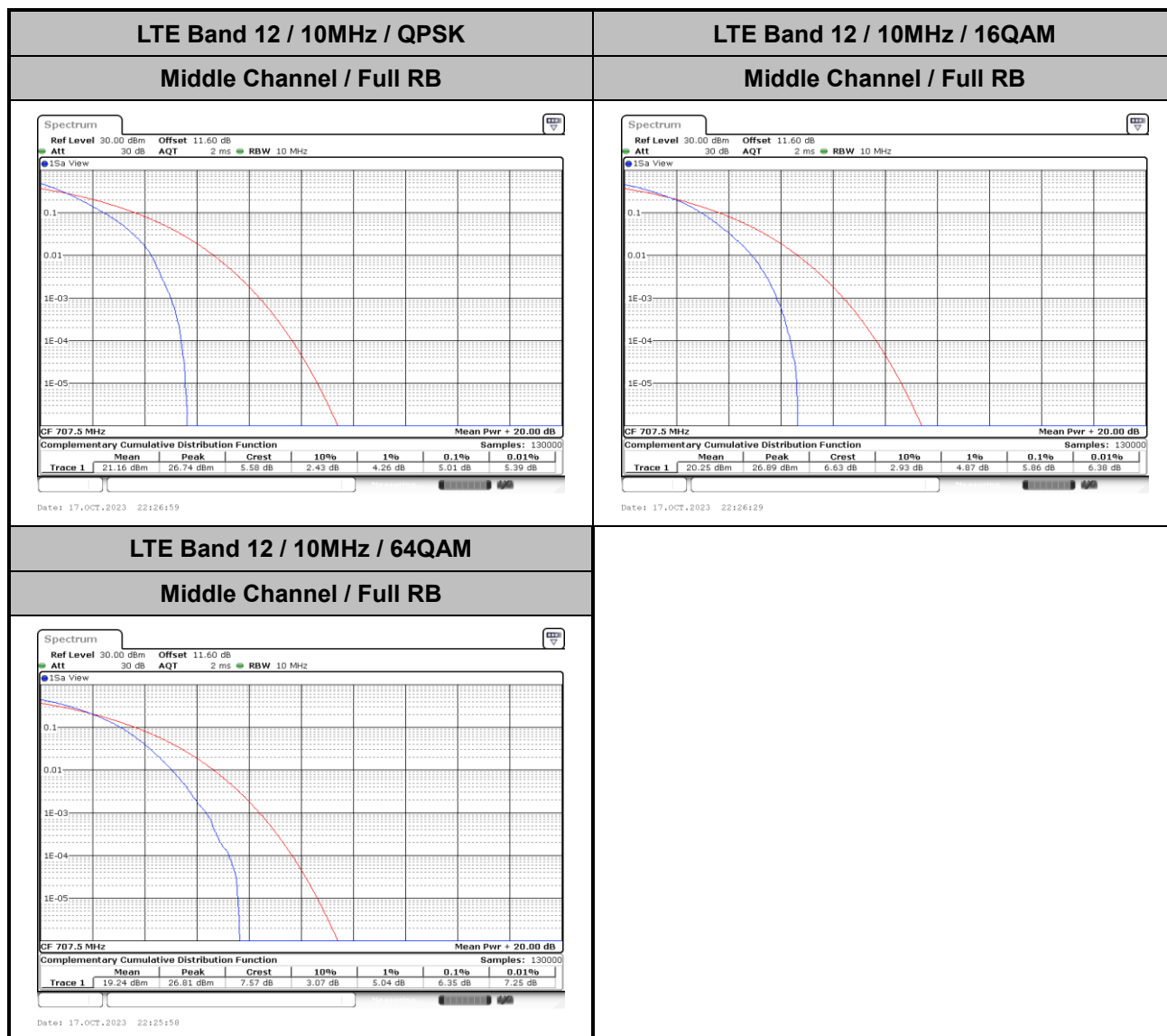




## LTE Band 12

## Peak-to-Average Ratio

| Mode      | LTE Band 12 / 10MHz |         |         |         |             |
|-----------|---------------------|---------|---------|---------|-------------|
| Mod.      | QPSK                | 16QAM   | 64QAM   | 256QAM  | Limit: 13dB |
| RB Size   | Full RB             | Full RB | Full RB | Full RB | Result      |
| Middle CH | 5.01                | 5.86    | 6.35    | -       | PASS        |



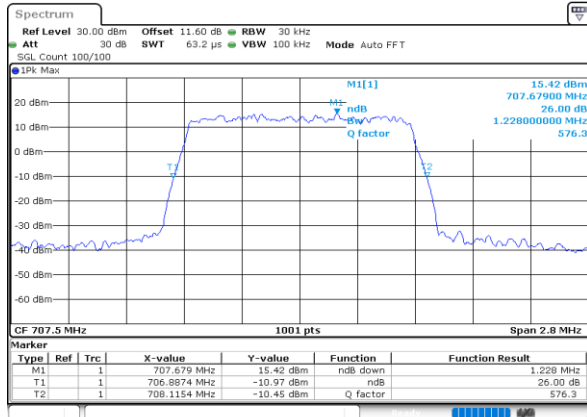
**26dB Bandwidth**

| 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  |
| Middle CH | 1.23                       | 1.22   | 3.03  | 3.03   | 4.87  | 4.86   | 9.81  | 9.69   | -     | -      | -     | -      |
| Mode      | LTE Band 12 : 26dB BW(MHz) |        |       |        |       |        |       |        |       |        |       |        |
| BW        | 1.4MHz                     |        | 3MHz  |        | 5MHz  |        | 10MHz |        | 15MHz |        | 20MHz |        |
| Mod.      | 64QAM                      | 256QAM | 64QAM | 256QAM | 64QAM | 256QAM | 64QAM | 256QAM | 64QAM | 256QAM | 64QAM | 256QAM |
| Middle CH | 1.23                       | -      | 3.03  | -      | 4.91  | -      | 9.81  | -      | -     | -      | -     | -      |

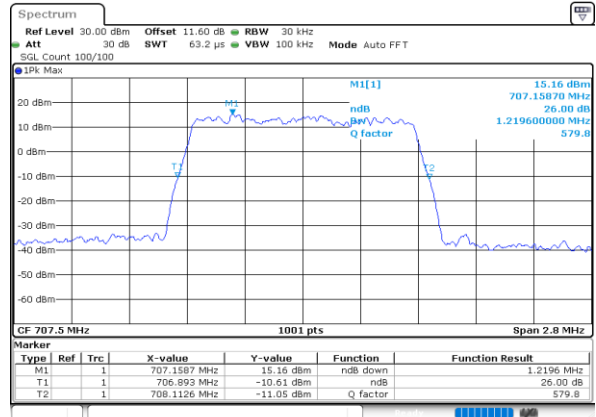


## LTE Band 12

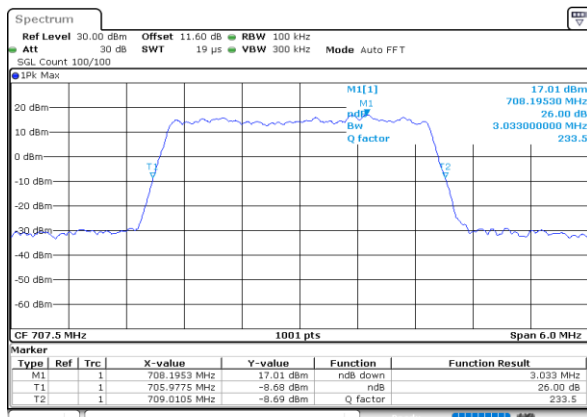
## Middle Channel / 1.4MHz / QPSK



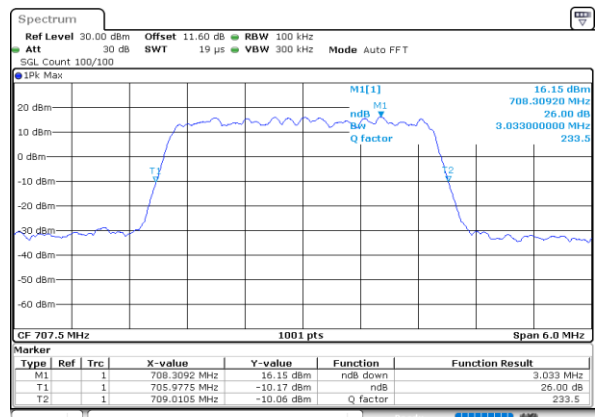
## Middle Channel / 1.4MHz / 16QAM



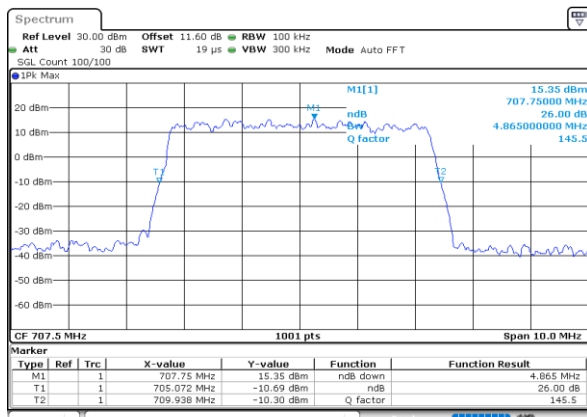
## Middle Channel / 3MHz / QPSK



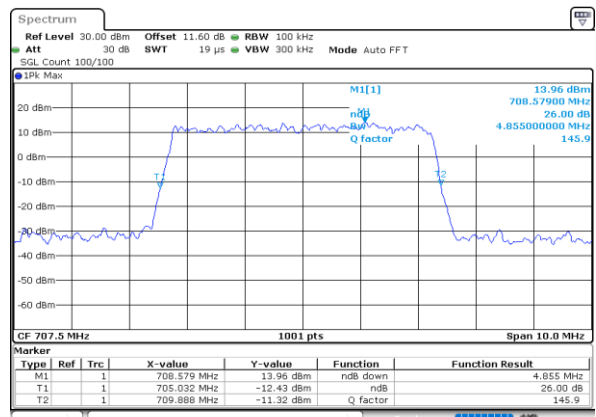
## Middle Channel / 3MHz / 16QAM



## Middle Channel / 5MHz / QPSK



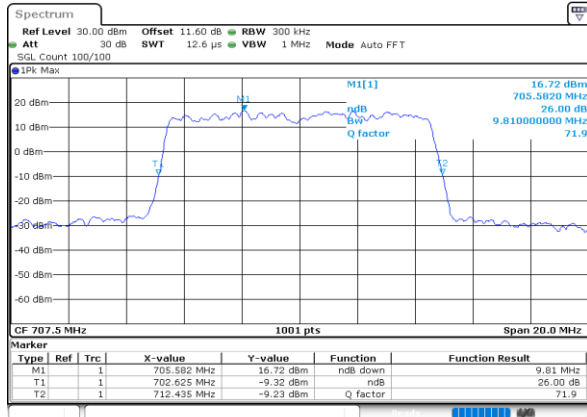
## Middle Channel / 5MHz / 16QAM



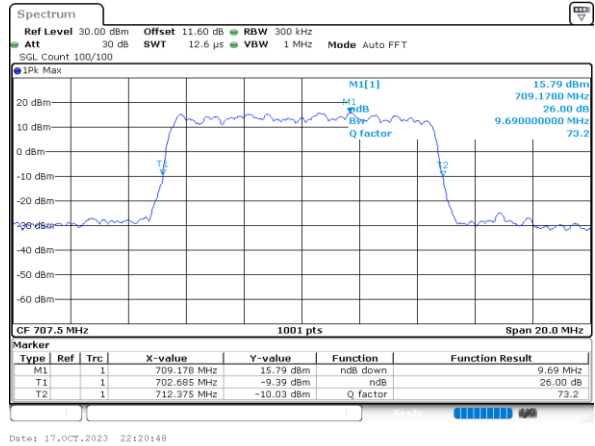


## LTE Band 12

## Middle Channel / 10MHz / QPSK

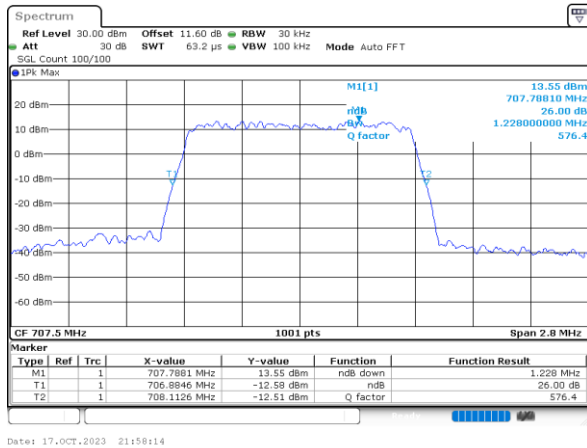


## Middle Channel / 10MHz / 16QAM

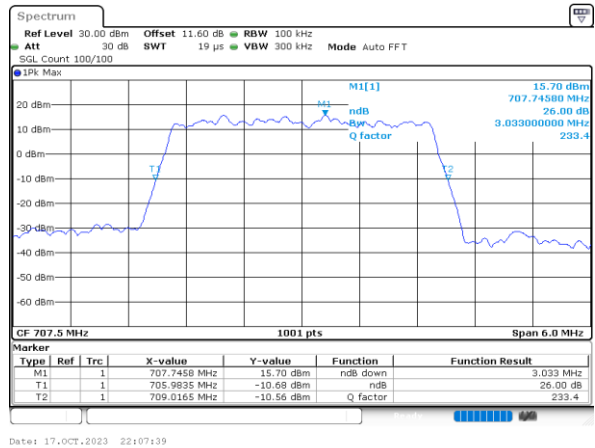


## LTE Band 12

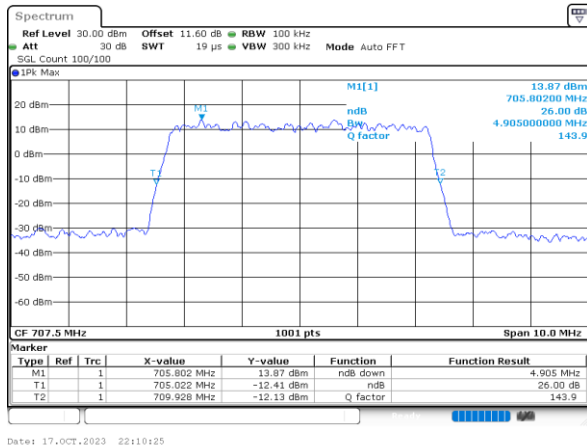
## Middle Channel / 1.4MHz / 64QAM



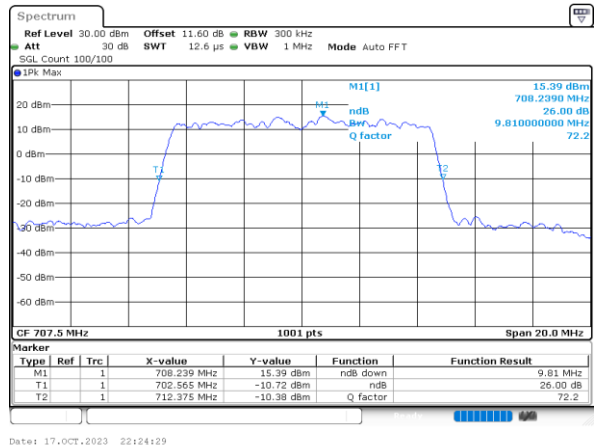
## Middle Channel / 3MHz / 64QAM



## Middle Channel / 5MHz / 64QAM



## Middle Channel / 10MHz / 64QAM



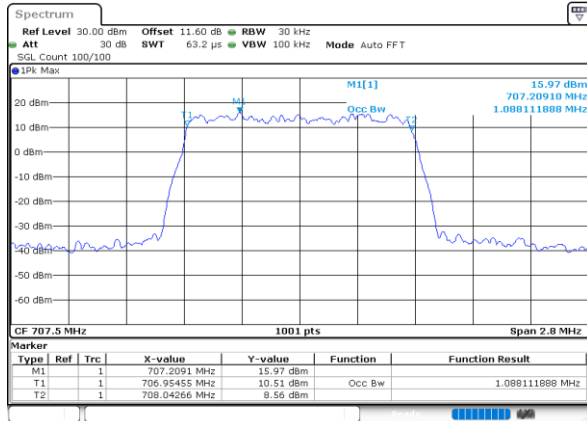
**Occupied Bandwidth**

| 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  |
| Middle CH | 1.09                      | 1.09   | 2.71  | 2.73   | 4.48  | 4.50   | 9.09  | 8.97   | -     | -      | -     | -      |
| Mode      | LTE Band 12 : 99%OBW(MHz) |        |       |        |       |        |       |        |       |        |       |        |
| BW        | 1.4MHz                    |        | 3MHz  |        | 5MHz  |        | 10MHz |        | 15MHz |        | 20MHz |        |
| Mod.      | 64QAM                     | 256QAM | 64QAM | 256QAM | 64QAM | 256QAM | 64QAM | 256QAM | 64QAM | 256QAM | 64QAM | 256QAM |
| Middle CH | 1.09                      | -      | 2.72  | -      | 4.49  | -      | 8.97  | -      | -     | -      | -     | -      |

