

Channel Bandwidth: 15MHz

Channel 20825
(2507.5MHz)

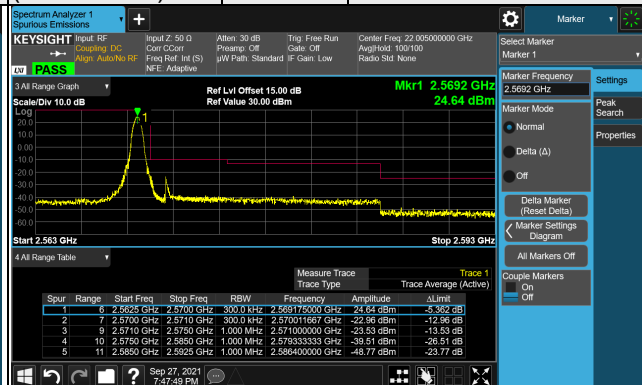
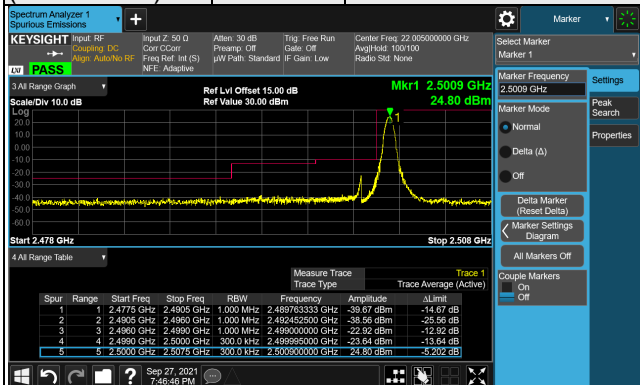
QPSK

1 RB / 0 RB Offset

Channel 21375
(2562.5MHz)

QPSK

1 RB / 74 RB Offset



Channel 20825
(2507.5MHz)

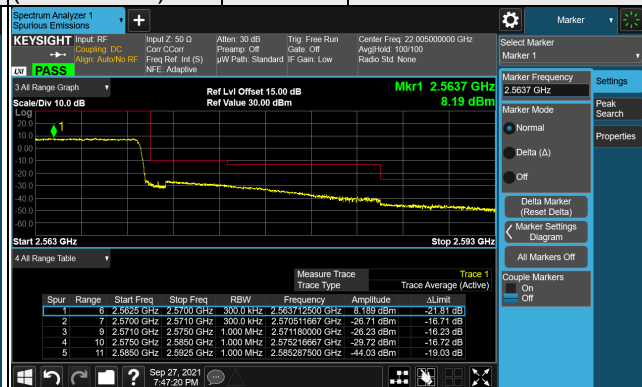
QPSK

75 RB / 0 RB Offset

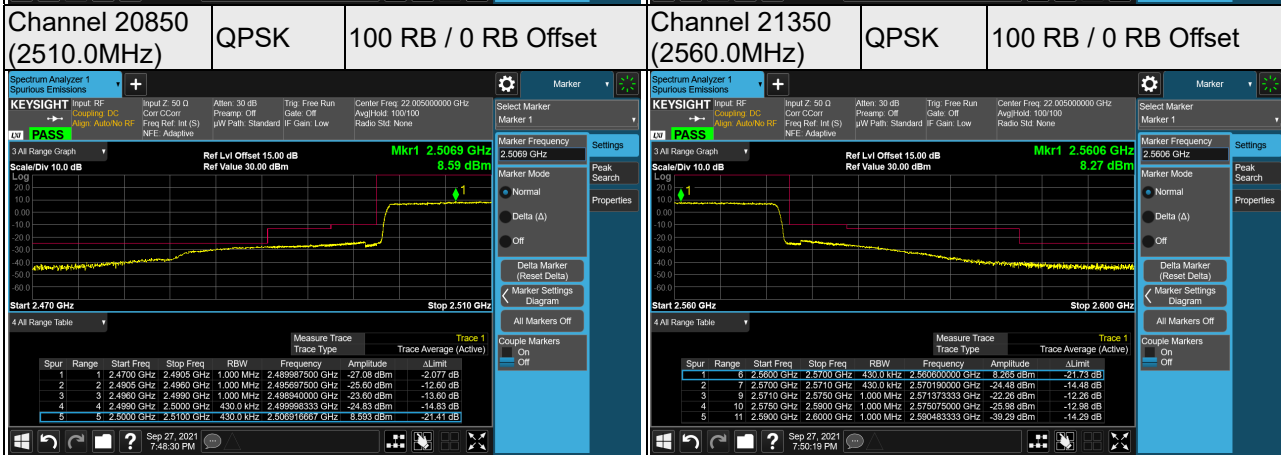
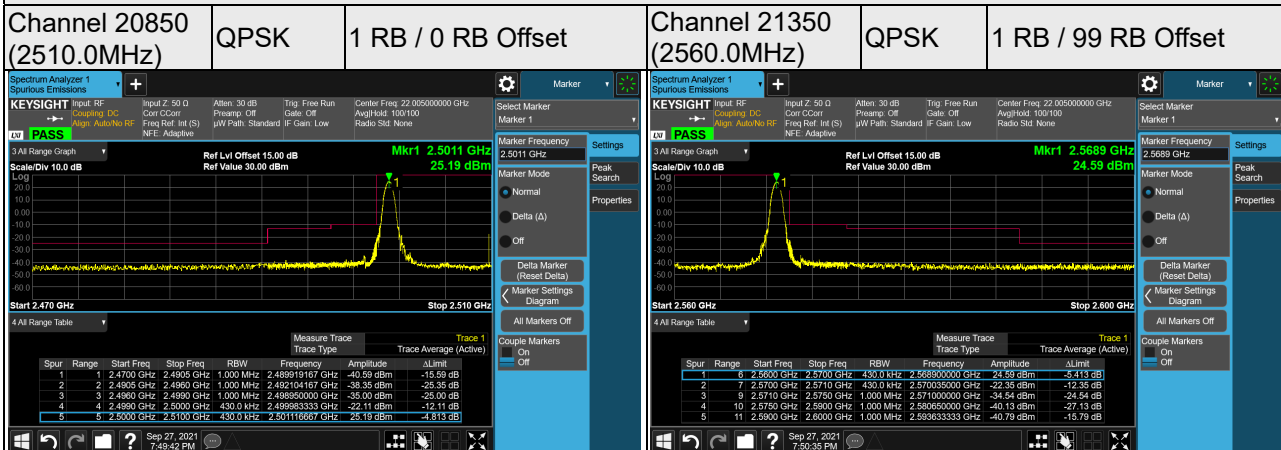
Channel 21375
(2562.5MHz)

QPSK

75 RB / 0 RB Offset



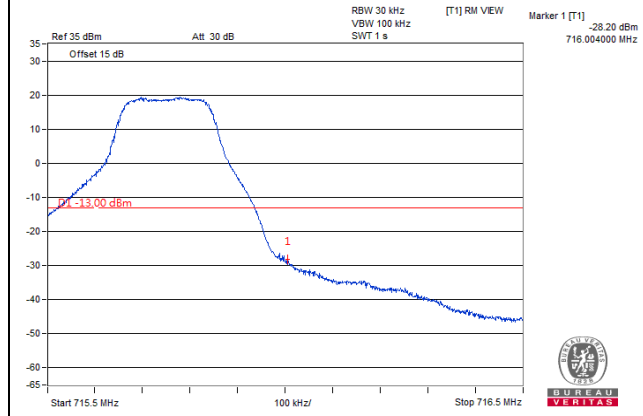
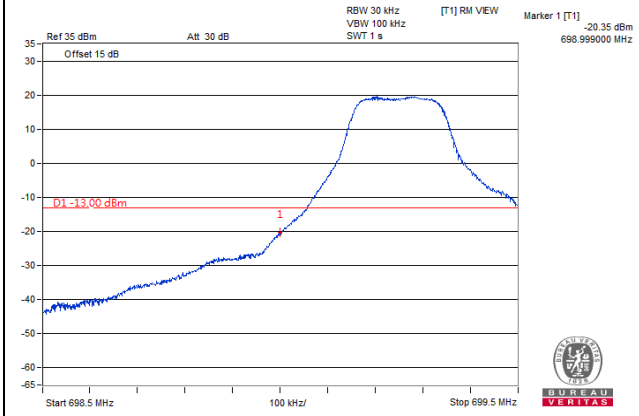
Channel Bandwidth: 20MHz



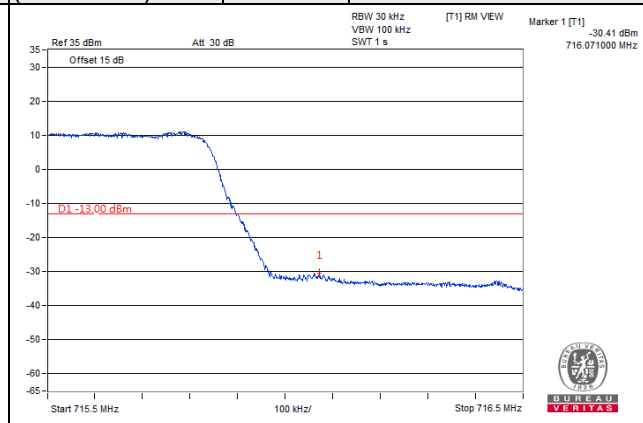
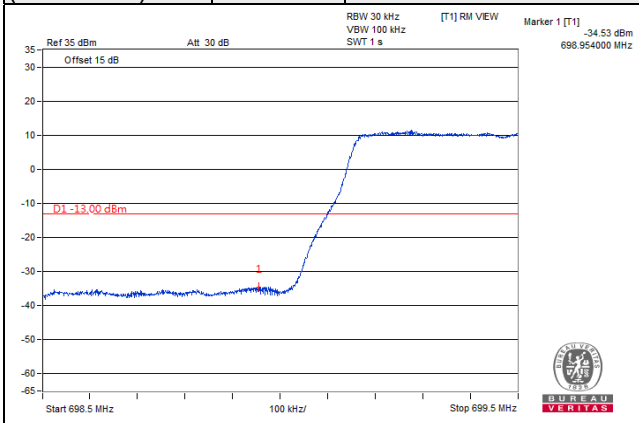
LTE Band 12

Channel Bandwidth: 1.4MHz

| | | | | | |
|-----------------------------|------|--------------------|-----------------------------|------|--------------------|
| Channel 23017 (699.7MHz) | QPSK | 1 RB / 0 RB Offset | Channel 23173 (715.3MHz) | QPSK | 1 RB / 5 RB Offset |
|-----------------------------|------|--------------------|-----------------------------|------|--------------------|

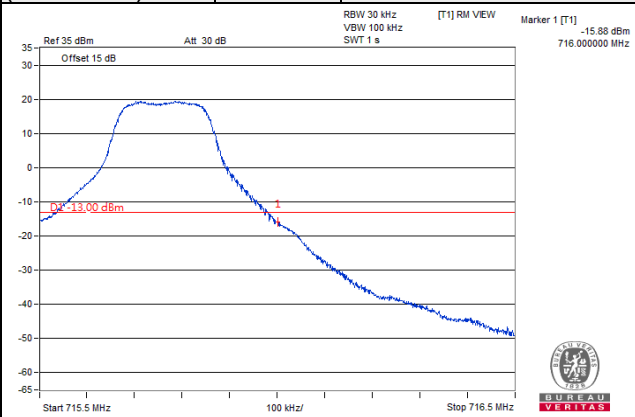
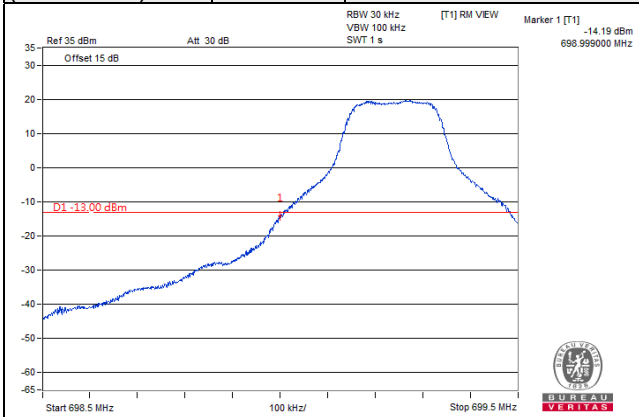


| | | | | | |
|-----------------------------|------|--------------------|-----------------------------|------|--------------------|
| Channel 23017 (699.7MHz) | QPSK | 6 RB / 0 RB Offset | Channel 23173 (715.3MHz) | QPSK | 6 RB / 0 RB Offset |
|-----------------------------|------|--------------------|-----------------------------|------|--------------------|

