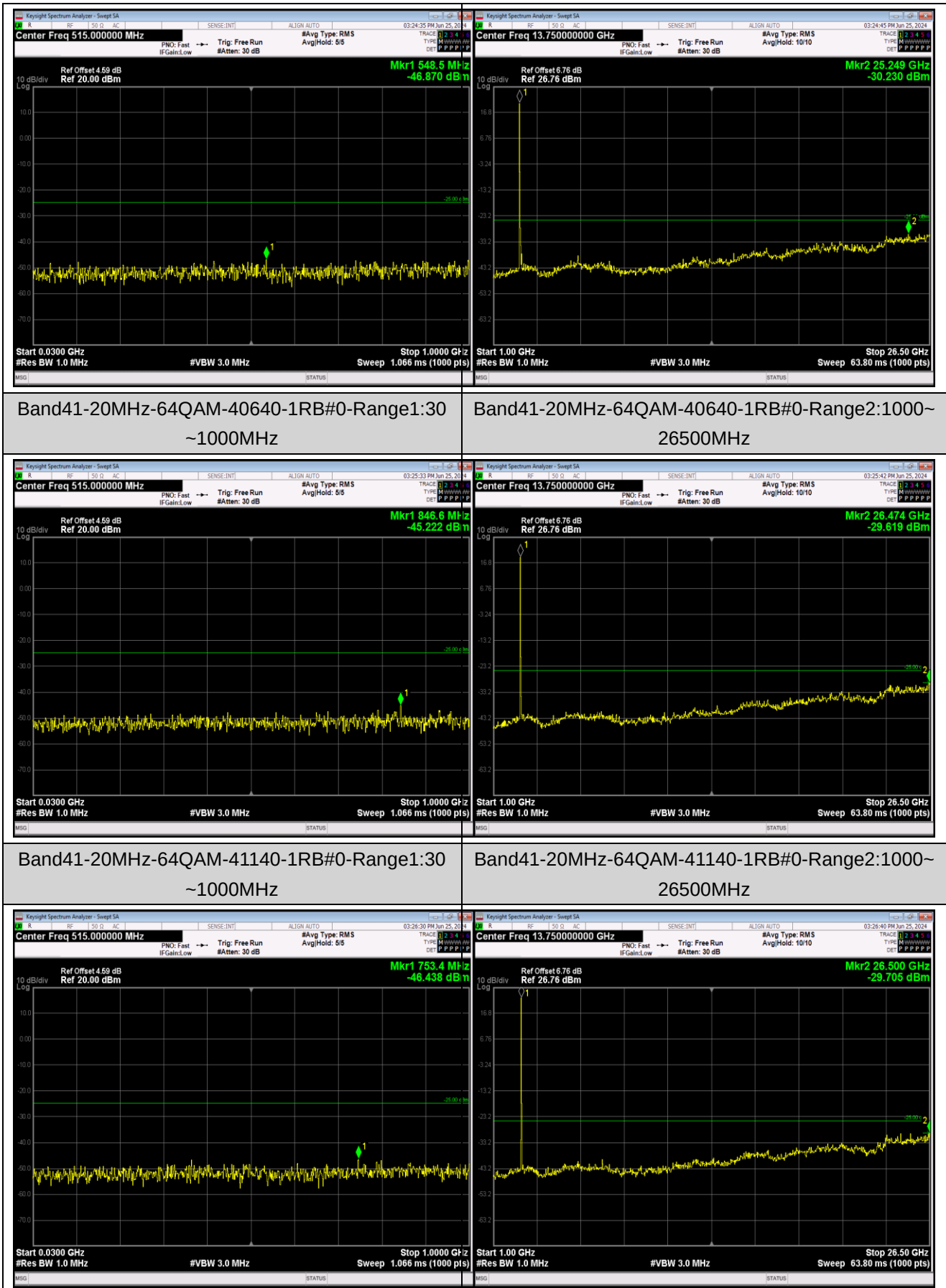
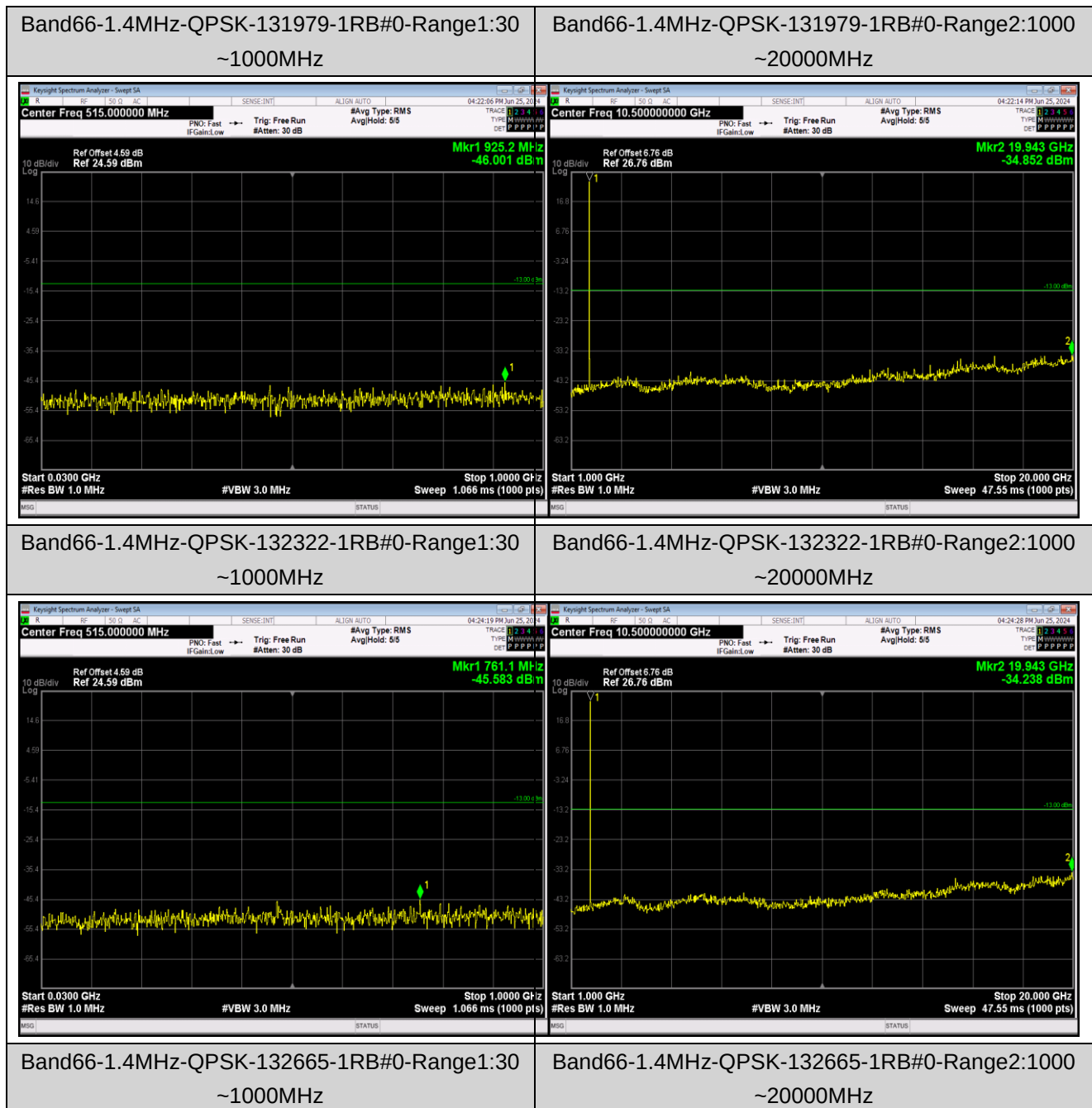
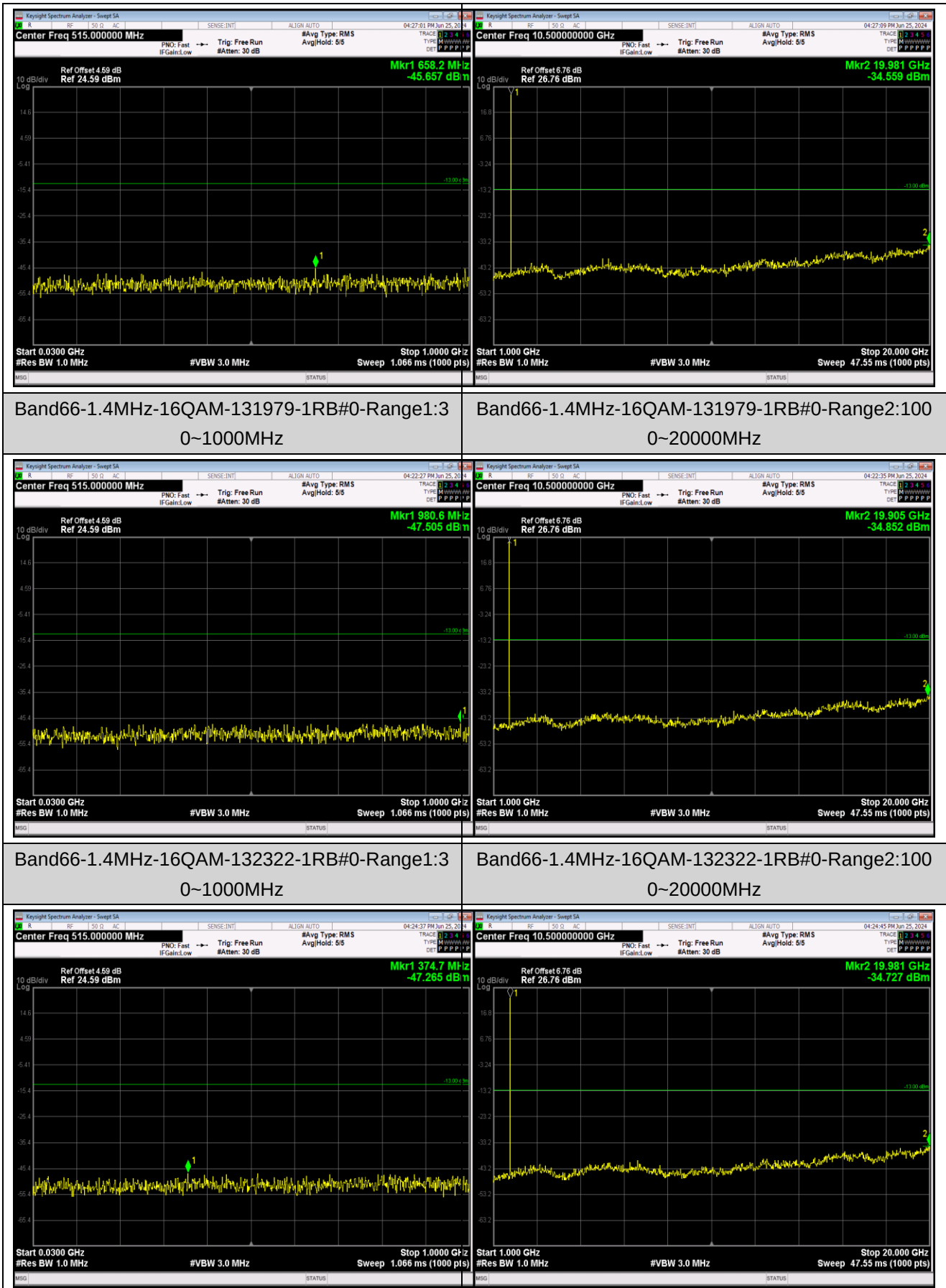
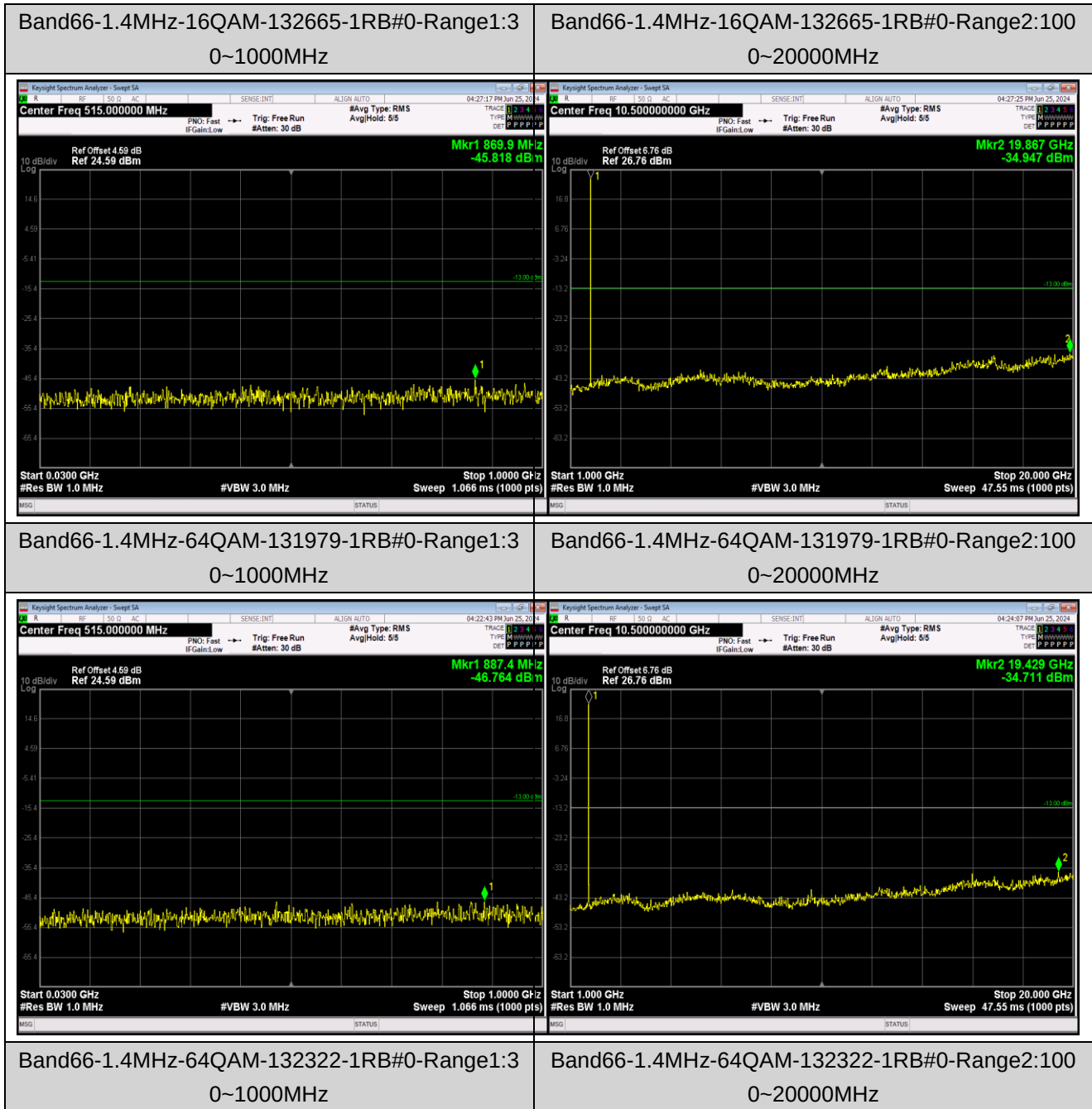
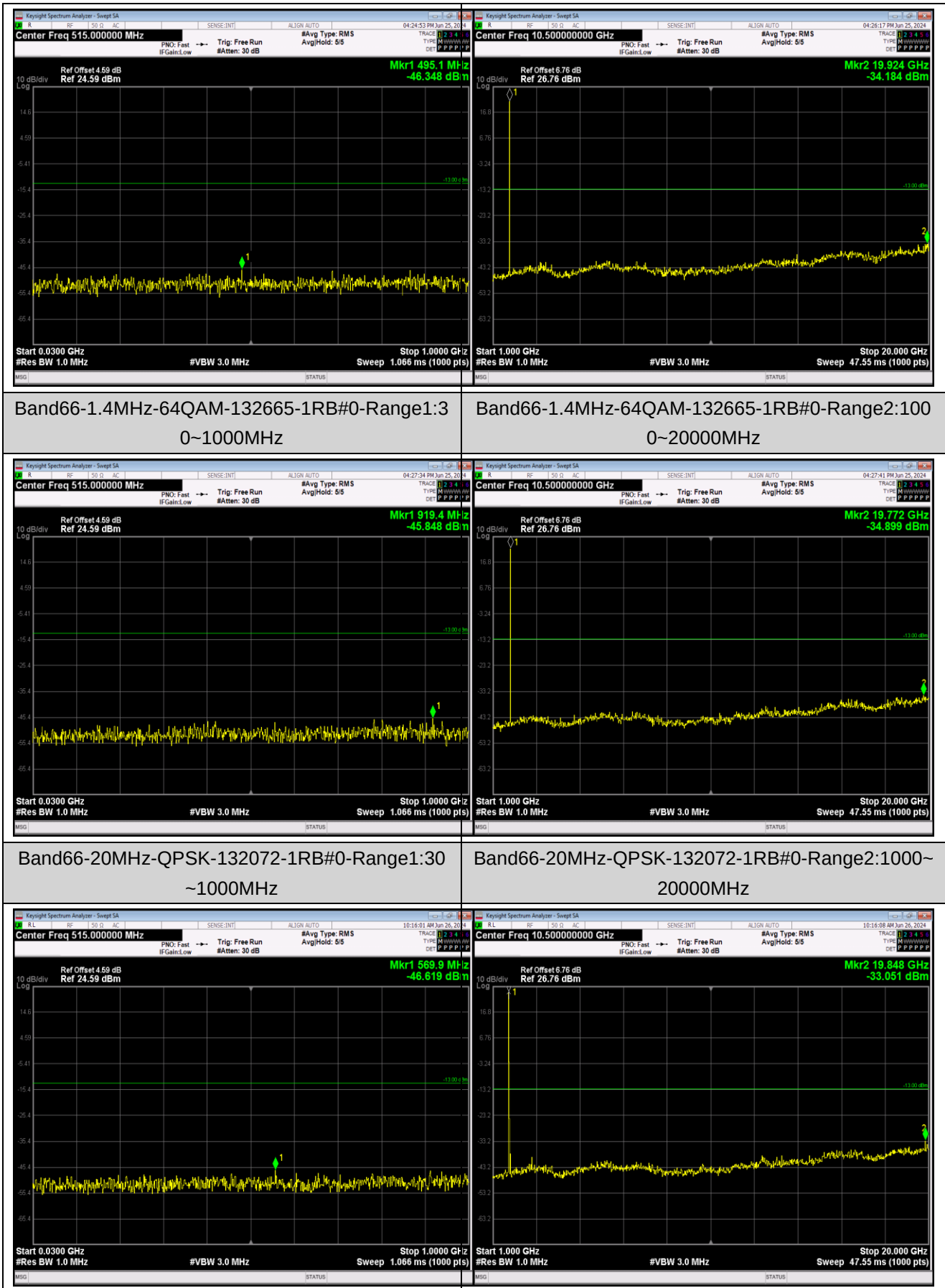


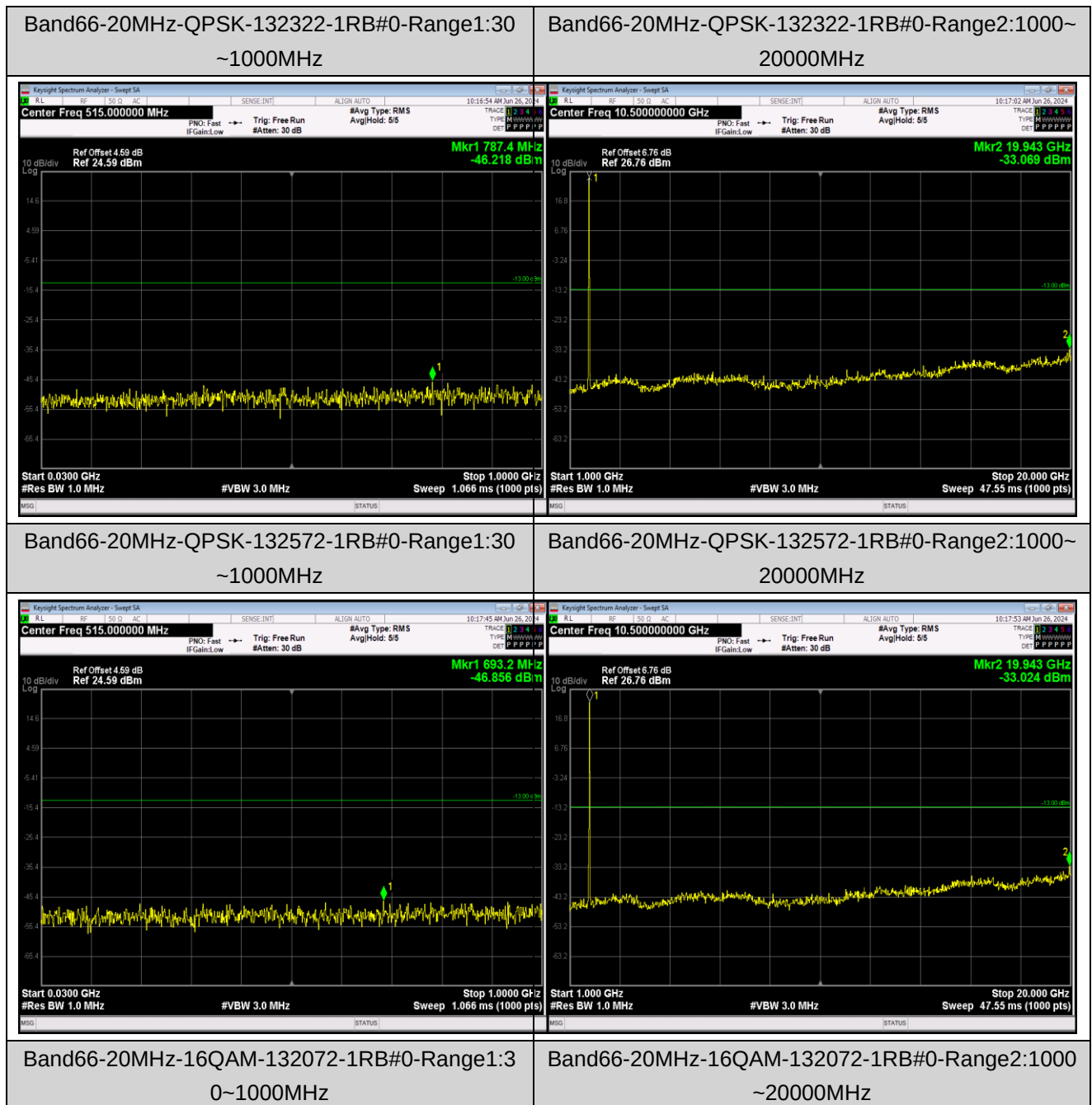


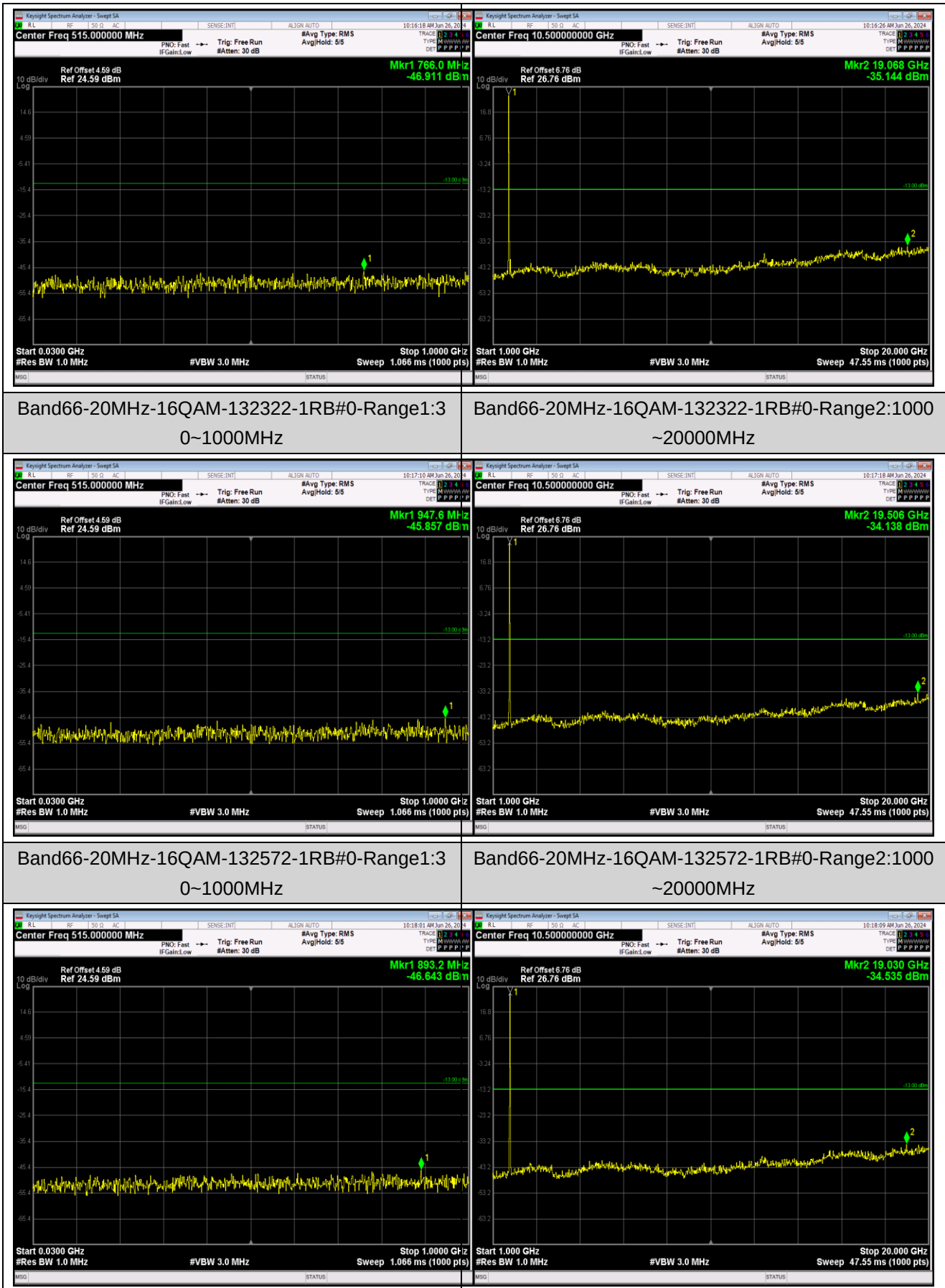


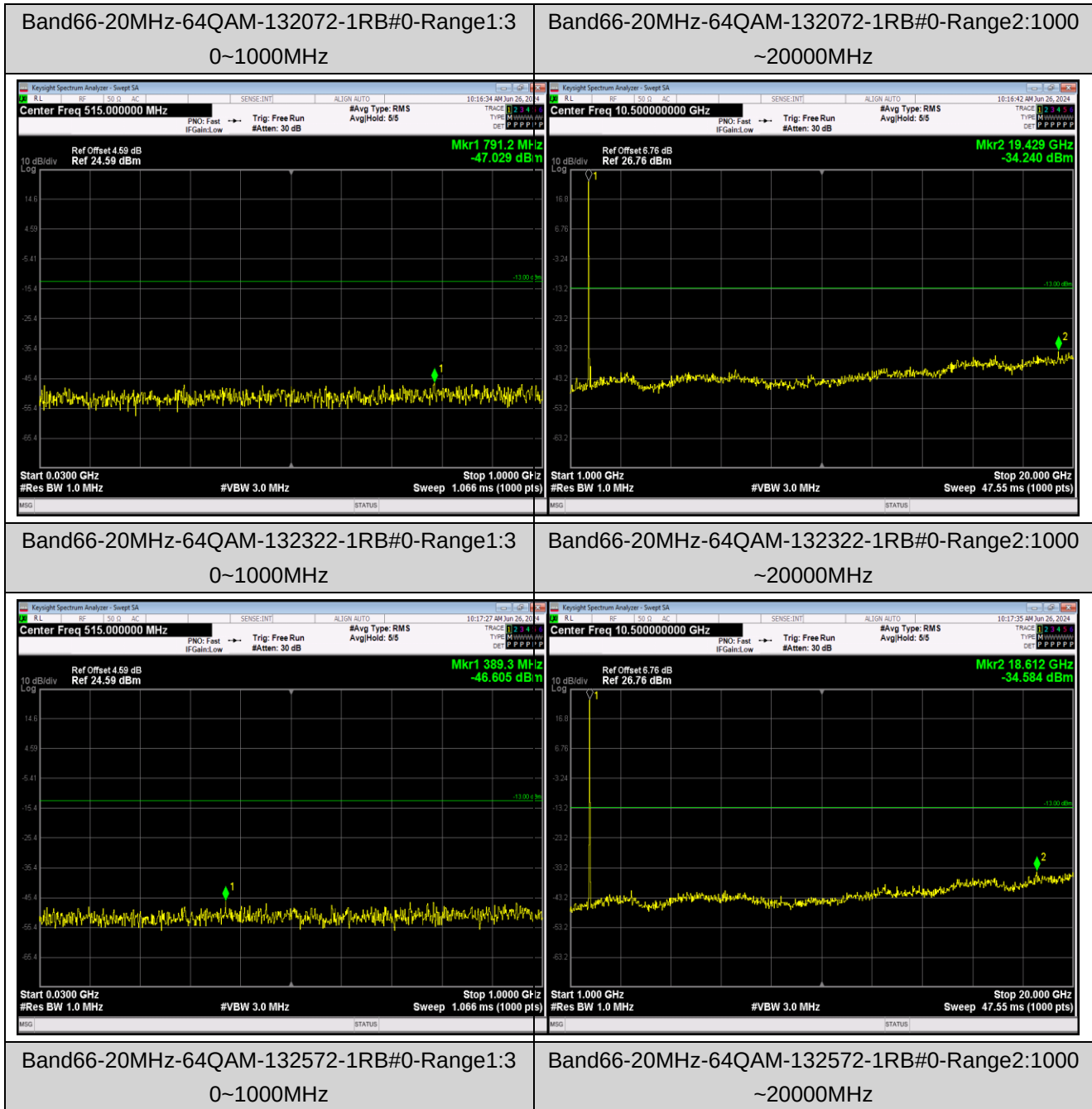


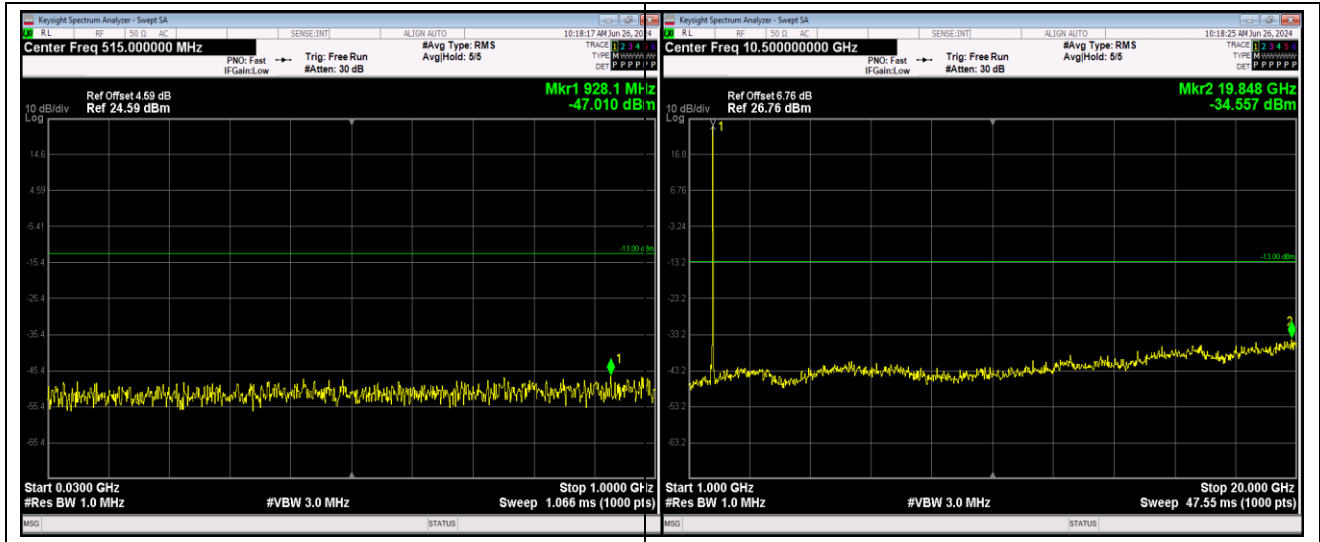












Appendix F: Frequency Stability

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	-57.02	-0.030330	Within authorized band for Band 2	Pass
	-20	-43.30	-0.023032		
	-10	-49.04	-0.026085		
	0	-50.27	-0.026739		
	10	-24.08	-0.012809		
	20	-36.88	-0.019617		
	30	18.18	0.009670		
	40	-17.75	-0.009441		
	50	-19.60	-0.010426		
16QAM					
3.85	-30	15.51	0.008250	Within authorized band for Band 2	Pass
	-20	-13.58	-0.007223		
	-10	-38.88	-0.020681		
	0	-24.15	-0.012846		
	10	40.93	0.021771		
	20	57.81	0.030750		
	30	36.85	0.019601		
	40	41.84	0.022255		
	50	44.12	0.023468		
64QAM					
