

Appendix I

Test Results of LTE Band 7

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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"/> 5 <input checked="" type="checkbox"/> 10 <input checked="" type="checkbox"/> 15 <input checked="" type="checkbox"/> 20	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"/> 5 <input checked="" type="checkbox"/> 10 <input checked="" type="checkbox"/> 15 <input checked="" type="checkbox"/> 20	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"/> 20	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"/> 5 <input checked="" type="checkbox"/> 10 <input checked="" type="checkbox"/> 15 <input checked="" type="checkbox"/> 20	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"/> 5 <input checked="" type="checkbox"/> 10 <input checked="" type="checkbox"/> 15 <input checked="" type="checkbox"/> 20	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"/> 20	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"/> 20	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)	EIRP (dBm)	Limit (dBm)	Result
			Size	Offset					
5.0	QPSK	Low	1	0	23.79	1.70	25.49	33.00	Pass
				12	23.88	1.70	25.58		Pass
				24	23.70	1.70	25.40		Pass
			12	0	22.62	1.70	24.32		Pass
				7	22.57	1.70	24.27		Pass
				13	22.78	1.70	24.48		Pass
		25	0	22.77	1.70	24.47	Pass		
		Mid	1	0	23.21	1.70	24.91		Pass
				12	23.46	1.70	25.16		Pass
				24	23.38	1.70	25.08		Pass
			12	0	22.39	1.70	24.09		Pass
				7	22.32	1.70	24.02		Pass
				13	22.45	1.70	24.15		Pass
		25	0	22.42	1.70	24.12	Pass		
		High	1	0	22.50	1.70	24.20		Pass
				12	22.95	1.70	24.65		Pass
				24	22.84	1.70	24.54		Pass
			12	0	21.98	1.70	23.68		Pass
	7			22.08	1.70	23.78	Pass		
	13			22.10	1.70	23.80	Pass		
	25	0	22.10	1.70	23.80	Pass			
	16QAM	Low	1	0	21.89	1.70	23.59	33.00	Pass
				12	22.59	1.70	24.29		Pass
				24	22.46	1.70	24.16		Pass
			12	0	21.41	1.70	23.11		Pass
				7	21.46	1.70	23.16		Pass
				13	21.50	1.70	23.20		Pass
		25	0	21.74	1.70	23.44	Pass		
		Mid	1	0	22.47	1.70	24.17		Pass
				12	22.92	1.70	24.62		Pass
				24	21.76	1.70	23.46		Pass
			12	0	21.38	1.70	23.08		Pass
				7	21.32	1.70	23.02		Pass
				13	21.42	1.70	23.12		Pass
		25	0	21.33	1.70	23.03	Pass		
		High	1	0	20.48	1.70	22.18		Pass
12				22.37	1.70	24.07	Pass		
24				22.53	1.70	24.23	Pass		
12			0	20.91	1.70	22.61	Pass		
	7		21.04	1.70	22.74	Pass			
	13		21.00	1.70	22.70	Pass			
25	0	21.20	1.70	22.90	Pass				

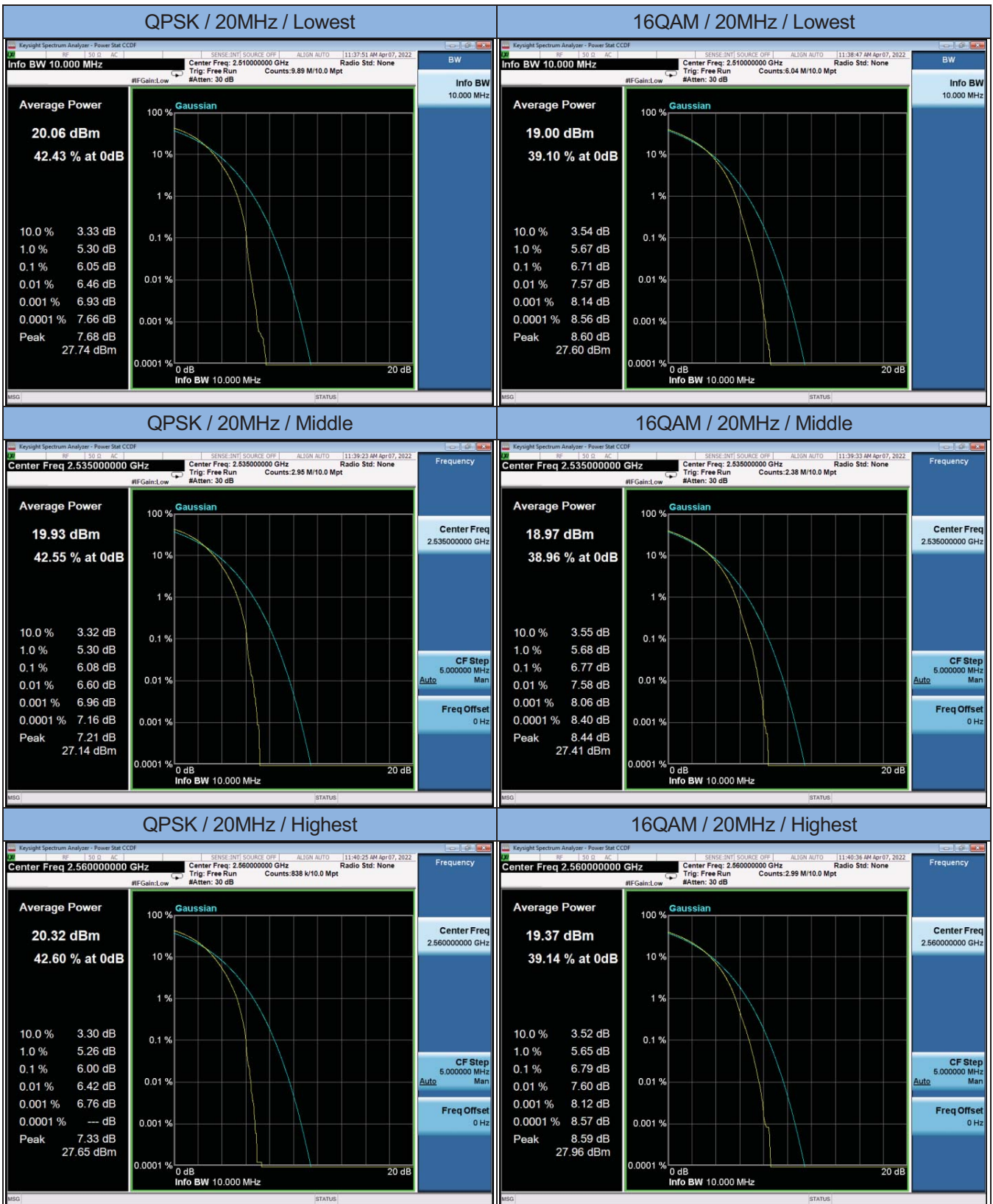
BW (MHz)	Modulation	Channel	RB Allocation		Average Power (dBm)	GT - LC (dB)	EIRP (dBm)	Limit (dBm)	Result		
			Size	Offset							
10	QPSK	Low	1	0	22.80	1.70	24.50	33.00	Pass		
				25	23.05	1.70	24.75		Pass		
				49	22.73	1.70	24.43		Pass		
			25	0	21.97	1.70	23.67		Pass		
				12	21.95	1.70	23.65		Pass		
				25	21.93	1.70	23.63		Pass		
		50	0	21.91	1.70	23.61	Pass				
		Mid	1	0	22.83	1.70	24.53		Pass		
				25	23.03	1.70	24.73		Pass		
				49	22.87	1.70	24.57		Pass		
			25	0	21.93	1.70	23.63		Pass		
				12	21.96	1.70	23.66		Pass		
				25	21.98	1.70	23.68		Pass		
		50	0	22.02	1.70	23.72	Pass				
		High	1	0	23.41	1.70	25.11		Pass		
				25	23.25	1.70	24.95		Pass		
				49	23.09	1.70	24.79		Pass		
			25	0	22.27	1.70	23.97		Pass		
				12	22.25	1.70	23.95		Pass		
				25	22.31	1.70	24.01		Pass		
		50	0	22.36	1.70	24.06	Pass				
		16QAM	Low	1	0	21.86	1.70		23.56	33.00	Pass
					25	21.89	1.70		23.59		Pass
					49	21.97	1.70		23.67		Pass
	25			0	21.20	1.70	22.90	Pass			
				12	21.19	1.70	22.89	Pass			
				25	20.97	1.70	22.67	Pass			
	50			0	20.72	1.70	22.42	Pass			
	Mid			1	0	22.24	1.70	23.94	Pass		
					25	22.56	1.70	24.26	Pass		
					49	22.37	1.70	24.07	Pass		
				25	0	21.05	1.70	22.75	Pass		
					12	20.98	1.70	22.68	Pass		
			25		20.92	1.70	22.62	Pass			
	50		0	20.90	1.70	22.60	Pass				
	High		1	0	23.02	1.70	24.72	Pass			
				25	23.21	1.70	24.91	Pass			
				49	22.62	1.70	24.32	Pass			
			25	0	21.27	1.70	22.97	Pass			
				12	21.34	1.70	23.04	Pass			
				25	21.38	1.70	23.08	Pass			
	50		0	21.38	1.70	23.08	Pass				

