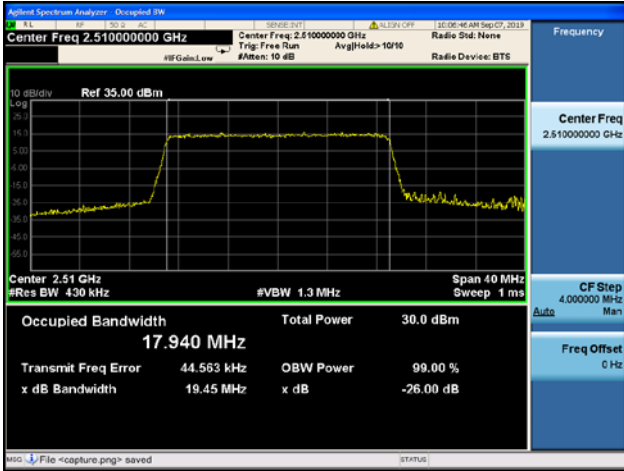


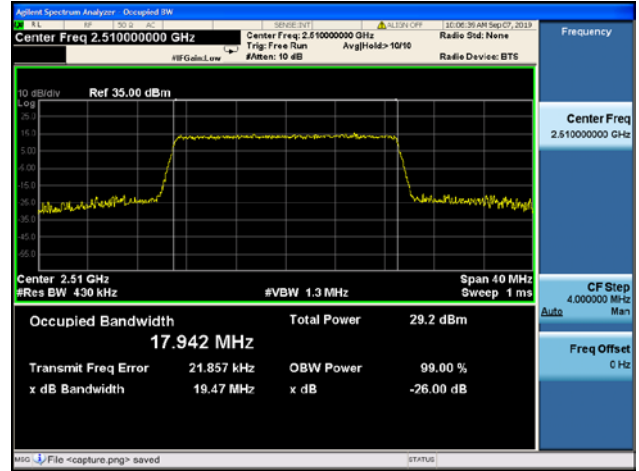


LTE Band 7 99% & 26dB Bandwidth

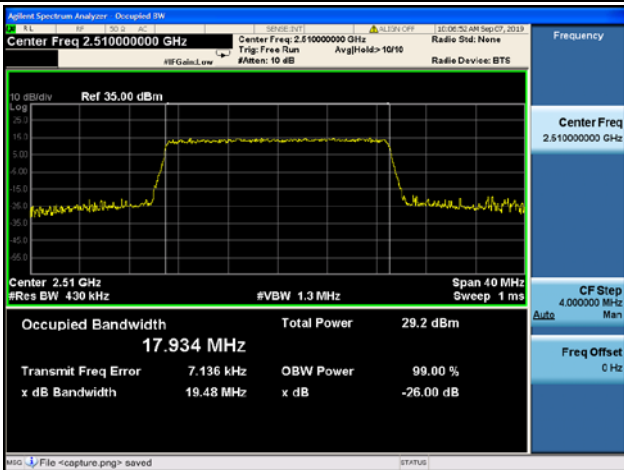
20MHz/QPSK / LCH



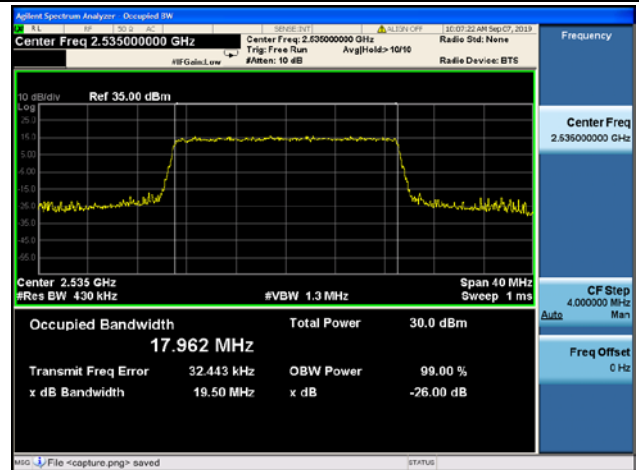
20MHz/16QAM / LCH



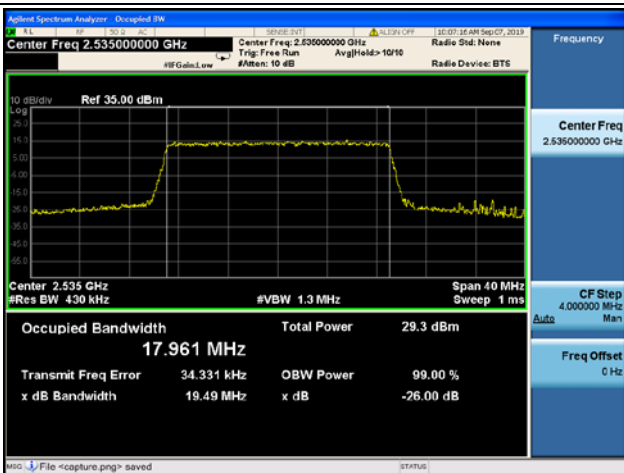
20MHz/ 64QAM / LCH



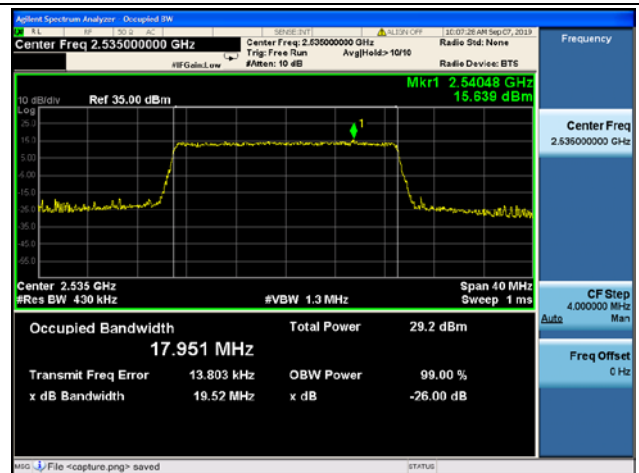
20MHz/QPSK / MCH



20MHz/ 16QAM / MCH



20MHz/ 64QAM / MCH

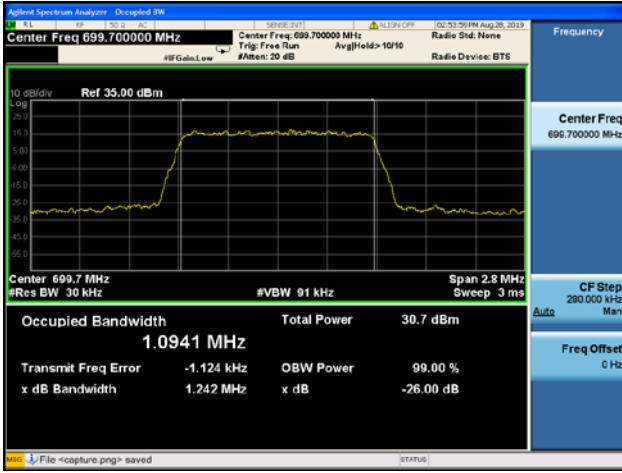




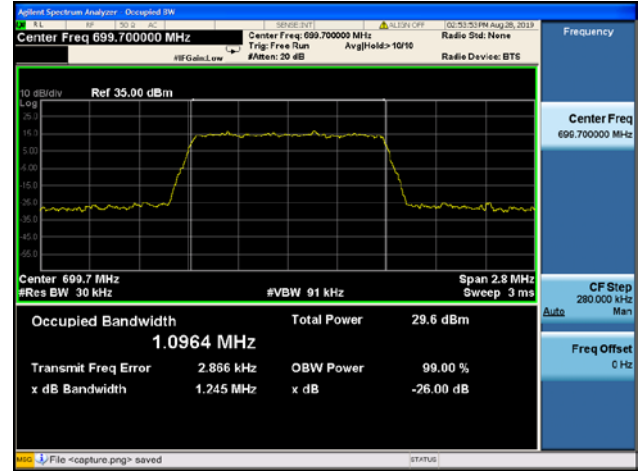


LTE Band 12 99% & 26dB Bandwidth

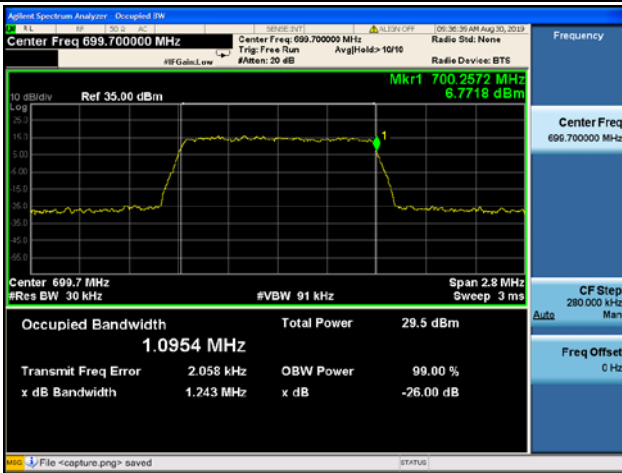
1.4MHz/QPSK / LCH



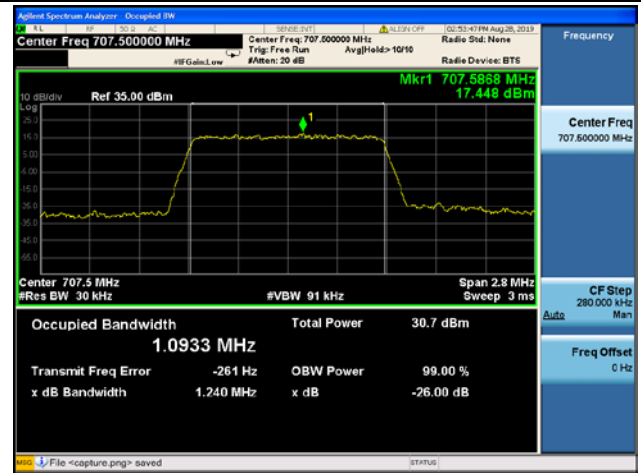
1.4MHz/16QAM / LCH



1.4MHz/ 64QAM / LCH



1.4MHz/QPSK / MCH



1.4MHz/ 16QAM / MCH



1.4MHz/ 64QAM / MCH