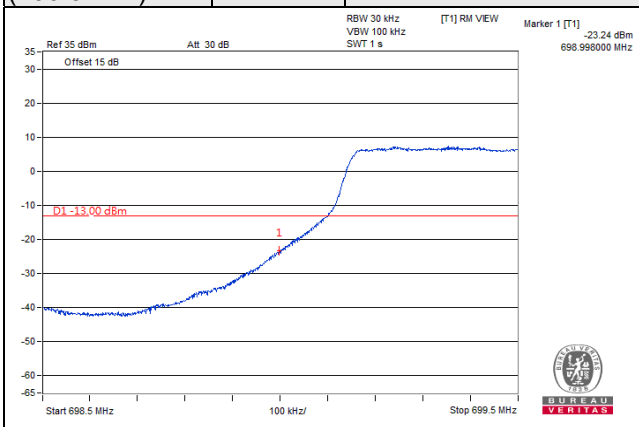


Channel Bandwidth: 3MHz

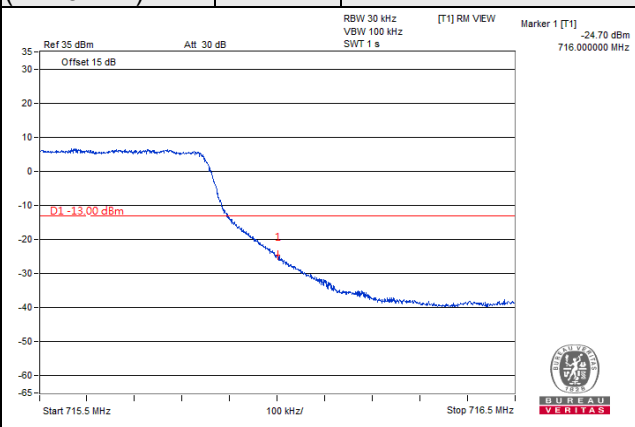
| | | | | | |
|-----------------------------|------|--------------------|-----------------------------|------|--------------------|
| Channel 23025 (700.5MHz) | QPSK | 1 RB / 0 RB Offset | Channel 23165 (714.5MHz) | QPSK | 1 RB / 14RB Offset |
|-----------------------------|------|--------------------|-----------------------------|------|--------------------|



| | | |
|-----------------------------|------|---------------------|
| Channel 23025 (700.5MHz) | QPSK | 15 RB / 0 RB Offset |
|-----------------------------|------|---------------------|



| | | |
|-----------------------------|------|---------------------|
| Channel 23165 (714.5MHz) | QPSK | 15 RB / 0 RB Offset |
|-----------------------------|------|---------------------|



Channel Bandwidth: 5MHz

Channel 23035
(701.5MHz)

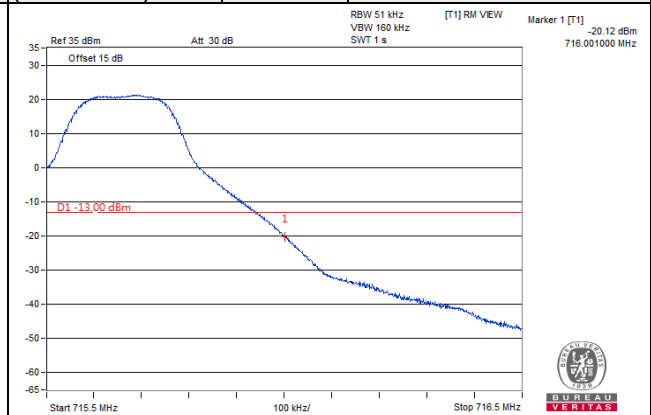
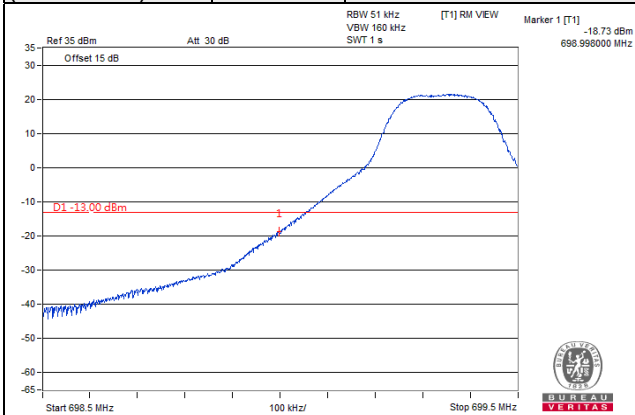
QPSK

1 RB / 0 RB Offset

Channel 23155
(713.5MHz)

QPSK

1 RB / 24RB Offset



Channel 23035
(701.5MHz)

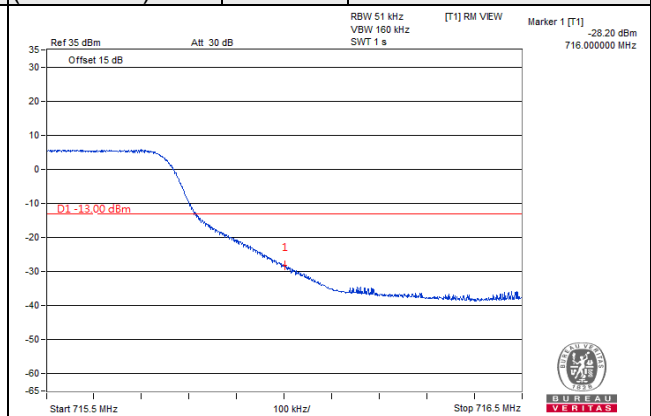
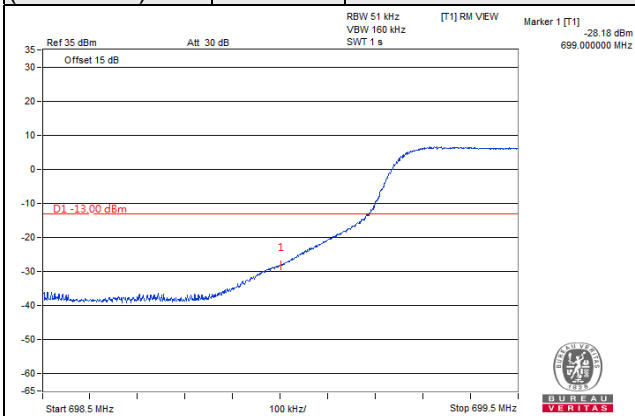
QPSK

25 RB / 0 RB Offset

Channel 23155
(713.5MHz)

QPSK

25 RB / 0 RB Offset





BUREAU VERITAS

Channel Bandwidth: 10MHz

Channel 23060
(704MHz)

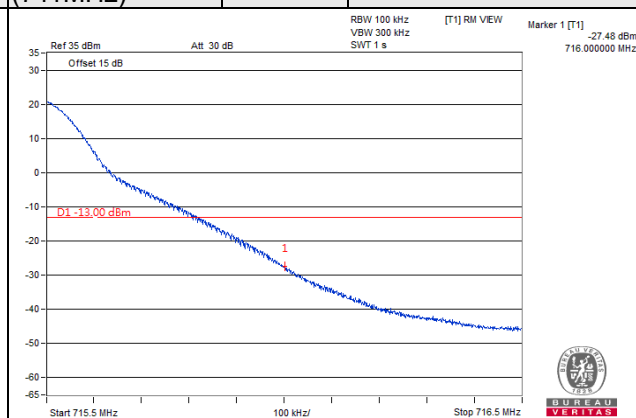
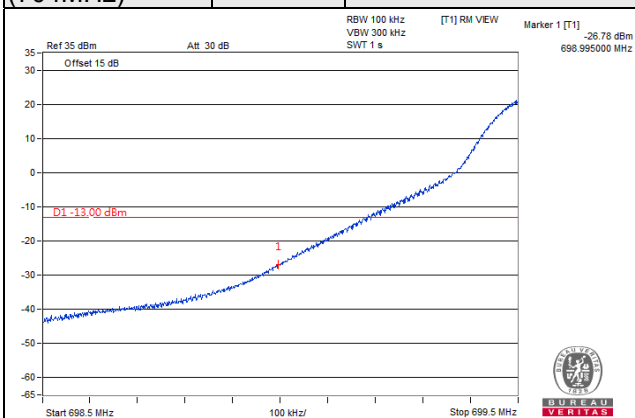
QPSK

1 RB / 0 RB Offset

Channel 23130
(711MHz)

QPSK

1 RB / 24RB Offset



Channel 23060
(704MHz)

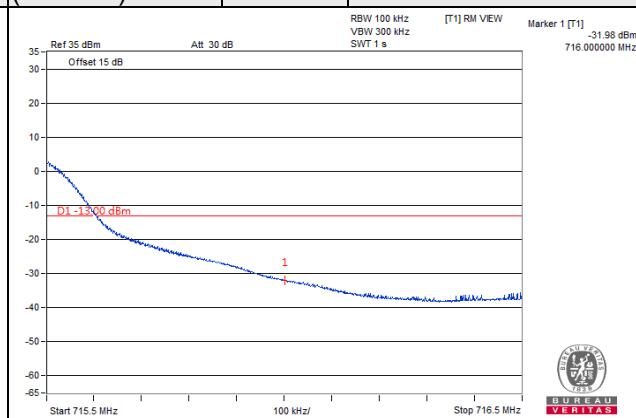
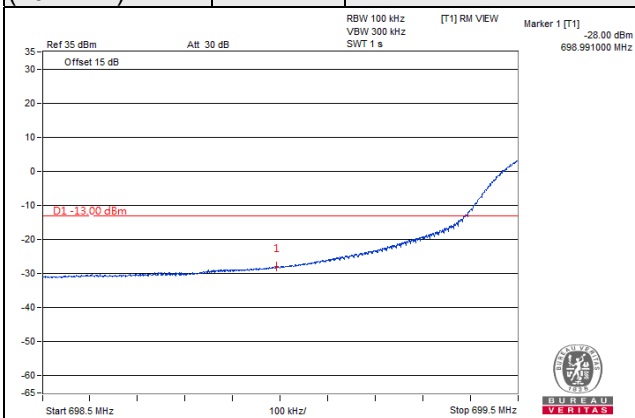
QPSK

50 RB / 0 RB Offset

Channel 23130
(711MHz)

QPSK

25 RB / 0 RB Offset

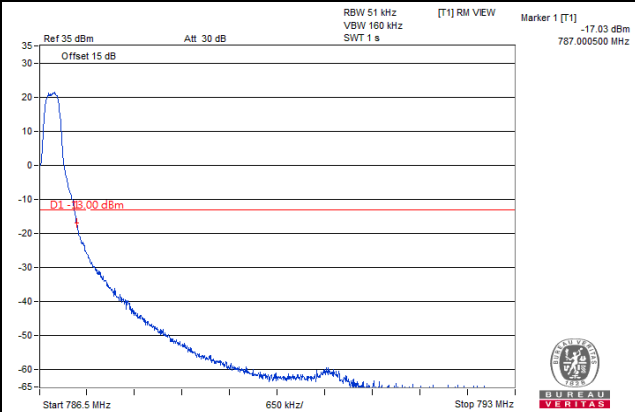
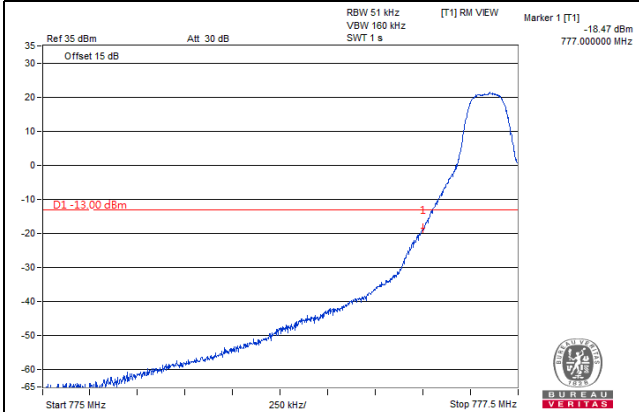




