

n25
Frequency Error vs Temperature

Temperature(°C)	Voltage(V)	FL(MHz)	FH(MHz)	Offset(Hz)	Frequency error(ppm)
20	3.85	1850.288	1913.640		
50				2.40	0.0013
40				0.70	0.0004
30				-0.30	0.0002
10				-2.70	0.0014
0				-0.60	0.0003
-10				-3.20	0.0017
-20				-0.90	0.0005
-30				-1.90	0.0010

Frequency Error vs Voltage

Voltage(V)	Temperature(°C)	FL(MHz)	FH(MHz)	Offset(Hz)	Frequency error(ppm)
3.6	20	1850.288	1913.640	-0.50	0.0003
4.4				0.80	0.0004

n41
Frequency Error vs Temperature

Temperature(°C)	Voltage(V)	FL(MHz)	FH(MHz)	Offset(Hz)	Frequency error(ppm)
20	3.85	2496.704	2688.144		
50				-6.70	0.0026
40				-11.20	0.0043
30				-2.20	0.0008
10				-3.20	0.0012
0				0.90	0.0003
-10				-3.50	0.0013
-20				-6.50	0.0025
-30				-5.10	0.0020

Frequency Error vs Voltage

Voltage(V)	Temperature(°C)	FL(MHz)	FH(MHz)	Offset(Hz)	Frequency error(ppm)
3.6	20	2496.704	2688.144	-5.80	0.0022
4.4				5.80	0.0022

n48
Frequency Error vs Temperature

Temperature(°C)	Voltage(V)	FL(MHz)	FH(MHz)	Offset(Hz)	Frequency error(ppm)
20	3.85	3550.720	3698.128		
50				-22.20	0.0061
40				-44.20	0.0122
30				-47.40	0.0131
10				-42.80	0.0118
0				-43.10	0.0119
-10				-36.60	0.0101
-20				-33.90	0.0094
-30				-39.20	0.0108

Frequency Error vs Voltage

Voltage(V)	Temperature(°C)	FL(MHz)	FH(MHz)	Offset(Hz)	Frequency error(ppm)
3.6	20	3550.720	3698.128	-35.00	0.0097
4.4				-42.70	0.0118

n66
Frequency Error vs Temperature

Temperature(°C)	Voltage(V)	FL(MHz)	FH(MHz)	Offset(Hz)	Frequency error(ppm)
20	3.85	1710.112	1779.840		
50				-2.90	0.0017
40				-3.50	0.0020
30				-1.60	0.0009
10				-1.60	0.0009
0				-2.50	0.0014
-10				-4.00	0.0023
-20				-3.40	0.0019
-30				-1.80	0.0010

Frequency Error vs Voltage

Voltage(V)	Temperature(°C)	FL(MHz)	FH(MHz)	Offset(Hz)	Frequency error(ppm)
3.6	20	1710.112	1779.840	-1.80	0.0010
4.4				-3.00	0.0017

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		
50				-1.20	0.0018
40				-1.20	0.0018
30				-0.60	0.0009
10				-3.50	0.0051
0				-2.00	0.0029
-10				-2.90	0.0043
-20				0.20	0.0003
-30				-2.60	0.0038

Frequency Error vs Voltage

Voltage(V)	Temperature(°C)	FL(MHz)	FH(MHz)	Offset(Hz)	Frequency error(ppm)
3.6	20	663.432	696.464	1.30	0.0019
4.4				0.70	0.0010

n77L
Frequency Error vs Temperature

Temperature(°C)	Voltage(V)	FL(MHz)	FH(MHz)	Offset(Hz)	Frequency error(ppm)
20	3.85	3450.720	3548.528		
50				-4.00	0.0011
40				-3.50	0.0010
30				-9.30	0.0027
10				4.70	0.0013
0				-11.00	0.0031
-10				-7.70	0.0022
-20				-5.50	0.0016
-30				0.30	0.0001

Frequency Error vs Voltage

Voltage(V)	Temperature(°C)	FL(MHz)	FH(MHz)	Offset(Hz)	Frequency error(ppm)
3.6	20	3450.720	3548.528	-12.70	0.0036
4.4				-9.60	0.0027

n77H
Frequency Error vs Temperature

Temperature(°C)	Voltage(V)	FL(MHz)	FH(MHz)	Offset(Hz)	Frequency error(ppm)
20	3.85	3700.368	3978.528		
50				10.90	0.0028
40				-1.20	0.0003
30				-10.00	0.0026
10				-5.70	0.0015
0				0.80	0.0002
-10				0.00	0.0000
-20				-3.30	0.0009
-30				-7.00	0.0018

Frequency Error vs Voltage

Voltage(V)	Temperature(°C)	FL(MHz)	FH(MHz)	Offset(Hz)	Frequency error(ppm)
3.6	20	3700.368	3978.528	-5.50	0.0014
4.4				-3.70	0.0010

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

A.3 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.

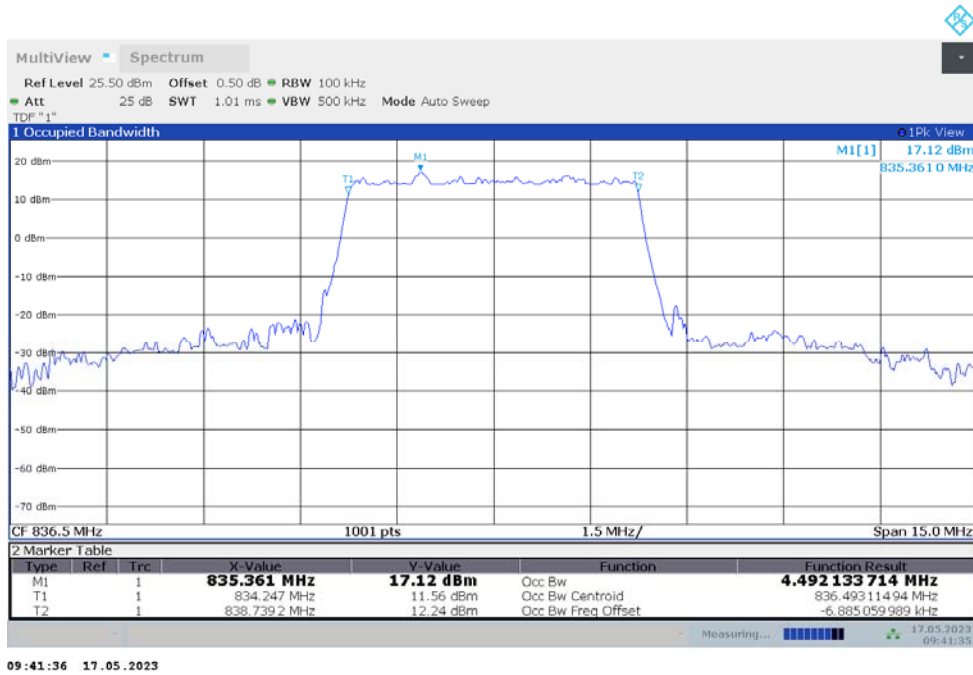
The measurement method is from ANSI C63.26:

- 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 $\geq 3 \times$ 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.

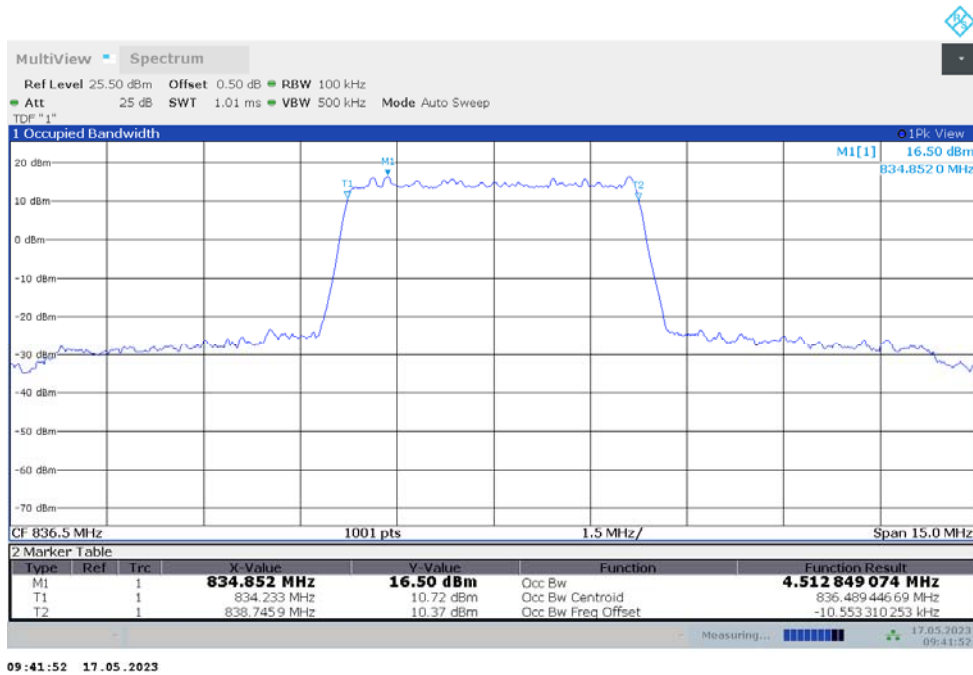
n5
n5,5MHz(99%)

Frequency (MHz)	Occupied Bandwidth (99%) (MHz)	
	DFT-s-pi/2 BPSK	DFT-s-QPSK
836.5	4.492	4.513

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



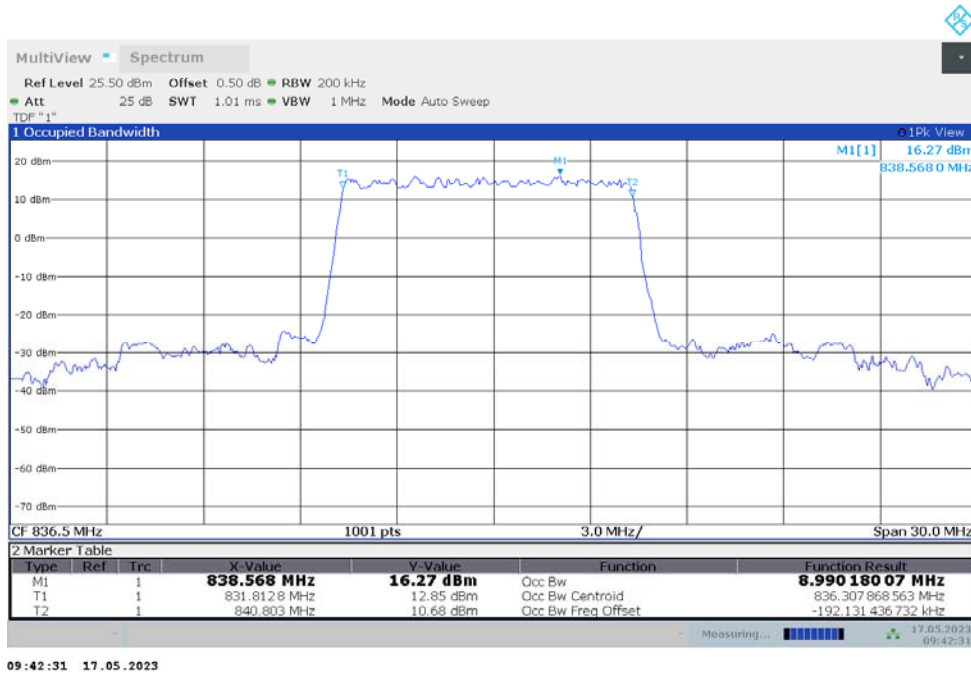
n5,5MHz Bandwidth,DFT-s-QPSK (99% BW)



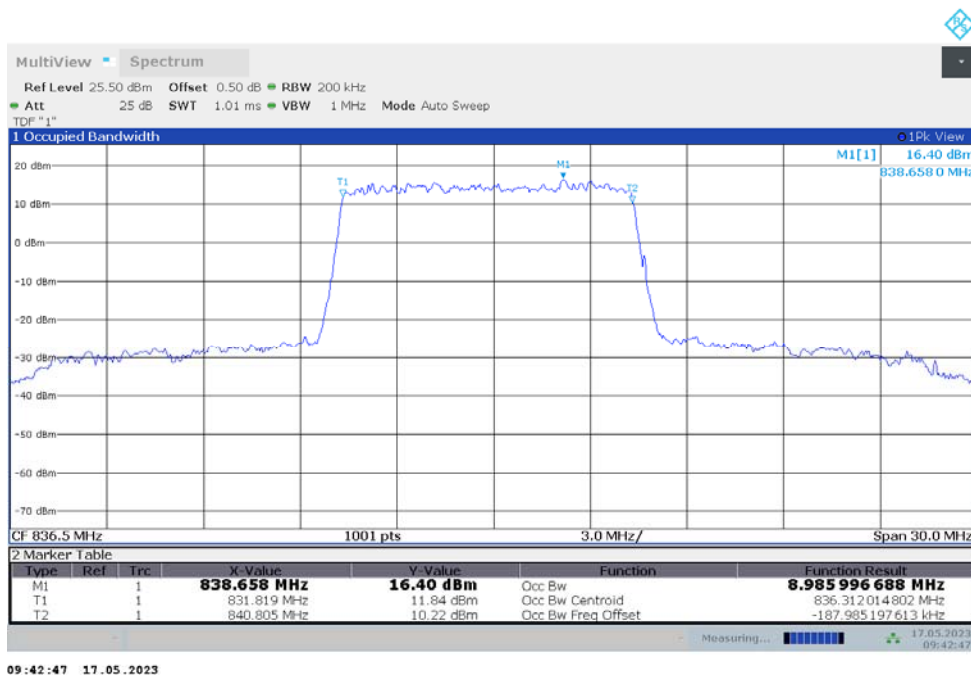
n5
n5,10MHz(99%)

Frequency (MHz)	Occupied Bandwidth (99%) (MHz)	
	DFT-s-pi/2 BPSK	DFT-s-QPSK
836.5	8.990	8.986

