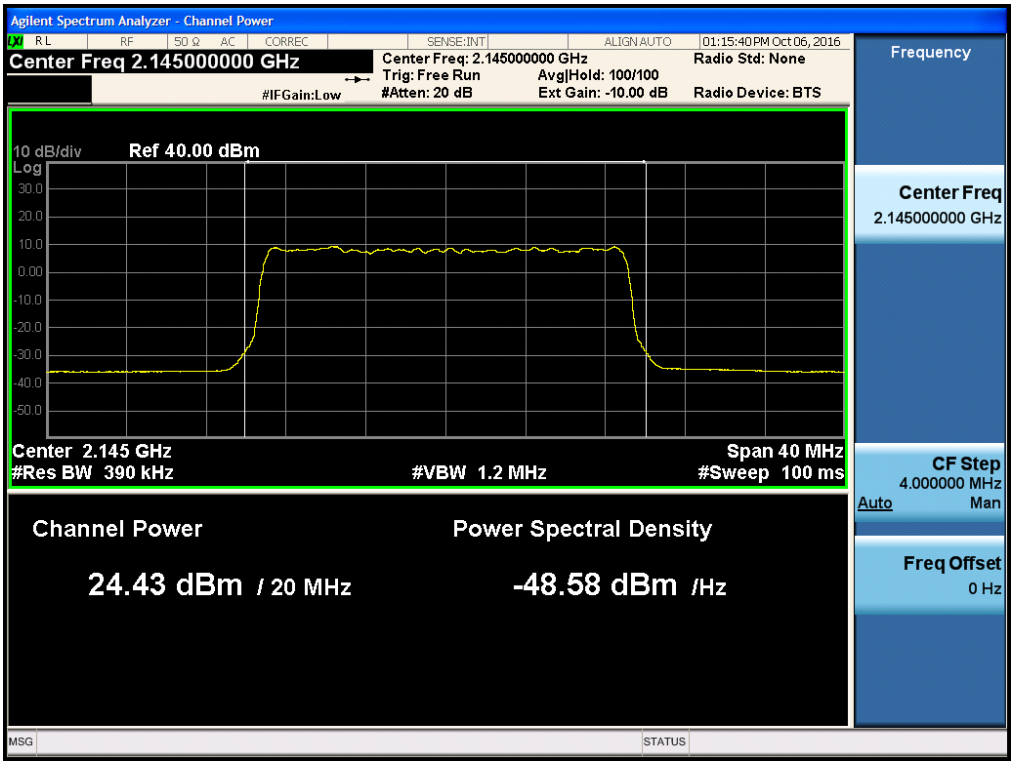
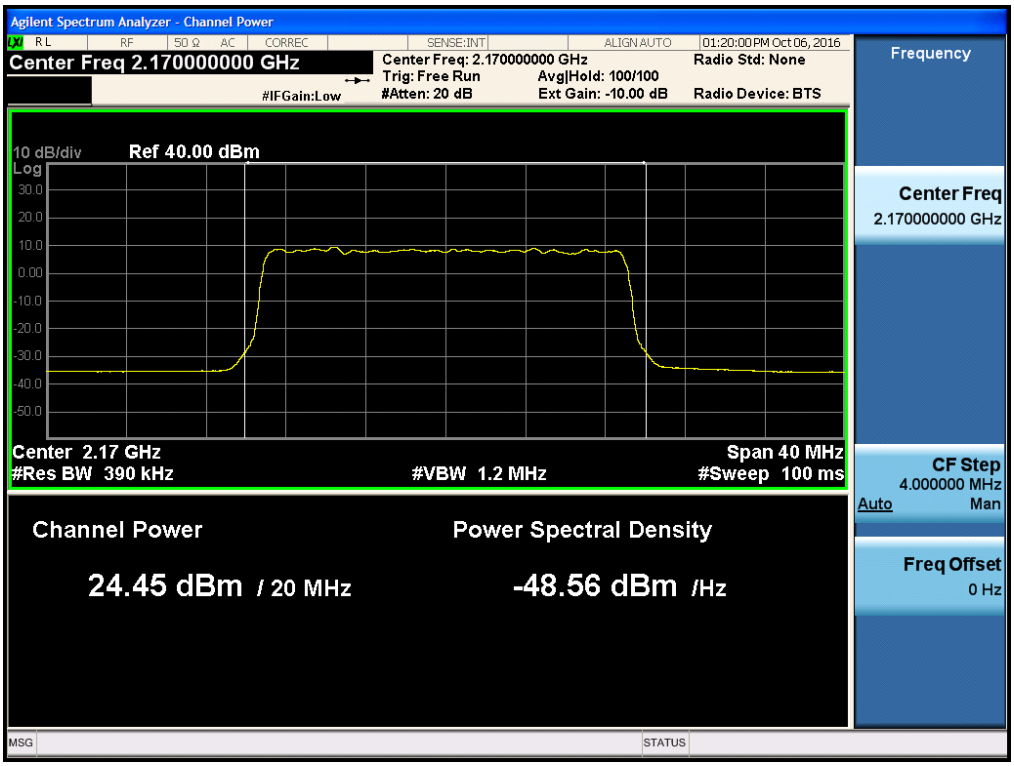
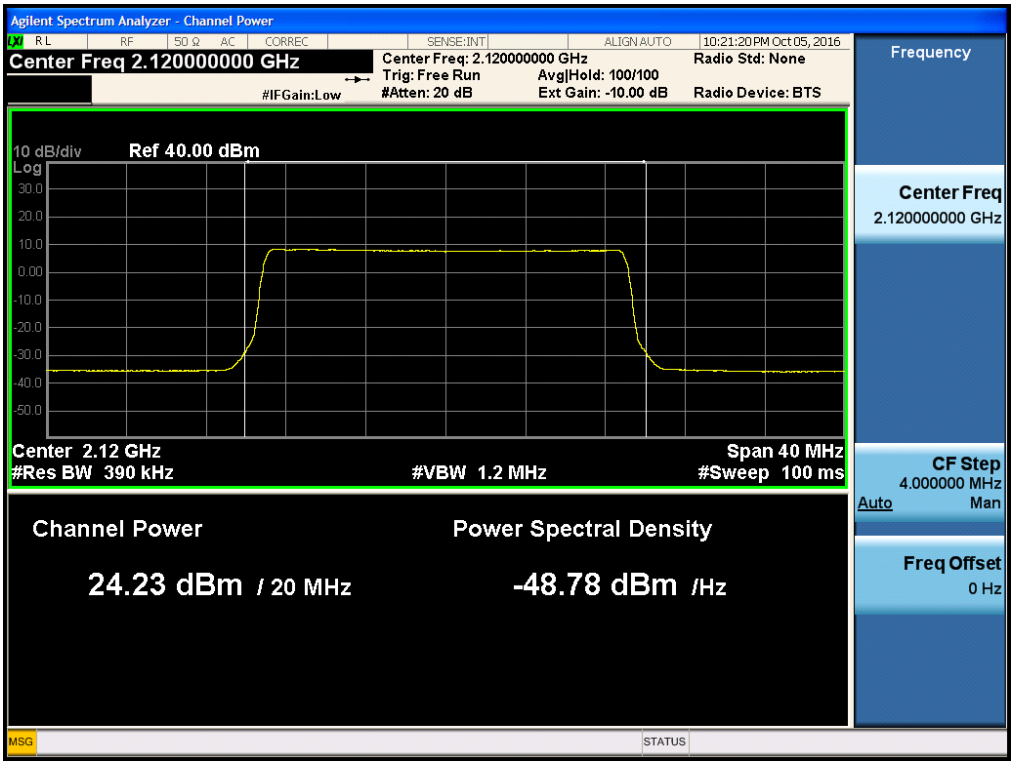
(16QAM Middle Channel)



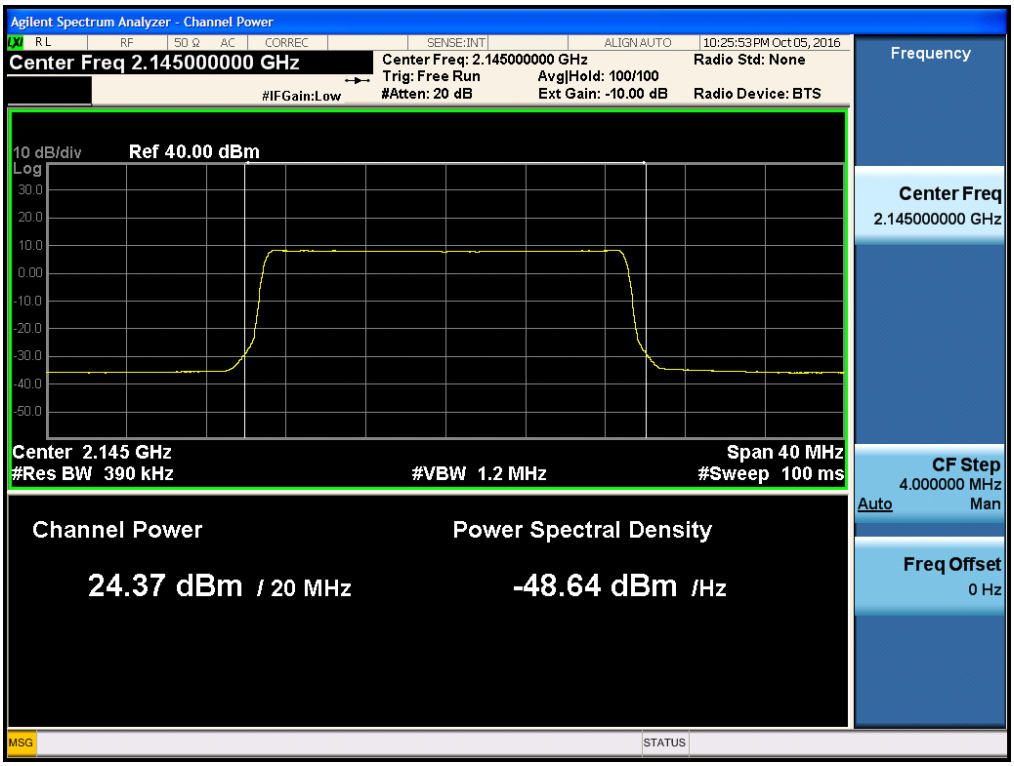
(16QAM High Channel)



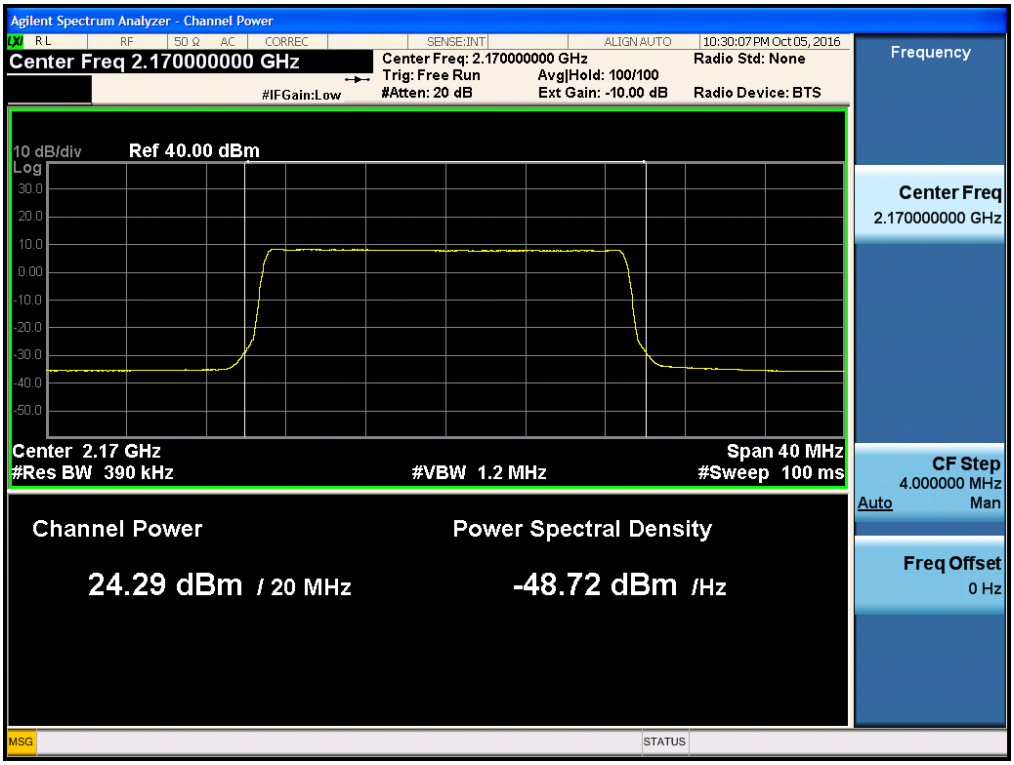
(64QAM Low Channel)



(64QAM Middle Channel)



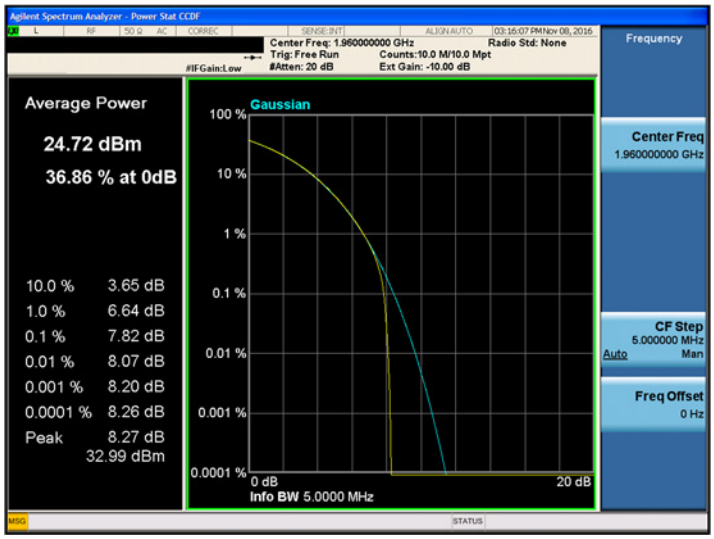
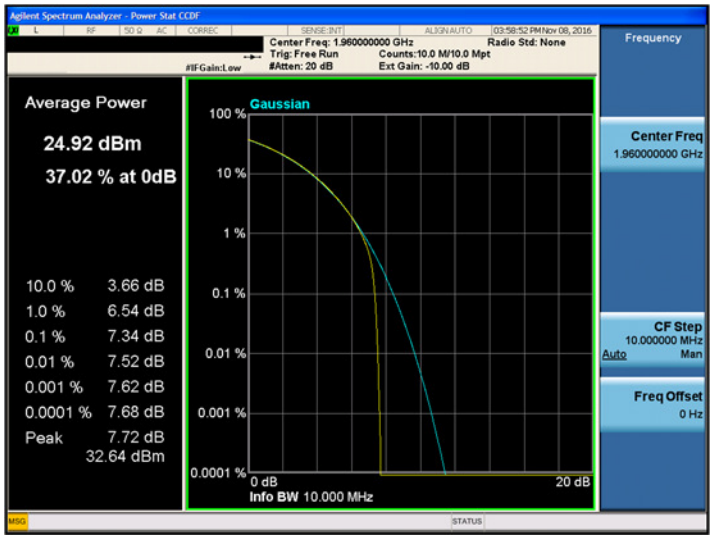
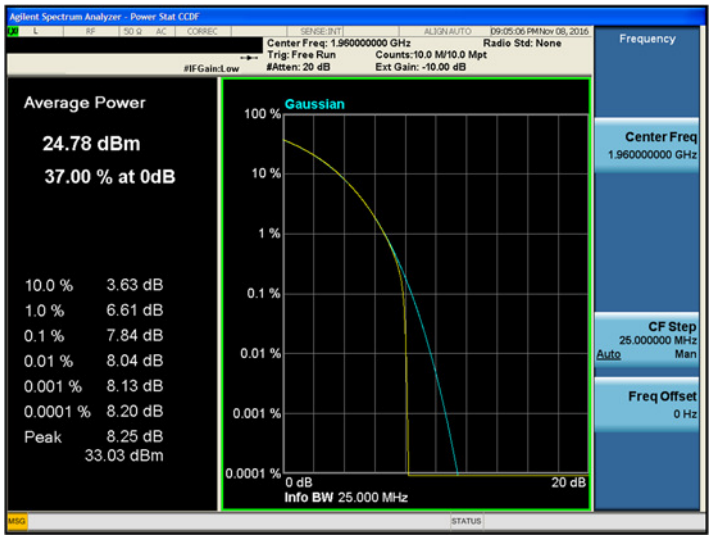
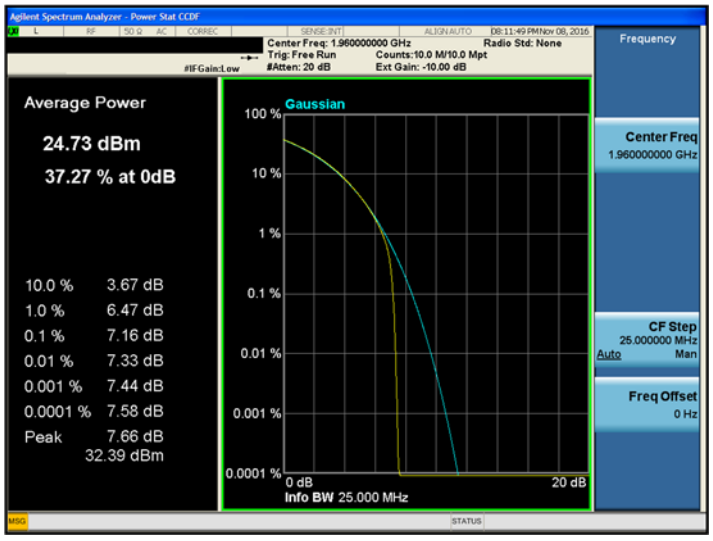
(64QAM High Channel)



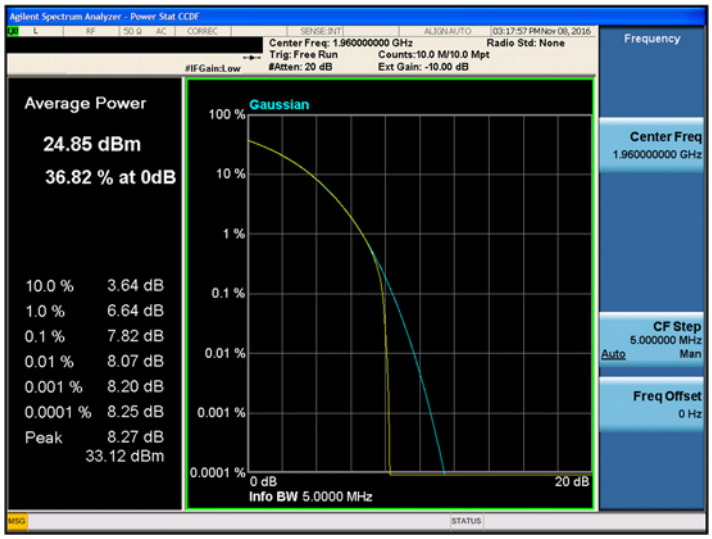
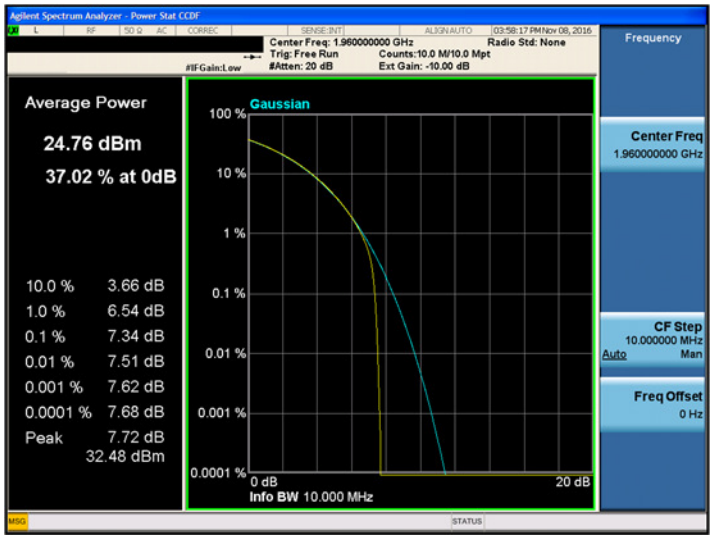
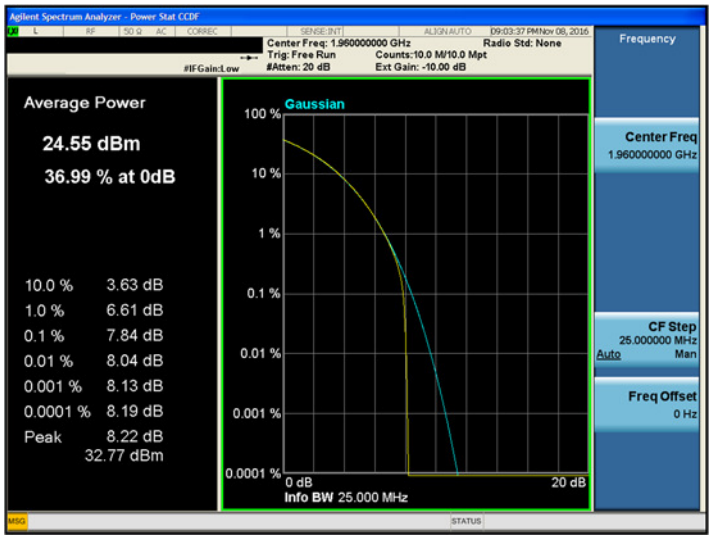
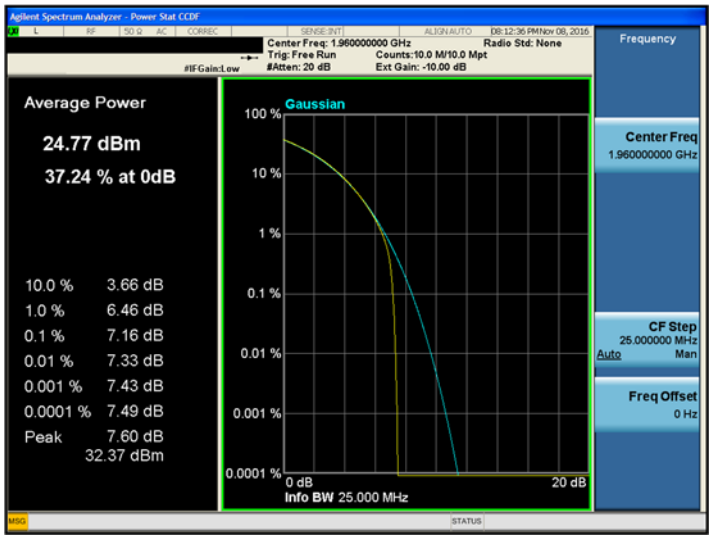
[Peak-to-Average Ratio]