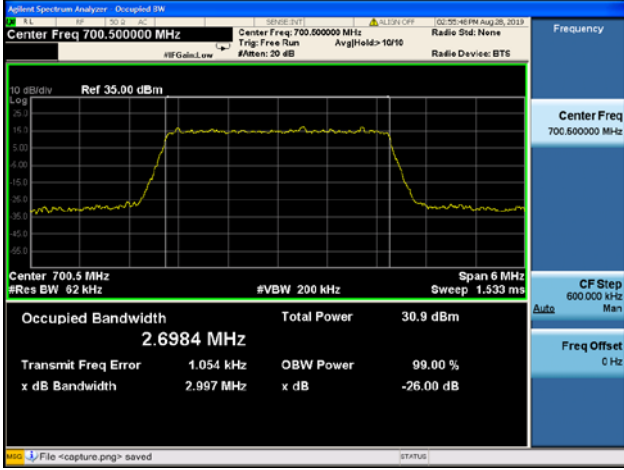




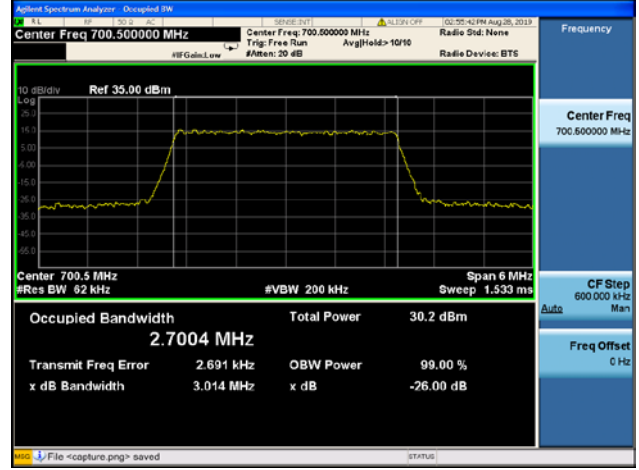


LTE Band 12 99% & 26dB Bandwidth

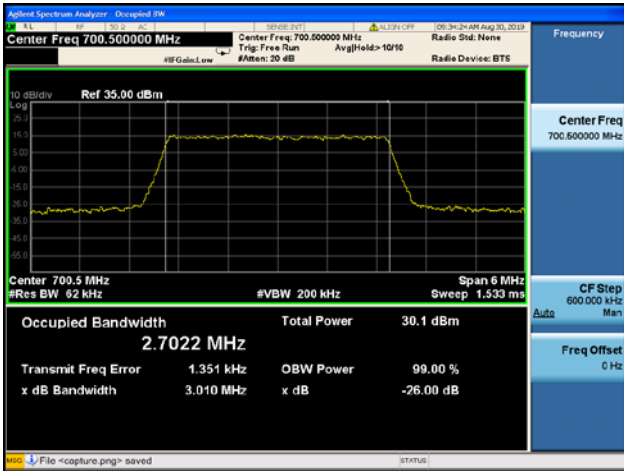
3MHz/QPSK / LCH



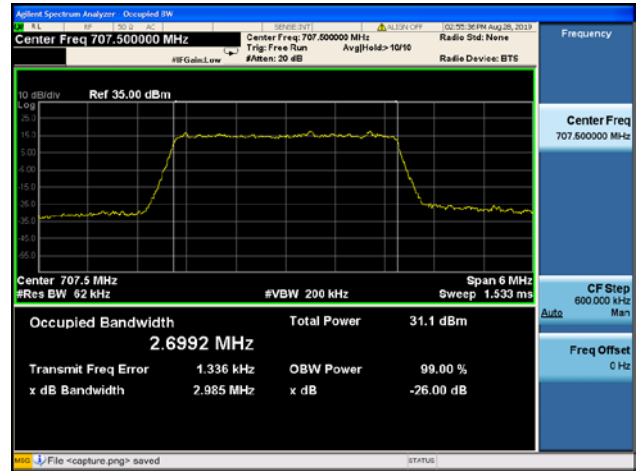
3MHz/16QAM / LCH



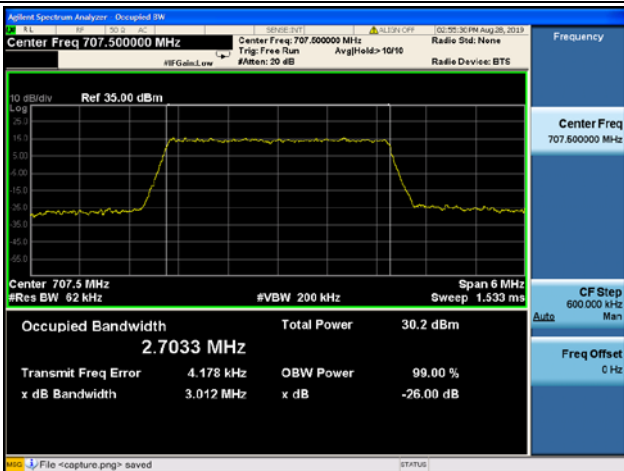
3MHz/ 64QAM / LCH



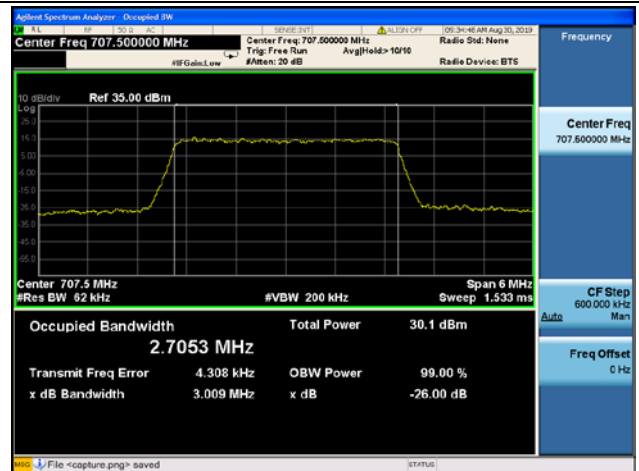
3MHz/QPSK / MCH



3MHz/ 16QAM / MCH

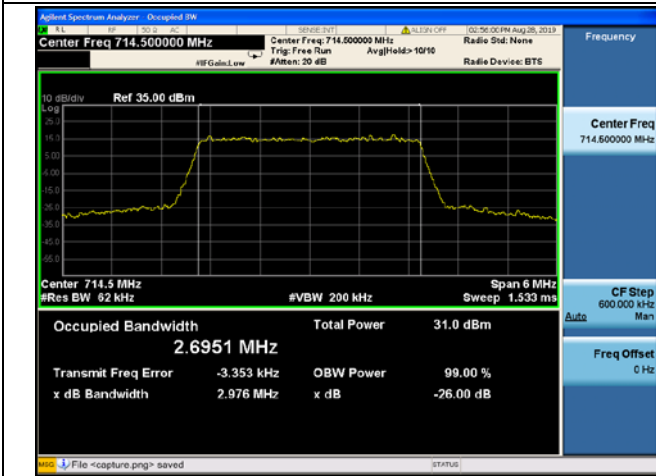


3MHz/ 64QAM / MCH

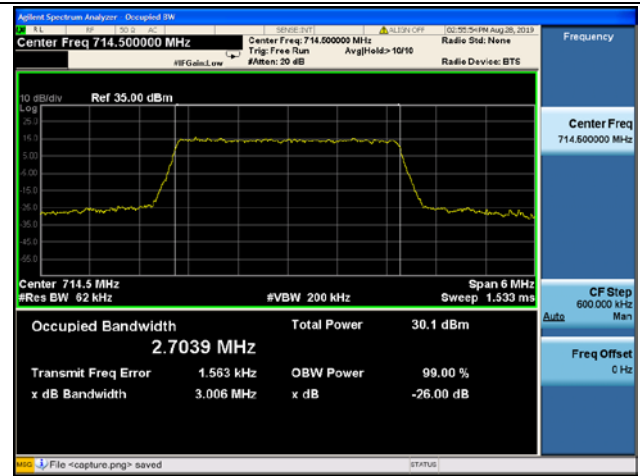




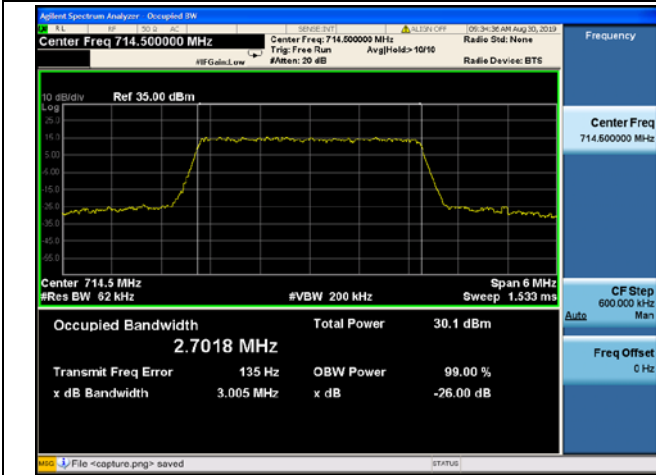
**3MHz/ QPSK / HCH**



**3MHz/ 16QAM / HCH**



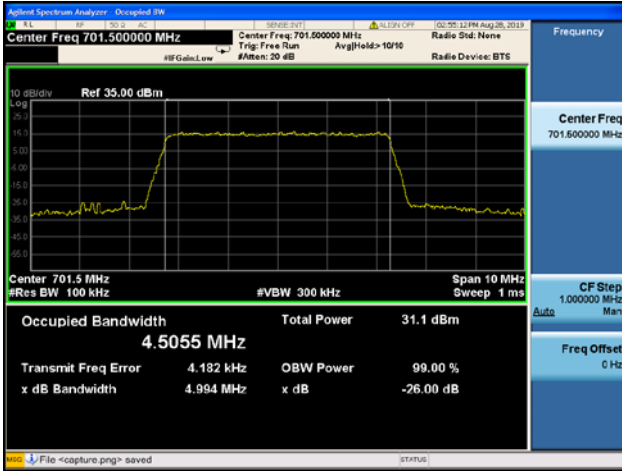
**3MHz/ 64QAM / HCH**



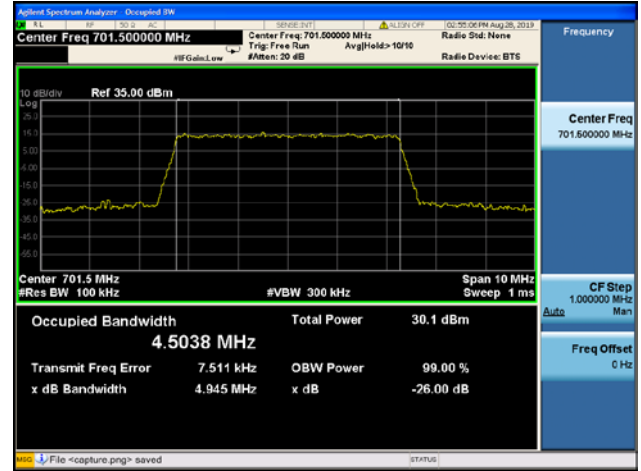


LTE Band 12 99% & 26dB Bandwidth

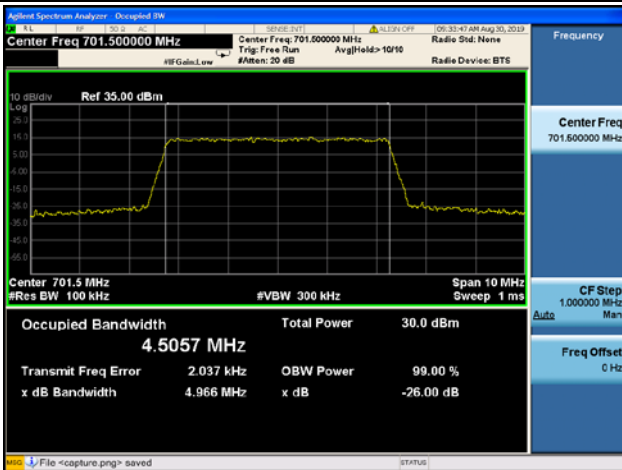
