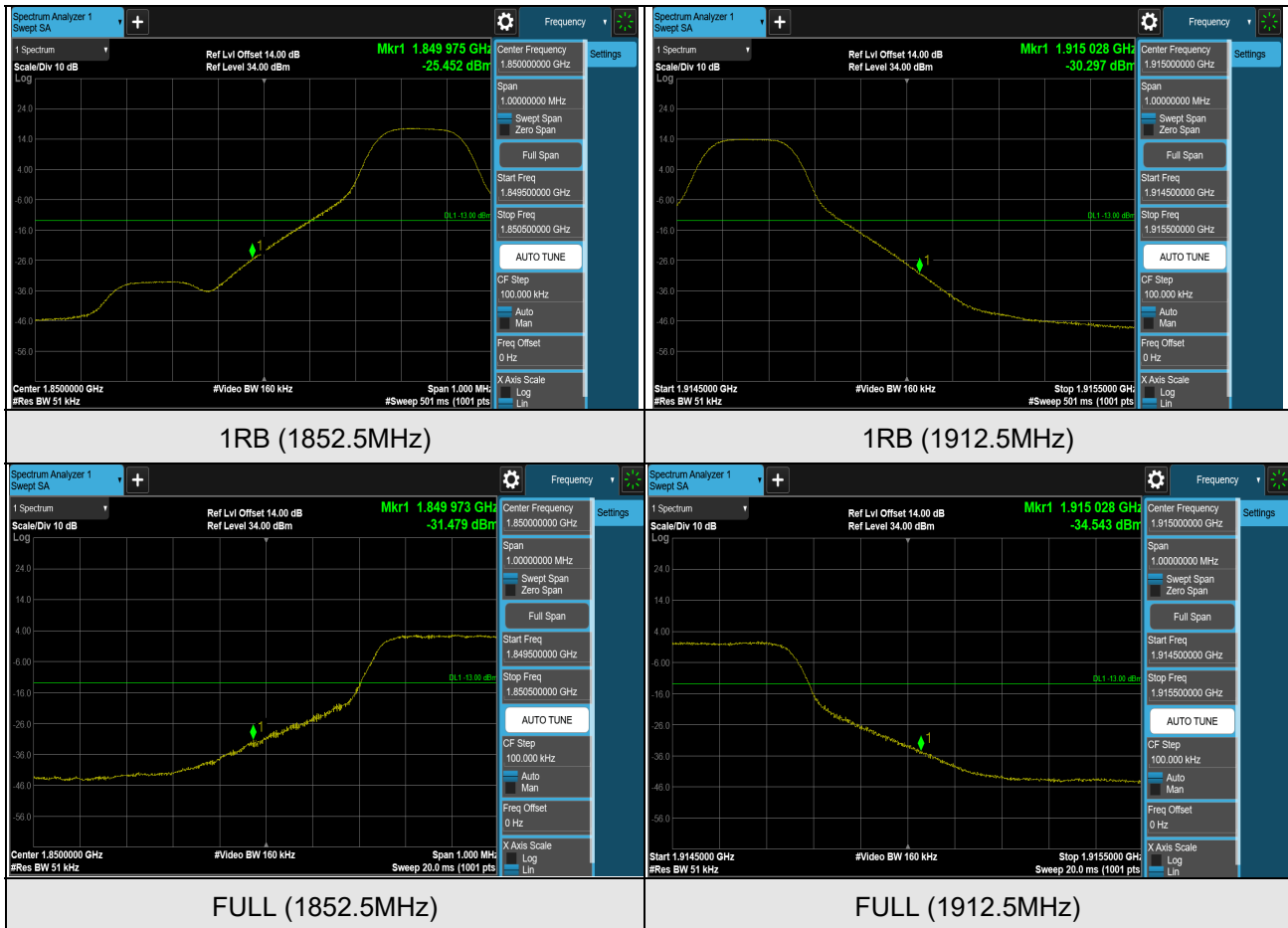
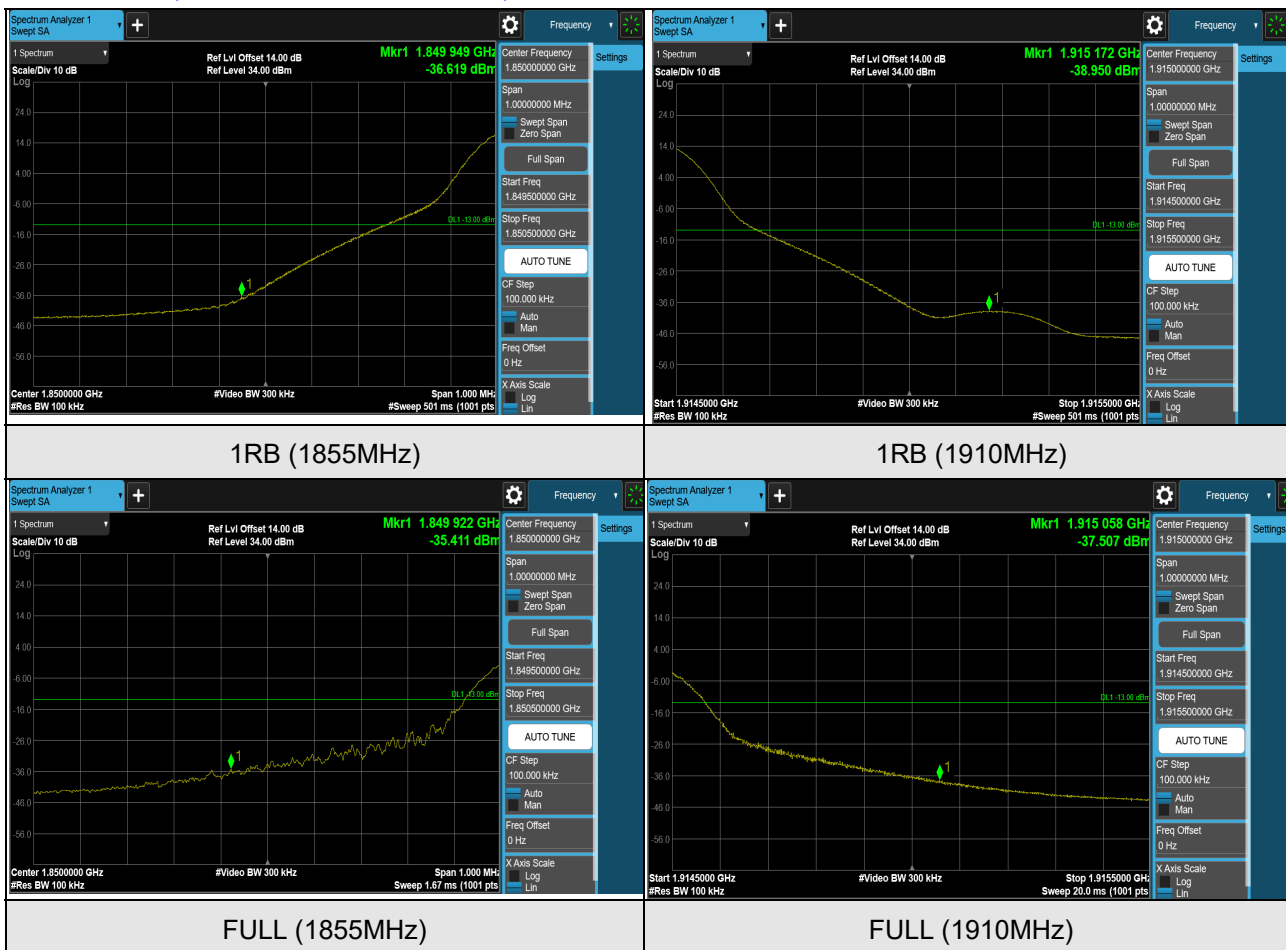


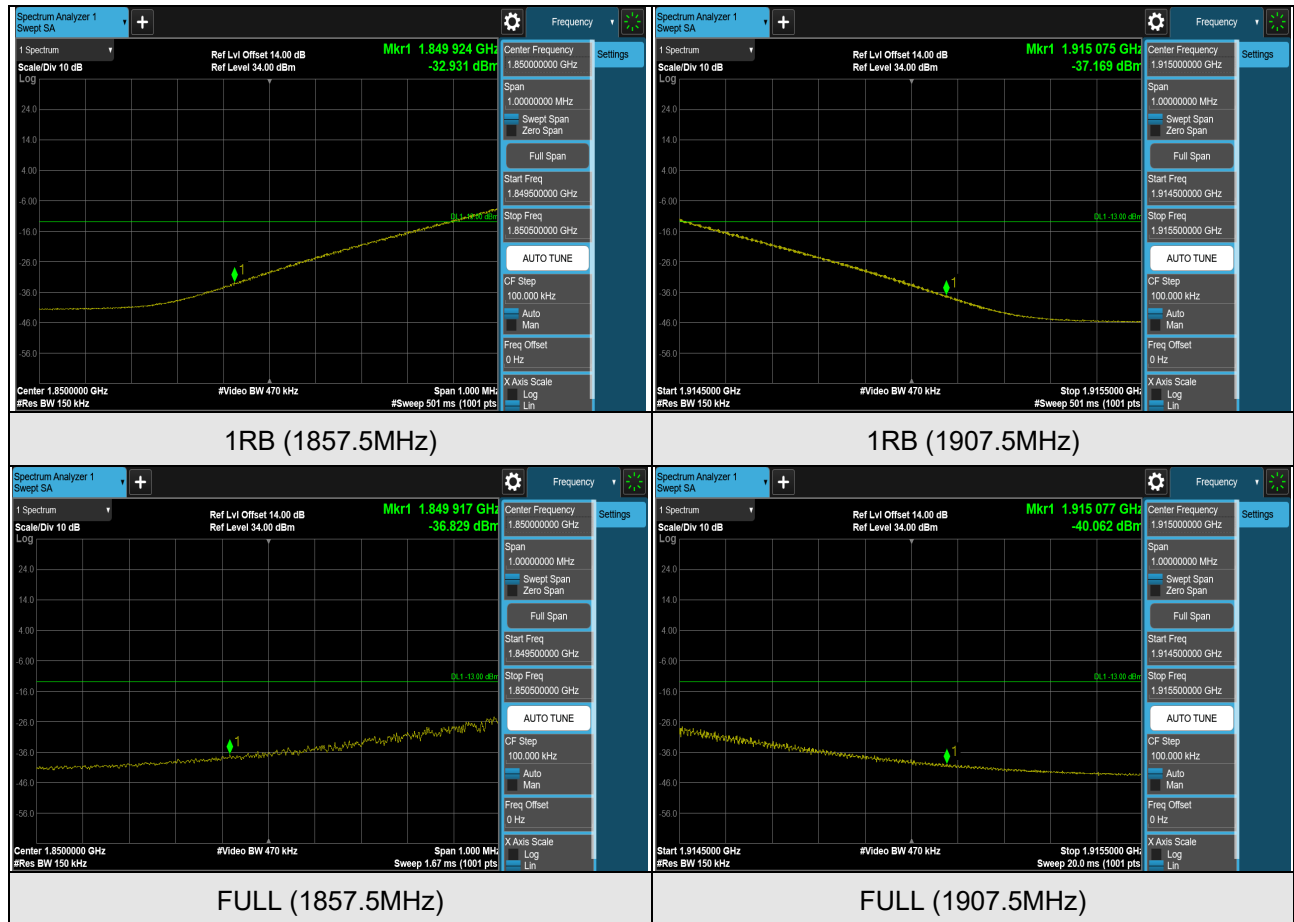
## LTE Band 25 (Channel Bandwidth 5MHz)