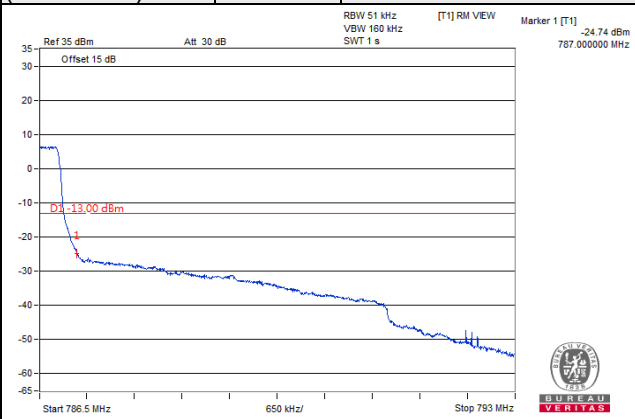
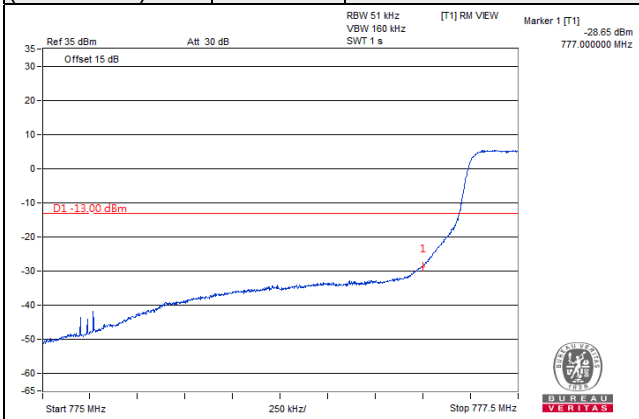
LTE Band 13

Channel Bandwidth: 5MHz

| | | | | | |
|-----------------------------|------|--------------------|-----------------------------|------|---------------------|
| Channel 23205 (779.5MHz) | QPSK | 1 RB / 0 RB Offset | Channel 23255 (784.5MHz) | QPSK | 1 RB / 24 RB Offset |
|-----------------------------|------|--------------------|-----------------------------|------|---------------------|



| | | | | | |
|-----------------------------|------|---------------------|-----------------------------|------|---------------------|
| Channel 23205 (779.5MHz) | QPSK | 25 RB / 0 RB Offset | Channel 23255 (784.5MHz) | QPSK | 25 RB / 0 RB Offset |
|-----------------------------|------|---------------------|-----------------------------|------|---------------------|



Channel Bandwidth: 10MHz

Channel 23230
(782.0MHz)

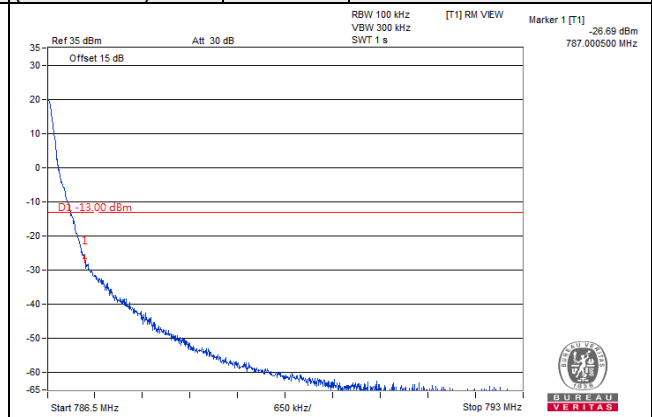
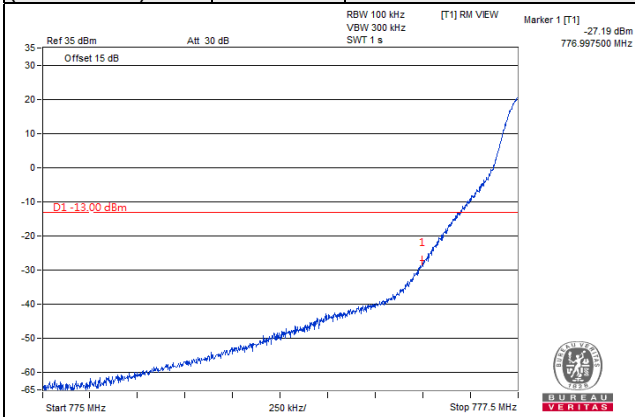
QPSK

1 RB / 0 RB Offset

Channel 23230
(782.0MHz)

QPSK

1 RB / 49 RB Offset



Channel 23230
(782.0MHz)

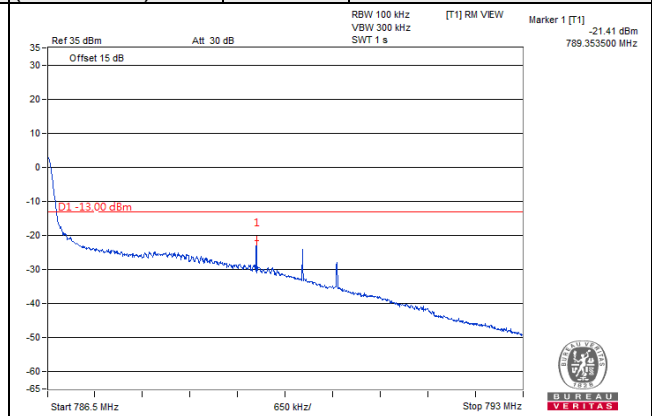
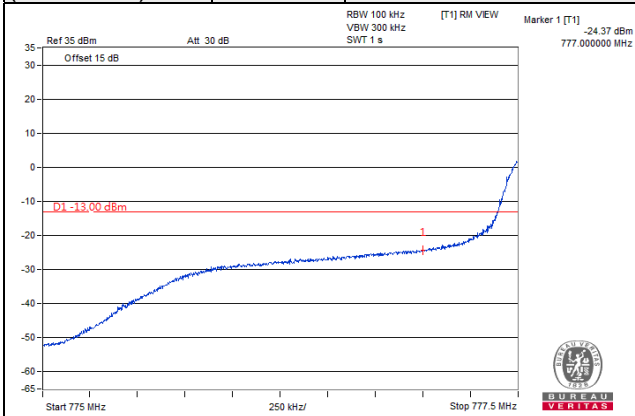
QPSK

50 RB / 0 RB Offset

Channel 23230
(782.0MHz)

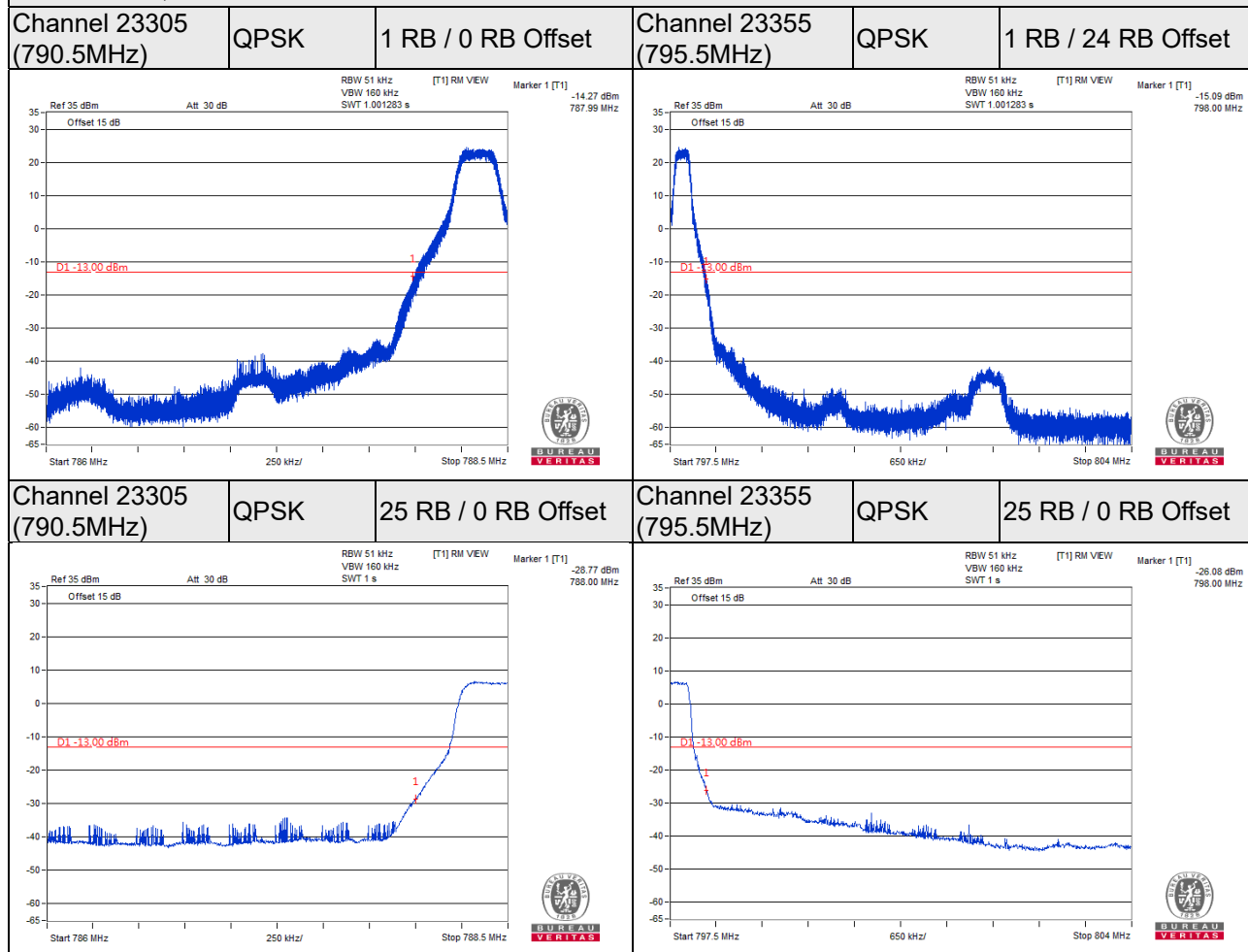
QPSK

50 RB / 0 RB Offset



LTE Band 14

LTE Band 14, Channel Bandwidth 5MHz



LTE Band 14, Channel Bandwidth 10MHz

Channel 23330
(793.0MHz)

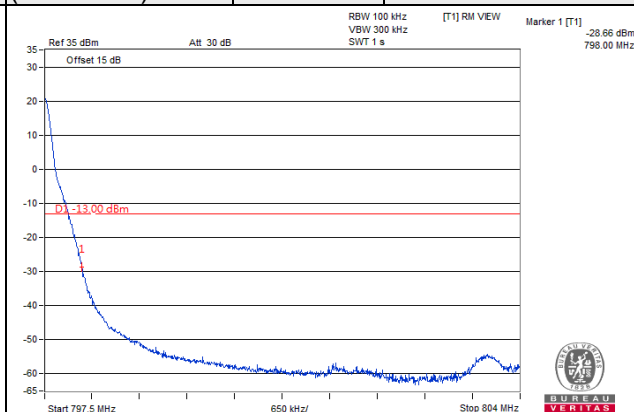
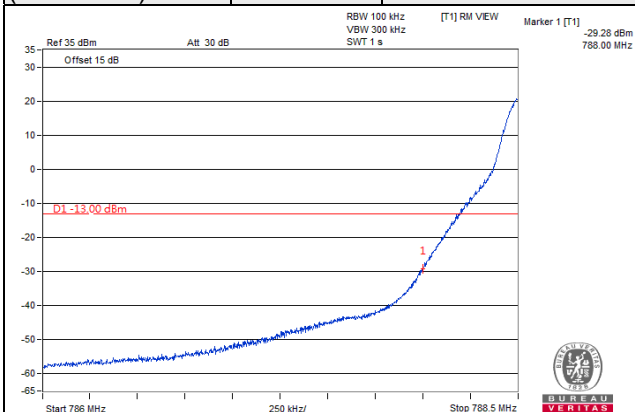
QPSK