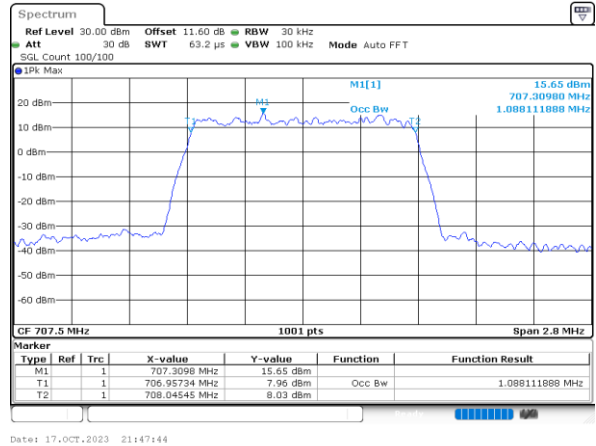


## LTE Band 12

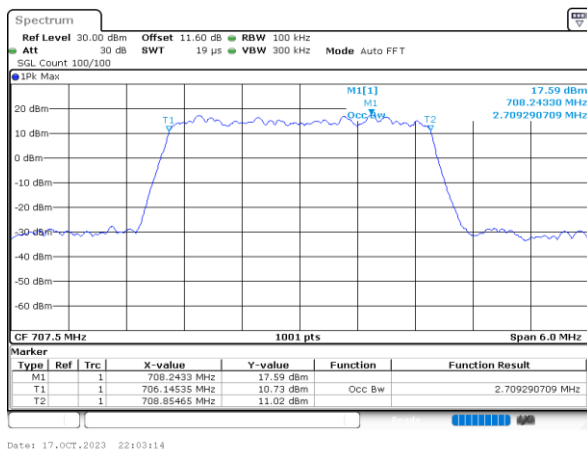
## Middle Channel / 1.4MHz / QPSK



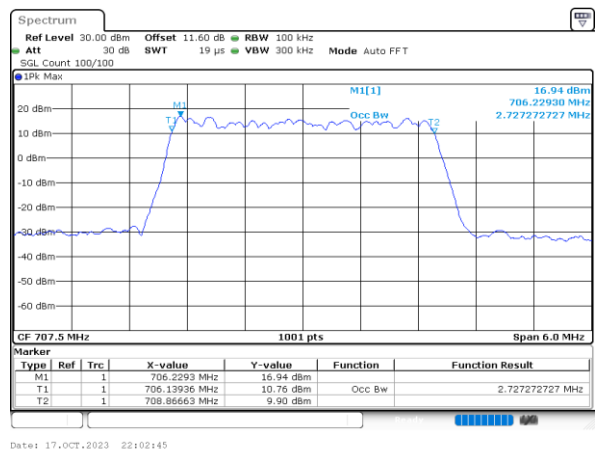
## Middle Channel / 1.4MHz / 16QAM



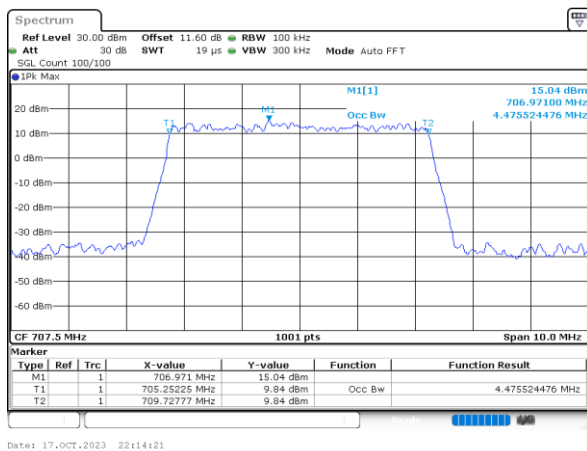
## Middle Channel / 3MHz / QPSK



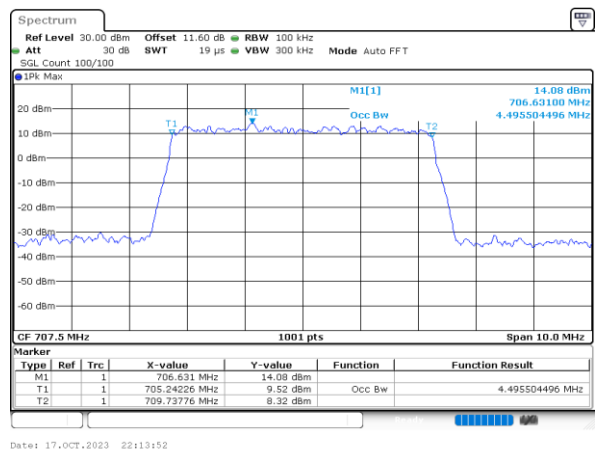
## Middle Channel / 3MHz / 16QAM



## Middle Channel / 5MHz / QPSK



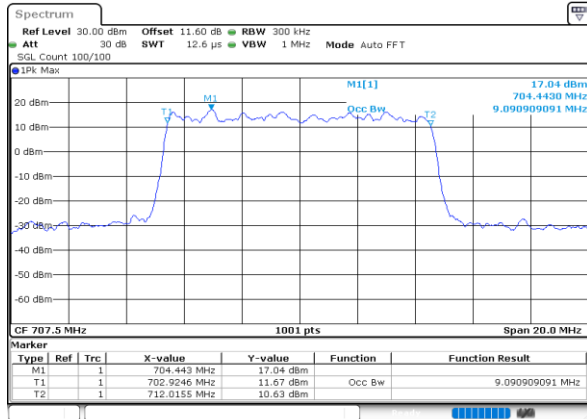
## Middle Channel / 5MHz / 16QAM



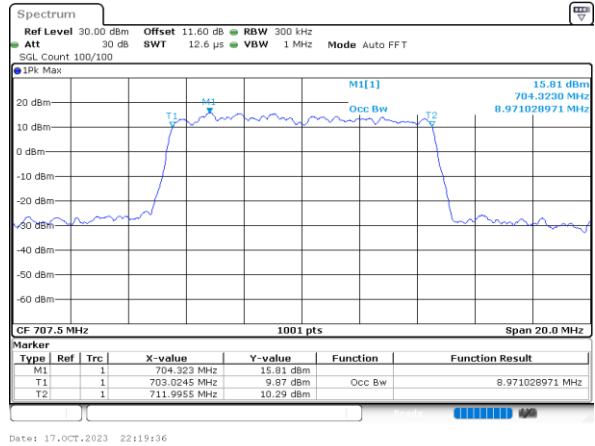


## LTE Band 12

## Middle Channel / 10MHz / QPSK

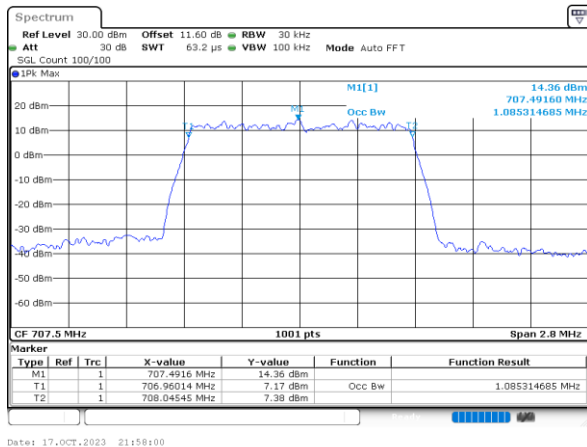


## Middle Channel / 10MHz / 16QAM

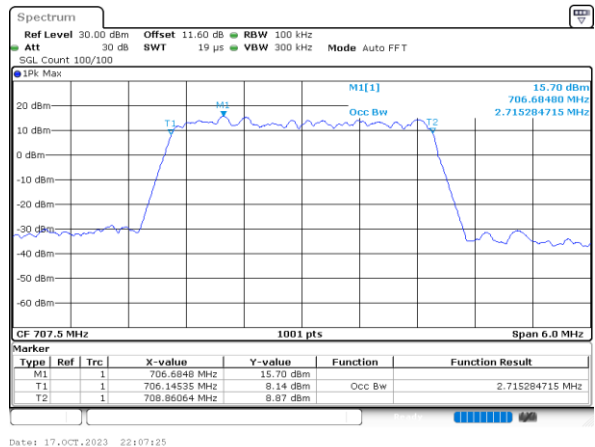


## LTE Band 12

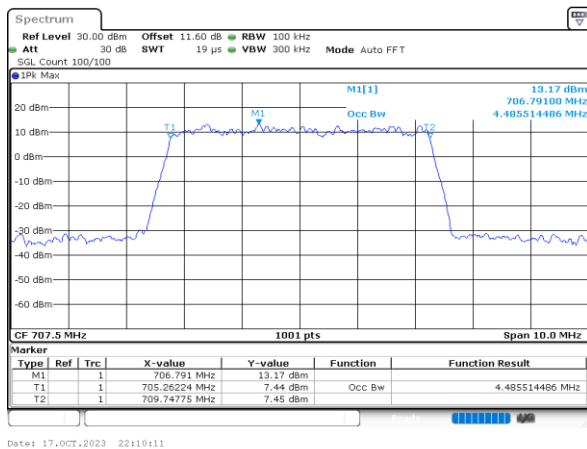
## Middle Channel / 1.4MHz / 64QAM



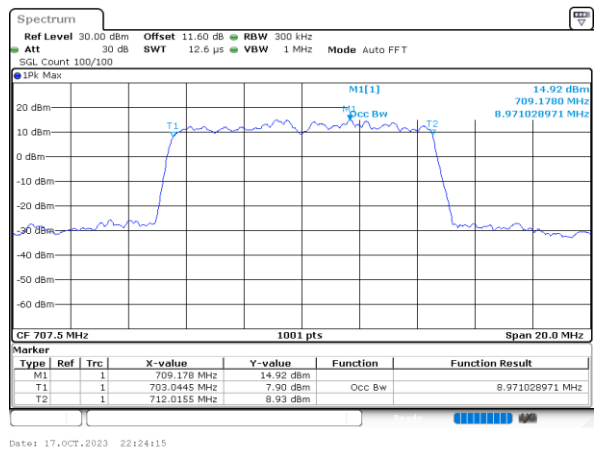
## Middle Channel / 3MHz / 64QAM

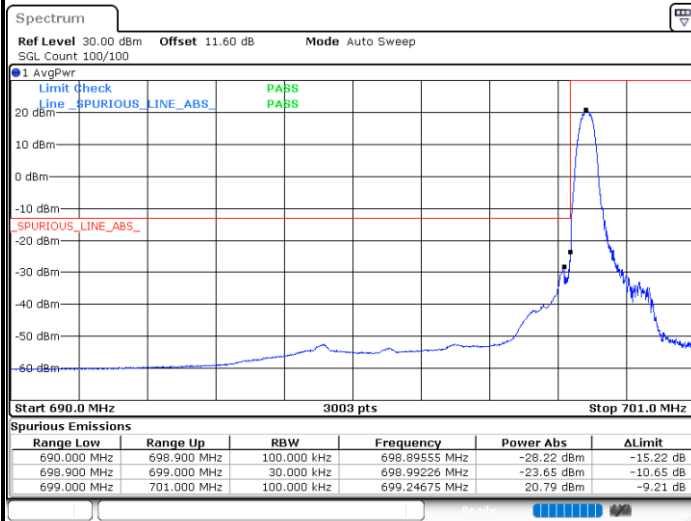
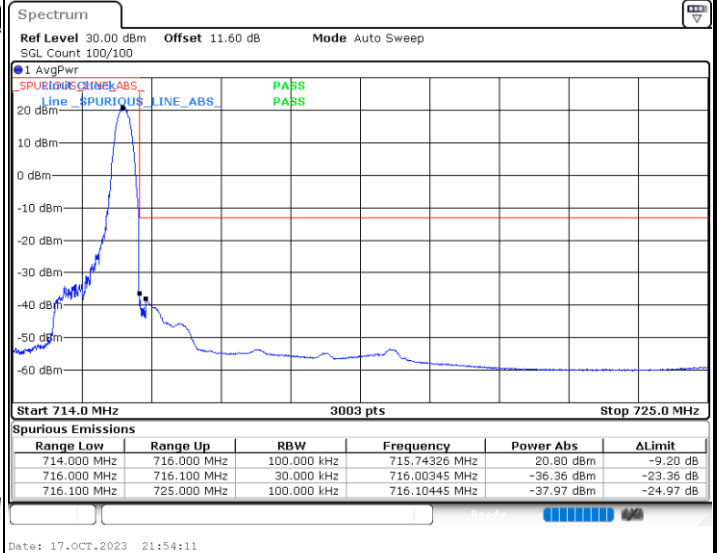
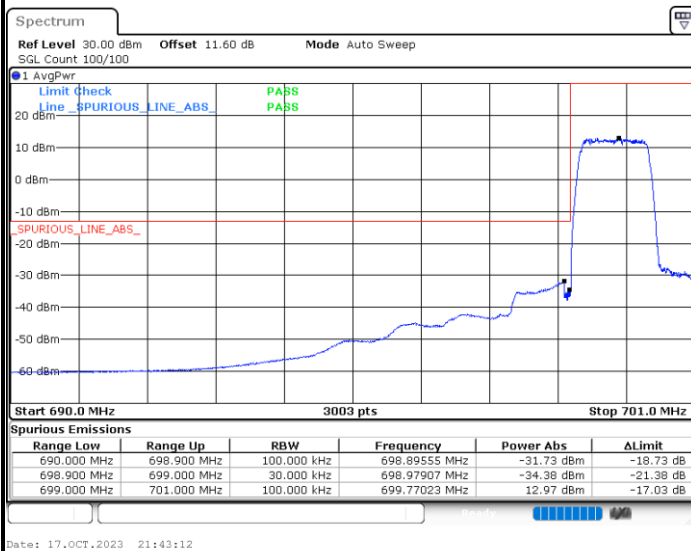
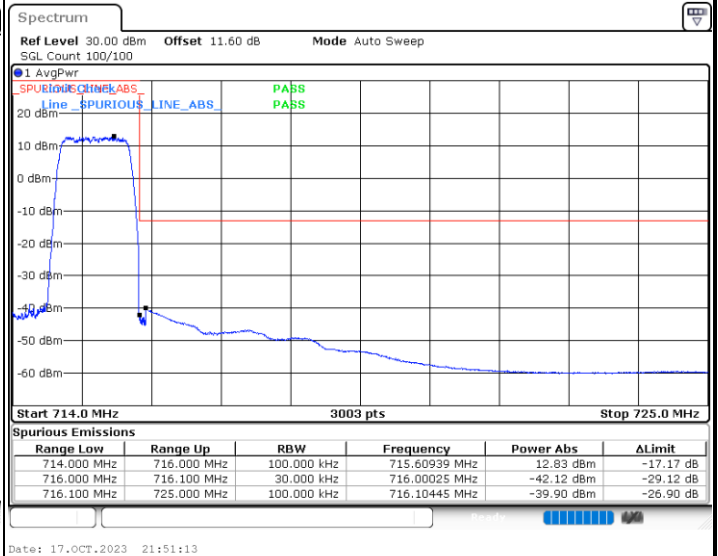


