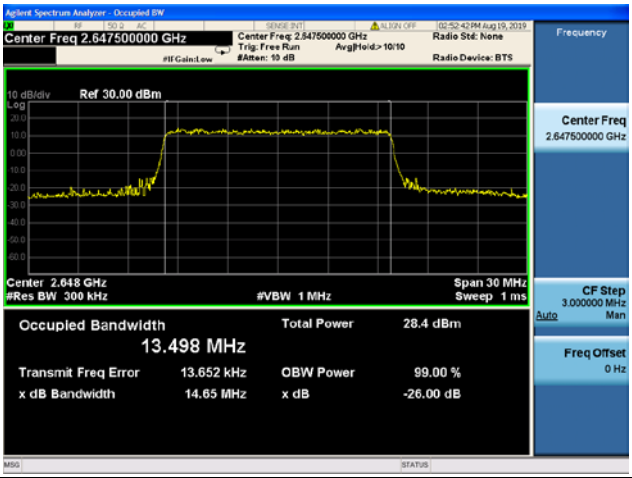
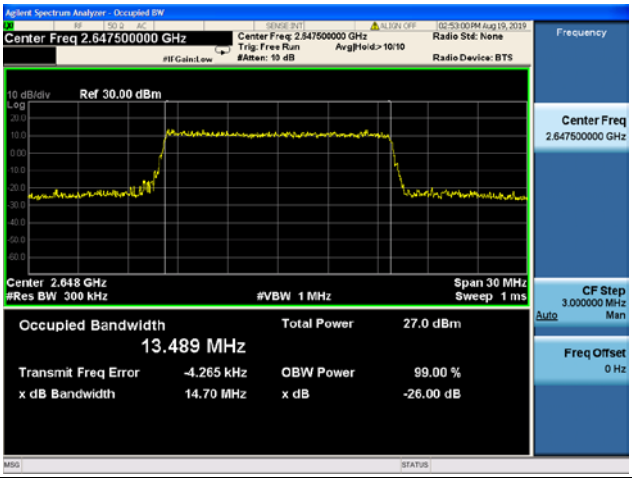
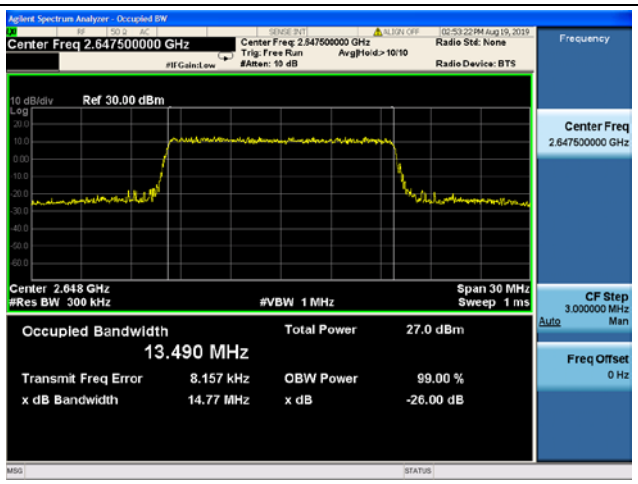
15MHz/ QPSK /High CH



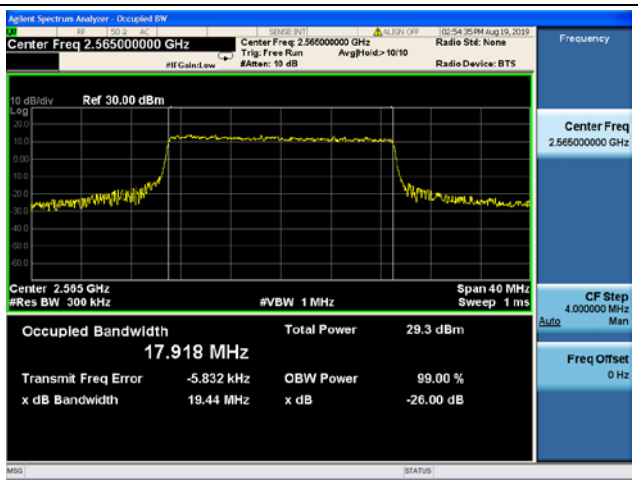
15MHz/ 16QAM /High CH



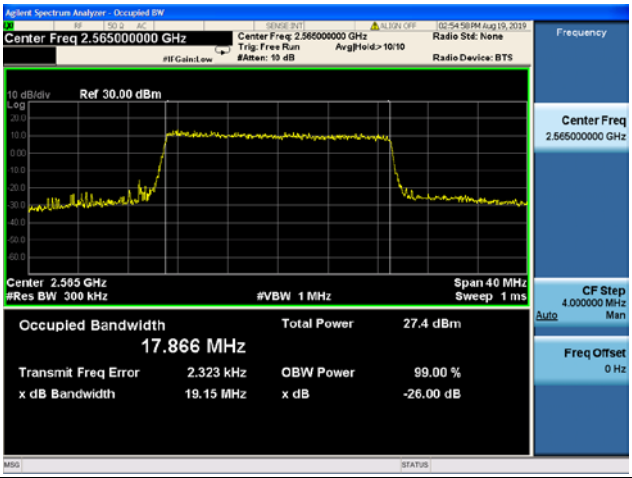
15MHz/ 64QAM /High CH



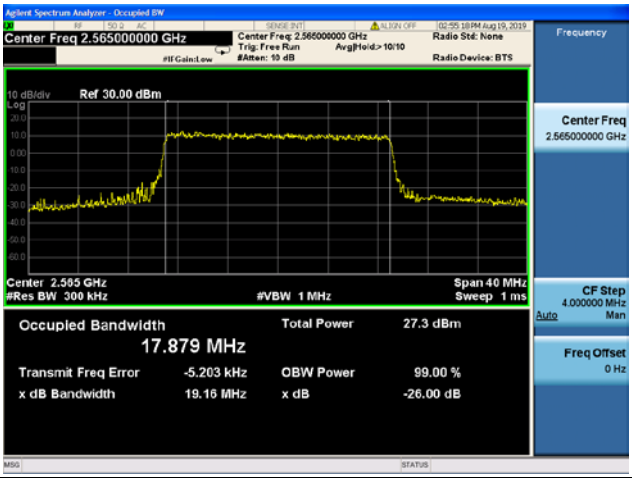
20MHz/ QPSK /Low CH



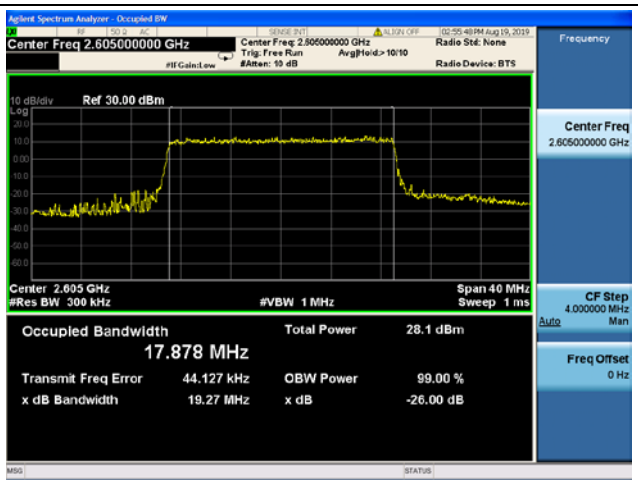
20MHz/ 16QAM /Low CH



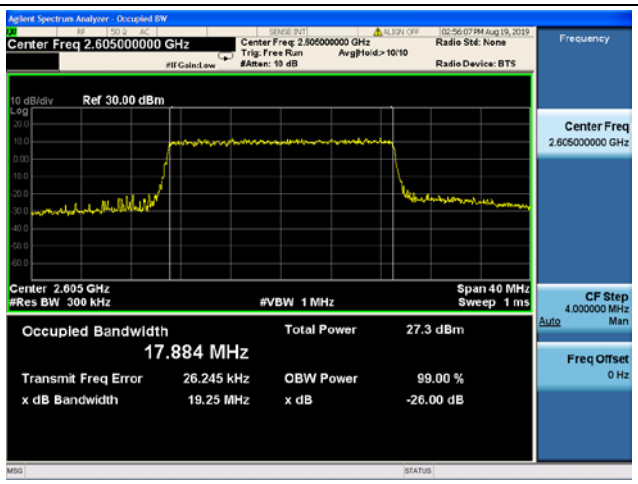
20MHz/ 64QAM /Low CH



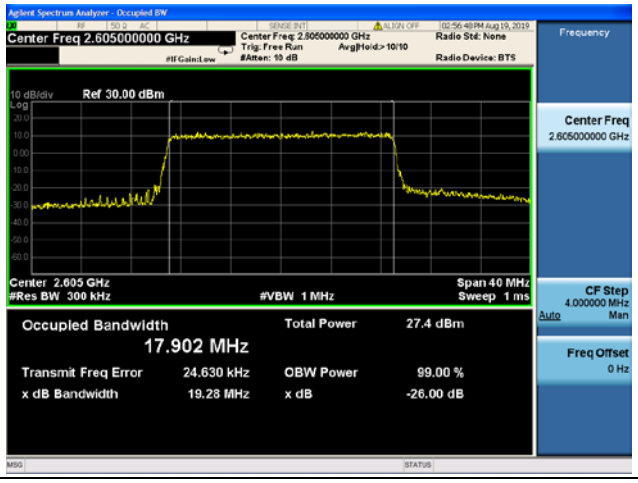
20MHz/ QPSK /Mid CH



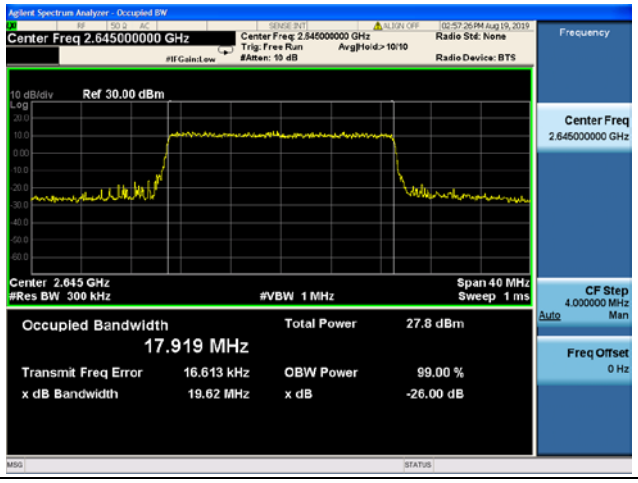
20MHz/ 16QAM /Mid CH



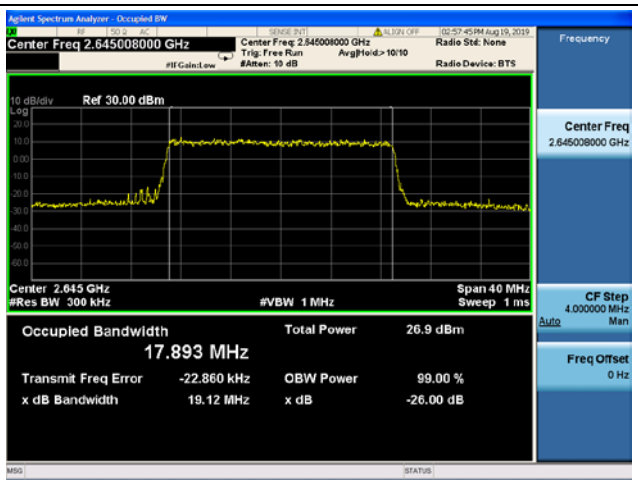
20MHz/ 64QAM /Mid CH



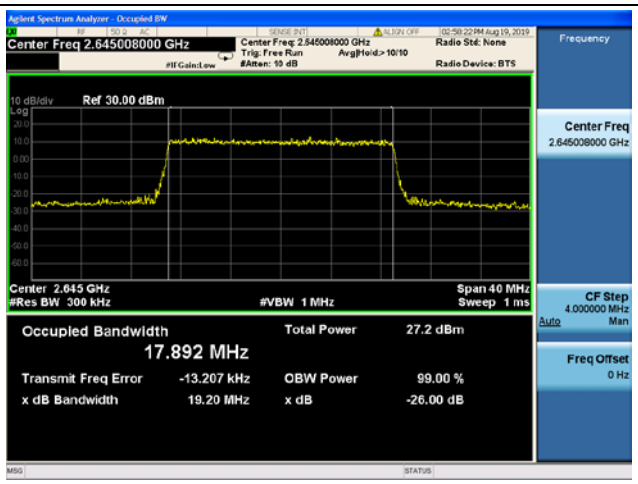
20MHz/ QPSK /High CH



20MHz/ 16QAM /High CH



20MHz/ 64QAM /High CH



2.3. Frequency Stability

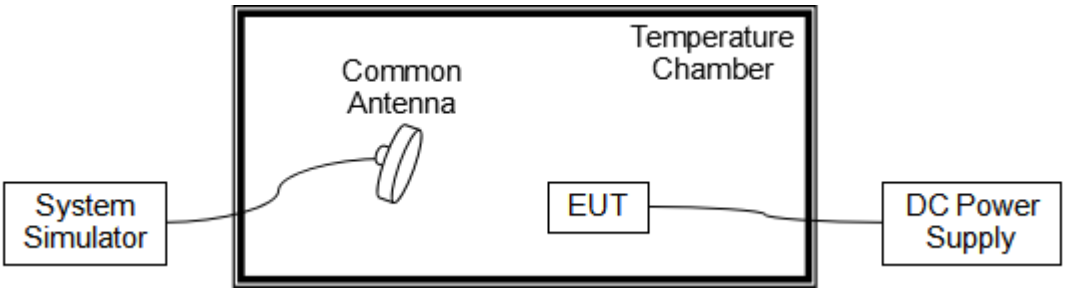
2.3.1. Requirement

According to FCC section 2.1055 & 27.54&24.235, the frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block. According to FCC section 2.1055, the test conditions are:

(a) The temperature is varied from 0°C to +45°C at intervals of not more than 10°C.

