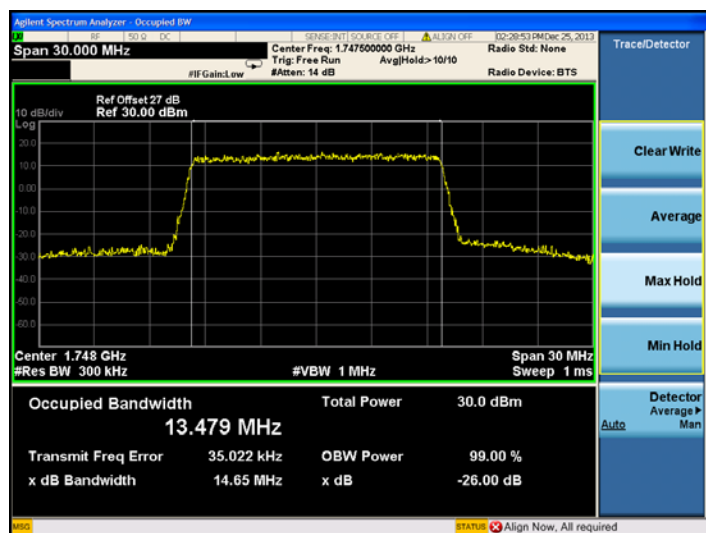


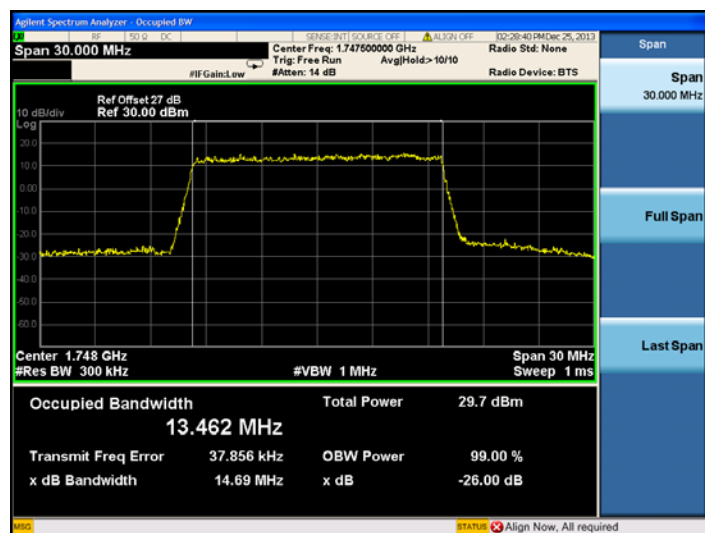


Spectrum Plot of Worst Value

15MHz/QPSK

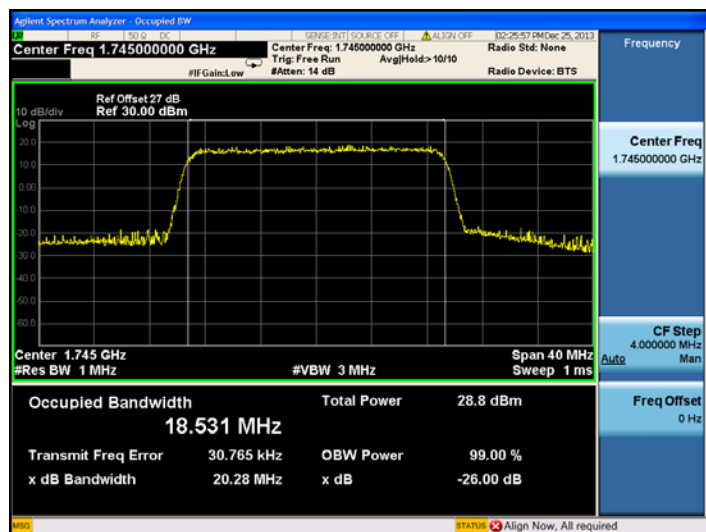


15MHz/16QAM

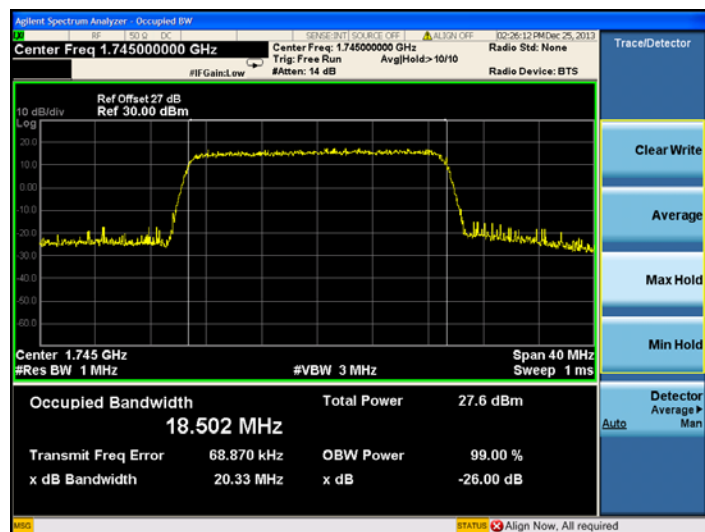


Spectrum Plot of Worst Value

20MHz/QPSK



20MHz/16QAM



2.3 Frequency Stability

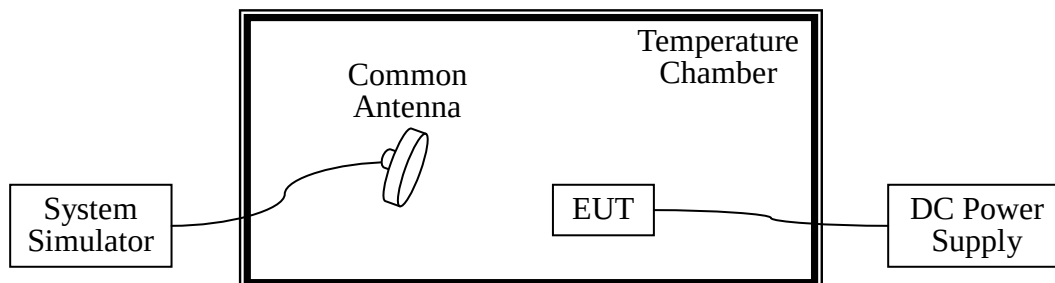
2.3.1 Requirement

According to FCC section 2.1055 and FCC section 27.54, 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 -30°C to $+50^{\circ}\text{C}$ 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

1. Test Setup:



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. Equipments List:

Description	Manufacturer	Model	Serial No.	Cal. Date	Cal. Due
System Simulator	Rohde& Schwarz	CMW500	1201.0002k5 0/124534/wk	2013.05	2014.05
DC Power Supply	Good Will	GPS-3030DD	EF920938	2013.05	2014.05
Temperature Chamber	YinHe Experimental Equip.	HL4003T	(n.a.)	2013.05	2014.05

2.3.3 Test Verdict

The nominal, highest and lowest extreme voltages are separately 3.8VDC, 4.35VDC and 3.6VDC, which are specified by the applicant; the normal temperature here used is 20°C . The frequency deviation limit is

