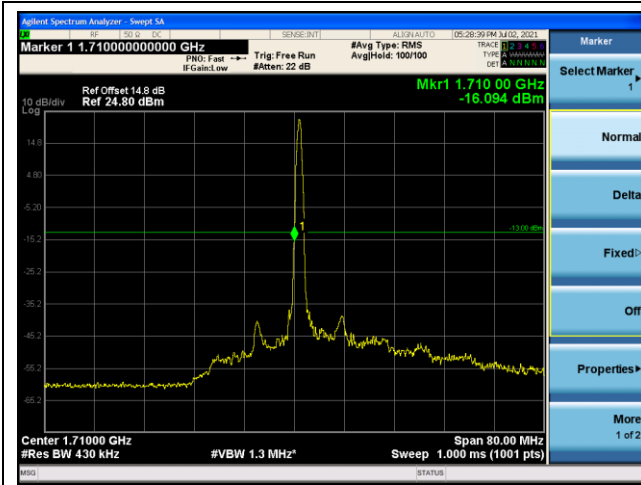
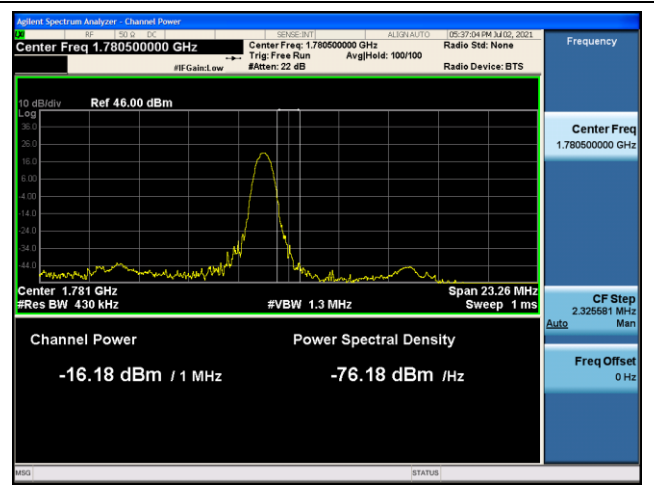


