Appendix for Band 5

Product Name: Environmental variable collector for logistics
Model No: ZT-28E

Appendix A: Average Power Output Data

Test Result

Band	Bandwidth	Modulation	Channel	RB Size	RB Start	Result(dBm)	Verdict
Band5	1.4MHz	20407	QPSK	1	0	20.30	PASS
Band5	1.4MHz	20407	QPSK	1	5	20.16	PASS
Band5	1.4MHz	20407	QPSK	6	0	18.72	PASS
Band5	1.4MHz	20525	QPSK	1	0	20.84	PASS
Band5	1.4MHz	20525	QPSK	1	5	20.89	PASS
Band5	1.4MHz	20525	QPSK	6	0	19.29	PASS
Band5	1.4MHz	20643	QPSK	1	0	20.75	PASS
Band5	1.4MHz	20643	QPSK	1	5	20.62	PASS
Band5	1.4MHz	20643	QPSK	6	0	19.15	PASS
Band5	1.4MHz	20407	16QAM	1	0	19.59	PASS
Band5	1.4MHz	20407	16QAM	1	5	19.78	PASS
Band5	1.4MHz	20407	16QAM	6	0	18.47	PASS
Band5	1.4MHz	20525	16QAM	1	0	20.14	PASS
Band5	1.4MHz	20525	16QAM	1	5	20.08	PASS
Band5	1.4MHz	20525	16QAM	6	0	19.14	PASS
Band5	1.4MHz	20643	16QAM	1	0	19.81	PASS
Band5	1.4MHz	20643	16QAM	1	5	19.98	PASS
Band5	1.4MHz	20643	16QAM	6	0	18.90	PASS
Band5	3MHz	20415	QPSK	1	0	20.53	PASS
Band5	3MHz	20415	QPSK	1	14	20.45	PASS
Band5	3MHz	20415	QPSK	15	0	18.63	PASS
Band5	3MHz	20525	QPSK	1	0	21.07	PASS
Band5	3MHz	20525	QPSK	1	14	21.06	PASS
Band5	3MHz	20525	QPSK	15	0	19.15	PASS
Band5	3MHz	20635	QPSK	1	0	21.20	PASS
Band5	3MHz	20635	QPSK	1	14	20.90	PASS
Band5	3MHz	20635	QPSK	15	0	18.98	PASS
Band5	3MHz	20415	16QAM	1	0	19.59	PASS
Band5	3MHz	20415	16QAM	1	14	19.52	PASS
Band5	3MHz	20415	16QAM	15	0	18.48	PASS
Band5	3MHz	20525	16QAM	1	0	20.11	PASS
Band5	3MHz	20525	16QAM	1	14	19.97	PASS
Band5	3MHz	20525	16QAM	15	0	18.92	PASS
Band5	3MHz	20635	16QAM	1	0	20.10	PASS
Band5	3MHz	20635	16QAM	1	14	19.94	PASS

Band5	3MHz	20635	16QAM	15	0	18.83	PASS
Band5	5MHz	20425	QPSK	1	0	20.41	PASS
Band5	5MHz	20425	QPSK	1	24	20.15	PASS
Band5	5MHz	20425	QPSK	25	0	19.58	PASS
Band5	5MHz	20525	QPSK	1	0	20.72	PASS
Band5	5MHz	20525	QPSK	1	24	20.55	PASS
Band5	5MHz	20525	QPSK	25	0	20.09	PASS
Band5	5MHz	20625	QPSK	1	0	20.79	PASS
Band5	5MHz	20625	QPSK	1	24	20.32	PASS
Band5	5MHz	20625	QPSK	25	0	19.87	PASS
Band5	5MHz	20425	16QAM	1	0	20.60	PASS
Band5	5MHz	20425	16QAM	1	24	20.45	PASS
Band5	5MHz	20425	16QAM	25	0	19.59	PASS
Band5	5MHz	20525	16QAM	1	0	20.93	PASS
Band5	5MHz	20525	16QAM	1	24	20.80	PASS
Band5	5MHz	20525	16QAM	25	0	19.99	PASS
Band5	5MHz	20625	16QAM	1	0	21.00	PASS
Band5	5MHz	20625	16QAM	1	24	20.76	PASS
Band5	5MHz	20625	16QAM	25	0	19.99	PASS
Band5	10MHz	20450	QPSK	1	0	21.22	PASS
Band5	10MHz	20450	QPSK	1	49	20.39	PASS
Band5	10MHz	20450	QPSK	50	0	20.98	PASS
Band5	10MHz	20525	QPSK	1	0	19.74	PASS
Band5	10MHz	20525	QPSK	1	49	19.26	PASS
Band5	10MHz	20525	QPSK	50	0	18.35	PASS
Band5	10MHz	20600	QPSK	1	0	19.46	PASS
Band5	10MHz	20600	QPSK	1	49	19.29	PASS
Band5	10MHz	20600	QPSK	50	0	18.98	PASS
Band5	10MHz	20450	16QAM	1	0	19.78	PASS
Band5	10MHz	20450	16QAM	1	49	19.26	PASS
Band5	10MHz	20450	16QAM	50	0	18.31	PASS
Band5	10MHz	20525	16QAM	1	0	19.24	PASS
Band5	10MHz	20525	16QAM	1	49	19.42	PASS
Band5	10MHz	20525	16QAM	50	0	18.87	PASS
Band5	10MHz	20600	16QAM	1	0	19.10	PASS
Band5	10MHz	20600	16QAM	1	49	19.25	PASS
Band5	10MHz	20600	16QAM	50	0	18.69	PASS

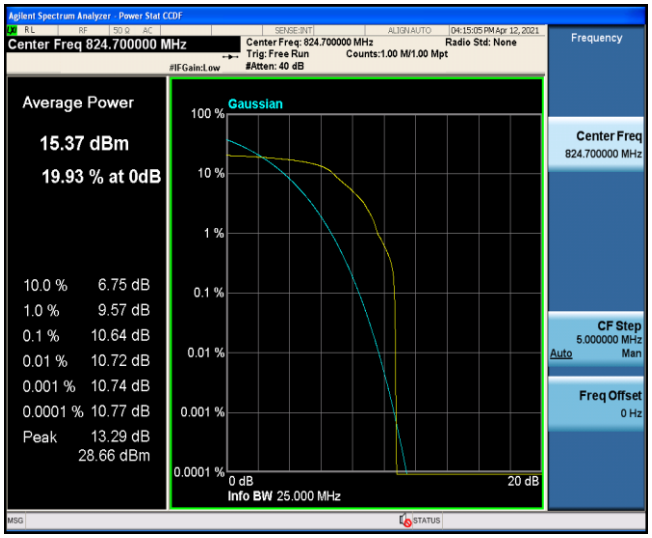
Appendix B: Peak-to-Average Ratio

Test Result

Band	Bandwidth	Modulation	Channel	RB Size	RB Start	Result(dB)	Limit(dB)	Verdict
Band5	1.4MHz	20407	QPSK	1	0	10.64	<=13	PASS
Band5	1.4MHz	20407	QPSK	6	0	6.92	<=13	PASS
Band5	1.4MHz	20525	QPSK	1	0	7.64	<=13	PASS
Band5	1.4MHz	20525	QPSK	6	0	10.27	<=13	PASS
Band5	1.4MHz	20643	QPSK	1	0	8.41	<=13	PASS
Band5	1.4MHz	20643	QPSK	6	0	12.35	<=13	PASS
Band5	1.4MHz	20407	16QAM	1	0	8.78	<=13	PASS
Band5	1.4MHz	20407	16QAM	6	0	9.14	<=13	PASS
Band5	1.4MHz	20525	16QAM	1	0	9.18	<=13	PASS
Band5	1.4MHz	20525	16QAM	6	0	6.63	<=13	PASS
Band5	1.4MHz	20643	16QAM	1	0	9.53	<=13	PASS
Band5	1.4MHz	20643	16QAM	6	0	7.59	<=13	PASS
Band5	3MHz	20415	QPSK	1	0	9.49	<=13	PASS
Band5	3MHz	20415	QPSK	15	0	9.57	<=13	PASS
Band5	3MHz	20525	QPSK	1	0	8.71	<=13	PASS
Band5	3MHz	20525	QPSK	15	0	8.52	<=13	PASS
Band5	3MHz	20635	QPSK	1	0	9.68	<=13	PASS
Band5	3MHz	20635	QPSK	15	0	10.32	<=13	PASS
Band5	3MHz	20415	16QAM	1	0	7.87	<=13	PASS
Band5	3MHz	20415	16QAM	15	0	8.16	<=13	PASS
Band5	3MHz	20525	16QAM	1	0	9.66	<=13	PASS
Band5	3MHz	20525	16QAM	15	0	10.05	<=13	PASS
Band5	3MHz	20635	16QAM	1	0	9.89	<=13	PASS
Band5	3MHz	20635	16QAM	15	0	6.37	<=13	PASS
Band5	5MHz	20425	QPSK	1	0	10.08	<=13	PASS
Band5	5MHz	20425	QPSK	25	0	9.42	<=13	PASS
Band5	5MHz	20525	QPSK	1	0	5.92	<=13	PASS
Band5	5MHz	20525	QPSK	25	0	9.66	<=13	PASS
Band5	5MHz	20625	QPSK	1	0	8.70	<=13	PASS
Band5	5MHz	20625	QPSK	25	0	10.48	<=13	PASS
Band5	5MHz	20425	16QAM	1	0	9.31	<=13	PASS
Band5	5MHz	20425	16QAM	25	0	11.26	<=13	PASS
Band5	5MHz	20525	16QAM	1	0	11.27	<=13	PASS
Band5	5MHz	20525	16QAM	25	0	11.23	<=13	PASS