## Middle Channel / 5MHz / 64QAM



## Middle Channel / 10MHz / 64QAM

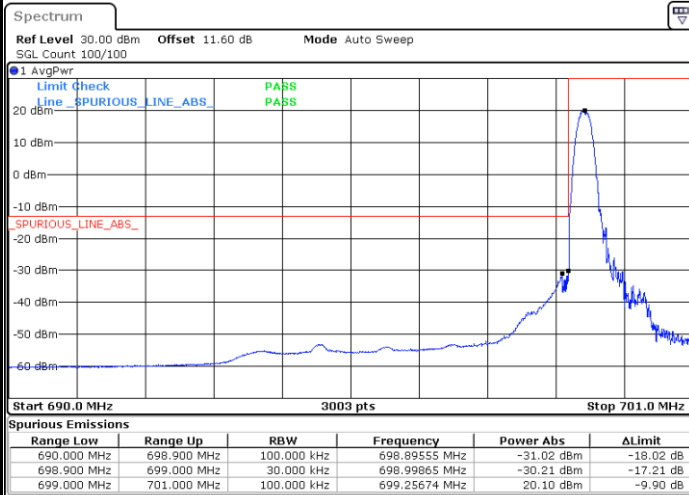


**Conducted Band Edge****LTE Band 12 / 1.4MHz / QPSK****Lowest Band Edge / 1RB****Highest Band Edge / 1RB****Lowest Band Edge / Full RB****Highest Band Edge / Full RB**



## LTE Band 12 / 1.4MHz / 16QAM

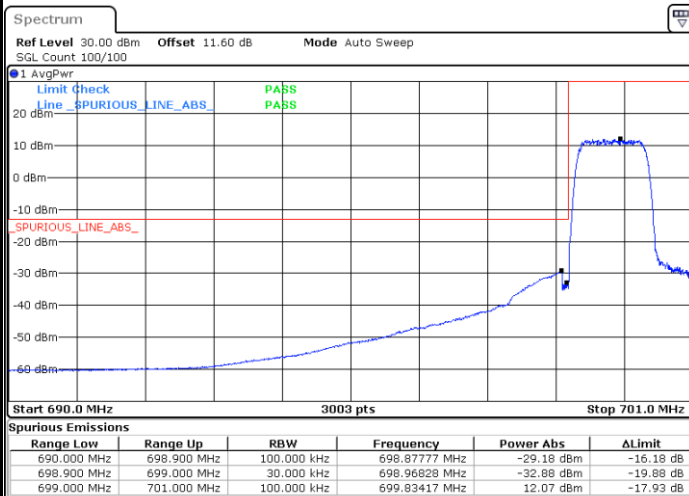
## Lowest Band Edge / 1 RB



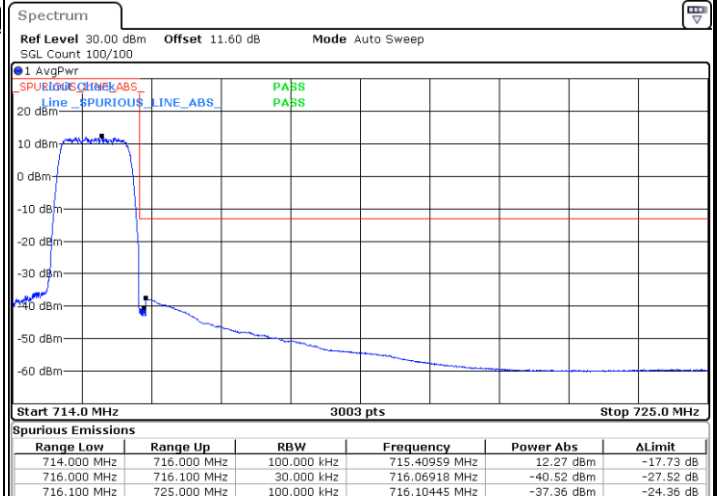
## Highest Band Edge / 1 RB



## Lowest Band Edge / Full RB



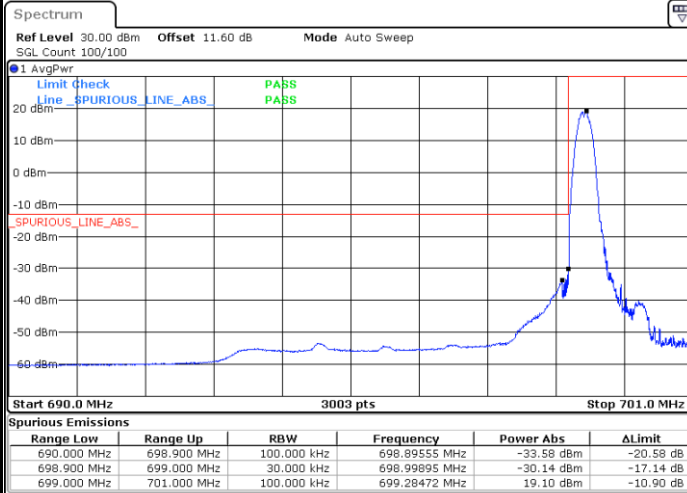
## Highest Band Edge / Full RB





## LTE Band 12 / 1.4MHz / 64QAM

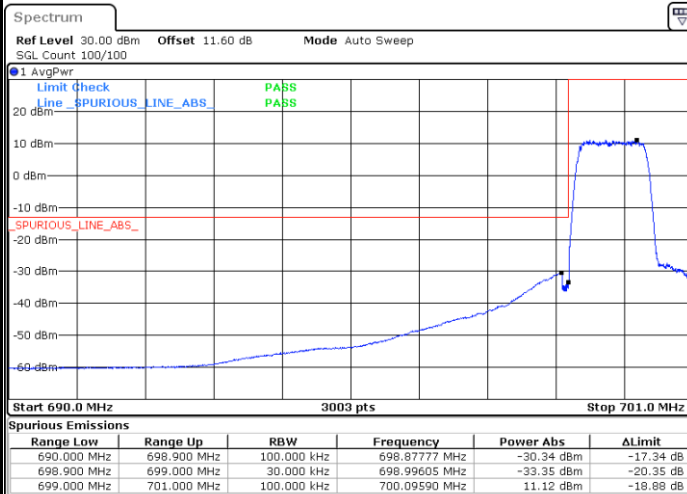
## Lowest Band Edge / 1 RB



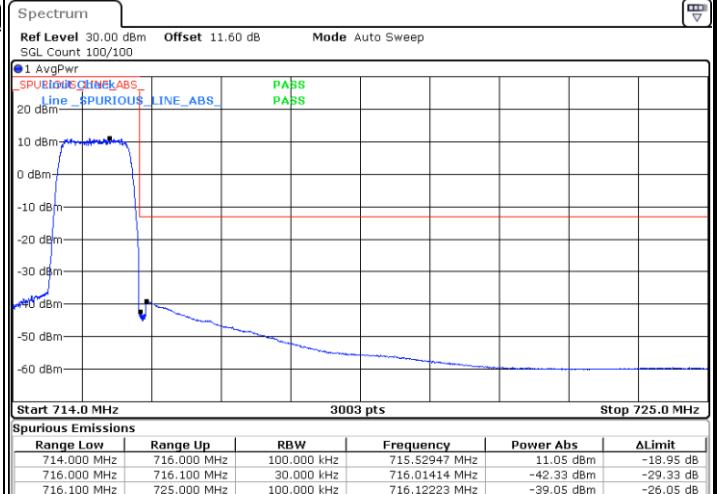
## Highest Band Edge / 1 RB



## Lowest Band Edge / Full RB



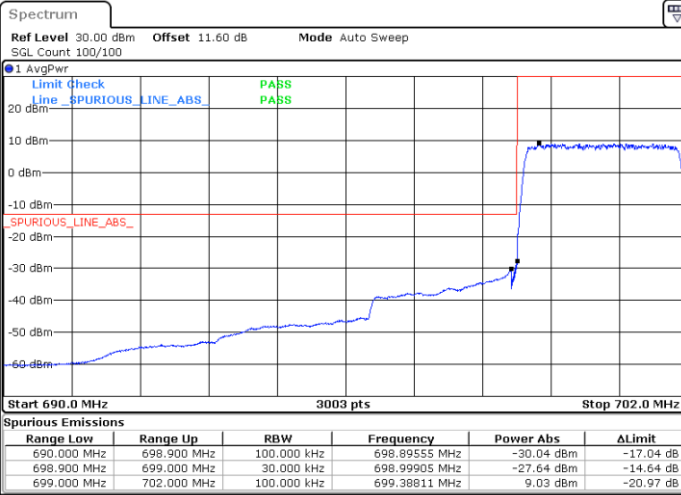
## Highest Band Edge / Full RB



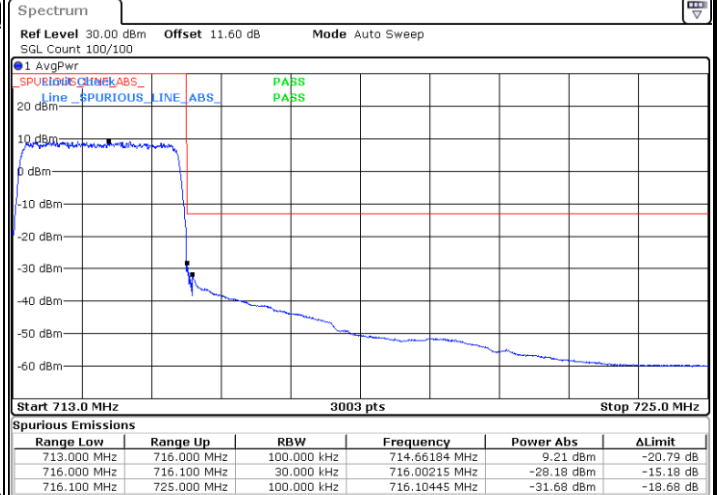


## LTE Band 12 / 3MHz / QPSK

## Lowest Band Edge / Full RB

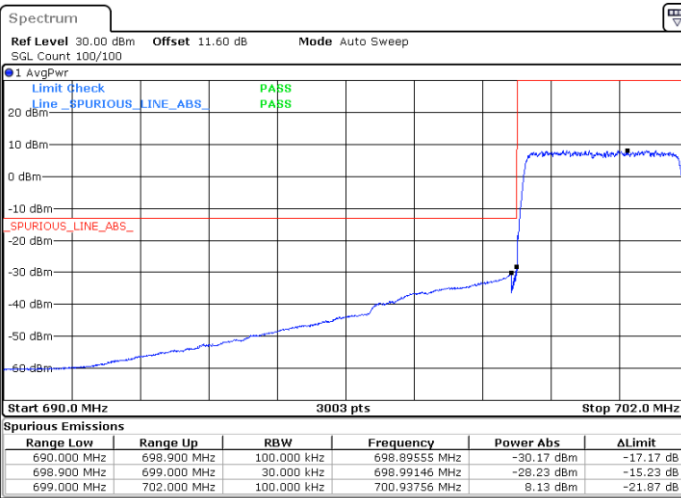


## Highest Band Edge / Full RB

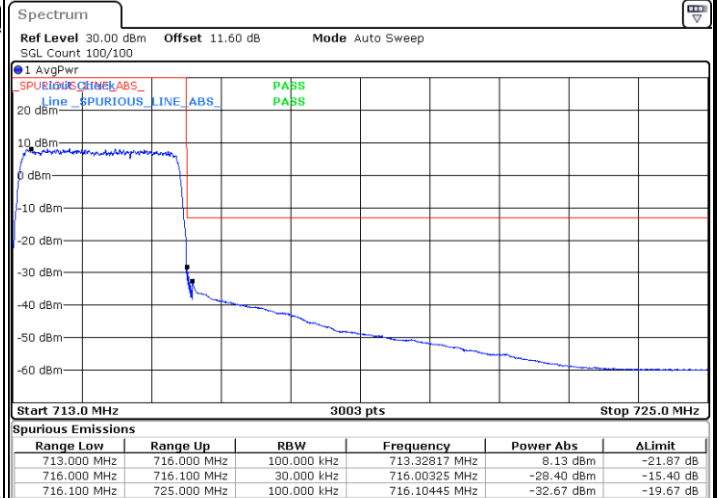


## LTE Band 12 / 3MHz / 16QAM

## Lowest Band Edge / Full RB



## Highest Band Edge / Full RB

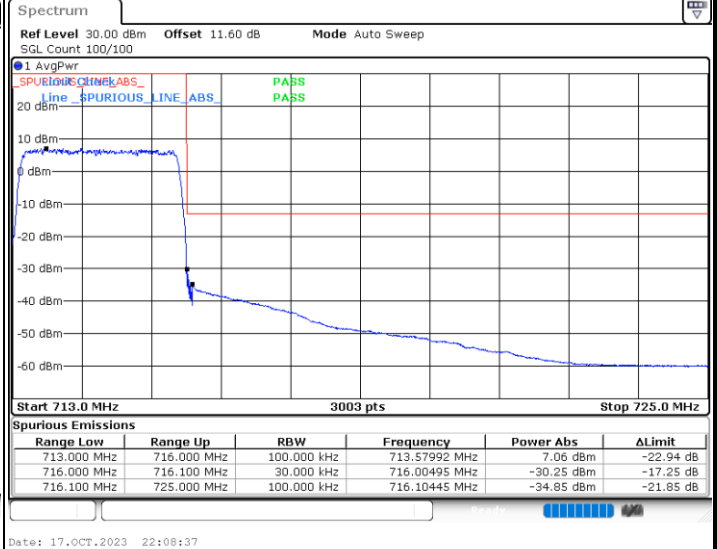
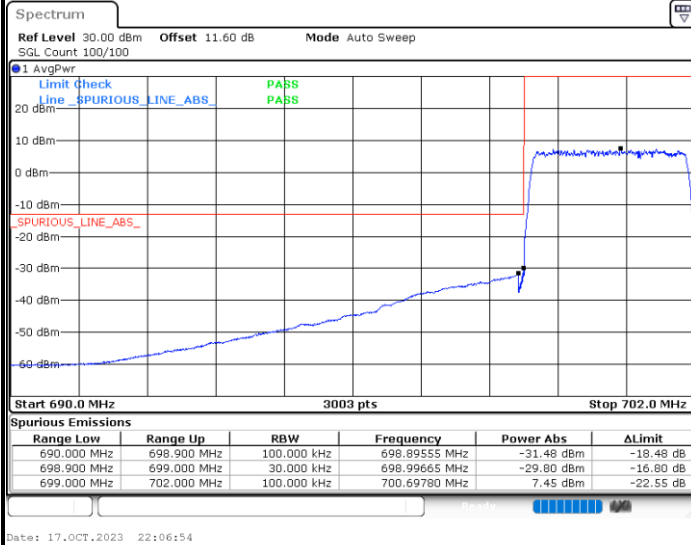