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



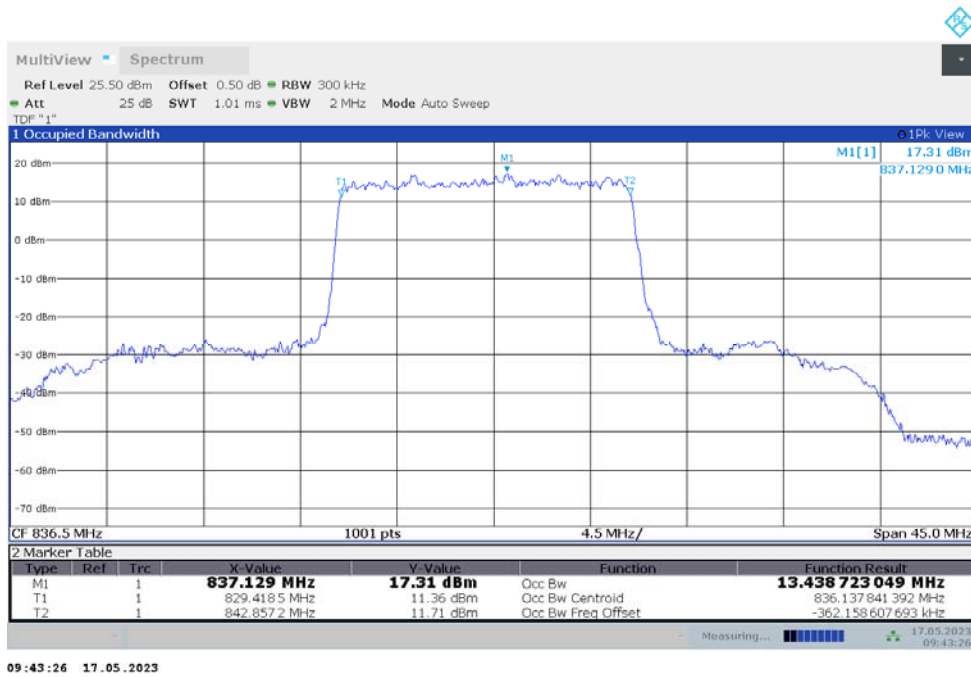
n5,10MHz Bandwidth,DFT-s-QPSK (99% BW)



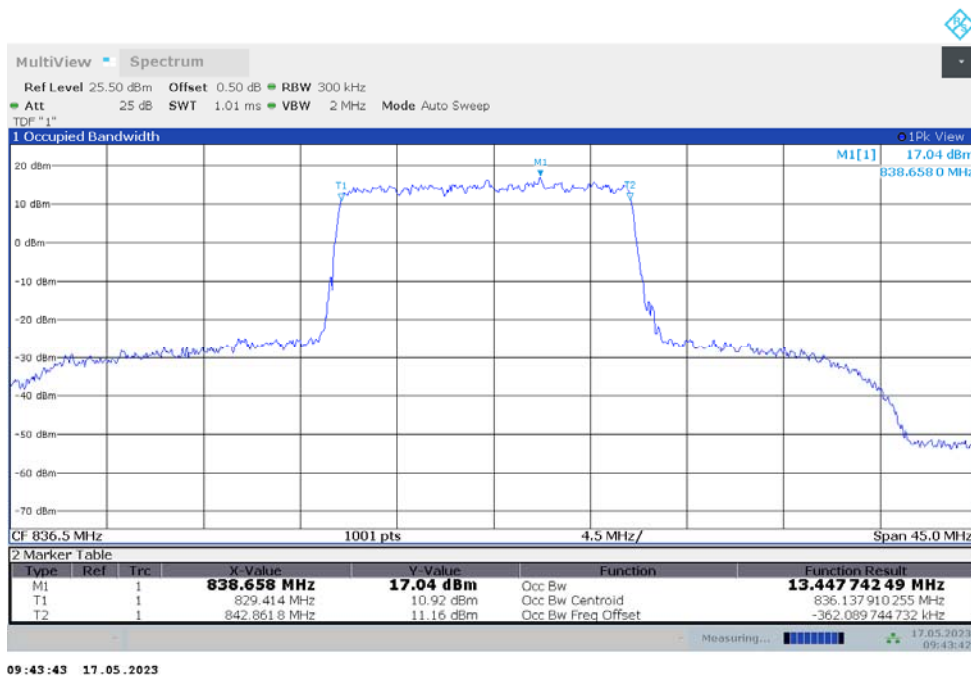
n5
n5,15MHz(99%)

Frequency (MHz)	Occupied Bandwidth (99%) (MHz)	
	DFT-s-pi/2 BPSK	DFT-s-QPSK
836.5	13.439	13.448

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



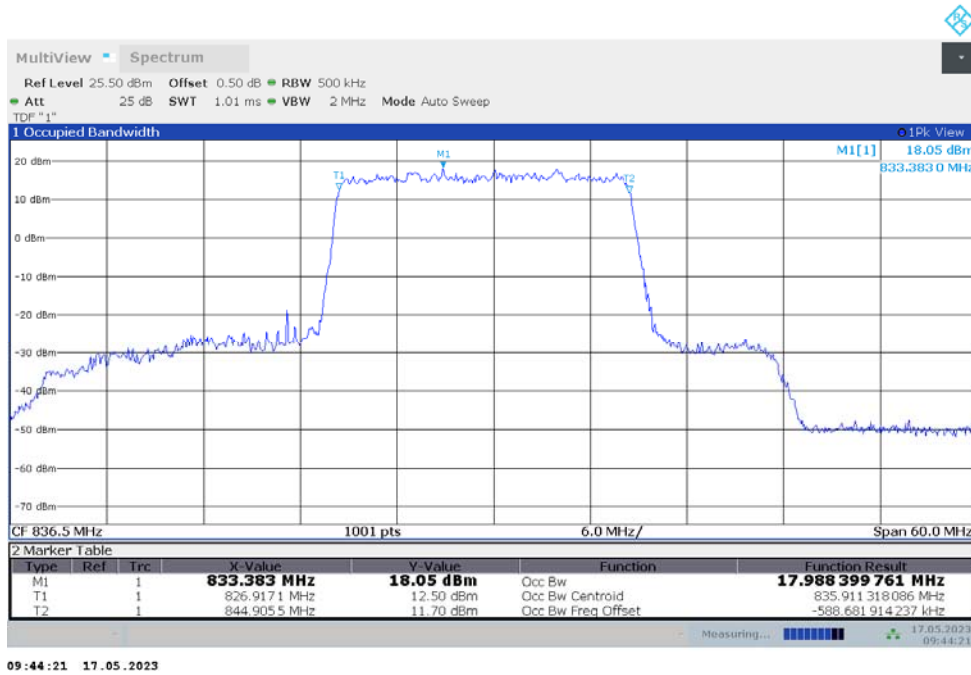
n5,15MHz Bandwidth,DFT-s-QPSK (99% BW)



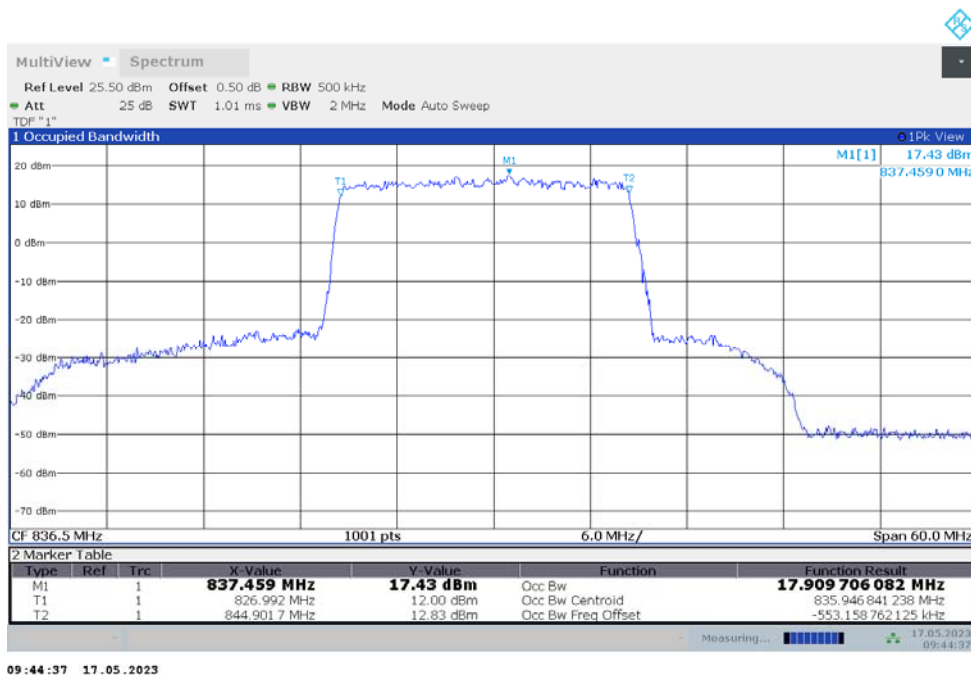
n5
n5,20MHz(99%)

Frequency (MHz)	Occupied Bandwidth (99%) (MHz)	
	DFT-s-pi/2 BPSK	DFT-s-QPSK
836.5	17.988	17.910

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



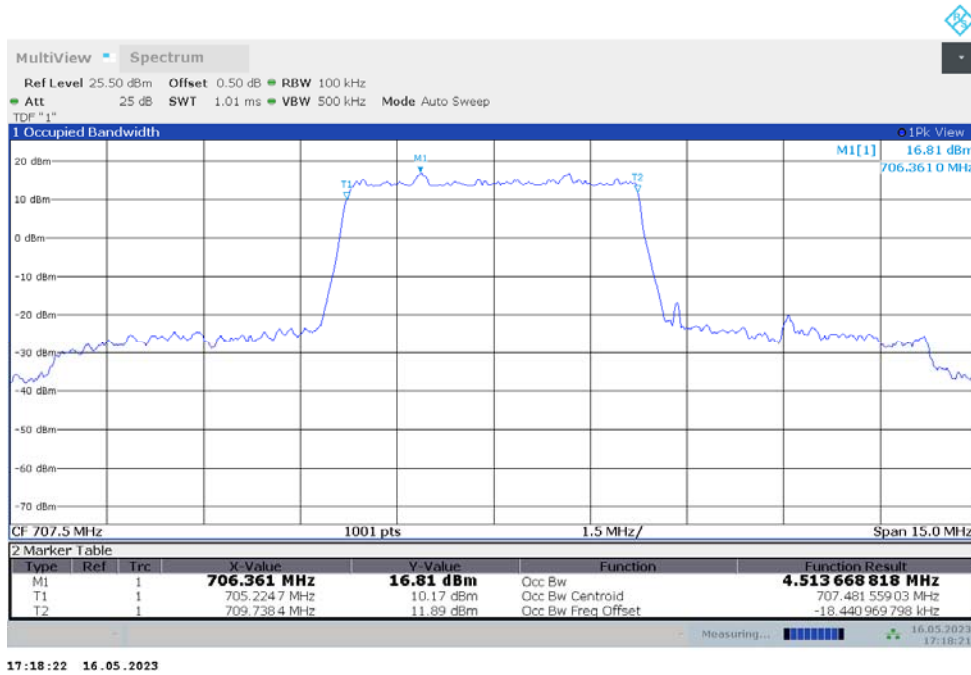
n5,20MHz Bandwidth,DFT-s-QPSK (99% BW)



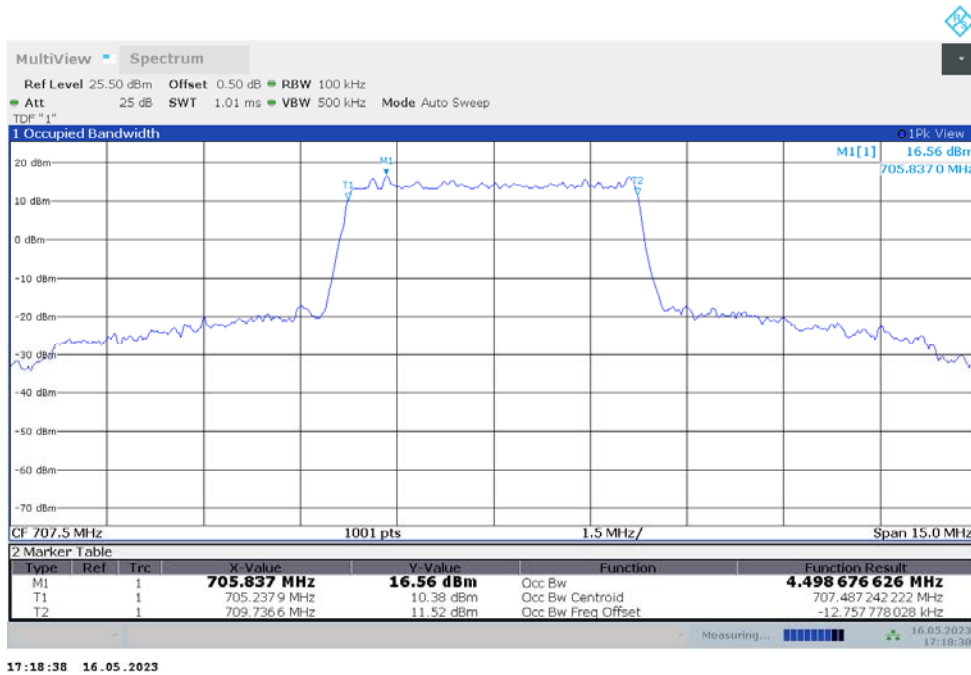
n12
n12,5MHz(99%)

Frequency (MHz)	Occupied Bandwidth (99%) (MHz)	
	DFT-s-pi/2 BPSK	DFT-s-QPSK
707.5	4.514	4.499

n12,5MHz Bandwidth,DFT-s-pi/2 BPSK (99% BW)



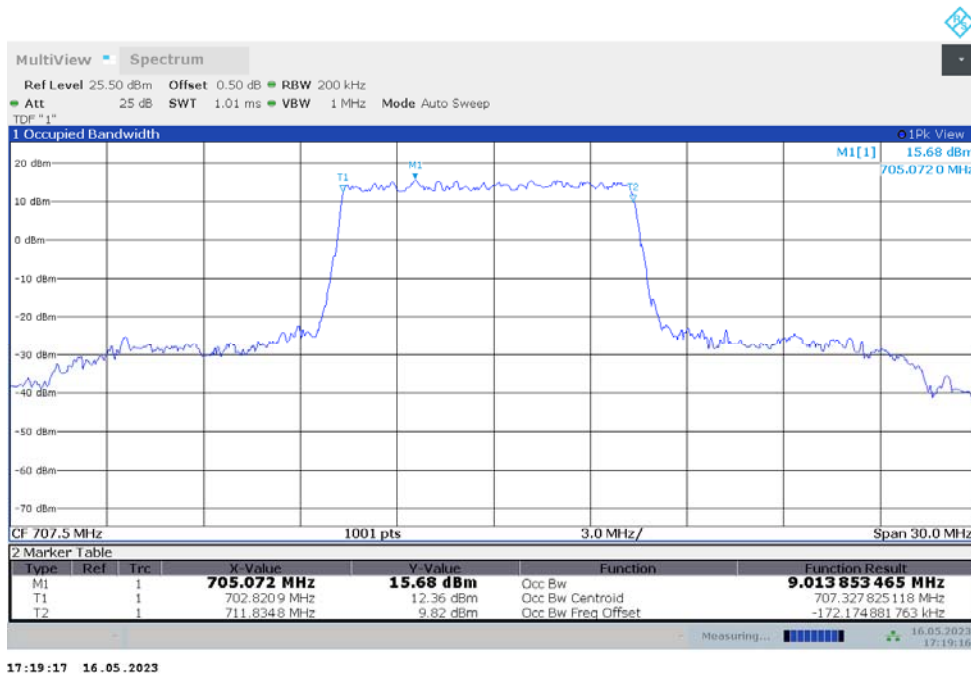
n12,5MHz Bandwidth,DFT-s-QPSK (99% BW)



