tested, but only the worst case data displayed in this report.					

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	-24.85	-0.009803	Within authorized band for Band 7	Pass
	-20	-50.73	-0.020012		
	-10	-44.76	-0.017657		
	0	-42.87	-0.016911		
	10	-28.21	-0.011128		
	20	-35.92	-0.014170		
	30	-38.94	-0.015361		
	40	-12.55	-0.004951		
	50	-27.08	-0.010682		
16QAM					
3.85	-30	-39.78	-0.015692	Within authorized band for Band 7	Pass
	-20	-36.76	-0.014501		
	-10	-34.32	-0.013538		
	0	-29.60	-0.011677		
	10	-32.27	-0.012730		
	20	-29.60	-0.011677		
	30	-39.55	-0.015602		
	40	-33.86	-0.013357		
	50	-38.60	-0.015227		
Voltage					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	3.50	-52.56	-0.020734	Within authorized band for Band 7	Pass
	3.85	-14.76	-0.005822		
	4.40	-29.24	-0.011535		
16QAM					
25	3.50	-36.76	-0.014501	Within authorized band for Band 7	Pass
	3.85	-27.69	-0.010923		
	4.40	-37.58	-0.014824		
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	-39.20	-0.050128	Within authorized band for Band 13	Pass
	-20	-40.81	-0.052187		
	-10	-40.90	-0.052302		
	0	-40.17	-0.051368		
	10	-42.17	-0.053926		
	20	-42.64	-0.054527		
	30	-42.77	-0.054693		
	40	-44.43	-0.056816		
	50	-42.26	-0.054041		
16QAM					
3.85	-30	-52.08	-0.066598	Within authorized band for Band 13	Pass
	-20	-45.48	-0.058159		
	-10	-12.12	-0.015499		
	0	-11.99	-0.015332		
	10	-50.10	-0.064066		
	20	-25.13	-0.032136		
	30	-44.13	-0.056432		
	40	-8.54	-0.010921		
	50	-22.30	-0.028517		
Voltage					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	3.50	-31.16	-0.039847	Within authorized band for Band 13	Pass
	3.85	-27.92	-0.035703		
	4.40	-37.26	-0.047647		
16QAM					
25	3.50	-36.08	-0.046138	Within authorized band for Band 13	Pass
	3.85	-40.60	-0.051918		
	4.40	-34.05	-0.043542		
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 (℃)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
3.85	-30	-14.72	-0.005672	Within authorized band for Band 38	Pass
	-20	-27.78	-0.010705		
	-10	-25.65	-0.009884		
	0	-28.87	-0.011125		
	10	-27.95	-0.010771		
	20	-20.46	-0.007884		
	30	-24.49	-0.009437		
	40	-16.62	-0.006405		
	50	6.15	0.002370		
16QAM					
3.85	-30	53.01	0.020428	Within authorized band for Band 38	Pass
	-20	43.42	0.016732		
	-10	24.63	0.009491		
	0	7.51	0.002894		
	10	40.94	0.015776		
	20	26.31	0.010139		
	30	-13.16	-0.005071		
	40	31.94	0.012308		
	50	51.34	0.019784		
Voltage					
Temperature (℃)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	3.50	-43.27	-0.016674	Within authorized band for Band 38	Pass
	3.85	8.44	0.003252		
	4.40	-59.61	-0.022971		
16QAM					
25	3.50	-9.88	-0.003807	Within authorized band for Band 38	Pass
	3.85	27.92	0.010759		
	4.40	26.75	0.010308		
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	-17.92	-0.010269	Within authorized band for Band 66	Pass
	-20	-45.33	-0.025977		
	-10	-28.47	-0.016315		
	0	-30.81	-0.017656		
	10	-35.68	-0.020447		
	20	-43.85	-0.025129		
	30	21.07	0.012074		
	40	17.50	0.010029		
	50	20.01	0.011467		
16QAM					
3.85	-30	41.87	0.023994	Within authorized band for Band 66	Pass
	-20	39.04	0.022372		
	-10	45.10	0.025845		
	0	-18.83	-0.010791		
	10	-16.16	-0.009261		
	20	-14.83	-0.008499		
	30	-13.15	-0.007536		
	40	-5.21	-0.002986		
	50	2.83	0.001622		
Voltage					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	3.50	-13.23	-0.007582	Within authorized band for Band 66	Pass
	3.85	37.87	0.021702		
	4.40	-16.12	-0.009238		
16QAM					
25	3.50	27.05	0.015501	Within authorized band for Band 66	Pass
	3.85	17.05	0.009771		
	4.40	33.49	0.019192		
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
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
Band13	10MHz	QPSK	23230	50RB#0	PASS	PASS
Band13	10MHz	16QAM	23230	50RB#0	PASS	PASS
Band38	20MHz	QPSK	38000	100RB#0	PASS	PASS
Band38	20MHz	16QAM	38000	100RB#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

