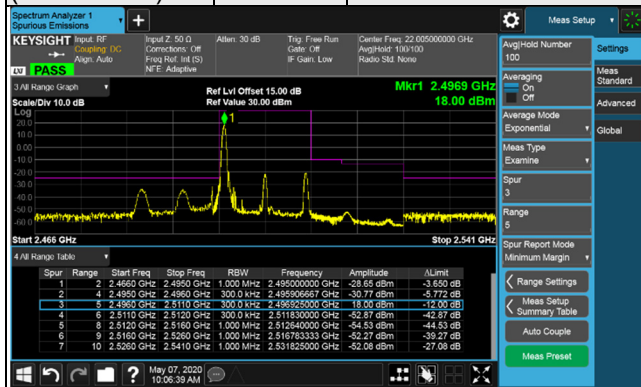


LTE Band 41

Channel Bandwidth: 15MHz

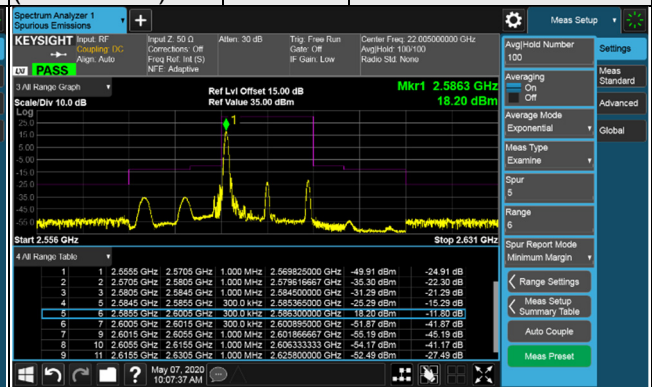
<b>Channel 39725</b> (2503.5MHz)	<b>256QAM</b>	<b>1 RB / 0 RB Offset</b>	<b>Channel 40620</b> (2593.0MHz)	<b>256QAM</b>	<b>1 RB / 0 RB Offset</b>
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**Channel 39725 (2503.5MHz) 256QAM 1 RB / 0 RB Offset**

Scale/Div 10.0 dB, Ref Lvl Offset 15.00 dB, Ref Value 30.00 dBm, Mkr1 2.4969 GHz, 18.00 dBm

Spur	Range	Start Freq	Stop Freq	RBW	Frequency	Amplitude	ALimit
1	2	2.4860 GHz	2.4890 GHz	1.000 MHz	2.4900000000 GHz	-29.65 dBm	-3.650 dB
2	4	2.4850 GHz	2.4860 GHz	300.0 kHz	2.485066667 GHz	-30.77 dBm	-5.772 dB
3	5	2.4850 GHz	2.5110 GHz	300.0 kHz	2.485993333 GHz	-18.00 dBm	-12.00 dB
4	6	2.5110 GHz	2.5120 GHz	300.0 kHz	2.511830000 GHz	-52.97 dBm	-47.97 dB
5	8	2.5120 GHz	2.5160 GHz	1.000 MHz	2.512540000 GHz	-44.53 dBm	-44.53 dB
6	9	2.5160 GHz	2.5260 GHz	1.000 MHz	2.516783333 GHz	-52.27 dBm	-39.29 dB
7	10	2.5260 GHz	2.5410 GHz	1.000 MHz	2.531825000 GHz	-32.06 dBm	-27.06 dB

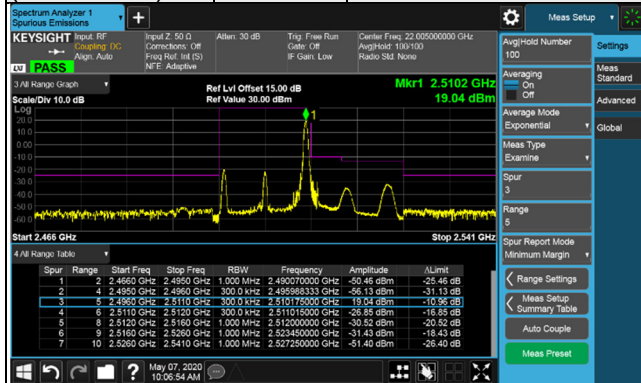


**Channel 40620 (2593.0MHz) 256QAM 1 RB / 0 RB Offset**

Scale/Div 10.0 dB, Ref Lvl Offset 15.00 dB, Ref Value 35.00 dBm, Mkr1 2.5863 GHz, 18.20 dBm

Spur	Range	Start Freq	Stop Freq	RBW	Frequency	Amplitude	ALimit
1	1	2.5555 GHz	2.5705 GHz	1.000 MHz	2.568250000 GHz	-49.91 dBm	-24.91 dB
2	2	2.5705 GHz	2.5805 GHz	1.000 MHz	2.579816667 GHz	-35.30 dBm	-22.30 dB
3	3	2.5805 GHz	2.5845 GHz	1.000 MHz	2.584500000 GHz	-31.29 dBm	-21.29 dB
4	5	2.5845 GHz	2.5855 GHz	300.0 kHz	2.585350000 GHz	-35.29 dBm	-15.29 dB
5	6	2.5855 GHz	2.5905 GHz	300.0 kHz	2.588300000 GHz	18.20 dBm	-11.80 dB
6	7	2.6005 GHz	2.6015 GHz	300.0 kHz	2.600890000 GHz	-51.87 dBm	-41.87 dB
7	9	2.6015 GHz	2.6055 GHz	1.000 MHz	2.601666667 GHz	-55.19 dBm	-45.19 dB
8	10	2.6055 GHz	2.6155 GHz	1.000 MHz	2.606333333 GHz	-54.17 dBm	-41.17 dB
9	11	2.6155 GHz	2.6305 GHz	1.000 MHz	2.625800000 GHz	-52.49 dBm	-27.49 dB

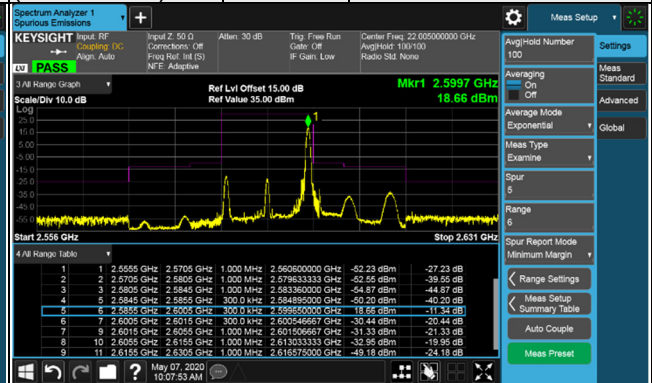
<b>Channel 39725</b> (2503.5MHz)	<b>256QAM</b>	<b>1 RB / 74 RB Offset</b>	<b>Channel 40620</b> (2593.0MHz)	<b>256QAM</b>	<b>1 RB / 74 RB Offset</b>
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**Channel 39725 (2503.5MHz) 256QAM 1 RB / 74 RB Offset**

Scale/Div 10.0 dB, Ref Lvl Offset 15.00 dB, Ref Value 30.00 dBm, Mkr1 2.5102 GHz, 19.04 dBm

Spur	Range	Start Freq	Stop Freq	RBW	Frequency	Amplitude	ALimit
1	2	2.4860 GHz	2.4890 GHz	1.000 MHz	2.490070000 GHz	-50.46 dBm	-25.46 dB
2	4	2.4850 GHz	2.4860 GHz	300.0 kHz	2.485983333 GHz	-56.13 dBm	-31.13 dB
3	5	2.4850 GHz	2.5110 GHz	300.0 kHz	2.510160000 GHz	19.04 dBm	-10.36 dB
4	6	2.5110 GHz	2.5120 GHz	300.0 kHz	2.511050000 GHz	-26.85 dBm	-16.85 dB
5	8	2.5120 GHz	2.5160 GHz	1.000 MHz	2.512000000 GHz	-30.52 dBm	-20.52 dB
6	9	2.5160 GHz	2.5260 GHz	1.000 MHz	2.524500000 GHz	-31.43 dBm	-18.43 dB
7	10	2.5260 GHz	2.5410 GHz	1.000 MHz	2.527250000 GHz	-51.40 dBm	-26.40 dB

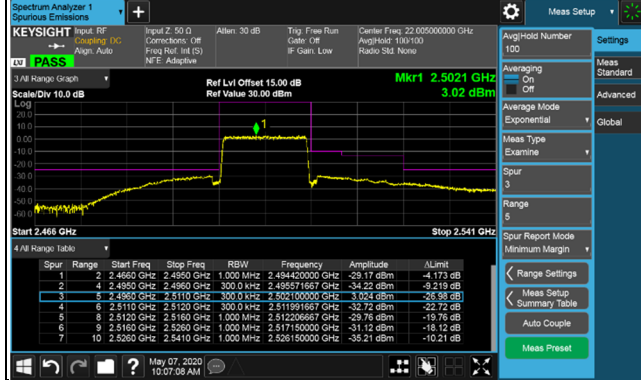


**Channel 40620 (2593.0MHz) 256QAM 1 RB / 74 RB Offset**

Scale/Div 10.0 dB, Ref Lvl Offset 15.00 dB, Ref Value 35.00 dBm, Mkr1 2.5997 GHz, 18.66 dBm

Spur	Range	Start Freq	Stop Freq	RBW	Frequency	Amplitude	ALimit
1	1	2.5555 GHz	2.5705 GHz	1.000 MHz	2.560500000 GHz	-52.23 dBm	-27.23 dB
2	2	2.5705 GHz	2.5805 GHz	1.000 MHz	2.579833333 GHz	-52.55 dBm	-39.55 dB
3	3	2.5805 GHz	2.5845 GHz	1.000 MHz	2.583666667 GHz	-54.87 dBm	-44.87 dB
4	5	2.5845 GHz	2.5855 GHz	300.0 kHz	2.584880000 GHz	-50.20 dBm	-40.20 dB
5	6	2.5855 GHz	2.6005 GHz	300.0 kHz	2.599500000 GHz	18.66 dBm	-11.34 dB
6	7	2.6005 GHz	2.6015 GHz	300.0 kHz	2.600466667 GHz	-50.44 dBm	-40.44 dB
7	9	2.6015 GHz	2.6055 GHz	1.000 MHz	2.601066667 GHz	-31.33 dBm	-21.33 dB
8	10	2.6055 GHz	2.6155 GHz	1.000 MHz	2.613033333 GHz	-32.55 dBm	-19.55 dB
9	11	2.6155 GHz	2.6305 GHz	1.000 MHz	2.616750000 GHz	-49.16 dBm	-24.16 dB

