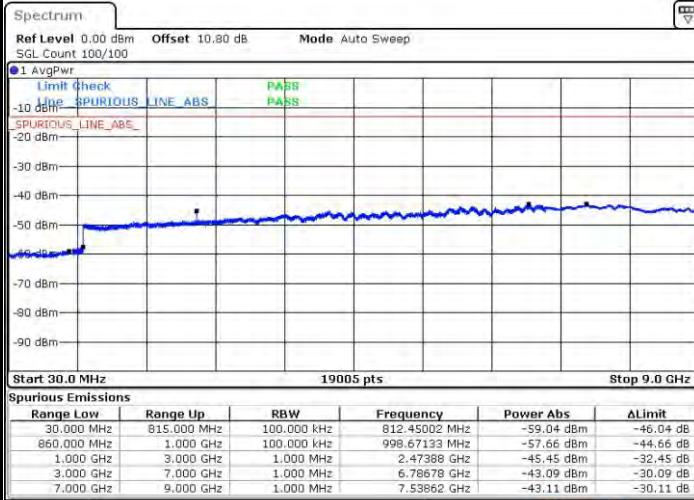




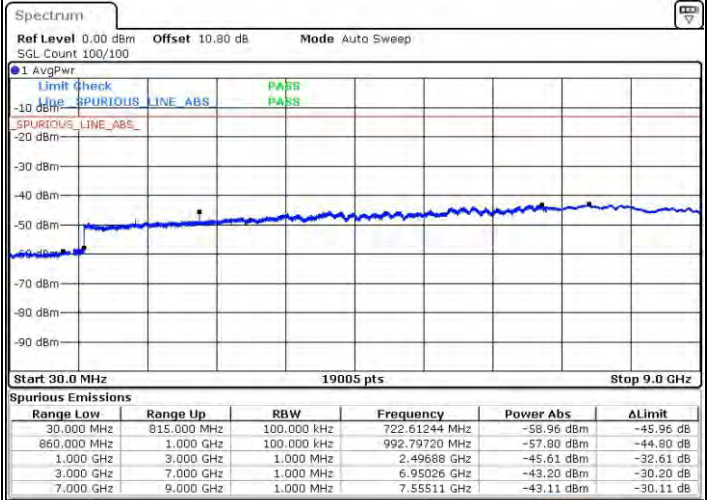
## LTE Band 5 / 10MHz

## Lowest Channel / 64QAM



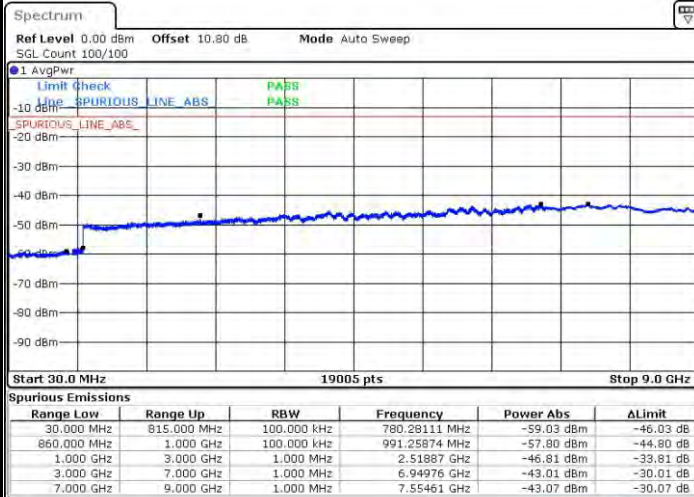
Date: 16 DEC. 2018 14:09:51

## Middle Channel / 64QAM



Date: 16 DEC. 2018 14:11:09

## Highest Channel / 64QAM



Date: 16 DEC. 2018 14:15:47

## Frequency Stability

| Test Conditions     |                   | LTE Band 5 (QPSK) / Middle Channel | Limit  |
|---------------------|-------------------|------------------------------------|--------|
| Temperature<br>(°C) | Voltage<br>(Volt) | BW 10MHz                           | 2.5ppm |
|                     |                   | Deviation (ppm)                    | Result |
| 50                  | Normal Voltage    | 0.0025                             | PASS   |
| 40                  | Normal Voltage    | 0.0024                             |        |
| 30                  | Normal Voltage    | 0.0011                             |        |
| 20(Ref.)            | Normal Voltage    | 0.0000                             |        |
| 10                  | Normal Voltage    | 0.0044                             |        |
| 0                   | Normal Voltage    | 0.0012                             |        |
| -10                 | Normal Voltage    | 0.0006                             |        |
| -20                 | Normal Voltage    | 0.0004                             |        |
| -30                 | Normal Voltage    | 0.0030                             |        |
| 20                  | Maximum Voltage   | 0.0027                             |        |
| 20                  | Normal Voltage    | 0.0000                             |        |
| 20                  | Battery End Point | 0.0008                             |        |

**Note:**

1. Normal Voltage =9 V. ; Battery End Point (BEP) =7.65 V. ; Maximum Voltage =10.35 V.
2. The frequency fundamental emissions stay within the authorized frequency block.



## LTE Band 12

### Peak-to-Average Ratio

| Mode       | LTE Band 12 / 10MHz |         |       |         |             |
|------------|---------------------|---------|-------|---------|-------------|
| Mod.       | QPSK                |         | 16QAM |         | Limit: 13dB |
| RB Size    | 1RB                 | Full RB | 1RB   | Full RB | Result      |
| Lowest CH  | 4.38                | 5.1     | 5.39  | 5.91    | PASS        |
| Middle CH  | 4.41                | 5.28    | 5.22  | 6.03    |             |
| Highest CH | 4.64                | 5.01    | 5.51  | 5.94    |             |
| Mode       | LTE Band 12 / 10MHz |         |       |         |             |
| Mod.       | 64QAM               |         |       |         | Limit: 13dB |
| RB Size    | 1RB                 | Full RB |       |         | Result      |
| Lowest CH  | 6.14                | 6.43    | -     | -       | PASS        |
| Middle CH  | 6.14                | 6.55    | -     | -       |             |
| Highest CH | 6.41                | 6.41    | -     | -       |             |



