Channel Bandwidth: 5MHz				Channel Bandwidth: 10MHz			
Channel	Frequency (MHz)	99% Bandwidth (MHz)		Channel	Frequency (MHz)	99% Bandwidth(MHz)	
		QPSK	16QAM			QPSK	16QAM
20525	836.5	4.5369	4.5390	20525	836.5	9.0382	9.0111
Channel Bandwidth: 5MHz				**Channel Bandwidth: 10MHz**			
Channel	Frequency (MHz)	26dB Bandwidth (MHz)		Channel	Frequency (MHz)	26dB Bandwidth(MHz)	
		QPSK	16QAM			QPSK	16QAM
20525	836.5	4.991	5.017	20525	836.5	9.989	9.940

High channel:

Channel Bandwidth: 1.4MHz				Channel Bandwidth: 3MHz			
Channel	Frequency (MHz)	99% Bandwidth (MHz)		Channel	Frequency (MHz)	99% Bandwidth(MHz)	
		QPSK	16QAM			QPSK	16QAM
20643	848.3	1.1099	1.0998	20635	847.5	2.7160	2.7093
Channel Bandwidth: 1.4MHz				**Channel Bandwidth: 3MHz**			
Channel	Frequency (MHz)	26dB Bandwidth (MHz)		Channel	Frequency (MHz)	26dB Bandwidth(MHz)	
		QPSK	16QAM			QPSK	16QAM
20643	848.3	1.283	1.298	20635	847.5	3.007	3.011

Channel Bandwidth: 5MHz				Channel Bandwidth: 10MHz			
Channel	Frequency (MHz)	99% Bandwidth (MHz)		Channel	Frequency (MHz)	99% Bandwidth(MHz)	
		QPSK	16QAM			QPSK	16QAM
20625	846.5	4.5194	4.5263	20600	844.0	9.0004	8.9906
Channel Bandwidth: 5MHz				**Channel Bandwidth: 10MHz**			
Channel	Frequency (MHz)	26dB Bandwidth (MHz)		Channel	Frequency (MHz)	26dB Bandwidth(MHz)	
		QPSK	16QAM			QPSK	16QAM
20625	846.5	5.027	5.029	20600	844.0	9.957	9.934

Low channel:

Spectrum Plot of Worst Value	
1.4MHz/QPSK	**1.4MHz/16QAM**

Spectrum Plot of Worst Value	
3MHz/QPSK	**3MHz/16QAM**

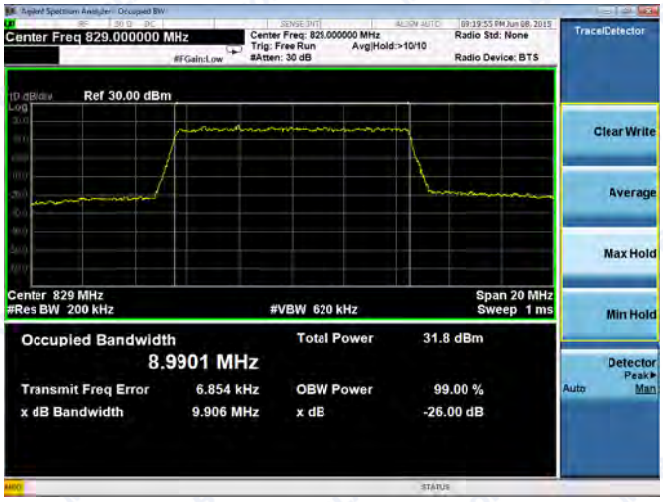
Spectrum Plot of Worst Value

5MHz/QPSK

5MHz/16QAM

Spectrum Plot of Worst Value

10MHz/QPSK



10MHz/16QAM

Middle channel:

Spectrum Plot of Worst Value	
1.4MHz/QPSK	**1.4MHz/16QAM**

Spectrum Plot of Worst Value	
3MHz/QPSK	**3MHz/16QAM**

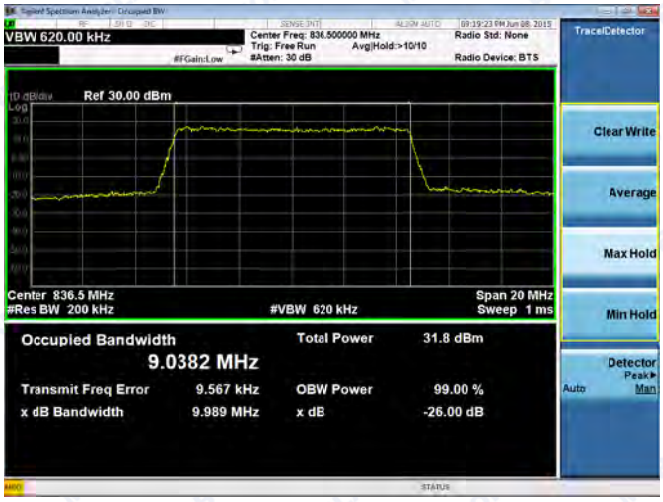
Spectrum Plot of Worst Value

5MHz/QPSK

5MHz/16QAM

Spectrum Plot of Worst Value

10MHz/QPSK



10MHz/16QAM

High channel:

Spectrum Plot of Worst Value	
1.4MHz/QPSK	**1.4MHz/16QAM**

Spectrum Plot of Worst Value	
3MHz/QPSK	**3MHz/16QAM**

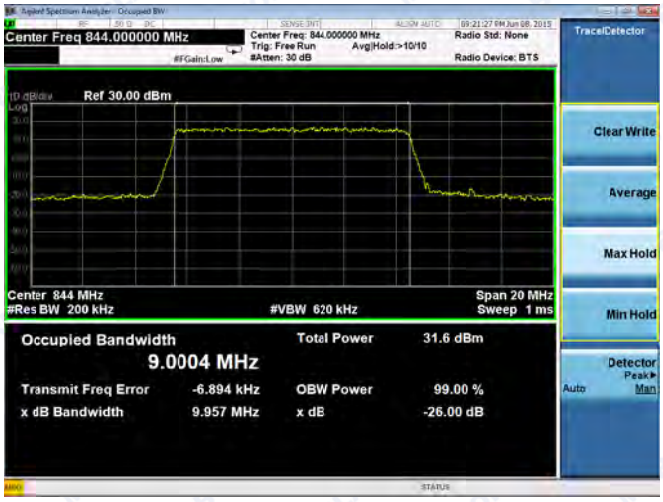
Spectrum Plot of Worst Value

5MHz/QPSK

5MHz/16QAM

Spectrum Plot of Worst Value

10MHz/QPSK



10MHz/16QAM

LTE Band 7

Low channel:

Channel Bandwidth: 5MHz				Channel Bandwidth: 10MHz			
Channel	Frequency (MHz)	99% Bandwidth (MHz)		Channel	Frequency (MHz)	99% Bandwidth(MHz)	
		QPSK	16QAM			QPSK	16QAM
20775	2502.5	4.5282	4.5265	20800	2505.0	8.9926	9.0087
Channel Bandwidth: 5MHz				**Channel Bandwidth: 10MHz**			
Channel	Frequency (MHz)	26dB Bandwidth (MHz)		Channel	Frequency (MHz)	26dB Bandwidth(MHz)	
		QPSK	16QAM			QPSK	16QAM
20775	2502.5	5.084	5.024	20800	2505.0	9.921	9.991

Channel Bandwidth: 15MHz				Channel Bandwidth: 20MHz			
Channel	Frequency (MHz)	99% Bandwidth (MHz)		Channel	Frequency (MHz)	99% Bandwidth(MHz)	
		QPSK	16QAM			QPSK	16QAM
20825	2507.5	13.475	13.501	20850	2510.0	17.988	17.984
Channel Bandwidth: 15MHz				**Channel Bandwidth: 20MHz**			
Channel	Frequency (MHz)	26dB Bandwidth (MHz)		Channel	Frequency (MHz)	26dB Bandwidth(MHz)	
		QPSK	16QAM			QPSK	16QAM
20825	2507.5	14.76	14.68	20850	2510.0	19.60	19.72

Middle channel:

Channel Bandwidth: 5MHz				Channel Bandwidth: 10MHz			
Channel	Frequency (MHz)	99% Bandwidth (MHz)		Channel	Frequency (MHz)	99% Bandwidth(MHz)	
		QPSK	16QAM			QPSK	16QAM
21100	2535.0	4.5418	4.5241	21100	2535.0	9.0168	9.0114
Channel Bandwidth: 5MHz				**Channel Bandwidth: 10MHz**			
Channel	Frequency (MHz)	26dB Bandwidth (MHz)		Channel	Frequency (MHz)	26dB Bandwidth(MHz)	
		QPSK	16QAM			QPSK	16QAM
21100	2535.0	5.014	5.038	21100	2535.0	10.06	9.896

Channel Bandwidth: 15MHz				Channel Bandwidth: 20MHz			
Channel	Frequency (MHz)	99% Bandwidth (MHz)		Channel	Frequency (MHz)	99% Bandwidth(MHz)	
		QPSK	16QAM			QPSK	16QAM
21100	2535.0	13.510	13.493	21100	2535.0	17.970	18.021
Channel Bandwidth: 15MHz				**Channel Bandwidth: 20MHz**			
Channel	Frequency (MHz)	26dB Bandwidth (MHz)		Channel	Frequency (MHz)	26dB Bandwidth(MHz)	
		QPSK	16QAM			QPSK	16QAM
21100	2535.0	14.87	14.76	21100	2535.0	19.53	19.50

High channel:

Channel Bandwidth: 5MHz				Channel Bandwidth: 10MHz			
Channel	Frequency (MHz)	99% Bandwidth (MHz)		Channel	Frequency (MHz)	99% Bandwidth(MHz)	
		QPSK	16QAM			QPSK	16QAM
21425	2567.5	4.5206	4.5292	21400	2565.0	9.0087	8.9934
Channel Bandwidth: 5MHz				**Channel Bandwidth: 10MHz**			
Channel	Frequency (MHz)	26dB Bandwidth (MHz)		Channel	Frequency (MHz)	26dB Bandwidth(MHz)	
		QPSK	16QAM			QPSK	16QAM
21425	2567.5	5.018	5.017	21400	2565.0	9.946	9.984

Channel Bandwidth: 15MHz				Channel Bandwidth: 20MHz			
Channel	Frequency (MHz)	99% Bandwidth (MHz)		Channel	Frequency (MHz)	99% Bandwidth(MHz)	
		QPSK	16QAM			QPSK	16QAM
21375	2562.5	13.475	13.492	21350	2560.0	17.999	17.973
Channel Bandwidth: 15MHz				**Channel Bandwidth: 20MHz**			
Channel	Frequency (MHz)	26dB Bandwidth (MHz)		Channel	Frequency (MHz)	26dB Bandwidth(MHz)	
		QPSK	16QAM			QPSK	16QAM
21375	2562.5	14.75	14.71	21350	2560.0	19.77	19.61

Low channel:

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:

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

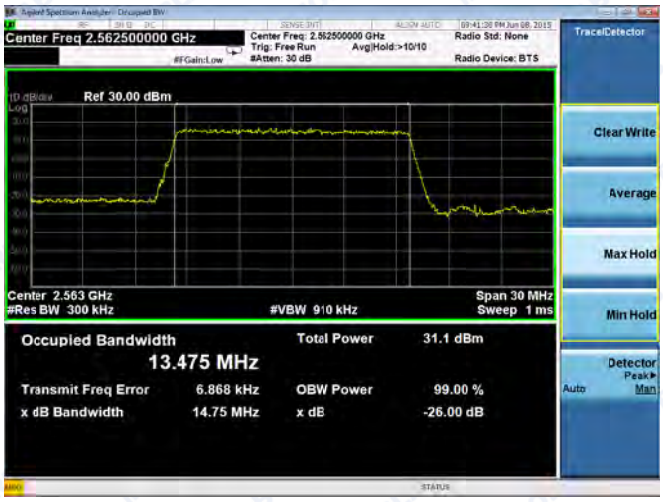
High channel:

Spectrum Plot of Worst Value	
5MHz/QPSK	**5MHz/16QAM**

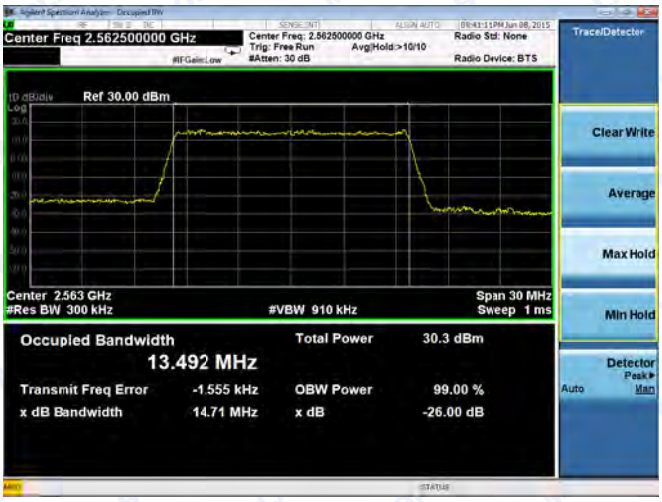
Spectrum Plot of Worst Value	
10MHz/QPSK	**10MHz/16QAM**

Spectrum Plot of Worst Value

15MHz/QPSK



15MHz/16QAM



Spectrum Plot of Worst Value

20MHz/QPSK

20MHz/16QAM

LTE Band 12

Low channel:

Channel Bandwidth: 1.4MHz				Channel Bandwidth: 3MHz			
Channel	Frequency (MHz)	99% Bandwidth (MHz)		Channel	Frequency (MHz)	99% Bandwidth(MHz)	
		QPSK	16QAM			QPSK	16QAM
23017	699.7	1.1015	1.1045	23025	700.5	2.7258	2.7126
Channel Bandwidth: 1.4MHz				**Channel Bandwidth: 3MHz**			
Channel	Frequency (MHz)	26dB Bandwidth (MHz)		Channel	Frequency (MHz)	26dB Bandwidth(MHz)	
		QPSK	16QAM			QPSK	16QAM
23017	699.7	1.300	1.286	23025	700.5	3.008	3.008

Channel Bandwidth: 5MHz				Channel Bandwidth: 10MHz			
Channel	Frequency (MHz)	99% Bandwidth (MHz)		Channel	Frequency (MHz)	99% Bandwidth(MHz)	
		QPSK	16QAM			QPSK	16QAM
23035	701.5	4.5442	4.5501	23060	704	9.0358	9.0536
Channel Bandwidth: 5MHz				**Channel Bandwidth: 10MHz**			
Channel	Frequency (MHz)	26dB Bandwidth (MHz)		Channel	Frequency (MHz)	26dB Bandwidth(MHz)	
		QPSK	16QAM			QPSK	16QAM
23035	701.5	5.051	5.090	23060	704	9.921	9.890

Middle channel:

Channel Bandwidth: 1.4MHz				Channel Bandwidth: 3MHz			
Channel	Frequency (MHz)	99% Bandwidth (MHz)		Channel	Frequency (MHz)	99% Bandwidth(MHz)	
		QPSK	16QAM			QPSK	16QAM
23095	707.5	1.0984	1.1044	23095	707.5	2.7104	2.7160
Channel Bandwidth: 1.4MHz				**Channel Bandwidth: 3MHz**			
Channel	Frequency (MHz)	26dB Bandwidth (MHz)		Channel	Frequency (MHz)	26dB Bandwidth(MHz)	
		QPSK	16QAM			QPSK	16QAM
23095	707.5	1.293	1.307	23095	707.5	3.008	3.011

Channel Bandwidth: 5MHz				Channel Bandwidth: 10MHz			
Channel	Frequency (MHz)	99% Bandwidth (MHz)		Channel	Frequency (MHz)	99% Bandwidth(MHz)	
		QPSK	16QAM			QPSK	16QAM
23095	707.5	4.5205	4.5252	23095	707.5	8.9803	8.9786
Channel Bandwidth: 5MHz				**Channel Bandwidth: 10MHz**			
Channel	Frequency (MHz)	26dB Bandwidth (MHz)		Channel	Frequency (MHz)	26dB Bandwidth(MHz)	
		QPSK	16QAM			QPSK	16QAM
23095	707.5	5.007	4.980	23095	707.5	9.931	9.921

High channel:

Channel Bandwidth: 1.4MHz				Channel Bandwidth: 3MHz			
Channel	Frequency (MHz)	99% Bandwidth (MHz)		Channel	Frequency (MHz)	99% Bandwidth(MHz)	
		QPSK	16QAM			QPSK	16QAM
23173	715.3	1.1060	1.0980	23165	714.5	2.7196	2.7143
Channel Bandwidth: 1.4MHz				**Channel Bandwidth: 3MHz**			
Channel	Frequency (MHz)	26dB Bandwidth (MHz)		Channel	Frequency (MHz)	26dB Bandwidth(MHz)	
		QPSK	16QAM			QPSK	16QAM
23173	715.3	1.284	1.308	23165	714.5	3.001	3.008

Channel Bandwidth: 5MHz				Channel Bandwidth: 10MHz			
Channel	Frequency (MHz)	99% Bandwidth (MHz)		Channel	Frequency (MHz)	99% Bandwidth(MHz)	
		QPSK	16QAM			QPSK	16QAM
23155	713.5	4.5395	4.5415	23130	711	8.9874	8.9815
Channel Bandwidth: 5MHz				**Channel Bandwidth: 10MHz**			
Channel	Frequency (MHz)	26dB Bandwidth (MHz)		Channel	Frequency (MHz)	26dB Bandwidth(MHz)	
		QPSK	16QAM			QPSK	16QAM
23155	713.5	5.002	5.053	23130	711	9.917	9.927

Low channel:

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

Middle channel:

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

High channel:

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

LTE Band 17

Low channel:

Channel Bandwidth: 5MHz				Channel Bandwidth: 10MHz			
Channel	Frequency (MHz)	99% Bandwidth (MHz)		Channel	Frequency (MHz)	99% Bandwidth(MHz)	
		QPSK	16QAM			QPSK	16QAM
23755	706.5	4.5251	4.5319	23780	709.0	8.9485	8.9609
Channel Bandwidth: 5MHz				**Channel Bandwidth: 10MHz**			
Channel	Frequency (MHz)	26dB Bandwidth (MHz)		Channel	Frequency (MHz)	26dB Bandwidth(MHz)	
		QPSK	16QAM			QPSK	16QAM
23755	706.5	4.992	5.028	23780	709.0	9.911	9.847

Middle channel:

Channel Bandwidth: 5MHz				Channel Bandwidth: 10MHz			
Channel	Frequency (MHz)	99% Bandwidth (MHz)		Channel	Frequency (MHz)	99% Bandwidth(MHz)	
		QPSK	16QAM			QPSK	16QAM
23790	710	4.5196	4.5183	23790	710	8.9689	8.9778
Channel Bandwidth: 5MHz				**Channel Bandwidth: 10MHz**			
Channel	Frequency (MHz)	26dB Bandwidth (MHz)		Channel	Frequency (MHz)	26dB Bandwidth(MHz)	
		QPSK	16QAM			QPSK	16QAM
23790	710	5.012	4.988	23790	710	9.922	9.910

High channel:

Channel Bandwidth: 5MHz				Channel Bandwidth: 10MHz			
Channel	Frequency (MHz)	99% Bandwidth (MHz)		Channel	Frequency (MHz)	99% Bandwidth(MHz)	
		QPSK	16QAM			QPSK	16QAM
23825	713.5	4.5504	4.5451	23800	711	8.9901	8.9792
Channel Bandwidth: 5MHz				**Channel Bandwidth: 10MHz**			
Channel	Frequency (MHz)	26dB Bandwidth (MHz)		Channel	Frequency (MHz)	26dB Bandwidth(MHz)	
		QPSK	16QAM			QPSK	16QAM
23825	713.5	5.053	5.084	23800	711	9.947	9.901

Low channel:

Spectrum Plot of Worst Value	
5MHz/QPSK	**5MHz/16QAM**

Spectrum Plot of Worst Value	
10MHz/QPSK	**10MHz/16QAM**

Middle channel:

Spectrum Plot of Worst Value	
5MHz/QPSK	**5MHz/16QAM**

Spectrum Plot of Worst Value	
10MHz/QPSK	**10MHz/16QAM**

High channel:

Spectrum Plot of Worst Value	
5MHz/QPSK	**5MHz/16QAM**

Spectrum Plot of Worst Value	
10MHz/QPSK	**10MHz/16QAM**

2.3 Frequency Stability

2.3.1 Requirement

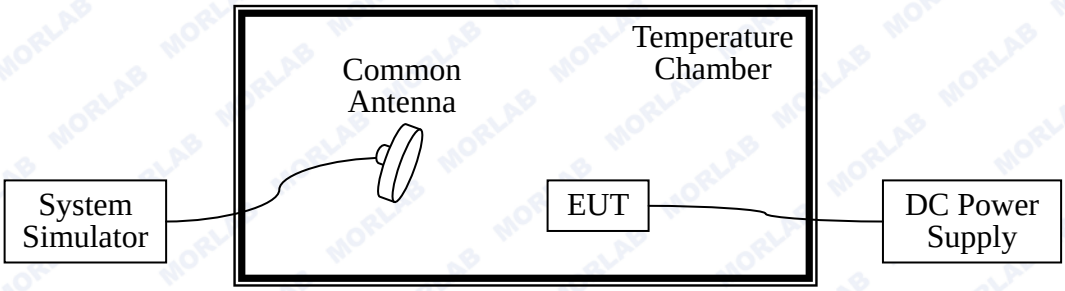
According to FCC section 2.1055 and FCC section 27.54, the frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block. According to FCC section 2.1055, the test conditions are:

(a) The temperature is varied from -30°C to +50°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

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.

