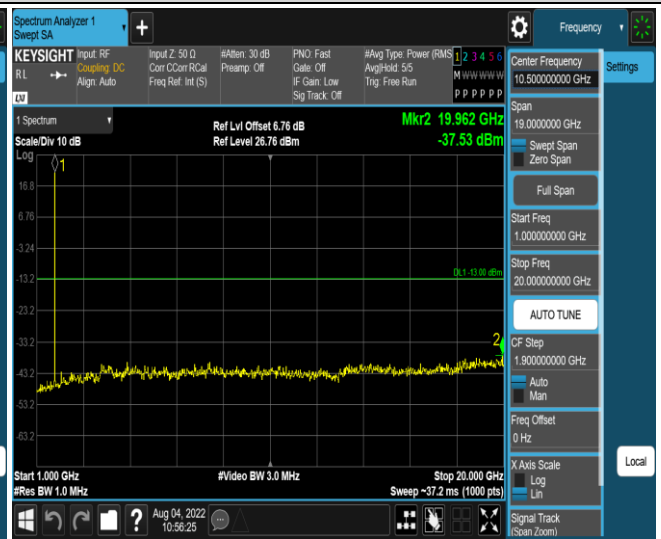
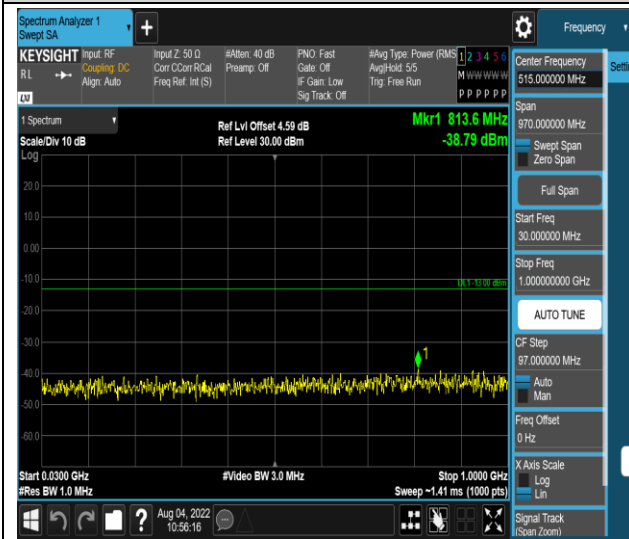