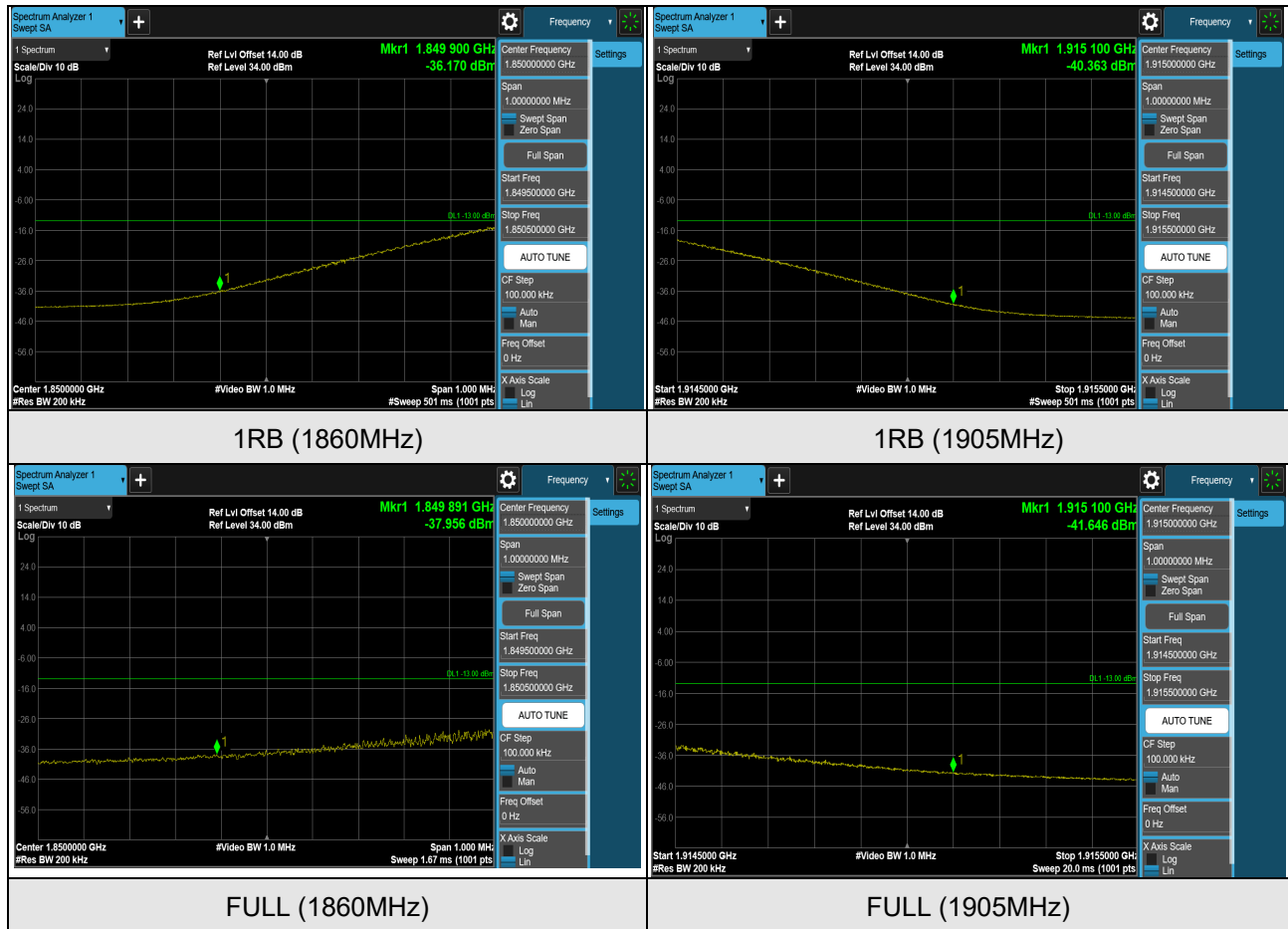
## LTE Band 25 (Channel Bandwidth 10MHz)



## LTE Band 25 (Channel Bandwidth 15MHz)



## LTE Band 25 (Channel Bandwidth 20MHz)

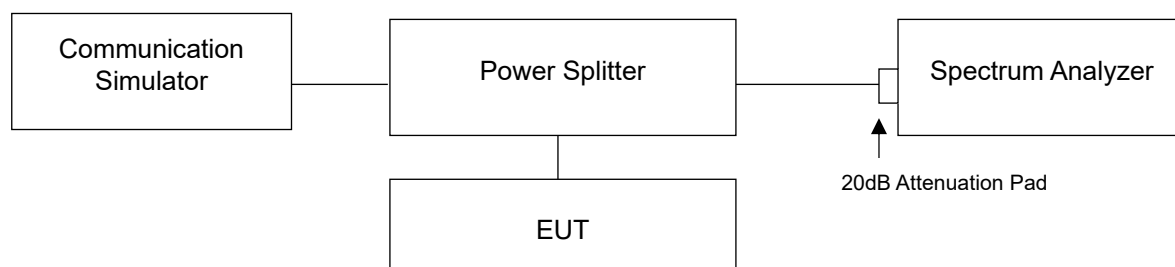


## 4.6 Peak to Average Ratio

### 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

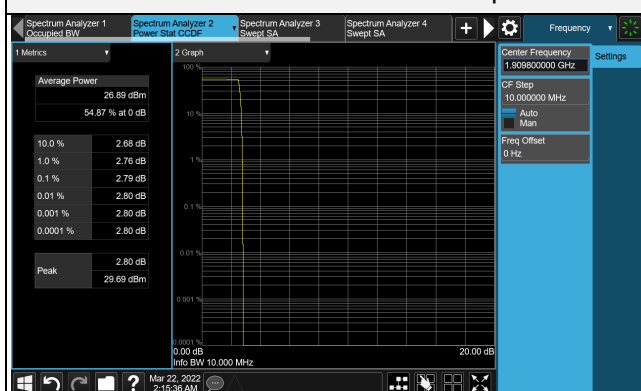
- Set resolution/measurement bandwidth  $\geq$  signal's occupied bandwidth;
- Set the number of counts to a value that stabilizes the measured CCDF curve;
- Record the maximum PAPR level associated with a probability of 0.1%.

#### 4.6.4 Test Results

##### GPRS, EDGE

| Test Condition | Channel | Frequency (MHz) | Measure. Value (dB) | Limit (dB) | Result |
|----------------|---------|-----------------|---------------------|------------|--------|
| GPRS           | 512     | 1850.2          | 2.78                | 13         | Pass   |
| GPRS           | 661     | 1880            | 2.78                | 13         | Pass   |
| GPRS           | 810     | 1909.8          | 2.78                | 13         | Pass   |
| EDGE           | 512     | 1850.2          | 2.78                | 13         | Pass   |
| EDGE           | 661     | 1880            | 2.77                | 13         | Pass   |
| EDGE           | 810     | 1909.8          | 2.79                | 13         | Pass   |

Spectrum Plot of Worst Value

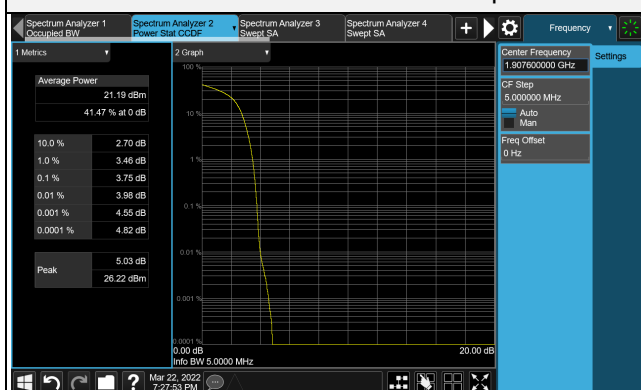


EDGE CH 810 (1909.8MHz)

## WCDMA Band 2

| Test Condition | Channel | Frequency (MHz) | Measure. Value (dB) | Limit (dB) | Result |
|----------------|---------|-----------------|---------------------|------------|--------|
| WCDMA          | 9262    | 1852.4          | 3.08                | 13         | Pass   |
| WCDMA          | 9400    | 1880.0          | 3.14                | 13         | Pass   |
| WCDMA          | 9538    | 1907.6          | 3.13                | 13         | Pass   |
| HSDPA          | 9262    | 1852.4          | 3.71                | 13         | Pass   |
| HSDPA          | 9400    | 1880.0          | 3.73                | 13         | Pass   |
| HSDPA          | 9538    | 1907.6          | 3.75                | 13         | Pass   |
| HSUPA          | 9262    | 1852.4          | 3.65                | 13         | Pass   |
| HSUPA          | 9400    | 1880.0          | 3.69                | 13         | Pass   |
| HSUPA          | 9538    | 1907.6          | 3.74                | 13         | Pass   |

Spectrum Plot of Worst Value

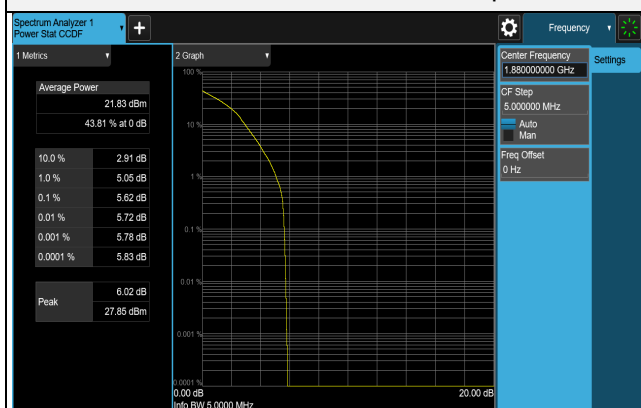


HSDPA CH 9538 (1907.6MHz)

### LTE Band 2 (Channel Bandwidth 1.4MHz)

| Test Condition | Channel | Frequency (MHz) | Measure. Value (dB) | Limit (dB) | Result |
|----------------|---------|-----------------|---------------------|------------|--------|
| QPSK           | 18607   | 1850.7          | 4.56                | 13         | Pass   |
| QPSK           | 18900   | 1880            | 4.70                | 13         | Pass   |
| QPSK           | 19193   | 1909.3          | 4.64                | 13         | Pass   |
| 16QAM          | 18607   | 1850.7          | 5.53                | 13         | Pass   |
| 16QAM          | 18900   | 1880            | 5.62                | 13         | Pass   |
| 16QAM          | 19193   | 1909.3          | 5.60                | 13         | Pass   |

Spectrum Plot of Worst Value



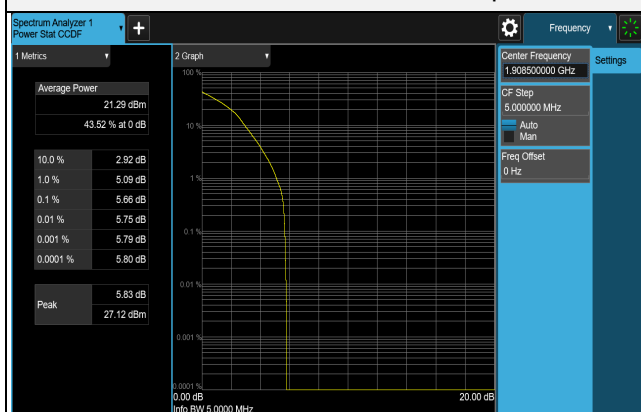
16QAM CH 18900 (1880MHz)