## LTE Band 12 / 10MHz / QPSK

## Lowest Channel / 1RB



## Lowest Channel / Full RB



## Middle Channel / 1RB



## Middle Channel / Full RB



## Highest Channel / 1RB



## Highest Channel / Full RB

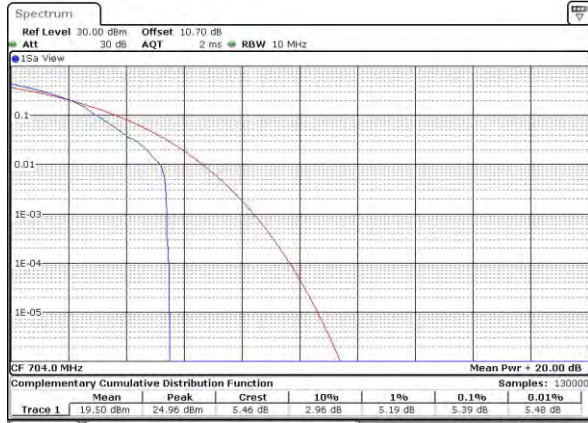






## LTE Band 12 / 10MHz / 16QAM

## Lowest Channel / 1RB



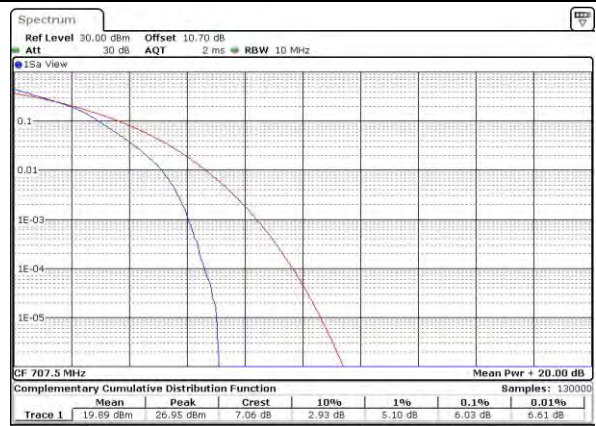
## Lowest Channel / Full RB



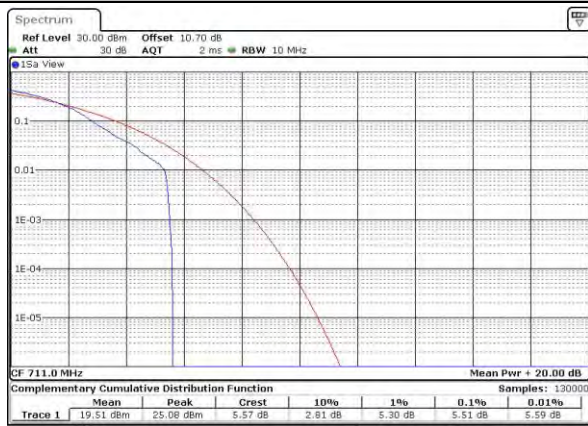
## Middle Channel / 1RB



## Middle Channel / Full RB



## Highest Channel / 1RB



## Highest Channel / Full RB





## LTE Band 12 / 10MHz / 64QAM

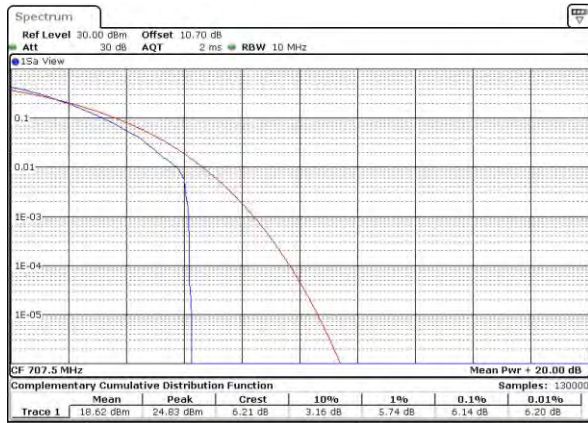
## Lowest Channel / 1RB



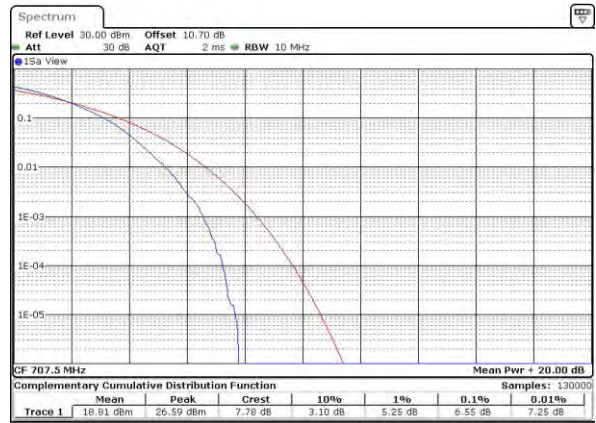
## Lowest Channel / Full RB



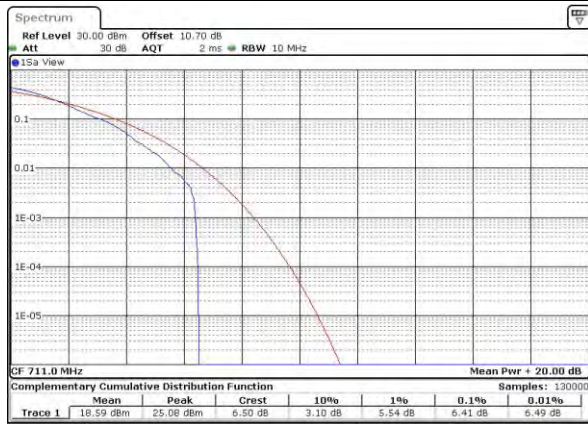
## Middle Channel / 1RB



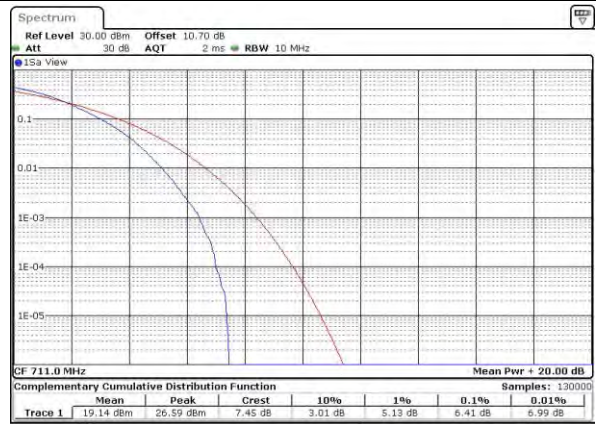
## Middle Channel / Full RB



## Highest Channel / 1RB



## Highest Channel / Full RB



**26dB Bandwidth**

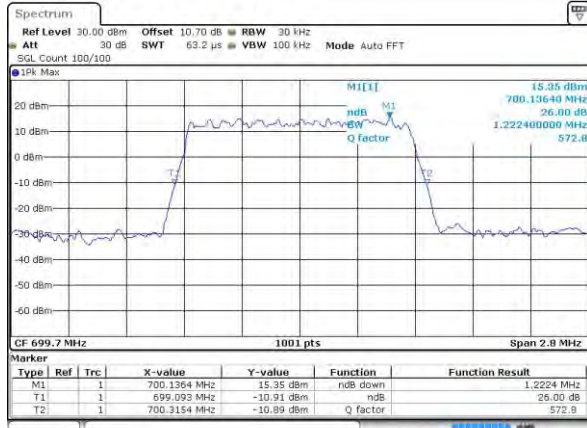
| Mode       | LTE Band 12 : 26dB BW(MHz) |       |       |       |       |       |       |       |       |       |       |       |
|------------|----------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| BW         | 1.4MHz                     |       | 3MHz  |       | 5MHz  |       | 10MHz |       | 15MHz |       | 20MHz |       |
| Mod.       | QPSK                       | 16QAM | QPSK  | 16QAM | QPSK  | 16QAM | QPSK  | 16QAM | QPSK  | 16QAM | QPSK  | 16QAM |
| Lowest CH  | 1.22                       | 1.24  | 3.03  | 2.99  | 4.88  | 4.91  | 9.93  | 9.97  | -     | -     | -     | -     |
| Middle CH  | 1.23                       | 1.22  | 3.01  | 3.08  | 4.90  | 4.98  | 9.91  | 9.79  | -     | -     | -     | -     |
| Highest CH | 1.23                       | 1.25  | 3.04  | 3.05  | 4.78  | 4.89  | 9.79  | 9.75  | -     | -     | -     | -     |
| Mode       | LTE Band 12 : 26dB BW(MHz) |       |       |       |       |       |       |       |       |       |       |       |
| BW         | 1.4MHz                     |       | 3MHz  |       | 5MHz  |       | 10MHz |       | 15MHz |       | 20MHz |       |
| Mod.       | 64QAM                      |       | 64QAM |       | 64QAM |       | 64QAM |       | 64QAM |       | 64QAM |       |
| Lowest CH  | 1.21                       | -     | 2.99  | -     | 4.93  | -     | 9.87  | -     | -     | -     | -     | -     |
| Middle CH  | 1.23                       | -     | 2.99  | -     | 4.80  | -     | 9.79  | -     | -     | -     | -     | -     |
| Highest CH | 1.22                       | -     | 3.07  | -     | 4.88  | -     | 9.71  | -     | -     | -     | -     | -     |



