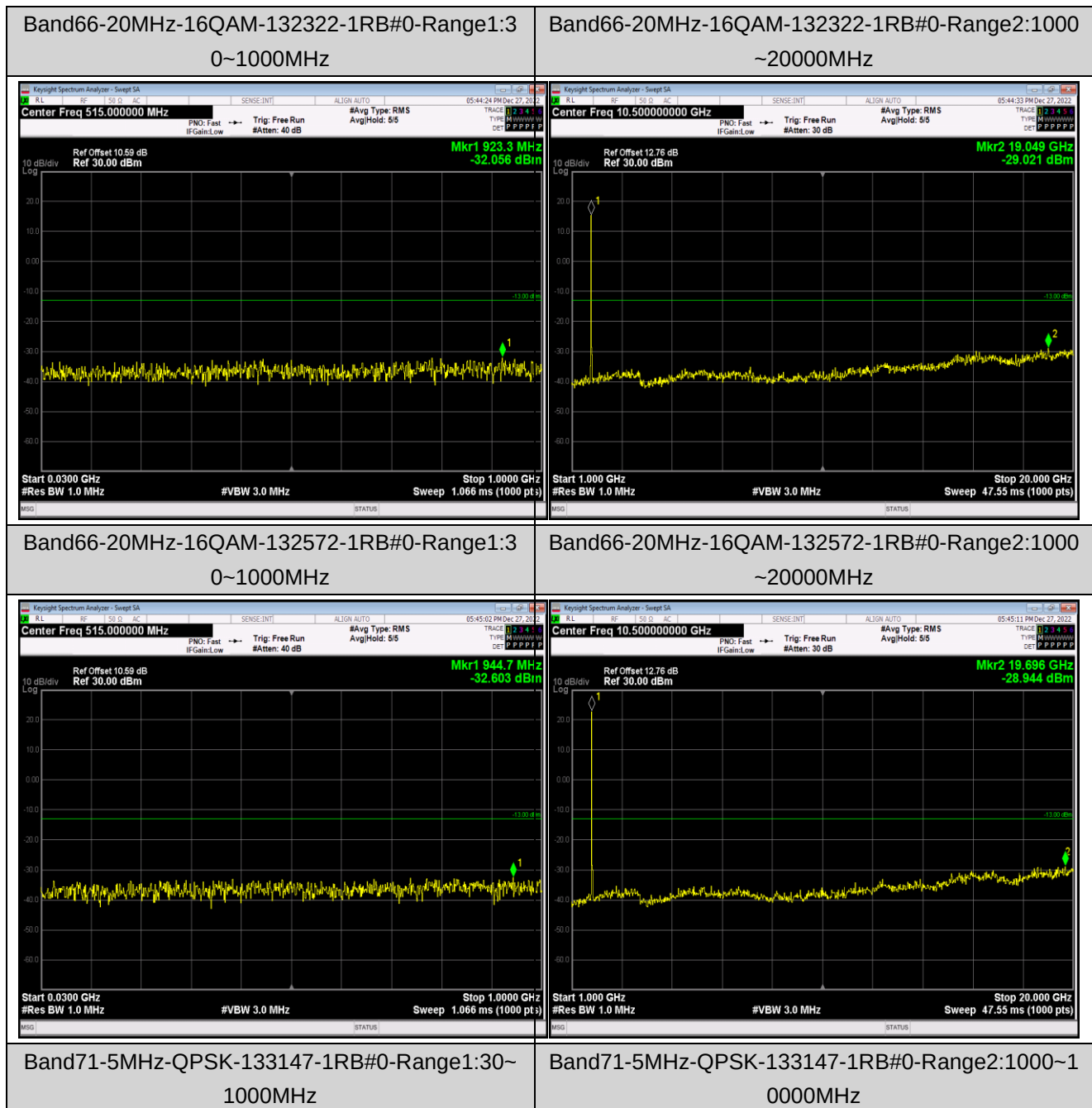
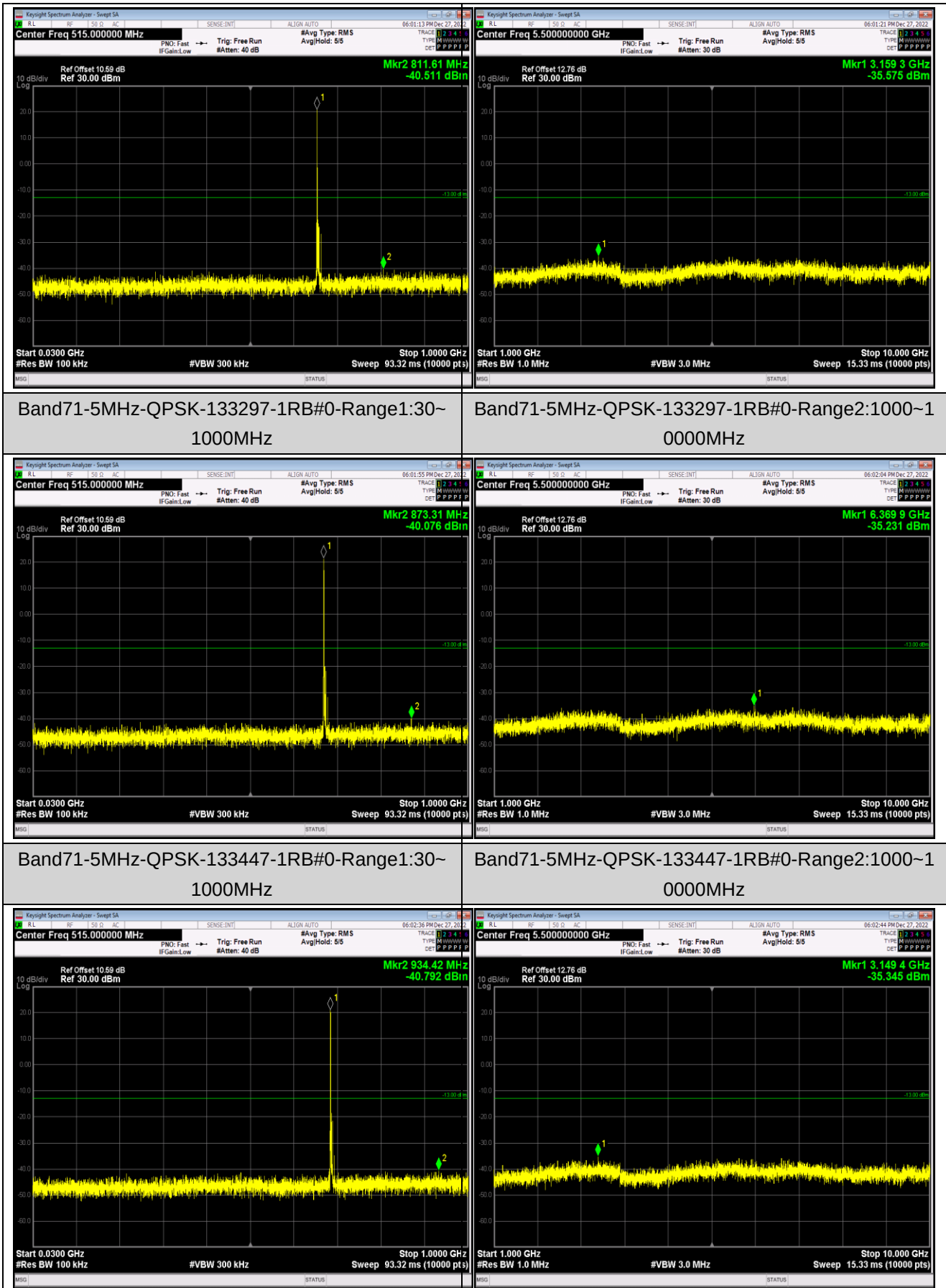
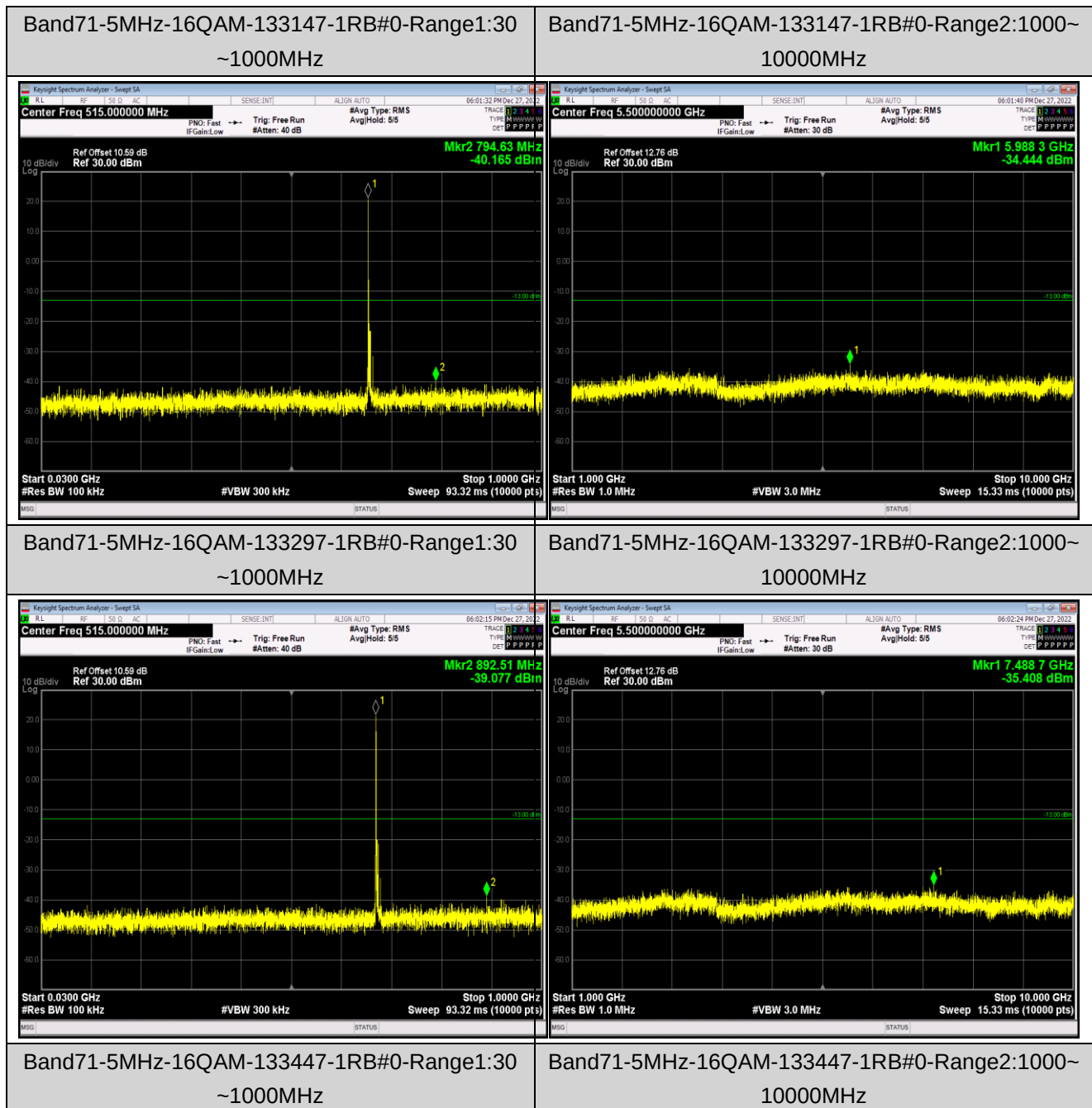
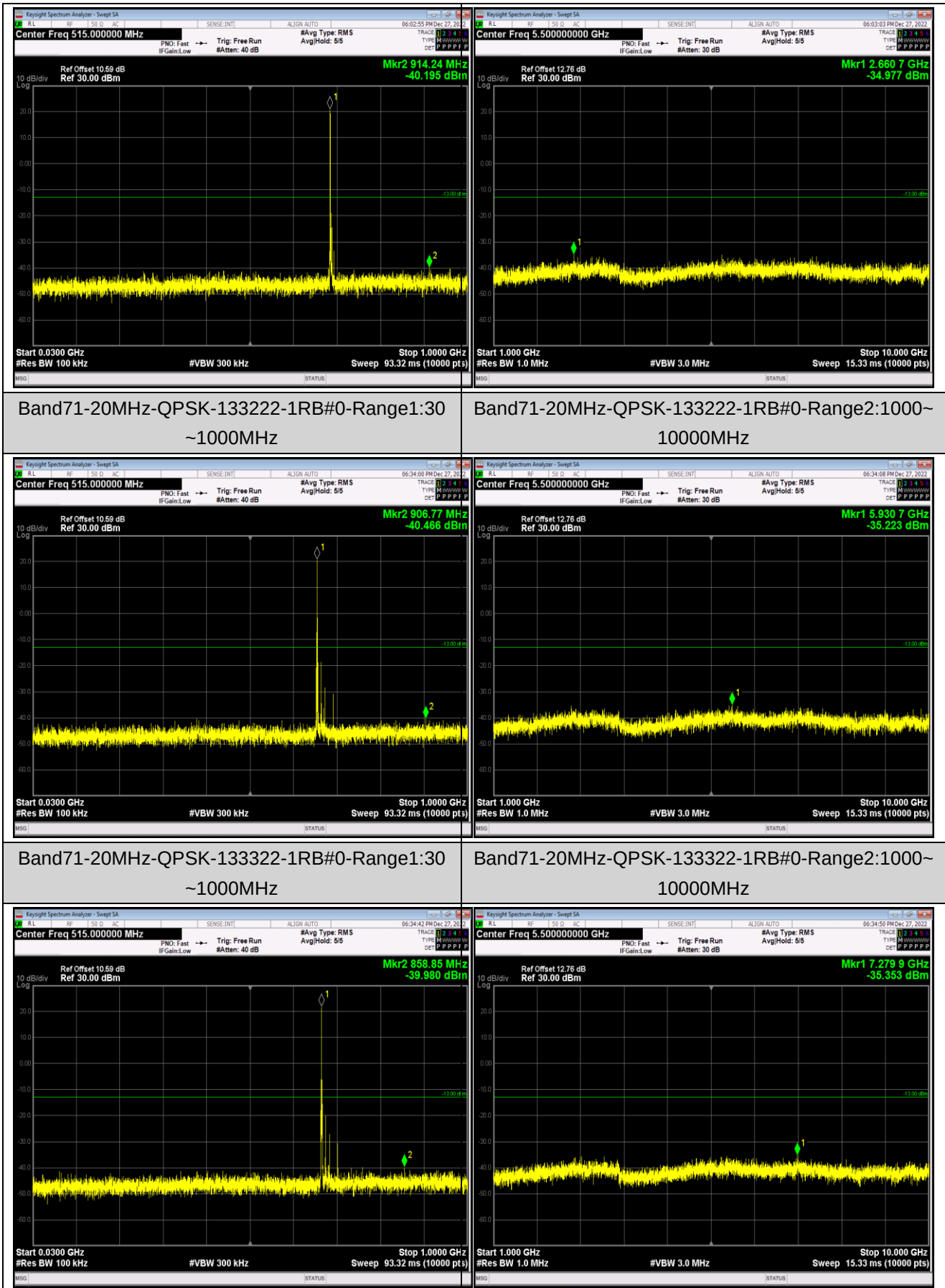
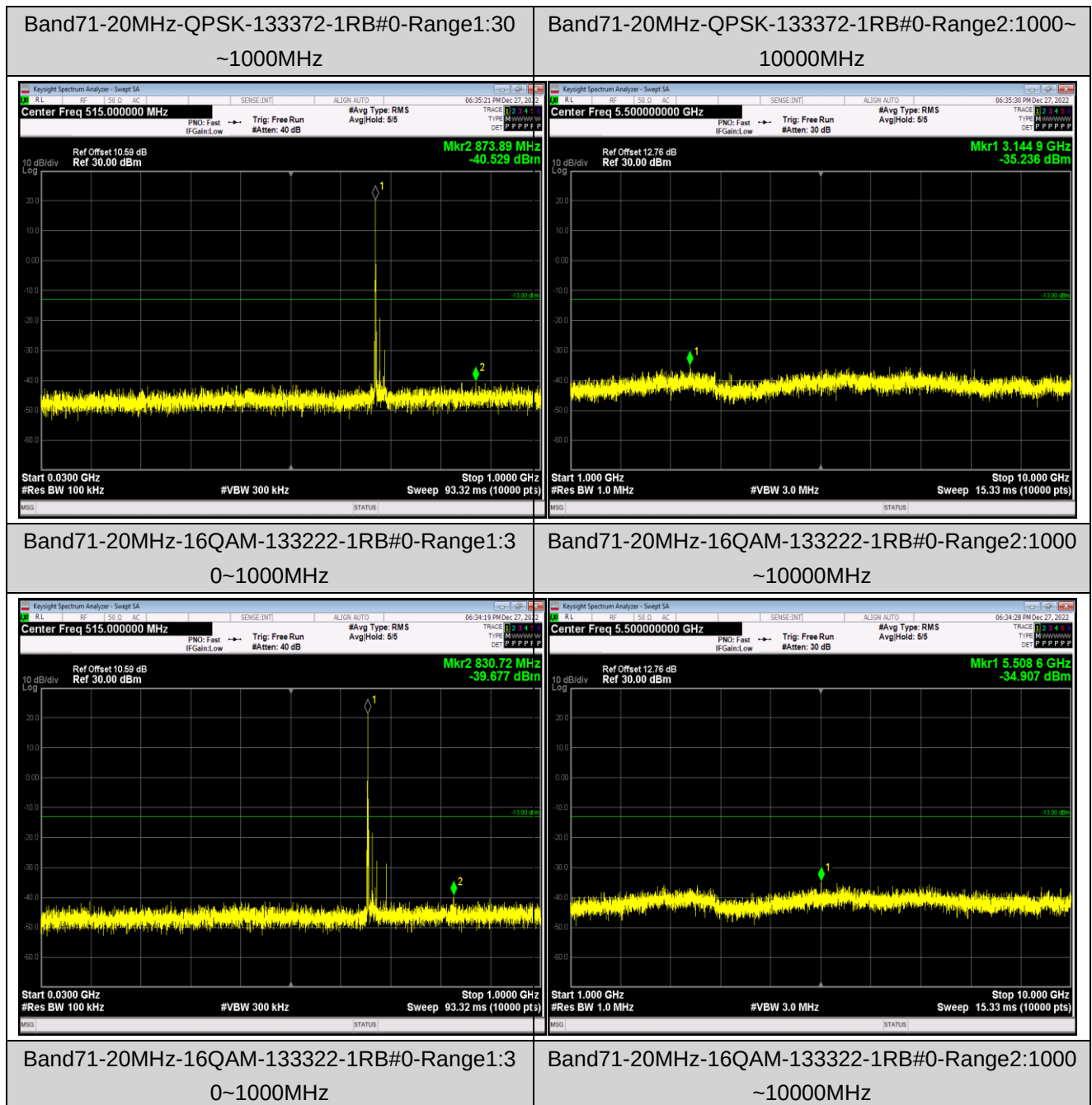


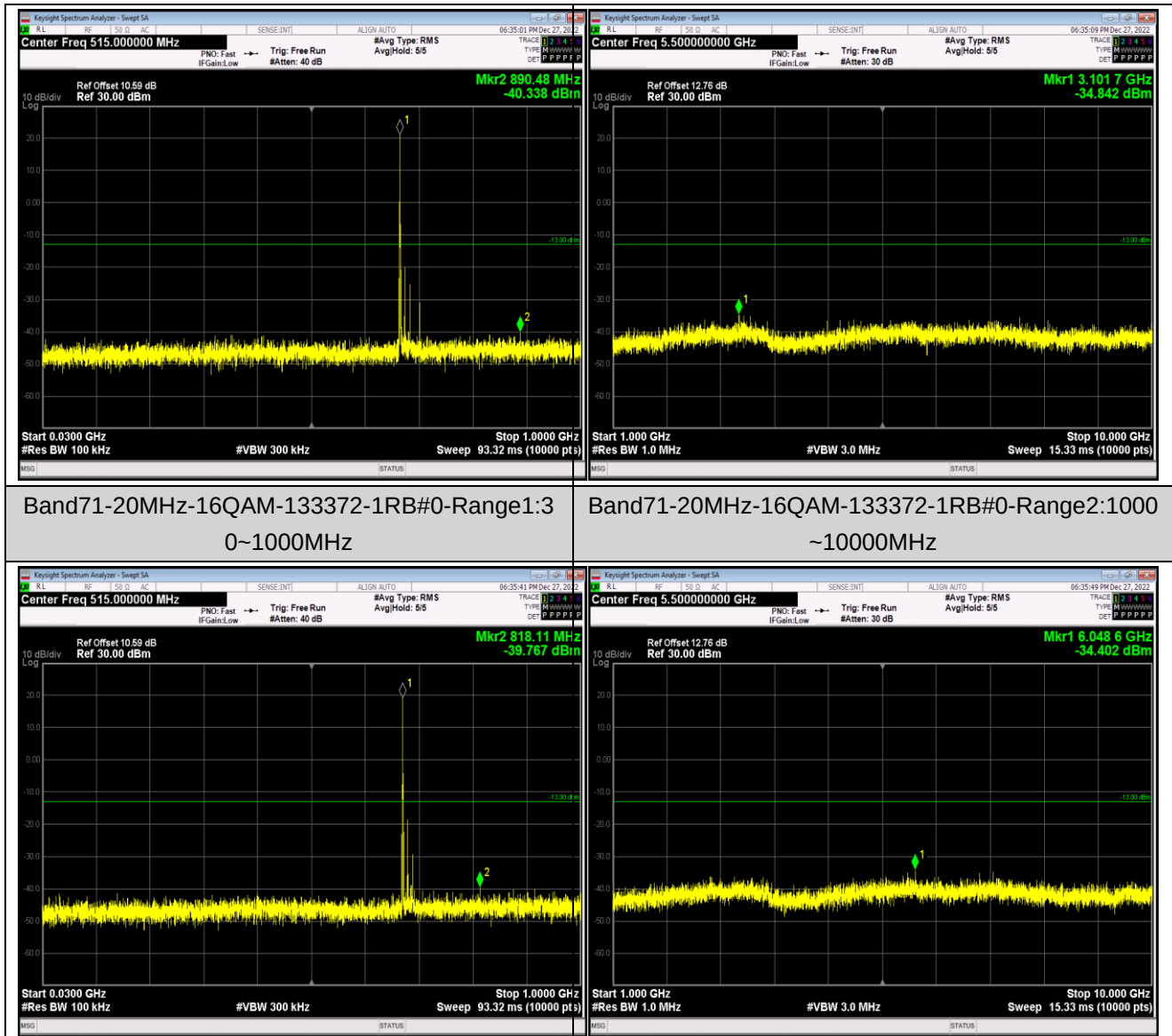












Appendix F: Frequency Stability

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	-19.50	-0.010372	Within authorized band for Band 2	Pass
	-20	-18.64	-0.009915		
	-10	-7.61	-0.004048		
	0	-7.48	-0.003979		
	10	-14.39	-0.007654		
	20	-10.70	-0.005691		
	30	-24.99	-0.013293		
	40	-9.48	-0.005043		
	50	-11.57	-0.006154		
16QAM					
3.80	-30	-13.59	-0.007229	Within authorized band for Band 2	Pass
	-20	-17.61	-0.009367		
	-10	-16.47	-0.008761		
	0	5.92	0.003149		
	10	-16.81	-0.008941		
	20	-5.12	-0.002723		
	30	-13.32	-0.007085		