±2.5ppm.

The testing was performed using one RB and Bandwidth setting for each band.

LTE Band 17 – QPSK - Channel 23790 – Frequency 710MHz – RB 25/0				
Limit: 710MHz*2.5ppm=1775Hz				
Voltage (%)	Power (VDC)	Temp (°C)	Fre. Dev. (Hz)	Result
100	3.8	-30	5.31	<u>PASS</u>
100		-20	-5.74	
100		-10	-5.78	
100		0	-4.68	
100		+10	-4.41	
100		+20	5.55	
100		+30	-5.41	
100		+40	4.60	
100		+50	-6.18	
115	4.35	+20	-6.47	
85	3.6	+20	-5.59	

LTE Band 4 – QPSK - Channel 20175 – Frequency 1732.5MHz – RB 6/0				
Limit: 1732.5MHz*2.5ppm=4331.25Hz				
Voltage (%)	Power (VDC)	Temp (°C)	Fre. Dev. (Hz)	Result
100	3.8	-30	12.56	<u>PASS</u>
100		-20	11.66	
100		-10	10.50	
100		0	11.74	
100		+10	11.56	
100		+20	9.48	
100		+30	-10.89	
100		+40	10.83	
100		+50	12.62	
115	4.35	+20	11.12	
85	3.6	+20	12.52	

2.4 Peak to Average Ratio

2.4.1 Requirement

According to FCC section 27.50(d) (5), the peak to average ratio (PAR) of the transmission may not exceed 13dB.

2.4.2 Test Description

See section 2.1.2 of this report.