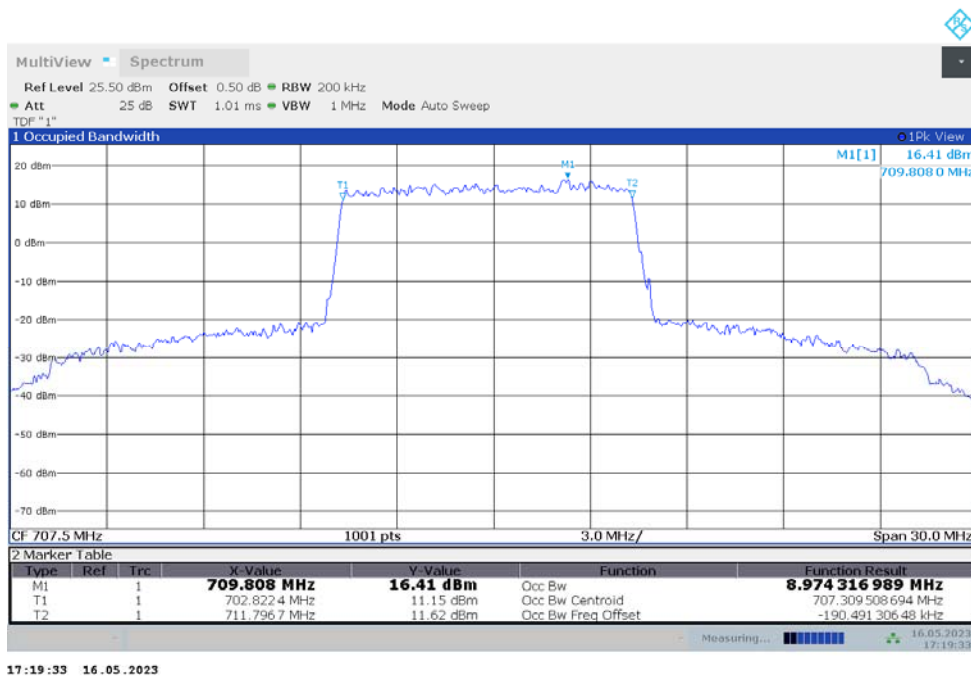
n12
n12,10MHz(99%)

Frequency (MHz)	Occupied Bandwidth (99%) (MHz)	
	DFT-s-pi/2 BPSK	DFT-s-QPSK
707.5	9.014	8.974

n12,10MHz Bandwidth,DFT-s-pi/2 BPSK (99% BW)



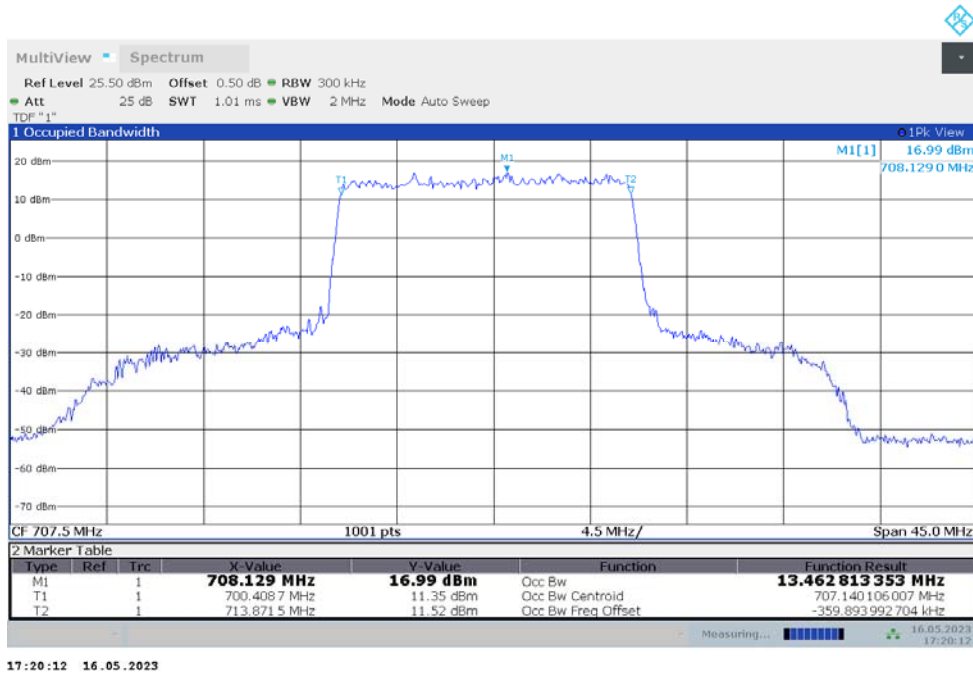
n12,10MHz Bandwidth,DFT-s-QPSK (99% BW)



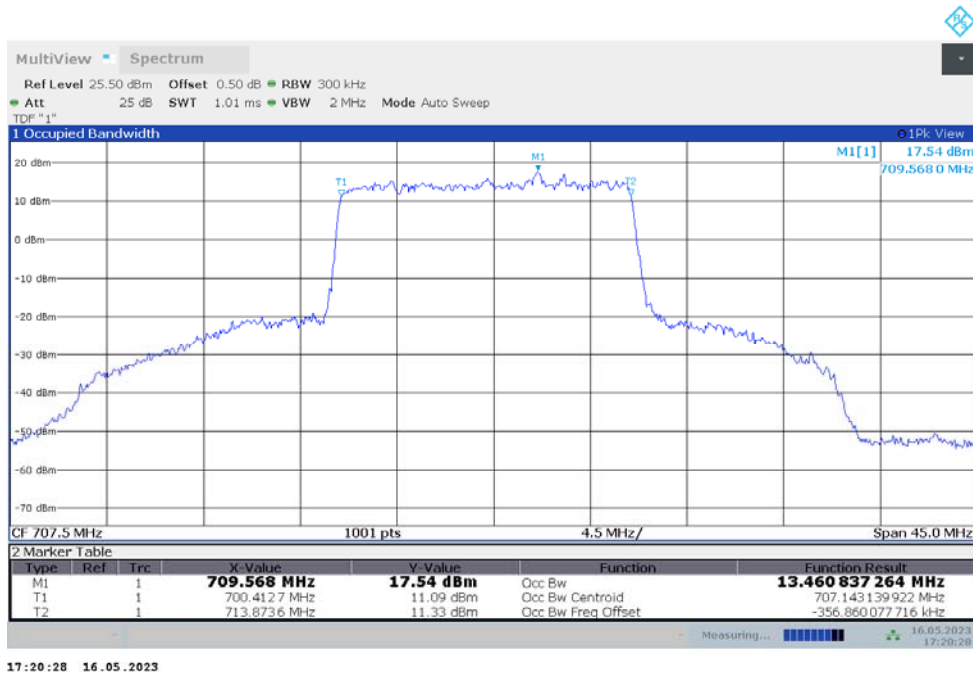
n12
n12,15MHz(99%)

Frequency (MHz)	Occupied Bandwidth (99%) (MHz)	
	DFT-s-pi/2 BPSK	DFT-s-QPSK
707.5	13.463	13.461

n12,15MHz Bandwidth,DFT-s-pi/2 BPSK (99% BW)



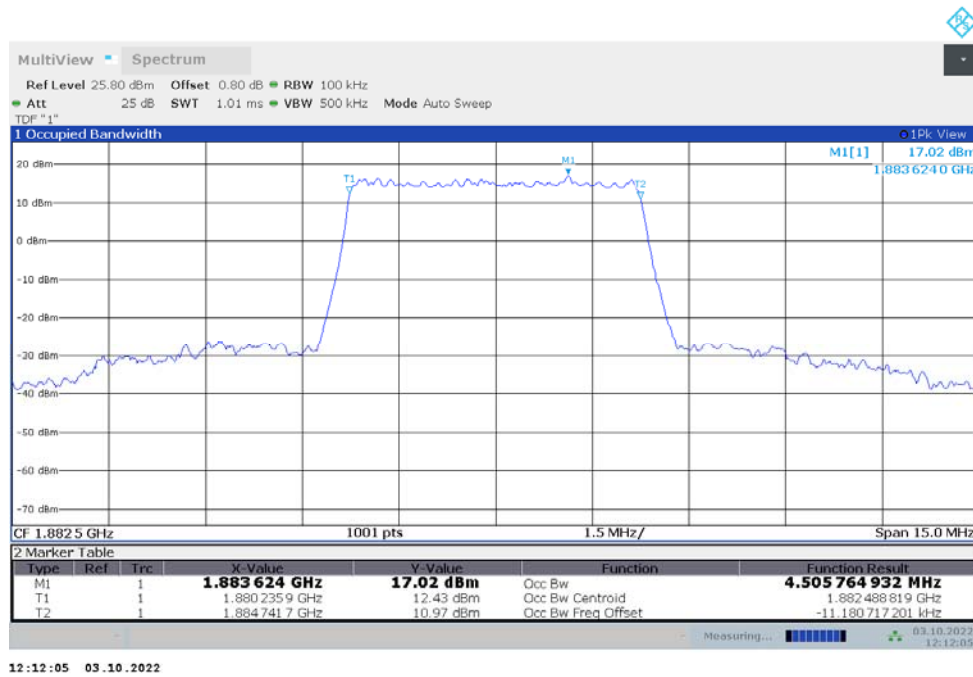
n12,15MHz Bandwidth,DFT-s-QPSK (99% BW)



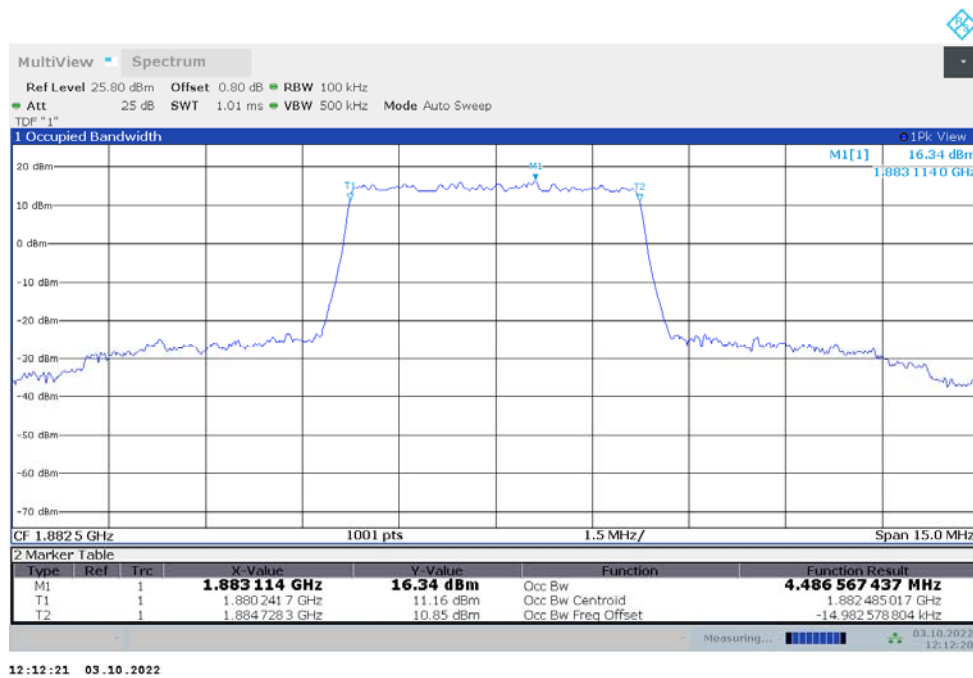
n25
n25,5MHz(99%)

Frequency (MHz)	Occupied Bandwidth (99%) (MHz)	
	DFT-s-pi/2 BPSK	DFT-s-QPSK
1882.5	4.506	4.487

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



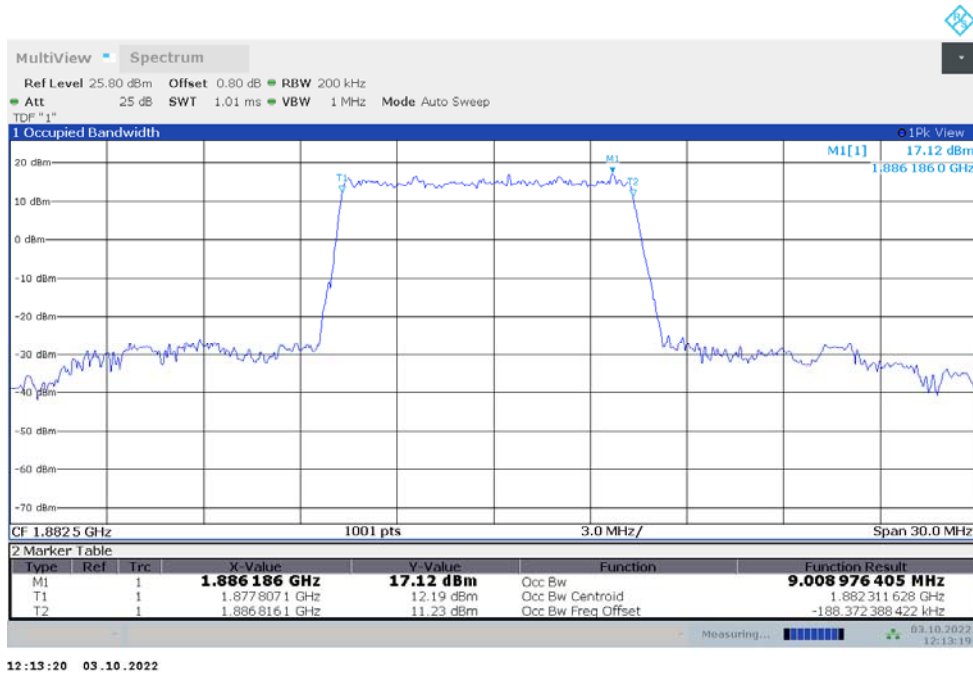
n25,5MHz Bandwidth,DFT-s-QPSK (99% BW)



