Appendix Test Data for LTE band 17(Conducted Measurement)

Product Name: LEARNING CAMERA

Trade Mark:

Test Model: DEX-01

FCC ID: 2BOSD-DEX-01

Environmental Conditions

Temperature:	23.5℃
Relative Humidity:	58%
ATM Pressure:	100.0 kPa
Test Engineer:	Allen Lai
Supervised by:	Max Zhang
NOTE	N/A

Appendix A: RF output power

Test Result

Band	Bandwidth (MHz)	UL Frequency (MHz)	Modulation	RB Size	RB Offset	Average Power (dBm)	Peak Power (dBm)	PAR (dB)	Limit (dB)	AntGain (dBi)	EIRP (dBm)	Limit (dBm)	Conclusion
17	5	706.5	QPSK	25	LOW	22.34	28.96	6.62	13	-2.23	17.96	34.8	Pass
17	5	706.5	QPSK	12	LOW	22.18	28.59	6.41	13	-2.23	17.8	34.8	Pass
17	5	706.5	QPSK	12	MID	22.25	28.63	6.38	13	-2.23	17.87	34.8	Pass
17	5	706.5	QPSK	12	HIGH	22.27	28.46	6.19	13	-2.23	17.89	34.8	Pass
17	5	706.5	QPSK	1	LOW	23.05	28.63	5.58	13	-2.23	18.67	34.8	Pass
17	5	706.5	QPSK	1	MID	23.29	28.83	5.54	13	-2.23	18.91	34.8	Pass
17	5	706.5	QPSK	1	HIGH	23.11	28.62	5.51	13	-2.23	18.73	34.8	Pass
17	5	706.5	16QAM	25	LOW	21.28	28.64	7.36	13	-2.23	16.90	34.8	Pass
17	5	706.5	16QAM	12	LOW	21.25	28.38	7.13	13	-2.23	16.87	34.8	Pass
17	5	706.5	16QAM	12	MID	21.22	28.49	7.27	13	-2.23	16.84	34.8	Pass
17	5	706.5	16QAM	12	HIGH	21.28	28.65	7.37	13	-2.23	16.90	34.8	Pass
17	5	706.5	16QAM	1	LOW	22.19	28.64	6.45	13	-2.23	17.81	34.8	Pass
17	5	706.5	16QAM	1	MID	22.37	28.79	6.42	13	-2.23	17.99	34.8	Pass
17	5	706.5	16QAM	1	HIGH	22.22	28.59	6.37	13	-2.23	17.84	34.8	Pass
17	5	710	QPSK	25	LOW	22.2	28.72	6.52	13	-2.23	17.82	34.8	Pass
17	5	710	QPSK	12	LOW	22.17	28.31	6.14	13	-2.23	17.79	34.8	Pass
17	5	710	QPSK	12	MID	22.17	28.31	6.14	13	-2.23	17.79	34.8	Pass
17	5	710	QPSK	12	HIGH	22.29	28.37	6.08	13	-2.23	17.91	34.8	Pass
17	5	710	QPSK	1	LOW	23.1	29.22	6.12	13	-2.23	18.72	34.8	Pass
17	5	710	QPSK	1	MID	23.25	29.09	5.84	13	-2.23	18.87	34.8	Pass

Band	Bandwidth (MHz)	UL Frequency (MHz)	Modulation	RB Size	RB Offset	Average Power (dBm)	Peak Power (dBm)	PAR (dB)	Limit (dB)	AntGain (dBi)	EIRP (dBm)	Limit (dBm)	Conclusion
17	5	710	QPSK	1	HIGH	23.05	28.94	5.89	13	-2.23	18.67	34.8	Pass
17	5	710	16QAM	25	LOW	21.29	29	7.71	13	-2.23	16.91	34.8	Pass
17	5	710	16QAM	12	LOW	21.12	28.93	7.81	13	-2.23	16.74	34.8	Pass
17	5	710	16QAM	12	MID	21.13	29.03	7.90	13	-2.23	16.75	34.8	Pass
17	5	710	16QAM	12	HIGH	21.22	29.06	7.84	13	-2.23	16.84	34.8	Pass
17	5	710	16QAM	1	LOW	22	27.77	5.77	13	-2.23	17.62	34.8	Pass
17	5	710	16QAM	1	MID	22.18	27.86	5.68	13	-2.23	17.8	34.8	Pass
17	5	710	16QAM	1	HIGH	21.96	27.68	5.72	13	-2.23	17.58	34.8	Pass
17	5	713.5	QPSK	25	LOW	22.19	28.91	6.72	13	-2.23	17.81	34.8	Pass
17	5	713.5	QPSK	12	LOW	22.24	28.8	6.56	13	-2.23	17.86	34.8	Pass
17	5	713.5	QPSK	12	MID	22.3	28.86	6.56	13	-2.23	17.92	34.8	Pass
17	5	713.5	QPSK	12	HIGH	22.08	28.67	6.59	13	-2.23	17.7	34.8	Pass
17	5	713.5	QPSK	1	LOW	23.06	28.5	5.44	13	-2.23	18.68	34.8	Pass
17	5	713.5	QPSK	1	MID	23.23	28.71	5.48	13	-2.23	18.85	34.8	Pass
17	5	713.5	QPSK	1	HIGH	23.09	27.99	4.90	13	-2.23	18.71	34.8	Pass
17	5	713.5	16QAM	25	LOW	21.27	28.57	7.30	13	-2.23	16.89	34.8	Pass
17	5	713.5	16QAM	12	LOW	21.3	28.39	7.09	13	-2.23	16.92	34.8	Pass
17	5	713.5	16QAM	12	MID	21.3	28.34	7.04	13	-2.23	16.92	34.8	Pass
17	5	713.5	16QAM	12	HIGH	21.16	28.23	7.07	13	-2.23	16.78	34.8	Pass
17	5	713.5	16QAM	1	LOW	22.42	28.29	5.87	13	-2.23	18.04	34.8	Pass
17	5	713.5	16QAM	1	MID	22.54	28.45	5.91	13	-2.23	18.16	34.8	Pass
17	5	713.5	16QAM	1	HIGH	22.45	27.92	5.47	13	-2.23	18.07	34.8	Pass
17	10	709	QPSK	50	LOW	22.25	28.88	6.63	13	-2.23	17.87	34.8	Pass
17	10	709	QPSK	25	LOW	22.25	28.99	6.74	13	-2.23	17.87	34.8	Pass
17	10	709	QPSK	25	MID	22.26	29.08	6.82	13	-2.23	17.88	34.8	Pass
17	10	709	QPSK	25	HIGH	22.21	28.87	6.66	13	-2.23	17.83	34.8	Pass
17	10	709	QPSK	1	LOW	23.11	28.36	5.25	13	-2.23	18.73	34.8	Pass
17	10	709	QPSK	1	MID	23.27	28.43	5.16	13	-2.23	18.89	34.8	Pass
17	10	709	QPSK	1	HIGH	23.09	28.27	5.18	13	-2.23	18.71	34.8	Pass
17	10	709	16QAM	50	LOW	21.31	29.1	7.79	13	-2.23	16.93	34.8	Pass
17	10	709	16QAM	25	LOW	21.4	29.07	7.67	13	-2.23	17.02	34.8	Pass
17	10	709	16QAM	25	MID	21.35	29	7.65	13	-2.23	16.97	34.8	Pass
17	10	709	16QAM	25	HIGH	21.34	28.93	7.59	13	-2.23	16.96	34.8	Pass
17	10	709	16QAM	1	LOW	22.76	29.34	6.58	13	-2.23	18.38	34.8	Pass
17	10	709	16QAM	1	MID	22.94	29.25	6.31	13	-2.23	18.56	34.8	Pass
17	10	709	16QAM	1	HIGH	22.78	29.06	6.28	13	-2.23	18.40	34.8	Pass
17	10	710	QPSK	50	LOW	22.12	28.71	6.59	13	-2.23	17.74	34.8	Pass
17	10	710	QPSK	25	LOW	22.16	28.78	6.62	13	-2.23	17.78	34.8	Pass
17	10	710	QPSK	25	MID	22.17	28.62	6.45	13	-2.23	17.79	34.8	Pass
17	10	710	QPSK	25	HIGH	22.12	28.49	6.37	13	-2.23	17.74	34.8	Pass
17	10	710	QPSK	1	LOW	23.13	28.86	5.73	13	-2.23	18.75	34.8	Pass

