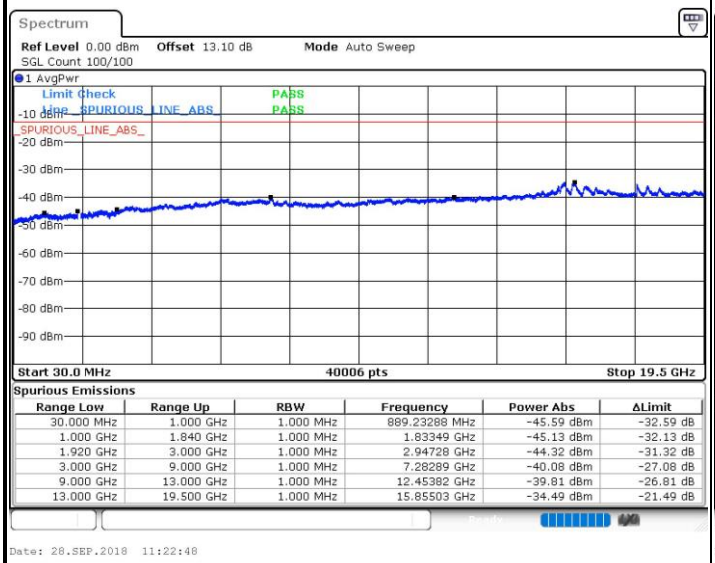
## LTE Band 2 / 10MHz

### Lowest Channel / 64QAM

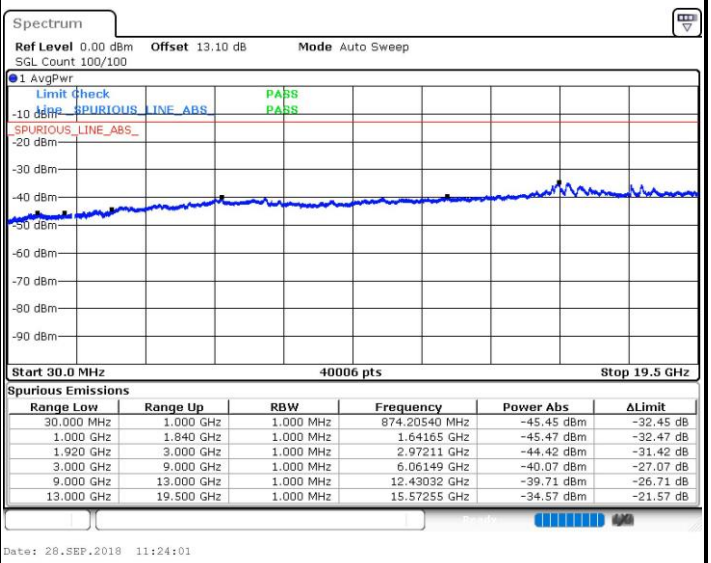



Spurious Emissions

| Range Low | Range Up | RBW | Frequency | Power Abs | ΔLimit |
|---|---|---|---|---|---|
| 30.000 MHz | 1.000 GHz | 1.000 MHz | 889.23288 MHz | -45.59 dBm | -32.59 dB |
| 1.000 GHz | 1.840 GHz | 1.000 MHz | 1.83349 GHz | -45.13 dBm | -32.13 dB |
| 1.920 GHz | 3.000 GHz | 1.000 MHz | 2.94728 GHz | -44.32 dBm | -31.32 dB |
| 3.000 GHz | 9.000 GHz | 1.000 MHz | 7.28289 GHz | -40.08 dBm | -27.08 dB |
| 9.000 GHz | 13.000 GHz | 1.000 MHz | 12.45382 GHz | -39.81 dBm | -26.81 dB |
| 13.000 GHz | 19.500 GHz | 1.000 MHz | 15.85503 GHz | -34.49 dBm | -21.49 dB |

Date: 28.SEP.2018 11:22:48

### Middle Channel / 64QAM

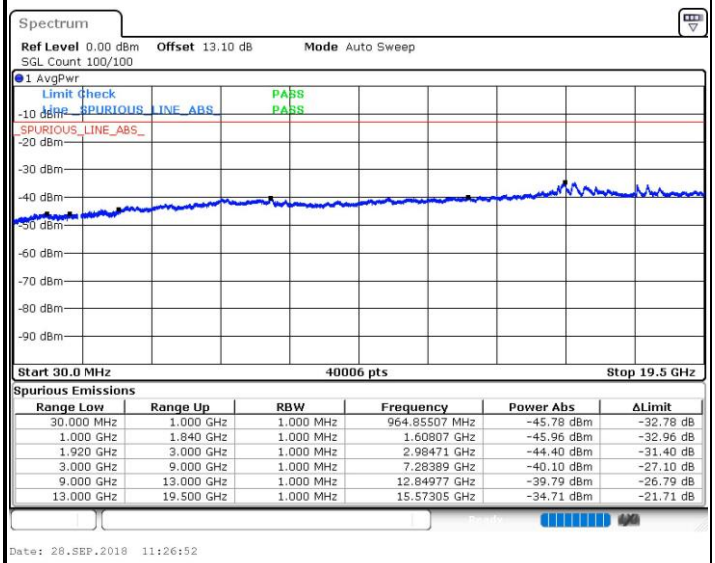



Spurious Emissions

| Range Low | Range Up | RBW | Frequency | Power Abs | ΔLimit |
|---|---|---|---|---|---|
| 30.000 MHz | 1.000 GHz | 1.000 MHz | 874.20540 MHz | -45.45 dBm | -32.45 dB |
| 1.000 GHz | 1.840 GHz | 1.000 MHz | 1.64165 GHz | -45.47 dBm | -32.47 dB |
| 1.920 GHz | 3.000 GHz | 1.000 MHz | 2.97211 GHz | -44.42 dBm | -31.42 dB |
| 3.000 GHz | 9.000 GHz | 1.000 MHz | 6.06149 GHz | -40.07 dBm | -27.07 dB |
| 9.000 GHz | 13.000 GHz | 1.000 MHz | 12.43032 GHz | -39.71 dBm | -26.71 dB |
| 13.000 GHz | 19.500 GHz | 1.000 MHz | 15.57255 GHz | -34.57 dBm | -21.57 dB |

Date: 28.SEP.2018 11:24:01

### Highest Channel / 64QAM



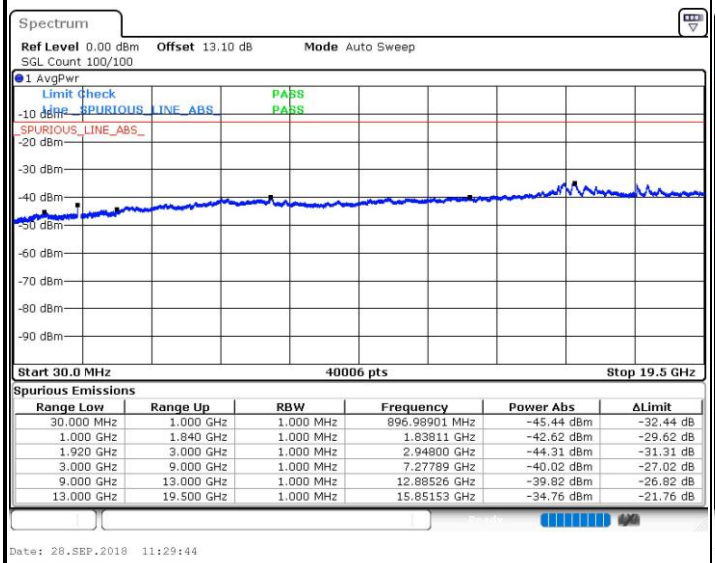

Spurious Emissions

| Range Low | Range Up | RBW | Frequency | Power Abs | ΔLimit |
|---|---|---|---|---|---|
| 30.000 MHz | 1.000 GHz | 1.000 MHz | 964.85507 MHz | -45.78 dBm | -32.78 dB |
| 1.000 GHz | 1.840 GHz | 1.000 MHz | 1.60807 GHz | -45.96 dBm | -32.96 dB |
| 1.920 GHz | 3.000 GHz | 1.000 MHz | 2.98471 GHz | -44.40 dBm | -31.40 dB |
| 3.000 GHz | 9.000 GHz | 1.000 MHz | 7.28389 GHz | -40.10 dBm | -27.10 dB |
| 9.000 GHz | 13.000 GHz | 1.000 MHz | 12.84977 GHz | -39.79 dBm | -26.79 dB |
| 13.000 GHz | 19.500 GHz | 1.000 MHz | 15.57305 GHz | -34.71 dBm | -21.71 dB |

Date: 28.SEP.2018 11:26:52

## LTE Band 2 / 15MHz

### Lowest Channel / 64QAM

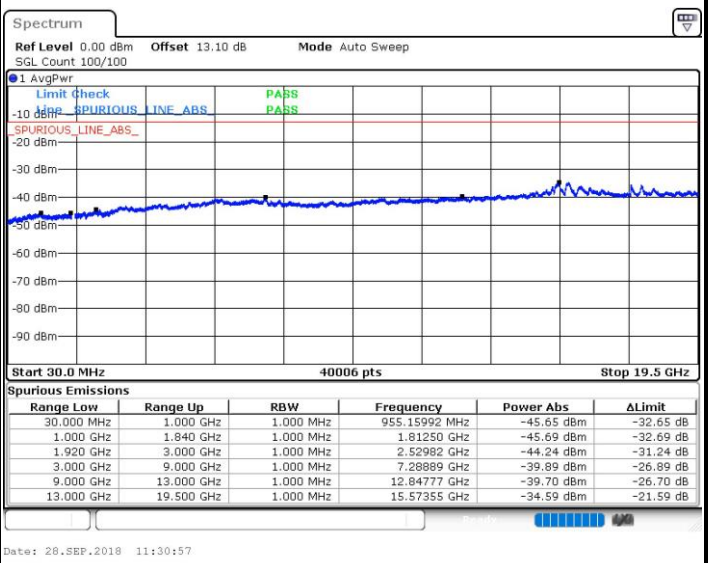



Spurious Emissions

| Range Low | Range Up | RBW | Frequency | Power Abs | ΔLimit |
|---|---|---|---|---|---|
| 30.000 MHz | 1.000 GHz | 1.000 MHz | 896.98901 MHz | -45.44 dBm | -32.44 dB |
| 1.000 GHz | 1.840 GHz | 1.000 MHz | 1.83811 GHz | -42.62 dBm | -29.62 dB |
| 1.920 GHz | 3.000 GHz | 1.000 MHz | 2.94800 GHz | -44.31 dBm | -31.31 dB |
| 3.000 GHz | 9.000 GHz | 1.000 MHz | 7.27789 GHz | -40.02 dBm | -27.02 dB |
| 9.000 GHz | 13.000 GHz | 1.000 MHz | 12.88526 GHz | -39.82 dBm | -26.82 dB |
| 13.000 GHz | 19.500 GHz | 1.000 MHz | 15.85153 GHz | -34.76 dBm | -21.76 dB |

Date: 28.SEP.2018 11:29:44

### Middle Channel / 64QAM

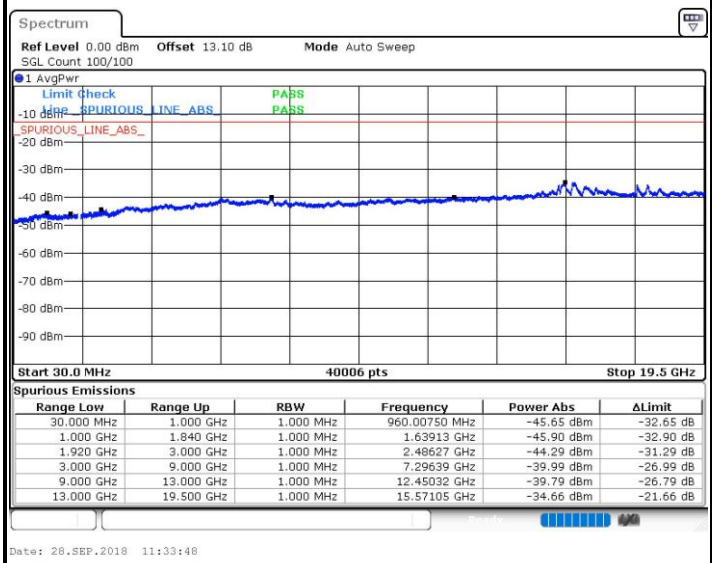



Spurious Emissions

| Range Low | Range Up | RBW | Frequency | Power Abs | ΔLimit |
|---|---|---|---|---|---|
| 30.000 MHz | 1.000 GHz | 1.000 MHz | 955.15992 MHz | -45.65 dBm | -32.65 dB |
| 1.000 GHz | 1.840 GHz | 1.000 MHz | 1.81250 GHz | -45.69 dBm | -32.69 dB |
| 1.920 GHz | 3.000 GHz | 1.000 MHz | 2.52982 GHz | -44.24 dBm | -31.24 dB |
| 3.000 GHz | 9.000 GHz | 1.000 MHz | 7.28889 GHz | -39.89 dBm | -26.89 dB |
| 9.000 GHz | 13.000 GHz | 1.000 MHz | 12.84777 GHz | -39.70 dBm | -26.70 dB |
| 13.000 GHz | 19.500 GHz | 1.000 MHz | 15.57355 GHz | -34.59 dBm | -21.59 dB |

