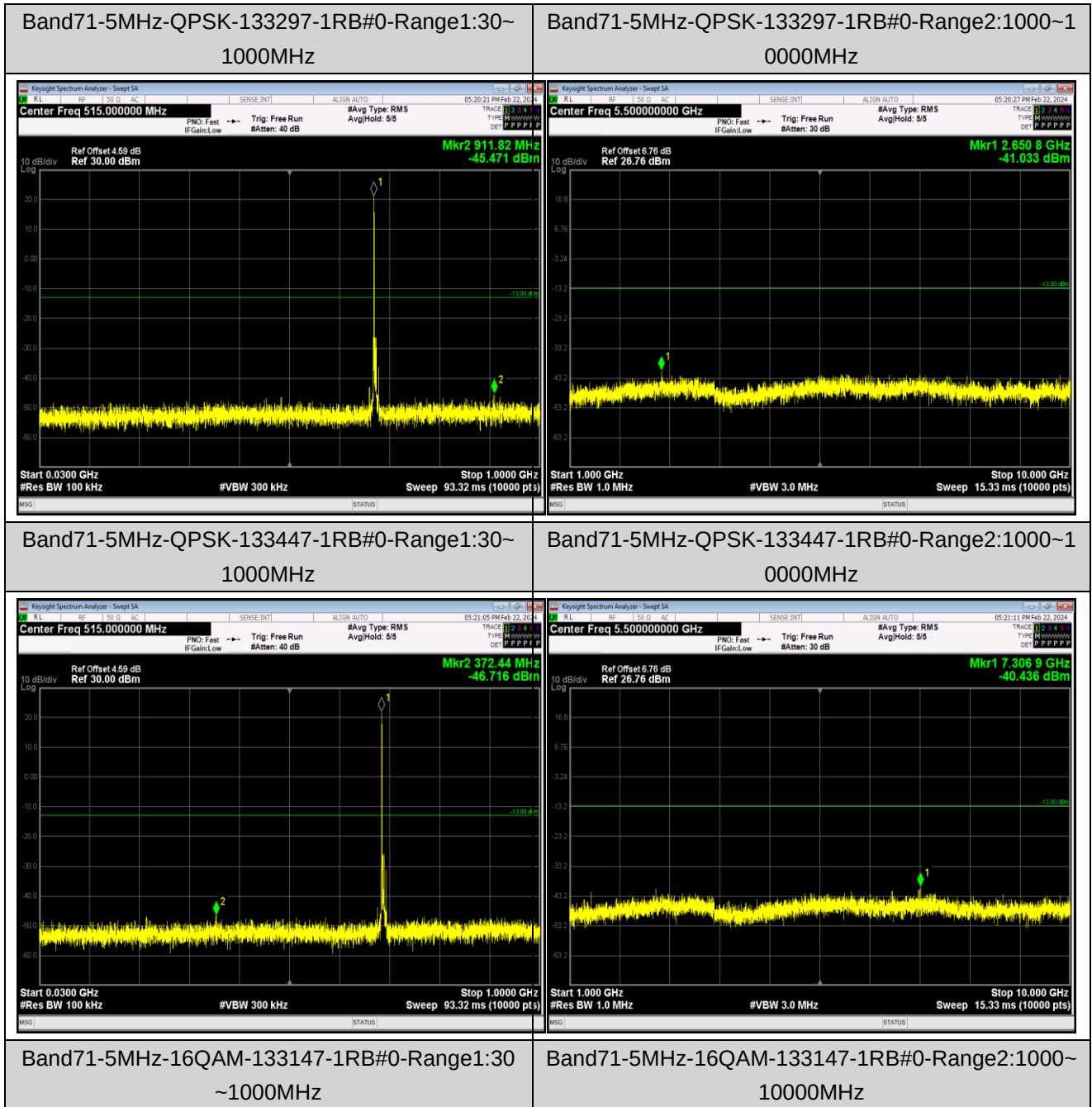
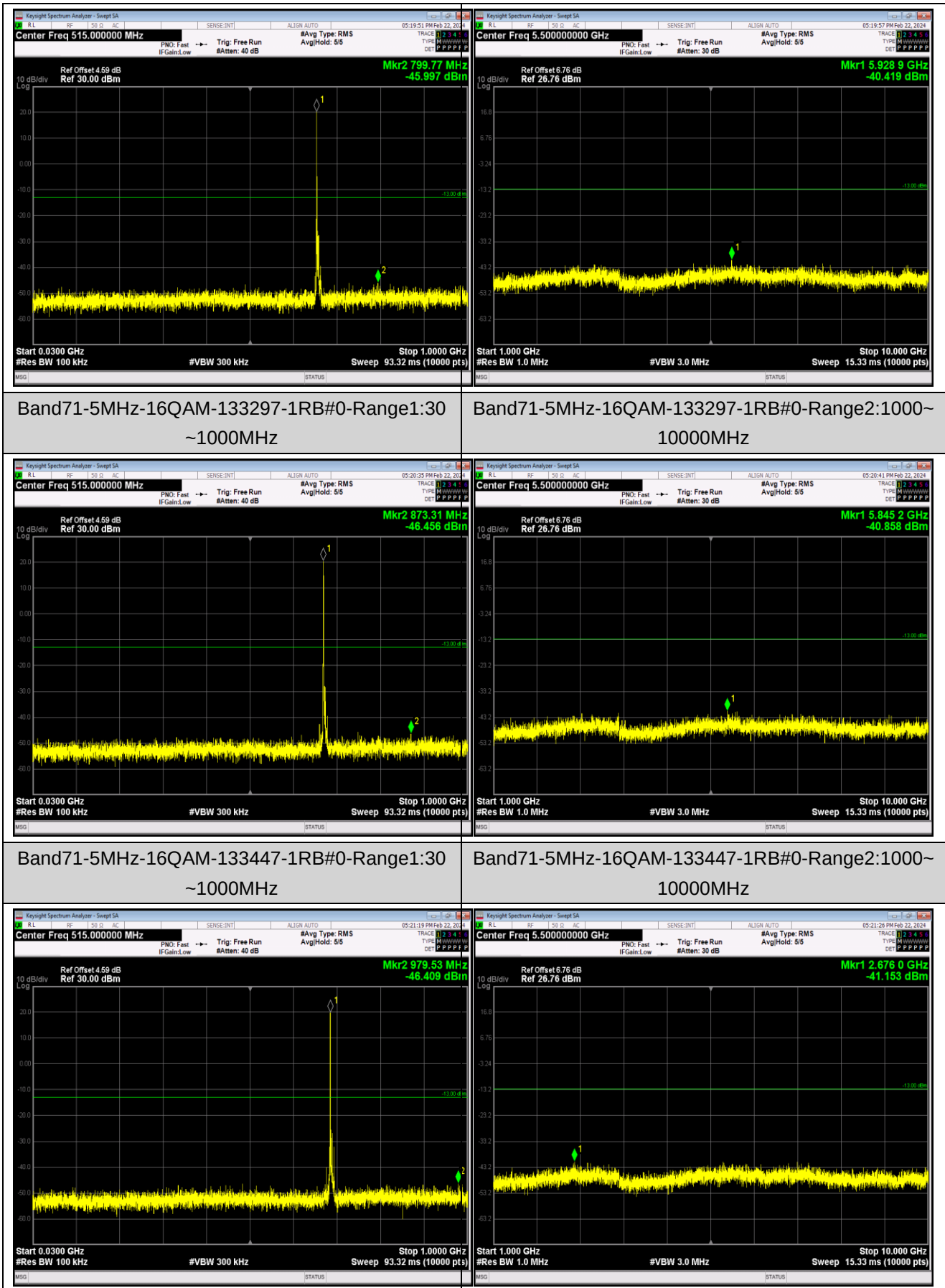
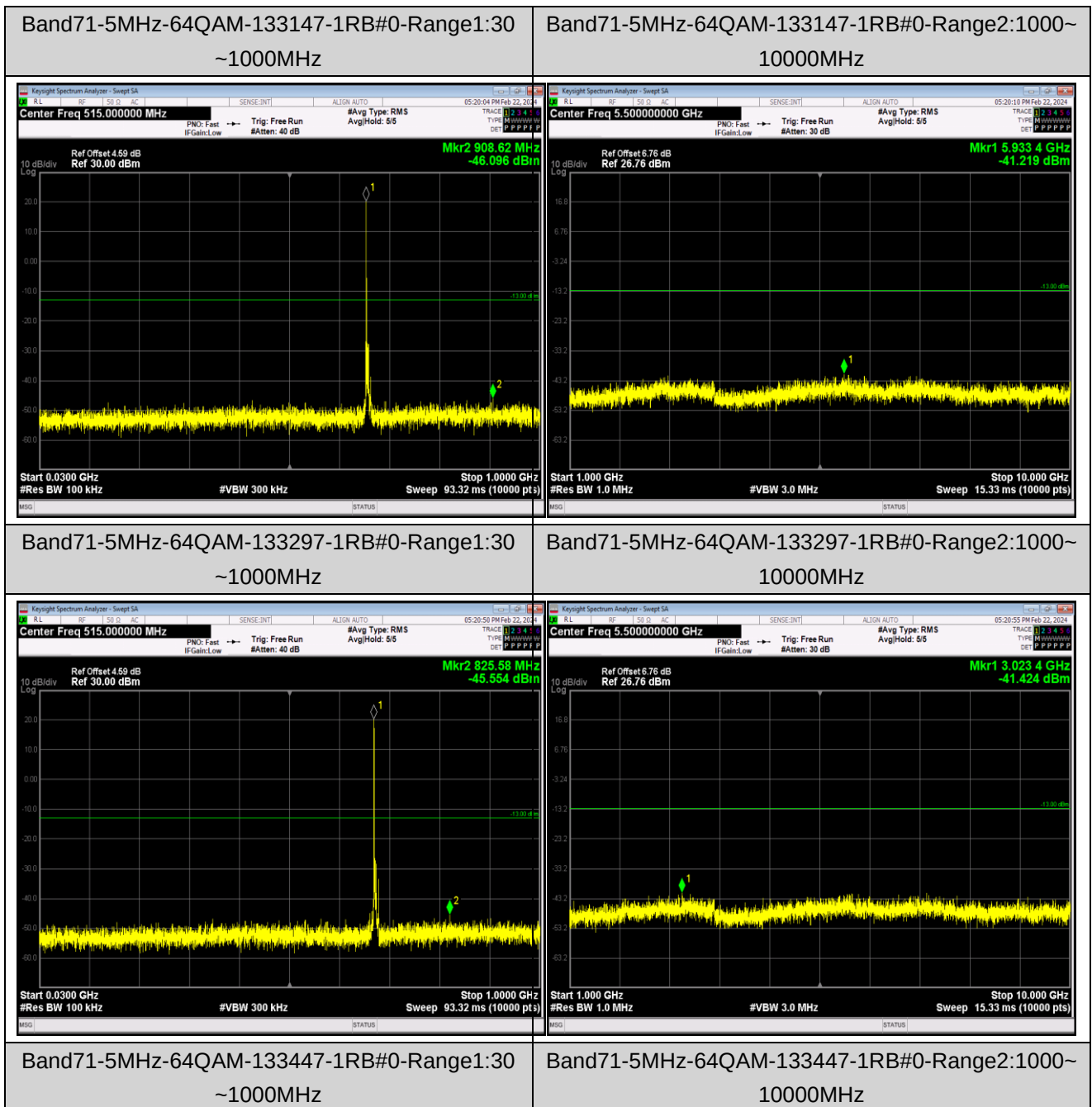
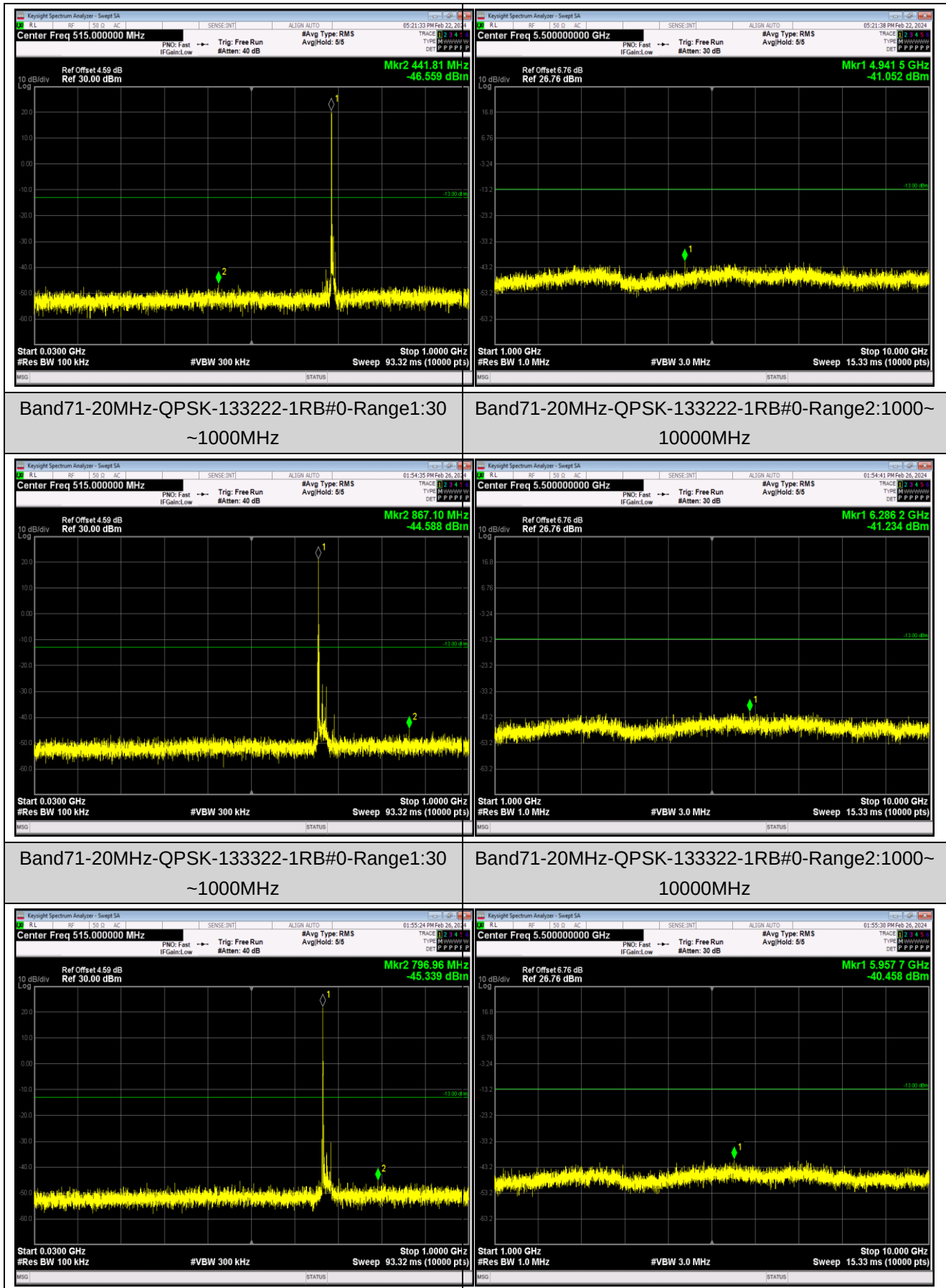
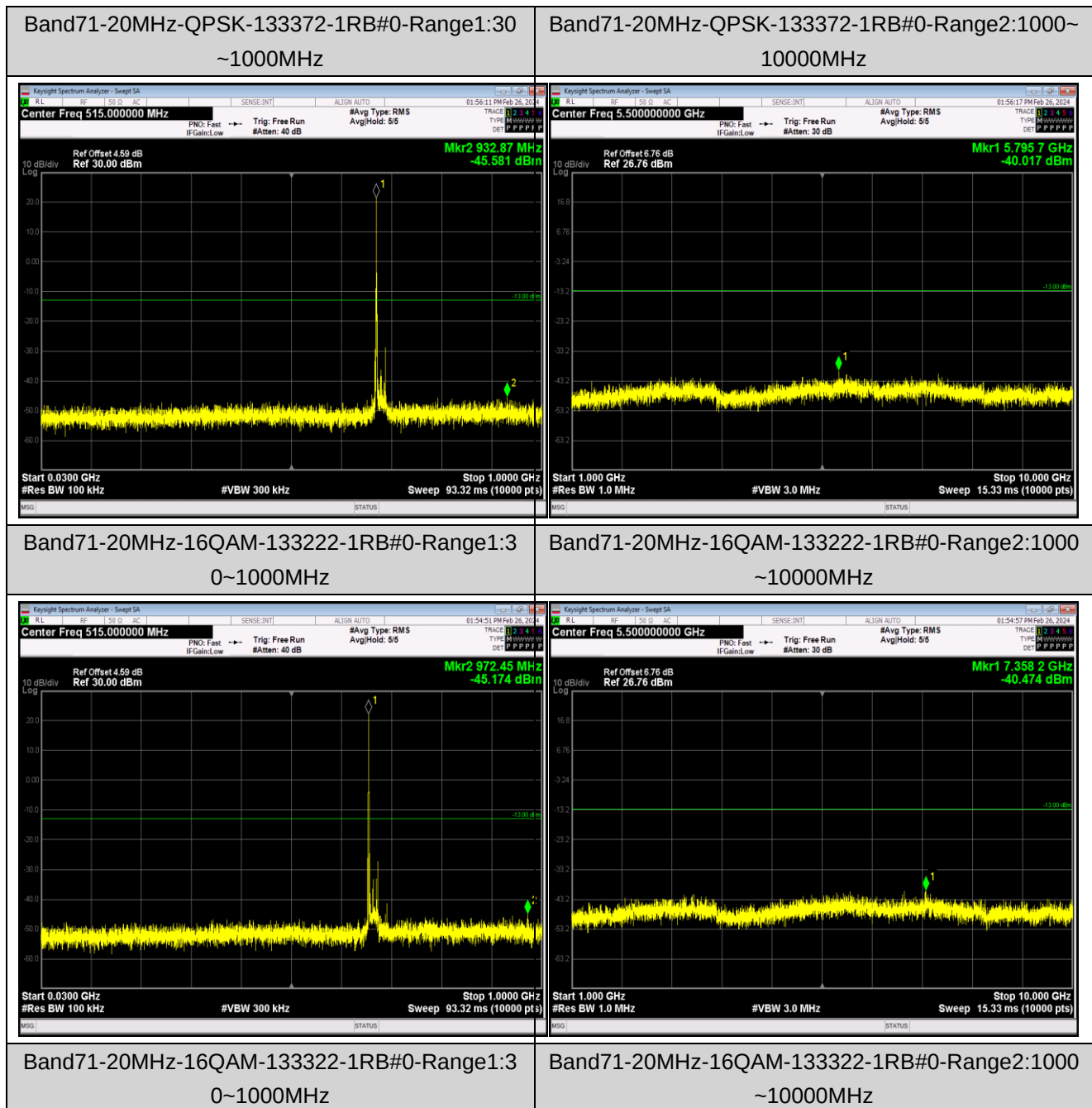


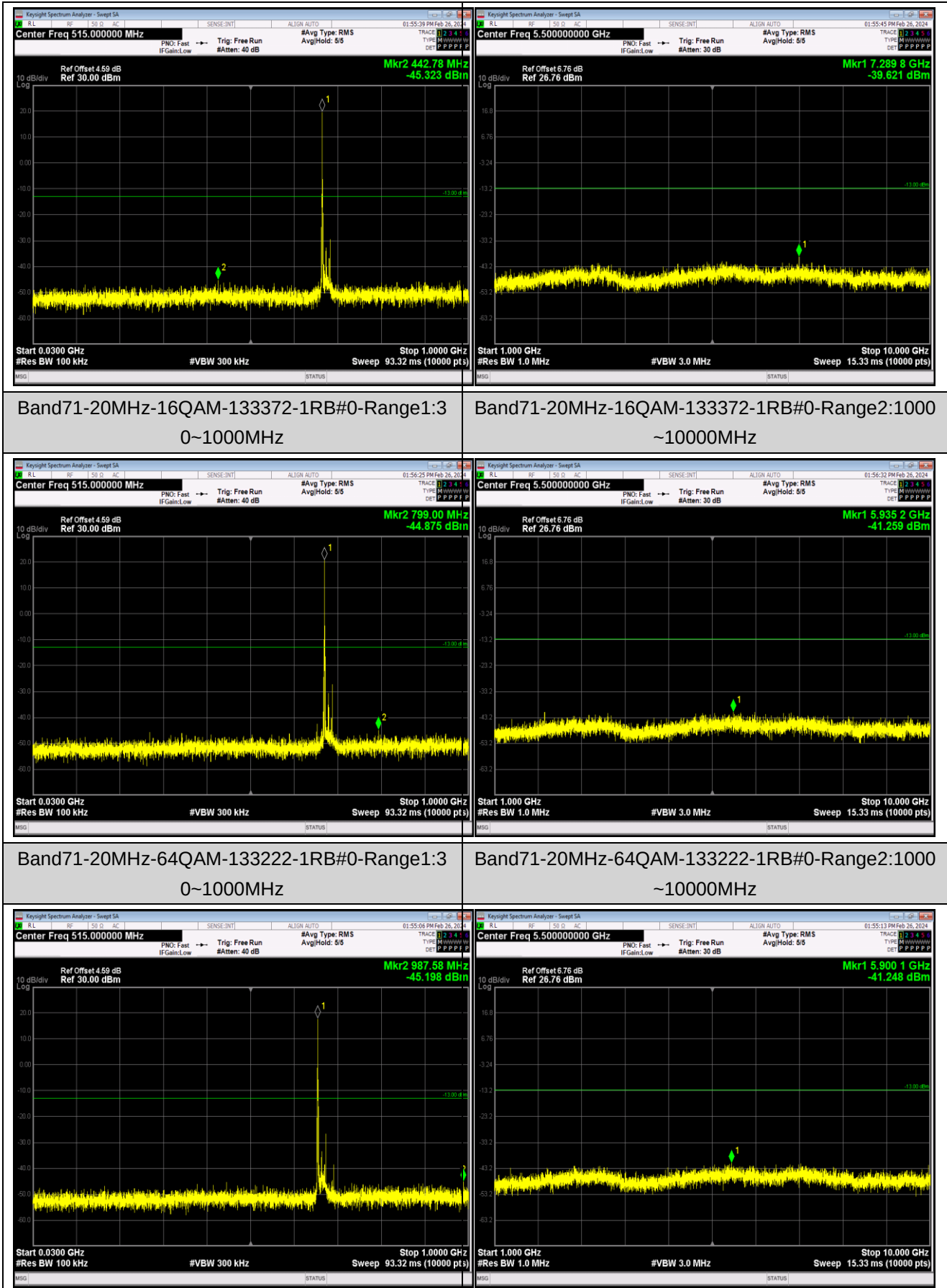


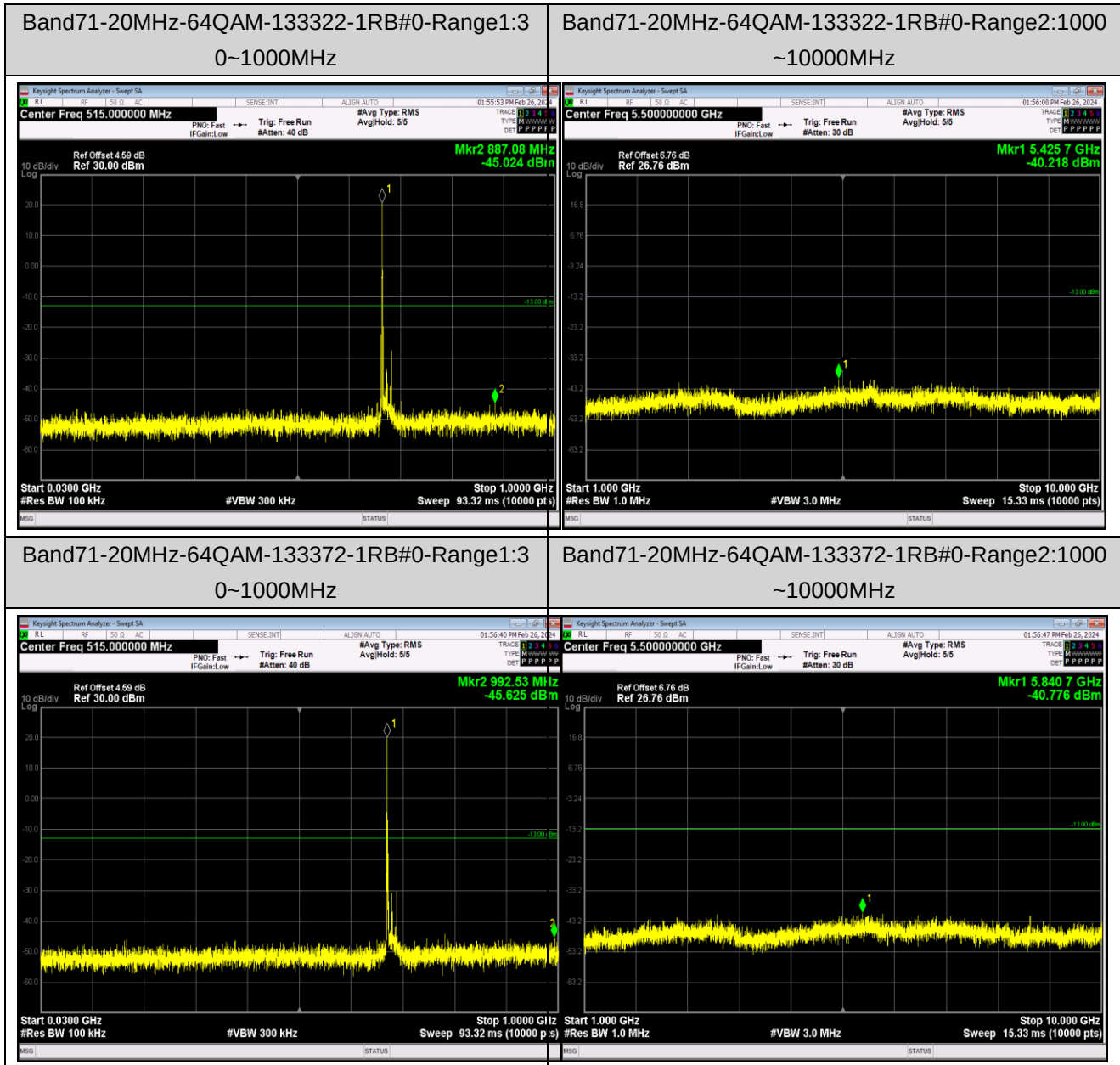












Appendix F: Frequency Stability

Test Result

LTE Band 2 part:

Reference Frequency: LTE Band 2 (10MHz) Middle channel=18900 Frequency=1880.0MHz					
Temperature					
Power supplied (Vdc)	Temperature (℃)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
3.80	-30	-26.24	-0.013957	Within authorized band for Band 2	Pass
	-20	6.38	0.003394		
	-10	-12.35	-0.006569		
	0	-24.72	-0.013149		
	10	4.23	0.002250		
	20	-17.52	-0.009319		
	30	-2.53	-0.001346		
	40	-18.22	-0.009691		
	50	10.87	0.005782		
16QAM					
3.80	-30	-12.85	-0.006835	Within authorized band for Band 2	Pass
	-20	-14.35	-0.007633		
	-10	-8.08	-0.004298		
	0	-13.39	-0.007122		
	10	7.18	0.003819		
	20	-12.47	-0.006633		
	30	-13.43	-0.007144		
	40	-9.46	-0.005032		
	50	-11.69	-0.006218		
64QAM					
3.80	-30	-9.08	-0.004830	Within authorized band for Band 2	Pass
	-20	-15.61	-0.008303		
	-10	-16.89	-0.008984		
	0	-19.20	-0.010213		
	10	-13.75	-0.007314		
	20	-16.49	-0.008771		
	30	4.86	0.002585		
	40	-15.26	-0.008117		