### LTE Band 2 (Channel Bandwidth 3MHz)

| Test Condition | Channel | Frequency (MHz) | Measure. Value (dB) | Limit (dB) | Result |
|----------------|---------|-----------------|---------------------|------------|--------|
| QPSK           | 18615   | 1851.5          | 4.58                | 13         | Pass   |
| QPSK           | 18900   | 1880            | 4.74                | 13         | Pass   |
| QPSK           | 19185   | 1908.5          | 4.70                | 13         | Pass   |
| 16QAM          | 18615   | 1851.5          | 5.53                | 13         | Pass   |
| 16QAM          | 18900   | 1880            | 5.63                | 13         | Pass   |
| 16QAM          | 19185   | 1908.5          | 5.66                | 13         | Pass   |

Spectrum Plot of Worst Value

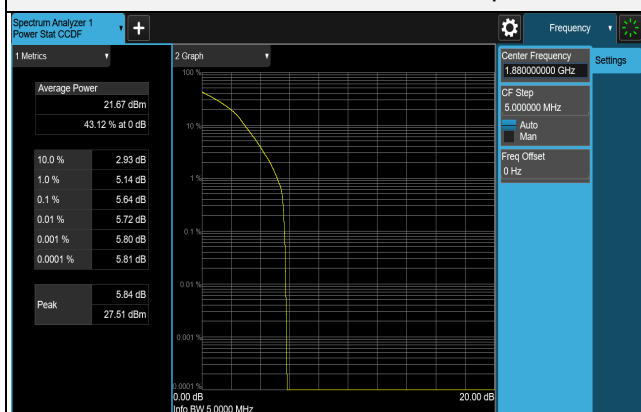


16QAM CH 19185 (1908.5MHz)

### LTE Band 2 (Channel Bandwidth 5MHz)

| Test Condition | Channel | Frequency (MHz) | Measure. Value (dB) | Limit (dB) | Result |
|----------------|---------|-----------------|---------------------|------------|--------|
| QPSK           | 18625   | 1852.5          | 4.53                | 13         | Pass   |
| QPSK           | 18900   | 1880            | 4.67                | 13         | Pass   |
| QPSK           | 19175   | 1907.5          | 4.66                | 13         | Pass   |
| 16QAM          | 18625   | 1852.5          | 5.47                | 13         | Pass   |
| 16QAM          | 18900   | 1880            | 5.64                | 13         | Pass   |
| 16QAM          | 19175   | 1907.5          | 5.64                | 13         | Pass   |

### Spectrum Plot of Worst Value

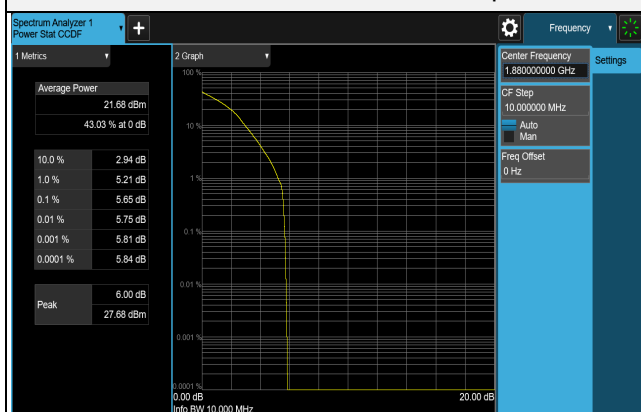


16QAM CH 18900 (1880MHz)

### LTE Band 2 (Channel Bandwidth 10MHz)

| Test Condition | Channel | Frequency (MHz) | Measure. Value (dB) | Limit (dB) | Result |
|----------------|---------|-----------------|---------------------|------------|--------|
| QPSK           | 18650   | 1855            | 4.50                | 13         | Pass   |
| QPSK           | 18900   | 1880            | 4.69                | 13         | Pass   |
| QPSK           | 19150   | 1905            | 4.70                | 13         | Pass   |
| 16QAM          | 18650   | 1855            | 5.43                | 13         | Pass   |
| 16QAM          | 18900   | 1880            | 5.65                | 13         | Pass   |
| 16QAM          | 19150   | 1905            | 5.64                | 13         | Pass   |

Spectrum Plot of Worst Value

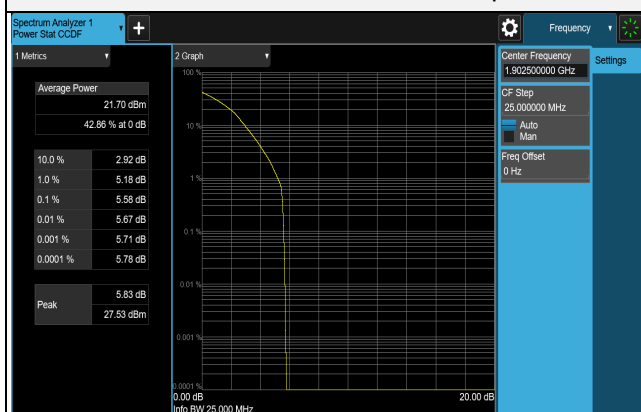


16QAM CH 18900 (1880MHz)

### LTE Band 2 (Channel Bandwidth 15MHz)

| Test Condition | Channel | Frequency (MHz) | Measure. Value (dB) | Limit (dB) | Result |
|----------------|---------|-----------------|---------------------|------------|--------|
| QPSK           | 18675   | 1857.5          | 4.46                | 13         | Pass   |
| QPSK           | 18900   | 1880            | 4.68                | 13         | Pass   |
| QPSK           | 19125   | 1902.5          | 4.63                | 13         | Pass   |
| 16QAM          | 18675   | 1857.5          | 5.44                | 13         | Pass   |
| 16QAM          | 18900   | 1880            | 5.53                | 13         | Pass   |
| 16QAM          | 19125   | 1902.5          | 5.58                | 13         | Pass   |

Spectrum Plot of Worst Value

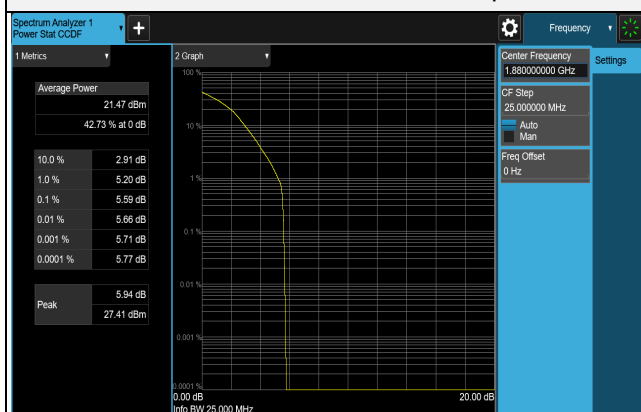


16QAM CH 19125 (1902.5MHz)

### LTE Band 2 (Channel Bandwidth 20MHz)

| Test Condition | Channel | Frequency (MHz) | Measure. Value (dB) | Limit (dB) | Result |
|----------------|---------|-----------------|---------------------|------------|--------|
| QPSK           | 18700   | 1860            | 4.46                | 13         | Pass   |
| QPSK           | 18900   | 1880            | 4.69                | 13         | Pass   |
| QPSK           | 19100   | 1900            | 4.58                | 13         | Pass   |
| 16QAM          | 18700   | 1860            | 5.43                | 13         | Pass   |
| 16QAM          | 18900   | 1880            | 5.59                | 13         | Pass   |
| 16QAM          | 19100   | 1900            | 5.54                | 13         | Pass   |

Spectrum Plot of Worst Value

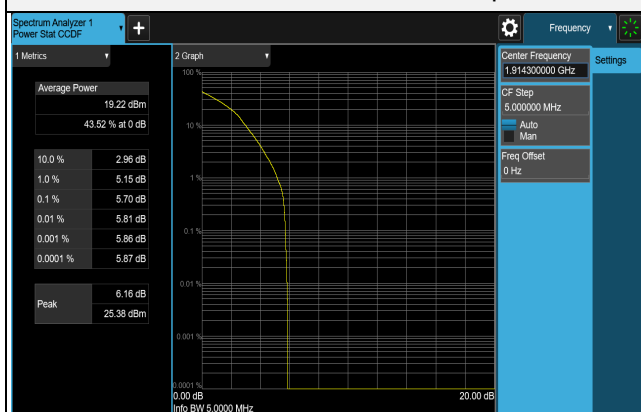


16QAM CH 18900 (1880MHz)

### LTE Band 25 (Channel Bandwidth 1.4MHz)

| Test Condition | Channel | Frequency (MHz) | Measure. Value (dB) | Limit (dB) | Result |
|----------------|---------|-----------------|---------------------|------------|--------|
| QPSK           | 26047   | 1850.7          | 4.54                | 13         | Pass   |
| QPSK           | 26365   | 1882.5          | 4.62                | 13         | Pass   |
| QPSK           | 26683   | 1914.3          | 4.74                | 13         | Pass   |
| 16QAM          | 26047   | 1850.7          | 5.44                | 13         | Pass   |
| 16QAM          | 26365   | 1882.5          | 5.58                | 13         | Pass   |
| 16QAM          | 26683   | 1914.3          | 5.70                | 13         | Pass   |

Spectrum Plot of Worst Value

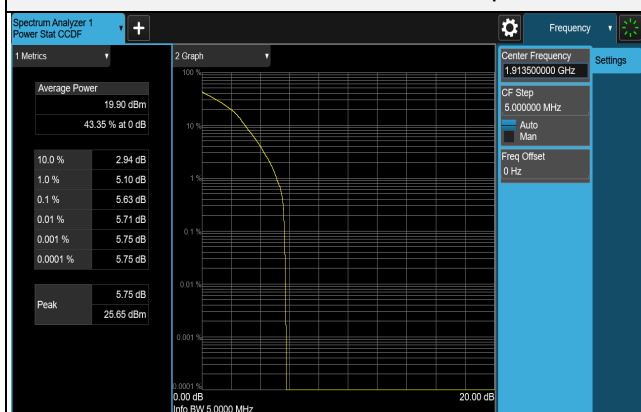


16QAM CH 26683 (1914.3MHz)

### LTE Band 25 (Channel Bandwidth 3MHz)

| Test Condition | Channel | Frequency (MHz) | Measure. Value (dB) | Limit (dB) | Result |
|----------------|---------|-----------------|---------------------|------------|--------|
| QPSK           | 26055   | 1851.5          | 4.41                | 13         | Pass   |
| QPSK           | 26365   | 1882.5          | 4.60                | 13         | Pass   |
| QPSK           | 26675   | 1913.5          | 4.70                | 13         | Pass   |
| 16QAM          | 26055   | 1851.5          | 5.47                | 13         | Pass   |
| 16QAM          | 26365   | 1882.5          | 5.61                | 13         | Pass   |
| 16QAM          | 26675   | 1913.5          | 5.63                | 13         | Pass   |

### Spectrum Plot of Worst Value

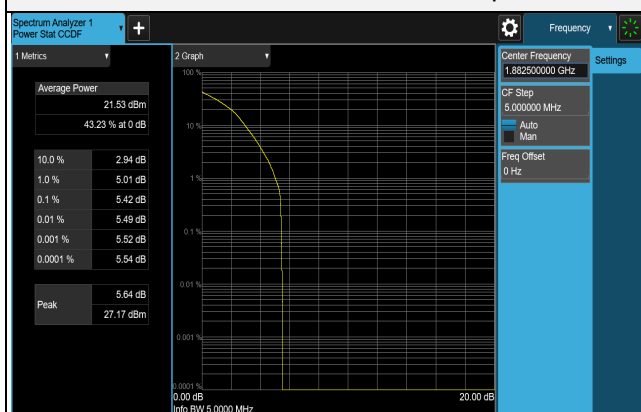


16QAM CH 26675 (1913.5MHz)

