

Appendix for Band 17

Report No.: BCTC2410177766-3E

Applicant: GEM ONE NV

Product Name: Onyx V4

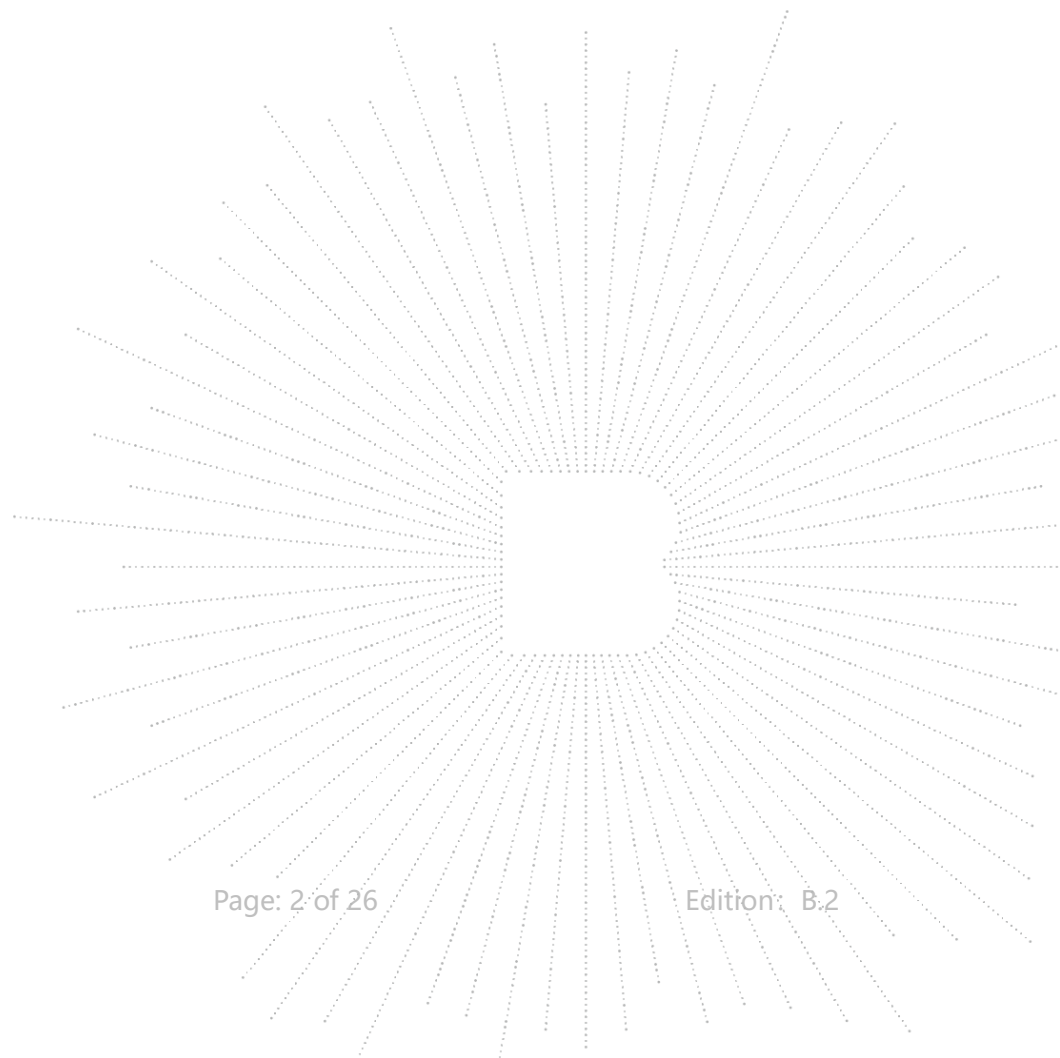
Test Model: Onyx V4

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

Shenzhen BCTC Testing Co., Ltd.

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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
Band17	5	23755	1	#0	QPSK	23.73	-2.7	18.88	PASS
Band17	5	23755	1	#Mid	QPSK	22.99	-2.7	18.14	PASS
Band17	5	23755	1	#Max	QPSK	22.24	-2.7	17.39	PASS
Band17	5	23755	12	#0	QPSK	22.87	-2.7	18.02	PASS
Band17	5	23755	12	#Mid	QPSK	22.87	-2.7	18.02	PASS
Band17	5	23755	12	#Max	QPSK	22.24	-2.7	17.39	PASS
Band17	5	23755	25	#0	QPSK	22.22	-2.7	17.37	PASS
Band17	5	23755	1	#0	16QAM	23.11	-2.7	18.26	PASS
Band17	5	23755	1	#Mid	16QAM	22.43	-2.7	17.58	PASS
Band17	5	23755	1	#Max	16QAM	21.60	-2.7	16.75	PASS
Band17	5	23755	12	#0	16QAM	21.82	-2.7	16.97	PASS
Band17	5	23755	12	#Mid	16QAM	21.85	-2.7	17.00	PASS
Band17	5	23755	12	#Max	16QAM	21.22	-2.7	16.37	PASS
Band17	5	23755	25	#0	16QAM	21.26	-2.7	16.41	PASS
Band17	5	23790	1	#0	QPSK	23.52	-2.7	18.67	PASS
Band17	5	23790	1	#Mid	QPSK	22.88	-2.7	18.03	PASS
Band17	5	23790	1	#Max	QPSK	21.97	-2.7	17.12	PASS
Band17	5	23790	12	#0	QPSK	22.67	-2.7	17.82	PASS
Band17	5	23790	12	#Mid	QPSK	22.62	-2.7	17.77	PASS
Band17	5	23790	12	#Max	QPSK	21.90	-2.7	17.05	PASS
Band17	5	23790	25	#0	QPSK	21.97	-2.7	17.12	PASS
Band17	5	23790	1	#0	16QAM	22.89	-2.7	18.04	PASS
Band17	5	23790	1	#Mid	16QAM	22.26	-2.7	17.41	PASS
Band17	5	23790	1	#Max	16QAM	21.34	-2.7	16.49	PASS
Band17	5	23790	12	#0	16QAM	21.73	-2.7	16.88	PASS
Band17	5	23790	12	#Mid	16QAM	21.70	-2.7	16.85	PASS
Band17	5	23790	12	#Max	16QAM	20.95	-2.7	16.10	PASS
Band17	5	23790	25	#0	16QAM	21.08	-2.7	16.23	PASS
Band17	5	23825	1	#0	QPSK	21.84	-2.7	16.99	PASS
Band17	5	23825	1	#Mid	QPSK	22.92	-2.7	18.07	PASS
Band17	5	23825	1	#Max	QPSK	23.16	-2.7	18.31	PASS
Band17	5	23825	12	#0	QPSK	21.92	-2.7	17.07	PASS
Band17	5	23825	12	#Mid	QPSK	22.02	-2.7	17.17	PASS
Band17	5	23825	12	#Max	QPSK	22.54	-2.7	17.69	PASS
Band17	5	23825	25	#0	QPSK	21.93	-2.7	17.08	PASS
Band17	5	23825	1	#0	16QAM	21.48	-2.7	16.63	PASS

Band17	5	23825	1	#Mid	16QAM	22.54	-2.7	17.69	PASS
Band17	5	23825	1	#Max	16QAM	22.78	-2.7	17.93	PASS
Band17	5	23825	12	#0	16QAM	20.95	-2.7	16.10	PASS
Band17	5	23825	12	#Mid	16QAM	21.05	-2.7	16.20	PASS
Band17	5	23825	12	#Max	16QAM	21.63	-2.7	16.78	PASS
Band17	5	23825	25	#0	16QAM	20.95	-2.7	16.10	PASS
Band17	10	23780	1	#0	QPSK	23.70	-2.7	18.85	PASS
Band17	10	23780	1	#Mid	QPSK	23.33	-2.7	18.48	PASS
Band17	10	23780	1	#Max	QPSK	23.63	-2.7	18.78	PASS
Band17	10	23780	25	#0	QPSK	22.83	-2.7	17.98	PASS
Band17	10	23780	25	#Mid	QPSK	22.84	-2.7	17.99	PASS
Band17	10	23780	25	#Max	QPSK	22.67	-2.7	17.82	PASS
Band17	10	23780	50	#0	QPSK	22.14	-2.7	17.29	PASS
Band17	10	23790	1	#0	QPSK	23.57	-2.7	18.72	PASS
Band17	10	23790	1	#Mid	QPSK	23.28	-2.7	18.43	PASS
Band17	10	23790	1	#Max	QPSK	23.52	-2.7	18.67	PASS
Band17	10	23790	25	#0	QPSK	22.78	-2.7	17.93	PASS
Band17	10	23790	25	#Mid	QPSK	22.76	-2.7	17.91	PASS
Band17	10	23790	25	#Max	QPSK	22.64	-2.7	17.79	PASS
Band17	10	23790	50	#0	QPSK	22.10	-2.7	17.25	PASS
Band17	10	23800	1	#0	QPSK	23.59	-2.7	18.74	PASS
Band17	10	23800	1	#Mid	QPSK	23.15	-2.7	18.30	PASS
Band17	10	23800	1	#Max	QPSK	23.42	-2.7	18.57	PASS
Band17	10	23800	25	#0	QPSK	22.76	-2.7	17.91	PASS
Band17	10	23800	25	#Mid	QPSK	22.72	-2.7	17.87	PASS
Band17	10	23800	25	#Max	QPSK	22.65	-2.7	17.80	PASS
Band17	10	23800	50	#0	QPSK	22.10	-2.7	17.25	PASS

Appendix 2. Frequency stability

Band	Bandwidth (MHz)	UL Channel	RB Size	RB Position	Modulation	Voltage (Vdc)	Temperatue (C)	Result (Hz)	Result (ppm)	Verdict
Band17	5	23755	25	#0	QPSK	LV	NT	-3.95	-0.006	PASS
Band17	5	23755	25	#0	QPSK	NV	NT	-1.54	-0.002	PASS
Band17	5	23755	25	#0	QPSK	HV	NT	-1.96	-0.003	PASS
Band17	5	23755	25	#0	16QAM	LV	NT	-0.93	-0.001	PASS
Band17	5	23755	25	#0	16QAM	NV	NT	-1.26	-0.002	PASS
Band17	5	23755	25	#0	16QAM	HV	NT	-1.63	-0.002	PASS
Band17	5	23790	25	#0	QPSK	LV	NT	-6.92	-0.010	PASS
Band17	5	23790	25	#0	QPSK	NV	NT	-6.62	-0.009	PASS
Band17	5	23790	25	#0	QPSK	HV	NT	-5.42	-0.008	PASS
Band17	5	23790	25	#0	16QAM	LV	NT	-6.04	-0.009	PASS
Band17	5	23790	25	#0	16QAM	NV	NT	-5.04	-0.007	PASS
Band17	5	23790	25	#0	16QAM	HV	NT	-6.42	-0.009	PASS
Band17	5	23825	25	#0	QPSK	LV	NT	-7.02	-0.010	PASS
Band17	5	23825	25	#0	QPSK	NV	NT	-6.47	-0.009	PASS
Band17	5	23825	25	#0	QPSK	HV	NT	-6.31	-0.009	PASS
Band17	5	23825	25	#0	16QAM	LV	NT	-6.34	-0.009	PASS
Band17	5	23825	25	#0	16QAM	NV	NT	-5.71	-0.008	PASS
Band17	5	23825	25	#0	16QAM	HV	NT	-6.61	-0.009	PASS
Band17	10	23780	50	#0	QPSK	LV	NT	-5.59	-0.008	PASS
Band17	10	23780	50	#0	QPSK	NV	NT	-0.07	0.000	PASS
Band17	10	23780	50	#0	QPSK	HV	NT	0.99	0.001	PASS
Band17	10	23790	50	#0	QPSK	LV	NT	-3.95	-0.006	PASS
Band17	10	23790	50	#0	QPSK	NV	NT	-7.82	-0.011	PASS
Band17	10	23790	50	#0	QPSK	HV	NT	-6.79	-0.010	PASS
Band17	10	23800	50	#0	QPSK	LV	NT	-5.56	-0.008	PASS
Band17	10	23800	50	#0	QPSK	NV	NT	-6.31	-0.009	PASS
Band17	10	23800	50	#0	QPSK	HV	NT	-6.72	-0.009	PASS

Band	Bandwidth (MHz)	UL Channel	RB Size	RB Position	Modulation	Voltage (Vdc)	Temperatue (C)	Result (Hz)	Result (ppm)	Verdict
Band17	5	23755	25	#0	QPSK	NV	-30	-0.34	0.000	PASS
Band17	5	23755	25	#0	QPSK	NV	-20	0.37	0.001	PASS
Band17	5	23755	25	#0	QPSK	NV	-10	-0.24	0.000	PASS
Band17	5	23755	25	#0	QPSK	NV	0	-0.69	-0.001	PASS
Band17	5	23755	25	#0	QPSK	NV	10	-1.29	-0.002	PASS
Band17	5	23755	25	#0	QPSK	NV	20	-1.32	-0.002	PASS
Band17	5	23755	25	#0	QPSK	NV	30	-0.46	-0.001	PASS
Band17	5	23755	25	#0	QPSK	NV	40	-1.03	-0.001	PASS

