

TEST REPORT

Report No.: BCTC2205535730-2E

Applicant: UMOVAL IoT Technology Co., Ltd

Product Name: 3G/4G LTE Solar Security PTZ Cameras

Model/Type
reference: UM-Q6-4G

Tested Date: 2022-05-26 to 2022-06-30

Issued Date: 2022-06-30

Shenzhen BCTC Testing Co., Ltd.

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Appendix 1. Conducted output power

Band	Bandwidth (MHz)	UL Channel	RB Size	RB Position	Modulation	Power (dBm)	Gain (dBm)	ERP (dBm)	Verdict
Band13	5	23205	1	#0	QPSK	22.41	5	25.26	PASS
Band13	5	23205	1	#Mid	QPSK	22.98	5	25.83	PASS
Band13	5	23205	1	#Max	QPSK	22.52	5	25.37	PASS
Band13	5	23205	12	#0	QPSK	21.52	5	24.37	PASS
Band13	5	23205	12	#Mid	QPSK	21.63	5	24.48	PASS
Band13	5	23205	12	#Max	QPSK	21.63	5	24.48	PASS
Band13	5	23205	25	#0	QPSK	21.59	5	24.44	PASS
Band13	5	23205	1	#0	QAM16	21.65	5	24.50	PASS
Band13	5	23205	1	#Mid	QAM16	21.82	5	24.67	PASS
Band13	5	23205	1	#Max	QAM16	21.65	5	24.50	PASS
Band13	5	23205	12	#0	QAM16	20.38	5	23.23	PASS
Band13	5	23205	12	#Mid	QAM16	20.43	5	23.28	PASS
Band13	5	23205	12	#Max	QAM16	20.41	5	23.26	PASS
Band13	5	23205	25	#0	QAM16	20.52	5	23.37	PASS
Band13	5	23230	1	#0	QPSK	22.36	5	25.21	PASS
Band13	5	23230	1	#Mid	QPSK	22.66	5	25.51	PASS
Band13	5	23230	1	#Max	QPSK	22.61	5	25.46	PASS
Band13	5	23230	12	#0	QPSK	21.51	5	24.36	PASS
Band13	5	23230	12	#Mid	QPSK	21.56	5	24.41	PASS
Band13	5	23230	12	#Max	QPSK	21.66	5	24.51	PASS
Band13	5	23230	25	#0	QPSK	21.60	5	24.45	PASS
Band13	5	23230	1	#0	QAM16	21.43	5	24.28	PASS
Band13	5	23230	1	#Mid	QAM16	21.07	5	23.92	PASS
Band13	5	23230	1	#Max	QAM16	20.89	5	23.74	PASS
Band13	5	23230	12	#0	QAM16	20.26	5	23.11	PASS
Band13	5	23230	12	#Mid	QAM16	20.42	5	23.27	PASS
Band13	5	23230	12	#Max	QAM16	20.40	5	23.25	PASS
Band13	5	23230	25	#0	QAM16	20.49	5	23.34	PASS
Band13	5	23255	1	#0	QPSK	22.42	5	25.27	PASS
Band13	5	23255	1	#Mid	QPSK	22.66	5	25.51	PASS
Band13	5	23255	1	#Max	QPSK	22.68	5	25.53	PASS
Band13	5	23255	12	#0	QPSK	21.64	5	24.49	PASS
Band13	5	23255	12	#Mid	QPSK	21.59	5	24.44	PASS
Band13	5	23255	12	#Max	QPSK	21.53	5	24.38	PASS
Band13	5	23255	25	#0	QPSK	21.68	5	24.53	PASS
Band13	5	23255	1	#0	QAM16	21.64	5	24.49	PASS
Band13	5	23255	1	#Mid	QAM16	21.16	5	24.01	PASS

Band13	5	23255	1	#Max	QAM16	20.97	5	23.82	PASS
Band13	5	23255	12	#0	QAM16	20.67	5	23.52	PASS
Band13	5	23255	12	#Mid	QAM16	20.43	5	23.28	PASS
Band13	5	23255	12	#Max	QAM16	20.44	5	23.29	PASS
Band13	5	23255	25	#0	QAM16	20.55	5	23.40	PASS
Band13	10	23230	1	#0	QPSK	22.58	5	25.43	PASS
Band13	10	23230	1	#Mid	QPSK	22.82	5	25.67	PASS
Band13	10	23230	1	#Max	QPSK	22.44	5	25.29	PASS
Band13	10	23230	25	#0	QPSK	21.58	5	24.43	PASS
Band13	10	23230	25	#Mid	QPSK	21.66	5	24.51	PASS
Band13	10	23230	25	#Max	QPSK	21.62	5	24.47	PASS
Band13	10	23230	50	#0	QPSK	21.55	5	24.40	PASS
Band13	10	23230	1	#0	QAM16	21.97	5	24.82	PASS
Band13	10	23230	1	#Mid	QAM16	22.35	5	25.20	PASS
Band13	10	23230	1	#Max	QAM16	21.99	5	24.84	PASS
Band13	10	23230	25	#0	QAM16	20.48	5	23.33	PASS
Band13	10	23230	25	#Mid	QAM16	20.60	5	23.45	PASS
Band13	10	23230	25	#Max	QAM16	20.61	5	23.46	PASS
Band13	10	23230	50	#0	QAM16	20.63	5	23.48	PASS

Appendix 2. Frequency stability

Band	Bandwidth (MHz)	UL Channel	RB Size	RB Position	Modulation	Voltage (Vdc)	Temperature (C)	Result (Hz)	Result (ppm)	Low Limit (ppm)	high Limit (ppm)	Verdict
Band13	5	23205	25	#0	QPSK	LV	NT	-2.93	-0.004	-2.5	2.5	PASS
Band13	5	23205	25	#0	QPSK	NV	NT	-3.33	-0.004	-2.5	2.5	PASS
Band13	5	23205	25	#0	QPSK	HV	NT	-2.25	-0.003	-2.5	2.5	PASS
Band13	5	23205	25	#0	QAM16	LV	NT	-1.62	-0.002	-2.5	2.5	PASS
Band13	5	23205	25	#0	QAM16	NV	NT	-2.12	-0.003	-2.5	2.5	PASS
Band13	5	23205	25	#0	QAM16	HV	NT	-1.89	-0.002	-2.5	2.5	PASS
Band13	5	23230	25	#0	QPSK	LV	NT	-1.10	-0.001	-2.5	2.5	PASS
Band13	5	23230	25	#0	QPSK	NV	NT	-0.86	-0.001	-2.5	2.5	PASS

Band1 3	5	23230	25	#0	QPSK	HV	NT	-1.09	-0.00 1	-2.5	2.5	PASS
Band1 3	5	23230	25	#0	QAM16	LV	NT	-0.86	-0.00 1	-2.5	2.5	PASS
Band1 3	5	23230	25	#0	QAM16	NV	NT	-0.96	-0.00 1	-2.5	2.5	PASS
Band1 3	5	23230	25	#0	QAM16	HV	NT	-1.59	-0.00 2	-2.5	2.5	PASS
Band1 3	5	23255	25	#0	QPSK	LV	NT	-1.10	-0.00 1	-2.5	2.5	PASS
Band1 3	5	23255	25	#0	QPSK	NV	NT	-0.86	-0.00 1	-2.5	2.5	PASS
Band1 3	5	23255	25	#0	QPSK	HV	NT	-1.03	-0.00 1	-2.5	2.5	PASS
Band1 3	5	23255	25	#0	QAM16	LV	NT	-0.56	-0.00 1	-2.5	2.5	PASS
Band1 3	5	23255	25	#0	QAM16	NV	NT	-1.20	-0.00 2	-2.5	2.5	PASS
Band1 3	5	23255	25	#0	QAM16	HV	NT	-0.40	-0.00 1	-2.5	2.5	PASS
Band1 3	10	23230	50	#0	QPSK	LV	NT	-1.40	-0.00 2	-2.5	2.5	PASS
Band1 3	10	23230	50	#0	QPSK	NV	NT	-0.34	0.000	-2.5	2.5	PASS
Band1 3	10	23230	50	#0	QPSK	HV	NT	0.07	0.000	-2.5	2.5	PASS
Band1 3	10	23230	50	#0	QAM16	LV	NT	-1.50	-0.00 2	-2.5	2.5	PASS
Band1 3	10	23230	50	#0	QAM16	NV	NT	-1.44	-0.00 2	-2.5	2.5	PASS
Band1 3	10	23230	50	#0	QAM16	HV	NT	-1.32	-0.00 2	-2.5	2.5	PASS

Band	Bandwidth (MHz)	UL Channel	RB Size	RB Position	Modulation	Voltage (Vdc)	Temperature (C)	Result (Hz)	Result (ppm)	Low Limit (ppm)	High Limit (ppm)	Verdict
Band1 3	5	23205	25	#0	QPSK	NV	-30	-2.07	-0.00 3	-2.5	2.5	PASS
Band1 3	5	23205	25	#0	QPSK	NV	-20	-2.59	-0.00 3	-2.5	2.5	PASS
Band1 3	5	23205	25	#0	QPSK	NV	0	-1.97	-0.00 3	-2.5	2.5	PASS

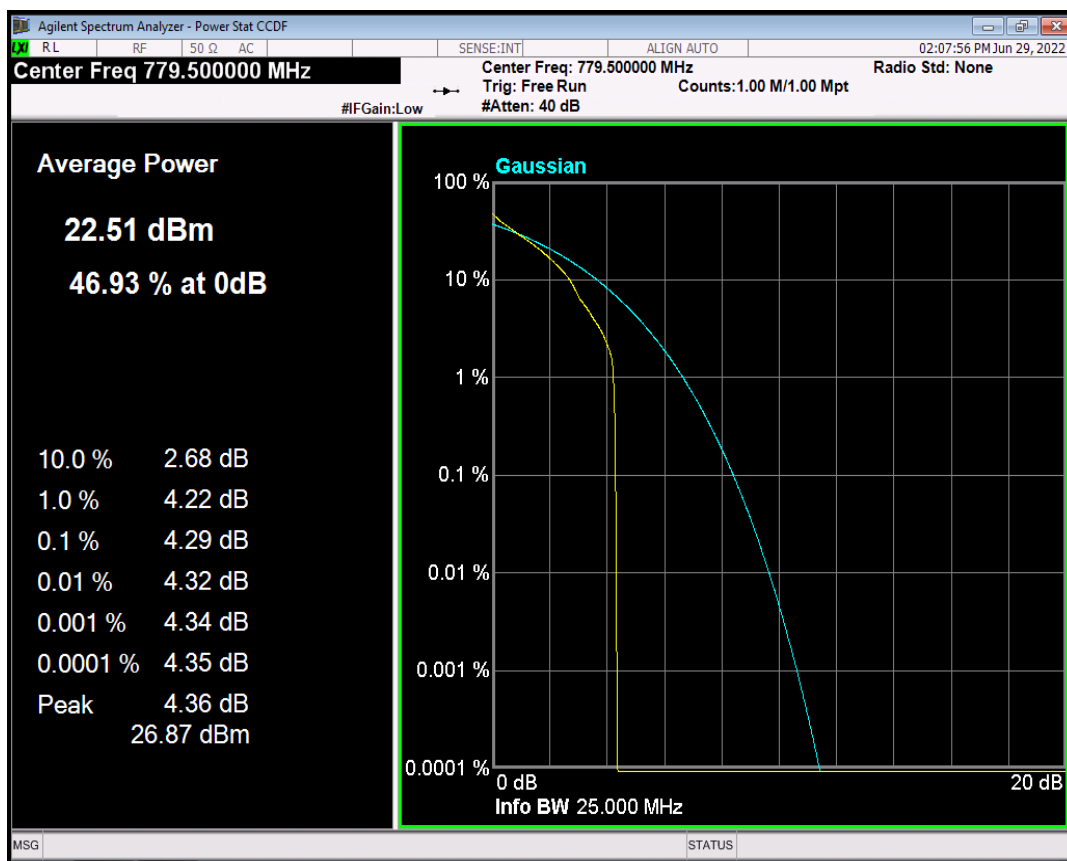
Band1 3	5	23205	25	#0	QPSK	NV	10	-3.05	-0.00 4	-2.5	2.5	PASS
Band1 3	5	23205	25	#0	QPSK	NV	20	-1.95	-0.00 3	-2.5	2.5	PASS
Band1 3	5	23205	25	#0	QAM16	NV	-30	-2.95	-0.00 4	-2.5	2.5	PASS
Band1 3	5	23205	25	#0	QAM16	NV	-20	-2.40	-0.00 3	-2.5	2.5	PASS
Band1 3	5	23205	25	#0	QAM16	NV	0	-1.70	-0.00 2	-2.5	2.5	PASS
Band1 3	5	23205	25	#0	QAM16	NV	10	-1.17	-0.00 2	-2.5	2.5	PASS
Band1 3	5	23205	25	#0	QAM16	NV	20	-2.27	-0.00 3	-2.5	2.5	PASS
Band1 3	5	23230	25	#0	QPSK	NV	-30	-1.90	-0.00 2	-2.5	2.5	PASS
Band1 3	5	23230	25	#0	QPSK	NV	-20	-1.13	-0.00 1	-2.5	2.5	PASS
Band1 3	5	23230	25	#0	QPSK	NV	0	-1.27	-0.00 2	-2.5	2.5	PASS
Band1 3	5	23230	25	#0	QPSK	NV	10	-1.44	-0.00 2	-2.5	2.5	PASS
Band1 3	5	23230	25	#0	QPSK	NV	20	-1.03	-0.00 1	-2.5	2.5	PASS
Band1 3	5	23230	25	#0	QAM16	NV	-30	-0.37	0.000	-2.5	2.5	PASS
Band1 3	5	23230	25	#0	QAM16	NV	-20	-0.33	0.000	-2.5	2.5	PASS
Band1 3	5	23230	25	#0	QAM16	NV	0	-0.74	-0.00 1	-2.5	2.5	PASS
Band1 3	5	23230	25	#0	QAM16	NV	10	-0.72	-0.00 1	-2.5	2.5	PASS
Band1 3	5	23230	25	#0	QAM16	NV	20	-0.82	-0.00 1	-2.5	2.5	PASS
Band1 3	5	23255	25	#0	QPSK	NV	-30	0.04	0.000	-2.5	2.5	PASS
Band1 3	5	23255	25	#0	QPSK	NV	-20	-0.31	0.000	-2.5	2.5	PASS
Band1 3	5	23255	25	#0	QPSK	NV	0	-0.57	-0.00 1	-2.5	2.5	PASS
Band1 3	5	23255	25	#0	QPSK	NV	10	0.19	0.000	-2.5	2.5	PASS
Band1 3	5	23255	25	#0	QPSK	NV	20	-0.89	-0.00	-2.5	2.5	PASS

