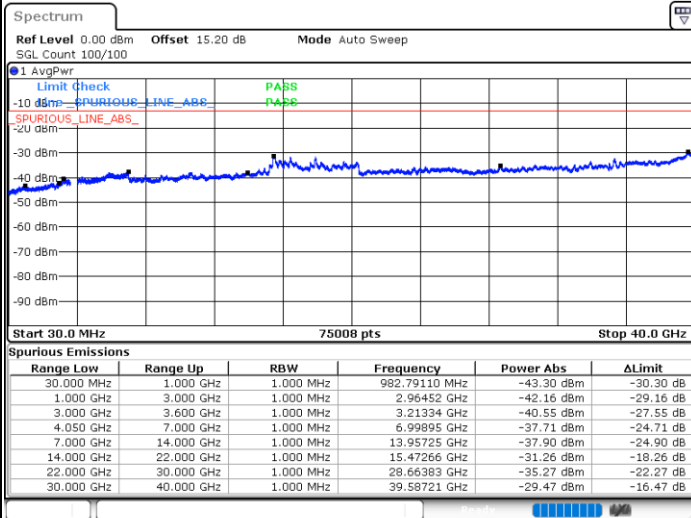




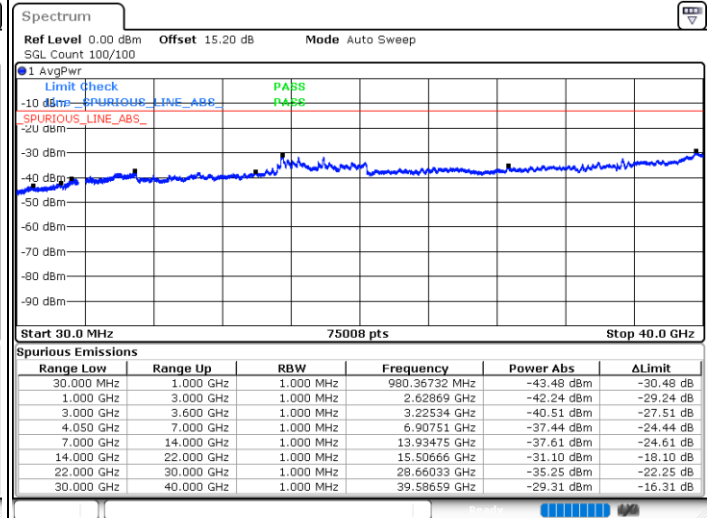
## FR1 UL-MIMO n77 / 50MHz / CP-OFDM QPSK (M)

## Lowest Channel / 1RB

## Middle Channel / 1RB

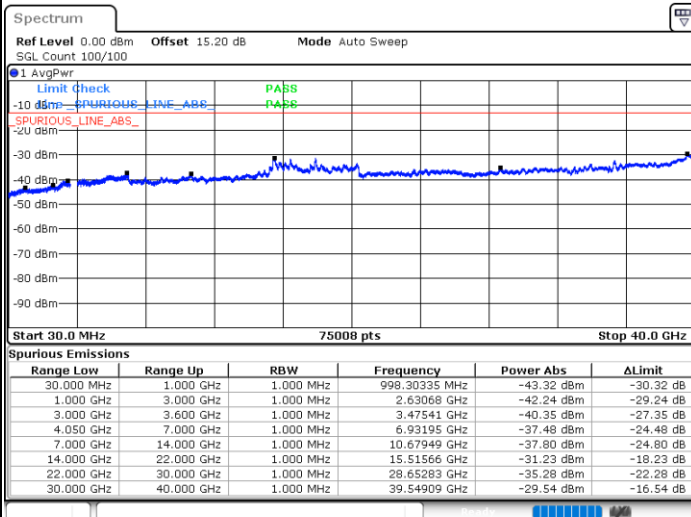


Date: 13.FEB.2021 11:06:02



Date: 13.FEB.2021 11:02:08

## Highest Channel / 1RB

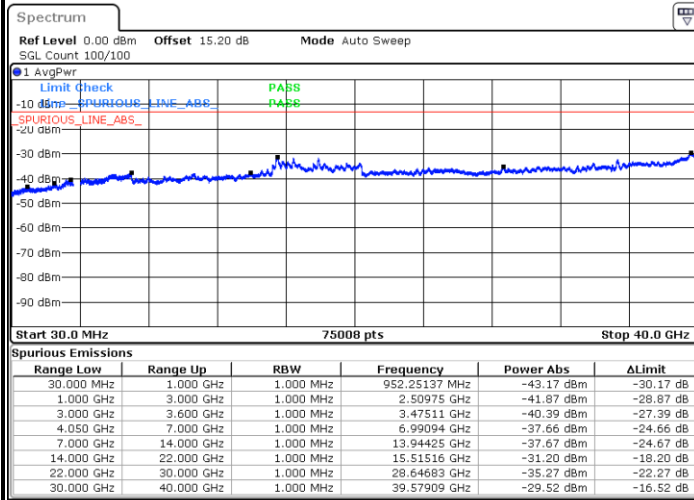


Date: 13.FEB.2021 11:43:00



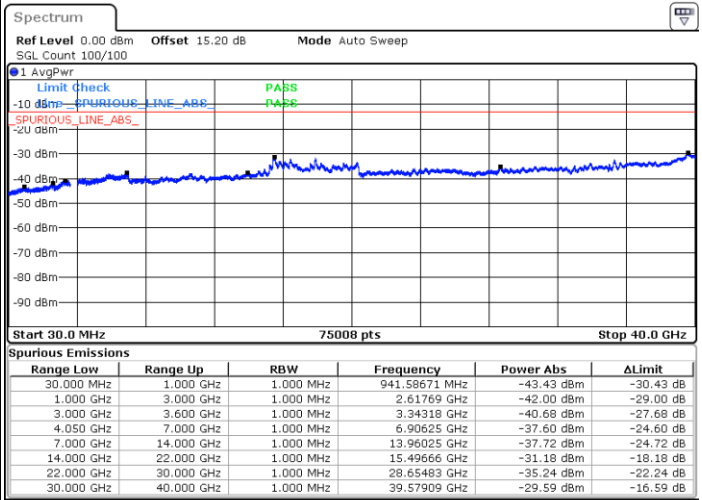
## FR1 UL-MIMO n77 / 100MHz / CP-OFDM QPSK (M2)

## Lowest Channel / 1RB



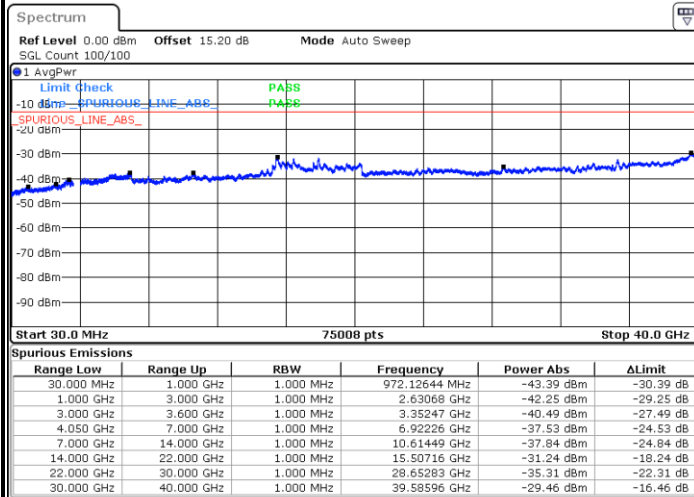
Date: 13.FEB.2021 14:06:16

## Middle Channel / 1RB



Date: 13.FEB.2021 13:55:13

## Highest Channel / 1RB

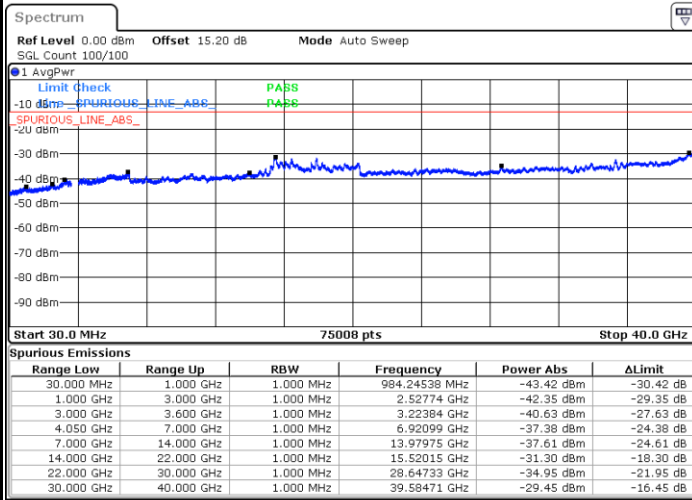


Date: 13.FEB.2021 14:25:18



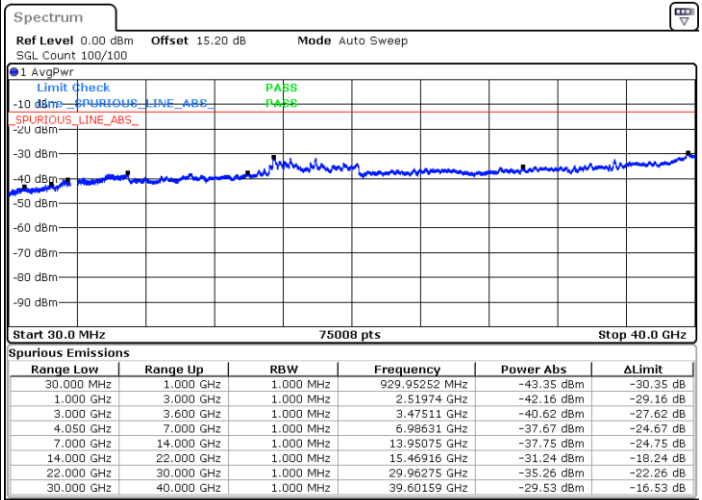
## FR1 UL-MIMO n77 / 100MHz / CP-OFDM QPSK (M)

## Lowest Channel / 1RB



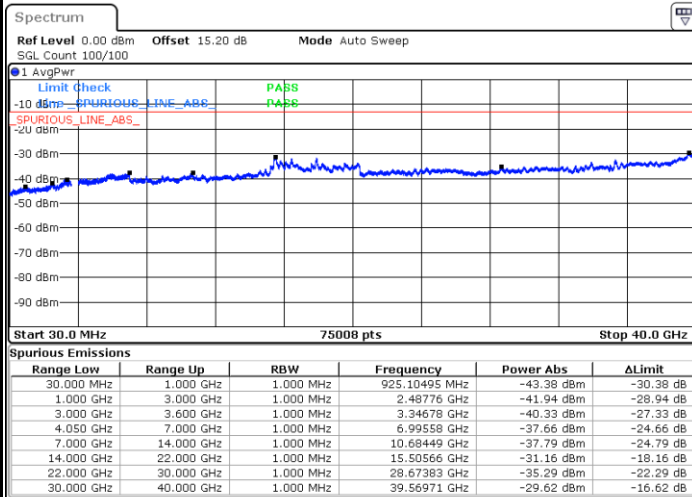
Date: 13.FEB.2021 10:09:02

## Middle Channel / 1RB



Date: 13.FEB.2021 09:56:48

## Highest Channel / 1RB



Date: 13.FEB.2021 10:23:06

## Frequency Stability

| Test Conditions  |                   | NR UL-MIMO n77 (QPSK) / Middle Channel | Limit       |
|------------------|-------------------|----------------------------------------|-------------|
| Temperature (°C) | Voltage (Volt)    | BW 20MHz                               | Within Band |
|                  |                   | Deviation (ppm)                        | Result      |
| 50               | Normal Voltage    | 0.0025                                 | PASS        |
| 40               | Normal Voltage    | 0.0015                                 |             |
| 30               | Normal Voltage    | 0.0016                                 |             |
| 20(Ref.)         | Normal Voltage    | 0.0023                                 |             |
| 10               | Normal Voltage    | 0.0017                                 |             |
| 0                | Normal Voltage    | 0.0024                                 |             |
| -10              | Normal Voltage    | 0.0025                                 |             |
| -20              | Normal Voltage    | 0.0018                                 |             |
| -30              | Normal Voltage    | 0.0015                                 |             |
| 20               | Maximum Voltage   | 0.0025                                 |             |
| 20               | Normal Voltage    | 0.0011                                 |             |
| 20               | Battery End Point | 0.0025                                 |             |

**Note:**

1. Normal Voltage =3.3 V. ; Battery End Point (BEP) =3.14 V. ; Maximum Voltage =4.4 V.
2. Note: The frequency fundamental emissions stay within the authorized frequency block.



