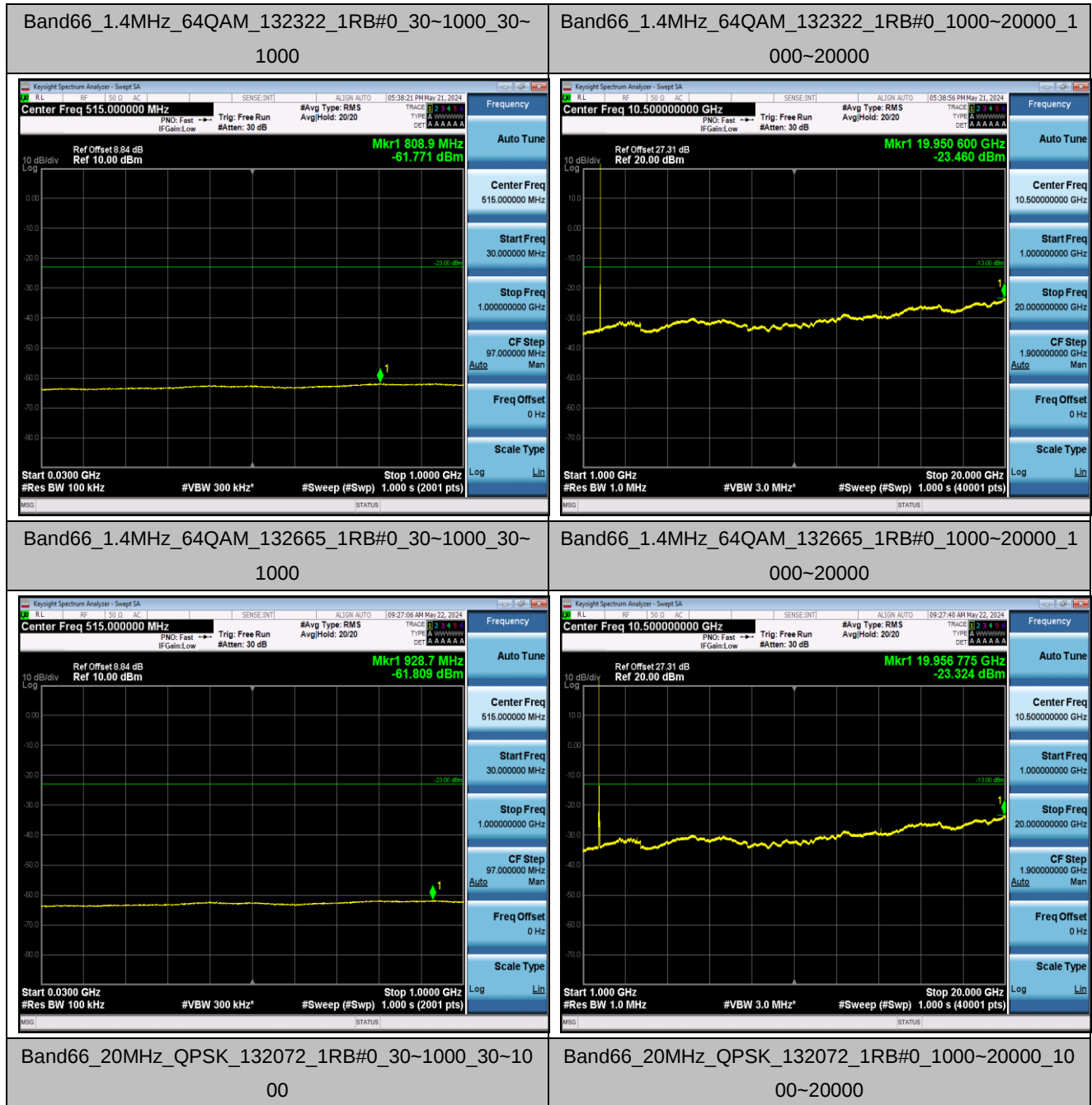
