

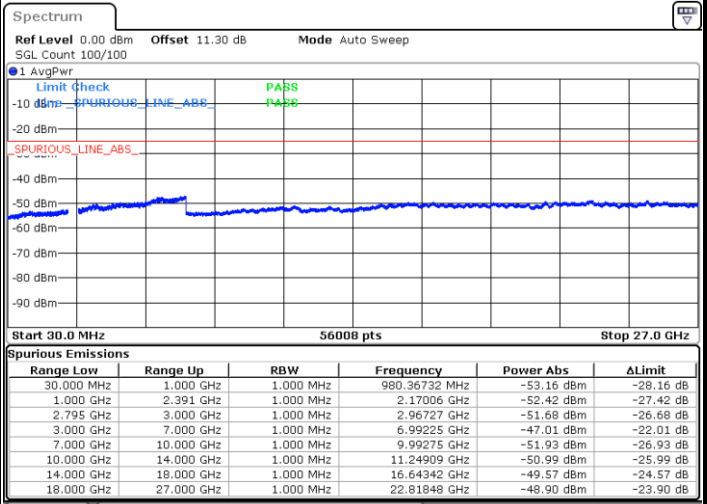
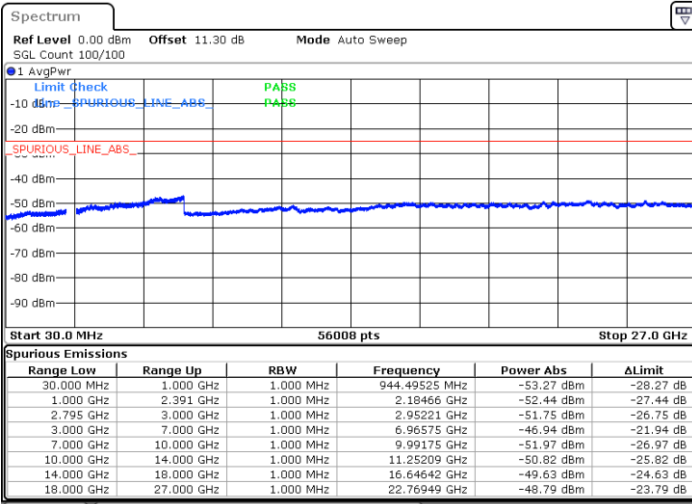


# Conducted Spurious Emission

## FR1 n41 / 10MHz / DFT-S OFDM / BPSK

### Lowest Channel / 1RB

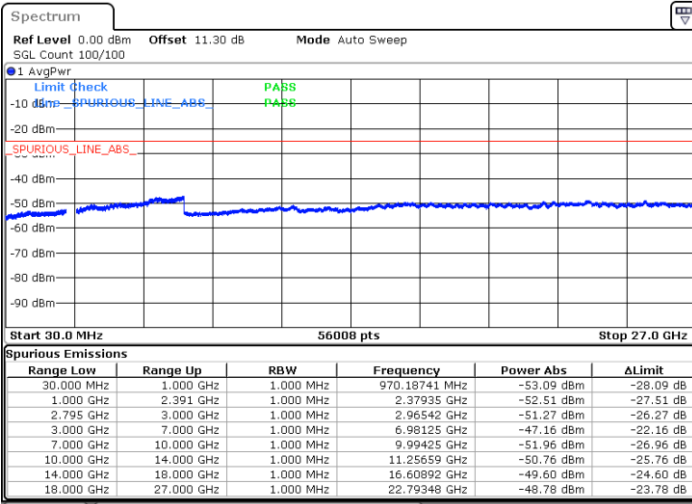
### Middle Channel / 1RB



Date: 22.JAN.2021 00:16:11

Date: 22.JAN.2021 00:19:39

### Highest Channel / 1RB



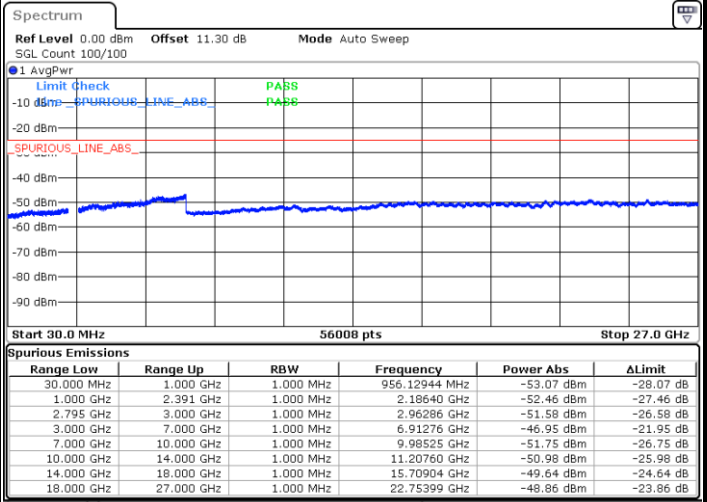
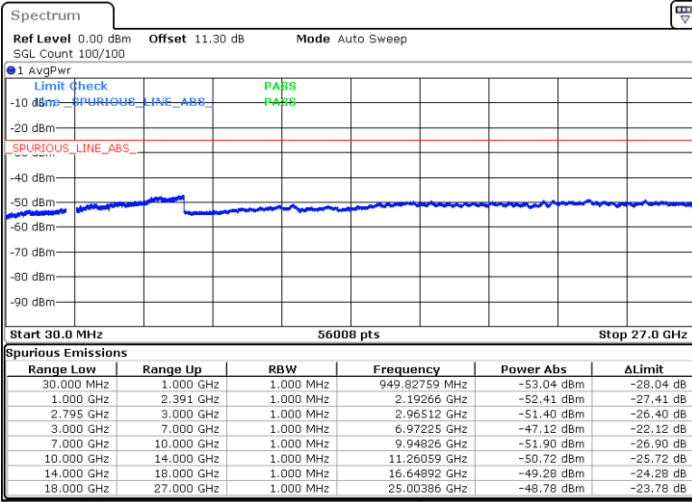
Date: 22.JAN.2021 00:22:00



FR1 n41 / 10MHz / DFT-S OFDM / QPSK

Lowest Channel / 1RB

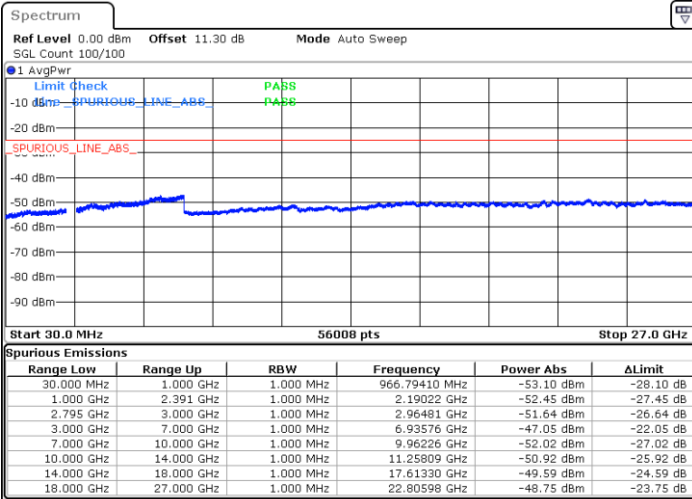
Middle Channel / 1RB



Date: 22.JAN.2021 00:17:08

Date: 22.JAN.2021 00:18:27

Highest Channel / 1RB



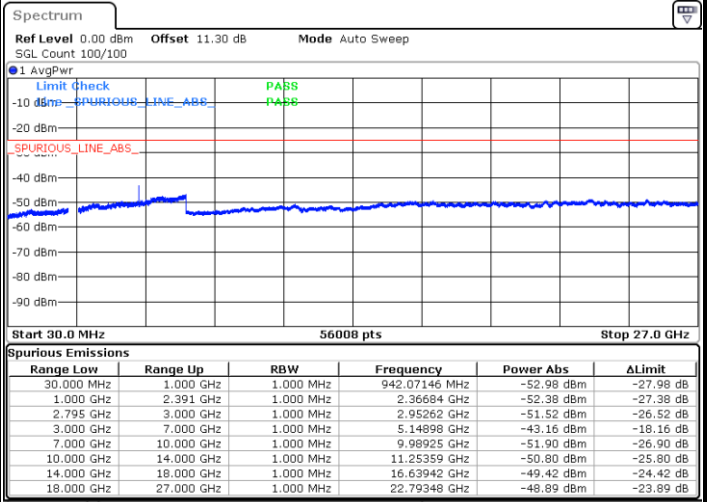
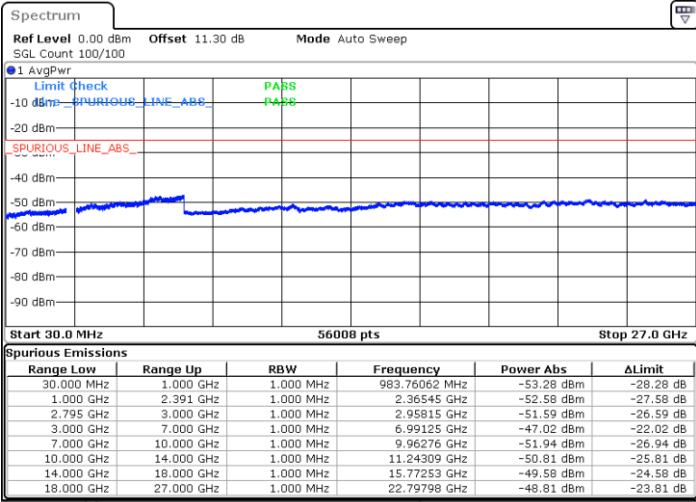
Date: 22.JAN.2021 00:23:55



FR1 n41 / 40MHz / DFT-S OFDM / BPSK

Lowest Channel / 1RB

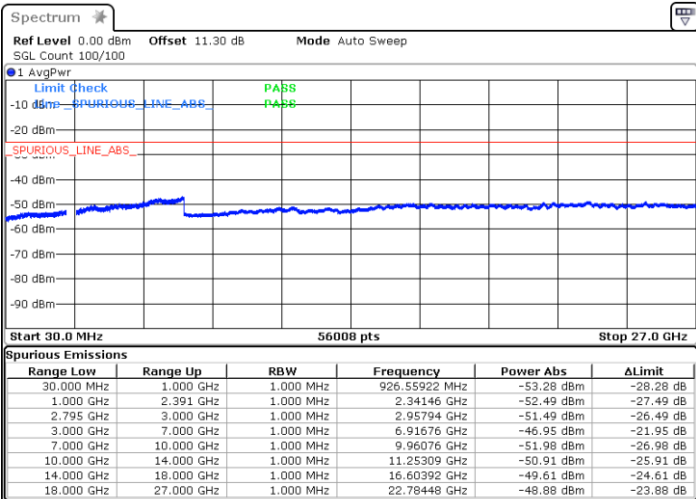
Middle Channel / 1RB



Date: 21.JAN.2021 23:24:42

Date: 21.JAN.2021 22:52:24

Highest Channel / 1RB



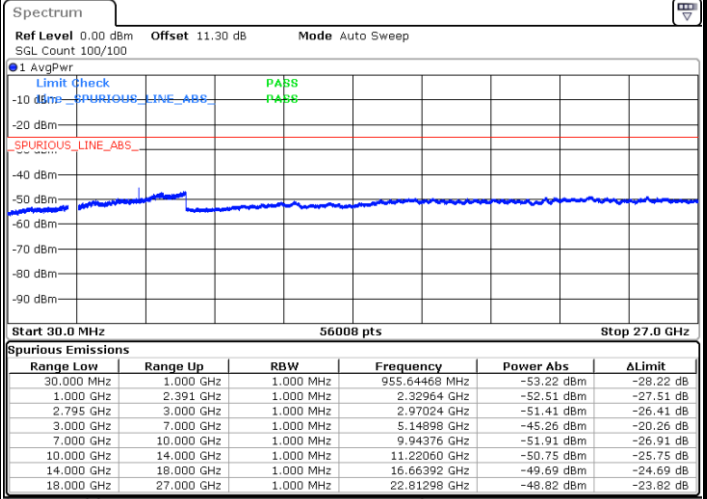
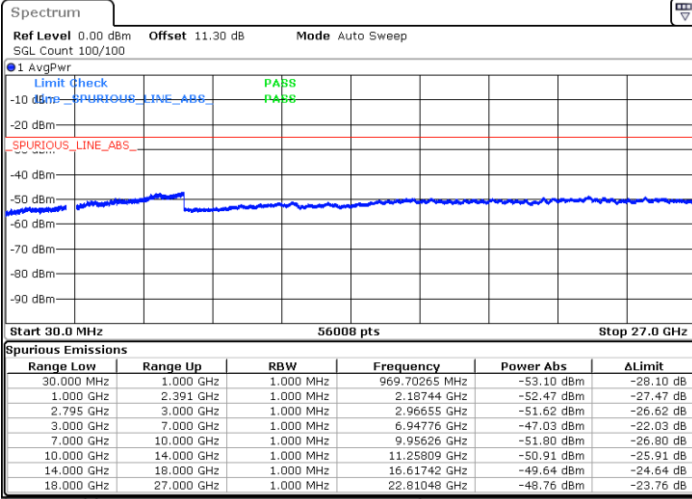
Date: 21.JAN.2021 23:20:07