## 5G NR n77 NSA-SCS 15K

**Peak-to-Average Ratio**

| Mode       | FR1 N77 / 20MHz / DFT-S OFDM |           |      |         |             |
|------------|------------------------------|-----------|------|---------|-------------|
| Mod.       | PI/2 BPSK                    | PI/2 BPSK | QPSK | QPSK    | Limit: 13dB |
| RB Size    | 1RB                          | Full RB   | 1RB  | Full RB | Result      |
| Lowest CH  | 3.54                         | 4.12      | 5.54 | 5.45    | PASS        |
| Middle CH  | 3.36                         | 3.97      | 4.38 | 5.19    |             |
| Highest CH | 3.25                         | 3.88      | 4.26 | 5.25    |             |



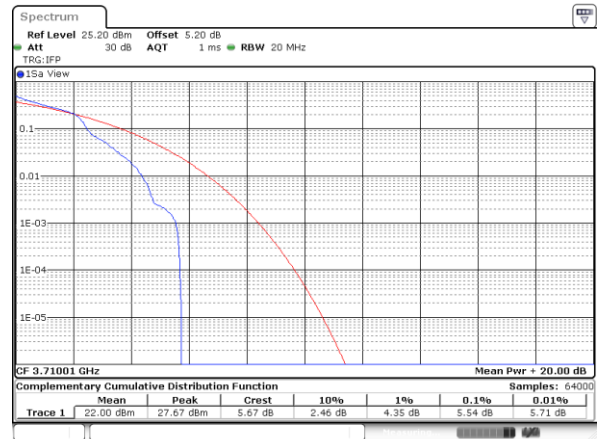
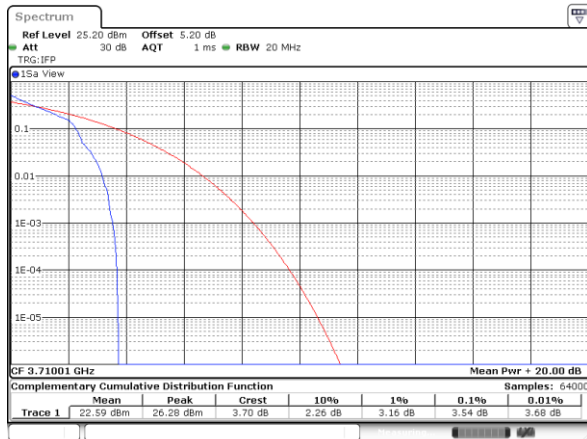
## FR1 N77 / 20MHz / DFT-S OFDM

## PI/2 BPSK

## QPSK

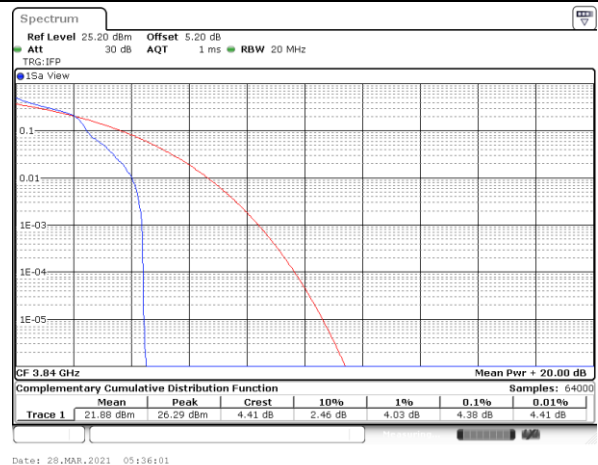
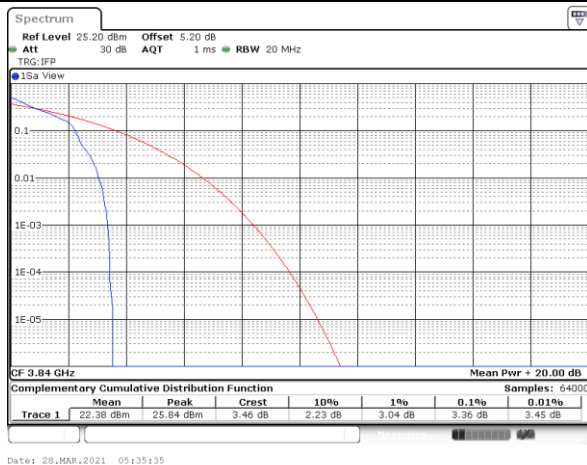
## Lowest Channel / 1RB

## Lowest Channel / 1RB



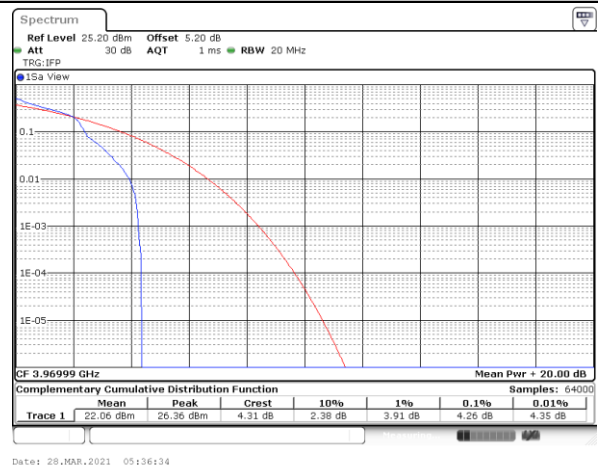
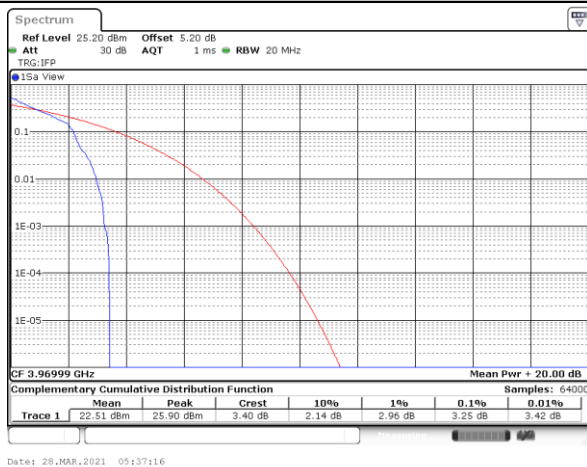
## Middle Channel / 1 RB

## Middle Channel / 1 RB



## Highest Channel / 1 RB

## Highest Channel / 1 RB





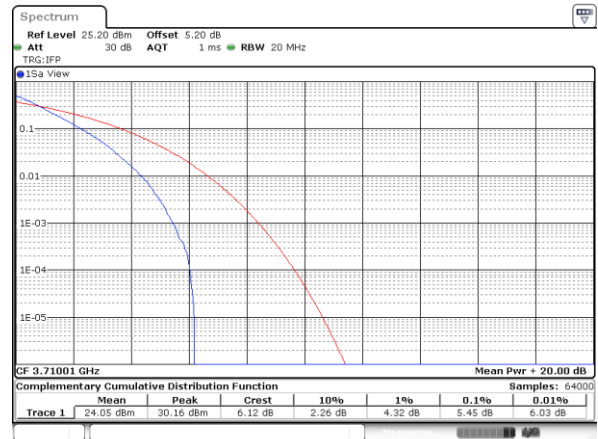
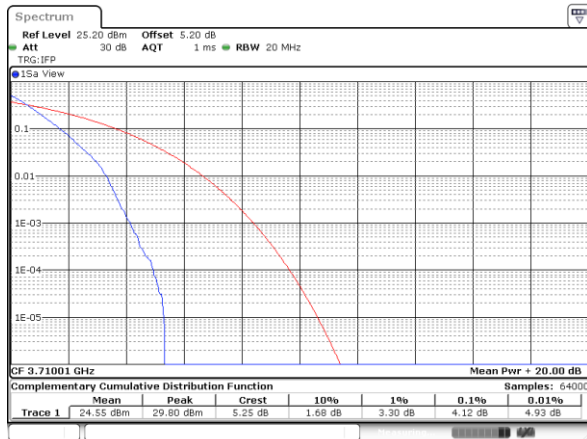
## FR1 N77 / 20MHz / DFT-S OFDM

## PI/2 BPSK

## QPSK

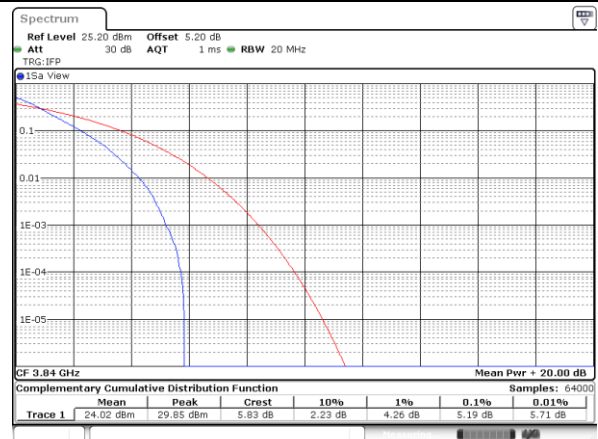
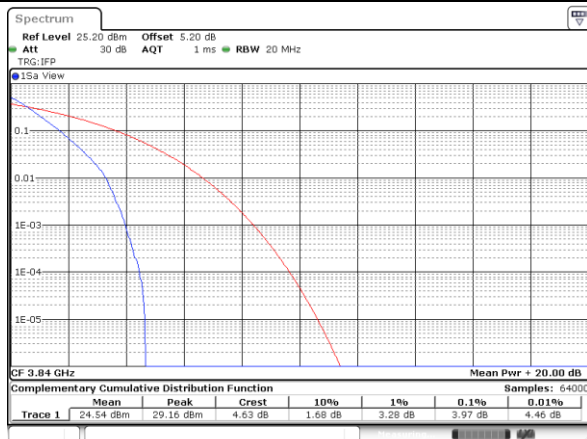
## Lowest Channel / Full RB

## Lowest Channel / Full RB



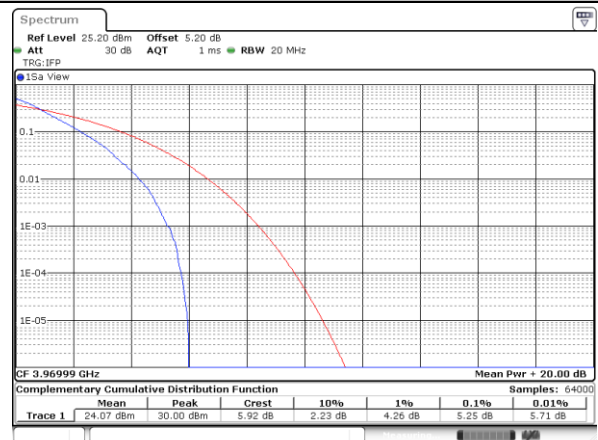
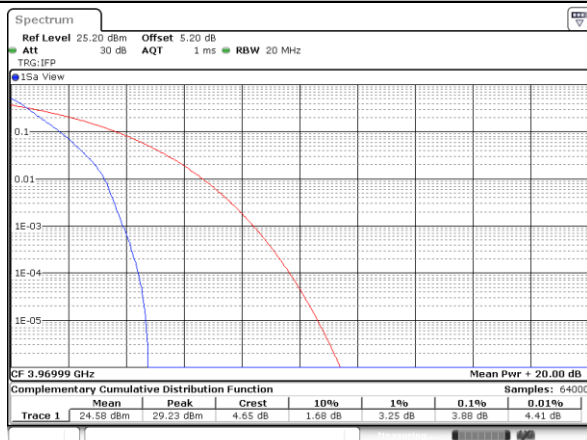
## Middle Channel / Full RB

## Middle Channel / Full RB



## Highest Channel / Full RB

## Highest Channel / Full RB



**26dB Bandwidth**

| Mode      | FR1 N77 : 26dB BW(MHz) / CP-OFDM |       |       |        |  |  |  |  |
|-----------|----------------------------------|-------|-------|--------|--|--|--|--|
| BW        | 10MHz                            | 10MHz | 10MHz | 10MHz  |  |  |  |  |
| Mod.      | QPSK                             | 16QAM | 64QAM | 256QAM |  |  |  |  |
| Middle CH | 9.69                             | 9.71  | 9.61  | 9.67   |  |  |  |  |

| Mode      | FR1 N77 : 26dB BW(MHz) / CP-OFDM |       |       |        |  |  |  |  |
|-----------|----------------------------------|-------|-------|--------|--|--|--|--|
| BW        | 15MHz                            | 15MHz | 15MHz | 15MHz  |  |  |  |  |
| Mod.      | QPSK                             | 16QAM | 64QAM | 256QAM |  |  |  |  |
| Middle CH | 14.87                            | 14.84 | 14.84 | 14.84  |  |  |  |  |

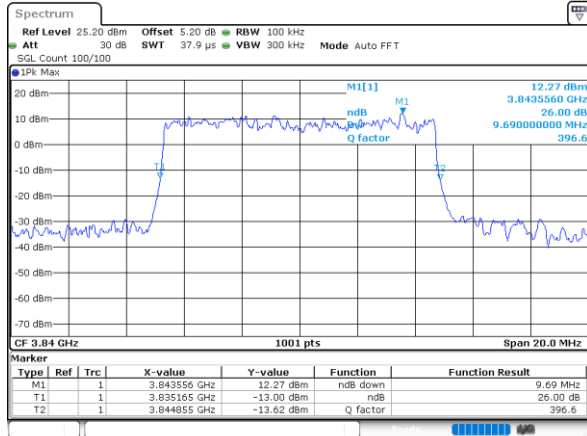
| Mode      | FR1 N77 : 26dB BW(MHz) / CP-OFDM |       |       |        |  |  |  |  |
|-----------|----------------------------------|-------|-------|--------|--|--|--|--|
| BW        | 20MHz                            | 20MHz | 20MHz | 20MHz  |  |  |  |  |
| Mod.      | QPSK                             | 16QAM | 64QAM | 256QAM |  |  |  |  |
| Middle CH | 19.86                            | 19.74 | 19.70 | 19.70  |  |  |  |  |



