



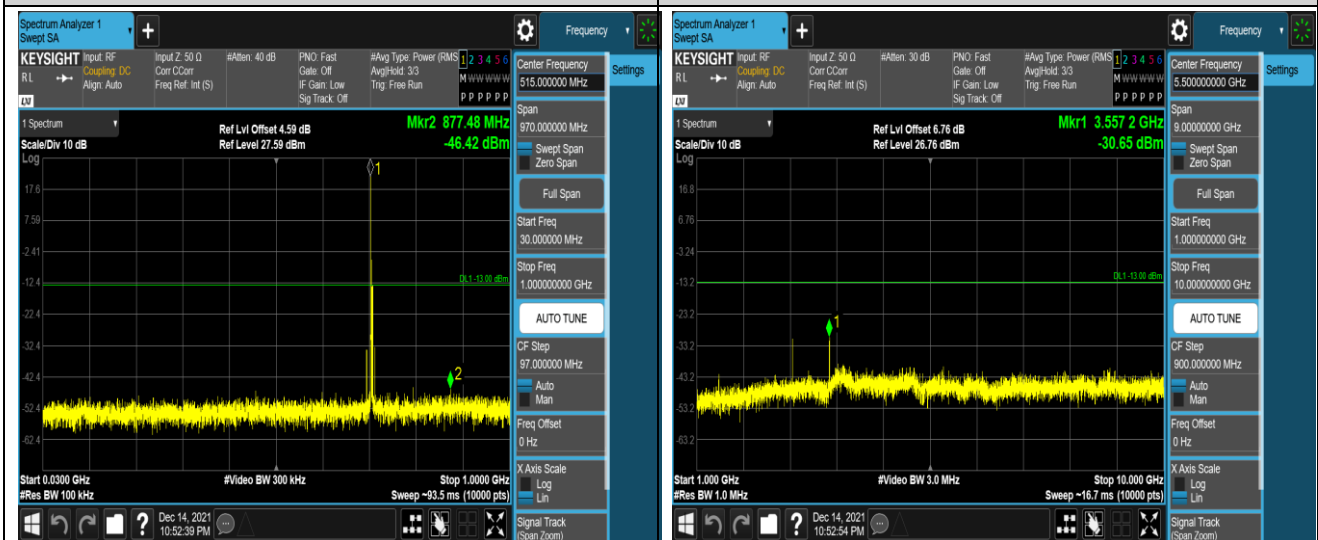
Band17-5MHz-QPSK-23755-1RB#0-Range1:30~10
00MHz

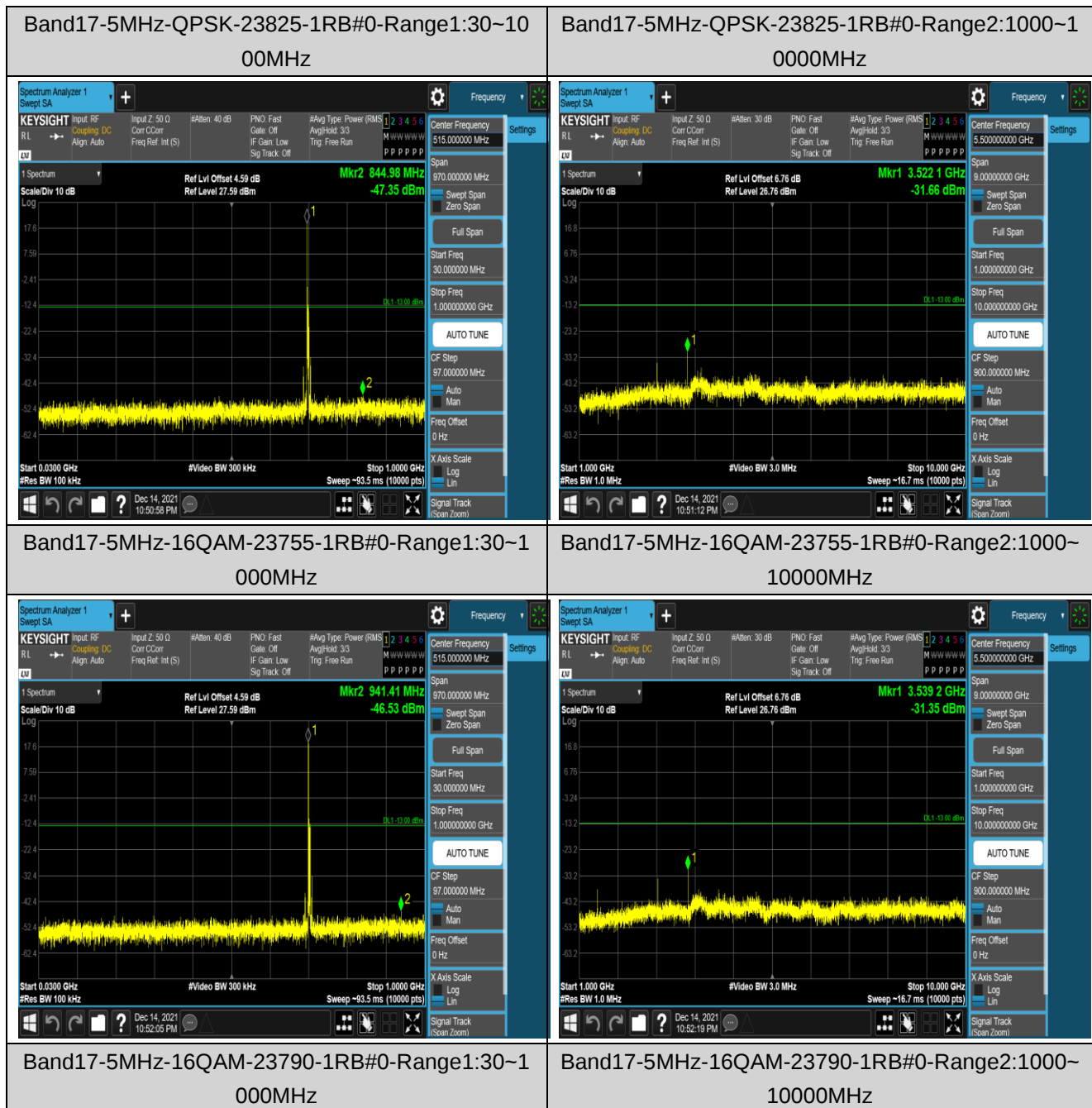
Band17-5MHz-QPSK-23755-1RB#0-Range2:1000~1
0000MHz

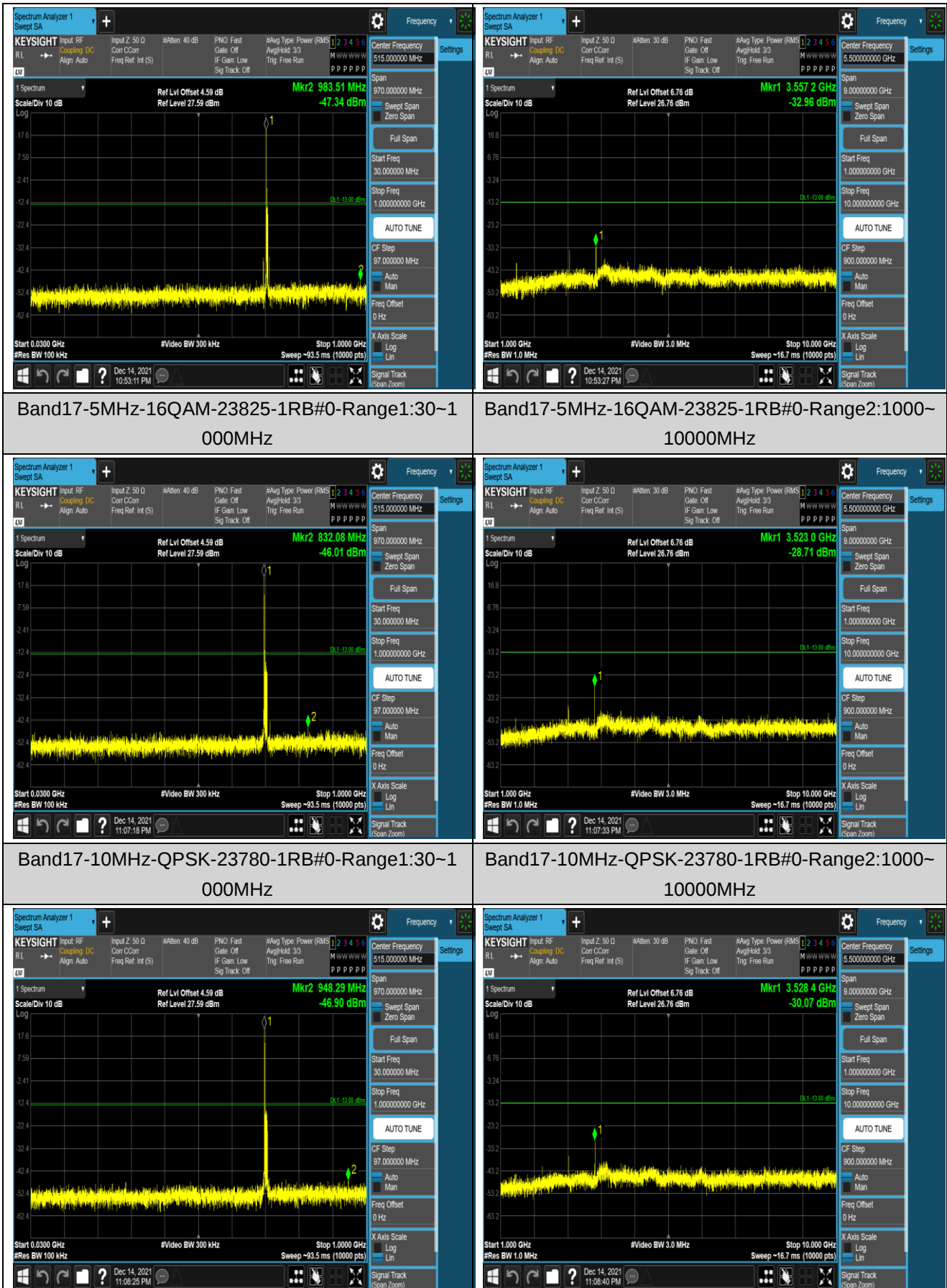


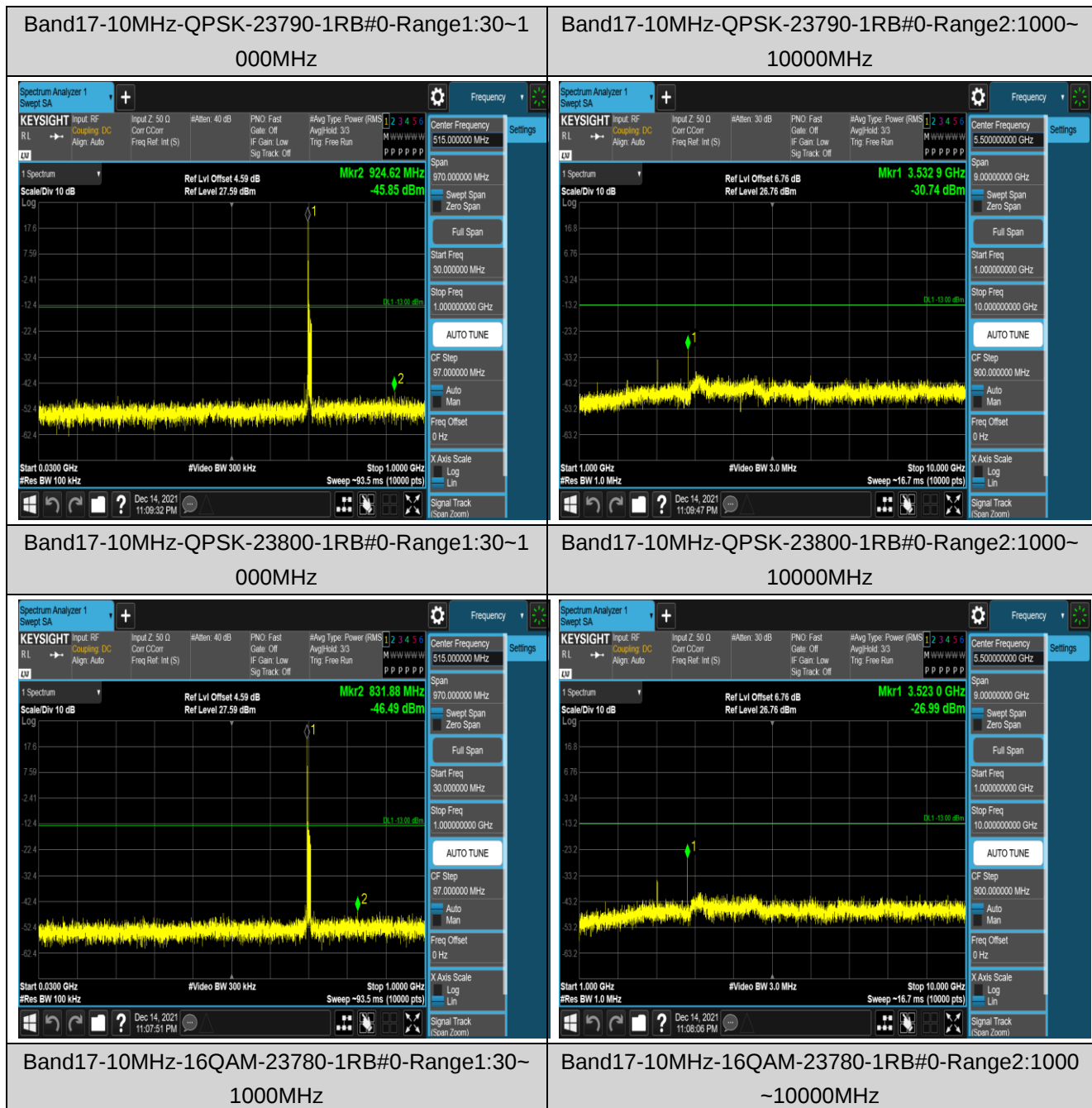
Band17-5MHz-QPSK-23790-1RB#0-Range1:30~10
00MHz

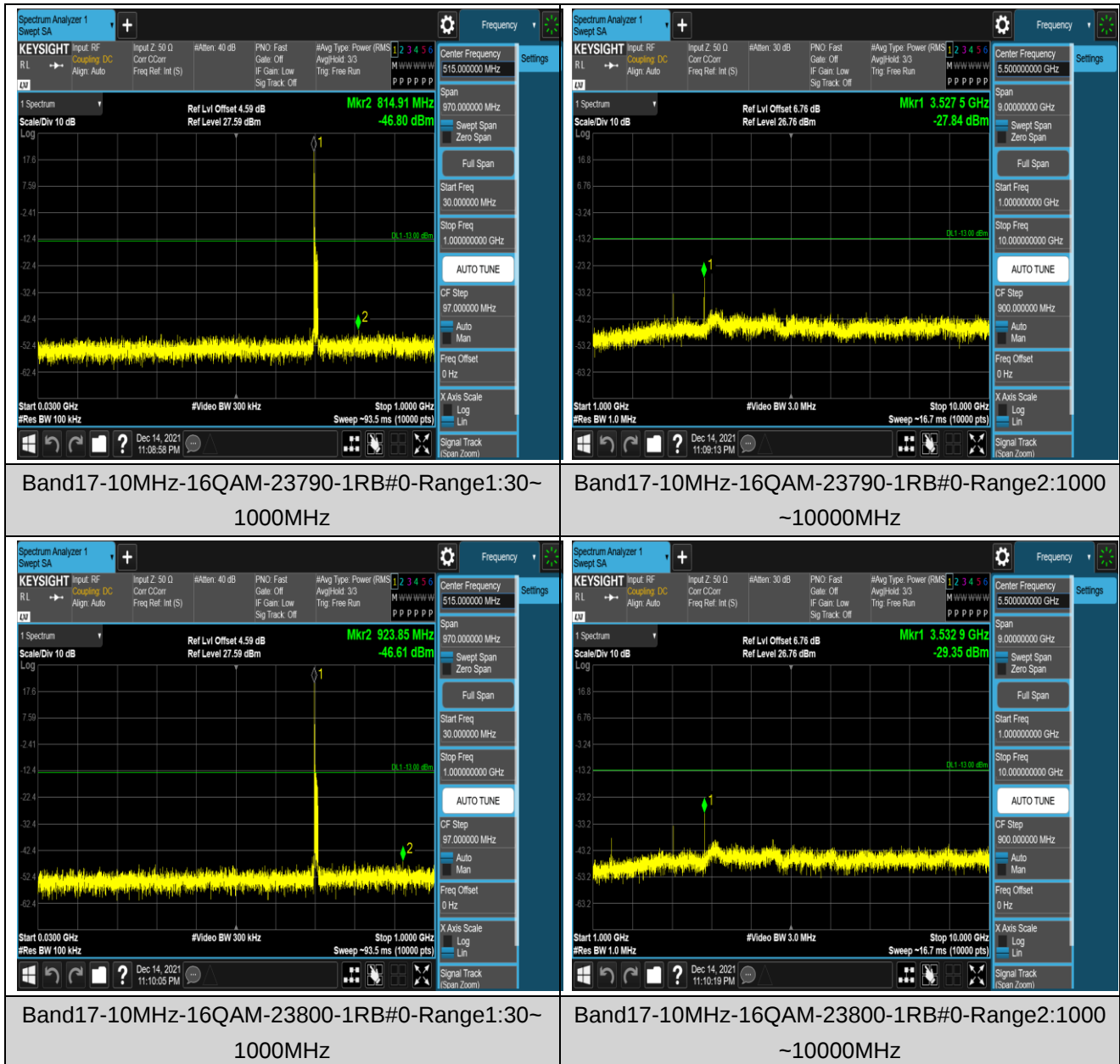
Band17-5MHz-QPSK-23790-1RB#0-Range2:1000~1
0000MHz











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	18.67	0.009931	Within authorized band for Band 2	Pass
	-20	-10.39	-0.005527		
	-10	-19.76	-0.010511		
	0	-43.33	-0.023048		
	10	-25.45	-0.013537		
	20	-30.46	-0.016202		
	30	-28.92	-0.015383		
	40	-3.68	-0.001957		
	50	-13.07	-0.006952		
16QAM					
3.85	-30	24.65	0.013112	Within authorized band for Band 2	Pass
	-20	-53.00	-0.028191		
	-10	-44.45	-0.023644		
	0	-6.19	-0.003293		
	10	7.52	0.004000		
	20	-36.84	-0.019596		
	30	-35.68	-0.018979		
	40	-54.43	-0.028952		
	50	-7.15	-0.003803		
Voltage					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	3.50	39.14	0.020819	Within authorized band for Band 2	Pass
