

**n25**
**Frequency Error vs Temperature**

| Temperature(°C) | Voltage(V) | FL(MHz)  | FH(MHz)  | Offset(Hz) | Frequency error(ppm) |
|-----------------|------------|----------|----------|------------|----------------------|
| 20              | 3.85       | 1850.272 | 1913.640 | 2.60       | 0.0014               |
| 50              |            |          |          |            |                      |
| 40              |            |          |          |            |                      |
| 30              |            |          |          |            |                      |
| 10              |            |          |          |            |                      |
| 0               |            |          |          |            |                      |
| -10             |            |          |          |            |                      |
| -20             |            |          |          |            |                      |
| -30             |            |          |          |            |                      |

**Frequency Error vs Voltage**

| Voltage(V) | Temperature(°C) | FL(MHz)  | FH(MHz)  | Offset(Hz) | Frequency error(ppm) |
|------------|-----------------|----------|----------|------------|----------------------|
| 3.7        | 20              | 1850.272 | 1913.640 | 1.20       | 0.0006               |
| 4.4        |                 |          |          | 0.10       | 0.0001               |

**n38**
**Frequency Error vs Temperature**

| Temperature(°C) | Voltage(V) | FL(MHz)  | FH(MHz)  | Offset(Hz) | Frequency error(ppm) |
|-----------------|------------|----------|----------|------------|----------------------|
| 20              | 3.85       | 2570.528 | 2617.328 | -10.90     | 0.0042               |
| 50              |            |          |          |            |                      |
| 40              |            |          |          |            |                      |
| 30              |            |          |          |            |                      |
| 10              |            |          |          |            |                      |
| 0               |            |          |          |            |                      |
| -10             |            |          |          |            |                      |
| -20             |            |          |          |            |                      |
| -30             |            |          |          |            |                      |

**Frequency Error vs Voltage**

| Voltage(V) | Temperature(°C) | FL(MHz)  | FH(MHz)  | Offset(Hz) | Frequency error(ppm) |
|------------|-----------------|----------|----------|------------|----------------------|
| 3.7        | 20              | 2570.528 | 2617.328 | 19.70      | 0.0076               |
| 4.4        |                 |          |          | 22.70      | 0.0087               |

**n41**
**Frequency Error vs Temperature**

| Temperature(°C) | Voltage(V) | FL(MHz)  | FH(MHz)  | Offset(Hz) | Frequency error(ppm) |
|-----------------|------------|----------|----------|------------|----------------------|
| 20              | 3.85       | 2496.704 | 2688.160 |            |                      |
| 50              |            |          |          | 39.10      | 0.0151               |
| 40              |            |          |          | 27.30      | 0.0105               |
| 30              |            |          |          | 19.50      | 0.0075               |
| 10              |            |          |          | 23.10      | 0.0089               |
| 0               |            |          |          | 21.80      | 0.0084               |
| -10             |            |          |          | 25.10      | 0.0097               |
| -20             |            |          |          | 30.40      | 0.0117               |
| -30             |            |          |          | 39.80      | 0.0153               |

**Frequency Error vs Voltage**

| Voltage(V) | Temperature(°C) | FL(MHz)  | FH(MHz)  | Offset(Hz) | Frequency error(ppm) |
|------------|-----------------|----------|----------|------------|----------------------|
| 3.7        | 20              | 2496.704 | 2688.160 | 22.40      | 0.0086               |
| 4.4        |                 |          |          | 20.90      | 0.0081               |

**n48**
**Frequency Error vs Temperature**

| Temperature(°C) | Voltage(V) | FL(MHz)  | FH(MHz)  | Offset(Hz) | Frequency error(ppm) |
|-----------------|------------|----------|----------|------------|----------------------|
| 20              | 3.85       | 3550.784 | 3697.024 |            |                      |
| 50              |            |          |          | -8.90      | 0.0025               |
| 40              |            |          |          | 0.10       | 0.0000               |
| 30              |            |          |          | 4.60       | 0.0013               |
| 10              |            |          |          | 14.90      | 0.0041               |
| 0               |            |          |          | 8.50       | 0.0023               |
| -10             |            |          |          | 11.80      | 0.0033               |
| -20             |            |          |          | -2.80      | 0.0008               |
| -30             |            |          |          | 8.60       | 0.0024               |

**Frequency Error vs Voltage**

| Voltage(V) | Temperature(°C) | FL(MHz)  | FH(MHz)  | Offset(Hz) | Frequency error(ppm) |
|------------|-----------------|----------|----------|------------|----------------------|
| 3.7        | 20              | 3550.784 | 3697.024 | 12.30      | 0.0034               |
| 4.4        |                 |          |          | 16.50      | 0.0046               |

**n71**
**Frequency Error vs Temperature**

| Temperature(°C) | Voltage(V) | FL(MHz) | FH(MHz) | Offset(Hz) | Frequency error(ppm) |
|-----------------|------------|---------|---------|------------|----------------------|
| 20              | 3.85       | 663.432 | 696.464 | 0.00       | 0.0000               |
| 50              |            |         |         |            |                      |
| 40              |            |         |         |            |                      |
| 30              |            |         |         |            |                      |
| 10              |            |         |         |            |                      |
| 0               |            |         |         |            |                      |
| -10             |            |         |         |            |                      |
| -20             |            |         |         |            |                      |
| -30             |            |         |         |            |                      |
|                 |            |         |         |            |                      |

**Frequency Error vs Voltage**

| Voltage(V) | Temperature(°C) | FL(MHz) | FH(MHz) | Offset(Hz) | Frequency error(ppm) |
|------------|-----------------|---------|---------|------------|----------------------|
| 3.7        | 20              | 663.432 | 696.464 | -3.60      | 0.0053               |
| 4.4        |                 |         |         | 2.00       | 0.0029               |

**n77L**
**Frequency Error vs Temperature**

| Temperature(°C) | Voltage(V) | FL(MHz)  | FH(MHz)  | Offset(Hz) | Frequency error(ppm) |
|-----------------|------------|----------|----------|------------|----------------------|
| 20              | 3.85       | 3450.752 | 3548.464 | -10.50     | 0.0030               |
| 50              |            |          |          |            |                      |
| 40              |            |          |          |            |                      |
| 30              |            |          |          |            |                      |
| 10              |            |          |          |            |                      |
| 0               |            |          |          |            |                      |
| -10             |            |          |          |            |                      |
| -20             |            |          |          |            |                      |
| -30             |            |          |          |            |                      |
|                 |            |          |          |            |                      |

**Frequency Error vs Voltage**

| Voltage(V) | Temperature(°C) | FL(MHz)  | FH(MHz)  | Offset(Hz) | Frequency error(ppm) |
|------------|-----------------|----------|----------|------------|----------------------|
| 3.7        | 20              | 3450.752 | 3548.464 | 11.40      | 0.0033               |
| 4.4        |                 |          |          | 0.80       | 0.0002               |

**n77H**
**Frequency Error vs Temperature**

| Temperature(°C) | Voltage(V) | FL(MHz)  | FH(MHz)  | Offset(Hz) | Frequency error(ppm) |
|-----------------|------------|----------|----------|------------|----------------------|
| 20              | 3.85       | 3700.416 | 3978.464 |            |                      |
| 50              |            |          |          | -1.20      | 0.0003               |
| 40              |            |          |          | -1.90      | 0.0005               |
| 30              |            |          |          | 8.40       | 0.0022               |
| 10              |            |          |          | 17.10      | 0.0045               |
| 0               |            |          |          | 6.10       | 0.0016               |
| -10             |            |          |          | 13.60      | 0.0035               |
| -20             |            |          |          | 23.60      | 0.0061               |
| -30             |            |          |          | 15.90      | 0.0041               |

**Frequency Error vs Voltage**

| Voltage(V) | Temperature(°C) | FL(MHz)  | FH(MHz)  | Offset(Hz) | Frequency error(ppm) |
|------------|-----------------|----------|----------|------------|----------------------|
| 3.7        | 20              | 3700.416 | 3978.464 | 4.10       | 0.0011               |
| 4.4        |                 |          |          | 25.50      | 0.0066               |

**n78L**
**Frequency Error vs Temperature**

| Temperature(°C) | Voltage(V) | FL(MHz)  | FH(MHz)  | Offset(Hz) | Frequency error(ppm) |
|-----------------|------------|----------|----------|------------|----------------------|
| 20              | 3.85       | 3450.720 | 3548.496 |            |                      |
| 50              |            |          |          | 7.40       | 0.0021               |
| 40              |            |          |          | 20.80      | 0.0059               |
| 30              |            |          |          | 24.30      | 0.0069               |
| 10              |            |          |          | 38.20      | 0.0109               |
| 0               |            |          |          | 23.00      | 0.0066               |
| -10             |            |          |          | 18.60      | 0.0053               |
| -20             |            |          |          | 33.10      | 0.0095               |
| -30             |            |          |          | 18.60      | 0.0053               |

**Frequency Error vs Voltage**

| Voltage(V) | Temperature(°C) | FL(MHz)  | FH(MHz)  | Offset(Hz) | Frequency error(ppm) |
|------------|-----------------|----------|----------|------------|----------------------|
| 3.7        | 20              | 3450.720 | 3548.496 | 40.20      | 0.0115               |
| 4.4        |                 |          |          | 35.30      | 0.0101               |

# **LTE Band 12+NR n66**

## **Frequency Error vs Voltage**

| Temperature(°C) | Voltage(V) | FL(MHz)  | FH(MHz)  | Offset(Hz) | Frequency error(ppm) |
|-----------------|------------|----------|----------|------------|----------------------|
| 20              | 3.85       | 1710.096 | 1779.856 |            |                      |
| 50              |            |          |          | 1.60       | 0.0009               |
| 40              |            |          |          | -2.30      | 0.0013               |
| 30              |            |          |          | 4.20       | 0.0024               |
| 10              |            |          |          | 5.30       | 0.0030               |
| 0               |            |          |          | 4.80       | 0.0028               |
| -10             |            |          |          | 2.60       | 0.0015               |
| -20             |            |          |          | 12.80      | 0.0073               |
| -30             |            |          |          | 3.50       | 0.0020               |

## **Frequency Error vs Voltage**

| Voltage(V) | Temperature(°C) | FL(MHz)  | FH(MHz)  | Offset(Hz) | Frequency error(ppm) |
|------------|-----------------|----------|----------|------------|----------------------|
| 3.7        | 20              | 1710.096 | 1779.856 | 3.70       | 0.0021               |
| 4.4        |                 |          |          | 4.40       | 0.0025               |

Note: The maximum value of expanded measurement uncertainty for this test item is  $U = 0.047k \text{ Hz}$ ,  $k = 2$ .

#### **A.4 Occupied Bandwidth**

Occupied bandwidth measurements are only provided for selected frequencies in order to reduce the amount of submitted data. Data were taken at the mid frequencies frequency. The table below lists the measured 99% BW. Spectrum analyzer plots are included on the following pages.

The measurement method is from ANSI C63.26:

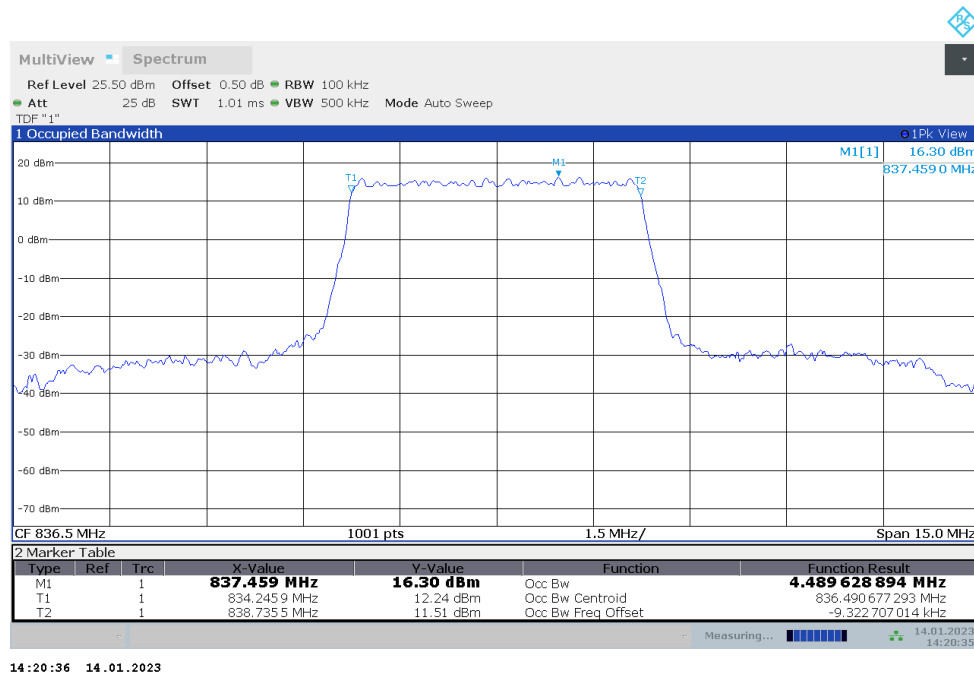
- a) The spectrum analyzer center frequency is set to the nominal EUT channel center frequency. The frequency span for the spectrum analyzer shall be set wide enough to capture all modulation products including the emission skirts.
- b) The nominal IF filter 3 dB bandwidth (RBW) shall be in the range of 1% to 5% of the anticipated OBW, and the VBW shall be set  $\geq 3 \times \text{RBW}$ .
- c) Set the reference level of the instrument as required to prevent the signal amplitude from exceeding the maximum spectrum analyzer input mixer level for linear operation.
- d) Set the detection mode to peak, and the trace mode to max-hold.

n5

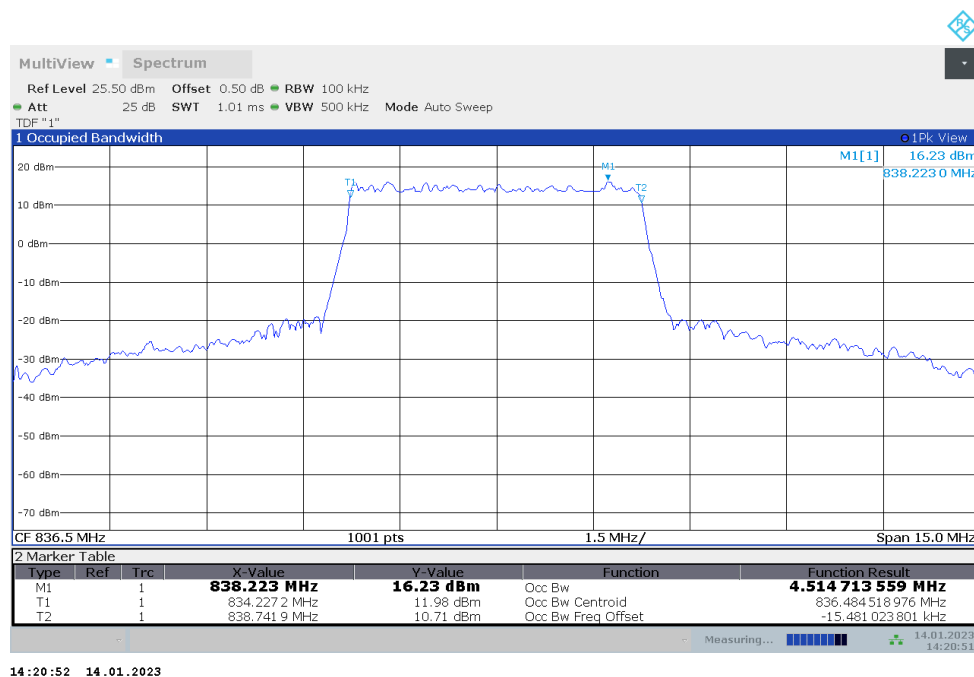
n5,5MHz(99%)

| Frequency (MHz) | Occupied Bandwidth (99%) (MHz) |            |
|-----------------|--------------------------------|------------|
|                 | DFT-s-pi/2 BPSK                | DFT-s-QPSK |
| 836.5           | 4.490                          | 4.515      |

n5,5MHz Bandwidth,DFT-s-pi/2 BPSK (99% BW)



n5,5MHz Bandwidth,DFT-s-QPSK (99% BW)

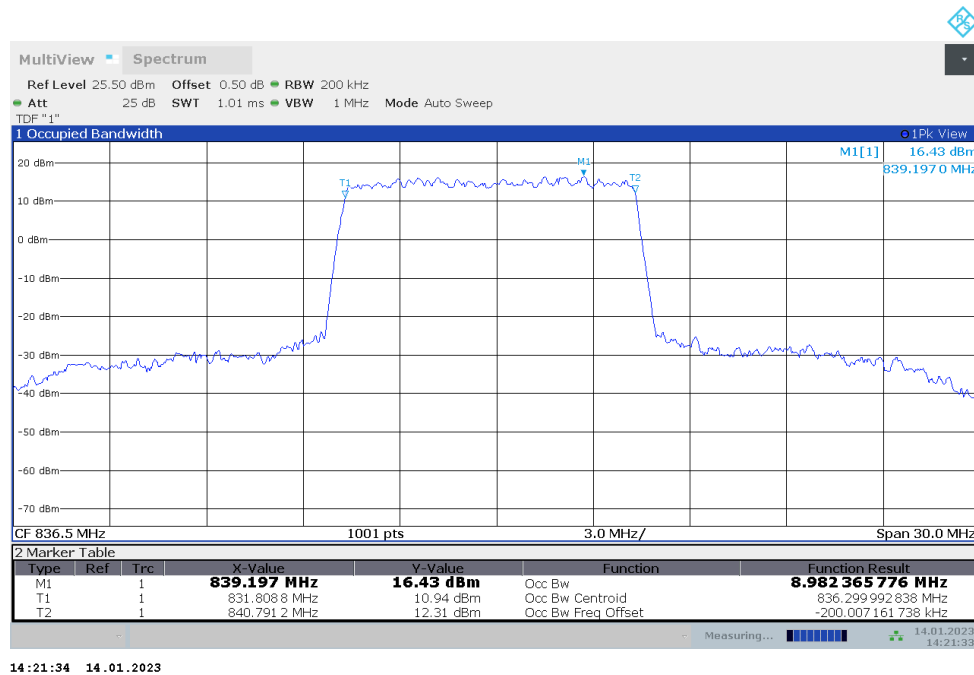


n5

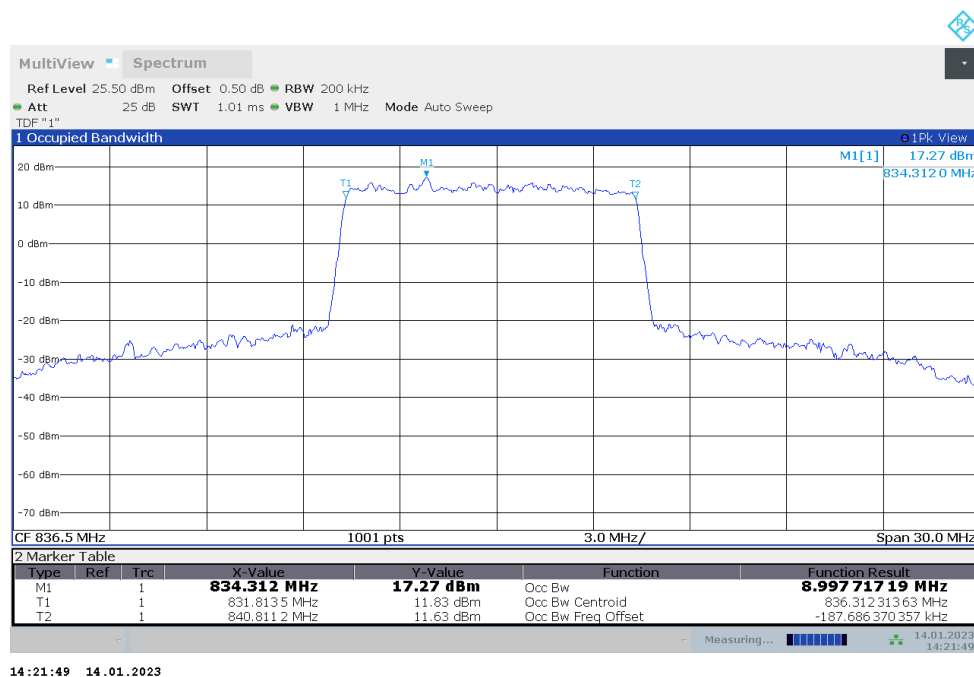
n5,10MHz(99%)

| Frequency (MHz) | Occupied Bandwidth (99%) (MHz) |            |
|-----------------|--------------------------------|------------|
|                 | DFT-s-pi/2 BPSK                | DFT-s-QPSK |
| 836.5           | 8.982                          | 8.998      |

n5,10MHz Bandwidth,DFT-s-pi/2 BPSK (99% BW)



n5,10MHz Bandwidth,DFT-s-QPSK (99% BW)



