

Appendix for Band 13

Report No.: BCTC2410177766-3E

Applicant: GEM ONE NV

Product Name: Onyx V4

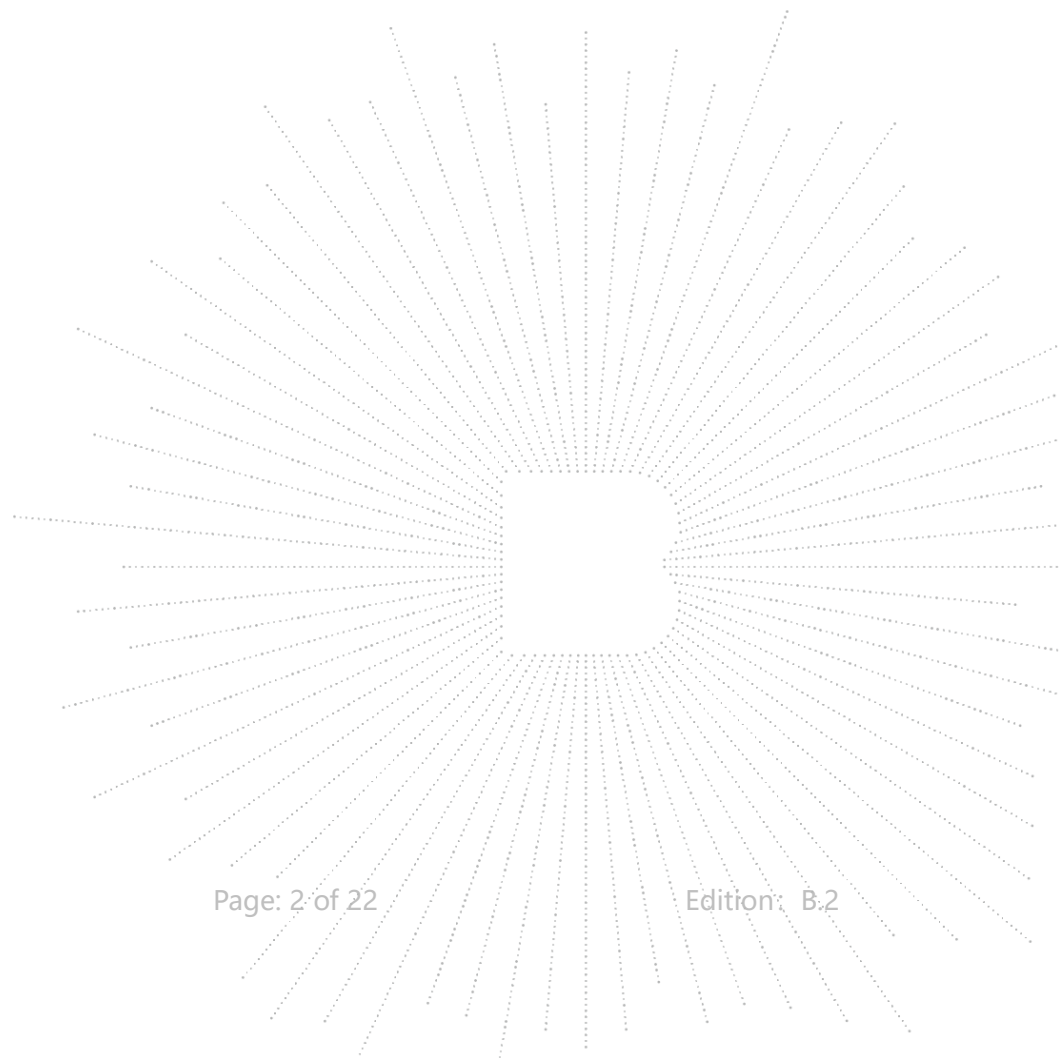
Test Model: Onyx V4

Tested Date: 2024-10-28 to 2024-11-11

Shenzhen BCTC Testing Co., Ltd.

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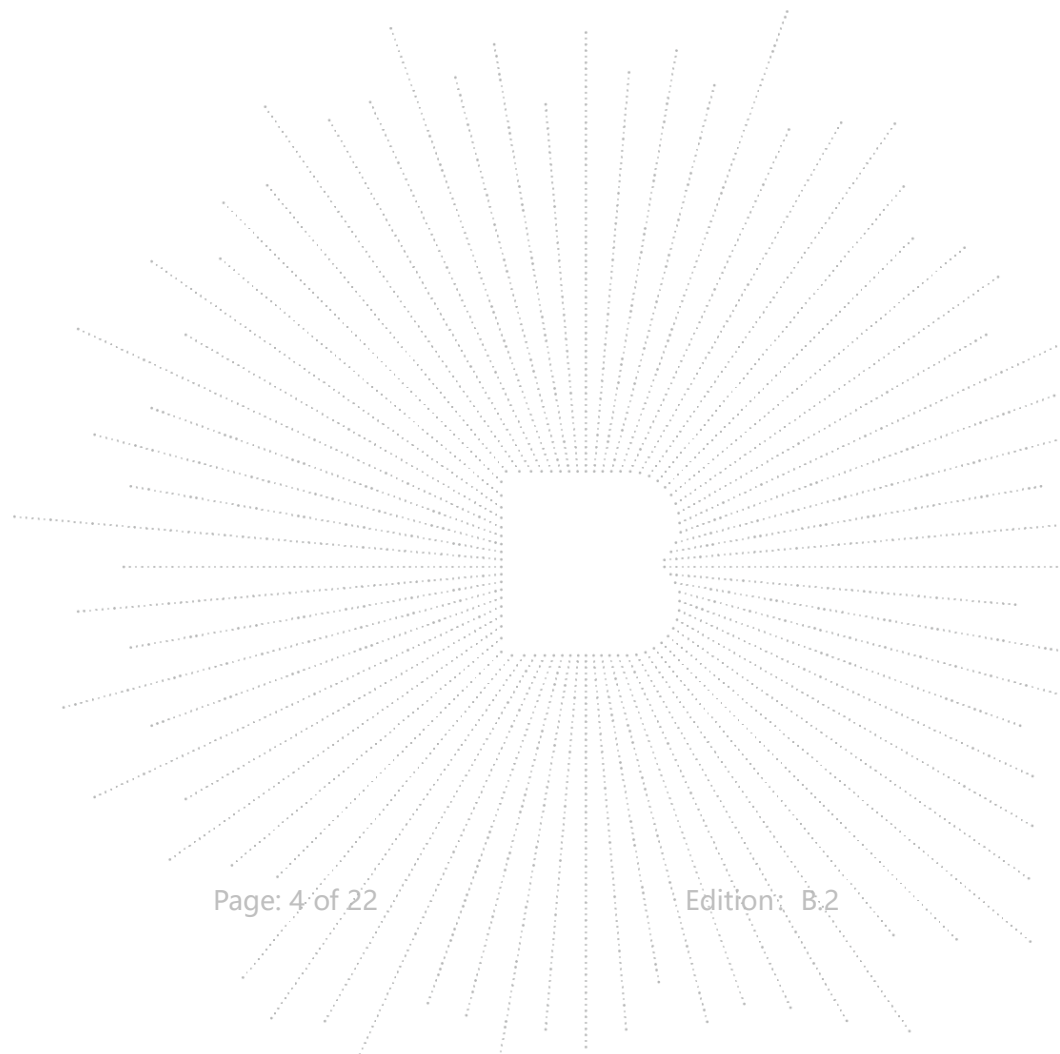
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Appendix 1. Effective Radiated Power and Effective Isotropic Radiated Power Measurement

Band	Bandwidth (MHz)	UL Channel	RB Size	RB Position	Modulation	Power (dBm)	Gain (dBm)	ERP (dBm)	Verdict
Band13	5	23205	1	#0	QPSK	23.58	-1.65	19.78	PASS
Band13	5	23205	1	#Mid	QPSK	22.32	-1.65	18.52	PASS
Band13	5	23205	1	#Max	QPSK	21.45	-1.65	17.65	PASS
Band13	5	23205	12	#0	QPSK	22.30	-1.65	18.50	PASS
Band13	5	23205	12	#Mid	QPSK	22.13	-1.65	18.33	PASS
Band13	5	23205	12	#Max	QPSK	22.22	-1.65	18.42	PASS
Band13	5	23205	25	#0	QPSK	21.56	-1.65	17.76	PASS
Band13	5	23205	1	#0	16QAM	23.26	-1.65	19.46	PASS
Band13	5	23205	1	#Mid	16QAM	22.02	-1.65	18.22	PASS
Band13	5	23205	1	#Max	16QAM	20.98	-1.65	17.18	PASS
Band13	5	23205	12	#0	16QAM	21.29	-1.65	17.49	PASS
Band13	5	23205	12	#Mid	16QAM	21.13	-1.65	17.33	PASS
Band13	5	23205	12	#Max	16QAM	21.25	-1.65	17.45	PASS
Band13	5	23205	25	#0	16QAM	20.53	-1.65	16.73	PASS
Band13	5	23230	1	#0	QPSK	22.84	-1.65	19.04	PASS
Band13	5	23230	1	#Mid	QPSK	22.22	-1.65	18.42	PASS
Band13	5	23230	1	#Max	QPSK	21.62	-1.65	17.82	PASS
Band13	5	23230	12	#0	QPSK	21.65	-1.65	17.85	PASS
Band13	5	23230	12	#Mid	QPSK	21.58	-1.65	17.78	PASS
Band13	5	23230	12	#Max	QPSK	21.91	-1.65	18.11	PASS
Band13	5	23230	25	#0	QPSK	21.38	-1.65	17.58	PASS
Band13	5	23230	1	#0	16QAM	22.13	-1.65	18.33	PASS
Band13	5	23230	1	#Mid	16QAM	21.57	-1.65	17.77	PASS
Band13	5	23230	1	#Max	16QAM	21.03	-1.65	17.23	PASS
Band13	5	23230	12	#0	16QAM	20.67	-1.65	16.87	PASS
Band13	5	23230	12	#Mid	16QAM	20.70	-1.65	16.90	PASS
Band13	5	23230	12	#Max	16QAM	21.01	-1.65	17.21	PASS
Band13	5	23230	25	#0	16QAM	20.55	-1.65	16.75	PASS
Band13	5	23255	1	#0	QPSK	21.56	-1.65	17.76	PASS
Band13	5	23255	1	#Mid	QPSK	22.84	-1.65	19.04	PASS
Band13	5	23255	1	#Max	QPSK	23.31	-1.65	19.51	PASS
Band13	5	23255	12	#0	QPSK	22.08	-1.65	18.28	PASS
Band13	5	23255	12	#Mid	QPSK	22.30	-1.65	18.50	PASS
Band13	5	23255	12	#Max	QPSK	22.54	-1.65	18.74	PASS
Band13	5	23255	25	#0	QPSK	21.93	-1.65	18.13	PASS
Band13	5	23255	1	#0	16QAM	20.95	-1.65	17.15	PASS

Band13	5	23255	1	#Mid	16QAM	22.21	-1.65	18.41	PASS
Band13	5	23255	1	#Max	16QAM	22.69	-1.65	18.89	PASS
Band13	5	23255	12	#0	16QAM	21.12	-1.65	17.32	PASS
Band13	5	23255	12	#Mid	16QAM	21.35	-1.65	17.55	PASS
Band13	5	23255	12	#Max	16QAM	21.57	-1.65	17.77	PASS
Band13	5	23255	25	#0	16QAM	20.91	-1.65	17.11	PASS
Band13	10	23230	1	#0	QPSK	23.36	-1.65	19.56	PASS
Band13	10	23230	1	#Mid	QPSK	22.71	-1.65	18.91	PASS
Band13	10	23230	1	#Max	QPSK	22.18	-1.65	18.38	PASS
Band13	10	23230	25	#0	QPSK	22.06	-1.65	18.26	PASS
Band13	10	23230	25	#Mid	QPSK	21.92	-1.65	18.12	PASS
Band13	10	23230	25	#Max	QPSK	22.58	-1.65	18.78	PASS
Band13	10	23230	50	#0	QPSK	21.81	-1.65	18.01	PASS