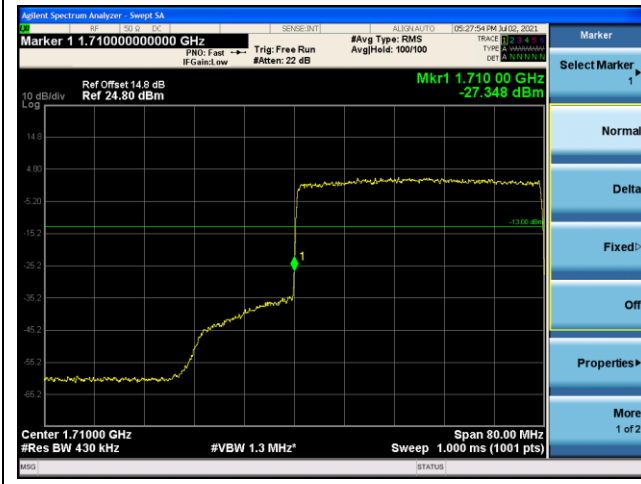
**NR band 66 (40 MHz)**



CP-OFDM 16QAM - Low Channel - 1 RB



CP-OFDM 16QAM - High Channel - 1 RB

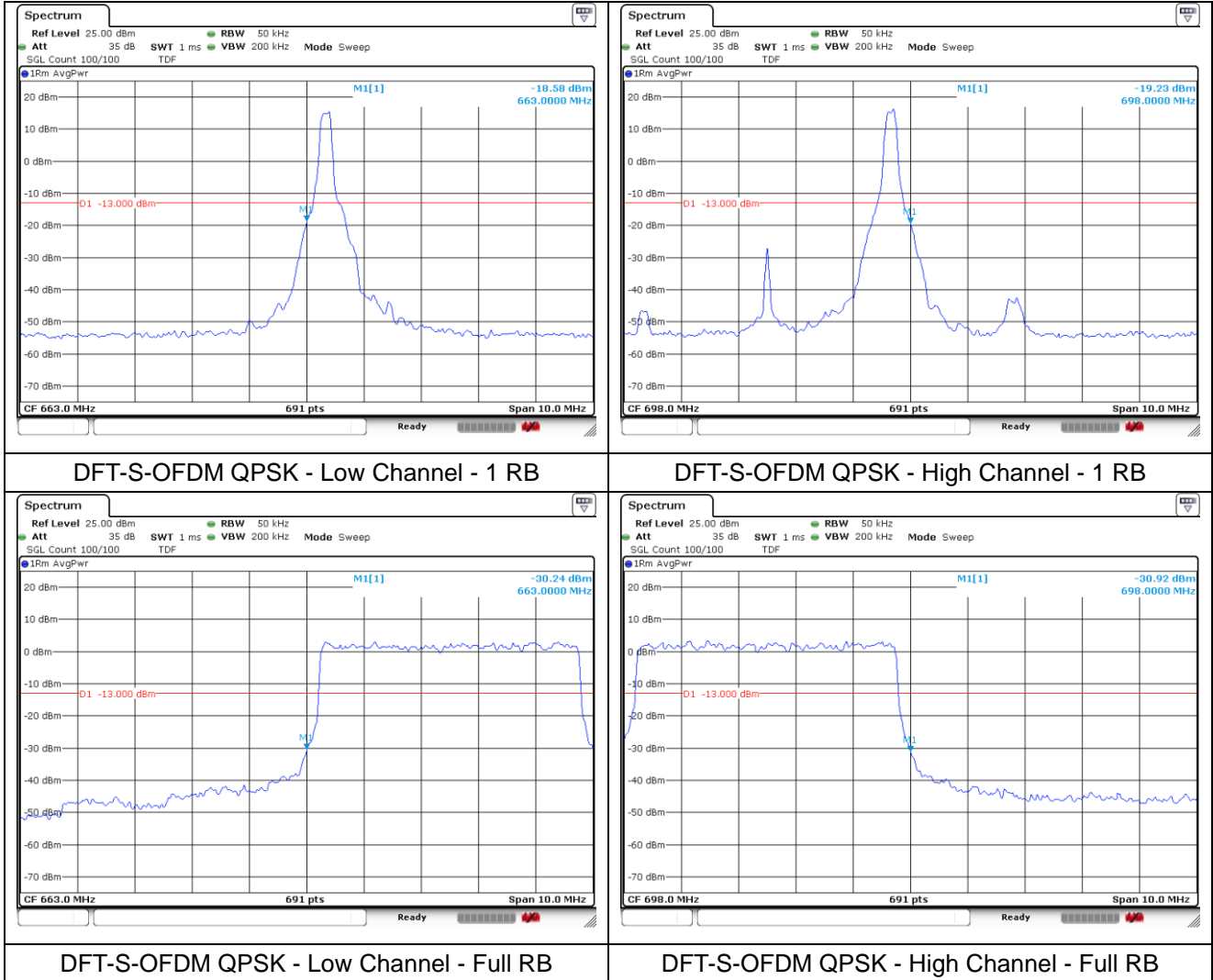


CP-OFDM 16QAM - Low Channel - Full RB

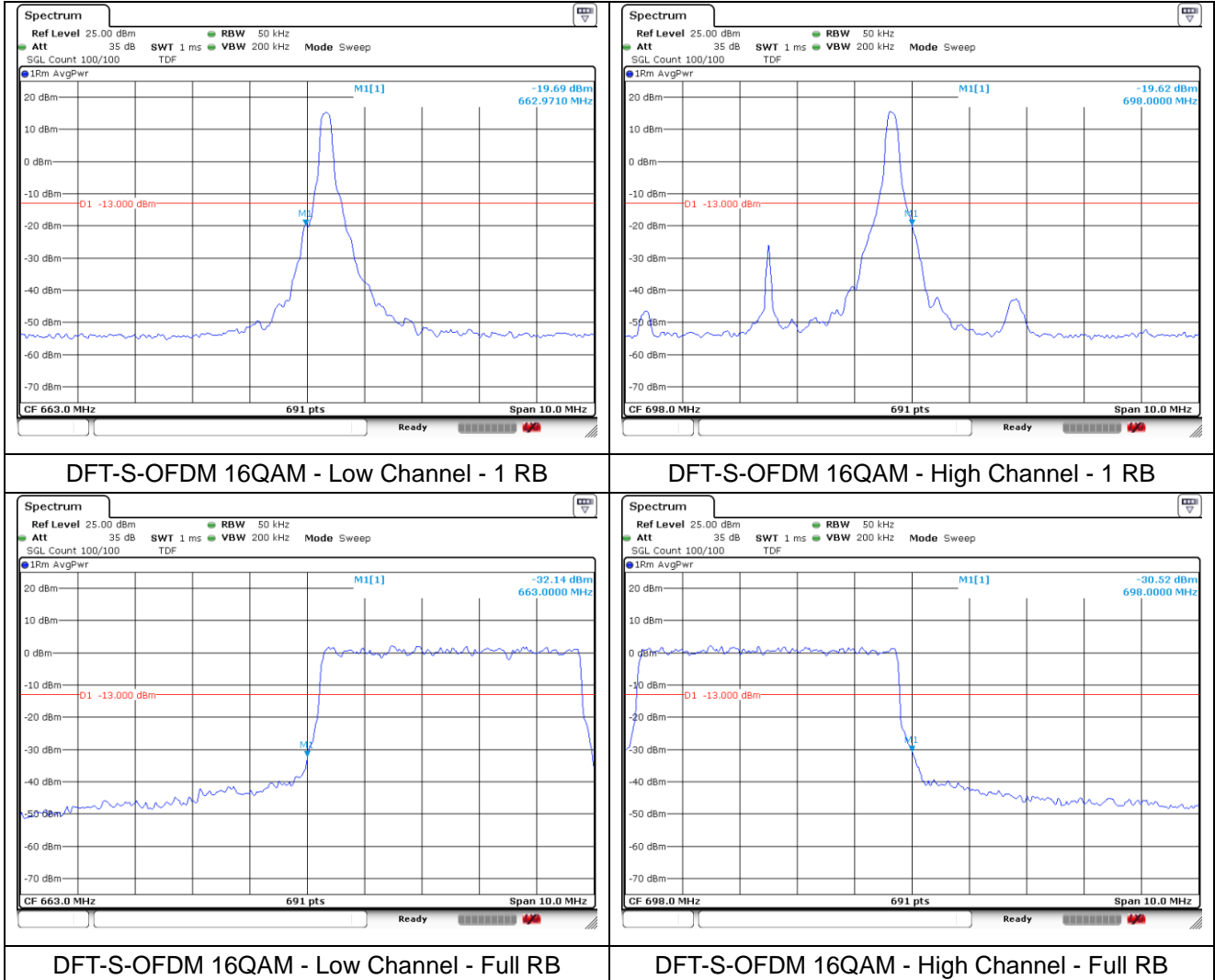


CP-OFDM 16QAM - High Channel - Full RB

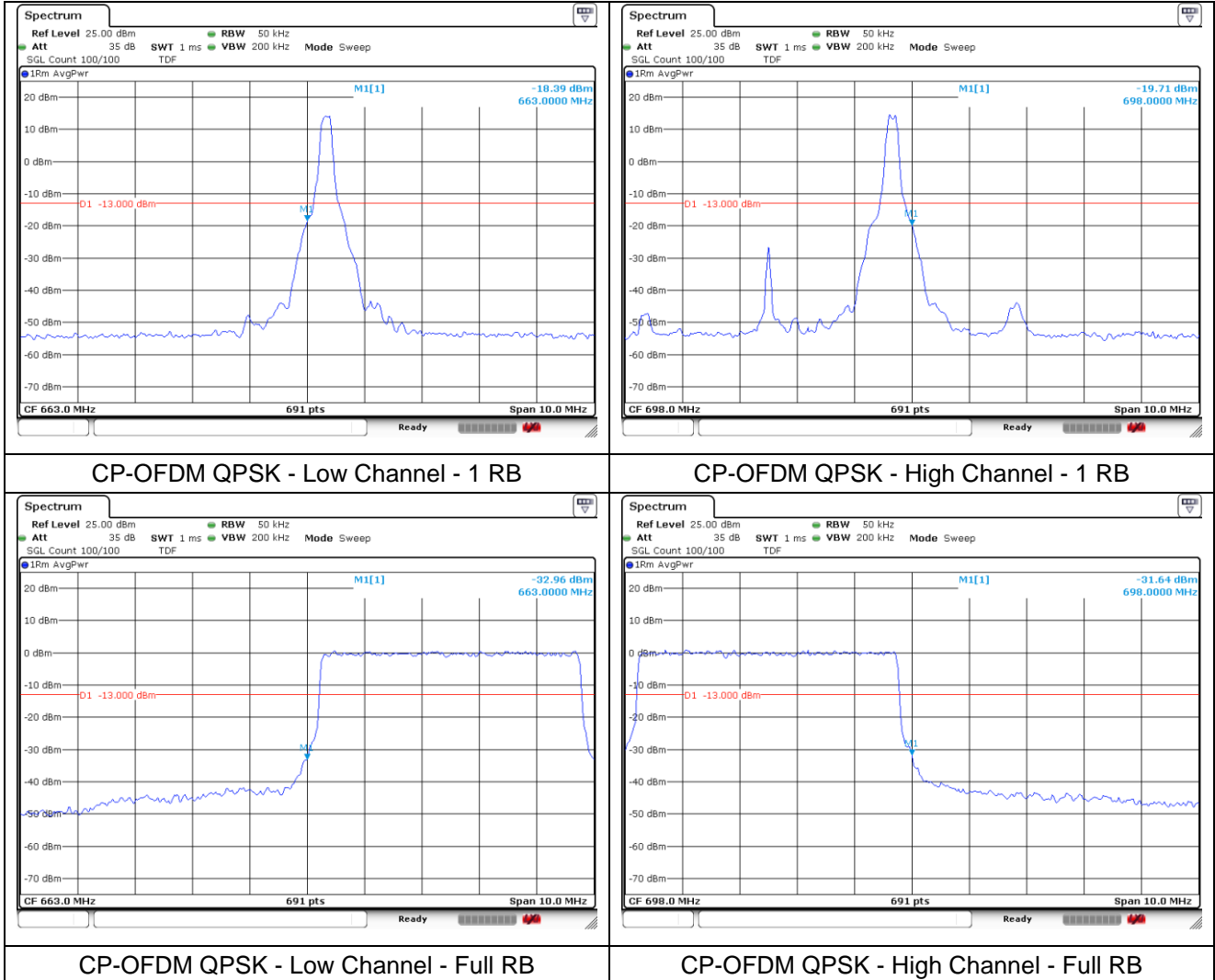
**NR band 71 (5 MHz)**



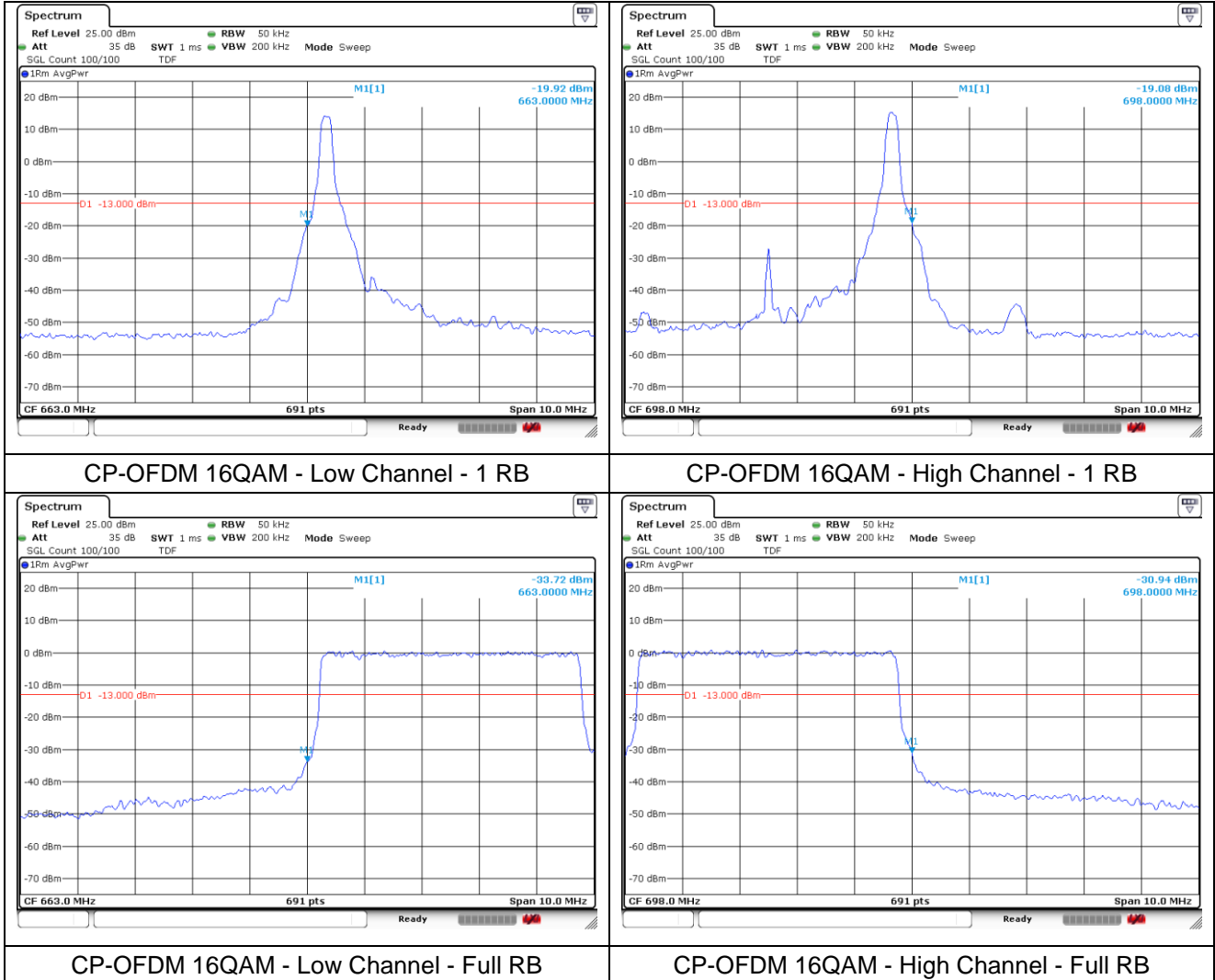
**NR band 71 (5 MHz)**



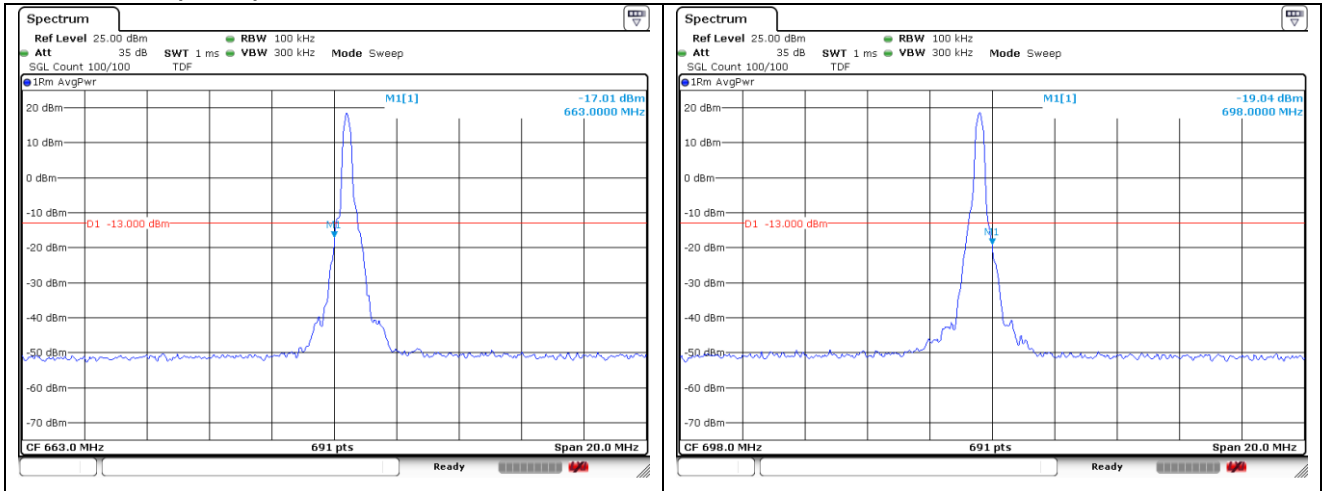
NR band 71 (5 MHz)



