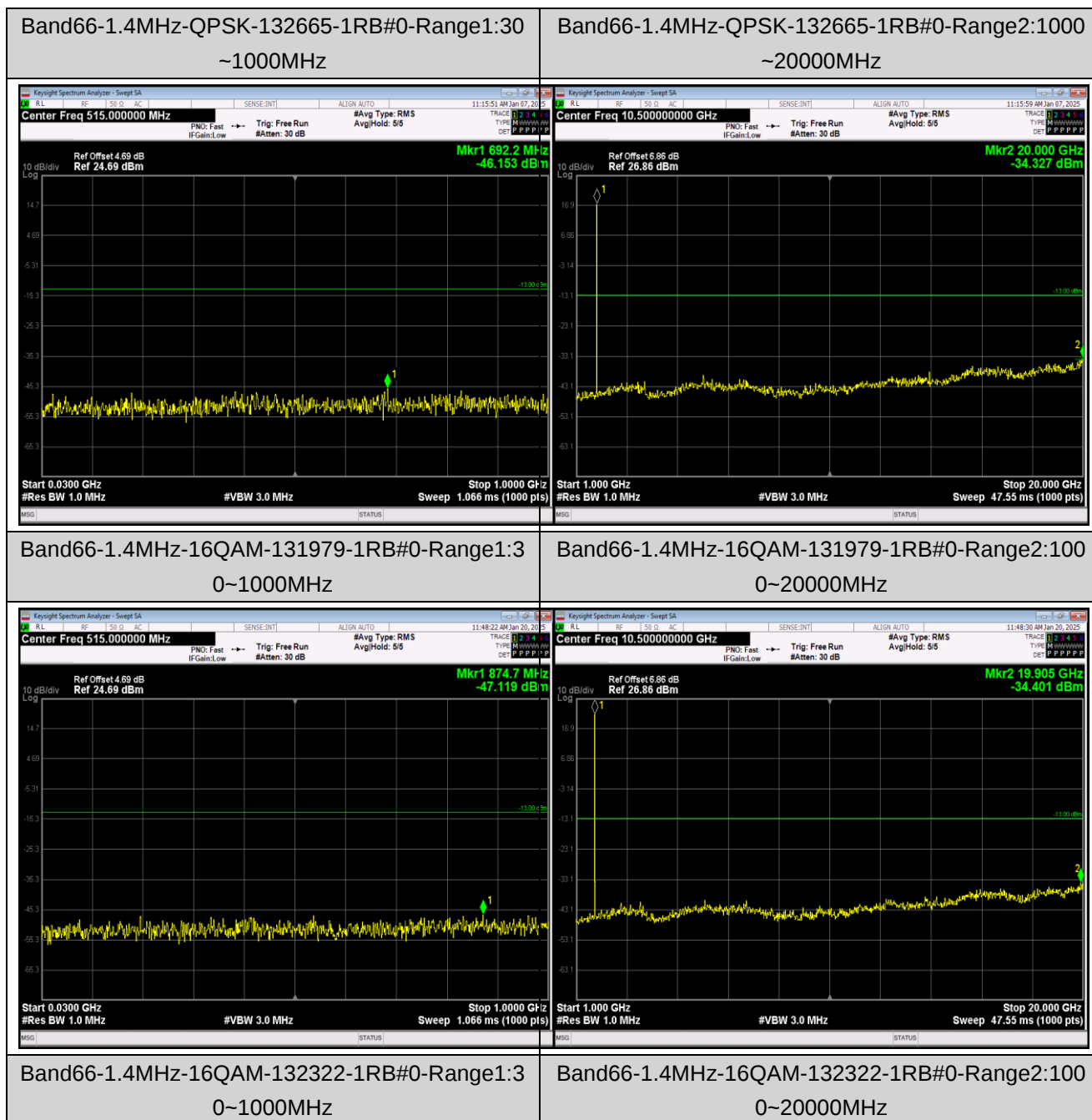
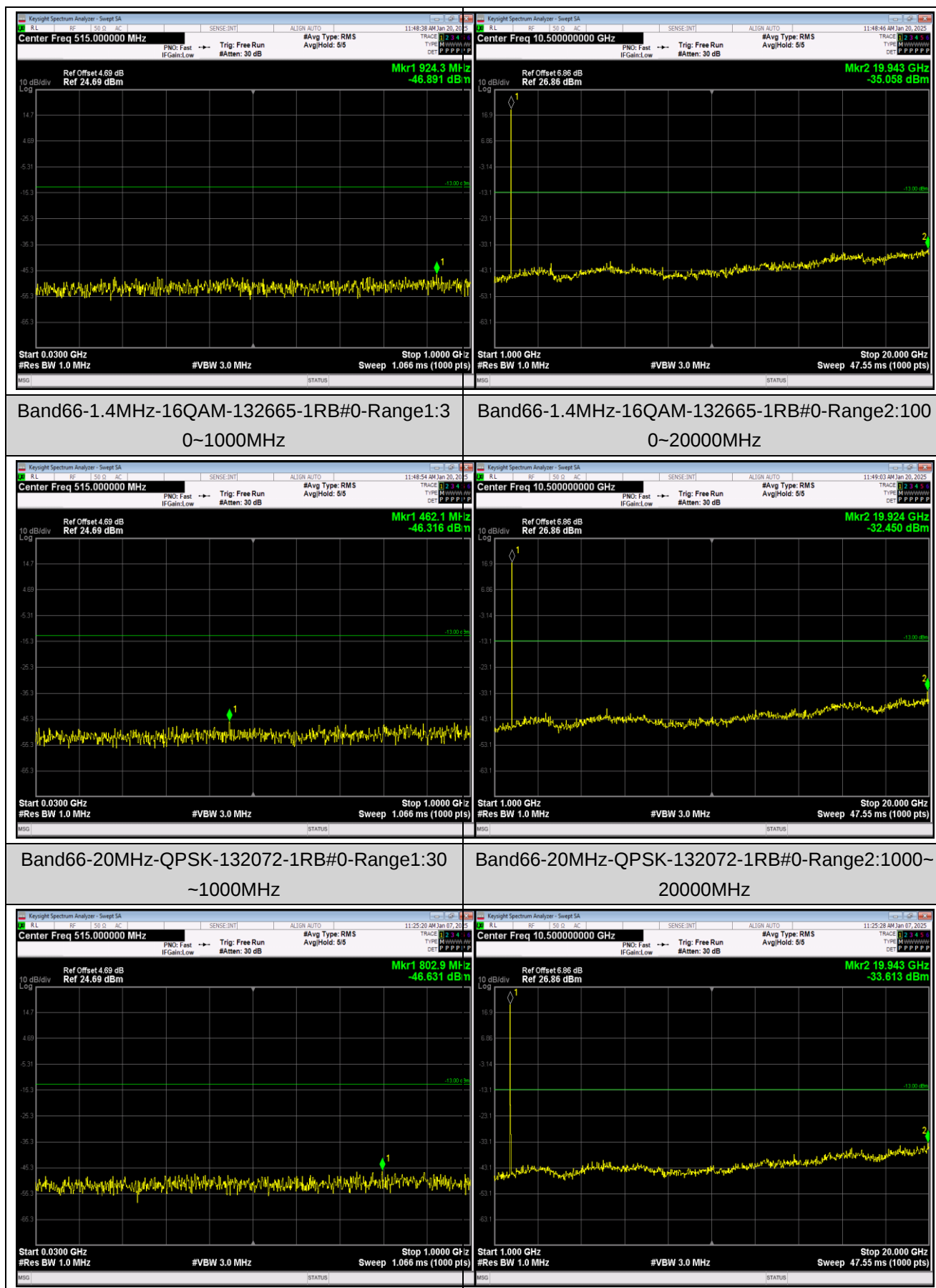
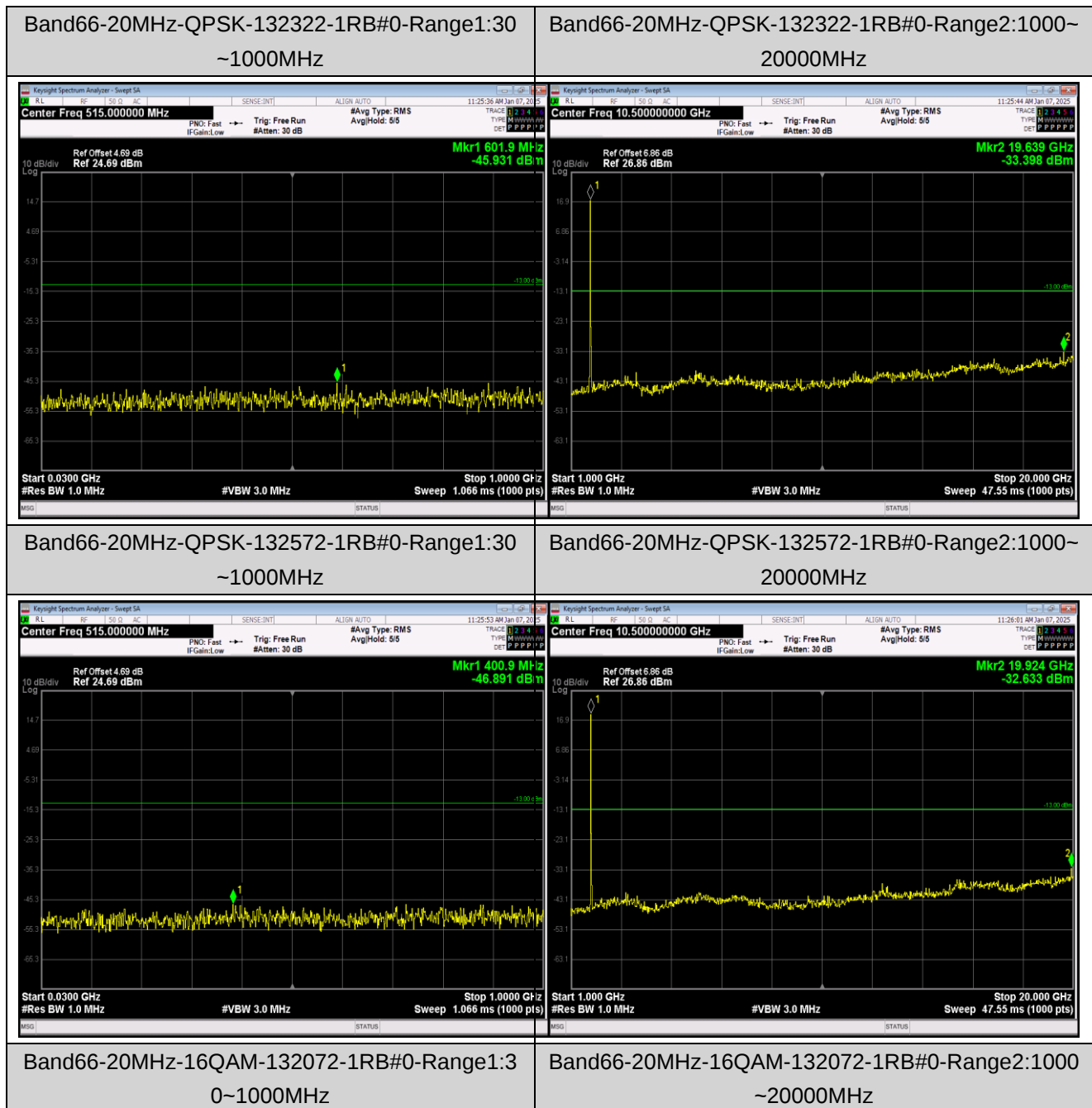
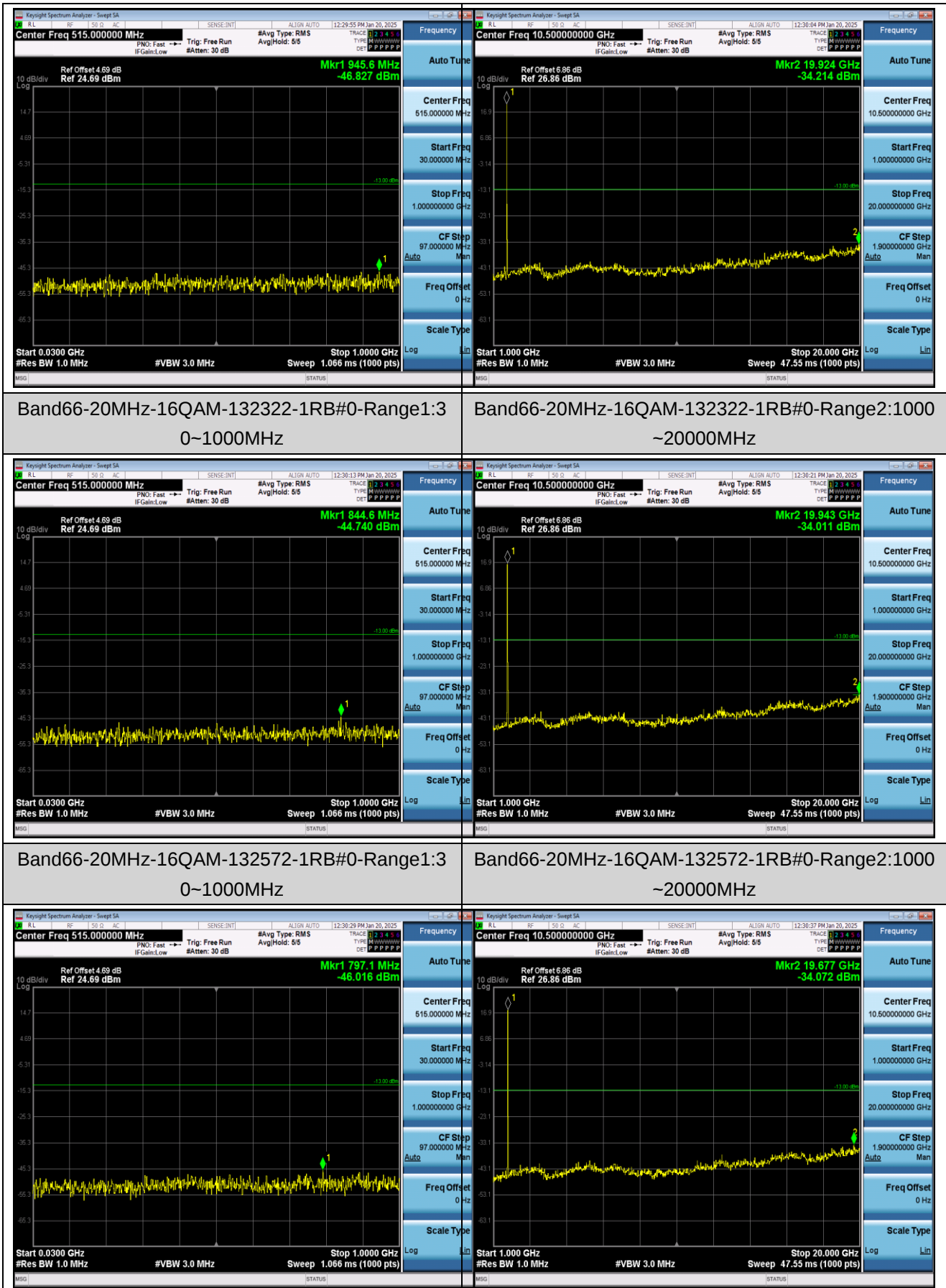










Appendix F: Frequency Stability

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					
3.70	-30	-51.23	-0.027250	Within authorized band for Band 2	Pass
	-20	-25.56	-0.013596		
	-10	-58.09	-0.030899		
	0	-38.58	-0.020521		
	10	27.39	0.014569		
	20	22.69	0.012069		
	30	-38.29	-0.020367		
	40	19.86	0.010564		
	50	27.04	0.014383		
16QAM					
3.70	-30	20.26	0.010777	Within authorized band for Band 2	Pass
	-20	-45.69	-0.024303		
	-10	-76.60	-0.040745		
	0	-15.72	-0.008362		
	10	-36.42	-0.019372		
	20	-42.20	-0.022447		
	30	43.43	0.023101		
	40	35.85	0.019069		
	50	-24.38	-0.012968		
Voltage					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	3.40	69.84	0.037149	Within authorized band for Band 2	Pass
	3.70	29.11	0.015484		
	4.20	34.55	0.018378		
16QAM					
25	3.40	-51.30	-0.027287	Within authorized band for Band 2	Pass