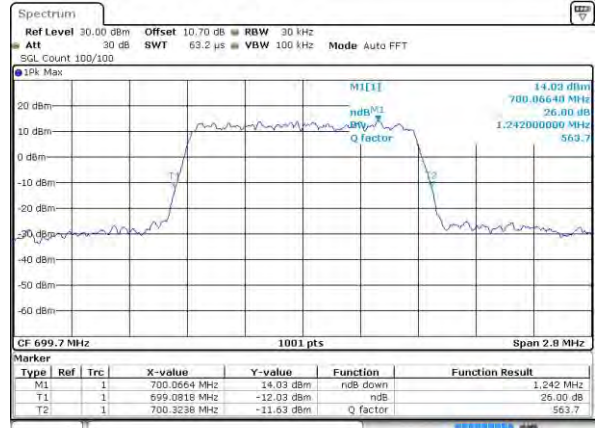


## LTE Band 12

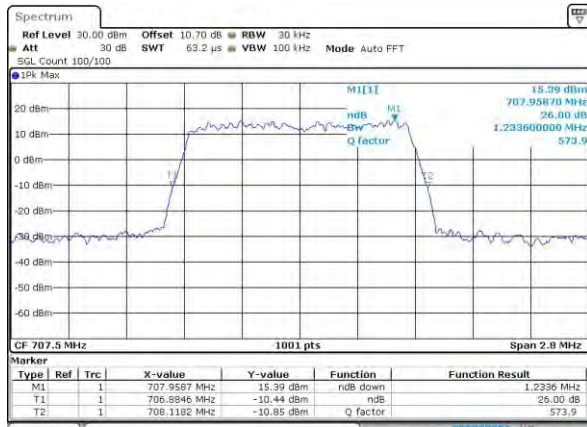
## Lowest Channel / 1.4MHz / QPSK



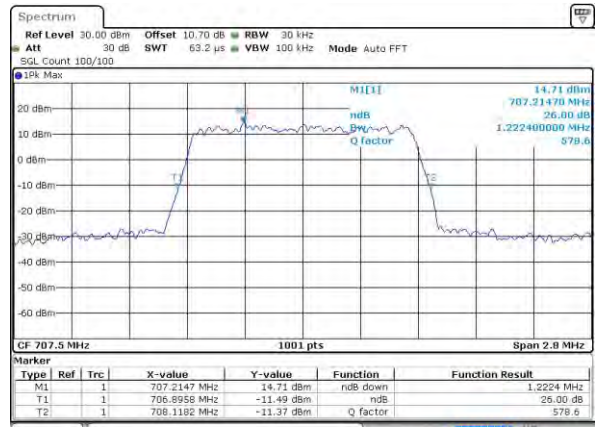
## Lowest Channel / 1.4MHz / 16QAM



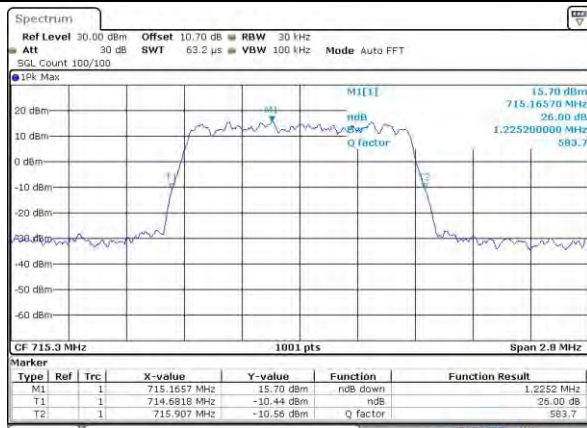
## Middle Channel / 1.4MHz / QPSK



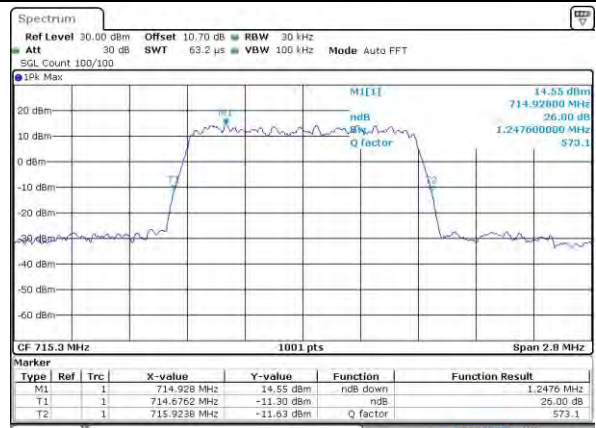
## Middle Channel / 1.4MHz / 16QAM



## Highest Channel / 1.4MHz / QPSK



## Highest Channel / 1.4MHz / 16QAM

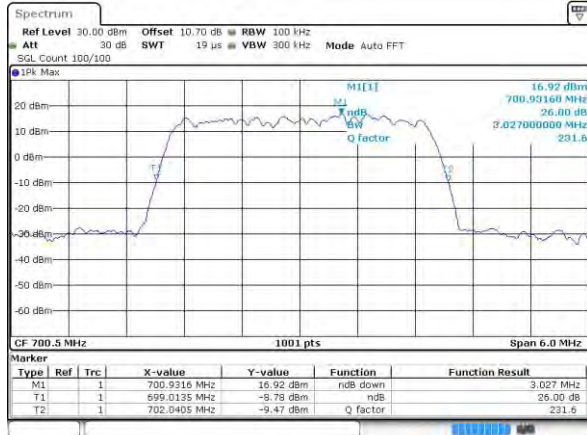




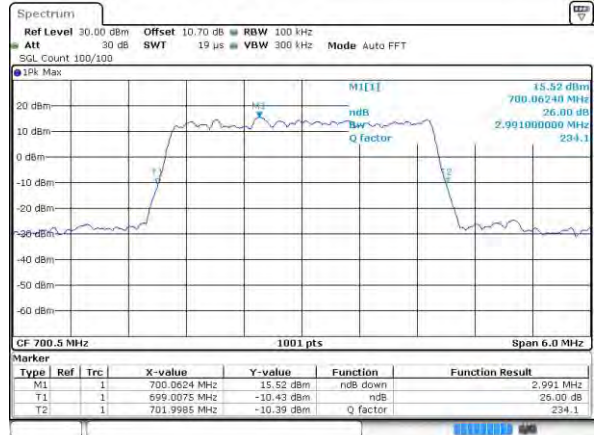


## LTE Band 12

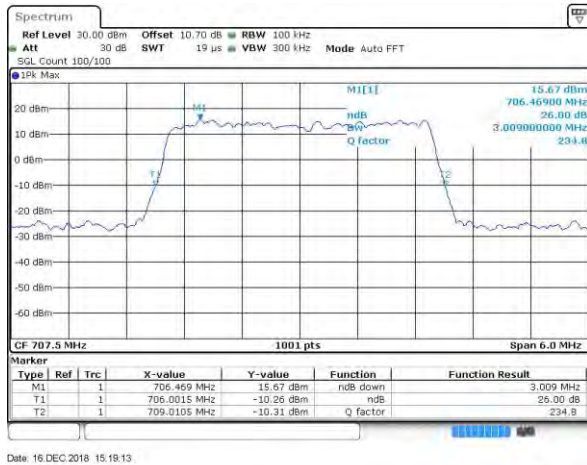
## Lowest Channel / 3MHz / QPSK



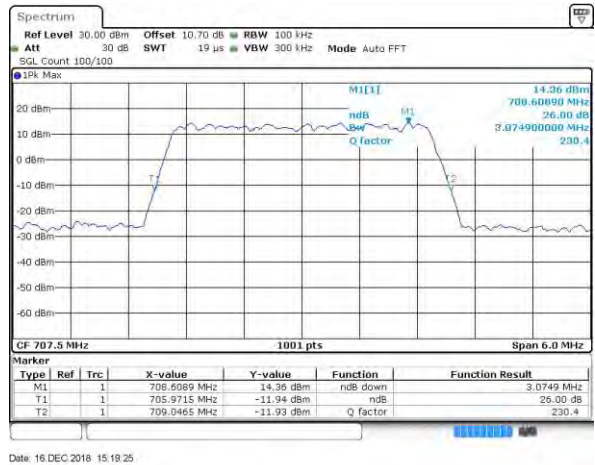
## Lowest Channel / 3MHz / 16QAM



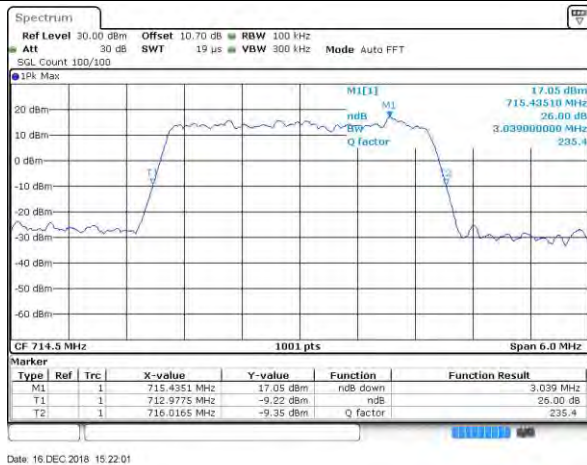
## Middle Channel / 3MHz / QPSK



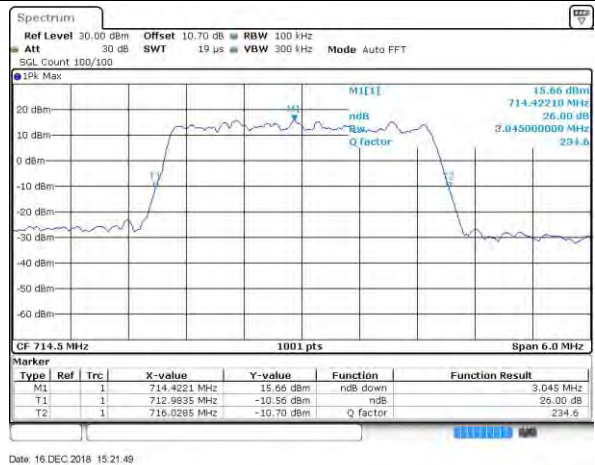
## Middle Channel / 3MHz / 16QAM



## Highest Channel / 3MHz / QPSK



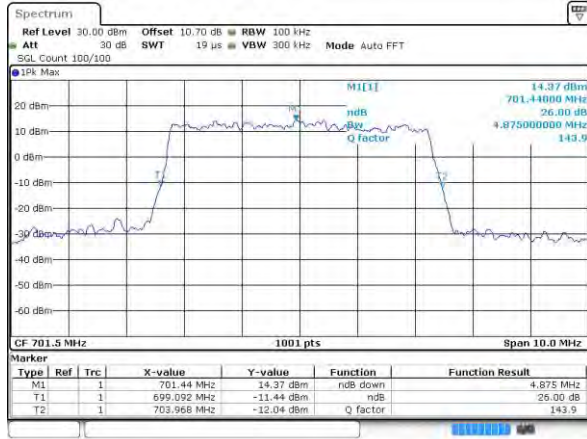
## Highest Channel / 3MHz / 16QAM



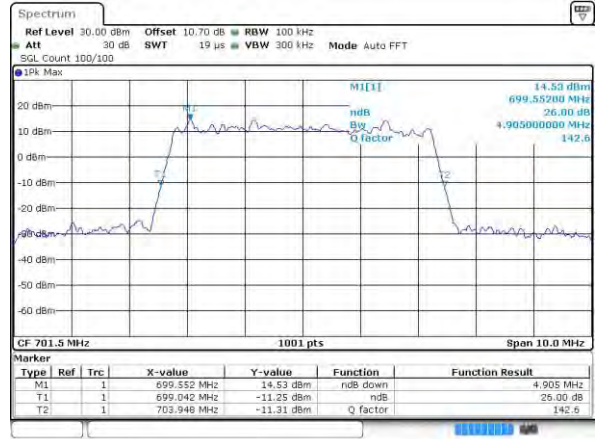


## LTE Band 12

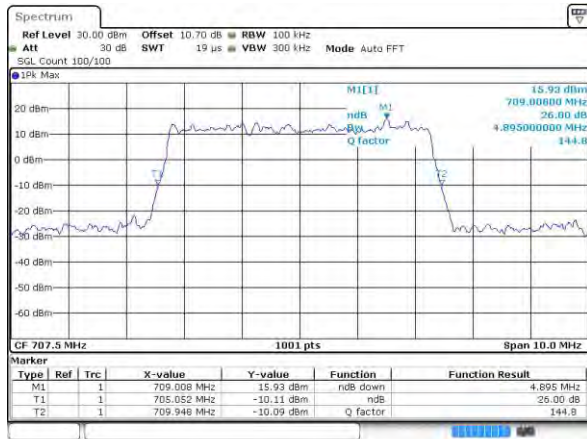
## Lowest Channel / 5MHz / QPSK



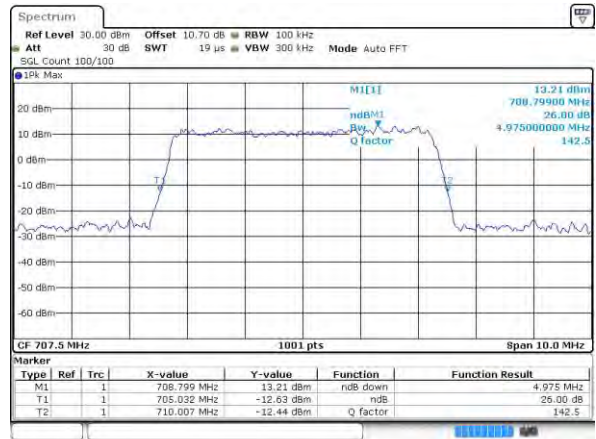
## Lowest Channel / 5MHz / 16QAM



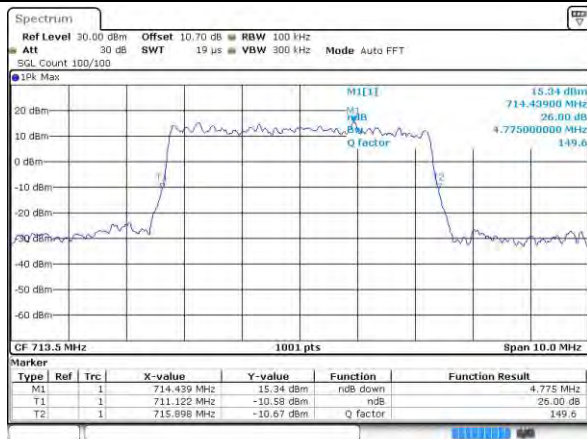
## Middle Channel / 5MHz / QPSK



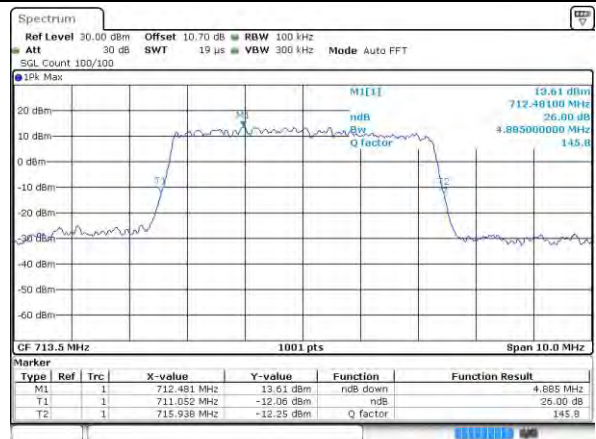
## Middle Channel / 5MHz / 16QAM



## Highest Channel / 5MHz / QPSK



## Highest Channel / 5MHz / 16QAM

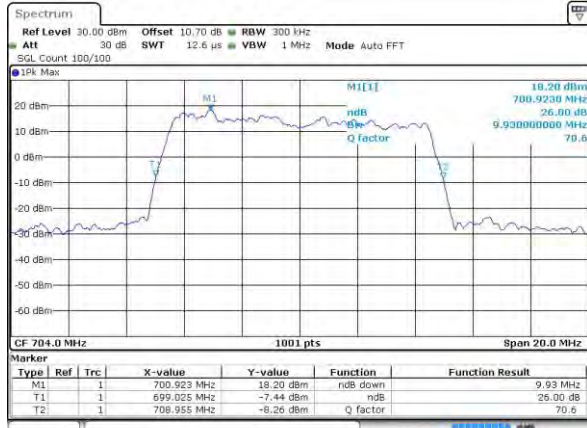




