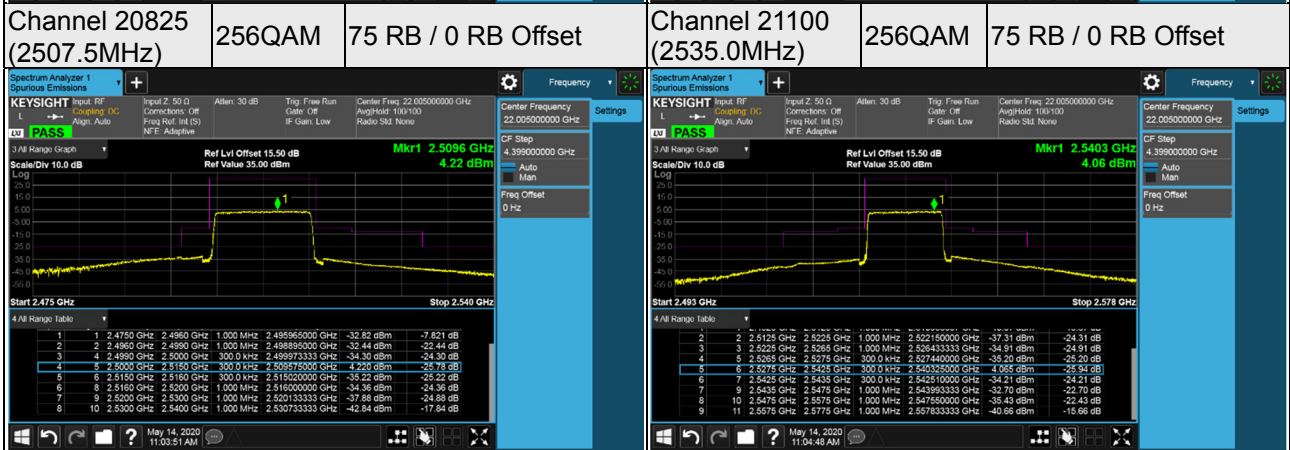
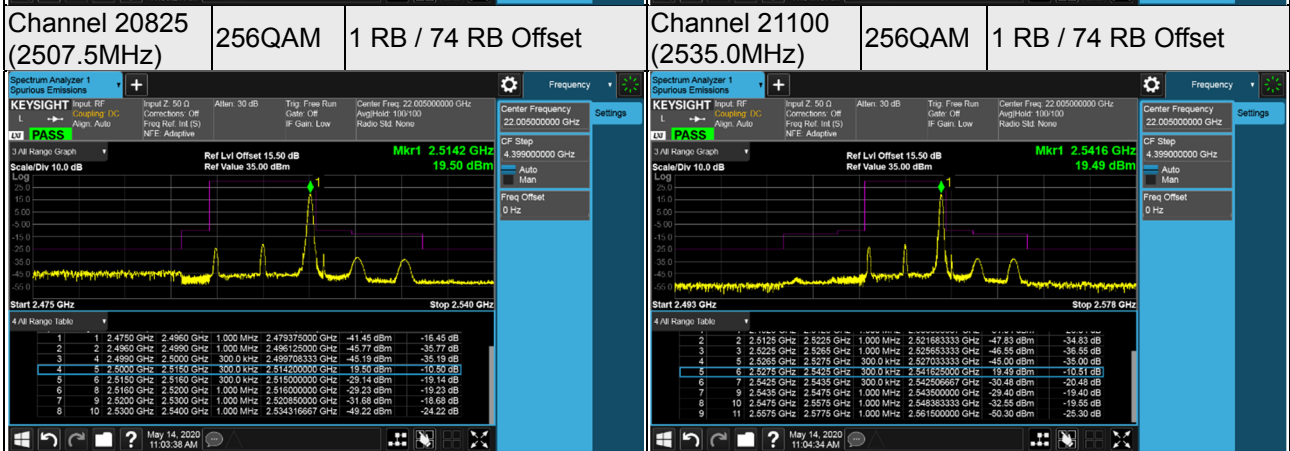
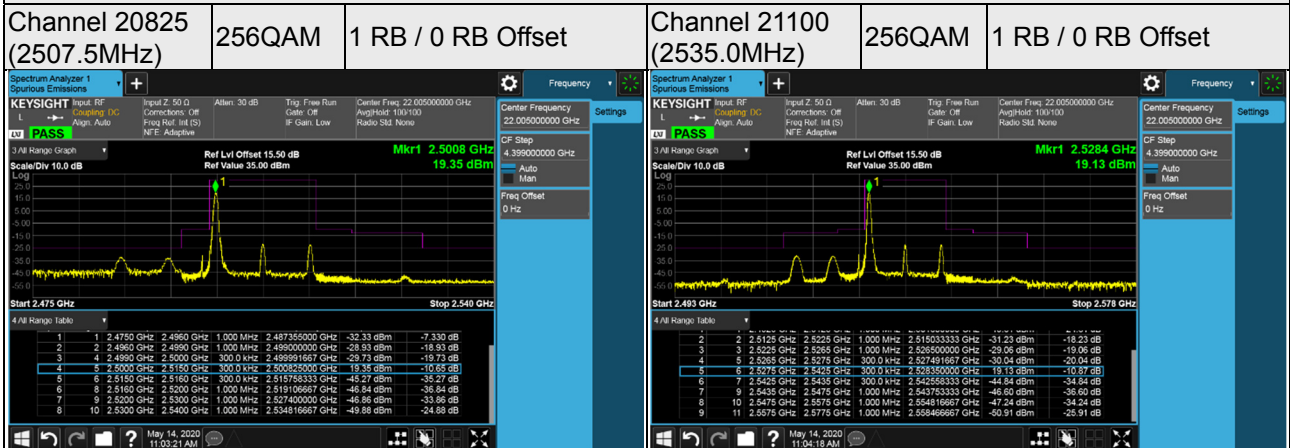
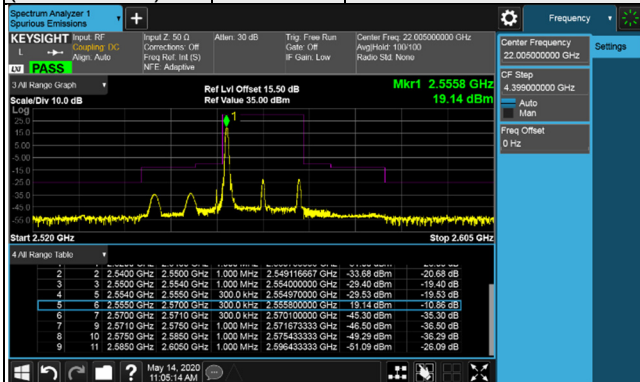


Channel Bandwidth: 15MHz

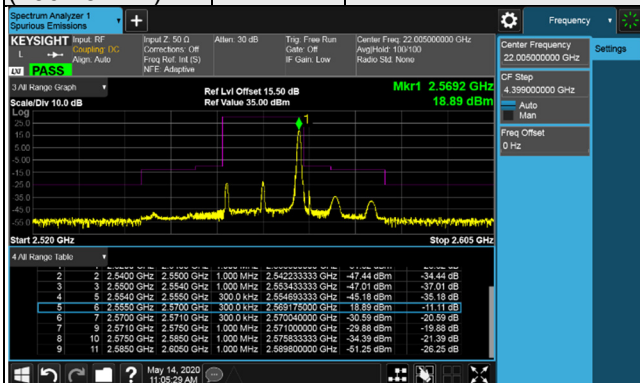


Channel Bandwidth: 15MHz

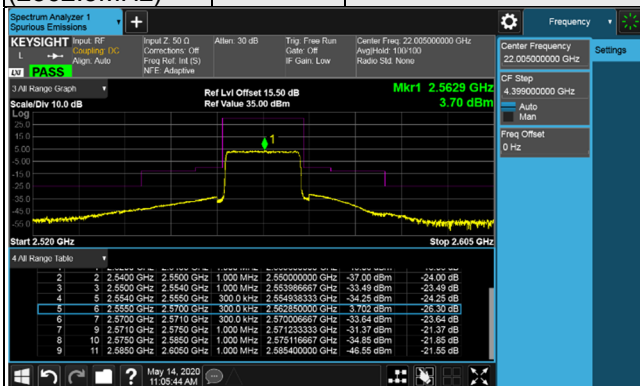
Channel 21375 (2562.5MHz) 256QAM 1 RB / 0 RB Offset



Channel 21375 (2562.5MHz) 256QAM 1 RB / 74 RB Offset



Channel 21375 (2562.5MHz) 256QAM 75 RB / 0 RB Offset



Channel Bandwidth: 20MHz

Channel 20850  
(2510.0MHz)

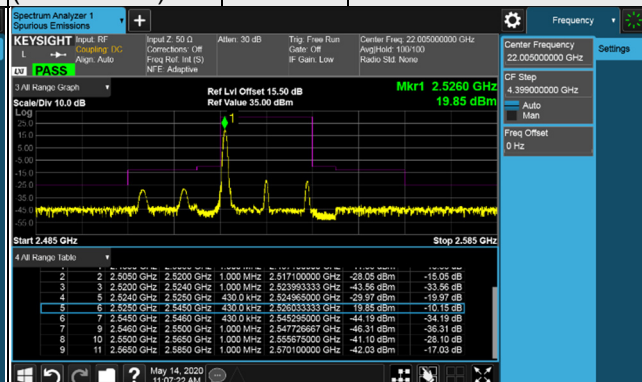
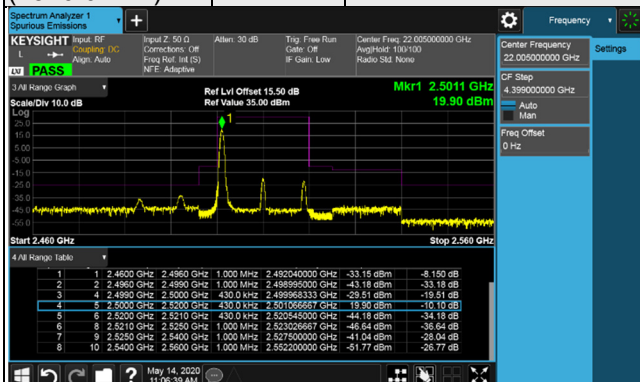
256QAM

1 RB / 0 RB Offset

Channel 21100  
(2535.0MHz)

256QAM

1 RB / 0 RB Offset



Channel 20850  
(2510.0MHz)

