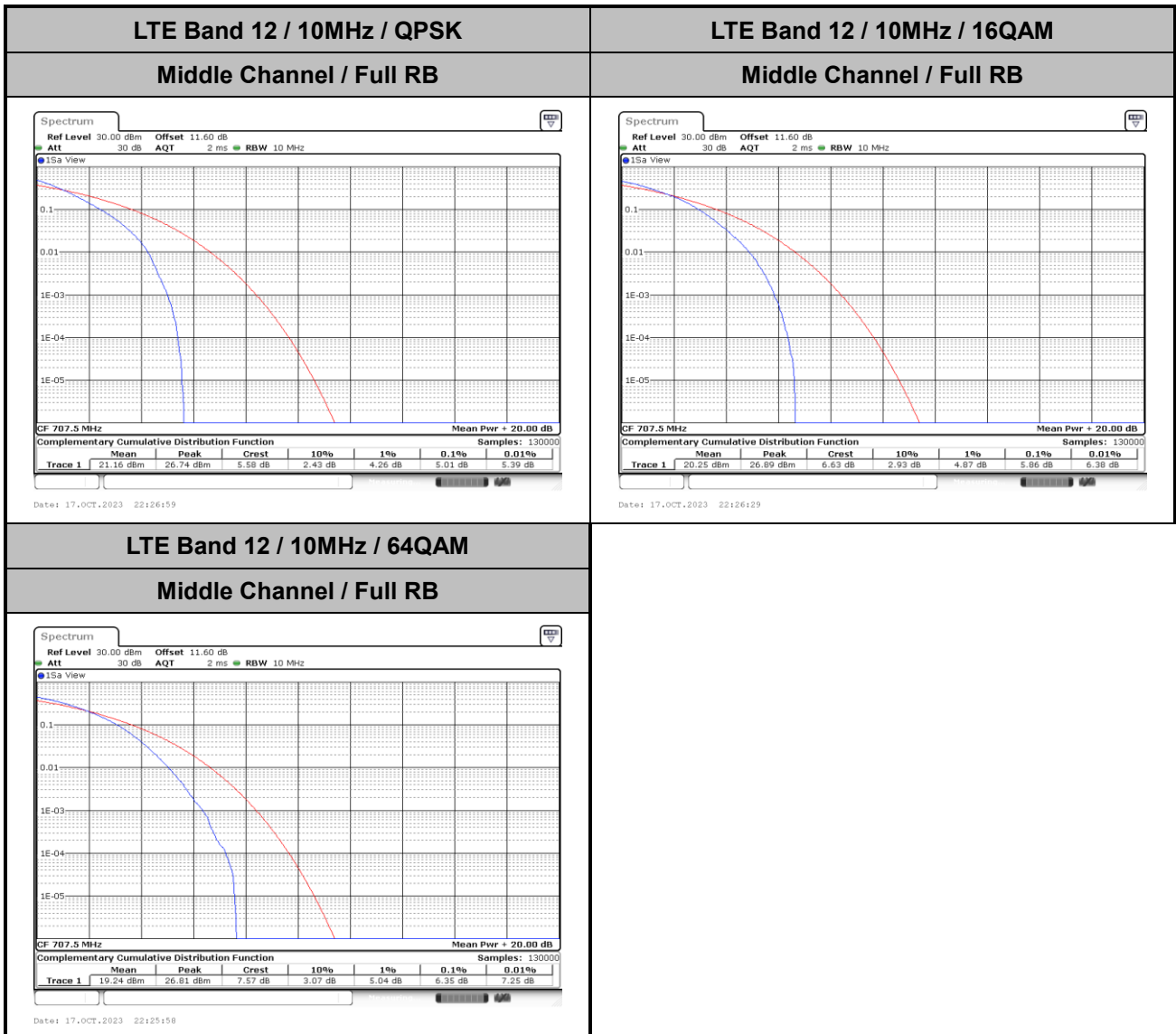




# LTE Band 12

## 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        |





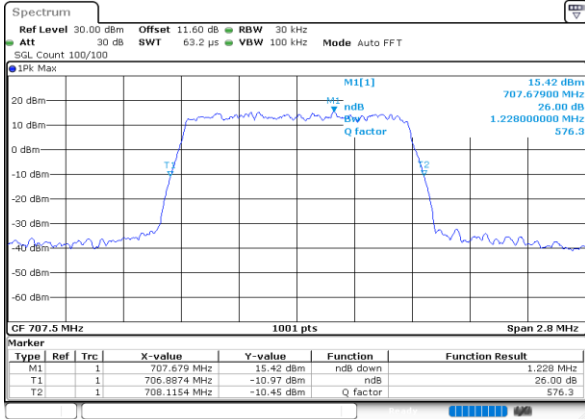
**26dB Bandwidth**

| 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  | -      | -     | -      | -     | -      |



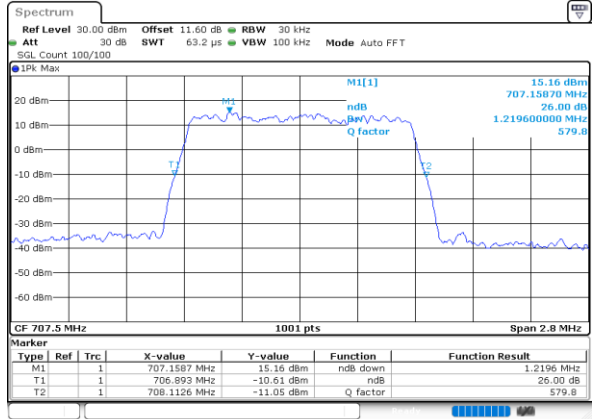
LTE Band 12

Middle Channel / 1.4MHz / QPSK



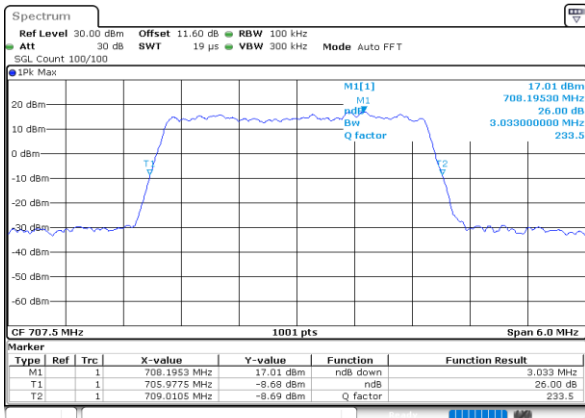
Date: 17.OCT.2023 21:48:27

Middle Channel / 1.4MHz / 16QAM



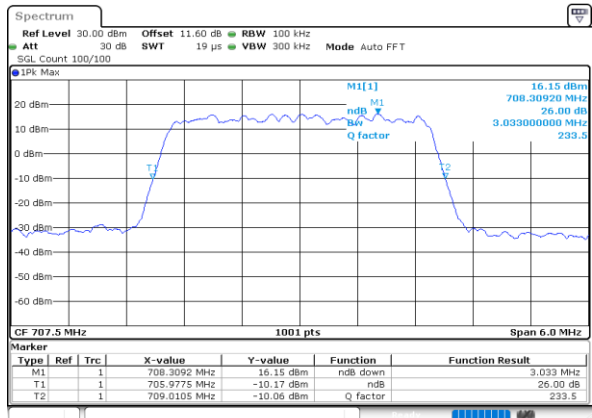
Date: 17.OCT.2023 21:48:56

Middle Channel / 3MHz / QPSK



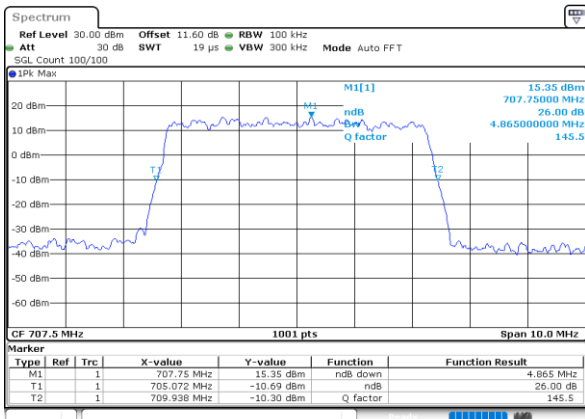
Date: 17.OCT.2023 22:03:28

Middle Channel / 3MHz / 16QAM



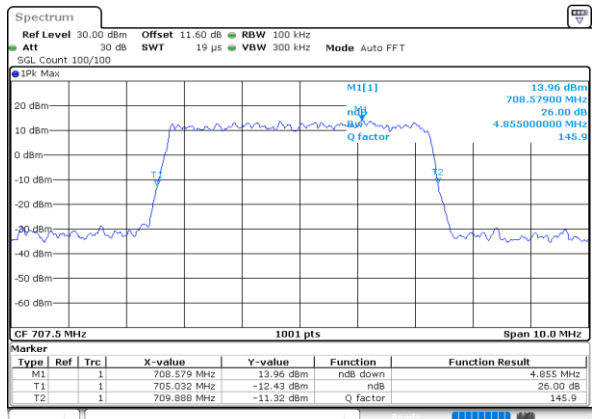
Date: 17.OCT.2023 22:03:57

Middle Channel / 5MHz / QPSK



Date: 17.OCT.2023 22:14:35

Middle Channel / 5MHz / 16QAM

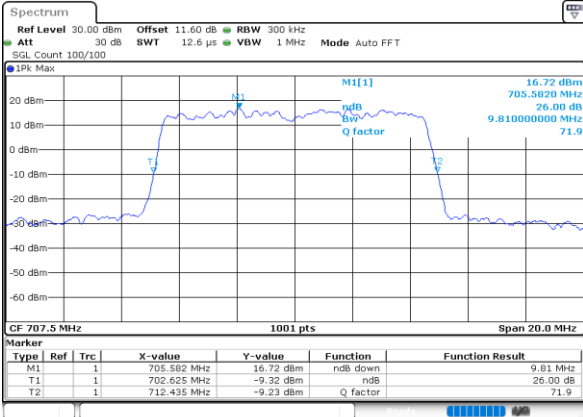


Date: 17.OCT.2023 22:15:04



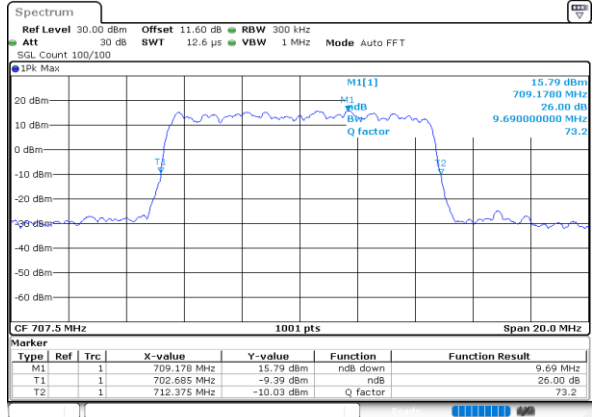
LTE Band 12

Middle Channel / 10MHz / QPSK



Date: 17.OCT.2023 22:20:19

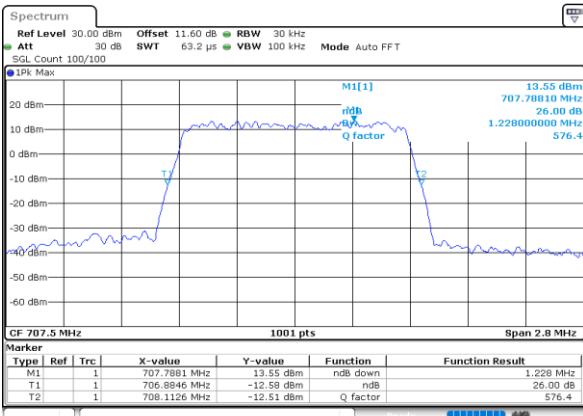
Middle Channel / 10MHz / 16QAM



Date: 17.OCT.2023 22:20:48

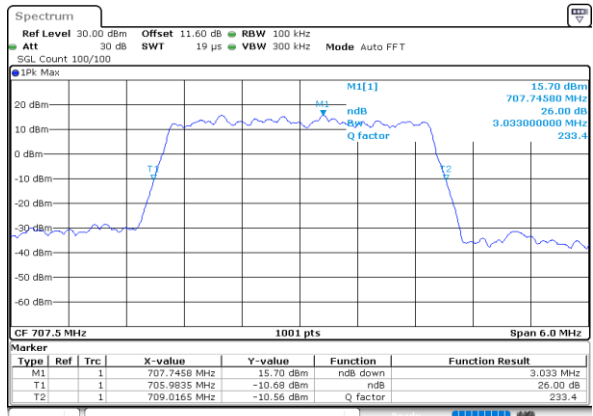
LTE Band 12

Middle Channel / 1.4MHz / 64QAM



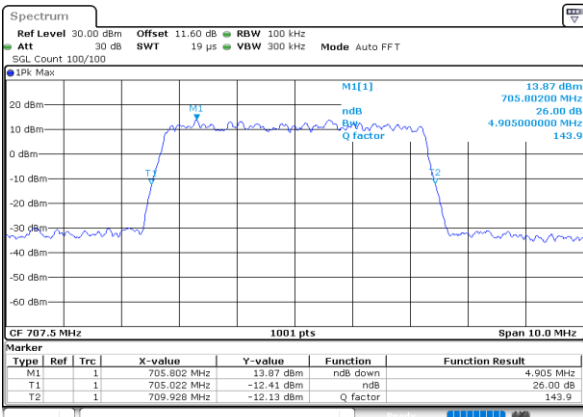
Date: 17.OCT.2023 21:58:14

Middle Channel / 3MHz / 64QAM



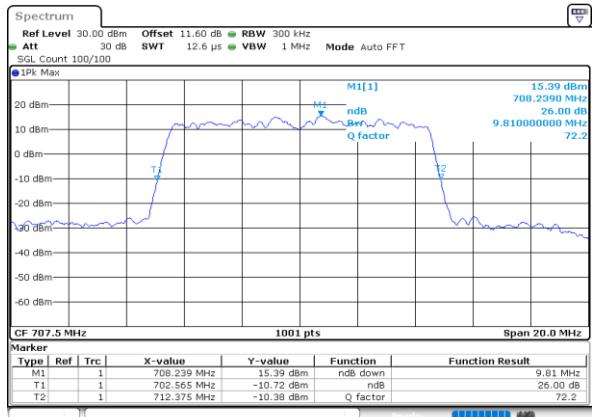
Date: 17.OCT.2023 22:07:39

Middle Channel / 5MHz / 64QAM



Date: 17.OCT.2023 22:10:25

Middle Channel / 10MHz / 64QAM



Date: 17.OCT.2023 22:24:29



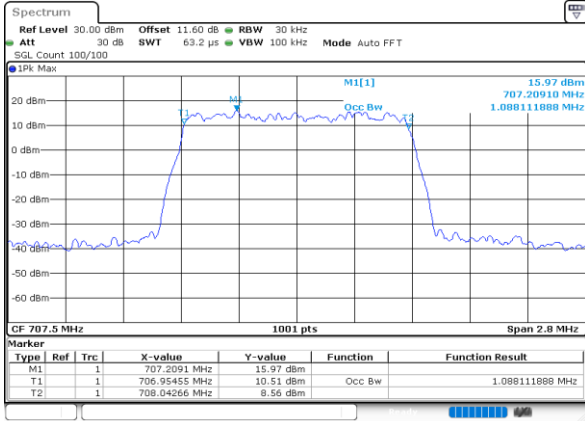
**Occupied Bandwidth**

| 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  | -      | -     | -      | -     | -      |