FR1 n41 / 40MHz / DFT-S OFDM / QPSK

Lowest Channel / 1RB

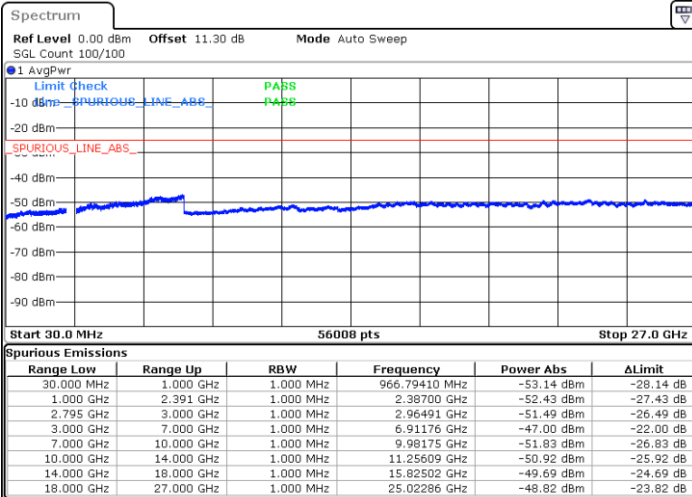
Middle Channel / 1RB



Date: 21.JAN.2021 23:22:32

Date: 21.JAN.2021 22:40:12

Highest Channel / 1RB



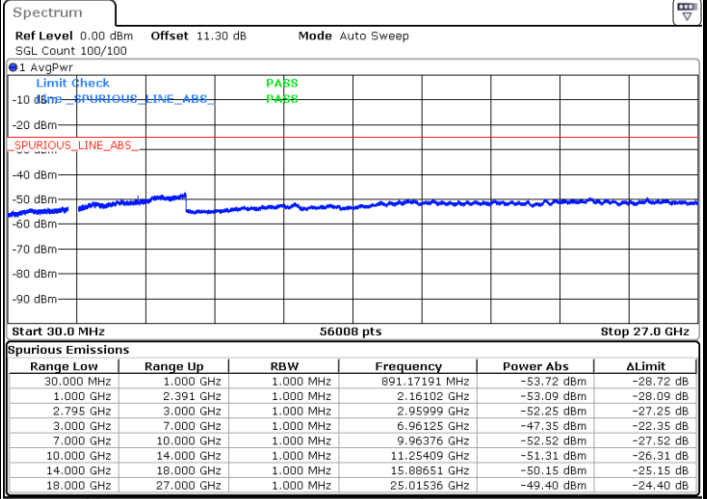
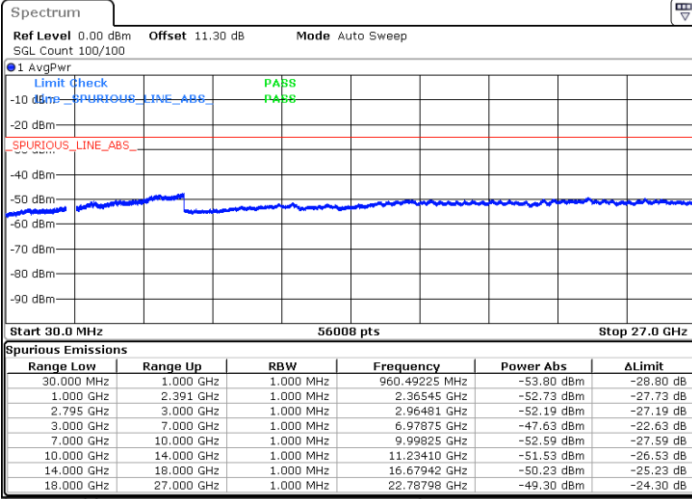
Date: 21.JAN.2021 23:21:07



FR1 n41 / 80MHz / DFT-S OFDM / BPSK

Lowest Channel / 1RB

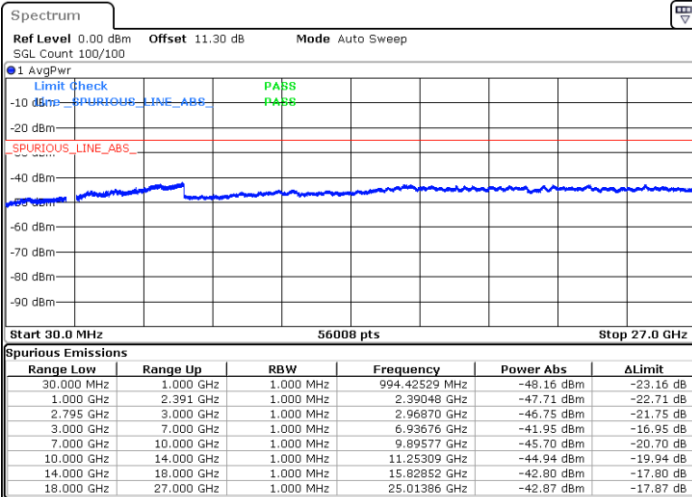
Middle Channel / 1RB



Date: 15.JAN.2021 03:13:20

Date: 15.JAN.2021 03:02:38

Highest Channel / 1RB



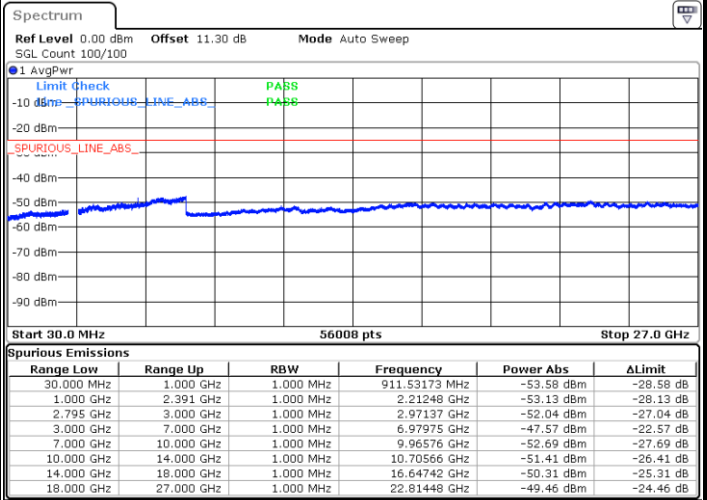
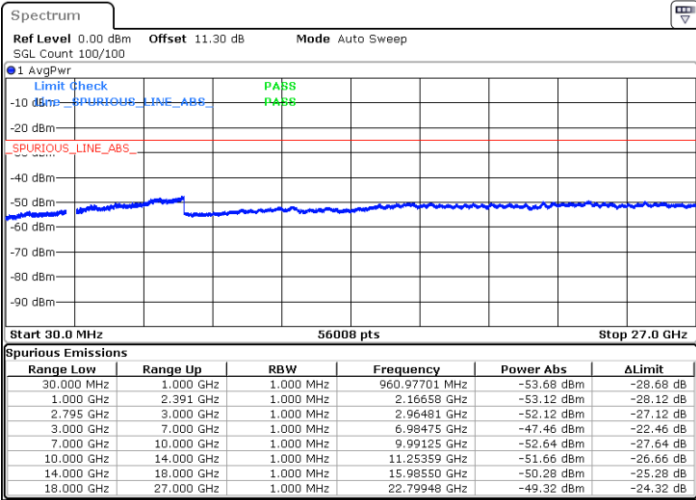
Date: 21.JAN.2021 17:48:09



FR1 n41 / 80MHz / DFT-S OFDM / QPSK

Lowest Channel / 1RB

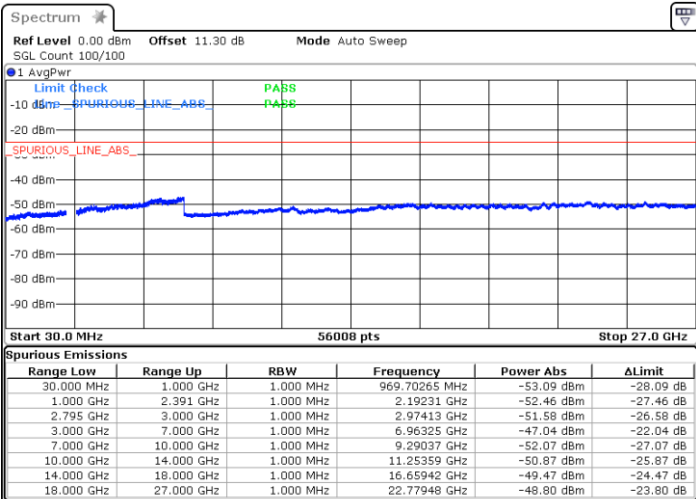
Middle Channel / 1RB



Date: 15.JAN.2021 03:09:47

Date: 15.JAN.2021 03:07:05

Highest Channel / 1RB



Date: 21.JAN.2021 17:46:32

**Frequency Stability**

| Test Conditions  |                   | NR n41 (BPSK) / Middle Channel | Limit       |
|------------------|-------------------|--------------------------------|-------------|
| Temperature (°C) | Voltage (Volt)    | BW 20MHz                       | Within Band |
|                  |                   | Deviation (ppm)                | Result      |
| 50               | Normal Voltage    | 0.0022                         | PASS        |
| 40               | Normal Voltage    | 0.0018                         |             |
| 30               | Normal Voltage    | 0.0012                         |             |
| 20(Ref.)         | Normal Voltage    | 0.0013                         |             |
| 10               | Normal Voltage    | 0.0015                         |             |
| 0                | Normal Voltage    | 0.0012                         |             |
| -10              | Normal Voltage    | 0.0019                         |             |
| -20              | Normal Voltage    | 0.0021                         |             |
| -30              | Normal Voltage    | 0.0017                         |             |
| 20               | Maximum Voltage   | 0.0029                         |             |
| 20               | Normal Voltage    | 0.0013                         |             |
| 20               | Battery End Point | 0.0033                         |             |

**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 n41 UL\_MIMO HPUE -SCS 15K

## Peak-to-Average Ratio

| Mode       | FR1 UL-MIMO n41 / 10MHz / CP-OFDM (M2) |         |  |  |             |
|------------|----------------------------------------|---------|--|--|-------------|
| Mod.       | QPSK                                   | QPSK    |  |  | Limit: 13dB |
| RB Size    | 1RB                                    | Full RB |  |  | Result      |
| Lowest CH  | 7.13                                   | 8.7     |  |  | PASS        |
| Middle CH  | 7.04                                   | 8.7     |  |  |             |
| Highest CH | 7.19                                   | 8.2     |  |  |             |

| Mode       | FR1 UL-MIMO n41 / 10MHz / CP-OFDM (M) |         |  |  |             |
|------------|---------------------------------------|---------|--|--|-------------|
| Mod.       | QPSK                                  | QPSK    |  |  | Limit: 13dB |
| RB Size    | 1RB                                   | Full RB |  |  | Result      |
| Lowest CH  | 7.22                                  | 8.55    |  |  | PASS        |
| Middle CH  | 7.33                                  | 8.67    |  |  |             |
| Highest CH | 7.19                                  | 8.64    |  |  |             |





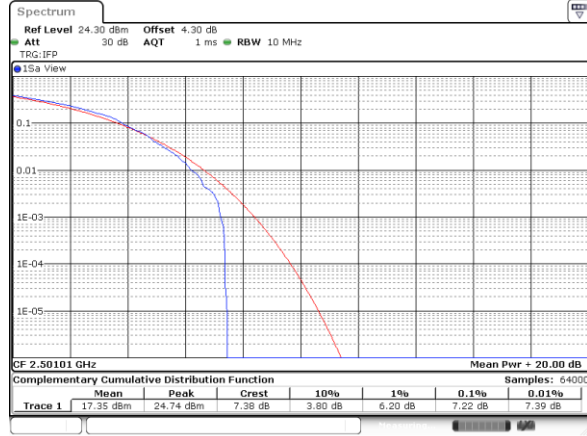
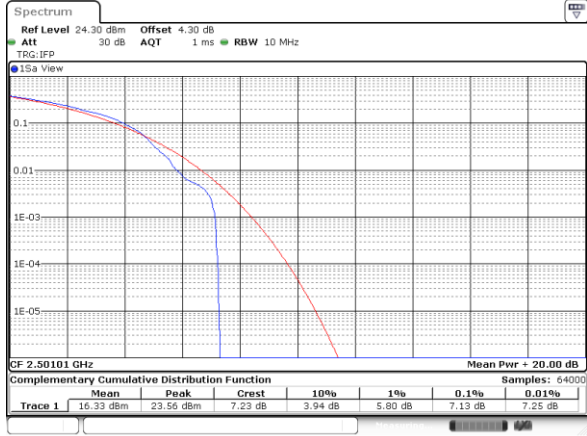
FR1 UL-MIMO n41 / 20MHz / CP-OFDM

QPSK(M2)

QPSK(M)

Lowest Channel / 1RB

Lowest Channel / 1RB

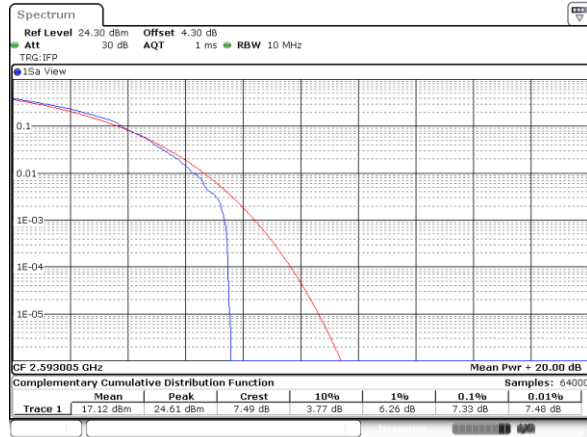


Date: 22\_JAN\_2021 03:24:37

Date: 22\_JAN\_2021 03:48:05

Middle Channel / 1 RB

Middle Channel / 1 RB

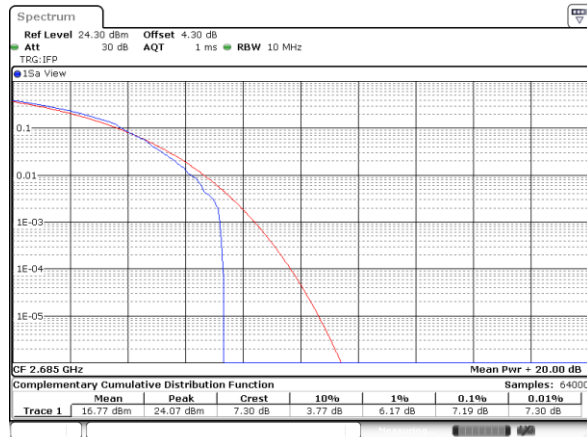
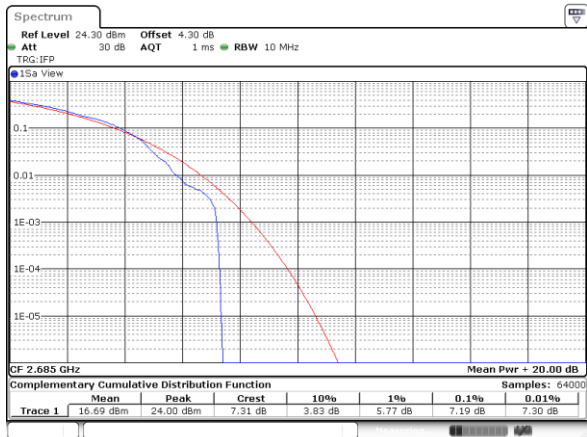