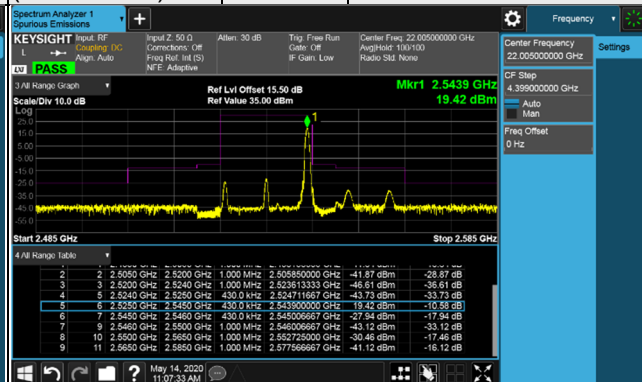
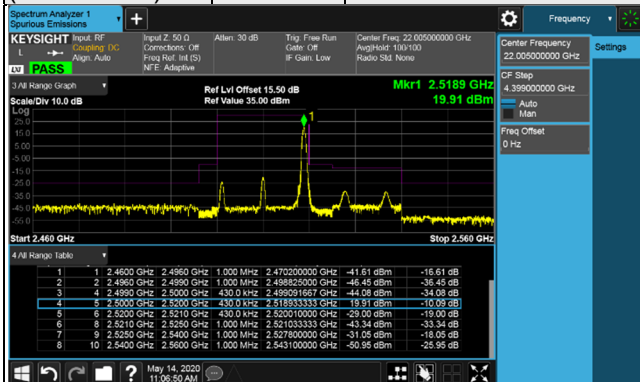
256QAM

1 RB / 99 RB Offset

Channel 21100  
(2535.0MHz)

256QAM

1 RB / 99 RB Offset



Channel 20850  
(2510.0MHz)

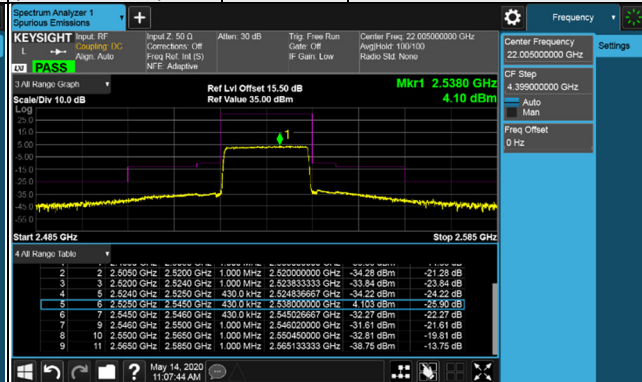
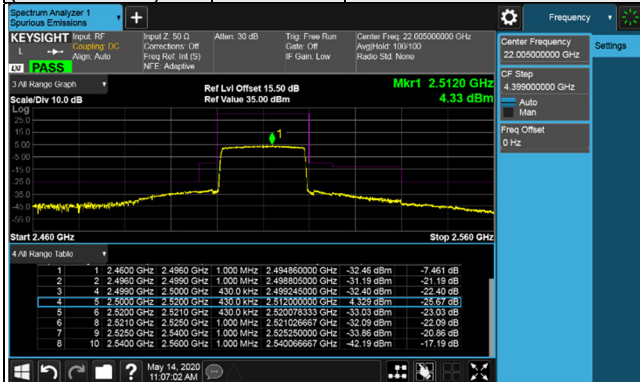
256QAM

100 RB / 0 RB Offset

Channel 21100  
(2535.0MHz)

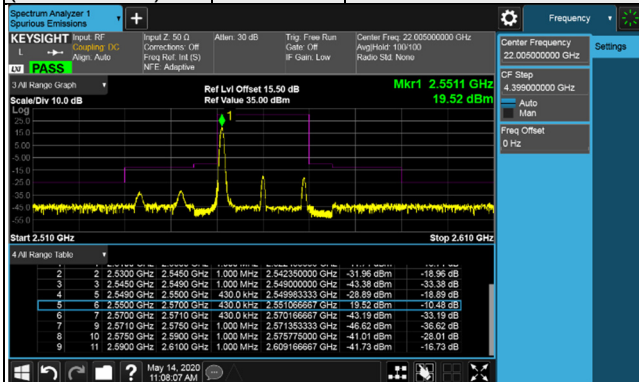
256QAM

100 RB / 0 RB Offset

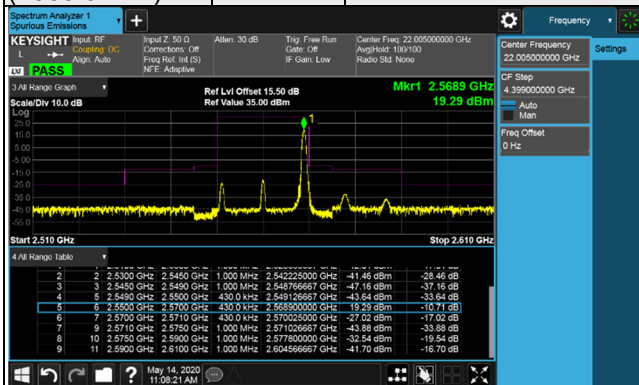


Channel Bandwidth: 20MHz

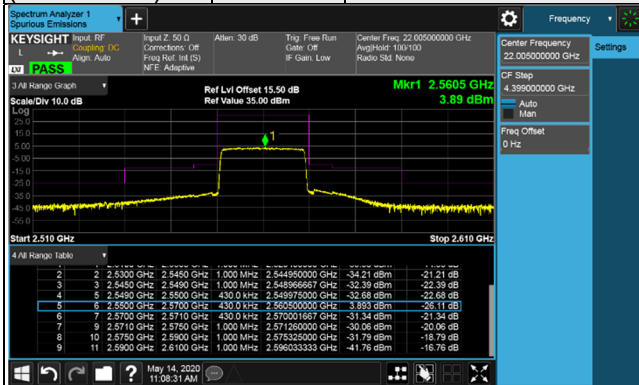
Channel 21350 (2560.0MHz) 256QAM 1 RB / 0 RB Offset



Channel 21350 (2560.0MHz) 256QAM 1 RB / 99 RB Offset



Channel 21350 (2560.0MHz) 256QAM 100 RB / 0 RB Offset



LTE Band 12

Channel Bandwidth: 1.4MHz

Channel 23017  
(699.7MHz)

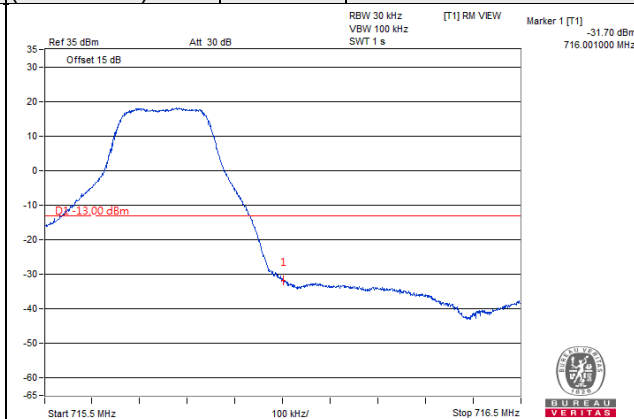
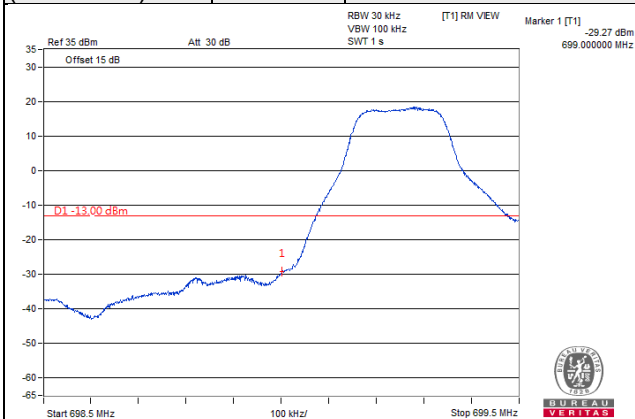
256QAM

1 RB / 0 RB Offset

Channel 23173  
(715.3MHz)

256QAM

1 RB / 5 RB Offset



Channel 23017  
(699.7MHz)

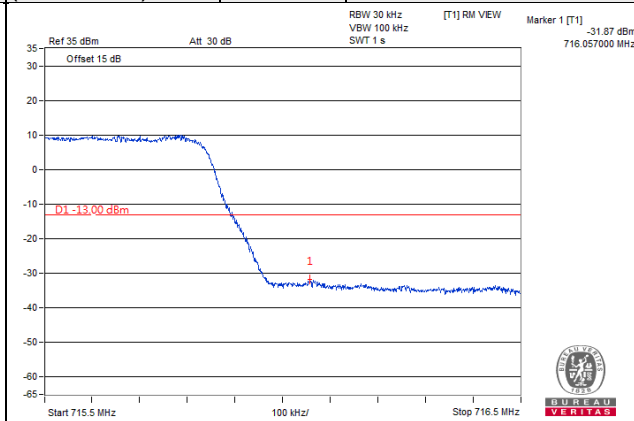
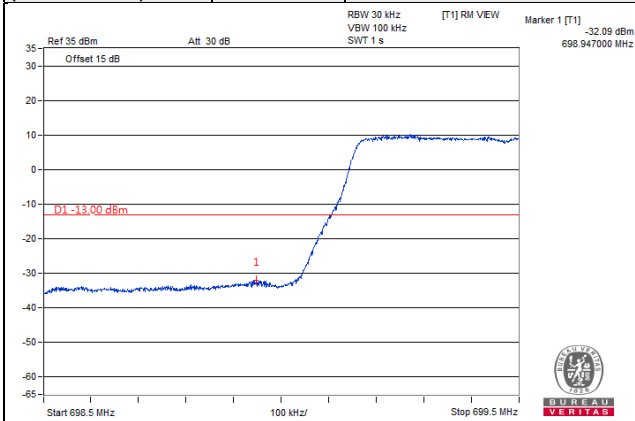
256QAM

6 RB / 0 RB Offset

Channel 23173  
(715.3MHz)

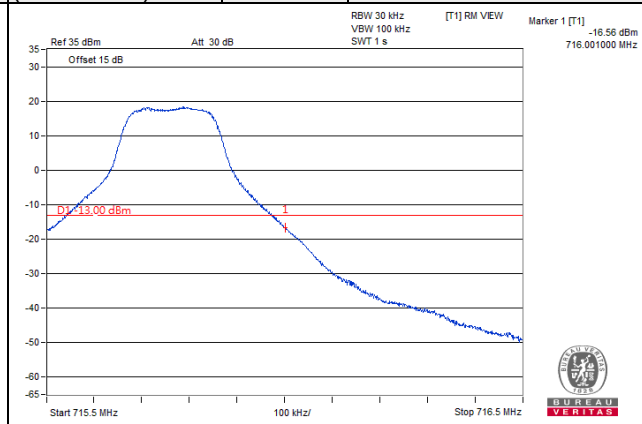
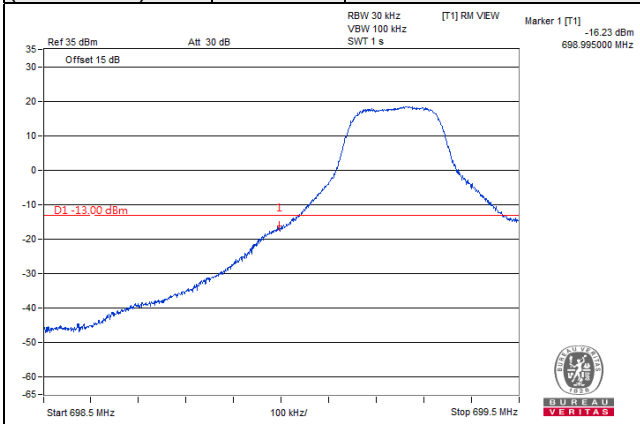
256QAM