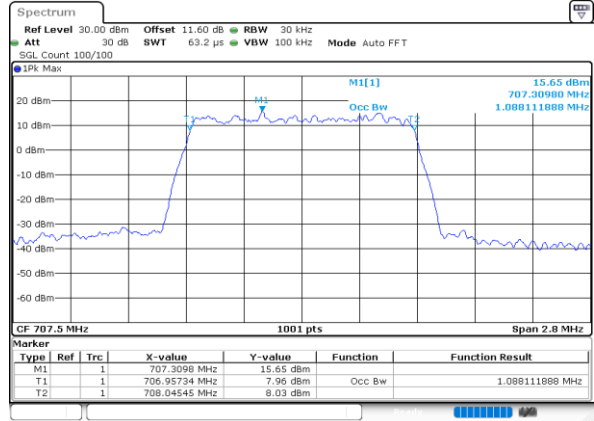
LTE Band 12

Middle Channel / 1.4MHz / QPSK



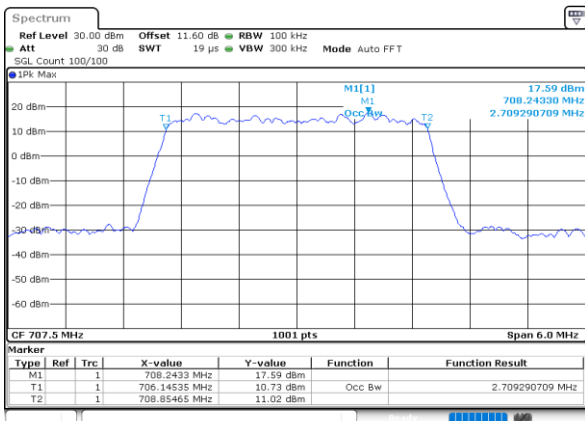
Date: 17.OCT.2023 21:48:13

Middle Channel / 1.4MHz / 16QAM



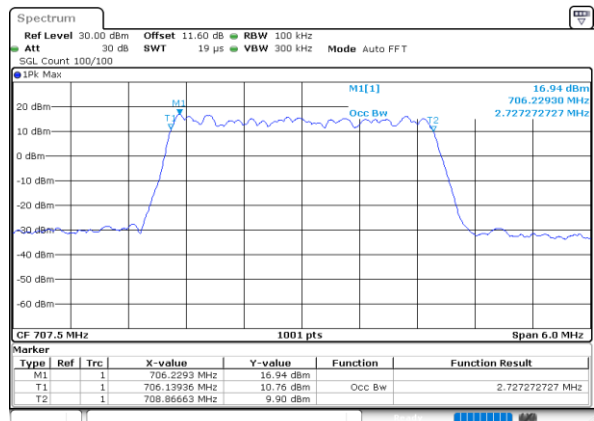
Date: 17.OCT.2023 21:47:44

Middle Channel / 3MHz / QPSK



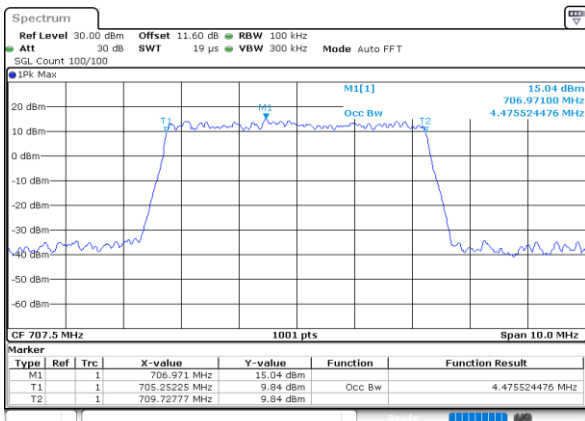
Date: 17.OCT.2023 22:03:14

Middle Channel / 3MHz / 16QAM



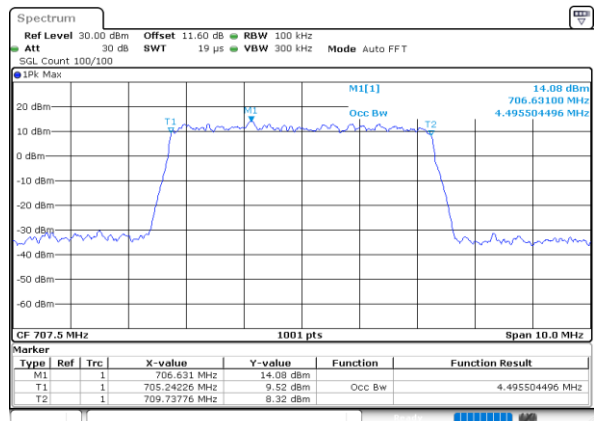
Date: 17.OCT.2023 22:02:45

Middle Channel / 5MHz / QPSK



Date: 17.OCT.2023 22:14:21

Middle Channel / 5MHz / 16QAM

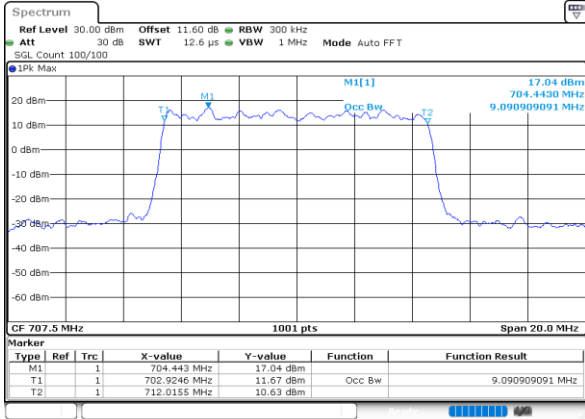


Date: 17.OCT.2023 22:13:52



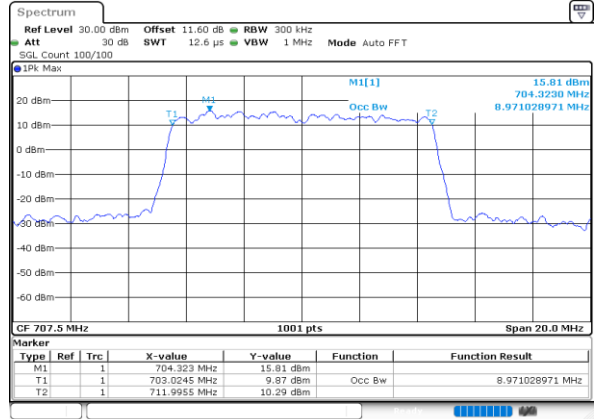
LTE Band 12

Middle Channel / 10MHz / QPSK



Date: 17.OCT.2023 22:20:05

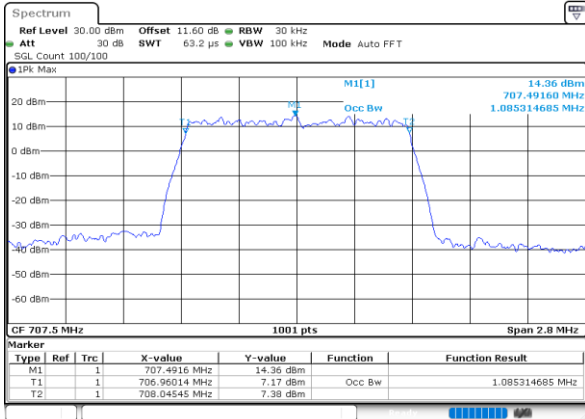
Middle Channel / 10MHz / 16QAM



Date: 17.OCT.2023 22:19:36

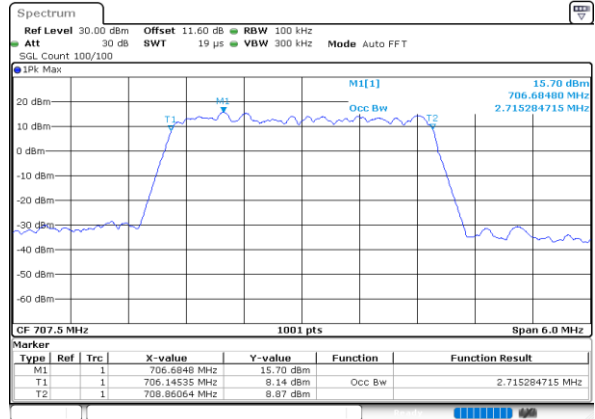
LTE Band 12

Middle Channel / 1.4MHz / 64QAM



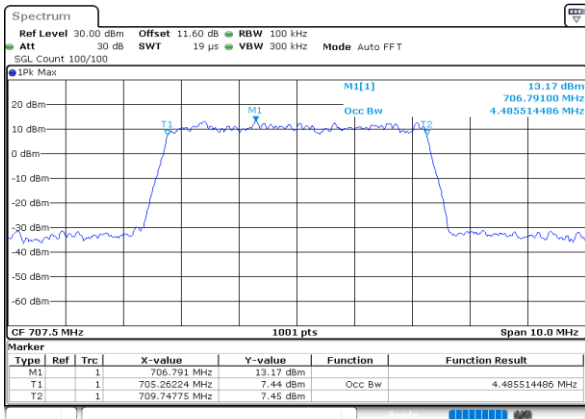
Date: 17.OCT.2023 21:58:00

Middle Channel / 3MHz / 64QAM



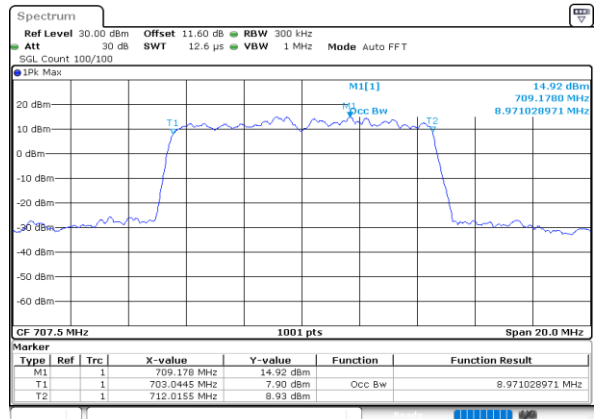
Date: 17.OCT.2023 22:10:25

Middle Channel / 5MHz / 64QAM



Date: 17.OCT.2023 22:10:11

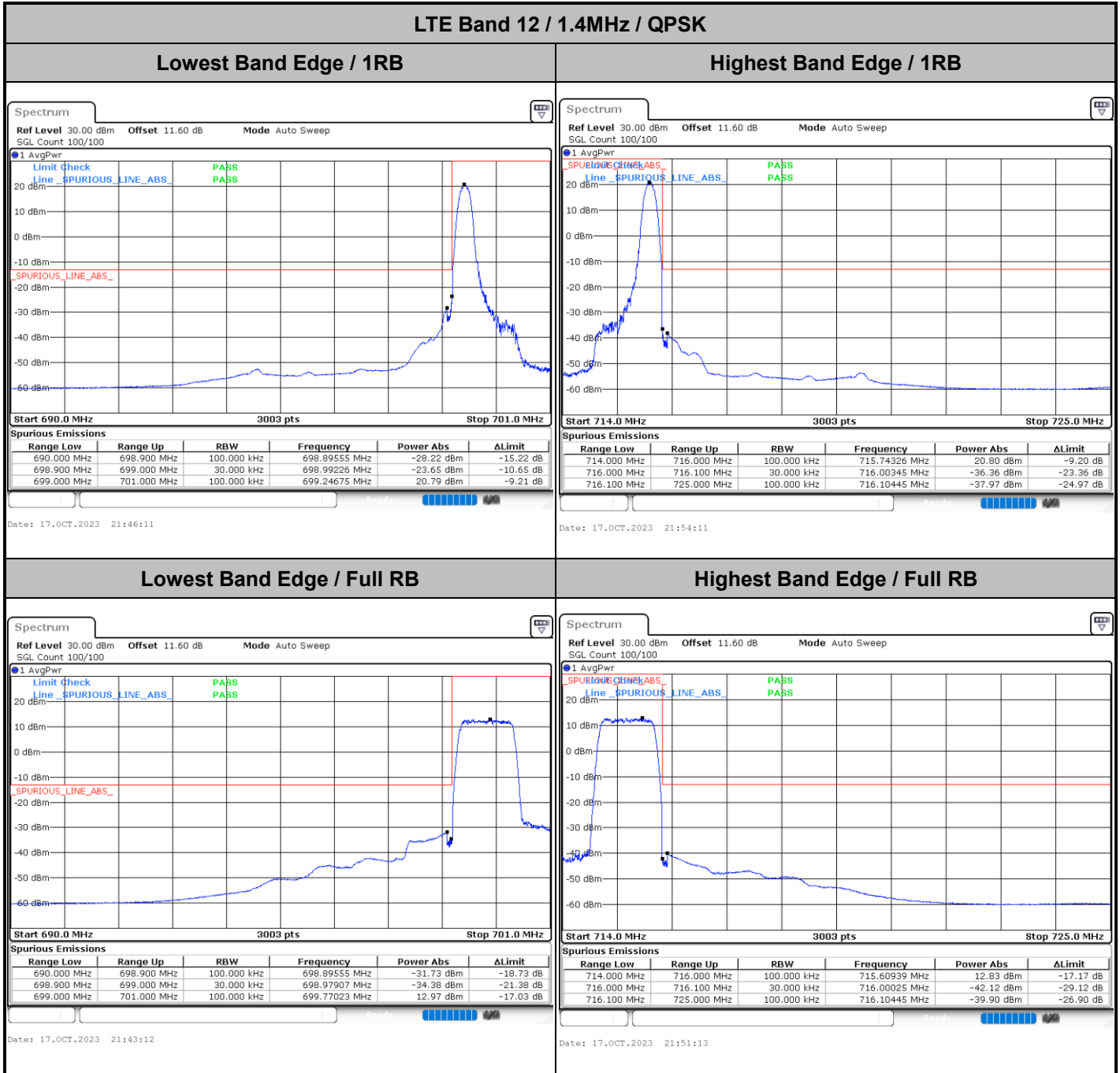
Middle Channel / 10MHz / 64QAM



