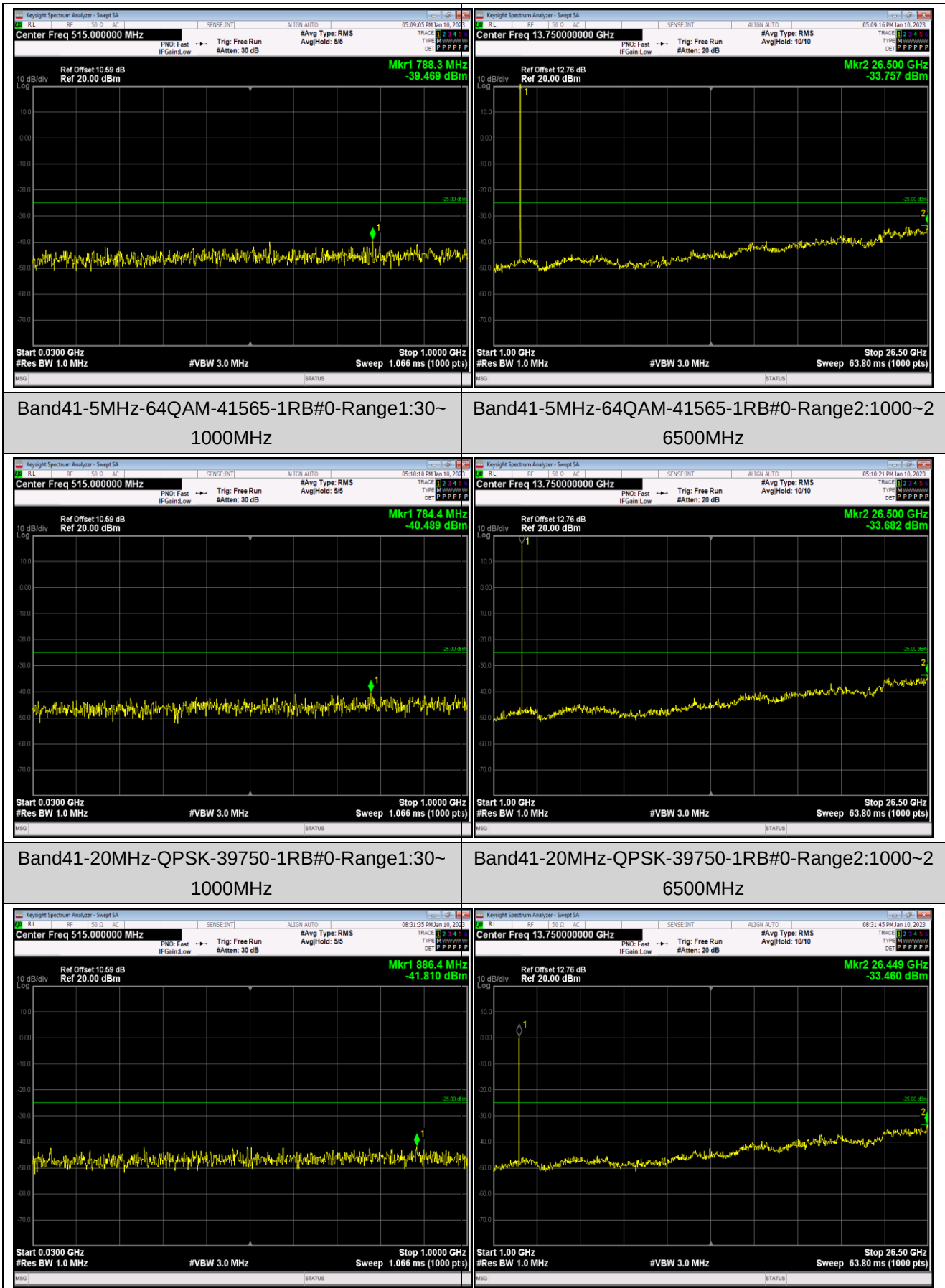
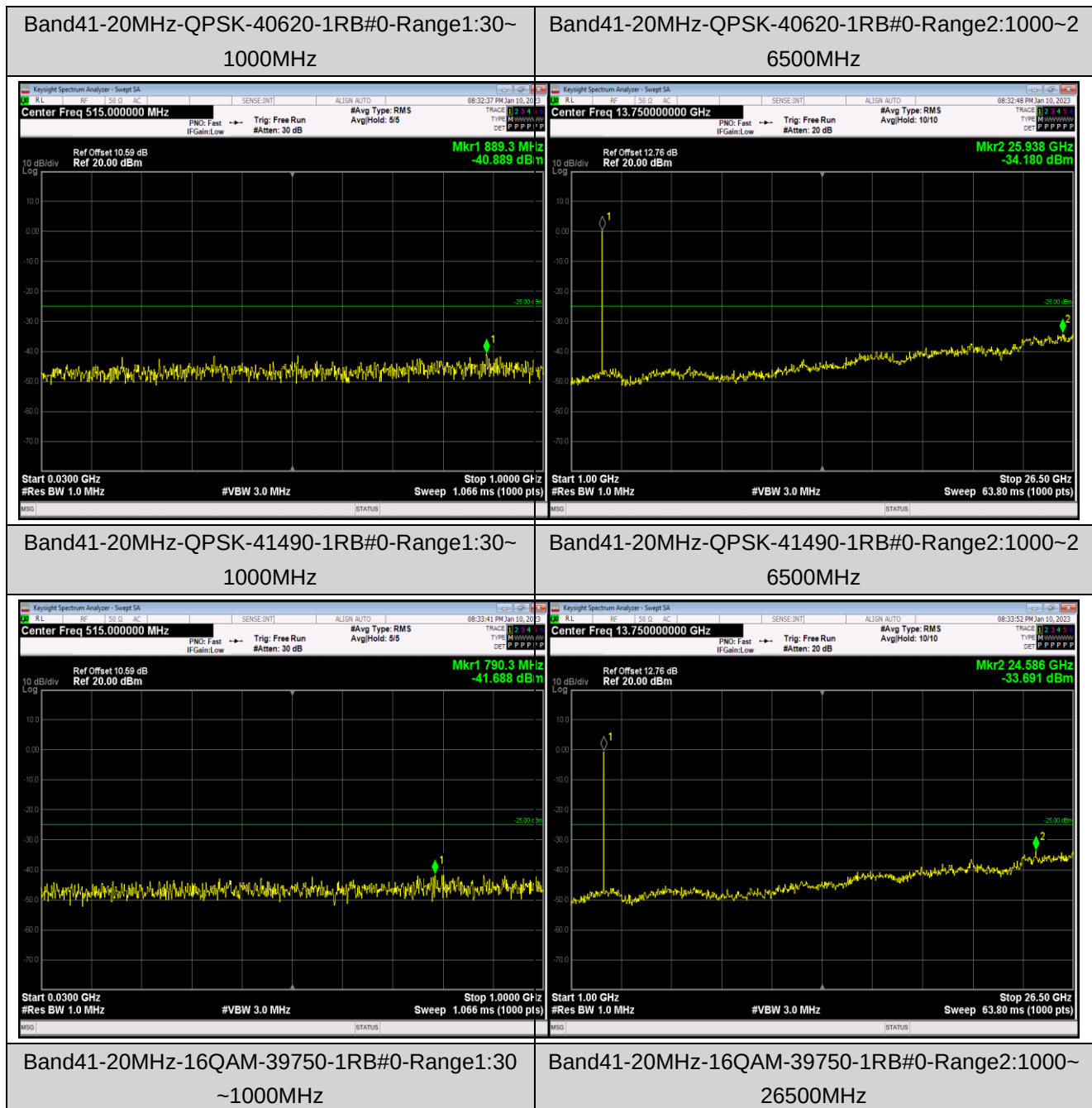
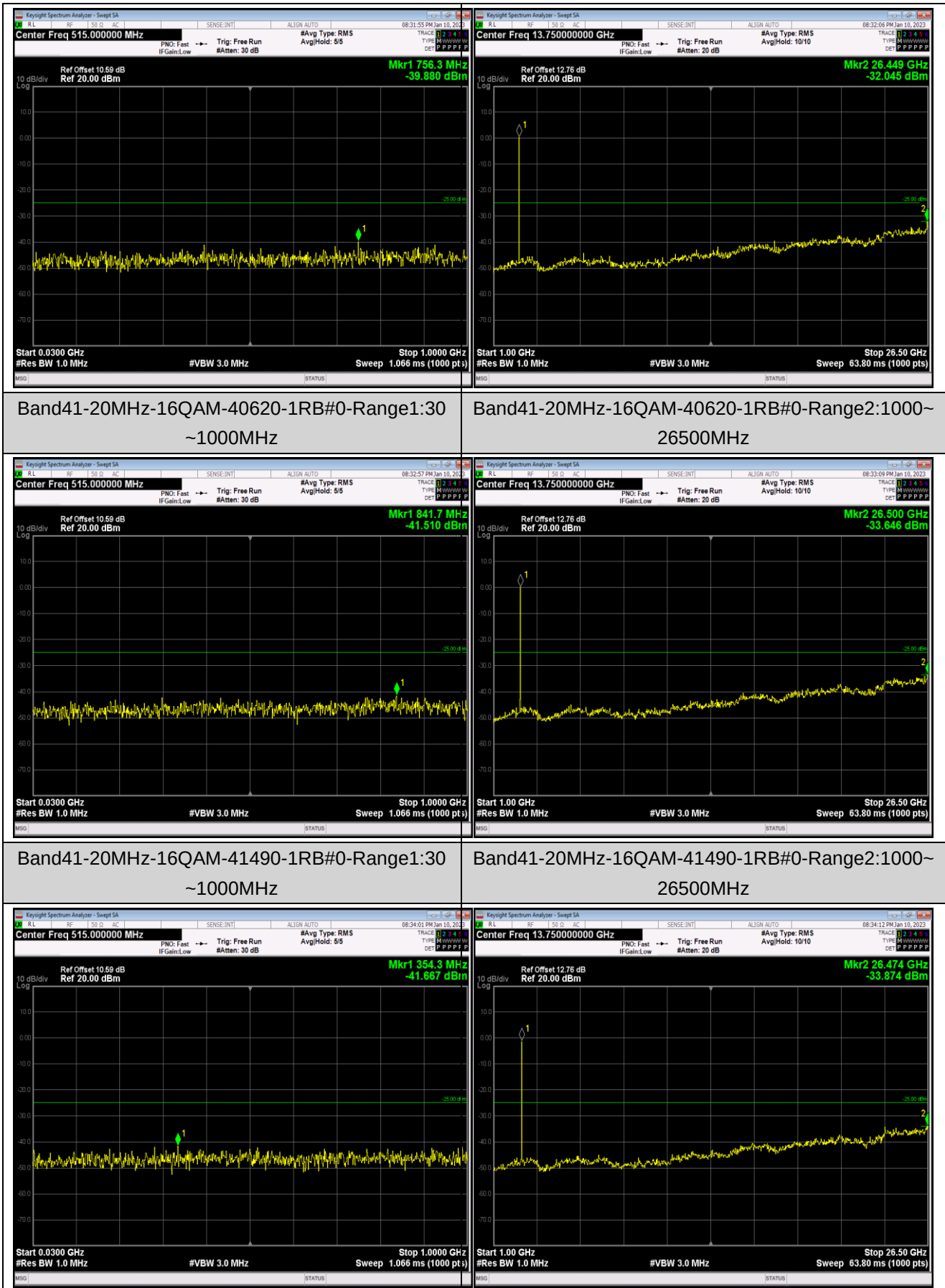