3									1			
Band1 3	5	23255	25	#0	QAM16	NV	-30	-1.60	-0.00 2	-2.5	2.5	PASS
Band1 3	5	23255	25	#0	QAM16	NV	-20	-0.56	-0.00 1	-2.5	2.5	PASS
Band1 3	5	23255	25	#0	QAM16	NV	0	-0.69	-0.00 1	-2.5	2.5	PASS
Band1 3	5	23255	25	#0	QAM16	NV	10	0.11	0.000	-2.5	2.5	PASS
Band1 3	5	23255	25	#0	QAM16	NV	20	-0.16	0.000	-2.5	2.5	PASS
Band1 3	10	23230	50	#0	QPSK	NV	-30	-1.00	-0.00 1	-2.5	2.5	PASS
Band1 3	10	23230	50	#0	QPSK	NV	-20	-0.26	0.000	-2.5	2.5	PASS
Band1 3	10	23230	50	#0	QPSK	NV	0	-0.84	-0.00 1	-2.5	2.5	PASS
Band1 3	10	23230	50	#0	QPSK	NV	10	-0.50	-0.00 1	-2.5	2.5	PASS
Band1 3	10	23230	50	#0	QPSK	NV	20	-1.36	-0.00 2	-2.5	2.5	PASS
Band1 3	10	23230	50	#0	QAM16	NV	-30	-1.10	-0.00 1	-2.5	2.5	PASS
Band1 3	10	23230	50	#0	QAM16	NV	-20	-1.39	-0.00 2	-2.5	2.5	PASS
Band1 3	10	23230	50	#0	QAM16	NV	0	-1.65	-0.00 2	-2.5	2.5	PASS
Band1 3	10	23230	50	#0	QAM16	NV	10	-0.11	0.000	-2.5	2.5	PASS
Band1 3	10	23230	50	#0	QAM16	NV	20	-1.40	-0.00 2	-2.5	2.5	PASS

Appendix 3. Peak-to-Average Ratio

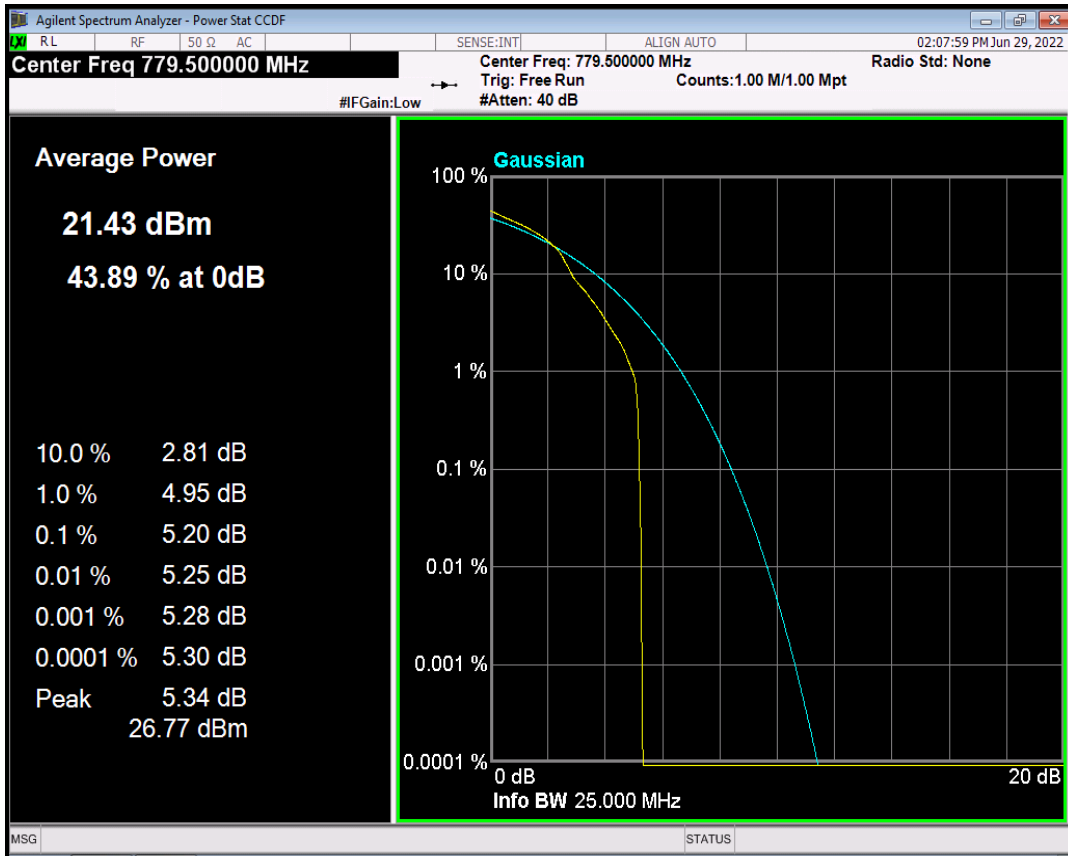
Band	Bandwidth (MHz)	UL Channel	RB Size	RB Position	Modulation	Result (dB)	high Limit (dB)	Verdict
Band13	5	23205	1	#0	QPSK	4.29	13	PASS
Band13	5	23205	1	#0	QAM16	5.20	13	PASS
Band13	5	23230	1	#0	QPSK	4.41	13	PASS
Band13	5	23230	1	#0	QAM16	5.22	13	PASS
Band13	5	23255	1	#0	QPSK	4.14	13	PASS
Band13	5	23255	1	#0	QAM16	5.00	13	PASS
Band13	10	23230	1	#0	QPSK	4.25	13	PASS
Band13	10	23230	1	#0	QAM16	5.18	13	PASS