3.85	-30	-35.86	-0.019074	Within authorized band for Band 2	Pass
	-20	-30.50	-0.016223		
	-10	-14.38	-0.007649		
	0	-27.67	-0.014718		
	10	-38.34	-0.020394		
	20	-60.51	-0.032186		
	30	-39.48	-0.021000		
	40	-22.06	-0.011734		
	50	-37.62	-0.020011		

Voltage					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	3.45	21.20	0.011277	Within authorized band for Band 2	Pass
	3.85	25.96	0.013809		
	4.40	-21.29	-0.011324		
16QAM					
25	3.45	-18.24	-0.009702	Within authorized band for Band 2	Pass
	3.85	-54.52	-0.029000		
	4.40	34.19	0.018186		
64QAM					
25	3.45	18.35	0.009761	Within authorized band for Band 2	Pass
	3.85	21.86	0.011628		
	4.40	-15.65	-0.008324		
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					
3.85	-30	6.77	0.008093	±2.5	Pass
	-20	-9.88	-0.011811		
	-10	-11.13	-0.013305		
	0	-15.82	-0.018912		
	10	-10.70	-0.012791		
	20	-16.72	-0.019988		
	30	-13.15	-0.015720		
	40	-17.38	-0.020777		
	50	-13.68	-0.016354		
16QAM					
3.85	-30	9.83	0.011751	±2.5	Pass