Date: 22\_JAN\_2021 03:23:19

Date: 22\_JAN\_2021 03:47:15

Highest Channel / 1 RB

Highest Channel / 1 RB



Date: 22\_JAN\_2021 03:28:44

Date: 22\_JAN\_2021 03:42:42



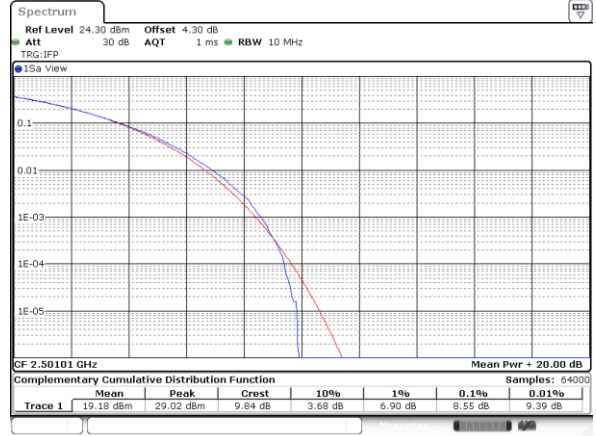
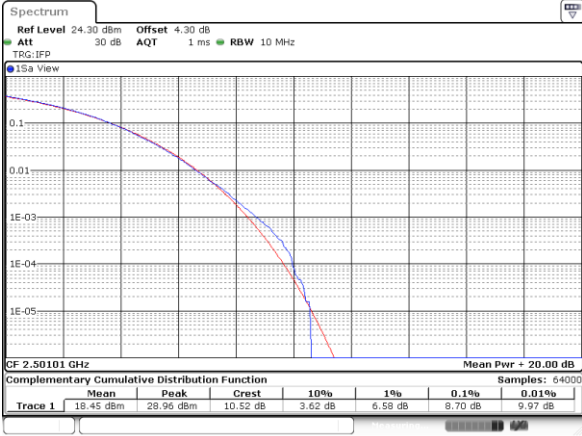
FR1 UL-MIMO n41 / 20MHz / CP-OFDM

QPSK(M2)

QPSK(M)

Lowest Channel / Full RB

Lowest Channel / Full RB

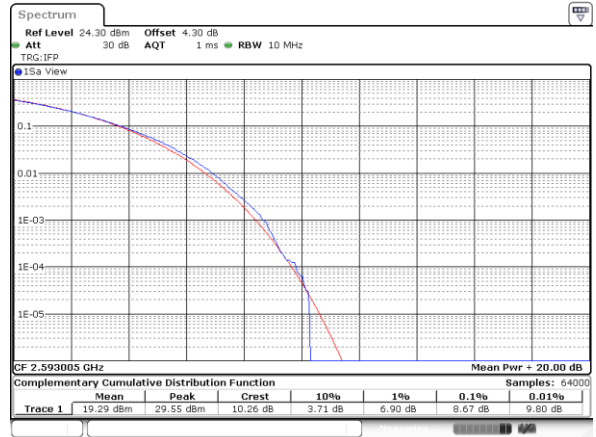
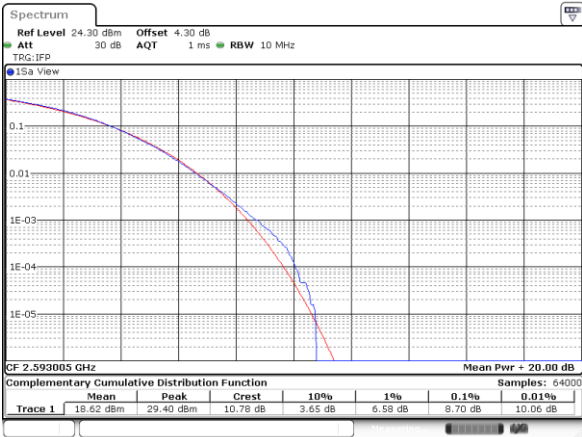


Date: 22\_JAN\_2021 03:26:23

Date: 22\_JAN\_2021 03:50:26

Middle Channel / Full RB

Middle Channel / Full RB

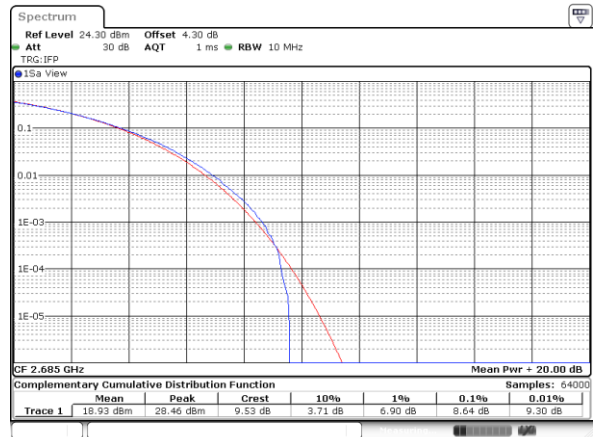
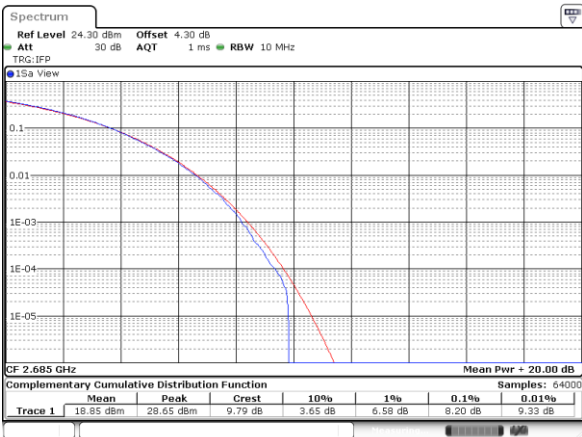


Date: 22\_JAN\_2021 03:21:56

Date: 22\_JAN\_2021 03:45:37

Highest Channel / Full RB

Highest Channel / Full RB



Date: 22\_JAN\_2021 03:27:09

Date: 22\_JAN\_2021 03:44:42



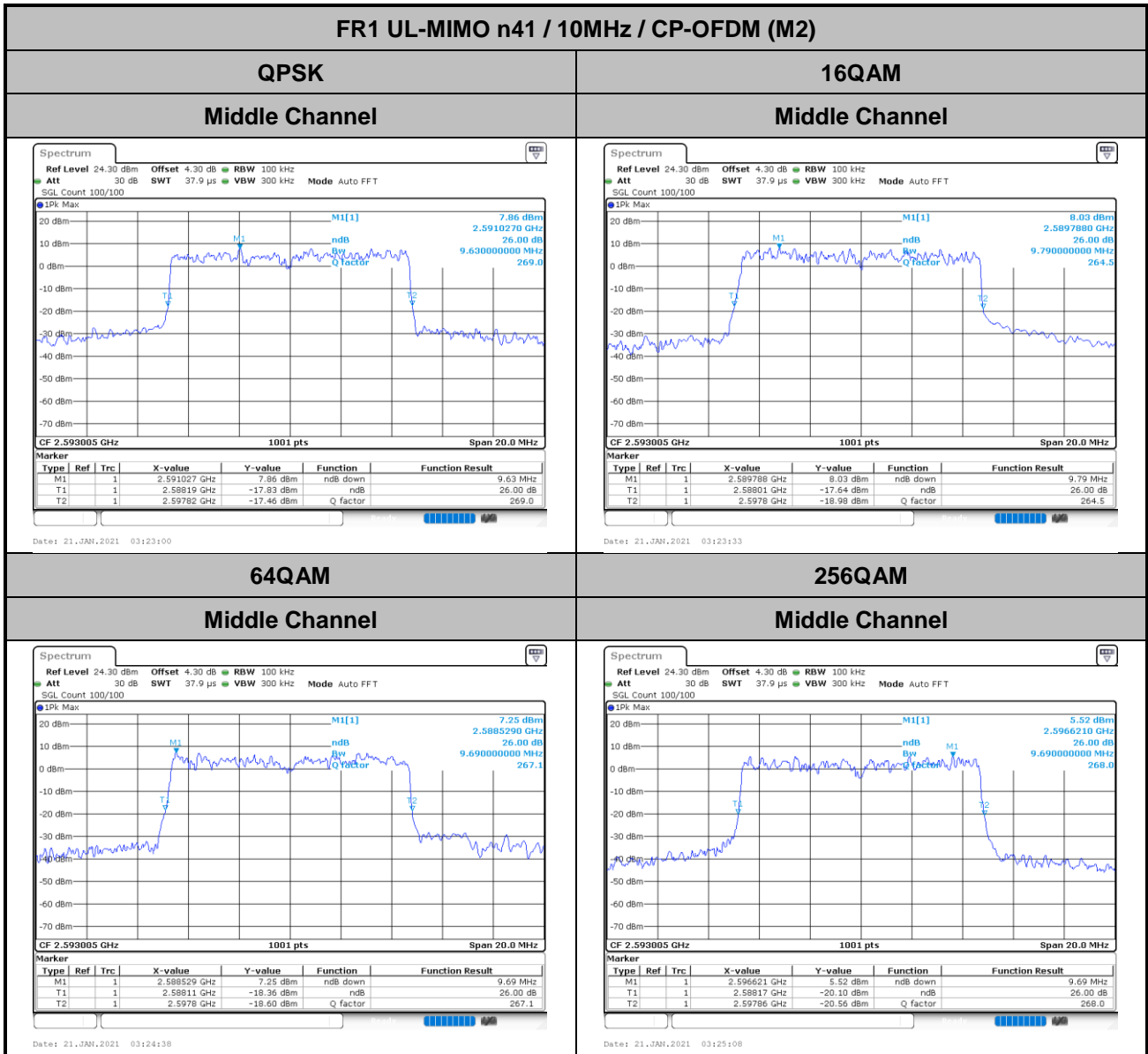
26dB Bandwidth

| Mode      | FR1 UL-MIMO n41 : 26dB BW(MHz) / CP-OFDM |       |       |        |       |       |       |        |
|-----------|------------------------------------------|-------|-------|--------|-------|-------|-------|--------|
|           | M2                                       |       |       |        | M     |       |       |        |
| BW        | 10MHz                                    | 10MHz | 10MHz | 10MHz  | 10MHz | 10MHz | 10MHz | 10MHz  |
| Mod.      | QPSK                                     | 16QAM | 64QAM | 256QAM | QPSK  | 16QAM | 64QAM | 256QAM |
| Middle CH | 9.63                                     | 9.79  | 9.69  | 9.69   | 9.71  | 9.67  | 9.63  | 9.67   |

| Mode      | FR1 UL-MIMO n41 : 26dB BW(MHz) / CP-OFDM |       |       |        |       |       |       |        |
|-----------|------------------------------------------|-------|-------|--------|-------|-------|-------|--------|
|           | M2                                       |       |       |        | M     |       |       |        |
| BW        | 15MHz                                    | 15MHz | 15MHz | 15MHz  | 15MHz | 15MHz | 15MHz | 15MHz  |
| Mod.      | QPSK                                     | 16QAM | 64QAM | 256QAM | QPSK  | 16QAM | 64QAM | 256QAM |
| Middle CH | 14.87                                    | 14.93 | 14.84 | 14.81  | 14.84 | 14.93 | 14.93 | 14.87  |

| Mode      | FR1 UL-MIMO n41 : 26dB BW(MHz) / CP-OFDM |       |       |        |       |       |       |        |
|-----------|------------------------------------------|-------|-------|--------|-------|-------|-------|--------|
|           | M2                                       |       |       |        | M     |       |       |        |
| BW        | 30MHz                                    | 30MHz | 30MHz | 30MHz  | 30MHz | 30MHz | 30MHz | 30MHz  |
| Mod.      | QPSK                                     | 16QAM | 64QAM | 256QAM | QPSK  | 16QAM | 64QAM | 256QAM |
| Middle CH | 29.37                                    | 29.43 | 29.37 | 29.43  | 29.37 | 29.43 | 29.43 | 29.37  |

| Mode      | FR1 UL-MIMO n41 : 26dB BW(MHz) / CP-OFDM |       |       |        |       |       |       |        |
|-----------|------------------------------------------|-------|-------|--------|-------|-------|-------|--------|
|           | M2                                       |       |       |        | M     |       |       |        |
| BW        | 40MHz                                    | 40MHz | 40MHz | 40MHz  | 40MHz | 40MHz | 40MHz | 40MHz  |
| Mod.      | QPSK                                     | 16QAM | 64QAM | 256QAM | QPSK  | 16QAM | 64QAM | 256QAM |
| Middle CH | 41.08                                    | 40.84 | 40.92 | 40.92  | 40.84 | 40.84 | 40.92 | 41.08  |





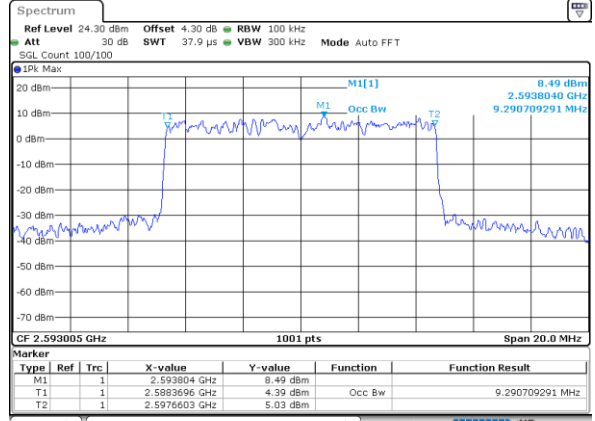
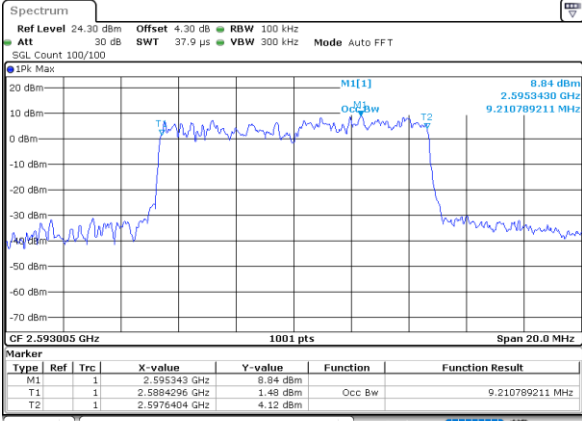
FR1 UL-MIMO n41 / 10MHz / CP-OFDM (M)

QPSK

16QAM

Middle Channel

Middle Channel



Date: 21.JAN.2021 04:58:03

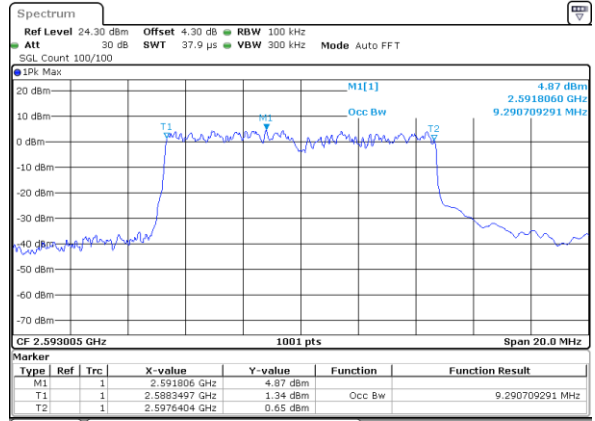
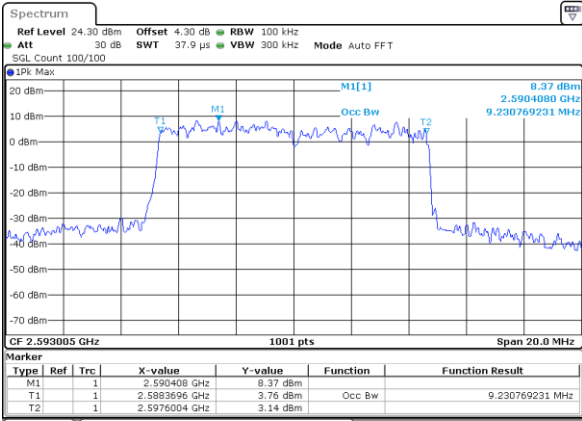
Date: 21.JAN.2021 04:57:41