Band13 QPSK BW=5MHz Channel=23205 RB Size=1 Position=#0

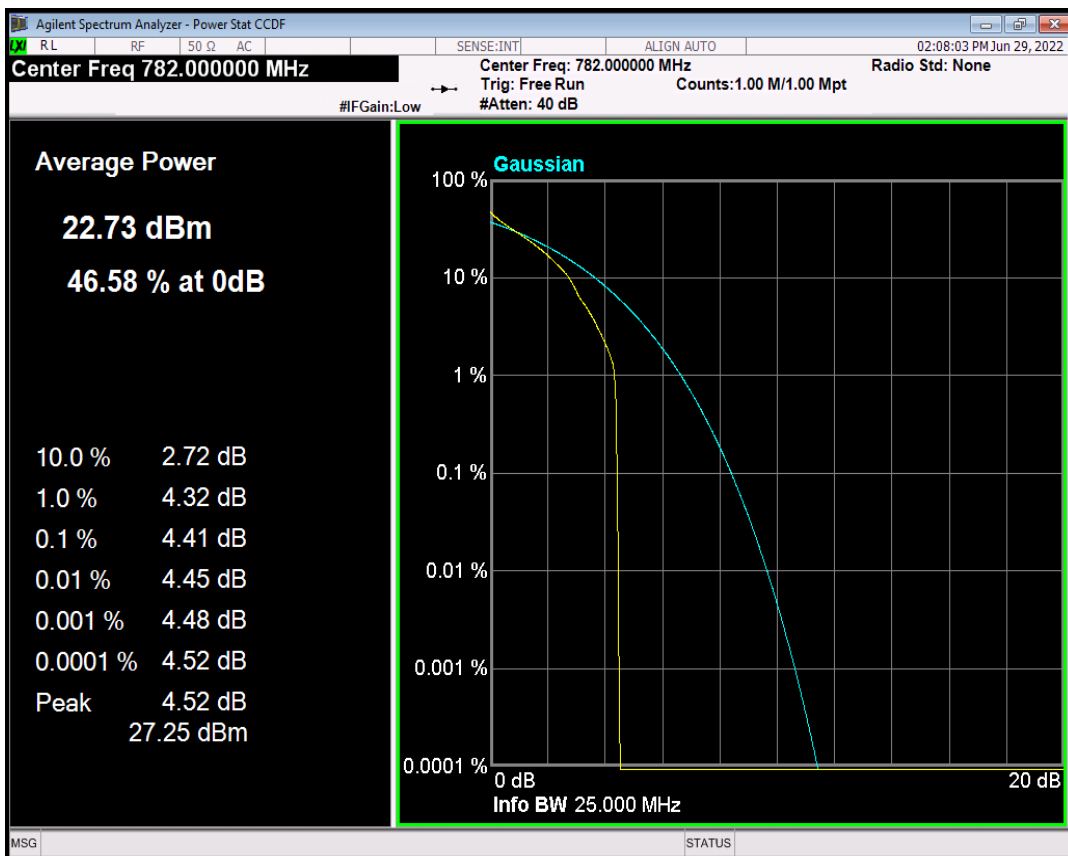




Band13 QAM16 BW=5MHz Channel=23205 RB Size=1 Position=#0

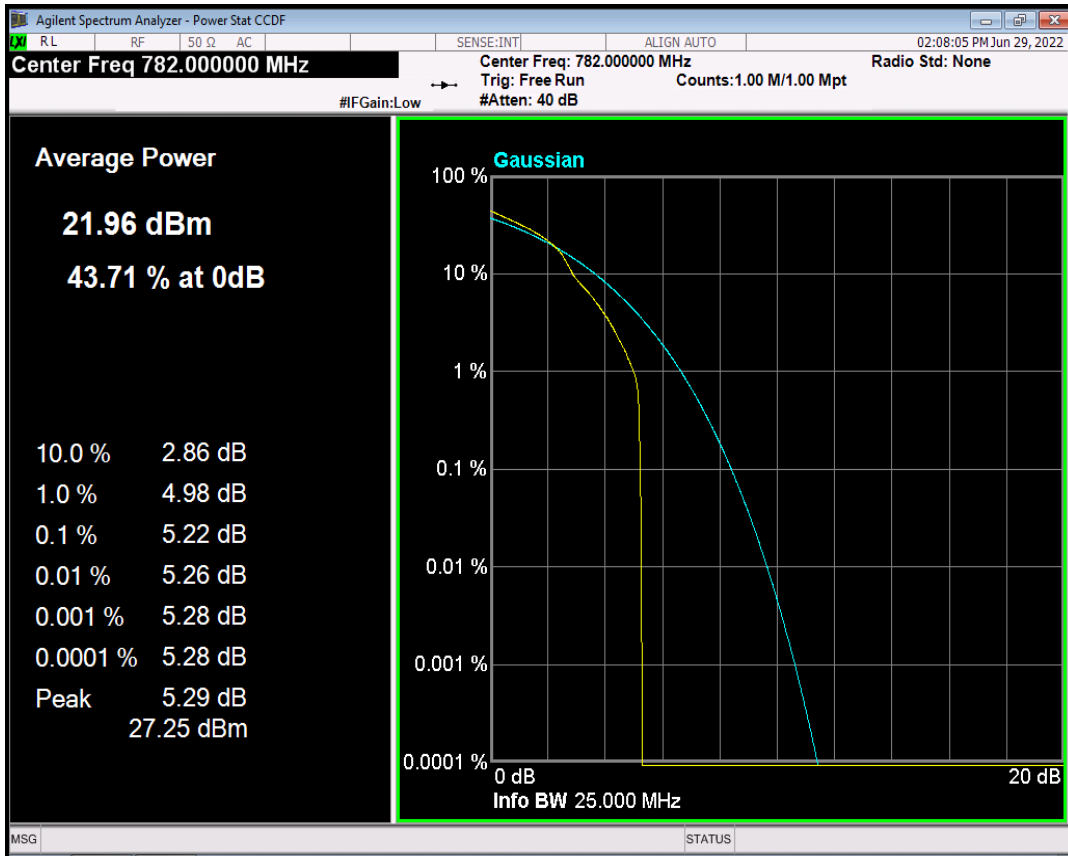


Band13 QPSK BW=5MHz Channel=23230 RB Size=1 Position=#0

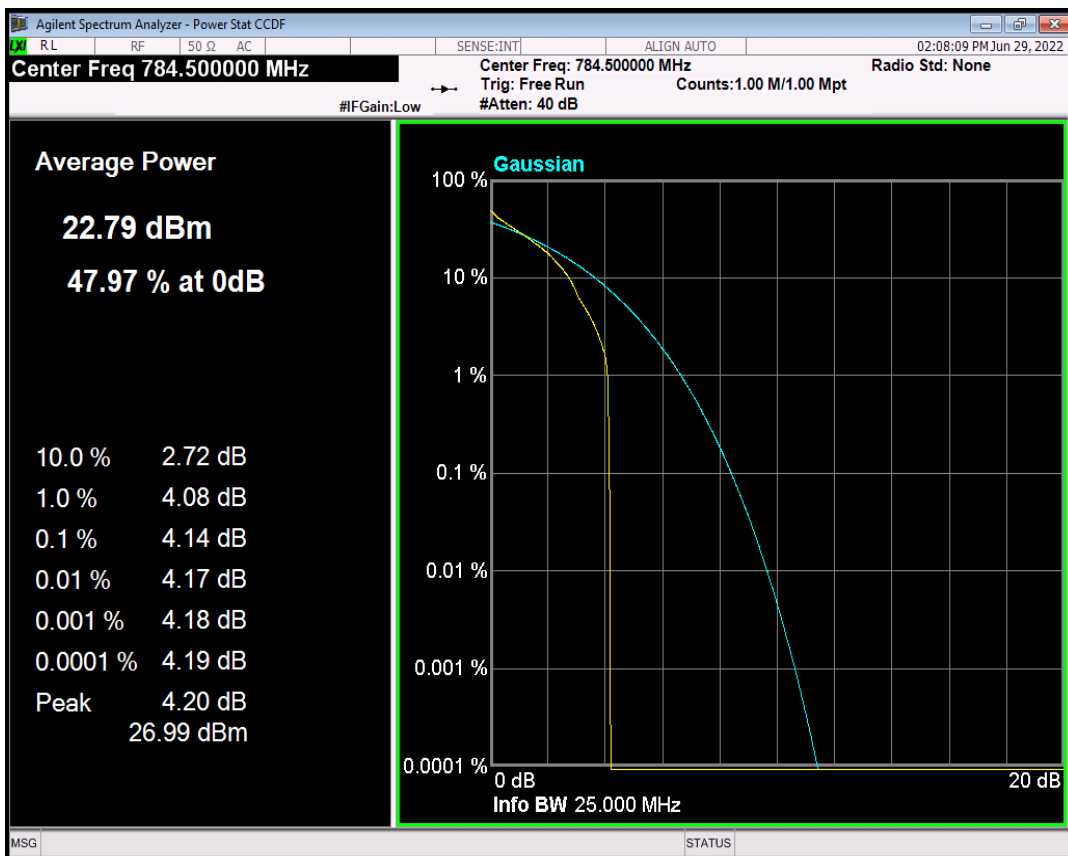




Band13 QAM16 BW=5MHz Channel=23230 RB Size=1 Position=#0

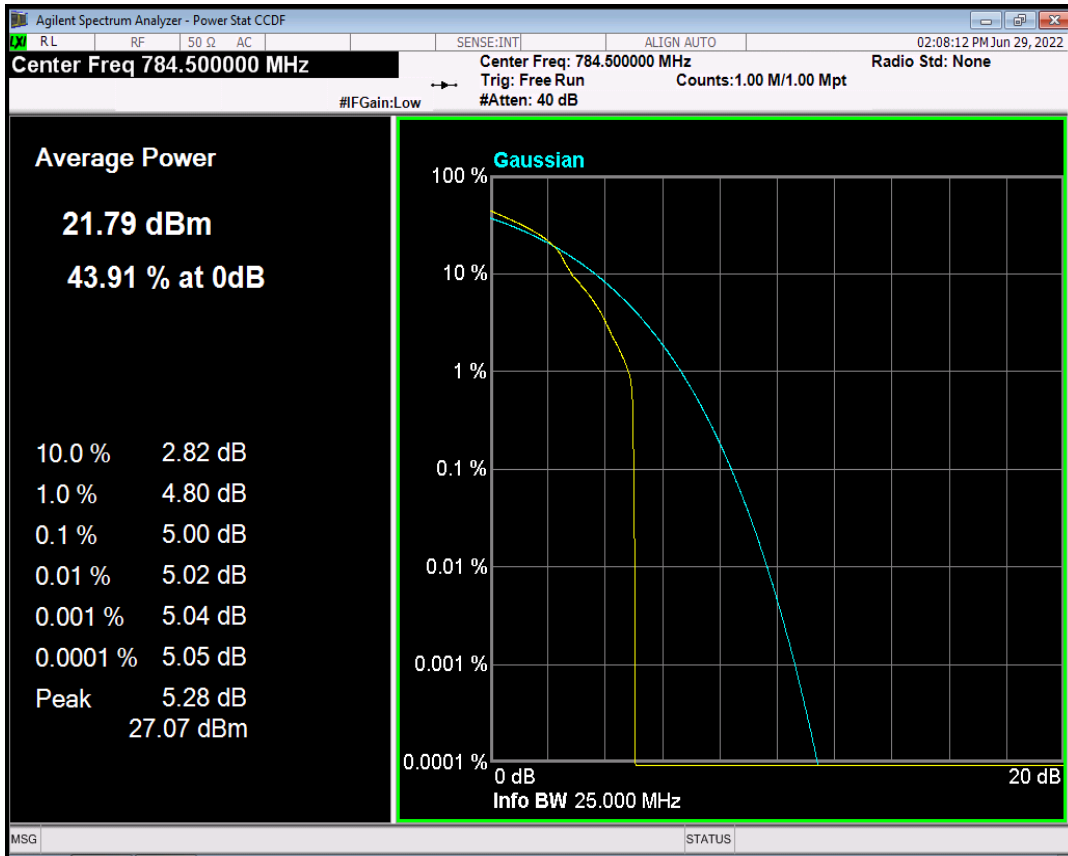


Band13 QPSK BW=5MHz Channel=23255 RB Size=1 Position=#0

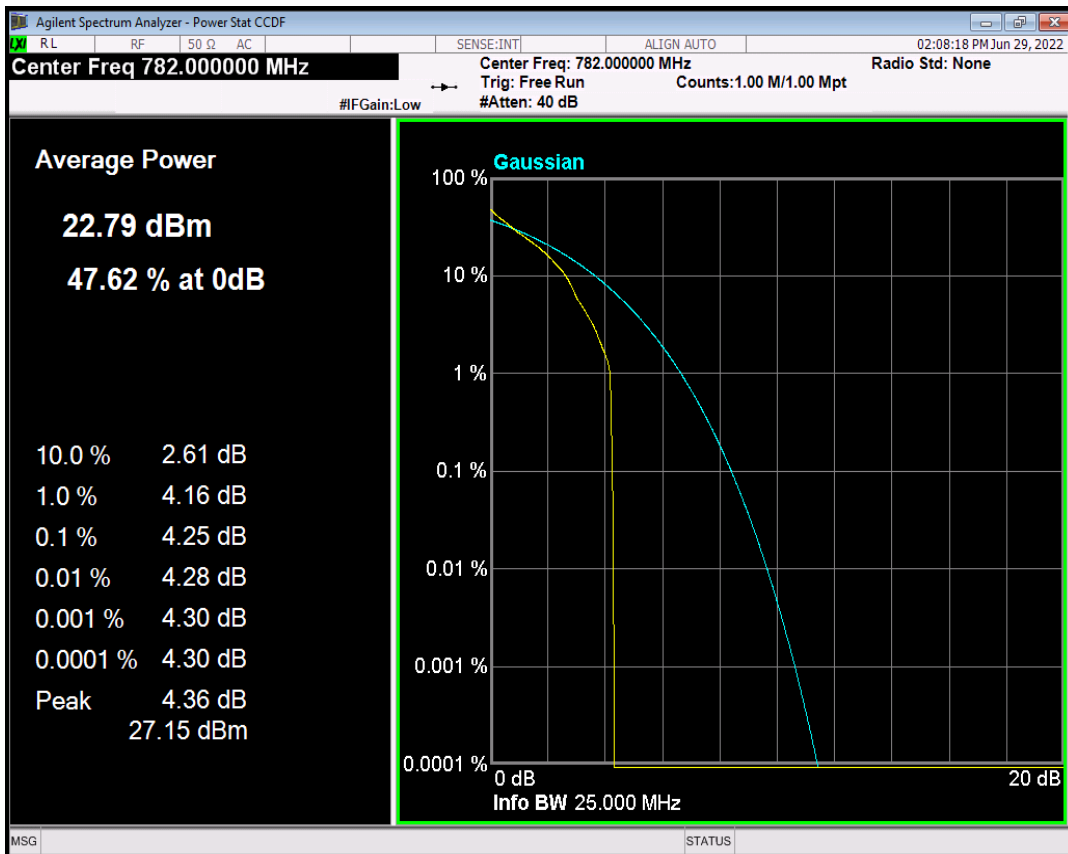




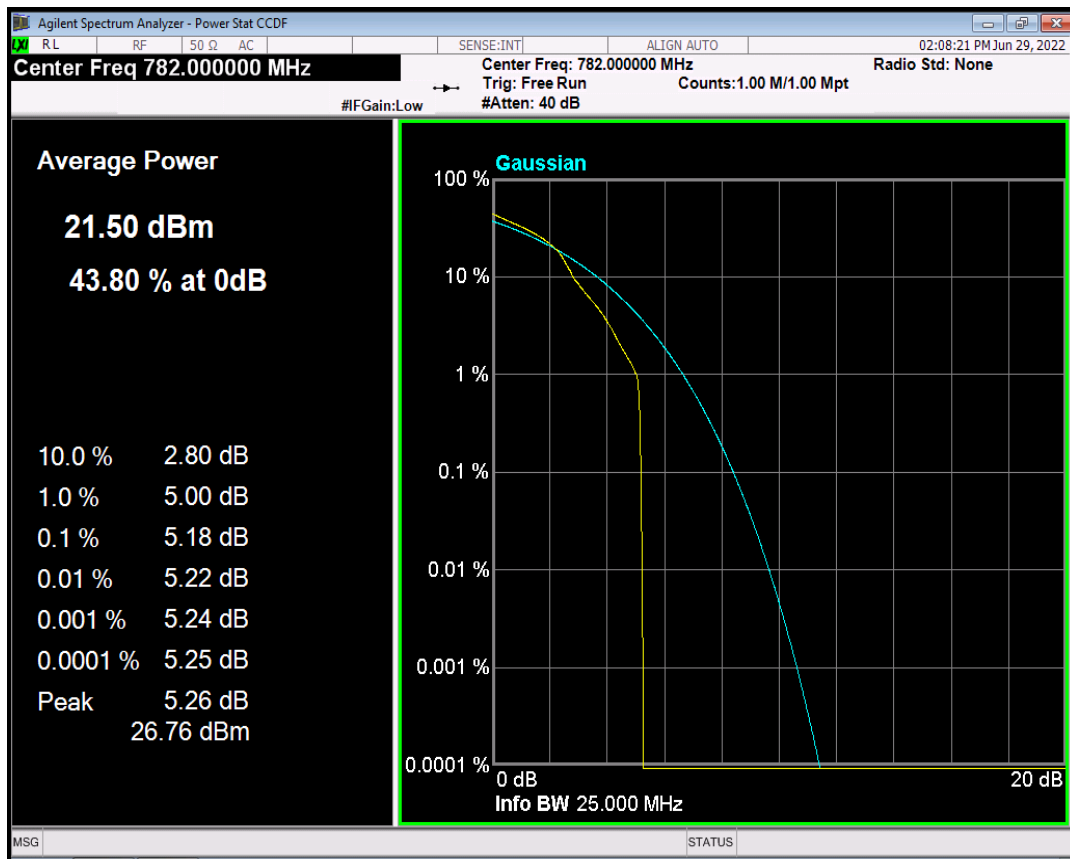
Band13 QAM16 BW=5MHz Channel=23255 RB Size=1 Position=#0



