

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	<input checked="" type="checkbox"/> N.T / N.V.	<input checked="" type="checkbox"/> Low <input checked="" type="checkbox"/> Mid <input checked="" type="checkbox"/> High	<input checked="" type="checkbox"/> 1 <input checked="" type="checkbox"/> Half <input checked="" type="checkbox"/> Full	<input checked="" type="checkbox"/> QPSK <input checked="" type="checkbox"/> 16QAM	<input checked="" type="checkbox"/> 1.4 <input checked="" type="checkbox"/> 3 <input checked="" type="checkbox"/> 5 <input checked="" type="checkbox"/> 10	Sean
EIRP/ERP	<input checked="" type="checkbox"/> N.T / N.V.	<input checked="" type="checkbox"/> Low <input checked="" type="checkbox"/> Mid <input checked="" type="checkbox"/> High	<input checked="" type="checkbox"/> 1 <input checked="" type="checkbox"/> Half <input checked="" type="checkbox"/> Full	<input checked="" type="checkbox"/> QPSK <input checked="" type="checkbox"/> 16QAM	<input checked="" type="checkbox"/> 1.4 <input checked="" type="checkbox"/> 3 <input checked="" type="checkbox"/> 5 <input checked="" type="checkbox"/> 10	Sean
Peak-to-Average Ratio	<input checked="" type="checkbox"/> N.T / N.V.	<input checked="" type="checkbox"/> Low <input checked="" type="checkbox"/> Mid <input checked="" type="checkbox"/> High	<input checked="" type="checkbox"/> 1 <input type="checkbox"/> Half <input checked="" type="checkbox"/> Full	<input checked="" type="checkbox"/> QPSK <input checked="" type="checkbox"/> 16QAM	<input checked="" type="checkbox"/> 10	Sean
Occupied Bandwidth	<input checked="" type="checkbox"/> N.T / N.V.	<input checked="" type="checkbox"/> Low <input checked="" type="checkbox"/> Mid <input checked="" type="checkbox"/> High	<input type="checkbox"/> 1 <input type="checkbox"/> Half <input checked="" type="checkbox"/> Full	<input checked="" type="checkbox"/> QPSK <input checked="" type="checkbox"/> 16QAM	<input checked="" type="checkbox"/> 1.4 <input checked="" type="checkbox"/> 3 <input checked="" type="checkbox"/> 5 <input checked="" type="checkbox"/> 10	Sean
Conducted Band Edge	<input checked="" type="checkbox"/> N.T / N.V.	<input checked="" type="checkbox"/> Low <input type="checkbox"/> Mid <input checked="" type="checkbox"/> High	<input checked="" type="checkbox"/> 1 <input type="checkbox"/> Half <input checked="" type="checkbox"/> Full	<input checked="" type="checkbox"/> QPSK <input checked="" type="checkbox"/> 16QAM	<input checked="" type="checkbox"/> 1.4 <input checked="" type="checkbox"/> 3 <input checked="" type="checkbox"/> 5 <input checked="" type="checkbox"/> 10	Sean
Spurious Emission at Antenna Terminal	<input checked="" type="checkbox"/> N.T / N.V.	<input checked="" type="checkbox"/> Low <input checked="" type="checkbox"/> Mid <input checked="" type="checkbox"/> High	<input checked="" type="checkbox"/> 1 <input type="checkbox"/> Half <input type="checkbox"/> Full	<input checked="" type="checkbox"/> QPSK <input checked="" type="checkbox"/> 16QAM	<input checked="" type="checkbox"/> 10	Sean
Field Strength of Spurious Radiation	<input checked="" type="checkbox"/> N.T / N.V.	<input checked="" type="checkbox"/> Low <input checked="" type="checkbox"/> Mid <input checked="" type="checkbox"/> High	<input checked="" type="checkbox"/> worst case			Sean
Frequency Stability	<input checked="" type="checkbox"/> N.T / N.V. <input checked="" type="checkbox"/> L.T / L.V. <input checked="" type="checkbox"/> L.T / H.V. <input checked="" type="checkbox"/> H.T / L.V. <input checked="" type="checkbox"/> H.T / H.V.	<input type="checkbox"/> Low <input checked="" type="checkbox"/> Mid <input type="checkbox"/> High	<input type="checkbox"/> 1 <input type="checkbox"/> Half <input checked="" type="checkbox"/> Full	<input checked="" type="checkbox"/> QPSK <input type="checkbox"/> 16QAM	<input checked="" type="checkbox"/> 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	24.07	-1.38	20.54	34.77	Pass		
				3	24.26	-1.38	20.73		Pass		
				5	24.38	-1.38	20.85		Pass		
			3	0	24.31	-1.38	20.78		Pass		
				1	24.29	-1.38	20.76		Pass		
				3	24.35	-1.38	20.82		Pass		
		6	0	23.34	-1.38	19.81	Pass				
		Mid	1	0	24.56	-1.38	21.03		Pass		
				3	24.67	-1.38	21.14		Pass		
				5	24.65	-1.38	21.12		Pass		
			3	0	24.70	-1.38	21.17		Pass		
				1	24.71	-1.38	21.18		Pass		
				3	24.73	-1.38	21.20		Pass		
		6	0	23.70	-1.38	20.17	Pass				
		High	1	0	24.33	-1.38	20.80		Pass		
				3	24.53	-1.38	21.00		Pass		
				5	24.56	-1.38	21.03		Pass		
			3	0	24.53	-1.38	21.00		Pass		
				1	24.52	-1.38	20.99		Pass		
				3	24.43	-1.38	20.90		Pass		
		6	0	23.38	-1.38	19.85	Pass				
		16QAM	Low	1	0	23.60	-1.38		20.07	34.77	Pass
					3	23.77	-1.38		20.24		Pass
					5	23.83	-1.38		20.30		Pass
	3			0	23.49	-1.38	19.96	Pass			
				1	23.55	-1.38	20.02	Pass			
				3	23.56	-1.38	20.03	Pass			
	6			0	22.52	-1.38	18.99	Pass			
	Mid			1	0	23.46	-1.38	19.93	Pass		
					3	23.71	-1.38	20.18	Pass		
					5	23.50	-1.38	19.97	Pass		
				3	0	23.75	-1.38	20.22	Pass		
					1	23.75	-1.38	20.22	Pass		
			3		23.73	-1.38	20.20	Pass			
	6		0	22.74	-1.38	19.21	Pass				
	High		1	0	23.47	-1.38	19.94	Pass			
				3	23.54	-1.38	20.01	Pass			
				5	23.58	-1.38	20.05	Pass			
			3	0	23.44	-1.38	19.91	Pass			
				1	23.38	-1.38	19.85	Pass			
				3	23.29	-1.38	19.76	Pass			
	6		0	22.48	-1.38	18.95	Pass				