Equipments List:

Description	Manufacturer	Model	Serial No.	Cal. Date	Cal. Due
System Simulator	Rohde& Schwarz	CMW500	1201.0002k50/124534/wk	2015.02.26	2016.02.25
DC Power Supply	Good Will	GPS-3030DD	EF920938	2015.02.26	2016.02.25
Temperature Chamber	YinHe Experimental Equip.	HL4003T	(n.a.)	2015.02.26	2016.02.25

2.3.3 Test Verdict

The nominal, highest and lowest extreme voltages are separately 3.8VDC, 4.2VDC and 3.45VDC, 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 2 – QPSK - Channel 18900 – Frequency 1880.0MHz – RB 6/0 Limit: 1880.0MHz*1ppm=1880.0Hz				
Voltage (%)	**Power (VDC)**	**Temp (°C)**	**Fre. Dev. (Hz)**	**Result**
100	3.8	-30	9.57	PASS
100		-20	16.81	
100		-10	10.52	
100		0	9.47	
100		+10	10.21	
100		+20	6.18	
100		+30	-14.19	
100		+40	8.02	
100		+50	8.13	
115	4.2	+20	5.79	
85	3.45	+20	7.41	

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	12.77	PASS
100		-20	-9.45	
100		-10	10.04	
100		0	11.95	
100		+10	10.77	
100		+20	9.69	
100		+30	-10.68	
100		+40	11.04	
100		+50	9.99	
115	4.2	+20	11.77	
85	3.45	+20	13.12	

LTE Band 5 – QPSK - Channel 20525 – Frequency 836.5MHz – RB 6/0 Limit: 836.5 MHz*2.5ppm=2091.25Hz				
Voltage (%)	**Power (VDC)**	**Temp (°C)**	**Fre. Dev. (Hz)**	**Result**
100	3.8	-30	7.31	PASS
100		-20	-3.74	
100		-10	-3.78	
100		0	5.68	
100		+10	-0.41	
100		+20	7.55	
100		+30	4.41	
100		+40	6.6	
100		+50	-4.18	
115	4.2	+20	-1.47	
85	3.45	+20	-3.59	

TE Band 7 – QPSK - Channel 21100 – Frequency 2535MHz – RB 25/0 Limit: 2535MHz*2.5ppm=6337.5Hz				
Voltage (%)	**Power (VDC)**	**Temp (°C)**	**Fre. Dev. (Hz)**	**Result**
100	3.8	-30	15.76	PASS
100		-20	-6.46	
100		-10	13.03	
100		0	14.94	
100		+10	13.76	
100		+20	12.68	
100		+30	-7.69	
100		+40	14.03	
100		+50	12.98	
115	4.2	+20	14.76	
85	3.45	+20	16.11	

LTE Band 12 – QPSK - Channel 23095 – Frequency 707.5MHz – RB 6/0 Limit: 707.5 MHz*2.5ppm=1768.75Hz				
Voltage (%)	**Power (VDC)**	**Temp (°C)**	**Fre. Dev. (Hz)**	**Result**
100	3.8	-30	14.56	PASS
100		-20	-7.66	
100		-10	11.83	
100		0	13.74	
100		+10	12.56	
100		+20	11.48	
100		+30	-8.89	
100		+40	12.83	
100		+50	11.78	
115	4.2	+20	13.56	
85	3.45	+20	14.91	

TE 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	6.61	PASS
100		-20	11.96	
100		-10	-10.83	
100		0	5.42	
100		+10	7.27	
100		+20	6.18	
100		+30	-13.01	
100		+40	6.67	
100		+50	8.56	
115	4.2	+20	9.85	
85	3.45	+20	9.92	

2.4 Peak to Average Radio

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.

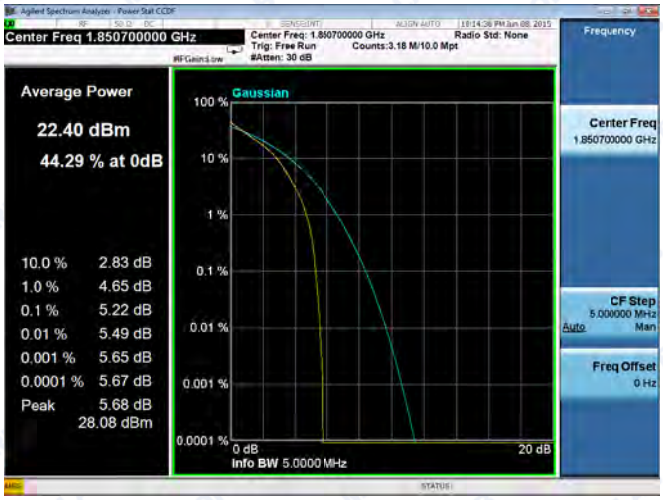
2.4.3 Test Result

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

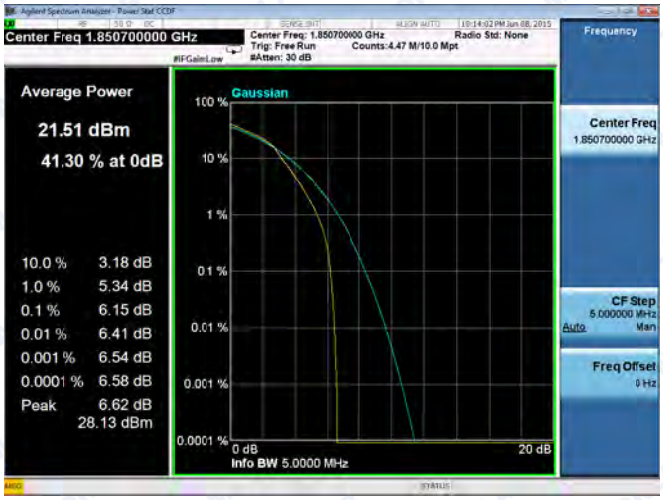
LTE Band 2 Low channel							
Channel Bandwidth: 1.4MHz				Channel Bandwidth: 3MHz			
Channel	Frequency (MHz)	Peak to Average Ratio (dB)		Channel	Frequency (MHz)	Peak to Average Ratio (dB)	
		QPSK	16QAM			QPSK	16QAM
18607	1850.7	5.22	6.15	18615	1851.5	5.22	6.16

Spectrum Plot of Worst Value (Low channel)

1.4MHz/QPSK

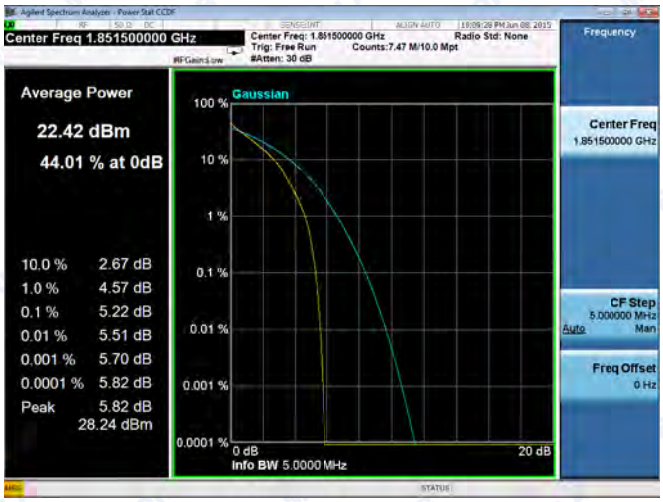


1.4MHz/16QAM

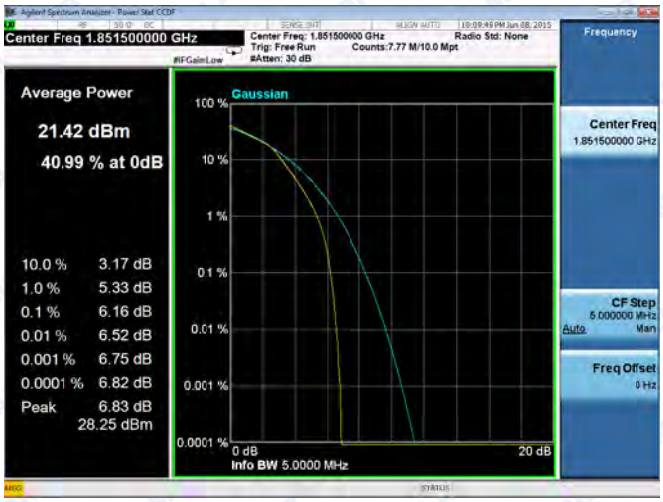


Spectrum Plot of Worst Value

3MHz/QPSK



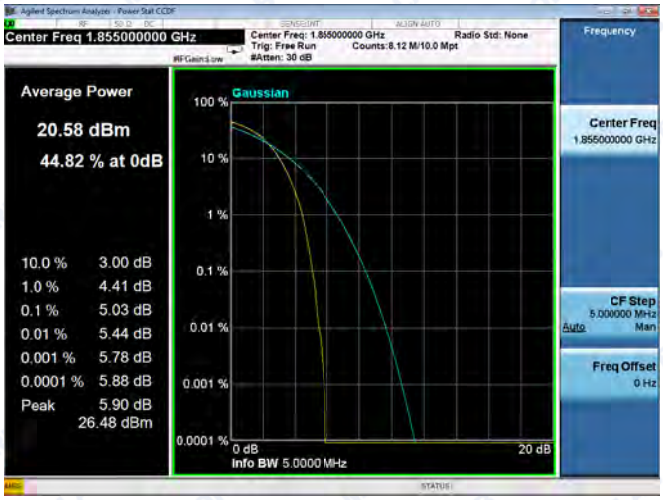
3MHz/16QAM



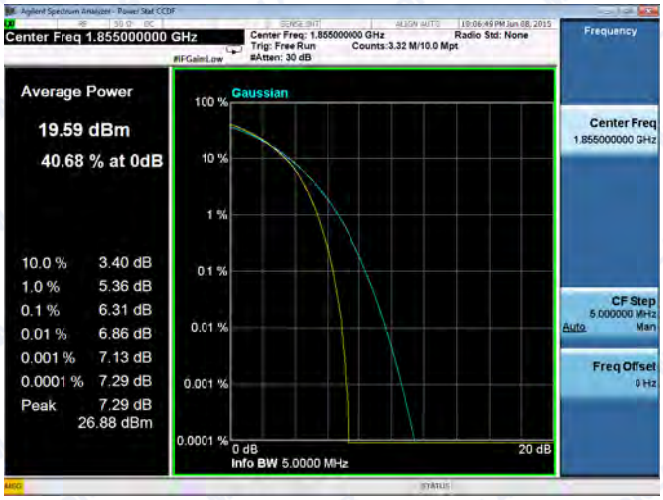
LTE Band 2 Low channel							
Channel Bandwidth: 5MHz				Channel Bandwidth: 10MHz			
Channel	Frequency (MHz)	Peak to Average Ratio (dB)		Channel	Frequency (MHz)	Peak to Average Ratio (dB)	
		QPSK	16QAM			QPSK	16QAM
18625	1852.5	5.03	6.31	18650	1855.0	4.73	6.21

Spectrum Plot of Worst Value

5MHz/QPSK



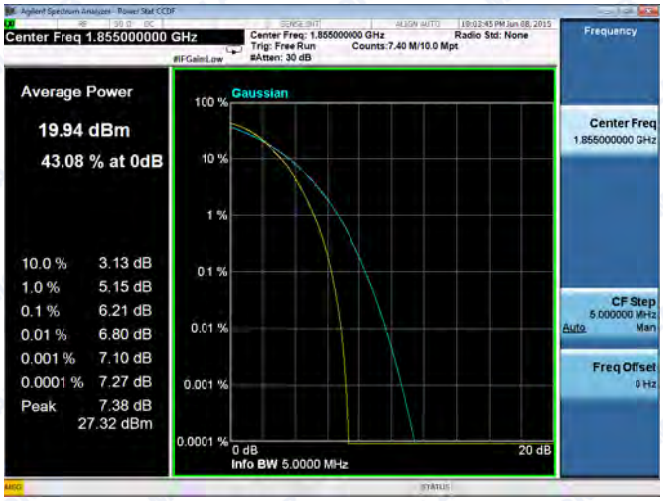
5MHz/16QAM



Spectrum Plot of Worst Value

10MHz/QPSK

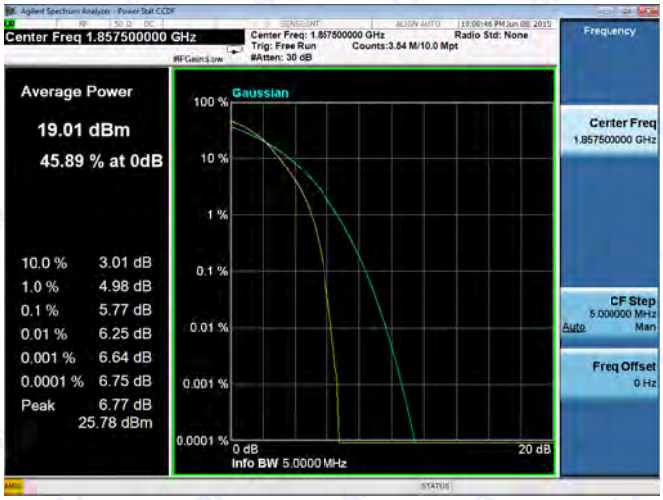
10MHz/16QAM



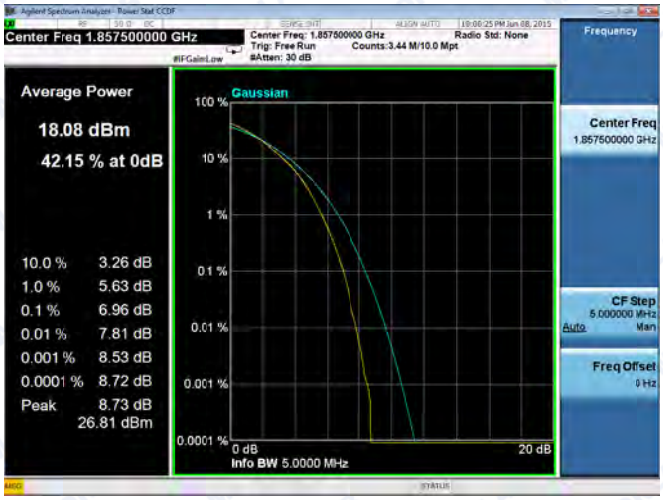
LTE Band 2 Low channel							
Channel Bandwidth: 15MHz				Channel Bandwidth: 20MHz			
Channel	Frequency (MHz)	Peak to Average Ratio (dB)		Channel	Frequency (MHz)	Peak to Average Ratio (dB)	
		QPSK	16QAM			QPSK	16QAM
18675	1857.5	5.77	6.96	18700	1860.0	6.64	7.43