64QAM

256QAM

Middle Channel

Middle Channel



Date: 21.JAN.2021 04:58:18

Date: 21.JAN.2021 04:58:45



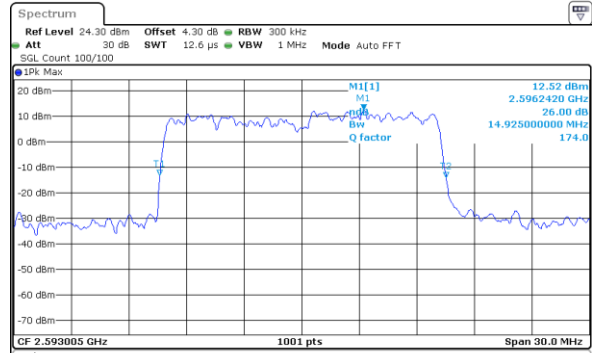
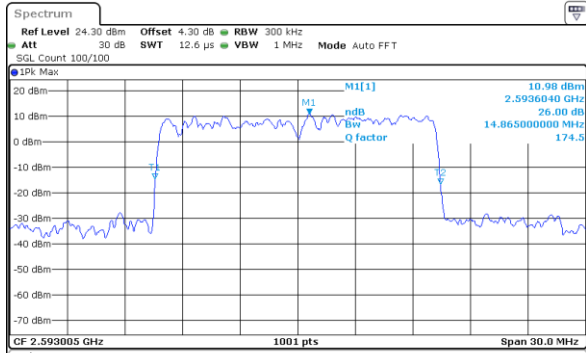
FR1 UL-MIMO n41 / 15MHz / CP-OFDM (M2)

QPSK

16QAM

Middle Channel

Middle Channel



| Type | Ref | Trc | X-value      | Y-value    | Function | Function Result |
|------|-----|-----|--------------|------------|----------|-----------------|
| M1   | 1   |     | 2.593604 GHz | 10.98 dBm  | ndB down | 14.865 MHz      |
| T1   | 1   |     | 2.585572 GHz | -14.69 dBm | ndB      | 26.00 dB        |
| T2   | 1   |     | 2.600438 GHz | -16.59 dBm | Q factor | 174.5           |

| Type | Ref | Trc | X-value      | Y-value    | Function | Function Result |
|------|-----|-----|--------------|------------|----------|-----------------|
| M1   | 1   |     | 2.596242 GHz | 12.52 dBm  | ndB down | 14.925 MHz      |
| T1   | 1   |     | 2.585602 GHz | -13.16 dBm | ndB      | 26.00 dB        |
| T2   | 1   |     | 2.600527 GHz | -14.02 dBm | Q factor | 174.0           |

Date: 20\_JAN\_2021 08:36:33

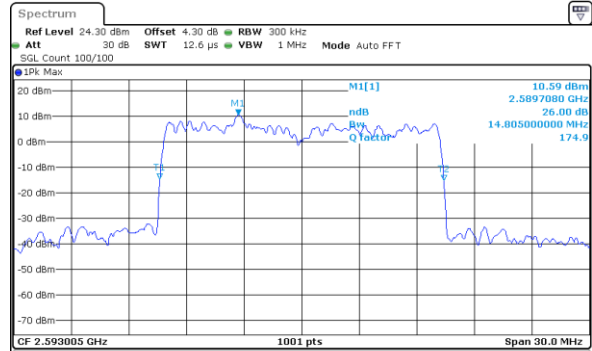
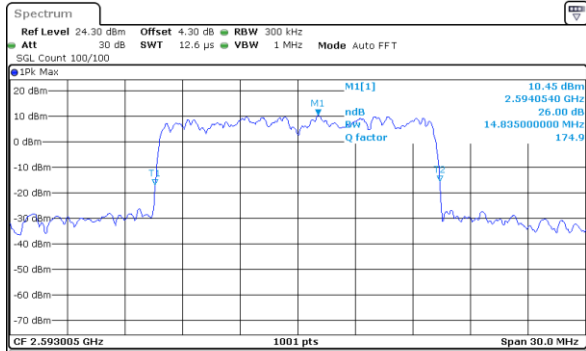
Date: 20\_JAN\_2021 08:35:54

64QAM

256QAM

Middle Channel

Middle Channel



| Type | Ref | Trc | X-value      | Y-value    | Function | Function Result |
|------|-----|-----|--------------|------------|----------|-----------------|
| M1   | 1   |     | 2.594054 GHz | 10.45 dBm  | ndB down | 14.835 MHz      |
| T1   | 1   |     | 2.585572 GHz | -16.77 dBm | ndB      | 26.00 dB        |
| T2   | 1   |     | 2.600408 GHz | -15.51 dBm | Q factor | 174.9           |

| Type | Ref | Trc | X-value      | Y-value    | Function | Function Result |
|------|-----|-----|--------------|------------|----------|-----------------|
| M1   | 1   |     | 2.589708 GHz | 10.59 dBm  | ndB down | 14.805 MHz      |
| T1   | 1   |     | 2.585602 GHz | -14.44 dBm | ndB      | 26.00 dB        |
| T2   | 1   |     | 2.600408 GHz | -15.11 dBm | Q factor | 174.9           |

Date: 21\_JAN\_2021 03:37:46

Date: 21\_JAN\_2021 03:38:02



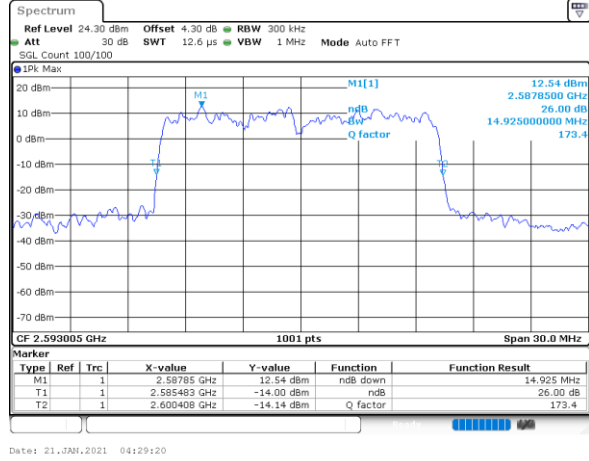
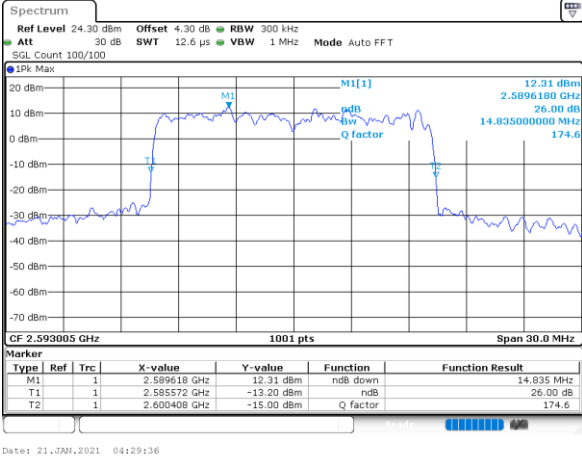
FR1 UL-MIMO n41 / 15MHz / CP-OFDM (M)

QPSK

16QAM

Middle Channel

Middle Channel

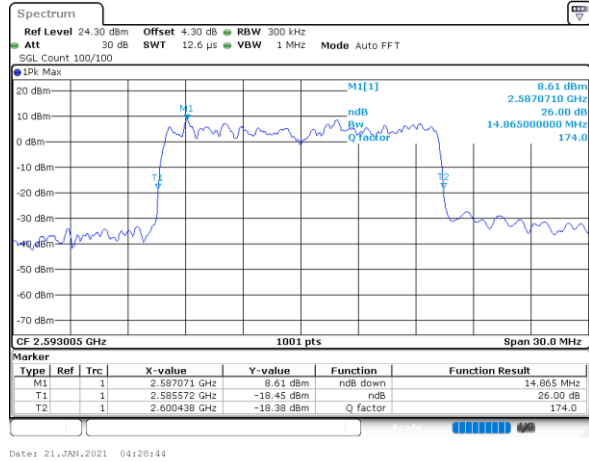
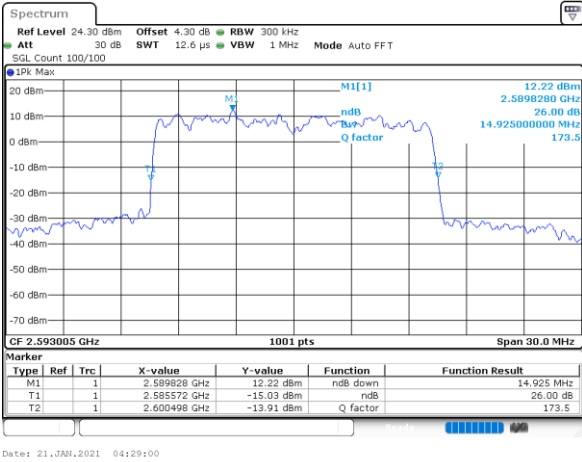


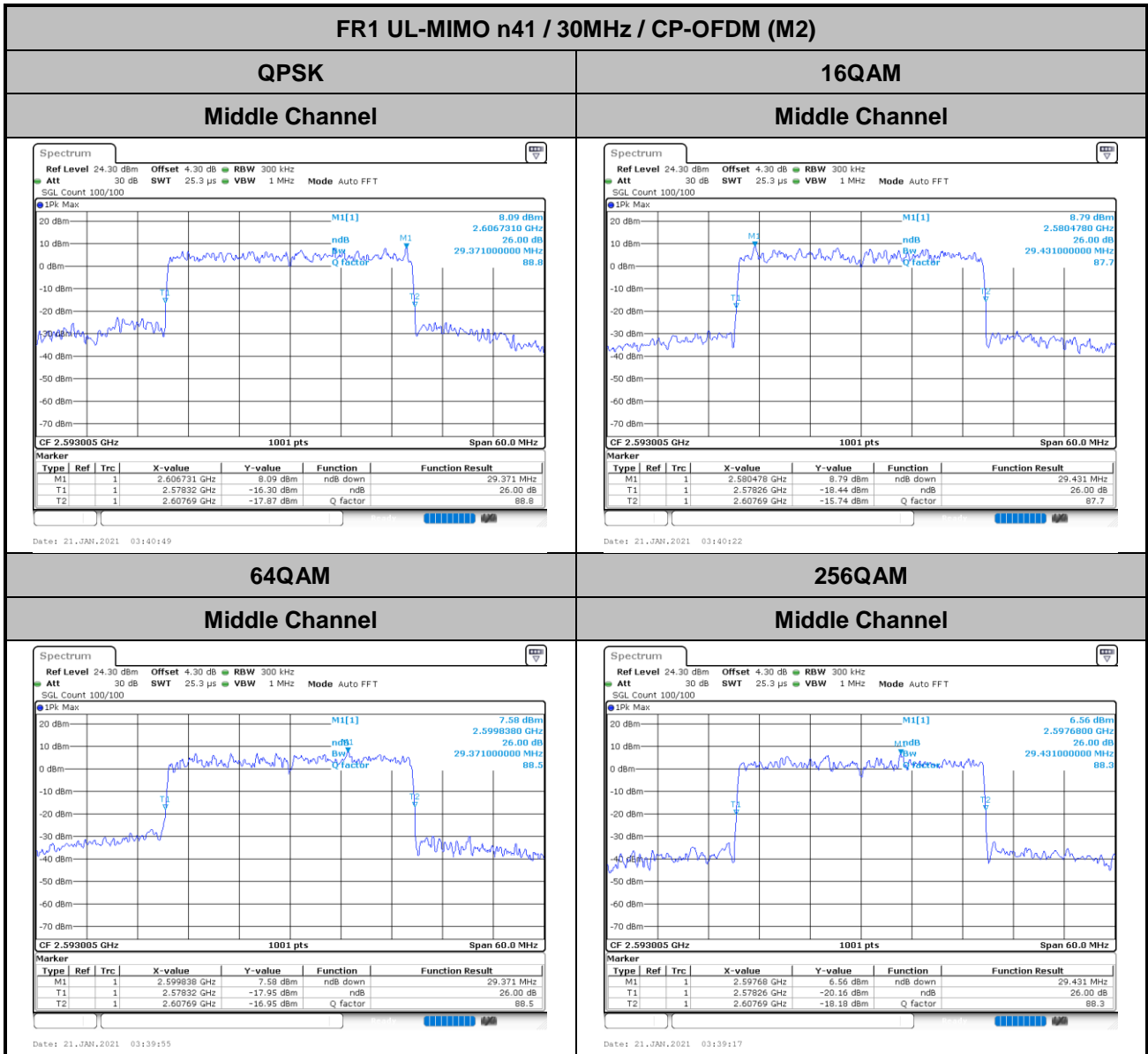
64QAM

256QAM

Middle Channel

Middle Channel









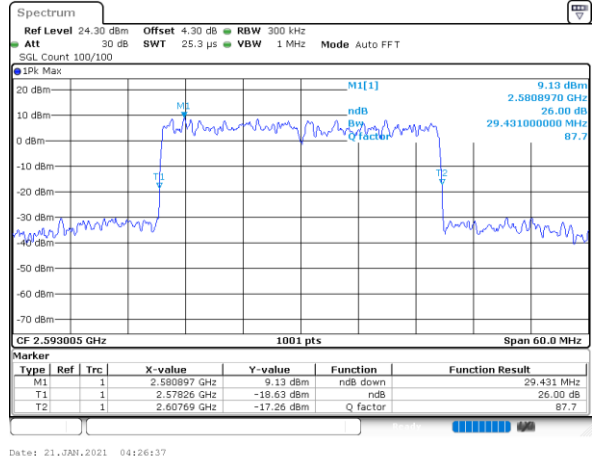
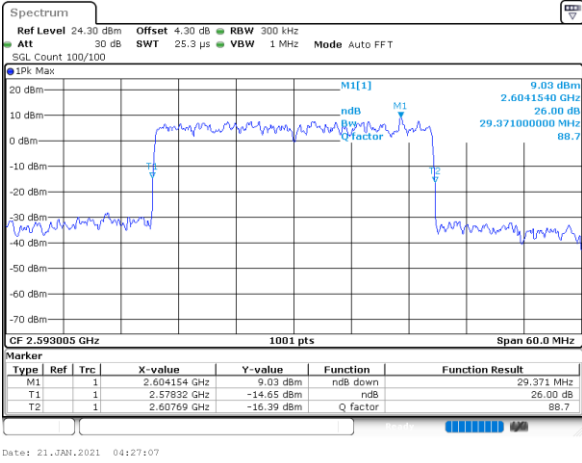
FR1 UL-MIMO n41 / 30MHz / CP-OFDM (M)

