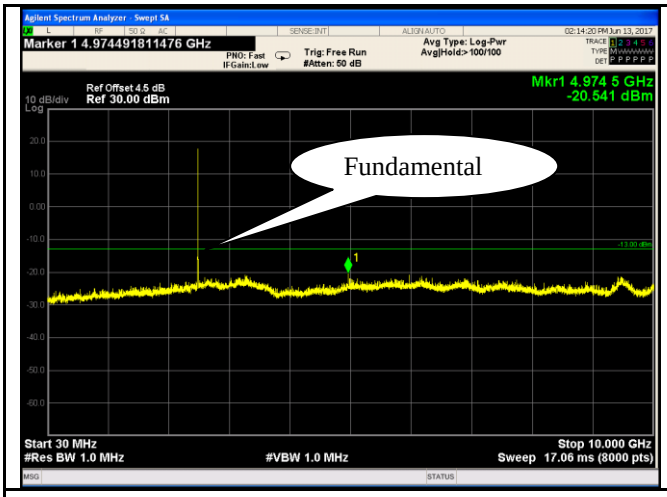
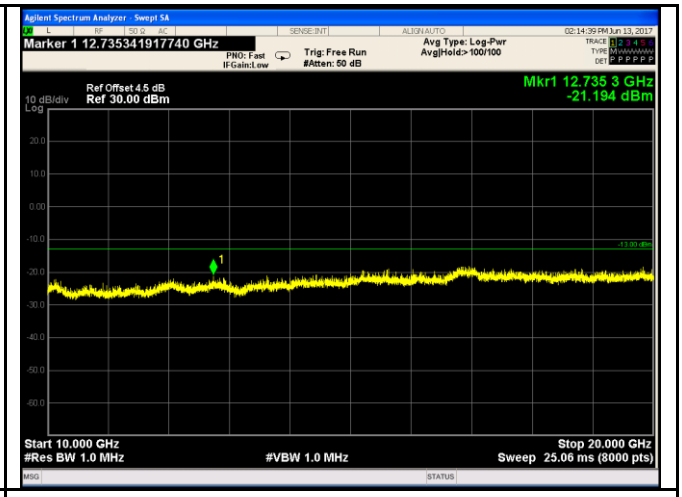
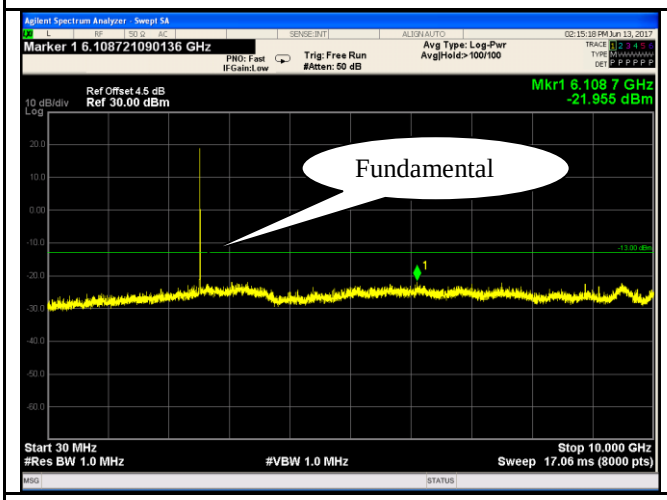
## LTE Band VII (Part 27)



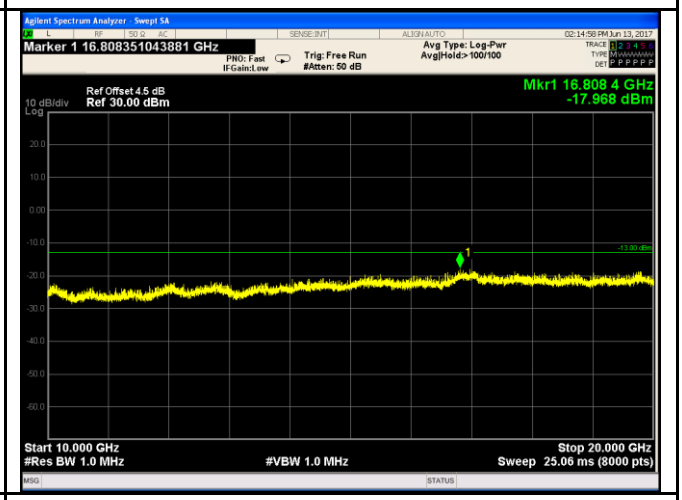

LTE Band VII - Low Channel-1



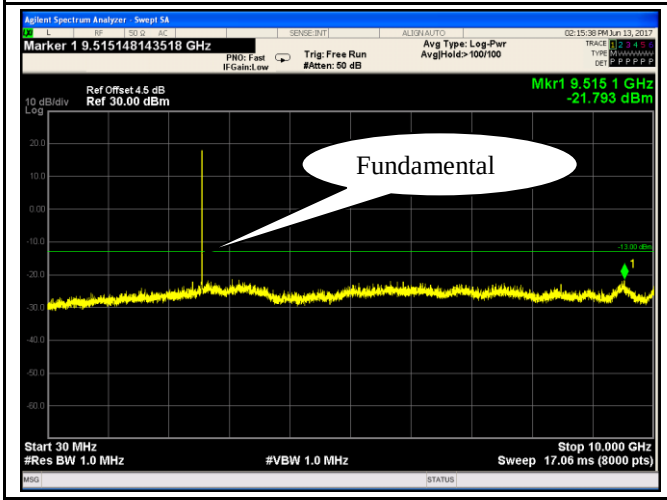

LTE Band VII - Low Channel-2



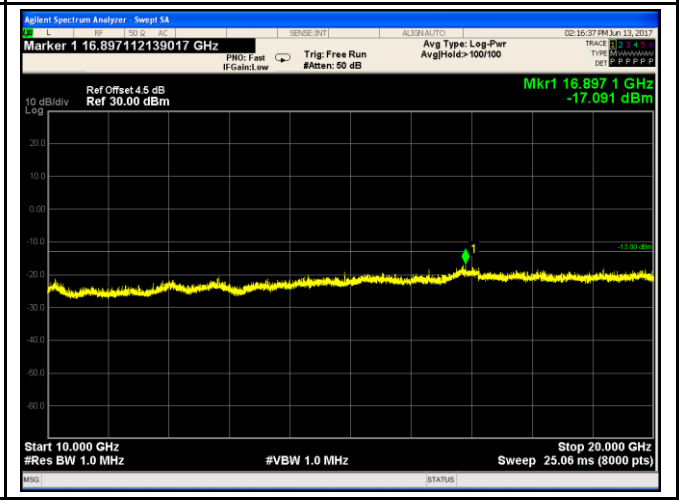

LTE Band VII- Middle Channel-1




LTE Band VII - Middle Channel-2

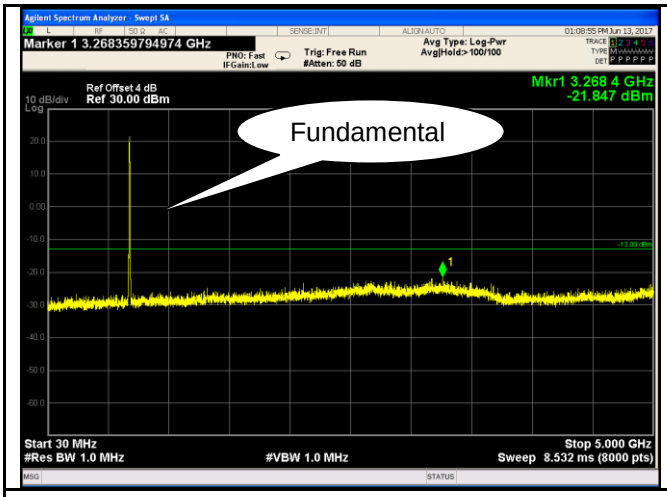



LTE Band VII - High Channel-1

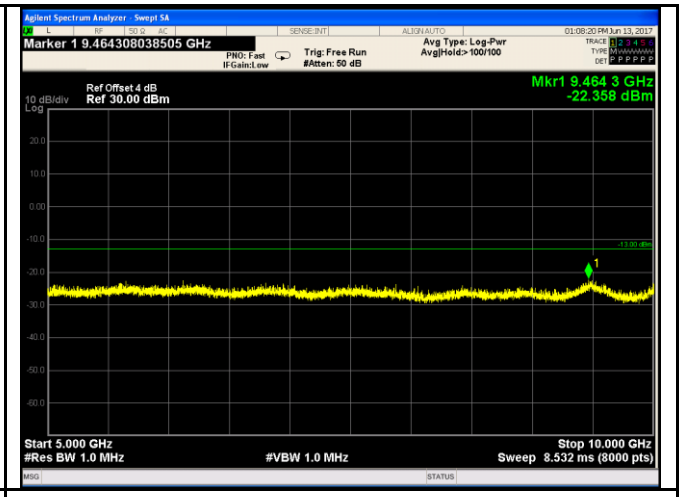



LTE Band VII - High Channel-2

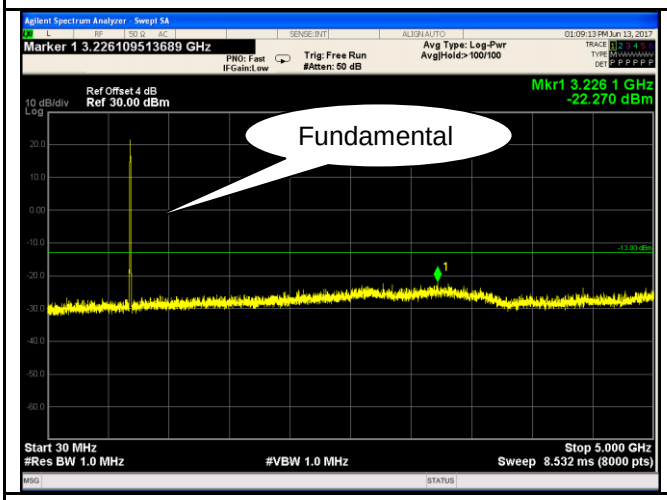
## LTE Band XII (Part 27)



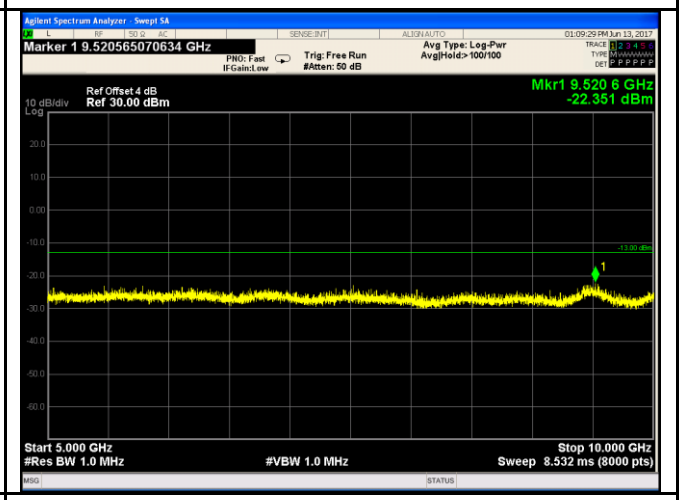

LTE Band XII - Low Channel-1



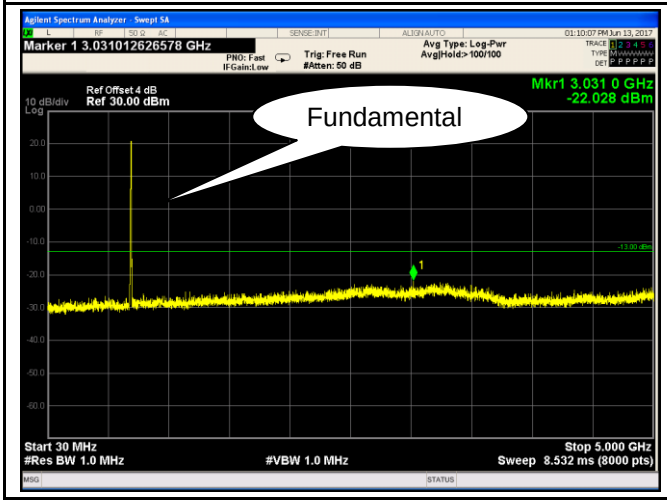

LTE Band XII - Low Channel-2



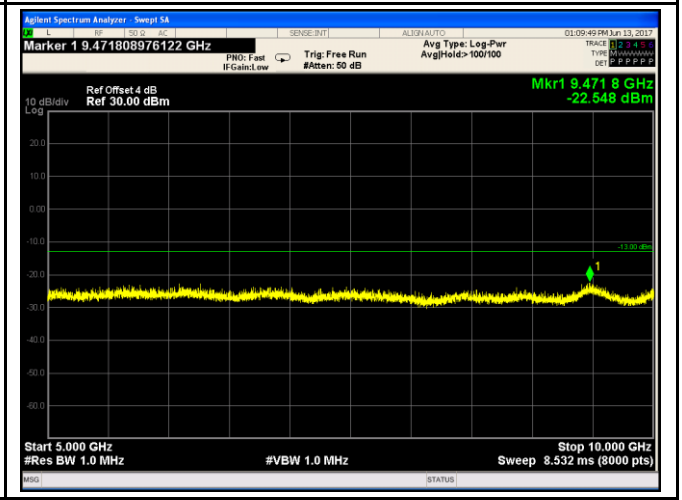

LTE Band XII- Middle Channel-1




LTE Band XII - Middle Channel-2

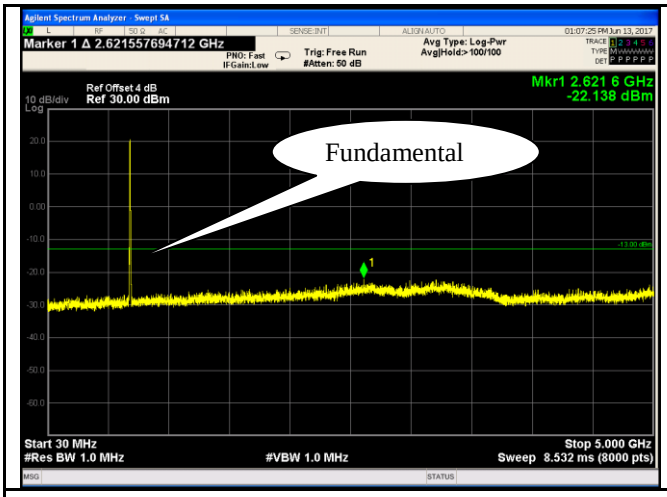



LTE Band XII - High Channel-1

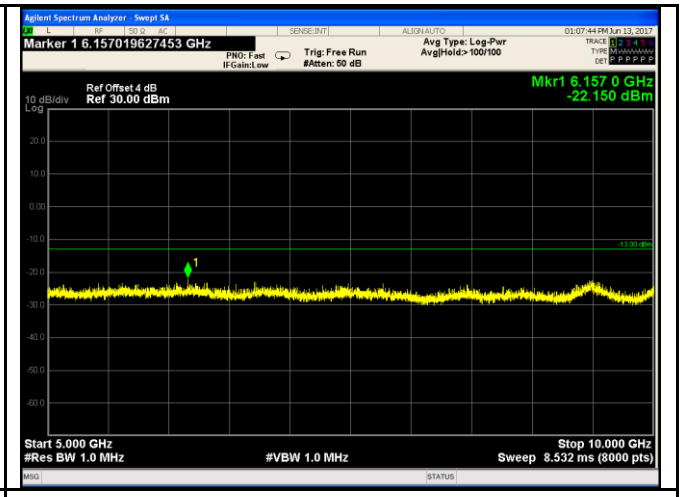



LTE Band XII - High Channel-2

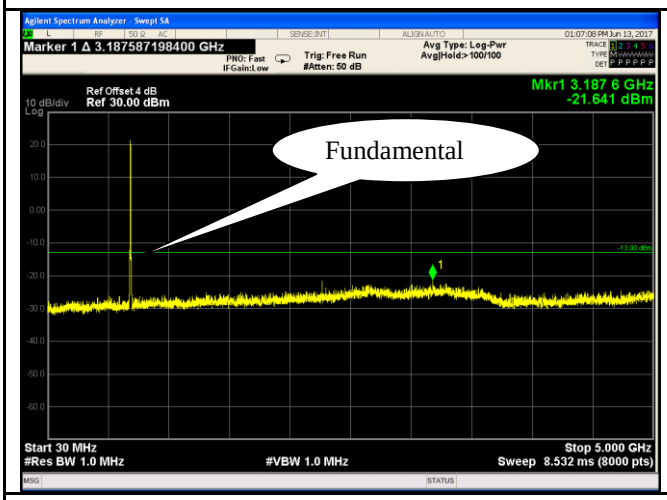
## LTE Band XVII (Part 27)