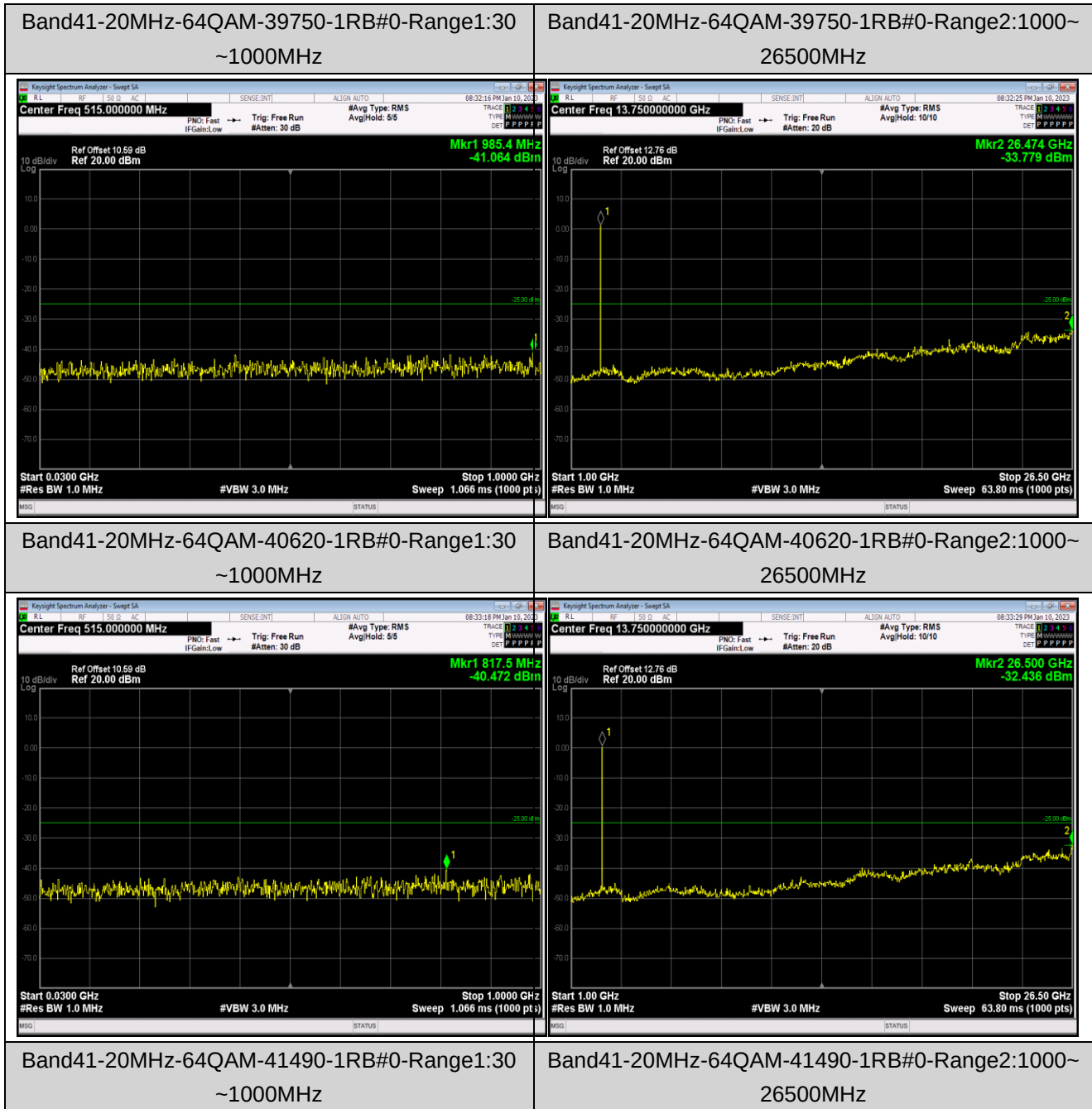
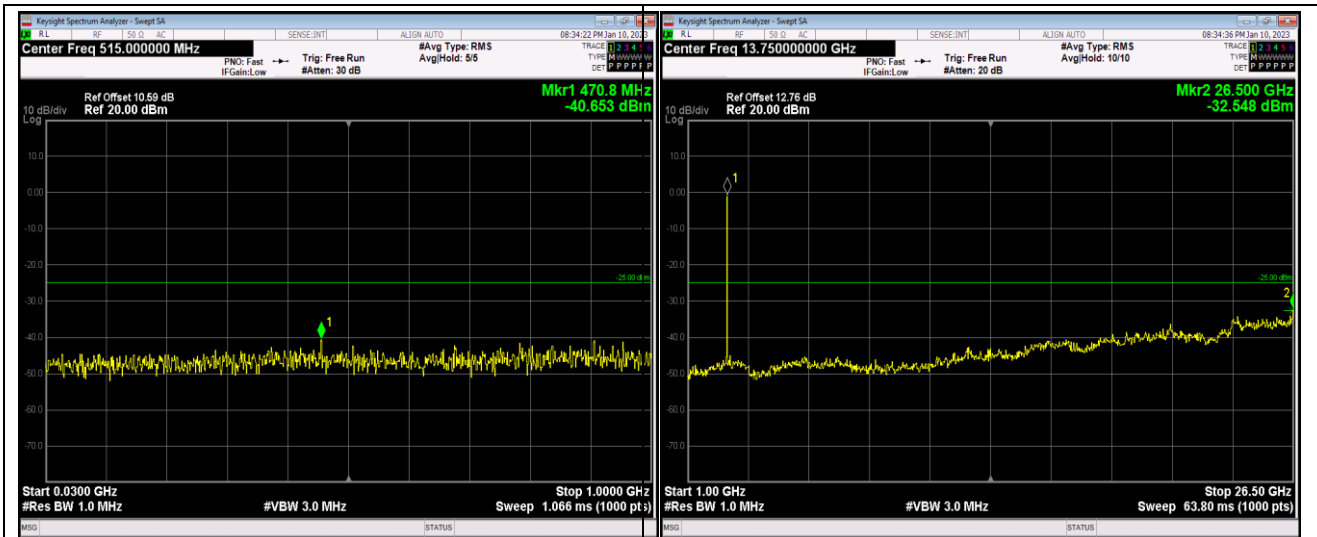