## LTE Band 12 / 3MHz / 64QAM

## Lowest Band Edge / Full RB

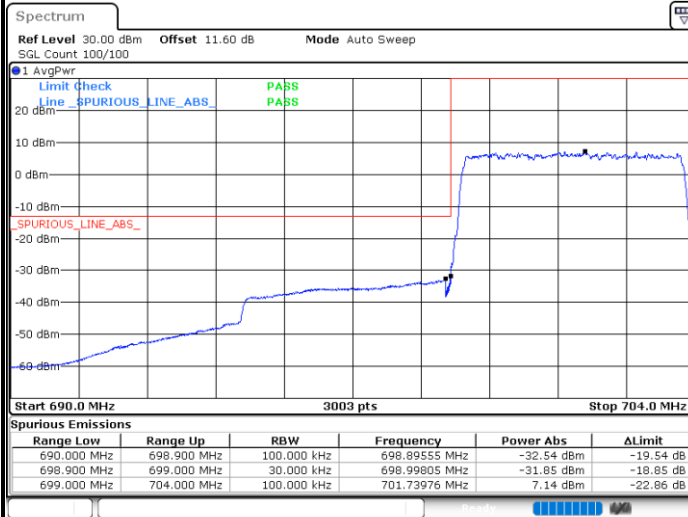
## Highest Band Edge / Full RB



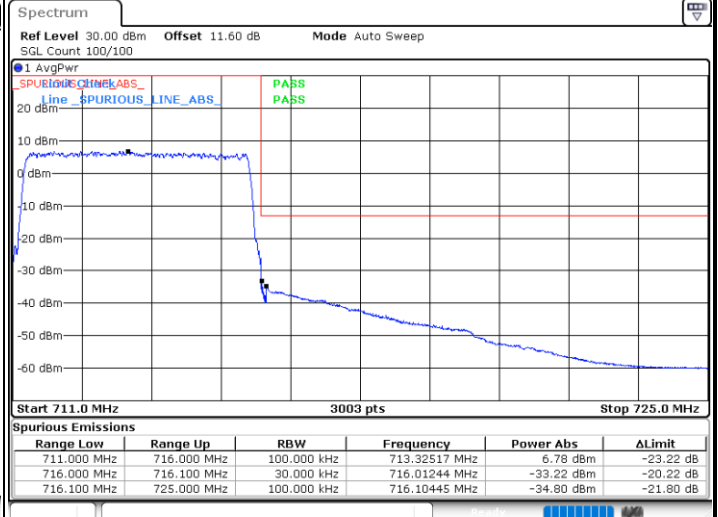


## LTE Band 12 / 5MHz / QPSK

## Lowest Band Edge / Full RB

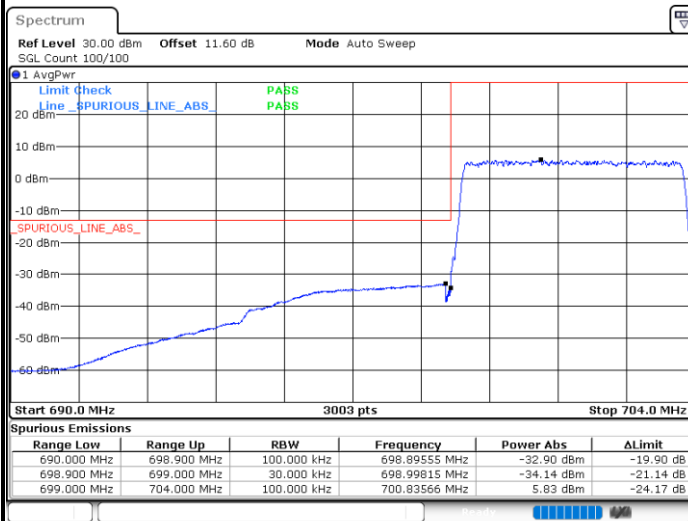


## Highest Band Edge / Full RB

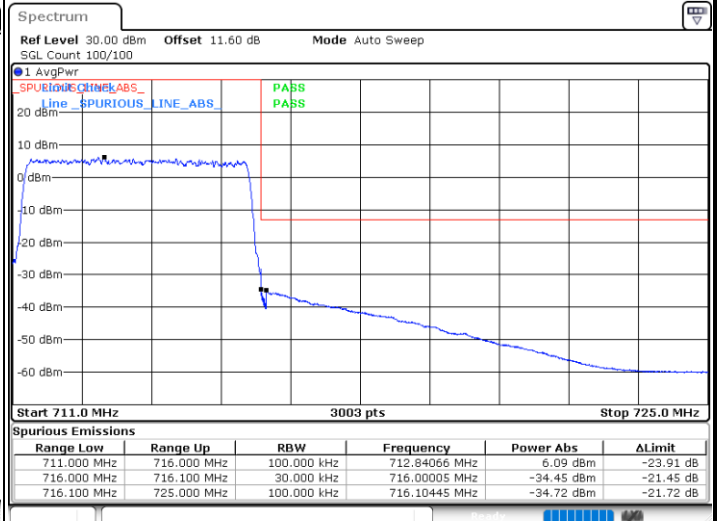


## LTE Band 12 / 5MHz / 16QAM

## Lowest Band Edge / Full RB



## Highest Band Edge / Full RB

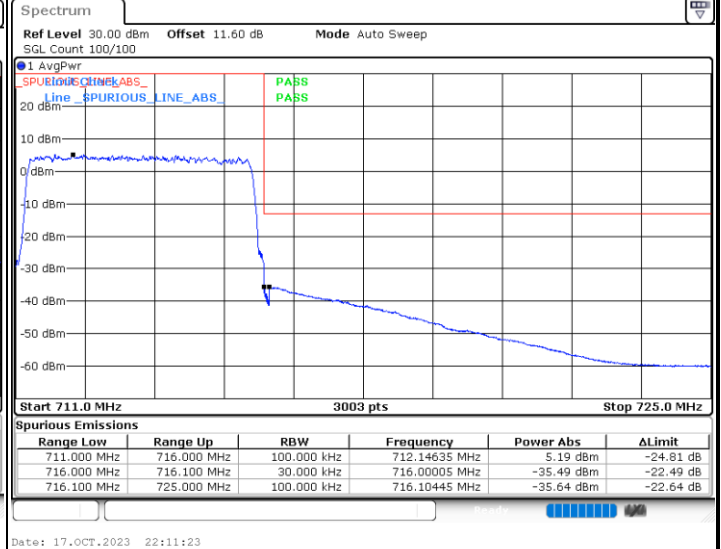
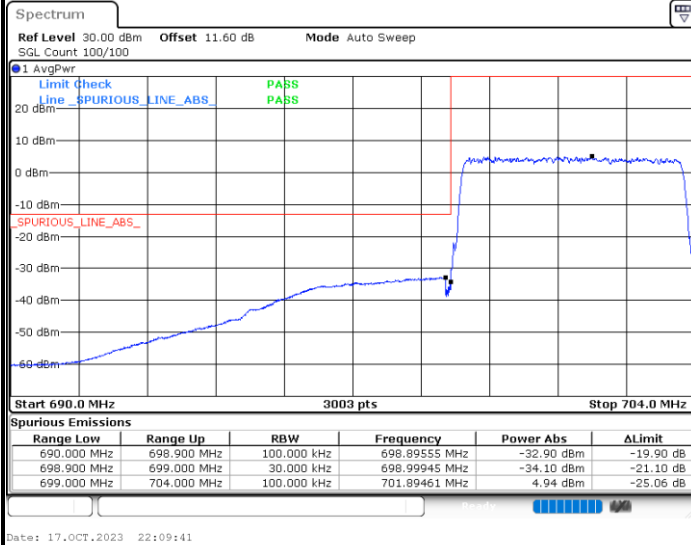