	50	-15.28	-0.008128		

Voltage					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	3.50	-13.68	-0.007277	Within authorized band for Band 2	Pass
	3.80	-25.16	-0.013383		
	4.35	-8.93	-0.004750		
16QAM					
25	3.50	-18.91	-0.010059	Within authorized band for Band 2	Pass
	3.80	-12.20	-0.006489		
	4.35	-12.37	-0.006580		
64QAM					
25	3.50	-10.56	-0.005617	Within authorized band for Band 2	Pass
	3.80	-18.30	-0.009734		
	4.35	-21.66	-0.011521		
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 (℃)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
3.80	-30	-12.72	-0.007342	Within authorized band for Band 4	Pass
	-20	-5.35	-0.003088		
	-10	-4.46	-0.002574		
	0	-9.40	-0.005426		
	10	11.36	0.006557		
	20	-12.32	-0.007111		
	30	-13.02	-0.007515		
	40	-11.83	-0.006828		
	50	-17.58	-0.010147		
16QAM					
3.80	-30	-6.19	-0.003573	Within authorized band for Band 4	Pass
	-20	7.04	0.004063		
	-10	-16.91	-0.009760		
	0	-7.62	-0.004398		
	10	-10.50	-0.006061		
	20	-14.46	-0.008346		
	30	10.29	0.005939		
	40	17.51	0.010107		
	50	11.67	0.006736		
64QAM					
3.80	-30	-5.35	-0.003088	Within authorized band for Band 4	Pass
	-20	18.11	0.010453		
	-10	-17.44	-0.010066		
	0	-11.24	-0.006488		
	10	-15.19	-0.008768		
	20	-13.66	-0.007885		
	30	11.30	0.006522		