Band13 QPSK BW=10MHz Channel=23230 RB Size=1 Position=#0



Band13 QAM16 BW=10MHz Channel=23230 RB Size=1 Position=#0

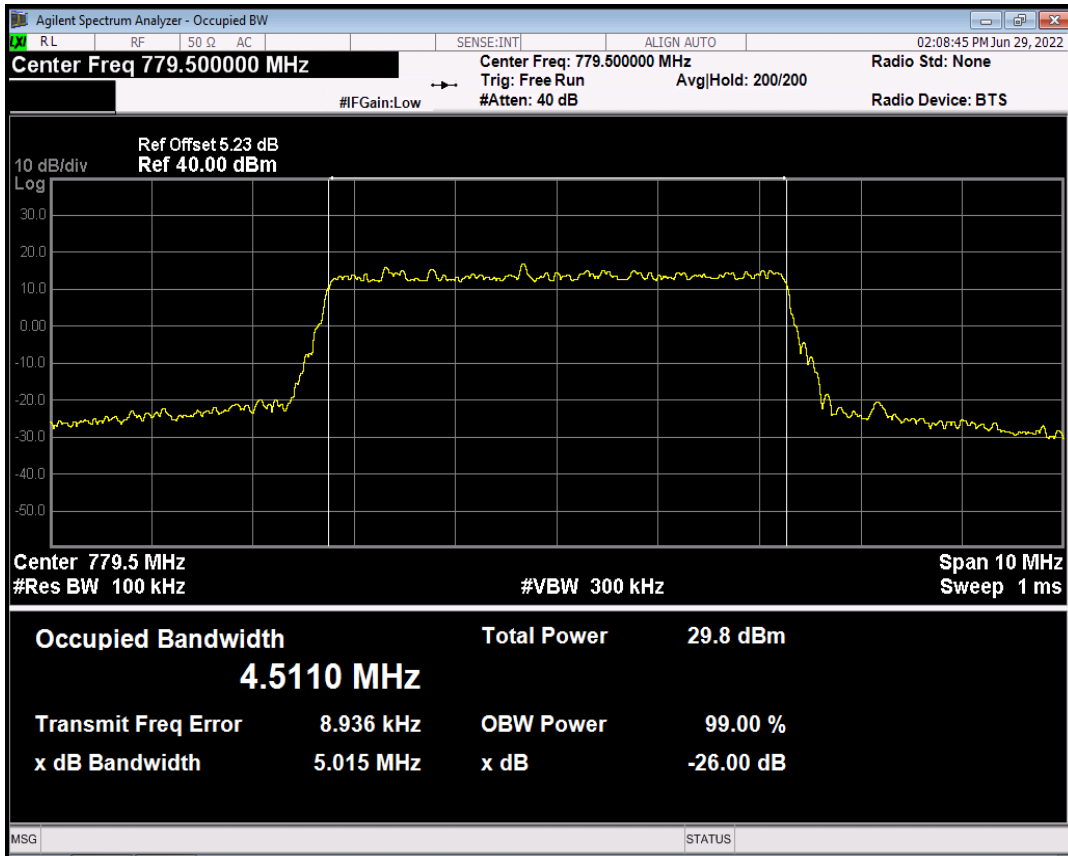


Appendix 4. Occupied bandwidth

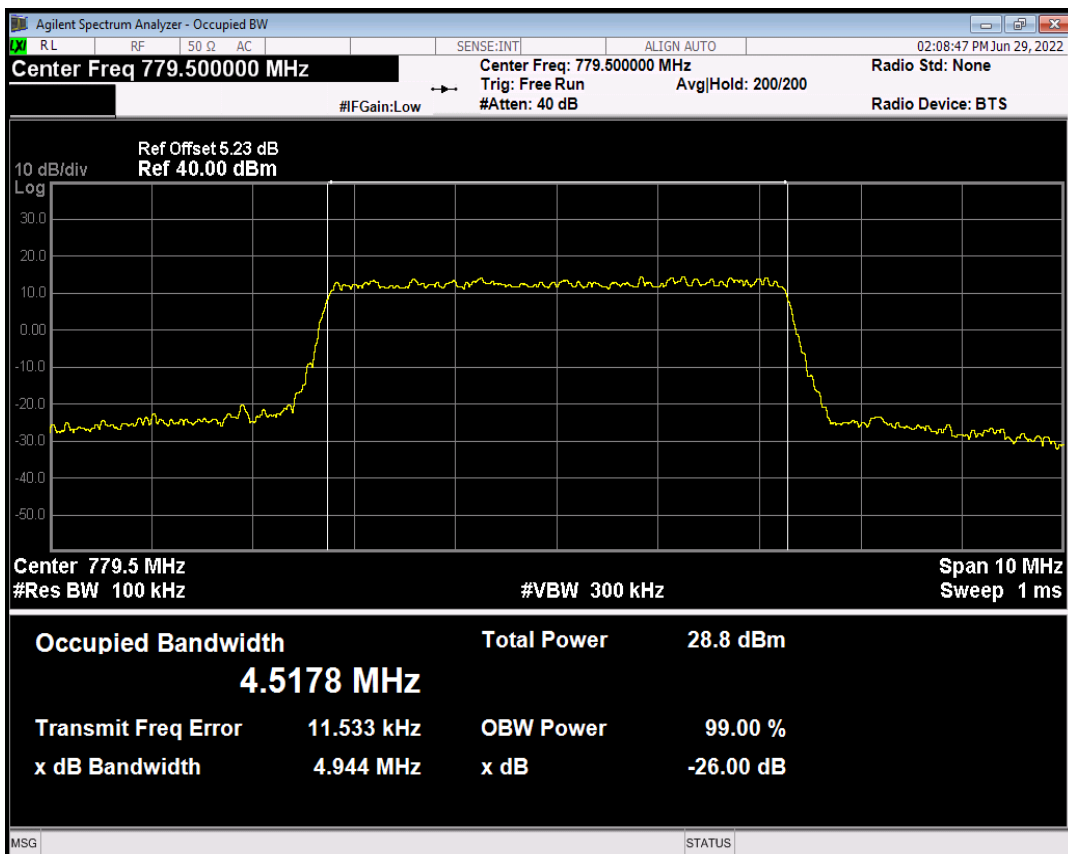
Band	Bandwidth (MHz)	UL Channel	RB Size	RB Position	Modulation	99% OBW (MHz)	-26dB EBW (MHz)	Verdict
Band13	5	23205	25	#0	QPSK	4.511	5.015	PASS
Band13	5	23205	25	#0	QAM16	4.518	4.944	PASS
Band13	5	23230	25	#0	QPSK	4.531	5.019	PASS
Band13	5	23230	25	#0	QAM16	4.504	5.008	PASS
Band13	5	23255	25	#0	QPSK	4.513	4.962	PASS
Band13	5	23255	25	#0	QAM16	4.508	4.970	PASS
Band13	10	23230	50	#0	QPSK	8.959	9.808	PASS
Band13	10	23230	50	#0	QAM16	8.970	9.803	PASS