	3.70	-30.08	-0.016000		
	4.20	-37.08	-0.019723		
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					
3.70	-30	-22.44	-0.026826	±2.5	Pass
	-20	9.80	0.011715		
	-10	20.17	0.024112		
	0	-11.53	-0.013784		
	10	10.96	0.013102		
	20	15.32	0.018314		
	30	8.71	0.010412		
	40	-27.65	-0.033054		
	50	22.60	0.027017		
16QAM					
3.70	-30	-28.25	-0.033772	±2.5	Pass
	-20	-17.71	-0.021172		
	-10	-25.35	-0.030305		
	0	14.61	0.017466		
	10	-18.75	-0.022415		
	20	-25.56	-0.030556		
	30	-28.97	-0.034632		
	40	22.34	0.026707		
	50	-23.42	-0.027998		
Voltage					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	3.40	21.76	0.026013	±2.5	Pass
	3.70	10.60	0.012672		
	4.20	11.66	0.013939		
16QAM					
25	3.40	26.71	0.031931	±2.5	Pass
	3.70	20.87	0.024949		
	4.20	-17.67	-0.021124		
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					
3.70	-30	64.34	0.025381	Within authorized band for Band 7	Pass
	-20	75.77	0.029890		
	-10	-36.01	-0.014205		
	0	-51.14	-0.020174		
	10	-50.51	-0.019925		
	20	-53.24	-0.021002		
	30	-61.14	-0.024118		
	40	48.95	0.019310		
	50	-39.53	-0.015594		
16QAM					
3.70	-30	85.43	0.033700	Within authorized band for Band 7	Pass
	-20	-66.42	-0.026201		
	-10	27.58	0.010880		
	0	-34.56	-0.013633		
	10	-59.11	-0.023318		
	20	73.10	0.028836		
	30	-75.99	-0.029976		
	40	68.31	0.026947		
	50	56.10	0.022130		
Voltage					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	3.40	51.56	0.020339	Within authorized band for Band 7	Pass
	3.70	-41.33	-0.016304		
	4.20	72.78	0.028710		
16QAM					
25	3.40	55.80	0.022012	Within authorized band for Band 7	Pass
	3.70	54.82	0.021625		
	4.20	36.65	0.014458		
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					
3.70	-30	-15.29	-0.021611	Within authorized band for Band 12	Pass
	-20	15.18	0.021456		
	-10	21.60	0.030530		
	0	14.39	0.020339		
	10	-16.47	-0.023279		
	20	-12.37	-0.017484		
	30	7.97	0.011265		
	40	20.07	0.028367		
	50	-16.85	-0.023816		