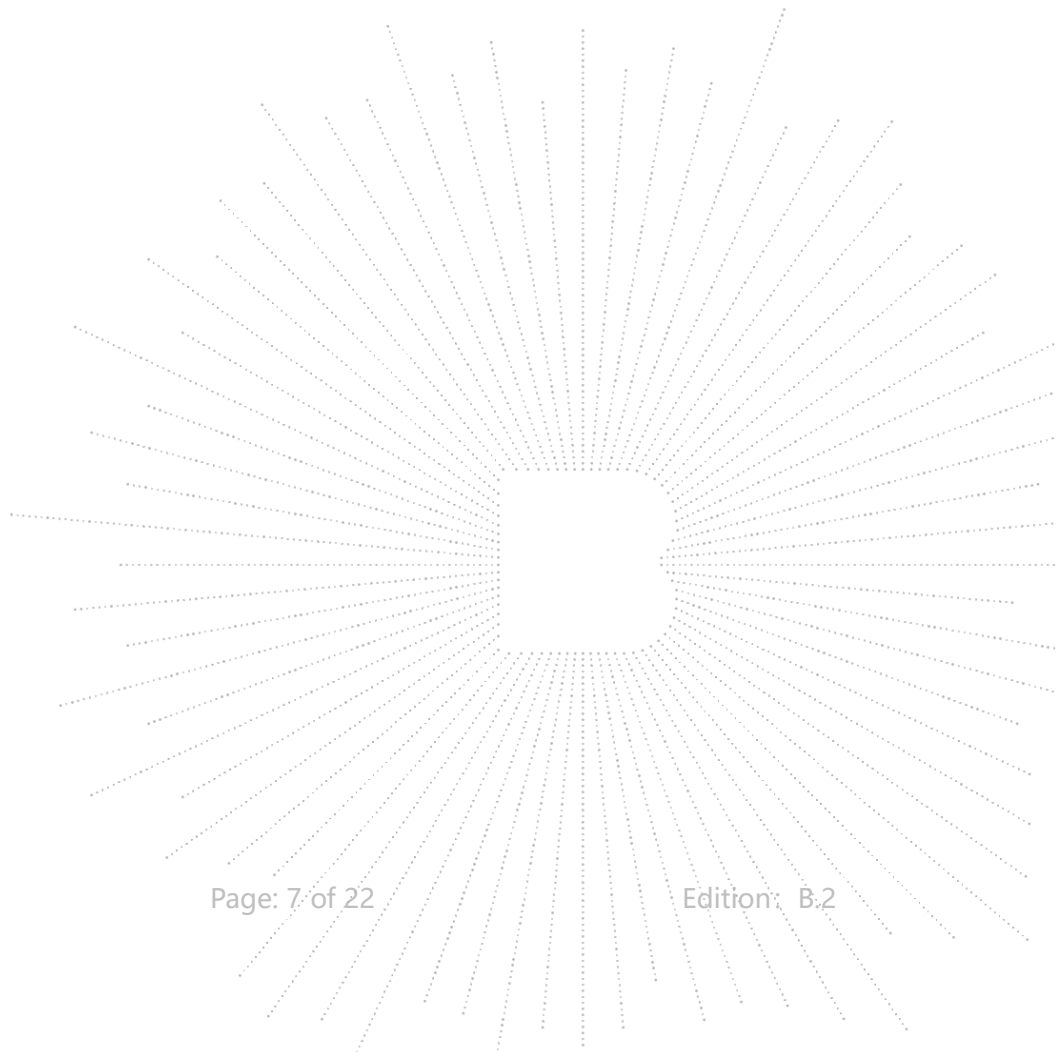
Appendix 2. Frequency stability

Band	Bandwidth (MHz)	UL Channel	RB Size	RB Position	Modulation	Voltage (Vdc)	Temperatue (C)	Result (Hz)	Result (ppm)	Verdict
Band13	5	23205	25	#0	QPSK	LV	NT	-6.94	-0.009	PASS
Band13	5	23205	25	#0	QPSK	NV	NT	-2.23	-0.003	PASS
Band13	5	23205	25	#0	QPSK	HV	NT	-0.90	-0.001	PASS
Band13	5	23205	25	#0	16QAM	LV	NT	-1.42	-0.002	PASS
Band13	5	23205	25	#0	16QAM	NV	NT	-0.34	0.000	PASS
Band13	5	23205	25	#0	16QAM	HV	NT	-1.04	-0.001	PASS
Band13	5	23230	25	#0	QPSK	LV	NT	-7.35	-0.009	PASS
Band13	5	23230	25	#0	QPSK	NV	NT	-4.36	-0.006	PASS
Band13	5	23230	25	#0	QPSK	HV	NT	-0.63	-0.001	PASS
Band13	5	23230	25	#0	16QAM	LV	NT	-0.10	0.000	PASS
Band13	5	23230	25	#0	16QAM	NV	NT	-2.13	-0.003	PASS
Band13	5	23230	25	#0	16QAM	HV	NT	-1.26	-0.002	PASS
Band13	5	23255	25	#0	QPSK	LV	NT	-7.71	-0.010	PASS
Band13	5	23255	25	#0	QPSK	NV	NT	-6.48	-0.008	PASS
Band13	5	23255	25	#0	QPSK	HV	NT	0.00	0.000	PASS
Band13	5	23255	25	#0	16QAM	LV	NT	-1.76	-0.002	PASS
Band13	5	23255	25	#0	16QAM	NV	NT	-1.46	-0.002	PASS
Band13	5	23255	25	#0	16QAM	HV	NT	-1.37	-0.002	PASS
Band13	10	23230	50	#0	QPSK	LV	NT	-8.73	-0.011	PASS
Band13	10	23230	50	#0	QPSK	NV	NT	0.50	0.001	PASS
Band13	10	23230	50	#0	QPSK	HV	NT	0.03	0.000	PASS

Band	Bandwidth (MHz)	UL Channel	RB Size	RB Position	Modulation	Voltage (Vdc)	Temperatue (C)	Result (Hz)	Result (ppm)	Verdict
Band13	5	23205	25	#0	QPSK	NV	-30	-3.08	-0.004	PASS
Band13	5	23205	25	#0	QPSK	NV	-20	-0.46	-0.001	PASS
Band13	5	23205	25	#0	QPSK	NV	-10	-1.10	-0.001	PASS
Band13	5	23205	25	#0	QPSK	NV	0	-1.36	-0.002	PASS
Band13	5	23205	25	#0	QPSK	NV	10	-1.04	-0.001	PASS
Band13	5	23205	25	#0	QPSK	NV	20	-1.24	-0.002	PASS
Band13	5	23205	25	#0	QPSK	NV	30	-1.02	-0.001	PASS
Band13	5	23205	25	#0	QPSK	NV	40	-1.53	-0.002	PASS
Band13	5	23205	25	#0	QPSK	NV	50	-2.23	-0.003	PASS
Band13	5	23205	25	#0	16QAM	NV	-30	-0.96	-0.001	PASS
Band13	5	23205	25	#0	16QAM	NV	-20	-2.35	-0.003	PASS
Band13	5	23205	25	#0	16QAM	NV	-10	-1.80	-0.002	PASS
Band13	5	23205	25	#0	16QAM	NV	0	-2.63	-0.003	PASS
Band13	5	23205	25	#0	16QAM	NV	10	-2.37	-0.003	PASS

Band13	5	23205	25	#0	16QAM	NV	20	-1.65	-0.002	PASS
Band13	5	23205	25	#0	16QAM	NV	30	-2.37	-0.003	PASS
Band13	5	23205	25	#0	16QAM	NV	40	-1.36	-0.002	PASS
Band13	5	23205	25	#0	16QAM	NV	50	-2.30	-0.003	PASS
Band13	5	23230	25	#0	QPSK	NV	-30	-7.88	-0.010	PASS
Band13	5	23230	25	#0	QPSK	NV	-20	-6.81	-0.009	PASS
Band13	5	23230	25	#0	QPSK	NV	-10	-3.68	-0.005	PASS
Band13	5	23230	25	#0	QPSK	NV	0	-3.55	-0.005	PASS
Band13	5	23230	25	#0	QPSK	NV	10	-4.73	-0.006	PASS
Band13	5	23230	25	#0	QPSK	NV	20	-3.85	-0.005	PASS
Band13	5	23230	25	#0	QPSK	NV	30	-5.76	-0.007	PASS
Band13	5	23230	25	#0	QPSK	NV	40	-6.97	-0.009	PASS
Band13	5	23230	25	#0	QPSK	NV	50	-5.92	-0.008	PASS
Band13	5	23230	25	#0	16QAM	NV	-30	-7.82	-0.010	PASS
Band13	5	23230	25	#0	16QAM	NV	-20	-5.45	-0.007	PASS
Band13	5	23230	25	#0	16QAM	NV	-10	-6.69	-0.009	PASS
Band13	5	23230	25	#0	16QAM	NV	0	-7.08	-0.009	PASS
Band13	5	23230	25	#0	16QAM	NV	10	-6.97	-0.009	PASS
Band13	5	23230	25	#0	16QAM	NV	20	-6.79	-0.009	PASS
Band13	5	23230	25	#0	16QAM	NV	30	-7.93	-0.010	PASS
Band13	5	23230	25	#0	16QAM	NV	40	-7.95	-0.010	PASS
Band13	5	23230	25	#0	16QAM	NV	50	-7.01	-0.009	PASS
Band13	5	23255	25	#0	QPSK	NV	-30	-6.71	-0.009	PASS
Band13	5	23255	25	#0	QPSK	NV	-20	-5.68	-0.007	PASS
Band13	5	23255	25	#0	QPSK	NV	-10	-1.12	-0.001	PASS
Band13	5	23255	25	#0	QPSK	NV	0	-1.97	-0.003	PASS
Band13	5	23255	25	#0	QPSK	NV	10	-4.59	-0.006	PASS
Band13	5	23255	25	#0	QPSK	NV	20	-7.58	-0.010	PASS
Band13	5	23255	25	#0	QPSK	NV	30	-7.54	-0.010	PASS
Band13	5	23255	25	#0	QPSK	NV	40	-7.24	-0.009	PASS
Band13	5	23255	25	#0	QPSK	NV	50	-6.54	-0.008	PASS
Band13	5	23255	25	#0	16QAM	NV	-30	-7.44	-0.009	PASS
Band13	5	23255	25	#0	16QAM	NV	-20	-5.75	-0.007	PASS
Band13	5	23255	25	#0	16QAM	NV	-10	-6.95	-0.009	PASS
Band13	5	23255	25	#0	16QAM	NV	0	-7.12	-0.009	PASS
Band13	5	23255	25	#0	16QAM	NV	10	-7.07	-0.009	PASS
Band13	5	23255	25	#0	16QAM	NV	20	-6.55	-0.008	PASS
Band13	5	23255	25	#0	16QAM	NV	30	-5.76	-0.007	PASS
Band13	5	23255	25	#0	16QAM	NV	40	-6.01	-0.008	PASS
Band13	5	23255	25	#0	16QAM	NV	50	-7.07	-0.009	PASS
Band13	10	23230	50	#0	QPSK	NV	-30	-7.38	-0.009	PASS
Band13	10	23230	50	#0	QPSK	NV	-20	-0.79	-0.001	PASS
Band13	10	23230	50	#0	QPSK	NV	-10	-0.41	-0.001	PASS

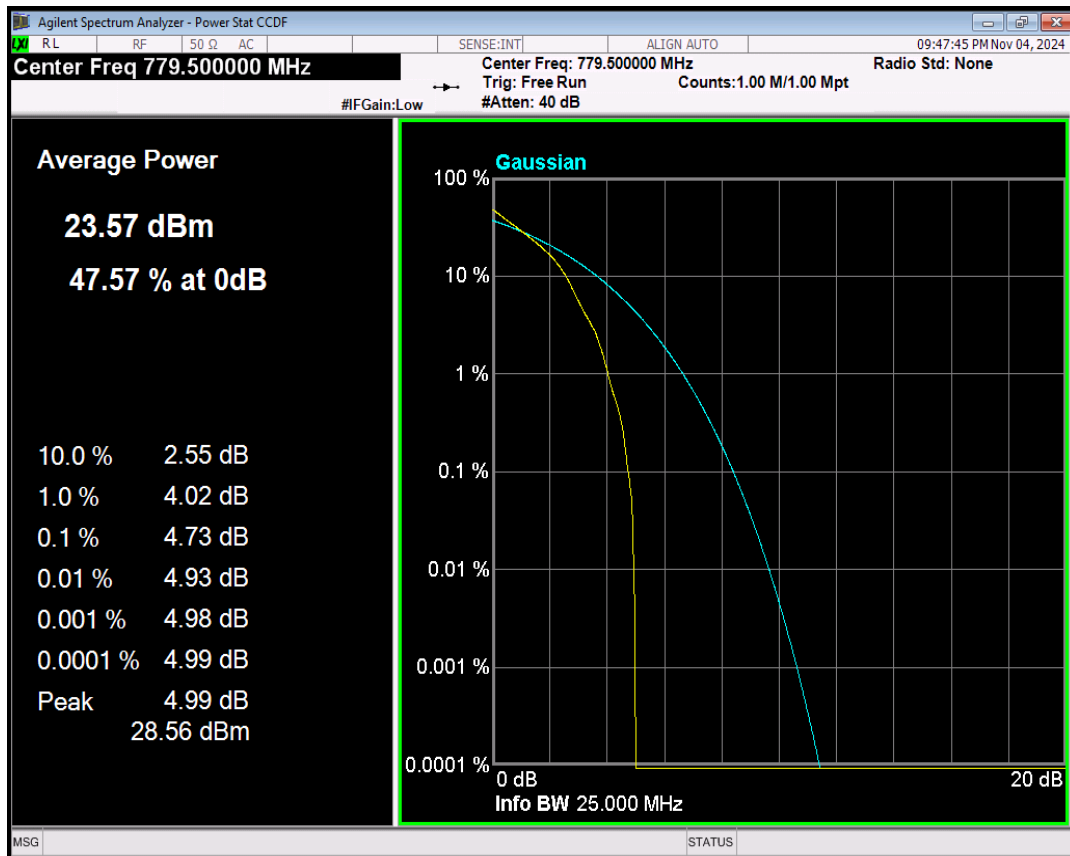
Band13	10	23230	50	#0	QPSK	NV	0	-0.69	-0.001	PASS
Band13	10	23230	50	#0	QPSK	NV	10	-0.97	-0.001	PASS
Band13	10	23230	50	#0	QPSK	NV	20	-1.56	-0.002	PASS
Band13	10	23230	50	#0	QPSK	NV	30	-1.10	-0.001	PASS
Band13	10	23230	50	#0	QPSK	NV	40	-1.53	-0.002	PASS
Band13	10	23230	50	#0	QPSK	NV	50	-0.57	-0.001	PASS