Date: 17.OCT.2023 22:12:15



# Conducted Band Edge

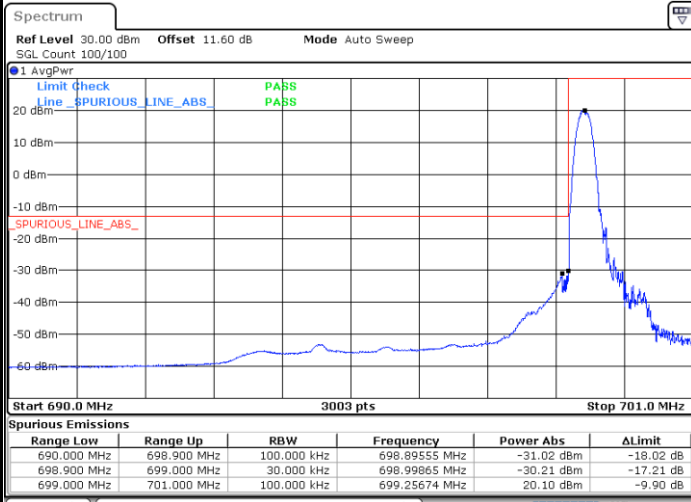






LTE Band 12 / 1.4MHz / 16QAM

Lowest Band Edge / 1 RB



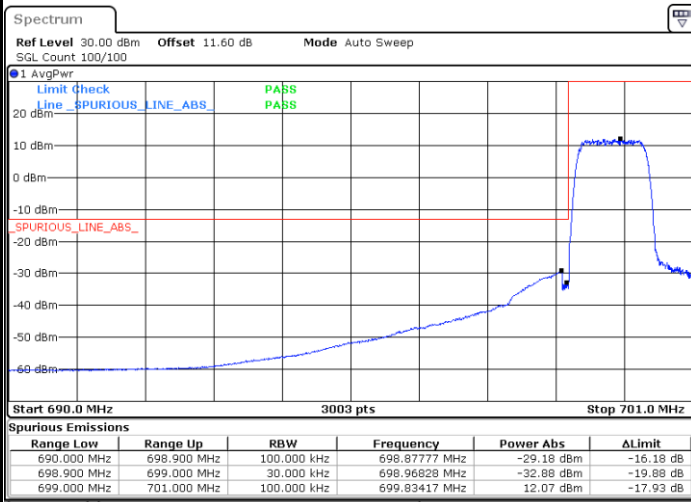
Date: 17.OCT.2023 21:45:12

Highest Band Edge / 1 RB



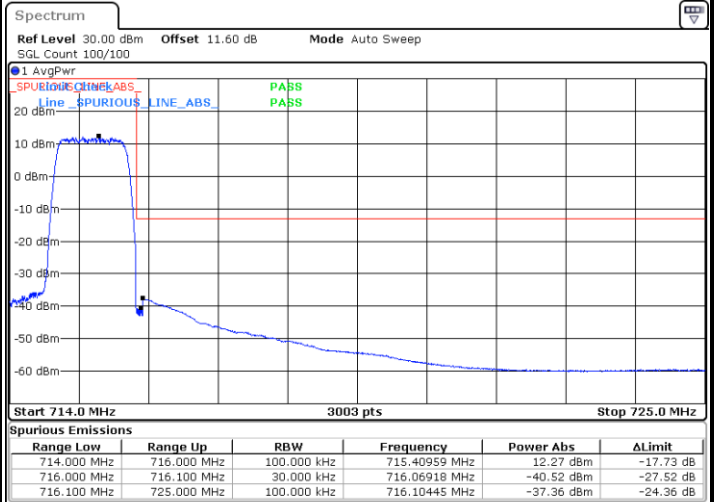
Date: 17.OCT.2023 21:53:12

Lowest Band Edge / Full RB



Date: 17.OCT.2023 21:44:12

Highest Band Edge / Full RB

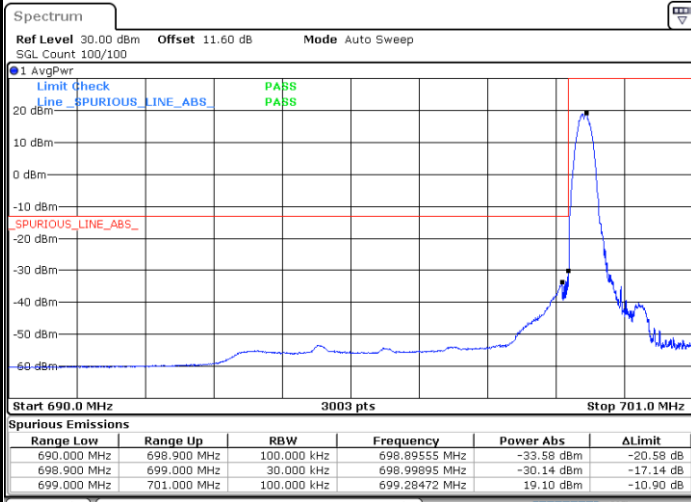


Date: 17.OCT.2023 21:52:12



LTE Band 12 / 1.4MHz / 64QAM

Lowest Band Edge / 1 RB



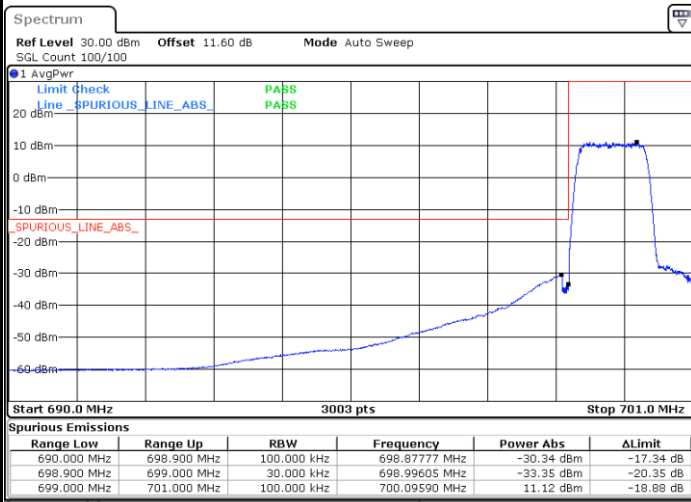
Date: 17.OCT.2023 21:57:29

Highest Band Edge / 1 RB



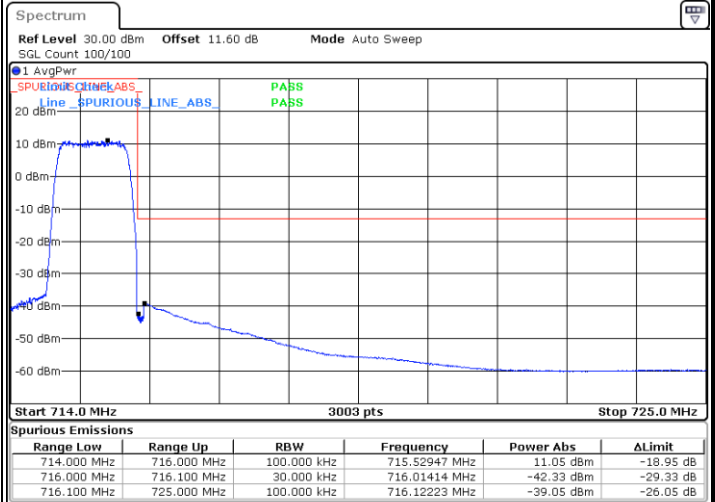
Date: 17.OCT.2023 22:00:11

Lowest Band Edge / Full RB



Date: 17.OCT.2023 21:56:30

Highest Band Edge / Full RB

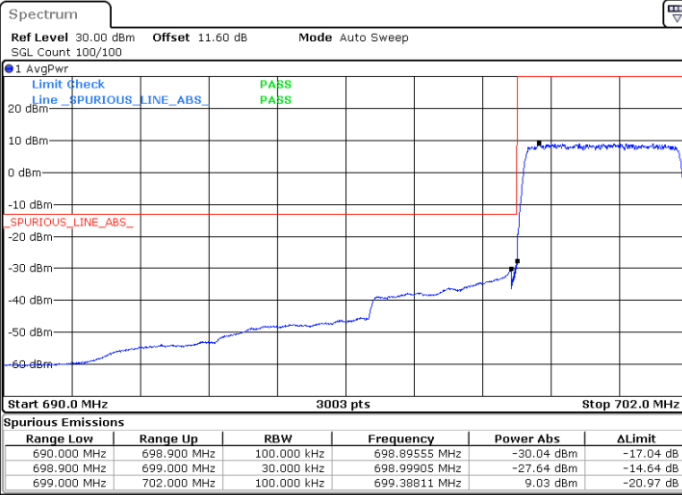


Date: 17.OCT.2023 21:59:12



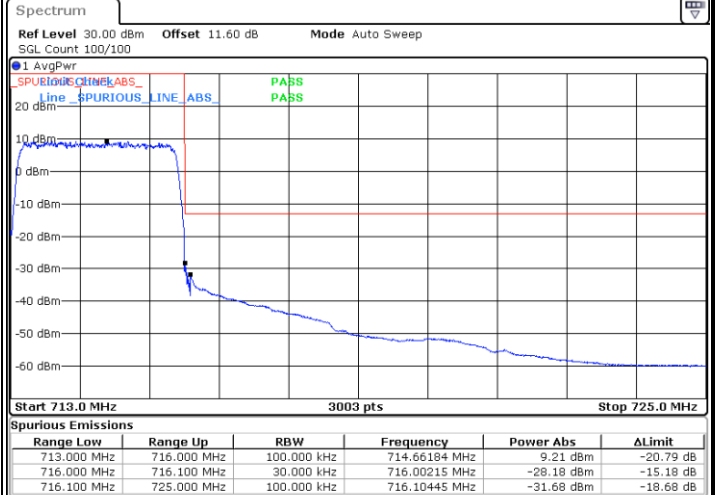
LTE Band 12 / 3MHz / QPSK

Lowest Band Edge / Full RB



Date: 17.OCT.2023 22:01:16

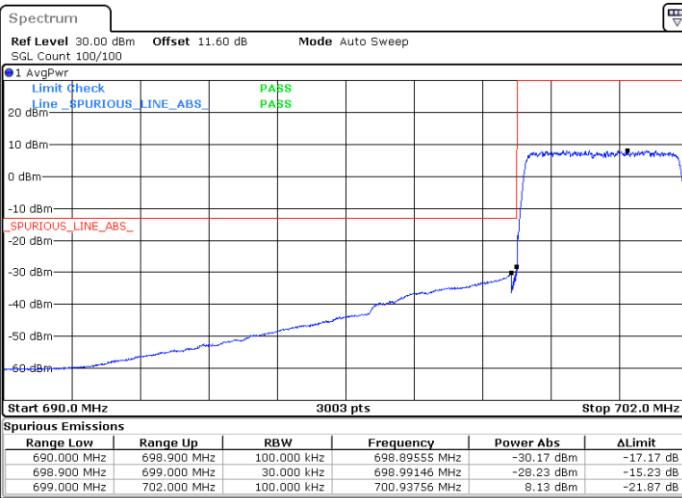
Highest Band Edge / Full RB



Date: 17.OCT.2023 22:04:56

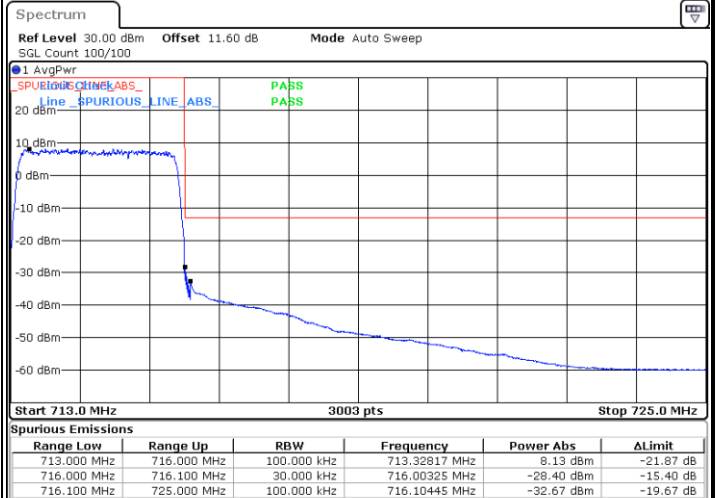
LTE Band 12 / 3MHz / 16QAM

Lowest Band Edge / Full RB

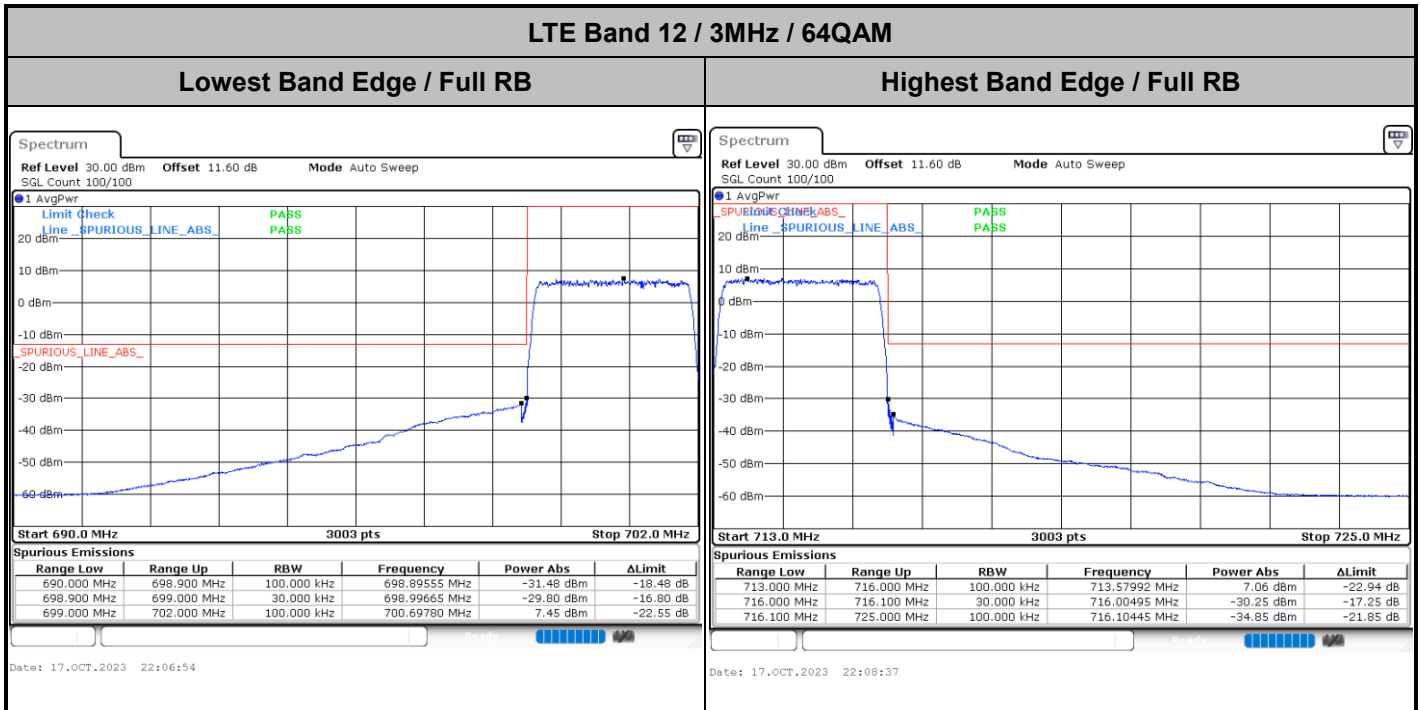