Date: 28.SEP.2018 11:30:57

### Highest Channel / 64QAM



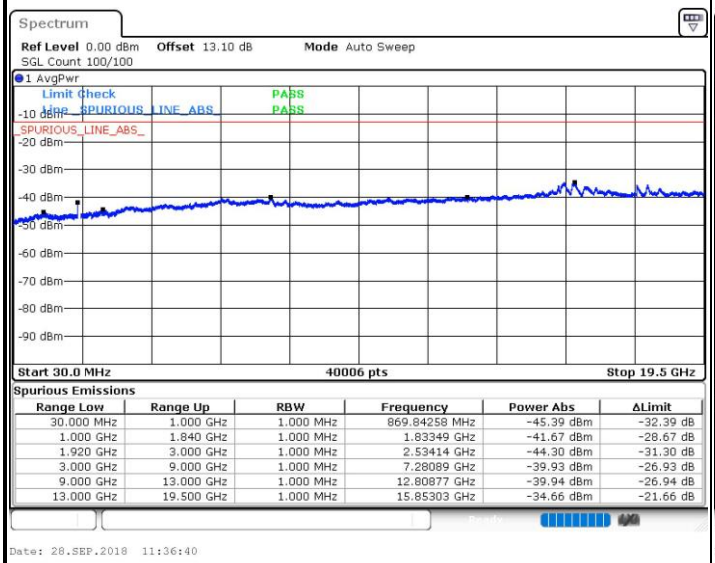

Spurious Emissions

| Range Low | Range Up | RBW | Frequency | Power Abs | ΔLimit |
|---|---|---|---|---|---|
| 30.000 MHz | 1.000 GHz | 1.000 MHz | 960.00750 MHz | -45.65 dBm | -32.65 dB |
| 1.000 GHz | 1.840 GHz | 1.000 MHz | 1.63913 GHz | -45.90 dBm | -32.90 dB |
| 1.920 GHz | 3.000 GHz | 1.000 MHz | 2.48627 GHz | -44.29 dBm | -31.29 dB |
| 3.000 GHz | 9.000 GHz | 1.000 MHz | 7.29639 GHz | -39.99 dBm | -26.99 dB |
| 9.000 GHz | 13.000 GHz | 1.000 MHz | 12.45032 GHz | -39.79 dBm | -26.79 dB |
| 13.000 GHz | 19.500 GHz | 1.000 MHz | 15.57105 GHz | -34.66 dBm | -21.66 dB |

Date: 28.SEP.2018 11:33:48

## LTE Band 2 / 20MHz

### Lowest Channel / 64QAM

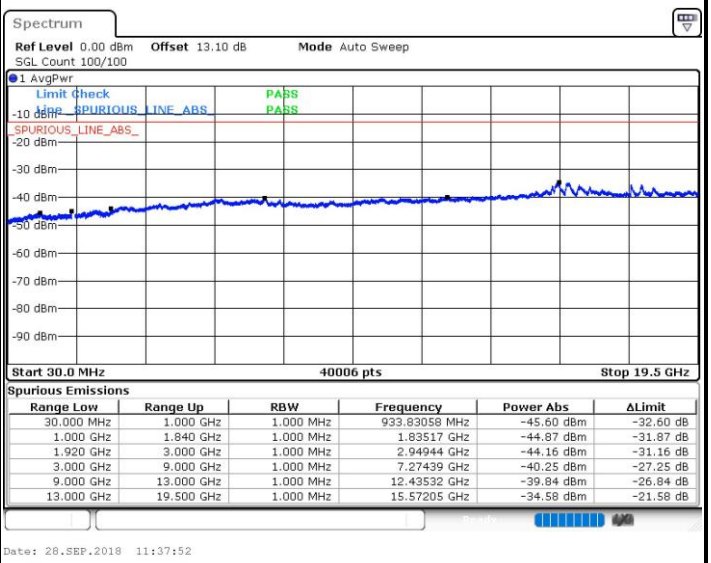



Spurious Emissions

| Range Low | Range Up | RBW | Frequency | Power Abs | ΔLimit |
|---|---|---|---|---|---|
| 30.000 MHz | 1.000 GHz | 1.000 MHz | 869.84258 MHz | -45.39 dBm | -32.39 dB |
| 1.000 GHz | 1.840 GHz | 1.000 MHz | 1.83349 GHz | -41.67 dBm | -28.67 dB |
| 1.920 GHz | 3.000 GHz | 1.000 MHz | 2.53414 GHz | -44.30 dBm | -31.30 dB |
| 3.000 GHz | 9.000 GHz | 1.000 MHz | 7.28089 GHz | -39.93 dBm | -26.93 dB |
| 9.000 GHz | 13.000 GHz | 1.000 MHz | 12.80877 GHz | -39.94 dBm | -26.94 dB |
| 13.000 GHz | 19.500 GHz | 1.000 MHz | 15.85303 GHz | -34.66 dBm | -21.66 dB |

Date: 28.SEP.2018 11:36:40

### Middle Channel / 64QAM

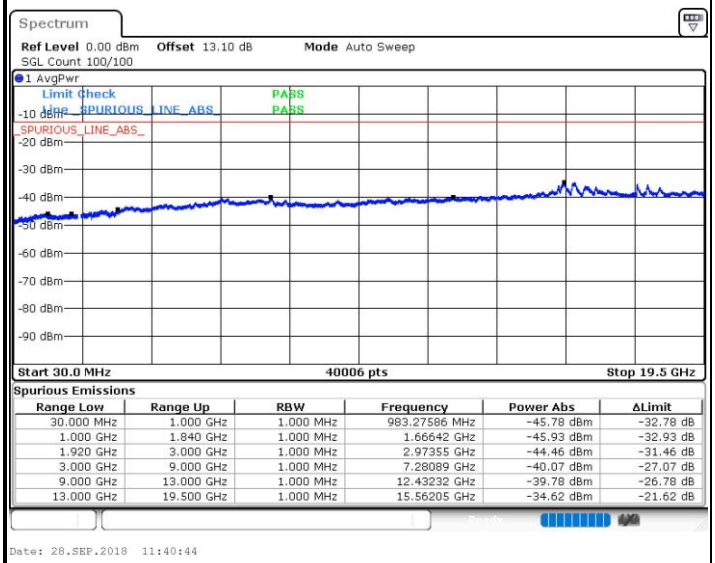



Spurious Emissions

| Range Low | Range Up | RBW | Frequency | Power Abs | ΔLimit |
|---|---|---|---|---|---|
| 30.000 MHz | 1.000 GHz | 1.000 MHz | 933.83058 MHz | -45.60 dBm | -32.60 dB |
| 1.000 GHz | 1.840 GHz | 1.000 MHz | 1.83517 GHz | -44.87 dBm | -31.87 dB |
| 1.920 GHz | 3.000 GHz | 1.000 MHz | 2.94944 GHz | -44.16 dBm | -31.16 dB |
| 3.000 GHz | 9.000 GHz | 1.000 MHz | 7.27439 GHz | -40.25 dBm | -27.25 dB |
| 9.000 GHz | 13.000 GHz | 1.000 MHz | 12.43532 GHz | -39.84 dBm | -26.84 dB |
| 13.000 GHz | 19.500 GHz | 1.000 MHz | 15.57205 GHz | -34.58 dBm | -21.58 dB |

Date: 28.SEP.2018 11:37:52

### Highest Channel / 64QAM




Spurious Emissions

| Range Low | Range Up | RBW | Frequency | Power Abs | ΔLimit |
|---|---|---|---|---|---|
| 30.000 MHz | 1.000 GHz | 1.000 MHz | 983.27586 MHz | -45.78 dBm | -32.78 dB |
| 1.000 GHz | 1.840 GHz | 1.000 MHz | 1.66642 GHz | -45.93 dBm | -32.93 dB |
| 1.920 GHz | 3.000 GHz | 1.000 MHz | 2.97355 GHz | -44.46 dBm | -31.46 dB |
| 3.000 GHz | 9.000 GHz | 1.000 MHz | 7.28089 GHz | -40.07 dBm | -27.07 dB |
| 9.000 GHz | 13.000 GHz | 1.000 MHz | 12.43232 GHz | -39.78 dBm | -26.78 dB |
| 13.000 GHz | 19.500 GHz | 1.000 MHz | 15.56205 GHz | -34.62 dBm | -21.62 dB |

Date: 28.SEP.2018 11:40:44

# Frequency Stability

| Test Conditions | | LTE Band 2 (QPSK) / Middle Channel | Limit |
|---|---|---|---|
| Temperature (°C) | Voltage (Volt) | BW 10MHz | Note 2. |
| | | Deviation (ppm) | Result |
| 50 | Normal Voltage | 0.0006 | PASS |
| 40 | Normal Voltage | 0.0034 | |
| 30 | Normal Voltage | 0.0047 | |
| 20(Ref.) | Normal Voltage | 0.0000 | |
| 10 | Normal Voltage | 0.0008 | |
| 0 | Normal Voltage | 0.0009 | |
| -10 | Normal Voltage | 0.0030 | |
| -20 | Normal Voltage | 0.0011 | |
| -30 | Normal Voltage | 0.0041 | |
| 20 | Maximum Voltage | 0.0062 | |
| 20 | Normal Voltage | 0.0000 | |
| 20 | Battery End Point | 0.0079 | |

**Note:**

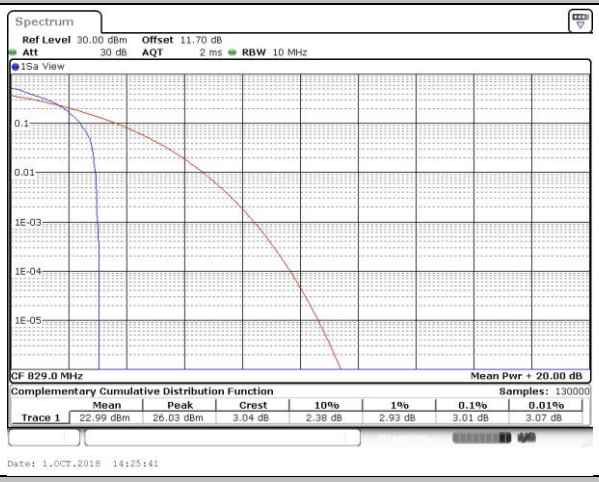
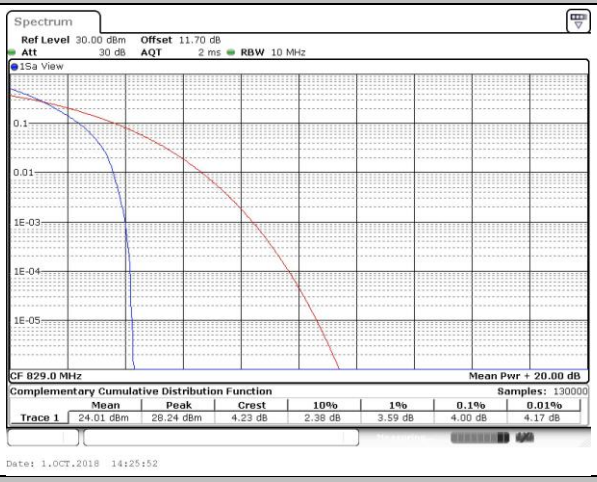
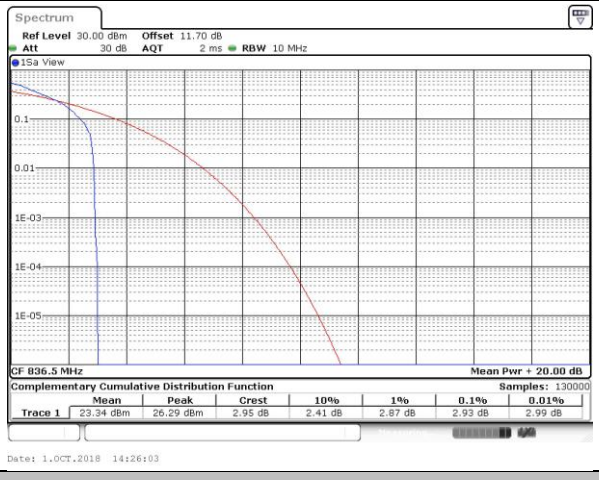
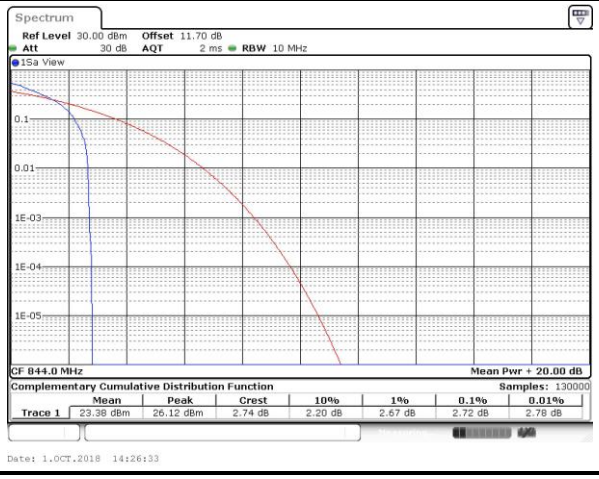
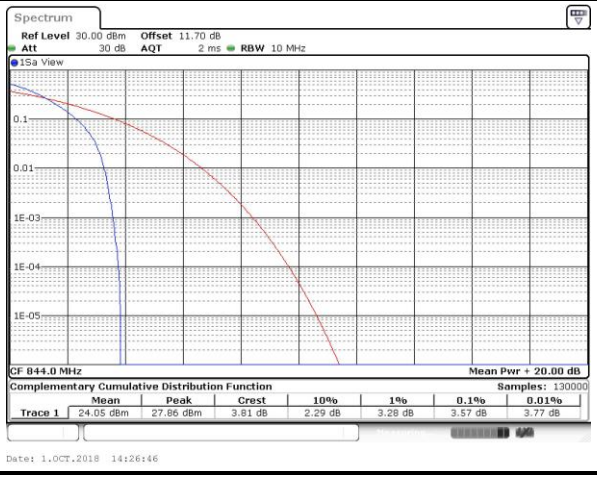
**1.** Normal Voltage =3.85 V.；Battery End Point (BEP) =3.4 V.；Maximum Voltage =4.4 V.