6 RB / 0 RB Offset

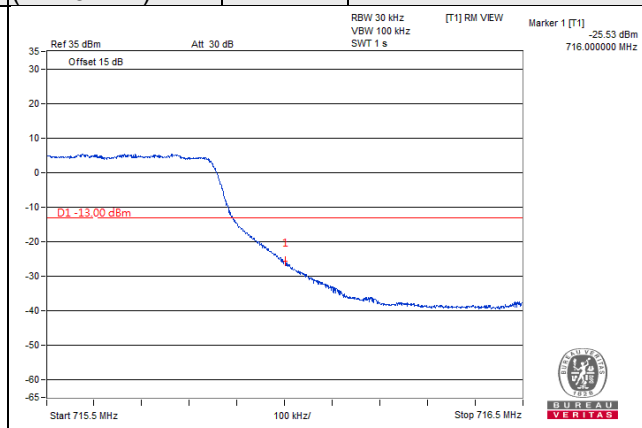
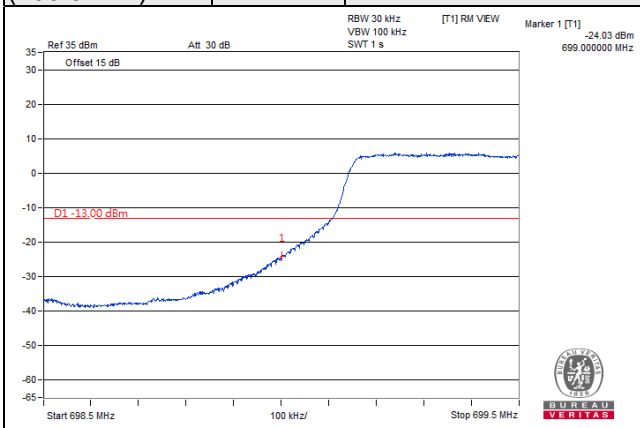


**Channel Bandwidth: 3MHz**

<b>Channel 23025 (700.5MHz)</b>	<b>256QAM</b>	<b>1 RB / 0 RB Offset</b>	<b>Channel 23165 (714.5MHz)</b>	<b>256QAM</b>	<b>1 RB / 14RB Offset</b>
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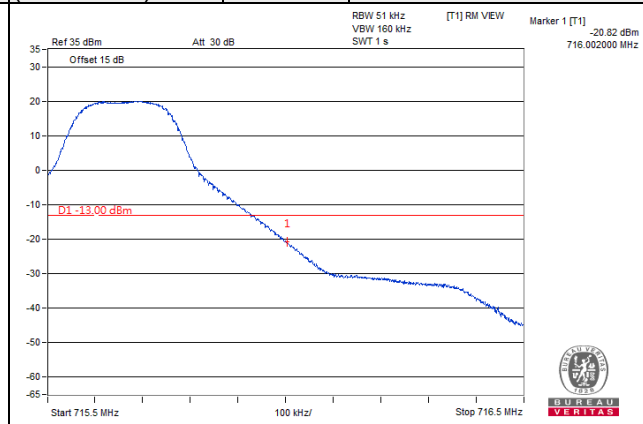
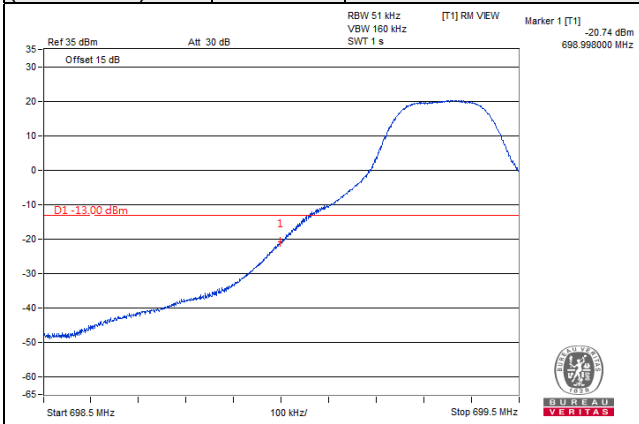
<b>Channel 23025 (700.5MHz)</b>	<b>256QAM</b>	<b>15 RB / 0 RB Offset</b>	<b>Channel 23165 (714.5MHz)</b>	<b>256QAM</b>	<b>15 RB / 0 RB Offset</b>
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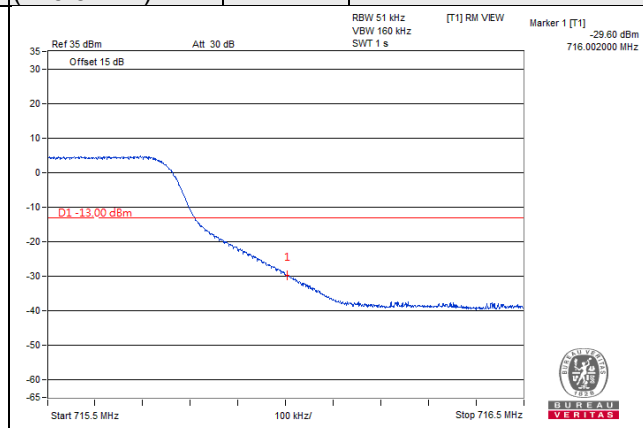
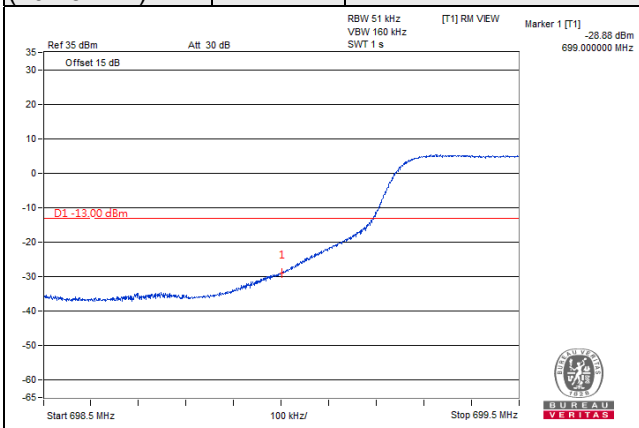


Channel Bandwidth: 5MHz

Channel 23035 (701.5MHz)	256QAM	1 RB / 0 RB Offset	Channel 23155 (713.5MHz)	256QAM	1 RB / 24RB Offset
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Channel 23035 (701.5MHz)	256QAM	25 RB / 0 RB Offset	Channel 23155 (713.5MHz)	256QAM	25 RB / 0 RB Offset
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Channel Bandwidth: 10MHz

Channel 23060  
(704MHz)

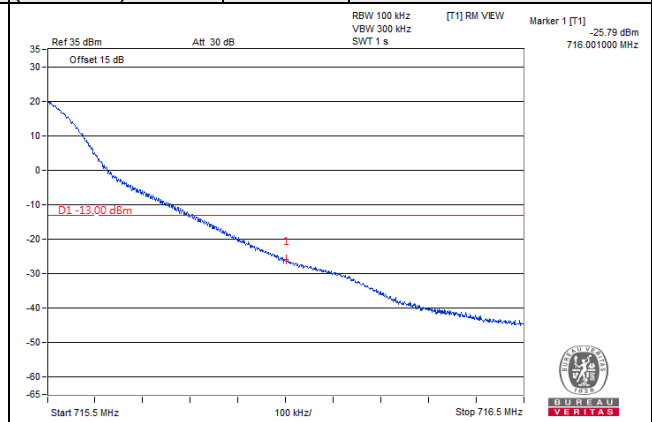
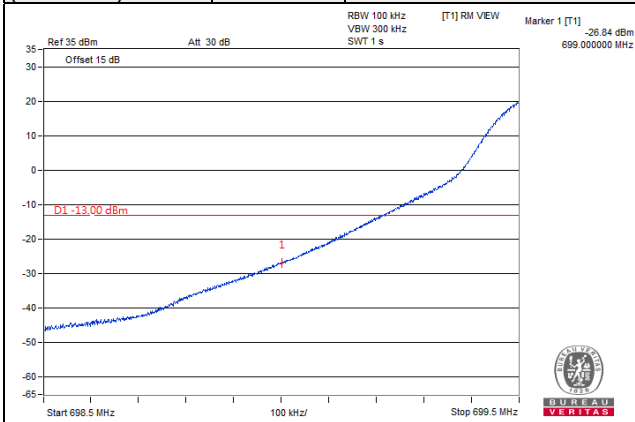
256QAM

1 RB / 0 RB Offset

Channel 23130  
(711MHz)

256QAM

1 RB / 24RB Offset



Channel 23060  
(704MHz)

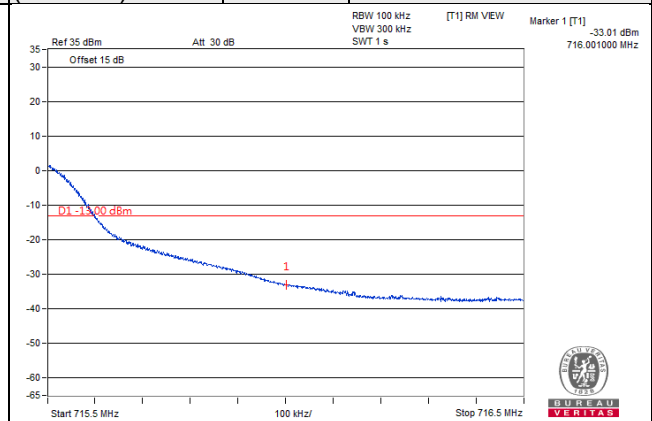
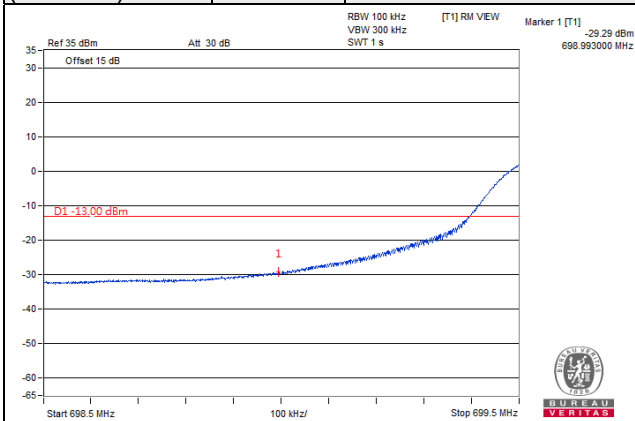
256QAM

50 RB / 0 RB Offset

Channel 23130  
(711MHz)

256QAM

25 RB / 0 RB Offset





LTE Band 66

Channel Bandwidth: 1.4MHz

Channel 131979  
(1710.7MHz)