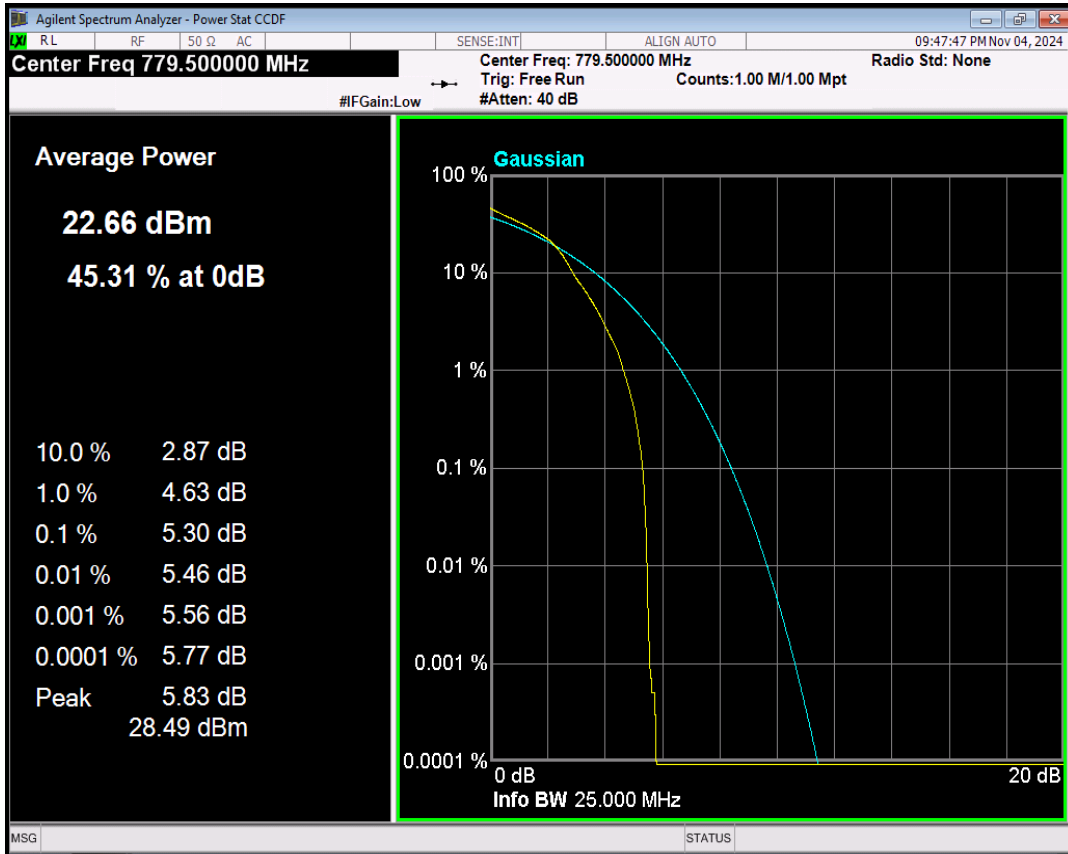
Appendix 3. Peak-to-Average Ratio

Band	Bandwidth (MHz)	UL Channel	RB Size	RB Position	Modulation	Result (dB)	high Limit (dB)	Verdict
Band13	5	23205	1	#0	QPSK	4.73	13	PASS
Band13	5	23205	1	#0	16QAM	5.30	13	PASS
Band13	5	23230	1	#0	QPSK	5.54	13	PASS
Band13	5	23230	1	#0	16QAM	5.92	13	PASS
Band13	5	23255	1	#0	QPSK	6.04	13	PASS
Band13	5	23255	1	#0	16QAM	6.63	13	PASS
Band13	10	23230	1	#0	QPSK	4.63	13	PASS

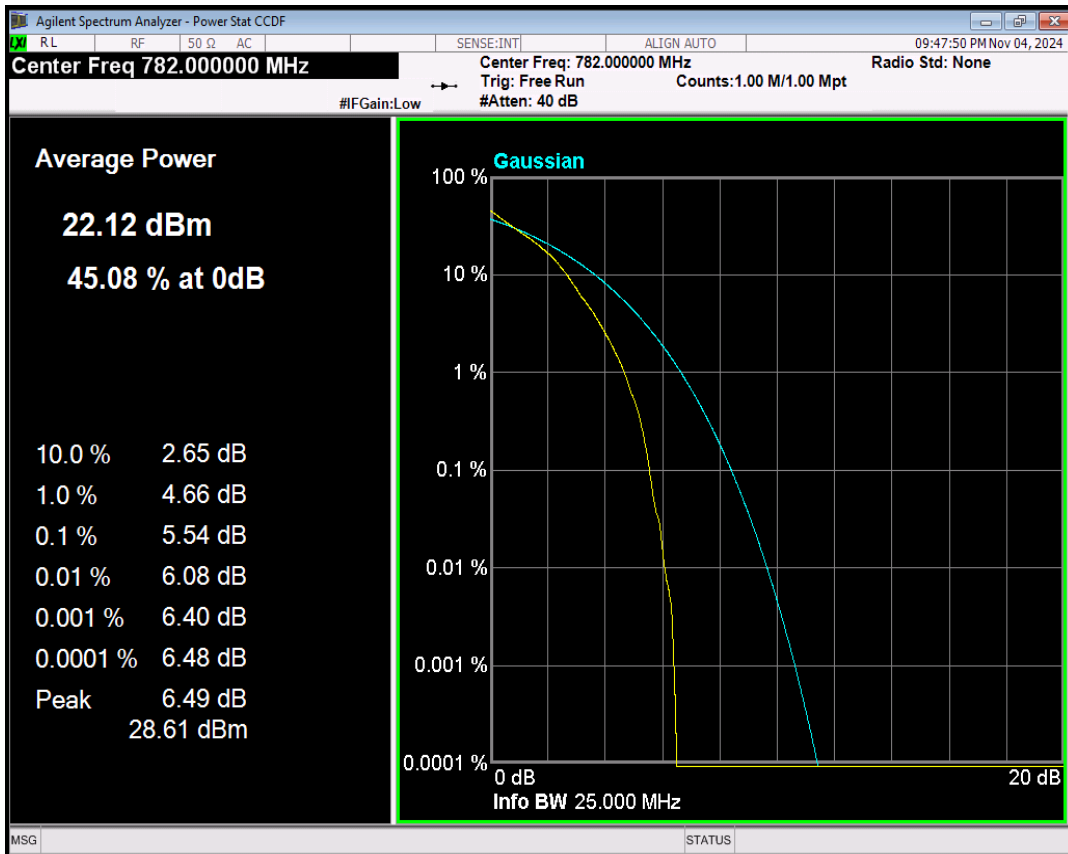
Band13 QPSK BW=5MHz Channel=23205 RB Size=1 Position=#0