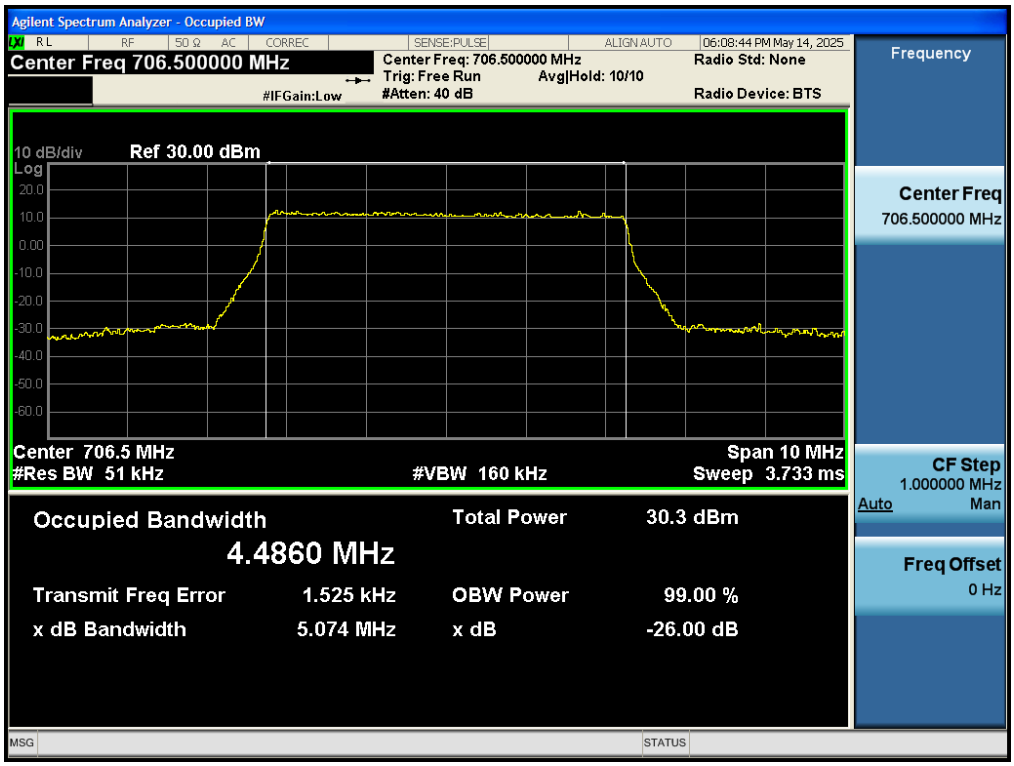
Band	Bandwidth (MHz)	UL Frequency (MHz)	Modulation	RB Size	RB Offset	Average Power (dBm)	Peak Power (dBm)	PAR (dB)	Limit (dB)	AntGain (dBi)	EIRP (dBm)	Limit (dBm)	Conclusion
17	10	710	QPSK	1	MID	23.29	28.79	5.5	13	-2.23	18.91	34.8	Pass
17	10	710	QPSK	1	HIGH	23.16	28.66	5.5	13	-2.23	18.78	34.8	Pass
17	10	710	16QAM	50	LOW	21.19	28.39	7.20	13	-2.23	16.81	34.8	Pass
17	10	710	16QAM	25	LOW	21.23	29.13	7.90	13	-2.23	16.85	34.8	Pass
17	10	710	16QAM	25	MID	21.24	29	7.76	13	-2.23	16.86	34.8	Pass
17	10	710	16QAM	25	HIGH	21.2	28.92	7.72	13	-2.23	16.82	34.8	Pass
17	10	710	16QAM	1	LOW	22.29	27.54	5.25	13	-2.23	17.91	34.8	Pass
17	10	710	16QAM	1	MID	22.52	27.68	5.16	13	-2.23	18.14	34.8	Pass
17	10	710	16QAM	1	HIGH	22.32	27.56	5.24	13	-2.23	17.94	34.8	Pass
17	10	711	QPSK	50	LOW	22.13	28.21	6.08	13	-2.23	17.75	34.8	Pass
17	10	711	QPSK	25	LOW	22.14	28.99	6.85	13	-2.23	17.76	34.8	Pass
17	10	711	QPSK	25	MID	22.15	28.99	6.84	13	-2.23	17.77	34.8	Pass
17	10	711	QPSK	25	HIGH	22.02	28.94	6.92	13	-2.23	17.64	34.8	Pass
17	10	711	QPSK	1	LOW	23.12	28.33	5.21	13	-2.23	18.74	34.8	Pass
17	10	711	QPSK	1	MID	23.26	28.28	5.02	13	-2.23	18.88	34.8	Pass
17	10	711	QPSK	1	HIGH	23.16	27.96	4.80	13	-2.23	18.78	34.8	Pass
17	10	711	16QAM	50	LOW	21.16	28.74	7.58	13	-2.23	16.78	34.8	Pass
17	10	711	16QAM	25	LOW	21.26	28.93	7.67	13	-2.23	16.88	34.8	Pass
17	10	711	16QAM	25	MID	21.32	28.97	7.65	13	-2.23	16.94	34.8	Pass
17	10	711	16QAM	25	HIGH	21.13	28.59	7.46	13	-2.23	16.75	34.8	Pass
17	10	711	16QAM	1	LOW	22.22	27.89	5.67	13	-2.23	17.84	34.8	Pass
17	10	711	16QAM	1	MID	22.35	27.92	5.57	13	-2.23	17.97	34.8	Pass
17	10	711	16QAM	1	HIGH	22.23	27.71	5.48	13	-2.23	17.85	34.8	Pass

Appendix B: Occupied bandwidth

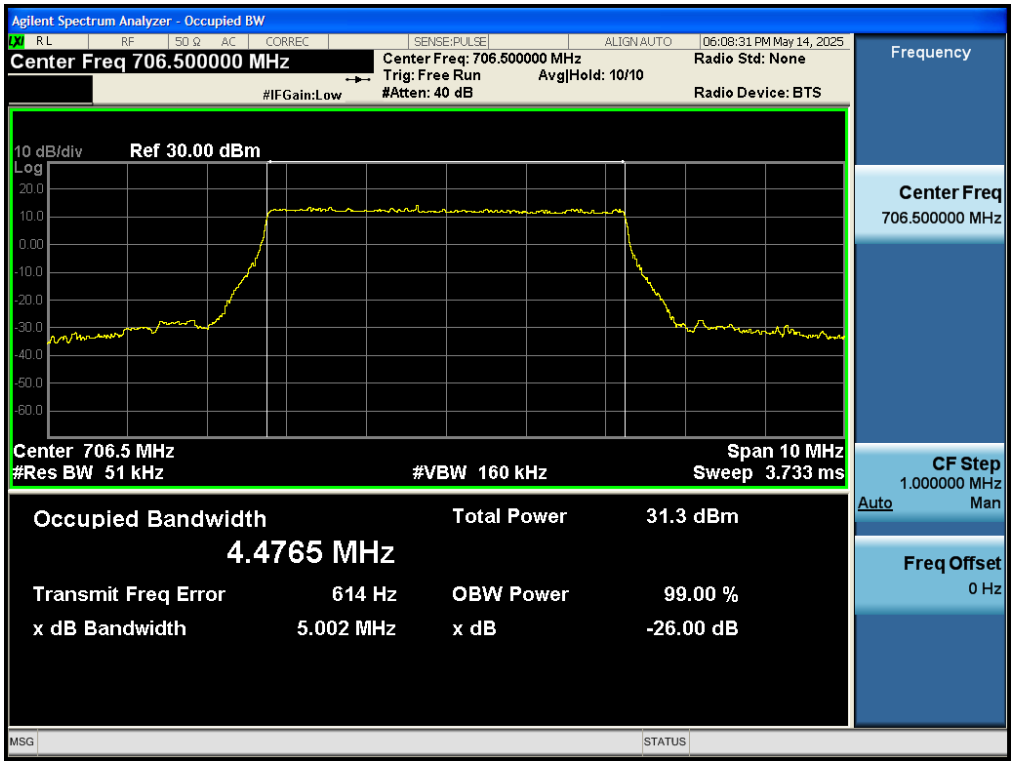
Test Result

Band	Bandwidth (MHz)	UL Frequency (MHz)	Modulation	RB Size	RB Offset	Occupied Bandwidth (MHz)	Emission Bandwidth (MHz)	Limit
17	5	706.5	QPSK	25	LOW	4.476	5.002	No limit
17	5	706.5	16QAM	25	LOW	4.486	5.074	No limit
17	5	710	QPSK	25	LOW	4.496	5.152	No limit
17	5	710	16QAM	25	LOW	4.481	4.994	No limit
17	5	713.5	QPSK	25	LOW	4.488	5.007	No limit
17	5	713.5	16QAM	25	LOW	4.477	4.995	No limit
17	10	709	QPSK	50	LOW	8.974	9.89	No limit
17	10	709	16QAM	50	LOW	8.97	9.926	No limit
17	10	710	QPSK	50	LOW	8.979	9.919	No limit
17	10	710	16QAM	50	LOW	8.965	9.726	No limit
17	10	711	QPSK	50	LOW	8.946	9.833	No limit
17	10	711	16QAM	50	LOW	8.967	9.795	No limit