## LTE Band 12 / 5MHz / 64QAM

## Lowest Band Edge / Full RB

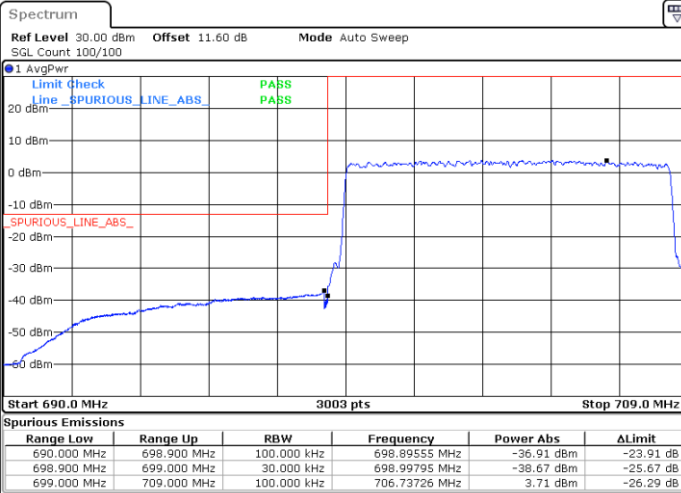
## Highest Band Edge / Full RB



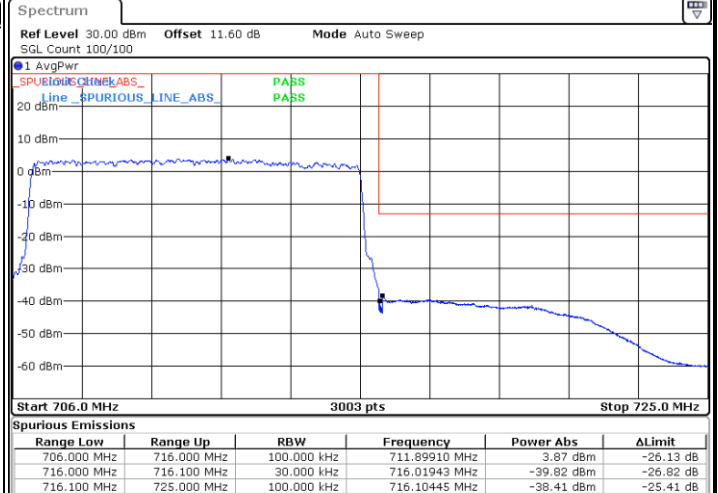


## LTE Band 12 / 10MHz / QPSK

## Lowest Band Edge / Full RB

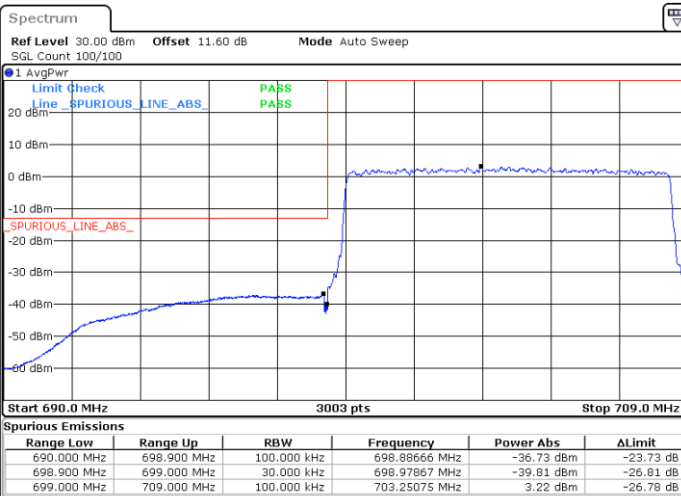


## Highest Band Edge / Full RB

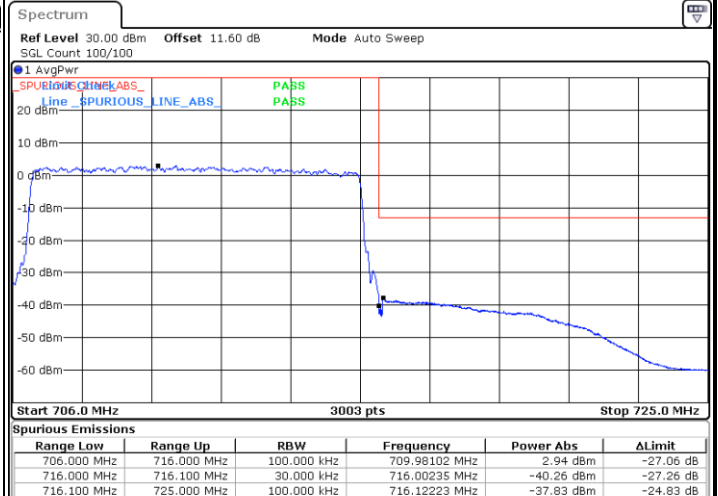


## LTE Band 12 / 10MHz / 16QAM

## Lowest Band Edge / Full RB



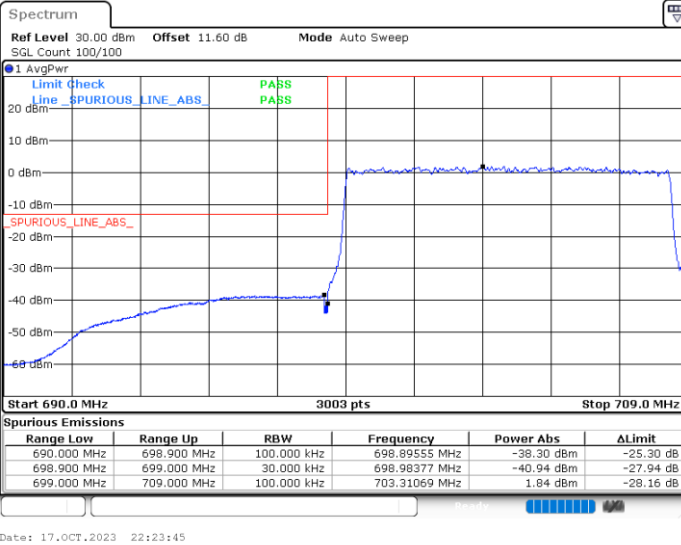
## Highest Band Edge / Full RB



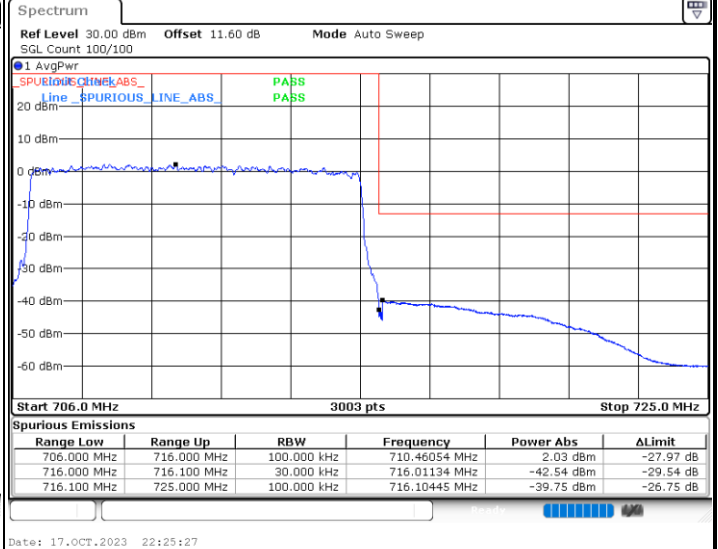


## LTE Band 12 / 10MHz / 64QAM

## Lowest Band Edge / Full RB



## Highest Band Edge / Full RB

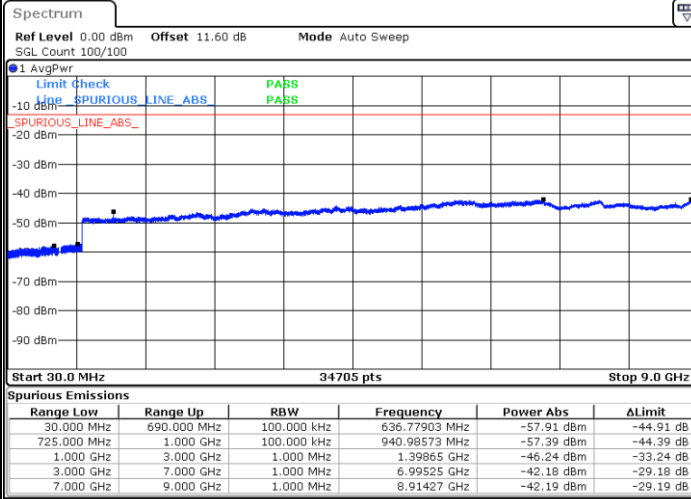




# Conducted Spurious Emission

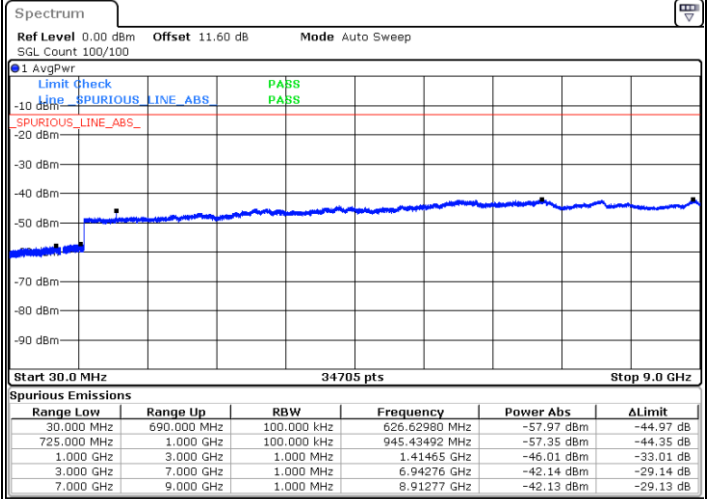
## LTE Band 12 / 1.4MHz

### Lowest Channel / QPSK



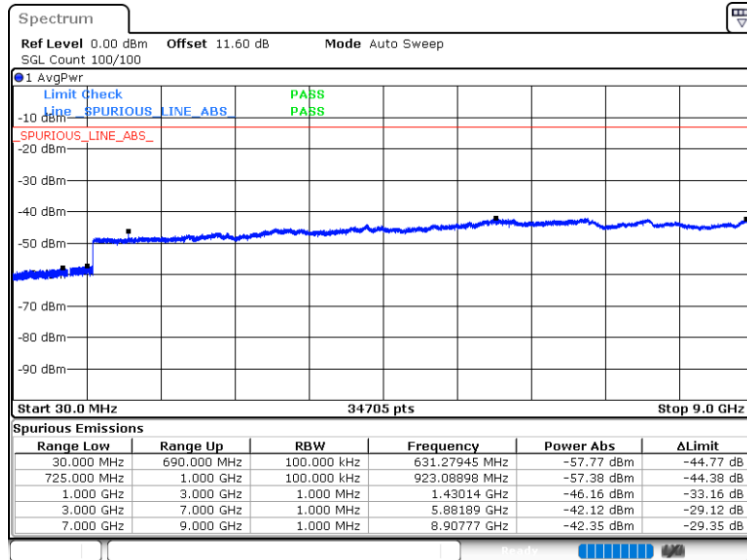
Date: 17.OCT.2023 21:47:14

### Middle Channel / QPSK



Date: 17.OCT.2023 21:50:13

### Highest Channel / QPSK

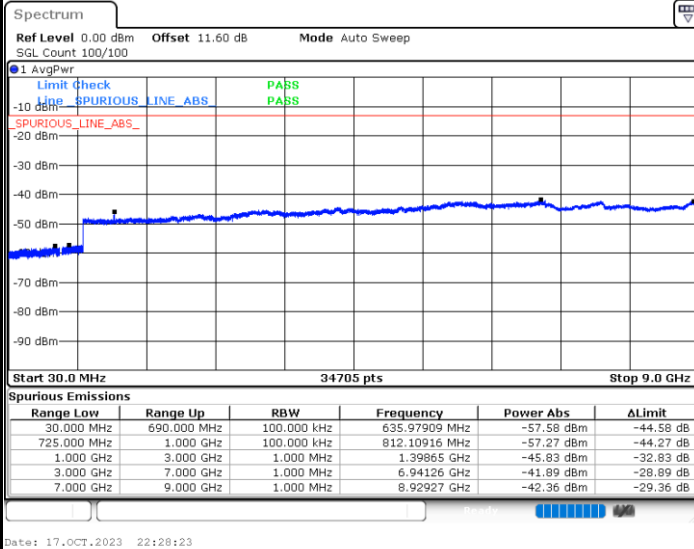


Date: 17.OCT.2023 21:55:31

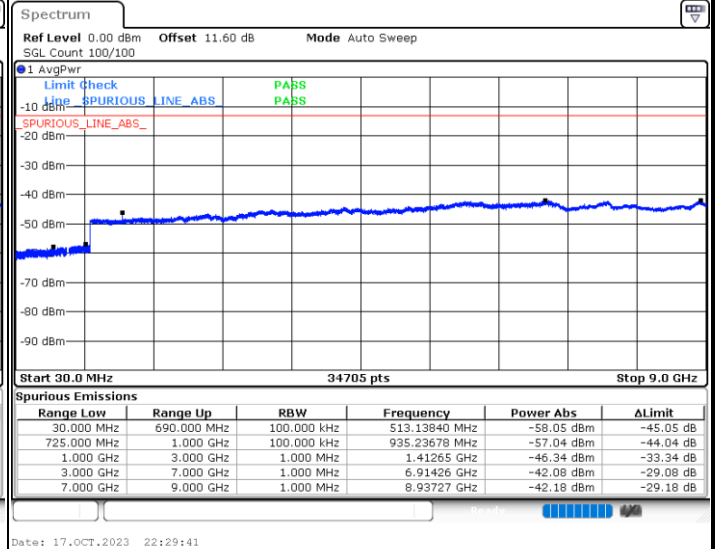


## LTE Band 12 / 3MHz

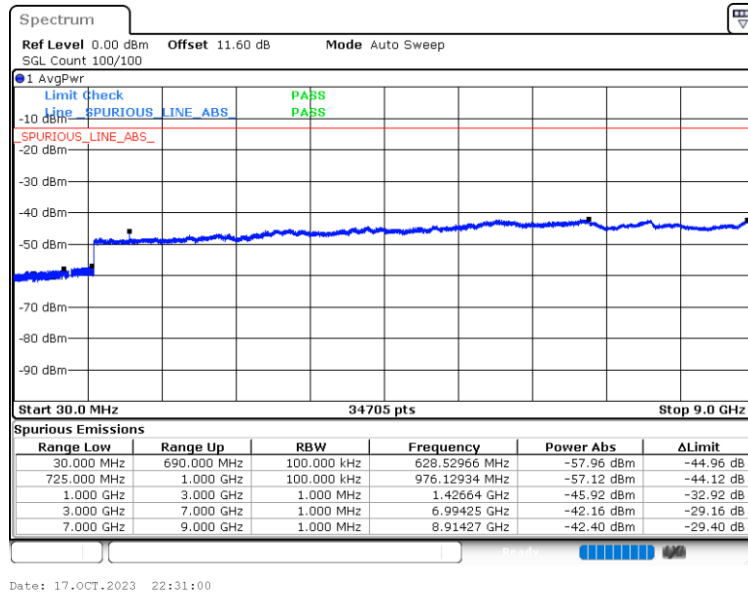
## Lowest Channel / QPSK



## Middle Channel / QPSK



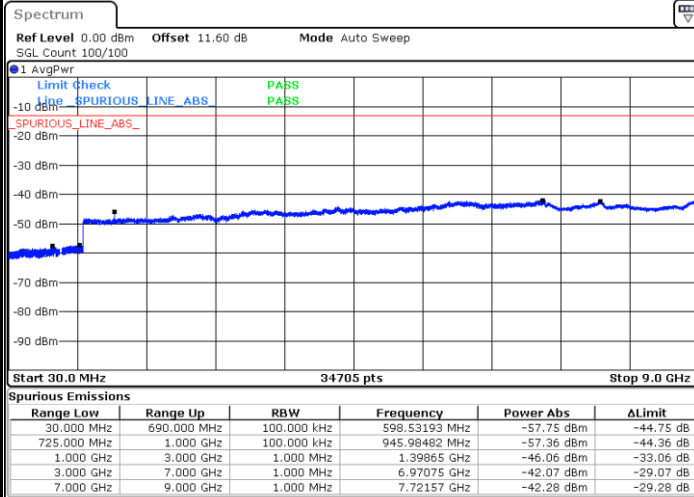
## Highest Channel / QPSK





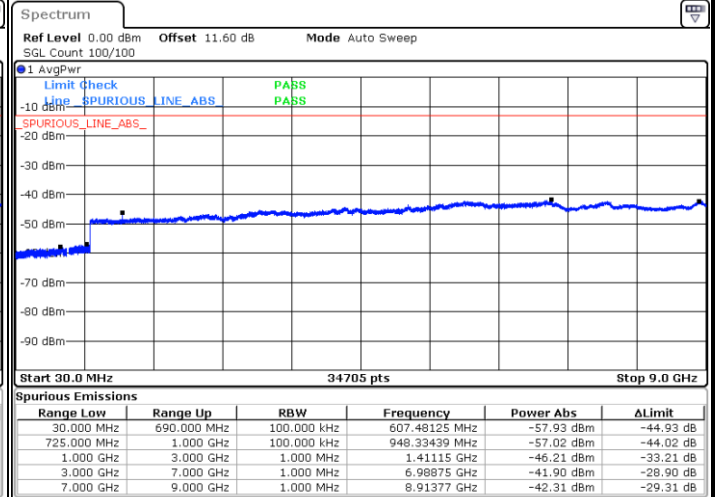
## LTE Band 12 / 5MHz

## Lowest Channel / QPSK



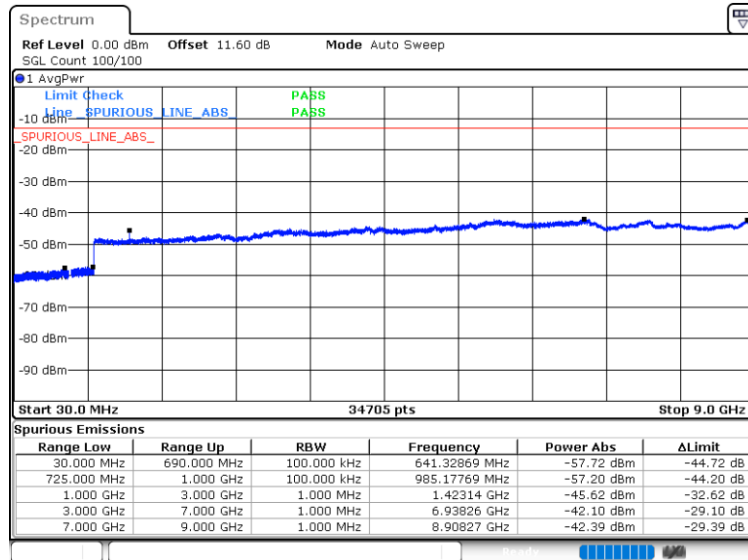
Date: 17.OCT.2023 22:32:23

## Middle Channel / QPSK



Date: 17.OCT.2023 22:33:40

## Highest Channel / QPSK

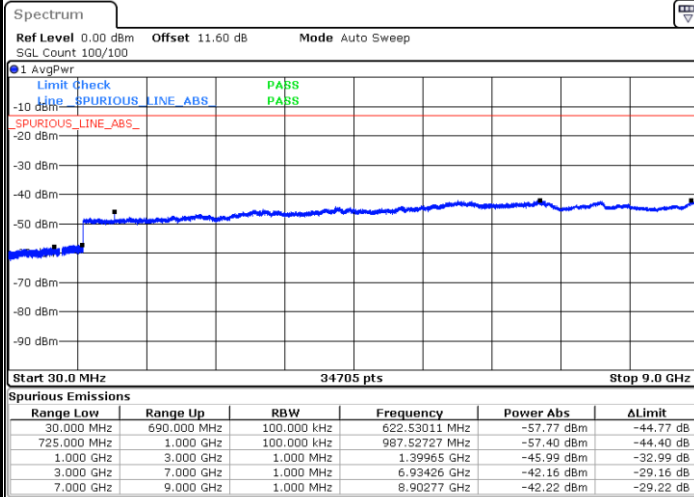


Date: 17.OCT.2023 22:34:59



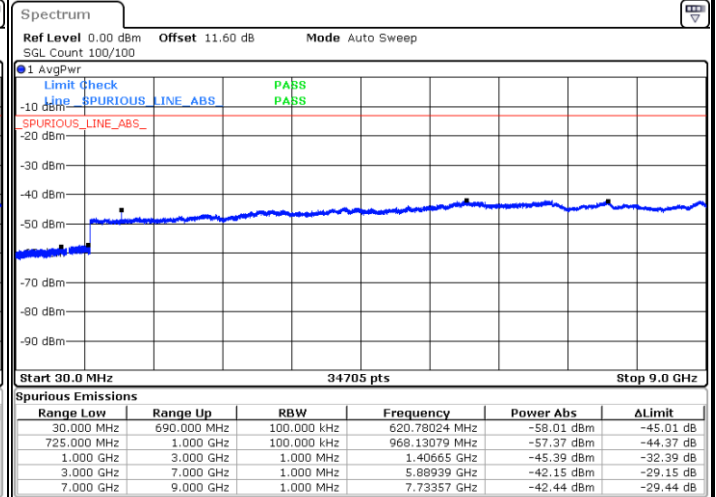
## LTE Band 12 / 10MHz

## Lowest Channel / QPSK



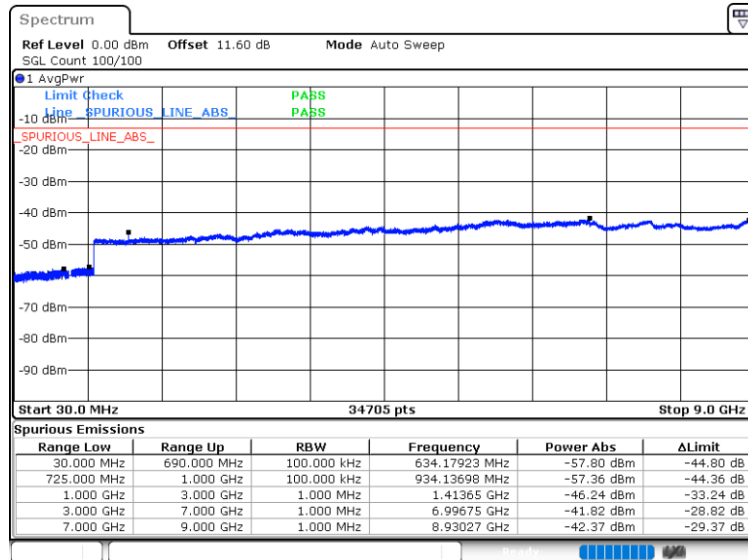
Date: 17.OCT.2023 22:36:22

## Middle Channel / QPSK



Date: 17.OCT.2023 22:37:40

## Highest Channel / QPSK



Date: 17.OCT.2023 22:38:58

## 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    | 0.0114                              | PASS    |
| 40               | Normal Voltage    | 0.0021                              |         |
| 30               | Normal Voltage    | 0.0119                              |         |
| 20(Ref.)         | Normal Voltage    | 0.0000                              |         |
| 10               | Normal Voltage    | 0.0054                              |         |
| 0                | Normal Voltage    | 0.0177                              |         |
| -10              | Normal Voltage    | 0.0196                              |         |
| -20              | Normal Voltage    | 0.0131                              |         |
| -30              | Normal Voltage    | 0.0204                              |         |
| 20               | Maximum Voltage   | 0.0085                              |         |
| 20               | Normal Voltage    | 0.0000                              |         |
| 20               | Battery End Point | 0.0030                              |         |