	40	-8.33	-0.004431		
	50	-14.73	-0.007835		
Voltage					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	3.42	-13.80	-0.007340	Within authorized band for Band 2	Pass
	3.80	-22.29	-0.011856		
	4.18	-13.06	-0.006947		
16QAM					
25	3.42	-6.04	-0.003213	Within authorized band for Band 2	Pass
	3.80	-14.48	-0.007702		
	4.18	-8.65	-0.004601		
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					
3.80	-30	-7.10	-0.008488	±2.5	Pass
	-20	-4.73	-0.005655		
	-10	-10.66	-0.012744		
	0	-6.11	-0.007304		
	10	-9.30	-0.011118		
	20	-9.20	-0.010998		
	30	-17.62	-0.021064		
	40	-3.92	-0.004686		
	50	-7.68	-0.009181		
16QAM					
3.80	-30	-7.41	-0.008858	±2.5	Pass
	-20	-8.15	-0.009743		
	-10	-9.24	-0.011046		
	0	-6.49	-0.007759		
	10	-6.84	-0.008177		
	20	-8.91	-0.010652		
	30	-3.69	-0.004411		
	40	-7.62	-0.009109		
	50	-12.75	-0.015242		
Voltage					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	3.42	-10.70	-0.012791	±2.5	Pass
	3.80	-8.90	-0.010640		
	4.18	-6.79	-0.008117		
16QAM					
25	3.42	-11.50	-0.013748	±2.5	Pass
	3.80	-10.91	-0.013042		
	4.18	-9.51	-0.011369		
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					
3.80	-30	-10.60	-0.014982	Within authorized band for Band 12	Pass
	-20	-5.92	-0.008367		
	-10	-9.48	-0.013399		
	0	-7.98	-0.011279		
	10	-5.51	-0.007788		
	20	2.79	0.003943		
	30	-8.11	-0.011463		
	40	-10.53	-0.014883		
	50	-5.69	-0.008042		
16QAM					
3.80	-30	-9.43	-0.013329	Within authorized band for Band 12	Pass
	-20	-5.41	-0.007647		
	-10	-4.38	-0.006191		
	0	-6.87	-0.009710		
	10	-7.20	-0.010177		
	20	-8.17	-0.011548		
	30	-5.54	-0.007830		
