

Appendix for LTE B13 test report

Appendix A: Effective (Isotropic) Radiated Power Output Data

Test Results:

Band	Bandwidth	Modulation	Channel	RB Configuration	Conducted Power[dBm]	ERP[dBm]	Limit[dBm]	Verdict
Band13	5MHz	QPSK	23205	1RB#0	22.67	24.32	34.77	PASS
Band13	5MHz	QPSK	23205	1RB#12	23.68	25.33	34.77	PASS
Band13	5MHz	QPSK	23205	1RB#24	23.51	25.16	34.77	PASS
Band13	5MHz	QPSK	23205	12RB#0	22.72	24.37	34.77	PASS
Band13	5MHz	QPSK	23205	12RB#6	22.67	24.32	34.77	PASS
Band13	5MHz	QPSK	23205	12RB#13	22.78	24.43	34.77	PASS
Band13	5MHz	QPSK	23205	25RB#0	22.74	24.39	34.77	PASS
Band13	5MHz	QPSK	23230	1RB#0	23.89	25.54	34.77	PASS
Band13	5MHz	QPSK	23230	1RB#12	23.82	25.47	34.77	PASS
Band13	5MHz	QPSK	23230	1RB#24	23.94	25.59	34.77	PASS
Band13	5MHz	QPSK	23230	12RB#0	22.80	24.45	34.77	PASS
Band13	5MHz	QPSK	23230	12RB#6	22.72	24.37	34.77	PASS
Band13	5MHz	QPSK	23230	12RB#13	22.64	24.29	34.77	PASS
Band13	5MHz	QPSK	23230	25RB#0	22.77	24.42	34.77	PASS
Band13	5MHz	QPSK	23255	1RB#0	23.65	25.3	34.77	PASS
Band13	5MHz	QPSK	23255	1RB#12	23.89	25.54	34.77	PASS
Band13	5MHz	QPSK	23255	1RB#24	23.87	25.52	34.77	PASS
Band13	5MHz	QPSK	23255	12RB#0	22.95	24.6	34.77	PASS
Band13	5MHz	QPSK	23255	12RB#6	22.64	24.29	34.77	PASS
Band13	5MHz	QPSK	23255	12RB#13	22.83	24.48	34.77	PASS
Band13	5MHz	QPSK	23255	25RB#0	22.70	24.35	34.77	PASS
Band13	5MHz	16QAM	23205	1RB#0	22.59	24.24	34.77	PASS
Band13	5MHz	16QAM	23205	1RB#12	22.53	24.18	34.77	PASS
Band13	5MHz	16QAM	23205	1RB#24	22.32	23.97	34.77	PASS
Band13	5MHz	16QAM	23205	12RB#0	21.61	23.26	34.77	PASS
Band13	5MHz	16QAM	23205	12RB#6	21.64	23.29	34.77	PASS
Band13	5MHz	16QAM	23205	12RB#13	21.65	23.3	34.77	PASS
Band13	5MHz	16QAM	23205	25RB#0	21.82	23.47	34.77	PASS
Band13	5MHz	16QAM	23230	1RB#0	22.84	24.49	34.77	PASS
Band13	5MHz	16QAM	23230	1RB#12	22.95	24.6	34.77	PASS
Band13	5MHz	16QAM	23230	1RB#24	23.03	24.68	34.77	PASS
Band13	5MHz	16QAM	23230	12RB#0	21.89	23.54	34.77	PASS

Total Quality. Assured.

Band13	5MHz	16QAM	23230	12RB#6	21.88	23.53	34.77	PASS
Band13	5MHz	16QAM	23230	12RB#13	21.65	23.3	34.77	PASS
Band13	5MHz	16QAM	23230	25RB#0	21.64	23.29	34.77	PASS
Band13	5MHz	16QAM	23255	1RB#0	22.83	24.48	34.77	PASS
Band13	5MHz	16QAM	23255	1RB#12	22.82	24.47	34.77	PASS
Band13	5MHz	16QAM	23255	1RB#24	22.94	24.59	34.77	PASS
Band13	5MHz	16QAM	23255	12RB#0	21.59	23.24	34.77	PASS
Band13	5MHz	16QAM	23255	12RB#6	21.57	23.22	34.77	PASS
Band13	5MHz	16QAM	23255	12RB#13	21.75	23.4	34.77	PASS
Band13	5MHz	16QAM	23255	25RB#0	21.83	23.48	34.77	PASS
Band13	10MHz	QPSK	23230	1RB#0	22.64	24.29	34.77	PASS
Band13	10MHz	QPSK	23230	1RB#24	23.51	25.16	34.77	PASS
Band13	10MHz	QPSK	23230	1RB#49	23.79	25.44	34.77	PASS
Band13	10MHz	QPSK	23230	25RB#0	22.65	24.3	34.77	PASS
Band13	10MHz	QPSK	23230	25RB#12	22.69	24.34	34.77	PASS
Band13	10MHz	QPSK	23230	25RB#25	22.60	24.25	34.77	PASS
Band13	10MHz	QPSK	23230	50RB#0	22.62	24.27	34.77	PASS
Band13	10MHz	16QAM	23230	1RB#0	22.63	24.28	34.77	PASS
Band13	10MHz	16QAM	23230	1RB#24	22.43	24.08	34.77	PASS
Band13	10MHz	16QAM	23230	1RB#49	22.75	24.4	34.77	PASS
Band13	10MHz	16QAM	23230	25RB#0	21.60	23.25	34.77	PASS
Band13	10MHz	16QAM	23230	25RB#12	21.73	23.38	34.77	PASS
Band13	10MHz	16QAM	23230	25RB#25	21.77	23.42	34.77	PASS
Band13	10MHz	16QAM	23230	50RB#0	21.64	23.29	34.77	PASS

Note1:

a, For getting the ERP (Efficient Radiated Power) or EIRP (Efficient Isotropic Radiated Power) in substitution method, the following formula should be taken to calculate it,

$$\text{ERP [dBm]} = \text{SGP [dBm]} - \text{Cable Loss [dB]} + \text{Gain [dBd]}$$

$$\text{EIRP [dBm]} = \text{SGP [dBm]} - \text{Cable Loss [dB]} + \text{Gain [dBi]}$$

b, SGP=Signal Generator Level

c, Antenna gain of LTE Band 13 is 3.80dBi.

Note2: SET Span=1.5*OBW

SET RBW=1%of the OBW,not to exceed 1MHz

SET VBW>= 3*RBW

SET Sweep time=auto-couple.

Detector:RMS

Appendix B: Peak-to-Average Ratio

Test Results

Band	Bandwidth	Modulation	Channel	RB Configuration	Result(dB)	Limit(dB)	Verdict
Band13	5MHz	QPSK	23205	1RB#0	3.30	13	PASS
Band13	5MHz	QPSK	23205	25RB#0	4.10	13	PASS
Band13	5MHz	QPSK	23230	1RB#0	3.12	13	PASS
Band13	5MHz	QPSK	23230	25RB#0	4.57	13	PASS
Band13	5MHz	QPSK	23255	1RB#0	3.78	13	PASS
Band13	5MHz	QPSK	23255	25RB#0	5.02	13	PASS
Band13	5MHz	16QAM	23205	1RB#0	4.26	13	PASS
Band13	5MHz	16QAM	23205	25RB#0	5.06	13	PASS
Band13	5MHz	16QAM	23230	1RB#0	4.25	13	PASS
Band13	5MHz	16QAM	23230	25RB#0	5.48	13	PASS
Band13	5MHz	16QAM	23255	1RB#0	4.65	13	PASS
Band13	5MHz	16QAM	23255	25RB#0	5.91	13	PASS
Band13	10MHz	QPSK	23230	1RB#0	3.21	13	PASS
Band13	10MHz	QPSK	23230	50RB#0	4.74	13	PASS
Band13	10MHz	16QAM	23230	1RB#0	4.11	13	PASS
Band13	10MHz	16QAM	23230	50RB#0	5.62	13	PASS