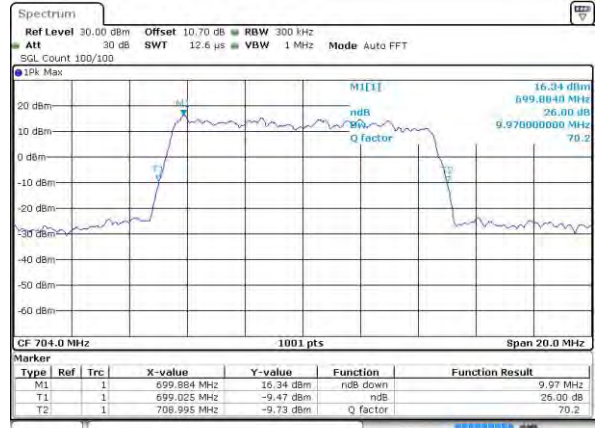


## LTE Band 12

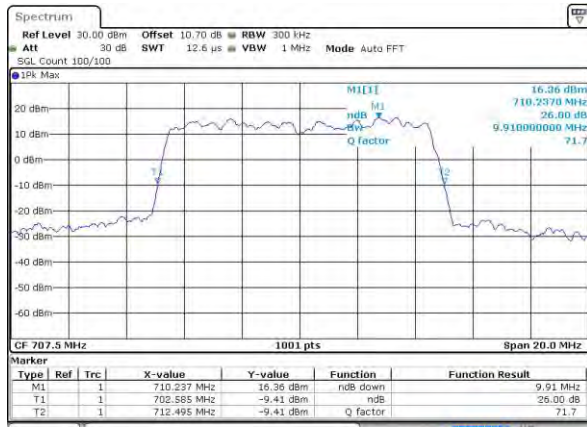
## Lowest Channel / 10MHz / QPSK



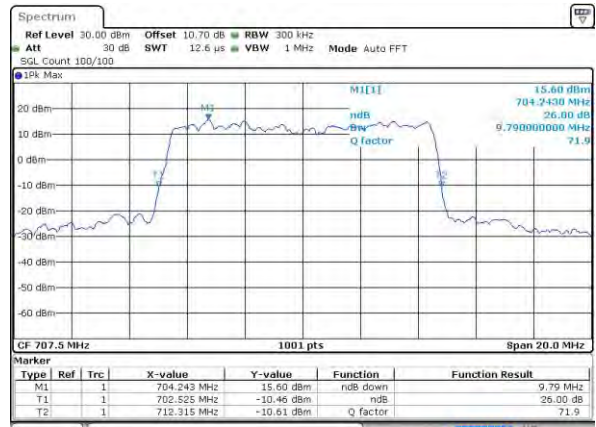
## Lowest Channel / 10MHz / 16QAM



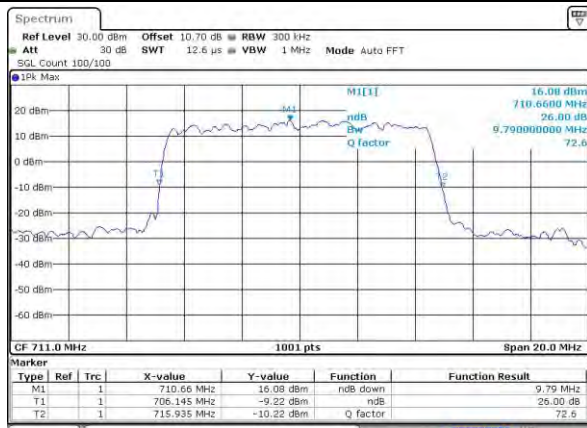
## Middle Channel / 10MHz / QPSK



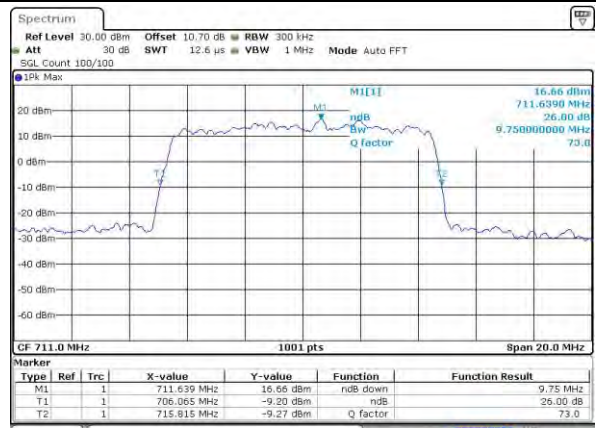
## Middle Channel / 10MHz / 16QAM



## Highest Channel / 10MHz / QPSK



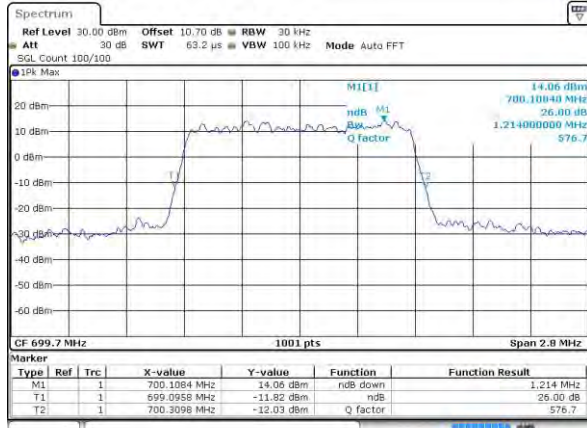
## Highest Channel / 10MHz / 16QAM





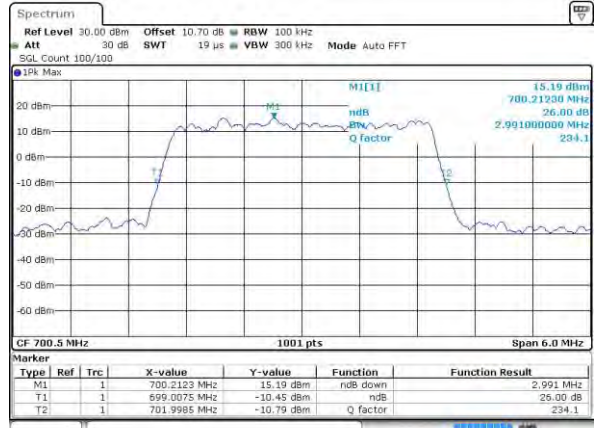
## LTE Band 12

## Lowest Channel / 1.4MHz / 64QAM



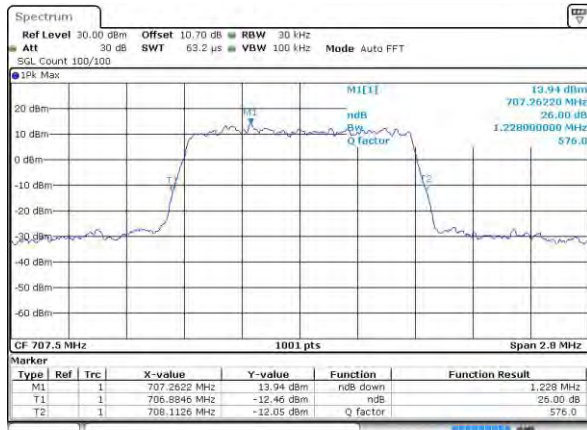
Date: 16 DEC 2018 17:08:52

## Lowest Channel / 3MHz / 64QAM



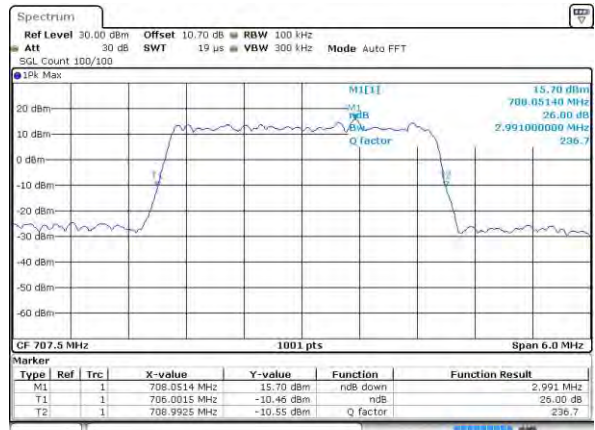
Date: 16 DEC 2018 16:46:10

## Middle Channel / 1.4MHz / 64QAM



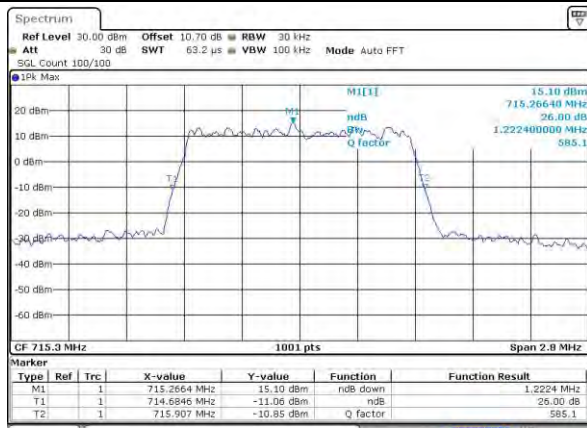
Date: 16 DEC 2018 17:12:00

## Middle Channel / 3MHz / 64QAM



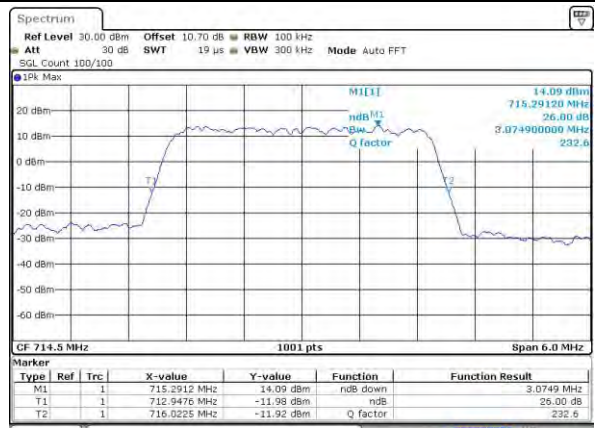
Date: 16 DEC 2018 16:49:19

## Highest Channel / 1.4MHz / 64QAM



Date: 16 DEC 2018 17:13:18

## Highest Channel / 3MHz / 64QAM



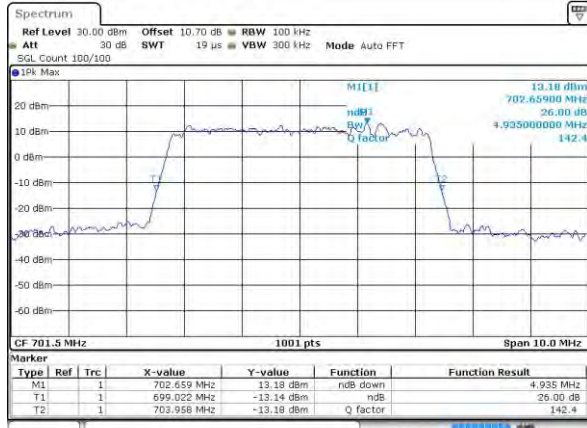
Date: 16 DEC 2018 16:50:37



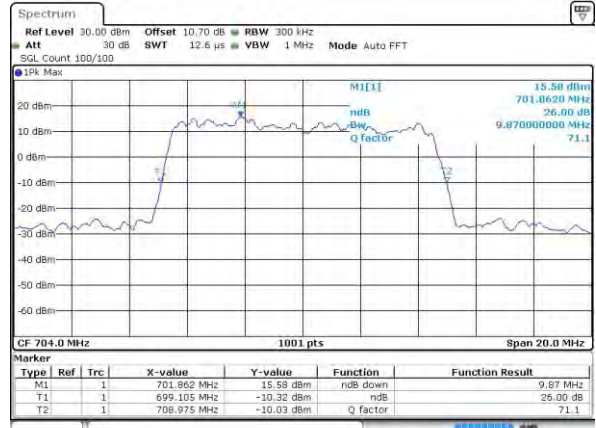


## LTE Band 12

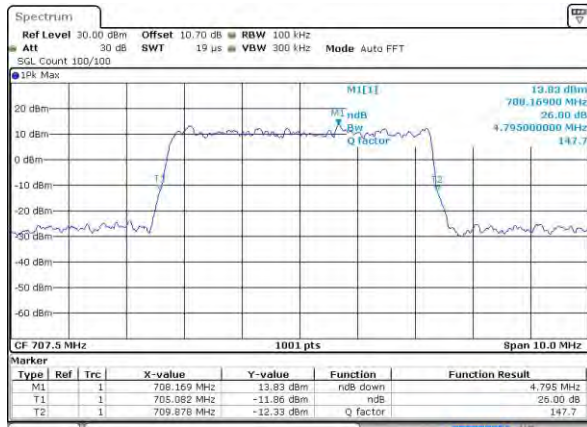
## Lowest Channel / 5MHz / 64QAM



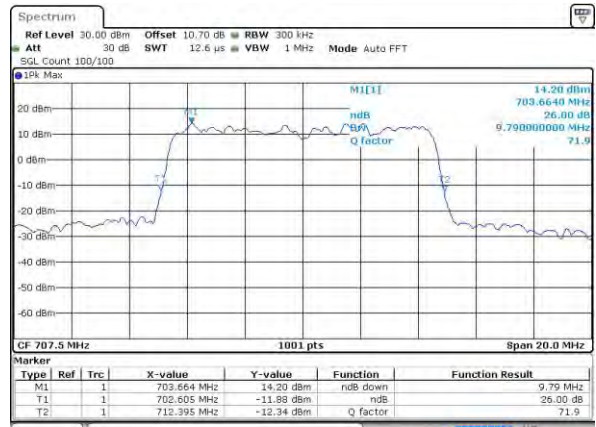
## Lowest Channel / 10MHz / 64QAM



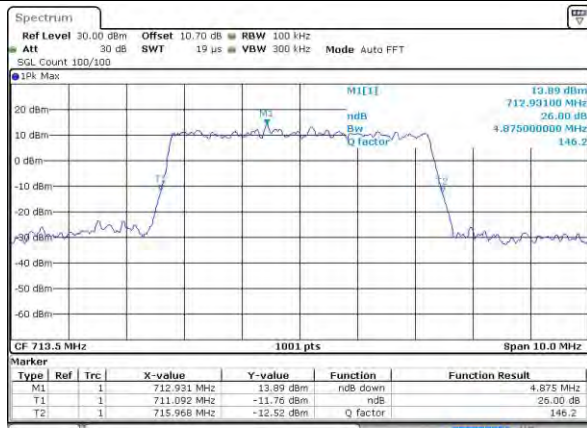
## Middle Channel / 5MHz / 64QAM



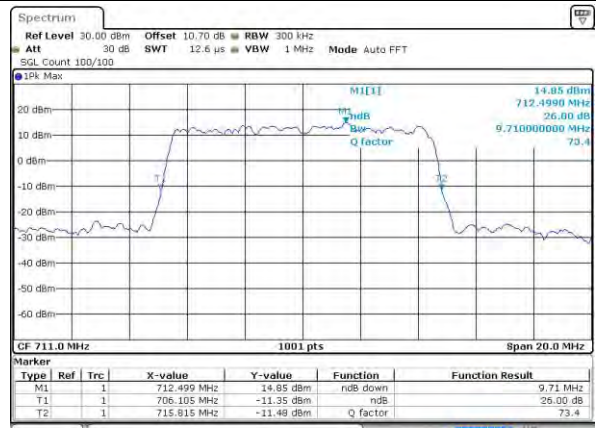