**Note:**

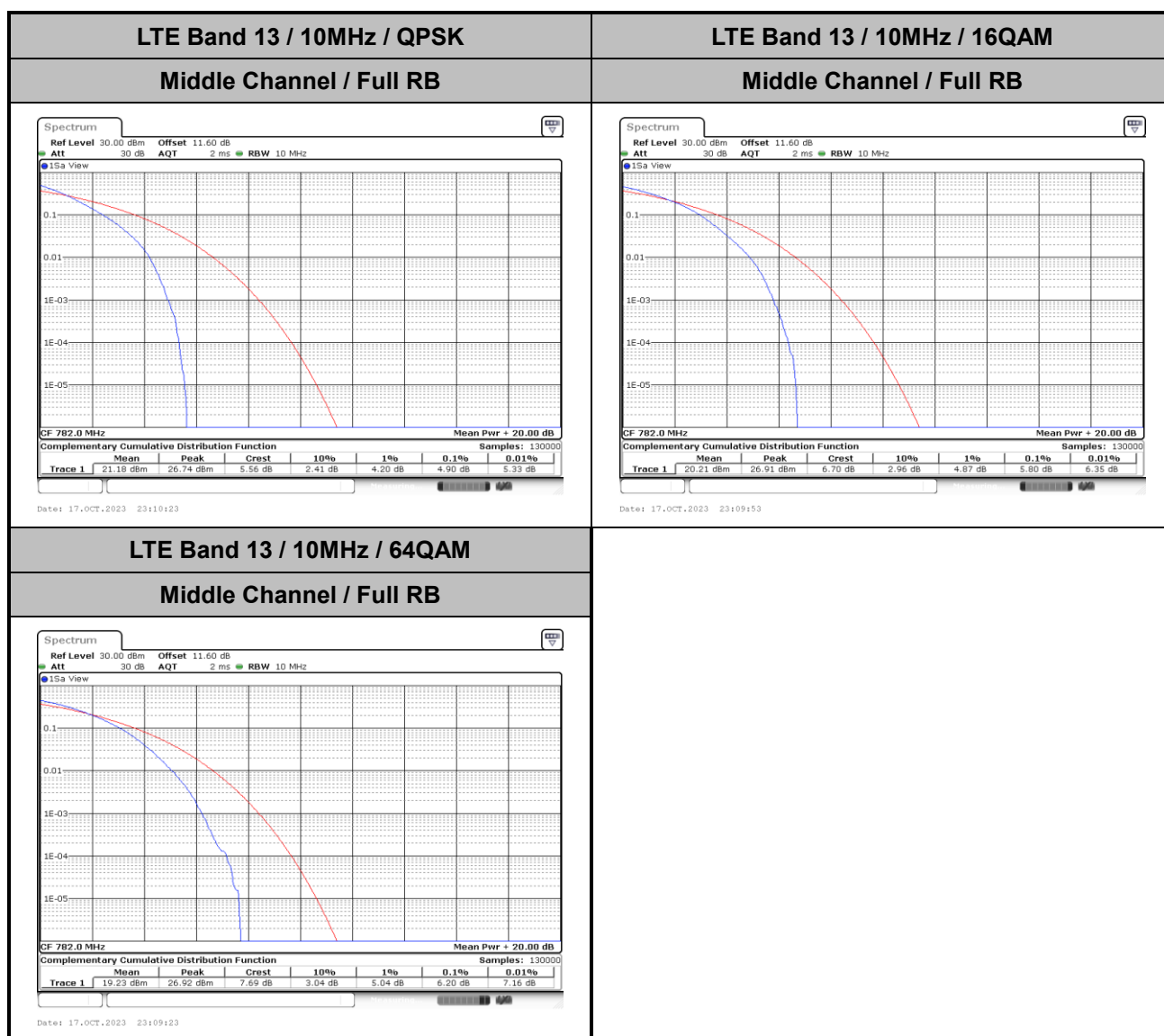
1. Normal Voltage = 3.8 V. ; Battery End Point (BEP) = 3.4 V. ; Maximum Voltage = 4.2 V.
2. The frequency fundamental emissions stay within the authorized frequency block.



## LTE Band 13

## Peak-to-Average Ratio

| Mode      | LTE Band 13 / 10MHz |         |         |         |             |
|-----------|---------------------|---------|---------|---------|-------------|
| Mod.      | QPSK                | 16QAM   | 64QAM   | 256QAM  | Limit: 13dB |
| RB Size   | Full RB             | Full RB | Full RB | Full RB | Result      |
| Middle CH | 4.90                | 5.80    | 6.20    | -       | PASS        |



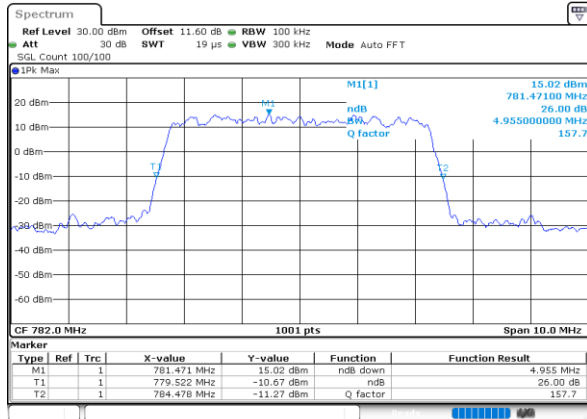
**26dB Bandwidth**

| 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  |
| Middle CH | -                          | -      | -     | -      | 4.96  | 4.91   | 9.83  | 9.69   | -     | -      | -     | -      |
| Mode      | LTE Band 13 : 26dB BW(MHz) |        |       |        |       |        |       |        |       |        |       |        |
| BW        | 1.4MHz                     |        | 3MHz  |        | 5MHz  |        | 10MHz |        | 15MHz |        | 20MHz |        |
| Mod.      | 64QAM                      | 256QAM | 64QAM | 256QAM | 64QAM | 256QAM | 64QAM | 256QAM | 64QAM | 256QAM | 64QAM | 256QAM |
| Middle CH | -                          | -      | -     | -      | 4.89  | -      | 9.75  | -      | -     | -      | -     | -      |

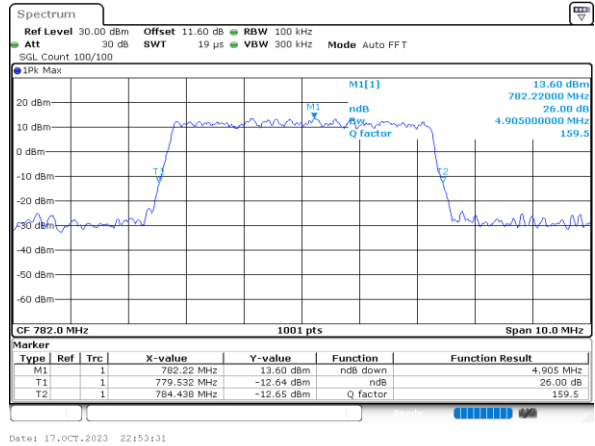


## LTE Band 13

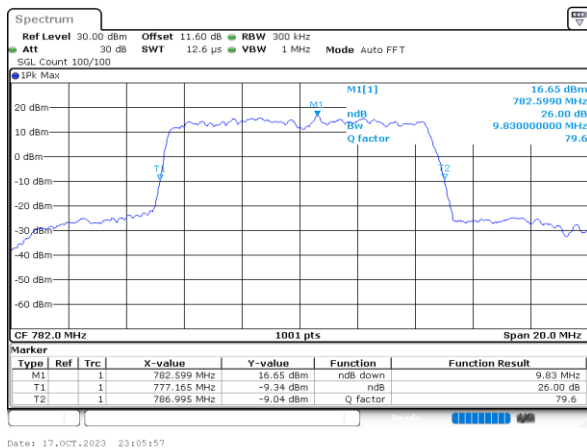
## Middle Channel / 5MHz / QPSK



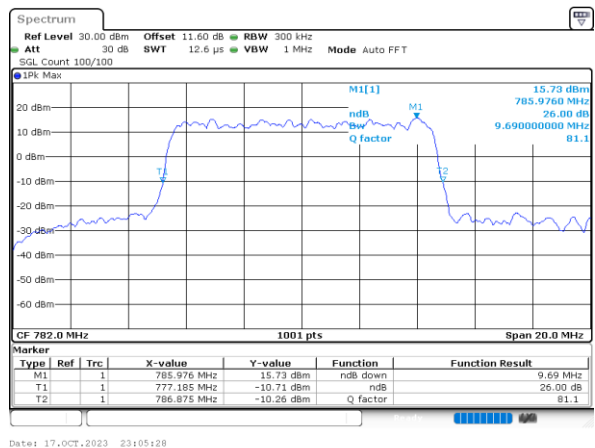
## Middle Channel / 5MHz / 16QAM



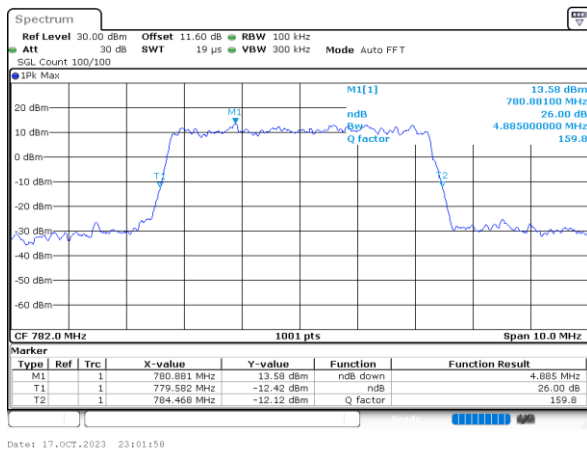
## Middle Channel / 10MHz / QPSK



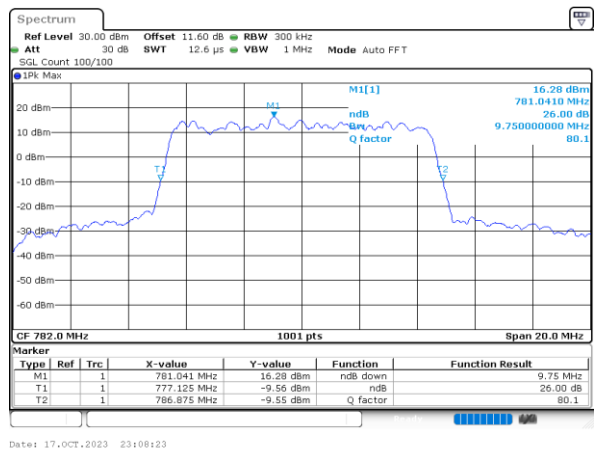
## Middle Channel / 10MHz / 16QAM



## Middle Channel / 5MHz / 64QAM



## Middle Channel / 10MHz / 64QAM



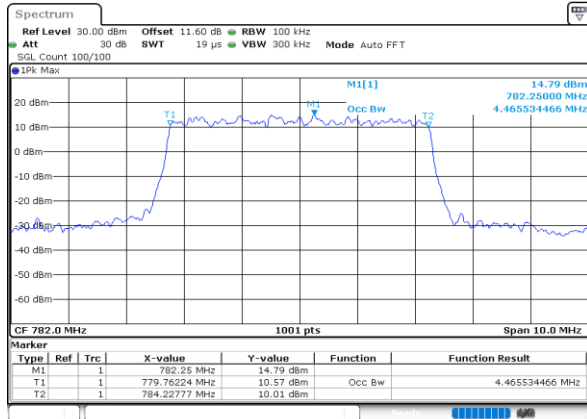
**Occupied Bandwidth**

| 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  |
| Middle CH | -                         | -      | -     | -      | 4.47  | 4.50   | 9.01  | 8.95   | -     | -      | -     | -      |
| Mode      | LTE Band 13 : 99%OBW(MHz) |        |       |        |       |        |       |        |       |        |       |        |
| BW        | 1.4MHz                    |        | 3MHz  |        | 5MHz  |        | 10MHz |        | 15MHz |        | 20MHz |        |
| Mod.      | 64QAM                     | 256QAM | 64QAM | 256QAM | 64QAM | 256QAM | 64QAM | 256QAM | 64QAM | 256QAM | 64QAM | 256QAM |
| Middle CH | -                         | -      | -     | -      | 4.50  | -      | 9.03  | -      | -     | -      | -     | -      |