Spectrum Plot of Worst Value

15MHz/QPSK

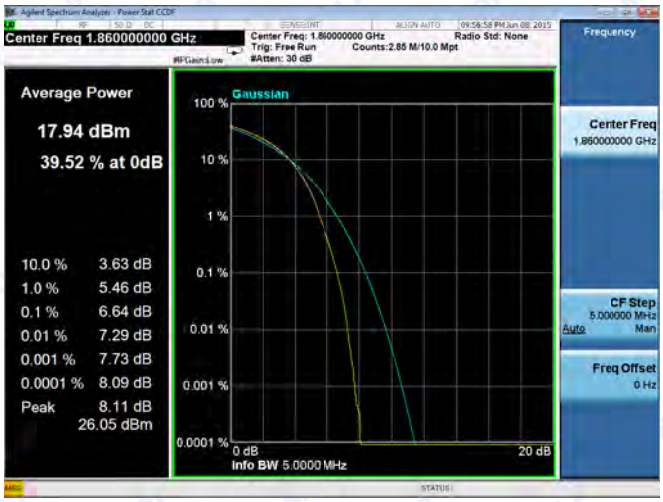


15MHz/16QAM

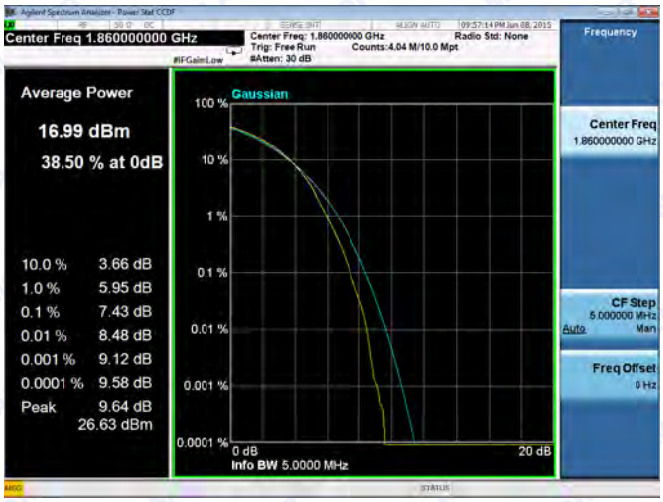


Spectrum Plot of Worst Value

20MHz/QPSK



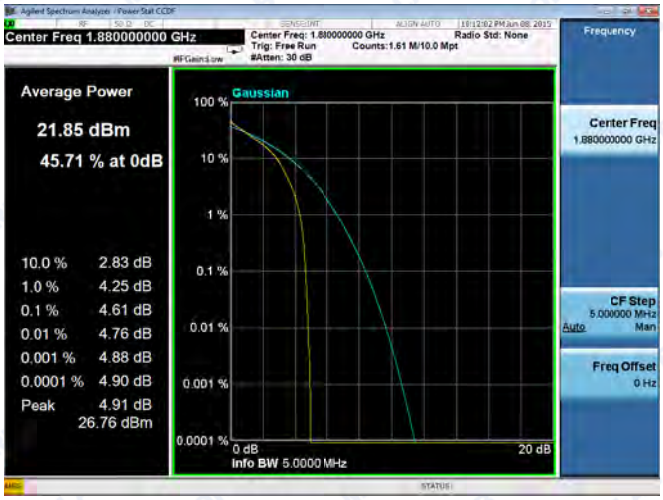
20MHz/16QAM



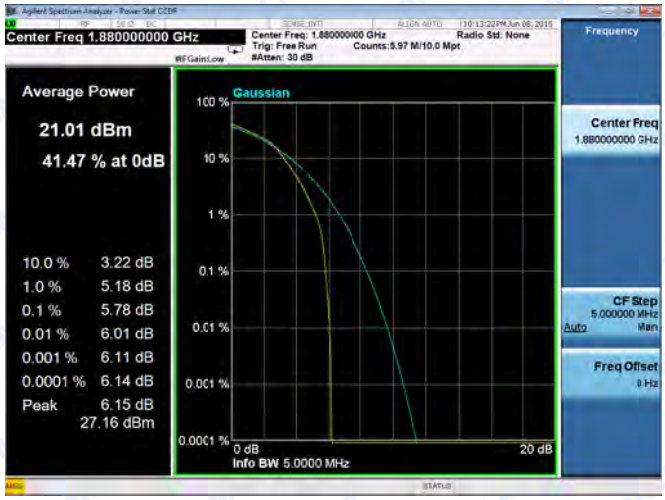
LTE Band 2 Middle channel							
Channel Bandwidth: 1.4MHz				Channel Bandwidth: 3MHz			
Channel	Frequency (MHz)	Peak to Average Ratio (dB)		Channel	Frequency (MHz)	Peak to Average Ratio (dB)	
		QPSK	16QAM			QPSK	16QAM
18900	1880.0	4.61	5.78	18900	1880.0	4.83	5.77

Spectrum Plot of Worst Value

1.4MHz/QPSK

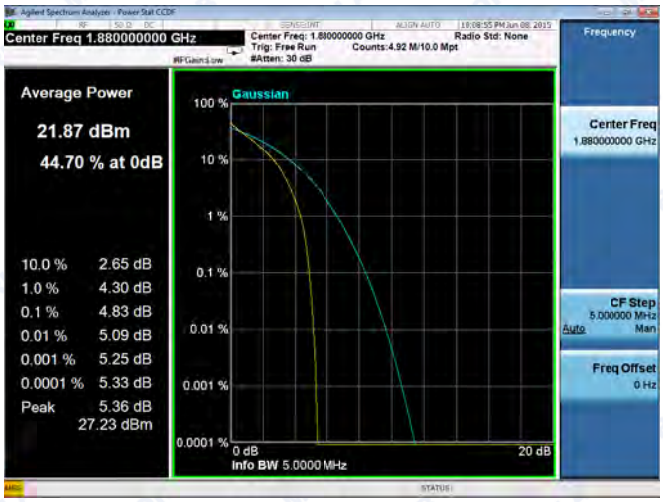


1.4MHz/16QAM

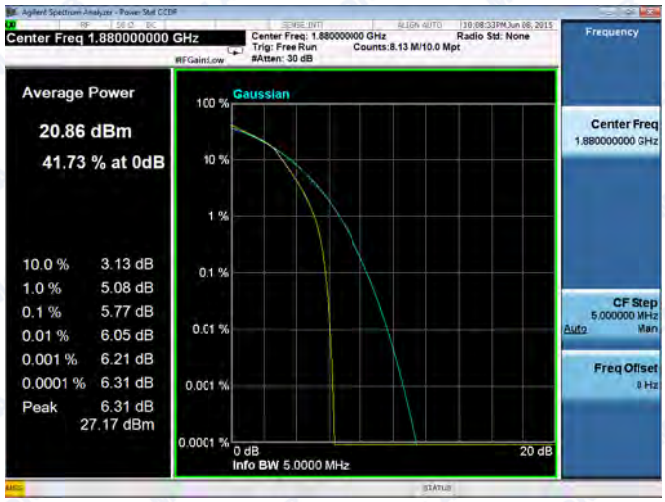


Spectrum Plot of Worst Value

3MHz/QPSK



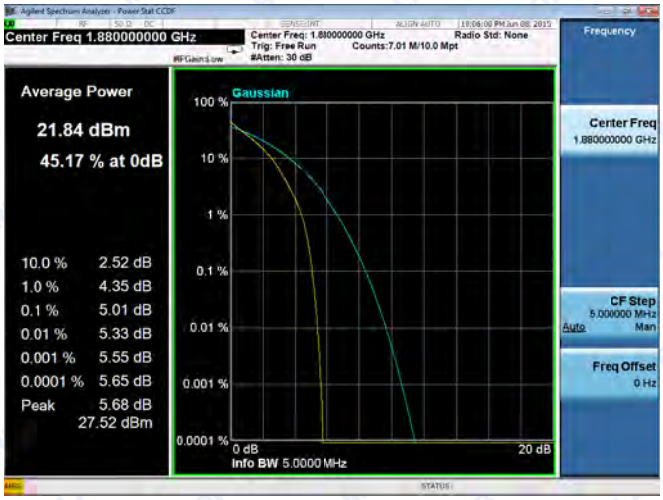
3MHz/16QAM



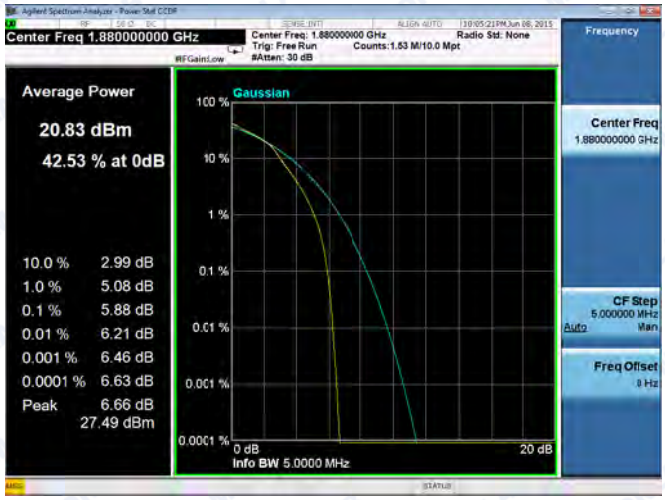
LTE Band 2 Middle channel							
Channel Bandwidth: 5MHz				Channel Bandwidth: 10MHz			
Channel	Frequency (MHz)	Peak to Average Ratio (dB)		Channel	Frequency (MHz)	Peak to Average Ratio (dB)	
		QPSK	16QAM			QPSK	16QAM
18900	1880.0	5.01	5.88	18900	1880.0	4.69	6.18

Spectrum Plot of Worst Value

5MHz/QPSK

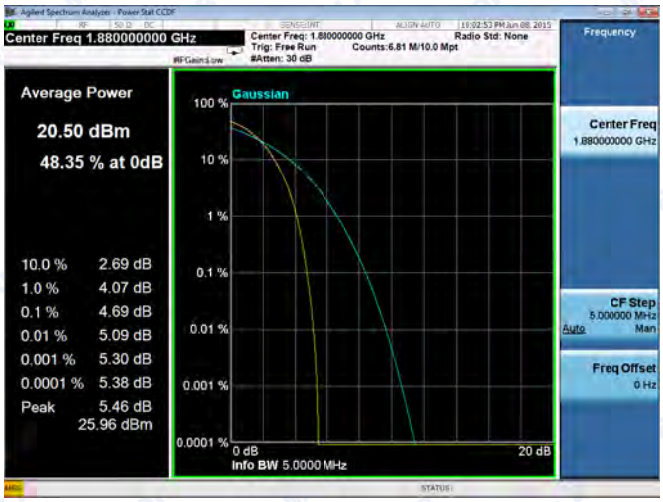


5MHz/16QAM

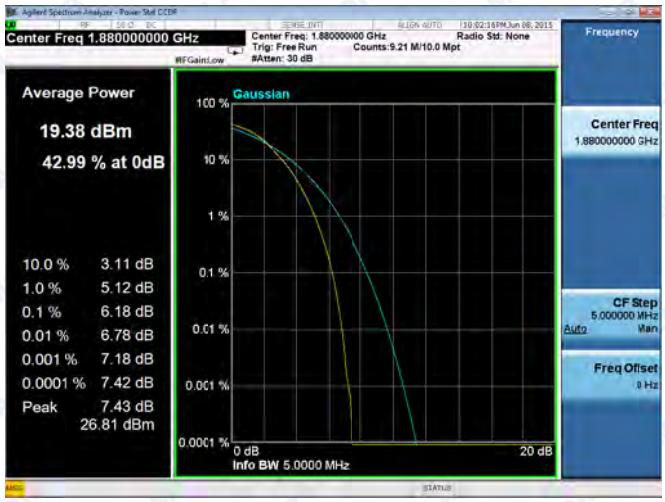


Spectrum Plot of Worst Value

10MHz/QPSK



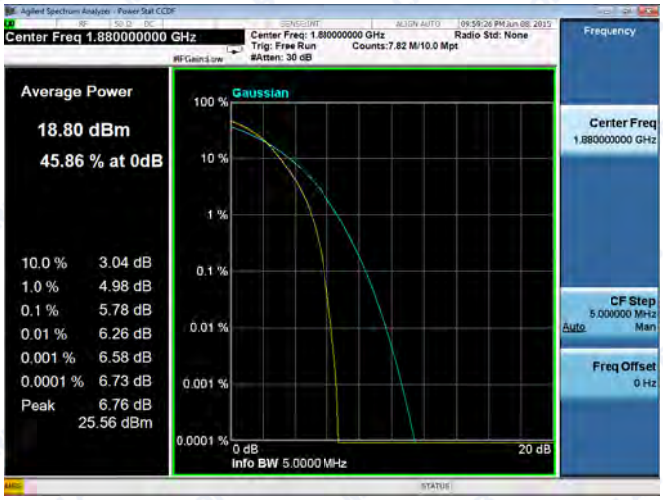
10MHz/16QAM



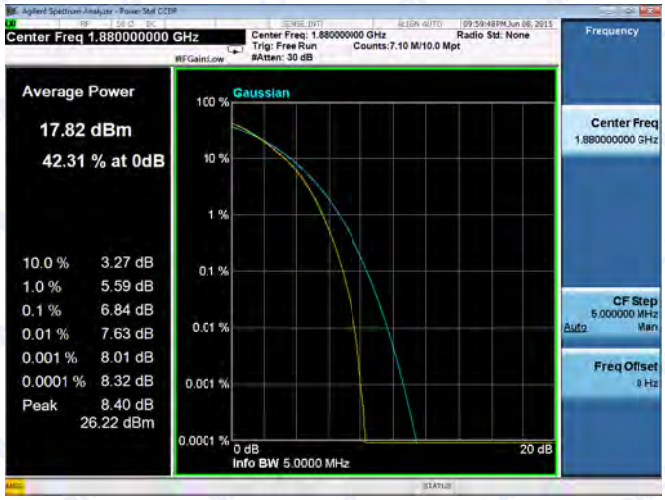
LTE Band 2 Middle channel							
Channel Bandwidth: 15MHz				Channel Bandwidth: 20MHz			
Channel	Frequency (MHz)	Peak to Average Ratio (dB)		Channel	Frequency (MHz)	Peak to Average Ratio (dB)	
		QPSK	16QAM			QPSK	16QAM
18900	1880.0	5.78	6.84	18900	1880.0	6.65	7.32

Spectrum Plot of Worst Value

15MHz/QPSK

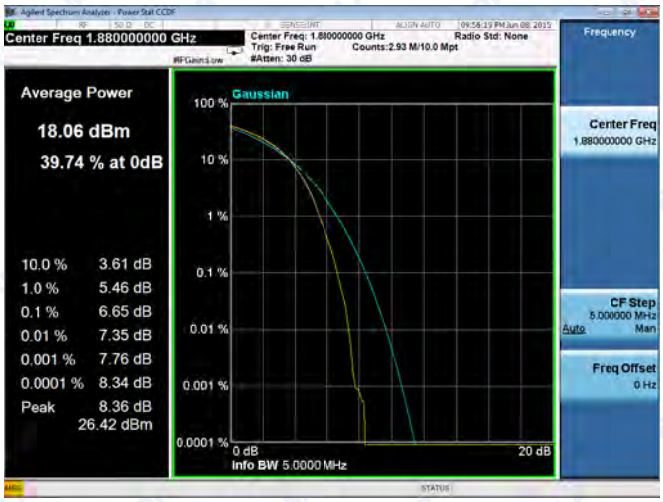


15MHz/16QAM

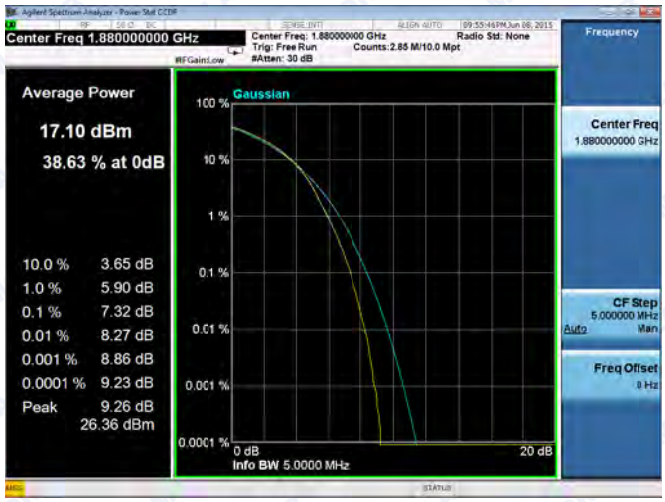


Spectrum Plot of Worst Value

20MHz/QPSK



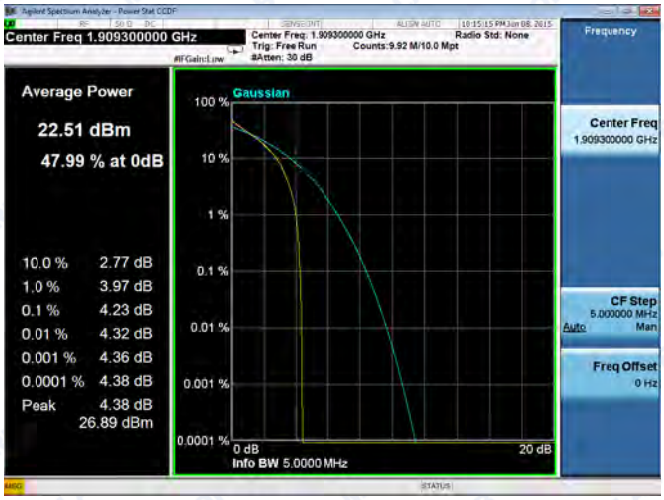
20MHz/16QAM



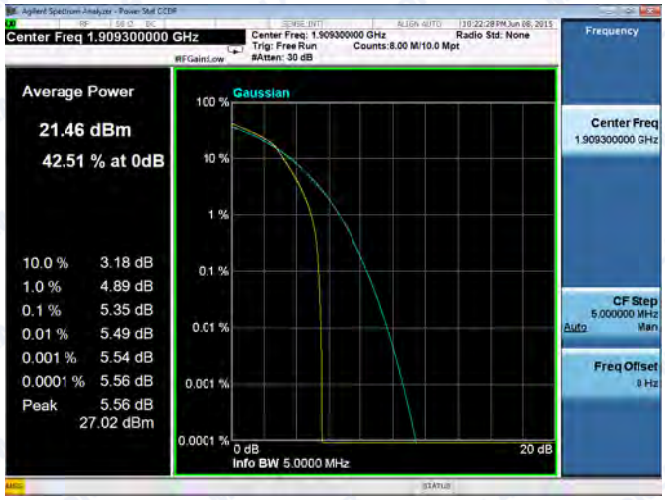
LTE Band 2 High channel							
Channel Bandwidth: 1.4MHz				Channel Bandwidth: 3MHz			
Channel	Frequency (MHz)	Peak to Average Ratio (dB)		Channel	Frequency (MHz)	Peak to Average Ratio (dB)	
		QPSK	16QAM			QPSK	16QAM
19193	1909.3	4.23	5.35	19185	1908.5	4.06	4.93