	40	-18.42	-0.010632		
	50	-24.35	-0.014055		

Voltage					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	3.50	-18.31	-0.010569	Within authorized band for Band 4	Pass
	3.80	-16.24	-0.009374		
	4.35	-14.26	-0.008231		
16QAM					
25	3.50	-3.00	-0.001732	Within authorized band for Band 4	Pass
	3.80	-14.25	-0.008225		
	4.35	-15.52	-0.008958		
64QAM					
25	3.50	-7.20	-0.004156	Within authorized band for Band 4	Pass
	3.80	11.07	0.006390		
	4.35	-10.21	-0.005893		
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 (℃)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
3.80	-30	-12.47	-0.014907	±2.5	Pass
	-20	-10.81	-0.012923		
	-10	-7.81	-0.009337		
	0	-11.96	-0.014298		
	10	-8.90	-0.010640		
	20	-8.70	-0.010400		
	30	-7.11	-0.008500		
	40	-8.07	-0.009647		
	50	-11.82	-0.014130		
16QAM					
3.80	-30	-12.56	-0.015015	±2.5	Pass
	-20	-9.90	-0.011835		
	-10	-8.13	-0.009719		
	0	-15.84	-0.018936		
	10	-8.44	-0.010090		
	20	-5.54	-0.006623		
	30	-8.83	-0.010556		
	40	-13.58	-0.016234		
	50	-10.09	-0.012062		
64QAM					
3.80	-30	-5.36	-0.006408	±2.5	Pass
	-20	-4.99	-0.005965		
	-10	-10.94	-0.013078		
	0	-6.18	-0.007388		
	10	-12.26	-0.014656		
	20	-10.11	-0.012086		
	30	-14.98	-0.017908		
	40	-8.18	-0.009779		
	50	-7.61	-0.009097		