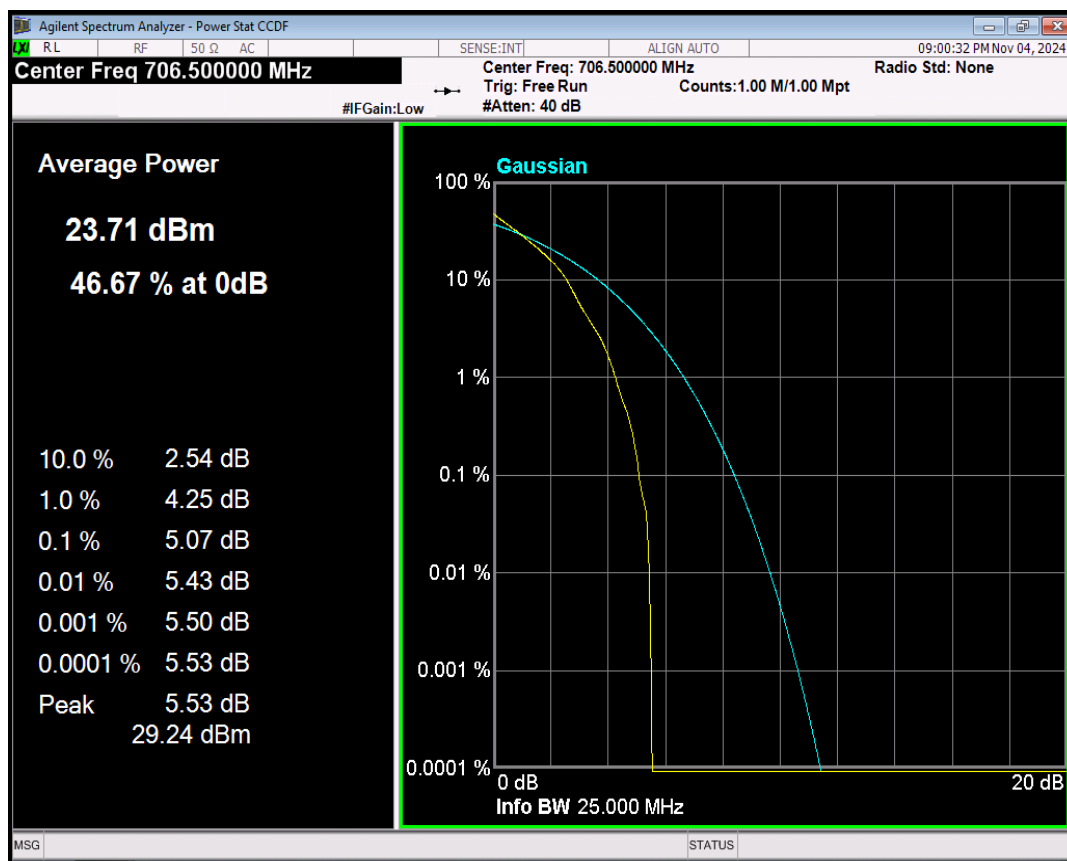
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Band17	5	23755	25	#0	16QAM	NV	-30	-1.52	-0.002	PASS
Band17	5	23755	25	#0	16QAM	NV	-20	-1.72	-0.002	PASS
Band17	5	23755	25	#0	16QAM	NV	-10	-1.82	-0.003	PASS
Band17	5	23755	25	#0	16QAM	NV	0	-2.62	-0.004	PASS
Band17	5	23755	25	#0	16QAM	NV	10	-2.65	-0.004	PASS
Band17	5	23755	25	#0	16QAM	NV	20	-1.50	-0.002	PASS
Band17	5	23755	25	#0	16QAM	NV	30	-1.73	-0.002	PASS
Band17	5	23755	25	#0	16QAM	NV	40	-1.87	-0.003	PASS
Band17	5	23755	25	#0	16QAM	NV	50	-1.96	-0.003	PASS
Band17	5	23790	25	#0	QPSK	NV	-30	-2.55	-0.004	PASS
Band17	5	23790	25	#0	QPSK	NV	-20	-4.66	-0.007	PASS
Band17	5	23790	25	#0	QPSK	NV	-10	-6.38	-0.009	PASS
Band17	5	23790	25	#0	QPSK	NV	0	-6.59	-0.009	PASS
Band17	5	23790	25	#0	QPSK	NV	10	-6.07	-0.009	PASS
Band17	5	23790	25	#0	QPSK	NV	20	-5.76	-0.008	PASS
Band17	5	23790	25	#0	QPSK	NV	30	-6.48	-0.009	PASS
Band17	5	23790	25	#0	QPSK	NV	40	-6.54	-0.009	PASS
Band17	5	23790	25	#0	QPSK	NV	50	-6.77	-0.010	PASS
Band17	5	23790	25	#0	16QAM	NV	-30	-6.75	-0.010	PASS
Band17	5	23790	25	#0	16QAM	NV	-20	-5.85	-0.008	PASS
Band17	5	23790	25	#0	16QAM	NV	-10	-6.29	-0.009	PASS
Band17	5	23790	25	#0	16QAM	NV	0	-7.17	-0.010	PASS
Band17	5	23790	25	#0	16QAM	NV	10	-7.02	-0.010	PASS
Band17	5	23790	25	#0	16QAM	NV	20	-5.88	-0.008	PASS
Band17	5	23790	25	#0	16QAM	NV	30	-5.48	-0.008	PASS
Band17	5	23790	25	#0	16QAM	NV	40	-5.75	-0.008	PASS
Band17	5	23790	25	#0	16QAM	NV	50	-7.00	-0.010	PASS
Band17	5	23825	25	#0	QPSK	NV	-30	-6.64	-0.009	PASS
Band17	5	23825	25	#0	QPSK	NV	-20	-5.35	-0.007	PASS
Band17	5	23825	25	#0	QPSK	NV	-10	-0.46	-0.001	PASS
Band17	5	23825	25	#0	QPSK	NV	0	-2.23	-0.003	PASS
Band17	5	23825	25	#0	QPSK	NV	10	-1.87	-0.003	PASS
Band17	5	23825	25	#0	QPSK	NV	20	-4.84	-0.007	PASS
Band17	5	23825	25	#0	QPSK	NV	30	-6.38	-0.009	PASS
Band17	5	23825	25	#0	QPSK	NV	40	-6.27	-0.009	PASS
Band17	5	23825	25	#0	QPSK	NV	50	-6.22	-0.009	PASS
Band17	5	23825	25	#0	16QAM	NV	-30	-5.91	-0.008	PASS
Band17	5	23825	25	#0	16QAM	NV	-20	-5.58	-0.008	PASS
Band17	5	23825	25	#0	16QAM	NV	-10	-5.87	-0.008	PASS
Band17	5	23825	25	#0	16QAM	NV	0	-5.95	-0.008	PASS
Band17	5	23825	25	#0	16QAM	NV	10	-5.89	-0.008	PASS
Band17	5	23825	25	#0	16QAM	NV	20	-5.81	-0.008	PASS

Band17	5	23825	25	#0	16QAM	NV	30	-5.82	-0.008	PASS
Band17	5	23825	25	#0	16QAM	NV	40	-4.95	-0.007	PASS
Band17	5	23825	25	#0	16QAM	NV	50	-4.66	-0.007	PASS
Band17	10	23780	50	#0	QPSK	NV	-30	-6.31	-0.009	PASS
Band17	10	23780	50	#0	QPSK	NV	-20	-0.34	0.000	PASS
Band17	10	23780	50	#0	QPSK	NV	-10	-0.29	0.000	PASS
Band17	10	23780	50	#0	QPSK	NV	0	-0.06	0.000	PASS
Band17	10	23780	50	#0	QPSK	NV	10	-1.02	-0.001	PASS
Band17	10	23780	50	#0	QPSK	NV	20	-1.13	-0.002	PASS
Band17	10	23780	50	#0	QPSK	NV	30	-1.44	-0.002	PASS
Band17	10	23780	50	#0	QPSK	NV	40	-1.30	-0.002	PASS
Band17	10	23780	50	#0	QPSK	NV	50	-0.51	-0.001	PASS
Band17	10	23790	50	#0	QPSK	NV	-30	-4.13	-0.006	PASS
Band17	10	23790	50	#0	QPSK	NV	-20	-3.88	-0.005	PASS
Band17	10	23790	50	#0	QPSK	NV	-10	-7.08	-0.010	PASS
Band17	10	23790	50	#0	QPSK	NV	0	-7.37	-0.010	PASS
Band17	10	23790	50	#0	QPSK	NV	10	-6.78	-0.010	PASS
Band17	10	23790	50	#0	QPSK	NV	20	-5.76	-0.008	PASS
Band17	10	23790	50	#0	QPSK	NV	30	-6.14	-0.009	PASS
Band17	10	23790	50	#0	QPSK	NV	40	-6.18	-0.009	PASS
Band17	10	23790	50	#0	QPSK	NV	50	-6.25	-0.009	PASS
Band17	10	23800	50	#0	QPSK	NV	-30	-2.20	-0.003	PASS
Band17	10	23800	50	#0	QPSK	NV	-20	-3.18	-0.004	PASS
Band17	10	23800	50	#0	QPSK	NV	-10	-4.58	-0.006	PASS
Band17	10	23800	50	#0	QPSK	NV	0	-6.37	-0.009	PASS
Band17	10	23800	50	#0	QPSK	NV	10	-5.69	-0.008	PASS
Band17	10	23800	50	#0	QPSK	NV	20	-5.66	-0.008	PASS
Band17	10	23800	50	#0	QPSK	NV	30	-6.27	-0.009	PASS
Band17	10	23800	50	#0	QPSK	NV	40	-6.42	-0.009	PASS
Band17	10	23800	50	#0	QPSK	NV	50	-6.54	-0.009	PASS

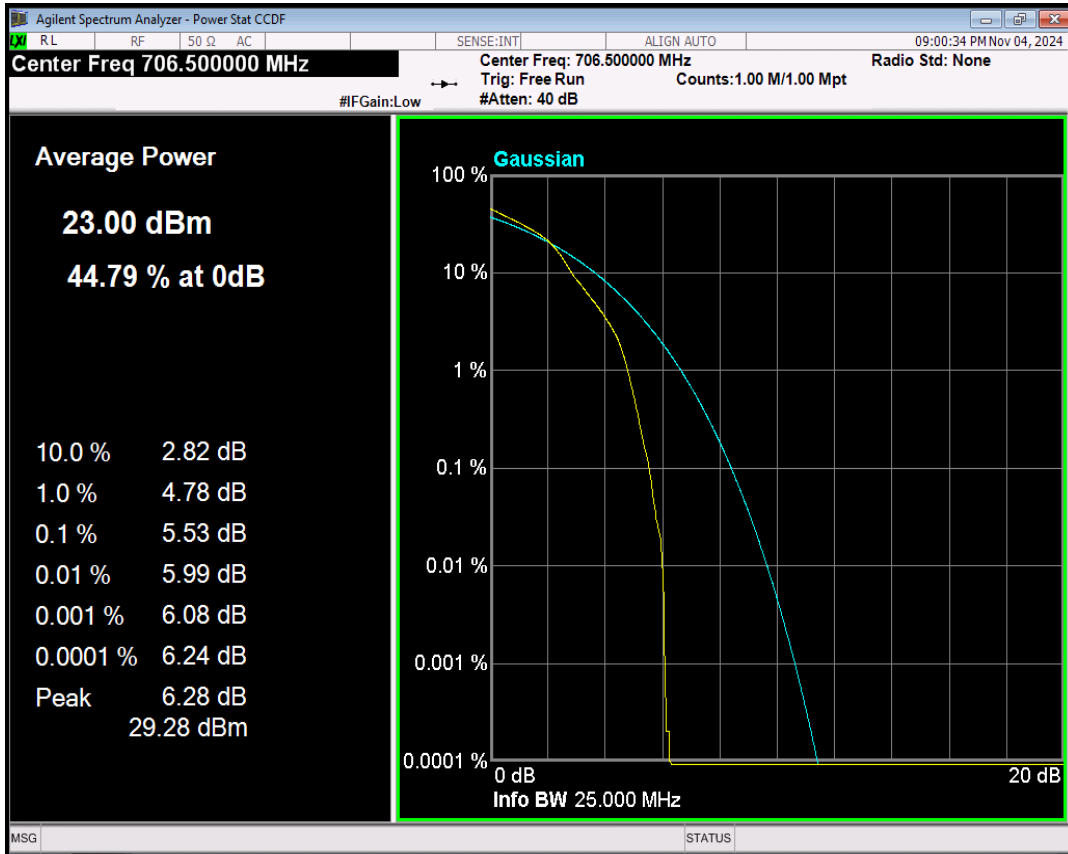
Appendix 3. Peak-to-Average Ratio

Band	Bandwidth (MHz)	UL Channel	RB Size	RB Position	Modulation	Result (dB)	high Limit (dB)	Verdict
Band17	5	23755	1	#0	QPSK	5.07	13	PASS
Band17	5	23755	1	#0	16QAM	5.53	13	PASS
Band17	5	23790	1	#0	QPSK	5.73	13	PASS
Band17	5	23790	1	#0	16QAM	6.18	13	PASS
Band17	5	23825	1	#0	QPSK	5.44	13	PASS
Band17	5	23825	1	#0	16QAM	6.15	13	PASS
Band17	10	23780	1	#0	QPSK	5.11	13	PASS
Band17	10	23790	1	#0	QPSK	5.37	13	PASS
Band17	10	23800	1	#0	QPSK	5.72	13	PASS