Date: 17.OCT.2023 22:02:15

Highest Band Edge / Full RB



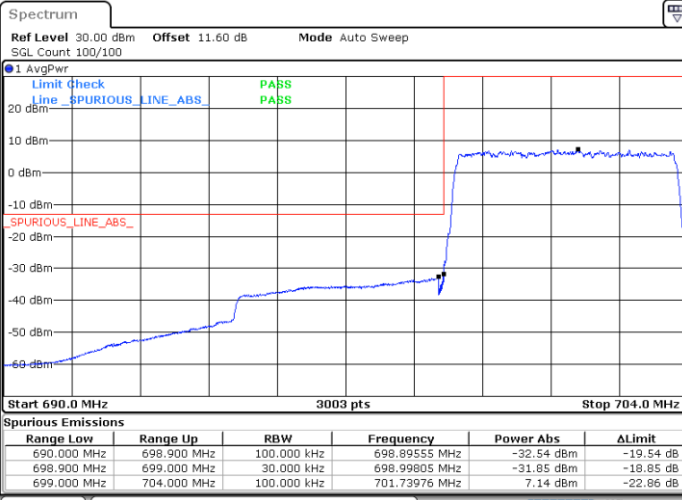
Date: 17.OCT.2023 22:05:55





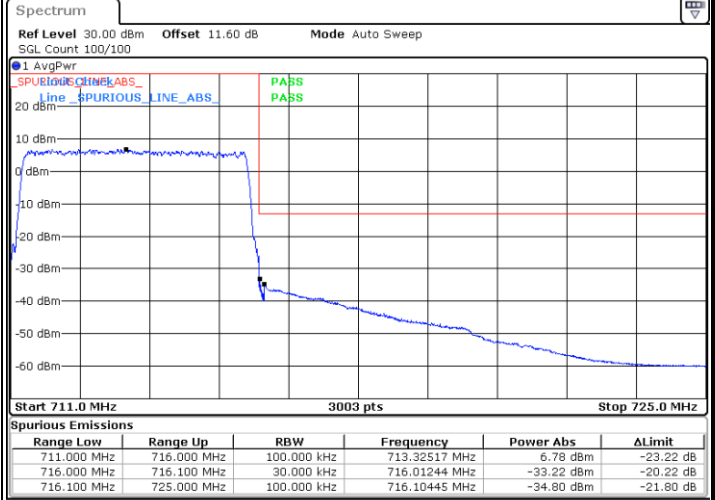
LTE Band 12 / 5MHz / QPSK

Lowest Band Edge / Full RB



Date: 17.OCT.2023 22:12:23

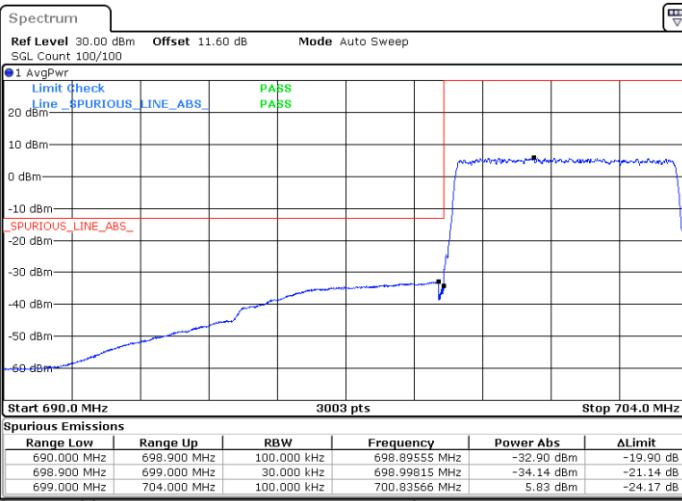
Highest Band Edge / Full RB



Date: 17.OCT.2023 22:16:03

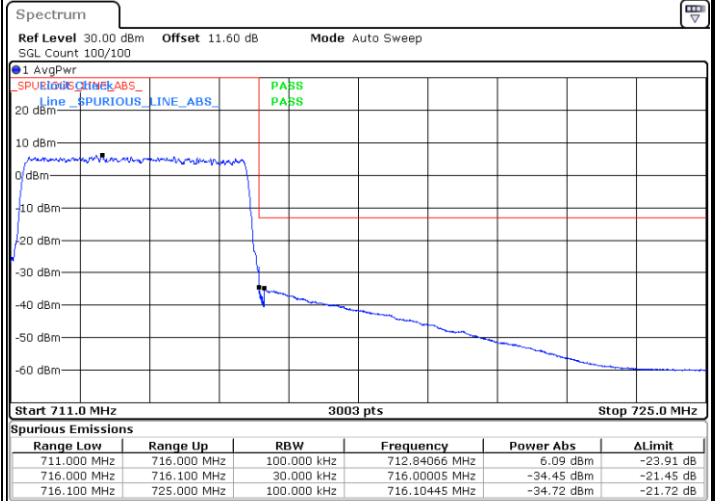
LTE Band 12 / 5MHz / 16QAM

Lowest Band Edge / Full RB



Date: 17.OCT.2023 22:13:22

Highest Band Edge / Full RB



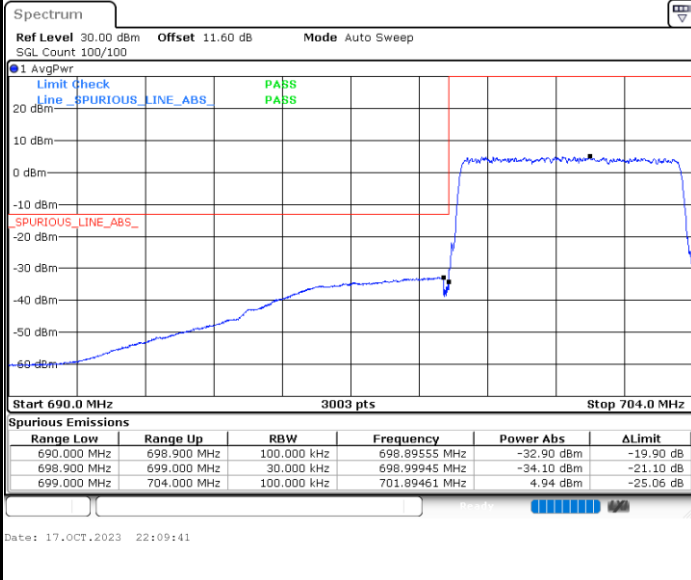
Date: 17.OCT.2023 22:17:02



LTE Band 12 / 5MHz / 64QAM

Lowest Band Edge / Full RB

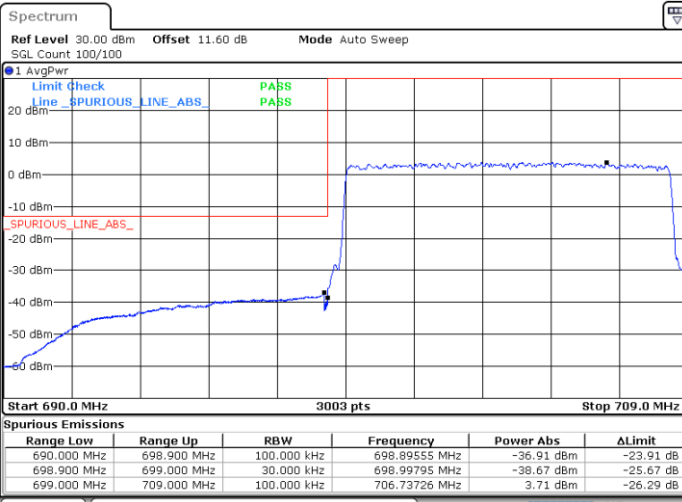
Highest Band Edge / Full RB





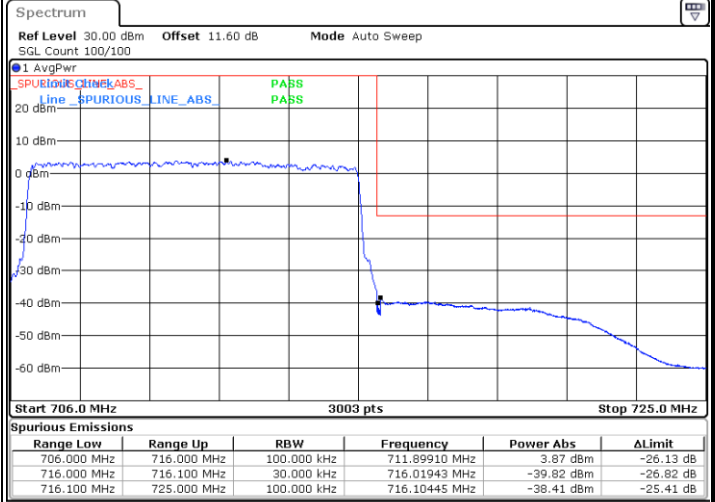
LTE Band 12 / 10MHz / QPSK

Lowest Band Edge / Full RB



Date: 17.OCT.2023 22:18:06

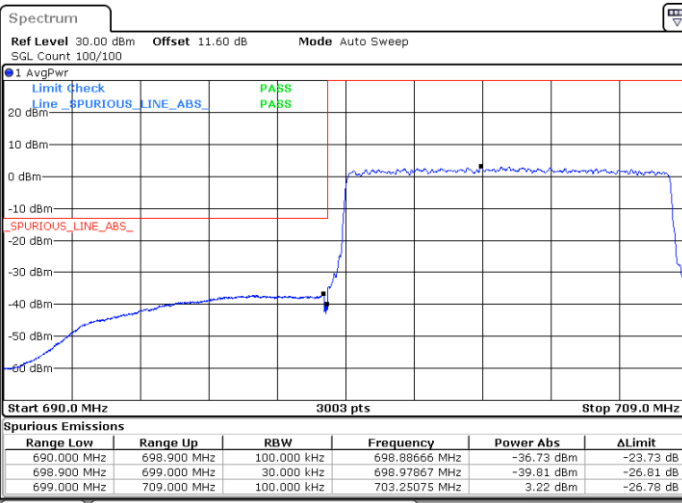
Highest Band Edge / Full RB



Date: 17.OCT.2023 22:21:46

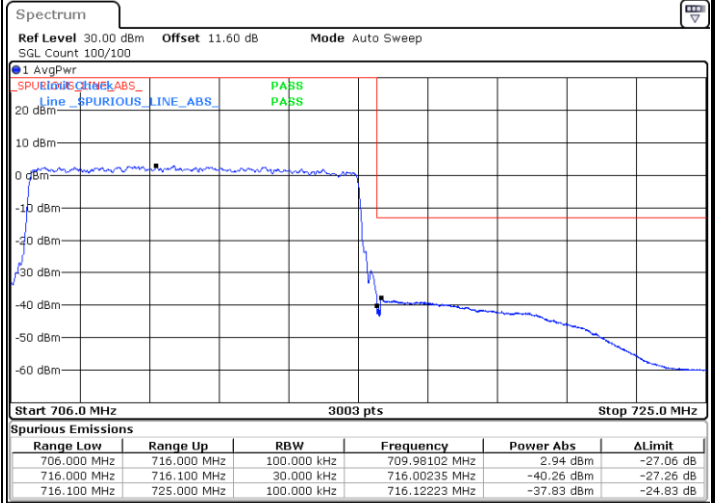
LTE Band 12 / 10MHz / 16QAM

Lowest Band Edge / Full RB



Date: 17.OCT.2023 22:19:06

Highest Band Edge / Full RB



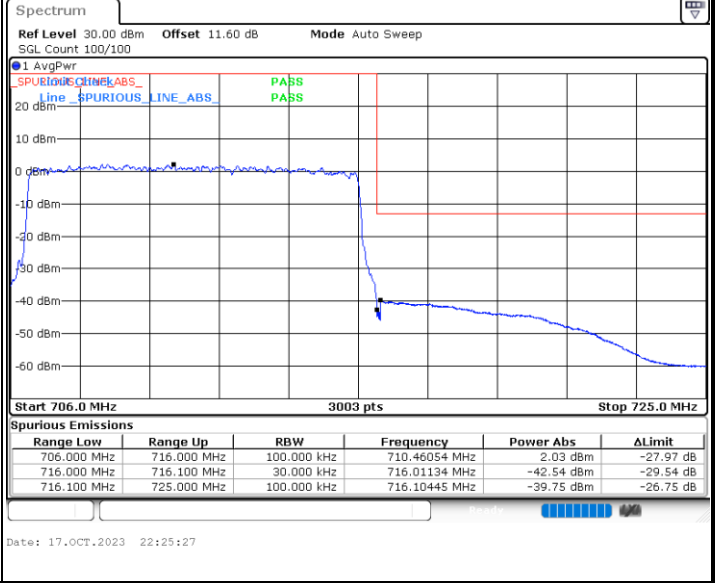
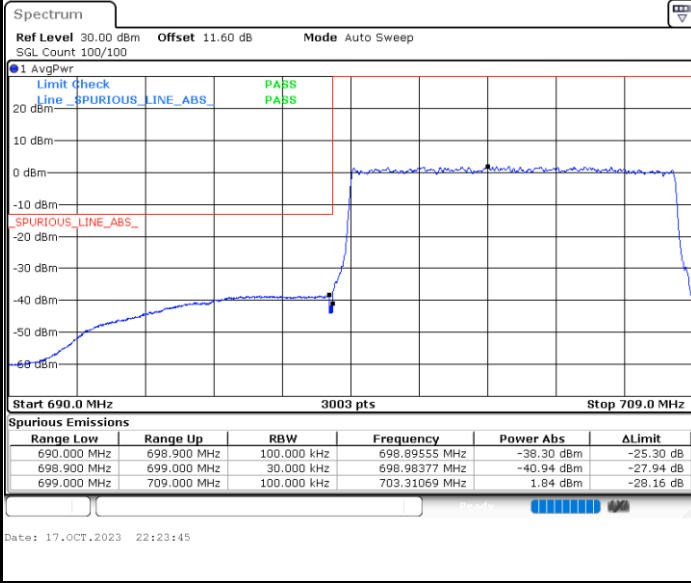
Date: 17.OCT.2023 22:22:45