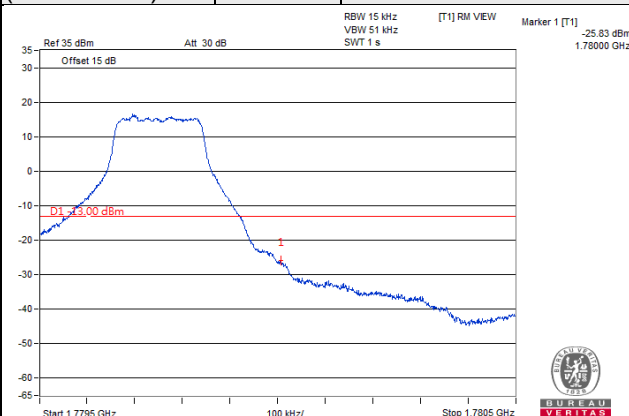
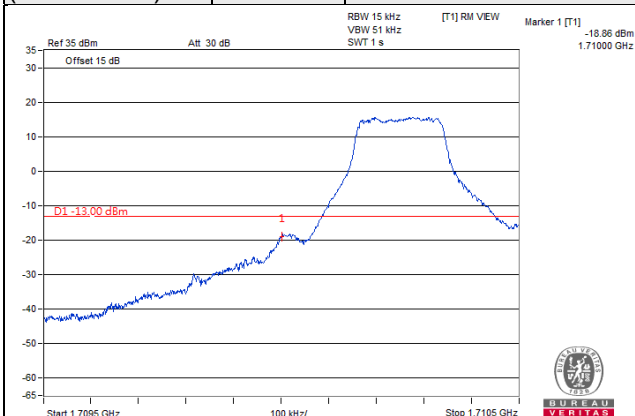
256QAM

1 RB / 0 RB Offset

Channel 132665  
(1779.3MHz)

256QAM

1 RB / 5 RB Offset



Channel 131979  
(1710.7MHz)

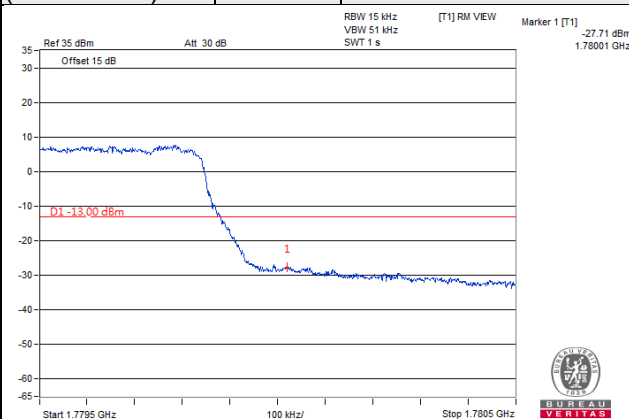
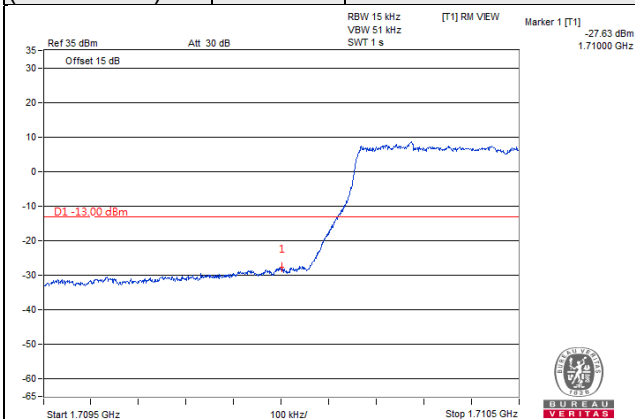
256QAM

6 RB / 0 RB Offset

Channel 132665  
(1779.3MHz)

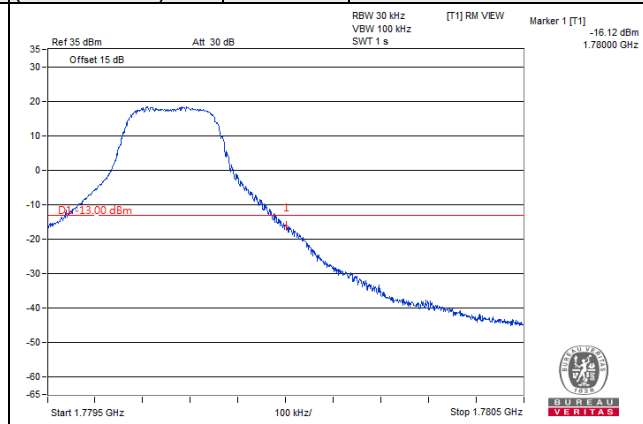
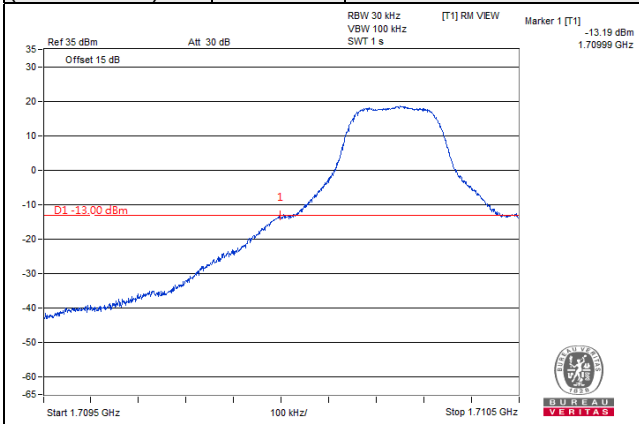
256QAM

6 RB / 0 RB Offset

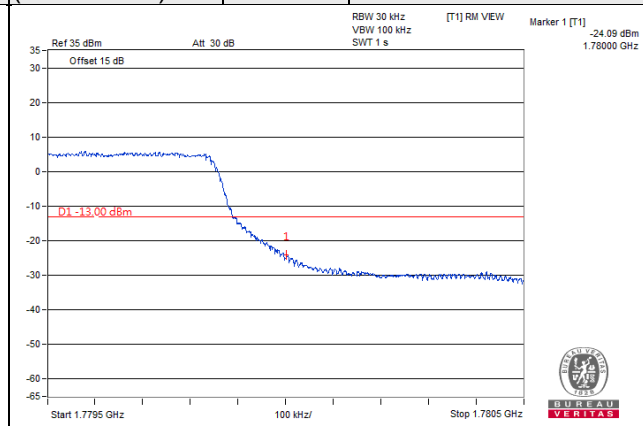
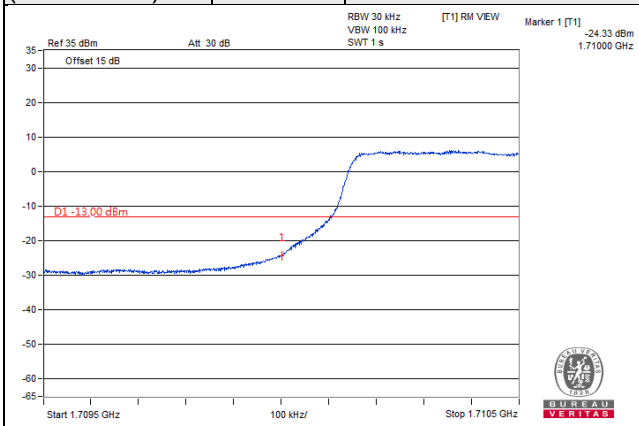


**Channel Bandwidth: 3MHz**

<b>Channel 131987 (1711.5MHz)</b>	<b>256QAM</b>	<b>1 RB / 0 RB Offset</b>	<b>Channel 132657 (1778.5MHz)</b>	<b>256QAM</b>	<b>1 RB / 14 RB Offset</b>
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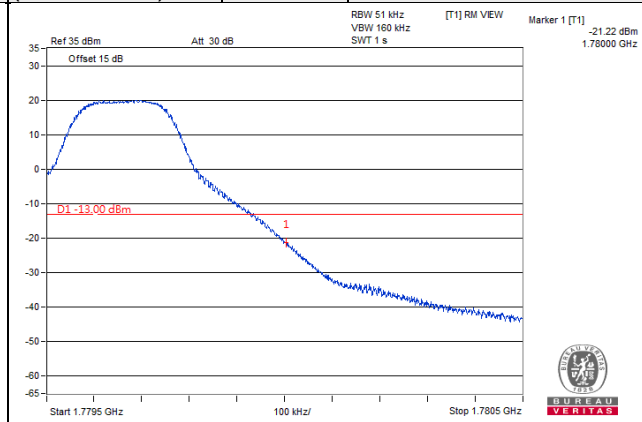
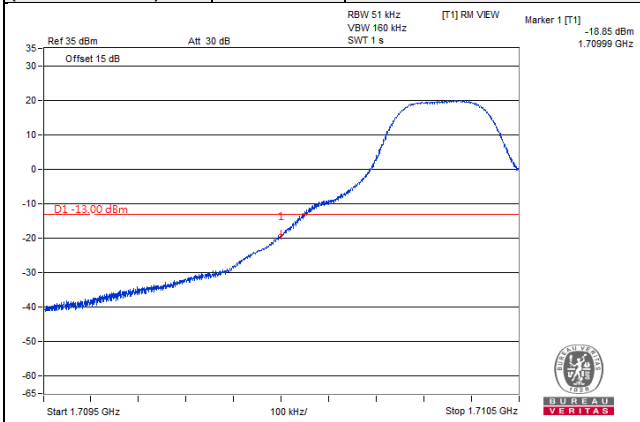


<b>Channel 131987 (1711.5MHz)</b>	<b>256QAM</b>	<b>15 RB / 0 RB Offset</b>	<b>Channel 132657 (1778.5MHz)</b>	<b>256QAM</b>	<b>15 RB / 0 RB Offset</b>
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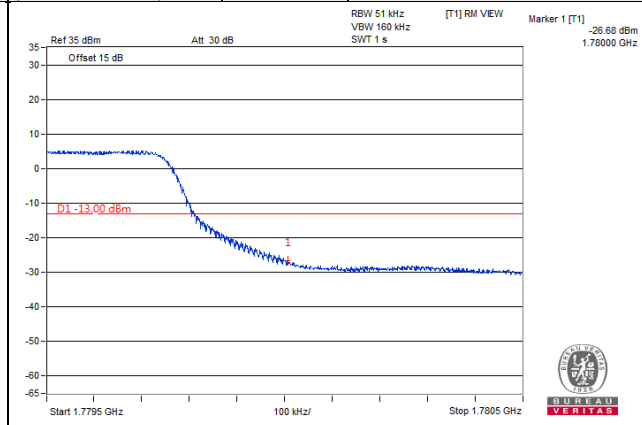
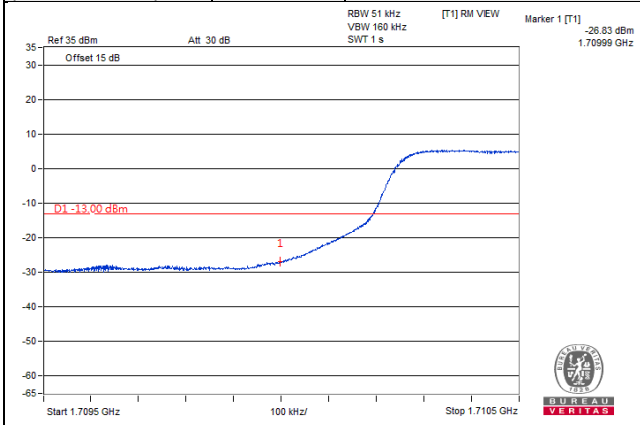