## FR1 N77 / 10MHz / CP-OFDM

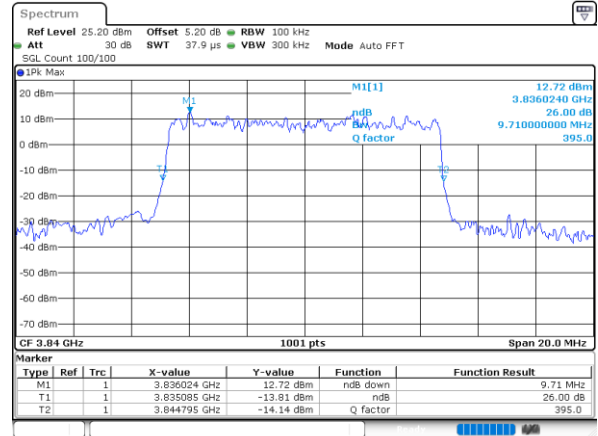
## QPSK

## Middle Channel



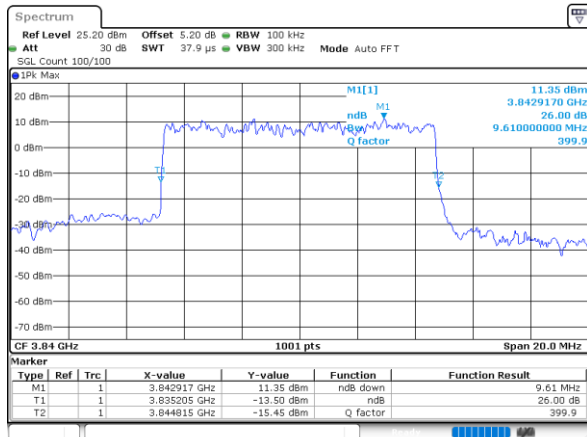
## 16QAM

## Middle Channel



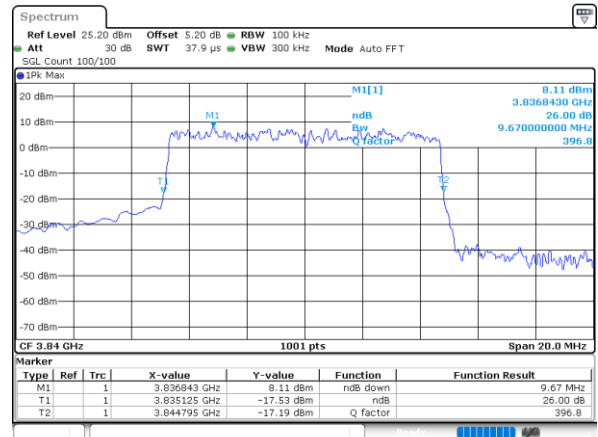
## 64QAM

## Middle Channel



## 256QAM

## Middle Channel

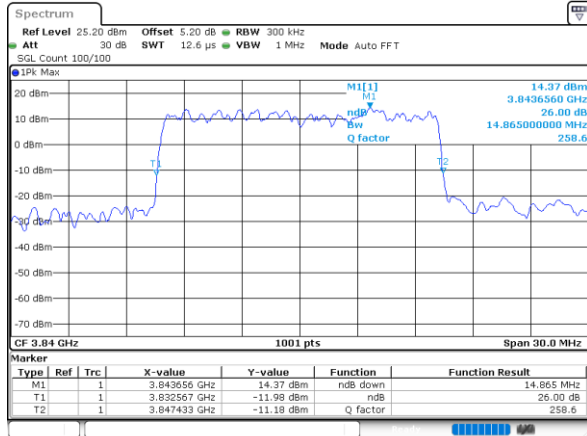




## FR1 N77 / 15MHz / CP-OFDM

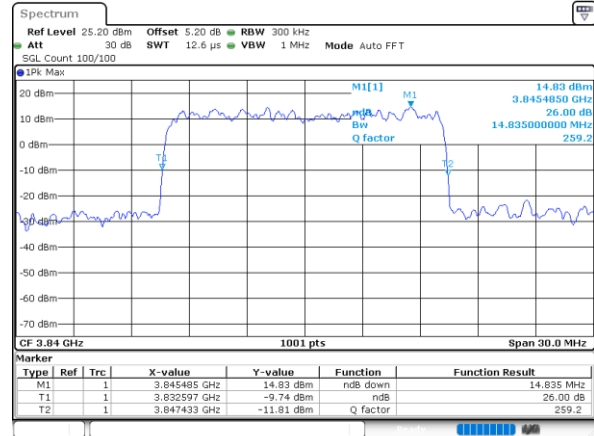
## QPSK

## Middle Channel



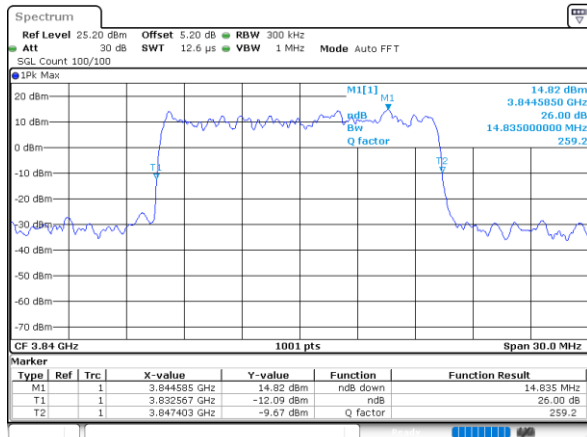
## 16QAM

## Middle Channel



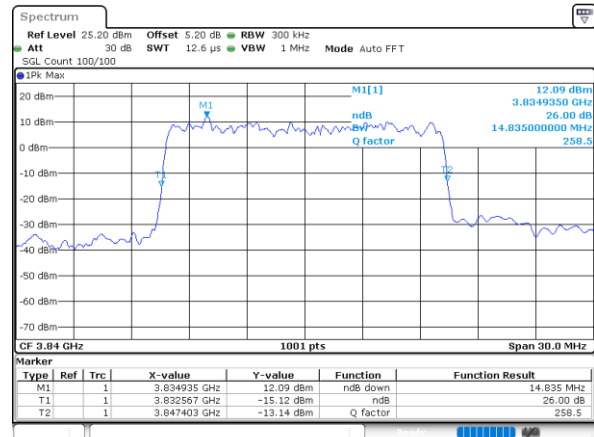
## 64QAM

## Middle Channel



## 256QAM

## Middle Channel

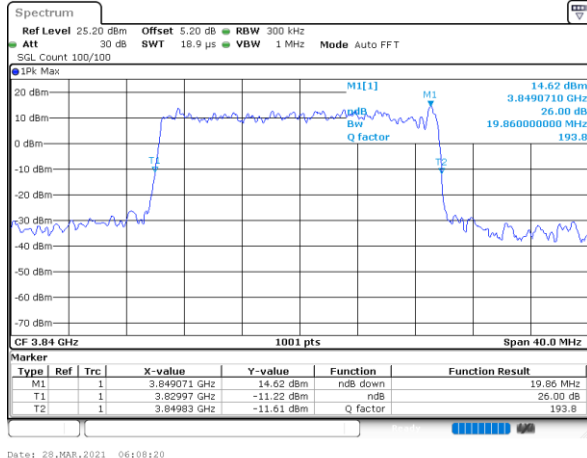




## FR1 N77 / 20MHz / CP-OFDM

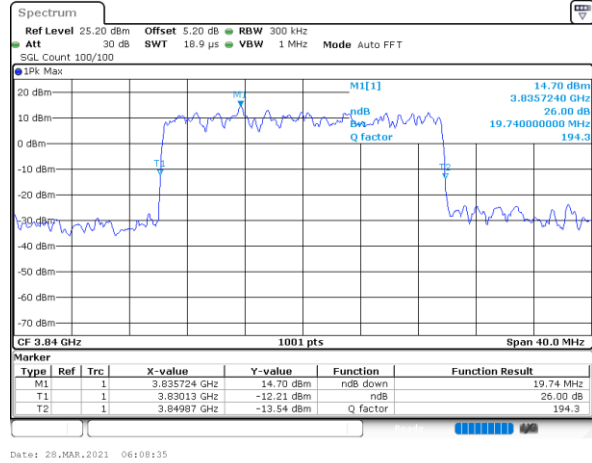
## QPSK

## Middle Channel



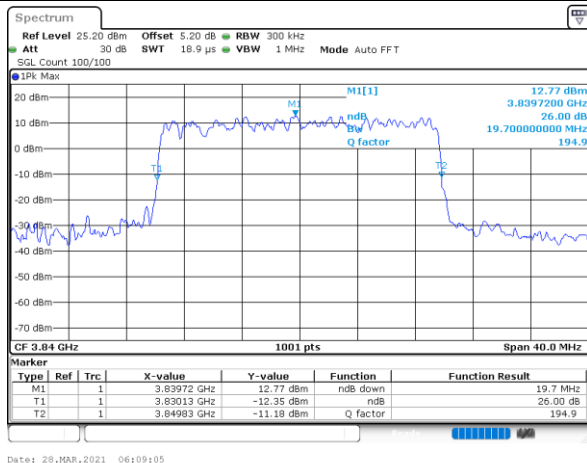
## 16QAM

## Middle Channel



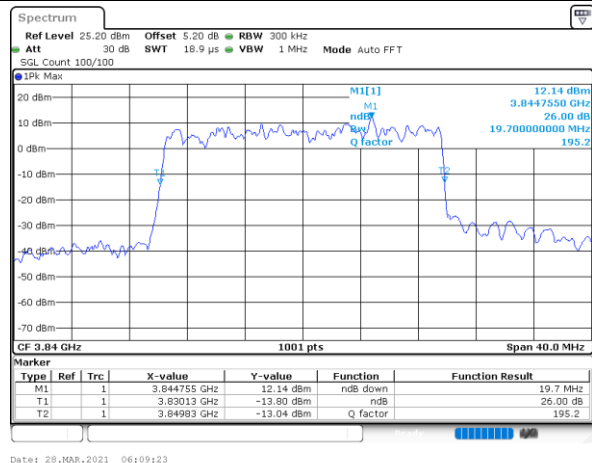
## 64QAM

## Middle Channel



## 256QAM

## Middle Channel



**Occupied Bandwidth**

| Mode      | FR1 N77 : OBW(MHz) / CP-OFDM |       |       |        |  |  |  |  |
|-----------|------------------------------|-------|-------|--------|--|--|--|--|
| BW        | 10MHz                        | 10MHz | 10MHz | 10MHz  |  |  |  |  |
| Mod.      | QPSK                         | 16QAM | 64QAM | 256QAM |  |  |  |  |
| Middle CH | 9.31                         | 9.27  | 9.25  | 9.33   |  |  |  |  |

| Mode      | FR1 N77 : OBW(MHz) / CP-OFDM |       |       |        |  |  |  |  |
|-----------|------------------------------|-------|-------|--------|--|--|--|--|
| BW        | 15MHz                        | 15MHz | 15MHz | 15MHz  |  |  |  |  |
| Mod.      | QPSK                         | 16QAM | 64QAM | 256QAM |  |  |  |  |
| Middle CH | 14.15                        | 14.12 | 14.15 | 14.06  |  |  |  |  |

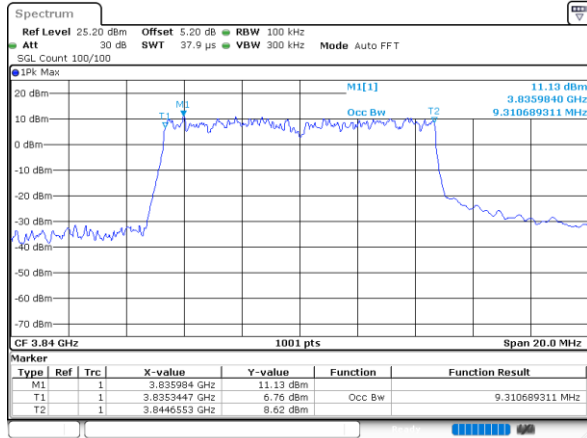
| Mode      | FR1 N77 : OBW(MHz) / CP-OFDM |       |       |        |  |  |  |  |
|-----------|------------------------------|-------|-------|--------|--|--|--|--|
| BW        | 20MHz                        | 20MHz | 20MHz | 20MHz  |  |  |  |  |
| Mod.      | QPSK                         | 16QAM | 64QAM | 256QAM |  |  |  |  |
| Middle CH | 18.90                        | 19.06 | 19.02 | 18.86  |  |  |  |  |