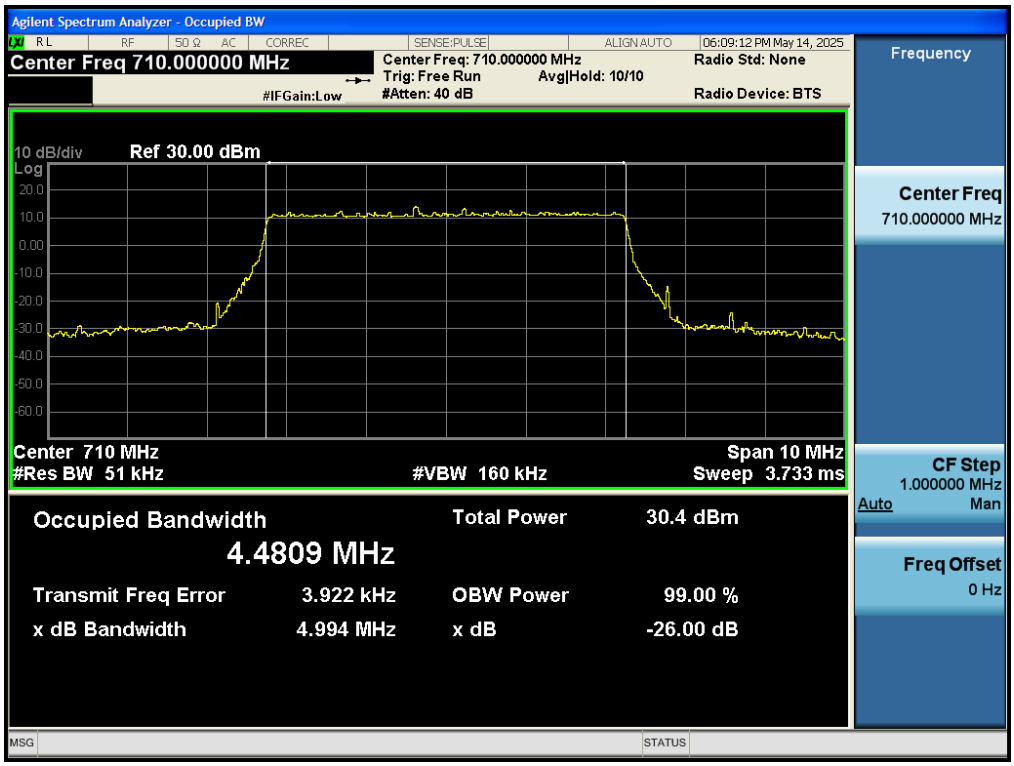
Test Graphs



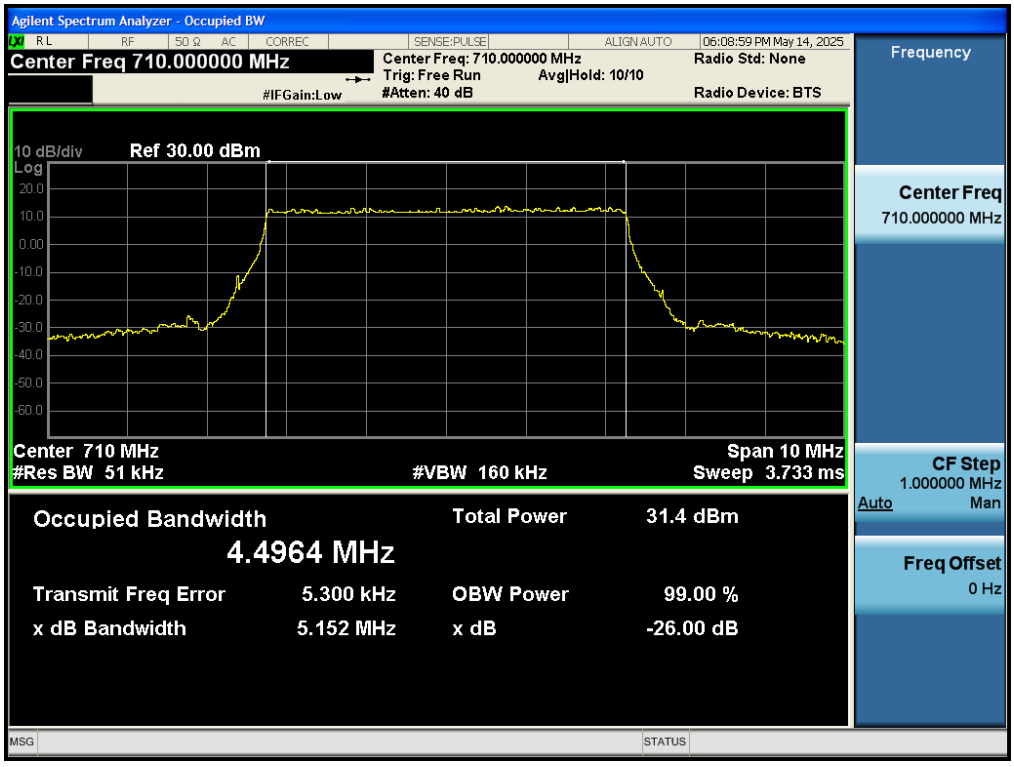
Test_Graph_band17_706.5MHz_5M_16QAM_25RB#LOW_OBW&EBW



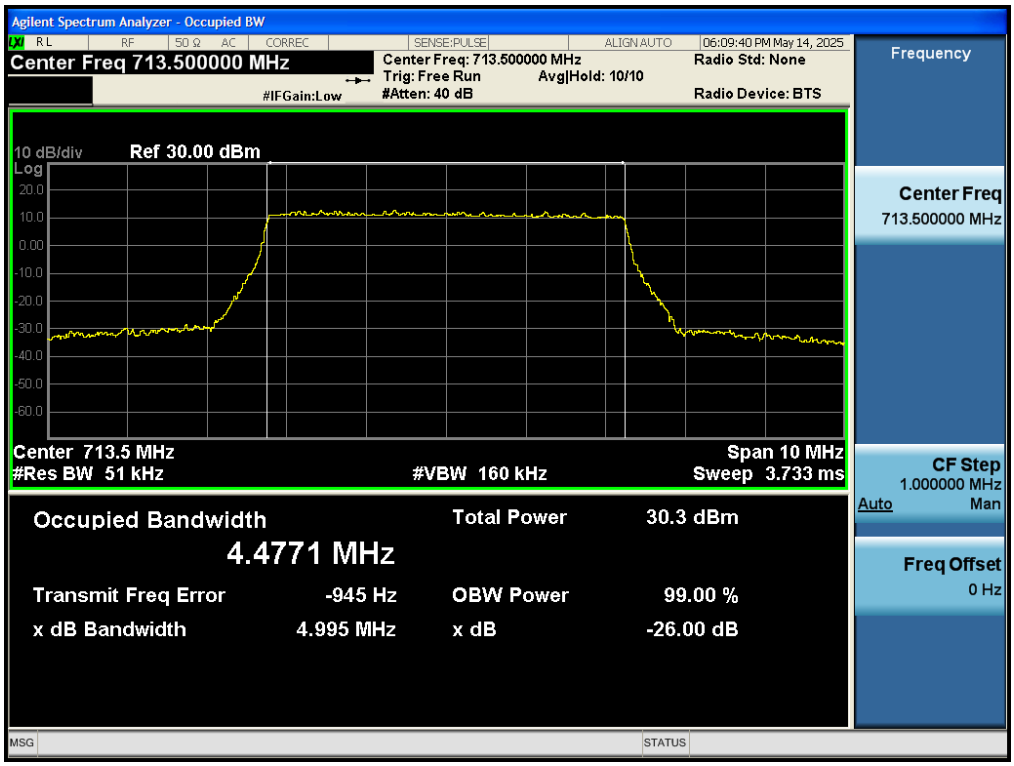
Test_Graph_band17_706.5MHz_5M_QPSK_25RB#LOW_OBW&EBW



Test_Graph_band17_710MHz_5M_16QAM_25RB#LOW_OBW&EBW



Test_Graph_band17_710MHz_5M_QPSK_25RB#LOW_OBW&EBW



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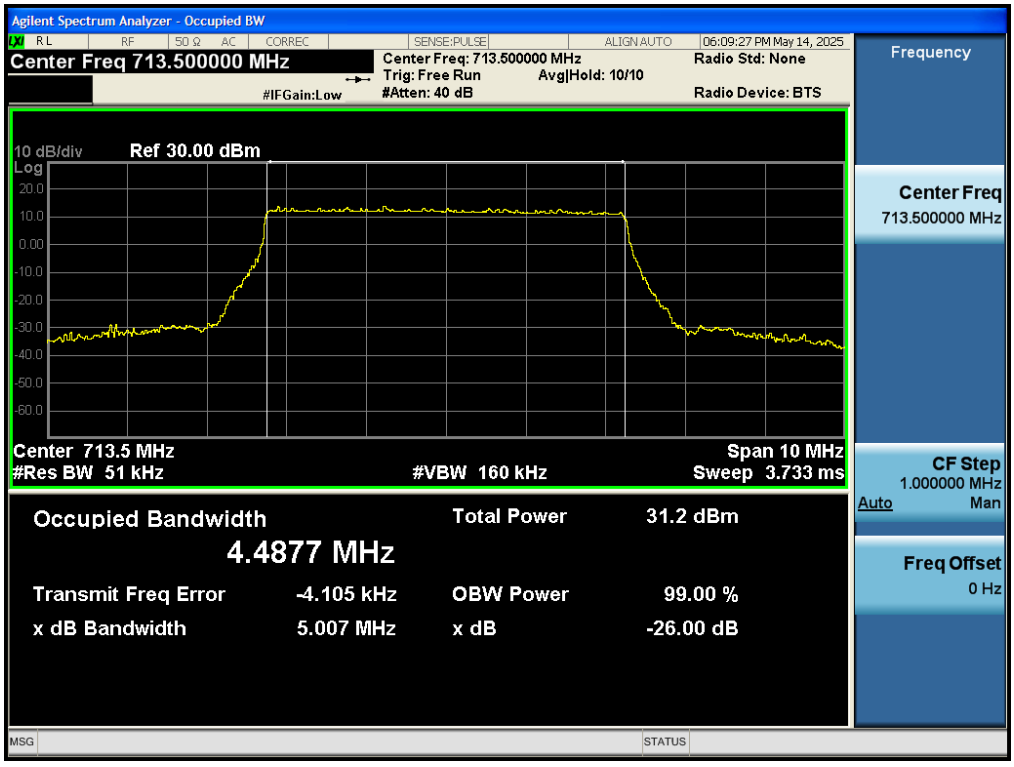
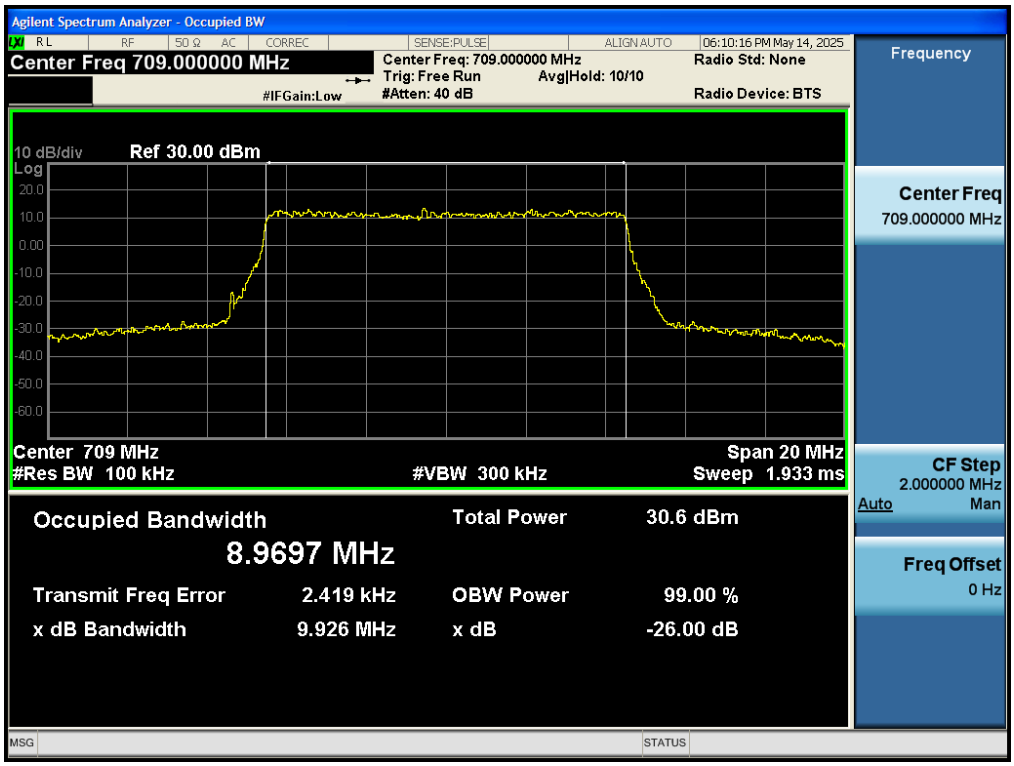
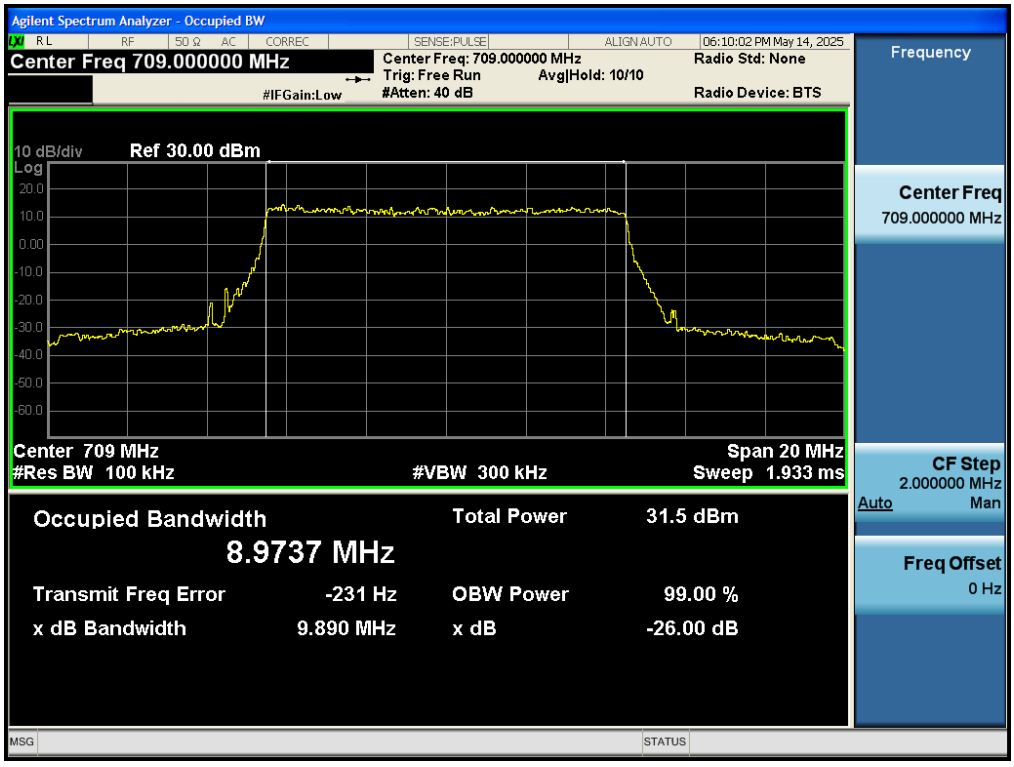