	3.85	-10.14	-0.005394		
	4.40	-12.45	-0.006622		
16QAM					
25	3.50	46.09	0.024516	Within authorized band for Band 2	Pass
	3.85	17.35	0.009229		
	4.40	21.97	0.011686		
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	16.16	0.009328	Within authorized band for Band 4	Pass
	-20	24.99	0.014424		
	-10	27.81	0.016052		
	0	36.89	0.021293		
	10	17.85	0.010303		
	20	22.53	0.013004		
	30	31.17	0.017991		
	40	41.08	0.023711		
	50	8.44	0.004872		
16QAM					
3.85	-30	12.55	0.007244	Within authorized band for Band 4	Pass
	-20	29.53	0.017045		
	-10	-11.82	-0.006823		
	0	4.98	0.002874		
	10	12.19	0.007036		
	20	25.13	0.014505		
	30	29.64	0.017108		
	40	-6.68	-0.003856		
	50	8.24	0.004756		
Voltage					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	3.50	13.78	0.007954	Within authorized band for Band 4	Pass
	3.85	23.19	0.013385		
	4.40	24.55	0.014170		
16QAM					
25	3.50	25.13	0.014505	Within authorized band for Band 4	Pass
	3.85	15.16	0.008750		
	4.40	45.83	0.026453		
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	13.65	0.016318	±2.5	Pass
	-20	11.34	0.013556		