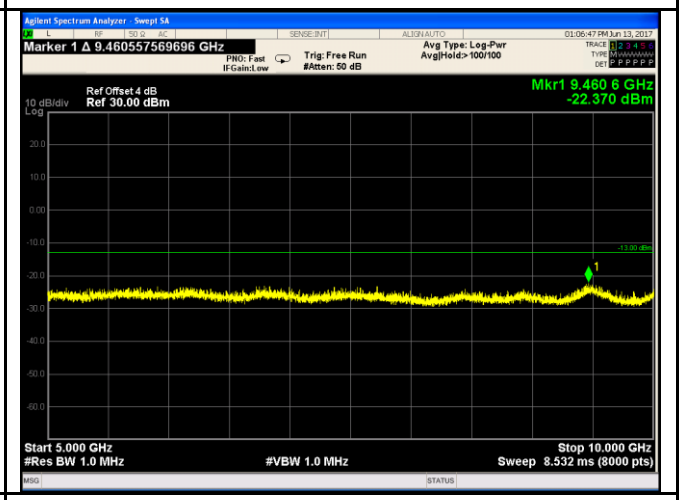

LTE Band XVII - Low Channel-1



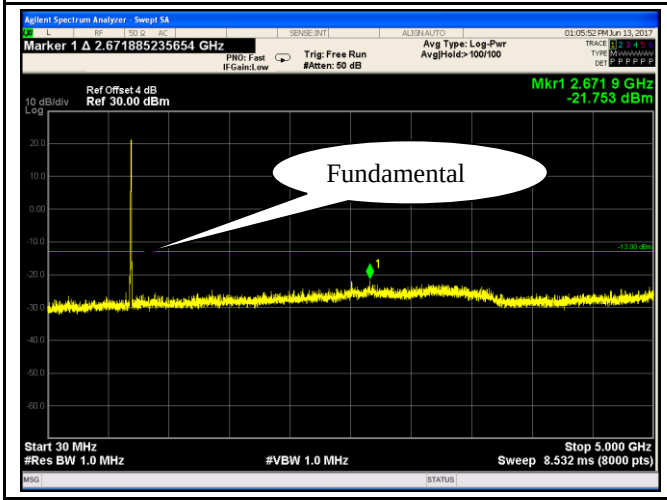

LTE Band XVII - Low Channel-2



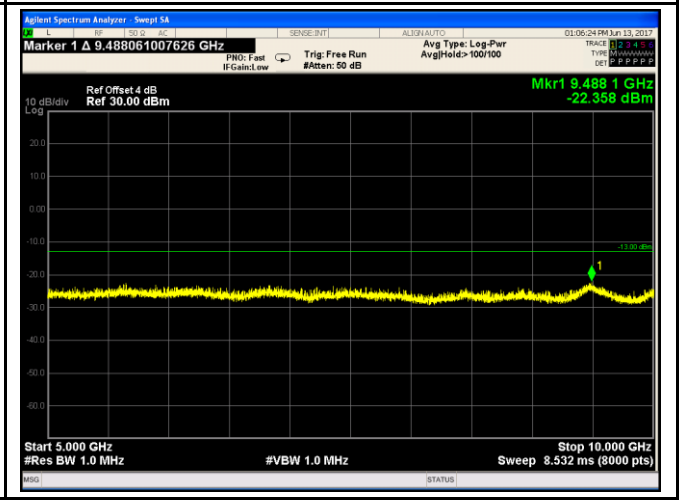

LTE Band XVII- Middle Channel-1




LTE Band XVII - Middle Channel-2




LTE Band XVII - High Channel-1

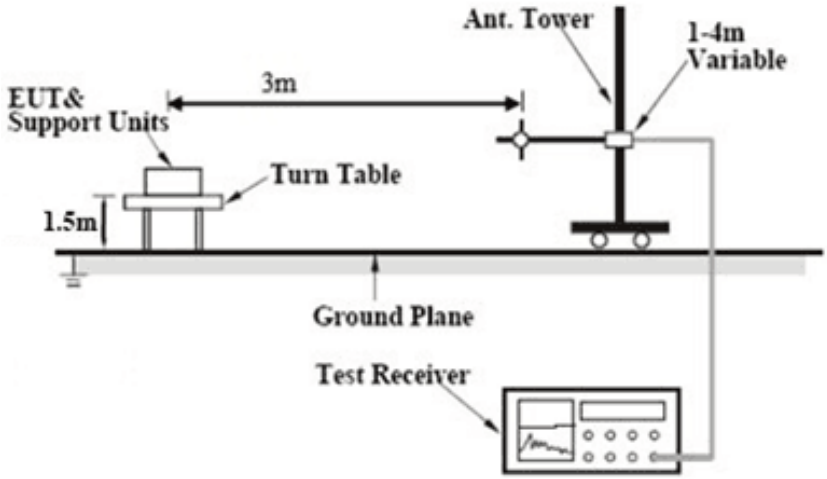



LTE Band XVII - High Channel-2

## 6.6 Spurious Radiated Emissions

| | |
|---|---|
| Temperature | 22 °C |
| Relative Humidity | 55% |
| Atmospheric Pressure | 1013mbar |
| Test date : | June 13, 2017 |
| Tested By : | Loren Luo |

**Requirement(s):**

| Spec | Item | Requirement | Applicable |
|---|---|---|---|
| §2.1053, §22.917 & §24.238 § 27.53(h) | a) | The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitter power (P) by a factor of at least 43 + 10 log (P) dB. The spectrum is scanned from 30 MHz up to a frequency including its 10th harmonic. | ☑ |
| Test setup |  | | |
| Test Procedure | 1. The transmitter was placed on a wooden turntable, and it was transmitting into a non-radiating load which was also placed on the turntable.<br>2. The measurement antenna was placed at a distance of 3 meters from the EUT. During the tests, the antenna height and polarization as well as EUT azimuth were varied in order to identify the maximum level of emissions from the EUT. The test was performed by placing the EUT on 3-orthogonal axis.<br>3. Remove the EUT and replace it with substitution antenna. A signal generator was connected to the substitution antenna by a non-radiating cable. The absolute levels of the spurious emissions were measured by the substitution.<br>Sample Calculation:<br>EUT Field Strength = Raw Amplitude (dBμV/m) – Amplifier Gain (dB) + Antenna Factor (dB) + Cable Loss (dB) + Filter Attenuation (dB, if used) | | |

| | |
|---|---|
| Remark | |
| Result | ☑ Pass ☐ Fail |

**Test Data** ☑ Yes ☐ N/A

**Test Plot** ☐ Yes (See below) ☑ N/A

## LTE Band II (Part 24E) result

### Low channel

| Frequency (MHz) | Substituted level (dBm) | Polarity (H/V) | Antenna Gain Correction (dB) | Cable Loss (dB) | Corrected Reading (dBm) | Limit (dBm) | Margin (dB) |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 3720 | -46.52 | V | 10.25 | 2.73 | -39 | -13 | -26 |
| 3720 | -48.51 | H | 10.25 | 2.73 | -40.99 | -13 | -27.99 |
| 50.3 | -46.98 | V | -4.2 | 0.11 | -51.29 | -13 | -38.29 |
| 204.9 | -48.23 | H | 4.6 | 0.18 | -43.81 | -13 | -30.81 |

### Middle channel

| Frequency (MHz) | Substituted level (dBm) | Polarity (H/V) | Antenna Gain Correction (dB) | Cable Loss (dB) | Corrected Reading (dBm) | Limit (dBm) | Margin (dB) |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 3760 | -46.97 | V | 10.25 | 2.73 | -39.45 | -13 | -26.45 |
| 3760 | -47.26 | H | 10.25 | 2.73 | -39.74 | -13 | -26.74 |
| 50.6 | -44.81 | V | -4.2 | 0.11 | -49.12 | -13 | -36.12 |
| 204.1 | -46.85 | H | 4.6 | 0.18 | -42.43 | -13 | -29.43 |

### High channel

| Frequency (MHz) | Substituted level (dBm) | Polarity (H/V) | Antenna Gain Correction (dB) | Cable Loss (dB) | Corrected Reading (dBm) | Limit (dBm) | Margin (dB) |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 3800 | -46.21 | V | 10.36 | 2.73 | -38.58 | -13 | -25.58 |
| 3800 | -46.87 | H | 10.36 | 2.73 | -39.24 | -13 | -26.24 |
| 51.4 | -44.92 | V | -4.2 | 0.11 | -49.23 | -13 | -36.23 |
| 205.9 | -46.31 | H | 4.6 | 0.18 | -41.89 | -13 | -28.89 |

**Note:**

*1, The testing has been conformed to 10*1907.5MHz=19,075MHz*
*2, All other emissions more than 30 dB below the limit*
*3, X-Axis, Y-Axis and Z–Axis were investigated. The results above show only the worst case.*

## LTE Band IV (Part27) result

### Low channel

| Frequency (MHz) | Substituted level (dBm) | Polarity (H/V) | Antenna Gain Correction (dB) | Cable Loss (dB) | Corrected Reading (dBm) | Limit (dBm) | Margin (dB) |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 3440 | -46.23 | V | 10.06 | 2.52 | -38.69 | -13 | -25.69 |
| 3440 | -47.86 | H | 10.06 | 2.52 | -40.32 | -13 | -27.32 |
| 50.9 | -45.32 | V | -4.2 | 0.11 | -49.63 | -13 | -36.63 |
| 202.4 | -49.85 | H | 4.6 | 0.18 | -45.43 | -13 | -32.43 |

### Middle channel

| Frequency (MHz) | Substituted level (dBm) | Polarity (H/V) | Antenna Gain Correction (dB) | Cable Loss (dB) | Corrected Reading (dBm) | Limit (dBm) | Margin (dB) |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 3465 | -46.51 | V | 10.09 | 2.52 | -38.94 | -13 | -25.94 |
| 3465 | -46.92 | H | 10.09 | 2.52 | -39.35 | -13 | -26.35 |
| 52.1 | -46.28 | V | -4.2 | 0.11 | -50.59 | -13 | -37.59 |
| 201.8 | -50.13 | H | 4.6 | 0.18 | -45.71 | -13 | -32.71 |

### High channel

| Frequency (MHz) | Substituted level (dBm) | Polarity (H/V) | Antenna Gain Correction (dB) | Cable Loss (dB) | Corrected Reading (dBm) | Limit (dBm) | Margin (dB) |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 3490 | -45.76 | V | 10.09 | 2.52 | -38.19 | -13 | -25.19 |
| 3490 | -47.25 | H | 10.09 | 2.52 | -39.68 | -13 | -26.68 |
| 50.4 | -46.81 | V | -4.2 | 0.11 | -51.12 | -13 | -38.12 |
| 204.2 | -49.25 | H | 4.6 | 0.18 | -44.83 | -13 | -31.83 |

**Note:**

*1, The testing has been conformed to 10*1752.5MHz=17,525MHz*
*2, All other emissions more than 30 dB below the limit*
*3, X-Axis, Y-Axis and Z–Axis were investigated. The results above show only the worst case.*

## LTE Band VII (Part27) result

### Low channel

| Frequency (MHz) | Substituted level (dBm) | Polarity (H/V) | Antenna Gain Correction (dB) | Cable Loss (dB) | Corrected Reading (dBm) | Limit (dBm) | Margin (dB) |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 5020 | -48.61 | V | 10.29 | 0.98 | -39.3 | -13 | -26.3 |
| 5020 | -47.92 | H | 10.29 | 0.98 | -38.61 | -13 | -25.61 |
| 51.3 | -46.23 | V | -4.2 | 0.11 | -50.54 | -13 | -37.54 |
| 205.8 | -48.16 | H | 4.6 | 0.18 | -43.74 | -13 | -30.74 |

### Middle channel

| Frequency (MHz) | Substituted level (dBm) | Polarity (H/V) | Antenna Gain Correction (dB) | Cable Loss (dB) | Corrected Reading (dBm) | Limit (dBm) | Margin (dB) |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 5070 | -47.61 | V | 10.3 | 0.99 | -38.3 | -13 | -25.3 |
| 5070 | -47.95 | H | 10.3 | 0.99 | -38.64 | -13 | -25.64 |
| 51.4 | -45.82 | V | -4.2 | 0.11 | -50.13 | -13 | -37.13 |
| 206.8 | -48.62 | H | 4.6 | 0.18 | -44.2 | -13 | -31.2 |

### High channel

| Frequency (MHz) | Substituted level (dBm) | Polarity (H/V) | Antenna Gain Correction (dB) | Cable Loss (dB) | Corrected Reading (dBm) | Limit (dBm) | Margin (dB) |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 5120 | -48.23 | V | 10.32 | 1 | -38.91 | -13 | -25.91 |
| 5120 | -48.21 | H | 10.32 | 1 | -38.89 | -13 | -25.89 |
| 52.4 | -46.29 | V | -4.2 | 0.11 | -50.6 | -13 | -37.6 |
| 209.7 | -47.63 | H | 4.6 | 0.18 | -43.21 | -13 | -30.21 |

**Note:**

*1, The testing has been conformed to 10*2567.5MHz=25,675MHz*
*2, All other emissions more than 30 dB below the limit*
*3, X-Axis, Y-Axis and Z –Axis were investigated. The results above show only the worst case.*

## LTE Band XII (Part27) result

### Low channel

| Frequency (MHz) | Substituted level (dBm) | Polarity (H/V) | Antenna Gain Correction (dB) | Cable Loss (dB) | Corrected Reading (dBm) | Limit (dBm) | Margin (dB) |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 1408 | -48.13 | V | 7.65 | 0.75 | -41.23 | -13 | -28.23 |
| 1408 | -46.95 | H | 7.65 | 0.75 | -40.05 | -13 | -27.05 |
| 575.6 | -56.75 | V | 6.5 | 0.36 | -50.61 | -13 | -37.61 |
| 843.9 | -50.48 | H | 6.8 | 0.44 | -44.12 | -13 | -31.12 |

### Middle channel

| Frequency (MHz) | Substituted level (dBm) | Polarity (H/V) | Antenna Gain Correction (dB) | Cable Loss (dB) | Corrected Reading (dBm) | Limit (dBm) | Margin (dB) |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 1415 | -47.26 | V | 7.65 | 0.75 | -40.36 | -13 | -27.36 |
| 1415 | -47.91 | H | 7.65 | 0.75 | -41.01 | -13 | -28.01 |
| 564.2 | -55.97 | V | 6.5 | 0.36 | -49.83 | -13 | -36.83 |
| 843.1 | -50.63 | H | 6.8 | 0.44 | -44.27 | -13 | -31.27 |

### High channel

| Frequency (MHz) | Substituted level (dBm) | Polarity (H/V) | Antenna Gain Correction (dB) | Cable Loss (dB) | Corrected Reading (dBm) | Limit (dBm) | Margin (dB) |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 1422 | -46.23 | V | 7.65 | 0.75 | -39.33 | -13 | -26.33 |
| 1422 | -47.91 | H | 7.65 | 0.75 | -41.01 | -13 | -28.01 |
| 567.8 | -57.24 | V | 6.5 | 0.36 | -51.1 | -13 | -38.1 |
| 842.5 | -49.32 | H | 6.8 | 0.44 | -42.96 | -13 | -29.96 |

**Note:**

*1, The testing has been conformed to 10*715.3MHz=7,153MHz*
*2, All other emissions more than 30 dB below the limit*
*3, X-Axis, Y-Axis and Z–Axis were investigated. The results above show only the worst case.*