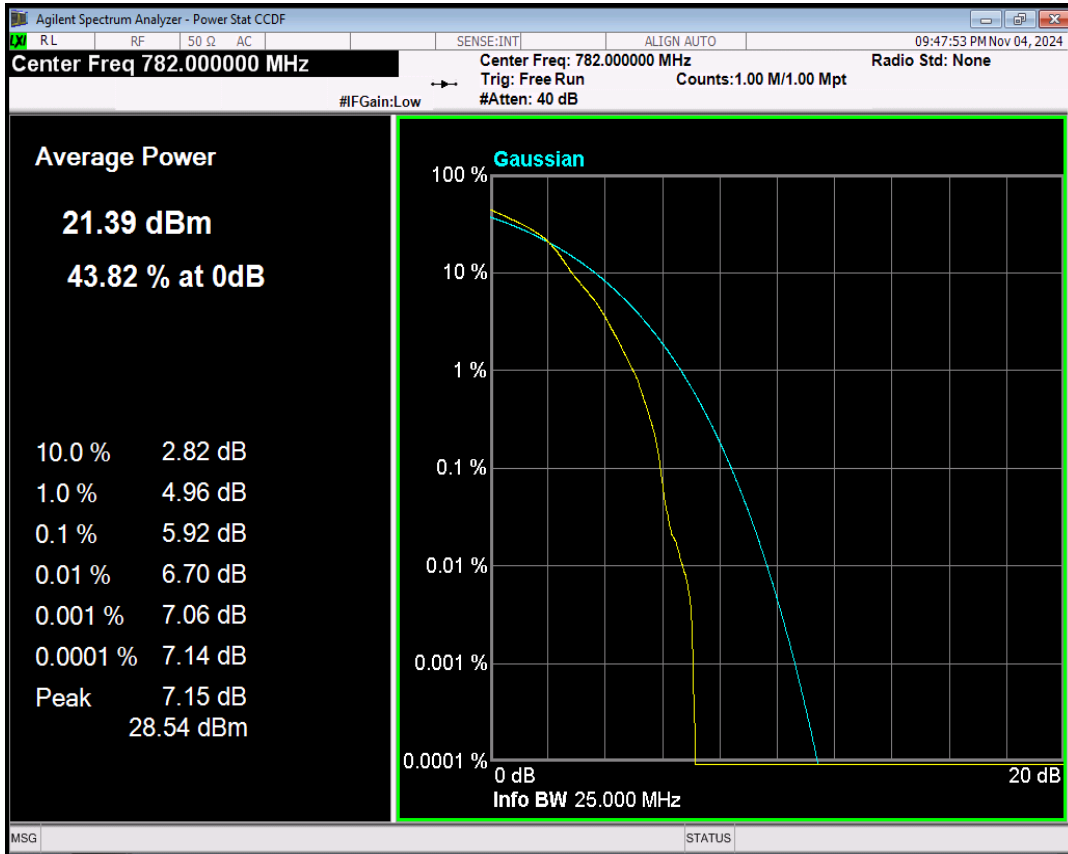
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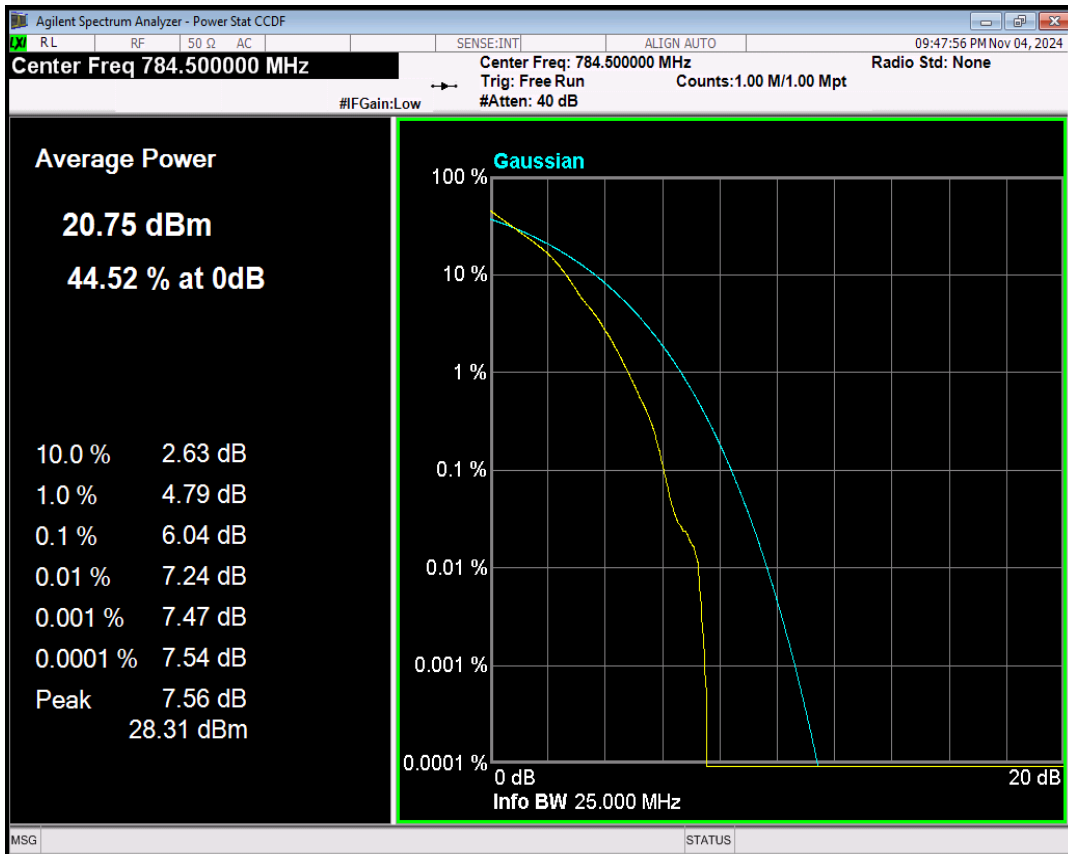
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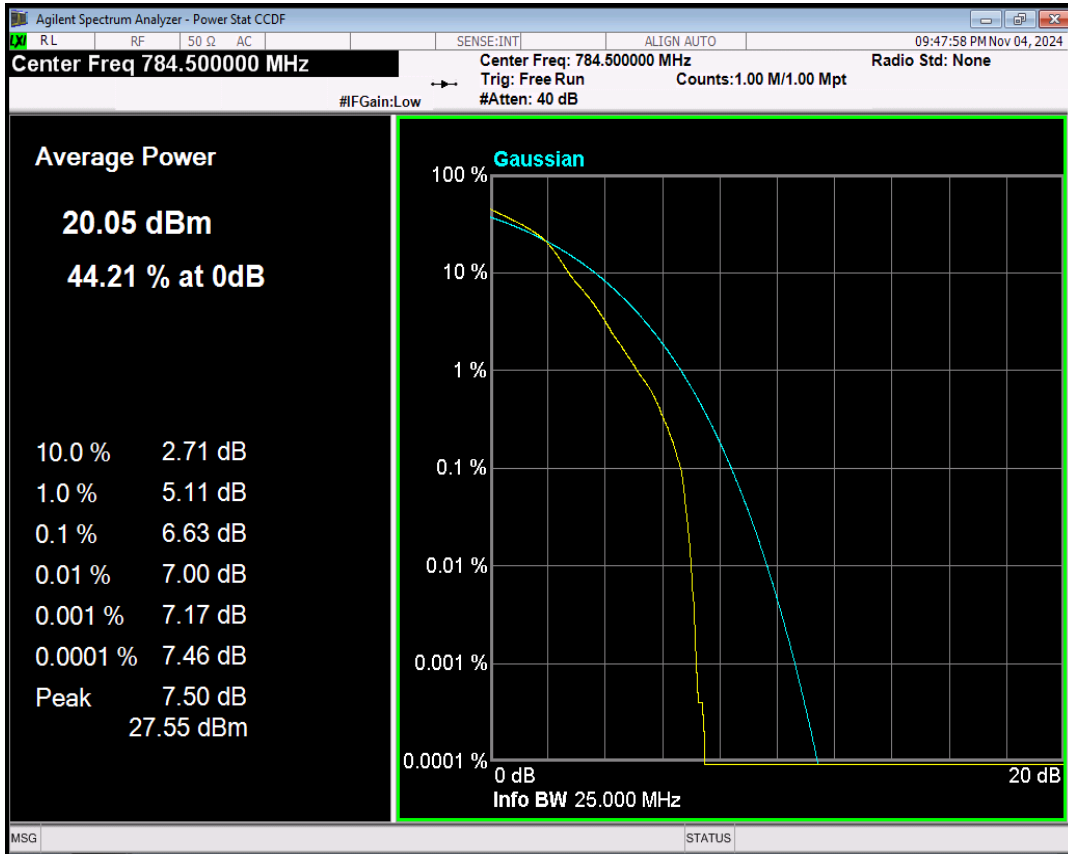
Band13 16QAM BW=5MHz Channel=23230 RB Size=1 Position=#0



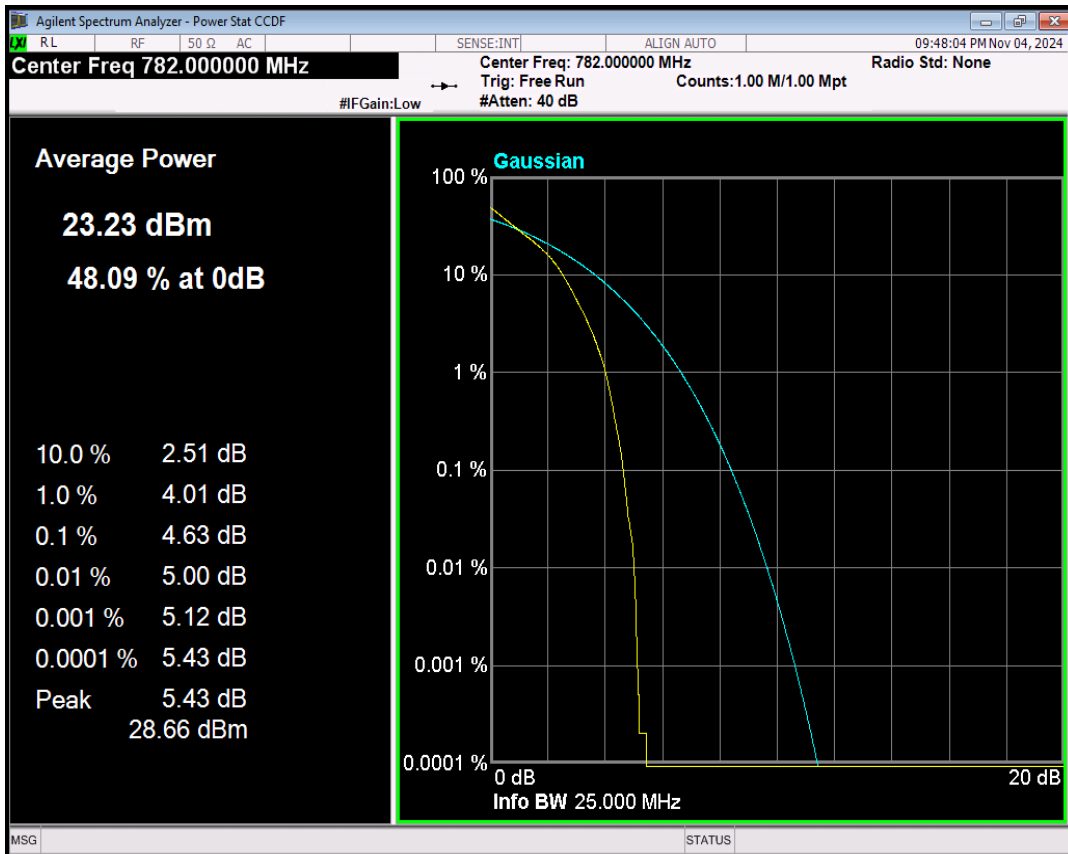
Band13 QPSK BW=5MHz Channel=23255 RB Size=1 Position=#0



Band13 16QAM BW=5MHz Channel=23255 RB Size=1 Position=#0



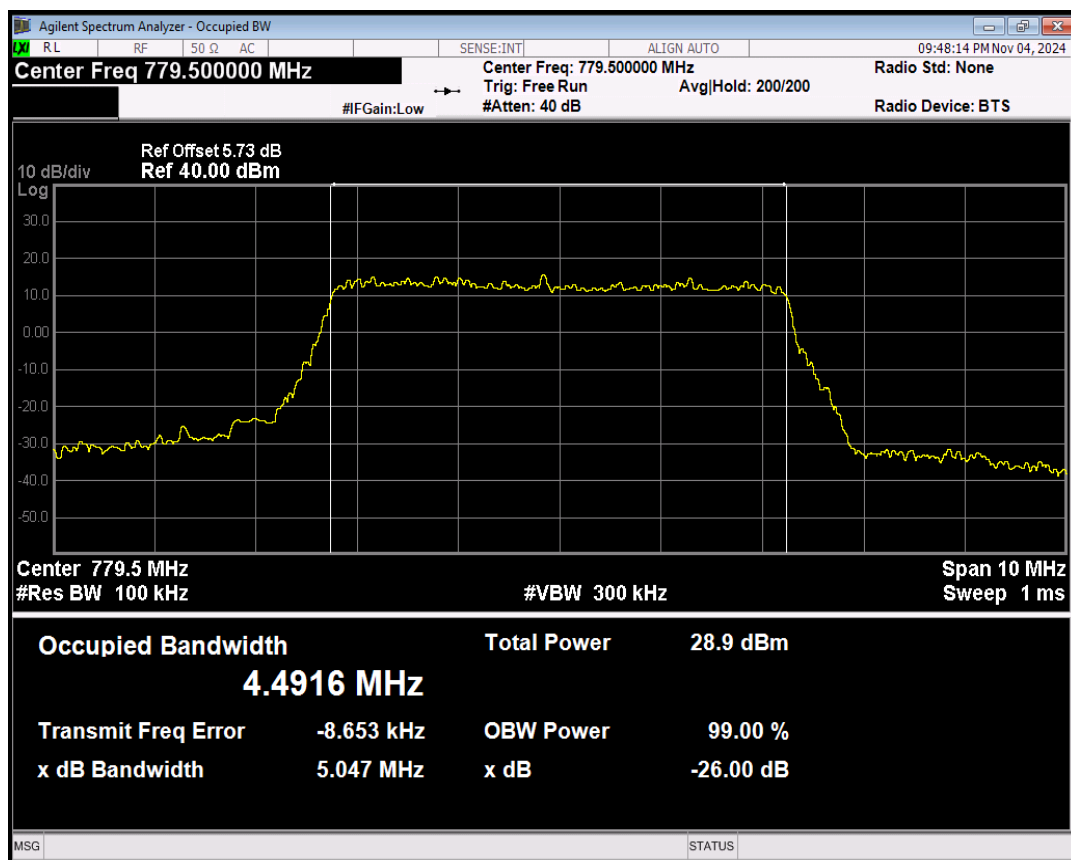
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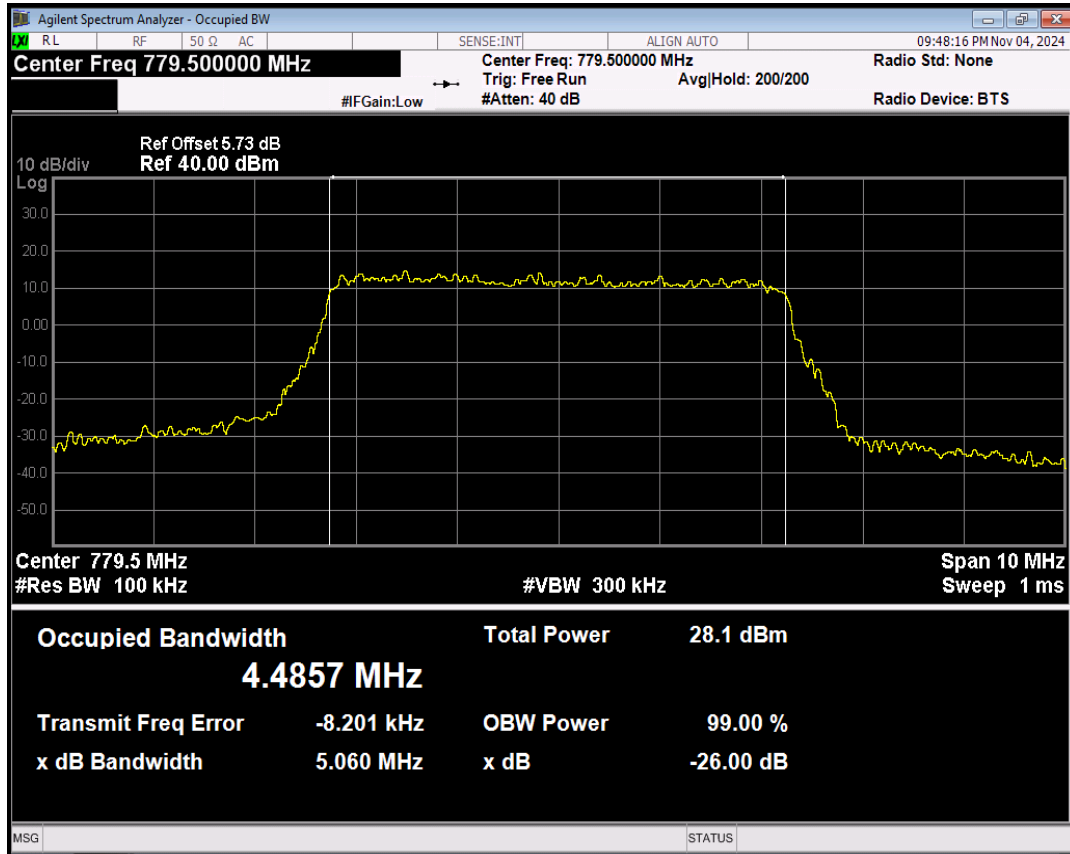
Appendix 4. Occupied bandwidth

