

Appendix I

Test Results of LTE Band 12

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1. Test Conditions

Item	Environment	Test Channel	RB size	Modulation	BW (MHz)	Test by
Conducted Output Power	☒ N.T / N.V.	☒ Low ☒ Mid ☒ High	☒ 1 ☒ Half ☒ Full	☒ QPSK ☒ 16QAM	☒ 1.4 ☒ 3 ☒ 5 ☒ 10	Sean
EIRP/ERP	☒ N.T / N.V.	☒ Low ☒ Mid ☒ High	☒ 1 ☒ Half ☒ Full	☒ QPSK ☒ 16QAM	☒ 1.4 ☒ 3 ☒ 5 ☒ 10	Sean
Peak-to-Average Ratio	☒ N.T / N.V.	☒ Low ☒ Mid ☒ High	☒ 1 ☐ Half ☒ Full	☒ QPSK ☒ 16QAM	☒ 10	Sean
Occupied Bandwidth	☒ N.T / N.V.	☒ Low ☒ Mid ☒ High	☐ 1 ☐ Half ☒ Full	☒ QPSK ☒ 16QAM	☒ 1.4 ☒ 3 ☒ 5 ☒ 10	Sean
Conducted Band Edge	☒ N.T / N.V.	☒ Low ☐ Mid ☒ High	☒ 1 ☐ Half ☒ Full	☒ QPSK ☒ 16QAM	☒ 1.4 ☒ 3 ☒ 5 ☒ 10	Sean
Spurious Emission at Antenna Terminal	☒ N.T / N.V.	☒ Low ☒ Mid ☒ High	☒ 1 ☐ Half ☐ Full	☒ QPSK ☒ 16QAM	☒ 10	Sean
Field Strength of Spurious Radiation	☒ N.T / N.V.	☒ Low ☒ Mid ☒ High	☒ worst case			Sean
Frequency Stability	☒ N.T / N.V. ☒ L.T / L.V. ☒ L.T / H.V. ☒ H.T / L.V. ☒ H.T / H.V.	☐ Low ☒ Mid ☐ High	☐ 1 ☐ Half ☒ Full	☒ QPSK ☐ 16QAM	☒ 10	Sean

NOTE: All settings for RB allocation, modulation mode, channel, channel bandwidth and environment required by the standard are considered and tested; only the worst case and normal test plots are shown on the report.

2. Conducted Output Power and EIRP

BW (MHz)	Modulation	Channel	RB Allocation		Average Power (dBm)	GT - LC (dB)	ERP (dBm)	Limit (dBm)	Result
			Size	Offset					
1.4	QPSK	Low	1	0	23.47	-1.38	19.94	34.77	Pass
				3	23.12	-1.38	19.59		Pass
				5	23.59	-1.38	20.06		Pass
			3	0	22.96	-1.38	19.43		Pass
				1	22.87	-1.38	19.34		Pass
				3	22.64	-1.38	19.11		Pass
			6	0	22.53	-1.38	19.00		Pass
		Mid	1	0	23.23	-1.38	19.70		Pass
				3	23.61	-1.38	20.08		Pass
				5	23.18	-1.38	19.65		Pass
			3	0	23.07	-1.38	19.54		Pass
				1	22.89	-1.38	19.36		Pass
				3	22.91	-1.38	19.38		Pass
			6	0	22.15	-1.38	18.62		Pass
		High	1	0	23.26	-1.38	19.73		Pass
				3	23.07	-1.38	19.54		Pass
				5	23.41	-1.38	19.88		Pass
			3	0	22.65	-1.38	19.12		Pass
				1	22.79	-1.38	19.26		Pass
				3	22.64	-1.38	19.11		Pass
			6	0	22.12	-1.38	18.59		Pass
	16QAM	Low	1	0	23.33	-1.38	19.80	34.77	Pass
				3	23.47	-1.38	19.94		Pass
				5	23.59	-1.38	20.06		Pass
			3	0	22.40	-1.38	18.87		Pass
				1	23.01	-1.38	19.48		Pass
				3	22.74	-1.38	19.21		Pass
			6	0	22.52	-1.38	18.99		Pass
		Mid	1	0	23.68	-1.38	20.15		Pass
				3	23.52	-1.38	19.99		Pass
				5	23.44	-1.38	19.91		Pass
			3	0	22.78	-1.38	19.25		Pass
				1	22.61	-1.38	19.08		Pass
				3	22.54	-1.38	19.01		Pass
			6	0	22.89	-1.38	19.36		Pass
		High	1	0	23.11	-1.38	19.58		Pass
				3	23.58	-1.38	20.05		Pass
				5	23.24	-1.38	19.71		Pass
			3	0	22.75	-1.38	19.22		Pass
				1	22.27	-1.38	18.74		Pass
				3	22.43	-1.38	18.90		Pass
			6	0	22.50	-1.38	18.97		Pass