Voltage					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	3.50	-10.97	-0.013114	±2.5	Pass
	3.80	-13.96	-0.016689		
	4.35	-15.18	-0.018147		
16QAM					
25	3.50	-4.84	-0.005786	±2.5	Pass
	3.80	-10.50	-0.012552		
	4.35	-6.87	-0.008213		
64QAM					
25	3.50	-5.59	-0.006683	±2.5	Pass
	3.80	-10.84	-0.012959		
	4.35	-11.57	-0.013831		
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 (℃)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
3.80	-30	4.73	0.001866	Within authorized band for Band 7	Pass
	-20	20.51	0.008091		
	-10	-26.45	-0.010434		
	0	-22.40	-0.008836		
	10	-22.39	-0.008832		
	20	-14.93	-0.005890		
	30	-17.02	-0.006714		
	40	-3.86	-0.001523		
	50	27.02	0.010659		
16QAM					
3.80	-30	-15.82	-0.006241	Within authorized band for Band 7	Pass
	-20	-21.46	-0.008465		
	-10	-20.87	-0.008233		
	0	-14.83	-0.005850		
	10	-7.45	-0.002939		
	20	-28.42	-0.011211		
	30	16.87	0.006655		
	40	-8.87	-0.003499		
	50	4.38	0.001728		
64QAM					
3.80	-30	-8.21	-0.003239	Within authorized band for Band 7	Pass
	-20	-24.60	-0.009704		
	-10	-7.35	-0.002899		
	0	14.32	0.005649		
	10	25.32	0.009988		
	20	-5.95	-0.002347		
	30	-8.10	-0.003195		
	40	-18.81	-0.007420		
	50	18.38	0.007250		

Voltage					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	3.50	-27.74	-0.010943	Within authorized band for Band 7	Pass