Appendix C: Modulation Characteristics

Test Plots

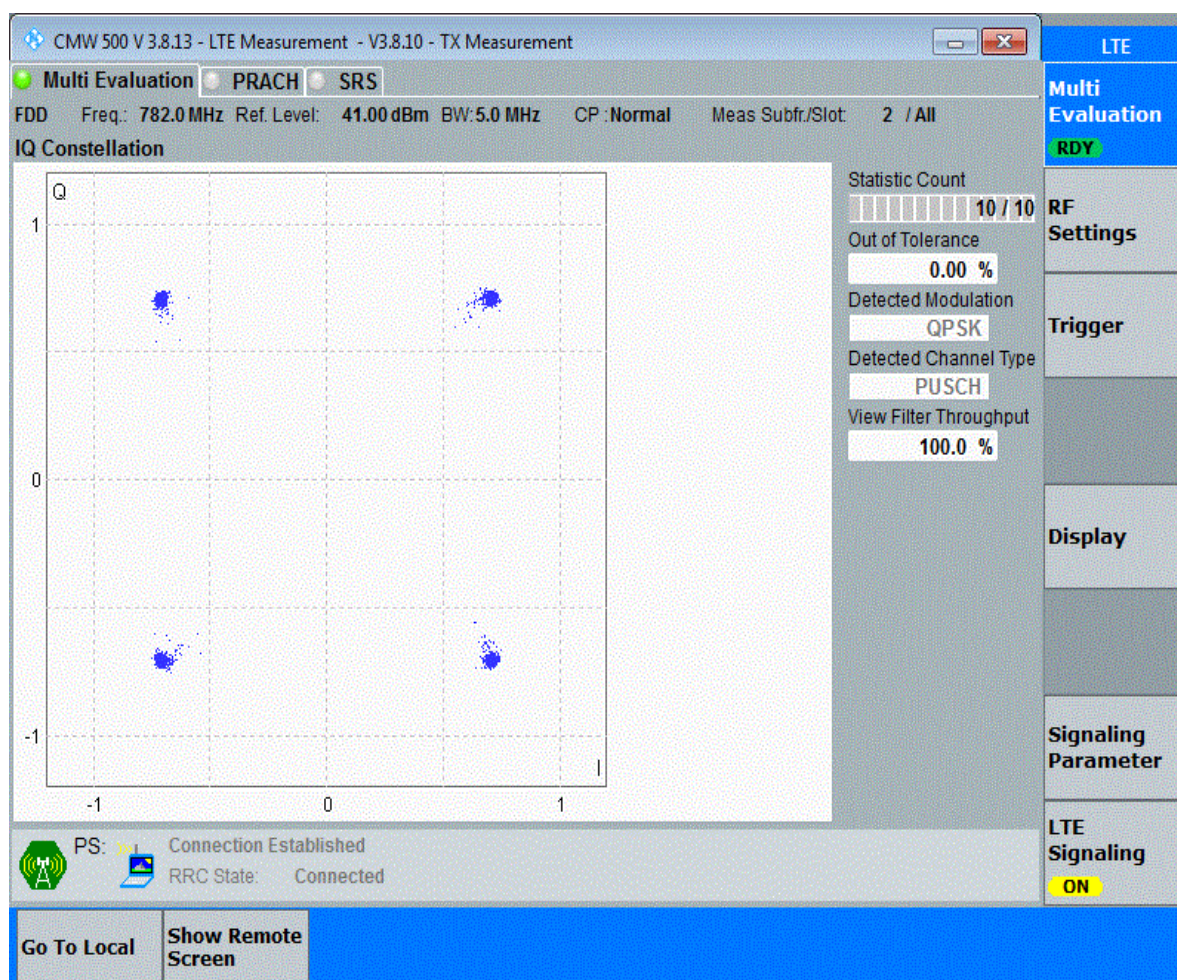
Test Band = BAND13

Test Mode = LTE/TM1

Test Bandwidth = 5MHz

Test Channel = MCH

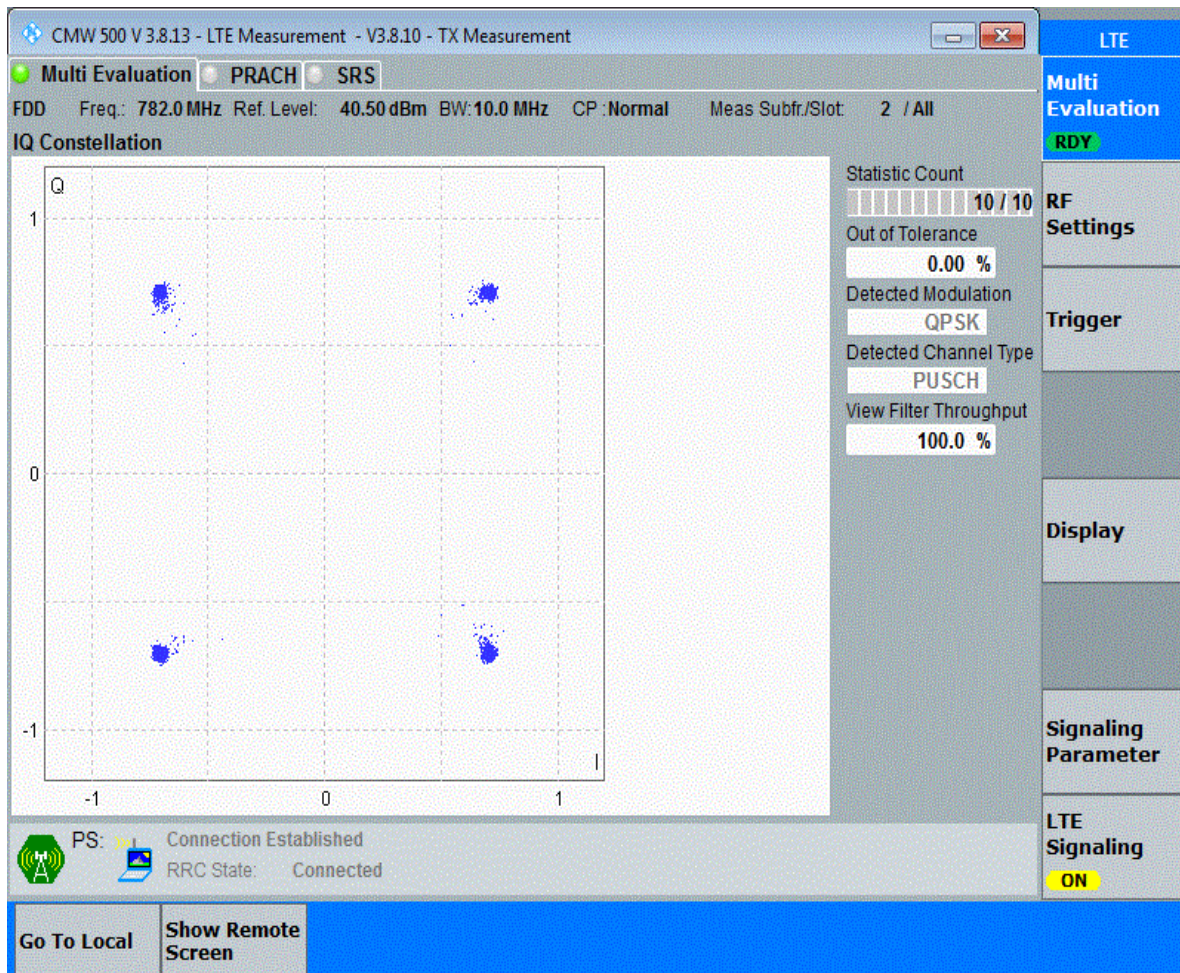
Test RB = RB25#0



Test Bandwidth = 10MHz

Test Channel = MCH

Test RB = RB50#0

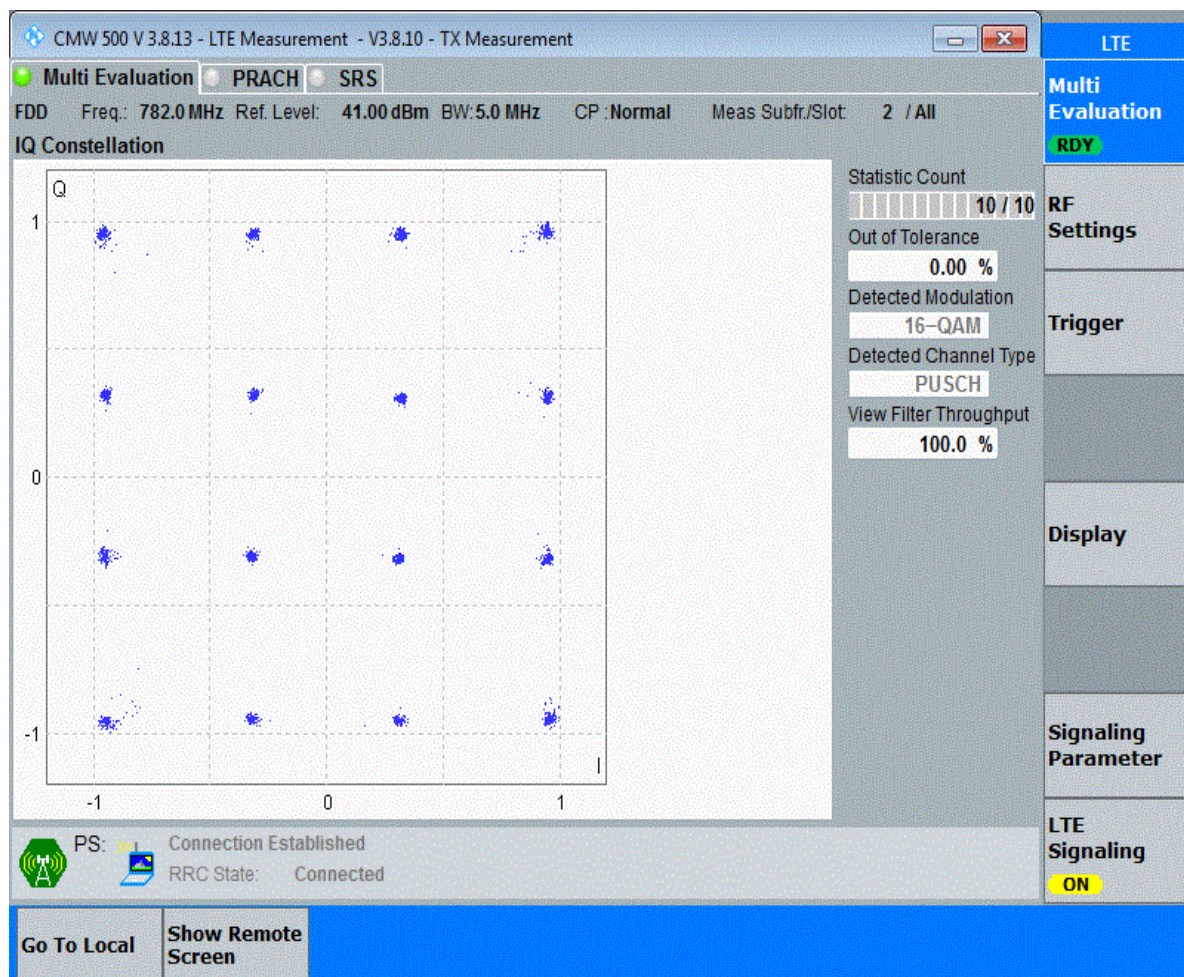


Test Mode = LTE/TM2

Test Bandwidth = 5MHz

Test Channel = MCH

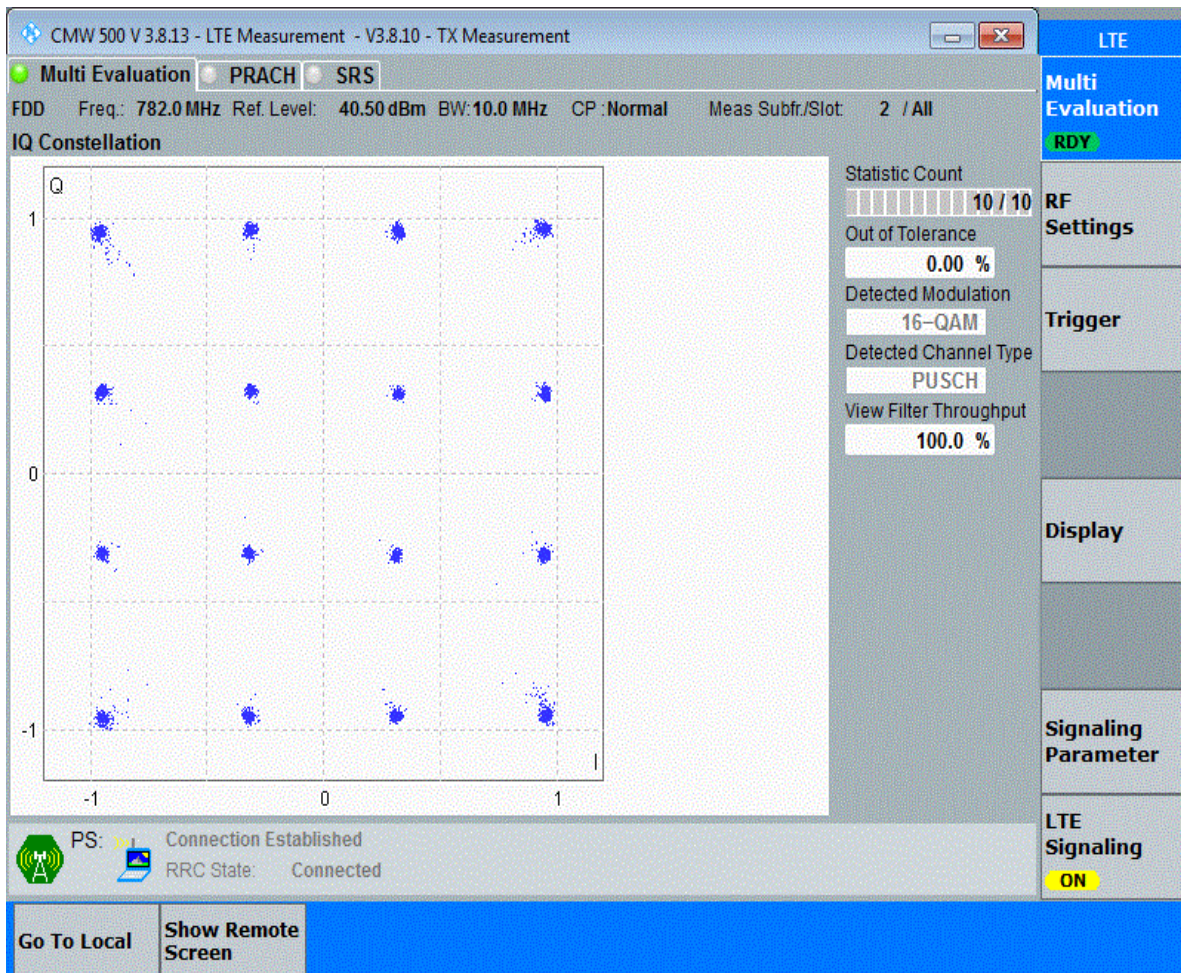
Test RB = RB25#0



Test Bandwidth = 10MHz

Test Channel = MCH

Test RB = RB50#0



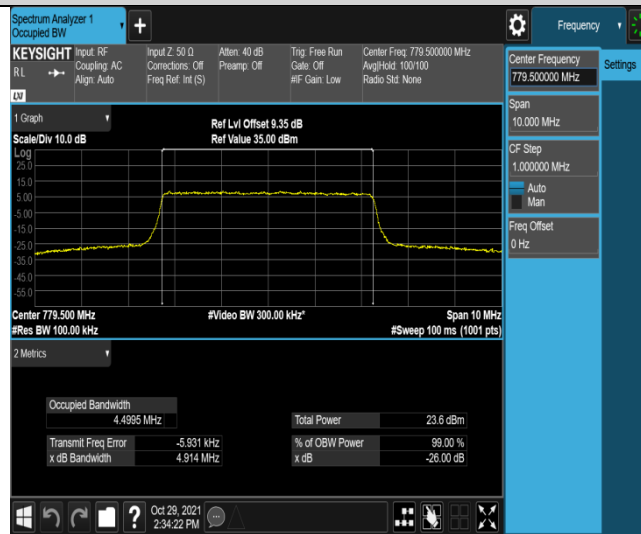