5MHz/QPSK / LCH



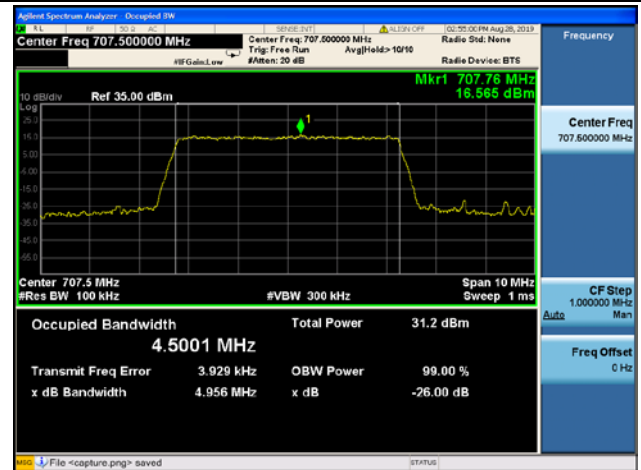
5MHz/16QAM / LCH



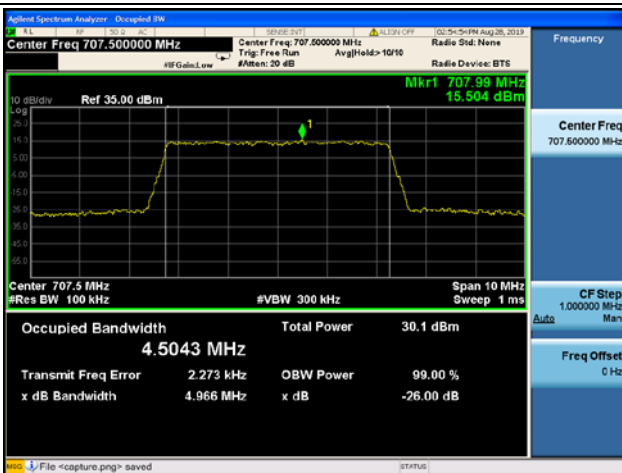
5MHz/ 64QAM / LCH



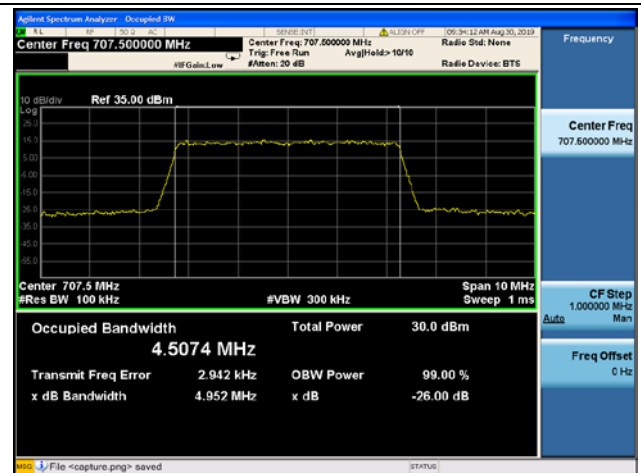
5MHz/QPSK / MCH



5MHz/ 16QAM / MCH



5MHz/ 64QAM / MCH



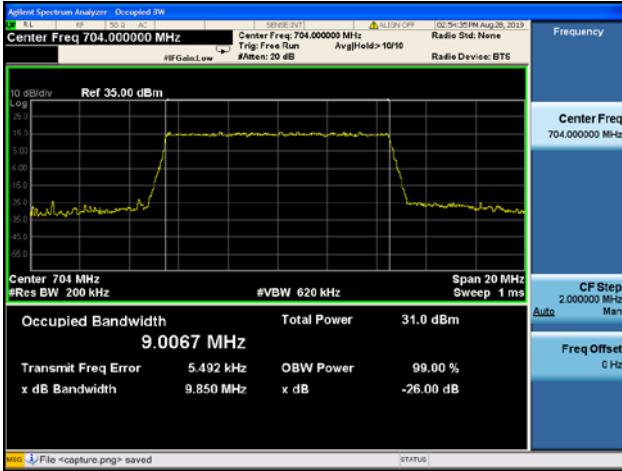




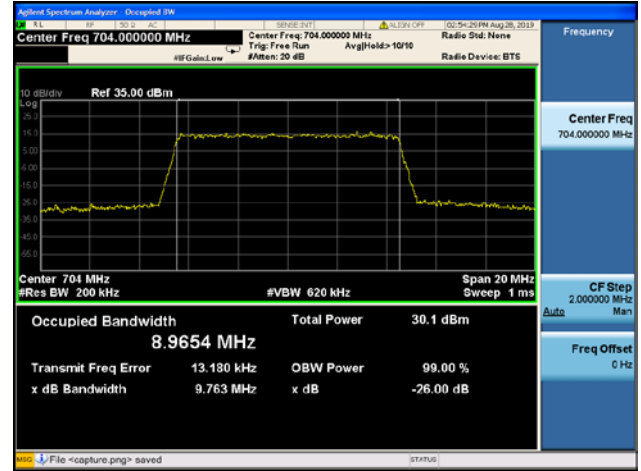


LTE Band 12 99% & 26dB Bandwidth

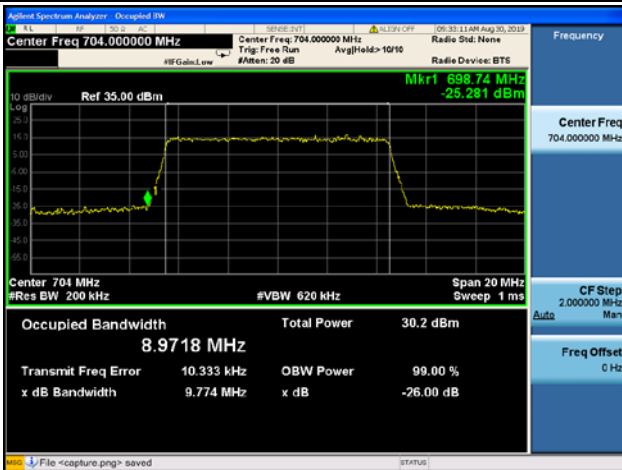
10MHz/QPSK / LCH



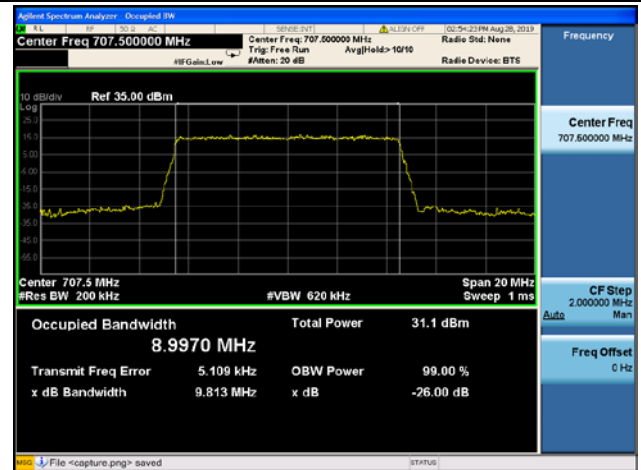
10MHz/16QAM / LCH



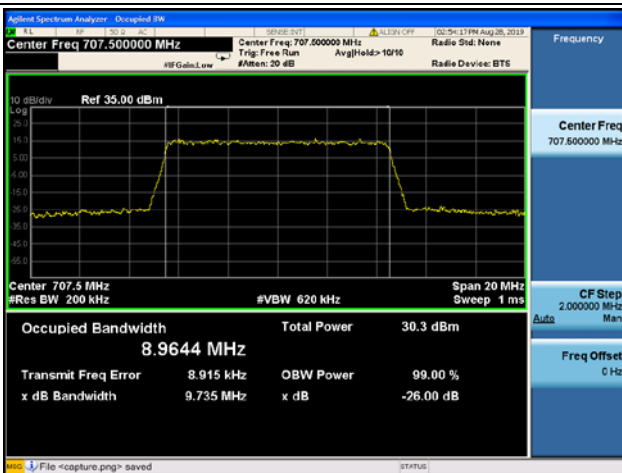
10MHz/ 64QAM / LCH



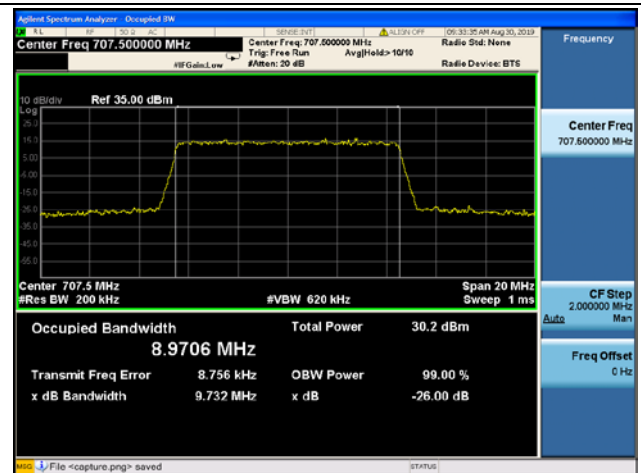
10MHz/QPSK / MCH

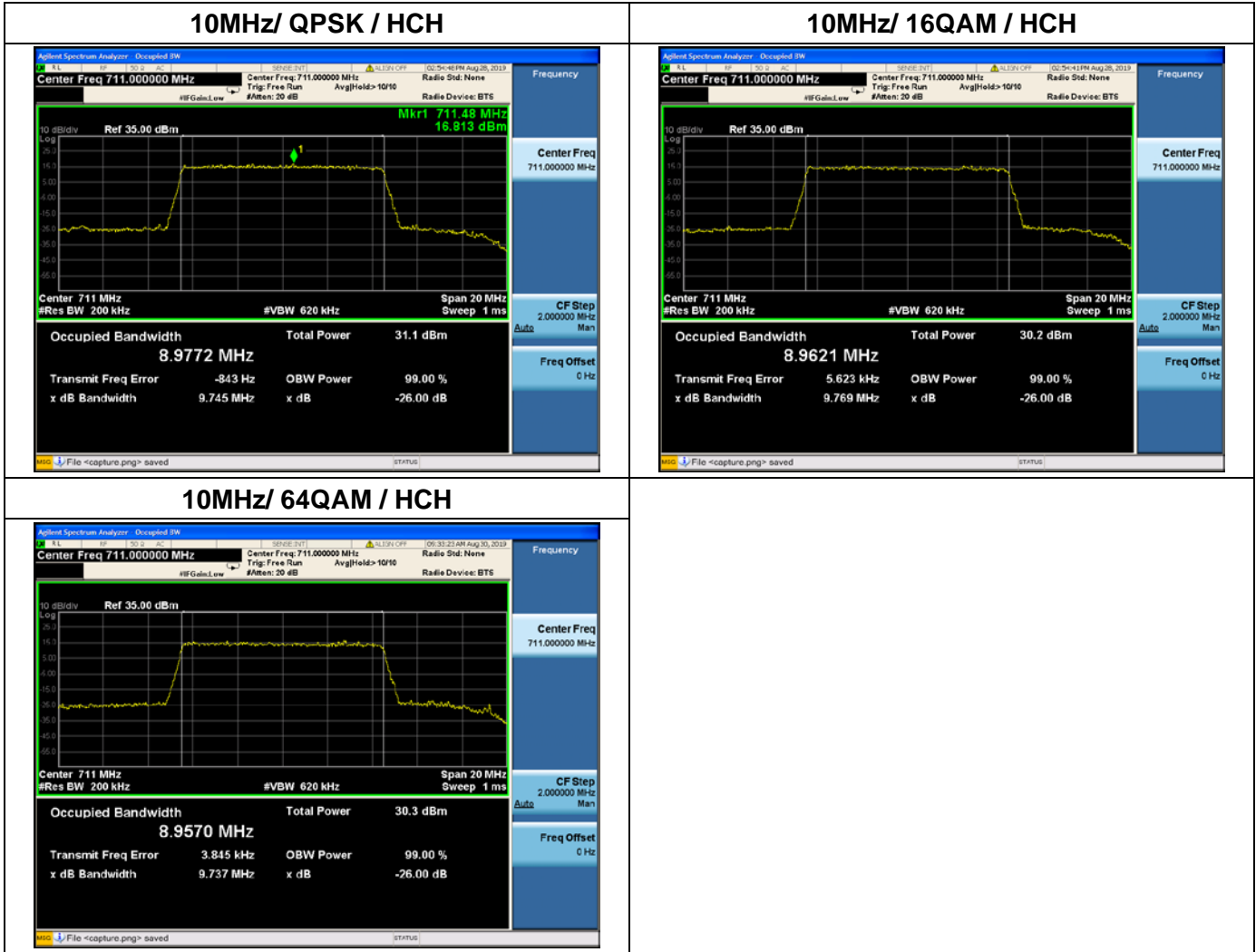


10MHz/ 16QAM / MCH



10MHz/ 64QAM / MCH

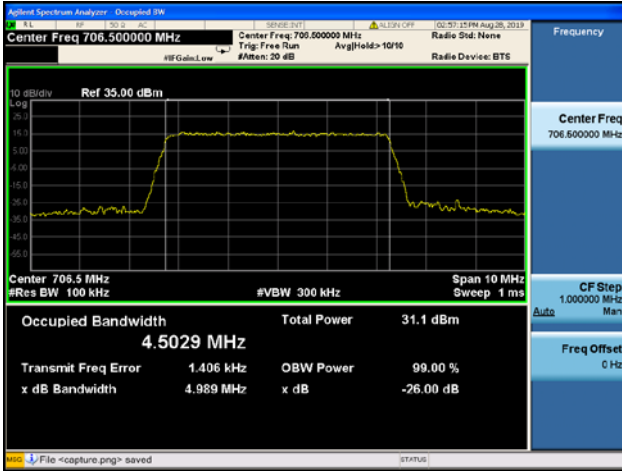