LTE Band 12 / 10MHz / 64QAM

Lowest Band Edge / Full RB

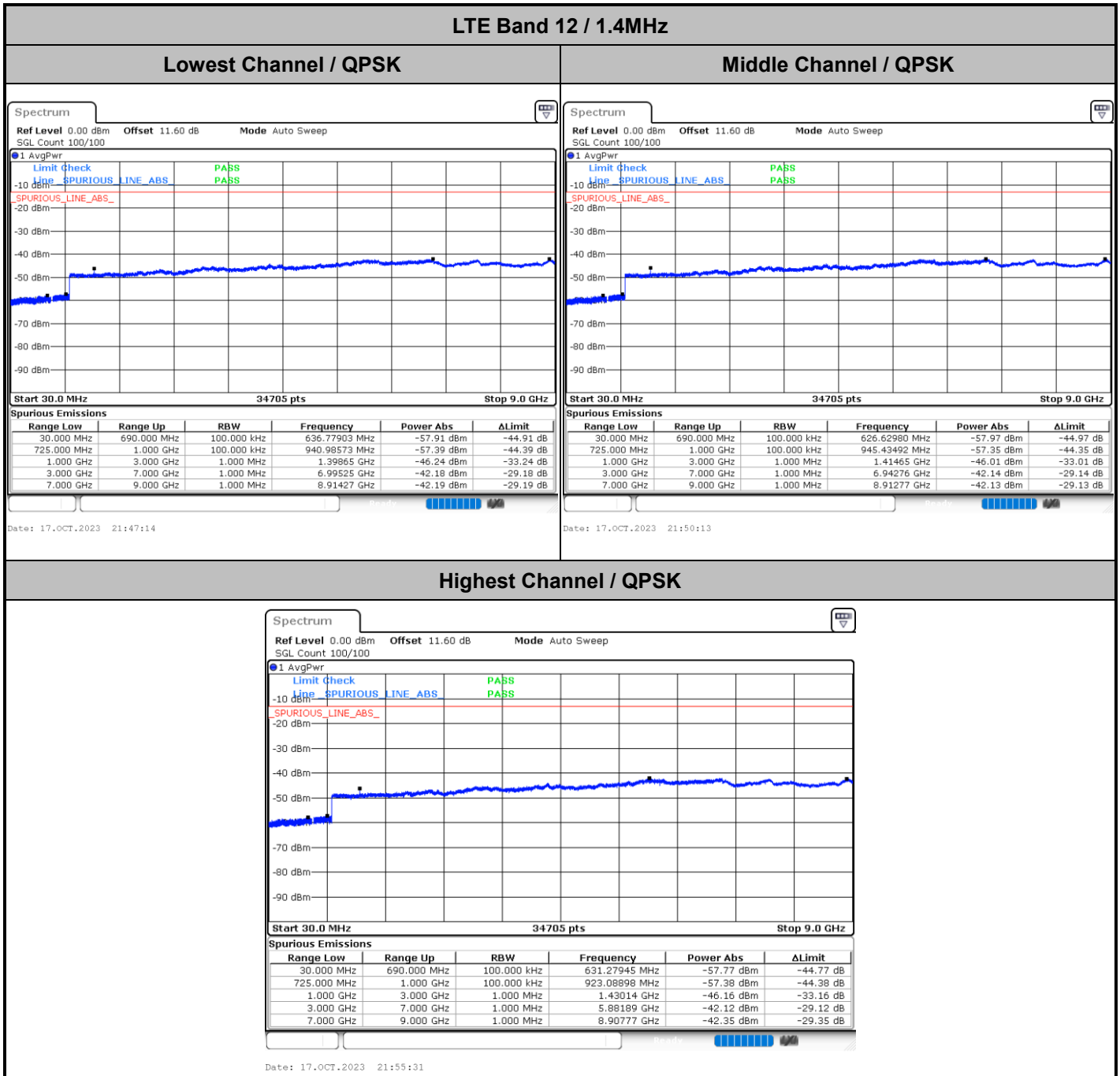
Highest Band Edge / Full RB







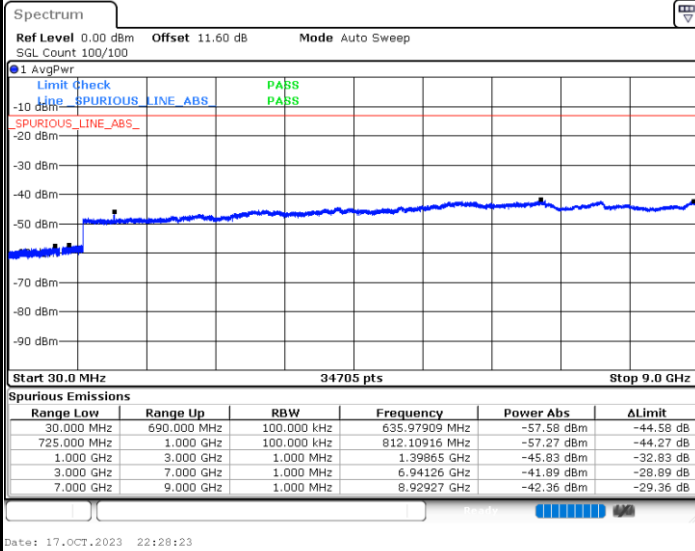
# Conducted Spurious Emission



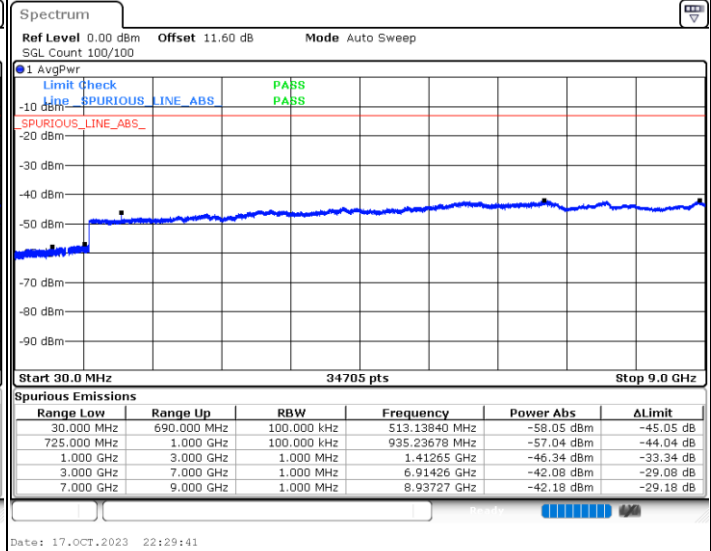


LTE Band 12 / 3MHz

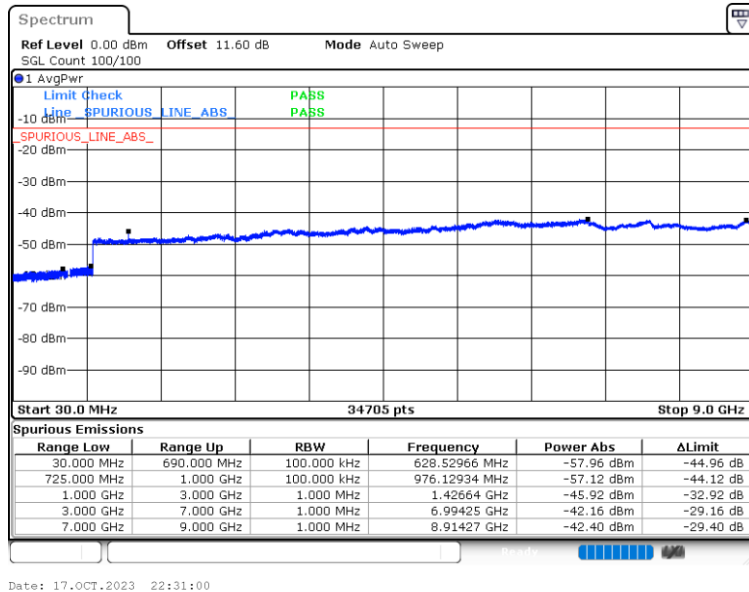
Lowest Channel / QPSK



Middle Channel / QPSK



Highest Channel / QPSK

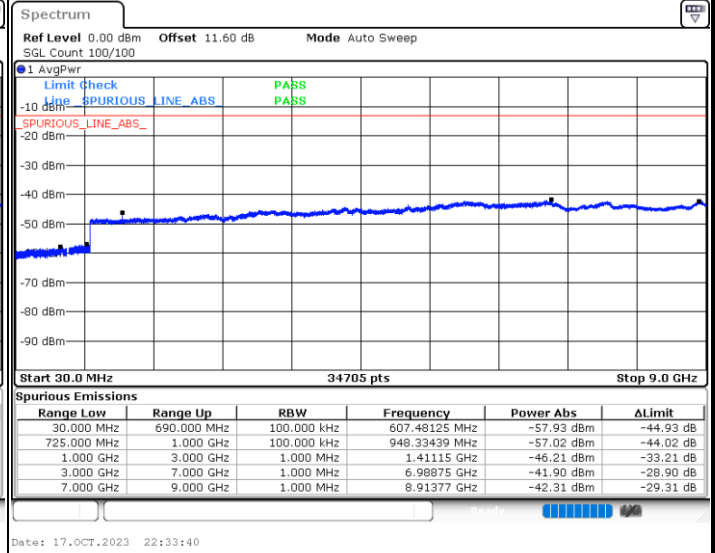
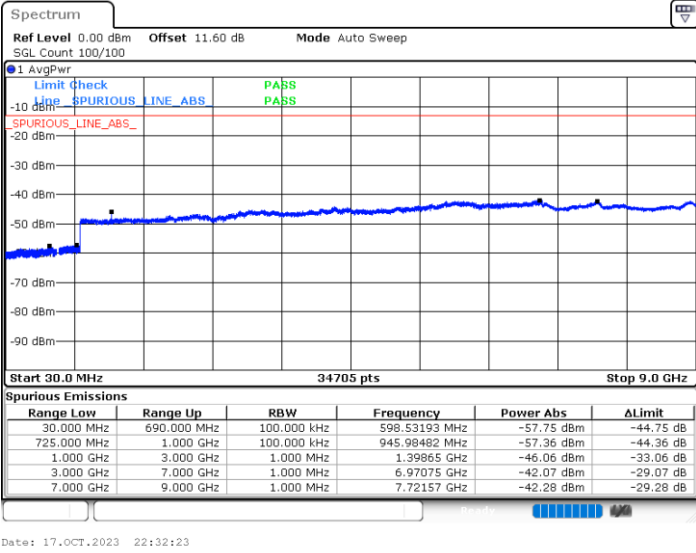