(b) For hand carried battery powered equipment, the primary supply voltage is reduced to the battery operating end point which shall be specified by the manufacture. The supply voltage shall be measured at the input to the cable normally provided with the equipment, or at the power supply terminals if cables are not normally provided.

2.3.2. Test Description



The EUT which is powered by the DC Power Supply directly, is located in the Temperature Chamber. The EUT is commanded by the System Simulator (SS) to operate at the maximum output power. A call is established between the EUT and the SS via a Common Antenna.

2.3.3. Test procedure

KDB 971168 D01v03 Section 9.0 and ANSI/TIA-603-E-2016.

2.3.4. Test Result

The nominal, highest and lowest extreme voltages are separately 3.8VDC, 4.35VDC and 3.5VDC, which are specified by the applicant; the normal temperature here used is 20°C.

LTE Band 5, QPSK, Channel 20525, Frequency 836.5MHz Limit=±2.5ppm					
Voltage (%)	**Power (VDC)**	**Temp (°C)**	**Fre. Dev. (Hz)**	**Deviation (ppm)**	**Result**
100	3.85	+20(Ref)	35	0.042	PASS
100		0	-32	-0.038	
100		+10	-53	-0.064	
100		+20	-42	-0.050	
100		+30	-37	-0.044	
100		+40	-52	-0.062	
100		+45	84	0.100	
115	4.3	+20	44	0.052	
85	3.4	+20	79	0.094	

LTE Band 7, QPSK, Channel 21100, Frequency 2535MHz Limit=±1ppm					
Voltage (%)	**Power (VDC)**	**Temp (°C)**	**Fre. Dev. (Hz)**	**Deviation (ppm)**	**Result**
100	3.85	+20(Ref)	-45	-0.054	PASS
100		0	16	0.019	
100		+10	35	0.042	
100		+20	-32	-0.038	
100		+30	-53	-0.064	
100		+40	-42	-0.050	
100		+45	-37	-0.044	
115	4.3	+20	-52	-0.062	
85	3.4	+20	84	0.100	

LTE Band 38, QPSK, Channel 28000, Frequency 2595MHz Limit=±1ppm					
Voltage (%)	**Power**	**Temp (°C)**	**Fre. Dev.**	**Deviation**	**Result**

	(VDC)		(Hz)	(ppm)	
100	3.85	+20(Ref)	-45	-0.054	PASS
100		0	16	0.019	
100		+10	35	0.042	
100		+20	-32	-0.038	
100		+30	-53	-0.064	
100		+40	-42	-0.050	
100		+45	-37	-0.044	
115	4.3	+20	-52	-0.062	
85	3.4	+20	84	0.100	

LTE Band 40, QPSK, Channel 39150, Frequency 2350MHz Limit =±1ppm					
Voltage(%)	**Power(VDC)**	**Temp(°C)**	**Fre. Dev.(Hz)**	**Deviation (ppm)**	**Result**
100	3.85	+20(Ref)	35	0.016	PASS
100		0	63	0.028	
100		+10	52	0.023	
100		+20	-54	-0.023	
100		+30	-63	-0.027	
100		+40	-44	-0.018	
100		+45	38	0.017	
115	4.3	+20	83	0.036	
85	3.4	+20	52	0.023	

LTE Band 41, QPSK, Channel 40740, Frequency 2605MHz Limit =±1ppm					
Voltage(%)	**Power(VDC)**	**Temp(°C)**	**Fre. Dev.(Hz)**	**Deviation (ppm)**	**Result**
100	3.85	+20(Ref)	26	0.012	PASS
100		0	37	0.016	
100		+10	48	0.021	
100		+20	-63	-0.026	
100		+30	-71	-0.030	
100		+40	-52	-0.022	
100		+45	54	0.024	

115	4.3	+20	79	0.034	
85	5.2	+20	37	0.016	

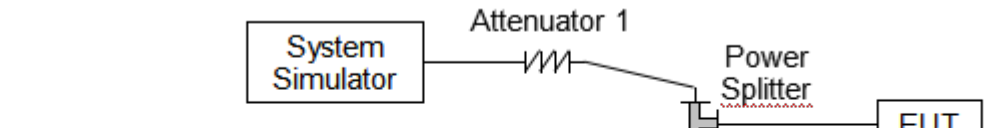
2.4. Peak to Average Radio

2.4.1. Requirement

According to FCC section 24.232(d), the peak to average ratio (PAR) of the transmission may not exceed 13dB.

2.4.2. Test Description

A. Test Set:



The EUTis coupled to the Spectrum Analyzer (SA) and the System Simulator (SS) with Attenuators through the Power Splitter; the RF load attached to the EUT antenna terminal is 50Ohm; the path loss as the factor is calibrated to correct the reading. The EUT is commanded by the SS to operate at the maximum output power. A call is established between the EUT and the SS.

2.4.3. Test procedure

KDB 971168 D01v03 Section 5.7 and ANSI/TIA-603-E-2016.

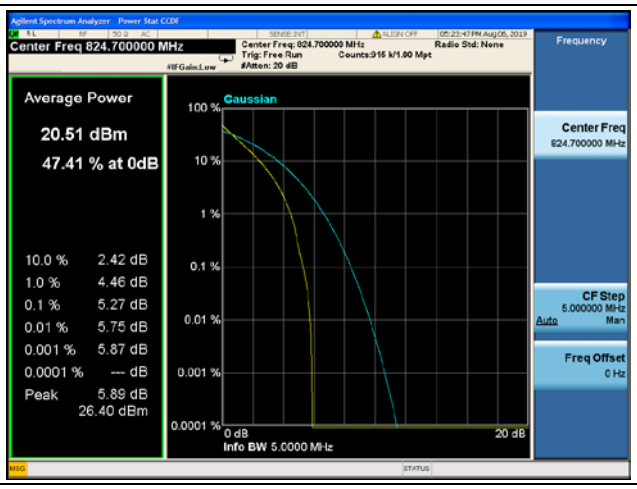
2.4.4. Test Result

Record the maximum PAPR level associated with a probability of 0.1%.

LTE Band 5,BW: 1.4MHz				
Channel	Frequency (MHz)	Peak to Average Radio(dB)		
		QPSK	16QAM	64QAM
20407	824.7	5.27	5.94	5.94
20525	836.5	4.65	5.30	5.30
20643	848.3	5.21	5.89	5.89
LTE Band 5,BW: 3MHz				
Channel	Frequency (MHz)	Peak to Average Radio(dB)		
		QPSK	16QAM	64QAM
20415	825.5	5.18	5.98	5.98
20525	836.5	4.58	5.43	5.43
20635	847.5	5.16	5.98	5.98
LTE Band 5,BW: 5MHz				
Channel	Frequency (MHz)	Peak to Average Radio(dB)		
		QPSK	16QAM	64QAM
20425	826.5	5.28	5.96	5.96
20525	836.5	4.82	5.50	5.50
20625	846.5	5.21	5.97	5.97
LTE Band 5,BW: 10MHz				
Channel	Frequency (MHz)	Peak to Average Radio(dB)		
		QPSK	16QAM	64QAM
20450	829.0	5.01	5.93	5.93
20525	836.5	4.91	5.60	5.60
20600	844.0	5.12	5.89	5.89