	40	-7.91	-0.011180		
	50	-8.44	-0.011929		
Voltage					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	3.42	-4.92	-0.006954	Within authorized band for Band 12	Pass
	3.80	-9.31	-0.013159		
	4.18	-10.17	-0.014375		
16QAM					
25	3.42	-6.45	-0.009117	Within authorized band for Band 12	Pass
	3.80	-9.34	-0.013201		
	4.18	-8.83	-0.012481		
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					
3.80	-30	-7.82	-0.011014	Within authorized band for Band 17	Pass
	-20	-6.72	-0.009465		
	-10	-6.62	-0.009324		
	0	-5.28	-0.007437		
	10	-8.08	-0.011380		
	20	-5.18	-0.007296		
	30	-8.53	-0.012014		
	40	-4.85	-0.006831		
	50	-9.34	-0.013155		
16QAM					
3.80	-30	-7.94	-0.011183	Within authorized band for Band 17	Pass
	-20	-7.65	-0.010775		
	-10	-9.03	-0.012718		
	0	-9.18	-0.012930		
	10	-8.01	-0.011282		
	20	-7.64	-0.010761		
	30	-4.03	-0.005676		
	40	-9.41	-0.013254		
	50	-5.82	-0.008197		
Voltage					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	3.42	-8.97	-0.012634	Within authorized band for Band 17	Pass
	3.80	-11.92	-0.016789		
	4.18	-7.82	-0.011014		
16QAM					
25	3.42	-6.15	-0.008662	Within authorized band for Band 17	Pass
	3.80	-6.54	-0.009211		
	4.18	-2.57	-0.003620		
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=40740 Frequency=2605.0MHz					
Temperature					
Power supplied (Vdc)	Temperature (°C)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
3.80	-30	-13.35	-0.005125	Within authorized band for Band 41	Pass
	-20	-15.16	-0.005820		
	-10	-14.16	-0.005436		
	0	-10.86	-0.004169		
	10	-9.81	-0.003766		
	20	-14.35	-0.005509		
	30	-15.72	-0.006035		