Appendix D: Bandwidth

Test Results

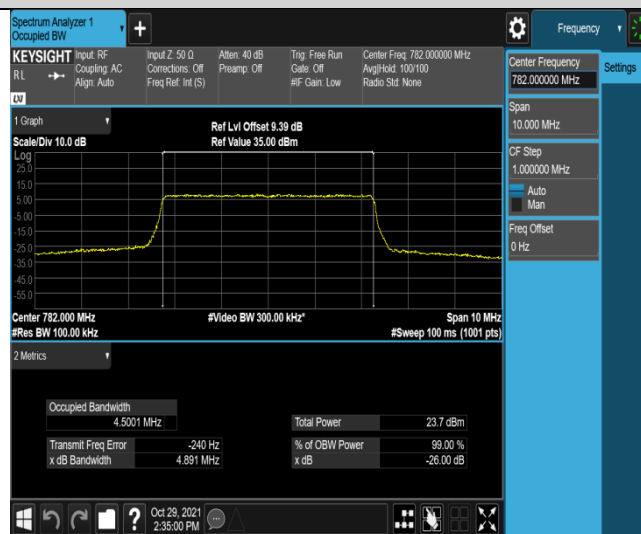
Band	Bandwidth	Modulation	Channel	RB Configuration	Occupied Bandwidth (MHz)	26dB Bandwidth (MHz)	Verdict
Band13	5MHz	QPSK	23205	25RB#0	4.4995	4.914	PASS
Band13	5MHz	QPSK	23230	25RB#0	4.5001	4.891	PASS
Band13	5MHz	QPSK	23255	25RB#0	4.5040	4.914	PASS
Band13	5MHz	16QAM	23205	25RB#0	4.5020	4.879	PASS
Band13	5MHz	16QAM	23230	25RB#0	4.5055	4.910	PASS
Band13	5MHz	16QAM	23255	25RB#0	4.5118	4.877	PASS
Band13	10MHz	QPSK	23230	50RB#0	8.9747	9.551	PASS
Band13	10MHz	16QAM	23230	50RB#0	8.9826	9.564	PASS