BW (MHz)	Modulation	Channel	RB Allocation		Average Power (dBm)	GT - LC (dB)	EIRP (dBm)	Limit (dBm)	Result
			Size	Offset					
15	QPSK	Low	1	0	23.19	1.70	24.89	33.00	Pass
				37	23.16	1.70	24.86		Pass
				74	23.04	1.70	24.74		Pass
			36	0	22.08	1.70	23.78		Pass
				20	22.02	1.70	23.72		Pass
				39	22.03	1.70	23.73		Pass
		75	0	22.04	1.70	23.74	Pass		
		Mid	1	0	22.85	1.70	24.55		Pass
				37	22.78	1.70	24.48		Pass
				74	19.44	1.70	21.14		Pass
			36	0	22.00	1.70	23.70		Pass
				20	22.04	1.70	23.74		Pass
				39	21.99	1.70	23.69		Pass
		75	0	21.98	1.70	23.68	Pass		
		High	1	0	23.19	1.70	24.89		Pass
				37	23.30	1.70	25.00		Pass
				74	23.12	1.70	24.82		Pass
			36	0	22.24	1.70	23.94		Pass
	20			22.25	1.70	23.95	Pass		
	39			22.33	1.70	24.03	Pass		
	75	0	22.29	1.70	23.99	Pass			
	16QAM	Low	1	0	22.58	1.70	24.28	33.00	Pass
				37	22.66	1.70	24.36		Pass
				74	22.51	1.70	24.21		Pass
			36	0	21.06	1.70	22.76		Pass
				20	21.01	1.70	22.71		Pass
				39	21.00	1.70	22.70		Pass
		75	0	21.13	1.70	22.83	Pass		
		Mid	1	0	22.07	1.70	23.77		Pass
				37	22.06	1.70	23.76		Pass
				74	22.40	1.70	24.10		Pass
			36	0	21.00	1.70	22.70		Pass
				20	20.96	1.70	22.66		Pass
				39	20.89	1.70	22.59		Pass
		75	0	21.06	1.70	22.76	Pass		
		High	1	0	22.42	1.70	24.12		Pass
37				22.24	1.70	23.94	Pass		
74				22.15	1.70	23.85	Pass		
36			0	21.21	1.70	22.91	Pass		
	20		21.15	1.70	22.85	Pass			
	39		21.12	1.70	22.82	Pass			
75	0	21.39	1.70	23.09	Pass				

BW (MHz)	Modulation	Channel	RB Allocation		Average Power (dBm)	GT - LC (dB)	EIRP (dBm)	Limit (dBm)	Result		
			Size	Offset							
20	QPSK	Low	1	0	22.65	1.70	24.35	33.00	Pass		
				49	22.98	1.70	24.68		Pass		
				99	22.43	1.70	24.13		Pass		
			50	0	21.81	1.70	23.51		Pass		
				24	21.76	1.70	23.46		Pass		
				50	21.67	1.70	23.37		Pass		
		100	0	21.79	1.70	23.49	Pass				
		Mid	1	0	23.17	1.70	24.87		Pass		
				49	22.96	1.70	24.66		Pass		
				99	22.63	1.70	24.33		Pass		
			50	0	21.72	1.70	23.42		Pass		
				24	21.73	1.70	23.43		Pass		
				50	21.82	1.70	23.52		Pass		
		100	0	21.72	1.70	23.42	Pass				
		High	1	0	22.90	1.70	24.60		Pass		
				49	22.86	1.70	24.56		Pass		
				99	22.76	1.70	24.46		Pass		
			50	0	21.88	1.70	23.58		Pass		
				24	21.95	1.70	23.65		Pass		
				50	22.01	1.70	23.71		Pass		
		100	0	21.88	1.70	23.58	Pass				
		16QAM	Low	1	0	21.70	1.70		23.40	33.00	Pass
					49	22.19	1.70		23.89		Pass
					99	21.92	1.70		23.62		Pass
	50			0	20.89	1.70	22.59	Pass			
				24	20.81	1.70	22.51	Pass			
				50	20.70	1.70	22.40	Pass			
	100		0	20.84	1.70	22.54	Pass				
	Mid		1	0	21.86	1.70	23.56	Pass			
				49	22.47	1.70	24.17	Pass			
				99	22.38	1.70	24.08	Pass			
			50	0	20.77	1.70	22.47	Pass			
				24	20.74	1.70	22.44	Pass			
				50	20.81	1.70	22.51	Pass			
	100		0	20.80	1.70	22.50	Pass				
	High		1	0	20.34	1.70	22.04	Pass			
				49	22.82	1.70	24.52	Pass			
				99	21.96	1.70	23.66	Pass			
			50	0	20.95	1.70	22.65	Pass			
				24	20.85	1.70	22.55	Pass			
				50	20.93	1.70	22.63	Pass			
	100		0	19.97	1.70	21.67	Pass				

