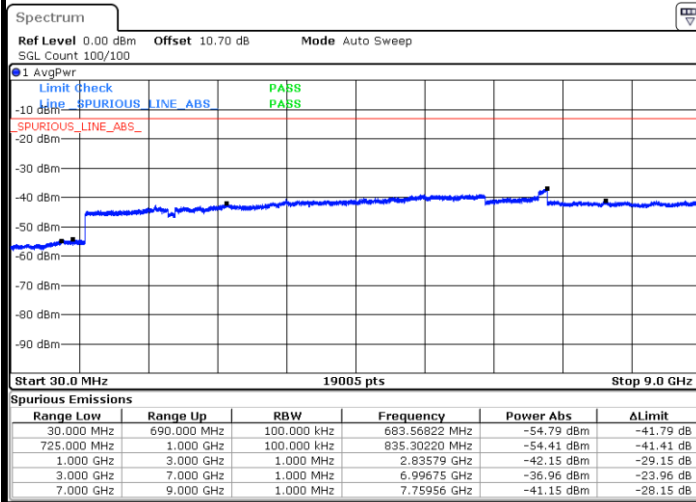




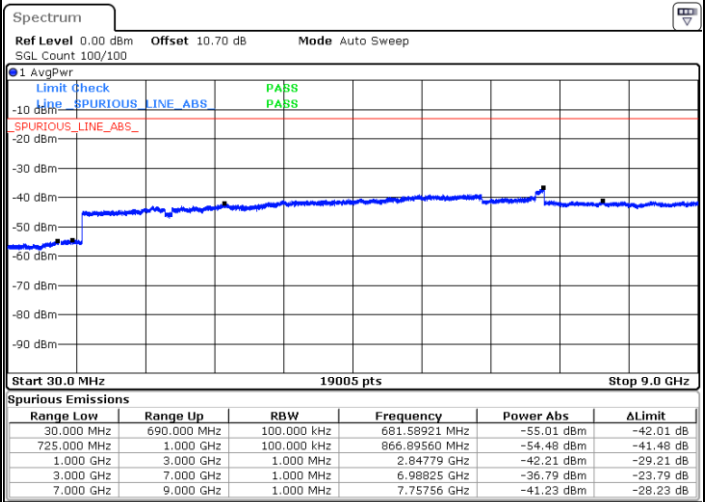
## LTE Band 12 / 10MHz

## Lowest Channel / 64QAM



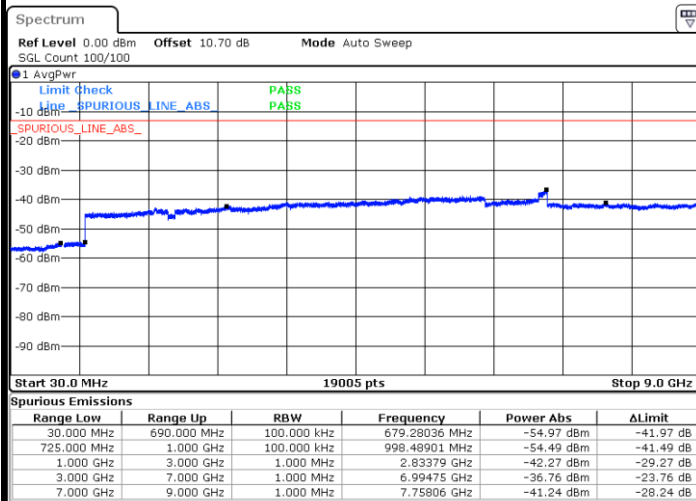
Date: 31.DEC.2019 12:14:40

## Middle Channel / 64QAM



Date: 31.DEC.2019 12:16:09

## Highest Channel / 64QAM



Date: 31.DEC.2019 12:20:23

## Frequency Stability

| Test Conditions  |                   | LTE Band 12 (QPSK) / Middle Channel | Limit   |
|------------------|-------------------|-------------------------------------|---------|
| Temperature (°C) | Voltage (Volt)    | BW 10MHz                            | Note 2. |
|                  |                   | Deviation (ppm)                     | Result  |
| 50               | Normal Voltage    | 0.0031                              | PASS    |
| 40               | Normal Voltage    | 0.0027                              |         |
| 30               | Normal Voltage    | 0.0090                              |         |
| 20(Ref.)         | Normal Voltage    | 0.0000                              |         |
| 10               | Normal Voltage    | 0.0016                              |         |
| 0                | Normal Voltage    | 0.0030                              |         |
| -10              | Normal Voltage    | 0.0004                              |         |
| -20              | Normal Voltage    | 0.0025                              |         |
| -30              | Normal Voltage    | 0.0092                              |         |
| 20               | Maximum Voltage   | 0.0007                              |         |
| 20               | Normal Voltage    | 0.0000                              |         |
| 20               | Battery End Point | 0.0006                              |         |

**Note:**

1. Normal Voltage =3.85 V. ; Battery End Point (BEP) =3.65 V. ; Maximum Voltage =4.25 V.
2. The frequency fundamental emissions stay within the authorized frequency block.

## LTE Band 13

### Peak-to-Average Ratio

| Mode       | LTE Band 13 / 10MHz |         |       |         |             |
|------------|---------------------|---------|-------|---------|-------------|
| Mod.       | QPSK                |         | 16QAM |         | Limit: 13dB |
| RB Size    | 1RB                 | Full RB | 1RB   | Full RB | Result      |
| Lowest CH  | -                   | -       | -     | -       | PASS        |
| Middle CH  | 3.04                | 4.78    | 4.20  | 5.71    |             |
| Highest CH | -                   | -       | -     | -       |             |
| Mode       | LTE Band 13 / 10MHz |         |       |         |             |
| Mod.       | 64QAM               |         |       |         | Limit: 13dB |
| RB Size    | 1RB                 | Full RB |       |         | Result      |
| Lowest CH  | -                   | -       | -     | -       | PASS        |
| Middle CH  | 5.13                | 6.12    | -     | -       |             |
| Highest CH | -                   | -       | -     | -       |             |

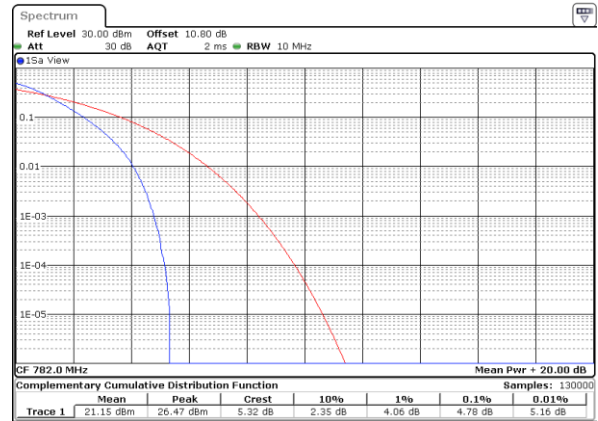
## LTE Band 13 / 10MHz / QPSK

### Middle Channel / 1RB



Date: 28 DEC 2019 16:30:01

### Middle Channel / Full RB



Date: 28 DEC 2019 16:30:11

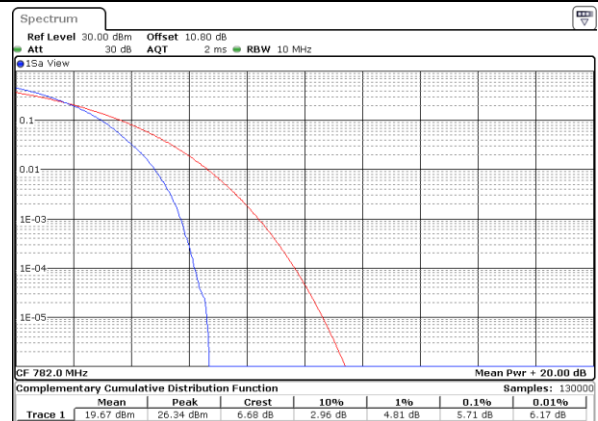
## LTE Band 13 / 10MHz / 16QAM

### Middle Channel / 1RB



Date: 28 DEC 2019 16:29:40

### Middle Channel / Full RB



Date: 28 DEC 2019 16:29:50

## LTE Band 13 / 10MHz / 64QAM

### Middle Channel / 1RB



Date: 28 DEC 2019 16:29:11

### Middle Channel / Full RB



Date: 28 DEC 2019 16:29:22

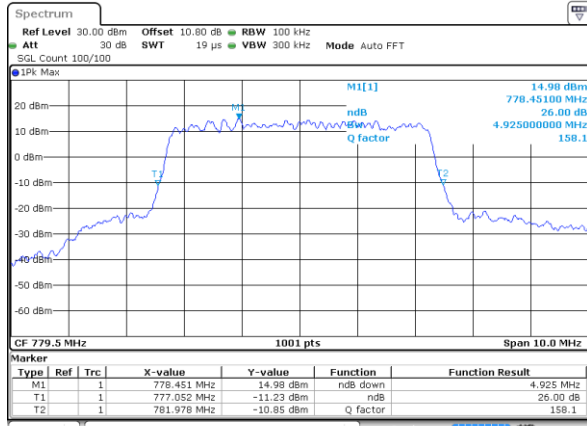
**26dB Bandwidth**

| Mode       | LTE Band 13 : 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  | -                          | -     | -     | -     | 4.93  | 4.87  | -     | -     | -     | -     | -     | -     |
| Middle CH  | -                          | -     | -     | -     | 4.93  | 4.95  | 9.77  | 9.75  | -     | -     | -     | -     |
| Highest CH | -                          | -     | -     | -     | 4.94  | 4.94  | -     | -     | -     | -     | -     | -     |
| Mode       | LTE Band 13 : 26dB BW(MHz) |       |       |       |       |       |       |       |       |       |       |       |
| BW         | 1.4MHz                     |       | 3MHz  |       | 5MHz  |       | 10MHz |       | 15MHz |       | 20MHz |       |
| Mod.       | 64QAM                      |       | 64QAM |       | 64QAM |       | 64QAM |       | 64QAM |       | 64QAM |       |
| Lowest CH  | -                          | -     | -     | -     | 4.96  | -     | -     | -     | -     | -     | -     | -     |
| Middle CH  | -                          | -     | -     | -     | 4.86  | -     | 9.89  | -     | -     | -     | -     | -     |
| Highest CH | -                          | -     | -     | -     | 4.94  | -     | -     | -     | -     | -     | -     | -     |