1 RB / 0 RB Offset

Channel 23330
(793.0MHz)

QPSK

1 RB / 49 RB Offset



Channel 23330
(793.0MHz)

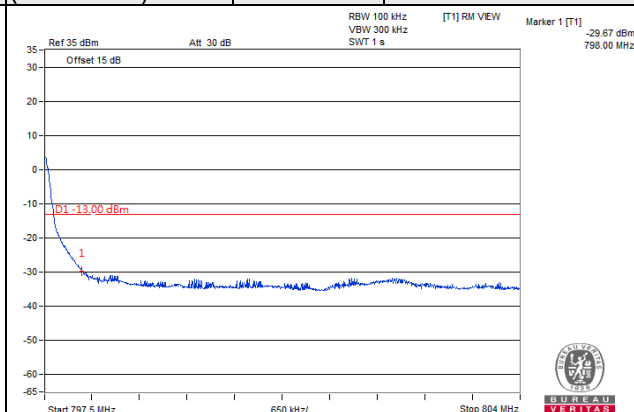
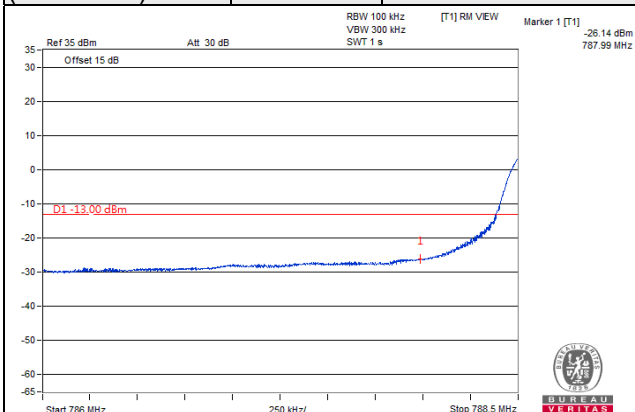
QPSK

50 RB / 0 RB Offset

Channel 23330
(793.0MHz)

QPSK

50 RB / 0 RB Offset



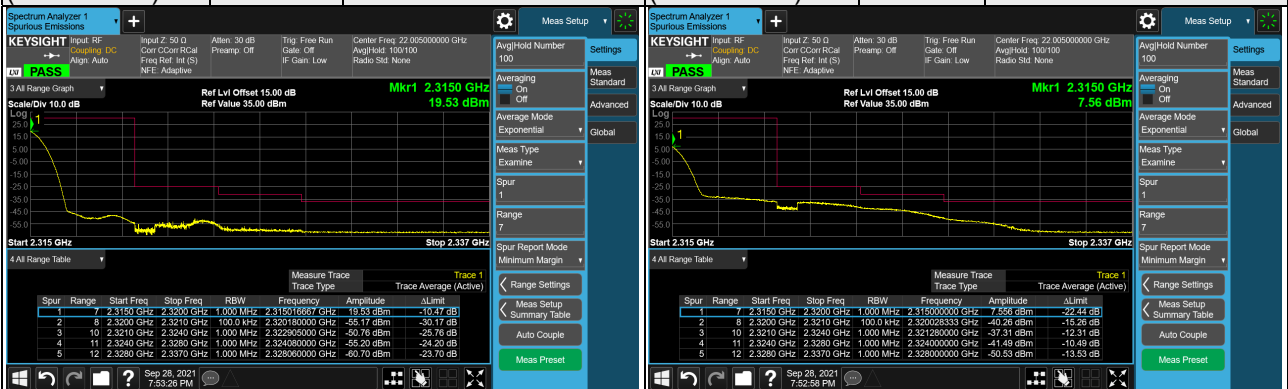
LTE Band 30
Emission Mask:

Channel Bandwidth: 5MHz

| | | | | | |
|------------------------------|------|--------------------|------------------------------|------|---------------------|
| Channel 27685 (2307.5MHz) | QPSK | 1 RB / 0 RB Offset | Channel 27685 (2307.5MHz) | QPSK | 25 RB / 0 RB Offset |
|------------------------------|------|--------------------|------------------------------|------|---------------------|



| | | | | | |
|------------------------------|------|---------------------|------------------------------|------|---------------------|
| Channel 27735 (2312.5MHz) | QPSK | 1 RB / 24 RB Offset | Channel 27735 (2312.5MHz) | QPSK | 25 RB / 0 RB Offset |
|------------------------------|------|---------------------|------------------------------|------|---------------------|



Channel Bandwidth: 10MHz

Channel 27710
(2310.0MHz)

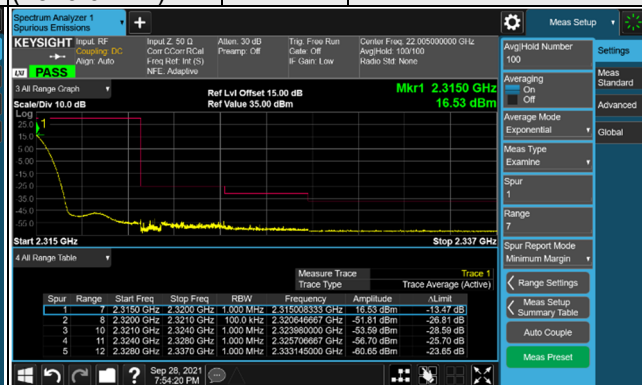
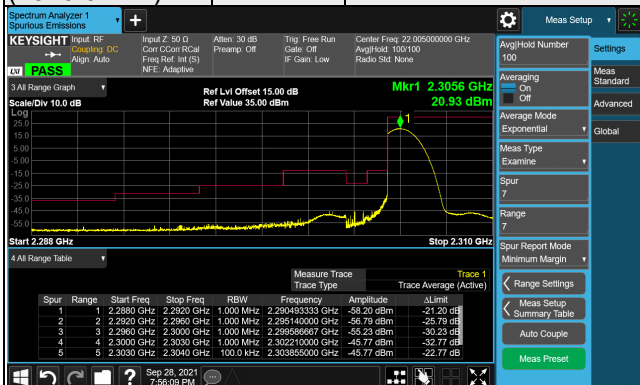
QPSK

1 RB / 0 RB Offset

Channel 27710
(2310.0MHz)

QPSK

1 RB / 49 RB Offset



Channel 27710
(2310.0MHz)

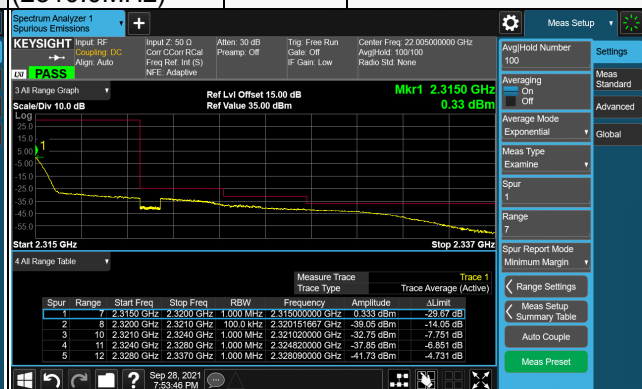
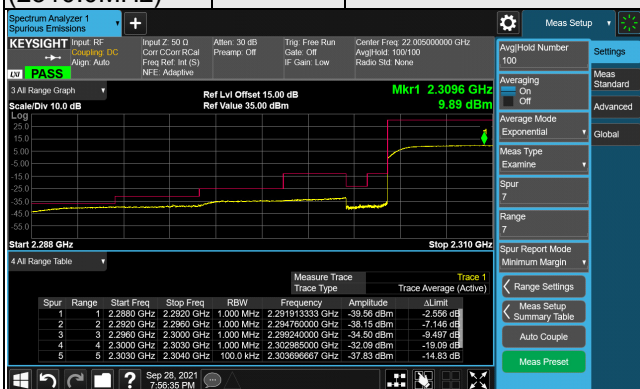
QPSK

50 RB / 0 RB Offset

Channel 27710
(2310.0MHz)

QPSK

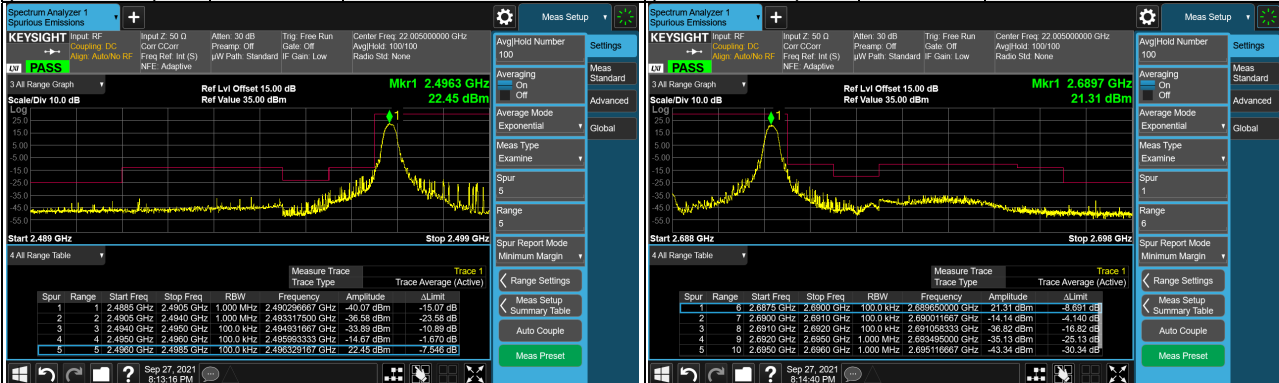
50 RB / 0 RB Offset



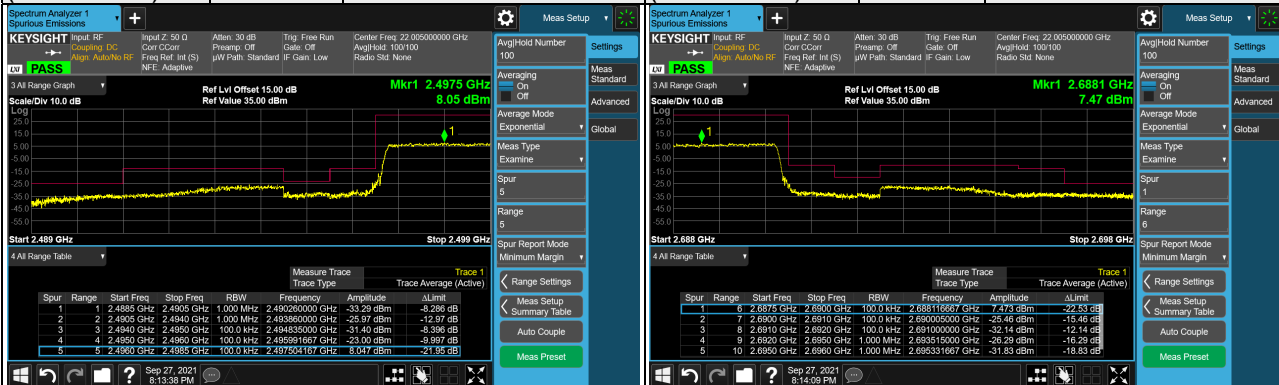
LTE Band 41
Emission Mask:

Channel Bandwidth: 5MHz

Channel 39675 (2498.5MHz) QPSK 1 RB / 0 RB Offset Channel 41565 (2687.5MHz) QPSK 1 RB / 24 RB Offset



Channel 39675 (2498.5MHz) QPSK 25 RB / 0 RB Offset Channel 41565 (2687.5MHz) QPSK 25 RB / 0 RB Offset



LTE Band 41

Channel Bandwidth: 10MHz

Channel 39700
(2501.0MHz)