3. Peak-to-Average Ratio

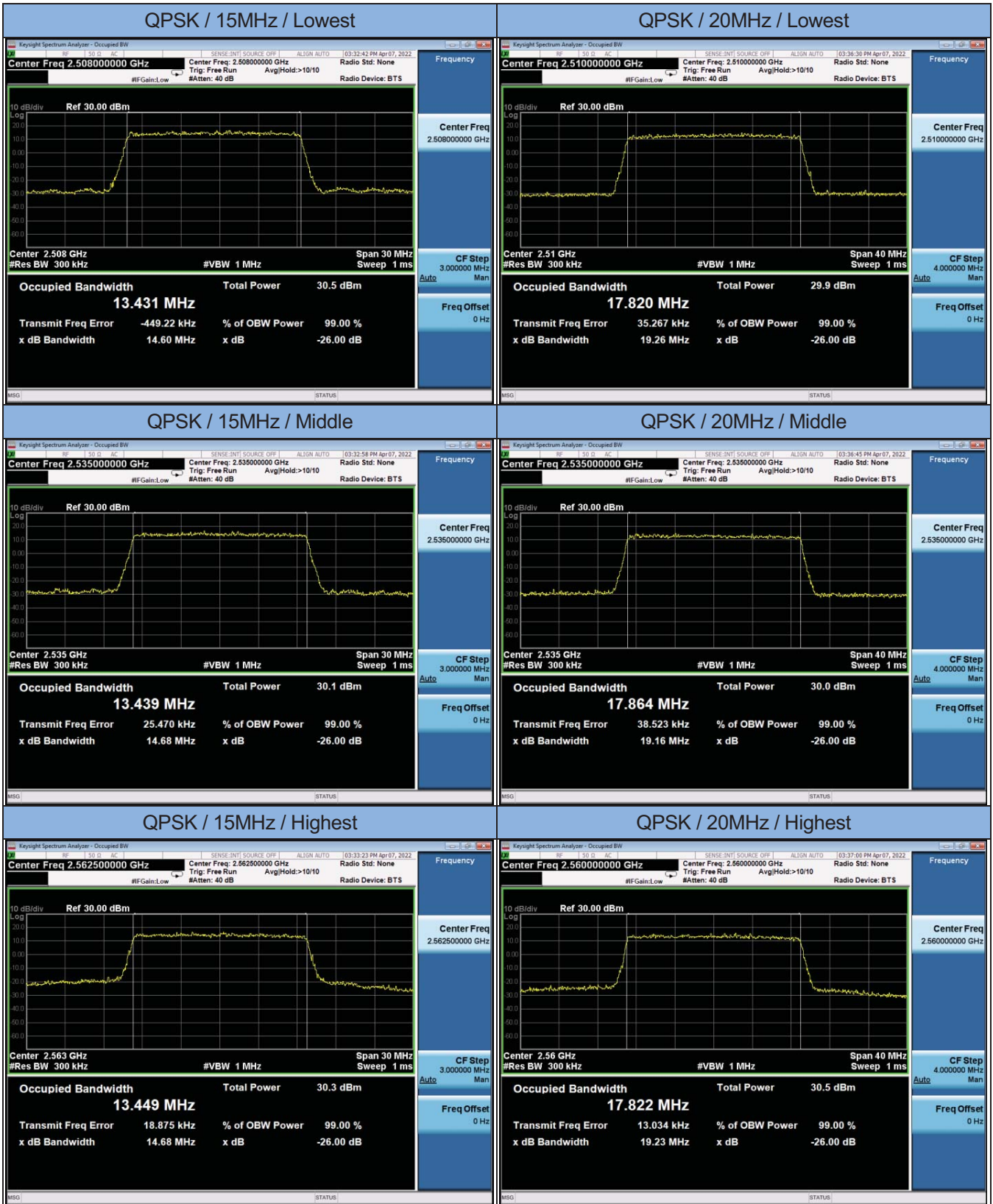
BW (MHz)	Modulation	Channel	RB Allocation		Peak-to-Average Ratio (dB)	Limit (dBm)	Result
			Size	Offset			
20	QPSK	Low	Full	0	6.05	13.0	Pass
		Mid	Full	0	6.08		Pass
		High	Full	0	6.00		Pass
	16QAM	Low	Full	0	6.71	13.0	Pass
		Mid	Full	0	6.77		Pass
		High	Full	0	6.79		Pass