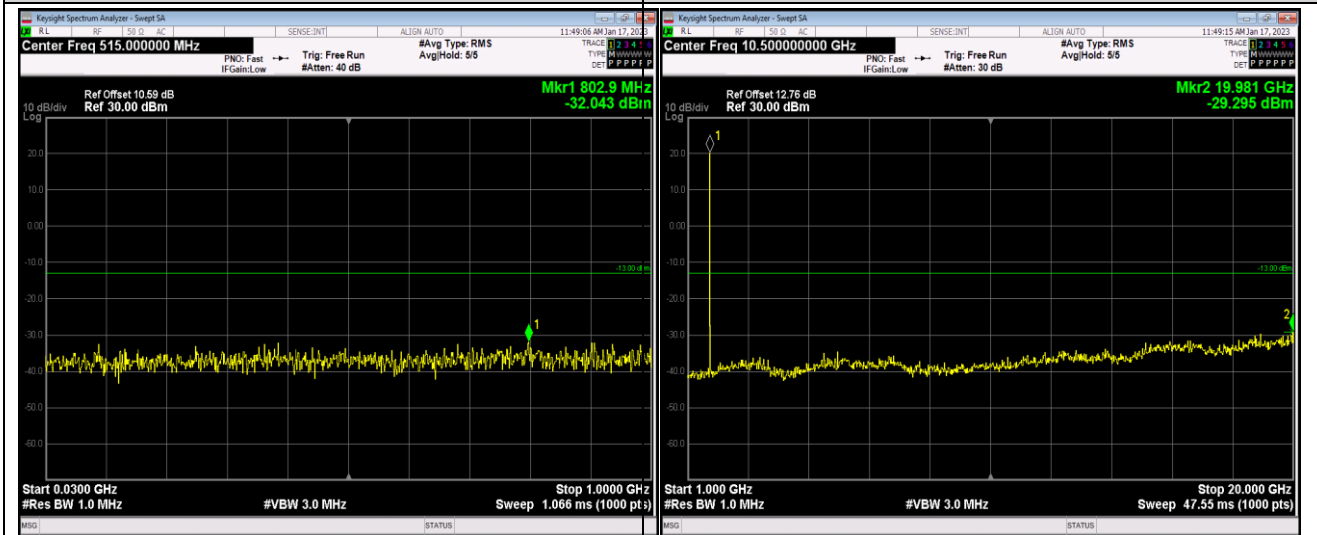






Band66-1.4MHz-QPSK-131979-1RB#0-Range1:30
~1000MHz

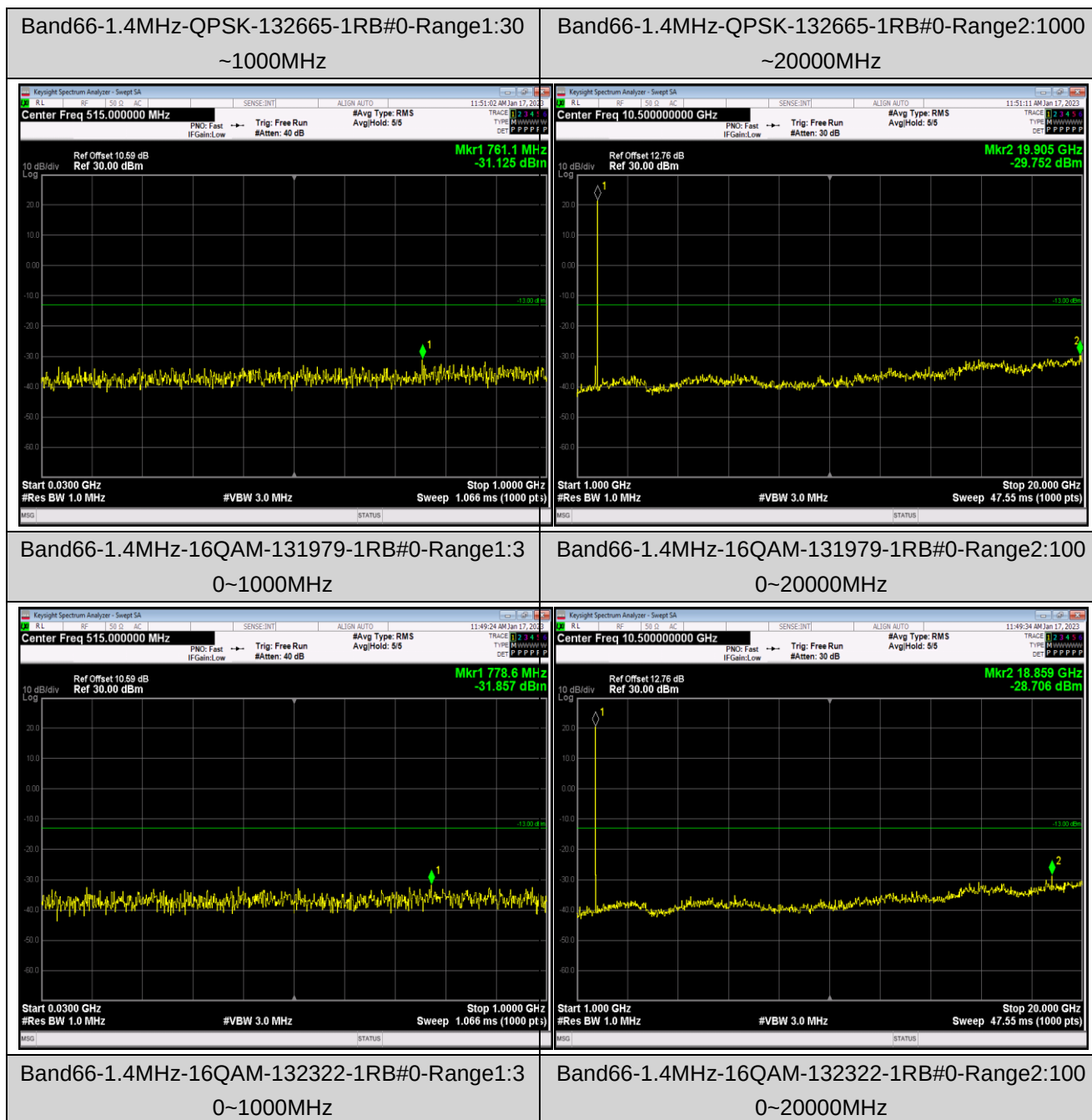
Band66-1.4MHz-QPSK-131979-1RB#0-Range2:1000
~20000MHz