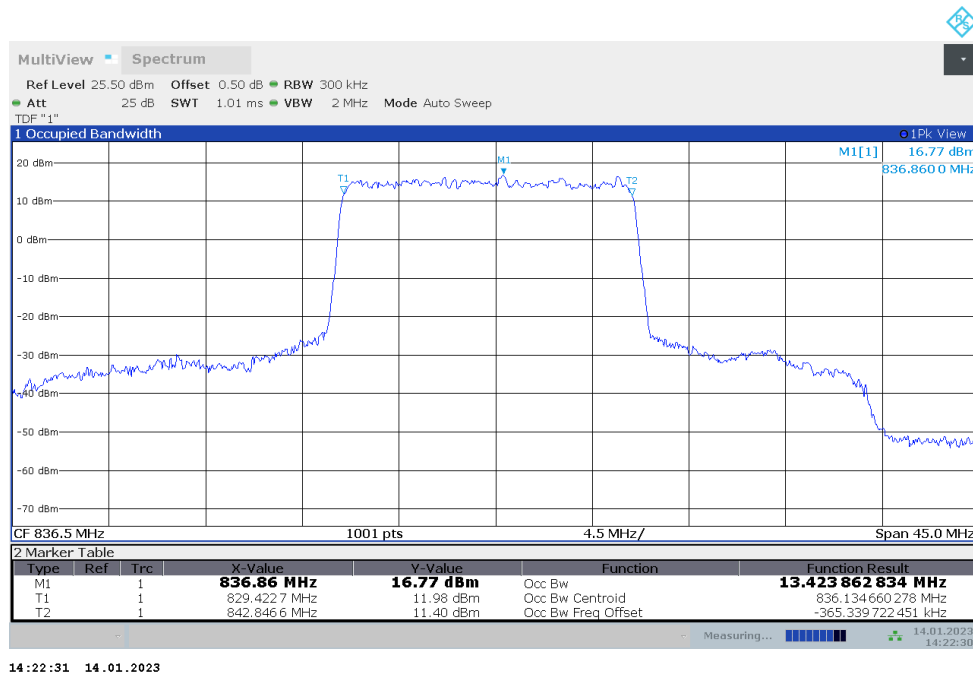


n5

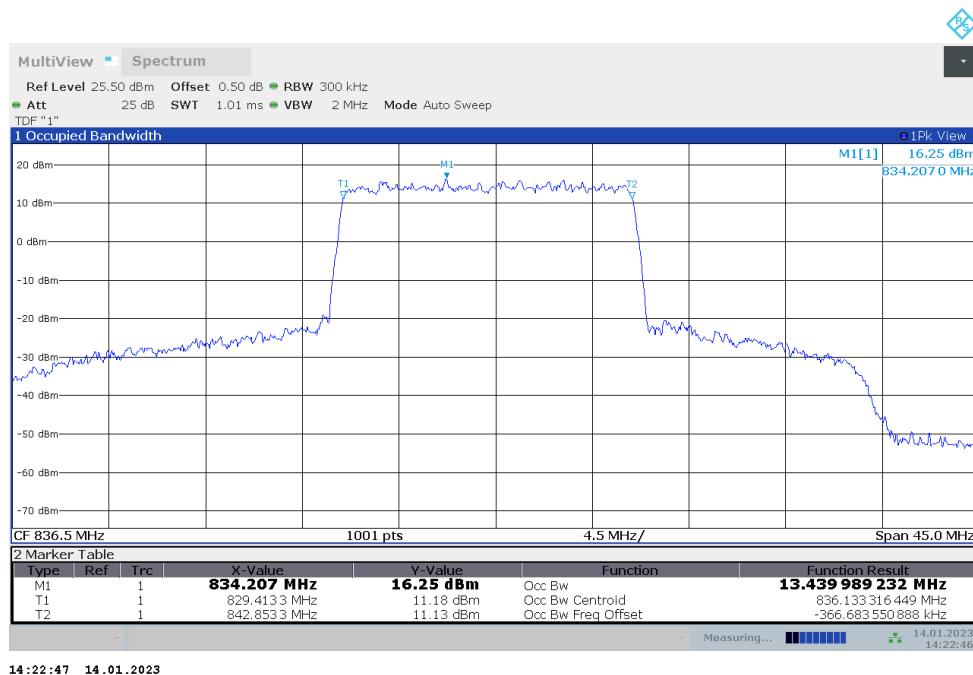
n5,15MHz(99%)

| Frequency (MHz) | Occupied Bandwidth (99%) (MHz) |            |
|-----------------|--------------------------------|------------|
|                 | DFT-s-pi/2 BPSK                | DFT-s-QPSK |
| 836.5           | 13.424                         | 13.440     |

n5,15MHz Bandwidth,DFT-s-pi/2 BPSK (99% BW)



n5,15MHz Bandwidth,DFT-s-QPSK (99% BW)

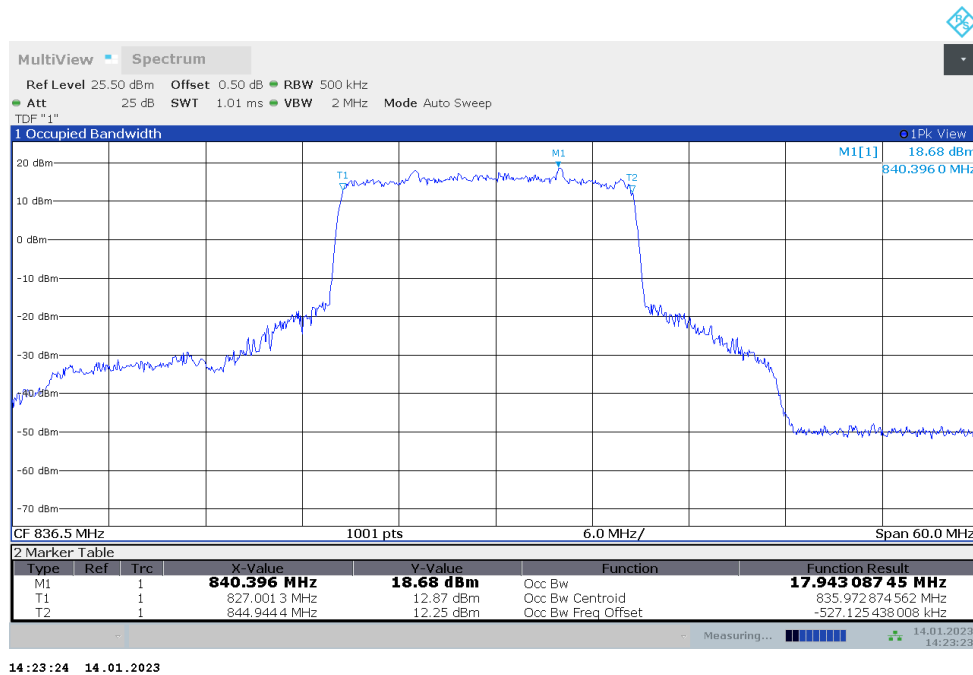


n5

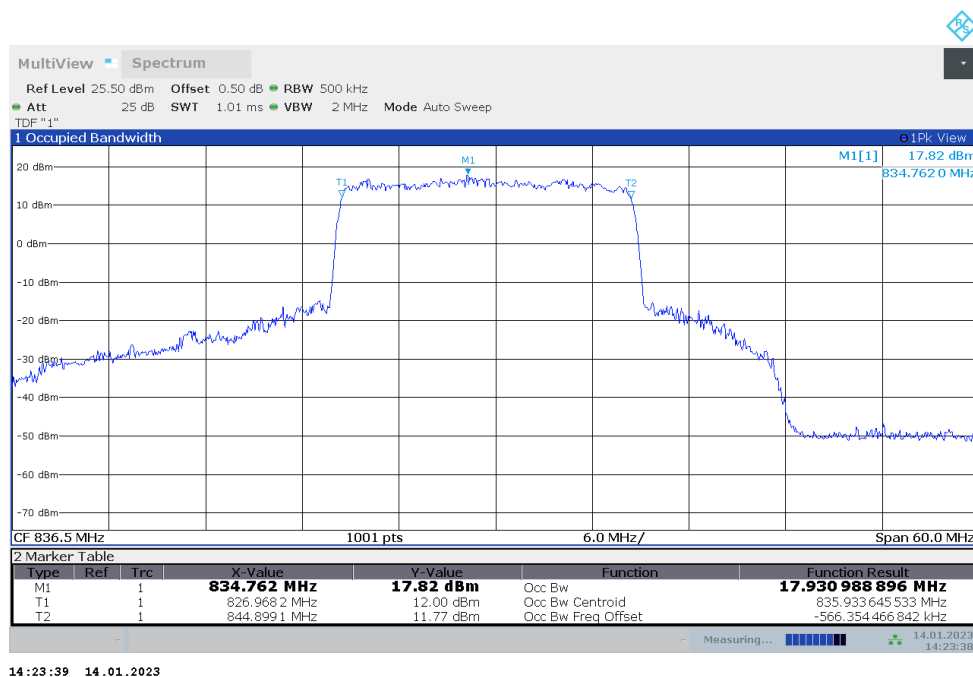
n5,20MHz(99%)

| Frequency (MHz) | Occupied Bandwidth (99%) (MHz) |            |
|-----------------|--------------------------------|------------|
|                 | DFT-s-pi/2 BPSK                | DFT-s-QPSK |
| 836.5           | 17.943                         | 17.931     |

n5,20MHz Bandwidth,DFT-s-pi/2 BPSK (99% BW)



n5,20MHz Bandwidth,DFT-s-QPSK (99% BW)

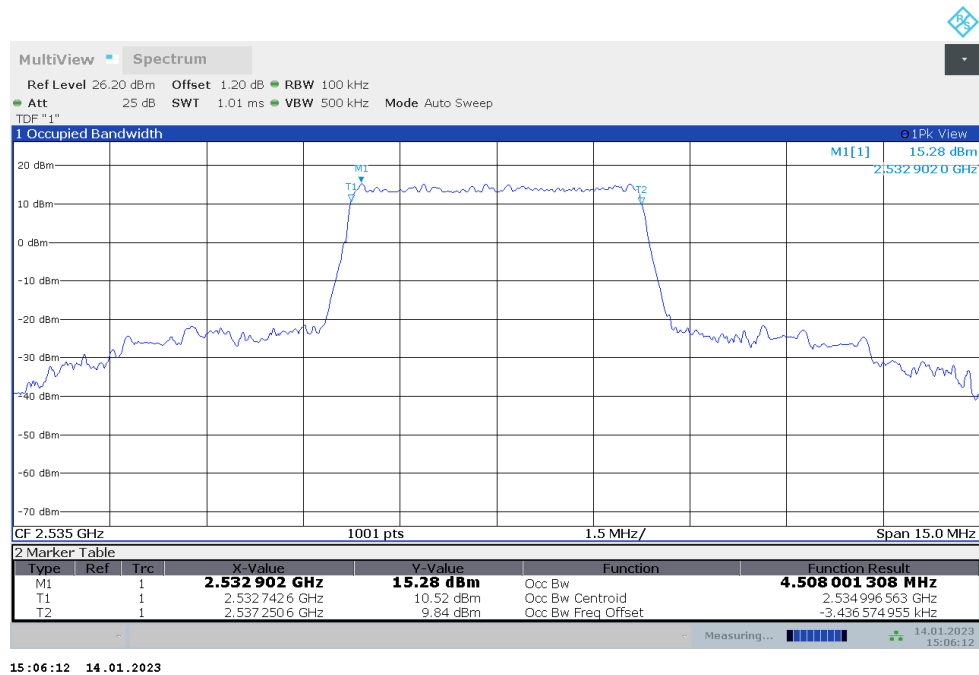


n7

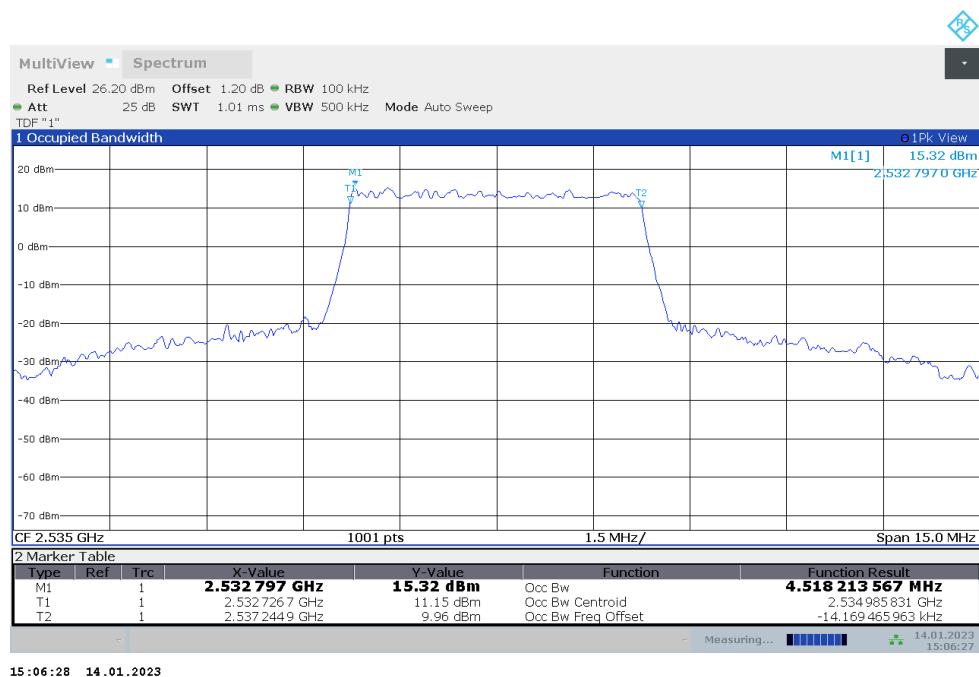
n7,5MHz(99%)

| Frequency (MHz) | Occupied Bandwidth (99%) (MHz) |            |
|-----------------|--------------------------------|------------|
|                 | DFT-s-pi/2 BPSK                | DFT-s-QPSK |
| 2535            | 4.508                          | 4.518      |

n7,5MHz Bandwidth,DFT-s-pi/2 BPSK (99% BW)



n7,5MHz Bandwidth,DFT-s-QPSK (99% BW)

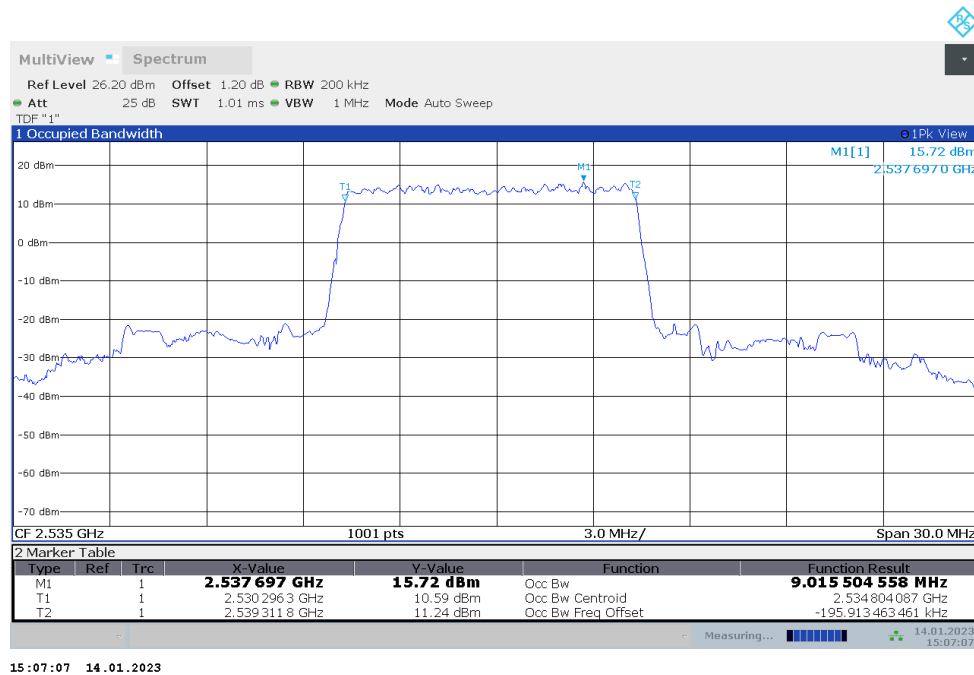


n7

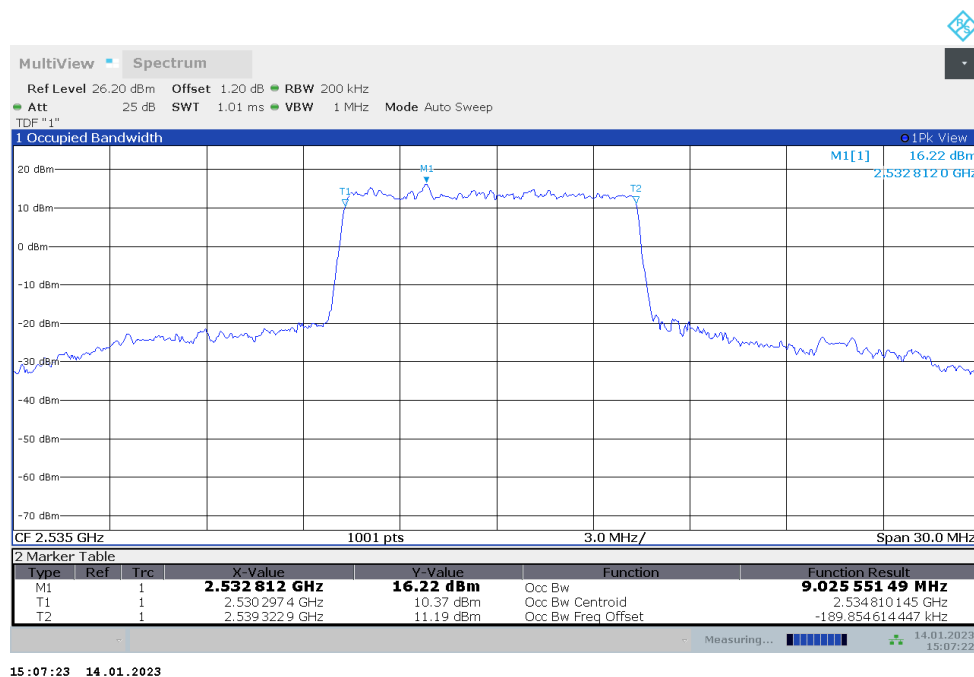
n7,10MHz(99%)

| Frequency (MHz) | Occupied Bandwidth (99%) (MHz) |            |
|-----------------|--------------------------------|------------|
|                 | DFT-s-pi/2 BPSK                | DFT-s-QPSK |
| 2535            | 9.016                          | 9.026      |

n7,10MHz Bandwidth,DFT-s-pi/2 BPSK (99% BW)



n7,10MHz Bandwidth,DFT-s-QPSK (99% BW)