## LTE Band XVII (Part27) result

### Low channel

| Frequency (MHz) | Substituted level (dBm) | Polarity (H/V) | Antenna Gain Correction (dB) | Cable Loss (dB) | Corrected Reading (dBm) | Limit (dBm) | Margin (dB) |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 1418 | -43.19 | V | 7.65 | 0.75 | -36.29 | -13 | -23.29 |
| 1418 | -44.62 | H | 7.65 | 0.75 | -37.72 | -13 | -24.72 |
| 50.6 | -44.97 | V | -4.2 | 0.11 | -49.28 | -13 | -36.28 |
| 203.9 | -48.12 | H | 4.6 | 0.18 | -43.7 | -13 | -30.7 |

### Middle channel

| Frequency (MHz) | Substituted level (dBm) | Polarity (H/V) | Antenna Gain Correction (dB) | Cable Loss (dB) | Corrected Reading (dBm) | Limit (dBm) | Margin (dB) |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 1420 | -43.56 | V | 7.65 | 0.75 | -36.66 | -13 | -23.66 |
| 1420 | -47.15 | H | 7.65 | 0.75 | -40.25 | -13 | -27.25 |
| 50.9 | -45.26 | V | -4.2 | 0.11 | -49.57 | -13 | -36.57 |
| 205.1 | -48.13 | H | 4.6 | 0.18 | -43.71 | -13 | -30.71 |

### High channel

| Frequency (MHz) | Substituted level (dBm) | Polarity (H/V) | Antenna Gain Correction (dB) | Cable Loss (dB) | Corrected Reading (dBm) | Limit (dBm) | Margin (dB) |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 1422 | -44.1 | V | 7.65 | 0.75 | -37.2 | -13 | -24.2 |
| 1422 | -44.92 | H | 7.65 | 0.75 | -38.02 | -13 | -25.02 |
| 50.4 | -46.28 | V | -4.2 | 0.11 | -50.59 | -13 | -37.59 |
| 203.7 | -48.63 | H | 4.6 | 0.18 | -44.21 | -13 | -31.21 |

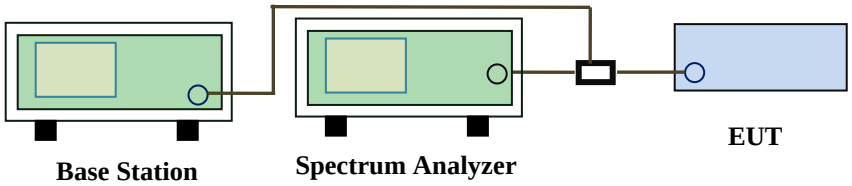
**Note:**

*1, The testing has been conformed to 10*713.5MHz=7,135MHz*
*2, All other emissions more than 30 dB below the limit*
*3, X-Axis, Y-Axis and Z–Axis were investigated. The results above show only the worst case.*

## 6.7 Band Edge

| | |
|---|---|
| Temperature | 22 °C |
| Relative Humidity | 55% |
| Atmospheric Pressure | 1013mbar |
| Test date : | June 13, 2017 |
| Tested By : | Loren Luo |

**Requirement(s):**

| Spec | Item | Requirement | Applicable |
|---|---|---|---|
| §22.917(a)<br>§24.238(a)<br>§ 27.53(h) | a) | The power of any emission outside of the authorized operating frequency ranges must be lower than the transmitter power (P) by a factor of at least 43 + 10 log (P) dB. | ☑ |
| Test setup |  | | |
| Procedure | - The EUT was connected to Spectrum Analyzer and Base Station via power divider.<br>- The Band Edges of low and high channels for the highest RF powers were measured. Setting RBW as roughly BW/100. | | |
| Remark | | | |
| Result | ☑ Pass ☐ Fail | | |

**Test Data** ☑ Yes ☐ N/A

**Test Plot** ☑ Yes (See below) ☐ N/A

## LTE Band II (Part 24E) result

| BW(MHz) | Channel | Frequency (MHz) | Mode | Emission (dBm) | Limit (dBm) |
| --- | --- | --- | --- | --- | --- |
| 1.4 | 18607 | 1850 | QPSK | -23.258 | -13 |
| | | | 16QAM | -22.687 | -13 |
| 1.4 | 18900 | 1910 | QPSK | -18.182 | -13 |
| | | | 16QAM | -19.347 | -13 |
| 3 | 18615 | 1850 | QPSK | -21.017 | -13 |
| | | | 16QAM | -20.957 | -13 |
| 3 | 19185 | 1910 | QPSK | -22.675 | -13 |
| | | | 16QAM | -22.682 | -13 |
| 5 | 18625 | 1850 | QPSK | -17.955 | -13 |
| | | | 16QAM | -18.514 | -13 |
| 5 | 19175 | 1910 | QPSK | -18.487 | -13 |
| | | | 16QAM | -17.485 | -13 |
| 10 | 18650 | 1850 | QPSK | -22.556 | -13 |
| | | | 16QAM | -22.437 | -13 |
| 10 | 19150 | 1910 | QPSK | -21.041 | -13 |
| | | | 16QAM | -19.493 | -13 |
| 15 | 18675 | 1850 | QPSK | -18.459 | -13 |
| | | | 16QAM | -15.741 | -13 |
| 15 | 19125 | 1910 | QPSK | -18.998 | -13 |
| | | | 16QAM | -19.365 | -13 |
| 20 | 18700 | 1850 | QPSK | -17.305 | -13 |
| | | | 16QAM | -17.513 | -13 |
| 20 | 19100 | 1910 | QPSK | -23.052 | -13 |
| | | | 16QAM | -22.262 | -13 |

## LTE Band IV (Part 27) result

| BW(MHz) | Channel | Frequency (MHz) | Mode | Emission (dBm) | Limit (dBm) |
| --- | --- | --- | --- | --- | --- |
| 1.4 | 19957 | 1709.9 | QPSK | -24.473 | -13 |
| | | | 16QAM | -24.268 | -13 |
| 1.4 | 20393 | 1755 | QPSK | -25.846 | -13 |
| | | | 16QAM | -24.103 | -13 |
| 3 | 19965 | 1709.9 | QPSK | -22.219 | -13 |
| | | | 16QAM | -21.456 | -13 |
| 3 | 20385 | 1755 | QPSK | -21.049 | -13 |
| | | | 16QAM | -21.786 | -13 |
| 5 | 19975 | 1709.9 | QPSK | -16.358 | -13 |
| | | | 16QAM | -16.807 | -13 |
| 5 | 20375 | 1755 | QPSK | -17.091 | -13 |
| | | | 16QAM | -17.546 | -13 |
| 10 | 20000 | 1709.9 | QPSK | -21.444 | -13 |
| | | | 16QAM | -22.240 | -13 |
| 10 | 20350 | 1755 | QPSK | -22.297 | -13 |
| | | | 16QAM | -21.428 | -13 |
| 15 | 20025 | 1710 | QPSK | -23.500 | -13 |
| | | | 16QAM | -23.796 | -13 |
| 15 | 20325 | 1755 | QPSK | -21.935 | -13 |
| | | | 16QAM | -23.088 | -13 |
| 20 | 20050 | 1710 | QPSK | -26.213 | -13 |
| | | | 16QAM | -26.116 | -13 |
| 20 | 20300 | 1755 | QPSK | -25.813 | -13 |
| | | | 16QAM | -26.901 | -13 |

## LTE Band XII (Part 27) result

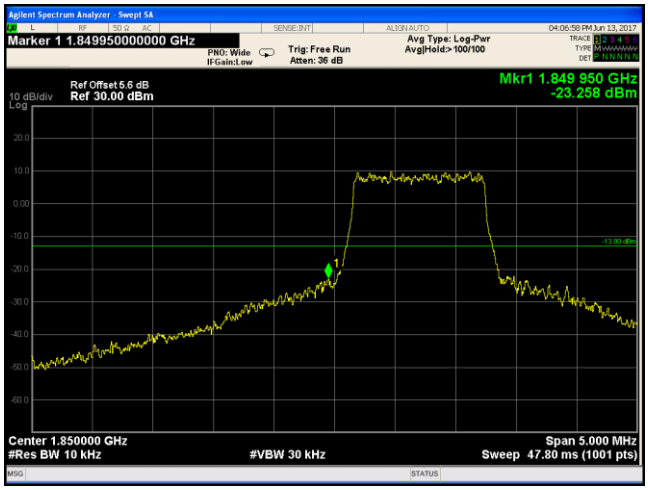
| BW(MHz) | Channel | Frequency (MHz) | Mode | Emission (dBm) | Limit (dBm) |
| --- | --- | --- | --- | --- | --- |
| 1.4 | 23017 | 699 | QPSK | -23.210 | -13 |
| | | | 16QAM | -22.526 | -13 |
| 1.4 | 23173 | 716 | QPSK | -22.527 | -13 |
| | | | 16QAM | -22.648 | -13 |
| 3 | 23025 | 699 | QPSK | -18.145 | -13 |
| | | | 16QAM | -19.180 | -13 |
| 3 | 23165 | 716 | QPSK | -20.575 | -13 |
| | | | 16QAM | -20.589 | -13 |
| 5 | 23035 | 699 | QPSK | -18.145 | -13 |
| | | | 16QAM | -19.180 | -13 |
| 5 | 23155 | 716 | QPSK | -20.575 | -13 |
| | | | 16QAM | -20.589 | -13 |
| 10 | 23060 | 698 | QPSK | -17.713 | -13 |
| | | | 16QAM | -20.181 | -13 |
| 10 | 23130 | 716 | QPSK | -18.391 | -13 |
| | | | 16QAM | -18.821 | -13 |

## LTE Band XVII (Part 27) result

| BW(MHz) | Channel | Frequency (MHz) | Mode | Emission (dBm) | Limit (dBm) |
| --- | --- | --- | --- | --- | --- |
| 5 | 23755 | 704 | QPSK | -15.488 | -13 |
| | | | 16QAM | -16.154 | -13 |
| 5 | 23825 | 716 | QPSK | -14.869 | -13 |
| | | | 16QAM | -14.993 | -13 |
| 10 | 23780 | 704 | QPSK | -18.847 | -13 |
| | | | 16QAM | -18.713 | -13 |
| 10 | 23800 | 716 | QPSK | -16.752 | -13 |
| | | | 16QAM | -17.303 | -13 |