## FR1 N77 / 10MHz / CP-OFDM

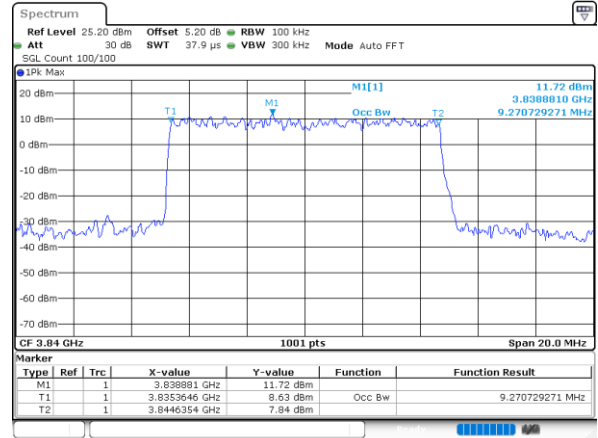
## QPSK

## Middle Channel



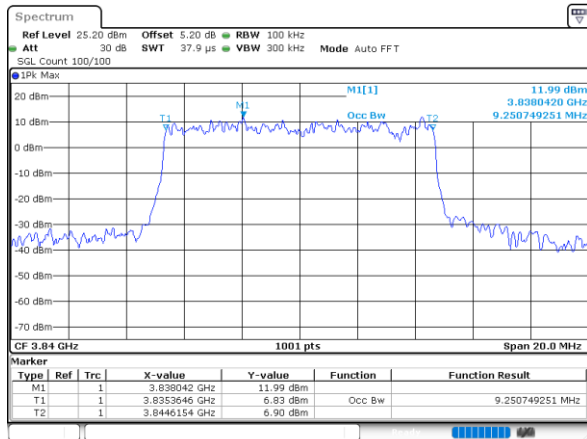
## 16QAM

## Middle Channel



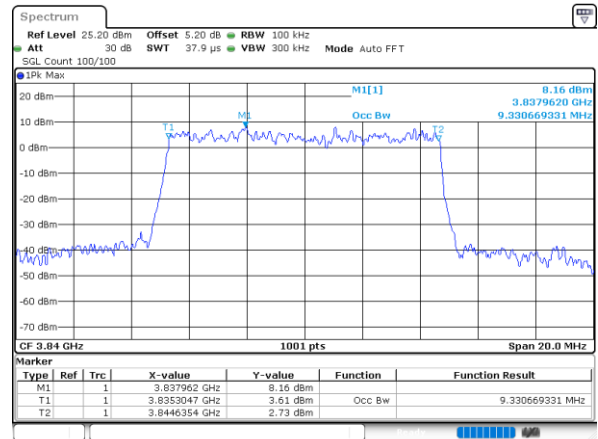
## 64QAM

## Middle Channel



## 256QAM

## Middle Channel

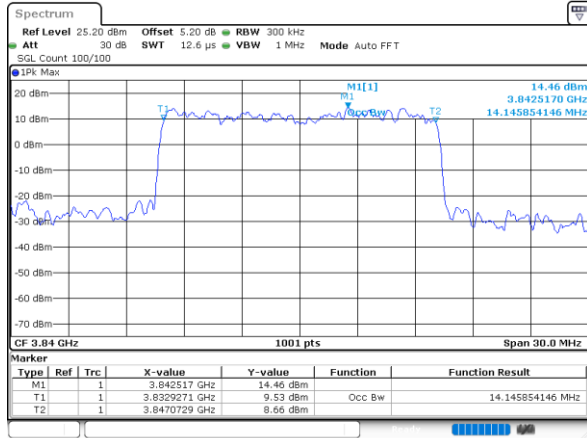




## FR1 N77 / 15MHz / CP-OFDM

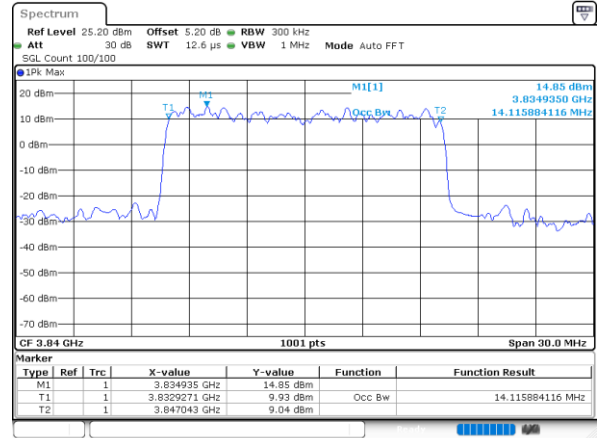
## QPSK

## Middle Channel



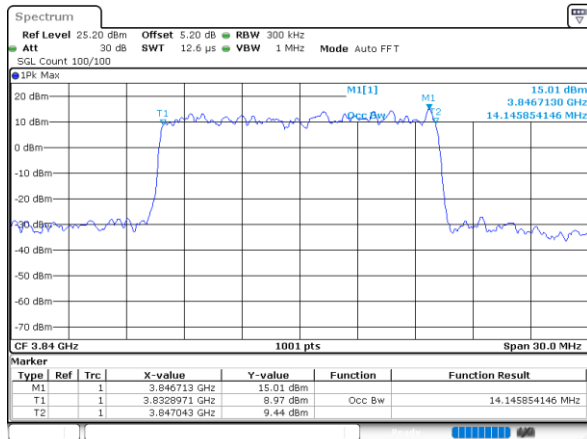
## 16QAM

## Middle Channel



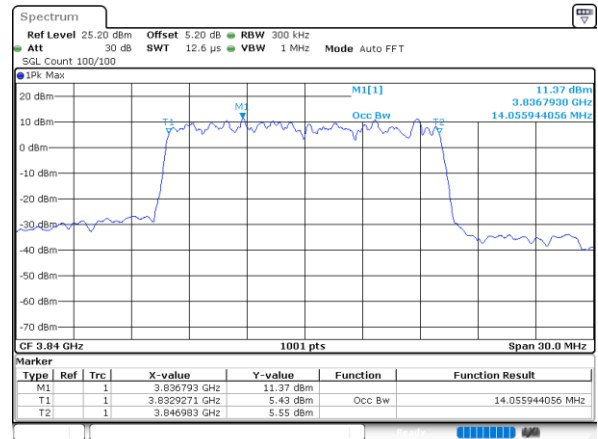
## 64QAM

## Middle Channel



## 256QAM

## Middle Channel

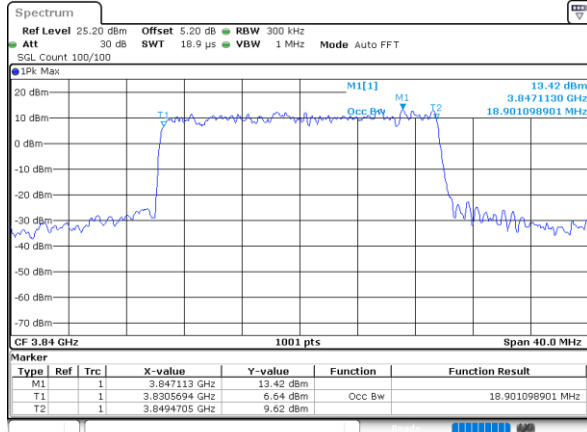




## FR1 N77 / 20MHz / CP-OFDM

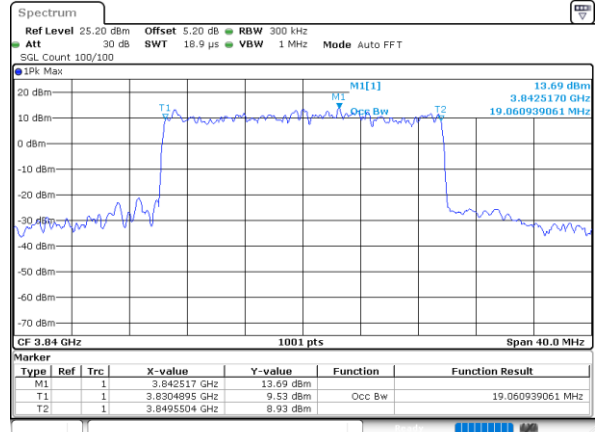
## QPSK

## Middle Channel



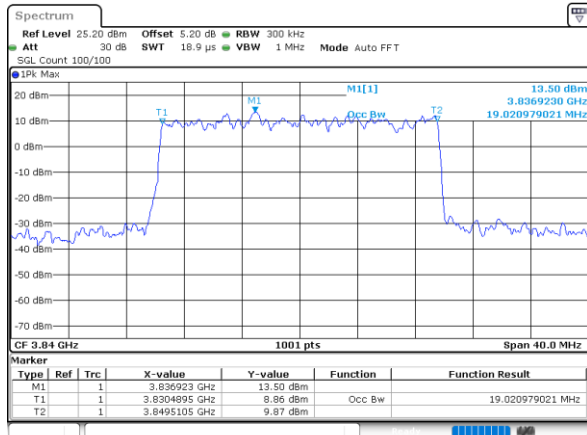
## 16QAM

## Middle Channel



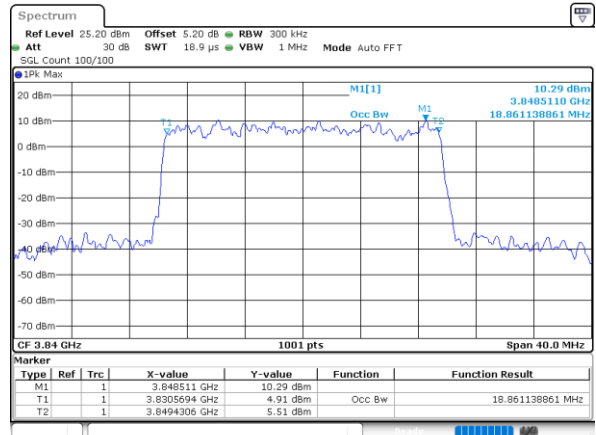
## 64QAM

## Middle Channel



## 256QAM

## Middle Channel

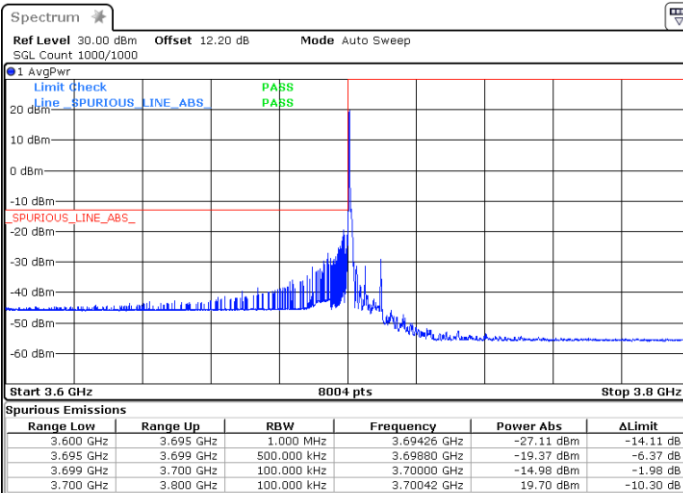




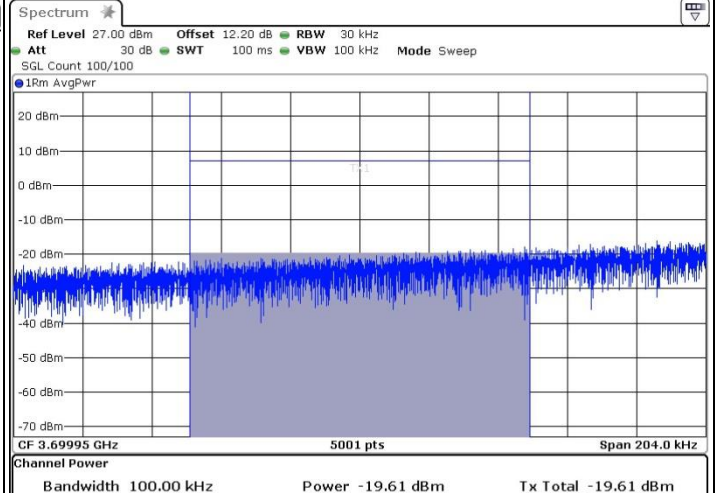
# Conducted Band Edge

## FR1 N77 / 10MHz / DFT-S OFDM BPSK

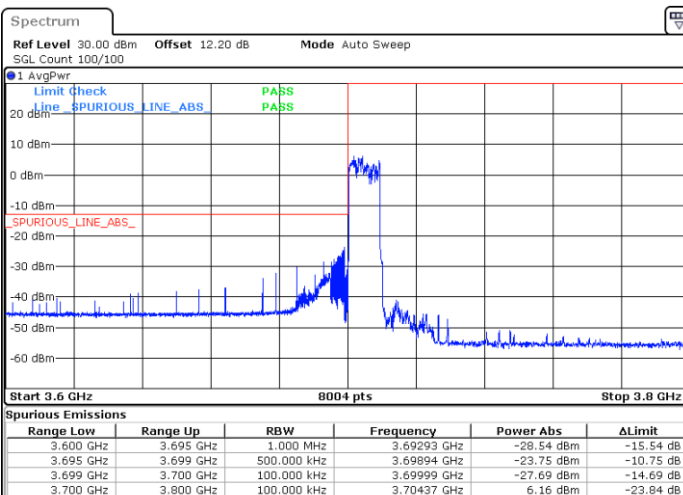
### Lowest Band Edge / 1 RB



### Channel Power < -13dBm Pass



### Lowest Band Edge / Full RB



### Channel Power < -13dBm Pass

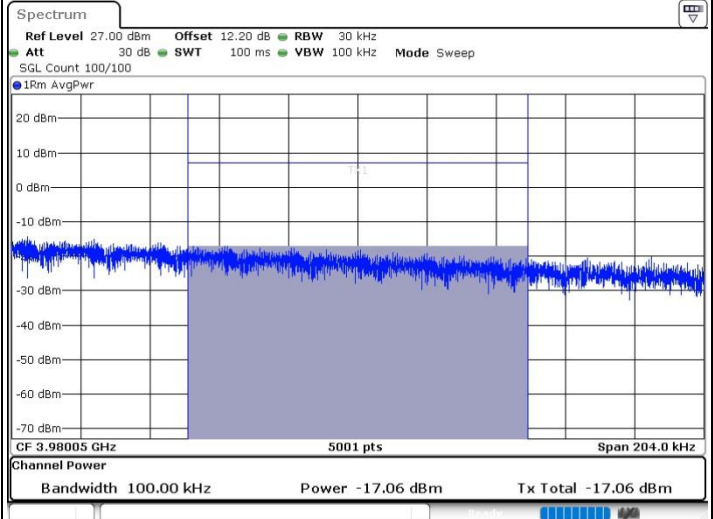
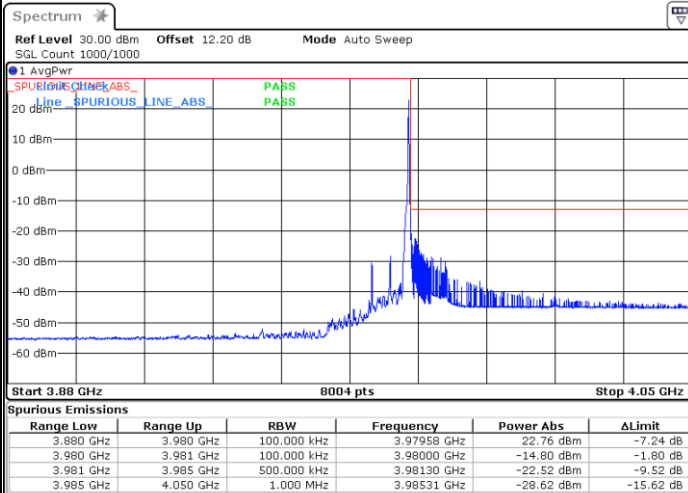
/



## FR1 N77 / 10MHz / DFT-S OFDM BPSK

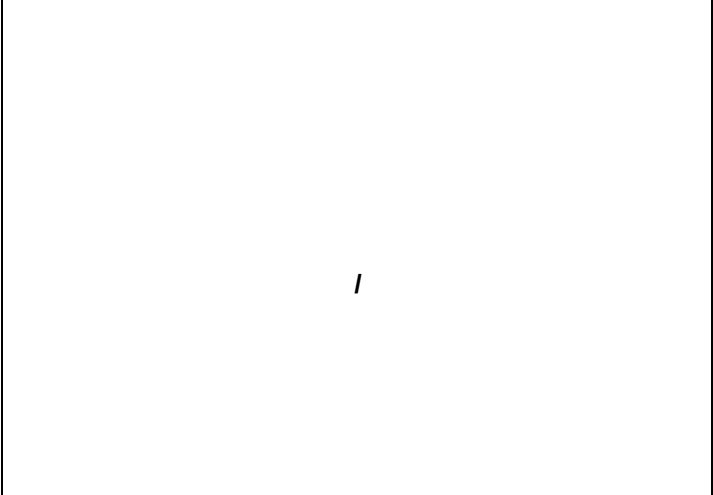
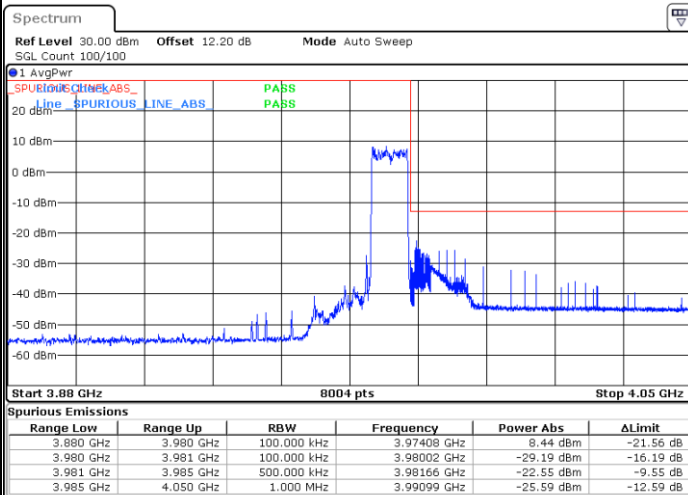
## Highest Band Edge / 1 RB