2.4.3 Test Result

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

LTE Band 4:

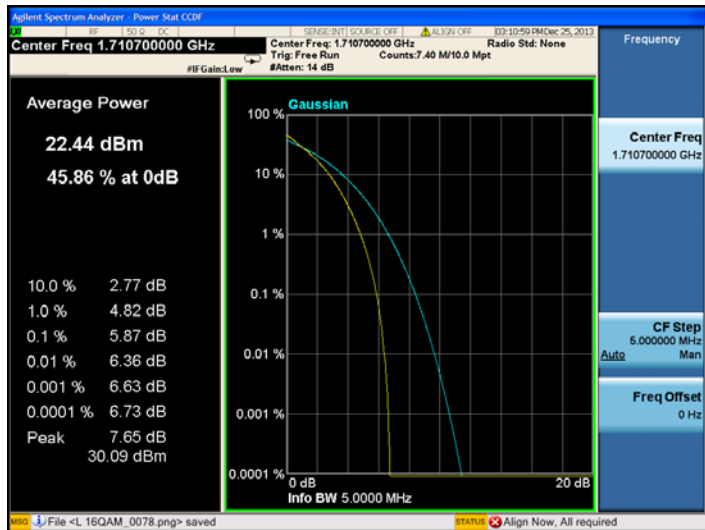
Low channel:

Channel Bandwidth: 1.4MHz				Channel Bandwidth: 3MHz			
Channel	Frequency (MHz)	Peak to Average Ratio (dB)		Channel	Frequency (MHz)	Peak to Average Ratio (dB)	
		QPSK	16QAM			QPSK	16QAM
19957	1710.7	5.87	6.51	19965	1771.5	5.63	6.48
Channel Bandwidth: 5MHz				Channel Bandwidth: 10MHz			
Channel	Frequency (MHz)	Peak to Average Ratio (dB)		Channel	Frequency (MHz)	Peak to Average Ratio (dB)	
		QPSK	16QAM			QPSK	16QAM
19975	1712.5	5.68	6.06	20000	1715.0	4.68	6.13
Channel Bandwidth: 15MHz				Channel Bandwidth: 20MHz			
Channel	Frequency (MHz)	Peak to Average Ratio (dB)		Channel	Frequency (MHz)	Peak to Average Ratio (dB)	
		QPSK	16QAM			QPSK	16QAM
20025	1717.5	5.77	6.82	20050	1720.0	6.45	7.21



Spectrum Plot of Worst Value (Low channel)