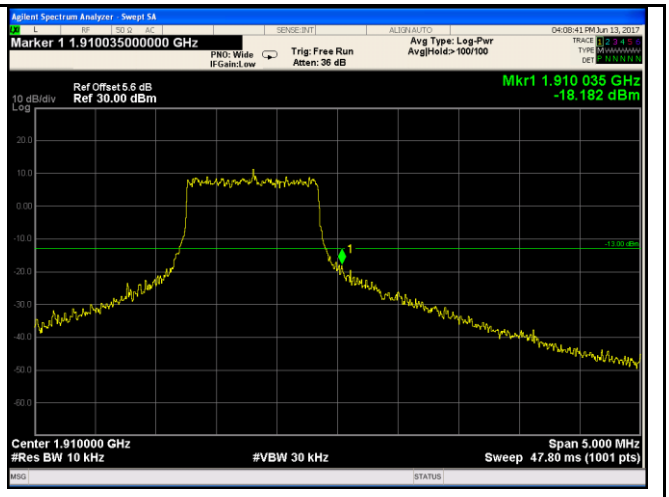
## Test Plots

### LTE Band II (Part 24E)



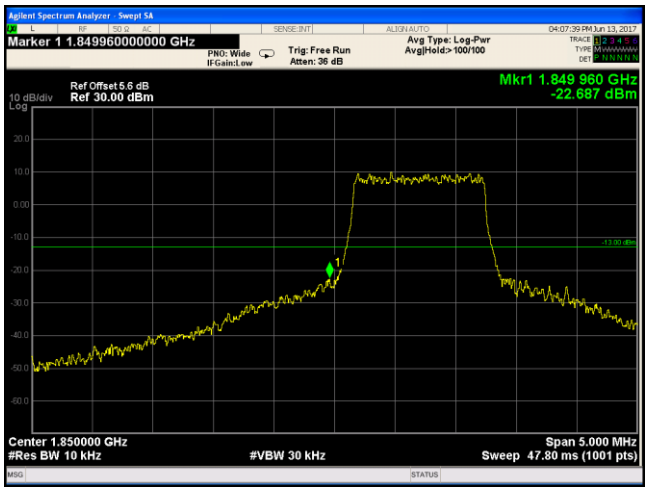

LTE Band II - Low Channel QPSK-1.4

Note: Offset=Cable loss (4.5) + 10log (12.96/10)=4.5+1.1=5.6dB



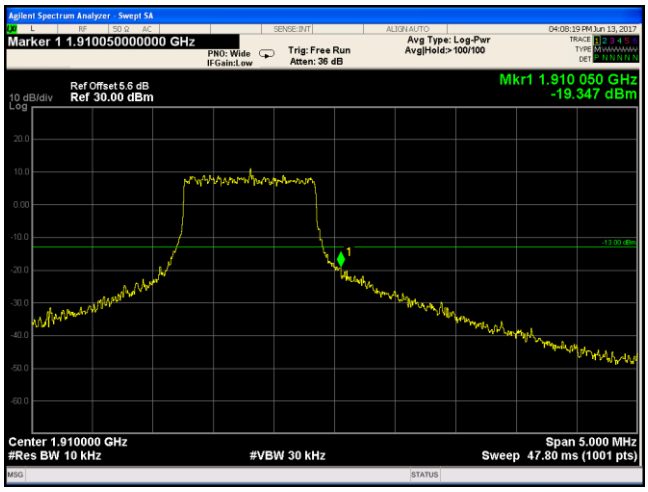

LTE Band II - High Channel QPSK-1.4

Note: Offset=Cable loss (4.5) + 10log (12.89/10)=4.5+1.1=5.6dB



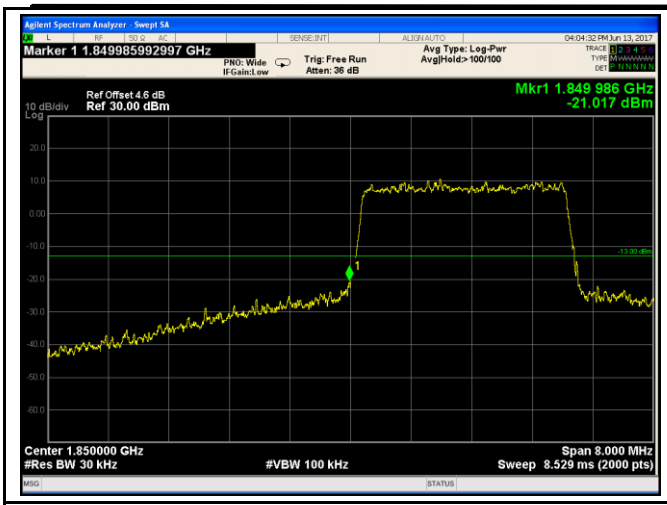

LTE Band II - Low Channel 16QAM-1.4

Note: Offset=Cable loss (4.5) + 10log (12.93/10)=4.5+1.1=5.6 dB



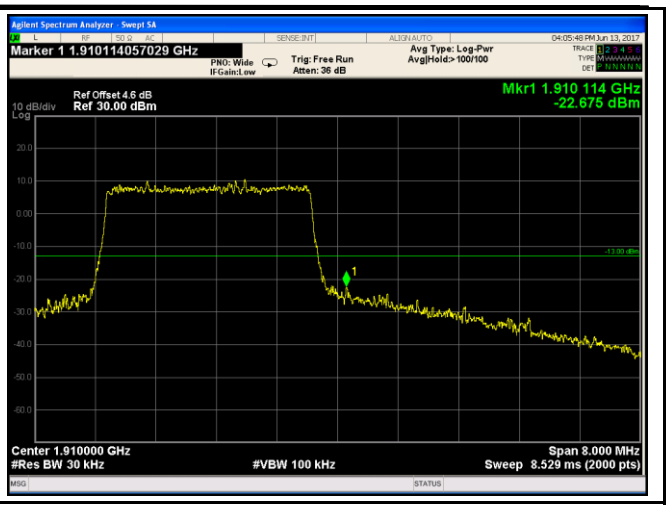

LTE Band II - High Channel 16QAM-1.4

Note: Offset=Cable loss (4.5) + 10log (12.99/10)=4.5+1.1=5.6 dB



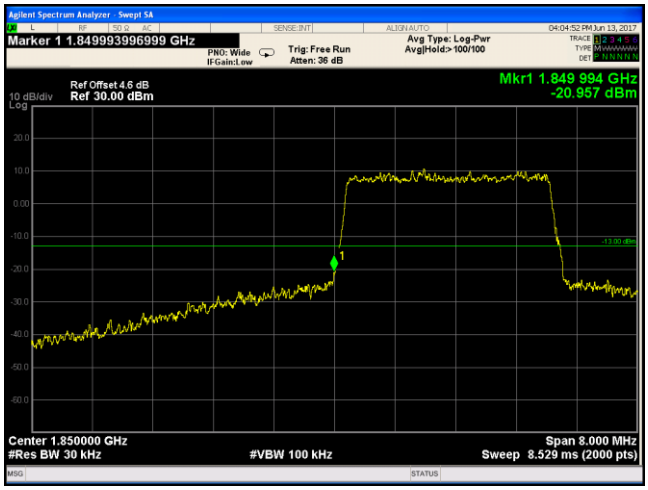

LTE Band II - Low Channel QPSK-3

Note: Offset=Cable loss (4.5) + 10log (30.62/30)=4.5+0.1=4.6 dB



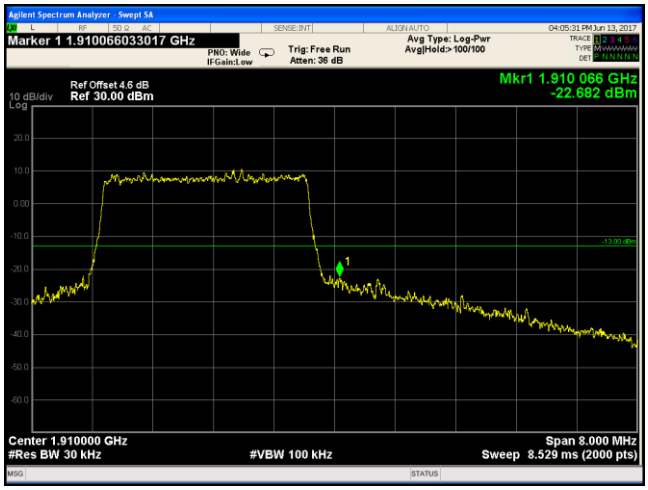

LTE Band II - High Channel QPSK-3

Note: Offset=Cable loss (4.5) + 10log (30.50/30)=4.5+0.1=4.6 dB



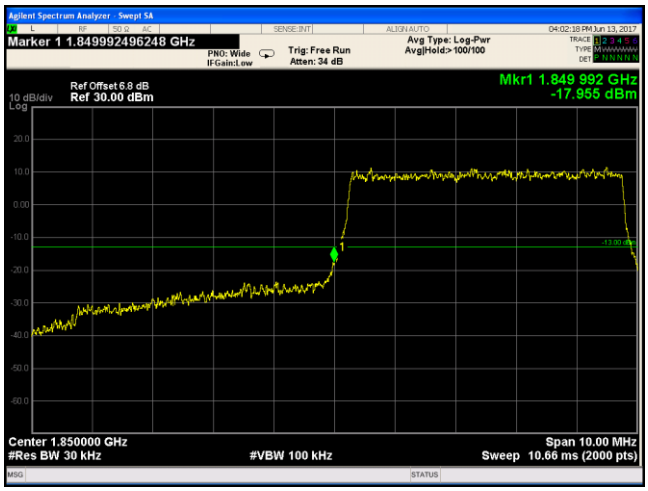

LTE Band II - Low Channel 16QAM-3

Note: Offset=Cable loss (4.5) + 10log (30.42/30)=4.5+0.1=4.6 dB



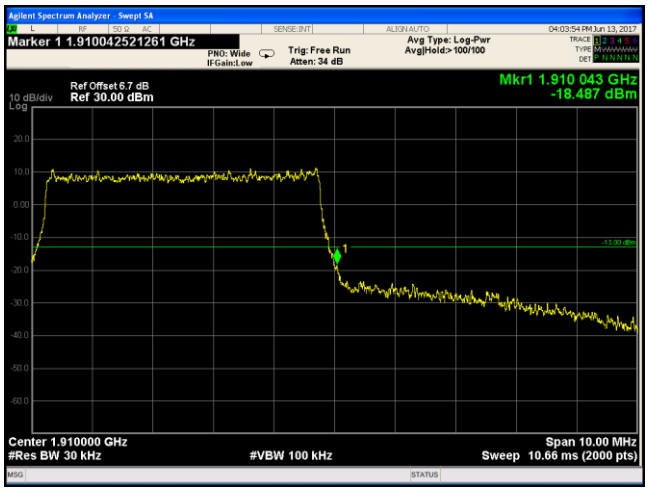

LTE Band II - High Channel 16QAM-3

Note: Offset=Cable loss (4.5) + 10log (30.58/30)=4.5+0.1=4.6 dB



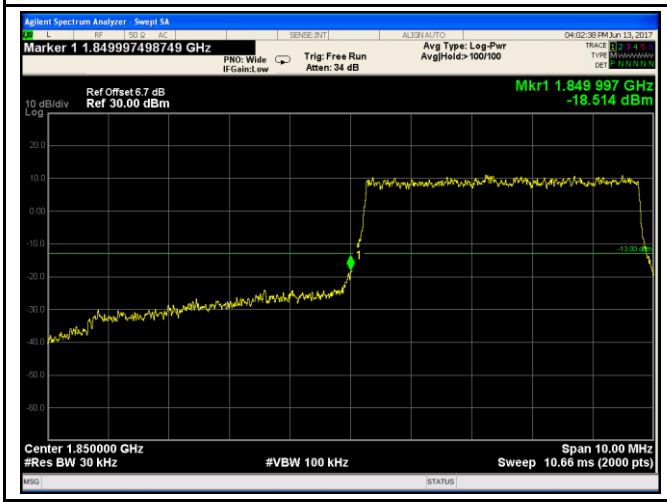

LTE Band II - Low Channel QPSK-5

Note: Offset=Cable loss (4.5) + 10log (50.45/30)=4.5+2.3=6.8 dB



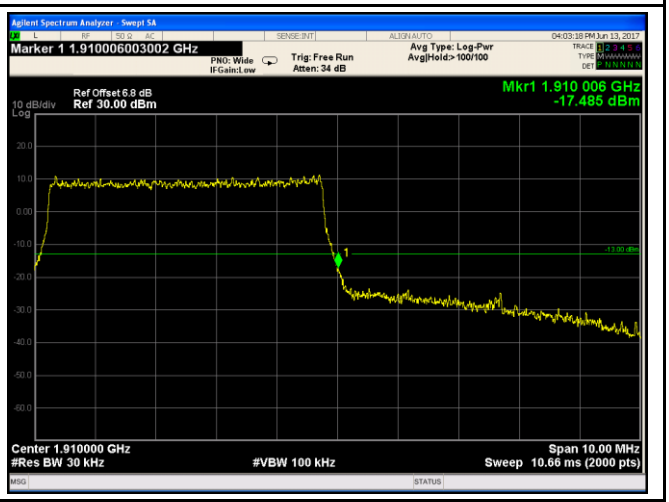

LTE Band II - High Channel QPSK-5

Note: Offset=Cable loss (4.5) + 10log (50.15/30)=4.5+2.2=6.7 dB



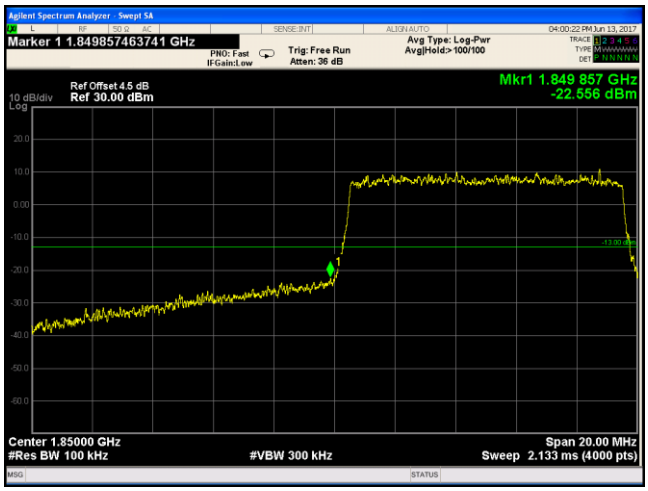

LTE Band II - Low Channel 16QAM-5

Note: Offset=Cable loss (4.5) + 10log (50.32/30)=4.5+2.2=6.7 dB

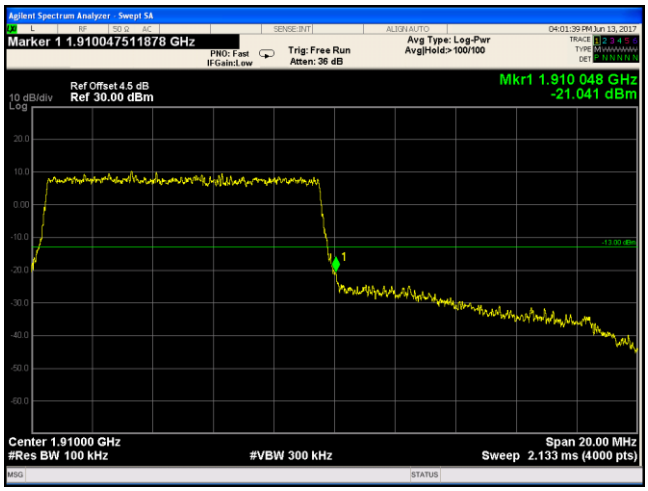



LTE Band II - High Channel 16QAM-5

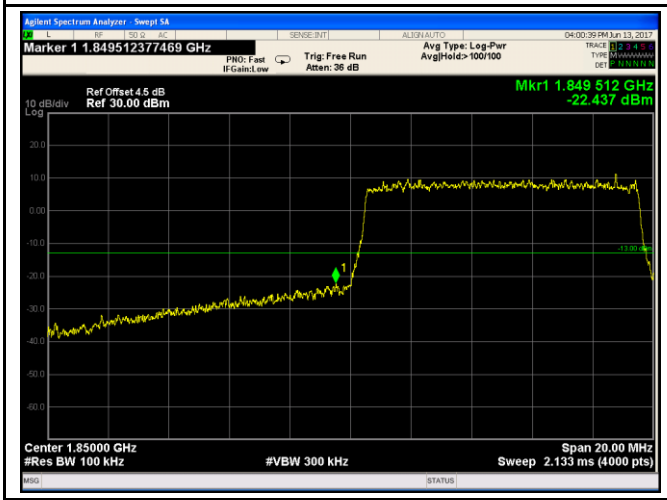
Note: Offset=Cable loss (4.5) + 10log (50.68/30)=4.5+2.3=6.8 dB



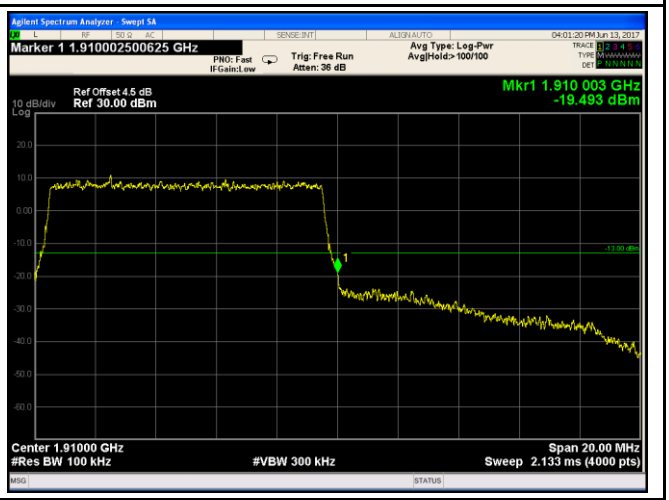

LTE Band II - Low Channel QPSK-10




LTE Band II - High Channel QPSK-10



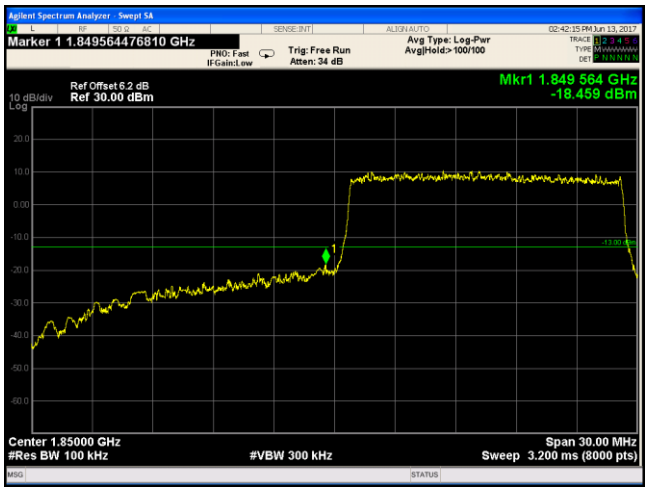

LTE Band II - Low Channel 16QAM-10




LTE Band II - High Channel 16QAM-10

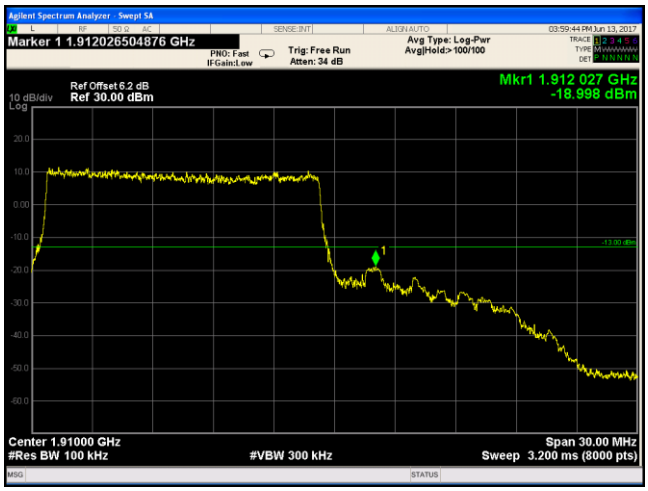
Note: Offset=Cable loss (4.5) + 10log (101.4/100)=4.5+0.0=4.5 dB