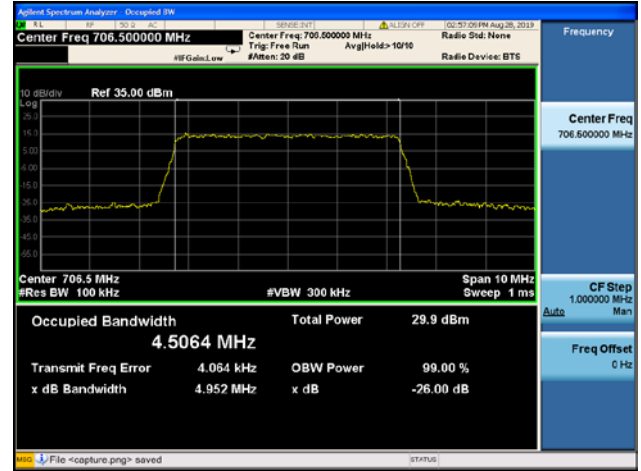


LTE Band 17 99% & 26dB Bandwidth

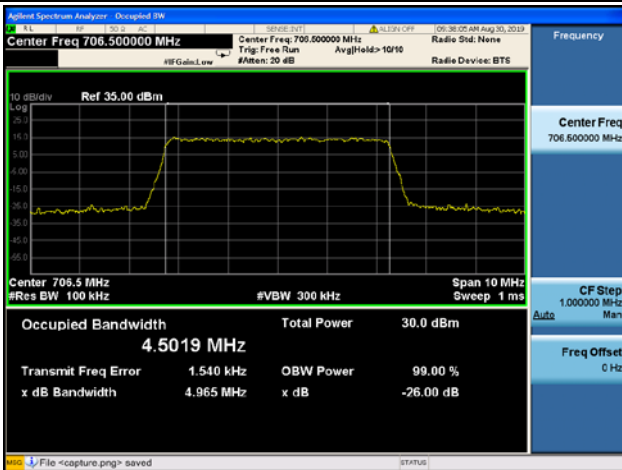
5MHz/QPSK / LCH



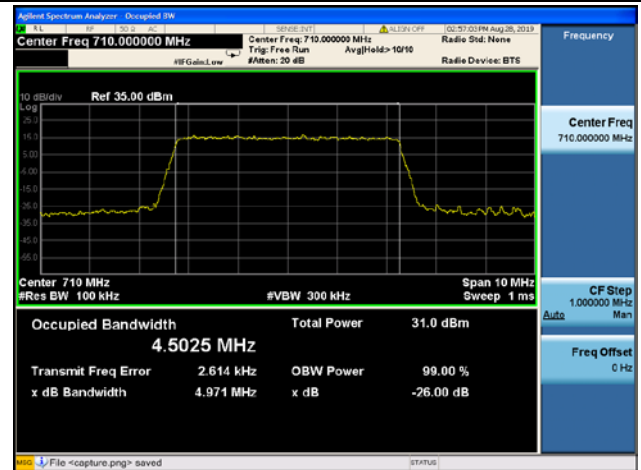
5MHz/16QAM / LCH



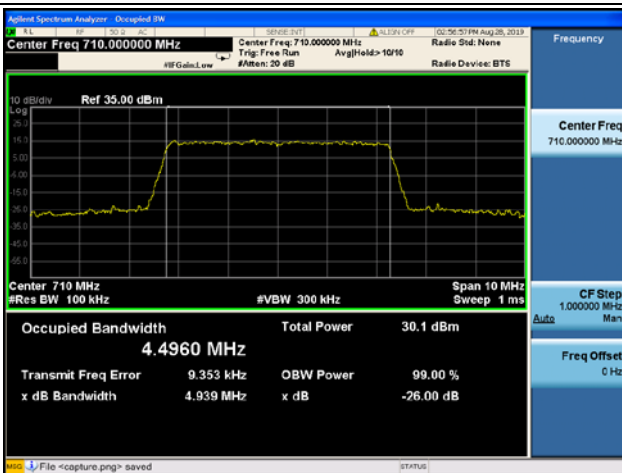
5MHz/ 64QAM / LCH



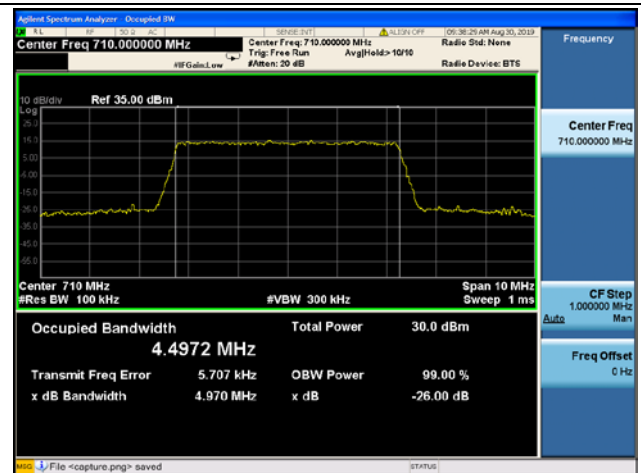
5MHz/QPSK / MCH



5MHz/ 16QAM / MCH



5MHz/ 64QAM / MCH

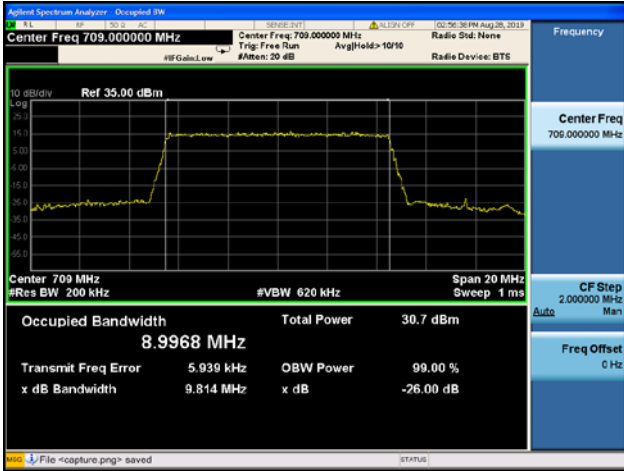




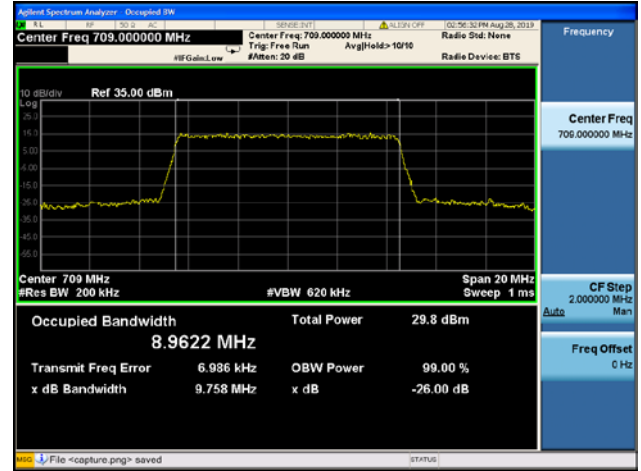


LTE Band 17 99% & 26dB Bandwidth

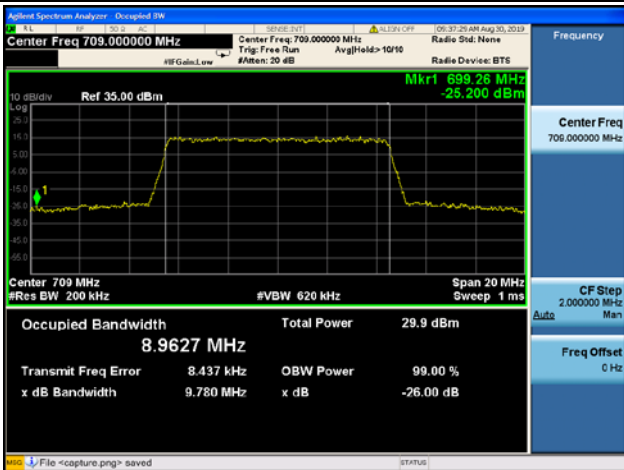
10MHz/QPSK / LCH



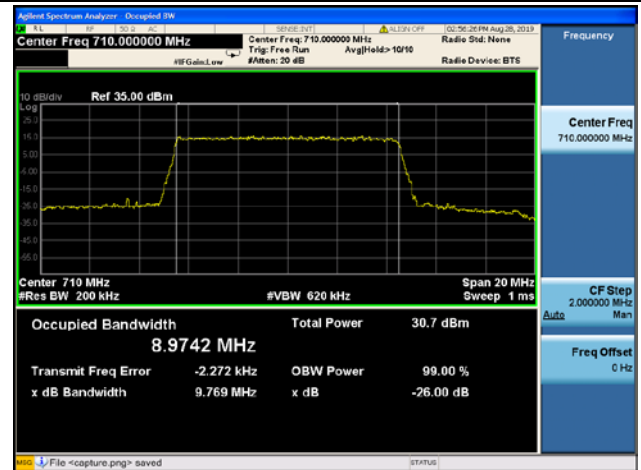
10MHz/16QAM / LCH



10MHz/ 64QAM / LCH



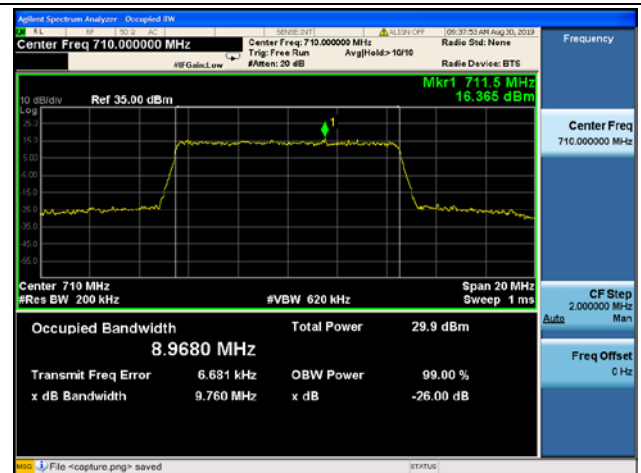
10MHz/QPSK / MCH

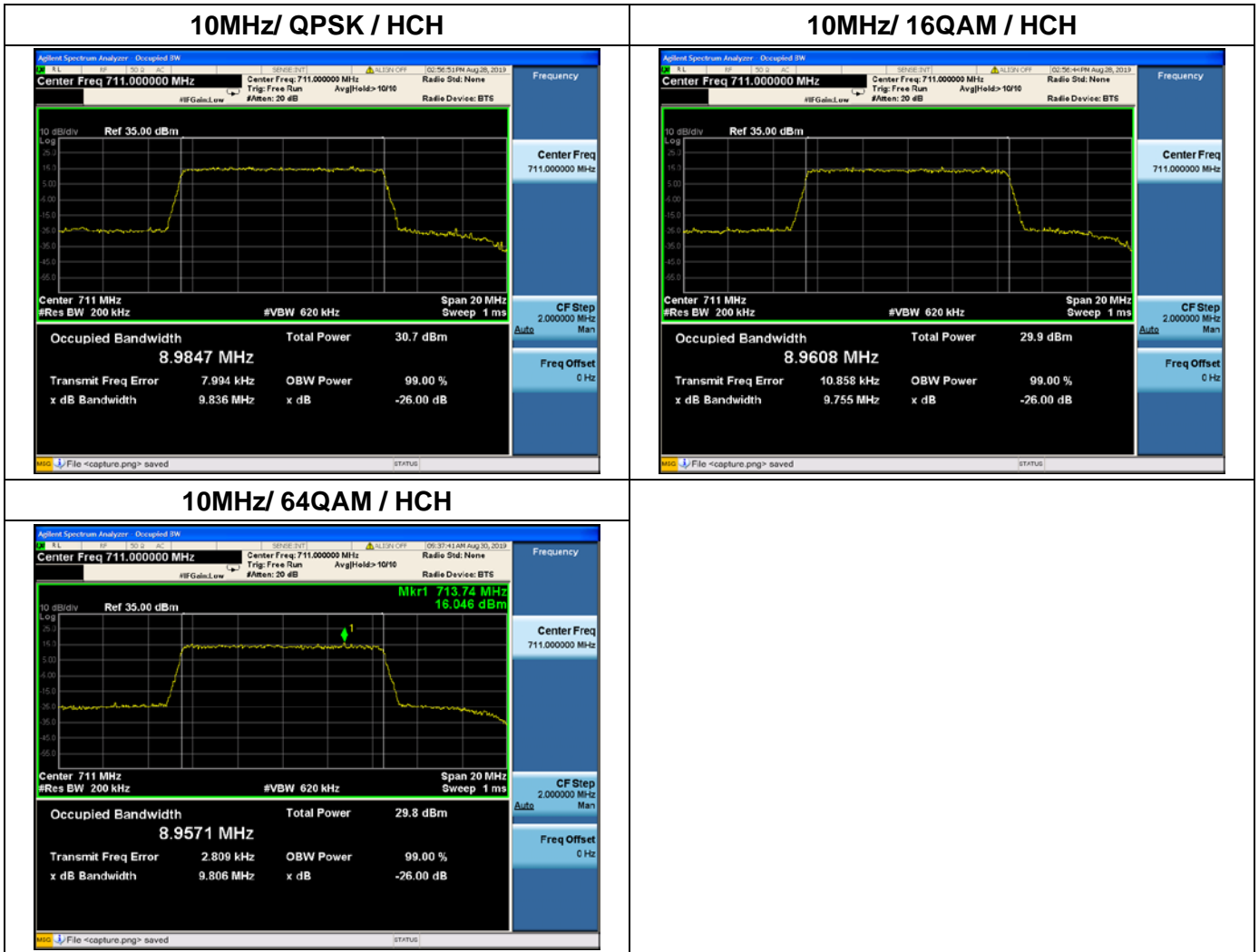