**NR band 71 (5 MHz)**

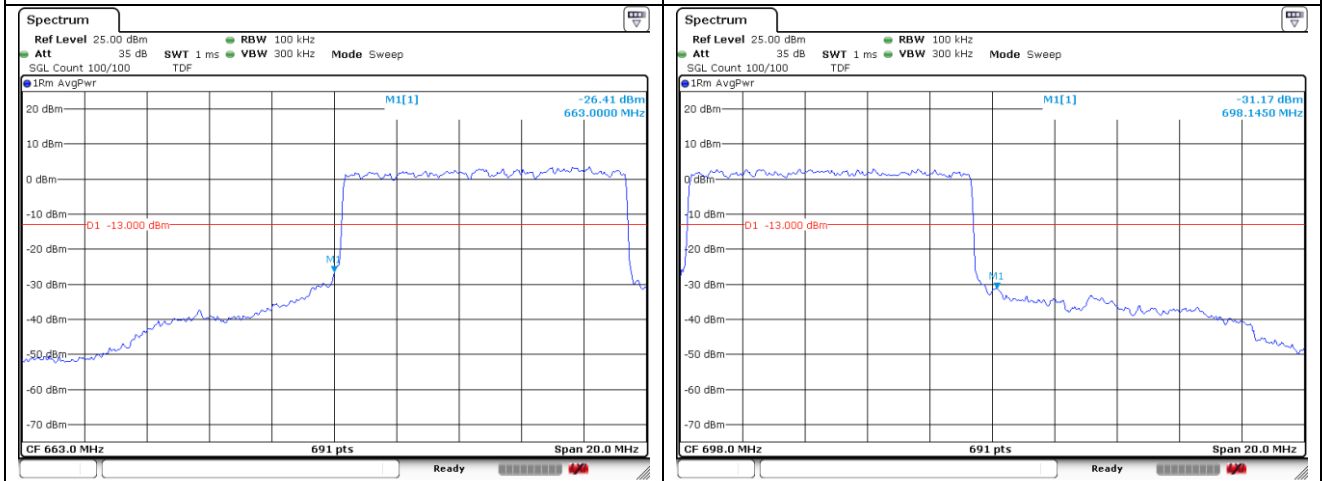


**NR band 71 (10 MHz)**



DFT-S-OFDM QPSK - Low Channel - 1 RB

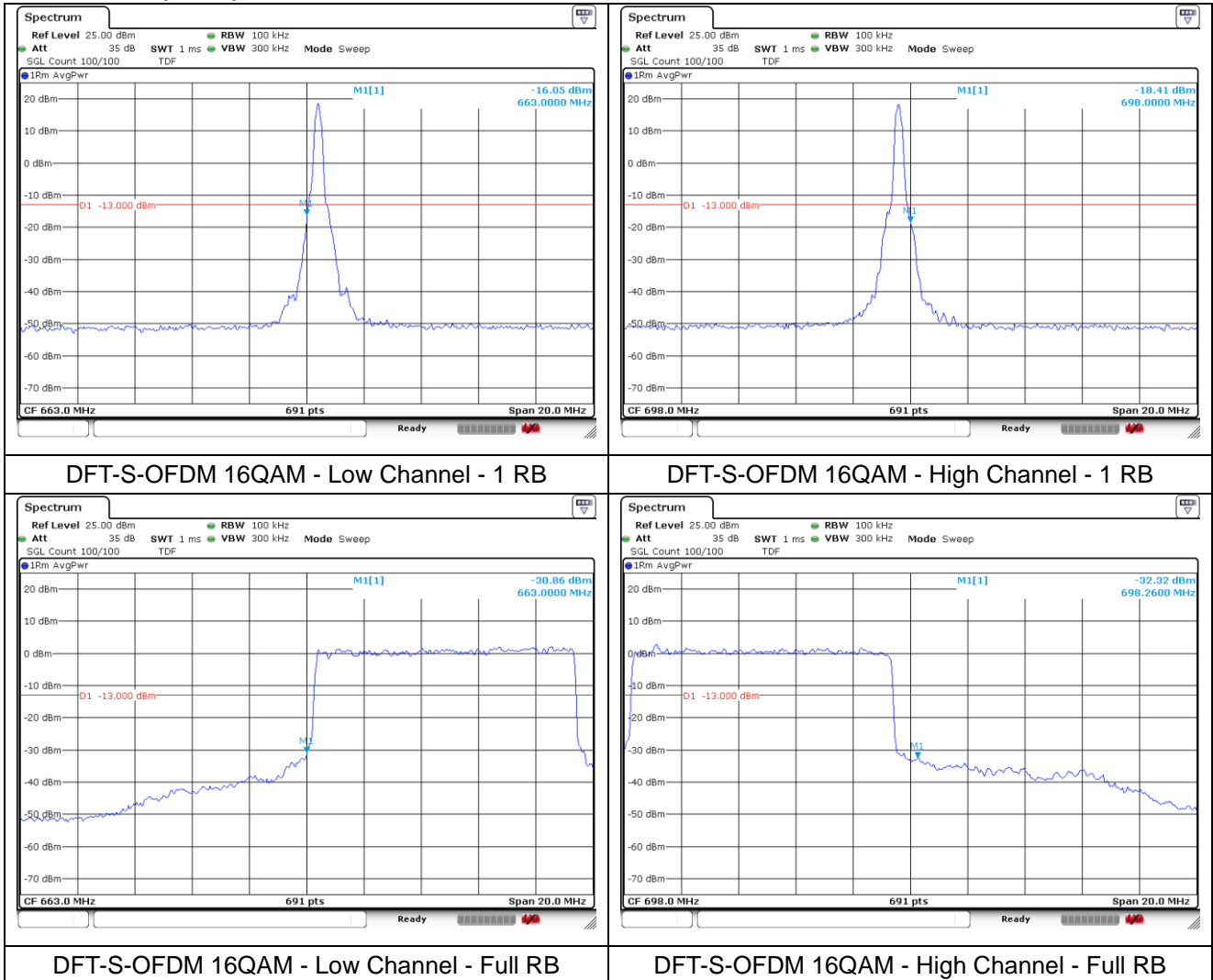
DFT-S-OFDM QPSK - High Channel - 1 RB



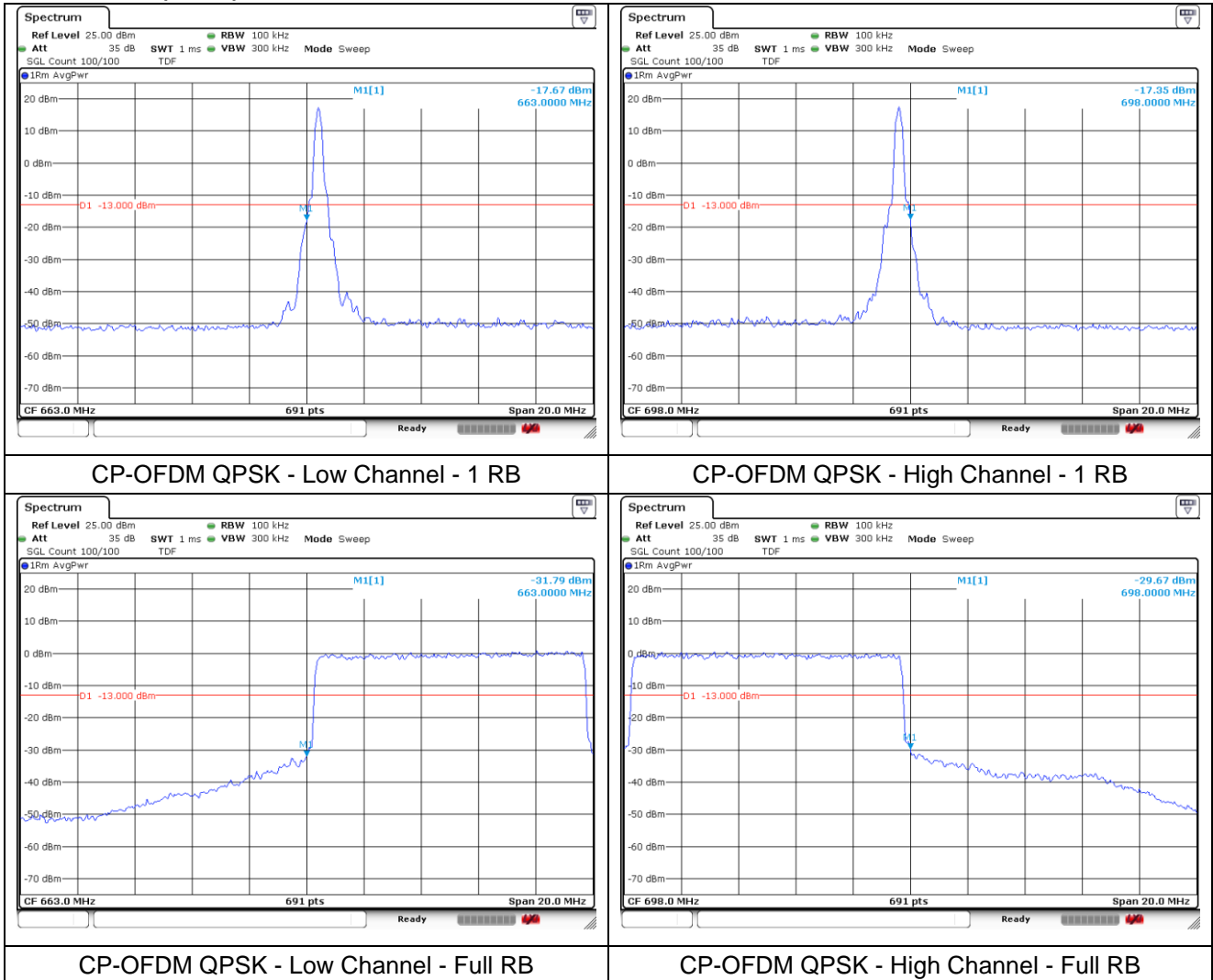
DFT-S-OFDM QPSK - Low Channel - Full RB

DFT-S-OFDM QPSK - High Channel - Full RB

