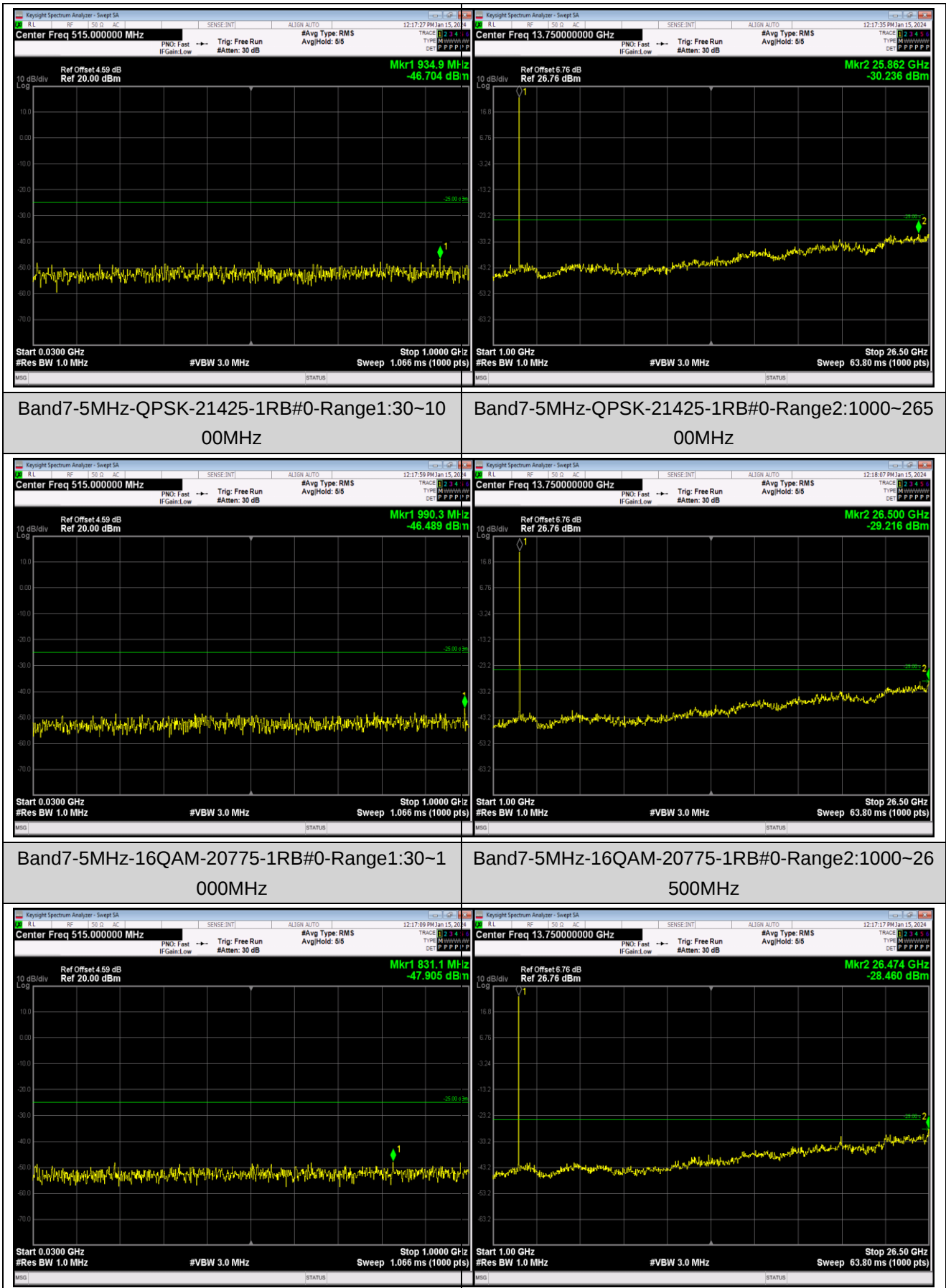
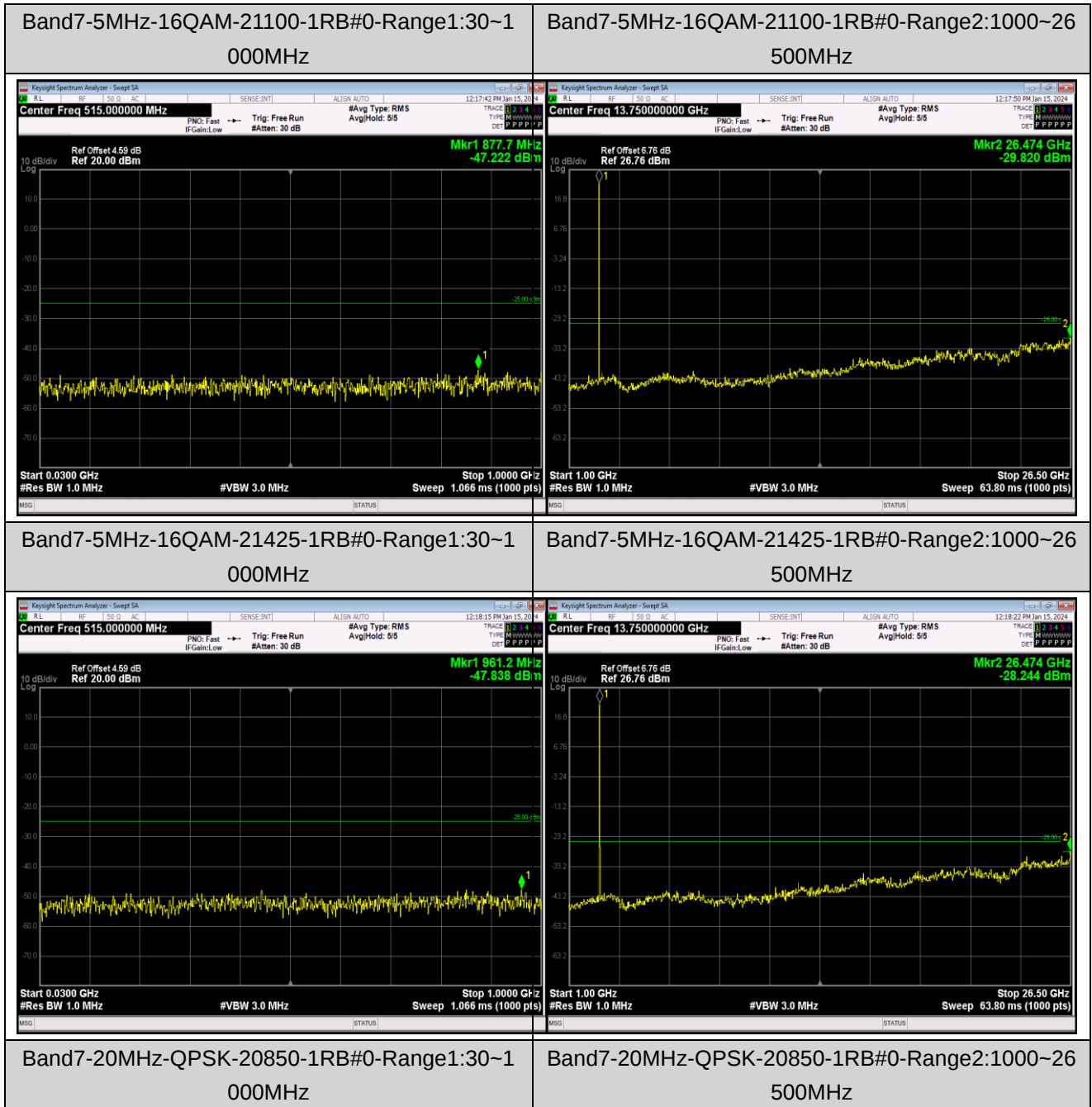
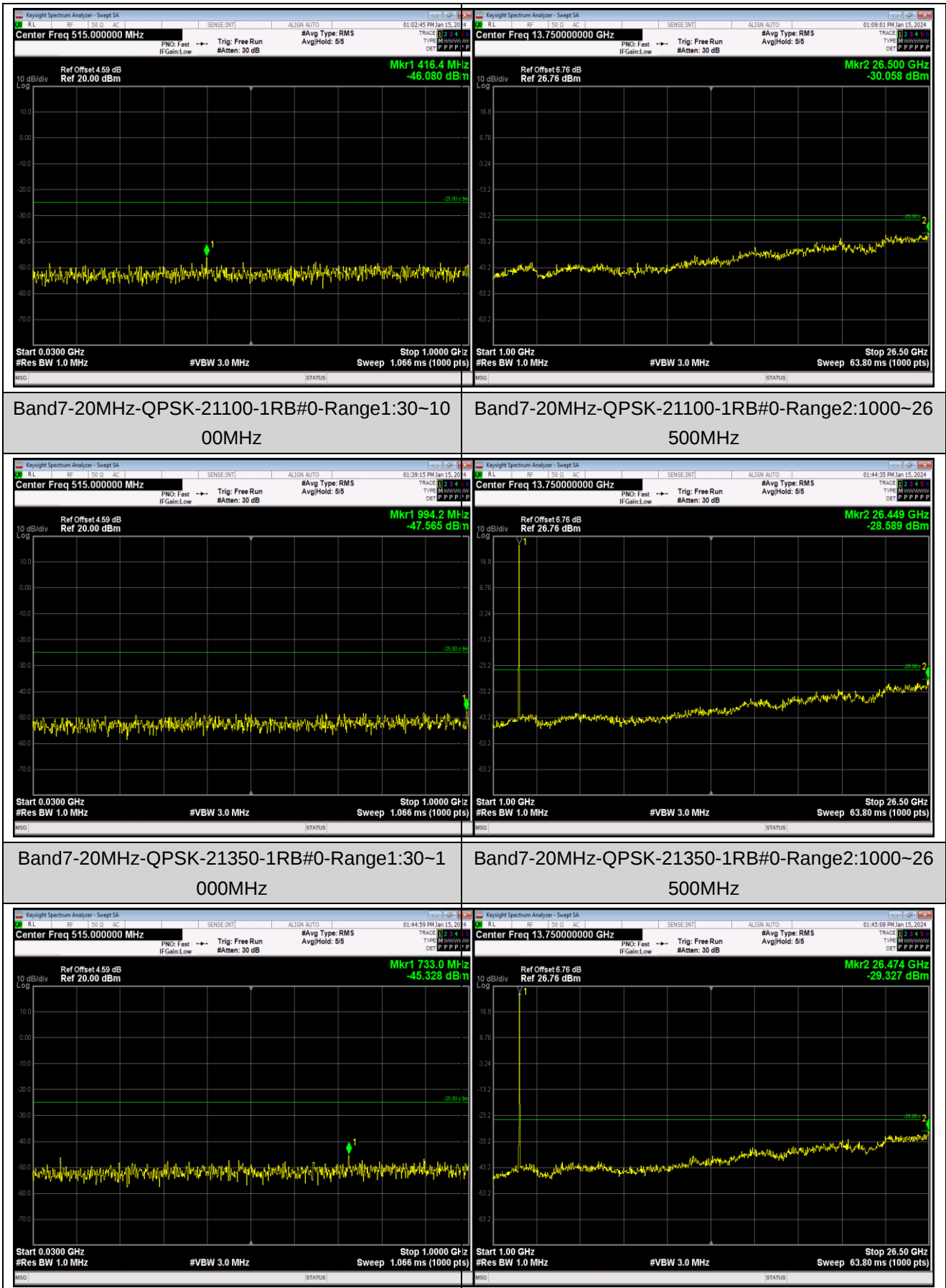
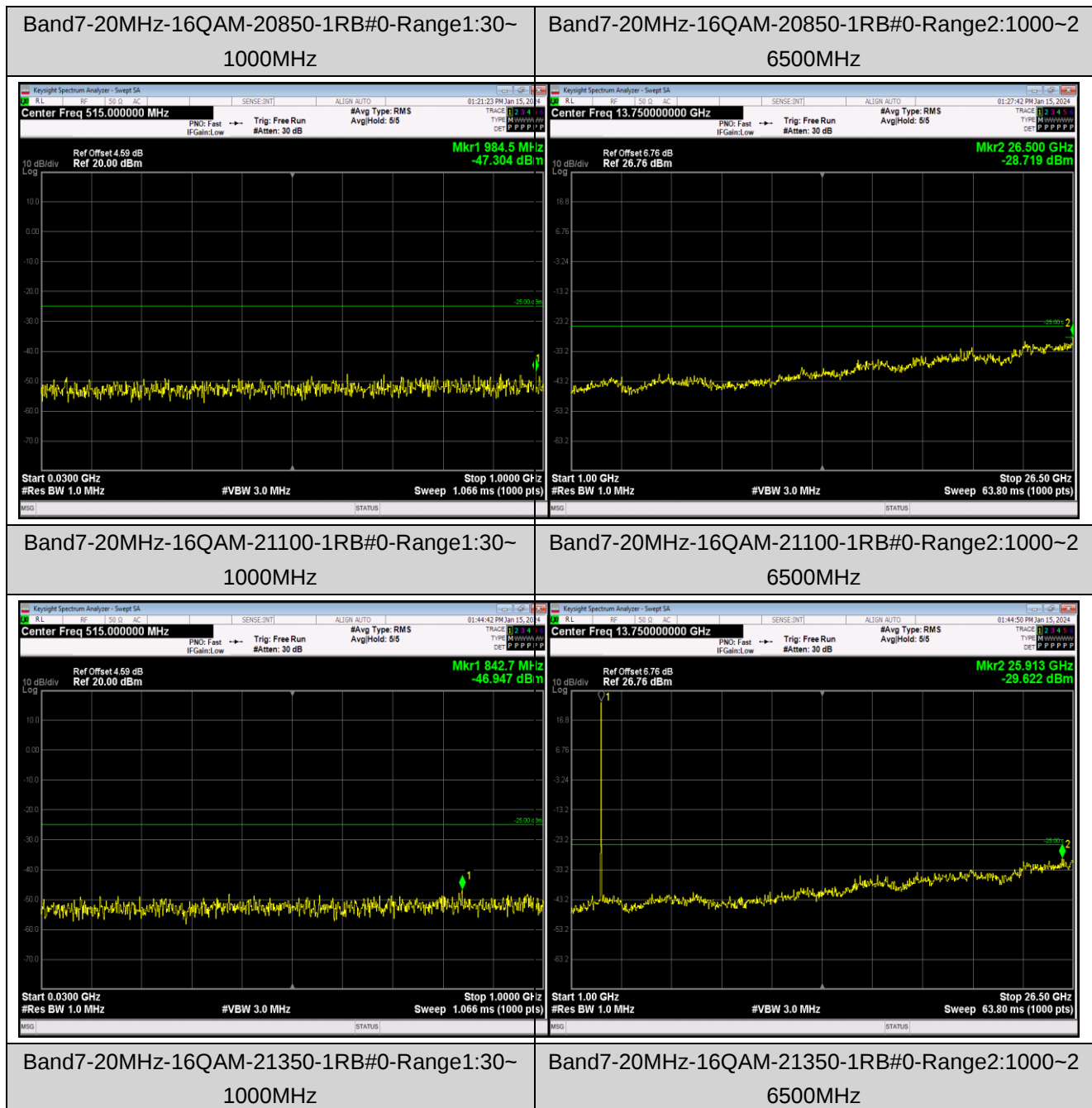
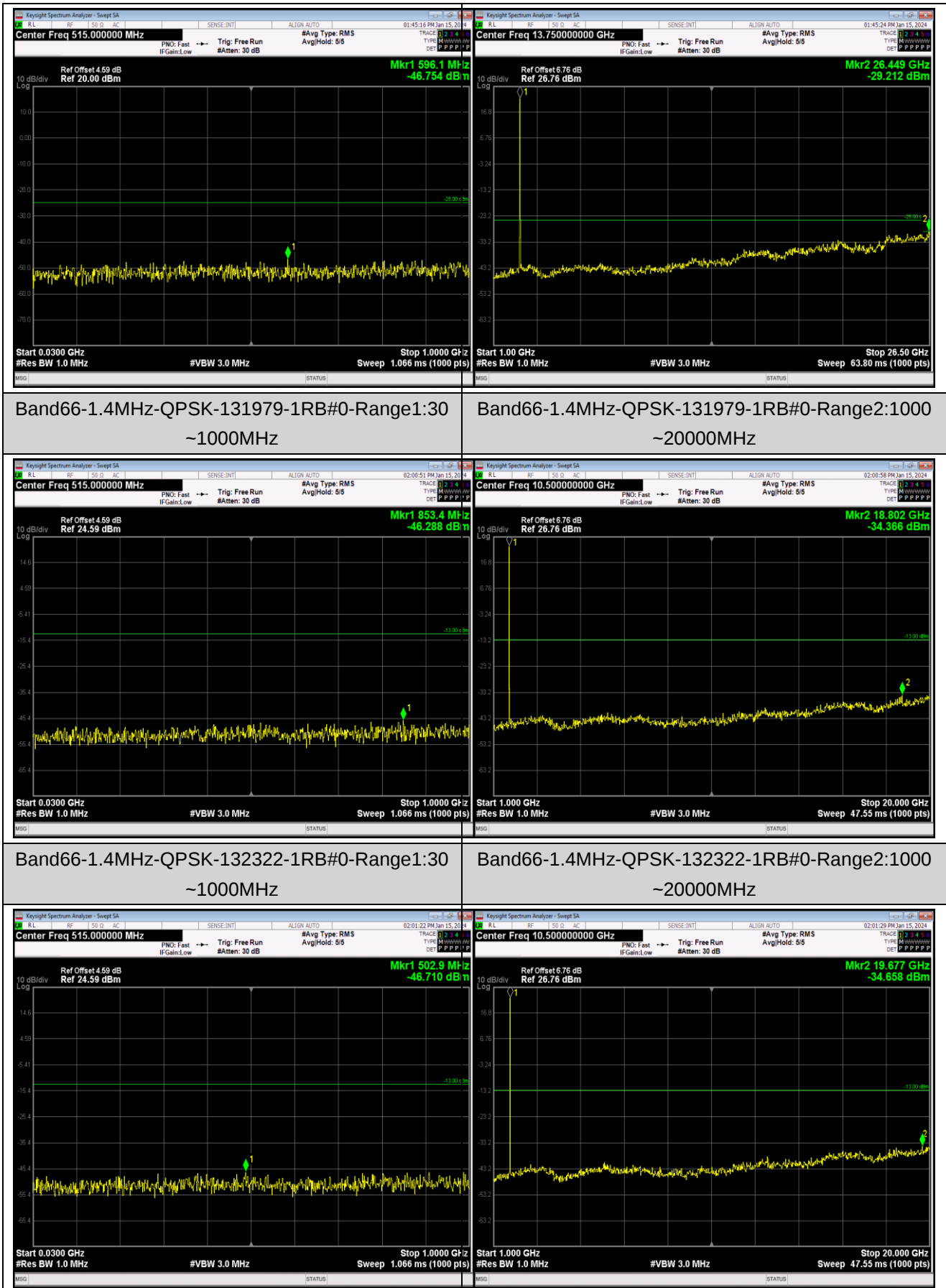


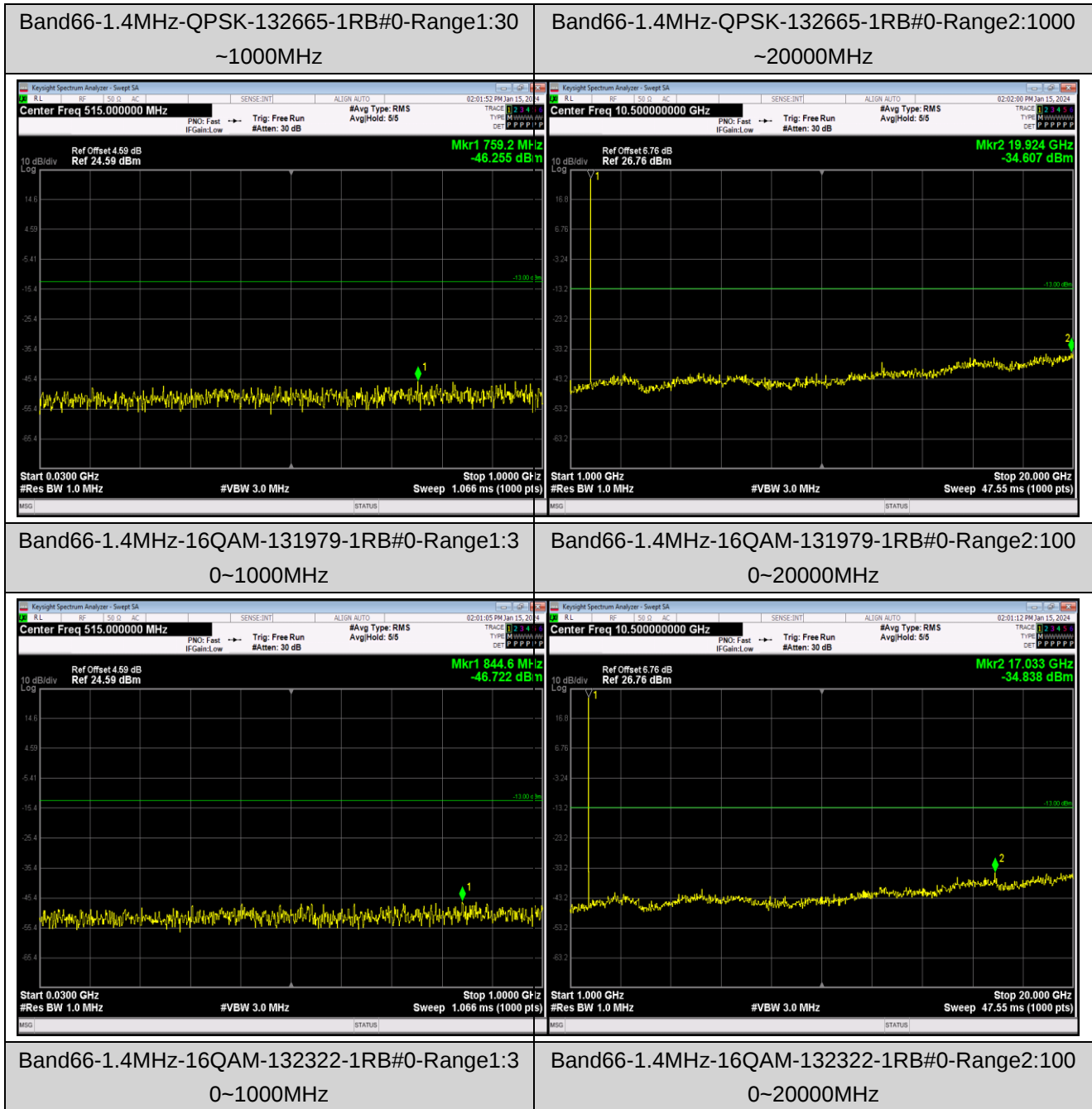


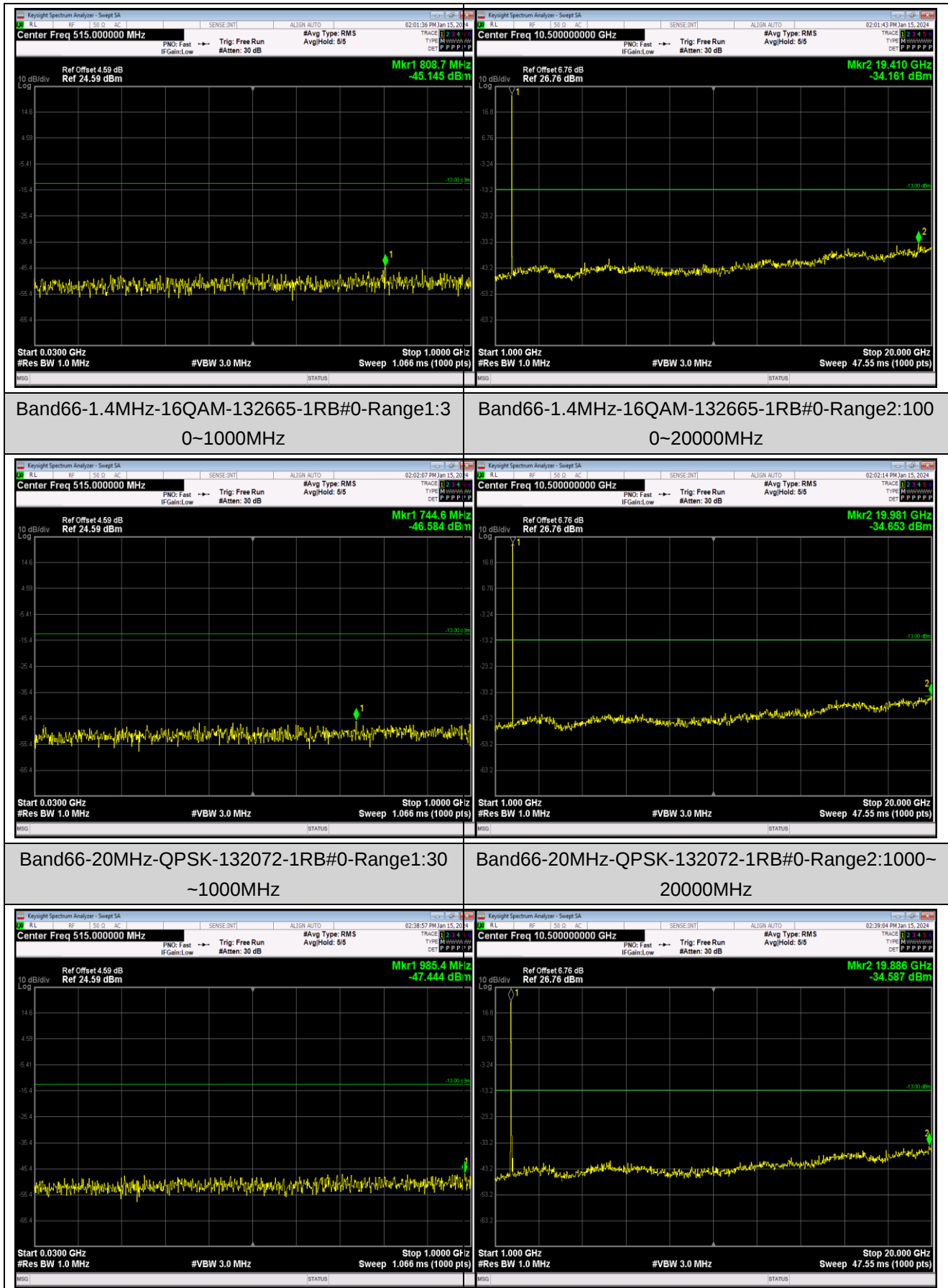


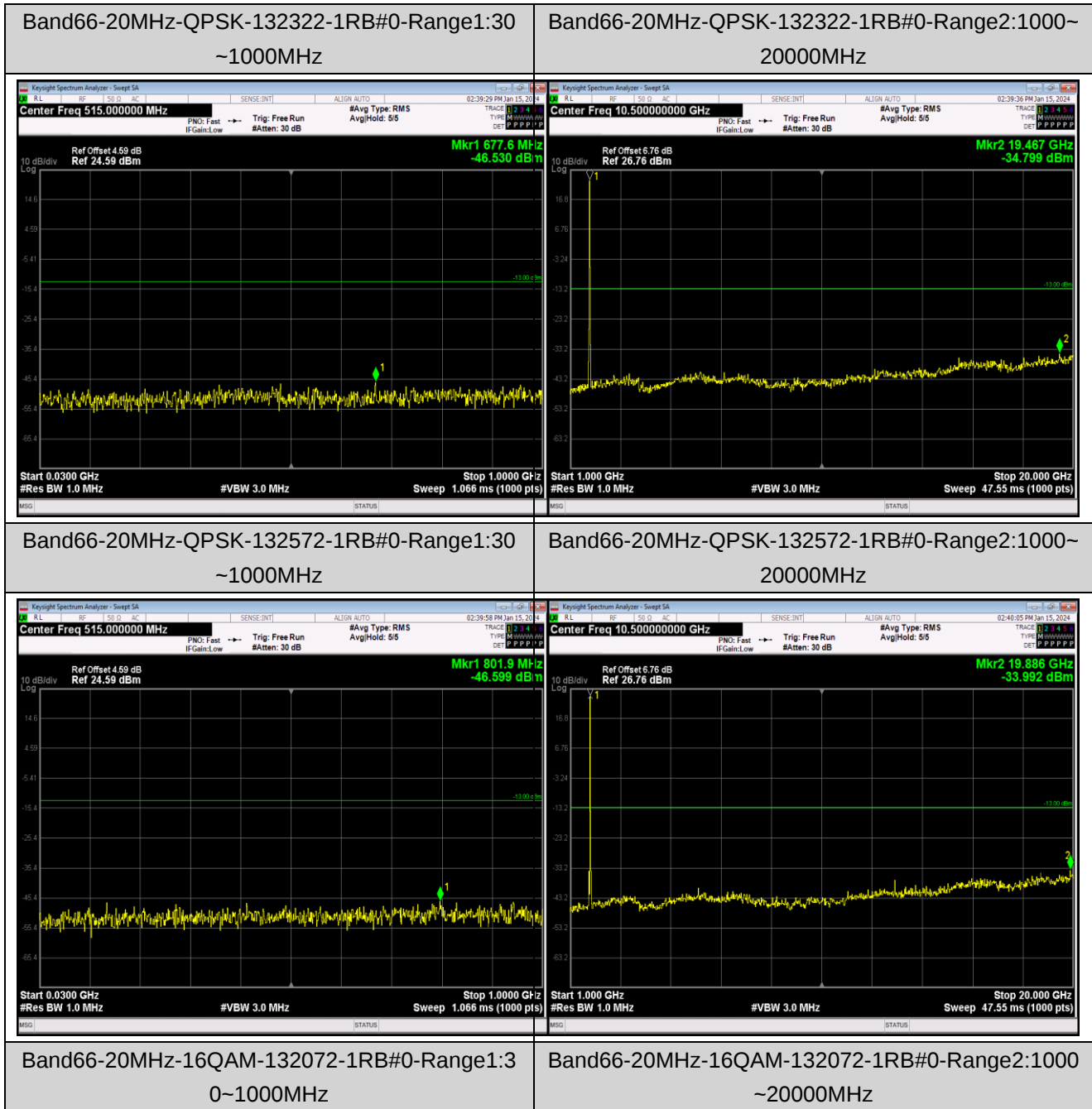


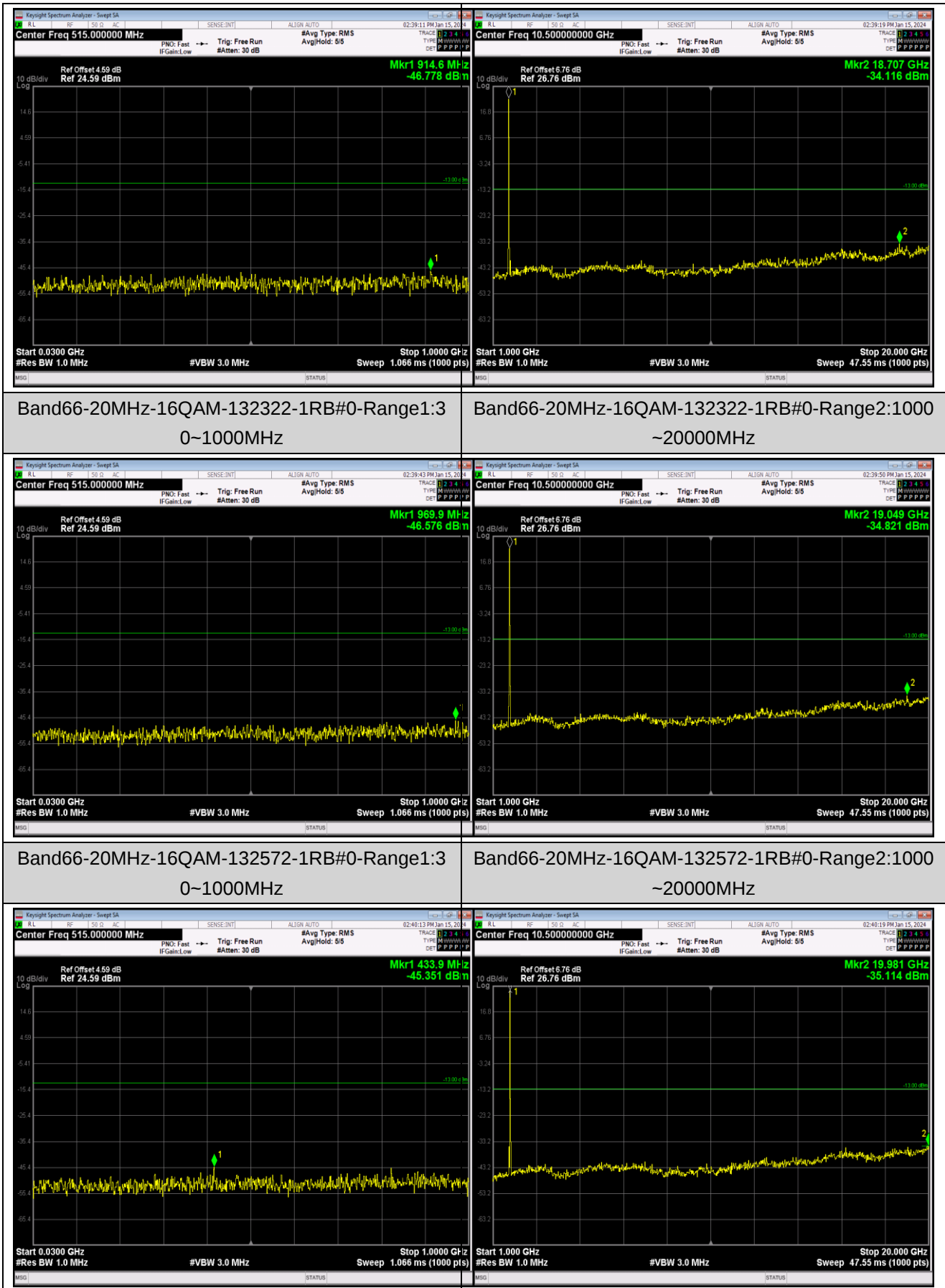












Appendix F: Frequency Stability

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					
3.80	-30	7.78	0.004138	Within authorized band for Band 2	Pass
	-20	28.57	0.015197		
	-10	43.30	0.023032		
	0	43.83	0.023314		