QPSK

16QAM

Middle Channel

Middle Channel

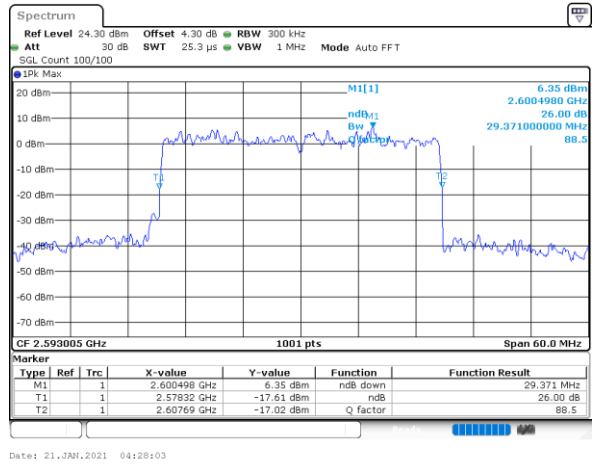
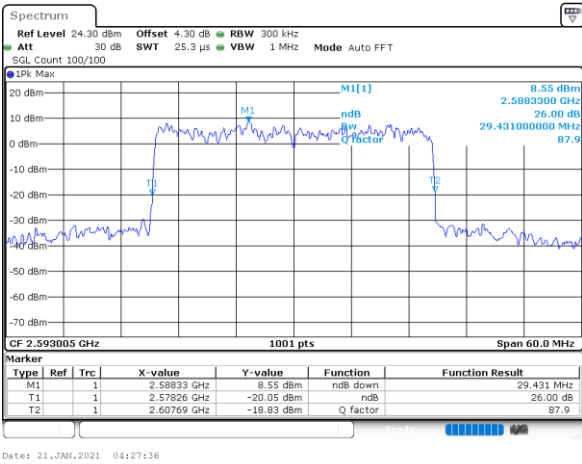


64QAM

256QAM

Middle Channel

Middle Channel





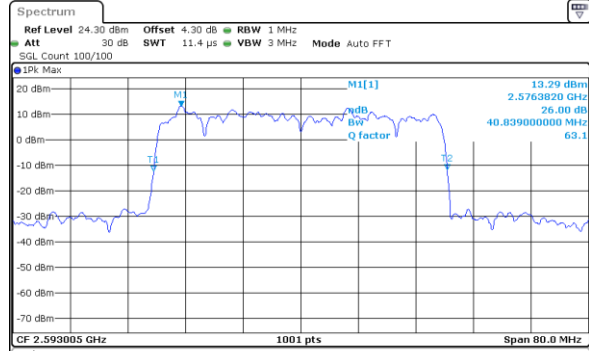
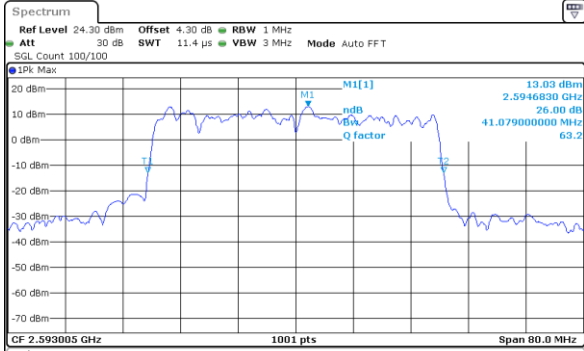
FR1 UL-MIMO n41 / 40MHz / CP-OFDM (M2)

QPSK

16QAM

Middle Channel

Middle Channel



Date: 21.JAN.2021 03:15:41

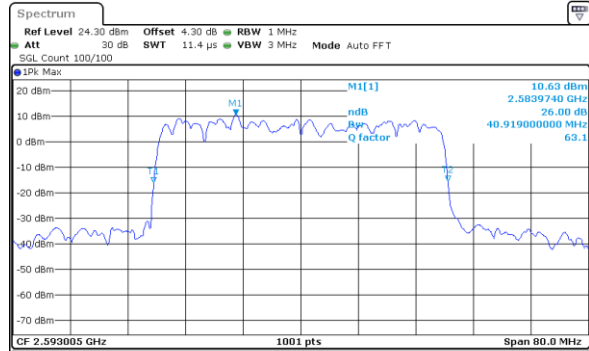
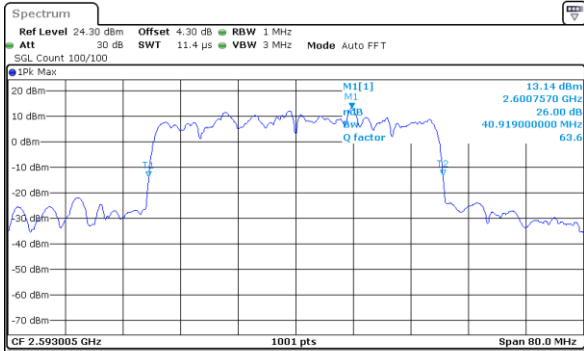
Date: 21.JAN.2021 03:15:59

64QAM

256QAM

Middle Channel

Middle Channel



Date: 21.JAN.2021 03:41:56

Date: 21.JAN.2021 03:42:20



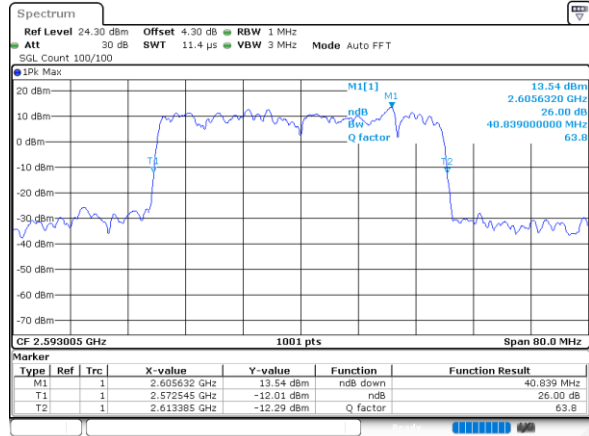
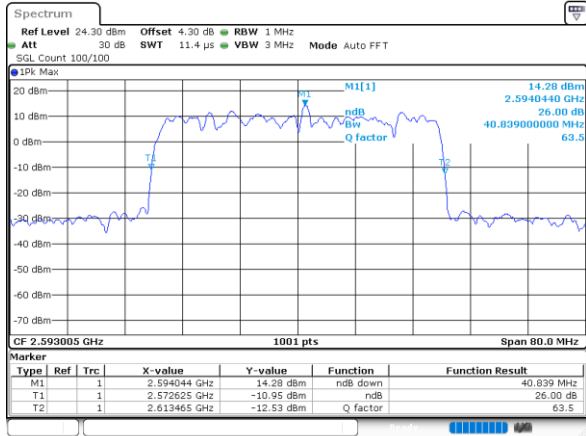
FR1 UL-MIMO n41 / 40MHz / CP-OFDM (M)

QPSK

16QAM

Middle Channel

Middle Channel



Date: 21.JAN.2021 04:00:02

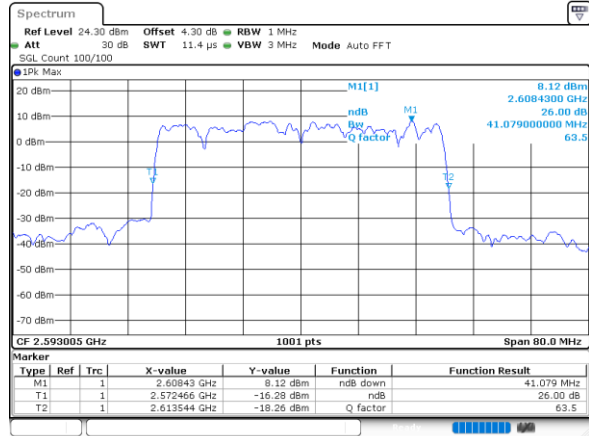
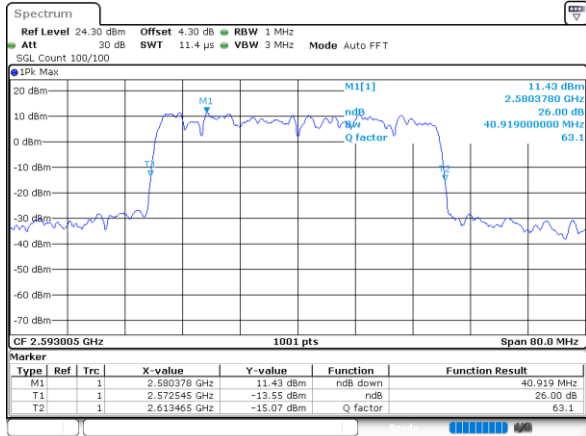
Date: 21.JAN.2021 03:59:46

64QAM

256QAM

Middle Channel

Middle Channel



Date: 21.JAN.2021 04:00:22

Date: 21.JAN.2021 04:00:44



## Occupied Bandwidth

| Mode      | FR1 UL-MIMO n41 : OBW(MHz) / CP-OFDM |       |       |        |       |       |       |        |
|-----------|--------------------------------------|-------|-------|--------|-------|-------|-------|--------|
|           | M2                                   |       |       |        | M     |       |       |        |
| BW        | 10MHz                                | 10MHz | 10MHz | 10MHz  | 10MHz | 10MHz | 10MHz | 10MHz  |
| Mod.      | QPSK                                 | 16QAM | 64QAM | 256QAM | QPSK  | 16QAM | 64QAM | 256QAM |
| Middle CH | 9.23                                 | 9.29  | 9.25  | 9.29   | 9.21  | 9.29  | 9.23  | 9.29   |

| Mode      | FR1 UL-MIMO n41 : OBW(MHz) / CP-OFDM |       |       |        |       |       |       |        |
|-----------|--------------------------------------|-------|-------|--------|-------|-------|-------|--------|
|           | M2                                   |       |       |        | M     |       |       |        |
| BW        | 15MHz                                | 15MHz | 15MHz | 15MHz  | 15MHz | 15MHz | 15MHz | 15MHz  |
| Mod.      | QPSK                                 | 16QAM | 64QAM | 256QAM | QPSK  | 16QAM | 64QAM | 256QAM |
| Middle CH | 14.09                                | 14.21 | 14.15 | 14.18  | 14.18 | 14.15 | 14.06 | 14.06  |

| Mode      | FR1 UL-MIMO n41 : OBW(MHz) / CP-OFDM |       |       |        |       |       |       |        |
|-----------|--------------------------------------|-------|-------|--------|-------|-------|-------|--------|
|           | M2                                   |       |       |        | M     |       |       |        |
| BW        | 30MHz                                | 30MHz | 30MHz | 30MHz  | 30MHz | 30MHz | 30MHz | 30MHz  |
| Mod.      | QPSK                                 | 16QAM | 64QAM | 256QAM | QPSK  | 16QAM | 64QAM | 256QAM |
| Middle CH | 28.47                                | 28.59 | 28.47 | 28.35  | 28.47 | 28.59 | 28.47 | 28.47  |

| Mode      | FR1 UL-MIMO n41 : OBW(MHz) / CP-OFDM |       |       |        |       |       |       |        |
|-----------|--------------------------------------|-------|-------|--------|-------|-------|-------|--------|
|           | M2                                   |       |       |        | M     |       |       |        |
| BW        | 40MHz                                | 40MHz | 40MHz | 40MHz  | 40MHz | 40MHz | 40MHz | 40MHz  |
| Mod.      | QPSK                                 | 16QAM | 64QAM | 256QAM | QPSK  | 16QAM | 64QAM | 256QAM |
| Middle CH | 38.84                                | 38.68 | 38.60 | 38.28  | 38.68 | 38.68 | 38.52 | 38.76  |



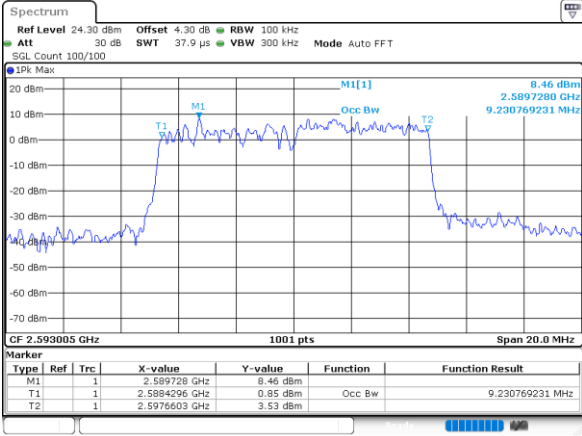
FR1 UL-MIMO n41 / 10MHz / CP-OFDM (M2)