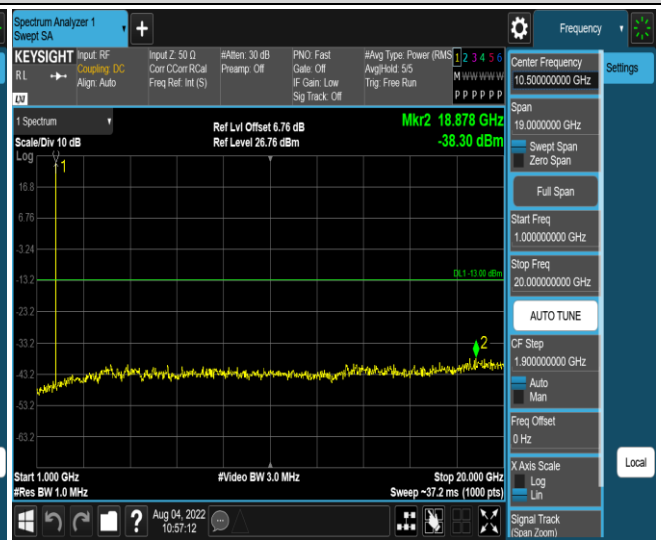
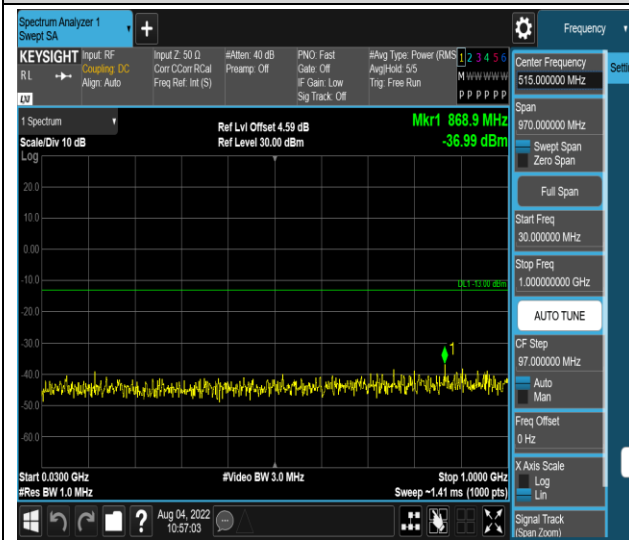
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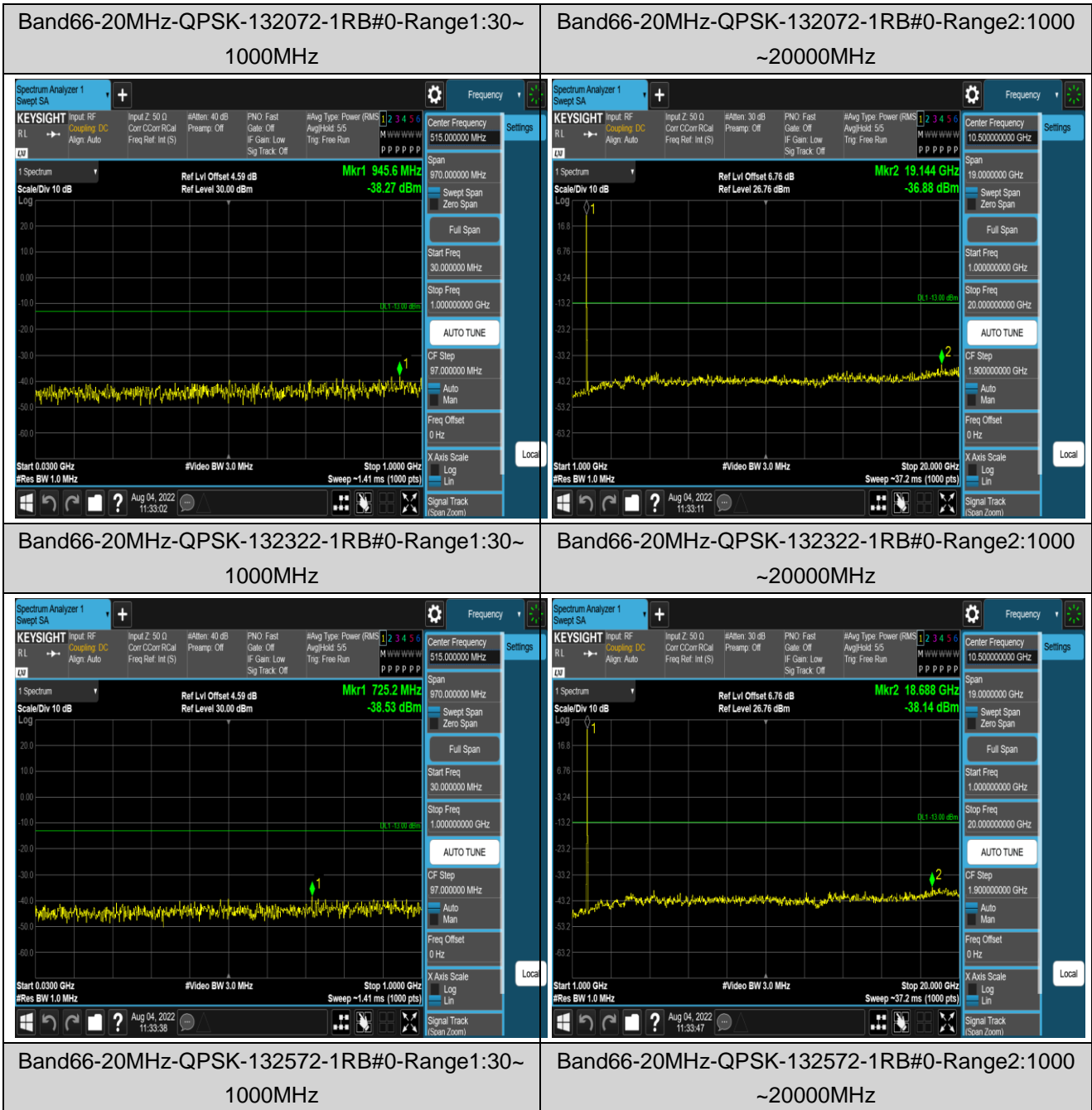
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0~20000MHz