	10	8.37	0.004452		
	20	25.79	0.013718		
	30	29.50	0.015691		
	40	47.75	0.025399		
	50	41.34	0.021989		
16QAM					
3.80	-30	-34.76	-0.018489	Within authorized band for Band 2	Pass
	-20	-11.54	-0.006138		
	-10	11.39	0.006059		
	0	8.23	0.004378		
	10	-6.07	-0.003229		
	20	50.20	0.026702		
	30	19.21	0.010218		
	40	5.34	0.002840		
	50	-16.95	-0.009016		

Voltage					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	2.75	-25.99	-0.013824	Within authorized band for Band 2	Pass
	3.80	-38.62	-0.020543		
	4.35	11.97	0.006367		
16QAM					
25	2.75	-16.77	-0.008920	Within authorized band for Band 2	Pass
	3.80	51.68	0.027489		
	4.35	-30.47	-0.016207		
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	-14.71	-0.008491	Within authorized band for Band 4	Pass
	-20	17.07	0.009853		
	-10	27.69	0.015983		
	0	22.69	0.013097		
	10	19.71	0.011377		
	20	19.67	0.011354		
	30	13.90	0.008023		
	40	25.03	0.014447		
	50	-15.12	-0.008727		
16QAM					
3.80	-30	-25.48	-0.014707	Within authorized band for Band 4	Pass
	-20	-18.21	-0.010511		
	-10	-53.06	-0.030626		
	0	-21.14	-0.012202		
	10	-15.54	-0.008970		
	20	-38.52	-0.022234		
	30	-10.24	-0.005911		
	40	-24.03	-0.013870		
	50	-33.87	-0.019550		

