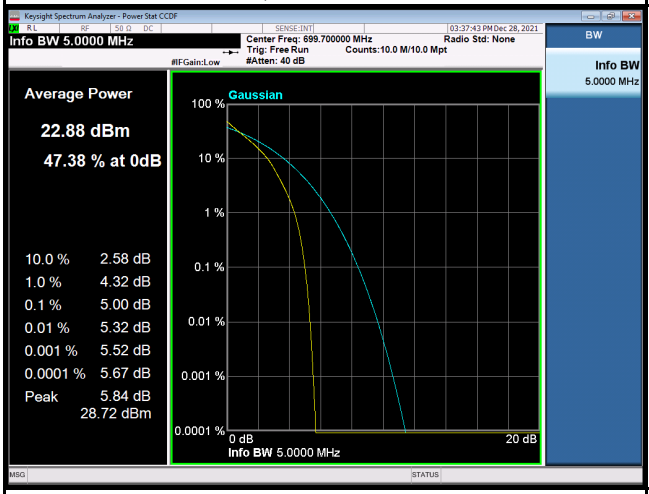
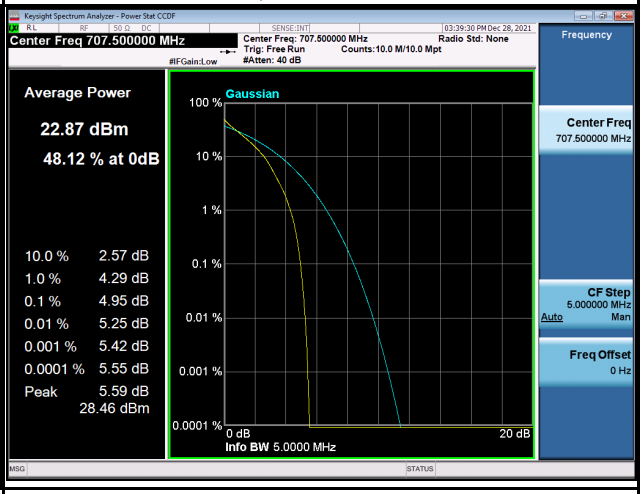
LTE Band 12 _1.4M

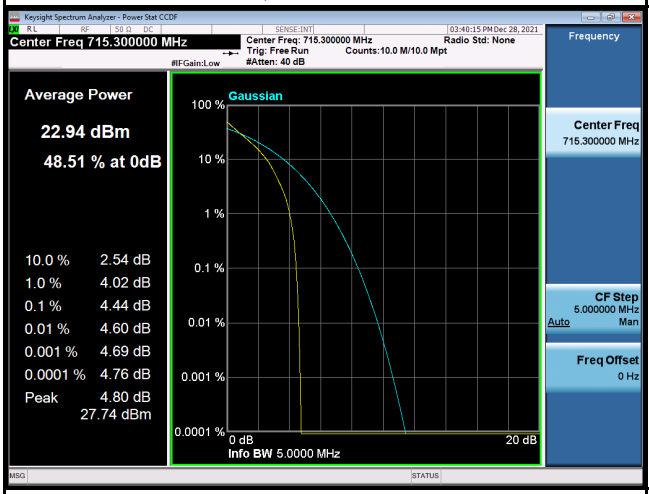
QPSK-23017



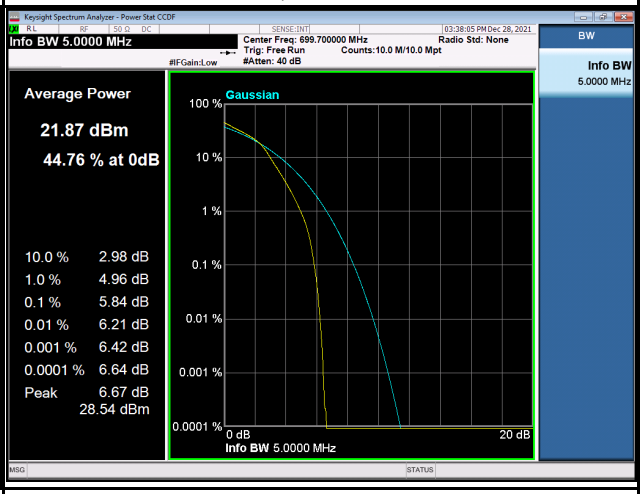
QPSK-23095



QPSK-23173



16QAM-23017



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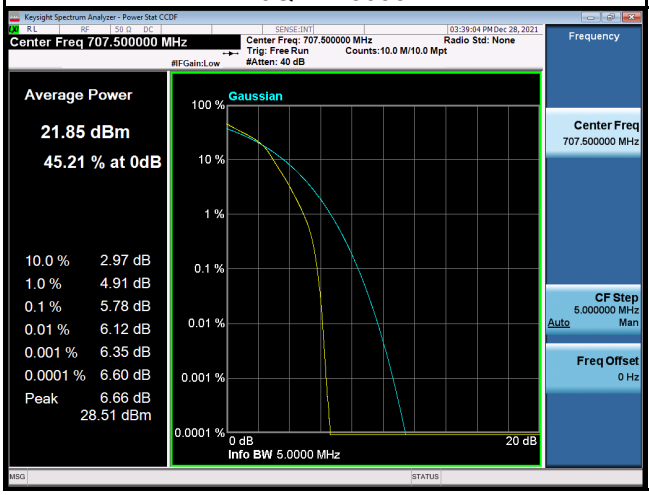
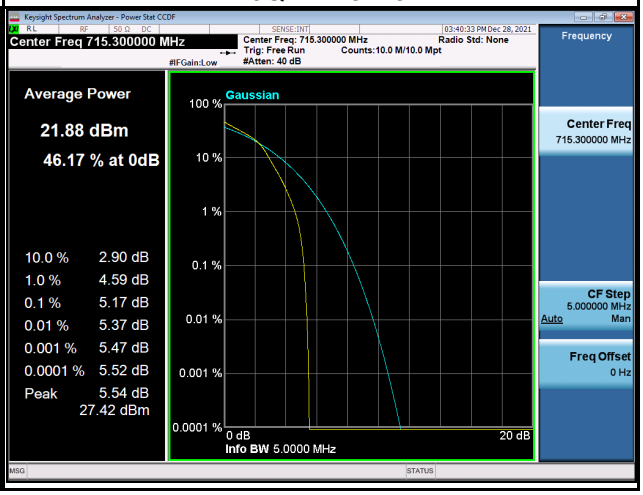
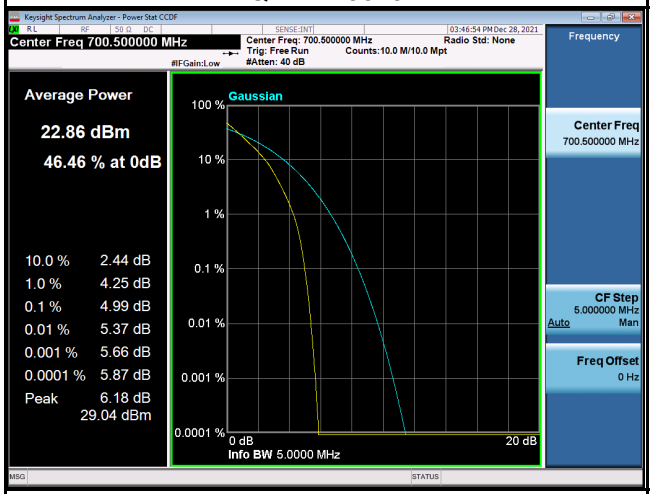


16QAM-23173

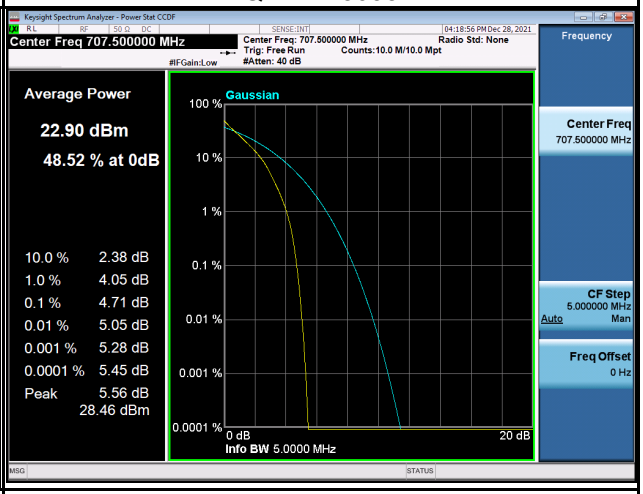


LTE Band 12 _3M

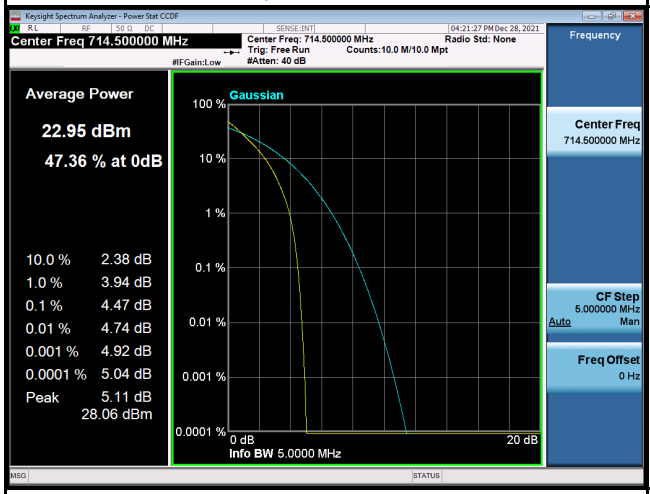
QPSK-23025



QPSK-23095



QPSK-23165



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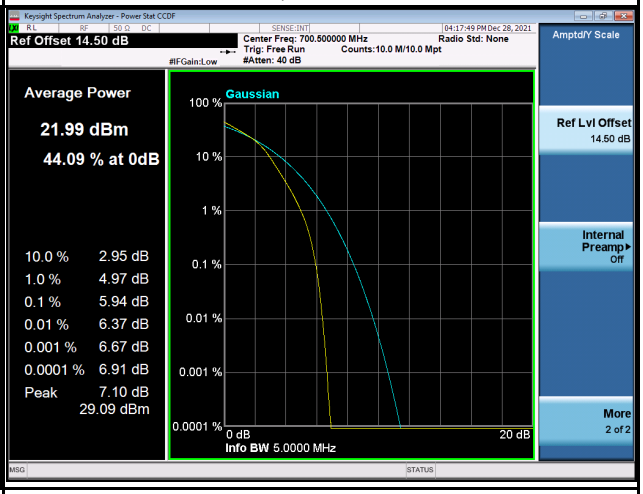
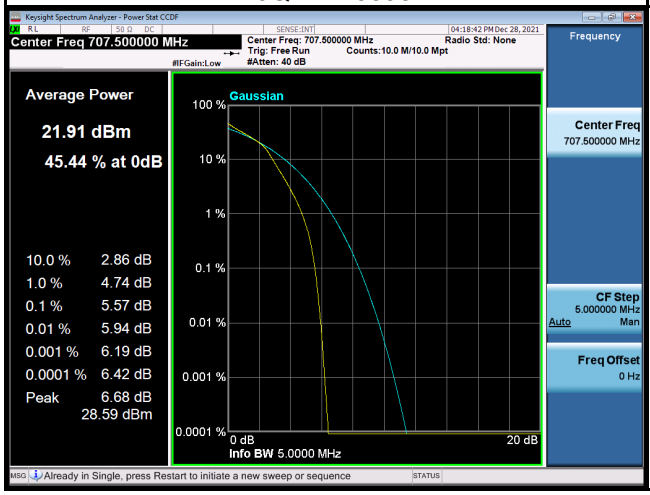
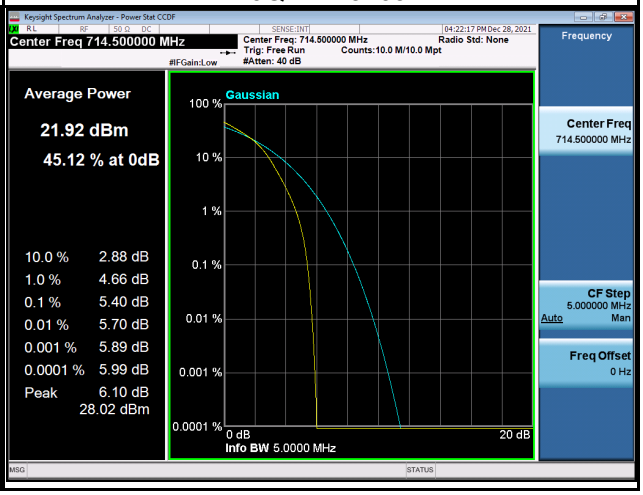