Spectrum Plot of Worst Value

1.4MHz/QPSK

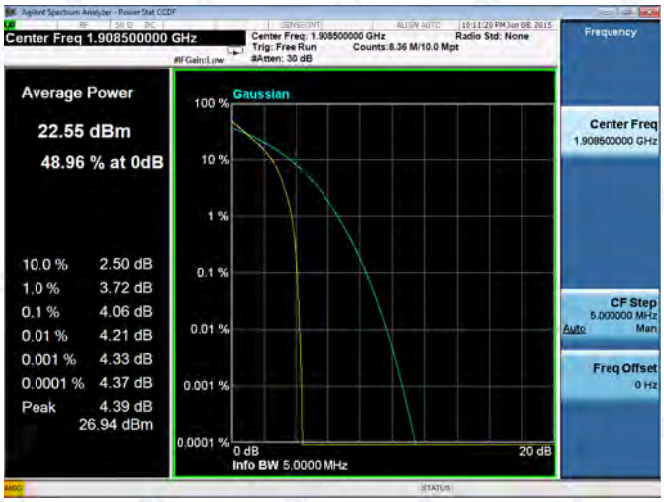


1.4MHz/16QAM

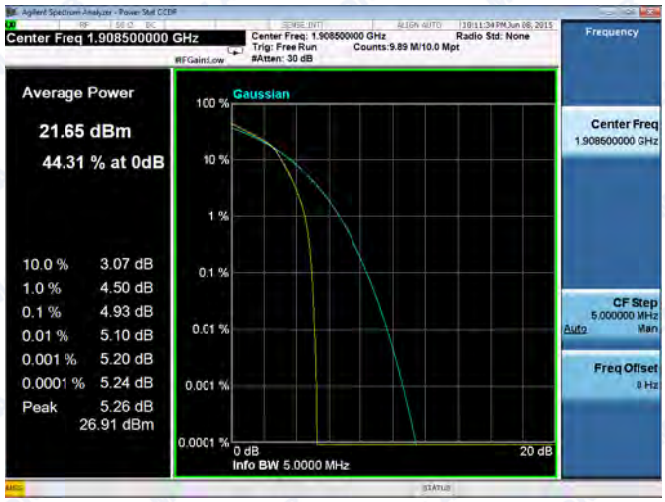


Spectrum Plot of Worst Value

3MHz/QPSK



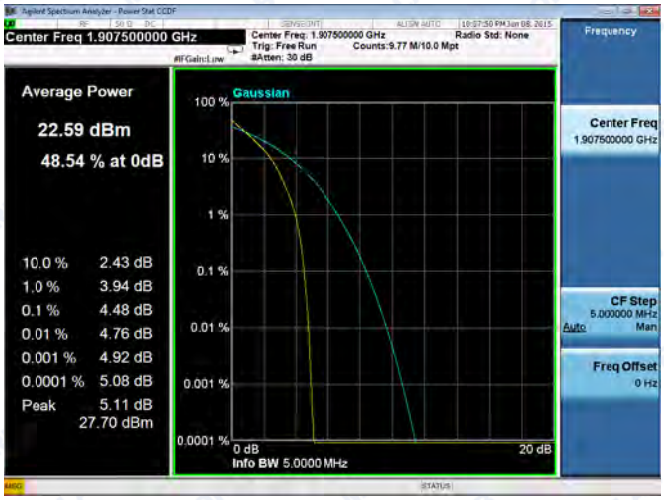
3MHz/16QAM



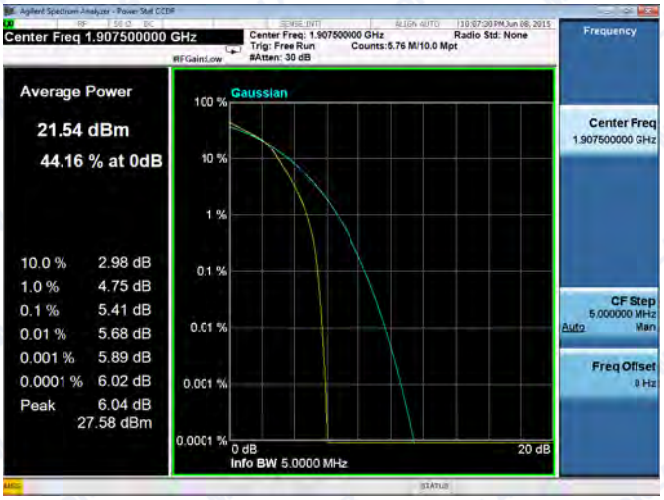
LTE Band 2 High channel							
Channel Bandwidth: 5MHz				Channel Bandwidth: 10MHz			
Channel	Frequency (MHz)	Peak to Average Ratio (dB)		Channel	Frequency (MHz)	Peak to Average Ratio (dB)	
		QPSK	16QAM			QPSK	16QAM
19175	1907.5	4.48	5.41	19150	1905.0	4.64	6.11

Spectrum Plot of Worst Value

5MHz/QPSK

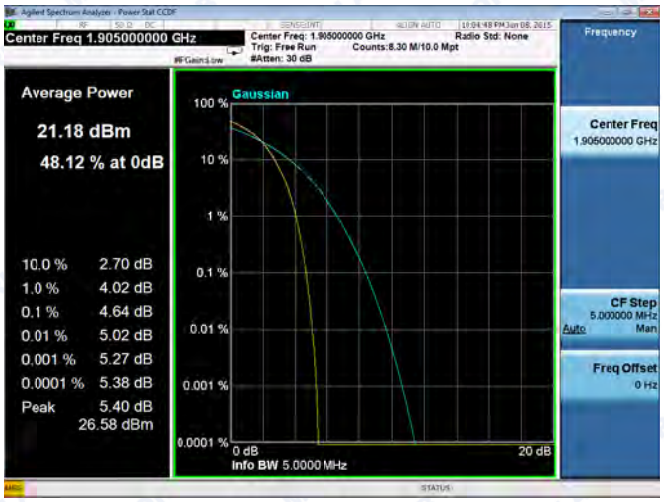


5MHz/16QAM

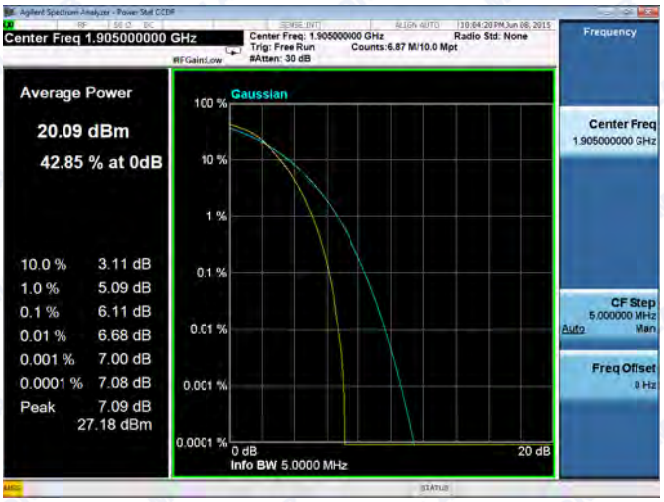


Spectrum Plot of Worst Value

10MHz/QPSK



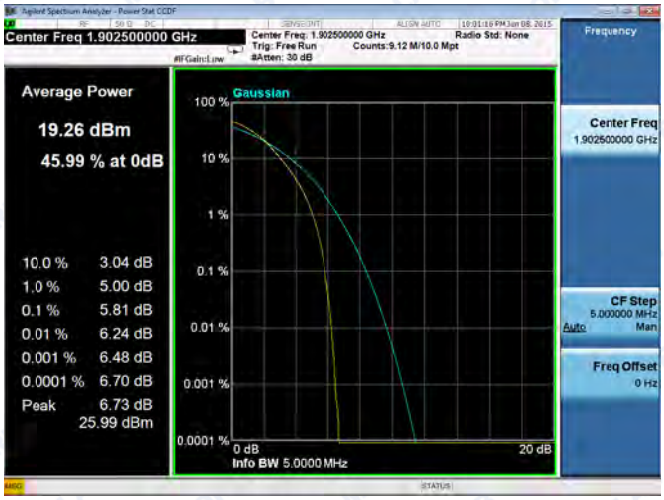
10MHz/16QAM



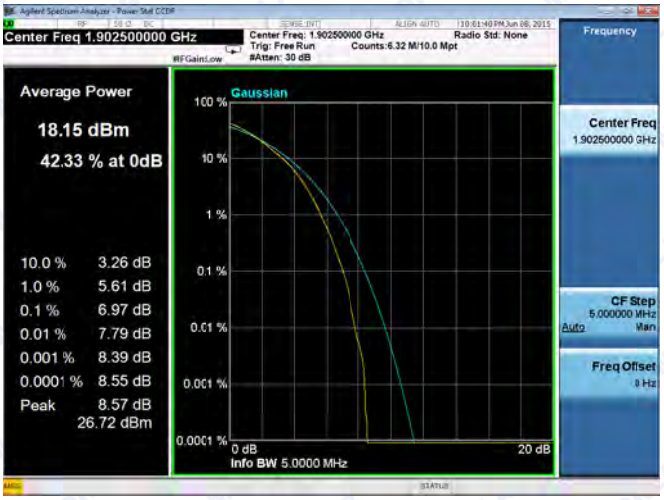
LTE Band 2 High channel							
Channel Bandwidth: 15MHz				Channel Bandwidth: 20MHz			
Channel	Frequency (MHz)	Peak to Average Ratio (dB)		Channel	Frequency (MHz)	Peak to Average Ratio (dB)	
		QPSK	16QAM			QPSK	16QAM
19125	1902.5	5.81	6.97	19100	1900.0	6.58	7.35

Spectrum Plot of Worst Value

15MHz/QPSK

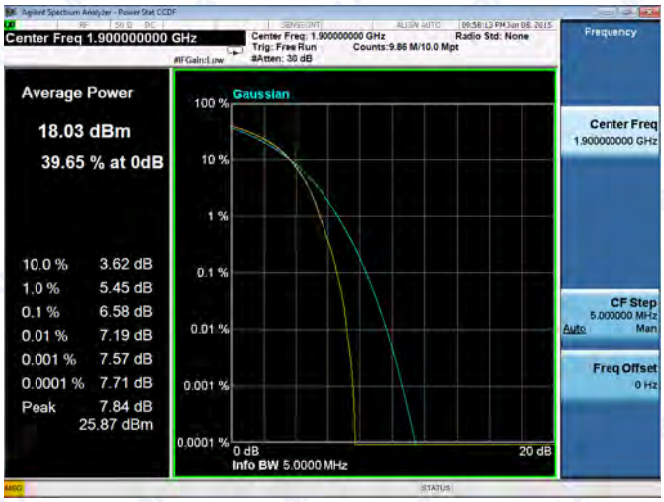


15MHz/16QAM

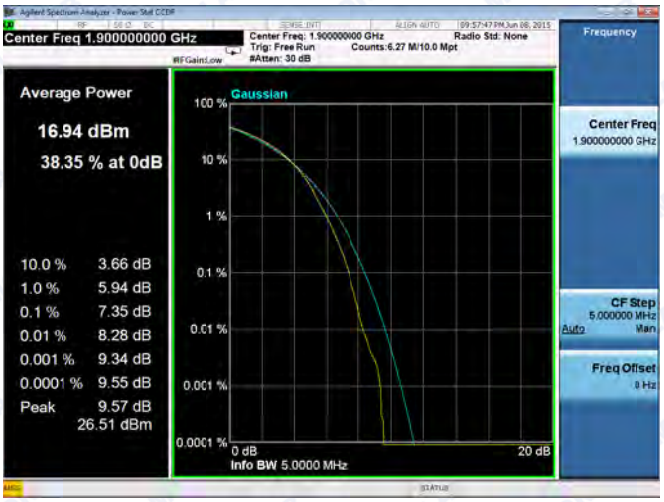


Spectrum Plot of Worst Value

20MHz/QPSK



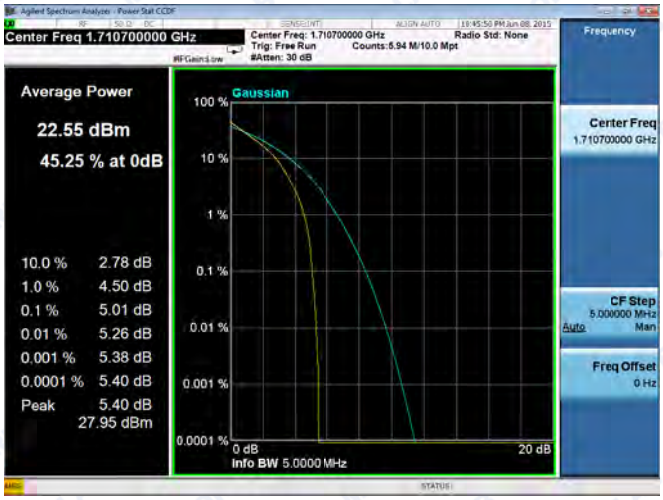
20MHz/16QAM



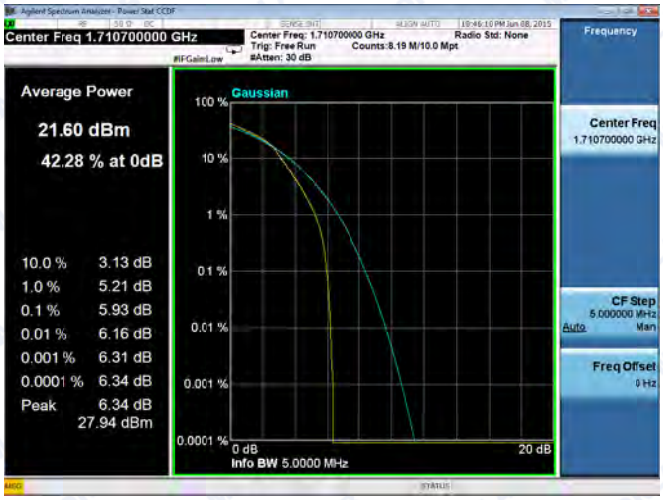
LTE Band 4 Low channel							
Channel Bandwidth: 1.4MHz				Channel Bandwidth: 3MHz			
Channel	Frequency (MHz)	Peak to Average Ratio (dB)		Channel	Frequency (MHz)	Peak to Average Ratio (dB)	
		QPSK	16QAM			QPSK	16QAM
19957	1710.7	5.01	5.93	19965	1711.5	5.26	6.24

Spectrum Plot of Worst Value (Low channel)

1.4MHz/QPSK

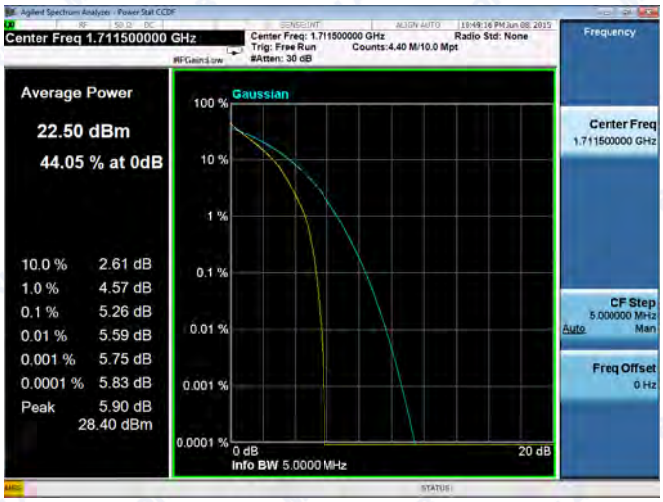


1.4MHz/16QAM

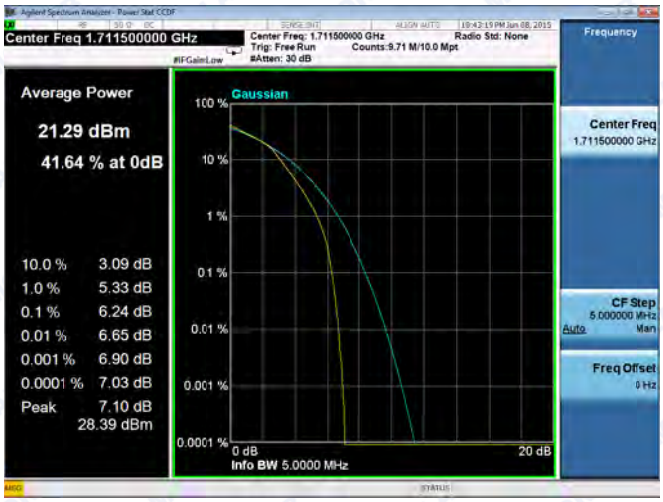


Spectrum Plot of Worst Value

3MHz/QPSK



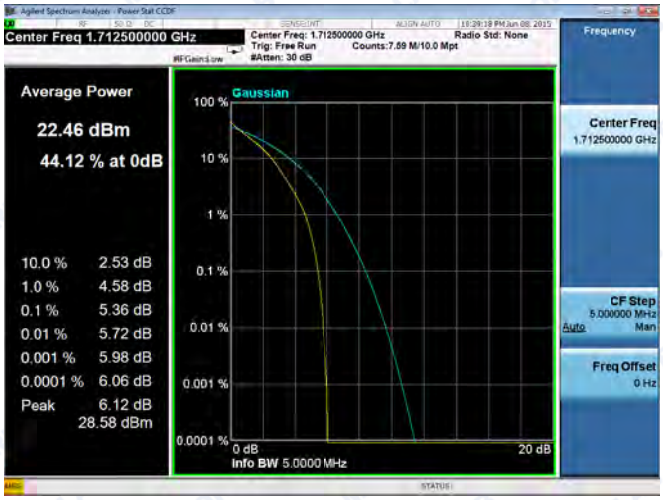
3MHz/16QAM



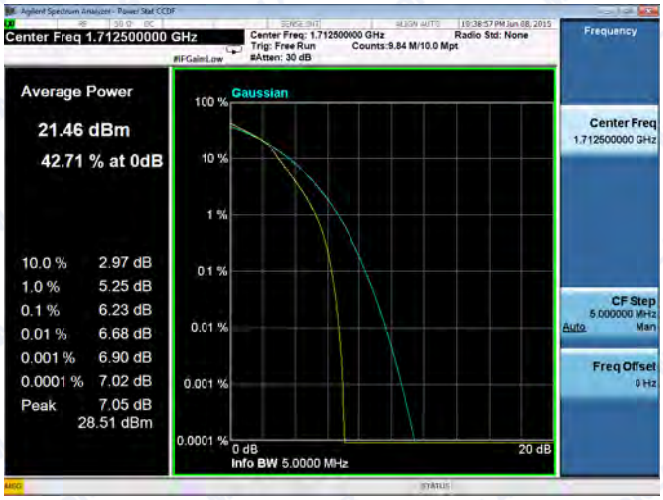
LTE Band 4 Low channel							
Channel Bandwidth: 5MHz				Channel Bandwidth: 10MHz			
Channel	Frequency (MHz)	Peak to Average Ratio (dB)		Channel	Frequency (MHz)	Peak to Average Ratio (dB)	
		QPSK	16QAM			QPSK	16QAM
19975	1712.5	5.36	6.23	20000	1715.0	4.73	6.19