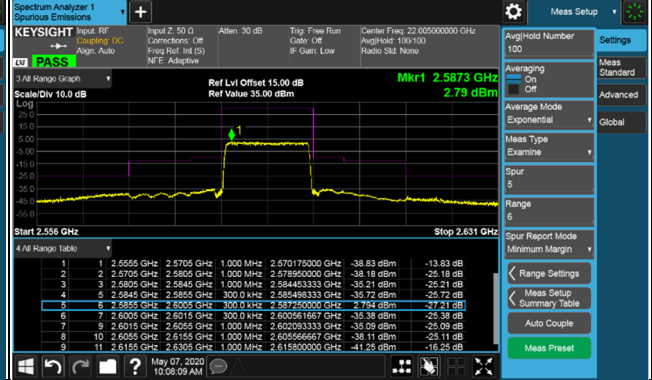
<b>Channel 39725</b> (2503.5MHz)	<b>256QAM</b>	<b>75 RB / 0 RB Offset</b>	<b>Channel 40620</b> (2593.0MHz)	<b>256QAM</b>	<b>75 RB / 0 RB Offset</b>
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**Channel 39725 (2503.5MHz) 256QAM 75 RB / 0 RB Offset**

Scale/Div 10.0 dB, Ref Lvl Offset 15.00 dB, Ref Value 30.00 dBm, Mkr1 2.5021 GHz, 3.02 dBm

Spur	Range	Start Freq	Stop Freq	RBW	Frequency	Amplitude	ALimit
1	2	2.4860 GHz	2.4890 GHz	1.000 MHz	2.484420000 GHz	-29.17 dBm	-4.173 dB
2	4	2.4850 GHz	2.4860 GHz	300.0 kHz	2.484971667 GHz	-34.22 dBm	-5.213 dB
3	5	2.4850 GHz	2.5110 GHz	300.0 kHz	2.509100000 GHz	3.02 dBm	-25.38 dB
4	6	2.5110 GHz	2.5120 GHz	300.0 kHz	2.511991667 GHz	-32.72 dBm	-22.72 dB
5	8	2.5120 GHz	2.5160 GHz	1.000 MHz	2.512266667 GHz	-29.78 dBm	-19.78 dB
6	9	2.5160 GHz	2.5260 GHz	1.000 MHz	2.517150000 GHz	-31.12 dBm	-18.12 dB
7	10	2.5260 GHz	2.5410 GHz	1.000 MHz	2.526150000 GHz	-35.21 dBm	-20.21 dB



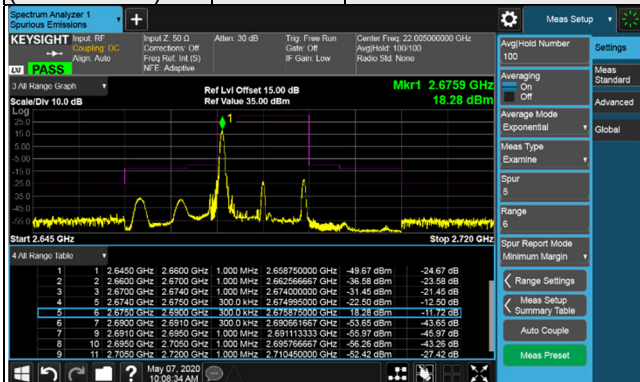
**Channel 40620 (2593.0MHz) 256QAM 75 RB / 0 RB Offset**

Scale/Div 10.0 dB, Ref Lvl Offset 15.00 dB, Ref Value 35.00 dBm, Mkr1 2.5873 GHz, 2.79 dBm

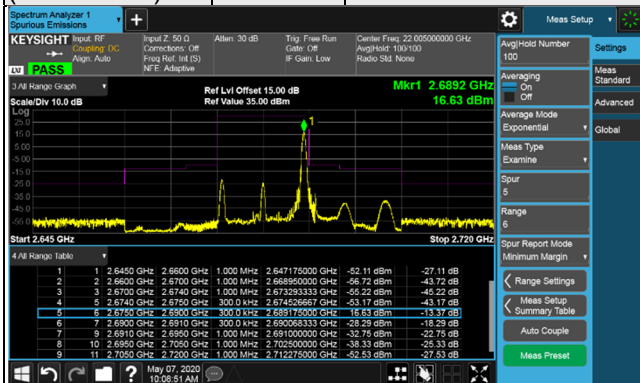
Spur	Range	Start Freq	Stop Freq	RBW	Frequency	Amplitude	ALimit
1	1	2.5555 GHz	2.5705 GHz	1.000 MHz	2.570175000 GHz	-38.83 dBm	-13.83 dB
2	2	2.5705 GHz	2.5805 GHz	1.000 MHz	2.578900000 GHz	-38.18 dBm	-26.18 dB
3	3	2.5805 GHz	2.5845 GHz	1.000 MHz	2.584433333 GHz	-35.21 dBm	-25.21 dB
4	5	2.5845 GHz	2.5855 GHz	300.0 kHz	2.584483333 GHz	-35.72 dBm	-25.72 dB
5	6	2.5855 GHz	2.6005 GHz	300.0 kHz	2.587420000 GHz	2.79 dBm	-21.21 dB
6	7	2.6005 GHz	2.6015 GHz	300.0 kHz	2.600216667 GHz	-35.38 dBm	-25.38 dB
7	9	2.6015 GHz	2.6055 GHz	1.000 MHz	2.602933333 GHz	-35.09 dBm	-25.09 dB
8	10	2.6055 GHz	2.6155 GHz	1.000 MHz	2.605666667 GHz	-35.11 dBm	-25.11 dB
9	11	2.6155 GHz	2.6305 GHz	1.000 MHz	2.615800000 GHz	-41.52 dBm	-16.52 dB

Channel Bandwidth: 15MHz

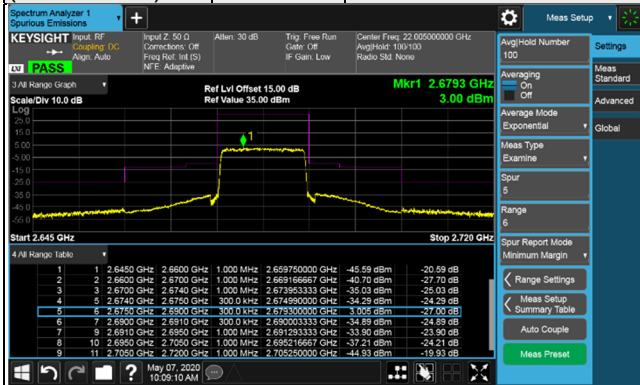
Channel 41515 (2682.5MHz) 256QAM 1 RB / 0 RB Offset



Channel 41515 (2682.5MHz) 256QAM 1 RB / 74 RB Offset



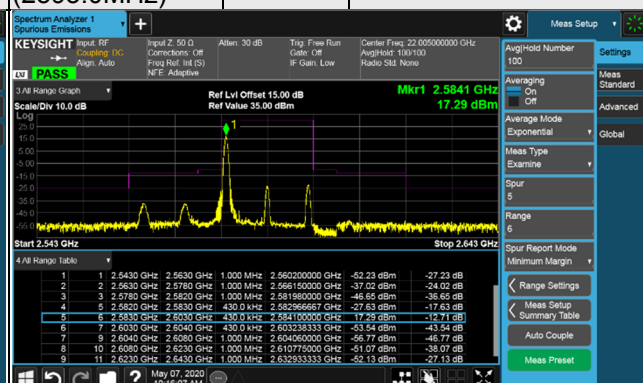
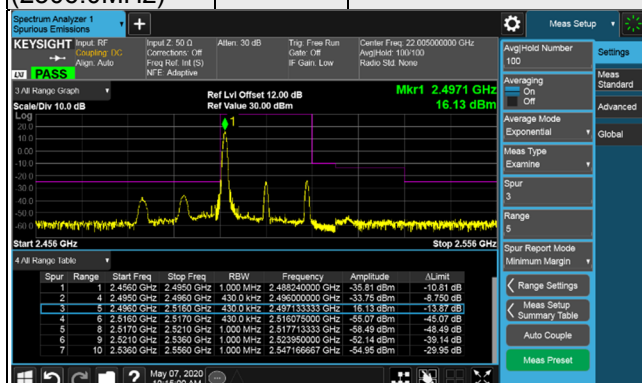
Channel 41515 (2682.5MHz) 256QAM 75 RB / 0 RB Offset



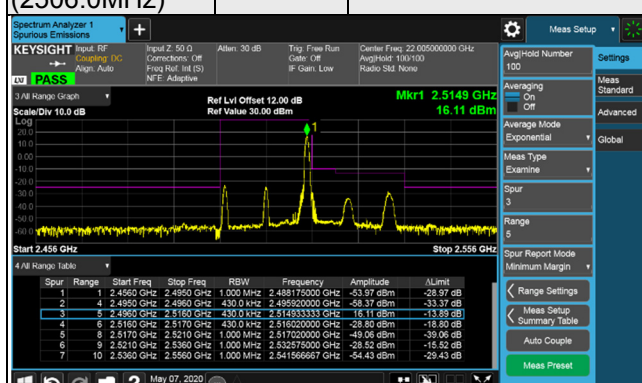
### LTE Band 41

Channel Bandwidth: 20MHz

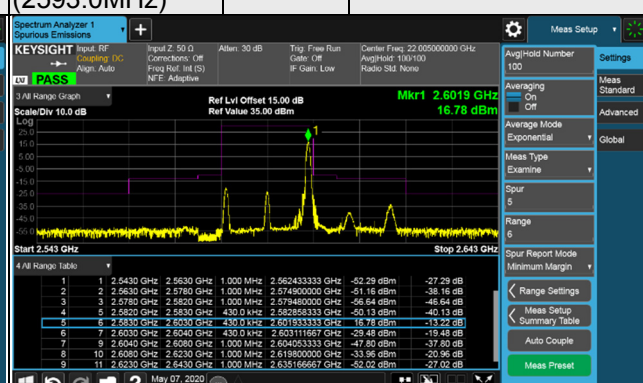
Channel 39750 (2506.0MHz)    256QAM    1 RB / 0 RB Offset    Channel 40620 (2593.0MHz)    256QAM    1 RB / 0 RB Offset