	-20	22.56	0.026970		
	-10	24.66	0.029480		
	0	28.32	0.033855		
	10	32.46	0.038805		
	20	37.36	0.044662		
	30	39.81	0.047591		
	40	53.46	0.063909		
	50	45.58	0.054489		
64QAM					
3.85	-30	-4.55	-0.005439	±2.5	Pass
	-20	4.26	0.005093		
	-10	6.14	0.007340		
	0	8.21	0.009815		
	10	9.44	0.011285		
	20	11.01	0.013162		
	30	11.24	0.013437		
	40	15.02	0.017956		
	50	12.22	0.014608		

Voltage					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	3.45	-10.66	-0.012744	±2.5	Pass
	3.85	11.23	0.013425		
	4.40	-10.06	-0.012026		
16QAM					
25	3.45	-7.24	-0.008655	±2.5	Pass
	3.85	-17.44	-0.020849		
	4.40	7.84	0.009372		
64QAM					
25	3.45	48.72	0.058243	±2.5	Pass
	3.85	49.35	0.058996		
	4.40	51.76	0.061877		
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					
3.85	-30	16.48	0.006501	Within authorized band for Band 7	Pass
	-20	20.60	0.008126		
	-10	9.21	0.003633		
	0	-13.63	-0.005377		
	10	-17.38	-0.006856		
	20	-11.59	-0.004572		
	30	28.25	0.011144		
	40	33.03	0.013030		