**Channel Bandwidth: 5MHz**

<b>Channel 131997 (1712.5MHz)</b>	<b>256QAM</b>	<b>1 RB / 0 RB Offset</b>	<b>Channel 132647 (1777.5MHz)</b>	<b>256QAM</b>	<b>1 RB / 24 RB Offset</b>
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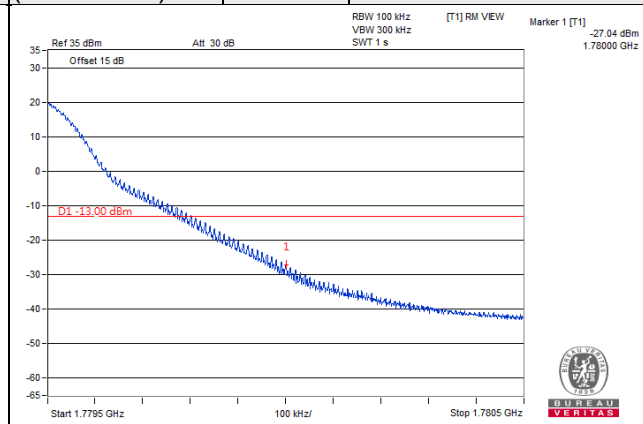
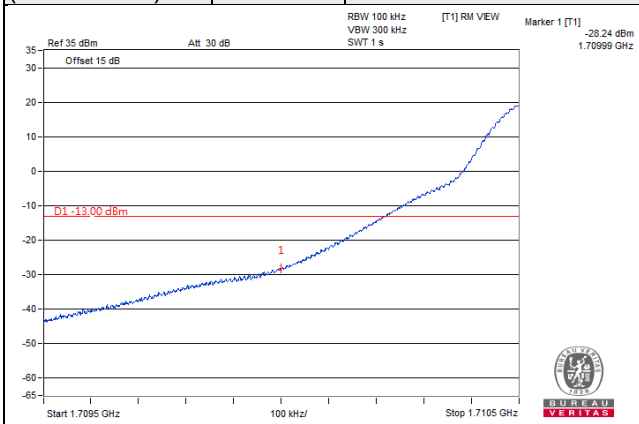


<b>Channel 131997 (1712.5MHz)</b>	<b>256QAM</b>	<b>25 RB / 0 RB Offset</b>	<b>Channel 132647 (1777.5MHz)</b>	<b>256QAM</b>	<b>25 RB / 0 RB Offset</b>
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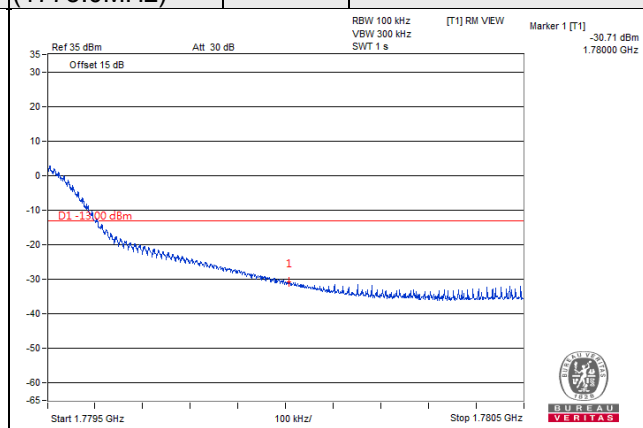
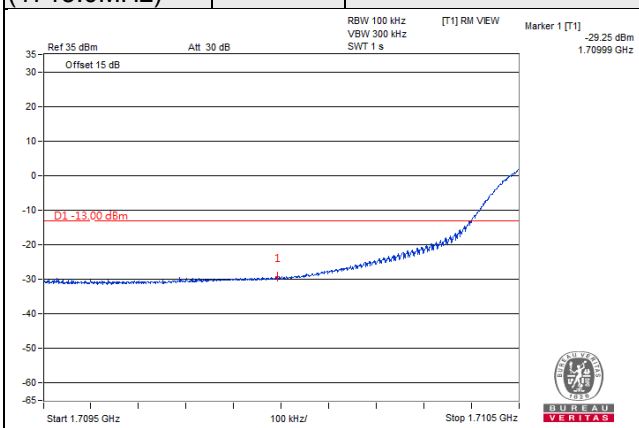


**Channel Bandwidth: 10MHz**

<b>Channel 132022 (1715.0MHz)</b>	<b>256QAM</b>	<b>1 RB / 0 RB Offset</b>	<b>Channel 132622 (1775.0MHz)</b>	<b>256QAM</b>	<b>1 RB / 49 RB Offset</b>
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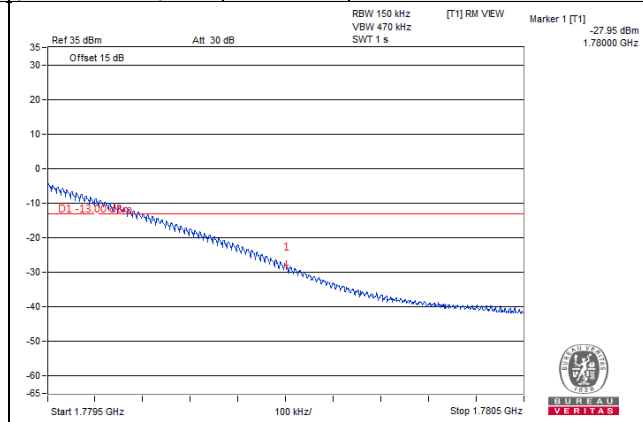
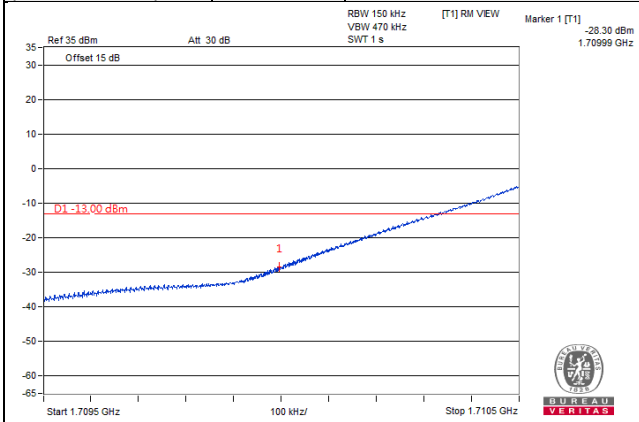


<b>Channel 132022 (1715.0MHz)</b>	<b>256QAM</b>	<b>50 RB / 0 RB Offset</b>	<b>Channel 132622 (1775.0MHz)</b>	<b>256QAM</b>	<b>50 RB / 0 RB Offset</b>
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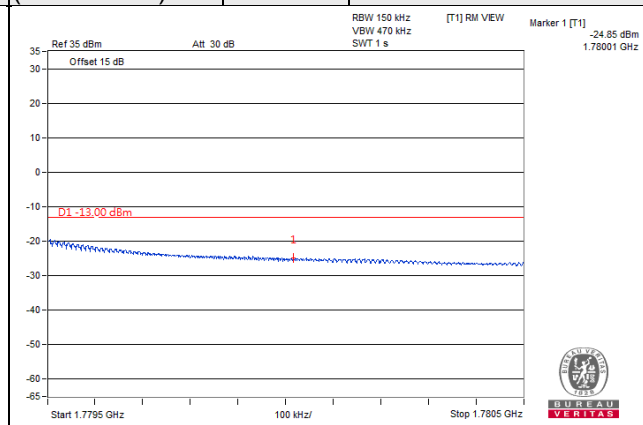
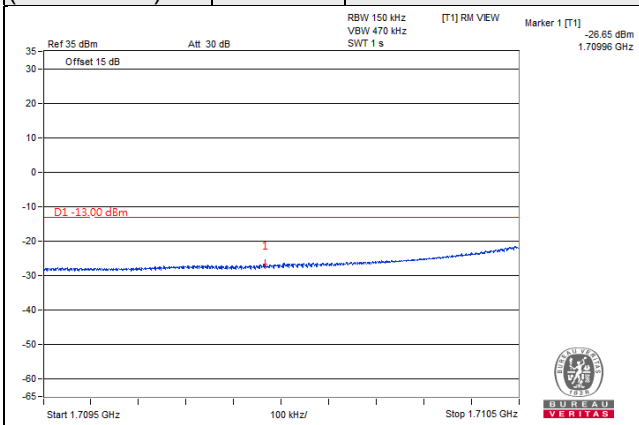


Channel Bandwidth: 15MHz

Channel 132047 (1717.5MHz)	256QAM	1 RB / 0 RB Offset	Channel 132597 (1772.5MHz)	256QAM	1 RB / 74 RB Offset
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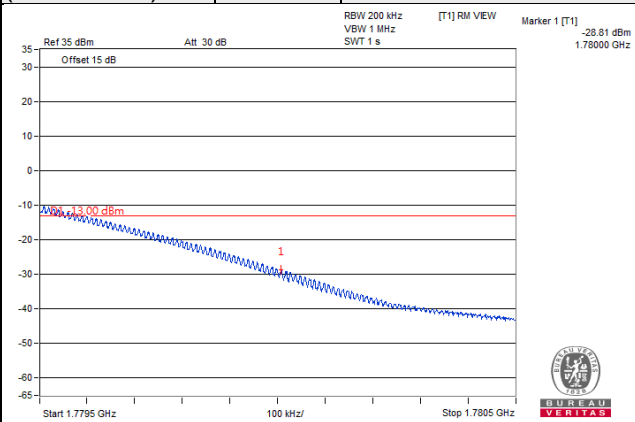
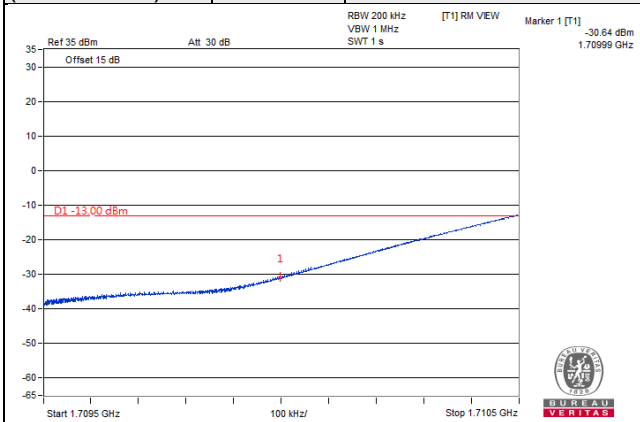