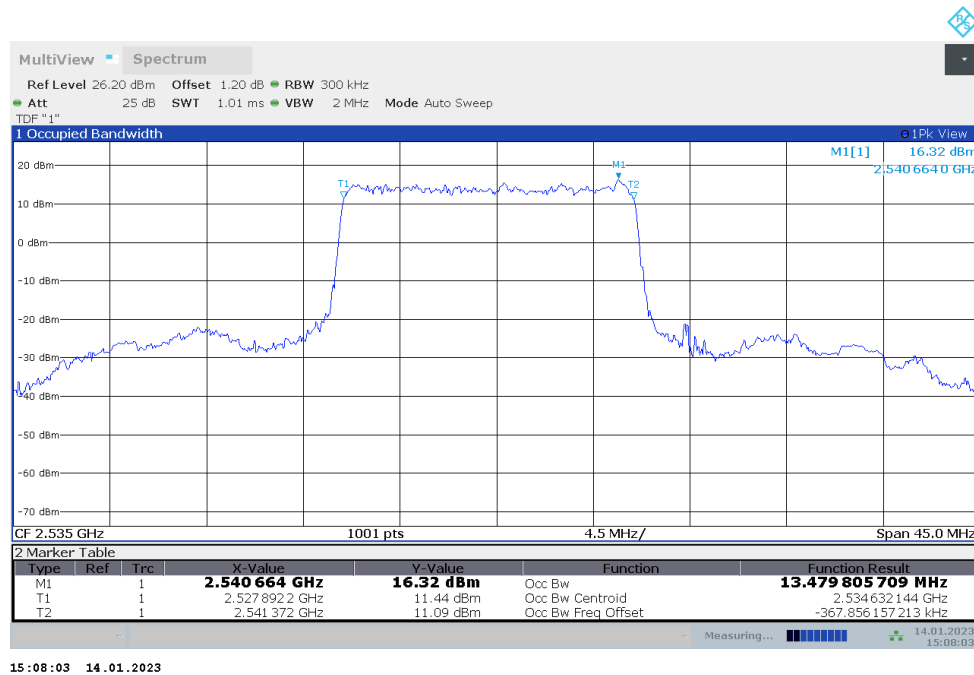


n7

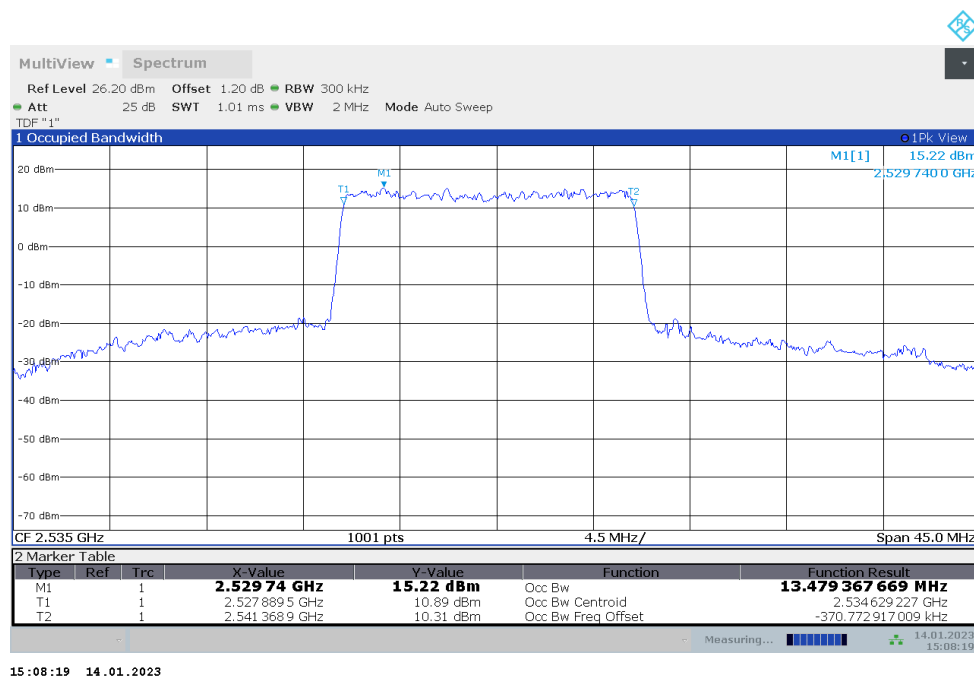
n7,15MHz(99%)

| Frequency (MHz) | Occupied Bandwidth (99%) (MHz) |            |
|-----------------|--------------------------------|------------|
|                 | DFT-s-pi/2 BPSK                | DFT-s-QPSK |
| 2535            | 13.480                         | 13.479     |

n7,15MHz Bandwidth,DFT-s-pi/2 BPSK (99% BW)



n7,15MHz Bandwidth,DFT-s-QPSK (99% BW)

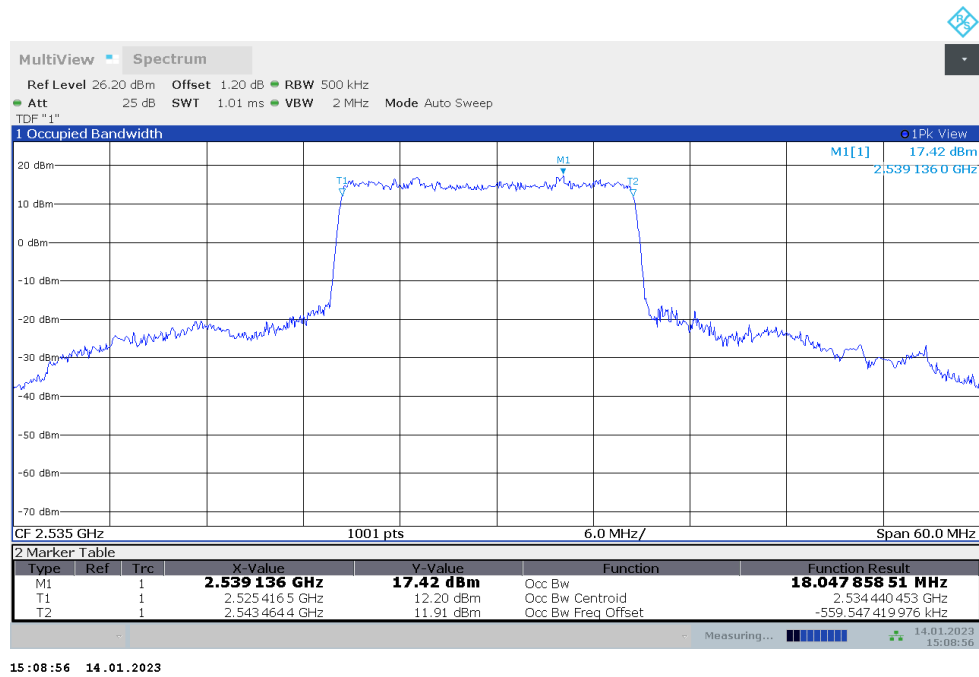


n7

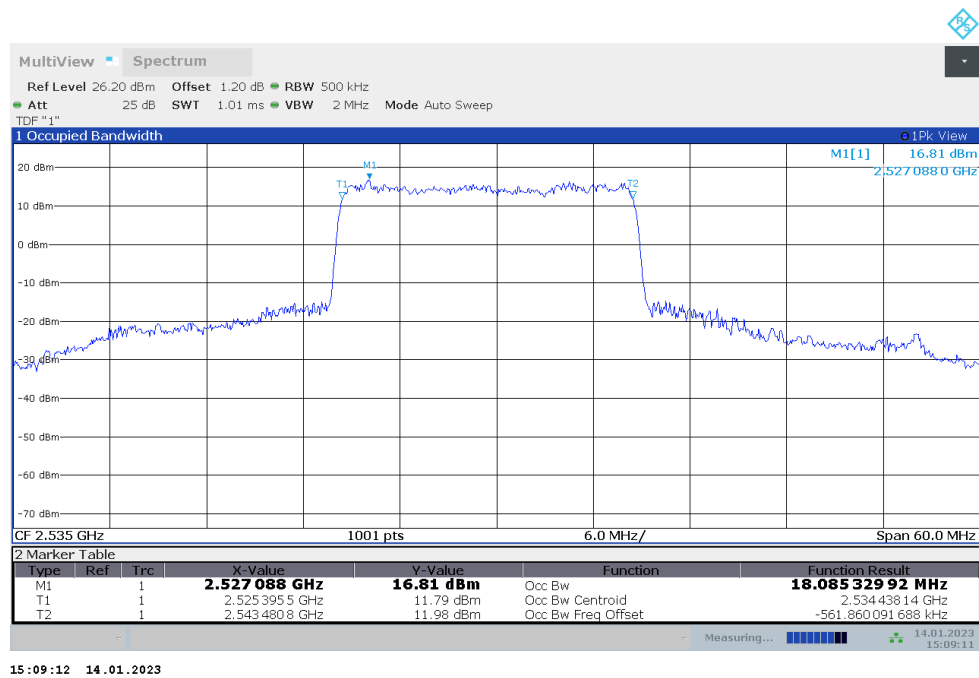
n7,20MHz(99%)

| Frequency (MHz) | Occupied Bandwidth (99%) (MHz) |            |
|-----------------|--------------------------------|------------|
|                 | DFT-s-pi/2 BPSK                | DFT-s-QPSK |
| 2535            | 18.048                         | 18.085     |

n7,20MHz Bandwidth,DFT-s-pi/2 BPSK (99% BW)



n7,20MHz Bandwidth,DFT-s-QPSK (99% BW)

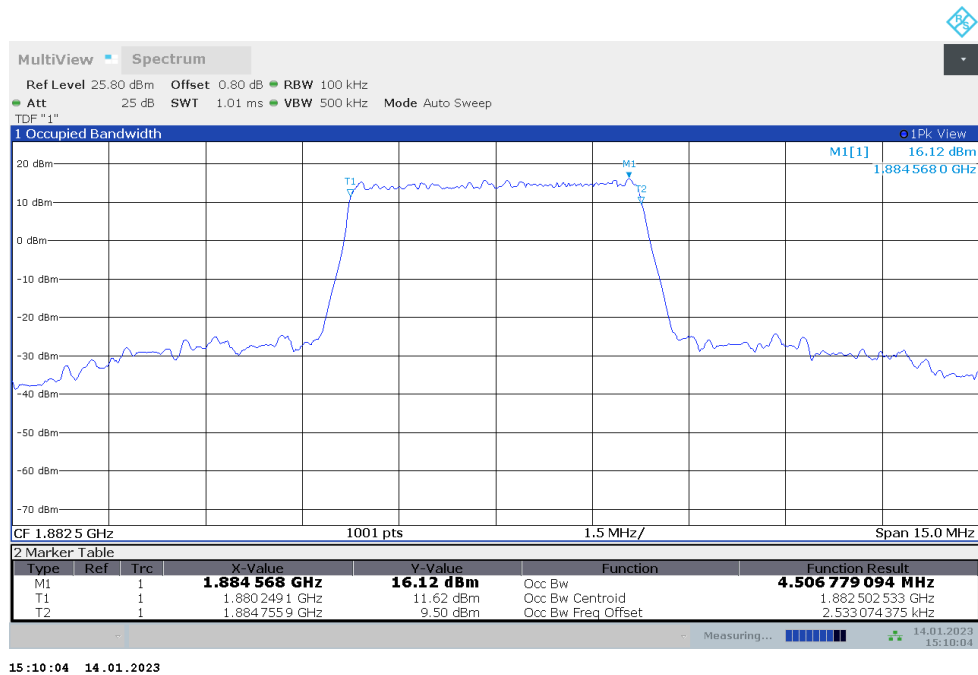


n25

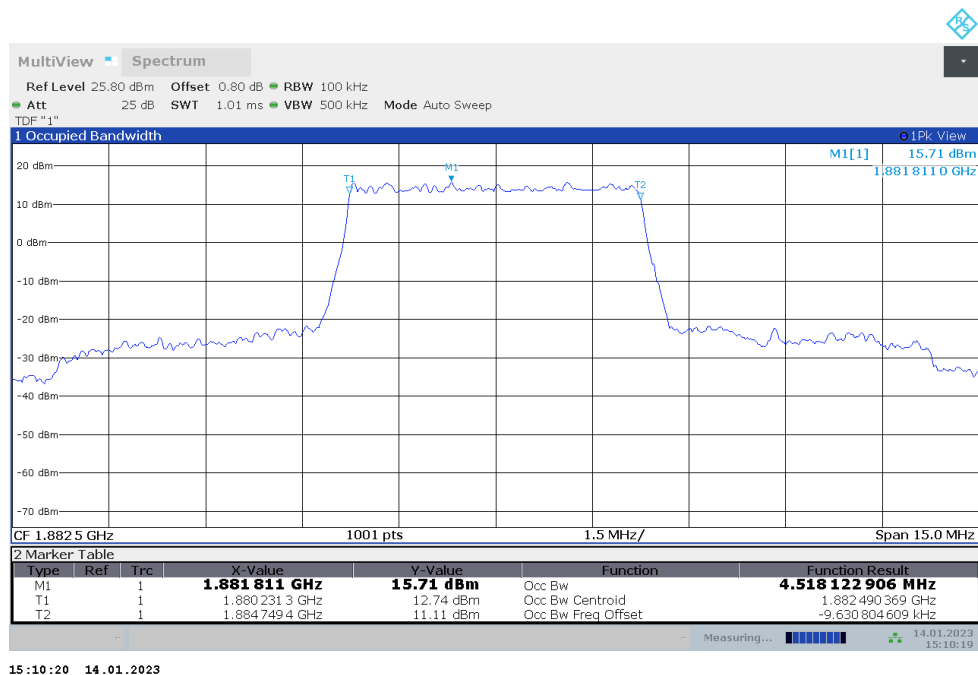
n25,5MHz(99%)

| Frequency (MHz) | Occupied Bandwidth (99%) (MHz) |            |
|-----------------|--------------------------------|------------|
|                 | DFT-s-pi/2 BPSK                | DFT-s-QPSK |
| 1882.5          | 4.507                          | 4.518      |

n25,5MHz Bandwidth,DFT-s-pi/2 BPSK (99% BW)



n25,5MHz Bandwidth,DFT-s-QPSK (99% BW)

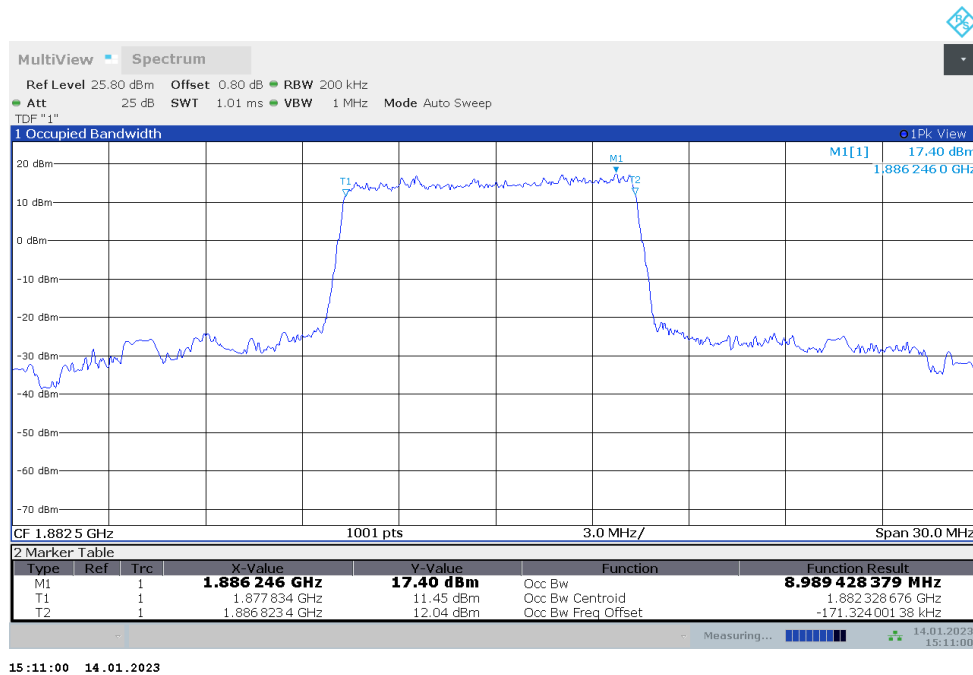


n25

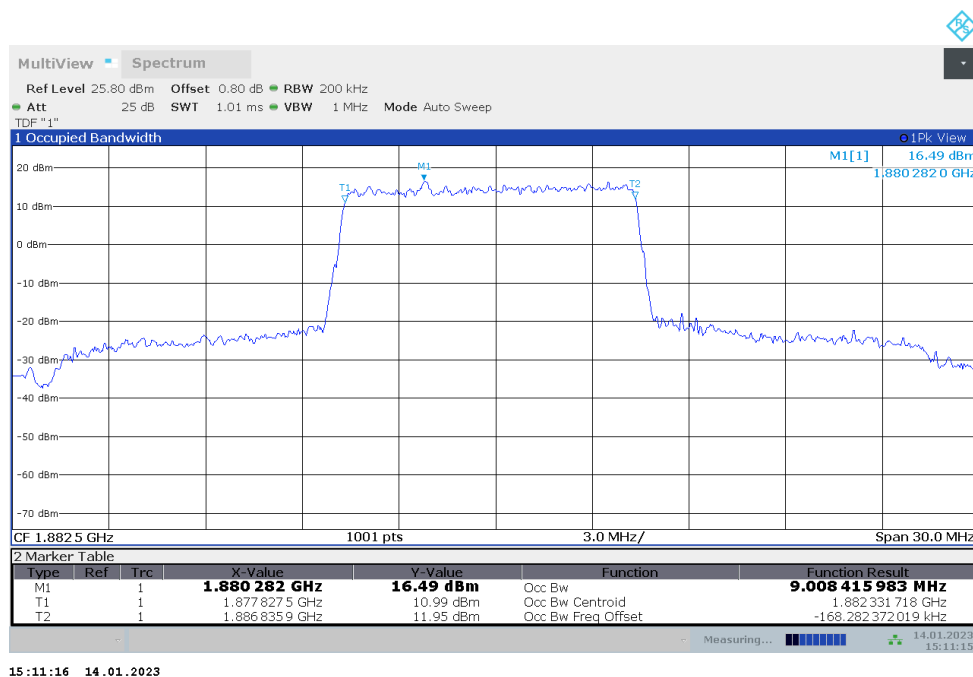
n25,10MHz(99%)

| Frequency (MHz) | Occupied Bandwidth (99%) (MHz) |            |
|-----------------|--------------------------------|------------|
|                 | DFT-s-pi/2 BPSK                | DFT-s-QPSK |
| 1882.5          | 8.989                          | 9.008      |

n25,10MHz Bandwidth,DFT-s-pi/2 BPSK (99% BW)



n25,10MHz Bandwidth,DFT-s-QPSK (99% BW)



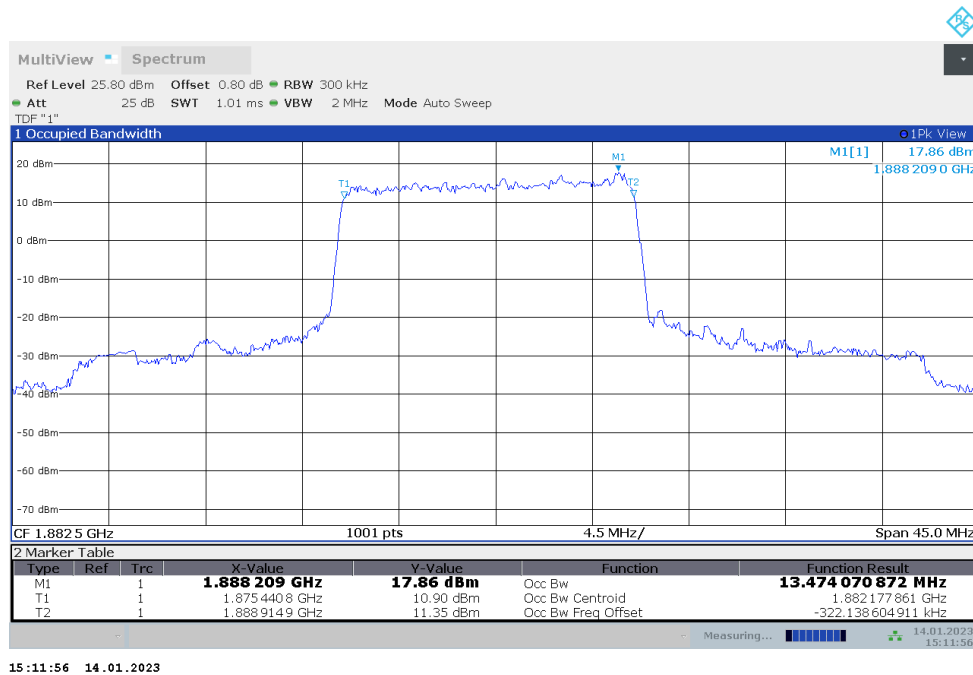


n25

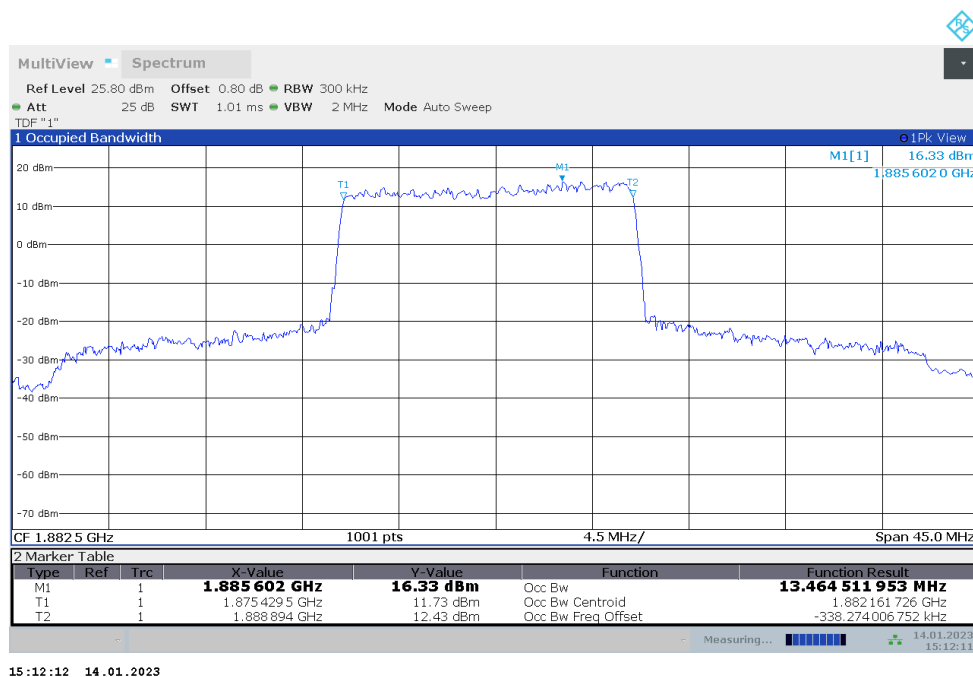
n25,15MHz(99%)

| Frequency (MHz) | Occupied Bandwidth (99%) (MHz) |            |
|-----------------|--------------------------------|------------|
|                 | DFT-s-pi/2 BPSK                | DFT-s-QPSK |
| 1882.5          | 13.474                         | 13.465     |

n25,15MHz Bandwidth,DFT-s-pi/2 BPSK (99% BW)



n25,15MHz Bandwidth,DFT-s-QPSK (99% BW)