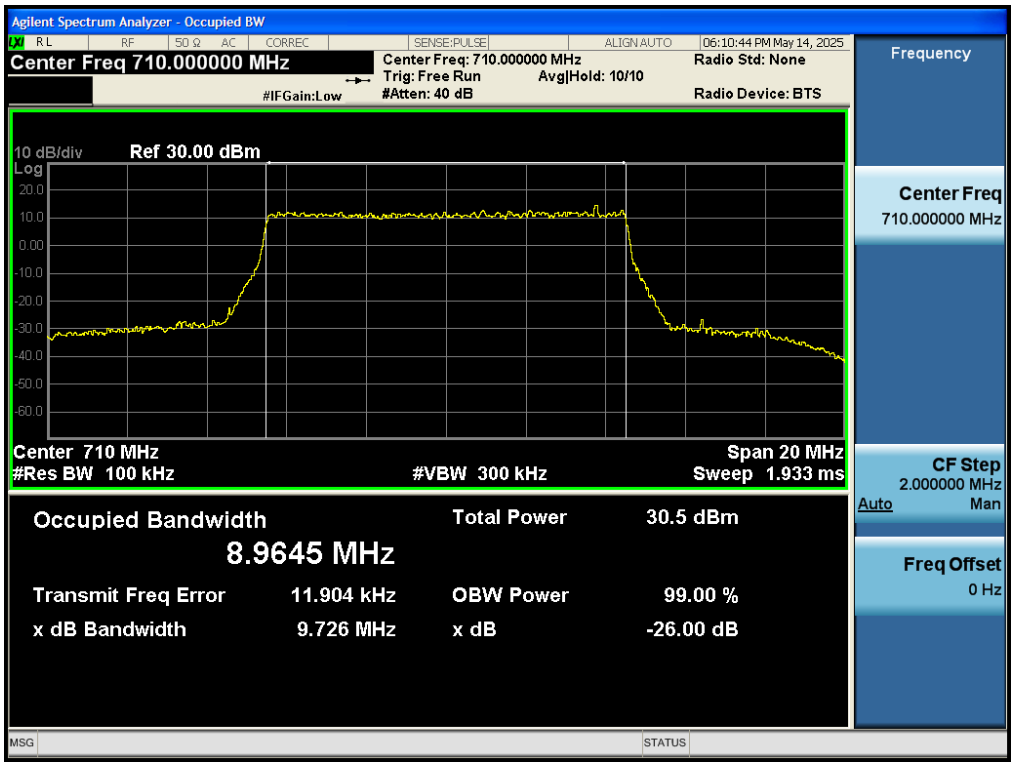
Test_Graph_band17_713.5MHz_5M_QPSK_25RB#LOW_OBW&EBW



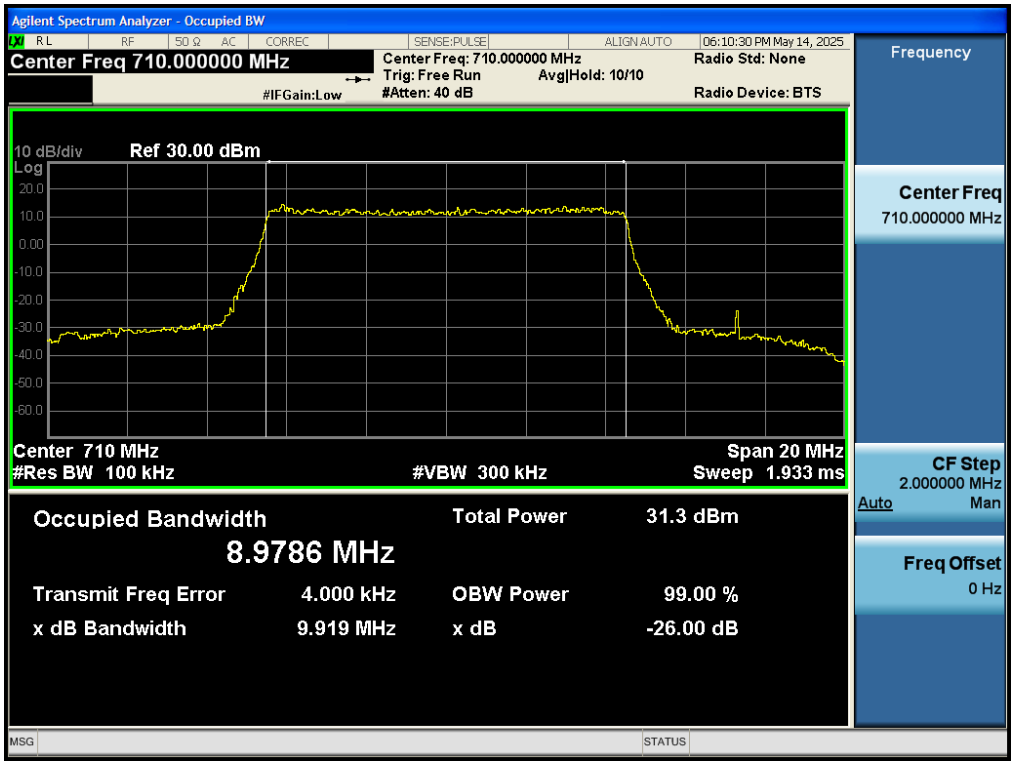
Test_Graph_band17_709MHz_10M_16QAM_50RB#LOW_OBW&EBW



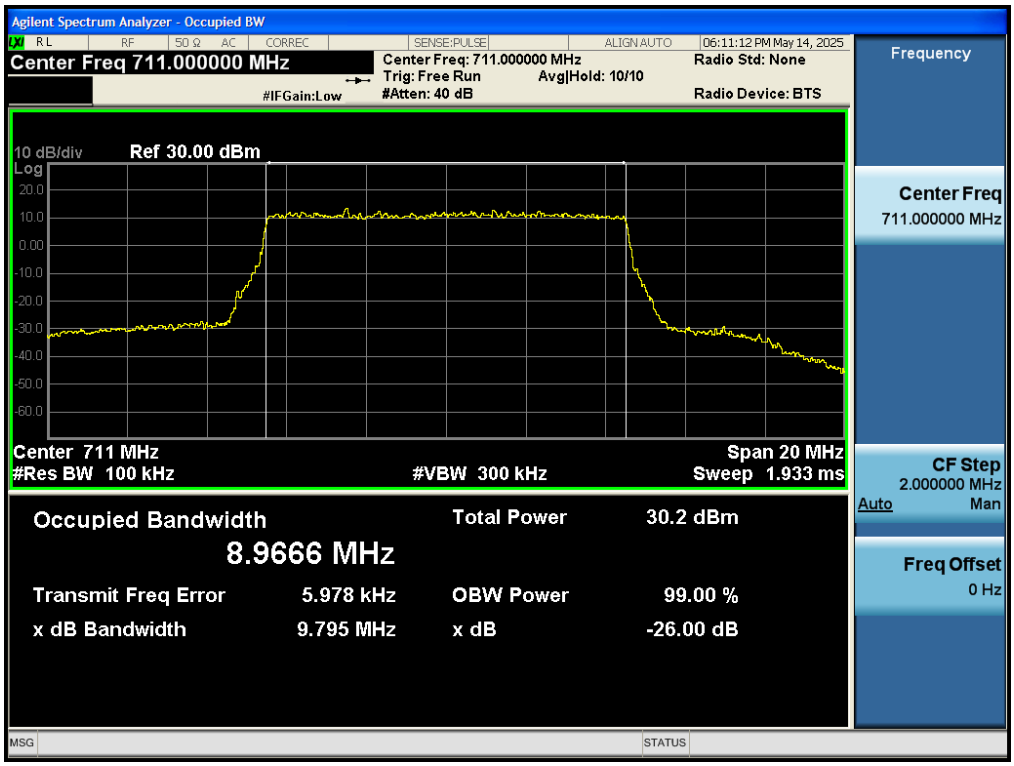
Test_Graph_band17_709MHz_10M_QPSK_50RB#LOW_OBW&EBW