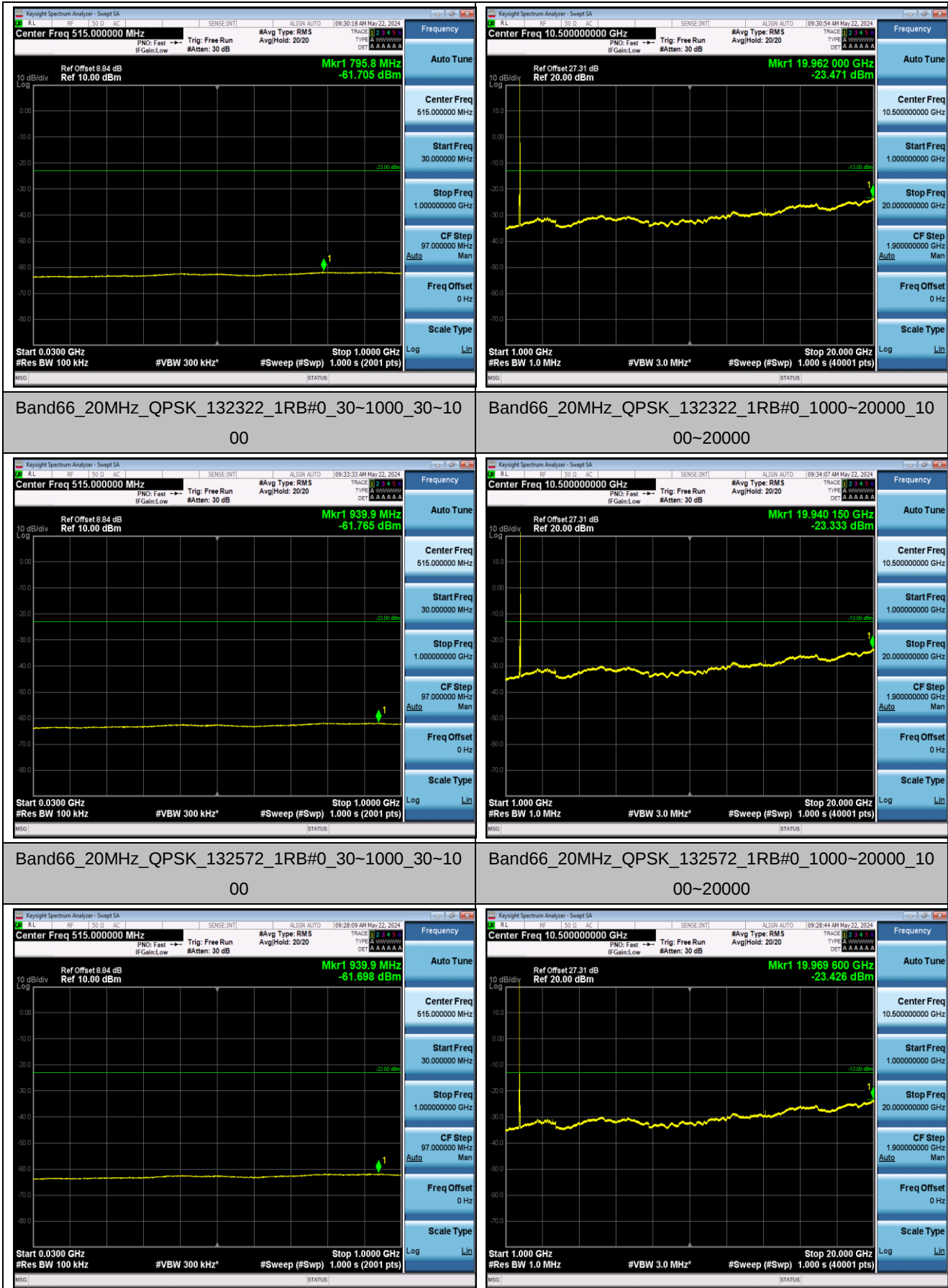