**NR band 71 (10 MHz)**

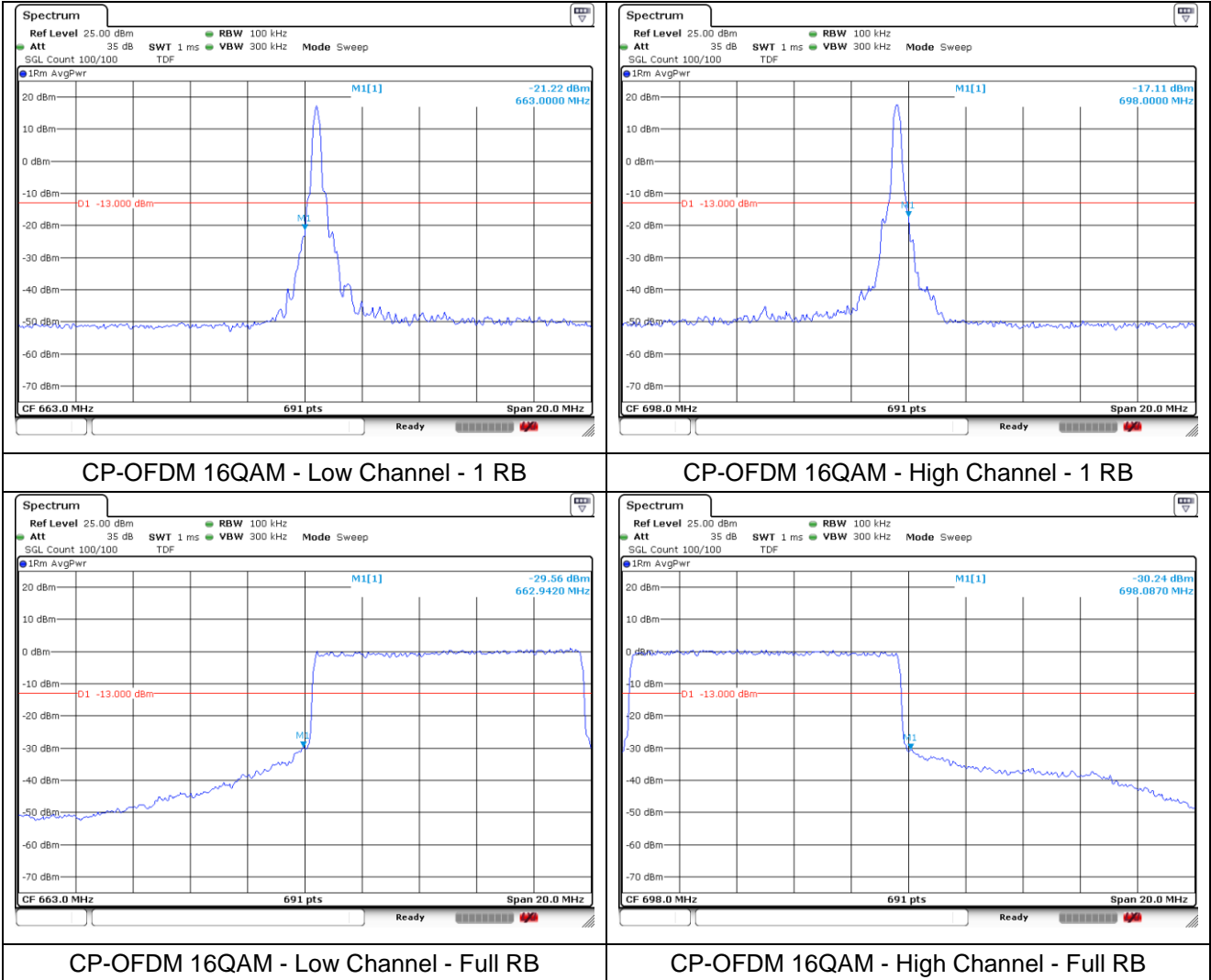


**NR band 71 (10 MHz)**

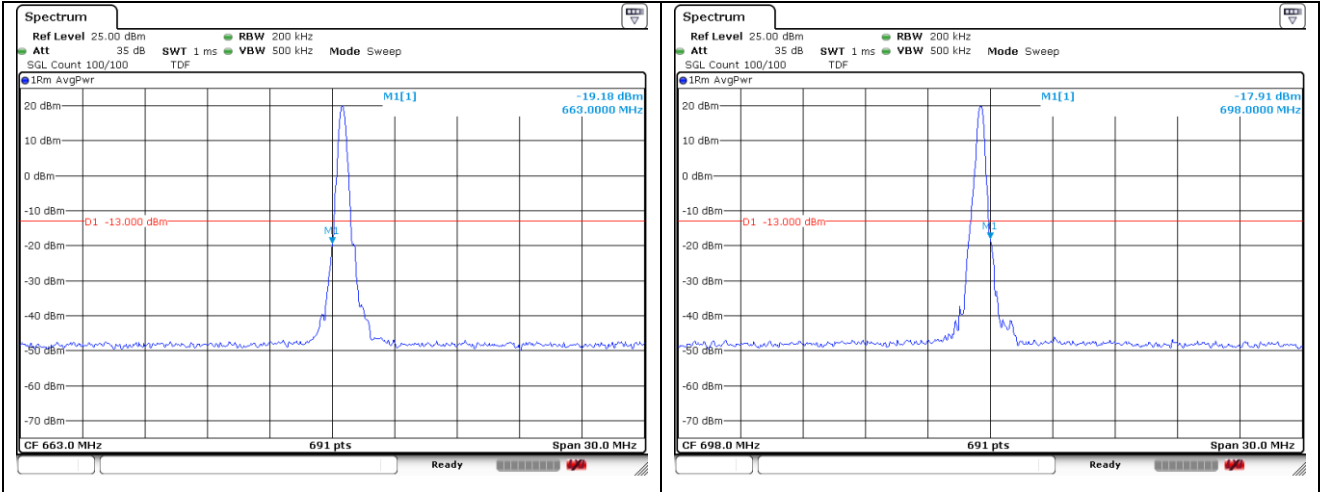




**NR band 71 (10 MHz)**

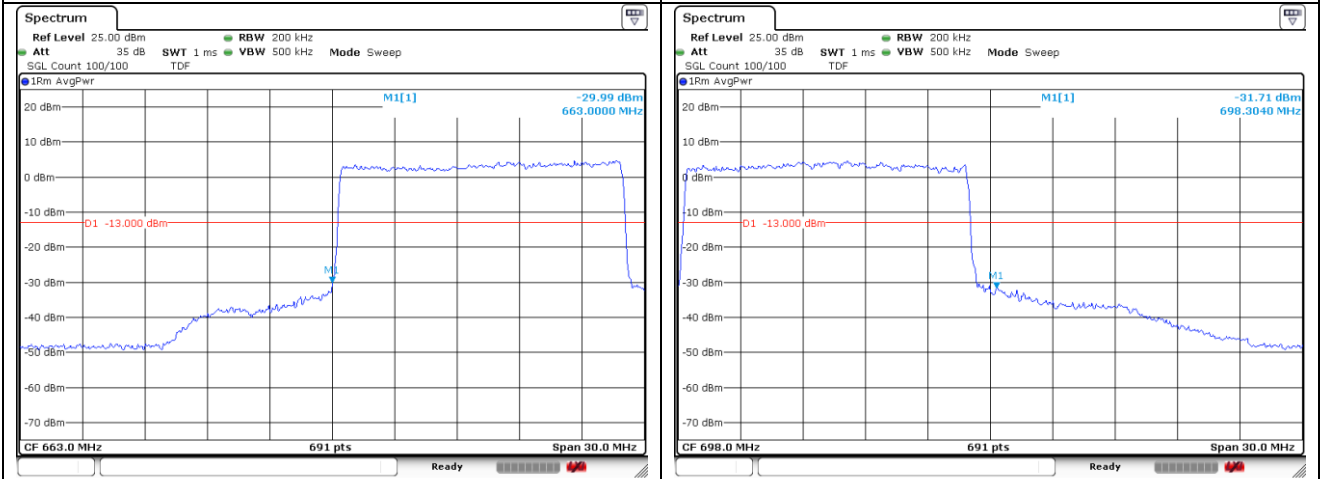


**NR band 71 (15 MHz)**



DFT-S-OFDM QPSK - Low Channel - 1 RB

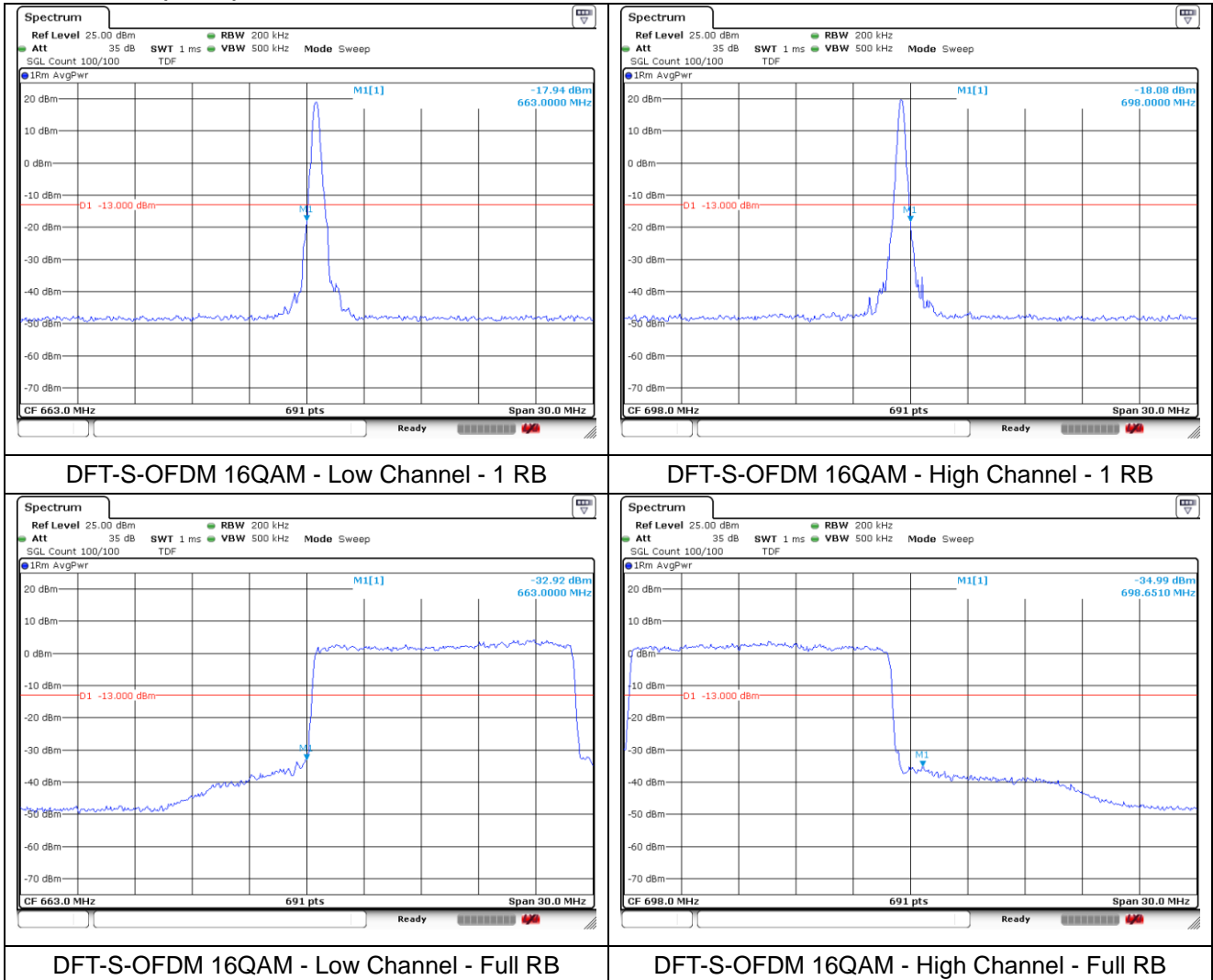