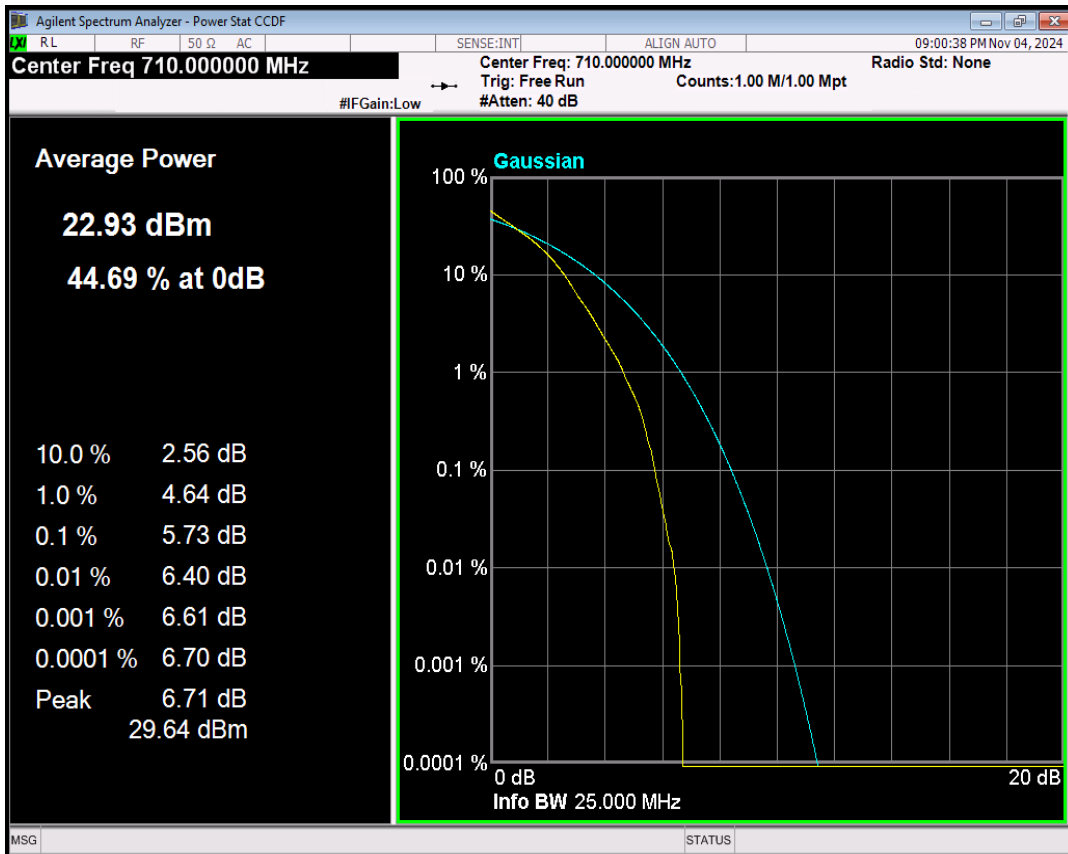
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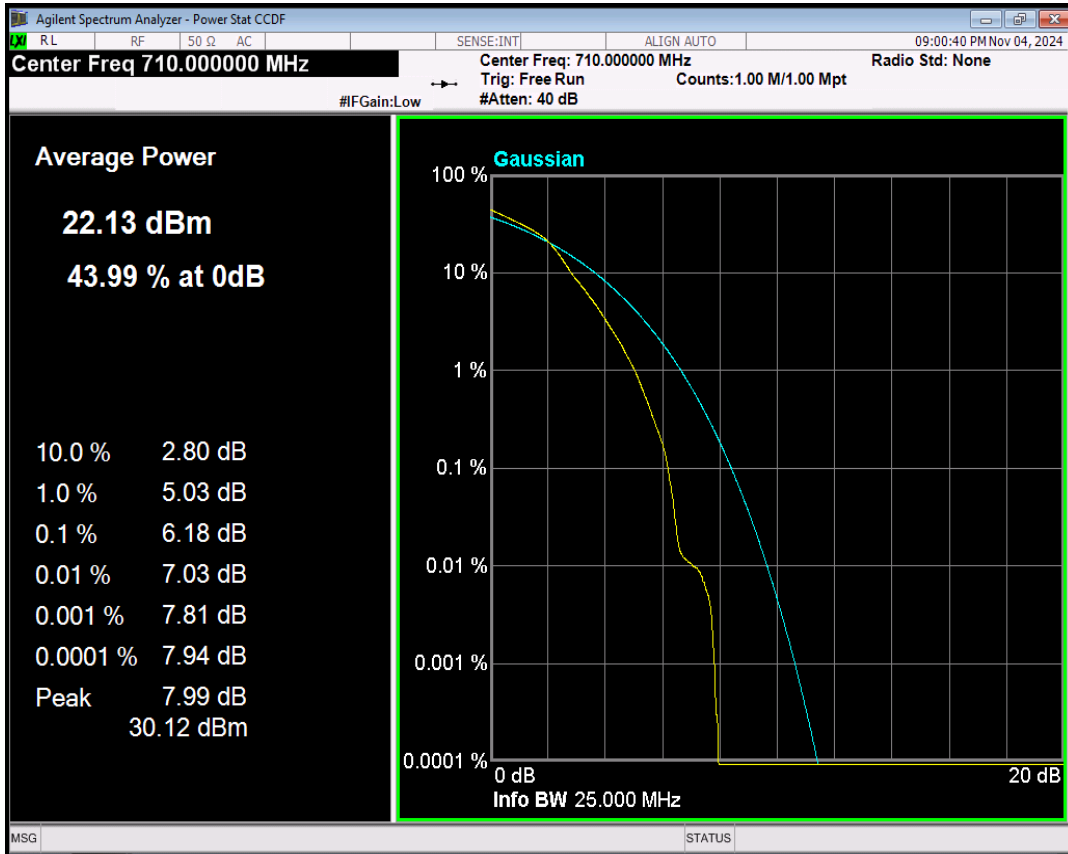
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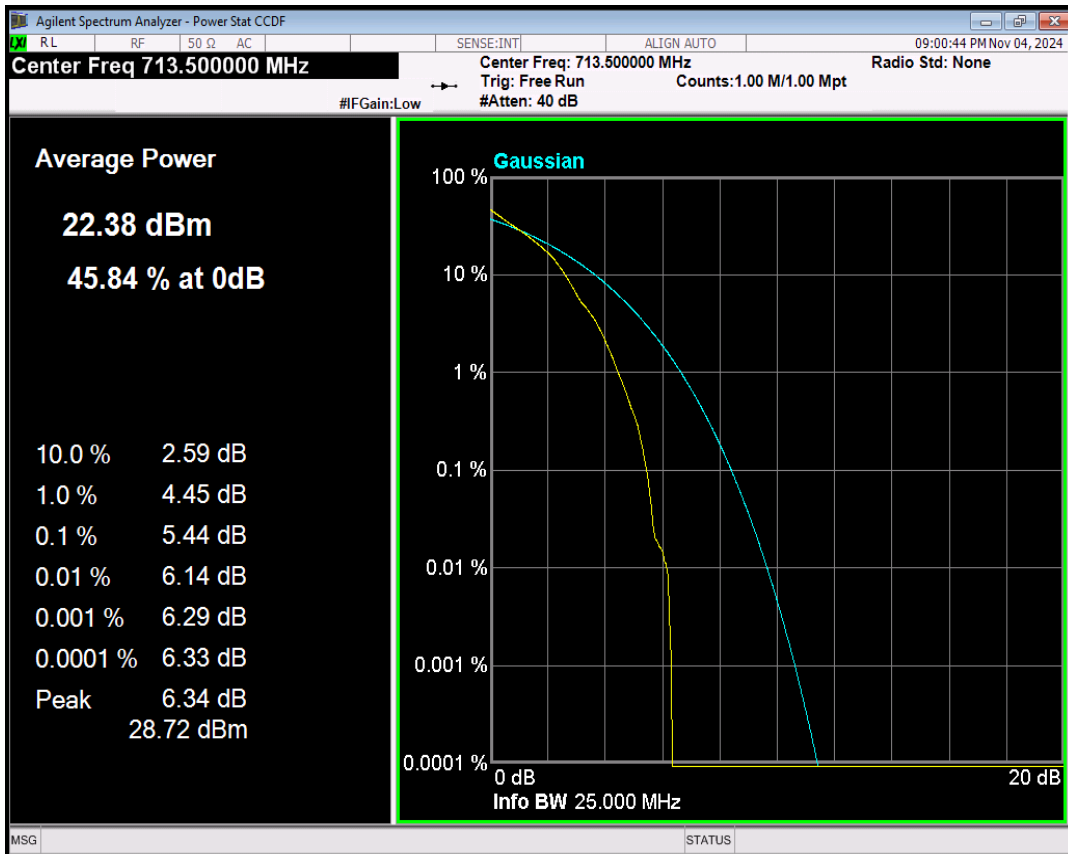
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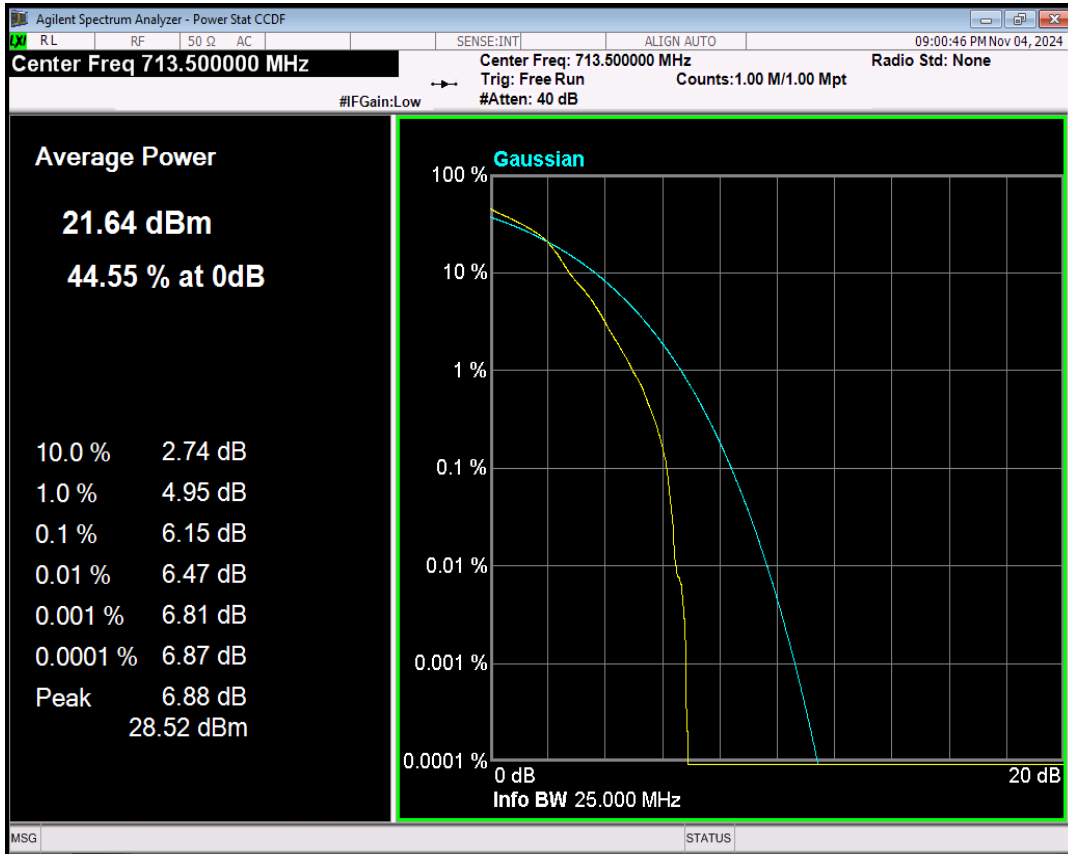
Band17 16QAM BW=5MHz Channel=23790 RB Size=1 Position=#0