Spectrum Plot of Worst Value

5MHz/QPSK

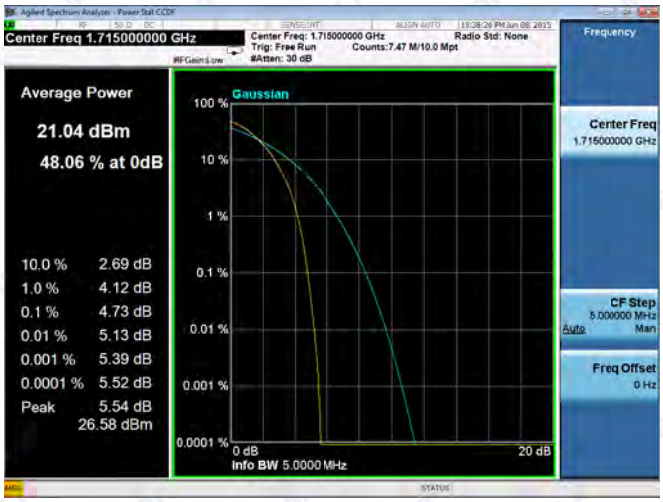


5MHz/16QAM

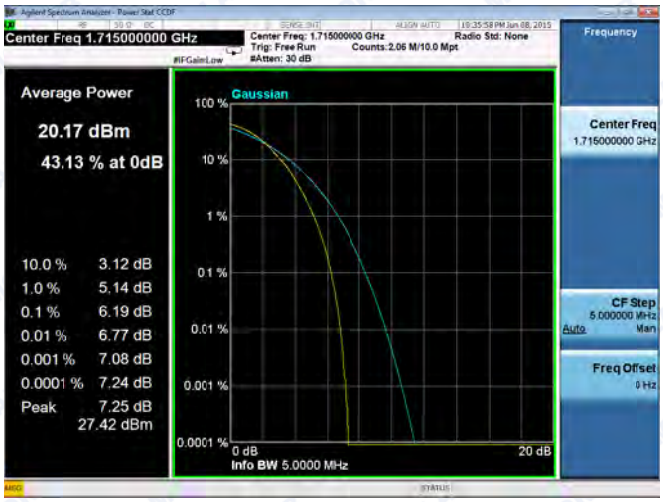


Spectrum Plot of Worst Value

10MHz/QPSK



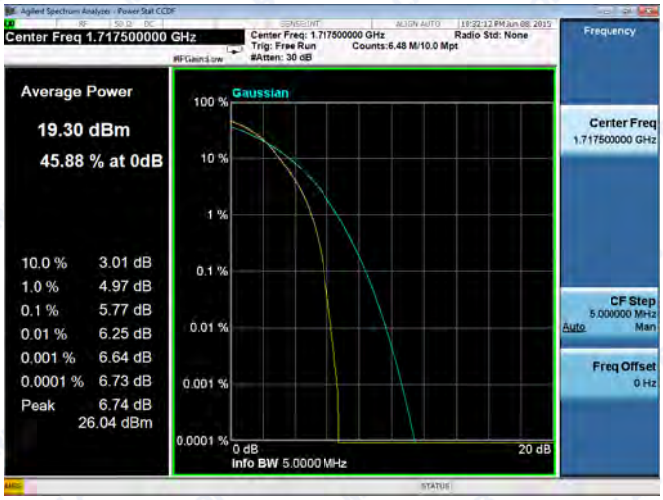
10MHz/16QAM



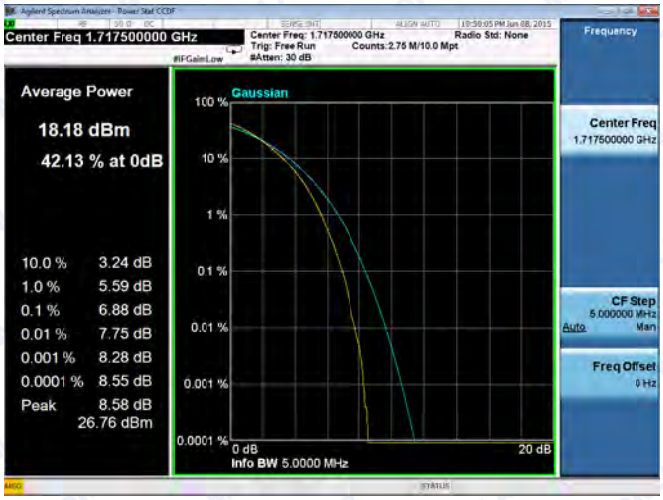
LTE Band 4 Low channel							
Channel Bandwidth: 15MHz				Channel Bandwidth: 20MHz			
Channel	Frequency (MHz)	Peak to Average Ratio (dB)		Channel	Frequency (MHz)	Peak to Average Ratio (dB)	
		QPSK	16QAM			QPSK	16QAM
20025	1717.5	5.77	6.88	20050	1720.0	6.44	7.27

Spectrum Plot of Worst Value

15MHz/QPSK

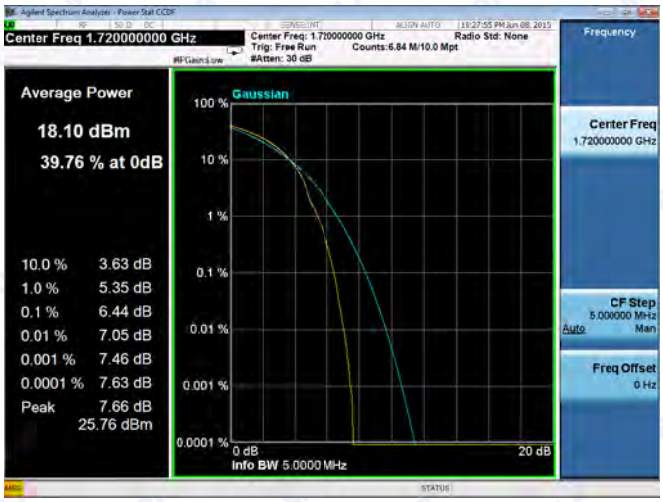


15MHz/16QAM

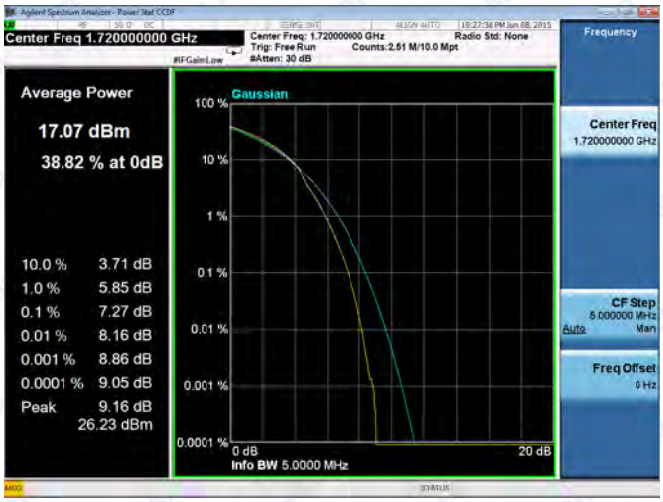


Spectrum Plot of Worst Value

20MHz/QPSK



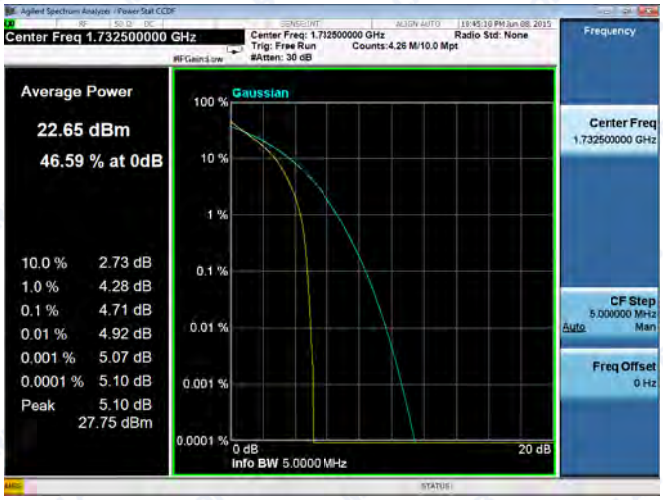
20MHz/16QAM



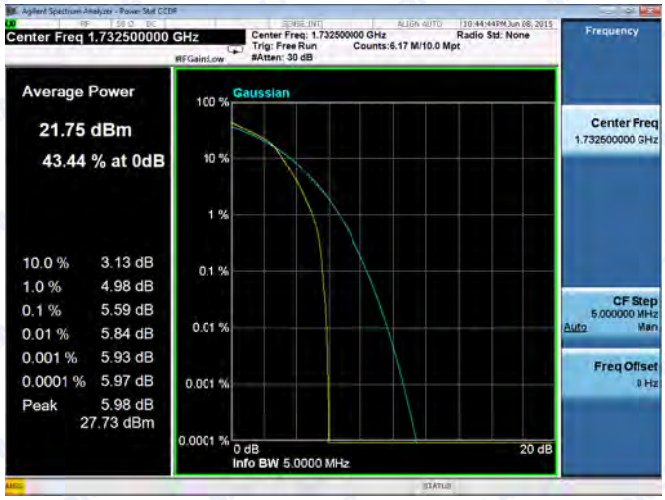
LTE Band 4 Middle channel							
Channel Bandwidth: 1.4MHz				Channel Bandwidth: 3MHz			
Channel	Frequency (MHz)	Peak to Average Ratio (dB)		Channel	Frequency (MHz)	Peak to Average Ratio (dB)	
		QPSK	16QAM			QPSK	16QAM
20175	1732.5	4.71	5.59	20175	1732.5	4.86	5.85

Spectrum Plot of Worst Value

1.4MHz/QPSK

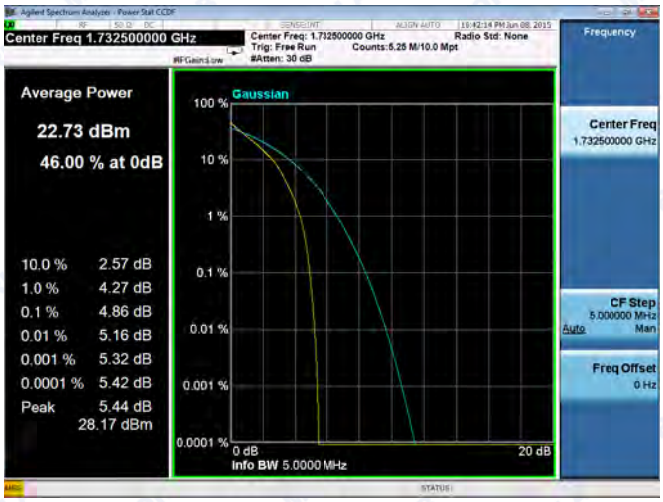


1.4MHz/16QAM

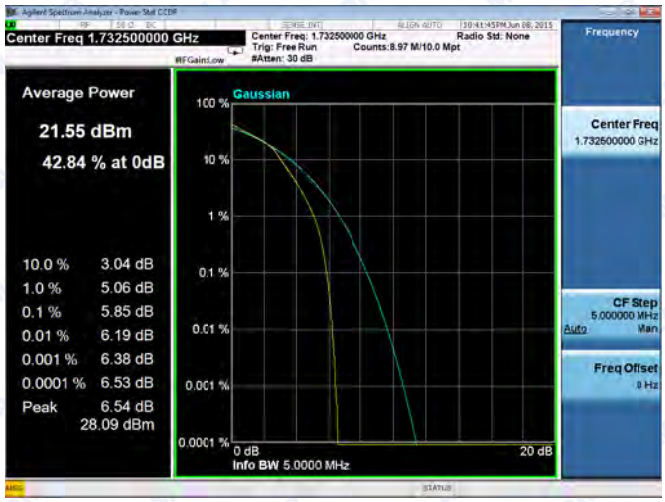


Spectrum Plot of Worst Value

3MHz/QPSK



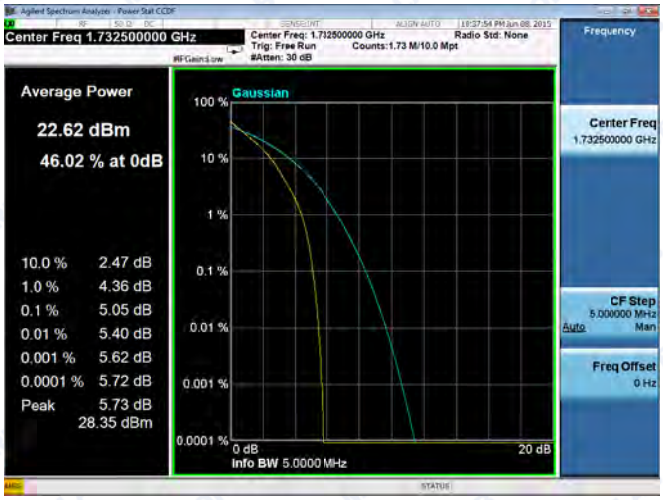
3MHz/16QAM



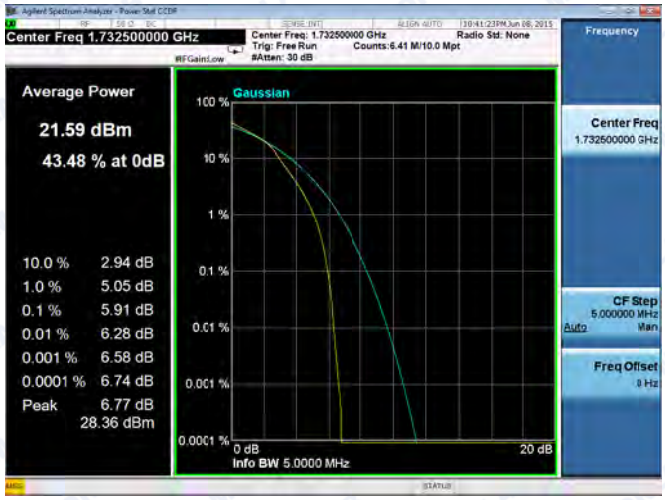
LTE Band 4 Middle channel							
Channel Bandwidth: 5MHz				Channel Bandwidth: 10MHz			
Channel	Frequency (MHz)	Peak to Average Ratio (dB)		Channel	Frequency (MHz)	Peak to Average Ratio (dB)	
		QPSK	16QAM			QPSK	16QAM
20175	1732.5	5.05	5.91	20175	1732.5	4.69	6.12

Spectrum Plot of Worst Value

5MHz/QPSK

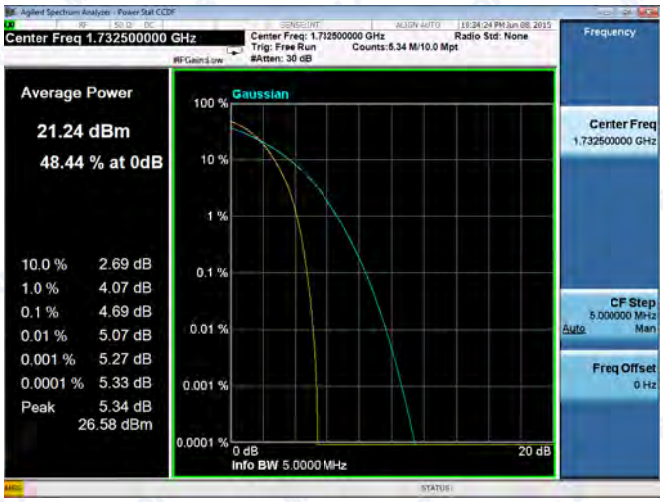


5MHz/16QAM

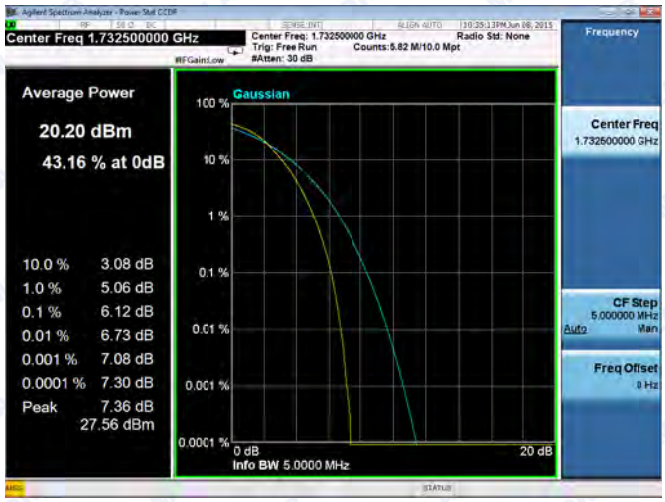


Spectrum Plot of Worst Value

10MHz/QPSK



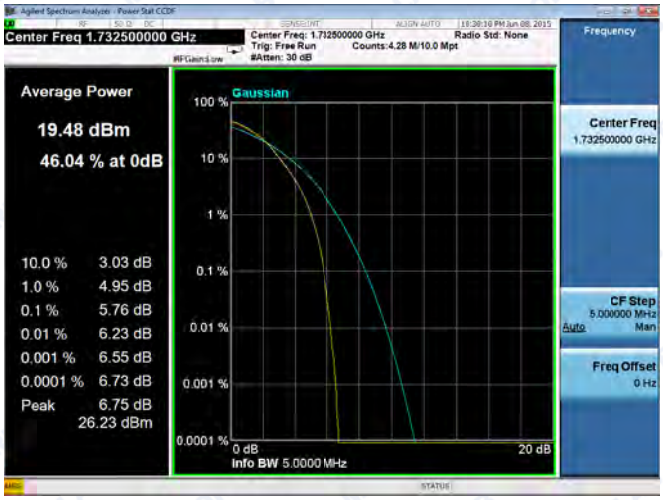
10MHz/16QAM



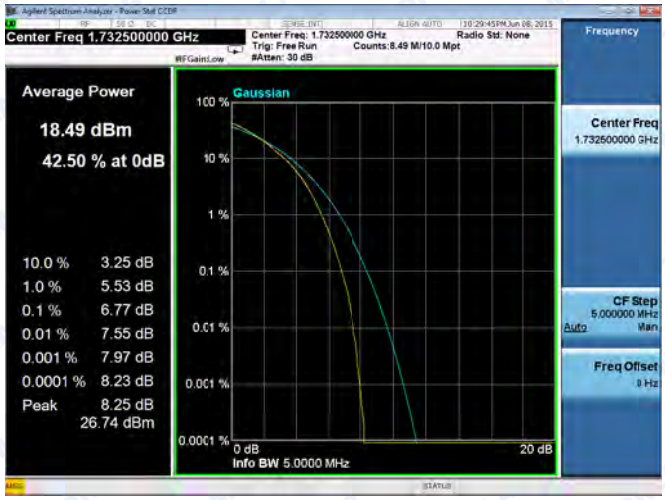
LTE Band 4 Middle channel							
Channel Bandwidth: 15MHz				Channel Bandwidth: 20MHz			
Channel	Frequency (MHz)	Peak to Average Ratio (dB)		Channel	Frequency (MHz)	Peak to Average Ratio (dB)	
		QPSK	16QAM			QPSK	16QAM
20175	1732.5	5.76	6.77	20175	1732.5	6.42	7.18