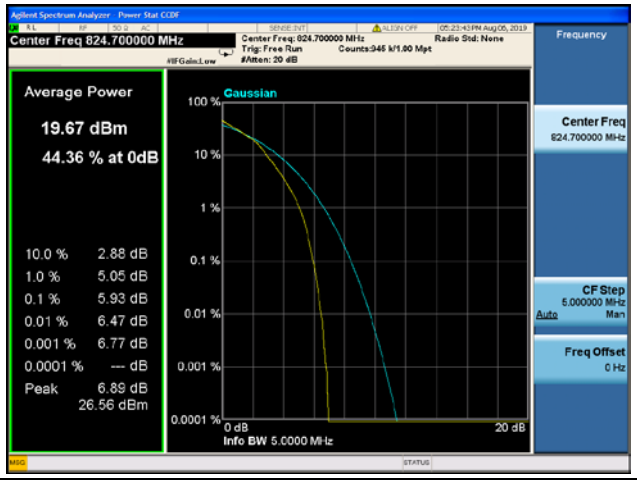
LTE Band 5 Peak to Average Radio

1.4MHz/QPSK/Low CH

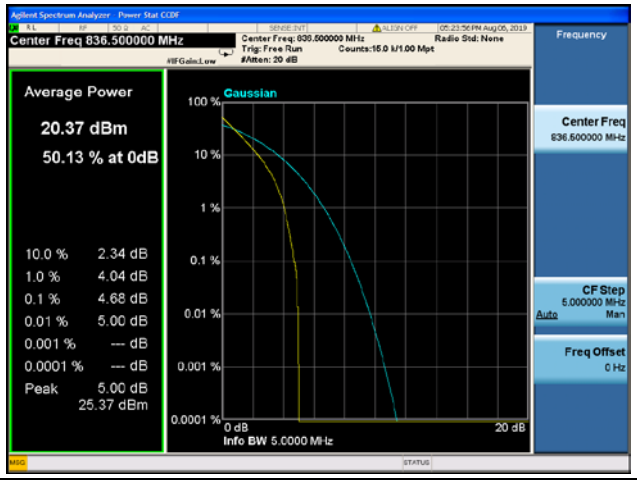


1.4MHz/16QAM/Low CH

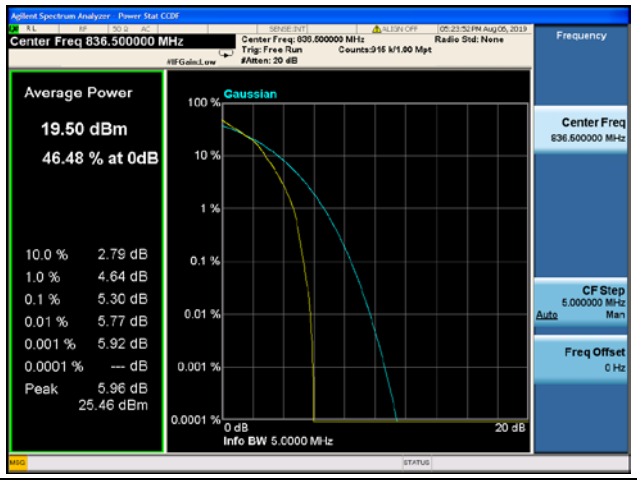
1.4MHz/64QAM/Low CH



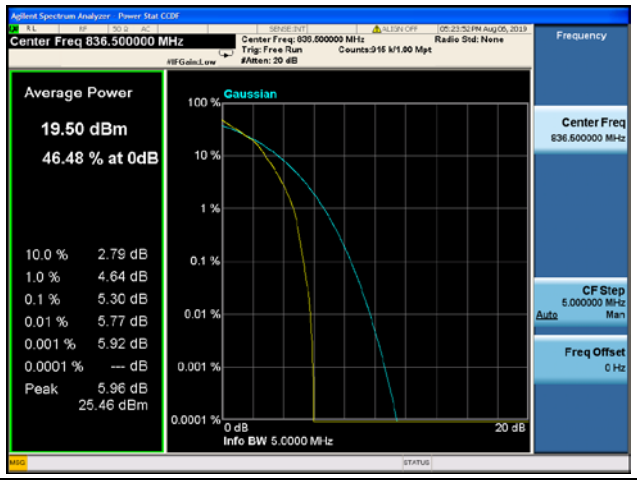
1.4MHz/QPSK/Mid CH



1.4MHz/16QAM/Mid CH

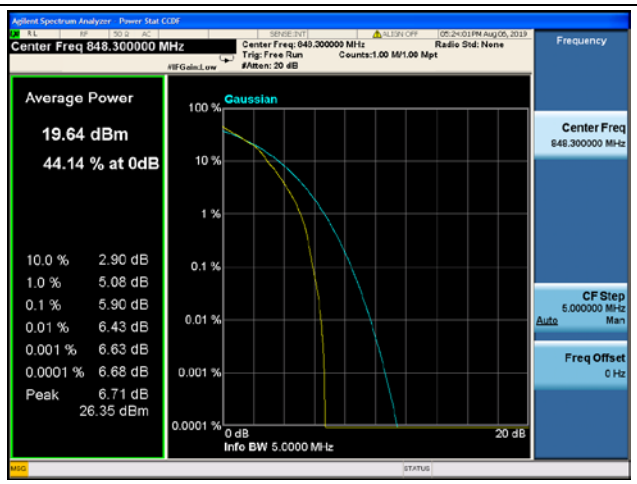


1.4MHz/64QAM/Mid CH

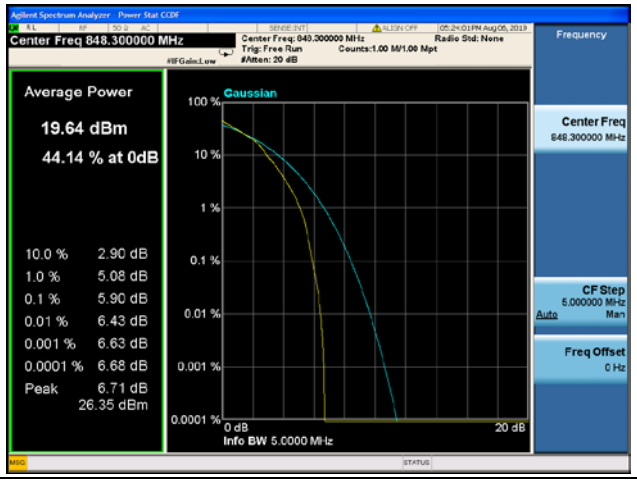


1.4MHz/QPSK/High CH

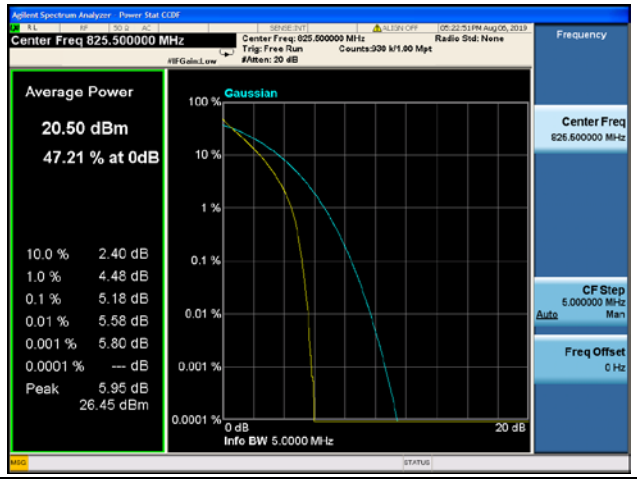
1.4MHz/16QAM/High CH



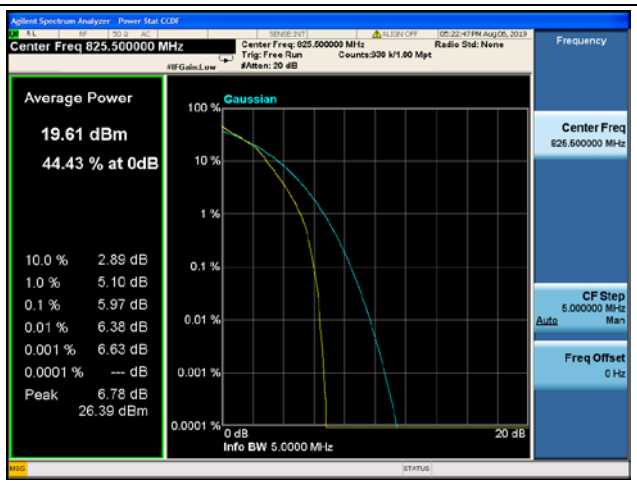
1.4MHz/64QAM/High CH



3MHz/QPSK/Low CH



3MHz/16QAM/Low CH



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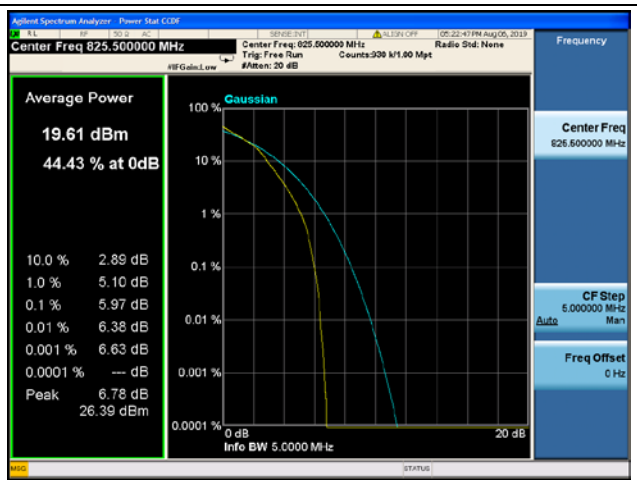
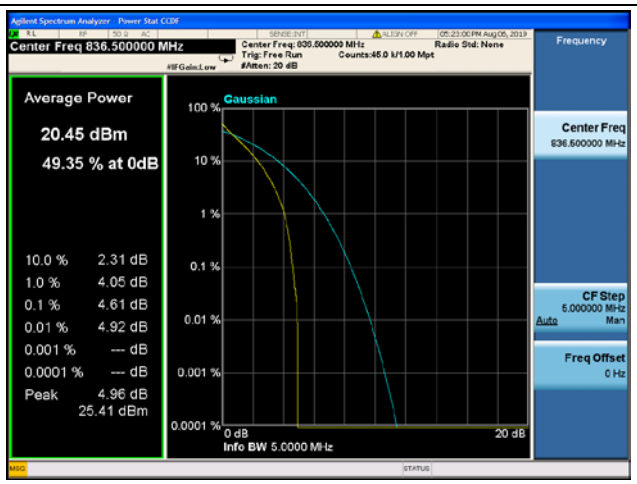
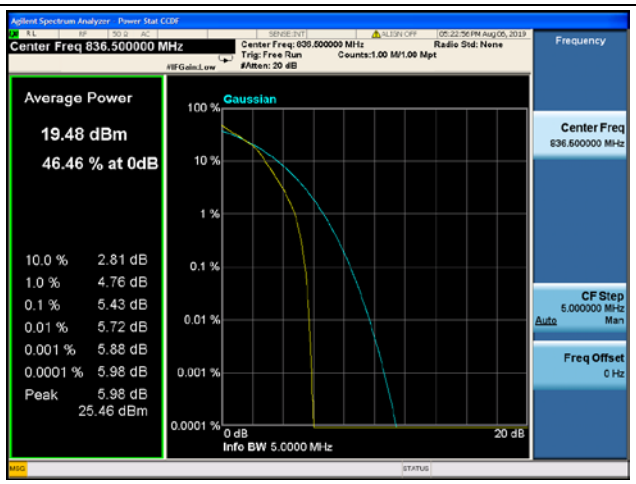