Band5	5MHz	20625	16QAM	1	0	6.18	<=13	PASS
Band5	5MHz	20625	16QAM	25	0	8.88	<=13	PASS
Band5	10MHz	20450	QPSK	1	0	7.64	<=13	PASS
Band5	10MHz	20450	QPSK	50	0	10.13	<=13	PASS
Band5	10MHz	20525	QPSK	1	0	10.69	<=13	PASS
Band5	10MHz	20525	QPSK	50	0	10.02	<=13	PASS
Band5	10MHz	20600	QPSK	1	0	11.04	<=13	PASS
Band5	10MHz	20600	QPSK	50	0	10.39	<=13	PASS
Band5	10MHz	20450	16QAM	1	0	7.99	<=13	PASS
Band5	10MHz	20450	16QAM	50	0	9.52	<=13	PASS
Band5	10MHz	20525	16QAM	1	0	9.58	<=13	PASS
Band5	10MHz	20525	16QAM	50	0	8.06	<=13	PASS
Band5	10MHz	20600	16QAM	1	0	8.98	<=13	PASS
Band5	10MHz	20600	16QAM	50	0	10.39	<=13	PASS

Test Graphs



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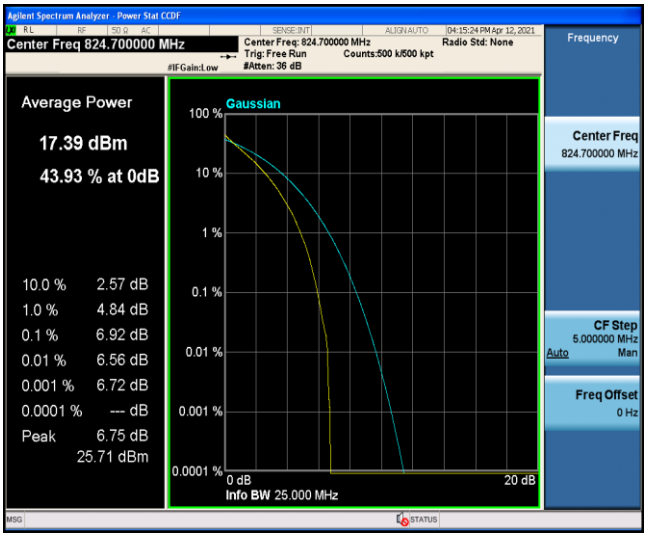

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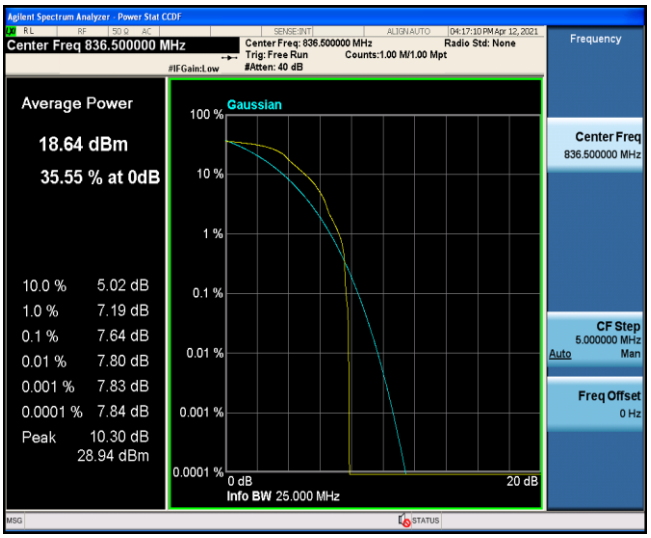

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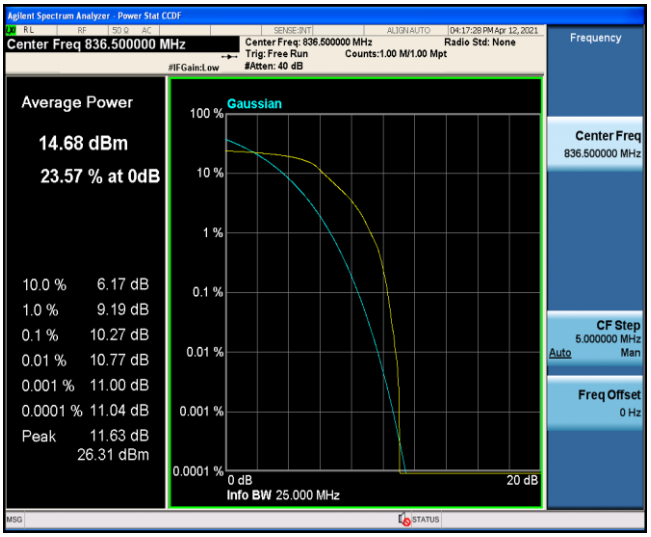

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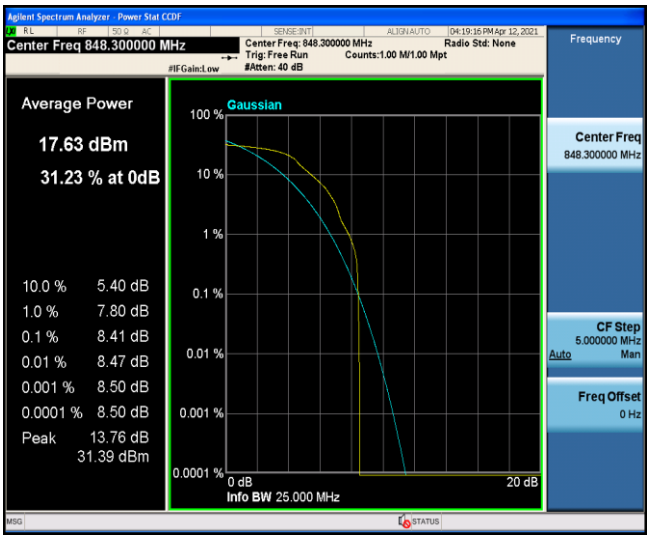

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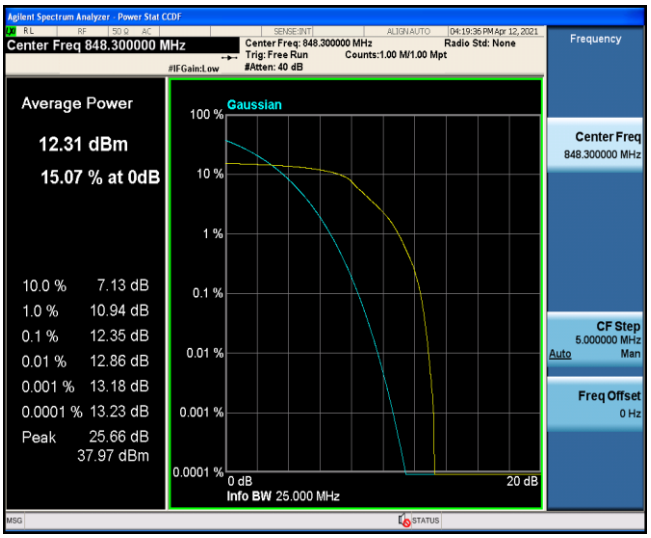

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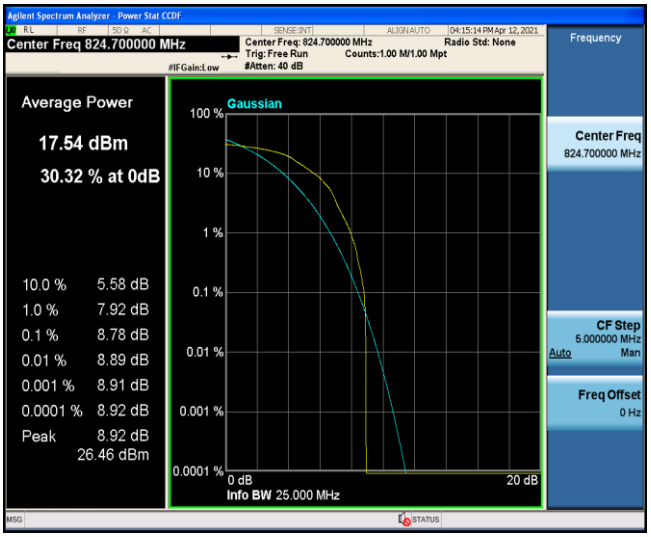

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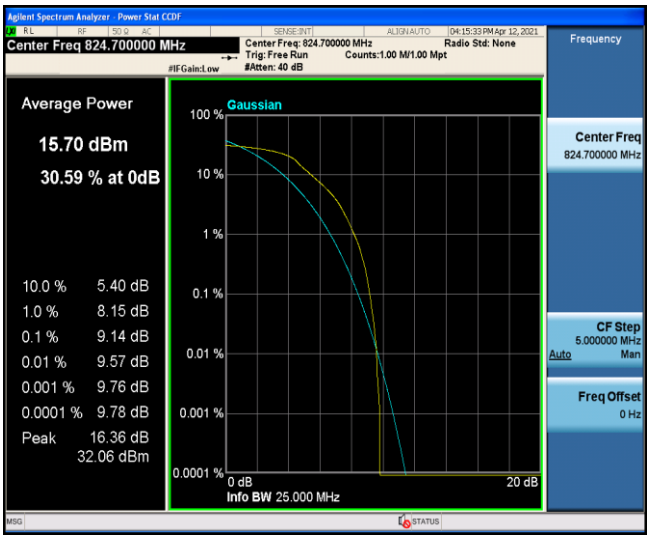

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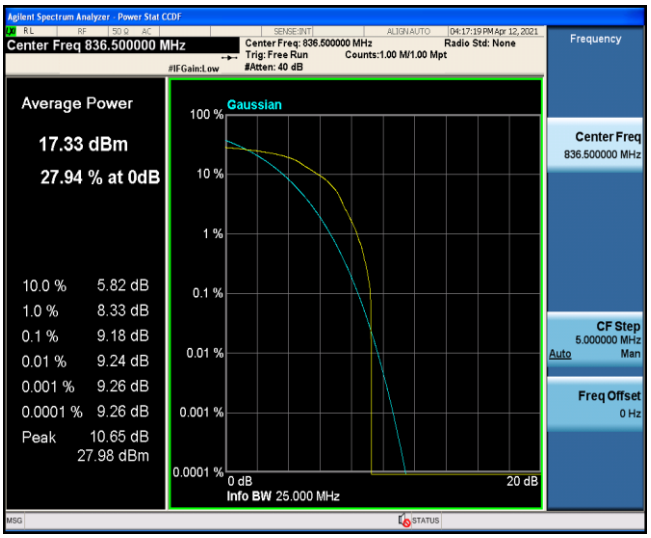

