DC_2A_n77A(3450 MHz-3550 MHz)

n77L,80MHz(99%)

Frequency (MHz)	Occupied Bandwidth (99%) (MHz)	
	DFT-s-pi/2 BPSK	DFT-s-QPSK
3500.01	77.699	77.656

n77L,80MHz Bandwidth,DFT-s-pi/2 BPSK (99% BW)
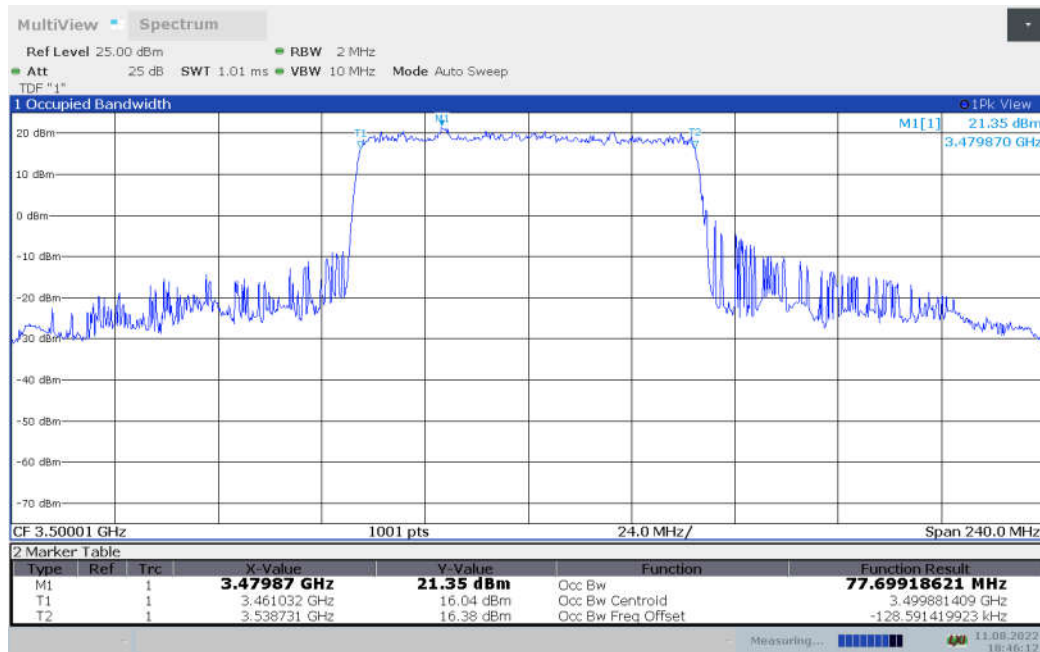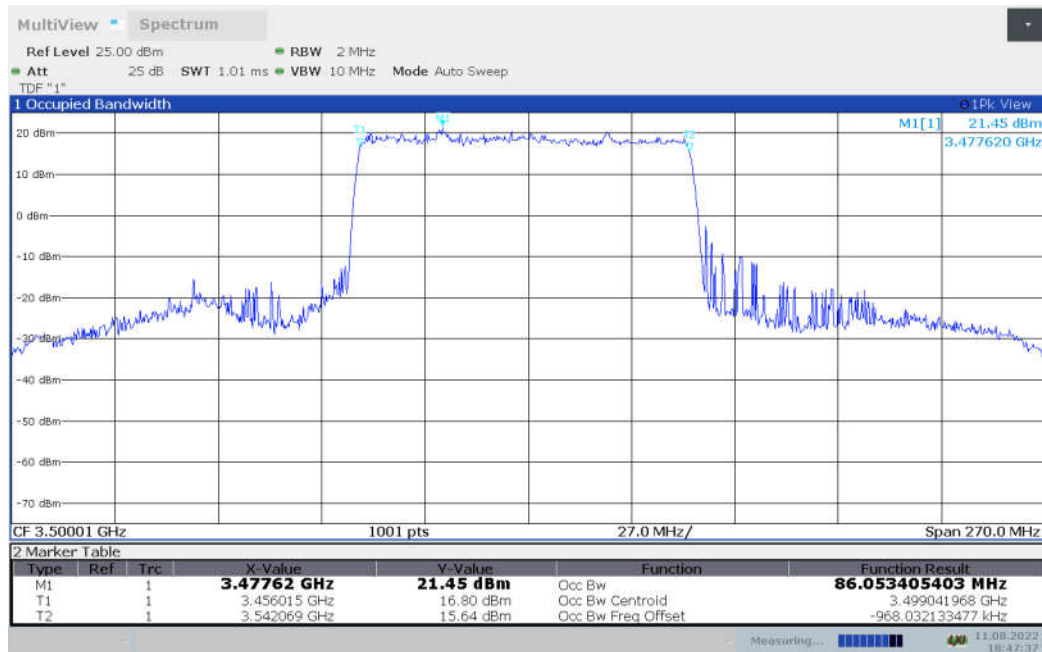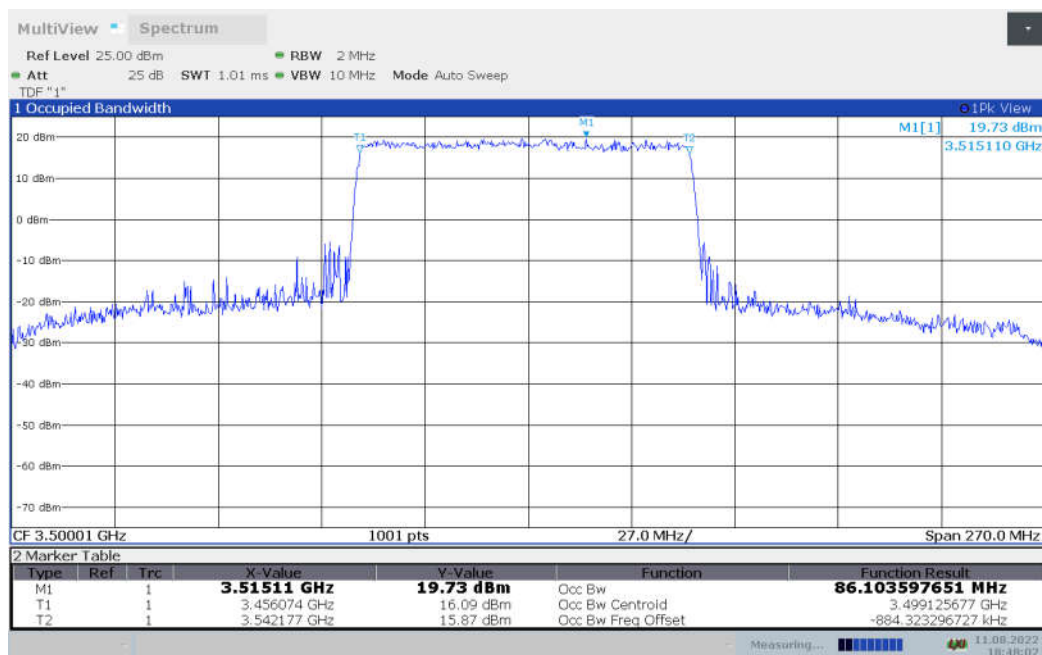