	-10	10.91	0.013042		
	0	8.81	0.010532		
	10	9.26	0.011070		
	20	6.57	0.007854		
	30	8.78	0.010496		
	40	6.11	0.007304		
	50	8.83	0.010556		
16QAM					
3.85	-30	38.01	0.045439	±2.5	Pass
	-20	33.55	0.040108		
	-10	42.99	0.051393		
	0	-3.48	-0.004160		
	10	7.75	0.009265		
	20	8.28	0.009898		
	30	14.18	0.016952		
	40	16.24	0.019414		
	50	21.01	0.025117		
Voltage					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	3.50	15.52	0.018553	±2.5	Pass
	3.85	18.20	0.021757		
	4.40	13.88	0.016593		
16QAM					
25	3.50	17.22	0.020586	±2.5	Pass
	3.85	6.62	0.007914		
	4.40	29.08	0.034764		
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	-19.34	-0.007629	Within authorized band for Band 7	Pass
	-20	7.82	0.003085		
	-10	-46.96	-0.018525		
	0	-22.66	-0.008939		
	10	-30.56	-0.012055		
	20	-23.56	-0.009294		
	30	-23.76	-0.009373		
	40	8.94	0.003527		
	50	-25.75	-0.010158		
16QAM					
3.85	-30	-6.27	-0.002473	Within authorized band for Band 7	Pass
	-20	-6.34	-0.002501		
	-10	-13.42	-0.005294		
	0	-20.67	-0.008154		
	10	-29.47	-0.011625		
	20	-38.15	-0.015049		
	30	-47.76	-0.018840		