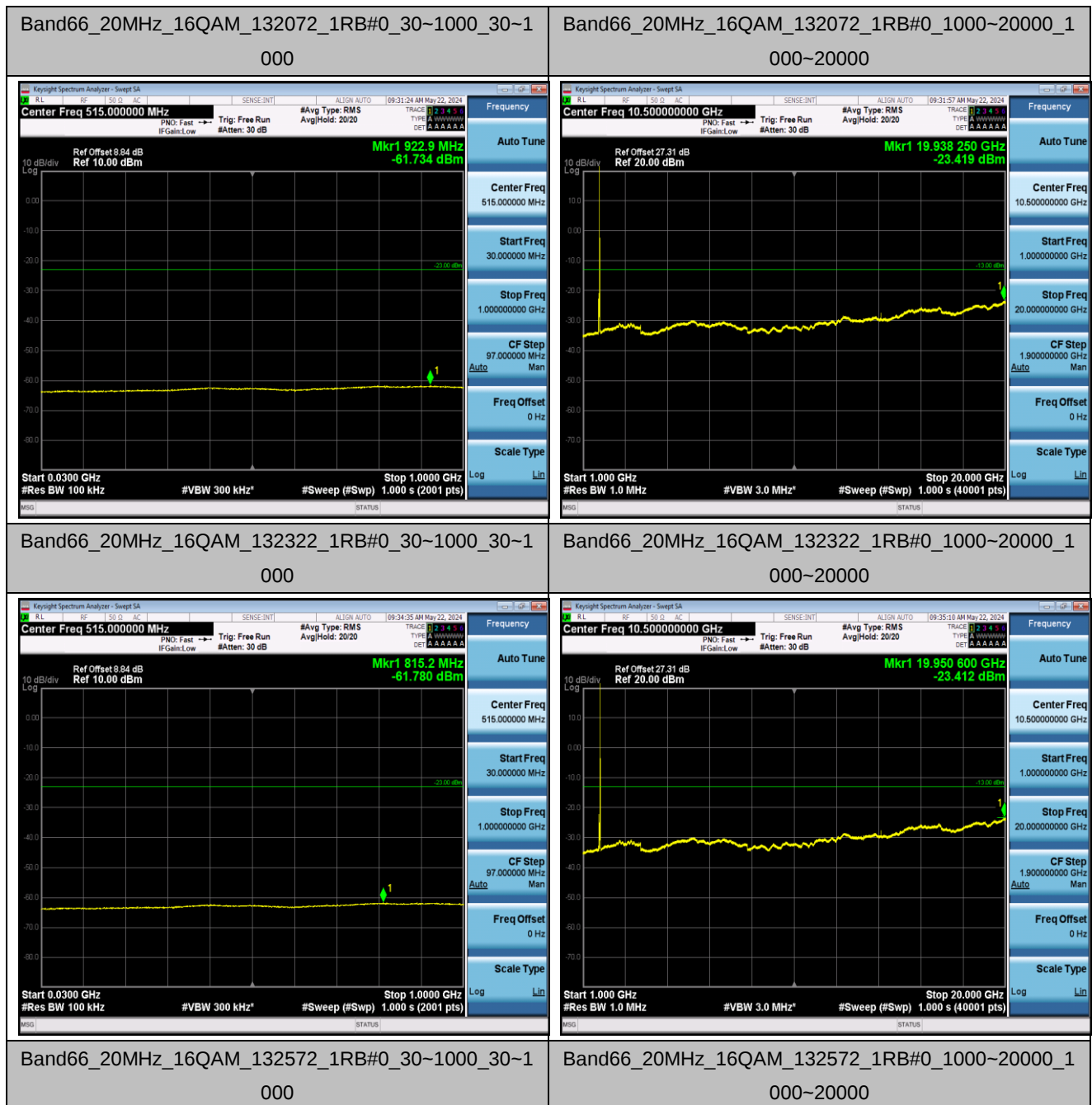