16QAM-23095

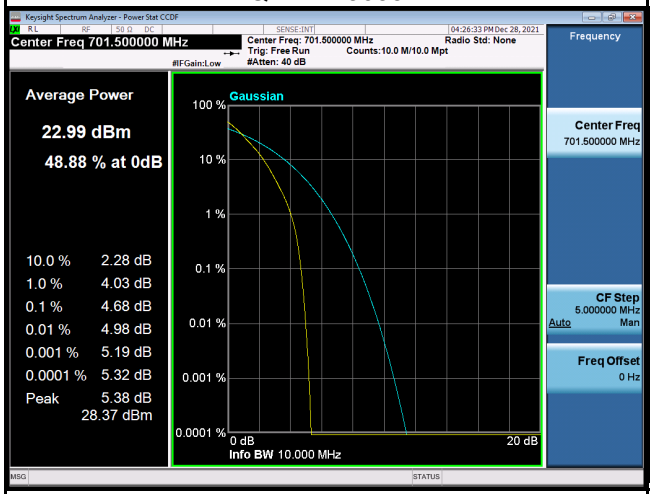


16QAM-23165

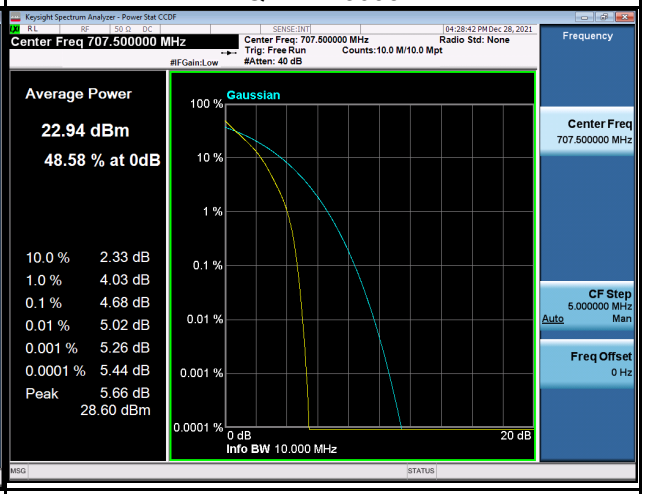


LTE Band 12 _5M

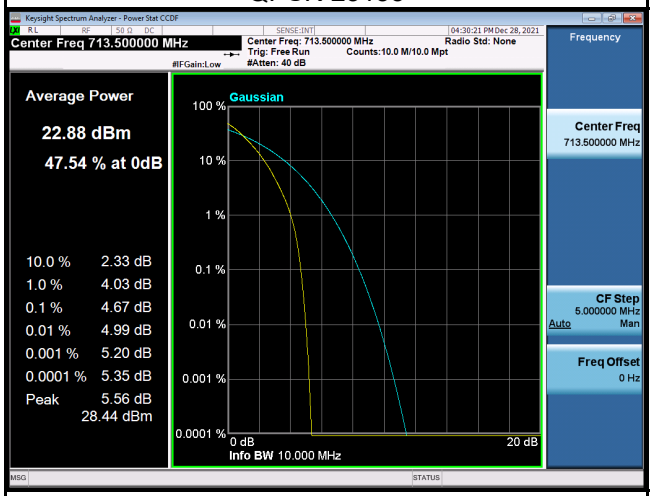
QPSK-23035



QPSK-23095



QPSK-23155



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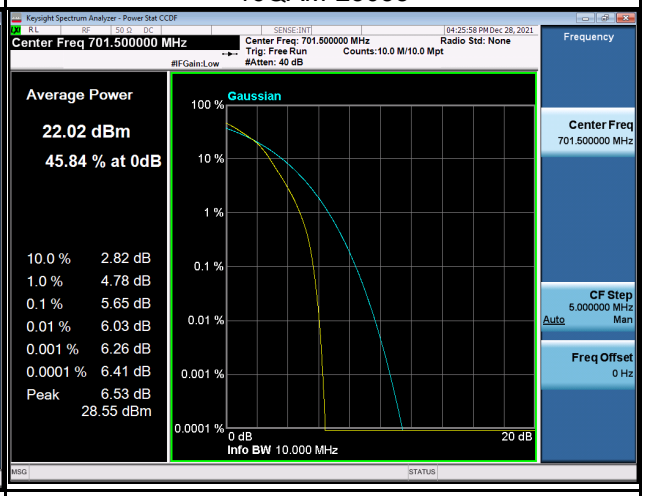

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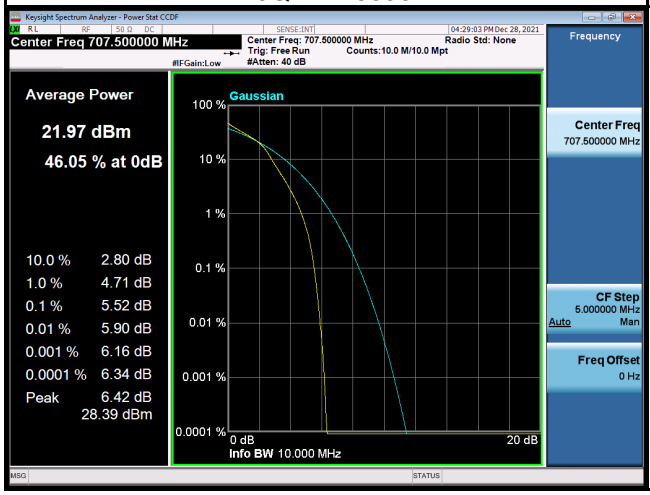

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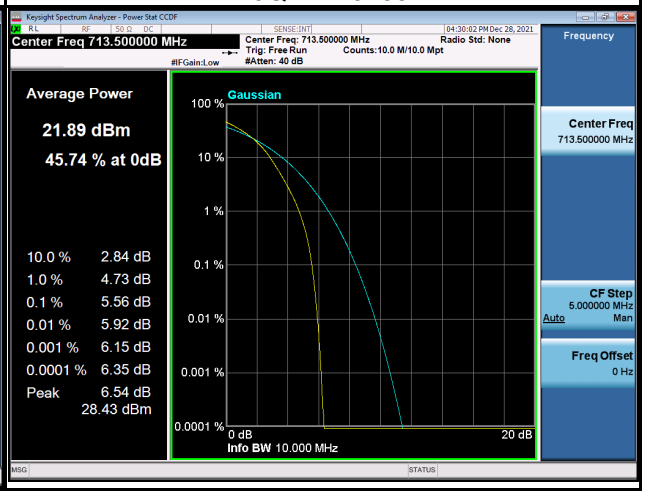
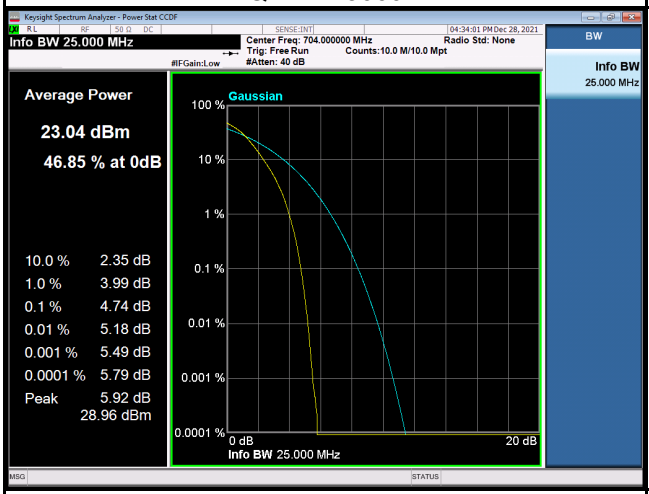
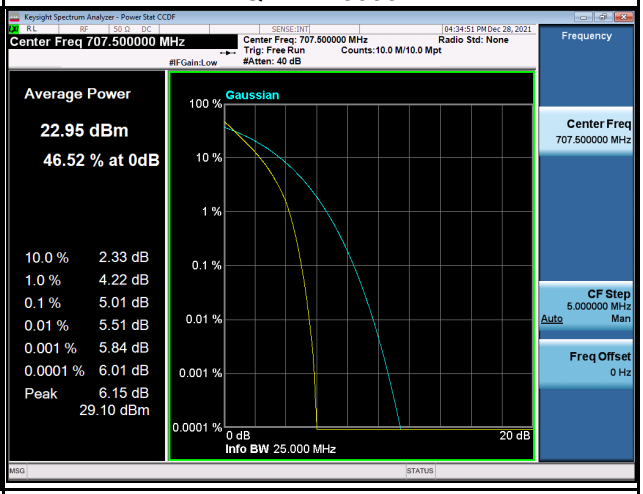


LTE Band 12 _10M

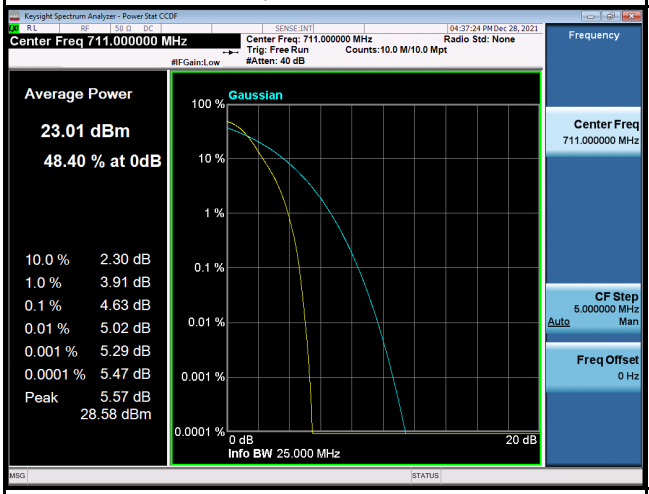
QPSK-23060



QPSK-23095



QPSK-23130



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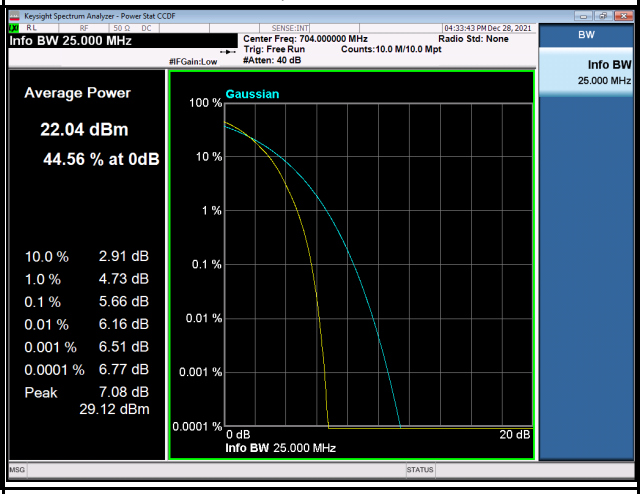