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

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

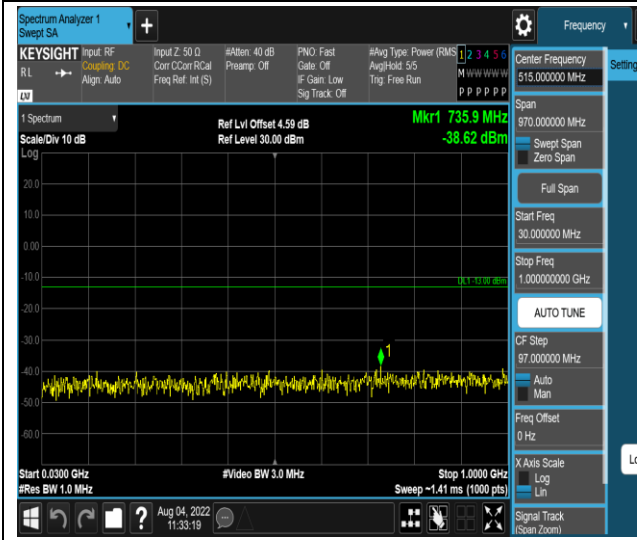






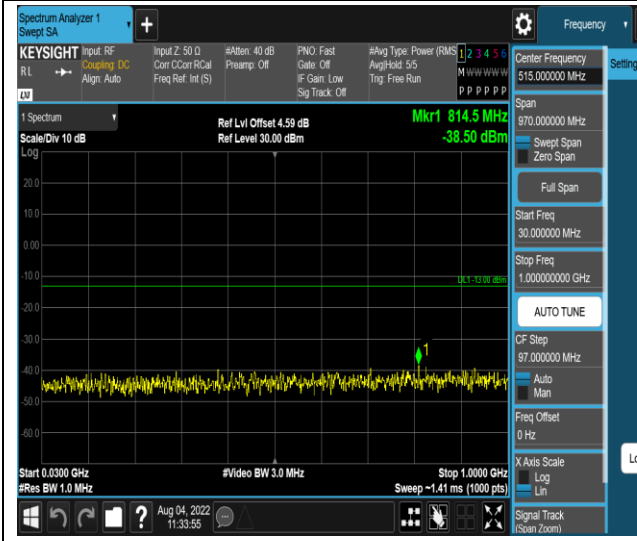
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Band66-20MHz-16QAM-132072-1RB#0-Range2:100
0~20000MHz