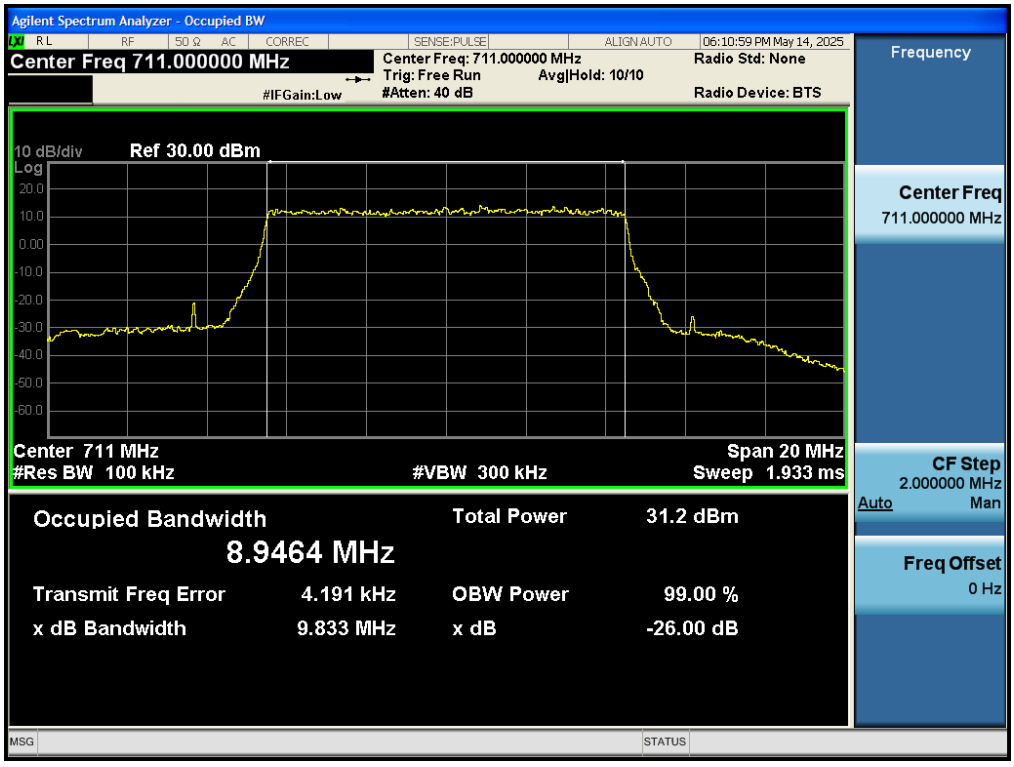
Test_Graph_band17_710MHz_10M_16QAM_50RB#LOW_OBW&EBW



Test_Graph_band17_710MHz_10M_QPSK_50RB#LOW_OBW&EBW



Test_Graph_band17_711MHz_10M_16QAM_50RB#LOW_OBW&EBW



Test_Graph_band17_711MHz_10M_QPSK_50RB#LOW_OBW&EBW

Appendix C: Band edge emissions

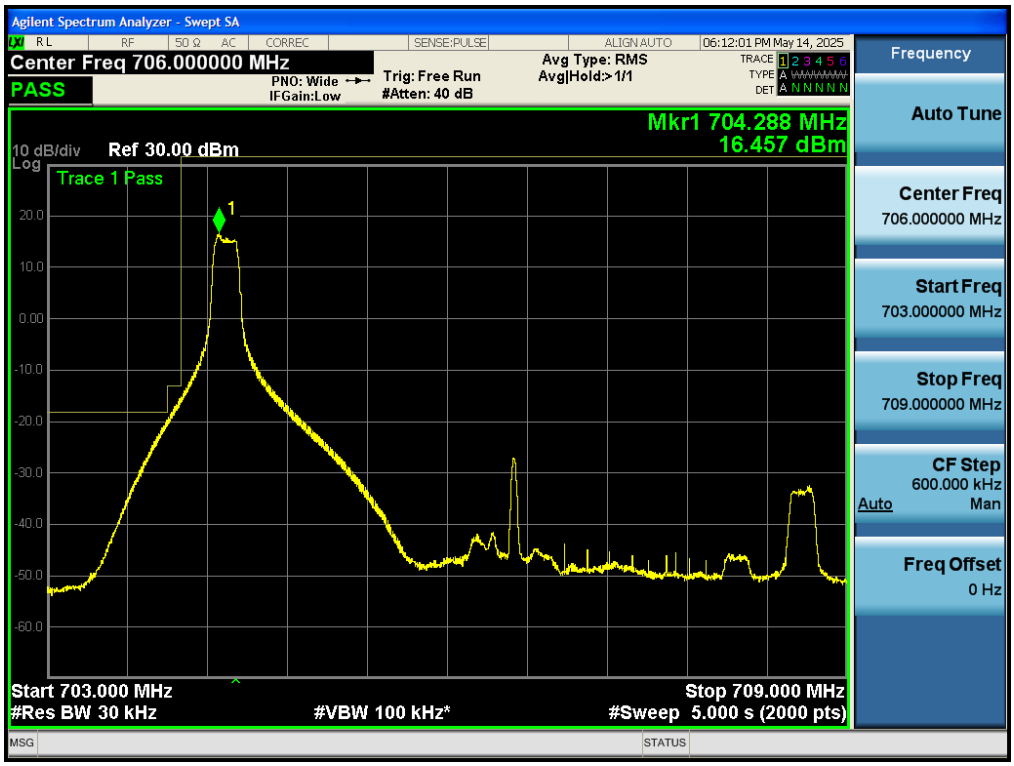
Test Result

Band	Bandwidth (MHz)	UL Frequency (MHz)	Modulation	RB Size	RB Offset	Conclusion
17	5	706.5	QPSK	1	LOW	Pass
17	5	706.5	QPSK	25	LOW	Pass
17	5	706.5	16QAM	1	LOW	Pass
17	5	706.5	16QAM	25	LOW	Pass
17	5	713.5	QPSK	1	HIGH	Pass
17	5	713.5	QPSK	25	LOW	Pass
17	5	713.5	16QAM	1	HIGH	Pass
17	5	713.5	16QAM	25	LOW	Pass
17	10	709	QPSK	1	LOW	Pass
17	10	709	QPSK	50	LOW	Pass
17	10	709	16QAM	1	LOW	Pass
17	10	709	16QAM	50	LOW	Pass
17	10	711	QPSK	1	LOW	Pass
17	10	711	QPSK	50	LOW	Pass
17	10	711	16QAM	1	LOW	Pass
17	10	711	16QAM	50	LOW	Pass

Test Graphs

Test_Graph_band17_706.5MHz_5M_16QAM_1RB#LOW_Band edge

Test_Graph_band17_706.5MHz_5M_16QAM_25RB#LOW_Band edge



Test_Graph_band17_706.5MHz_5M_QPSK_1RB#LOW_Band edge

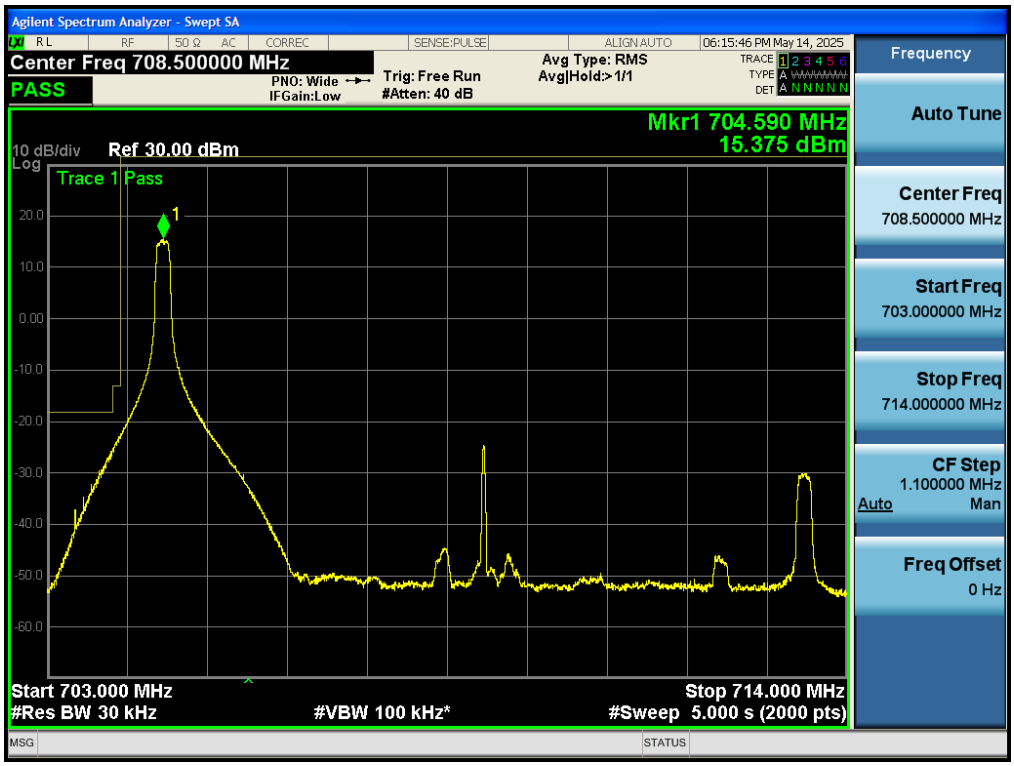
Test_Graph_band17_706.5MHz_5M_QPSK_25RB#LOW_Band edge

