

Appendix Test Data for LTE band 13(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
13	5	779.5	QPSK	25	LOW	21.81	28.35	6.54	13	-1.77	17.89	34.8	Pass
13	5	779.5	QPSK	12	LOW	21.78	28.09	6.31	13	-1.77	17.86	34.8	Pass
13	5	779.5	QPSK	12	MID	21.78	28	6.22	13	-1.77	17.86	34.8	Pass
13	5	779.5	QPSK	12	HIGH	21.92	28.34	6.42	13	-1.77	18.00	34.8	Pass
13	5	779.5	QPSK	1	LOW	22.58	27.91	5.33	13	-1.77	18.66	34.8	Pass
13	5	779.5	QPSK	1	MID	22.75	28.39	5.64	13	-1.77	18.83	34.8	Pass
13	5	779.5	QPSK	1	HIGH	22.54	27.8	5.26	13	-1.77	18.62	34.8	Pass
13	5	779.5	16QAM	25	LOW	20.86	28.55	7.69	13	-1.77	16.94	34.8	Pass
13	5	779.5	16QAM	12	LOW	20.8	28.19	7.39	13	-1.77	16.88	34.8	Pass
13	5	779.5	16QAM	12	MID	20.77	28.27	7.5	13	-1.77	16.85	34.8	Pass
13	5	779.5	16QAM	12	HIGH	20.83	27.99	7.16	13	-1.77	16.91	34.8	Pass
13	5	779.5	16QAM	1	LOW	21.72	27.91	6.19	13	-1.77	17.8	34.8	Pass
13	5	779.5	16QAM	1	MID	21.86	28.38	6.52	13	-1.77	17.94	34.8	Pass
13	5	779.5	16QAM	1	HIGH	21.73	27.82	6.09	13	-1.77	17.81	34.8	Pass
13	5	782	QPSK	25	LOW	21.64	27.99	6.35	13	-1.77	17.72	34.8	Pass
13	5	782	QPSK	12	LOW	21.53	27.73	6.20	13	-1.77	17.61	34.8	Pass
13	5	782	QPSK	12	MID	21.51	27.68	6.17	13	-1.77	17.59	34.8	Pass
13	5	782	QPSK	12	HIGH	21.77	27.71	5.94	13	-1.77	17.85	34.8	Pass
13	5	782	QPSK	1	LOW	22.57	28.93	6.36	13	-1.77	18.65	34.8	Pass
13	5	782	QPSK	1	MID	22.65	28.27	5.62	13	-1.77	18.73	34.8	Pass

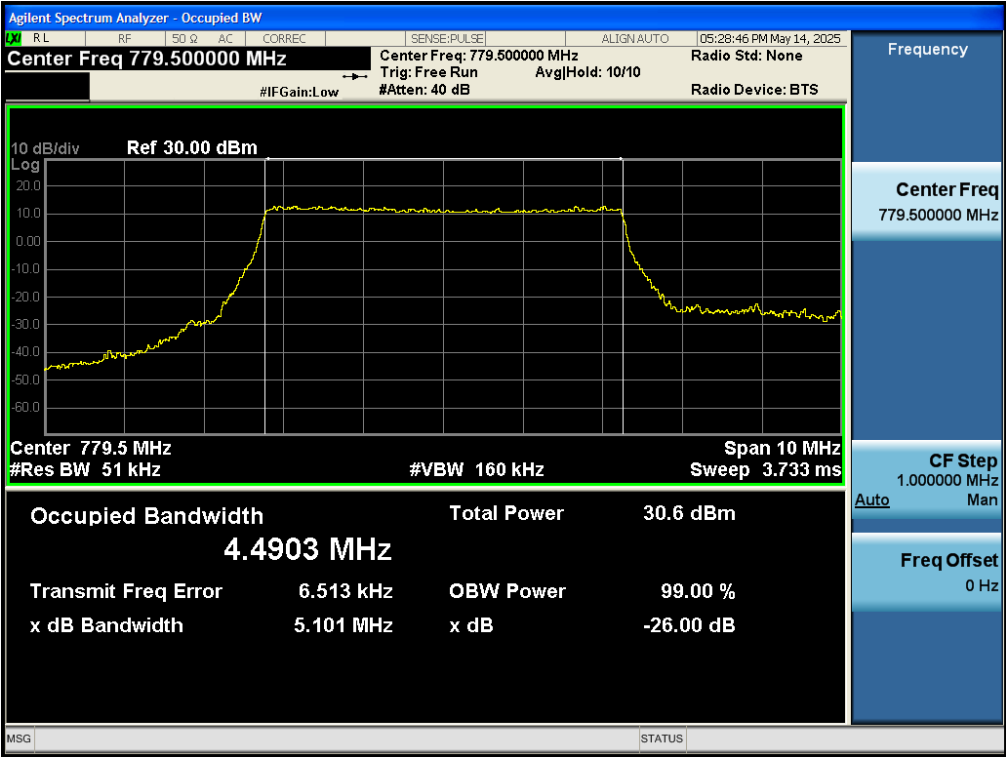
Band	Bandwidth (MHz)	UL Frequency (MHz)	Modulation	RB Size	RB Offset	Average Power (dBm)	Peak Power (dBm)	PAR (dB)	Limit (dB)	AntGain (dBi)	EIRP (dBm)	Limit (dBm)	Conclusion
13	5	782	QPSK	1	HIGH	22.53	28.36	5.83	13	-1.77	18.61	34.8	Pass
13	5	782	16QAM	25	LOW	20.75	28.08	7.33	13	-1.77	16.83	34.8	Pass
13	5	782	16QAM	12	LOW	20.54	28.47	7.93	13	-1.77	16.62	34.8	Pass
13	5	782	16QAM	12	MID	20.51	28.48	7.97	13	-1.77	16.59	34.8	Pass
13	5	782	16QAM	12	HIGH	20.8	28.39	7.59	13	-1.77	16.88	34.8	Pass
13	5	782	16QAM	1	LOW	21.59	27.49	5.90	13	-1.77	17.67	34.8	Pass
13	5	782	16QAM	1	MID	21.63	27.14	5.51	13	-1.77	17.71	34.8	Pass
13	5	782	16QAM	1	HIGH	21.52	27.09	5.57	13	-1.77	17.6	34.8	Pass
13	5	784.5	QPSK	25	LOW	21.59	28.34	6.75	13	-1.77	17.67	34.8	Pass
13	5	784.5	QPSK	12	LOW	21.61	27.98	6.37	13	-1.77	17.69	34.8	Pass
13	5	784.5	QPSK	12	MID	21.6	27.94	6.34	13	-1.77	17.68	34.8	Pass
13	5	784.5	QPSK	12	HIGH	21.54	28.24	6.70	13	-1.77	17.62	34.8	Pass
13	5	784.5	QPSK	1	LOW	22.55	27.78	5.23	13	-1.77	18.63	34.8	Pass
13	5	784.5	QPSK	1	MID	22.75	28.2	5.45	13	-1.77	18.83	34.8	Pass
13	5	784.5	QPSK	1	HIGH	22.61	28.47	5.86	13	-1.77	18.69	34.8	Pass
13	5	784.5	16QAM	25	LOW	20.63	28.35	7.72	13	-1.77	16.71	34.8	Pass
13	5	784.5	16QAM	12	LOW	20.64	27.61	6.97	13	-1.77	16.72	34.8	Pass
13	5	784.5	16QAM	12	MID	20.63	27.59	6.96	13	-1.77	16.71	34.8	Pass
13	5	784.5	16QAM	12	HIGH	20.57	27.73	7.16	13	-1.77	16.65	34.8	Pass
13	5	784.5	16QAM	1	LOW	21.89	27.58	5.69	13	-1.77	17.97	34.8	Pass
13	5	784.5	16QAM	1	MID	22.02	27.88	5.86	13	-1.77	18.1	34.8	Pass
13	5	784.5	16QAM	1	HIGH	21.93	28.14	6.21	13	-1.77	18.01	34.8	Pass
13	10	782	QPSK	50	LOW	21.68	28.09	6.41	13	-1.77	17.76	34.8	Pass
13	10	782	QPSK	25	LOW	21.61	28.38	6.77	13	-1.77	17.69	34.8	Pass
13	10	782	QPSK	25	MID	21.62	28.5	6.88	13	-1.77	17.70	34.8	Pass
13	10	782	QPSK	25	HIGH	21.7	28	6.30	13	-1.77	17.78	34.8	Pass
13	10	782	QPSK	1	LOW	22.61	28.22	5.61	13	-1.77	18.69	34.8	Pass
13	10	782	QPSK	1	MID	22.75	27.94	5.19	13	-1.77	18.83	34.8	Pass
13	10	782	QPSK	1	HIGH	22.68	28.54	5.86	13	-1.77	18.76	34.8	Pass
13	10	782	16QAM	50	LOW	20.73	28.4	7.67	13	-1.77	16.81	34.8	Pass
13	10	782	16QAM	25	LOW	20.69	28.38	7.69	13	-1.77	16.77	34.8	Pass
13	10	782	16QAM	25	MID	20.69	28.5	7.81	13	-1.77	16.77	34.8	Pass
13	10	782	16QAM	25	HIGH	20.77	28.42	7.65	13	-1.77	16.85	34.8	Pass
13	10	782	16QAM	1	LOW	21.86	27.1	5.24	13	-1.77	17.94	34.8	Pass
13	10	782	16QAM	1	MID	21.96	26.98	5.02	13	-1.77	18.04	34.8	Pass
13	10	782	16QAM	1	HIGH	21.88	27.18	5.30	13	-1.77	17.96	34.8	Pass