n77L,80MHz Bandwidth,DFT-s-QPSK (99% BW)
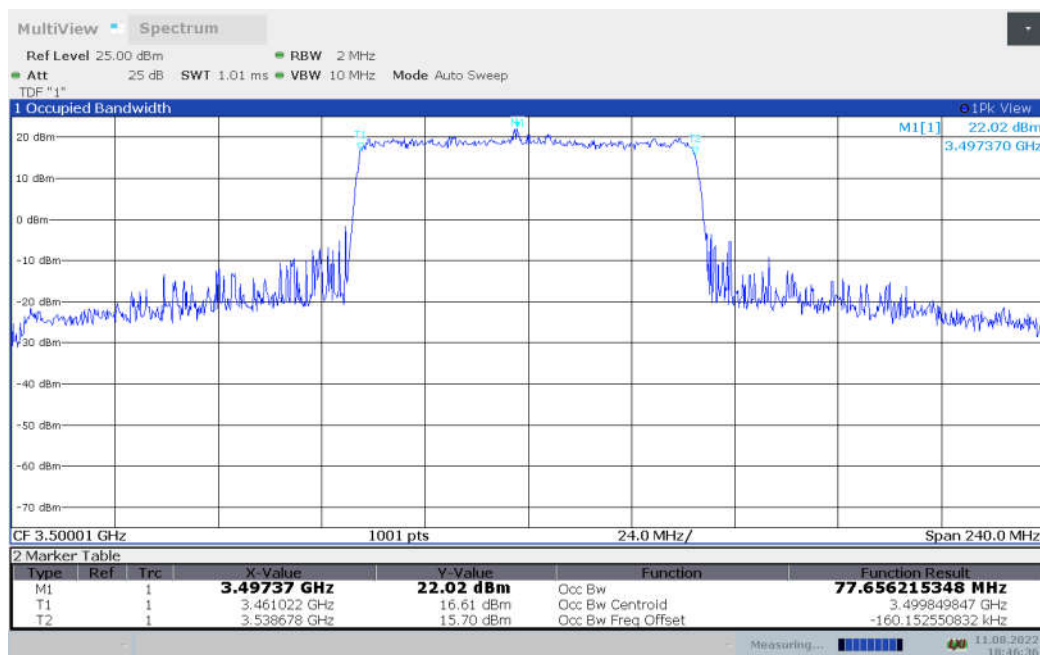
DC_2A_n77A(3450 MHz-3550 MHz)

n77L,90MHz(99%)

Frequency (MHz)	Occupied Bandwidth (99%) (MHz)	
	DFT-s-pi/2 BPSK	DFT-s-QPSK
3500.01	86.053	86.104

n77L,90MHz Bandwidth,DFT-s-pi/2 BPSK (99% BW)

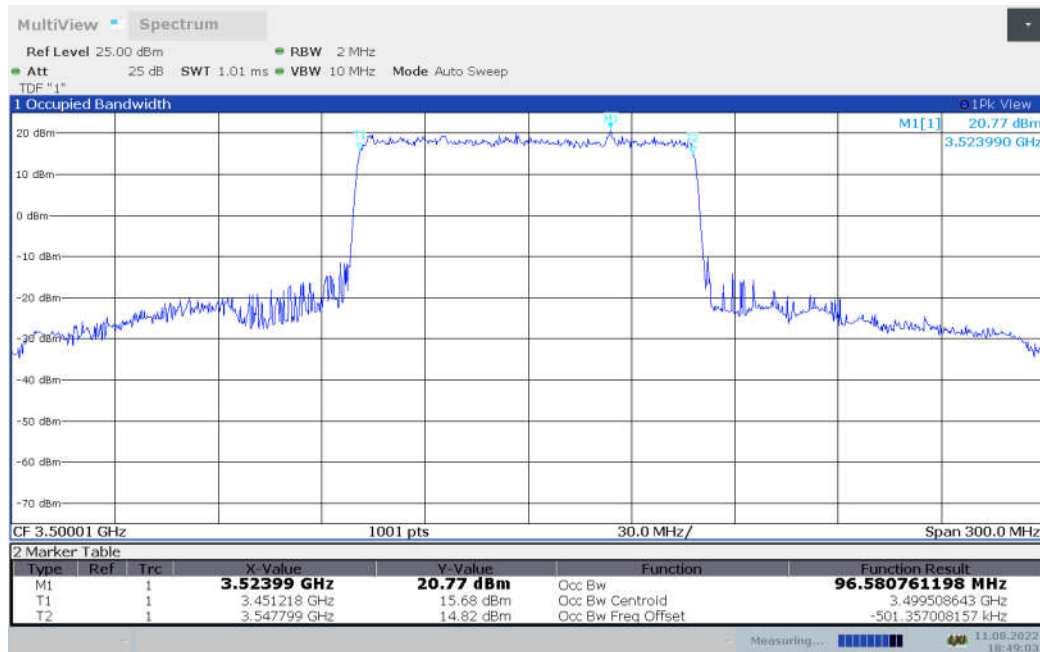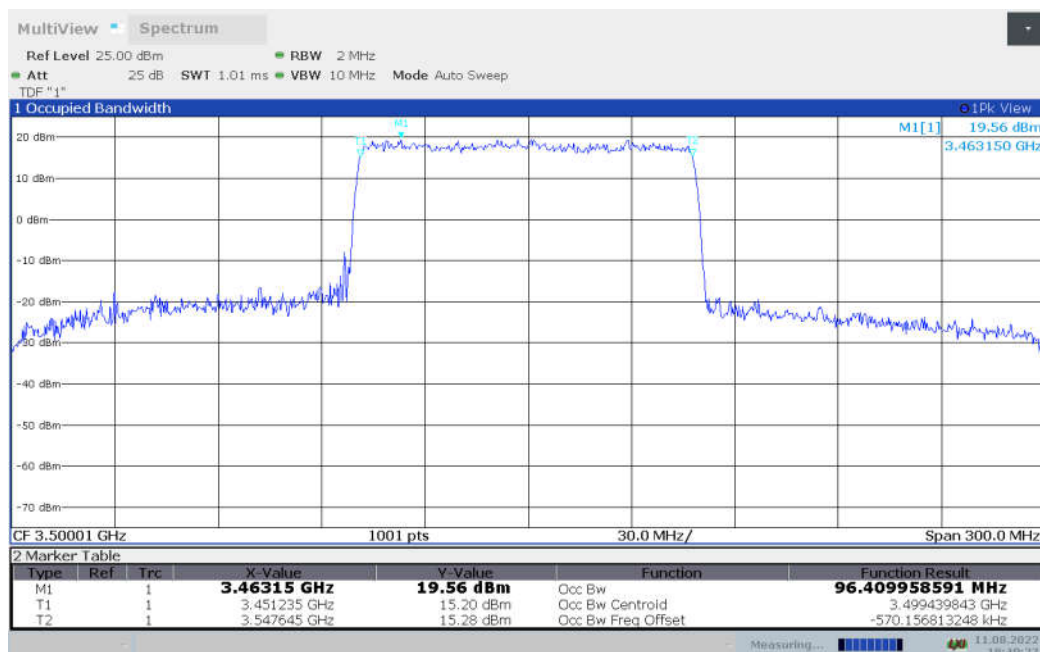**n77L,90MHz Bandwidth,DFT-s-QPSK (99% BW)**