1.4MHz/QPSK

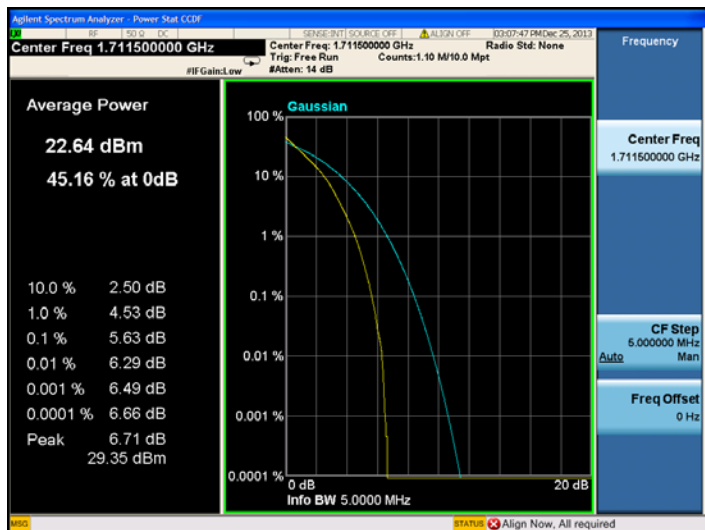


1.4MHz/16QAM

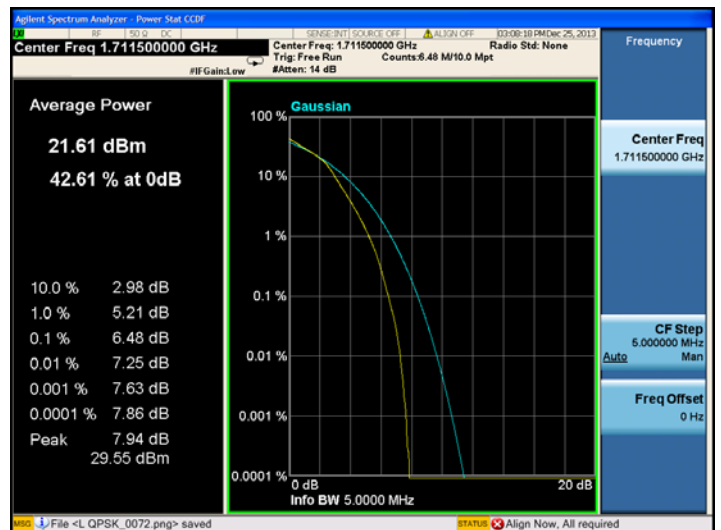


Spectrum Plot of Worst Value

3MHz/QPSK

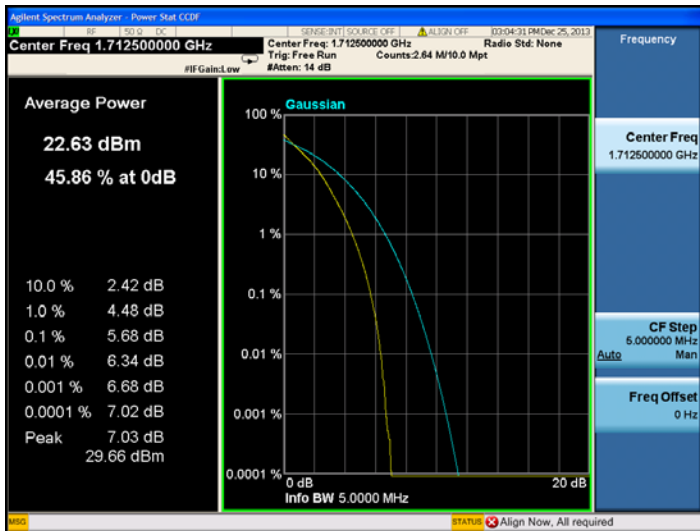


3MHz/16QAM



Spectrum Plot of Worst Value

5MHz/QPSK

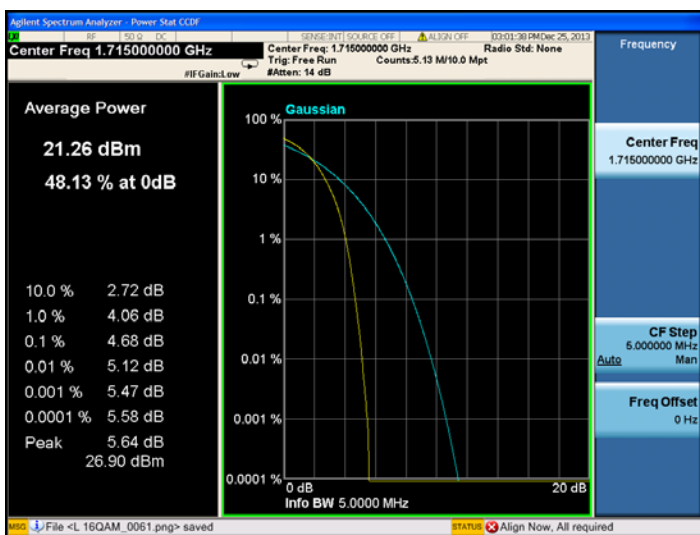


5MHz/16QAM



Spectrum Plot of Worst Value

10MHz/QPSK

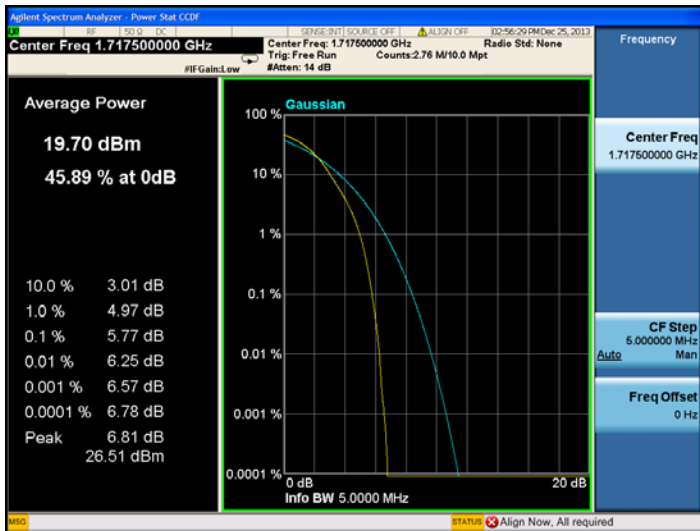


10MHz/16QAM



Spectrum Plot of Worst Value

15MHz/QPSK

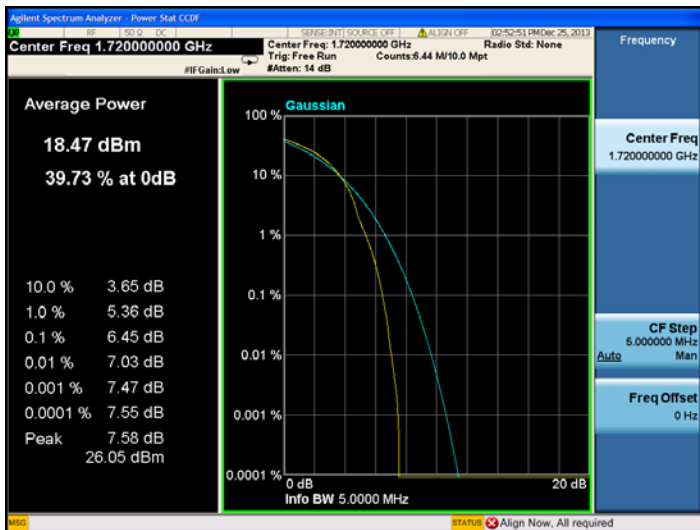


15MHz/16QAM

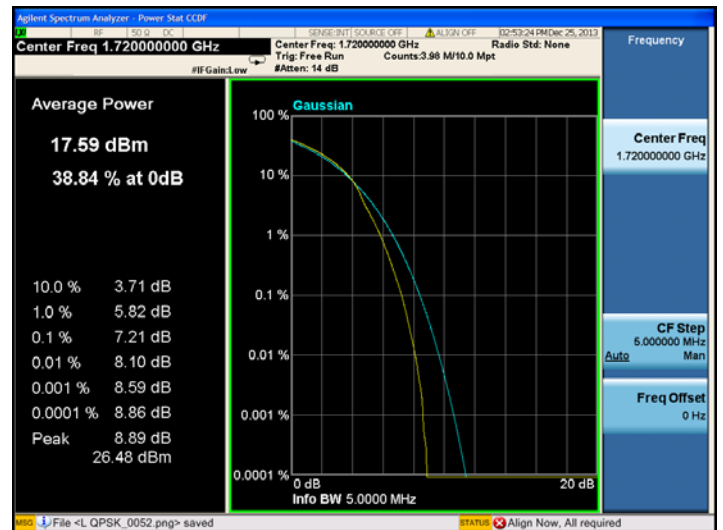


Spectrum Plot of Worst Value

20MHz/QPSK



20MHz/16QAM



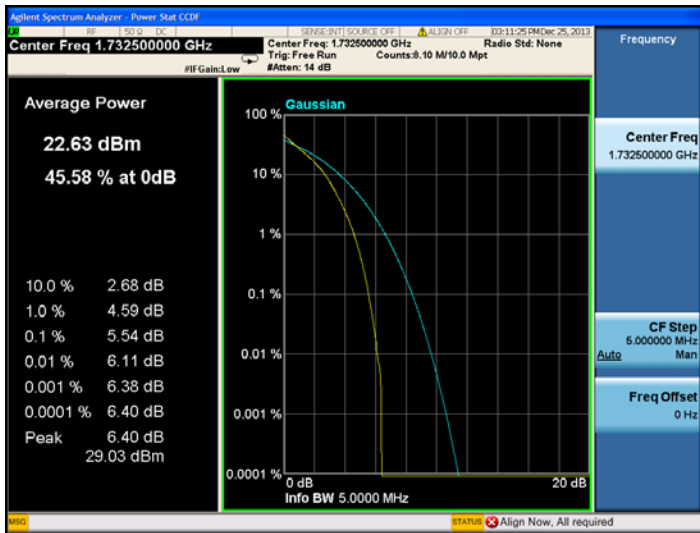
Middle channel:

Channel Bandwidth: 1.4MHz				Channel Bandwidth: 3MHz			
Channel	Frequency (MHz)	Peak to Average Ratio (dB)		Channel	Frequency (MHz)	Peak to Average Ratio (dB)	
		QPSK	16QAM			QPSK	16QAM
20175	1732.5	5.54	5.55	20175	1732.5	5.58	6.44
Channel Bandwidth: 5MHz				Channel Bandwidth: 10MHz			
Channel	Frequency (MHz)	Peak to Average Ratio (dB)		Channel	Frequency (MHz)	Peak to Average Ratio (dB)	
		QPSK	16QAM			QPSK	16QAM
20175	1732.5	5.65	6.44	20175	1732.5	4.70	6.17
Channel Bandwidth: 15MHz				Channel Bandwidth: 20MHz			
Channel	Frequency (MHz)	Peak to Average Ratio (dB)		Channel	Frequency (MHz)	Peak to Average Ratio (dB)	
		QPSK	16QAM			QPSK	16QAM
20175	1732.5	5.78	6.91	20175	1732.5	6.48	7.22