## Channel Power &lt; -13dBm Pass



## Highest Band Edge / Full RB

## Channel Power &lt; -13dBm Pass

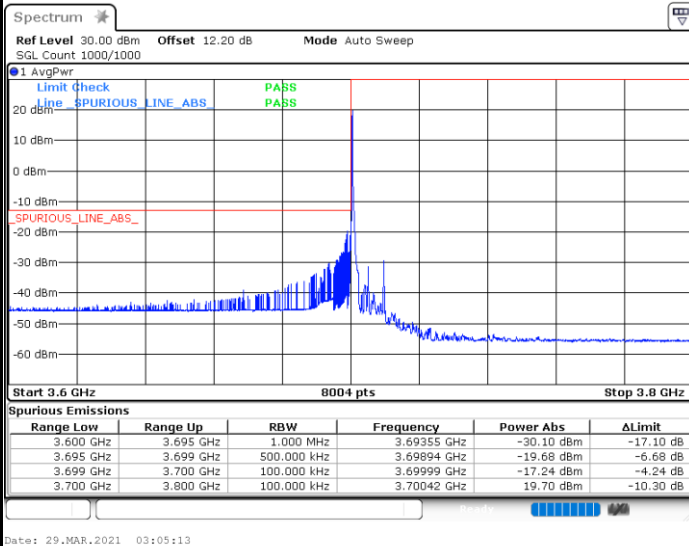




## FR1 N77 / 10MHz / DFT-S OFDM QPSK

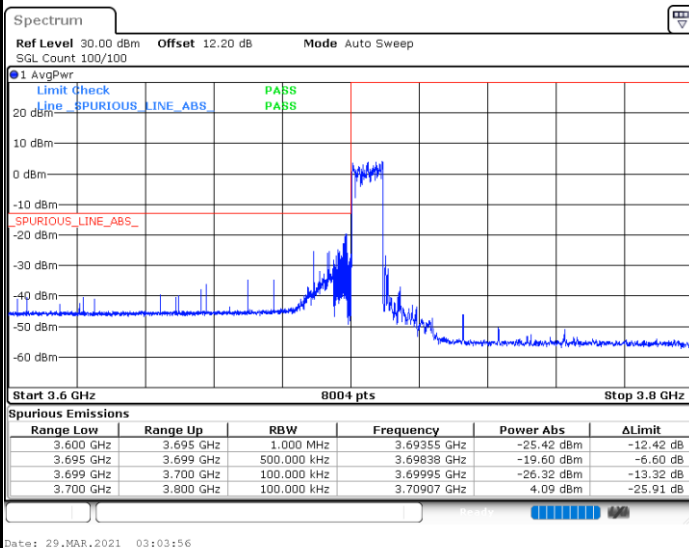
## Lowest Band Edge / 1 RB

## Channel Power &lt; -13dBm Pass



## Lowest Band Edge / Full RB

## Channel Power &lt; -13dBm Pass

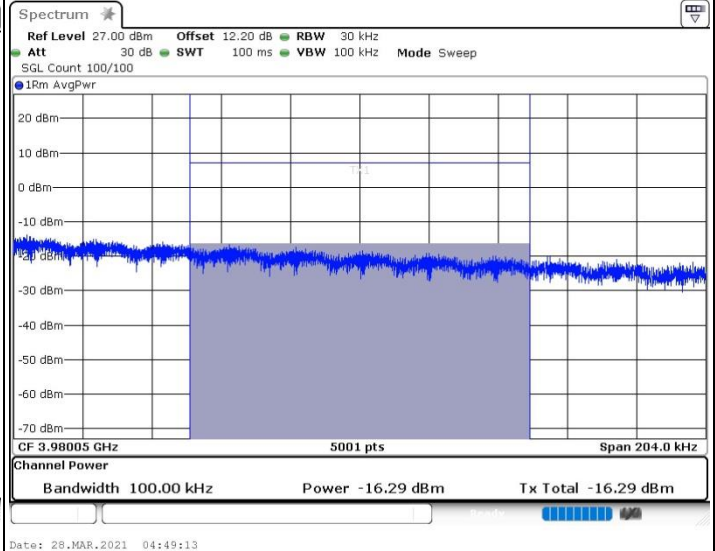
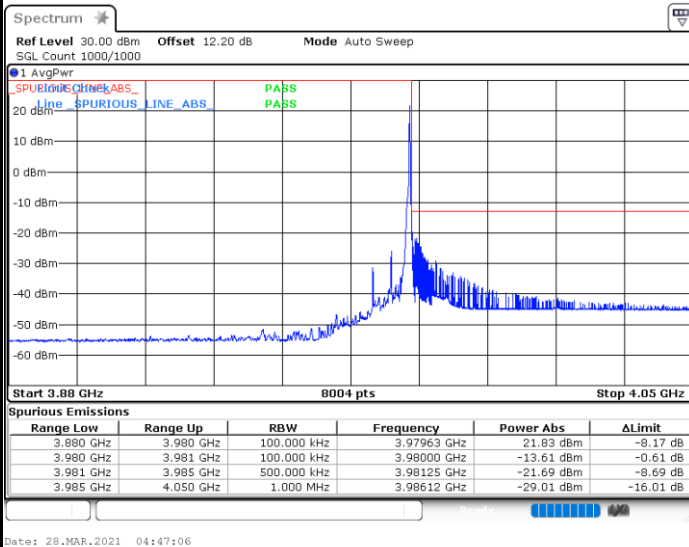