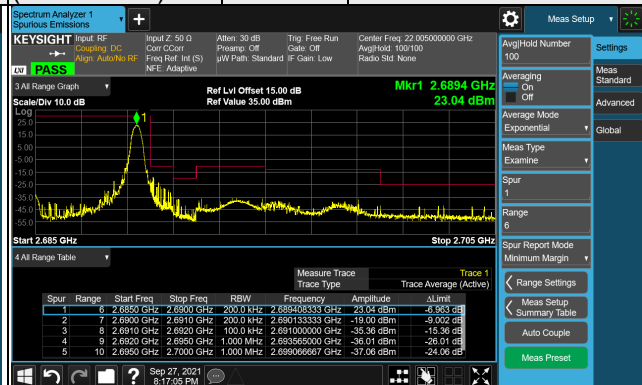
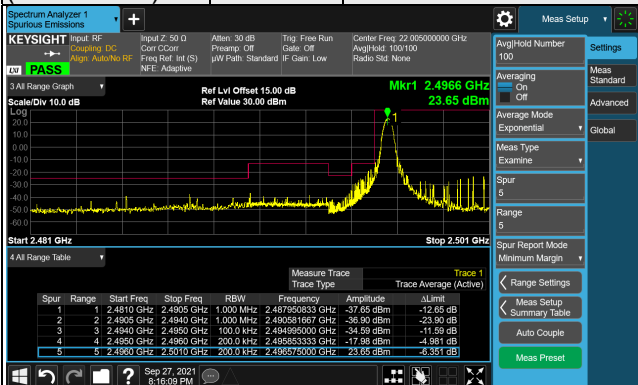
QPSK

1 RB / 0 RB Offset

Channel 41540
(2685.0MHz)

QPSK

1 RB / 49 RB Offset



Channel 39700
(2501.0MHz)

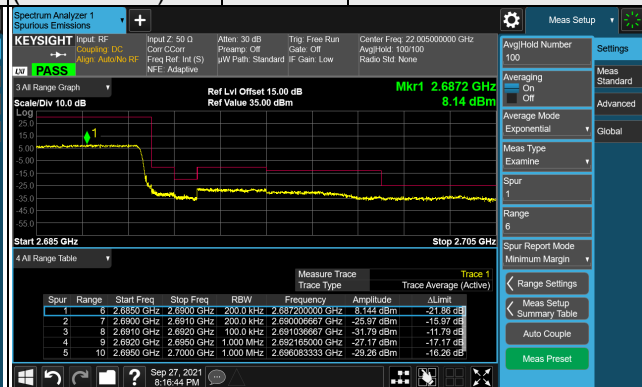
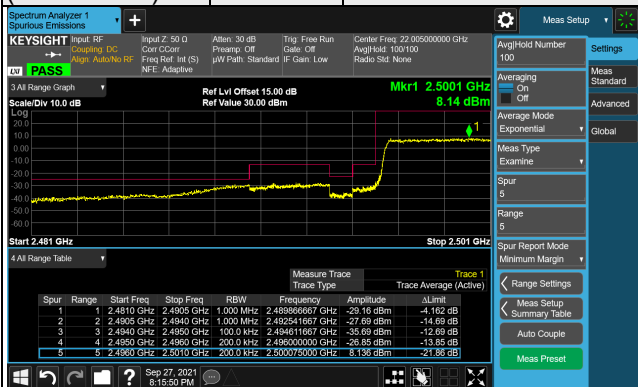
QPSK

50 RB / 0 RB Offset

Channel 41540
(2685.0MHz)

QPSK

50 RB / 0 RB Offset



LTE Band 41

Channel Bandwidth: 15MHz

Channel 39725
(2503.5MHz)

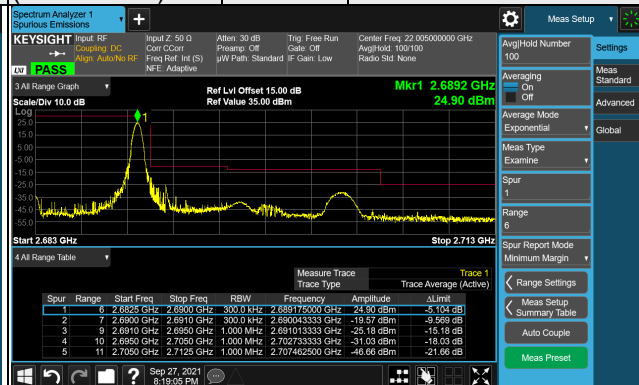
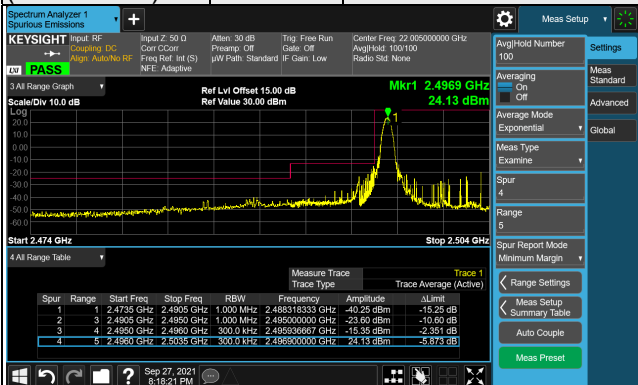
QPSK

1 RB / 0 RB Offset

Channel 41515
(2682.5MHz)

QPSK

1 RB / 74 RB Offset



Channel 39725
(2503.5MHz)

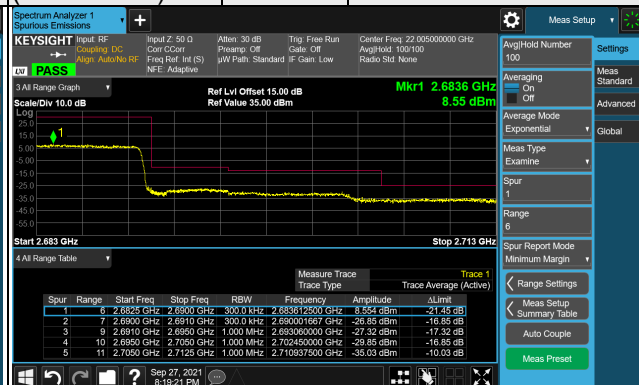
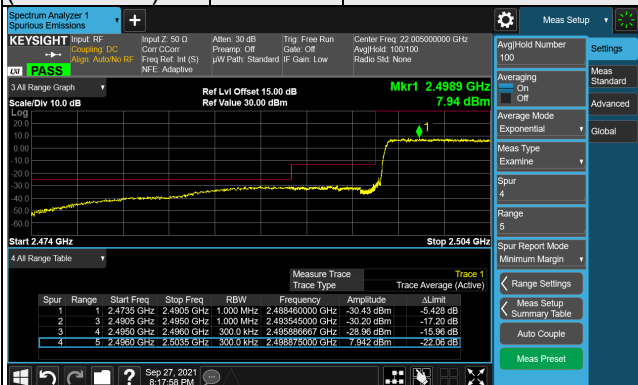
QPSK

75 RB / 0 RB Offset

Channel 41515
(2682.5MHz)

QPSK

75 RB / 0 RB Offset



LTE Band 41

Channel Bandwidth: 20MHz

Channel 39750
(2506.0MHz)

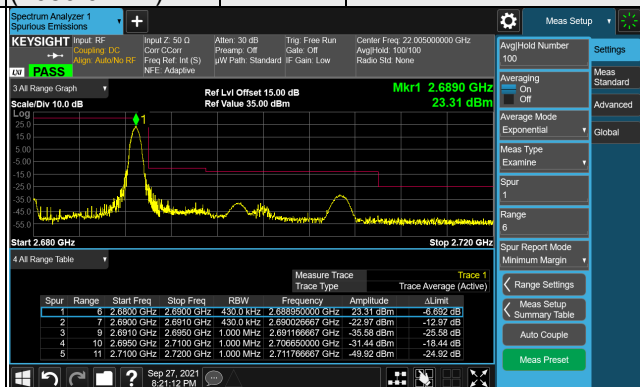
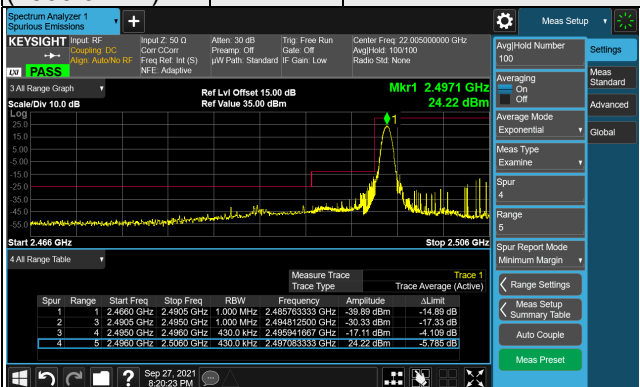
QPSK

1 RB / 0 RB Offset

Channel 41490
(2680.0MHz)

QPSK

1 RB / 99 RB Offset



Channel 39750
(2506.0MHz)

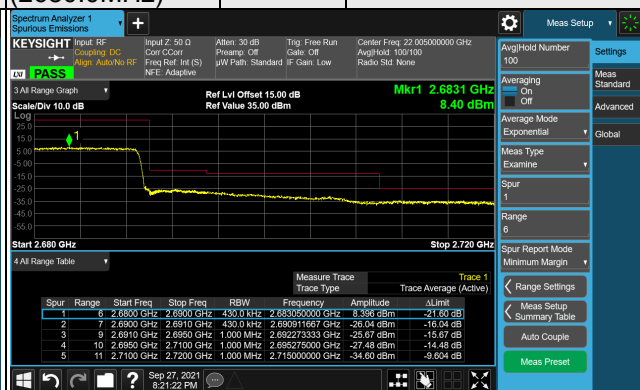
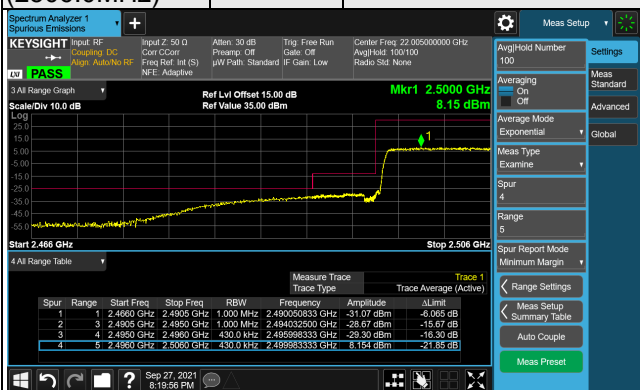
QPSK

100 RB / 0 RB Offset

Channel 41490
(2680.0MHz)

QPSK

100 RB / 0 RB Offset



LTE Band 66

Channel Bandwidth: 1.4MHz

Channel 131979
(1710.7MHz)

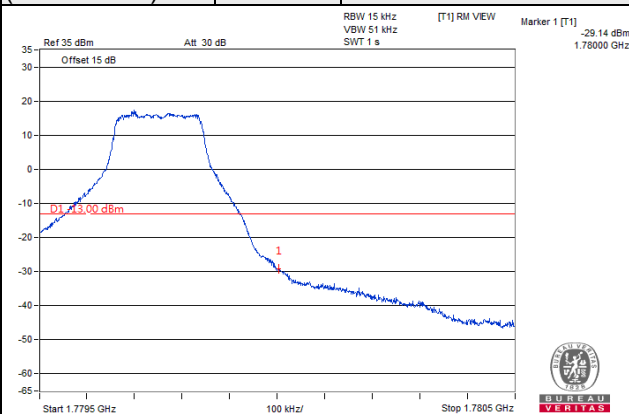
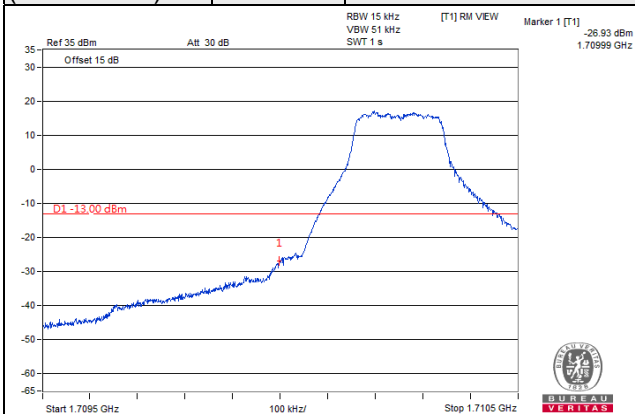
QPSK

1 RB / 0 RB Offset

Channel 132665
(1779.3MHz)

QPSK

1 RB / 5 RB Offset



Channel 131979
(1710.7MHz)