Test_Graph_band17_713.5MHz_5M_16QAM_1RB#HIGH_Band edge

Test_Graph_band17_713.5MHz_5M_16QAM_25RB#LOW_Band edge

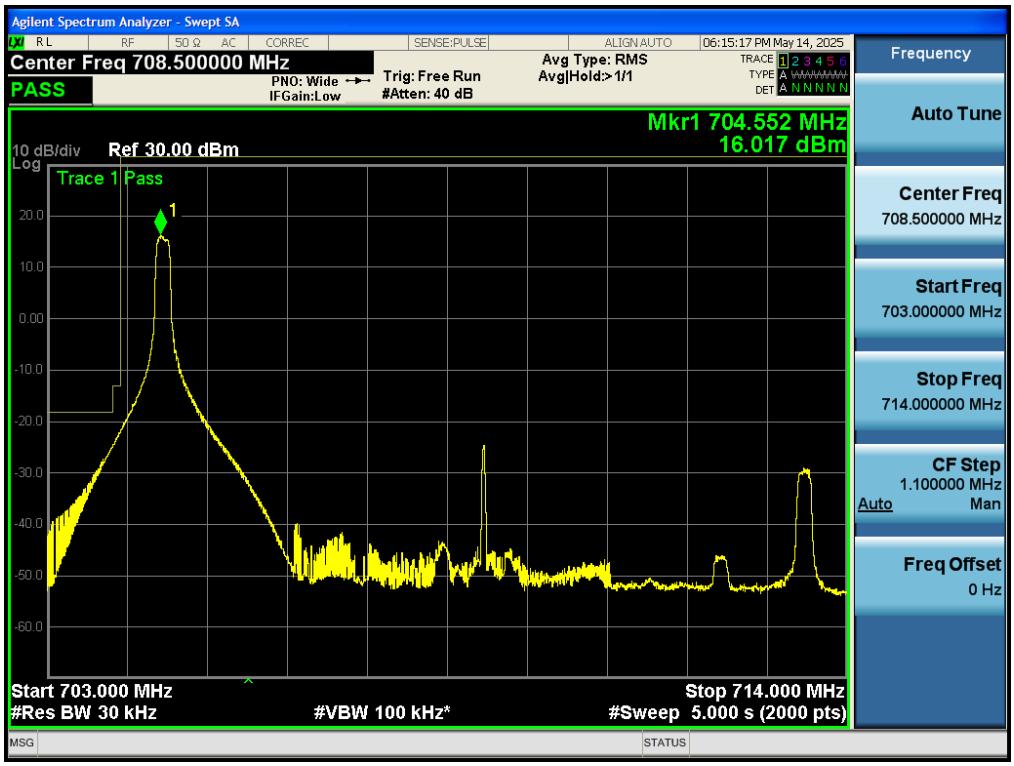
Test_Graph_band17_713.5MHz_5M_QPSK_1RB#HIGH_Band edge

Test_Graph_band17_713.5MHz_5M_QPSK_25RB#LOW_Band edge



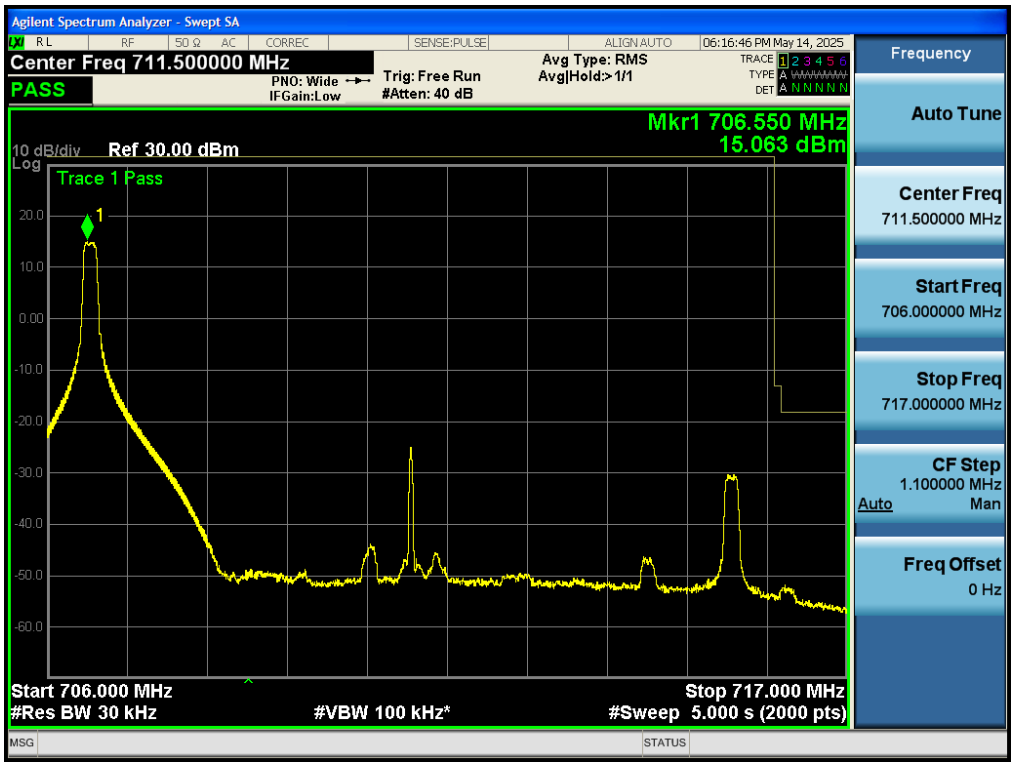
Test_Graph_band17_709MHz_10M_16QAM_1RB#LOW_Band edge

Test_Graph_band17_709MHz_10M_16QAM_50RB#LOW_Band edge



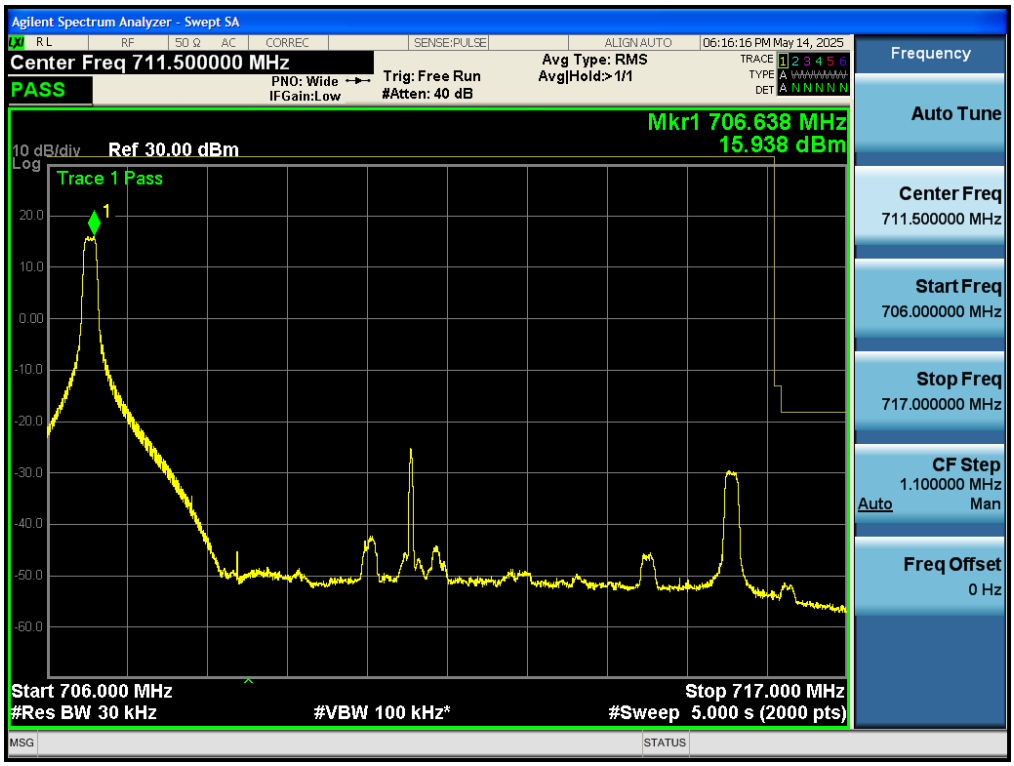
Test_Graph_band17_709MHz_10M_QPSK_1RB#LOW_Band edge