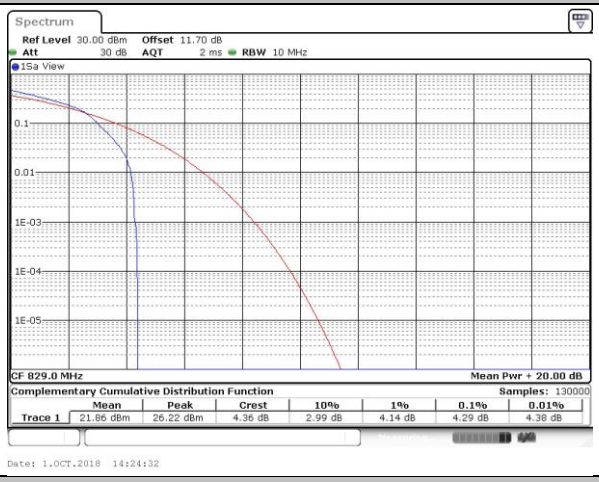
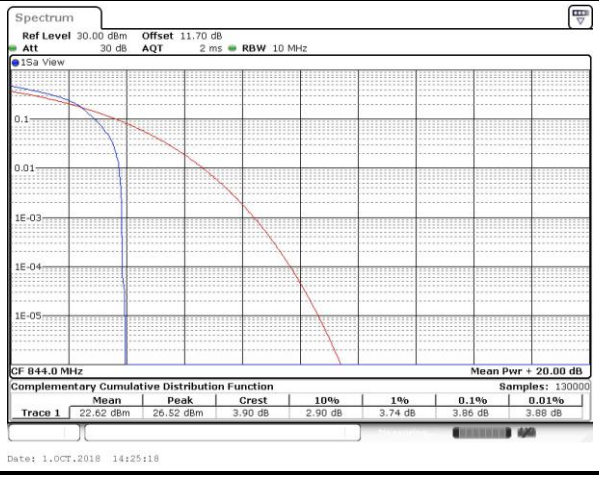
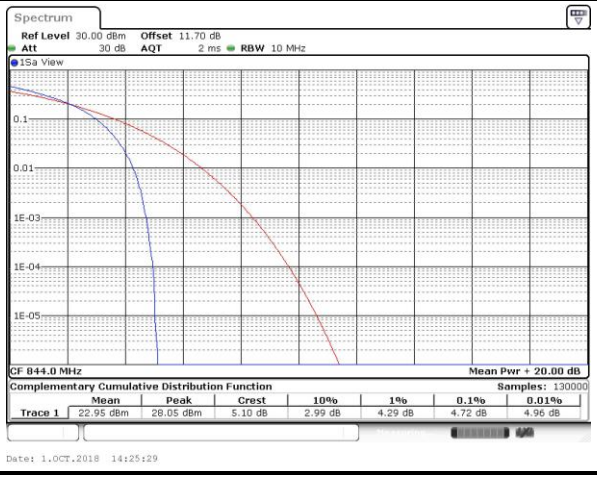
**2.** Note: The frequency fundamental emissions stay within the authorized frequency block.

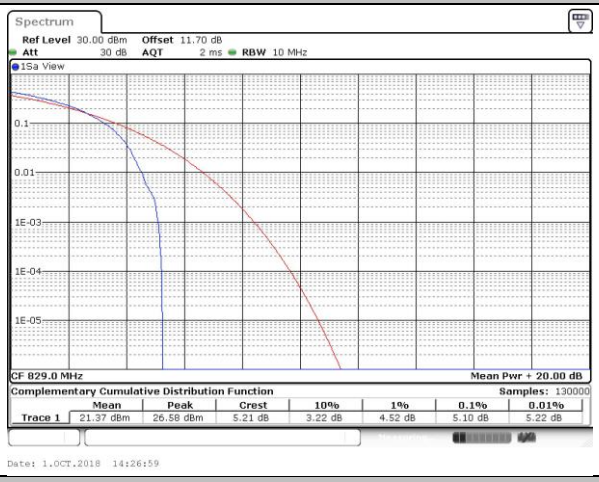
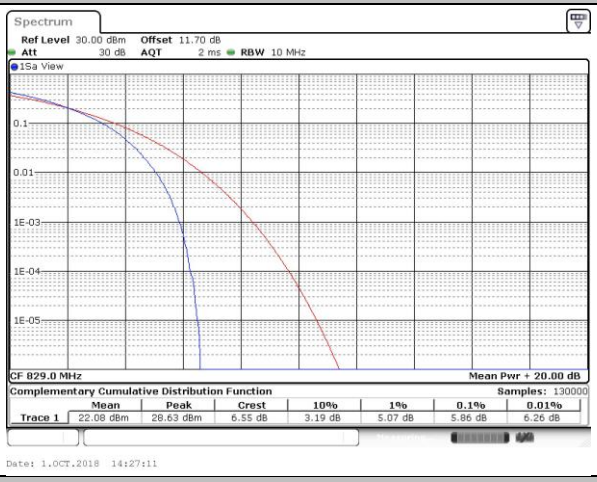
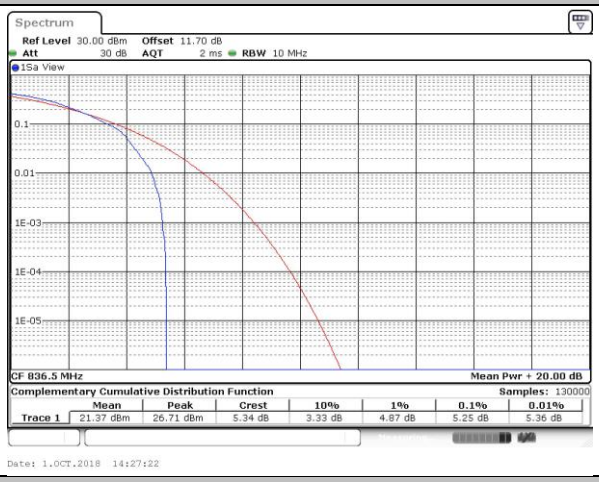
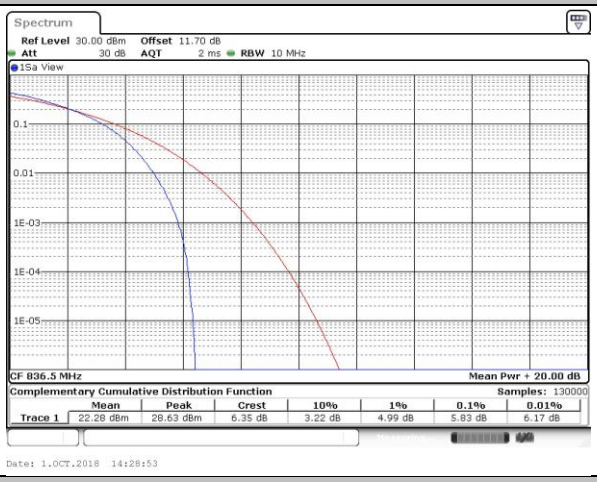
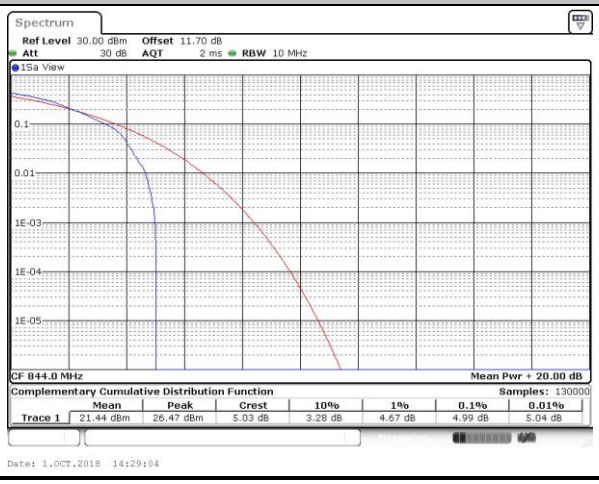
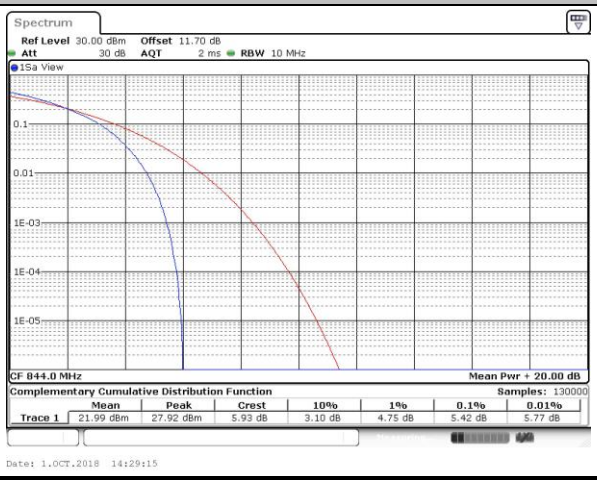
# LTE Band 5

## Peak-to-Average Ratio

| Mode | LTE Band 5 / 10MHz | | | | |
|---|---|---|---|---|---|
| Mod. | QPSK | | 16QAM | | Limit: 13dB |
| RB Size | 1RB | Full RB | 1RB | Full RB | Result |
| Lowest CH | 3.01 | 4 | 4.29 | 5.22 | PASS |
| Middle CH | 2.93 | 3.91 | 3.94 | 5.16 | |
| Highest CH | 2.72 | 3.57 | 3.86 | 4.72 | |
| Mode | LTE Band 5 / 10MHz | | | | |
| Mod. | 64QAM | | | | Limit: 13dB |
| RB Size | 1RB | Full RB | | | Result |
| Lowest CH | 5.10 | 5.86 | - | - | PASS |
| Middle CH | 5.25 | 5.83 | - | - | |
| Highest CH | 4.99 | 5.42 | - | - | |

| LTE Band 5 / 10MHz / QPSK | |
|---|---|
| **Lowest Channel / 1RB** | **Lowest Channel / Full RB** |
|  |  |
| **Middle Channel / 1RB** | **Middle Channel / Full RB** |
|  | |
| **Highest Channel / 1RB** | **Highest Channel / Full RB** |
|  |  |

| LTE Band 5 / 10MHz / 16QAM | |
|---|---|
| **Lowest Channel / 1RB** | **Lowest Channel / Full RB** |
|  | |
| **Middle Channel / 1RB** | **Middle Channel / Full RB** |
| | |
| **Highest Channel / 1RB** | **Highest Channel / Full RB** |
|  |  |

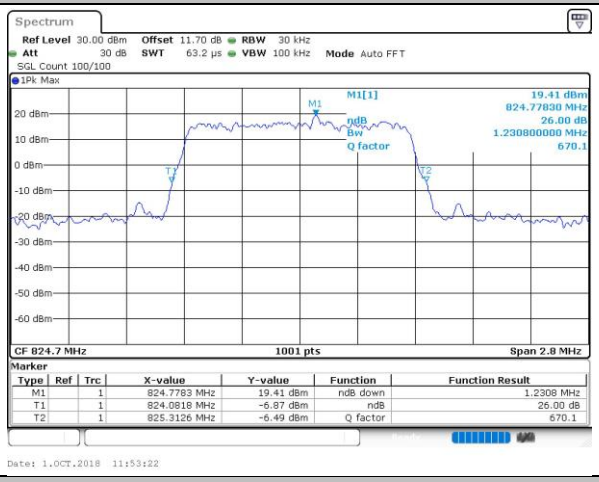
| LTE Band 5 / 10MHz / 64QAM | |
|---|---|
| **Lowest Channel / 1RB** | **Lowest Channel / Full RB** |
|  |  |
| **Middle Channel / 1RB** | **Middle Channel / Full RB** |
|  |  |
| **Highest Channel / 1RB** | **Highest Channel / Full RB** |
|  |  |

# 26dB Bandwidth

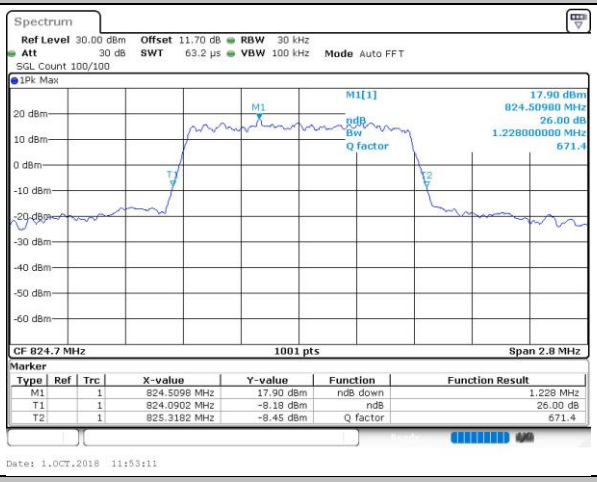
| Mode | LTE Band 5 : 26dB BW(MHz) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| BW | 1.4MHz | | 3MHz | | 5MHz | | 10MHz | | 15MHz | | 20MHz | |
| Mod. | QPSK | 16QAM | QPSK | 16QAM | QPSK | 16QAM | QPSK | 16QAM | QPSK | 16QAM | QPSK | 16QAM |
| Lowest CH | 1.23 | 1.23 | 2.94 | 3.06 | 4.96 | 4.85 | 9.71 | 9.83 | - | - | - | - |
| Middle CH | 1.21 | 1.23 | 3.06 | 3.06 | 4.93 | 4.87 | 9.85 | 9.73 | - | - | - | - |
| Highest CH | 1.25 | 1.25 | 2.99 | 3.09 | 4.93 | 4.92 | 9.85 | 9.71 | - | - | - | - |
| Mode | LTE Band 5 : 26dB BW(MHz) | | | | | | | | | | | |
| BW | 1.4MHz | | 3MHz | | 5MHz | | 10MHz | | 15MHz | | 20MHz | |
| Mod. | 64QAM | | 64QAM | | 64QAM | | 64QAM | | 64QAM | | 64QAM | |
| Lowest CH | 1.22 | - | 3.04 | - | 4.93 | - | 9.63 | - | - | - | - | - |
| Middle CH | 1.22 | - | 3.03 | - | 4.89 | - | 9.63 | - | - | - | - | - |
| Highest CH | 1.21 | - | 2.97 | - | 4.95 | - | 9.63 | - | - | - | - | - |