DC_2A_n77A(3450 MHz-3550 MHz)

n77L,100MHz(99%)

Frequency (MHz)	Occupied Bandwidth (99%) (MHz)	
	DFT-s-pi/2 BPSK	DFT-s-QPSK
3500.01	96.581	96.410

n77L,100MHz Bandwidth,DFT-s-pi/2 BPSK (99% BW)
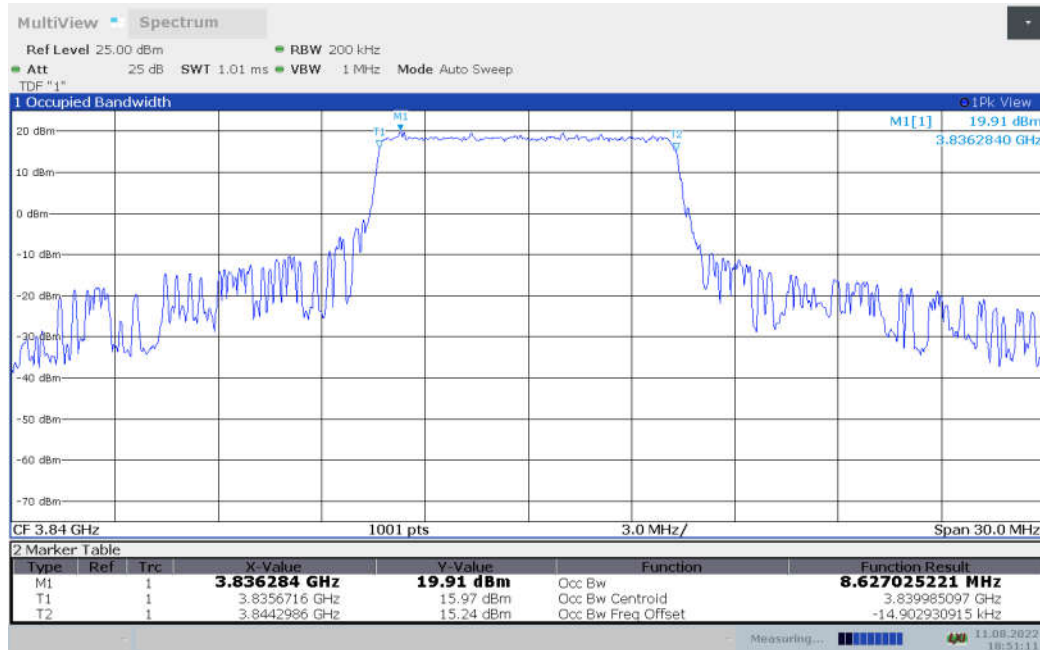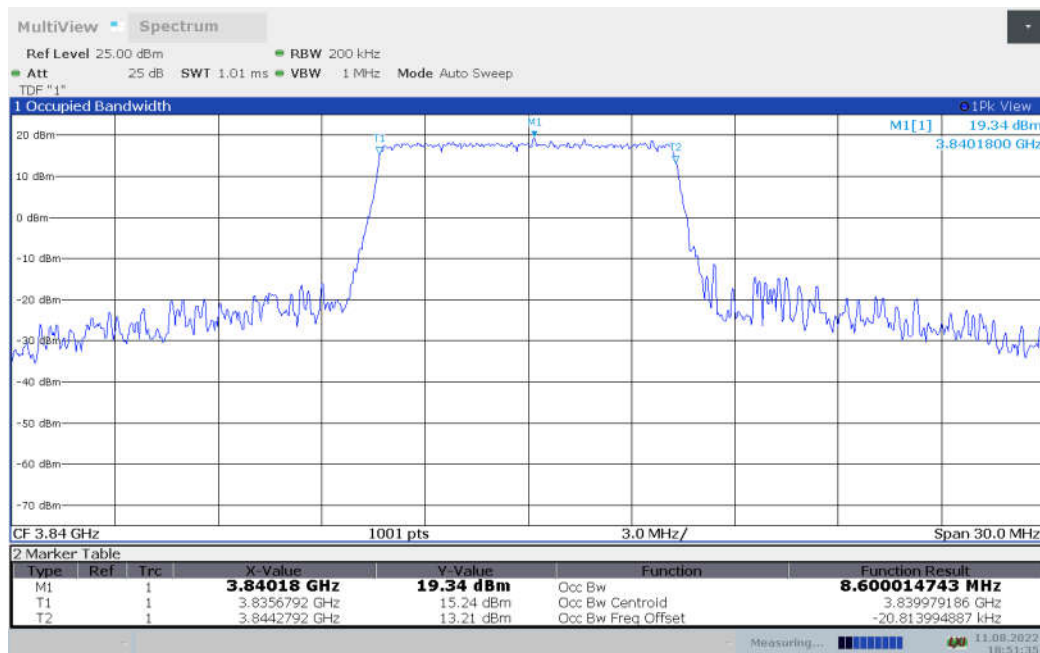

n77L,100MHz Bandwidth,DFT-s-QPSK (99% BW)