	50	21.31	0.008406		
16QAM					
3.85	-30	52.41	0.020675	Within authorized band for Band 7	Pass
	-20	70.75	0.027909		
	-10	29.14	0.011495		
	0	31.34	0.012363		
	10	28.42	0.011211		
	20	44.22	0.017444		
	30	42.66	0.016828		
	40	64.36	0.025389		
	50	71.61	0.028249		
64QAM					
3.85	-30	23.88	0.009420	Within authorized band for Band 7	Pass
	-20	26.06	0.010280		
	-10	27.04	0.010667		
	0	30.34	0.011968		
	10	47.09	0.018576		
	20	43.69	0.017235		
	30	68.16	0.026888		
	40	44.67	0.017621		
	50	27.09	0.010686		

Voltage					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	3.45	-57.81	-0.022805	Within authorized band for Band 7	Pass
	3.85	-22.85	-0.009014		
	4.40	13.03	0.005140		
16QAM					
25	3.45	22.07	0.008706	Within authorized band for Band 7	Pass
	3.85	13.68	0.005396		
	4.40	65.55	0.025858		
64QAM					
25	3.45	-13.39	-0.005282	Within authorized band for Band 7	Pass
	3.85	-22.79	-0.008990		
	4.40	-21.69	-0.008556		
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 (℃)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
3.85	-30	7.42	0.010488	Within authorized band for Band 12	Pass
	-20	-6.88	-0.009724		
	-10	5.22	0.007378		
	0	-6.19	-0.008749		
	10	-4.43	-0.006261		
	20	-4.41	-0.006233		
	30	-6.54	-0.009244		
	40	-9.90	-0.013993		
	50	-6.47	-0.009145		
16QAM					
3.85	-30	-5.42	-0.007661	Within authorized band for Band 12	Pass
	-20	-5.42	-0.007661		
	-10	6.05	0.008551		
	0	-4.08	-0.005767		
	10	-6.98	-0.009866		
	20	6.37	0.009004		
	30	-5.45	-0.007703		
	40	7.22	0.010205		
	50	-4.75	-0.006714		
64QAM					
3.85	-30	-6.78	-0.009583	Within authorized band for Band 12	Pass
	-20	7.98	0.011279		
	-10	6.71	0.009484		
	0	5.69	0.008042		
	10	4.26	0.006021		
	20	9.78	0.013823		
	30	4.79	0.006770		
	40	-8.37	-0.011830		
	50	7.31	0.010332		

Voltage					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	3.45	-8.63	-0.012198	Within authorized band for Band 12	Pass
	3.85	-7.78	-0.010996		
	4.40	-5.51	-0.007788		
16QAM					