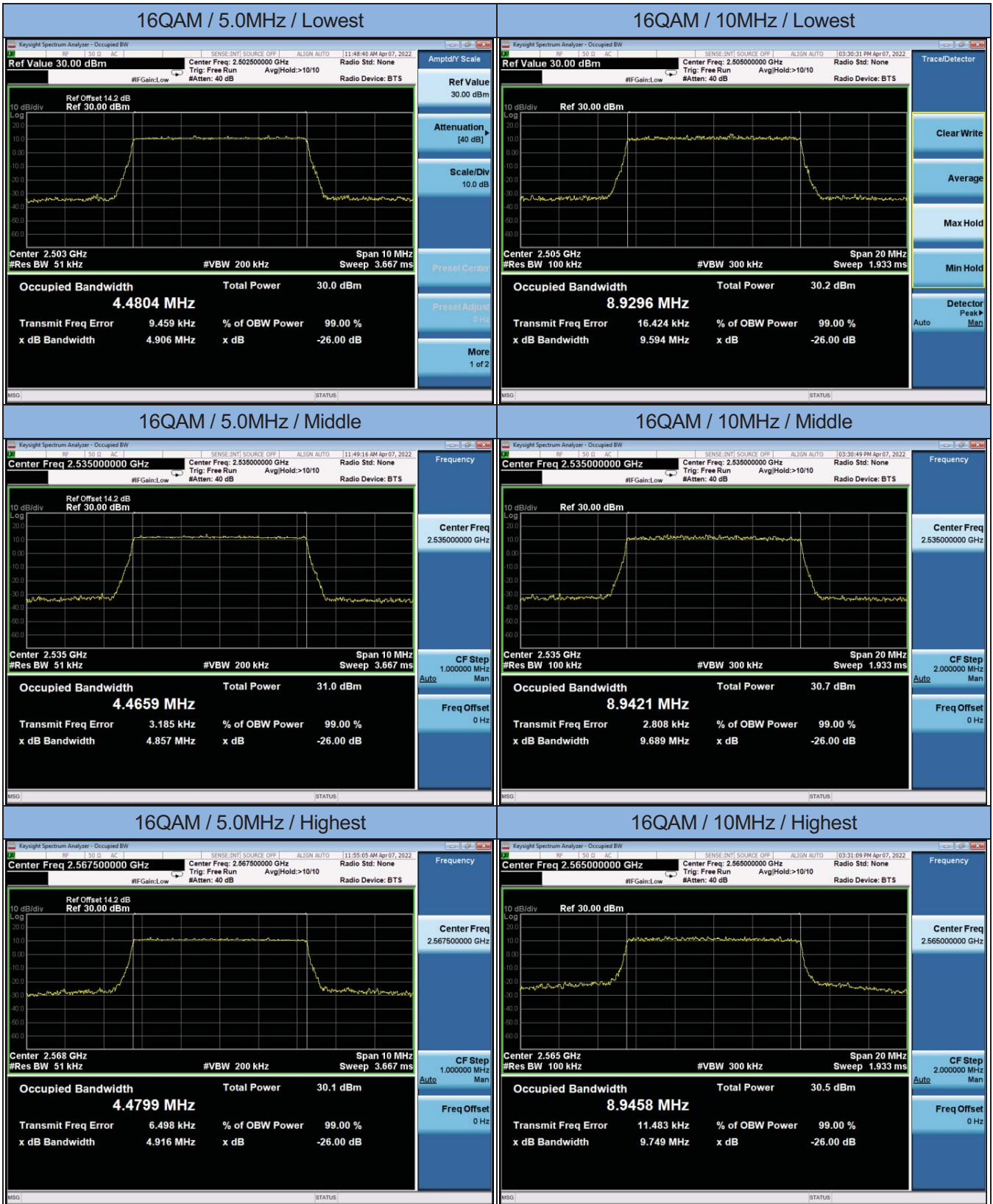


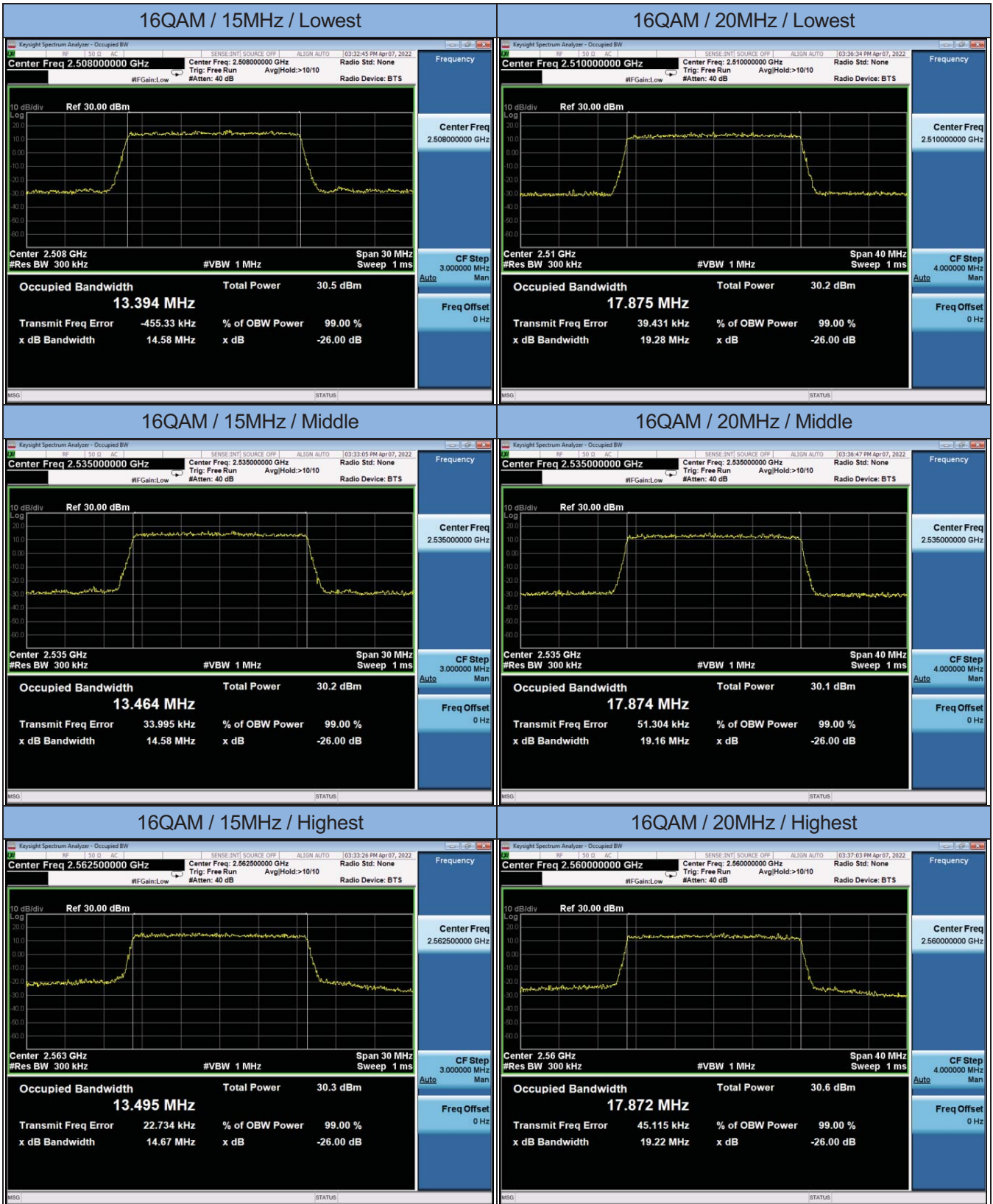
4. Occupied Bandwidth

BW (MHz)	Modulation	Channel	RB Allocation		26dB BW (MHz)	99% OBW (MHz)	Limit (dBm)	Result
			Size	Offset				
5.0	QPSK	Low	Full	0	4.920	4.4881	---	Pass
		Mid	Full	0	4.929	4.4707		Pass
		High	Full	0	4.962	4.4870		Pass
	16QAM	Low	Full	0	4.906	4.4804	---	Pass
		Mid	Full	0	4.857	4.4659		Pass
		High	Full	0	4.916	4.4799		Pass
10	QPSK	Low	Full	0	9.665	8.9236	---	Pass
		Mid	Full	0	9.738	8.9470		Pass
		High	Full	0	9.706	8.9438		Pass
	16QAM	Low	Full	0	9.594	8.9296	---	Pass
		Mid	Full	0	9.689	8.9421		Pass
		High	Full	0	9.749	8.9458		Pass
15	QPSK	Low	Full	0	14.600	13.431	---	Pass
		Mid	Full	0	14.680	13.439		Pass
		High	Full	0	14.680	13.449		Pass
	16QAM	Low	Full	0	14.580	13.394	---	Pass
		Mid	Full	0	14.580	13.464		Pass
		High	Full	0	14.670	13.495		Pass
20	QPSK	Low	Full	0	19.260	17.820	---	Pass
		Mid	Full	0	19.160	17.864		Pass
		High	Full	0	19.230	17.822		Pass
	16QAM	Low	Full	0	19.280	17.875	---	Pass
		Mid	Full	0	19.160	17.874		Pass
		High	Full	0	19.220	17.872		Pass