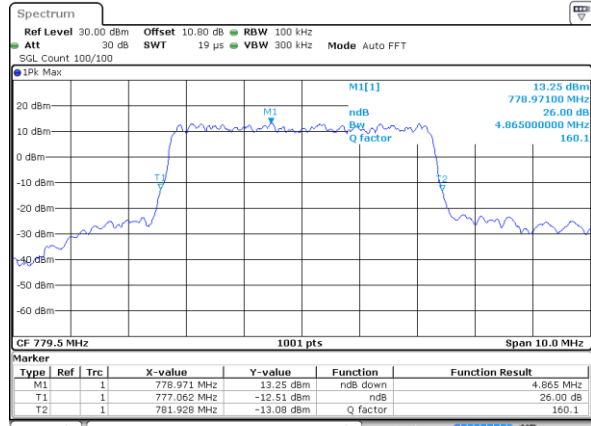
## LTE Band 13

## Lowest Channel / 5MHz / QPSK



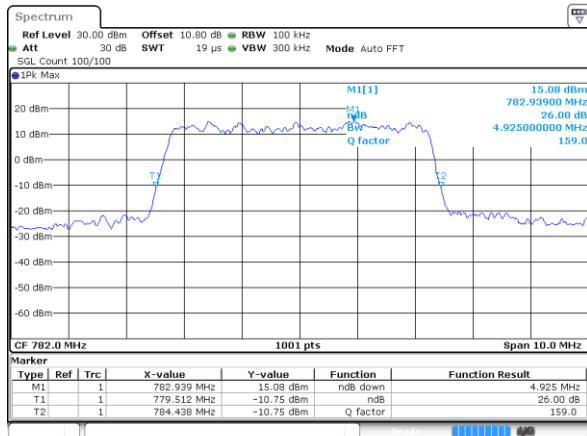
Date: 28 DEC 2019 15:41:50

## Lowest Channel / 5MHz / 16QAM



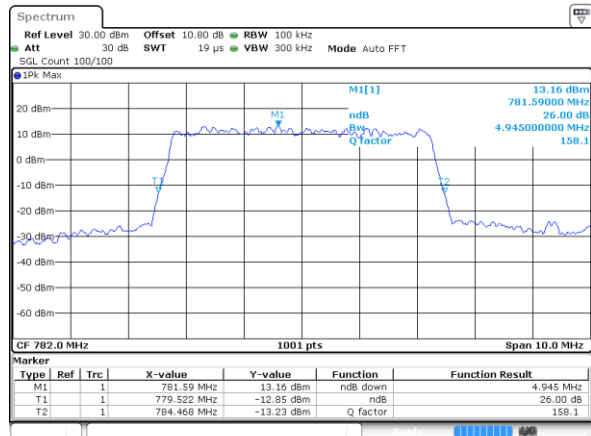
Date: 28 DEC 2019 15:41:38

## Middle Channel / 5MHz / QPSK



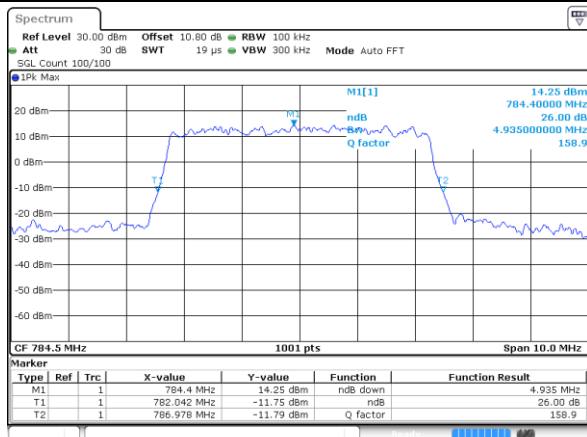
Date: 28 DEC 2019 15:51:28

## Middle Channel / 5MHz / 16QAM



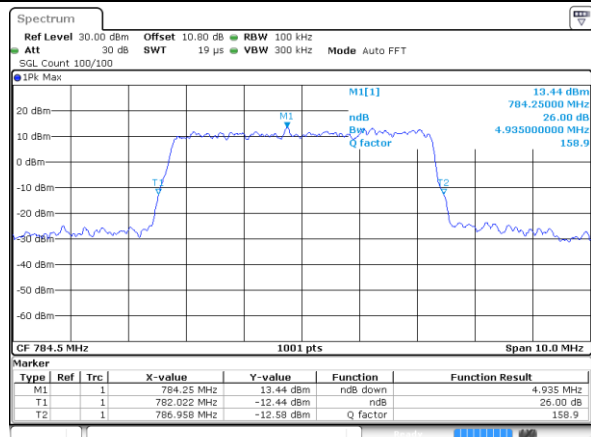
Date: 28 DEC 2019 15:51:38

## Highest Channel / 5MHz / QPSK



Date: 28 DEC 2019 15:52:48

## Highest Channel / 5MHz / 16QAM

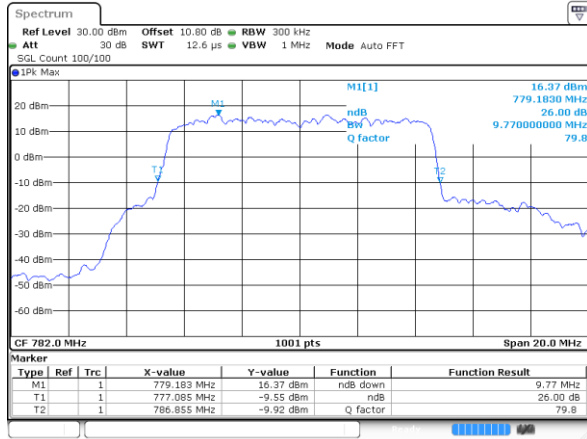


Date: 28 DEC 2019 15:52:36



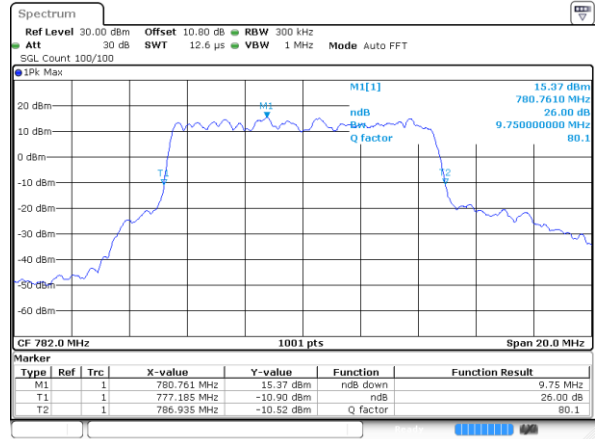
## LTE Band 13

## Middle Channel / 10MHz / QPSK



Date: 28 DEC 2019 16:11:35

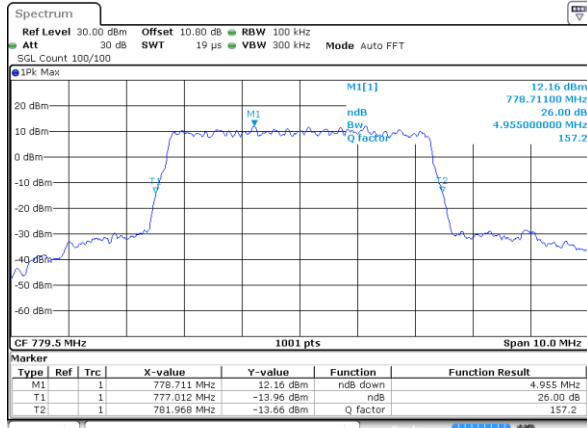
## Middle Channel / 10MHz / 16QAM



Date: 28 DEC 2019 16:11:23

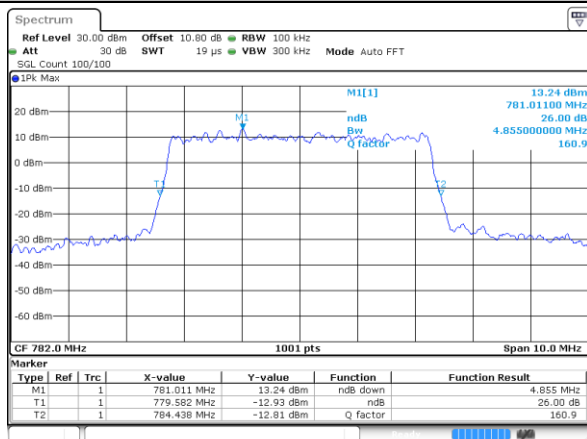
### LTE Band 13

#### Lowest Channel / 5MHz / 64QAM



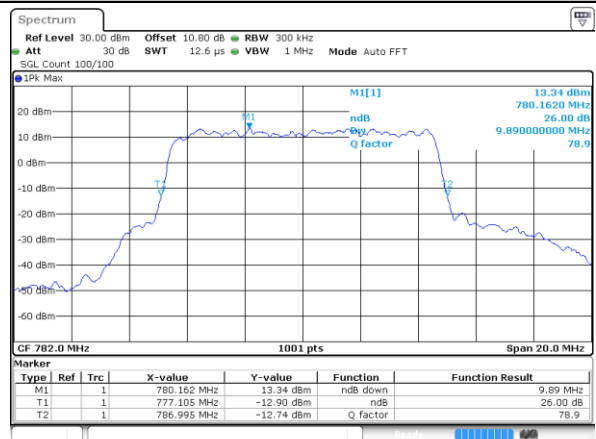
Date: 28 DEC 2019 16:01:17

#### Middle Channel / 5MHz / 64QAM



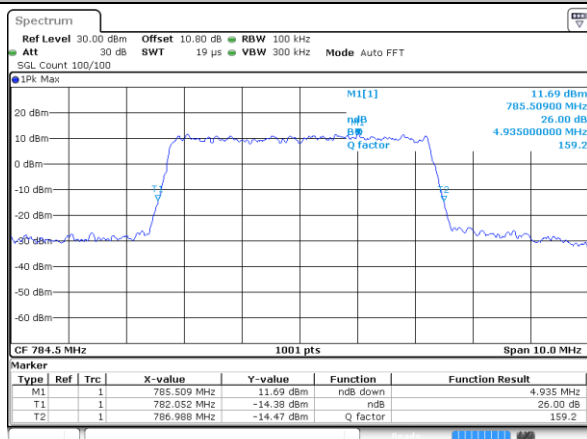
Date: 28 DEC 2019 16:06:11

#### Middle Channel / 10MHz / 64QAM



Date: 28 DEC 2019 16:23:19

#### Highest Channel / 5MHz / 64QAM



Date: 28 DEC 2019 16:06:46

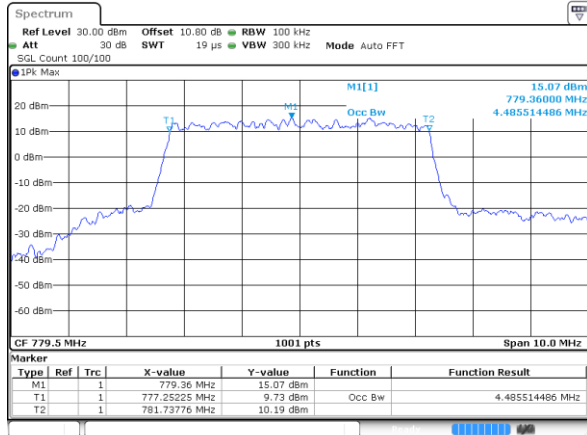
**Occupied Bandwidth**

| Mode       | LTE Band 13 : 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  | -                         | -     | -     | -     | 4.49  | 4.48  | -     | -     | -     | -     | -     | -     |
| Middle CH  | -                         | -     | -     | -     | 4.50  | 4.50  | 9.03  | 9.03  | -     | -     | -     | -     |
| Highest CH | -                         | -     | -     | -     | 4.50  | 4.50  | -     | -     | -     | -     | -     | -     |
| Mode       | LTE Band 13 : 99%OBW(MHz) |       |       |       |       |       |       |       |       |       |       |       |
| BW         | 1.4MHz                    |       | 3MHz  |       | 5MHz  |       | 10MHz |       | 15MHz |       | 20MHz |       |
| Mod.       | 64QAM                     |       | 64QAM |       | 64QAM |       | 64QAM |       | 64QAM |       | 64QAM |       |
| Lowest CH  | -                         | -     | -     | -     | 4.52  | -     | -     | -     | -     | -     | -     | -     |
| Middle CH  | -                         | -     | -     | -     | 4.49  | -     | 9.01  | -     | -     | -     | -     | -     |
| Highest CH | -                         | -     | -     | -     | 4.51  | -     | -     | -     | -     | -     | -     | -     |