## Middle Channel / 10MHz / 64QAM



## Highest Channel / 5MHz / 64QAM



## Highest Channel / 10MHz / 64QAM



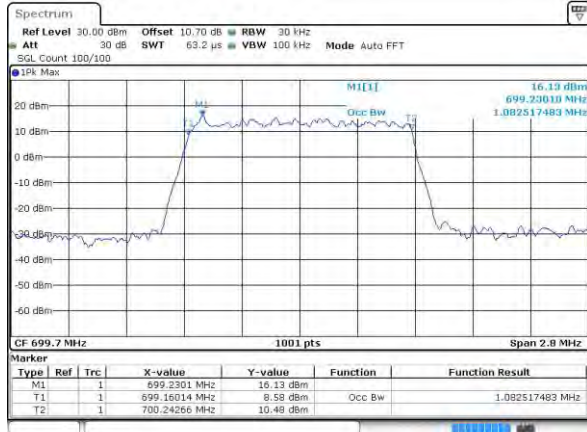
**Occupied Bandwidth**

| Mode       | LTE Band 12 : 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  | 1.08                      | 1.1   | 2.73  | 2.7   | 4.47  | 4.47  | 8.97  | 8.99  | -     | -     | -     | -     |
| Middle CH  | 1.09                      | 1.09  | 2.74  | 2.72  | 4.5   | 4.5   | 9.03  | 9.07  | -     | -     | -     | -     |
| Highest CH | 1.09                      | 1.08  | 2.73  | 2.74  | 4.52  | 4.46  | 8.97  | 9.03  | -     | -     | -     | -     |
| Mode       | LTE Band 12 : 99%OBW(MHz) |       |       |       |       |       |       |       |       |       |       |       |
| BW         | 1.4MHz                    |       | 3MHz  |       | 5MHz  |       | 10MHz |       | 15MHz |       | 20MHz |       |
| Mod.       | 64QAM                     |       | 64QAM |       | 64QAM |       | 64QAM |       | 64QAM |       | 64QAM |       |
| Lowest CH  | 1.09                      | -     | 2.73  | -     | 4.46  | -     | 9.01  | -     | -     | -     | -     | -     |
| Middle CH  | 1.09                      | -     | 2.72  | -     | 4.49  | -     | 9.09  | -     | -     | -     | -     | -     |
| Highest CH | 1.09                      | -     | 2.73  | -     | 4.48  | -     | 8.99  | -     | -     | -     | -     | -     |