Test Plots

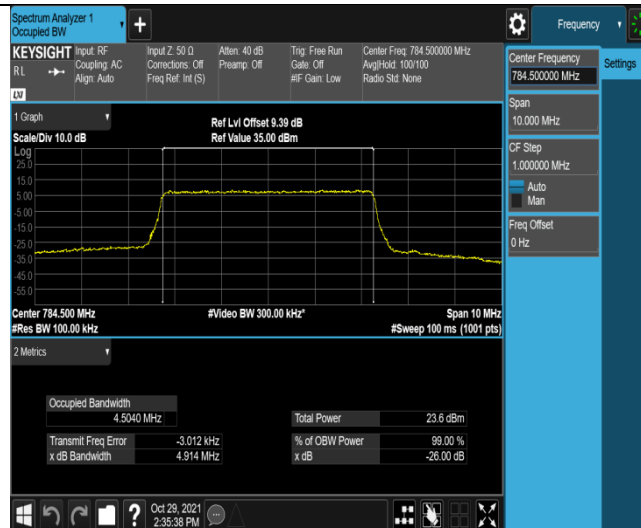
Band13-5MHz-QPSK-23205-25RB#0



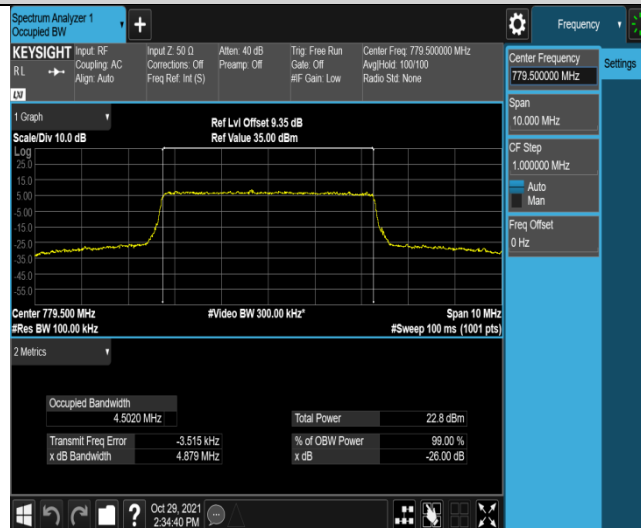
Band13-5MHz-QPSK-23230-25RB#0



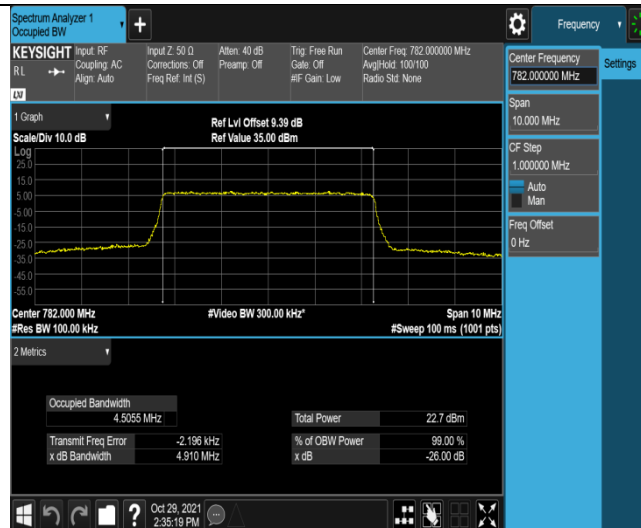
Band13-5MHz-QPSK-23255-25RB#0



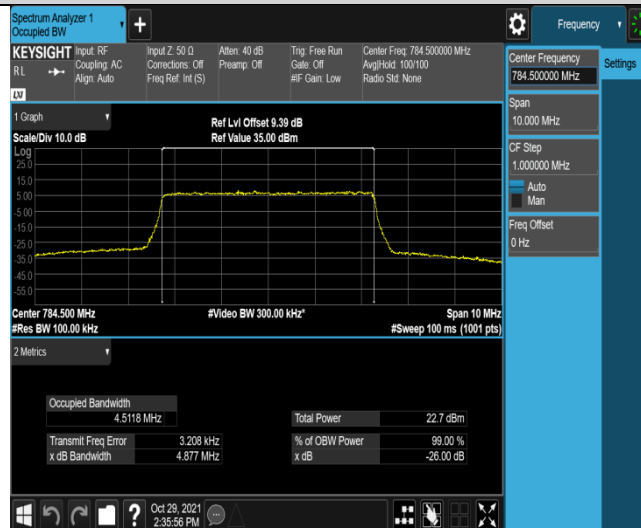
Band13-5MHz-16QAM-23205-25RB#0



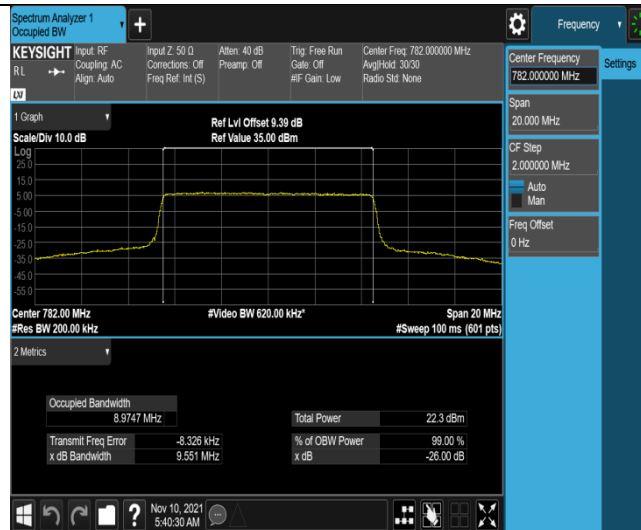
Band13-5MHz-16QAM-23230-25RB#0



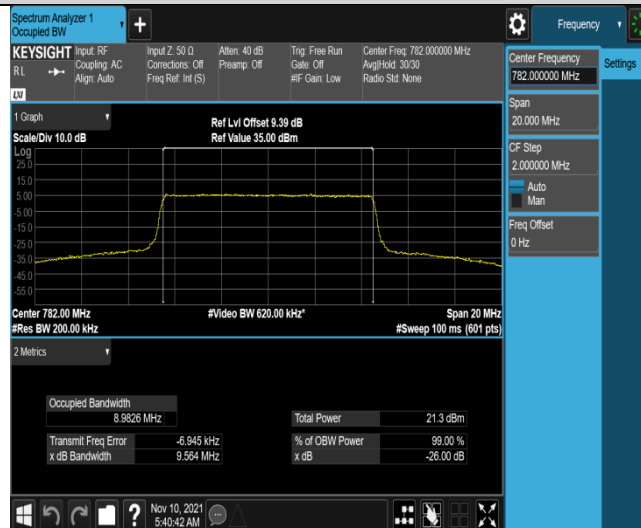
Band13-5MHz-16QAM-23255-25RB#0



Band13-10MHz-QPSK-23230-50RB#0



Band13-10MHz-16QAM-23230-50RB#0

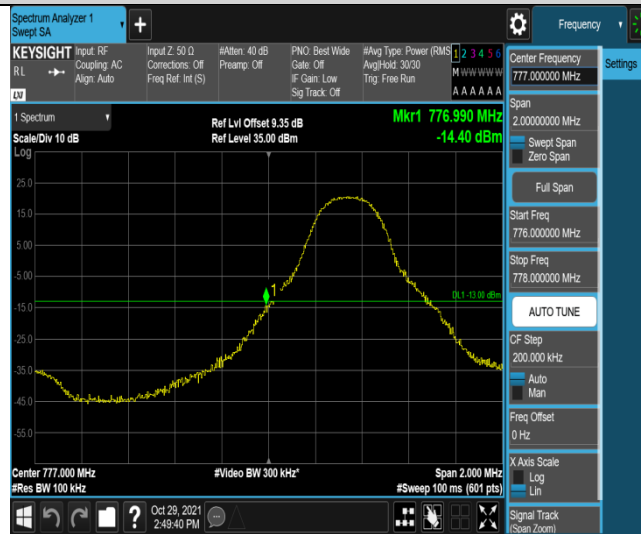


Appendix E: Band Edges Compliance

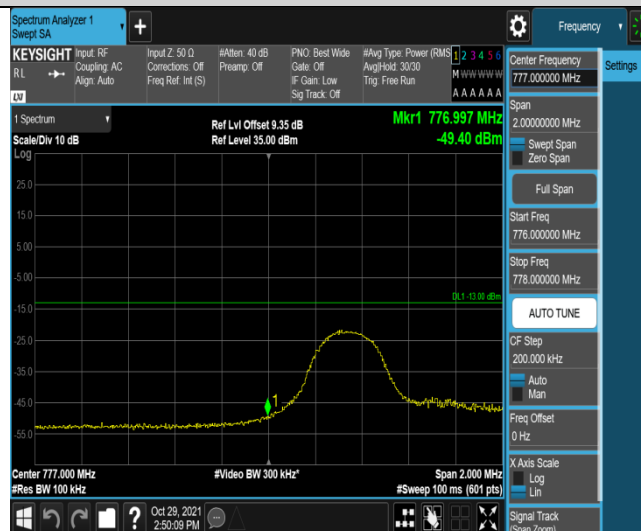
Test Results

Band	Bandwidth	Modulation	Channel	RB Configuration	Result(dBm)	Verdict
Band13	5MHz	QPSK	23205	1RB#0	-14.40	PASS
Band13	5MHz	QPSK	23205	1RB#24	-49.40	PASS
Band13	5MHz	QPSK	23205	25RB#0	-20.66	PASS
Band13	5MHz	QPSK	23255	1RB#0	-49.70	PASS
Band13	5MHz	QPSK	23255	1RB#24	-13.71	PASS
Band13	5MHz	QPSK	23255	25RB#0	-22.13	PASS
Band13	5MHz	16QAM	23205	1RB#0	-14.71	PASS
Band13	5MHz	16QAM	23205	1RB#24	-49.80	PASS
Band13	5MHz	16QAM	23205	25RB#0	-22.28	PASS
Band13	5MHz	16QAM	23255	1RB#0	-49.40	PASS
Band13	5MHz	16QAM	23255	1RB#24	-16.18	PASS
Band13	5MHz	16QAM	23255	25RB#0	-23.44	PASS
Band13	10MHz	QPSK	23230	1RB#0	-21.79,-48.54	PASS
Band13	10MHz	QPSK	23230	1RB#49	-45.89,-24.36	PASS
Band13	10MHz	QPSK	23230	50RB#0	-24.76,-25.48	PASS
Band13	10MHz	16QAM	23230	1RB#0	-22.57,-47.60	PASS
Band13	10MHz	16QAM	23230	1RB#49	-46.22,-25.77	PASS
Band13	10MHz	16QAM	23230	50RB#0	-26.39,-27.76	PASS