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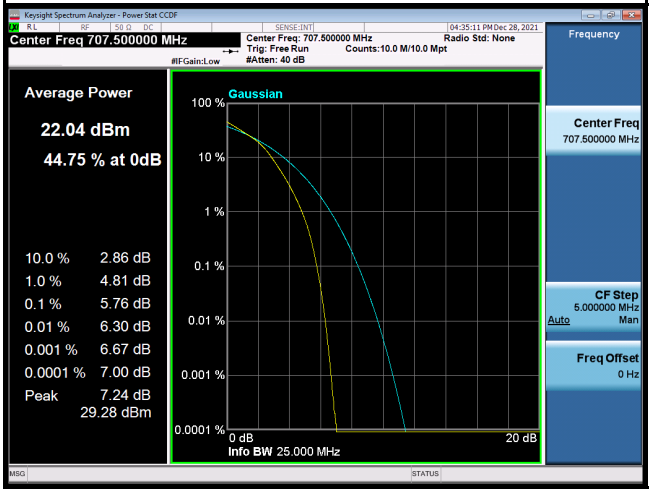

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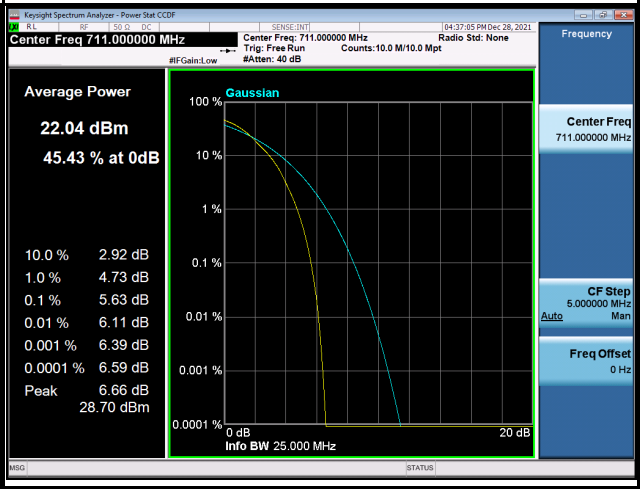
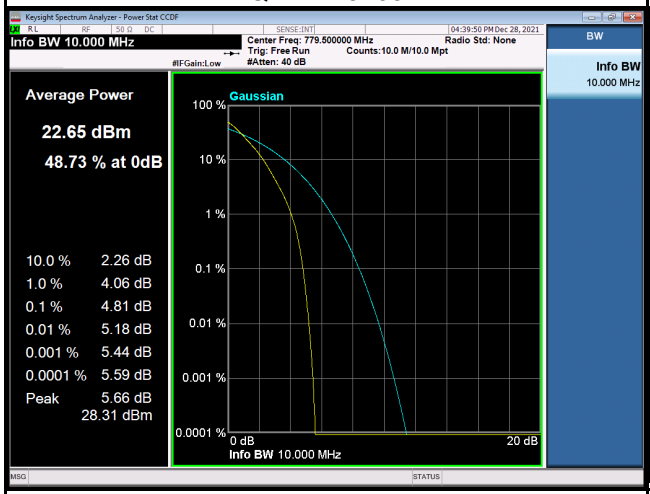
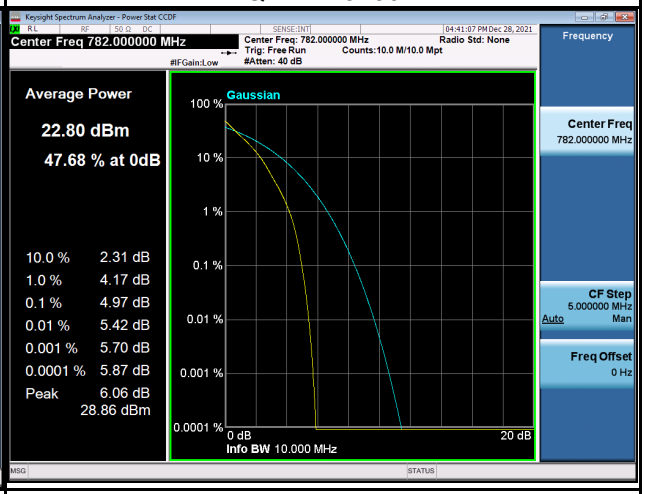


LTE Band 13 _5M

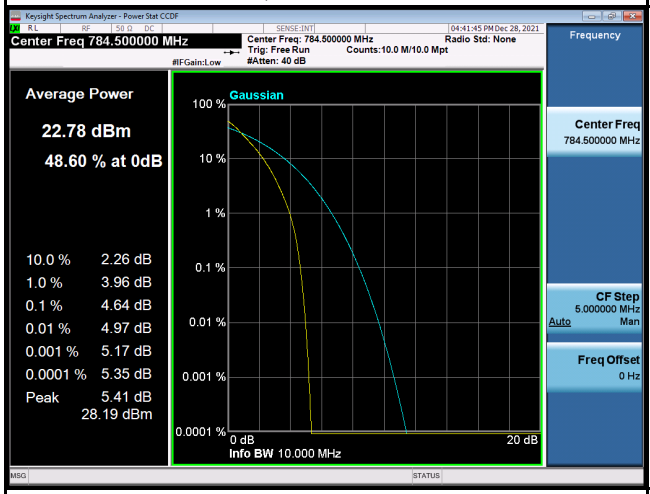
QPSK-23205



QPSK-23230



QPSK-23255



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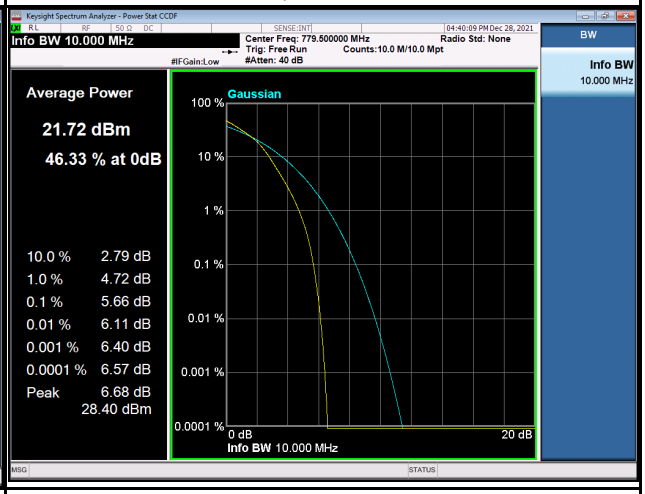
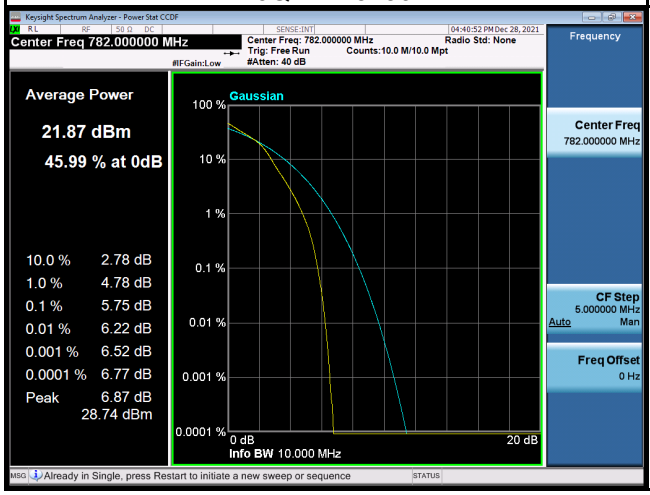


16QAM-23230



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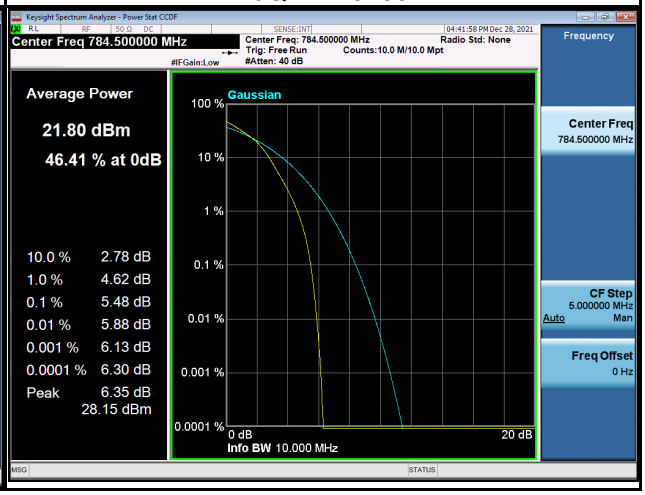
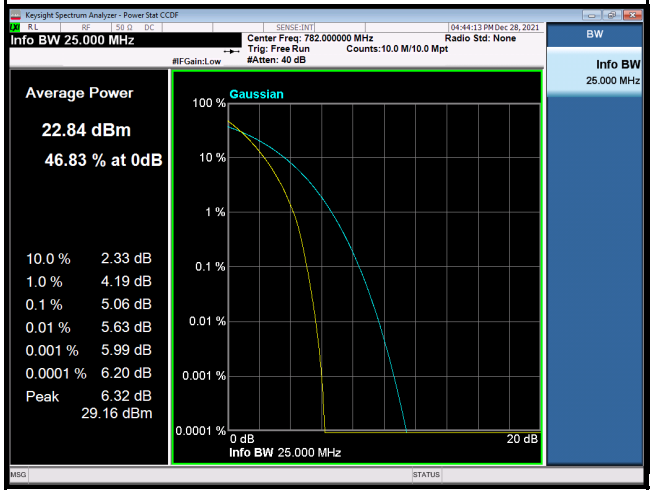
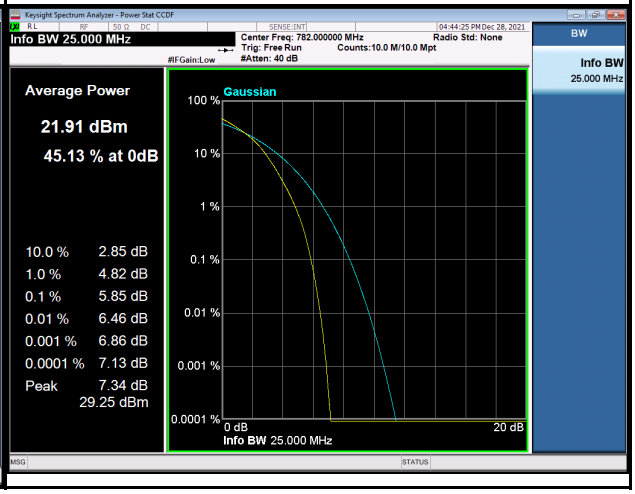
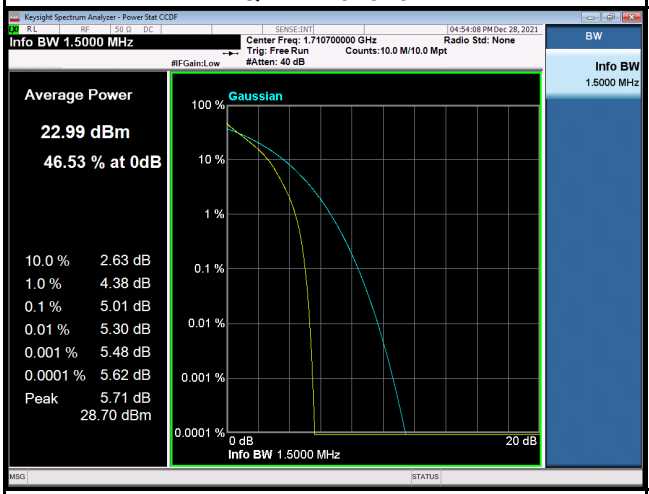