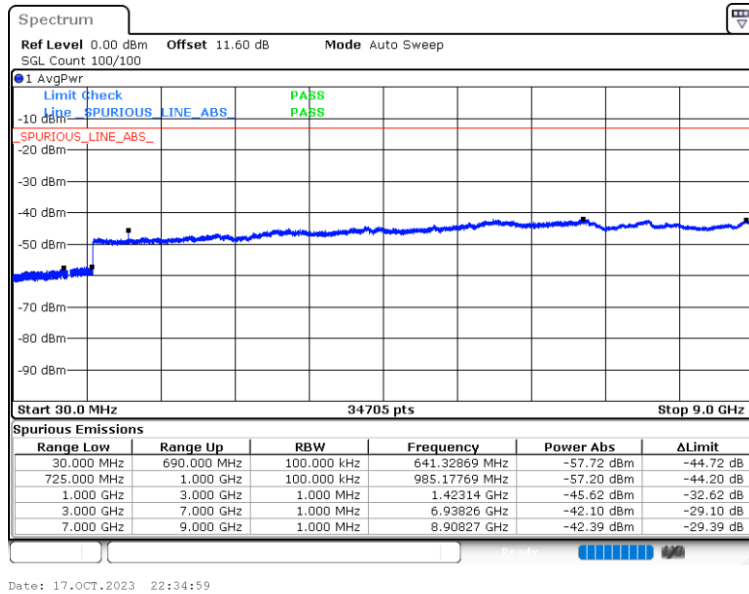
LTE Band 12 / 5MHz

Lowest Channel / QPSK

Middle Channel / QPSK



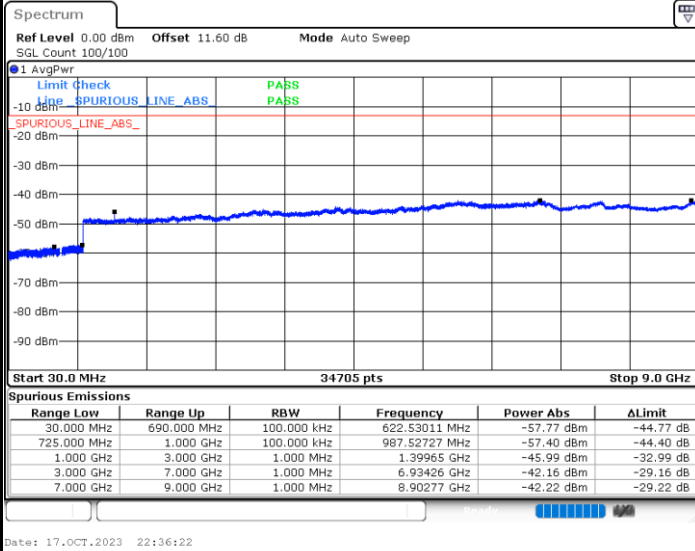
Highest Channel / QPSK



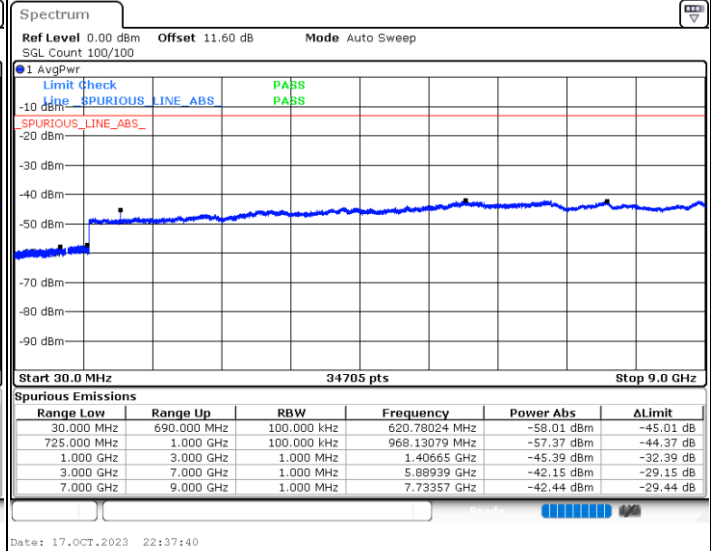


LTE Band 12 / 10MHz

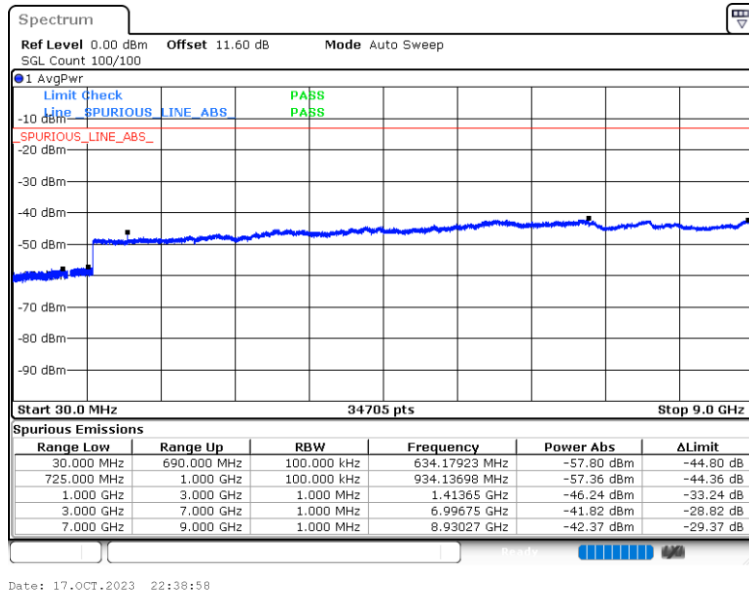
Lowest Channel / QPSK



Middle Channel / QPSK



Highest Channel / QPSK





**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:**

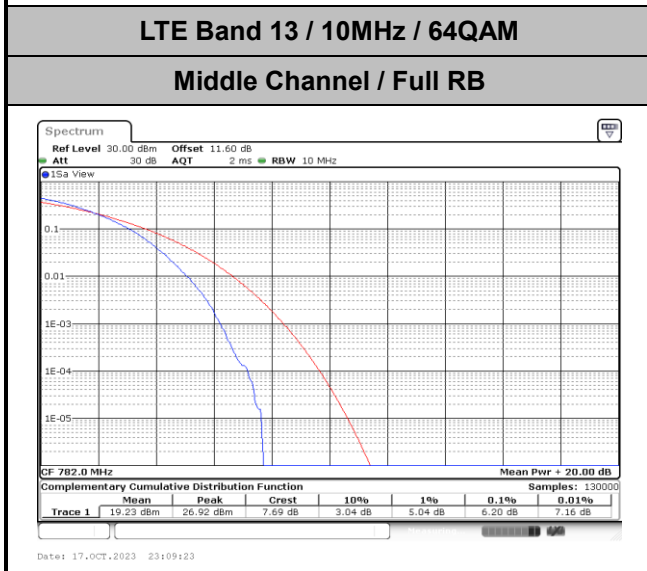
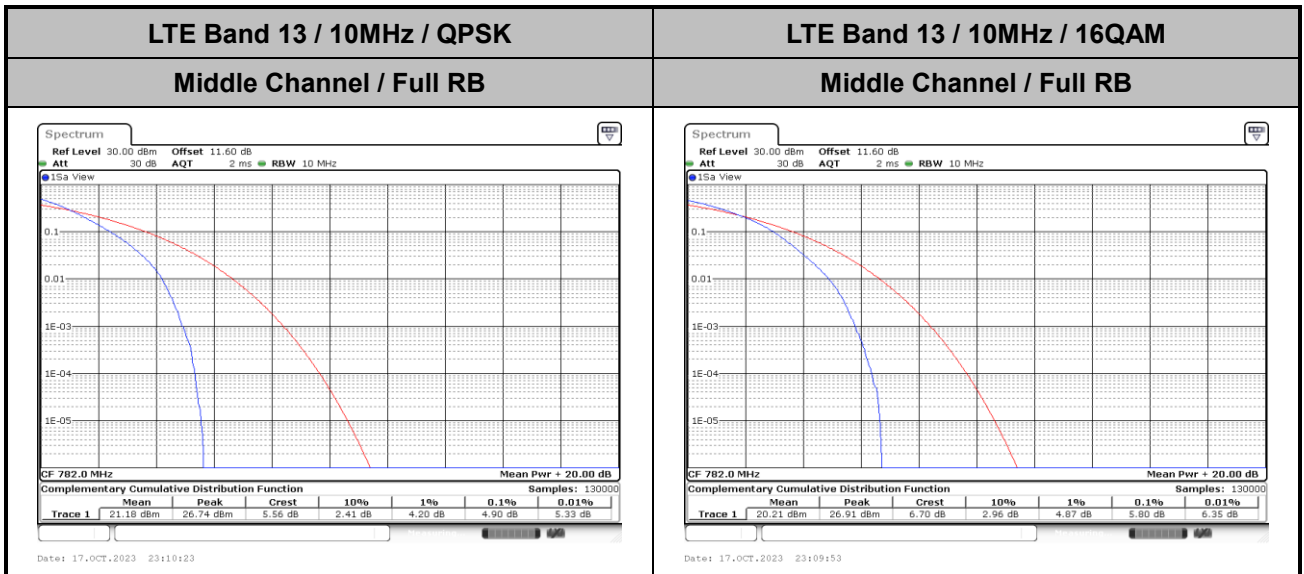
1. Normal Voltage = 3.8 V. ; Battery End Point (BEP) = 3.4 V. ; Maximum Voltage = 4.2 V.
2. The frequency fundamental emissions stay within the authorized frequency block.



# 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        |





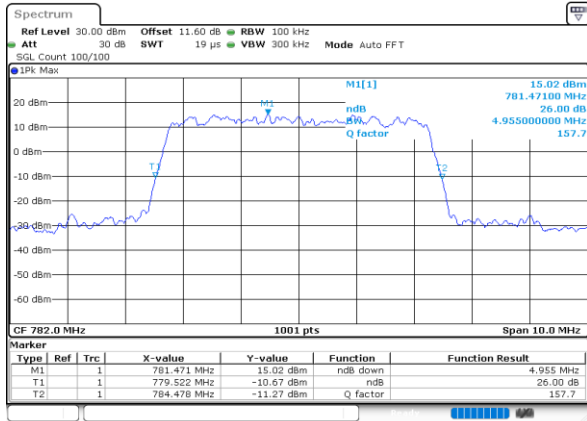
**26dB Bandwidth**

| 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  | -      | -     | -      | -     | -      |



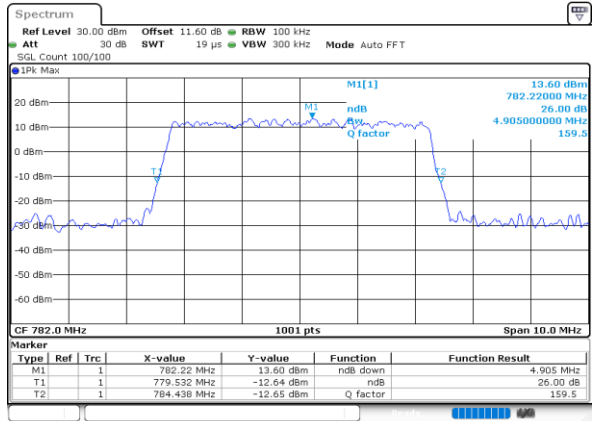
LTE Band 13

Middle Channel / 5MHz / QPSK



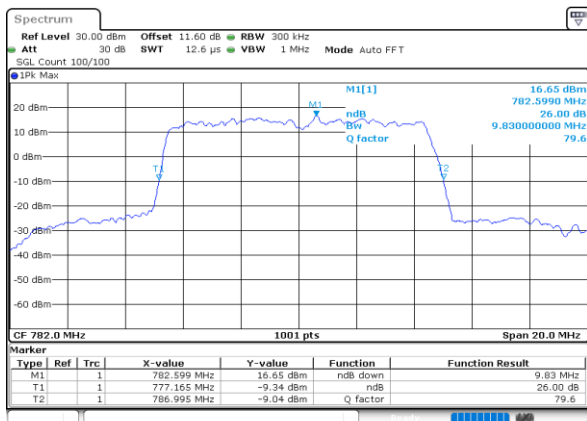
Date: 17.OCT.2023 22:53:02

Middle Channel / 5MHz / 16QAM



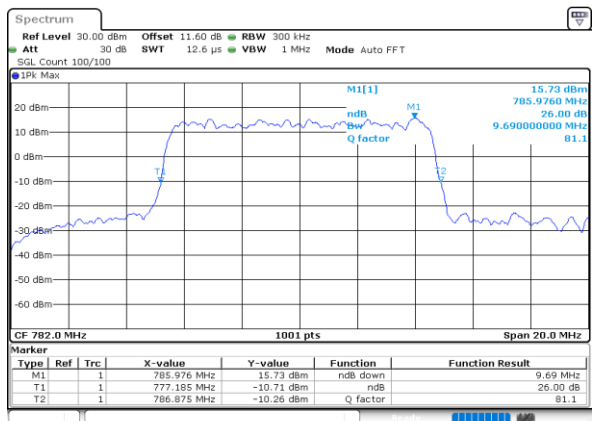
Date: 17.OCT.2023 22:53:31

Middle Channel / 10MHz / QPSK



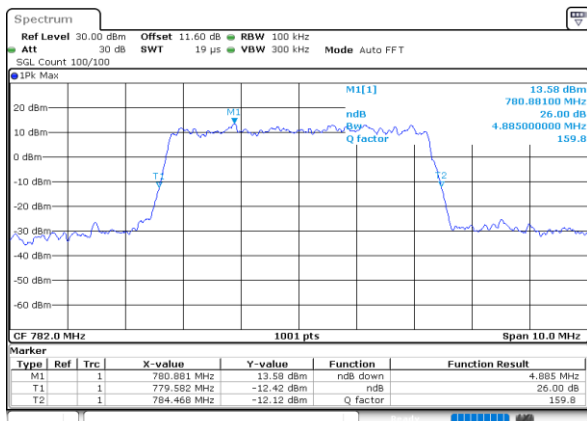
Date: 17.OCT.2023 23:05:57

Middle Channel / 10MHz / 16QAM



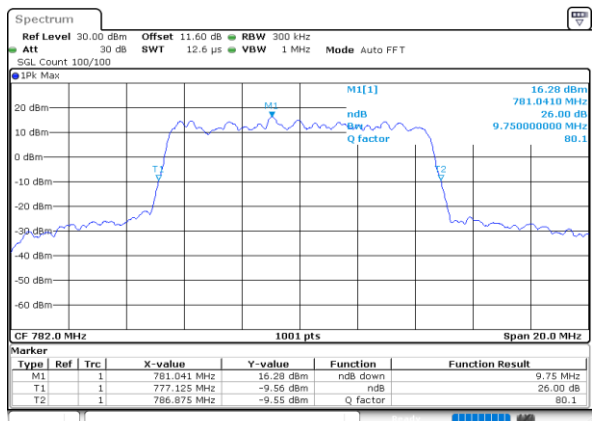
Date: 17.OCT.2023 23:05:28

Middle Channel / 5MHz / 64QAM



Date: 17.OCT.2023 23:01:58

Middle Channel / 10MHz / 64QAM



Date: 17.OCT.2023 23:08:23





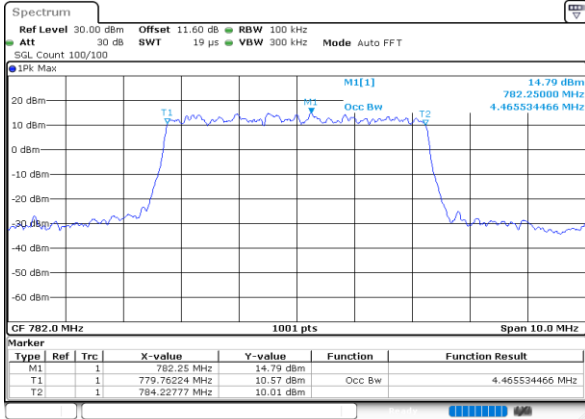
**Occupied Bandwidth**

| 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  | -      | -     | -      | -     | -      |