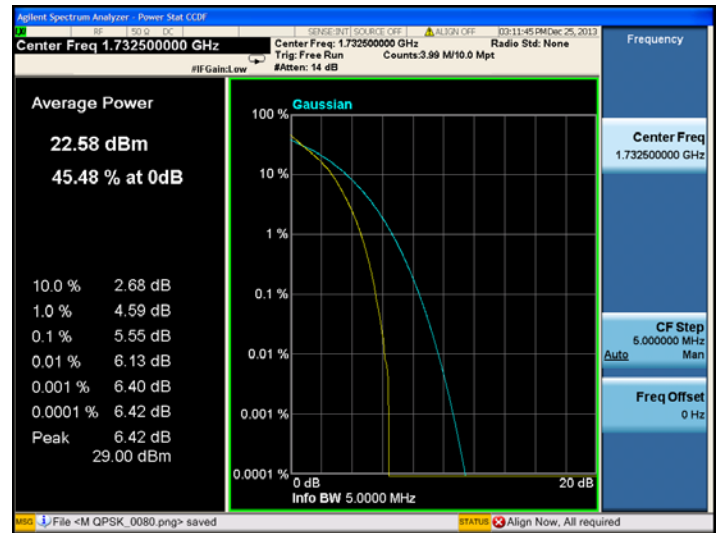


Spectrum Plot of Worst Value

1.4MHz/QPSK

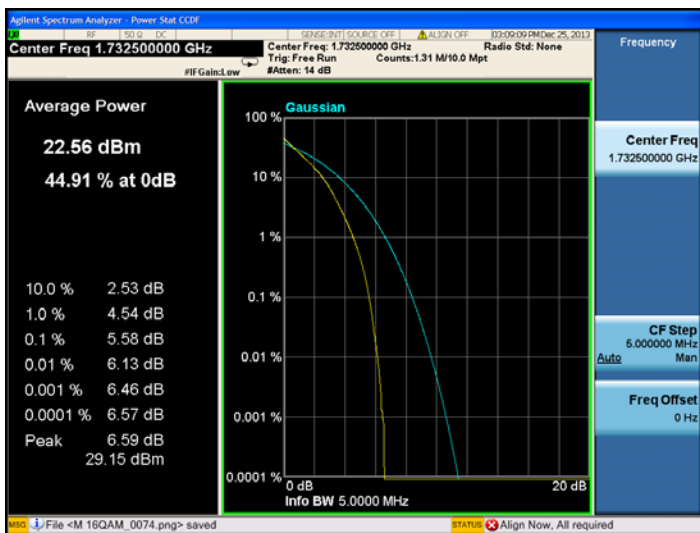


1.4MHz/16QAM

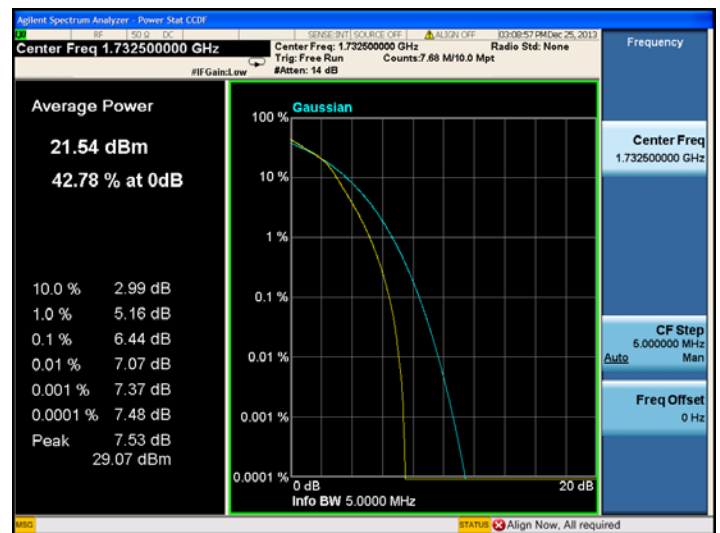


Spectrum Plot of Worst Value

3MHz/QPSK

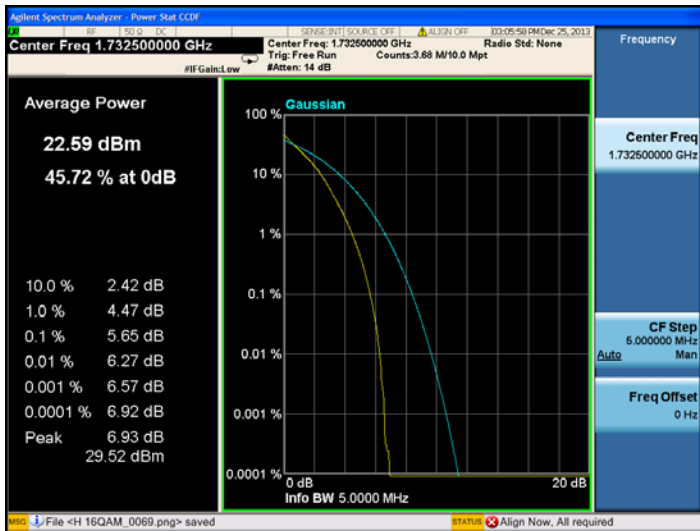