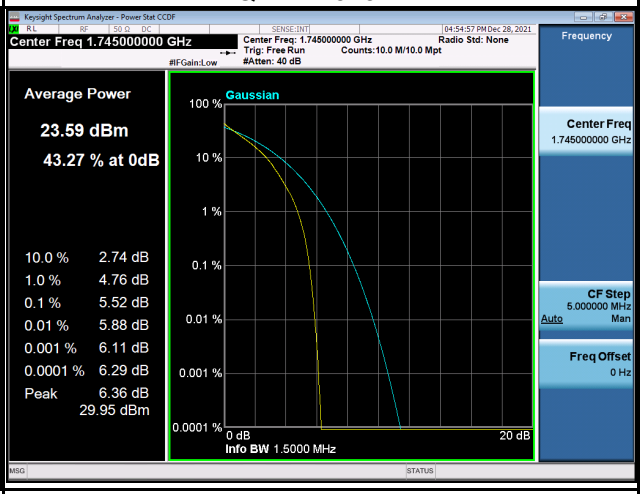
LTE Band 13 _10M	
QPSK-23230	16QAM-23230
	

LTE Band 66 _1.4M

QPSK-131979



QPSK-132322



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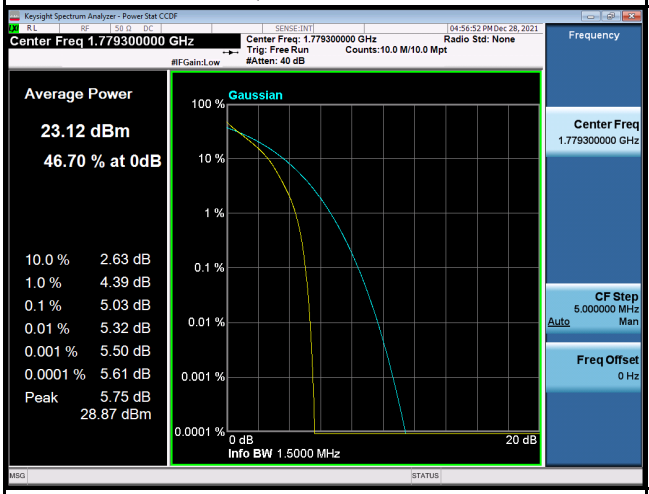

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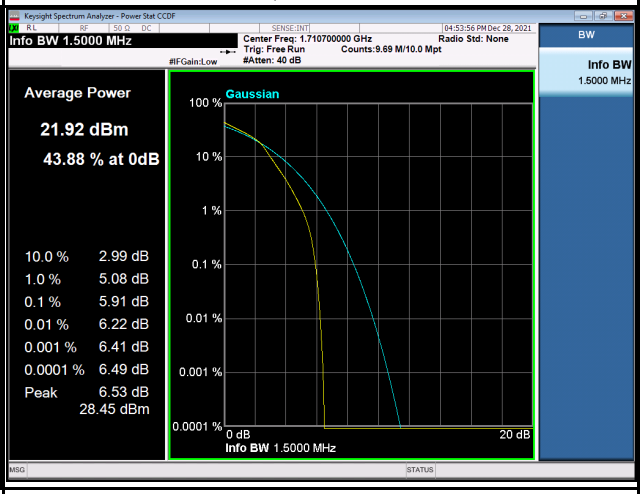

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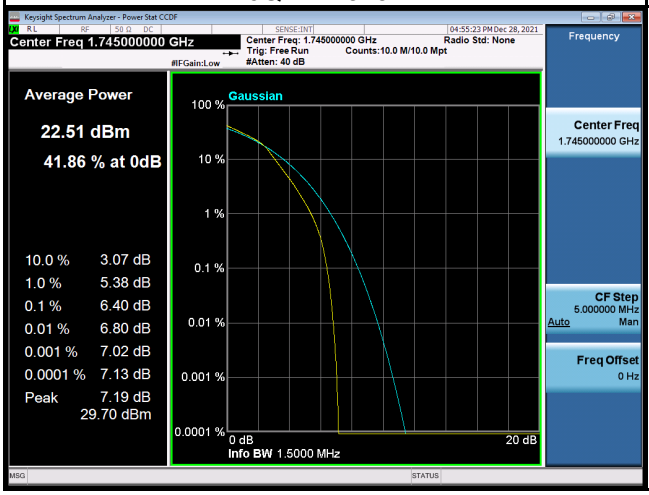

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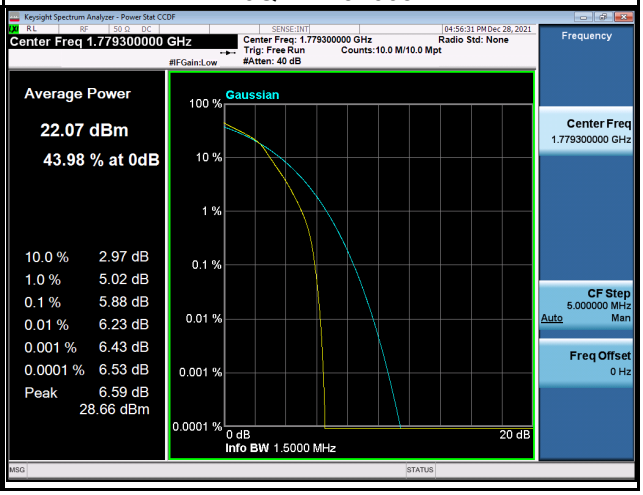
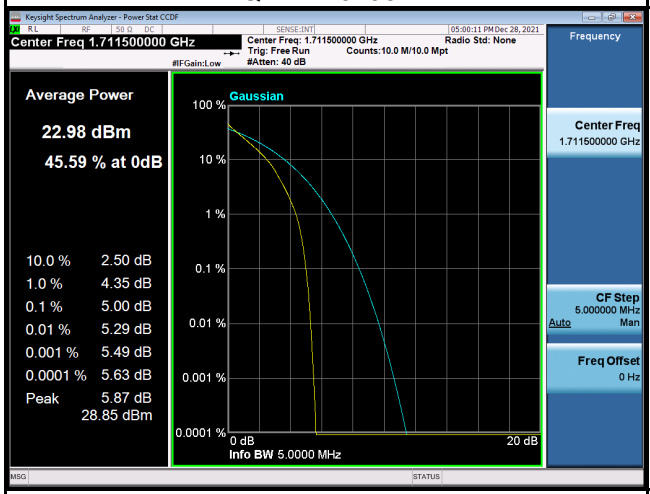


LTE Band 66 _3M

QPSK-131987



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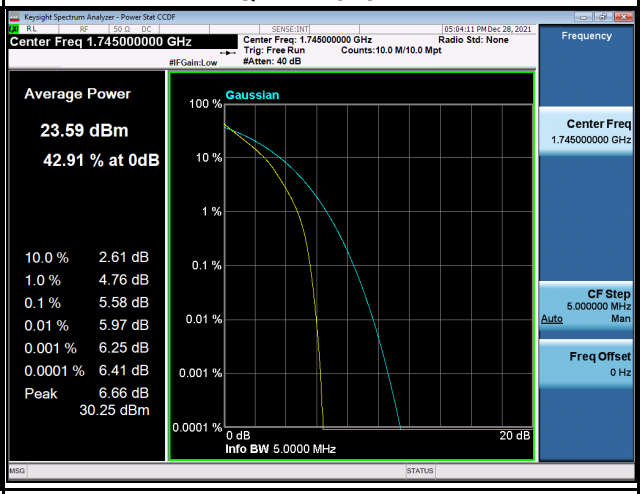

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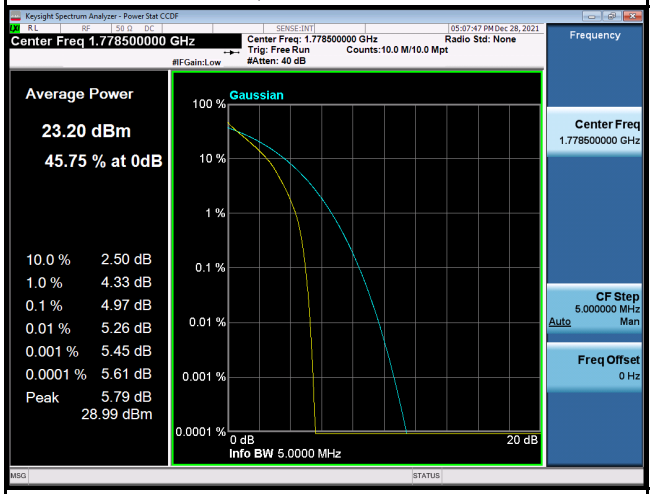

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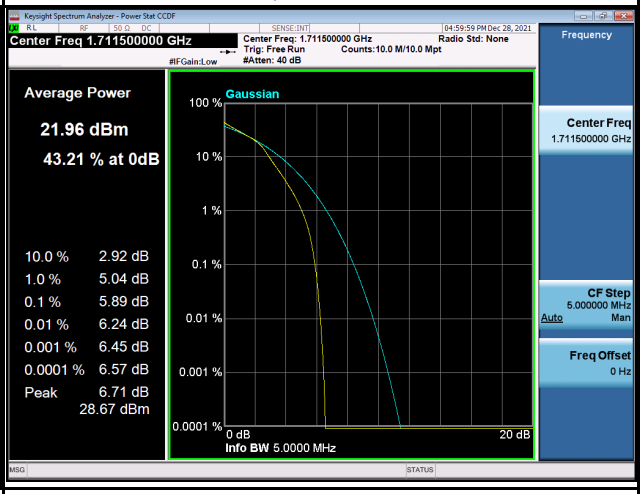

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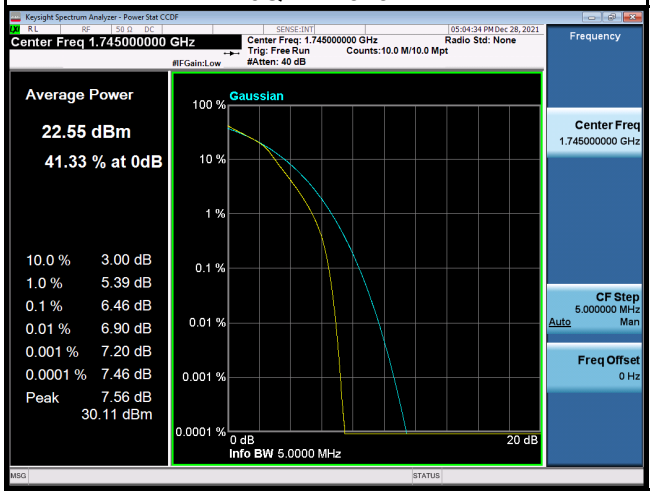

