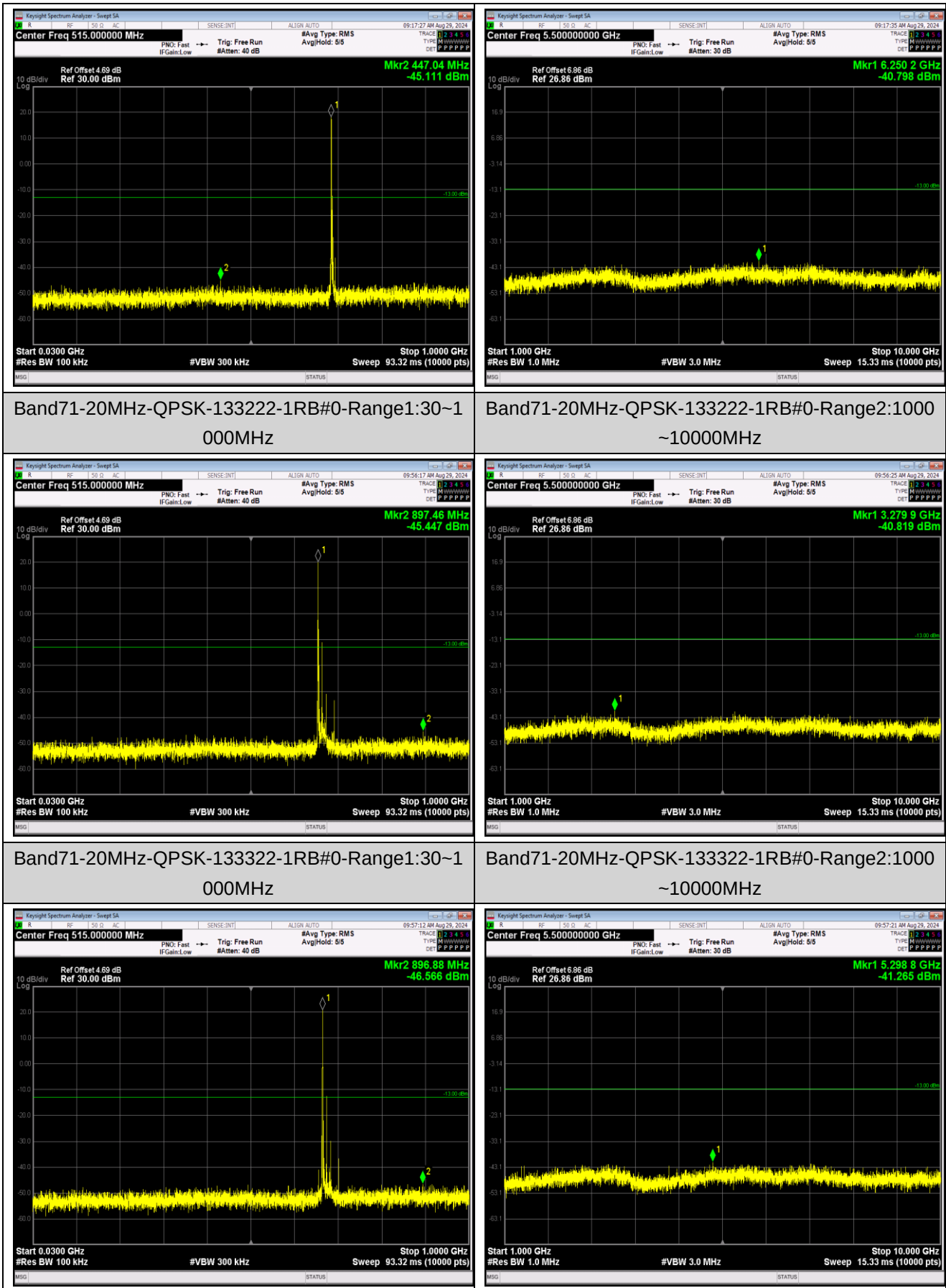
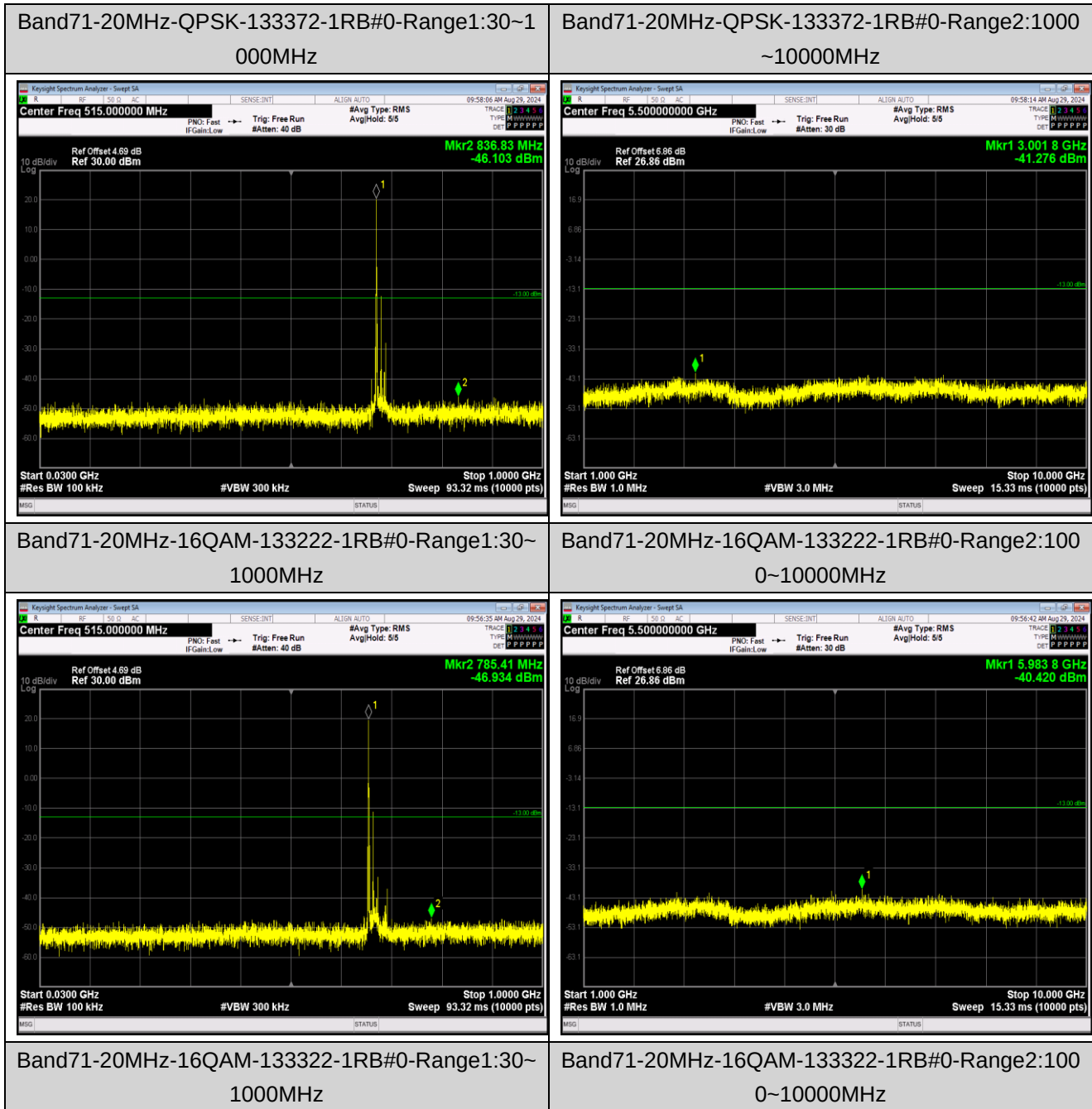
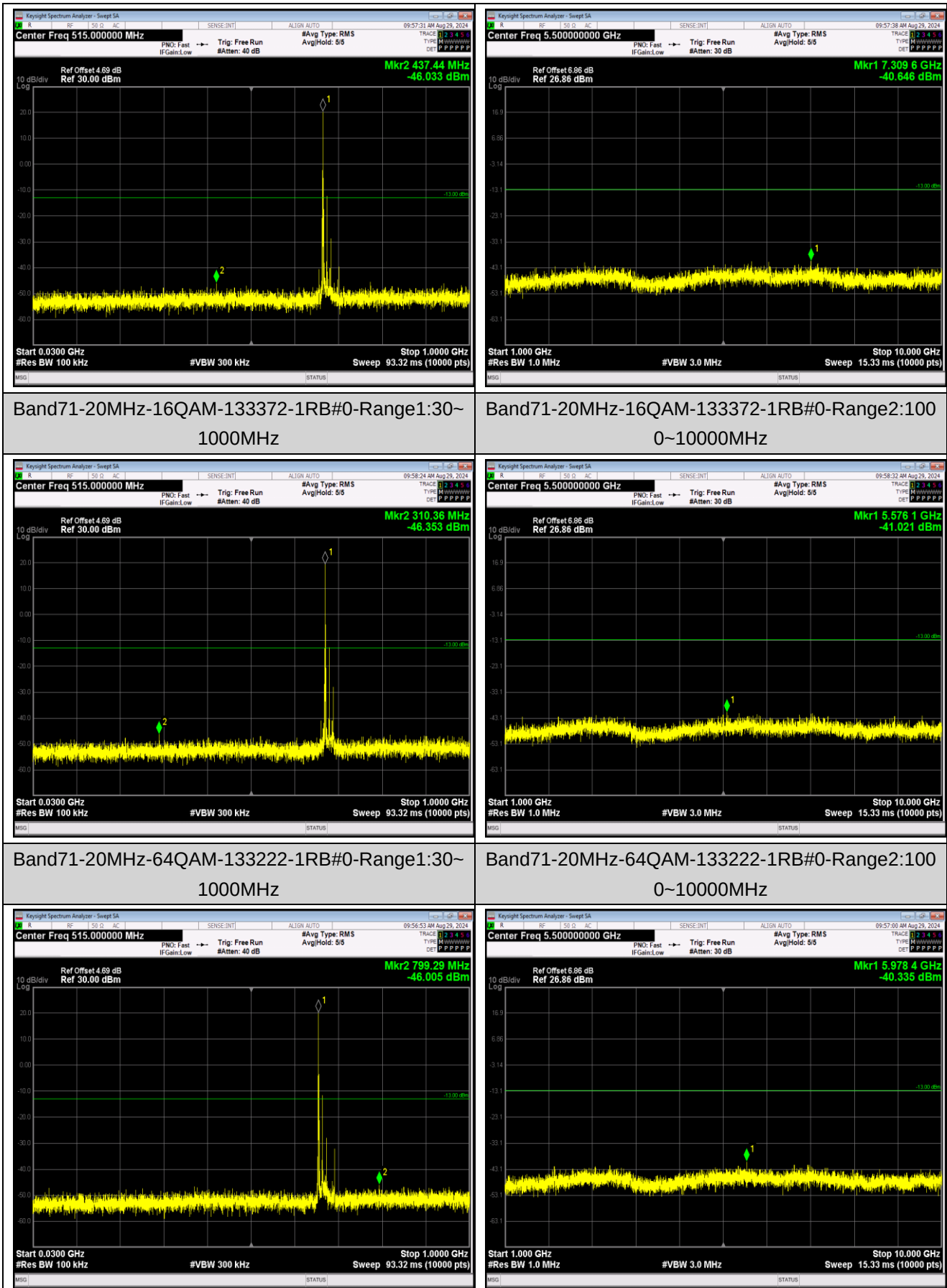
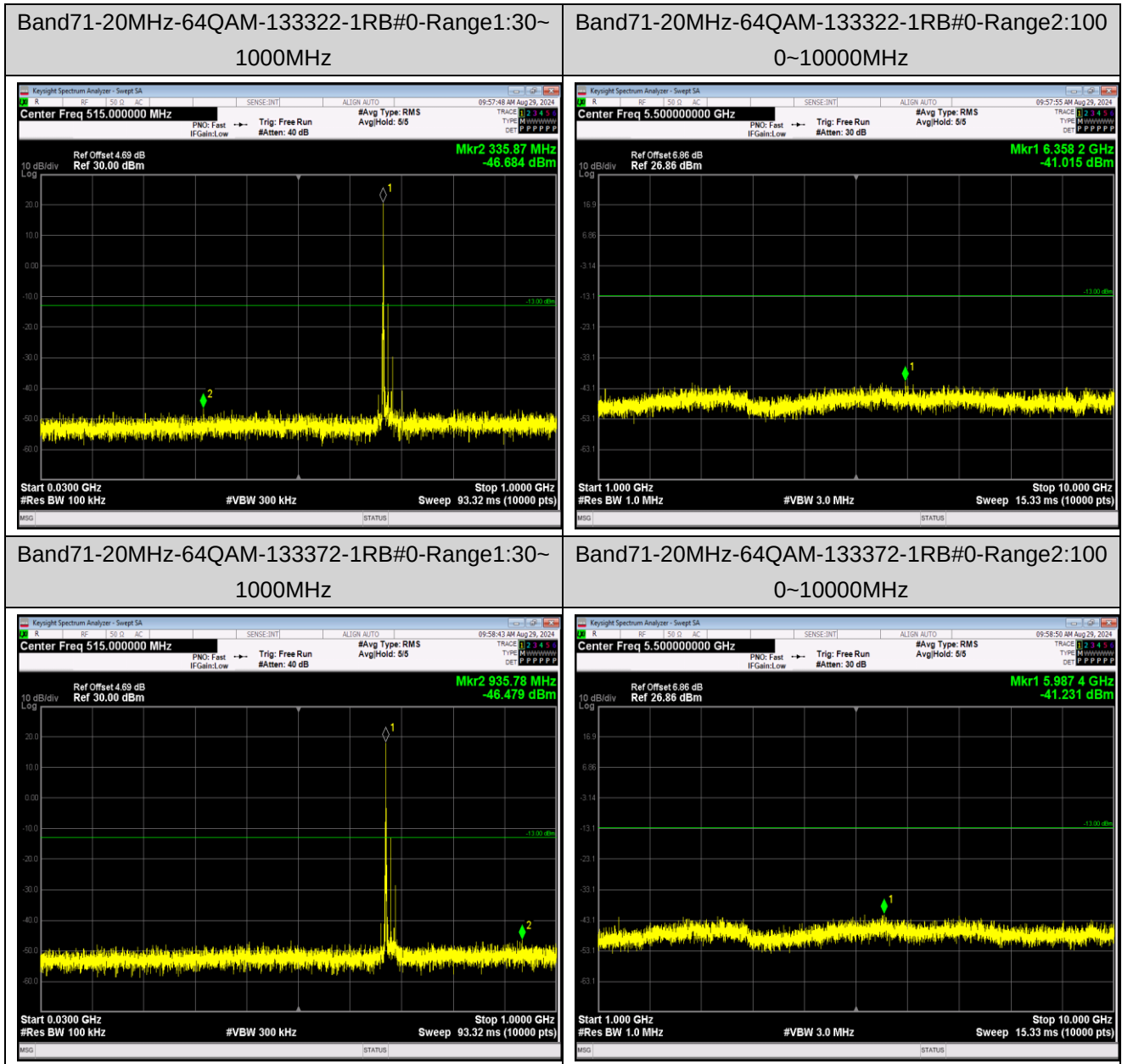










Appendix F: Frequency Stability

Test Result

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	-12.59	-0.007267	Within authorized band for Band 4	Pass
	-20	2.16	0.001247		
	-10	-13.46	-0.007769		
	0	4.49	0.002592		
	10	-11.13	-0.006424		
	20	-15.58	-0.008993		
	30	-10.79	-0.006228		
	40	-8.91	-0.005143		
	50	-18.53	-0.010696		
16QAM					
3.85	-30	10.43	0.006020	Within authorized band for Band 4	Pass
	-20	-15.39	-0.008883		
	-10	11.16	0.006442		
	0	-7.74	-0.004468		
	10	-16.88	-0.009743		
	20	-15.99	-0.009229		
	30	-10.81	-0.006240		
	40	-14.39	-0.008306		
	50	-16.25	-0.009380		