## FR1 N77 / 10MHz / DFT-S OFDM QPSK

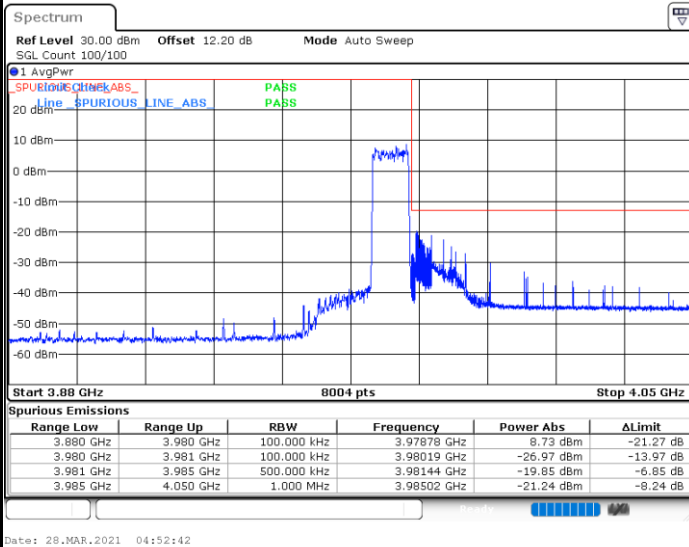
## Highest Band Edge / 1 RB

## Channel Power &lt; -13dBm Pass



## Highest Band Edge / Full RB

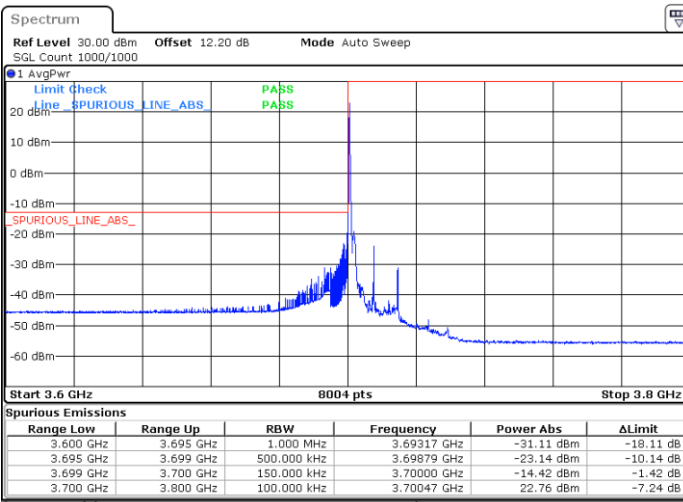
## Channel Power &lt; -13dBm Pass



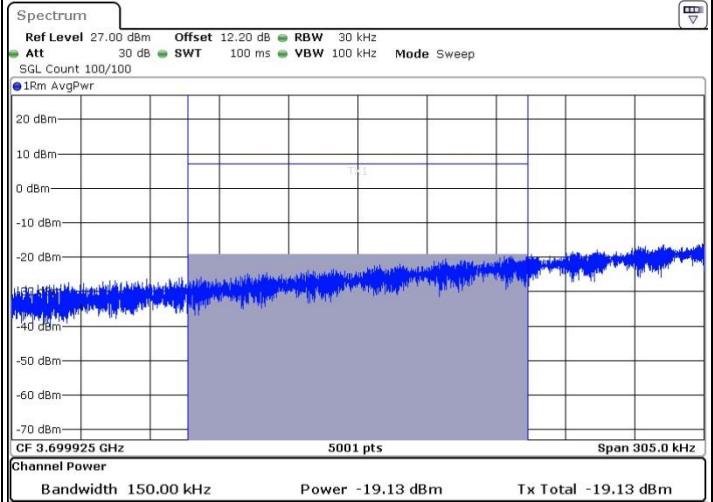


## FR1 N77 / 15MHz / DFT-S OFDM BPSK

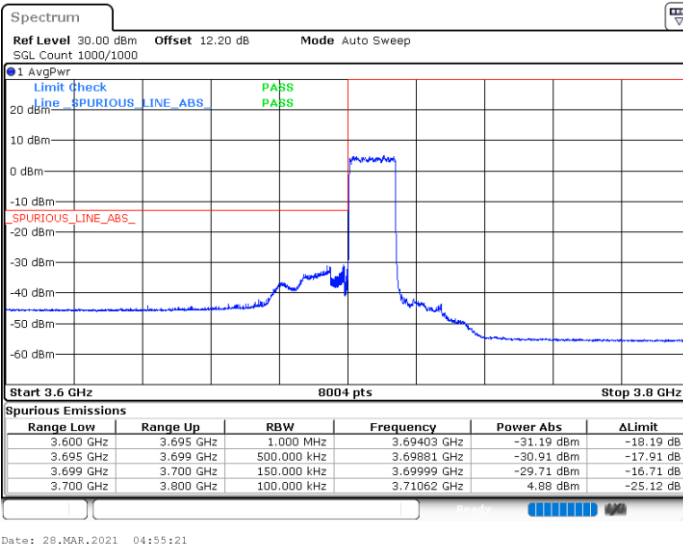
## Lowest Band Edge / 1 RB



## Channel Power &lt; -13dBm Pass



## Lowest Band Edge / Full RB



## Channel Power &lt; -13dBm Pass

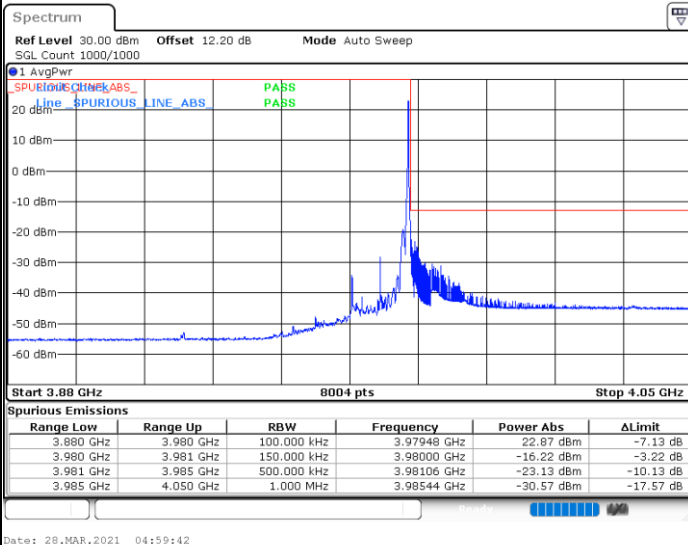
/



## FR1 N77 / 15MHz / DFT-S OFDM BPSK

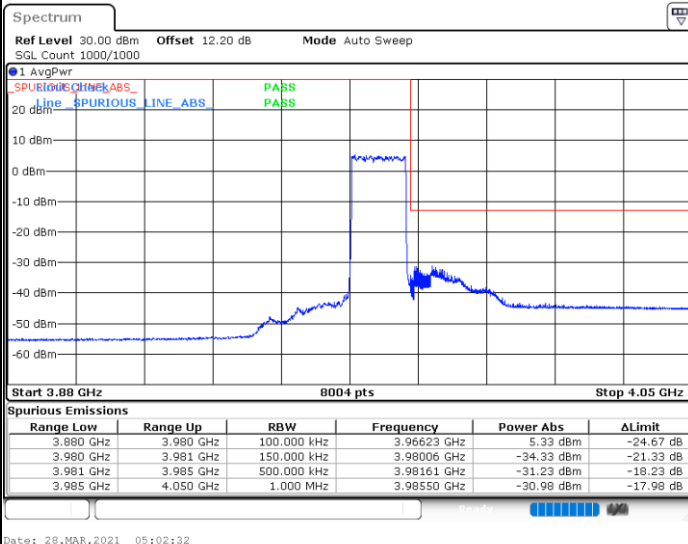
## Highest Band Edge / 1 RB

## Channel Power &lt; -13dBm Pass



## Highest Band Edge / Full RB

## Channel Power &lt; -13dBm Pass

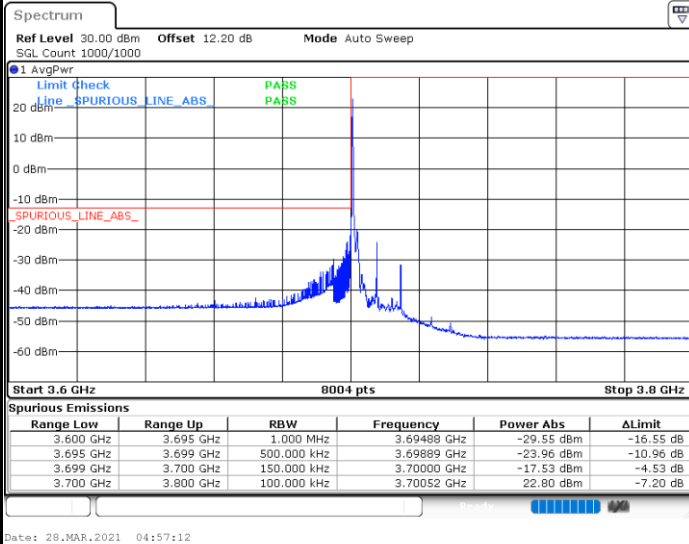




## FR1 N77 / 15MHz / DFT-S OFDM QPSK

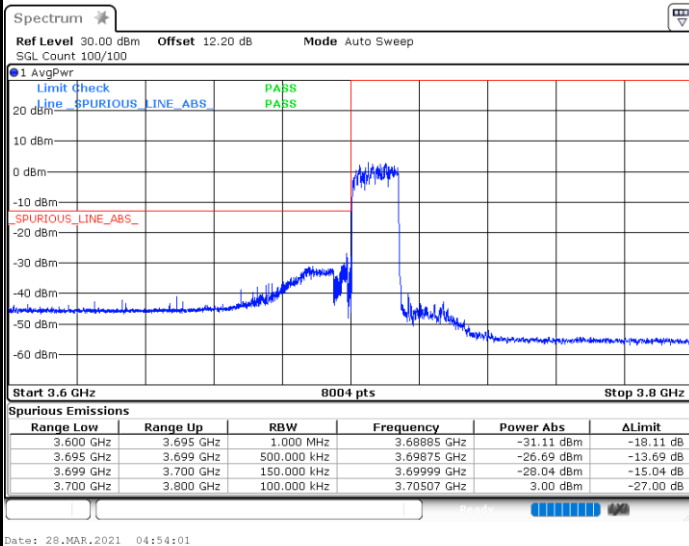
## Lowest Band Edge / 1 RB

## Channel Power &lt; -13dBm Pass



## Lowest Band Edge / Full RB

## Channel Power &lt; -13dBm Pass

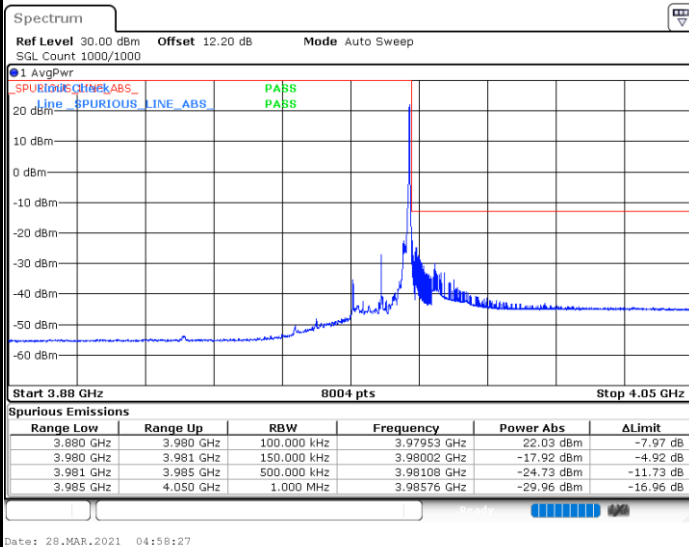




## FR1 N77 / 15MHz / DFT-S OFDM QPSK

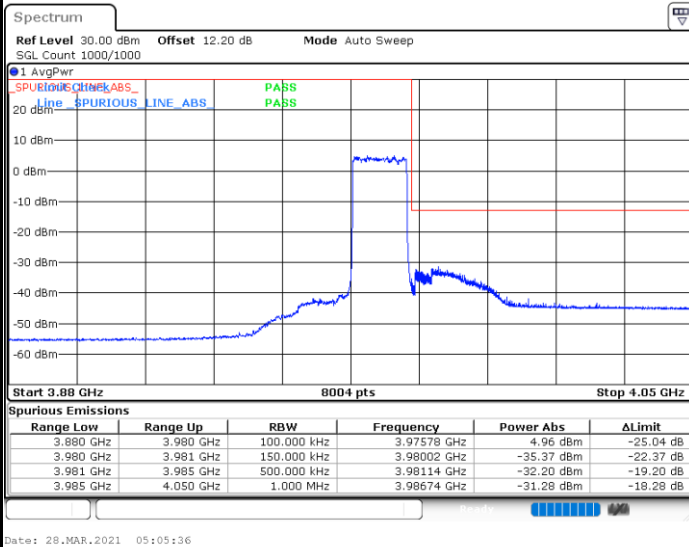
## Highest Band Edge / 1 RB

## Channel Power &lt; -13dBm Pass



## Highest Band Edge / Full RB

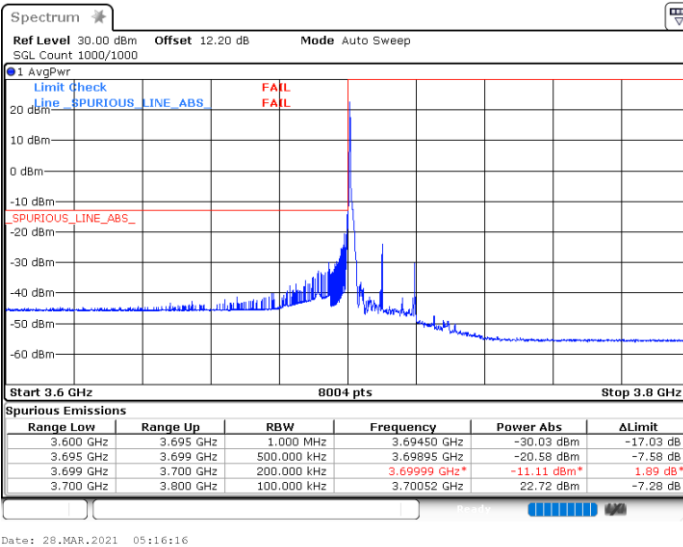
## Channel Power &lt; -13dBm Pass



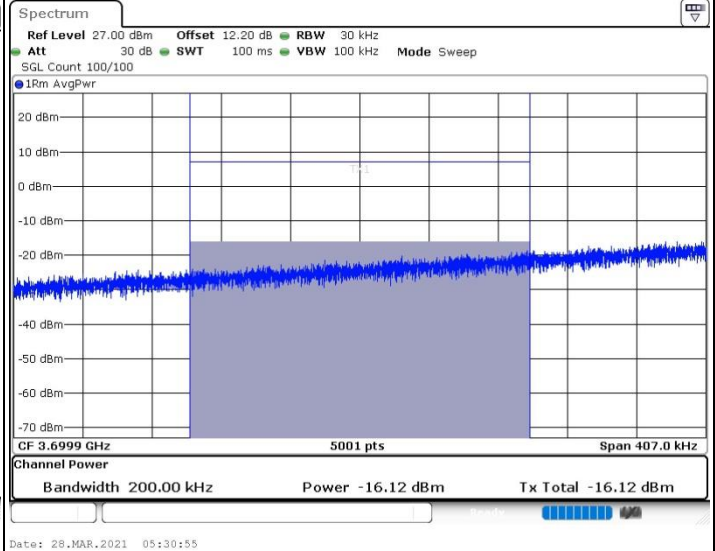


## FR1 N77 / 20MHz / DFT-S OFDM BPSK

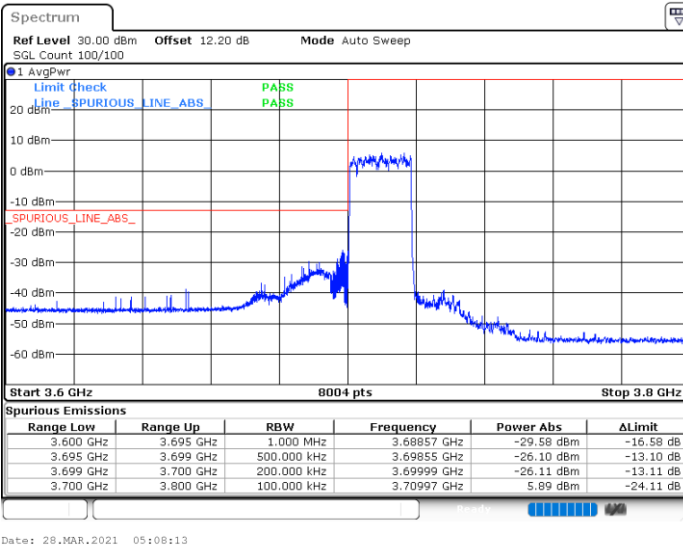
## Lowest Band Edge / 1 RB



## Channel Power &lt; -13dBm Pass



## Lowest Band Edge / Full RB



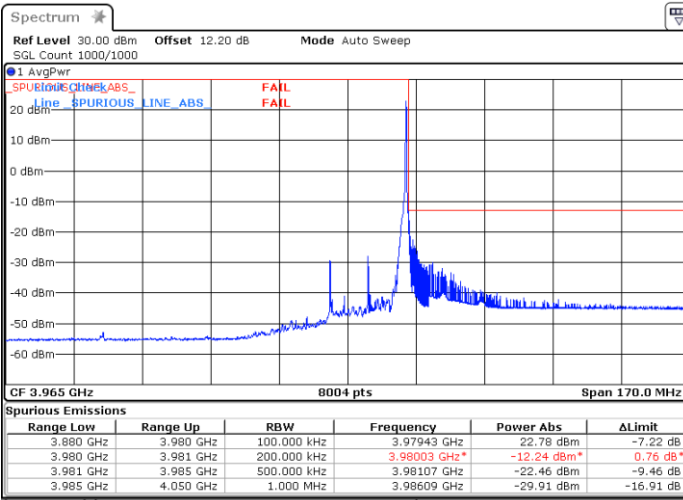
## Channel Power &lt; -13dBm Pass

/

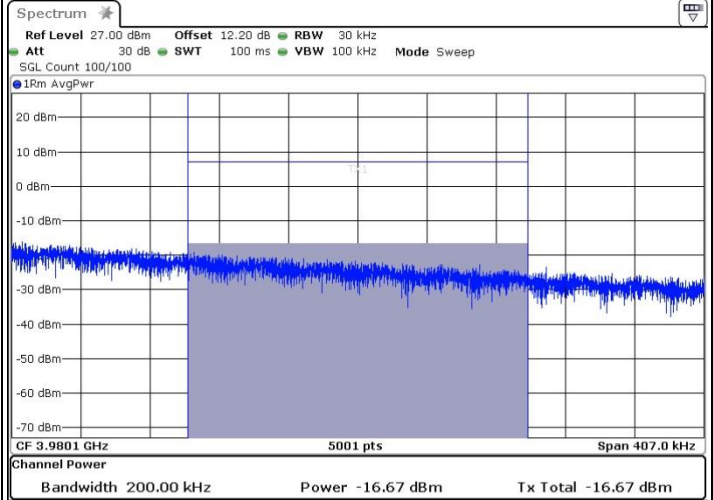


## FR1 N77 / 20MHz / DFT-S OFDM BPSK

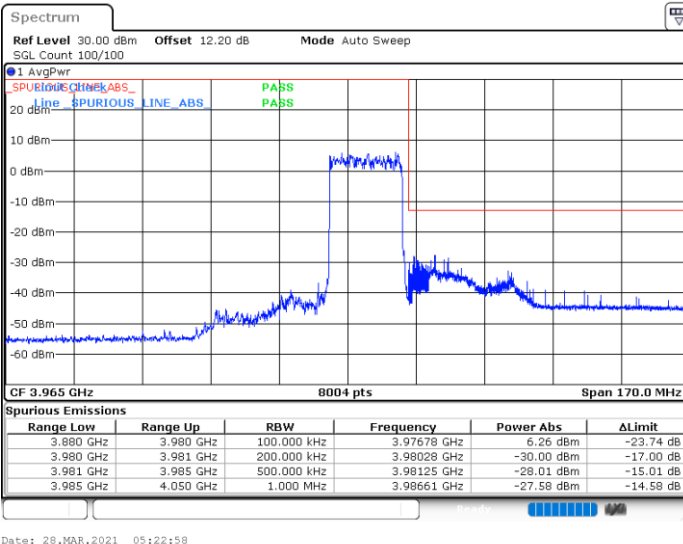
## Highest Band Edge / 1 RB



## Channel Power &lt; -13dBm Pass



## Highest Band Edge / Full RB



## Channel Power &lt; -13dBm Pass

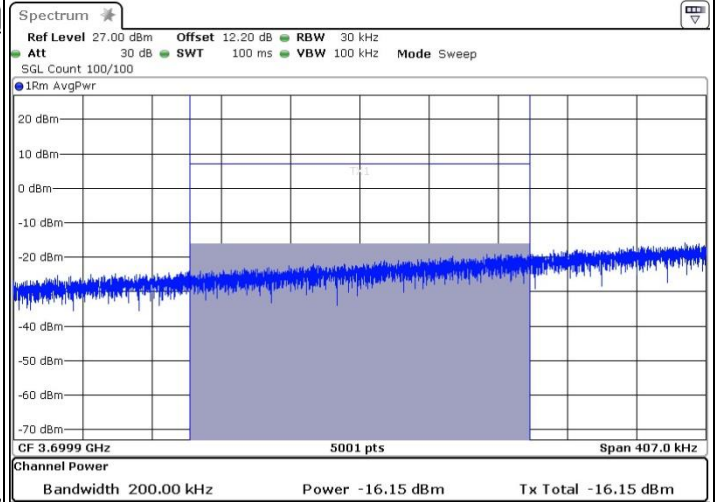
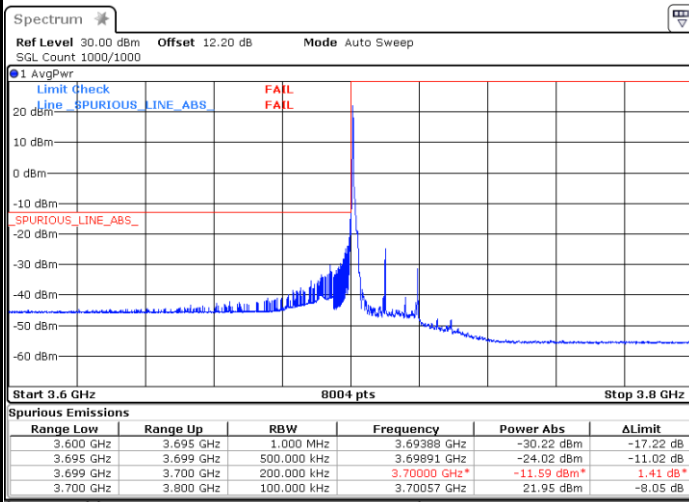
/