Appendix B: Occupied bandwidth

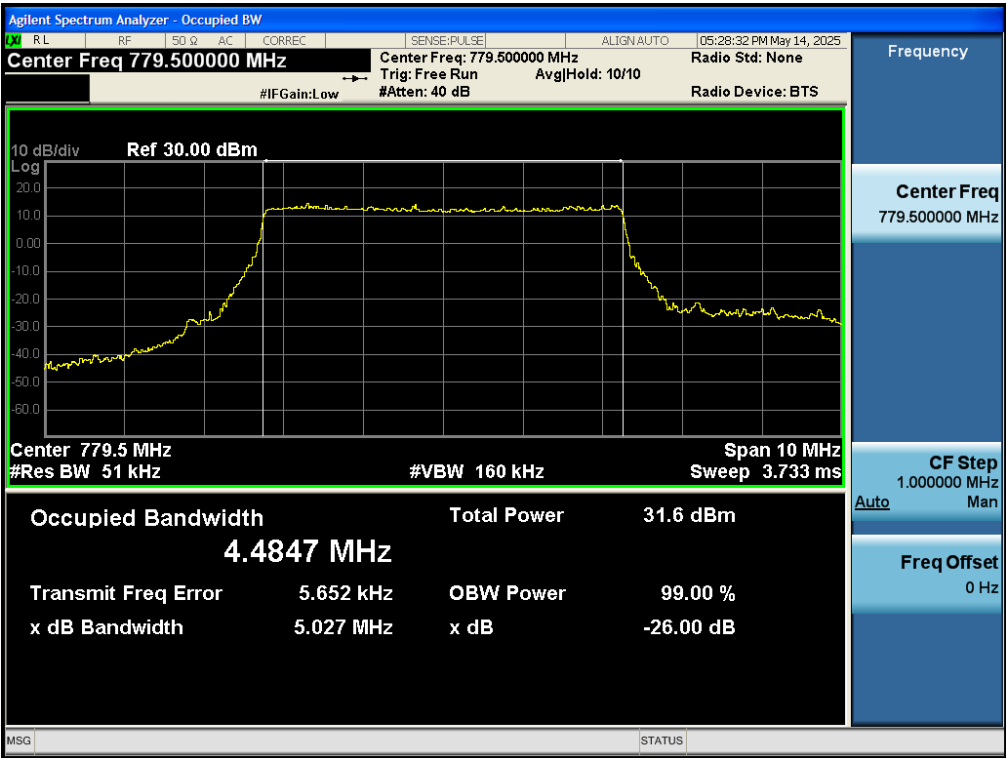
Test Result

Band	Bandwidth (MHz)	UL Frequency (MHz)	Modulation	RB Size	RB Offset	Occupied Bandwidth (MHz)	Emission Bandwidth (MHz)	Limit
13	5	779.5	QPSK	25	LOW	4.485	5.027	No limit
13	5	779.5	16QAM	25	LOW	4.49	5.101	No limit
13	5	782	QPSK	25	LOW	4.493	5.031	No limit
13	5	782	16QAM	25	LOW	4.474	4.997	No limit
13	5	784.5	QPSK	25	LOW	4.462	4.975	No limit
13	5	784.5	16QAM	25	LOW	4.474	4.998	No limit
13	10	782	QPSK	50	LOW	8.96	9.777	No limit
13	10	782	16QAM	50	LOW	8.957	9.801	No limit

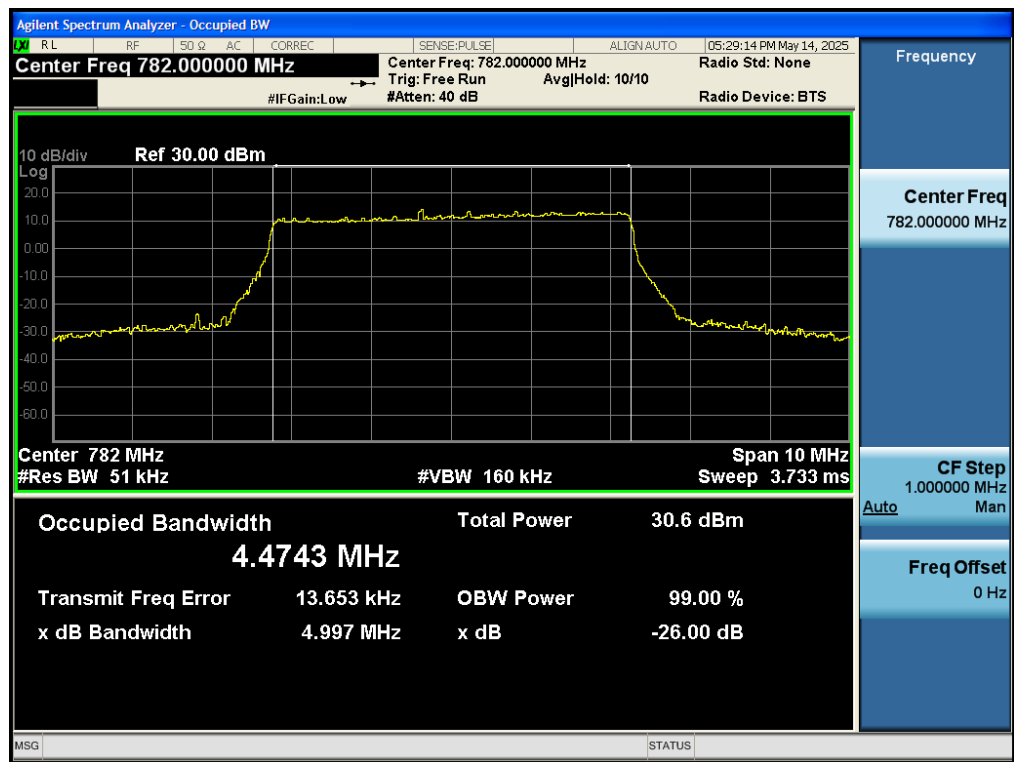
Test Graphs



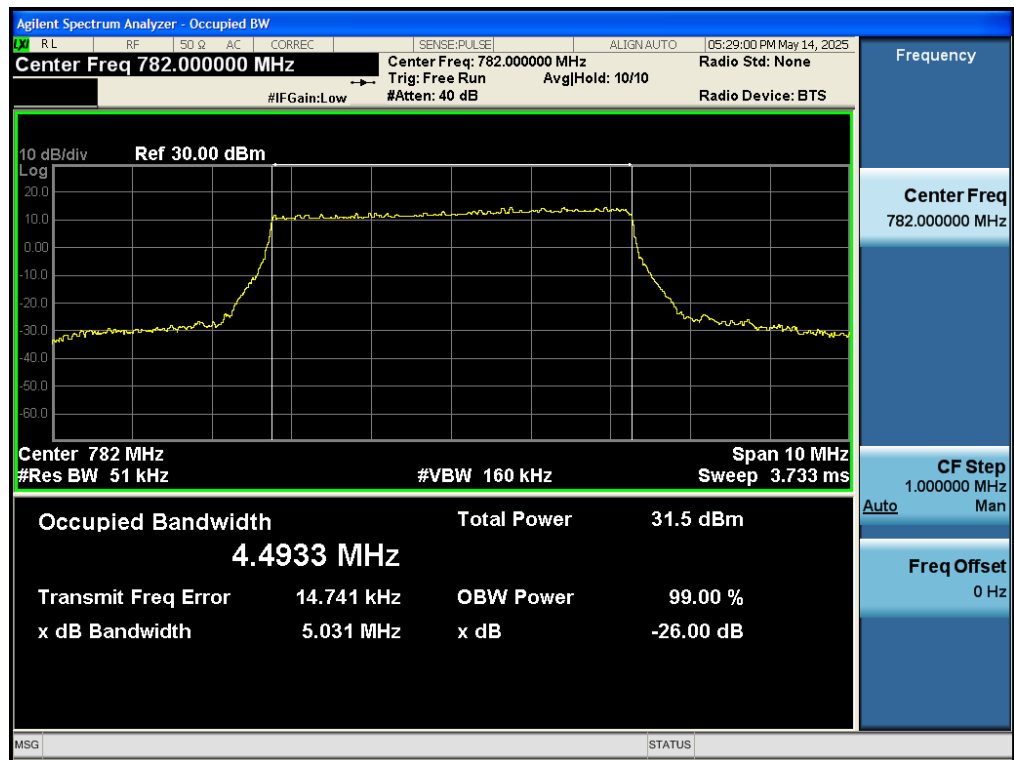
Test_Graph_band13_779.5MHz_5M_16QAM_25RB#LOW_OBW&EBW



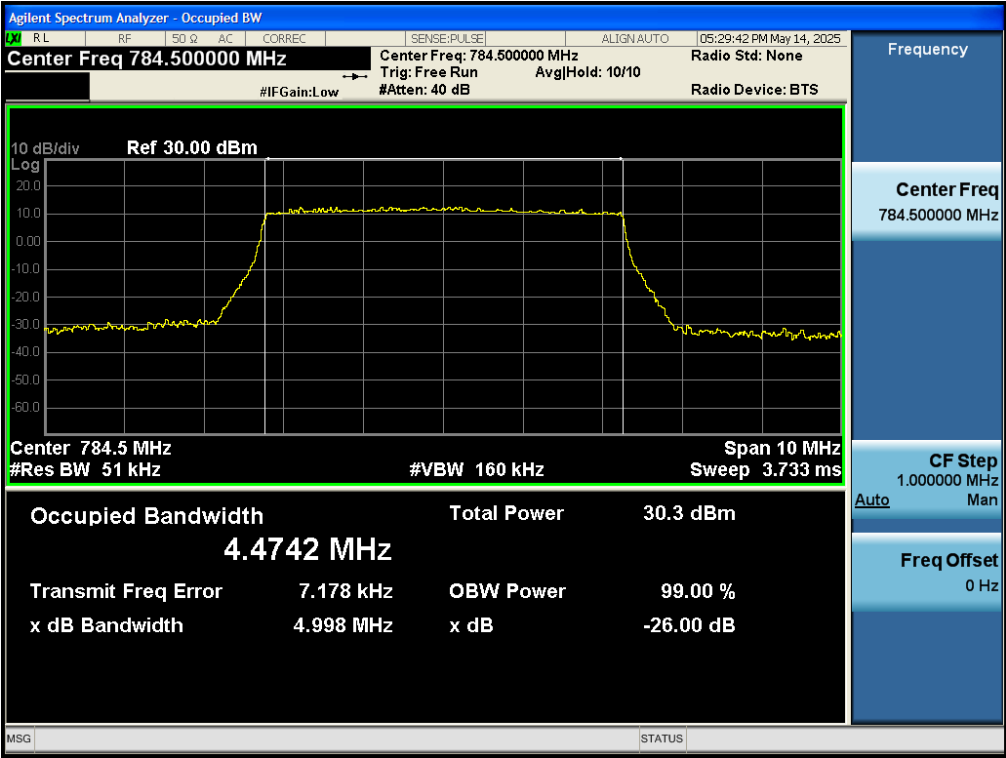
Test_Graph_band13_779.5MHz_5M_QPSK_25RB#LOW_OBW&EBW