Channel 132047 (1717.5MHz)	256QAM	75 RB / 0 RB Offset	Channel 132597 (1772.5MHz)	256QAM	75 RB / 0 RB Offset
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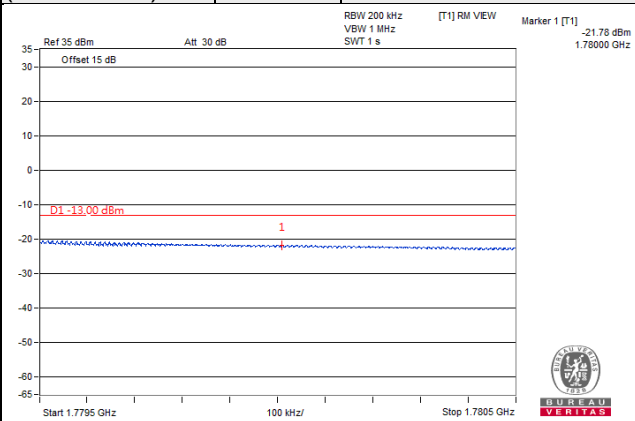
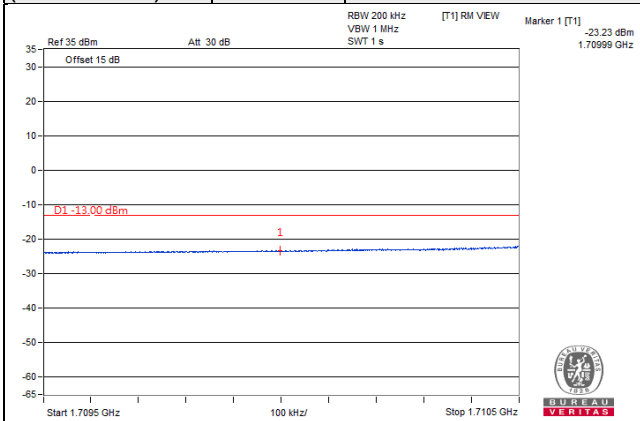


Channel Bandwidth: 20MHz

Channel 132072 (1720.0MHz)	256QAM	1 RB / 0 RB Offset	Channel 132572 (1770.0MHz)	256QAM	1 RB / 99 RB Offset
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Channel 132072 (1720.0MHz)	256QAM	100 RB / 0 RB Offset	Channel 132572 (1770.0MHz)	256QAM	100 RB / 0 RB Offset
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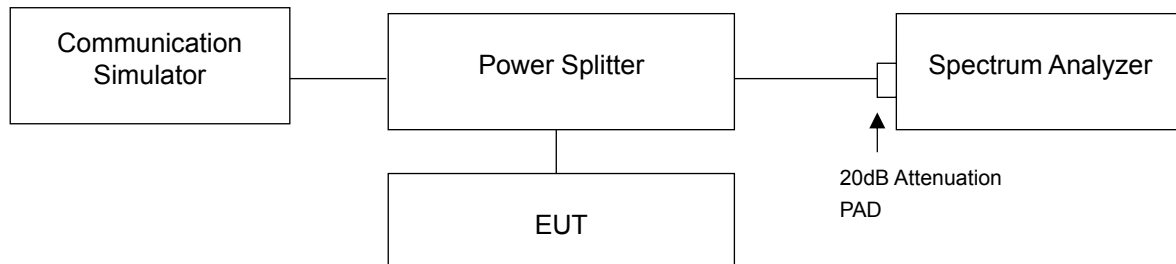


## 4.6 Peak to Average Ratio

### 4.6.1 Limits of Peak to Average Ratio Measurement

In measuring transmissions in this band using an average power technique, the peak to-average ratio (PAR) of the transmission may not exceed 13 dB

### 4.6.2 Test Setup



### 4.6.3 Test Procedures

- Set resolution/measurement bandwidth  $\geq$  signal's occupied bandwidth;
- Set the number of counts to a value that stabilizes the measured CCDF curve;
- Record the maximum PAPR level associated with a probability of 0.1%.



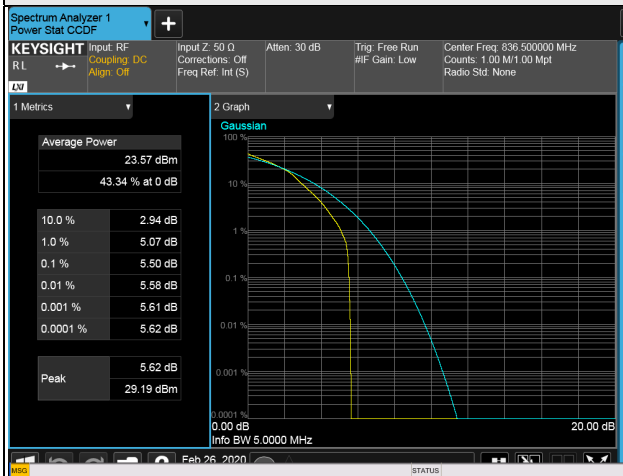
#### 4.6.4 Test Results

n5

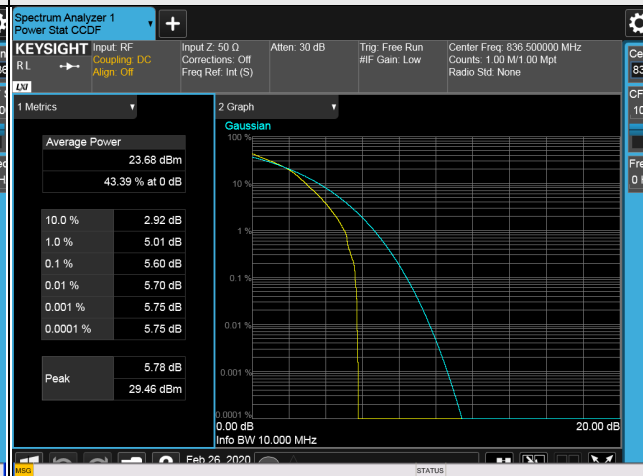
n5, Channel Bandwidth 5MHz						
Channel	Frequency (MHz)	Peak To Average Ratio (dB)				
		$\pi/2$ BPSK	QPSK	16QAM	64QAM	256QAM
165300	826.5	3.72	3.59	5.35	5.40	5.32
167300	836.5	3.70	3.62	5.39	5.50	5.47
169300	846.5	3.60	3.53	5.22	5.30	5.21
n5, Channel Bandwidth 10MHz						
Channel	Frequency (MHz)	Peak To Average Ratio (dB)				
		$\pi/2$ BPSK	QPSK	16QAM	64QAM	256QAM
165800	829.0	3.54	3.50	5.15	5.33	5.22
167300	836.5	3.55	3.76	5.37	5.60	5.50
168800	844.0	3.48	3.45	4.97	5.17	5.10
n5, Channel Bandwidth 15MHz						
Channel	Frequency (MHz)	Peak To Average Ratio (dB)				
		$\pi/2$ BPSK	QPSK	16QAM	64QAM	256QAM
166300	831.5	3.51	3.61	4.93	5.06	5.15
167300	836.5	3.41	3.46	5.24	5.32	4.98
168300	841.5	3.32	3.30	3.96	4.07	4.05
n5, Channel Bandwidth 20MHz						
Channel	Frequency (MHz)	Peak To Average Ratio (dB)				
		$\pi/2$ BPSK	QPSK	16QAM	64QAM	256QAM
166800	834.0	3.60	3.64	5.01	5.20	4.73
167300	836.5	3.38	3.36	5.13	5.22	5.02
167800	839.0	3.31	3.30	4.03	4.04	4.00

### Spectrum Plot of Worst Value

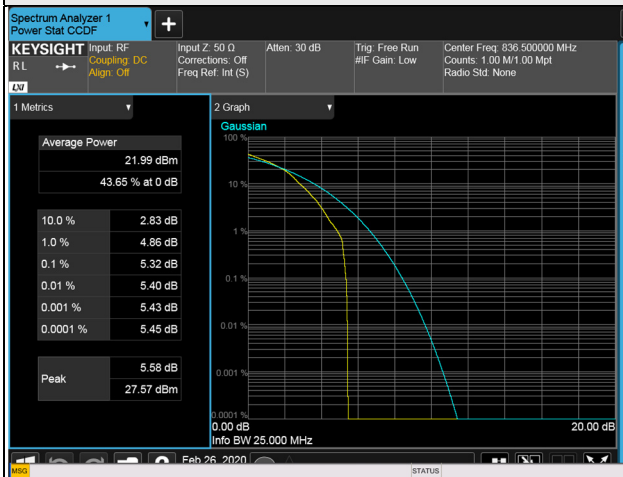
#### 5MHz / 64QAM



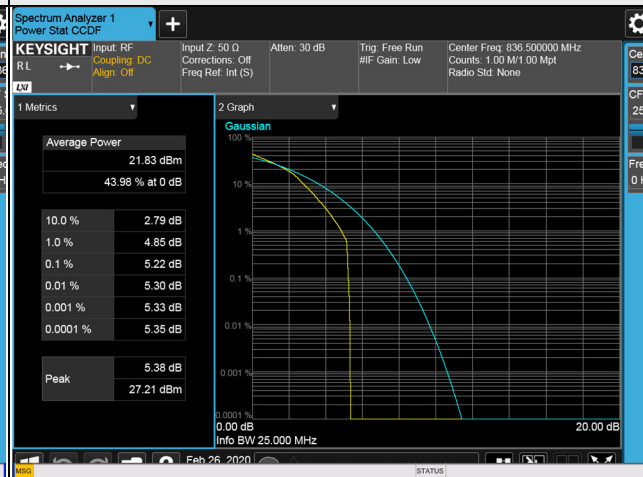
#### 10MHz / 64QAM



#### 15MHz / 64QAM



#### 20MHz / 64QAM

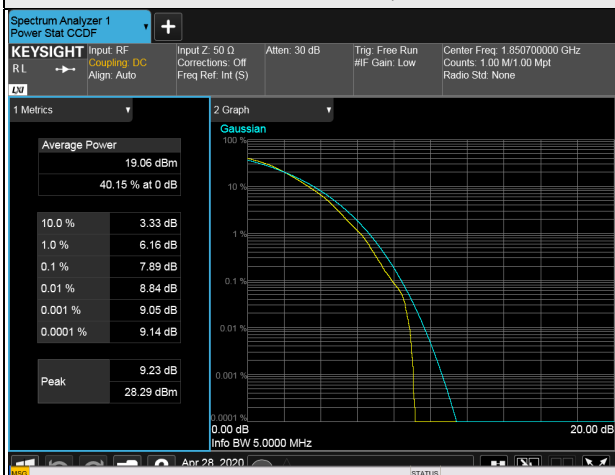


LTE Band 2, Channel Bandwidth 1.4MHz		
Channel	Frequency (MHz)	Peak To Average Ratio (dB)
		256QAM
18607	1850.7	7.89
18900	1880.0	7.52
19193	1909.3	7.26
LTE Band 2, Channel Bandwidth 3MHz		
Channel	Frequency (MHz)	Peak To Average Ratio (dB)
		256QAM
18615	1851.5	8.01
18900	1880.0	7.17
19185	1908.5	7.30
LTE Band 2, Channel Bandwidth 5MHz		
Channel	Frequency (MHz)	Peak To Average Ratio (dB)
		256QAM
18625	1852.5	8.14
18900	1880.0	8.17
19175	1907.5	7.49
LTE Band 2, Channel Bandwidth 10MHz		
Channel	Frequency (MHz)	Peak To Average Ratio (dB)
		256QAM
18650	1855.0	8.37
18900	1880.0	8.35
19150	1905.0	7.27
LTE Band 2, Channel Bandwidth 15MHz		
Channel	Frequency (MHz)	Peak To Average Ratio (dB)
		256QAM
18675	1857.5	8.02
18900	1880.0	7.77
19125	1902.5	7.35