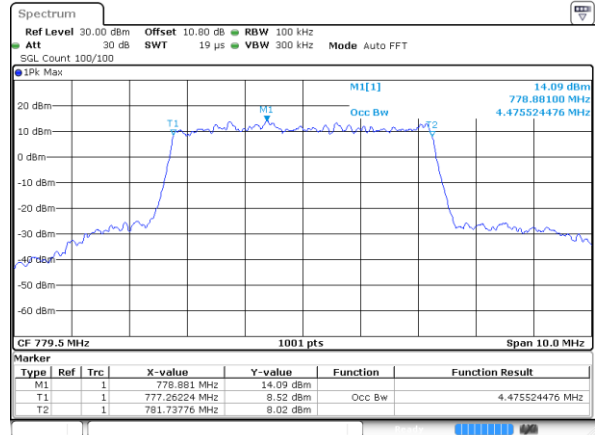


## LTE Band 13

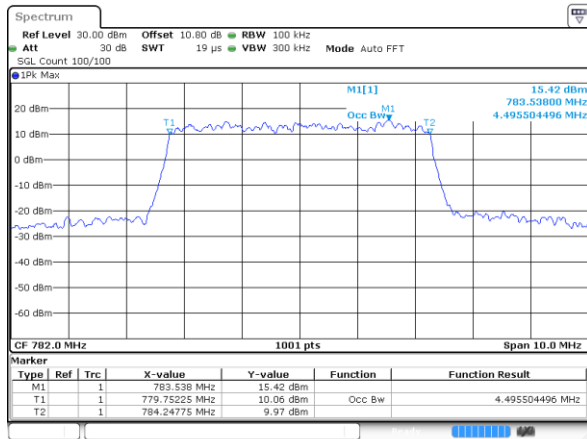
## Lowest Channel / 5MHz / QPSK



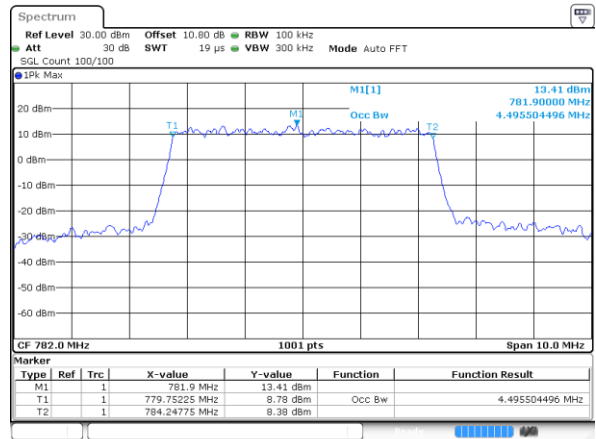
## Lowest Channel / 5MHz / 16QAM



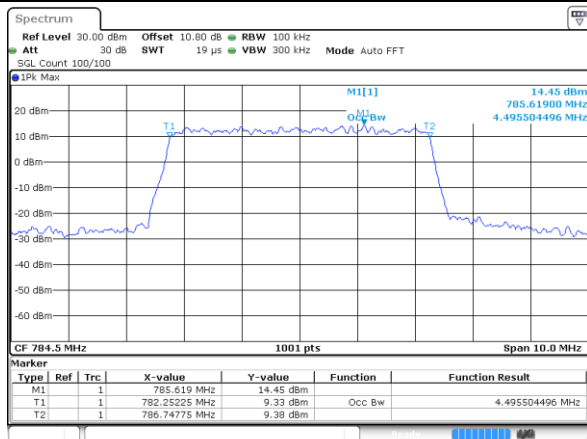
## Middle Channel / 5MHz / QPSK



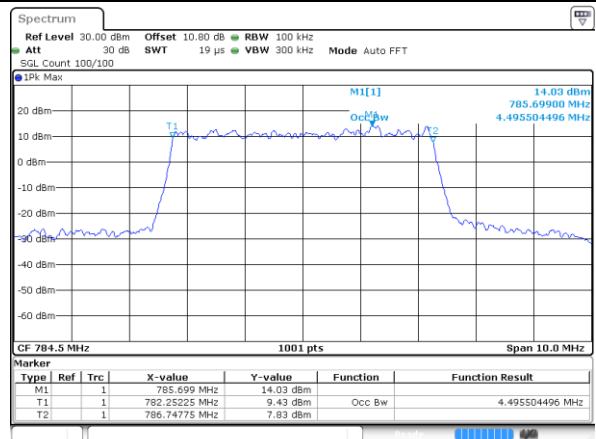
## Middle Channel / 5MHz / 16QAM



## Highest Channel / 5MHz / QPSK



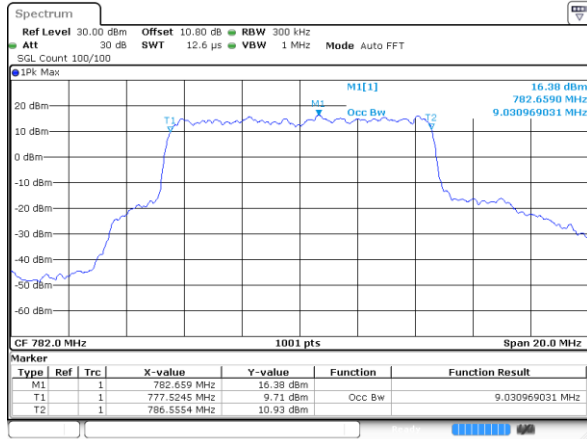
## Highest Channel / 5MHz / 16QAM





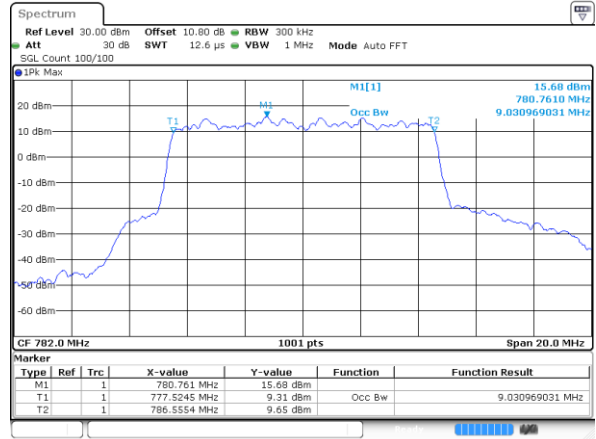
## LTE Band 13

## Middle Channel / 10MHz / QPSK



Date: 28 DEC 2019 16:11:00

## Middle Channel / 10MHz / 16QAM

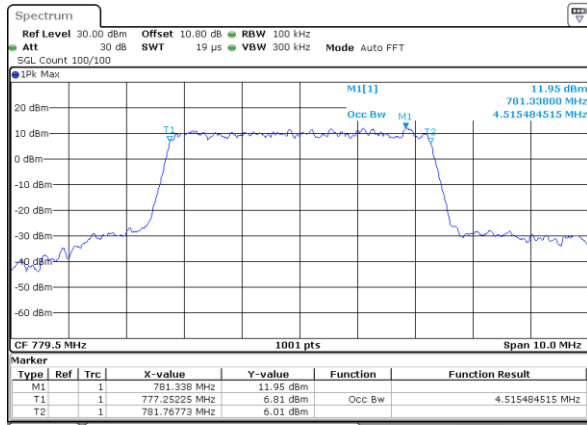


Date: 28 DEC 2019 16:11:12

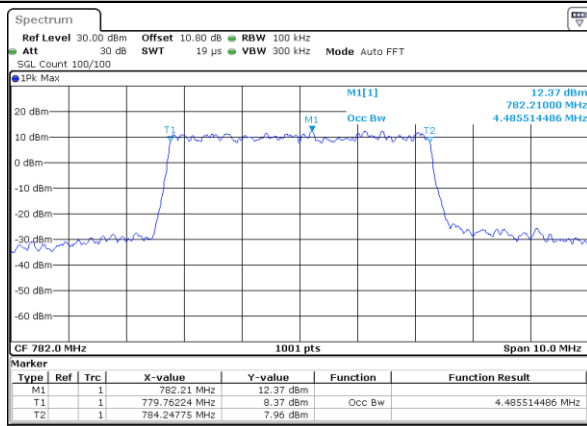


## LTE Band 13

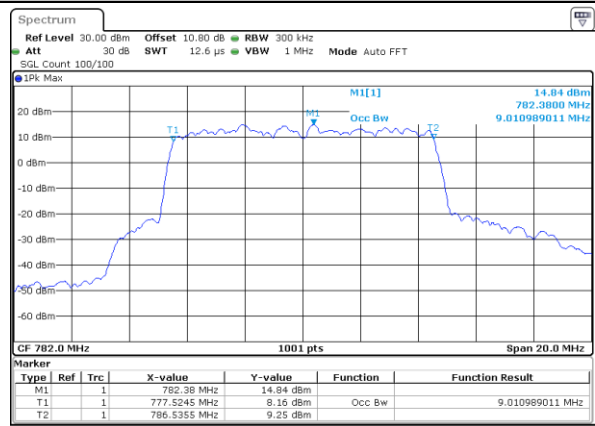
## Lowest Channel / 5MHz / 64QAM



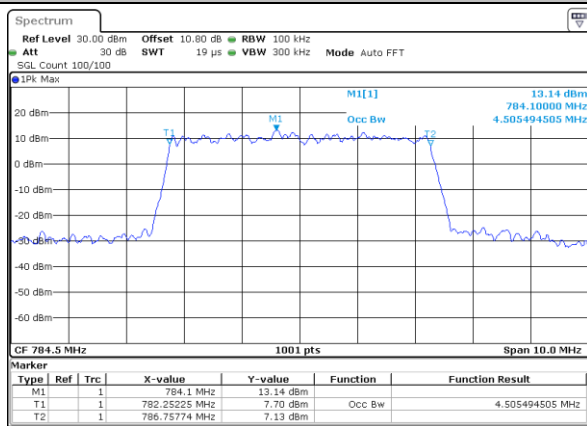
## Middle Channel / 5MHz / 64QAM

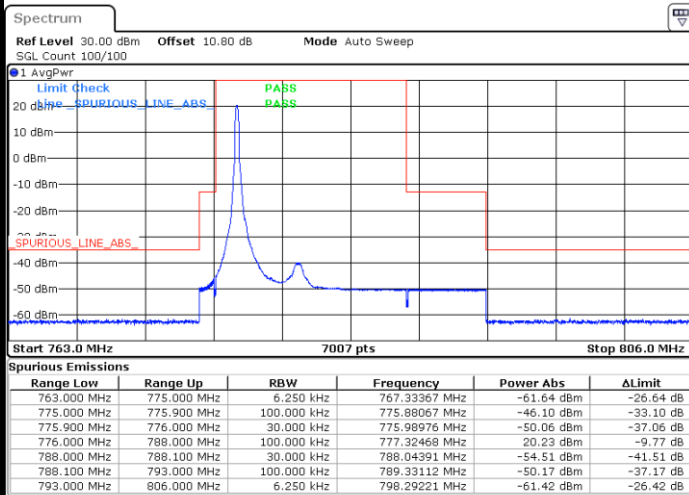
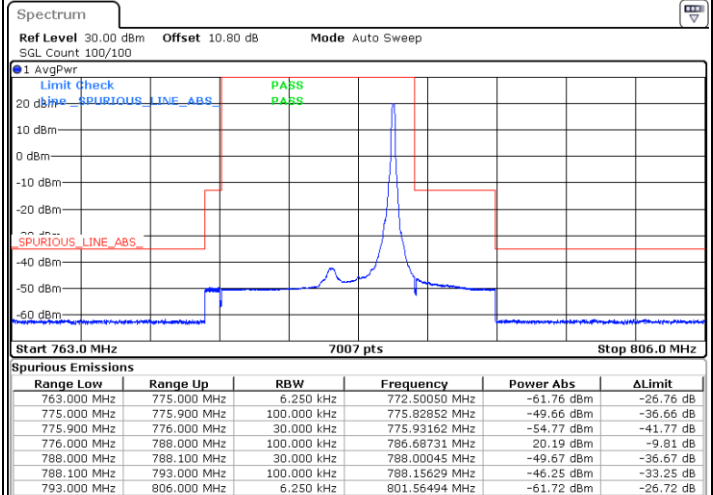
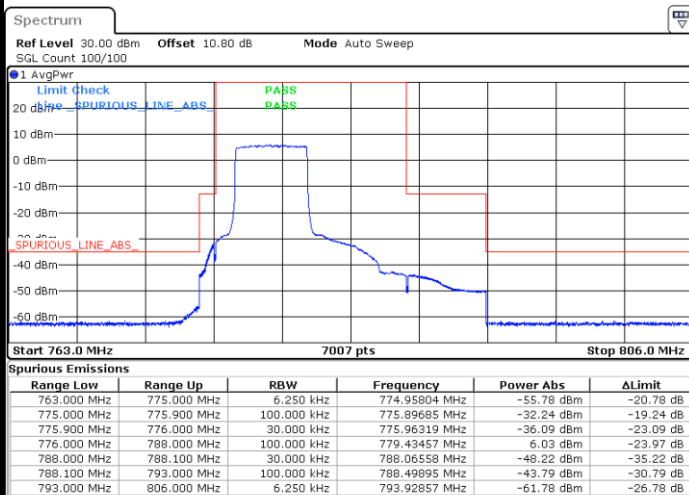
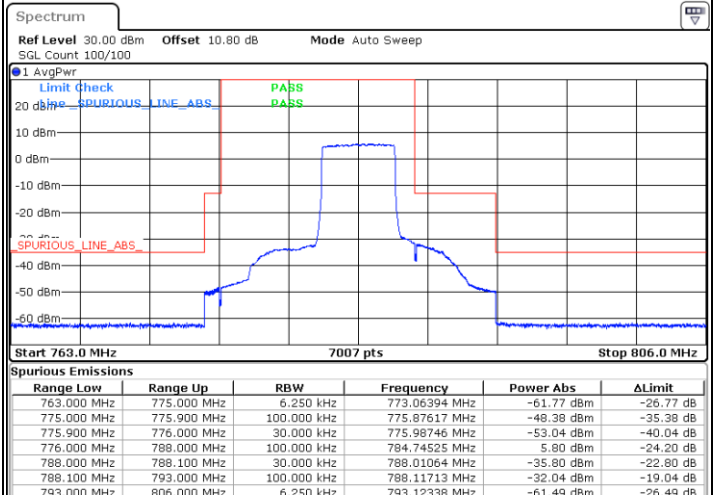


## Middle Channel / 10MHz / 64QAM



## Highest Channel / 5MHz / 64QAM

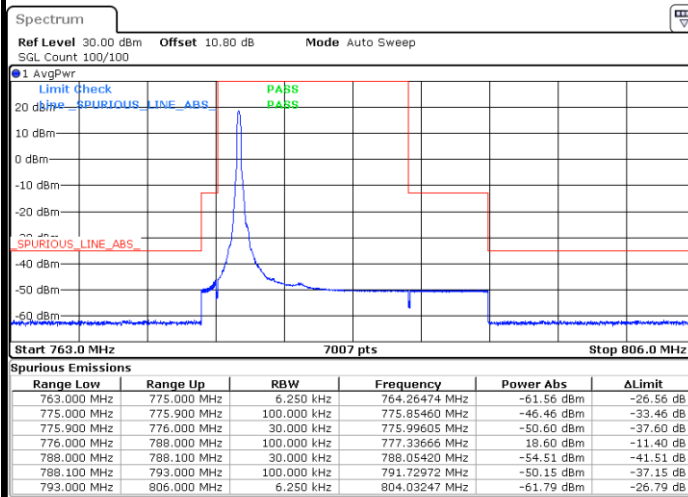


**Conducted Band Edge****LTE Band 13 / 5MHz / QPSK****Lowest Band Edge / 1 RB****Highest Band Edge / 1 RB****Lowest Band Edge / Full RB****Highest Band Edge / Full RB**