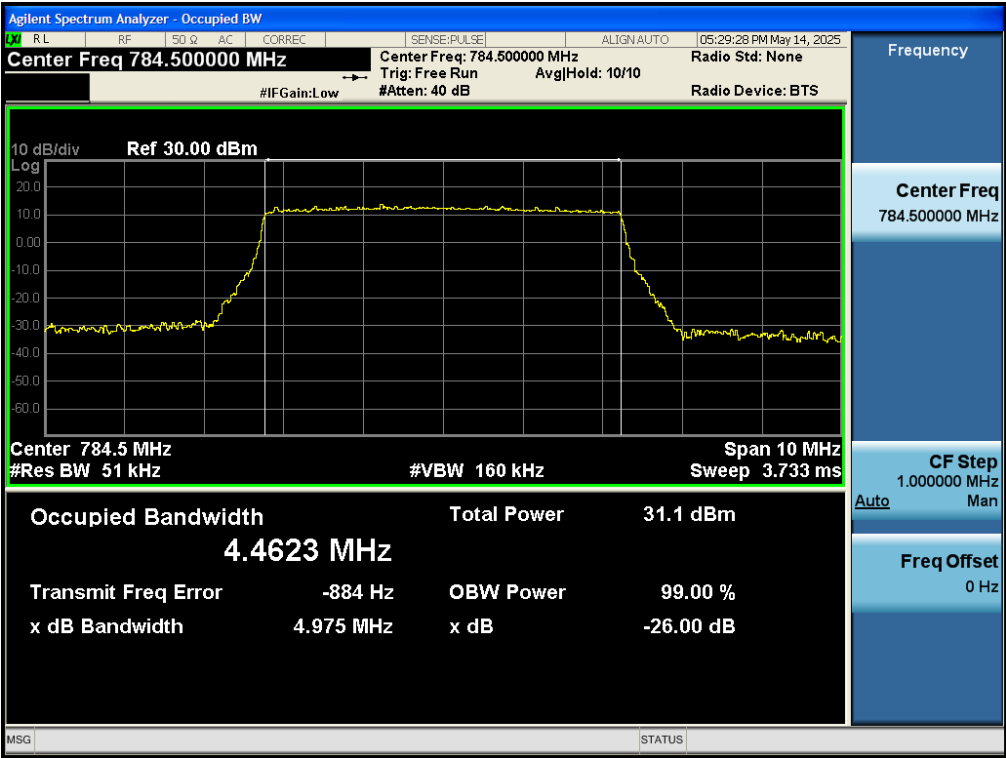
Test_Graph_band13_782MHz_5M_16QAM_25RB#LOW_OBW&EBW



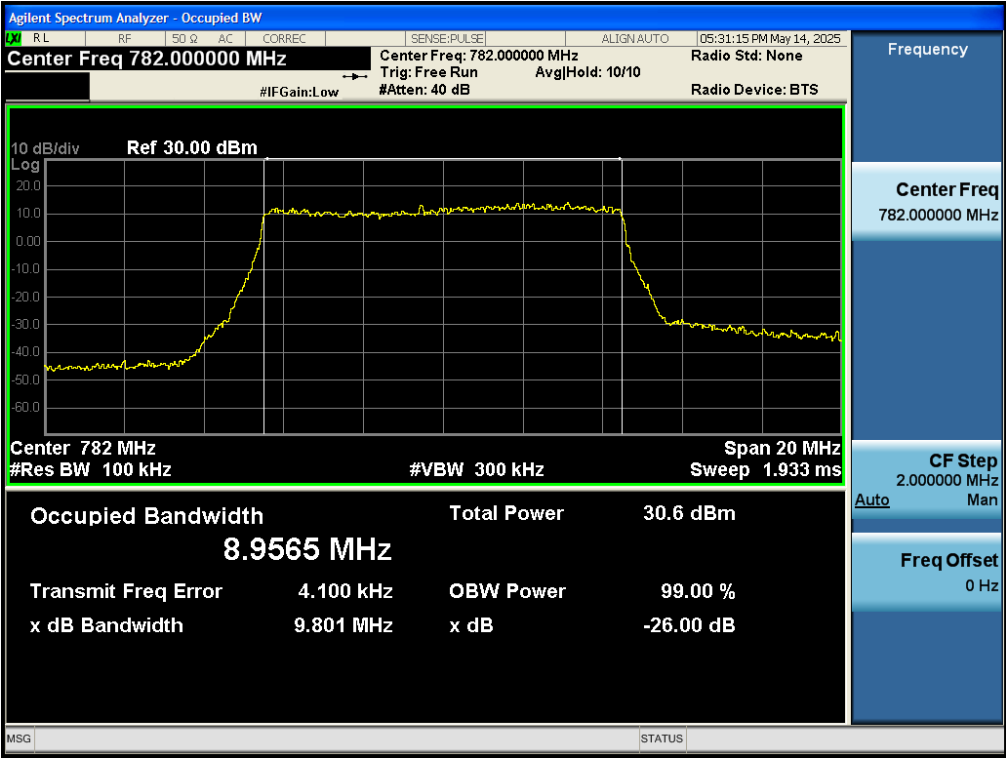
Test_Graph_band13_782MHz_5M_QPSK_25RB#LOW_OBW&EBW



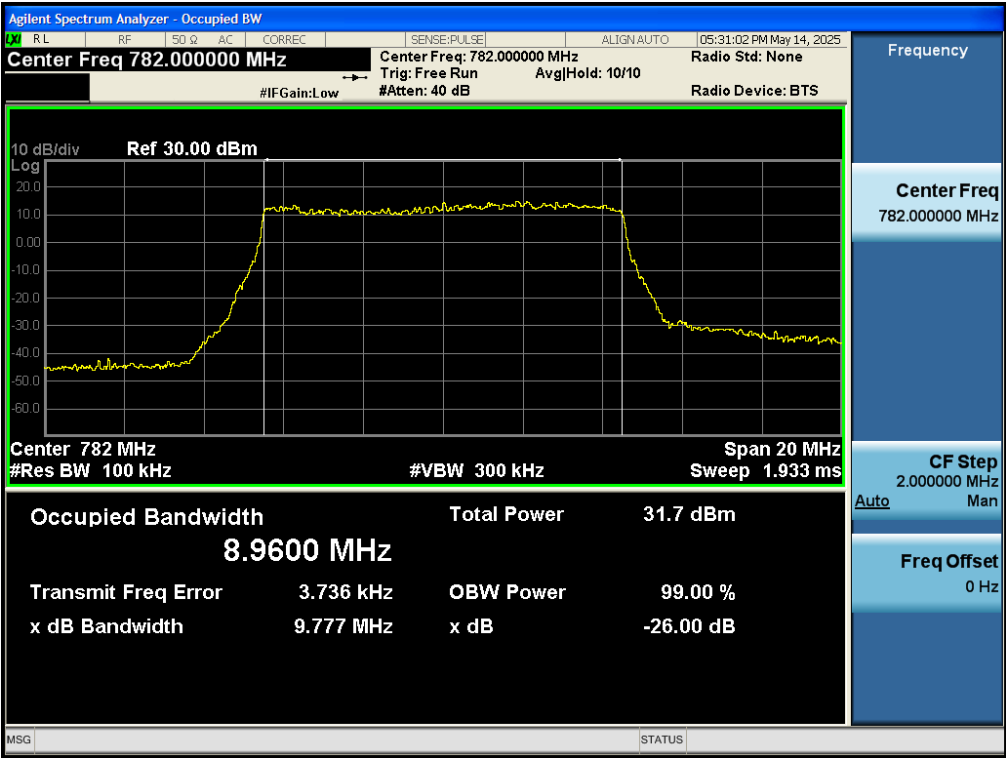
Test_Graph_band13_784.5MHz_5M_16QAM_25RB#LOW_OBW&EBW