## LTE Band 5

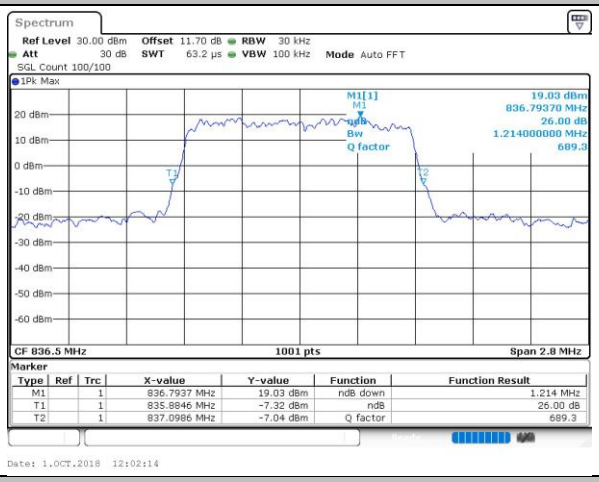
### Lowest Channel / 1.4MHz / QPSK



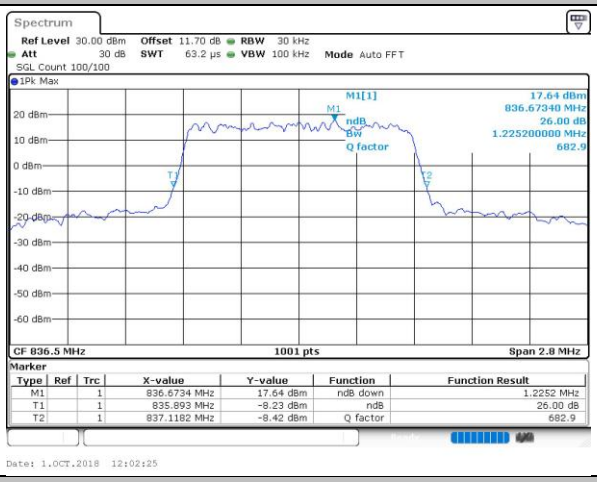

### Lowest Channel / 1.4MHz / 16QAM



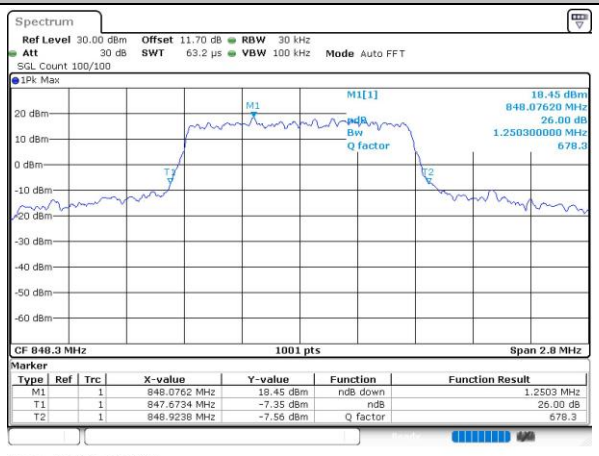

### Middle Channel / 1.4MHz / QPSK



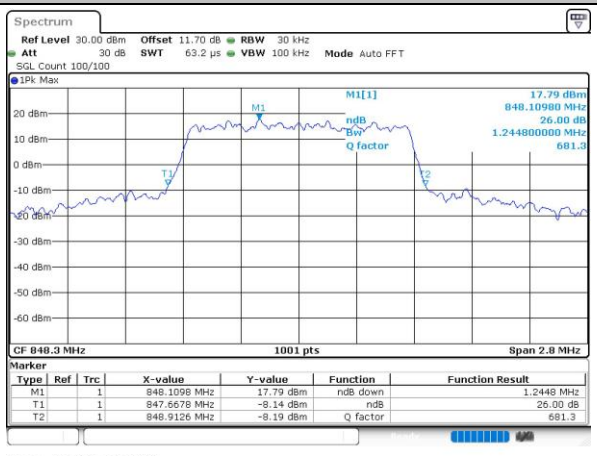

### Middle Channel / 1.4MHz / 16QAM




### Highest Channel / 1.4MHz / QPSK

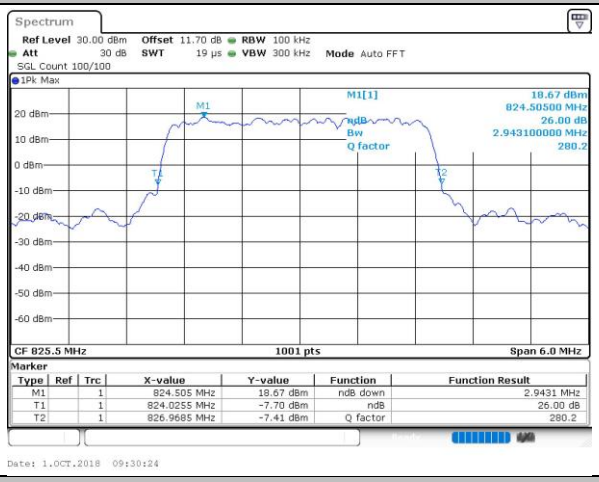



### Highest Channel / 1.4MHz / 16QAM

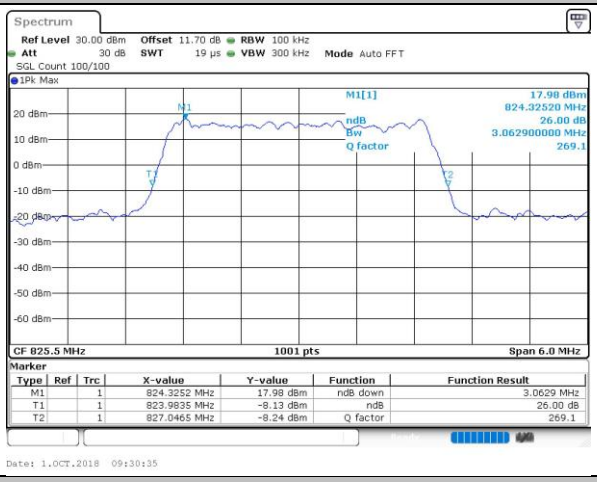


## LTE Band 5

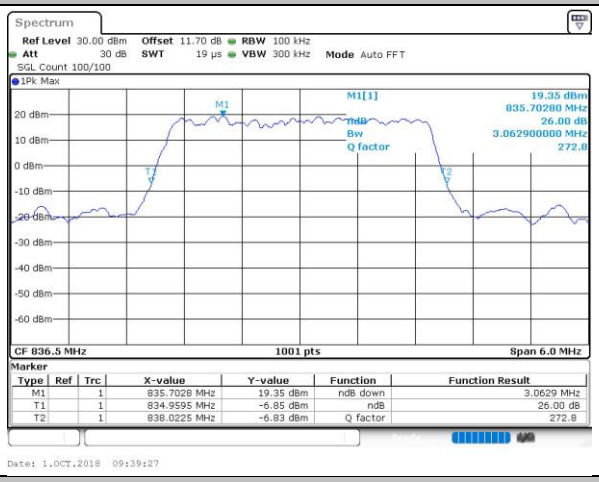
### Lowest Channel / 3MHz / QPSK



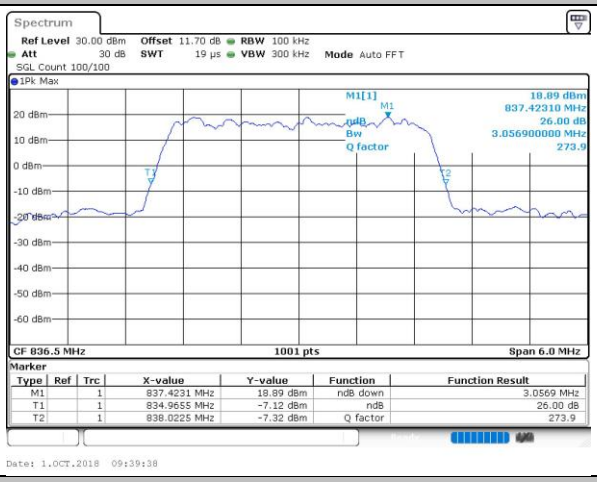

### Lowest Channel / 3MHz / 16QAM



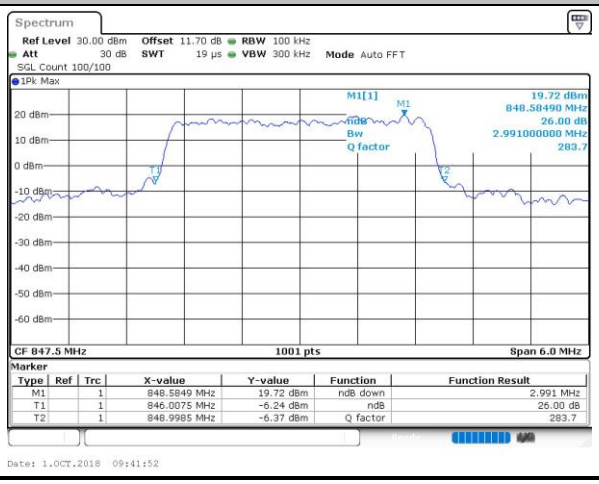

### Middle Channel / 3MHz / QPSK



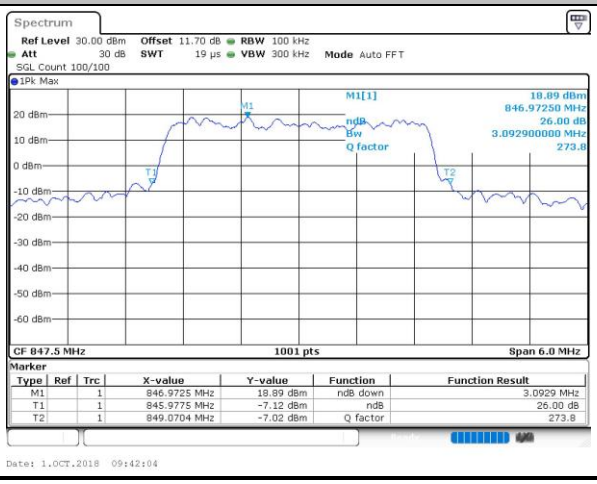

### Middle Channel / 3MHz / 16QAM




### Highest Channel / 3MHz / QPSK

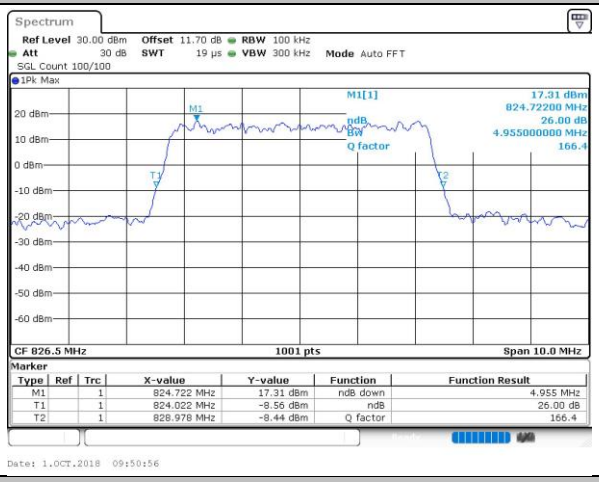



### Highest Channel / 3MHz / 16QAM

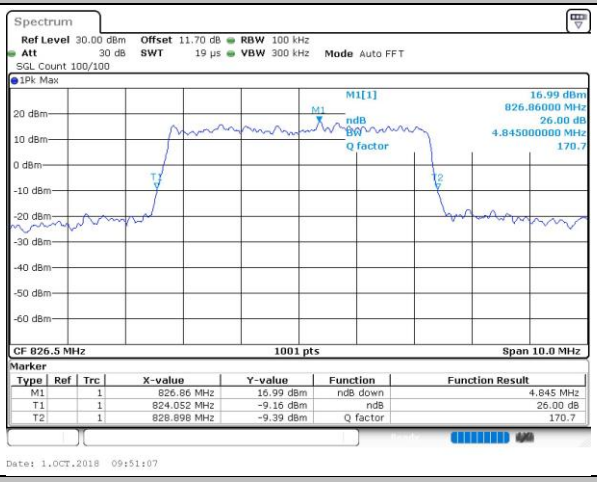


## LTE Band 5

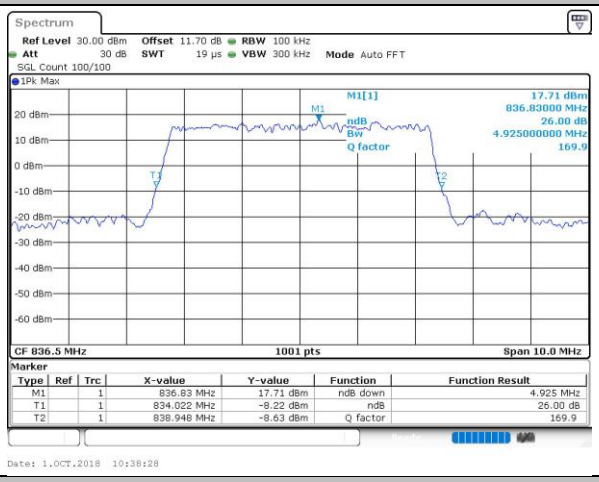
### Lowest Channel / 5MHz / QPSK



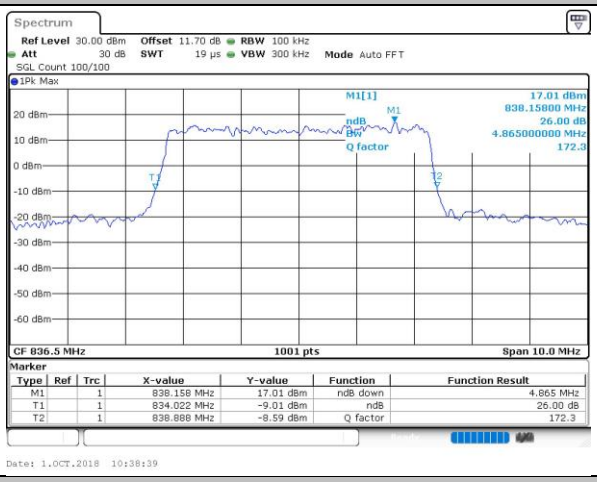

### Lowest Channel / 5MHz / 16QAM



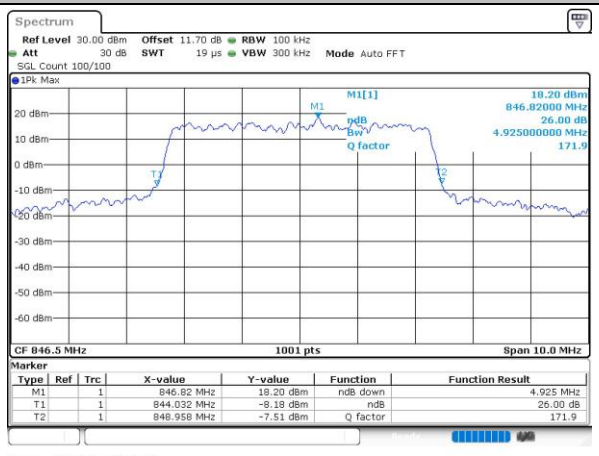

### Middle Channel / 5MHz / QPSK



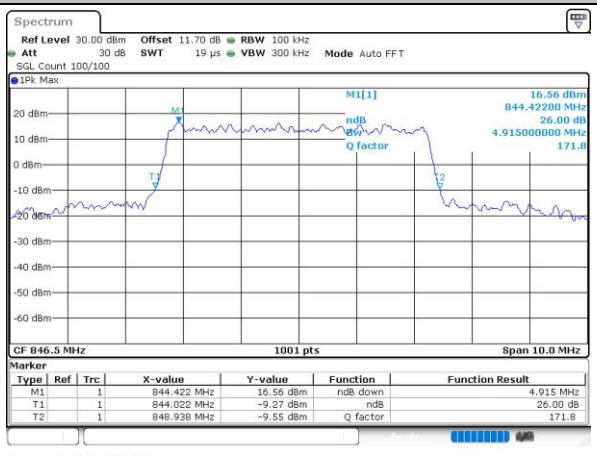