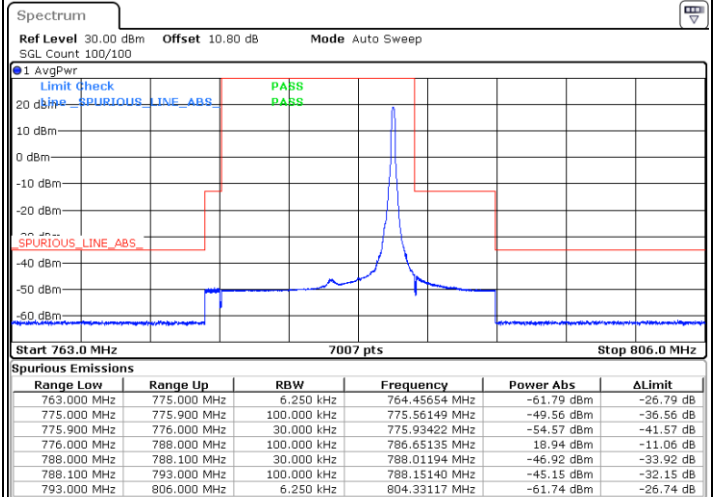


## LTE Band 13 / 5MHz / 16QAM

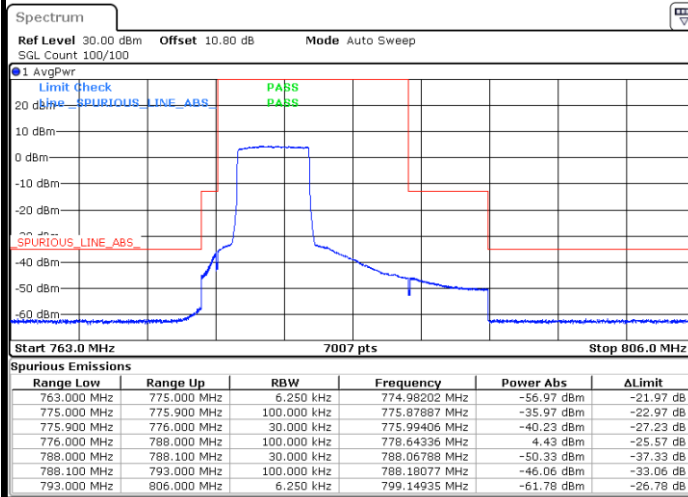
## Lowest Band Edge / 1 RB



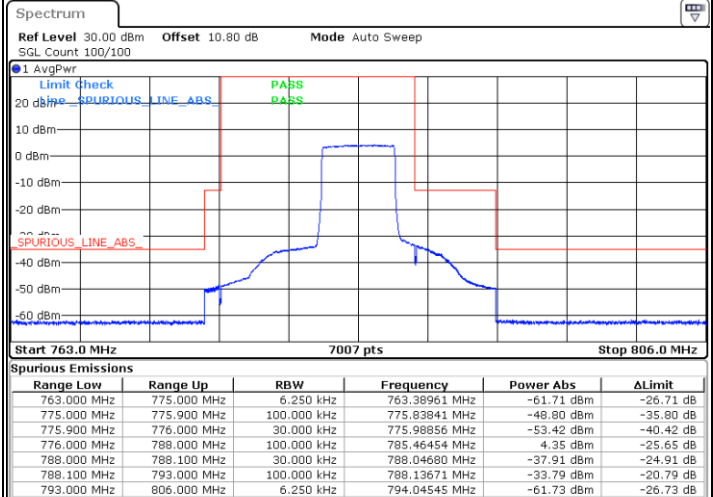
## Highest Band Edge / 1 RB



## Lowest Band Edge / Full RB



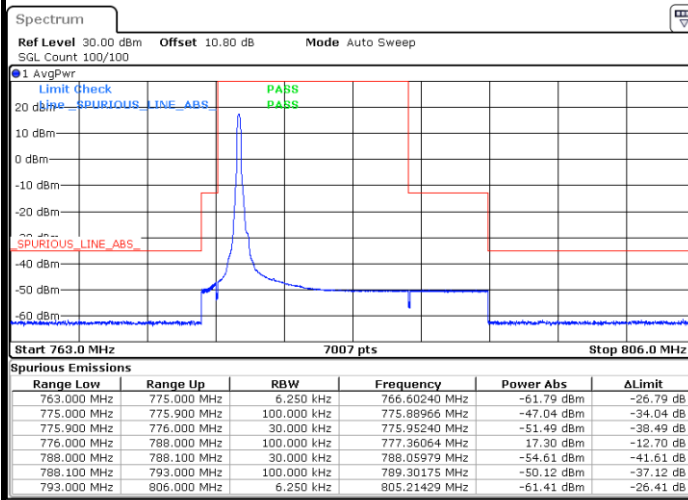
## Highest Band Edge / Full RB



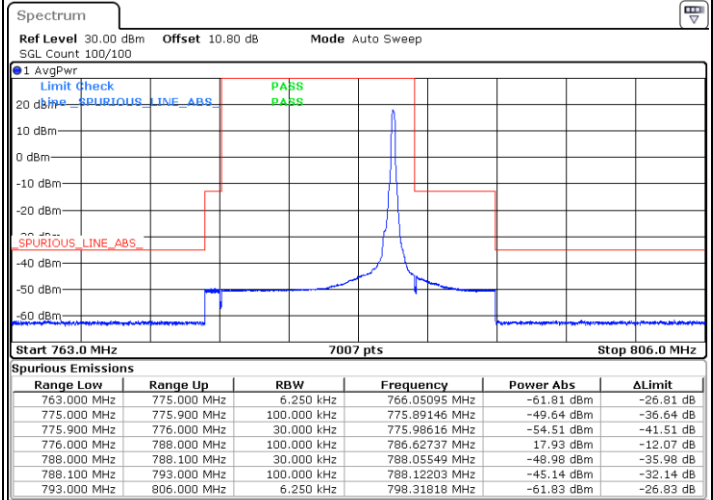


## LTE Band 13 / 5MHz / 64QAM

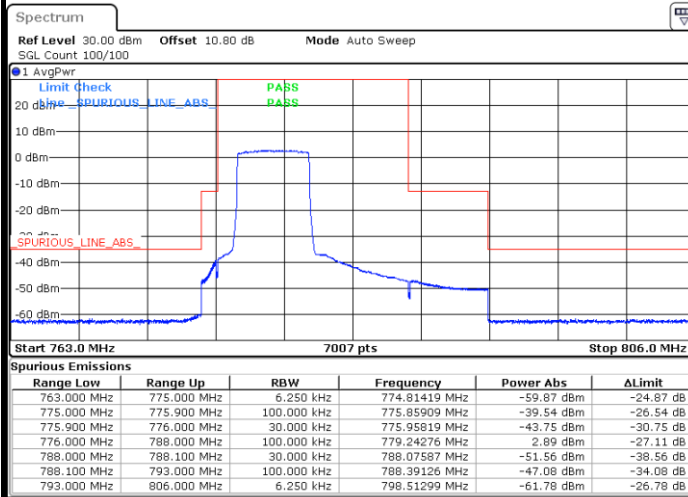
## Lowest Band Edge / 1 RB



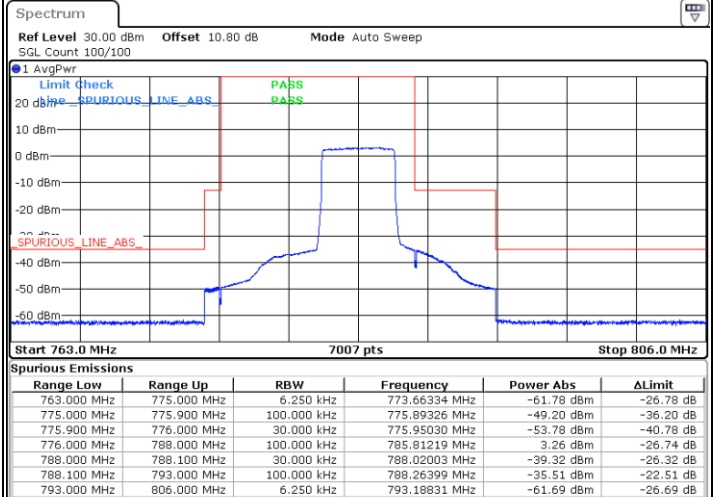
## Highest Band Edge / 1 RB



## Lowest Band Edge / Full RB



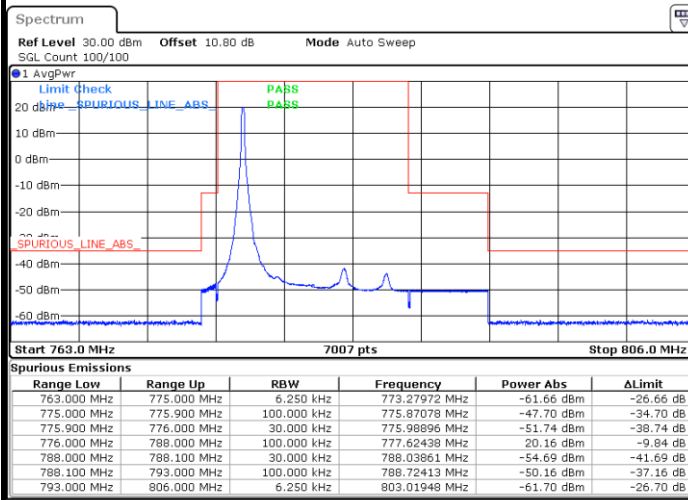
## Highest Band Edge / Full RB





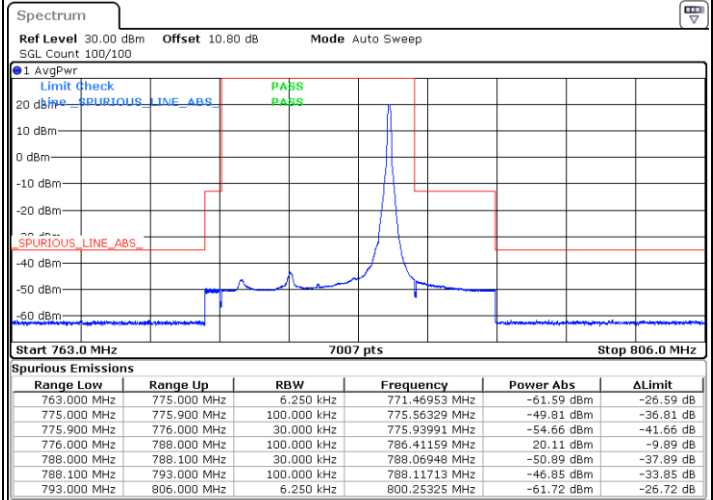
## LTE Band 13 / 10MHz / QPSK

## Lowest Band Edge / 1 RB



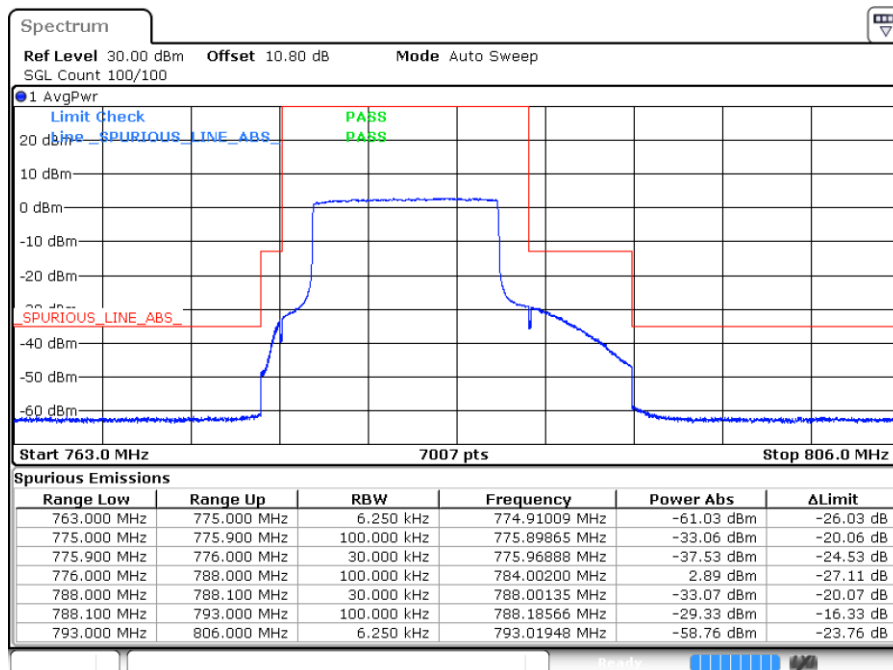
Date: 28 DEC 2019 16:18:16

## Highest Band Edge / 1 RB



Date: 28 DEC 2019 16:19:56

## Band Edge / Full RB

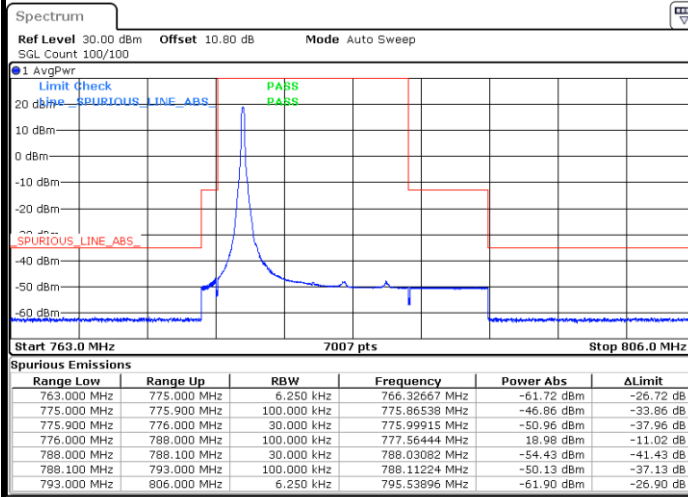


Date: 28 DEC 2019 16:13:15



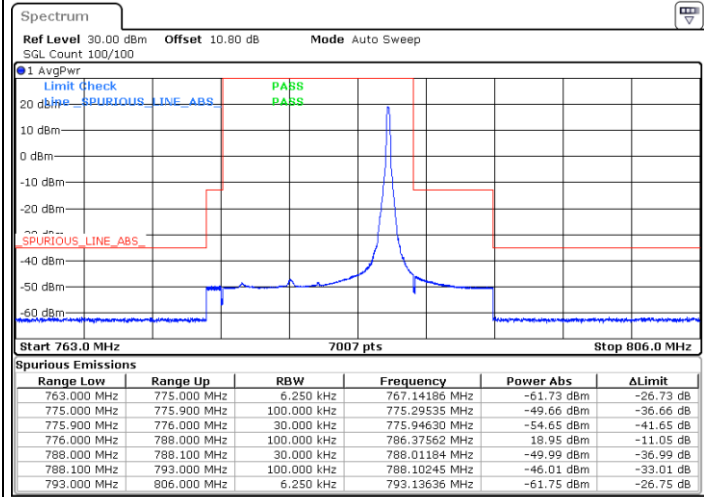
## LTE Band 13 / 10MHz / 16QAM

## Lowest Band Edge / 1 RB



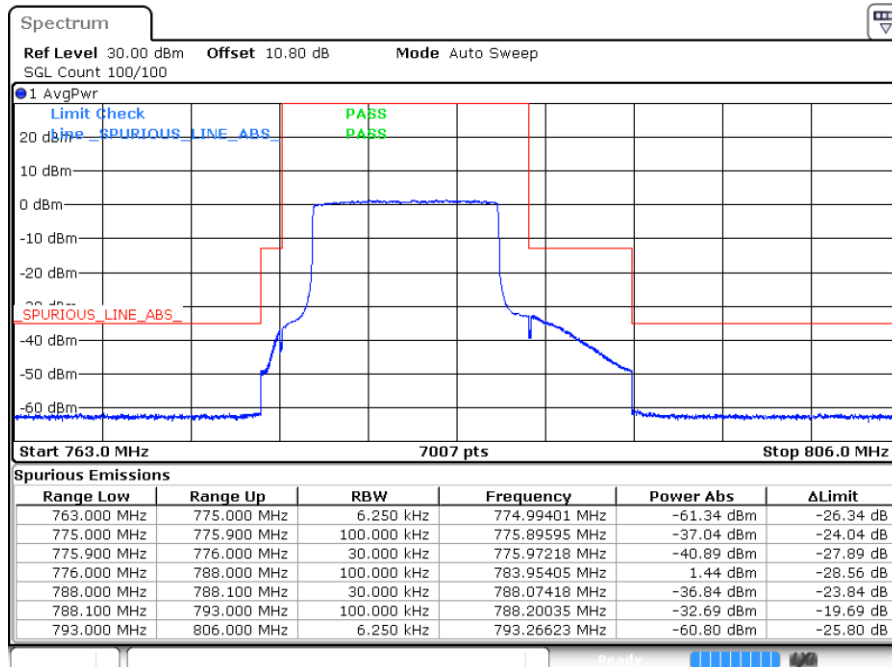
Date: 28 DEC 2019 16:16:35

## Highest Band Edge / 1 RB



Date: 28 DEC 2019 16:21:36

## Band Edge / Full RB

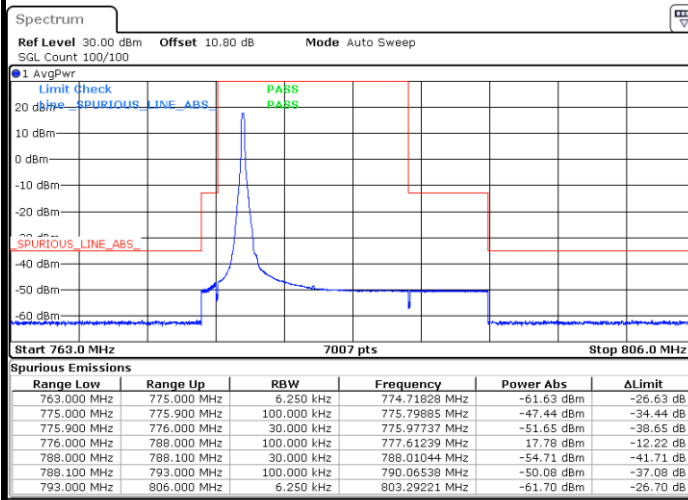


Date: 28 DEC 2019 16:14:55



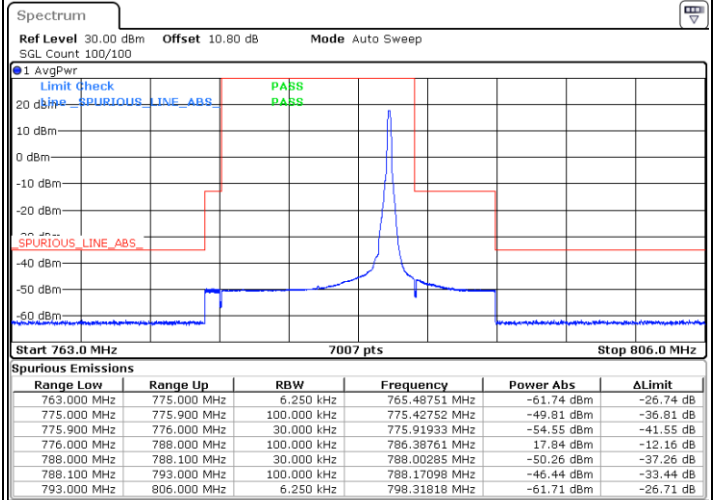
## LTE Band 13 / 10MHz / 64QAM

## Lowest Band Edge / 1 RB



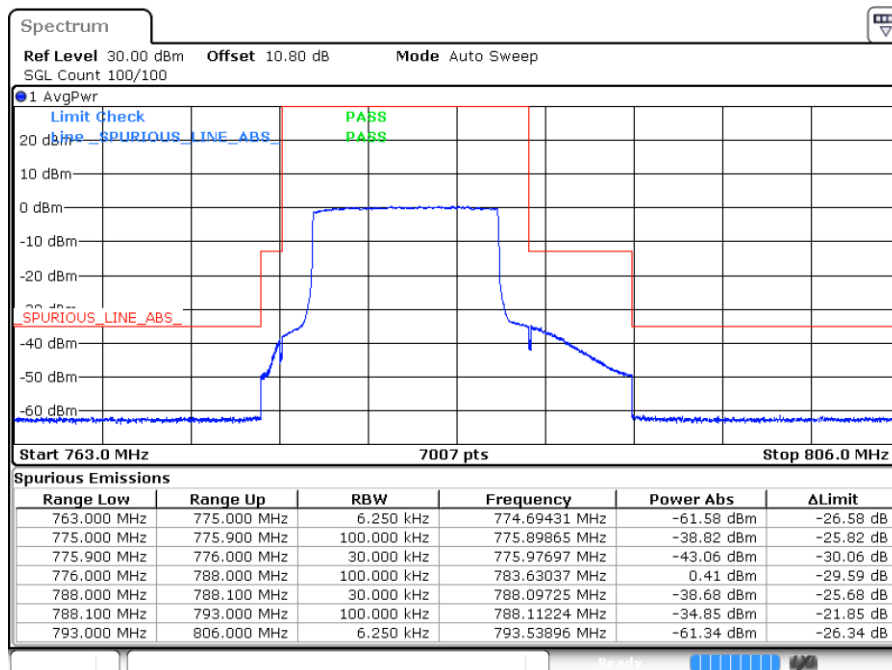
Date: 28 DEC 2019 16:28:39

## Highest Band Edge / 1 RB



Date: 28 DEC 2019 16:28:20

## Band Edge / Full RB



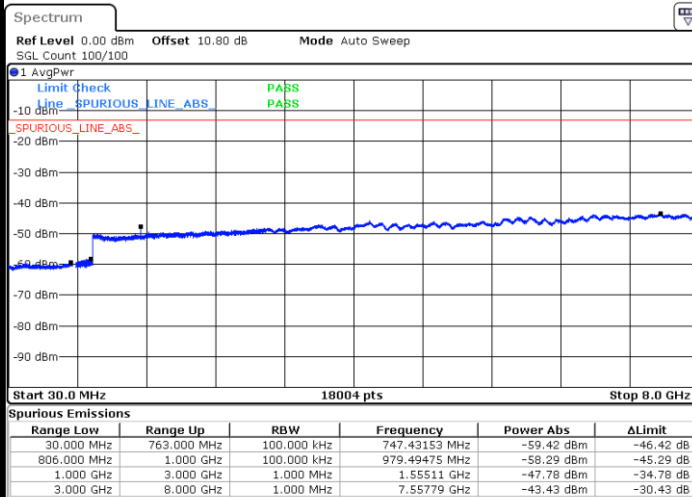
Date: 28 DEC 2019 16:24:59



# Conducted Spurious Emission

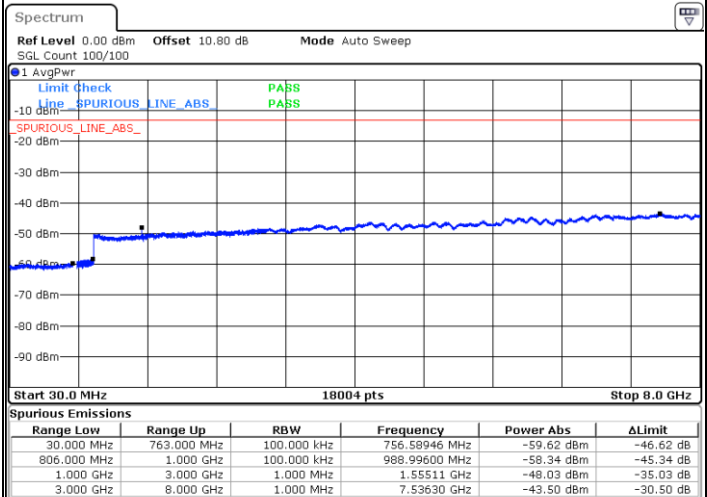
## LTE Band 13 / 5MHz

### Lowest Channel / QPSK



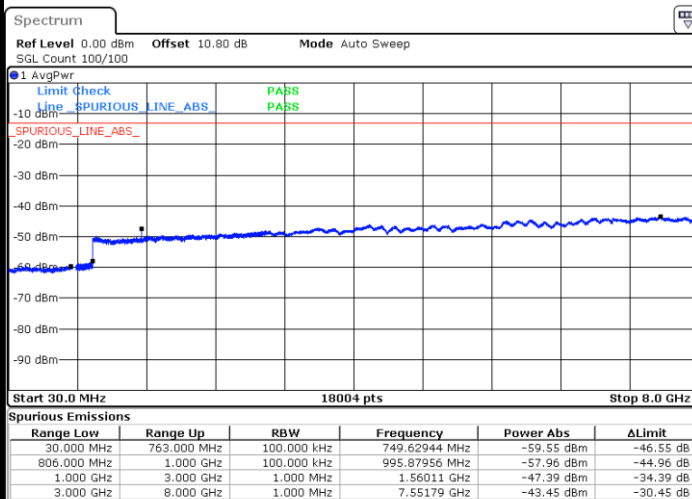
Date: 28 DEC 2019 15:49:15

### Lowest Channel / 16QAM



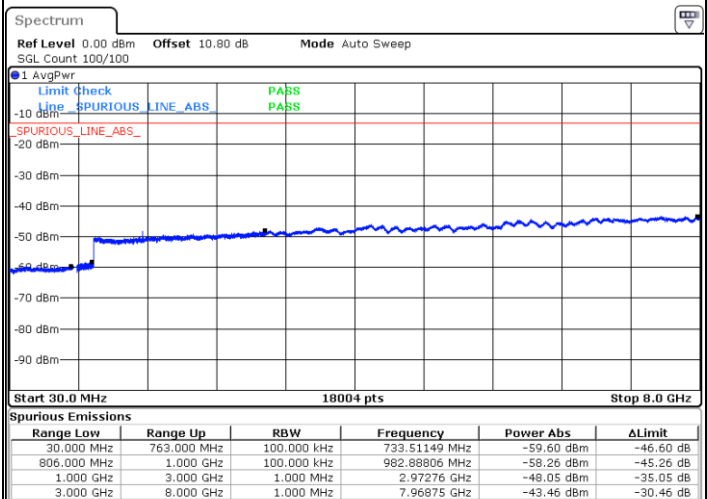