## FR1 N77 / 20MHz / DFT-S OFDM QPSK

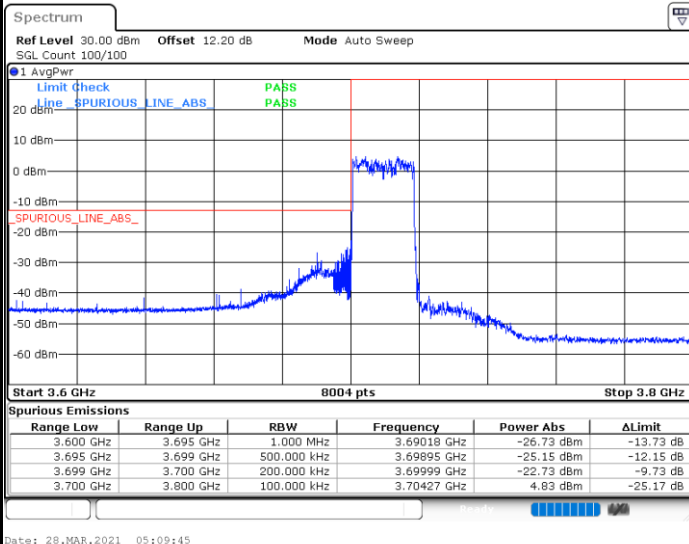
## Lowest Band Edge / 1 RB

## Channel Power &lt; -13dBm Pass



## Lowest Band Edge / Full RB

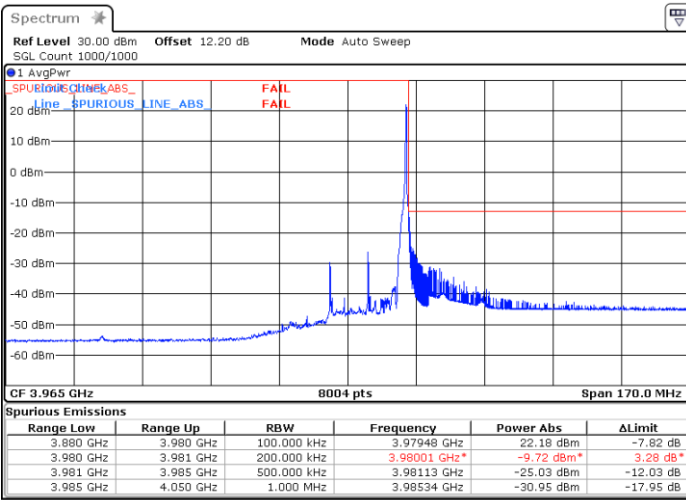
## Channel Power &lt; -13dBm Pass



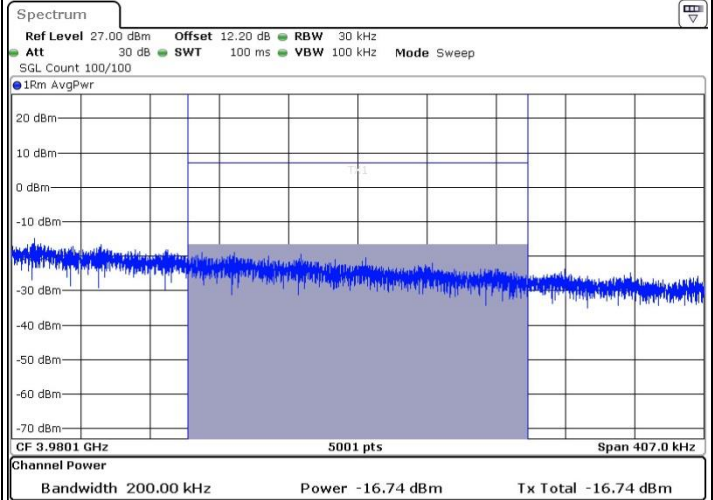


## FR1 N77 / 20MHz / DFT-S OFDM QPSK

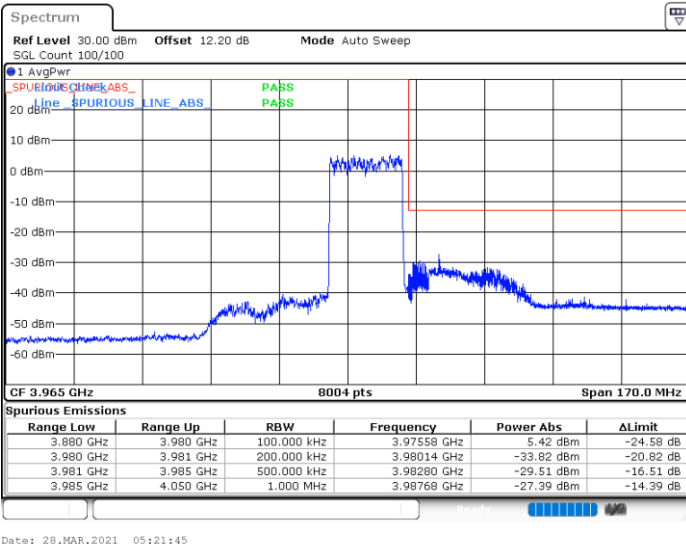
## Highest Band Edge / 1 RB



## Channel Power &lt; -13dBm Pass



## Highest Band Edge / Full RB



## Channel Power &lt; -13dBm Pass

/

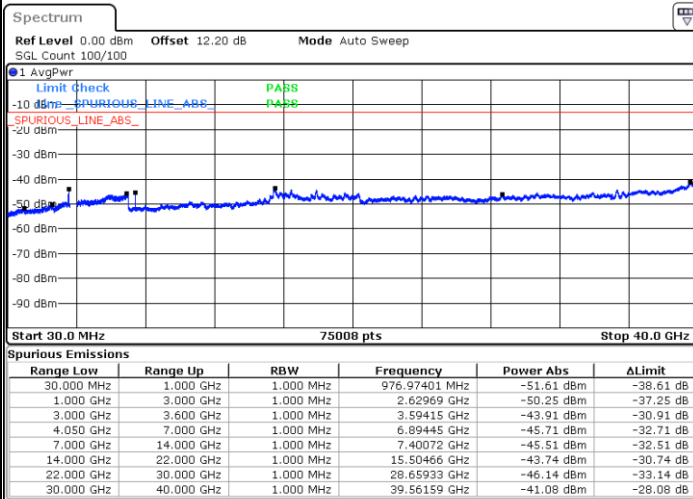


# Conducted Spurious Emission

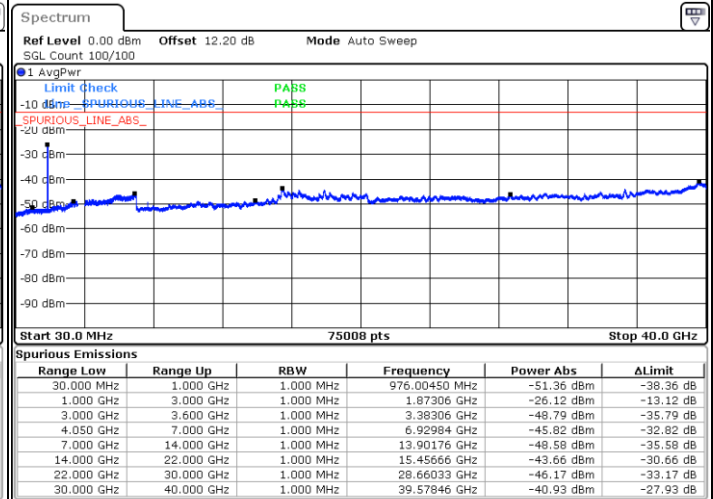
FR1 N77 / 10MHz / DFT-S OFDM / BPSK

Lowest Channel / 1RB

Middle Channel / 1RB

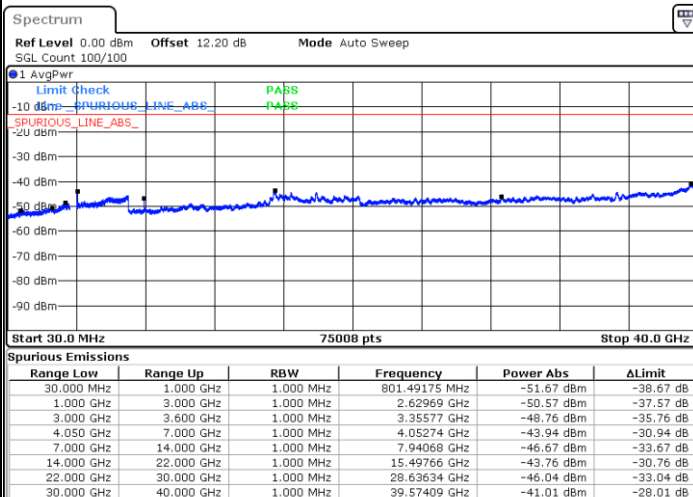


Date: 29.MAR.2021 03:08:28



Date: 28.MAR.2021 04:39:00

Highest Channel / 1RB

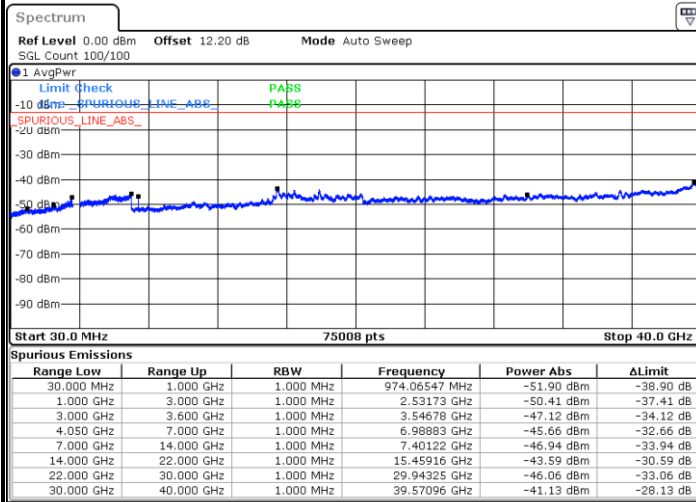


Date: 28.MAR.2021 04:19:11



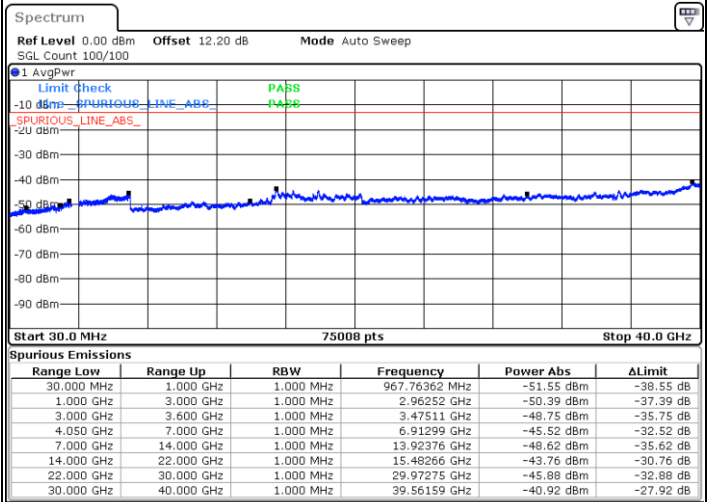
## FR1 N77 / 10MHz / DFT-S OFDM / QPSK

## Lowest Channel / 1RB



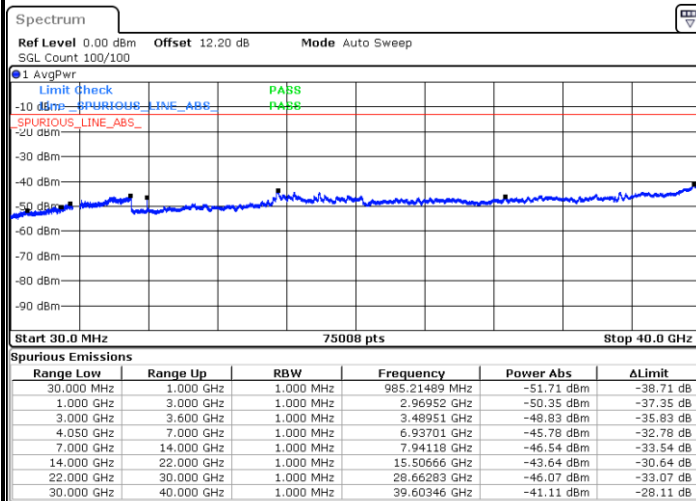
Date: 29.MAR.2021 03:09:47

## Middle Channel / 1RB



Date: 28.MAR.2021 04:15:15

## Highest Channel / 1RB

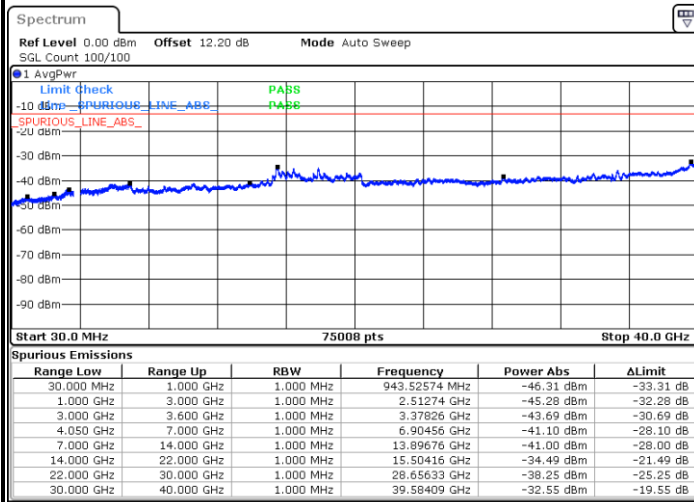


Date: 28.MAR.2021 04:18:02



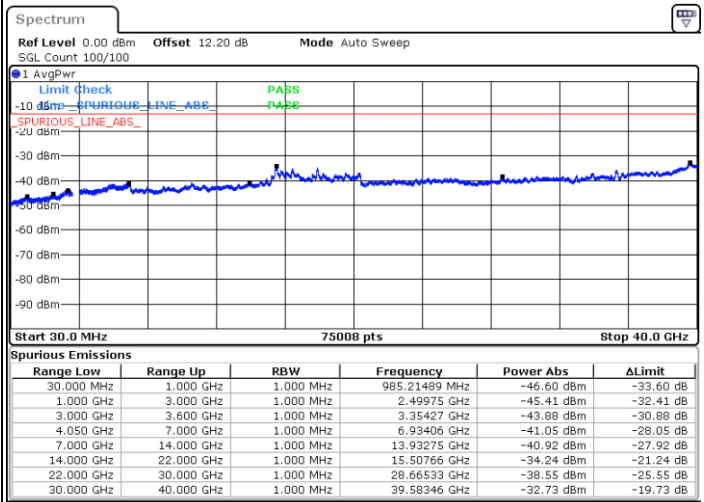
## FR1 N77 / 15MHz / DFT-S OFDM / BPSK

## Lowest Channel / 1RB



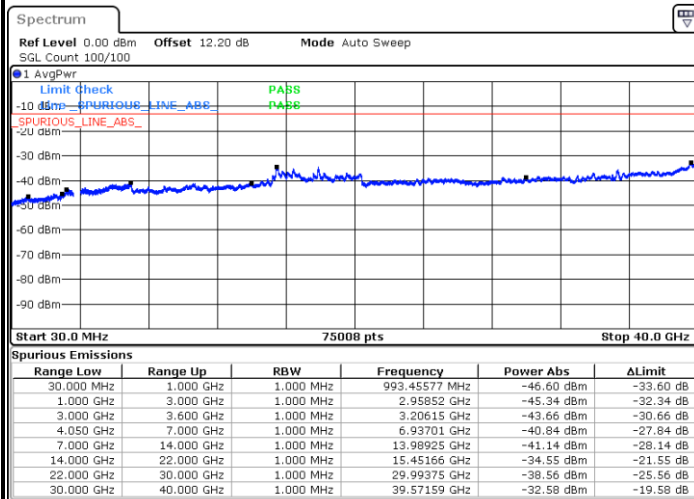
Date: 28.MAR.2021 03:32:38

## Middle Channel / 1RB



Date: 28.MAR.2021 04:08:56

## Highest Channel / 1RB

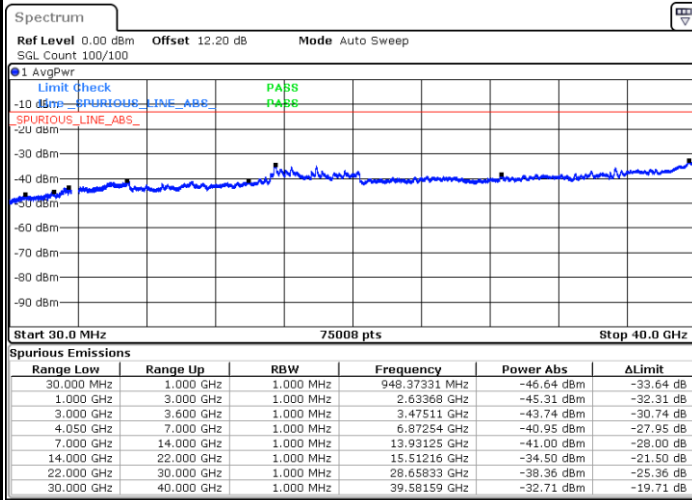


Date: 28.MAR.2021 04:10:59



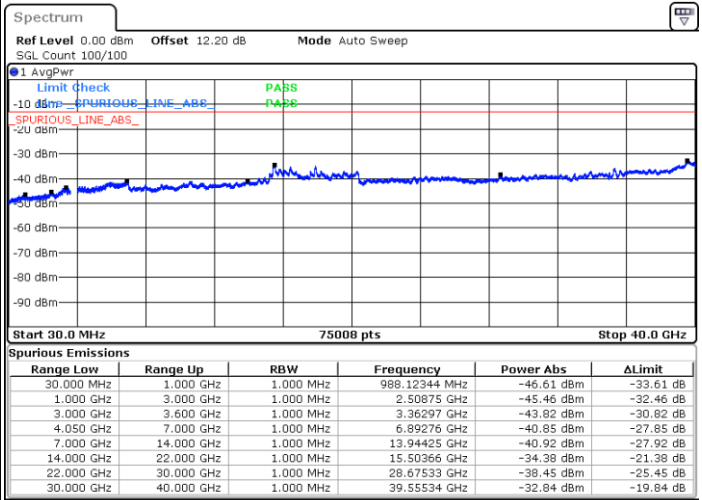
## FR1 N77 / 15MHz / DFT-S OFDM / QPSK

## Lowest Channel / 1RB



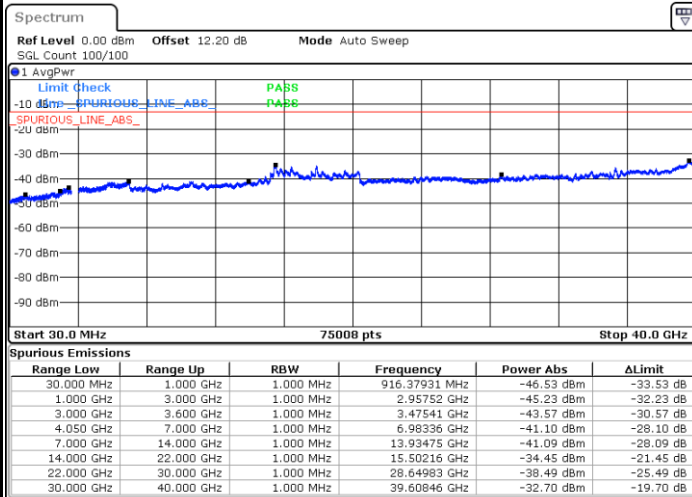
Date: 28.MAR.2021 03:33:56

## Middle Channel / 1RB



Date: 28.MAR.2021 03:35:17

## Highest Channel / 1RB

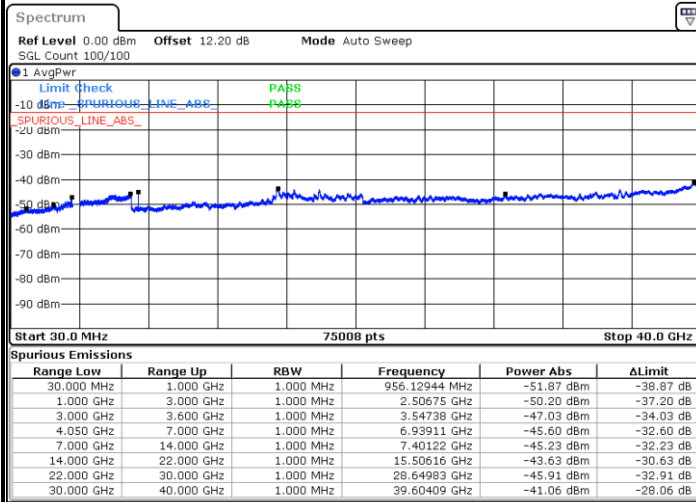


Date: 28.MAR.2021 04:12:08



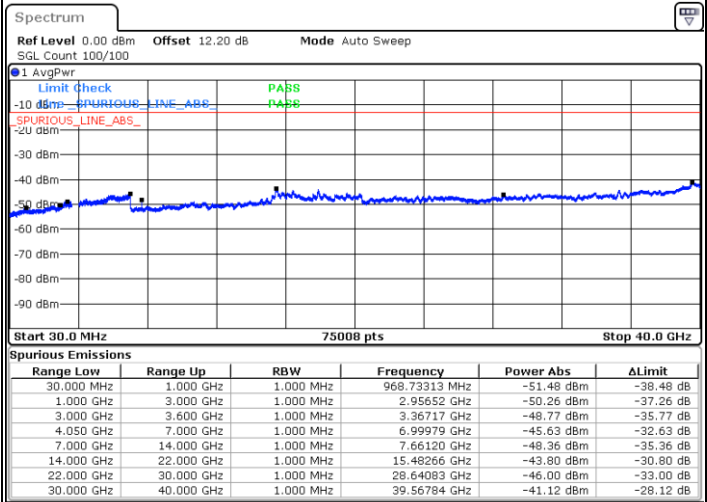
## FR1 N77 / 20MHz / DFT-S OFDM / BPSK

## Lowest Channel / 1RB



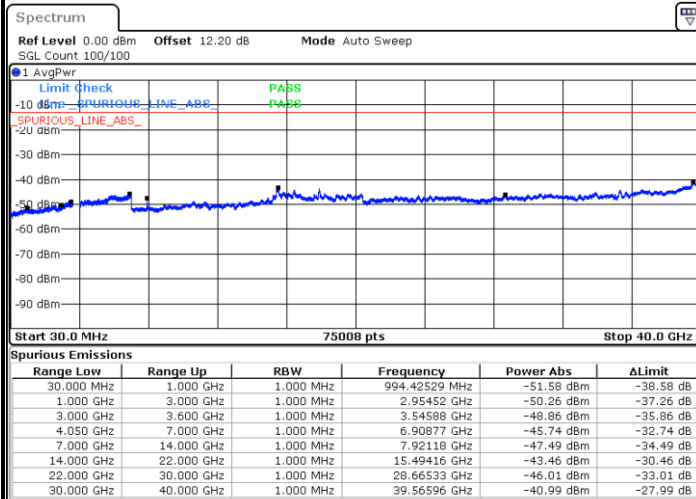
Date: 28.MAR.2021 02:41:25

## Middle Channel / 1RB



Date: 28.MAR.2021 03:17:05

## Highest Channel / 1RB

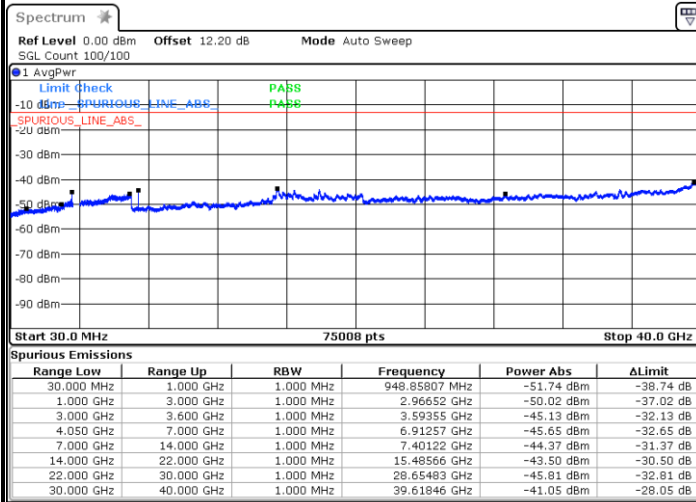


Date: 28.MAR.2021 03:20:29



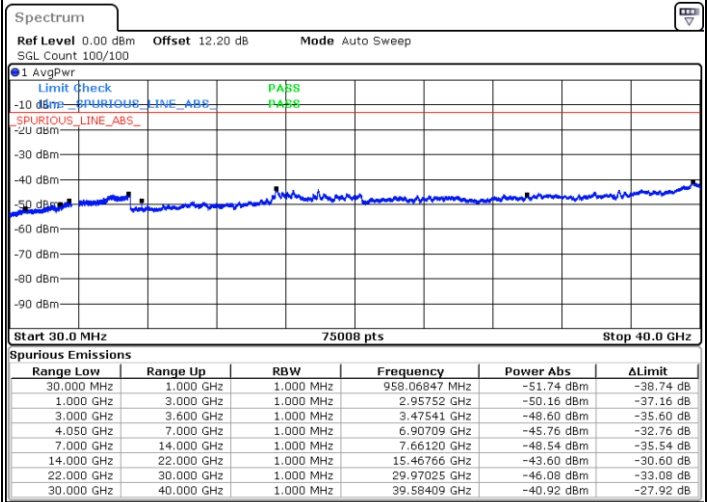
## FR1 N77 / 20MHz / DFT-S OFDM / QPSK

## Lowest Channel / 1RB



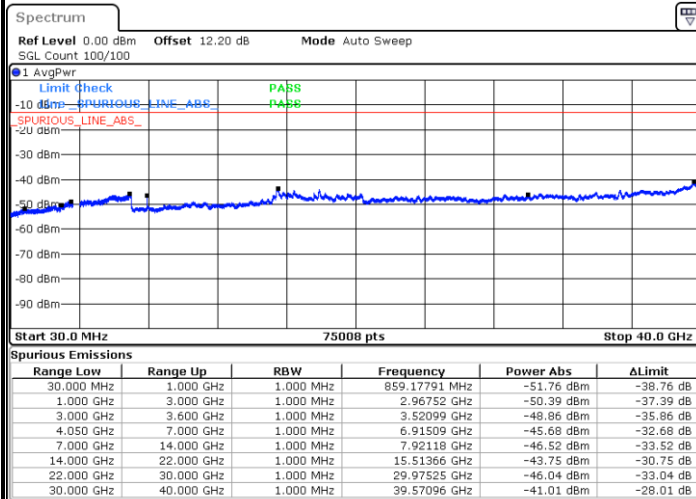
Date: 28.MAR.2021 02:31:14