PCS 1900 Test Plots for Output Port 0

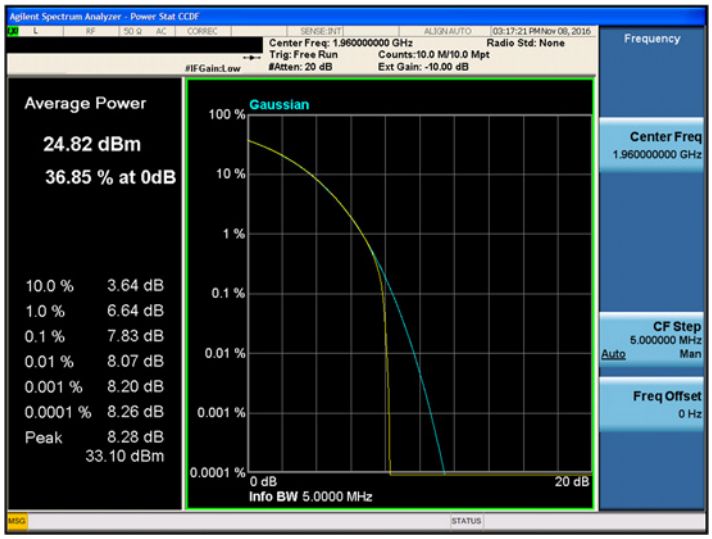
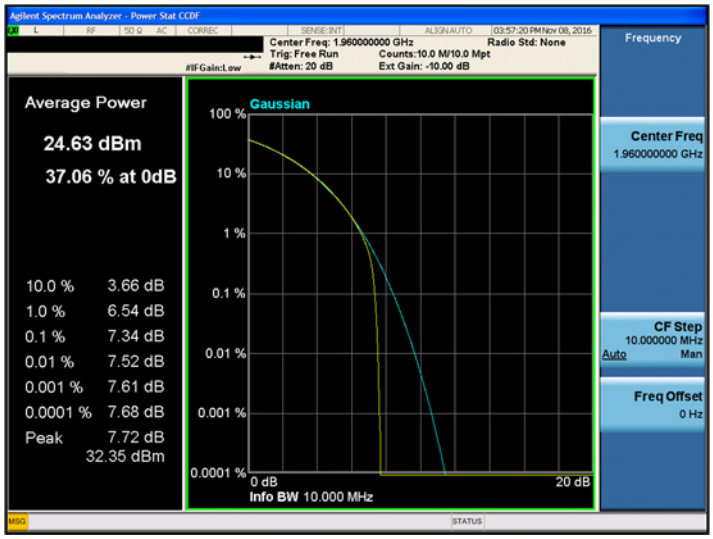
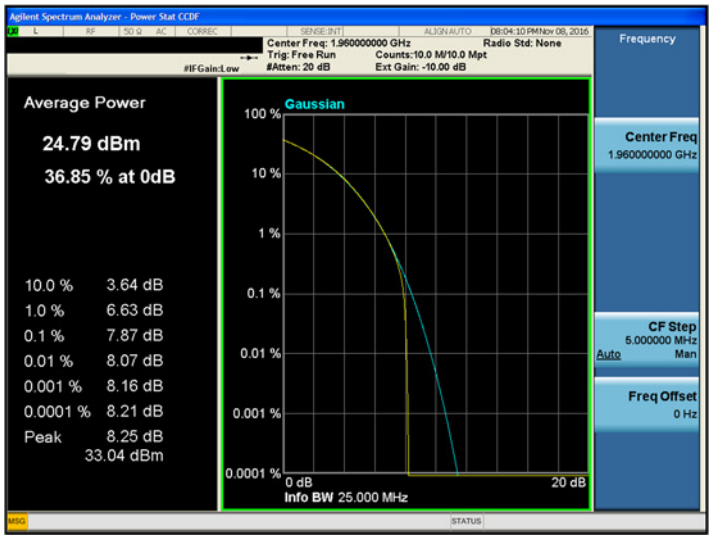
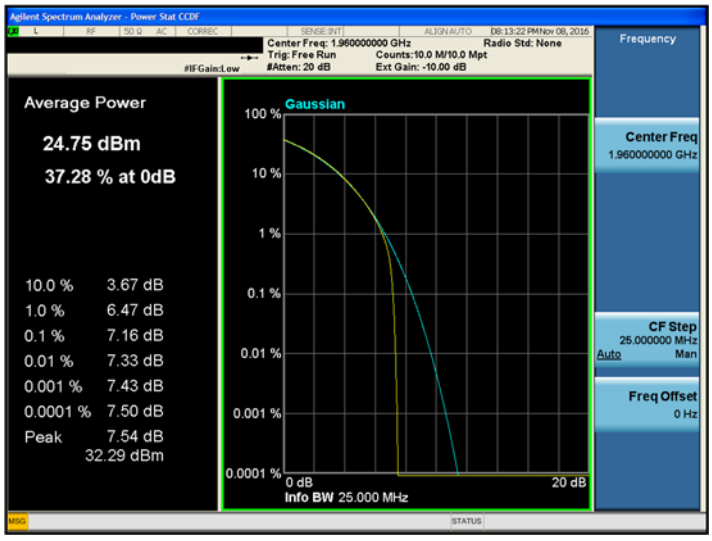
QPSK Mid Channel

LTE_5 MHz Bandwidth	LTE_10 MHz Bandwidth
	
LTE_15 MHz Bandwidth	**LTE_20 MHz Bandwidth**
	

16QAM Mid Channel

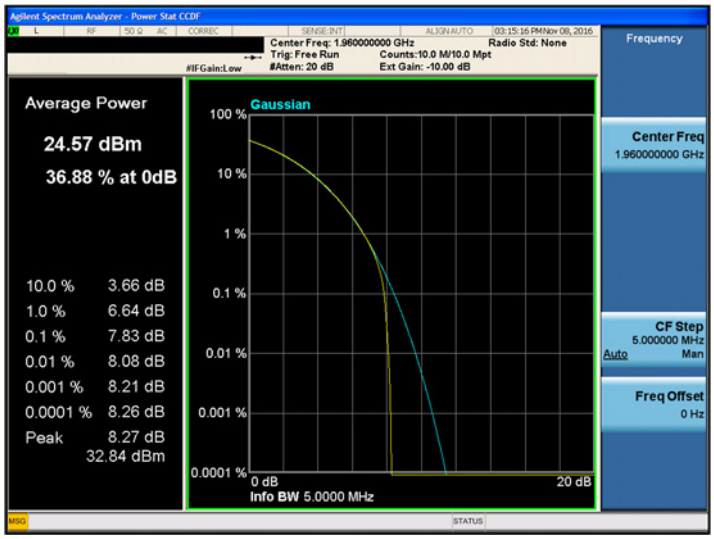
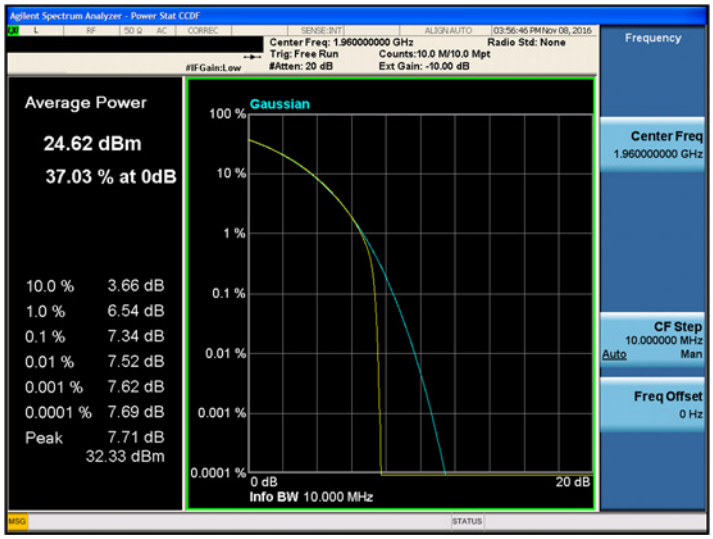
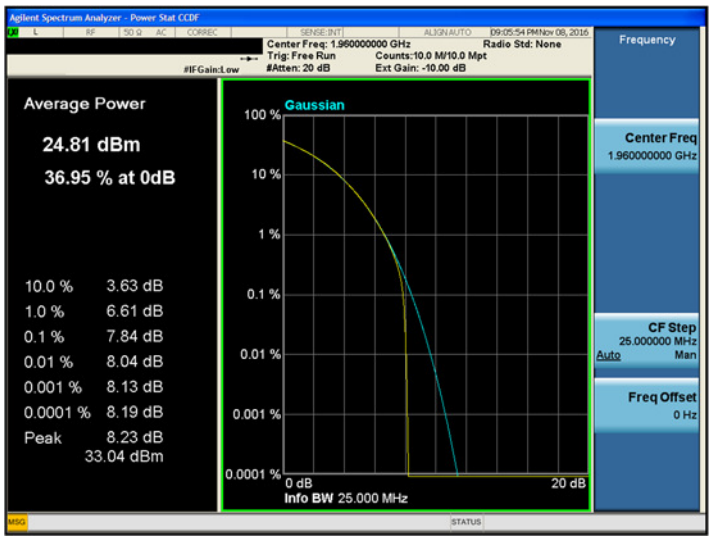
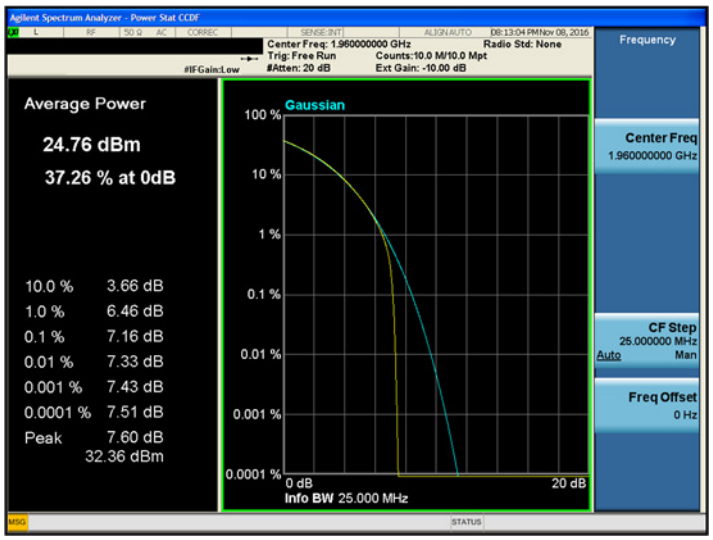
LTE_5 MHz Bandwidth	LTE_10 MHz Bandwidth
	
LTE_15 MHz Bandwidth	**LTE_20 MHz Bandwidth**
	

64QAM Mid Channel

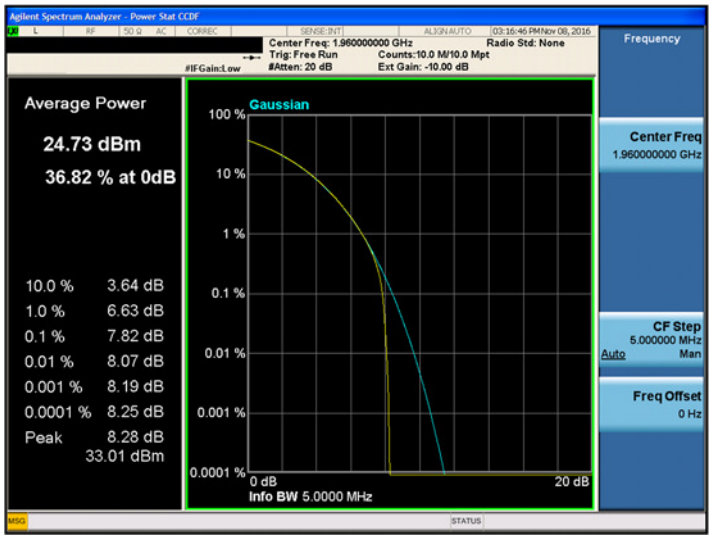
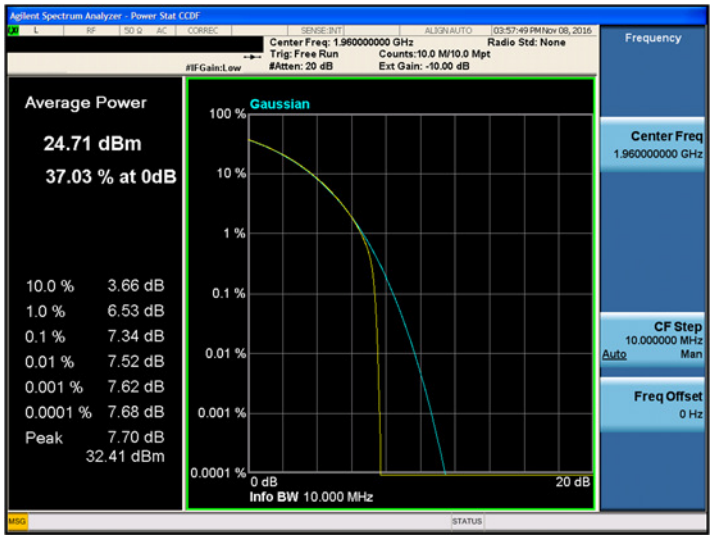
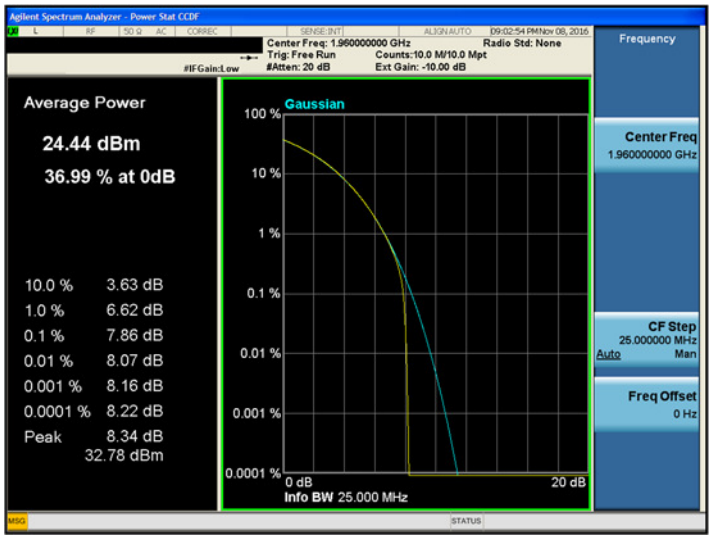
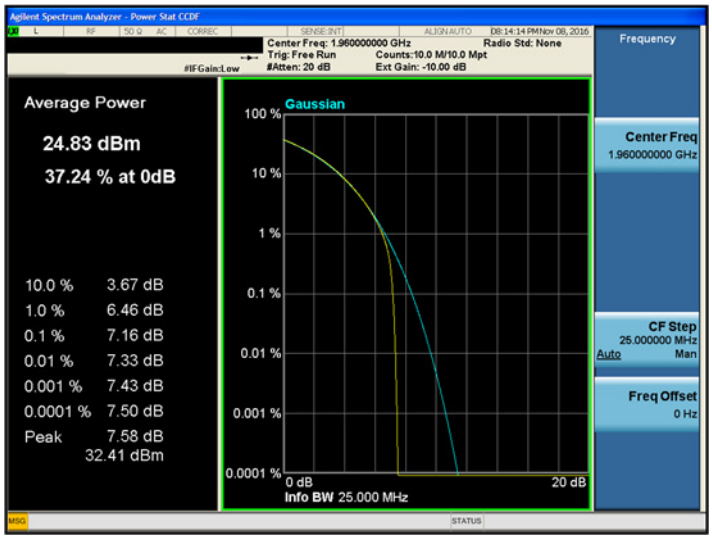
LTE_5 MHz Bandwidth	LTE_10 MHz Bandwidth
	
LTE_15 MHz Bandwidth	**LTE_20 MHz Bandwidth**
	

PCS 1900 Test Plots for Output Port 1

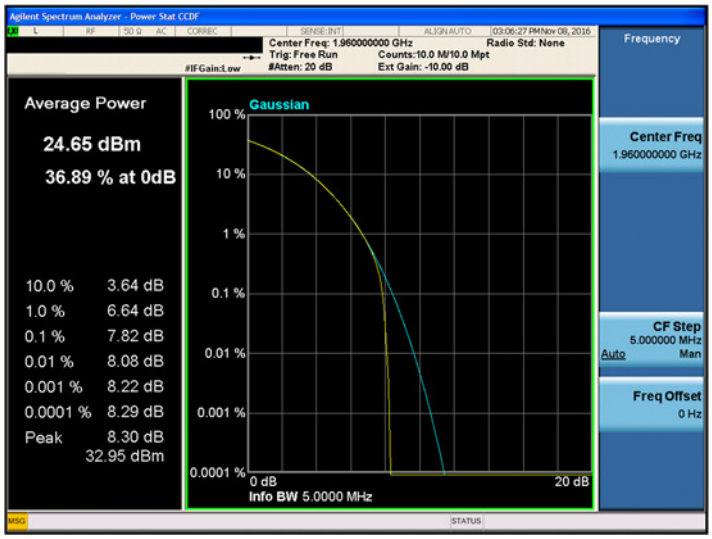
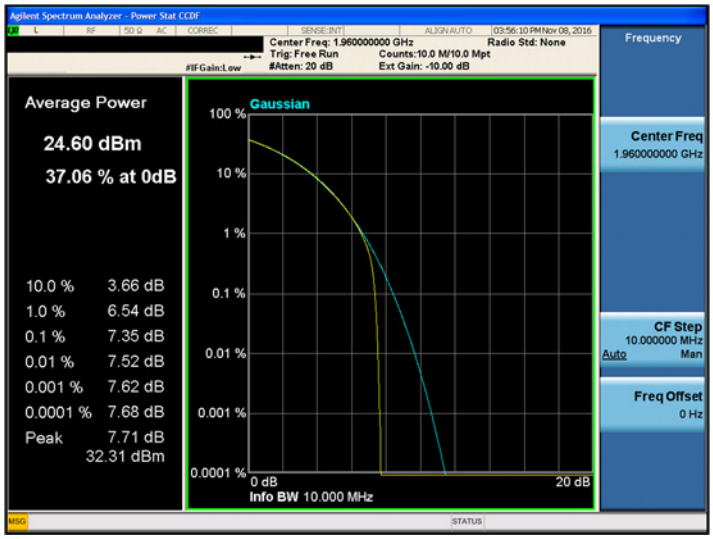
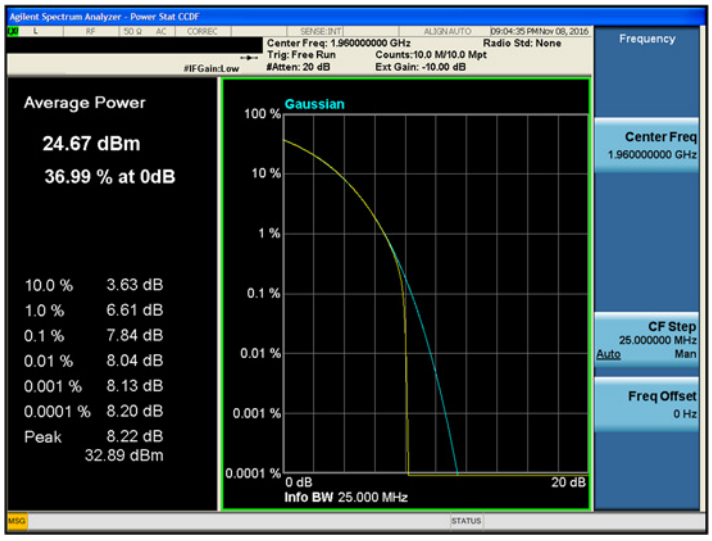
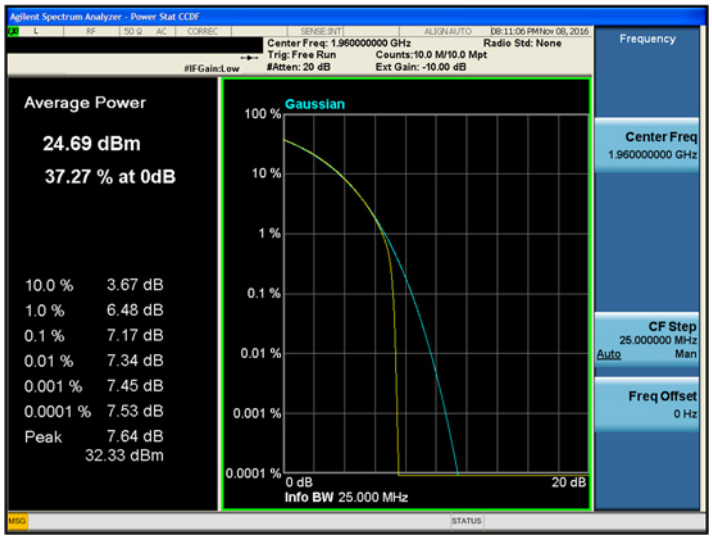
QPSK Mid Channel

LTE_5 MHz Bandwidth	LTE_10 MHz Bandwidth
	
LTE_15 MHz Bandwidth	**LTE_20 MHz Bandwidth**
	

16QAM Mid Channel

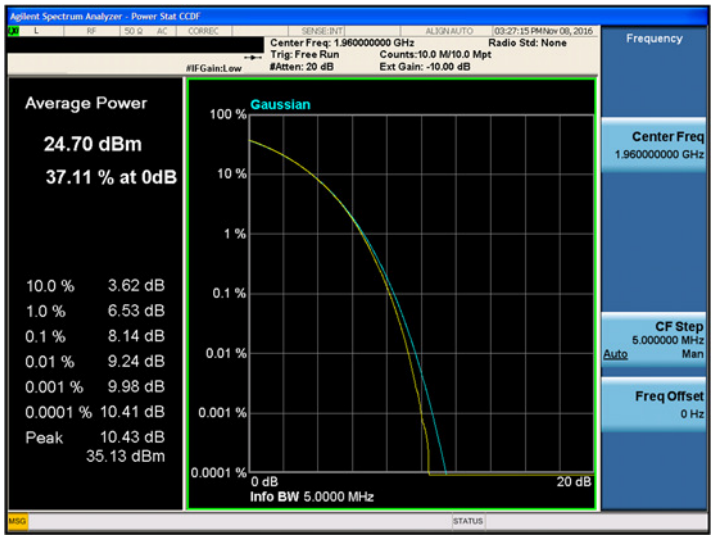
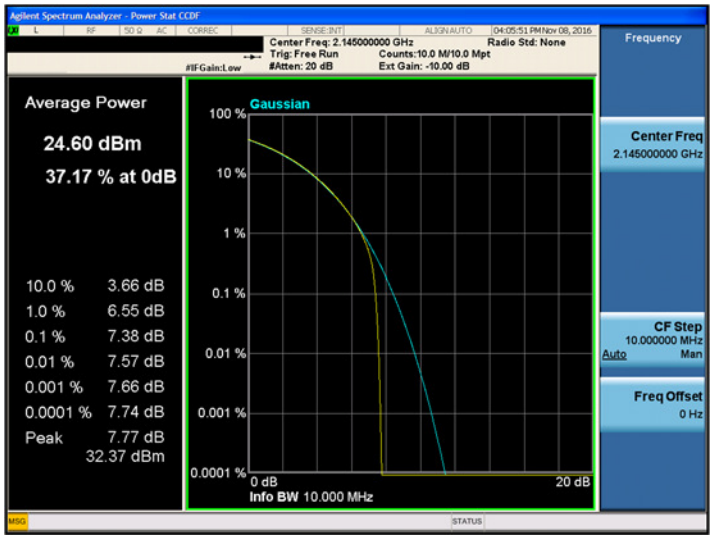
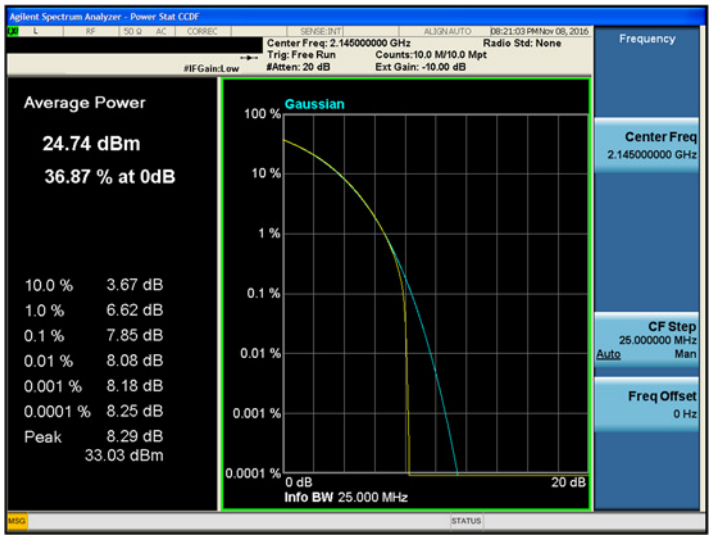
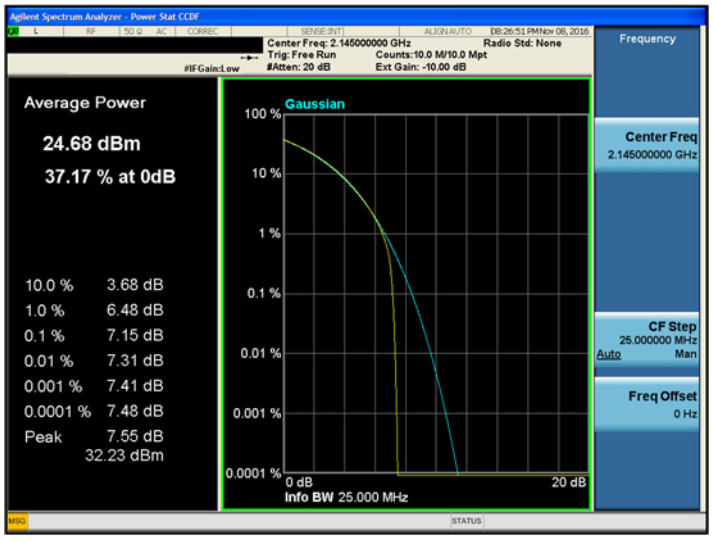
LTE_5 MHz Bandwidth	LTE_10 MHz Bandwidth
	