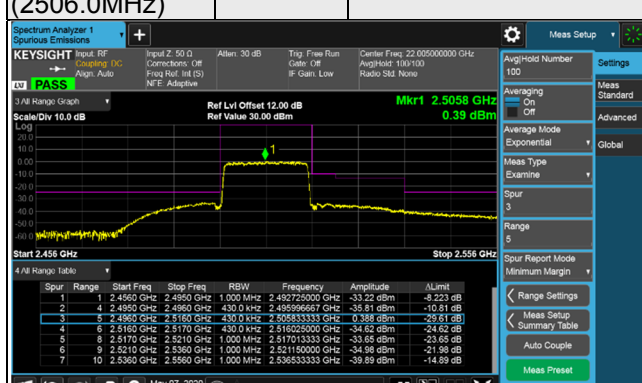
Channel 39750 (2506.0MHz)    256QAM    1 RB / 99 RB Offset



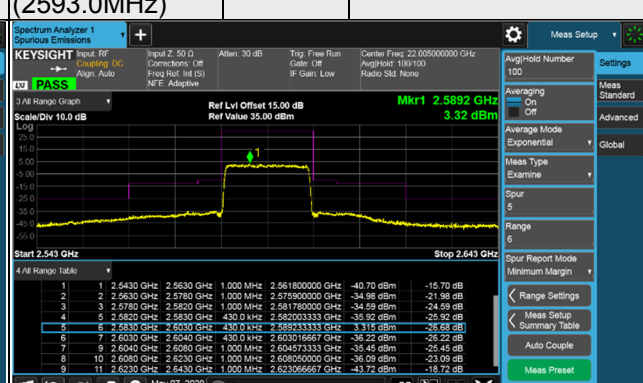
Channel 40620 (2593.0MHz)    256QAM    1 RB / 99 RB Offset



Channel 39750 (2506.0MHz)    256QAM    100 RB / 0 RB Offset

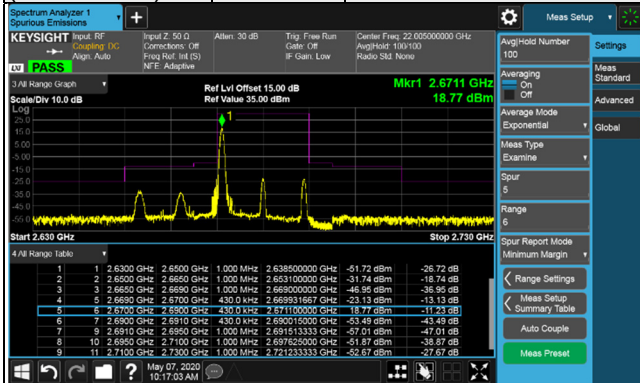


Channel 40620 (2593.0MHz)    256QAM    100 RB / 0 RB Offset

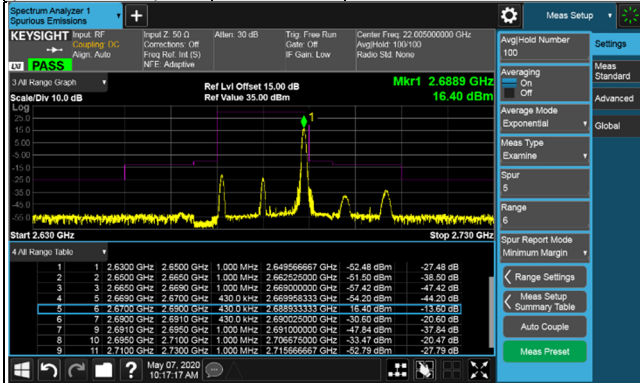


Channel Bandwidth: 20MHz

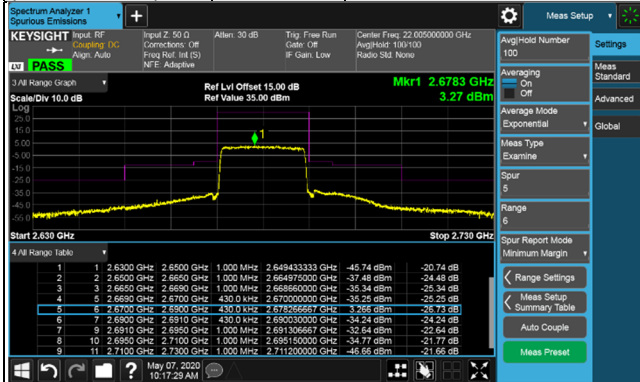
Channel 41490 (2680.0MHz) 256QAM 1 RB / 0 RB Offset



Channel 41490 (2680.0MHz) 256QAM 1 RB / 99 RB Offset



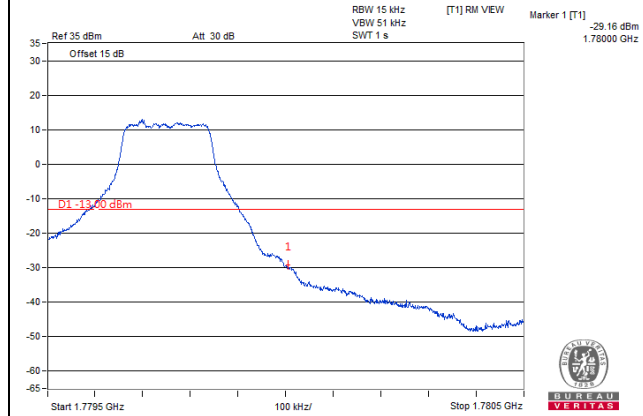
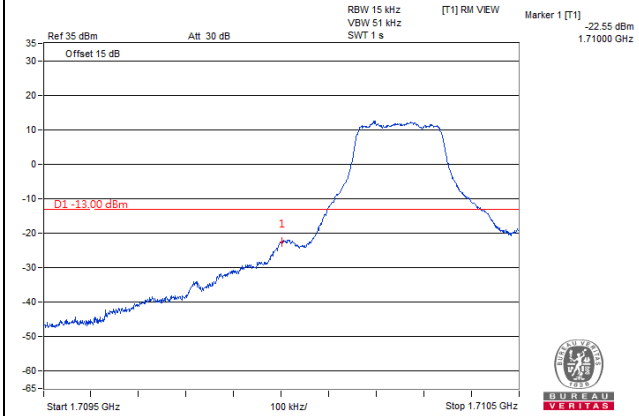
Channel 41490 (2680.0MHz) 256QAM 100 RB / 0 RB Offset



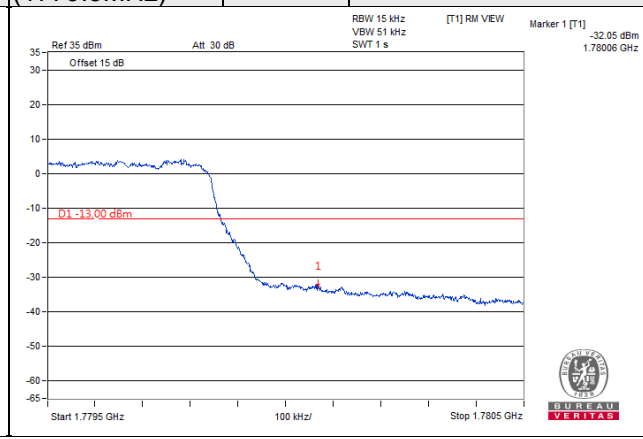
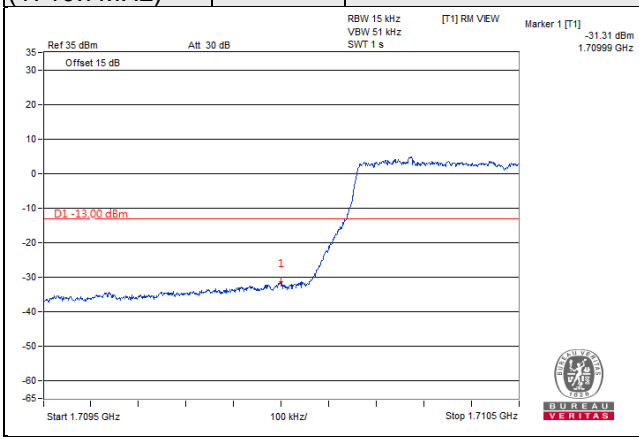
LTE Band 66

Channel Bandwidth: 1.4MHz

Channel 131979 (1710.7MHz)	256QAM	1 RB / 0 RB Offset	Channel 132665 (1779.3MHz)	256QAM	1 RB / 5 RB Offset
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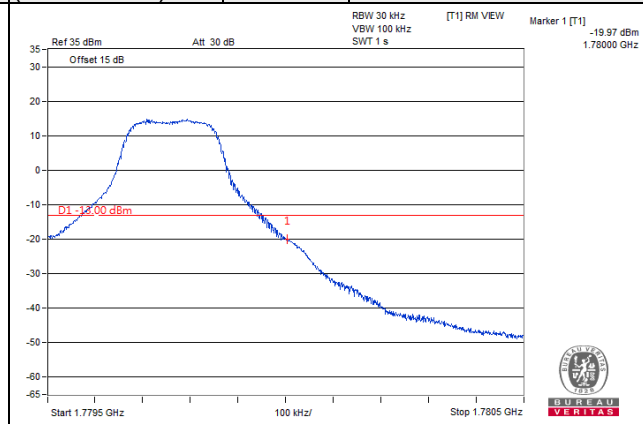
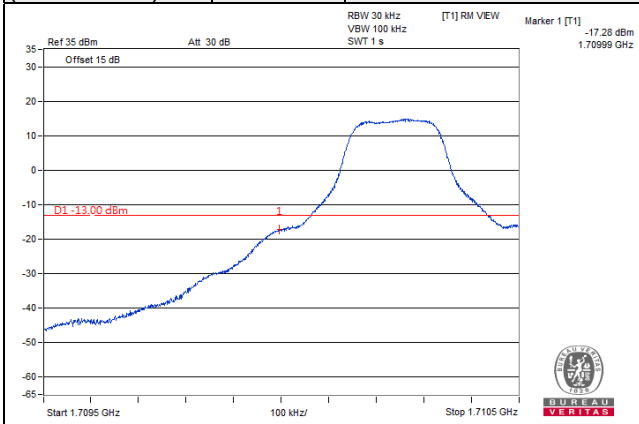