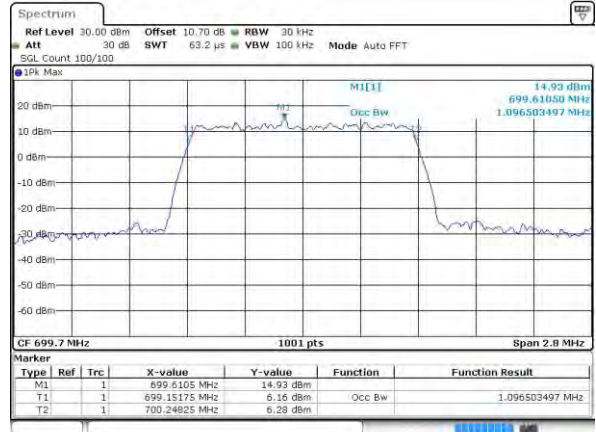


## LTE Band 12

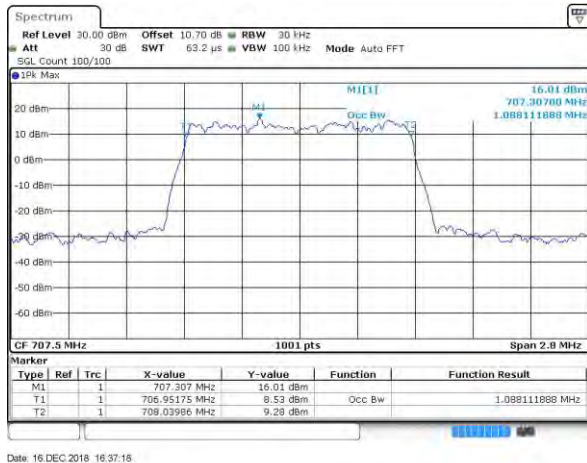
## Lowest Channel / 1.4MHz / QPSK



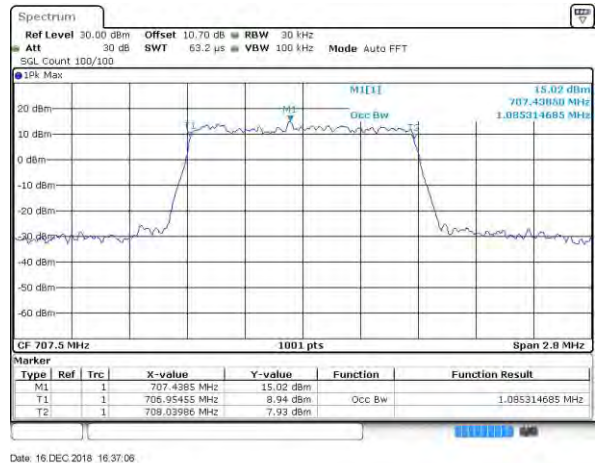
## Lowest Channel / 1.4MHz / 16QAM



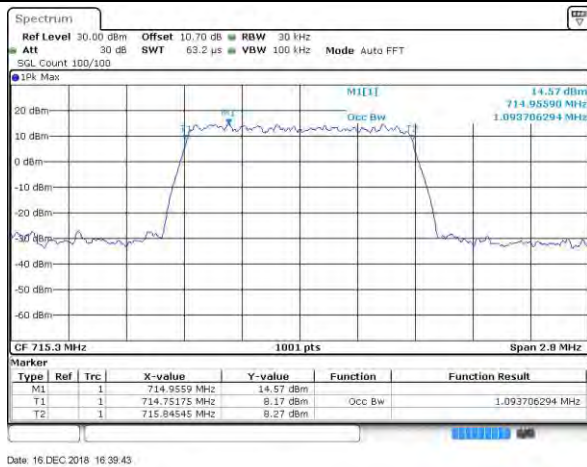
## Middle Channel / 1.4MHz / QPSK



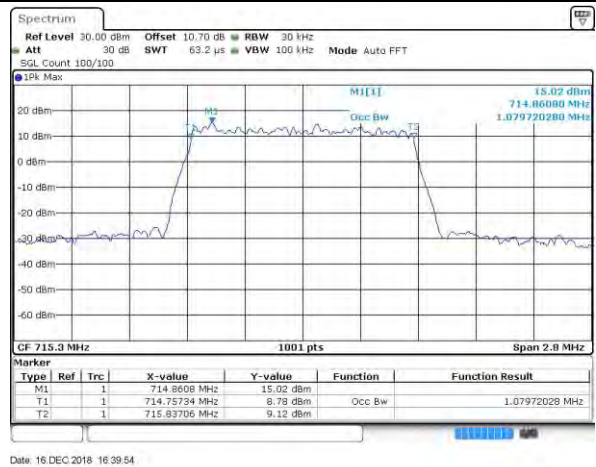
## Middle Channel / 1.4MHz / 16QAM



## Highest Channel / 1.4MHz / QPSK



## Highest Channel / 1.4MHz / 16QAM

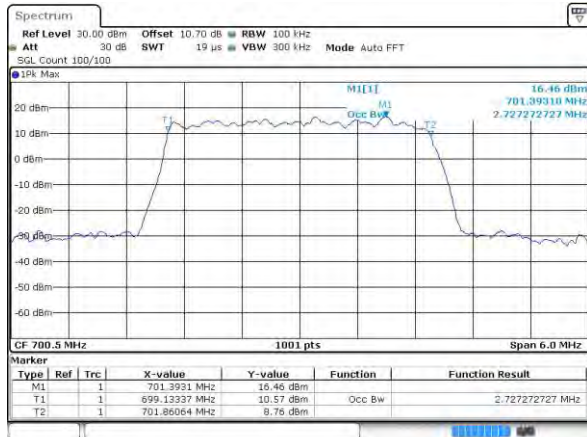




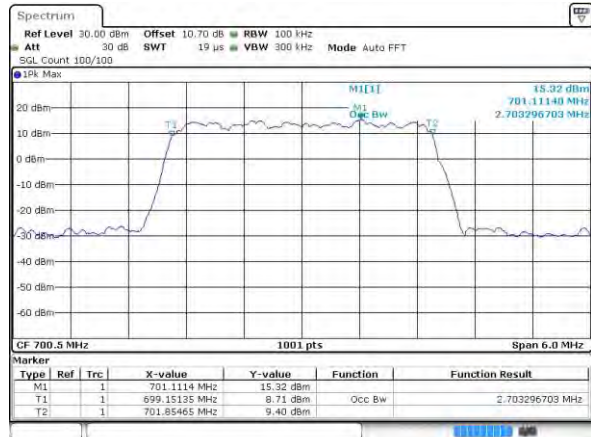


## LTE Band 12

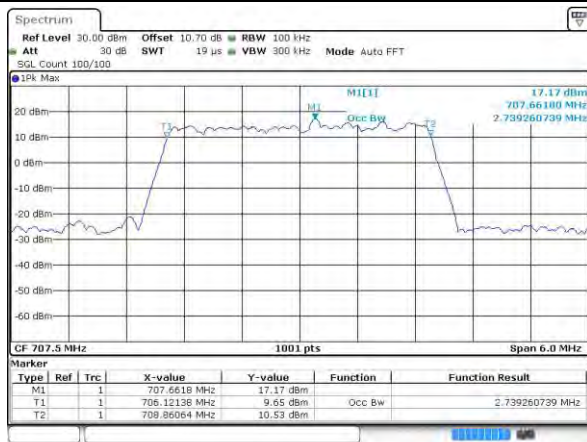
## Lowest Channel / 3MHz / QPSK



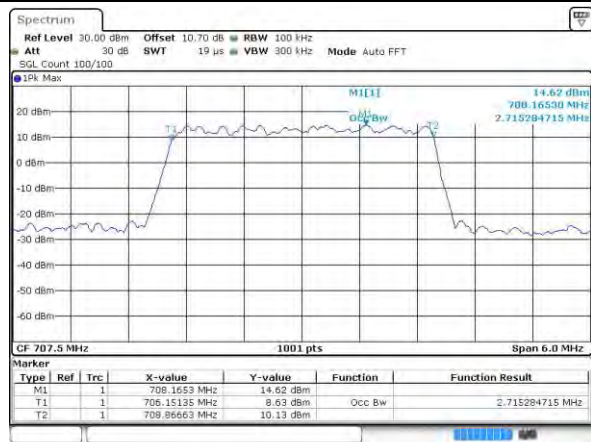
## Lowest Channel / 3MHz / 16QAM



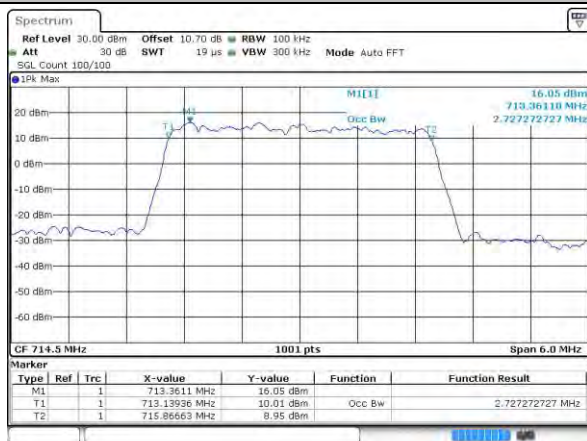
## Middle Channel / 3MHz / QPSK



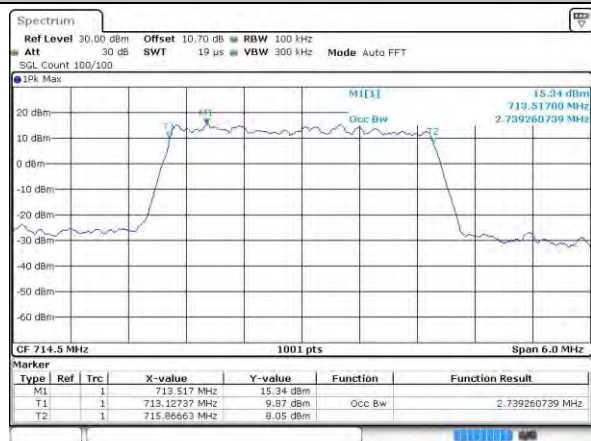
## Middle Channel / 3MHz / 16QAM



## Highest Channel / 3MHz / QPSK



## Highest Channel / 3MHz / 16QAM

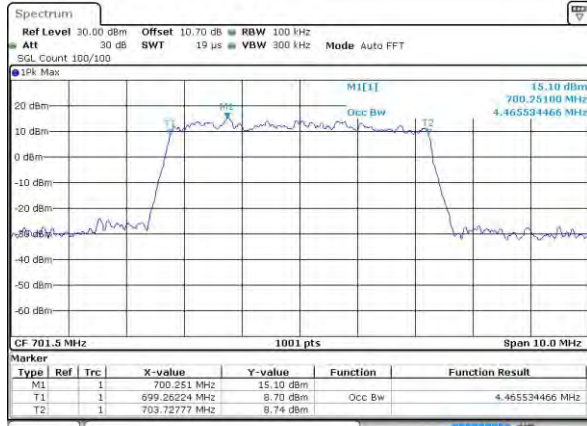




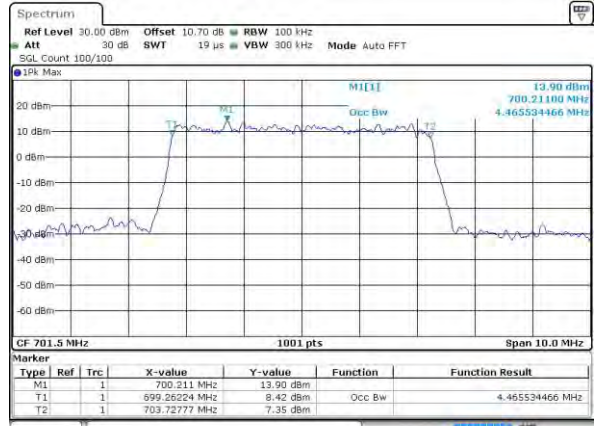