### LTE Band 25 (Channel Bandwidth 5MHz)

| Test Condition | Channel | Frequency (MHz) | Measure. Value (dB) | Limit (dB) | Result |
|----------------|---------|-----------------|---------------------|------------|--------|
| QPSK           | 26065   | 1852.5          | 4.25                | 13         | Pass   |
| QPSK           | 26365   | 1882.5          | 4.51                | 13         | Pass   |
| QPSK           | 26665   | 1912.5          | 4.50                | 13         | Pass   |
| 16QAM          | 26065   | 1852.5          | 5.11                | 13         | Pass   |
| 16QAM          | 26365   | 1882.5          | 5.42                | 13         | Pass   |
| 16QAM          | 26665   | 1912.5          | 5.40                | 13         | Pass   |

Spectrum Plot of Worst Value



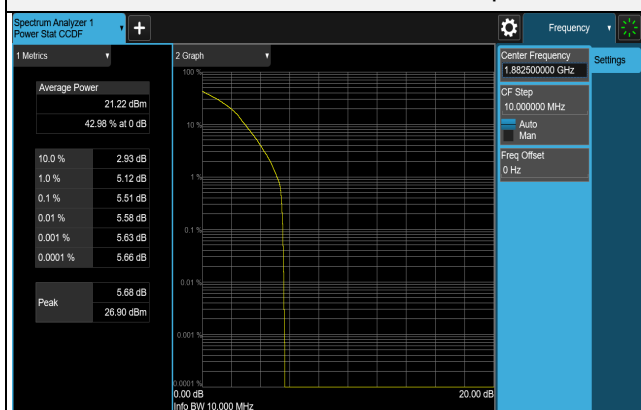
16QAM CH 26365 (1882.5MHz)



### LTE Band 25 (Channel Bandwidth 10MHz)

| Test Condition | Channel | Frequency (MHz) | Measure. Value (dB) | Limit (dB) | Result |
|----------------|---------|-----------------|---------------------|------------|--------|
| QPSK           | 26090   | 1855            | 4.22                | 13         | Pass   |
| QPSK           | 26365   | 1882.5          | 4.53                | 13         | Pass   |
| QPSK           | 26640   | 1910            | 4.62                | 13         | Pass   |
| 16QAM          | 26090   | 1855            | 5.25                | 13         | Pass   |
| 16QAM          | 26365   | 1882.5          | 5.51                | 13         | Pass   |
| 16QAM          | 26640   | 1910            | 5.49                | 13         | Pass   |

Spectrum Plot of Worst Value

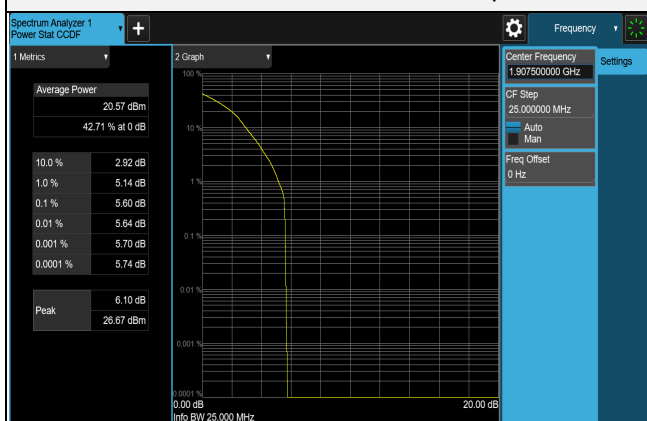


16QAM CH 26365 (1882.5MHz)

### LTE Band 25 (Channel Bandwidth 15MHz)

| Test Condition | Channel | Frequency (MHz) | Measure. Value (dB) | Limit (dB) | Result |
|----------------|---------|-----------------|---------------------|------------|--------|
| QPSK           | 26115   | 1857.5          | 4.26                | 13         | Pass   |
| QPSK           | 26365   | 1882.5          | 4.62                | 13         | Pass   |
| QPSK           | 26615   | 1907.5          | 4.68                | 13         | Pass   |
| 16QAM          | 26115   | 1857.5          | 5.24                | 13         | Pass   |
| 16QAM          | 26365   | 1882.5          | 5.56                | 13         | Pass   |
| 16QAM          | 26615   | 1907.5          | 5.60                | 13         | Pass   |

### Spectrum Plot of Worst Value

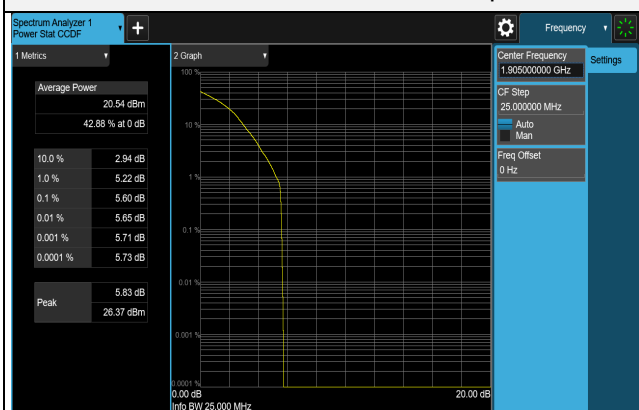


16QAM CH 26615 (1907.5MHz)

# LTE Band 25 (Channel Bandwidth 20MHz)

| Test Condition | Channel | Frequency (MHz) | Measure. Value (dB) | Limit (dB) | Result |
|----------------|---------|-----------------|---------------------|------------|--------|
| QPSK           | 26140   | 1860            | 4.33                | 13         | Pass   |
| QPSK           | 26365   | 1882.5          | 4.69                | 13         | Pass   |
| QPSK           | 26590   | 1905            | 4.65                | 13         | Pass   |
| 16QAM          | 26140   | 1860            | 5.15                | 13         | Pass   |
| 16QAM          | 26365   | 1882.5          | 5.56                | 13         | Pass   |
| 16QAM          | 26590   | 1905            | 5.60                | 13         | Pass   |

## Spectrum Plot of Worst Value



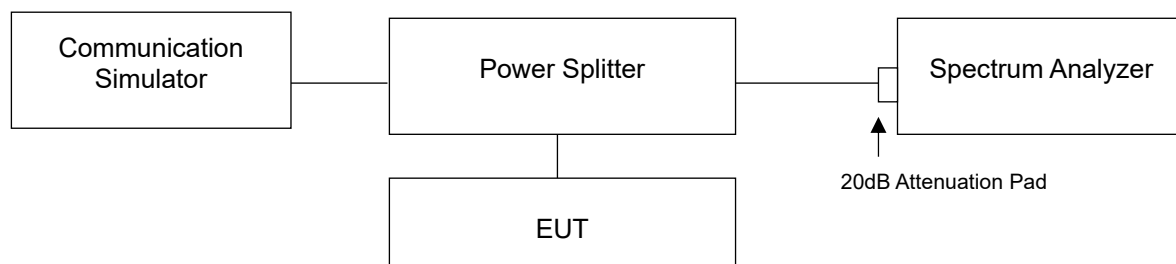
16QAM CH 26590 (1905MHz)

## 4.7 Conducted Spurious Emissions

### 4.7.1 Limits of Conducted Spurious Emissions Measurement

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. The emission limit equal to  $-13\text{dBm}$ .

### 4.7.2 Test Setup

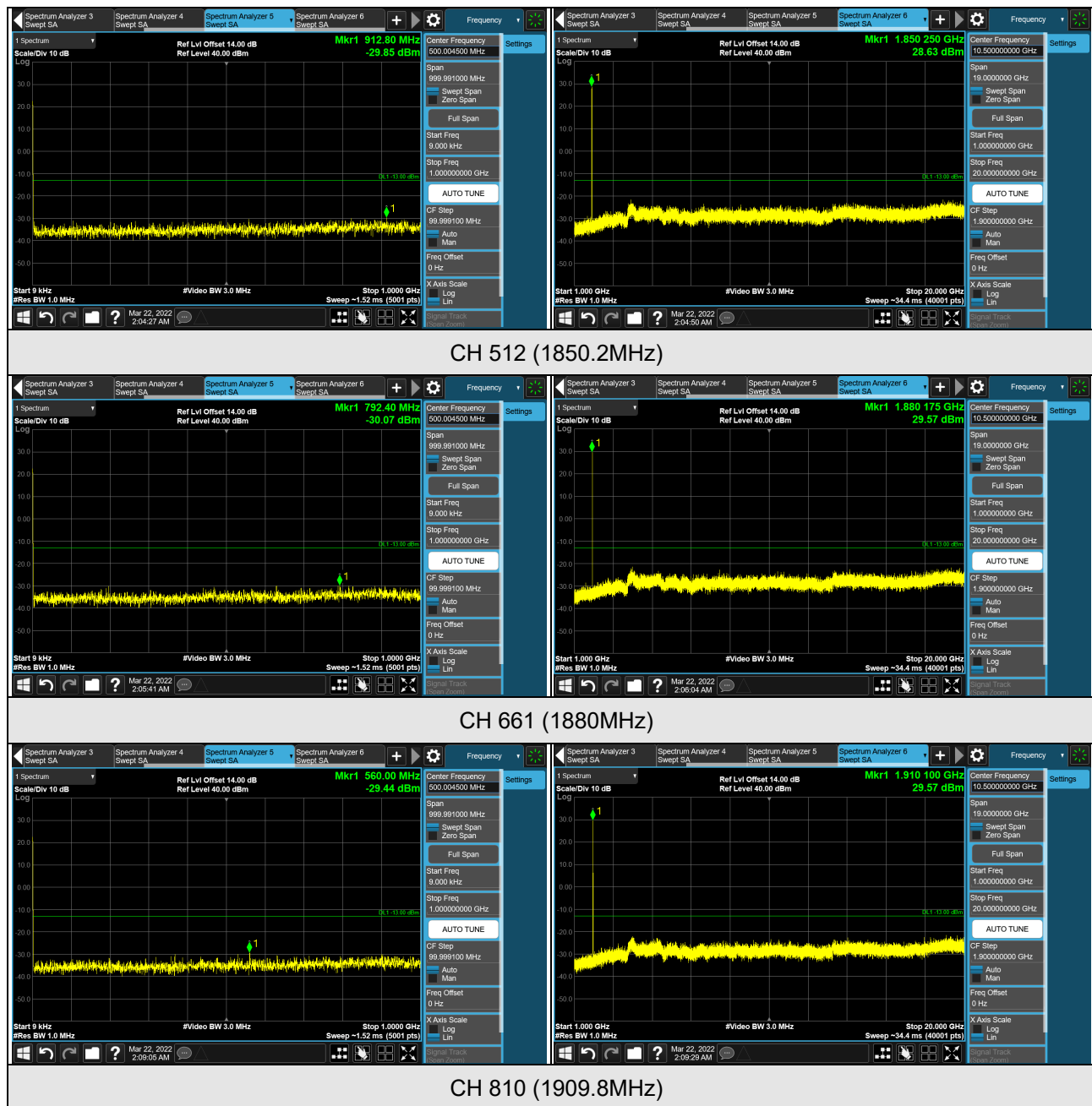


### 4.7.3 Test Procedure

- All measurements were done at low, middle and high channels operational frequency range.
- Measuring frequency range is from 9kHz to 20GHz. 20dB attenuation pad is connected with spectrum. RBW=1MHz and VBW=3MHz is used for conducted emission measurement.