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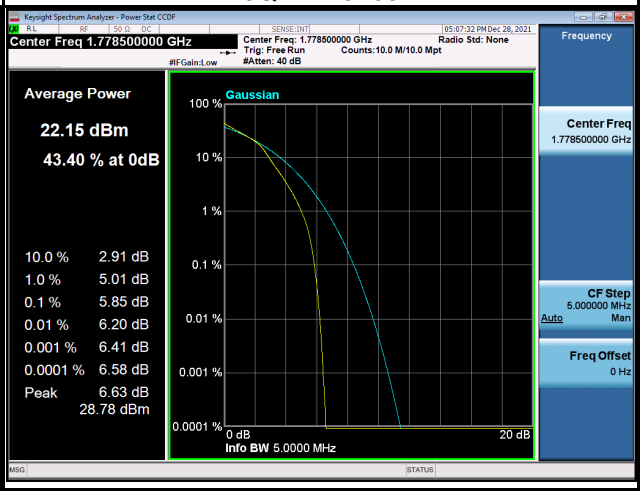
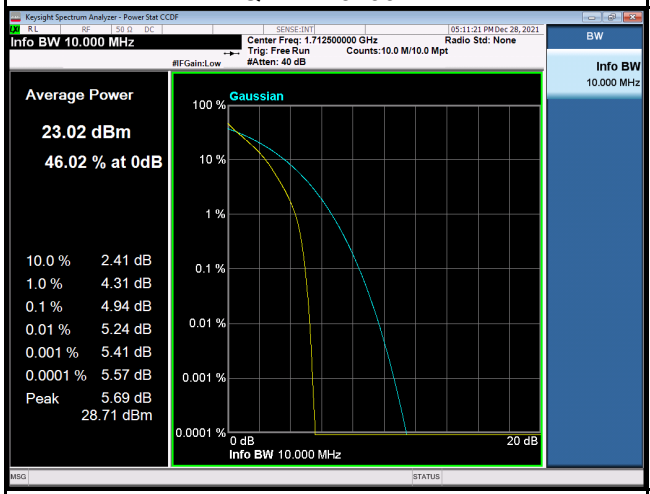
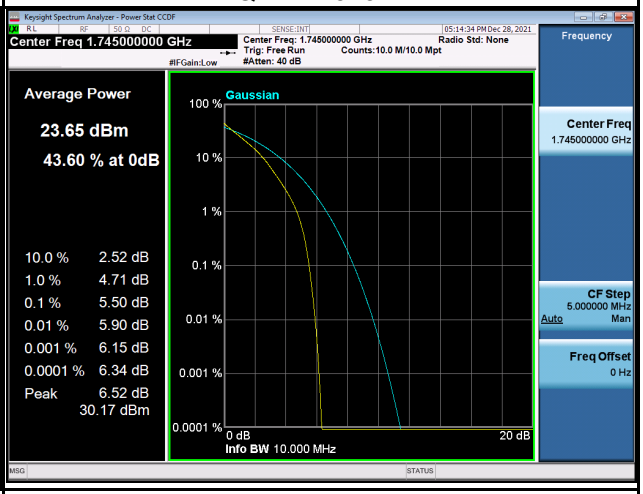


LTE Band 66 _5M

QPSK-131997



QPSK-132322



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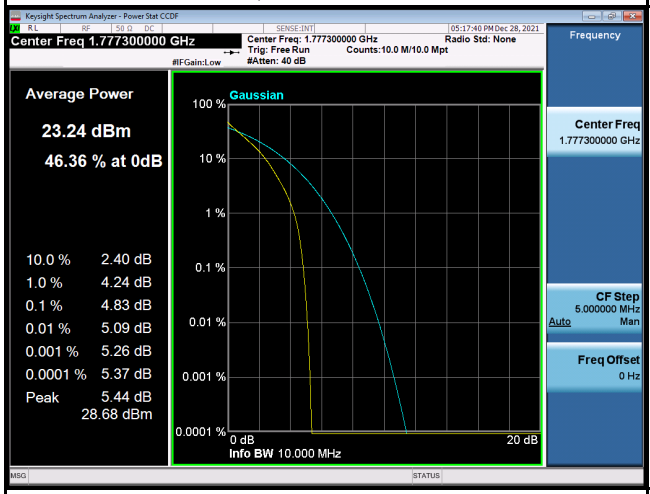

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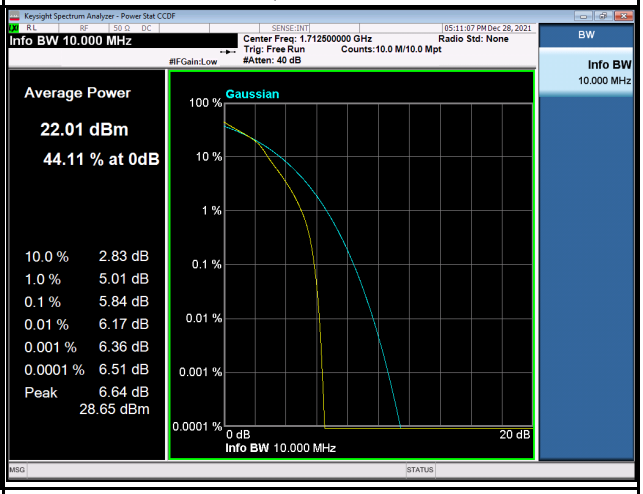

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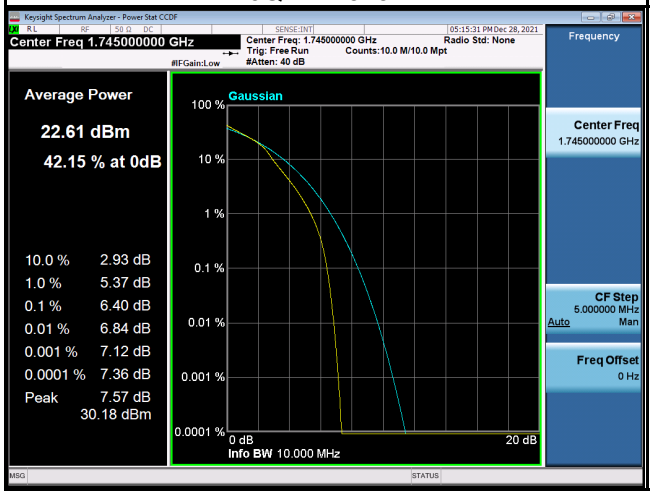

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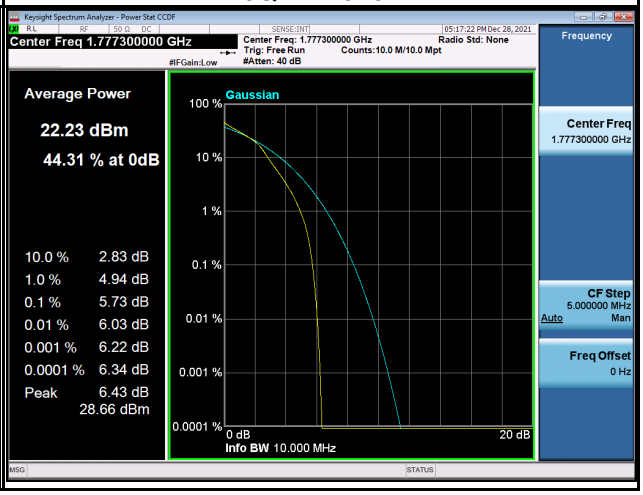
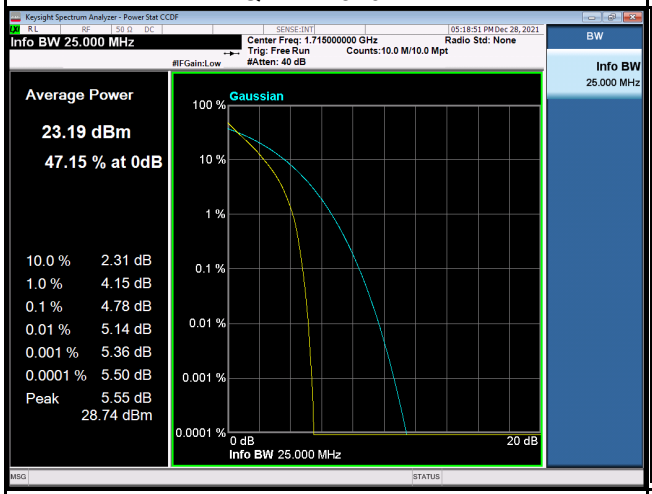


LTE Band 66 _10M

QPSK-132022



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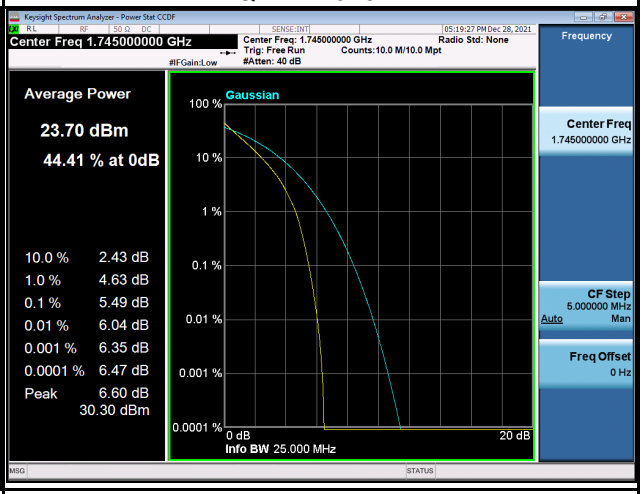
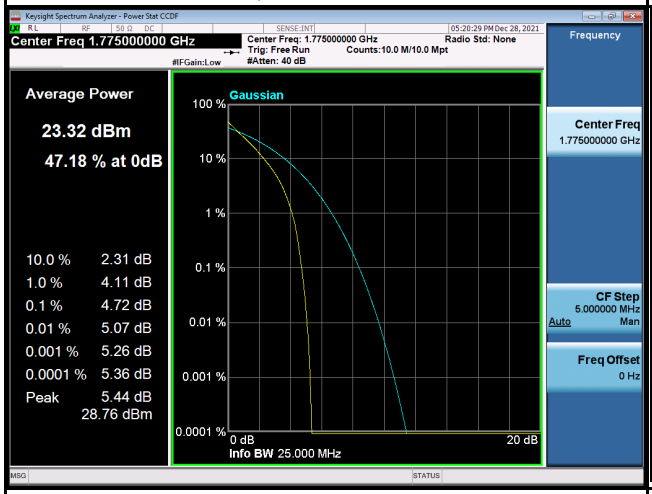


QPSK-132622



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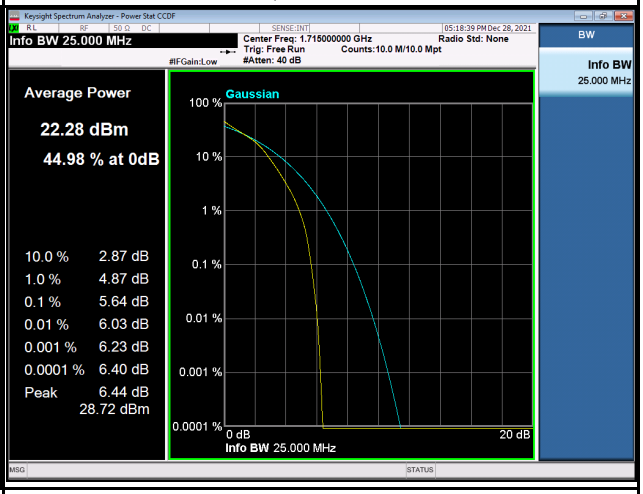
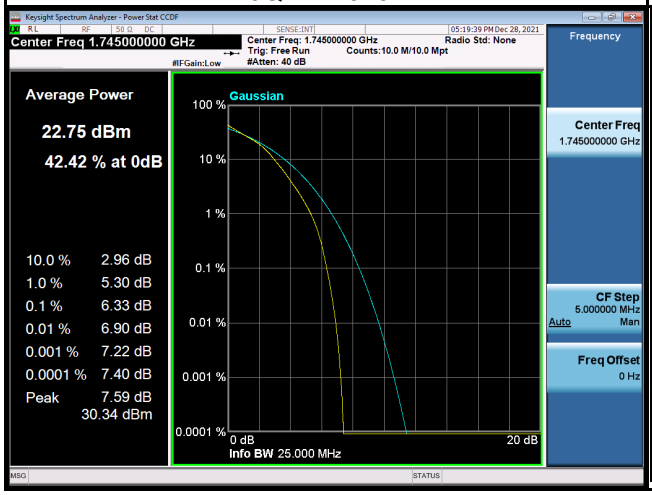