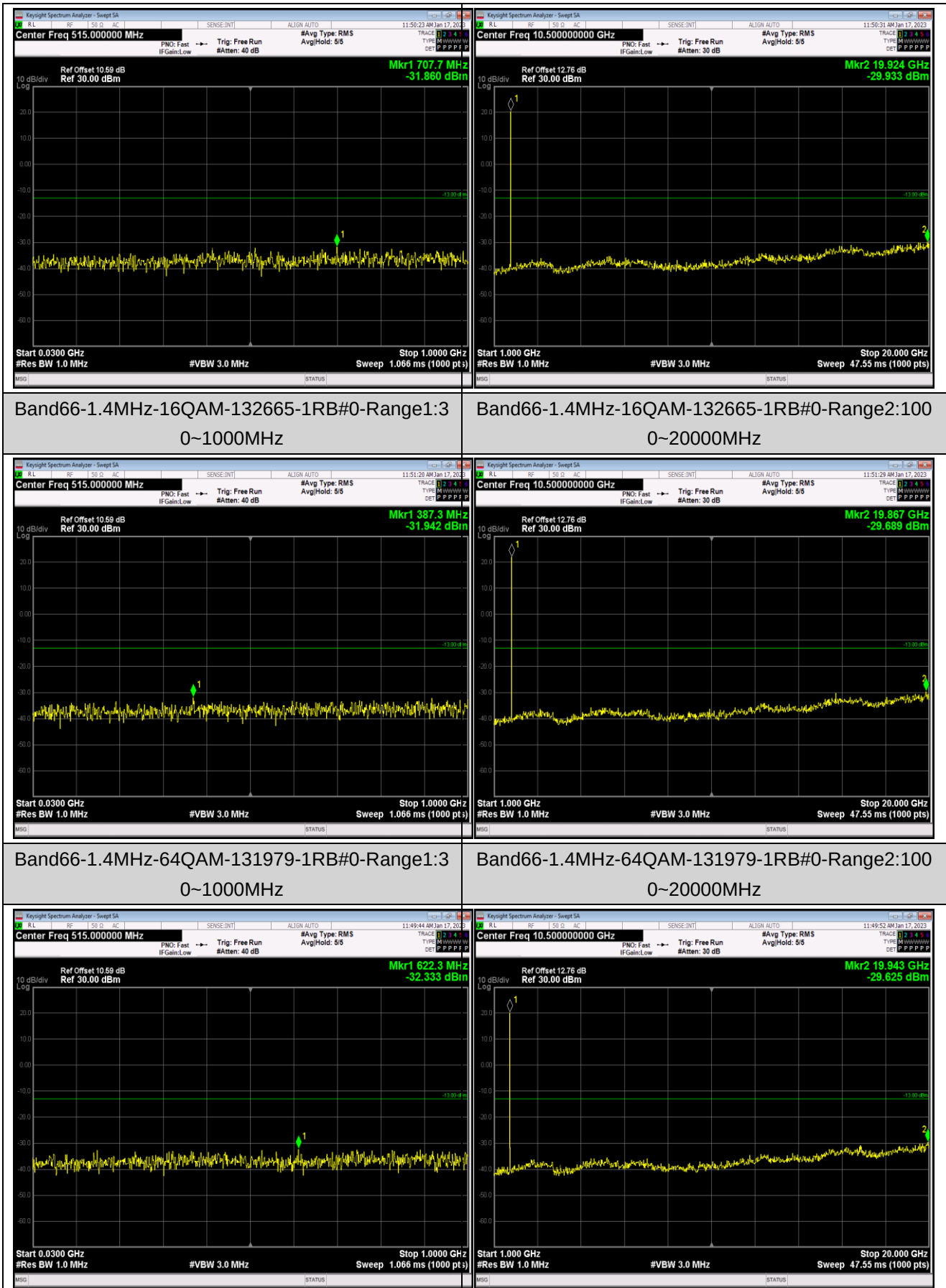


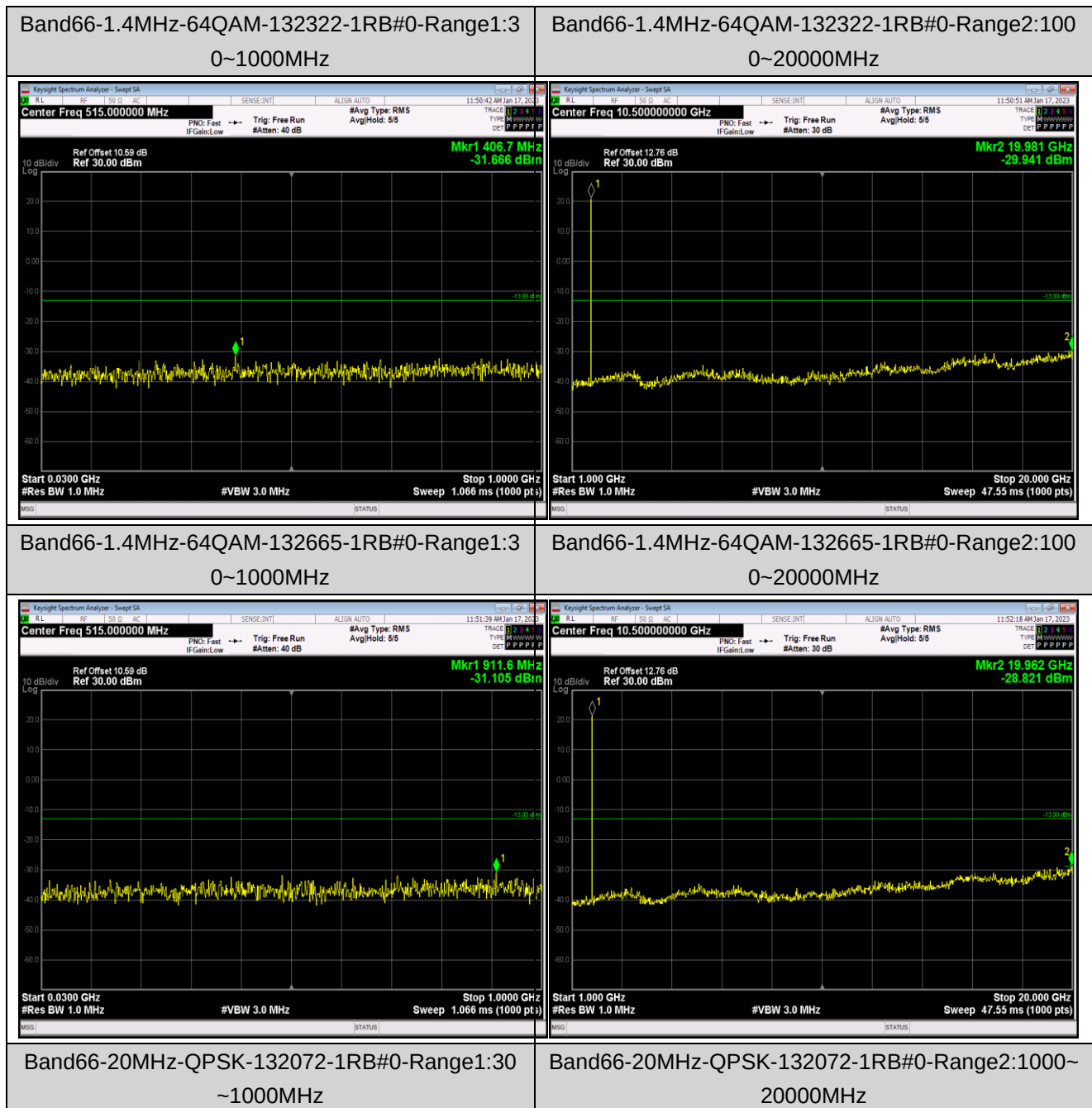
Band66-1.4MHz-QPSK-132322-1RB#0-Range1:30