Date: 28 DEC 2019 15:49:55

### Middle Channel / QPSK



Date: 28 DEC 2019 15:51:15

### Middle Channel / 16QAM

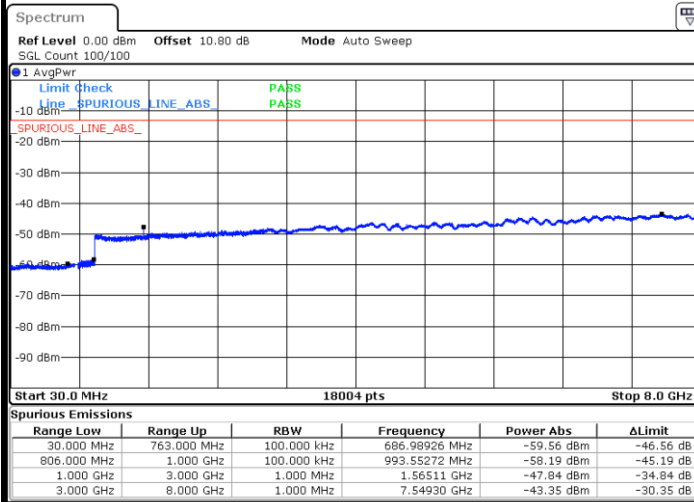


Date: 28 DEC 2019 15:50:35



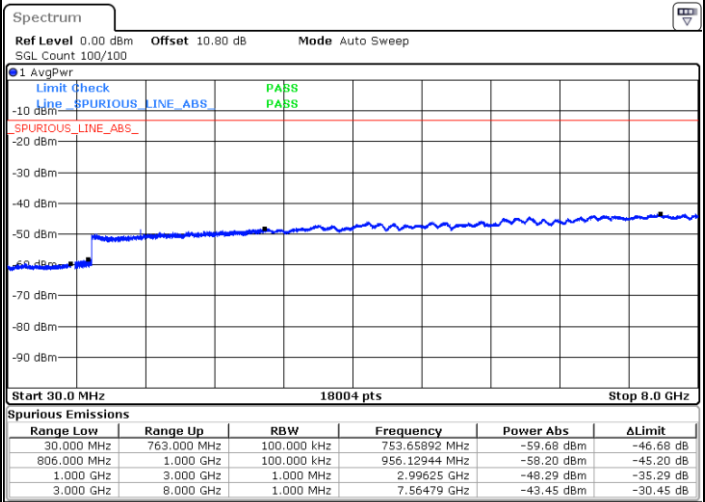
## LTE Band 13 / 5MHz

## Highest Channel / QPSK



Date: 28 DEC 2019 16:00:12

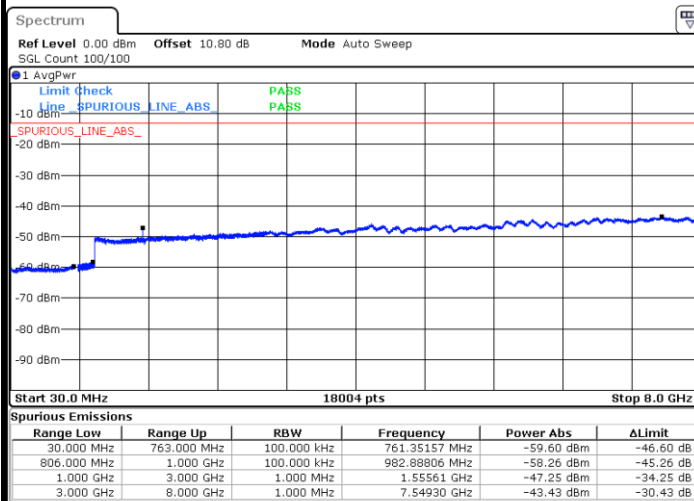
## Highest Channel / 16QAM



Date: 28 DEC 2019 16:00:53

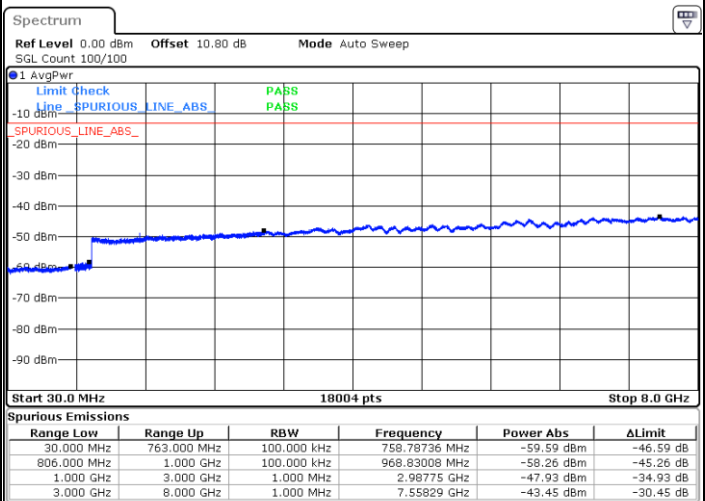
## LTE Band 13 / 10MHz

## Middle Channel / QPSK



Date: 28 DEC 2019 16:22:57

## Middle Channel / 16QAM

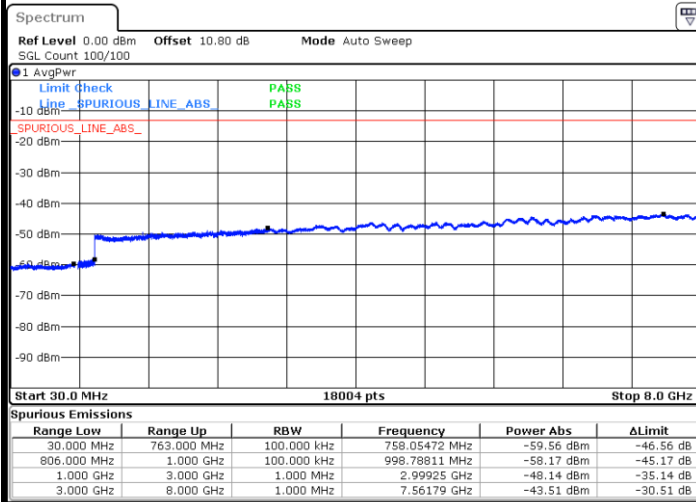


Date: 28 DEC 2019 16:22:17



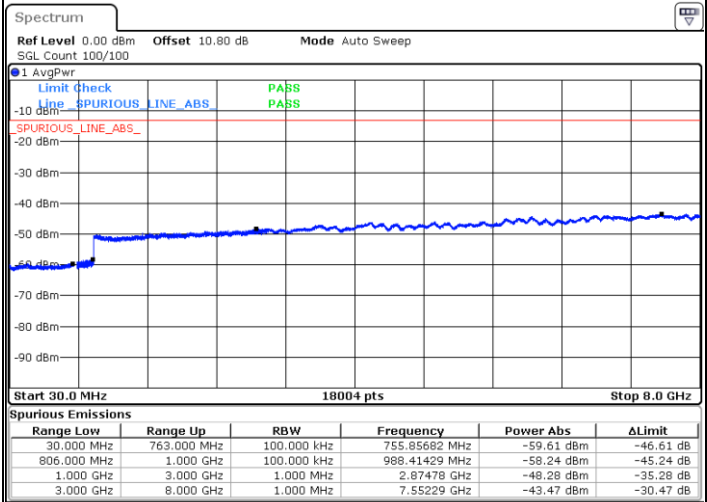
## LTE Band 13 / 5MHz

## Lowest Channel / 64QAM



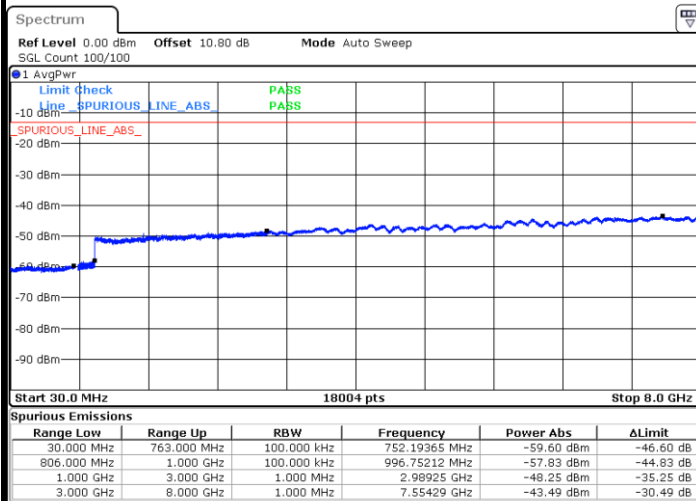
Date: 28 DEC 2019 16:05:19

## Middle Channel / 64QAM



Date: 28 DEC 2019 16:06:00

## Highest Channel / 64QAM

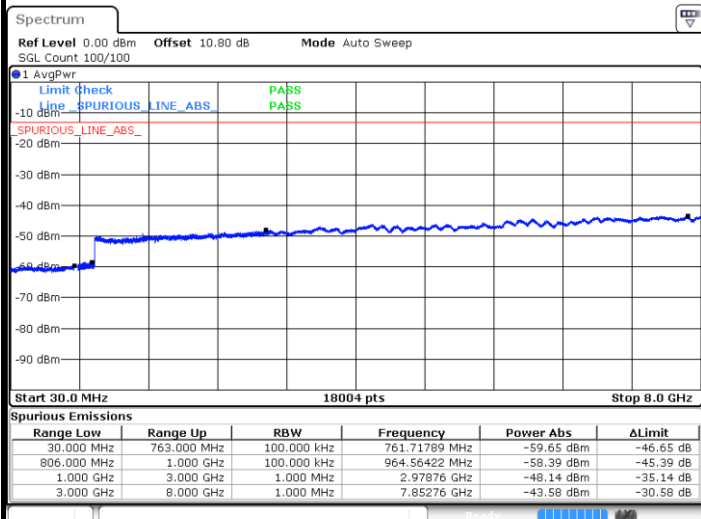


Date: 28 DEC 2019 16:10:48



LTE Band 13 / 10MHz

Middle Channel / 64QAM



Date: 28 DEC 2019 16:29:00

## Frequency Stability

| Test Conditions  |                   | LTE Band 13 (QPSK) / Middle Channel | Limit   |
|------------------|-------------------|-------------------------------------|---------|
| Temperature (°C) | Voltage (Volt)    | BW 10MHz                            | Note 2. |
|                  |                   | Deviation (ppm)                     | Result  |
| 50               | Normal Voltage    | 0.0018                              | PASS    |
| 40               | Normal Voltage    | 0.0036                              |         |
| 30               | Normal Voltage    | 0.0001                              |         |
| 20(Ref.)         | Normal Voltage    | 0.0000                              |         |
| 10               | Normal Voltage    | 0.0005                              |         |
| 0                | Normal Voltage    | 0.0020                              |         |