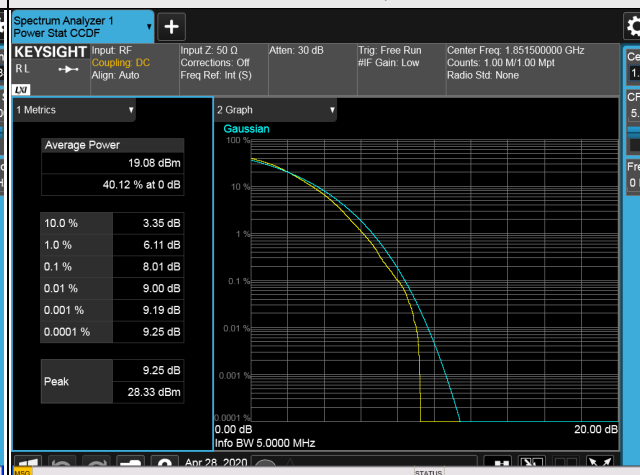
LTE Band 2, Channel Bandwidth 20MHz		
Channel	Frequency (MHz)	Peak To Average Ratio (dB)
		256QAM
18700	1860.0	8.17
18900	1880.0	7.95
19100	1900.0	7.35

### Spectrum Plot of Worst Value

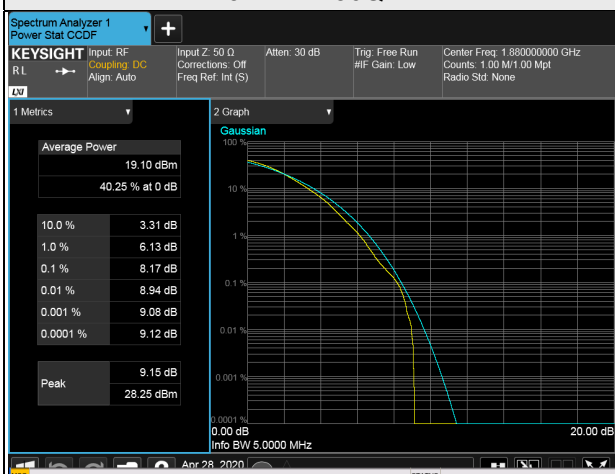
1.4MHz / 256QAM



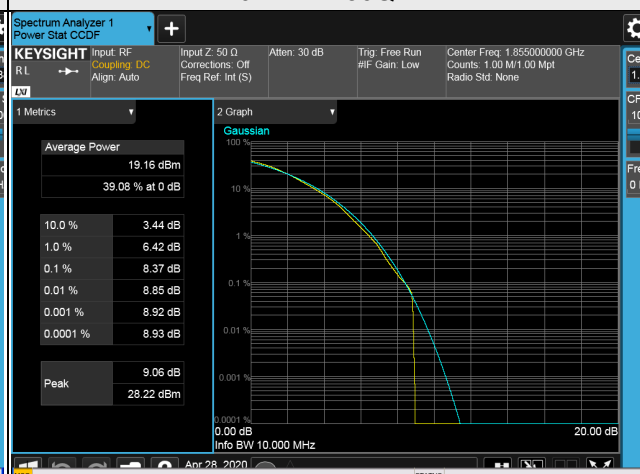
3MHz / 256QAM



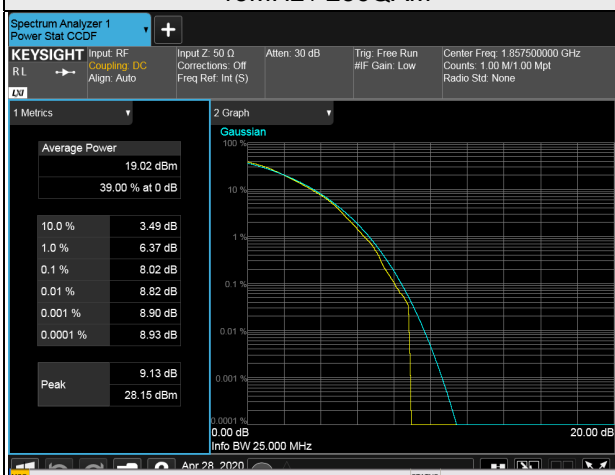
5MHz / 256QAM



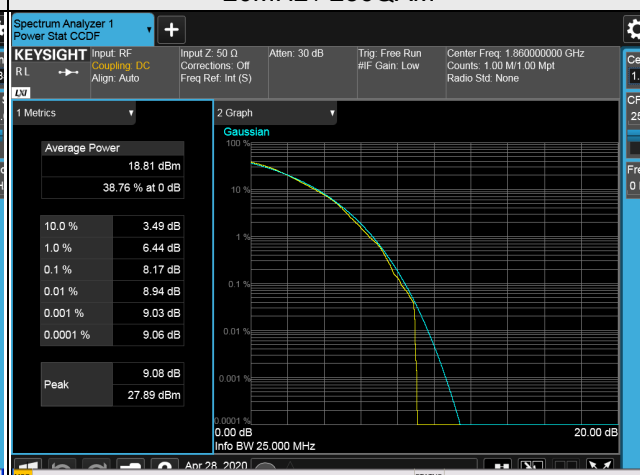
10MHz / 256QAM



15MHz / 256QAM



20MHz / 256QAM

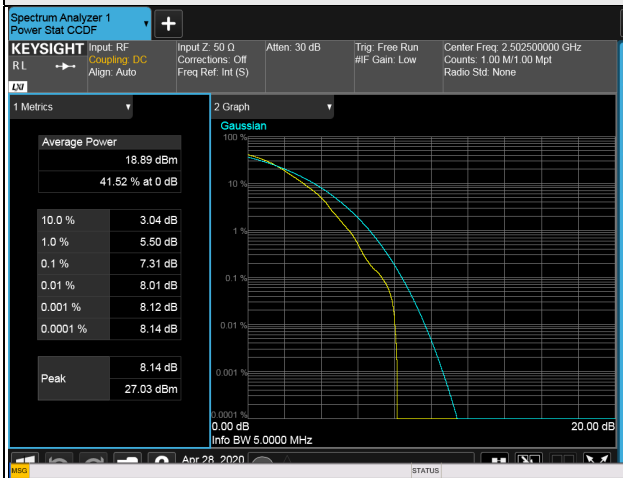


LTE Band 7

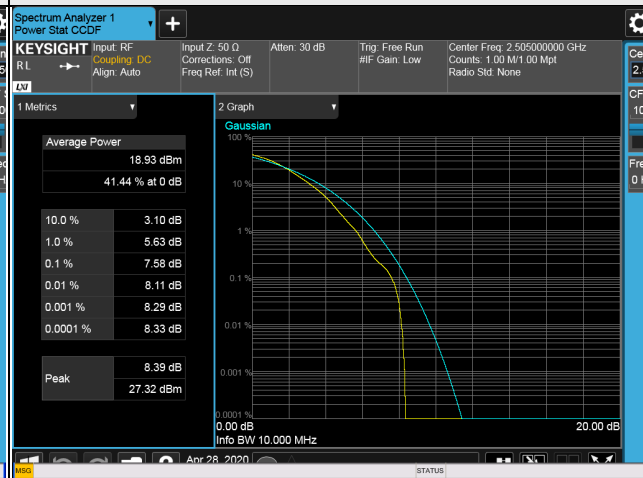
LTE Band 7, Channel Bandwidth 5MHz		
Channel	Frequency (MHz)	Peak To Average Ratio (dB)
		256QAM
20775	2502.5	7.31
21100	2535.0	7.09
21425	2567.5	7.29
LTE Band 7, Channel Bandwidth 10MHz		
Channel	Frequency (MHz)	Peak To Average Ratio (dB)
		256QAM
20800	2505.0	7.58
21100	2535.0	7.29
21400	2565.0	7.47
LTE Band 7, Channel Bandwidth 15MHz		
Channel	Frequency (MHz)	Peak To Average Ratio (dB)
		256QAM
20825	2507.5	7.36
21100	2535.0	7.31
21375	2562.5	6.95
LTE Band 7, Channel Bandwidth 20MHz		
Channel	Frequency (MHz)	Peak To Average Ratio (dB)
		256QAM
20850	2510.0	7.46
21100	2535.0	7.19
21350	2560.0	7.53