LTE_15 MHz Bandwidth	**LTE_20 MHz Bandwidth**
	

64QAM Mid Channel

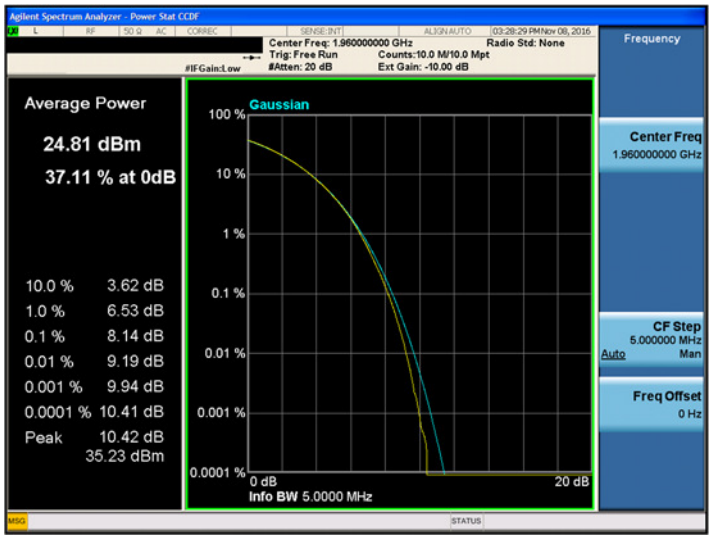
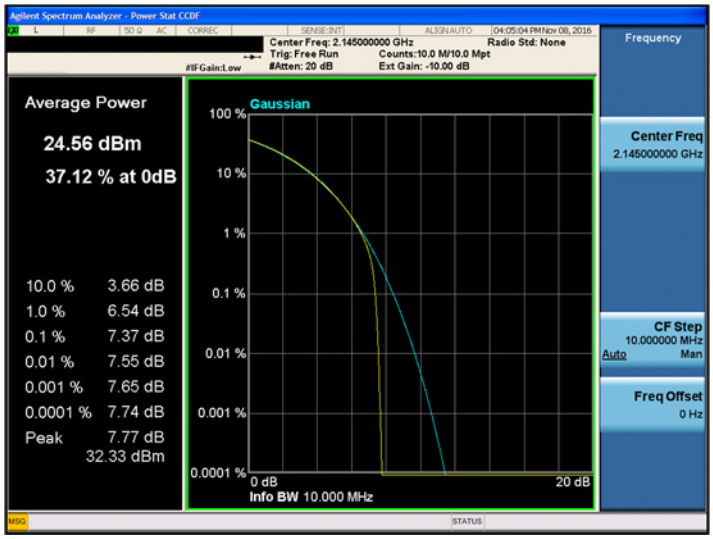
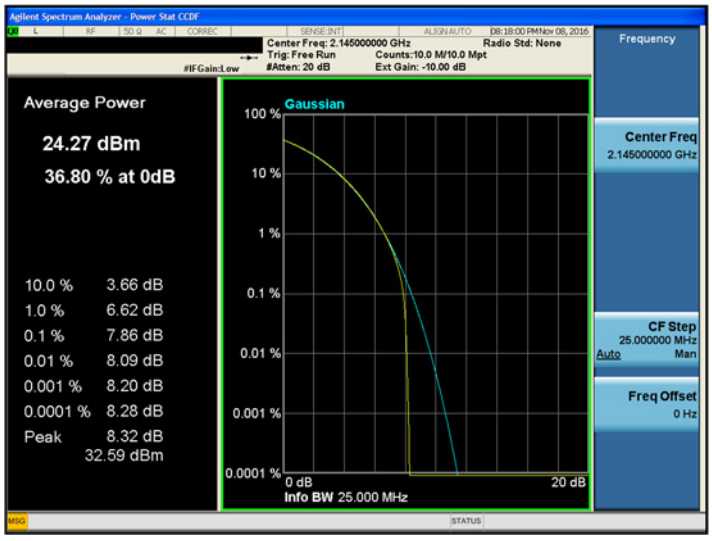
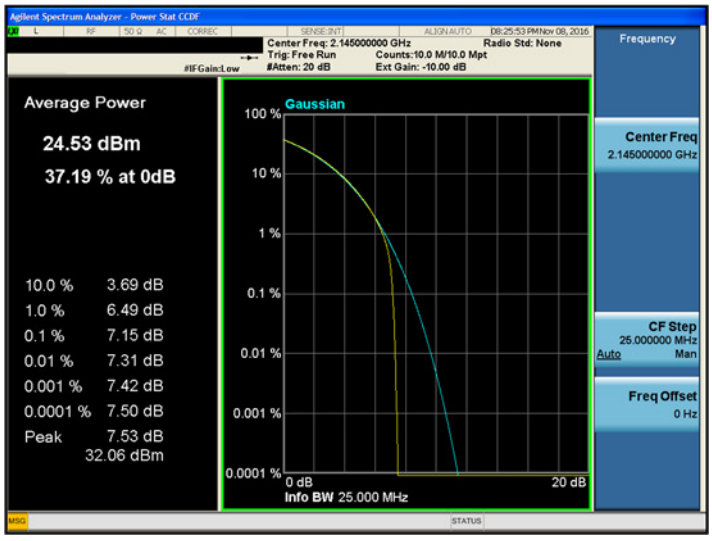
LTE_5 MHz Bandwidth	LTE_10 MHz Bandwidth
	
LTE_15 MHz Bandwidth	**LTE_20 MHz Bandwidth**
	

AWS 2100 Test Plots for Output Port 0

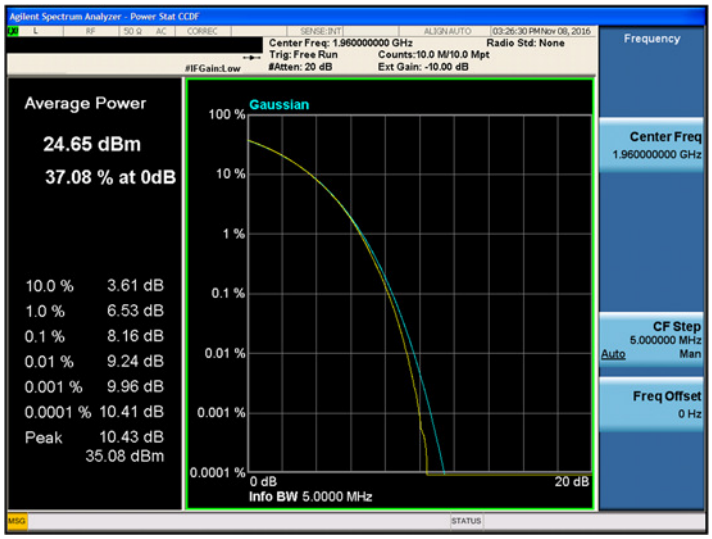
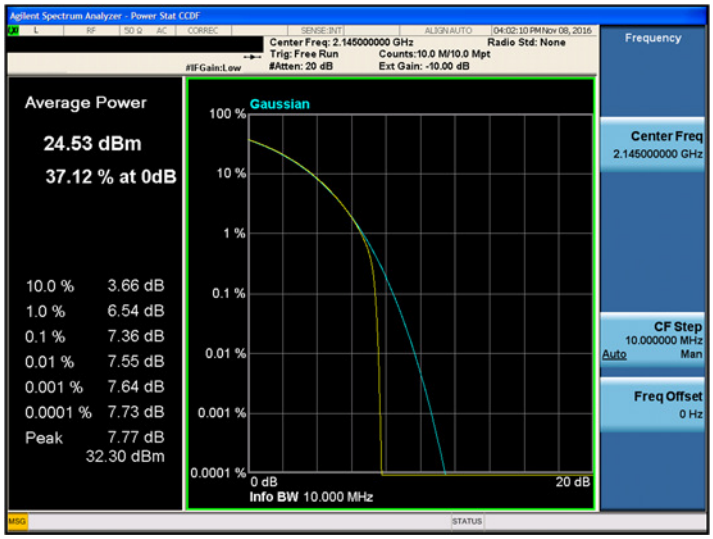
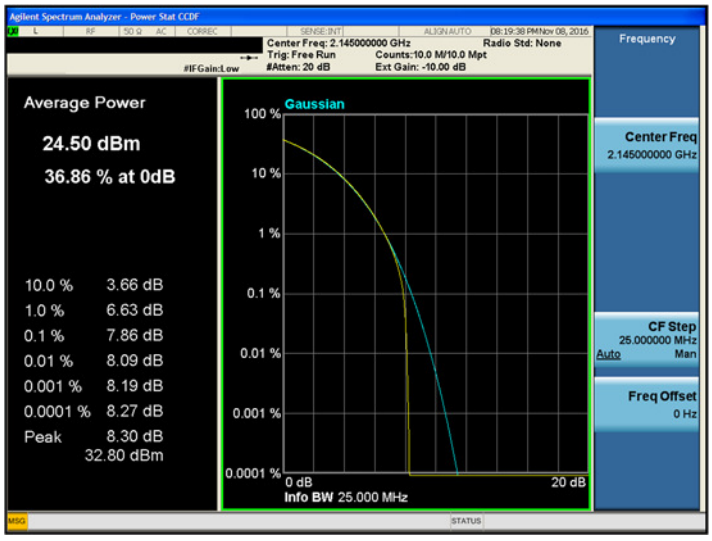
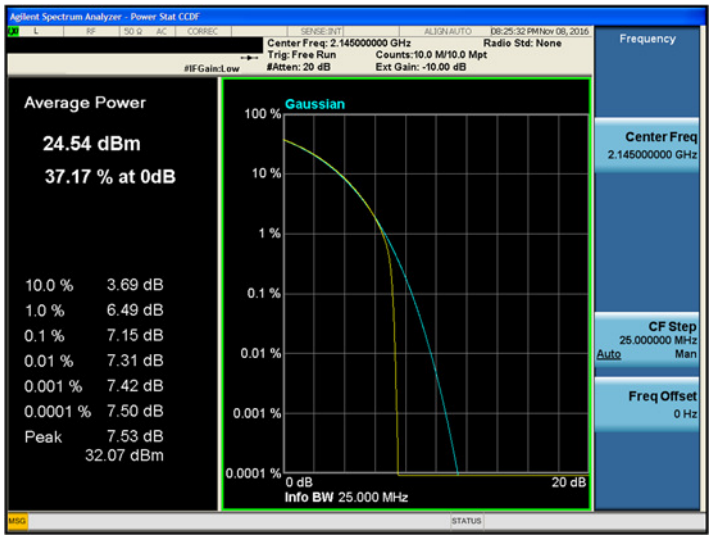
QPSK Mid Channel

LTE_5 MHz Bandwidth	LTE_10 MHz Bandwidth
	
LTE_15 MHz Bandwidth	**LTE_20 MHz Bandwidth**
	

16QAM Mid Channel

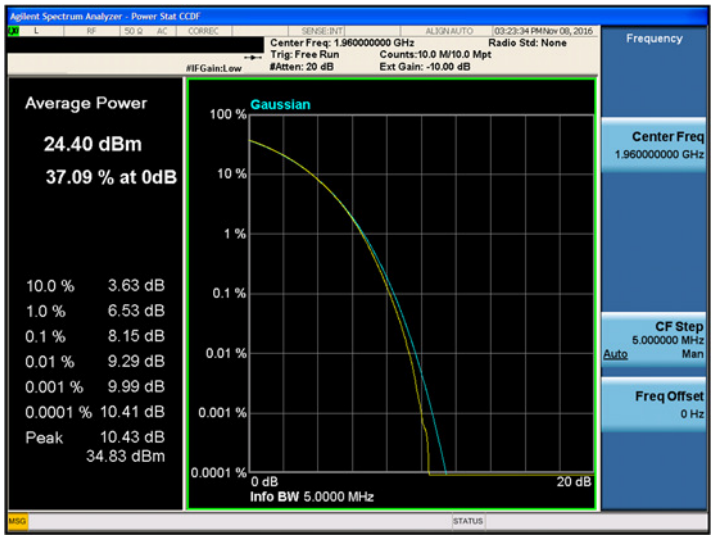
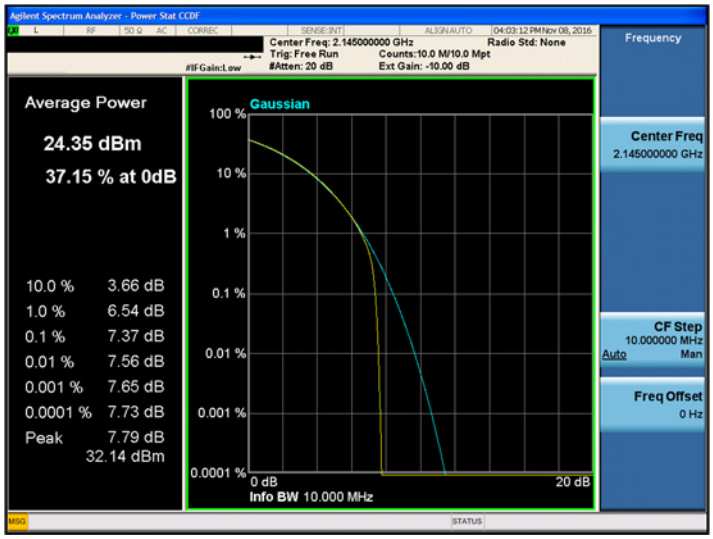
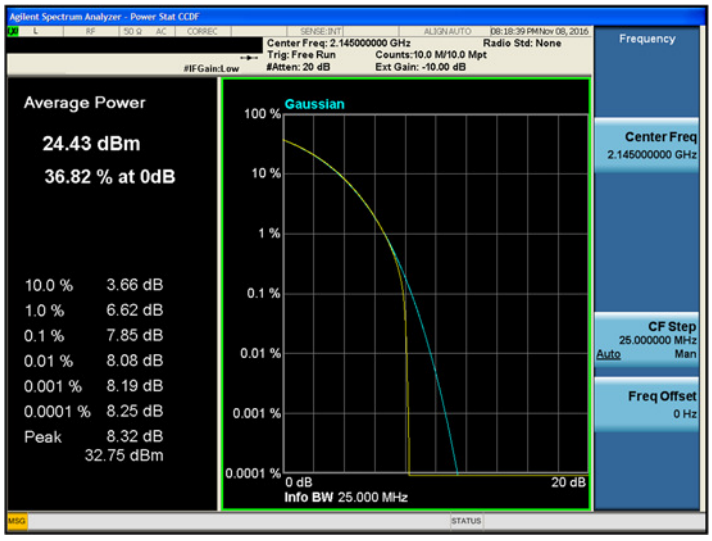
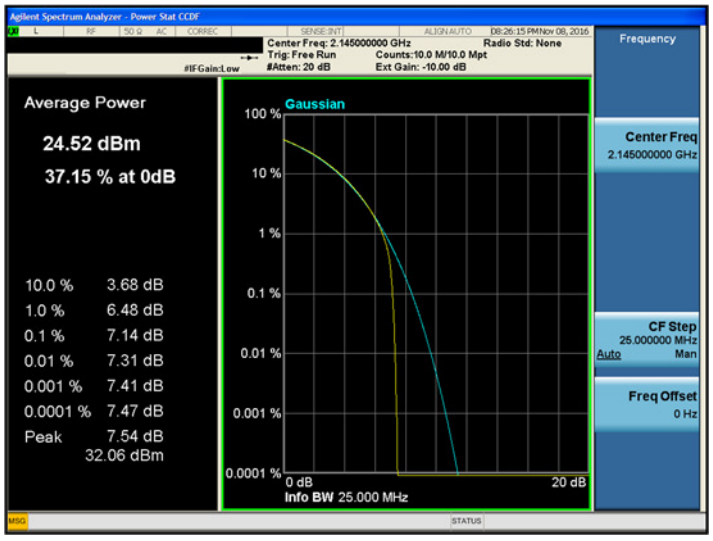
LTE_5 MHz Bandwidth	LTE_10 MHz Bandwidth
	
LTE_15 MHz Bandwidth	**LTE_20 MHz Bandwidth**
	

64QAM Mid Channel

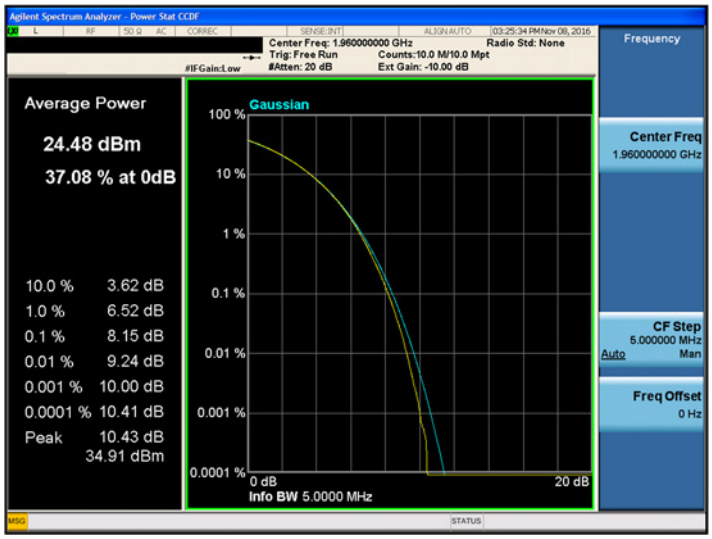
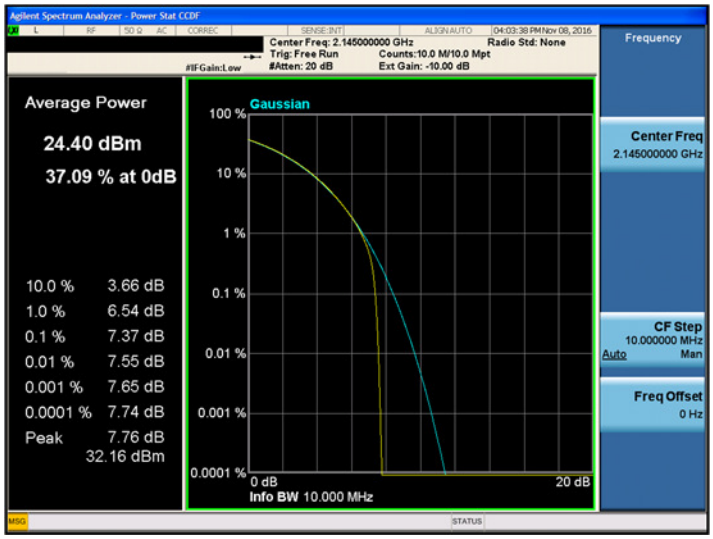
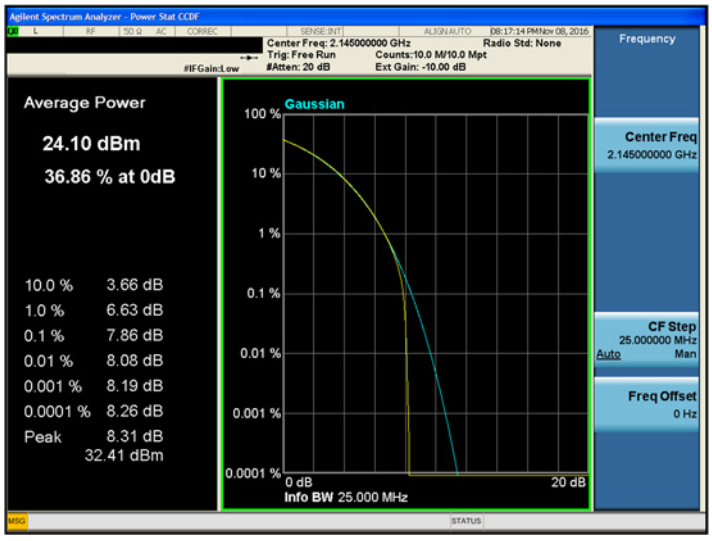
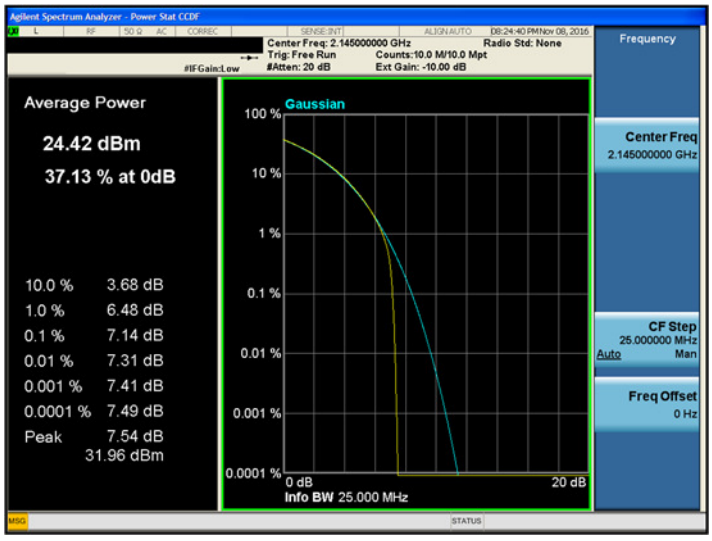
LTE_5 MHz Bandwidth	LTE_10 MHz Bandwidth
	
LTE_15 MHz Bandwidth	**LTE_20 MHz Bandwidth**
	

PCS 1900 Test Plots for Output Port 1

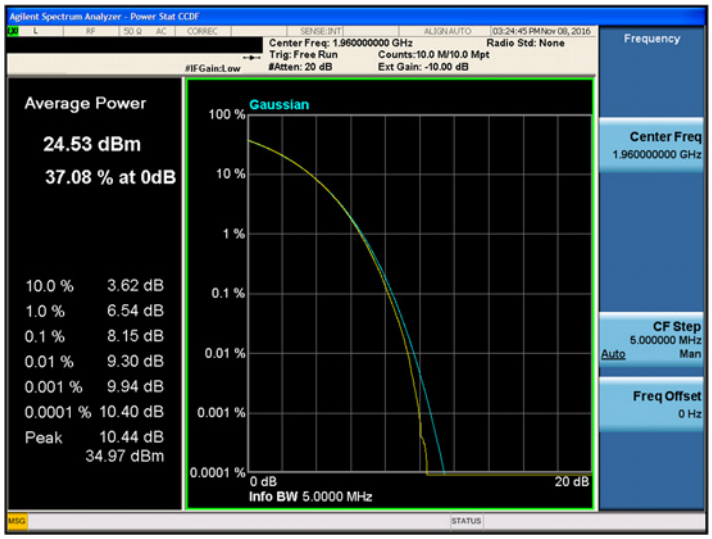
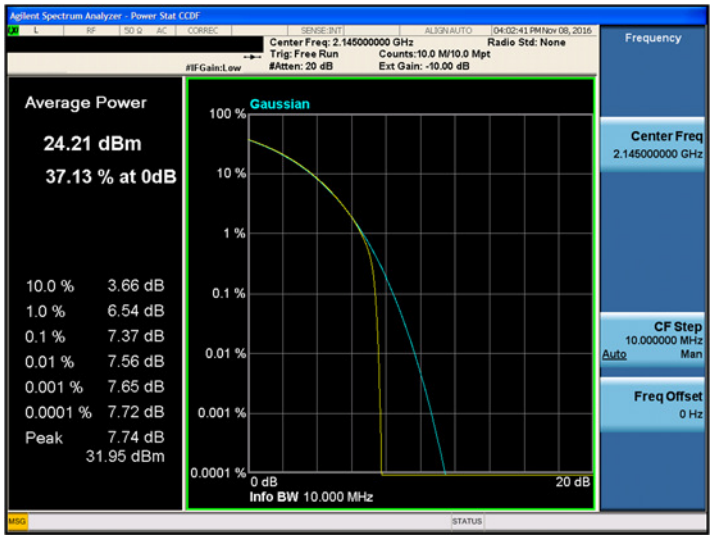
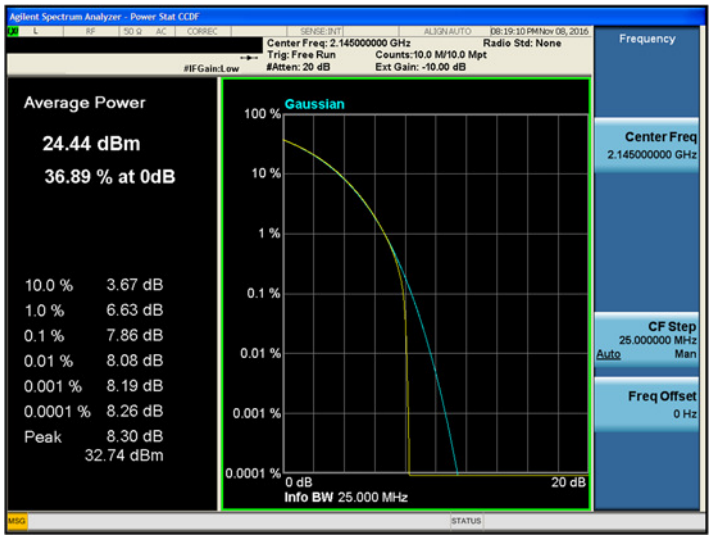
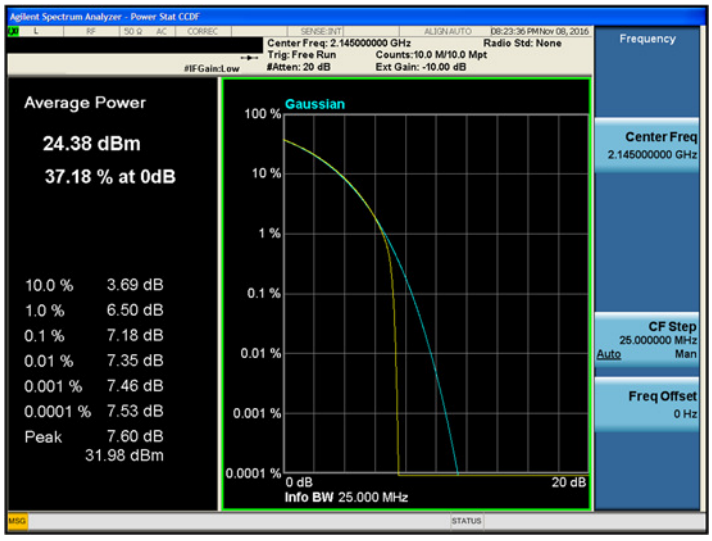
QPSK Mid Channel

LTE_5 MHz Bandwidth	LTE_10 MHz Bandwidth
	
LTE_15 MHz Bandwidth	**LTE_20 MHz Bandwidth**
	

16QAM Mid Channel

LTE_5 MHz Bandwidth	LTE_10 MHz Bandwidth
	
LTE_15 MHz Bandwidth	**LTE_20 MHz Bandwidth**
	

64QAM Mid Channel

LTE_5 MHz Bandwidth	LTE_10 MHz Bandwidth
	
LTE_15 MHz Bandwidth	**LTE_20 MHz Bandwidth**
	

6. OCCUPIED BANDWIDTH

Test Requirements:

§ 2.1049 Measurements required: Occupied bandwidth.