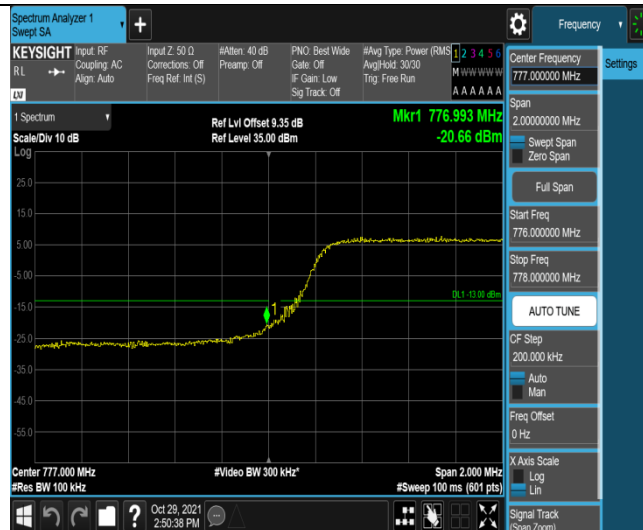
Band13-5MHz-QPSK-23205-1RB#0



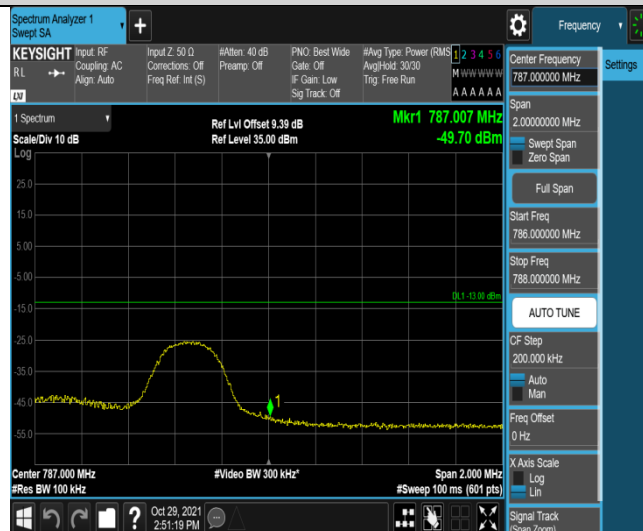
Band13-5MHz-QPSK-23205-1RB#24



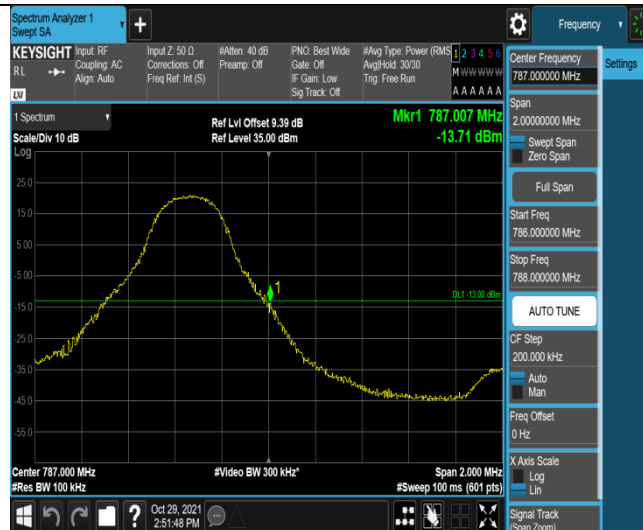
Band13-5MHz-QPSK-23205-25RB#0



Band13-5MHz-QPSK-23255-1RB#0



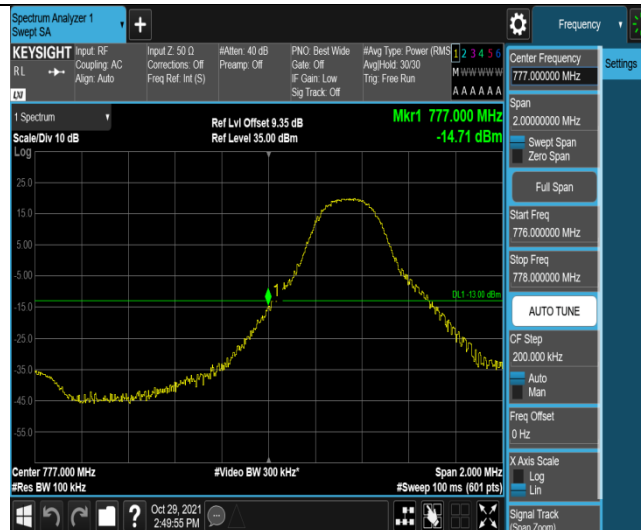
Band13-5MHz-QPSK-23255-1RB#24



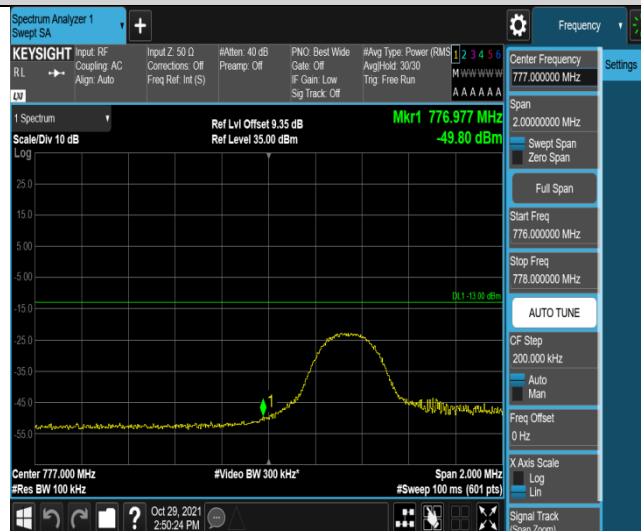
Band13-5MHz-QPSK-23255-25RB#0



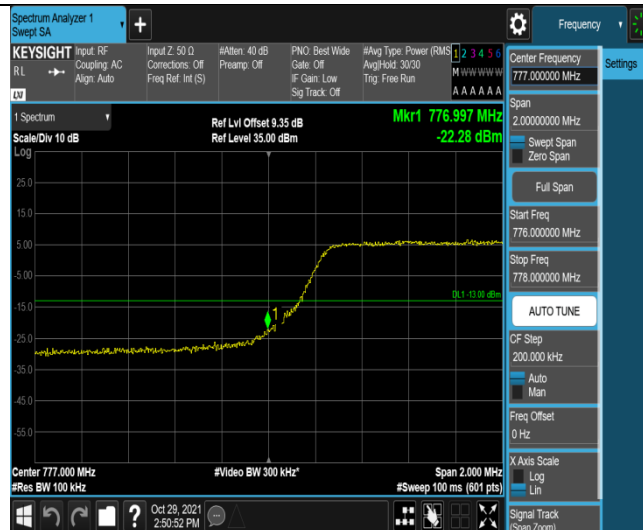
Band13-5MHz-16QAM-23205-1RB#0



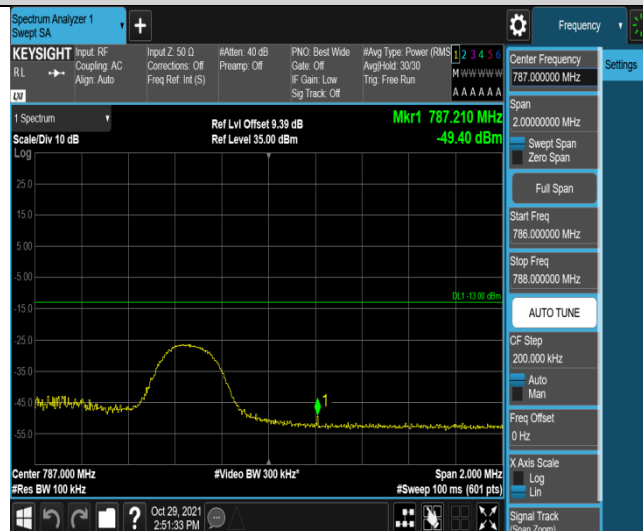
Band13-5MHz-16QAM-23205-1RB#24



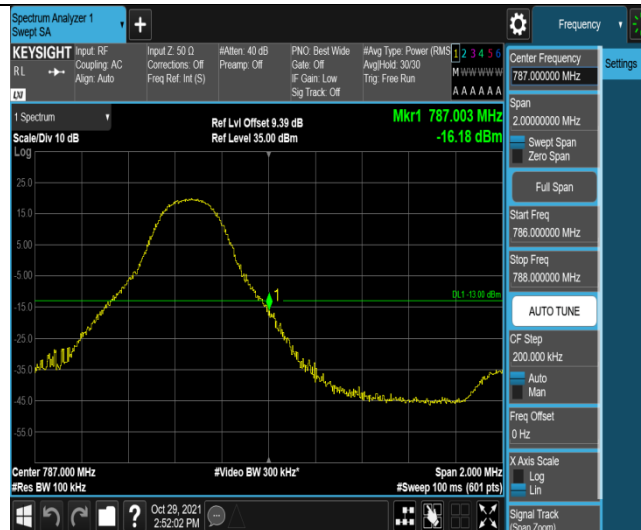
Band13-5MHz-16QAM-23205-25RB#0



Band13-5MHz-16QAM-23255-1RB#0



Band13-5MHz-16QAM-23255-1RB#24



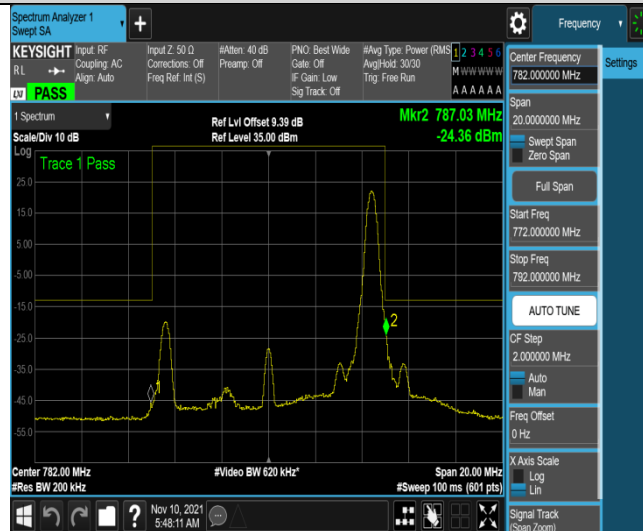
Band13-5MHz-16QAM-23255-25RB#0



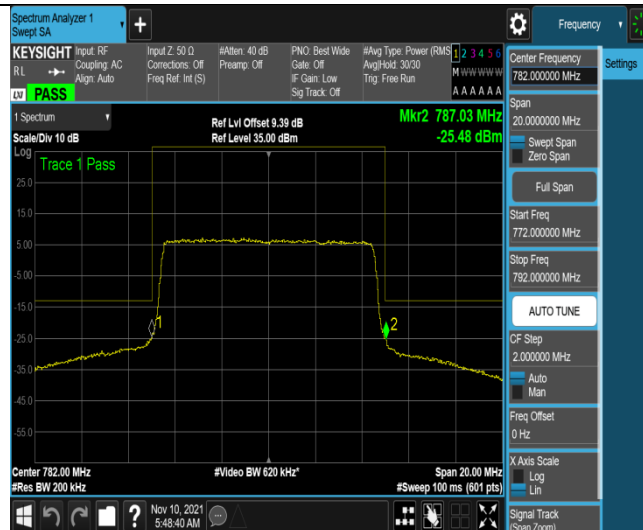
Band13-10MHz-QPSK-23230-1RB#0



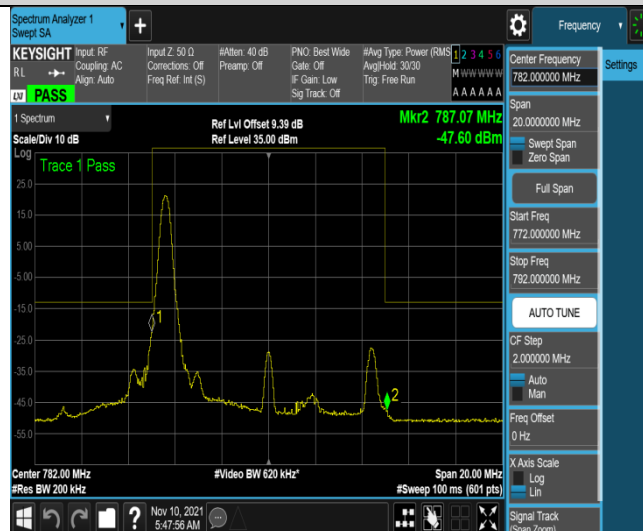
Band13-10MHz-QPSK-23230-1RB#49



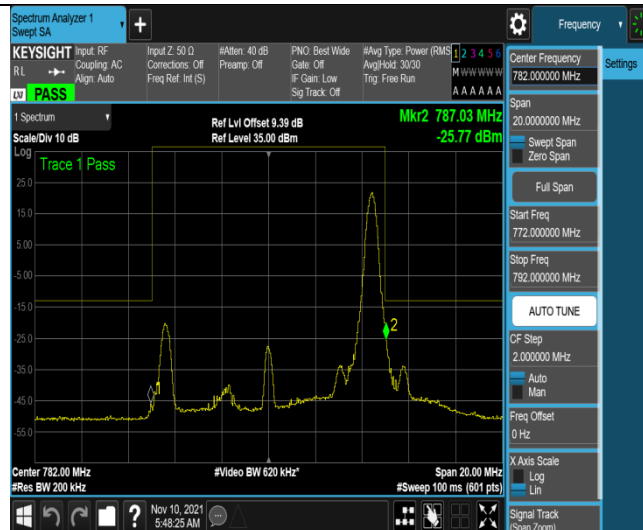
Band13-10MHz-QPSK-23230-50RB#0



Band13-10MHz-16QAM-23230-1RB#0



Band13-10MHz-16QAM-23230-1RB#49



Band13-10MHz-16QAM-23230-50RB#0

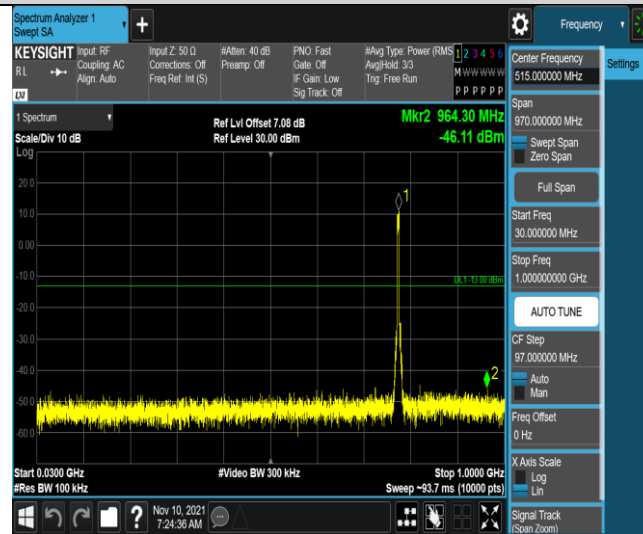


Appendix F Spurious Emission at Antenna Terminals

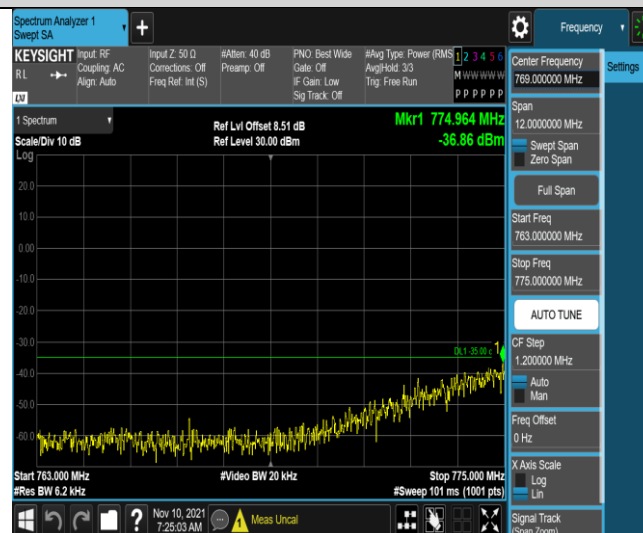
Test Result

Band	Bandwidth	Modulation	Channel	RB Configuration	Frequency Range	Result (dBm)	Verdict
Band13	5MHz	QPSK	23205	1RB#0	Range1:30~1000MHz	-46.11	PASS
Band13	5MHz	QPSK	23205	1RB#0	Range3:763~775MHz	-36.86	PASS