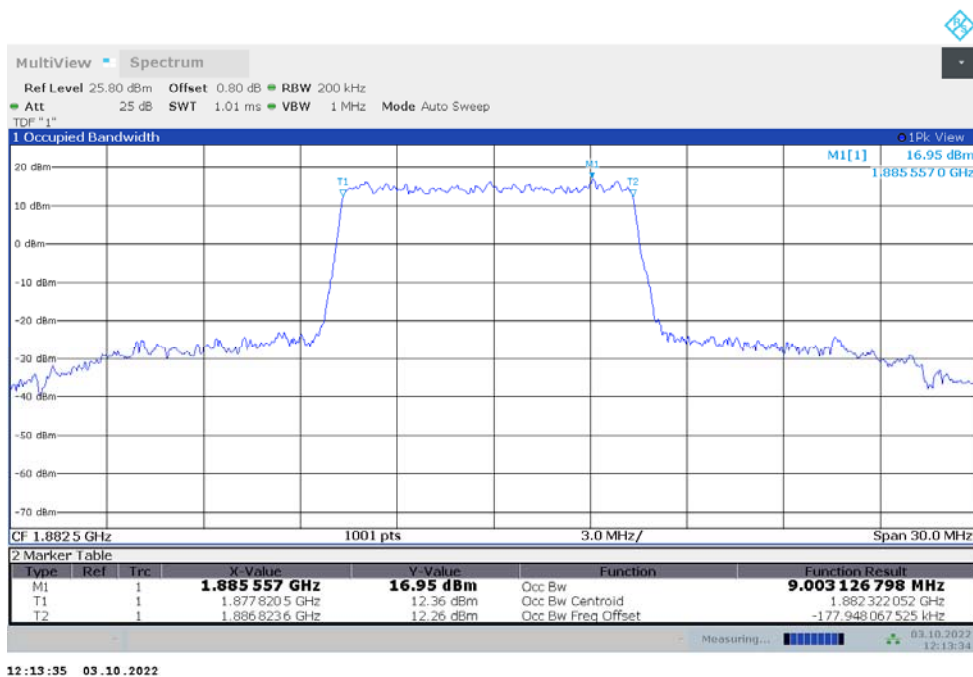
n25,10MHz(99%)

Frequency (MHz)	Occupied Bandwidth (99%) (MHz)	
	DFT-s-pi/2 BPSK	DFT-s-QPSK
1882.5	9.009	9.003

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



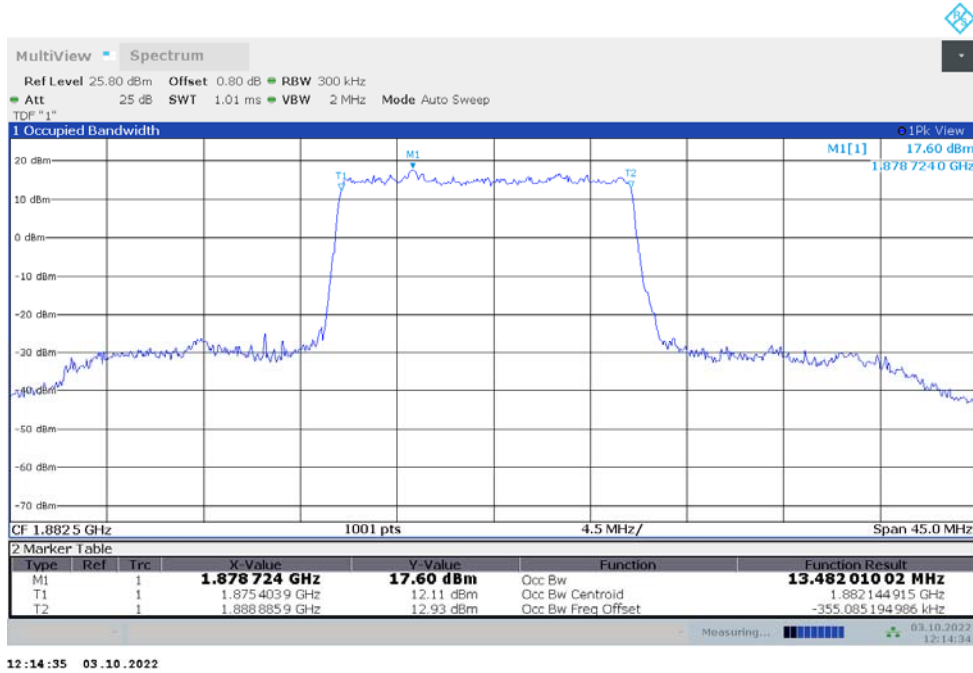
n25,10MHz Bandwidth,DFT-s-QPSK (99% BW)



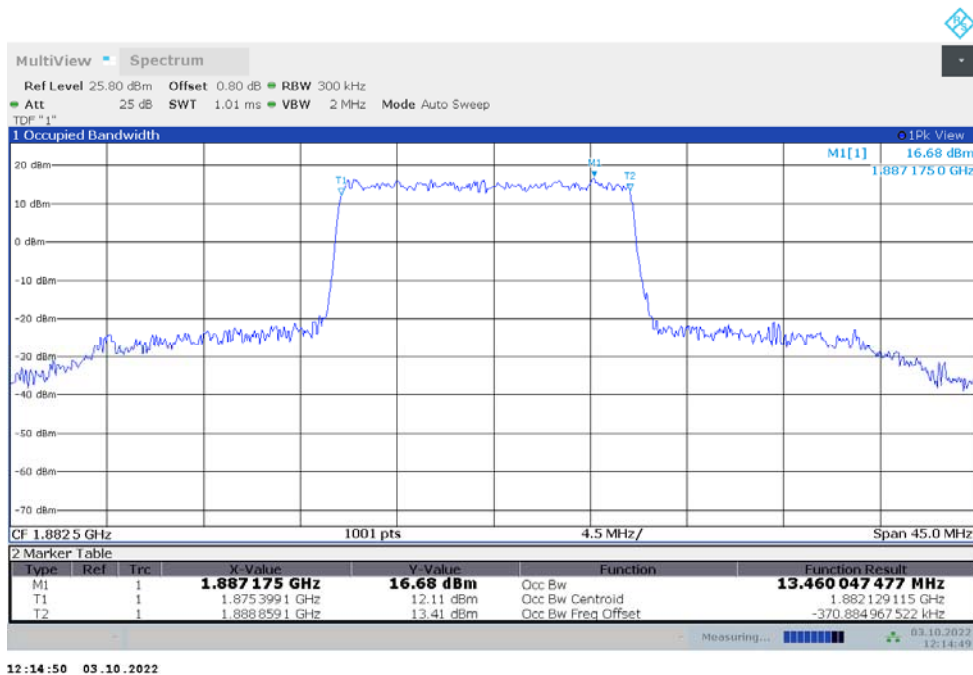
n25,15MHz(99%)

Frequency (MHz)	Occupied Bandwidth (99%) (MHz)	
	DFT-s-pi/2 BPSK	DFT-s-QPSK
1882.5	13.482	13.460

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



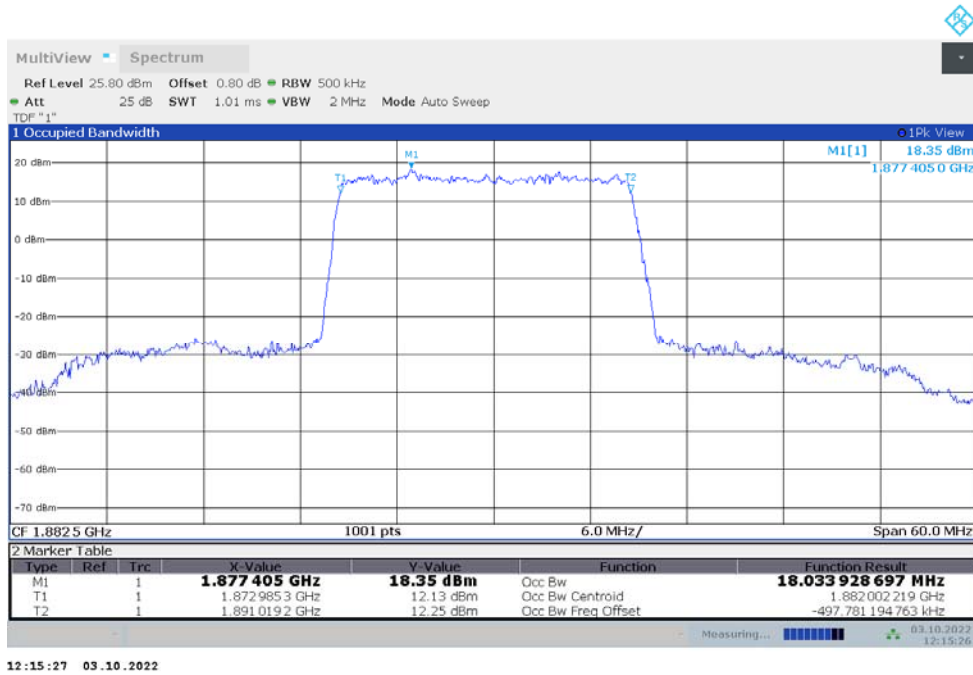
n25,15MHz Bandwidth,DFT-s-QPSK (99% BW)



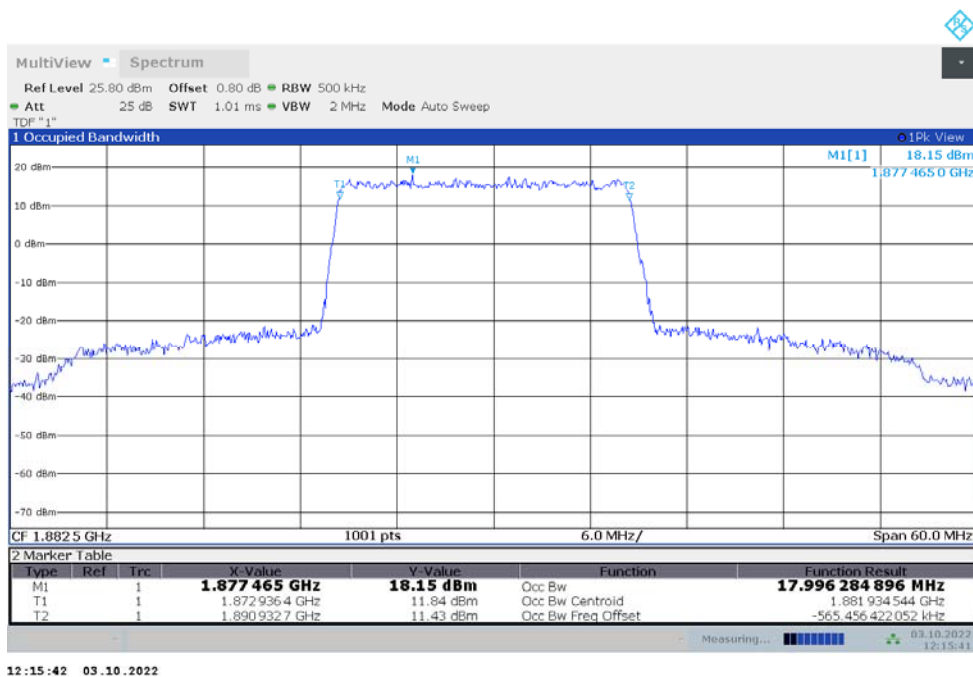
n25,20MHz(99%)

Frequency (MHz)	Occupied Bandwidth (99%) (MHz)	
	DFT-s-pi/2 BPSK	DFT-s-QPSK
1882.5	18.034	17.996

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



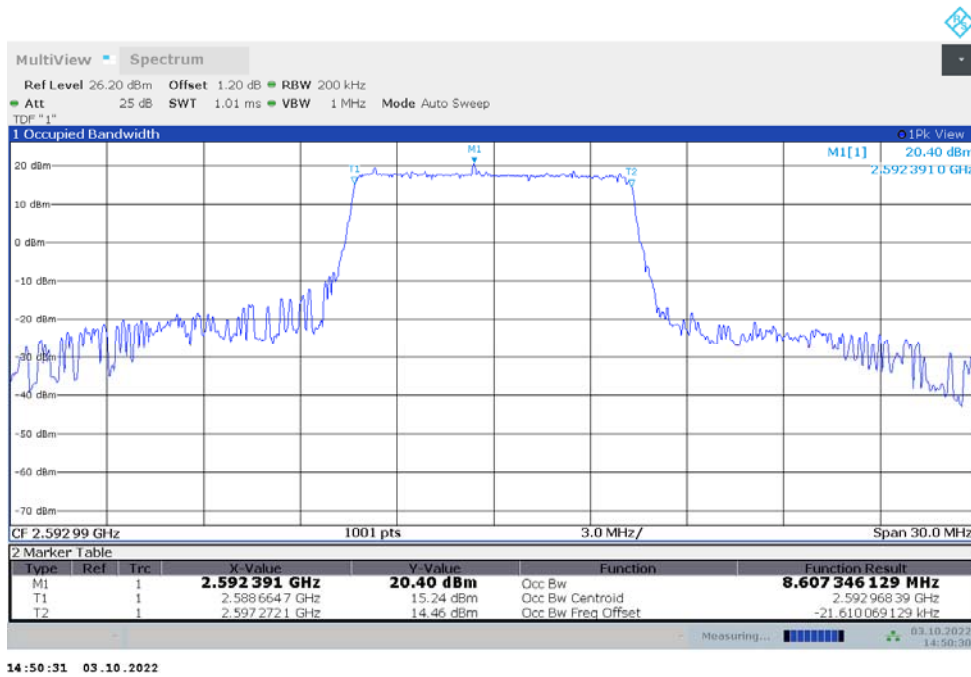
n25,20MHz Bandwidth,DFT-s-QPSK (99% BW)