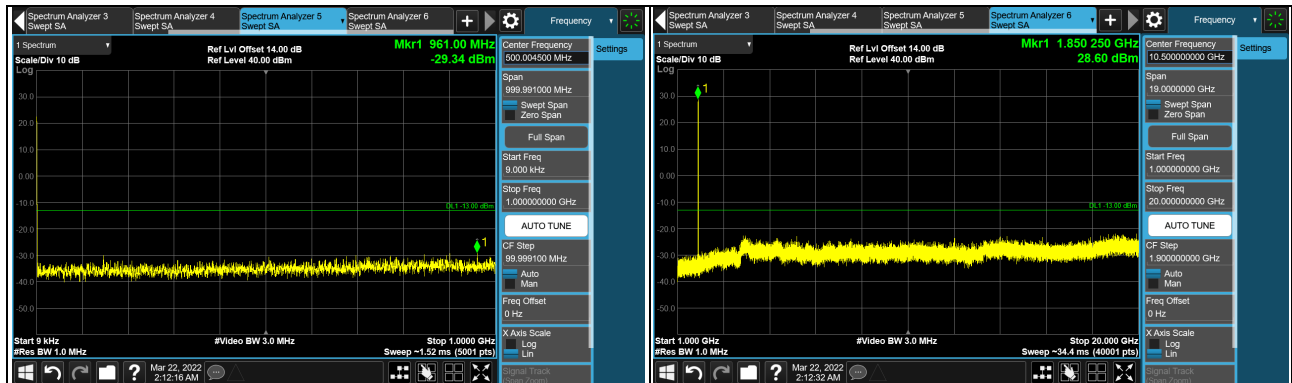
## 4.7.4 Test Results

### GPRS

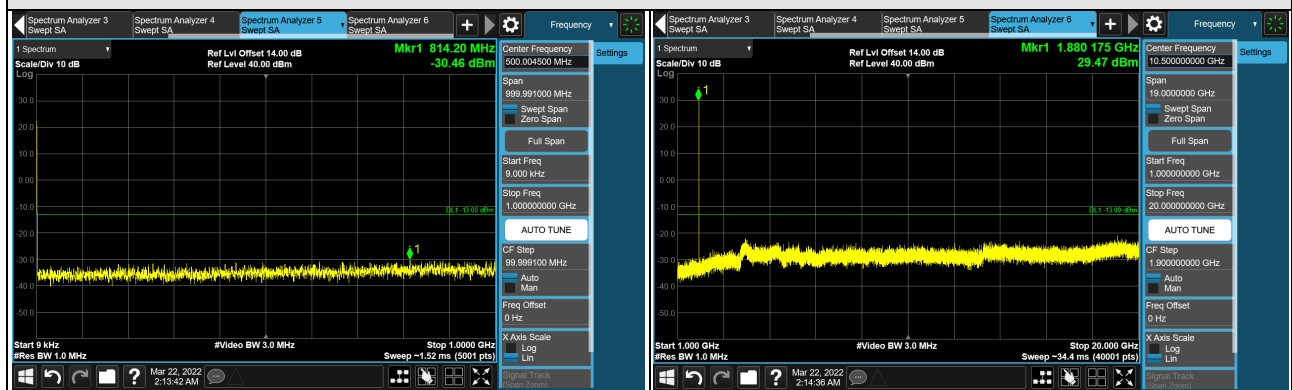


\*The 9kHz signal over the limit is from Spectrum.

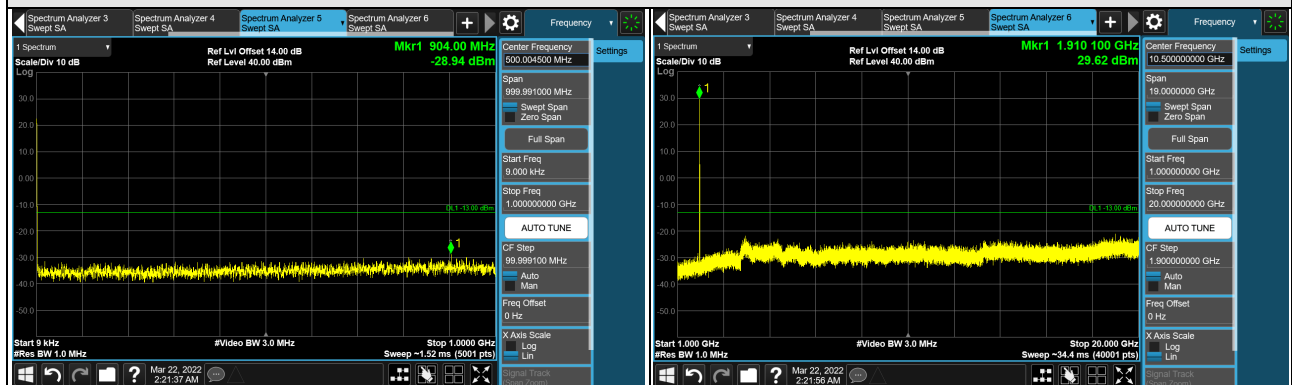
## EDGE



### CH 512 (1850.2MHz)



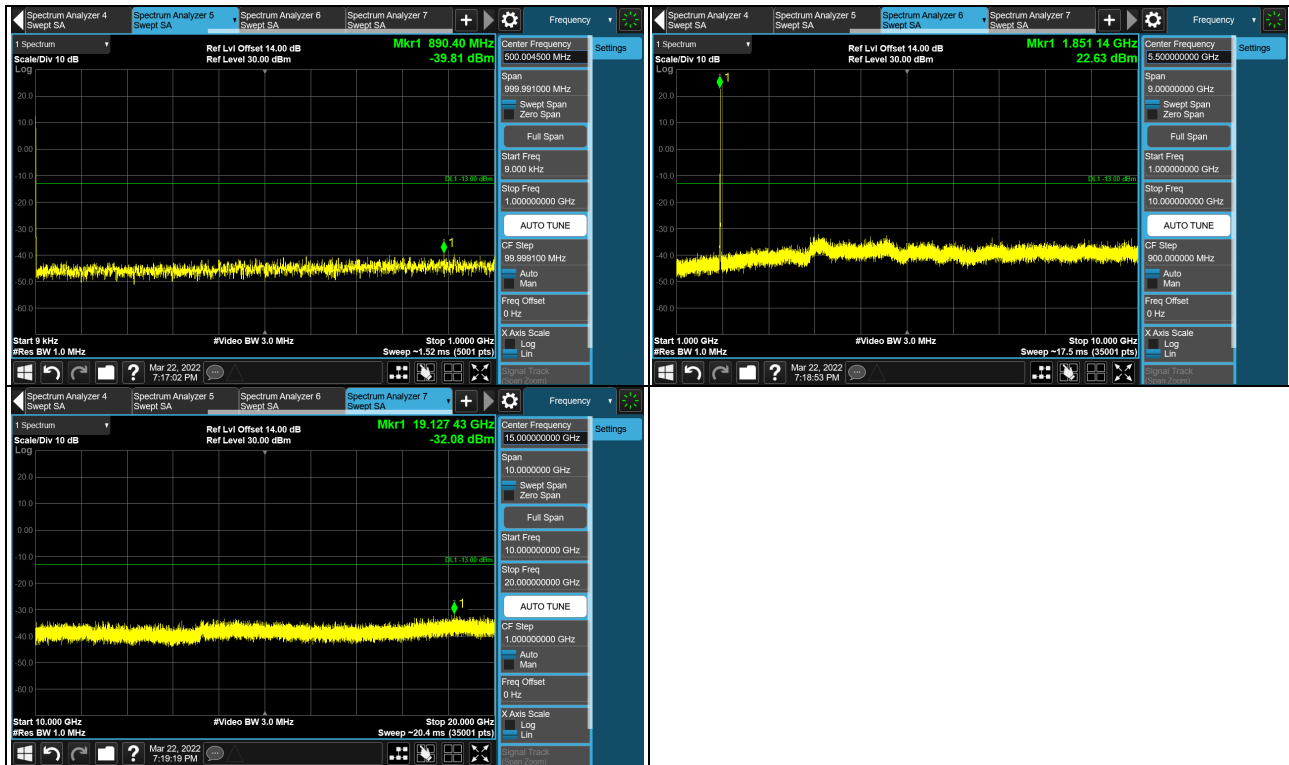
### CH 661 (1880MHz)



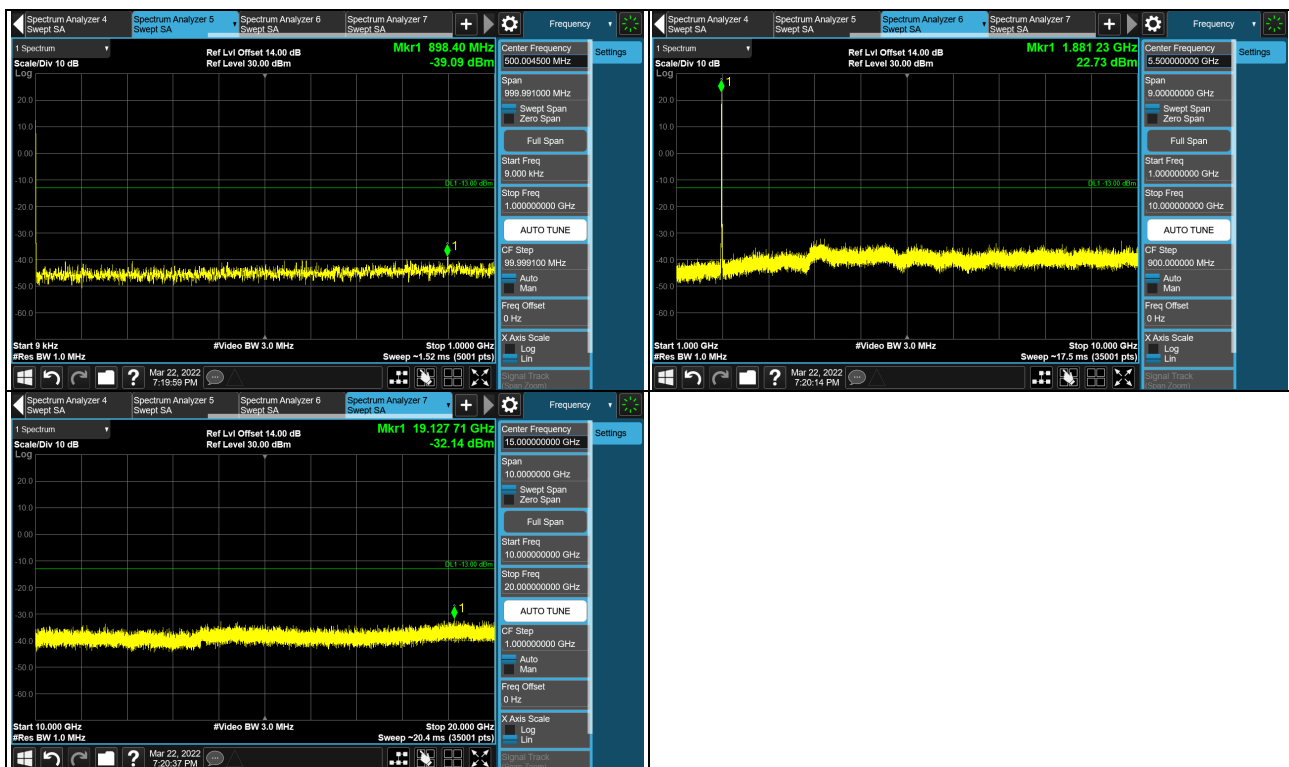
### CH 810 (1909.8MHz)

\*The 9kHz signal over the limit is from Spectrum.