~1000MHz

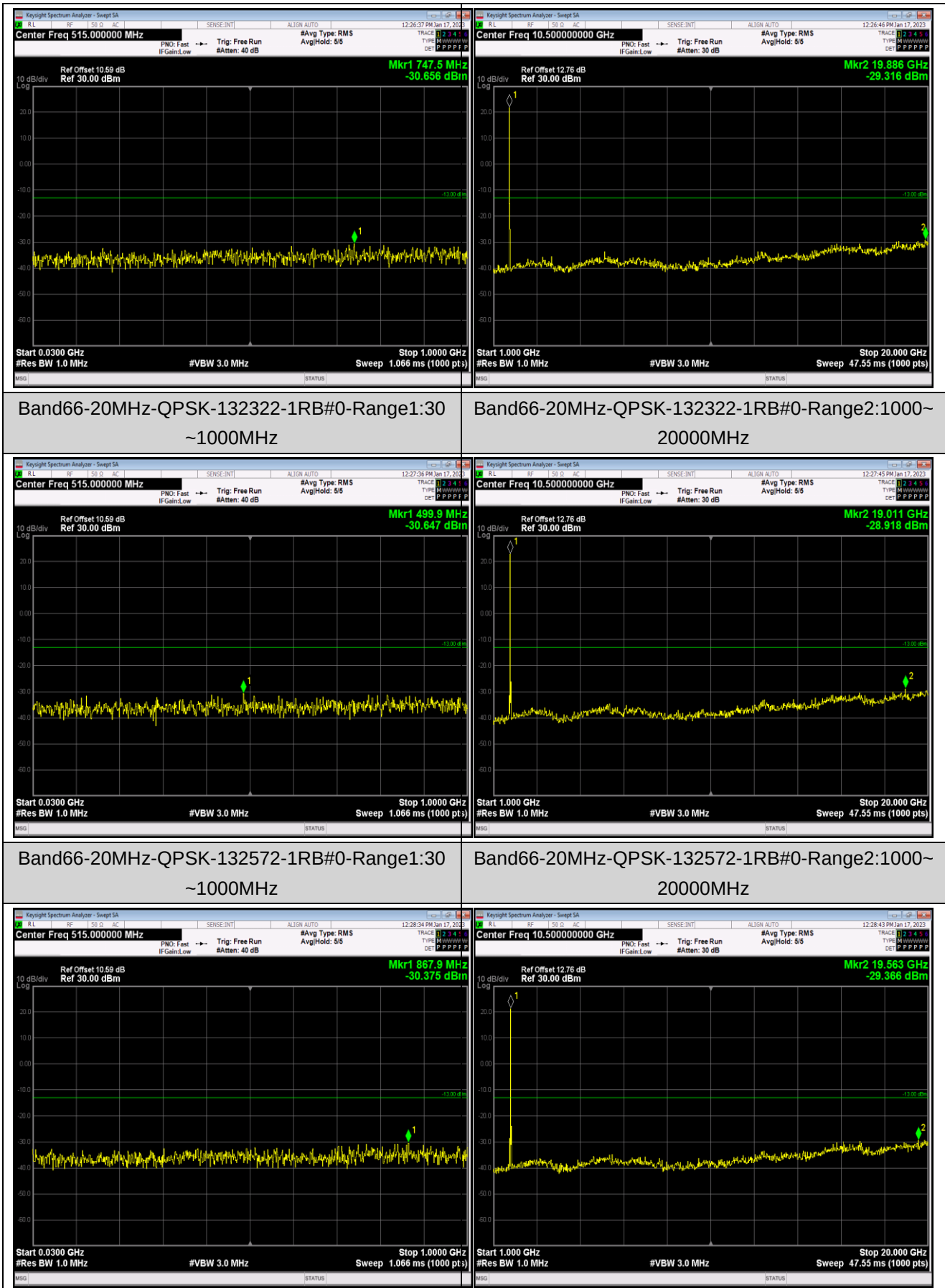
Band66-1.4MHz-QPSK-132322-1RB#0-Range2:1000
~20000MHz