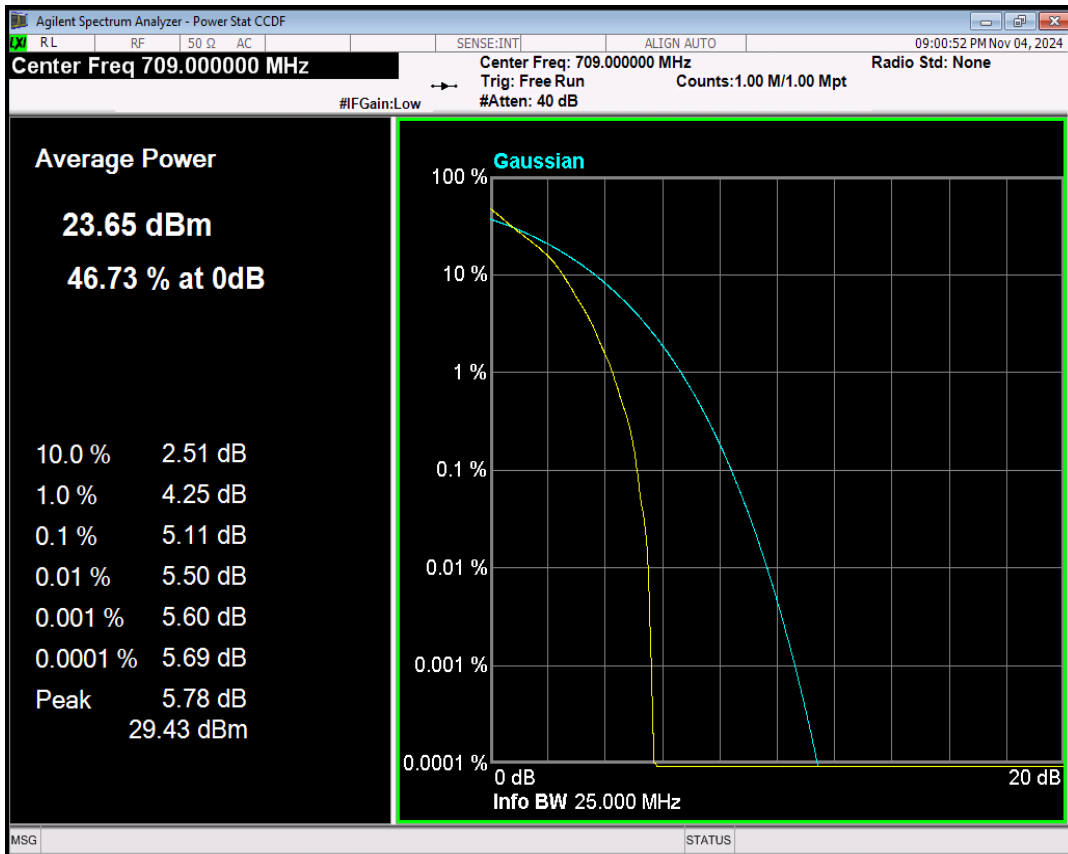
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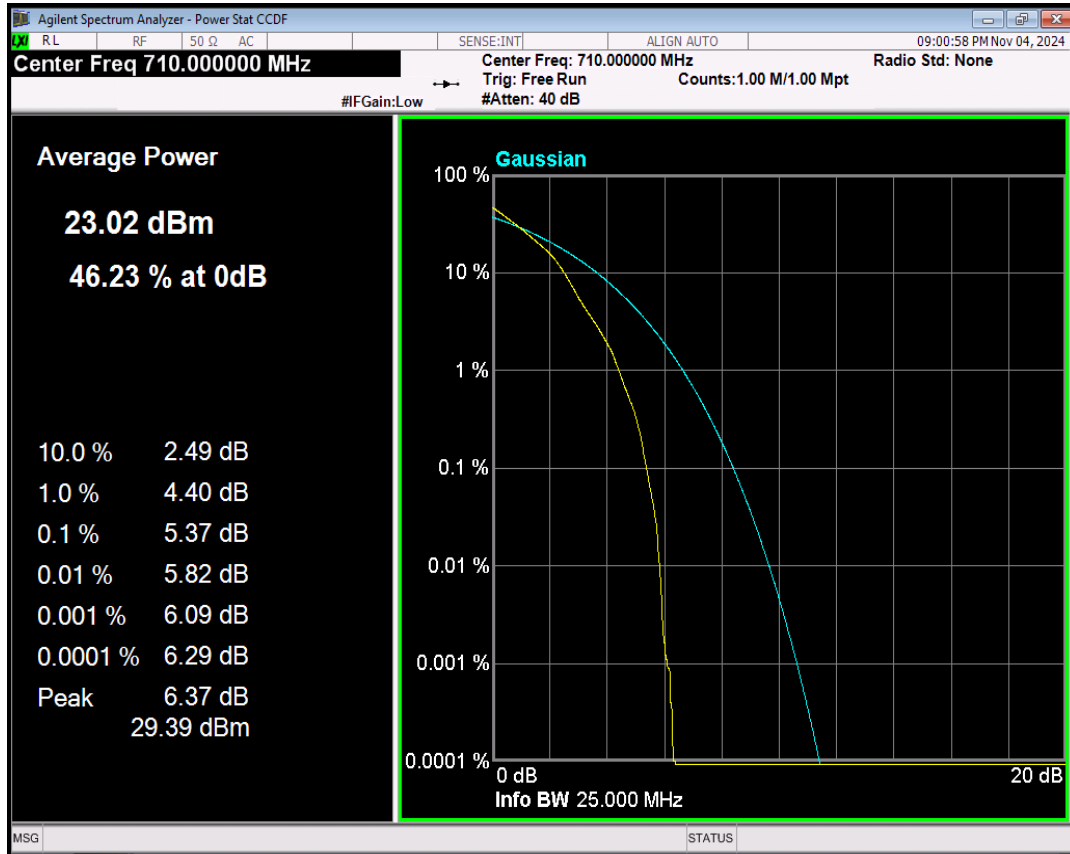
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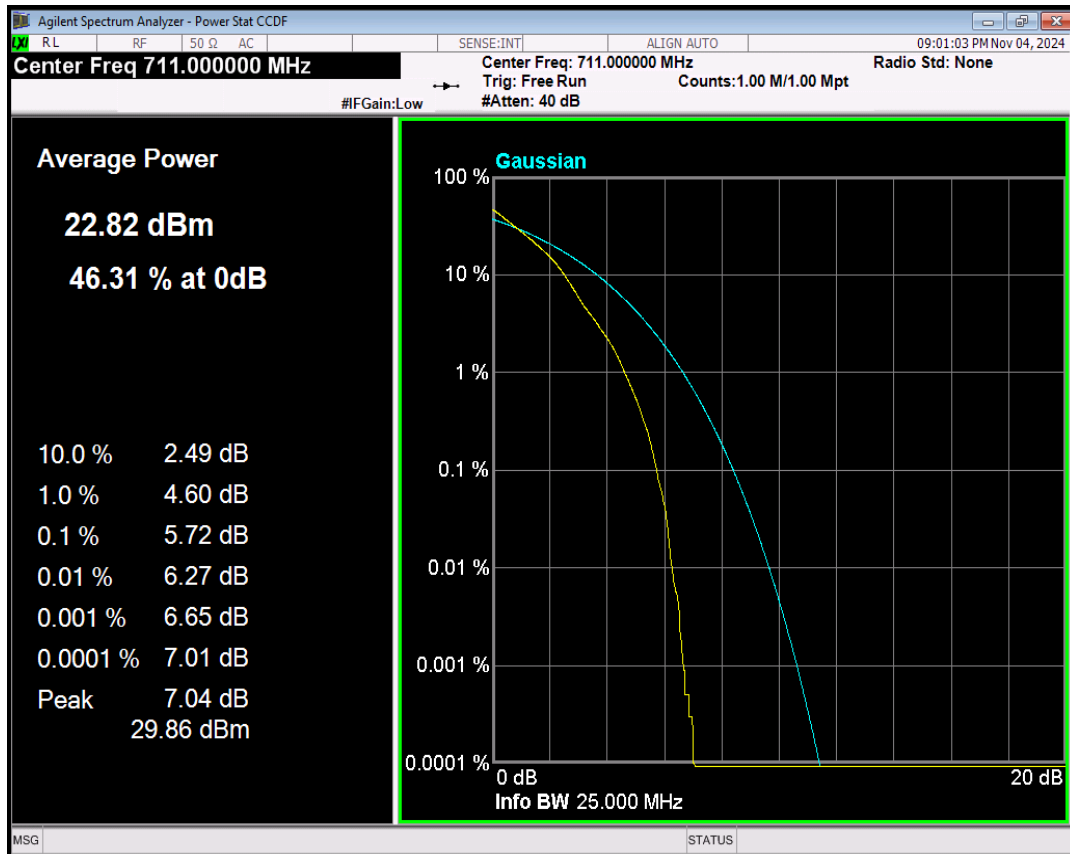
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Band17 QPSK BW=10MHz Channel=23790 RB Size=1 Position=#0



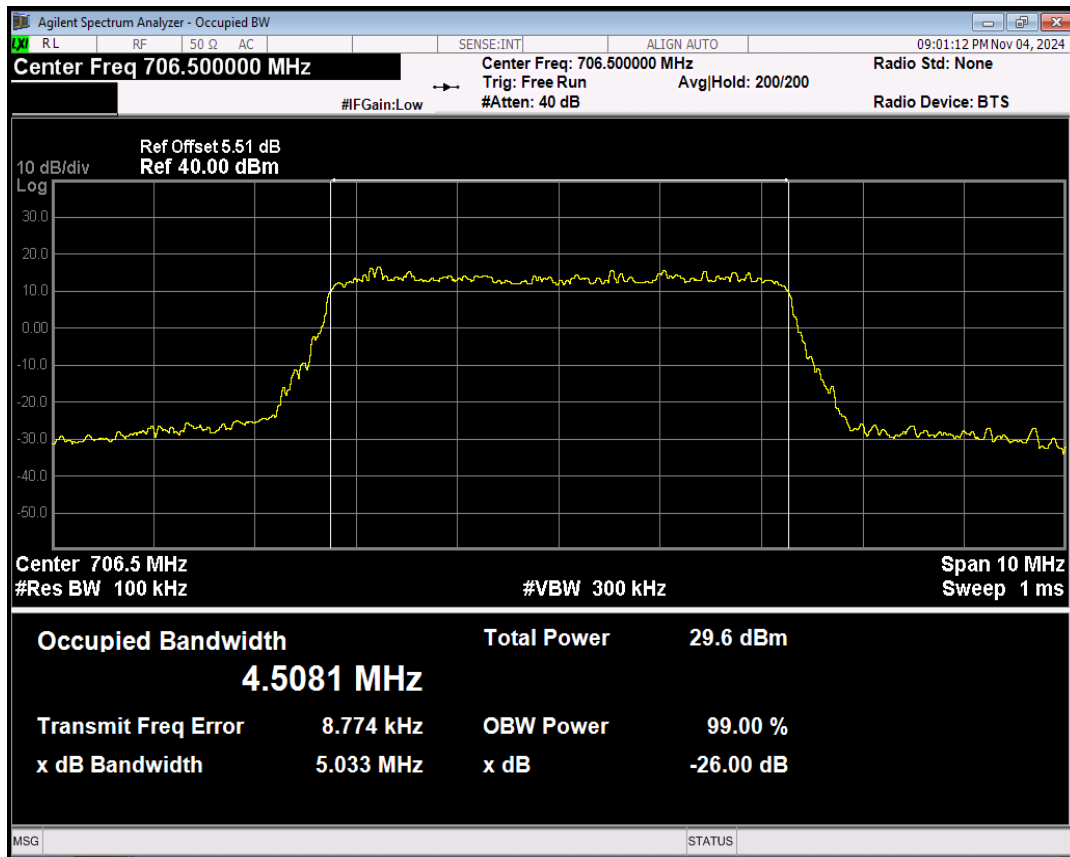
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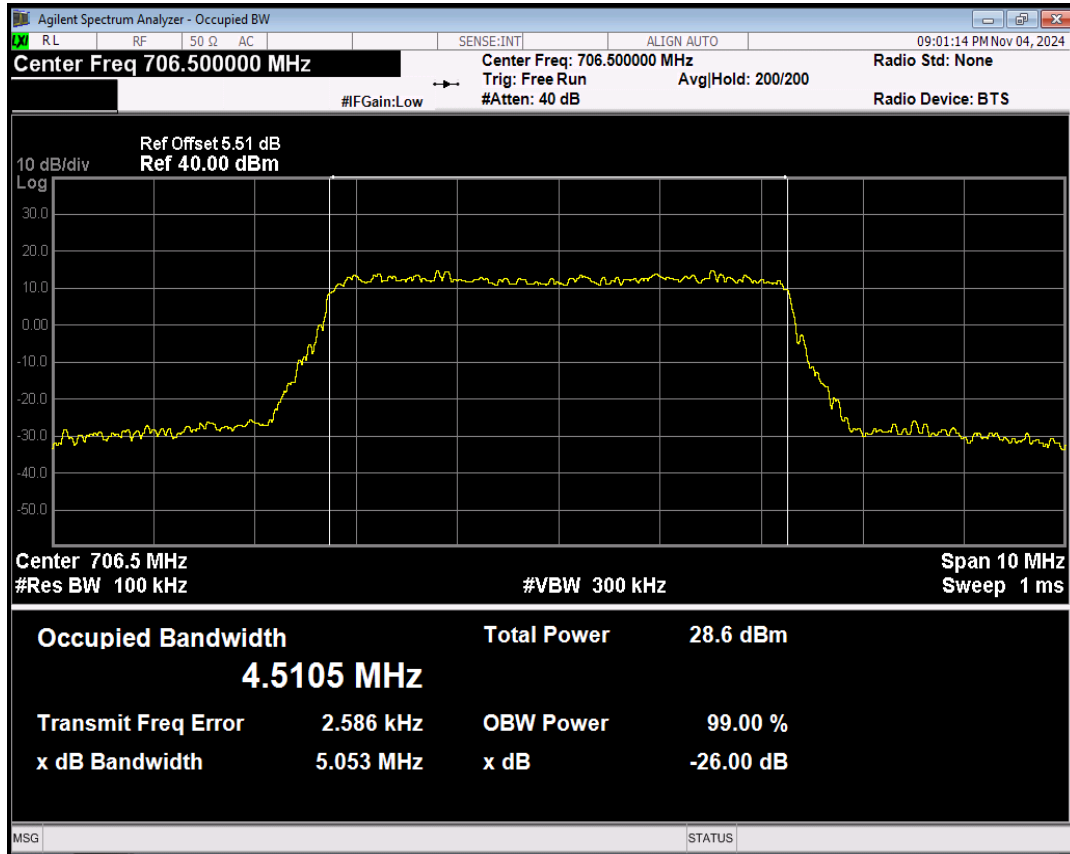
Appendix 4. Occupied bandwidth

Band	Bandwidth (MHz)	UL Channel	RB Size	RB Position	Modulation	99% OBW (MHz)	-26dB EBW (MHz)	Verdict
Band17	5	23755	25	#0	QPSK	4.508	5.033	PASS
Band17	5	23755	25	#0	16QAM	4.510	5.053	PASS
Band17	5	23790	25	#0	QPSK	4.479	5.095	PASS
Band17	5	23790	25	#0	16QAM	4.462	5.052	PASS
Band17	5	23825	25	#0	QPSK	4.491	4.969	PASS
Band17	5	23825	25	#0	16QAM	4.490	5.052	PASS
Band17	10	23780	50	#0	QPSK	8.932	9.614	PASS
Band17	10	23790	50	#0	QPSK	8.914	9.632	PASS
Band17	10	23800	50	#0	QPSK	8.898	9.613	PASS