### Middle Channel / 5MHz / 16QAM




### Highest Channel / 5MHz / QPSK

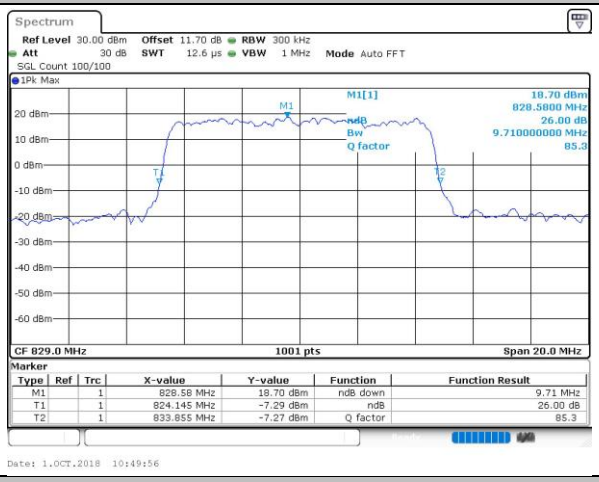



### Highest Channel / 5MHz / 16QAM

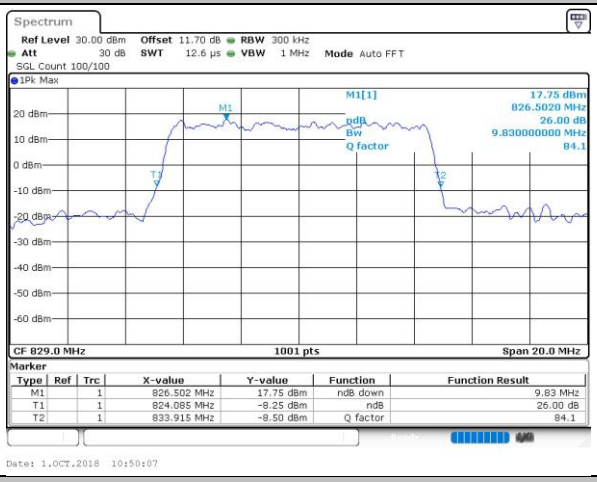


## LTE Band 5

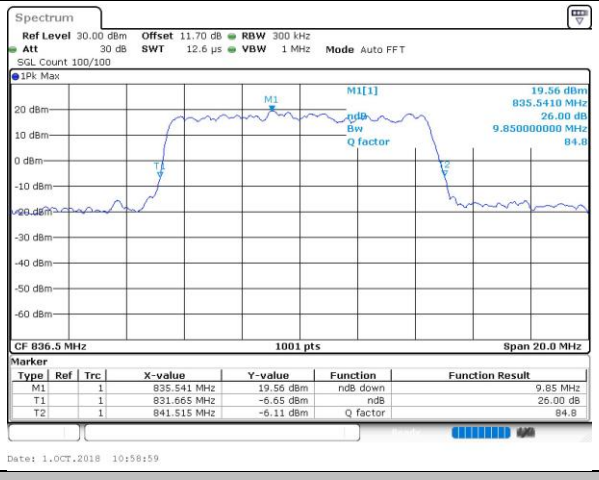
### Lowest Channel / 10MHz / QPSK



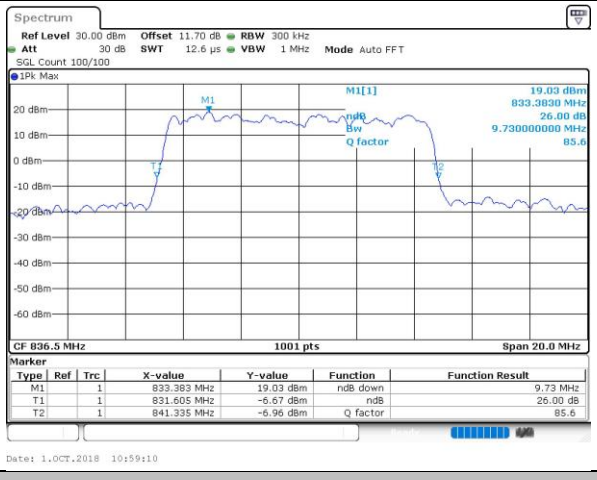

### Lowest Channel / 10MHz / 16QAM



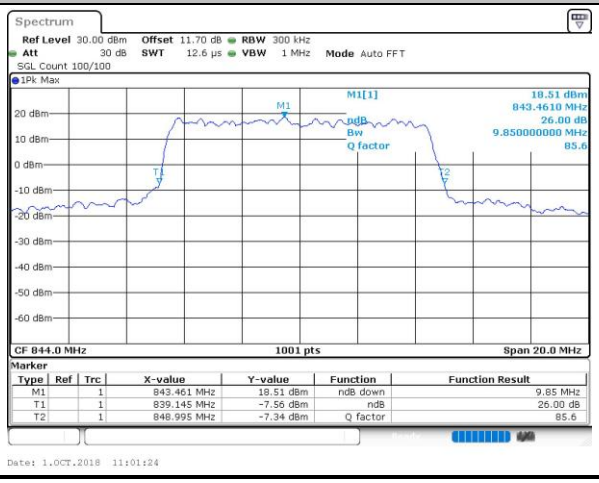

### Middle Channel / 10MHz / QPSK



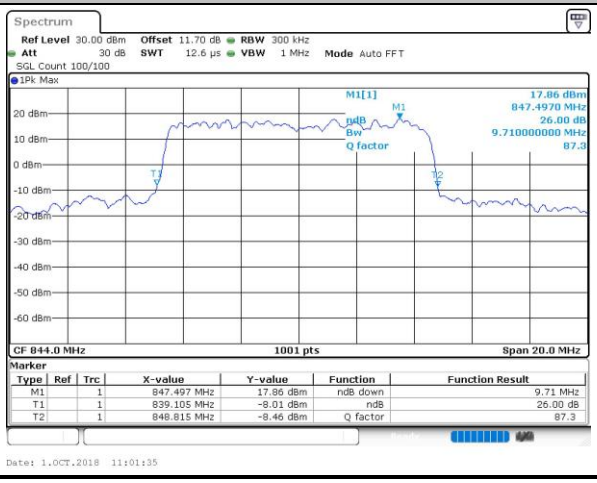

### Middle Channel / 10MHz / 16QAM




### Highest Channel / 10MHz / QPSK

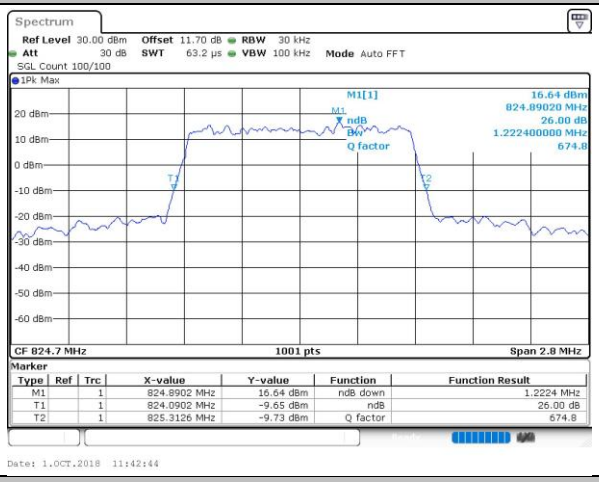



### Highest Channel / 10MHz / 16QAM

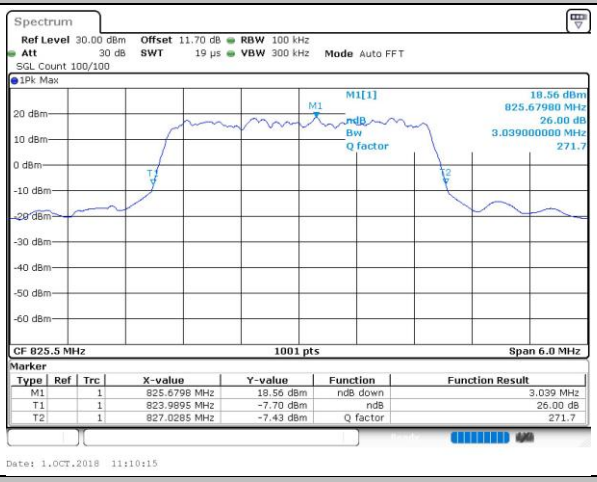


## LTE Band 5

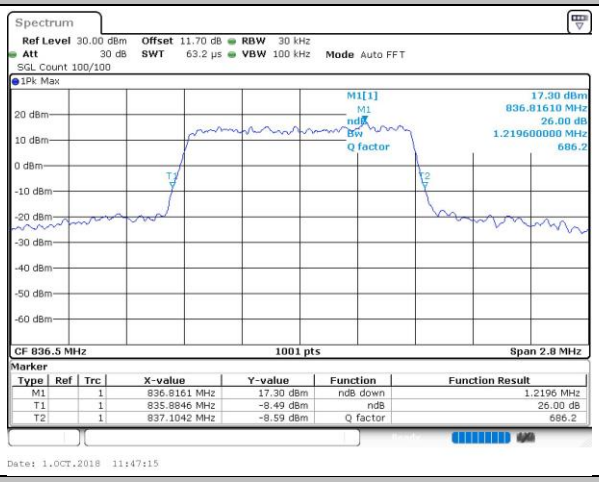
### Lowest Channel / 1.4MHz / 64QAM



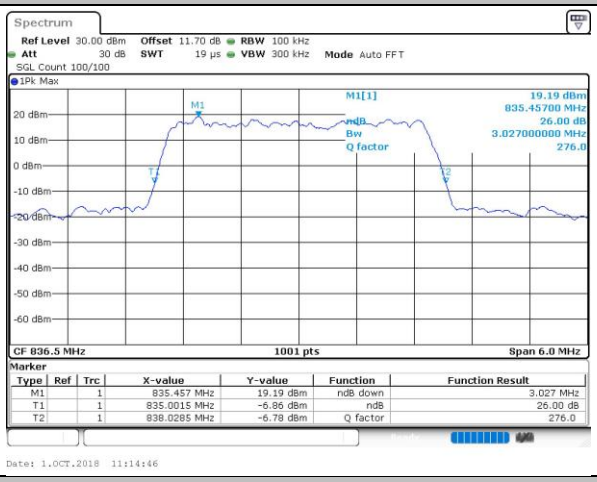

### Lowest Channel / 3MHz / 64QAM



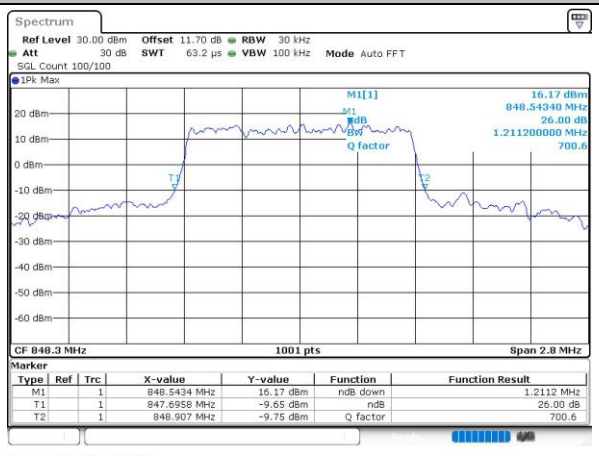

### Middle Channel / 1.4MHz / 64QAM



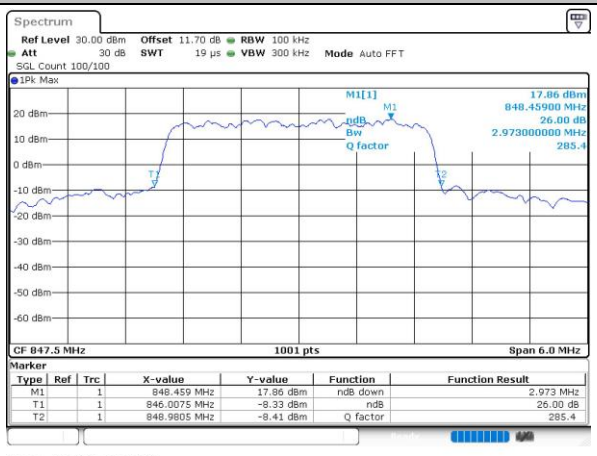

### Middle Channel / 3MHz / 64QAM




### Highest Channel / 1.4MHz / 64QAM

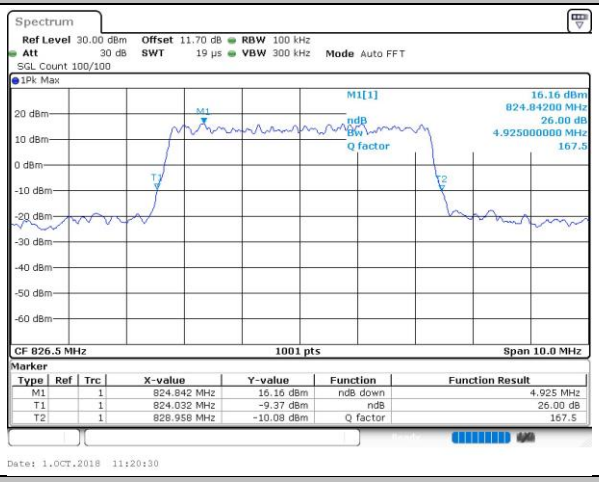



### Highest Channel / 3MHz / 64QAM

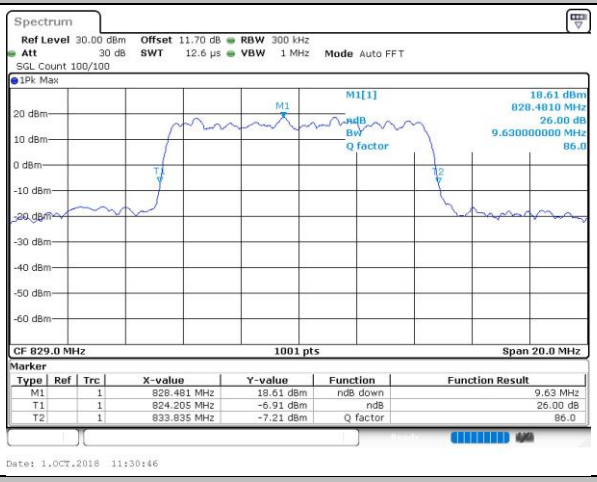


## LTE Band 5

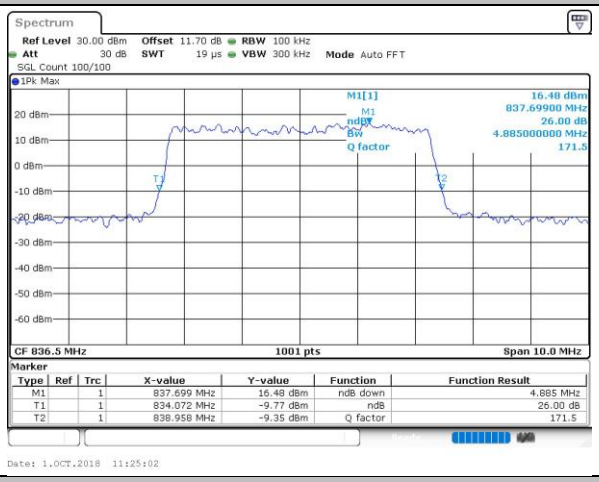
### Lowest Channel / 5MHz / 64QAM



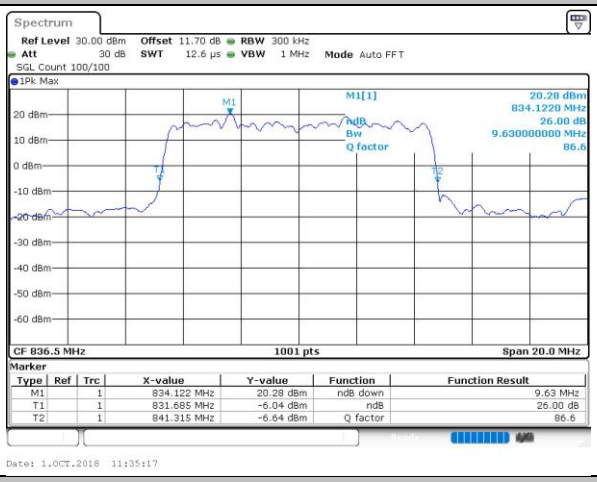