| -10              | Normal Voltage    | 0.0004                              |         |
| -20              | Normal Voltage    | 0.0008                              |         |
| -30              | Normal Voltage    | 0.0065                              |         |
| 20               | Maximum Voltage   | 0.0000                              |         |
| 20               | Normal Voltage    | 0.0000                              |         |
| 20               | Battery End Point | 0.0006                              |         |

**Note:**

1. Normal Voltage =3.85 V. ; Battery End Point (BEP) =3.65 V. ; Maximum Voltage =4.25 V.
2. The frequency fundamental emissions stay within the authorized frequency block.



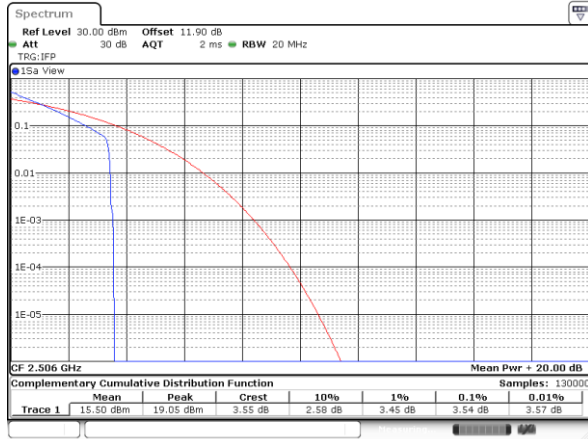
## LTE Band 41

**Peak-to-Average Ratio**

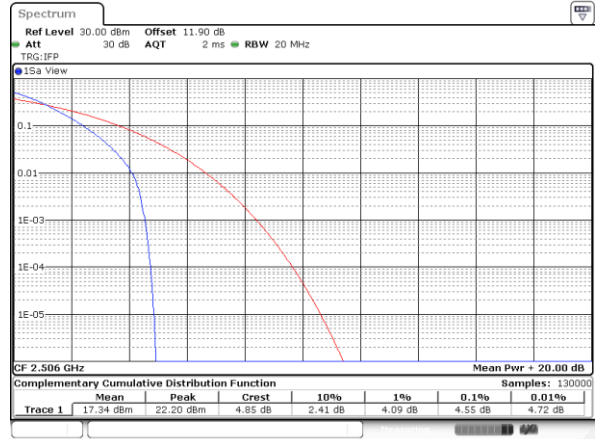
| Mode       | LTE Band 41 / 20MHz |         |       |         |             |
|------------|---------------------|---------|-------|---------|-------------|
| Mod.       | QPSK                |         | 16QAM |         | Limit: 13dB |
| RB Size    | 1RB                 | Full RB | 1RB   | Full RB | Result      |
| Lowest CH  | 3.54                | 4.55    | 4.20  | 5.77    | PASS        |
| Middle CH  | 4.03                | 4.78    | 6.14  | 6.06    |             |
| Highest CH | 4.06                | 5.07    | 5.62  | 6.00    |             |
| Mode       | LTE Band 41 / 20MHz |         |       |         |             |
| Mod.       | 64QAM               |         |       |         | Limit: 13dB |
| RB Size    | 1RB                 | Full RB |       |         | Result      |
| Lowest CH  | 5.97                | 6.35    | -     | -       | PASS        |
| Middle CH  | 7.04                | 6.55    | -     | -       |             |
| Highest CH | 7.25                | 6.43    | -     | -       |             |