DFT-S-OFDM QPSK - High Channel - 1 RB



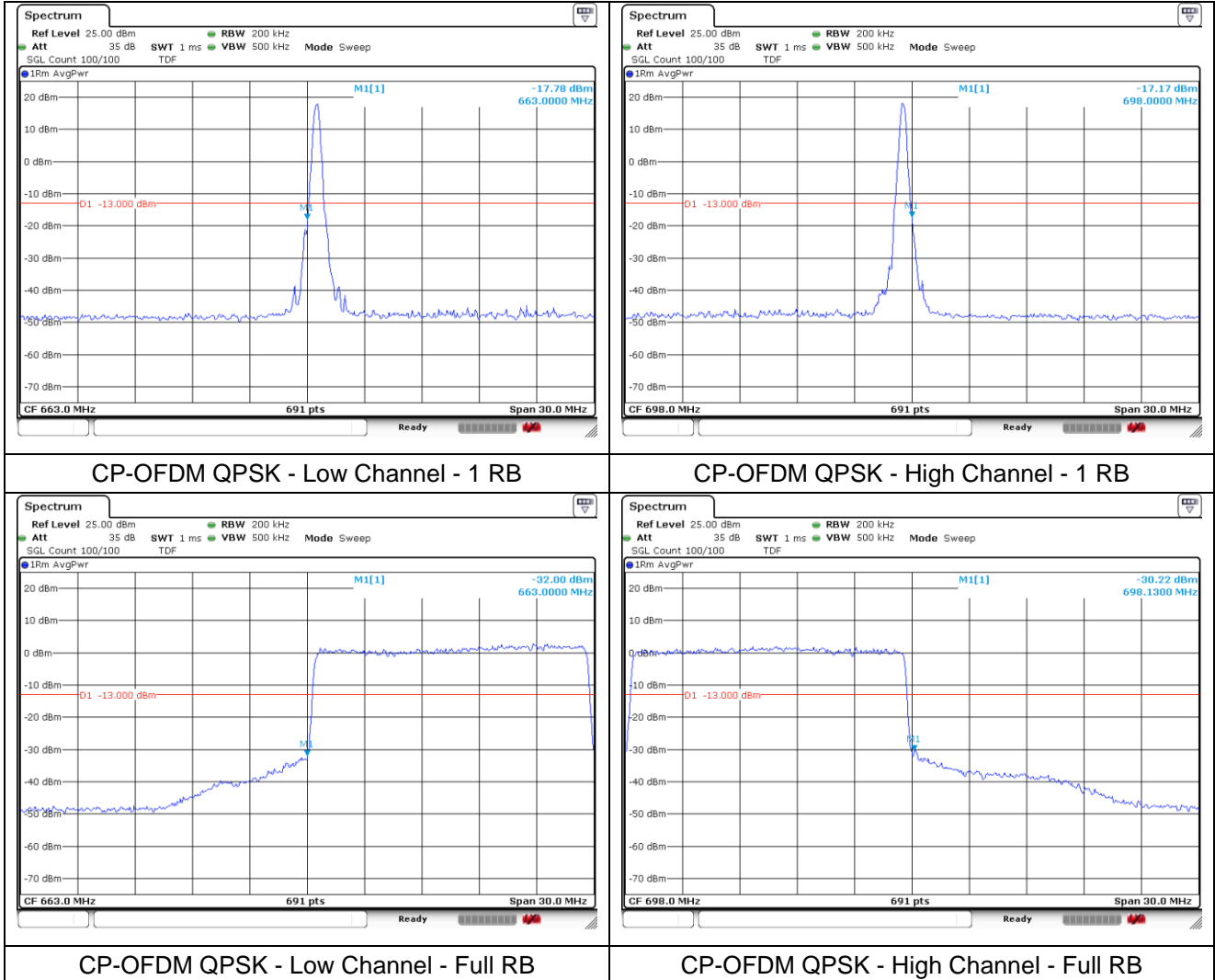
DFT-S-OFDM QPSK - Low Channel - Full RB

DFT-S-OFDM QPSK - High Channel - Full RB

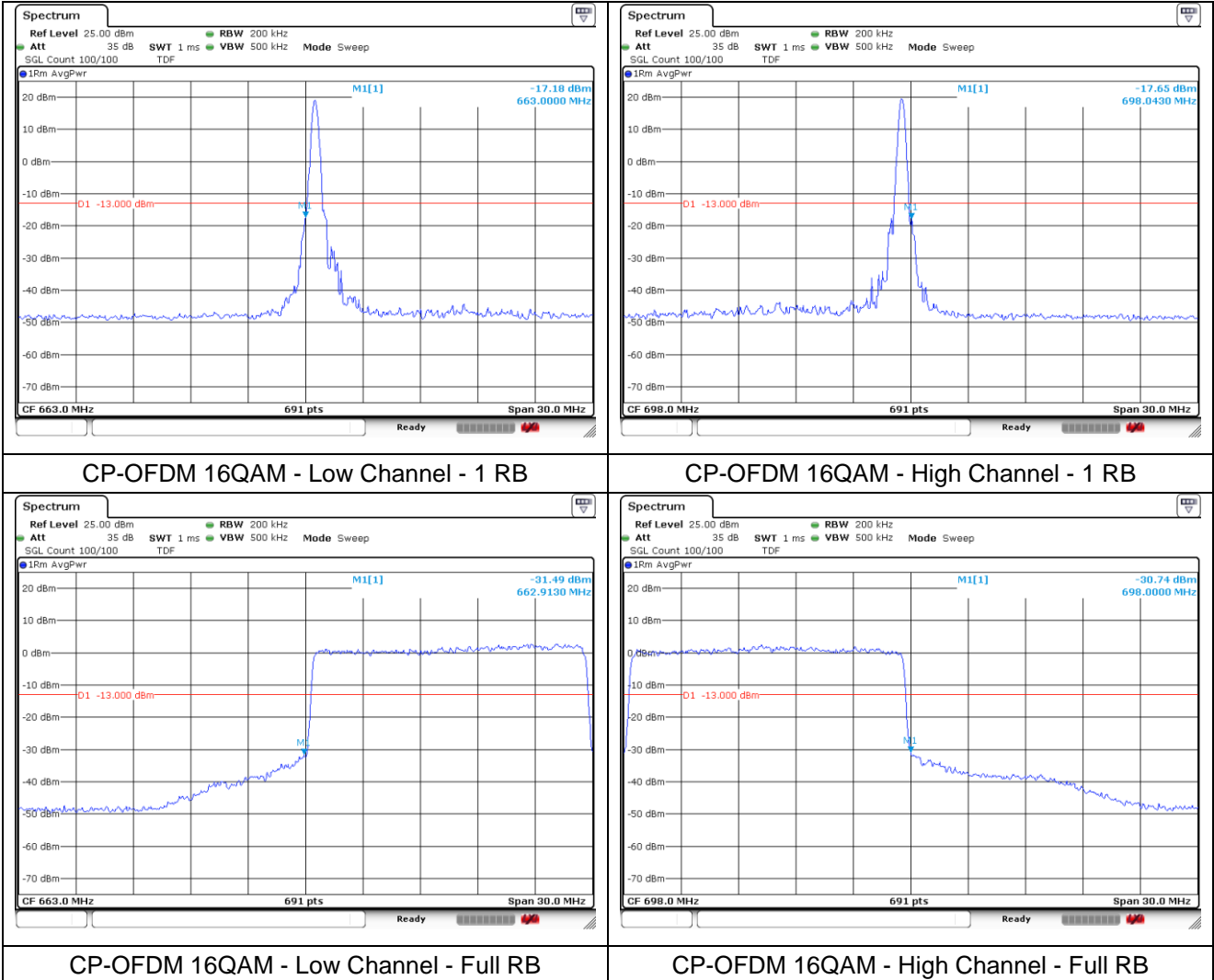
**NR band 71 (15 MHz)**



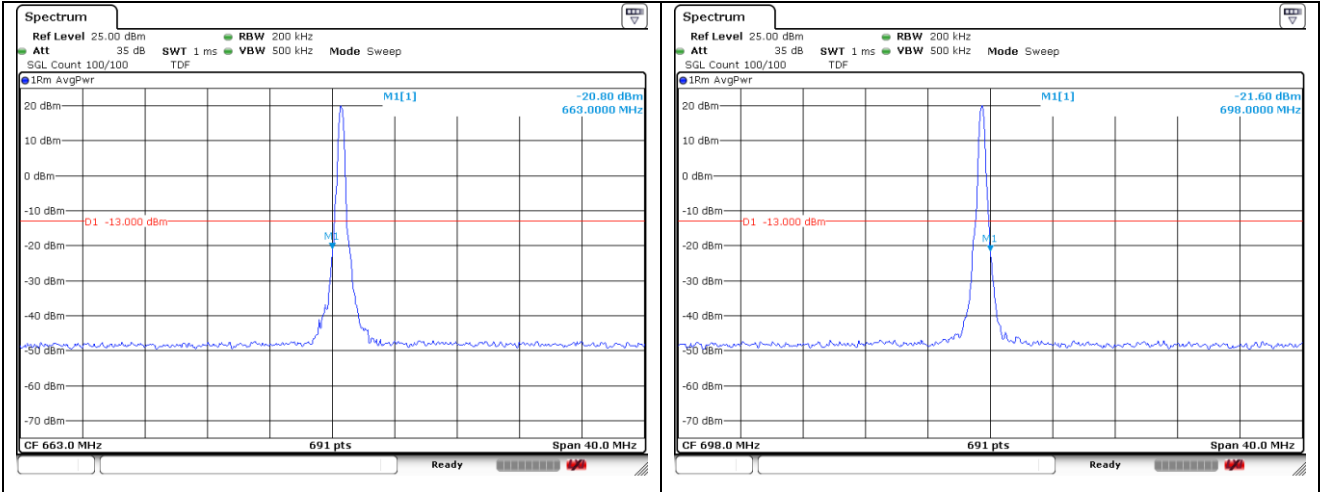
**NR band 71 (15 MHz)**



NR band 71 (15 MHz)