QPSK

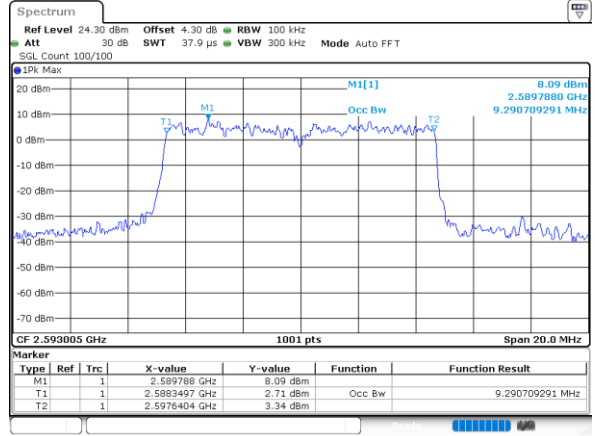
16QAM

Middle Channel

Middle Channel



Date: 21.JAN.2021 03:12:52



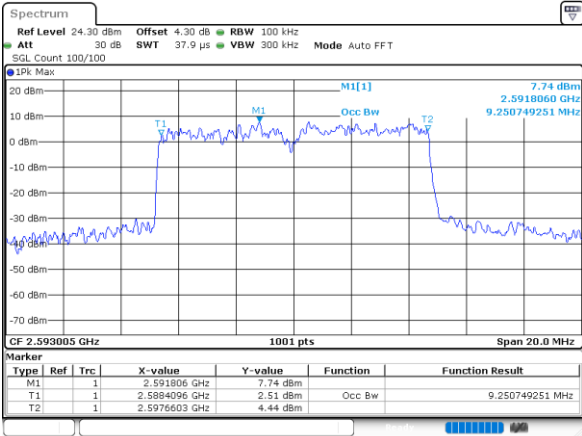
Date: 21.JAN.2021 03:12:50

64QAM

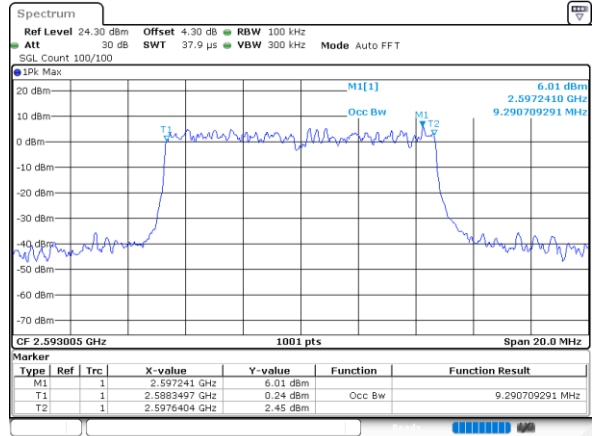
256QAM

Middle Channel

Middle Channel



Date: 21.JAN.2021 03:24:26



Date: 21.JAN.2021 03:25:00



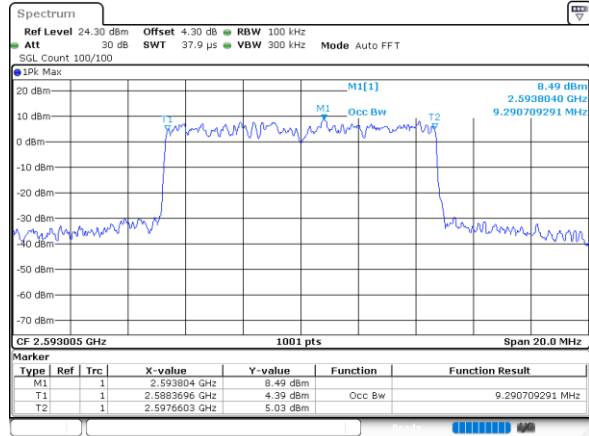
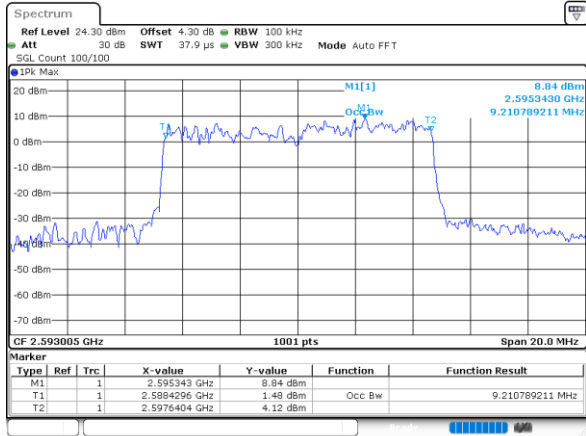
FR1 UL-MIMO n41 / 10MHz / CP-OFDM (M)

QPSK

16QAM

Middle Channel

Middle Channel



Date: 21.JAN.2021 04:58:03

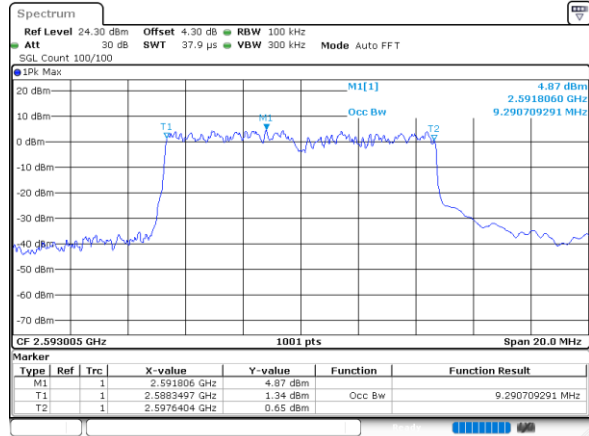
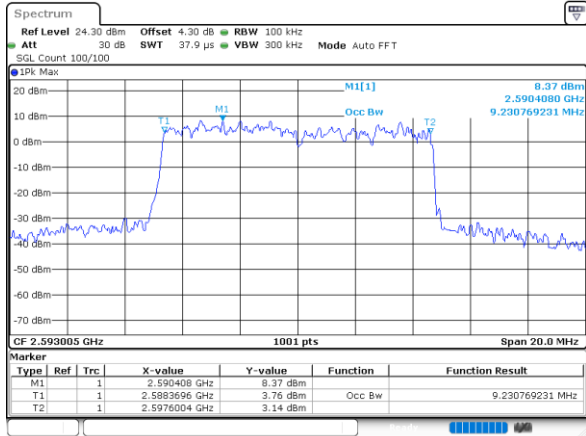
Date: 21.JAN.2021 04:57:41

64QAM

256QAM

Middle Channel

Middle Channel



Date: 21.JAN.2021 04:58:18

Date: 21.JAN.2021 04:58:45



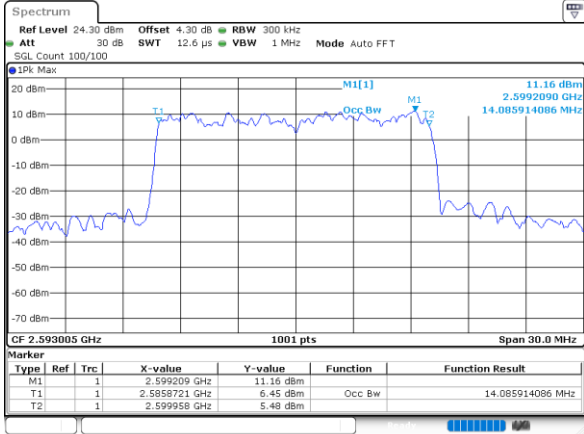
FR1 UL-MIMO n41 / 15MHz / CP-OFDM (M2)