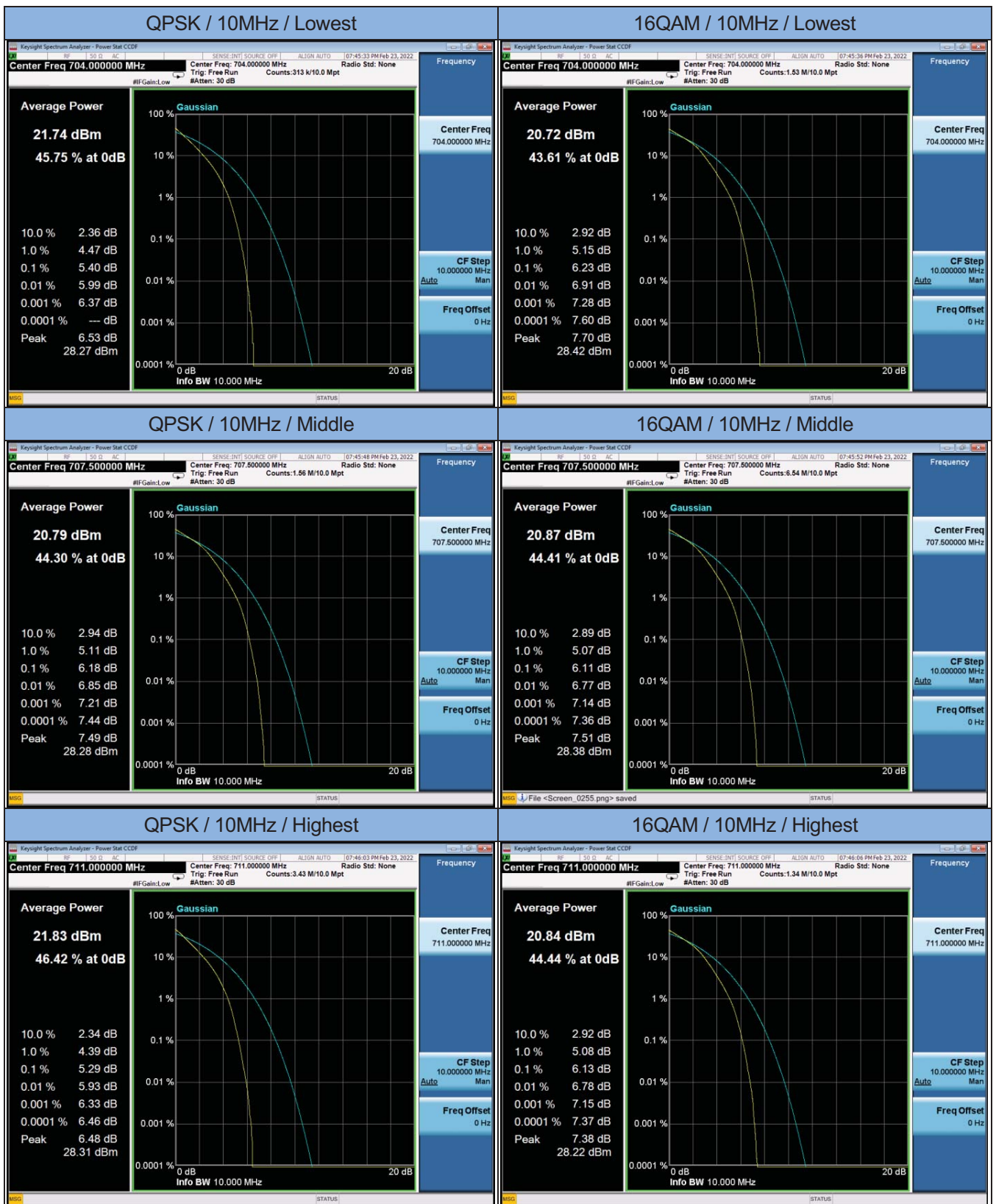
BW (MHz)	Modulation	Channel	RB Allocation		Average Power (dBm)	GT - LC (dB)	ERP (dBm)	Limit (dBm)	Result
			Size	Offset					
3.0	QPSK	Low	1	0	22.19	-1.38	18.66	34.77	Pass
				8	22.67	-1.38	19.14		Pass
				14	22.53	-1.38	19.00		Pass
			8	0	22.25	-1.38	18.72		Pass
				4	22.46	-1.38	18.93		Pass
				7	22.12	-1.38	18.59		Pass
			15	0	22.27	-1.38	18.74		Pass
		Mid	1	0	22.65	-1.38	19.12		Pass
				8	21.98	-1.38	18.45		Pass
				14	22.34	-1.38	18.81		Pass
			8	0	22.61	-1.38	19.08		Pass
				4	22.70	-1.38	19.17		Pass
				7	22.89	-1.38	19.36		Pass
			15	0	22.35	-1.38	18.82		Pass
		High	1	0	22.43	-1.38	18.90		Pass
				8	22.67	-1.38	19.14		Pass
				14	22.85	-1.38	19.32		Pass
			8	0	22.72	-1.38	19.19		Pass
				4	22.40	-1.38	18.87		Pass
				7	22.32	-1.38	18.79		Pass
			15	0	22.16	-1.38	18.63		Pass
	16QAM	Low	1	0	22.81	-1.38	19.28	34.77	Pass
				8	22.77	-1.38	19.24		Pass
				14	22.64	-1.38	19.11		Pass
			8	0	22.30	-1.38	18.77		Pass
				4	22.29	-1.38	18.76		Pass
				7	22.47	-1.38	18.94		Pass
			15	0	22.52	-1.38	18.99		Pass
		Mid	1	0	22.13	-1.38	18.60		Pass
				8	22.68	-1.38	19.15		Pass
				14	22.97	-1.38	19.44		Pass
			8	0	22.41	-1.38	18.88		Pass
				4	22.80	-1.38	19.27		Pass
				7	22.63	-1.38	19.10		Pass
			15	0	22.19	-1.38	18.66		Pass
		High	1	0	22.54	-1.38	19.01		Pass
				8	22.58	-1.38	19.05		Pass
				14	22.17	-1.38	18.64		Pass
			8	0	22.24	-1.38	18.71		Pass
				4	22.32	-1.38	18.79		Pass
				7	22.71	-1.38	19.18		Pass
			15	0	22.21	-1.38	18.68		Pass

BW (MHz)	Modulation	Channel	RB Allocation		Average Power (dBm)	GT - LC (dB)	ERP (dBm)	Limit (dBm)	Result
			Size	Offset					
5.0	QPSK	Low	1	0	22.12	-1.38	18.59	34.77	Pass
				12	22.10	-1.38	18.57		Pass
				24	22.39	-1.38	18.86		Pass
			12	0	22.18	-1.38	18.65		Pass
				7	21.73	-1.38	18.20		Pass
				13	21.99	-1.38	18.46		Pass
			25	0	22.13	-1.38	18.60		Pass
		Mid	1	0	21.75	-1.38	18.22		Pass
				12	22.61	-1.38	19.08		Pass
				24	21.74	-1.38	18.21		Pass
			12	0	21.88	-1.38	18.35		Pass
				7	21.45	-1.38	17.92		Pass
				13	21.97	-1.38	18.44		Pass
			25	0	22.02	-1.38	18.49		Pass
		High	1	0	22.33	-1.38	18.80		Pass
				12	22.19	-1.38	18.66		Pass
				24	22.50	-1.38	18.97		Pass
			12	0	22.47	-1.38	18.94		Pass
				7	22.61	-1.38	19.08		Pass
				13	22.12	-1.38	18.59		Pass
			25	0	22.09	-1.38	18.56		Pass
	16QAM	Low	1	0	22.04	-1.38	18.51	34.77	Pass
				12	22.15	-1.38	18.62		Pass
				24	21.76	-1.38	18.23		Pass
			12	0	21.89	-1.38	18.36		Pass
				7	21.64	-1.38	18.11		Pass
				13	21.48	-1.38	17.95		Pass
			25	0	21.23	-1.38	17.70		Pass
		Mid	1	0	21.49	-1.38	17.96		Pass
				12	21.58	-1.38	18.05		Pass
				24	21.07	-1.38	17.54		Pass
			12	0	21.98	-1.38	18.45		Pass
				7	22.37	-1.38	18.84		Pass
				13	21.64	-1.38	18.11		Pass
			25	0	22.05	-1.38	18.52		Pass
		High	1	0	21.53	-1.38	18.00		Pass
				12	21.96	-1.38	18.43		Pass
				24	21.82	-1.38	18.29		Pass
			12	0	21.67	-1.38	18.14		Pass
				7	21.46	-1.38	17.93		Pass
				13	21.55	-1.38	18.02		Pass
			25	0	21.70	-1.38	18.17		Pass