Test_Graph_band13_784.5MHz_5M_QPSK_25RB#LOW_OBW&EBW



Test_Graph_band13_782MHz_10M_16QAM_50RB#LOW_OBW&EBW



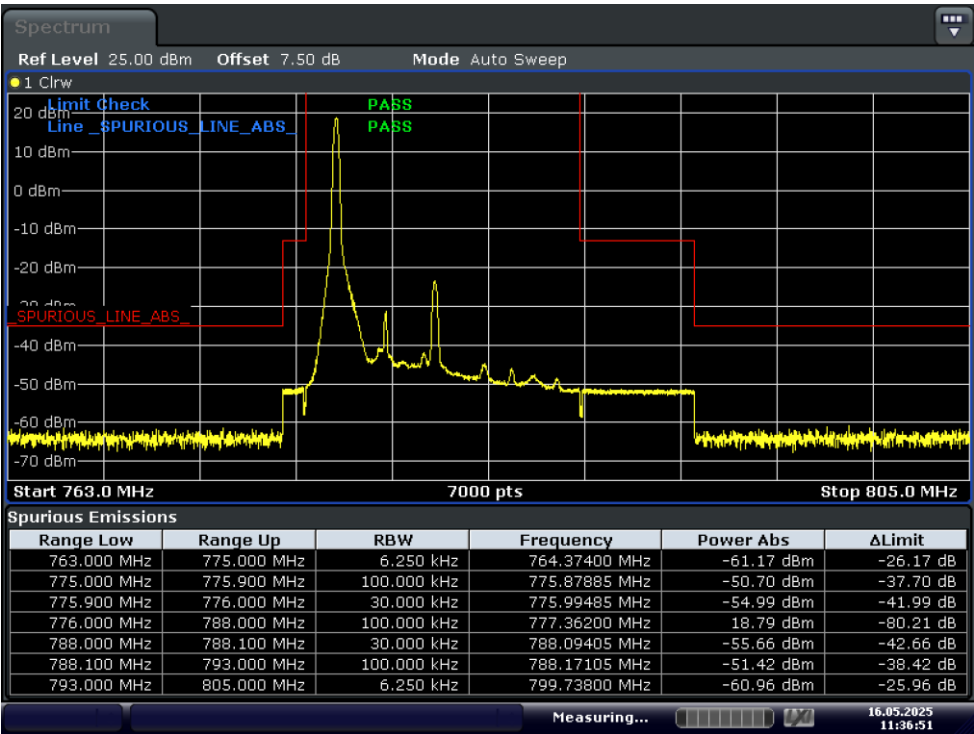
Test_Graph_band13_782MHz_10M_QPSK_50RB#LOW_OBW&EBW

Appendix C: Band edge emissions

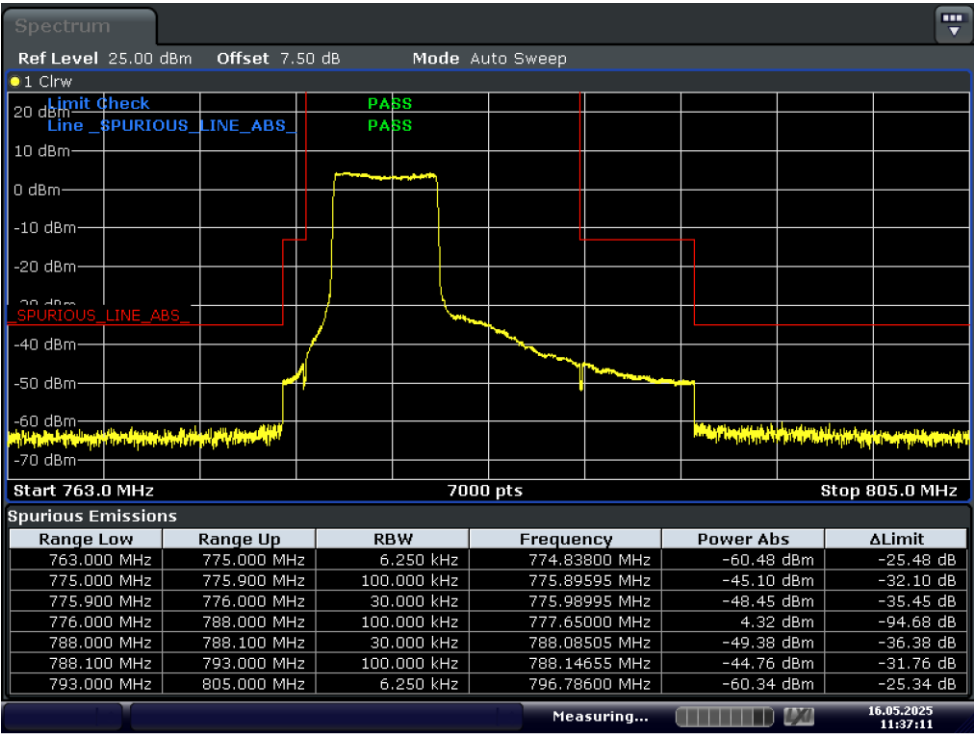
Test Result

Band	Bandwidth (MHz)	UL Frequency (MHz)	Modulation	RB Size	RB Offset	Conclusion
13	5	779.5	QPSK	1	LOW	
13	5	779.5	QPSK	25	LOW	
13	5	779.5	16QAM	1	LOW	
13	5	779.5	16QAM	25	LOW	
13	5	784.5	QPSK	1	HIGH	
13	5	784.5	QPSK	25	LOW	
13	5	784.5	16QAM	1	HIGH	
13	5	784.5	16QAM	25	LOW	
13	10	782	QPSK	1	LOW	
13	10	782	QPSK	50	LOW	
13	10	782	16QAM	1	LOW	
13	10	782	16QAM	50	LOW	

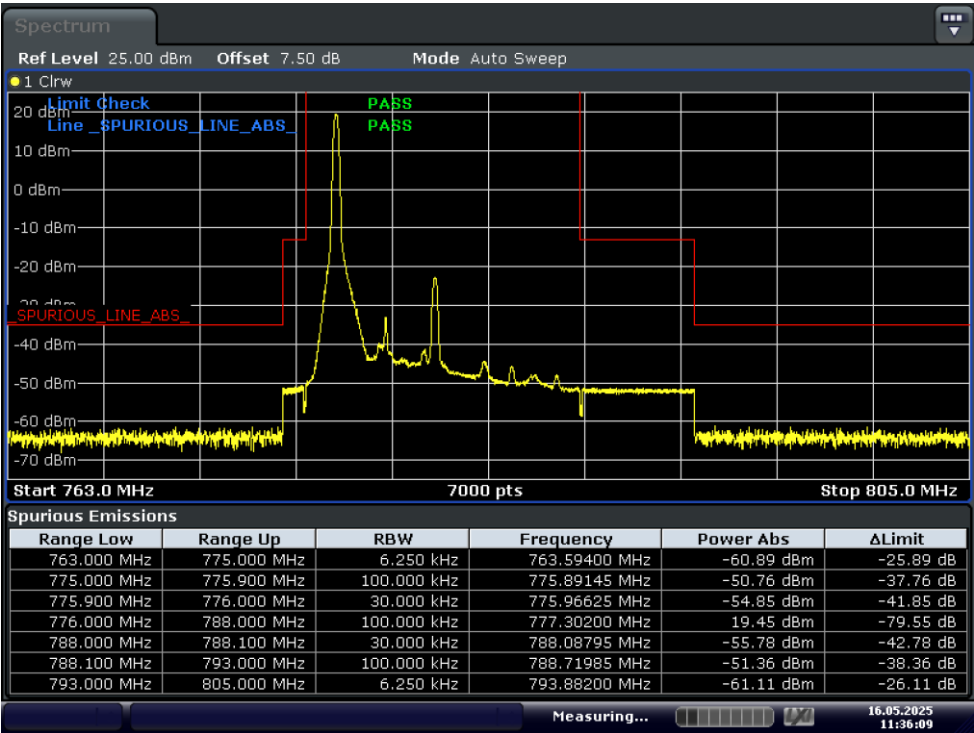
Test Graphs



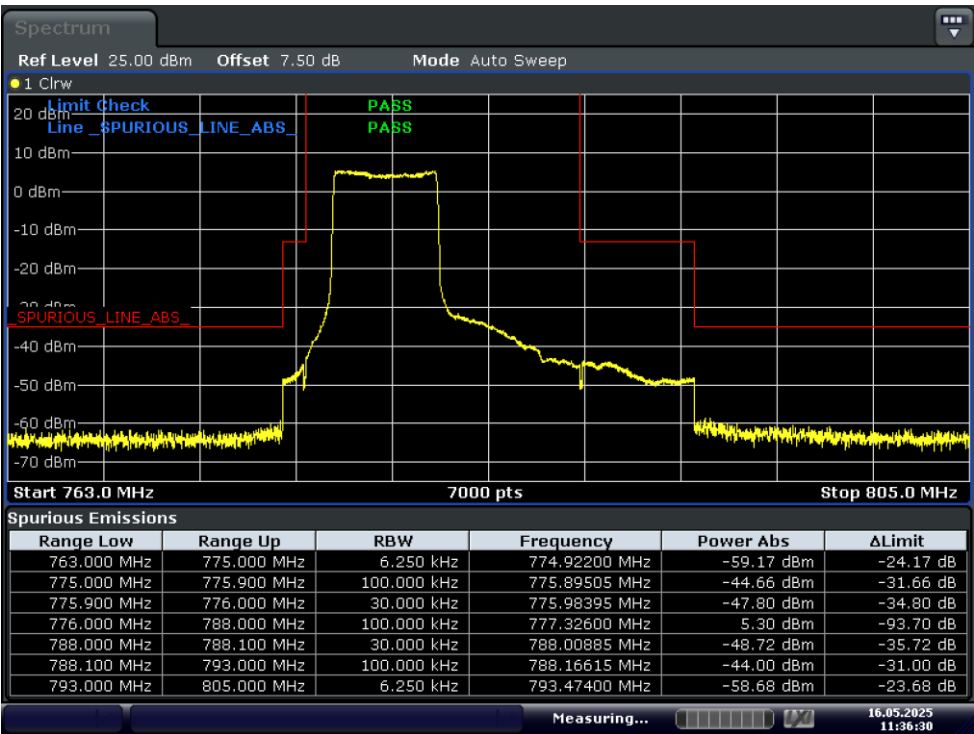
Test_Graph_band13_779.5MHz_5M_16QAM_1RB#LOW_Band edge