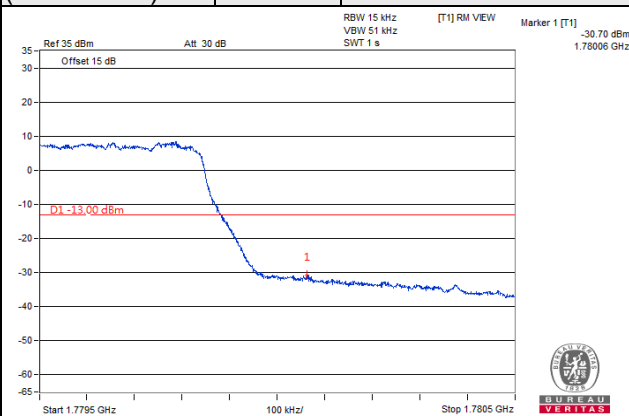
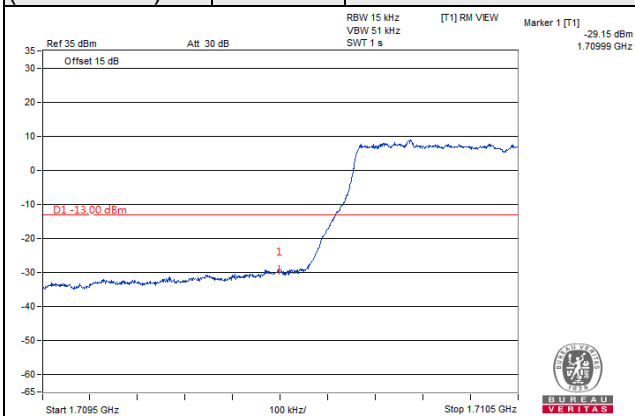
QPSK

6 RB / 0 RB Offset

Channel 132665
(1779.3MHz)

QPSK

6 RB / 0 RB Offset



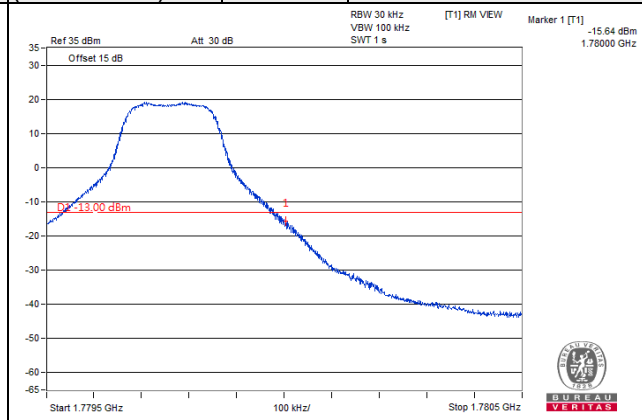
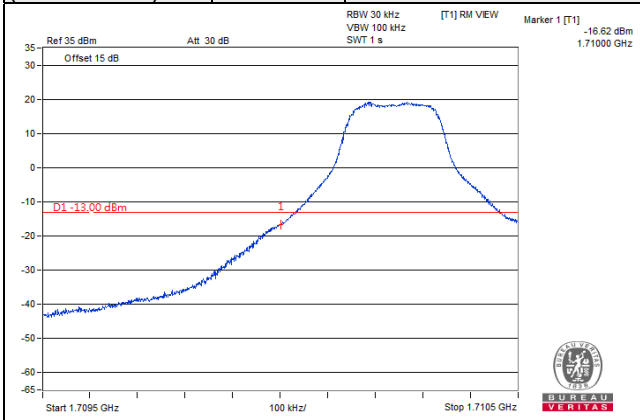
Channel Bandwidth: 3MHz

Channel 131987
(1711.5MHz)

QPSK 1 RB / 0 RB Offset

Channel 132657
(1778.5MHz)

QPSK 1 RB / 14 RB Offset

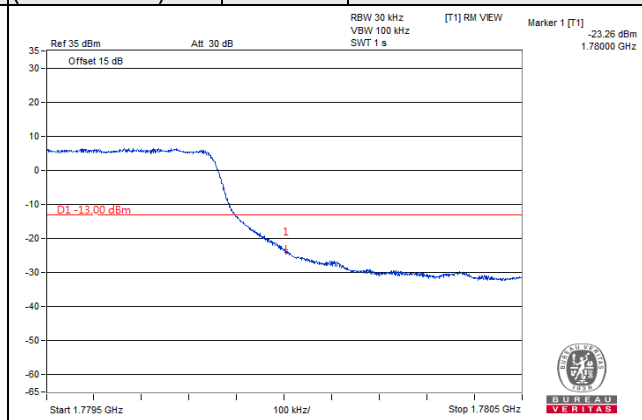
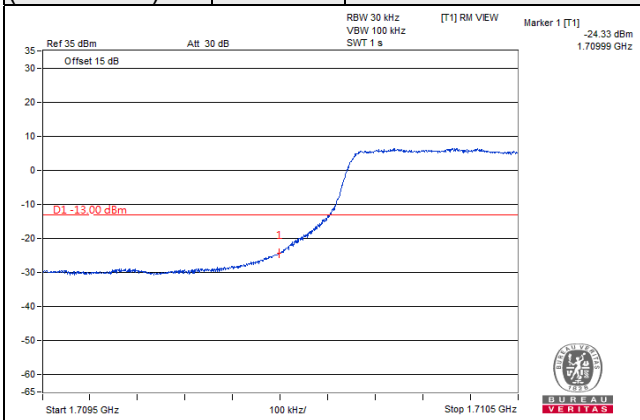


Channel 131987
(1711.5MHz)

QPSK 15 RB / 0 RB Offset

Channel 132657
(1778.5MHz)

QPSK 15 RB / 0 RB Offset





BUREAU
VERITAS

Channel Bandwidth: 5MHz

Channel 131997
(1712.5MHz)

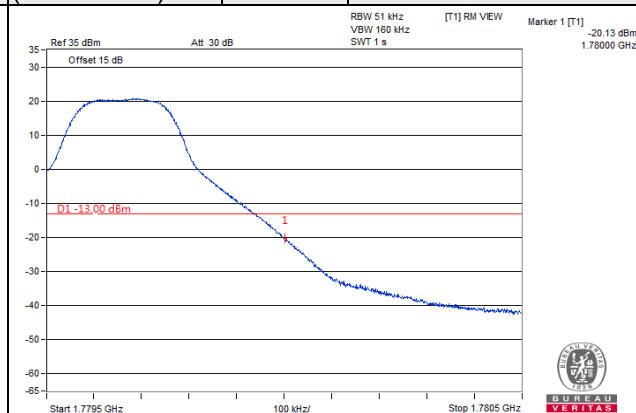
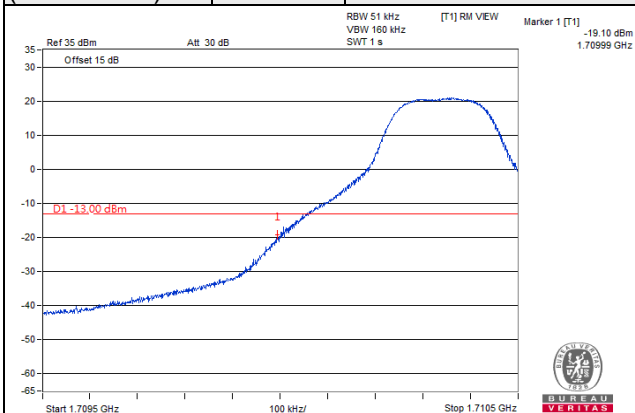
QPSK

1 RB / 0 RB Offset

Channel 132647
(1777.5MHz)

QPSK

1 RB / 24 RB Offset



Channel 131997
(1712.5MHz)

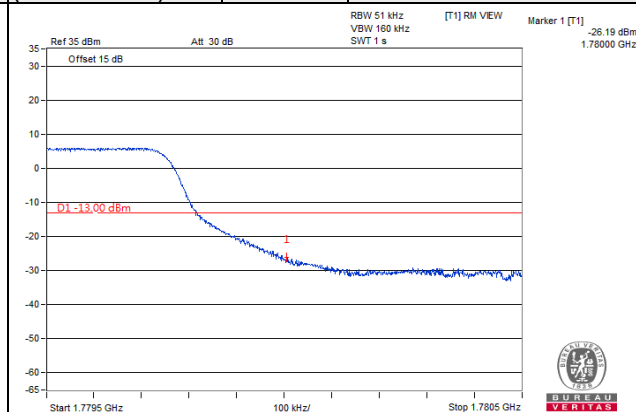
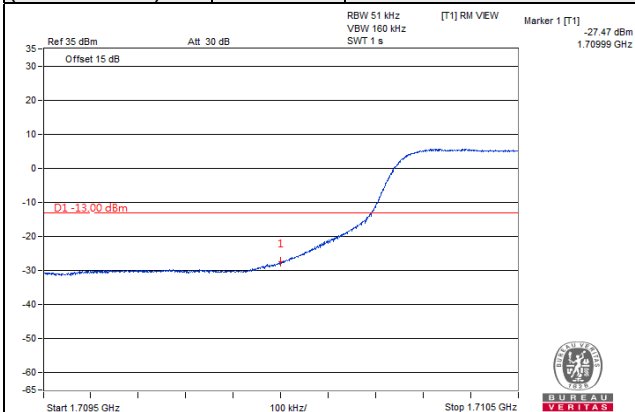
QPSK

25 RB / 0 RB Offset

Channel 132647
(1777.5MHz)

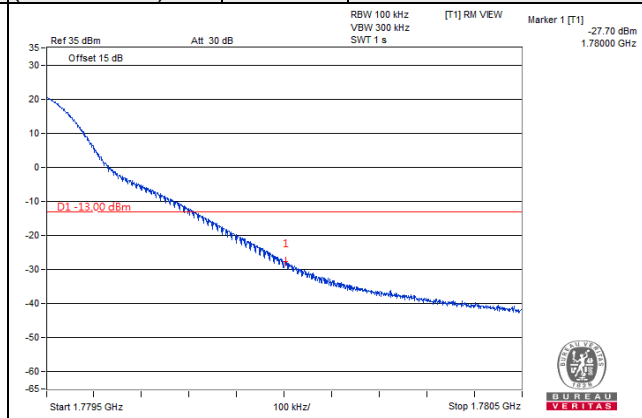
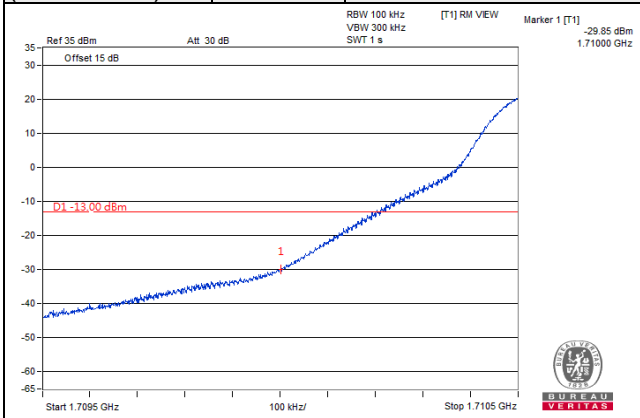
QPSK

25 RB / 0 RB Offset

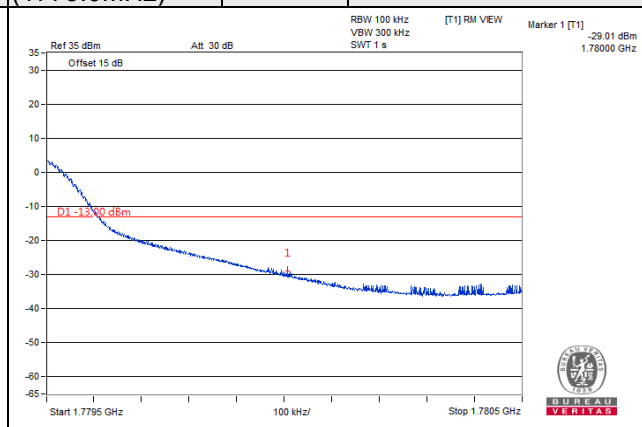
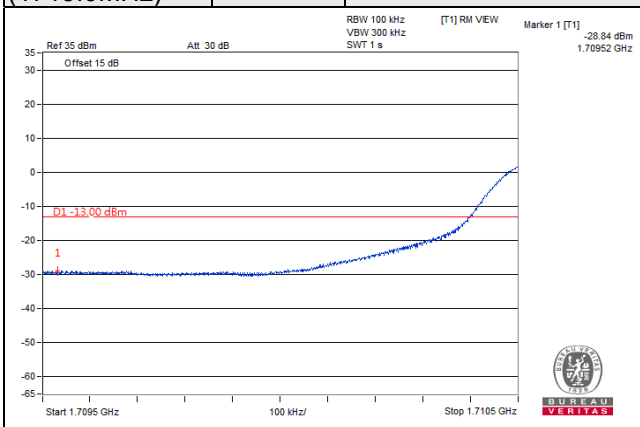