Band13 QPSK BW=5MHz Channel=23205 RB Size=25 Position=#0

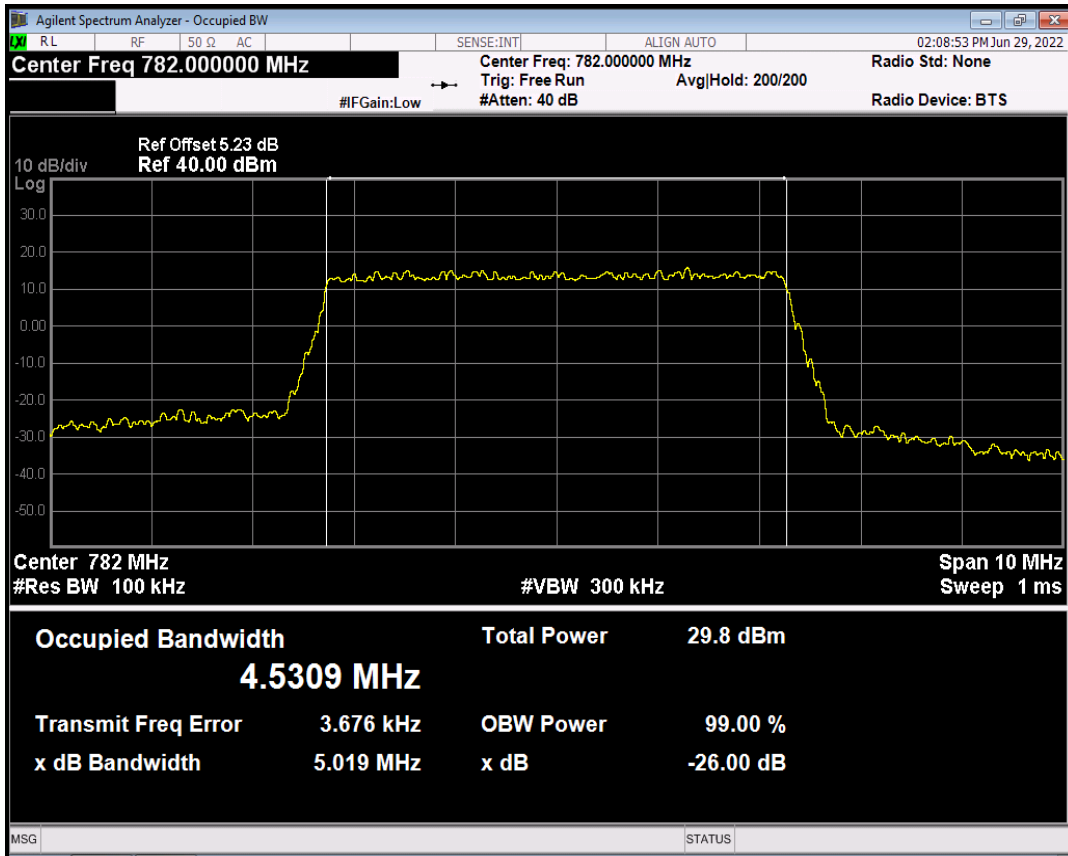


Band13 QAM16 BW=5MHz Channel=23205 RB Size=25 Position=#0

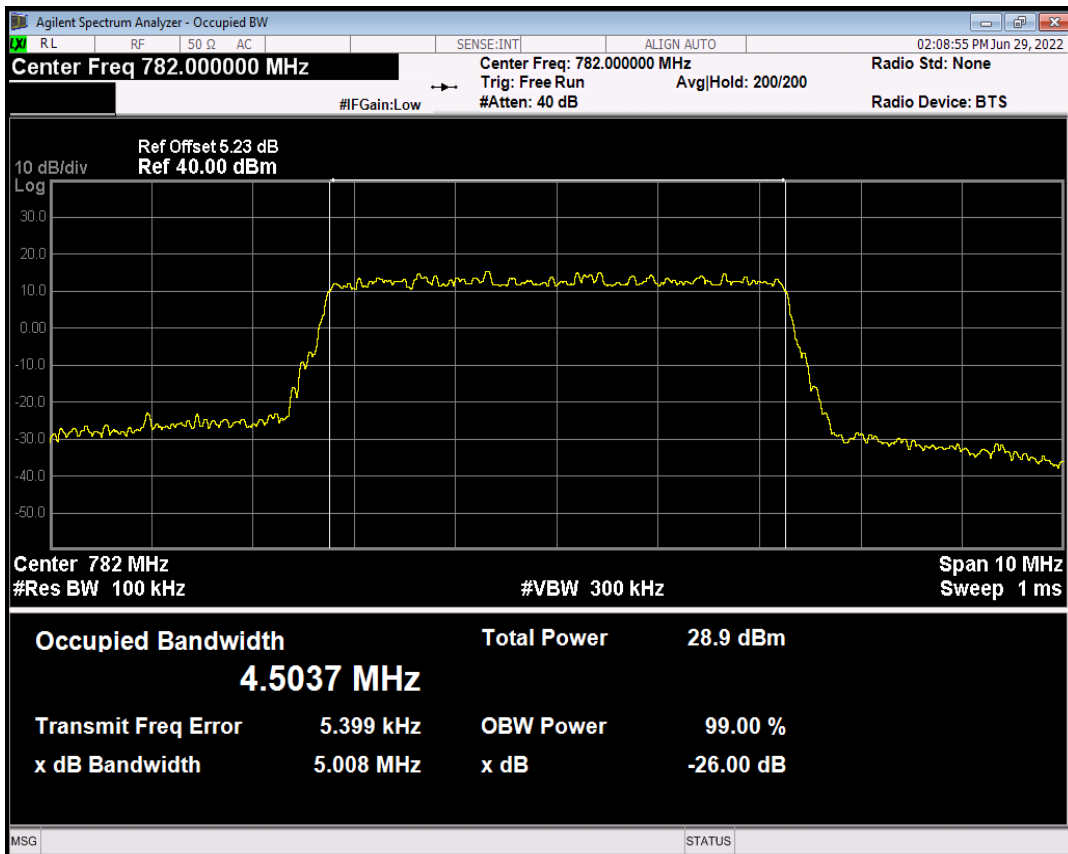




Band13 QPSK BW=5MHz Channel=23230 RB Size=25 Position=#0

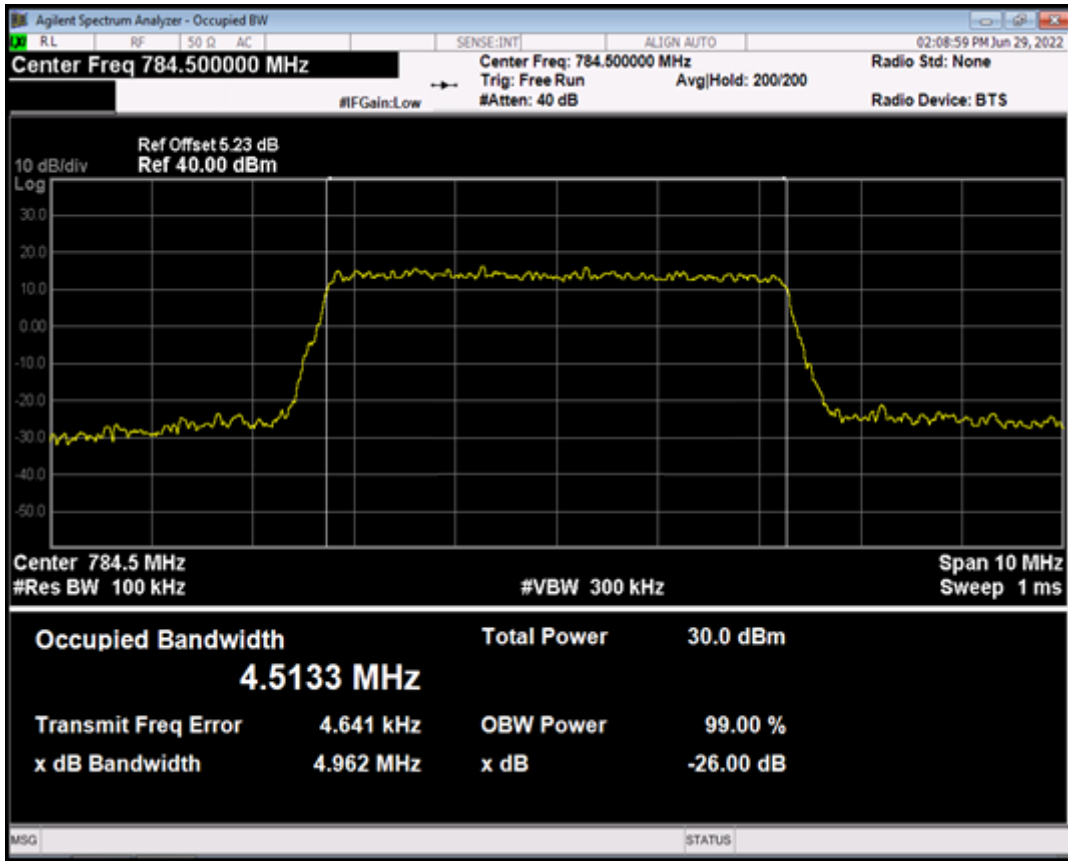


Band13 QAM16 BW=5MHz Channel=23230 RB Size=25 Position=#0

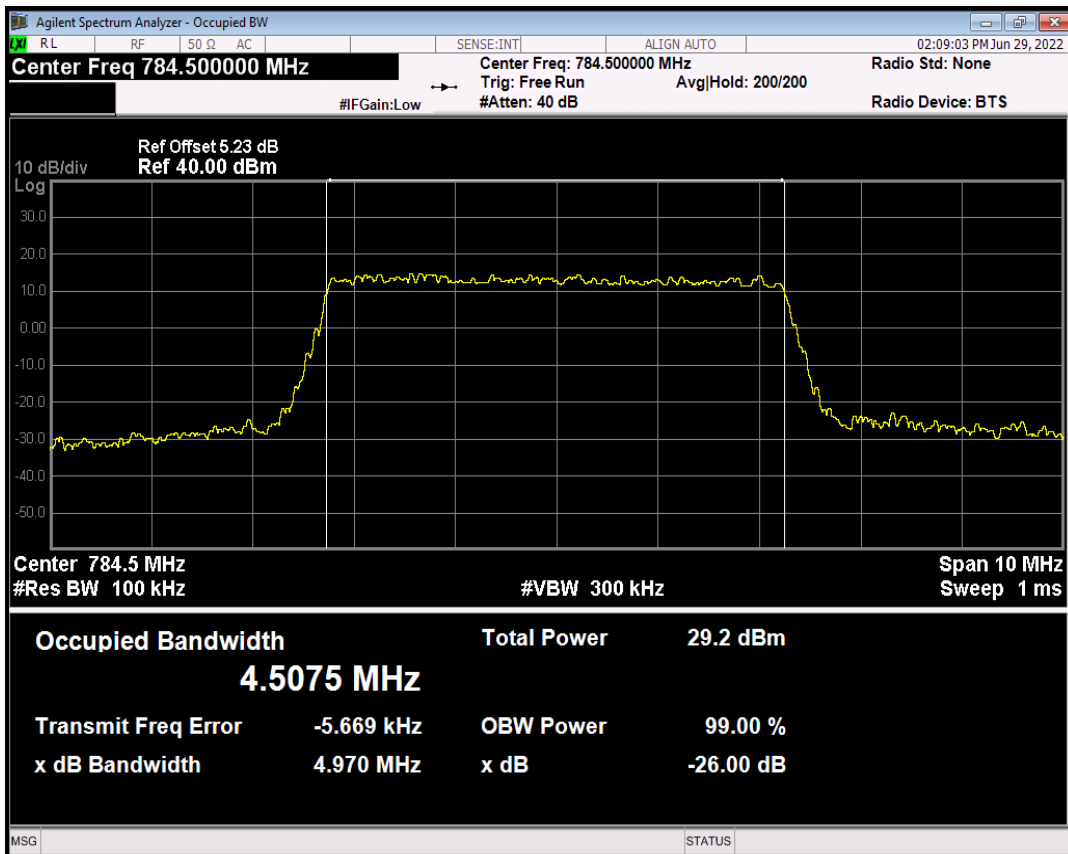




Band13 QPSK BW=5MHz Channel=23255 RB Size=25 Position=#0

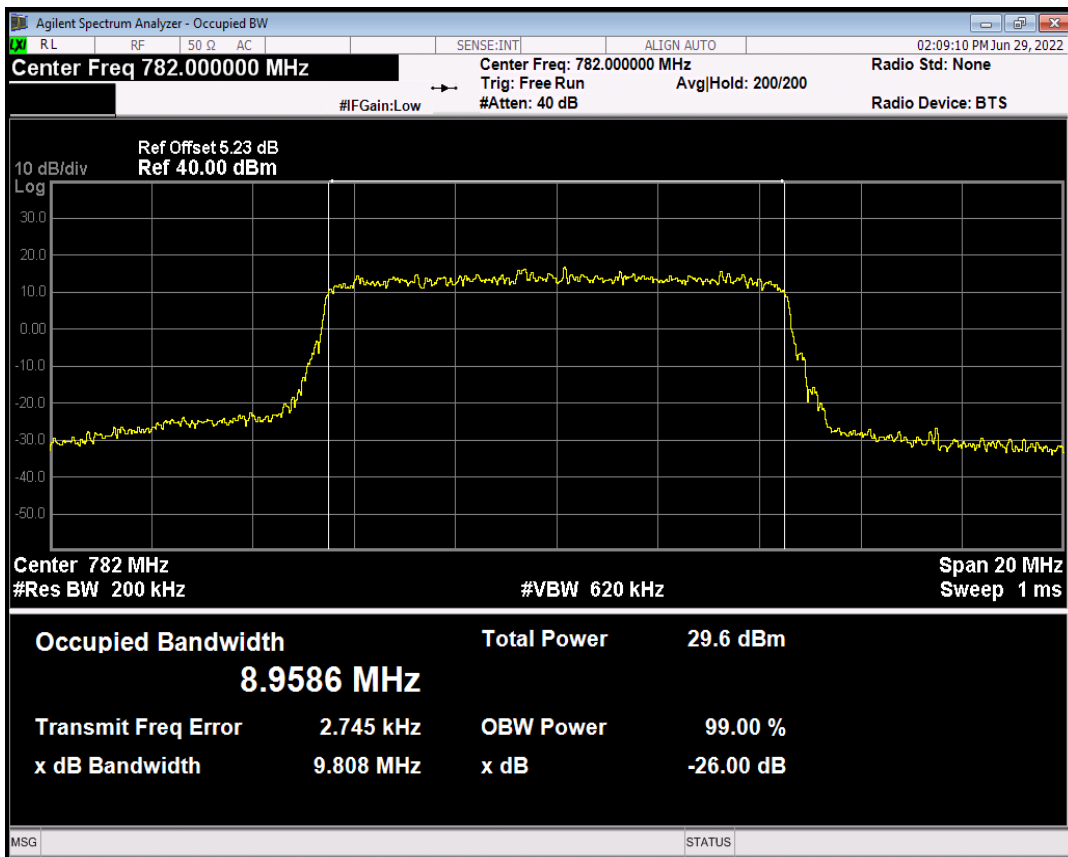


Band13 QAM16 BW=5MHz Channel=23255 RB Size=25 Position=#0

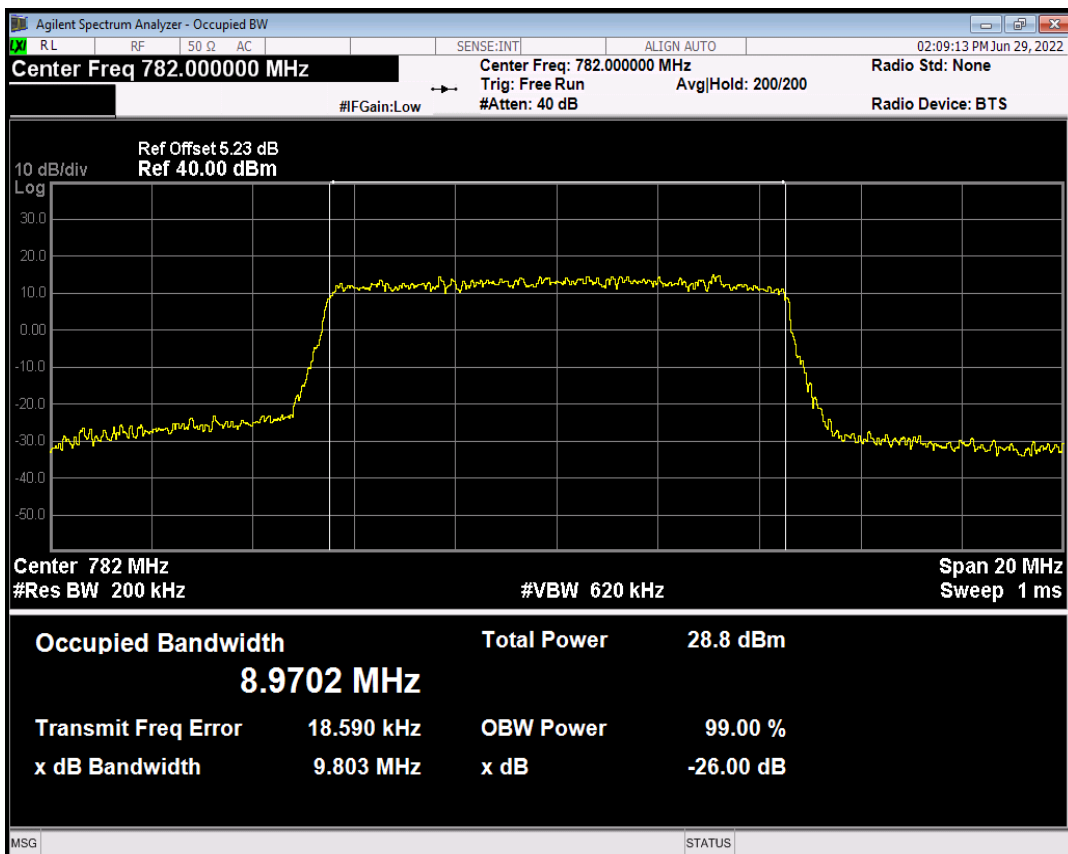




Band13 QPSK BW=10MHz Channel=23230 RB Size=50 Position=#0



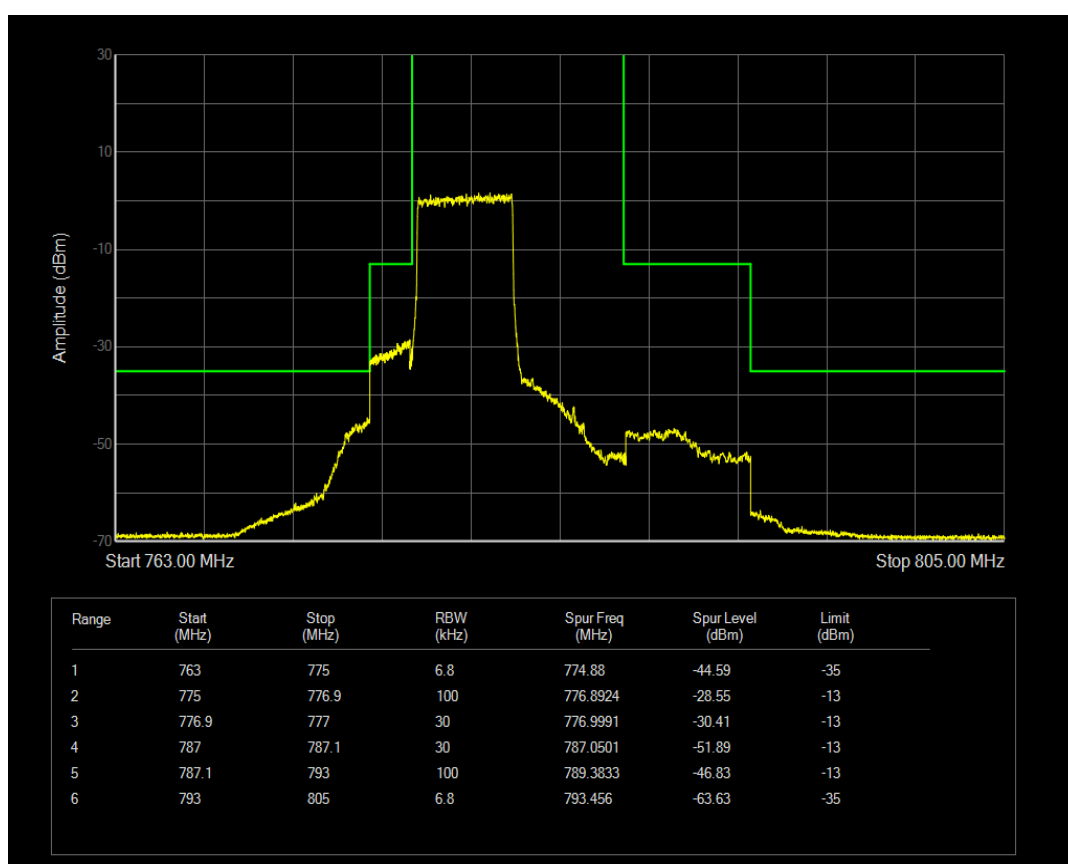
Band13 QAM16 BW=10MHz Channel=23230 RB Size=50 Position=#0



Appendix 5. Band edge

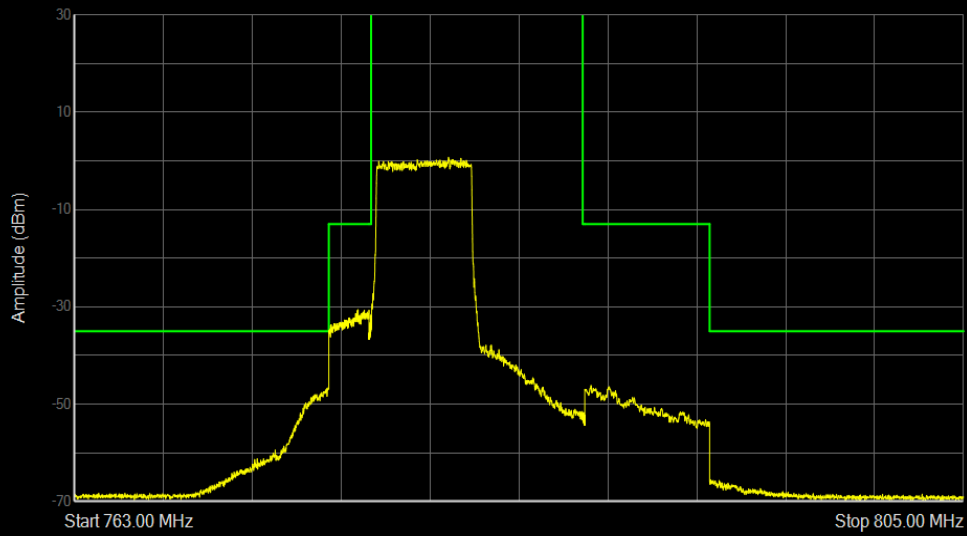
Band	Bandwidth (MHz)	UL Channel	RB Size	RB Position	Modulation	Spur Freq (MHz)	Spur Level (dBm)	Limit (dBm)	Verdict
Band13	5	23205	25	#0	QPSK	774.88	-44.59	-35	PASS
Band13	5	23205	25	#0	QAM16	774.96	-46.67	-35	PASS