Band	Bandwidth (MHz)	UL Channel	RB Size	RB Position	Modulation	99% OBW (MHz)	-26dB EBW (MHz)	Verdict
Band13	5	23205	25	#0	QPSK	4.492	5.047	PASS
Band13	5	23205	25	#0	16QAM	4.486	5.060	PASS
Band13	5	23230	25	#0	QPSK	4.498	5.134	PASS
Band13	5	23230	25	#0	16QAM	4.484	5.111	PASS
Band13	5	23255	25	#0	QPSK	4.479	4.988	PASS
Band13	5	23255	25	#0	16QAM	4.474	5.036	PASS
Band13	10	23230	50	#0	QPSK	8.952	9.673	PASS

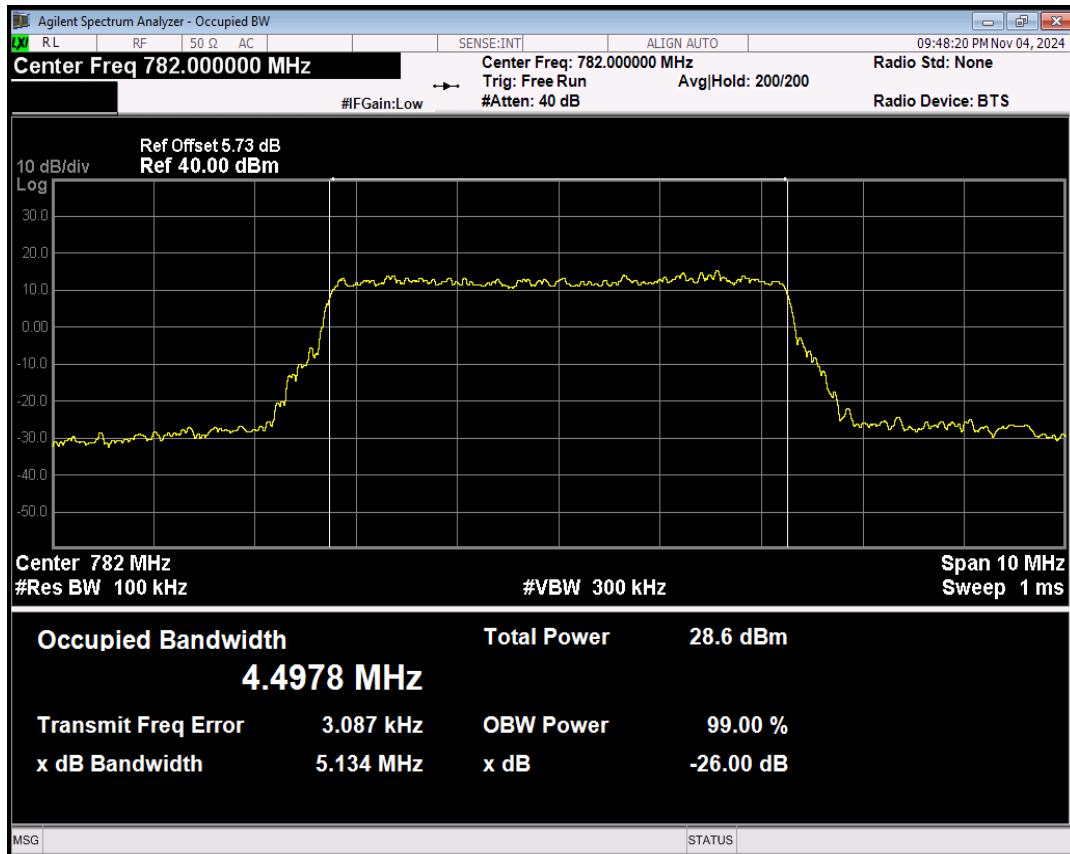
Band13 QPSK BW=5MHz Channel=23205 RB Size=25 Position=#0



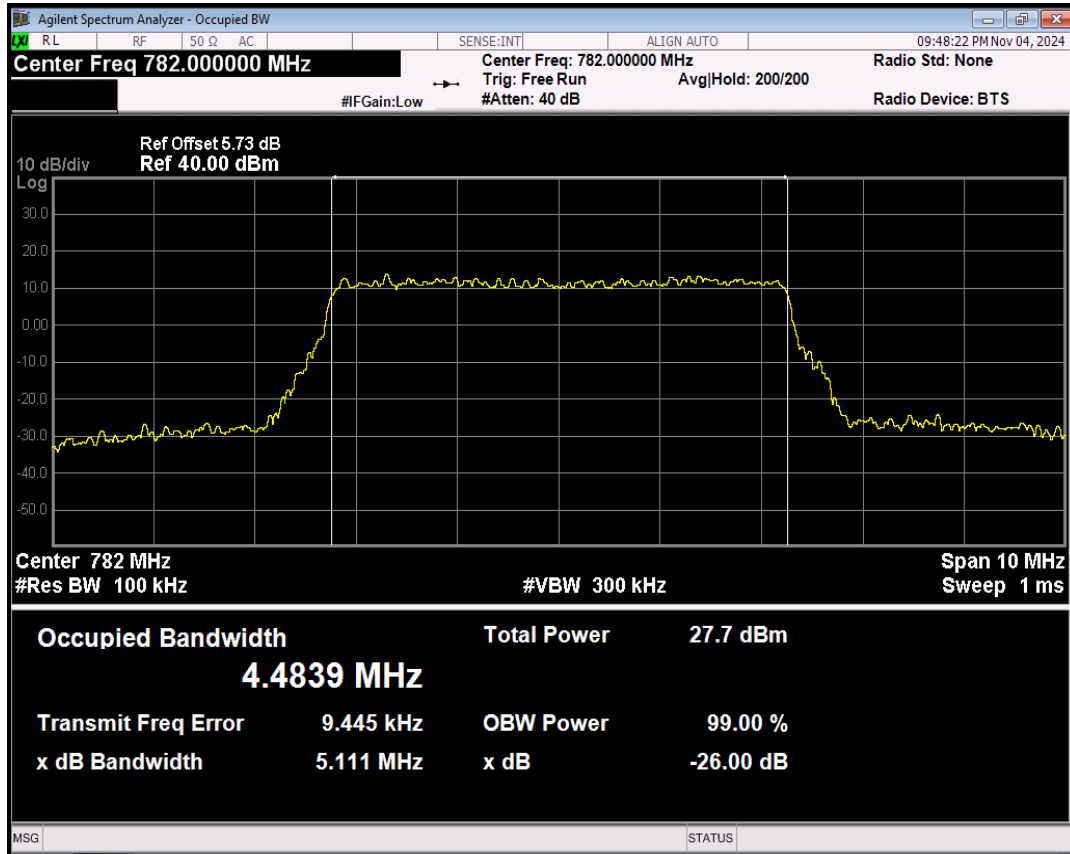
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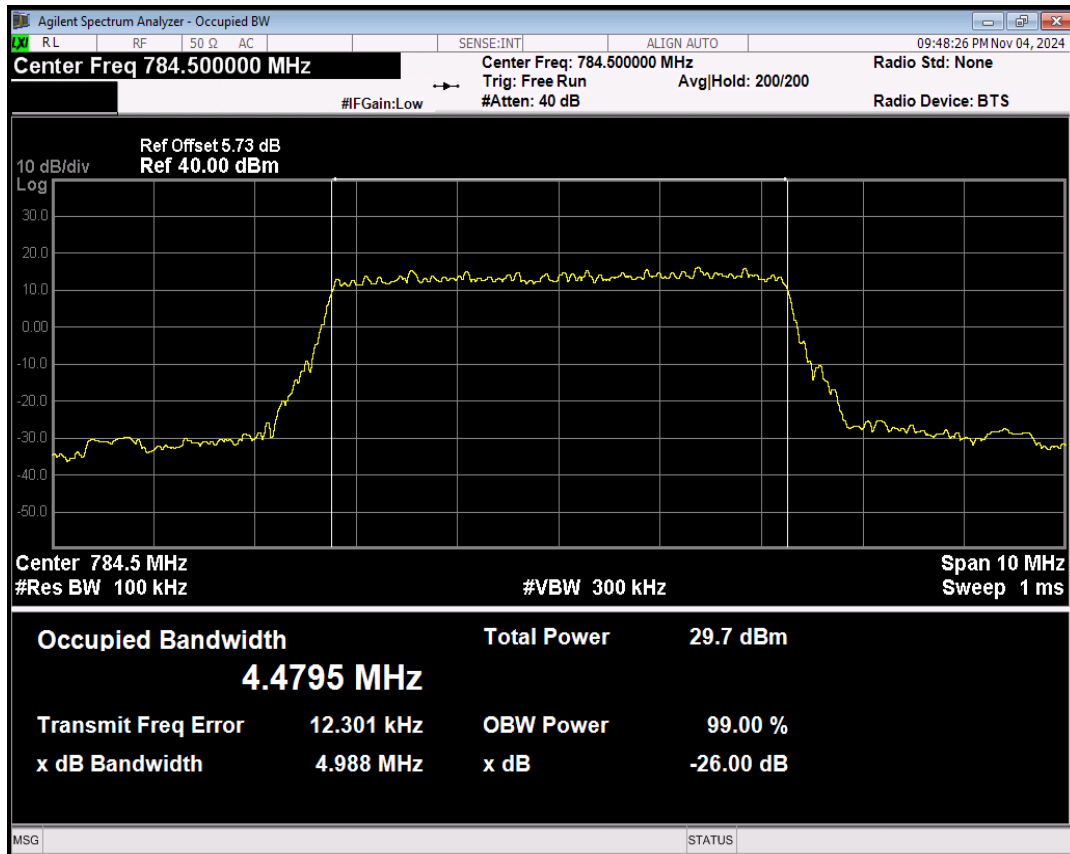
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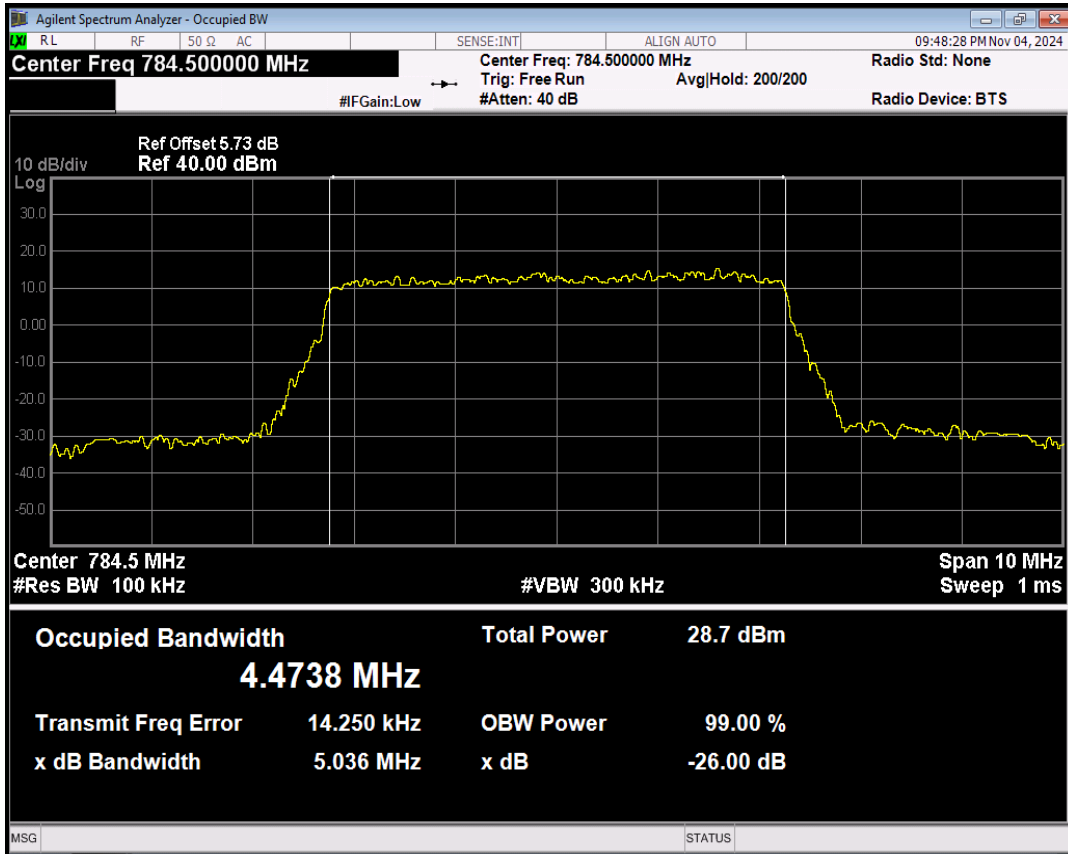
Band13 16QAM BW=5MHz Channel=23230 RB Size=25 Position=#0