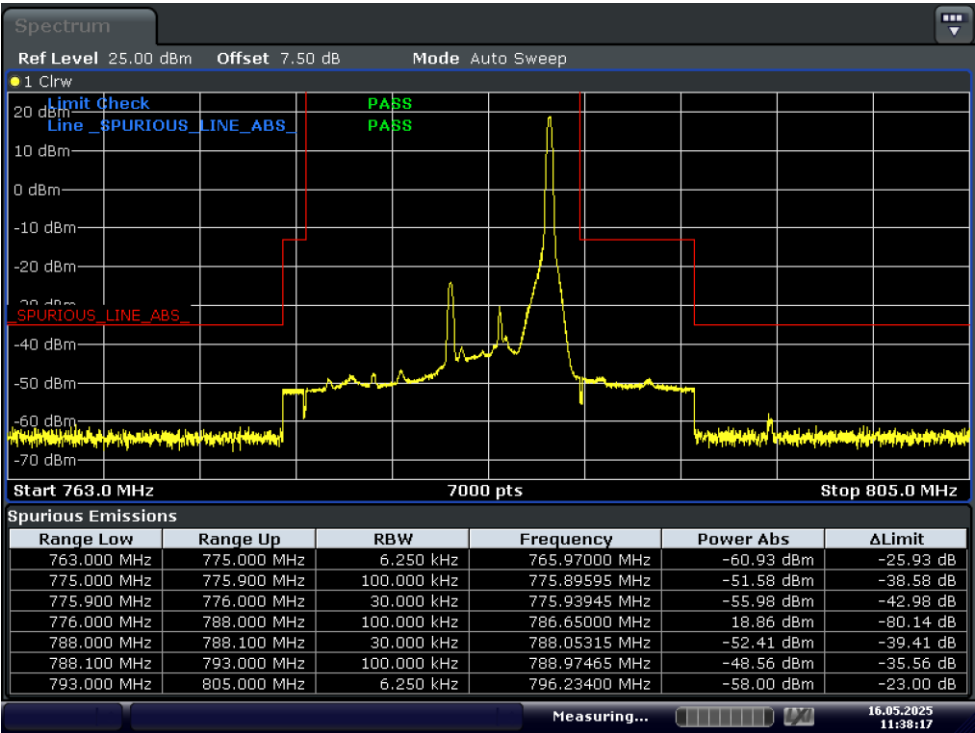
Test_Graph_band13_779.5MHz_5M_16QAM_25RB#LOW_Band edge



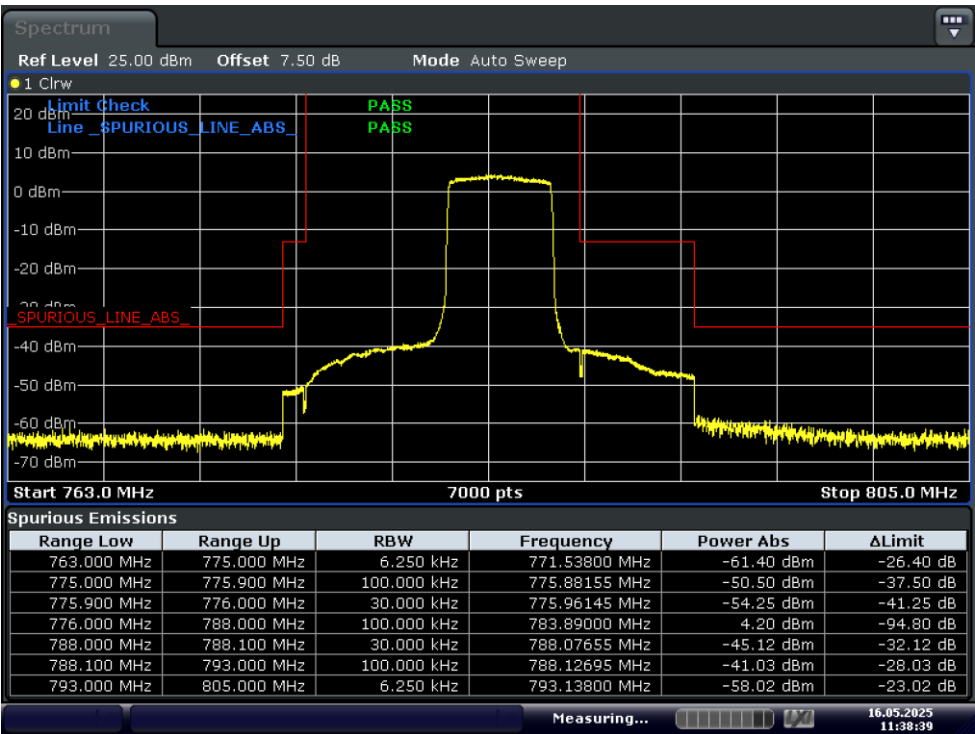
Test_Graph_band13_779.5MHz_5M_QPSK_1RB#LOW_Band edge



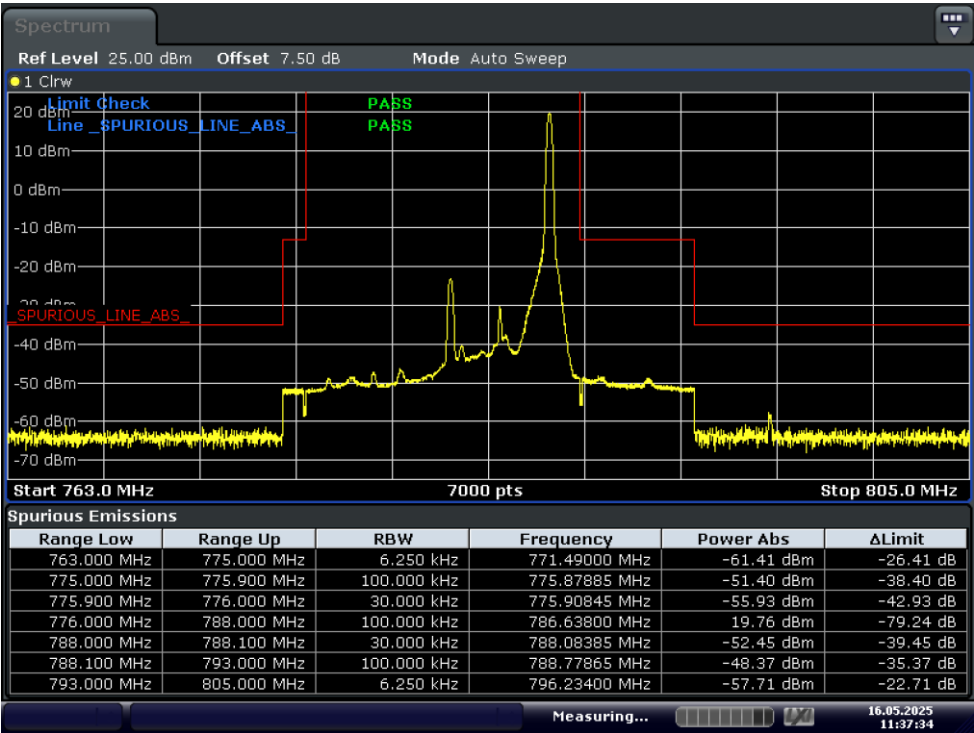
Test_Graph_band13_779.5MHz_5M_QPSK_25RB#LOW_Band edge



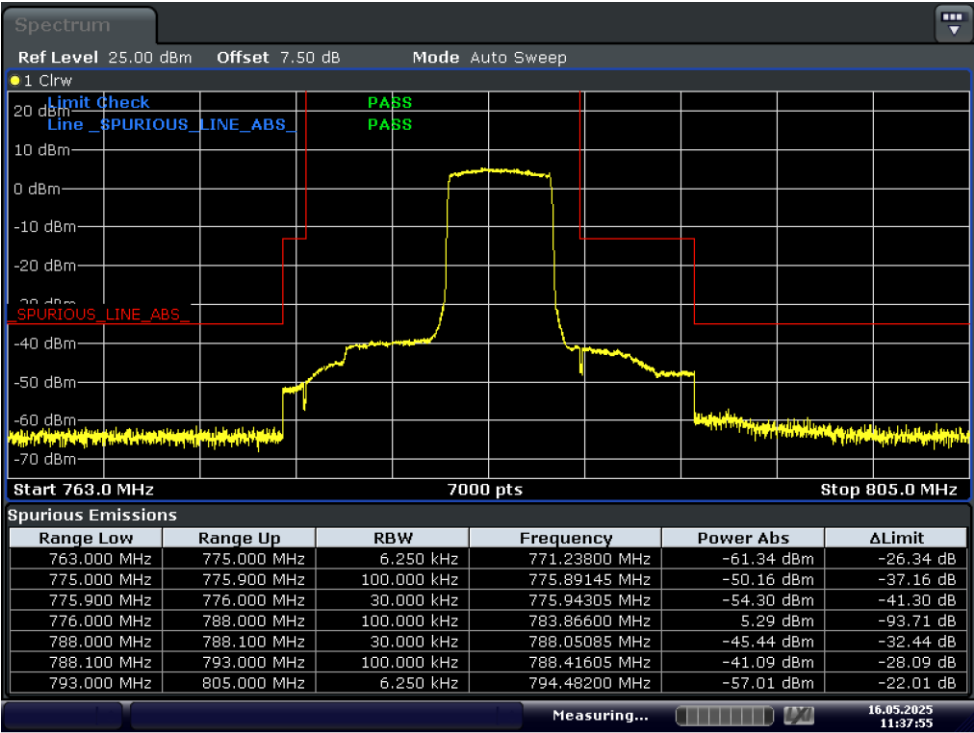
Test_Graph_band13_784.5MHz_5M_16QAM_1RB#HIGH_Band edge