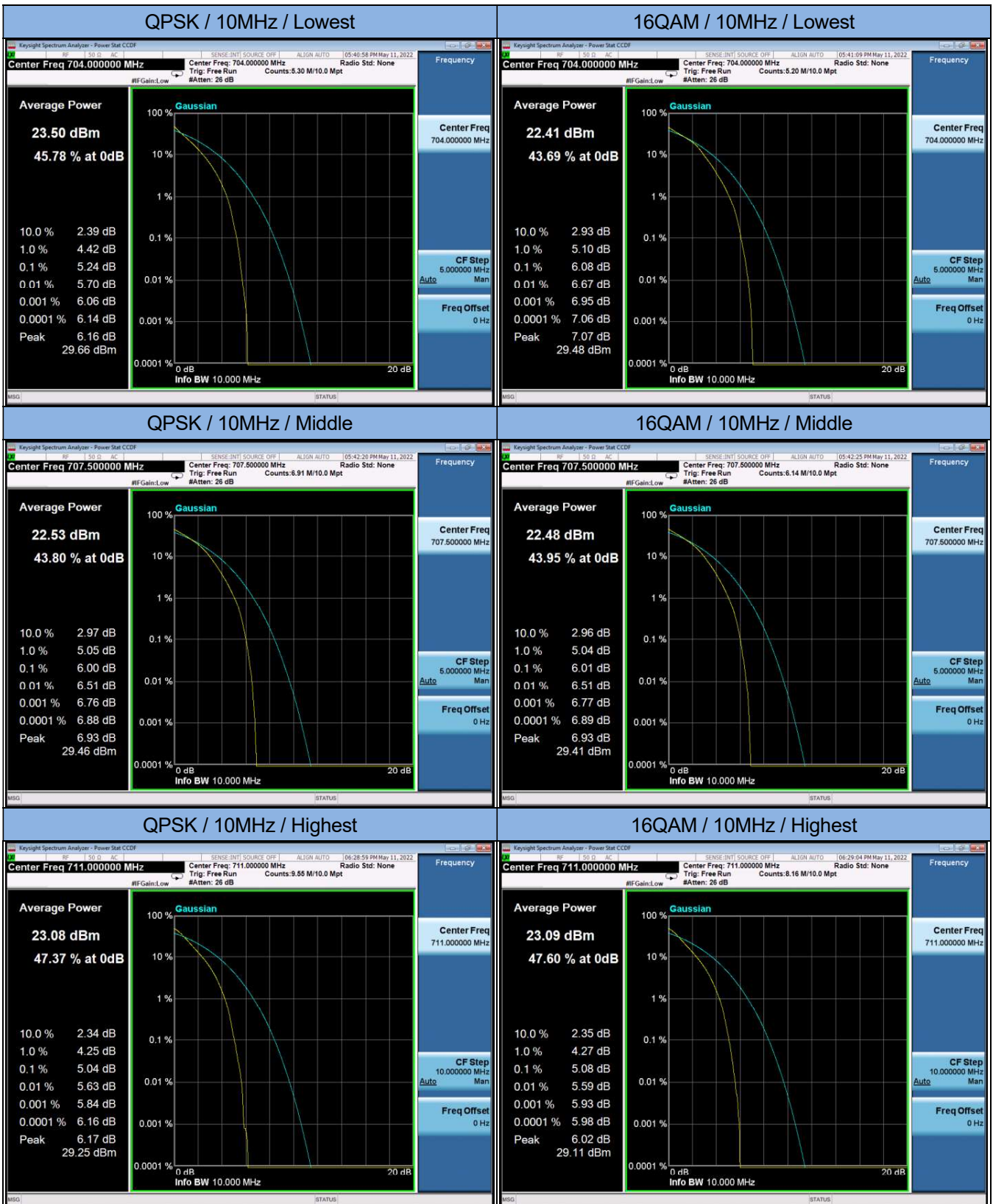
BW (MHz)	Modulation	Channel	RB Allocation		Average Power (dBm)	GT - LC (dB)	ERP (dBm)	Limit (dBm)	Result		
			Size	Offset							
3.0	QPSK	Low	1	0	24.27	-1.38	20.74	34.77	Pass		
				8	24.48	-1.38	20.95		Pass		
				14	24.59	-1.38	21.06		Pass		
			8	0	23.39	-1.38	19.86		Pass		
				4	23.32	-1.38	19.79		Pass		
				7	23.64	-1.38	20.11		Pass		
		15	0	23.57	-1.38	20.04	Pass				
		Mid	1	0	24.81	-1.38	21.28		Pass		
				8	24.72	-1.38	21.19		Pass		
				14	24.64	-1.38	21.11		Pass		
			8	0	23.66	-1.38	20.13		Pass		
				4	23.70	-1.38	20.17		Pass		
				7	23.76	-1.38	20.23		Pass		
		15	0	23.63	-1.38	20.10	Pass				
		High	1	0	24.32	-1.38	20.79		Pass		
				8	24.18	-1.38	20.65		Pass		
				14	24.11	-1.38	20.58		Pass		
			8	0	23.59	-1.38	20.06		Pass		
				4	23.64	-1.38	20.11		Pass		
				7	23.37	-1.38	19.84		Pass		
		15	0	23.38	-1.38	19.85	Pass				
		16QAM	Low	1	0	23.50	-1.38		19.97	34.77	Pass
					8	23.83	-1.38		20.30		Pass
					14	23.94	-1.38		20.41		Pass
	8			0	22.55	-1.38	19.02	Pass			
				4	23.70	-1.38	20.17	Pass			
				7	22.74	-1.38	19.21	Pass			
	15		0	22.60	-1.38	19.07	Pass				
	Mid		1	0	24.26	-1.38	20.73	Pass			
				8	24.33	-1.38	20.80	Pass			
				14	24.31	-1.38	20.78	Pass			
			8	0	22.78	-1.38	19.25	Pass			
				4	23.71	-1.38	20.18	Pass			
				7	22.60	-1.38	19.07	Pass			
	15		0	22.48	-1.38	18.95	Pass				
	High		1	0	23.37	-1.38	19.84	Pass			
				8	23.28	-1.38	19.75	Pass			
				14	22.99	-1.38	19.46	Pass			
			8	0	22.52	-1.38	18.99	Pass			
				4	22.49	-1.38	18.96	Pass			
				7	22.40	-1.38	18.87	Pass			
	15		0	22.40	-1.38	18.87	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	24.25	-1.38	20.72	34.77	Pass		
				12	24.56	-1.38	21.03		Pass		
				24	24.66	-1.38	21.13		Pass		
			12	0	23.58	-1.38	20.05		Pass		
				7	23.56	-1.38	20.03		Pass		
				13	23.73	-1.38	20.20		Pass		
		25	0	23.68	-1.38	20.15	Pass				
		Mid	1	0	24.57	-1.38	21.04		Pass		
				12	24.70	-1.38	21.17		Pass		
				24	24.47	-1.38	20.94		Pass		
			12	0	23.72	-1.38	20.19		Pass		
				7	23.73	-1.38	20.20		Pass		
				13	23.74	-1.38	20.21		Pass		
		25	0	23.68	-1.38	20.15	Pass				
		High	1	0	24.51	-1.38	20.98		Pass		
				12	24.37	-1.38	20.84		Pass		
				24	24.16	-1.38	20.63		Pass		
			12	0	23.52	-1.38	19.99		Pass		
				7	23.56	-1.38	20.03		Pass		
				13	23.34	-1.38	19.81		Pass		
		25	0	23.48	-1.38	19.95	Pass				
		16QAM	Low	1	0	22.90	-1.38		19.37	34.77	Pass
					12	23.17	-1.38		19.64		Pass
					24	23.17	-1.38		19.64		Pass
	12			0	22.53	-1.38	19.00	Pass			
				7	22.52	-1.38	18.99	Pass			
				13	22.53	-1.38	19.00	Pass			
	25		0	22.70	-1.38	19.17	Pass				
	Mid		1	0	24.09	-1.38	20.56	Pass			
				12	24.26	-1.38	20.73	Pass			
				24	23.91	-1.38	20.38	Pass			
			12	0	22.64	-1.38	19.11	Pass			
				7	22.68	-1.38	19.15	Pass			
				13	22.62	-1.38	19.09	Pass			
	25		0	22.59	-1.38	19.06	Pass				
	High		1	0	23.35	-1.38	19.82	Pass			
				12	23.18	-1.38	19.65	Pass			
				24	22.96	-1.38	19.43	Pass			
			12	0	22.53	-1.38	19.00	Pass			
				7	22.47	-1.38	18.94	Pass			
				13	22.25	-1.38	18.72	Pass			
	25		0	22.46	-1.38	18.93	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	24.09	-1.38	20.56	34.77	Pass
				25	24.49	-1.38	20.96		Pass
				49	24.59	-1.38	21.06		Pass
			25	0	23.57	-1.38	20.04		Pass
				12	23.60	-1.38	20.07		Pass
				25	23.61	-1.38	20.08		Pass
		50	0	23.68	-1.38	20.15	Pass		
		Mid	1	0	24.48	-1.38	20.95		Pass
				25	24.76	-1.38	21.23		Pass
				49	24.53	-1.38	21.00		Pass
			25	0	23.67	-1.38	20.14		Pass
				12	23.73	-1.38	20.20		Pass
				25	23.76	-1.38	20.23		Pass
		50	0	23.65	-1.38	20.12	Pass		
		High	1	0	24.38	-1.38	20.85		Pass
				25	24.74	-1.38	21.21		Pass
				49	24.42	-1.38	20.89		Pass
			25	0	23.74	-1.38	20.21		Pass
	12			23.65	-1.38	20.12	Pass		
	25			23.59	-1.38	20.06	Pass		
	50	0	23.61	-1.38	20.08	Pass			
	16QAM	Low	1	0	23.53	-1.38	20.00	34.77	Pass
				25	24.16	-1.38	20.63		Pass
				49	24.01	-1.38	20.48		Pass
			25	0	22.98	-1.38	19.45		Pass
				12	22.93	-1.38	19.40		Pass
				25	22.80	-1.38	19.27		Pass
		50	0	22.75	-1.38	19.22	Pass		
		Mid	1	0	24.17	-1.38	20.64		Pass
				25	24.53	-1.38	21.00		Pass
				49	24.06	-1.38	20.53		Pass
			25	0	23.09	-1.38	19.56		Pass
				12	22.80	-1.38	19.27		Pass
				25	22.72	-1.38	19.19		Pass
		50	0	22.63	-1.38	19.10	Pass		
		High	1	0	23.04	-1.38	19.51		Pass
25				23.54	-1.38	20.01	Pass		
49				23.11	-1.38	19.58	Pass		
25			0	22.84	-1.38	19.31	Pass		
	12		22.79	-1.38	19.26	Pass			
	25		22.77	-1.38	19.24	Pass			
50	0	22.53	-1.38	19.00	Pass				