3MHz/16QAM

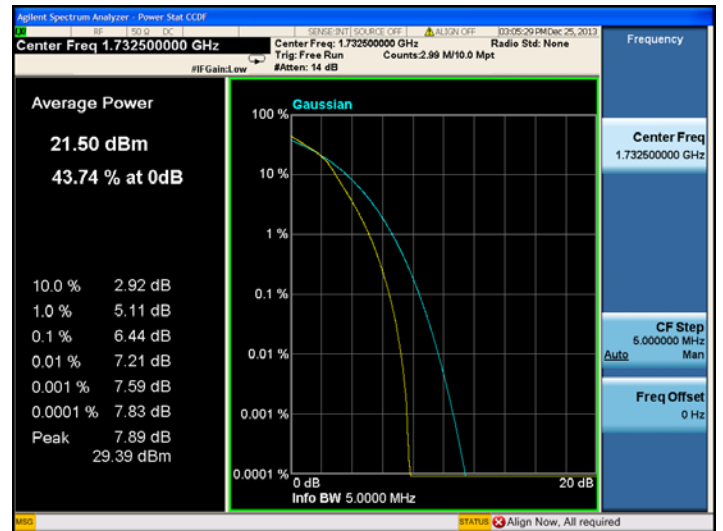


Spectrum Plot of Worst Value

5MHz/QPSK

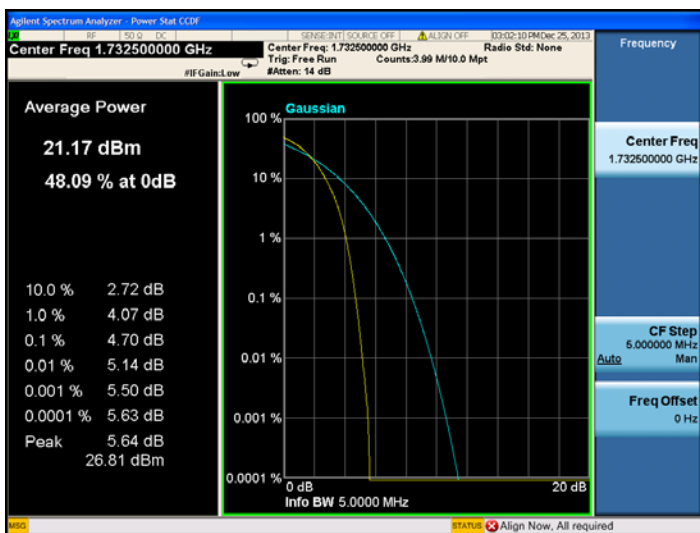


5MHz/16QAM

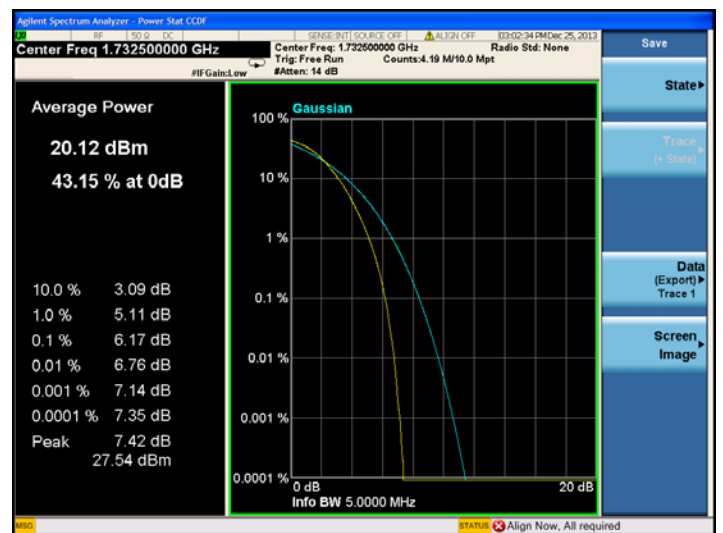


Spectrum Plot of Worst Value

10MHz/QPSK