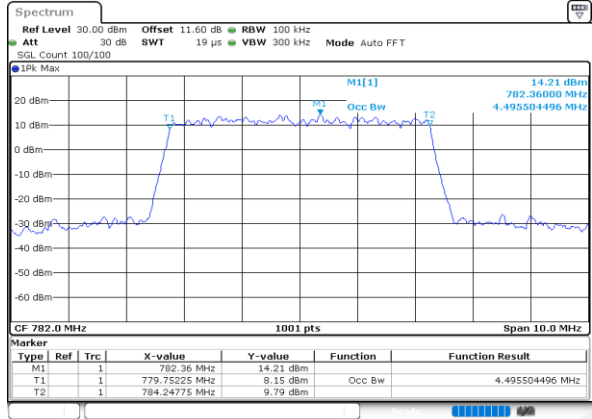
LTE Band 13

Middle Channel / 5MHz / QPSK



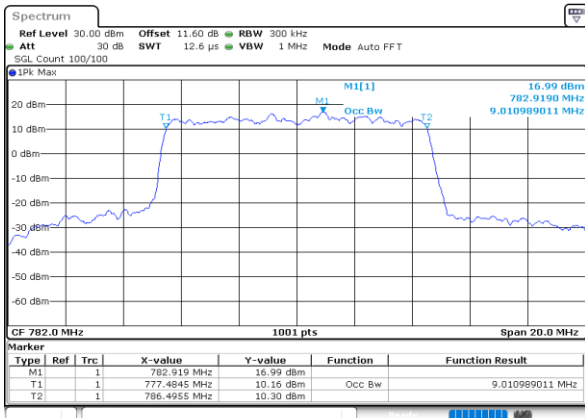
Date: 17.OCT.2023 22:54:14

Middle Channel / 5MHz / 16QAM



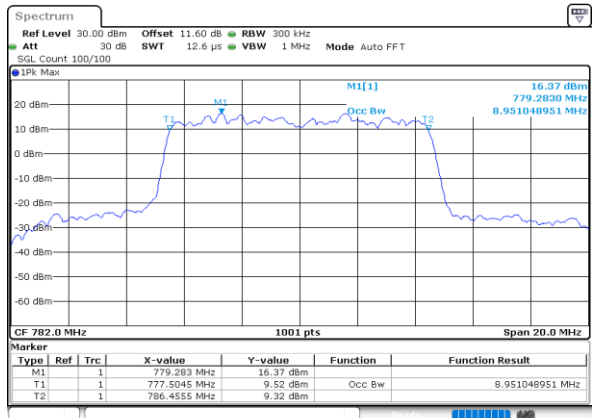
Date: 17.OCT.2023 22:53:45

Middle Channel / 10MHz / QPSK



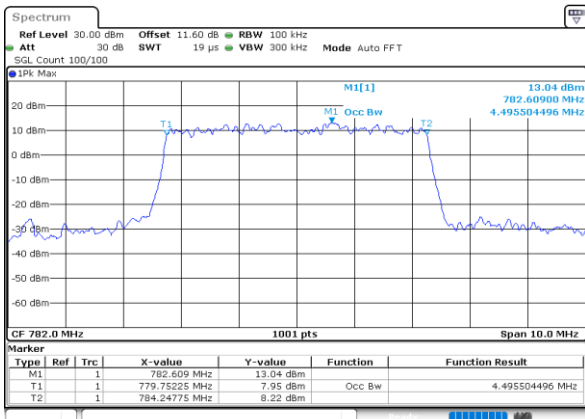
Date: 17.OCT.2023 23:04:15

Middle Channel / 10MHz / 16QAM



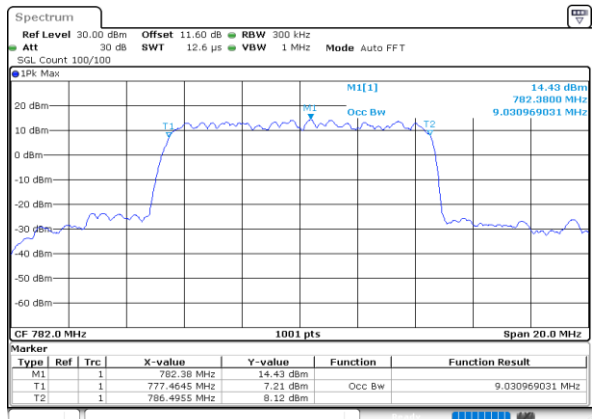
Date: 17.OCT.2023 23:05:14

Middle Channel / 5MHz / 64QAM



Date: 17.OCT.2023 23:02:12

Middle Channel / 10MHz / 64QAM



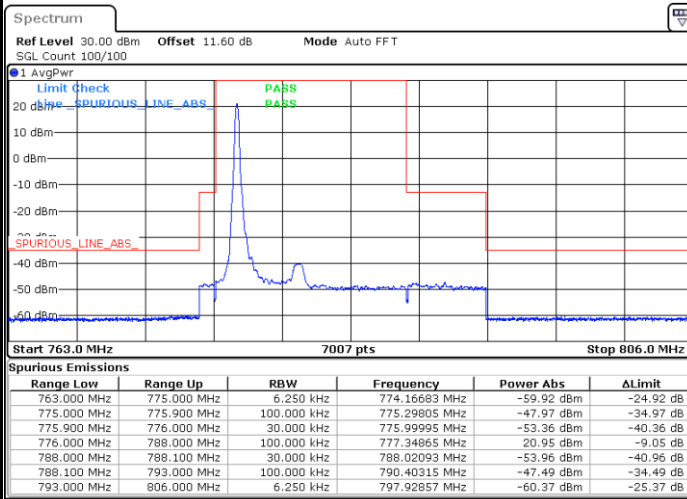
Date: 17.OCT.2023 23:08:09



# Conducted Band Edge

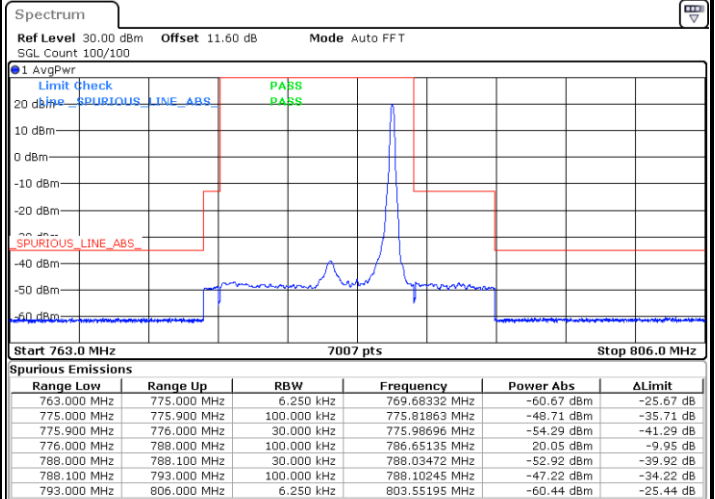
## LTE Band 13 / 5MHz / QPSK

### Lowest Band Edge / 1 RB



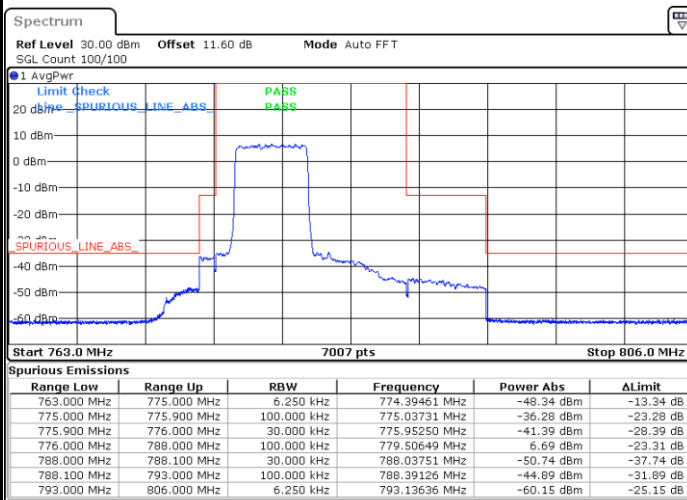
Date: 17.OCT.2023 22:50:10

### Highest Band Edge / 1 RB



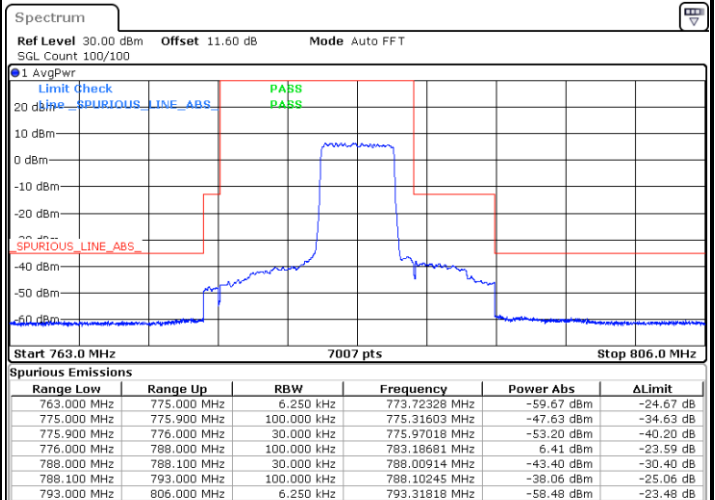
Date: 17.OCT.2023 22:58:10

### Lowest Band Edge / Full RB



Date: 17.OCT.2023 22:47:12

### Highest Band Edge / Full RB



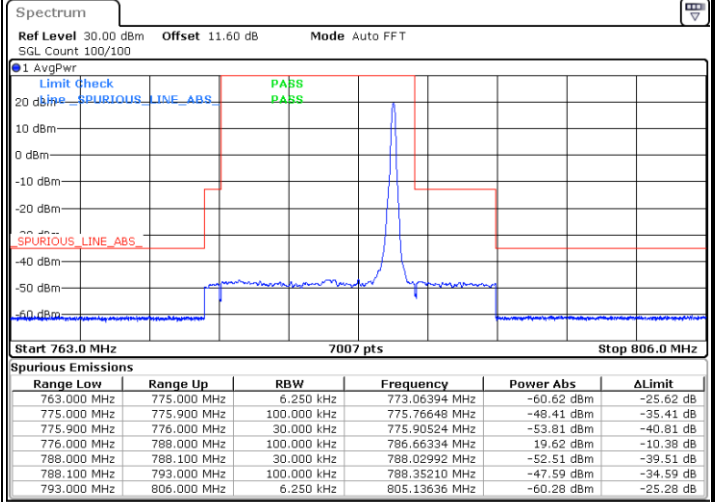
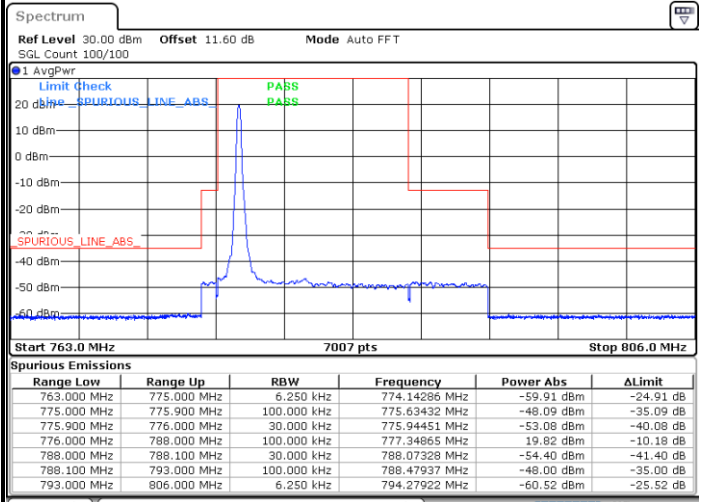
Date: 17.OCT.2023 22:55:12



LTE Band 13 / 5MHz / 16QAM

Lowest Band Edge / 1 RB

Highest Band Edge / 1 RB

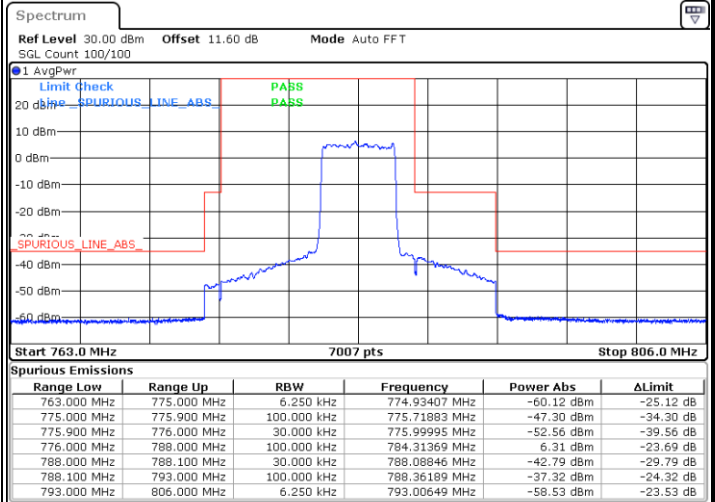
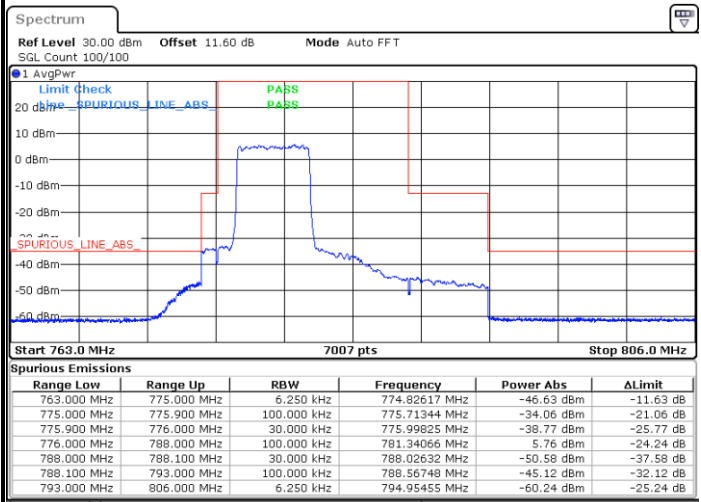


Date: 17.OCT.2023 22:49:10

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

Lowest Band Edge / Full RB

Highest Band Edge / Full RB



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

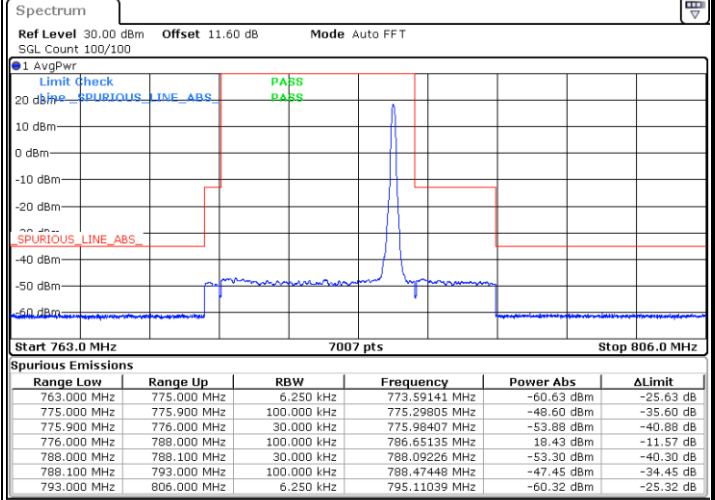
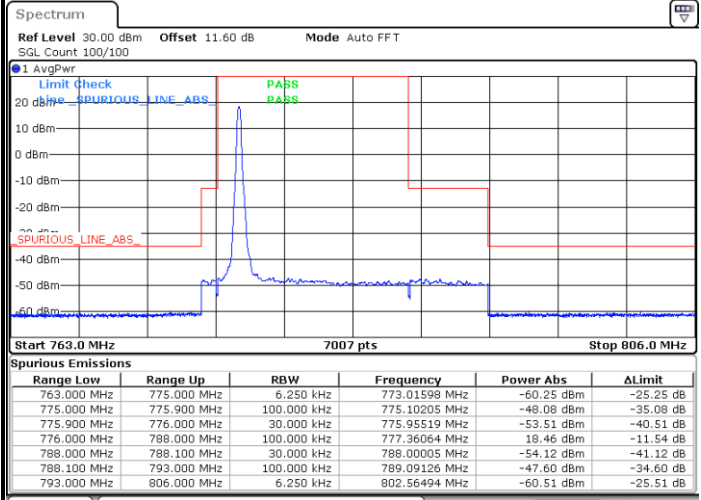
Date: 17.OCT.2023 22:56:11



LTE Band 13 / 5MHz / 64QAM

Lowest Band Edge / 1 RB

Highest Band Edge / 1 RB

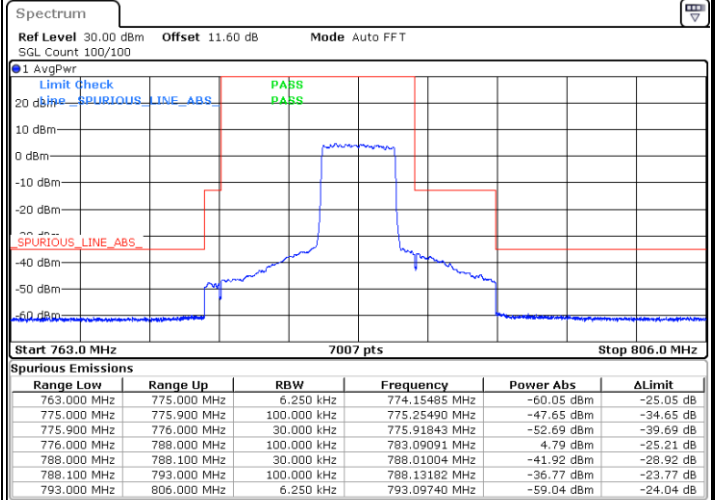
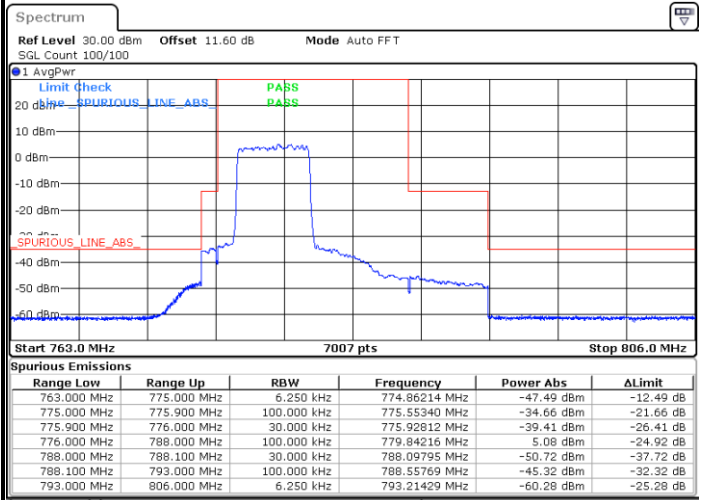