Band13	5	23255	25	#0	QPSK	787.11	-28.97	-13	PASS
Band13	5	23255	25	#0	QAM16	787.11	-31.87	-13	PASS
Band13	10	23230	50	#0	QPSK	774.82	-47.83	-35	PASS
Band13	10	23230	50	#0	QAM16	774.81	-48.72	-35	PASS

Band13 QPSK BW=5MHz Channel=23205 RB Size=25 Position=#0



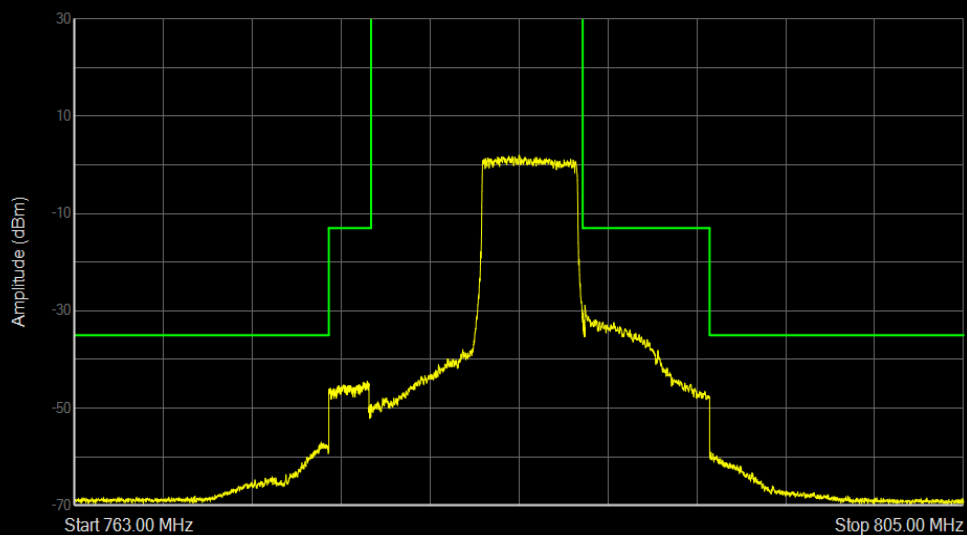


Band13 QAM16 BW=5MHz Channel=23205 RB Size=25 Position=#0



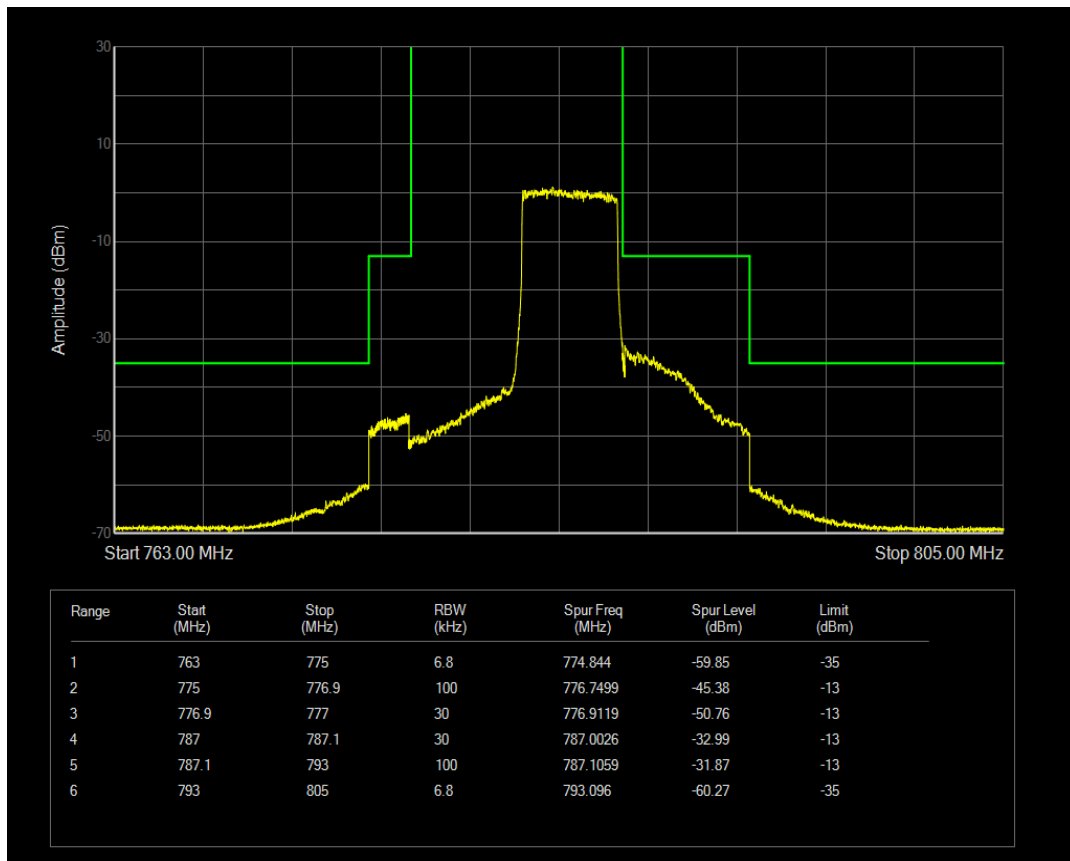
Range	Start (MHz)	Stop (MHz)	RBW (kHz)	Spur Freq (MHz)	Spur Level (dBm)	Limit (dBm)
1	763	775	6.8	774.964	-46.67	-35
2	775	776.9	100	776.3832	-30.61	-13
3	776.9	777	30	776.9963	-31.74	-13
4	787	787.1	30	787.0422	-51.75	-13
5	787.1	793	100	787.395	-46.19	-13
6	793	805	6.8	793.048	-65.54	-35

Band13 QPSK BW=5MHz Channel=23255 RB Size=25 Position=#0

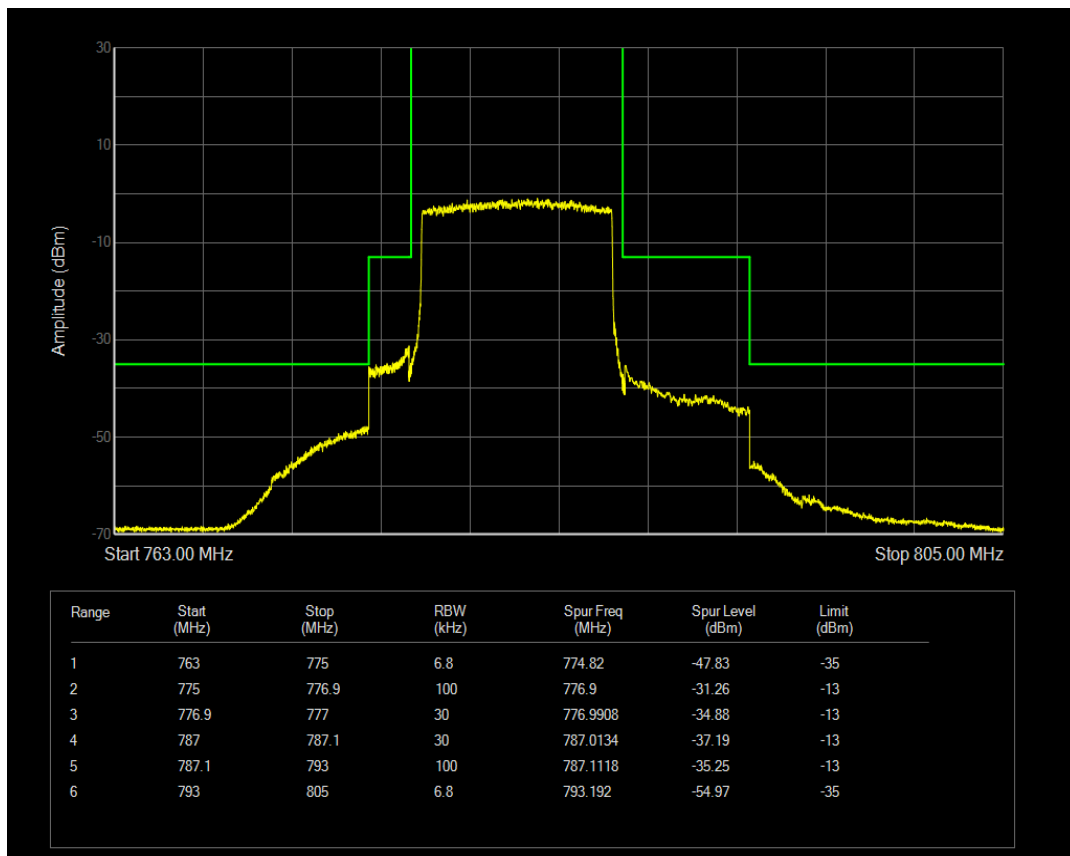


Range	Start (MHz)	Stop (MHz)	RBW (kHz)	Spur Freq (MHz)	Spur Level (dBm)	Limit (dBm)
1	763	775	6.8	774.64	-56.99	-35
2	775	776.9	100	776.8183	-44.48	-13
3	776.9	777	30	776.9995	-49.24	-13
4	787	787.1	30	787.0043	-30.48	-13
5	787.1	793	100	787.1059	-28.97	-13
6	793	805	6.8	793.06	-59.05	-35