Band13	5MHz	QPSK	23205	1RB#0	Range4:793~805MHz	-55.24	PASS
Band13	5MHz	QPSK	23205	1RB#0	Range2:1000~10000MHz	-40.27	PASS
Band13	5MHz	QPSK	23205	1RB#0	Range5:1559~1610MHz	-63.32	PASS
Band13	5MHz	QPSK	23230	1RB#0	Range1:30~1000MHz	-45.6	PASS
Band13	5MHz	QPSK	23230	1RB#0	Range3:763~775MHz	-56	PASS
Band13	5MHz	QPSK	23230	1RB#0	Range4:793~805MHz	-56.5	PASS
Band13	5MHz	QPSK	23230	1RB#0	Range2:1000~10000MHz	-40.26	PASS
Band13	5MHz	QPSK	23230	1RB#0	Range5:1559~1610MHz	-62.99	PASS
Band13	5MHz	QPSK	23255	1RB#0	Range1:30~1000MHz	-46.87	PASS
Band13	5MHz	QPSK	23255	1RB#0	Range3:763~775MHz	-55	PASS
Band13	5MHz	QPSK	23255	1RB#0	Range4:793~805MHz	-54.83	PASS
Band13	5MHz	QPSK	23255	1RB#0	Range2:1000~10000MHz	-39.64	PASS
Band13	5MHz	QPSK	23255	1RB#0	Range5:1559~1610MHz	-62.97	PASS
Band13	5MHz	16QAM	23205	1RB#0	Range1:30~1000MHz	-46.23	PASS
Band13	5MHz	16QAM	23205	1RB#0	Range3:763~775MHz	-52.41	PASS
Band13	5MHz	16QAM	23205	1RB#0	Range4:793~805MHz	-56.2	PASS
Band13	5MHz	16QAM	23205	1RB#0	Range2:1000~10000MHz	-40	PASS
Band13	5MHz	16QAM	23205	1RB#0	Range5:1559~1610MHz	-58.49	PASS
Band13	5MHz	16QAM	23230	1RB#0	Range1:30~1000MHz	-45.07	PASS
Band13	5MHz	16QAM	23230	1RB#0	Range3:763~775MHz	-55.42	PASS
Band13	5MHz	16QAM	23230	1RB#0	Range4:793~805MHz	-56.08	PASS
Band13	5MHz	16QAM	23230	1RB#0	Range2:1000~10000MHz	-40.58	PASS
Band13	5MHz	16QAM	23230	1RB#0	Range5:1559~1610MHz	-63.13	PASS