### Lowest Channel / 10MHz / 64QAM



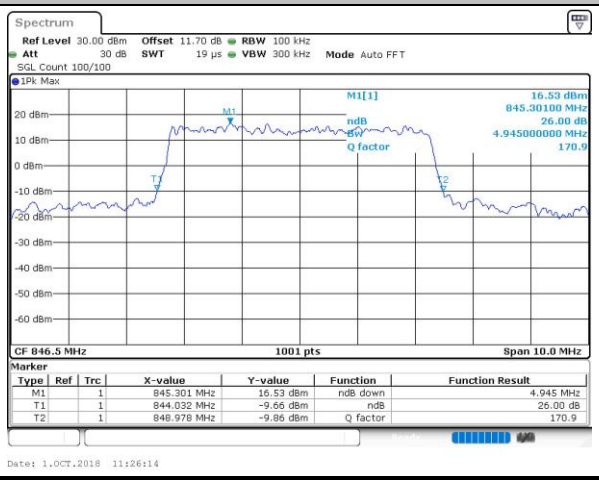

### Middle Channel / 5MHz / 64QAM



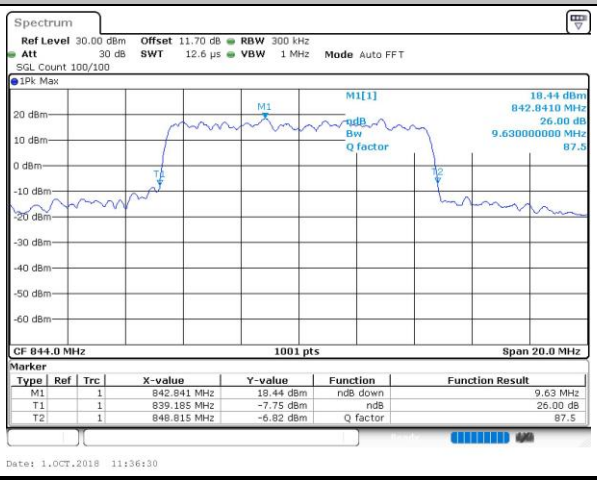

### Middle Channel / 10MHz / 64QAM




### Highest Channel / 5MHz / 64QAM




### Highest Channel / 10MHz / 64QAM

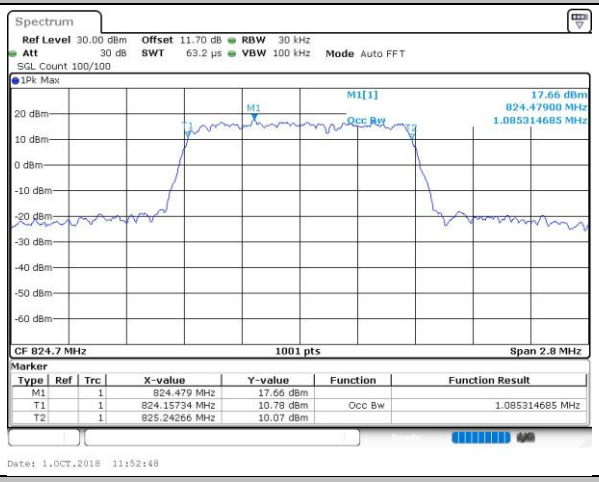


# Occupied Bandwidth

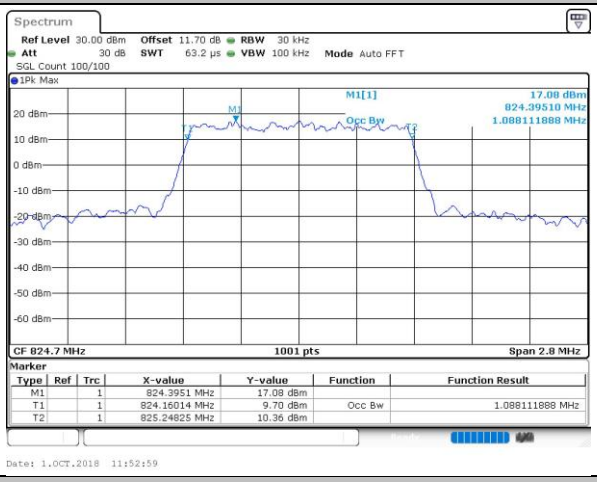
| Mode | LTE Band 5 : 99%OBW(MHz) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| BW | 1.4MHz | | 3MHz | | 5MHz | | 10MHz | | 15MHz | | 20MHz | |
| Mod. | QPSK | 16QAM | QPSK | 16QAM | QPSK | 16QAM | QPSK | 16QAM | QPSK | 16QAM | QPSK | 16QAM |
| Lowest CH | 1.09 | 1.09 | 2.71 | 2.73 | 4.52 | 4.49 | 9.11 | 9.05 | - | - | - | - |
| Middle CH | 1.09 | 1.1 | 2.71 | 2.73 | 4.51 | 4.51 | 9.05 | 8.97 | - | - | - | - |
| Highest CH | 1.09 | 1.09 | 2.74 | 2.75 | 4.49 | 4.51 | 9.01 | 8.99 | - | - | - | - |
| Mode | LTE Band 5 : 99%OBW(MHz) | | | | | | | | | | | |
| BW | 1.4MHz | | 3MHz | | 5MHz | | 10MHz | | 15MHz | | 20MHz | |
| Mod. | 64QAM | | 64QAM | | 64QAM | | 64QAM | | 64QAM | | 64QAM | |
| Lowest CH | 1.10 | - | 2.74 | - | 4.48 | - | 9.07 | - | - | - | - | - |
| Middle CH | 1.09 | - | 2.73 | - | 4.51 | - | 9.01 | - | - | - | - | - |
| Highest CH | 1.09 | - | 2.74 | - | 4.49 | - | 9.03 | - | - | - | - | - |