QPSK

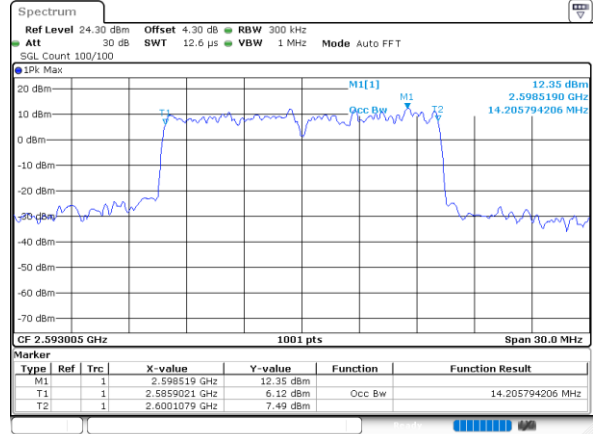
16QAM

Middle Channel

Middle Channel



Date: 20\_JAN\_2021 08:13:28



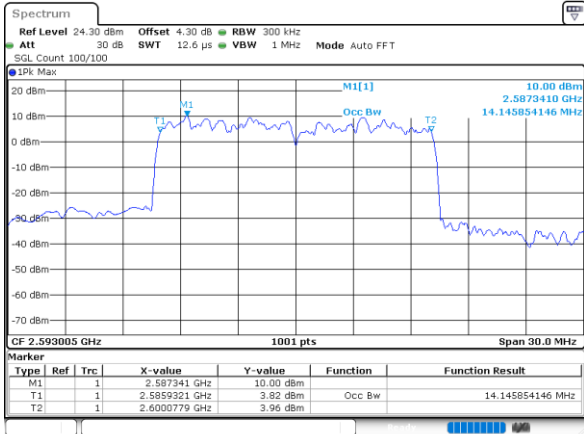
Date: 20\_JAN\_2021 08:13:48

64QAM

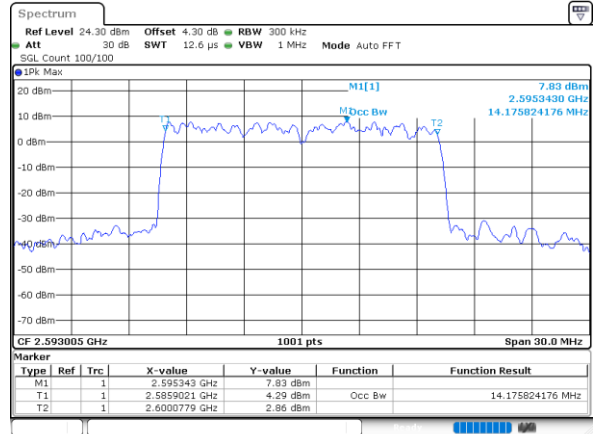
256QAM

Middle Channel

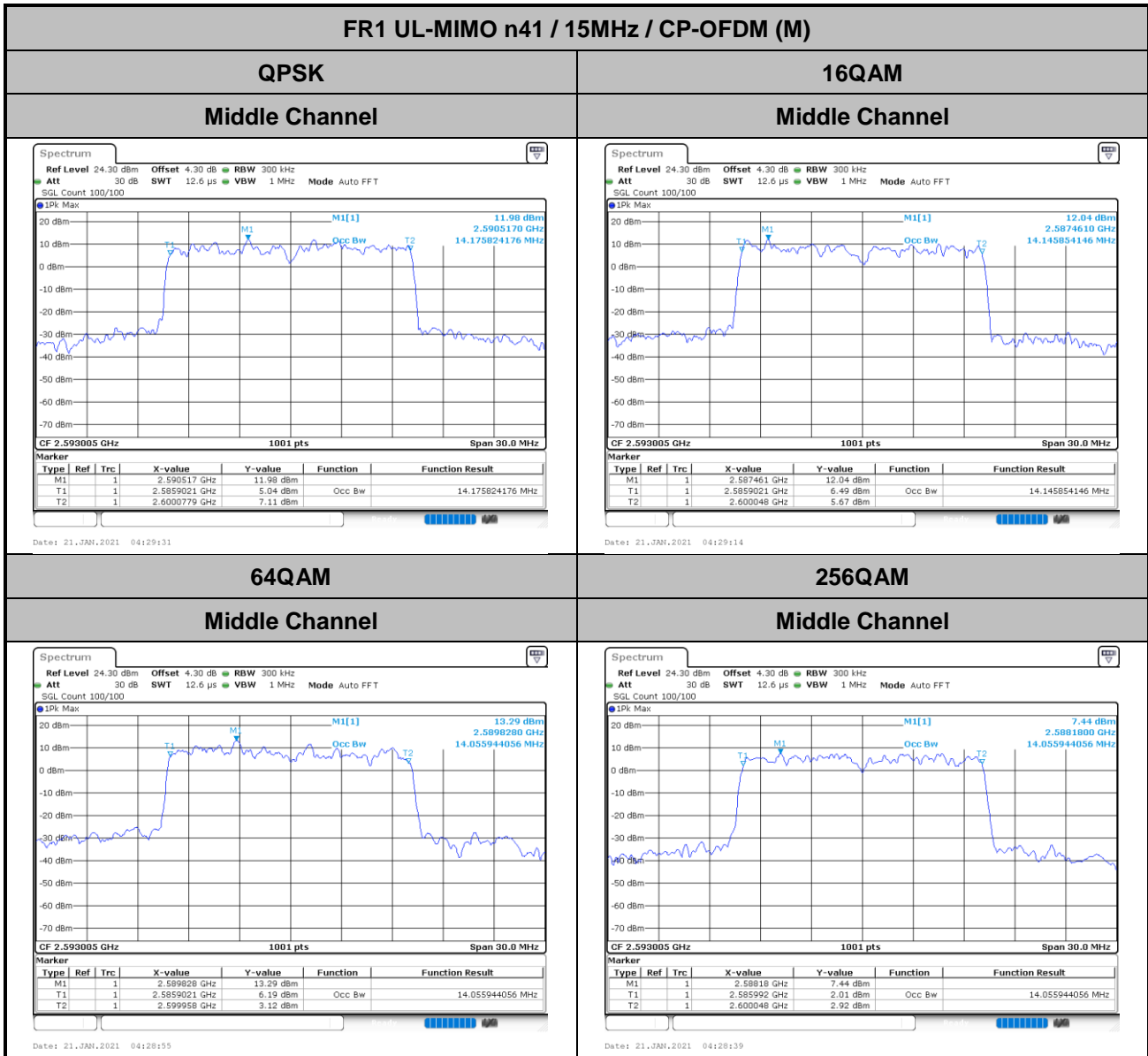
Middle Channel



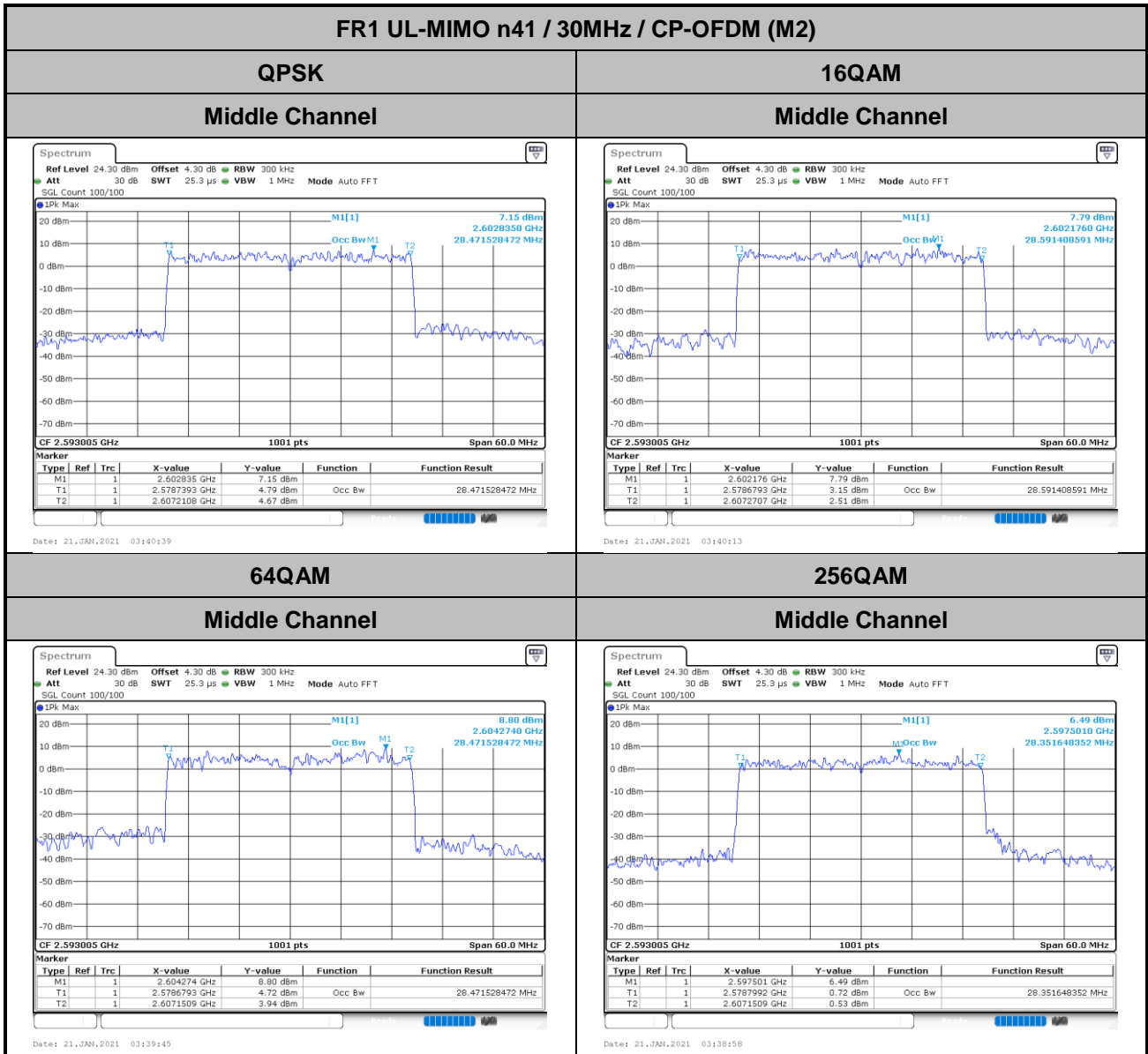
Date: 21\_JAN\_2021 03:37:41



Date: 21\_JAN\_2021 03:37:57









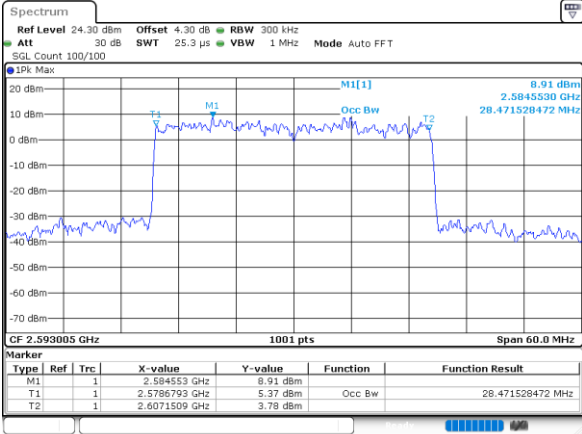
FR1 UL-MIMO n41 / 30MHz / CP-OFDM (M)

QPSK

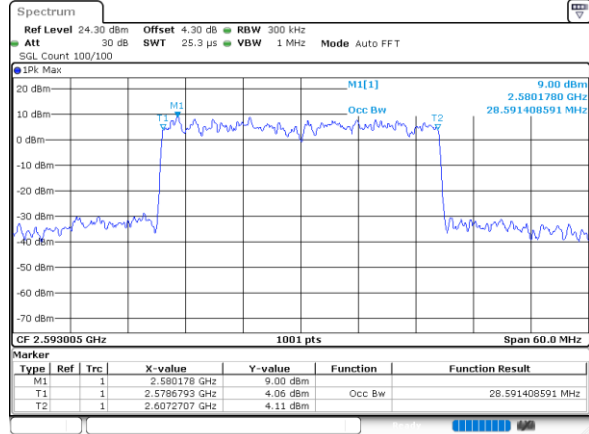
16QAM

Middle Channel

Middle Channel



Date: 21.JAN.2021 04:26:55



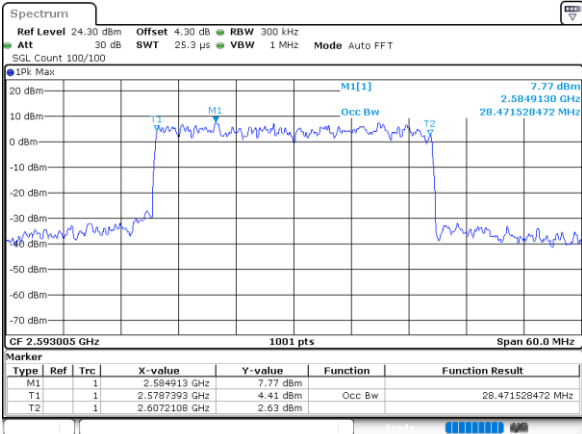
Date: 21.JAN.2021 04:26:26

64QAM

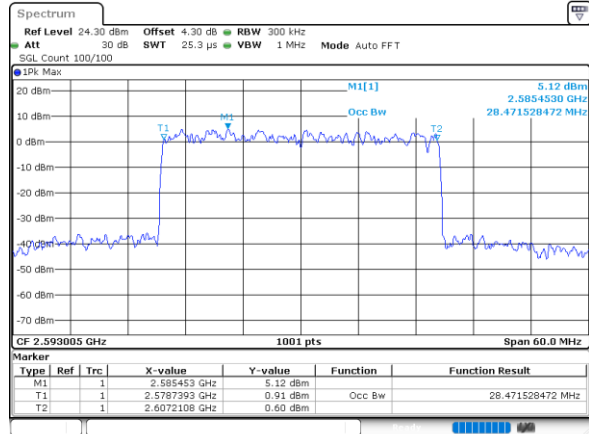
256QAM

Middle Channel

Middle Channel



Date: 21.JAN.2021 04:27:26



Date: 21.JAN.2021 04:27:54



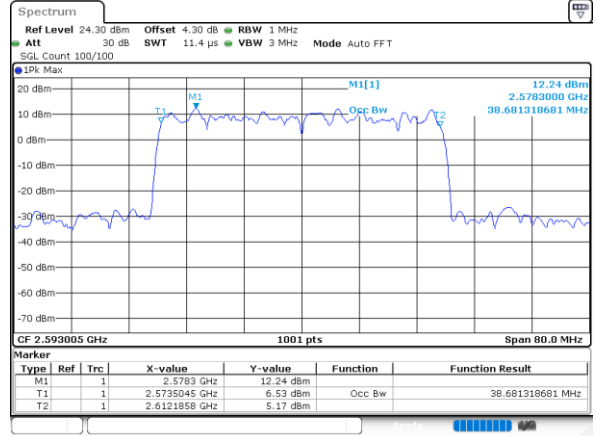
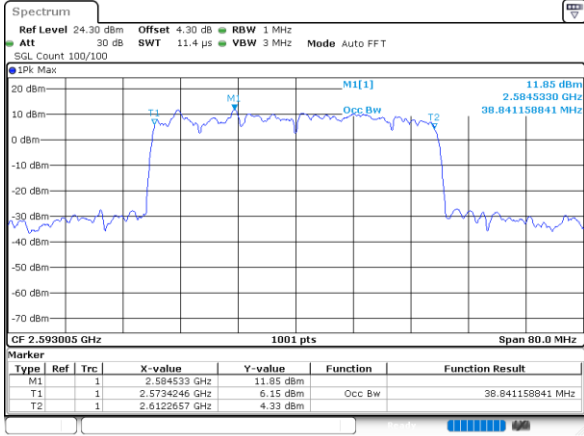
FR1 UL-MIMO n41 / 40MHz / CP-OFDM (M2)

QPSK

16QAM

Middle Channel

Middle Channel



Date: 21.JAN.2021 03:15:36

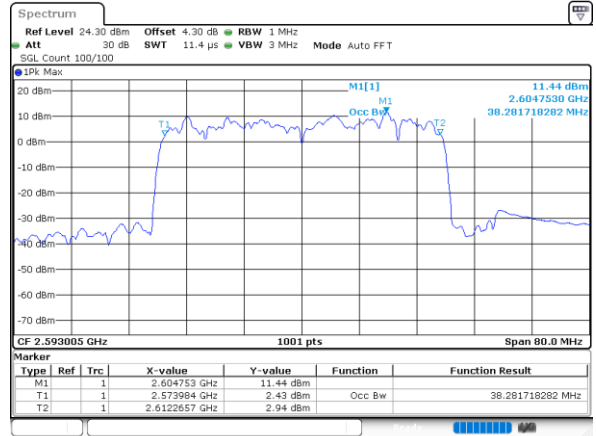
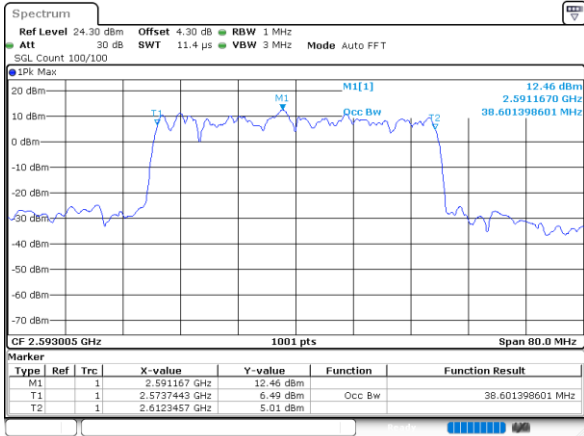
Date: 21.JAN.2021 03:15:54