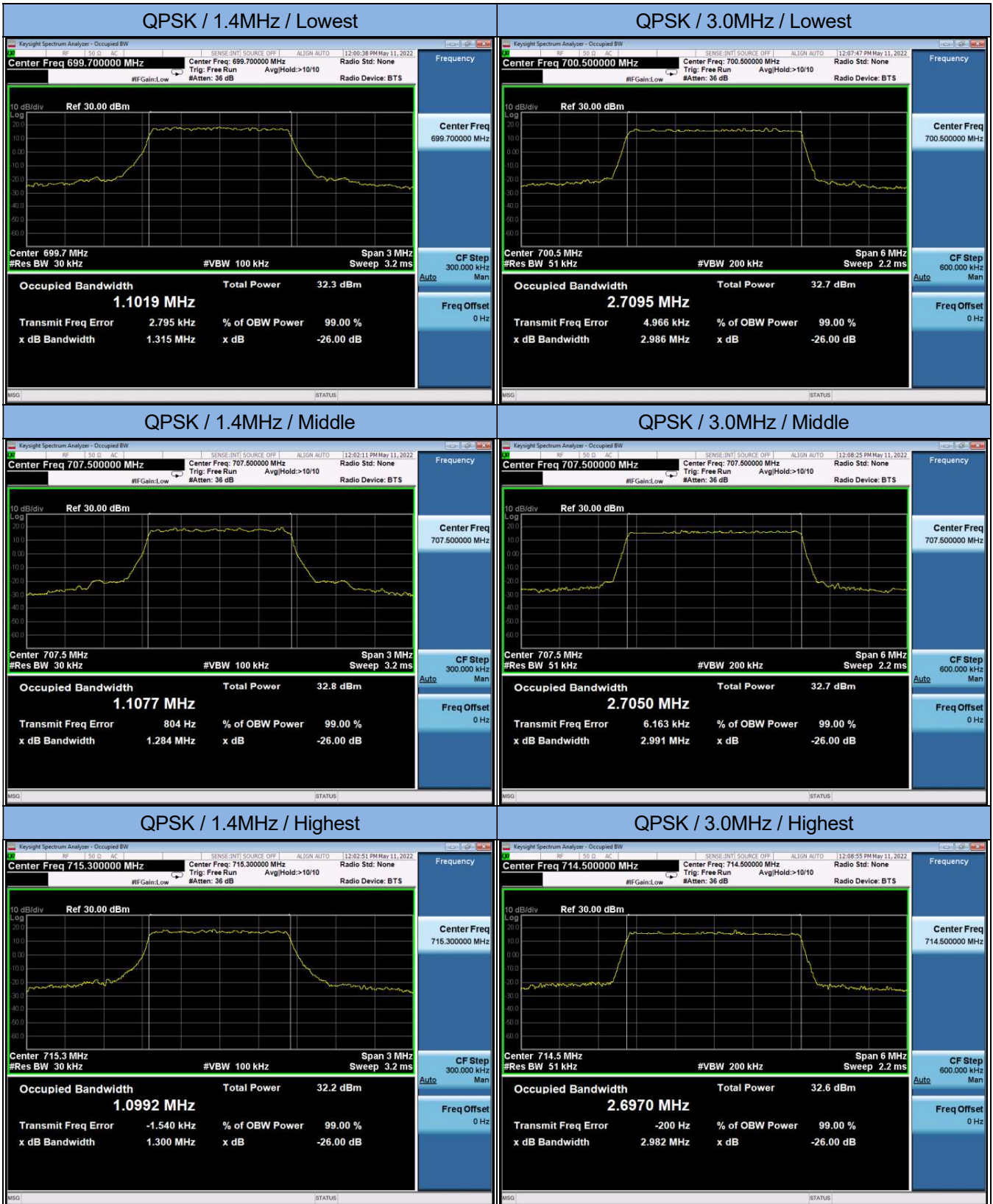
3. Peak-to-Average Ratio

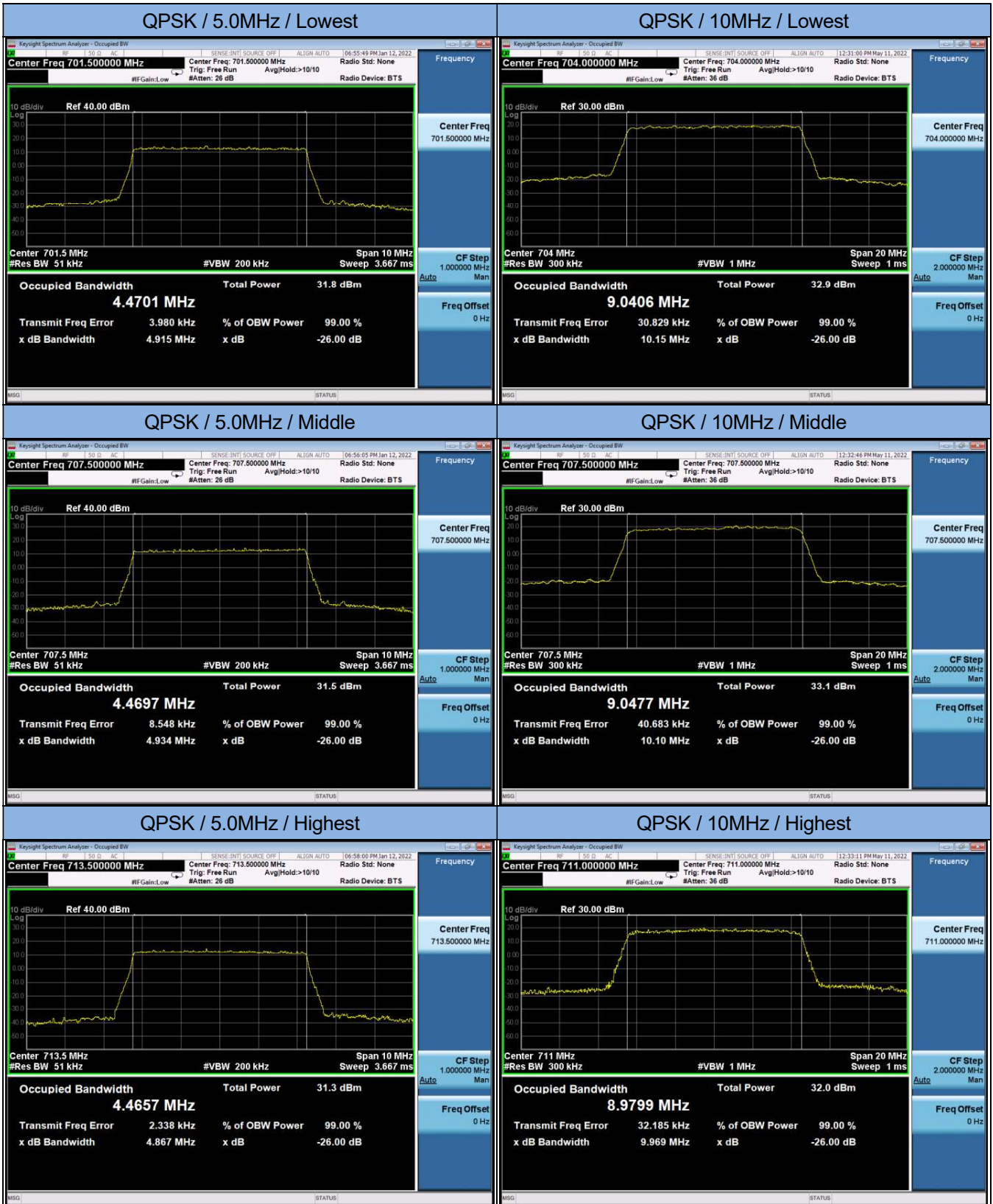
BW (MHz)	Modulation	Channel	RB Allocation		Peak-to-Average Ratio (dB)	Limit (dBm)	Result
			Size	Offset			
10	QPSK	Low	Full	0	5.24	13.0	Pass
		Mid	Full	0	6.00		Pass
		High	Full	0	5.04		Pass
	16QAM	Low	Full	0	6.08	13.0	Pass
		Mid	Full	0	6.01		Pass
		High	Full	0	5.08		Pass