16QAM-132322



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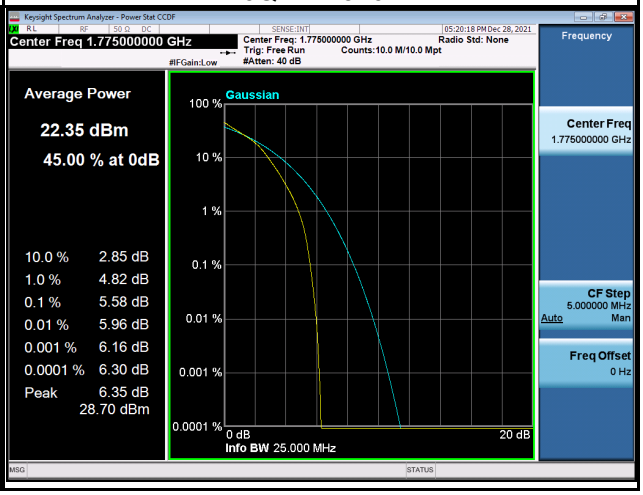
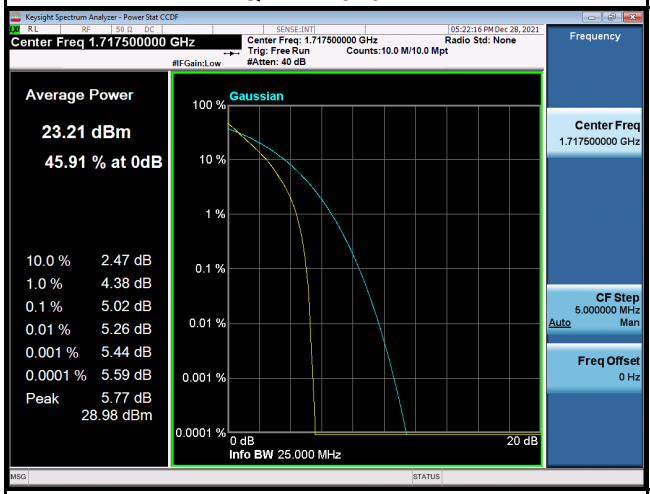


LTE Band 66 _15M

QPSK-132047



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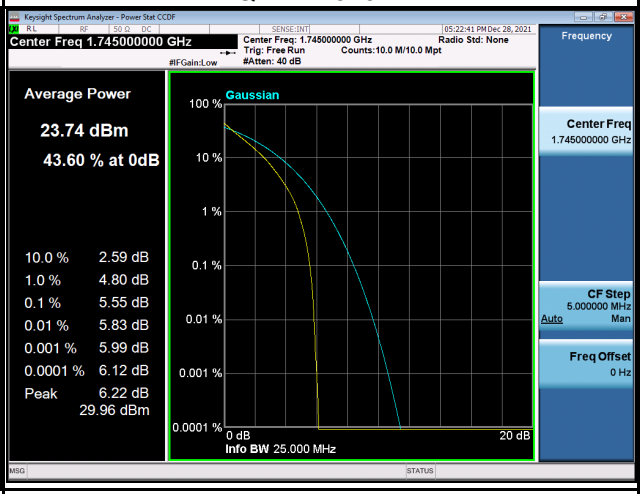

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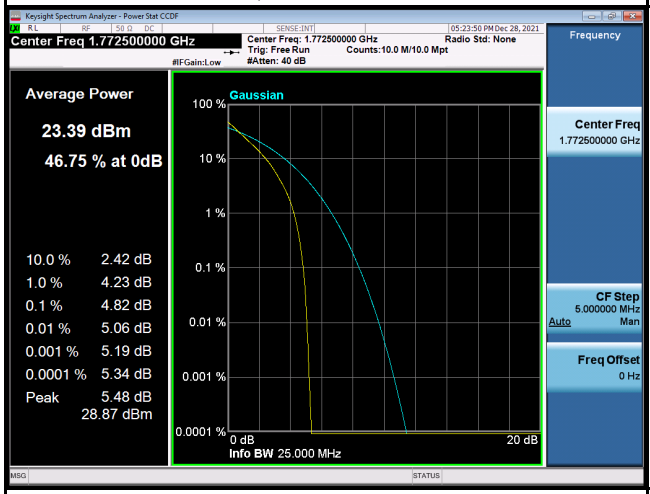

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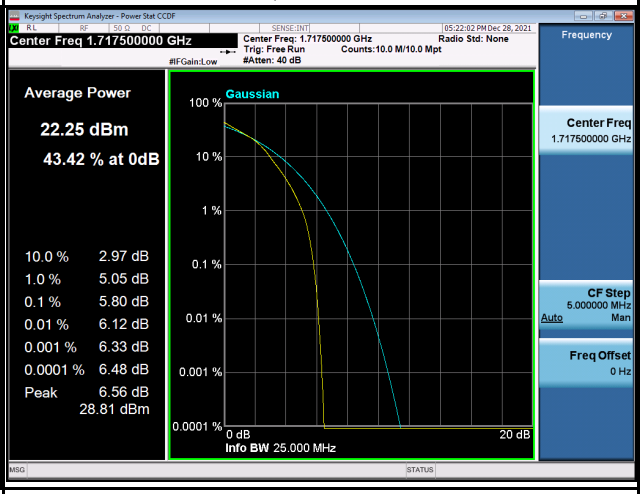

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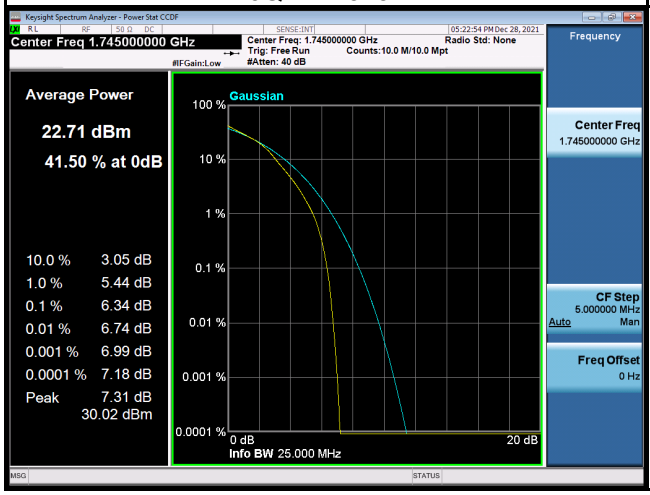

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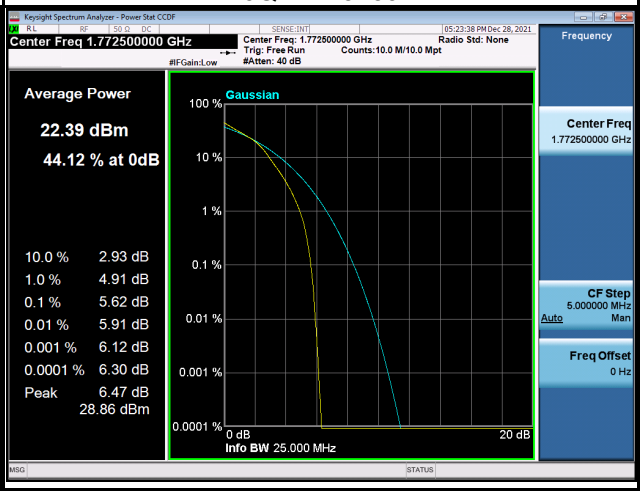
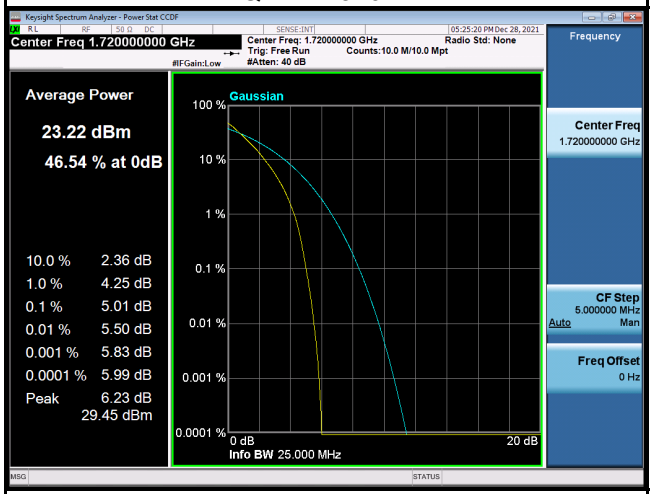


LTE Band 66 _20M

QPSK-132072



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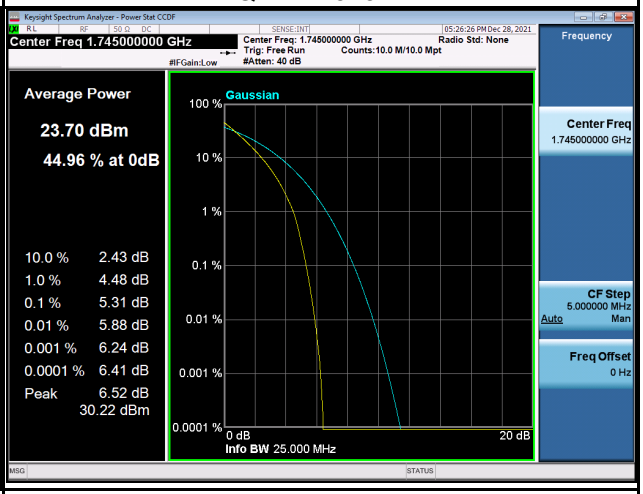

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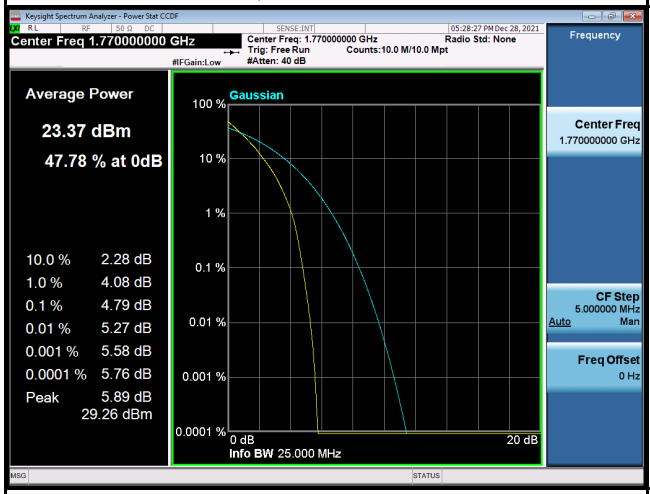