Channel 131979 (1710.7MHz)	256QAM	6 RB / 0 RB Offset	Channel 132665 (1779.3MHz)	256QAM	6 RB / 0 RB Offset
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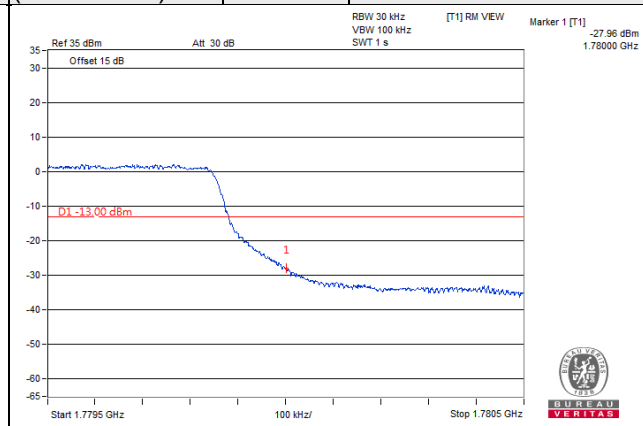
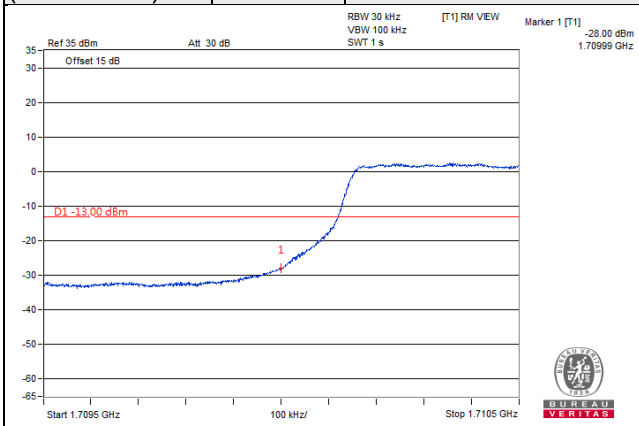


**Channel Bandwidth: 3MHz**

<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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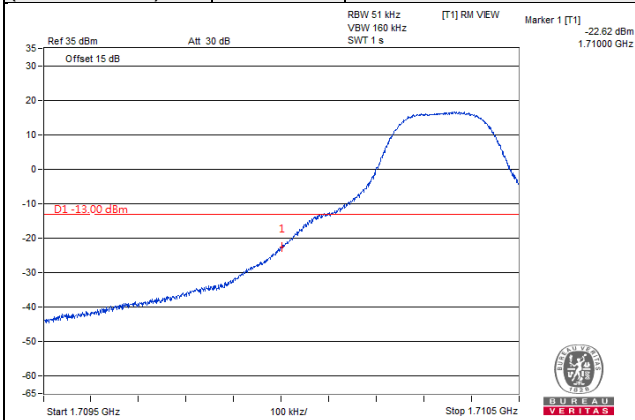
<b>Channel 131987 (1711.5MHz)</b>	<b>256QAM</b>	<b>15 RB / 0 RB Offset</b>	<b>Channel 132657 (1778.5MHz)</b>	<b>256QAM</b>	<b>15 RB / 0 RB Offset</b>
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Channel Bandwidth: 5MHz

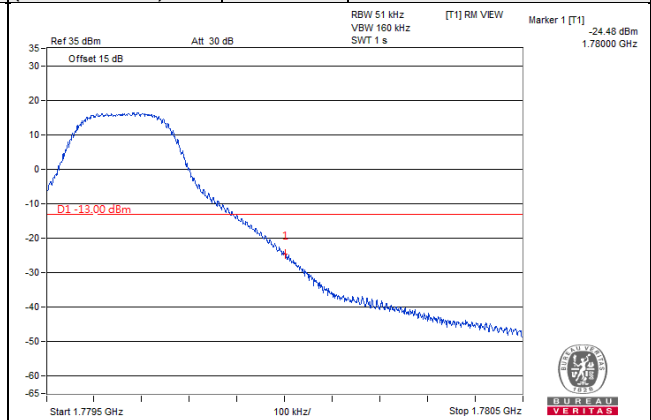
Channel 131997  
(1712.5MHz)

256QAM 1 RB / 0 RB Offset



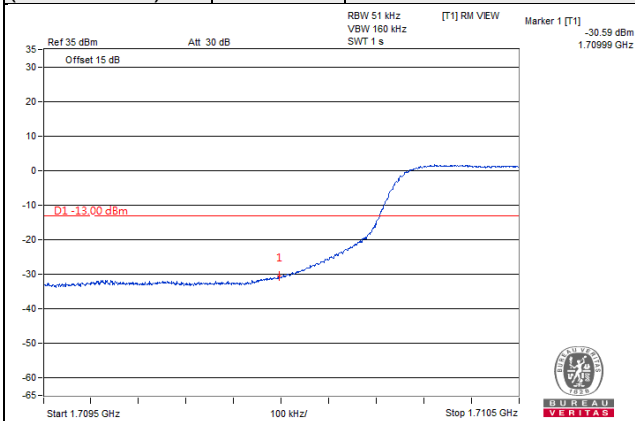
Channel 132647  
(1777.5MHz)

256QAM 1 RB / 24 RB Offset



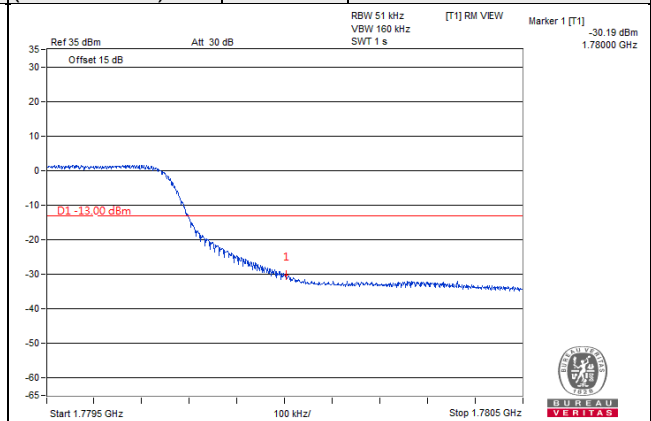
Channel 131997  
(1712.5MHz)

256QAM 25 RB / 0 RB Offset



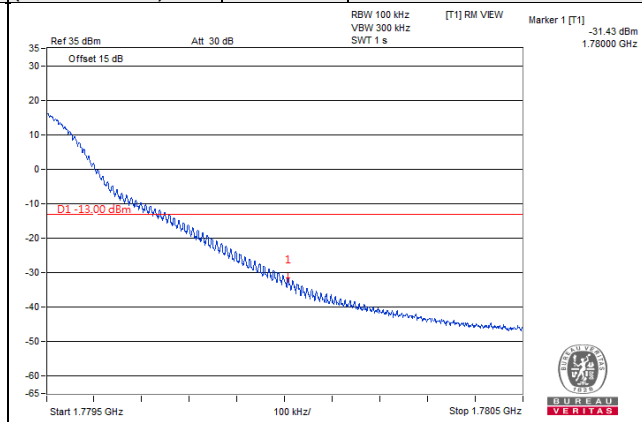
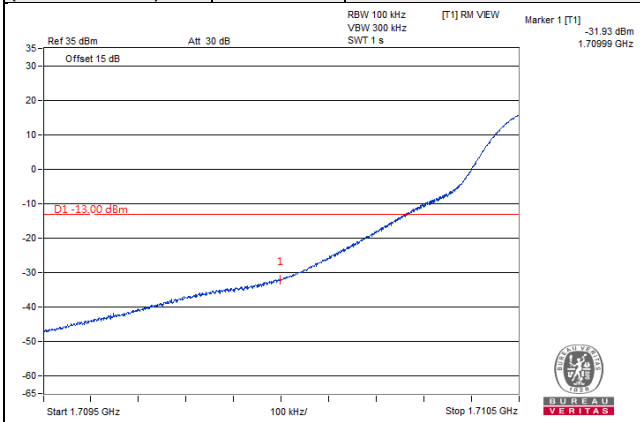
Channel 132647  
(1777.5MHz)

256QAM 25 RB / 0 RB Offset

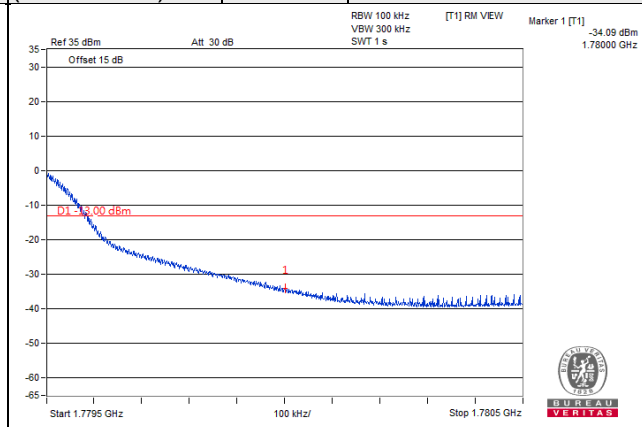
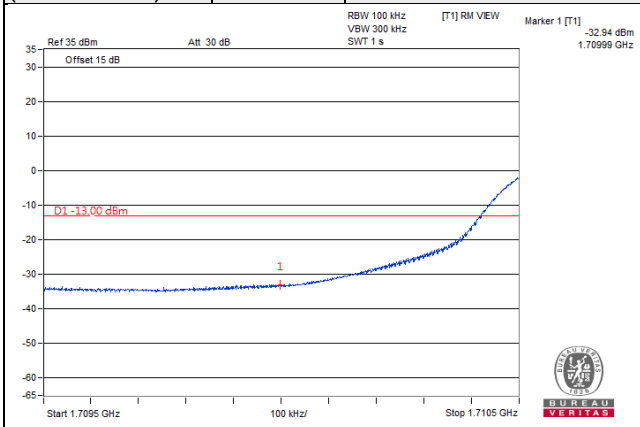


**Channel Bandwidth: 10MHz**

<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)