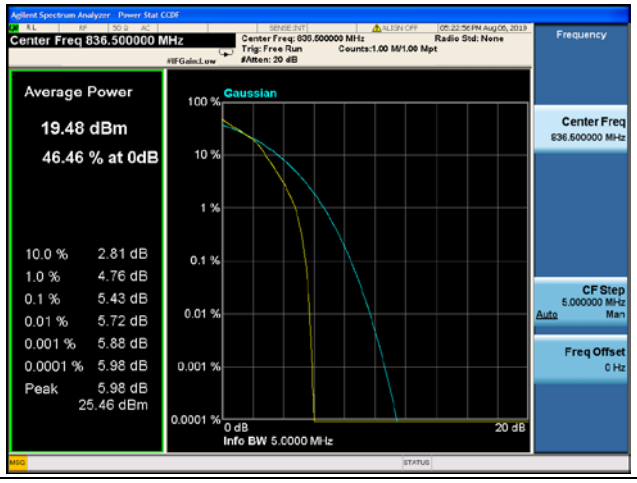
3MHz/QPSK/Mid CH



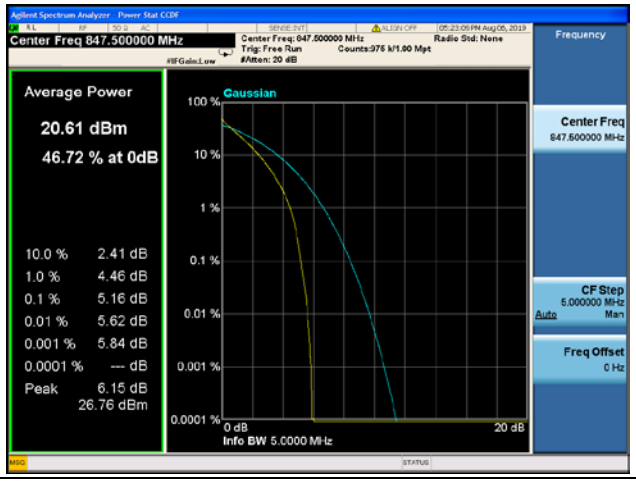
3MHz/16QAM/Mid CH



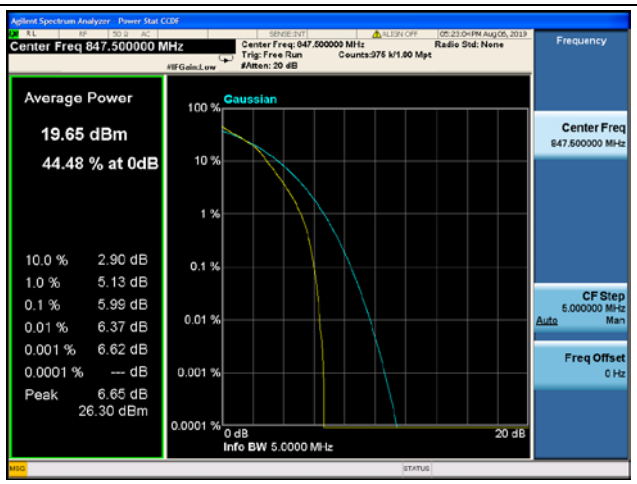
3MHz/64QAM/Mid CH



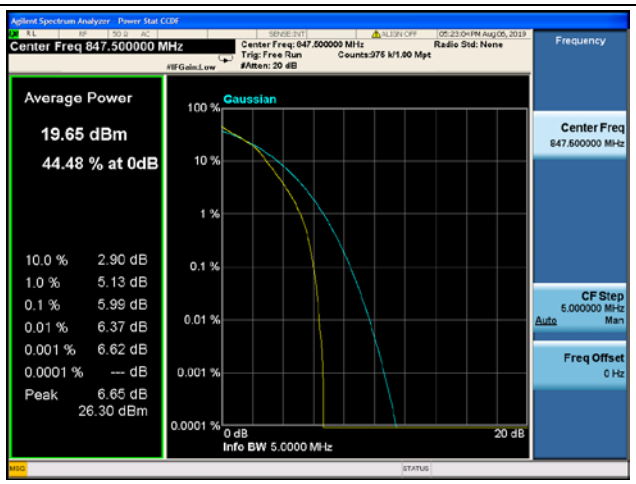
3MHz/QPSK/High CH



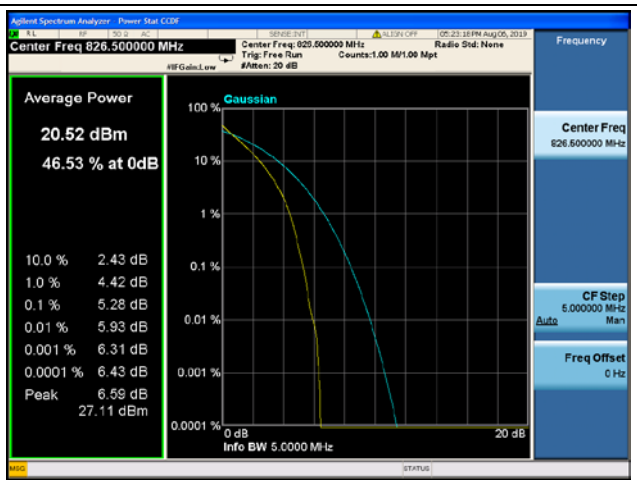
3MHz/16QAM/High CH



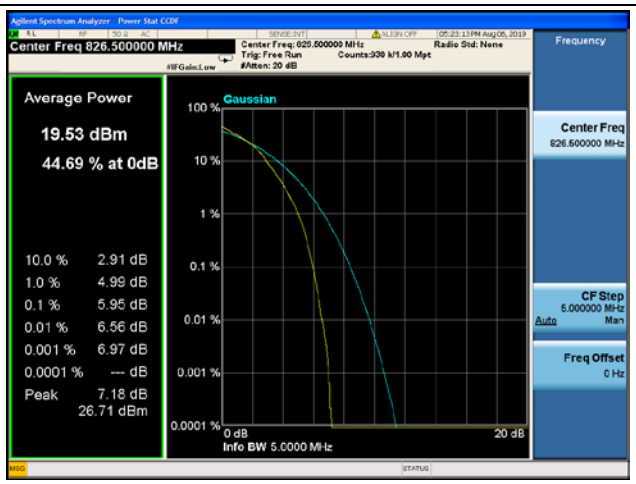
3MHz/64QAM/High CH



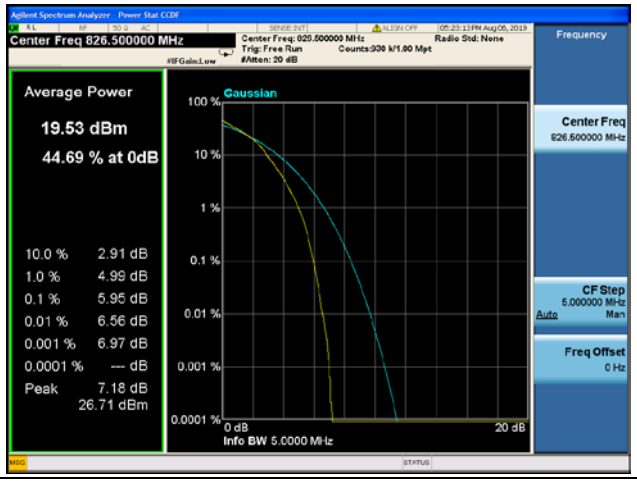
5MHz/QPSK/Low CH



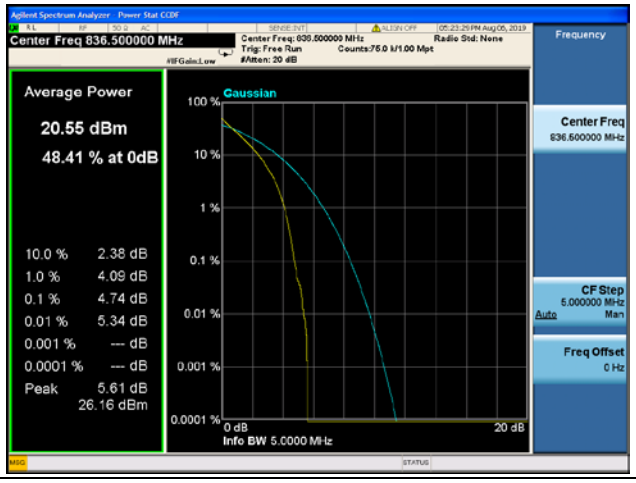
5MHz/16QAM/Low CH



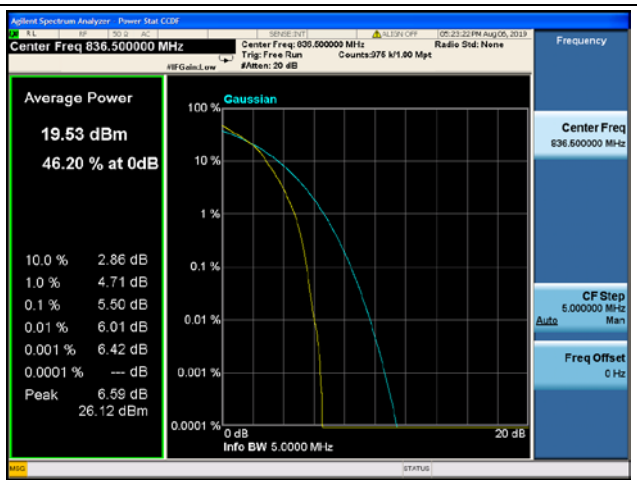
5MHz/64QAM/Low CH



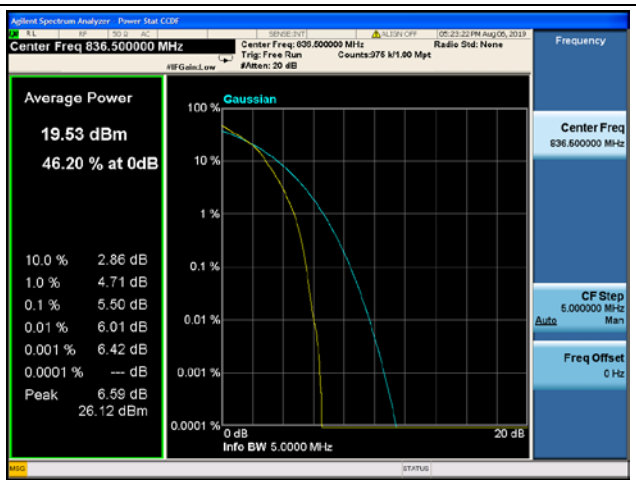
5MHz/QPSK/Mid CH

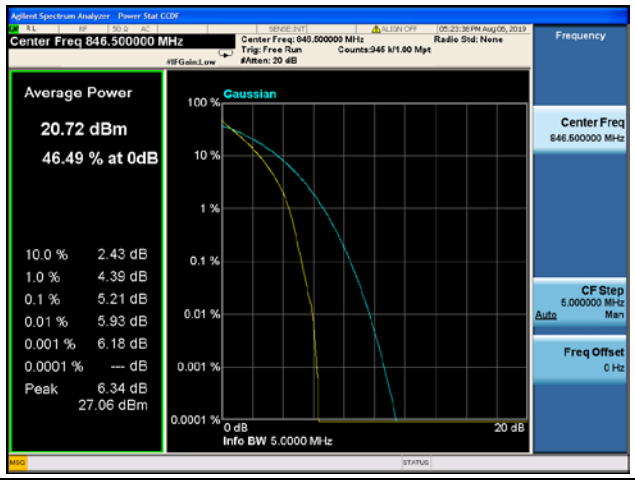
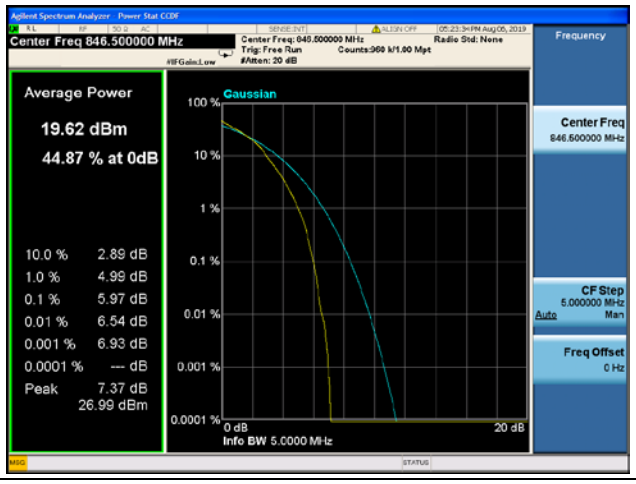
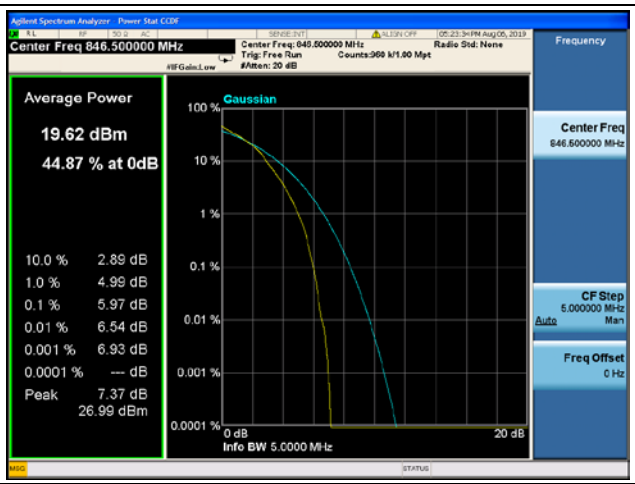
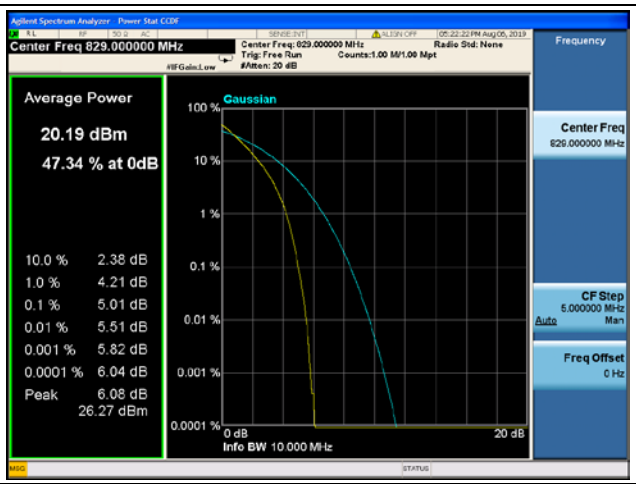
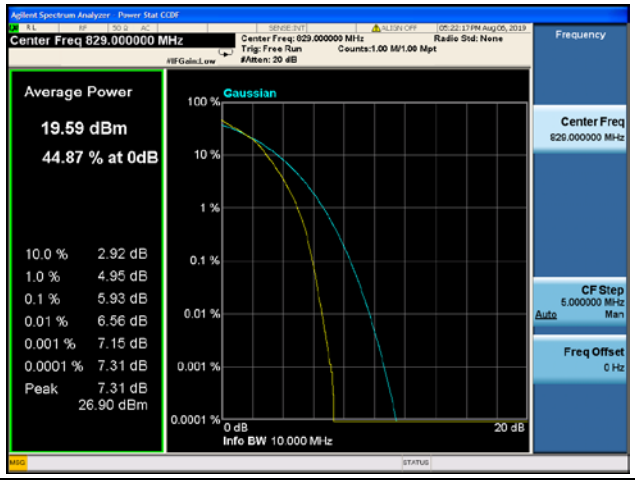
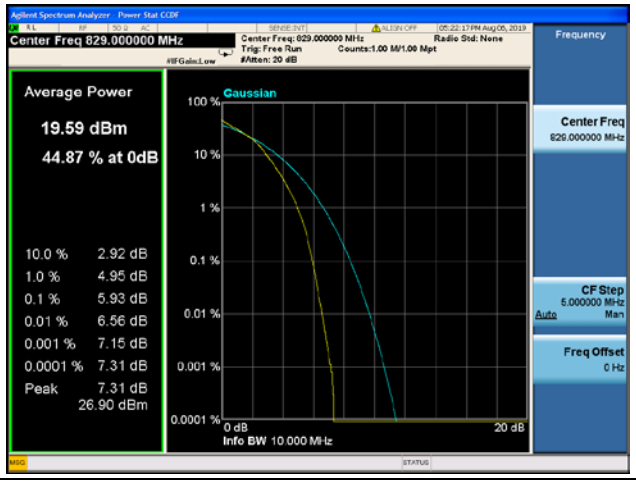


5MHz/16QAM/Mid CH

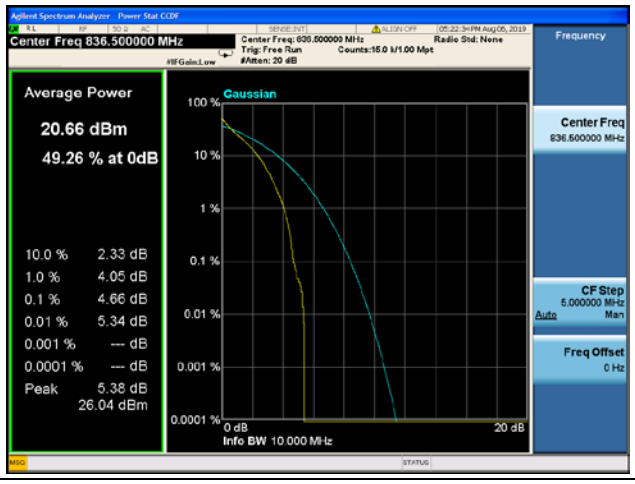


5MHz/64QAM/Mid CH



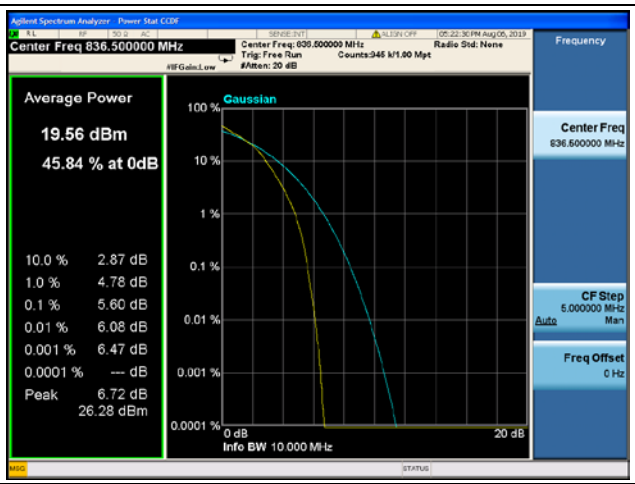
5MHz/QPSK/High CH	5MHz/16QAM/High CH
	
5MHz/64QAM/High CH	**10MHz/QPSK/Low CH**
	
10MHz/16QAM/Low CH	**10MHz/64QAM/Low CH**
	

10MHz/QPSK/Mid CH

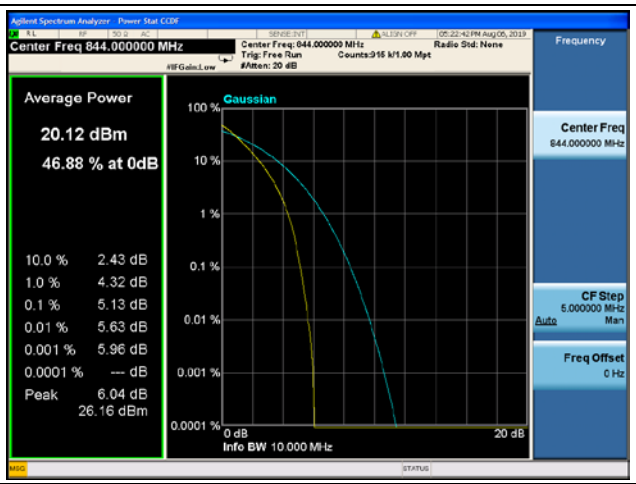


10MHz/16QAM/Mid CH

10MHz/64QAM/Mid CH



10MHz/QPSK/High CH



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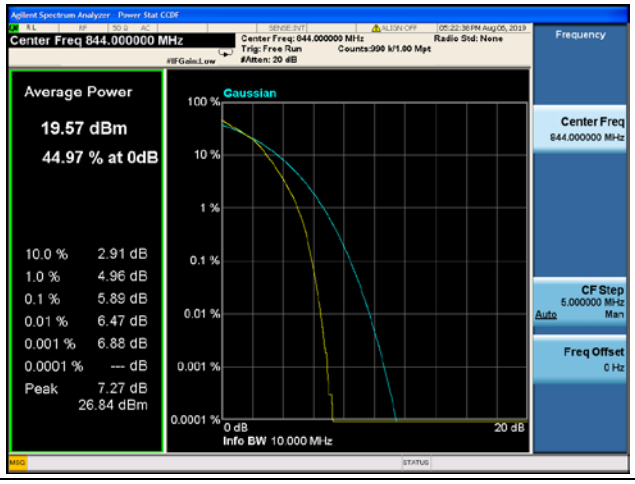
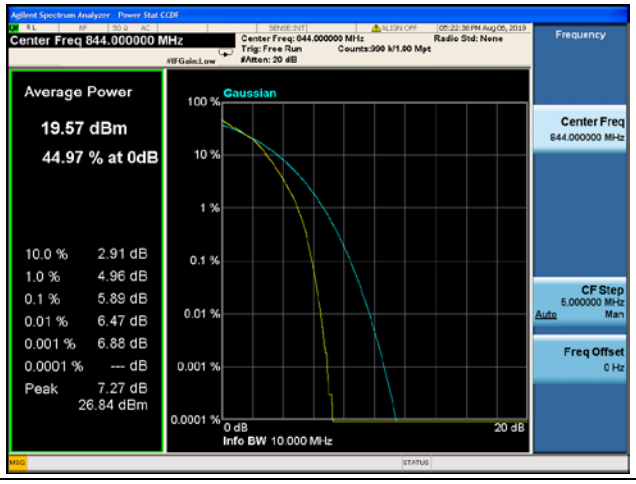