25	3.45	-10.90	-0.015406	Within authorized band for Band 12	Pass
	3.85	3.88	0.005484		
	4.40	-7.07	-0.009993		
64QAM					
25	3.45	4.16	0.005880	Within authorized band for Band 12	Pass
	3.85	2.53	0.003576		
	4.40	-5.16	-0.007293		
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=40640 Frequency=2595.0MHz					
Temperature					
Power supplied (Vdc)	Temperature (°C)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
3.85	-30	-51.26	-0.019753	Within authorized band for Band 41	Pass
	-20	-90.37	-0.034825		
	-10	-50.11	-0.019310		
	0	-27.68	-0.010667		
	10	-46.96	-0.018096		
	20	-20.44	-0.007877		
	30	-33.76	-0.013010		
	40	-25.65	-0.009884		
	50	-37.18	-0.014328		
16QAM					
3.85	-30	20.26	0.007807	Within authorized band for Band 41	Pass
	-20	29.25	0.011272		
	-10	33.40	0.012871		
	0	-23.50	-0.009056		
	10	28.97	0.011164		
	20	23.42	0.009025		
	30	18.17	0.007002		
	40	18.22	0.007021		
	50	-28.41	-0.010948		
64QAM					
3.85	-30	48.01	0.018501	Within authorized band for Band 41	Pass