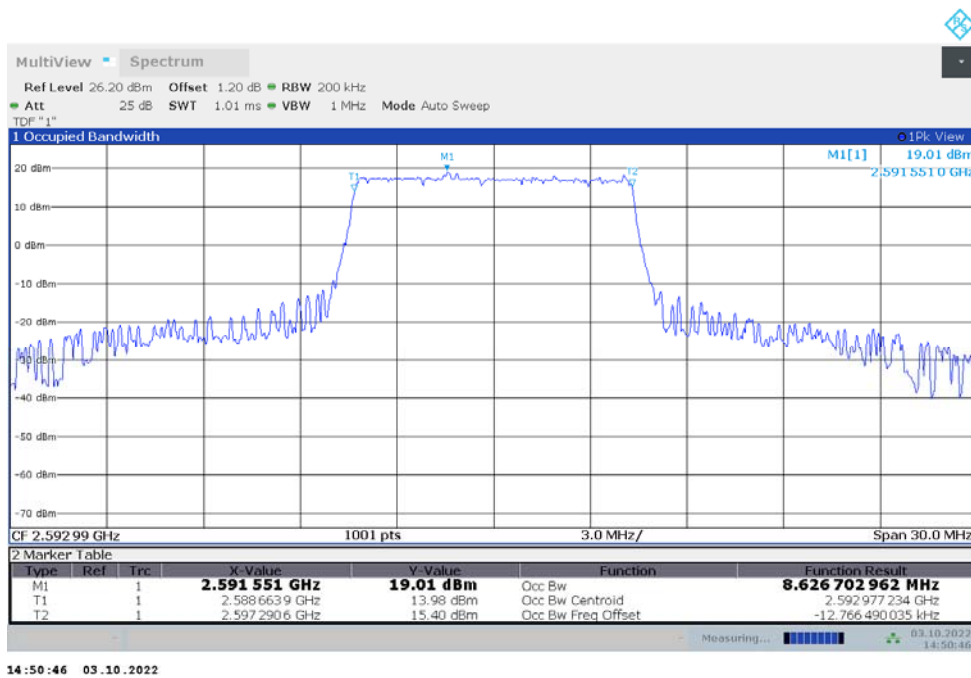
n41
n41,10MHz(99%)

Frequency (MHz)	Occupied Bandwidth (99%) (MHz)	
	DFT-s-pi/2 BPSK	DFT-s-QPSK
2592.99	8.607	8.627

n41,10MHz Bandwidth,DFT-s-pi/2 BPSK (99% BW)



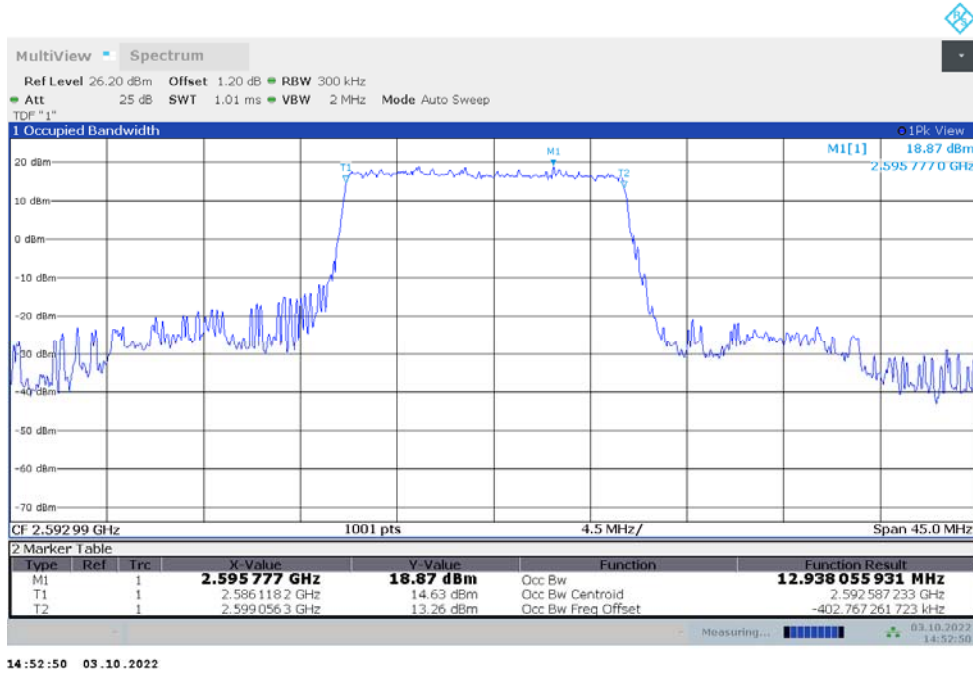
n41,10MHz Bandwidth,DFT-s-QPSK (99% BW)



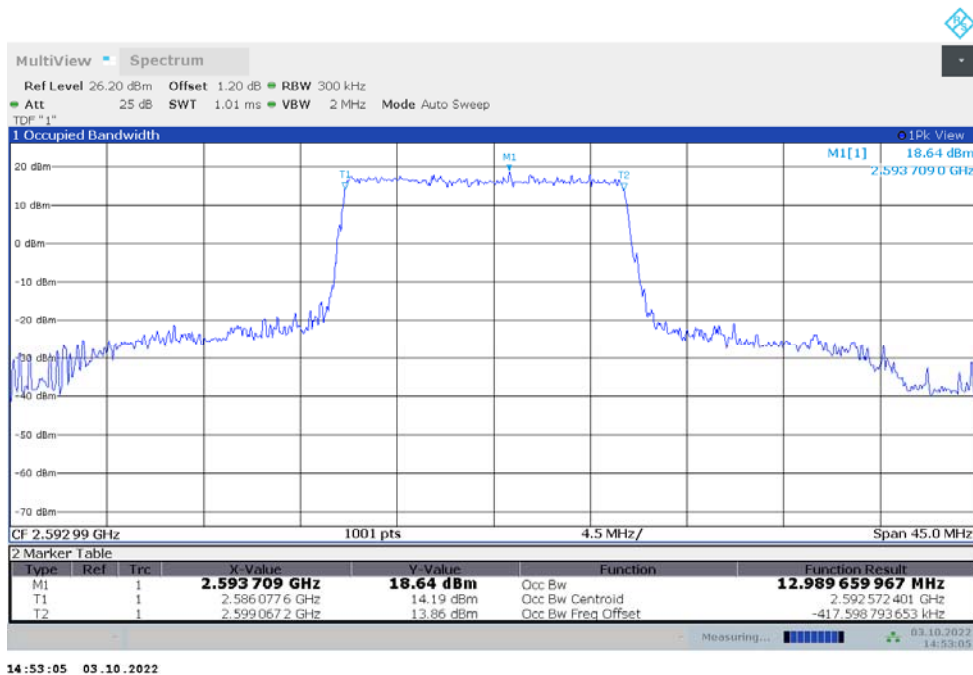
n41,15MHz(99%)

Frequency (MHz)	Occupied Bandwidth (99%) (MHz)	
	DFT-s-pi/2 BPSK	DFT-s-QPSK
2592.99	12.938	12.990

n41,15MHz Bandwidth,DFT-s-pi/2 BPSK (99% BW)



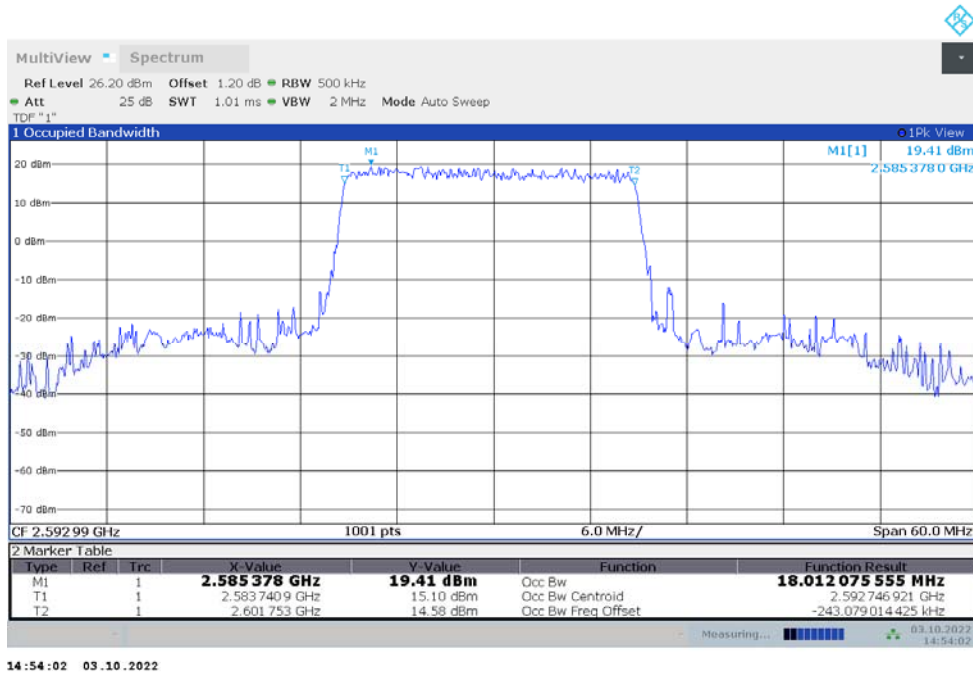
n41,15MHz Bandwidth,DFT-s-QPSK (99% BW)



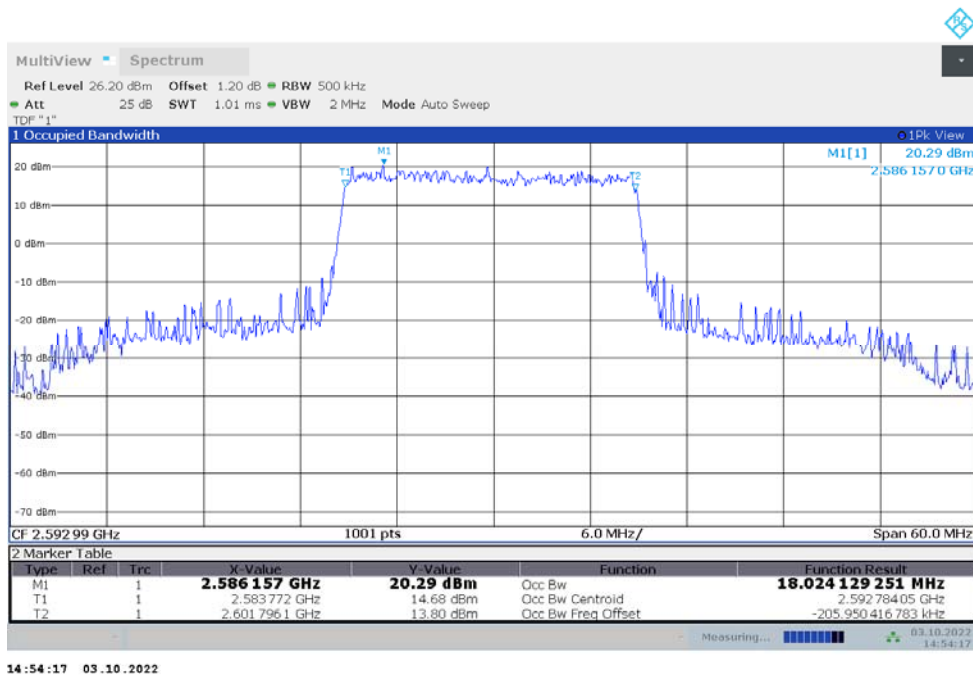
n41,20MHz(99%)

Frequency (MHz)	Occupied Bandwidth (99%) (MHz)	
	DFT-s-pi/2 BPSK	DFT-s-QPSK
2592.99	18.012	18.024

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



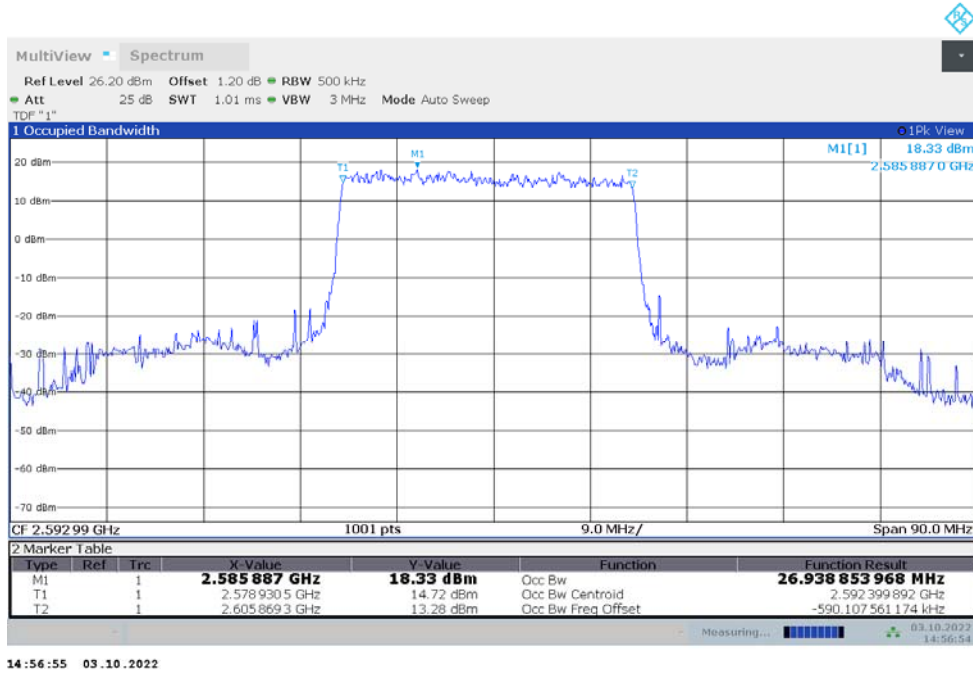
n41,20MHz Bandwidth,DFT-s-QPSK (99% BW)



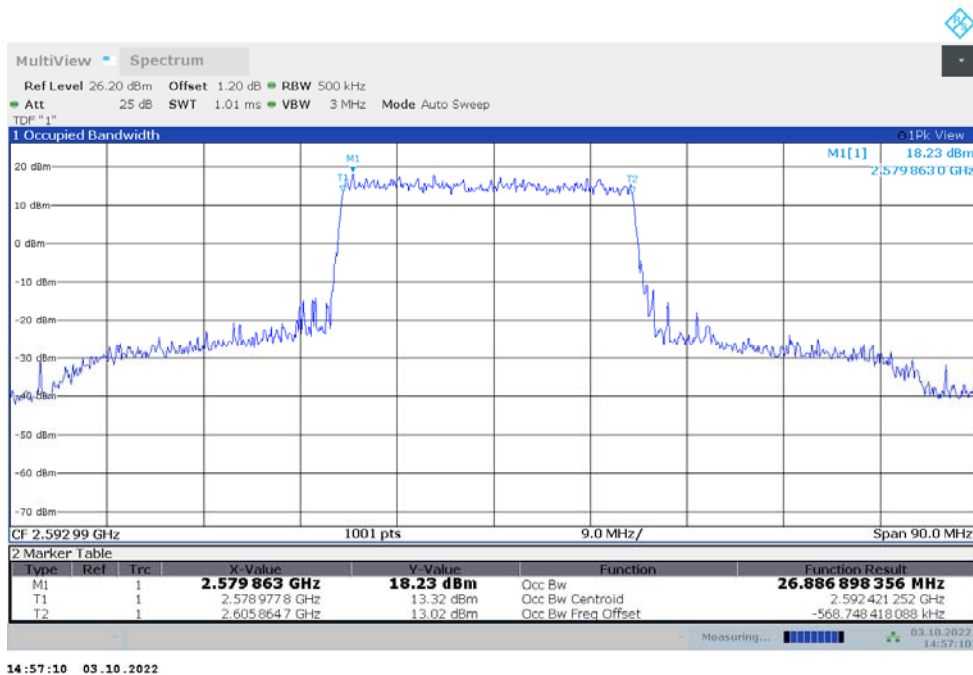
n41,30MHz(99%)