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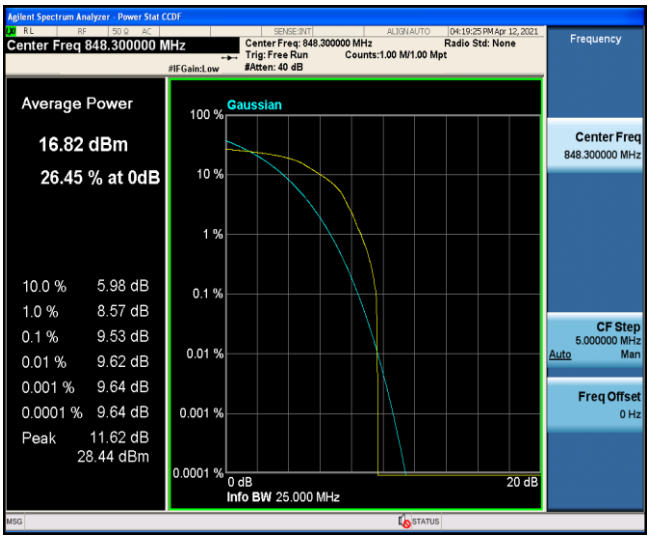

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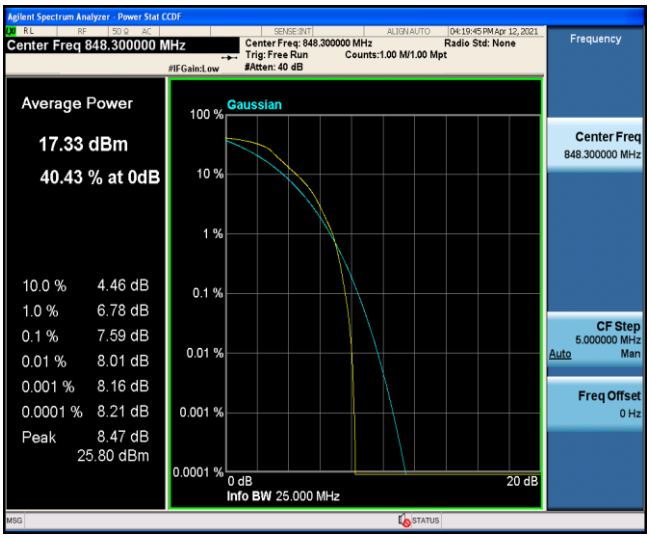

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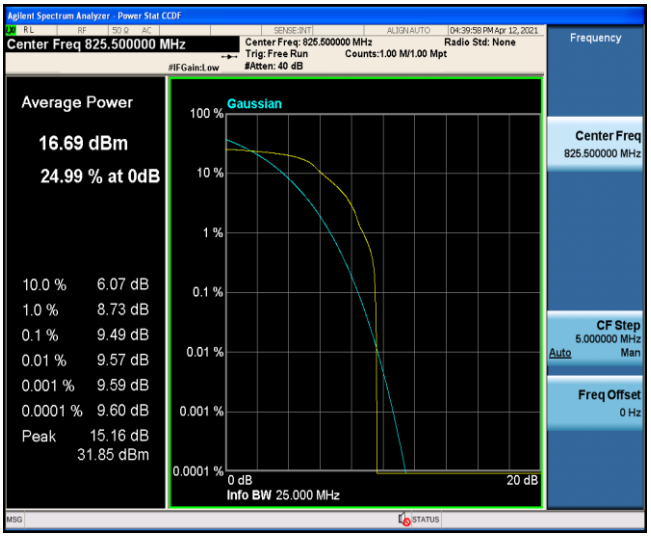

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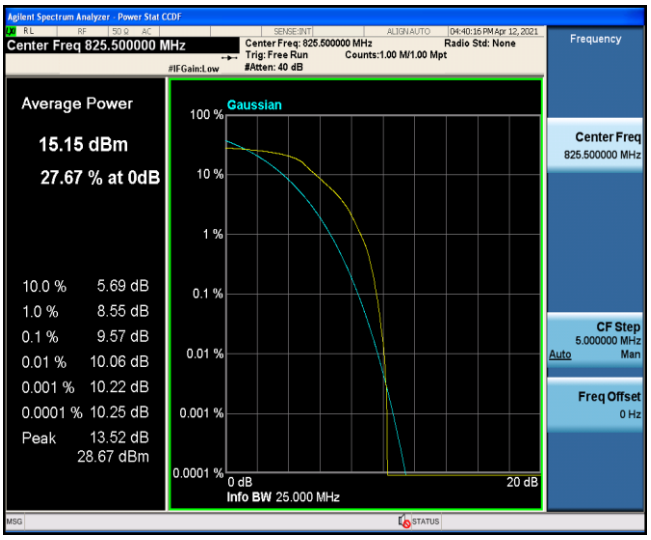

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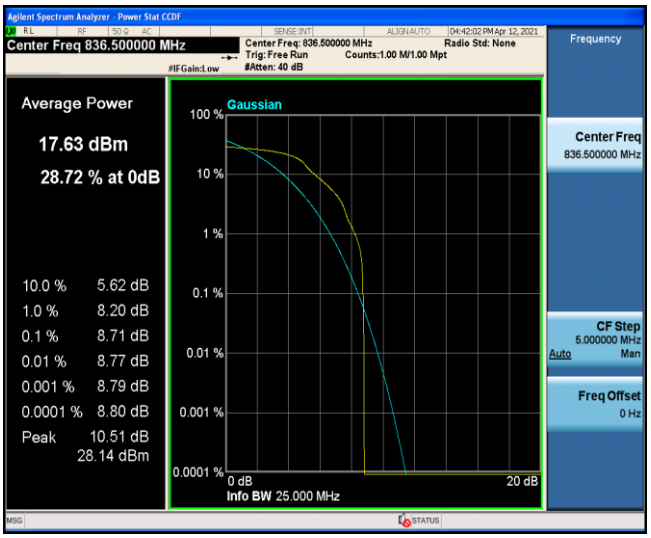

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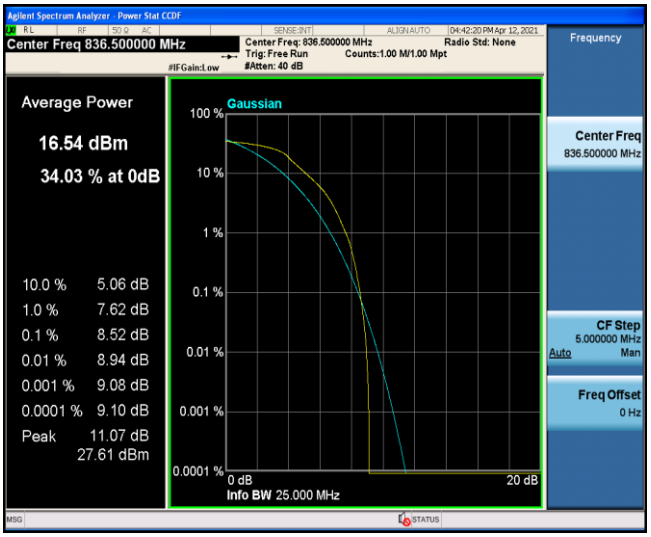

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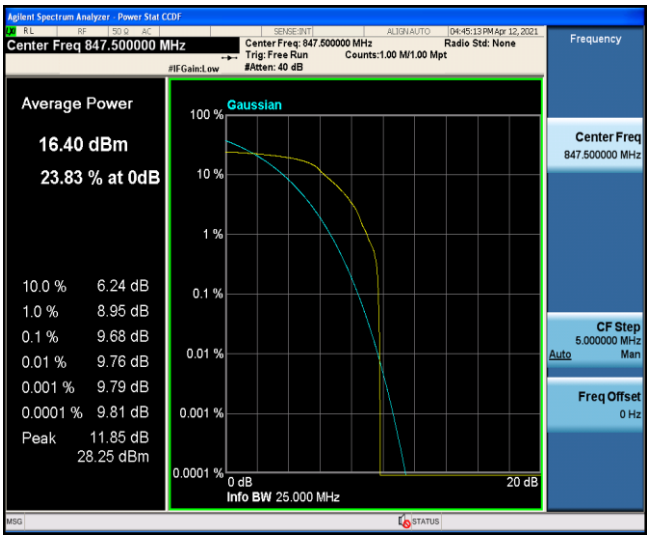

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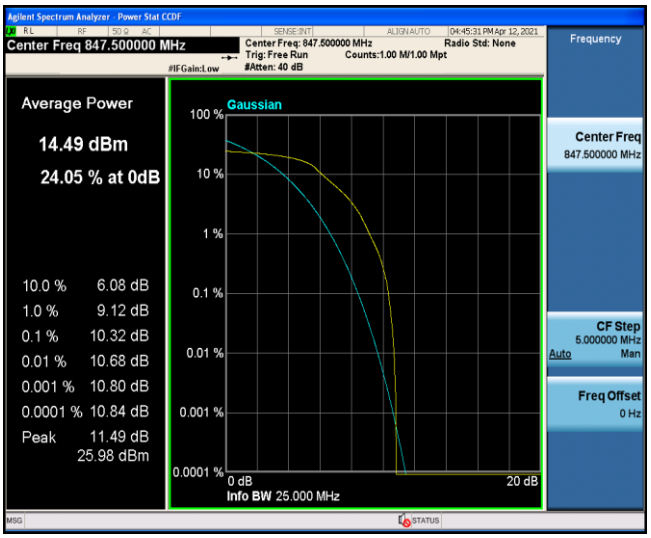

