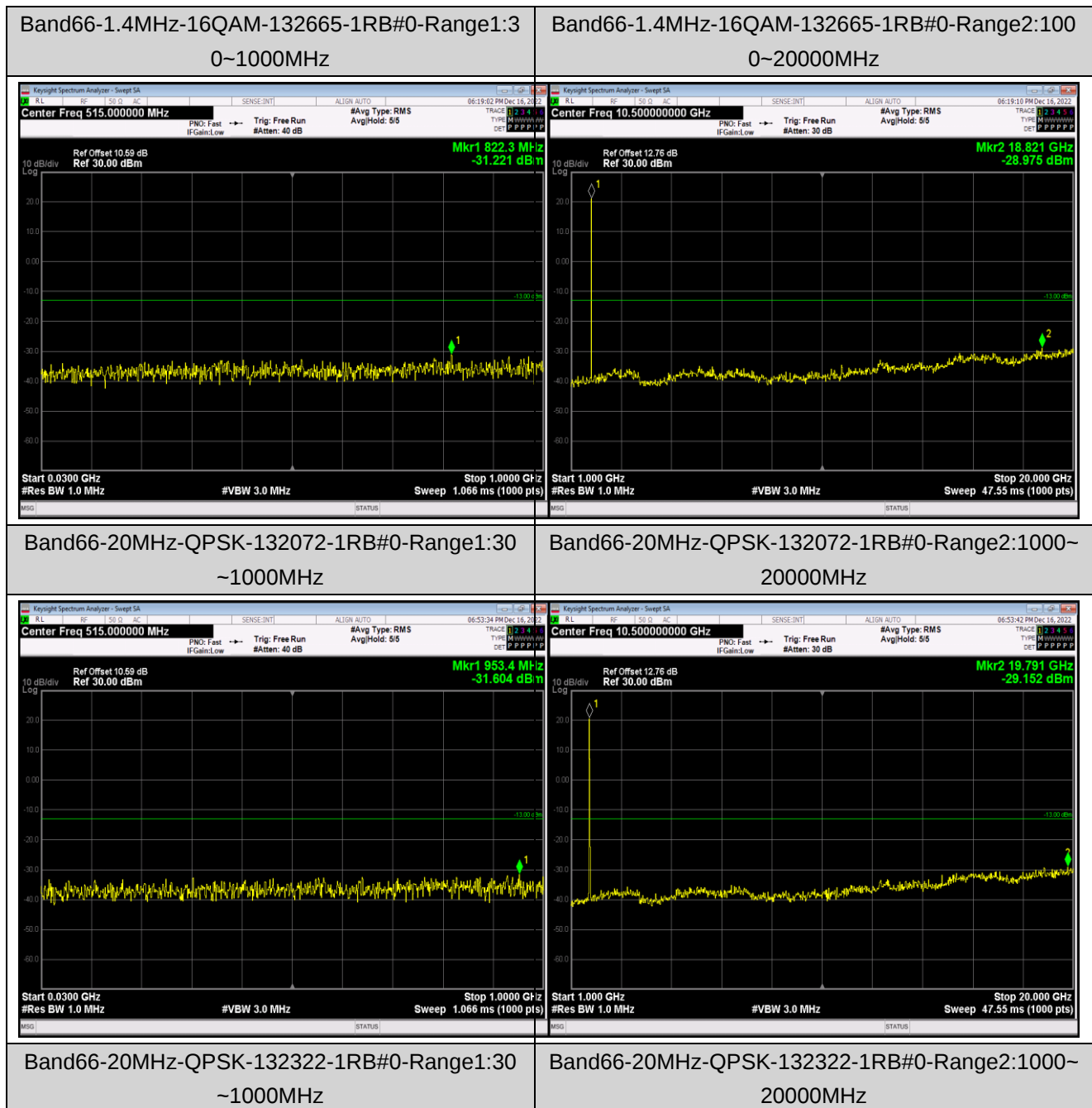
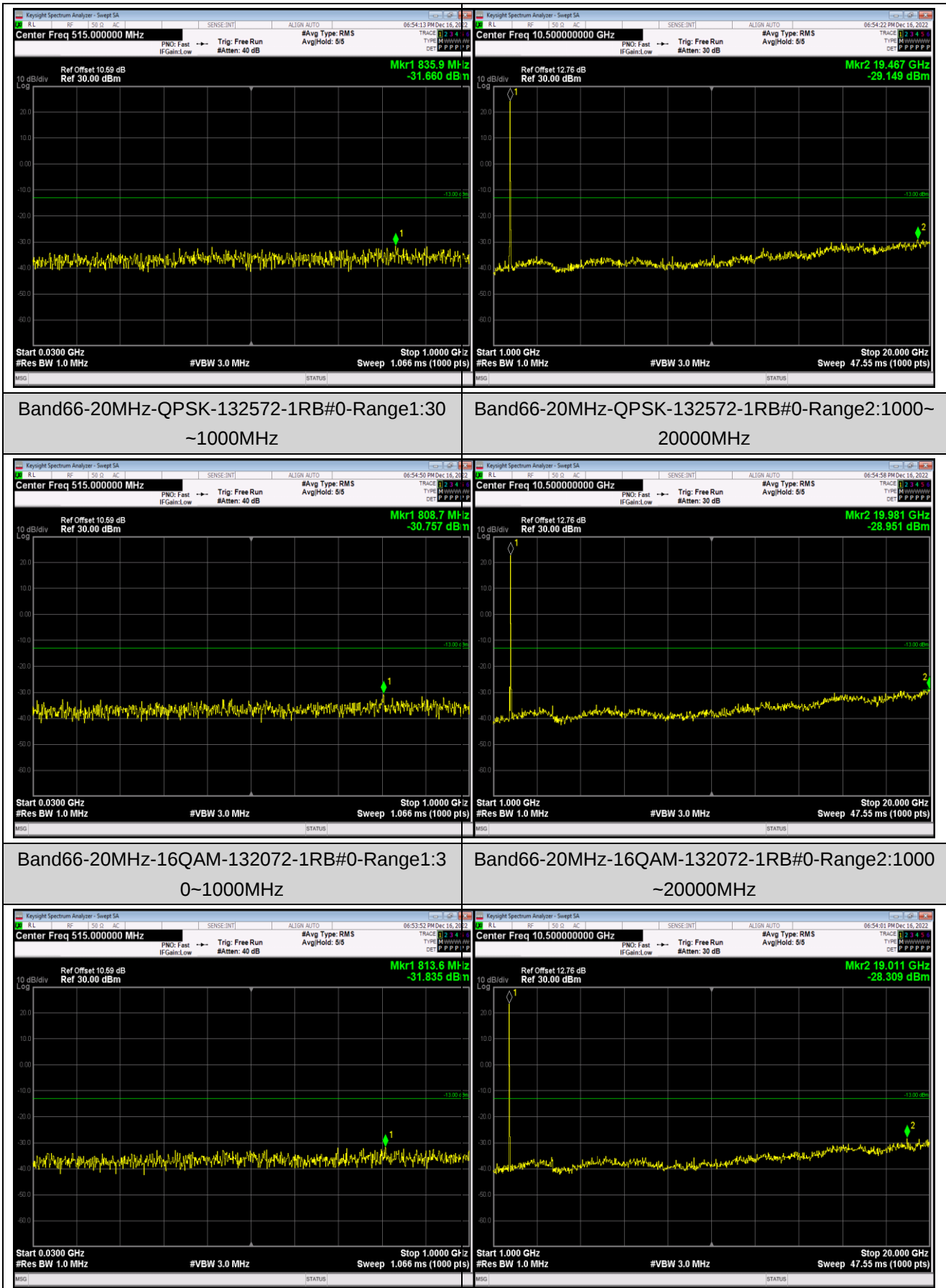
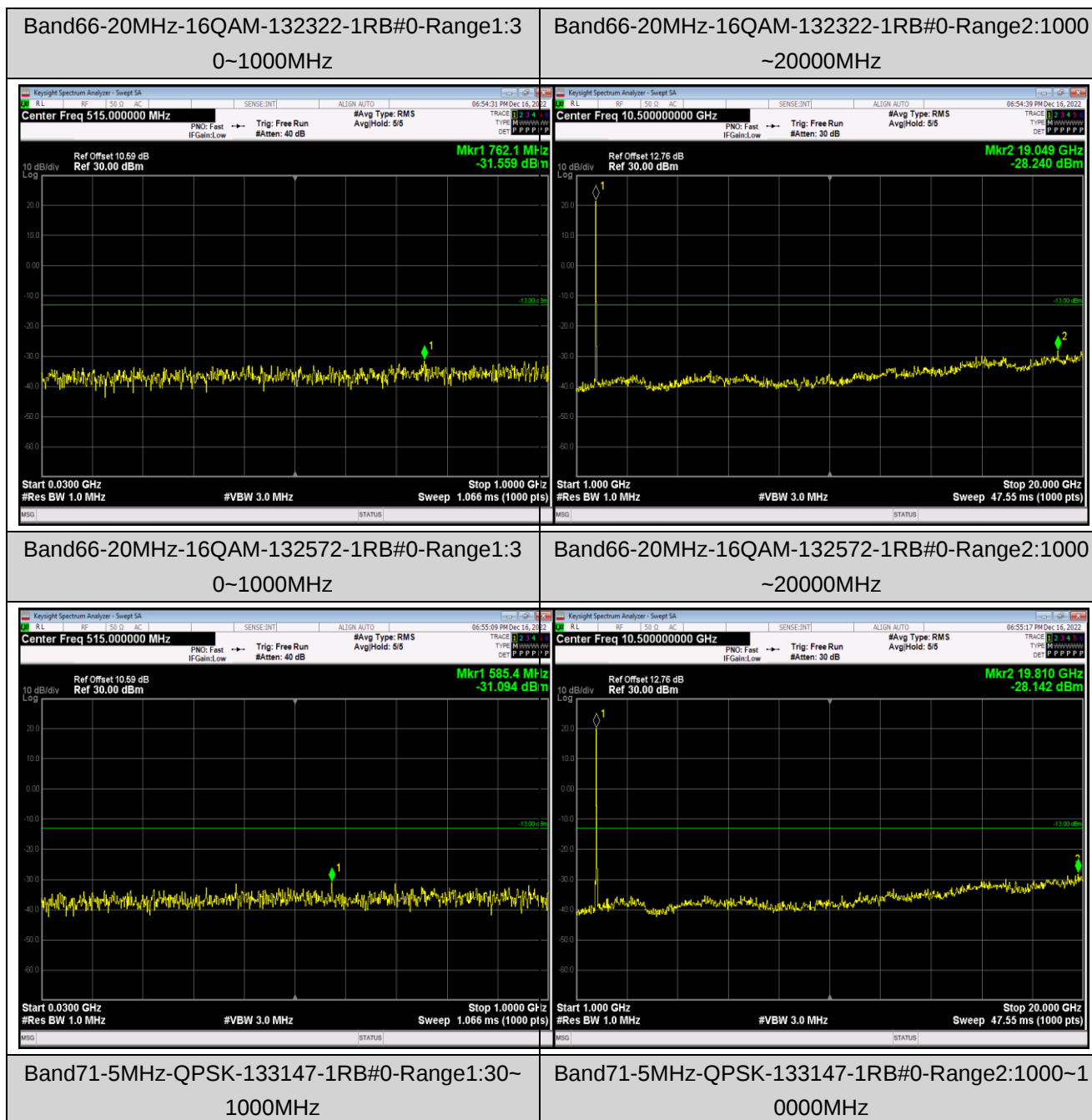
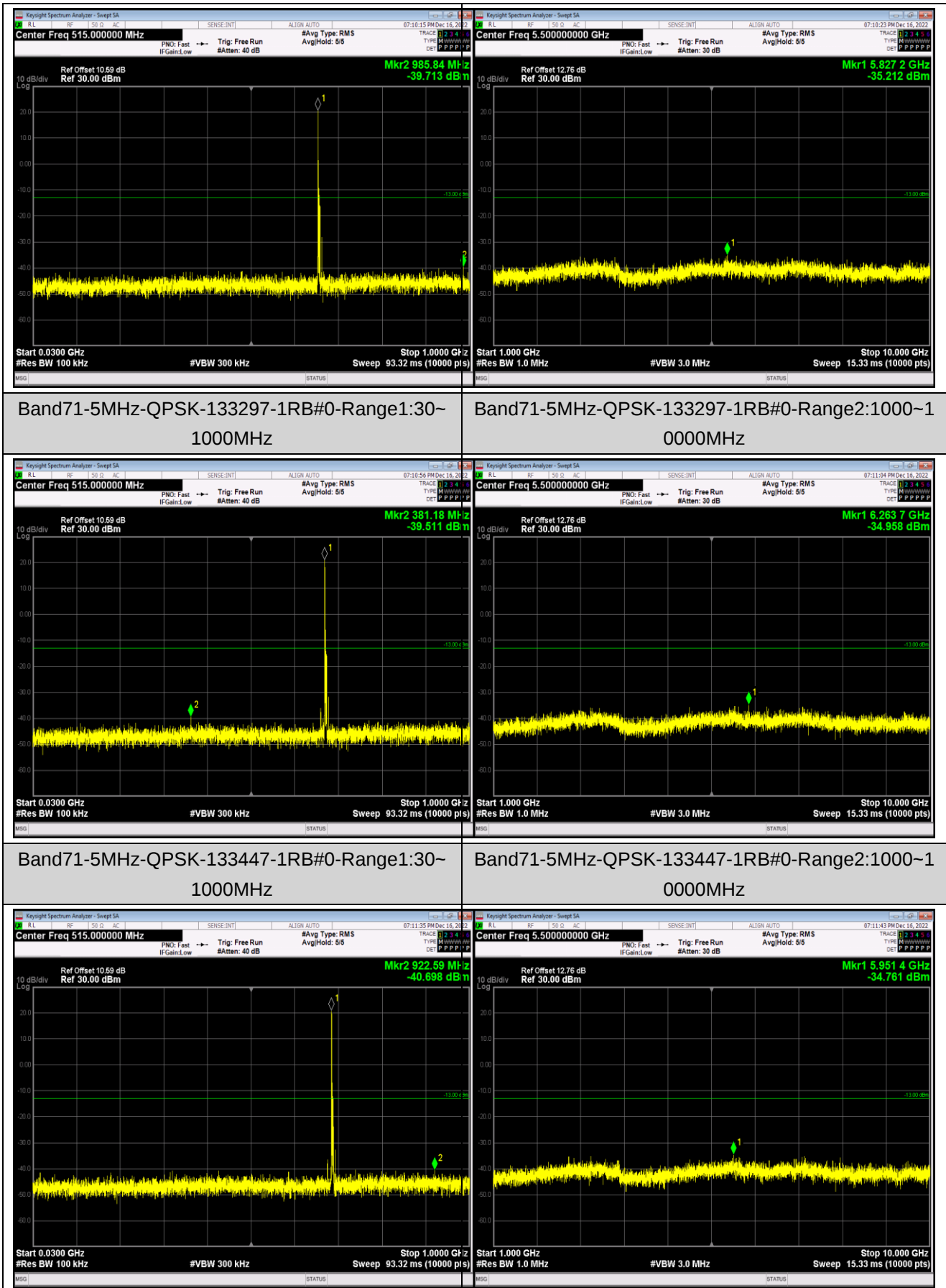
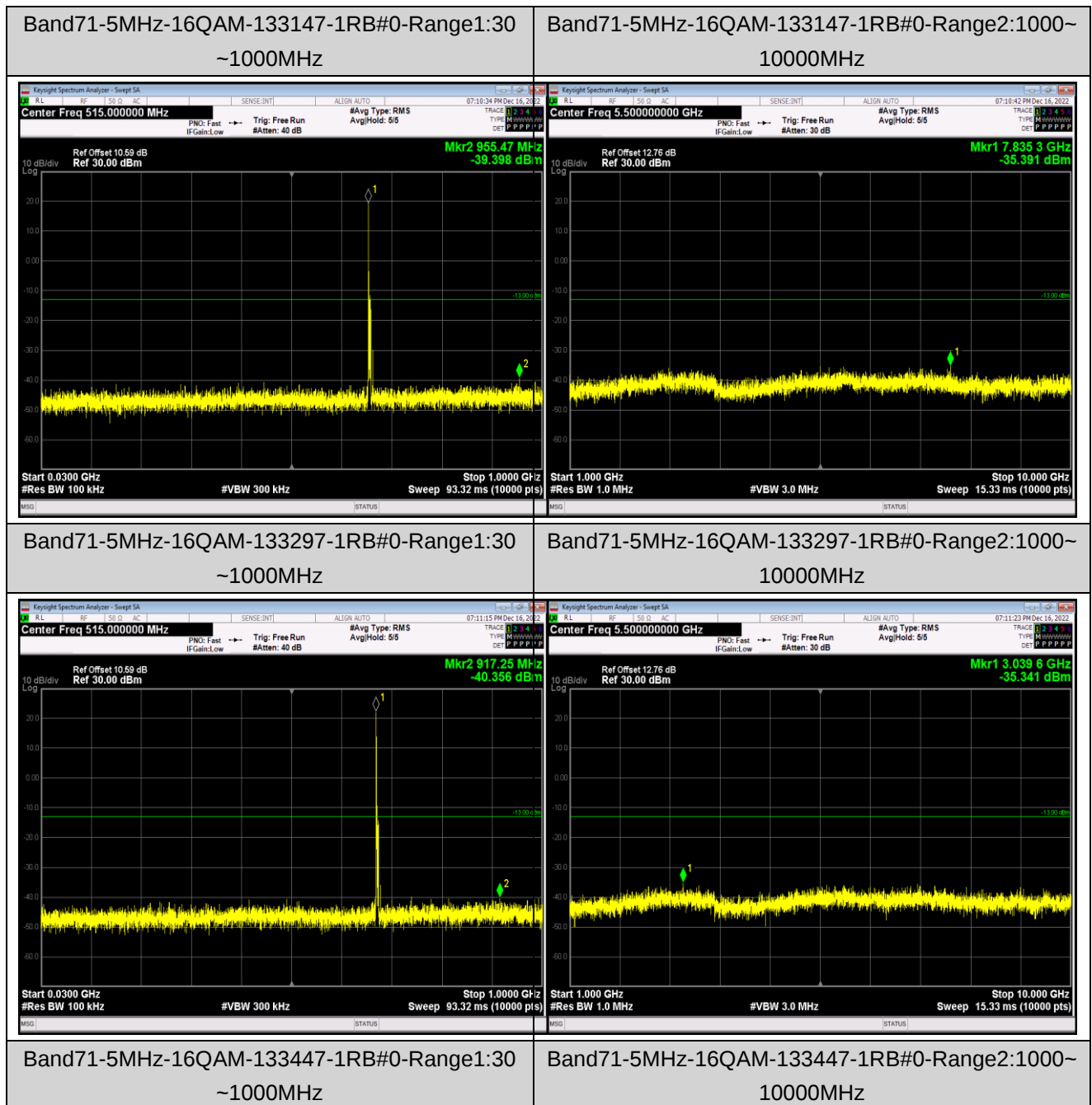


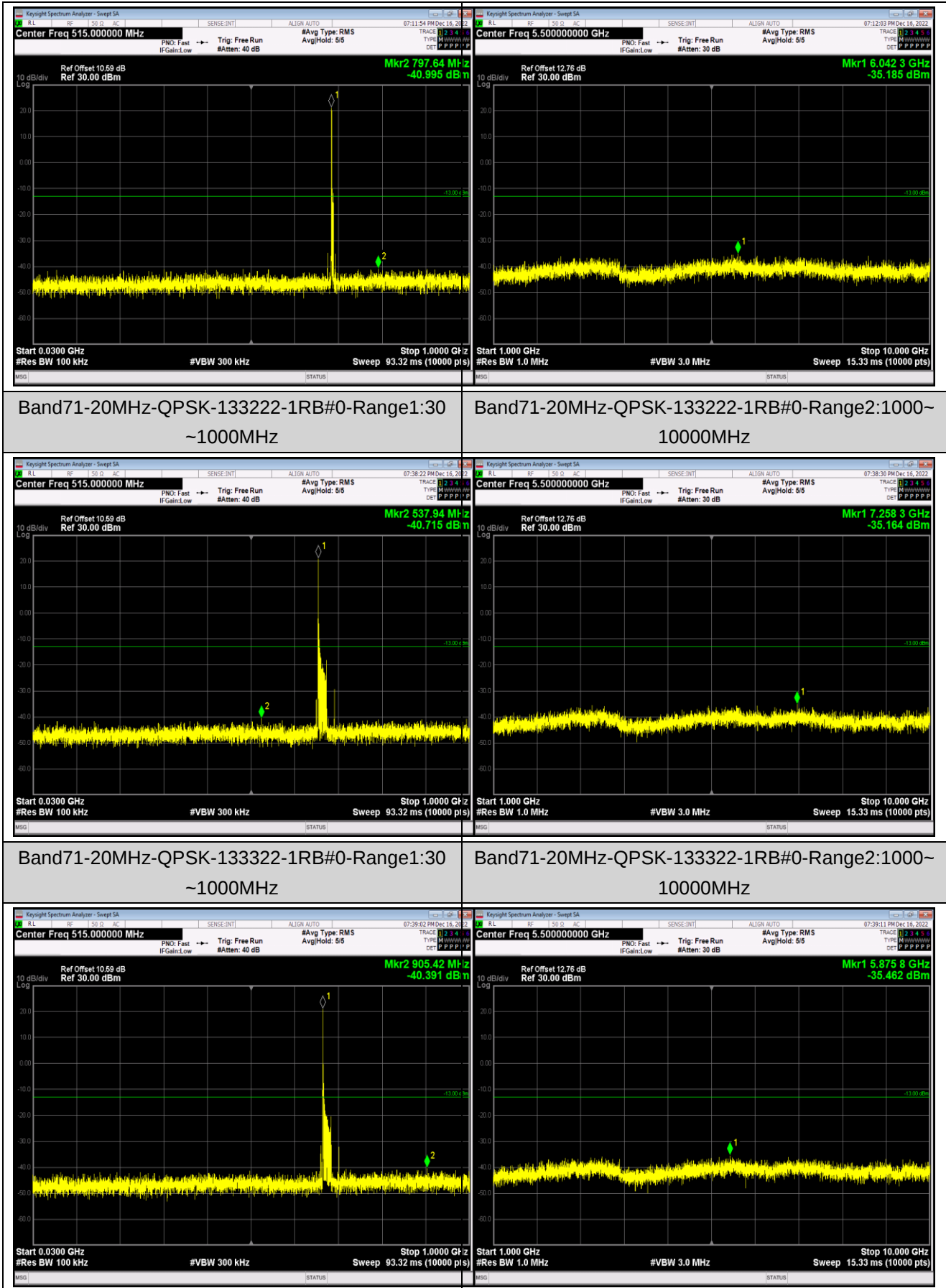


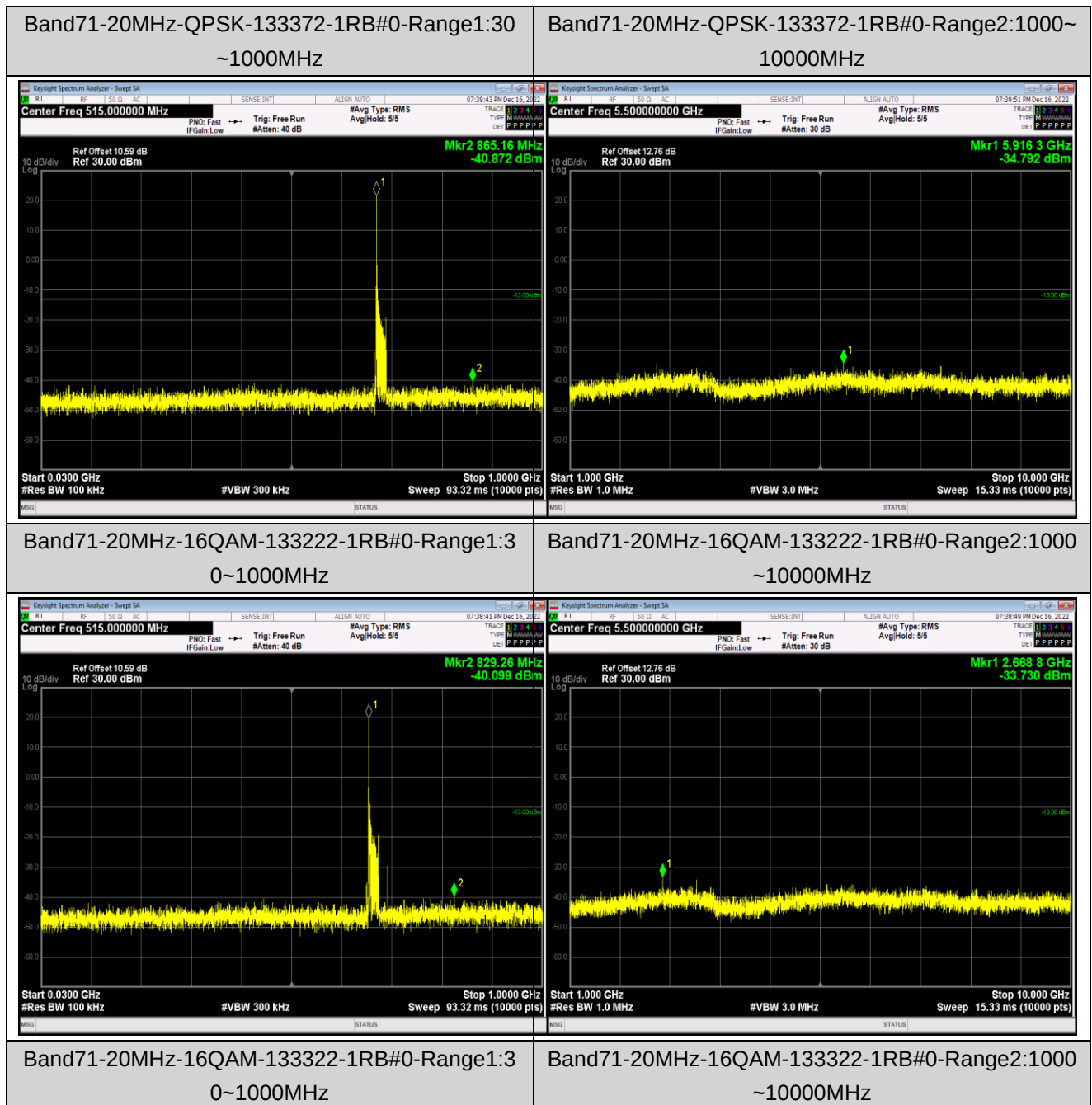


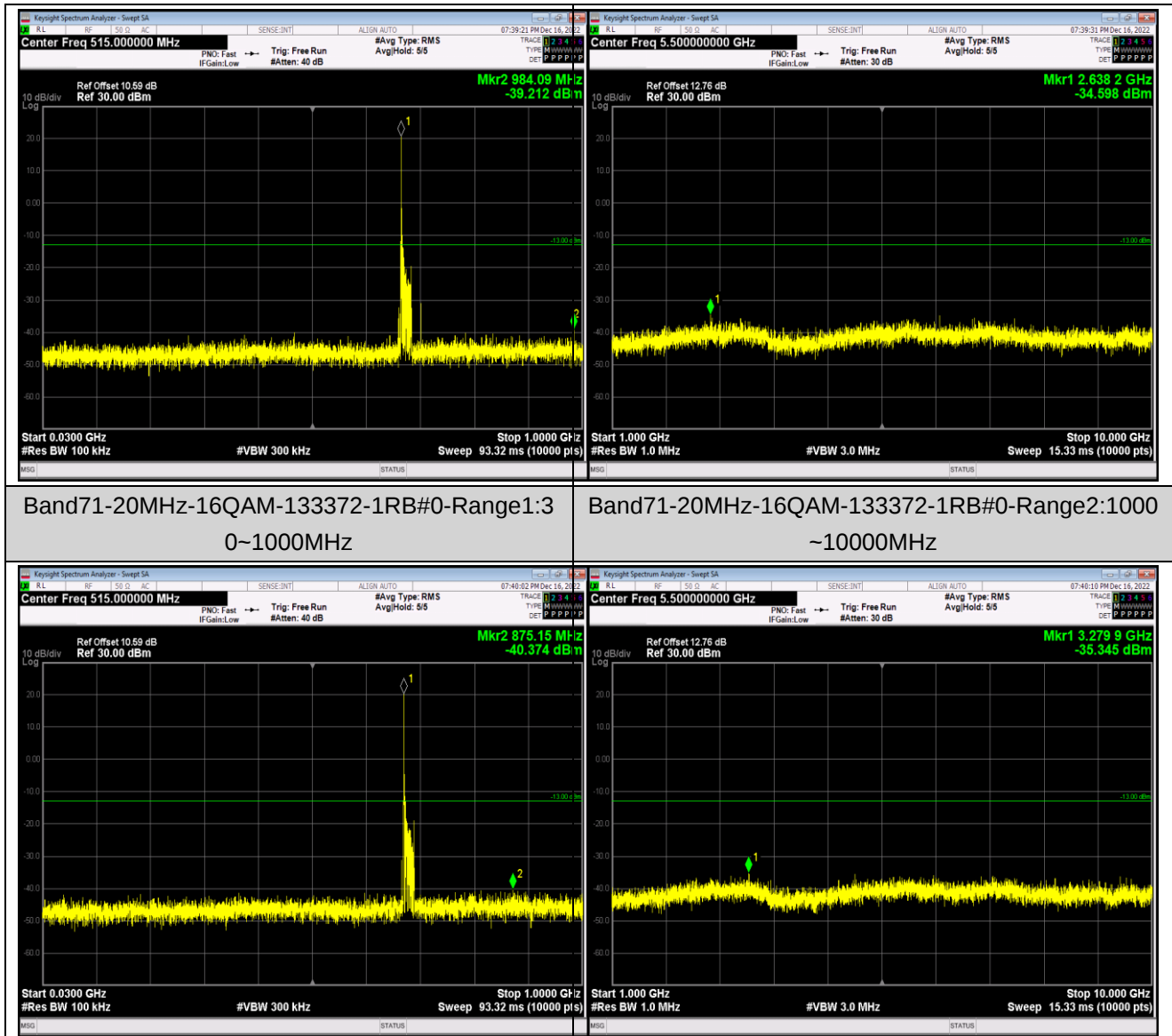












Appendix F: Frequency Stability

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	-20.66	-0.010989	Within authorized band for Band 2	Pass
	-20	-16.98	-0.009032		
	-10	-39.45	-0.020984		