Date: 17.OCT.2023 23:01:28

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

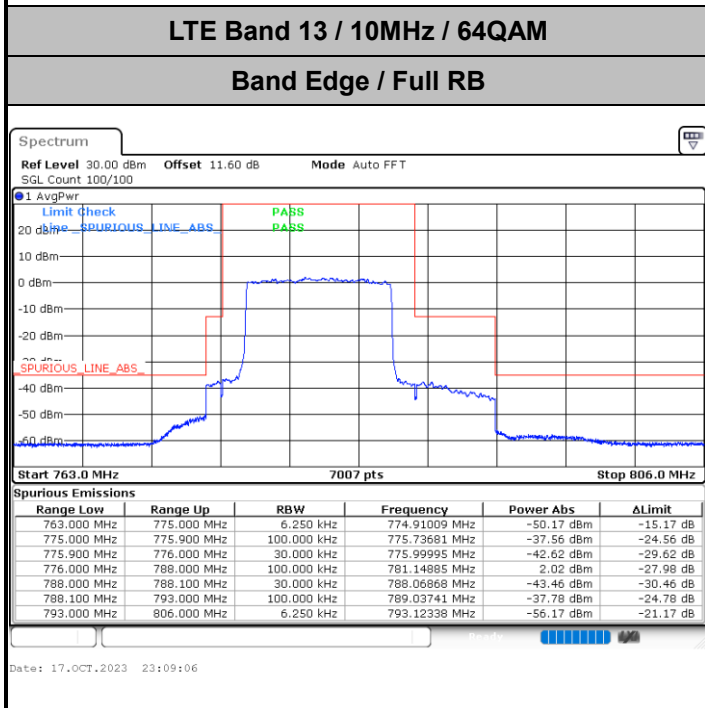
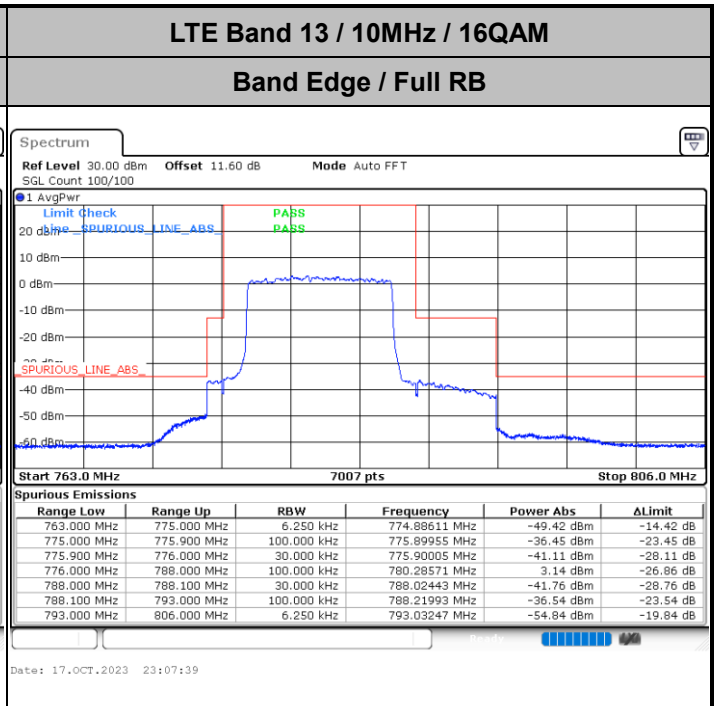
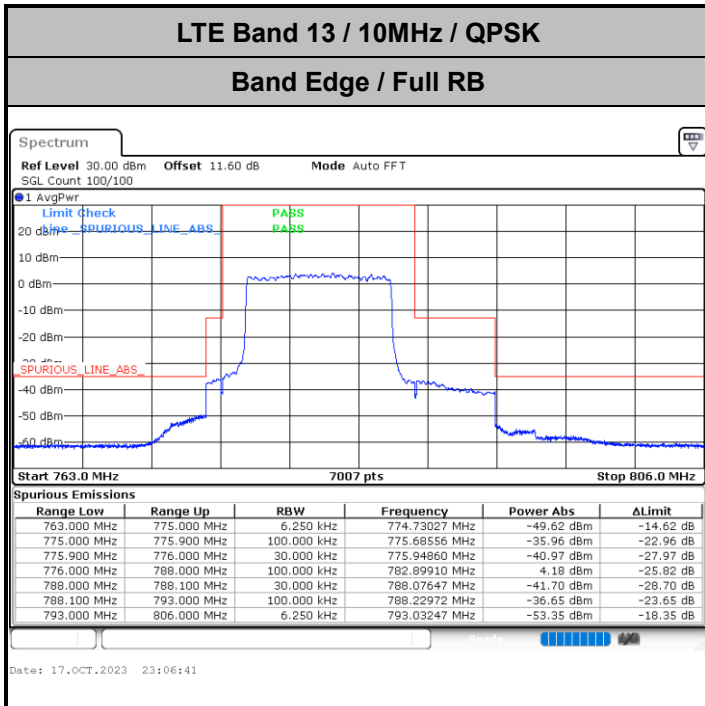
Lowest Band Edge / Full RB

Highest Band Edge / Full RB



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

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

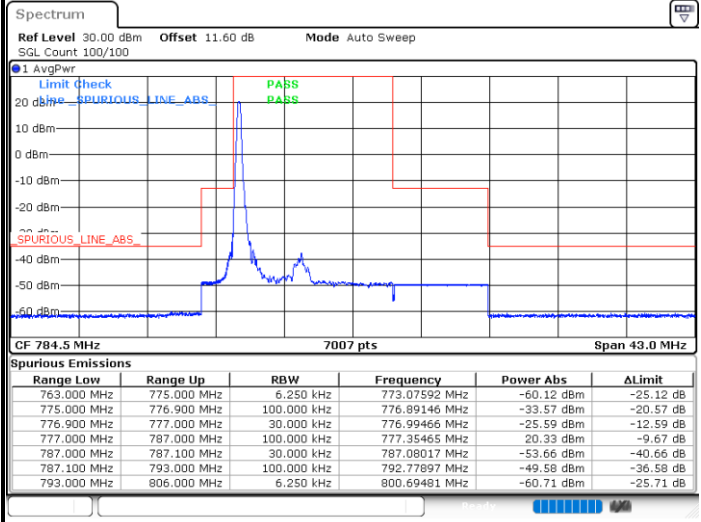




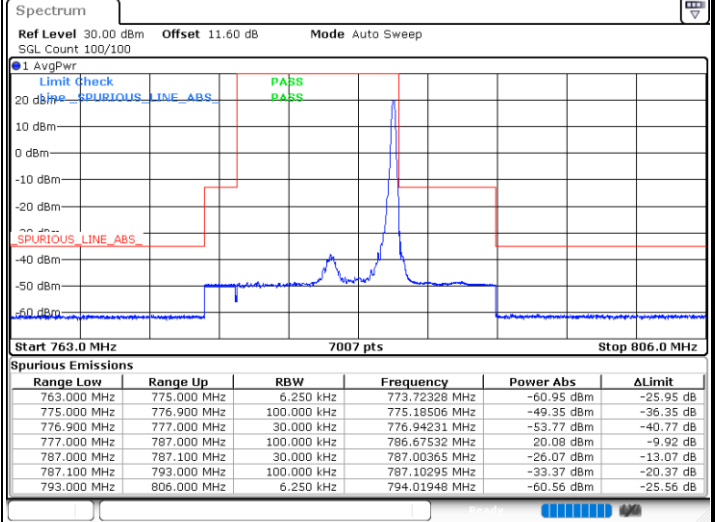
IC LTE Band 13 / 5MHz / QPSK

Lowest Band Edge / 1 RB

Highest Band Edge / 1 RB



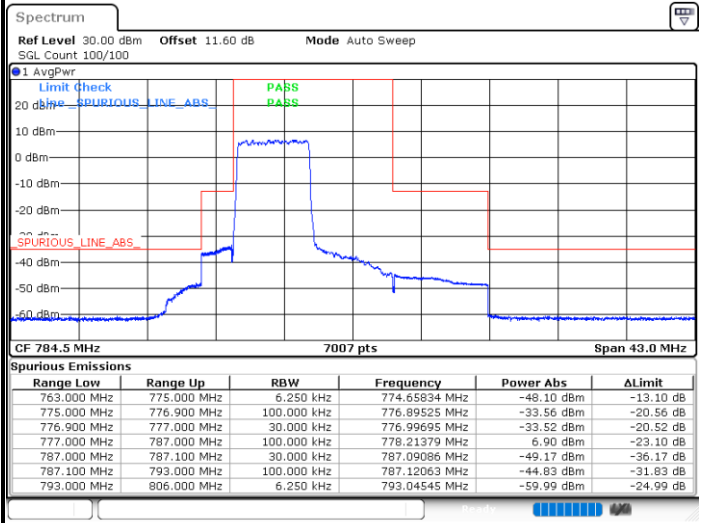
Date: 19.OCT.2023 19:44:06



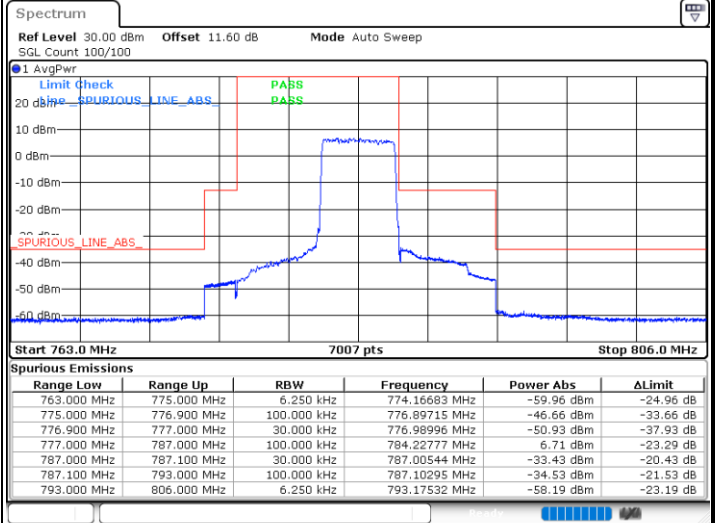
Date: 19.OCT.2023 19:48:19

Lowest Band Edge / Full RB

Highest Band Edge / Full RB



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



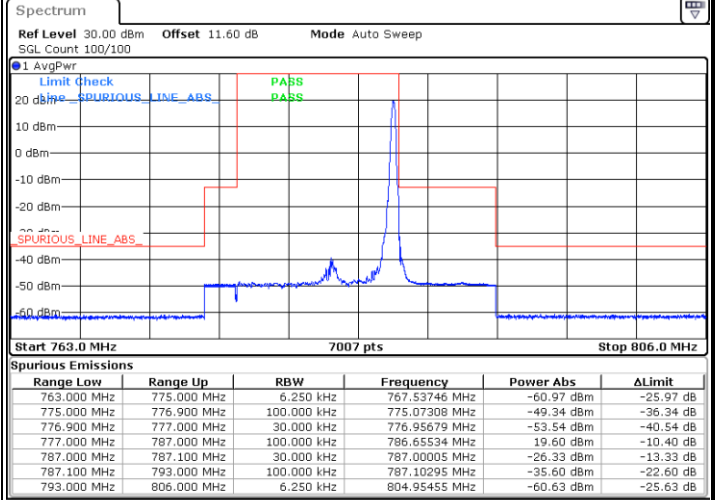
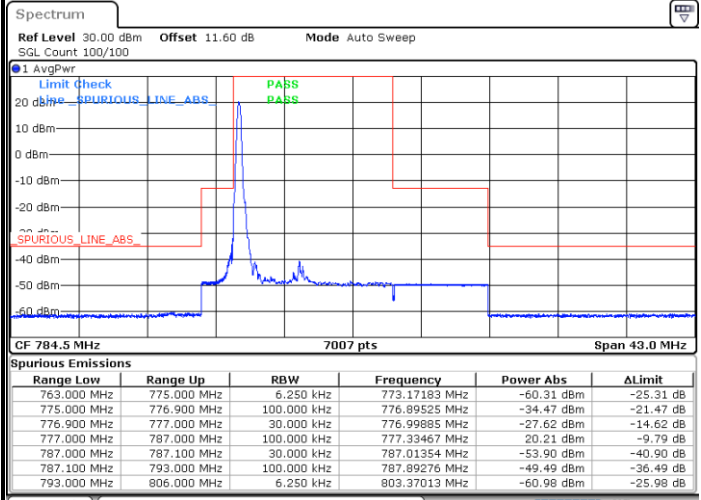
Date: 19.OCT.2023 19:45:12



IC LTE Band 13 / 5MHz / 16QAM

Lowest Band Edge / 1 RB

Highest Band Edge / 1 RB

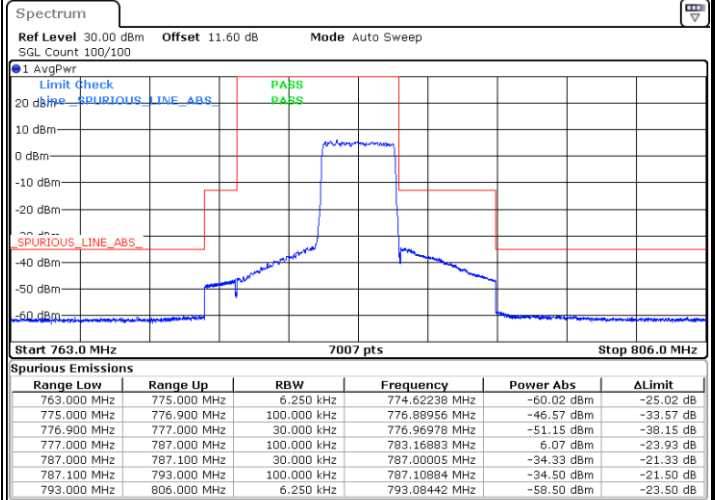
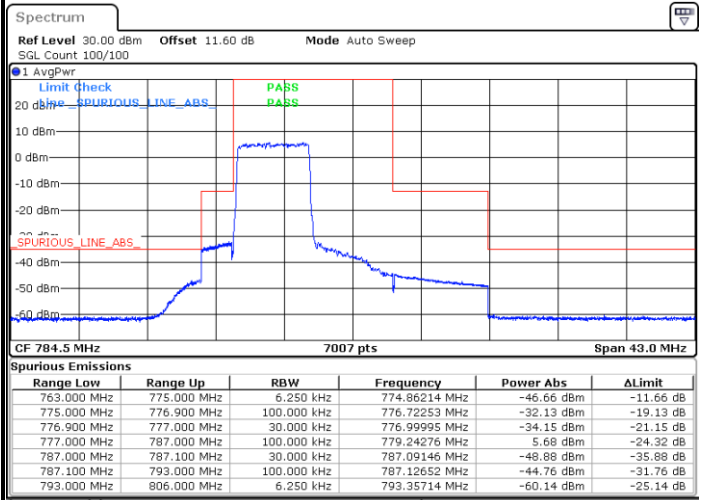


Date: 19.OCT.2023 19:43:05

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

Lowest Band Edge / Full RB

Highest Band Edge / Full RB



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

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