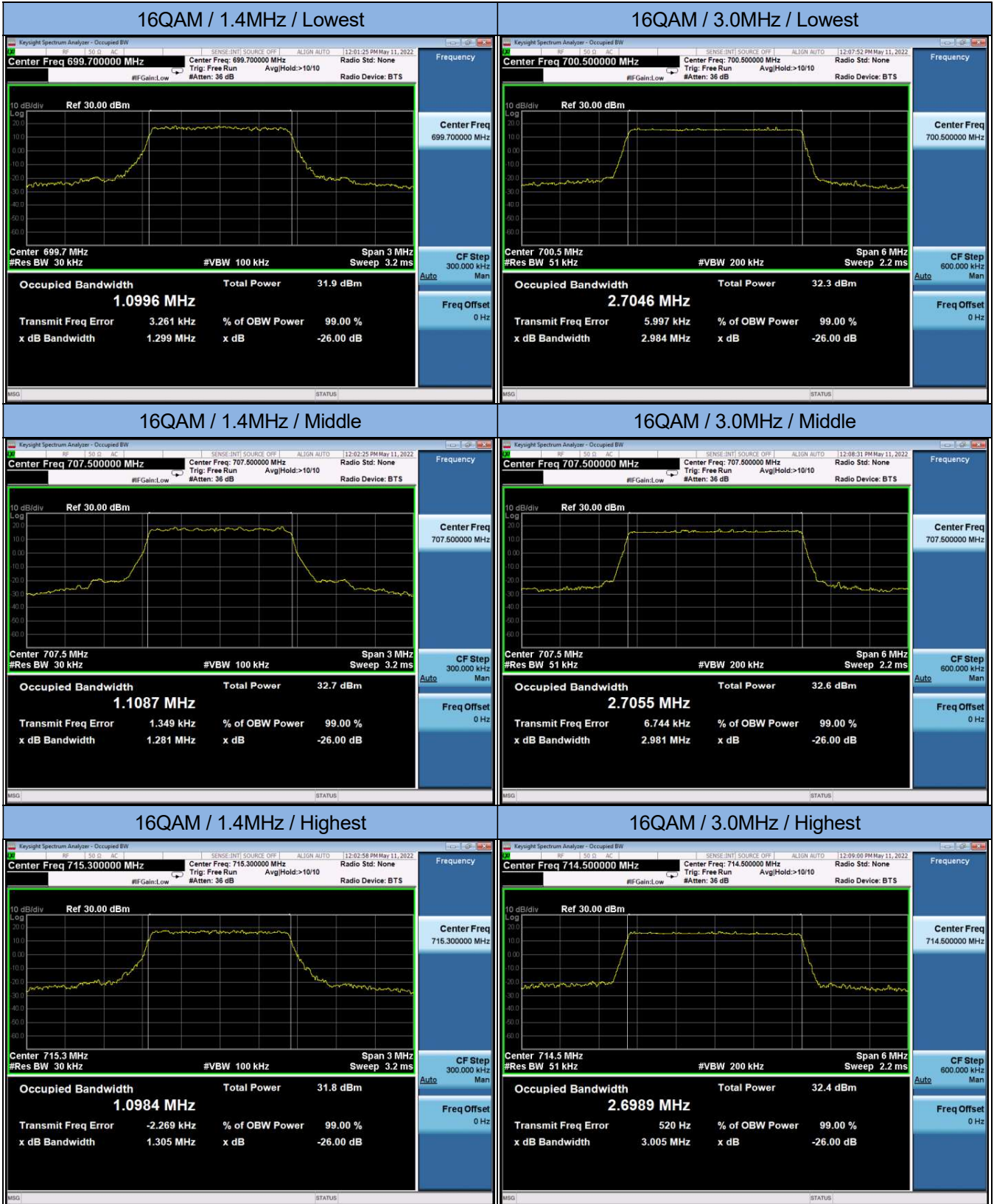


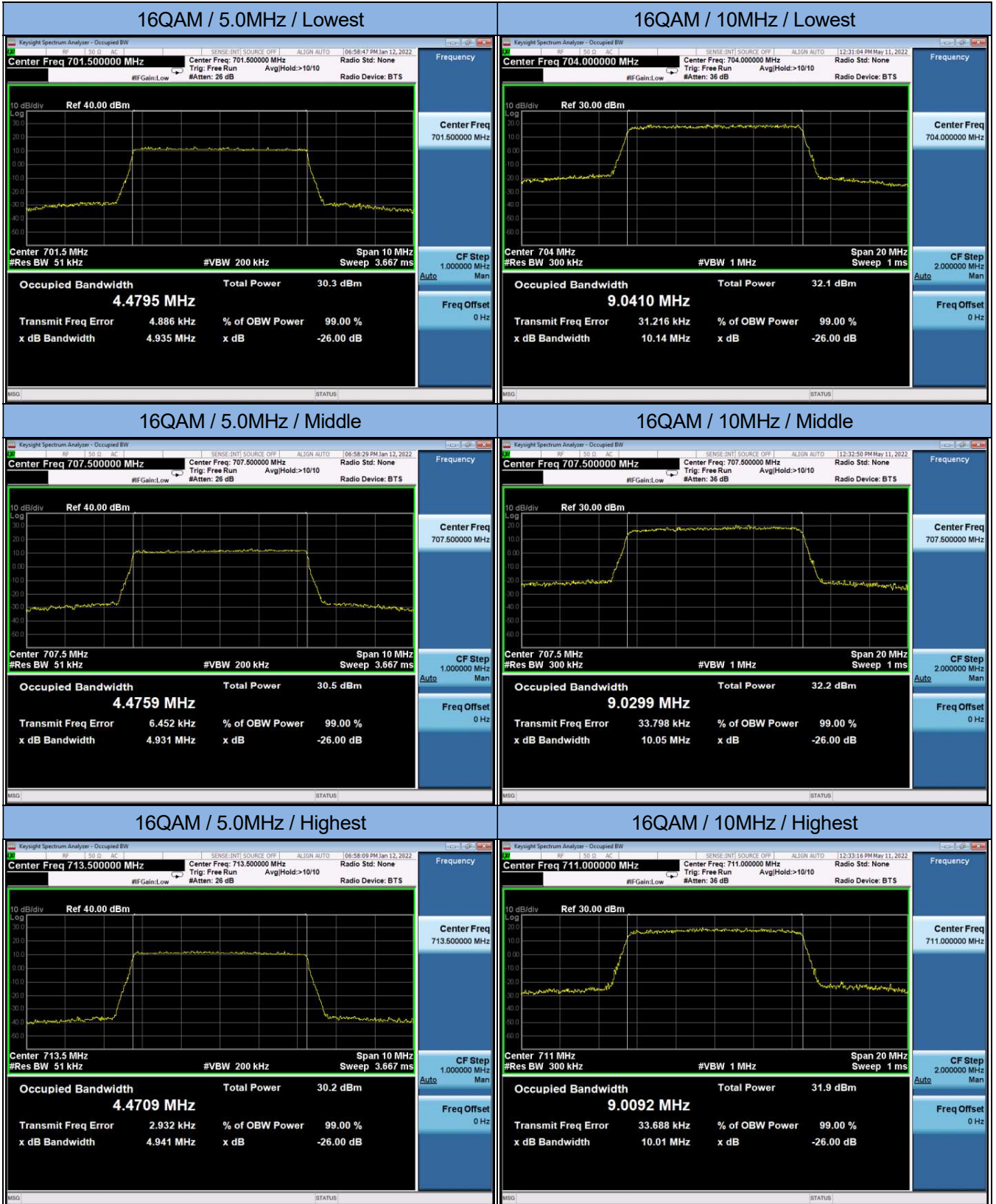
4. Occupied Bandwidth

BW (MHz)	Modulation	Channel	RB Allocation		26dB BW (MHz)	99% OBW (MHz)	Limit (dBm)	Result
			Size	Offset				
1.4	QPSK	Low	Full	0	1.315	1.1019	---	Pass
		Mid	Full	0	1.284	1.1077		Pass
		High	Full	0	1.300	1.0992		Pass
	16QAM	Low	Full	0	1.299	1.0996	---	Pass
		Mid	Full	0	1.281	1.1087		Pass
		High	Full	0	1.305	1.0984		Pass
3.0	QPSK	Low	Full	0	2.986	2.7095	---	Pass
		Mid	Full	0	2.991	2.7050		Pass
		High	Full	0	2.982	2.6970		Pass
	16QAM	Low	Full	0	2.984	2.7046	---	Pass
		Mid	Full	0	2.981	2.7055		Pass
		High	Full	0	3.005	2.6989		Pass
5.0	QPSK	Low	Full	0	4.915	4.4701	---	Pass
		Mid	Full	0	4.934	4.4697		Pass
		High	Full	0	4.867	4.4657		Pass
	16QAM	Low	Full	0	4.935	4.4795	---	Pass
		Mid	Full	0	4.931	4.4759		Pass
		High	Full	0	4.941	4.4709		Pass
10	QPSK	Low	Full	0	10.150	9.0406	---	Pass
		Mid	Full	0	10.100	9.0477		Pass
		High	Full	0	9.969	8.8799		Pass
	16QAM	Low	Full	0	10.140	9.0410	---	Pass
		Mid	Full	0	10.050	9.0299		Pass
		High	Full	0	10.010	9.0092		Pass