	0	-39.14	-0.020819		
	10	-36.21	-0.019261		
	20	-13.92	-0.007404		
	30	18.65	0.009920		
	40	26.89	0.014303		
	50	28.57	0.015197		
16QAM					
3.70	-30	36.52	0.019426	Within authorized band for Band 2	Pass
	-20	41.99	0.022335		
	-10	23.20	0.012340		
	0	5.48	0.002915		
	10	25.95	0.013803		
	20	41.96	0.022319		
	30	16.35	0.008697		
	40	36.11	0.019207		
	50	39.73	0.021133		
Voltage					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	3.50	-24.93	-0.013261	Within authorized band for Band 2	Pass
	3.70	-14.51	-0.007718		
	4.20	-45.75	-0.024335		
16QAM					
25	3.50	30.54	0.016245	Within authorized band for Band 2	Pass
	3.70	17.68	0.009404		
	4.40	25.62	0.013628		
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	22.07	0.026384	Within authorized band for Band 5	Pass
	-20	43.10	0.051524		
	-10	25.98	0.031058		
	0	43.52	0.052026		
	10	2.83	0.003383		
	20	20.87	0.024949		
	30	44.60	0.053317		
	40	18.41	0.022008		
	50	40.74	0.048703		
16QAM					
3.70	-30	4.58	0.005475	Within authorized band for Band 5	Pass
	-20	-26.25	-0.031381		
	-10	-44.36	-0.053030		
	0	-26.71	-0.031931		