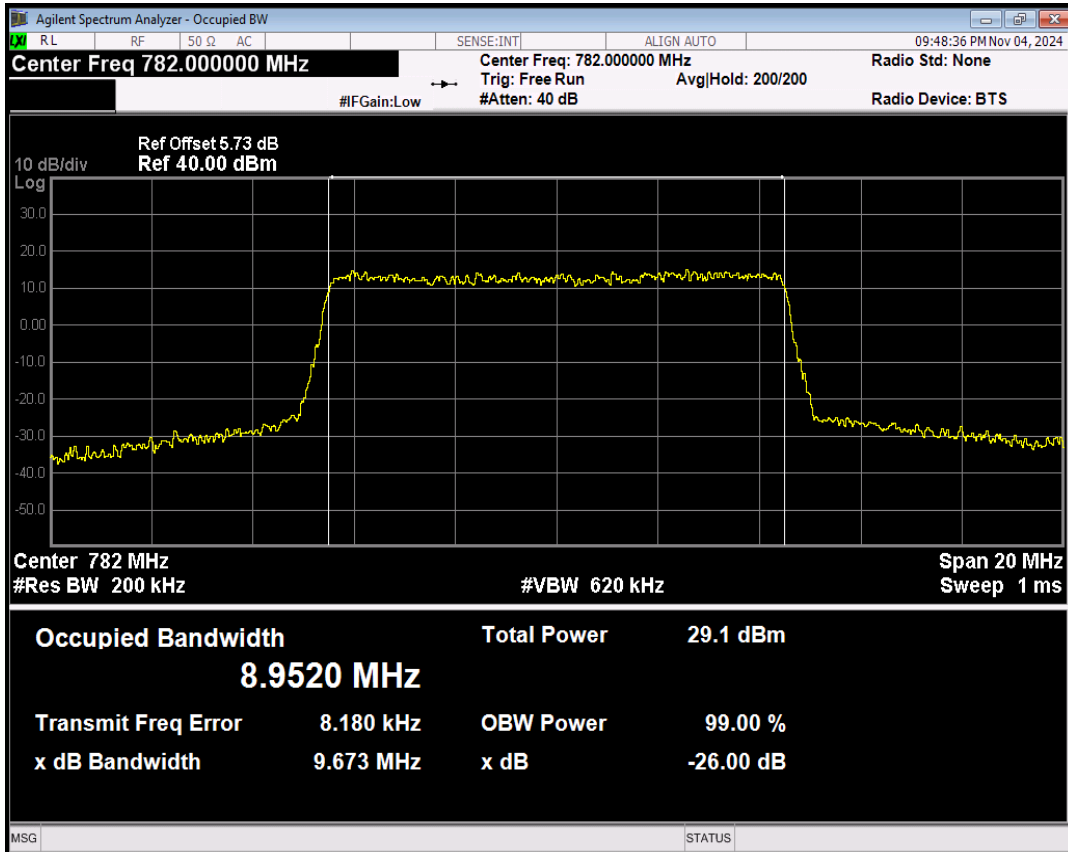
Band13 QPSK BW=5MHz Channel=23255 RB Size=25 Position=#0



Band13 16QAM BW=5MHz Channel=23255 RB Size=25 Position=#0



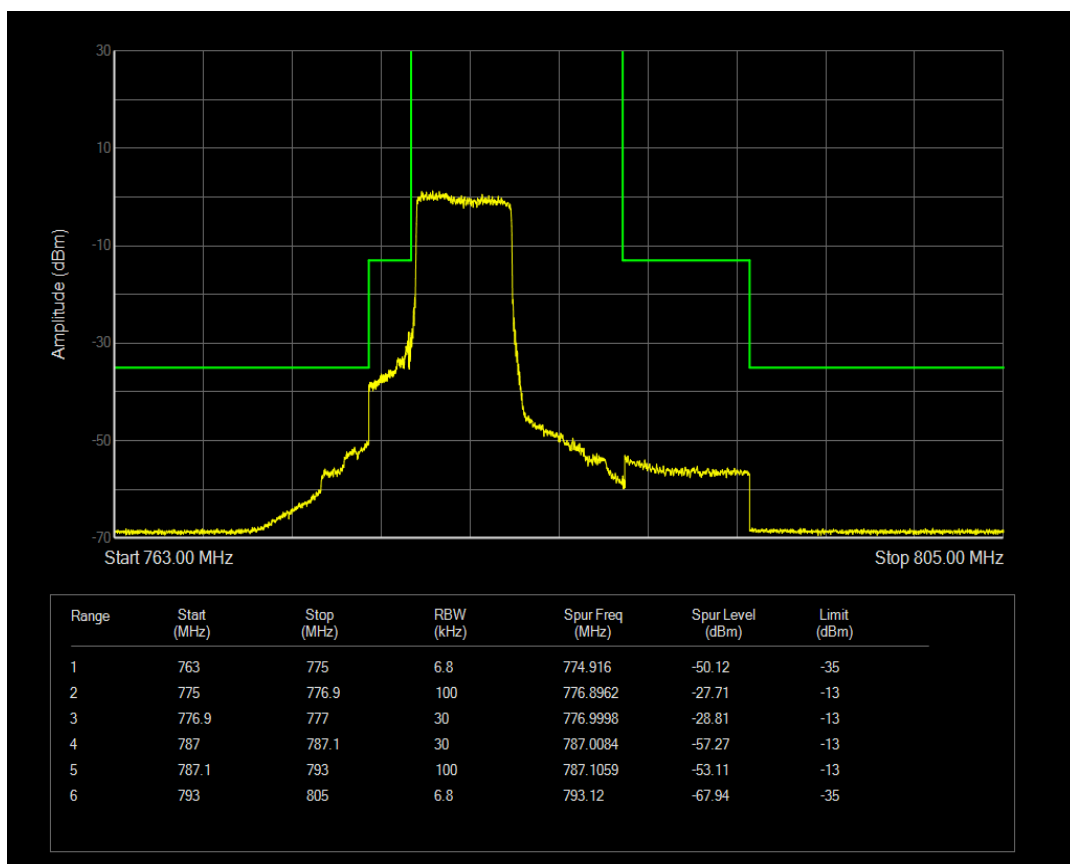
Band13 QPSK BW=10MHz Channel=23230 RB Size=50 Position=#0



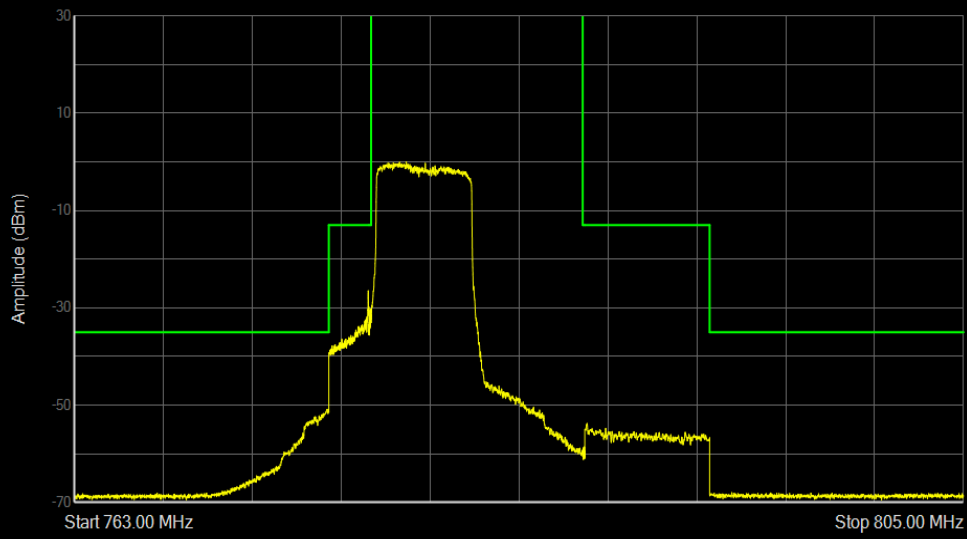
Appendix 5. Band edge

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	776.90	-27.71	-13	PASS
Band13	5	23205	25	#0	16QAM	776.86	-26.47	-13	PASS
Band13	5	23255	25	#0	QPSK	787.11	-26.81	-13	PASS
Band13	5	23255	25	#0	16QAM	787.13	-29.13	-13	PASS
Band13	10	23230	50	#0	QPSK	774.90	-52.85	-35	PASS