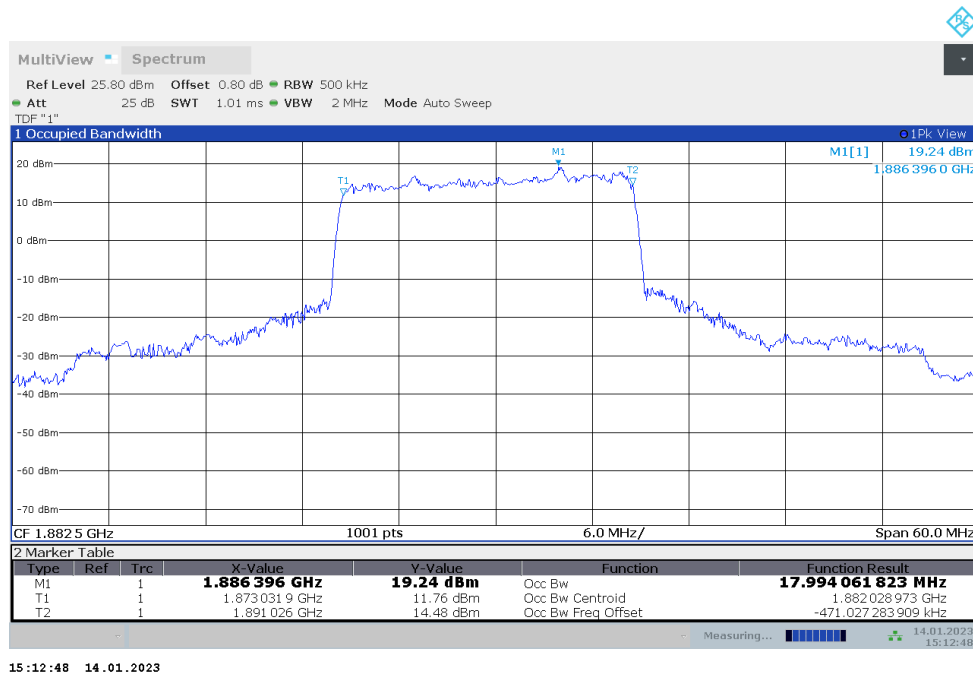


n25

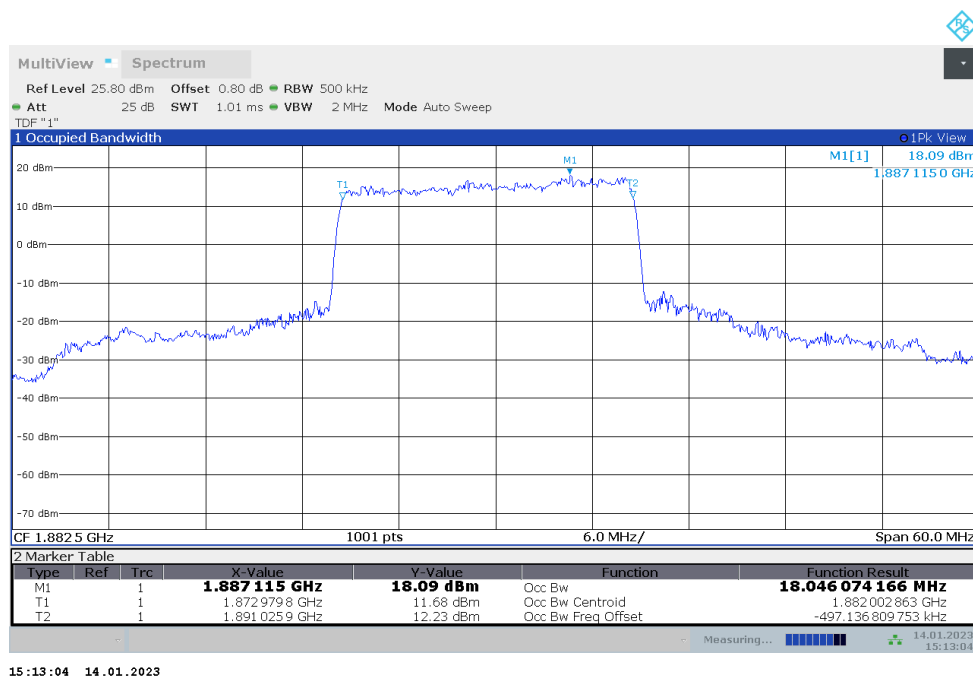
n25,20MHz(99%)

| Frequency (MHz) | Occupied Bandwidth (99%) (MHz) |            |
|-----------------|--------------------------------|------------|
|                 | DFT-s-pi/2 BPSK                | DFT-s-QPSK |
| 1882.5          | 17.994                         | 18.046     |

n25,20MHz Bandwidth,DFT-s-pi/2 BPSK (99% BW)



n25,20MHz Bandwidth,DFT-s-QPSK (99% BW)

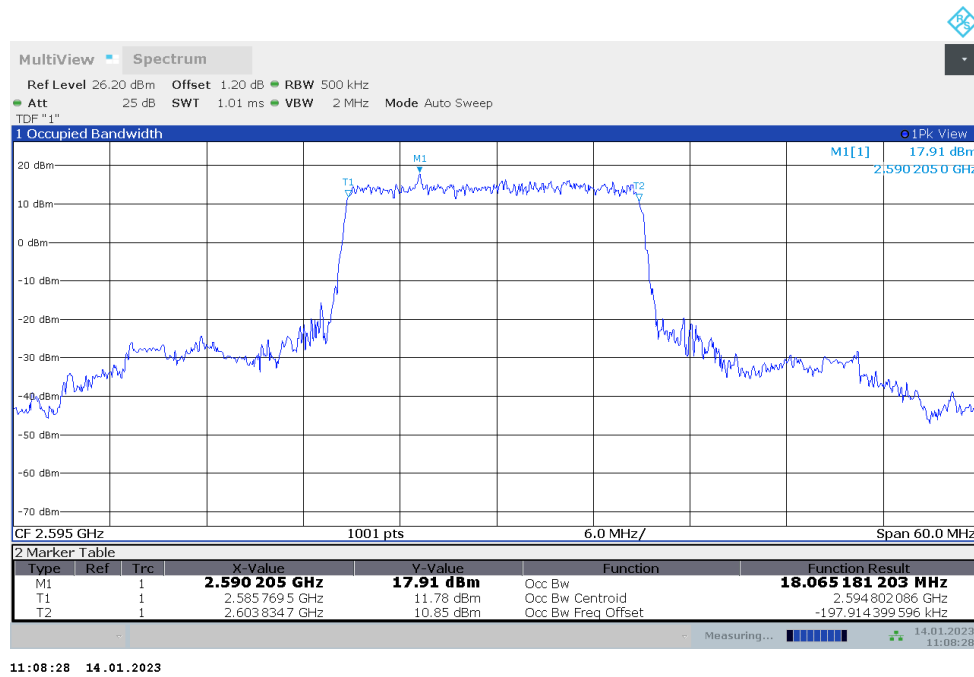


n38

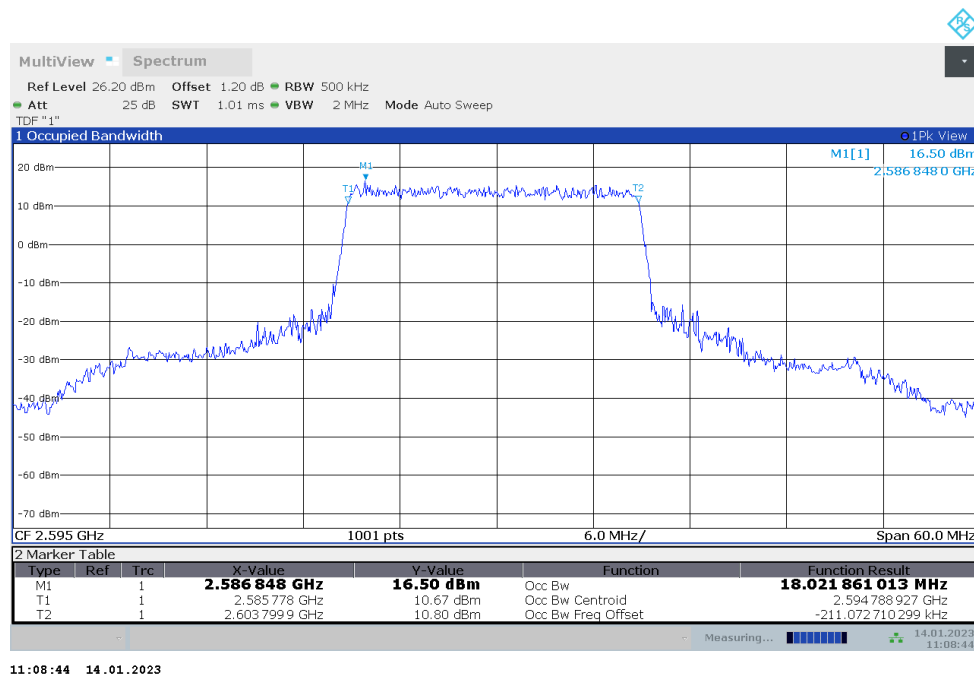
n38,20MHz(99%)

| Frequency (MHz) | Occupied Bandwidth (99%) (MHz) |            |
|-----------------|--------------------------------|------------|
|                 | DFT-s-pi/2 BPSK                | DFT-s-QPSK |
| 2595            | 18.065                         | 18.022     |

n38,20MHz Bandwidth,DFT-s-pi/2 BPSK (99% BW)



n38,20MHz Bandwidth,DFT-s-QPSK (99% BW)

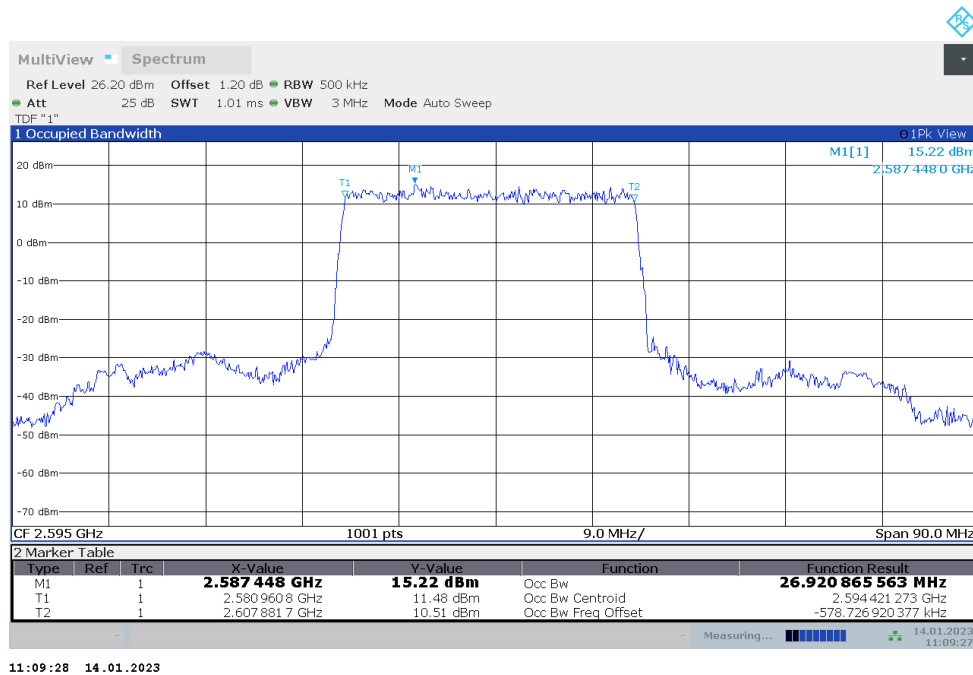


n38

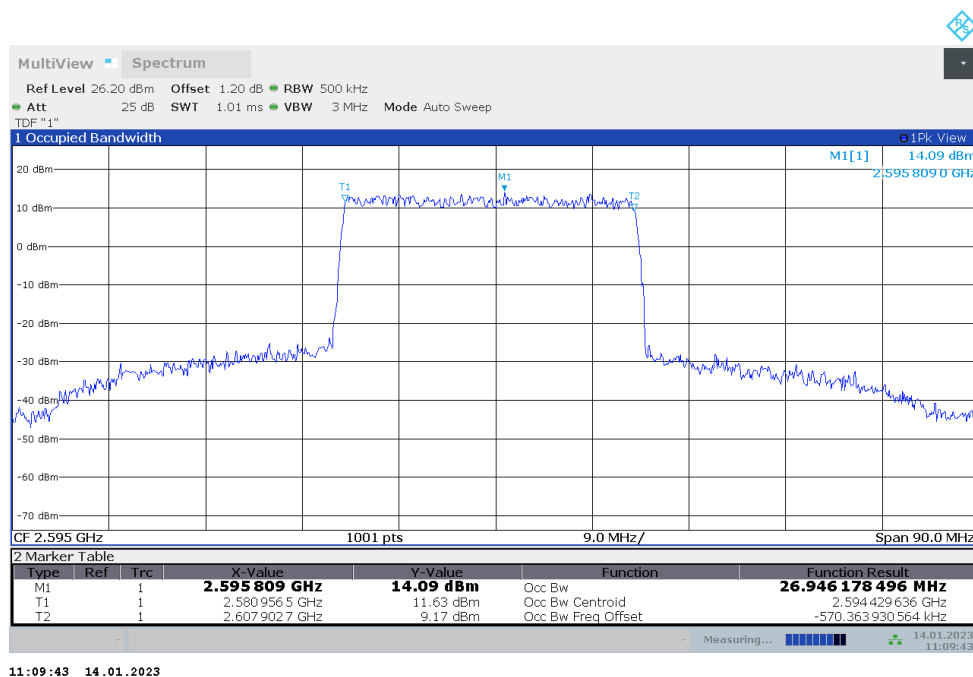
n38,30MHz(99%)

| Frequency (MHz) | Occupied Bandwidth (99%) (MHz) |            |
|-----------------|--------------------------------|------------|
|                 | DFT-s-pi/2 BPSK                | DFT-s-QPSK |
| 2595            | 26.921                         | 26.946     |

n38,30MHz Bandwidth,DFT-s-pi/2 BPSK (99% BW)



n38,30MHz Bandwidth,DFT-s-QPSK (99% BW)

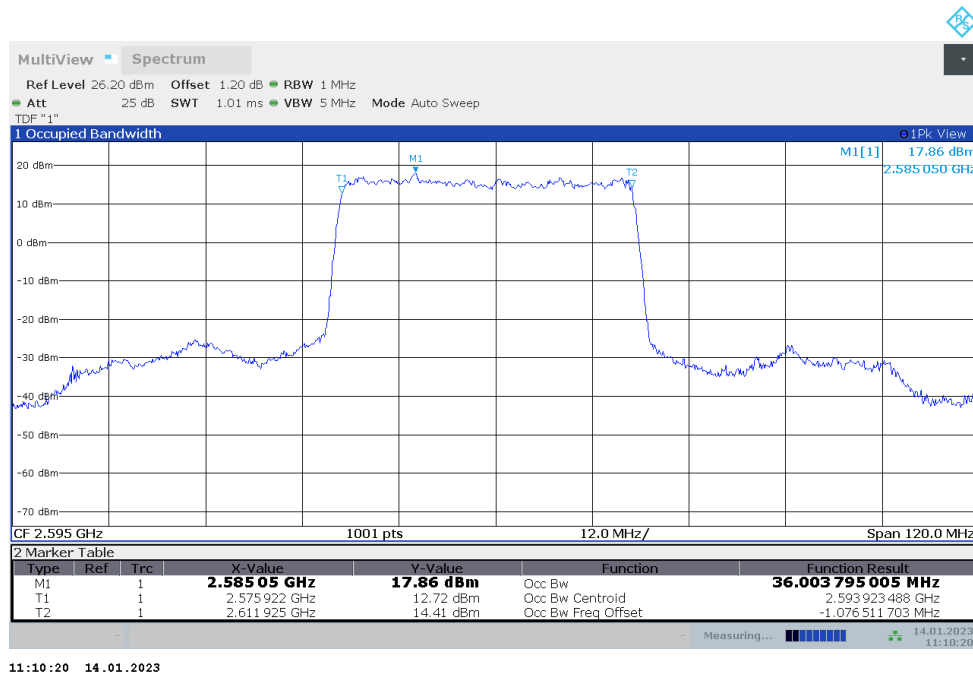


n38

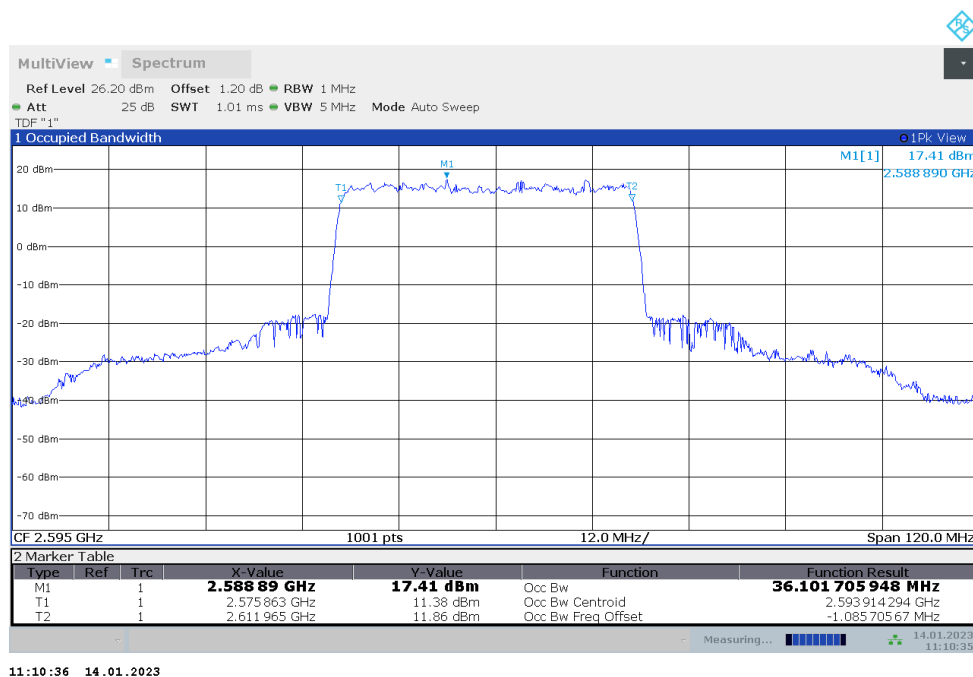
n38,40MHz(99%)

| Frequency (MHz) | Occupied Bandwidth (99%) (MHz) |            |
|-----------------|--------------------------------|------------|
|                 | DFT-s-pi/2 BPSK                | DFT-s-QPSK |
| 2595            | 36.004                         | 36.102     |

n38,40MHz Bandwidth,DFT-s-pi/2 BPSK (99% BW)



n38,40MHz Bandwidth,DFT-s-QPSK (99% BW)