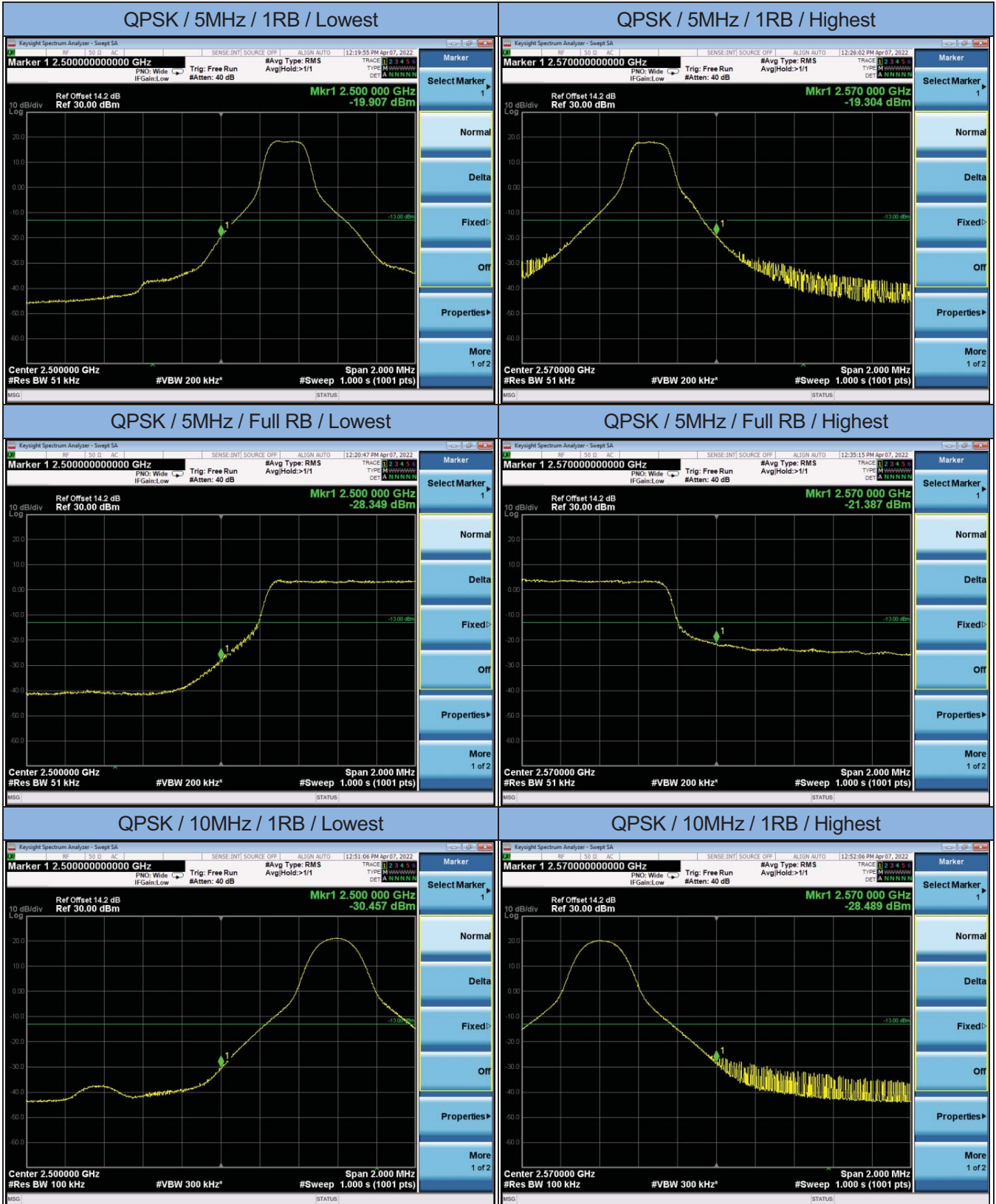


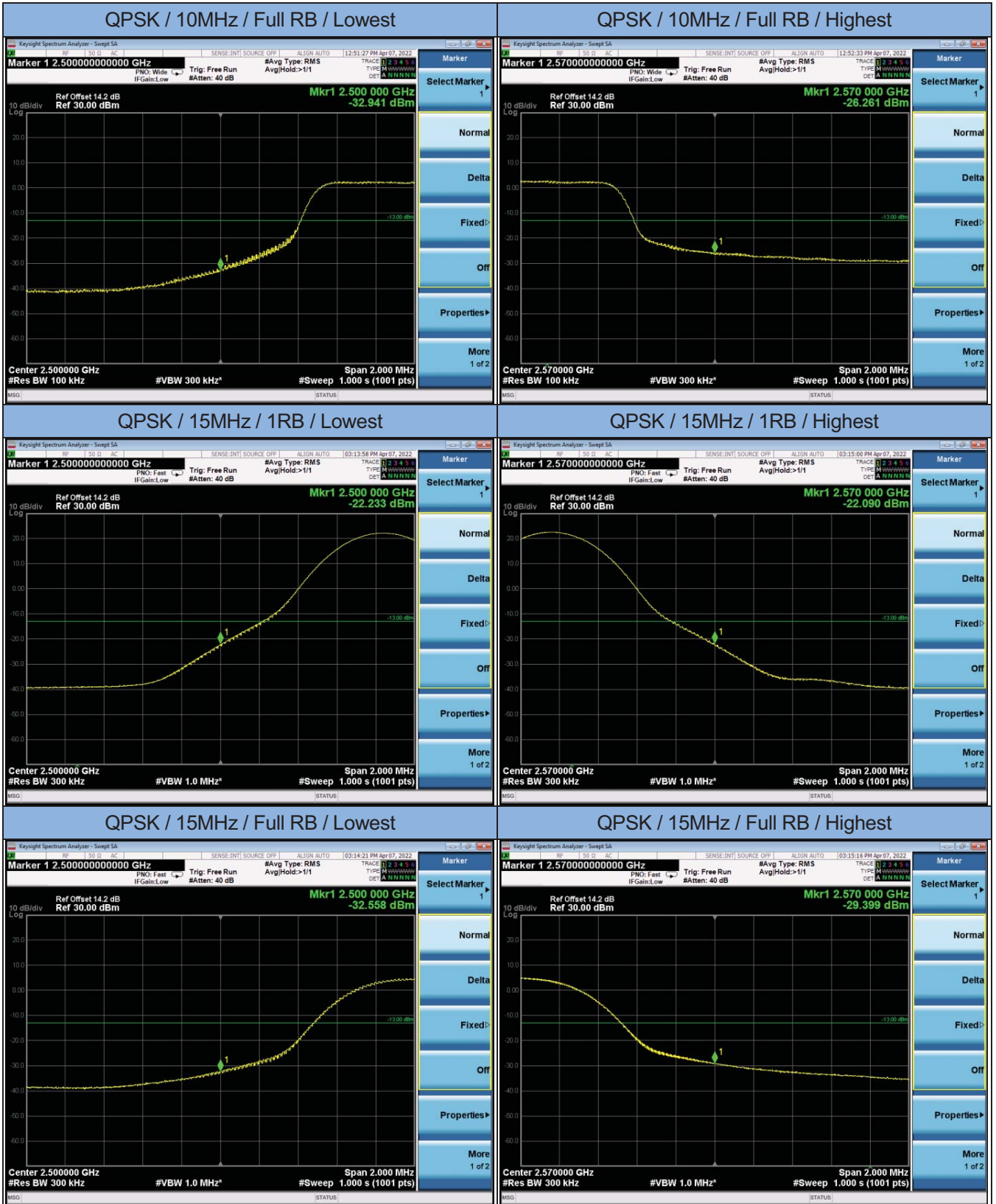


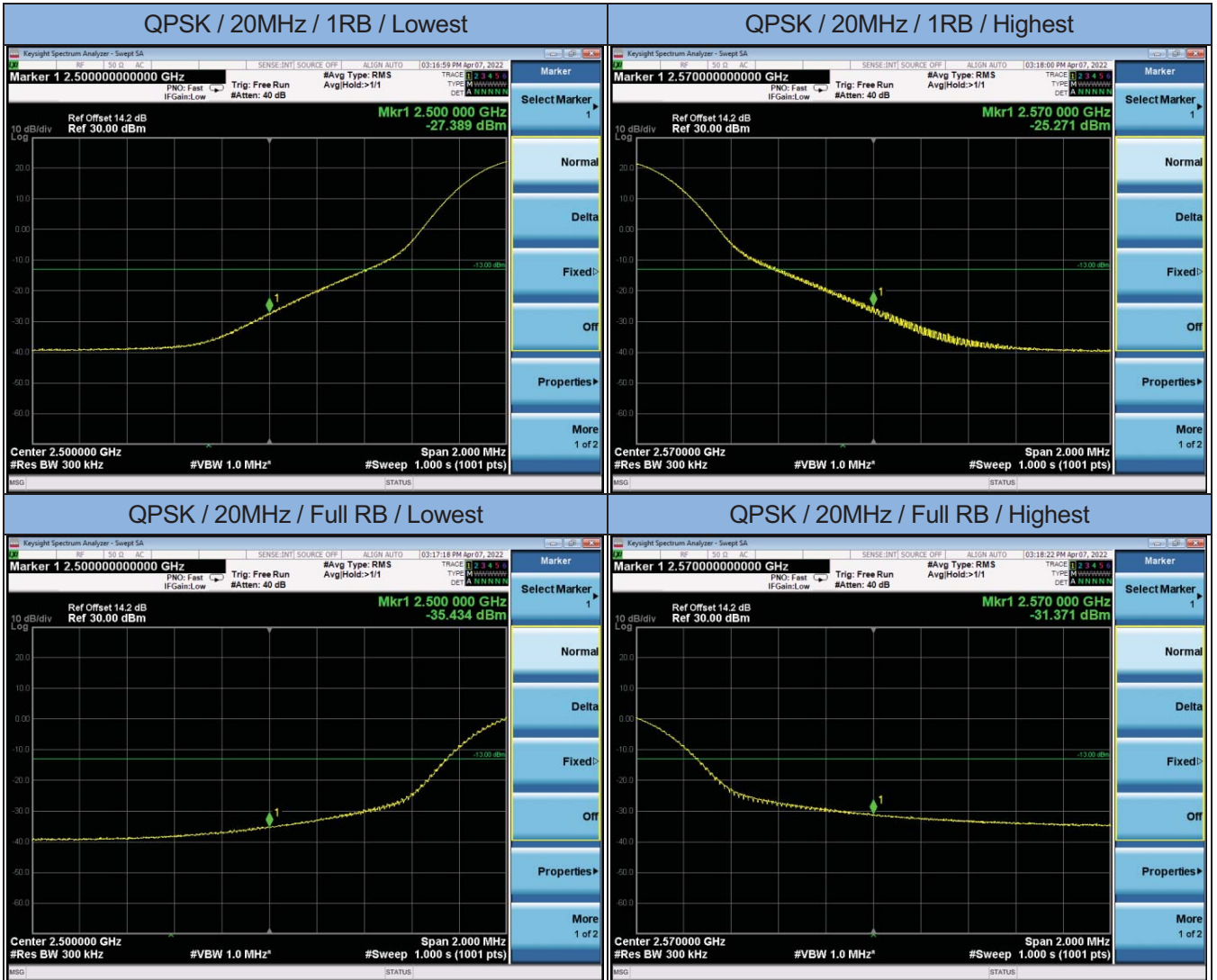


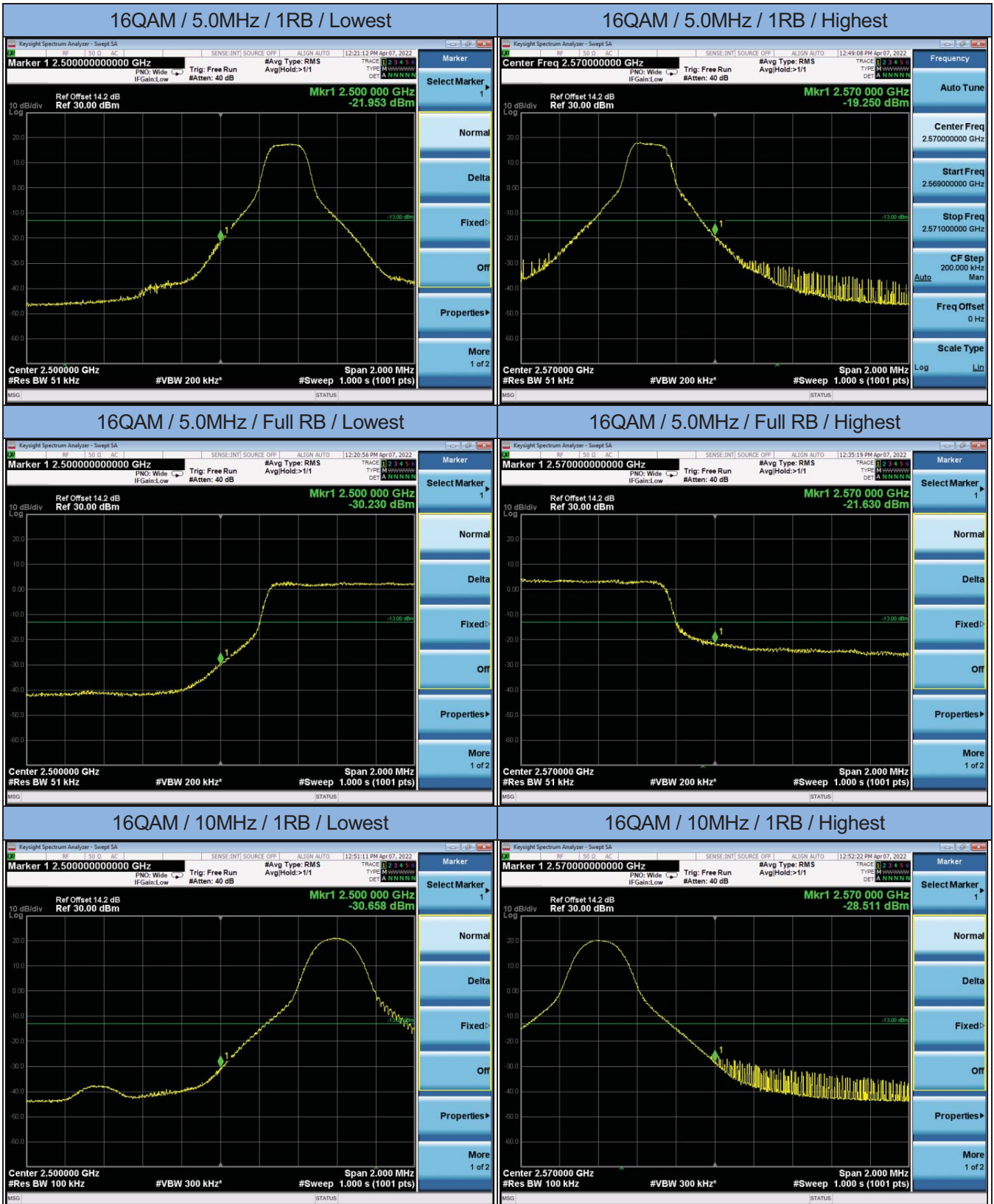


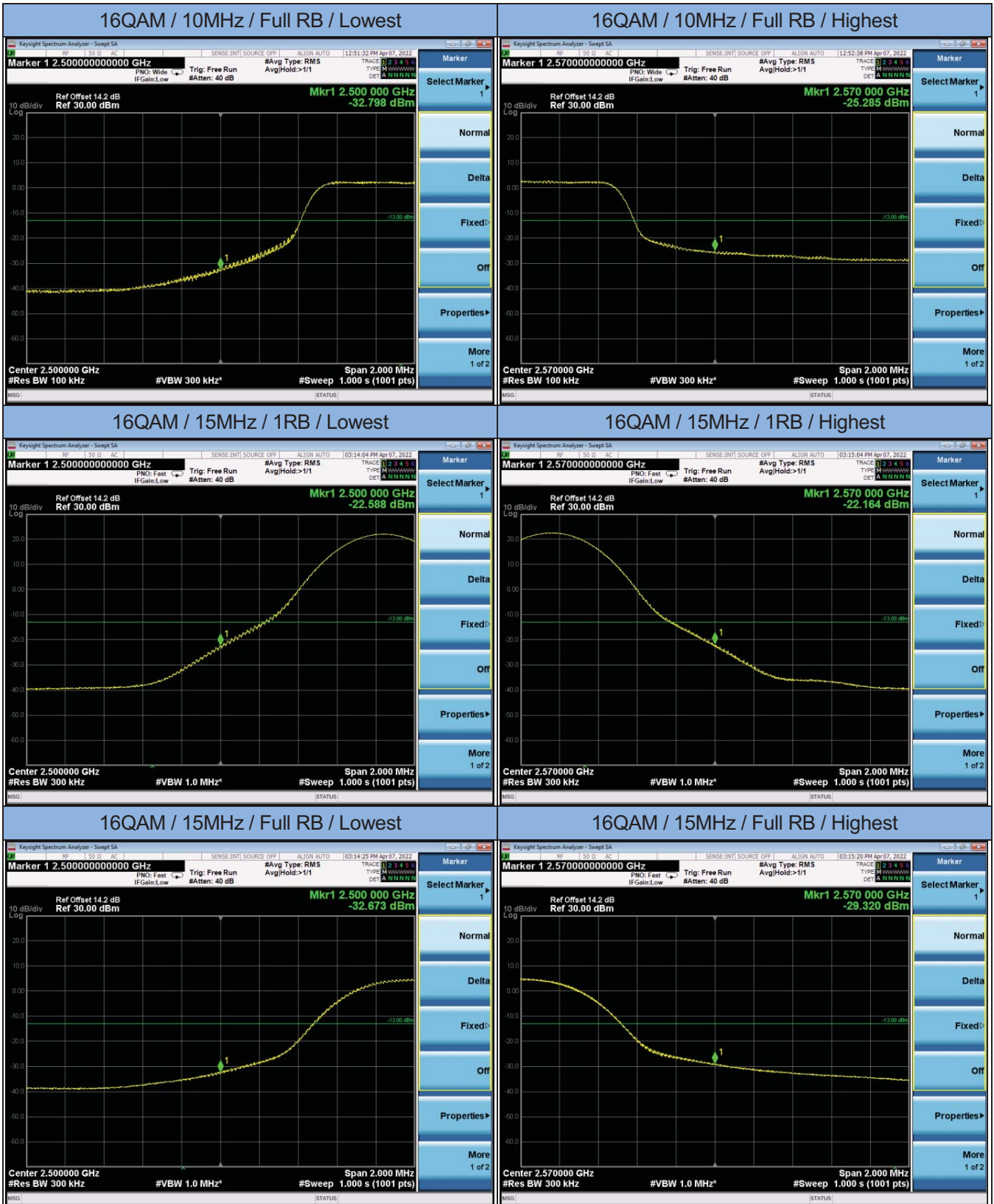
5. Band Edge

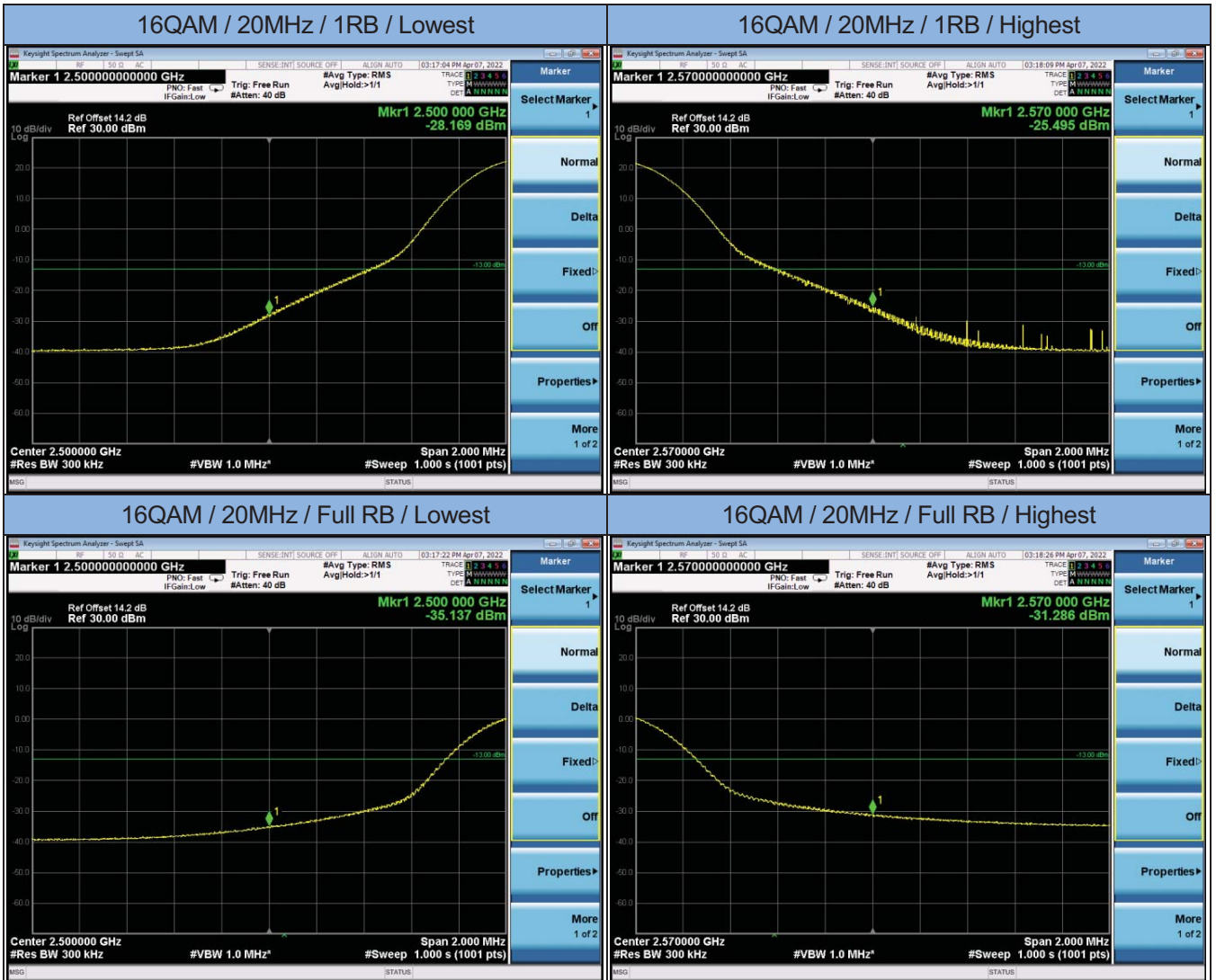




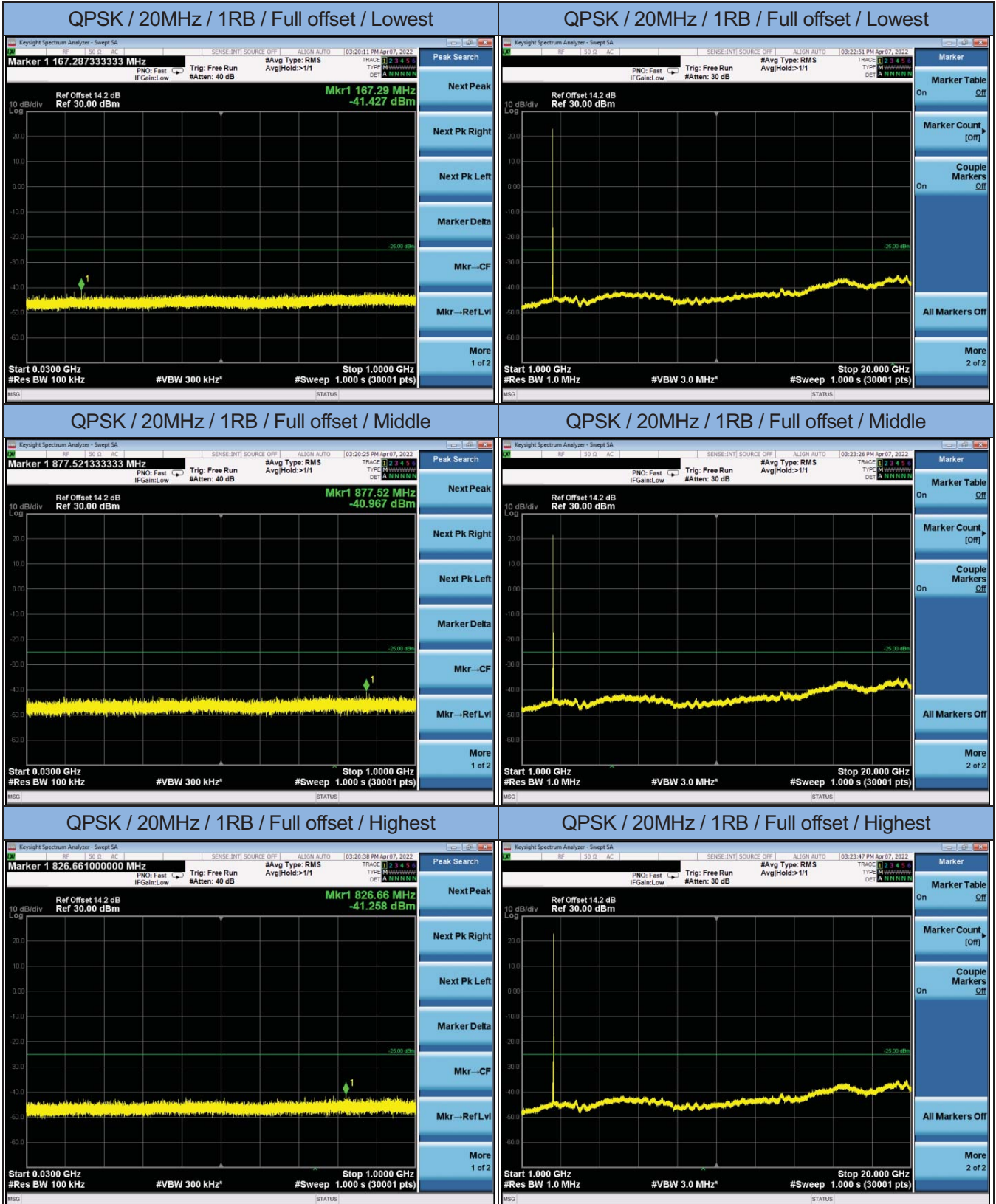


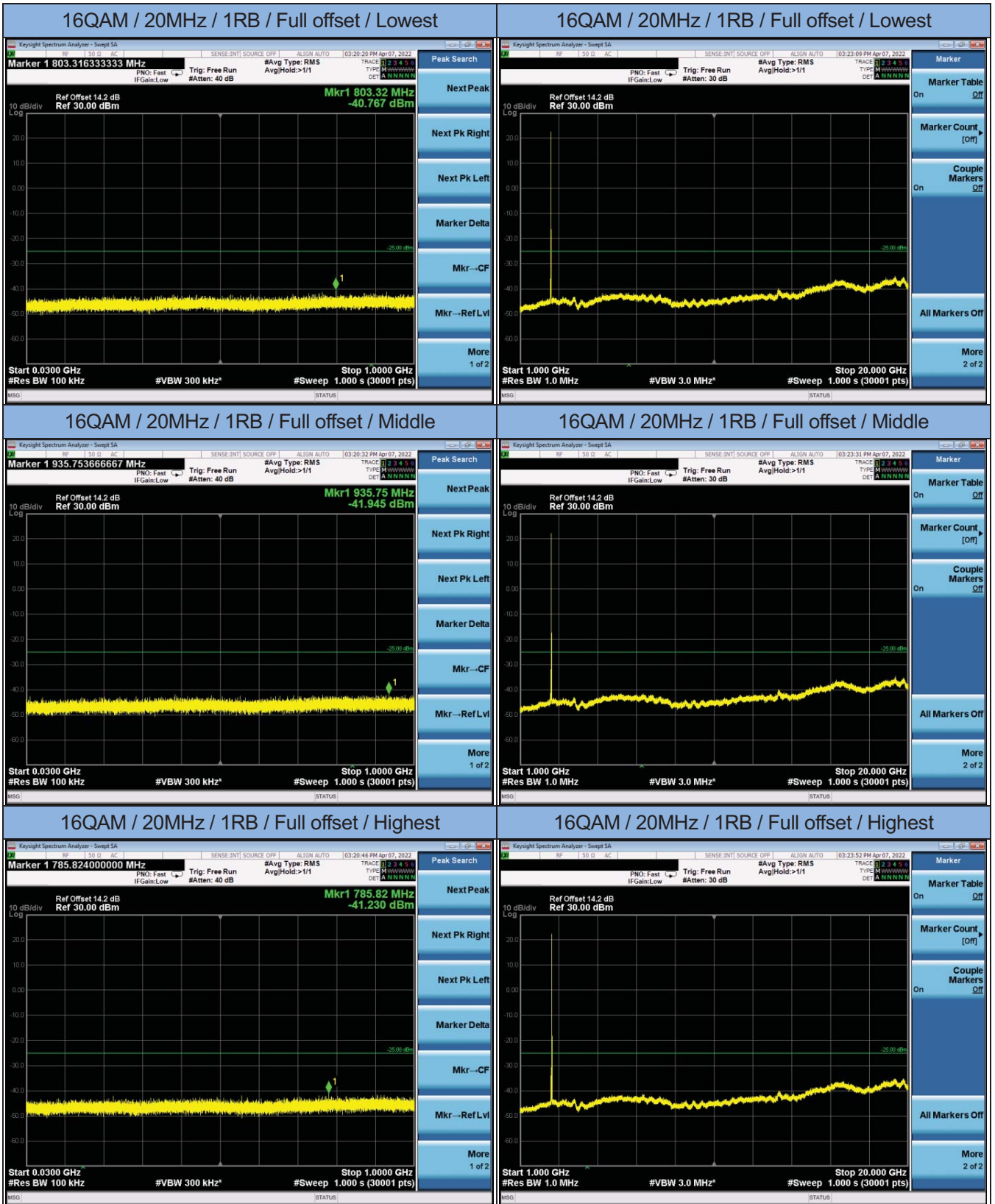






6. Transmitter Spurious Emissions





7. Field Strength of Spurious Radiation