10MHz/ 16QAM / MCH



10MHz/ 64QAM / MCH





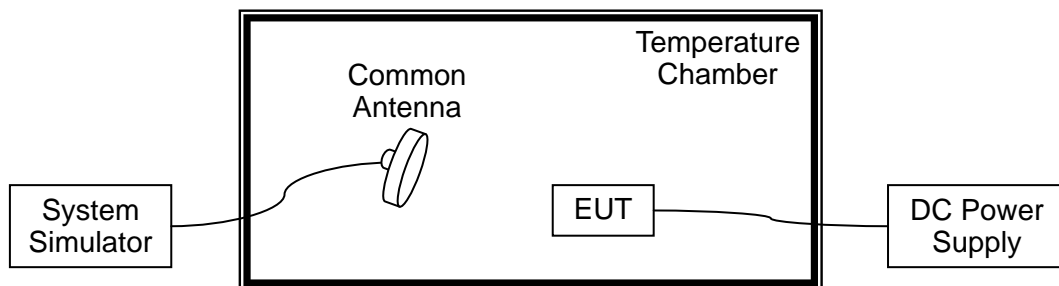
## 2.3. Frequency Stability

### 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  $-10^{\circ}\text{C}$  to  $+45^{\circ}\text{C}$  at intervals of not more than  $10^{\circ}\text{C}$ .
- (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  $20^{\circ}\text{C}$ .





LTE Band 2, QPSK, Channel 18900, Frequency 1880.0MHz					
Limit =Within Authorized Band					
Voltage(%)	Power(VDC )	Temp(°C)	Fre. Dev.(Hz)	Deviation (ppm)	Result
100	3.82	+20 (Ref)	31	0.016	PASS
100		-10	14	0.007	
100		0	-64	-0.034	
100		+10	-67	-0.036	
100		+20	-49	-0.026	
100		+30	52	0.028	
100		+40	56	0.030	
100		+45	45	0.024	
115	4.4	+20	35	0.019	
85	3.3	+20	37	0.020	

LTE Band 4, QPSK, Channel 20175, Frequency 1732.5MHz					
Limit =Within Authorized Band					
Voltage(%)	Power(VDC )	Temp(°C)	Fre. Dev.(Hz)	Deviation (ppm)	Result
100	3.82	+20 (Ref)	53	0.031	PASS
100		-10	-57	-0.033	
100		0	42	0.024	
100		+10	-43	-0.025	
100		+20	-47	-0.027	
100		+30	31	0.018	
100		+40	47	0.027	
100		+45	53	0.031	
115	4.4	+20	26	0.015	
85	3.3	+20	-15	-0.009	

LTE Band 5, QPSK, Channel 20525, Frequency 836.5MHz					
Limit=±2.5ppm					
Voltage (%)	Power (VDC)	Temp (°C)	Fre. Dev. (Hz)	Deviation (ppm)	Result
100	3.82	+20 (Ref)	52	0.025	PASS



100		-10	-57	-0.027	
100		0	38	0.018	
100		+10	-43	-0.021	
100		+20	-37	-0.018	
100		+30	73	0.035	
100		+40	47	0.022	
100		+45	27	0.013	
115	4.4	+20	26	0.012	
85	3.3	+20	-42	-0.020	