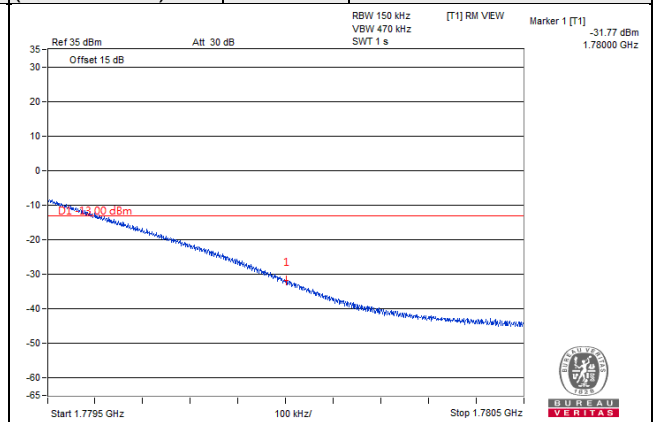
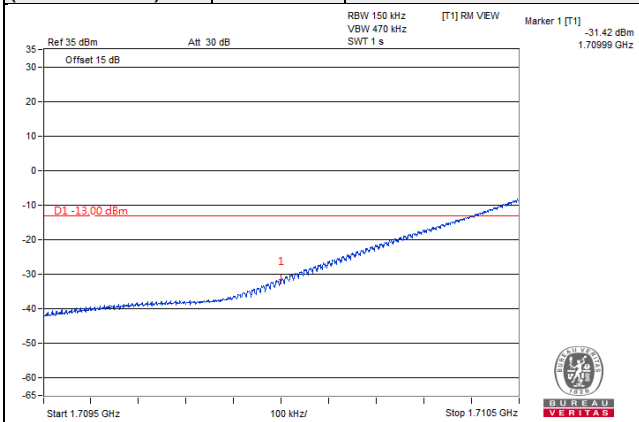
256QAM

1 RB / 0 RB Offset

Channel 132597  
(1772.5MHz)

256QAM

1 RB / 74 RB Offset



Channel 132047  
(1717.5MHz)

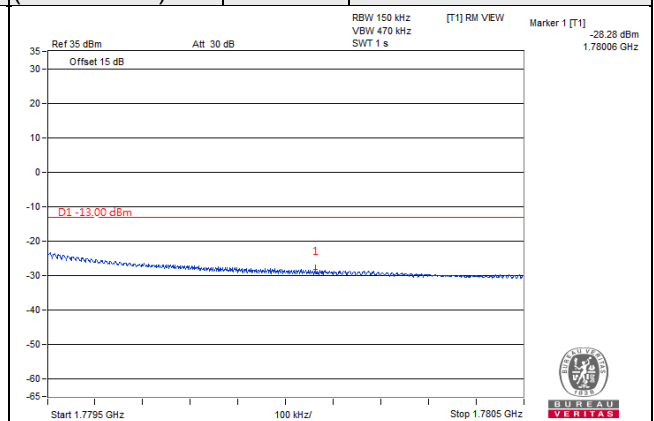
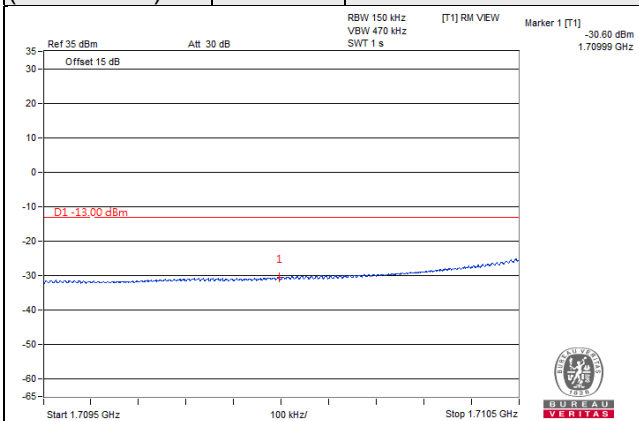
256QAM

75 RB / 0 RB Offset

Channel 132597  
(1772.5MHz)

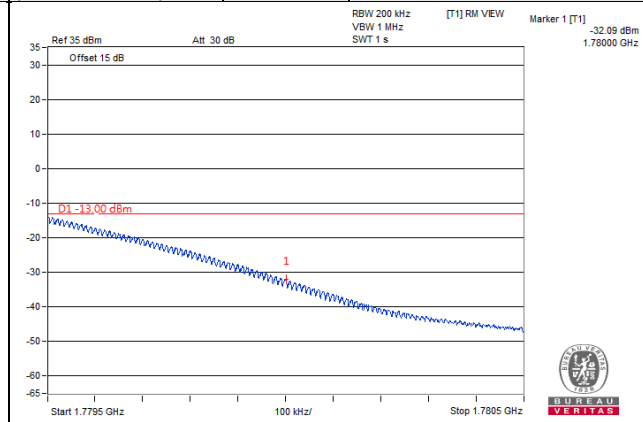
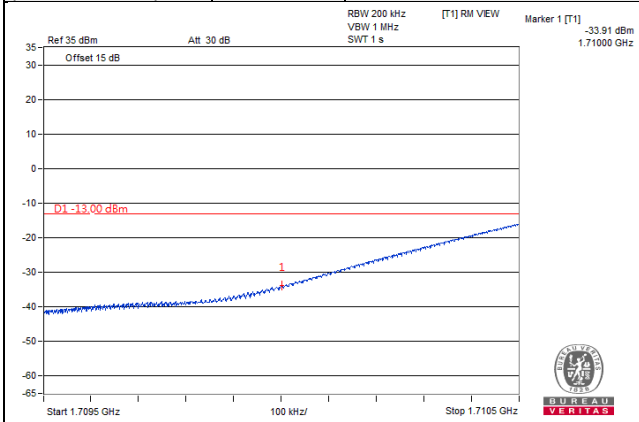
256QAM

75 RB / 0 RB Offset

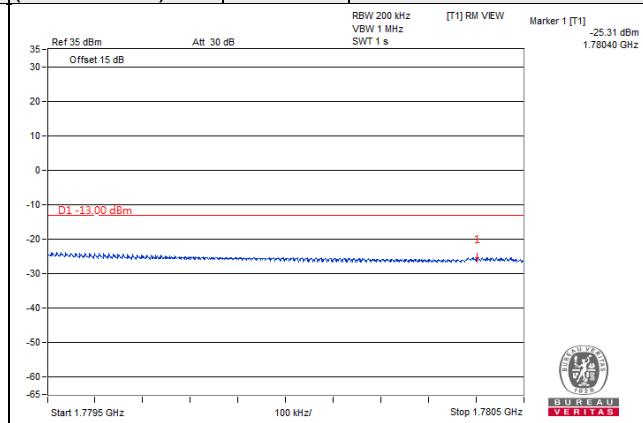
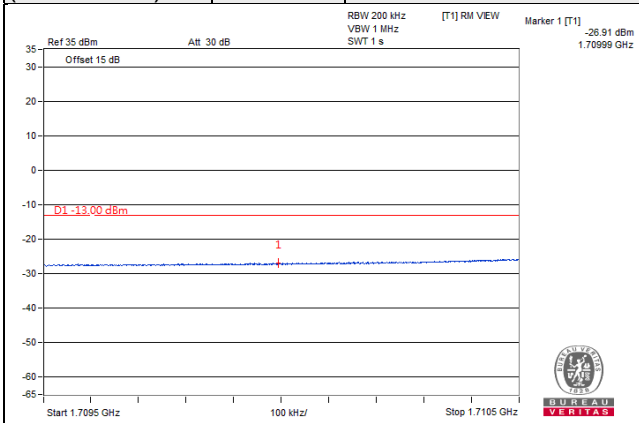


Channel Bandwidth: 20MHz

Channel 132072 (1720.0MHz)	256QAM	1 RB / 0 RB Offset	Channel 132572 (1770.0MHz)	256QAM	1 RB / 99 RB Offset
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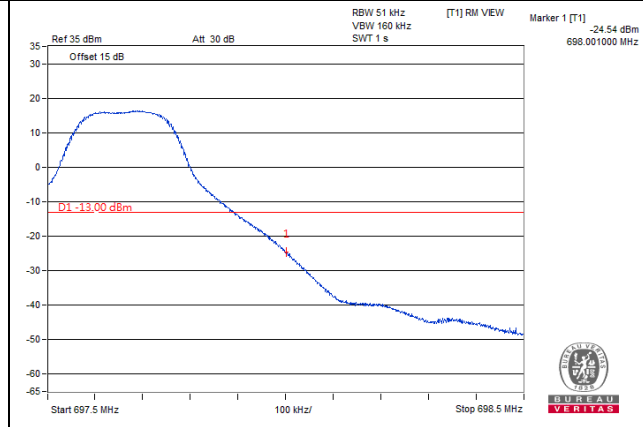
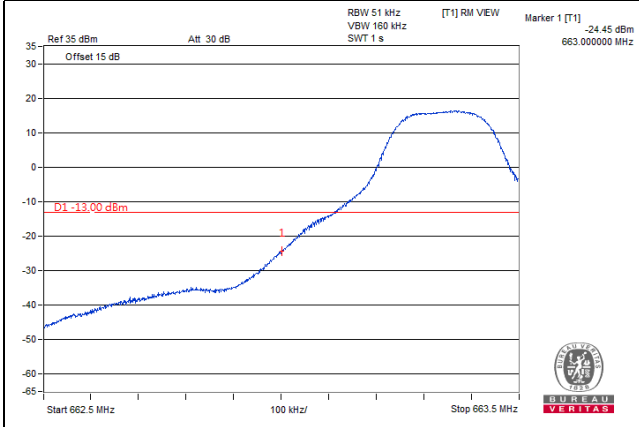
Channel 132072 (1720.0MHz)	256QAM	100 RB / 0 RB Offset	Channel 132572 (1770.0MHz)	256QAM	100 RB / 0 RB Offset
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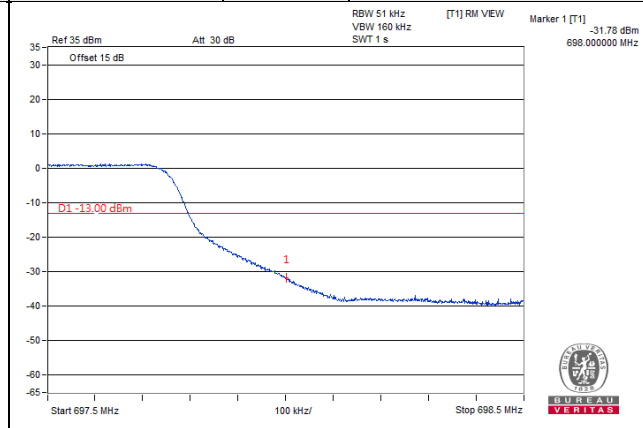
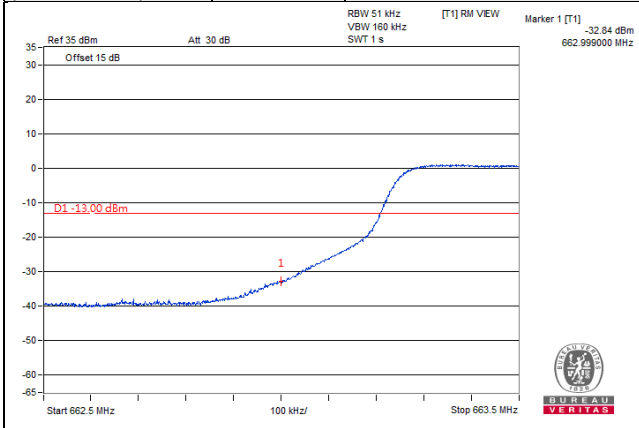
LTE Band 71