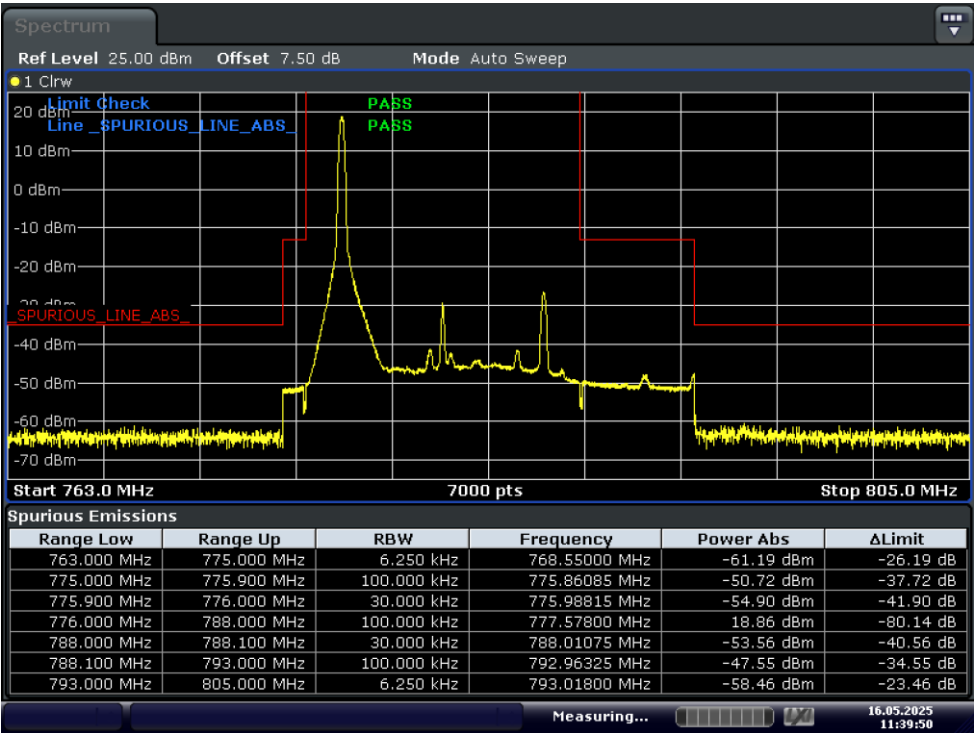
Test_Graph_band13_784.5MHz_5M_16QAM_25RB#LOW_Band edge



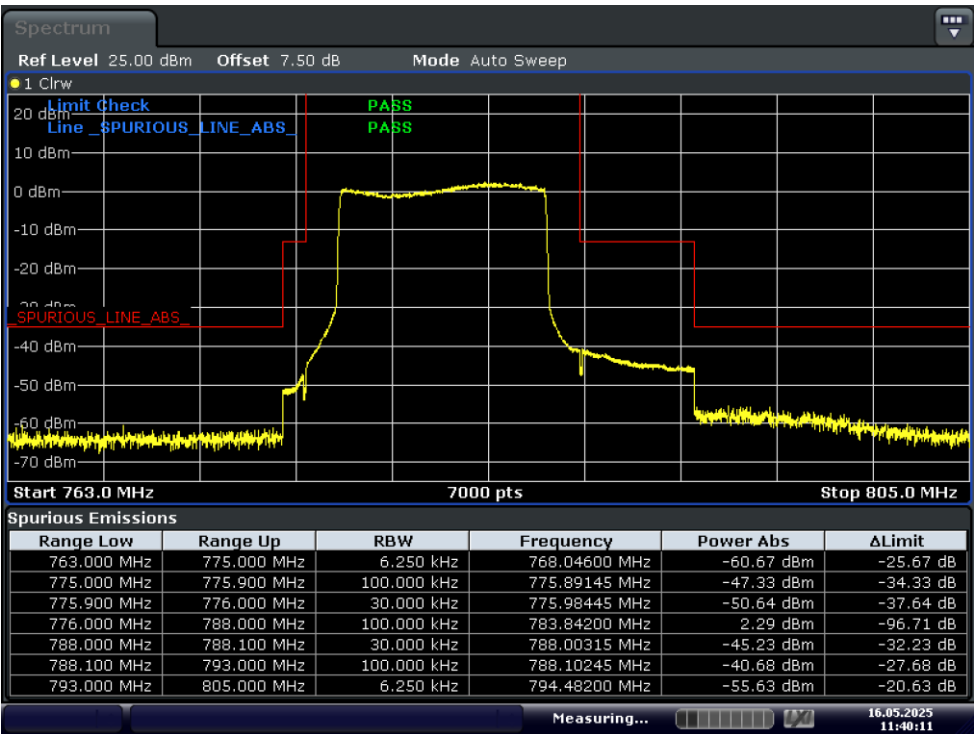
Test_Graph_band13_784.5MHz_5M_QPSK_1RB#HIGH_Band edge



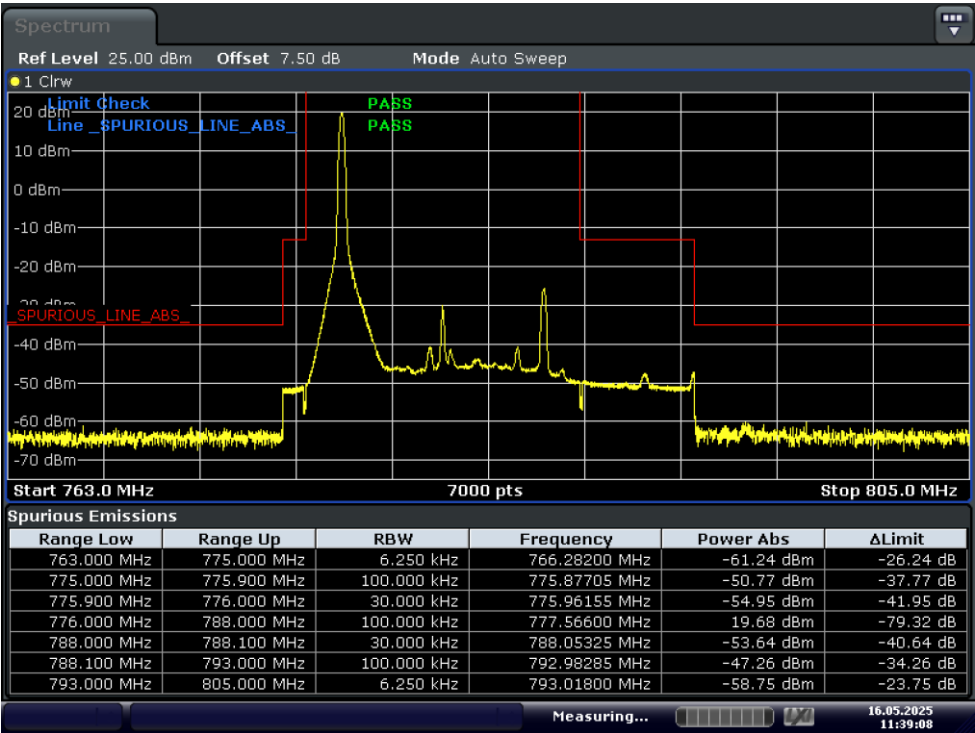
Test_Graph_band13_784.5MHz_5M_QPSK_25RB#LOW_Band edge



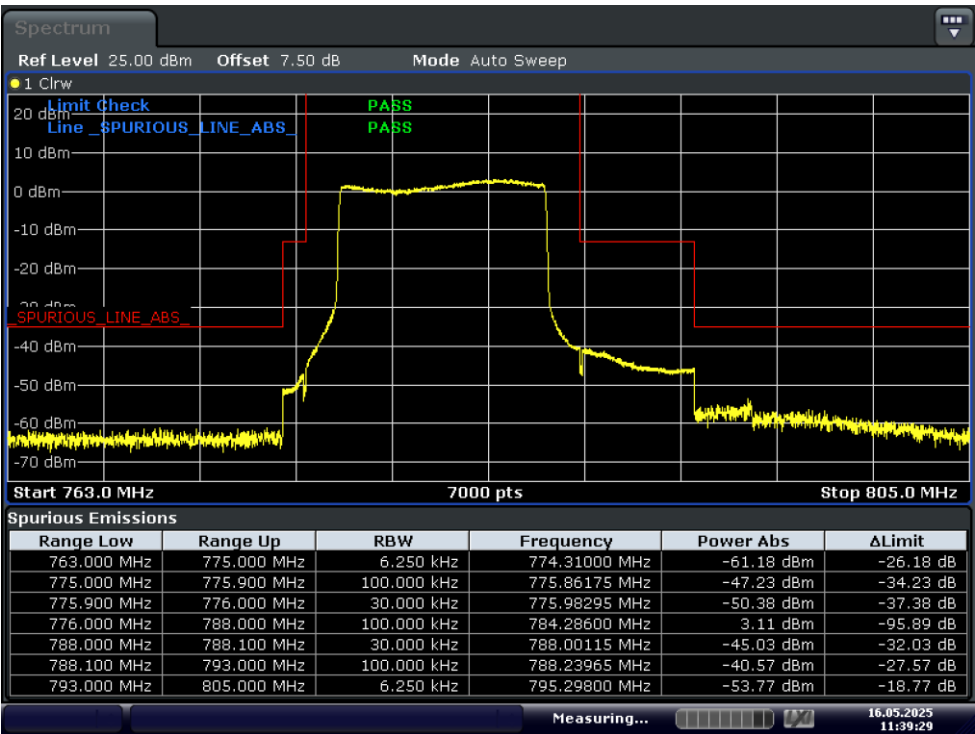
Test_Graph_band13_782MHz_10M_16QAM_1RB#LOW_Band edge