## LTE Band 5

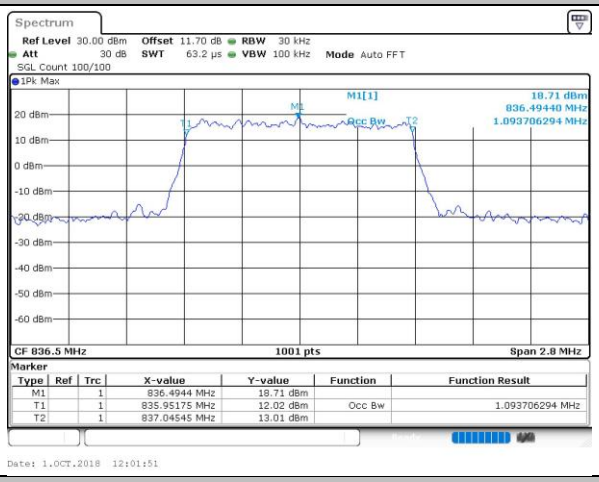
### Lowest Channel / 1.4MHz / QPSK



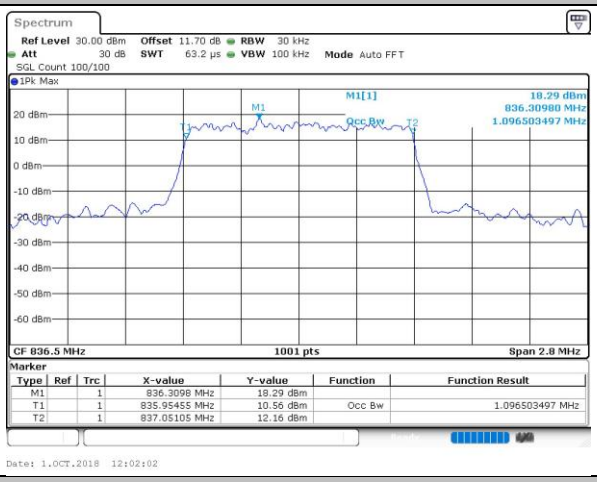

### Lowest Channel / 1.4MHz / 16QAM



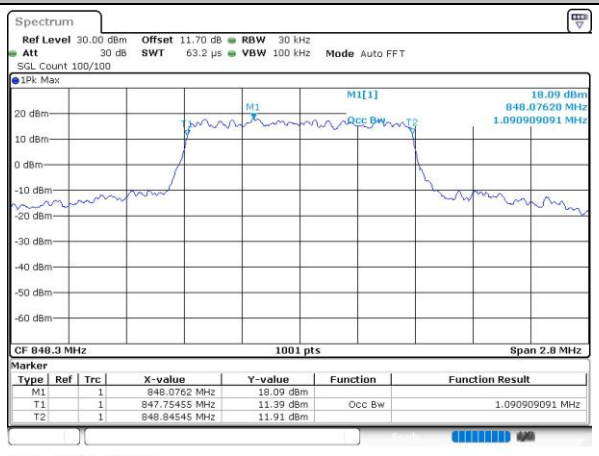

### Middle Channel / 1.4MHz / QPSK



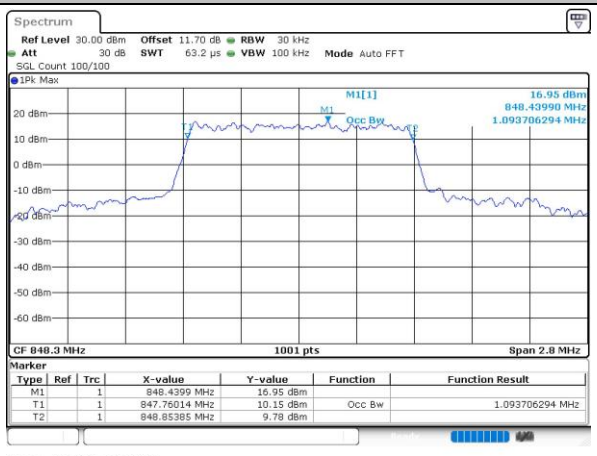

### Middle Channel / 1.4MHz / 16QAM




### Highest Channel / 1.4MHz / QPSK

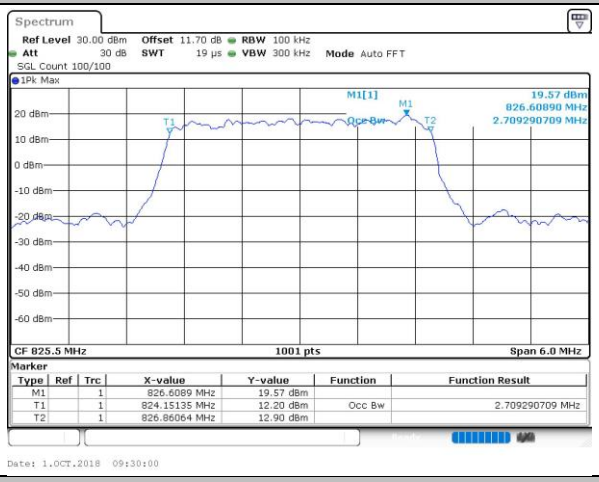



### Highest Channel / 1.4MHz / 16QAM

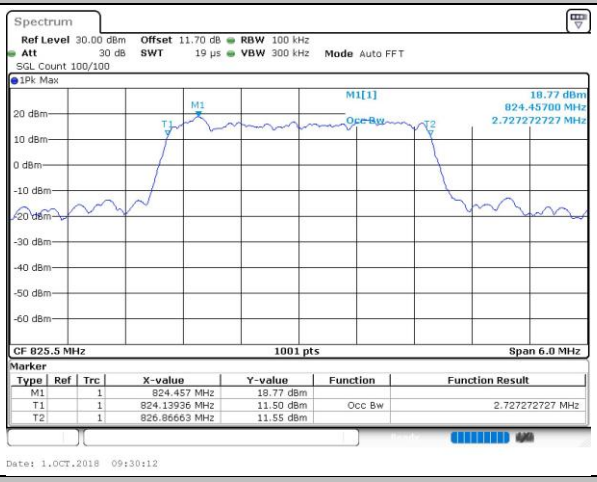


## LTE Band 5

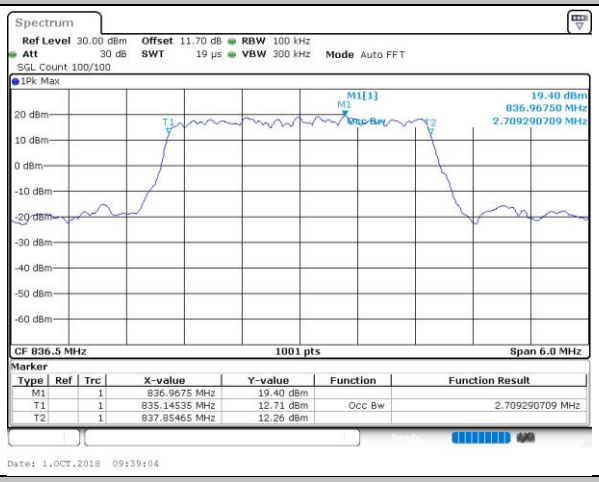
### Lowest Channel / 3MHz / QPSK



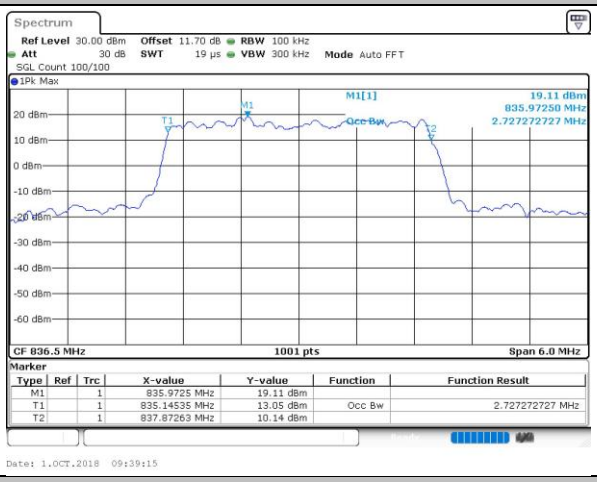

### Lowest Channel / 3MHz / 16QAM



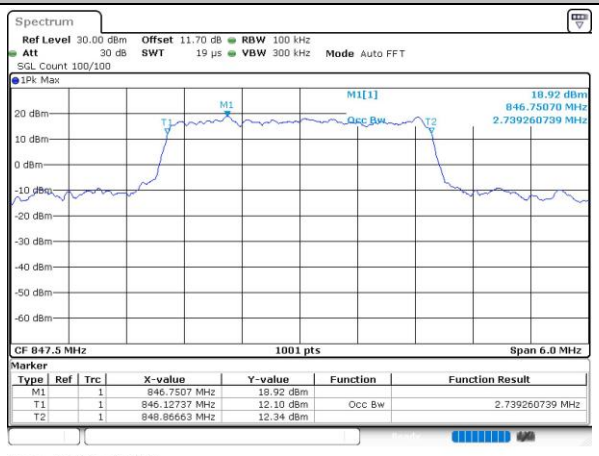

### Middle Channel / 3MHz / QPSK



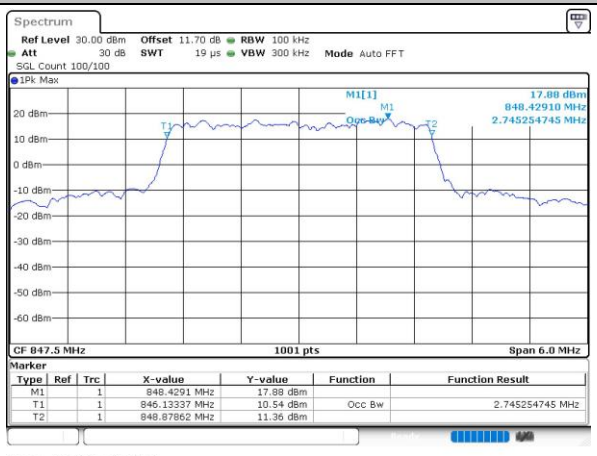

### Middle Channel / 3MHz / 16QAM




### Highest Channel / 3MHz / QPSK

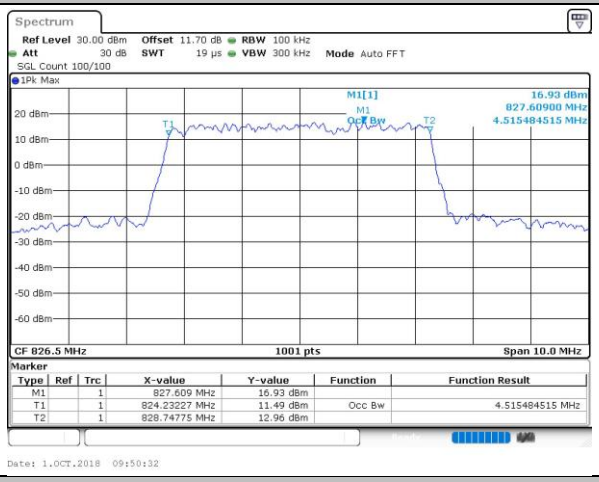



### Highest Channel / 3MHz / 16QAM

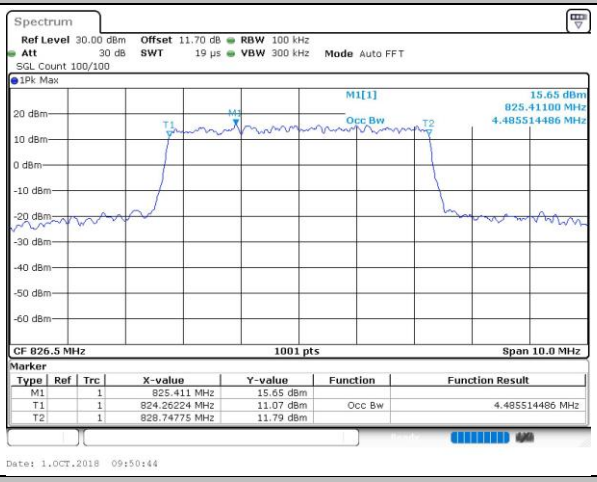


## LTE Band 5

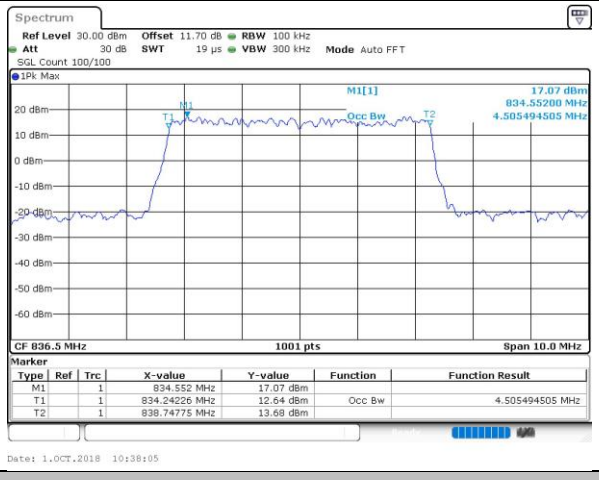
### Lowest Channel / 5MHz / QPSK



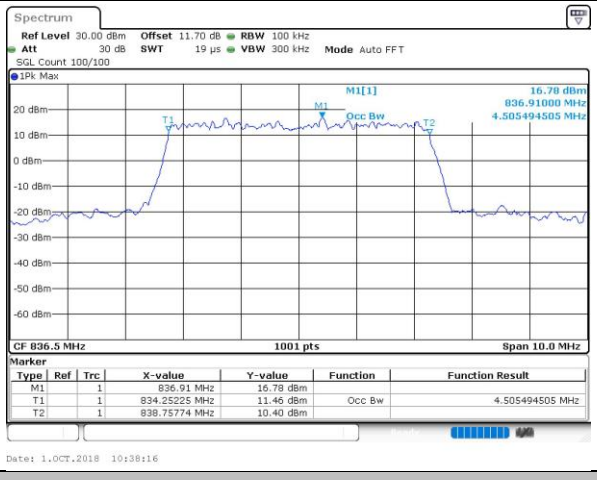

### Lowest Channel / 5MHz / 16QAM



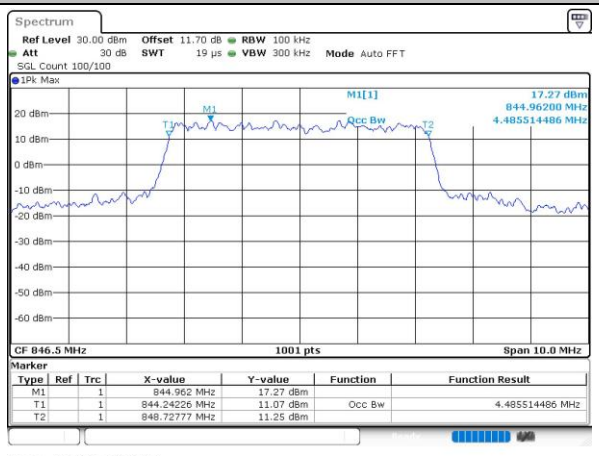