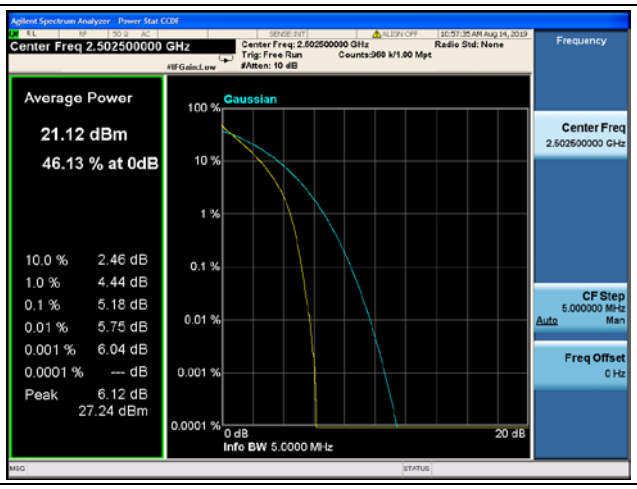
10MHz/64QAM/High CH



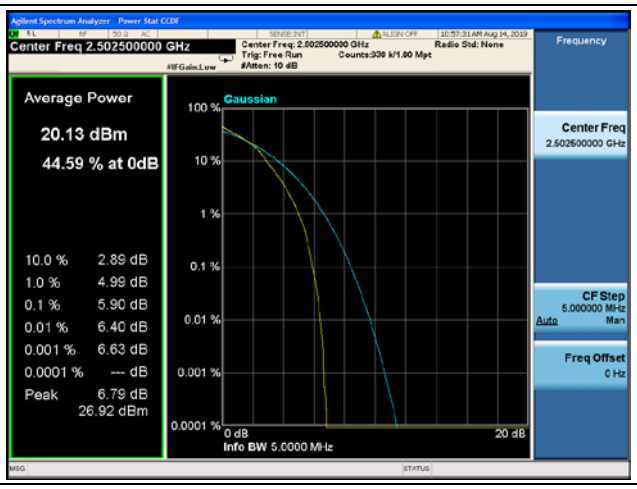
LTE Band 7,BW: 5MHz				
Channel	Frequency (MHz)	Peak to Average Radio(dB)		
		QPSK	16QAM	64QAM
20775	2502.5	5.18	5.90	6.04
21100	2535	5.34	5.97	6.06
21425	2567.5	5.17	5.97	6.01
LTE Band 7BW: 10MHz				
Channel	Frequency (MHz)	Peak to Average Radio(dB)		
		QPSK	16QAM	64QAM
20800	2505	5.10	5.93	6.08
21100	2535	5.36	5.97	6.06
21400	2565	5.17	5.82	5.93
LTE Band 7,BW: 15MHz				
Channel	Frequency (MHz)	Peak to Average Radio(dB)		
		QPSK	16QAM	64QAM
20825	2507.5	5.08	5.84	5.83
21100	2535	4.98	5.70	5.98
21375	2562.5	5.03	5.81	5.86
LTE Band 7,BW: 20MHz				
Channel	Frequency (MHz)	Peak to Average Radio(dB)		
		QPSK	16QAM	64QAM
20850	2510	5.11	5.87	5.86
21100	2535	5.24	5.78	5.84
21350	2560	5.10	6.01	5.94