BW (MHz)	Modulation	Channel	RB Allocation		Average Power (dBm)	GT - LC (dB)	ERP (dBm)	Limit (dBm)	Result
			Size	Offset					
10	QPSK	Low	1	0	21.23	-1.38	17.70	34.77	Pass
				25	21.37	-1.38	17.84		Pass
				49	21.07	-1.38	17.54		Pass
			25	0	21.25	-1.38	17.72		Pass
				12	22.04	-1.38	18.51		Pass
				25	21.82	-1.38	18.29		Pass
			50	0	22.32	-1.38	18.79		Pass
		Mid	1	0	22.63	-1.38	19.10		Pass
				25	22.81	-1.38	19.28		Pass
				49	22.50	-1.38	18.97		Pass
			25	0	22.67	-1.38	19.14		Pass
				12	22.34	-1.38	18.81		Pass
				25	22.13	-1.38	18.60		Pass
			50	0	22.19	-1.38	18.66		Pass
		High	1	0	21.95	-1.38	18.42		Pass
				25	22.47	-1.38	18.94		Pass
				49	21.65	-1.38	18.12		Pass
			25	0	21.58	-1.38	18.05		Pass
				12	21.91	-1.38	18.38		Pass
				25	22.37	-1.38	18.84		Pass
			50	0	22.42	-1.38	18.89		Pass
	16QAM	Low	1	0	22.60	-1.38	19.07	34.77	Pass
				25	22.45	-1.38	18.92		Pass
				49	22.36	-1.38	18.83		Pass
			25	0	22.71	-1.38	19.18		Pass
				12	21.96	-1.38	18.43		Pass
				25	22.37	-1.38	18.84		Pass
			50	0	22.86	-1.38	19.33		Pass
		Mid	1	0	21.65	-1.38	18.12		Pass
				25	22.39	-1.38	18.86		Pass
				49	22.45	-1.38	18.92		Pass
			25	0	22.76	-1.38	19.23		Pass
				12	22.42	-1.38	18.89		Pass
				25	22.58	-1.38	19.05		Pass
			50	0	22.64	-1.38	19.11		Pass
		High	1	0	22.32	-1.38	18.79		Pass
				25	22.19	-1.38	18.66		Pass
				49	22.50	-1.38	18.97		Pass
			25	0	22.67	-1.38	19.14		Pass
				12	22.05	-1.38	18.52		Pass
				25	22.12	-1.38	18.59		Pass
			50	0	22.06	-1.38	18.53		Pass

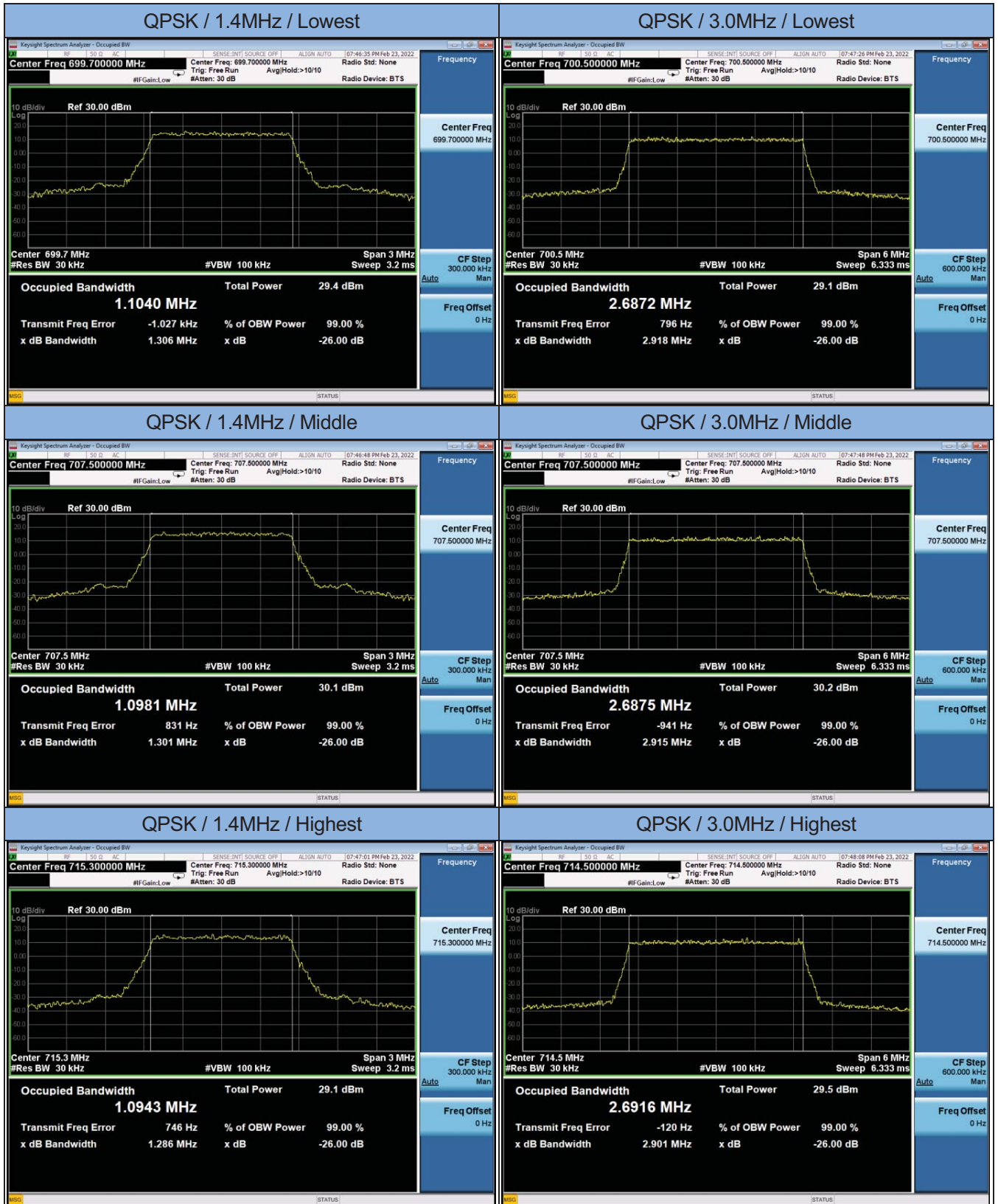
3. Peak-to-Average Ratio

BW (MHz)	Modulation	Channel	RB Allocation		Peak-to-Average Ratio (dB)	Limit (dBm)	Result
			Size	Offset			
10	QPSK	Low	Full	0	5.40	13.0	Pass
		Mid	Full	0	6.18		Pass
		High	Full	0	5.29		Pass
	16QAM	Low	Full	0	6.23	13.0	Pass
		Mid	Full	0	6.11		Pass
		High	Full	0	6.13		Pass