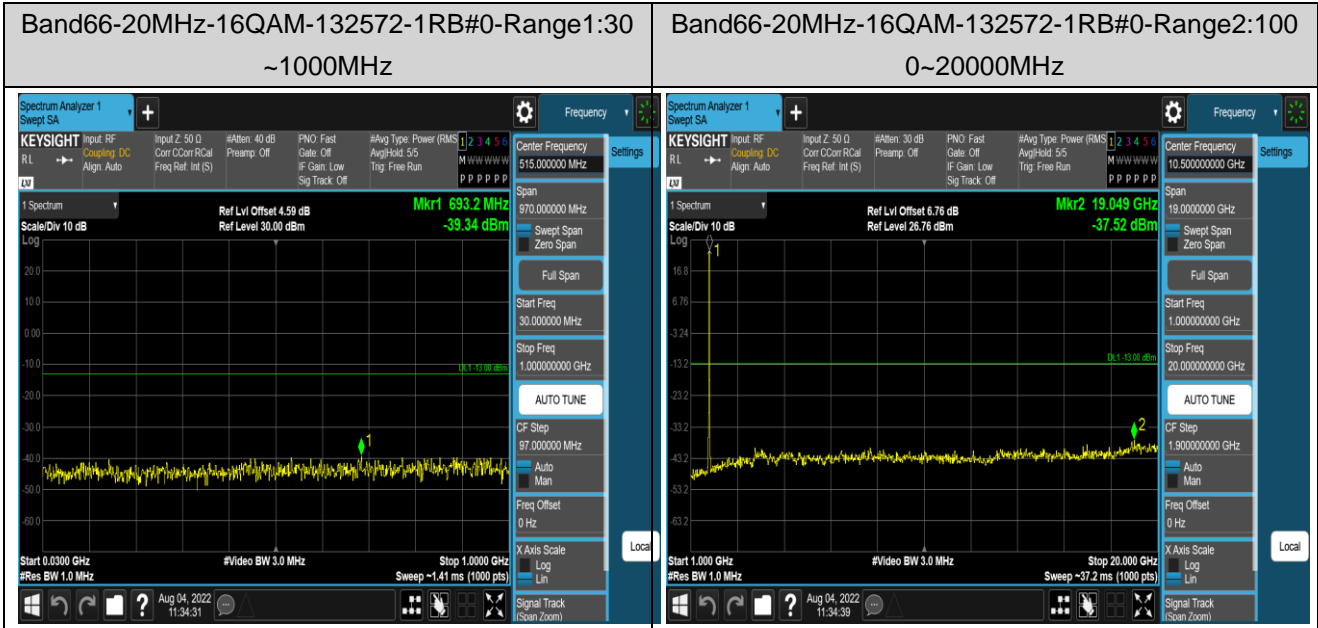
Band66-20MHz-16QAM-132322-1RB#0-Range1:30
~1000MHz

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



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Project No.: JYTSZR2208001



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	-51.20	-0.027234	Within authorized band for Band 2	Pass
	-20	-22.62	-0.012032		
	-10	-42.49	-0.022601		
	0	-53.00	-0.028191		
	10	-28.08	-0.014936		
	20	-35.51	-0.018888		
	30	-41.00	-0.021809		
	40	-42.61	-0.022665		
	50	-43.43	-0.023101		
16QAM					
3.85	-30	21.84	0.011617	Within authorized band for Band 2	Pass
	-20	41.71	0.022186		
	-10	16.84	0.008957		
	0	27.82	0.014798		
	10	35.86	0.019074		
	20	46.16	0.024553		
	30	-16.81	-0.008941		
	40	-6.42	-0.003415		
	50	-6.15	-0.003271		
Voltage					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	3.45	24.59	0.013080	Within authorized band for Band 2	Pass
	3.85	29.48	0.015681		
	4.40	-18.14	-0.009649		
16QAM					
25	3.45	-32.14	-0.017096	Within authorized band for Band 2	Pass
	3.85	-48.29	-0.025686		
	4.40	-6.95	-0.003697		

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	-3.46	-0.004136	±2.5	Pass
	-20	-15.56	-0.018601		
	-10	-22.67	-0.027101		
	0	-30.83	-0.036856		
	10	-36.75	-0.043933		
	20	-37.82	-0.045212		
	30	-42.61	-0.050938		
	40	-45.82	-0.054776		
	50	-11.92	-0.014250		
16QAM					
3.85	-30	4.48	0.005356	±2.5	Pass
	-20	9.21	0.011010		
	-10	14.19	0.016964		
	0	17.18	0.020538		
	10	19.28	0.023048		
	20	20.60	0.024626		
	30	25.02	0.029910		
	40	32.74	0.039139		
	50	36.45	0.043574		
Voltage					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	3.45	35.39	0.042307	±2.5	Pass
	3.85	46.13	0.055146		
	4.40	16.31	0.019498		
16QAM					
25	3.45	-11.76	-0.014059	±2.5	Pass
	3.85	-15.42	-0.018434		
	4.40	-3.16	-0.003778		