Channel Bandwidth: 5MHz

Channel 133147 (665.5MHz)	256QAM	1 RB / 0 RB Offset	Channel 133447 (695.5MHz)	256QAM	1 RB / 24 RB Offset
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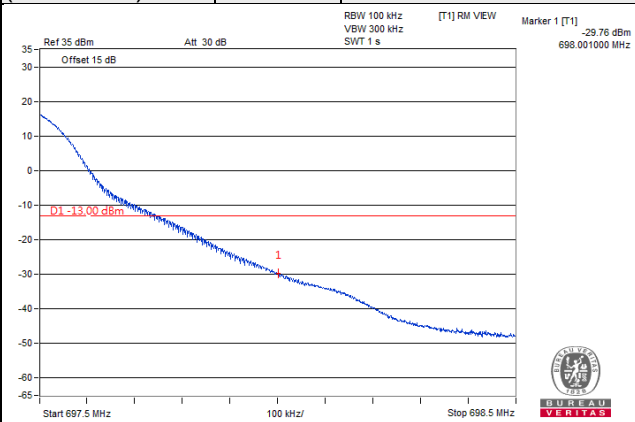
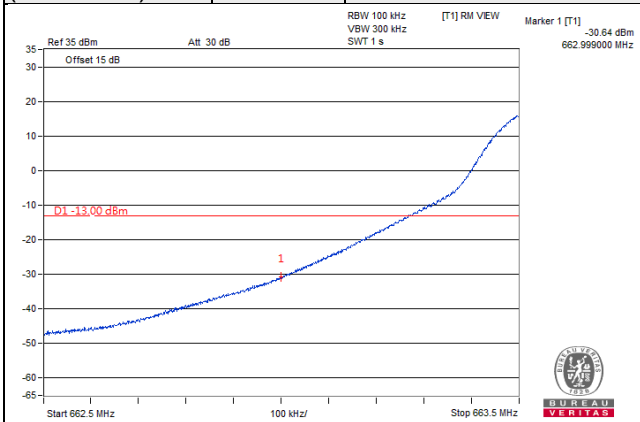


Channel 133147 (665.5MHz)	256QAM	25 RB / 0 RB Offset	Channel 133447 (695.5MHz)	256QAM	25 RB / 0 RB Offset
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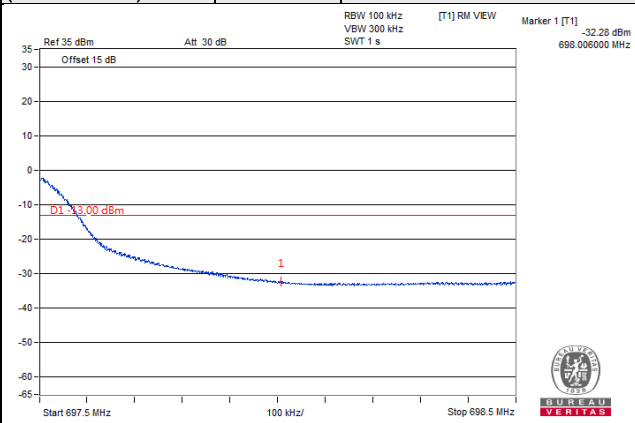
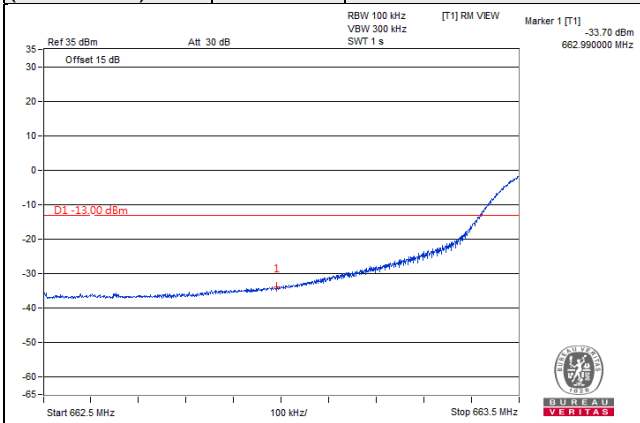


**Channel Bandwidth: 10MHz**

<b>Channel 133172 (668.0MHz)</b>	<b>256QAM</b>	<b>1 RB / 0 RB Offset</b>	<b>Channel 133422 (693.0MHz)</b>	<b>256QAM</b>	<b>1 RB / 49 RB Offset</b>
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<b>Channel 133172 (668.0MHz)</b>	<b>256QAM</b>	<b>50 RB / 0 RB Offse</b>	<b>Channel 133422 (693.0MHz)</b>	<b>256QAM</b>	<b>50 RB / 0 RB Offset</b>
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BUREAU  
VERITAS

Channel Bandwidth: 15MHz

Channel 133197  
(670.5MHz)

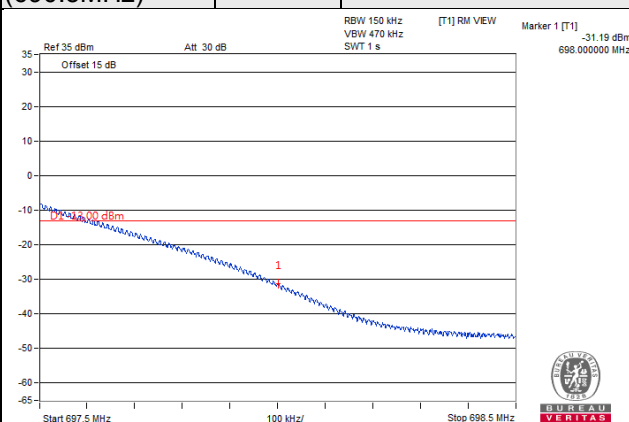
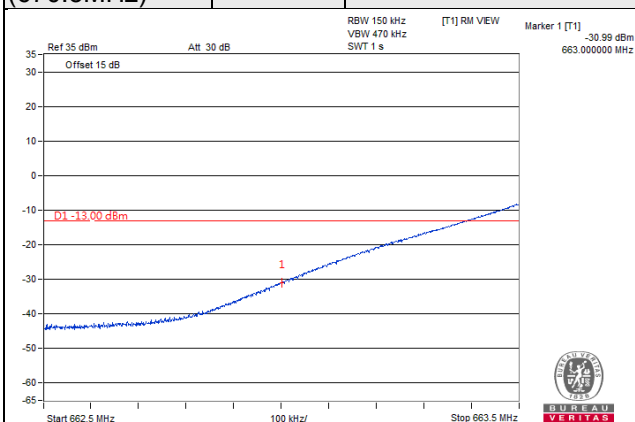
256QAM

1 RB / 0 RB Offset

Channel 133397  
(690.5MHz)

256QAM

1 RB / 74 RB Offset



Channel 133197  
(670.5MHz)

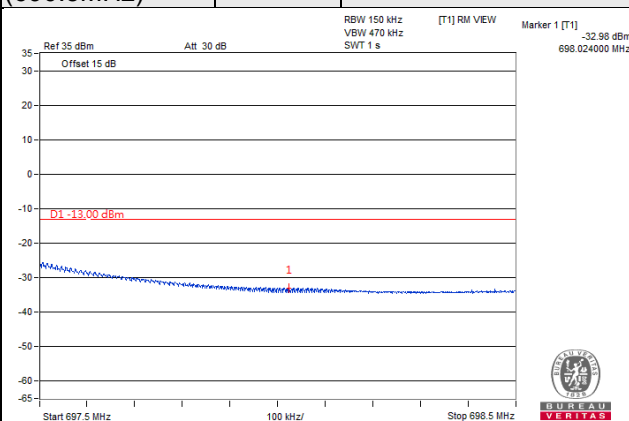
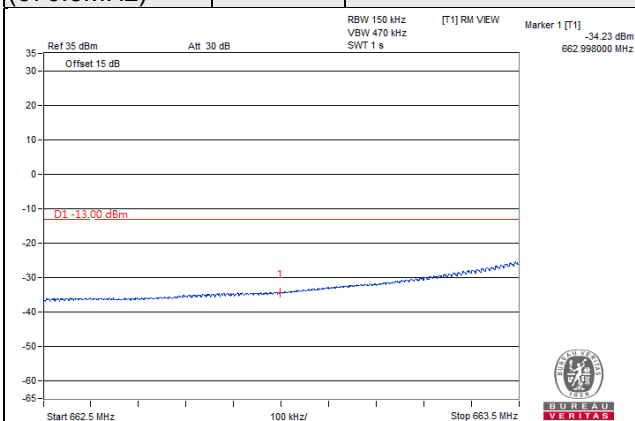
256QAM

75 RB / 0 RB Offset

Channel 133397  
(690.5MHz)

256QAM

75 RB / 0 RB Offset



Channel Bandwidth: 20MHz

Channel 133222  
(673.0MHz)