The occupied bandwidth, that is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers radiated are each equal to 0.5 percent of the total mean power radiated by a given emission shall be measured under the following conditions as applicable:

(g) Transmitters in which the modulating baseband comprises not more than three independent channels—when modulated by the full complement of signals for which the transmitter is rated. The level of modulation for each channel should be set to that prescribed in rule parts applicable to the services for which the transmitter is intended. If specific modulation levels are not set forth in the rules, the tests should provide the manufacturer's maximum rated condition.

(h) Transmitters employing digital modulation techniques—when modulated by an input signal such that its amplitude and symbol rate represent the maximum rated conditions under which the equipment will be operated. The signal shall be applied through any filter networks, pseudo-random generators or other devices required in normal service. Additionally, the occupied bandwidth shall be shown for operation with any devices used for modifying the spectrum when such devices are optional at the discretion of the user.

Test Procedures:

The RF output of the transmitter was connected to the input of the spectrum analyzer through sufficient attenuation. The EUT was connected to a spectrum analyzer enabled with an occupied bandwidth function via its antenna port. Measurements were performed to determine the occupied bandwidth in accordance with FCC Part 2.1049. The occupied bandwidth was measured from the fundamental emission at the bottom, middle and top channels. The occupied bandwidth was measured using the built in occupied bandwidth function of the spectrum analyzer. It was set to measure the bandwidth where 99% of the signal power was contained. The analyzer automatically configures the measurement bandwidths to make an accurate measurement based on the channel bandwidth and channel spacing of the EUT.

Test Results:

PCS 1900_LTE 5 MHz

Test Data at Output Port 0

Frequency (MHz)	Occupied Bandwidth (MHz)		
	QPSK	16QAM	64QAM
1932.50	4.4303	4.4305	4.4474
1960.00	4.4264	4.4292	4.4385
1987.50	4.4258	4.4310	4.4328

Test Data at Output Port 1

Frequency (MHz)	Occupied Bandwidth (MHz)		
	QPSK	16QAM	64QAM
1932.50	4.4243	4.4274	4.4462
1960.00	4.4411	4.4297	4.4476
1987.50	4.4310	4.4264	4.4460

PCS 1900_LTE 10 MHz

Test Data at Output Port 0

Frequency (MHz)	Occupied Bandwidth (MHz)		
	QPSK	16QAM	64QAM
1935.00	8.9457	8.9423	8.9609
1960.00	8.9464	8.9543	8.9462
1985.00	8.9397	8.9387	8.9336

Test Data at Output Port 1

Frequency (MHz)	Occupied Bandwidth (MHz)		
	QPSK	16QAM	64QAM
1935.00	8.9564	8.9525	8.9402
1960.00	8.9547	8.9554	8.9357
1985.00	8.9384	8.9343	8.9333

PCS 1900_LTE 15 MHz

Test Data at Output Port 0

Frequency (MHz)	Occupied Bandwidth (MHz)		
	QPSK	16QAM	64QAM
1937.50	13.3511	13.3856	13.3301
1960.00	13.3340	13.3660	13.3245
1982.50	13.3281	13.3651	13.3112

Test Data at Output Port 1

Frequency (MHz)	Occupied Bandwidth (MHz)		
	QPSK	16QAM	64QAM
1937.50	13.3816	13.4057	13.3306
1960.00	13.3718	13.3800	13.3388
1982.50	13.3227	13.3216	13.3106

PCS 1900_LTE 20 MHz

Test Data at Output Port 0

Frequency (MHz)	Occupied Bandwidth (MHz)		
	QPSK	16QAM	64QAM
1940.00	17.9659	17.9425	17.9446
1960.00	17.9323	17.9446	17.9265
1980.00	17.9373	17.9270	17.9087

Test Data at Output Port 1

Frequency (MHz)	Occupied Bandwidth (MHz)		
	QPSK	16QAM	64QAM
1940.00	17.9557	17.9585	17.9425
1960.00	17.9580	17.9077	17.9078
1980.00	17.8989	17.8987	17.9104

AWS 2100_LTE 5 MHz

Test Data at Output Port 0

Frequency (MHz)	Occupied Bandwidth (MHz)		
	QPSK	16QAM	64QAM
2112.50	4.4334	4.4251	4.4355
2145.00	4.4384	4.4175	4.4295
2177.50	4.4244	4.4275	4.4481

Test Data at Output Port 1

Frequency (MHz)	Occupied Bandwidth (MHz)		
	QPSK	16QAM	64QAM
2112.50	4.4223	4.4299	4.4419
2145.00	4.4261	4.4400	4.4429
2177.50	4.4288	4.4239	4.4440

AWS 2100_LTE 10 MHz

Test Data at Output Port 0

Frequency (MHz)	Occupied Bandwidth (MHz)		
	QPSK	16QAM	64QAM
2115.00	8.9378	8.9427	8.9517
2145.00	8.9392	8.9436	8.9329
2175.00	8.9414	8.9411	8.9452

Test Data at Output Port 1

Frequency (MHz)	Occupied Bandwidth (MHz)		
	QPSK	16QAM	64QAM
2115.00	8.9597	8.9645	8.9280
2145.00	8.9413	8.9677	8.9438
2175.00	8.9504	8.9349	8.9355

AWS 2100_LTE 15 MHz

Test Data at Output Port 0

Frequency (MHz)	Occupied Bandwidth (MHz)		
	QPSK	16QAM	64QAM
2117.50	13.3429	13.3638	13.3442
2145.00	13.3378	13.3754	13.3201
2172.50	13.3350	13.3735	13.3505

Test Data at Output Port 1

Frequency (MHz)	Occupied Bandwidth (MHz)		
	QPSK	16QAM	64QAM
2117.50	13.3367	13.3778	13.3672
2145.00	13.3477	13.3896	13.3193
2172.50	13.3425	13.3811	13.3522

AWS 2100_LTE 20 MHz

Test Data at Output Port 0

Frequency (MHz)	Occupied Bandwidth (MHz)		
	QPSK	16QAM	64QAM
2120.00	17.9531	17.9524	17.9196
2145.00	17.9522	17.9190	17.9160
2170.00	17.9554	17.9662	17.9353

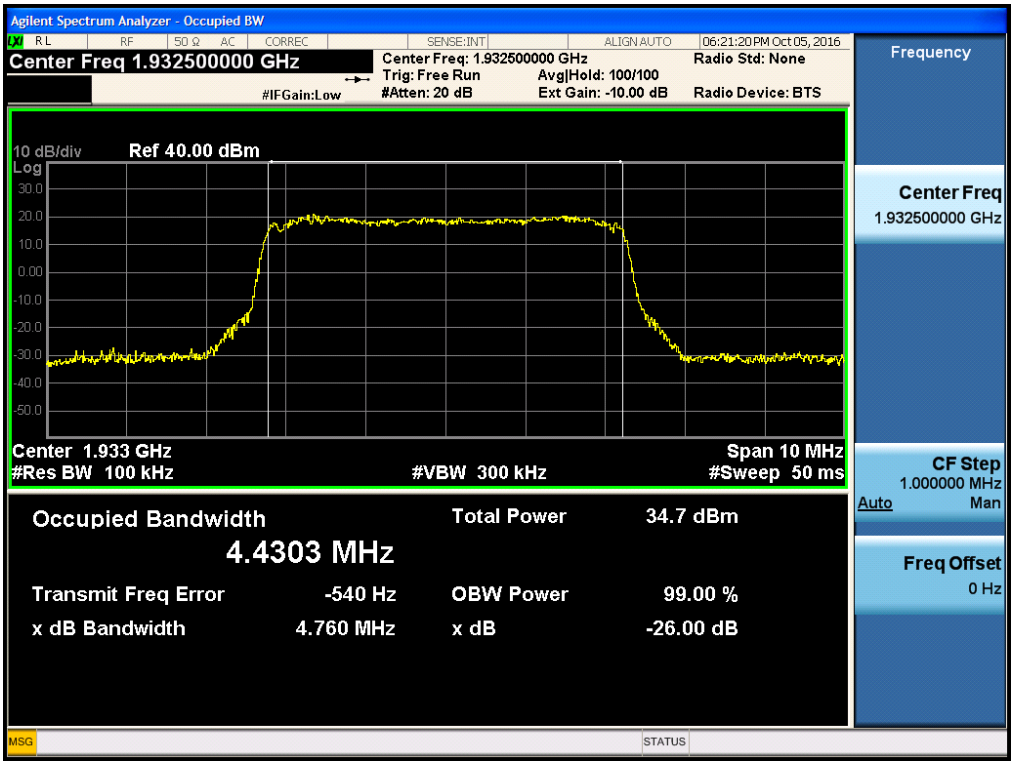
Test Data at Output Port 1

Frequency (MHz)	Occupied Bandwidth (MHz)		
	QPSK	16QAM	64QAM
2120.00	17.9379	17.9382	17.9683
2145.00	17.9352	17.9412	17.9550
2170.00	17.9103	17.9308	17.9365

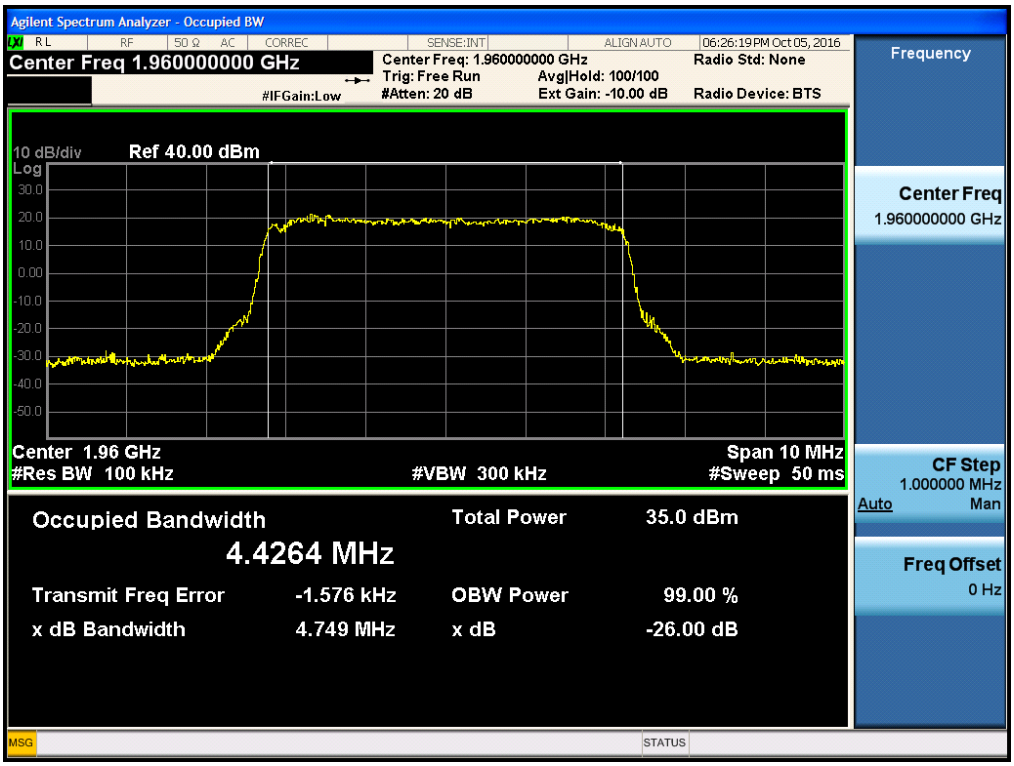
PCS 1900_LTE 5 MHz

Test Plot at Output Port 0

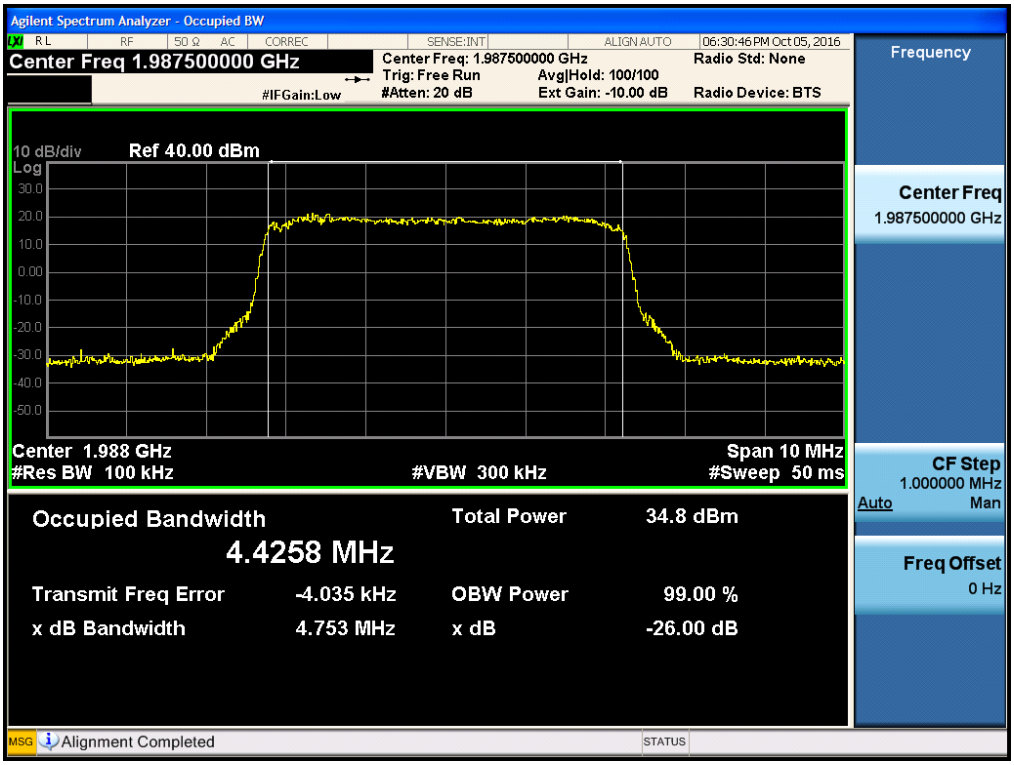
(QPSK Low Channel)



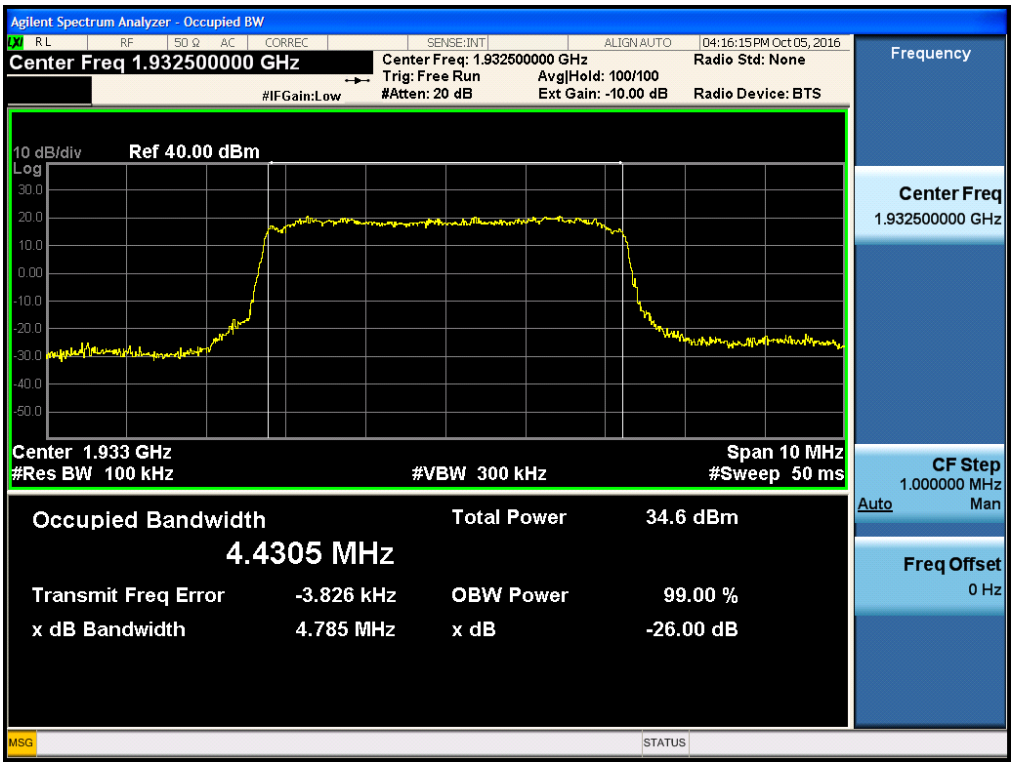
(QPSK Middle Channel)



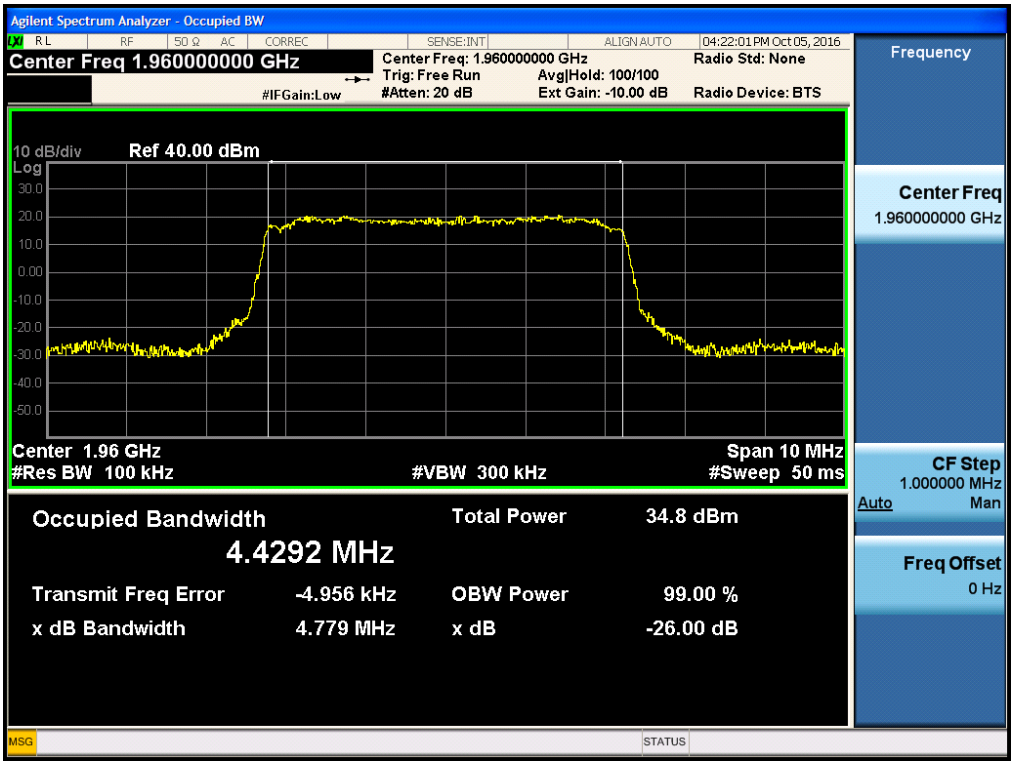
(QPSK High Channel)



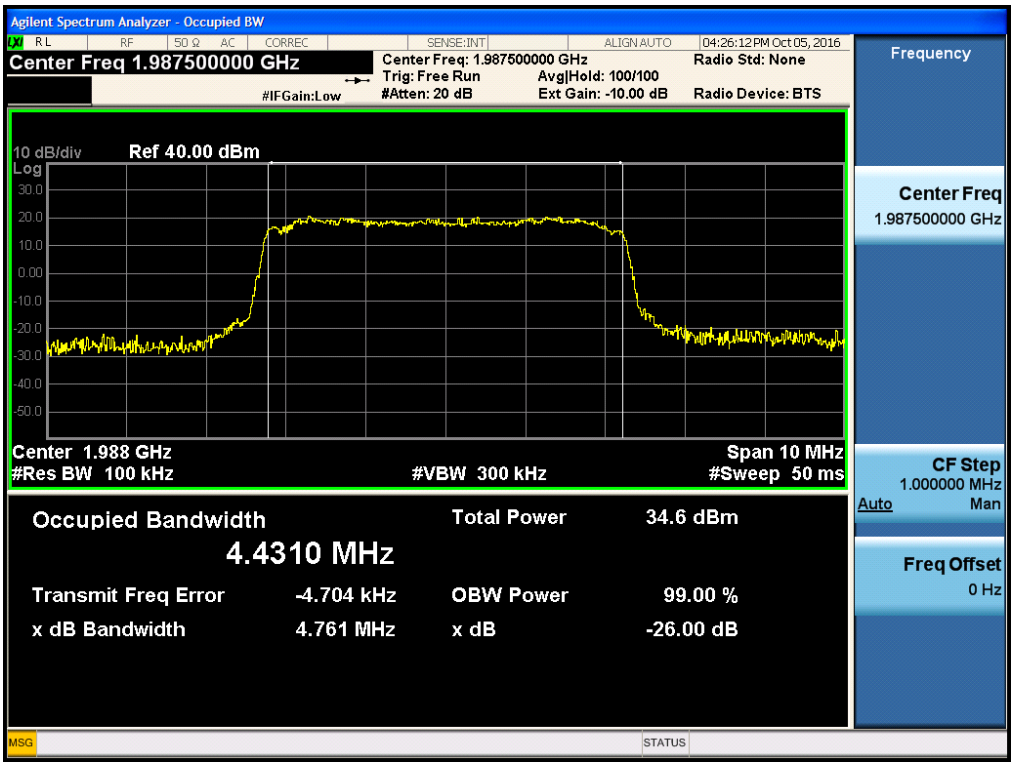
(16QAM Low Channel)