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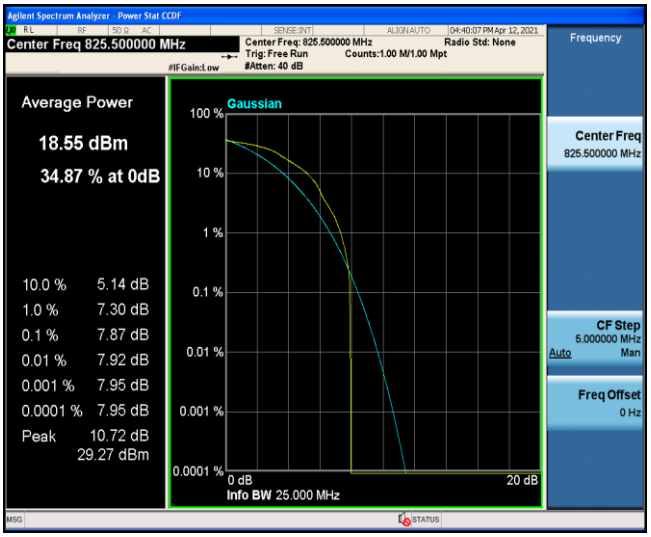

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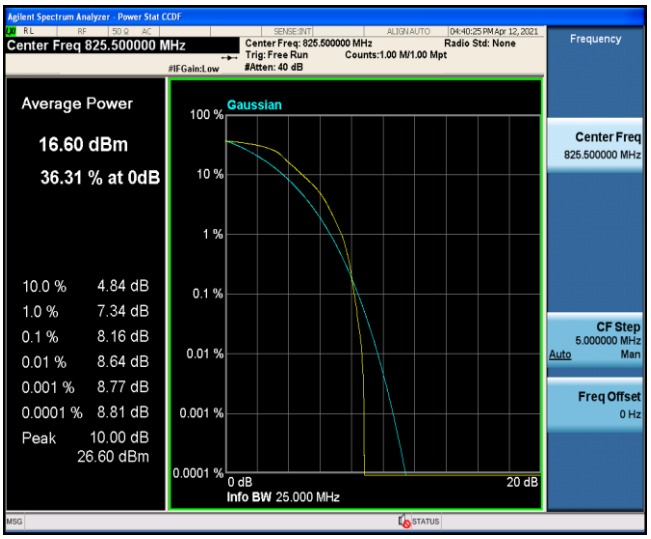

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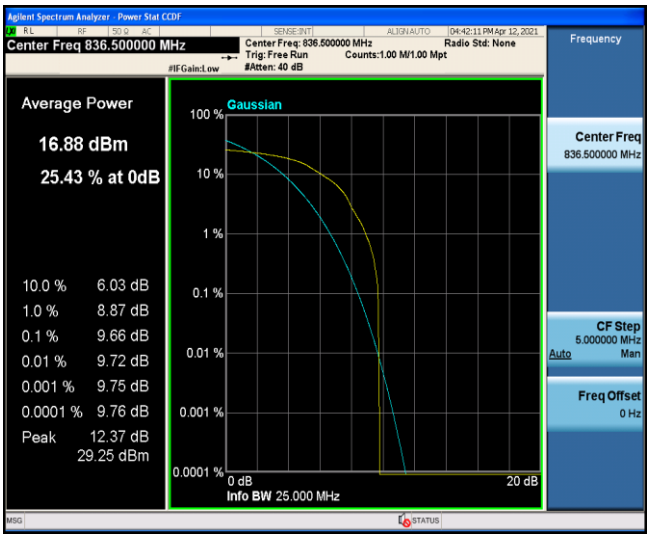

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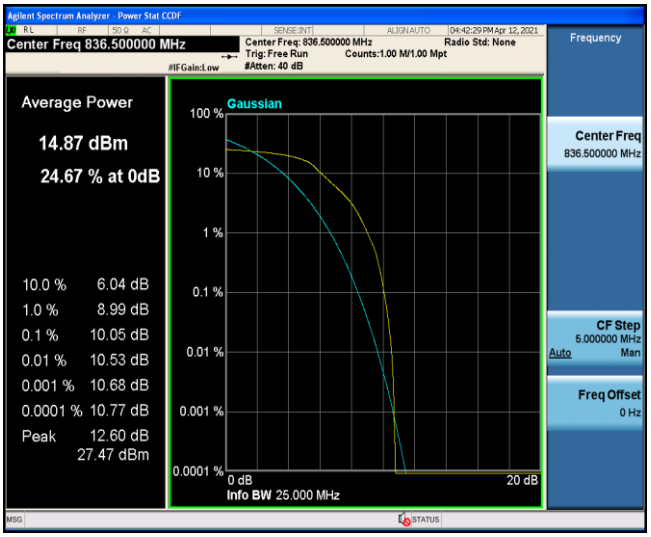

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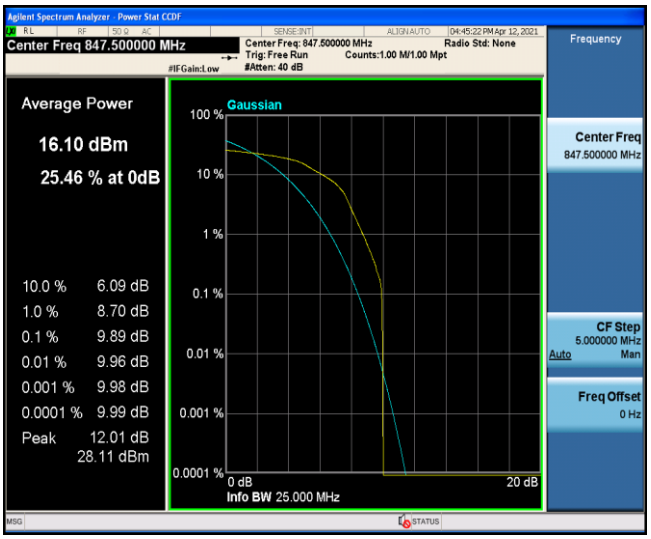

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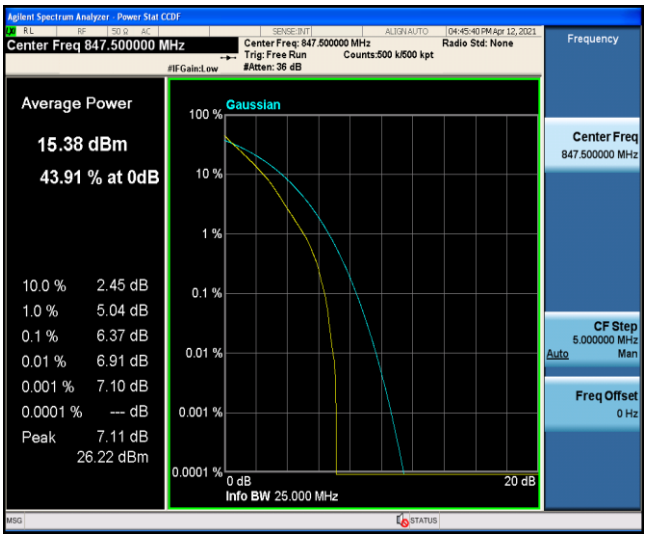

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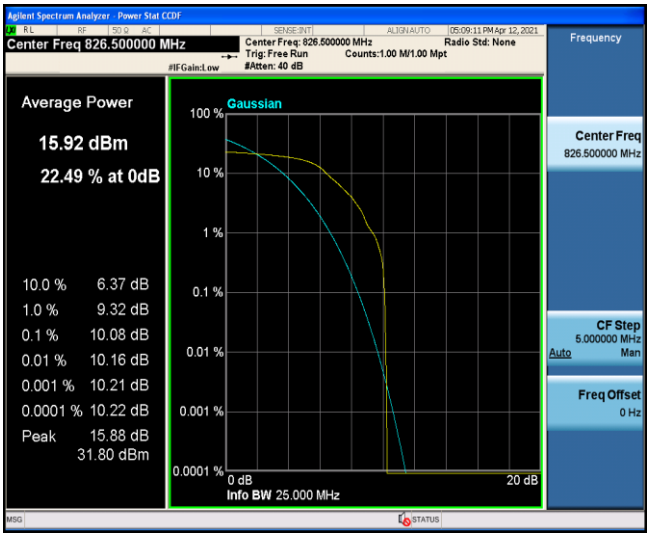

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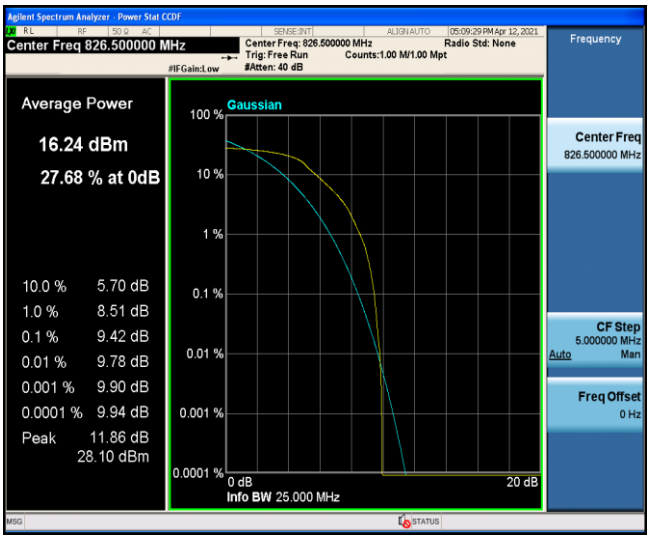