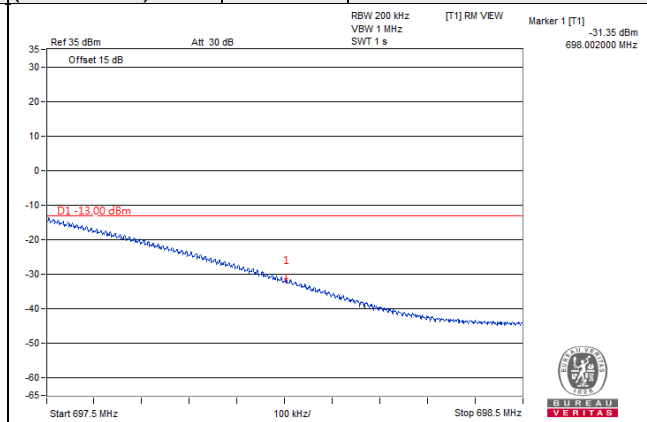
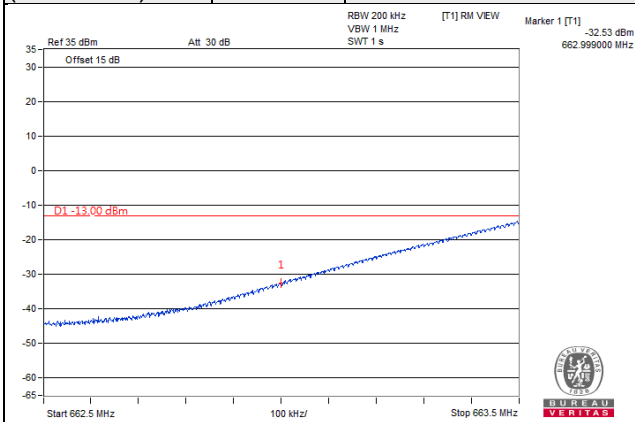
256QAM

1 RB / 0 RB Offset

Channel 133372  
(688.0MHz)

256QAM

1 RB / 99 RB Offset



Channel 133222  
(673.0MHz)

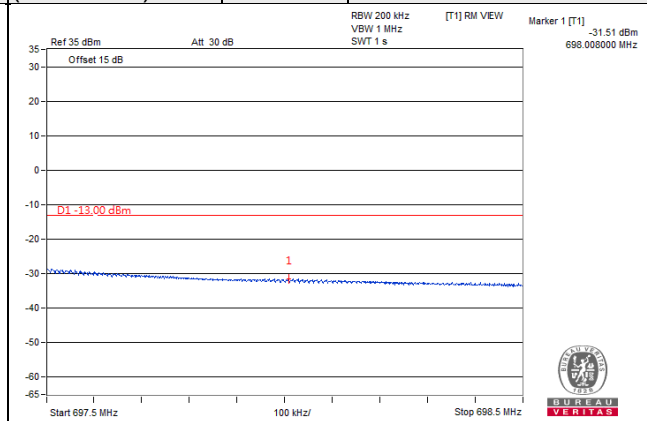
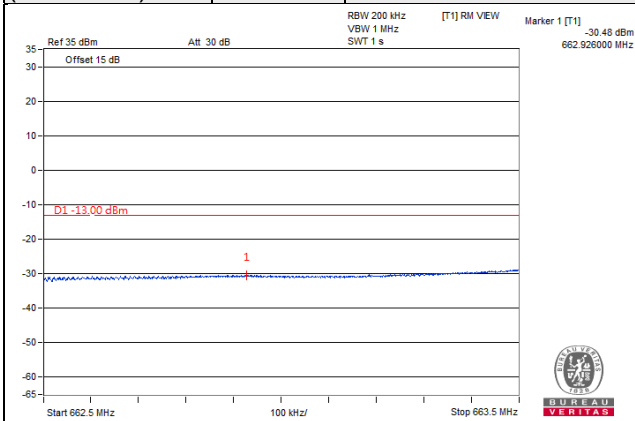
256QAM

100 RB / 0 RB Offset

Channel 133372  
(688.0MHz)

256QAM

100 RB / 0 RB Offset

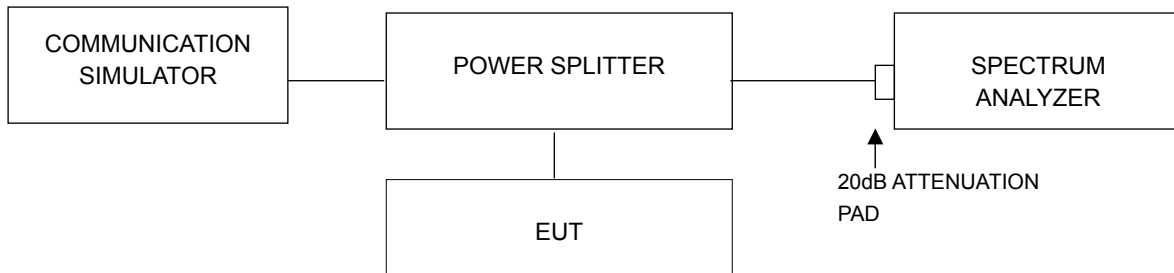


## 4.6 Peak to Average Ratio

### 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

##### LTE Band 4

LTE Band 4, Channel Bandwidth 1.4MHz		
Channel	Frequency (MHz)	Peak To Average Ratio (dB)
		256QAM
19957	1710.7	7.13
20175	1732.5	7.45
20393	1754.3	7.13
LTE Band 4, Channel Bandwidth 3MHz		
Channel	Frequency (MHz)	Peak To Average Ratio (dB)
		256QAM
19965	1711.5	7.29
20175	1732.5	7.45
20385	1753.5	7.23
LTE Band 4, Channel Bandwidth 5MHz		
Channel	Frequency (MHz)	Peak To Average Ratio (dB)
		256QAM
19975	1712.5	7.45
20175	1732.5	7.69
20375	1752.5	7.58
LTE Band 4, Channel Bandwidth 10MHz		
Channel	Frequency (MHz)	Peak To Average Ratio (dB)
		256QAM
20000	1715.0	7.36
20175	1732.5	8.03
20350	1750.0	7.69
LTE Band 4, Channel Bandwidth 15MHz		
Channel	Frequency (MHz)	Peak To Average Ratio (dB)
		256QAM
20025	1717.5	7.28
20175	1732.5	7.20
20325	1747.5	7.61

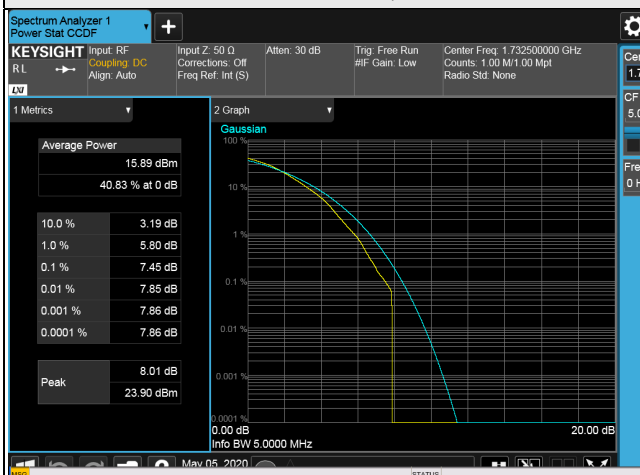


LTE Band 4, Channel Bandwidth 20MHz

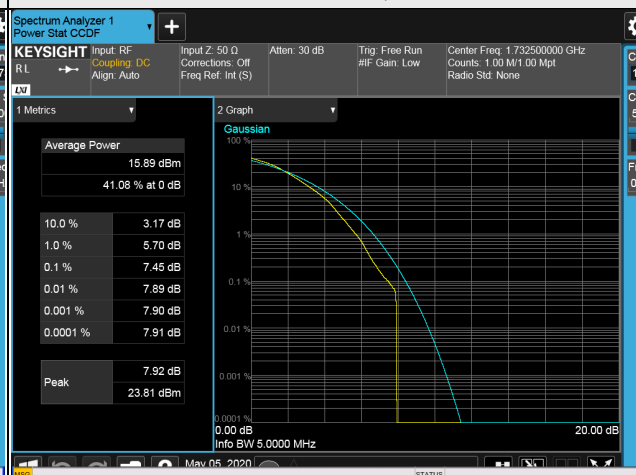
Channel	Frequency (MHz)	Peak To Average Ratio (dB)
		256QAM
20050	1720.0	7.85
20175	1732.5	7.56
20300	1745.0	7.52