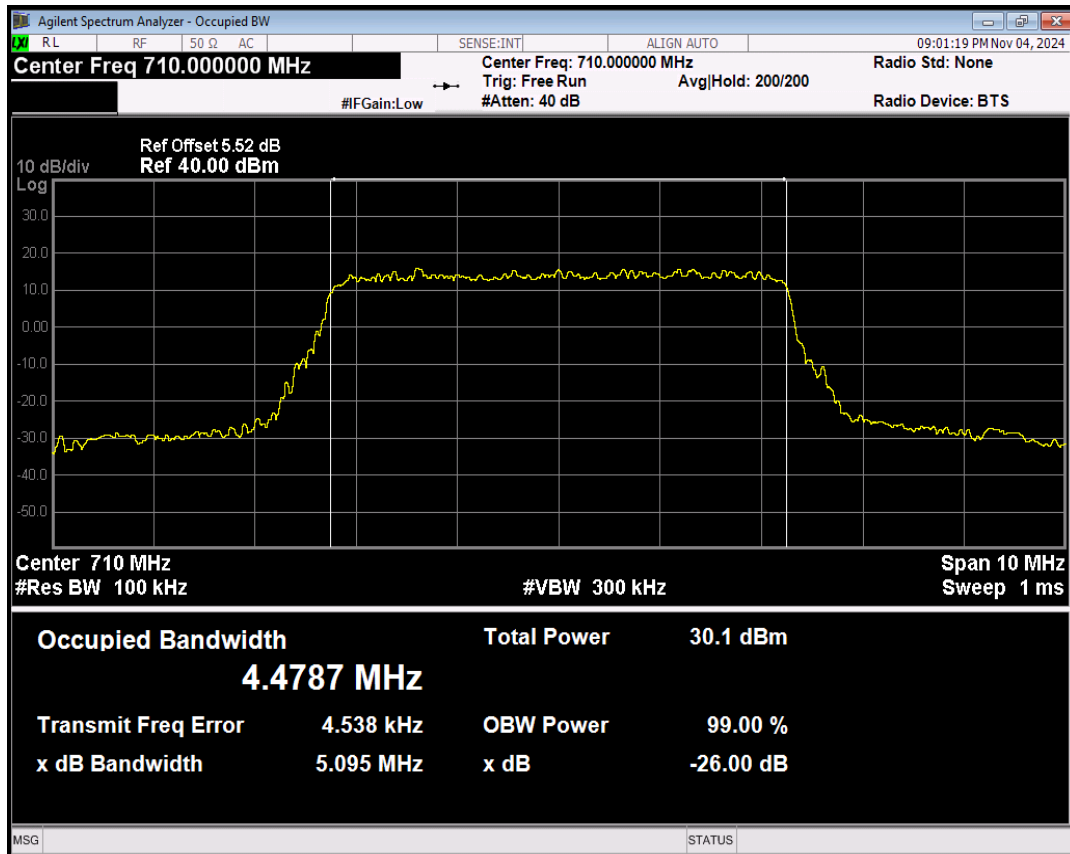
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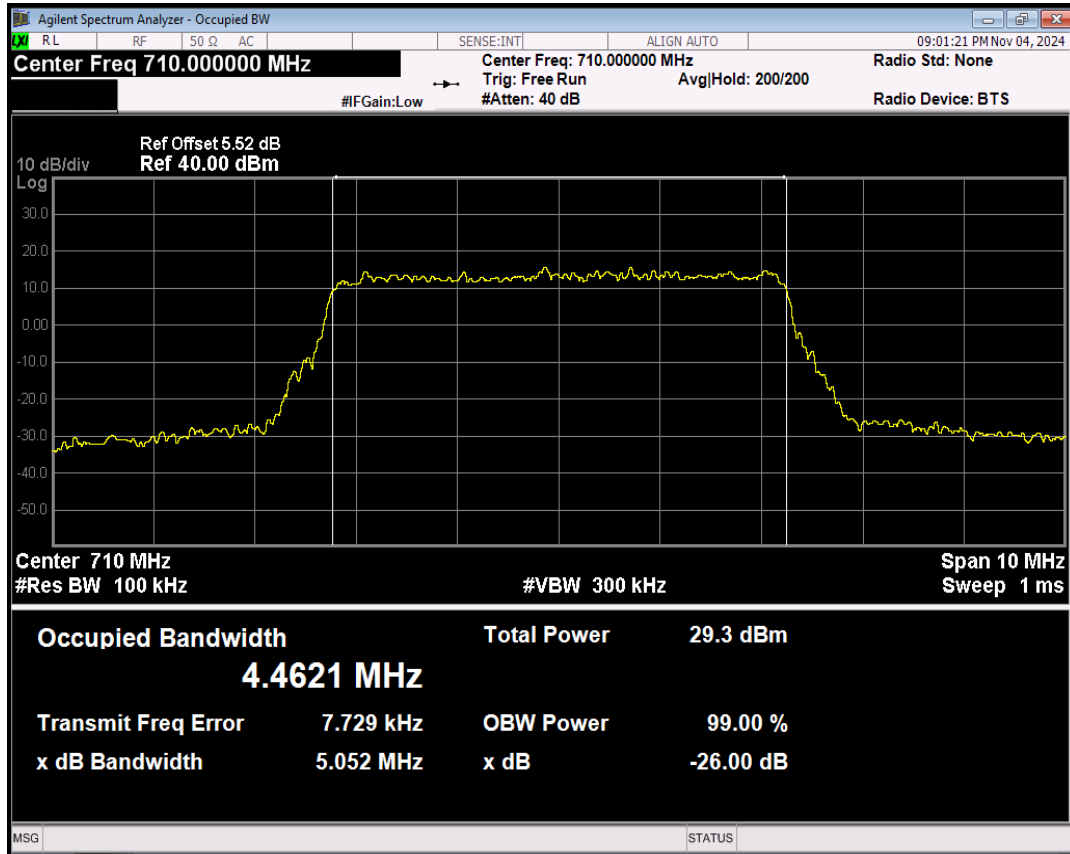
Band17 16QAM BW=5MHz Channel=23755 RB Size=25 Position=#0



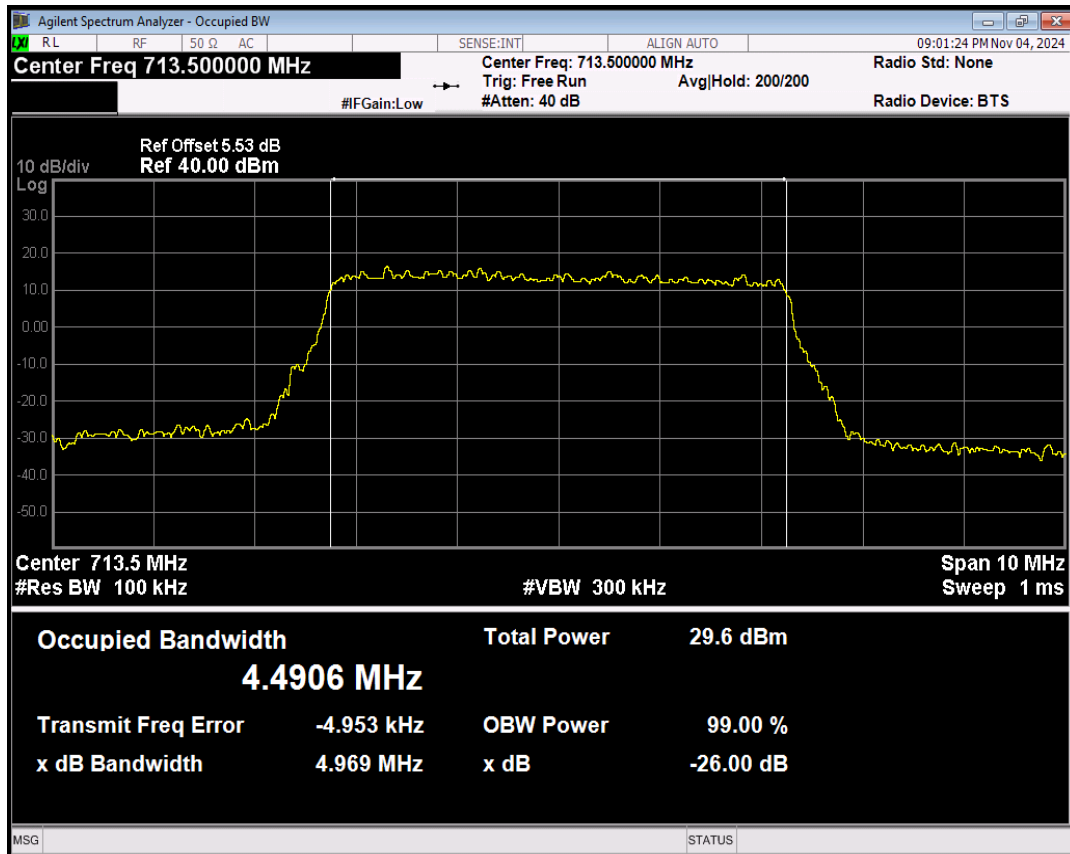
Band17 QPSK BW=5MHz Channel=23790 RB Size=25 Position=#0



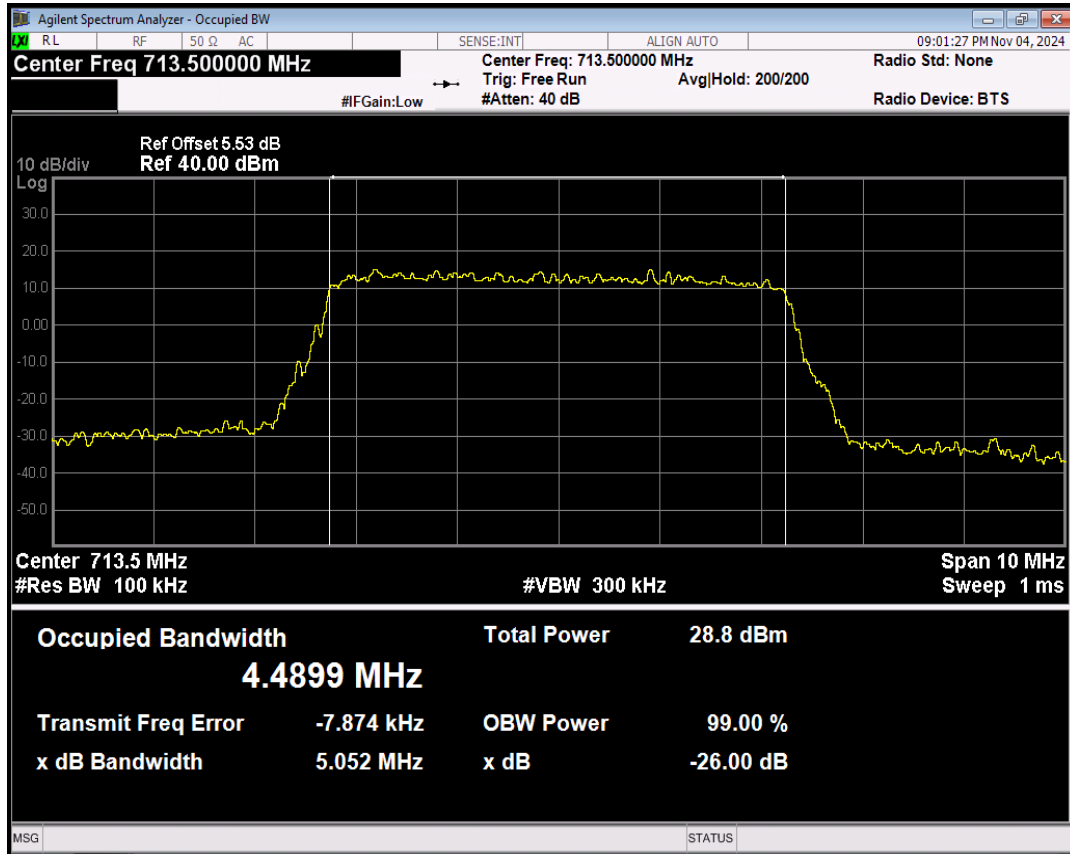
Band17 16QAM BW=5MHz Channel=23790 RB Size=25 Position=#0



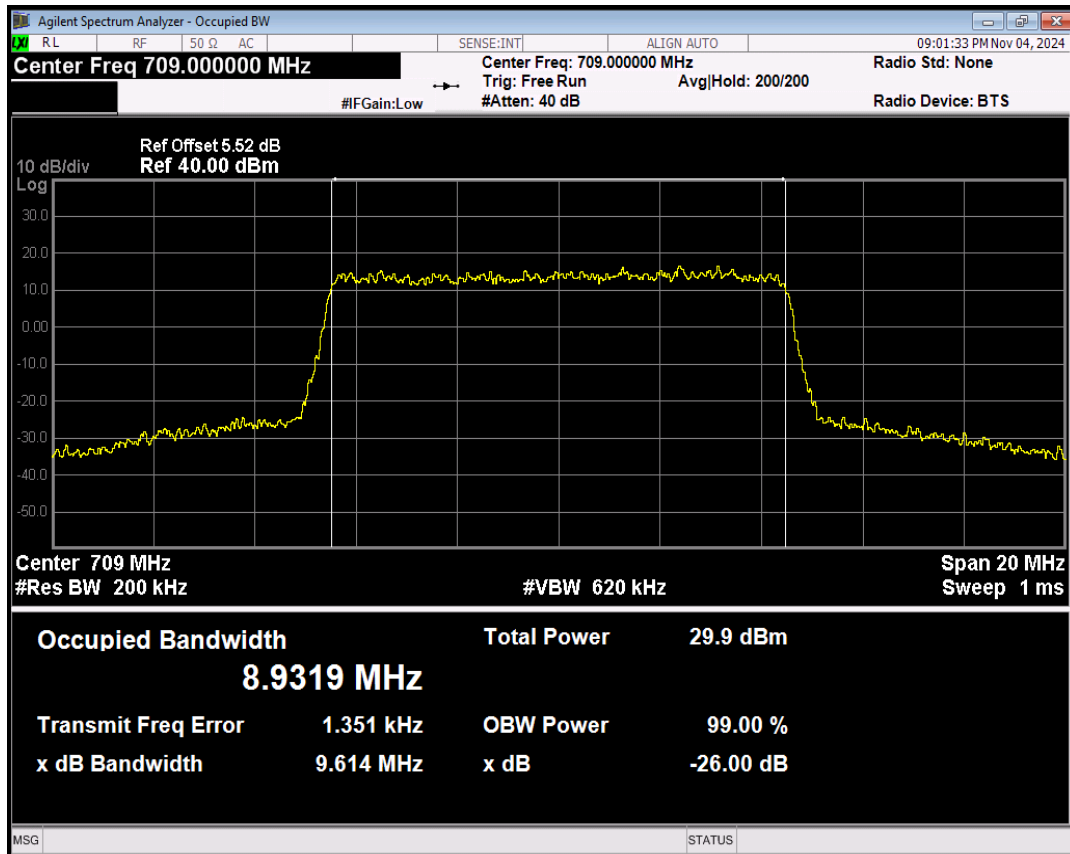
Band17 QPSK BW=5MHz Channel=23825 RB Size=25 Position=#0