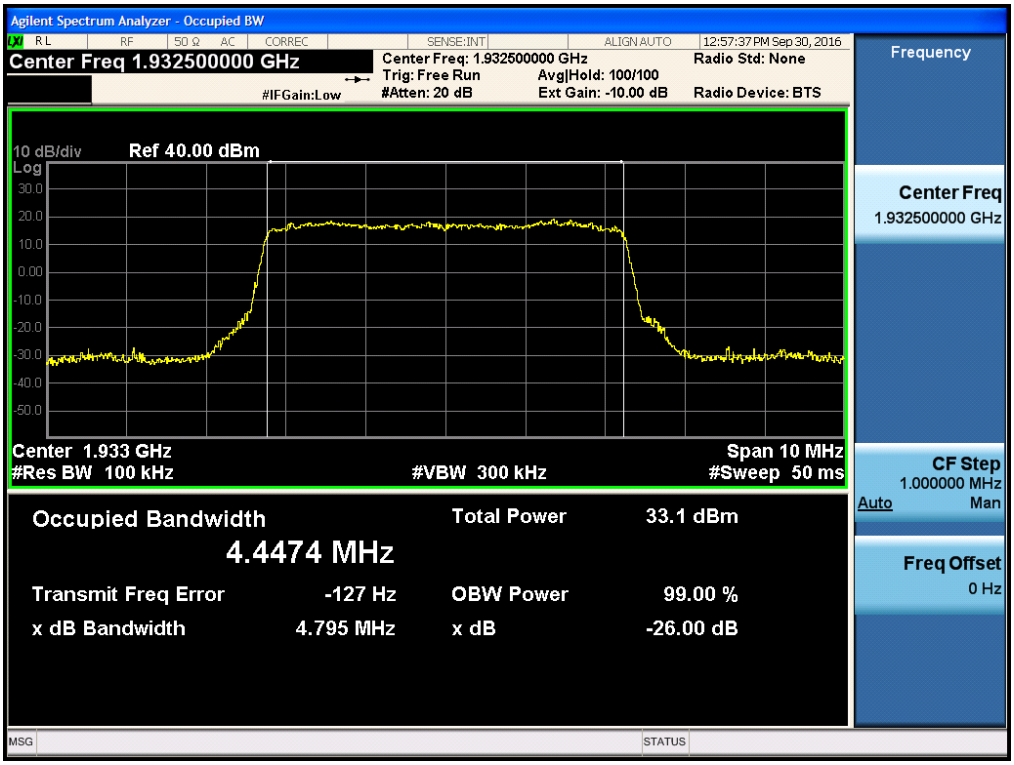
(16QAM Middle Channel)



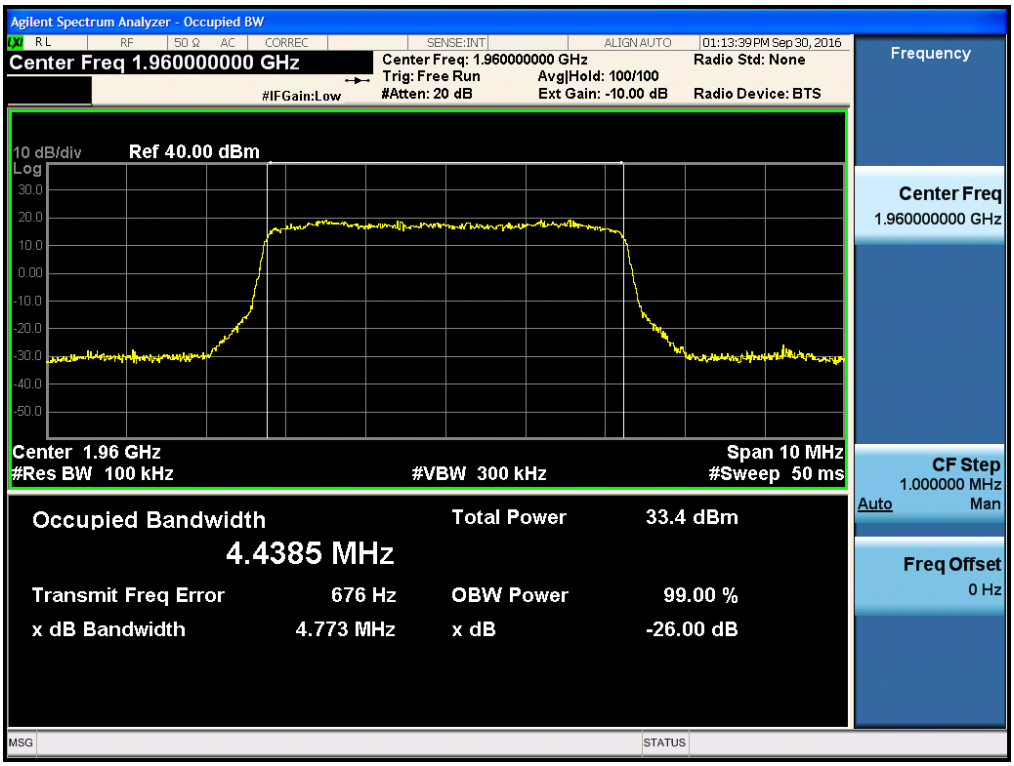
(16QAM High Channel)



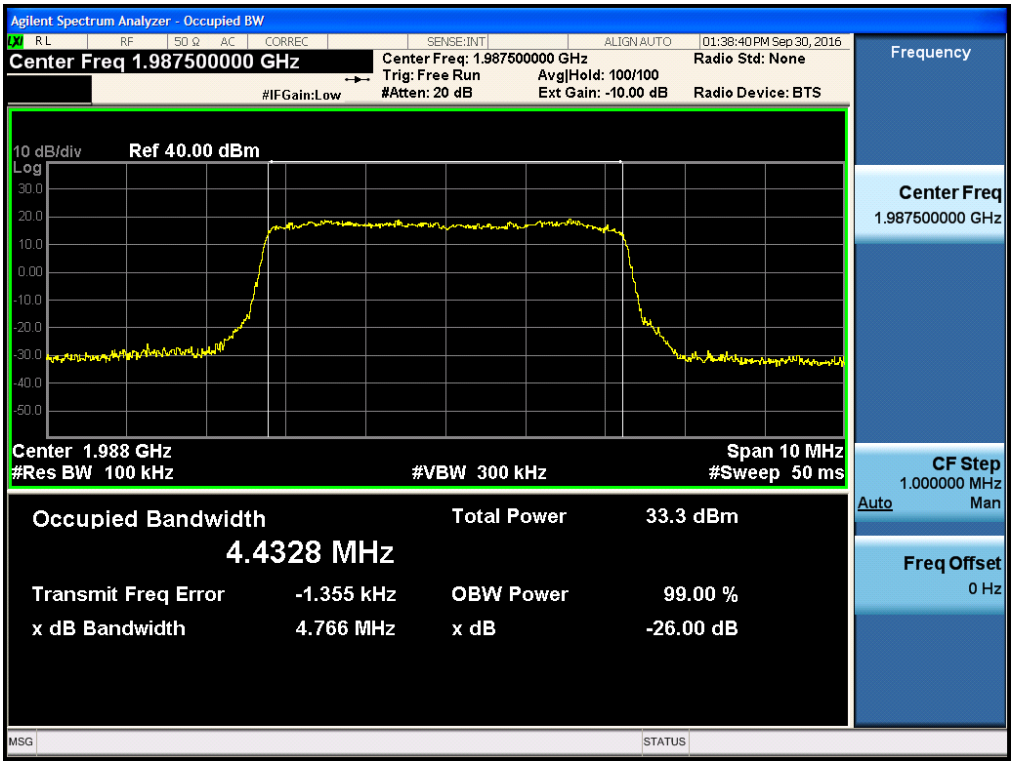
(64QAM Low Channel)



(64QAM Middle Channel)



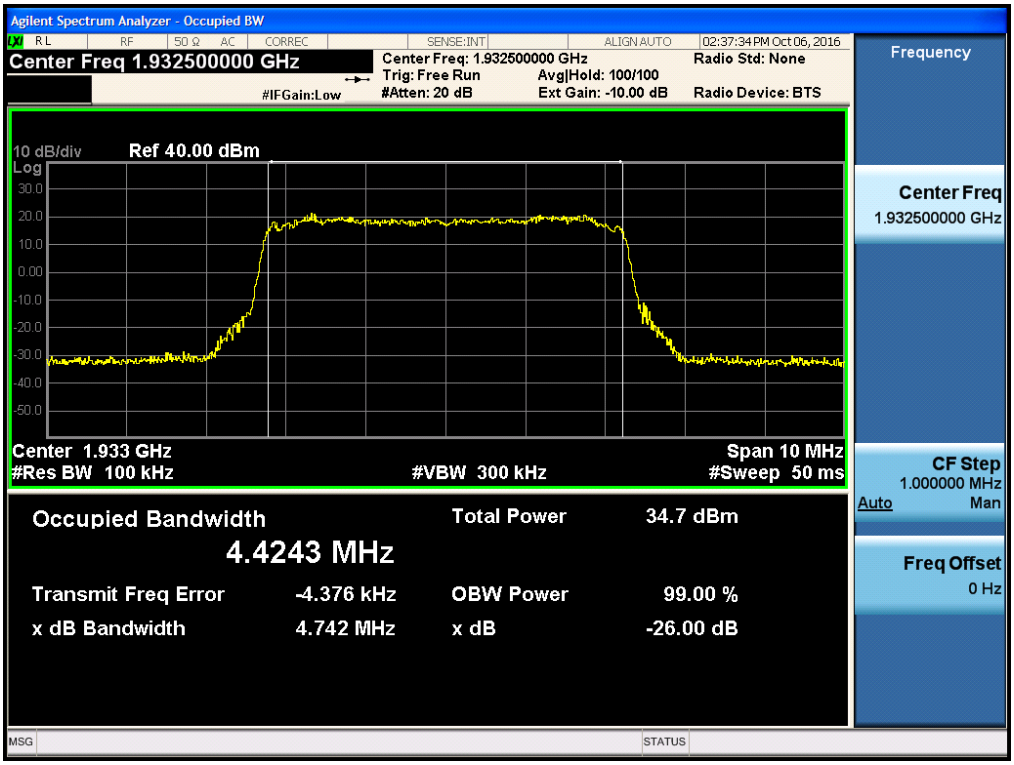
(64QAM High Channel)



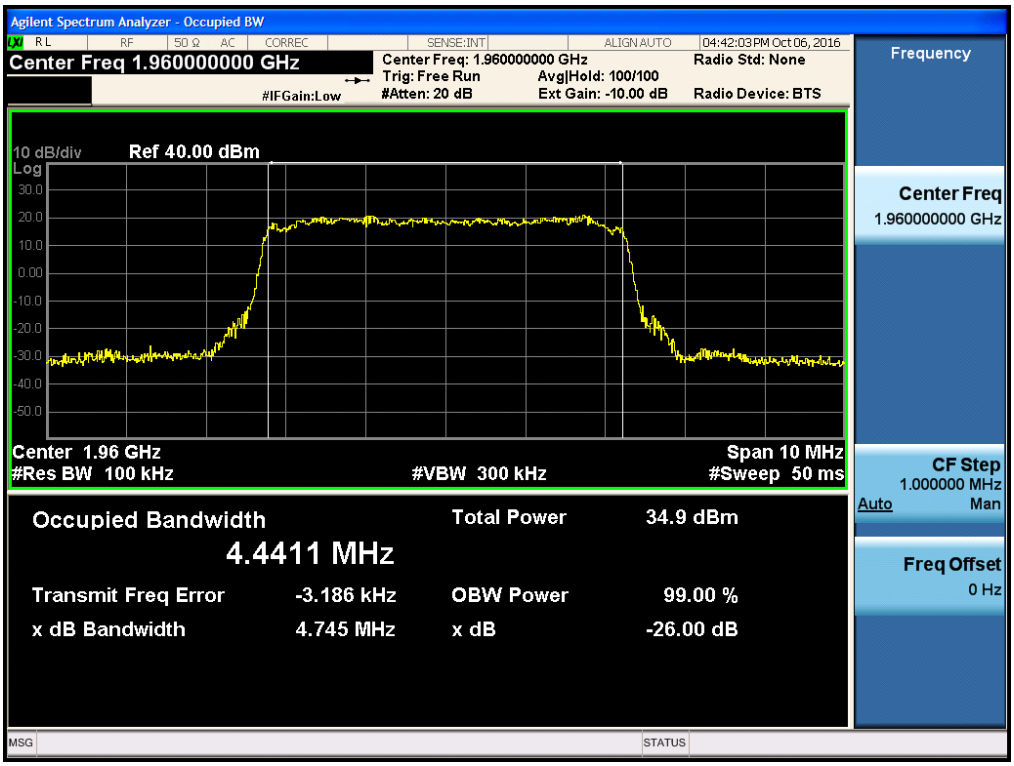
PCS 1900_LTE 5 MHz

Test Plot at Output Port 1

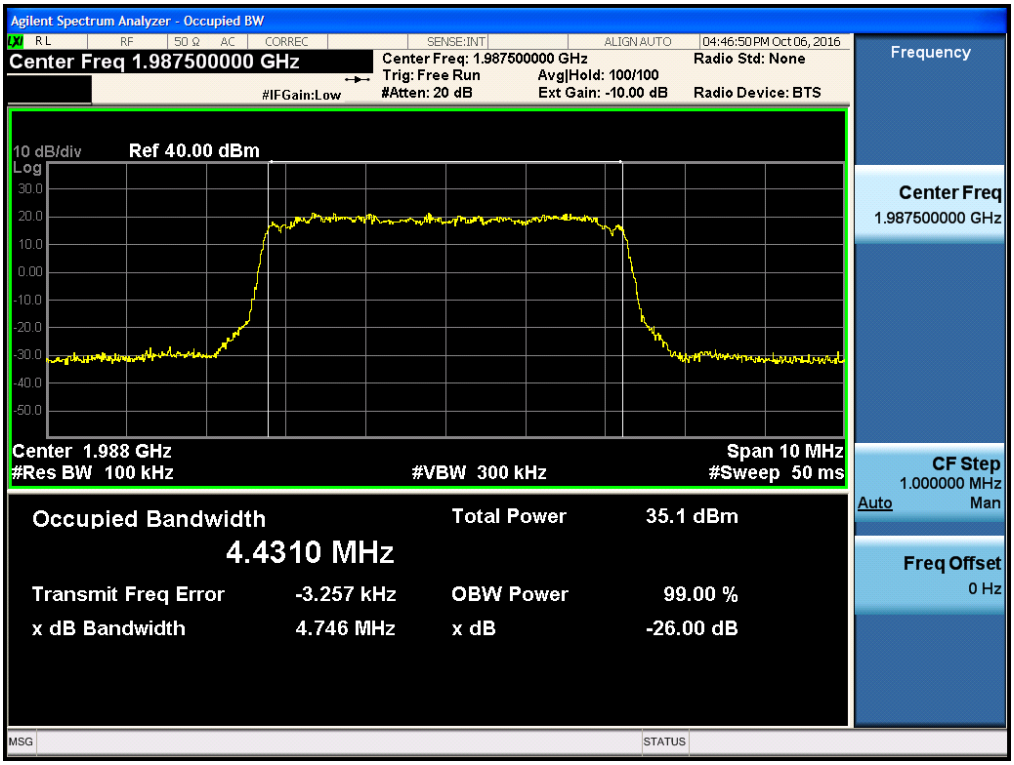
(QPSK Low Channel)



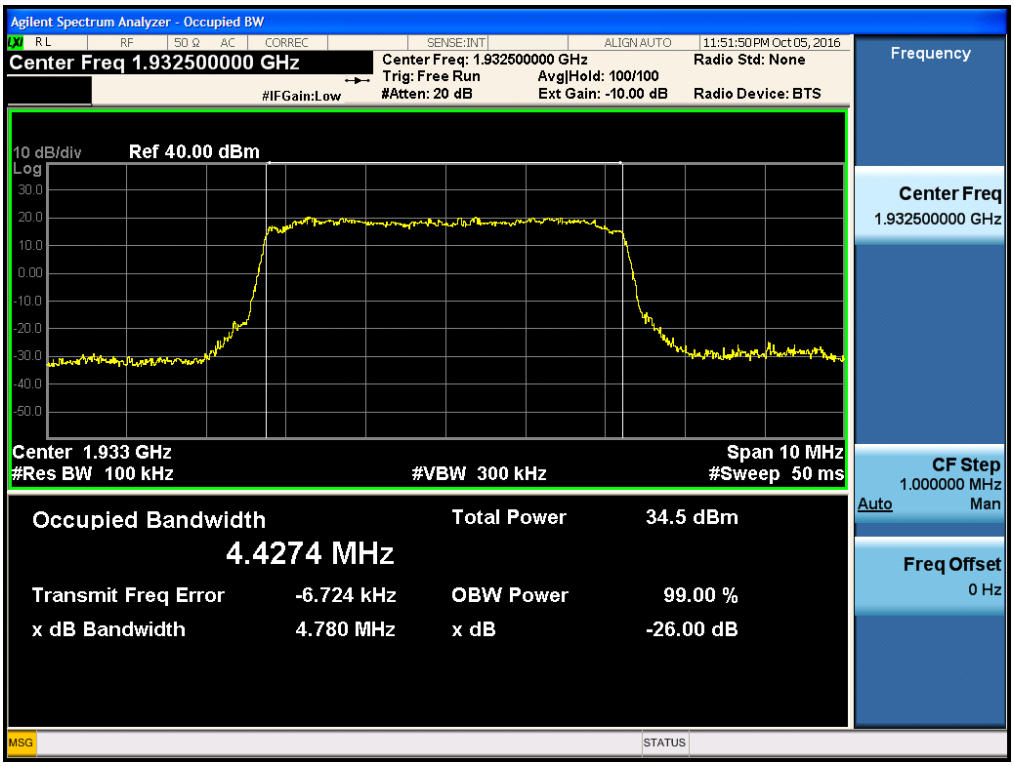
(QPSK Middle Channel)



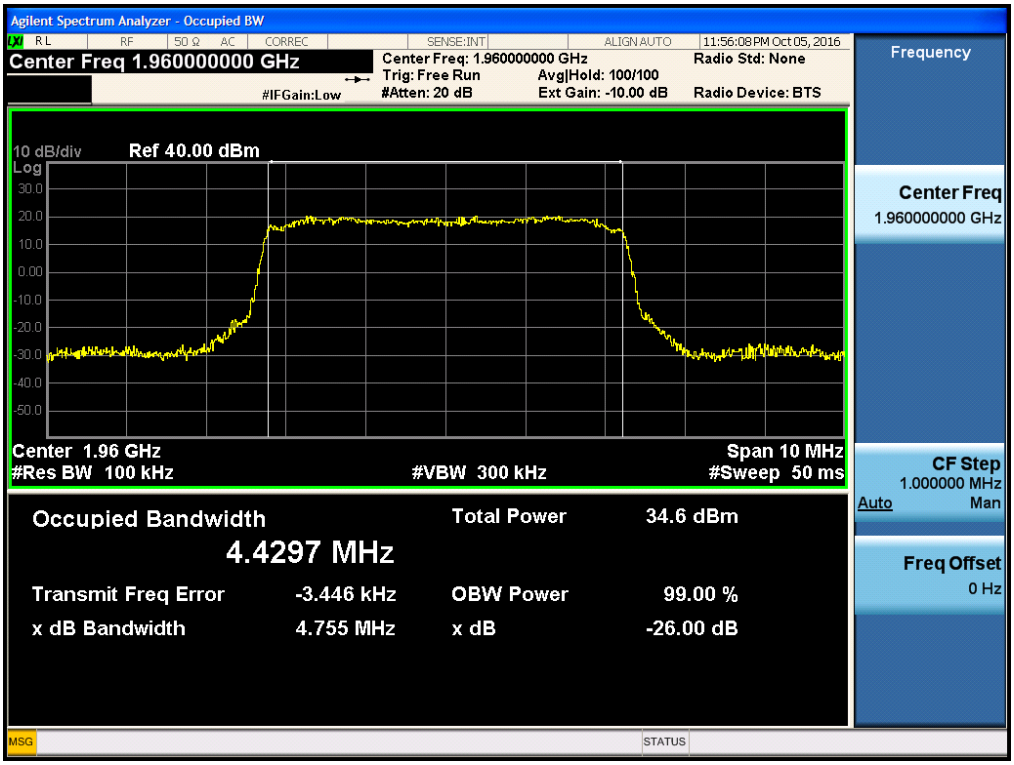
(QPSK High Channel)



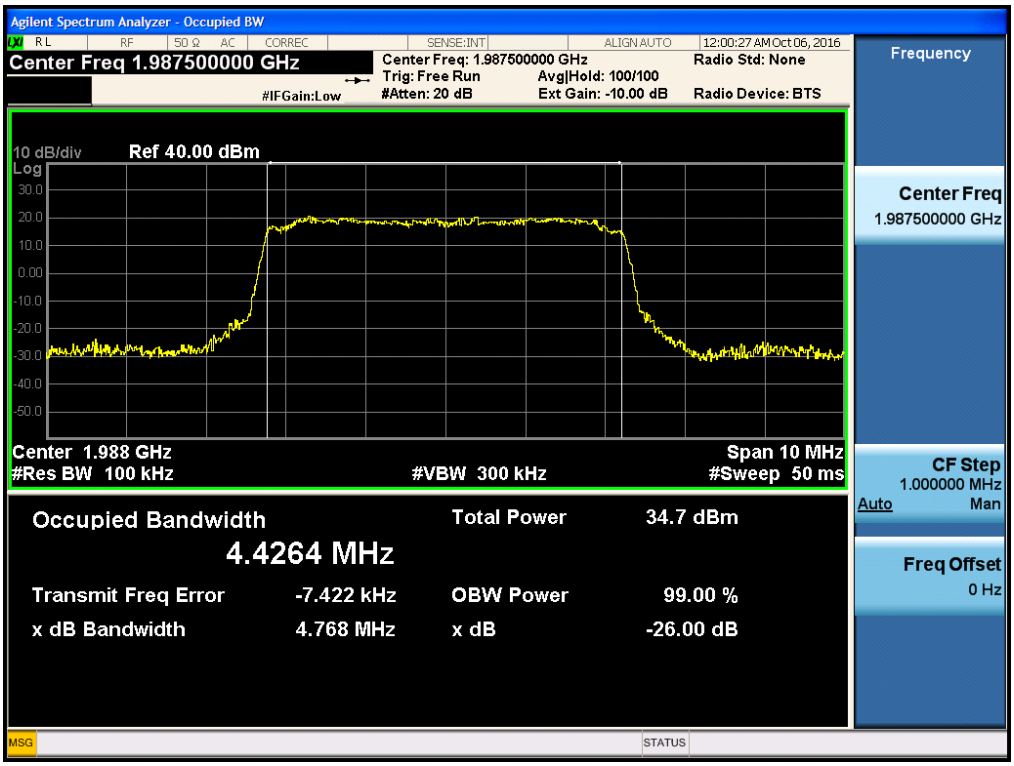
(16QAM Low Channel)