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	-56.61	-0.022331	Within authorized band for Band 7	Pass
	-20	-12.36	-0.004876		
	-10	-16.64	-0.006564		
	0	-24.99	-0.009858		
	10	-28.40	-0.011203		
	20	-30.50	-0.012032		
	30	-35.61	-0.014047		
	40	-36.15	-0.014260		
	50	-38.19	-0.015065		
16QAM					
3.85	-30	30.18	0.011905	Within authorized band for Band 7	Pass
	-20	44.89	0.017708		
	-10	52.61	0.020753		
	0	-7.48	-0.002951		
	10	9.87	0.003893		
	20	18.00	0.007101		
	30	18.70	0.007377		
	40	27.75	0.010947		
	50	28.58	0.011274		
Voltage					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	3.45	-30.34	-0.011968	Within authorized band for Band 7	Pass
	3.85	-13.32	-0.005254		
	4.40	-52.40	-0.020671		
16QAM					
25	3.45	-16.22	-0.006398	Within authorized band for Band 7	Pass
	3.85	-33.85	-0.013353		
	4.40	16.92	0.006675		

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	-39.70	-0.050767	Within authorized band for Band 13	Pass
	-20	-44.55	-0.056969		
	-10	-48.05	-0.061445		
	0	-47.65	-0.060934		
	10	-52.50	-0.067136		
	20	4.79	0.006125		
	30	1.63	0.002084		
	40	4.21	0.005384		
	50	-3.08	-0.003939		
16QAM					
3.85	-30	19.76	0.025269	Within authorized band for Band 13	Pass
	-20	25.02	0.031995		
	-10	27.81	0.035563		
	0	32.26	0.041253		
	10	34.45	0.044054		
	20	35.39	0.045256		
	30	38.50	0.049233		
	40	38.42	0.049130		
	50	39.68	0.050742		
Voltage					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	3.45	-30.03	-0.038402	Within authorized band for Band 13	Pass
	3.85	-22.10	-0.028261		
	4.40	-36.55	-0.046739		
16QAM					
25	3.45	5.92	0.007570	Within authorized band for Band 13	Pass
	3.85	-3.38	-0.004322		
	4.40	13.20	0.016880		

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	8.70	0.012297	Within authorized band for Band 12	Pass
	-20	1.67	0.002360		
	-10	-7.57	-0.010700		
	0	-11.69	-0.016523		
	10	-13.86	-0.019590		
	20	-17.48	-0.024707		
	30	-20.60	-0.029117		
	40	-21.84	-0.030869		
	50	-23.96	-0.033866		
16QAM					
3.85	-30	2.39	0.003378	Within authorized band for Band 12	Pass
	-20	11.52	0.016283		
	-10	16.81	0.023760		
	0	20.13	0.028452		
	10	23.26	0.032876		
	20	26.02	0.036777		
	30	28.51	0.040297		
	40	29.93	0.042304		
	50	31.73	0.044848		
Voltage					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	3.45	27.75	0.039223	Within authorized band for Band 12	Pass
	3.85	26.66	0.037682		
	4.40	19.00	0.026855		
16QAM					
25	3.45	-20.04	-0.028325	Within authorized band for Band 12	Pass
	3.85	-25.43	-0.035943		
	4.40	-9.14	-0.012919		