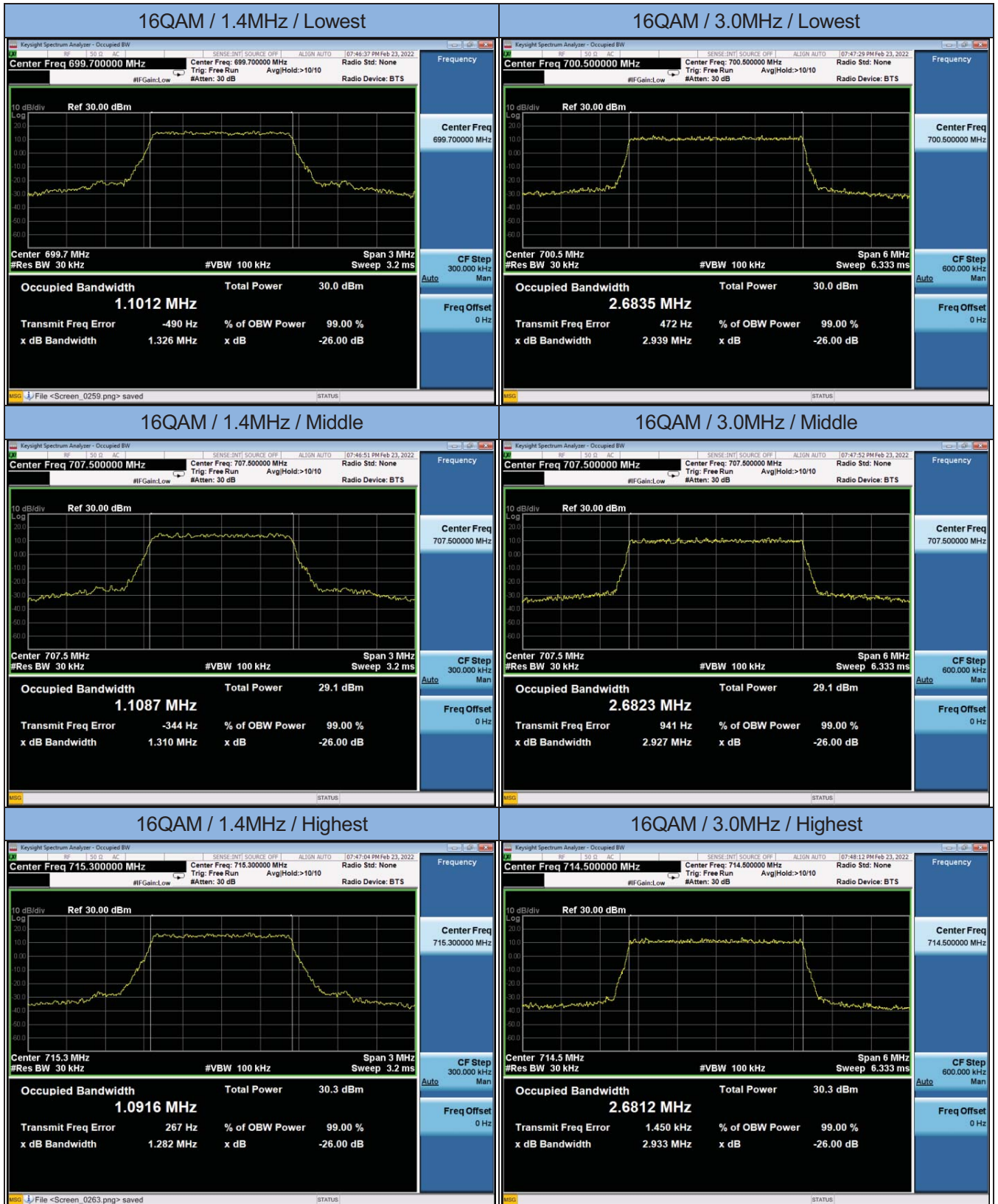


4. Occupied Bandwidth

BW (MHz)	Modulation	Channel	RB Allocation		26dB BW (MHz)	99% OBW (MHz)	Limit (dBm)	Result
			Size	Offset				
1.4	QPSK	Low	Full	0	1.306	1.1040	---	Pass
		Mid	Full	0	1.301	1.0981		Pass
		High	Full	0	1.286	1.0943		Pass
	16QAM	Low	Full	0	1.326	1.1012	---	Pass
		Mid	Full	0	1.310	1.1087		Pass
		High	Full	0	1.282	1.0916		Pass
3.0	QPSK	Low	Full	0	2.918	2.6872	---	Pass
		Mid	Full	0	2.915	2.6875		Pass
		High	Full	0	2.901	2.6916		Pass
	16QAM	Low	Full	0	2.939	2.6835	---	Pass
		Mid	Full	0	2.927	2.6823		Pass
		High	Full	0	2.933	2.6812		Pass
5.0	QPSK	Low	Full	0	4.900	4.4670	---	Pass
		Mid	Full	0	4.845	4.4670		Pass
		High	Full	0	4.903	4.4721		Pass
	16QAM	Low	Full	0	4.918	4.4784	---	Pass
		Mid	Full	0	4.884	4.4725		Pass
		High	Full	0	4.899	4.4588		Pass
10	QPSK	Low	Full	0	9.661	8.9420	---	Pass
		Mid	Full	0	9.685	8.9222		Pass
		High	Full	0	9.674	8.9251		Pass
	16QAM	Low	Full	0	9.767	8.9451	---	Pass
		Mid	Full	0	9.695	8.9439		Pass
		High	Full	0	9.506	8.9288		Pass