Note: Offset=Cable loss (4.5) + 10log (101.3/100)=4.5+0.0=4.5 dB



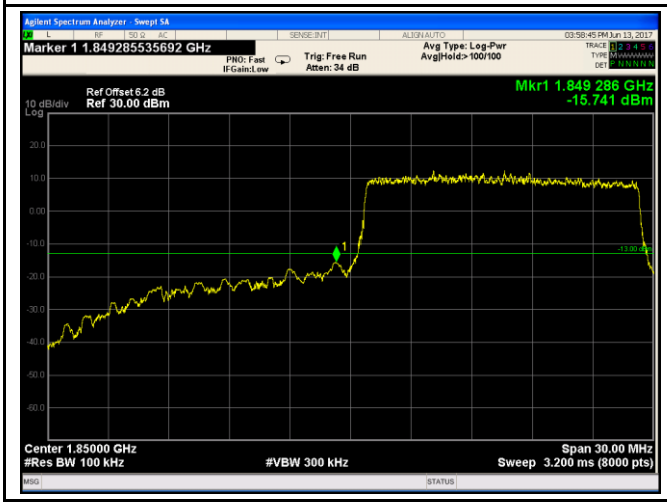

LTE Band II - Low Channel QPSK-15

Note: Offset=Cable loss (4.5) + 10log (148/100)=4.5+1.7=6.2 dB




LTE Band II - High Channel QPSK-15

Note: Offset=Cable loss (4.5) + 10log (149.2/100)=4.5+1.7=6.2 dB

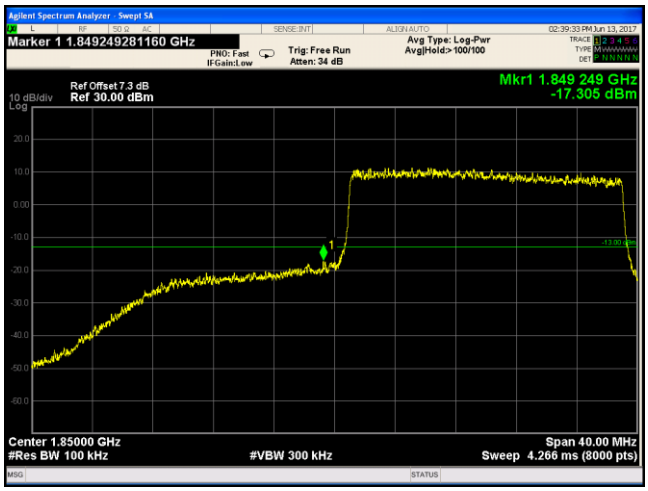



LTE Band II - Low Channel 16QAM-15

Note: Offset=Cable loss (4.5) + 10log (147.1/100)=4.5+1.7=6.2 dB

LTE Band II - High Channel 16QAM-15

Note: Offset=Cable loss (4.5) + 10log (149.4/100)=4.5+1.7=6.2 dB

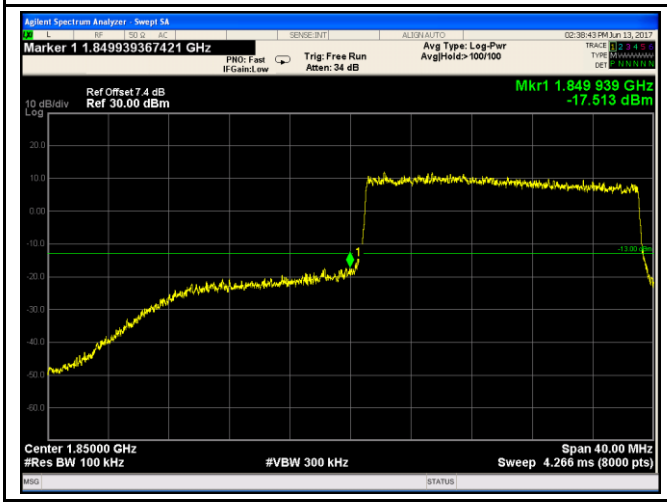



LTE Band II - Low Channel QPSK-20

Note: Offset=Cable loss (4.5) + 10log (192.0/100)=4.5+2.8=7.3 dB

LTE Band II - High Channel QPSK-20

Note: Offset=Cable loss (4.5) + 10log (193.7/100)=4.5+2.9=7.4 dB



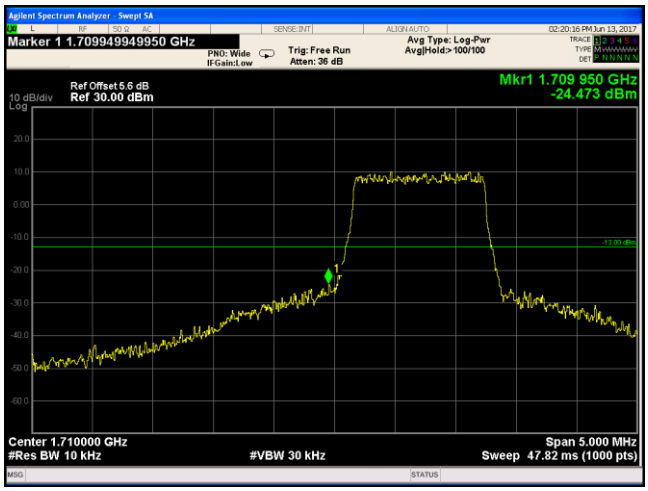

LTE Band II - Low Channel 16QAM-20

Note: Offset=Cable loss (4.5) + 10log (192.8/100)=4.5+2.9=7.4 dB

LTE Band II - High Channel 16QAM-20

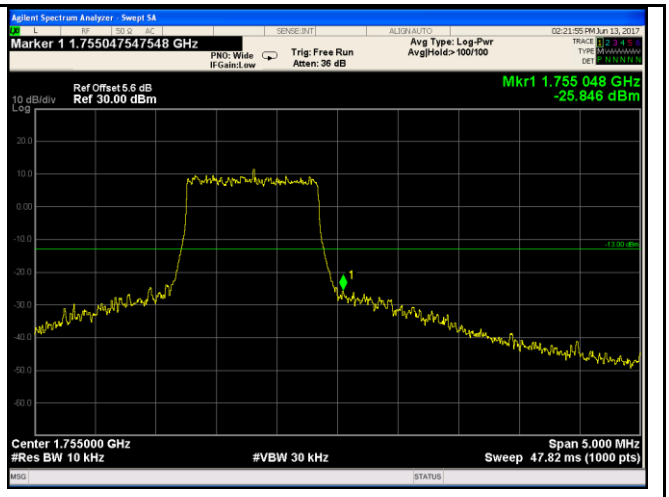
Note: Offset=Cable loss (4.5) + 10log (193.0/100)=4.5+2.9=7.4 dB