Channel Bandwidth: 10MHz

| | | | | | |
|-------------------------------|------|--------------------|-------------------------------|------|---------------------|
| Channel 132022 (1715.0MHz) | QPSK | 1 RB / 0 RB Offset | Channel 132622 (1775.0MHz) | QPSK | 1 RB / 49 RB Offset |
|-------------------------------|------|--------------------|-------------------------------|------|---------------------|

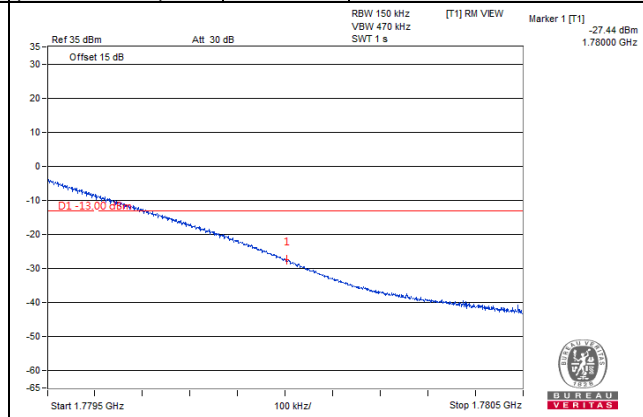
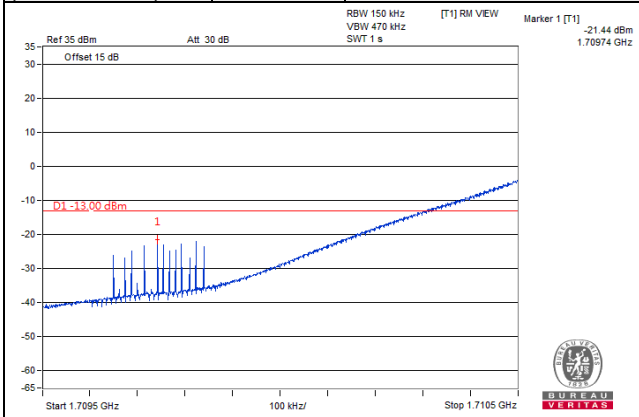


| | | | | | |
|-------------------------------|------|---------------------|-------------------------------|------|---------------------|
| Channel 132022 (1715.0MHz) | QPSK | 50 RB / 0 RB Offset | Channel 132622 (1775.0MHz) | QPSK | 50 RB / 0 RB Offset |
|-------------------------------|------|---------------------|-------------------------------|------|---------------------|

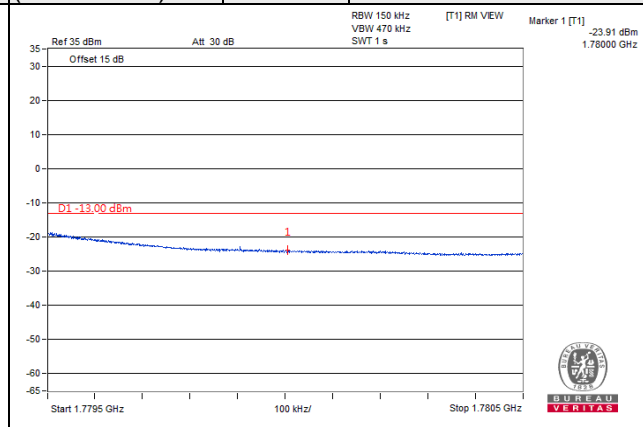
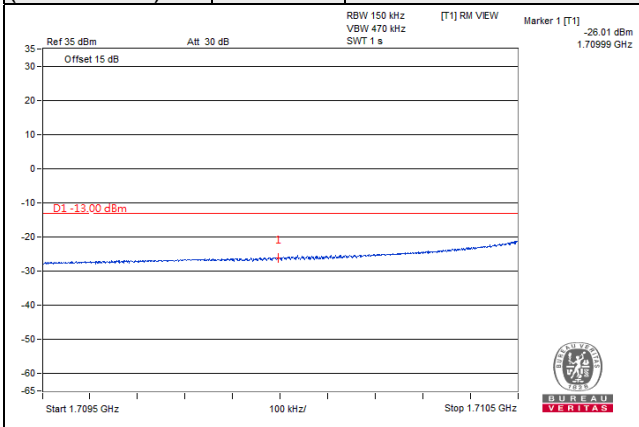


Channel Bandwidth: 15MHz

| | | | | | |
|-------------------------------|------|--------------------|-------------------------------|------|---------------------|
| Channel 132047 (1717.5MHz) | QPSK | 1 RB / 0 RB Offset | Channel 132597 (1772.5MHz) | QPSK | 1 RB / 74 RB Offset |
|-------------------------------|------|--------------------|-------------------------------|------|---------------------|



| | | | | | |
|-------------------------------|------|---------------------|-------------------------------|------|---------------------|
| Channel 132047 (1717.5MHz) | QPSK | 75 RB / 0 RB Offset | Channel 132597 (1772.5MHz) | QPSK | 75 RB / 0 RB Offset |
|-------------------------------|------|---------------------|-------------------------------|------|---------------------|



Channel Bandwidth: 20MHz

Channel 132072
(1720.0MHz)

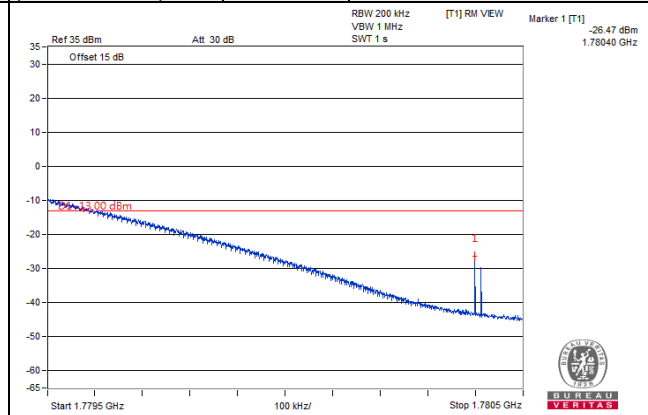
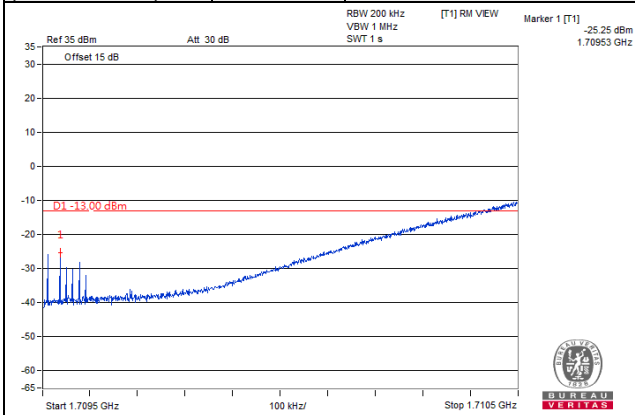
QPSK

1 RB / 0 RB Offset

Channel 132572
(1770.0MHz)

QPSK

1 RB / 99 RB Offset



Channel 132072
(1720.0MHz)

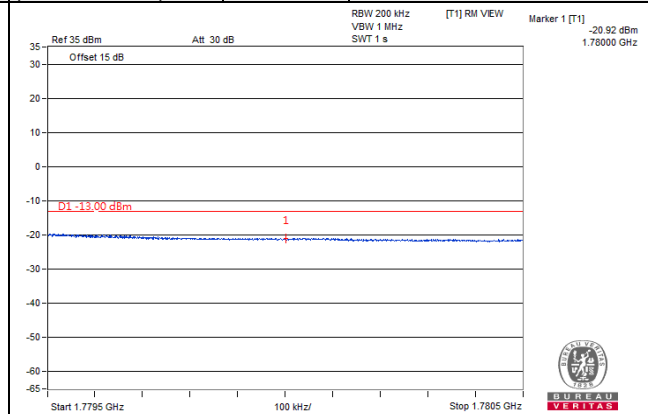
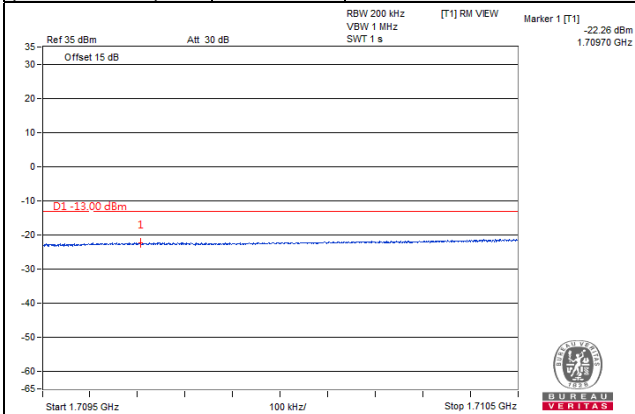
QPSK

100 RB / 0 RB Offset

Channel 132572
(1770.0MHz)

QPSK

100 RB / 0 RB Offset

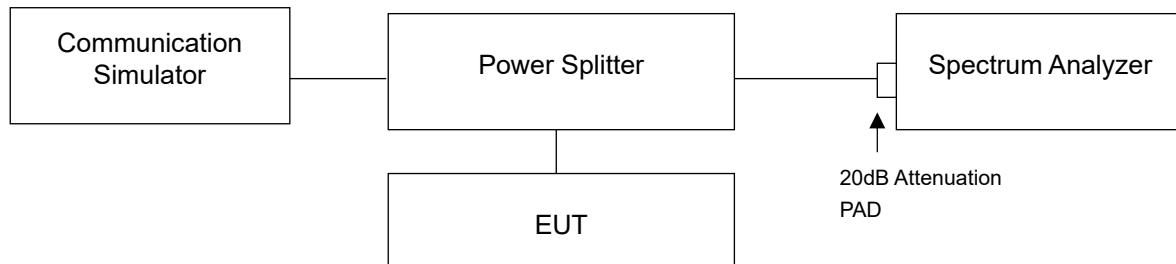


4.6 Peak to Average Ratio

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

5GNR n77 (Part 270):

| 5GNR n77 (Part 270), Channel Bandwidth 20MHz | | | | | | |
|--|-----------------|----------------------------|------|-------|-------|--------|
| Channel | Frequency (MHz) | Peak To Average Ratio (dB) | | | | |
| | | $\pi/2$ BPSK | QPSK | 16QAM | 64QAM | 256QAM |
| 647334 | 3710.01 | 5.23 | 6.58 | 6.57 | 7.02 | 8.60 |
| 656000 | 3840 | 5.18 | 6.77 | 6.77 | 7.22 | 8.48 |
| 664666 | 3969.99 | 5.45 | 7.18 | 7.19 | 7.63 | 8.49 |
| 5GNR n77 (Part 270), Channel Bandwidth 40MHz | | | | | | |
| Channel | Frequency (MHz) | Peak To Average Ratio (dB) | | | | |
| | | $\pi/2$ BPSK | QPSK | 16QAM | 64QAM | 256QAM |
| 648000 | 3720 | 4.82 | 6.57 | 6.58 | 6.98 | 8.54 |
| 656000 | 3840 | 5.39 | 6.78 | 6.79 | 7.25 | 8.58 |
| 664000 | 3960 | 4.79 | 7.26 | 7.29 | 7.76 | 8.54 |
| 5GNR n77 (Part 270) Channel Bandwidth 50MHz | | | | | | |
| Channel | Frequency (MHz) | Peak To Average Ratio (dB) | | | | |
| | | $\pi/2$ BPSK | QPSK | 16QAM | 64QAM | 256QAM |
| 648334 | 3725.01 | 5.45 | 6.66 | 6.79 | 7.21 | 7.27 |
| 656000 | 3840 | 4.85 | 6.89 | 6.88 | 7.43 | 8.58 |
| 663666 | 3954.99 | 5.74 | 7.37 | 7.30 | 7.90 | 8.61 |
| 5GNR n77 (Part 270) Channel Bandwidth 60MHz | | | | | | |
| Channel | Frequency (MHz) | Peak To Average Ratio (dB) | | | | |
| | | $\pi/2$ BPSK | QPSK | 16QAM | 64QAM | 256QAM |
| 648668 | 3730.02 | 4.56 | 6.82 | 6.72 | 7.17 | 8.60 |
| 656000 | 3840 | 5.36 | 6.98 | 6.98 | 7.38 | 8.57 |
| 663332 | 3949.98 | 4.56 | 7.53 | 7.47 | 7.89 | 8.55 |
| 5GNR n77 (Part 270), Channel Bandwidth 80MHz | | | | | | |
| Channel | Frequency (MHz) | Peak To Average Ratio (dB) | | | | |
| | | $\pi/2$ BPSK | QPSK | 16QAM | 64QAM | 256QAM |
| 649334 | 3740.01 | 5.38 | 6.75 | 6.75 | 7.30 | 8.64 |
| 656000 | 3840 | 5.17 | 7.41 | 7.04 | 7.51 | 8.54 |
| 662666 | 3939.99 | 5.83 | 7.53 | 7.55 | 7.98 | 8.54 |