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

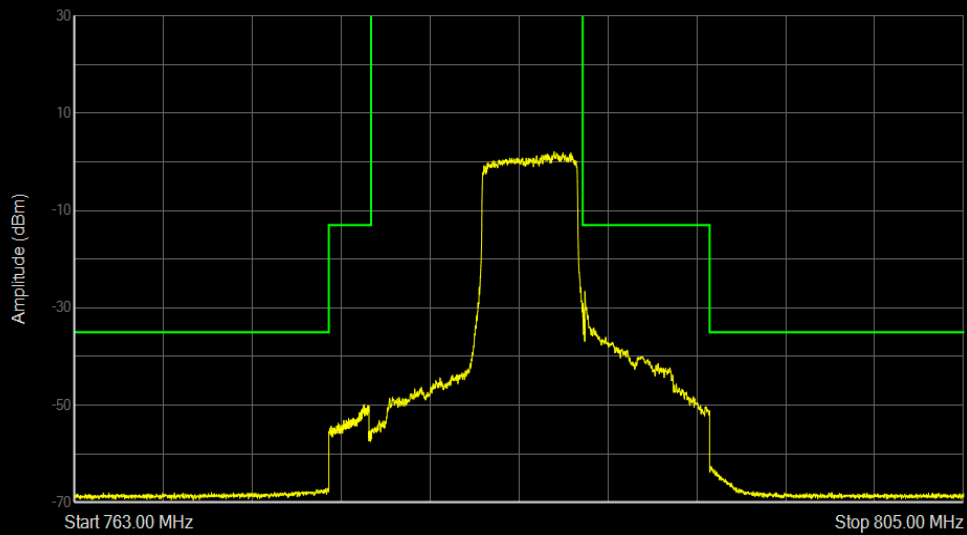


Band13 16QAM BW=5MHz Channel=23205 RB Size=25 Position=#0



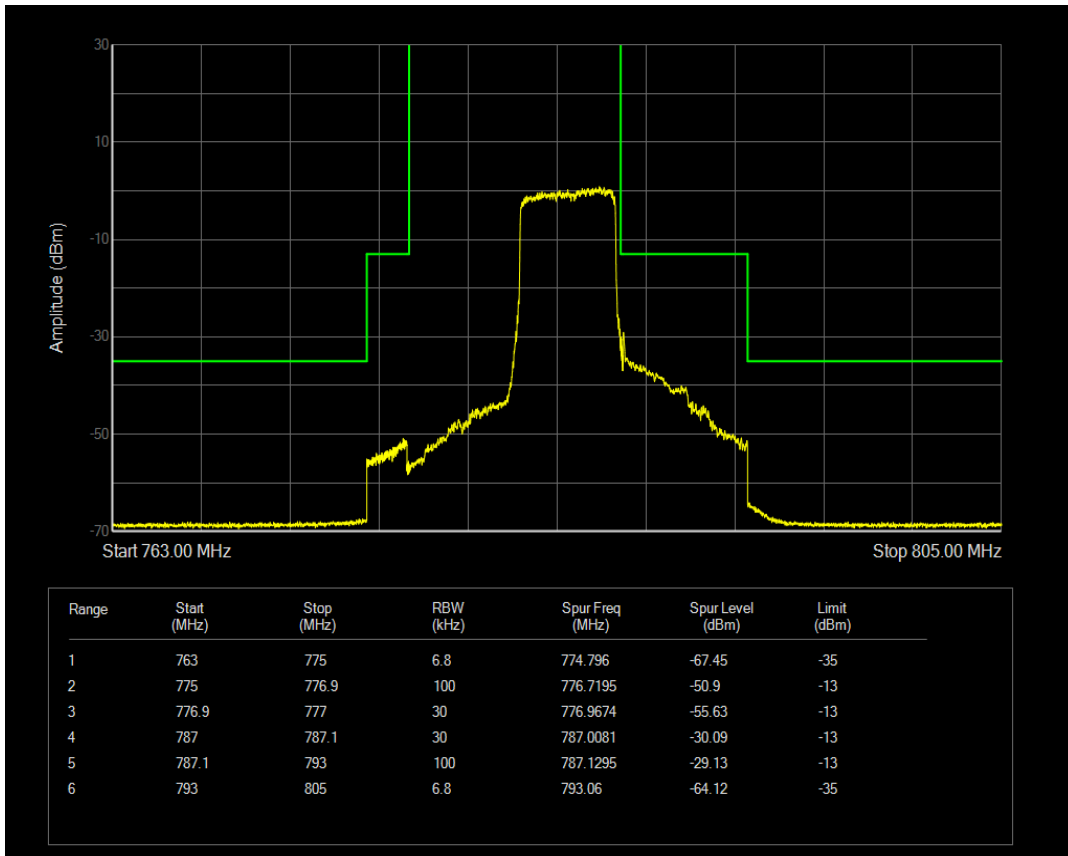
Range	Start (MHz)	Stop (MHz)	RBW (kHz)	Spur Freq (MHz)	Spur Level (dBm)	Limit (dBm)
1	763	775	6.8	774.976	-50.83	-35
2	775	776.9	100	776.8639	-26.47	-13
3	776.9	777	30	776.9908	-30.29	-13
4	787	787.1	30	787.0796	-58.6	-13
5	787.1	793	100	787.2062	-53.76	-13
6	793	805	6.8	794.044	-67.99	-35

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

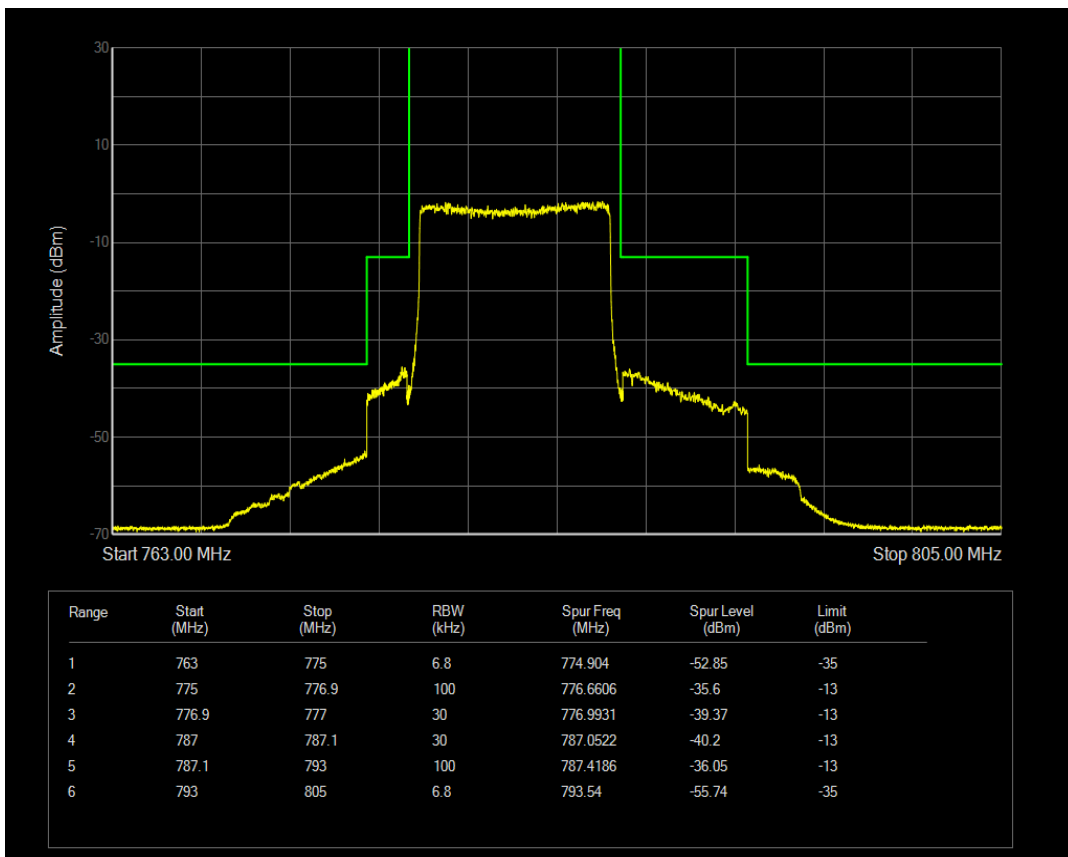


Range	Start (MHz)	Stop (MHz)	RBW (kHz)	Spur Freq (MHz)	Spur Level (dBm)	Limit (dBm)
1	763	775	6.8	774.928	-67.1	-35
2	775	776.9	100	776.6606	-49.89	-13
3	776.9	777	30	776.9099	-55.4	-13
4	787	787.1	30	787.0153	-29.17	-13
5	787.1	793	100	787.1059	-26.81	-13
6	793	805	6.8	793.048	-62.62	-35

Band13 16QAM BW=5MHz Channel=23255 RB Size=25 Position=#0



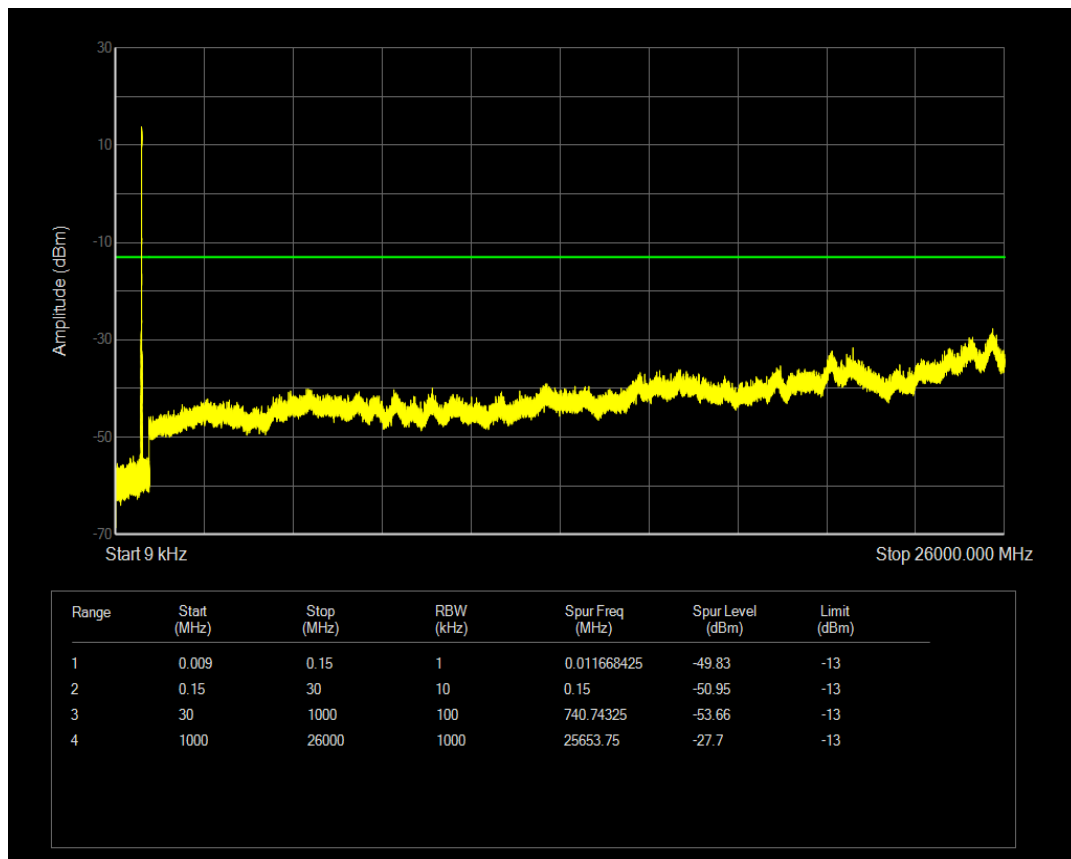
Band13 QPSK BW=10MHz Channel=23230 RB Size=50 Position=#0



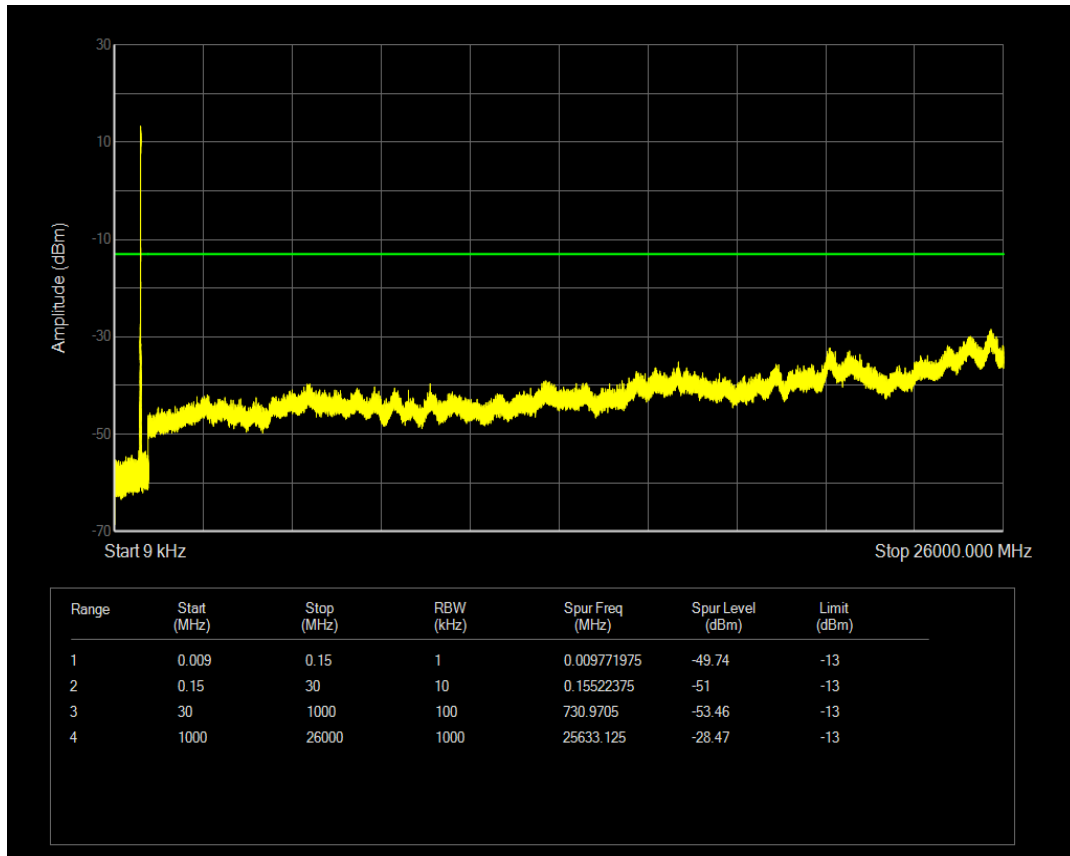
Appendix 6. Out-of-band emissions

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	25653.75	-27.70	-13	PASS
Band13	5	23205	25	#0	16QAM	25633.13	-28.47	-13	PASS
Band13	5	23230	25	#0	QPSK	25611.88	-27.97	-13	PASS
Band13	5	23230	25	#0	16QAM	25578.13	-27.47	-13	PASS
Band13	5	23255	25	#0	QPSK	25681.25	-28.29	-13	PASS
Band13	5	23255	25	#0	16QAM	25610.63	-28.08	-13	PASS
Band13	10	23230	50	#0	QPSK	25647.50	-27.63	-13	PASS