LTE Band 7 / 20M / QPSK					
Channel	Frequency (MHz)	Polarization (H/V)	Meas. Level (dBm)	Limit (dBm)	Margin (dBm)
Lowest	149.3100	H	-64.91	-25	-39.91
	5020	H	-42.57	-25	-17.57
	7530	H	-40.24	-25	-15.24
	10040	H	-36.55	-25	-11.55
	584.7200	V	-69.89	-25	-44.89
	5070	V	-41.27	-25	-16.27
	7605	V	-38.02	-25	-13.02
	10140	V	-36.48	-25	-11.48
Middle	149.3100	H	-65.66	-25	-40.66
	5070	H	-41.54	-25	-16.54
	7605	H	-39.75	-25	-14.75
	10140	H	-37.53	-25	-12.53
	889.2700	V	-63.12	-25	-38.12
	5070	V	-40.25	-25	-15.25
	7605	V	-37.66	-25	-12.66
	10140	V	-36.44	-25	-11.44
Highest	149.3100	H	-62.35	-25	-37.35
	5120	H	-41.68	-25	-16.68
	7680	H	-40.04	-25	-15.04
	10240	H	-38.45	-25	-13.45
	544.1500	V	-68.50	-25	-43.50
	5120	V	-41.29	-25	-16.29
	7680	V	-36.98	-25	-11.98
	10240	V	-37.01	-25	-12.01

8. Frequency Stability

LTE Band 7 / 20M / QPSK / Full RB					
Middle channel, $f_o = 2535.0$ MHz					
Temperature (°C)	Power Supplied (Vdc)	Frequency Error (Hz)	Frequency Error (ppm)	Limit (dBm)	Result
-30	12	2.2	0.000868	±2.5	PASS
-20		-4.9	-0.001933	±2.5	PASS
-10		-3.1	-0.001223	±2.5	PASS
0		-1.9	-0.000750	±2.5	PASS
20		1.4	0.000552	±2.5	PASS
30		-2.3	-0.000907	±2.5	PASS
40		-1.3	-0.000513	±2.5	PASS
50		2.0	0.000789	±2.5	PASS
20		10.8	-1.1	-0.000434	±2.5
	52.8	-0.8	-0.000316	±2.5	PASS

---End---