64QAM

256QAM

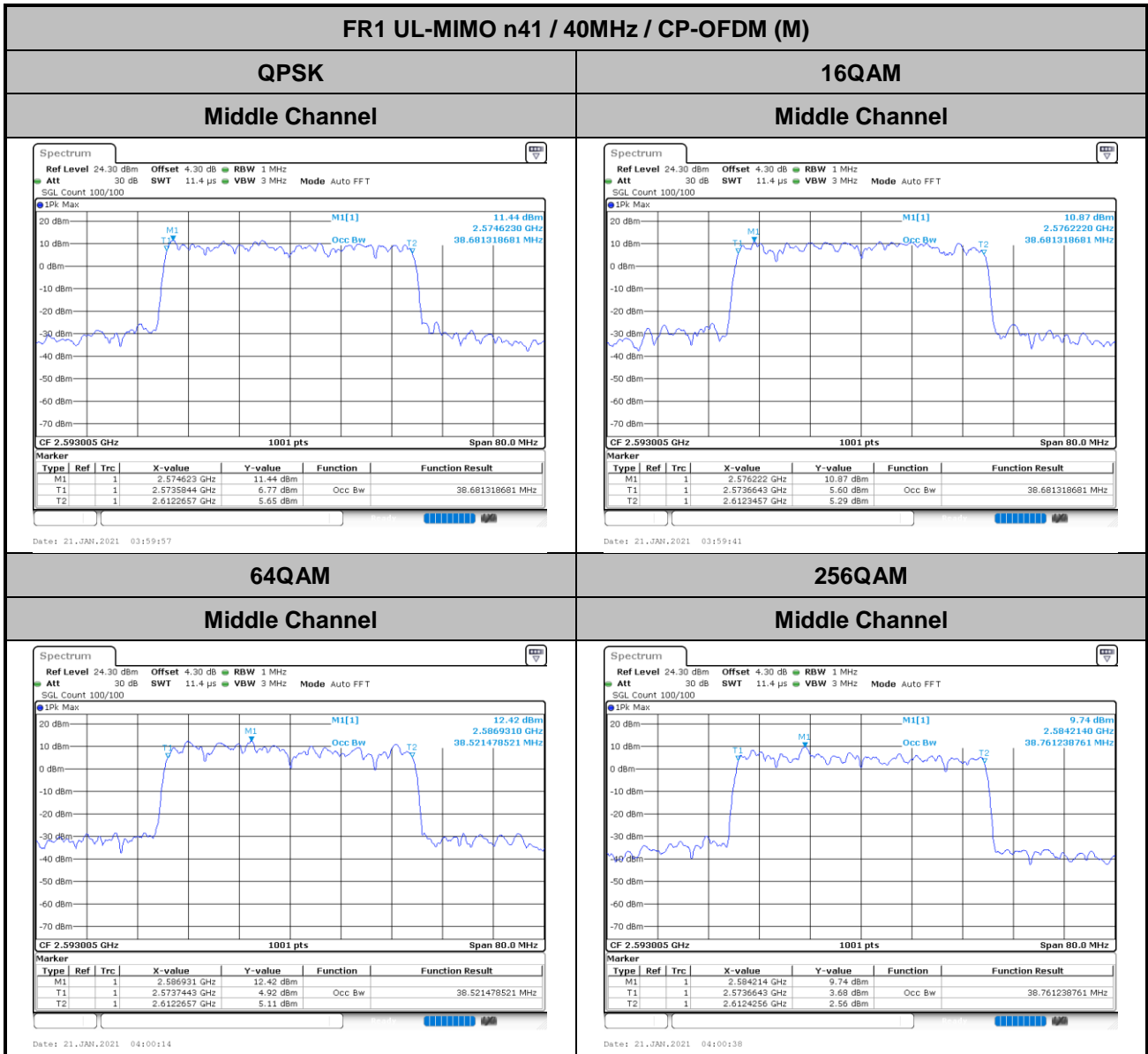
Middle Channel

Middle Channel



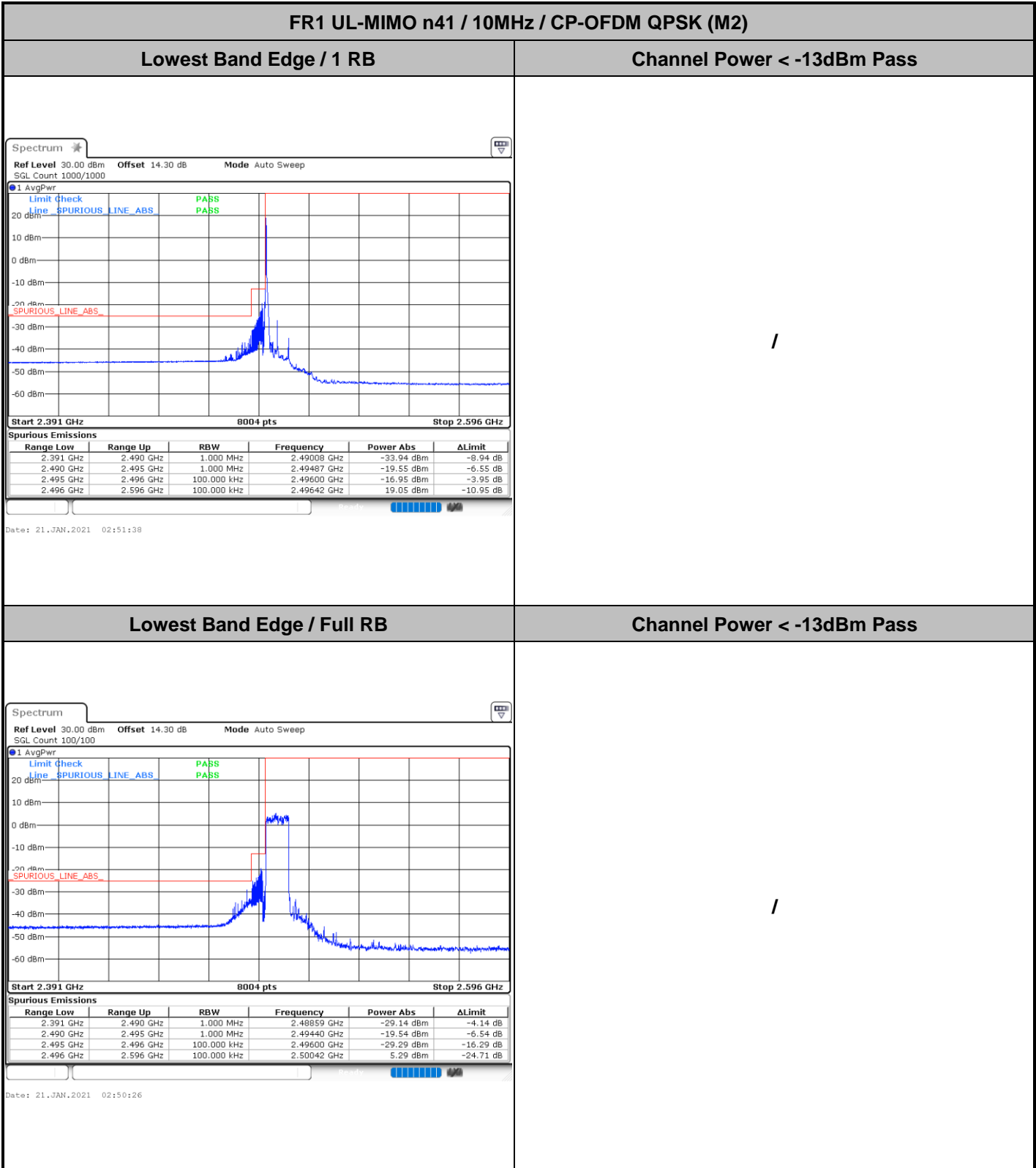
Date: 21.JAN.2021 03:41:44

Date: 21.JAN.2021 03:42:13





# Conducted Band Edge

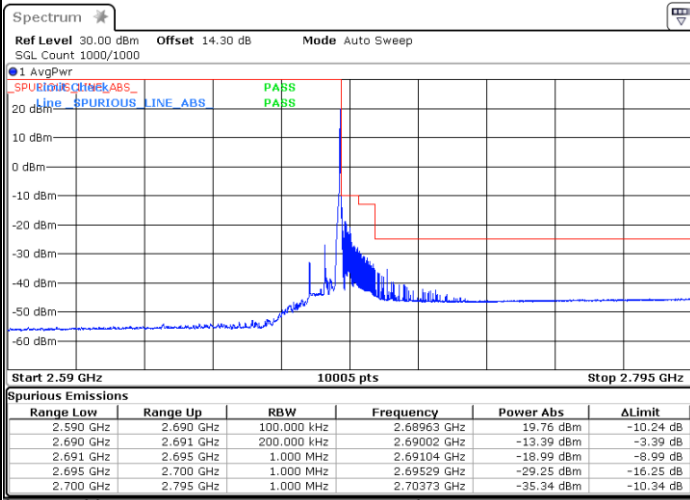




FR1 UL-MIMO n41 / 10MHz / CP-OFDM QPSK (M2)

Highest Band Edge / 1 RB

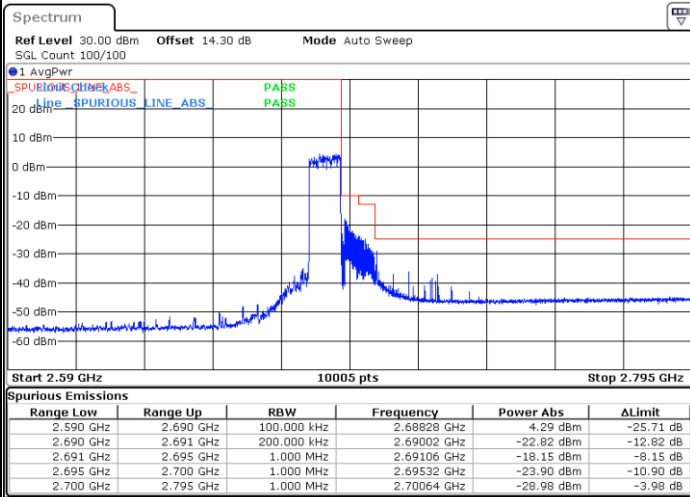
Channel Power < -10dBm Pass



Date: 21.JAN.2021 03:10:11

Highest Band Edge / Full RB

Channel Power < -10dBm Pass



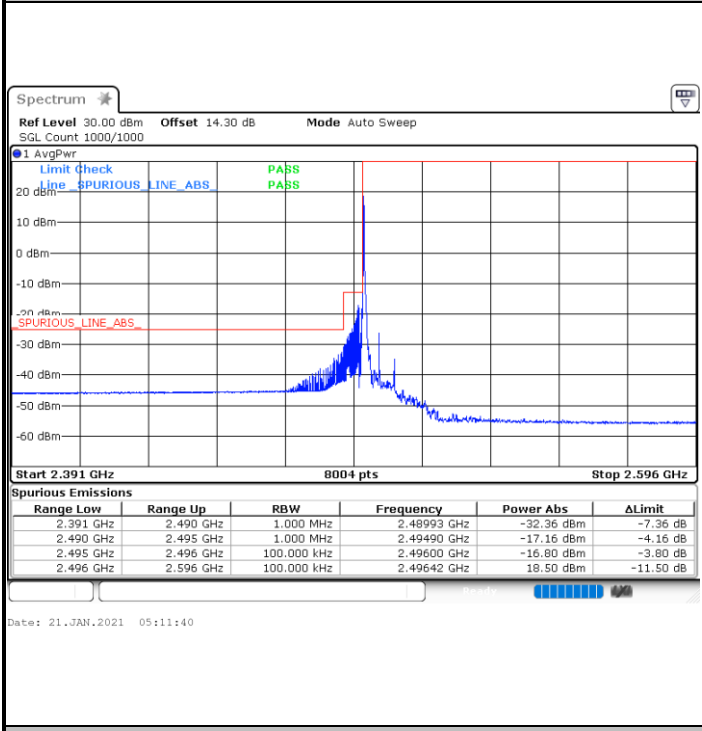
Date: 21.JAN.2021 03:10:33



**FR1 UL-MIMO n41 / 10MHz / CP-OFDM QPSK (M)**

**Lowest Band Edge / 1 RB**

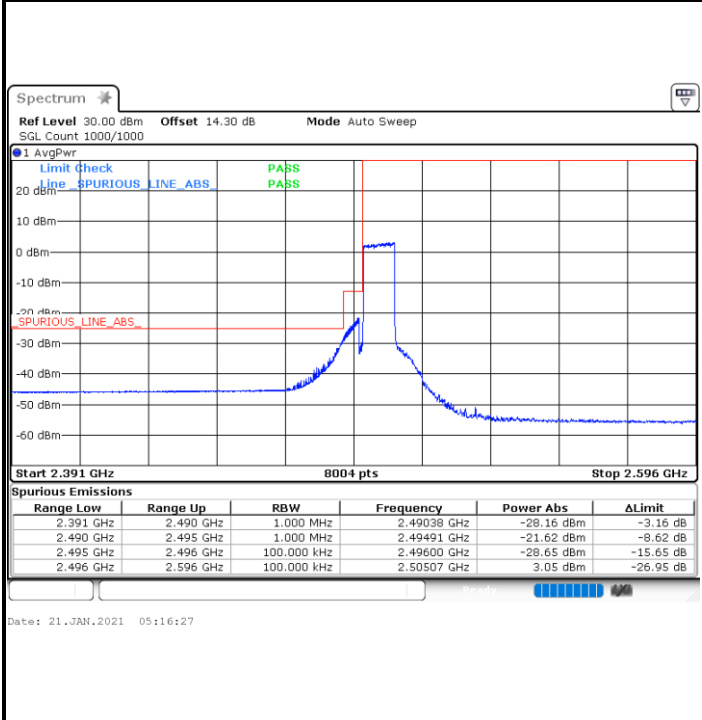
**Channel Power < -13dBm Pass**



/

**Lowest Band Edge / Full RB**

**Channel Power < -13dBm Pass**



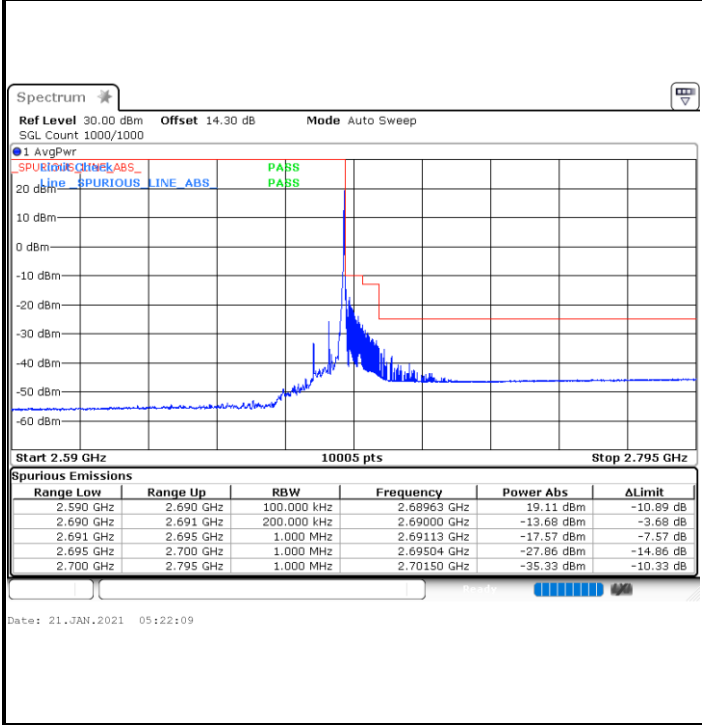
/



**FR1 UL-MIMO n41 / 10MHz / CP-OFDM QPSK (M)**

**Highest Band Edge / 1 RB**

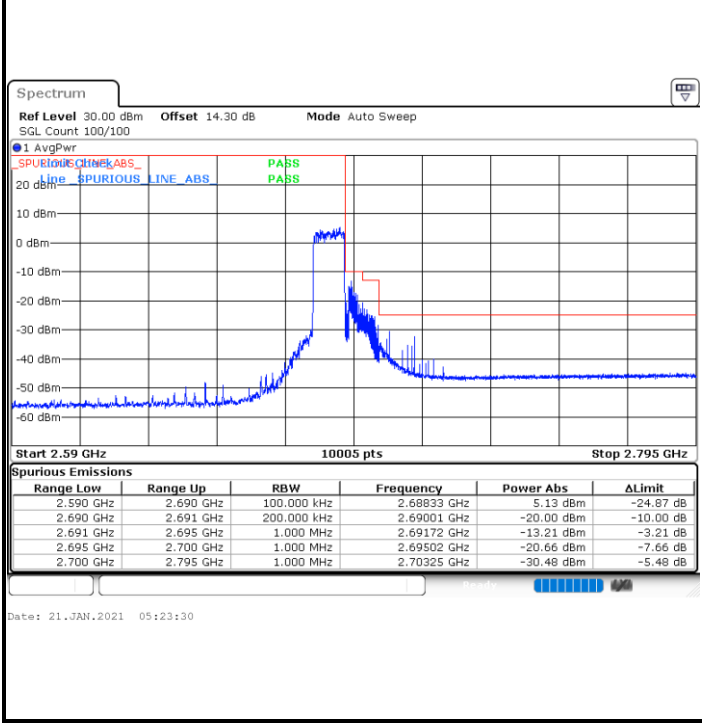
**Channel Power < -13dBm Pass**



/

**Highest Band Edge / Full RB**

**Channel Power < -13dBm Pass**



/

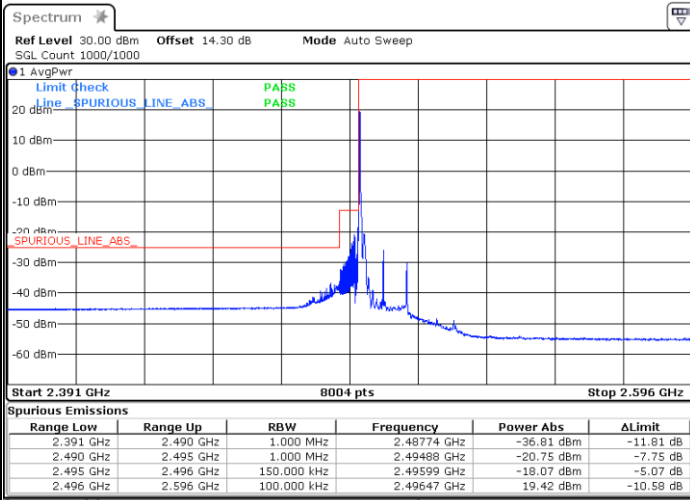




FR1 UL-MIMO n41 / 15MHz / CP-OFDM QPSK (M2)

Lowest Band Edge / 1 RB

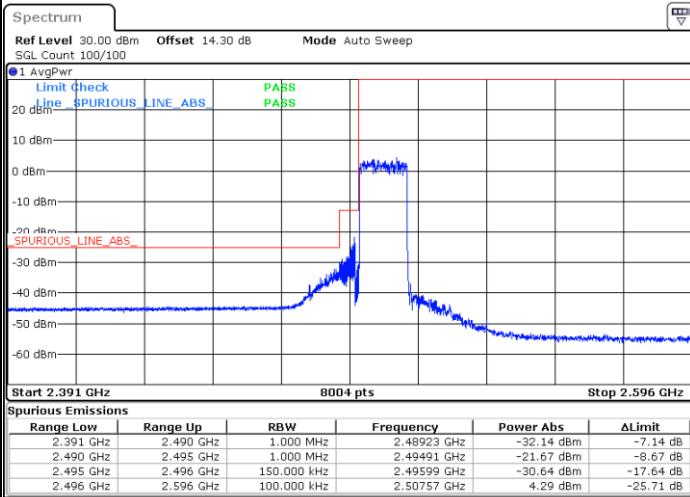
Channel Power < -13dBm Pass



Date: 20.JAN.2021 08:20:49

Lowest Band Edge / Full RB

Channel Power < -13dBm Pass



Date: 20.JAN.2021 08:19:55