	10	-15.56	-0.018601		
	20	-10.14	-0.012122		
	30	-30.76	-0.036772		
	40	-4.92	-0.005882		
	50	-32.47	-0.038816		
Voltage					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	3.50	8.34	0.009970	Within authorized band for Band 5	Pass
	3.70	-52.11	-0.062295		
	4.20	50.07	0.059857		
16QAM					
25	3.50	2.88	0.003443	Within authorized band for Band 5	Pass
	3.70	16.12	0.019271		
	4.20	-11.20	-0.013389		
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	7.74	0.010940	Within authorized band for Band 12	Pass
	-20	6.05	0.008551		
	-10	7.04	0.009951		
	0	8.43	0.011915		
	10	6.39	0.009032		
	20	8.74	0.012353		
	30	8.17	0.011548		
	40	11.23	0.015873		
	50	11.46	0.016198		
16QAM					
3.70	-30	8.90	0.012580	Within authorized band for Band 12	Pass
	-20	10.41	0.014714		
	-10	9.98	0.014106		
	0	9.30	0.013145		
	10	11.26	0.015915		
	20	4.81	0.006799		
	30	8.18	0.011562		
	40	7.08	0.010007		
	50	7.21	0.010191		
Voltage					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	3.50	5.68	0.008028	Within authorized band for Band 12	Pass
	3.70	9.87	0.013951		
	4.20	4.71	0.006657		