Spectrum Plot of Worst Value

15MHz/QPSK

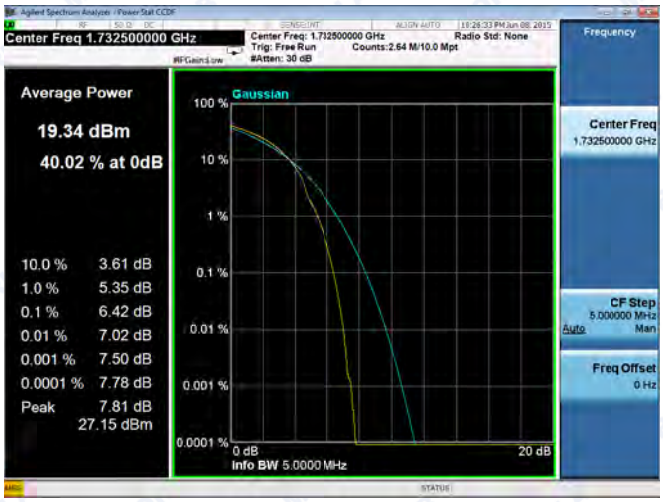


15MHz/16QAM

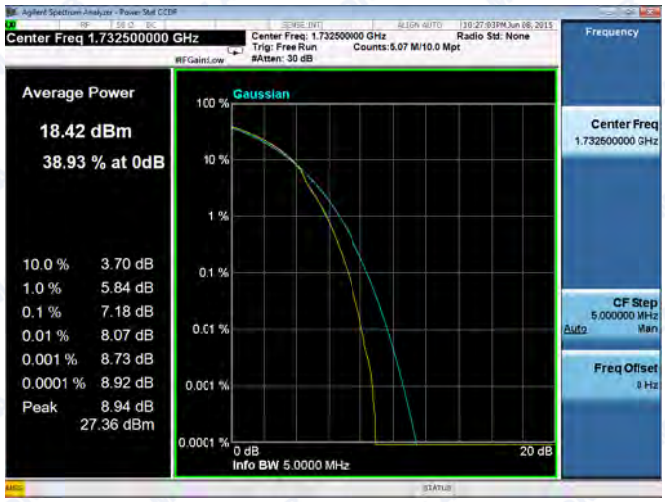


Spectrum Plot of Worst Value

20MHz/QPSK



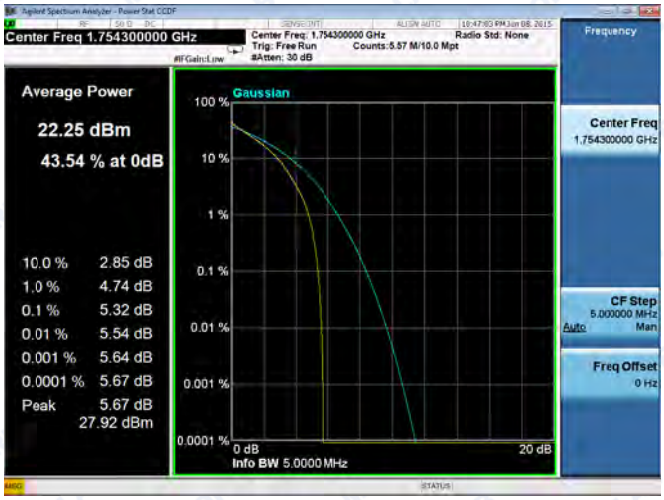
20MHz/16QAM



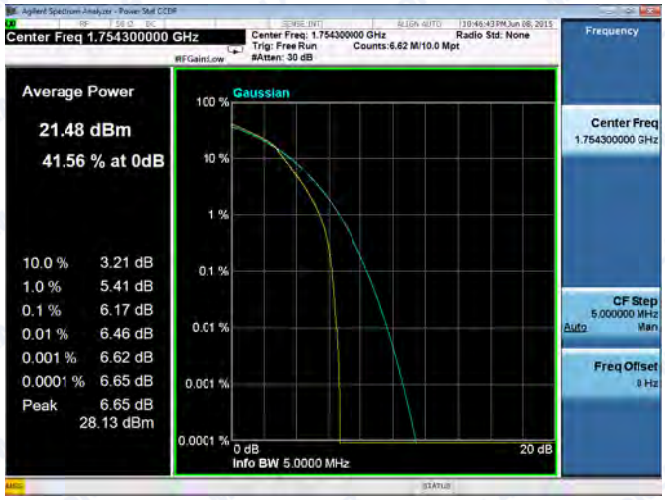
LTE Band 4 High channel							
Channel Bandwidth: 1.4MHz				Channel Bandwidth: 3MHz			
Channel	Frequency (MHz)	Peak to Average Ratio (dB)		Channel	Frequency (MHz)	Peak to Average Ratio (dB)	
		QPSK	16QAM			QPSK	16QAM
20393	1754.3	5.32	6.17	20385	1753.5	5.40	6.36

Spectrum Plot of Worst Value

1.4MHz/QPSK

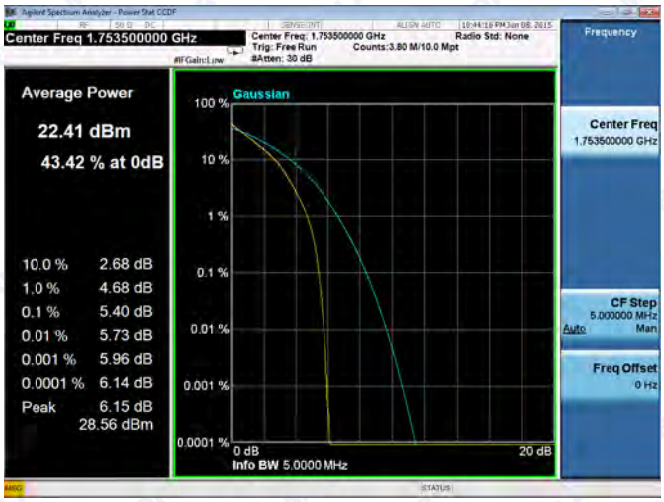


1.4MHz/16QAM

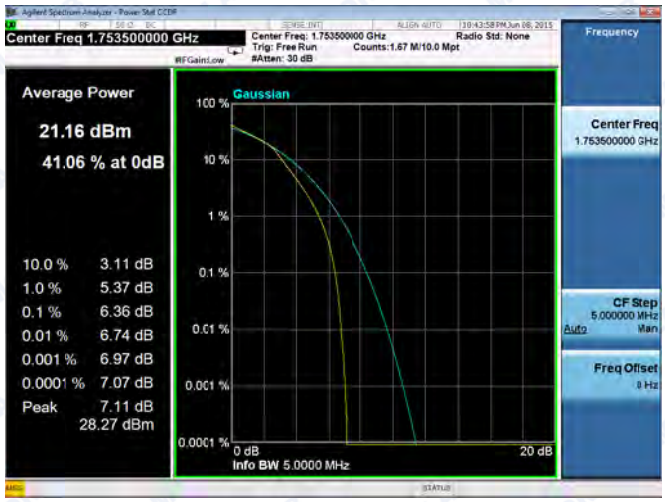


Spectrum Plot of Worst Value

3MHz/QPSK



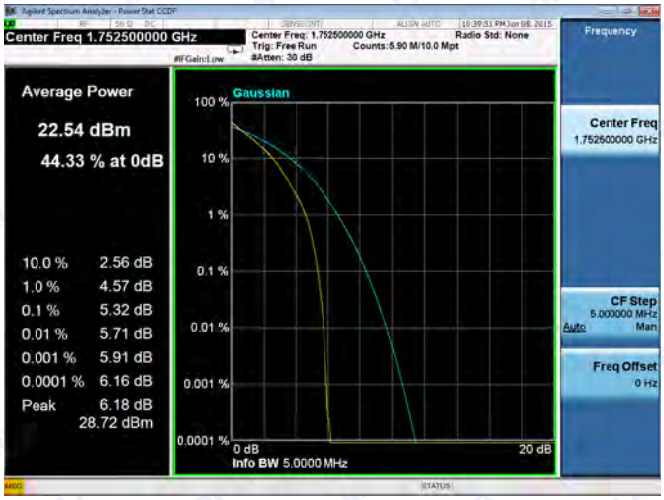
3MHz/16QAM



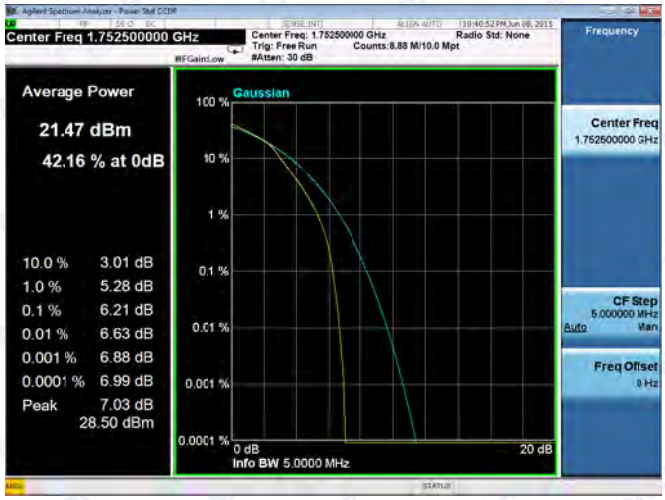
LTE Band 4 High channel							
Channel Bandwidth: 5MHz				Channel Bandwidth: 10MHz			
Channel	Frequency (MHz)	Peak to Average Ratio (dB)		Channel	Frequency (MHz)	Peak to Average Ratio (dB)	
		QPSK	16QAM			QPSK	16QAM
20375	1752.5	5.32	6.21	20350	1750.0	4.69	6.23

Spectrum Plot of Worst Value

5MHz/QPSK

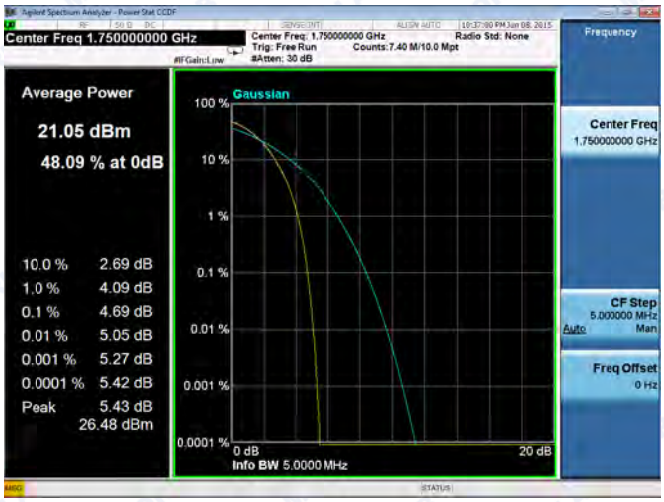


5MHz/16QAM

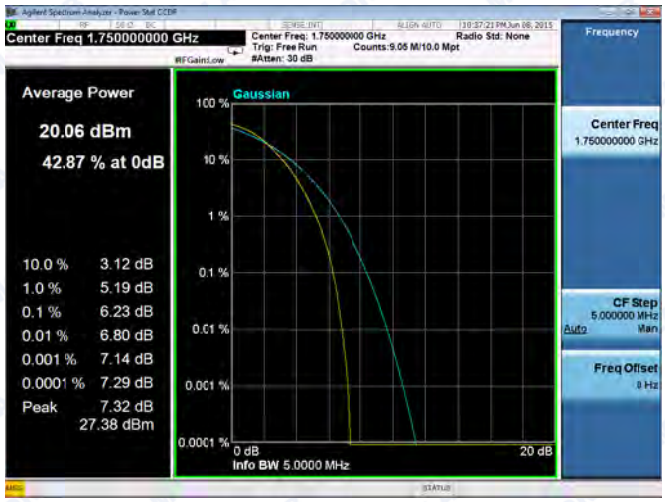


Spectrum Plot of Worst Value

10MHz/QPSK



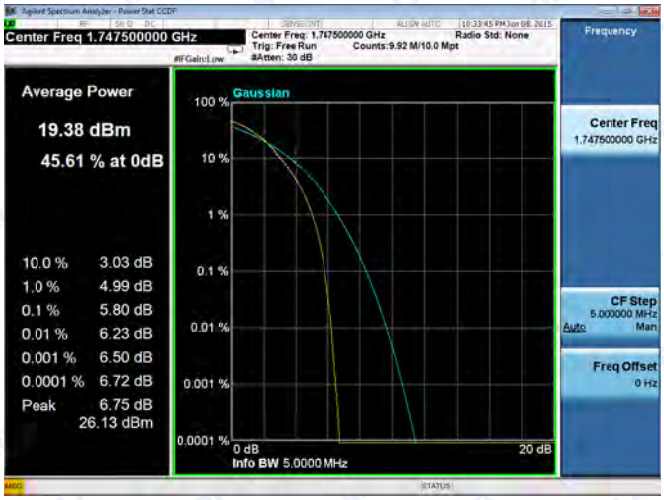
10MHz/16QAM



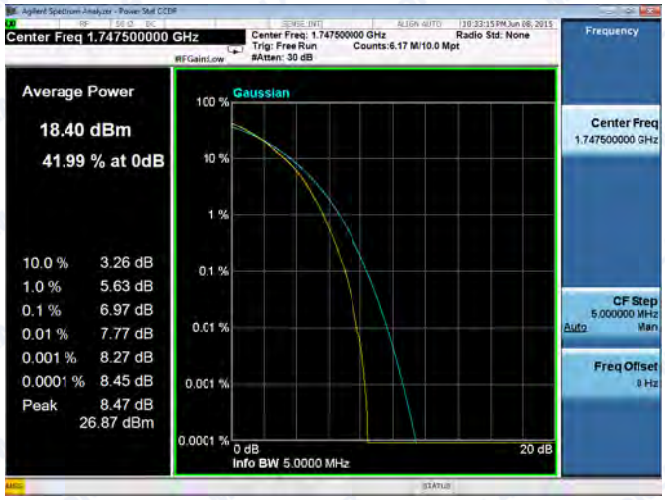
LTE Band 4 High channel							
Channel Bandwidth: 15MHz				Channel Bandwidth: 20MHz			
Channel	Frequency (MHz)	Peak to Average Ratio (dB)		Channel	Frequency (MHz)	Peak to Average Ratio (dB)	
		QPSK	16QAM			QPSK	16QAM
20325	1747.5	5.80	6.97	20300	1745.0	6.46	7.27

Spectrum Plot of Worst Value

15MHz/QPSK

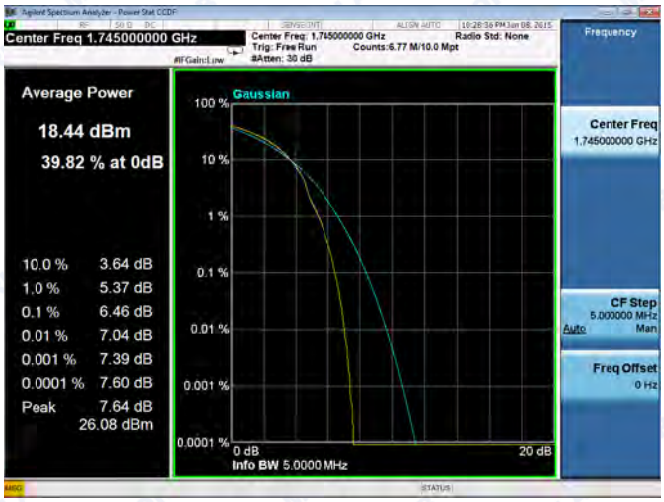


15MHz/16QAM

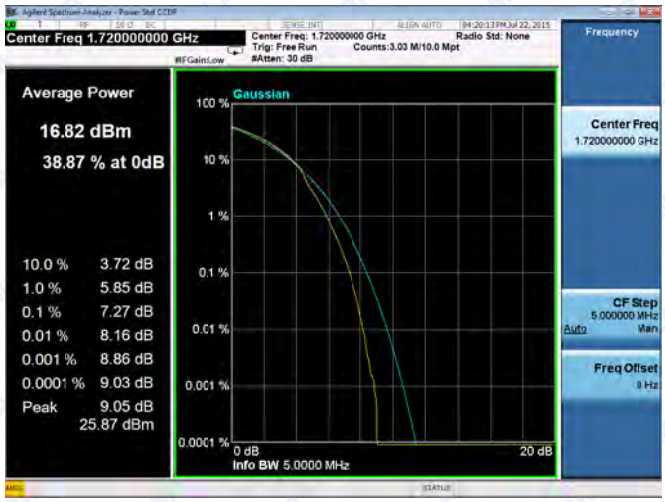


Spectrum Plot of Worst Value

20MHz/QPSK



20MHz/16QAM



2.5 Conducted Spurious Emissions

2.5.1 Test Requirement

According to FCC section 2.1051 and 27.53(g), the power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43+10*log(P)dB. This calculated to be -13dBm.

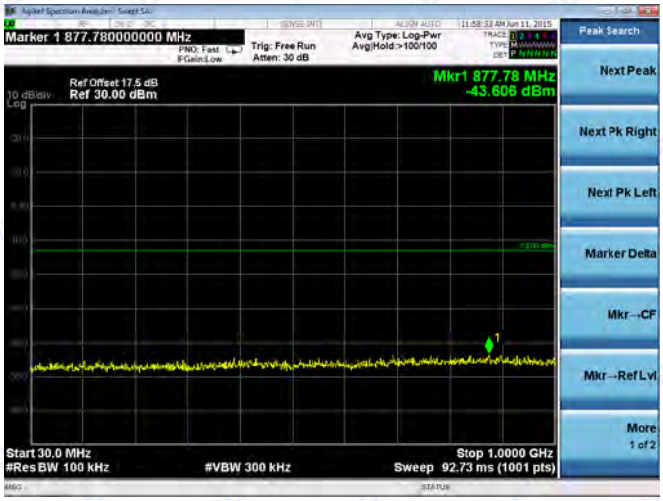
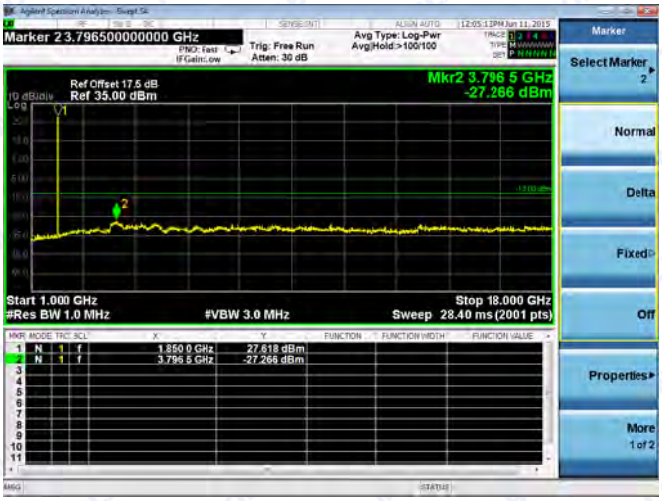
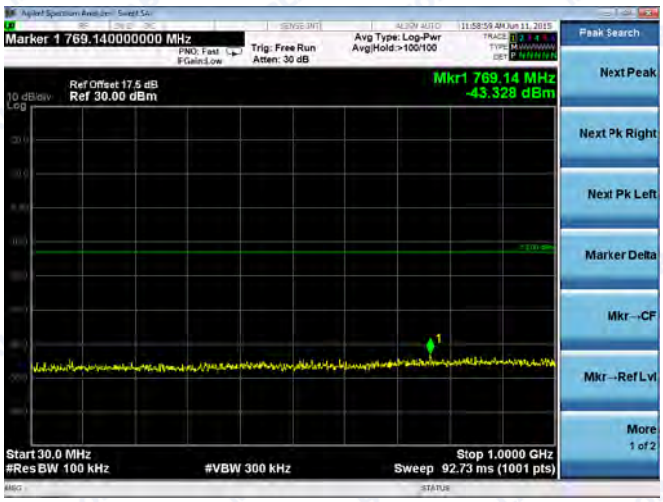
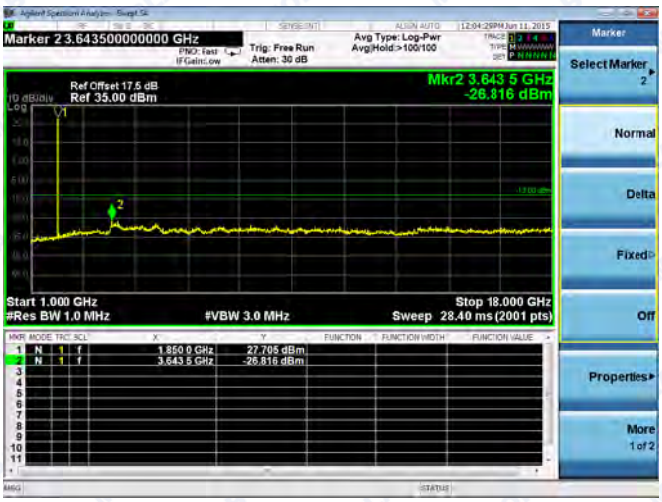
2.5.2 Test Procedure