### Middle Channel / 5MHz / QPSK



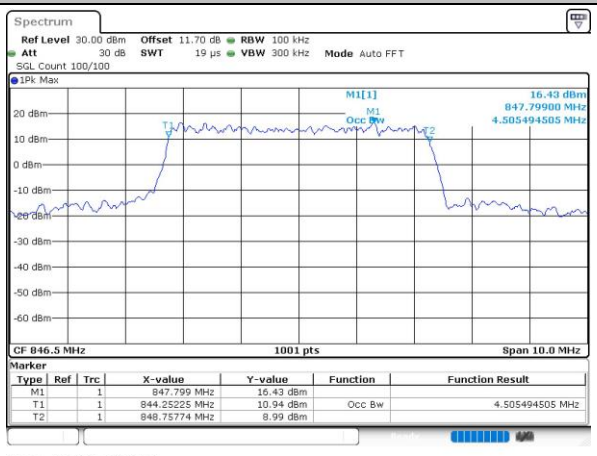

### Middle Channel / 5MHz / 16QAM




### Highest Channel / 5MHz / QPSK

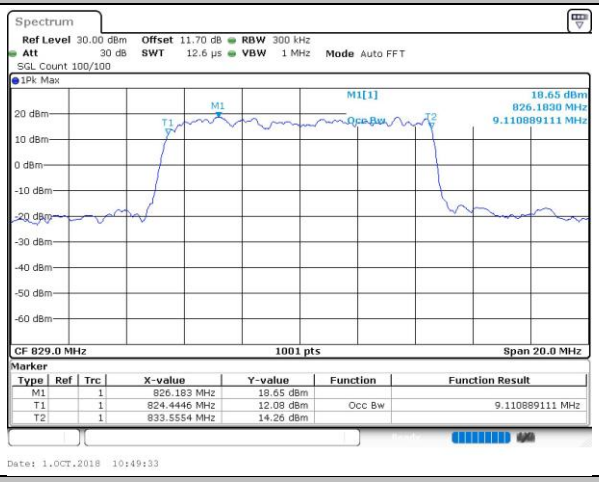



### Highest Channel / 5MHz / 16QAM

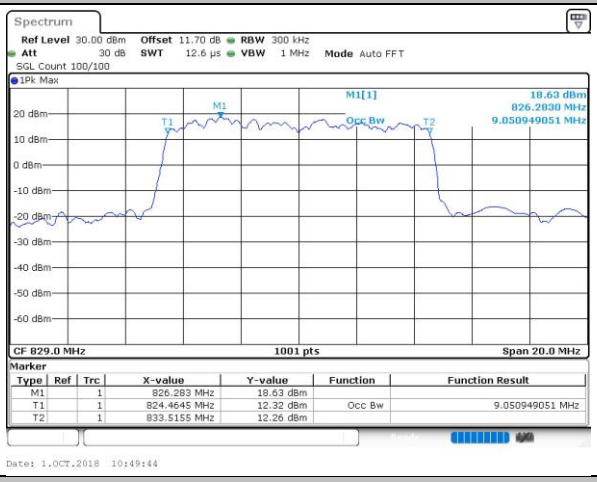


## LTE Band 5

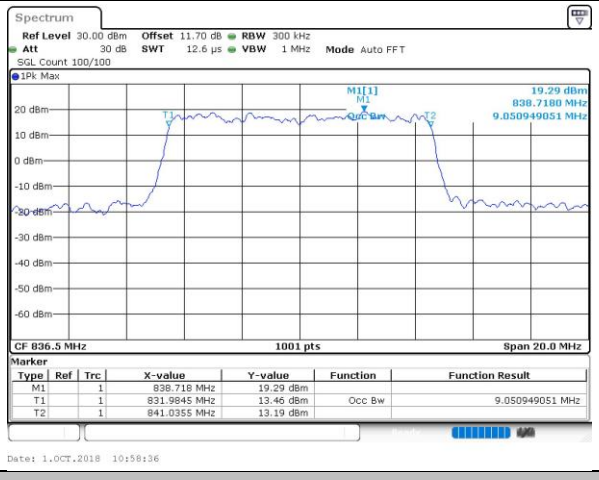
### Lowest Channel / 10MHz / QPSK



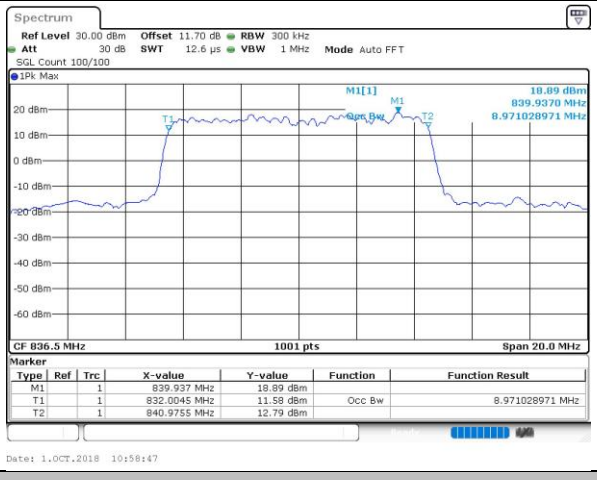

### Lowest Channel / 10MHz / 16QAM



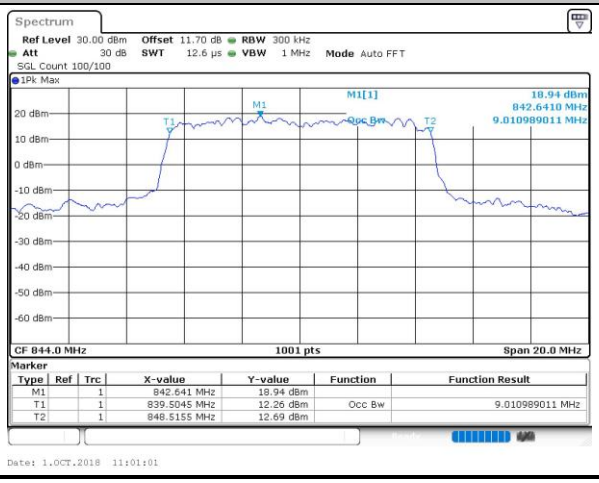

### Middle Channel / 10MHz / QPSK



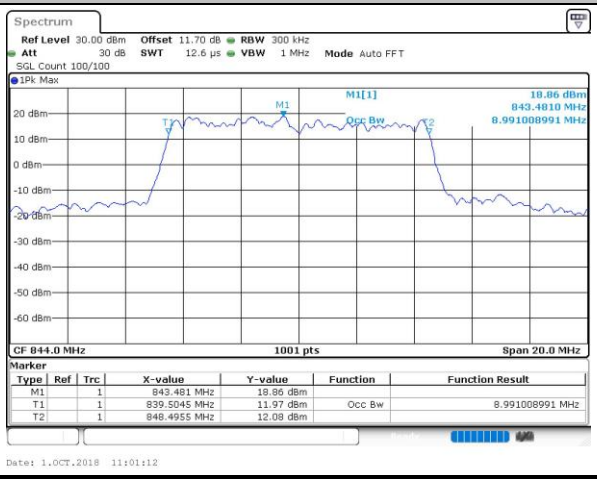

### Middle Channel / 10MHz / 16QAM




### Highest Channel / 10MHz / QPSK

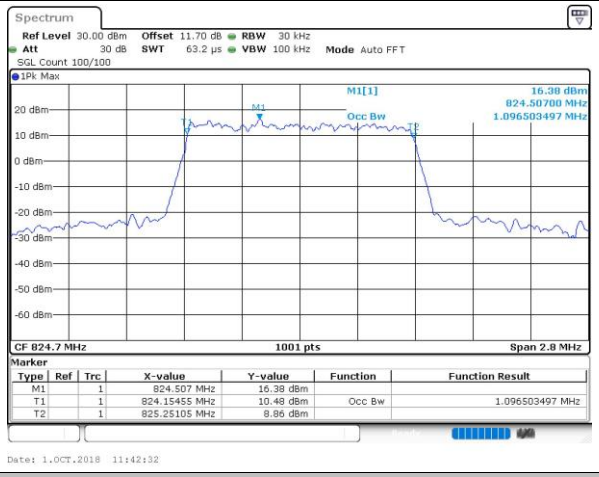



### Highest Channel / 10MHz / 16QAM

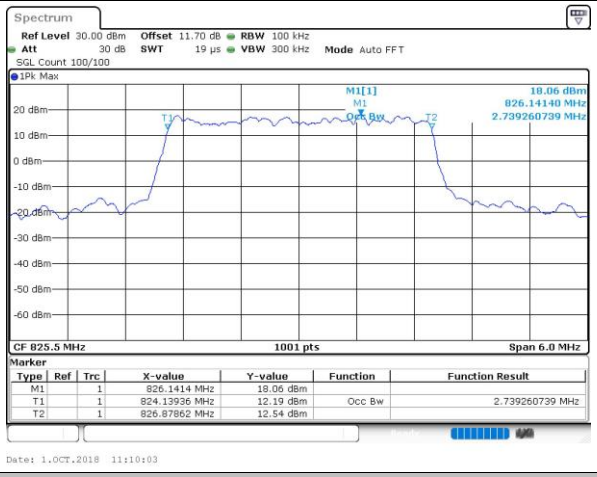


## LTE Band 5

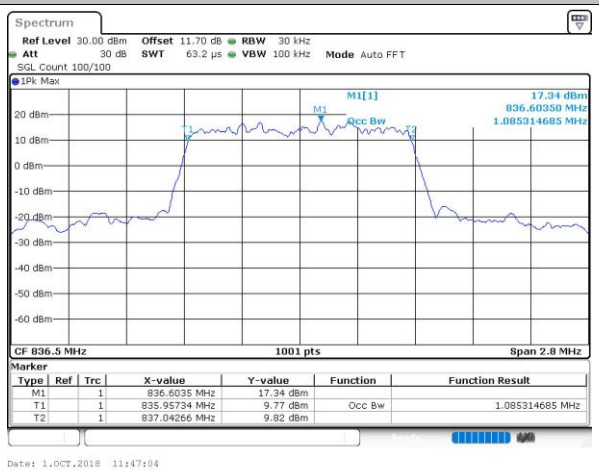
### Lowest Channel / 1.4MHz / 64QAM



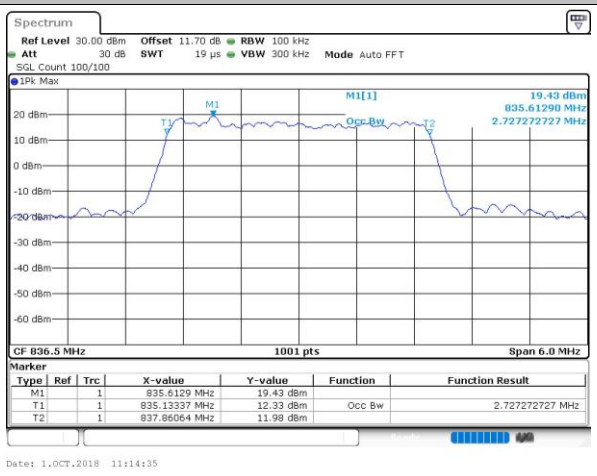

### Lowest Channel / 3MHz / 64QAM



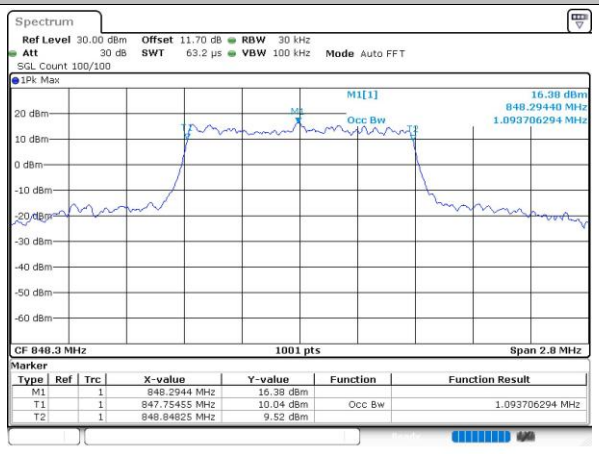

### Middle Channel / 1.4MHz / 64QAM

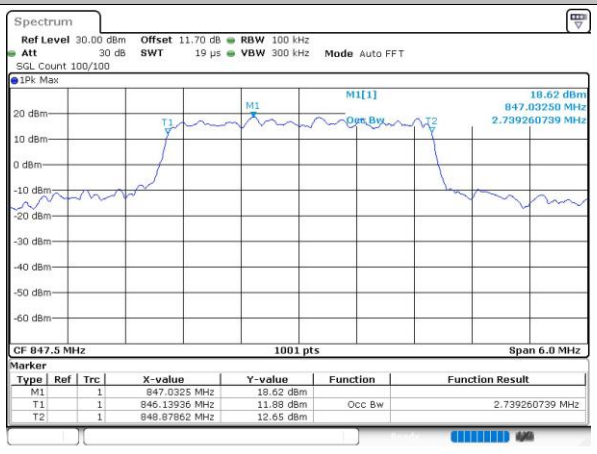



### Middle Channel / 3MHz / 64QAM




### Highest Channel / 1.4MHz / 64QAM




### Highest Channel / 3MHz / 64QAM