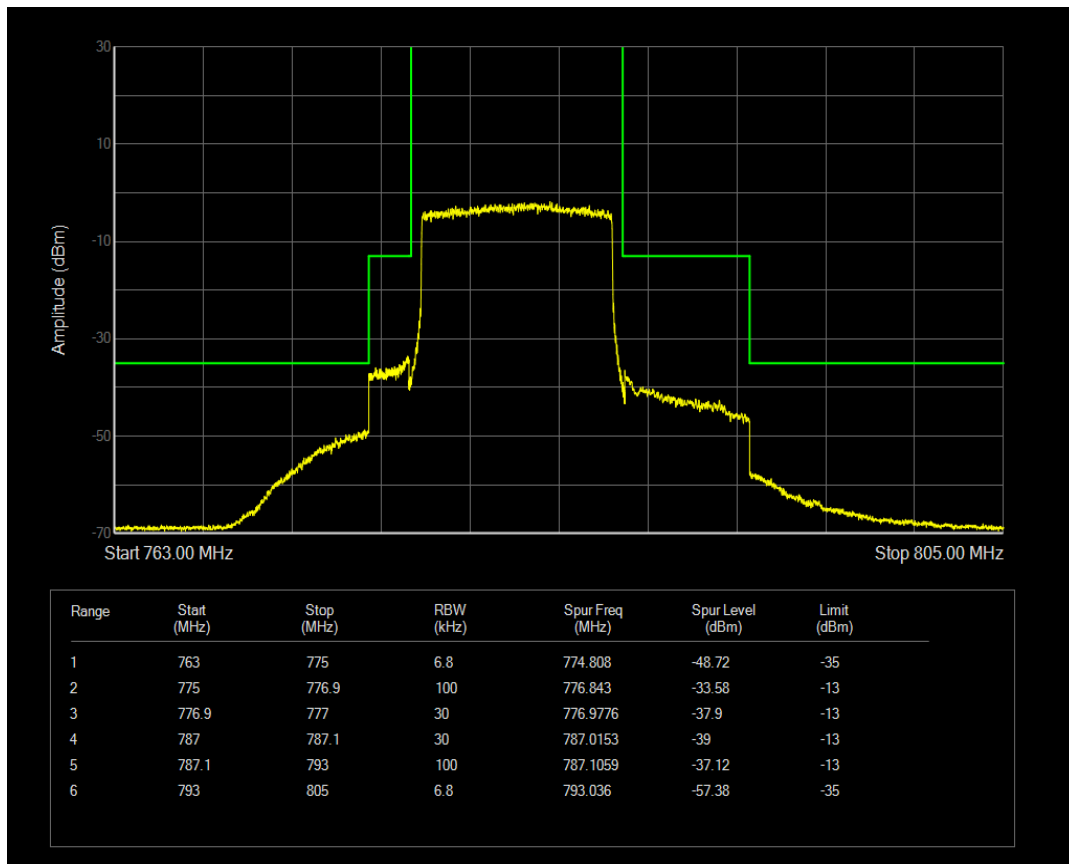
Band13 QAM16 BW=5MHz Channel=23255 RB Size=25 Position=#0



Band13 QPSK BW=10MHz Channel=23230 RB Size=50 Position=#0



Band13 QAM16 BW=10MHz Channel=23230 RB Size=50 Position=#0

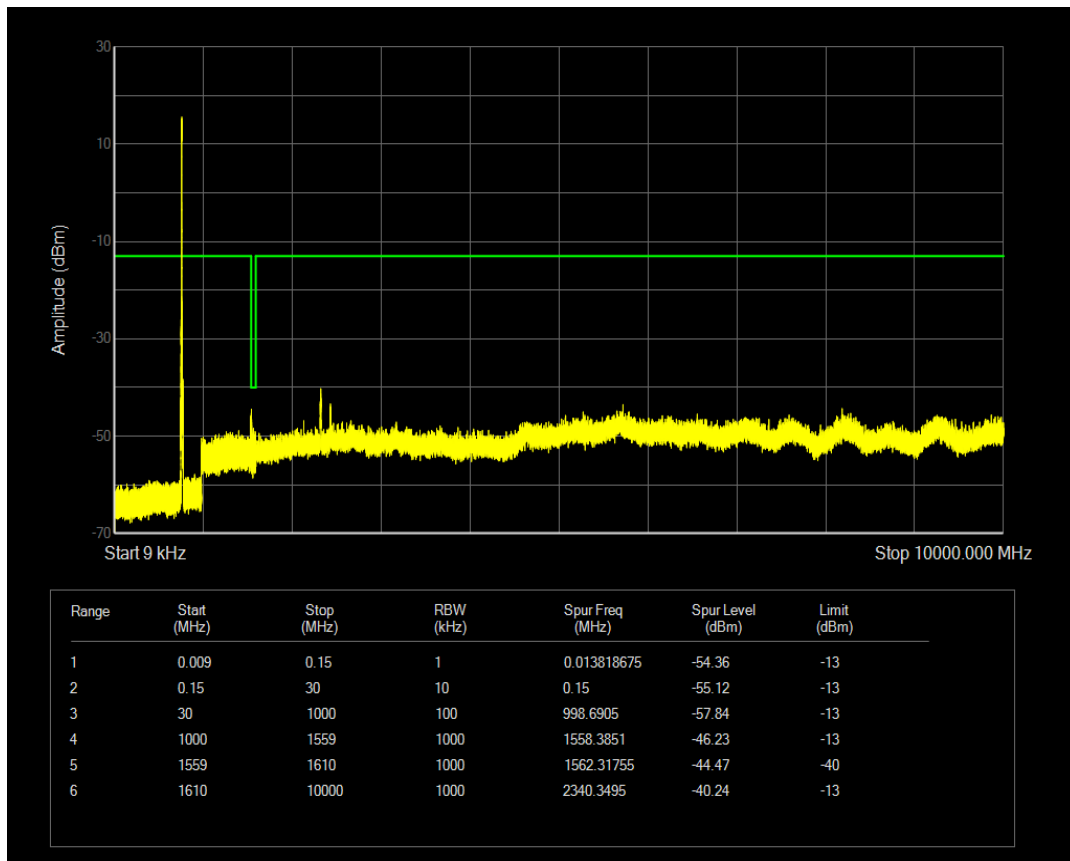


Appendix 6. Out-of-band emissions

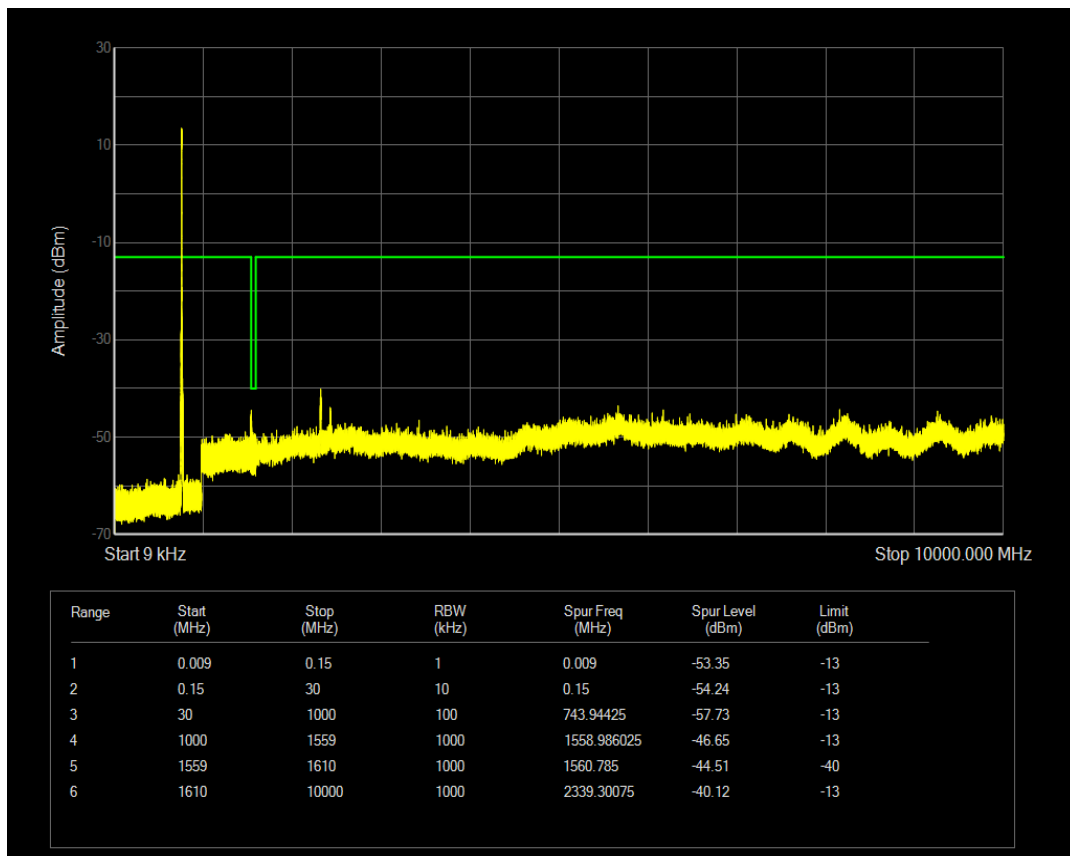
Band	Bandwidth (MHz)	UL Channel	RB Size	RB Position	Modulation	Spur Freq (MHz)	Spur Level (dBm)	Limit (dBm)	Verdict
Band13	5	23205	25	#0	QPSK	1562.32	-44.47	-40	PASS
Band13	5	23205	25	#0	QAM16	1560.79	-44.51	-40	PASS
Band13	5	23230	25	#0	QPSK	1564.19	-45.01	-40	PASS
Band13	5	23230	25	#0	QAM16	1561.57	-44.24	-40	PASS
Band13	5	23255	25	#0	QPSK	1566.74	-44.37	-40	PASS
Band13	5	23255	25	#0	QAM16	1566.80	-44.71	-40	PASS
Band13	10	23230	50	#0	QPSK	1563.79	-46.22	-40	PASS
Band13	10	23230	50	#0	QAM16	1563.93	-45.42	-40	PASS