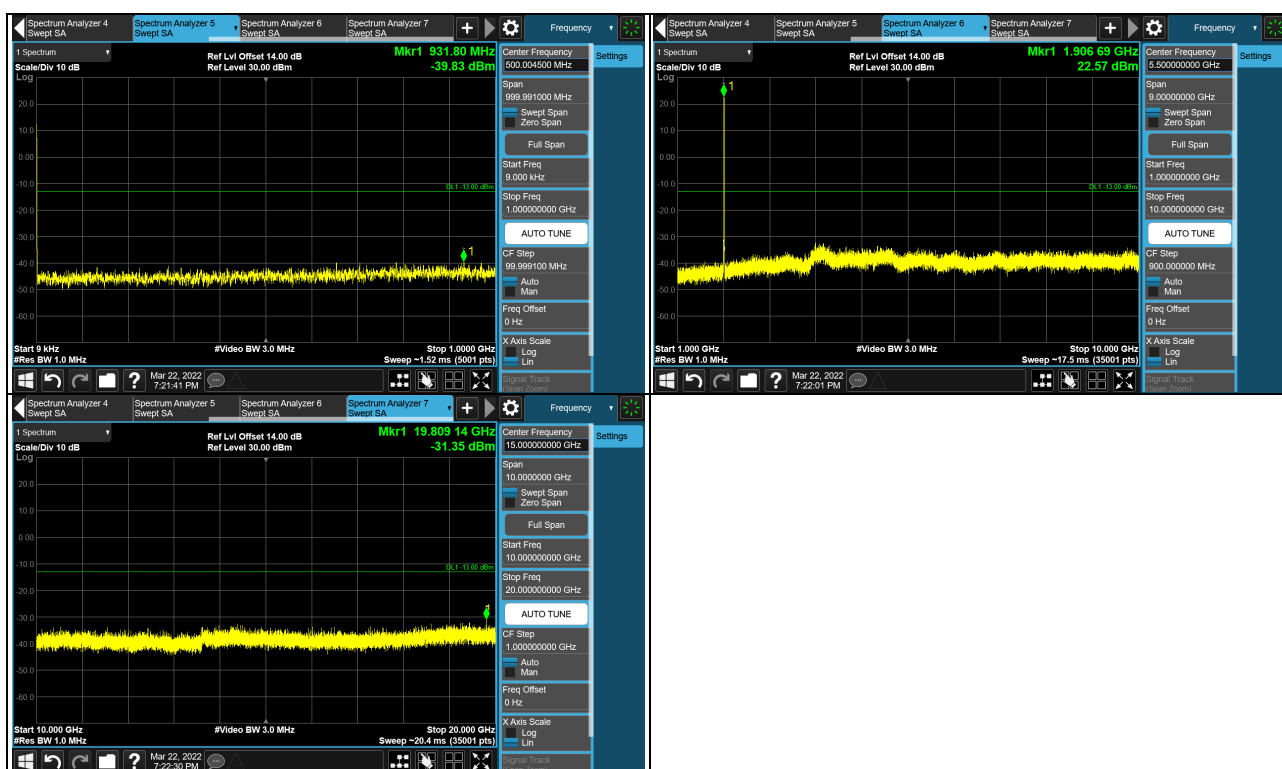
## WCDMA Band 2



CH 9262 (1852.4MHz)



CH 9400 (1880MHz)

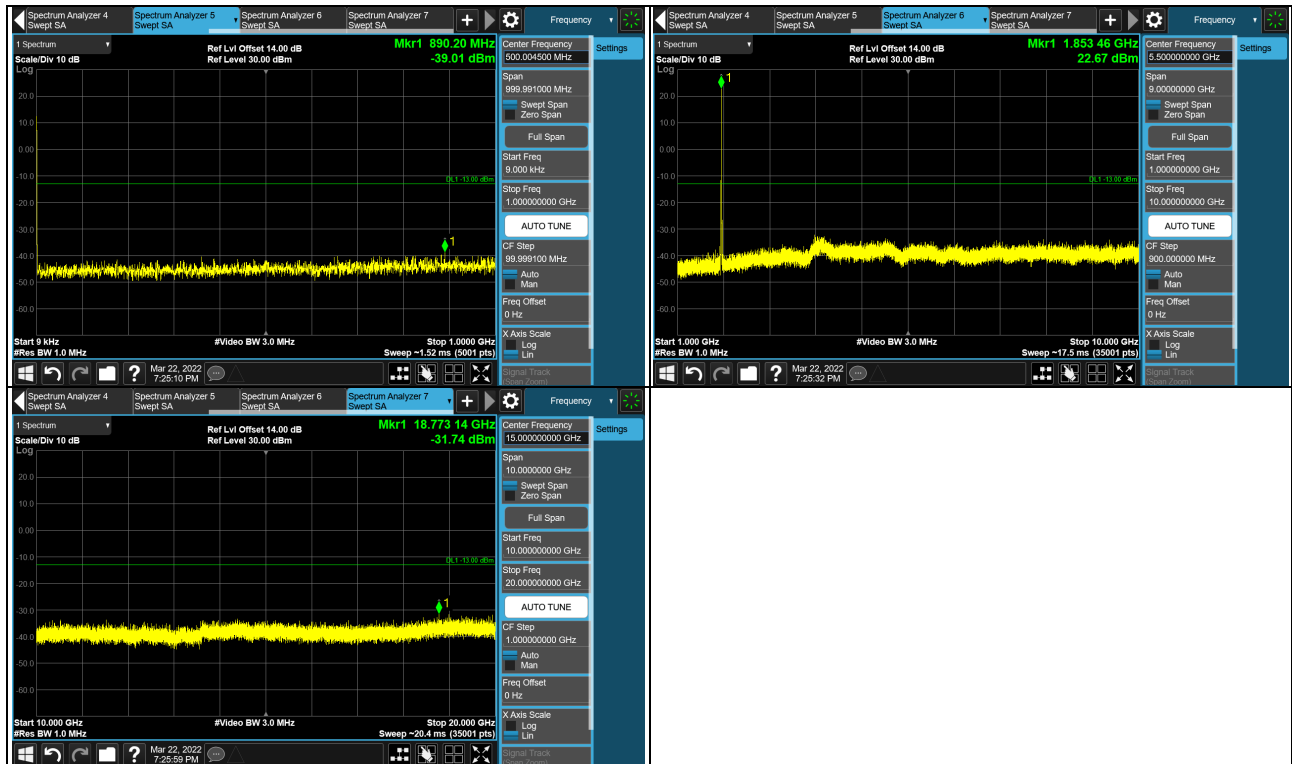


CH 9538 (1907.6MHz)

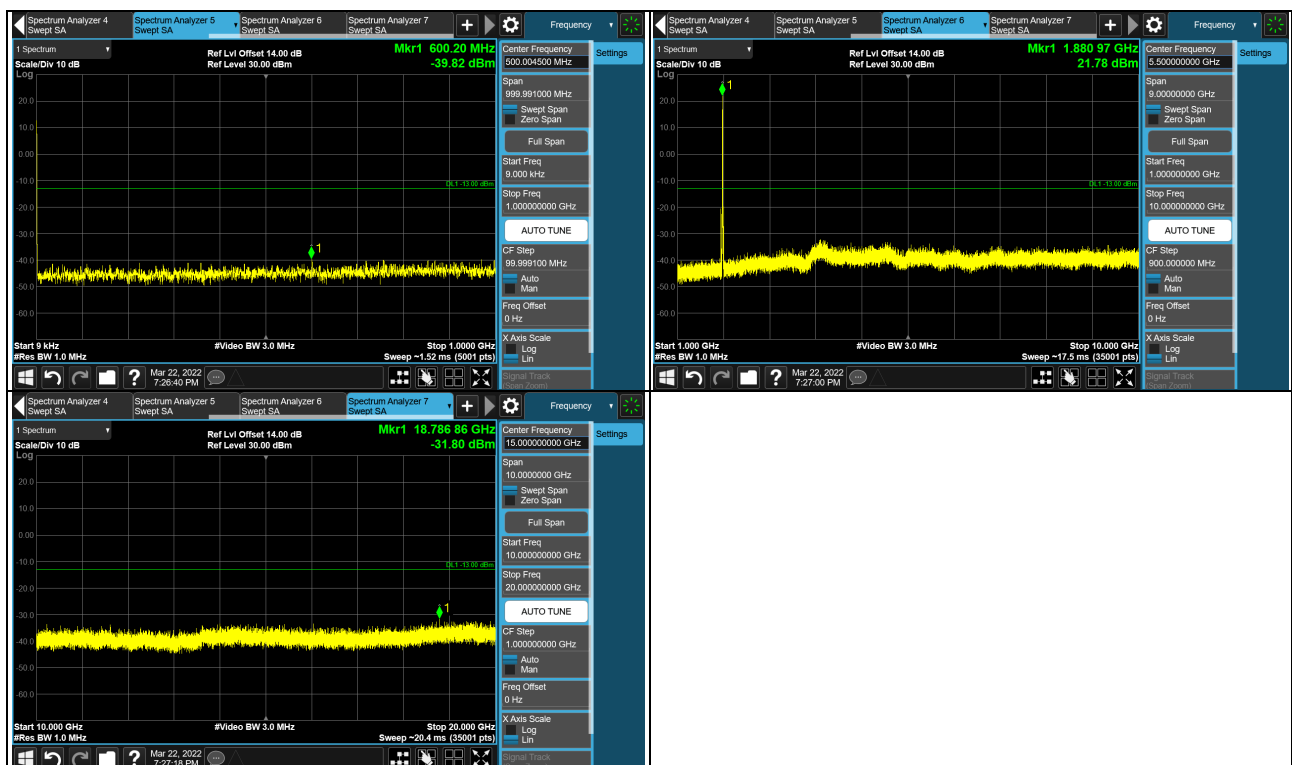
\*The 9kHz signal over the limit is from Spectrum.