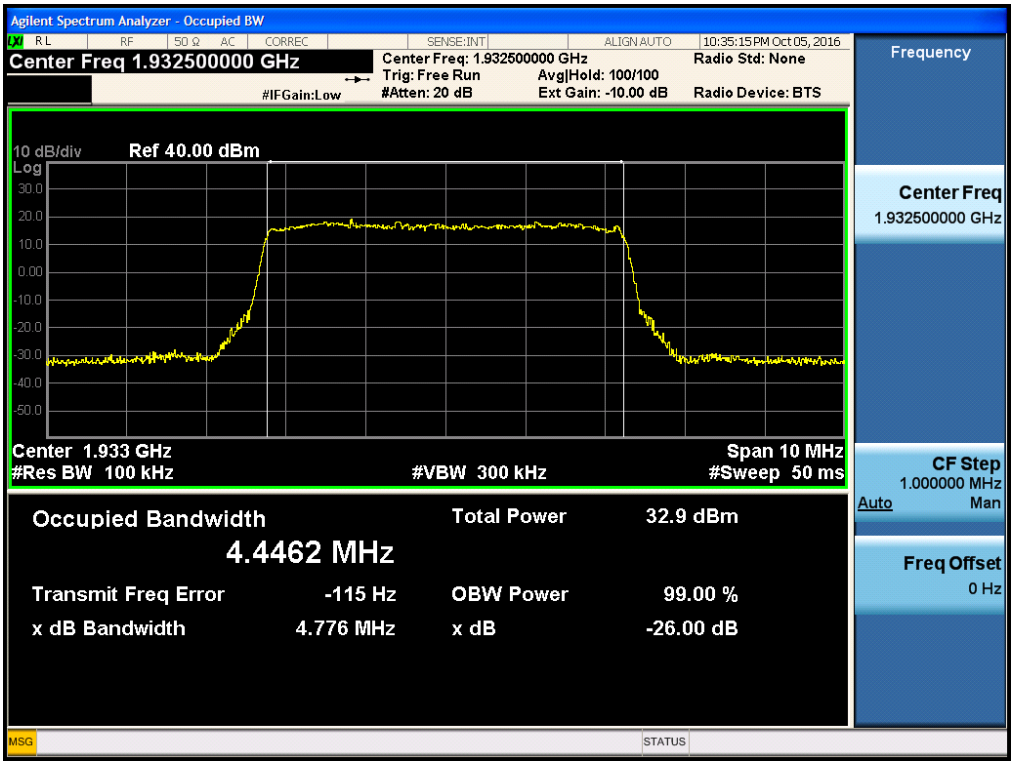
(16QAM Middle Channel)



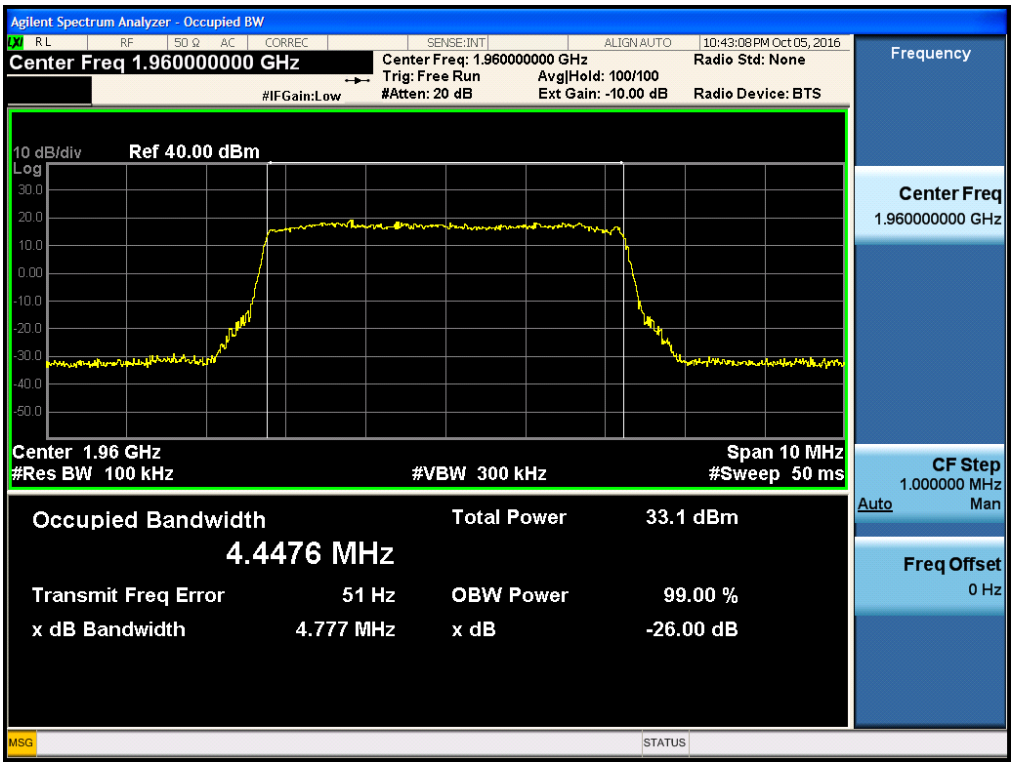
(16QAM High Channel)



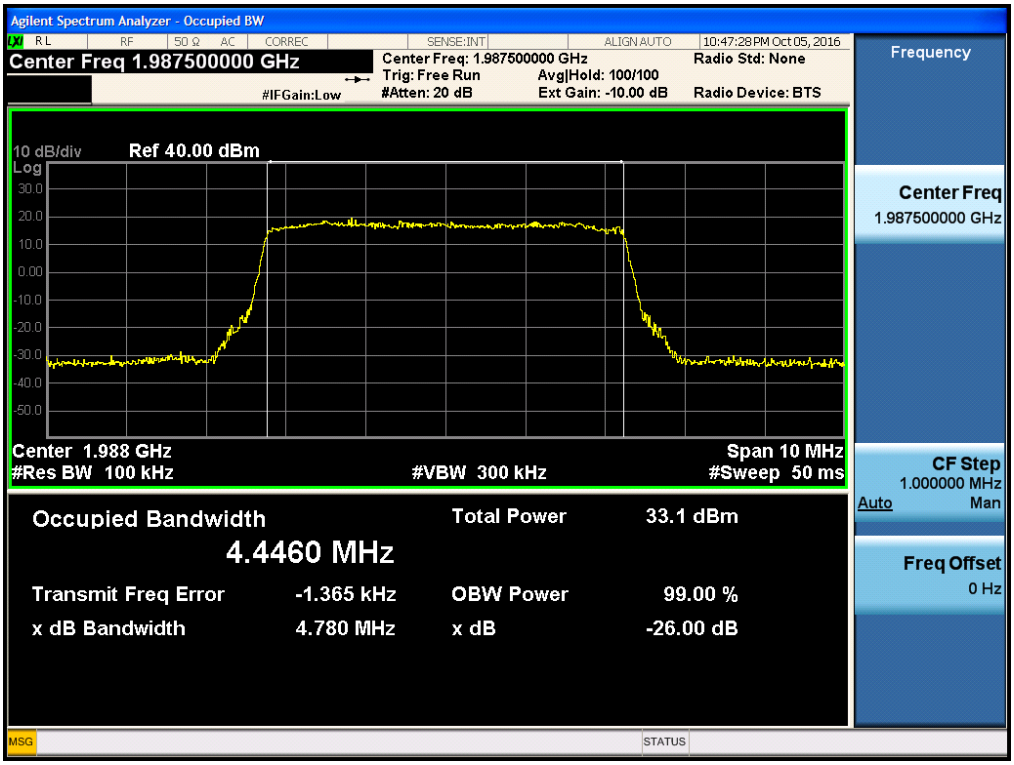
(64QAM Low Channel)



(64QAM Middle Channel)



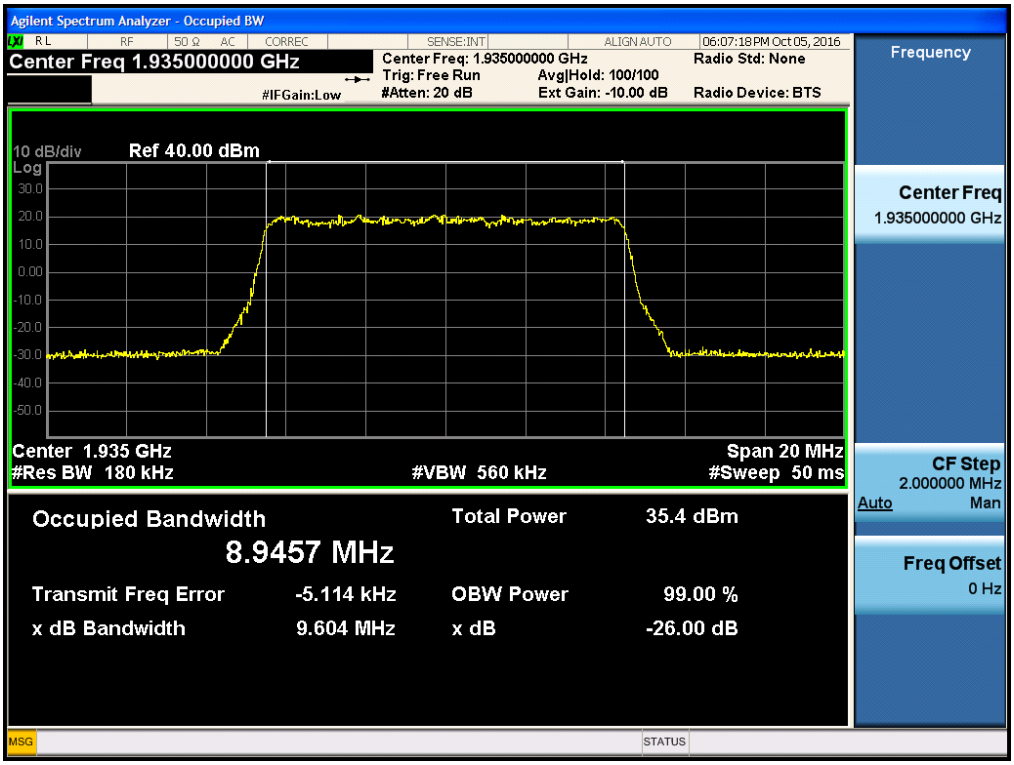
(64QAM High Channel)



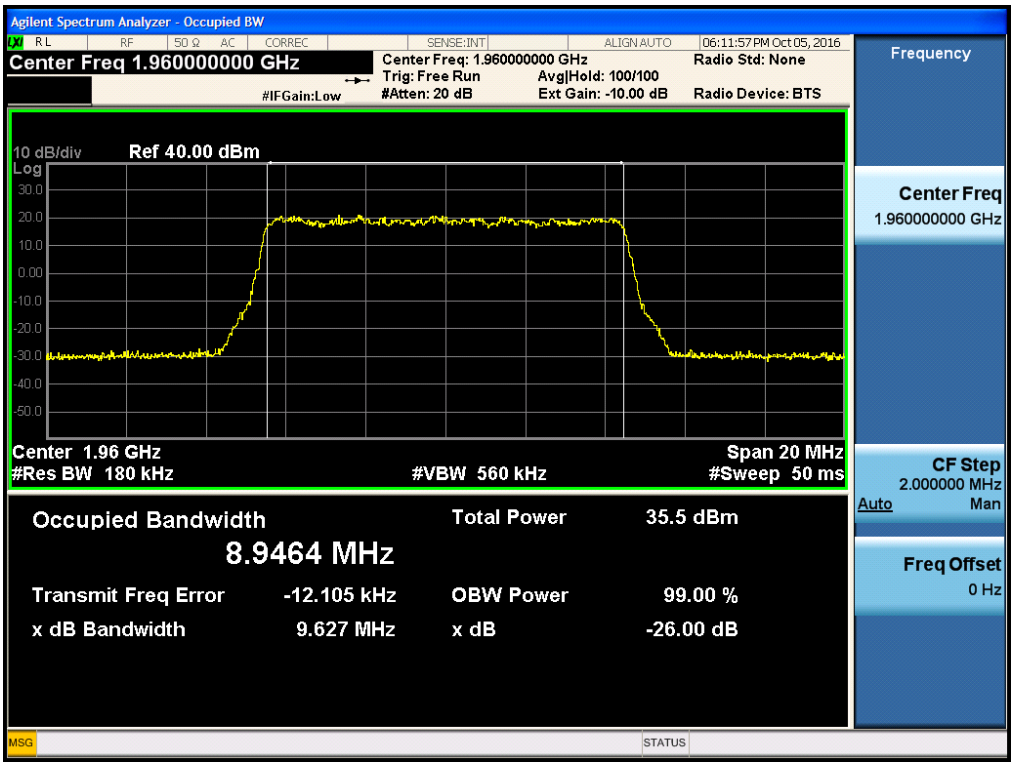
PCS 1900_LTE 10 MHz

Test Plot at Output Port 0

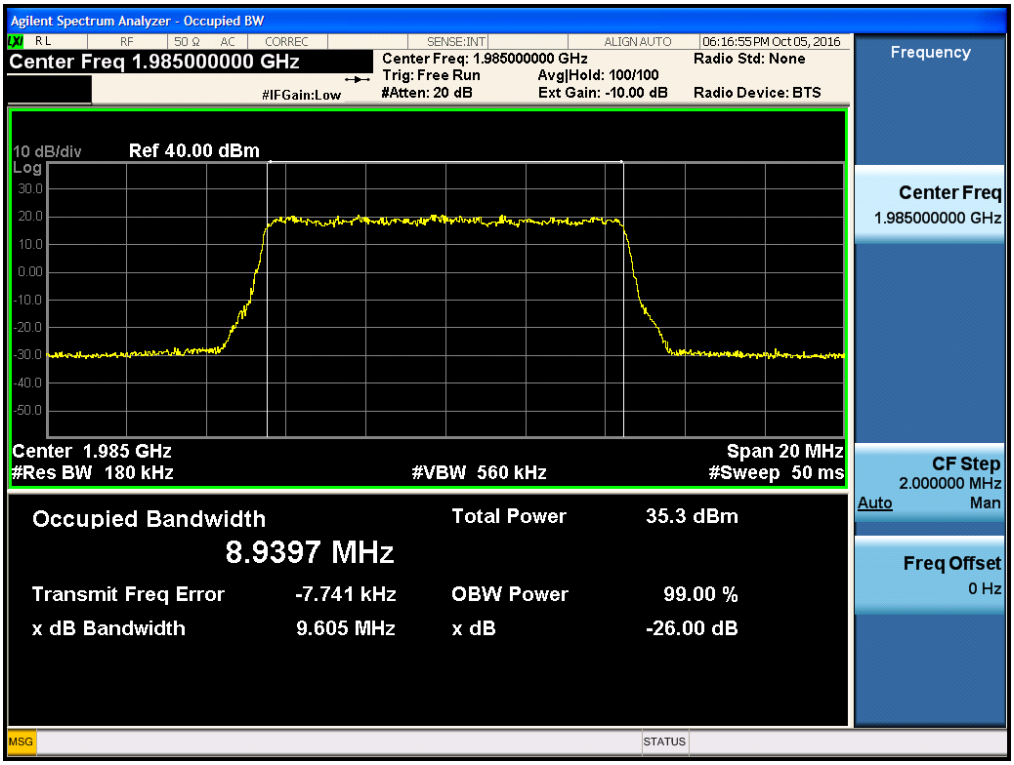
(QPSK Low Channel)



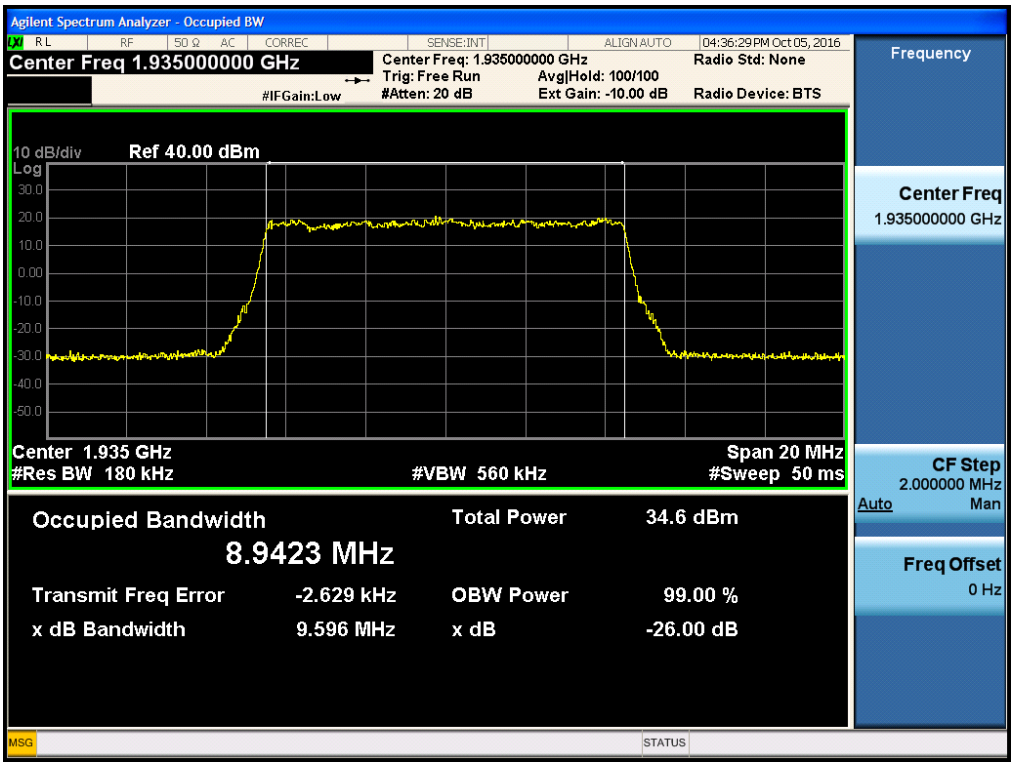
(QPSK Middle Channel)



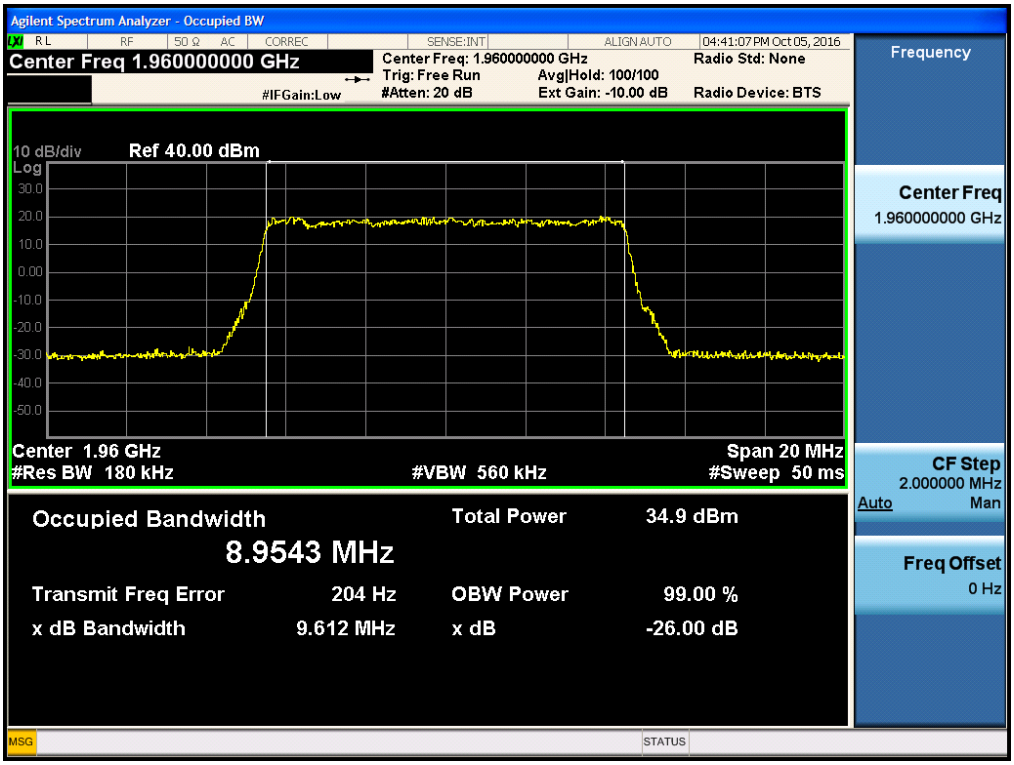
(QPSK High Channel)



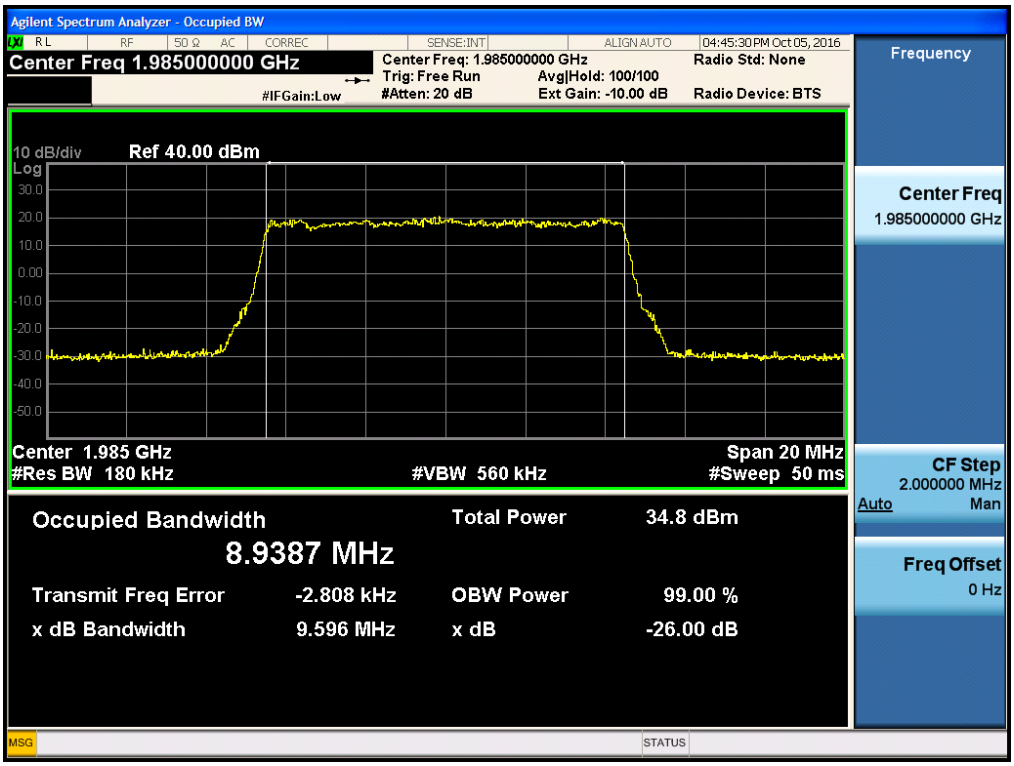
(16QAM Low Channel)



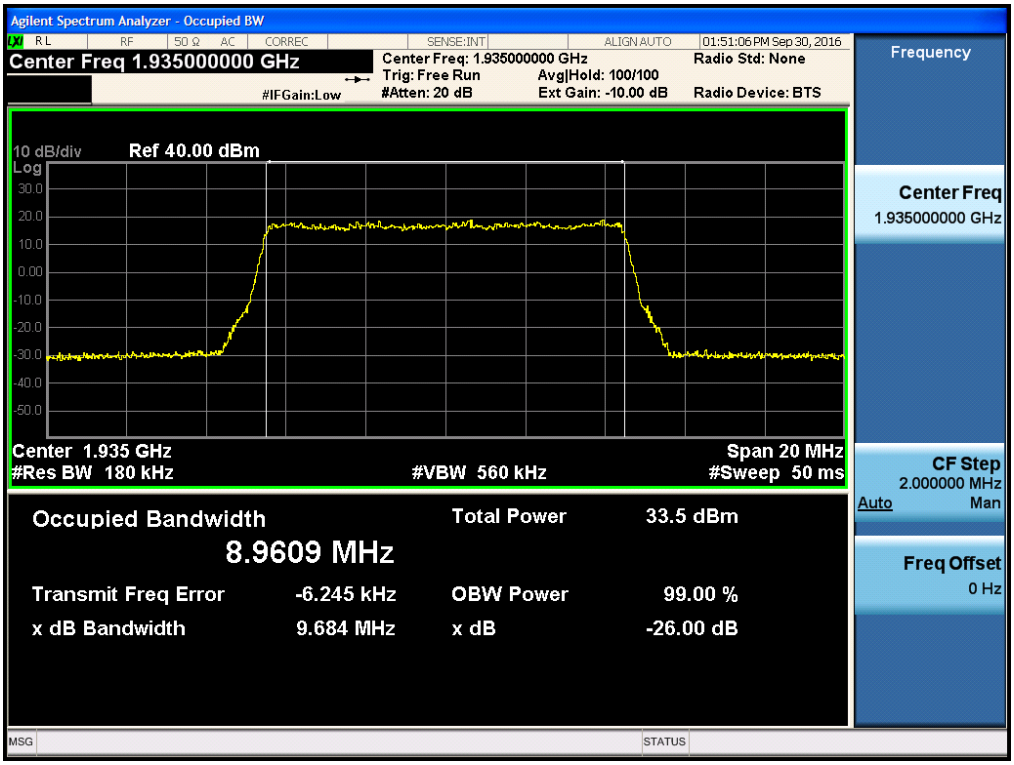
(16QAM Middle Channel)