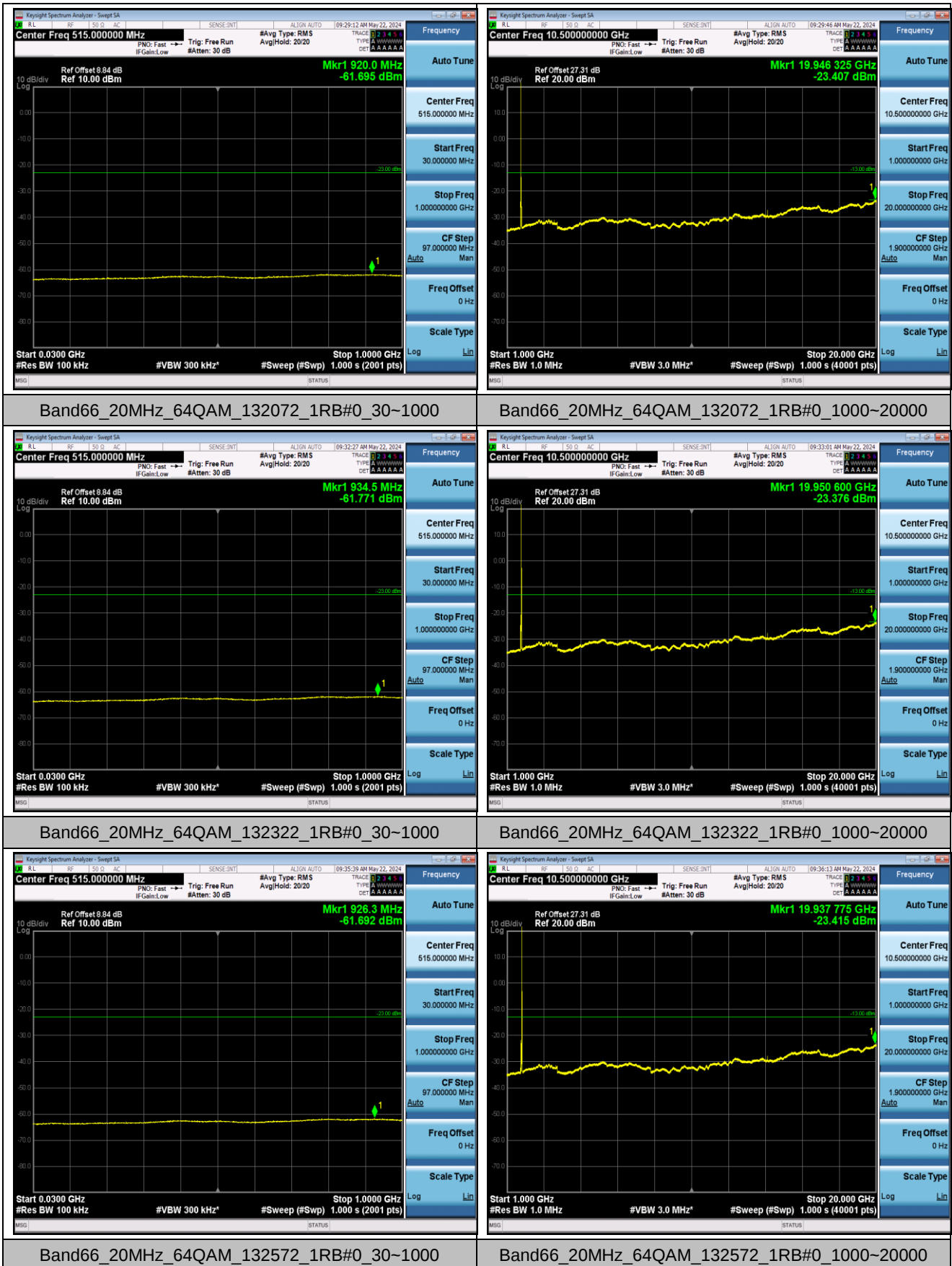