	3.80	-22.04	-0.008694		
	4.35	3.23	0.001274		
16QAM					
25	3.50	-19.71	-0.007775	Within authorized band for Band 7	Pass
	3.80	-3.00	-0.001183		
	4.35	-18.31	-0.007223		
64QAM					
25	3.50	19.98	0.007882	Within authorized band for Band 7	Pass
	3.80	-21.41	-0.008446		
	4.35	7.74	0.003053		
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					
3.80	-30	-11.10	-0.015689	Within authorized band for Band 12	Pass
	-20	-13.30	-0.018799		
	-10	-9.10	-0.012862		
	0	-8.17	-0.011548		
	10	-7.78	-0.010996		
	20	-8.87	-0.012537		
	30	-2.99	-0.004226		
	40	-4.61	-0.006516		
	50	-4.85	-0.006855		
16QAM					
3.80	-30	-12.15	-0.017173	Within authorized band for Band 12	Pass
	-20	-7.78	-0.010996		
	-10	-9.80	-0.013852		
	0	-7.62	-0.010770		
	10	-6.65	-0.009399		
	20	-6.48	-0.009159		
	30	-6.95	-0.009823		
	40	-10.83	-0.015307		
	50	-7.38	-0.010431		
64QAM					
3.80	-30	-10.63	-0.015025	Within authorized band for Band 12	Pass
	-20	-11.62	-0.016424		
	-10	-3.05	-0.004311		
	0	-15.25	-0.021555		
	10	-7.97	-0.011265		
	20	-9.33	-0.013187		
	30	-5.99	-0.008466		
	40	-7.77	-0.010982		
	50	-3.68	-0.005201		

Voltage					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	3.50	-10.53	-0.014883	Within authorized band for Band 12	Pass
	3.80	-9.97	-0.014092		
	4.35	-10.63	-0.015025		