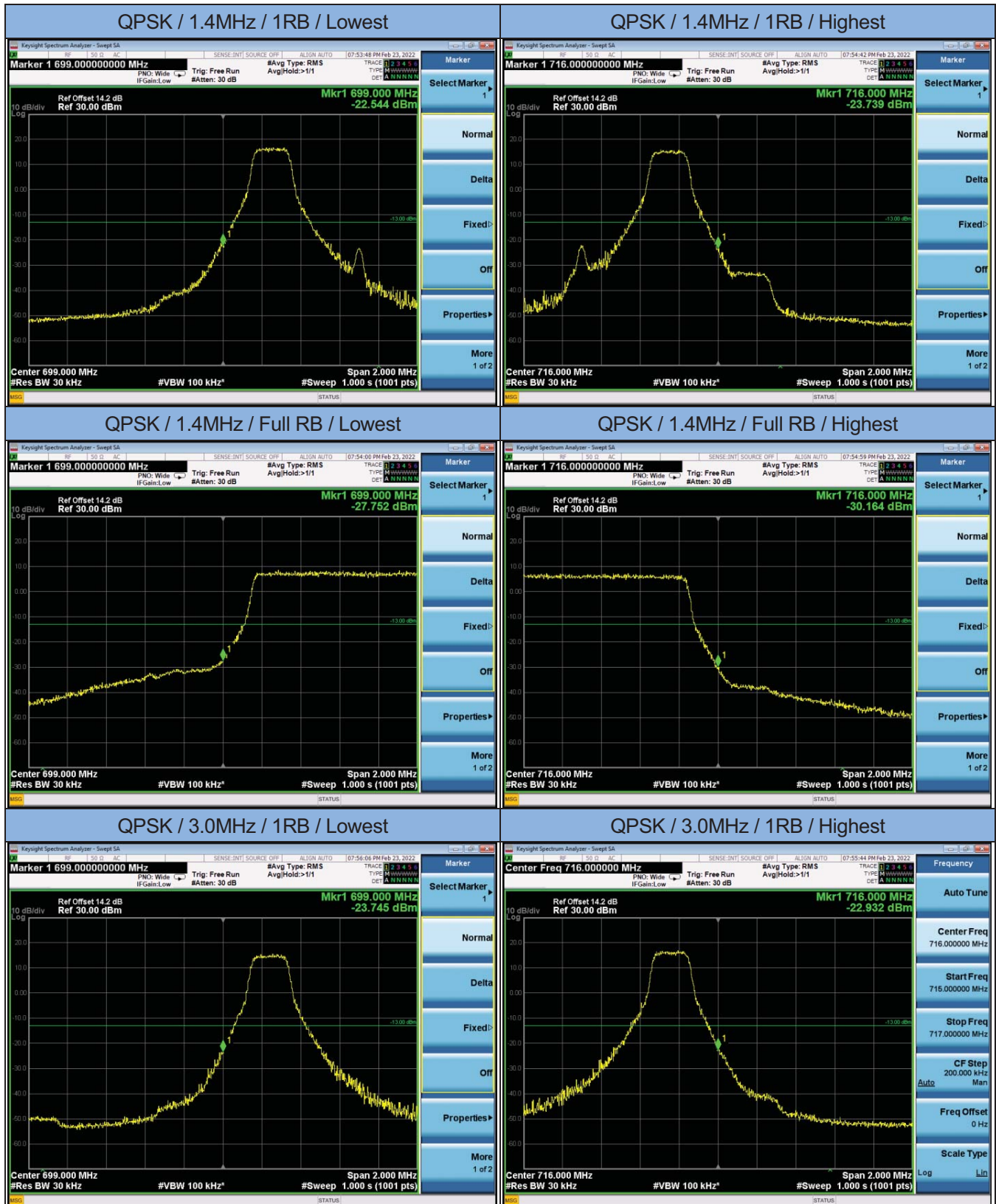


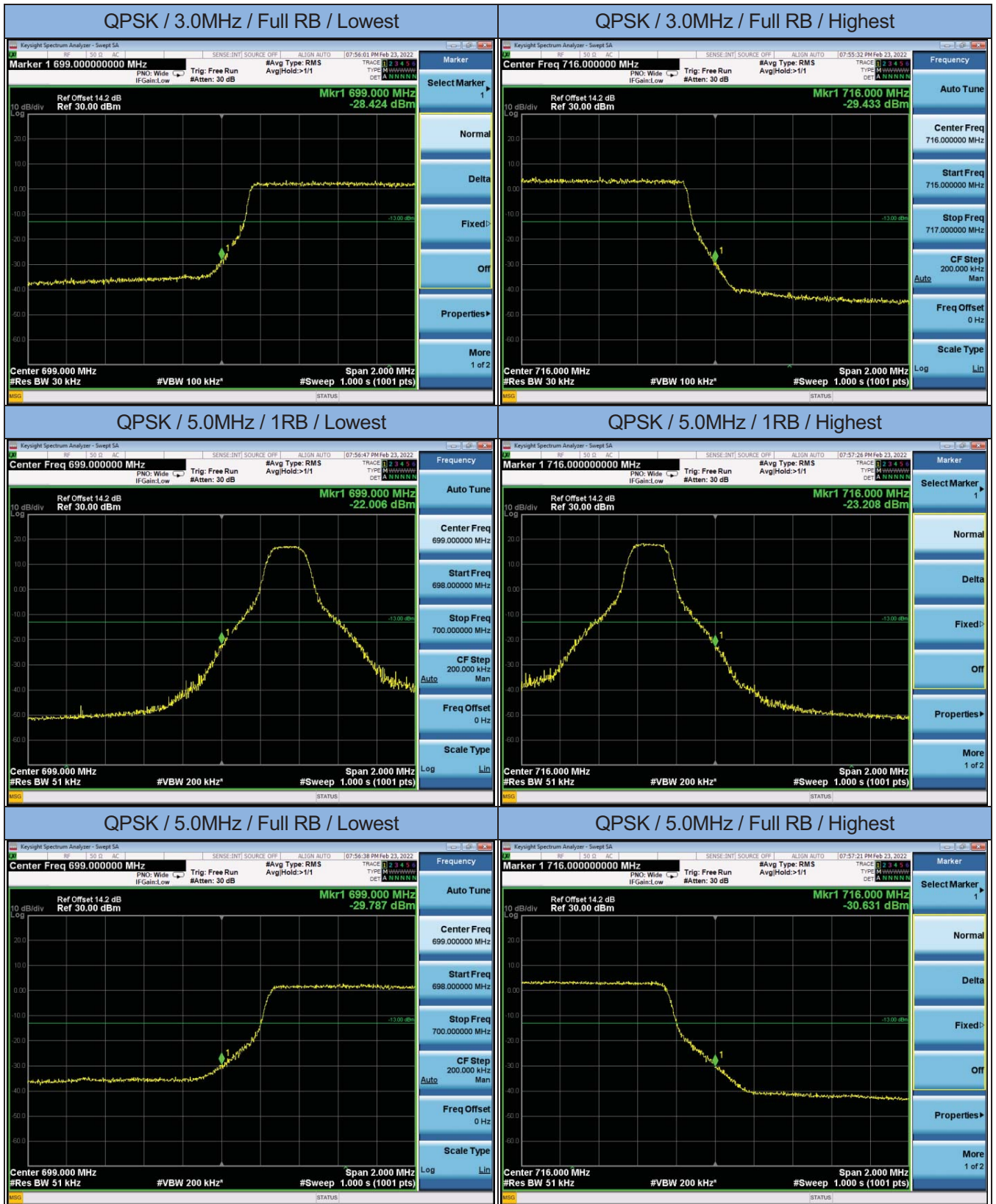


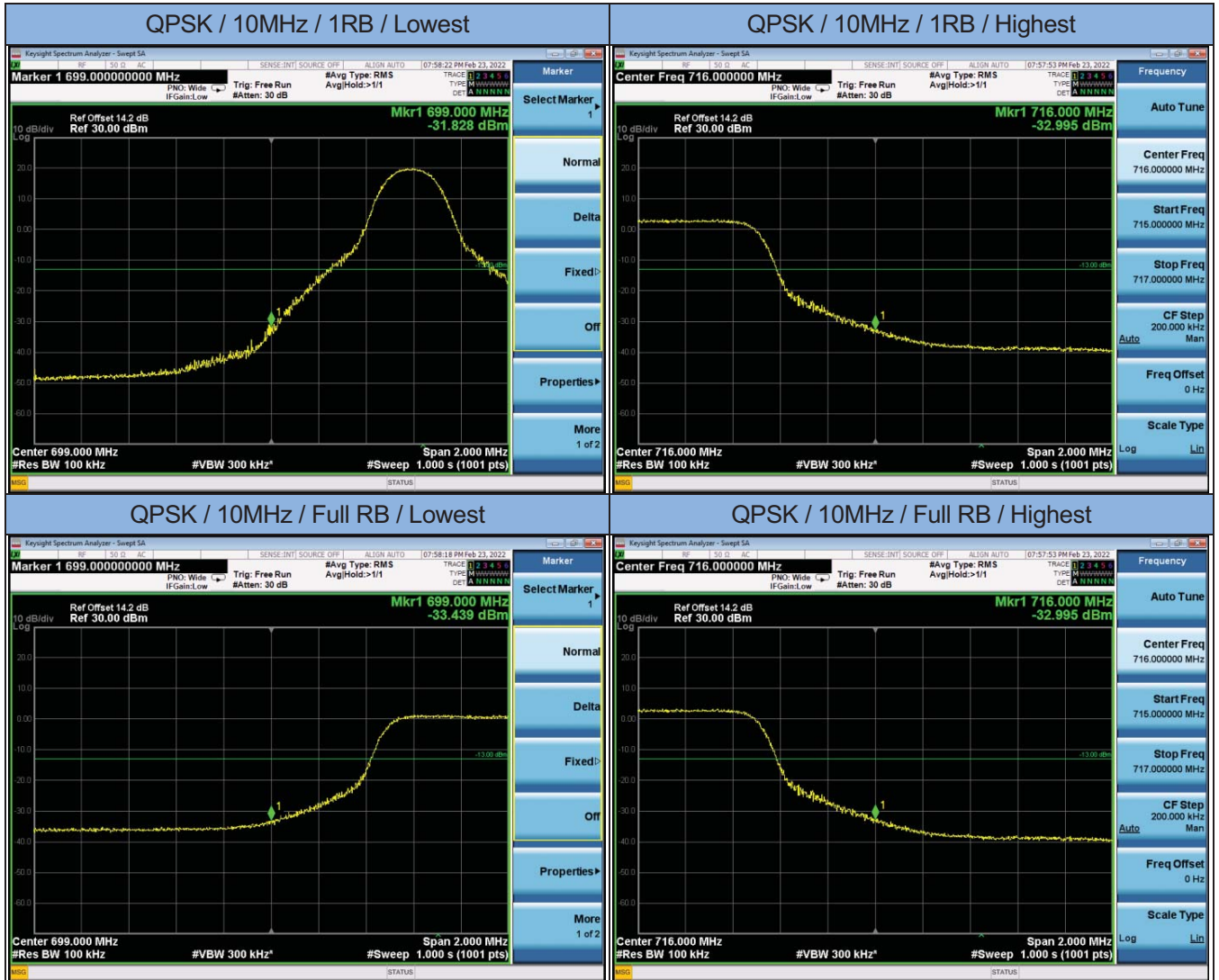


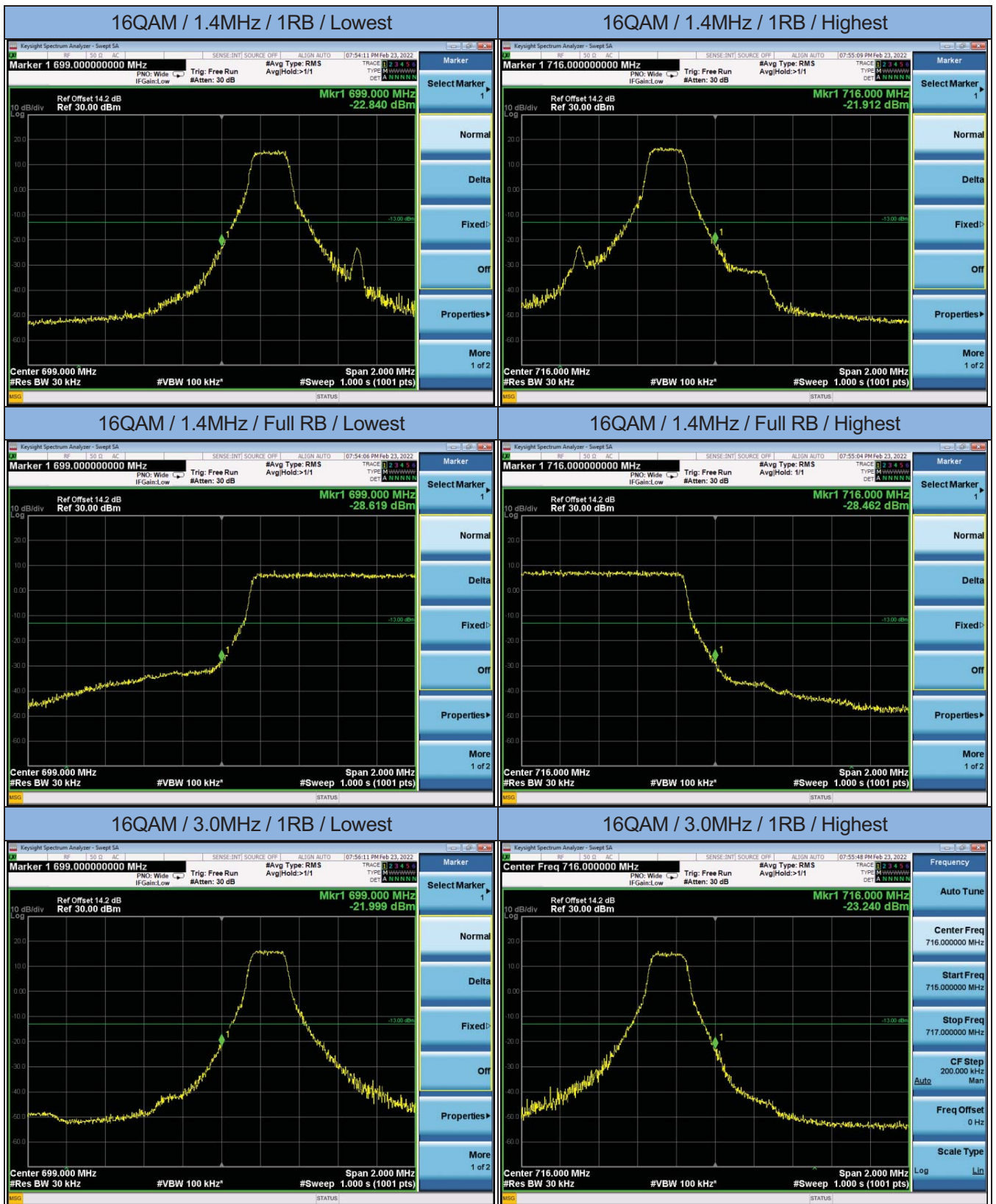


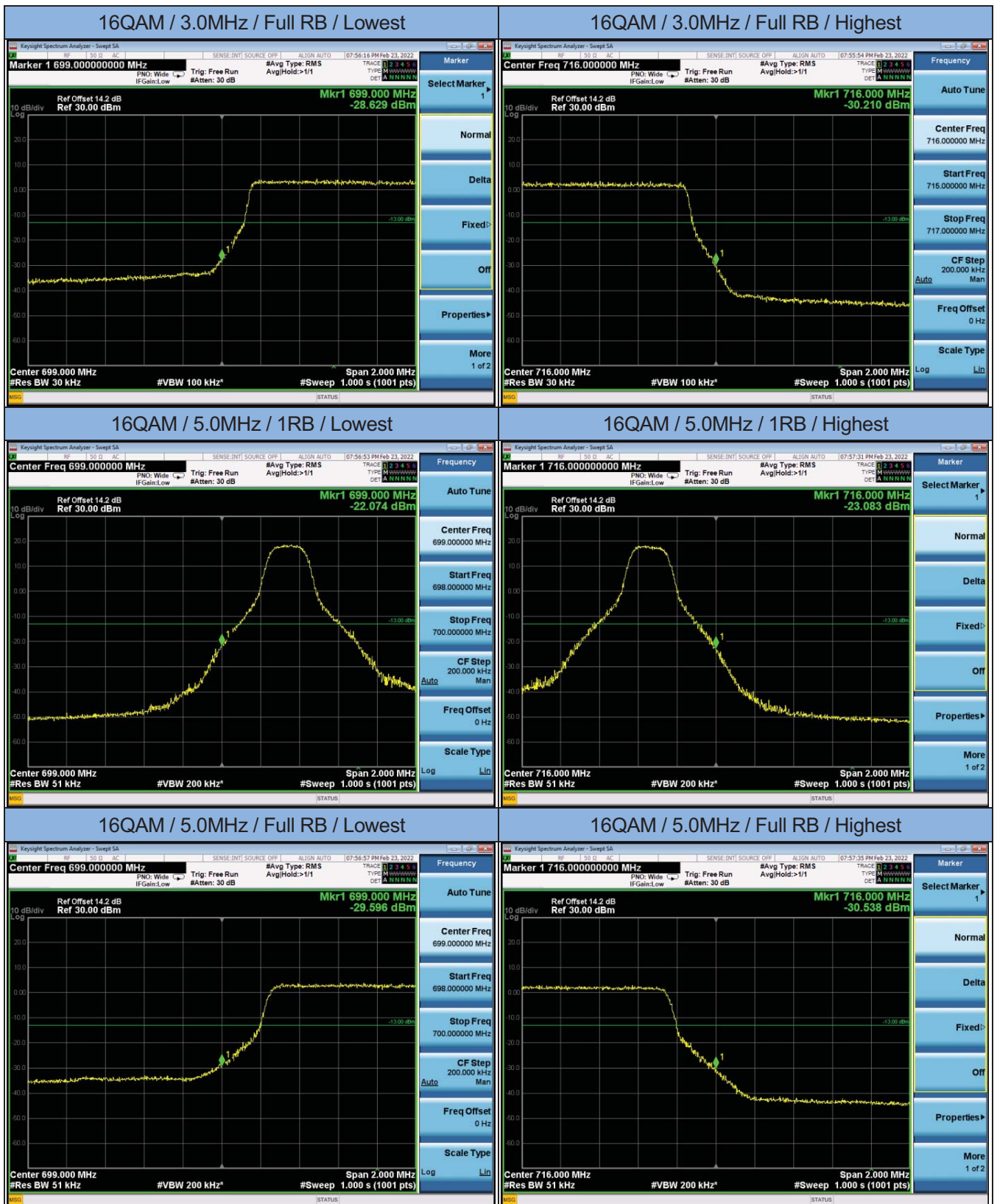
5. Band Edge

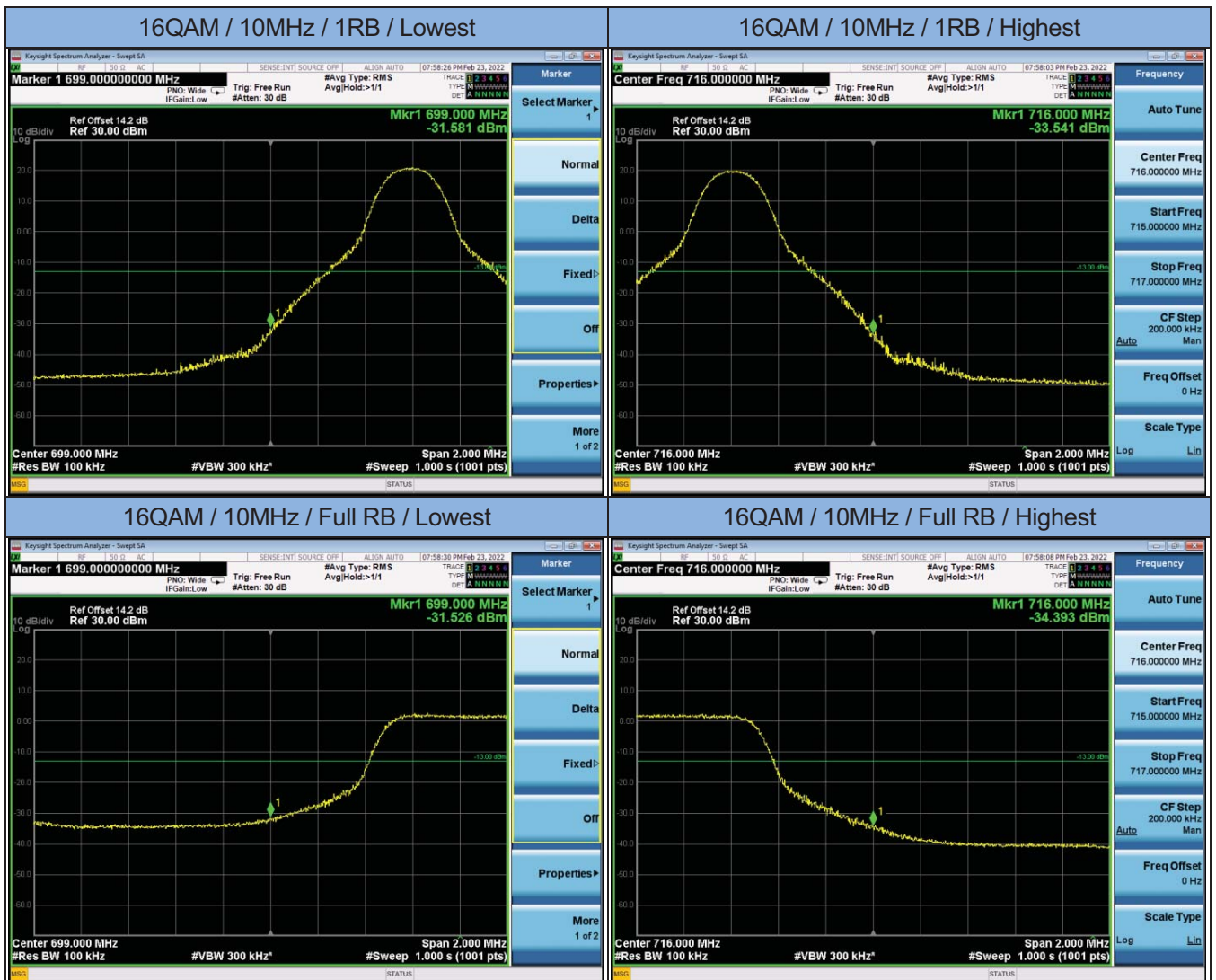




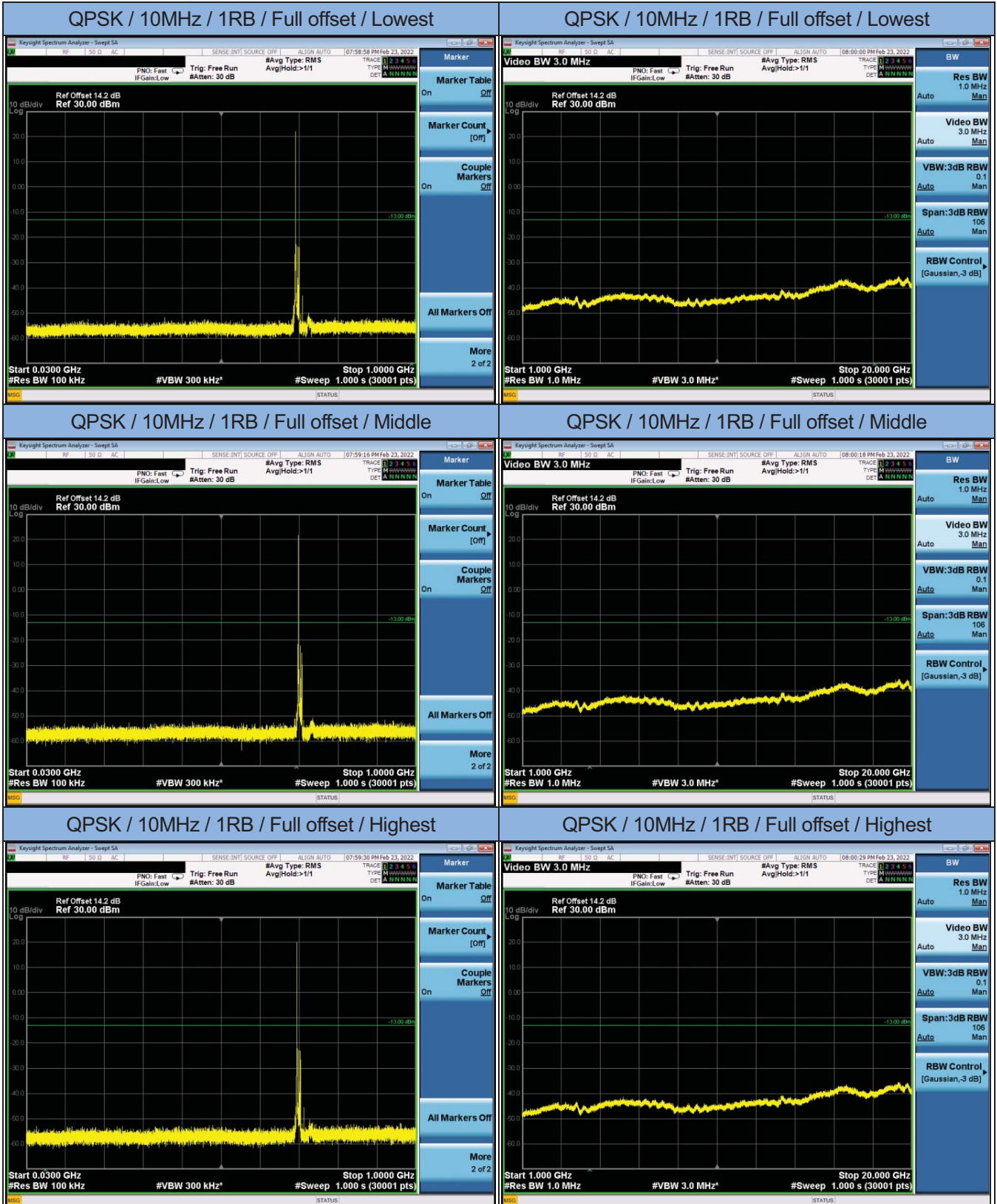


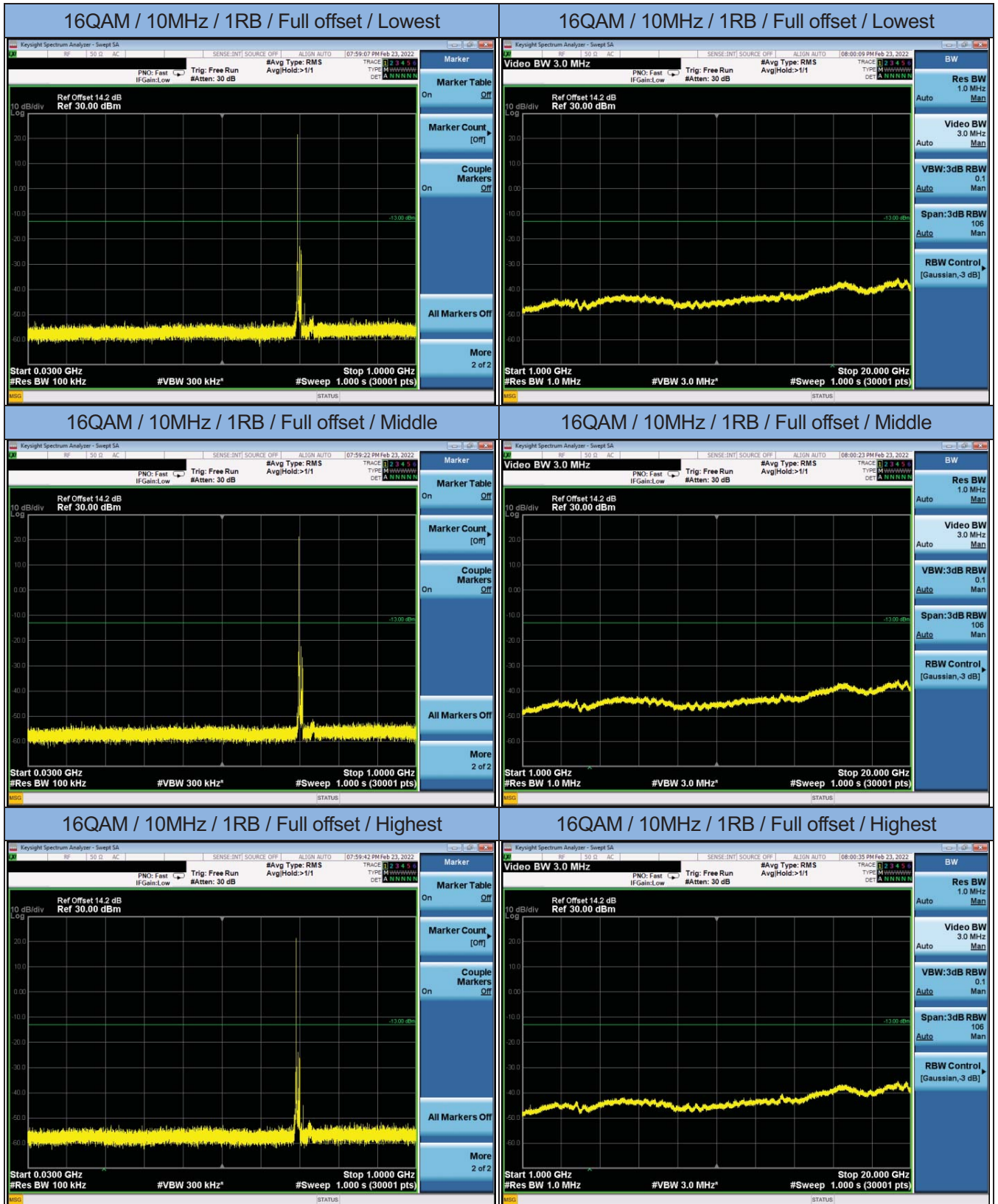






6. Transmitter Spurious Emissions





7. Field Strength of Spurious Radiation