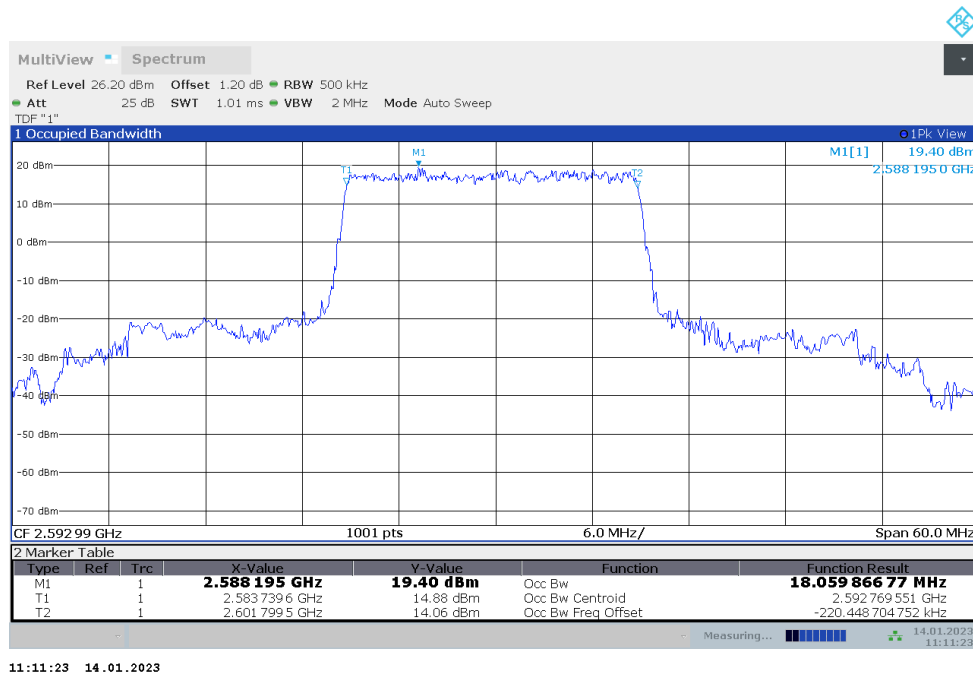


n41

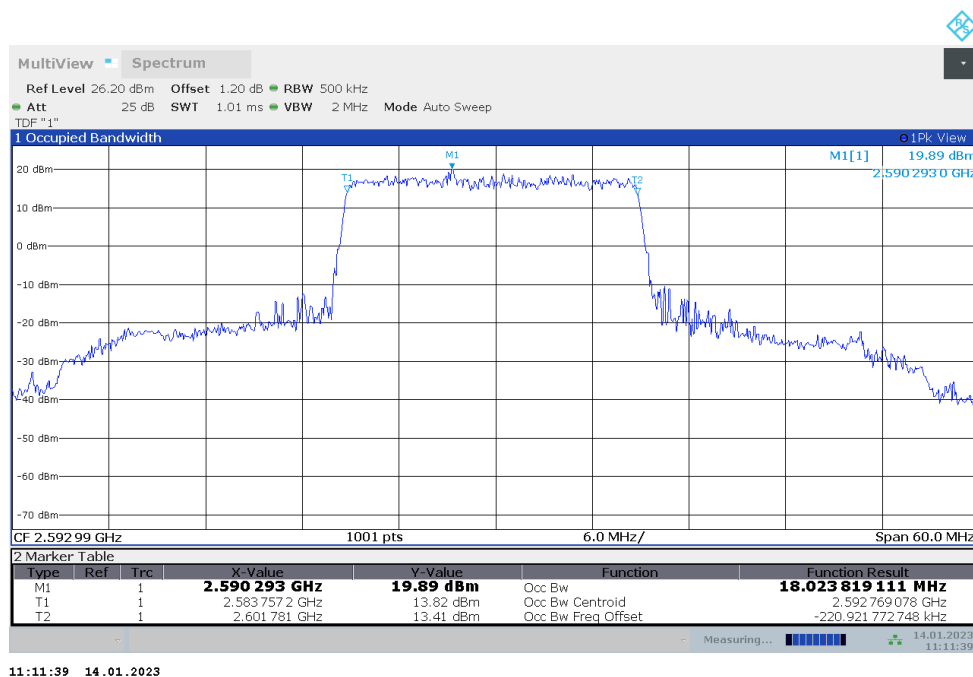
n41,20MHz(99%)

| Frequency (MHz) | Occupied Bandwidth (99%) (MHz) |            |
|-----------------|--------------------------------|------------|
|                 | DFT-s-pi/2 BPSK                | DFT-s-QPSK |
| 2592.99         | 18.060                         | 18.024     |

n41,20MHz Bandwidth,DFT-s-pi/2 BPSK (99% BW)



n41,20MHz Bandwidth,DFT-s-QPSK (99% BW)

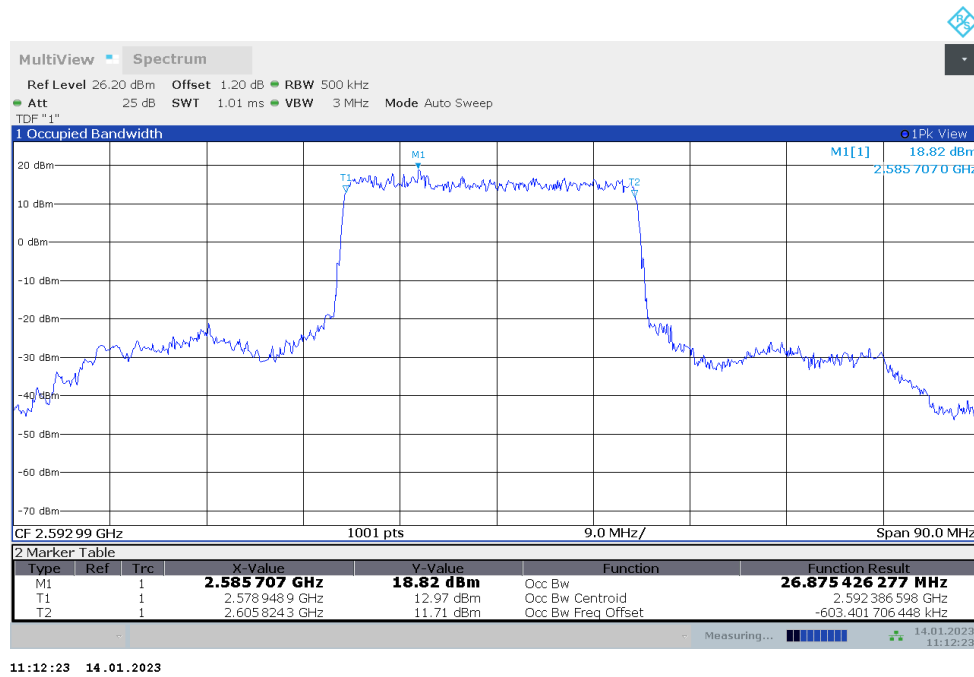


n41

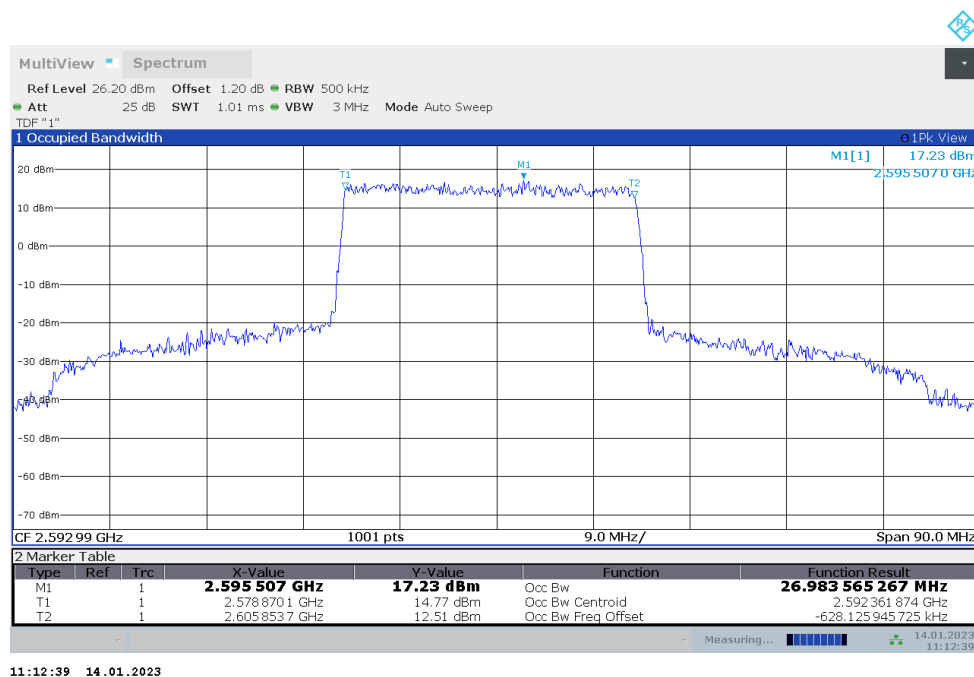
n41,30MHz(99%)

| Frequency (MHz) | Occupied Bandwidth (99%) (MHz) |            |
|-----------------|--------------------------------|------------|
|                 | DFT-s-pi/2 BPSK                | DFT-s-QPSK |
| 2592.99         | 26.875                         | 26.984     |

n41,30MHz Bandwidth,DFT-s-pi/2 BPSK (99% BW)



n41,30MHz Bandwidth,DFT-s-QPSK (99% BW)

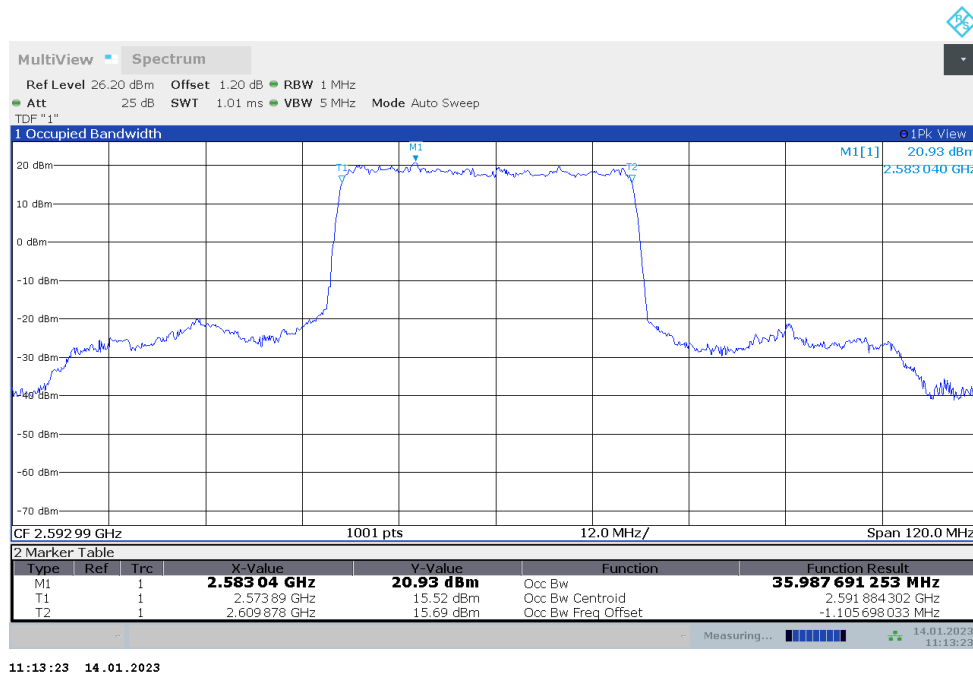


n41

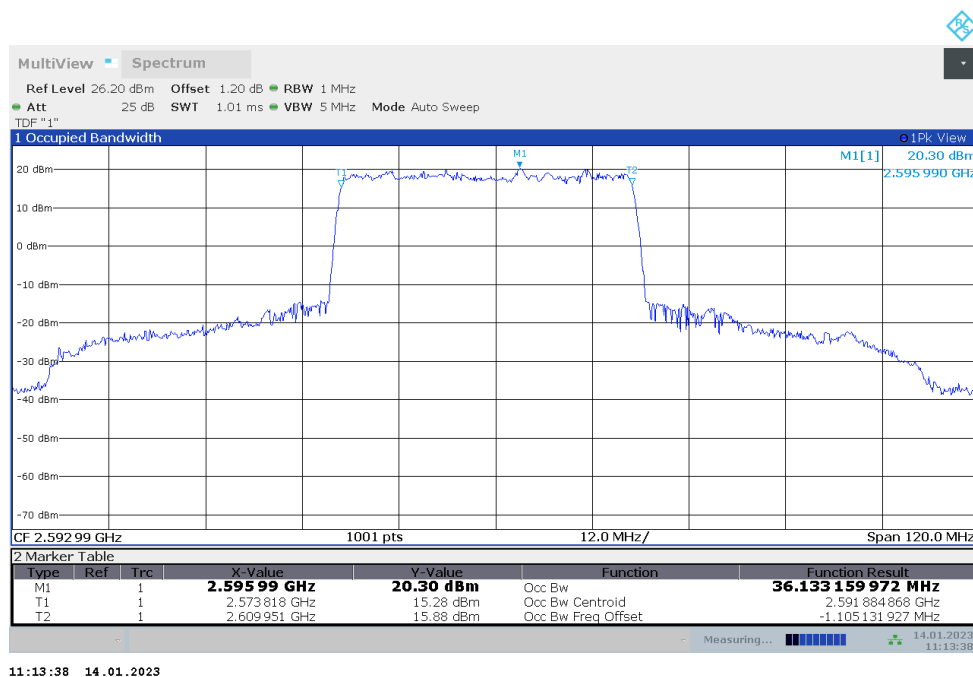
n41,40MHz(99%)

| Frequency (MHz) | Occupied Bandwidth (99%) (MHz) |            |
|-----------------|--------------------------------|------------|
|                 | DFT-s-pi/2 BPSK                | DFT-s-QPSK |
| 2592.99         | 35.988                         | 36.133     |

n41,40MHz Bandwidth,DFT-s-pi/2 BPSK (99% BW)



n41,40MHz Bandwidth,DFT-s-QPSK (99% BW)



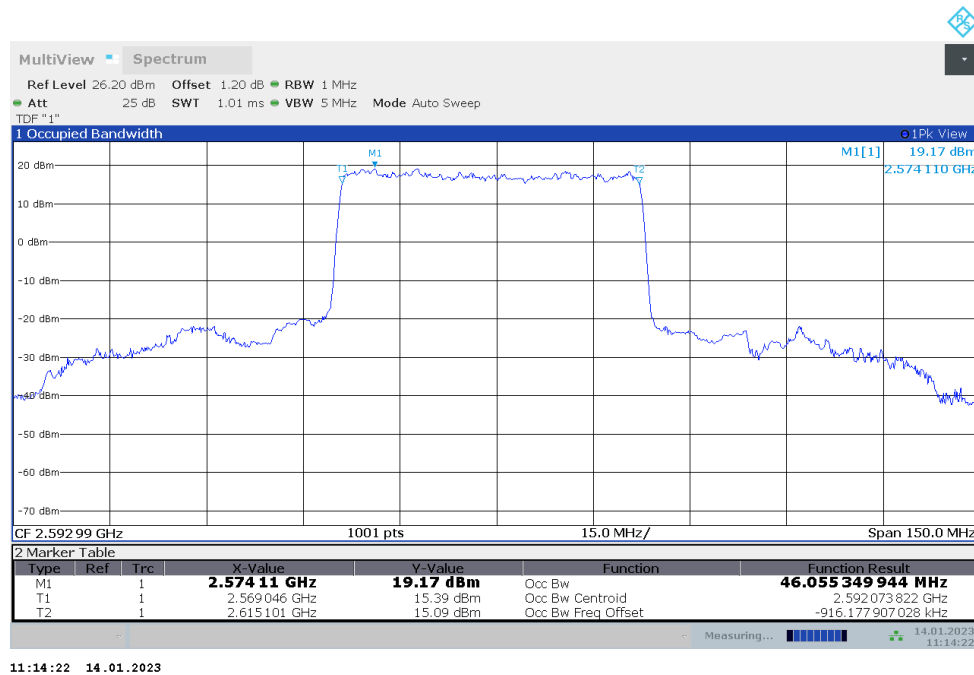


n41

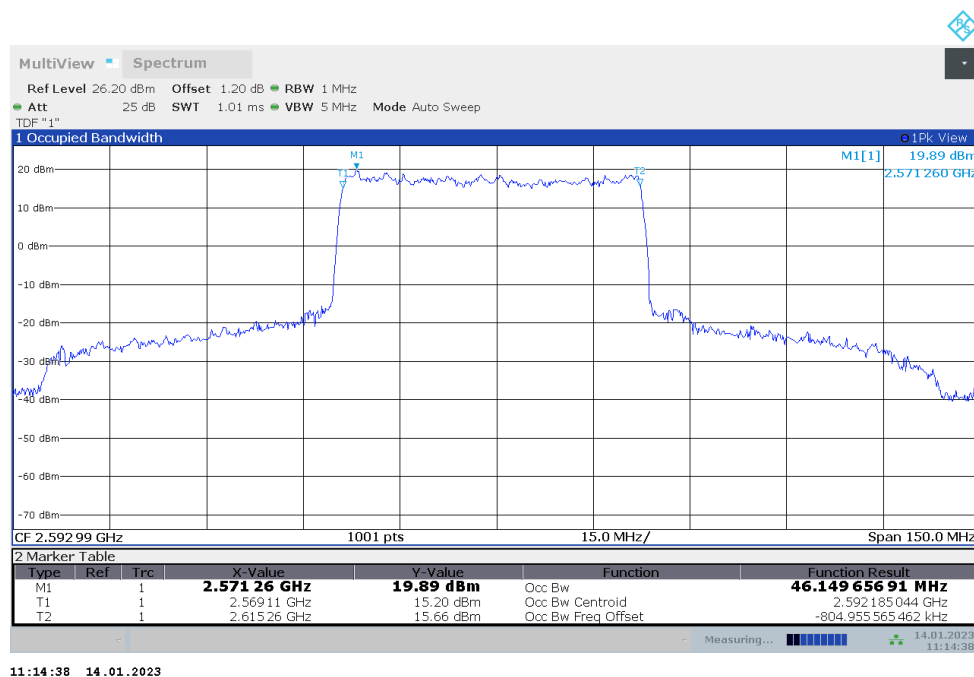
n41,50MHz(99%)

| Frequency (MHz) | Occupied Bandwidth (99%) (MHz) |            |
|-----------------|--------------------------------|------------|
|                 | DFT-s-pi/2 BPSK                | DFT-s-QPSK |
| 2592.99         | 46.055                         | 46.150     |

n41,50MHz Bandwidth,DFT-s-pi/2 BPSK (99% BW)



n41,50MHz Bandwidth,DFT-s-QPSK (99% BW)

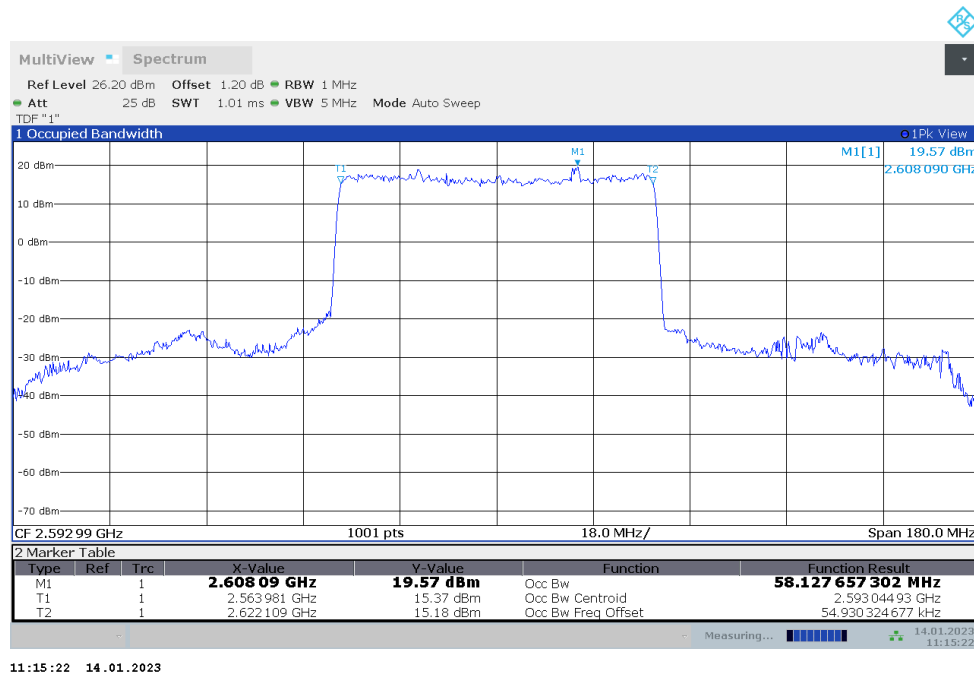


n41

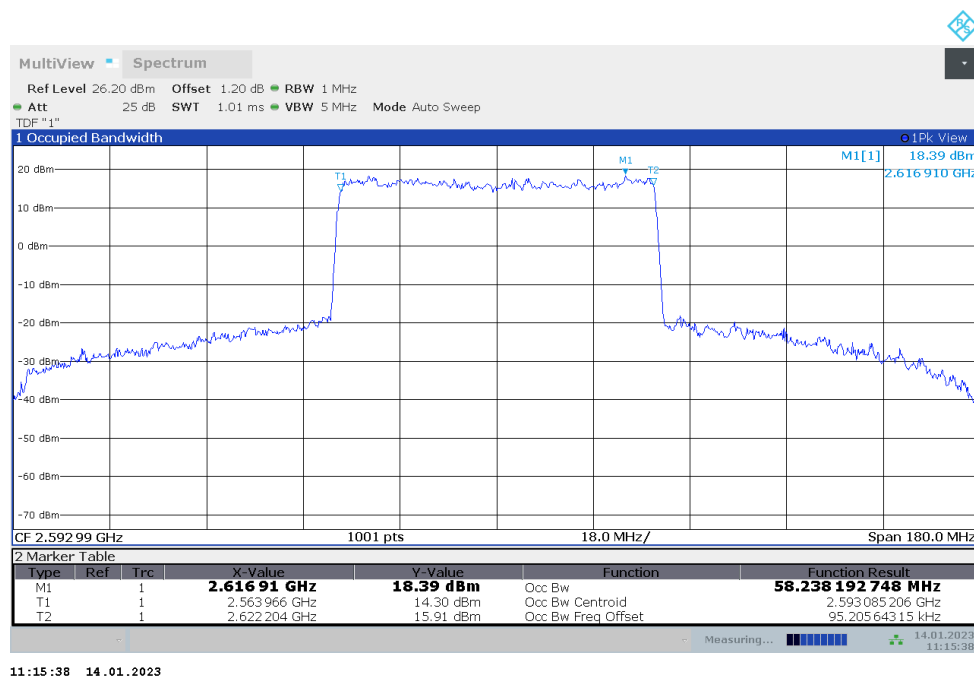
n41,60MHz(99%)

| Frequency (MHz) | Occupied Bandwidth (99%) (MHz) |            |
|-----------------|--------------------------------|------------|
|                 | DFT-s-pi/2 BPSK                | DFT-s-QPSK |
| 2592.99         | 58.128                         | 58.238     |

n41,60MHz Bandwidth,DFT-s-pi/2 BPSK (99% BW)



n41,60MHz Bandwidth,DFT-s-QPSK (99% BW)