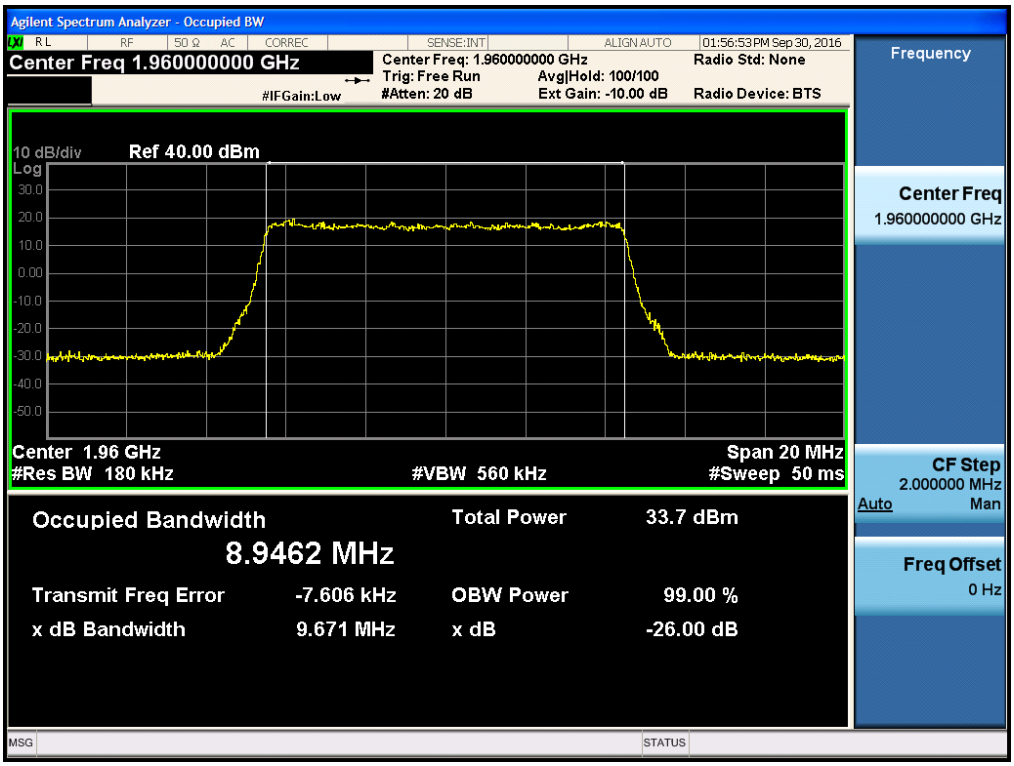
(16QAM High Channel)



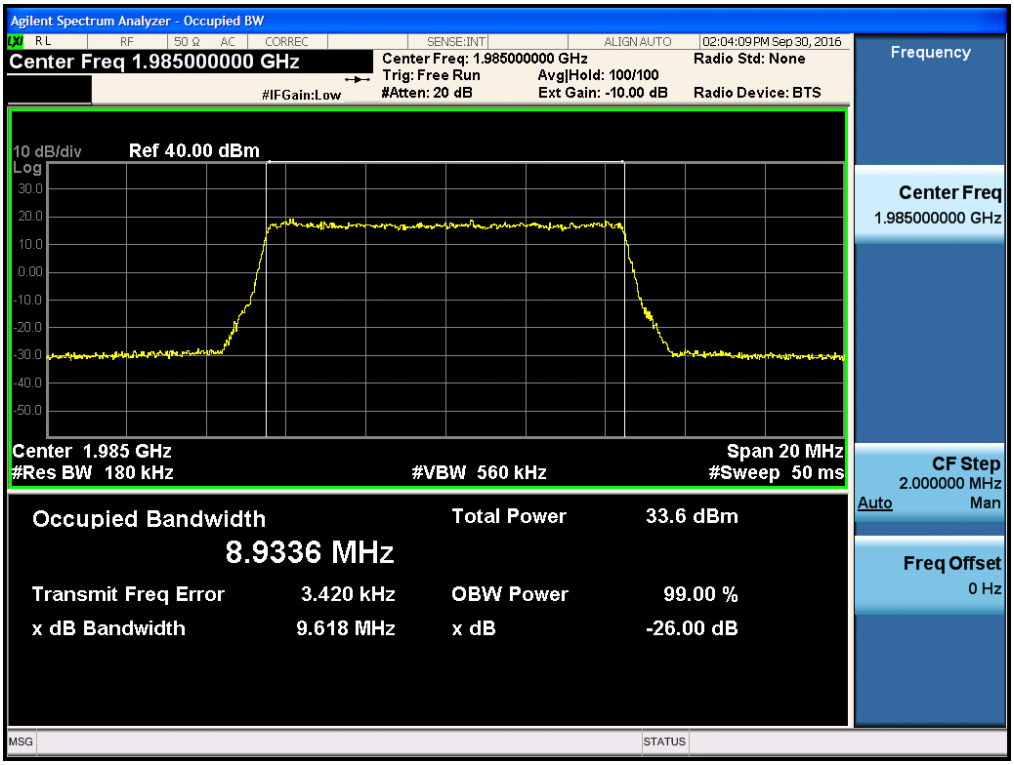
(64QAM Low Channel)



(64QAM Middle Channel)



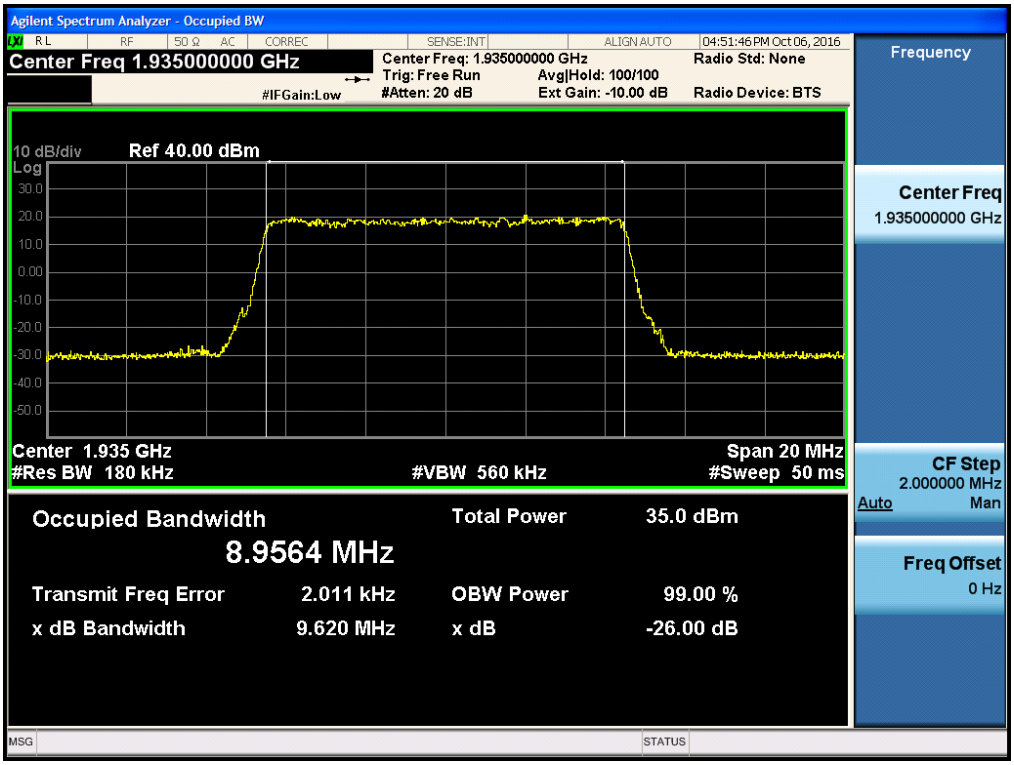
(64QAM High Channel)



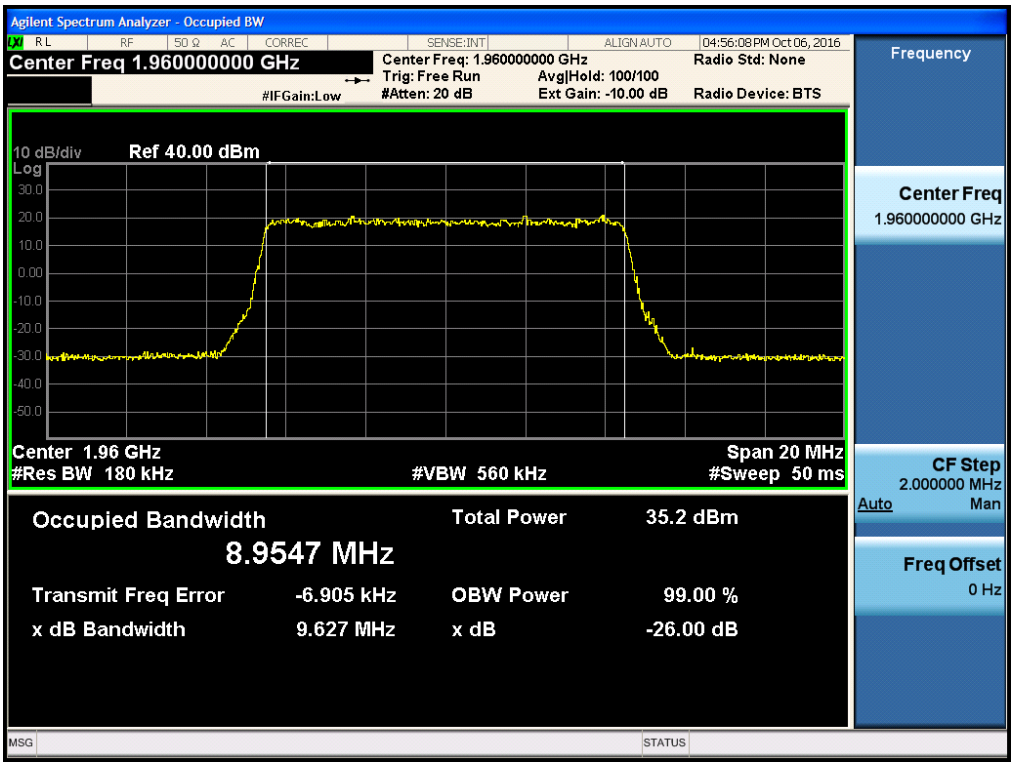
PCS 1900_LTE 10 MHz

Test Plot at Output Port 1

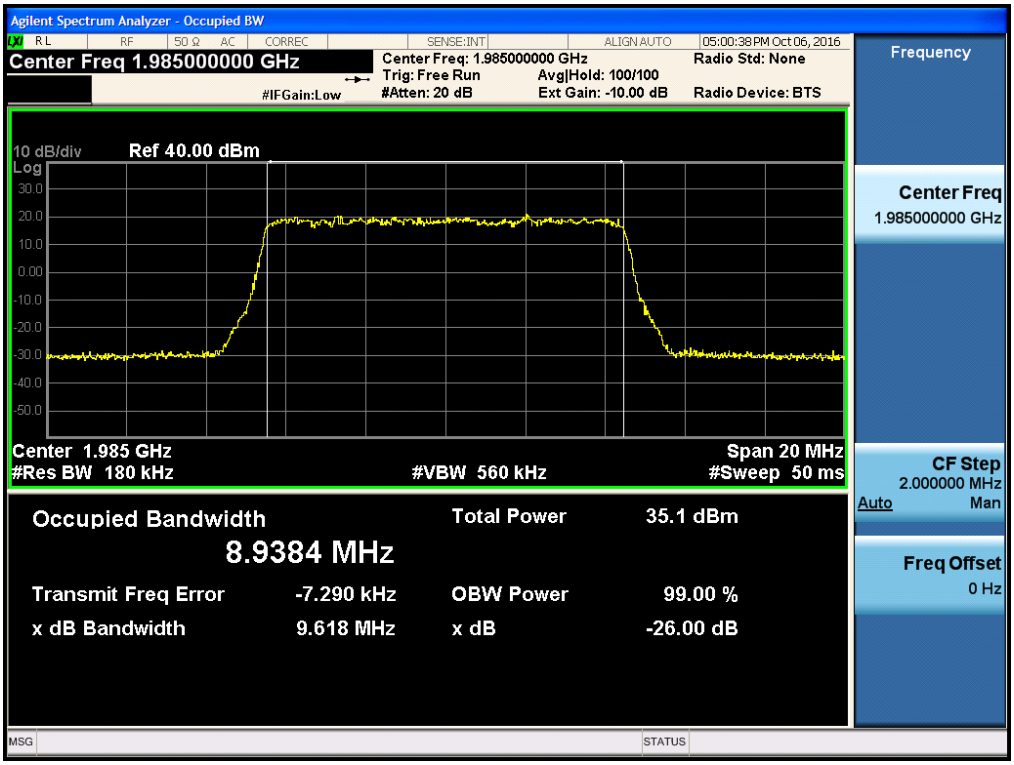
(QPSK Low Channel)



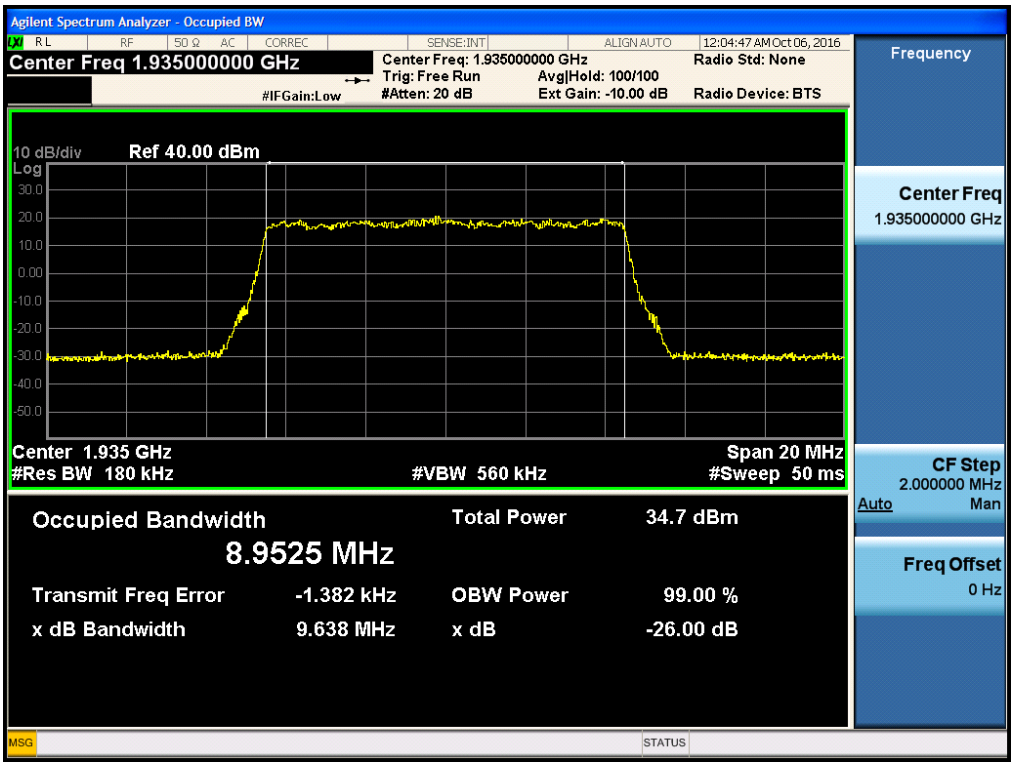
(QPSK Middle Channel)



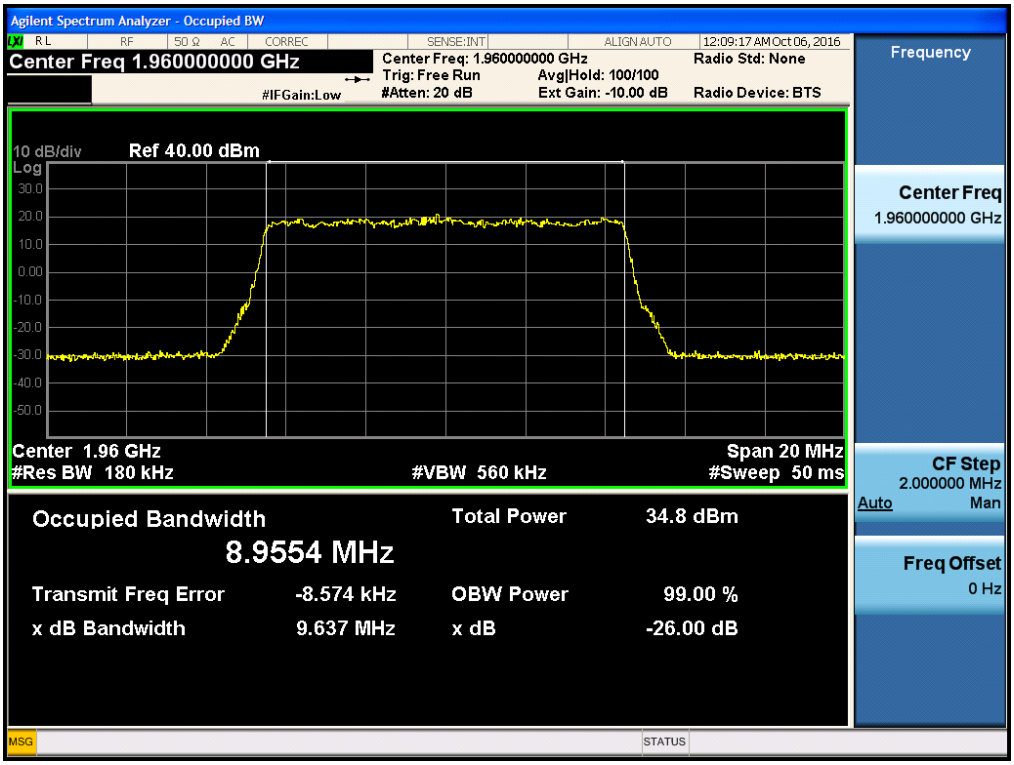
(QPSK High Channel)



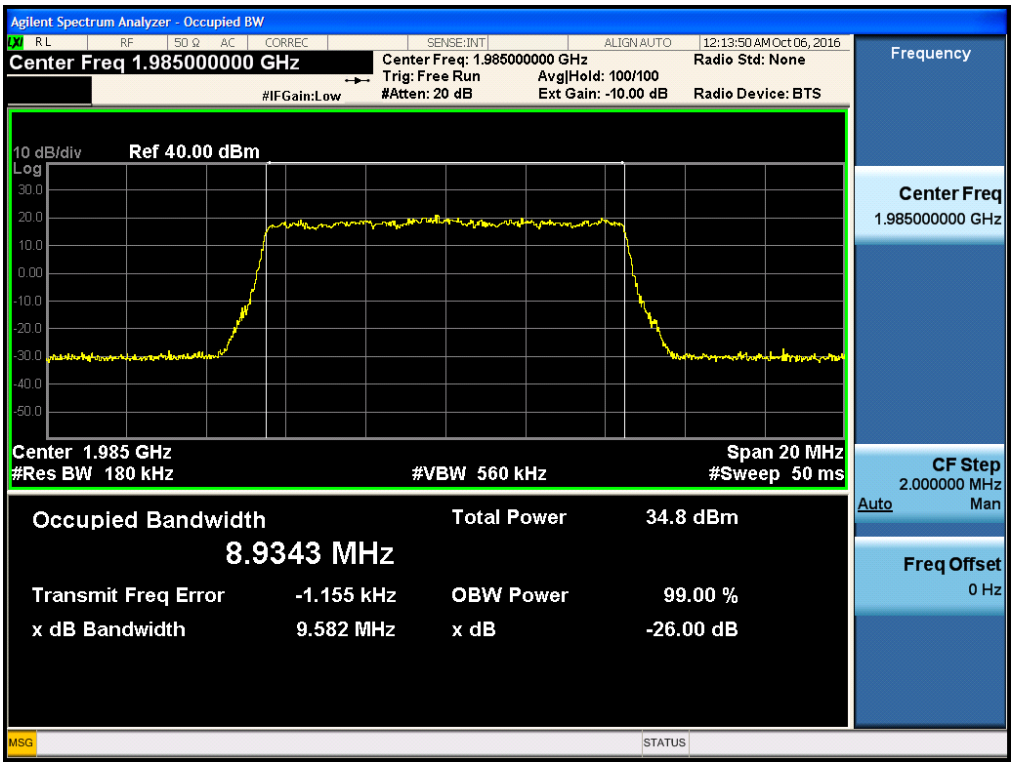
(16QAM Low Channel)



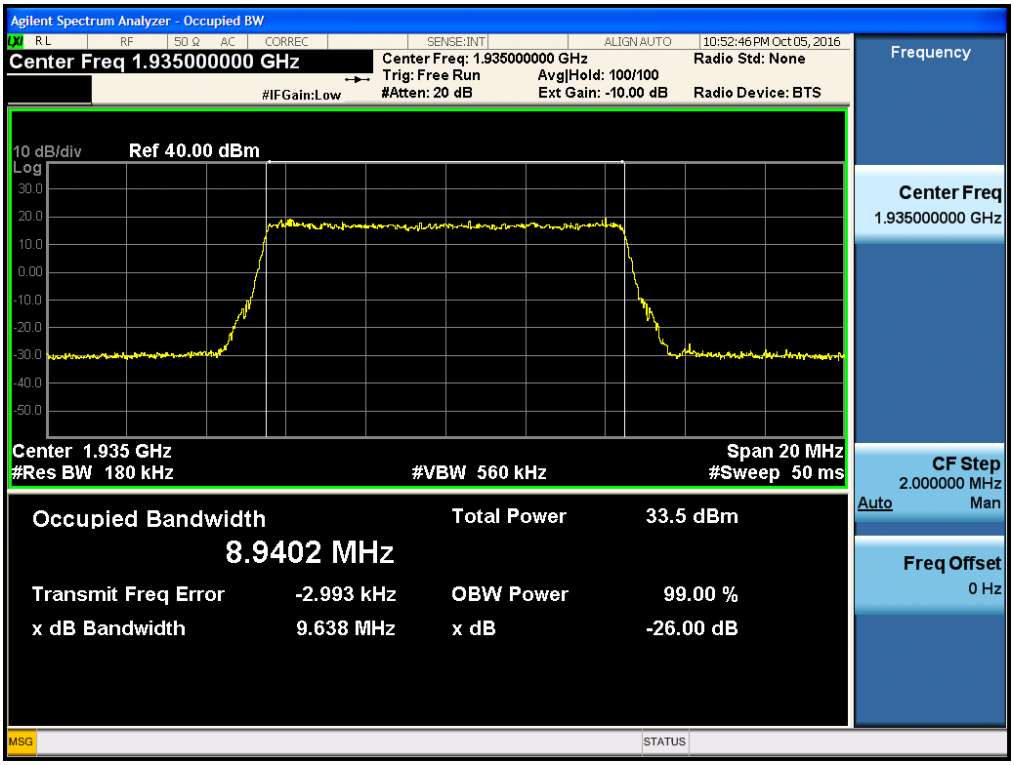
(16QAM Middle Channel)