16QAM					
25	3.50	12.80	0.018092	Within authorized band for Band 12	Pass
	3.70	8.45	0.011943		
	4.20	10.74	0.015180		
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					
3.70	-30	7.24	0.010197	Within authorized band for Band 17	Pass
	-20	10.23	0.014408		
	-10	10.19	0.014352		
	0	10.36	0.014592		
	10	11.83	0.016662		
	20	14.65	0.020634		
	30	18.02	0.025380		
	40	23.25	0.032746		
	50	25.36	0.035718		
16QAM					
3.70	-30	17.44	0.024563	Within authorized band for Band 17	Pass
	-20	12.52	0.017634		
	-10	10.51	0.014803		
	0	8.45	0.011901		
	10	5.61	0.007901		
	20	-3.43	-0.004831		
	30	-6.01	-0.008465		
	40	-5.04	-0.007099		
	50	-4.78	-0.006732		
Voltage					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	3.50	-8.87	-0.012493	Within authorized band for Band 17	Pass
	3.70	-2.09	-0.002944		
	4.20	-4.88	-0.006873		
16QAM					
25	3.50	21.14	0.029775	Within authorized band for Band 17	Pass
	3.70	25.63	0.036099		
	4.20	16.24	0.022873		
Remark: All bandwidth and all modulation had been tested, but only the worst case data displayed in this report.					