Test_Graph_band17_709MHz_10M_QPSK_50RB#LOW_Band edge

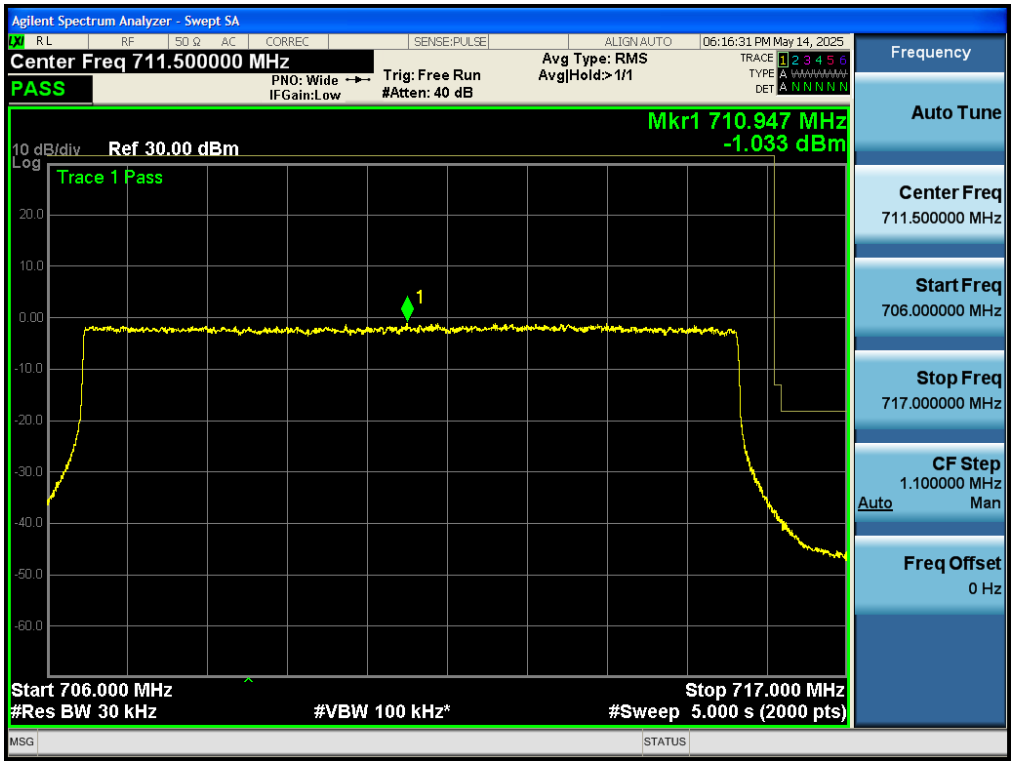


Test_Graph_band17_711MHz_10M_16QAM_1RB#LOW_Band edge

Test_Graph_band17_711MHz_10M_16QAM_50RB#LOW_Band edge



Test_Graph_band17_711MHz_10M_QPSK_1RB#LOW_Band edge



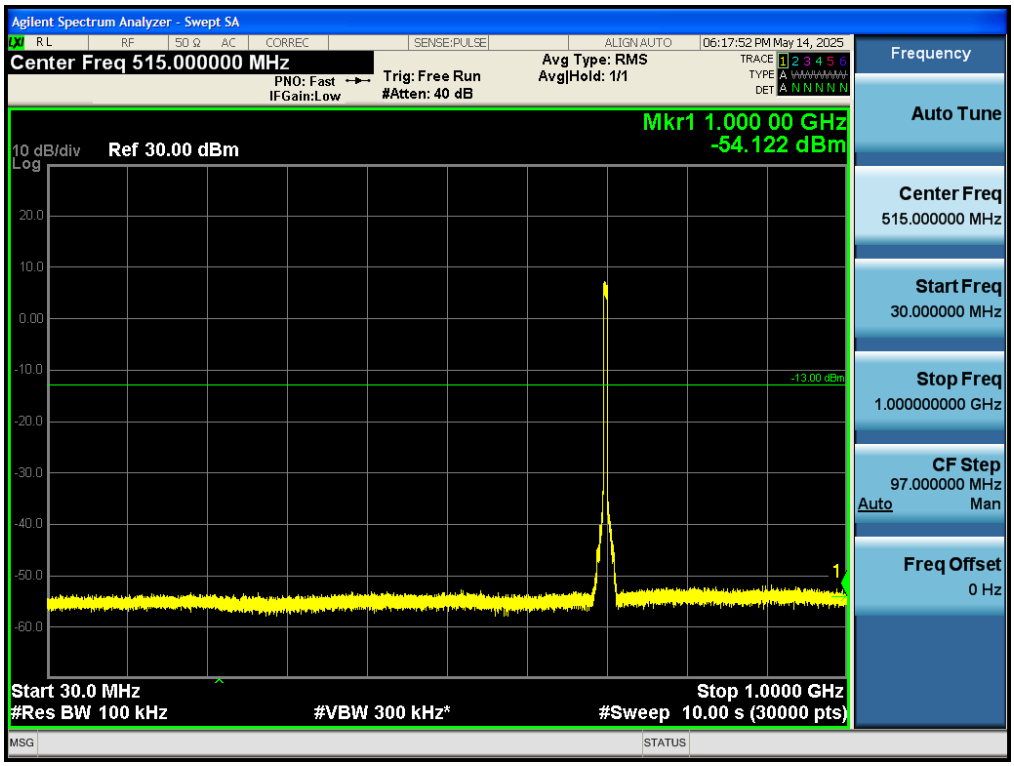
Test_Graph_band17_711MHz_10M_QPSK_50RB#LOW_Band edge

Appendix D: Unwanted spurious emissions at antenna terminals

Test Result

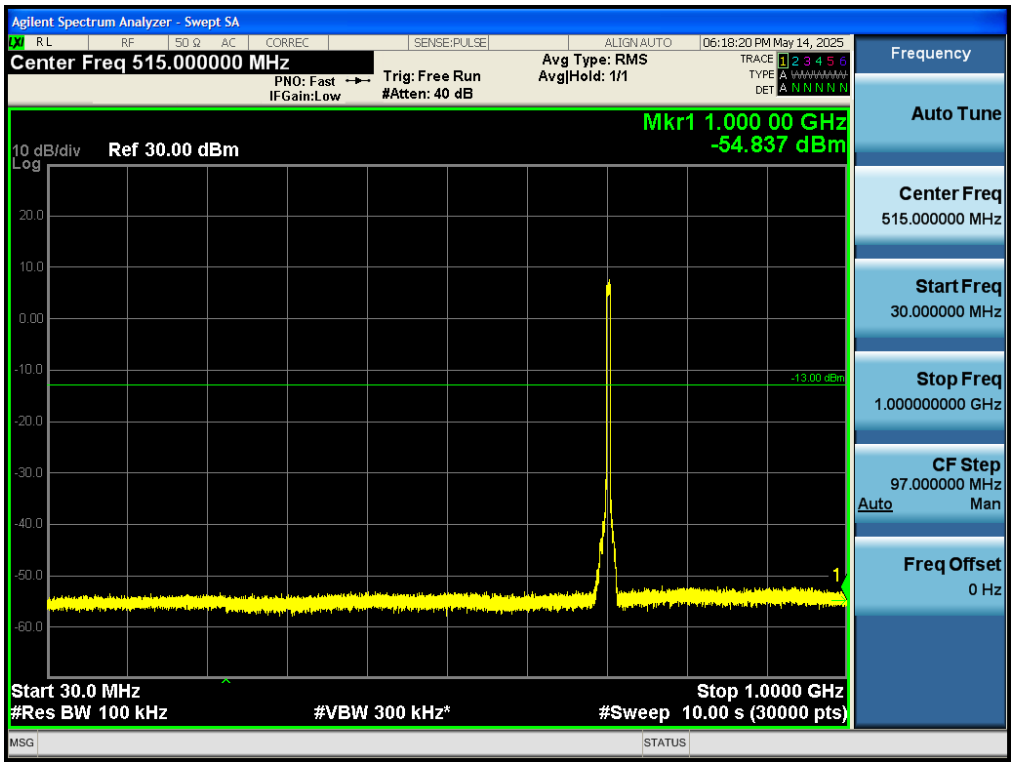
Band	Bandwidth (MHz)	UL Frequency (MHz)	Modulation	RB Size	RB Offset	Conclusion
17	5	706.5	QPSK	25	LOW	Pass
17	5	710	QPSK	25	LOW	Pass
17	5	713.5	QPSK	25	LOW	Pass
17	10	709	QPSK	50	LOW	Pass
17	10	710	QPSK	50	LOW	Pass
17	10	711	QPSK	50	LOW	Pass

Test Graphs



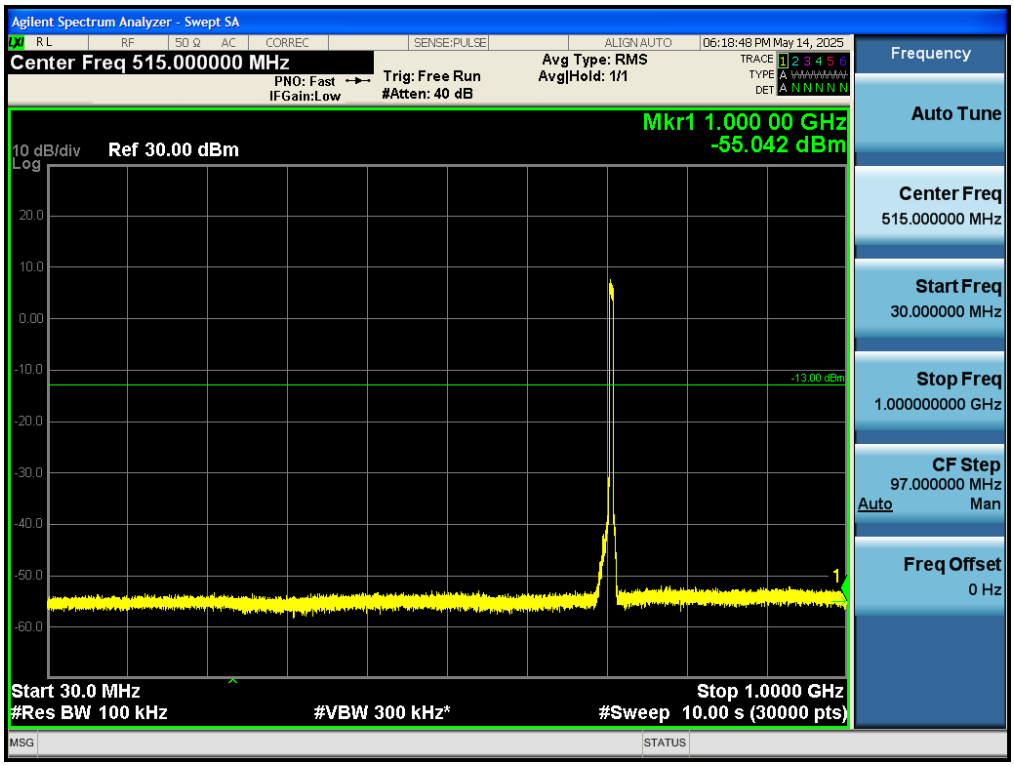
Test_Graph_band17_706.5MHz_5M_QPSK_25RB#LOW_30M_1G_TX