16QAM					
25	3.50	-6.12	-0.008650	Within authorized band for Band 12	Pass
	3.80	-6.11	-0.008636		
	4.35	-5.94	-0.008396		
64QAM					
25	3.50	-14.32	-0.020240	Within authorized band for Band 12	Pass
	3.80	-11.53	-0.016297		
	4.35	-10.34	-0.014615		
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 (℃)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
3.80	-30	-7.40	-0.010423	Within authorized band for Band 17	Pass
	-20	-9.98	-0.014056		
	-10	-9.78	-0.013775		
	0	-4.36	-0.006141		
	10	-12.49	-0.017592		
	20	-9.47	-0.013338		
	30	-10.80	-0.015211		
	40	-5.09	-0.007169		
	50	-4.63	-0.006521		
16QAM					
3.80	-30	-12.86	-0.018113	Within authorized band for Band 17	Pass
	-20	-7.87	-0.011085		
	-10	-11.84	-0.016676		
	0	-4.94	-0.006958		
	10	-10.43	-0.014690		
	20	-9.68	-0.013634		
	30	-9.56	-0.013465		
	40	-8.40	-0.011831		
	50	-7.85	-0.011056		
64QAM					
3.80	-30	-7.84	-0.011042	Within authorized band for Band 17	Pass
	-20	-7.55	-0.010634		
	-10	-13.70	-0.019296		
	0	-7.74	-0.010901		
	10	-11.60	-0.016338		
	20	-9.43	-0.013282		
	30	-5.14	-0.007239		
	40	-11.04	-0.015549		
	50	-6.65	-0.009366		

Voltage					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	3.50	-12.76	-0.017972	Within authorized band for Band 17	Pass
	3.80	-6.68	-0.009408		
	4.35	-6.90	-0.009718		