16QAM					
3.70	-30	12.85	0.018163	Within authorized band for Band 12	Pass
	-20	-11.86	-0.016763		
	-10	20.50	0.028975		
	0	21.14	0.029880		
	10	-19.56	-0.027647		
	20	19.23	0.027180		
	30	7.95	0.011237		
	40	-17.35	-0.024523		
	50	-28.68	-0.040537		
Voltage					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	3.40	-25.32	-0.035788	Within authorized band for Band 12	Pass
	3.70	-32.52	-0.045965		
	4.20	-11.33	-0.016014		
16QAM					
25	3.40	-17.57	-0.024834	Within authorized band for Band 12	Pass
	3.70	-19.48	-0.027534		
	4.20	-33.29	-0.047053		
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					
3.70	-30	-40.50	-0.023209	Within authorized band for Band 66	Pass
	-20	-39.98	-0.022911		
	-10	33.10	0.018968		
	0	25.95	0.014871		
	10	-37.12	-0.021272		
	20	-27.77	-0.015914		
	30	30.74	0.017616		
	40	27.67	0.015857		
	50	16.92	0.009696		
16QAM					
3.70	-30	-22.10	-0.012665	Within authorized band for Band 66	Pass
	-20	-33.46	-0.019175		
	-10	26.52	0.015198		