Band13	5MHz	16QAM	23255	1RB#0	Range1:30~1000MHz	-46.24	PASS
Band13	5MHz	16QAM	23255	1RB#0	Range3:763~775MHz	-55.96	PASS
Band13	5MHz	16QAM	23255	1RB#0	Range4:793~805MHz	-55.61	PASS
Band13	5MHz	16QAM	23255	1RB#0	Range2:1000~10000MHz	-39.25	PASS
Band13	5MHz	16QAM	23255	1RB#0	Range5:1559~1610MHz	-63.00	PASS
Band13	10MHz	QPSK	23230	1RB#0	Range1:30~1000MHz	-46.40	PASS
Band13	10MHz	QPSK	23230	1RB#0	Range3:763~775MHz	-52.47	PASS
Band13	10MHz	QPSK	23230	1RB#0	Range4:793~805MHz	-54.48	PASS
Band13	10MHz	QPSK	23230	1RB#0	Range2:1000~10000MHz	-39.83	PASS
Band13	10MHz	QPSK	23230	1RB#0	Range5:1559~1610MHz	-58.83	PASS
Band13	10MHz	16QAM	23230	1RB#0	Range1:30~1000MHz	-46	PASS
Band13	10MHz	16QAM	23230	1RB#0	Range3:763~775MHz	-52.86	PASS
Band13	10MHz	16QAM	23230	1RB#0	Range4:793~805MHz	-55.32	PASS
Band13	10MHz	16QAM	23230	1RB#0	Range2:1000~10000MHz	-40.21	PASS
Band13	10MHz	16QAM	23230	1RB#0	Range5:1559~1610MHz	-58.42	PASS

Band13-5MHz-QPSK-23205-1RB#0-Range1:30~1000MHz



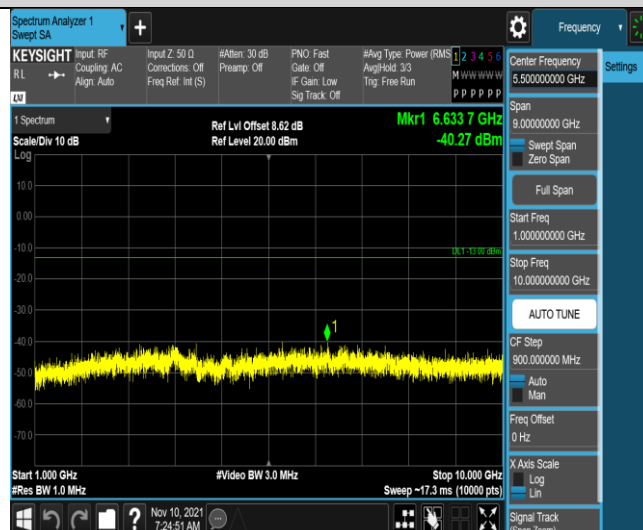
Band13-5MHz-QPSK-23205-1RB#0-Range3:763~775MHz



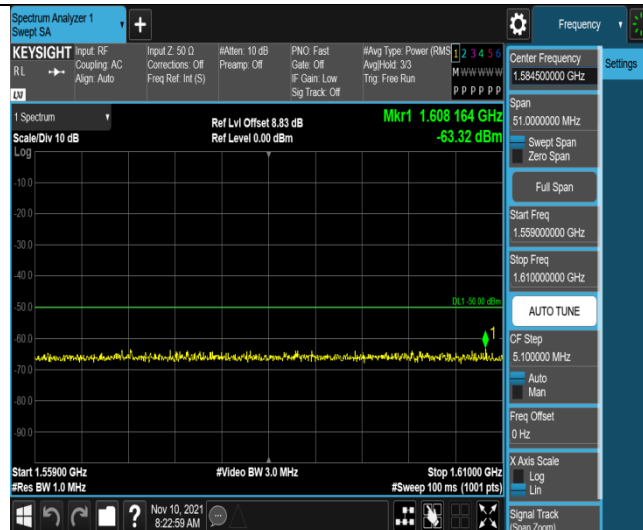
Band13-5MHz-QPSK-23205-1RB#0-Range4:793~805MHz



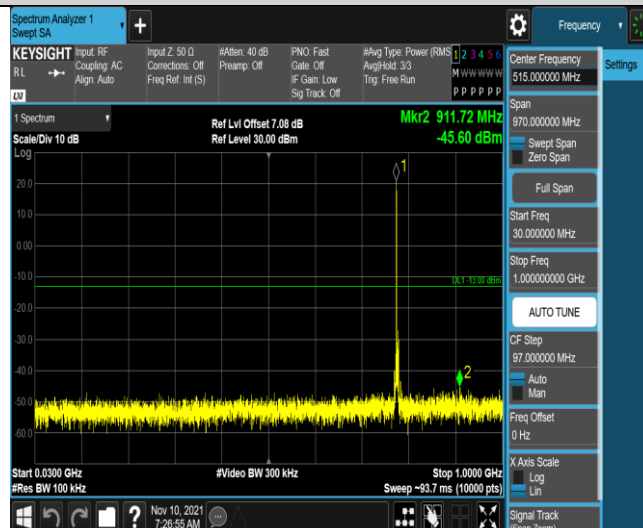
Band13-5MHz-QPSK-23205-1RB#0-Range2:1000~10000MHz



Band13-5MHz-QPSK-23205-1RB#0-Range5:1559~1610MHz



Band13-5MHz-QPSK-23230-1RB#0-Range1:30~1000MHz



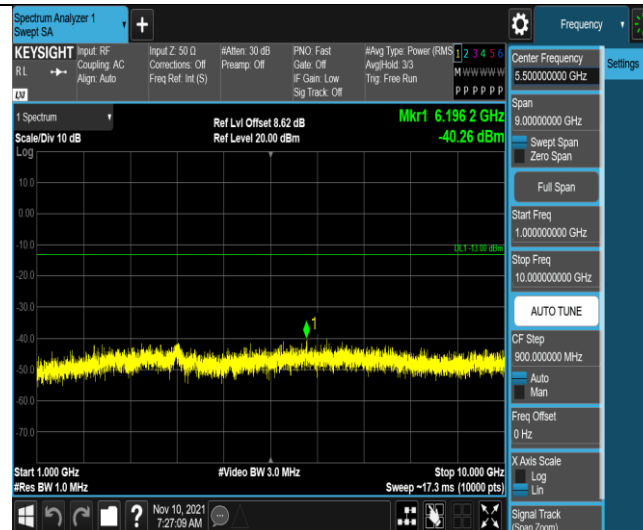
Band13-5MHz-QPSK-23230-1RB#0-Range3:763~775MHz