LTE Band 7 Peak to Average Radio

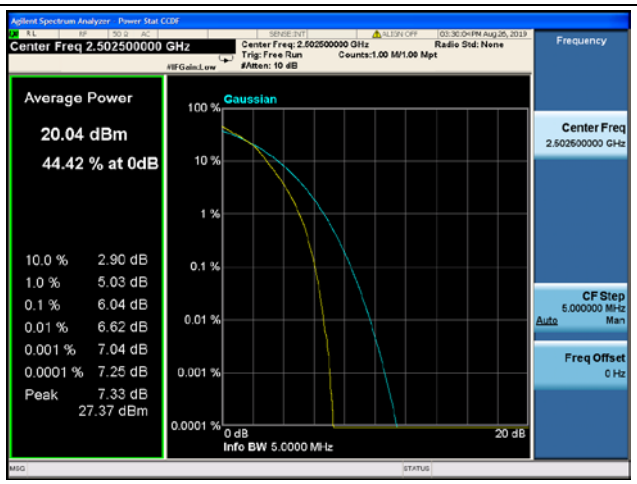
5MHz/QPSK/Low CH



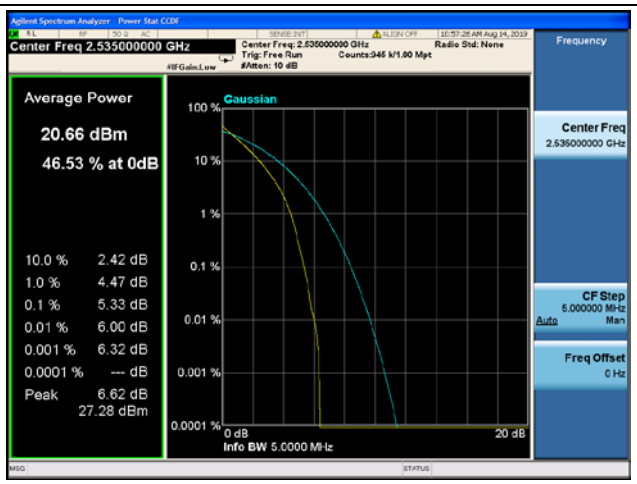
5MHz/16QAM/Low CH



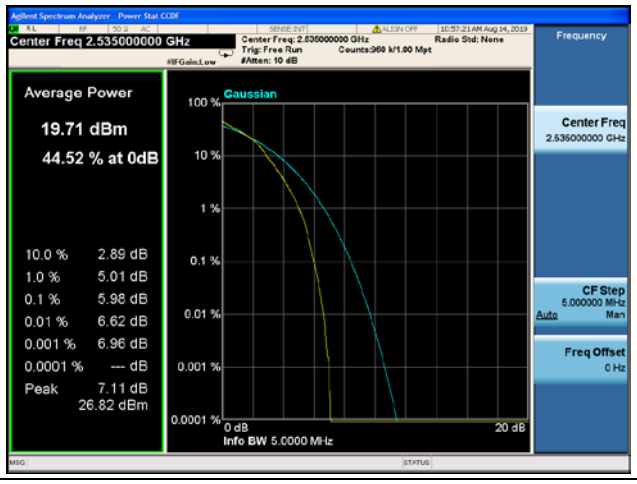
5MHz/64QAM/Low CH



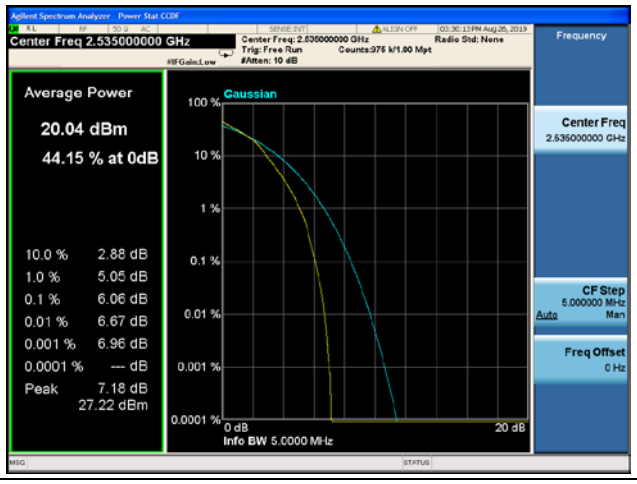
5MHz/QPSK/Mid CH



5MHz/16QAM/Mid CH

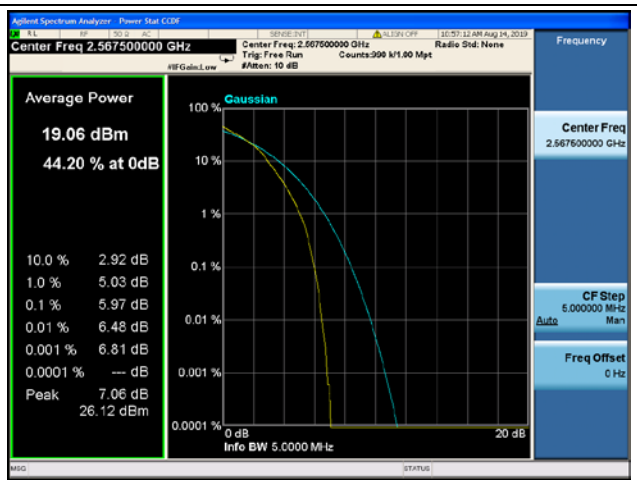


5MHz/64QAM/Mid CH

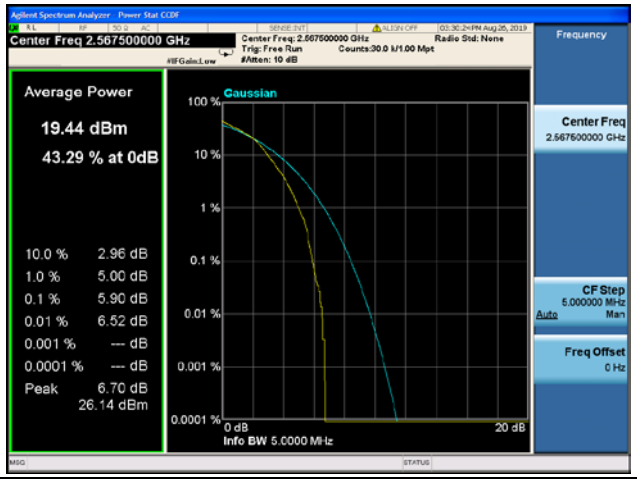


5MHz/QPSK/High CH

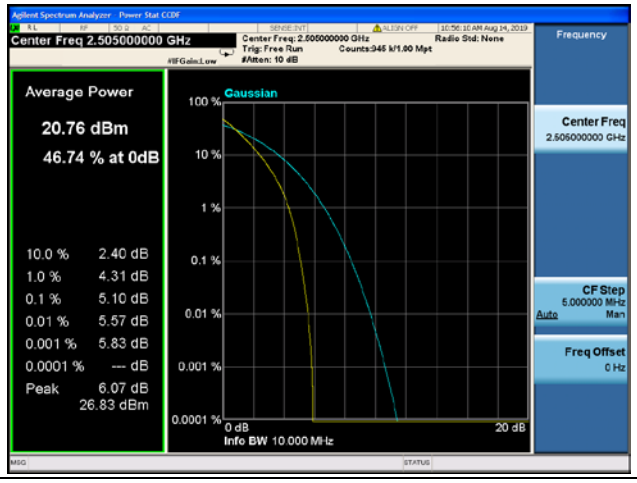
5MHz/16QAM/High CH



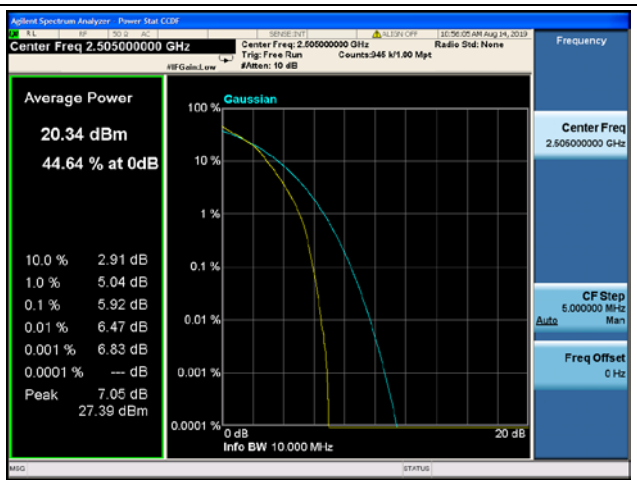
5MHz/64QAM/High CH



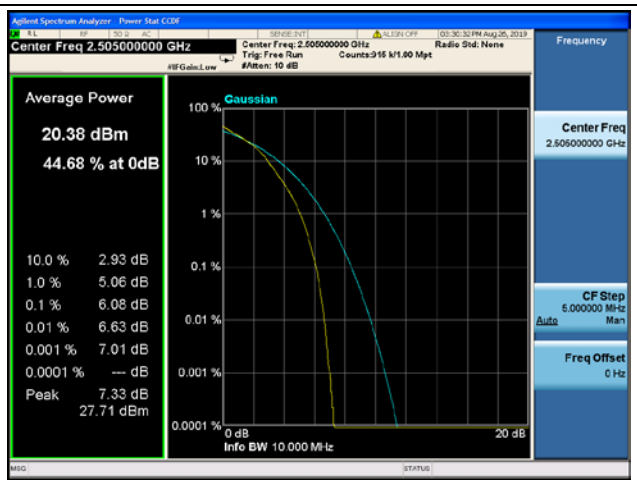
10MHz/QPSK/Low CH



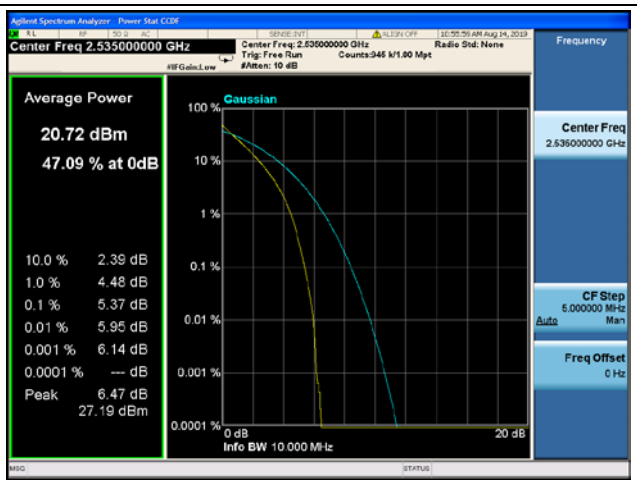
10MHz/16QAM/Low CH



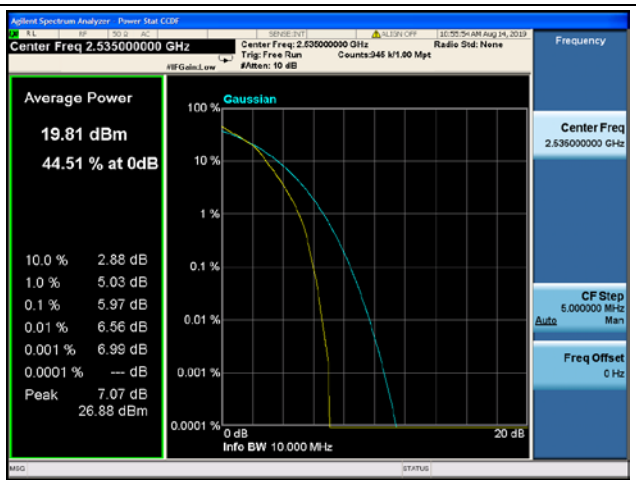
10MHz/64QAM/Low CH



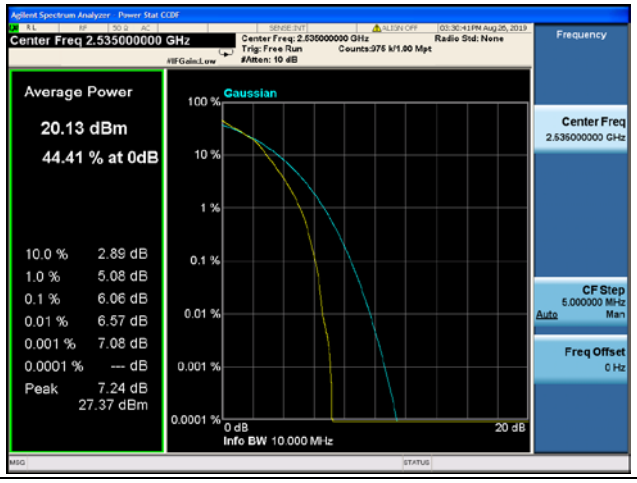
10MHz/QPSK/Mid CH



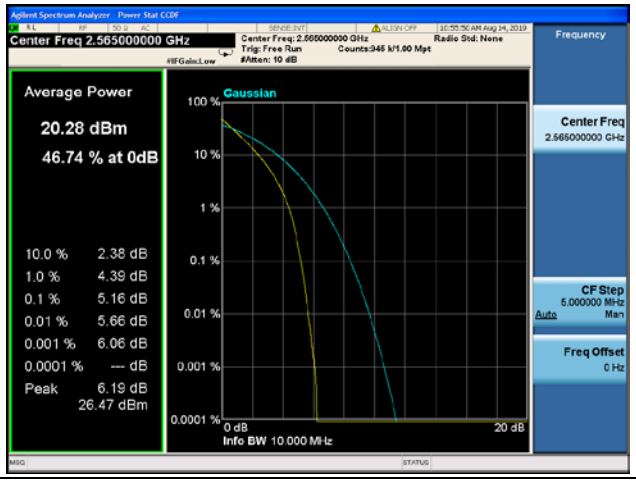
10MHz/16QAM/Mid CH



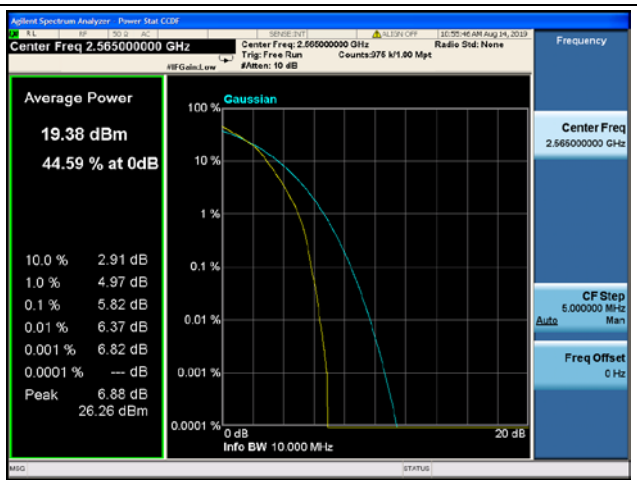
10MHz/64QAM/Mid CH



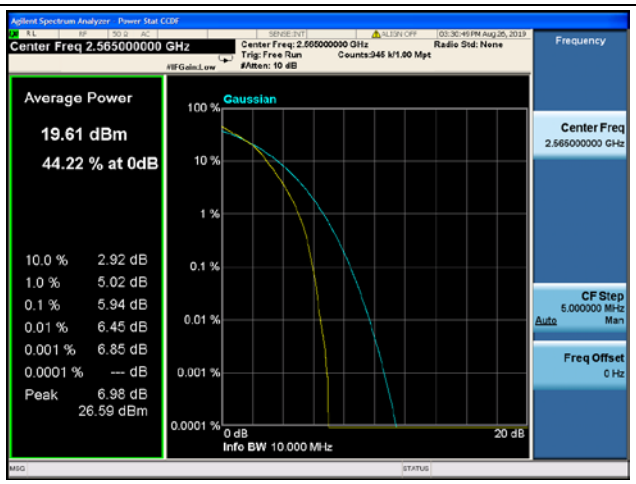
10MHz/QPSK/High CH



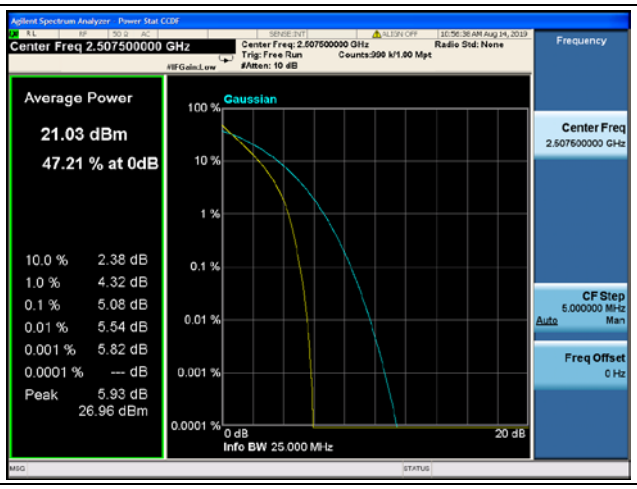
10MHz/16QAM/High CH



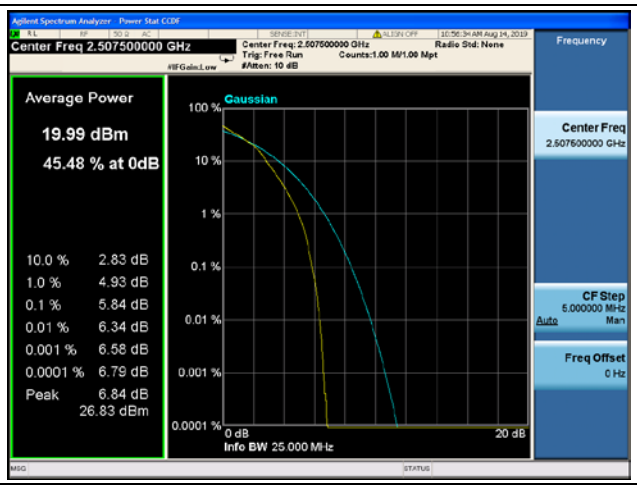
10MHz/64QAM/High CH



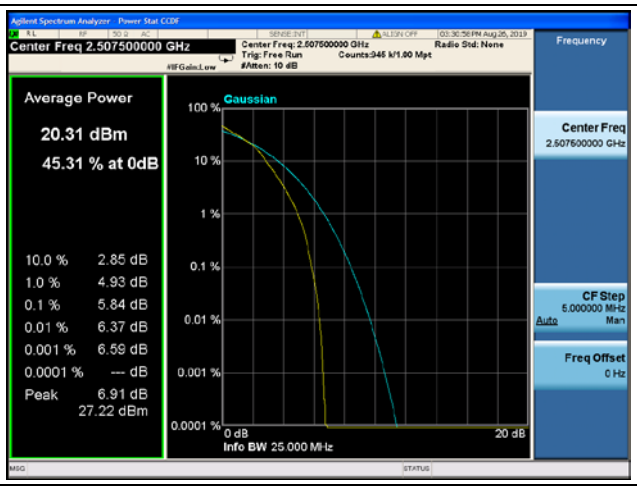
15MHz/QPSK/Low CH



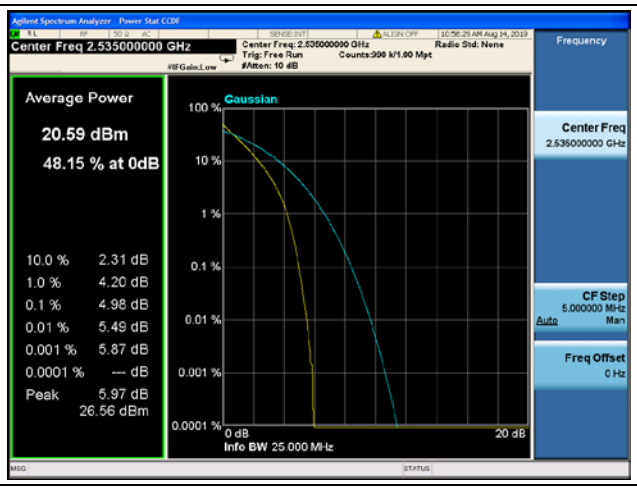