LTE Band 7, QPSK, Channel 21100, Frequency 2535MHz					
Limit= Within Authorized Band					
Voltage (%)	Power (VDC)	Temp (°C)	Fre. Dev. (Hz)	Deviation (ppm)	Result
100	3.82	+20 (Ref)	26	0.010	PASS
100		-10	-42	-0.017	
100		0	45	0.018	
100		+10	-27	-0.011	
100		+20	-47	-0.019	
100		+30	25	0.010	
100		+40	26	0.010	
100		+45	17	0.007	
115	4.4	+20	36	0.014	
85	3.3	+20	-25	-0.010	

LTE Band 12, QPSK, Channel 23095, Frequency 707.5MHz					
Limit =Within Authorized Band					
Voltage(%)	Power(VDC )	Temp(°C)	Fre. Dev.(Hz)	Deviation (ppm)	Result
100	3.82	+20 (Ref)	26	0.015	PASS
100		-10	-66	-0.037	
100		0	45	0.025	
100		+10	-27	-0.015	
100		+20	-27	-0.015	
100		+30	25	0.014	
100		+40	56	0.032	
100		+45	17	0.010	
115	4.4	+20	37	0.021	



85	3.3	+20	-25	-0.014	
----	-----	-----	-----	--------	--

LTE Band 17, QPSK, Channel 23790, Frequency 710MHz					
Limit =Within Authorized Band					
Voltage(%)	Power(VDC )	Temp(°C)	Fre. Dev.(Hz)	Deviation (ppm)	Result
100	3.82	+20 (Ref)	51	0.029	PASS
100		-10	-53	-0.030	
100		0	42	0.024	
100		+10	-7	-0.004	
100		+20	-39	-0.022	
100		+30	27	0.015	
100		+40	37	0.021	
100		+45	13	0.007	
115	4.4	+20	36	0.020	
85	3.3	+20	-55	-0.031	

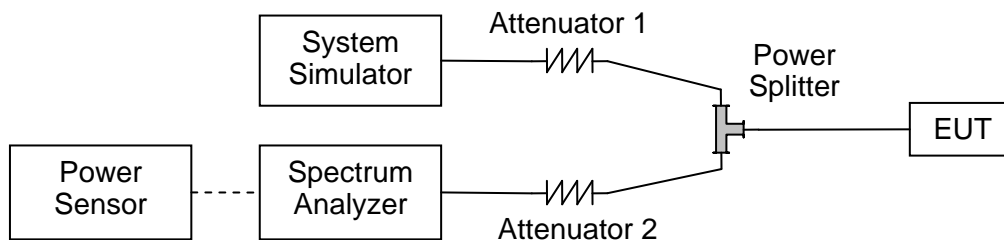
## 2.4. Peak to Average Ratio

### 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 EUT is 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 50 Ohm; 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 2						
BW (MHz)	Modulation	Low CH	Mid CH	High CH	Limit (dB)	Verdict
1.4	QPSK	5.03	5.37	5.4	<=13	PASS
	16QAM	5.97	5.80	5.93	<=13	PASS
	64QAM	6.00	5.80	5.97	<=13	PASS
3	QPSK	5.05	5.22	5.19	<=13	PASS
	16QAM	5.99	5.86	5.93	<=13	PASS
	64QAM	5.98	5.84	5.91	<=13	PASS
5	QPSK	5.18	5.29	5.22	<=13	PASS
	16QAM	5.91	5.84	5.89	<=13	PASS
	64QAM	5.90	5.84	5.89	<=13	PASS
10	QPSK	5.21	5.32	5.41	<=13	PASS
	16QAM	5.98	5.89	6.00	<=13	PASS
	64QAM	5.96	5.9	5.97	<=13	PASS
15	QPSK	5.17	5.21	5.31	<=13	PASS
	16QAM	6.01	5.86	6.05	<=13	PASS
	64QAM	6.00	5.88	6.02	<=13	PASS
20	QPSK	5.3	5.18	5.22	<=13	PASS
	16QAM	6.05	5.92	5.89	<=13	PASS
	64QAM	6.08	5.94	6.14	<=13	PASS



LTE Band 4						
BW (MHz)	Modulation	Low CH	Mid CH	High CH	Limit (dB)	Verdict
1.4	QPSK	5.46	5.55	5.51	<=13	PASS
	16QAM	6.13	6.00	6.01	<=13	PASS
	64QAM	6.10	6.02	6.01	<=13	PASS
3	QPSK	5.28	5.18	5.20	<=13	PASS
	16QAM	6.17	6.00	5.99	<=13	PASS
	64QAM	6.15	5.97	5.97	<=13	PASS
5	QPSK	5.42	5.38	5.27	<=13	PASS
	16QAM	6.03	5.94	5.94	<=13	PASS
	64QAM	5.99	5.98	5.90	<=13	PASS
10	QPSK	5.32	5.28	5.37	<=13	PASS
	16QAM	5.97	5.99	5.95	<=13	PASS
	64QAM	6.00	5.98	5.94	<=13	PASS
15	QPSK	5.25	5.24	5.23	<=13	PASS
	16QAM	5.93	5.92	5.90	<=13	PASS
	64QAM	5.94	5.92	5.91	<=13	PASS
20	QPSK	5.30	5.18	5.28	<=13	PASS
	16QAM	6.05	5.92	6.14	<=13	PASS
	64QAM	6.00	5.95	5.90	<=13	PASS



LTE Band 5						
BW (MHz)	Modulation	Low CH	Mid CH	High CH	Limit (dB)	Verdict
1.4	QPSK	5.64	5.57	5.43	<=13	PASS
	16QAM	6.15	6.11	6.01	<=13	PASS
	64QAM	6.12	6.08	6.00	<=13	PASS
3	QPSK	5.30	5.30	5.20	<=13	PASS
	16QAM	6.08	6.10	5.99	<=13	PASS
	64QAM	6.08	6.06	5.97	<=13	PASS
5	QPSK	5.26	5.33	5.96	<=13	PASS
	16QAM	5.96	5.96	5.33	<=13	PASS
	64QAM	5.97	5.99	5.96	<=13	PASS
10	QPSK	5.27	5.33	5.34	<=13	PASS
	16QAM	6.02	6.02	6.02	<=13	PASS
	64QAM	6.03	6.00	6.04	<=13	PASS

LTE Band 7						
BW (MHz)	Modulation	Low CH	Mid CH	High CH	Limit (dB)	Verdict
5	QPSK	5.27	5.27	5.21	<=13	PASS
	16QAM	5.95	5.95	5.87	<=13	PASS
	64QAM	5.94	5.94	5.85	<=13	PASS
10	QPSK	5.25	5.29	5.25	<=13	PASS
	16QAM	5.93	5.90	5.92	<=13	PASS
	64QAM	5.97	5.95	5.89	<=13	PASS
15	QPSK	5.25	5.24	5.15	<=13	PASS
	16QAM	5.94	5.88	5.89	<=13	PASS
	64QAM	5.97	5.93	5.88	<=13	PASS
20	QPSK	5.29	5.19	5.13	<=13	PASS
	16QAM	5.96	5.95	5.92	<=13	PASS
	64QAM	5.94	5.89	5.92	<=13	PASS

LTE Band 12						
BW (MHz)	Modulation	Low CH	Mid CH	High CH	Limit (dB)	Verdict



1.4	QPSK	5.52	5.45	5.39	<=13	PASS
	16QAM	5.98	5.96	6.00	<=13	PASS
	64QAM	5.98	6.00	6.00	<=13	PASS
3	QPSK	5.27	5.23	5.27	<=13	PASS
	16QAM	5.99	5.97	5.99	<=13	PASS
	64QAM	6.00	5.96	6.02	<=13	PASS
5	QPSK	5.35	5.34	5.41	<=13	PASS
	16QAM	5.94	5.94	5.98	<=13	PASS
	64QAM	5.97	5.94	5.97	<=13	PASS
10	QPSK	5.33	5.40	5.41	<=13	PASS
	16QAM	5.97	5.98	6.00	<=13	PASS
	64QAM	5.86	5.99	6.00	<=13	PASS

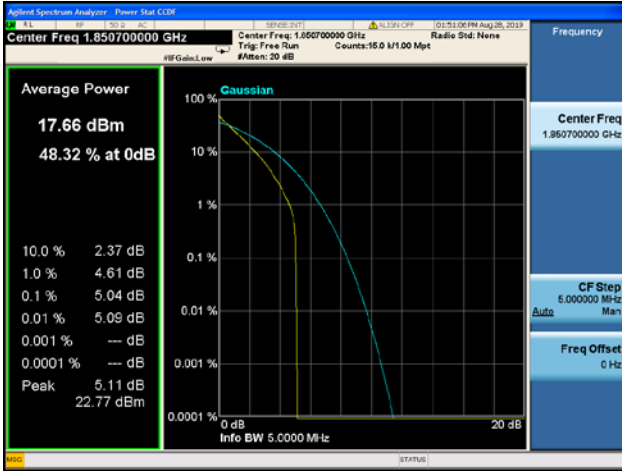
LTE Band 17						
BW (MHz)	Modulation	Low CH	Mid CH	High CH	Limit (dB)	Verdict
5	QPSK	5.37	5.09	5.41	<=13	PASS
	16QAM	5.94	5.76	5.99	<=13	PASS
	64QAM	5.96	5.94	5.96	<=13	PASS
10	QPSK	5.36	5.37	5.44	<=13	PASS
	16QAM	5.97	5.98	6.02	<=13	PASS
	64QAM	5.97	5.94	6.01	<=13	PASS