16QAM					
25	3.50	-11.70	-0.016479	Within authorized band for Band 17	Pass
	3.80	-6.79	-0.009563		
	4.35	-11.54	-0.016254		
64QAM					
25	3.50	-9.47	-0.013338	Within authorized band for Band 17	Pass
	3.80	-14.18	-0.019972		
	4.35	-9.51	-0.013394		
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=40620 Frequency=2593.0MHz					
Temperature					
Power supplied (Vdc)	Temperature (°C)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
3.80	-30	-19.73	-0.007609	Within authorized band for Band 41	Pass
	-20	-17.47	-0.006737		
	-10	-13.46	-0.005191		
	0	-4.94	-0.001905		
	10	-6.97	-0.002688		
	20	-13.55	-0.005226		
	30	-5.52	-0.002129		
	40	-13.62	-0.005253		
	50	-11.52	-0.004443		
16QAM					
3.80	-30	9.96	0.003841	Within authorized band for Band 41	Pass
	-20	-14.92	-0.005754		
	-10	-18.14	-0.006996		
	0	-17.35	-0.006691		
	10	-19.96	-0.007698		
	20	-16.37	-0.006313		
	30	-8.98	-0.003463		
	40	7.65	0.002950		
	50	-4.22	-0.001627		
64QAM					
3.80	-30	-17.54	-0.006764	Within authorized band for Band 41	Pass
	-20	-11.06	-0.004265		
	-10	-13.19	-0.005087		
	0	-12.56	-0.004844		
	10	-10.40	-0.004011		
	20	7.51	0.002896		
	30	3.39	0.001307		
	40	-16.02	-0.006178		
	50	-13.90	-0.005361		

Voltage					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	3.50	-2.53	-0.000976	Within authorized band for Band 41	Pass