## LTE Band 12

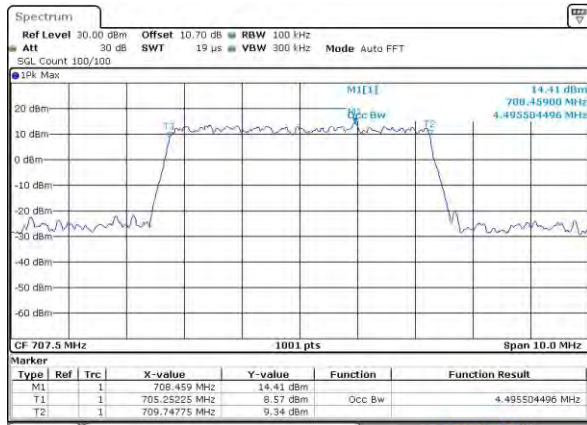
## Lowest Channel / 5MHz / QPSK



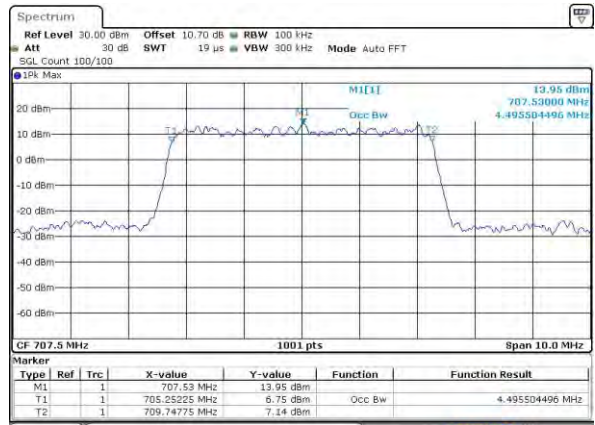
## Lowest Channel / 5MHz / 16QAM



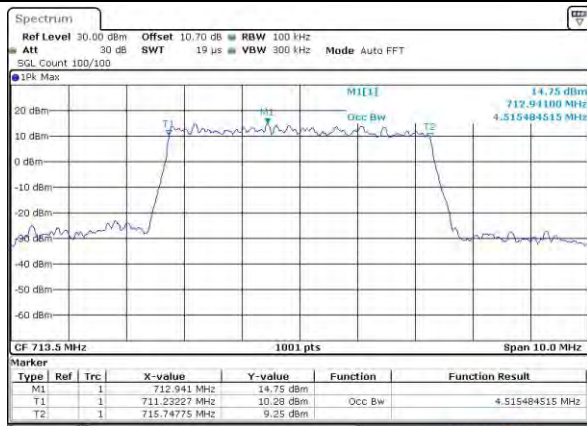
## Middle Channel / 5MHz / QPSK



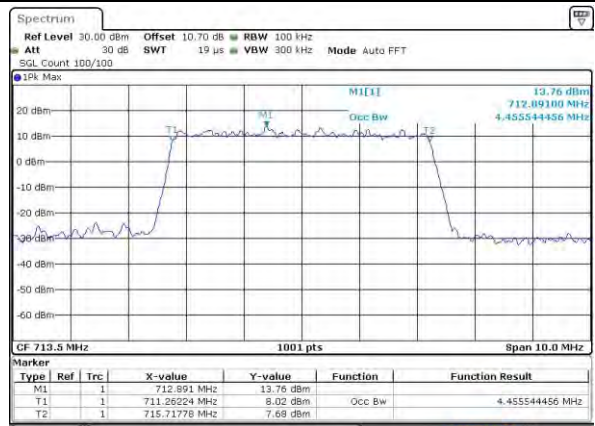
## Middle Channel / 5MHz / 16QAM



## Highest Channel / 5MHz / QPSK



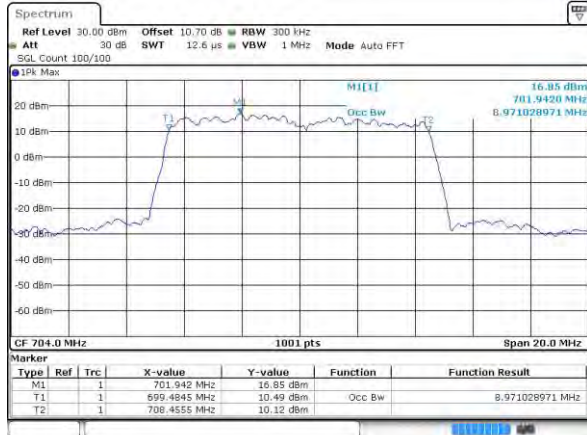
## Highest Channel / 5MHz / 16QAM





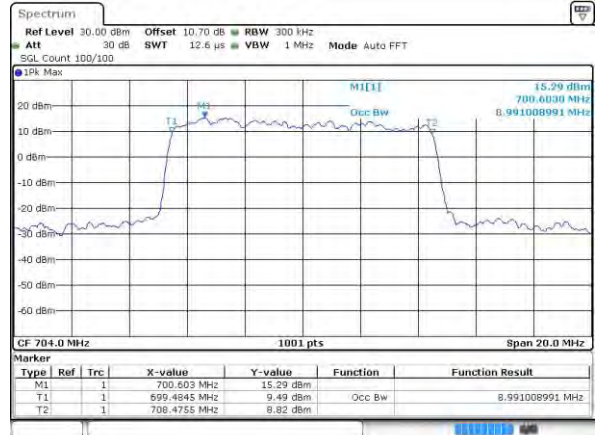
## LTE Band 12

## Lowest Channel / 10MHz / QPSK



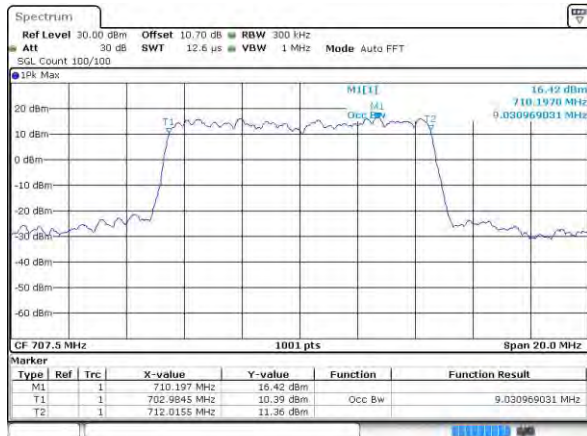
Date: 16 DEC 2018 15:42:51

## Lowest Channel / 10MHz / 16QAM



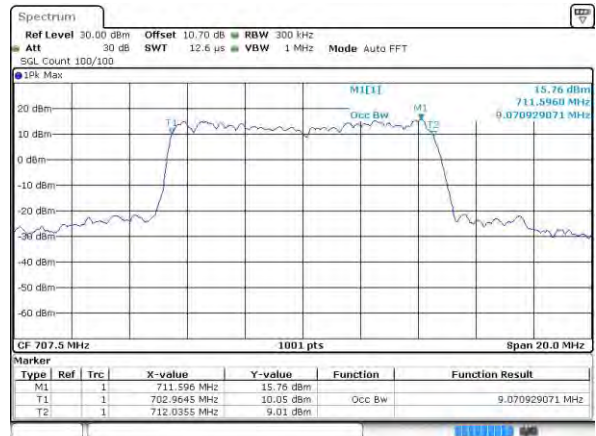
Date: 16 DEC 2018 15:43:02

## Middle Channel / 10MHz / QPSK



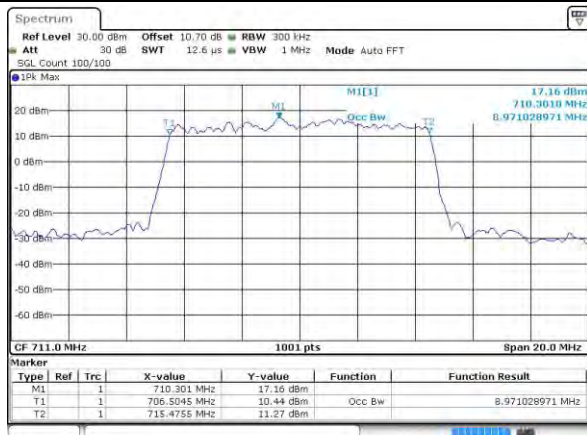
Date: 16 DEC 2018 16:12:08

## Middle Channel / 10MHz / 16QAM



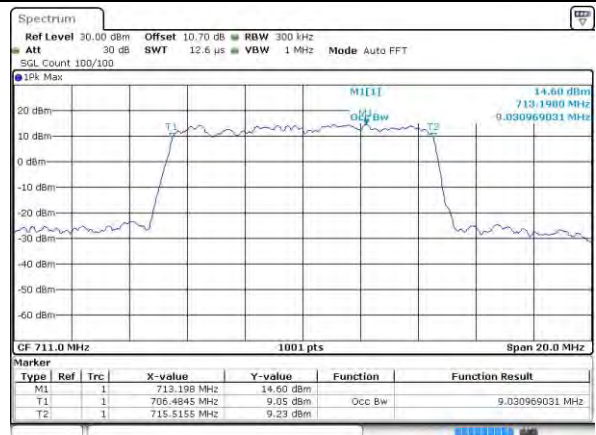
Date: 16 DEC 2018 16:11:56

## Highest Channel / 10MHz / QPSK



Date: 16 DEC 2018 16:22:22