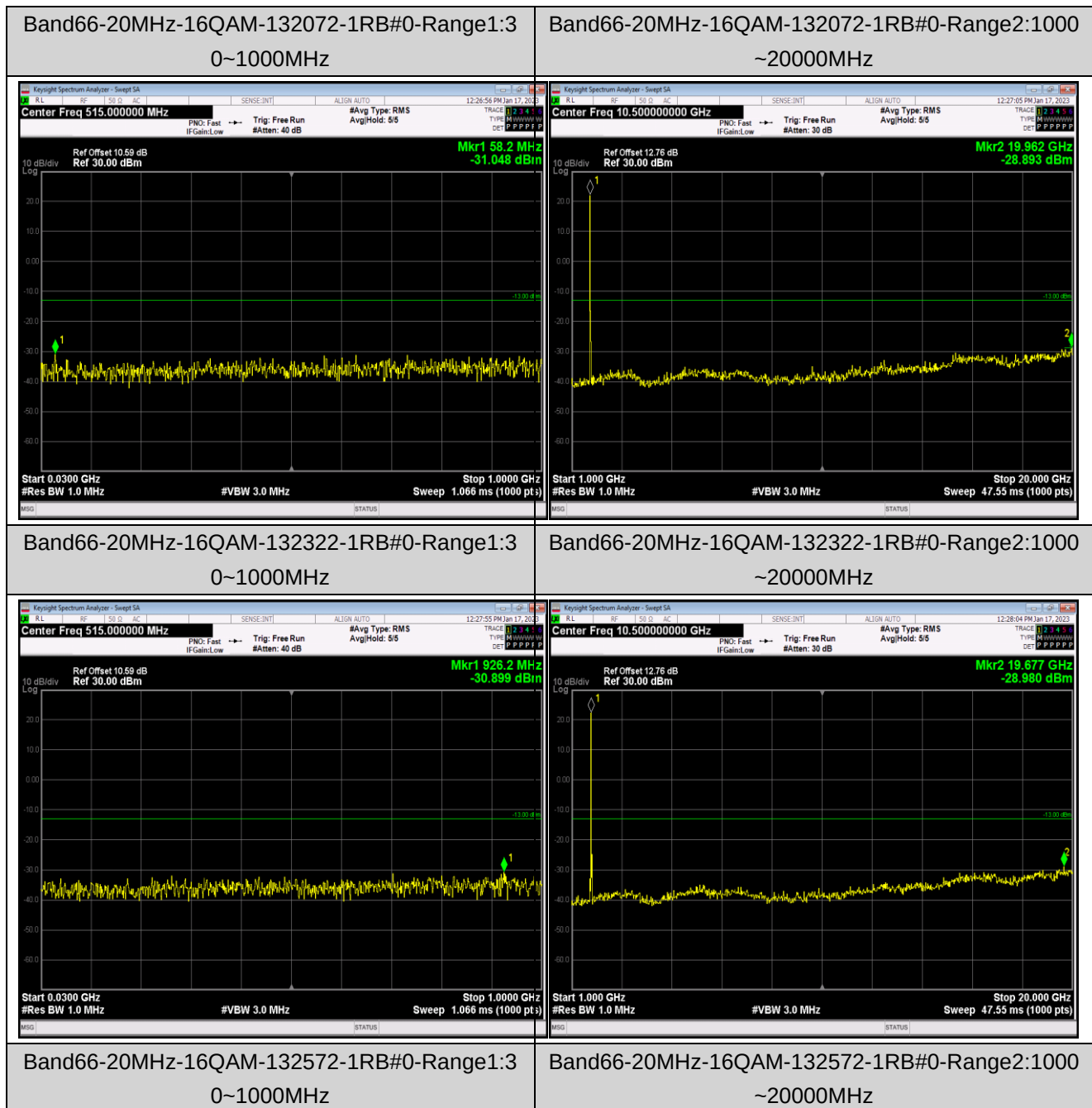


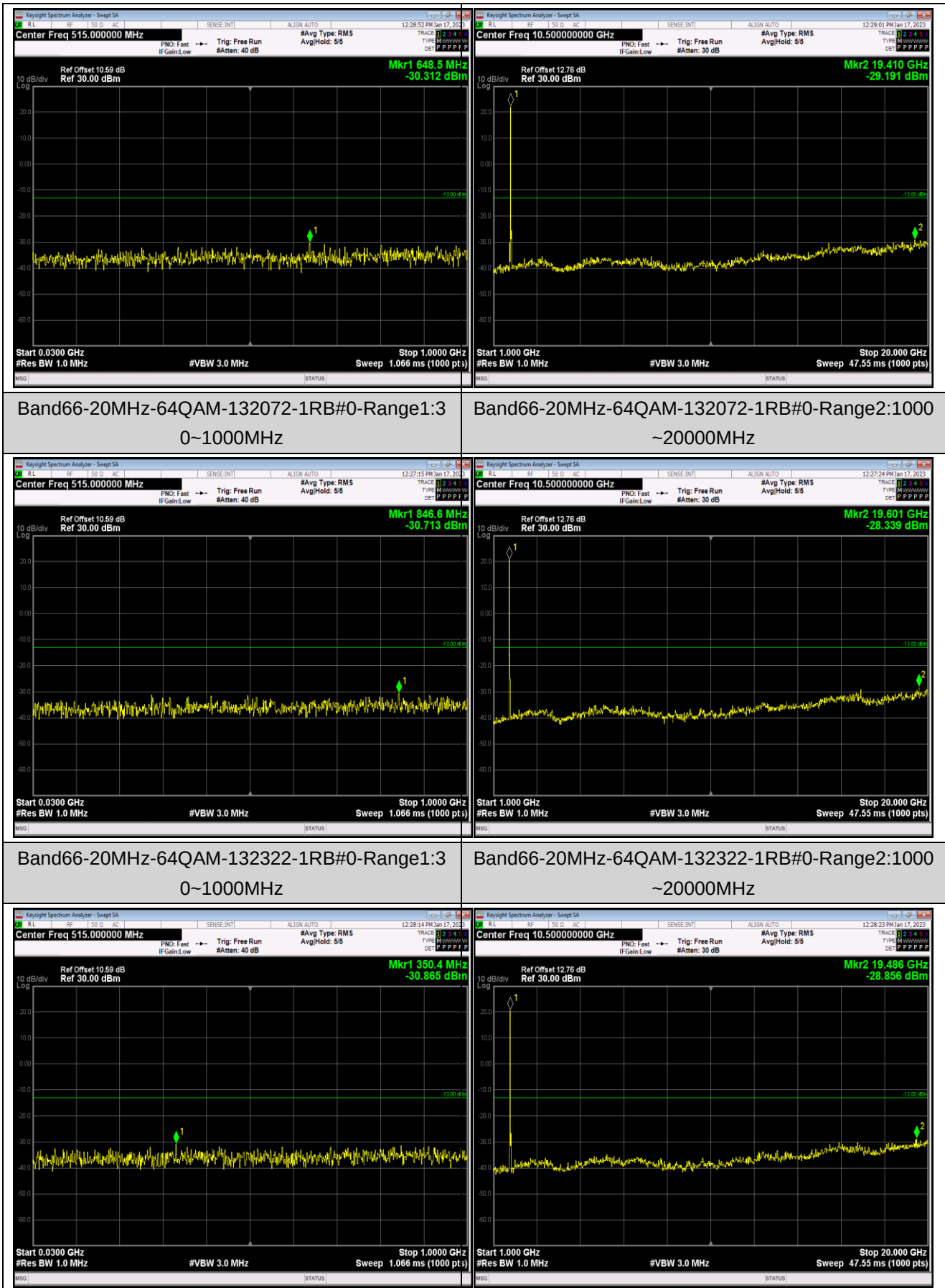


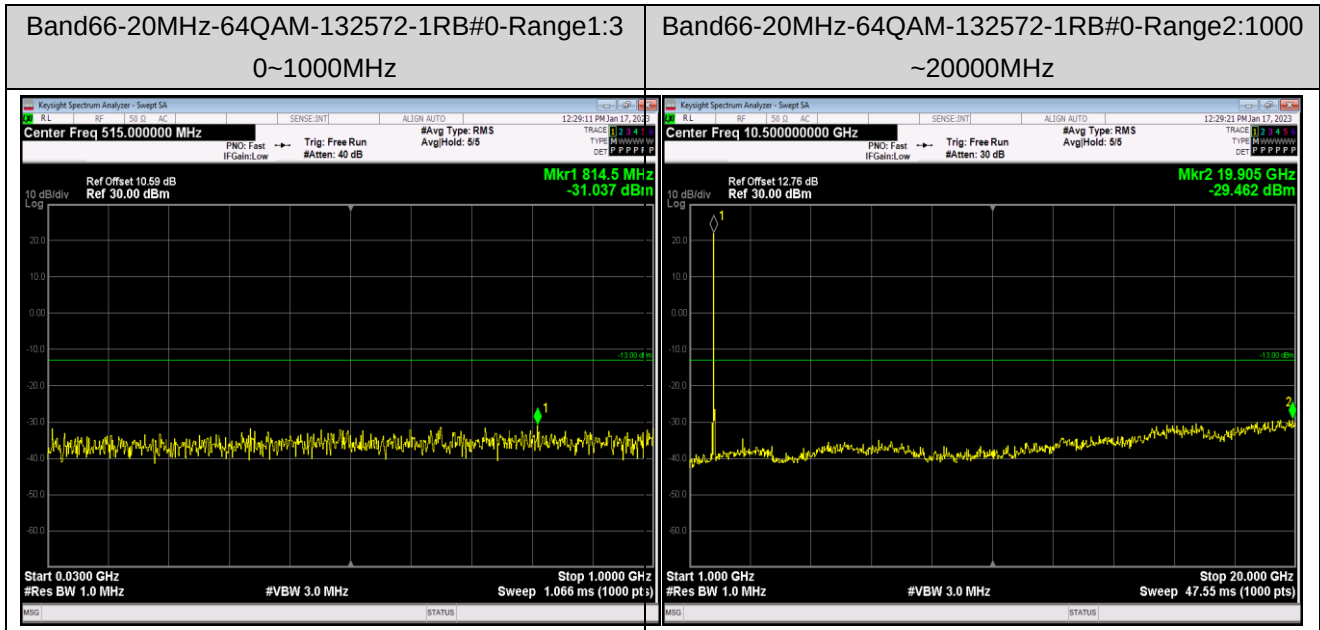












Appendix F: Frequency Stability

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					
3.87	-30	3.71	0.001973	Within authorized band for Band 2	Pass
	-20	4.73	0.002516		
	-10	-5.97	-0.003176		
	0	15.55	0.008271		
	10	9.34	0.004968		
	20	3.75	0.001995		
	30	17.21	0.009154		
	40	15.32	0.008149		
	50	8.70	0.004628		
16QAM					
3.87	-30	17.62	0.009372	Within authorized band for Band 2	Pass
	-20	21.54	0.011457		
	-10	9.31	0.004952		
	0	8.18	0.004351		
	10	16.22	0.008628		
	20	6.52	0.003468		
	30	8.74	0.004649		
	40	11.52	0.006128		
	50	-7.31	-0.003888		
64QAM					
3.87	-30	3.23	0.001718	Within authorized band for Band 2	Pass
	-20	-11.77	-0.006261		
	-10	-9.46	-0.005032		
	0	8.53	0.004537		
	10	12.67	0.006739		
	20	17.42	0.009266		
	30	-1.86	-0.000989		
	40	8.27	0.004399		
	50	-6.94	-0.003691		

Voltage					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	3.45	12.89	0.006856	Within authorized band for Band 2	Pass
	3.87	-7.94	-0.004223		
	4.45	5.92	0.003149		
16QAM					
25	3.45	3.38	0.001798	Within authorized band for Band 2	Pass
	3.87	13.03	0.006931		
	4.45	11.07	0.005888		
64QAM					
25	3.45	-3.95	-0.002101	Within authorized band for Band 2	Pass
	3.87	12.00	0.006383		
	4.45	9.56	0.005085		
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					
3.87	-30	-10.47	-0.012516	±2.5	Pass
	-20	-4.81	-0.005750		
	-10	-8.96	-0.010711		
	0	-7.21	-0.008619		
	10	-6.12	-0.007316		
	20	-4.73	-0.005655		
	30	4.95	0.005918		
	40	-8.91	-0.010652		
	50	-6.72	-0.008033		
16QAM					
3.87	-30	2.76	0.003299	±2.5	Pass
	-20	-10.91	-0.013042		
	-10	-6.61	-0.007902		
	0	-3.78	-0.004519		
	10	-7.44	-0.008894		
	20	-9.27	-0.011082		
	30	-7.12	-0.008512		
	40	-6.84	-0.008177		
	50	-7.50	-0.008966		
64QAM					
3.87	-30	-6.61	-0.007902	±2.5	Pass
	-20	-5.25	-0.006276		
	-10	-7.44	-0.008894		
	0	-2.37	-0.002833		
	10	-6.32	-0.007555		
	20	-4.82	-0.005762		
	30	-6.35	-0.007591		
	40	-1.60	-0.001913		
	50	-10.67	-0.012756		

Voltage					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	3.45	-5.04	-0.006025	±2.5	Pass
	3.87	5.19	0.006204		