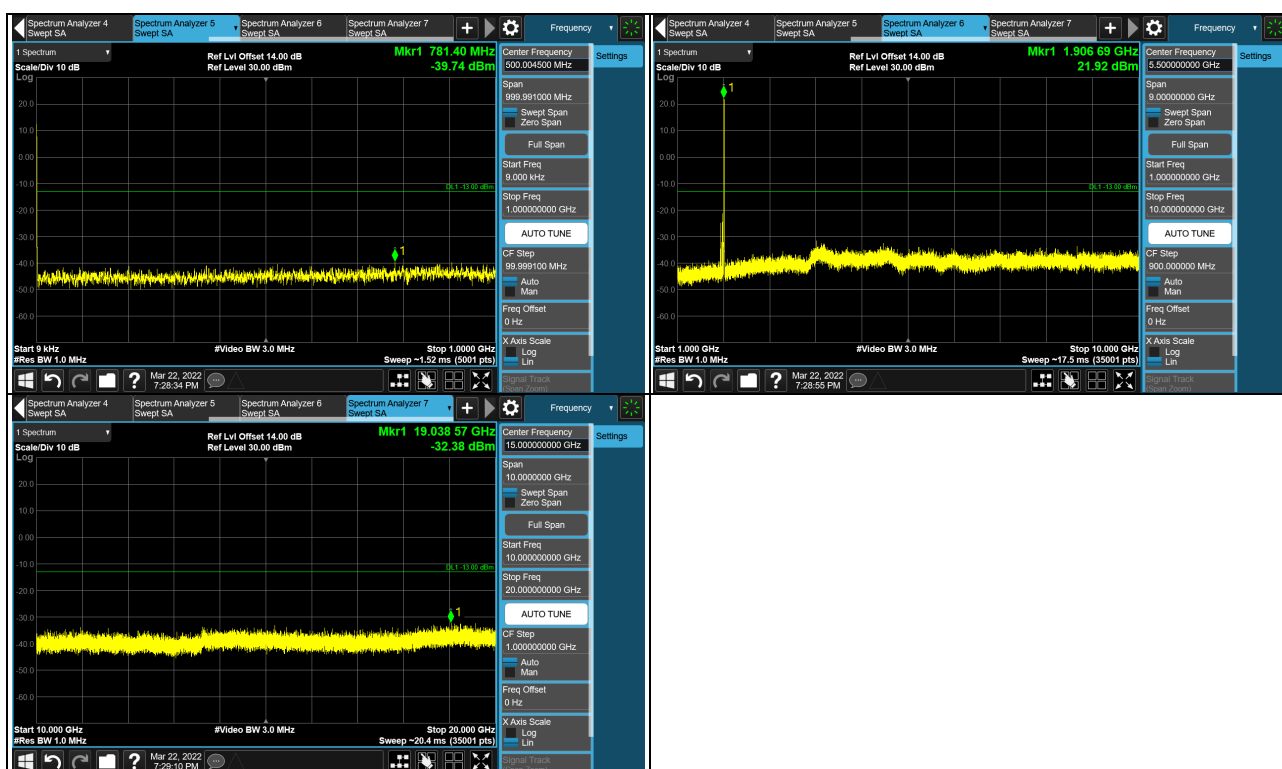
## HSDPA



CH 9262 (1852.4MHz)



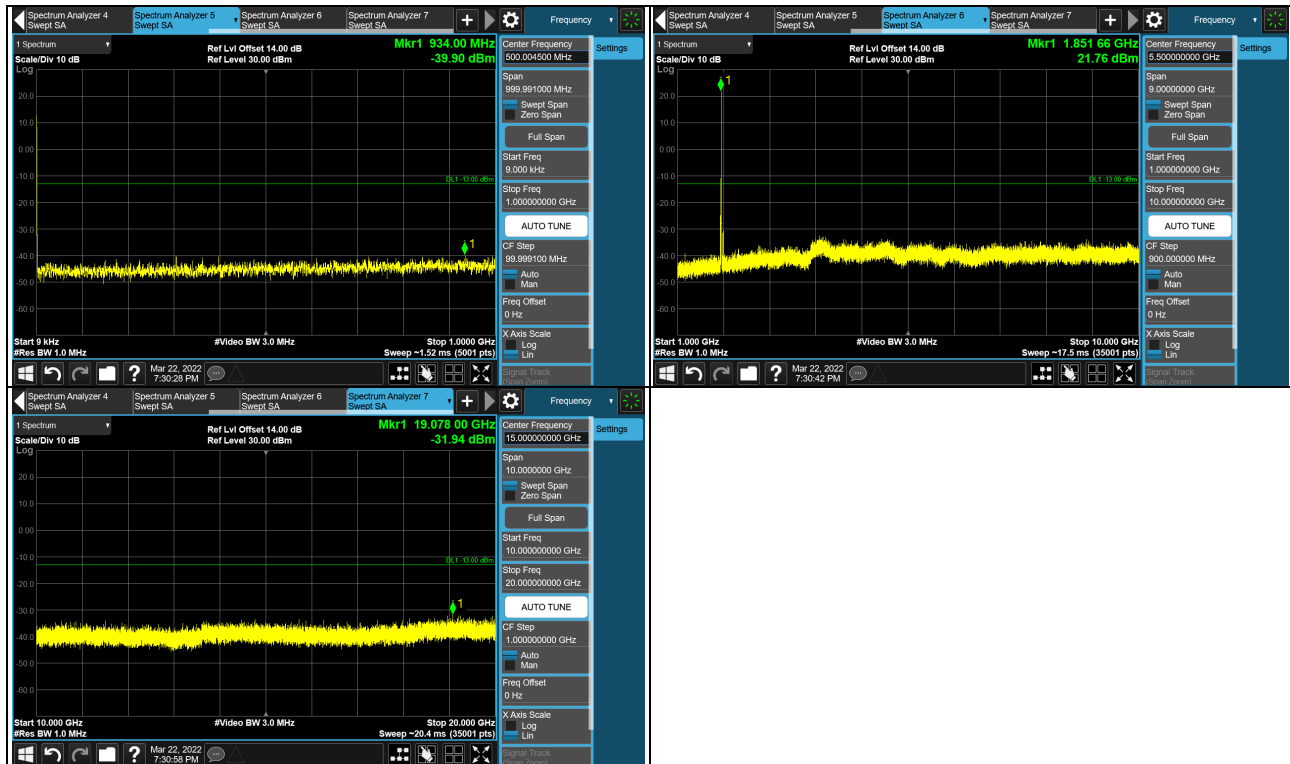
CH 9400 (1880MHz)



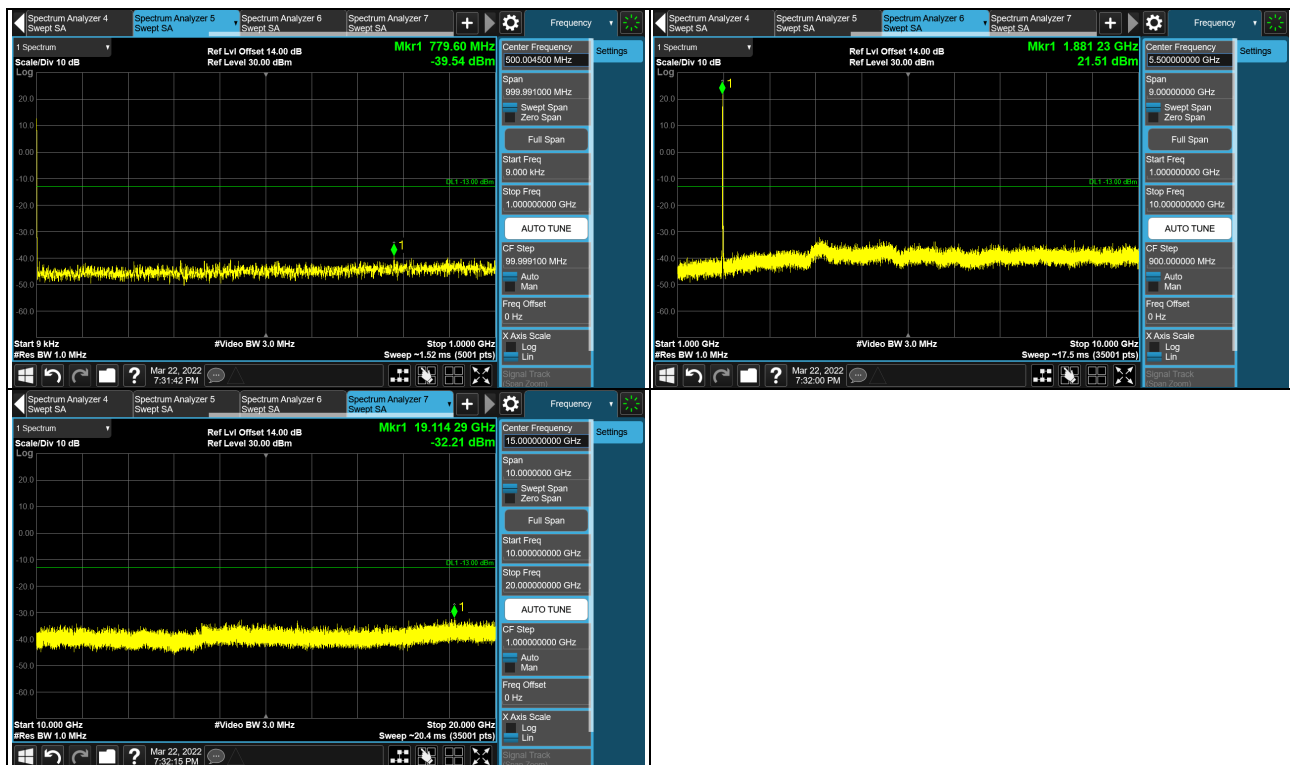
CH 9538 (1907.6MHz)

\*The 9kHz signal over the limit is from Spectrum.

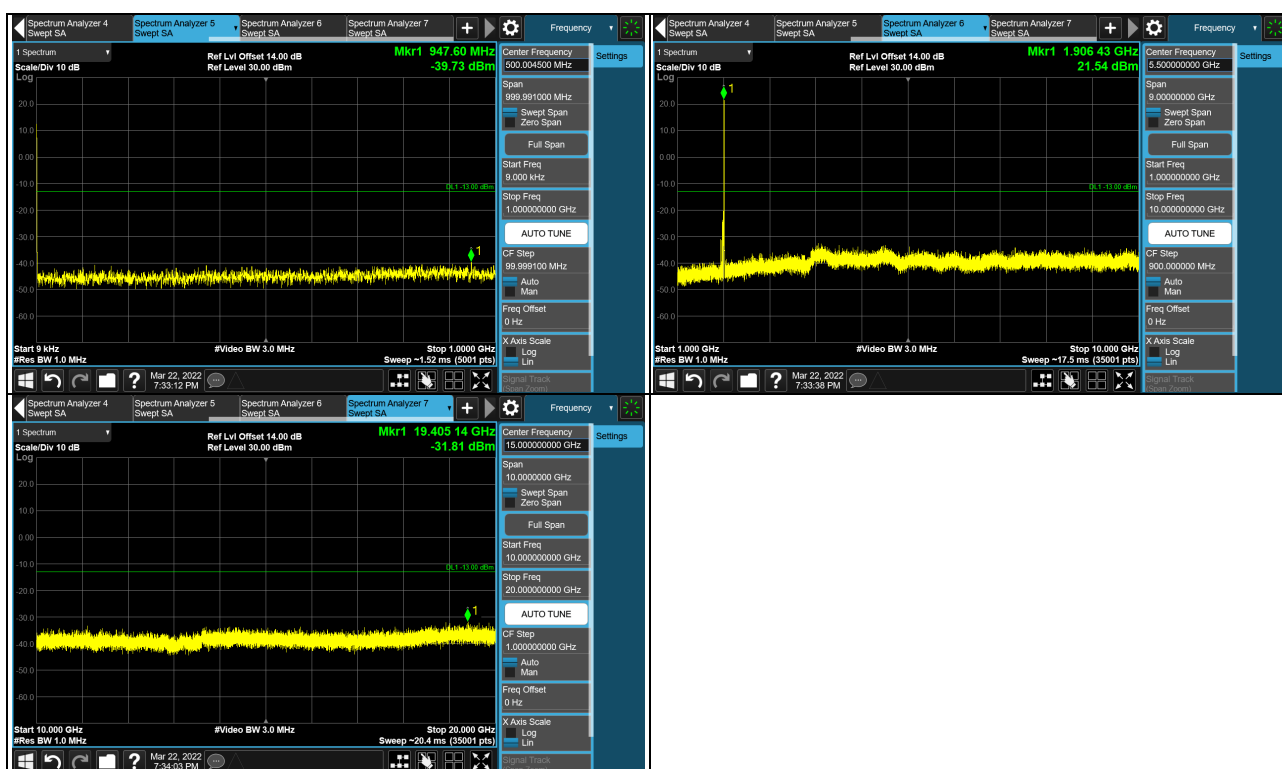
## HSUPA



CH 9262 (1852.4MHz)