	0	-26.94	-0.015438		
	10	44.82	0.025685		
	20	-32.60	-0.018682		
	30	29.77	0.017060		
	40	26.08	0.014946		
	50	-26.85	-0.015387		
Voltage					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	3.40	-32.09	-0.018390	Within authorized band for Band 66	Pass
	3.70	23.40	0.013410		
	4.20	-42.03	-0.024086		
16QAM					
25	3.40	33.20	0.019026	Within authorized band for Band 66	Pass
	3.70	36.31	0.020808		
	4.20	32.89	0.018848		
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	27RB#0	PASS	PASS
Band2	20MHz	16QAM	18900	100RB#0	PASS	PASS
Band2	20MHz	64QAM	18900	100RB#0	PASS	PASS
Band5	10MHz	QPSK	20525	50RB#0	PASS	PASS
Band5	10MHz	16QAM	20525	27RB#0	PASS	PASS
Band7	20MHz	QPSK	21100	100RB#0	PASS	PASS
Band7	20MHz	16QAM	21100	27RB#0	PASS	PASS
Band12	10MHz	QPSK	23095	50RB#0	PASS	PASS
Band12	10MHz	16QAM	23095	27RB#0	PASS	PASS
Band66	20MHz	QPSK	132322	100RB#0	PASS	PASS
Band66	20MHz	16QAM	132322	27RB#0	PASS	PASS

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

Test Graphs