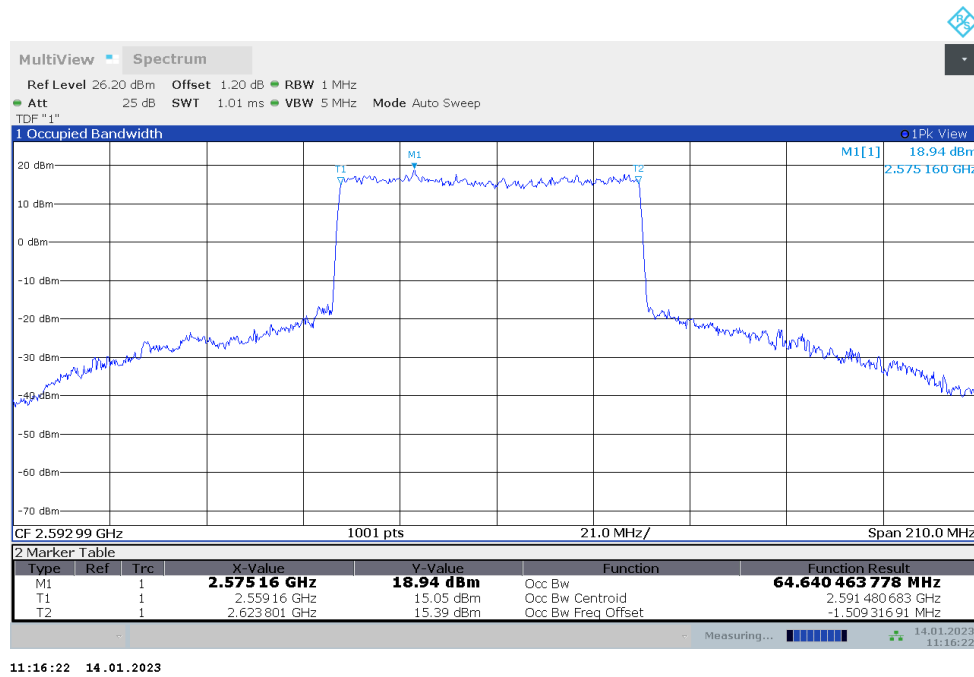


n41

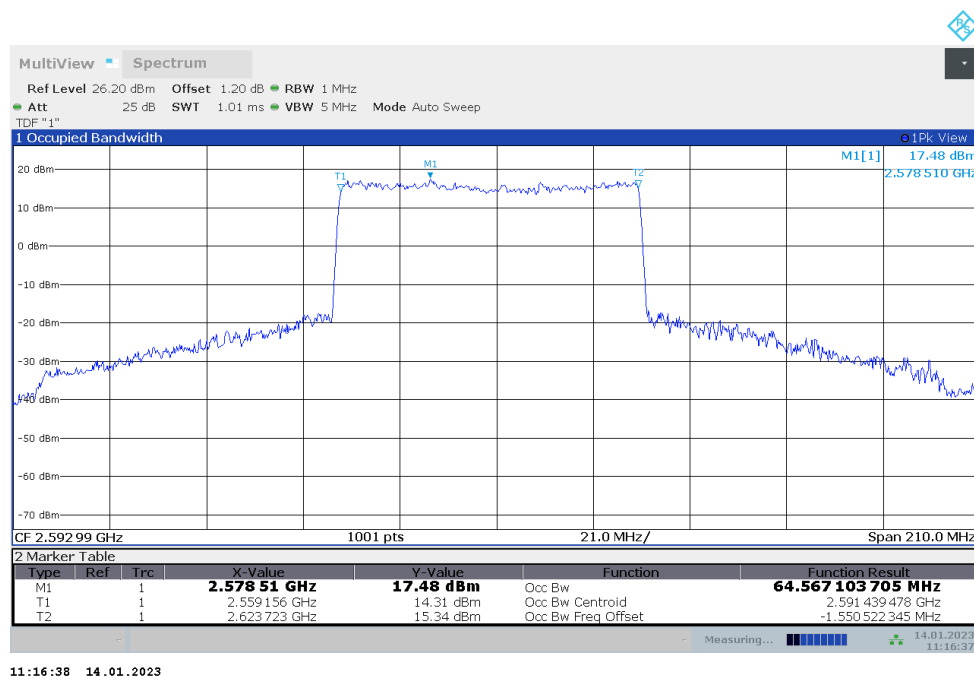
n41,70MHz(99%)

| Frequency (MHz) | Occupied Bandwidth (99%) (MHz) |            |
|-----------------|--------------------------------|------------|
|                 | DFT-s-pi/2 BPSK                | DFT-s-QPSK |
| 2592.99         | 64.640                         | 64.567     |

n41,70MHz Bandwidth,DFT-s-pi/2 BPSK (99% BW)



n41,70MHz Bandwidth,DFT-s-QPSK (99% BW)

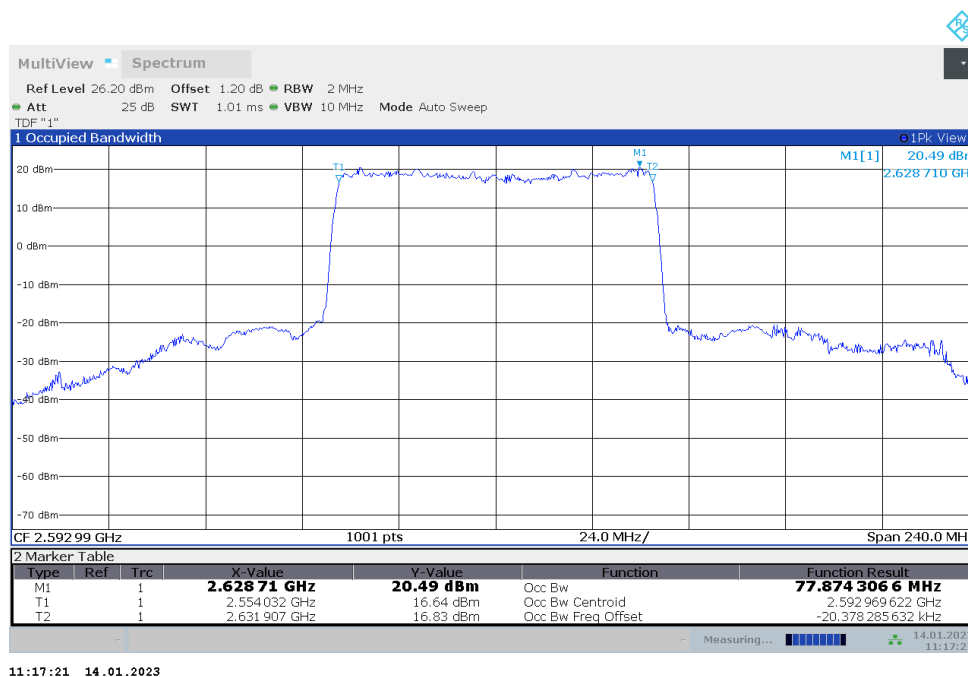


n41

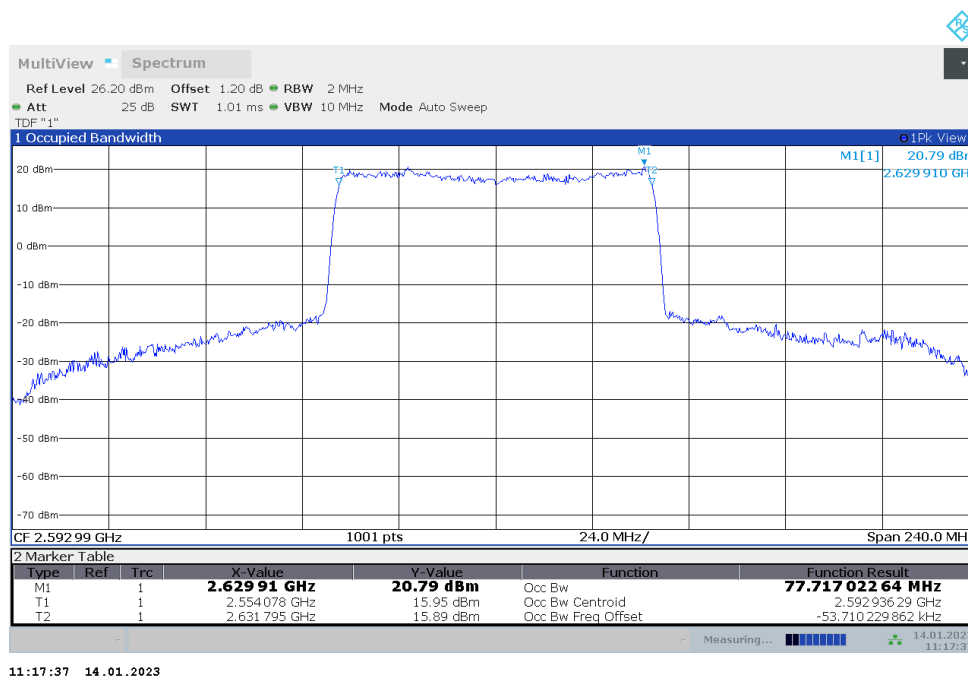
n41,80MHz(99%)

| Frequency (MHz) | Occupied Bandwidth (99%) (MHz) |            |
|-----------------|--------------------------------|------------|
|                 | DFT-s-pi/2 BPSK                | DFT-s-QPSK |
| 2592.99         | 77.874                         | 77.717     |

n41,80MHz Bandwidth,DFT-s-pi/2 BPSK (99% BW)



n41,80MHz Bandwidth,DFT-s-QPSK (99% BW)

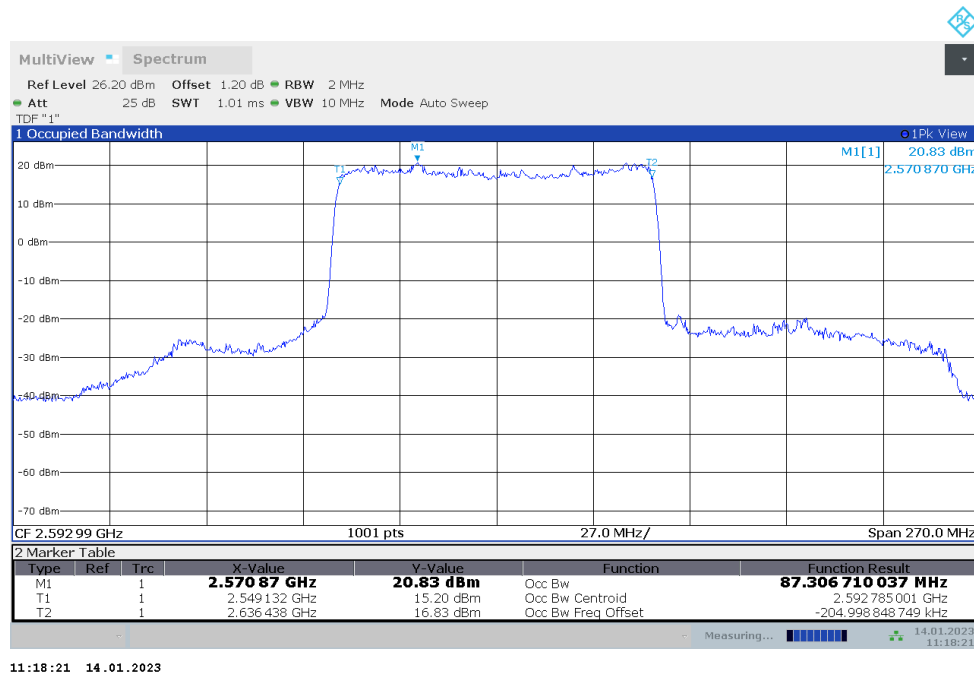


n41

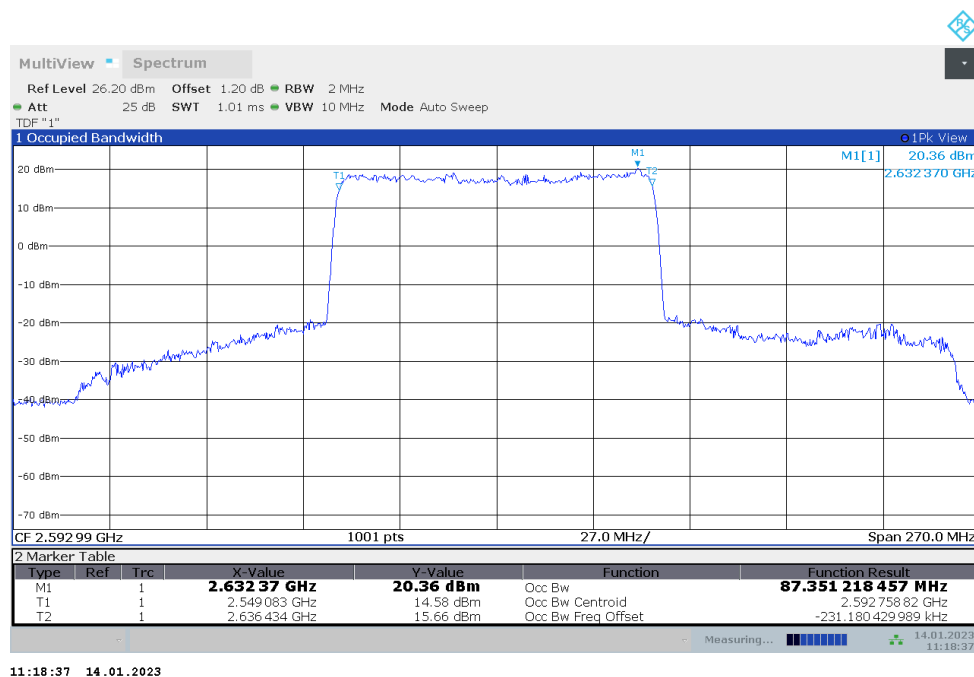
n41,90MHz(99%)

| Frequency (MHz) | Occupied Bandwidth (99%) (MHz) |            |
|-----------------|--------------------------------|------------|
|                 | DFT-s-pi/2 BPSK                | DFT-s-QPSK |
| 2592.99         | 87.307                         | 87.351     |

n41,90MHz Bandwidth,DFT-s-pi/2 BPSK (99% BW)



n41,90MHz Bandwidth,DFT-s-QPSK (99% BW)

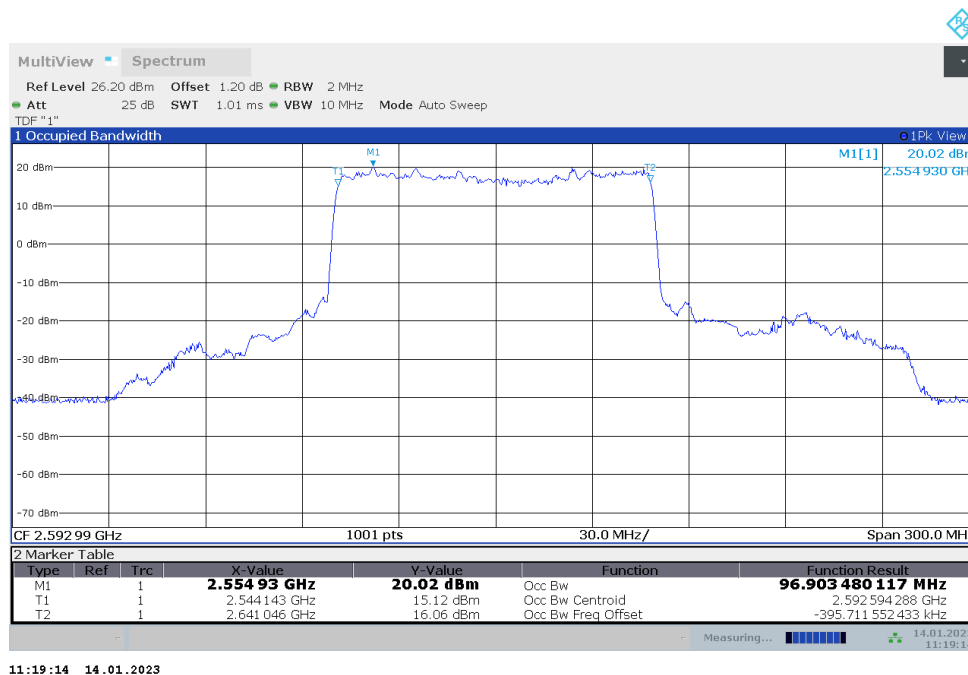


n41

n41,100MHz(99%)

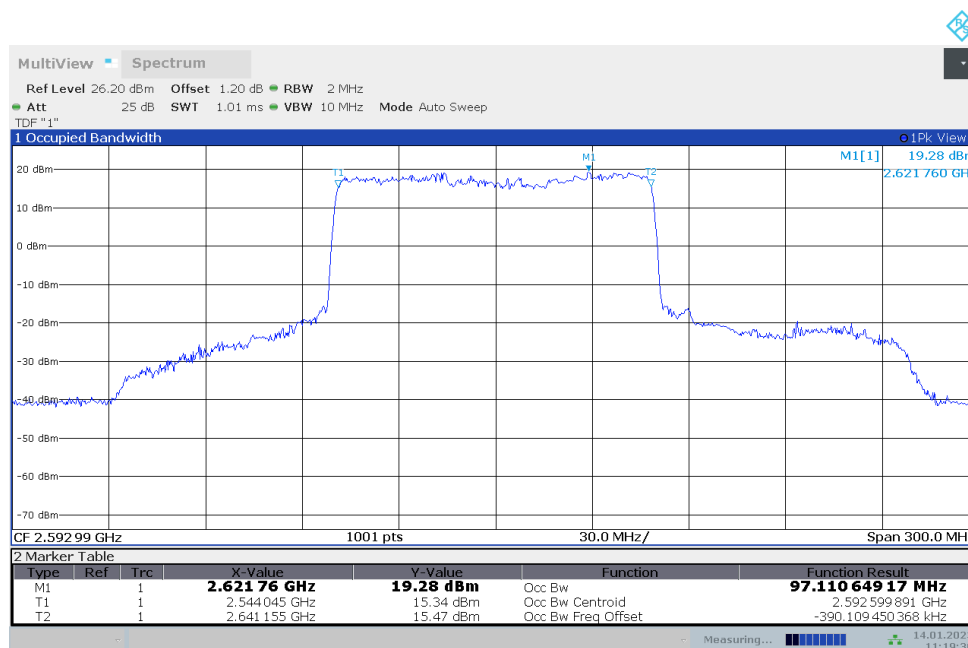
| Frequency (MHz) | Occupied Bandwidth (99%) (MHz) |            |
|-----------------|--------------------------------|------------|
|                 | DFT-s-pi/2 BPSK                | DFT-s-QPSK |
| 2592.99         | 96.903                         | 97.111     |

n41,100MHz Bandwidth,DFT-s-pi/2 BPSK (99% BW)