## LTE Band IV (Part 27)



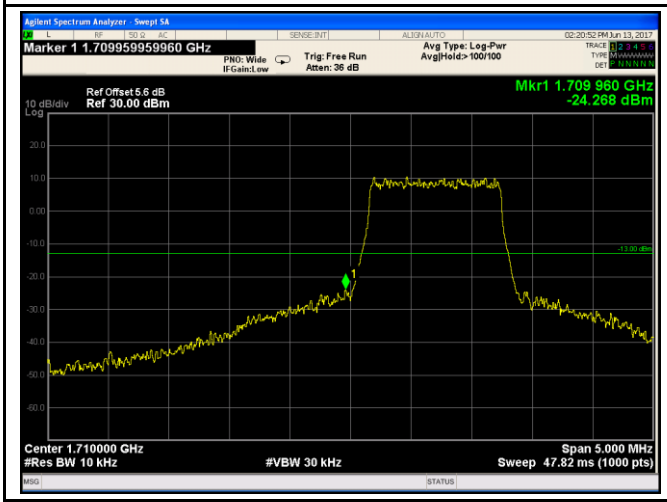

LTE Band IV - Low Channel QPSK-1.4

Note: Offset=Cable loss (4.5) + 10log (12.98/10)=4.5+1.1=5.6 dB



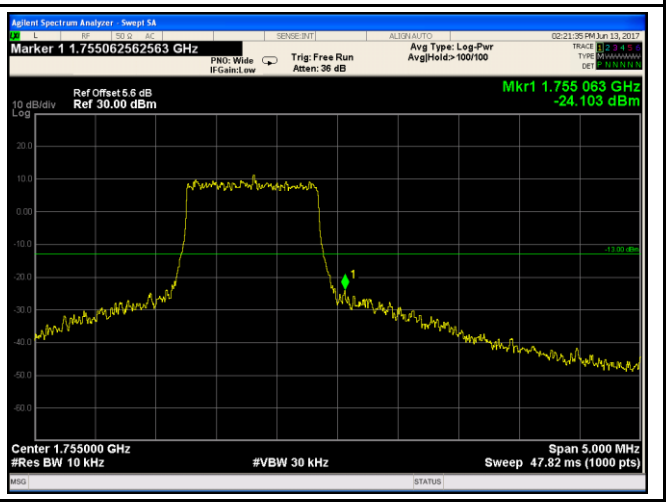

LTE Band IV - High Channel QPSK-1.4

Note: Offset=Cable loss (4.5) + 10log (12.77/10)=4.5+1.1=5.6 dB



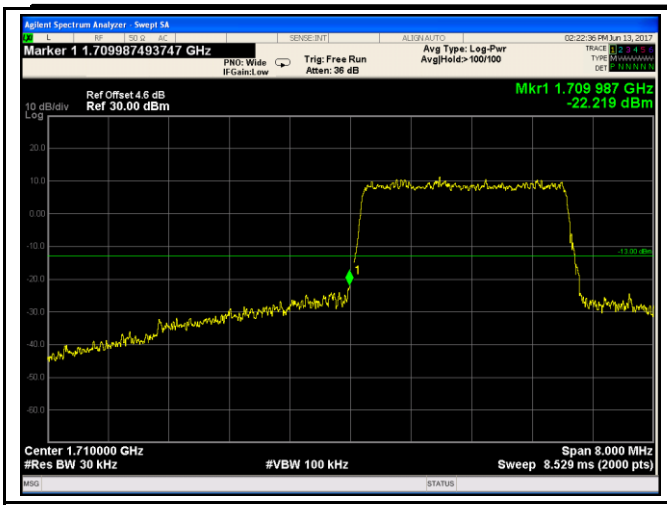

LTE Band IV - Low Channel 16QAM-1.4

Note: Offset=Cable loss (4.5) + 10log (12.87/10)=4.5+1.1=5.6 dB



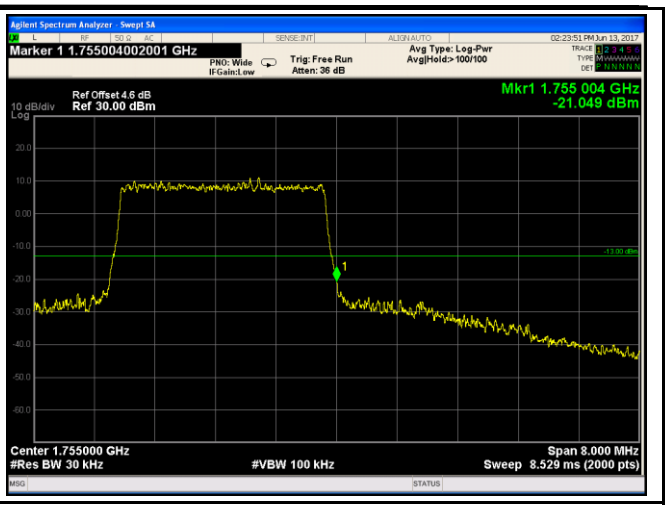

LTE Band IV - High Channel 16QAM-1.4

Note: Offset=Cable loss (4.5) + 10log (12.76/10)=4.5+1.1=5.6 dB



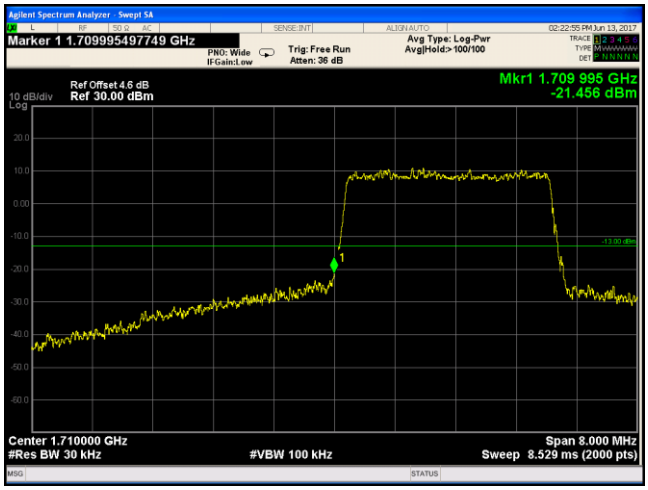

LTE Band IV - Low Channel QPSK-3

Note: Offset=Cable loss (4.5) + 10log (30.74/30)=4.5+0.1=4.6 dB



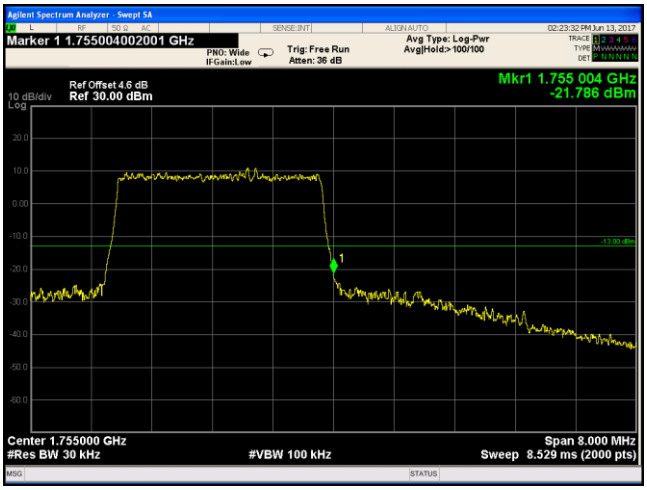

LTE Band IV - High Channel QPSK-3

Note: Offset=Cable loss (4.5) + 10log (30.51/30)=4.5+0.1=4.6 dB



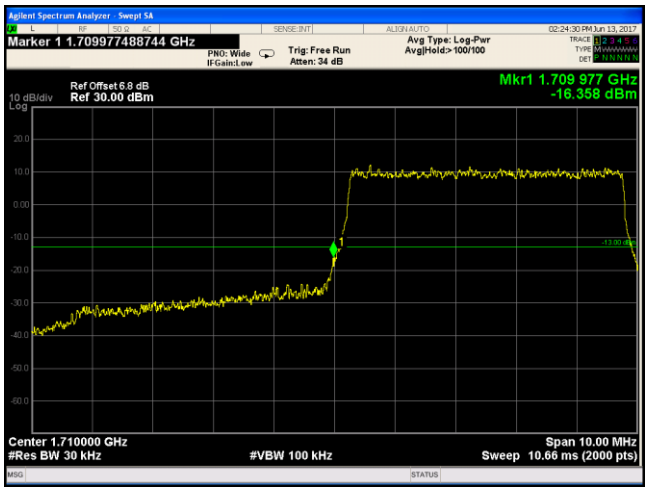

LTE Band IV - Low Channel 16QAM-3

Note: Offset=Cable loss (4.5) + 10log (30.53/30)=4.5+0.1=4.6 dB



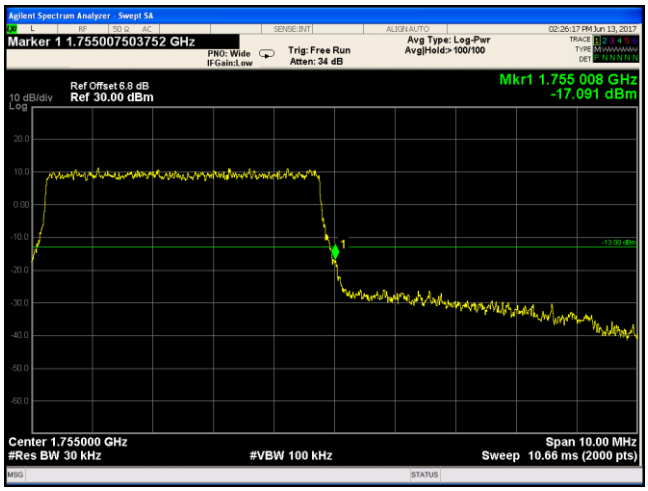

LTE Band IV - High Channel 16QAM-3

Note: Offset=Cable loss (4.5) + 10log (30.45/30)=4.5+0.1=4.6 dB



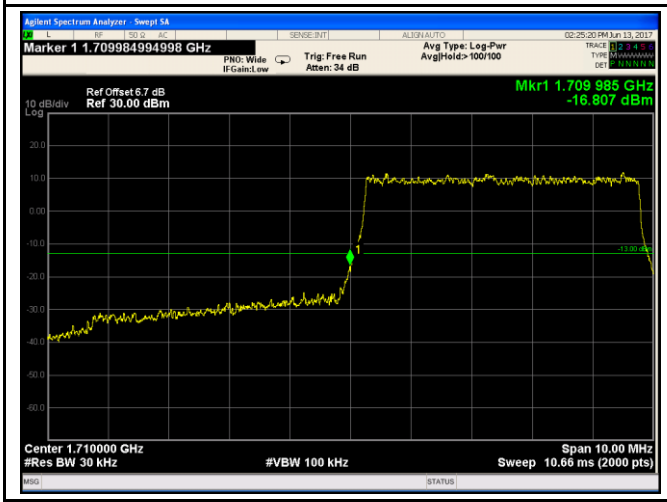

LTE Band IV - Low Channel QPSK-5

Note: Offset=Cable loss (4.5) + 10log (50.51/30)=4.5+2.3=6.8 dB



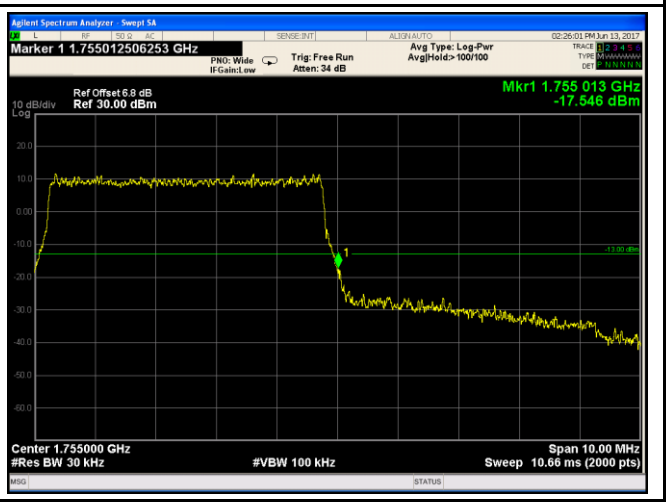

LTE Band IV - High Channel QPSK-5

Note: Offset=Cable loss (4.5) + 10log (50.50/30)=4.5+2.3=6.8 dB



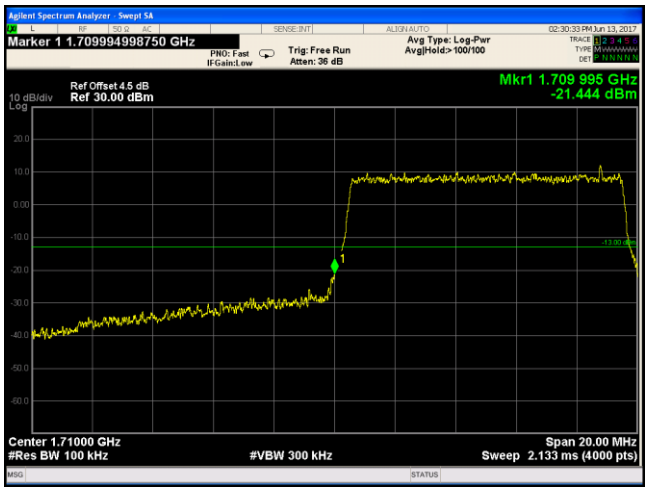

LTE Band IV - Low Channel 16QAM-5

Note: Offset=Cable loss (4.5) + 10log (50.01/30)=4.5+2.2=6.7 dB

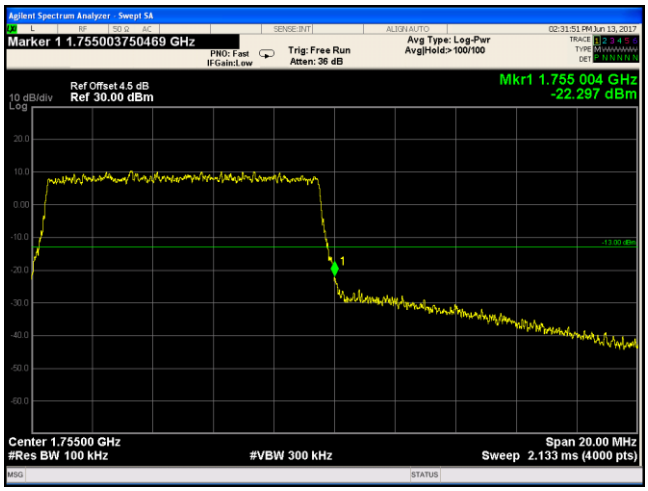



LTE Band IV - High Channel 16QAM-5

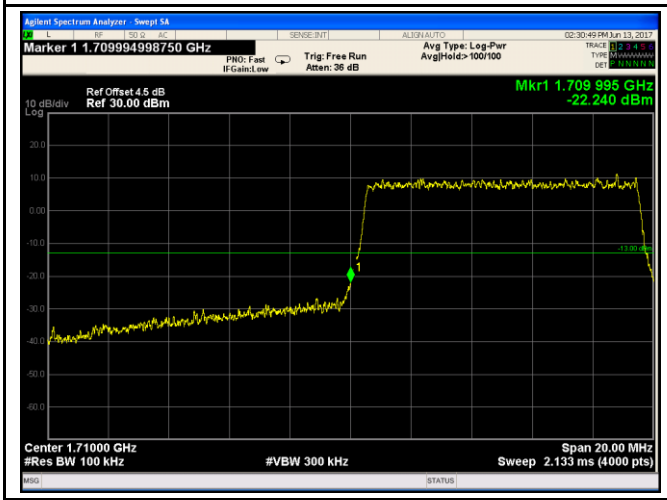
Note: Offset=Cable loss (4.5) + 10log (50.89/30)=4.5+2.3=6.8 dB



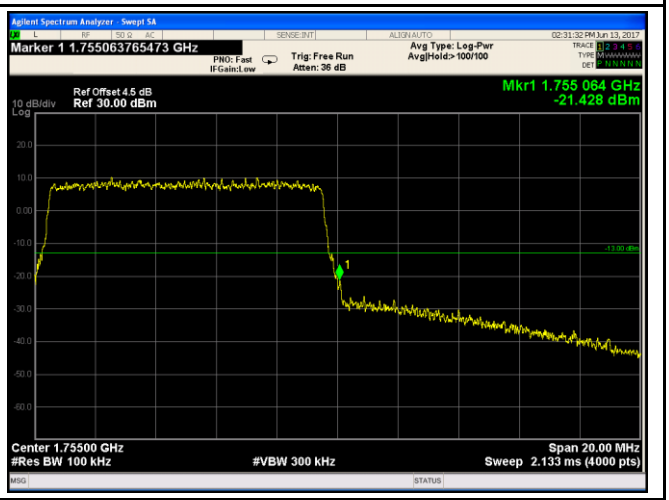

LTE Band IV - Low Channel QPSK-10



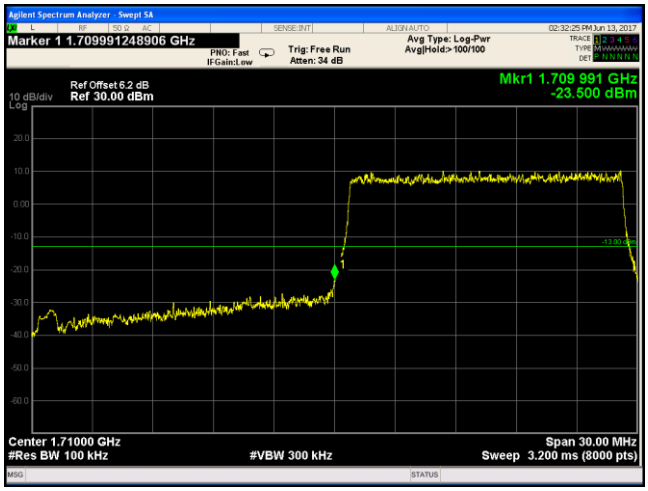

LTE Band IV - High Channel QPSK-10



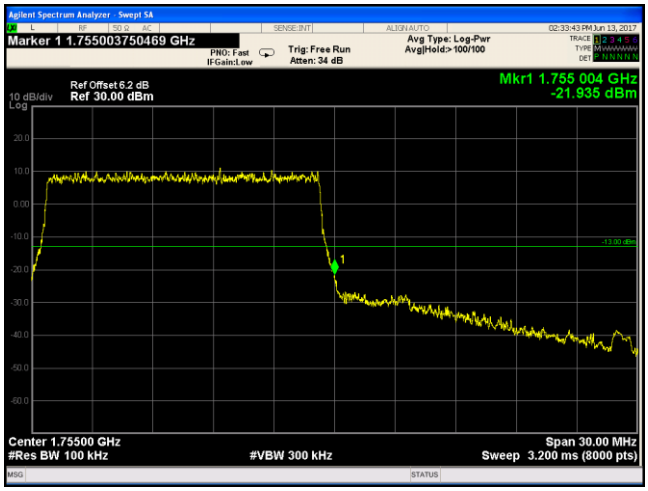

LTE Band IV - Low Channel 16QAM-10




LTE Band IV - High Channel 16QAM-10



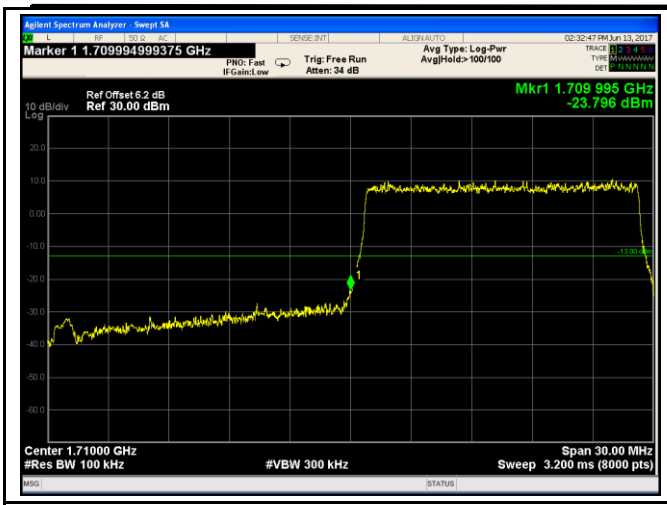

LTE Band IV - Low Channel QPSK-15




LTE Band IV - High Channel QPSK-15

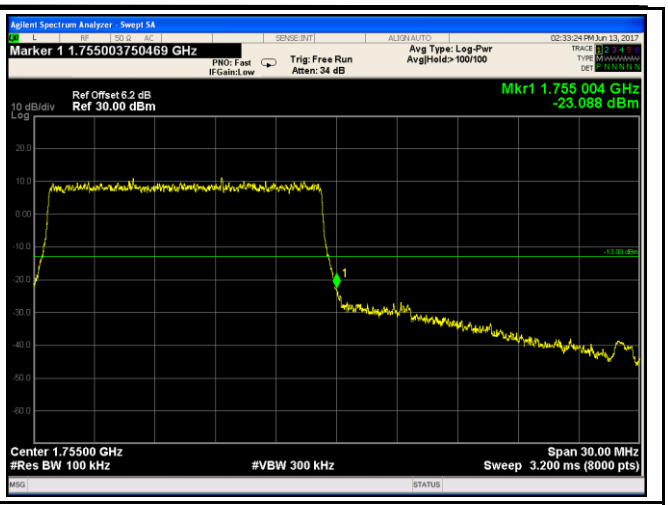
Note: Offset=Cable loss (4.5) + 10log (148.7/100)=4.5+1.7=6.2 dB

Note: Offset=Cable loss (4.5) + 10log (148.6/100)=4.5+1.7=6.2 dB



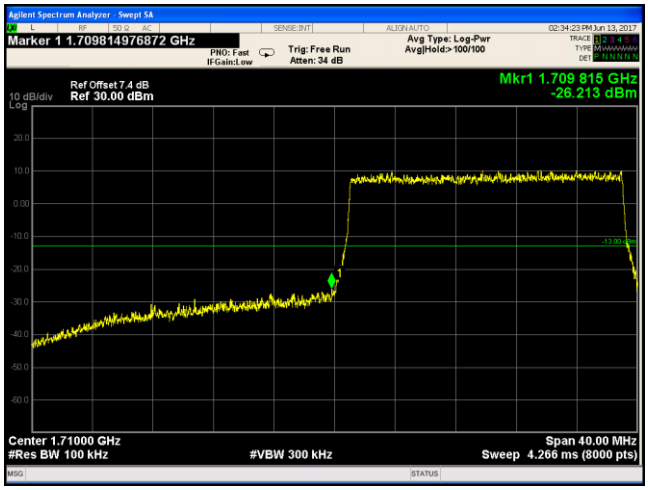

LTE Band IV - Low Channel 16QAM-15

Note: Offset=Cable loss (4.5) + 10log (147.4/100)=4.5+1.7=6.2 dB



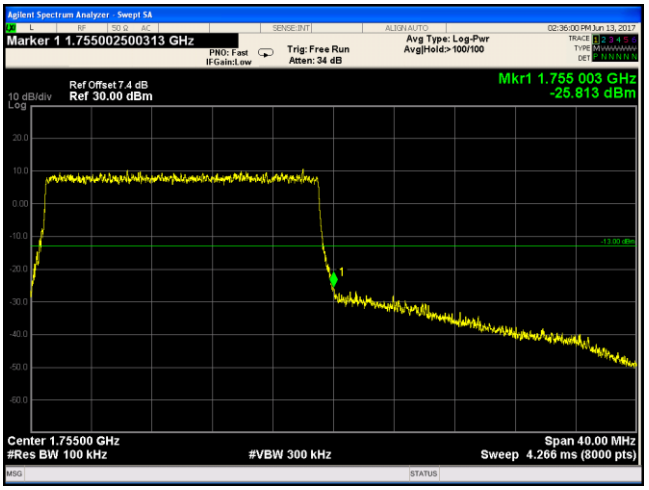

LTE Band IV - High Channel 16QAM-15

Note: Offset=Cable loss (4.5) + 10log (146.5/100)=4.5+1.7=6.2 dB



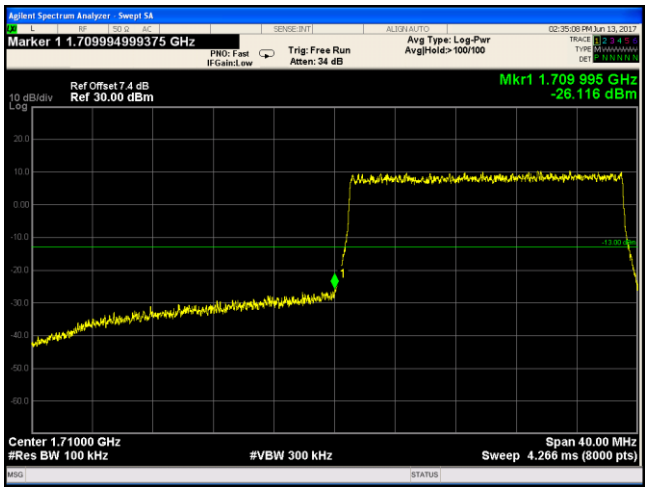

LTE Band IV - Low Channel QPSK-20

Note: Offset=Cable loss (4.5) + 10log (194.3/100)=4.5+2.9=7.4 dB



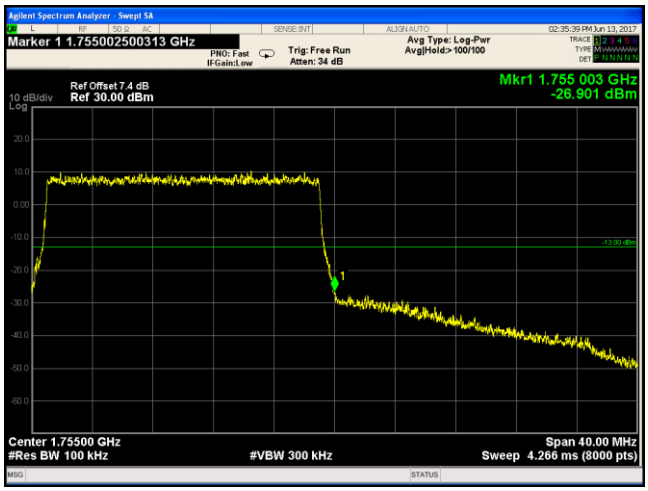

LTE Band IV - High Channel QPSK-20

Note: Offset=Cable loss (4.5) + 10log (192.8/100)=4.5+2.9=7.4 dB




LTE Band IV - Low Channel 16QAM-20

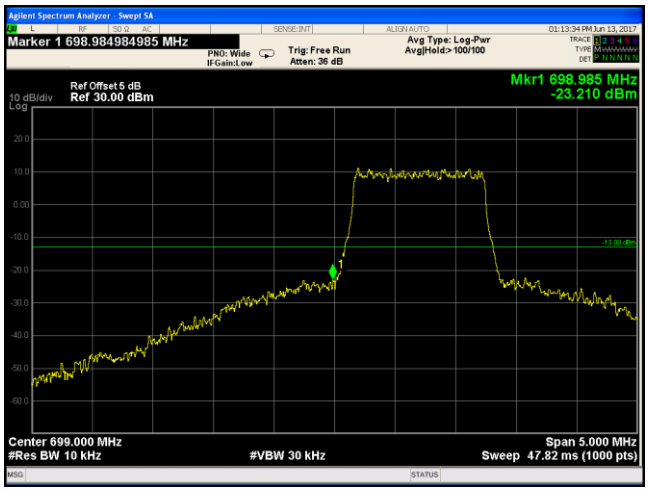
Note: Offset=Cable loss (4.5) + 10log (195.2/100)=4.5+2.9=7.4dB