### Spectrum Plot of Worst Value

#### 5MHz / 256QAM



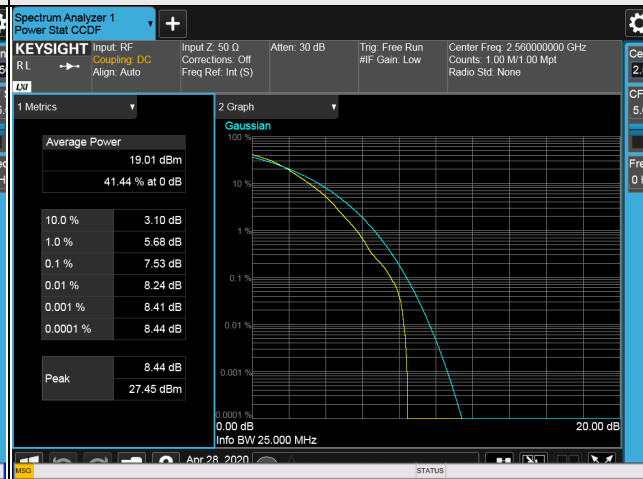
#### 10MHz / 256QAM



#### 15MHz / 256QAM



#### 20MHz / 256QAM



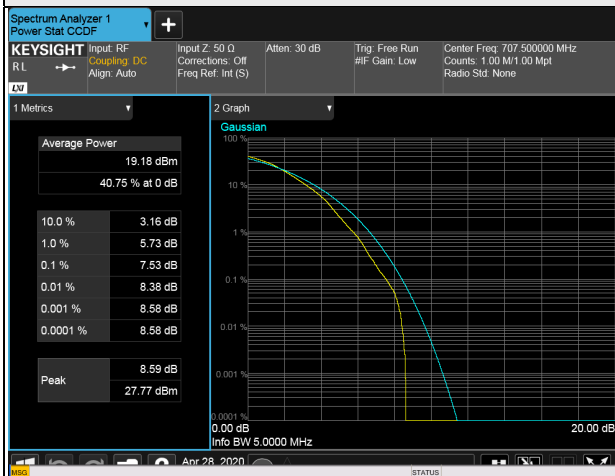


LTE Band 12

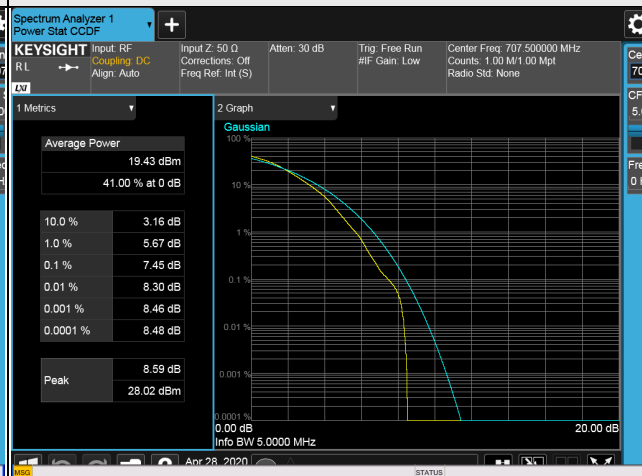
LTE Band 12, Channel Bandwidth 1.4MHz		
Channel	Frequency (MHz)	Peak To Average Ratio (dB)
		256QAM
23017	699.7	7.09
23095	707.5	7.53
23173	715.3	6.74
LTE Band 12, Channel Bandwidth 3MHz		
Channel	Frequency (MHz)	Peak To Average Ratio (dB)
		256QAM
23025	700.5	7.32
23095	707.5	7.45
23165	714.5	6.86
LTE Band 12, Channel Bandwidth 5MHz		
Channel	Frequency (MHz)	Peak To Average Ratio (dB)
		256QAM
23035	701.5	7.05
23095	707.5	7.21
23155	713.5	7.02
LTE Band 12, Channel Bandwidth 10MHz		
Channel	Frequency (MHz)	Peak To Average Ratio (dB)
		256QAM
23060	704.0	6.75
23095	707.5	6.94
23130	711.0	7.19

### Spectrum Plot of Worst Value

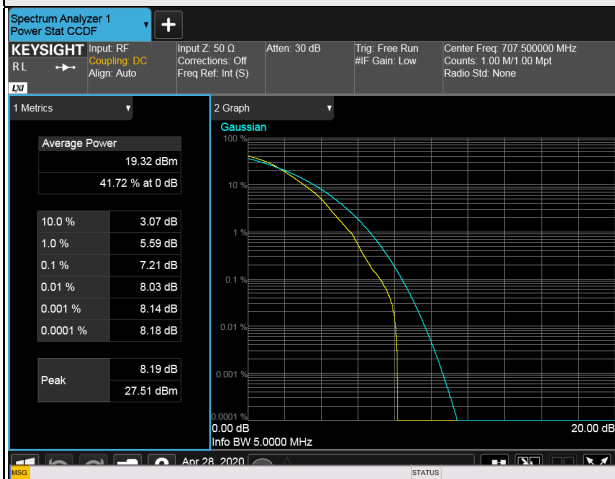
#### 1.4MHz / 256QAM



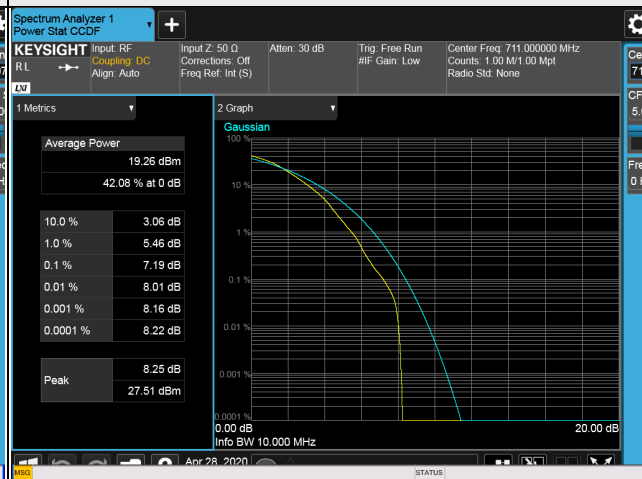
#### 3MHz / 256QAM



#### 5MHz / 256QAM



#### 10MHz / 256QAM

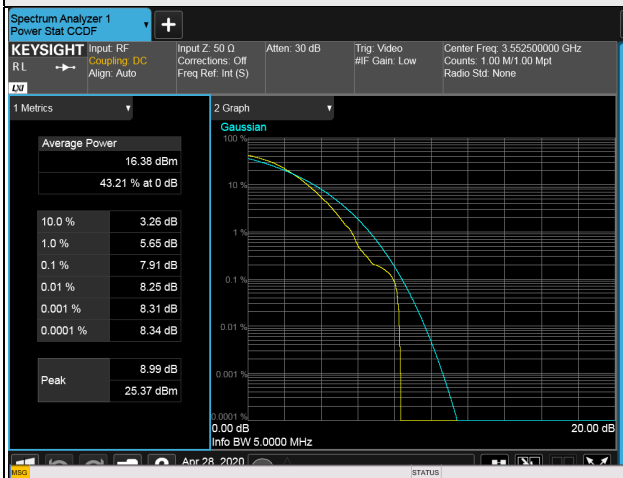


LTE Band 48

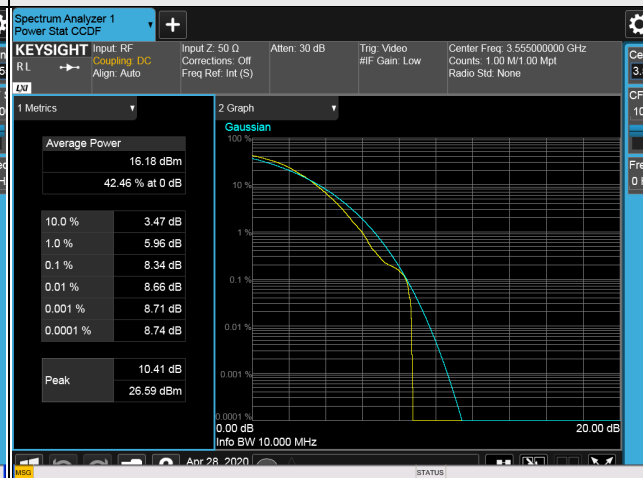
LTE Band 48, Channel Bandwidth 5MHz		
Channel	Frequency (MHz)	Peak To Average Ratio (dB)
		256QAM
55265	3552.5	7.91
55990	3625.0	7.87
56715	3697.5	7.69
LTE Band 48, Channel Bandwidth 10MHz		
Channel	Frequency (MHz)	Peak To Average Ratio (dB)
		256QAM
55290	3555.0	8.34
55990	3625.0	7.95
56690	3695.0	7.64
LTE Band 48, Channel Bandwidth 15MHz		
Channel	Frequency (MHz)	Peak To Average Ratio (dB)
		256QAM
55315	3557.5	7.92
55990	3625.0	6.93
56665	3692.5	7.47
LTE Band 48, Channel Bandwidth 20MHz		
Channel	Frequency (MHz)	Peak To Average Ratio (dB)
		256QAM
55340	3560.0	7.94
55990	3625.0	8.48
56640	3690.0	7.63

### Spectrum Plot of Worst Value

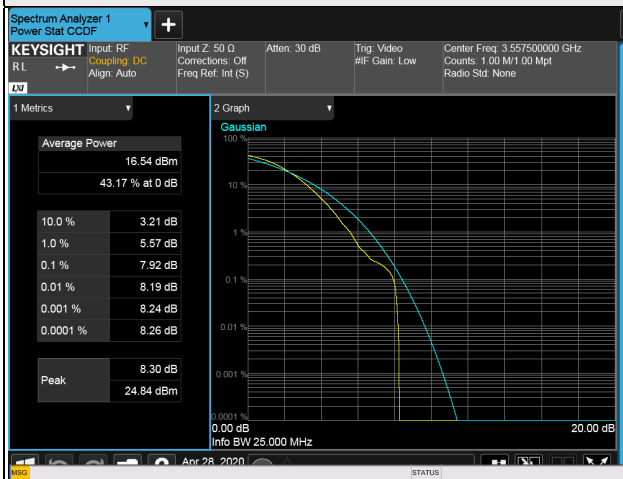
#### 5MHz / 256QAM



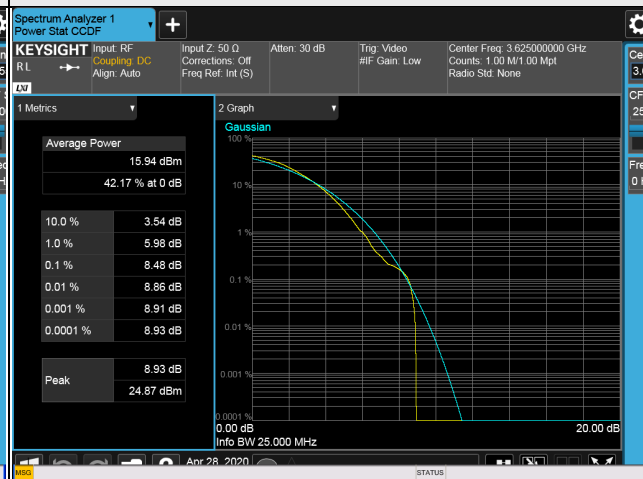
#### 10MHz / 256QAM



#### 15MHz / 256QAM



#### 20MHz / 256QAM



LTE Band 66

LTE Band 66, Channel Bandwidth 1.4MHz		
Channel	Frequency (MHz)	Peak To Average Ratio (dB)
		256QAM
131979	1710.7	7.50
132322	1745.0	7.55
132665	1779.3	7.23
LTE Band 66, Channel Bandwidth 3MHz		
Channel	Frequency (MHz)	Peak To Average Ratio (dB)
		256QAM
131987	1711.5	7.29
132322	1745.0	7.57
132657	1778.5	7.41
LTE Band 66, Channel Bandwidth 5MHz		
Channel	Frequency (MHz)	Peak To Average Ratio (dB)
		256QAM
131997	1712.5	7.61
132322	1745.0	7.84
132647	1777.5	7.58
LTE Band 66, Channel Bandwidth 10MHz		
Channel	Frequency (MHz)	Peak To Average Ratio (dB)
		256QAM
132022	1715.0	7.72
132322	1745.0	7.72
132622	1775.0	7.77
LTE Band 66, Channel Bandwidth 15MHz		
Channel	Frequency (MHz)	Peak To Average Ratio (dB)
		256QAM
132047	1717.5	7.67
132322	1745.0	7.92
132597	1772.5	7.38

LTE Band 66, Channel Bandwidth 20MHz

Channel	Frequency (MHz)	Peak To Average Ratio (dB)
		256QAM
132072	1720.0	8.04
132322	1745.0	7.73
132572	1770.0	6.77