Frequency (MHz)	Occupied Bandwidth (99%) (MHz)	
	DFT-s-pi/2 BPSK	DFT-s-QPSK
2592.99	26.939	26.887

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



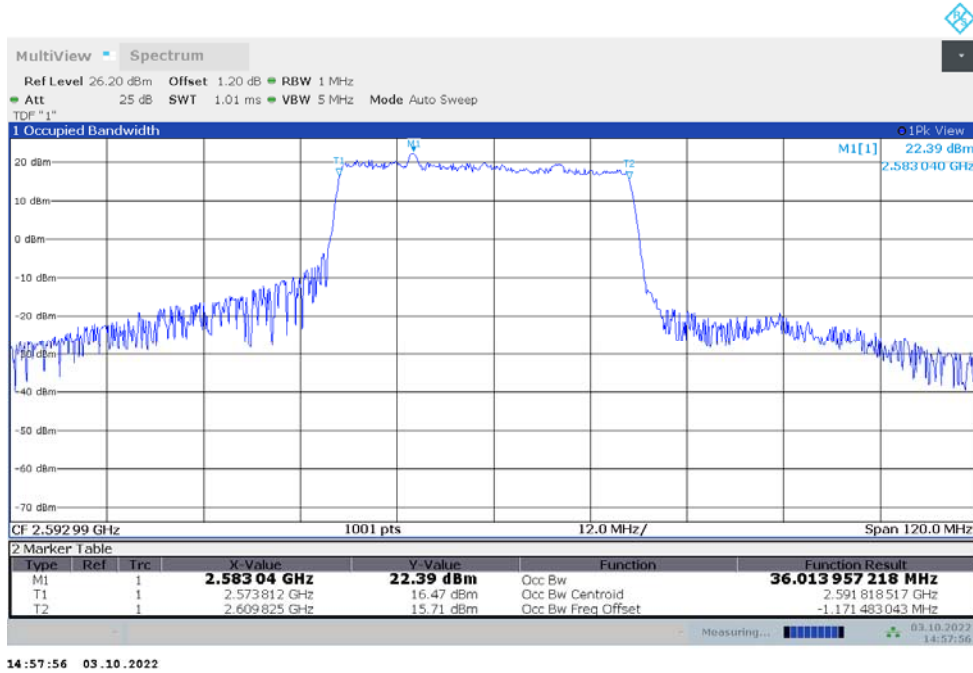
n41,30MHz Bandwidth,DFT-s-QPSK (99% BW)



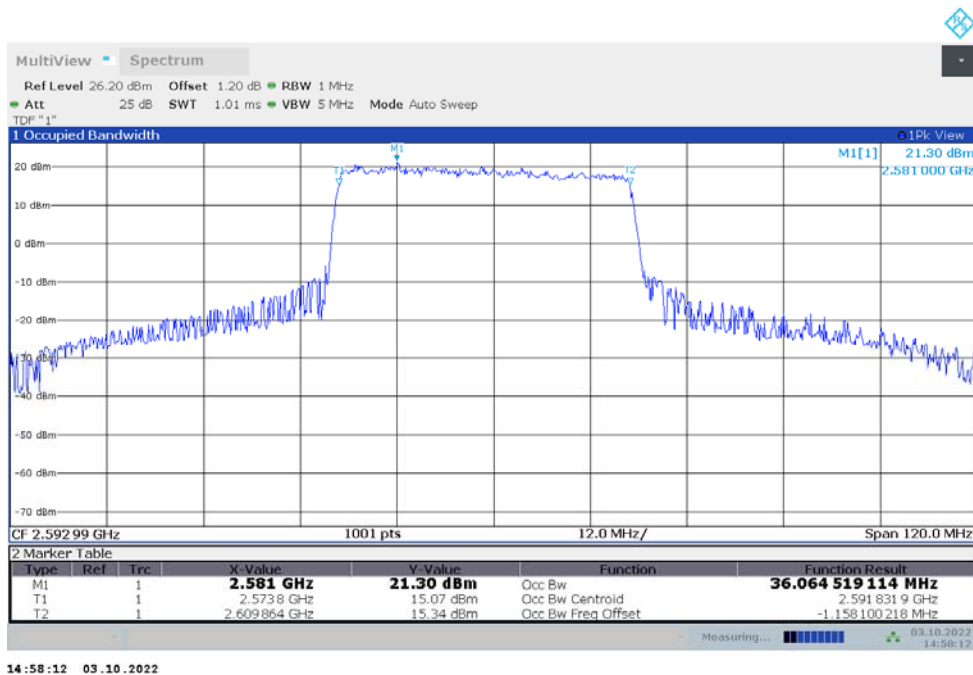
n41,40MHz(99%)

Frequency (MHz)	Occupied Bandwidth (99%) (MHz)	
	DFT-s-pi/2 BPSK	DFT-s-QPSK
2592.99	36.014	36.065

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



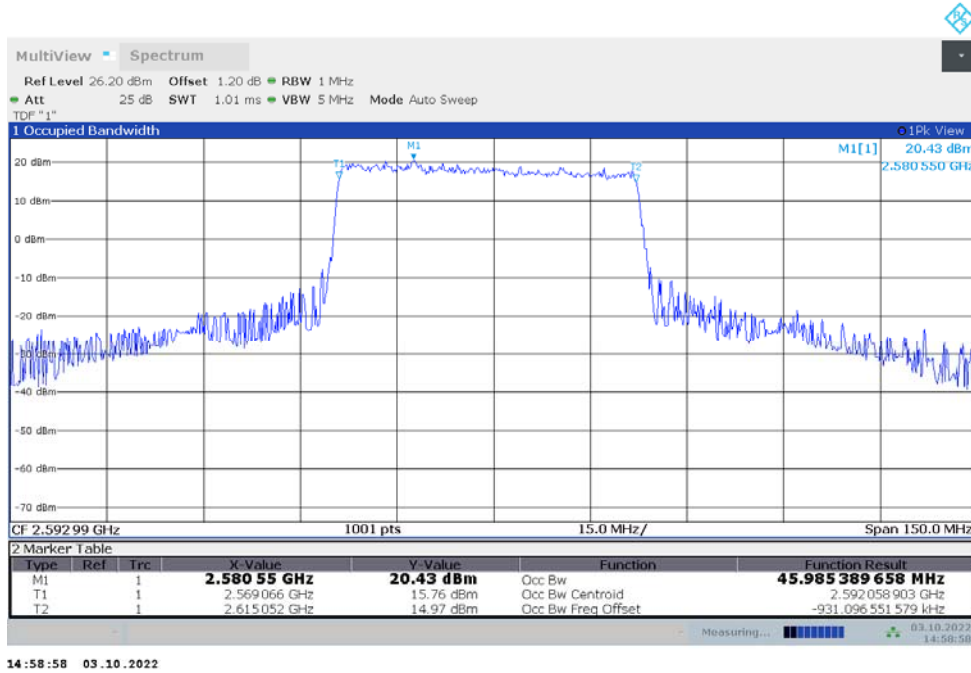
n41,40MHz Bandwidth,DFT-s-QPSK (99% BW)



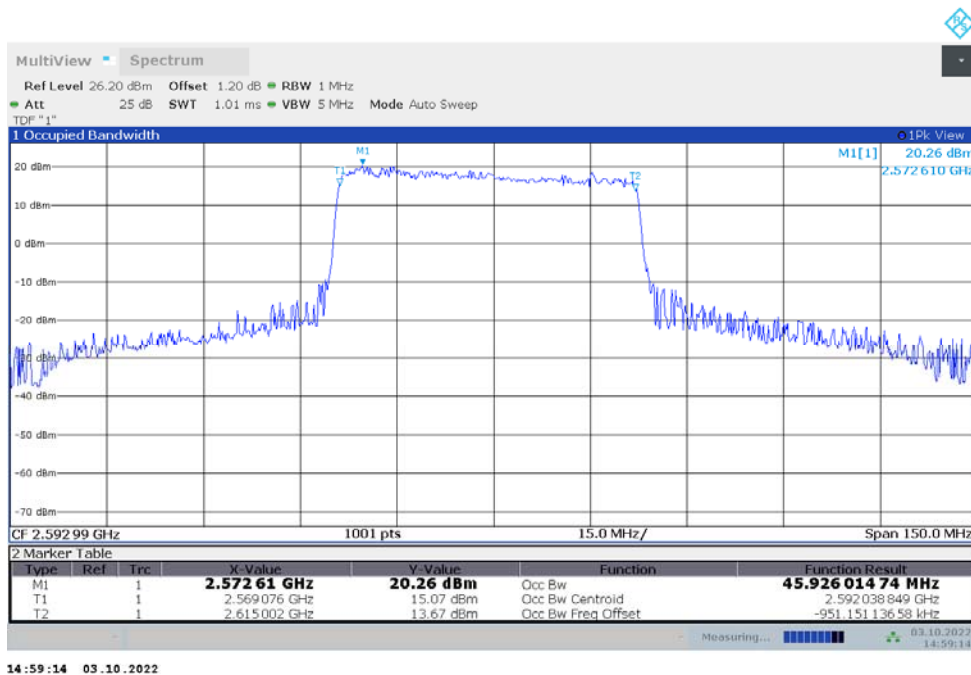
n41,50MHz(99%)

Frequency (MHz)	Occupied Bandwidth (99%) (MHz)	
	DFT-s-pi/2 BPSK	DFT-s-QPSK
2592.99	45.985	45.926

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



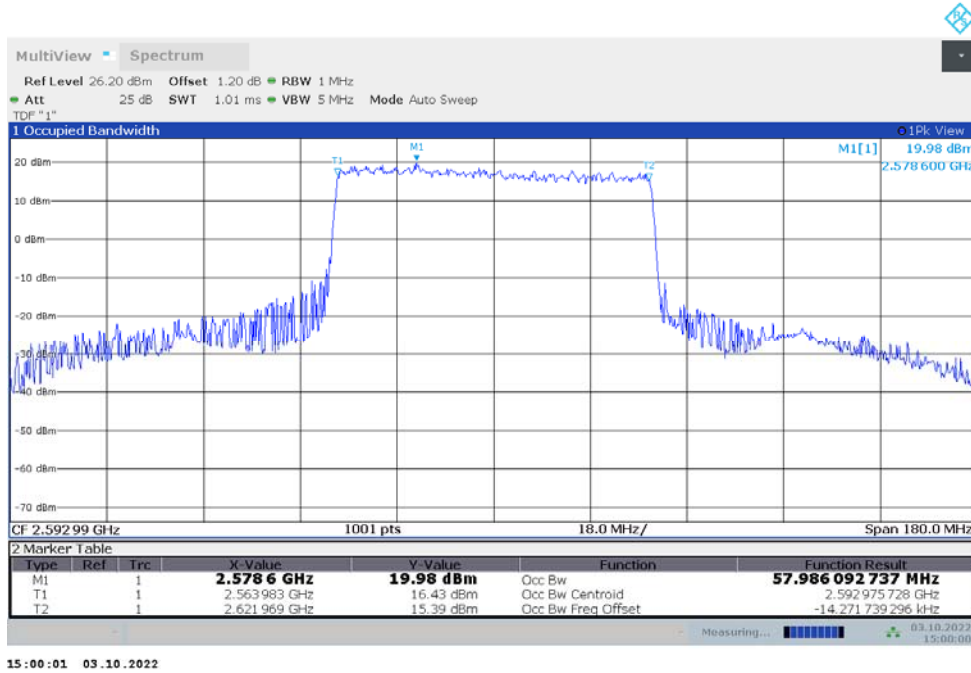
n41,50MHz Bandwidth,DFT-s-QPSK (99% BW)



n41,60MHz(99%)

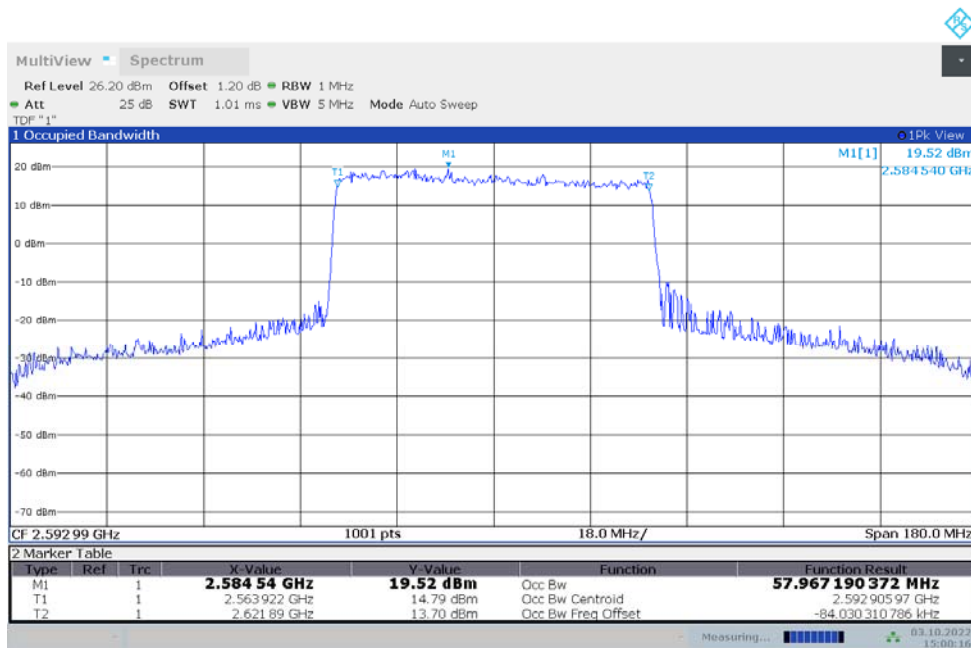
Frequency (MHz)	Occupied Bandwidth (99%) (MHz)	
	DFT-s-pi/2 BPSK	DFT-s-QPSK
2592.99	57.986	57.967