LTE Band IV - High Channel 16QAM-20

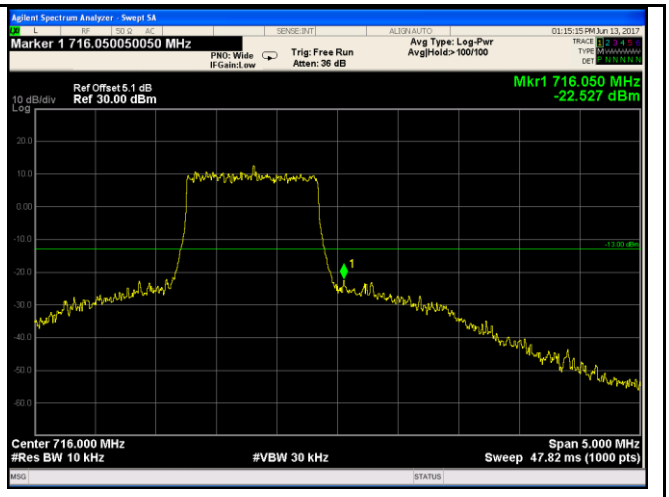
Note: Offset=Cable loss (4.5) + 10log (193.1/100)=4.5+2.9=7.4 dB

## LTE Band XII (Part 27)



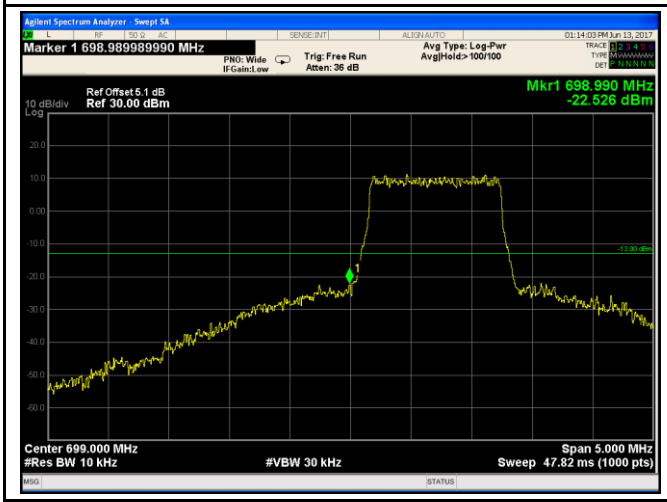

LTE Band XII - Low Channel QPSK-1.4

Note: Offset=Cable loss (4.5) + 10log (12.72/10)=4.0+1.0=5.0 dB



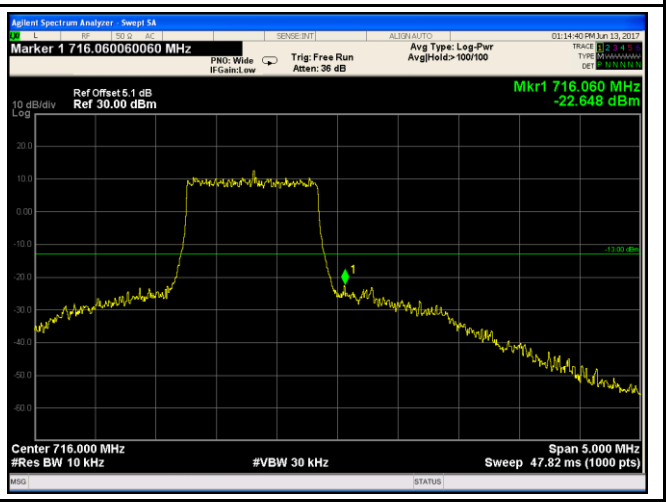

LTE Band XII - High Channel QPSK-1.4

Note: Offset=Cable loss (4.5) + 10log (12.86/10)=4.0+1.1=5.1 dB



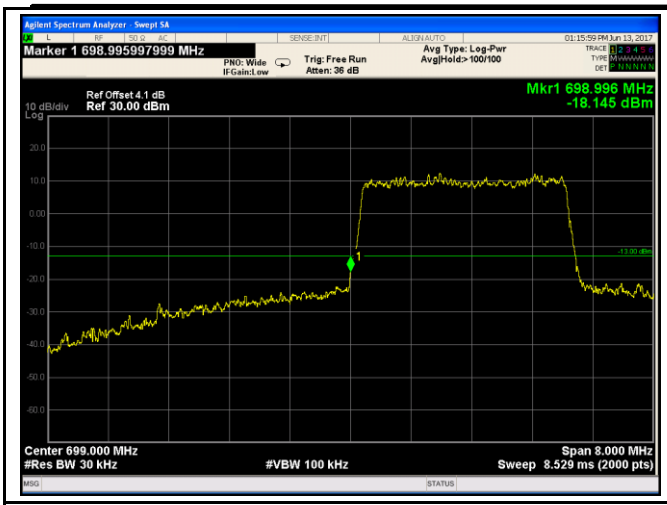

LTE Band XII - Low Channel 16QAM-1.4

Note: Offset=Cable loss (4.5) + 10log (12.75/10)=4.0+1.1=5.1 dB



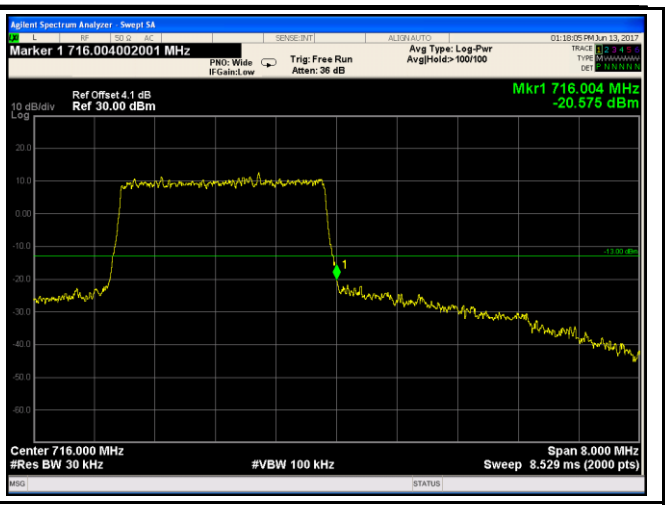

LTE Band XII - High Channel 16QAM-1.4

Note: Offset=Cable loss (4.5) + 10log (12.91/10)=4.0+1.1=5.1 dB



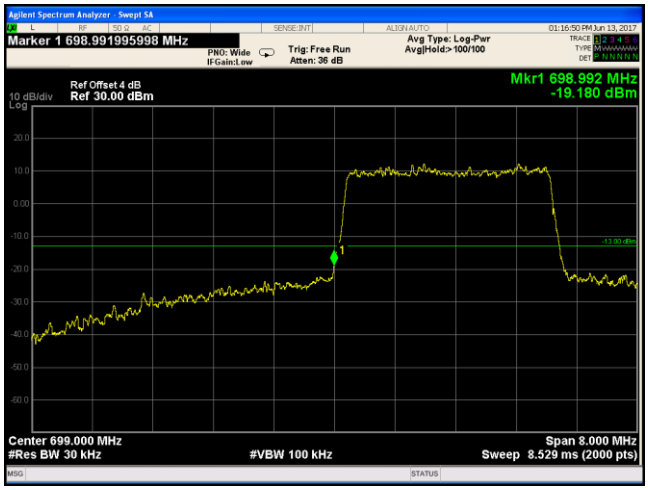

LTE Band XII - Low Channel QPSK-3

Note: Offset=Cable loss (4.5) + 10log (30.57/30)=4.0+0.1=4.1 dB



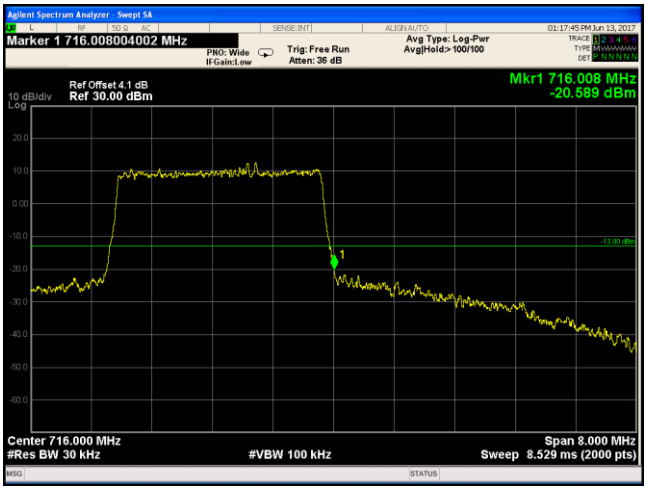

LTE Band XII - High Channel QPSK-3

Note: Offset=Cable loss (4.5) + 10log (30.51/30)=4.0+0.1=4.1 dB



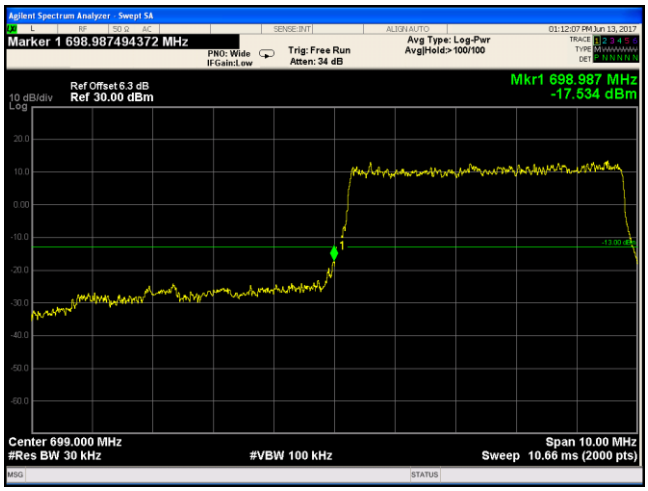

LTE Band XII - Low Channel 16QAM-3

Note: Offset=Cable loss (4.5) + 10log (30.13/30)=4.0+0.0=4.0 dB



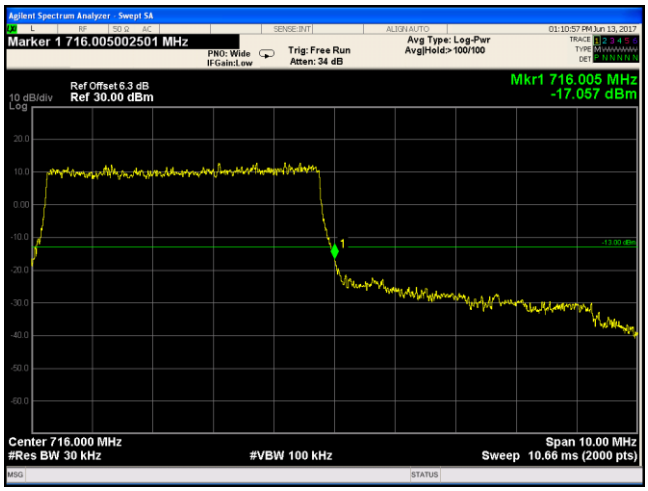

LTE Band XII - High Channel 16QAM-3

Note: Offset=Cable loss (4.5) + 10log (30.61/30)=4.0+0.1=4.1 dB



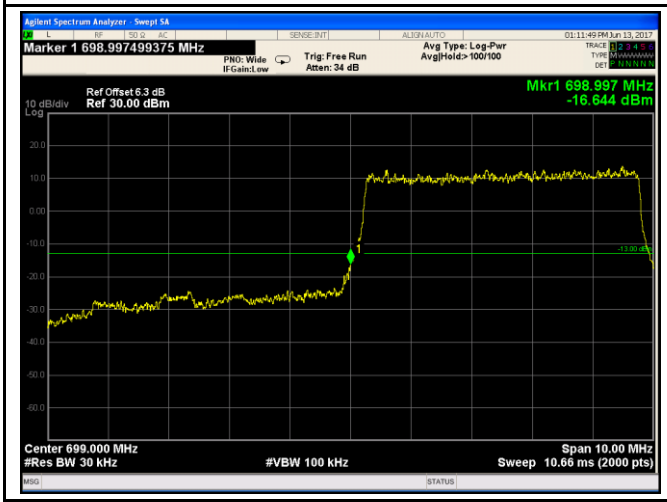

LTE Band XII - Low Channel QPSK-5

Note: Offset=Cable loss (4.5) + 10log (50.37/30)=4.0+2.3=6.3 dB




LTE Band XII - High Channel QPSK-5

Note: Offset=Cable loss (4.5) + 10log (50.47/30)=4.0+2.3=6.3 dB

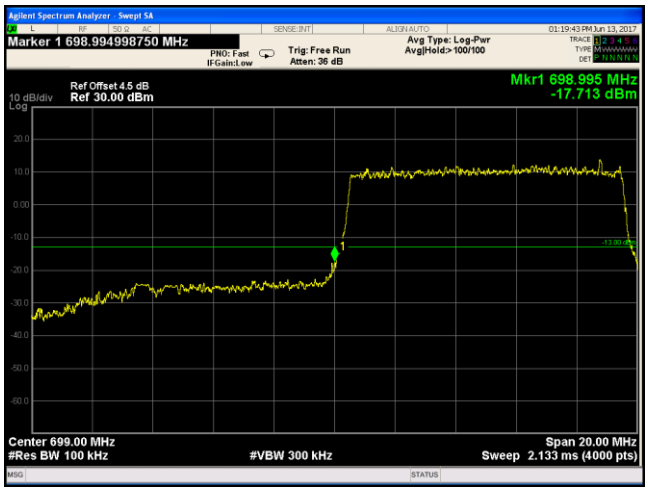



LTE Band XII - Low Channel 16QAM-5

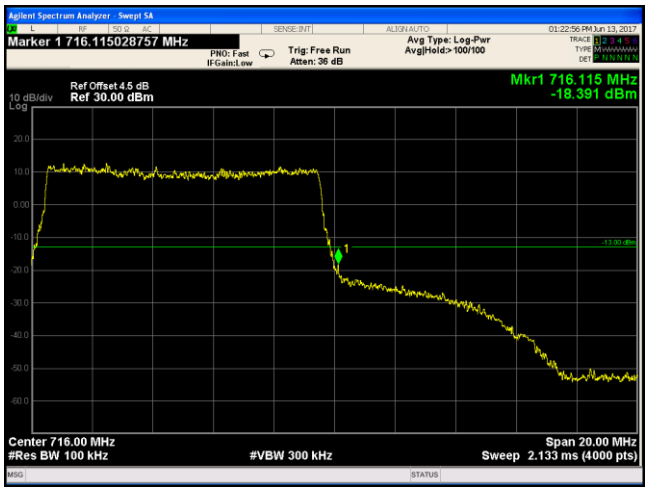
Note: Offset=Cable loss (4.5) + 10log (50.40/30)=4.0+2.3=6.3 dB

LTE Band XII - High Channel 16QAM-5

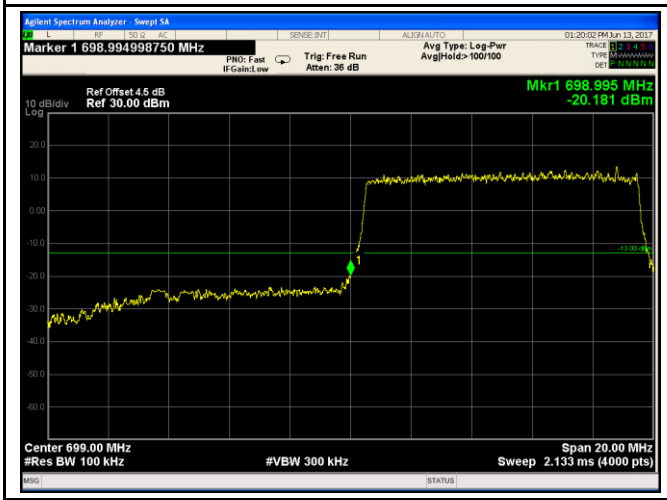
Note: Offset=Cable loss (4.5) + 10log (50.61/30)=4.0+2.3=6.3 dB