DC_2A_n77A(3700 MHz-3980 MHz)

n77H,10MHz(99%)

Frequency (MHz)	Occupied Bandwidth (99%) (MHz)	
	DFT-s-pi/2 BPSK	DFT-s-QPSK
3840	8.627	8.600

n77H,10MHz Bandwidth,DFT-s-pi/2 BPSK (99% BW)
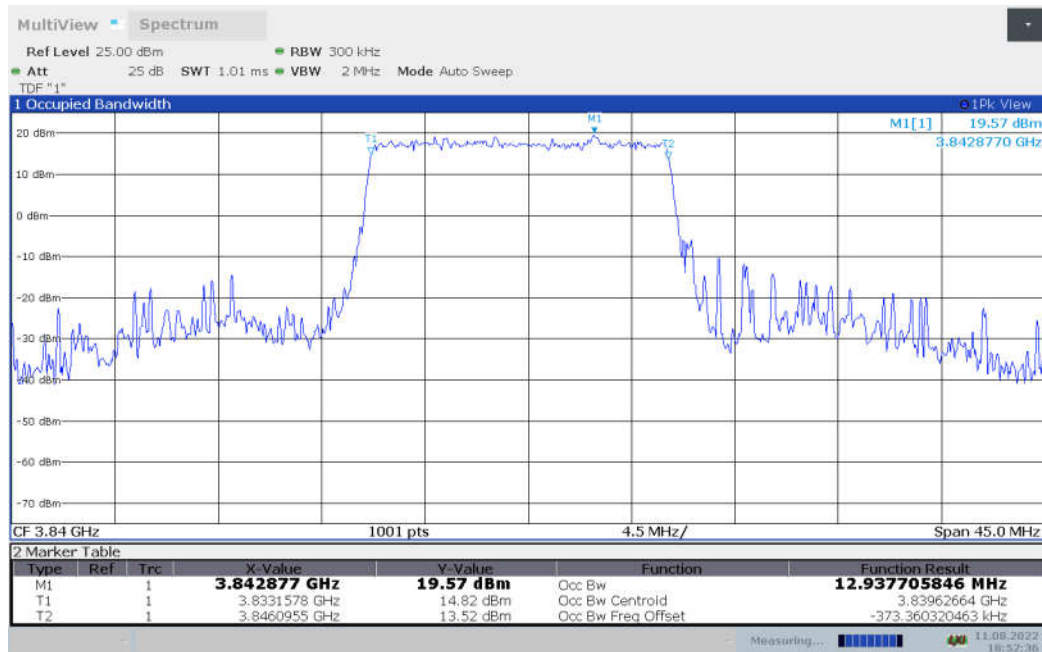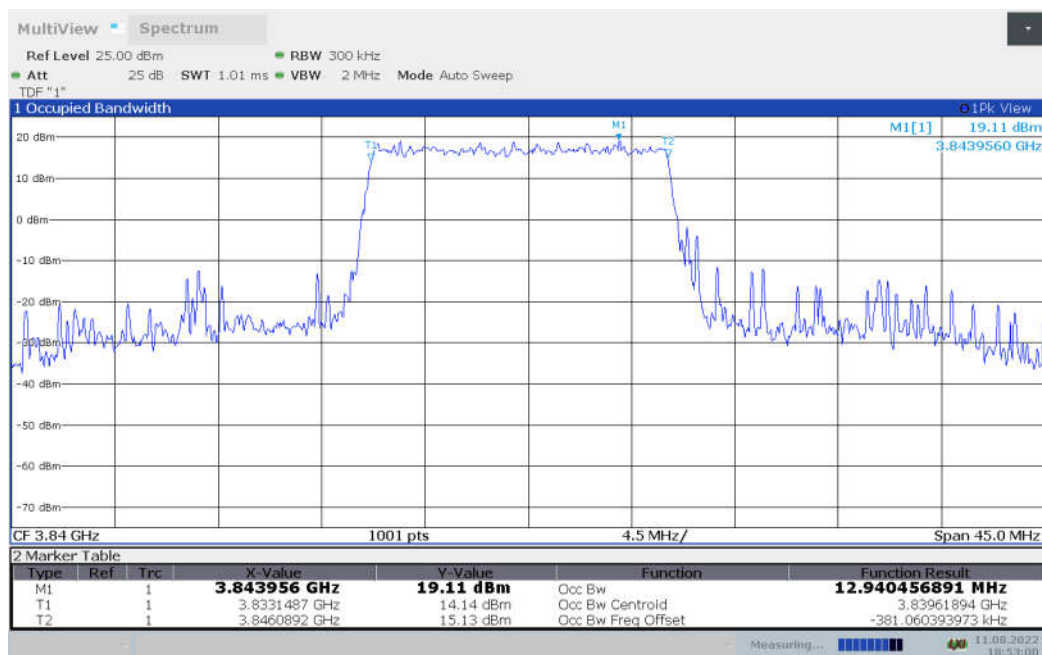

n77H,10MHz Bandwidth,DFT-s-QPSK (99% BW)

Page **213** of **277**

DC_2A_n77A(3700 MHz-3980 MHz)

n77H,15MHz(99%)

Frequency (MHz)	Occupied Bandwidth (99%) (MHz)	
	DFT-s-pi/2 BPSK	DFT-s-QPSK
3840	12.938	12.940

n77H,15MHz Bandwidth,DFT-s-pi/2 BPSK (99% BW)