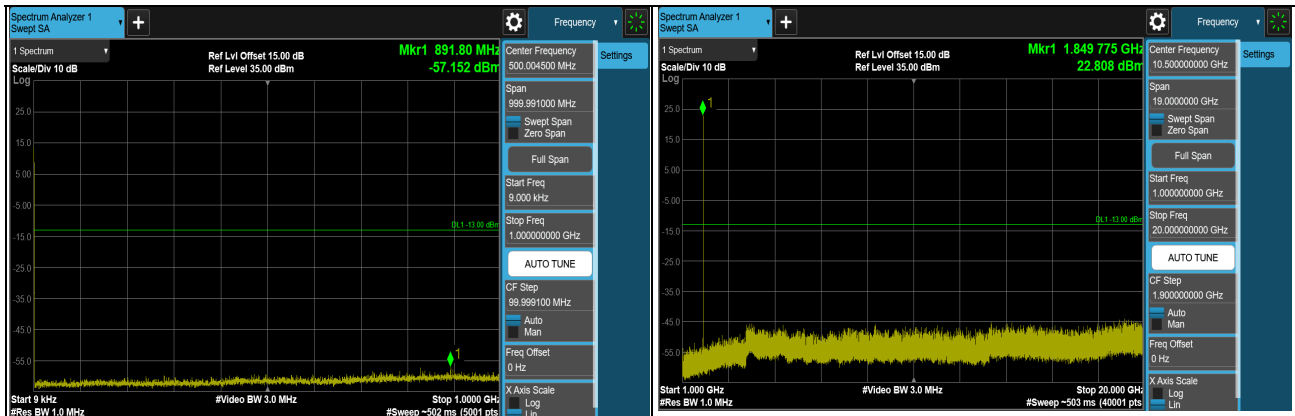
CH 9400 (1880MHz)



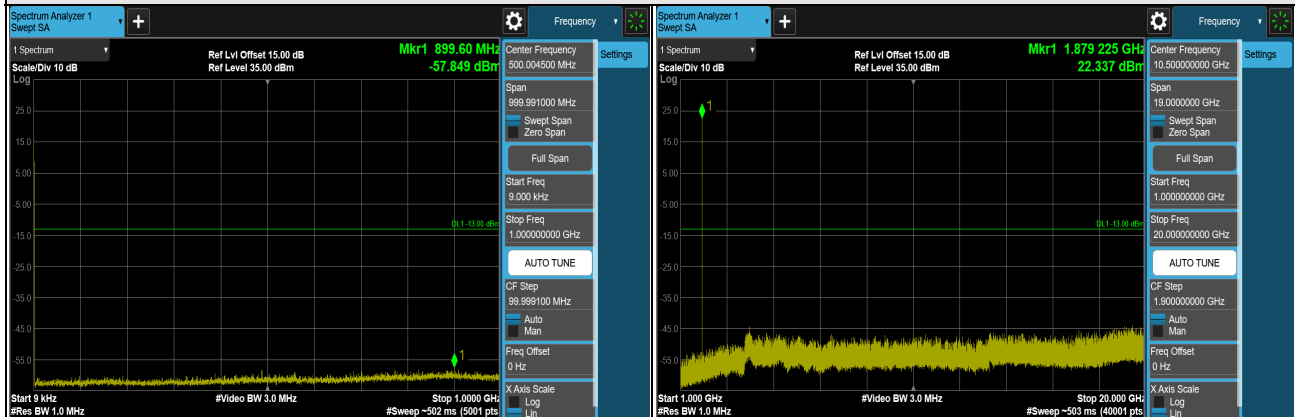
CH 9538 (1907.6MHz)

\*The 9kHz signal over the limit is from Spectrum.

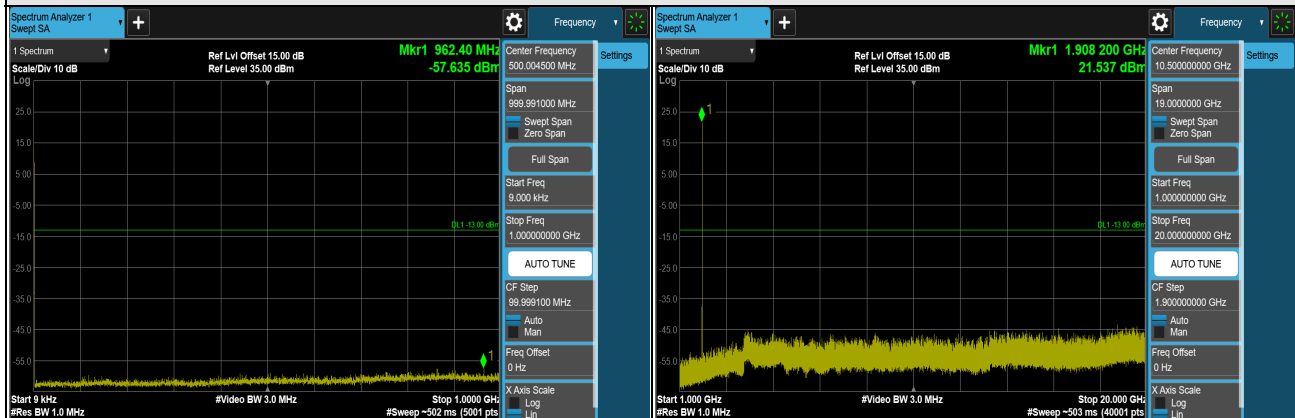
## LTE Band 2 (Channel Bandwidth 1.4MHz)



### CH 18607 (1850.7MHz)



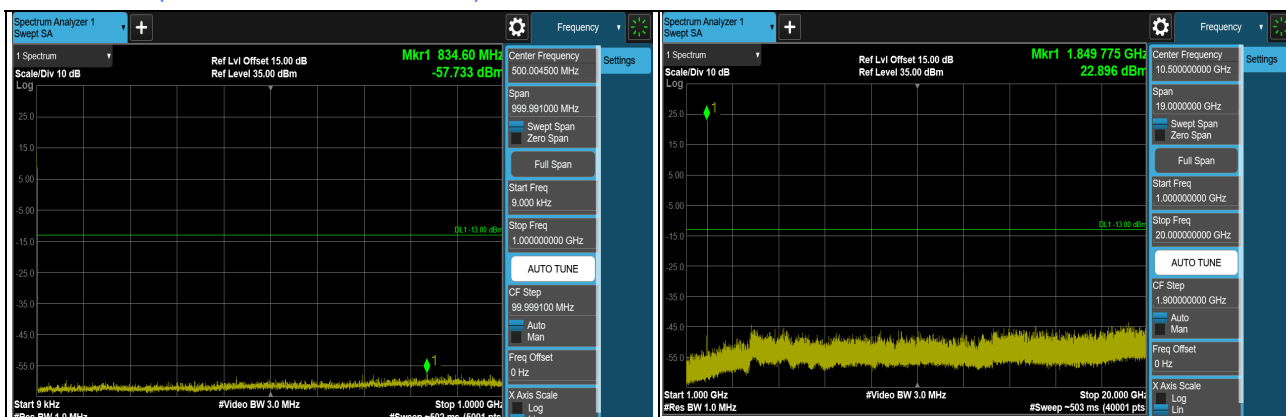
### CH 18900 (1880MHz)



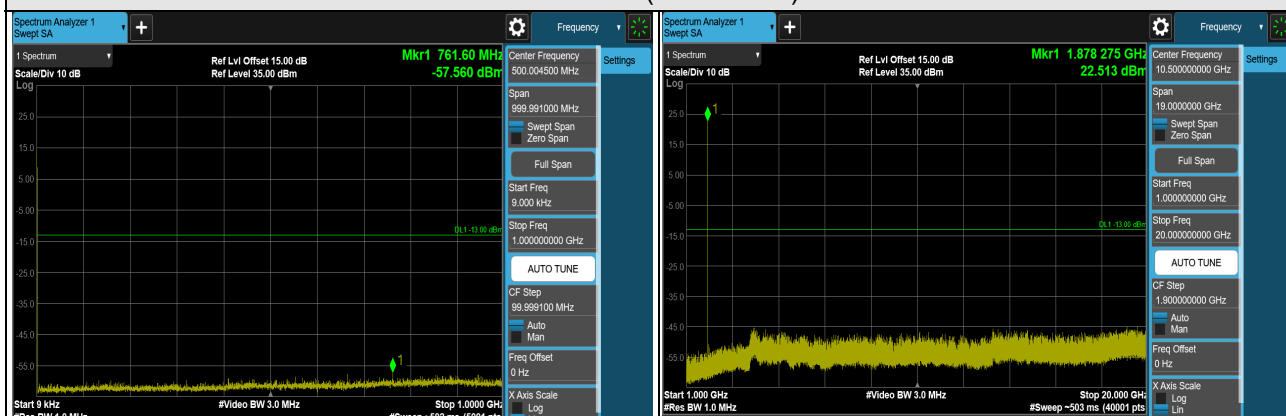
### CH 19193 (1909.3MHz)

\*The 9kHz signal over the limit is from Spectrum.

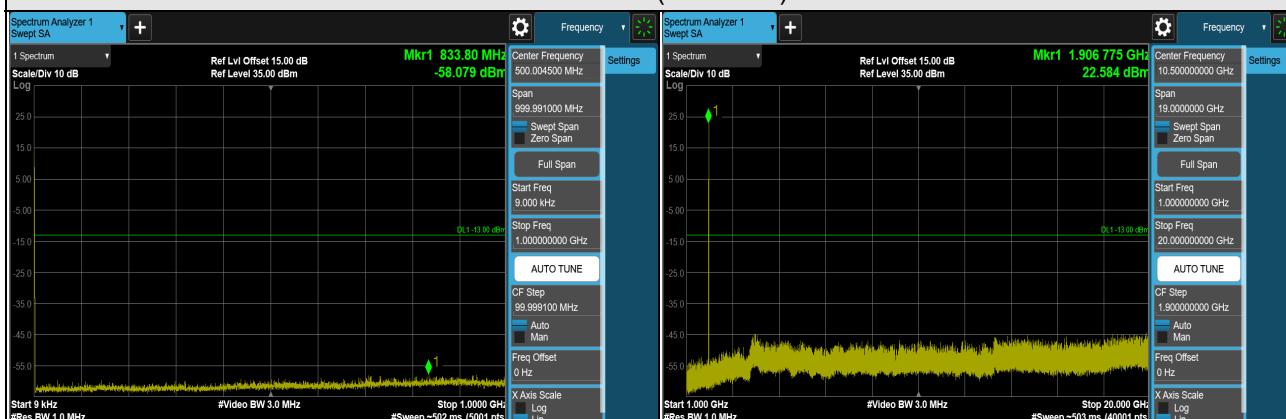
## LTE Band 2 (Channel Bandwidth 3MHz)



### CH 18615 (1851.5MHz)



### CH 18900 (1880MHz)



### CH 19185 (1908.5MHz)

\*The 9kHz signal over the limit is from Spectrum.