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



15:00:01 03.10.2022

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

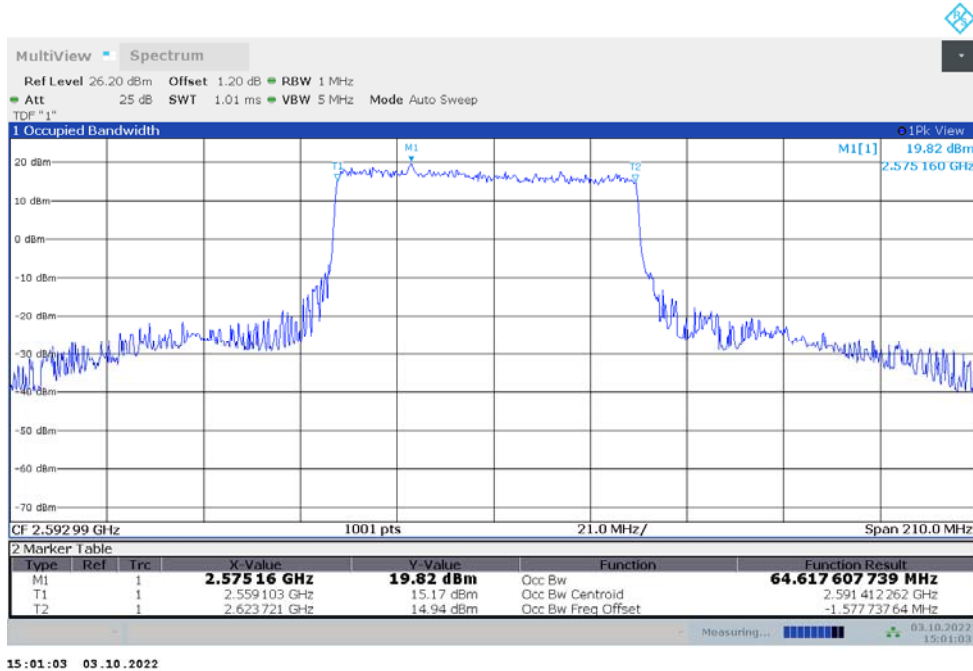


15:00:16 03.10.2022

n41,70MHz(99%)

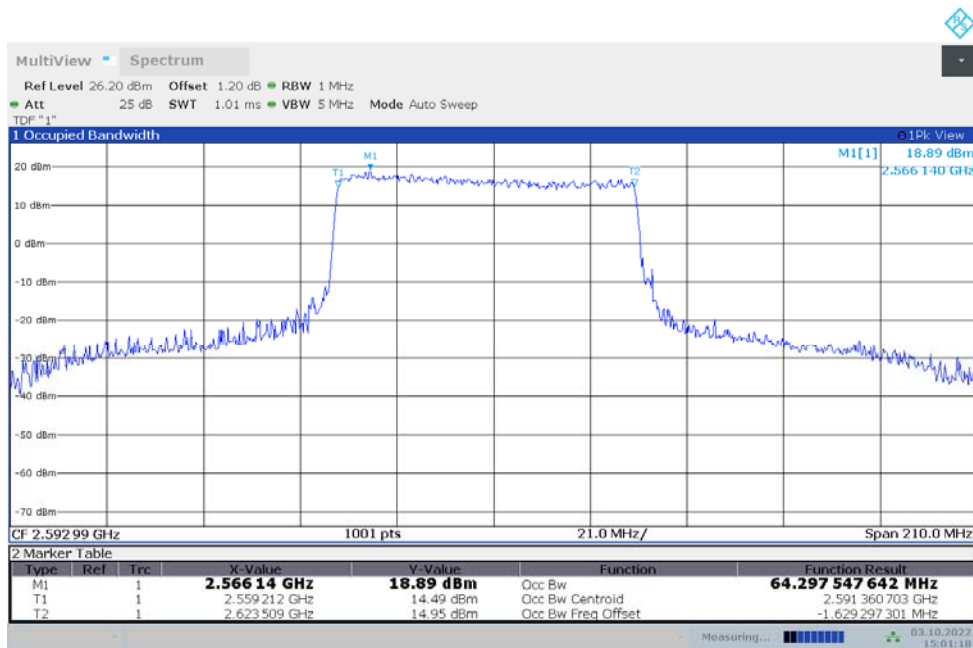
Frequency (MHz)	Occupied Bandwidth (99%) (MHz)	
	DFT-s-pi/2 BPSK	DFT-s-QPSK
2592.99	64.618	64.298

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



15:01:03 03.10.2022

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

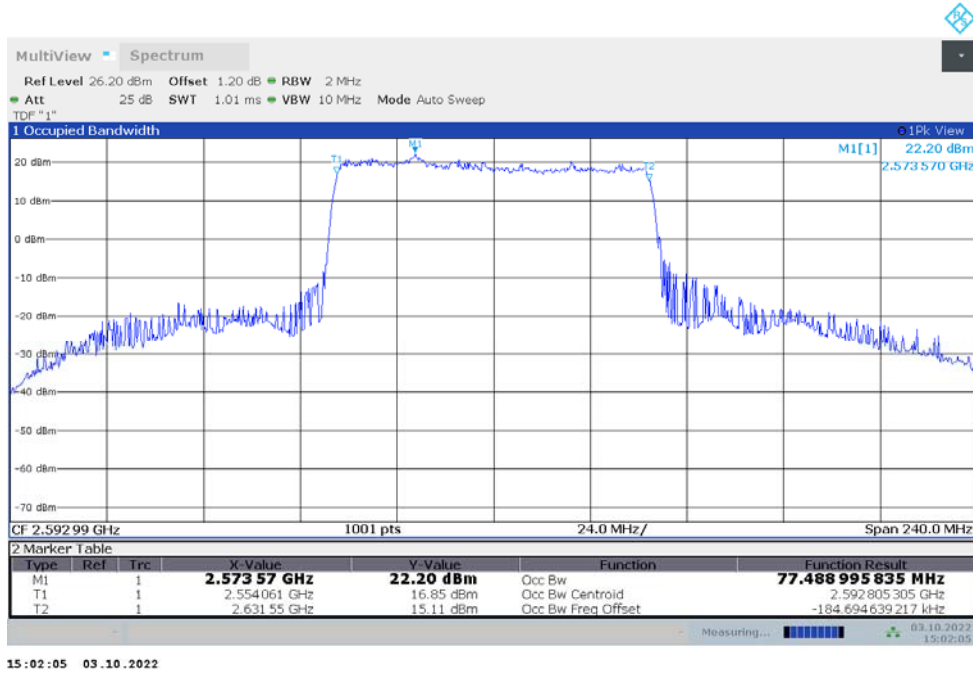


15:01:18 03.10.2022

n41,80MHz(99%)

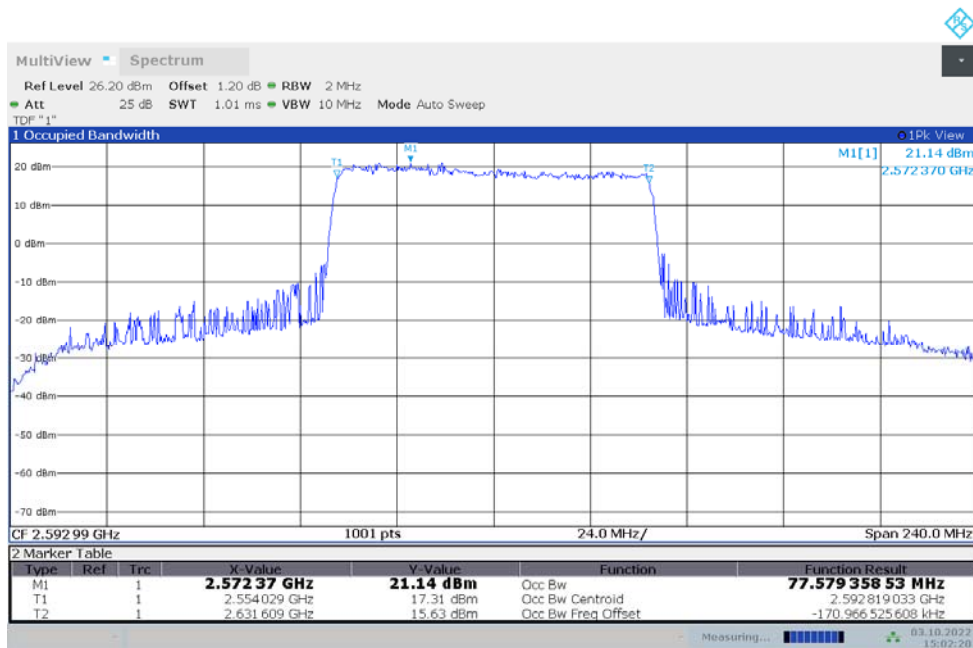
Frequency (MHz)	Occupied Bandwidth (99%) (MHz)	
	DFT-s-pi/2 BPSK	DFT-s-QPSK
2592.99	77.489	77.579

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



15:02:05 03.10.2022

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

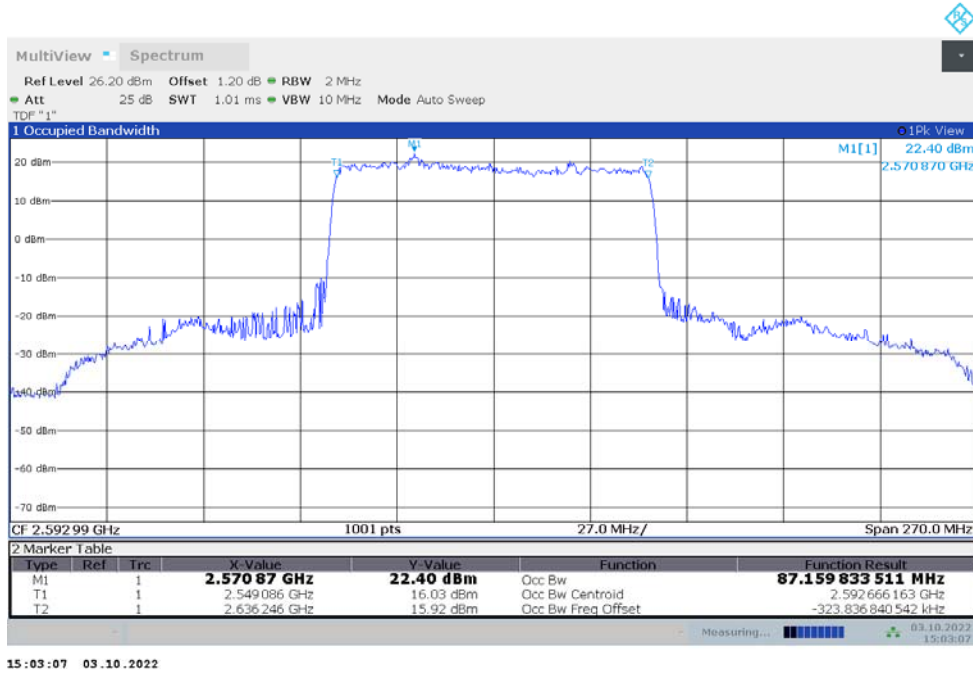


15:02:20 03.10.2022

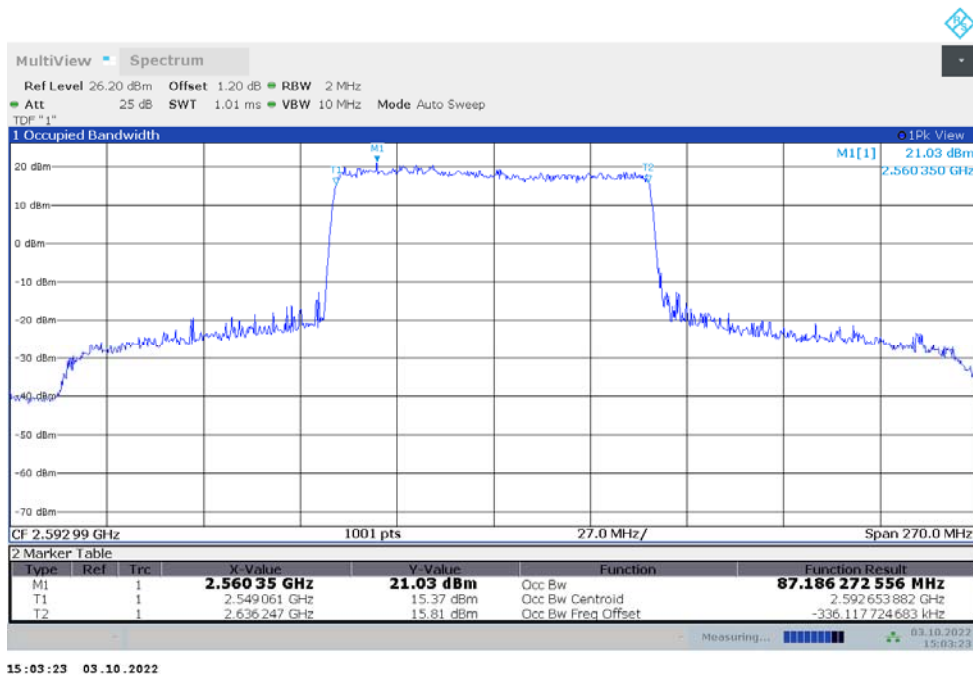
n41,90MHz(99%)

Frequency (MHz)	Occupied Bandwidth (99%) (MHz)	
	DFT-s-pi/2 BPSK	DFT-s-QPSK
2592.99	87.160	87.186

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



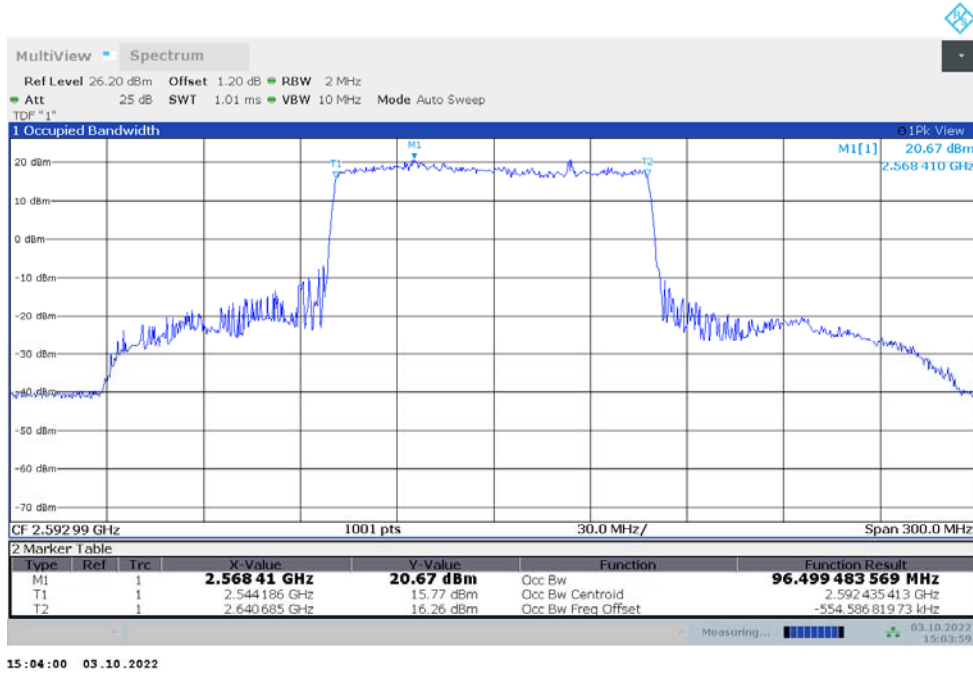
n41,90MHz Bandwidth,DFT-s-QPSK (99% BW)