	3.80	-16.02	-0.006178		
	4.35	-13.13	-0.005064		
16QAM					
25	3.50	-9.46	-0.003648	Within authorized band for Band41	Pass
	3.80	-11.10	-0.004281		
	4.35	-9.91	-0.003822		
64QAM					
25	3.50	9.63	0.003714	Within authorized band for Band41	Pass
	3.80	6.85	0.002642		
	4.35	6.17	0.002379		
Remark: All bandwidth and all modulation had been tested, but only the worst case data displayed in this report.					

LTE Bad 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					
3.80	-30	-18.17	-0.010413	Within authorized band for Band 66	Pass
	-20	10.87	0.006229		
	-10	10.37	0.005943		
	0	-14.95	-0.008567		
	10	-12.03	-0.006894		
	20	-10.53	-0.006034		
	30	-18.44	-0.010567		
	40	-19.57	-0.011215		
	50	-20.10	-0.011519		
16QAM					
3.80	-30	-6.55	-0.003754	Within authorized band for Band 66	Pass
	-20	-18.73	-0.010734		
	-10	-20.53	-0.011765		
	0	6.75	0.003868		
	10	-18.93	-0.010848		
	20	-16.98	-0.009731		
	30	-18.34	-0.010510		
	40	-4.11	-0.002355		
	50	-5.38	-0.003083		
64QAM					
3.80	-30	-4.66	-0.002670	Within authorized band for Band 66	Pass
	-20	3.26	0.001868		
	-10	-14.09	-0.008074		
	0	-15.79	-0.009049		
	10	-16.42	-0.009410		
	20	10.37	0.005943		
	30	-13.88	-0.007954		
	40	-18.22	-0.010441		
	50	-2.43	-0.001393		