Test_Graph_band13_782MHz_10M_16QAM_50RB#LOW_Band edge



Test_Graph_band13_782MHz_10M_QPSK_1RB#LOW_Band edge



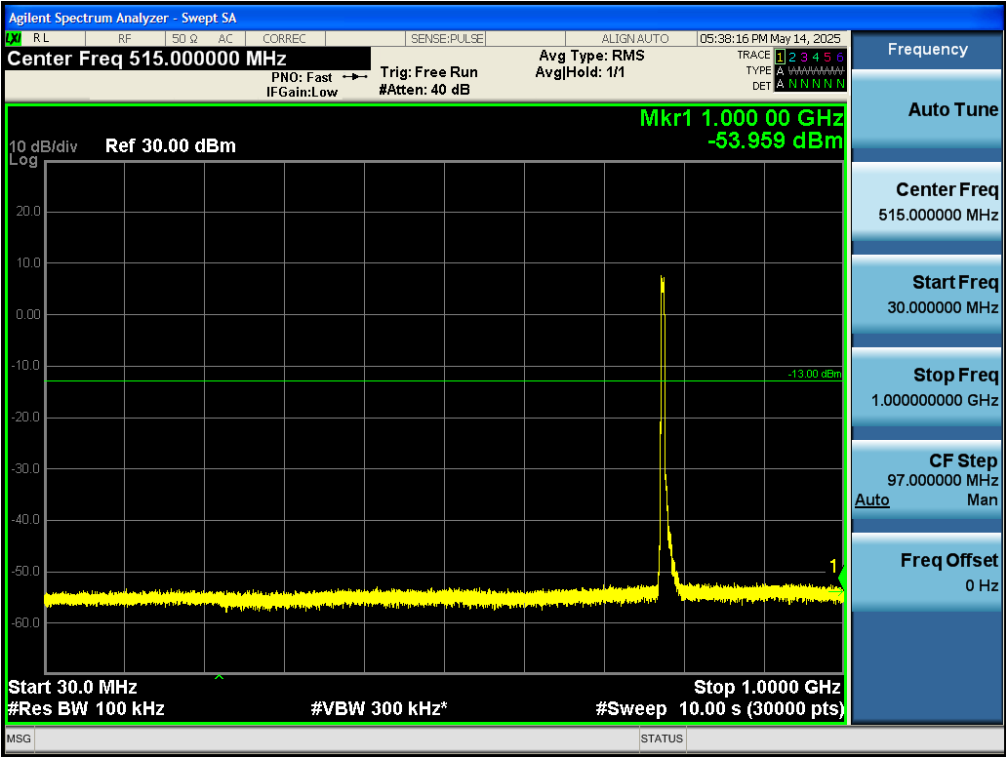
Test_Graph_band13_782MHz_10M_QPSK_50RB#LOW_Band edge

Appendix D: Unwanted spurious emissions at antenna terminals

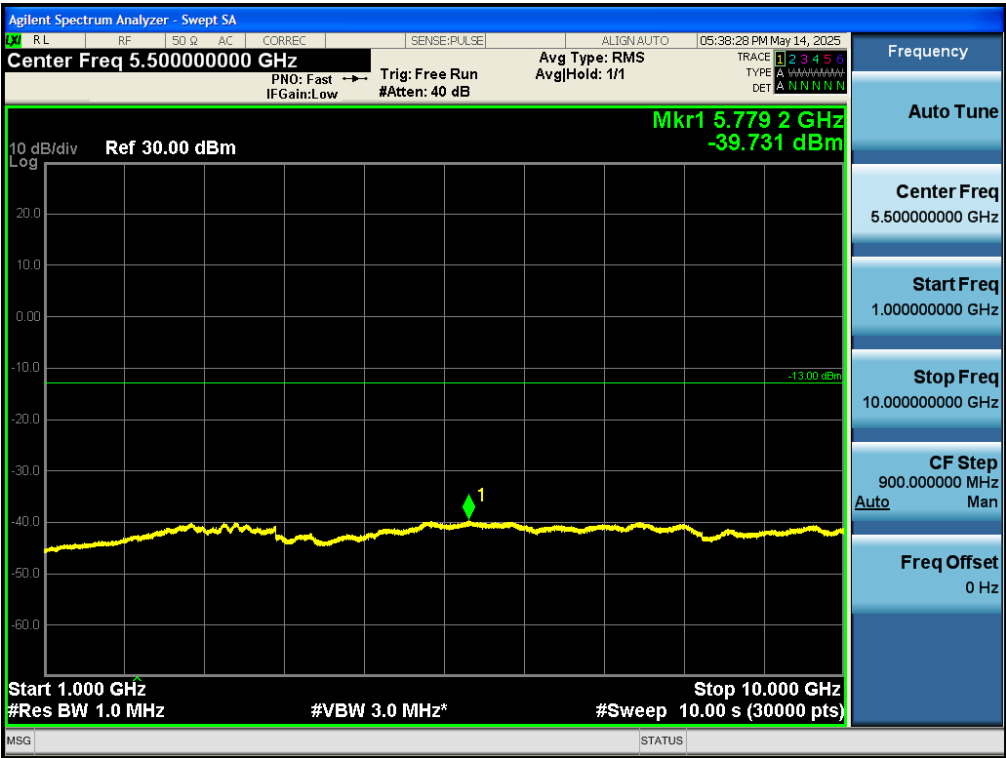
Test Result

Band	Bandwidth (MHz)	UL Frequency (MHz)	Modulation	RB Size	RB Offset	Conclusion
13	5	779.5	QPSK	25	LOW	Pass
13	5	782	QPSK	25	LOW	Pass
13	5	784.5	QPSK	25	LOW	Pass
13	10	782	QPSK	50	LOW	Pass

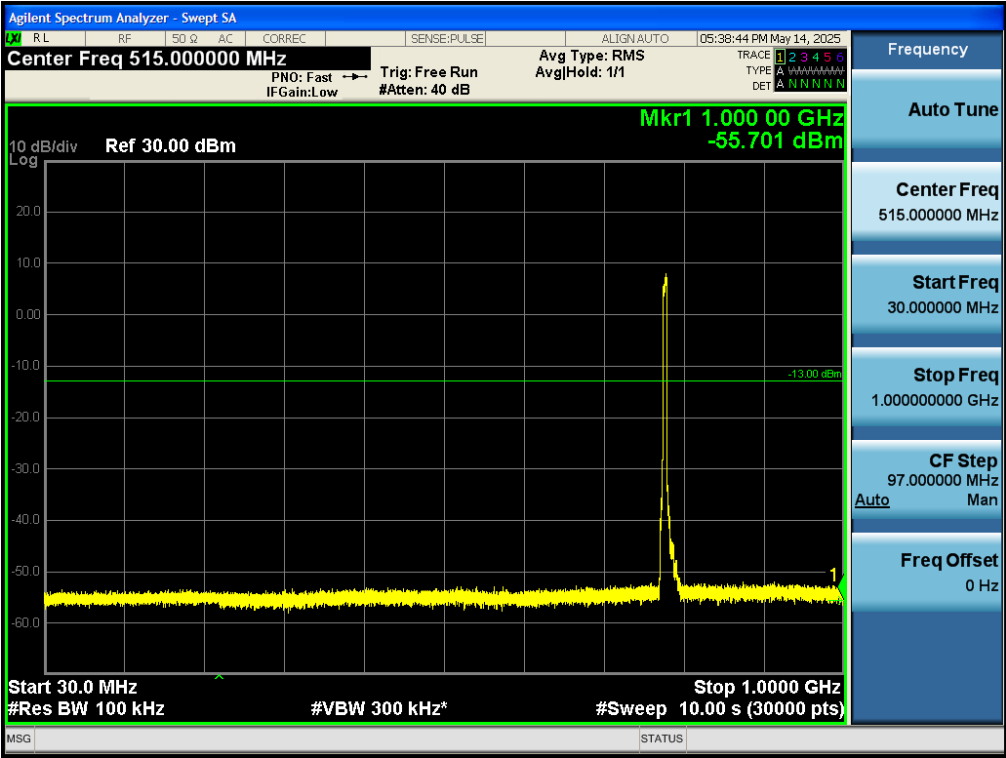
Test Graphs



Test_Graph_band13_779.5MHz_5M_QPSK_25RB#LOW_30M_1G_TX



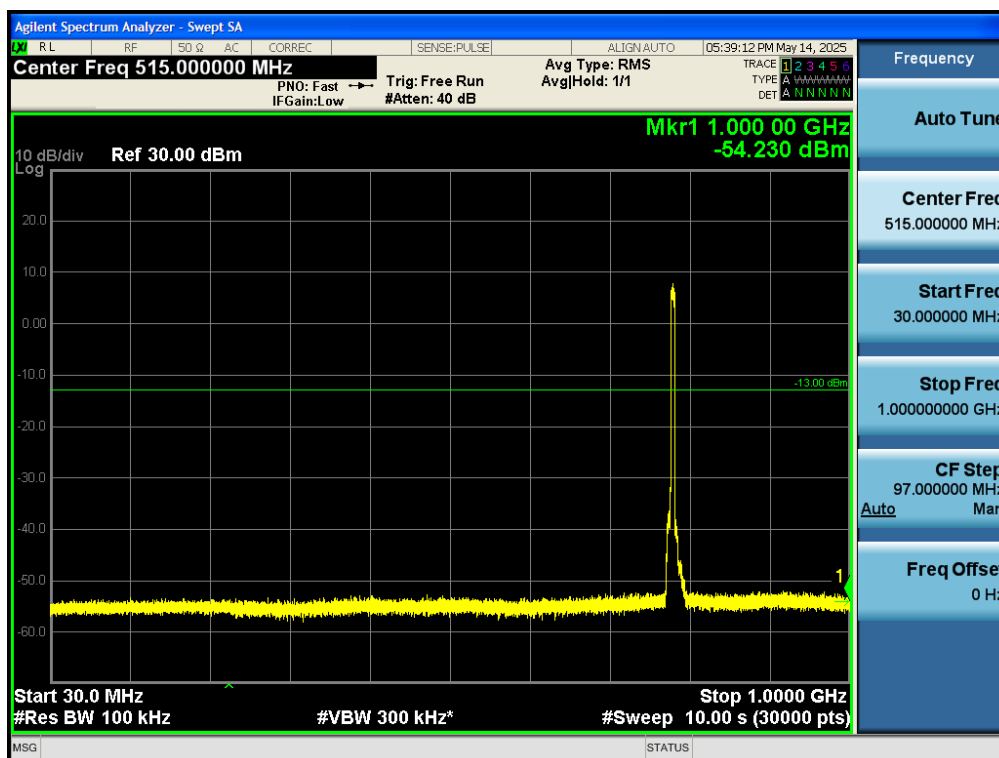
Test_Graph_band13_779.5MHz_5M_QPSK_25RB#LOW_1G_10G_TX