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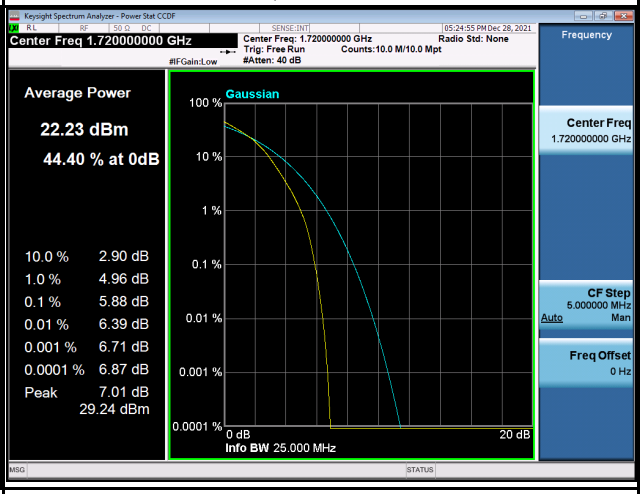

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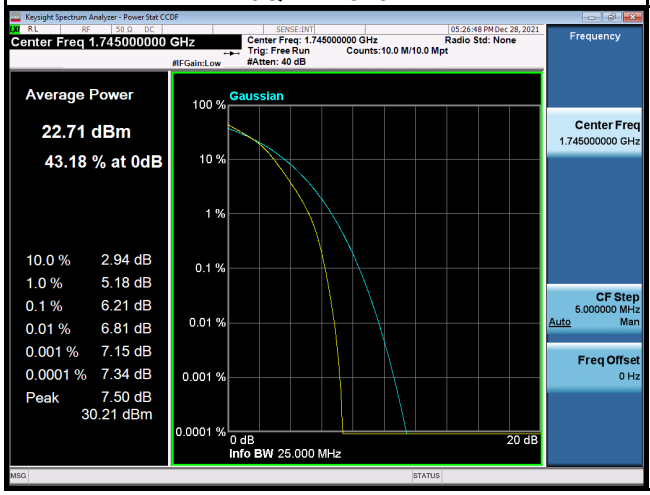

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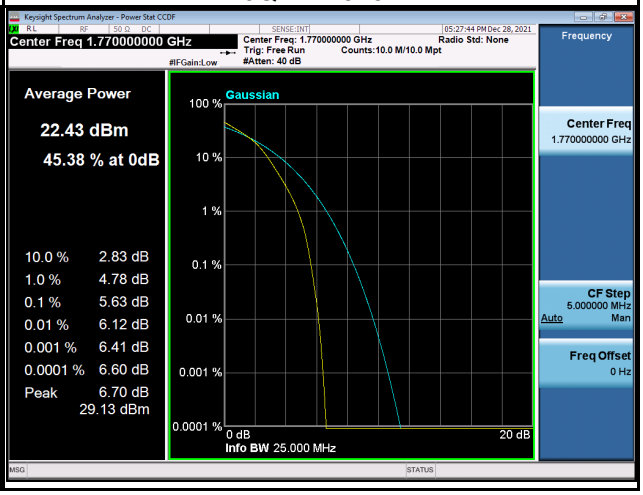

APPENDIX I - FREQUENCY STABILITY

Test Mode:	WCDMA Band IV _CH1638

Temperature vs. Frequency Stabiility

Temperature(°C)	Frequency Error (Hz)	Frequency Error (ppm)	Limit(ppm)
-20	-6.52	0.003763131	±2.5
-10	-7.55	0.004357613	
0	-9.85	0.005685098	
10	6.33	0.003653469	
20	5.29	0.003053215	
30	3.09	0.001783447	
40	5.66	0.003266767	
50	-7.52	0.004340298	
Max. Deviation (ppm)	-9.85	0.005685098	

Voltage vs. Frequency Stability

Voltage(Volts)	Frequency Error (Hz)	Frequency Error (ppm)	Limit(ppm)
4.5	-6.82	0.003936281	±2.5
3.8	-5.83	0.003364885	
3.4	-5.66	0.003266767	
Max. Deviation (ppm)	6.82	0.003936281	

Test Mode:	LTE Band 4_CH20175_1.4M

Temperature vs. Frequency Stabiility

Temperature(°C)	Frequency Error (Hz)	Frequency Error (ppm)	Limit(ppm)
-20	5.68	0.003277411	±2.5
-10	-7.65	-0.004418279	
0	-0.41	-0.000234069	
10	0.73	0.000418790	
20	6.34	0.003657292	
30	-8.51	-0.004914111	
40	-4.67	-0.002696856	
50	-5.57	-0.003212507	
Max. Deviation (ppm)	-8.51	-0.004914111	

Voltage vs. Frequency Stability

Voltage(Volts)	Frequency Error (Hz)	Frequency Error (ppm)	Limit(ppm)
4.5	4.52	0.002608947	±2.5
3.8	4.35	0.002510823	
3.4	-3.60	-0.002075739	
Max. Deviation (ppm)	4.52	0.002608947	

Test Mode:	LTE Band 4_CH20175_3M

Temperature vs. Frequency Stabiility

Temperature(°C)	Frequency Error (Hz)	Frequency Error (ppm)	Limit(ppm)
-20	6.18	0.003568532	±2.5
-10	-1.55	-0.000895303	
0	5.14	0.002967933	
10	1.99	0.00114739	
20	-0.71	-0.000409574	
30	5.59	0.003224026	
40	0.58	0.000334296	
50	-1.18	-0.000679964	
Max. Deviation (ppm)	6.18	0.003568532	

Voltage vs. Frequency Stability

Voltage(Volts)	Frequency Error (Hz)	Frequency Error (ppm)	Limit(ppm)
4.5	-6.25	-0.003607504	±2.5
3.8	1.89	0.001089518	
3.4	2.85	0.001644749	
Max. Deviation (ppm)	-6.25	-0.003607504	

Test Mode:	LTE Band 4_CH20175_5M

Temperature vs. Frequency Stabiility

Temperature(°C)	Frequency Error (Hz)	Frequency Error (ppm)	Limit(ppm)
-20	7.11	0.004104982	±2.5
-10	7.16	0.004130104	
0	-4.18	-0.002414778	
10	-5.21	-0.003008771	
20	-2.49	-0.001438190	
30	9.58	0.005530853	
40	2.95	0.001702440	
50	5.32	0.003072303	
Max. Deviation (ppm)	9.58	0.005530853	

Voltage vs. Frequency Stability

Voltage(Volts)	Frequency Error (Hz)	Frequency Error (ppm)	Limit(ppm)
4.5	5.32	0.003070707	±2.5
3.8	-4.12	-0.002378066	
3.4	-5.32	-0.003070707	
Max. Deviation (ppm)	-5.32	-0.003070707	

Test Mode:	LTE Band 4_CH20175_10M

Temperature vs. Frequency Stabiility

Temperature(°C)	Frequency Error (Hz)	Frequency Error (ppm)	Limit(ppm)
-20	-3.55	-0.002050634	±2.5
-10	-6.67	-0.003852104	
0	-5.03	-0.002905363	
10	-6.81	-0.003928821	
20	-2.60	-0.001501121	
30	-2.11	-0.001216576	
40	3.83	0.002211270	
50	0.74	0.000429004	
Max. Deviation (ppm)	-6.81	-0.003928821	

Voltage vs. Frequency Stability

Voltage(Volts)	Frequency Error (Hz)	Frequency Error (ppm)	Limit(ppm)
4.5	-4.56	-0.002630757	±2.5
3.8	-5.88	-0.003393939	
3.4	-8.25	-0.004761905	
Max. Deviation (ppm)	-8.25	-0.004761905	

Test Mode:	LTE Band 4_CH20175_15M

Temperature vs. Frequency Stabiility

Temperature(°C)	Frequency Error (Hz)	Frequency Error (ppm)	Limit(ppm)
-20	8.41	0.004853093	±2.5
-10	1.35	0.000780612	
0	3.19	0.001843259	
10	3.45	0.001990344	
20	8.96	0.005172377	
30	8.46	0.004884355	
40	-7.77	-0.004486504	
50	8.12	0.004684655	
Max. Deviation (ppm)	8.96	0.005172377	

Voltage vs. Frequency Stability

Voltage(Volts)	Frequency Error (Hz)	Frequency Error (ppm)	Limit(ppm)
4.5	6.22	0.003590188	±2.5
3.8	-5.30	-0.003059163	
3.4	-5.12	-0.002955267	
Max. Deviation (ppm)	6.22	0.003590188	

Test Mode:	LTE Band 4_CH20175_20M

Temperature vs. Frequency Stabiility

Temperature(°C)	Frequency Error (Hz)	Frequency Error (ppm)	Limit(ppm)
-20	-4.61	-0.002661769	±2.5
-10	4.43	0.002559214	
0	-0.80	-0.000460321	
10	-0.40	-0.000230346	
20	8.03	0.004633510	
30	-4.82	-0.002779956	
40	8.77	0.005060747	
45	-2.56	-0.001478730	
Max. Deviation (ppm)	8.77	0.005060747	

Voltage vs. Frequency Stability

Voltage(Volts)	Frequency Error (Hz)	Frequency Error (ppm)	Limit(ppm)
4.5	6.37	0.003676768	±2.5
3.8	5.86	0.003382395	
3.4	-5.00	-0.002886003	
Max. Deviation (ppm)	6.37	0.003676768	

Test Mode:	LTE Band 7_CH21100_5M

Temperature vs. Frequency Stabiility

Temperature(°C)	Frequency Error (Hz)	Frequency Error (ppm)	Limit(ppm)
-20	-6.59	-0.002600766	±2.5
-10	-8.78	-0.003463964	
0	-0.53	-0.000209668	
10	7.86	0.003099790	
20	-8.02	-0.003165517	
30	-3.01	-0.001185970	
40	7.10	0.002800218	
50	10.69	0.004218583	
Max. Deviation (ppm)	10.69	0.004218583	

Voltage vs. Frequency Stability

Voltage(Volts)	Frequency Error (Hz)	Frequency Error (ppm)	Limit(ppm)
4.5	-3.18	-0.001253301	±2.5
3.8	-6.57	-0.002593504	
3.4	-2.05	-0.000807790	
Max. Deviation (ppm)	-6.57	-0.002593504	

Test Mode:	LTE Band 7_CH21100_10M

Temperature vs. Frequency Stabiility

Temperature(°C)	Frequency Error (Hz)	Frequency Error (ppm)	Limit(ppm)
-20	-7.37	-0.002906325	±2.5
-10	10.32	0.004072782	
0	-1.59	-0.000628081	
10	-2.66	-0.00104903	
20	4.92	0.001939168	
30	2.68	0.001056792	
40	-6.00	-0.002366985	
50	10.70	0.004220402	
Max. Deviation (ppm)	10.70	0.004220402	

Voltage vs. Frequency Stability

Voltage(Volts)	Frequency Error (Hz)	Frequency Error (ppm)	Limit(ppm)
4.5	-4.32	-0.001705771	±2.5
3.8	7.15	0.002818914	
3.4	4.85	0.001914442	
Max. Deviation (ppm)	7.15	0.002818914	

Test Mode:	LTE Band 7_CH21100_15M

Temperature vs. Frequency Stabiility

Temperature(°C)	Frequency Error (Hz)	Frequency Error (ppm)	Limit(ppm)
-20	2.19	0.000864792	±2.5
-10	-7.04	-0.002775886	
0	-0.32	-0.000127132	
10	3.14	0.001237951	
20	0.69	0.000271206	
30	-1.27	-0.000501238	
40	3.03	0.001194497	
50	-9.25	-0.003648071	
Max. Deviation (ppm)	-9.25	-0.003648071	