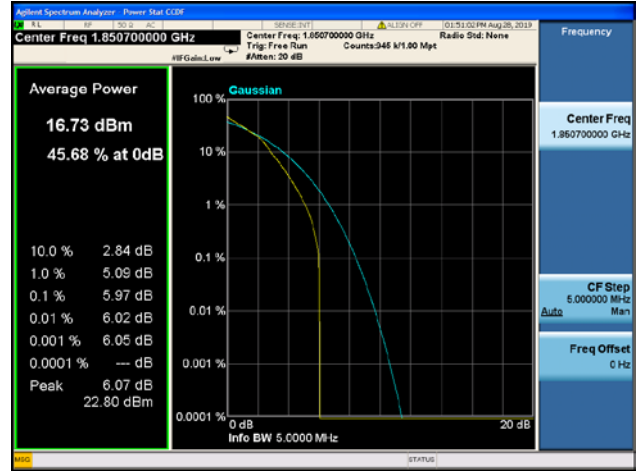


LTE Band 2 Peak-to-Average Ratio

1.4MHz/QPSK / LCH



1.4MHz/16QAM / LCH



1.4MHz/ 64QAM / LCH



1.4MHz/ QPSK / MCH



1.4MHz/16QAM / MCH

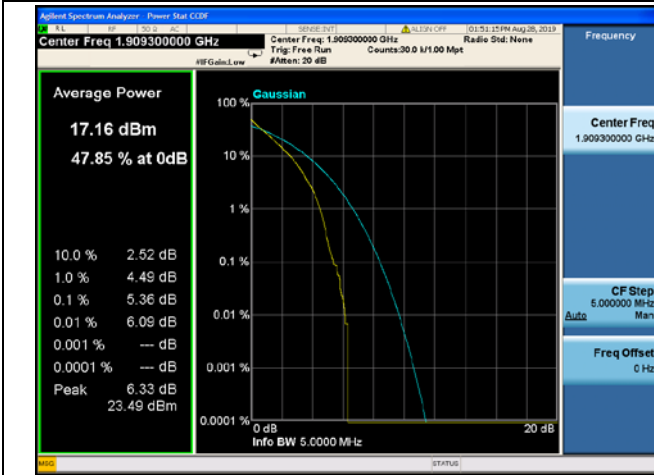


1.4MHz/ 64QAM / MCH

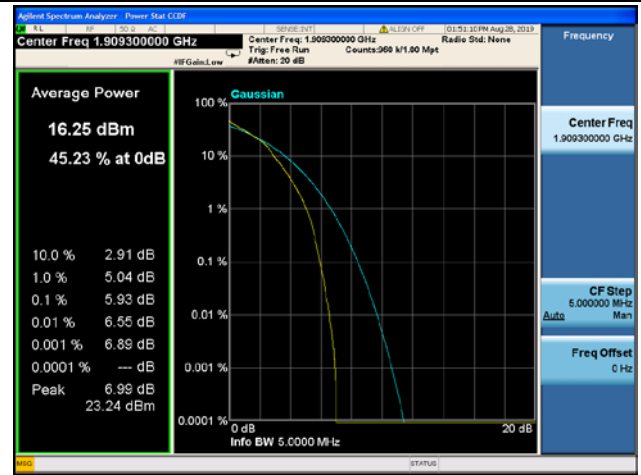




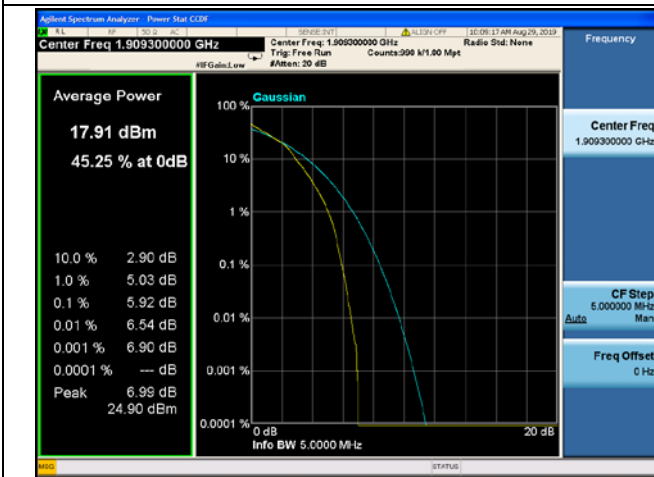
**1.4MHz/ QPSK / HCH**



**1.4MHz/16QAM / HCH**



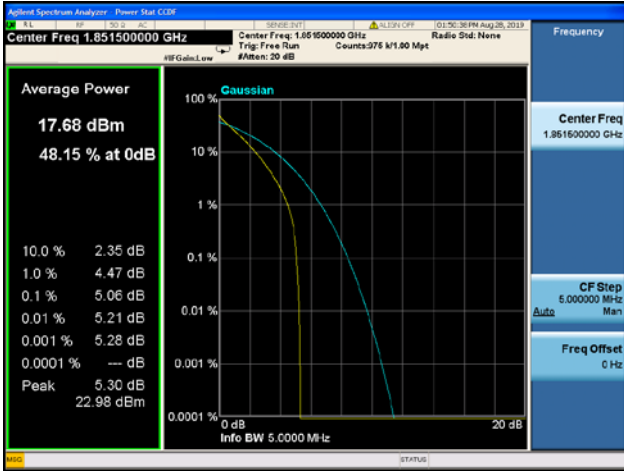
**1.4MHz/ 64QAM / HCH**



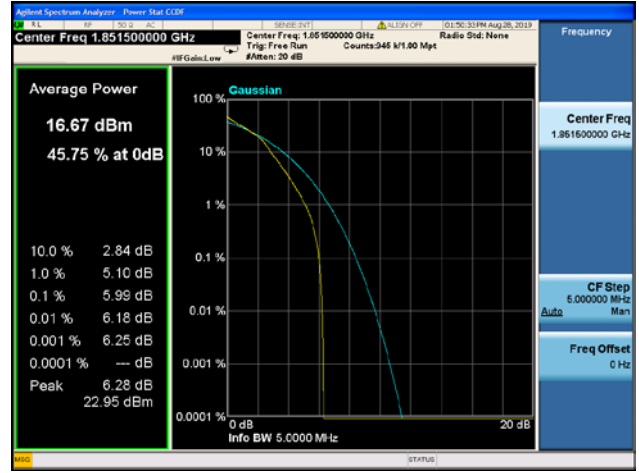


LTE Band 2 Peak-to-Average Ratio

3MHz/QPSK / LCH



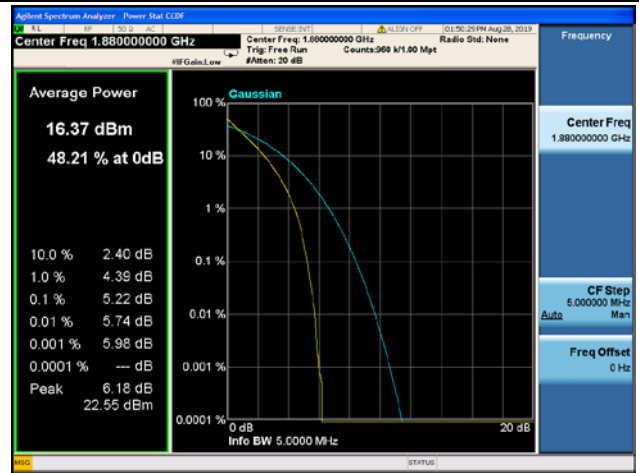
3MHz/16QAM / LCH



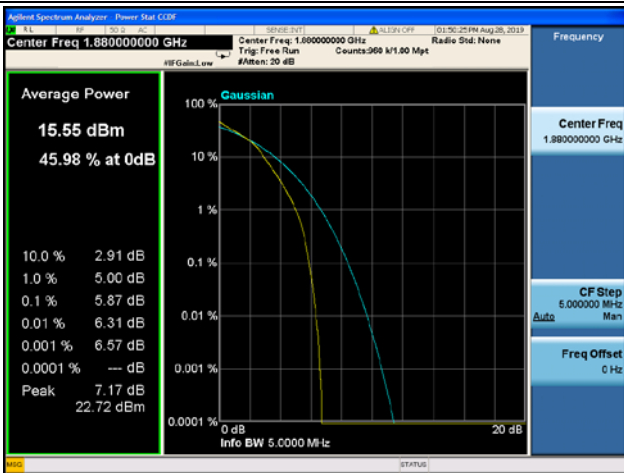
3MHz/ 64QAM / LCH



3MHz/ QPSK / MCH



3MHz/16QAM / MCH



3MHz/ 64QAM / MCH