Band13-5MHz-QPSK-23230-1RB#0-Range4:793~805MHz



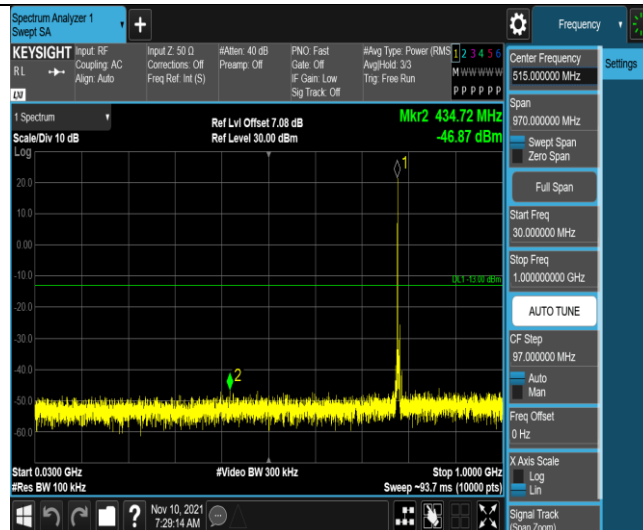
Band13-5MHz-QPSK-23230-1RB#0-Range2:1000~10000MHz



Band13-5MHz-QPSK-23230-1RB#0-Range5:1559~1610MHz



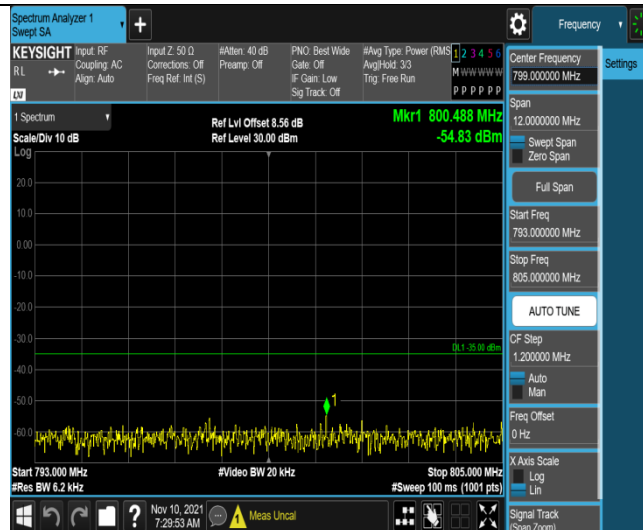
Band13-5MHz-QPSK-23255-1RB#0-Range1:30~1000MHz



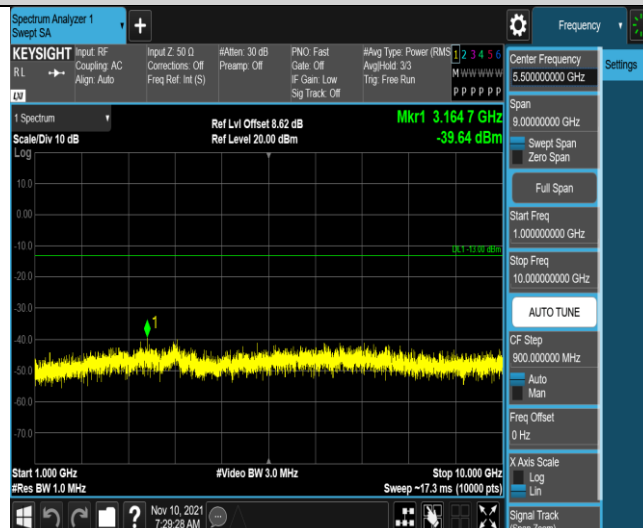
Band13-5MHz-QPSK-23255-1RB#0-Range3:763~775MHz



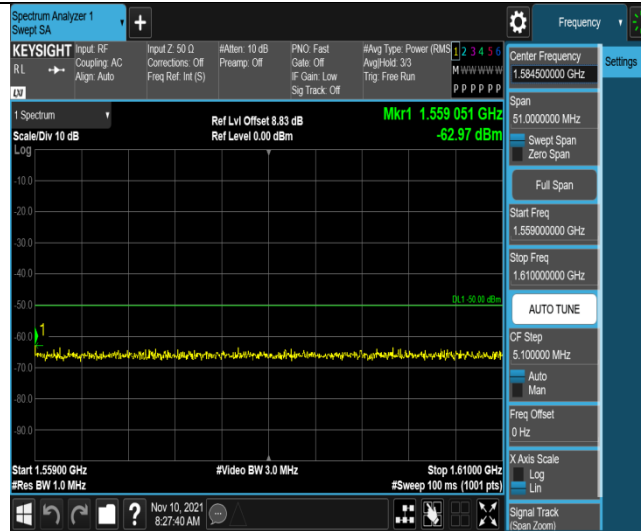
Band13-5MHz-QPSK-23255-1RB#0-Range4:793~805MHz



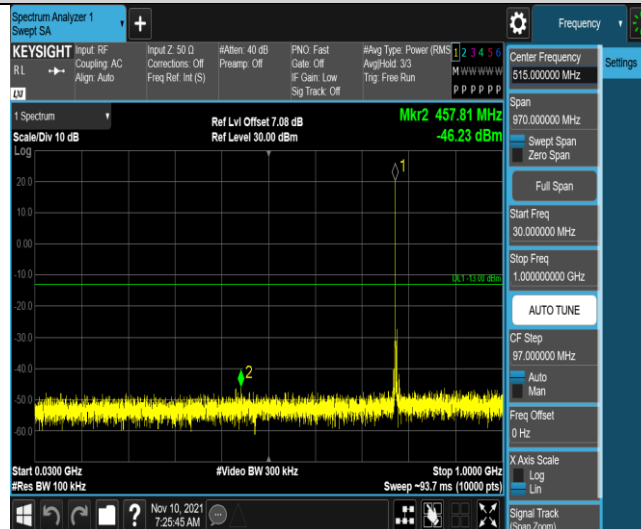
Band13-5MHz-QPSK-23255-1RB#0-Range2:1000~10000MHz



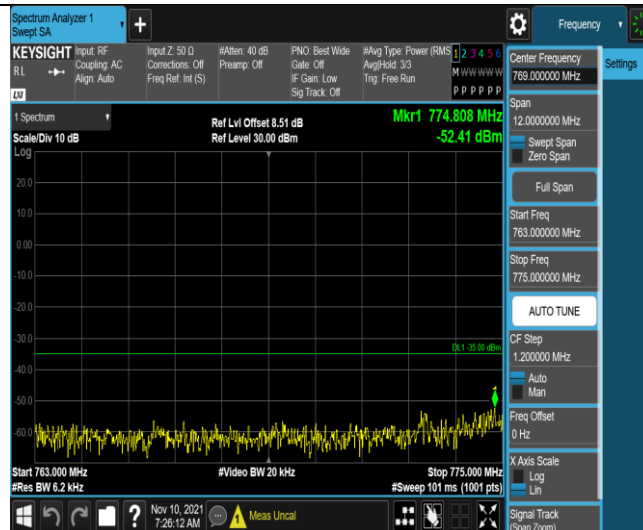
Band13-5MHz-QPSK-23255-1RB#0-Range5:1559~1610MHz



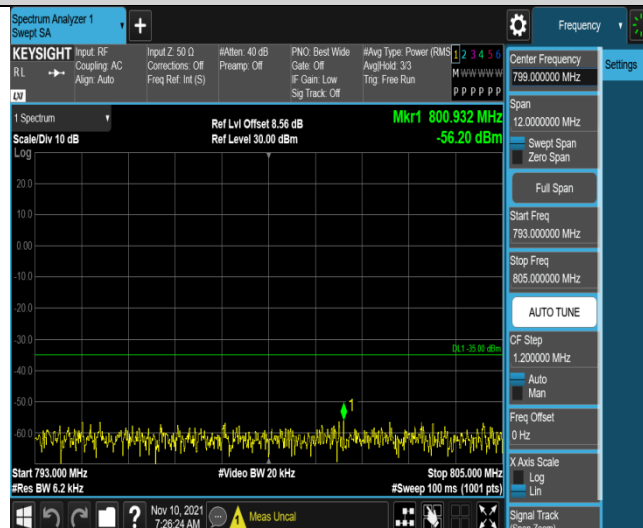
Band13-5MHz-16QAM-23205-1RB#0-Range1:30~1000MHz



Band13-5MHz-16QAM-23205-1RB#0-Range3:763~775MHz



Band13-5MHz-16QAM-23205-1RB#0-Range4:793~805MHz



Band13-5MHz-16QAM-23205-1RB#0-Range2:1000~10000MHz