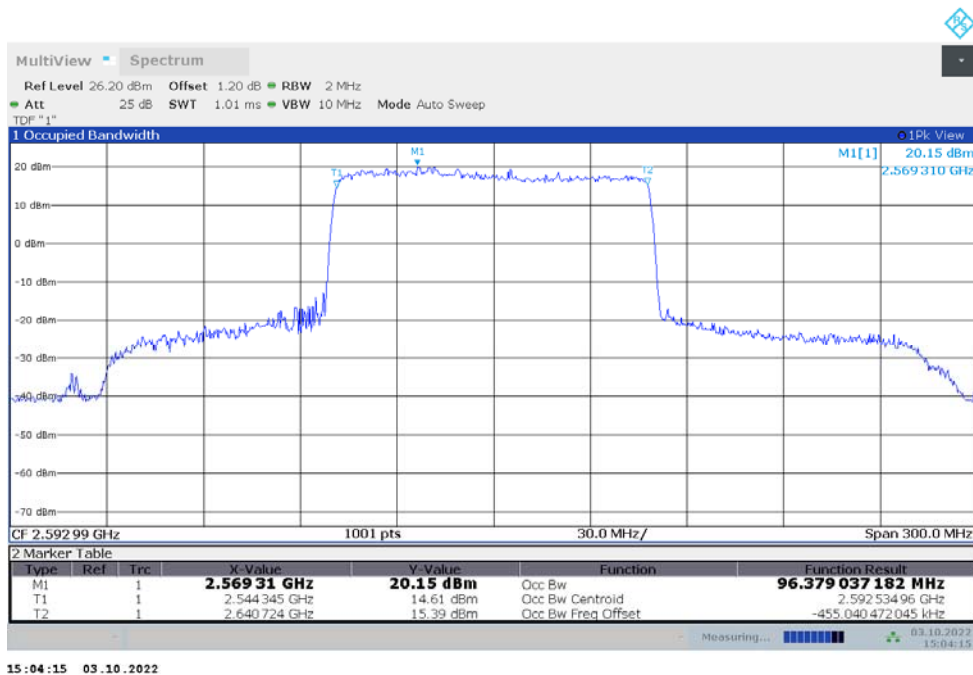
n41,100MHz(99%)

Frequency (MHz)	Occupied Bandwidth (99%) (MHz)	
	DFT-s-pi/2 BPSK	DFT-s-QPSK
2592.99	96.499	96.379

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



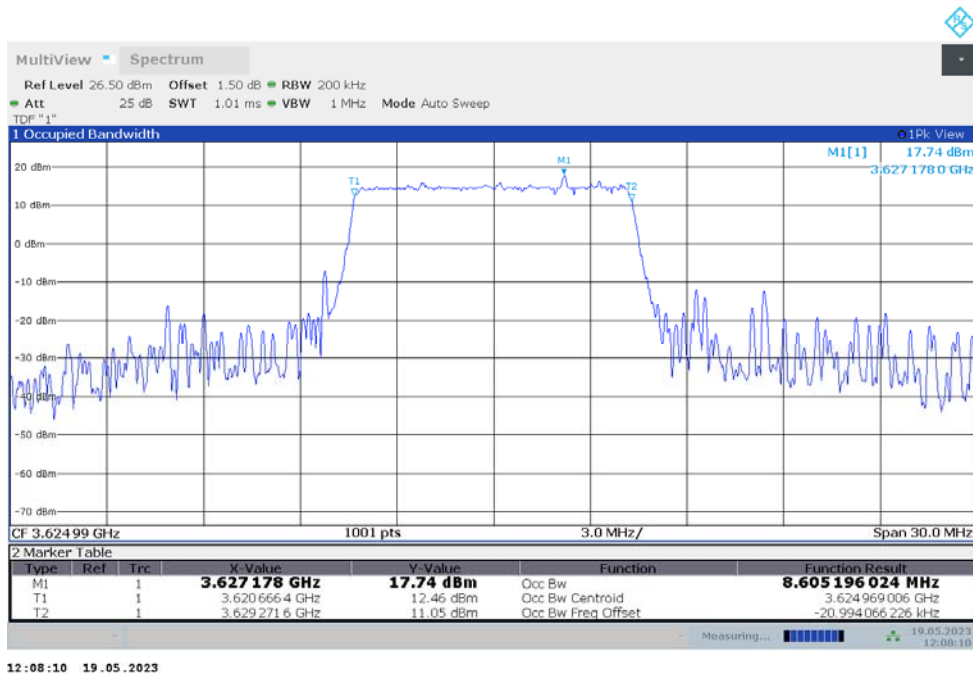
n41,100MHz Bandwidth,DFT-s-QPSK (99% BW)



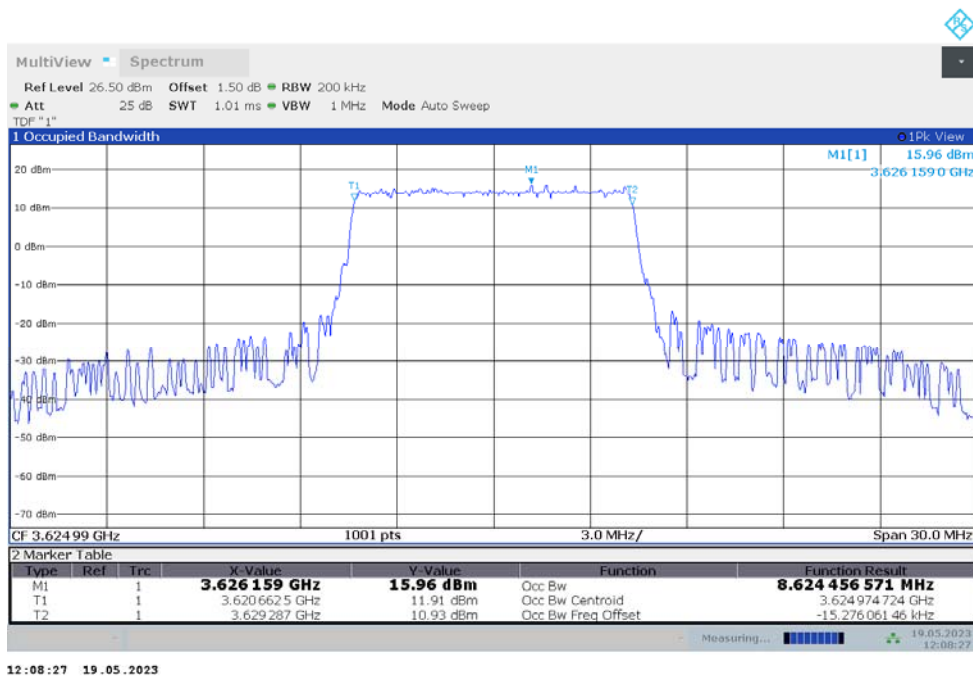
n48
n48,10MHz(99%)

Frequency (MHz)	Occupied Bandwidth (99%) (MHz)	
	DFT-s-pi/2 BPSK	DFT-s-QPSK
3624.99	8.605	8.624

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



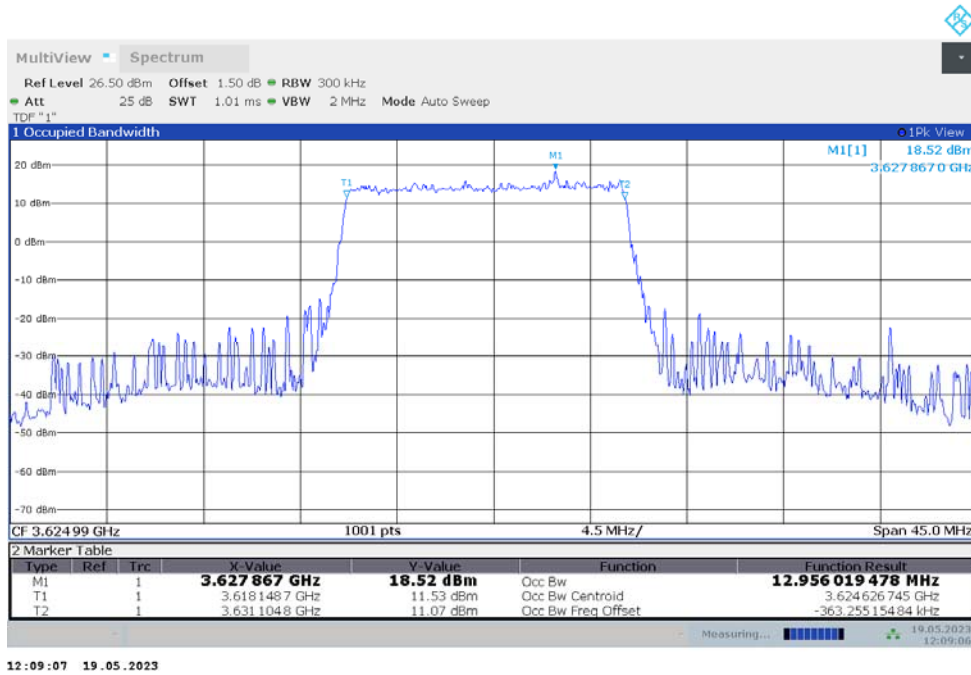
n48,10MHz Bandwidth,DFT-s-QPSK (99% BW)



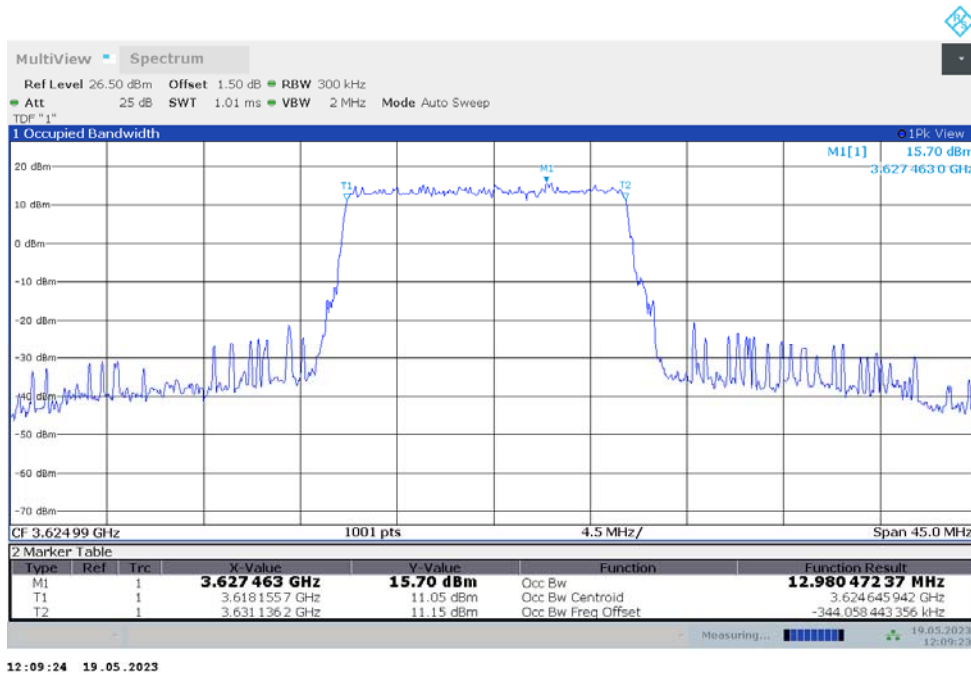
n48
n48,15MHz(99%)

Frequency (MHz)	Occupied Bandwidth (99%) (MHz)	
	DFT-s-pi/2 BPSK	DFT-s-QPSK
3624.99	12.956	12.980

n48,15MHz Bandwidth,DFT-s-pi/2 BPSK (99% BW)



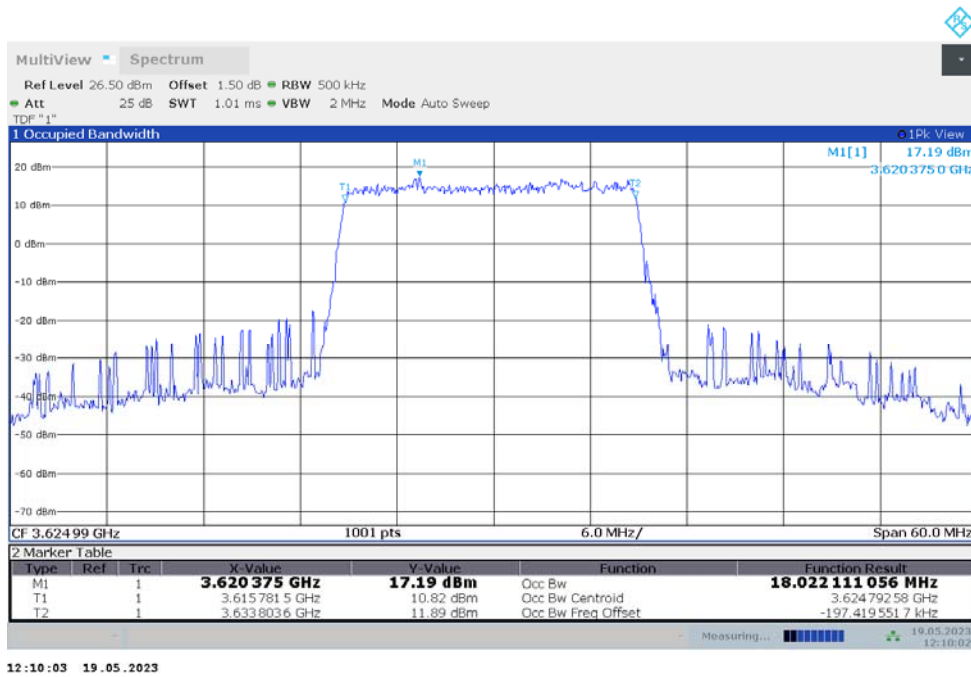
n48,15MHz Bandwidth,DFT-s-QPSK (99% BW)



n48
n48,20MHz(99%)

Frequency (MHz)	Occupied Bandwidth (99%) (MHz)	
	DFT-s-pi/2 BPSK	DFT-s-QPSK
3624.99	18.022	18.006

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



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