## Highest Channel / 10MHz / 16QAM

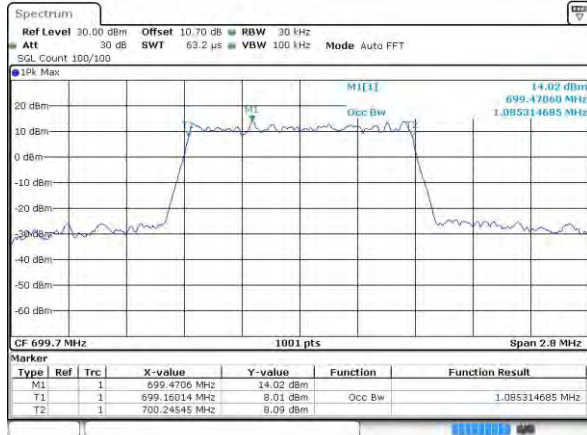


Date: 16 DEC 2018 16:22:34

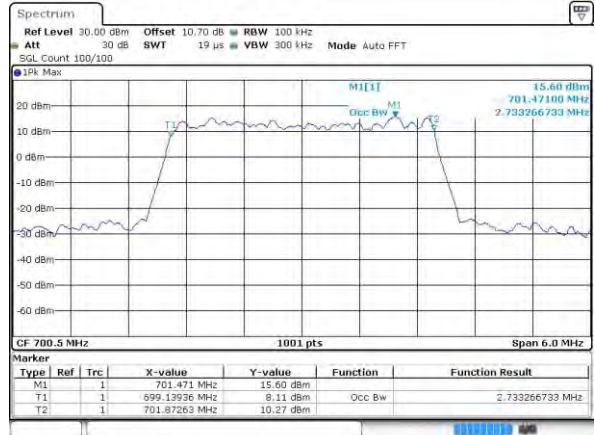


## LTE Band 12

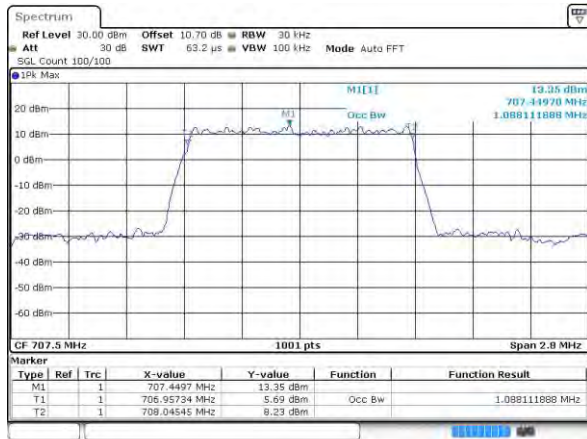
## Lowest Channel / 1.4MHz / 64QAM



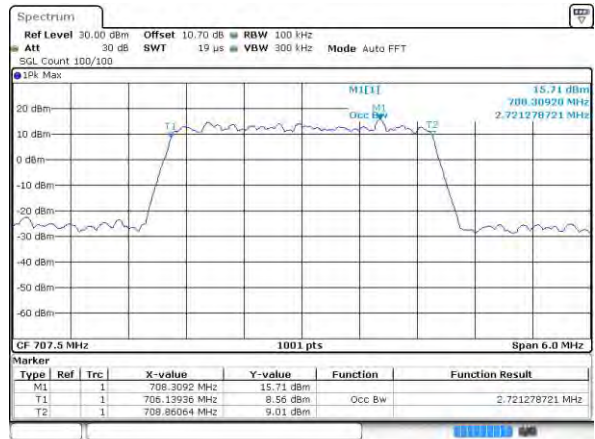
## Lowest Channel / 3MHz / 64QAM



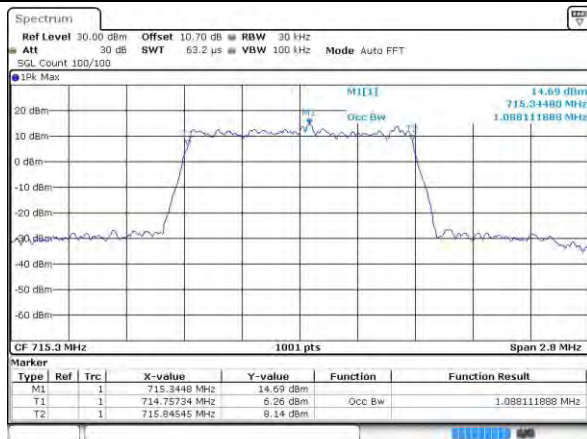
## Middle Channel / 1.4MHz / 64QAM



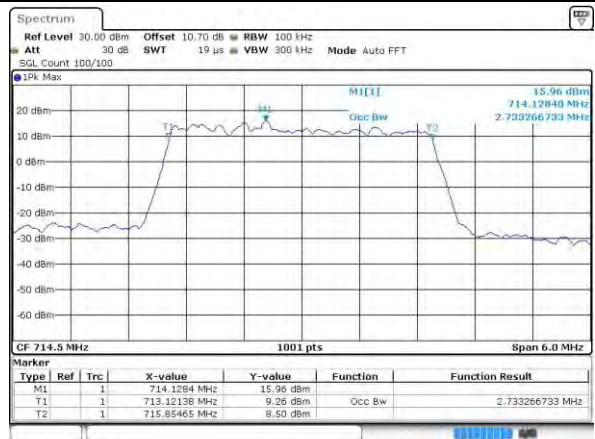
## Middle Channel / 3MHz / 64QAM



## Highest Channel / 1.4MHz / 64QAM



## Highest Channel / 3MHz / 64QAM

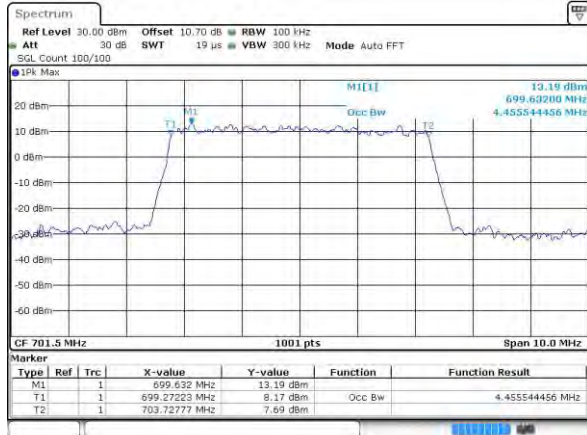




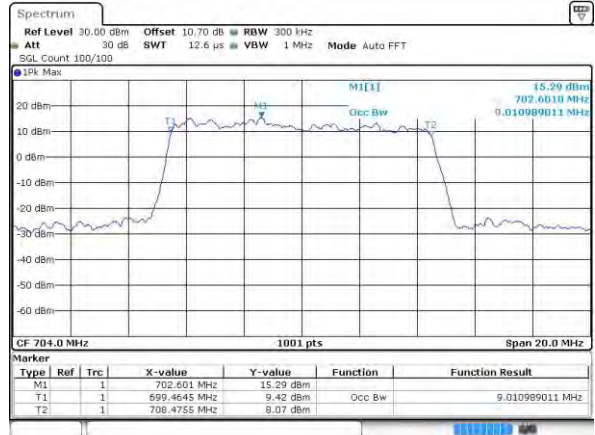


## LTE Band 12

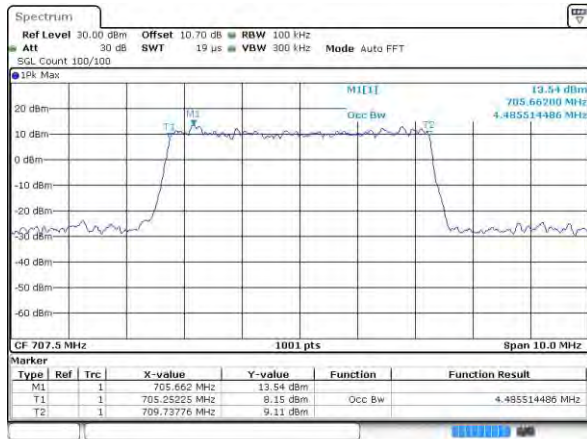
## Lowest Channel / 5MHz / 64QAM



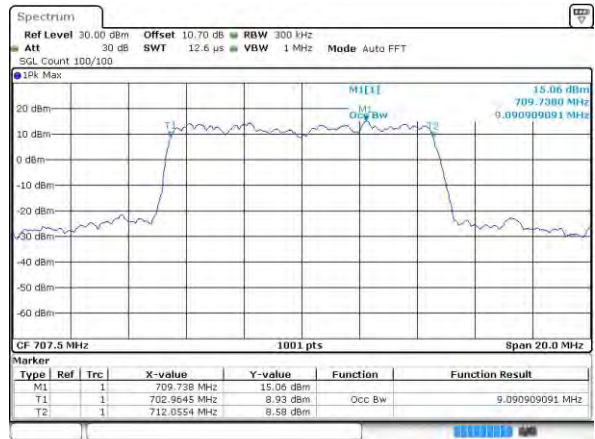
## Lowest Channel / 10MHz / 64QAM



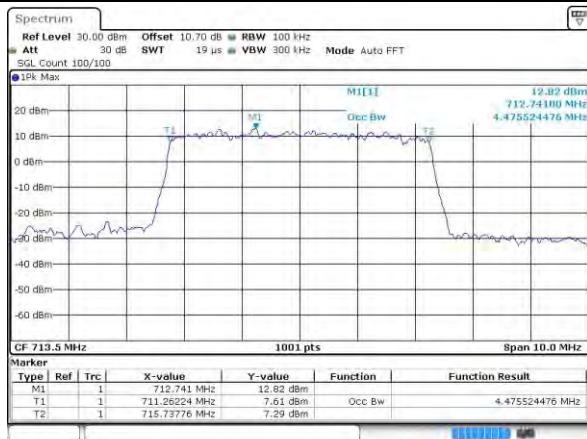
## Middle Channel / 5MHz / 64QAM



## Middle Channel / 10MHz / 64QAM



## Highest Channel / 5MHz / 64QAM



## Highest Channel / 10MHz / 64QAM