### LTE Band 41 / 20MHz / QPSK

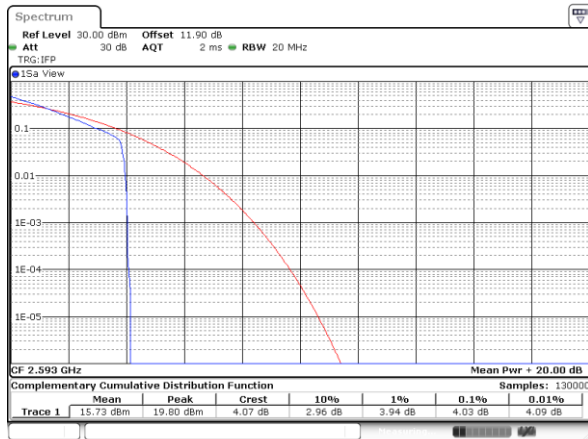
#### Lowest Channel / 1RB



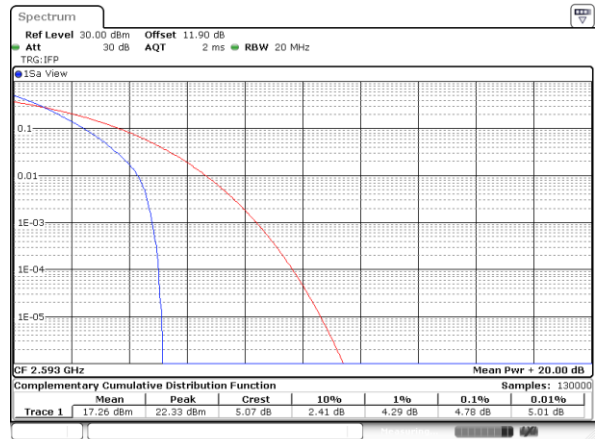
#### Lowest Channel / Full RB



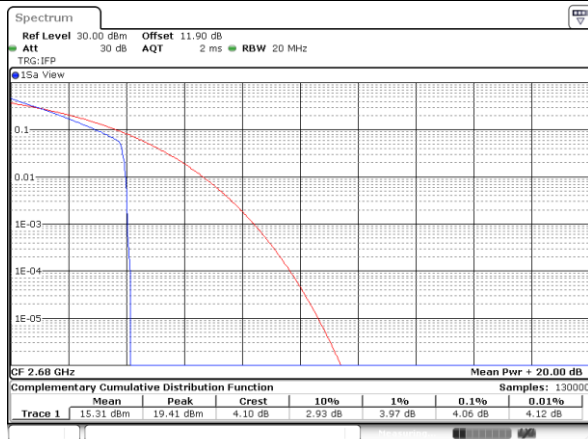
#### Middle Channel / 1RB



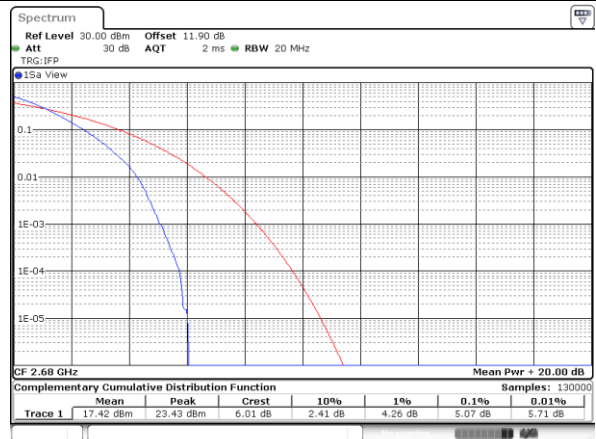
#### Middle Channel / Full RB



#### Highest Channel / 1RB

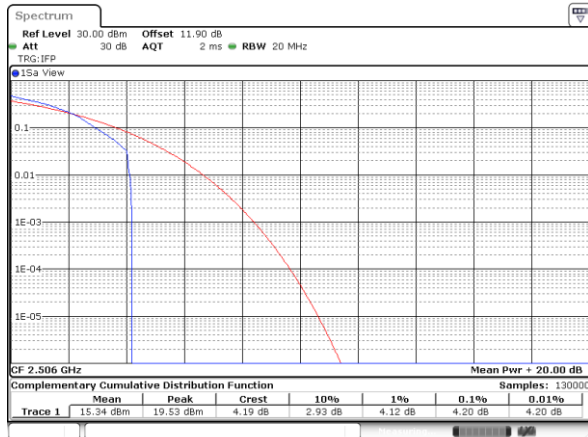


#### Highest Channel / Full RB



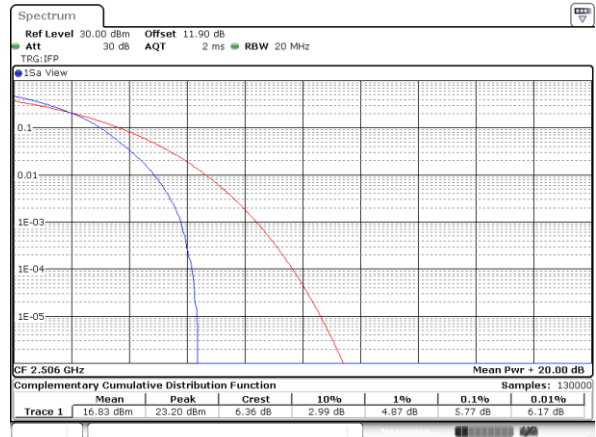
### LTE Band 41 / 20MHz / 16QAM

#### Lowest Channel / 1RB



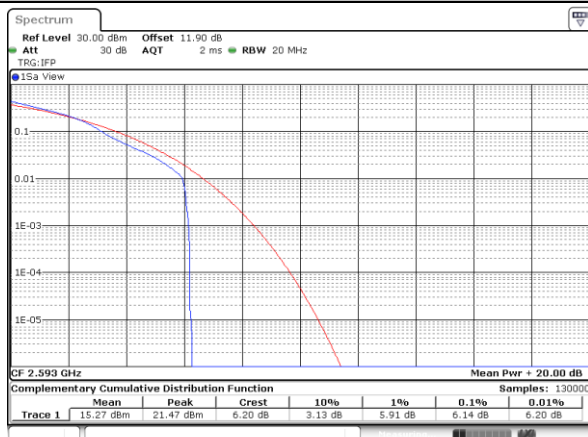
Date: 28 DEC 2019 10:11:08

#### Lowest Channel / Full RB



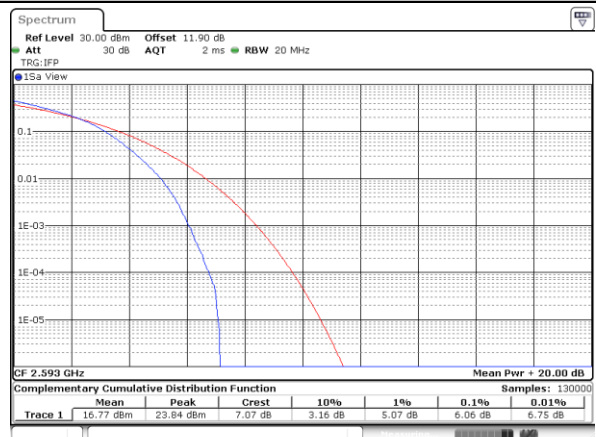
Date: 28 DEC 2019 10:11:27

#### Middle Channel / 1RB



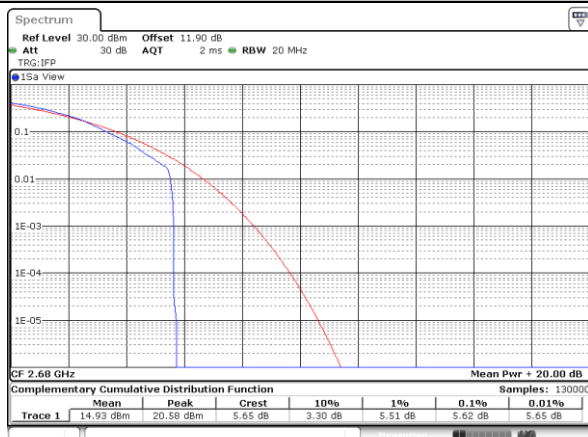
Date: 28 DEC 2019 10:11:45

#### Middle Channel / Full RB



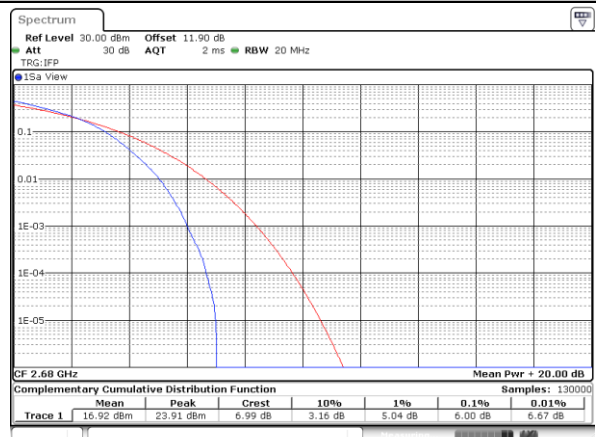
Date: 28 DEC 2019 10:12:08

#### Highest Channel / 1RB



Date: 28 DEC 2019 10:12:27

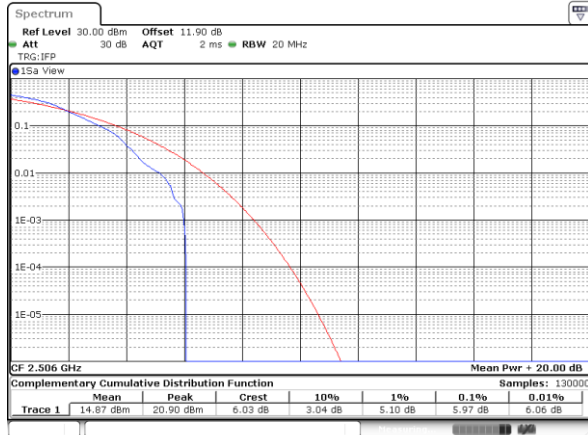
#### Highest Channel / Full RB



Date: 28 DEC 2019 10:12:46

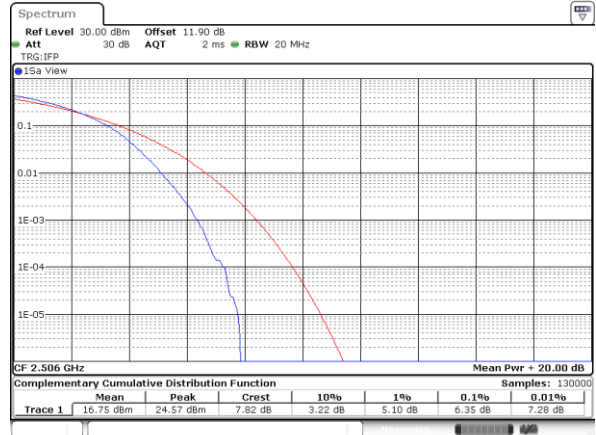
### LTE Band 41 / 20MHz / 64QAM

#### Lowest Channel / 1RB



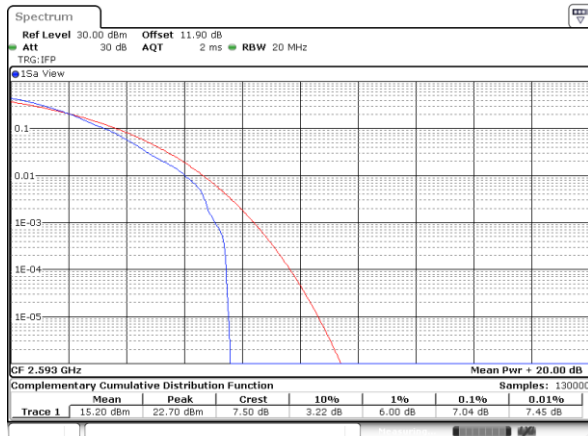
Date: 28 DEC 2019 10:05:47

#### Lowest Channel / Full RB



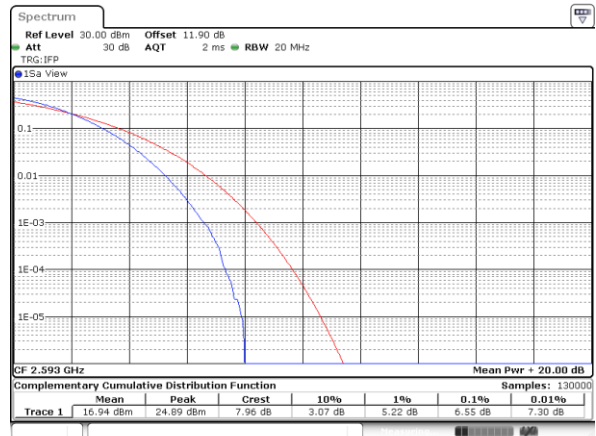
Date: 28 DEC 2019 10:06:07

#### Middle Channel / 1RB



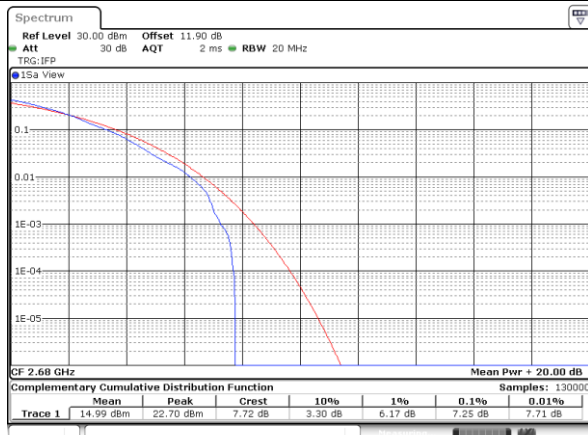
Date: 28 DEC 2019 10:06:26

#### Middle Channel / Full RB



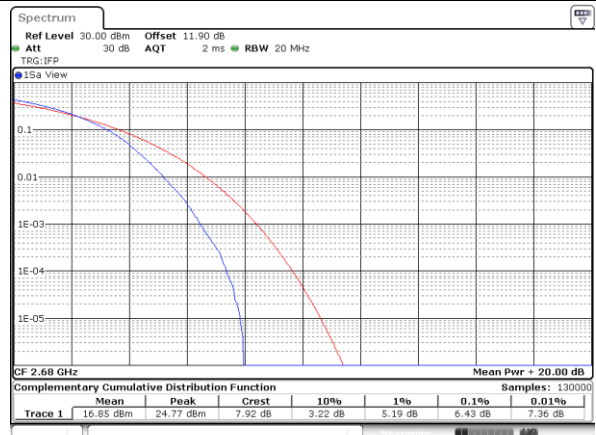
Date: 28 DEC 2019 10:10:09

#### Highest Channel / 1RB



Date: 28 DEC 2019 10:10:30

#### Highest Channel / Full RB



Date: 28 DEC 2019 10:10:48

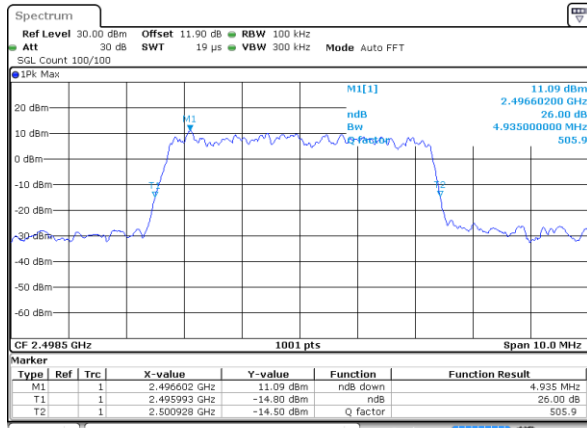
**26dB Bandwidth**

| Mode       | LTE Band 41 : 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  | -                          | -     | -     | -     | 4.94  | 4.81  | 9.65  | 9.63  | 14.30 | 14.33 | 18.86 | 19.02 |
| Middle CH  | -                          | -     | -     | -     | 4.95  | 4.94  | 9.71  | 9.67  | 14.27 | 14.42 | 18.74 | 18.62 |
| Highest CH | -                          | -     | -     | -     | 4.92  | 4.89  | 9.73  | 9.61  | 14.45 | 14.54 | 18.94 | 18.78 |
| Mode       | LTE Band 41 : 26dB BW(MHz) |       |       |       |       |       |       |       |       |       |       |       |
| BW         | 1.4MHz                     |       | 3MHz  |       | 5MHz  |       | 10MHz |       | 15MHz |       | 20MHz |       |
| Mod.       | 64QAM                      |       | 64QAM |       | 64QAM |       | 64QAM |       | 64QAM |       | 64QAM |       |
| Lowest CH  | -                          | -     | -     | -     | 4.82  | -     | 9.83  | -     | 14.21 | -     | 18.70 | -     |
| Middle CH  | -                          | -     | -     | -     | 4.91  | -     | 9.71  | -     | 14.15 | -     | 18.70 | -     |
| Highest CH | -                          | -     | -     | -     | 4.89  | -     | 9.73  | -     | 14.15 | -     | 18.78 | -     |