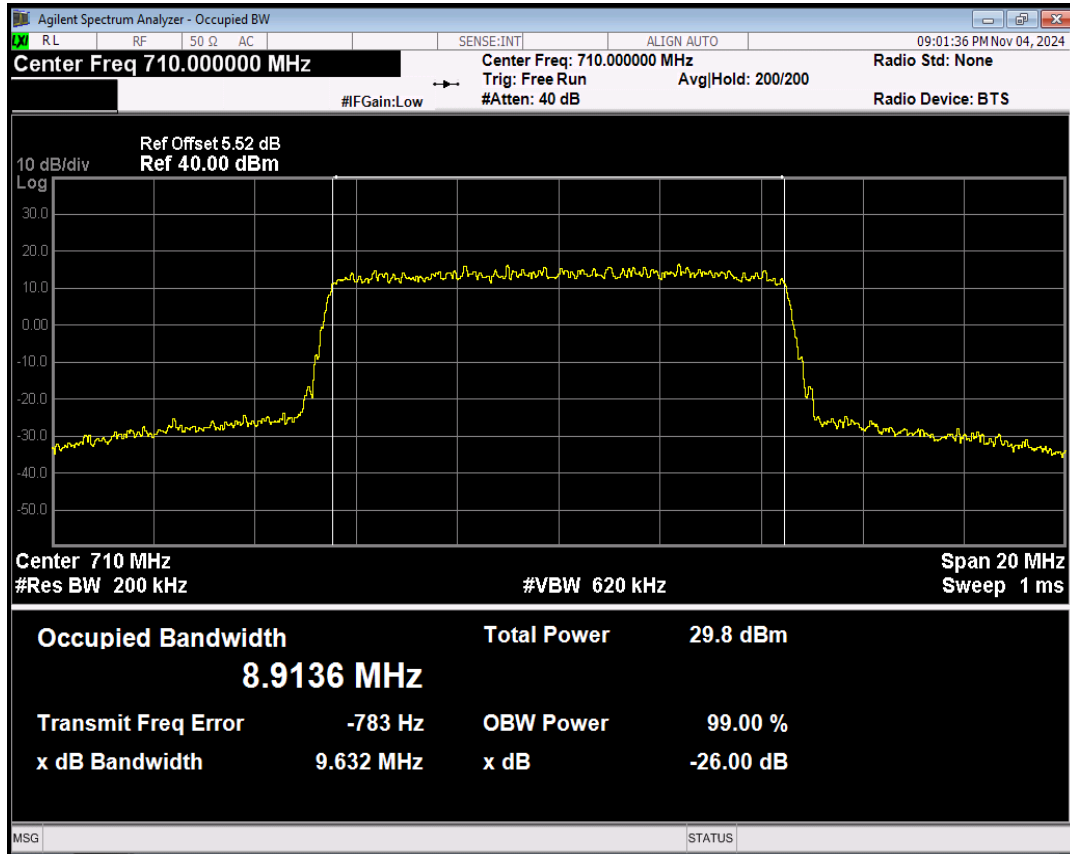
Band17 16QAM BW=5MHz Channel=23825 RB Size=25 Position=#0



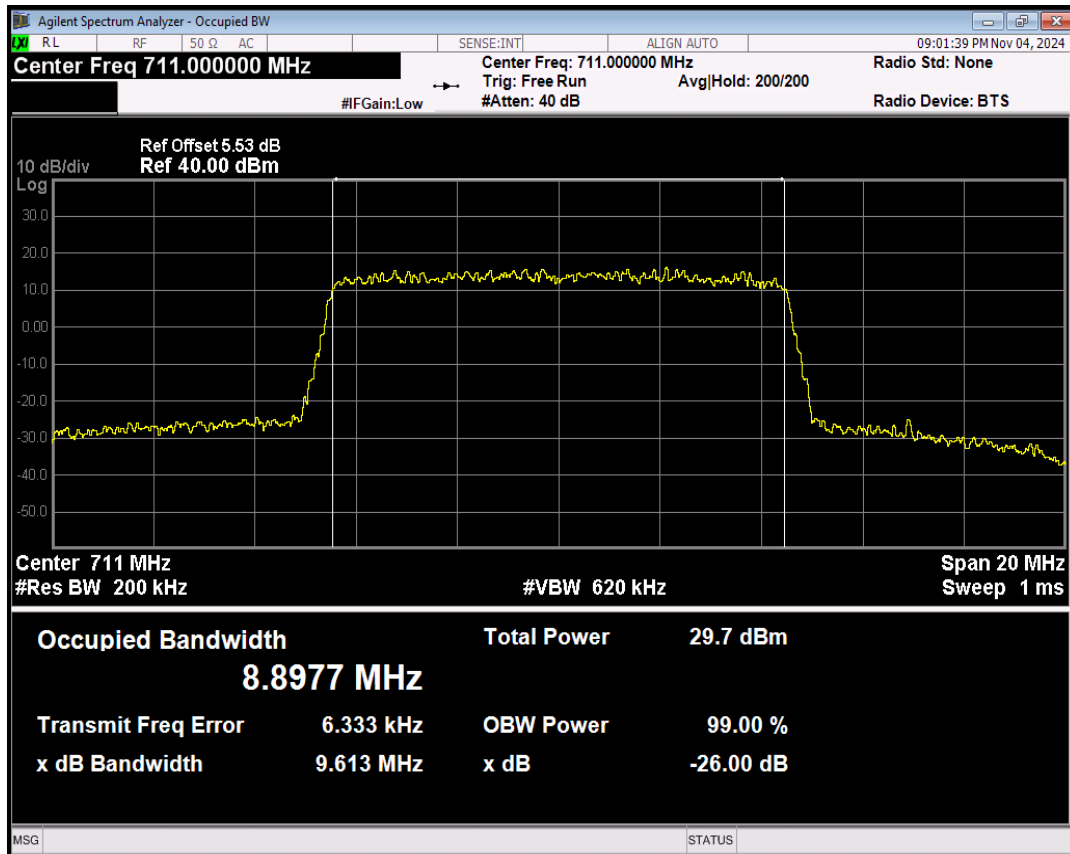
Band17 QPSK BW=10MHz Channel=23780 RB Size=50 Position=#0



Band17 QPSK BW=10MHz Channel=23790 RB Size=50 Position=#0



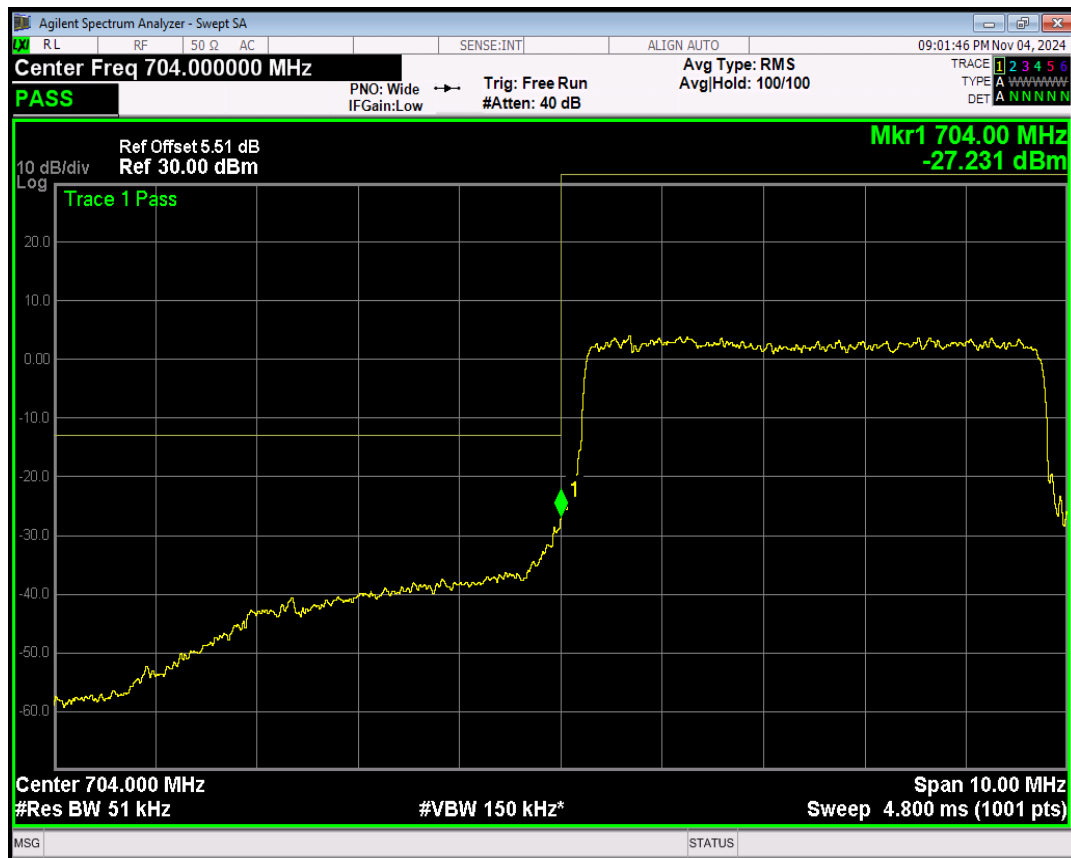
Band17 QPSK BW=10MHz Channel=23800 RB Size=50 Position=#0



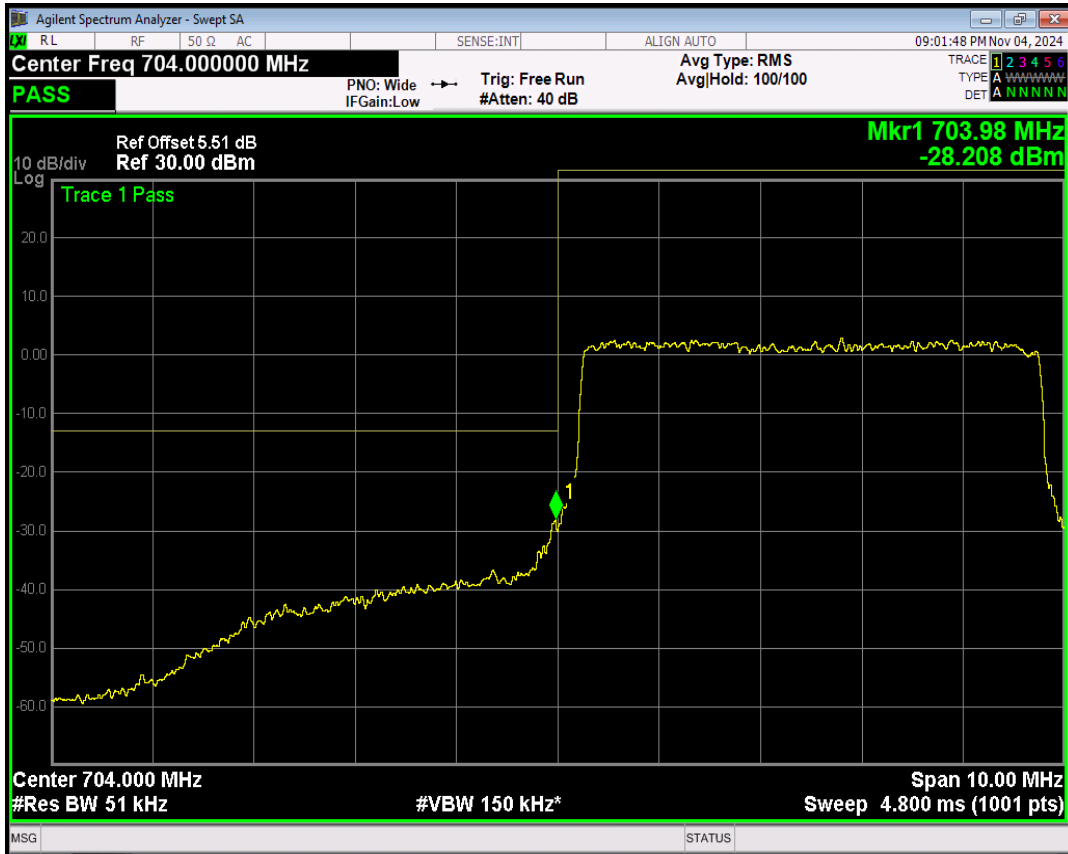
Appendix 5. Band edge

Band	Bandwidth (MHz)	UL Channel	RB Size	RB Position	Modulation	Spur Freq (MHz)	Spur Level (dBm)	Limit (dBm)	Verdict
Band17	5	23755	25	#0	QPSK	704.00	-27.23	-13	PASS
Band17	5	23755	25	#0	16QAM	703.98	-28.20	-13	PASS
Band17	5	23825	25	#0	QPSK	716.00	-30.84	-13	PASS
Band17	5	23825	25	#0	16QAM	716.04	-32.53	-13	PASS
Band17	10	23780	50	#0	QPSK	703.94	-34.63	-13	PASS
Band17	10	23800	50	#0	QPSK	716.04	-36.84	-13	PASS

Band17 QPSK BW=5MHz Channel=23755 RB Size=25 Position=#0



Band17 16QAM BW=5MHz Channel=23755 RB Size=25 Position=#0



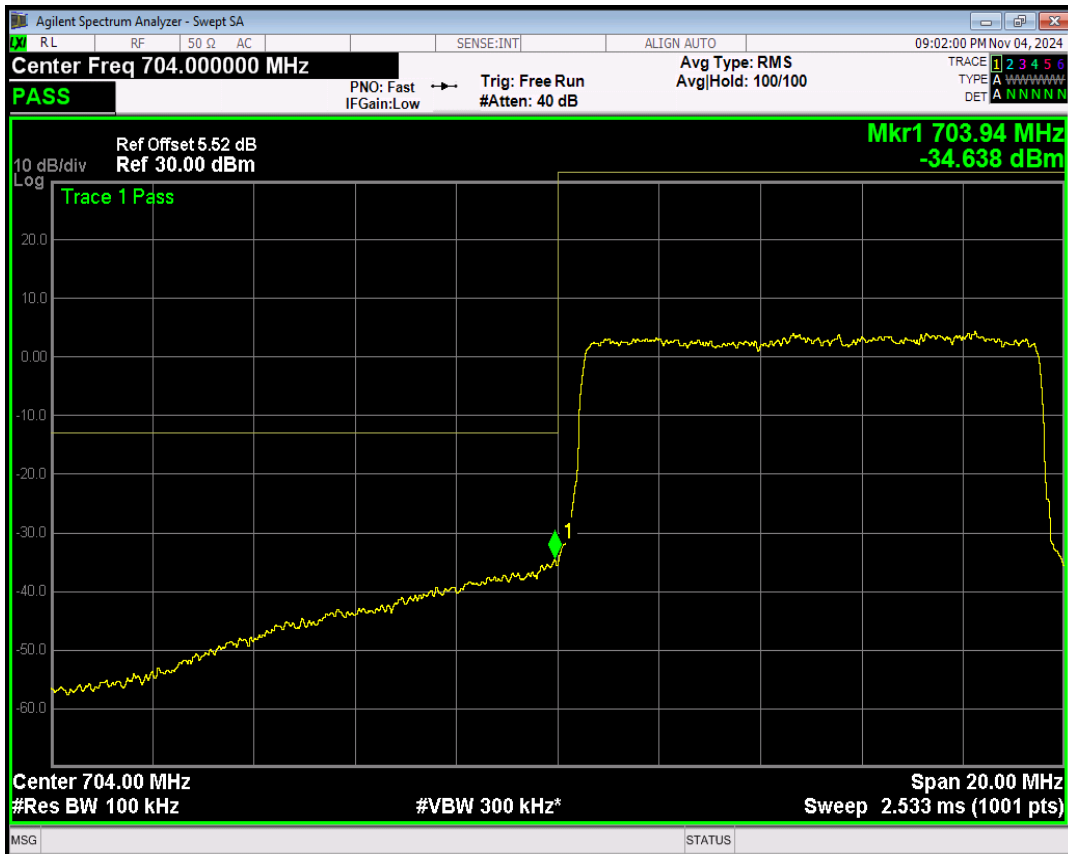
Band17 QPSK BW=5MHz Channel=23825 RB Size=25 Position=#0