	40	-7.31	-0.002806		
	50	-16.19	-0.006215		
16QAM					
3.80	-30	-10.46	-0.004015	Within authorized band for Band 41	Pass
	-20	-15.96	-0.006127		
	-10	-12.39	-0.004756		
	0	-9.36	-0.003593		
	10	8.81	0.003382		
	20	-13.66	-0.005244		
	30	-6.07	-0.002330		
	40	-4.82	-0.001850		
	50	-13.36	-0.005129		
Voltage					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	3.42	-11.40	-0.004376	Within authorized band for Band 41	Pass
	3.80	-10.84	-0.004161		
	4.18	-3.69	-0.001417		
16QAM					
25	3.42	-11.92	-0.004576	Within authorized band for Band41	Pass
	3.80	-14.09	-0.005409		
	4.18	-9.48	-0.003639		
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	-14.91	-0.008544	Within authorized band for Band 66	Pass
	-20	-6.28	-0.003599		
	-10	-7.31	-0.004189		
	0	-5.68	-0.003255		
	10	-11.14	-0.006384		
	20	-8.14	-0.004665		
	30	-6.61	-0.003788		
	40	-5.81	-0.003330		
	50	-10.64	-0.006097		
16QAM					
3.80	-30	-12.16	-0.006968	Within authorized band for Band 66	Pass
	-20	-14.96	-0.008573		
	-10	-13.45	-0.007708		
	0	-9.66	-0.005536		
	10	-5.88	-0.003370		
	20	-13.65	-0.007822		
	30	-10.74	-0.006155		
	40	-8.47	-0.004854		
	50	-6.08	-0.003484		
Voltage					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	3.42	-11.74	-0.006728	Within authorized band for Band 66	Pass
	3.80	-16.11	-0.009232		
	4.18	-10.66	-0.006109		
16QAM					
25	3.42	-14.19	-0.008132	Within authorized band for Band 66	Pass
	3.80	6.87	0.003937		
	4.18	-5.87	-0.003364		
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					
3.80	-30	-11.60	-0.017046	Within authorized band for Band 71	Pass
	-20	-13.32	-0.019574		
	-10	-14.09	-0.020705		
	0	-12.96	-0.019045		
	10	-7.02	-0.010316		
	20	-11.39	-0.016738		
	30	-10.60	-0.015577		
	40	-10.97	-0.016120		
	50	-13.72	-0.020162		
16QAM					
3.80	-30	-13.03	-0.019148	Within authorized band for Band 71	Pass
	-20	-8.84	-0.012990		
	-10	-6.24	-0.009170		
	0	-2.25	-0.003306		
	10	-12.52	-0.018398		
	20	-13.32	-0.019574		
	30	-14.05	-0.020647		
	40	-13.19	-0.019383		
	50	-10.91	-0.016032		
Voltage					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	3.42	-8.11	-0.011918	Within authorized band for Band 71	Pass
	3.80	-9.03	-0.013270		
	4.18	-10.20	-0.014989		
16QAM					
25	3.42	-10.24	-0.015048	Within authorized band for Band 71	Pass
	3.80	-6.49	-0.009537		
	4.18	-3.03	-0.004453		
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