### Spectrum Plot of Worst Value

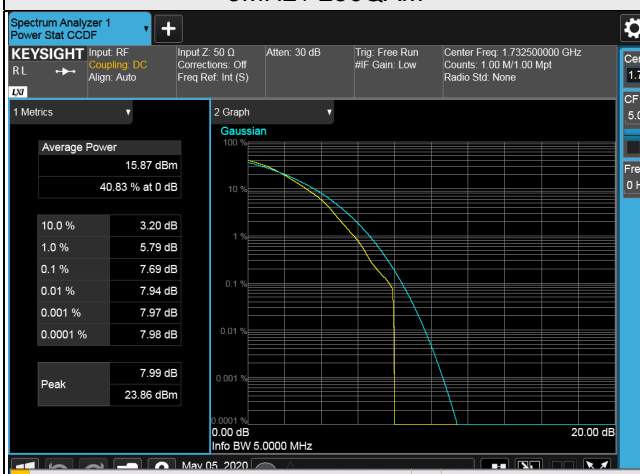
#### 1.4MHz / 256QAM



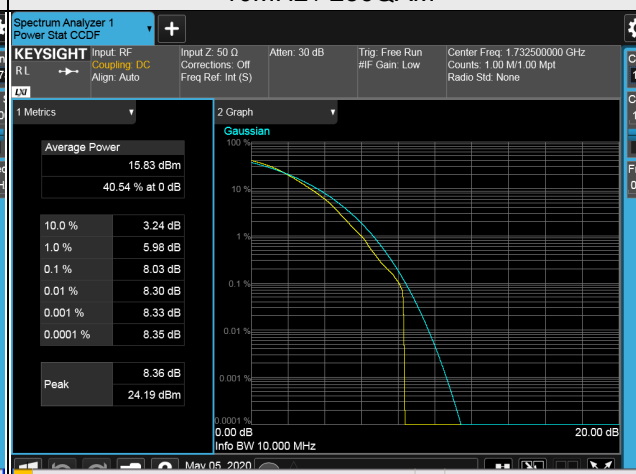
#### 3MHz / 256QAM



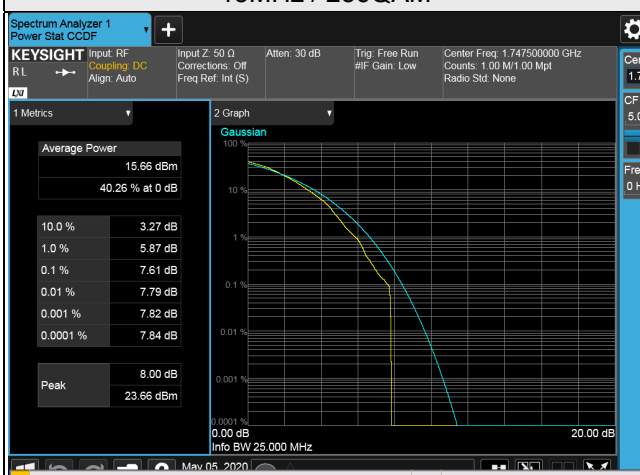
#### 5MHz / 256QAM



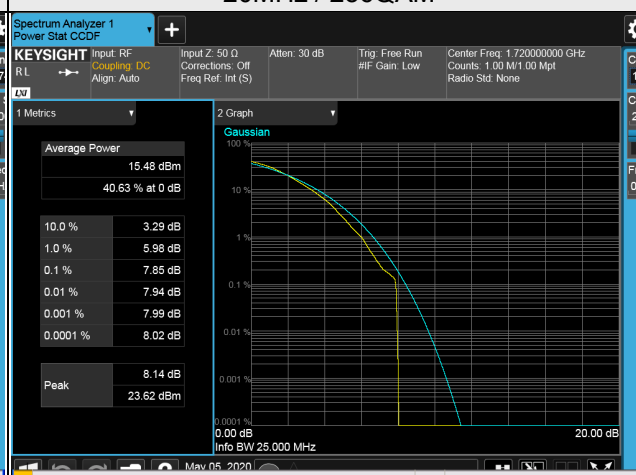
#### 10MHz / 256QAM



#### 15MHz / 256QAM



#### 20MHz / 256QAM

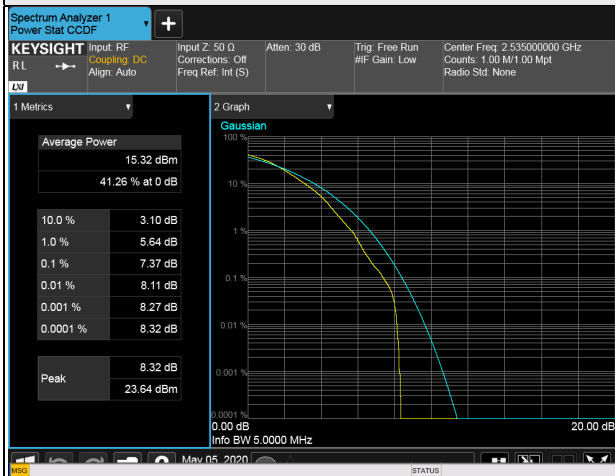


LTE Band 7

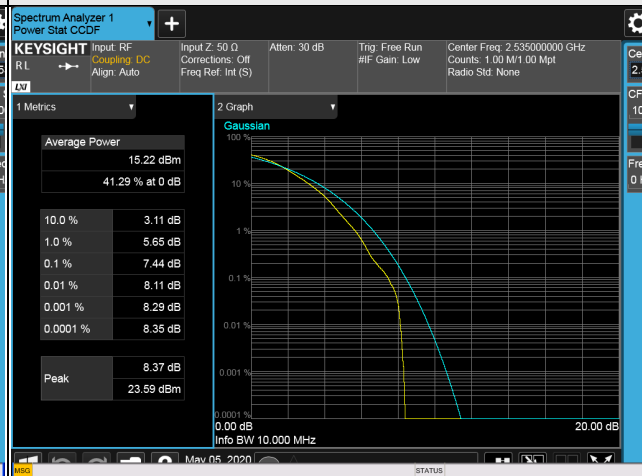
LTE Band 7, Channel Bandwidth 5MHz		
Channel	Frequency (MHz)	Peak To Average Ratio (dB)
		256QAM
20775	2502.5	7.20
21100	2535.0	7.37
21425	2567.5	7.30
LTE Band 7, Channel Bandwidth 10MHz		
Channel	Frequency (MHz)	Peak To Average Ratio (dB)
		256QAM
20800	2505.0	7.33
21100	2535.0	7.44
21400	2565.0	7.32
LTE Band 7, Channel Bandwidth 15MHz		
Channel	Frequency (MHz)	Peak To Average Ratio (dB)
		256QAM
20825	2507.5	7.40
21100	2535.0	7.38
21375	2562.5	7.23
LTE Band 7, Channel Bandwidth 20MHz		
Channel	Frequency (MHz)	Peak To Average Ratio (dB)
		256QAM
20850	2510.0	7.30
21100	2535.0	7.16
21350	2560.0	7.58

### Spectrum Plot of Worst Value

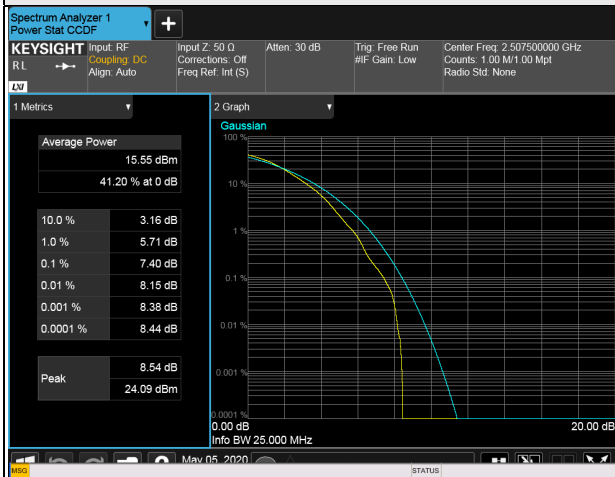
#### 5MHz / 256QAM



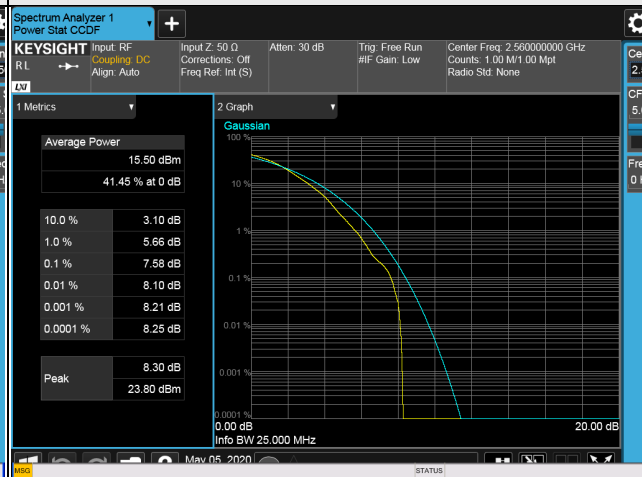
#### 10MHz / 256QAM



#### 15MHz / 256QAM



#### 20MHz / 256QAM

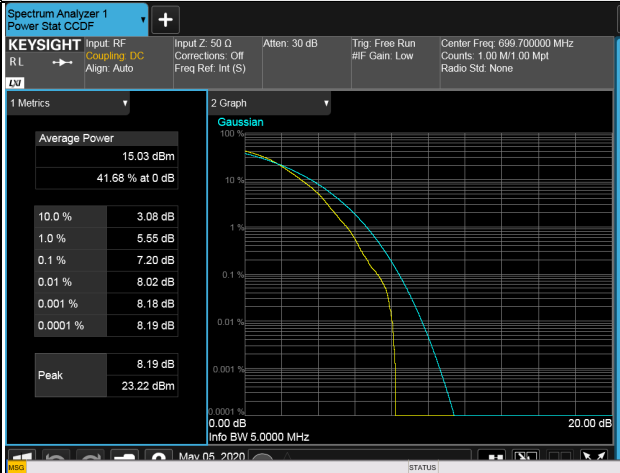


LTE Band 12

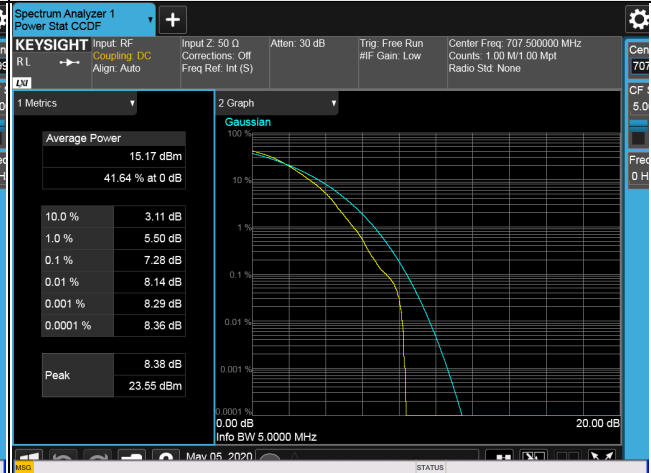
LTE Band 12, Channel Bandwidth 1.4MHz		
Channel	Frequency (MHz)	Peak To Average Ratio (dB)
		256QAM
23017	699.7	7.20
23095	707.5	7.16
23173	715.3	7.04
LTE Band 12, Channel Bandwidth 3MHz		
Channel	Frequency (MHz)	Peak To Average Ratio (dB)
		256QAM
23025	700.5	7.17
23095	707.5	7.28
23165	714.5	7.12
LTE Band 12, Channel Bandwidth 5MHz		
Channel	Frequency (MHz)	Peak To Average Ratio (dB)
		256QAM
23035	701.5	7.21
23095	707.5	7.17
23155	713.5	7.28
LTE Band 12, Channel Bandwidth 10MHz		
Channel	Frequency (MHz)	Peak To Average Ratio (dB)
		256QAM
23060	704.0	7.04
23095	707.5	7.04
23130	711.0	7.26

### Spectrum Plot of Worst Value

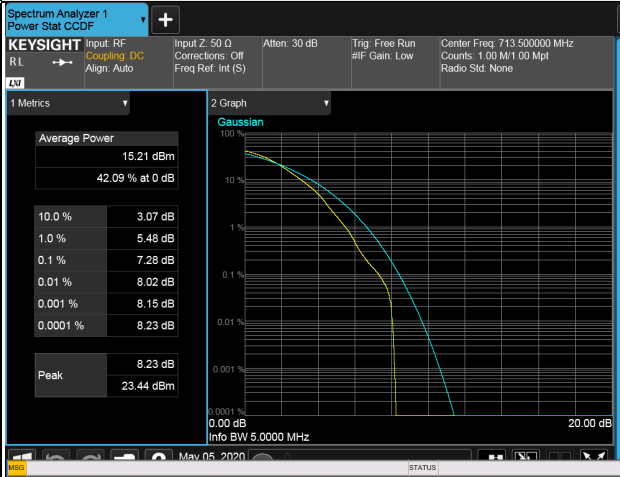
#### 1.4MHz / 256QAM



#### 3MHz / 256QAM



#### 5MHz / 256QAM



#### 10MHz / 256QAM