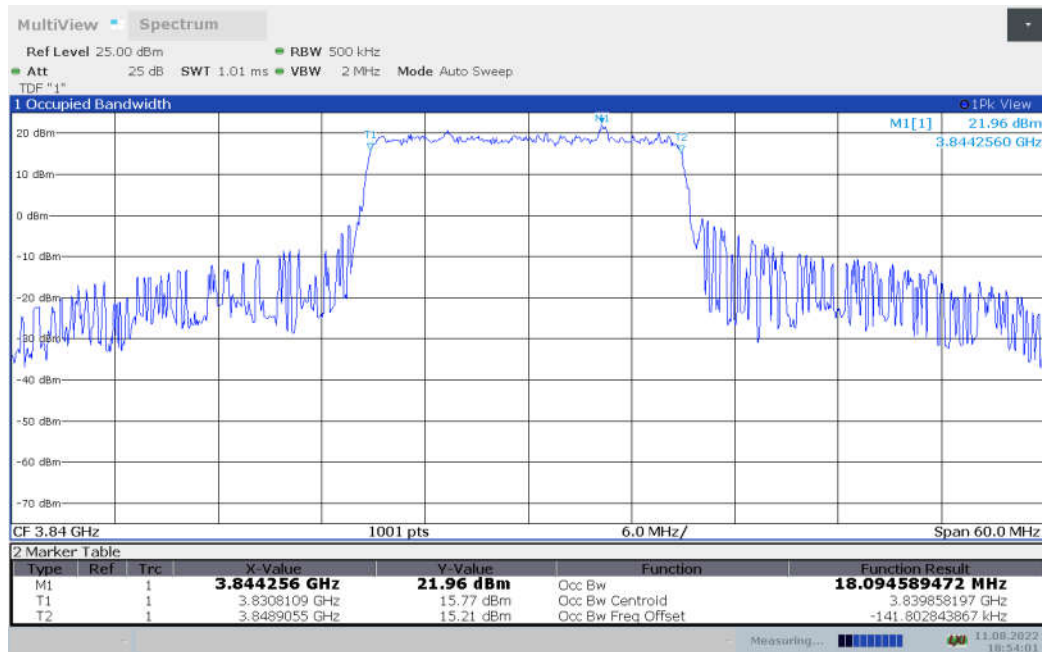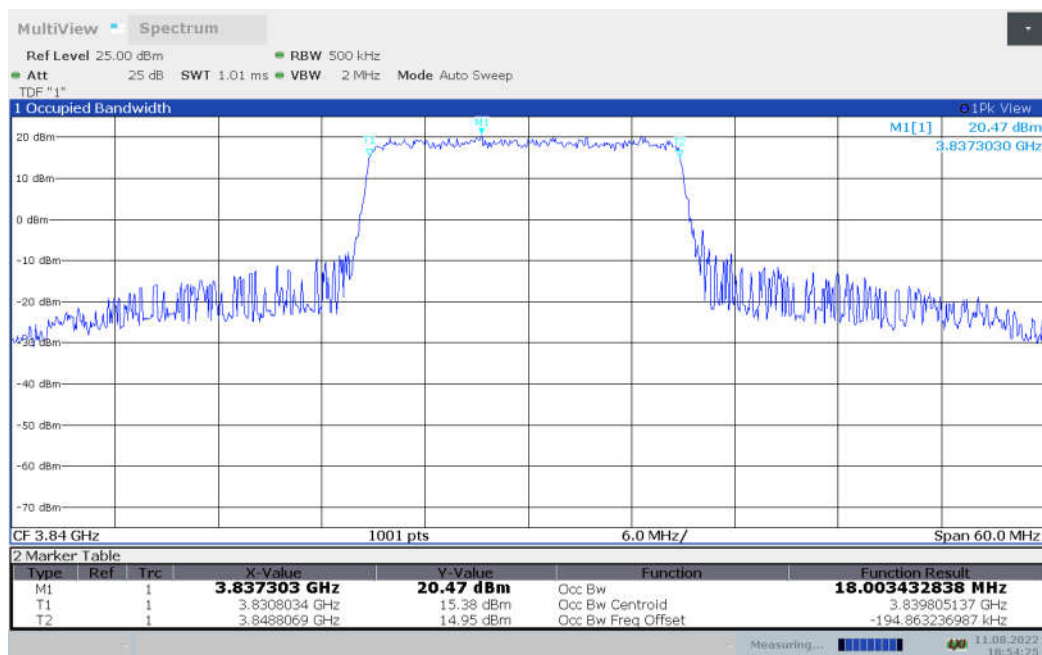**n77H,15MHz Bandwidth,DFT-s-QPSK (99% BW)**

Page **214** of **277**

DC_2A_n77A(3700 MHz-3980 MHz)

n77H,20MHz(99%)

Frequency (MHz)	Occupied Bandwidth (99%) (MHz)	
	DFT-s-pi/2 BPSK	DFT-s-QPSK
3840	18.095	18.003

n77H,20MHz Bandwidth,DFT-s-pi/2 BPSK (99% BW)

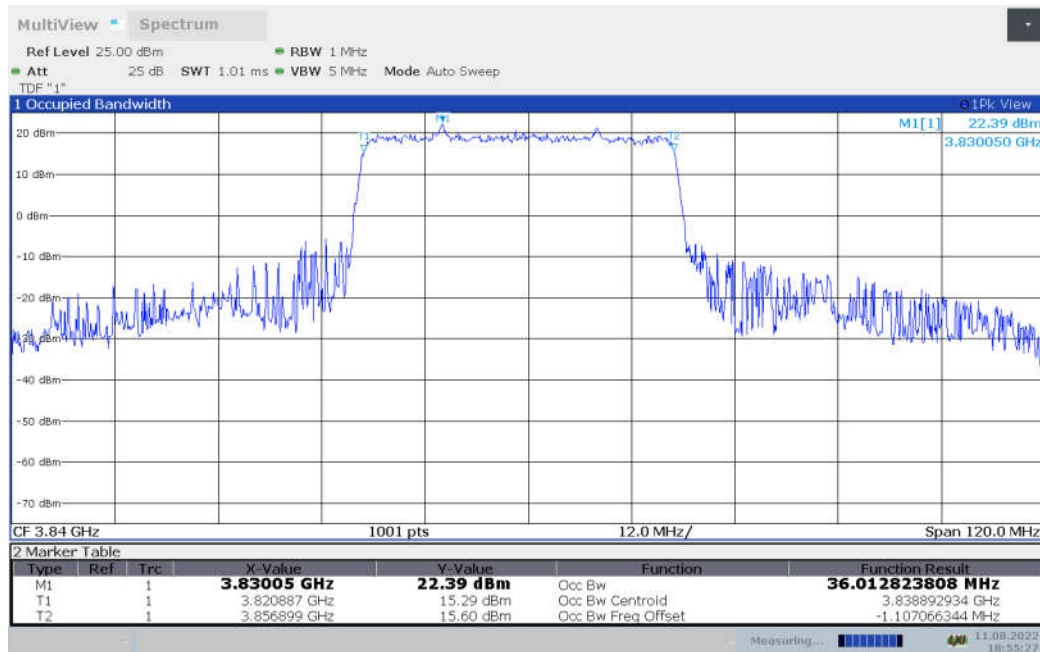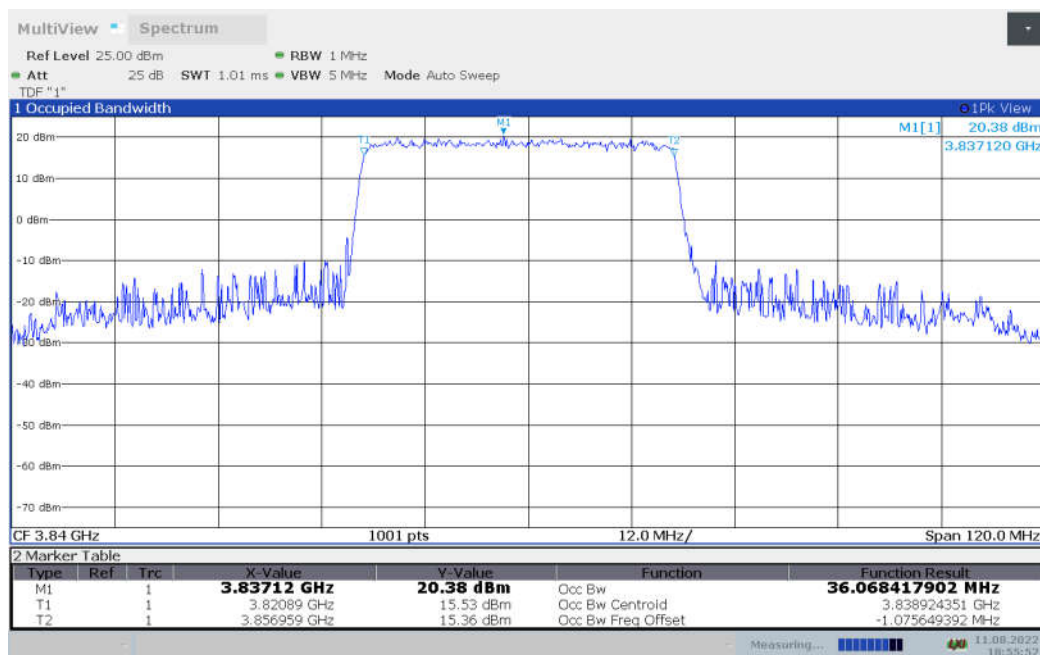**n77H,20MHz Bandwidth,DFT-s-QPSK (99% BW)**