## Middle Channel / 1RB



Date: 28.MAR.2021 03:15:33

## Highest Channel / 1RB



Date: 28.MAR.2021 03:18:58

## Frequency Stability

| Test Conditions  |                   | NR N77 (BPSK) / Middle Channel | Limit       |
|------------------|-------------------|--------------------------------|-------------|
| Temperature (°C) | Voltage (Volt)    | BW 20MHz                       | Within Band |
|                  |                   | Deviation (ppm)                | Result      |
| 50               | Normal Voltage    | 0.0015                         | PASS        |
| 40               | Normal Voltage    | 0.0001                         |             |
| 30               | Normal Voltage    | 0.0006                         |             |
| 20(Ref.)         | Normal Voltage    | 0.0019                         |             |
| 10               | Normal Voltage    | 0.0002                         |             |
| 0                | Normal Voltage    | 0.0009                         |             |
| -10              | Normal Voltage    | 0.0013                         |             |
| -20              | Normal Voltage    | 0.0002                         |             |
| -30              | Normal Voltage    | 0.0019                         |             |
| 20               | Maximum Voltage   | 0.0009                         |             |
| 20               | Normal Voltage    | 0.0015                         |             |
| 20               | Battery End Point | 0.0013                         |             |

**Note:**

1. Normal Voltage =3.3 V. ; Battery End Point (BEP) =3.14 V. ; Maximum Voltage =4.4 V.
2. Note: The frequency fundamental emissions stay within the authorized frequency block.



## 5G NR n77 NSA-SCS 30K

**Peak-to-Average Ratio**

| Mode       | FR1 n77 / 10MHz / DFT-S OFDM |           |      |         |             |
|------------|------------------------------|-----------|------|---------|-------------|
| Mod.       | PI/2 BPSK                    | PI/2 BPSK | QPSK | QPSK    | Limit: 13dB |
| RB Size    | 1RB                          | Full RB   | 1RB  | Full RB | Result      |
| Lowest CH  | 7.86                         | 6.78      | 8.29 | 8.23    | PASS        |
| Middle CH  | 6.84                         | 7.77      | 7.45 | 9.39    |             |
| Highest CH | 6.87                         | 6.67      | 7.59 | 8.17    |             |