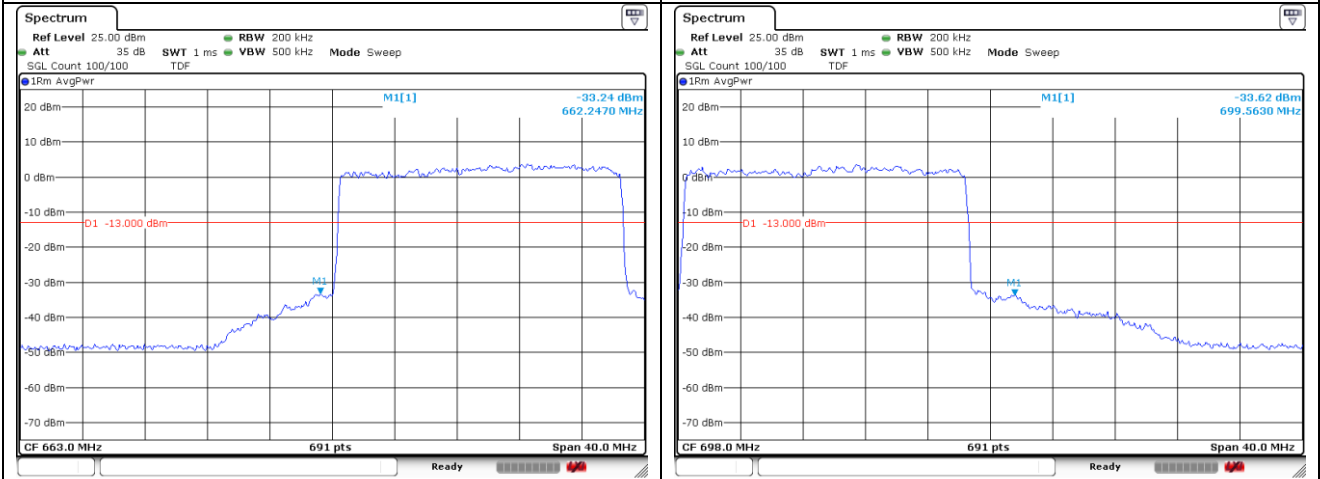


**NR band 71 (20 MHz)**



DFT-S-OFDM QPSK - Low Channel - 1 RB

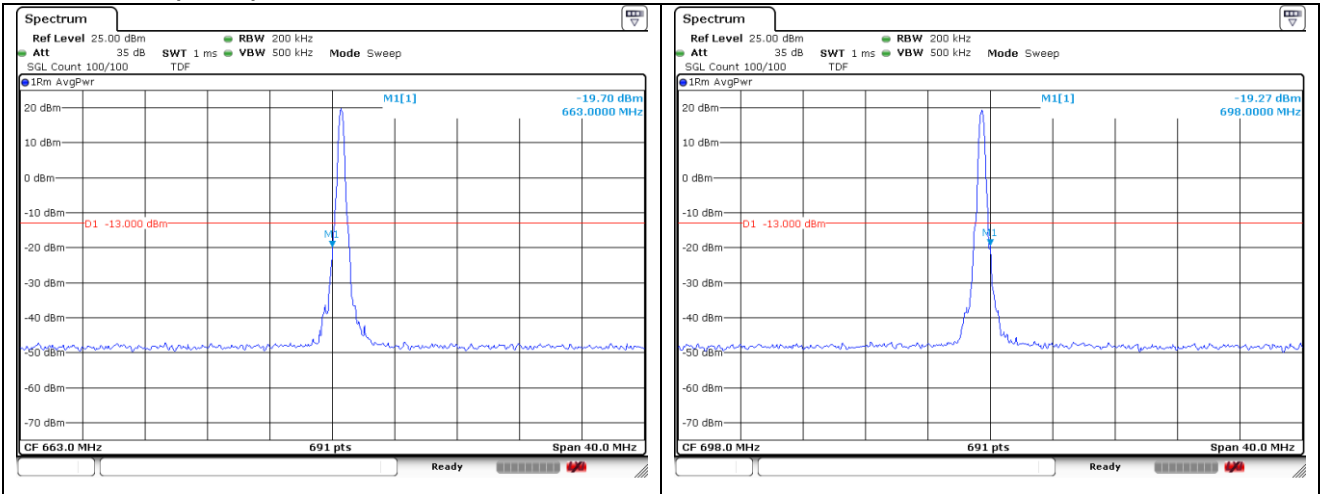
DFT-S-OFDM QPSK - High Channel - 1 RB



DFT-S-OFDM QPSK - Low Channel - Full RB

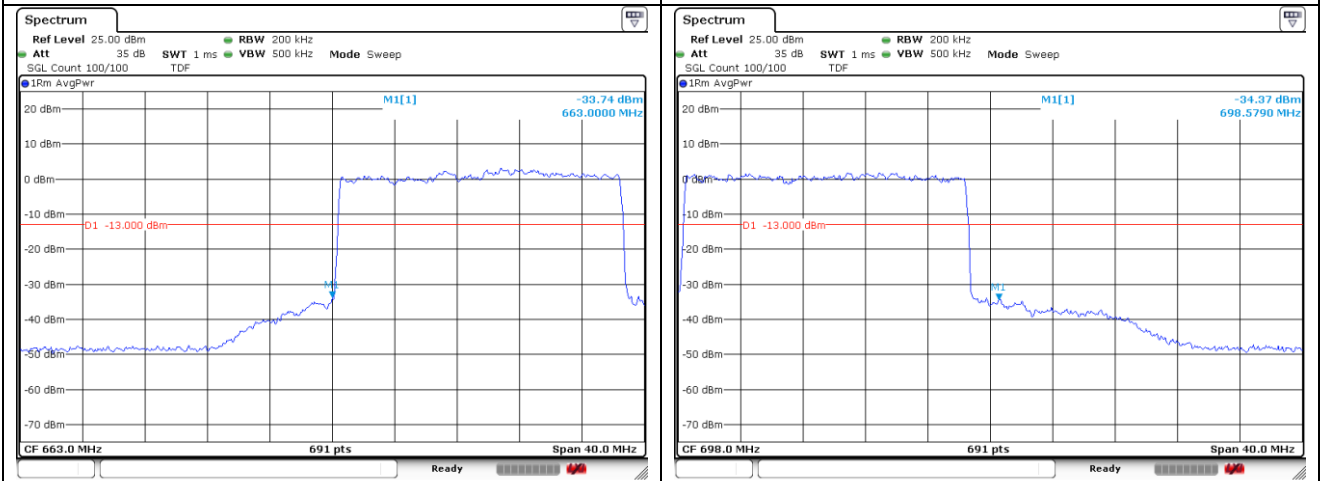
DFT-S-OFDM QPSK - High Channel - Full RB