	4.45	4.79	0.005726		
16QAM					
25	3.45	-6.02	-0.007197	±2.5	Pass
	3.87	-5.97	-0.007137		
	4.45	-8.45	-0.010102		
64QAM					
25	3.45	-7.31	-0.008739	±2.5	Pass
	3.87	-4.75	-0.005678		
	4.45	-7.62	-0.009109		
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					
3.87	-30	-13.73	-0.005416	Within authorized band for Band 7	Pass
	-20	-10.16	-0.004008		
	-10	21.04	0.008300		
	0	19.23	0.007586		
	10	-16.64	-0.006564		
	20	14.29	0.005637		
	30	4.16	0.001641		
	40	14.25	0.005621		
	50	7.21	0.002844		
16QAM					
3.87	-30	9.48	0.003740	Within authorized band for Band 7	Pass
	-20	-16.26	-0.006414		
	-10	14.12	0.005570		
	0	26.39	0.010410		
	10	-16.67	-0.006576		
	20	15.59	0.006150		
	30	-8.45	-0.003333		
	40	-17.52	-0.006911		
	50	-11.64	-0.004592		
64QAM					
3.87	-30	13.80	0.005444	Within authorized band for Band 7	Pass
	-20	12.20	0.004813		
	-10	13.68	0.005396		
	0	-12.89	-0.005085		
	10	13.56	0.005349		
	20	-20.87	-0.008233		
	30	-10.90	-0.004300		
	40	18.32	0.007227		
	50	15.39	0.006071		

Voltage					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	3.45	-11.96	-0.004718	Within authorized band for Band 7	Pass
	3.87	-12.77	-0.005037		
	4.45	20.03	0.007901		
16QAM					
25	3.45	-10.20	-0.004024	Within authorized band for Band 7	Pass
	3.87	-1.72	-0.000679		
	4.45	13.93	0.005495		
64QAM					
25	3.45	5.58	0.007887	Within authorized band for Band 7	Pass
	3.87	2.98	0.004212		
	4.45	-5.38	-0.007604		
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					
3.87	-30	4.36	0.006163	Within authorized band for Band 12	Pass
	-20	5.56	0.007859		
	-10	4.55	0.006431		
	0	-3.88	-0.005484		
	10	5.35	0.007562		
	20	1.60	0.002261		
	30	6.02	0.008509		
	40	5.85	0.008269		
	50	5.11	0.007223		
16QAM					
3.87	-30	7.12	0.010064	Within authorized band for Band 12	Pass
	-20	7.77	0.010982		
	-10	1.00	0.001413		
	0	3.20	0.004523		
	10	4.73	0.006686		
	20	3.73	0.005272		
	30	7.95	0.011237		
	40	3.26	0.004608		
	50	6.67	0.009428		
64QAM					
3.87	-30	-1.62	-0.002290	Within authorized band for Band 12	Pass
	-20	3.35	0.004735		
	-10	6.77	0.009569		
	0	4.13	0.005837		
	10	5.18	0.007322		
	20	1.42	0.002007		
	30	-0.63	-0.000890		
	40	5.95	0.008410		
	50	7.64	0.010799		