64QAM					
3.85	-30	-10.99	-0.006343	Within authorized band for Band 4	Pass
	-20	-4.65	-0.002684		
	-10	-8.60	-0.004964		
	0	-10.87	-0.006274		
	10	-7.51	-0.004335		
	20	-15.68	-0.009051		
	30	-12.20	-0.007042		
	40	-12.23	-0.007059		
	50	-11.73	-0.006771		

Voltage					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	3.50	-3.66	-0.002113	Within authorized band for Band 4	Pass
	3.85	-9.87	-0.005697		
	4.40	6.59	0.003804		
16QAM					
25	3.50	-13.30	-0.007677	Within authorized band for Band 4	Pass
	3.85	7.54	0.004352		
	4.40	7.01	0.004046		
64QAM					
25	3.50	-11.54	-0.006661	Within authorized band for Band 4	Pass
	3.85	-10.19	-0.005882		
	4.40	-3.69	-0.002130		
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	-4.49	-0.005368	±2.5	Pass
	-20	-3.79	-0.004531		
	-10	-9.47	-0.011321		
	0	-12.62	-0.015087		
	10	-9.47	-0.011321		
	20	-10.00	-0.011955		
	30	-9.11	-0.010891		
	40	-10.57	-0.012636		
	50	-4.36	-0.005212		
16QAM					
3.85	-30	-12.22	-0.014608	±2.5	Pass
	-20	-2.40	-0.002869		
	-10	-4.76	-0.005690		
	0	-8.53	-0.010197		
	10	-7.57	-0.009050		
	20	-11.22	-0.013413		
	30	-7.44	-0.008894		
	40	1.20	0.001435		
	50	1.36	0.001626		
64QAM					
3.85	-30	-10.36	-0.012385	±2.5	Pass
	-20	-8.07	-0.009647		
	-10	-5.38	-0.006432		
	0	-7.54	-0.009014		
	10	-7.48	-0.008942		
	20	-7.64	-0.009133		
	30	-11.46	-0.013700		
	40	-8.15	-0.009743		
	50	-7.05	-0.008428		

Voltage					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	3.50	8.75	0.010460	±2.5	Pass
	3.85	-2.25	-0.002690		
	4.40	-10.29	-0.012301		