	-20	-26.11	-0.010062		
	-10	-21.76	-0.008385		
	0	-18.17	-0.007002		
	10	-26.25	-0.010116		
	20	30.36	0.011699		
	30	21.40	0.008247		
	40	20.27	0.007811		
	50	15.15	0.005838		

Voltage					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	3.45	-20.57	-0.007927	Within authorized band for Band 41	Pass
	3.85	68.21	0.026285		
	4.40	-97.86	-0.037711		
16QAM					
25	3.45	35.49	0.013676	Within authorized band for Band41	Pass
	3.85	-38.01	-0.014647		
	4.40	59.21	0.022817		
64QAM					
25	3.45	-33.03	-0.012728	Within authorized band for Band41	Pass
	3.85	32.72	0.012609		
	4.40	23.66	0.009118		
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					
3.85	-30	7.91	0.004533	Within authorized band for Band 66	Pass
	-20	-20.37	-0.011673		
	-10	-15.88	-0.009100		
	0	-12.96	-0.007427		
	10	-15.68	-0.008986		
	20	-28.47	-0.016315		
	30	-24.15	-0.013840		
	40	-21.41	-0.012269		
	50	12.15	0.006963		
16QAM					
3.85	-30	-17.70	-0.010143	Within authorized band for Band 66	Pass
	-20	-10.61	-0.006080		
	-10	-14.18	-0.008126		
	0	-10.59	-0.006069		
	10	-10.49	-0.006011		
	20	15.56	0.008917		
	30	-6.79	-0.003891		
	40	-9.34	-0.005352		
	50	-10.64	-0.006097		
64QAM					
3.85	-30	8.87	0.005083	Within authorized band for Band 66	Pass
	-20	8.90	0.005100		
	-10	20.46	0.011725		
	0	11.70	0.006705		
	10	11.34	0.006499		
	20	16.05	0.009198		
	30	16.98	0.009731		
	40	14.48	0.008298		
	50	-29.38	-0.016837		

Voltage					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	3.45	12.69	0.007272	Within authorized band for Band 66	Pass
	3.85	34.13	0.019559		
	4.40	-12.09	-0.006928		
16QAM					
25	3.45	-13.56	-0.007771	Within authorized band for Band 66	Pass
	3.85	-14.86	-0.008516		
	4.40	-9.01	-0.005163		
64QAM					
25	3.45	6.19	0.003547	Within authorized band for Band 66	Pass
	3.85	-15.76	-0.009032		
	4.40	24.63	0.014115		
Remark: All bandwidth and all modulation had been tested, but only the worst case data displayed in this report.					