Voltage vs. Frequency Stability

Voltage(Volts)	Frequency Error (Hz)	Frequency Error (ppm)	Limit(ppm)
4.5	-2.27	-0.000896606	±2.5
3.8	9.53	0.003759056	
3.4	5.84	0.002302332	
Max. Deviation (ppm)	9.53	0.003759056	

Test Mode:	LTE Band 7_CH21100_20M

Temperature vs. Frequency Stabiility

Temperature(°C)	Frequency Error (Hz)	Frequency Error (ppm)	Limit(ppm)
-20	-2.76	-0.001090256	±2.5
-10	2.90	0.001142544	
0	2.28	0.000899284	
10	0.78	0.000307266	
20	-1.95	-0.000770751	
30	4.78	0.001885801	
40	-9.26	-0.003653126	
50	2.86	0.001129383	
Max. Deviation (ppm)	-9.26	-0.003653126	

Voltage vs. Frequency Stability

Voltage(Volts)	Frequency Error (Hz)	Frequency Error (ppm)	Limit(ppm)
4.5	-3.10	-0.001221844	±2.5
3.8	5.13	0.002021727	
3.4	9.25	0.003648896	
Max. Deviation (ppm)	9.25	0.003648896	

Test Mode:	LTE Band 12_CH23095_1.4M

Temperature vs. Frequency Stabiility

Temperature(°C)	Frequency Error (Hz)	Frequency Error (ppm)	Limit(ppm)
-20	-1.94	-0.00274607	±2.5
-10	-9.80	-0.013846169	
0	0.66	0.000928347	
10	1.15	0.001627709	
20	-7.79	-0.011012914	
30	-0.14	-0.000204704	
40	9.41	0.013294285	
50	1.68	0.002377272	
Max. Deviation (ppm)	-9.80	-0.013846169	

Voltage vs. Frequency Stability

Voltage(Volts)	Frequency Error (Hz)	Frequency Error (ppm)	Limit(ppm)
3.55	-6.76	-0.009551600	±2.5
3.80	7.35	0.010391444	
4.20	8.40	0.011879433	
Max. Deviation (ppm)	8.40	0.011879433	

Test Mode:	LTE Band 12_CH23095_3M

Temperature vs. Frequency Stabiility

Temperature(°C)	Frequency Error (Hz)	Frequency Error (ppm)	Limit(ppm)
-20	-6.24	-0.008820736	±2.5
-10	-3.04	-0.004295462	
0	7.40	0.010465848	
10	-4.93	-0.006967968	
20	-2.02	-0.002852427	
30	7.16	0.010121608	
40	0.26	0.000372677	
50	-7.91	-0.011173480	
Max. Deviation (ppm)	-7.91	-0.011173480	

Voltage vs. Frequency Stability

Voltage(Volts)	Frequency Error (Hz)	Frequency Error (ppm)	Limit(ppm)
3.55	8.58	0.012121410	±2.5
3.80	6.26	0.008845776	
4.20	-7.72	-0.010914927	
Max. Deviation (ppm)	8.58	0.012121410	

Test Mode:	LTE Band 12_CH23095_5M

Temperature vs. Frequency Stabiility

Temperature(°C)	Frequency Error (Hz)	Frequency Error (ppm)	Limit(ppm)
-20	-7.01	-0.009904322	±2.5
-10	8.57	0.012120102	
0	6.02	0.008505234	
10	8.98	0.012691467	
20	-3.51	-0.004963183	
30	3.80	0.005376511	
40	9.51	0.013445203	
50	9.76	0.013798159	
Max. Deviation (ppm)	9.76	0.013798159	

Voltage vs. Frequency Stability

Voltage(Volts)	Frequency Error (Hz)	Frequency Error (ppm)	Limit(ppm)
3.55	4.35	0.006151390	±2.5
3.80	10.14	0.014334271	
4.20	-8.71	-0.012312223	
Max. Deviation (ppm)	10.14	0.014334271	

Test Mode:	LTE Band 12_CH23095_10M

Temperature vs. Frequency Stabiility

Temperature(°C)	Frequency Error (Hz)	Frequency Error (ppm)	Limit(ppm)
-20	-9.87	-0.013955771	±2.5
-10	-8.02	-0.011339107	
0	-1.93	-0.002727966	
10	-2.83	-0.004002242	
20	9.16	0.012952694	
30	-2.70	-0.003811820	
40	-3.86	-0.005453203	
50	3.18	0.004487833	
Max. Deviation (ppm)	-9.87	-0.013955771	

Voltage vs. Frequency Stability

Voltage(Volts)	Frequency Error (Hz)	Frequency Error (ppm)	Limit(ppm)
3.55	7.30	0.010316799	±2.5
3.80	4.64	0.006554021	
4.20	-4.98	-0.007032123	
Max. Deviation (ppm)	7.30	0.010316799	

Test Mode:	LTE Band 13_CH23230_5M

Temperature vs. Frequency Stabiility

Temperature(°C)	Frequency Error (Hz)	Frequency Error (ppm)	Limit(ppm)
-20	1.42	0.001820165	±2.5
-10	6.75	0.008632775	
0	7.49	0.009572626	
10	2.37	0.003031978	
20	-7.22	-0.009238164	
30	0.51	0.000650825	
40	8.50	0.010869098	
50	7.70	0.009852195	
Max. Deviation (ppm)	8.50	0.010869098	

Voltage vs. Frequency Stability

Voltage(Volts)	Frequency Error (Hz)	Frequency Error (ppm)	Limit(ppm)
3.55	4.90	0.006269757	±2.5
3.80	6.02	0.007697999	
4.20	-9.38	-0.011993398	
Max. Deviation (ppm)	-9.38	-0.011993398	

Test Mode:	LTE Band 13_CH23230_10M

Temperature vs. Frequency Stabiility

Temperature(°C)	Frequency Error (Hz)	Frequency Error (ppm)	Limit(ppm)
-20	-2.37	-0.003035115	±2.5
-10	-2.34	-0.002996612	
0	10.99	0.014053708	
10	-0.66	-0.000837997	
20	-9.00	-0.011514058	
30	-8.60	-0.010994313	
40	1.10	0.001409675	
50	-5.36	-0.006858132	
Max. Deviation (ppm)	10.99	0.014053708	

Voltage vs. Frequency Stability

Voltage(Volts)	Frequency Error (Hz)	Frequency Error (ppm)	Limit(ppm)
3.55	-6.58	-0.008408121	±2.5
3.80	-4.52	-0.005774444	
4.20	-8.23	-0.010518917	
Max. Deviation (ppm)	-8.23	-0.010518917	

Test Mode:	LTE Band 66_CH132322_1.4M

Temperature vs. Frequency Stabiility

Temperature(℃)	Frequency Error (Hz)	Frequency Error (ppm)	Limit(ppm)
-20	-5.31	-0.007585047	±2.5
-10	2.79	0.003979634	
0	5.53	0.007902091	
10	-6.31	-0.009015984	
20	-4.55	-0.006493448	
30	-2.91	-0.004161246	
40	1.79	0.002563621	
50	6.61	0.009443628	
Max. Deviation (ppm)	6.61	0.009443628	

Voltage vs. Frequency Stability

Voltage(Volts)	Frequency Error (Hz)	Frequency Error (ppm)	Limit(ppm)
4.5	-8.22	-0.011748695	±2.5
3.8	-6.81	-0.009734169	
3.4	-5.75	-0.008213108	
Max. Deviation (ppm)	-8.22	-0.011748695	

Test Mode:	LTE Band 66_CH132322_3M

Temperature vs. Frequency Stabiility

Temperature(℃)	Frequency Error (Hz)	Frequency Error (ppm)	Limit(ppm)
-20	-7.56	-0.01080271	±2.5
-10	9.86	0.014087327	
0	-5.66	-0.00808818	
10	4.73	0.006760908	
20	7.00	0.009993564	
30	-9.35	-0.01336116	
40	6.23	0.008894301	
50	10.70	0.015280686	
Max. Deviation (ppm)	10.70	0.015280686	

Voltage vs. Frequency Stability

Voltage(Volts)	Frequency Error (Hz)	Frequency Error (ppm)	Limit(ppm)
4.5	4.07	0.005812006	±2.5
3.8	6.27	0.008961849	
3.4	-8.41	-0.012009820	
Max. Deviation (ppm)	-8.41	-0.012009820	

Test Mode:	LTE Band 66_CH132322_5M

Temperature vs. Frequency Stabiility

Temperature(℃)	Frequency Error (Hz)	Frequency Error (ppm)	Limit(ppm)
-20	-5.70	-0.008147800	±2.5
-10	9.14	0.013058328	
0	1.70	0.002426926	
10	7.78	0.011116794	
20	-0.75	-0.001071587	
30	5.99	0.008556338	
40	-3.45	-0.004923005	
50	-6.46	-0.009222712	
Max. Deviation (ppm)	9.14	0.013058328	

Voltage vs. Frequency Stability

Voltage(Volts)	Frequency Error (Hz)	Frequency Error (ppm)	Limit(ppm)
4.5	5.57	0.007960607	±2.5
3.8	7.10	0.010146300	
3.4	6.26	0.008945598	
Max. Deviation (ppm)	7.10	0.010146300	

Test Mode:	LTE Band 66_CH132322_10M

Temperature vs. Frequency Stabiility

Temperature(℃)	Frequency Error (Hz)	Frequency Error (ppm)	Limit(ppm)
-20	-8.98	-0.012830973	±2.5
-10	9.91	0.014152413	
0	-0.88	-0.001254966	
10	-3.87	-0.005526980	
20	-7.76	-0.011080156	
30	9.93	0.014183489	
40	0.36	0.000511437	
50	9.89	0.014127562	
Max. Deviation (ppm)	9.93	0.014183489	

Voltage vs. Frequency Stability

Voltage(Volts)	Frequency Error (Hz)	Frequency Error (ppm)	Limit(ppm)
4.5	5.99	0.008552555	±2.5
3.8	5.65	0.008073782	
3.4	5.92	0.008457197	
Max. Deviation (ppm)	5.99	0.008552555	

Test Mode:	LTE Band 66_CH132322_15M

Temperature vs. Frequency Stabiility

Temperature(℃)	Frequency Error (Hz)	Frequency Error (ppm)	Limit(ppm)
-20	5.55	0.007928	±2.5
-10	2.81	0.004018	
0	-6.54	-0.009350	
10	2.57	0.003667	
20	-1.60	-0.002290	
30	6.34	0.009051	
40	1.24	0.001777	
50	-9.74	-0.013920	
Max. Deviation (ppm)	-9.74	-0.013920	

Voltage vs. Frequency Stability

Voltage(Volts)	Frequency Error (Hz)	Frequency Error (ppm)	Limit(ppm)
4.5	-6.72	-0.009600	±2.5
3.8	-6.66	-0.009510	
3.4	8.84	0.012621	
Max. Deviation (ppm)	8.84	0.012621	

Test Mode:	LTE Band 66_CH132322_20M

Temperature vs. Frequency Stabiility

Temperature(℃)	Frequency Error (Hz)	Frequency Error (ppm)	Limit(ppm)
-20	9.74	0.013921	±2.5
-10	4.14	0.005919	
0	-5.17	-0.00739	
10	6.98	0.009967	
20	9.31	0.013306	
30	2.85	0.004076	
40	6.41	0.009162	
50	-8.48	-0.012120	
Max. Deviation (ppm)	9.74	0.013921	

Voltage vs. Frequency Stability

Voltage(Volts)	Frequency Error (Hz)	Frequency Error (ppm)	Limit(ppm)
4.5	-2.03	-0.002900	±2.5
3.8	3.95	0.005643	
3.4	8.96	0.012795	
Max. Deviation (ppm)	8.96	0.012795	

End of Test Report