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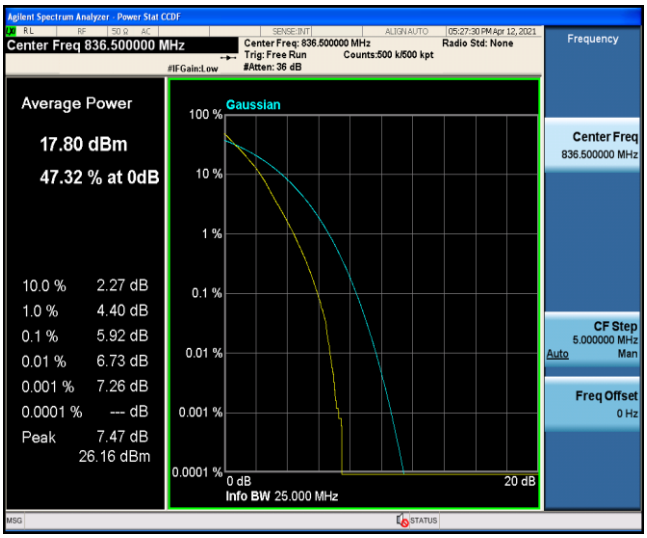

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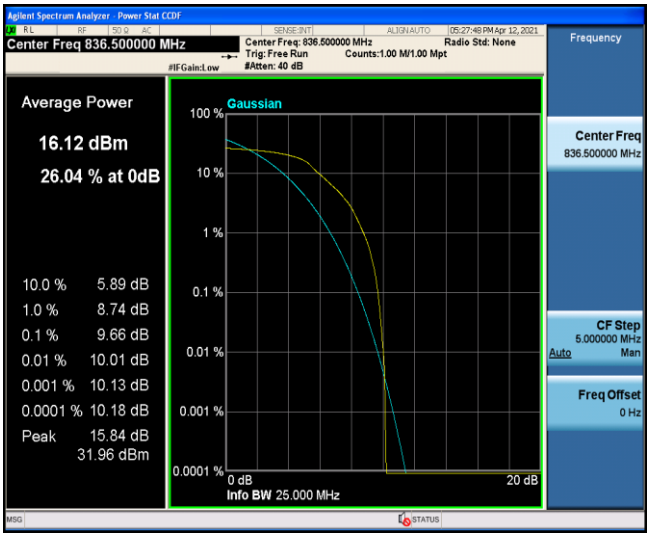
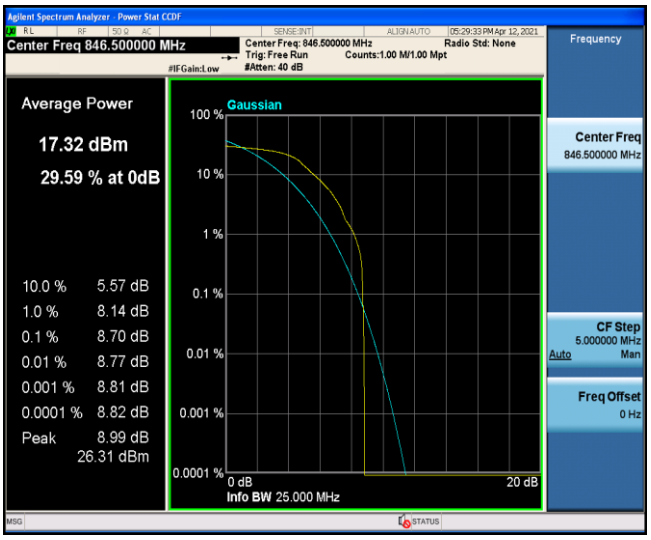
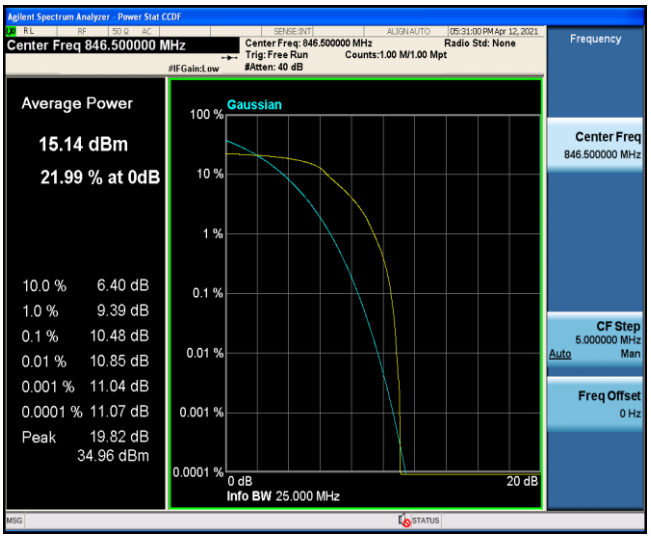


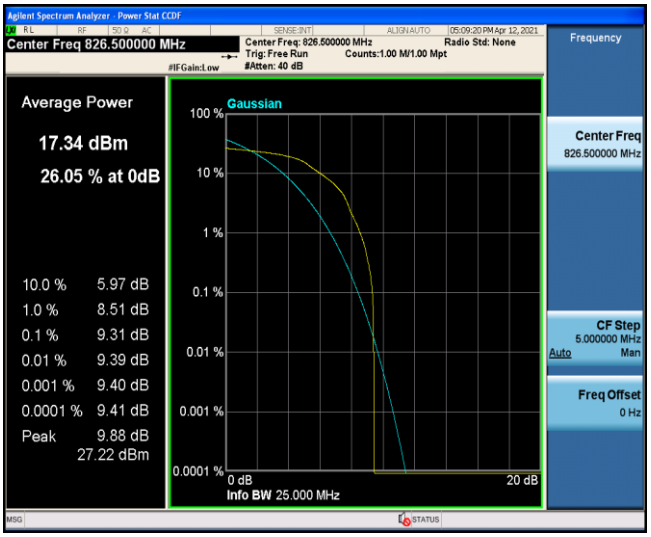
Band5-5MHz-QPSK-20525-25-0



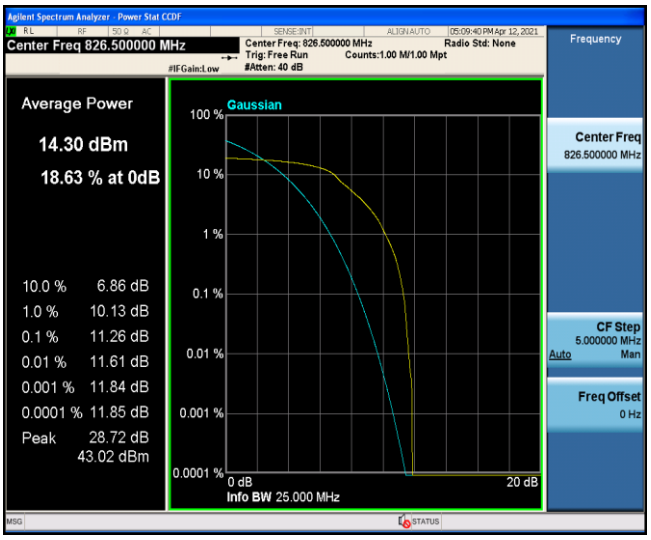
Band5-5MHz-QPSK-20625-1-0



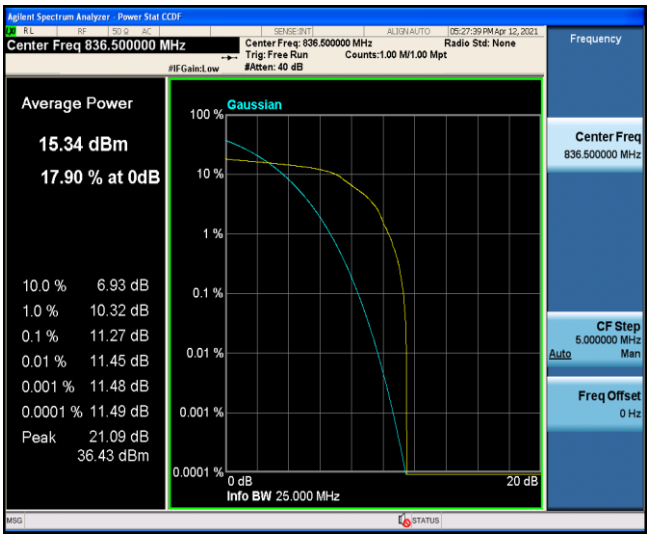
Band5-5MHz-QPSK-20625-25-0



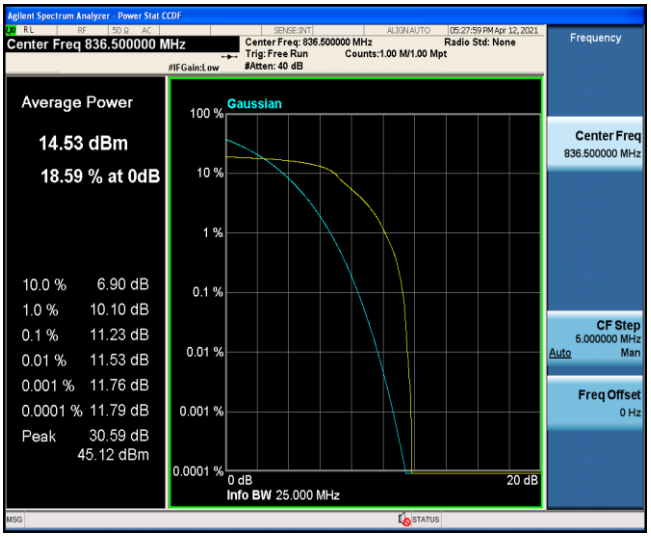
Band5-5MHz-16QAM-20425-1-0



Band5-5MHz-16QAM-20425-25-0



Band5-5MHz-16QAM-20525-1-0



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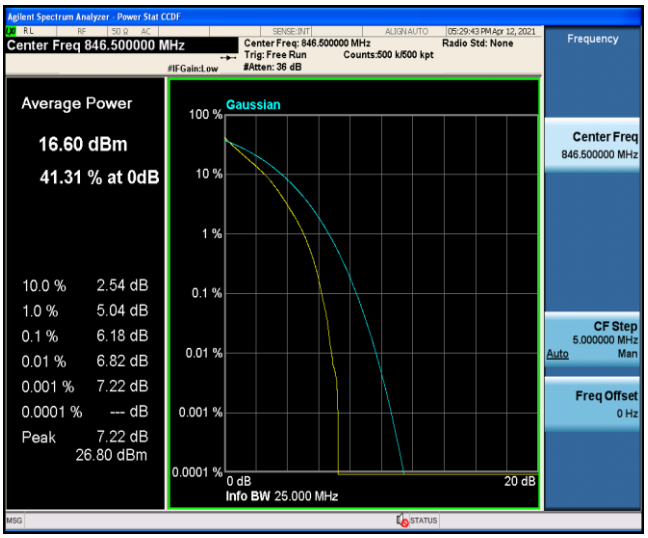