Appendix F: Frequency Stability

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	-44.30	-0.023564	Within authorized band for Band 2	Pass
	-20	-31.74	-0.016883		
	-10	-24.08	-0.012809		
	0	-13.52	-0.007191		
	10	-30.58	-0.016266		
	20	-28.12	-0.014957		
	30	12.39	0.006590		
	40	-8.74	-0.004649		
	50	-33.03	-0.017569		
16QAM					
3.85	-30	33.56	0.017851	Within authorized band for Band 2	Pass
	-20	15.74	0.008372		
	-10	15.02	0.007989		
	0	31.59	0.016803		
	10	11.42	0.006074		
	20	18.15	0.009654		
	30	41.33	0.021984		
	40	17.85	0.009495		
	50	37.25	0.019814		
64QAM					
3.85	-30	25.32	0.013468	Within authorized band for Band 2	Pass
	-20	36.96	0.019660		
	-10	55.38	0.029457		
	0	14.41	0.007665		
	10	43.14	0.022947		
	20	52.46	0.027904		
	30	35.10	0.018670		
	40	-12.10	-0.006436		
	50	15.11	0.008037		

Voltage					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	3.00	11.10	0.005904	Within authorized band for Band 2	Pass
	3.85	-7.18	-0.003819		
	4.40	-50.83	-0.027037		
16QAM					
25	3.00	-45.48	-0.024191	Within authorized band for Band 2	Pass
	3.85	-38.21	-0.020324		
	4.40	-7.80	-0.004149		
64QAM					
25	3.00	50.61	0.026920	Within authorized band for Band 2	Pass
	3.85	30.01	0.015963		
	4.40	53.22	0.028309		
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	-43.59	-0.017195	Within authorized band for Band 7	Pass
	-20	7.45	0.002939		
	-10	-13.76	-0.005428		
	0	-43.37	-0.017108		
	10	-24.60	-0.009704		
	20	-32.69	-0.012895		
	30	-20.64	-0.008142		
	40	-36.95	-0.014576		
	50	-27.84	-0.010982		
16QAM					
3.85	-30	36.58	0.014430	Within authorized band for Band 7	Pass
	-20	53.77	0.021211		
	-10	14.92	0.005886		
	0	49.12	0.019377		
	10	8.91	0.003515		
	20	59.48	0.023464		
	30	43.39	0.017116		
	40	25.05	0.009882		
	50	17.70	0.006982		
64QAM					
3.85	-30	10.19	0.004020	Within authorized band for Band 7	Pass
	-20	31.20	0.012308		
	-10	52.43	0.020682		
	0	40.03	0.015791		
	10	11.14	0.004394		
	20	33.32	0.013144		
	30	46.58	0.018375		
	40	20.46	0.008071		
	50	32.76	0.012923		

Voltage					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	3.00	35.78	0.014114	Within authorized band for Band 7	Pass
	3.85	-43.76	-0.017262		
	4.40	-19.63	-0.007744		
16QAM					
25	3.00	-52.03	-0.020525	Within authorized band for Band 7	Pass
	3.85	-25.66	-0.010122		
	4.40	48.27	0.019041		
64QAM					
25	3.00	15.75	0.006213	Within authorized band for Band 7	Pass
	3.85	30.88	0.012181		
	4.40	18.65	0.007357		
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					
3.85	-30	-2.90	-0.004099	Within authorized band for Band 12	Pass
	-20	5.12	0.007237		
	-10	-2.83	-0.004000		
	0	3.10	0.004382		
	10	1.89	0.002671		
	20	-2.56	-0.003618		
	30	3.15	0.004452		
	40	3.62	0.005117		
	50	4.53	0.006403		
16QAM					
3.85	-30	30.31	0.042841	Within authorized band for Band 12	Pass
	-20	6.19	0.008749		
	-10	33.52	0.047378		
	0	15.22	0.021512		
	10	36.49	0.051576		
	20	2.75	0.003887		
	30	19.18	0.027110		
	40	29.17	0.041230		
	50	6.22	0.008792		
64QAM					
3.85	-30	51.00	0.072085	Within authorized band for Band 12	Pass
	-20	10.44	0.014756		
	-10	17.12	0.024198		
	0	24.68	0.034883		
	10	24.13	0.034106		
	20	24.48	0.034601		
	30	27.69	0.039138		
	40	36.98	0.052269		
	50	46.35	0.065512		