LTE Band 41 part: (2555-2655)

Reference Frequency: LTE Band 41 (10MHz) Middle channel=40740 Frequency=2605.0MHz					
Temperature					
Power supplied (Vdc)	Temperature (°C)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
3.70	-30	-13.48	-0.005175	Within authorized band for Band 41	Pass
	-20	-55.36	-0.021251		
	-10	-35.79	-0.013739		
	0	17.92	0.006879		
	10	-16.82	-0.006457		
	20	-31.43	-0.012065		
	30	-52.94	-0.020322		
	40	-17.35	-0.006660		
	50	-43.09	-0.016541		
16QAM					
3.70	-30	15.19	0.005831	Within authorized band for Band 41	Pass
	-20	22.50	0.008637		
	-10	30.86	0.011846		
	0	41.64	0.015985		
	10	48.95	0.018791		
	20	45.05	0.017294		
	30	50.98	0.019570		
	40	55.09	0.021148		
	50	-21.04	-0.008077		
Voltage					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	3.50	52.40	0.020115	Within authorized band for Band 41	Pass
	3.70	45.88	0.017612		
	4.20	16.42	0.006303		
16QAM					
25	3.50	12.23	0.004695	Within authorized band for Band41	Pass
	3.70	16.95	0.006507		
	4.20	-9.04	-0.003470		
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	-18.98	-0.010877	Within authorized band for Band 66	Pass
	-20	-18.65	-0.010688		
	-10	-35.73	-0.020476		
	0	-7.55	-0.004327		
	10	-8.07	-0.004625		
	20	-20.40	-0.011691		
	30	-21.26	-0.012183		
	40	-37.59	-0.021542		
	50	-39.25	-0.022493		
16QAM					
3.70	-30	-7.80	-0.004470	Within authorized band for Band 66	Pass
	-20	-17.64	-0.010109		
	-10	-27.22	-0.015599		
	0	16.05	0.009198		
	10	-4.76	-0.002728		
	20	-34.05	-0.019513		
	30	5.68	0.003255		
	40	-13.19	-0.007559		
	50	-18.64	-0.010682		
Voltage					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	3.50	-30.70	-0.017593	Within authorized band for Band 66	Pass
	3.70	-23.59	-0.013519		
	4.20	-18.93	-0.010848		
16QAM					
25	3.50	-42.07	-0.024109	Within authorized band for Band 66	Pass
	3.70	-47.95	-0.027479		
	4.20	-31.64	-0.018132		
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					
3.70	-30	5.46	0.008024	Within authorized band for Band 71	Pass
	-20	5.98	0.008788		
	-10	3.23	0.004747		
	0	2.73	0.004012		
	10	6.12	0.008993		
	20	2.98	0.004379		
	30	1.93	0.002836		
	40	6.28	0.009229		
	50	7.71	0.011330		
16QAM					
3.70	-30	4.71	0.006921	Within authorized band for Band 71	Pass
	-20	4.33	0.006363		
	-10	5.84	0.008582		
	0	4.62	0.006789		
	10	5.61	0.008244		
	20	6.02	0.008846		
	30	4.55	0.006686		
	40	7.82	0.011492		
	50	3.89	0.005716		
Voltage					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	3.50	-2.79	-0.004100	Within authorized band for Band 71	Pass
	3.70	5.38	0.007906		
	4.20	2.40	0.003527		
16QAM					
25	3.50	7.02	0.010316	Within authorized band for Band 71	Pass
	3.70	6.55	0.009625		
	4.20	7.12	0.010463		
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
Band12	10MHz	QPSK	23095	50RB#0	PASS	PASS
Band12	10MHz	16QAM	23095	50RB#0	PASS	PASS
Band17	10MHz	QPSK	23790	50RB#0	PASS	PASS
Band17	10MHz	16QAM	23790	50RB#0	PASS	PASS
Band41	20MHz	QPSK	40740	100RB#0	PASS	PASS
Band41	20MHz	16QAM	40740	100RB#0	PASS	PASS
Band66	20MHz	QPSK	132322	100RB#0	PASS	PASS
Band66	20MHz	16QAM	132322	100RB#0	PASS	PASS
Band71	20MHz	QPSK	133322	100RB#0	PASS	PASS
Band71	20MHz	16QAM	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