Test_Graph_band17_706.5MHz_5M_QPSK_25RB#LOW_1G_10G_TX



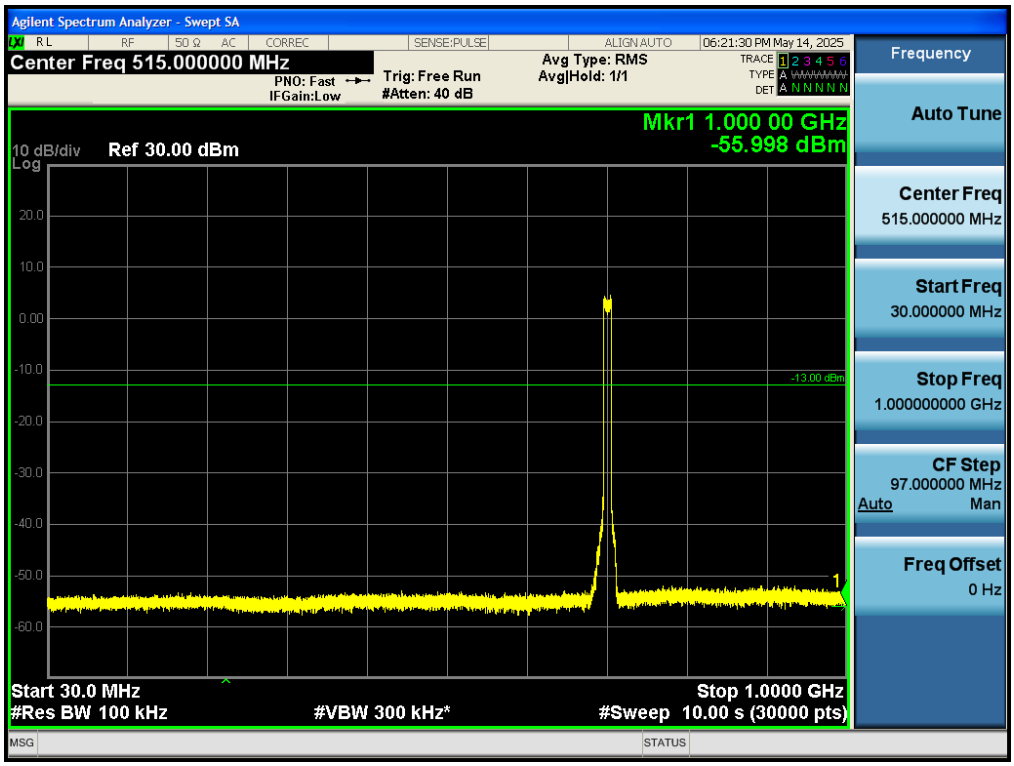
Test_Graph_band17_710MHz_5M_QPSK_25RB#LOW_30M_1G_TX

Test_Graph_band17_710MHz_5M_QPSK_25RB#LOW_1G_10G_TX



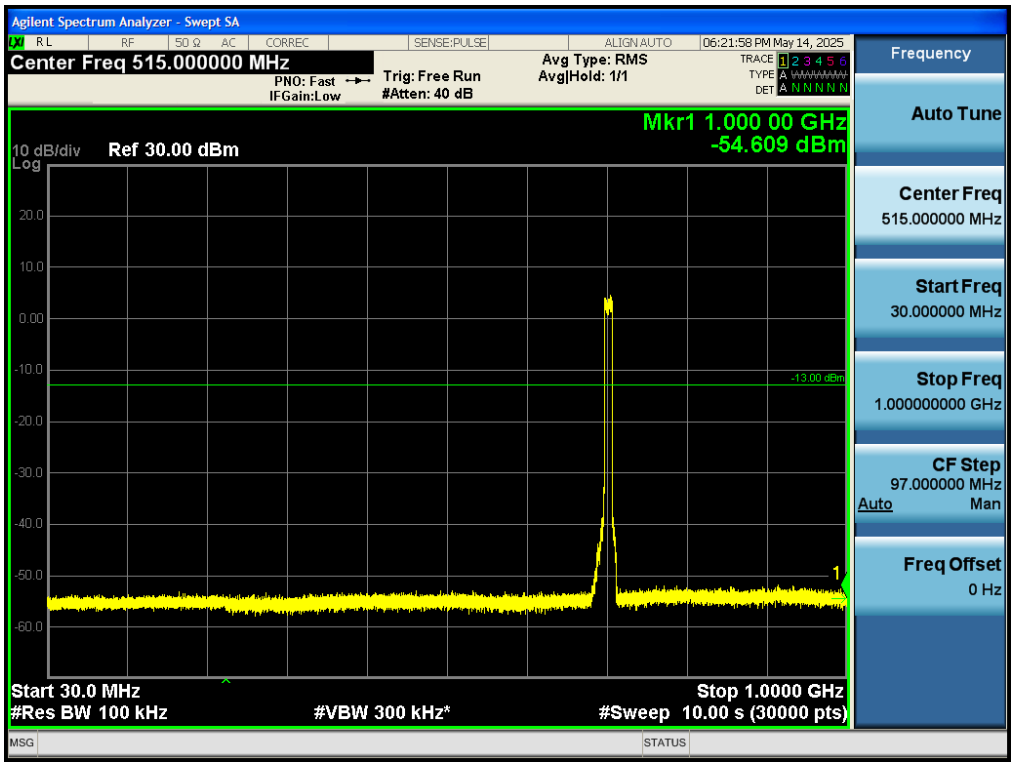
Test_Graph_band17_713.5MHz_5M_QPSK_25RB#LOW_30M_1G_TX

Test_Graph_band17_713.5MHz_5M_QPSK_25RB#LOW_1G_10G_TX



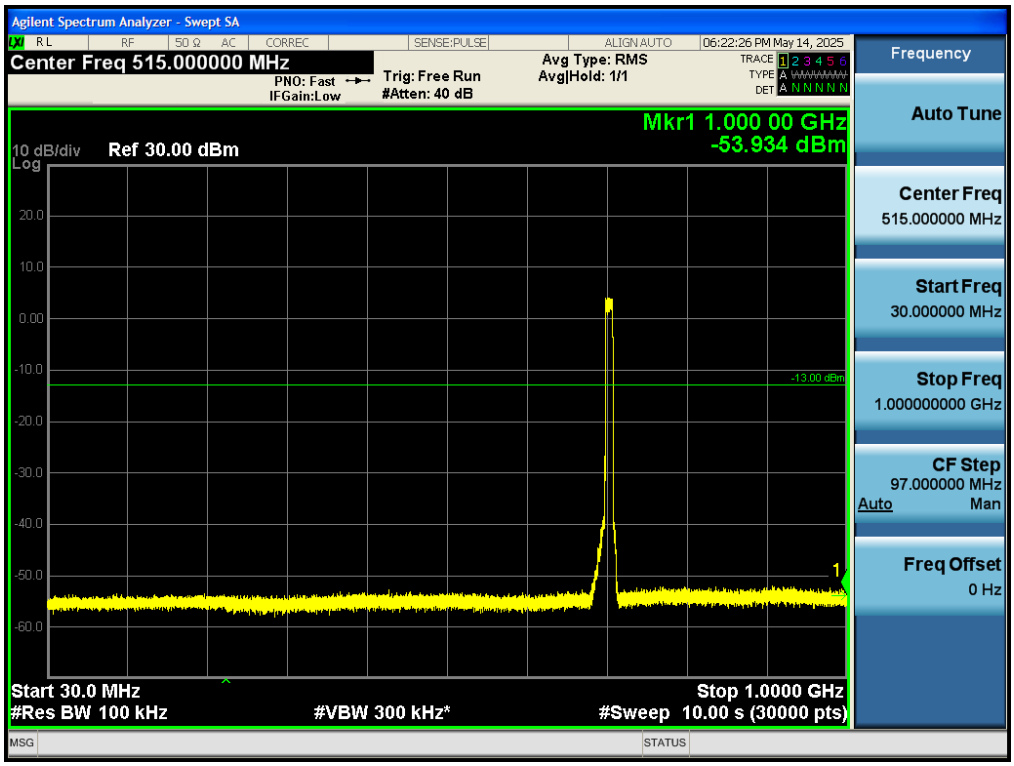
Test_Graph_band17_709MHz_10M_QPSK_50RB#LOW_30M_1G_TX

Test_Graph_band17_709MHz_10M_QPSK_50RB#LOW_1G_10G_TX



Test_Graph_band17_710MHz_10M_QPSK_50RB#LOW_30M_1G_TX

Test_Graph_band17_710MHz_10M_QPSK_50RB#LOW_1G_10G_TX



Test_Graph_band17_711MHz_10M_QPSK_50RB#LOW_30M_1G_TX

Test_Graph_band17_711MHz_10M_QPSK_50RB#LOW_1G_10G_TX

Appendix E: Frequency stability

Test Result

Test Conditions (LTE Band 17(QPSK) /BW 10MHz)		Frequency Range		Frequency Error	Verdict
Temperature (°C)	Voltage (Volt)	>704 Freq Reading @ Low End (MHz)	<716 Freq Reading @ High End (MHz)	Middle Channel ≤2.5ppm	
50	Normal Voltage	704.5064	715.4851	0.0065	PASS
40	Normal Voltage	704.5065	715.4853	0.0069	
30	Normal Voltage	704.5065	715.4853	0.0066	
20(Ref.)	Normal Voltage	704.5064	715.4852	0.0062	
10	Normal Voltage	704.5064	715.4853	0.0060	
0	Normal Voltage	704.5064	715.4852	0.0065	
-10	Normal Voltage	704.5064	715.4853	0.0069	
-20	Normal Voltage	704.5064	715.4851	0.0061	
-30	Normal Voltage	704.5064	715.4853	0.0062	
20	+15%	704.5065	715.4852	0.0064	
20	-15%	704.5065	715.4852	0.0061	
20	Battery End Point	704.5065	715.4851	0.0066	