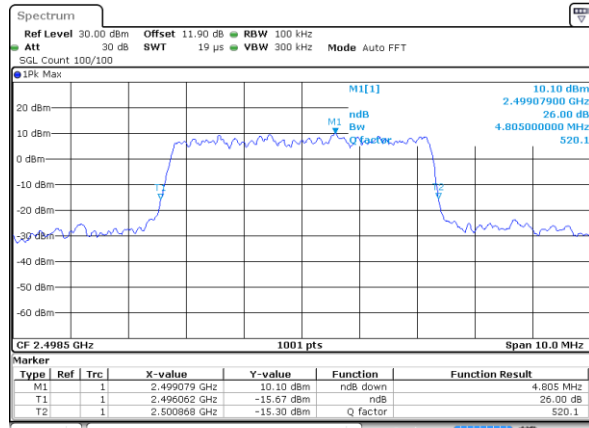
## LTE Band 41

## Lowest Channel / 5MHz / QPSK



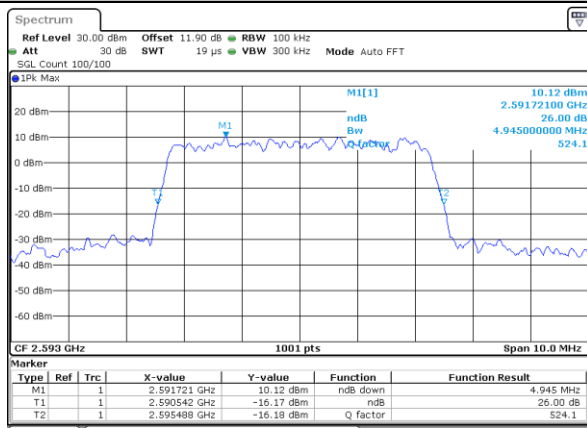
Date: 28 DEC 2019 09:51:43

## Lowest Channel / 5MHz / 16QAM



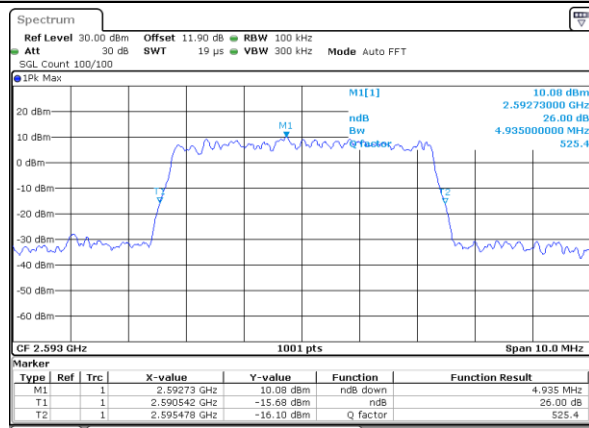
Date: 28 DEC 2019 09:51:55

## Middle Channel / 5MHz / QPSK



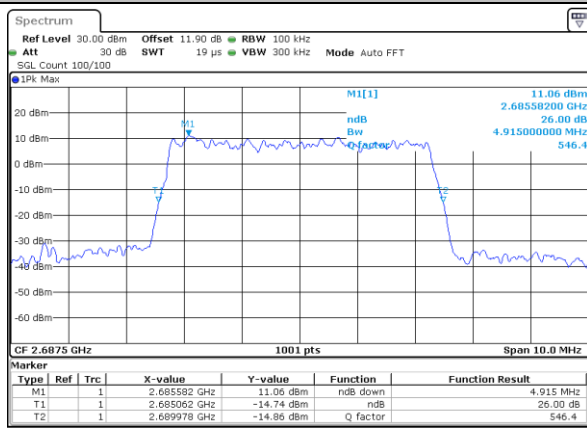
Date: 28 DEC 2019 09:52:30

## Middle Channel / 5MHz / 16QAM



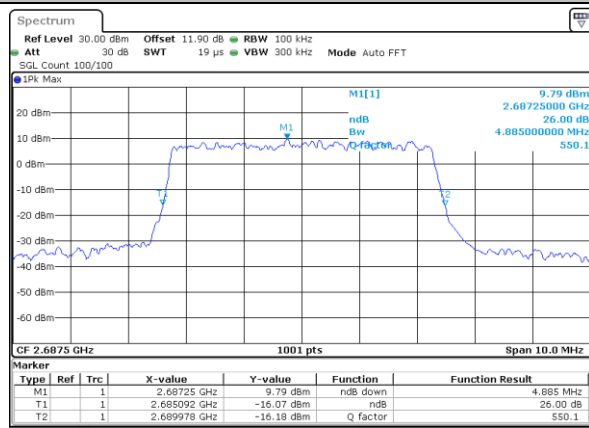
Date: 28 DEC 2019 09:52:41

## Highest Channel / 5MHz / QPSK



Date: 28 DEC 2019 09:53:17

## Highest Channel / 5MHz / 16QAM

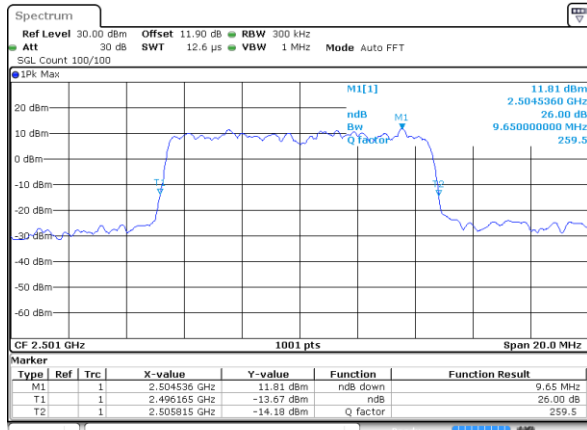


Date: 28 DEC 2019 09:53:29



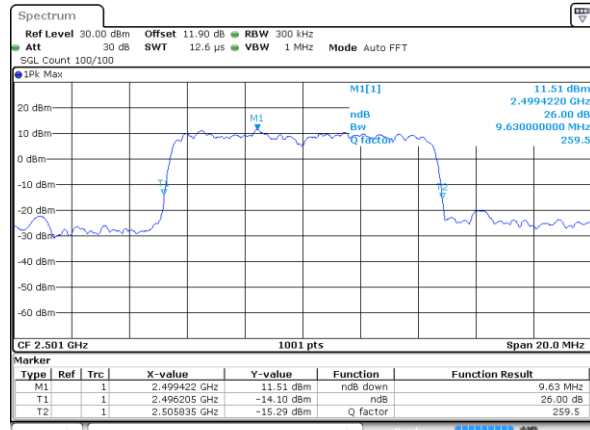
## LTE Band 41

## Lowest Channel / 10MHz / QPSK



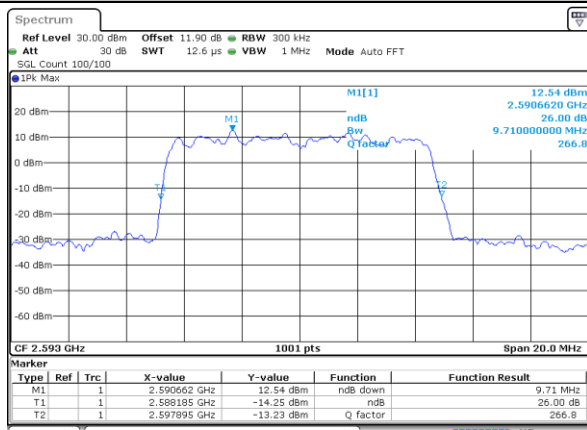
Date: 28 DEC 2019 09:54:06

## Lowest Channel / 10MHz / 16QAM



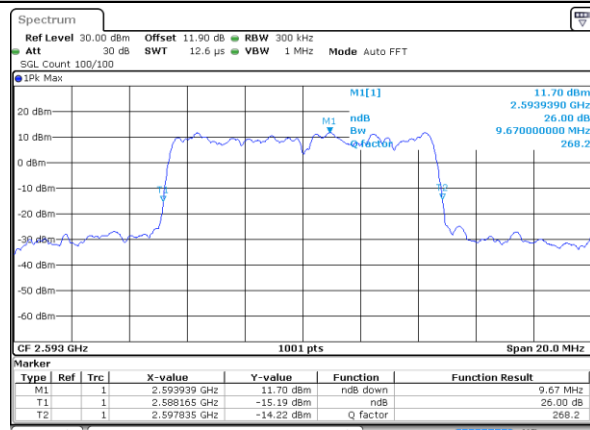
Date: 28 DEC 2019 09:54:18

## Middle Channel / 10MHz / QPSK



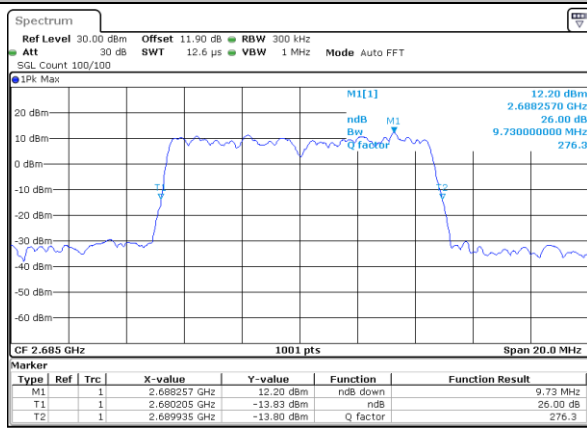
Date: 28 DEC 2019 09:54:52

## Middle Channel / 10MHz / 16QAM



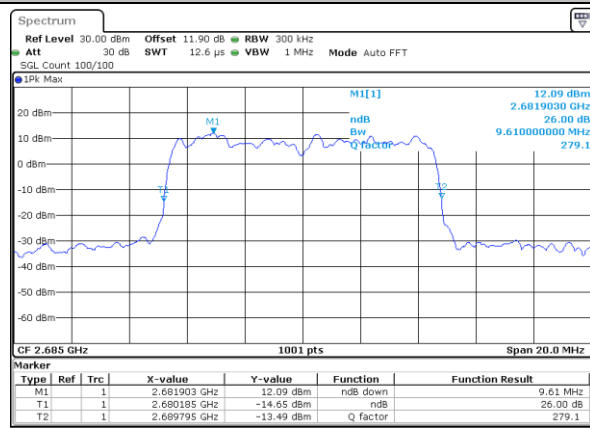
Date: 28 DEC 2019 09:55:04

## Highest Channel / 10MHz / QPSK



Date: 28 DEC 2019 09:55:40

## Highest Channel / 10MHz / 16QAM

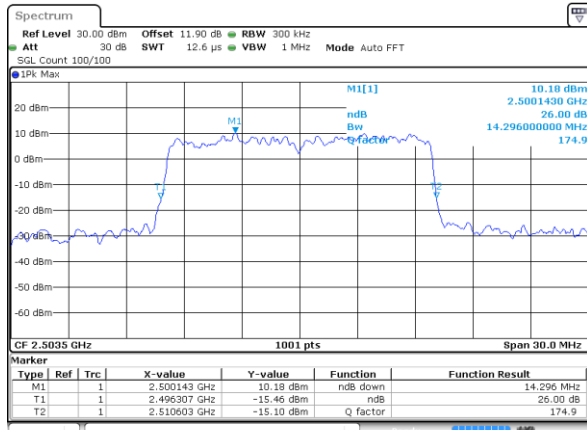


Date: 28 DEC 2019 09:55:52



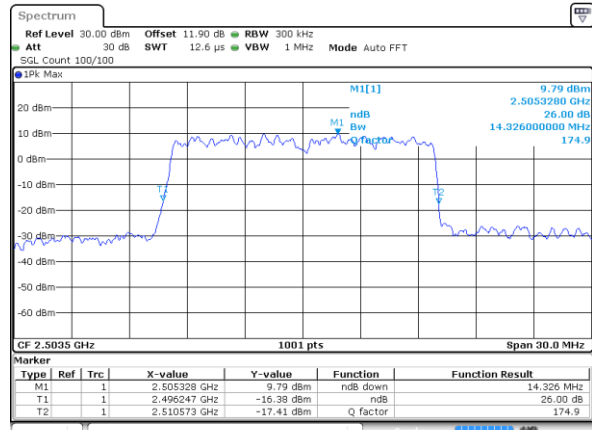
## LTE Band 41

## Lowest Channel / 15MHz / QPSK



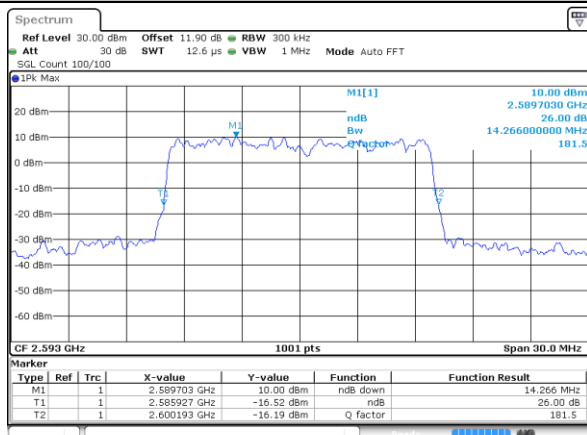
Date: 28 DEC 2019 09:56:29

## Lowest Channel / 15MHz / 16QAM



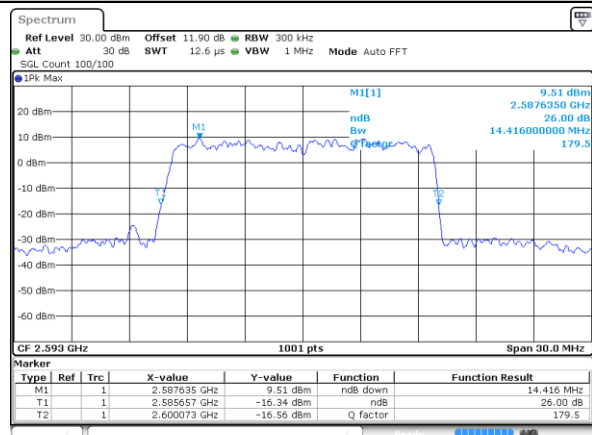
Date: 28 DEC 2019 09:56:41

## Middle Channel / 15MHz / QPSK



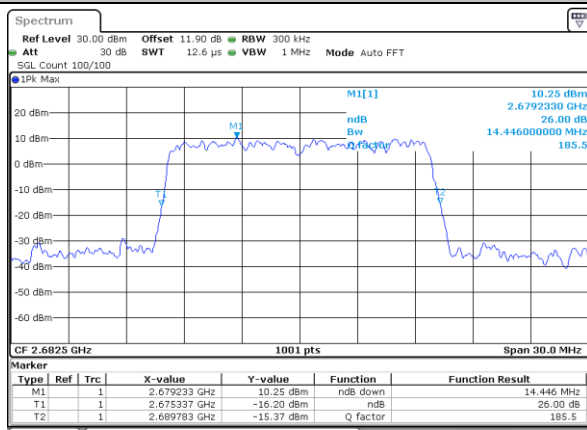
Date: 28 DEC 2019 09:57:15

## Middle Channel / 15MHz / 16QAM



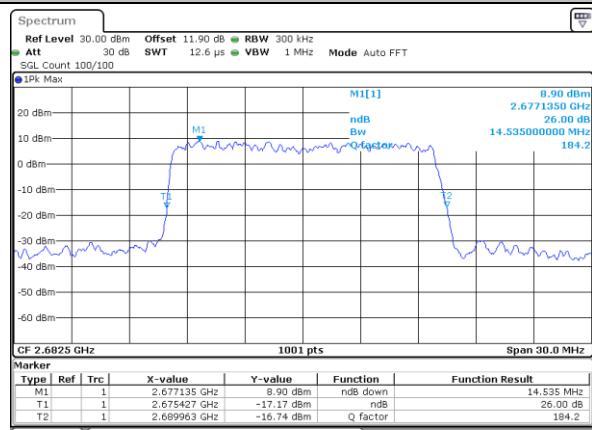
Date: 28 DEC 2019 09:57:27

## Highest Channel / 15MHz / QPSK



Date: 28 DEC 2019 09:58:03

## Highest Channel / 15MHz / 16QAM

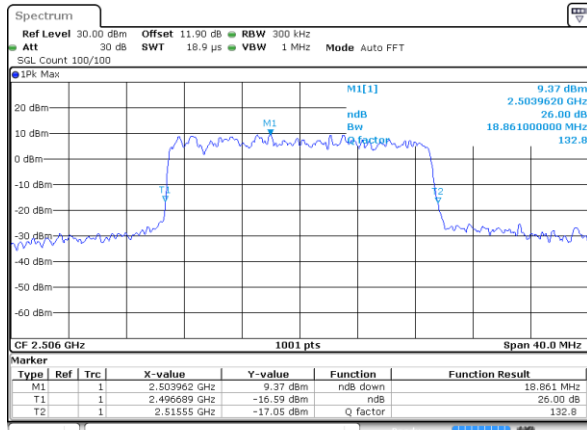


Date: 28 DEC 2019 09:58:15



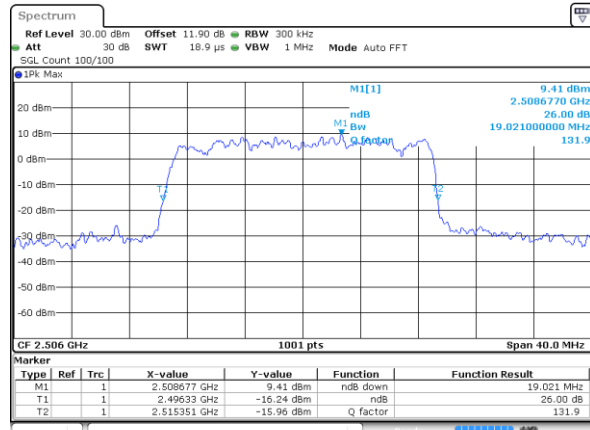
## LTE Band 41

## Lowest Channel / 20MHz / QPSK



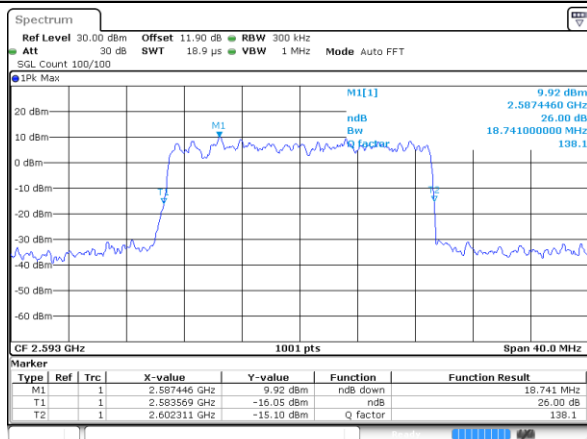
Date: 28 DEC 2019 09:58:51

## Lowest Channel / 20MHz / 16QAM



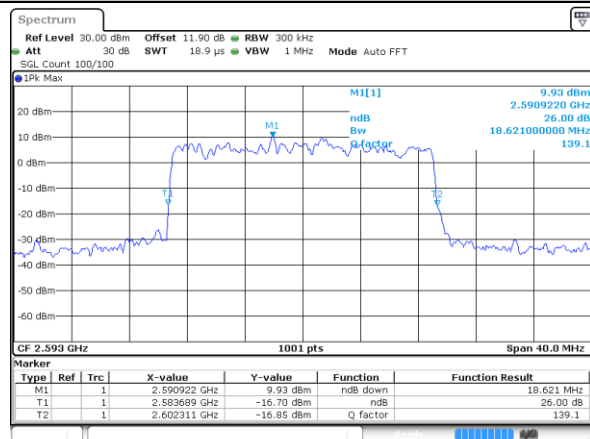
Date: 28 DEC 2019 09:59:03

## Middle Channel / 20MHz / QPSK



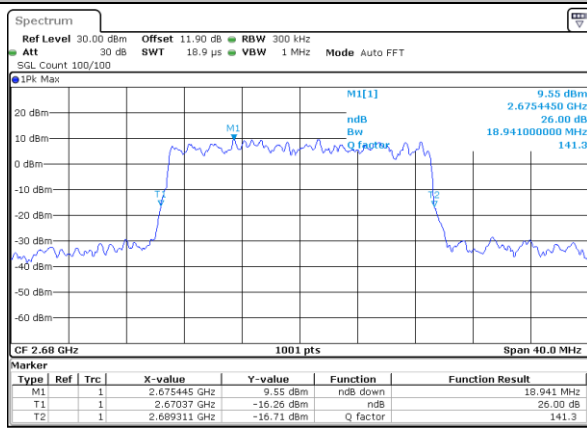
Date: 28 DEC 2019 09:59:38

## Middle Channel / 20MHz / 16QAM



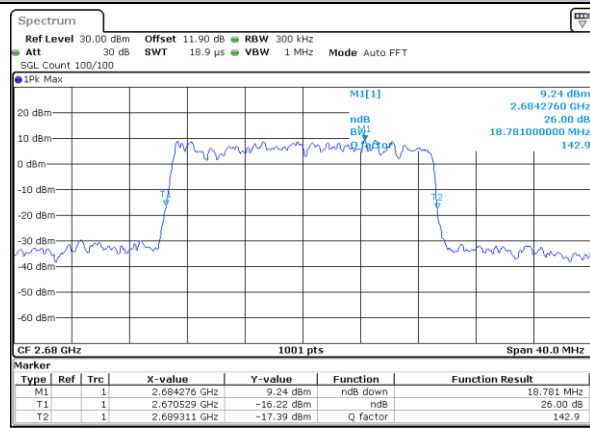
Date: 28 DEC 2019 09:59:50

## Highest Channel / 20MHz / QPSK



Date: 28 DEC 2019 10:00:26

## Highest Channel / 20MHz / 16QAM



Date: 28 DEC 2019 10:00:38