Voltage					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	3.45	5.58	0.007887	Within authorized band for Band 12	Pass
	3.87	2.98	0.004212		
	4.45	-5.38	-0.007604		
16QAM					
25	3.45	1.82	0.002572	Within authorized band for Band 12	Pass
	3.87	-5.09	-0.007194		
	4.45	-0.69	-0.000975		
64QAM					
25	3.45	6.55	0.009258	Within authorized band for Band 12	Pass
	3.87	5.61	0.007929		
	4.45	6.28	0.008876		
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					
3.87	-30	1.56	0.002197	Within authorized band for Band 17	Pass
	-20	-7.05	-0.009930		
	-10	4.01	0.005648		
	0	4.81	0.006775		
	10	5.66	0.007972		
	20	-2.55	-0.003592		
	30	-4.91	-0.006915		
	40	-3.52	-0.004958		
	50	-5.36	-0.007549		
16QAM					
3.87	-30	-1.83	-0.002577	Within authorized band for Band 17	Pass
	-20	4.71	0.006634		
	-10	4.84	0.006817		
	0	4.36	0.006141		
	10	4.39	0.006183		
	20	-2.53	-0.003563		
	30	-2.53	-0.003563		
	40	-2.72	-0.003831		
	50	2.85	0.004014		
64QAM					
3.87	-30	-5.71	-0.008042	Within authorized band for Band 17	Pass
	-20	-5.98	-0.008423		
	-10	-5.25	-0.007394		
	0	-1.24	-0.001746		
	10	-3.58	-0.005042		
	20	2.57	0.003620		
	30	-4.01	-0.005648		
	40	-5.11	-0.007197		
	50	-3.58	-0.005042		

Voltage					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	3.45	-1.93	-0.002718	Within authorized band for Band 17	Pass
	3.87	4.68	0.006592		
	4.45	-3.49	-0.004915		
16QAM					
25	3.45	4.81	0.006775	Within authorized band for Band 17	Pass
	3.87	5.32	0.007493		
	4.45	-1.92	-0.002704		
64QAM					
25	3.45	-4.26	-0.006000	Within authorized band for Band 17	Pass
	3.87	-3.40	-0.004789		
	4.45	-2.59	-0.003648		
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					
3.87	-30	-21.11	-0.008141	Within authorized band for Band 41	Pass
	-20	11.74	0.004528		
	-10	8.63	0.003328		
	0	3.22	0.001242		
	10	-11.86	-0.004574		
	20	16.89	0.006514		
	30	6.39	0.002464		
	40	-13.06	-0.005037		
	50	11.59	0.004470		
16QAM					
3.87	-30	6.90	0.002661	Within authorized band for Band 41	Pass
	-20	-14.62	-0.005638		
	-10	-11.36	-0.004381		
	0	14.58	0.005623		
	10	-5.16	-0.001990		
	20	10.51	0.004053		
	30	11.49	0.004431		
	40	3.46	0.001334		
	50	-2.50	-0.000964		
64QAM					
3.87	-30	-12.45	-0.004801	Within authorized band for Band 41	Pass
	-20	8.68	0.003347		
	-10	-12.00	-0.004628		
	0	-12.62	-0.004867		
	10	-11.24	-0.004335		
	20	-8.04	-0.003101		
	30	6.52	0.002514		
	40	-9.61	-0.003706		
	50	-12.52	-0.004828		

Voltage					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	3.45	9.94	0.003833	Within authorized band for Band 41	Pass
	3.87	10.91	0.004207		
	4.45	-8.03	-0.003097		
16QAM					
25	3.45	4.38	0.001689	Within authorized band for Band41	Pass
	3.87	-13.80	-0.005322		
	4.45	-10.06	-0.003880		
64QAM					
25	3.45	-14.89	-0.005742	Within authorized band for Band41	Pass
	3.87	-4.32	-0.001666		
	4.45	-11.56	-0.004458		
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					
3.87	-30	10.41	0.005966	Within authorized band for Band 66	Pass
	-20	17.22	0.009868		
	-10	5.55	0.003181		
	0	12.09	0.006928		
	10	8.40	0.004814		
	20	15.18	0.008699		
	30	8.60	0.004928		
	40	9.30	0.005330		
	50	13.43	0.007696		
16QAM					
3.87	-30	9.20	0.005272	Within authorized band for Band 66	Pass
	-20	6.72	0.003851		
	-10	13.90	0.007966		
	0	8.84	0.005066		
	10	16.47	0.009438		
	20	7.51	0.004304		
	30	18.65	0.010688		
	40	19.01	0.010894		
	50	10.61	0.006080		
64QAM					
3.87	-30	9.91	0.005679	Within authorized band for Band 66	Pass
	-20	8.67	0.004968		
	-10	8.97	0.005140		
	0	12.85	0.007364		
	10	7.50	0.004298		
	20	12.60	0.007221		
	30	14.61	0.008372		
	40	12.53	0.007181		
	50	16.97	0.009725		

Voltage					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	3.45	10.49	0.006011	Within authorized band for Band 66	Pass
	3.87	5.39	0.003089		
	4.45	8.01	0.004590		
16QAM					
25	3.45	17.81	0.010206	Within authorized band for Band 66	Pass
	3.87	13.52	0.007748		
	4.45	9.10	0.005215		
64QAM					
25	3.45	17.88	0.010246	Within authorized band for Band 66	Pass
	3.87	5.16	0.002957		
	4.45	8.87	0.005083		
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
Band2	20MHz	64QAM	18900	100RB#0	PASS	PASS
Band5	10MHz	QPSK	20525	50RB#0	PASS	PASS
Band5	10MHz	16QAM	20525	50RB#0	PASS	PASS
Band5	10MHz	64QAM	20525	50RB#0	PASS	PASS
Band7	20MHz	QPSK	21100	100RB#0	PASS	PASS
Band7	20MHz	16QAM	21100	100RB#0	PASS	PASS
Band7	20MHz	64QAM	21100	100RB#0	PASS	PASS
Band12	10MHz	QPSK	23095	50RB#0	PASS	PASS
Band12	10MHz	16QAM	23095	50RB#0	PASS	PASS
Band12	10MHz	64QAM	23095	50RB#0	PASS	PASS
Band17	10MHz	QPSK	23790	50RB#0	PASS	PASS
Band17	10MHz	16QAM	23790	50RB#0	PASS	PASS
Band17	10MHz	64QAM	23790	50RB#0	PASS	PASS
Band41	20MHz	QPSK	40620	100RB#0	PASS	PASS
Band41	20MHz	16QAM	40620	100RB#0	PASS	PASS
Band41	20MHz	64QAM	40620	100RB#0	PASS	PASS
Band66	20MHz	QPSK	132322	100RB#0	PASS	PASS
Band66	20MHz	16QAM	132322	100RB#0	PASS	PASS
Band66	20MHz	64QAM	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