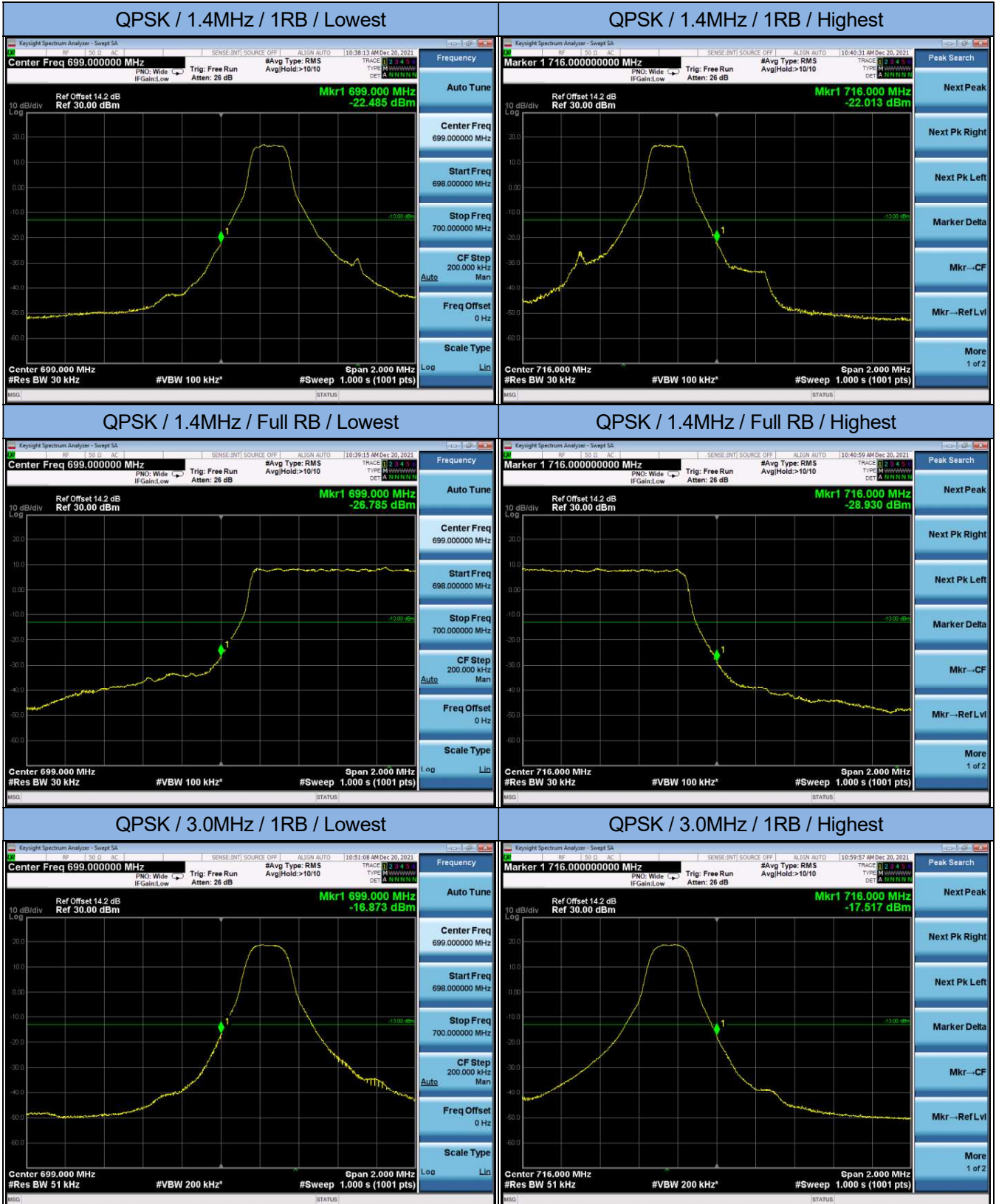


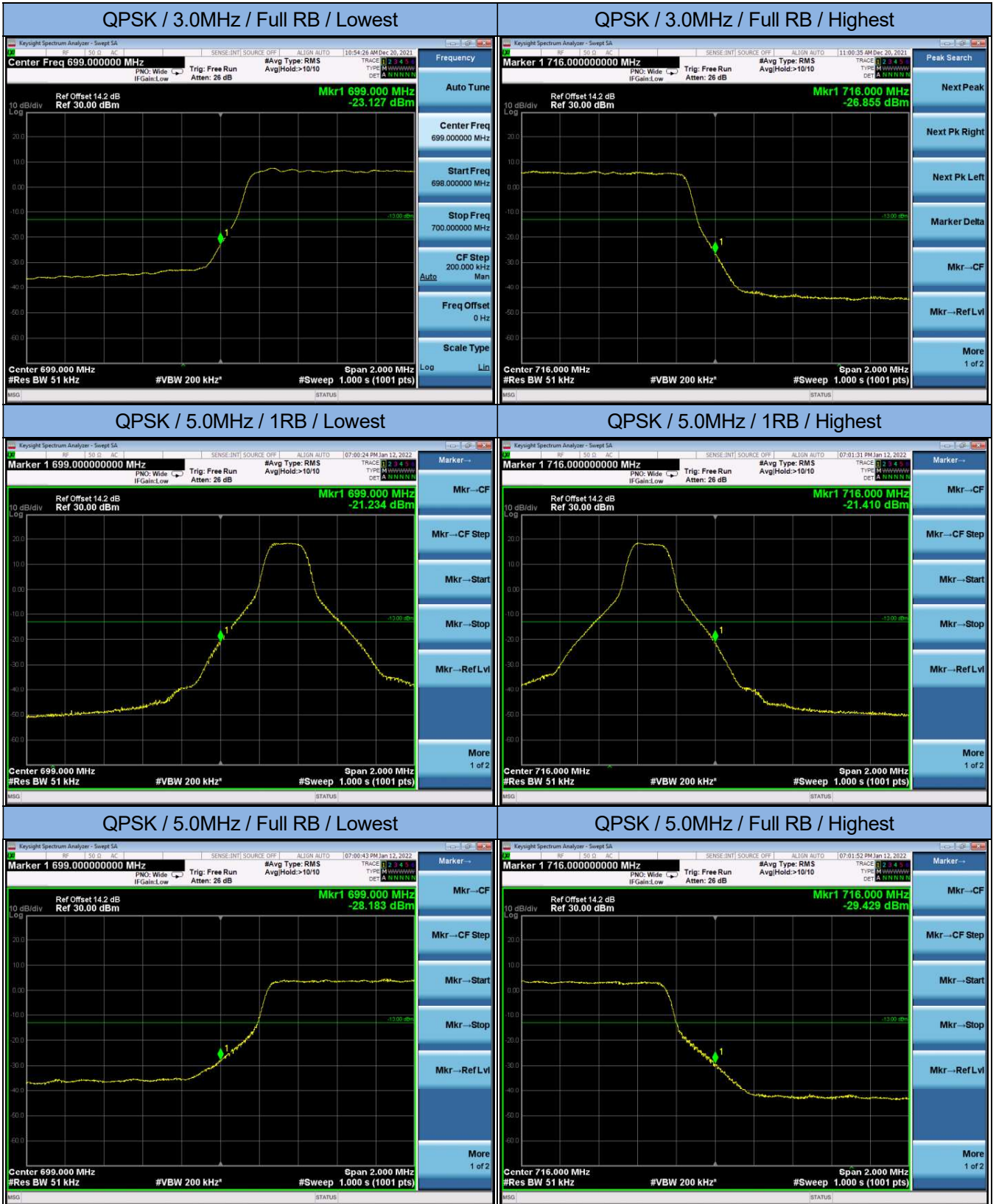


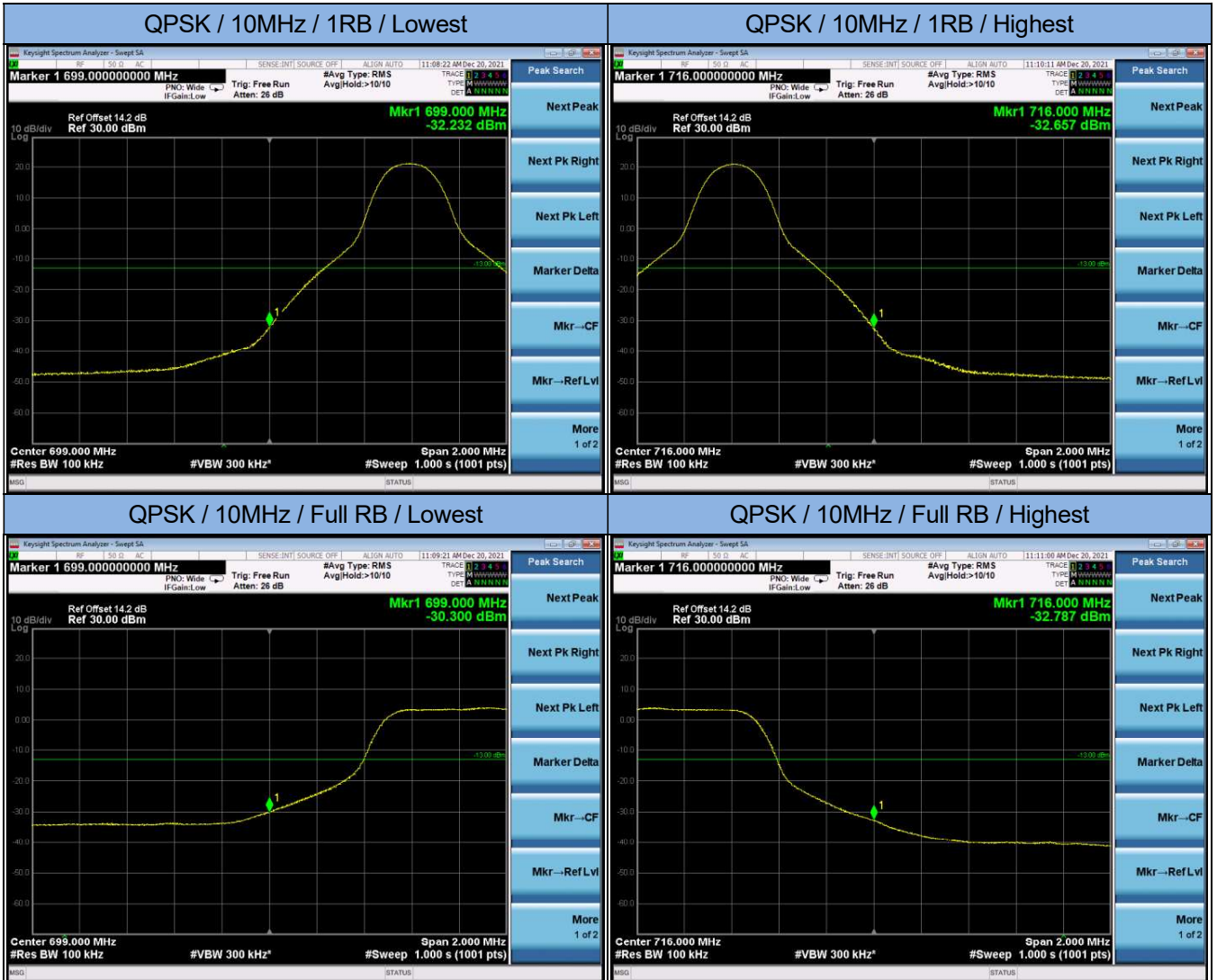


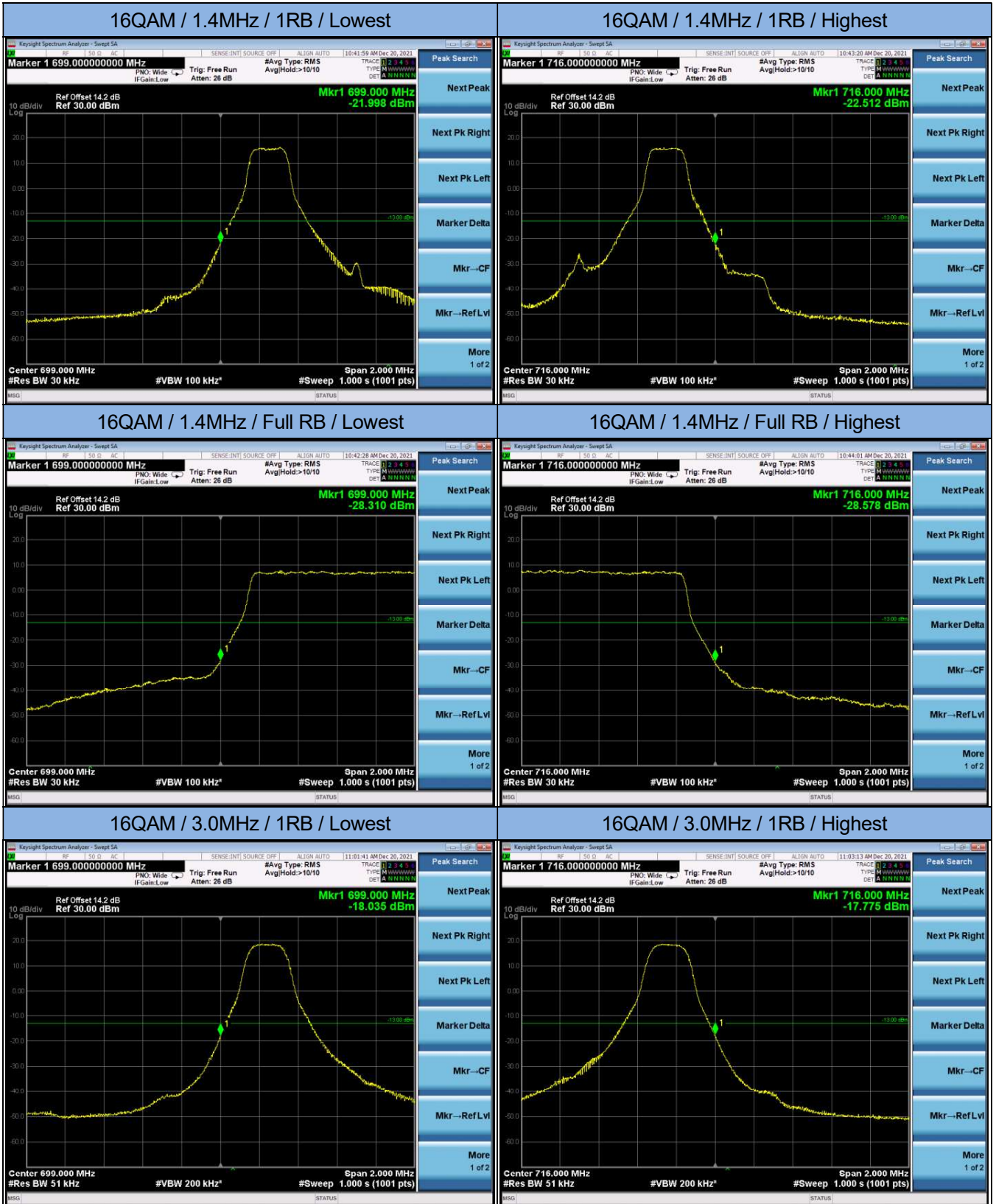


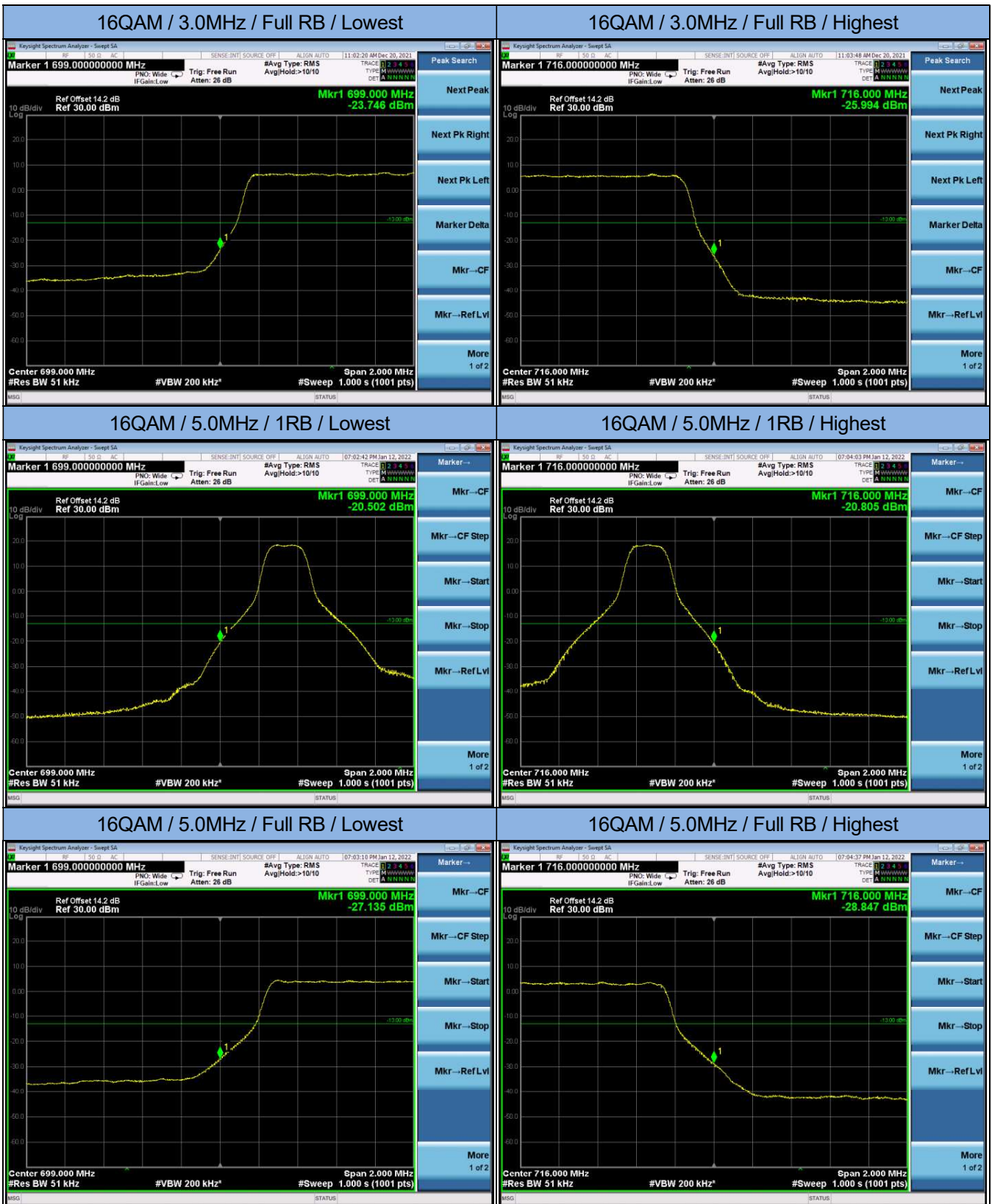
5. Band Edge

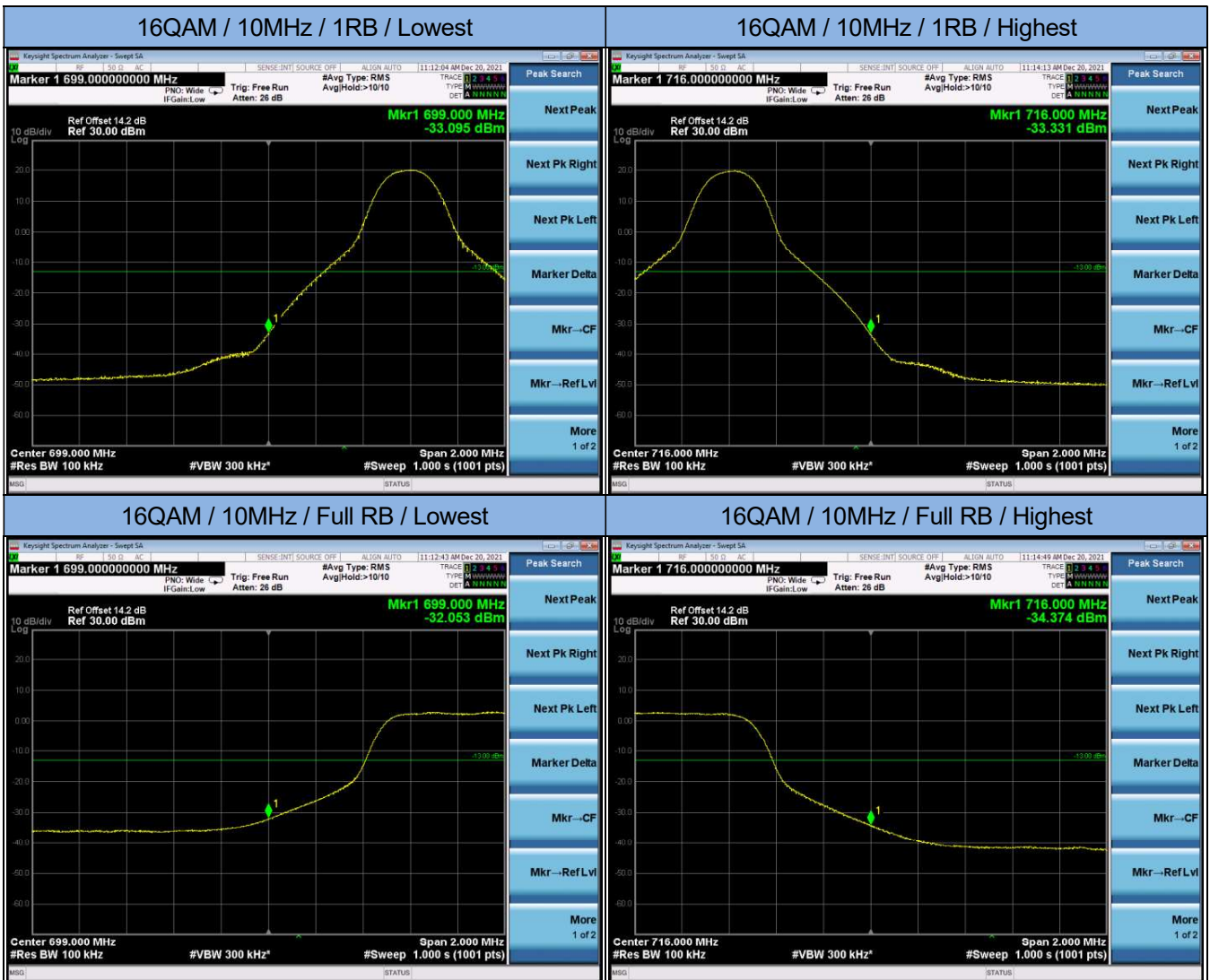






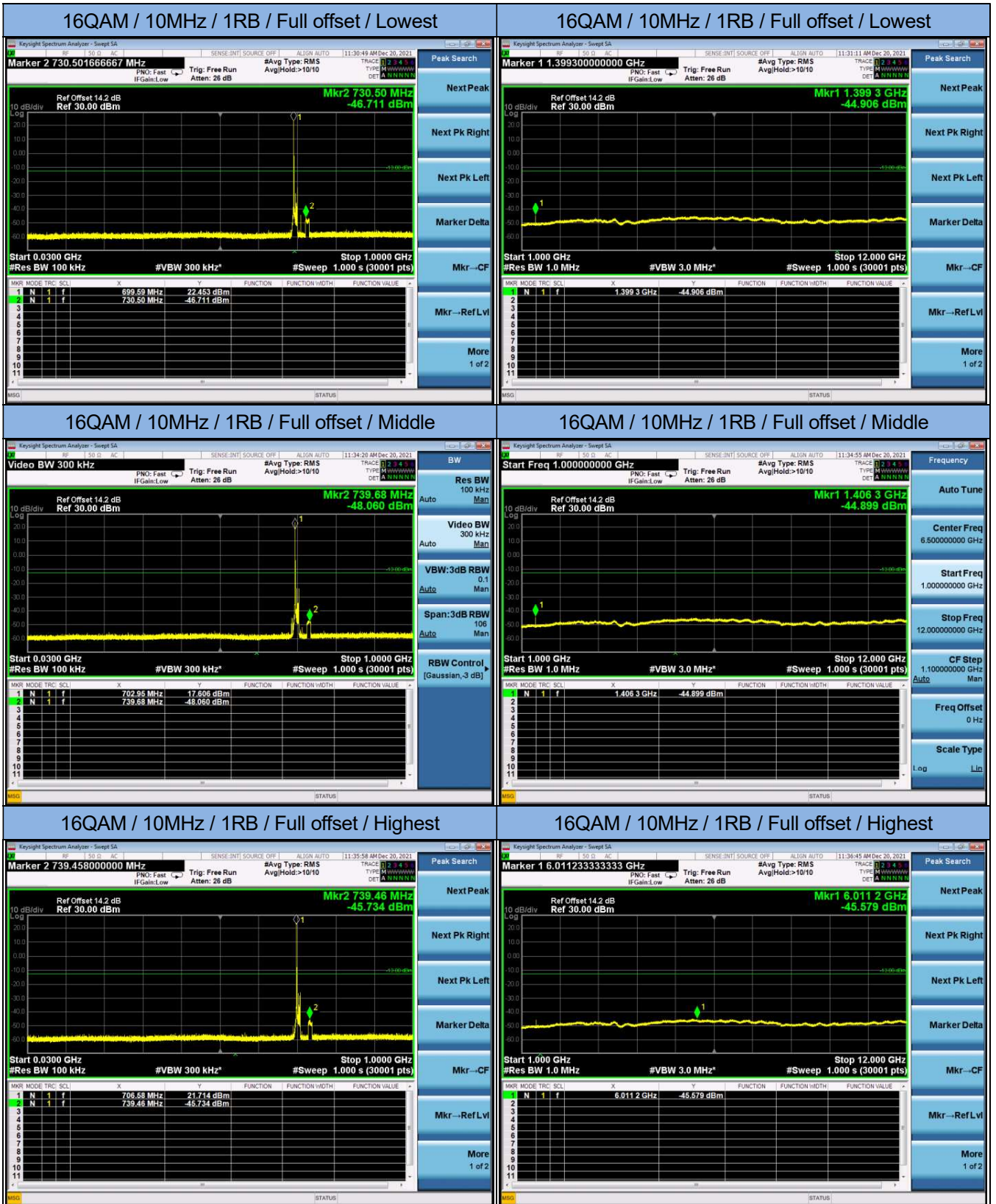






6. Transmitter Spurious Emissions