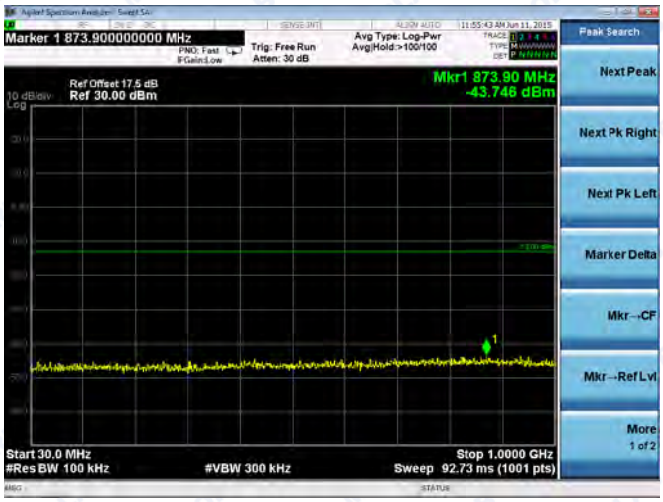
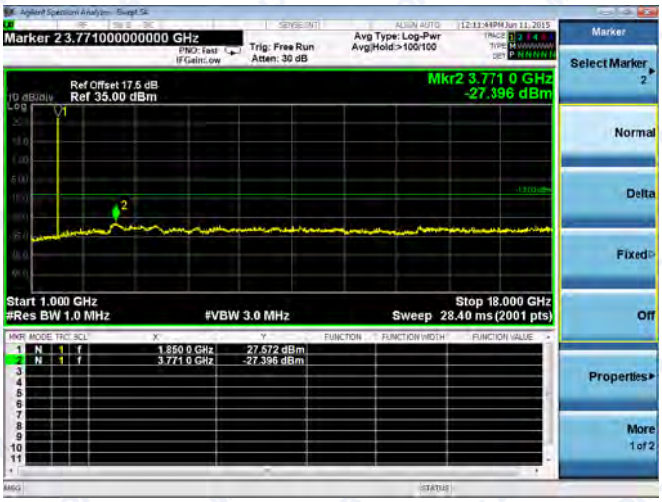
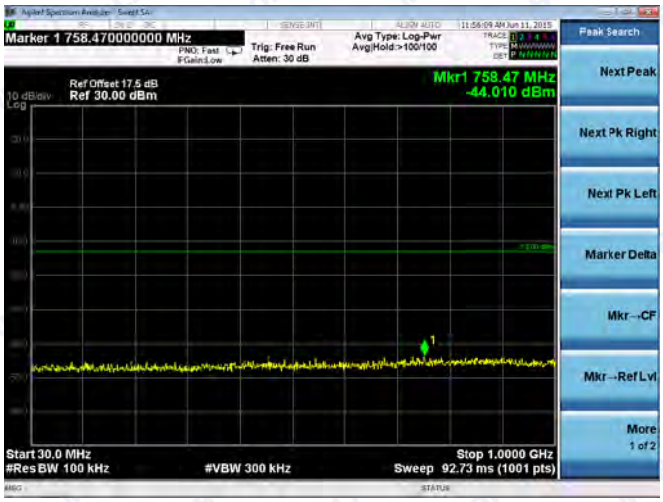
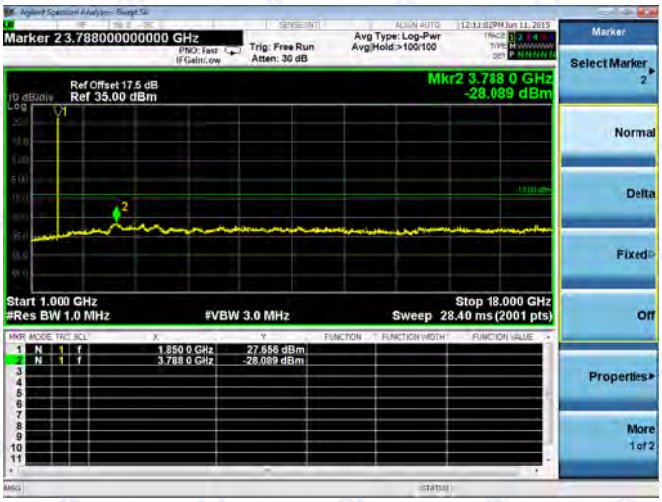
See section 2.1.2 of this report.

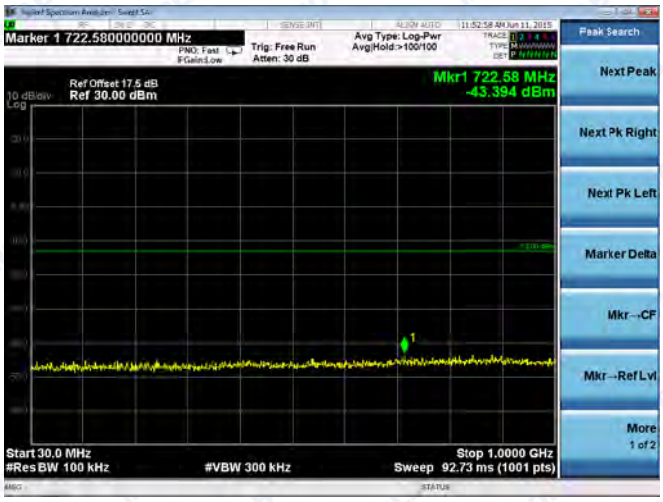
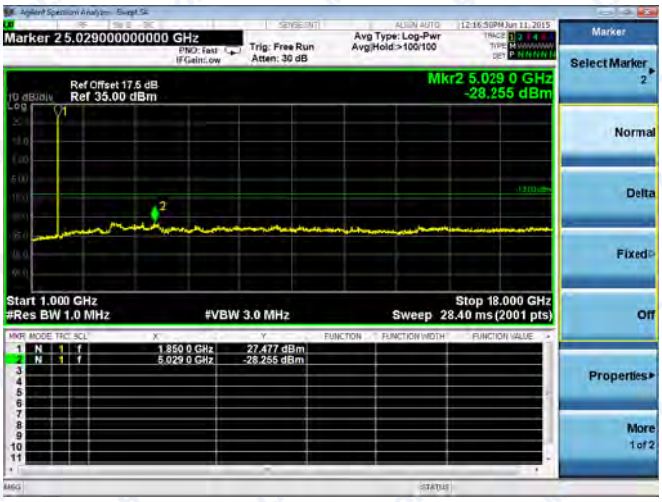
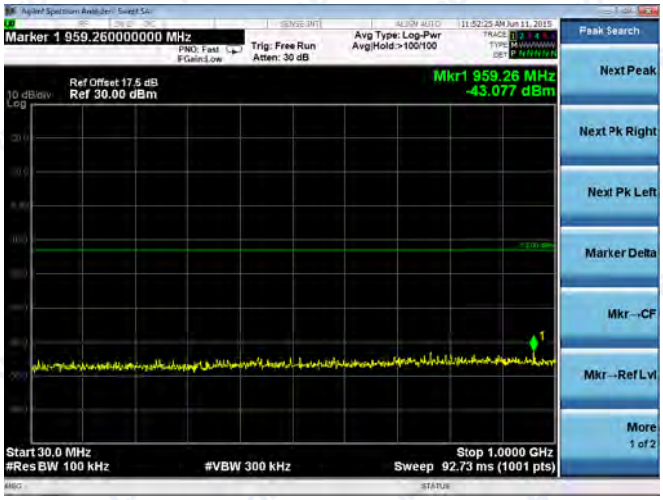
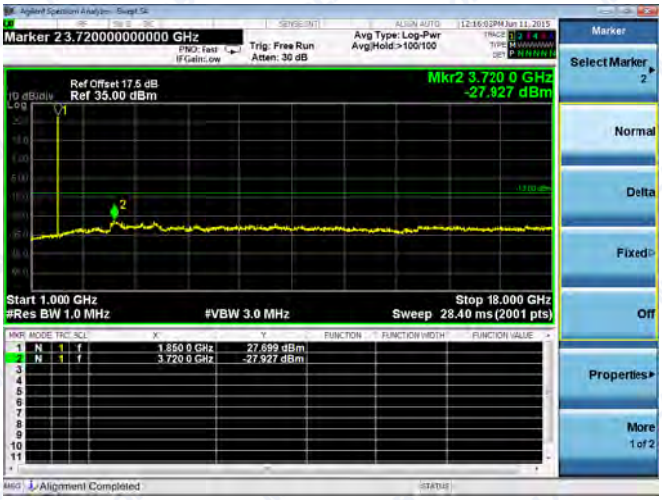
Mid channels on all channel bandwidth verified. Only the worst RB size/offset presented.

2.5.3 Test Result

Compliant. See attached pots.