16QAM					
25	3.50	-6.92	-0.008273	±2.5	Pass
	3.85	-12.23	-0.014620		
	4.40	-11.23	-0.013425		
64QAM					
25	3.50	-8.57	-0.010245	±2.5	Pass
	3.85	-5.14	-0.006145		
	4.40	-12.42	-0.014848		
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	-14.72	-0.005807	Within authorized band for Band 7	Pass
	-20	-28.80	-0.011361		
	-10	-26.22	-0.010343		
	0	-13.86	-0.005467		
	10	-15.39	-0.006071		
	20	-14.35	-0.005661		
	30	-7.24	-0.002856		
	40	-24.20	-0.009546		
	50	-12.59	-0.004966		
16QAM					
3.85	-30	-6.51	-0.002568	Within authorized band for Band 7	Pass
	-20	-19.74	-0.007787		
	-10	-24.96	-0.009846		
	0	-9.41	-0.003712		
	10	-18.90	-0.007456		
	20	7.82	0.003085		
	30	-13.70	-0.005404		
	40	2.82	0.001112		
	50	-12.90	-0.005089		
64QAM					
3.85	-30	-14.09	-0.005558	Within authorized band for Band 7	Pass
	-20	13.70	0.005404		
	-10	-17.87	-0.007049		
	0	-2.88	-0.001136		
	10	14.16	0.005586		
	20	-13.02	-0.005136		
	30	-26.66	-0.010517		
	40	-14.86	-0.005862		
	50	-7.57	-0.002986		

Voltage					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	3.50	-17.48	-0.006895	Within authorized band for Band 7	Pass
	3.85	-22.89	-0.009030		
	4.40	-20.33	-0.008020		
16QAM					
25	3.50	3.92	0.001546	Within authorized band for Band 7	Pass
	3.85	-20.40	-0.008047		
	4.40	14.68	0.005791		
64QAM					
25	3.50	-13.59	-0.005361	Within authorized band for Band 7	Pass
	3.85	-15.78	-0.006225		
	4.40	-11.93	-0.004706		
Remark: All bandwidth and all modulation had been tested, but only the worst case data displayed in this report.					