Band17 16QAM BW=5MHz Channel=23825 RB Size=25 Position=#0



Band17 QPSK BW=10MHz Channel=23780 RB Size=50 Position=#0



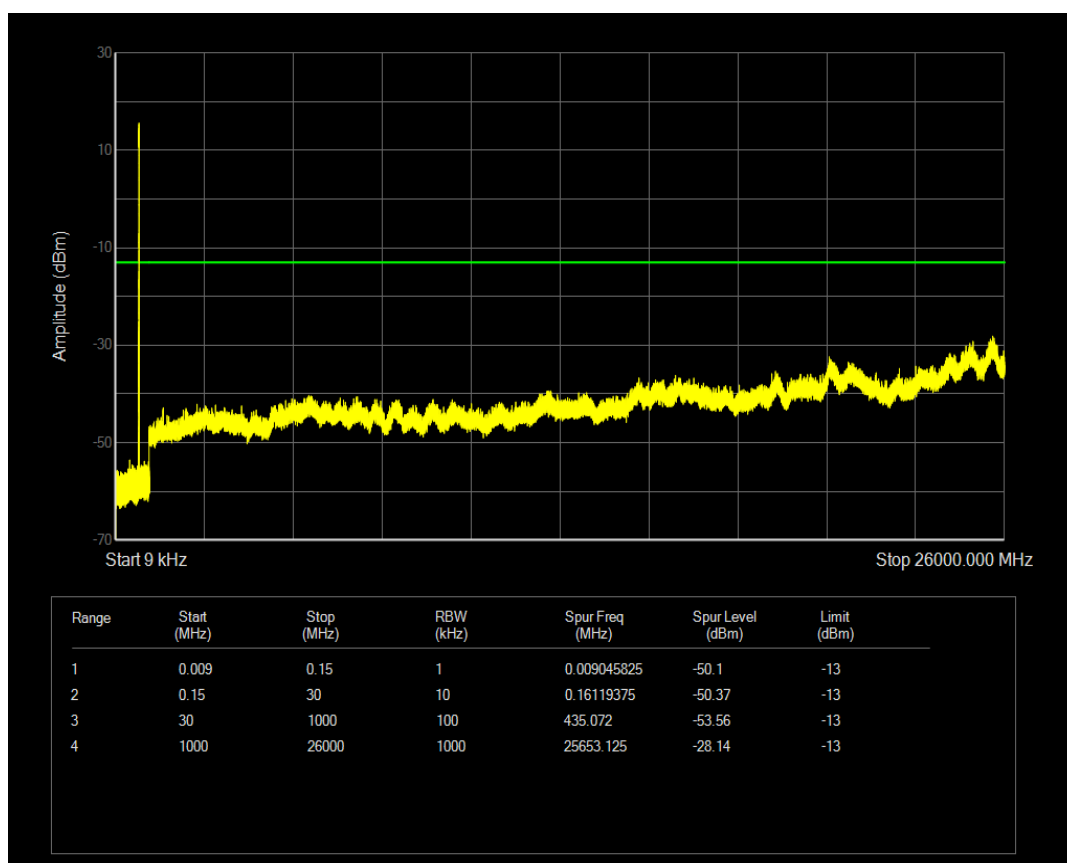
Band17 QPSK BW=10MHz Channel=23800 RB Size=50 Position=#0



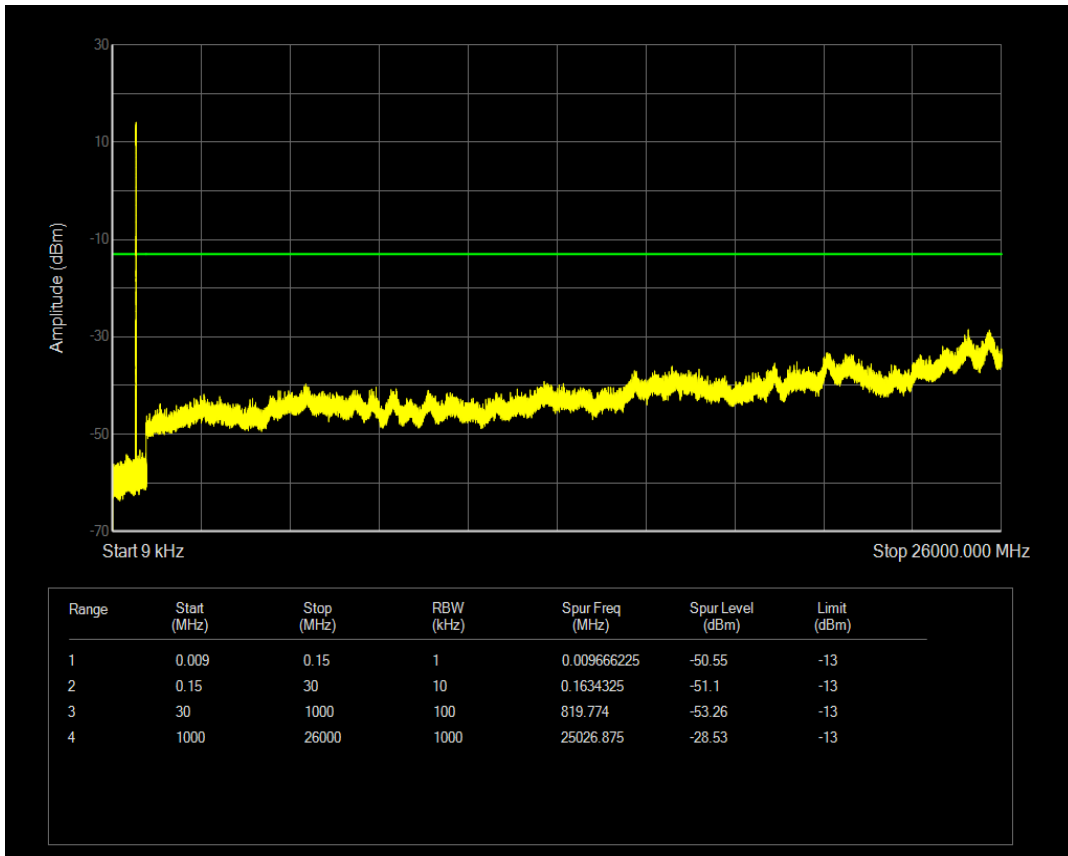
Appendix 6. Out-of-band emissions

Band	Bandwidth (MHz)	UL Channel	RB Size	RB Position	Modulation	Spur Freq (MHz)	Spur Level (dBm)	Limit (dBm)	Verdict
Band17	5	23755	25	#0	QPSK	25653.13	-28.14	-13	PASS
Band17	5	23755	25	#0	16QAM	25026.88	-28.53	-13	PASS
Band17	5	23790	25	#0	QPSK	25685.00	-28.34	-13	PASS
Band17	5	23790	25	#0	16QAM	25626.25	-28.41	-13	PASS
Band17	5	23825	25	#0	QPSK	25633.13	-27.97	-13	PASS
Band17	5	23825	25	#0	16QAM	25721.25	-28.33	-13	PASS
Band17	10	23780	50	#0	QPSK	25602.50	-28.07	-13	PASS
Band17	10	23790	50	#0	QPSK	25668.13	-28.20	-13	PASS
Band17	10	23800	50	#0	QPSK	25614.38	-27.48	-13	PASS

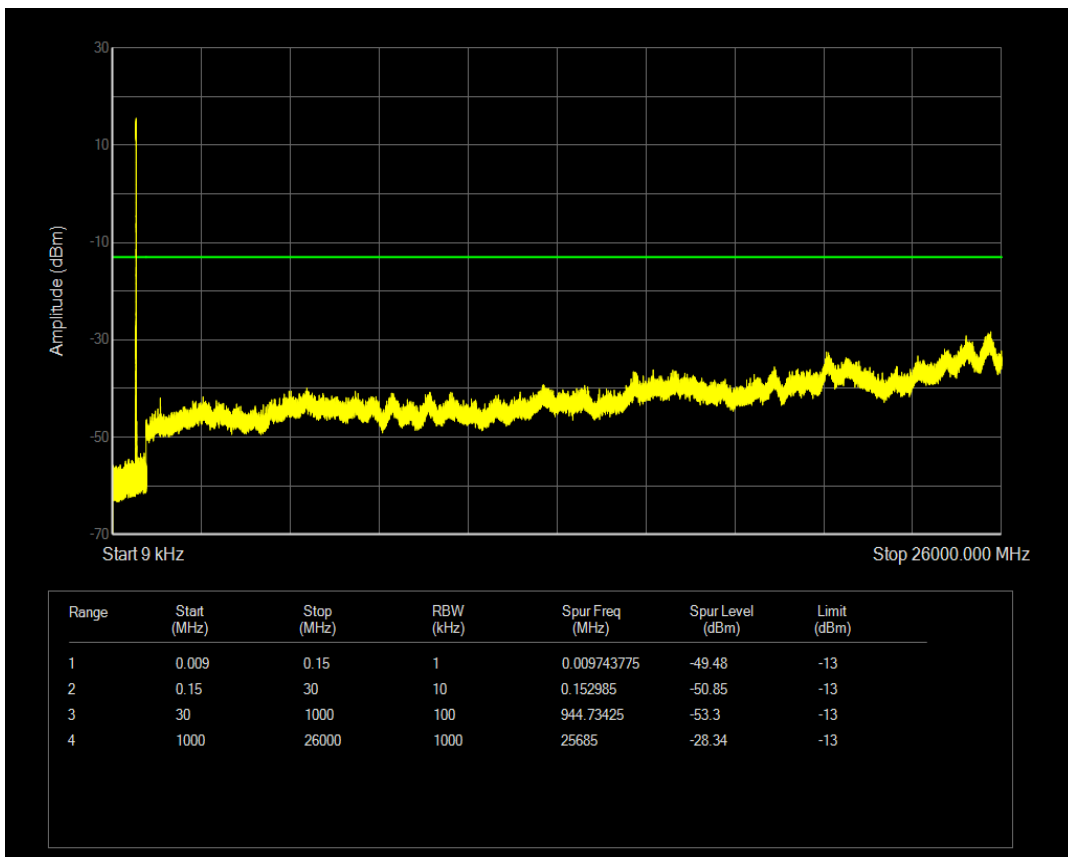
Band17 QPSK BW=5MHz Channel=23755 RB Size=25 Position=#0



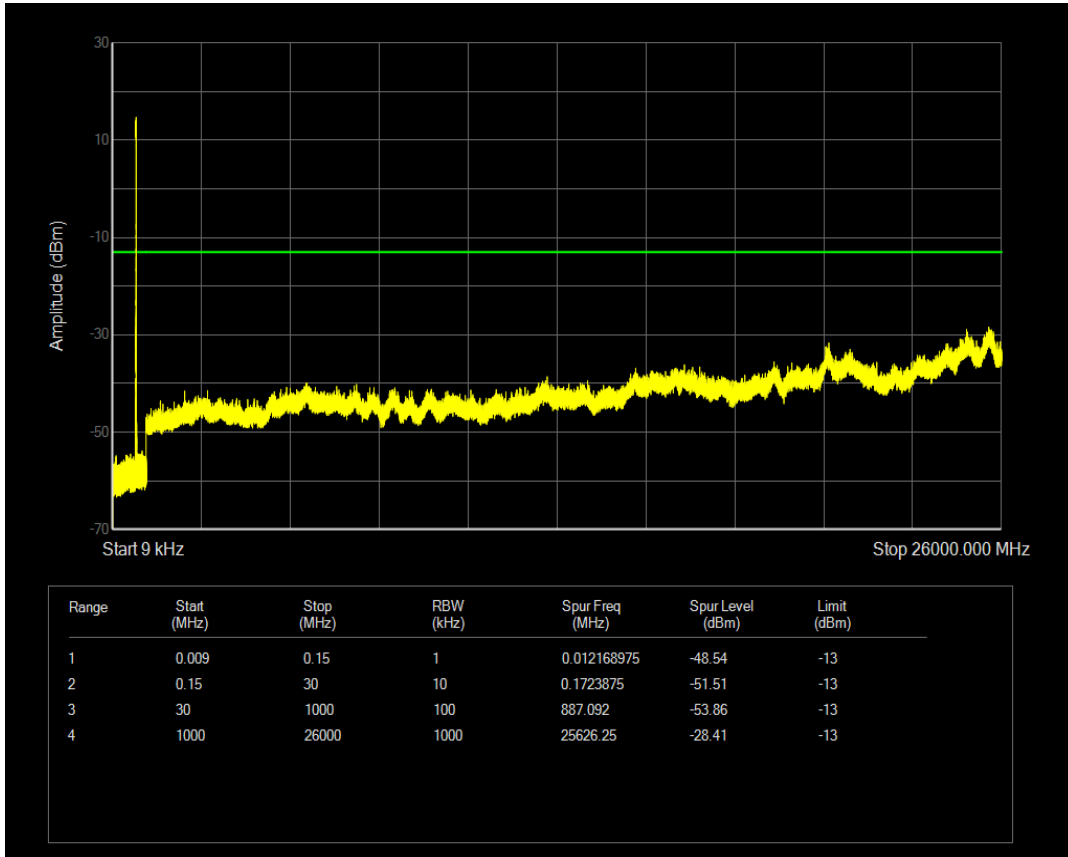
Band17 16QAM BW=5MHz Channel=23755 RB Size=25 Position=#0