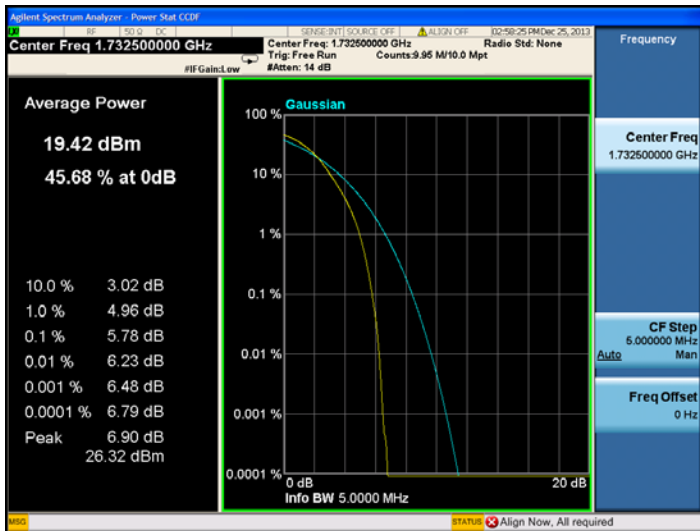


10MHz/16QAM

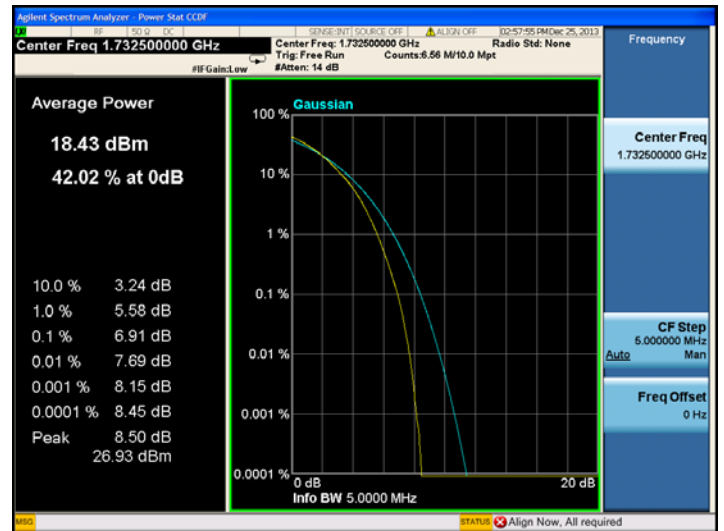


Spectrum Plot of Worst Value

15MHz/QPSK

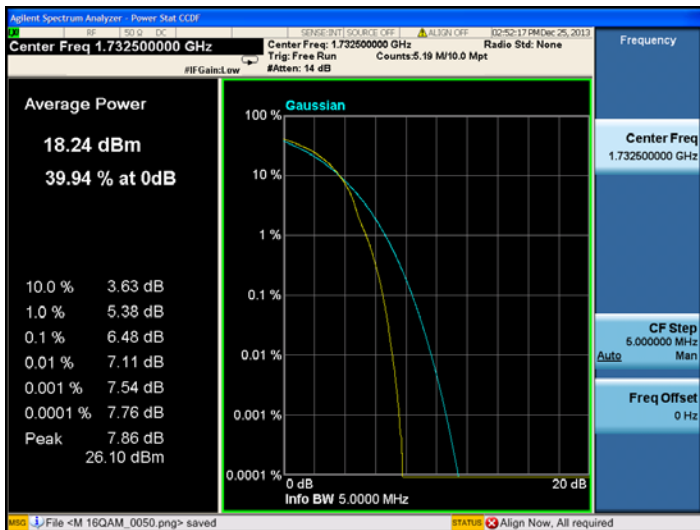


15MHz/16QAM



Spectrum Plot of Worst Value

20MHz/QPSK



20MHz/16QAM