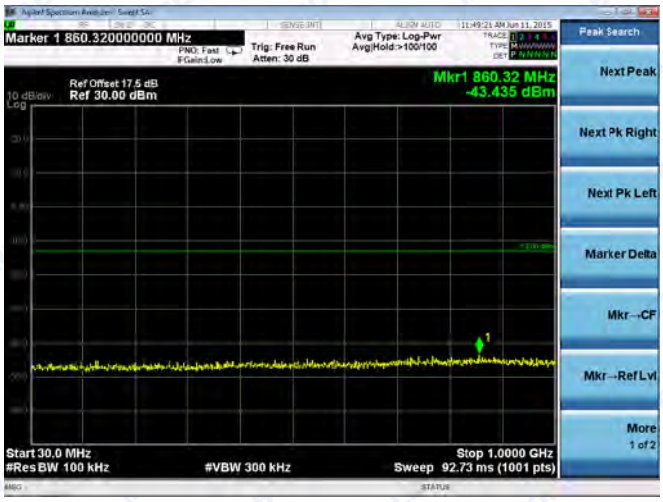
LTE Band 2 1.4MHz BW Low Channel	
QPSK	
	
16QAM	
	

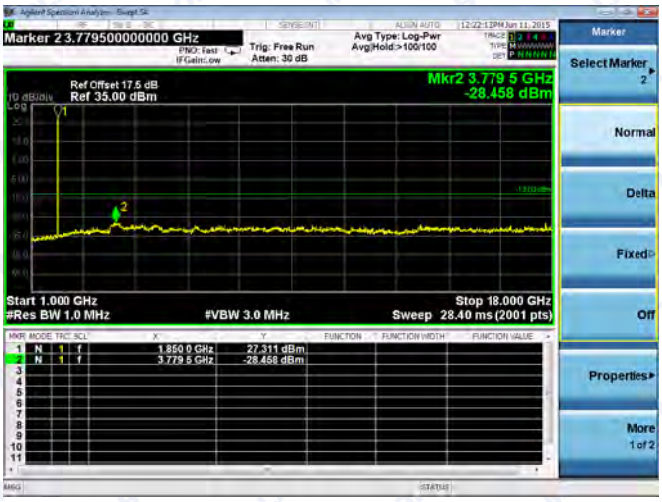
LTE Band 2 3MHz BW Low Channel	
QPSK	
	
16QAM	
	

LTE Band 2 5MHz BW Low Channel	
QPSK	
	
16QAM	
	

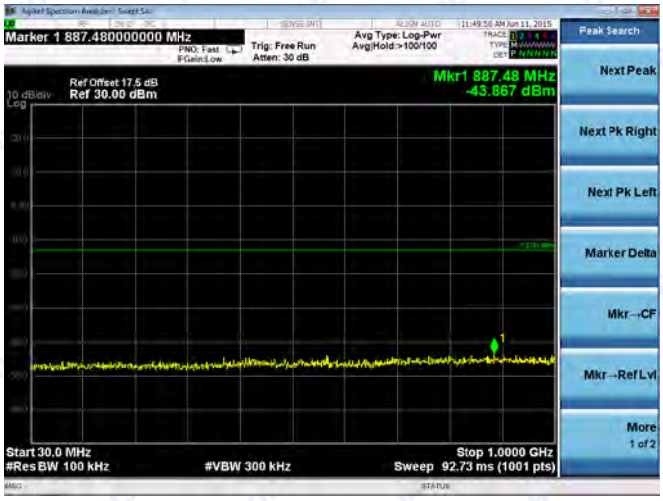
LTE Band 2 10MHz BW Low Channel

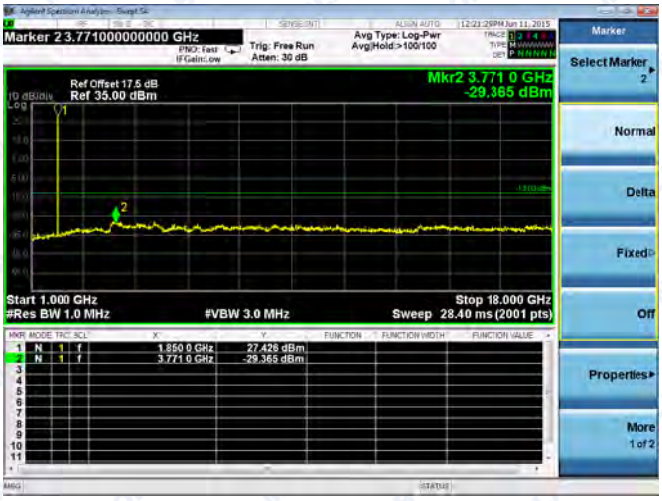
QPSK





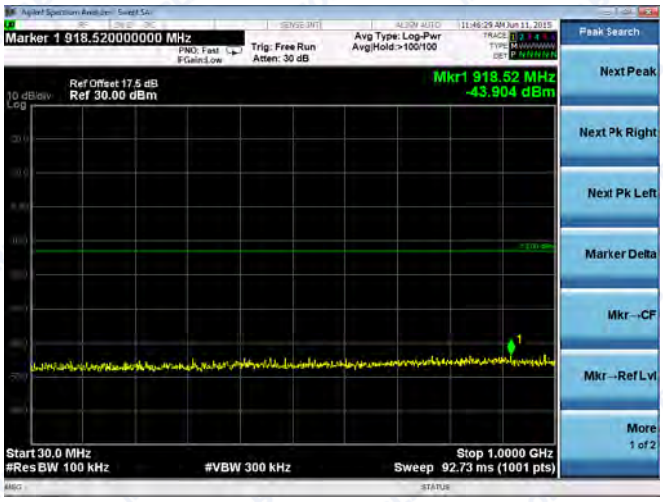
16QAM

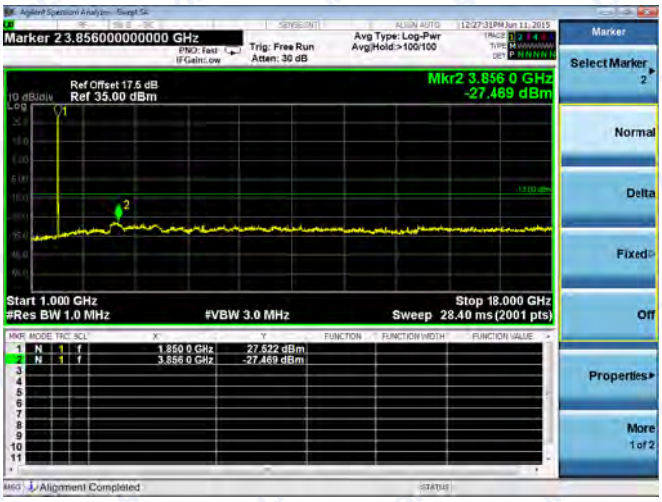




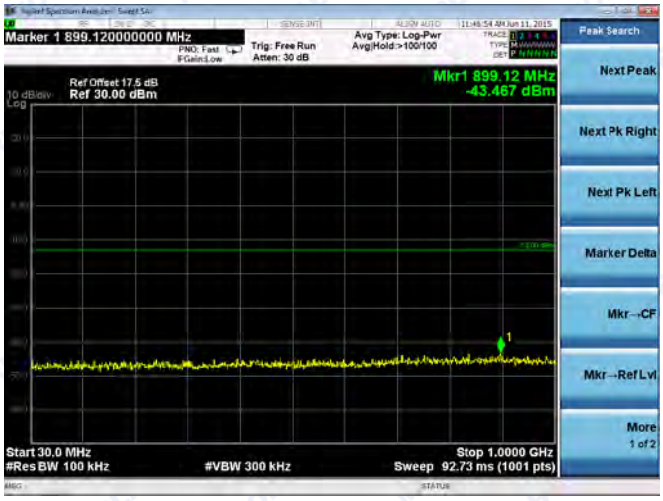
LTE Band 2 15MHz BW Low Channel

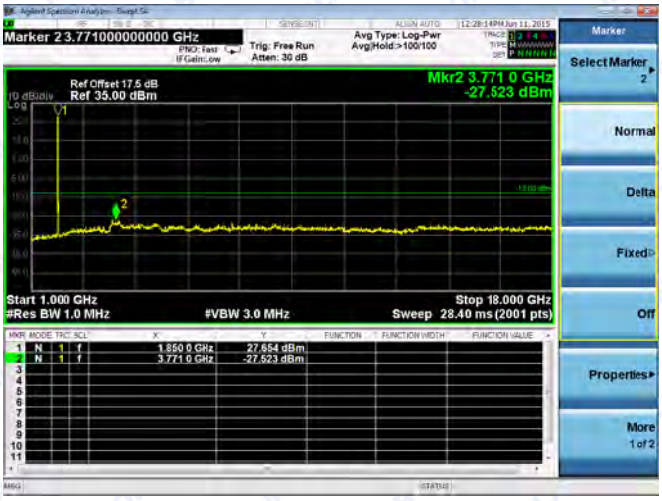
QPSK





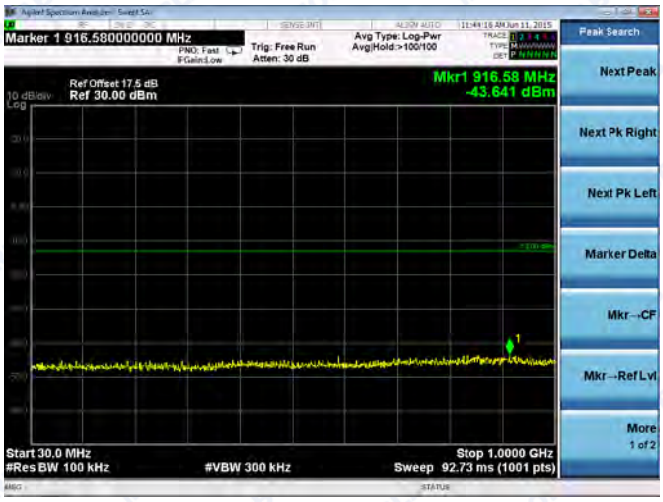
16QAM

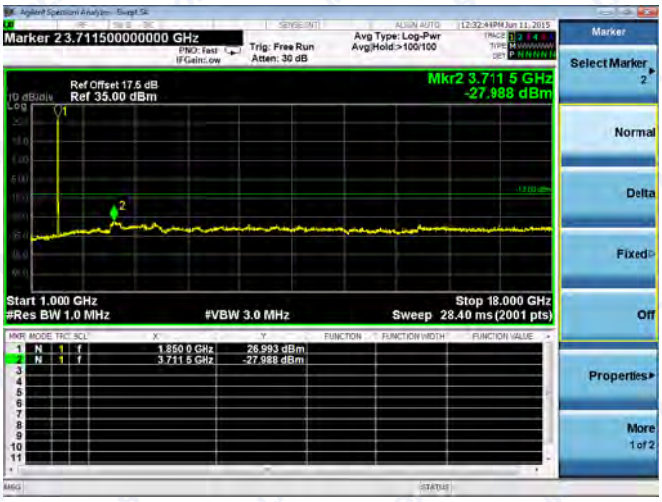




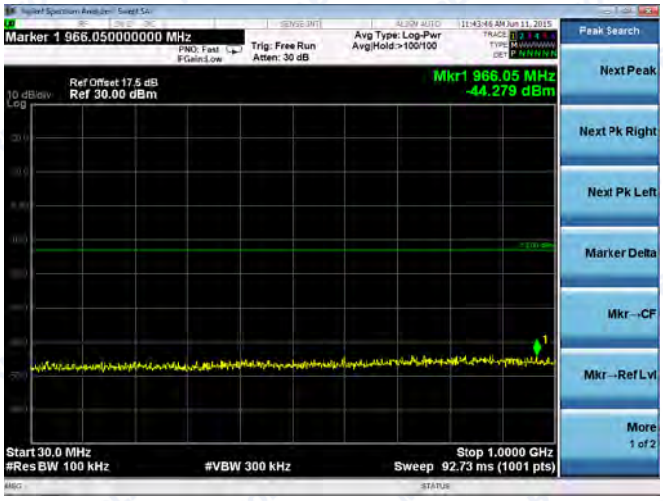
LTE Band 2 20MHz BW Low Channel

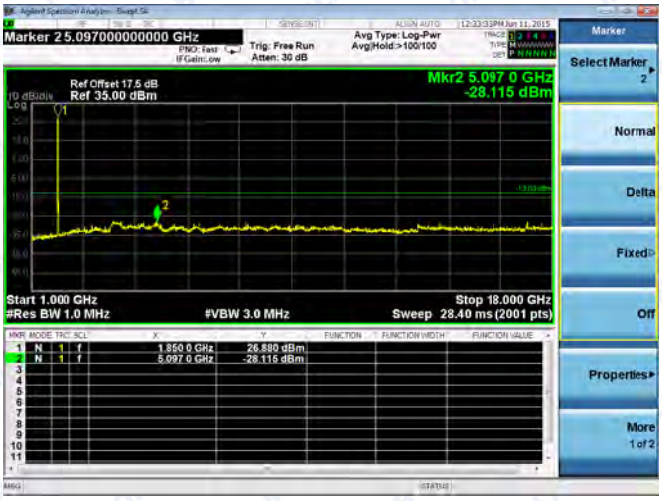
QPSK



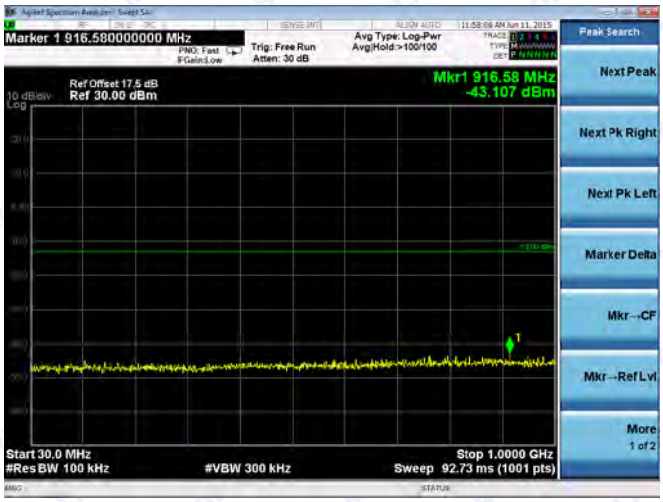
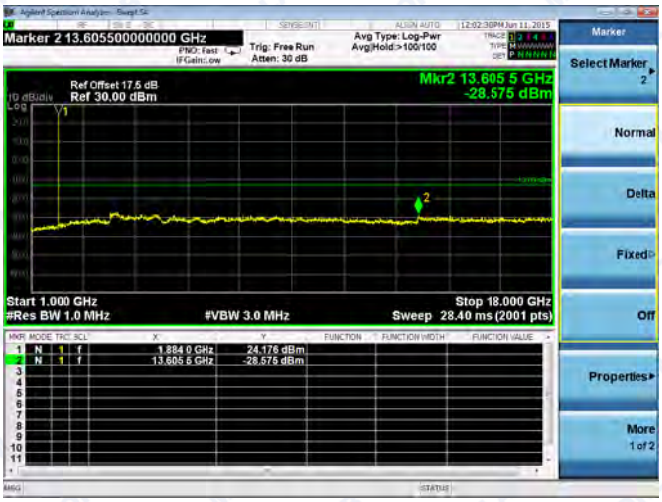


16QAM





Middle channel:

LTE Band 2 1.4MHz BW Mid Channel	
QPSK	
	
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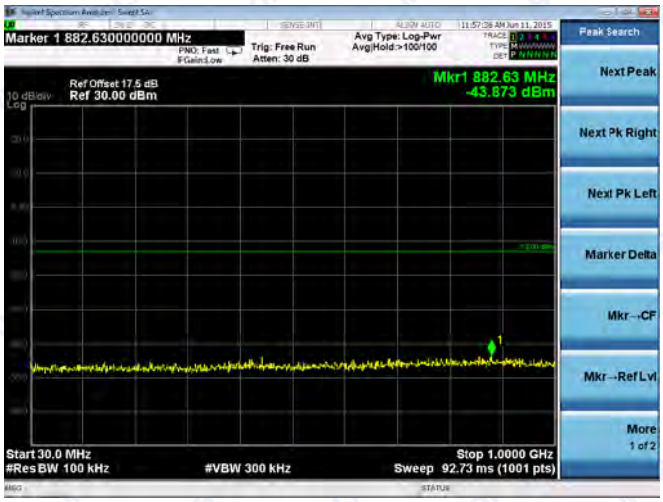	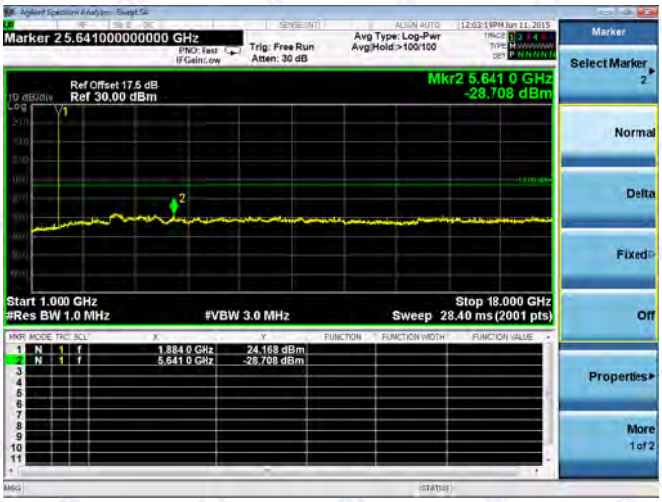

LTE Band 2 3MHz BW Mid Channel	
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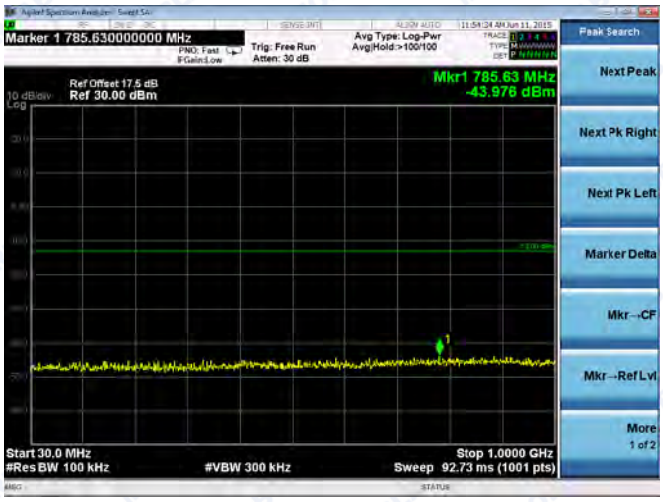	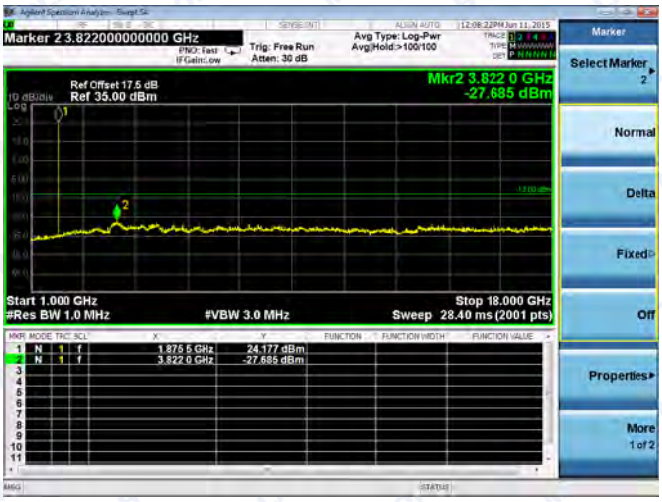
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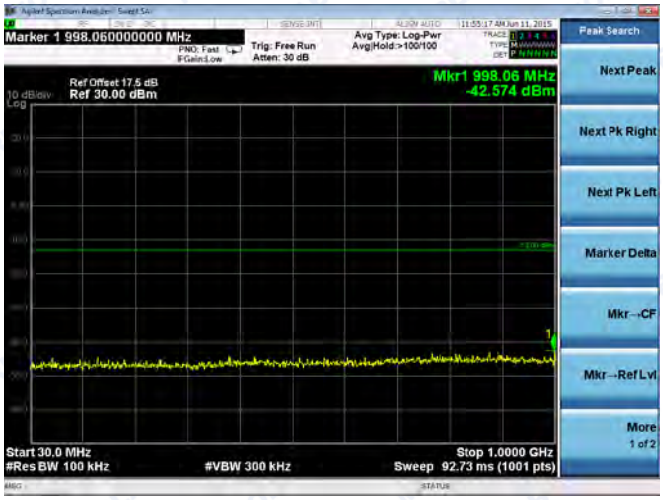
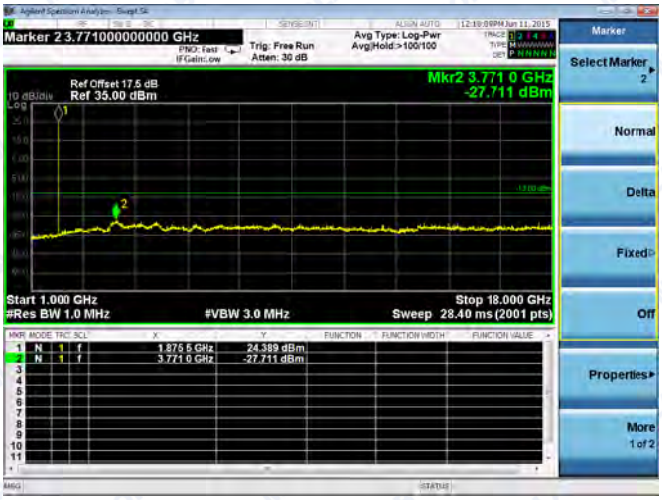
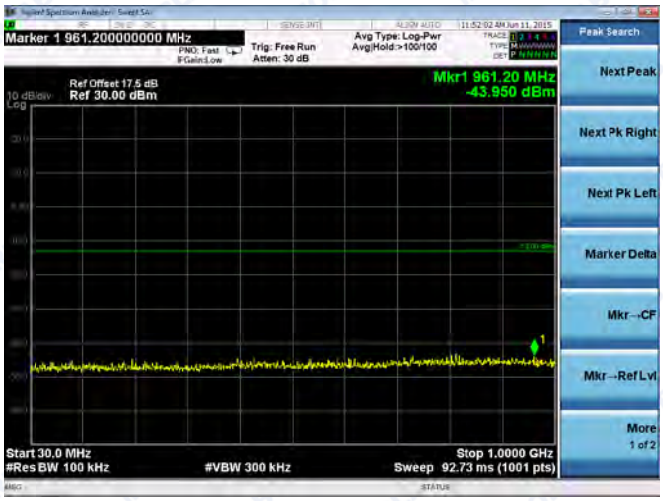
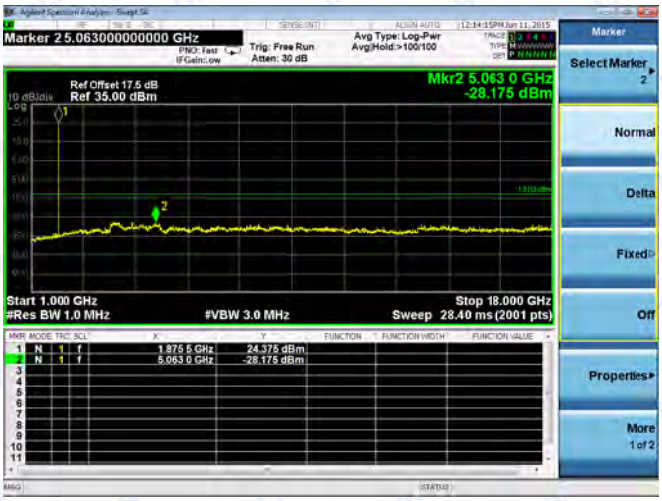
	

LTE Band 2 5MHz BW Mid Channel

QPSK





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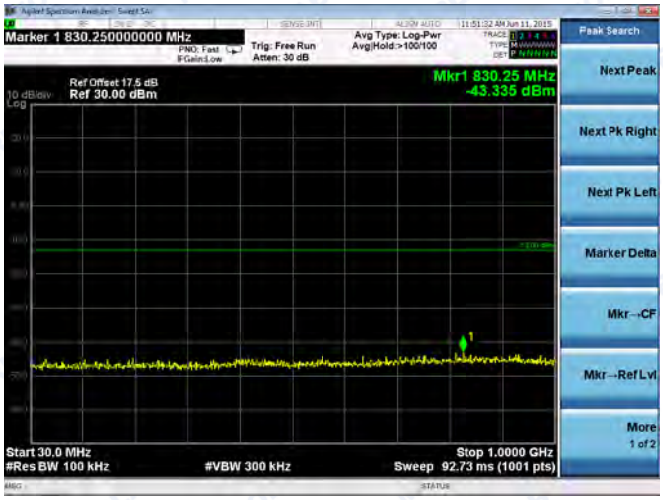
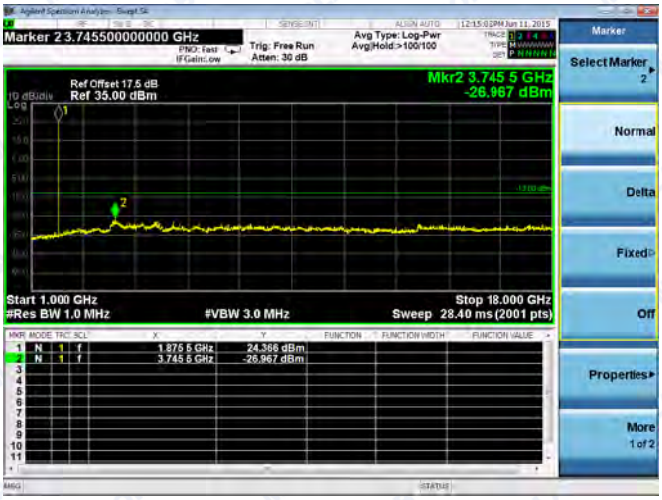
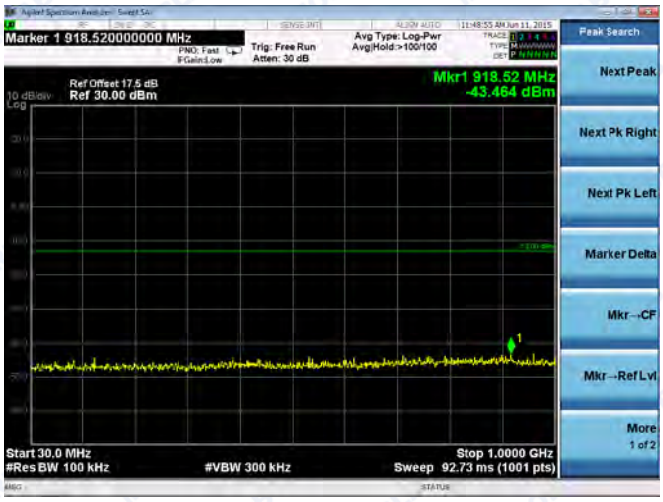
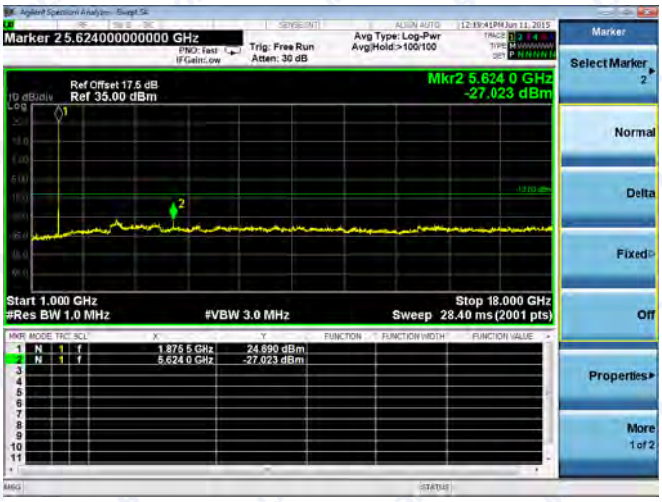
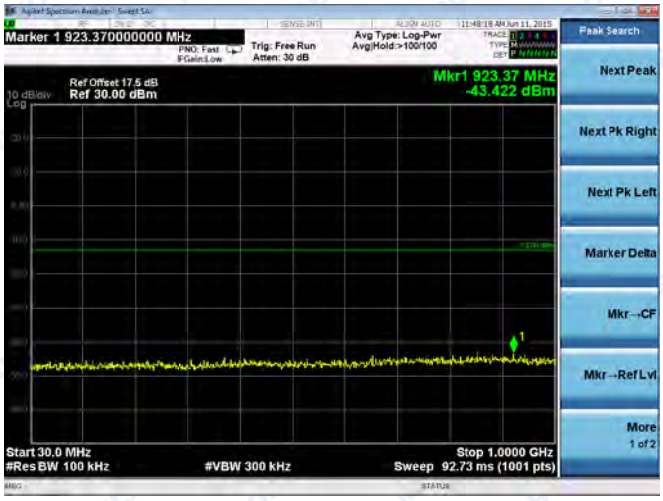
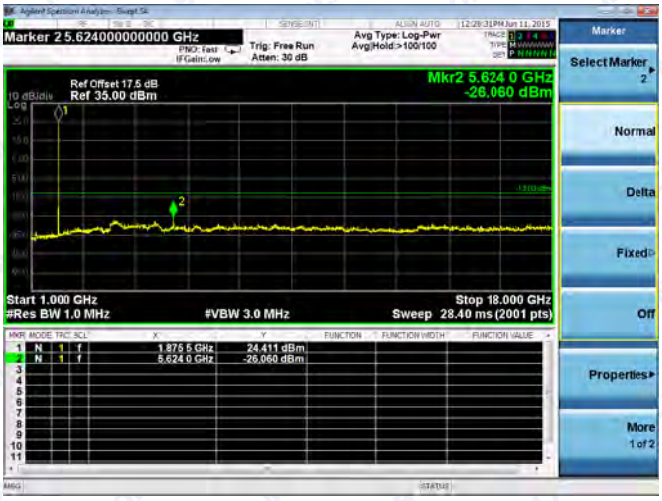




LTE Band 2 10MHz BW Mid Channel

QPSK

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