DC_2A_n77A(3700 MHz-3980 MHz)

n77H,40MHz(99%)

Frequency (MHz)	Occupied Bandwidth (99%) (MHz)	
	DFT-s-pi/2 BPSK	DFT-s-QPSK
3840	36.013	36.068

n77H,40MHz Bandwidth,DFT-s-pi/2 BPSK (99% BW)

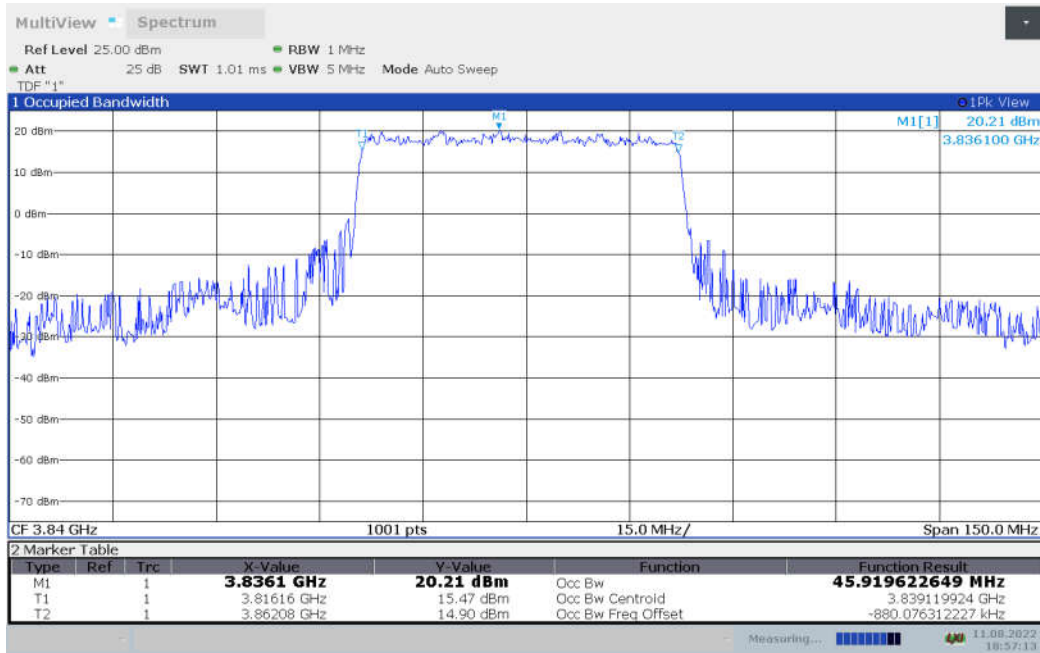**n77H,40MHz Bandwidth,DFT-s-QPSK (99% BW)**

DC_2A_n77A(3700 MHz-3980 MHz)

n77H,50MHz(99%)

Frequency (MHz)	Occupied Bandwidth (99%) (MHz)	
	DFT-s-pi/2 BPSK	DFT-s-QPSK
3840	45.920	45.830

n77H,50MHz Bandwidth,DFT-s-pi/2 BPSK (99% BW)