5GNR n77 (Part 270), Channel Bandwidth 90MHz

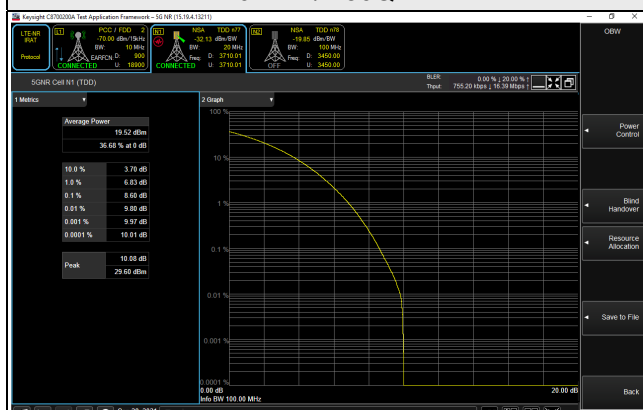
| Channel | Frequency (MHz) | Peak To Average Ratio (dB) | | | | |
|---------|-----------------|----------------------------|------|-------|-------|--------|
| | | $\pi/2$ BPSK | QPSK | 16QAM | 64QAM | 256QAM |
| 649558 | 3745.02 | 4.56 | 6.81 | 6.86 | 7.25 | 8.61 |
| 656000 | 3840 | 5.47 | 7.08 | 7.07 | 7.48 | 8.55 |
| 662332 | 3934.98 | 4.50 | 7.61 | 7.56 | 7.98 | 8.54 |

5GNR n77 (Part 270), Channel Bandwidth 100MHz

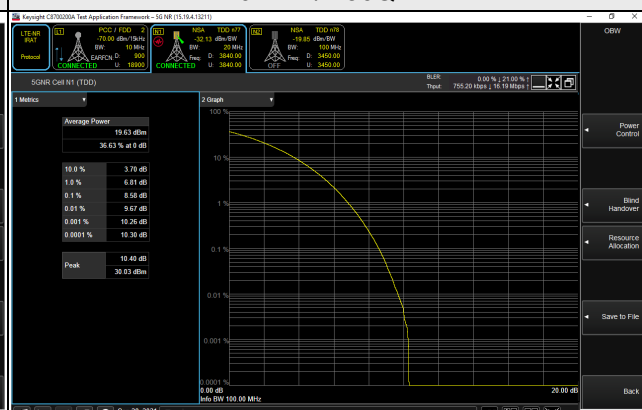
| Channel | Frequency (MHz) | Peak To Average Ratio (dB) | | | | |
|---------|-----------------|----------------------------|------|-------|-------|--------|
| | | $\pi/2$ BPSK | QPSK | 16QAM | 64QAM | 256QAM |
| 650000 | 3750 | 5.45 | 6.86 | 6.89 | 7.39 | 8.59 |
| 656000 | 3840 | 5.22 | 7.21 | 7.21 | 7.72 | 8.57 |
| 662000 | 3930 | 6.02 | 7.57 | 7.60 | 8.01 | 8.57 |

Spectrum Plot of Worst Value

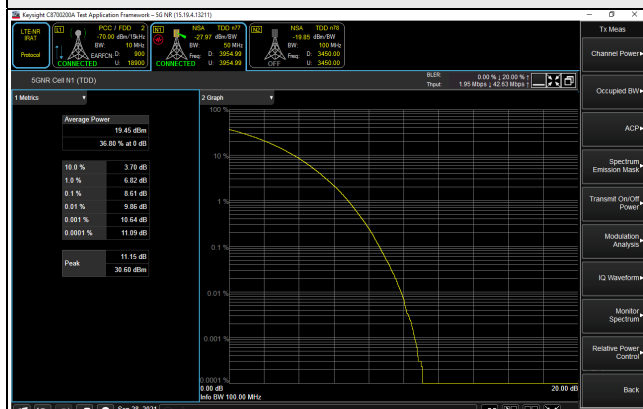
20MHz / 256QAM



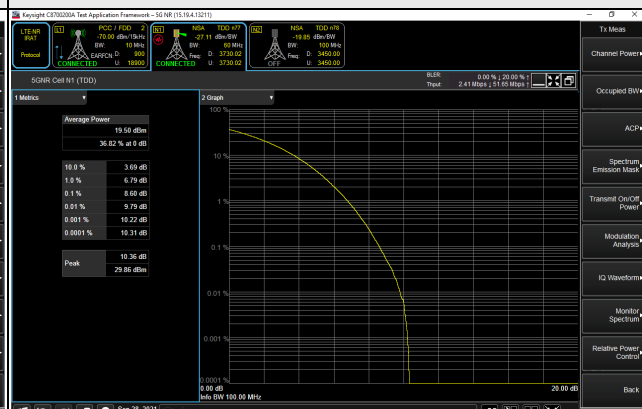
40MHz / 256QAM



50MHz / 256QAM

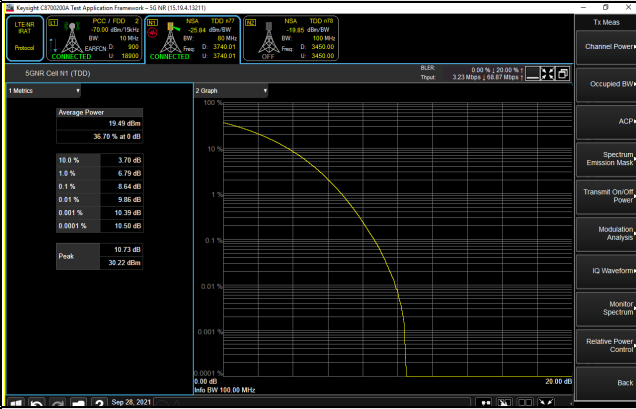


60MHz / 256QAM

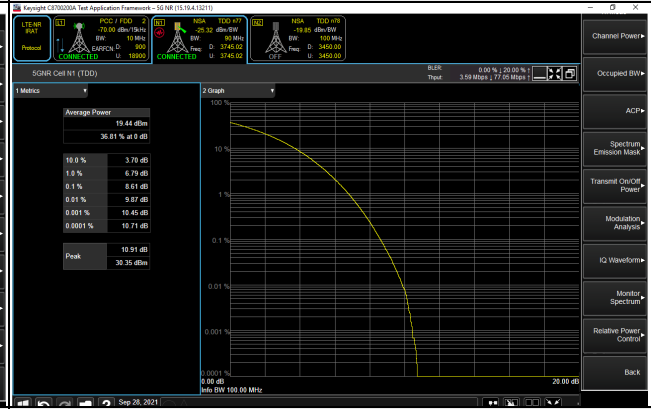


Spectrum Plot of Worst Value

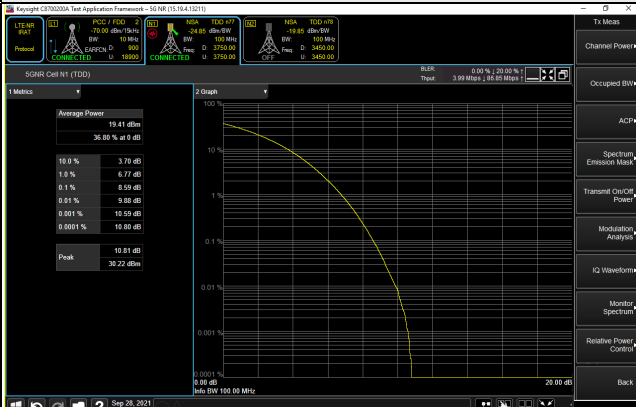
80MHz / 256QAM



90MHz / 256QAM



100MHz / 256QAM



5GNR n77 (Part 27Q):

| 5GNR n77 (Part 27Q), Channel Bandwidth 20MHz | | | | | | |
|--|-----------------|----------------------------|------|-------|-------|--------|
| Channel | Frequency (MHz) | Peak To Average Ratio (dB) | | | | |
| | | $\pi/2$ BPSK | QPSK | 16QAM | 64QAM | 256QAM |
| 630668 | 3460.02 | 4.59 | 7.67 | 7.71 | 8.16 | 8.71 |
| 633334 | 3500.01 | 4.39 | 6.64 | 6.58 | 7.08 | 8.70 |
| 636000 | 3540 | 4.20 | 7.23 | 7.14 | 7.68 | 8.72 |
| 5GNR n77 (Part 27Q), Channel Bandwidth 40MHz | | | | | | |
| Channel | Frequency (MHz) | Peak To Average Ratio (dB) | | | | |
| | | $\pi/2$ BPSK | QPSK | 16QAM | 64QAM | 256QAM |
| 631334 | 3470.01 | 4.02 | 6.61 | 6.57 | 6.99 | 8.67 |
| 633334 | 3500.01 | 3.87 | 7.18 | 7.15 | 7.65 | 8.64 |
| 635332 | 3529.98 | 4.08 | 6.62 | 6.63 | 7.04 | 8.65 |
| 5GNR n77 (Part 27Q) Channel Bandwidth 50MHz | | | | | | |
| Channel | Frequency (MHz) | Peak To Average Ratio (dB) | | | | |
| | | $\pi/2$ BPSK | QPSK | 16QAM | 64QAM | 256QAM |
| 631668 | 3475.02 | 4.57 | 6.56 | 6.58 | 7.08 | 8.64 |
| 633334 | 3500.01 | 4.74 | 6.53 | 6.56 | 7.01 | 8.64 |
| 635000 | 3525 | 4.36 | 7.40 | 7.40 | 7.88 | 8.66 |
| 5GNR n77 (Part 27Q) Channel Bandwidth 60MHz | | | | | | |
| Channel | Frequency (MHz) | Peak To Average Ratio (dB) | | | | |
| | | $\pi/2$ BPSK | QPSK | 16QAM | 64QAM | 256QAM |
| 632000 | 3480 | 4.39 | 6.63 | 6.62 | 7.02 | 8.66 |
| 633334 | 3500.01 | 4.34 | 7.61 | 7.57 | 8.04 | 8.71 |
| 634666 | 3519.99 | 4.26 | 6.62 | 6.59 | 6.99 | 8.64 |
| 5GNR n77 (Part 27Q), Channel Bandwidth 80MHz | | | | | | |
| Channel | Frequency (MHz) | Peak To Average Ratio (dB) | | | | |
| | | $\pi/2$ BPSK | QPSK | 16QAM | 64QAM | 256QAM |
| 632668 | 3490.02 | 4.48 | 6.61 | 6.62 | 7.13 | 8.59 |
| 633334 | 3500.01 | 4.84 | 6.61 | 6.61 | 7.13 | 8.64 |
| 634000 | 3510 | 4.42 | 6.60 | 6.61 | 7.13 | 8.64 |