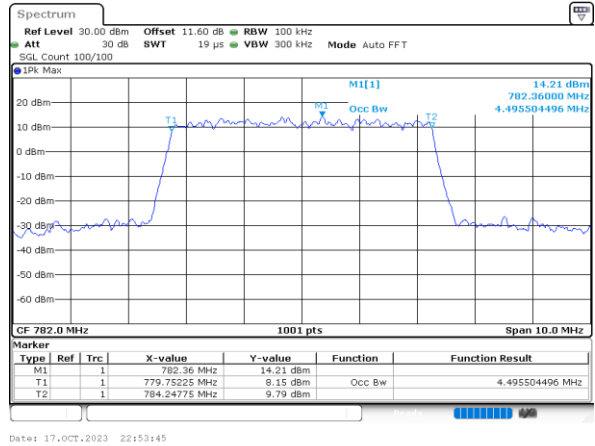


## LTE Band 13

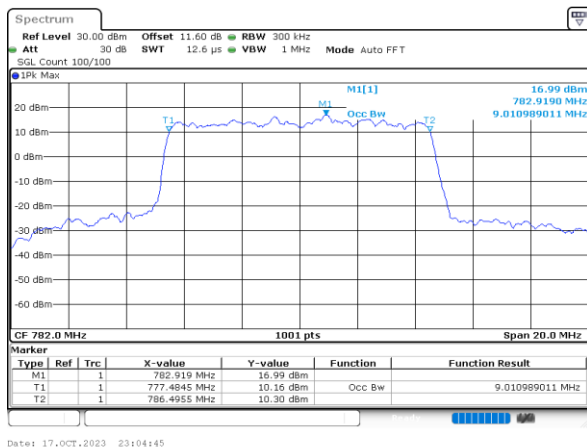
## Middle Channel / 5MHz / QPSK



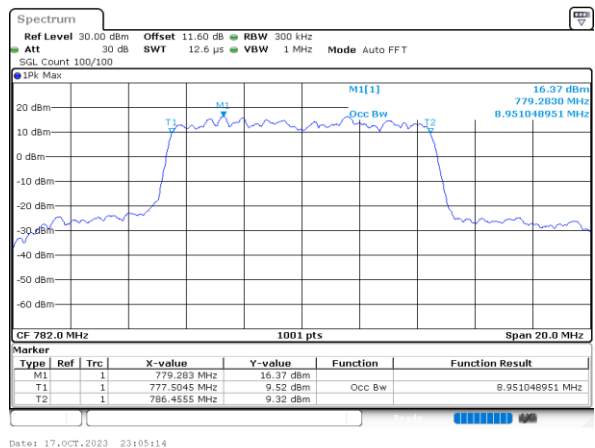
## Middle Channel / 5MHz / 16QAM



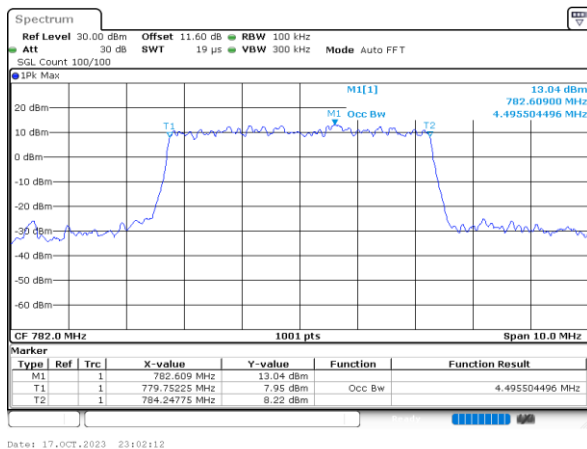
## Middle Channel / 10MHz / QPSK



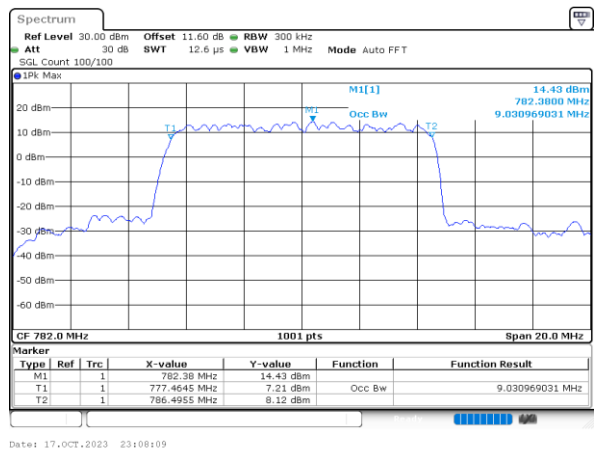
## Middle Channel / 10MHz / 16QAM



## Middle Channel / 5MHz / 64QAM



## Middle Channel / 10MHz / 64QAM

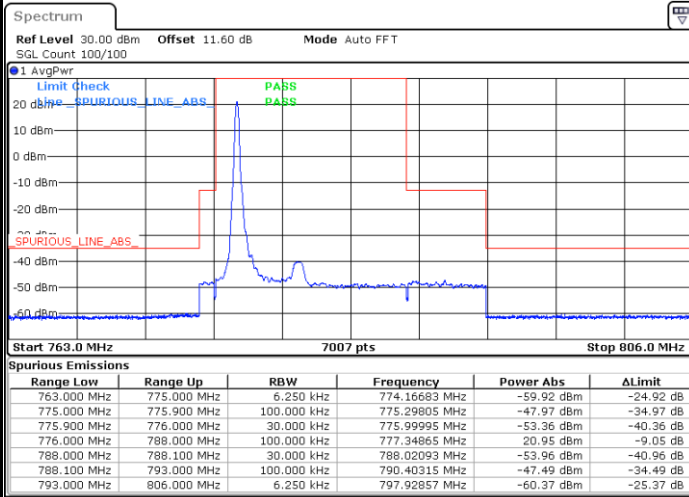




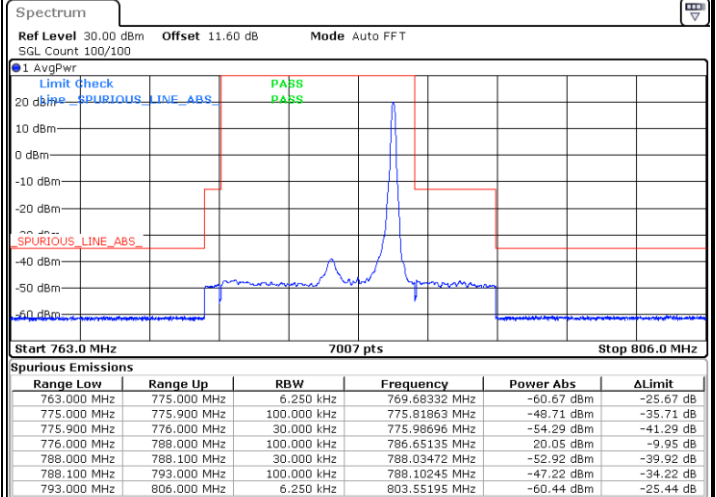
## Conducted Band Edge

### LTE Band 13 / 5MHz / QPSK

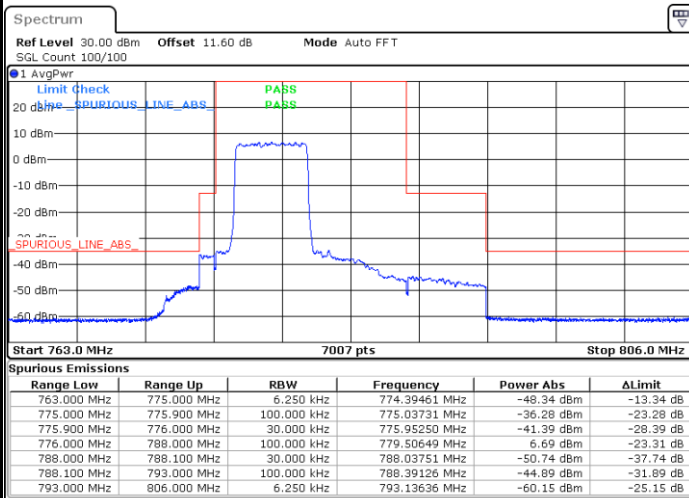
#### Lowest Band Edge / 1 RB



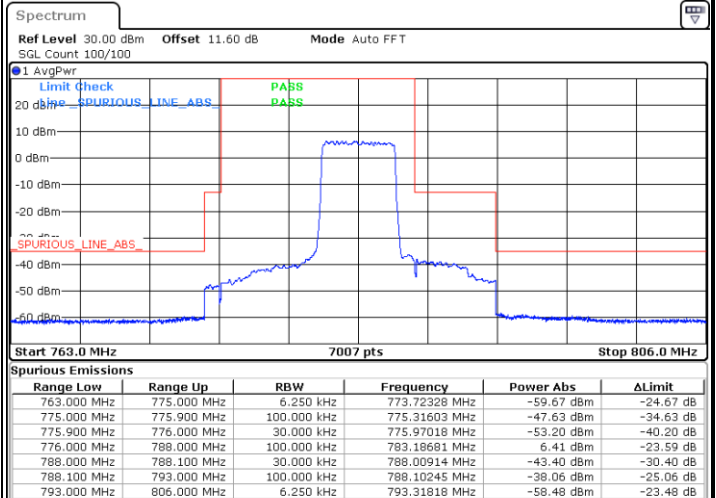
#### Highest Band Edge / 1 RB



#### Lowest Band Edge / Full RB



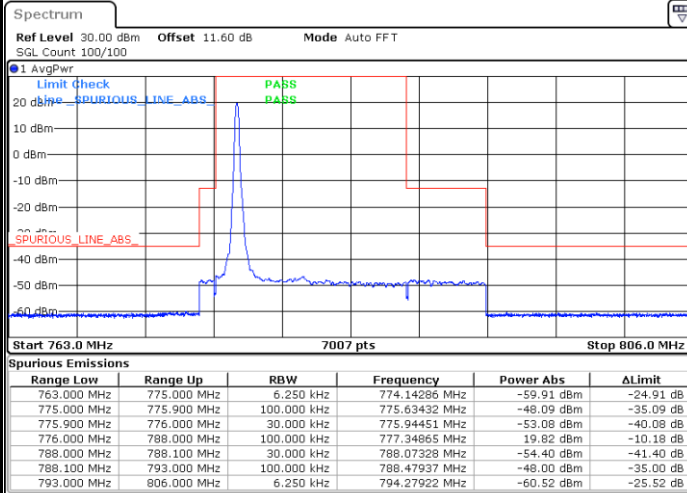
#### Highest Band Edge / Full RB





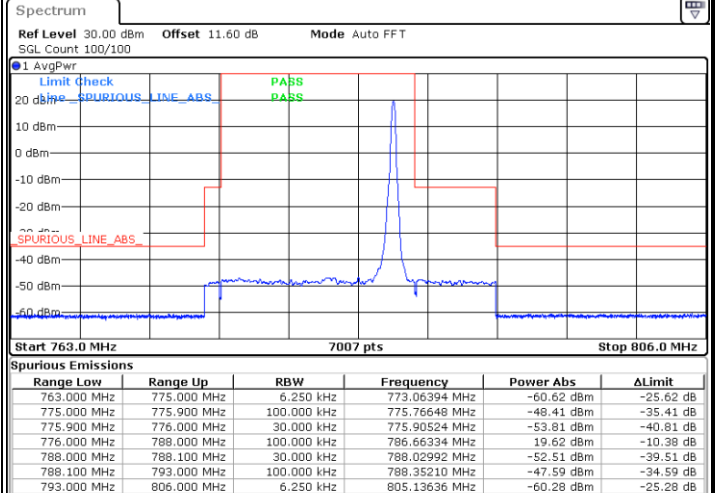
## LTE Band 13 / 5MHz / 16QAM

## Lowest Band Edge / 1 RB



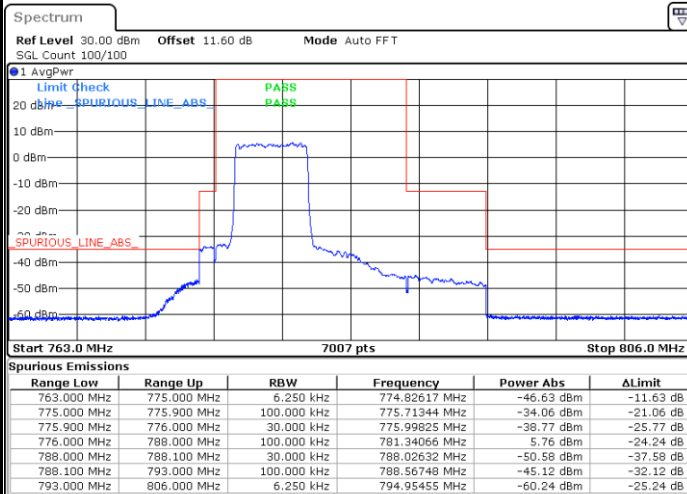
Date: 17.OCT.2023 22:49:10

## Highest Band Edge / 1 RB



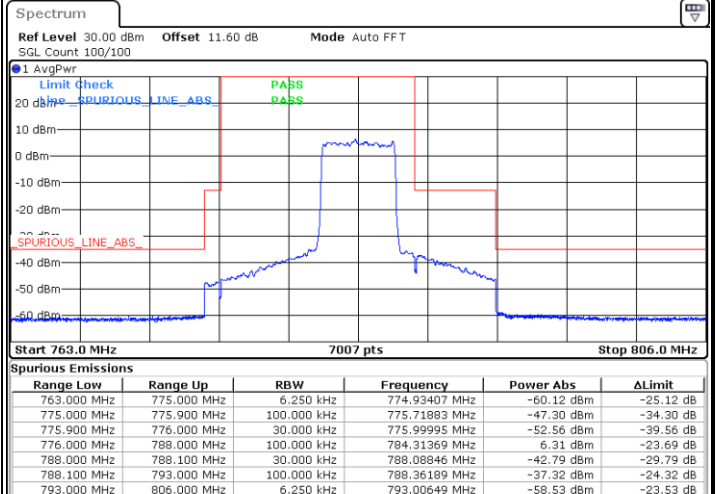
Date: 17.OCT.2023 22:57:11

## Lowest Band Edge / Full RB



Date: 17.OCT.2023 22:48:11

## Highest Band Edge / Full RB

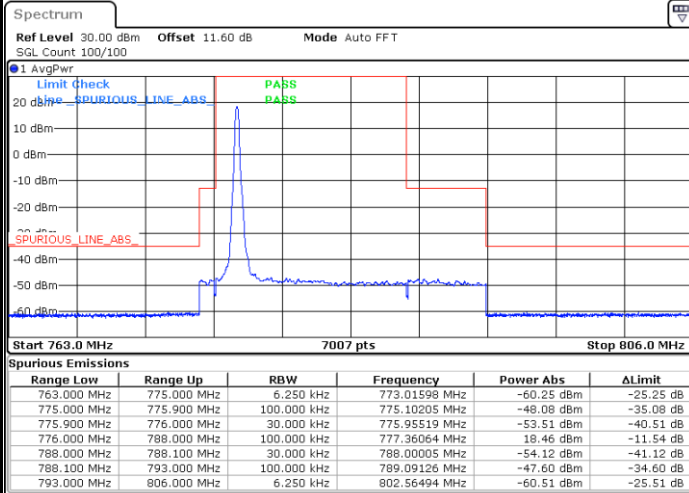


Date: 17.OCT.2023 22:56:11



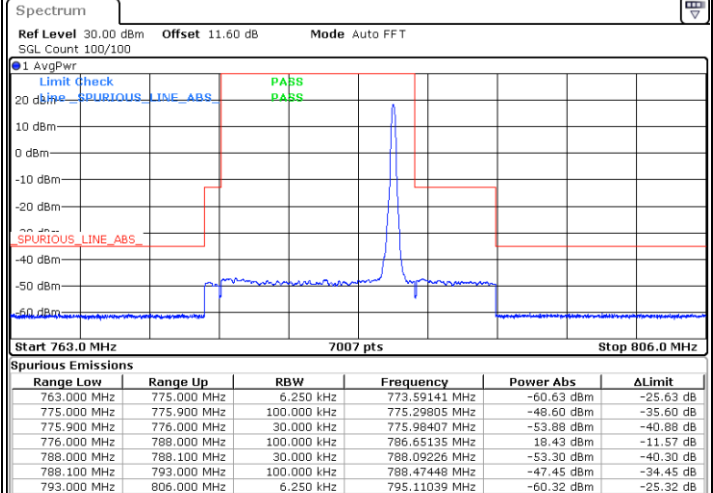
## LTE Band 13 / 5MHz / 64QAM

## Lowest Band Edge / 1 RB



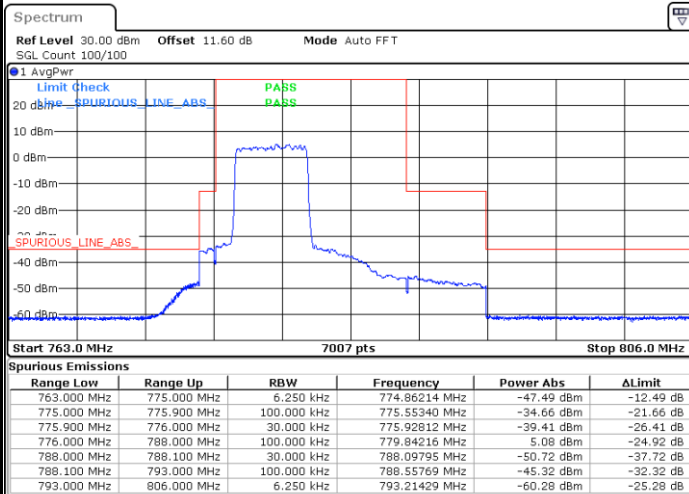
Date: 17.OCT.2023 23:01:28

## Highest Band Edge / 1 RB



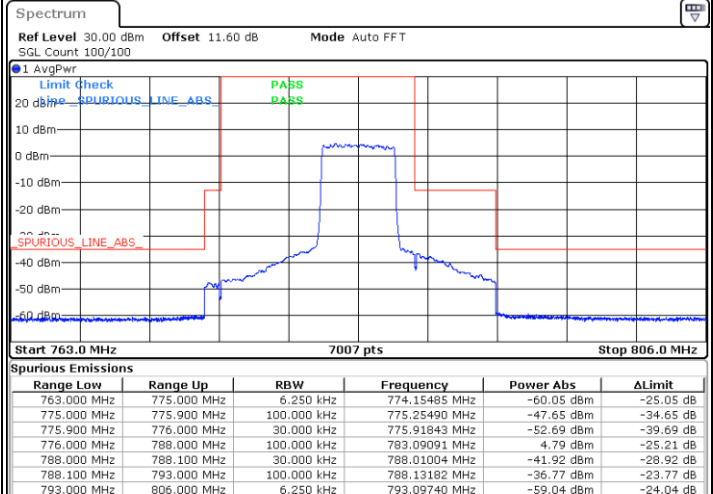
Date: 17.OCT.2023 23:04:10

## Lowest Band Edge / Full RB



Date: 17.OCT.2023 23:00:28

## Highest Band Edge / Full RB



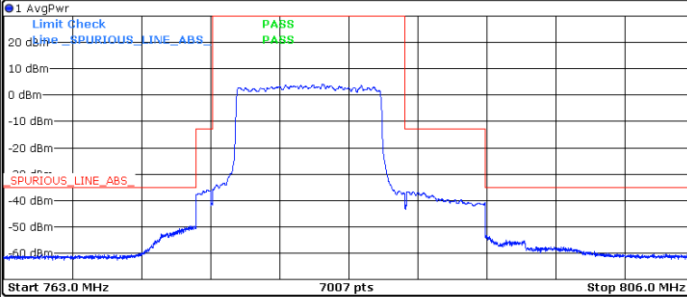
Date: 17.OCT.2023 23:03:10



## LTE Band 13 / 10MHz / QPSK

## Band Edge / Full RB

Spectrum

Ref Level 30.00 dBm Offset 11.60 dB Mode Auto FFT  
SGL Count 100/100

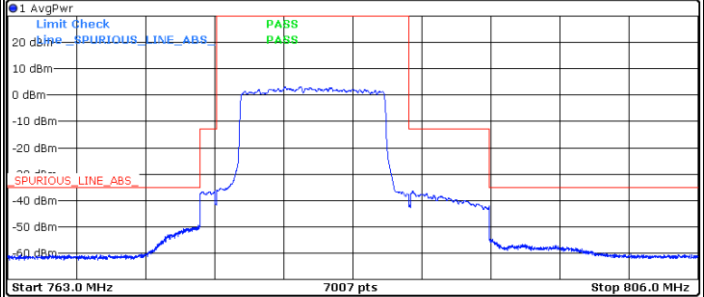
| Range Low   | Range Up    | RBW         | Frequency     | Power Abs  | ΔLimit    |
|-------------|-------------|-------------|---------------|------------|-----------|
| 763.000 MHz | 775.000 MHz | 6.250 kHz   | 774.73027 MHz | -49.62 dBm | -14.62 dB |
| 775.000 MHz | 775.900 MHz | 100.000 kHz | 775.68556 MHz | -35.96 dBm | -22.96 dB |
| 775.900 MHz | 776.000 MHz | 30.000 kHz  | 775.94860 MHz | -40.97 dBm | -27.97 dB |
| 776.000 MHz | 788.000 MHz | 100.000 kHz | 782.89910 MHz | -4.18 dBm  | -25.82 dB |
| 788.000 MHz | 788.100 MHz | 30.000 kHz  | 788.07647 MHz | -41.70 dBm | -28.70 dB |
| 788.100 MHz | 793.000 MHz | 100.000 kHz | 788.22972 MHz | -36.65 dBm | -23.65 dB |
| 793.000 MHz | 806.000 MHz | 6.250 kHz   | 793.03247 MHz | -53.35 dBm | -18.35 dB |

Date: 17.OCT.2023 23:06:41

## LTE Band 13 / 10MHz / 16QAM

## Band Edge / Full RB

Spectrum