11:19:14 14.01.2023

n41,100MHz Bandwidth,DFT-s-QPSK (99% BW)



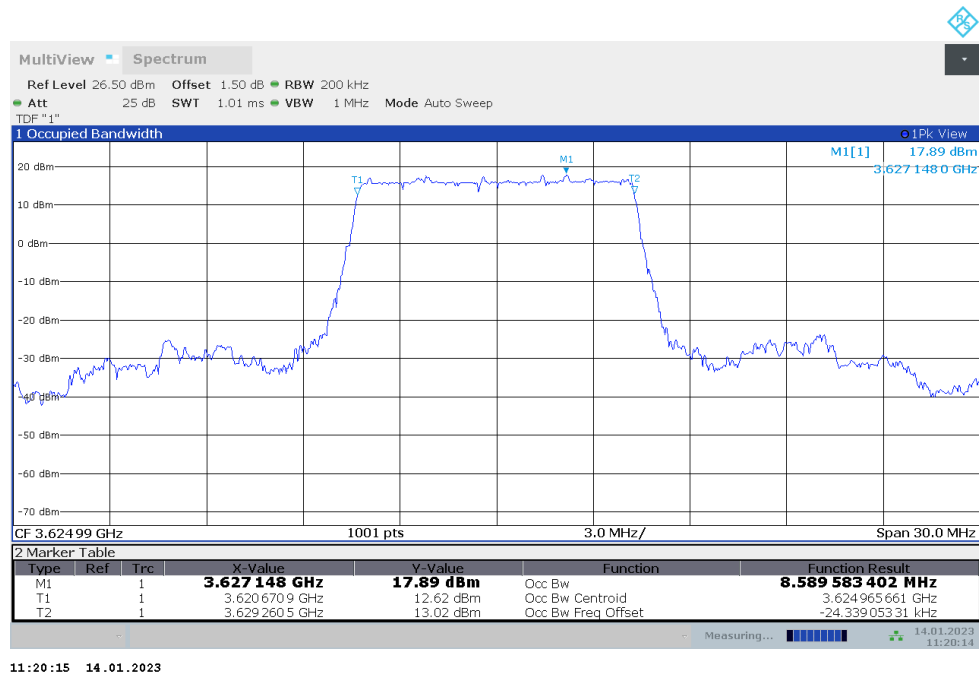
11:19:30 14.01.2023

n48

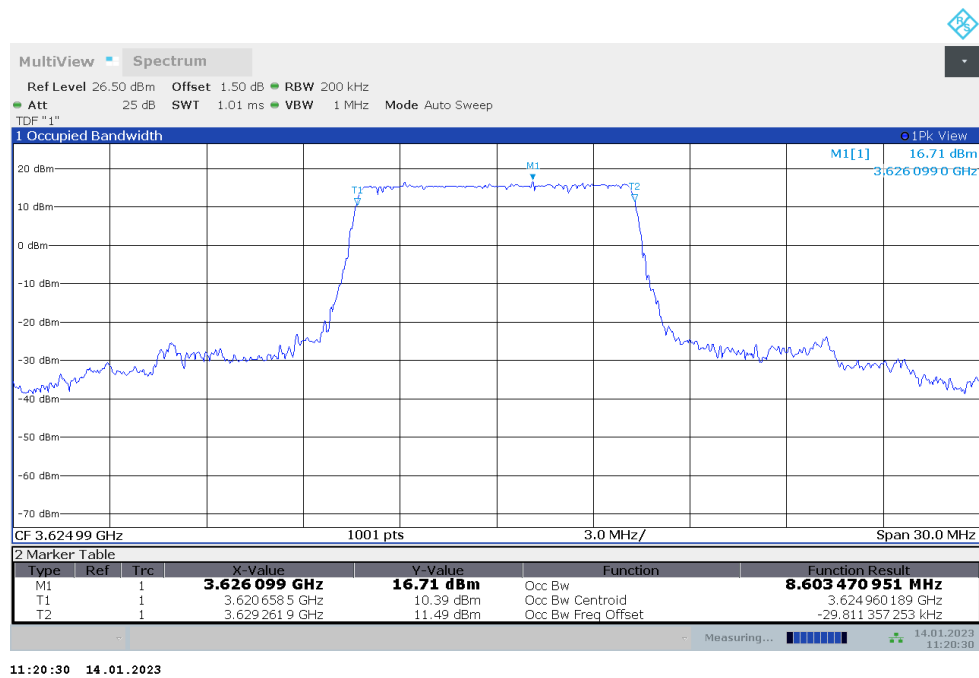
n48,10MHz(99%)

| Frequency (MHz) | Occupied Bandwidth (99%) (MHz) |            |
|-----------------|--------------------------------|------------|
|                 | DFT-s-pi/2 BPSK                | DFT-s-QPSK |
| 3624.99         | 8.590                          | 8.603      |

n48,10MHz Bandwidth,DFT-s-pi/2 BPSK (99% BW)



n48,10MHz Bandwidth,DFT-s-QPSK (99% BW)

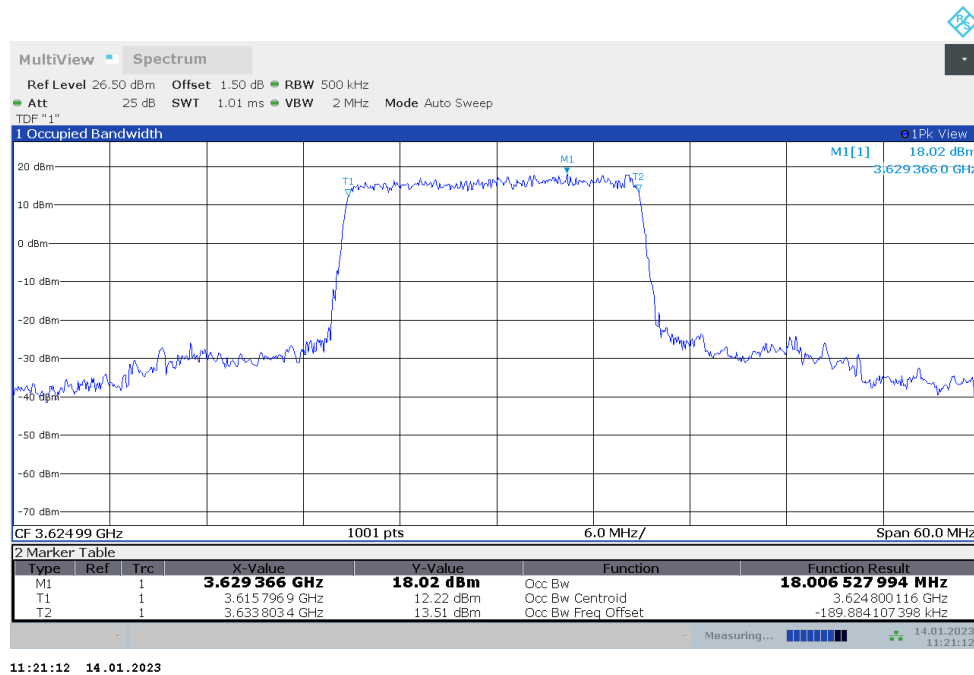


n48

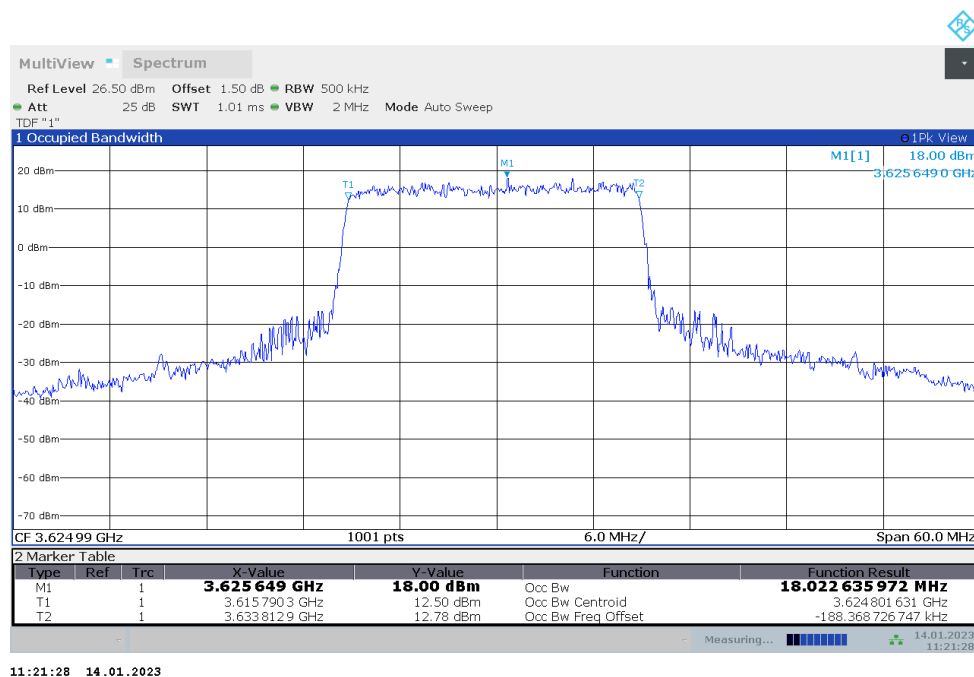
n48,20MHz(99%)

| Frequency (MHz) | Occupied Bandwidth (99%) (MHz) |            |
|-----------------|--------------------------------|------------|
|                 | DFT-s-pi/2 BPSK                | DFT-s-QPSK |
| 3624.99         | 18.007                         | 18.023     |

n48,20MHz Bandwidth,DFT-s-pi/2 BPSK (99% BW)



n48,20MHz Bandwidth,DFT-s-QPSK (99% BW)



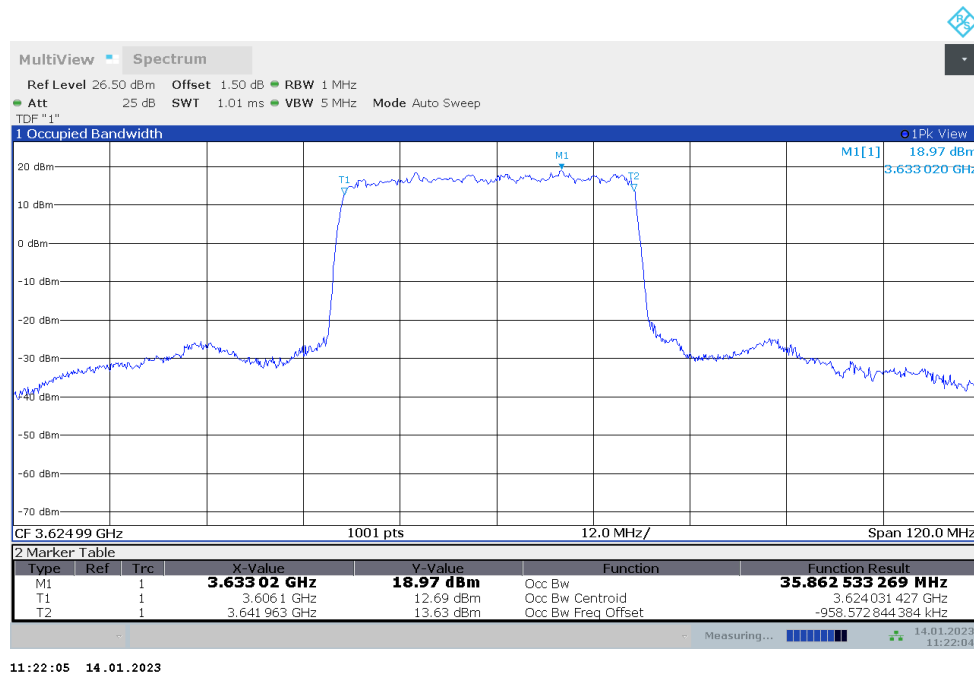


n48

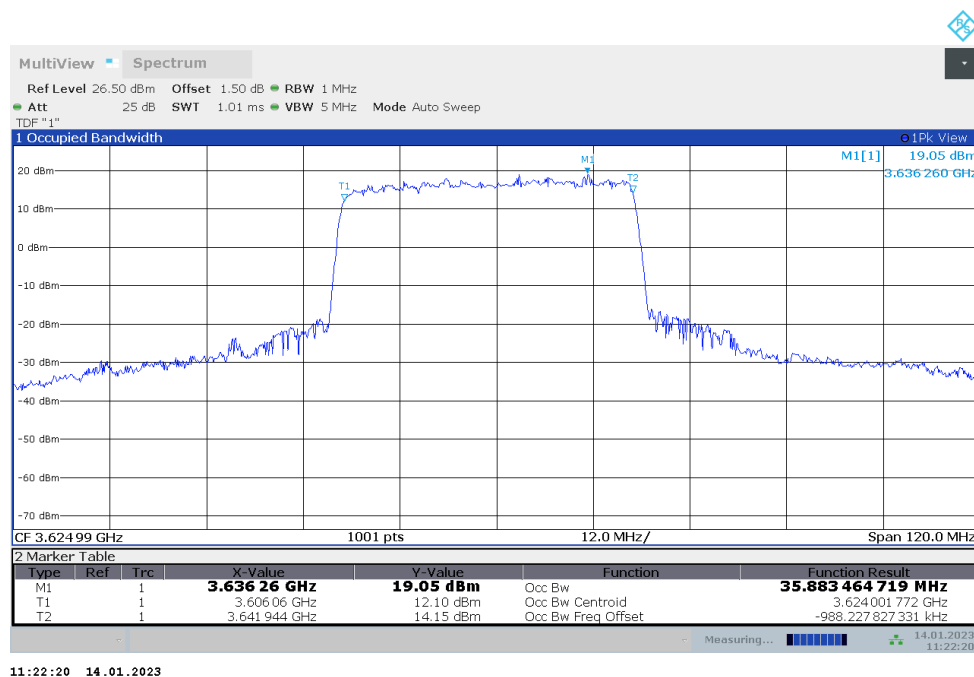
n48,40MHz(99%)

| Frequency (MHz) | Occupied Bandwidth (99%) (MHz) |            |
|-----------------|--------------------------------|------------|
|                 | DFT-s-pi/2 BPSK                | DFT-s-QPSK |
| 3624.99         | 35.863                         | 35.883     |

n48,40MHz Bandwidth,DFT-s-pi/2 BPSK (99% BW)



n48,40MHz Bandwidth,DFT-s-QPSK (99% BW)

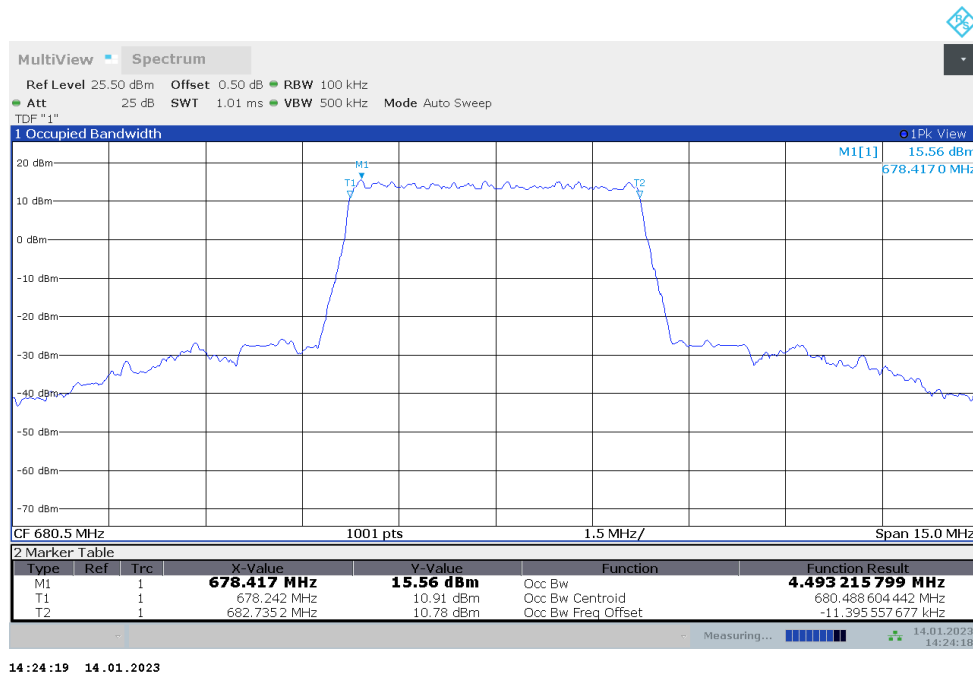


n71

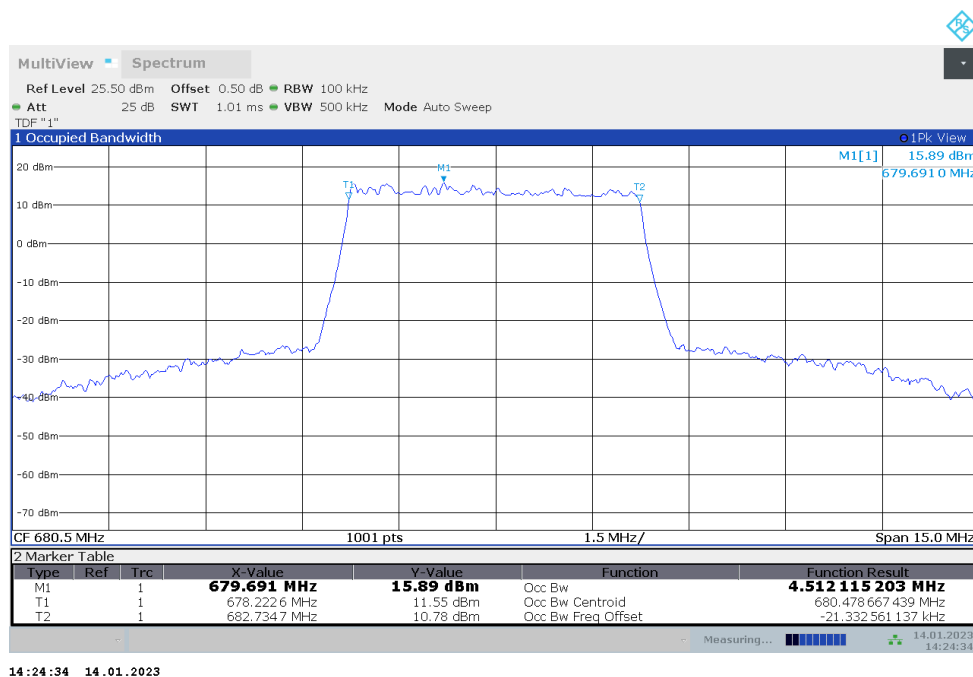
n71,5MHz(99%)

| Frequency (MHz) | Occupied Bandwidth (99%) (MHz) |            |
|-----------------|--------------------------------|------------|
|                 | DFT-s-pi/2 BPSK                | DFT-s-QPSK |
| 680.5           | 4.493                          | 4.512      |

n71,5MHz Bandwidth,DFT-s-pi/2 BPSK (99% BW)



n71,5MHz Bandwidth,DFT-s-QPSK (99% BW)



n71

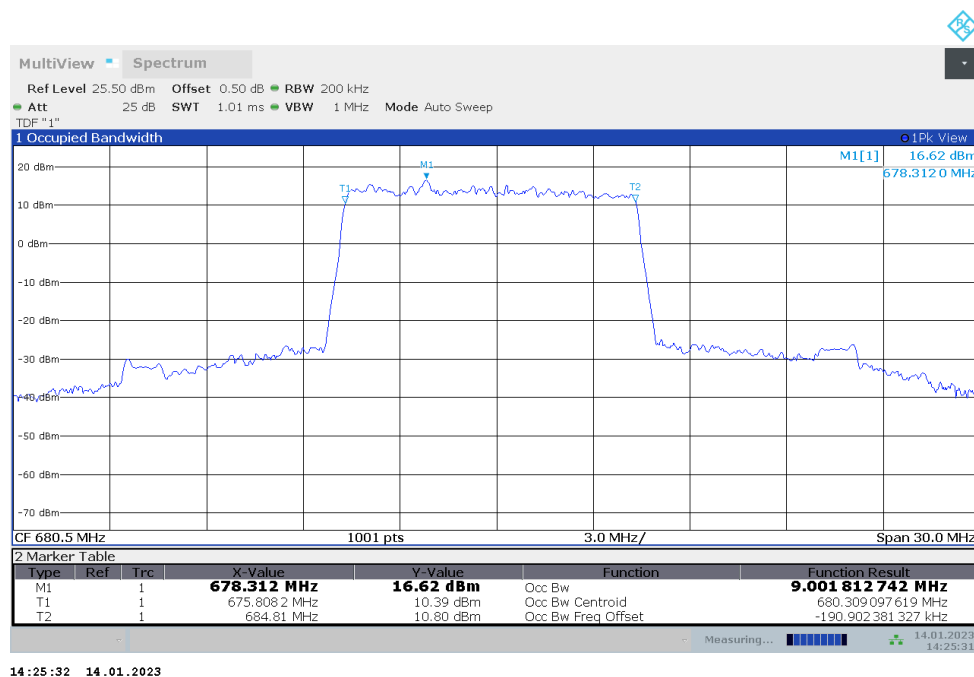
n71,10MHz(99%)

| Frequency (MHz) | Occupied Bandwidth (99%) (MHz) |            |
|-----------------|--------------------------------|------------|
|                 | DFT-s-pi/2 BPSK                | DFT-s-QPSK |
| 680.5           | 8.979                          | 9.002      |

n71,10MHz Bandwidth,DFT-s-pi/2 BPSK (99% BW)



n71,10MHz Bandwidth,DFT-s-QPSK (99% BW)