	40	-57.95	-0.022860		
	50	-31.43	-0.012398		
Voltage					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	3.50	-46.01	-0.018150	Within authorized band for Band 7	Pass
	3.85	16.49	0.006505		
	4.40	-24.18	-0.009538		
16QAM					
25	3.50	-13.23	-0.005219	Within authorized band for Band 7	Pass
	3.85	-18.20	-0.007179		
	4.40	-10.94	-0.004316		
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	6.71	0.009484	Within authorized band for Band 12	Pass
	-20	2.63	0.003717		
	-10	-2.42	-0.003420		
	0	-3.10	-0.004382		
	10	-5.45	-0.007703		
	20	-7.11	-0.010049		
	30	-7.88	-0.011138		
	40	-8.77	-0.012396		
	50	-11.01	-0.015562		
16QAM					
3.85	-30	12.63	0.017852	Within authorized band for Band 12	Pass
	-20	19.84	0.028042		
	-10	25.29	0.035746		
	0	27.62	0.039039		
	10	33.03	0.046686		
	20	36.01	0.050898		
	30	41.38	0.058488		
	40	43.64	0.061682		
	50	46.51	0.065739		
Voltage					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	3.50	18.42	0.026035	Within authorized band for Band 12	Pass
	3.85	25.31	0.035774		
	4.40	12.63	0.017852		
16QAM					
25	3.50	-7.75	-0.010954	Within authorized band for Band 12	Pass