Ref Level 30.00 dBm Offset 11.60 dB Mode Auto FFT  
SGL Count 100/100

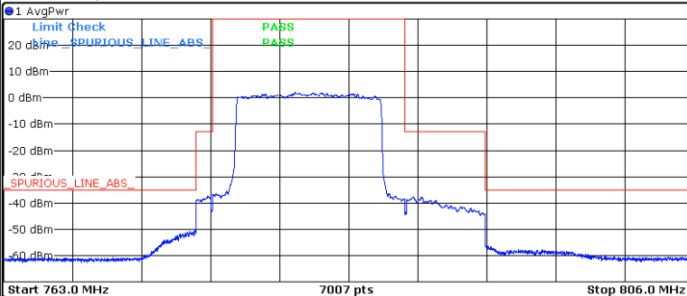
| Range Low   | Range Up    | RBW         | Frequency     | Power Abs  | ΔLimit    |
|-------------|-------------|-------------|---------------|------------|-----------|
| 763.000 MHz | 775.000 MHz | 6.250 kHz   | 774.88611 MHz | -49.42 dBm | -14.42 dB |
| 775.000 MHz | 775.900 MHz | 100.000 kHz | 775.89955 MHz | -36.45 dBm | -23.45 dB |
| 775.900 MHz | 776.000 MHz | 30.000 kHz  | 775.90005 MHz | -41.11 dBm | -28.11 dB |
| 776.000 MHz | 788.000 MHz | 100.000 kHz | 780.28571 MHz | 3.14 dBm   | -26.86 dB |
| 788.000 MHz | 788.100 MHz | 30.000 kHz  | 788.02443 MHz | -41.76 dBm | -28.76 dB |
| 788.100 MHz | 793.000 MHz | 100.000 kHz | 788.21993 MHz | -36.54 dBm | -23.54 dB |
| 793.000 MHz | 806.000 MHz | 6.250 kHz   | 793.03247 MHz | -54.84 dBm | -19.84 dB |

Date: 17.OCT.2023 23:07:39

## LTE Band 13 / 10MHz / 64QAM

## Band Edge / Full RB

Spectrum

Ref Level 30.00 dBm Offset 11.60 dB Mode Auto FFT  
SGL Count 100/100

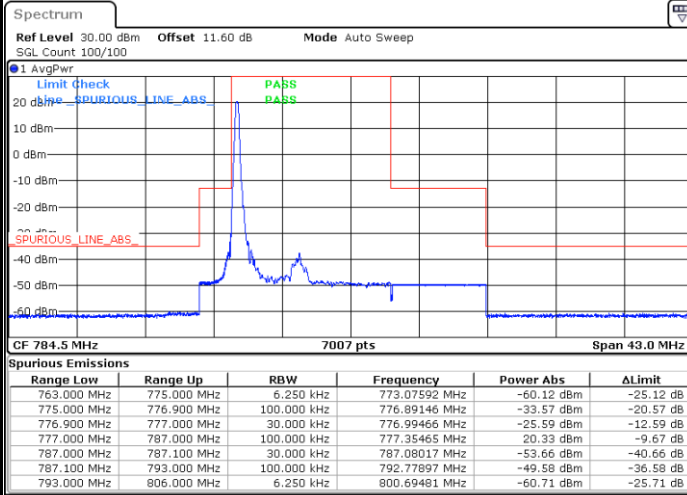
| Range Low   | Range Up    | RBW         | Frequency     | Power Abs  | ΔLimit    |
|-------------|-------------|-------------|---------------|------------|-----------|
| 763.000 MHz | 775.000 MHz | 6.250 kHz   | 774.91009 MHz | -50.17 dBm | -15.17 dB |
| 775.000 MHz | 775.900 MHz | 100.000 kHz | 775.73681 MHz | -37.56 dBm | -24.56 dB |
| 775.900 MHz | 776.000 MHz | 30.000 kHz  | 775.99995 MHz | -42.62 dBm | -29.62 dB |
| 776.000 MHz | 788.000 MHz | 100.000 kHz | 781.14885 MHz | 2.02 dBm   | -27.98 dB |
| 788.000 MHz | 788.100 MHz | 30.000 kHz  | 788.06868 MHz | -43.46 dBm | -30.46 dB |
| 788.100 MHz | 793.000 MHz | 100.000 kHz | 789.03741 MHz | -37.78 dBm | -24.78 dB |
| 793.000 MHz | 806.000 MHz | 6.250 kHz   | 793.12338 MHz | -56.17 dBm | -21.17 dB |

Date: 17.OCT.2023 23:09:06



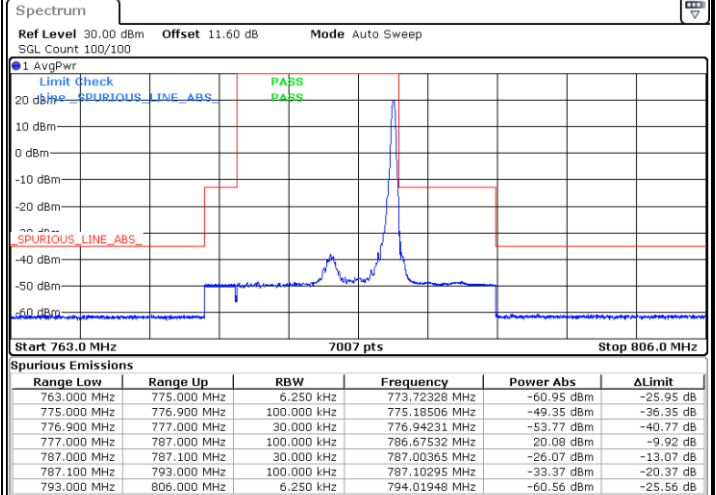
## IC LTE Band 13 / 5MHz / QPSK

## Lowest Band Edge / 1 RB



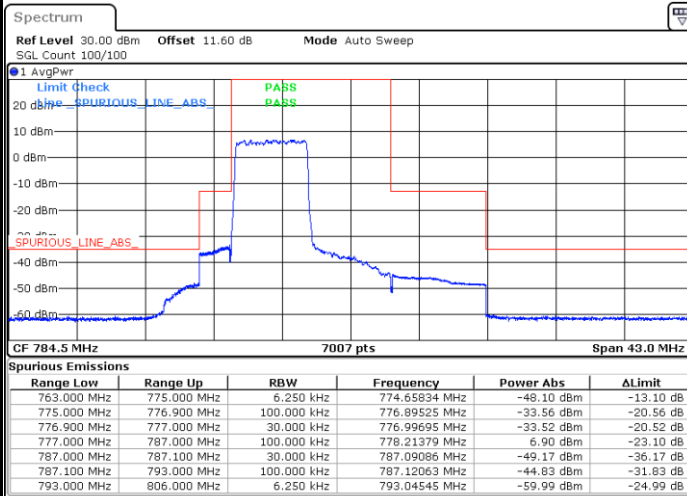
Date: 19.OCT.2023 19:44:06

## Highest Band Edge / 1 RB



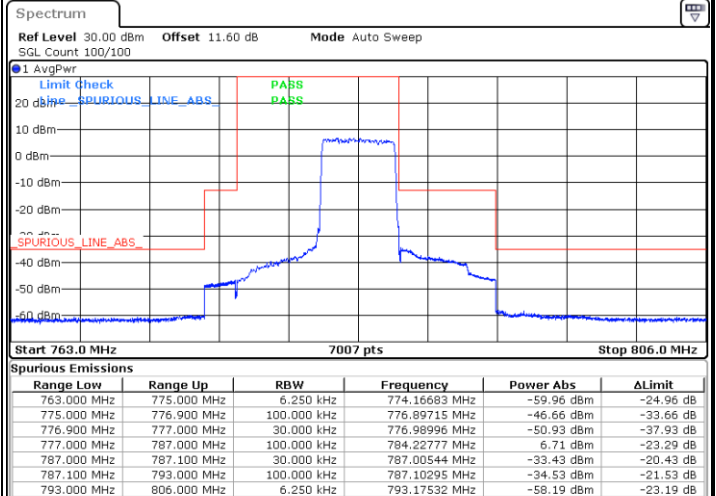
Date: 19.OCT.2023 19:48:19

## Lowest Band Edge / Full RB



Date: 19.OCT.2023 19:41:00

## Highest Band Edge / Full RB

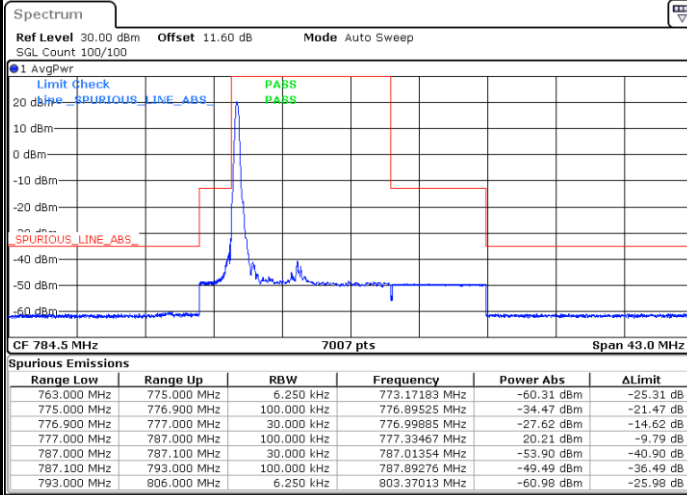


Date: 19.OCT.2023 19:45:12



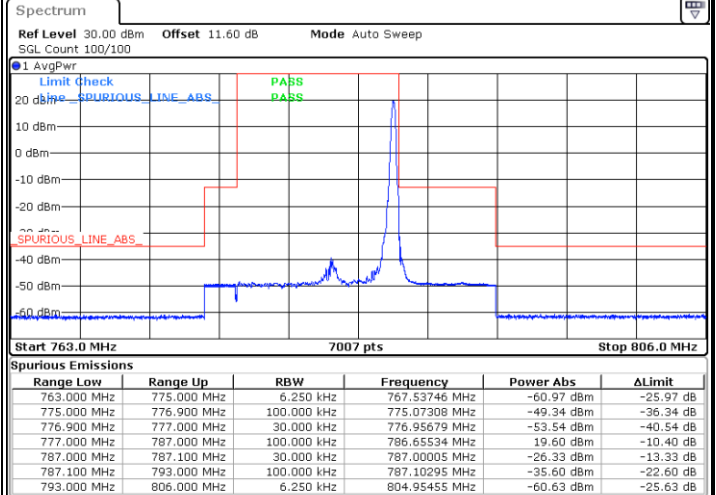
## IC LTE Band 13 / 5MHz / 16QAM

## Lowest Band Edge / 1 RB



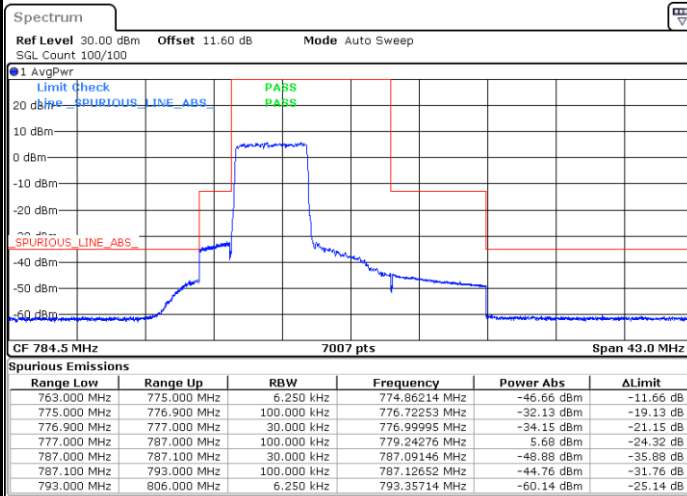
Date: 19.OCT.2023 19:43:05

## Highest Band Edge / 1 RB



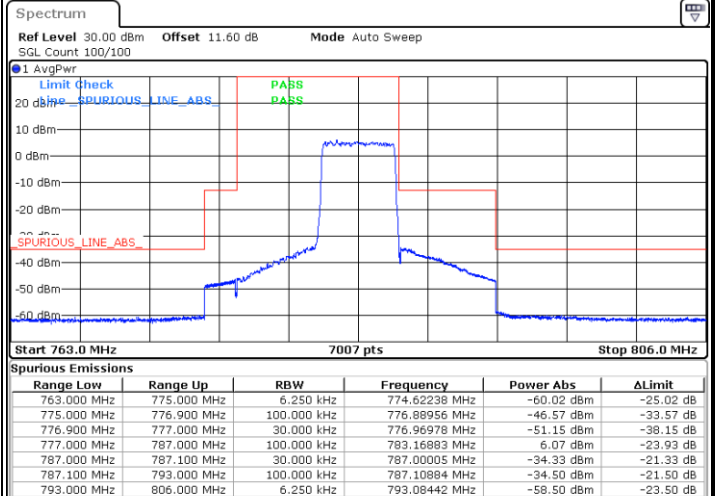
Date: 19.OCT.2023 19:47:13

## Lowest Band Edge / Full RB



Date: 19.OCT.2023 19:42:06

## Highest Band Edge / Full RB



Date: 19.OCT.2023 19:46:12