Voltage					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	3.00	3.42	0.004834	Within authorized band for Band 12	Pass
	3.85	5.09	0.007194		
	4.40	2.09	0.002954		
16QAM					
25	3.00	-11.37	-0.016071	Within authorized band for Band 12	Pass
	3.85	-19.80	-0.027986		
	4.40	-3.76	-0.005314		
64QAM					
25	3.00	22.86	0.032311	Within authorized band for Band 12	Pass
	3.85	32.26	0.045597		
	4.40	37.69	0.053272		
Remark: All bandwidth and all modulation had been tested, but only the worst case data displayed in this report.					

LTE Band 26 part: (814-824 MHz)

Reference Frequency: LTE Band 26(10MHz) Middle channel=26740 Frequency=819.0MHz					
Temperature					
Power supplied (Vdc)	Temperature (°C)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
3.85	-30	2.99	0.003607	Within authorized band for Band 26	Pass
	-20	20.77	0.025054		
	-10	-5.42	-0.006538		
	0	10.19	0.012292		
	10	4.65	0.005609		
	20	11.66	0.014065		
	30	18.08	0.021809		
	40	20.13	0.024282		
	50	26.39	0.031834		
16QAM					
3.85	-30	20.51	0.025043	Within authorized band for Band 26	Pass
	-20	7.35	0.008974		
	-10	42.10	0.051404		
	0	28.52	0.034823		
	10	19.40	0.023687		
	20	-2.36	-0.002882		
	30	28.15	0.034371		
	40	49.88	0.060904		
	50	21.31	0.026020		
64QAM					
3.85	-30	23.37	0.028535	Within authorized band for Band 26	Pass
	-20	22.30	0.027228		
	-10	31.77	0.038791		
	0	38.91	0.047509		
	10	46.33	0.056569		
	20	-4.32	-0.005275		
	30	5.21	0.006361		
	40	10.94	0.013358		
	50	15.78	0.019267		

Voltage					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	3.00	-2.65	-0.003197	Within authorized band for Band 26	Pass
	3.85	-9.27	-0.011182		
	4.40	7.37	0.008890		
16QAM					
25	3.00	-12.90	-0.015751	Within authorized band for Band 26	Pass
	3.85	-13.38	-0.016337		
	4.40	27.25	0.033272		
64QAM					
25	3.00	44.55	0.054396	Within authorized band for Band 26	Pass
	3.85	17.55	0.021429		
	4.40	21.03	0.025678		
Remark: All bandwidth and all modulation had been tested, but only the worst case data displayed in this report.					

LTE Band 26 part: (824-849 MHz)

Reference Frequency: LTE Band 26(15MHz) Middle channel=26915 Frequency=836.5MHz					
Temperature					
Power supplied (Vdc)	Temperature (°C)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
3.85	-30	50.60	0.060490	Within authorized band for Band 26	Pass
	-20	26.04	0.031130		
	-10	31.01	0.037071		
	0	43.40	0.051883		
	10	19.61	0.023443		
	20	33.22	0.039713		
	30	42.51	0.050819		
	40	16.15	0.019307		
	50	26.98	0.032253		
16QAM					
3.85	-30	-14.03	-0.016772	Within authorized band for Band 26	Pass
	-20	-27.11	-0.032409		
	-10	-10.96	-0.013102		
	0	-6.88	-0.008225		
	10	-13.68	-0.016354		
	20	-32.42	-0.038757		
	30	-37.71	-0.045081		
	40	-43.37	-0.051847		
	50	-38.54	-0.046073		
64QAM					
3.85	-30	-7.08	-0.008464	Within authorized band for Band 26	Pass
	-20	-13.88	-0.016593		
	-10	-20.31	-0.024280		
	0	-42.64	-0.050974		
	10	-46.69	-0.055816		
	20	-26.89	-0.032146		
	30	-35.39	-0.042307		
	40	-28.25	-0.033772		
	50	-15.71	-0.018781		