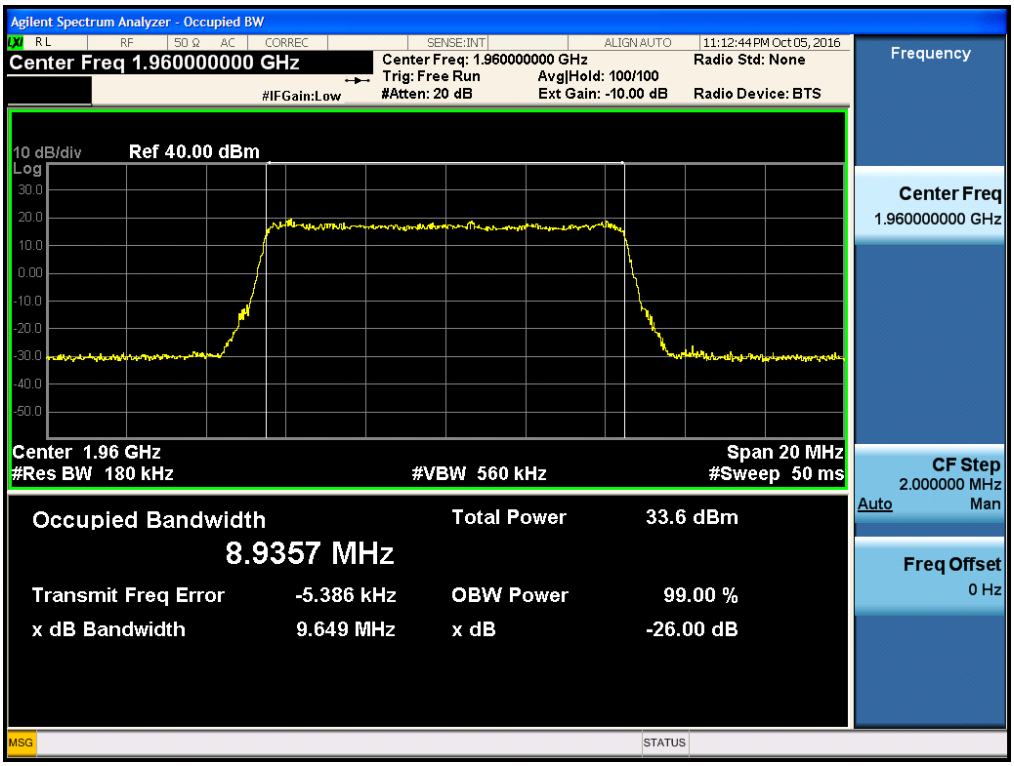
(16QAM High Channel)



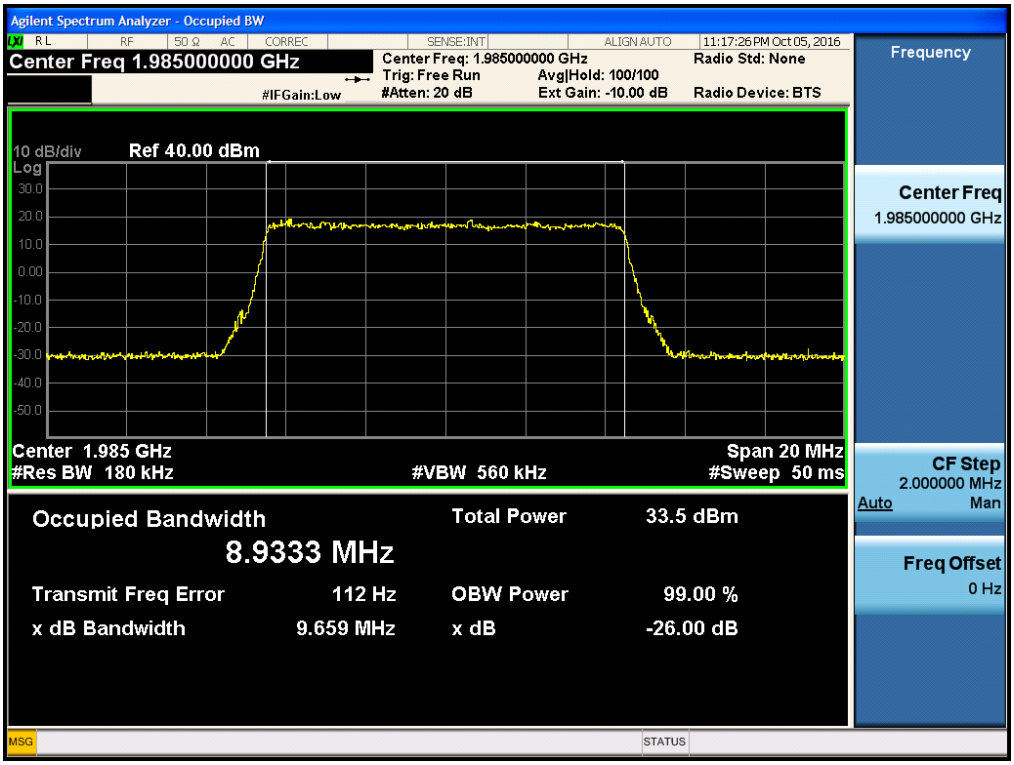
(64QAM Low Channel)



(64QAM Middle Channel)



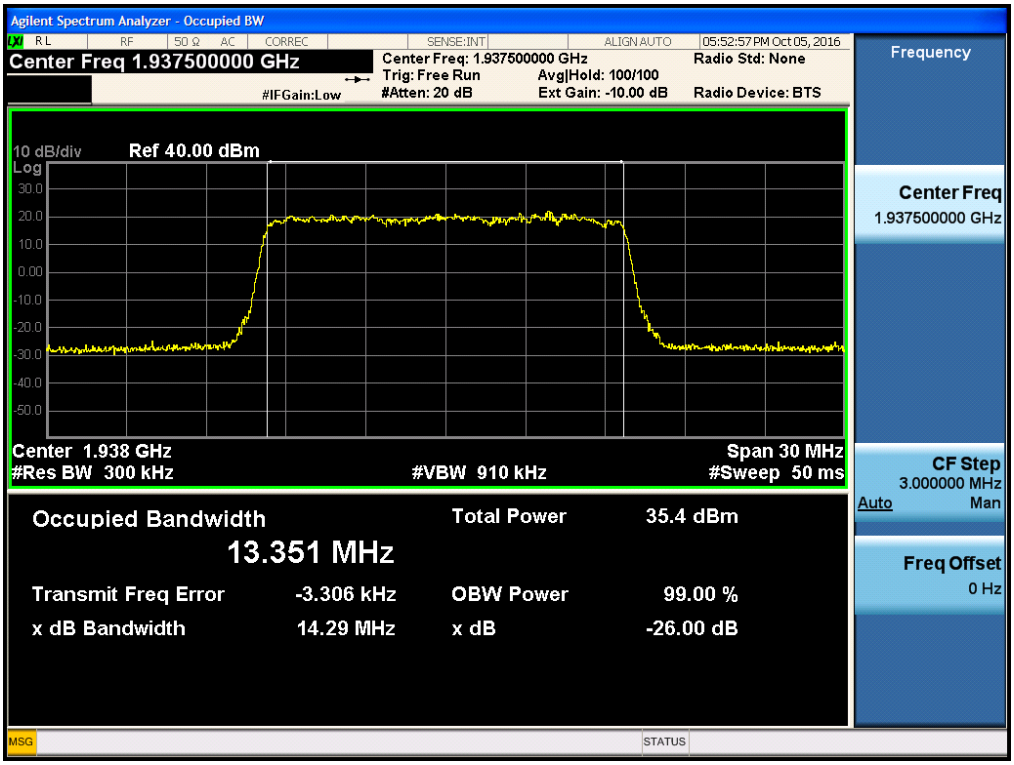
(64QAM High Channel)



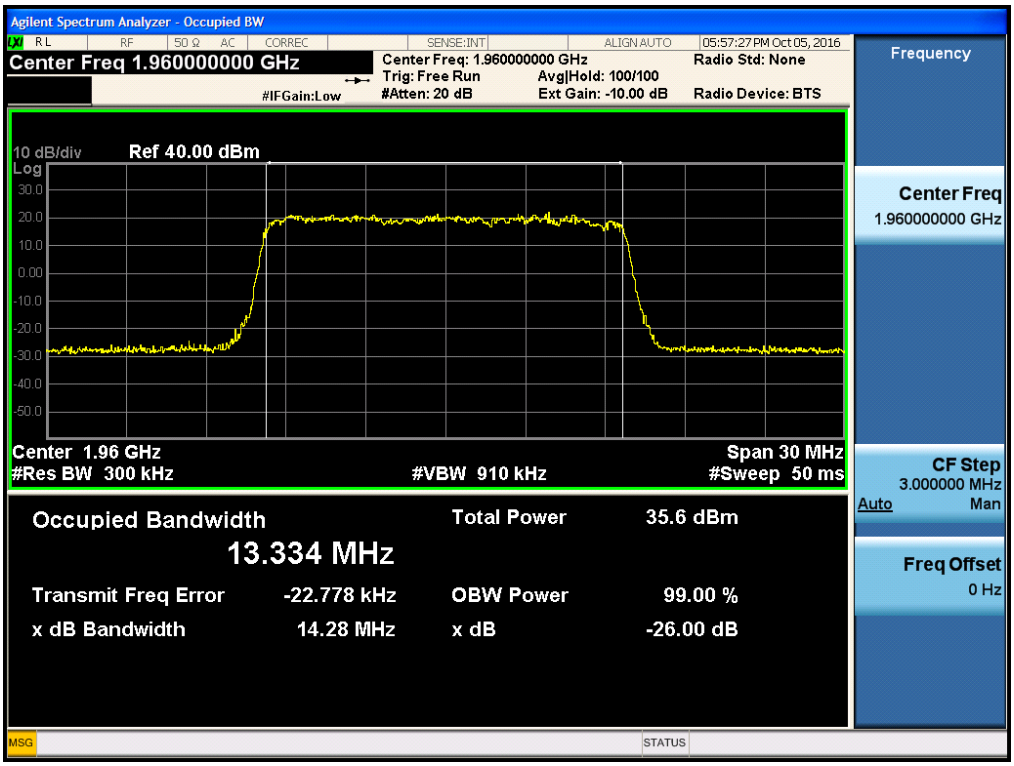
PCS 1900_LTE 15 MHz

Test Plot at Output Port 0

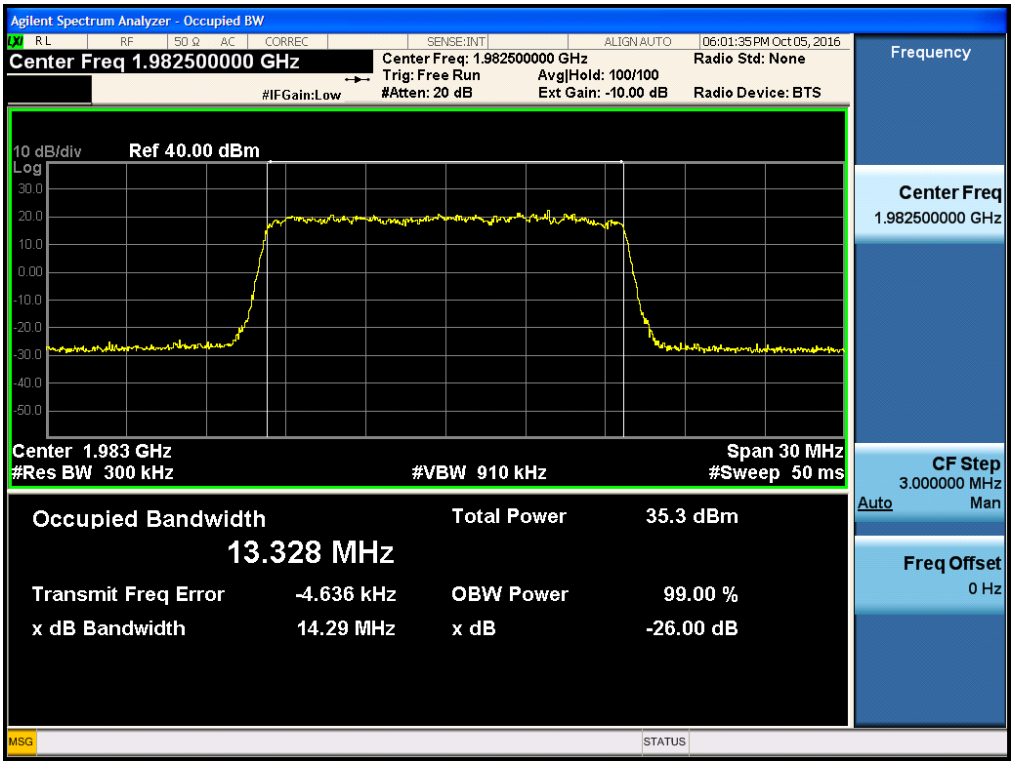
(QPSK Low Channel)



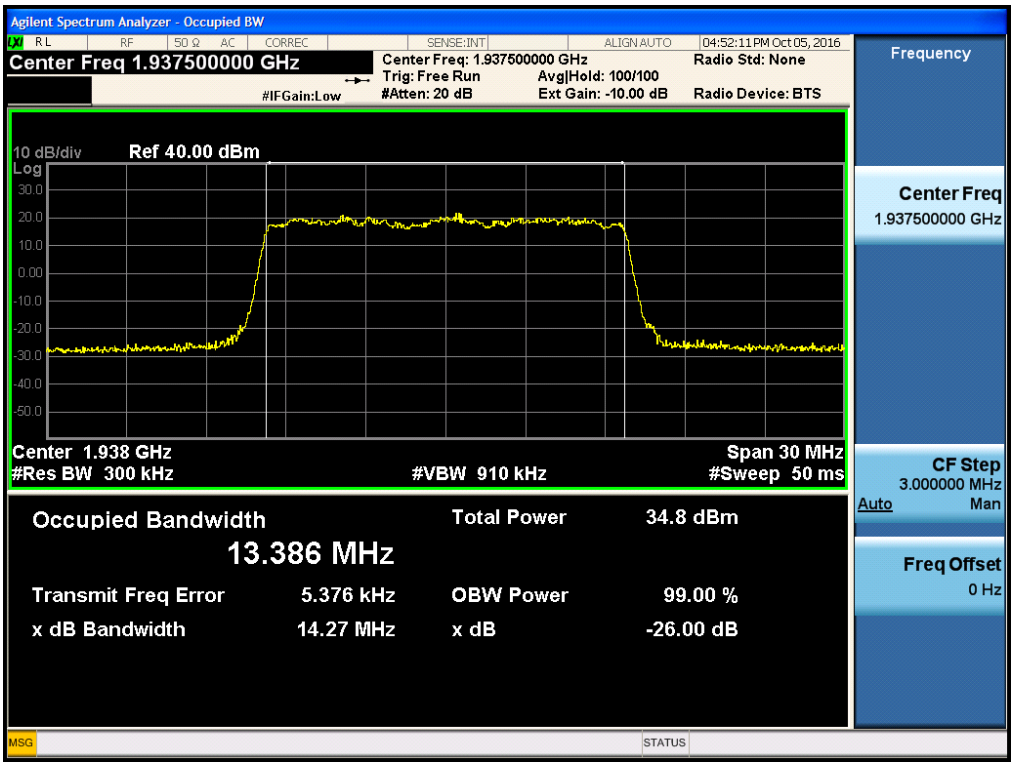
(QPSK Middle Channel)



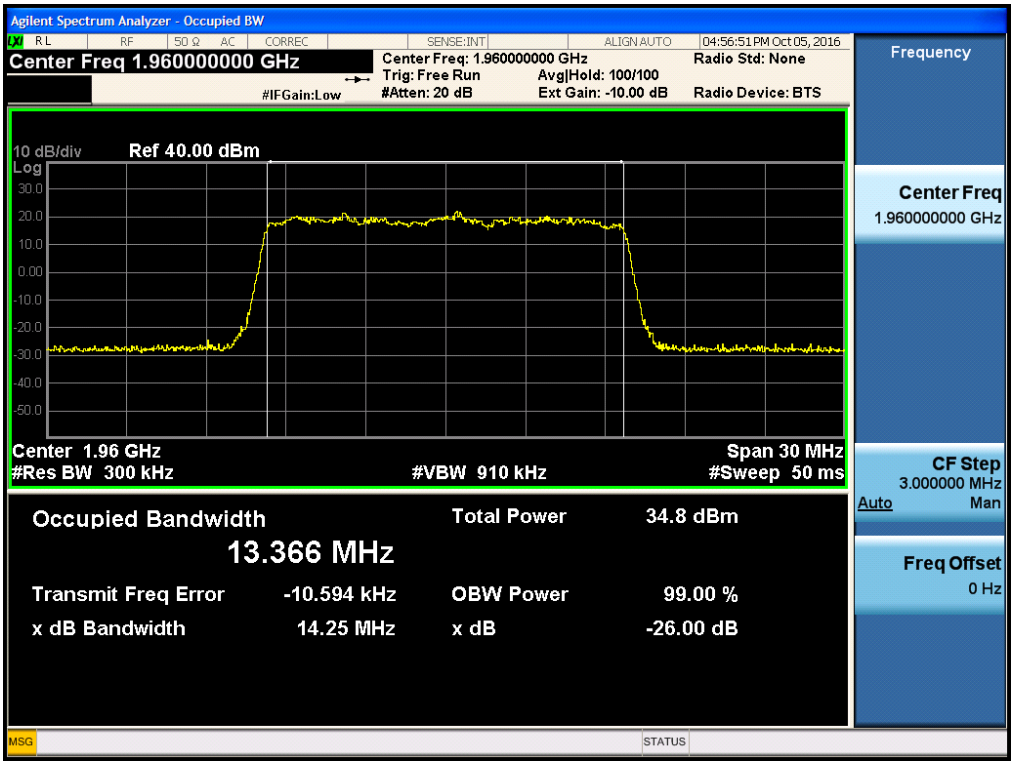
(QPSK High Channel)



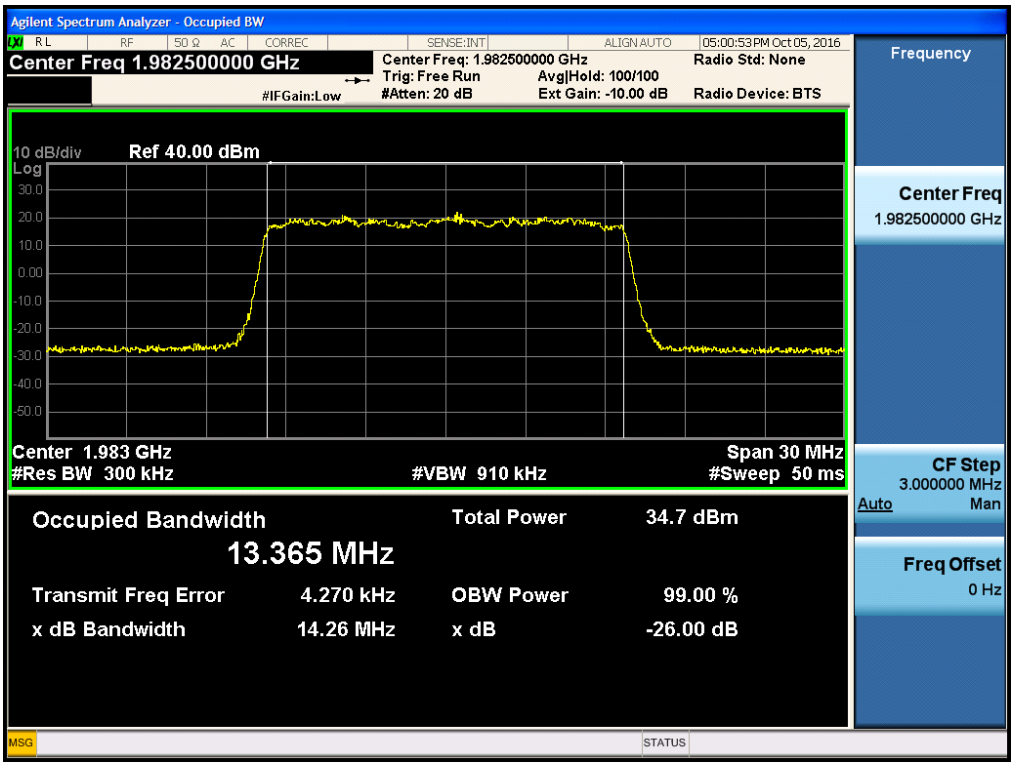
(16QAM Low Channel)



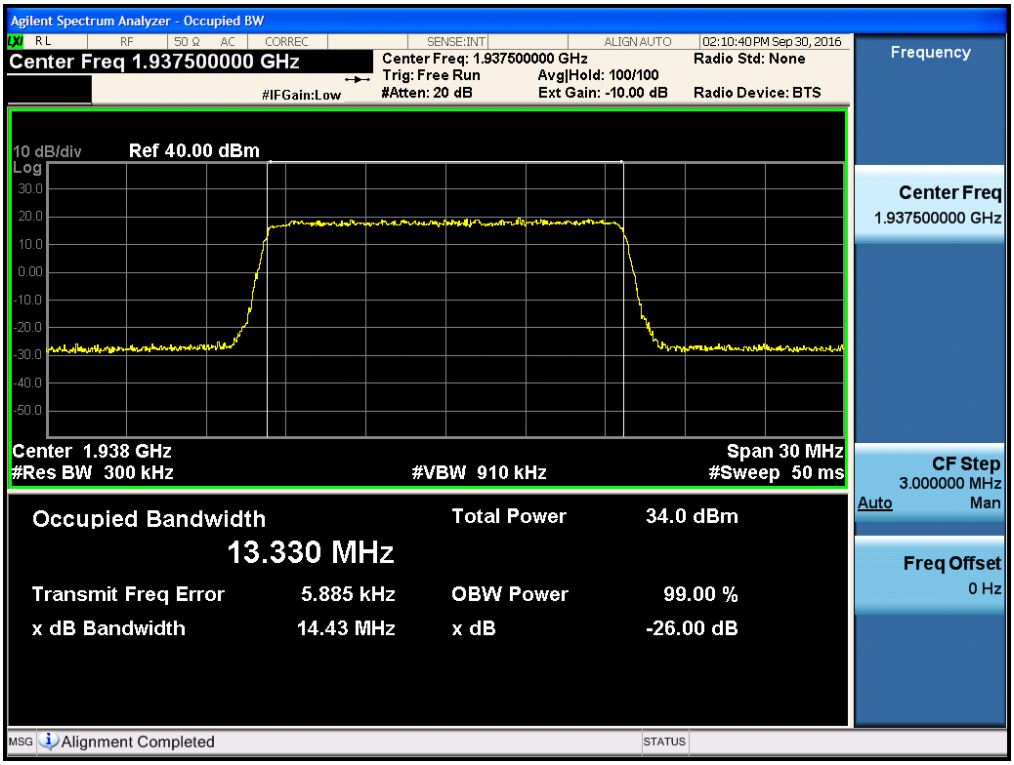
(16QAM Middle Channel)



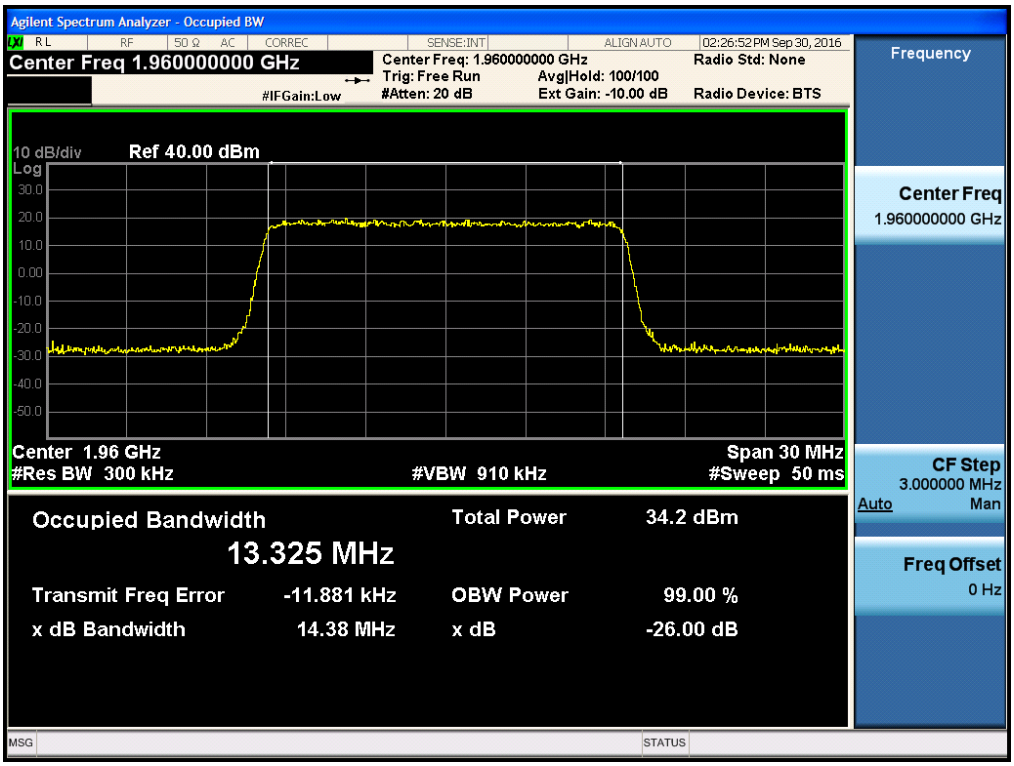
(16QAM High Channel)



(64QAM Low Channel)



(64QAM Middle Channel)



(64QAM High Channel)