15MHz/16QAM/Low CH



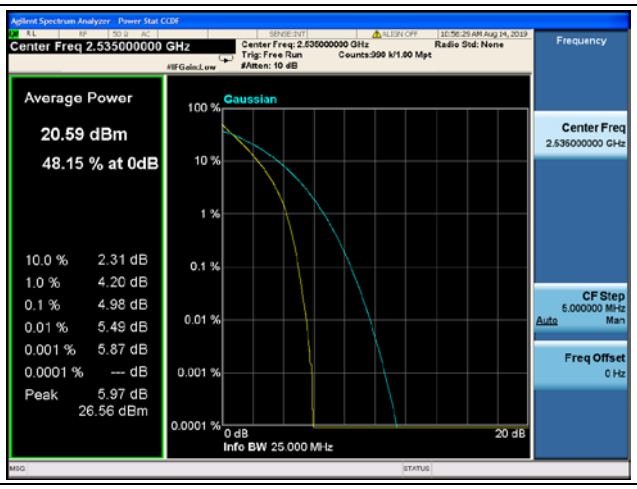
15MHz/64QAM/Low CH



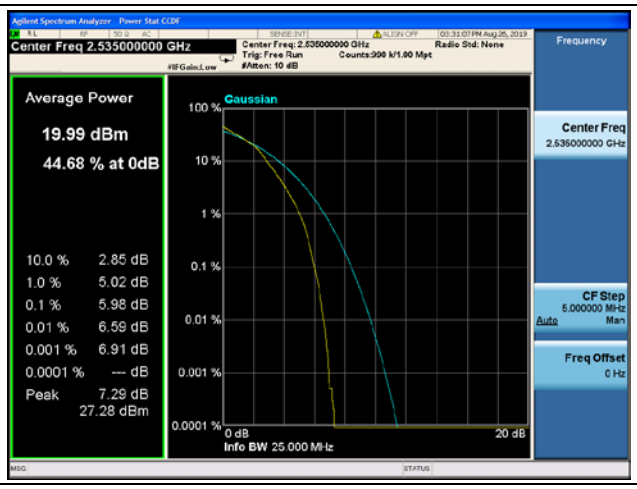
15MHz/QPSK/Mid CH



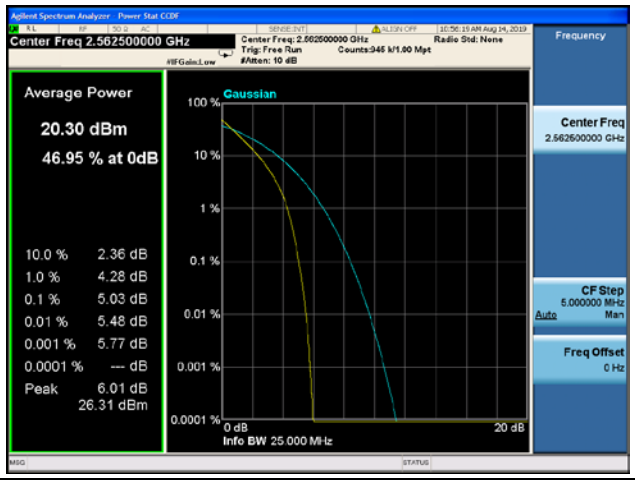
15MHz/16QAM/Mid CH



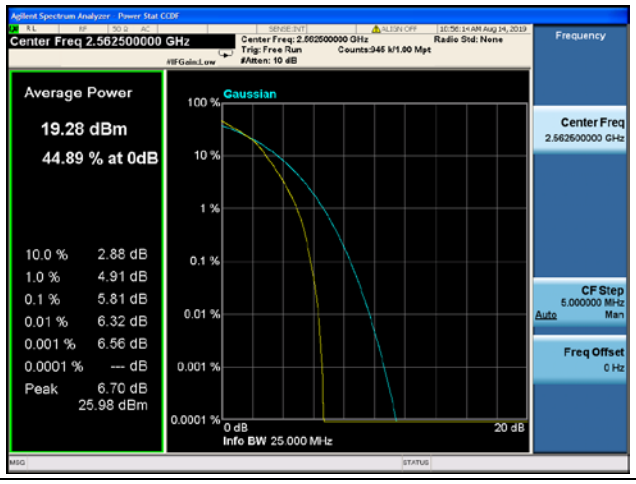
15MHz/64QAM/Mid CH



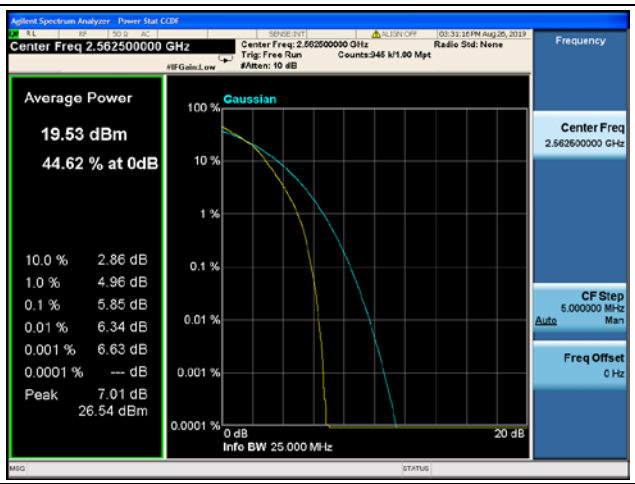
15MHz/QPSK/High CH



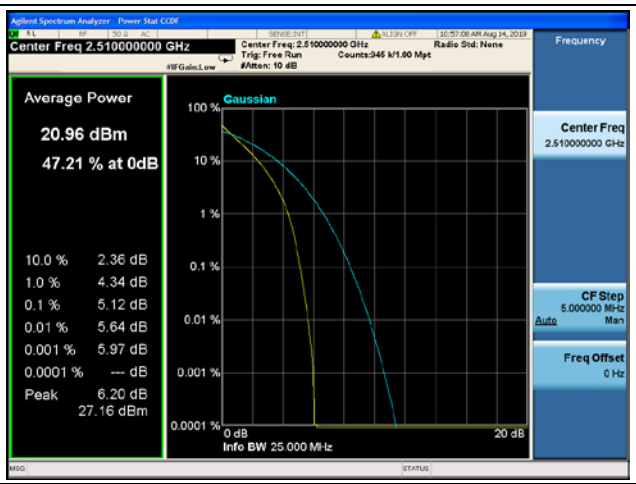
15MHz/16QAM/High CH



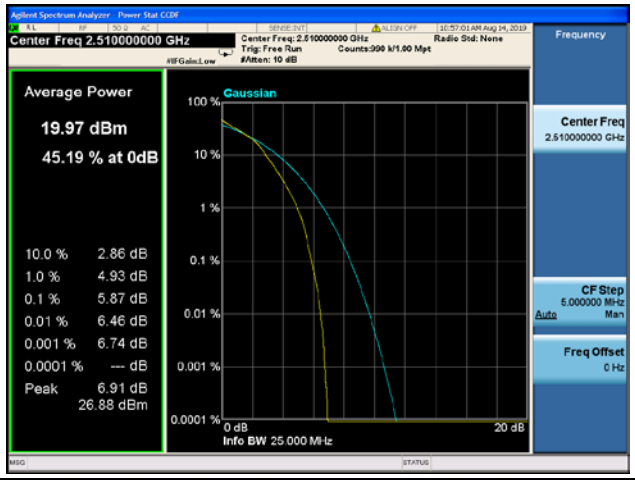
15MHz/64QAM/High CH



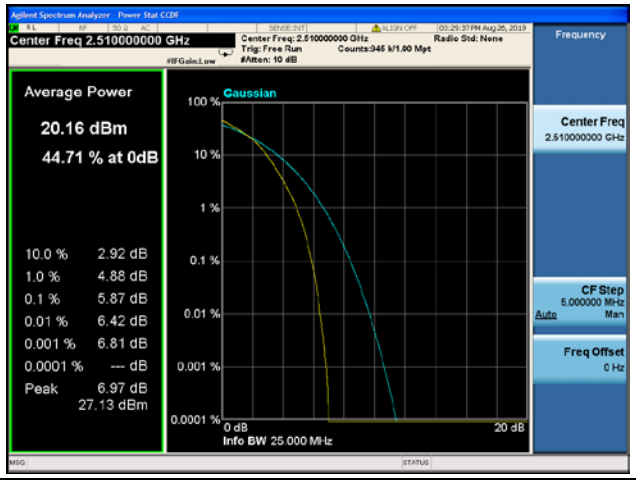
20MHz/QPSK/Low CH



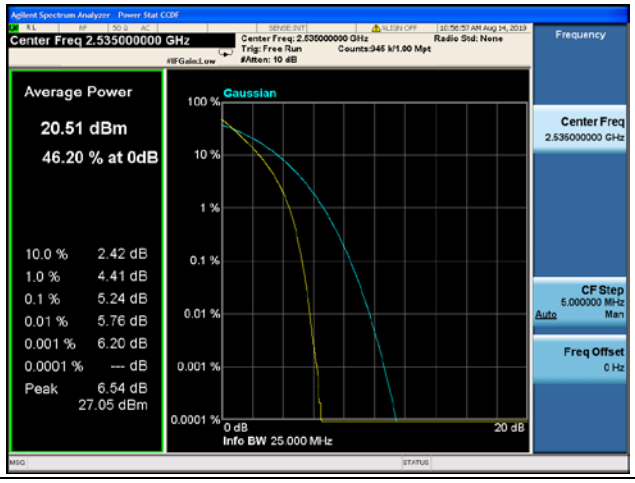
20MHz/16QAM/Low CH



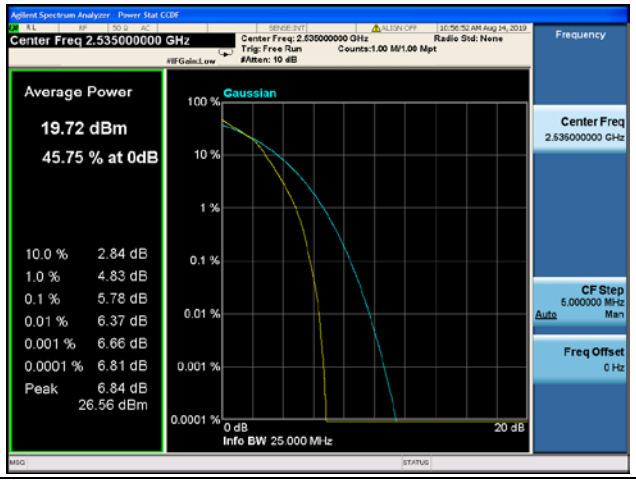
20MHz/64QAM/Low CH



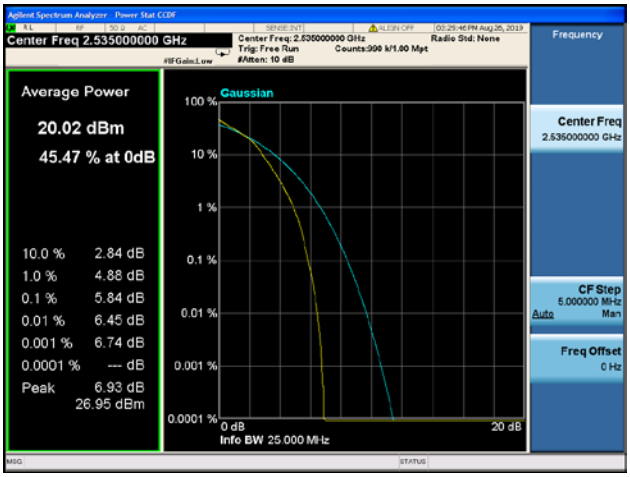
20MHz/QPSK/Mid CH



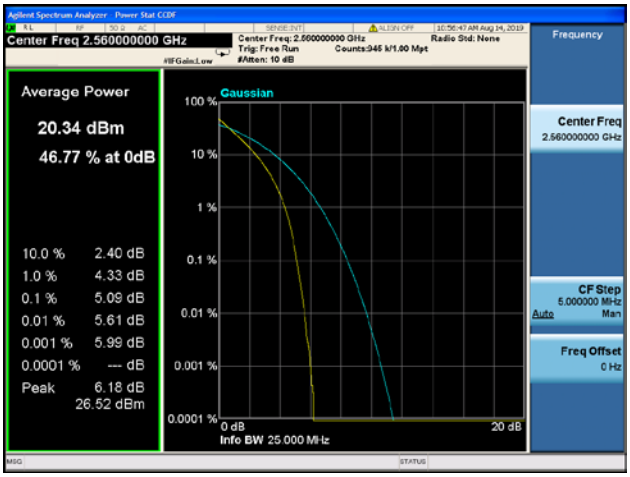
20MHz/16QAM/Mid CH



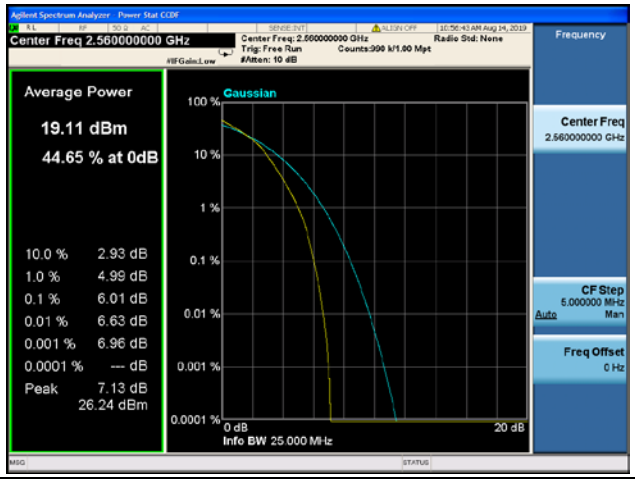
20MHz/64QAM/Mid CH



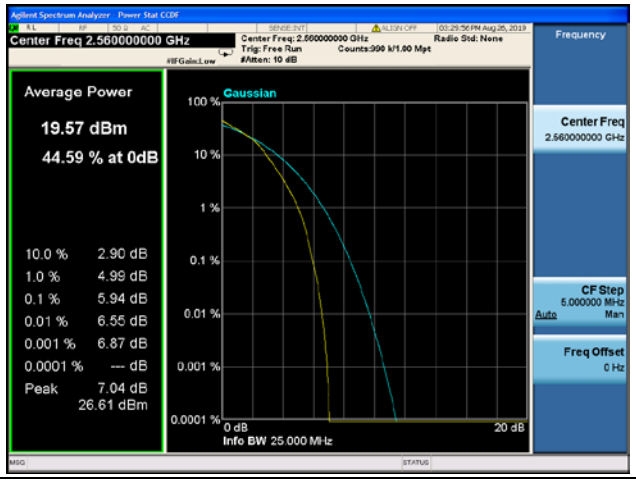
20MHz/QPSK/High CH



20MHz/16QAM/High CH



20MHz/64QAM/High CH

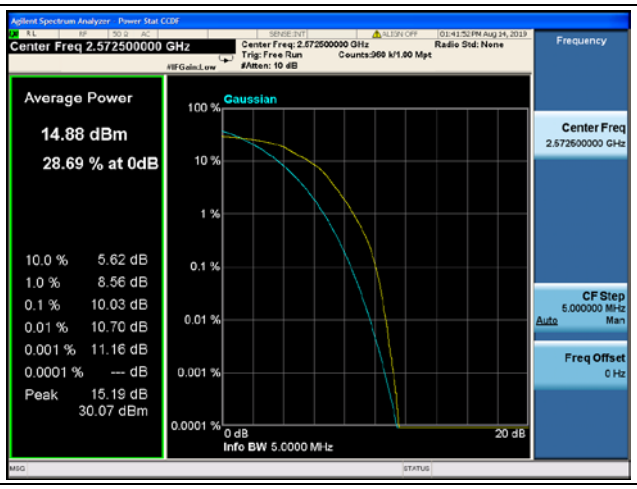


LTE Band 38,BW: 5MHz				
Channel	Frequency (MHz)	Peak to Average Radio(dB)		
		QPSK	16QAM	64QAM
37775	2572.5	8.93	10.00	9.78
38000	2595	8.91	10.42	10.63
38225	2617.5	8.18	9.21	9.12
LTE Band 38,BW: 10MHz				