Voltage					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	3.00	6.78	0.008105	Within authorized band for Band 26	Pass
	3.85	-8.05	-0.009623		
	4.40	21.03	0.025140		
16QAM					
25	3.00	30.36	0.036294	Within authorized band for Band 26	Pass
	3.85	22.27	0.026623		
	4.40	2.36	0.002821		
64QAM					
25	3.00	-42.36	-0.050640	Within authorized band for Band 26	Pass
	3.85	-44.83	-0.053592		
	4.40	-4.41	-0.005272		
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	9.98	0.003846	Within authorized band for Band 41	Pass
	-20	8.13	0.003133		
	-10	11.60	0.004470		
	0	31.63	0.012189		
	10	46.09	0.017761		
	20	37.12	0.014304		
	30	33.90	0.013064		
	40	53.56	0.020640		
	50	27.59	0.010632		
16QAM					
3.85	-30	-9.06	-0.003491	Within authorized band for Band 41	Pass
	-20	-20.18	-0.007776		
	-10	-17.80	-0.006859		
	0	-42.66	-0.016439		
	10	-27.45	-0.010578		
	20	-39.30	-0.015145		
	30	-43.99	-0.016952		
	40	-44.86	-0.017287		
	50	-9.06	-0.003491		
64QAM					
3.85	-30	10.30	0.003969	Within authorized band for Band 41	Pass
	-20	-12.82	-0.004940		
	-10	-33.63	-0.012960		
	0	-36.66	-0.014127		
	10	-23.37	-0.009006		
	20	-47.91	-0.018462		
	30	-13.20	-0.005087		
	40	-15.48	-0.005965		
	50	-15.56	-0.005996		

Voltage					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	3.00	11.94	0.004601	Within authorized band for Band 41	Pass
	3.85	14.15	0.005453		
	4.40	12.40	0.004778		
16QAM					
25	3.00	39.55	0.015241	Within authorized band for Band41	Pass
	3.85	24.50	0.009441		
	4.40	11.97	0.004613		
64QAM					
25	3.00	-22.69	-0.008744	Within authorized band for Band41	Pass
	3.85	-26.24	-0.010112		
	4.40	-55.76	-0.021487		
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	-15.85	-0.009083	Within authorized band for Band 66	Pass
	-20	-33.25	-0.019054		
	-10	-35.51	-0.020350		
	0	-23.37	-0.013393		
	10	-41.56	-0.023817		
	20	-23.36	-0.013387		
	30	-29.07	-0.016659		
	40	-30.46	-0.017456		
	50	-24.18	-0.013857		
16QAM					
3.85	-30	34.02	0.019496	Within authorized band for Band 66	Pass
	-20	36.21	0.020751		
	-10	15.15	0.008682		
	0	19.88	0.011393		
	10	24.49	0.014034		
	20	38.98	0.022338		
	30	18.41	0.010550		
	40	35.26	0.020206		
	50	13.63	0.007811		
64QAM					
3.85	-30	38.75	0.022206	Within authorized band for Band 66	Pass
	-20	43.77	0.025083		
	-10	48.39	0.027731		
	0	16.84	0.009650		
	10	24.05	0.013782		
	20	30.56	0.017513		
	30	36.88	0.021135		
	40	35.68	0.020447		
	50	40.54	0.023232		

Voltage					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	3.00	-18.90	-0.010831	Within authorized band for Band 66	Pass
	3.85	-40.14	-0.023003		
	4.40	-8.47	-0.004854		
16QAM					
25	3.00	-14.63	-0.008384	Within authorized band for Band 66	Pass
	3.85	7.71	0.004418		
	4.40	24.75	0.014183		
64QAM					
25	3.00	25.13	0.014401	Within authorized band for Band 66	Pass
	3.85	37.94	0.021742		
	4.40	44.55	0.025530		
Remark: All bandwidth and all modulation had been tested, but only the worst case data displayed in this report.					