LTE Band 12 / 10M / QPSK					
Channel	Frequency (MHz)	Polarization (H/V)	Meas. Level (dBm)	Limit (dBm)	Margin (dBm)
Lowest	652.59	H	-54.08	-13	-41.08
	1408	H	-47.64	-13	-34.64
	2112	H	-35.23	-13	-22.23
	2816	H	-48.95	-13	-35.95
	654.73	V	-62.10	-13	-49.10
	1408	V	-46.29	-13	-33.29
	2112	V	-36.71	-13	-23.71
	2816	V	-52.31	-13	-39.31
Middle	652.22	H	-53.57	-13	-40.57
	1415	H	-48.95	-13	-35.95
	2122.5	H	-36.87	-13	-23.87
	2830	H	-49.91	-13	-36.91
	654.50	V	-64.39	-13	-51.39
	1415	V	-46.12	-13	-33.12
	2122.5	V	-37.56	-13	-24.56
	2830	V	-52.03	-13	-39.03
Highest	652.15	H	-54.23	-13	-41.23
	1422	H	-47.91	-13	-34.91
	2133	H	-36.08	-13	-23.08
	2844	H	-49.72	-13	-36.72
	654.49	V	-63.76	-13	-50.76
	1422	V	-46.98	-13	-33.98
	2133	V	-36.46	-13	-23.46
	2844	V	-51.17	-13	-38.17

Note: Other emissions are more than 20dB below the limits.

8. Frequency Stability

LTE Band 12 / 10M / QPSK / Full RB					
Middle channel, $f_o = 707.5$ MHz					
Temperature (°C)	Power Supplied (Vdc)	Frequency Error (Hz)	Frequency Error (ppm)	Limit (dBm)	Result
-30	12	1.2	0.001696	±2.5	PASS
-20		0.9	0.001272	±2.5	PASS
-10		-1.8	-0.002544	±2.5	PASS
0		0.7	0.000989	±2.5	PASS
20		-1.9	-0.002686	±2.5	PASS
30		-0.5	-0.000707	±2.5	PASS
40		0.6	0.000848	±2.5	PASS
50		-1.5	-0.002120	±2.5	PASS
20	10.8	-1.1	-0.001555	±2.5	PASS
	52.8	0.6	0.000848	±2.5	PASS

---End---