**NR band 71 (20 MHz)**



DFT-S-OFDM 16QAM - Low Channel - 1 RB

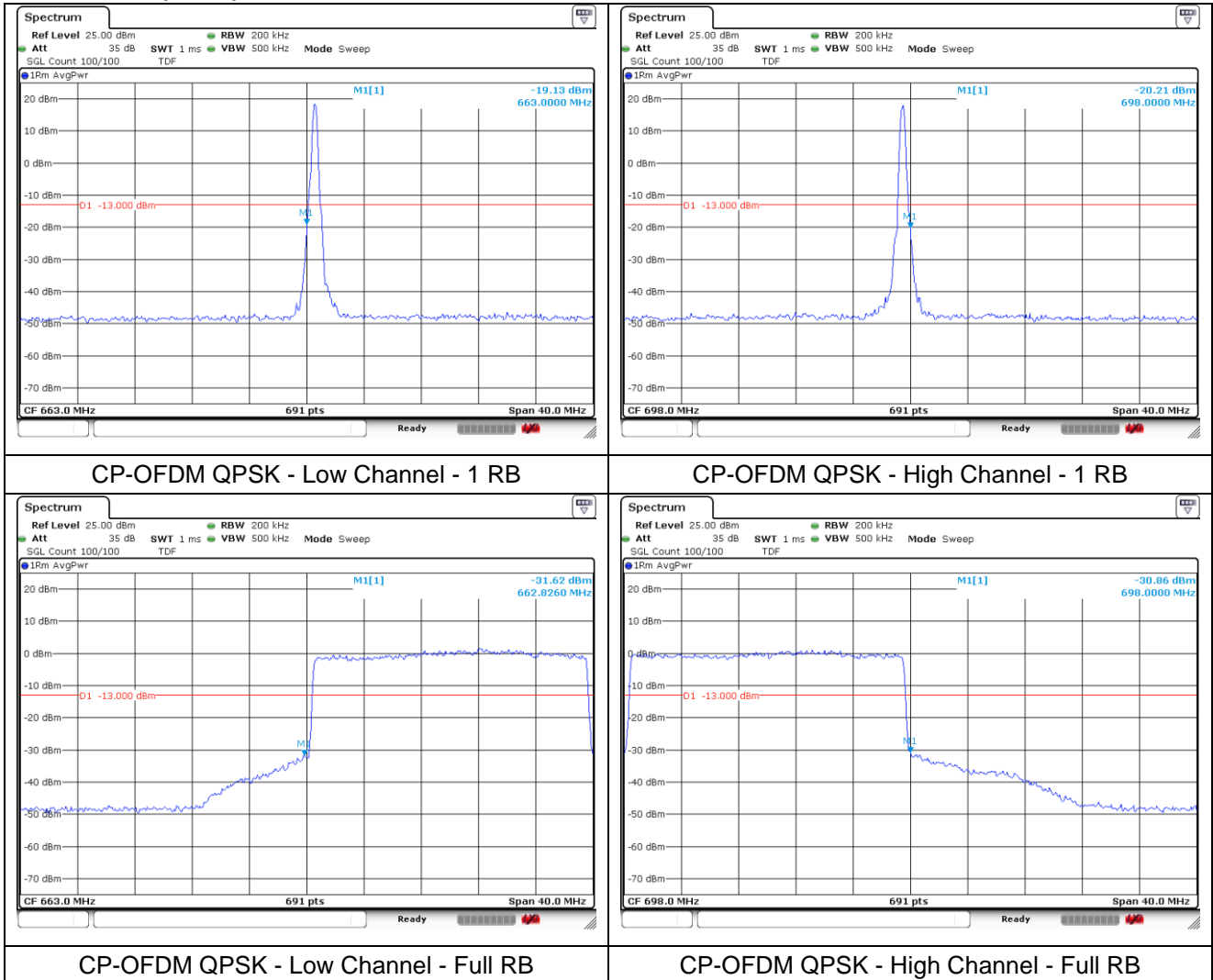
DFT-S-OFDM 16QAM - High Channel - 1 RB



DFT-S-OFDM 16QAM - Low Channel - Full RB

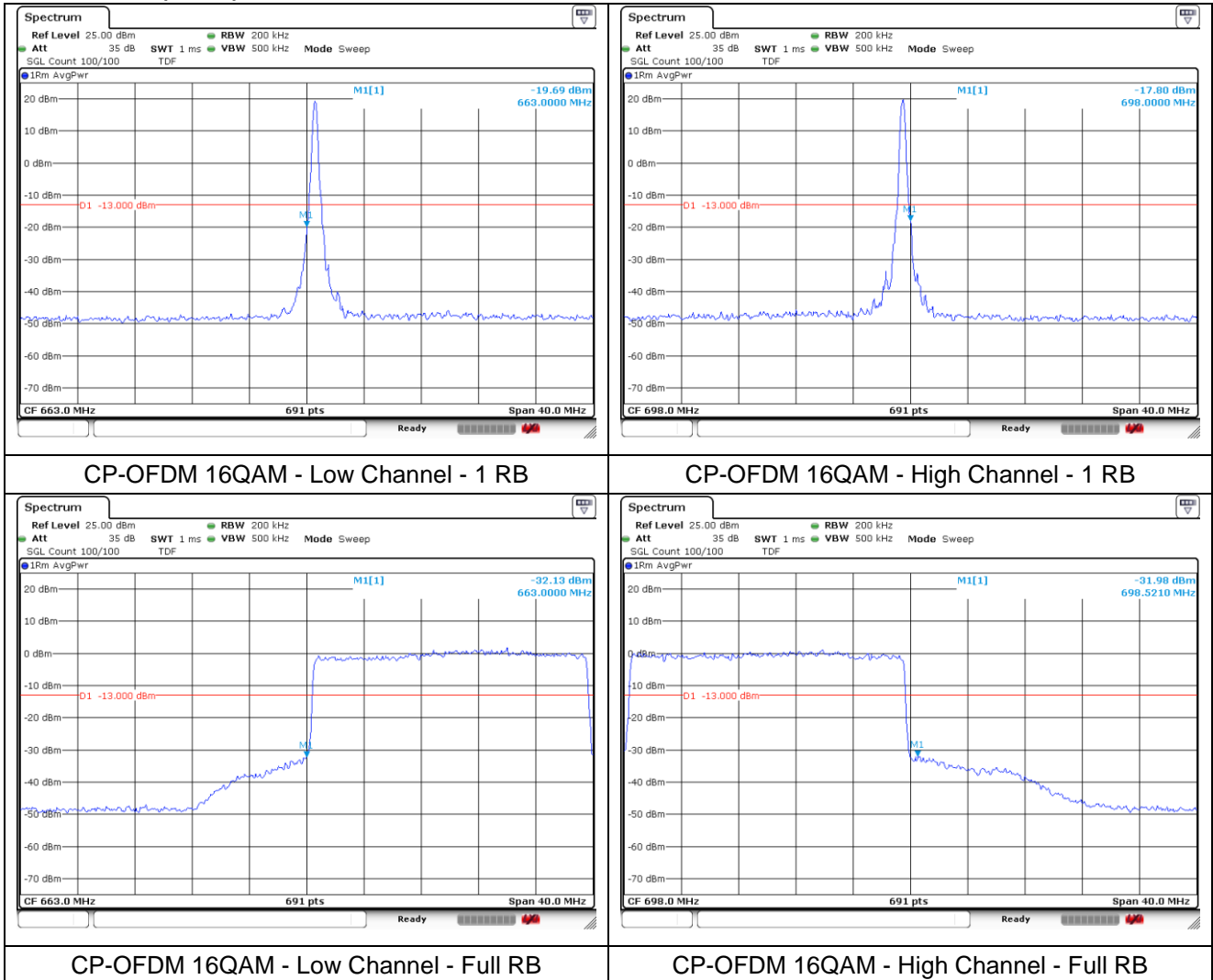
DFT-S-OFDM 16QAM - High Channel - Full RB

**NR band 71 (20 MHz)**





**NR band 71 (20 MHz)**



## 8. Frequency Stability

### 8.1. Limit

#### FCC

- § 2.1055 (a), § 2.1055 (d) & following:

- §22.355, the carrier frequency of each transmitter in the Public Mobile Services must be maintained within the tolerances given in Table of this section.

For Mobile devices operating in the 824 to 849 MHz band at a power level less than or equal to 3 Watts, the limit specified in Table C-1 is +/- 2.5 ppm.

- §24.235, the frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block.

- §27.54, the frequency stability shall be sufficient to ensure that the fundamental emissions stay within the authorized bands of operation.

#### IC

- RSS-Gen Issue 5

6.11, for licensed devices, the following measurement conditions apply:

a. at the temperatures of -30°C (-22°F), +20°C (+68°F) and +50°C (+122°F), and at the manufacturer's rated supply voltage

- RSS-130 Issue 2

4.5, the transmitter frequency stability limit shall be determined as follows:

For equipment that is capable of transmitting numerous channels simultaneously for different applications (e.g. LTE and narrowband – internet of things (IoT)), the occupied bandwidth shall be the bandwidth representing the sum of the occupied bandwidths of these channels.

The frequency stability shall be sufficient to ensure that the occupied bandwidth remains within each frequency block range when tested at the temperature and supply voltage variations specified in RSS-Gen.

- RSS-132 Issue 3

5.3, the carrier frequency shall not depart from the reference frequency in excess of ±2.5 ppm for mobile stations and ±1.5 ppm for base stations.

- RSS-133 Issue 6

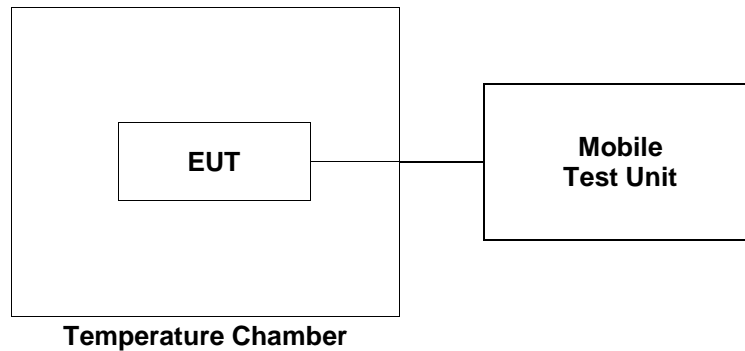
6.3, the carrier frequency shall not depart from the reference frequency, in excess of ±2.5 ppm for mobile stations and ±1.0 ppm for base stations.

- RSS-139 Issue 3

6.4, the frequency stability shall be sufficient to ensure that the occupied bandwidth stays within the operating frequency block when tested to the temperature and supply voltage variations specified in RSS-Gen.

## 8.2. Test Procedure

1. Frequency Stability vs. Temperature: The equipment under test was connected to an external DC power supply and the RF output was connected to a Mobile Test Unit via feed-through attenuators.
2. The EUT was placed inside the temperature chamber.
3. After the temperature stabilized for approximately 20 minutes, the frequency output was recorded from Mobile Test Unit.



### 8.3. Test Results

Ambient temperature : (23 ± 1) °C  
 Relative humidity : 47 % R.H.

#### SIM 1

##### NR band 25 at middle channel

| Reference Frequency: 1 882.5 MHz        |                    |                                    |          |
|---|--------------------|------------------------------------|----------|
| Frequency Stability versus Temperature  |                    |                                    |          |
| Environment Temperature (°C)            | Power Supplied (V) | Frequency Measure with Time Elapse |          |
|   |                    | Frequency Error (Hz)               | ppm      |
| 50                                      | 12.5               | -6.1                               | 0.000 85 |
| 40                                      |                    | -6.7                               | 0.000 53 |
| 30                                      |                    | -5.4                               | 0.001 22 |
| 20(Ref.)                                |                    | -7.7                               | -        |
| 10                                      |                    | -4.6                               | 0.001 65 |
| 0                                       |                    | -6.5                               | 0.000 64 |
| -10                                     |                    | -5.9                               | 0.000 96 |
| -20                                     |                    | -5.7                               | 0.001 06 |
| -30                                     |                    | -5.6                               | 0.001 12 |
| Frequency Stability versus Power Supply |                    |                                    |          |
| Environment Temperature (°C)            | Power Supplied (V) | Frequency Measure with Time Elapse |          |
|   |                    | Frequency Error (Hz)               | ppm      |
| 20                                      | 14.38 (115%)       | -5.7                               | 0.001 06 |
|   | 10.63 (85%)        | -5.5                               | 0.001 17 |

**NR band 41(FCC) at middle channel**

| Reference Frequency: 2 593.0 MHz        |                    |                                    |           |
|---|--------------------|------------------------------------|-----------|
| Frequency Stability versus Temperature  |                    |                                    |           |
| Environment Temperature (°C)            | Power Supplied (V) | Frequency Measure with Time Elapse |           |
|   |                    | Frequency Error (Hz)               | ppm       |
| 50                                      | 12.5               | -5.4                               | -0.001 20 |
| 40                                      |                    | -4.5                               | -0.000 85 |
| 30                                      |                    | -2.8                               | -0.000 19 |
| 20(Ref.)                                |                    | -2.3                               | -         |
| 10                                      |                    | -4.1                               | -0.000 69 |
| 0                                       |                    | -5.9                               | -0.001 39 |
| -10                                     |                    | -4.8                               | -0.000 96 |
| -20                                     |                    | -2.9                               | -0.000 23 |
| -30                                     |                    | -6.8                               | -0.001 74 |
| Frequency Stability versus Power Supply |                    |                                    |           |
| Environment Temperature (°C)            | Power Supplied (V) | Frequency Measure with Time Elapse |           |
|   |                    | Frequency Error (Hz)               | ppm       |
| 20                                      | 14.38 (115%)       | -7.0                               | -0.001 81 |
|   | 10.63 (85%)        | -7.4                               | -0.001 97 |

**NR band 41(IC) at middle channel**

| Reference Frequency: 2 595.0 MHz        |                    |                                    |           |
|---|--------------------|------------------------------------|-----------|
| Frequency Stability versus Temperature  |                    |                                    |           |
| Environment Temperature (°C)            | Power Supplied (V) | Frequency Measure with Time Elapse |           |
|   |                    | Frequency Error (Hz)               | ppm       |
| 50                                      | 12.5               | -5.0                               | -0.000 85 |
| 40                                      |                    | -4.3                               | -0.000 58 |
| 30                                      |                    | -2.9                               | -0.000 04 |
| 20(Ref.)                                |                    | -2.8                               | -         |
| 10                                      |                    | -3.6                               | -0.000 31 |
| 0                                       |                    | -4.8                               | -0.000 77 |
| -10                                     |                    | -4.9                               | -0.000 81 |
| -20                                     |                    | -5.2                               | -0.000 92 |
| -30                                     |                    | -5.6                               | -0.001 08 |
| Frequency Stability versus Power Supply |                    |                                    |           |
| Environment Temperature (°C)            | Power Supplied (V) | Frequency Measure with Time Elapse |           |
|   |                    | Frequency Error (Hz)               | ppm       |
| 20                                      | 14.38 (115%)       | -6.1                               | -0.001 27 |
|   | 10.63 (85%)        | -6.0                               | -0.001 23 |

**NR band 66 at middle channel**

| Reference Frequency: 1 745.0 MHz        |                    |                                    |           |
|---|--------------------|------------------------------------|-----------|
| Frequency Stability versus Temperature  |                    |                                    |           |
| Environment Temperature (°C)            | Power Supplied (V) | Frequency Measure with Time Elapse |           |
|   |                    | Frequency Error (Hz)               | ppm       |
| 50                                      | 12.5               | -1.4                               | -0.000 23 |
| 40                                      |                    | -3.4                               | -0.001 38 |
| 30                                      |                    | -3.9                               | -0.001 66 |
| 20(Ref.)                                |                    | -1.0                               | -         |
| 10                                      |                    | -1.5                               | -0.000 29 |
| 0                                       |                    | -2.9                               | -0.001 09 |
| -10                                     |                    | -0.8                               | 0.000 11  |
| -20                                     |                    | -2.8                               | -0.001 03 |
| -30                                     |                    | -4.0                               | -0.001 72 |
| Frequency Stability versus Power Supply |                    |                                    |           |
| Environment Temperature (°C)            | Power Supplied (V) | Frequency Measure with Time Elapse |           |
|   |                    | Frequency Error (Hz)               | ppm       |
| 20                                      | 14.38 (115%)       | -4.3                               | -0.001 89 |
|   | 10.63 (85%)        | -4.7                               | -0.002 12 |