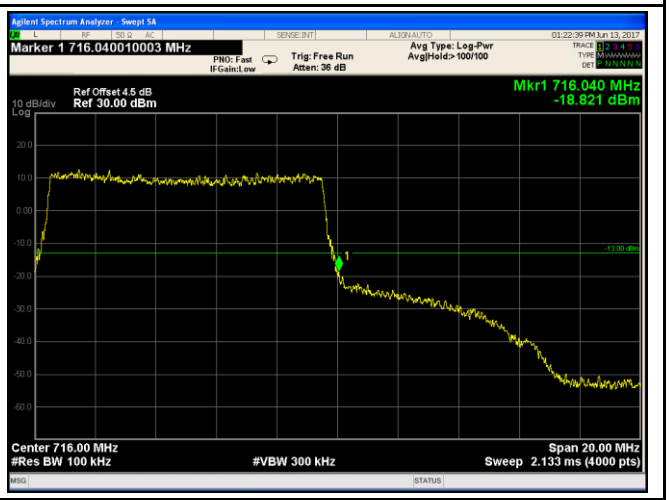

LTE Band XII - Low Channel QPSK-10




LTE Band XII - High Channel QPSK-10

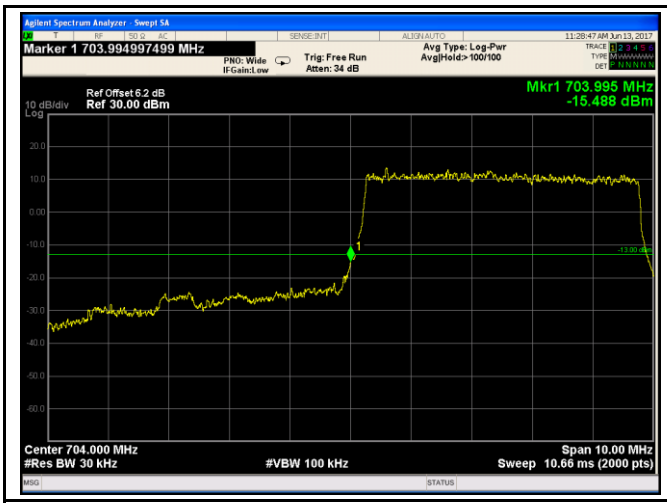



LTE Band XII - Low Channel 16QAM-10




LTE Band XII - High Channel 16QAM-10

## LTE Band XVII (Part 27)

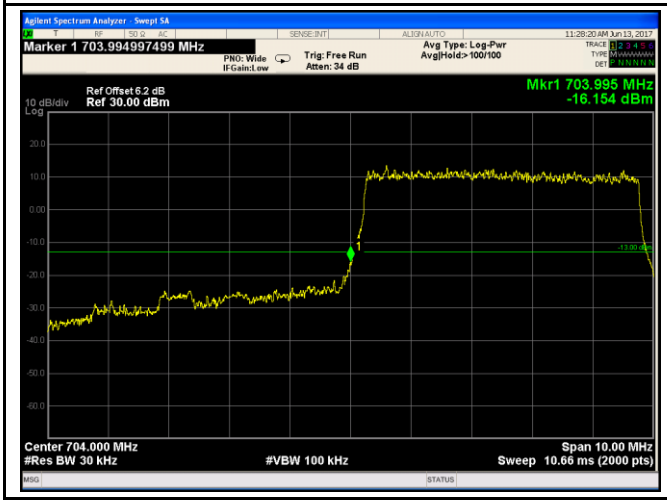



LTE Band XVII - Low Channel QPSK-5

Note: Offset=Cable loss (4.0) + 10log (50.17/30)=4.0+2.2=6.2 dB

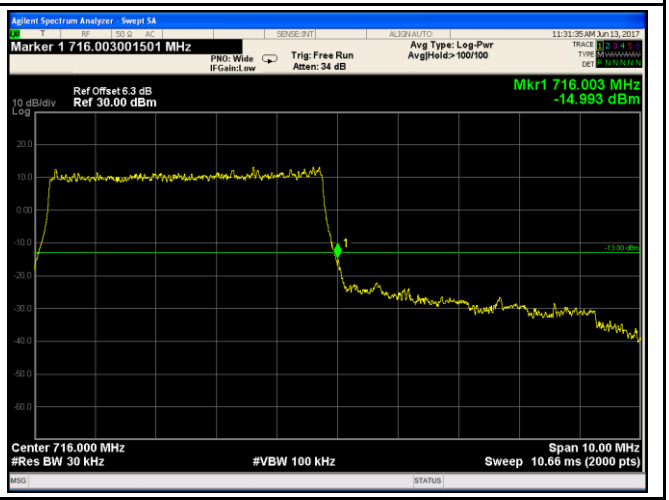
LTE Band XVII - High Channel QPSK-5

Note: Offset=Cable loss (4.0) + 10log (50.88/30)=4.0+2.3=6.3 dB



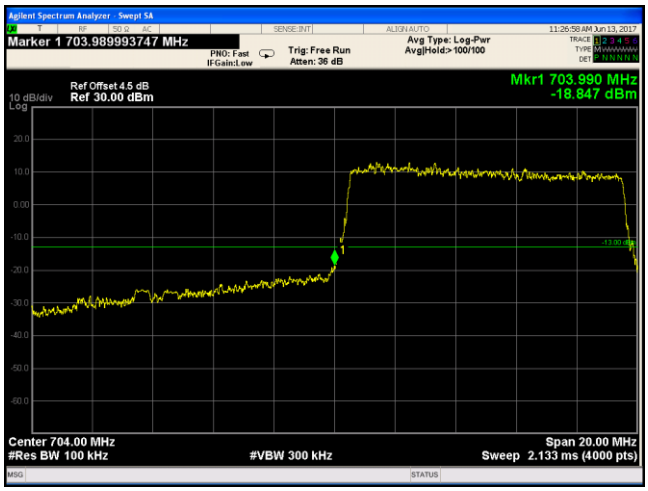

LTE Band XVII - Low Channel 16QAM-5

Note: Offset=Cable loss (4.0) + 10log (50.04/30)=4.0+2.2=6.2 dB

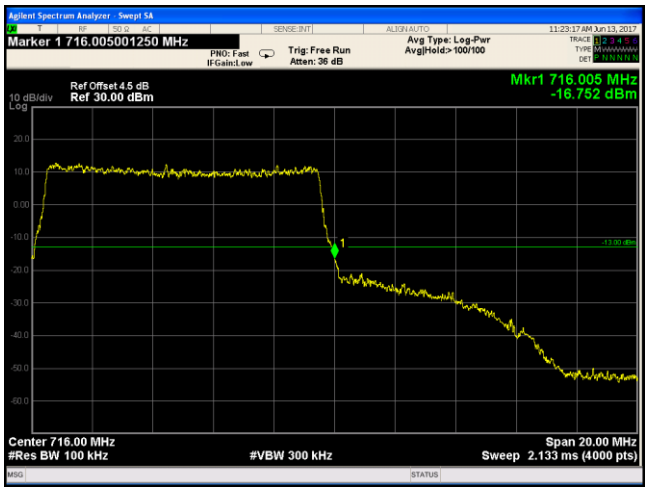



LTE Band XVII - High Channel 16QAM-5

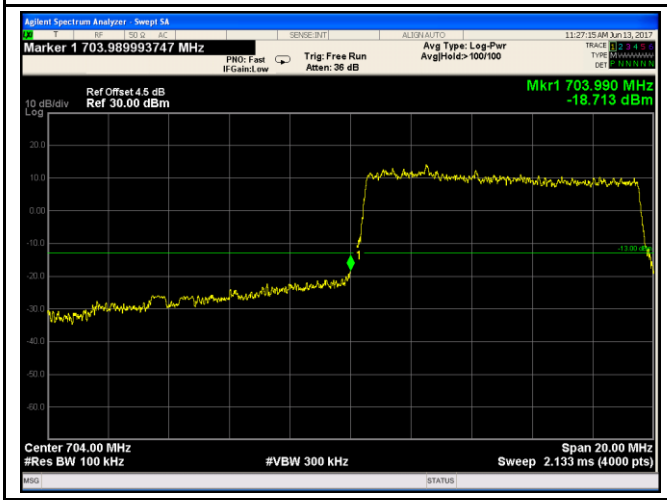
Note: Offset=Cable loss (4.0) + 10log (50.88/30)=4.0+2.3=6.3 dB



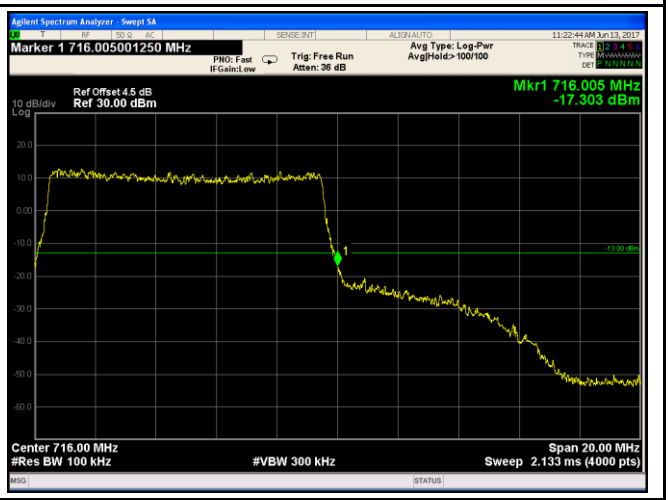

LTE Band XVII - Low Channel QPSK-10




LTE Band XVII - High Channel QPSK-10




LTE Band XVII - Low Channel 16QAM-10

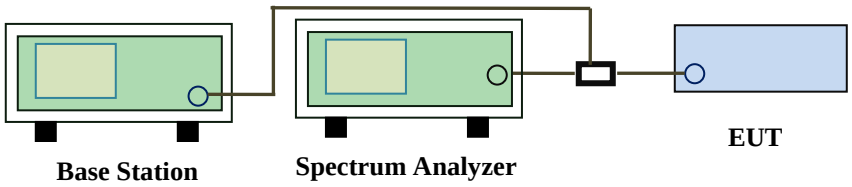



LTE Band XVII - High Channel 16QAM-10

## 6.8 Band Edge 27.53(m)

| | |
|---|---|
| Temperature | 22 °C |
| Relative Humidity | 55% |
| Atmospheric Pressure | 1013mbar |
| Test date : | June 13, 2017 |
| Tested By : | Loren Luo |

**Requirement(s):**

| Spec | Requirement | Applicable |
|---|---|---|
| §27.53(m) | According to FCC 27.53(m)(4) specified that power of any emmission ouutside of the channel edge must be attenuated below the transmitting power(P) by a factor shall be not less than 43+10log (P)dB at the channel edge, the limit of emission equal to -13dBm. And 55+10log (P)dB at 5.5MHz from the channel edges, the limit of emission equal to -25dBm. In the 1MHz bands immediately outside and adjacent to the frenqency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed. | ☑ |
| Test Setup |   | |
| Test Procedure | - The EUT was connected to Spectrum Analyzer and Base Station via power divider.<br>- The 99% and 26 dB occupied bandwidth (BW) of the middle channel for the highest RF powers. | |
| Remark | | |
| Result | ☑ Pass ☐ Fail | |

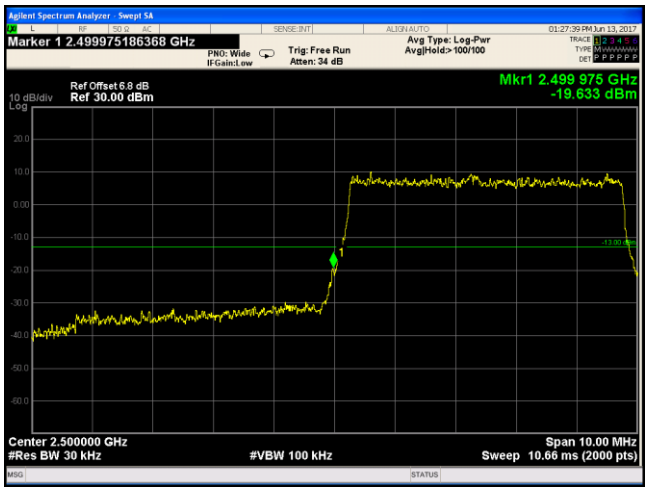
**Test Data** ☑ Yes ☐ N/A

**Test Plot** ☑ Yes (See below) ☐ N/A

## LTE Band VII (Part 27) result

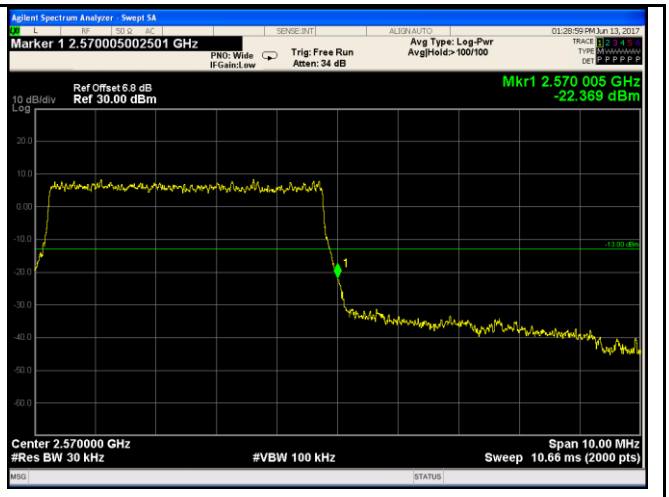
| BW(MHz) | Channel | Frequency (MHz) | Mode | Emission (dBm) | Limit (dBm) |
| --- | --- | --- | --- | --- | --- |
| 5 | 20775 | 2500 | QPSK | -19.633 | -13 |
| | | | 16QAM | -18.986 | -13 |
| 5 | 21425 | 2570 | QPSK | -22.369 | -13 |
| | | | 16QAM | -21.875 | -13 |
| 10 | 20800 | 2500 | QPSK | -22.928 | -13 |
| | | | 16QAM | -22.573 | -13 |
| 10 | 21400 | 2570 | QPSK | -23.529 | -13 |
| | | | 16QAM | -22.758 | -13 |
| 15 | 20825 | 2500 | QPSK | -25.278 | -13 |
| | | | 16QAM | -26.410 | -13 |
| 15 | 21400 | 2570 | QPSK | -25.853 | -13 |
| | | | 16QAM | -24.567 | -13 |
| 20 | 20850 | 2500 | QPSK | -26.653 | -13 |
| | | | 16QAM | -26.314 | -13 |
| 20 | 21350 | 2571 | QPSK | -29.733 | -13 |
| | | | 16QAM | -29.933 | -13 |

## LTE Band VII (Part 27)



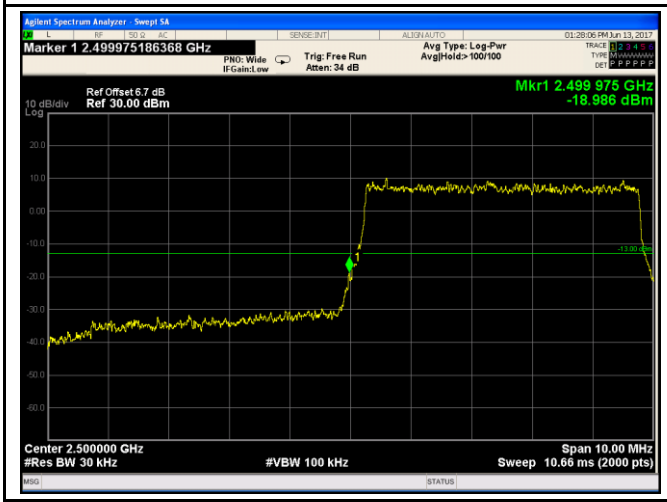

LTE Band VII - Low Channel QPSK-5

Note: Offset=Cable loss (4.5) + 10log (50.94/30)=4.5+2.3=6.8 dB




LTE Band VII - High Channel QPSK-5

Note: Offset=Cable loss (4.5) + 10log (50.46/30)=4.5+2.3=6.8 dB




LTE Band VII - Low Channel 16QAM-5

Note: Offset=Cable loss (4.5) + 10log (50.21/30)=4.5+2.2=6.7 dB

LTE Band VII - High Channel 16QAM-5

Note: Offset=Cable loss (4.5) + 10log (50.36/30)=4.5+2.2=6.7 dB