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	15.61	0.021986	Within authorized band for Band 17	Pass
	-20	9.01	0.012690		
	-10	7.05	0.009930		
	0	-1.95	-0.002746		
	10	-3.58	-0.005042		
	20	-5.97	-0.008408		
	30	-6.11	-0.008606		
	40	-8.43	-0.011873		
	50	-9.17	-0.012915		
16QAM					
3.85	-30	11.82	0.016648	Within authorized band for Band 17	Pass
	-20	17.34	0.024423		
	-10	17.45	0.024577		
	0	22.80	0.032113		
	10	22.95	0.032324		
	20	24.79	0.034915		
	30	25.84	0.036394		
	40	27.57	0.038831		
	50	31.47	0.044324		
Voltage					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	3.45	34.25	0.048239	Within authorized band for Band 17	Pass
	3.85	36.39	0.051254		
	4.40	22.75	0.032042		
16QAM					
25	3.45	-3.13	-0.004408	Within authorized band for Band 17	Pass
	3.85	-11.30	-0.015915		
	4.40	8.00	0.011268		

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	8.07	0.003110	Within authorized band for Band 41	Pass
	-20	-5.01	-0.001931		
	-10	18.71	0.007210		
	0	39.01	0.015033		
	10	52.17	0.020104		
	20	18.84	0.007260		
	30	18.00	0.006936		
	40	31.64	0.012193		
	50	39.22	0.015114		
16QAM					
3.85	-30	28.78	0.011091	Within authorized band for Band 41	Pass
	-20	38.31	0.014763		
	-10	47.01	0.018116		
	0	20.07	0.007734		
	10	26.72	0.010297		
	20	23.63	0.009106		
	30	23.59	0.009091		
	40	21.56	0.008308		
	50	16.98	0.006543		
Voltage					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	3.45	13.86	0.005341	Within authorized band for Band 41	Pass
	3.85	54.80	0.021118		
	4.40	11.23	0.004328		
16QAM					
25	3.45	51.37	0.019796	Within authorized band for Band41	Pass
	3.85	31.76	0.012239		
	4.40	15.61	0.006015		

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	-6.82	-0.003908	Within authorized band for Band 66	Pass
	-20	-8.77	-0.005026		
	-10	-9.74	-0.005582		
	0	-10.39	-0.005954		
	10	-11.23	-0.006436		
	20	-9.83	-0.005633		
	30	-8.98	-0.005146		
	40	-9.20	-0.005272		
	50	-12.19	-0.006986		
16QAM					
3.85	-30	-21.84	-0.012516	Within authorized band for Band 66	Pass
	-20	-27.67	-0.015857		
	-10	-29.60	-0.016963		
	0	-32.07	-0.018378		
	10	-31.44	-0.018017		
	20	-32.63	-0.018699		
	30	-34.22	-0.019610		
	40	-33.47	-0.019181		
	50	-35.22	-0.020183		
Voltage					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	3.45	-33.93	-0.019444	Within authorized band for Band 66	Pass
	3.85	7.50	0.004298		
	4.40	4.26	0.002441		
16QAM					
25	3.45	-14.51	-0.008315	Within authorized band for Band 66	Pass
	3.85	-13.92	-0.007977		
	4.40	-15.81	-0.009060		