LTE Band 71 part:

Reference Frequency: LTE Band 71 (10MHz) Middle channel=133297 Frequency=680.5MHz					
Temperature					
Power supplied (Vdc)	Temperature (°C)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
3.85	-30	-4.19	-0.006157	Within authorized band for Band 71	Pass
	-20	-3.19	-0.004688		
	-10	-4.12	-0.006054		
	0	-5.24	-0.007700		
	10	-8.57	-0.012594		
	20	-7.64	-0.011227		
	30	-12.42	-0.018251		
	40	-5.69	-0.008361		
	50	-14.79	-0.021734		
16QAM					
3.85	-30	-9.77	-0.014357	Within authorized band for Band 71	Pass
	-20	-6.68	-0.009816		
	-10	-10.53	-0.015474		
	0	-14.85	-0.021822		
	10	-12.66	-0.018604		
	20	-13.22	-0.019427		
	30	-11.46	-0.016841		
	40	-13.72	-0.020162		
	50	-14.69	-0.021587		
64QAM					
3.85	-30	-10.36	-0.015224	Within authorized band for Band 71	Pass
	-20	-10.16	-0.014930		
	-10	-11.63	-0.017090		
	0	-9.07	-0.013328		
	10	5.98	0.008788		
	20	-8.71	-0.012799		
	30	-8.48	-0.012461		
	40	6.11	0.008979		
	50	-9.66	-0.014195		

Voltage					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	3.50	-8.81	-0.012946	Within authorized band for Band 71	Pass
	3.85	-12.42	-0.018251		
	4.40	-3.39	-0.004982		
16QAM					
25	3.50	-13.82	-0.020309	Within authorized band for Band 71	Pass
	3.85	-10.97	-0.016120		
	4.40	-12.59	-0.018501		
64QAM					
25	3.50	-11.10	-0.016312	Within authorized band for Band 71	Pass
	3.85	-7.80	-0.011462		
	4.40	-9.24	-0.013578		
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
Band4	20MHz	QPSK	20175	100RB#0	PASS	PASS
Band4	20MHz	16QAM	20175	100RB#0	PASS	PASS
Band4	20MHz	64QAM	20175	100RB#0	PASS	PASS
Band5	10MHz	QPSK	20525	50RB#0	PASS	PASS
Band5	10MHz	16QAM	20525	50RB#0	PASS	PASS
Band5	10MHz	64QAM	20525	50RB#0	PASS	PASS
Band7	20MHz	QPSK	21100	100RB#0	PASS	PASS
Band7	20MHz	16QAM	21100	100RB#0	PASS	PASS
Band7	20MHz	64QAM	21100	100RB#0	PASS	PASS
Band71	20MHz	QPSK	133322	100RB#0	PASS	PASS
Band71	20MHz	16QAM	133322	100RB#0	PASS	PASS
Band71	20MHz	64QAM	133322	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