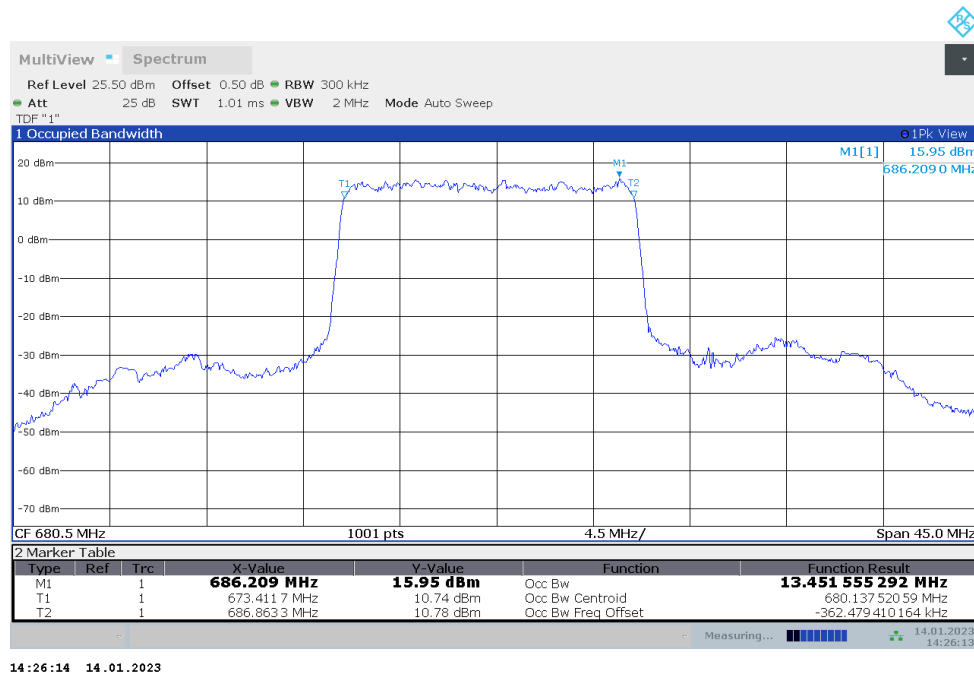


n71

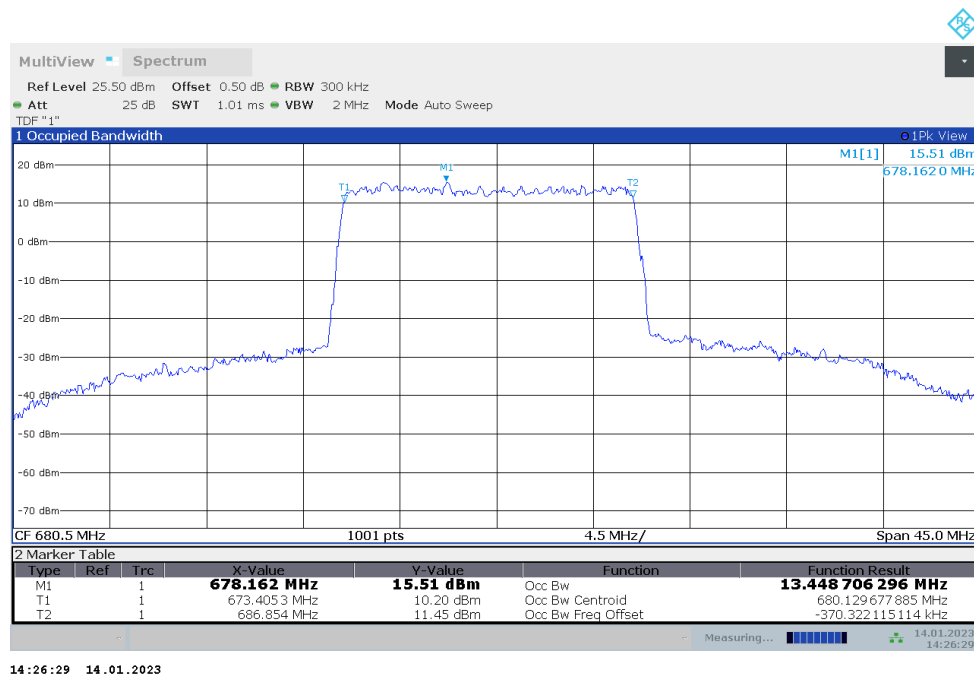
n71,15MHz(99%)

| Frequency (MHz) | Occupied Bandwidth (99%) (MHz) |            |
|-----------------|--------------------------------|------------|
|                 | DFT-s-pi/2 BPSK                | DFT-s-QPSK |
| 680.5           | 13.452                         | 13.449     |

n71,15MHz Bandwidth,DFT-s-pi/2 BPSK (99% BW)



n71,15MHz Bandwidth,DFT-s-QPSK (99% BW)



n71

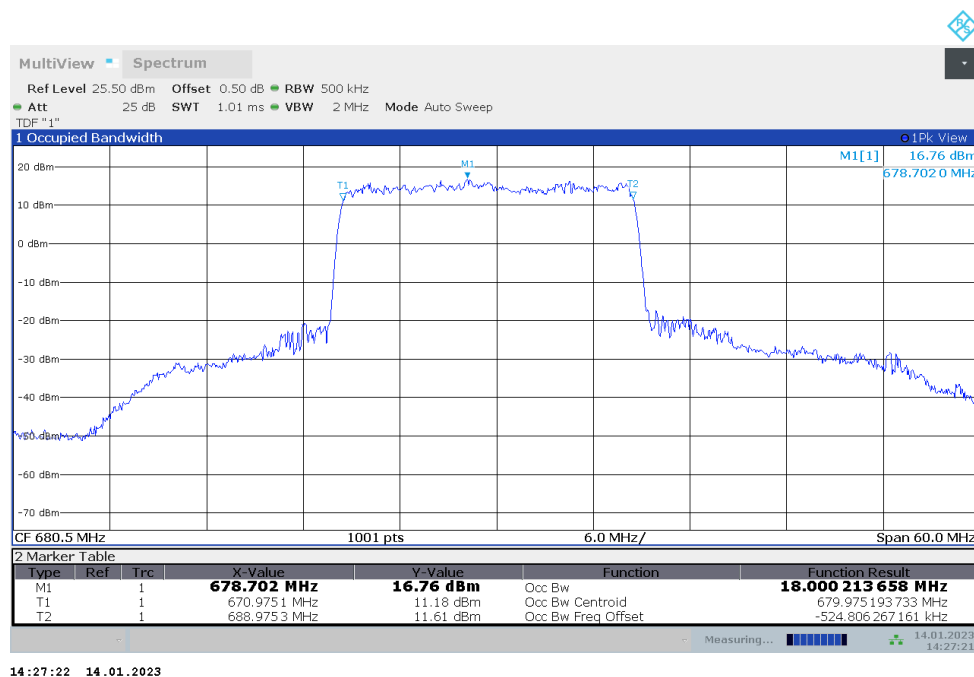
n71,20MHz(99%)

| Frequency (MHz) | Occupied Bandwidth (99%) (MHz) |            |
|-----------------|--------------------------------|------------|
|                 | DFT-s-pi/2 BPSK                | DFT-s-QPSK |
| 680.5           | 17.976                         | 18.000     |

n71,20MHz Bandwidth,DFT-s-pi/2 BPSK (99% BW)



n71,20MHz Bandwidth,DFT-s-QPSK (99% BW)

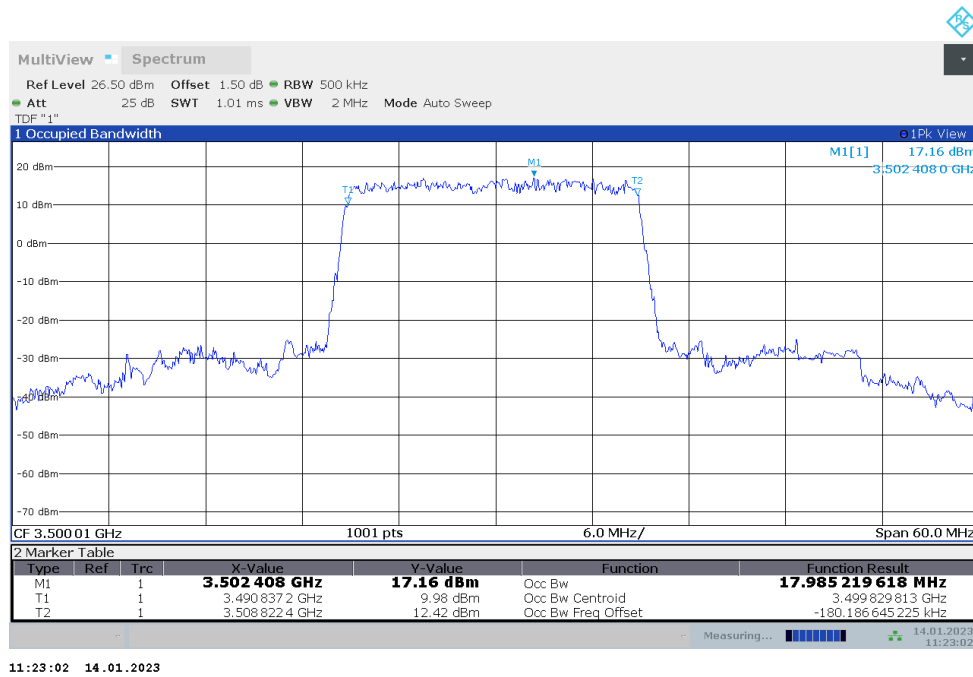


n77L

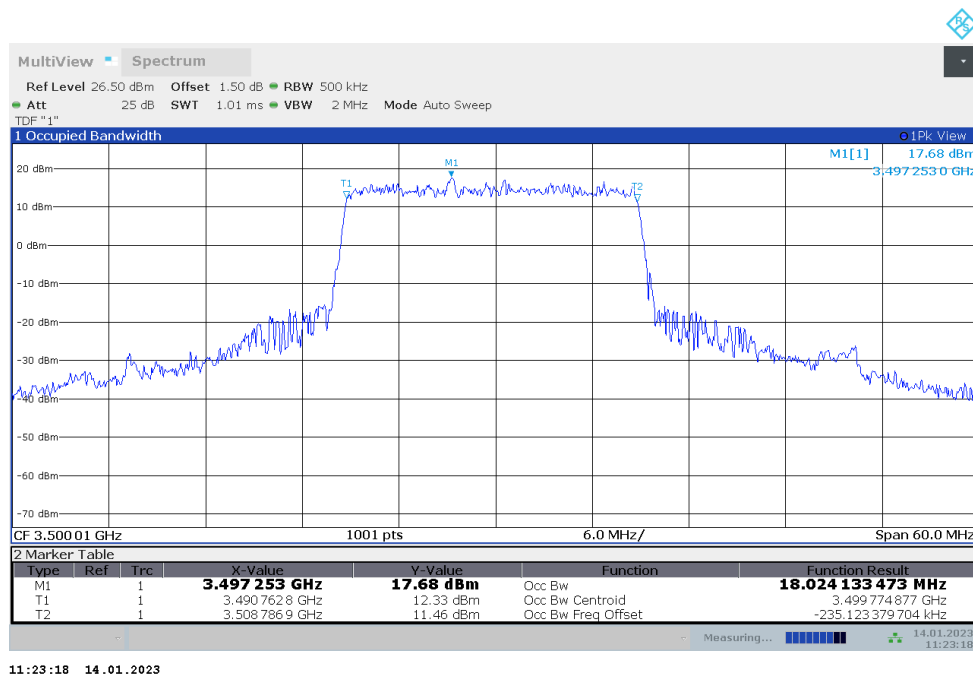
n77L,20MHz(99%)

| Frequency (MHz) | Occupied Bandwidth (99%) (MHz) |            |
|-----------------|--------------------------------|------------|
|                 | DFT-s-pi/2 BPSK                | DFT-s-QPSK |
| 3500.01         | 17.985                         | 18.024     |

n77L,20MHz Bandwidth,DFT-s-pi/2 BPSK (99% BW)



n77L,20MHz Bandwidth,DFT-s-QPSK (99% BW)

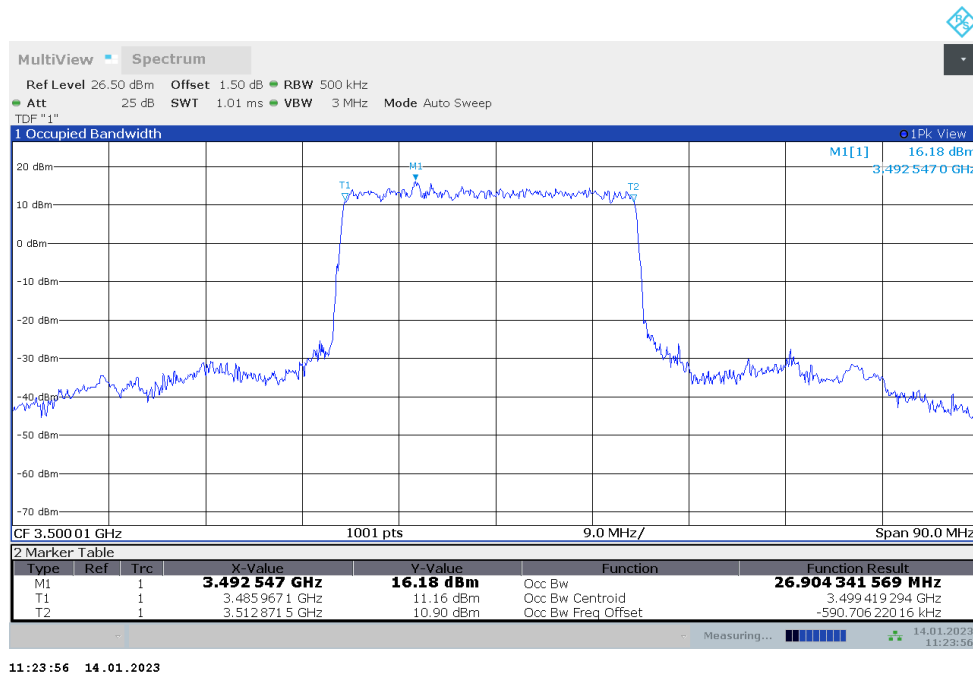


n77L

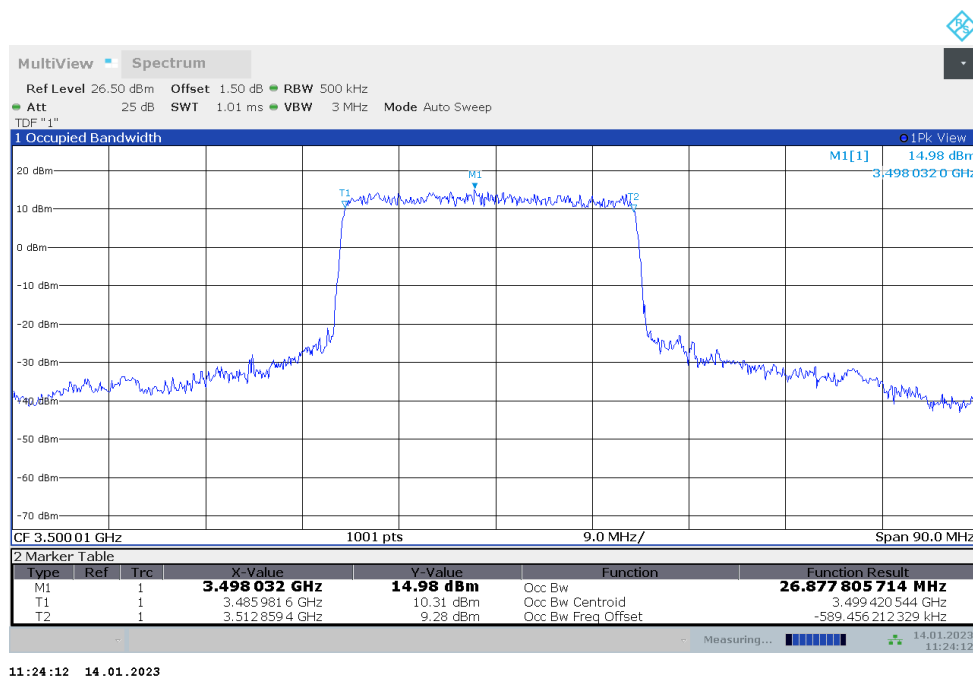
n77L,30MHz(99%)

| Frequency (MHz) | Occupied Bandwidth (99%) (MHz) |            |
|-----------------|--------------------------------|------------|
|                 | DFT-s-pi/2 BPSK                | DFT-s-QPSK |
| 3500.01         | 26.904                         | 26.878     |

n77L,30MHz Bandwidth,DFT-s-pi/2 BPSK (99% BW)



n77L,30MHz Bandwidth,DFT-s-QPSK (99% BW)

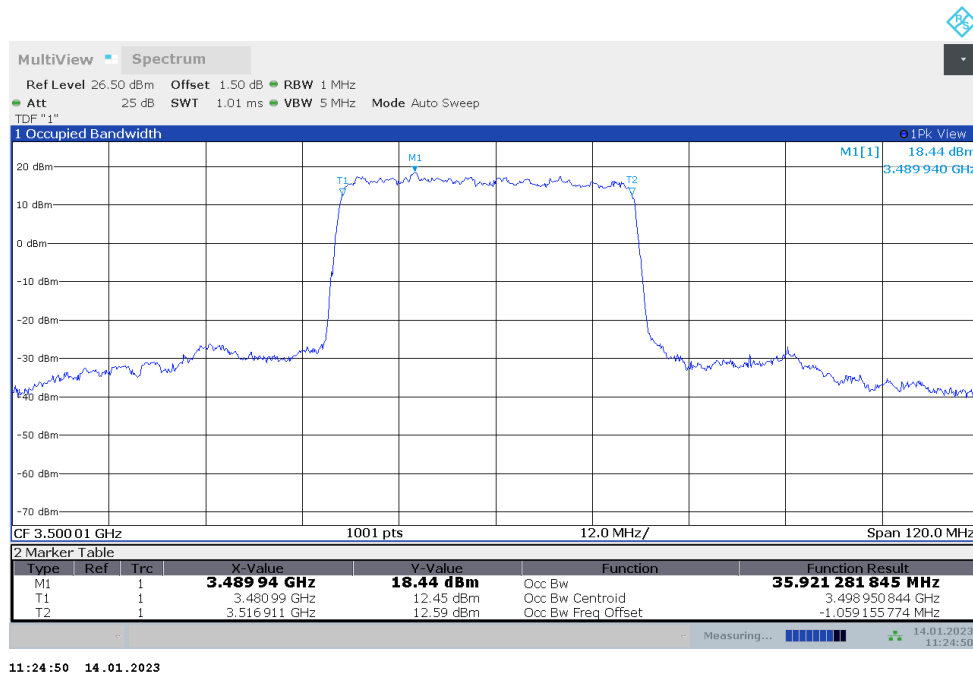


n77L

n77L,40MHz(99%)

| Frequency (MHz) | Occupied Bandwidth (99%) (MHz) |            |
|-----------------|--------------------------------|------------|
|                 | DFT-s-pi/2 BPSK                | DFT-s-QPSK |
| 3500.01         | 35.921                         | 35.957     |

n77L,40MHz Bandwidth,DFT-s-pi/2 BPSK (99% BW)



n77L,40MHz Bandwidth,DFT-s-QPSK (99% BW)