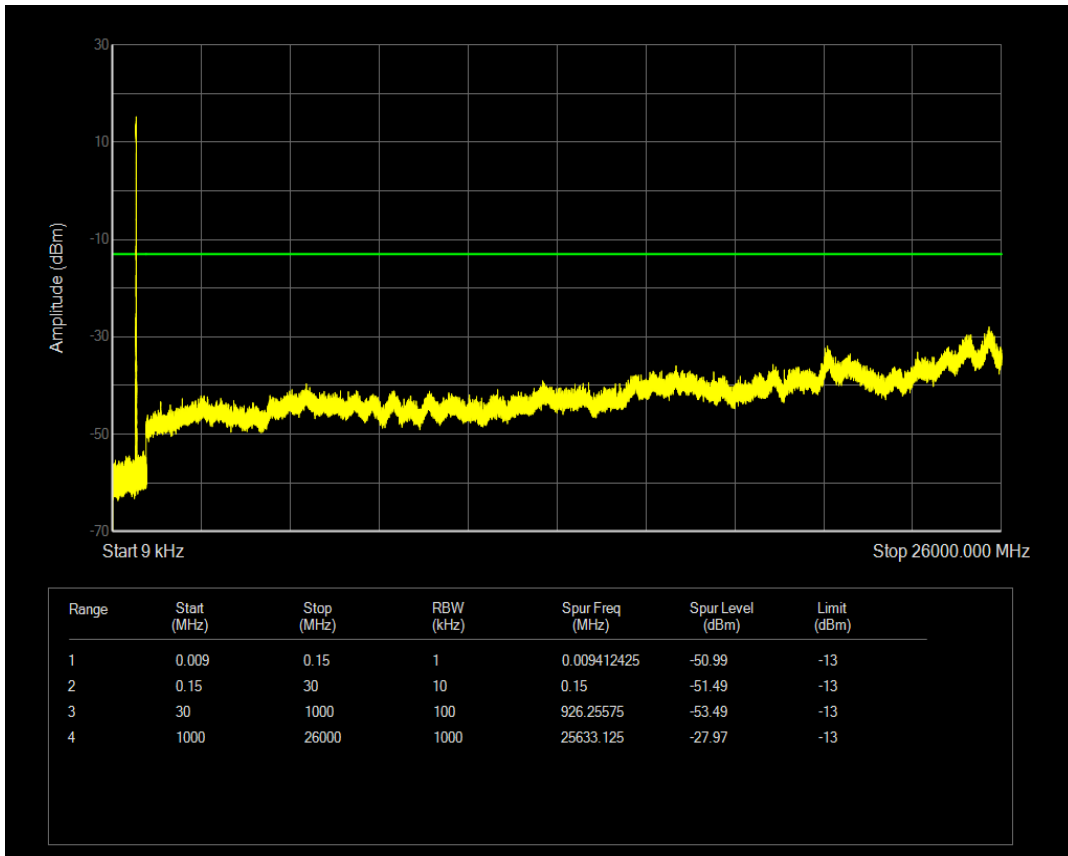
Band17 QPSK BW=5MHz Channel=23790 RB Size=25 Position=#0



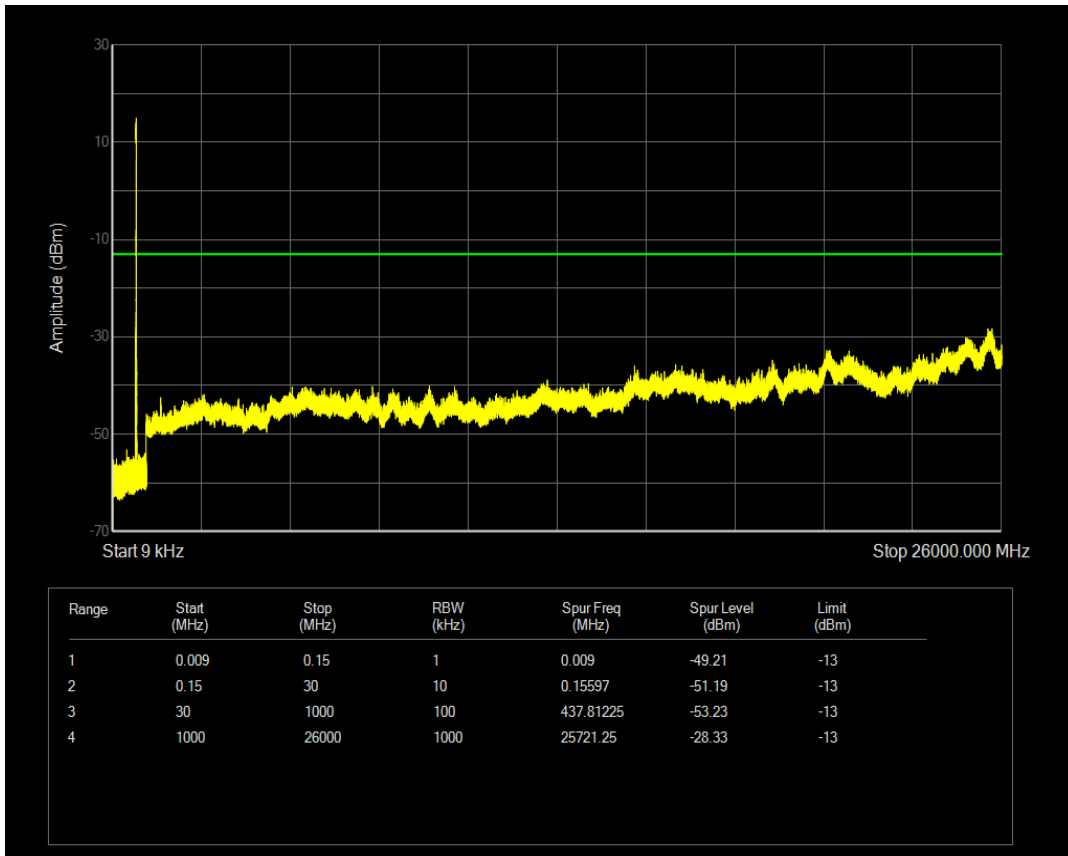
Band17 16QAM BW=5MHz Channel=23790 RB Size=25 Position=#0



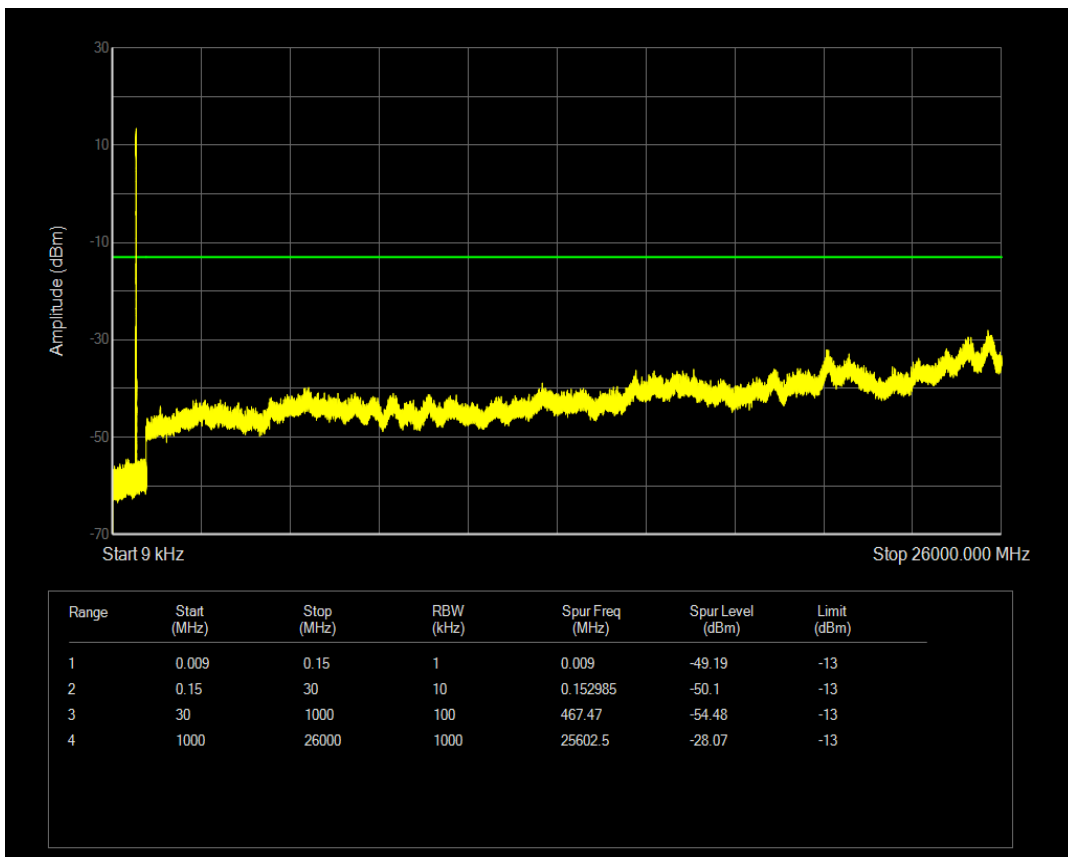
Band17 QPSK BW=5MHz Channel=23825 RB Size=25 Position=#0



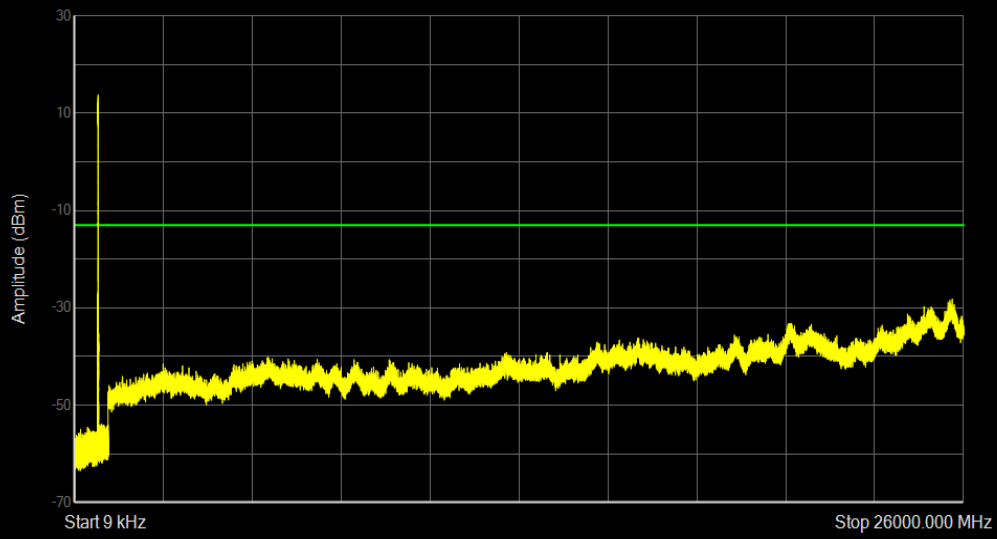
Band17 16QAM BW=5MHz Channel=23825 RB Size=25 Position=#0



Band17 QPSK BW=10MHz Channel=23780 RB Size=50 Position=#0

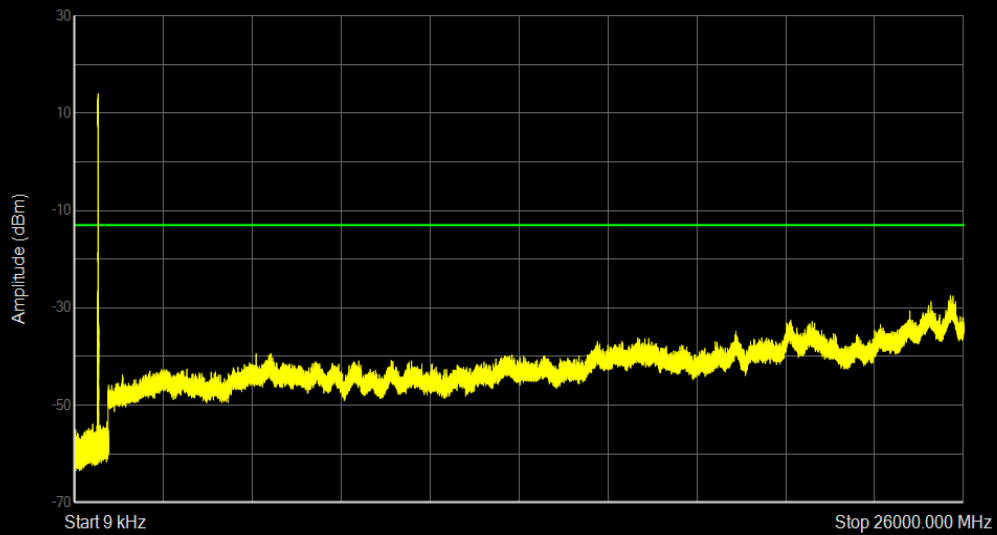


Band17 QPSK BW=10MHz Channel=23790 RB Size=50 Position=#0



Range	Start (MHz)	Stop (MHz)	RBW (kHz)	Spur Freq (MHz)	Spur Level (dBm)	Limit (dBm)
1	0.009	0.15	1	0.0090141	-49.01	-13
2	0.15	30	10	0.15074625	-50.22	-13
3	30	1000	100	804.27825	-53.97	-13
4	1000	26000	1000	25668.125	-28.2	-13

Band17 QPSK BW=10MHz Channel=23800 RB Size=50 Position=#0



Range	Start (MHz)	Stop (MHz)	RBW (kHz)	Spur Freq (MHz)	Spur Level (dBm)	Limit (dBm)
1	0.009	0.15	1	0.009158625	-49.77	-13
2	0.15	30	10	0.15373125	-51.37	-13
3	30	1000	100	966.0985	-53.41	-13
4	1000	26000	1000	25614.375	-27.48	-13