	3.85	-12.42	-0.017555		
	4.40	4.48	0.006332		
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=782MHz					
Temperature					
Power supplied (Vdc)	Temperature (°C)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
3.85	-30	30.41	0.038887	Within authorized band for Band 13	Pass
	-20	42.67	0.054565		
	-10	52.67	0.067353		
	0	7.31	0.009348		
	10	13.48	0.017238		
	20	20.77	0.026560		
	30	24.83	0.031752		
	40	29.58	0.037826		
	50	31.86	0.040742		
16QAM					
3.85	-30	27.21	0.034795	Within authorized band for Band 13	Pass
	-20	38.65	0.049425		
	-10	48.37	0.061854		
	0	6.21	0.007941		
	10	13.93	0.017813		
	20	20.27	0.025921		
	30	27.87	0.035639		
	40	33.07	0.042289		
	50	38.24	0.048900		
Voltage					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	3.50	-4.46	-0.005703	Within authorized band for Band 13	Pass
	3.85	-22.29	-0.028504		
	4.40	19.25	0.024616		
16QAM					
25	3.50	52.33	0.066918	Within authorized band for Band 13	Pass
	3.85	36.89	0.047174		
	4.40	13.82	0.017673		
Remark: All bandwidth and all modulation had been tested, but only the worst case data displayed in this report.					

LTE Band 17part:

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	-24.06	-0.033887	Within authorized band for Band 17	Pass
	-20	5.75	0.008099		
	-10	35.32	0.049746		
	0	-5.95	-0.008380		
	10	1.59	0.002239		
	20	-4.02	-0.005662		
	30	-22.13	-0.031169		
	40	-37.02	-0.052141		
	50	-2.37	-0.003338		
16QAM					
3.85	-30	-9.54	-0.013437	Within authorized band for Band 17	Pass
	-20	-23.69	-0.033366		
	-10	-39.98	-0.056310		
	0	-11.42	-0.016085		
	10	-29.88	-0.042085		
	20	-49.00	-0.069014		
	30	-10.93	-0.015394		
	40	-27.81	-0.039169		
	50	-45.40	-0.063944		
Voltage					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	3.50	-22.27	-0.031366	Within authorized band for Band 17	Pass
	3.85	-44.33	-0.062437		
	4.40	-28.50	-0.040141		
16QAM					
25	3.50	-33.47	-0.047141	Within authorized band for Band 17	Pass
	3.85	-21.06	-0.029662		
	4.40	-45.70	-0.064366		
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
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

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

Test Graphs