Voltage					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	2.75	-25.94	-0.014973	Within authorized band for Band 4	Pass
	3.80	-44.42	-0.025639		
	4.35	-6.77	-0.003908		
16QAM					
25	2.75	5.05	0.002915	Within authorized band for Band 4	Pass
	3.80	-16.92	-0.009766		
	4.35	-32.59	-0.018811		
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	10.53	0.012588	±2.5	Pass
	-20	26.66	0.031871		
	-10	40.67	0.048619		
	0	1.90	0.002271		
	10	13.85	0.016557		
	20	24.53	0.029325		
	30	34.26	0.040956		
	40	38.37	0.045870		
	50	38.74	0.046312		
16QAM					
3.80	-30	-40.60	-0.048536	±2.5	Pass
	-20	-7.62	-0.009109		
	-10	-17.42	-0.020825		
	0	-28.25	-0.033772		
	10	-41.64	-0.049779		
	20	-48.62	-0.058123		
	30	-7.68	-0.009181		
	40	-14.53	-0.017370		
	50	-20.16	-0.024100		

Voltage					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	2.75	-24.81	-0.029659	±2.5	Pass
	3.80	-7.25	-0.008667		
	4.35	-10.19	-0.012182		
16QAM					
25	2.75	-5.46	-0.006527	±2.5	Pass
	3.80	-4.95	-0.005918		
	4.35	-25.18	-0.030102		
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	53.54	0.021120	Within authorized band for Band 7	Pass
	-20	53.57	0.021132		
	-10	31.94	0.012600		
	0	57.39	0.022639		
	10	35.09	0.013842		
	20	10.63	0.004193		
	30	12.37	0.004880		
	40	35.58	0.014036		