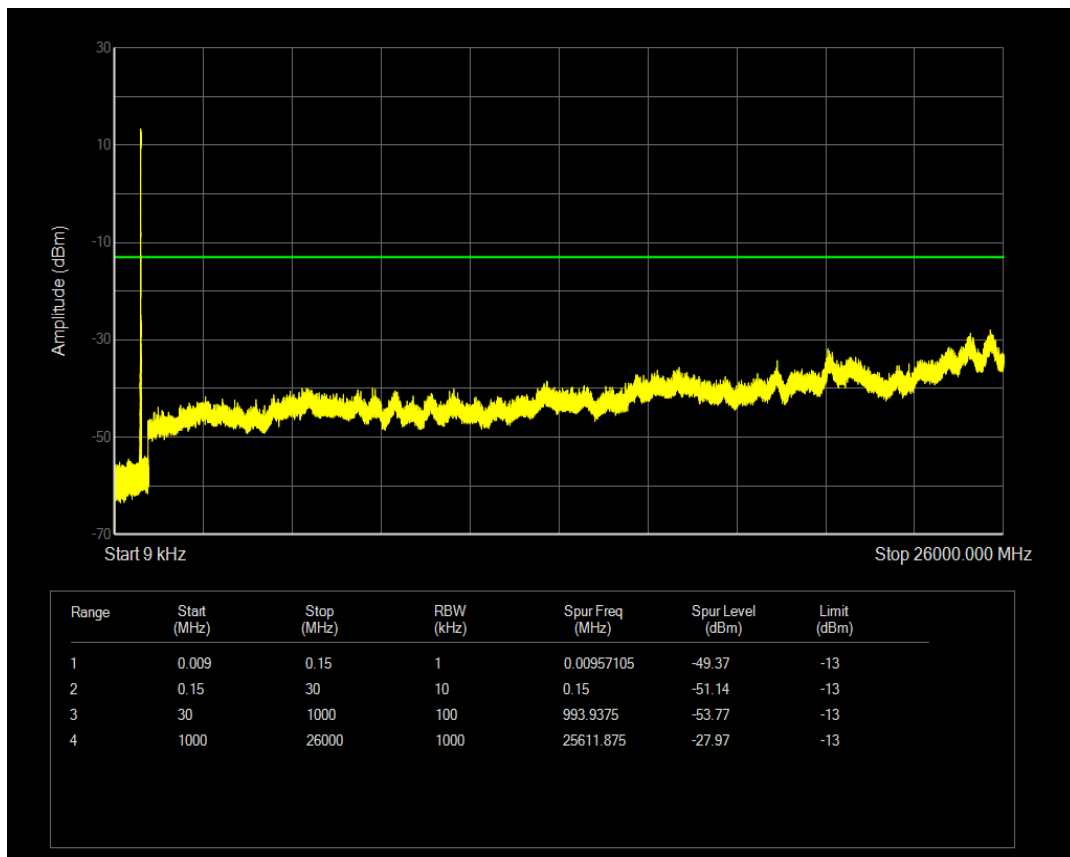
Band13 QPSK BW=5MHz Channel=23205 RB Size=25 Position=#0



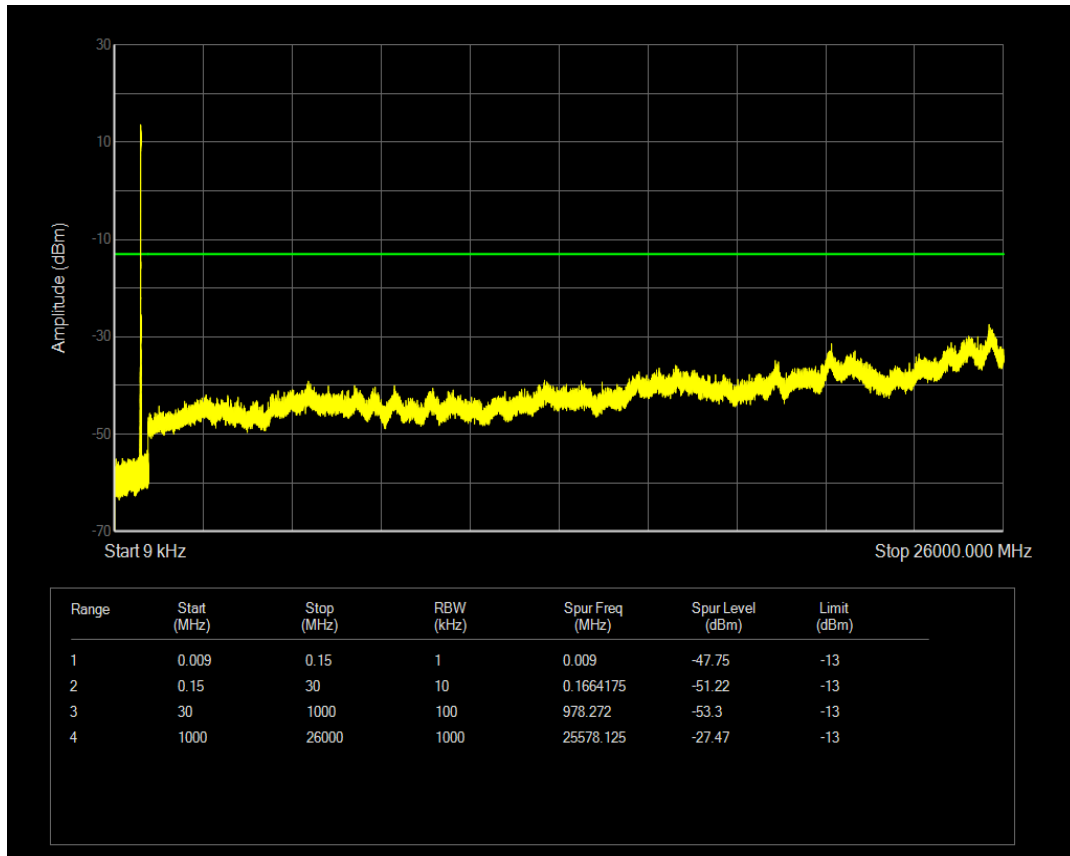
Band13 16QAM BW=5MHz Channel=23205 RB Size=25 Position=#0



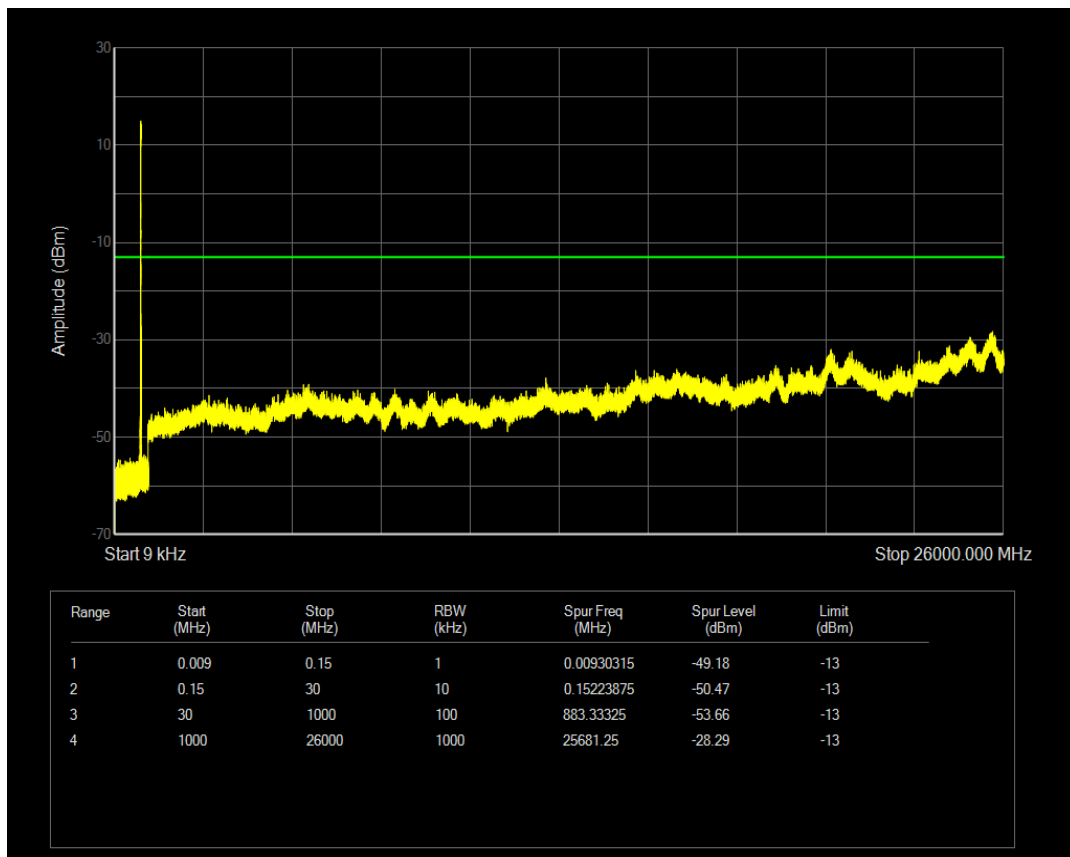
Band13 QPSK BW=5MHz Channel=23230 RB Size=25 Position=#0



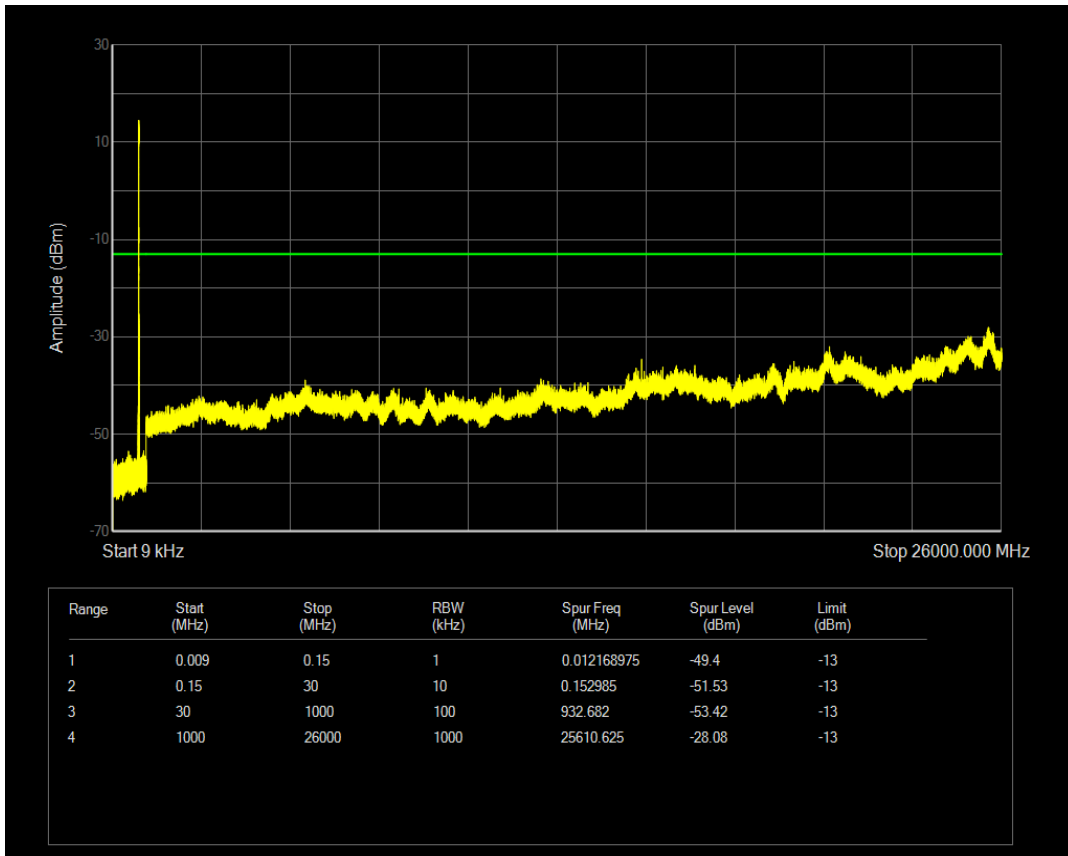
Band13 16QAM BW=5MHz Channel=23230 RB Size=25 Position=#0



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



Band13 16QAM BW=5MHz Channel=23255 RB Size=25 Position=#0



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