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

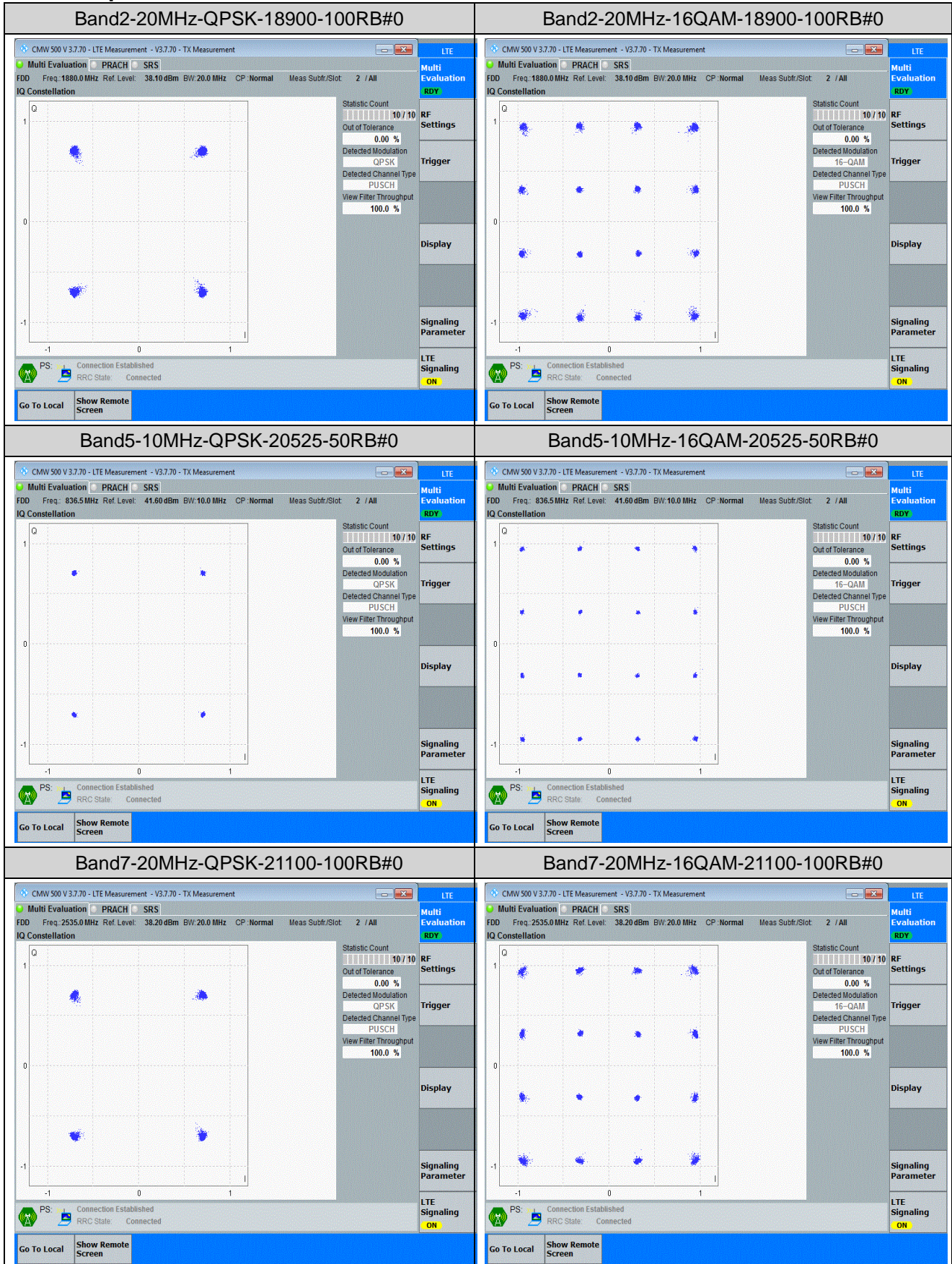
Appendix G: Modulation Characteristics

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
Band12	10MHz	QPSK	23095	50RB#0	PASS	PASS
Band12	10MHz	16QAM	23095	50RB#0	PASS	PASS
Band13	10MHz	QPSK	23230	50RB#0	PASS	PASS
Band13	10MHz	16QAM	23230	50RB#0	PASS	PASS
Band17	10MHz	QPSK	23790	50RB#0	PASS	PASS
Band17	10MHz	16QAM	23790	50RB#0	PASS	PASS
Band41	20MHz	QPSK	40640	100RB#0	PASS	PASS
Band41	20MHz	16QAM	40640	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



<p align="center">Band12-10MHz-QPSK-23095-50RB#0</p>	<p align="center">Band12-10MHz-16QAM-23095-50RB#0</p>
<p align="center">Band13-10MHz-QPSK-23230-50RB#0</p>	<p align="center">Band13-10MHz-16QAM-23230-50RB#0</p>
<p align="center">Band17-10MHz-QPSK-23790-50RB#0</p>	<p align="center">Band17-10MHz-16QAM-23790-50RB#0</p>
<p align="center">Band41-20MHz-QPSK-40640-100RB#0</p>	<p align="center">Band41-20MHz-16QAM-40640-100RB#0</p>