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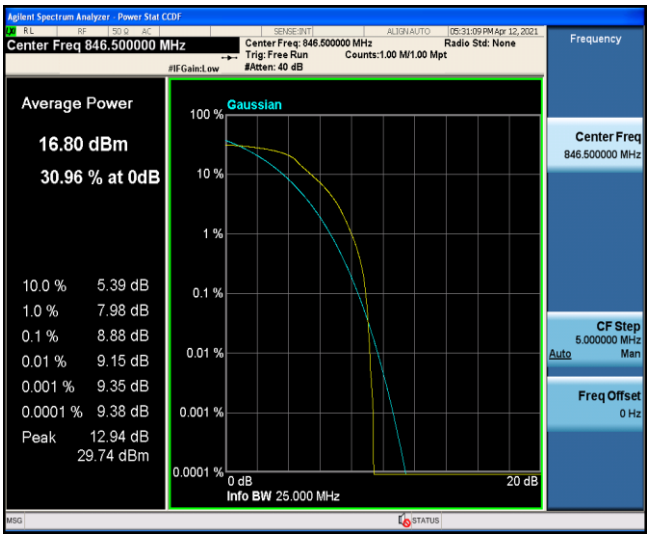

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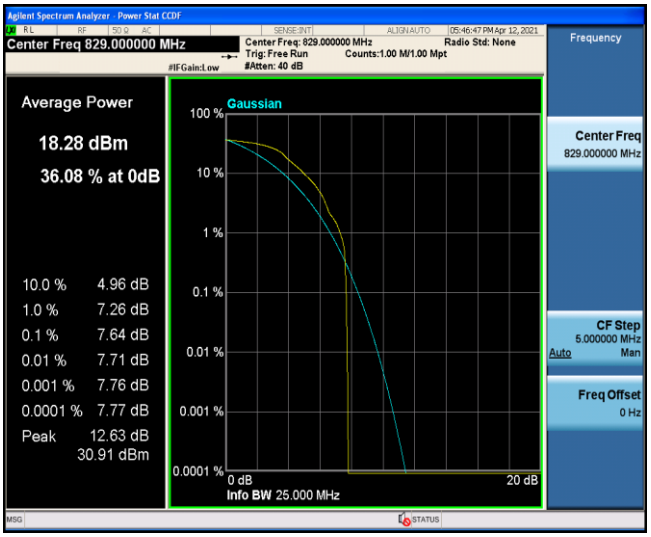
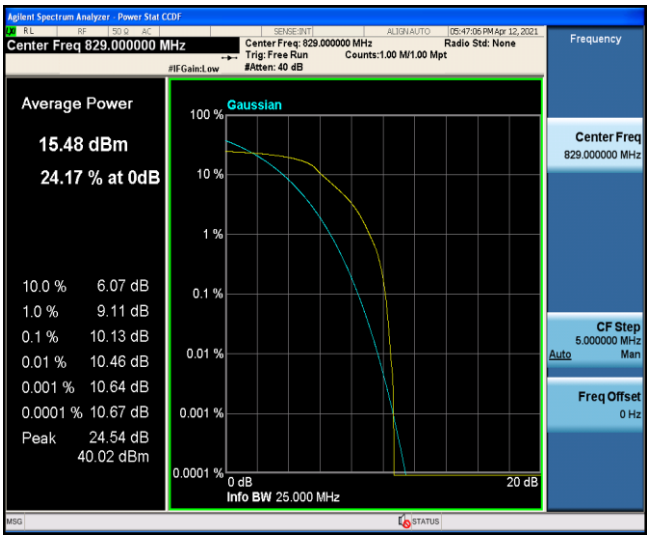
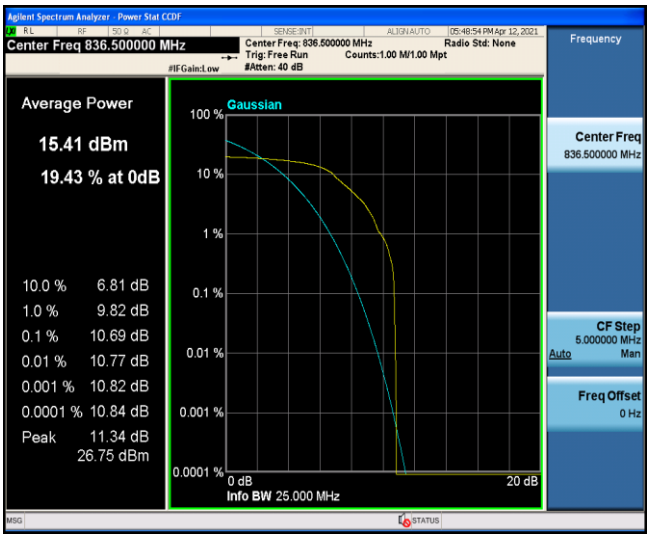


Band5-10MHz-QPSK-20450-1-0



Band5-10MHz-QPSK-20450-50-0



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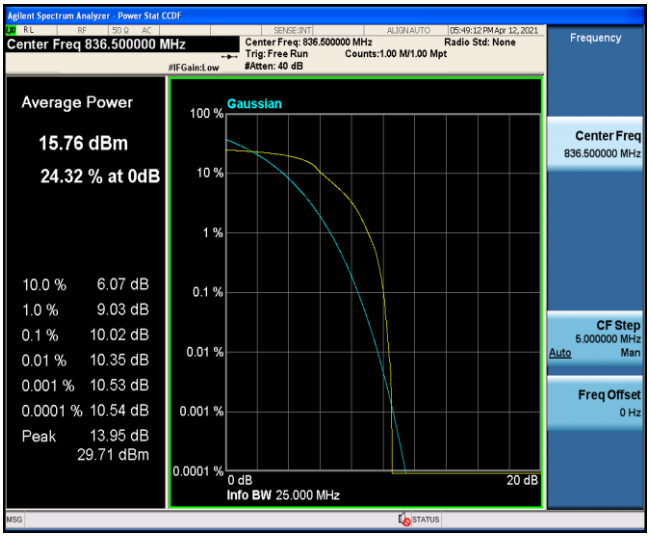

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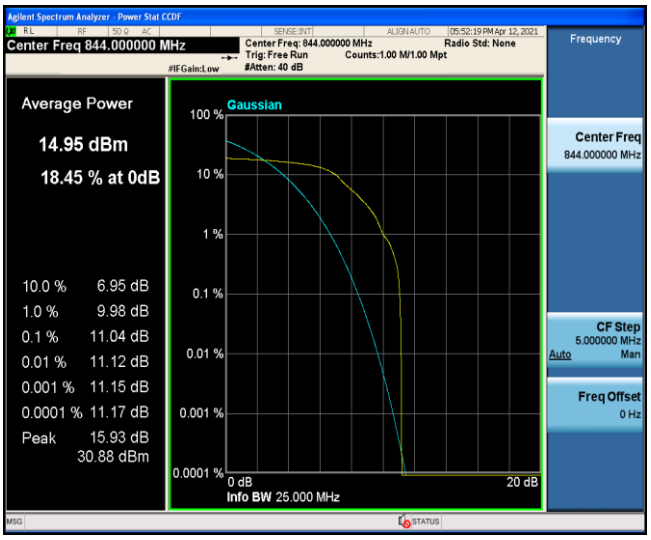

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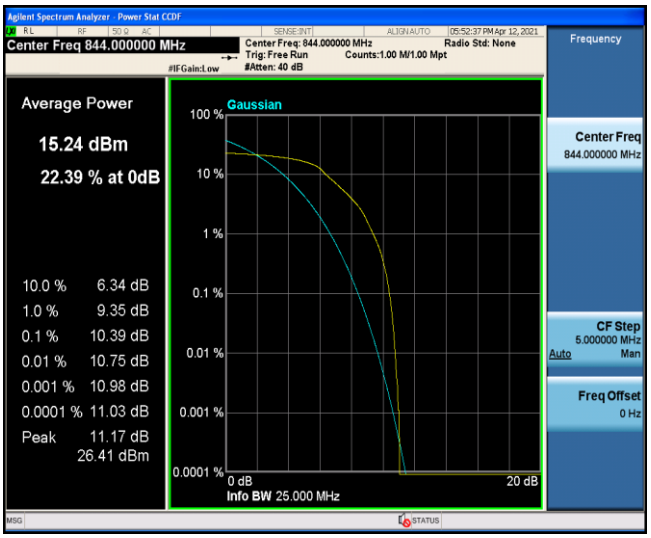

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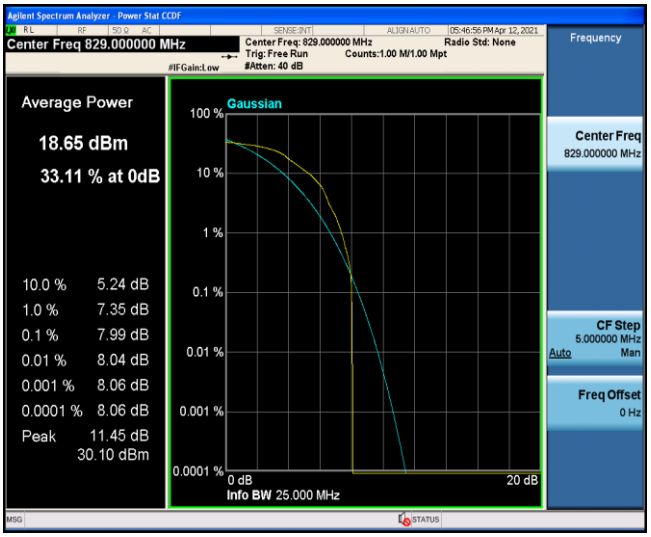