Band13 QPSK BW=5MHz Channel=23205 RB Size=25 Position=#0

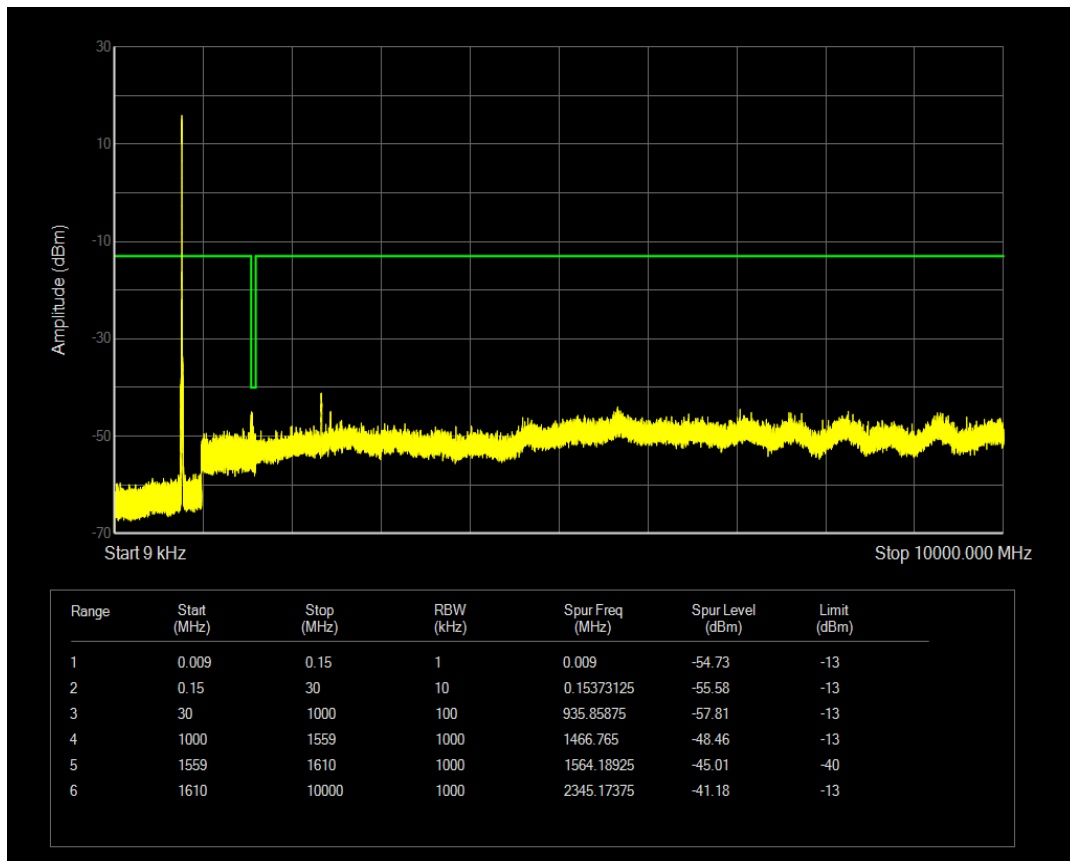


Band13 QAM16 BW=5MHz Channel=23205 RB Size=25 Position=#0

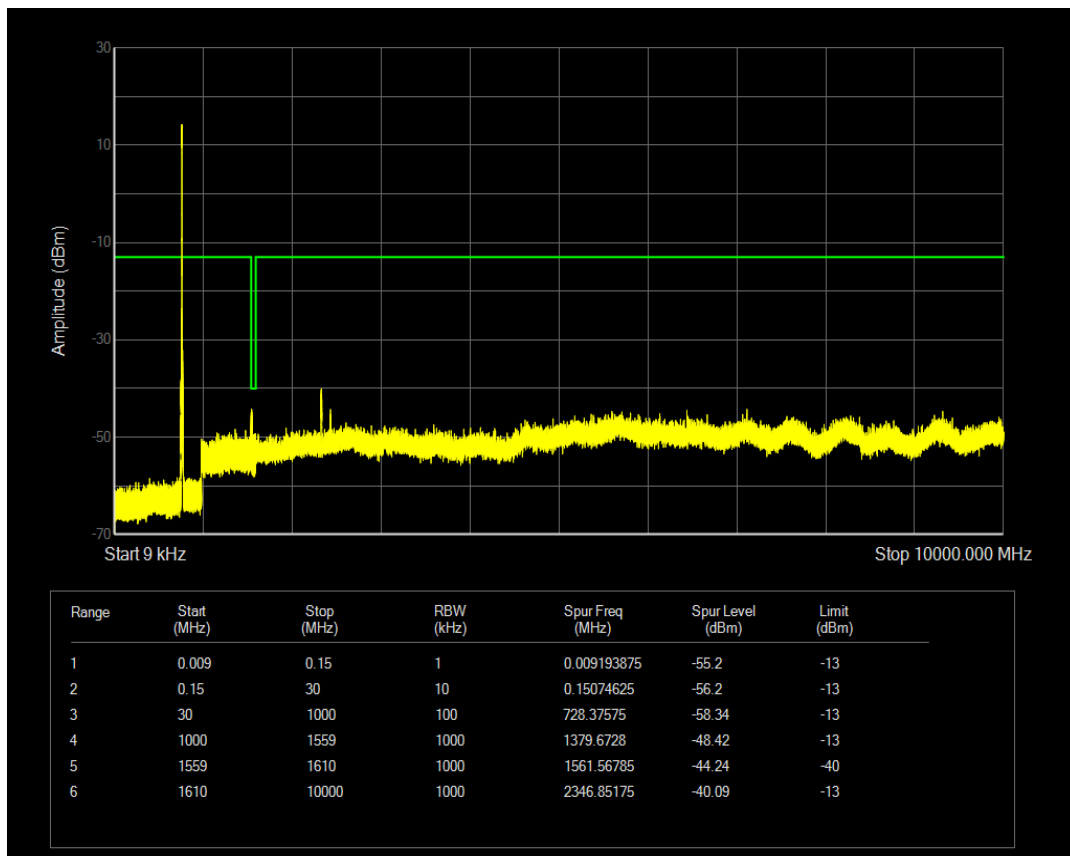




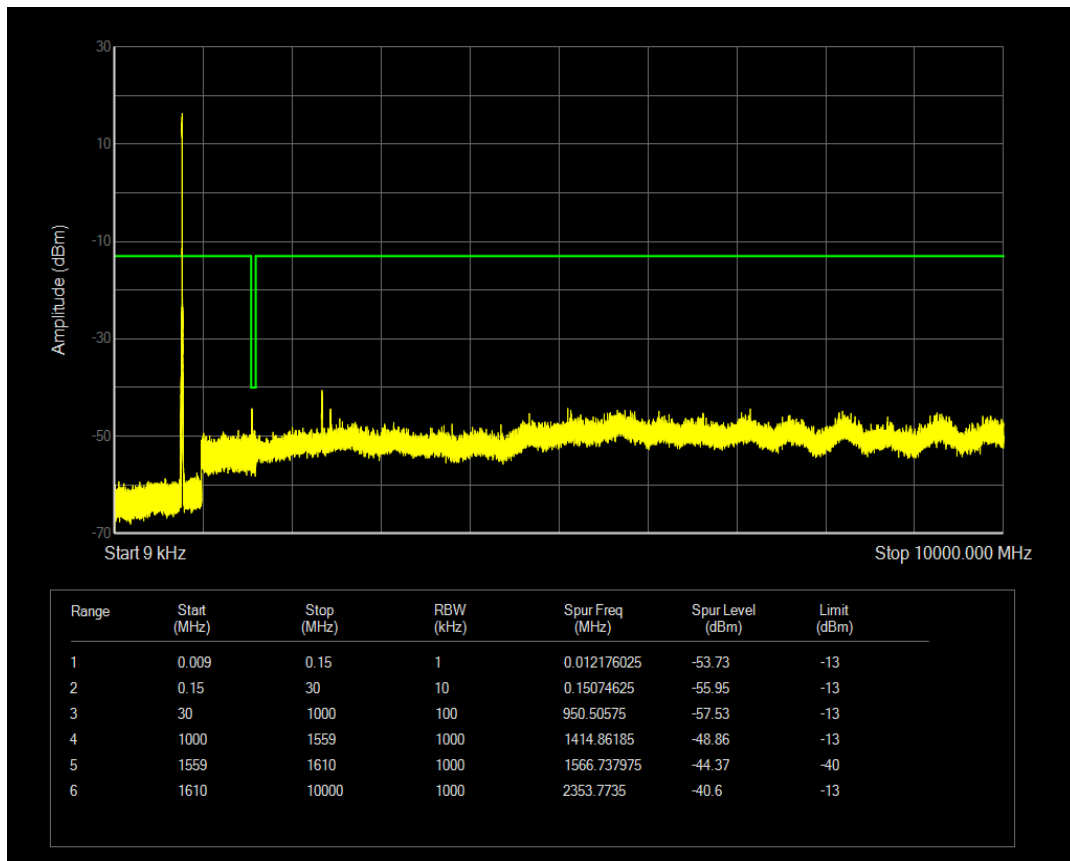
Band13 QPSK BW=5MHz Channel=23230 RB Size=25 Position=#0



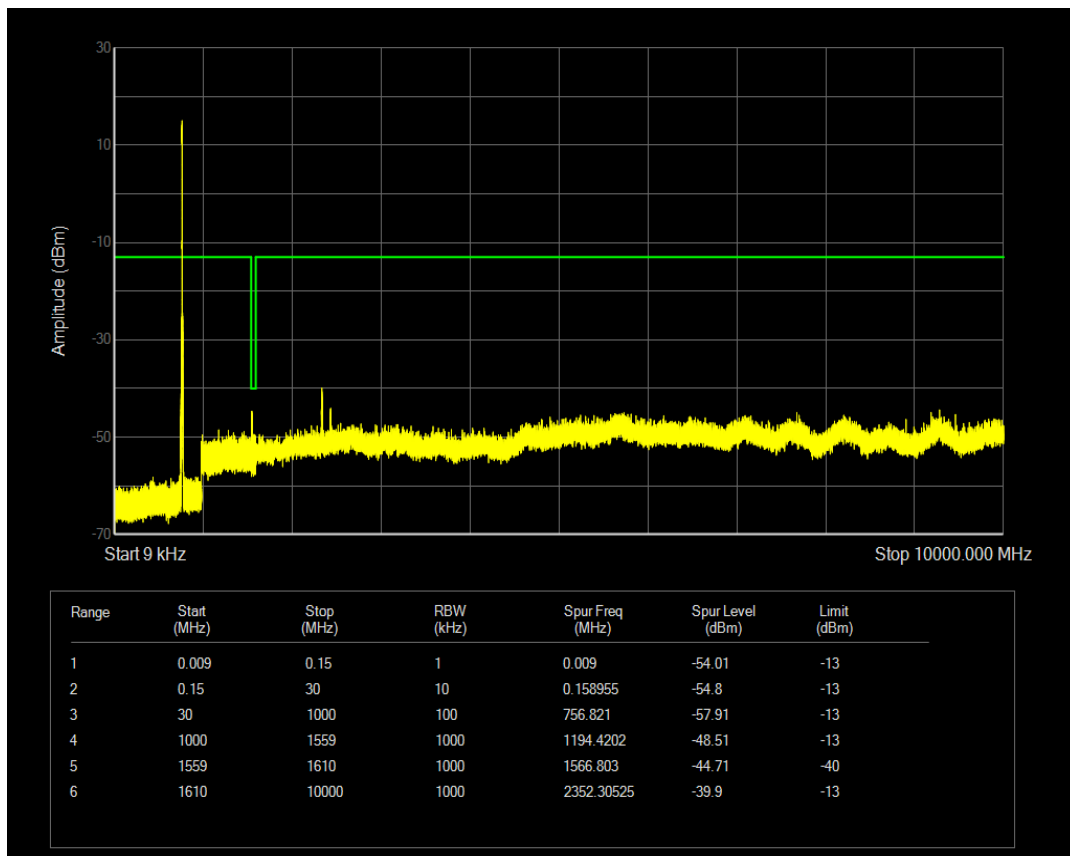
Band13 QAM16 BW=5MHz Channel=23230 RB Size=25 Position=#0



Band13 QPSK BW=5MHz Channel=23255 RB Size=25 Position=#0

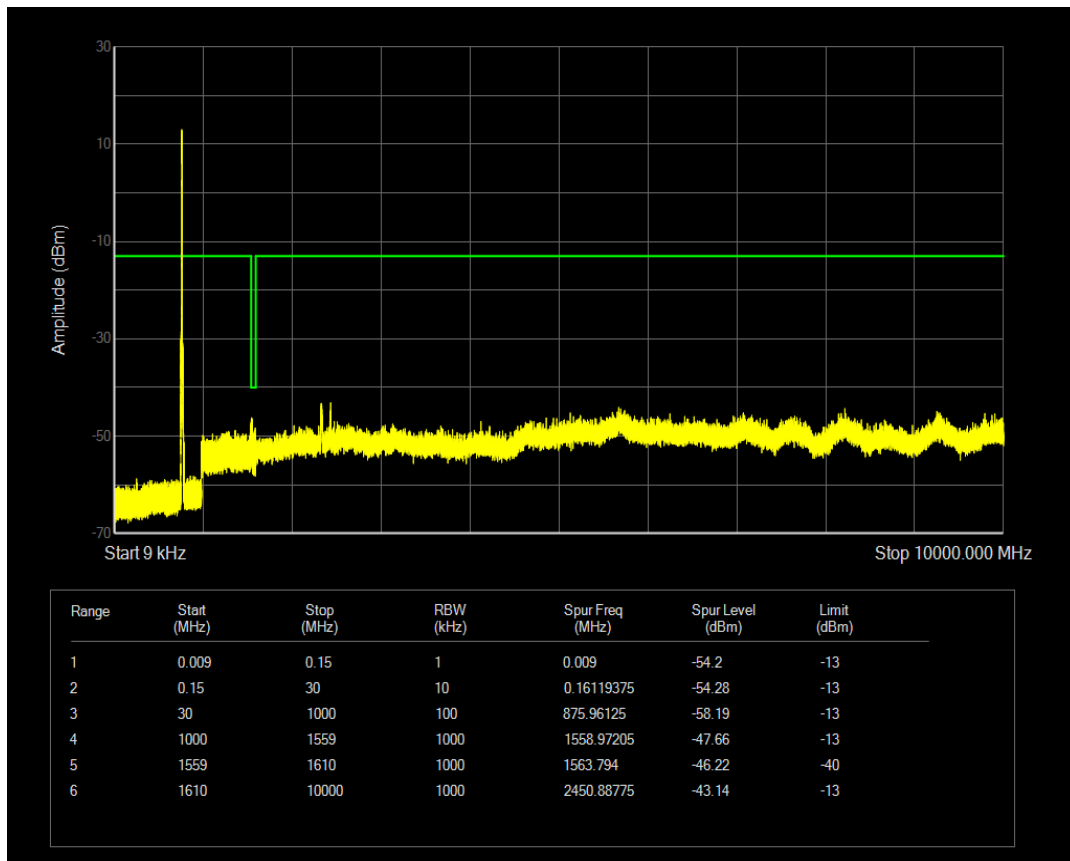


Band13 QAM16 BW=5MHz Channel=23255 RB Size=25 Position=#0





Band13 QPSK BW=10MHz Channel=23230 RB Size=50 Position=#0



Band13 QAM16 BW=10MHz Channel=23230 RB Size=50 Position=#0