n77H,50MHz Bandwidth,DFT-s-QPSK (99% BW)
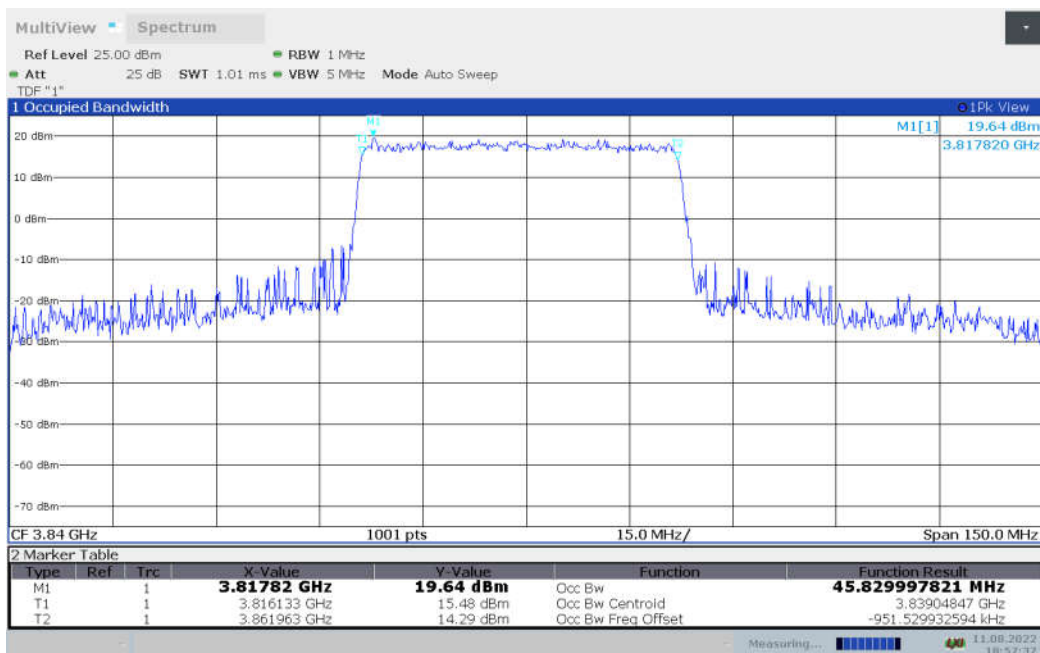
DC_2A_n77A(3700 MHz-3980 MHz)

n77H,60MHz(99%)

Frequency (MHz)	Occupied Bandwidth (99%) (MHz)	
	DFT-s-pi/2 BPSK	DFT-s-QPSK
3840	57.897	58.196

n77H,60MHz Bandwidth,DFT-s-pi/2 BPSK (99% BW)
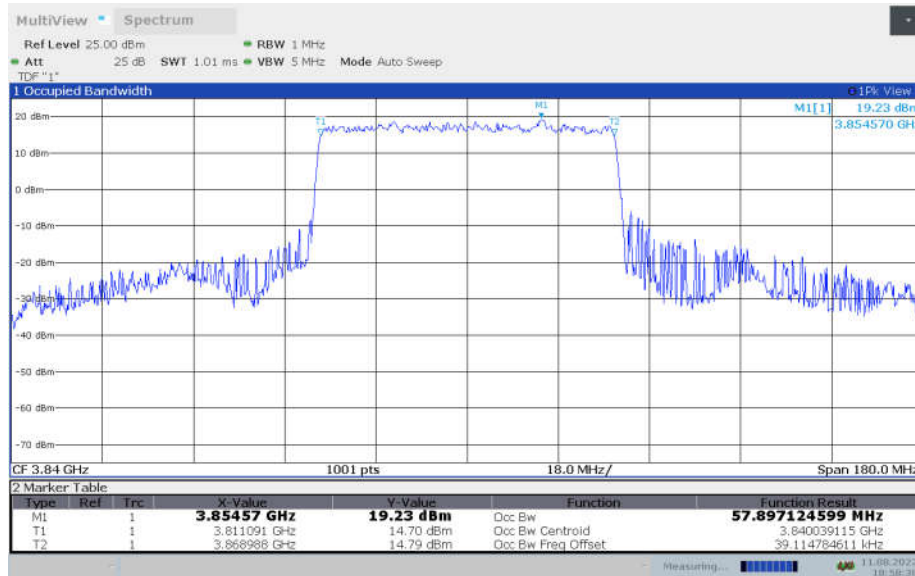

n77H,60MHz Bandwidth,DFT-s-QPSK (99% BW)
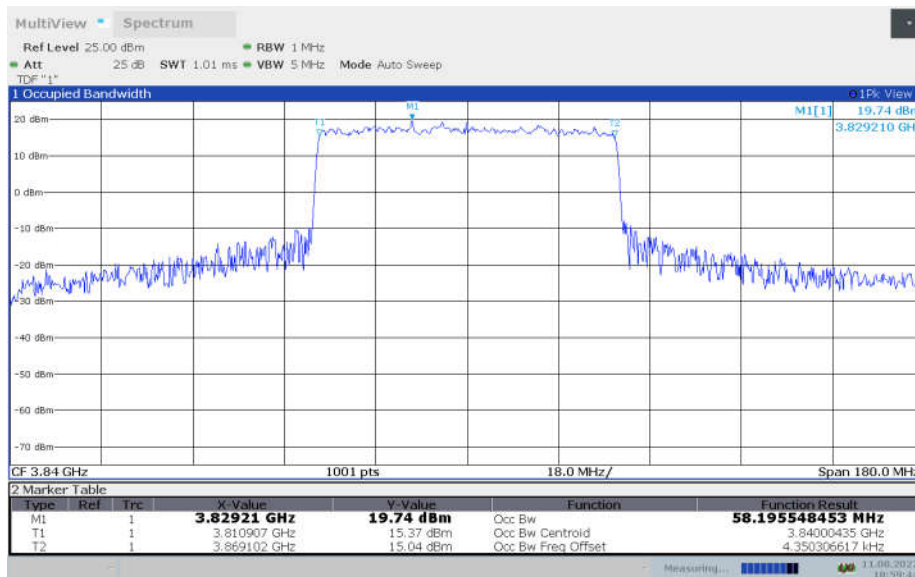
DC_2A_n77A(3700 MHz-3980 MHz)

n77H,80MHz(99%)

Frequency (MHz)	Occupied Bandwidth (99%) (MHz)	
	DFT-s-pi/2 BPSK	DFT-s-QPSK
3840	77.647	77.671