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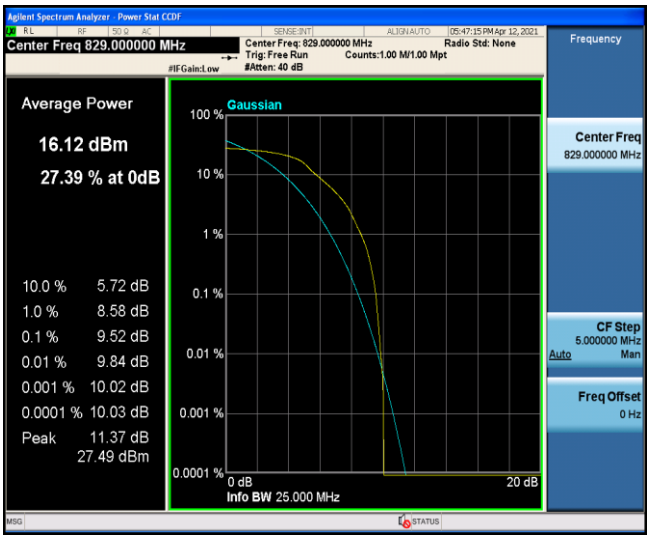

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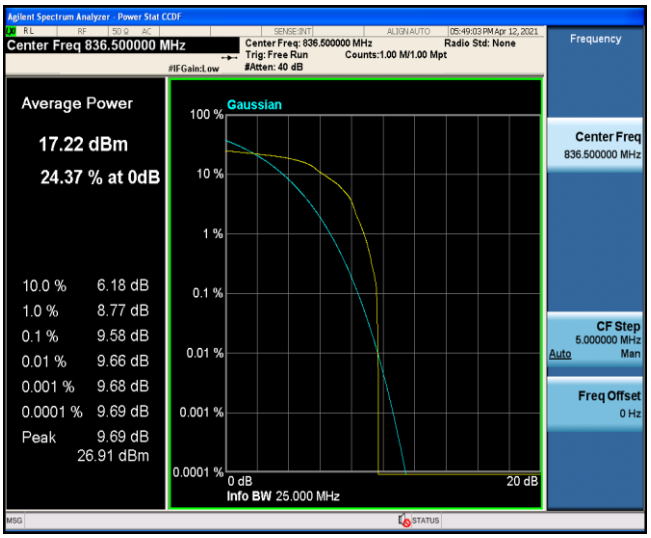

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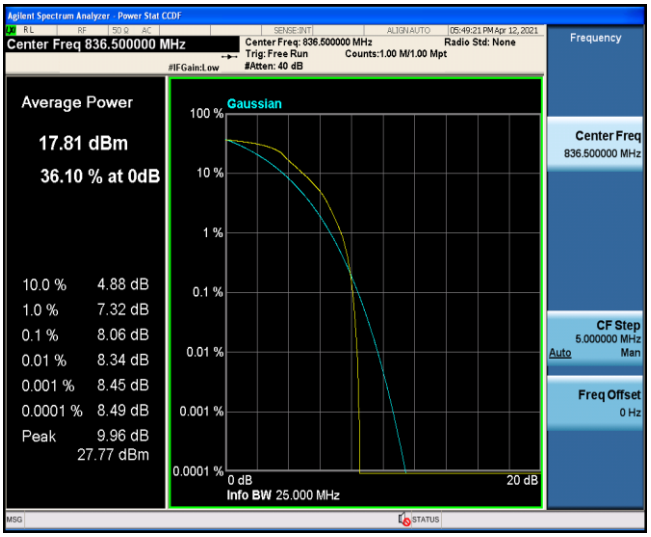
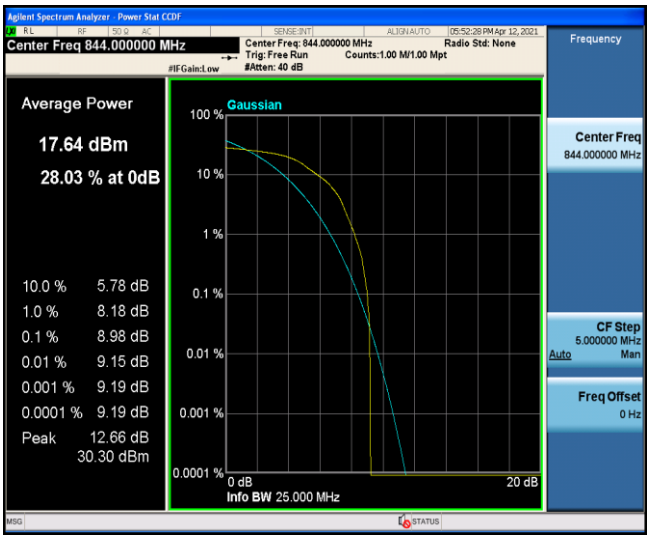
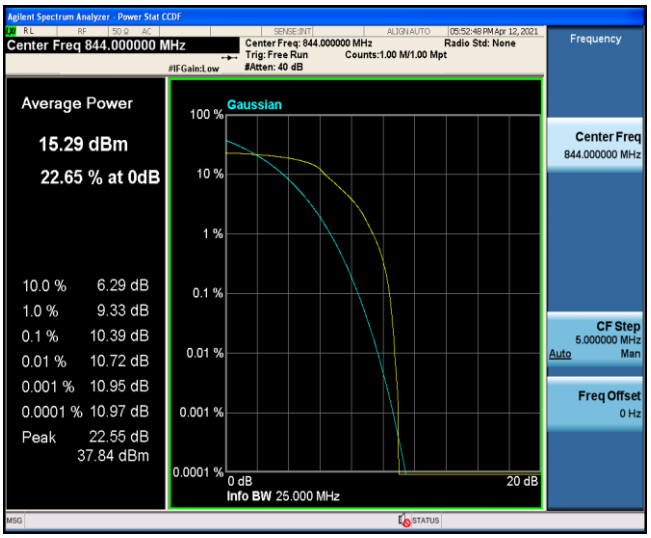


Band5-10MHz-16QAM-20525-50-0



Band5-10MHz-16QAM-20600-1-0



Band5-10MHz-16QAM-20600-50-0

Appendix C: 26dB Bandwidth and Occupied Bandwidth

Test Result

Channel Bandwidth: 1.4 MHz

Channel Bandwidth: 1.4 MHz						
Modulation	Channel	RB Configuration		Occupied Bandwidth (MHz)	26dB Bandwidth (MHz)	Verdict
		Size	Offset			
QPSK	LCH	6	0	1.0730	1.242	PASS
	MCH	6	0	1.0740	1.209	PASS
	HCH	6	0	1.0766	1.236	PASS
16QAM	LCH	6	0	1.0798	1.258	PASS
	MCH	6	0	1.0790	1.223	PASS
	HCH	6	0	1.0767	1.233	PASS

Channel Bandwidth: 3 MHz

Channel Bandwidth: 3 MHz						
Modulation	Channel	RB Configuration		Occupied Bandwidth (MHz)	26dB Bandwidth (MHz)	Verdict
		Size	Offset			
QPSK	LCH	15	0	2.6857	2.825	PASS
	MCH	15	0	2.6778	2.832	PASS
	HCH	15	0	2.6773	2.822	PASS
16QAM	LCH	15	0	2.6759	2.829	PASS
	MCH	15	0	2.6847	2.825	PASS
	HCH	15	0	2.6754	2.830	PASS

Channel Bandwidth: 5 MHz

Channel Bandwidth: 5 MHz						
Modulation	Channel	RB Configuration		Occupied Bandwidth (MHz)	26dB Bandwidth (MHz)	Verdict
		Size	Offset			
QPSK	LCH	25	0	4.4764	4.750	PASS
	MCH	25	0	4.4714	4.736	PASS
	HCH	25	0	4.4795	4.730	PASS
16QAM	LCH	25	0	4.4754	4.744	PASS
	MCH	25	0	4.4771	4.708	PASS
	HCH	25	0	4.4637	4.739	PASS

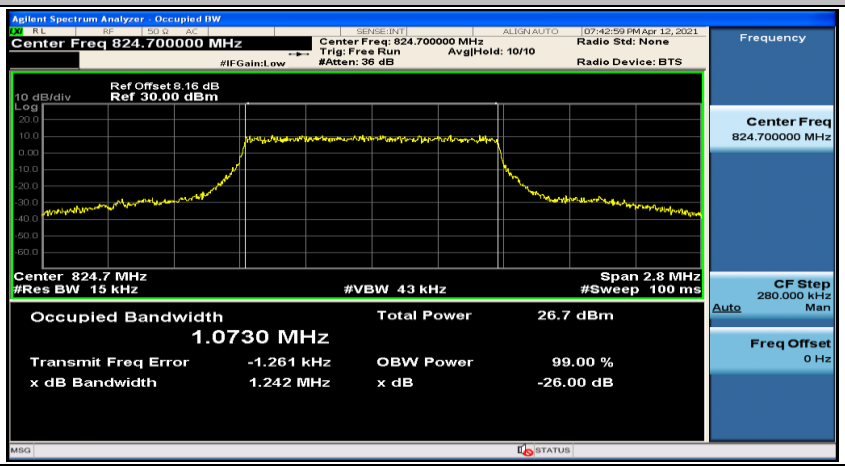
Channel Bandwidth: 10 MHz

Channel Bandwidth: 10 MHz						
Modulation	Channel	RB Configuration		Occupied Bandwidth (MHz)	26dB Bandwidth (MHz)	Verdict
		Size	Offset			
QPSK	LCH	50	0	8.9657	9.392	PASS
	MCH	50	0	8.9351	9.416	PASS
	HCH	50	0	8.9499	9.378	PASS
16QAM	LCH	50	0	8.9306	9.356	PASS
	MCH	50	0	8.9367	9.398	PASS
	HCH	50	0	8.9330	9.348	PASS