**NR band 71 at middle channel**

| Reference Frequency: 680.5 MHz          |                    |                                    |           |
|---|--------------------|------------------------------------|-----------|
| Frequency Stability versus Temperature  |                    |                                    |           |
| Environment Temperature (°C)            | Power Supplied (V) | Frequency Measure with Time Elapse |           |
|   |                    | Frequency Error (Hz)               | ppm       |
| 50                                      | 12.5               | -3.8                               | -0.002 20 |
| 40                                      |                    | -4.2                               | -0.002 79 |
| 30                                      |                    | -4.4                               | -0.003 09 |
| 20(Ref.)                                |                    | -2.3                               | -         |
| 10                                      |                    | -4.6                               | -0.003 38 |
| 0                                       |                    | -2.2                               | 0.000 15  |
| -10                                     |                    | -2.7                               | -0.000 59 |
| -20                                     |                    | -1.9                               | 0.000 59  |
| -30                                     |                    | -2.5                               | -0.000 29 |
| Frequency Stability versus Power Supply |                    |                                    |           |
| Environment Temperature (°C)            | Power Supplied (V) | Frequency Measure with Time Elapse |           |
|   |                    | Frequency Error (Hz)               | ppm       |
| 20                                      | 14.38 (115%)       | -3.8                               | -0.002 20 |
|   | 10.63 (85%)        | -4.5                               | -0.003 23 |



**ENDC**

**13A-n2A at middle channel**

| Reference Frequency: 1 880.0 MHz        |                    |                                    |          |
|---|--------------------|------------------------------------|----------|
| Frequency Stability versus Temperature  |                    |                                    |          |
| Environment Temperature (°C)            | Power Supplied (V) | Frequency Measure with Time Elapse |          |
|   |                    | Frequency Error (Hz)               | ppm      |
| 50                                      | 12.5               | 7.9                                | 0.001 60 |
| 40                                      |                    | 7.0                                | 0.001 12 |
| 30                                      |                    | 7.1                                | 0.001 17 |
| 20(Ref.)                                |                    | 4.9                                | -        |
| 10                                      |                    | 6.2                                | 0.000 69 |
| 0                                       |                    | 5.1                                | 0.000 11 |
| -10                                     |                    | 5.8                                | 0.000 48 |
| -20                                     |                    | 8.2                                | 0.001 76 |
| -30                                     |                    | 6.7                                | 0.000 96 |
| Frequency Stability versus Power Supply |                    |                                    |          |
| Environment Temperature (°C)            | Power Supplied (V) | Frequency Measure with Time Elapse |          |
|   |                    | Frequency Error (Hz)               | ppm      |
| 20                                      | 14.38 (115%)       | 6.4                                | 0.000 80 |
|   | 10.63 (85%)        | 5.6                                | 0.000 37 |

**2A-n5A at middle channel**

| Reference Frequency: 836.5 MHz          |                    |                                    |          |
|---|--------------------|------------------------------------|----------|
| Frequency Stability versus Temperature  |                    |                                    |          |
| Environment Temperature (°C)            | Power Supplied (V) | Frequency Measure with Time Elapse |          |
|   |                    | Frequency Error (Hz)               | ppm      |
| 50                                      | 12.5               | -3.1                               | 0.002 51 |
| 40                                      |                    | -5.1                               | 0.000 12 |
| 30                                      |                    | -3.0                               | 0.002 63 |
| 20(Ref.)                                |                    | -5.2                               | -        |
| 10                                      |                    | -2.2                               | 0.003 59 |
| 0                                       |                    | -0.2                               | 0.005 98 |
| -10                                     |                    | -1.2                               | 0.004 78 |
| -20                                     |                    | -2.7                               | 0.002 99 |
| -30                                     |                    | -0.7                               | 0.005 38 |
| Frequency Stability versus Power Supply |                    |                                    |          |
| Environment Temperature (°C)            | Power Supplied (V) | Frequency Measure with Time Elapse |          |
|   |                    | Frequency Error (Hz)               | ppm      |
| 20                                      | 14.38 (115%)       | -4.9                               | 0.000 36 |
|   | 10.63 (85%)        | -4.8                               | 0.000 48 |

**SIM 2**

**NR band 25 at middle channel**

| Reference Frequency: 1 882.5 MHz        |                    |                                    |           |
|---|--------------------|------------------------------------|-----------|
| Frequency Stability versus Temperature  |                    |                                    |           |
| Environment Temperature (°C)            | Power Supplied (V) | Frequency Measure with Time Elapse |           |
|   |                    | Frequency Error (Hz)               | ppm       |
| 50                                      | 12.5               | -6.3                               | -0.000 48 |
| 40                                      |                    | -6.0                               | -0.000 32 |
| 30                                      |                    | -7.1                               | -0.000 90 |
| 20(Ref.)                                |                    | -5.4                               | -         |
| 10                                      |                    | -4.8                               | 0.000 32  |
| 0                                       |                    | -5.1                               | 0.000 16  |
| -10                                     |                    | -6.3                               | -0.000 48 |
| -20                                     |                    | -6.6                               | -0.000 64 |
| -30                                     |                    | -3.7                               | 0.000 90  |
| Frequency Stability versus Power Supply |                    |                                    |           |
| Environment Temperature (°C)            | Power Supplied (V) | Frequency Measure with Time Elapse |           |
|   |                    | Frequency Error (Hz)               | ppm       |
| 20                                      | 14.38 (115%)       | -3.2                               | 0.001 17  |
|   | 10.63 (85%)        | -6.5                               | -0.000 58 |

**NR band 41(FCC) at middle channel**

| Reference Frequency: 2 593.0 MHz        |                    |                                    |           |
|---|--------------------|------------------------------------|-----------|
| Frequency Stability versus Temperature  |                    |                                    |           |
| Environment Temperature (°C)            | Power Supplied (V) | Frequency Measure with Time Elapse |           |
|   |                    | Frequency Error (Hz)               | ppm       |
| 50                                      | 12.5               | -2.7                               | 0.000 93  |
| 40                                      |                    | -2.3                               | 0.001 08  |
| 30                                      |                    | -5.3                               | -0.000 08 |
| 20(Ref.)                                |                    | -5.1                               | -         |
| 10                                      |                    | -6.1                               | -0.000 39 |
| 0                                       |                    | -4.5                               | 0.000 23  |
| -10                                     |                    | -3.7                               | 0.000 54  |
| -20                                     |                    | -3.3                               | 0.000 69  |
| -30                                     |                    | -2.2                               | 0.001 12  |
| Frequency Stability versus Power Supply |                    |                                    |           |
| Environment Temperature (°C)            | Power Supplied (V) | Frequency Measure with Time Elapse |           |
|   |                    | Frequency Error (Hz)               | ppm       |
| 20                                      | 14.38 (115%)       | -4.5                               | 0.000 23  |
|   | 10.63 (85%)        | -6.8                               | -0.000 66 |

**NR band 41(IC) at middle channel**

| Reference Frequency: 2 593.0 MHz        |                    |                                    |           |
|---|--------------------|------------------------------------|-----------|
| Frequency Stability versus Temperature  |                    |                                    |           |
| Environment Temperature (°C)            | Power Supplied (V) | Frequency Measure with Time Elapse |           |
|   |                    | Frequency Error (Hz)               | ppm       |
| 50                                      | 12.5               | -2.8                               | 0.000 96  |
| 40                                      |                    | -3.1                               | 0.000 85  |
| 30                                      |                    | -4.8                               | 0.000 19  |
| 20(Ref.)                                |                    | -5.3                               | -         |
| 10                                      |                    | -5.9                               | -0.000 23 |
| 0                                       |                    | -4.8                               | 0.000 19  |
| -10                                     |                    | -3.7                               | 0.000 62  |
| -20                                     |                    | -3.6                               | 0.000 66  |
| -30                                     |                    | -2.8                               | 0.000 96  |
| Frequency Stability versus Power Supply |                    |                                    |           |
| Environment Temperature (°C)            | Power Supplied (V) | Frequency Measure with Time Elapse |           |
|   |                    | Frequency Error (Hz)               | ppm       |
| 20                                      | 14.38 (115%)       | -4.2                               | 0.000 42  |
|   | 10.63 (85%)        | -6.5                               | -0.000 46 |

**NR band 66 at middle channel**

| Reference Frequency: 1 745.0 MHz        |                    |                                    |           |
|---|--------------------|------------------------------------|-----------|
| Frequency Stability versus Temperature  |                    |                                    |           |
| Environment Temperature (°C)            | Power Supplied (V) | Frequency Measure with Time Elapse |           |
|   |                    | Frequency Error (Hz)               | ppm       |
| 50                                      | 12.5               | 1.7                                | 0.002 98  |
| 40                                      |                    | -1.4                               | 0.001 20  |
| 30                                      |                    | -1.6                               | 0.001 09  |
| 20(Ref.)                                |                    | -3.5                               | -         |
| 10                                      |                    | -4.3                               | -0.000 46 |
| 0                                       |                    | -2.9                               | 0.000 34  |
| -10                                     |                    | -1.3                               | 0.001 26  |
| -20                                     |                    | -2.7                               | 0.000 46  |
| -30                                     |                    | -4.6                               | -0.000 63 |
| Frequency Stability versus Power Supply |                    |                                    |           |
| Environment Temperature (°C)            | Power Supplied (V) | Frequency Measure with Time Elapse |           |
|   |                    | Frequency Error (Hz)               | ppm       |
| 20                                      | 14.38 (115%)       | -6.3                               | -0.001 60 |
|   | 10.63 (85%)        | -2.4                               | 0.000 63  |

**NR band 71 at middle channel**

| Reference Frequency: 680.5 MHz          |                    |                                    |          |
|---|--------------------|------------------------------------|----------|
| Frequency Stability versus Temperature  |                    |                                    |          |
| Environment Temperature (°C)            | Power Supplied (V) | Frequency Measure with Time Elapse |          |
|   |                    | Frequency Error (Hz)               | ppm      |
| 50                                      | 12.5               | -4.2                               | 0.002 20 |
| 40                                      |                    | -3.9                               | 0.002 65 |
| 30                                      |                    | -4.2                               | 0.002 20 |
| 20(Ref.)                                |                    | -5.7                               | -        |
| 10                                      |                    | -3.8                               | 0.002 79 |
| 0                                       |                    | -3.7                               | 0.002 94 |
| -10                                     |                    | -3.3                               | 0.003 53 |
| -20                                     |                    | -3.0                               | 0.003 97 |
| -30                                     |                    | -1.2                               | 0.006 61 |
| Frequency Stability versus Power Supply |                    |                                    |          |
| Environment Temperature (°C)            | Power Supplied (V) | Frequency Measure with Time Elapse |          |
|   |                    | Frequency Error (Hz)               | ppm      |
| 20                                      | 14.38 (115%)       | -3.8                               | 0.002 79 |
|   | 10.63 (85%)        | -3.5                               | 0.003 23 |

**- End of the Test Report -**