	50	34.06	0.013436		
16QAM					
3.80	-30	-18.97	-0.007483	Within authorized band for Band 7	Pass
	-20	-44.16	-0.017420		
	-10	-12.13	-0.004785		
	0	-59.41	-0.023436		
	10	-32.22	-0.012710		
	20	-48.45	-0.019112		
	30	4.08	0.001609		
	40	-25.79	-0.010174		
	50	-39.15	-0.015444		

Voltage					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	2.75	-14.95	-0.005897	Within authorized band for Band 7	Pass
	3.80	-60.48	-0.023858		
	4.35	19.51	0.007696		
16QAM					
25	2.75	19.71	0.007775	Within authorized band for Band 7	Pass
	3.80	47.84	0.018872		
	4.35	-21.51	-0.008485		
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					
3.80	-30	18.97	0.010871	Within authorized band for Band 66	Pass
	-20	32.20	0.018453		
	-10	27.44	0.015725		
	0	20.23	0.011593		
	10	27.14	0.015553		
	20	29.84	0.017100		
	30	17.90	0.010258		
	40	26.84	0.015381		
	50	28.67	0.016430		
16QAM					
3.80	-30	-19.48	-0.011163	Within authorized band for Band 66	Pass
	-20	-24.49	-0.014034		
	-10	-36.71	-0.021037		
	0	8.87	0.005083		
	10	-19.83	-0.011364		
	20	-33.49	-0.019192		
	30	-7.85	-0.004499		
	40	-15.56	-0.008917		
	50	-25.61	-0.014676		

Voltage					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	2.75	-12.04	-0.006900	Within authorized band for Band 66	Pass
	3.80	-17.04	-0.009765		
	4.35	17.54	0.010052		
16QAM					
25	2.75	7.75	0.004441	Within authorized band for Band 66	Pass
	3.80	24.79	0.014206		
	4.35	-34.85	-0.019971		
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
Band4	20MHz	QPSK	20175	100RB#0	PASS	PASS
Band4	20MHz	16QAM	20175	100RB#0	PASS	PASS
Band5	10MHz	QPSK	20525	50RB#0	PASS	PASS
Band5	10MHz	16QAM	20525	50RB#0	PASS	PASS
Band7	20MHz	QPSK	21100	100RB#0	PASS	PASS
Band7	20MHz	16QAM	21100	100RB#0	PASS	PASS
Band66	20MHz	QPSK	132322	100RB#0	PASS	PASS
Band66	20MHz	16QAM	132322	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