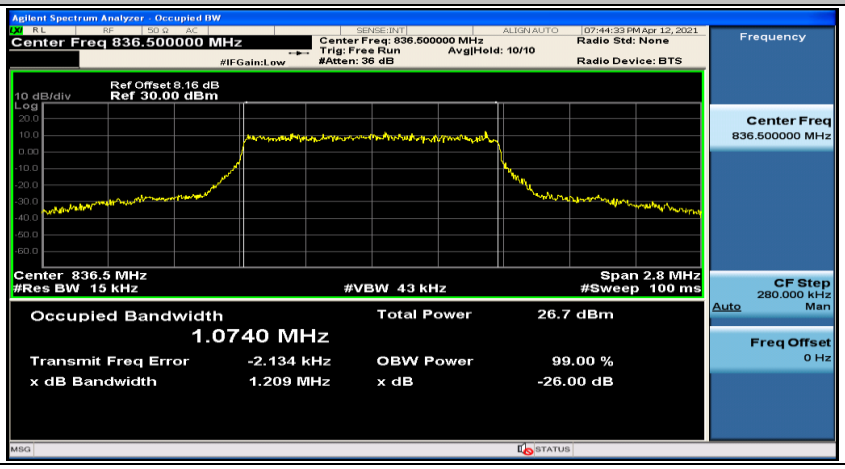
Test Graphs

Channel Bandwidth: 1.4 MHz

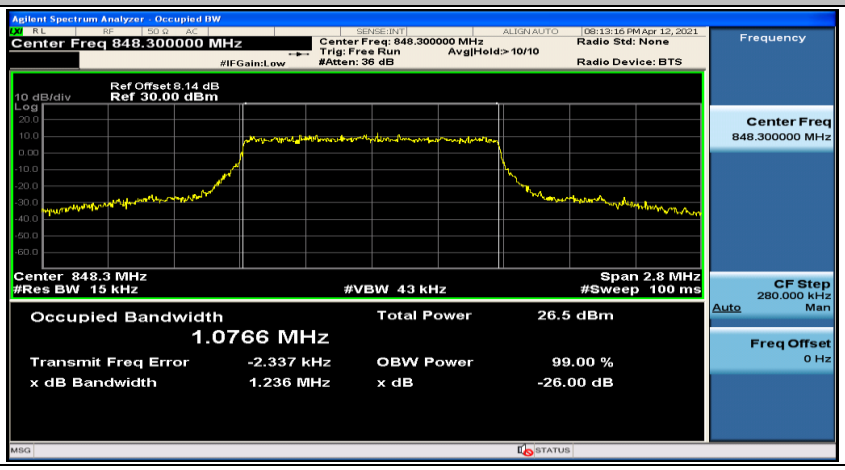
(Channel Bandwidth: 1.4 MHz)_LCH_QPSK_6RB#0



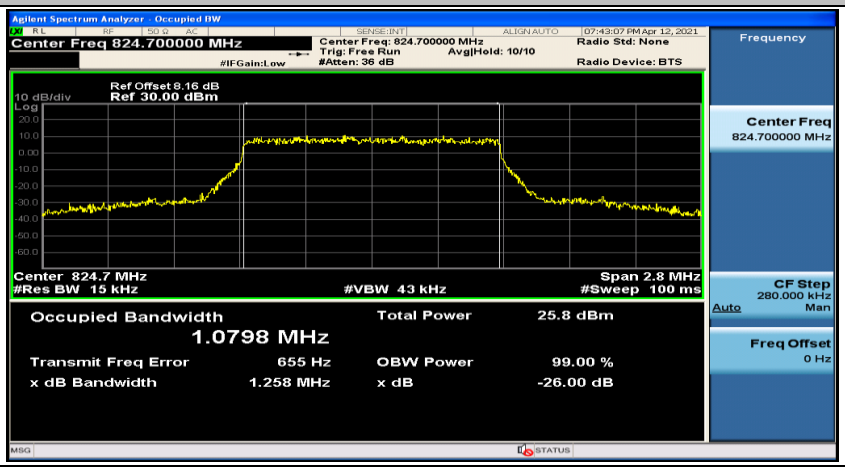
(Channel Bandwidth: 1.4 MHz)_MCH_QPSK_6RB#0



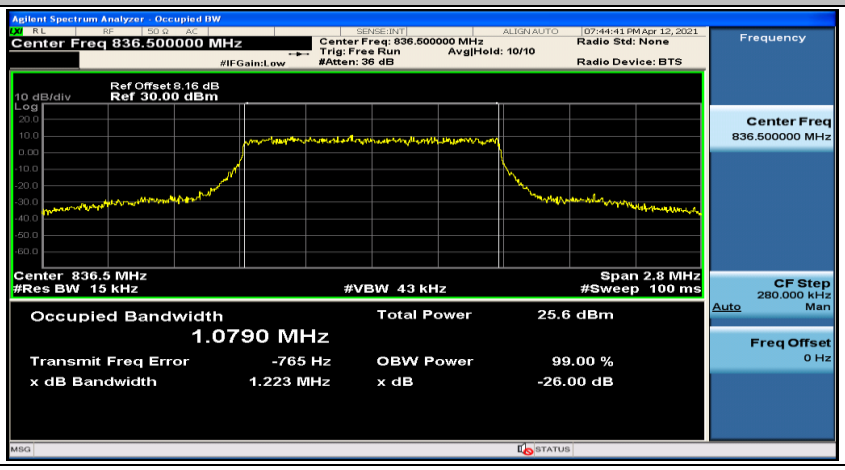
(Channel Bandwidth: 1.4 MHz)_HCH_QPSK_6RB#0



(Channel Bandwidth: 1.4 MHz)_LCH_16QAM_6RB#0



(Channel Bandwidth: 1.4 MHz)_MCH_16QAM_6RB#0



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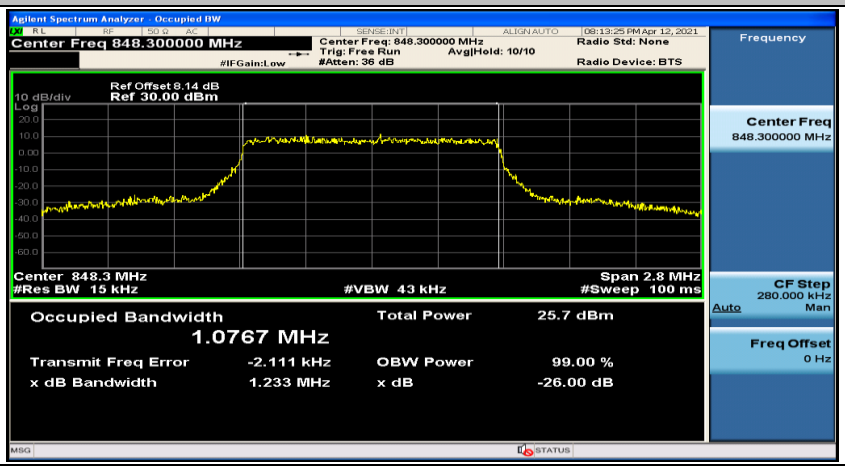
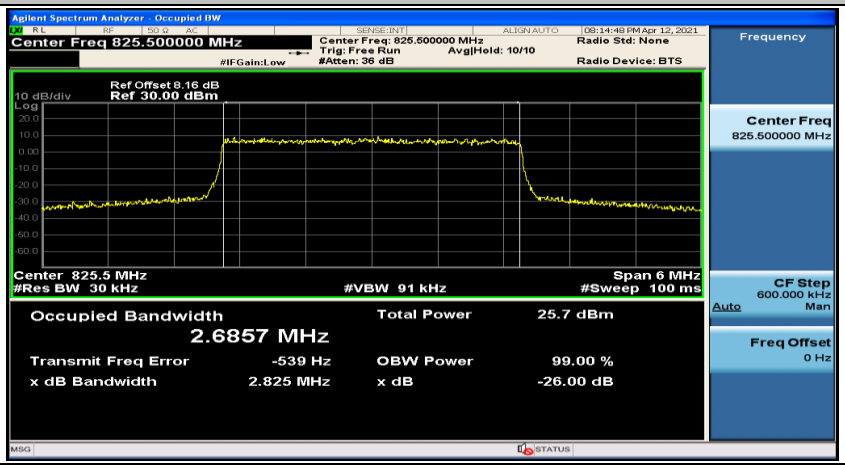
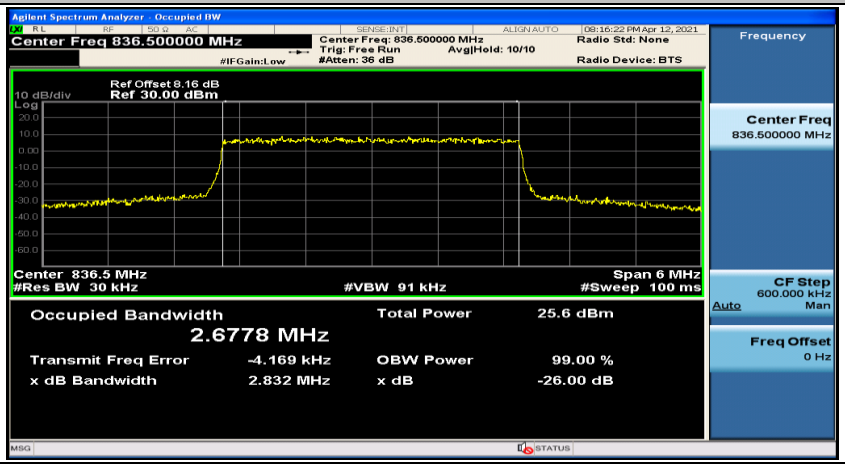


Channel Bandwidth: 3 MHz

(Channel Bandwidth: 3 MHz)_LCH_QPSK_15RB#0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