Channel	Frequency (MHz)	Peak to Average Radio(dB)		
		QPSK	16QAM	64QAM
37800	2575	9.06	10.28	9.17
38000	2595	10.18	9.45	9.47
38200	2617.5	8.32	9.03	8.92
LTE Band 38,BW: 15MHz				
Channel	Frequency (MHz)	Peak to Average Radio(dB)		
		QPSK	16QAM	64QAM
37825	2577.5	9.48	10.76	11.92
38000	2595	8.6	9.43	10.61
38175	2612.5	7.46	8.09	8.79
LTE Band 38,BW: 20MHz				
Channel	Frequency (MHz)	Peak to Average Radio(dB)		
		QPSK	16QAM	64QAM
37850	2572.5	9.27	9.66	9.87
38000	2595	9.42	9.66	11.88
38150	2610	8.46	9.88	9.73

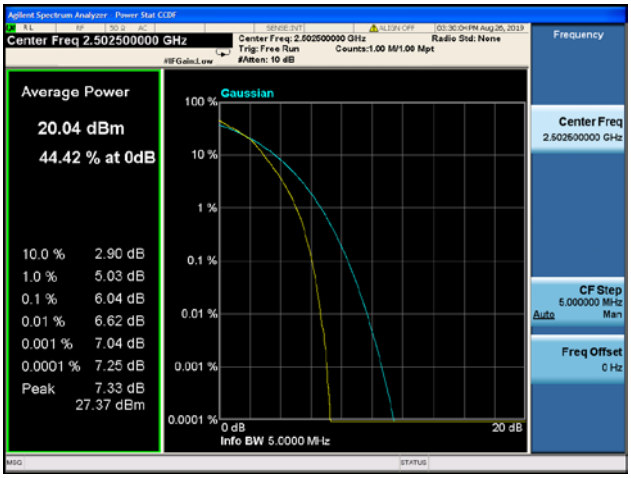
LTE Band 38 Peak to Average Radio

5MHz/QPSK/Low CH

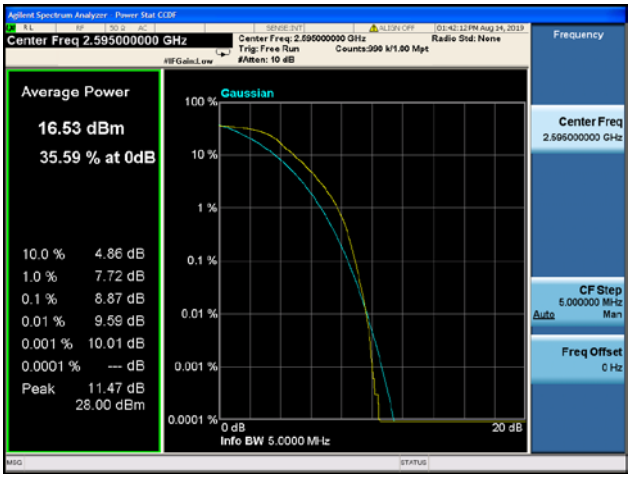
5MHz/16QAM/Low CH



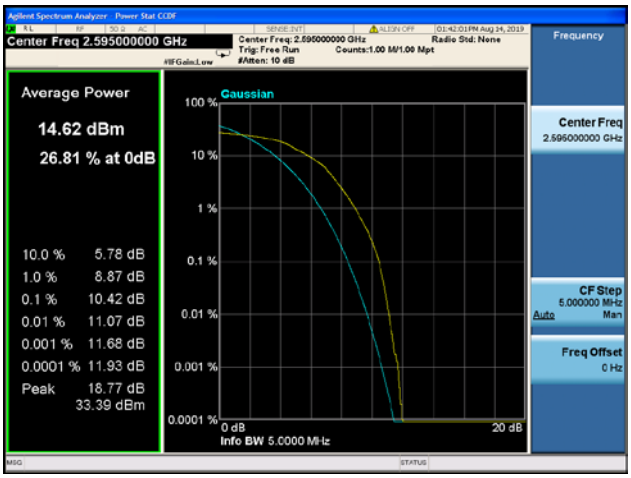
5MHz/64QAM/Low CH



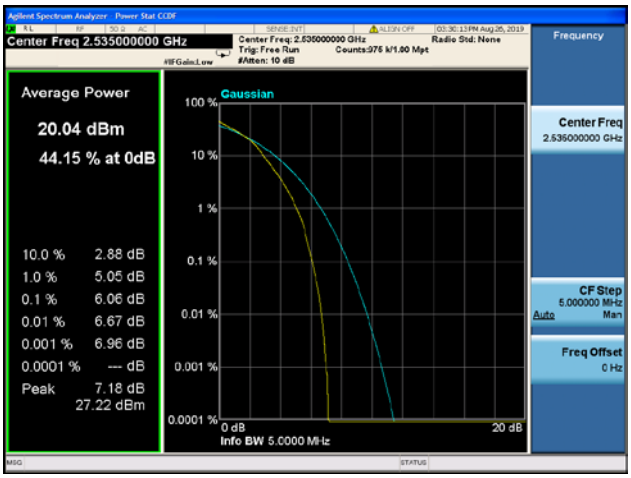
5MHz/QPSK/Mid CH



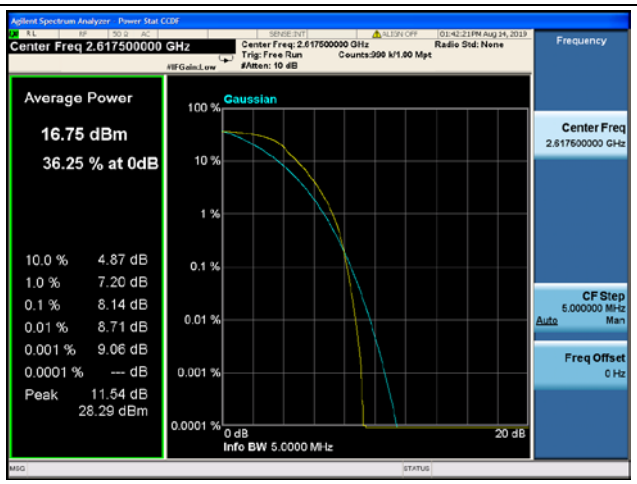
5MHz/16QAM/Mid CH



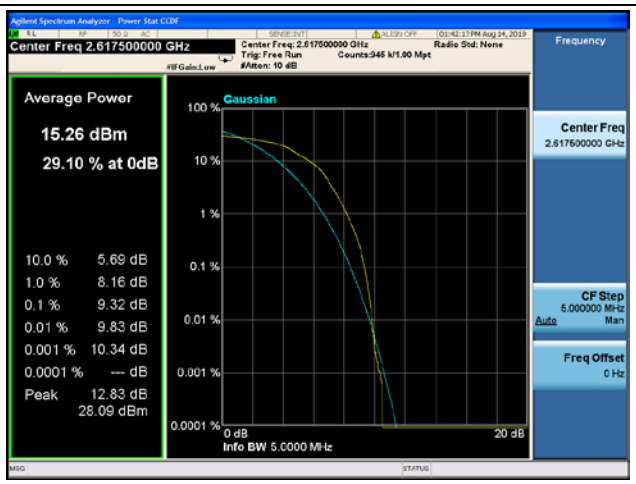
5MHz/64QAM/Mid CH



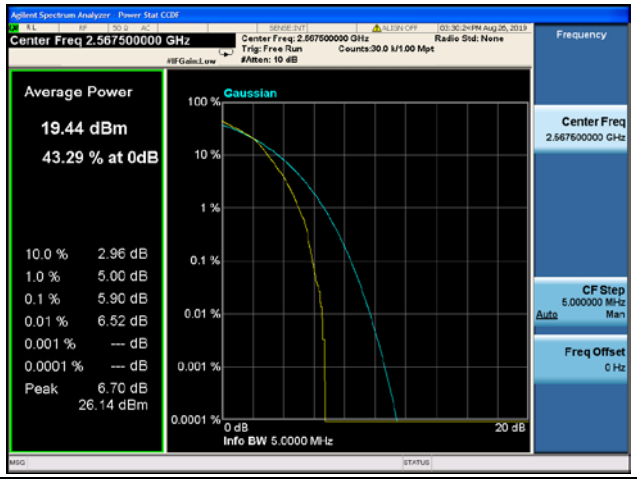
5MHz/QPSK/High CH



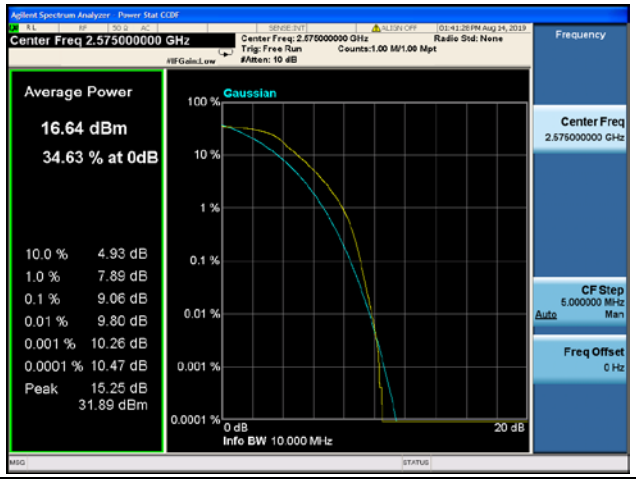
5MHz/16QAM/High CH



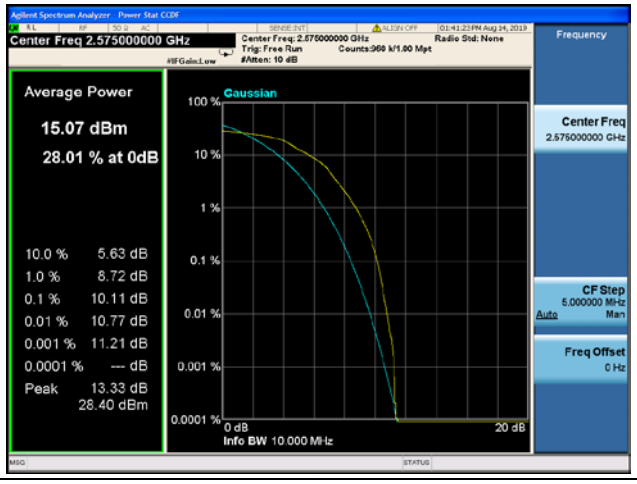
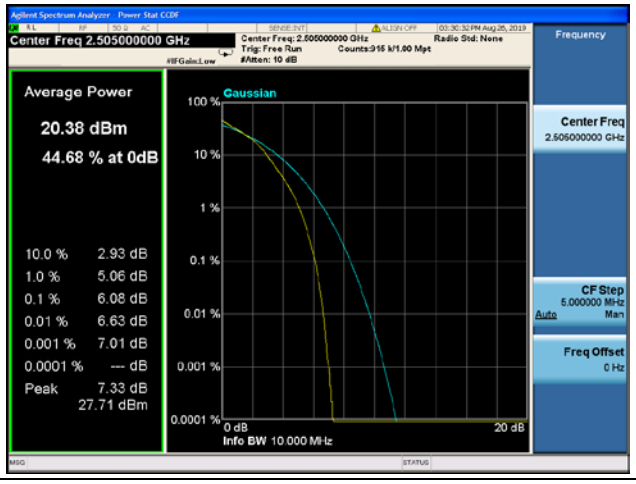
5MHz/64QAM/High CH



10MHz/QPSK/Low CH



10MHz/16QAM/Low CH



10MHz/64QAM/Low CH