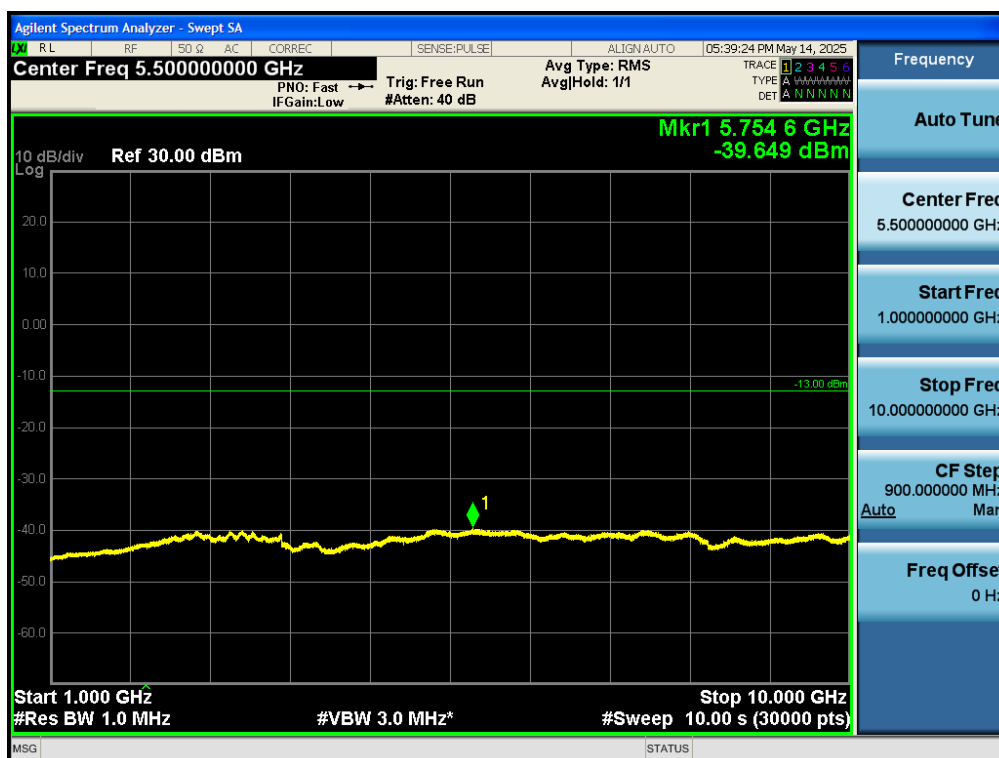
Test_Graph_band13_782MHz_5M_QPSK_25RB#LOW_30M_1G_TX



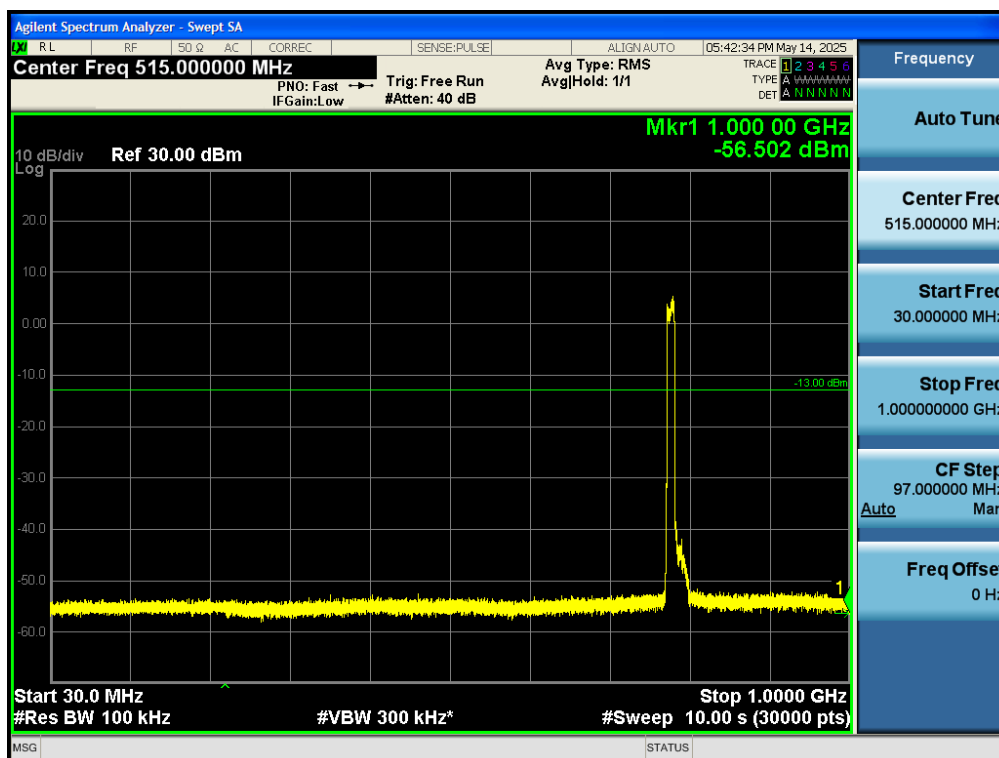
Test_Graph_band13_782MHz_5M_QPSK_25RB#LOW_1G_10G_TX



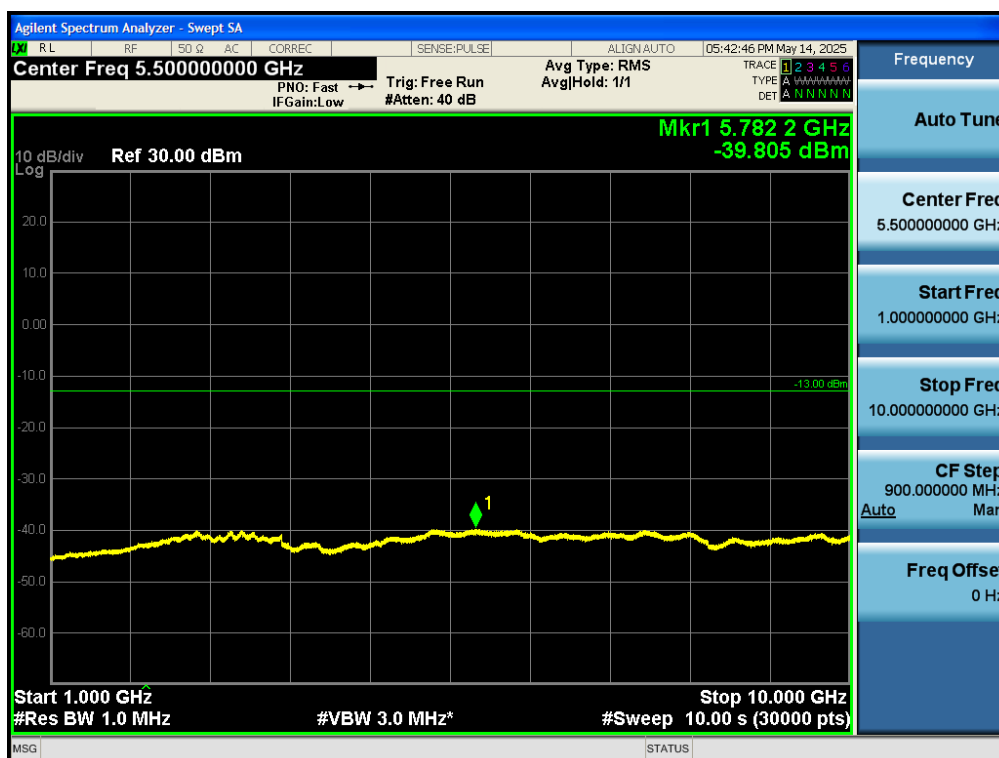
Test_Graph_band13_784.5MHz_5M_QPSK_25RB#LOW_30M_1G_TX



Test_Graph_band13_784.5MHz_5M_QPSK_25RB#LOW_1G_10G_TX



Test_Graph_band13_782MHz_10M_QPSK_50RB#LOW_30M_1G_TX



Test_Graph_band13_782MHz_10M_QPSK_50RB#LOW_1G_10G_TX

Appendix E: Frequency stability

Test Result

Test Conditions (LTE Band 13(QPSK) /BW 10MHz)		Frequency Range		Frequency Error	Verdict
Temperature (°C)	Voltage (Volt)	>777 Freq Reading @ Low End (MHz)	<787 Freq Reading @ High End (MHz)	Middle Channel	
				≤2.5ppm	
50	Normal Voltage	777.5985	786.4425	0.0068	PASS
40	Normal Voltage	777.5986	786.4426	0.0070	
30	Normal Voltage	777.5987	786.4426	0.0070	
20(Ref.)	Normal Voltage	777.5987	786.4426	0.0067	
10	Normal Voltage	777.5985	786.4427	0.0062	
0	Normal Voltage	777.5986	786.4425	0.0062	
-10	Normal Voltage	777.5986	786.4427	0.0065	
-20	Normal Voltage	777.5986	786.4427	0.0065	
-30	Normal Voltage	777.5985	786.4427	0.0064	
20	+15%	777.5985	786.4426	0.0067	
20	-15%	777.5986	786.4426	0.0061	
20	Battery End Point	777.5986	786.4427	0.0062	