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	149.3100	H	-65.56	-13	-52.56
	1408	H	-31.22	-13	-18.22
	2112	H	-30.95	-13	-17.95
	2816	H	-38.76	-13	-25.76
	882.7900	V	-67.38	-13	-54.38
	1408	V	-31.23	-13	-18.23
	2112	V	-30.04	-13	-17.04
	2816	V	-29.95	-13	-16.95
Middle	149.3100	H	-67.23	-13	-54.23
	1415	H	-30.24	-13	-17.24
	2122.5	H	-29.45	-13	-16.45
	2830	H	-37.54	-13	-24.54
	584.5570	V	-65.94	-13	-52.94
	1415	V	-29.76	-13	-16.76
	2122.5	V	-28.48	-13	-15.48
	2830	V	-28.27	-13	-15.27
Highest	149.3100	H	-64.18	-13	-51.18
	1422	H	-32.16	-13	-19.16
	2133	H	-30.75	-13	-17.75
	2844	H	-39.44	-13	-26.44
	869.2900	V	-68.21	-13	-55.21
	1422	V	-31.75	-13	-18.75
	2133	V	-30.14	-13	-17.14
	2844	V	-29.47	-13	-16.47

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	-2.3	-0.003251	±2.5	PASS
-20		-1.6	-0.002261	±2.5	PASS
-10		-2.0	-0.002827	±2.5	PASS
0		1.1	0.001555	±2.5	PASS
20		2.3	0.003251	±2.5	PASS
30		1.7	0.002403	±2.5	PASS
40		-0.9	-0.001272	±2.5	PASS
50		-1.8	-0.002544	±2.5	PASS
20		10.8	1.6	0.002261	±2.5
	52.8	2.3	0.003251	±2.5	PASS

---End---