n77H,80MHz Bandwidth,DFT-s-pi/2 BPSK (99% BW)
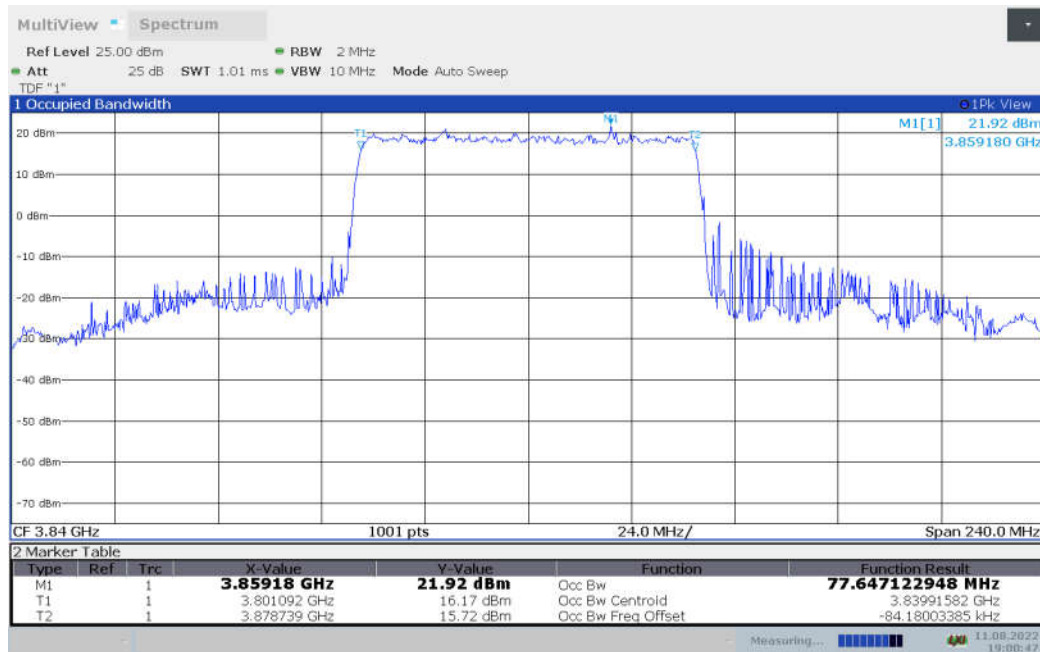

n77H,80MHz Bandwidth,DFT-s-QPSK (99% BW)
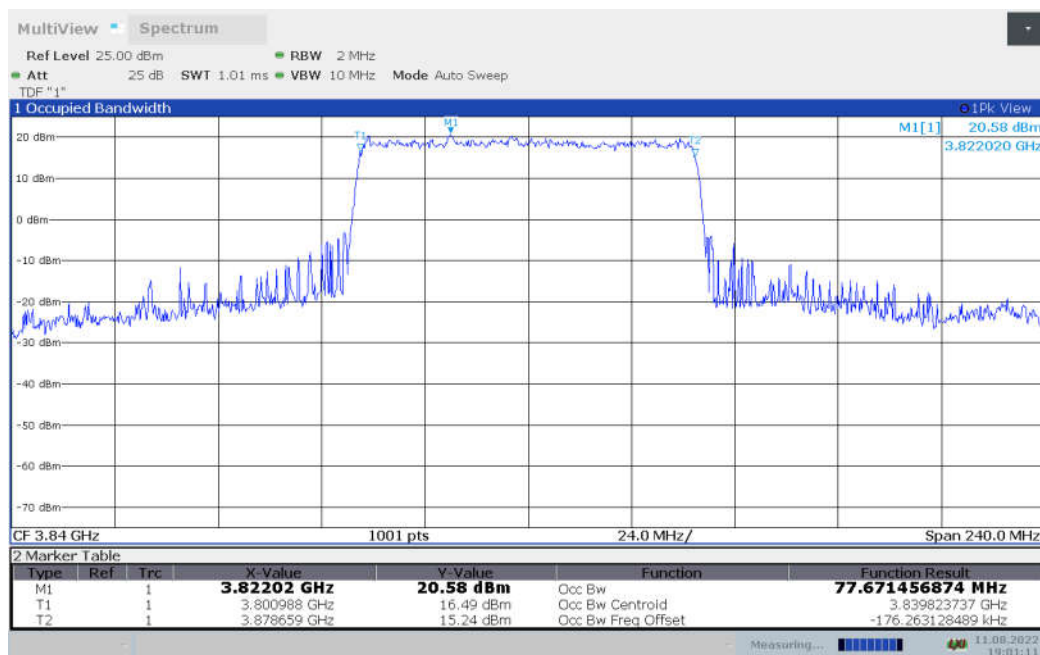
DC_2A_n77A(3700 MHz-3980 MHz)

n77H,90MHz(99%)

Frequency (MHz)	Occupied Bandwidth (99%) (MHz)	
	DFT-s-pi/2 BPSK	DFT-s-QPSK
3840	85.979	86.100

n77H,90MHz Bandwidth,DFT-s-pi/2 BPSK (99% BW)
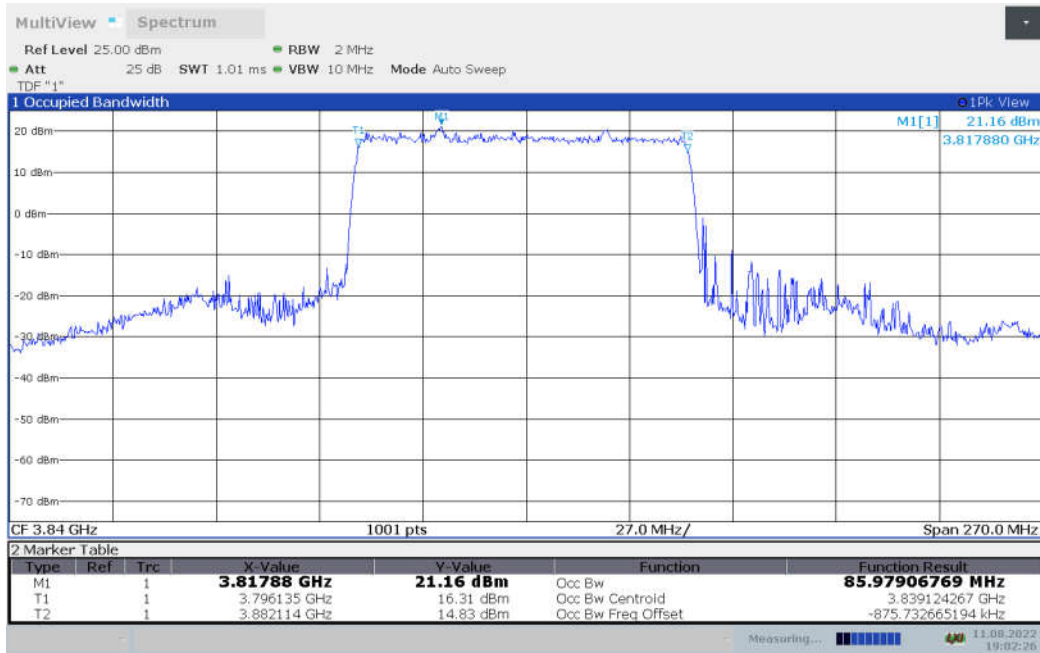
n77H,90MHz Bandwidth,DFT-s-QPSK (99% BW)
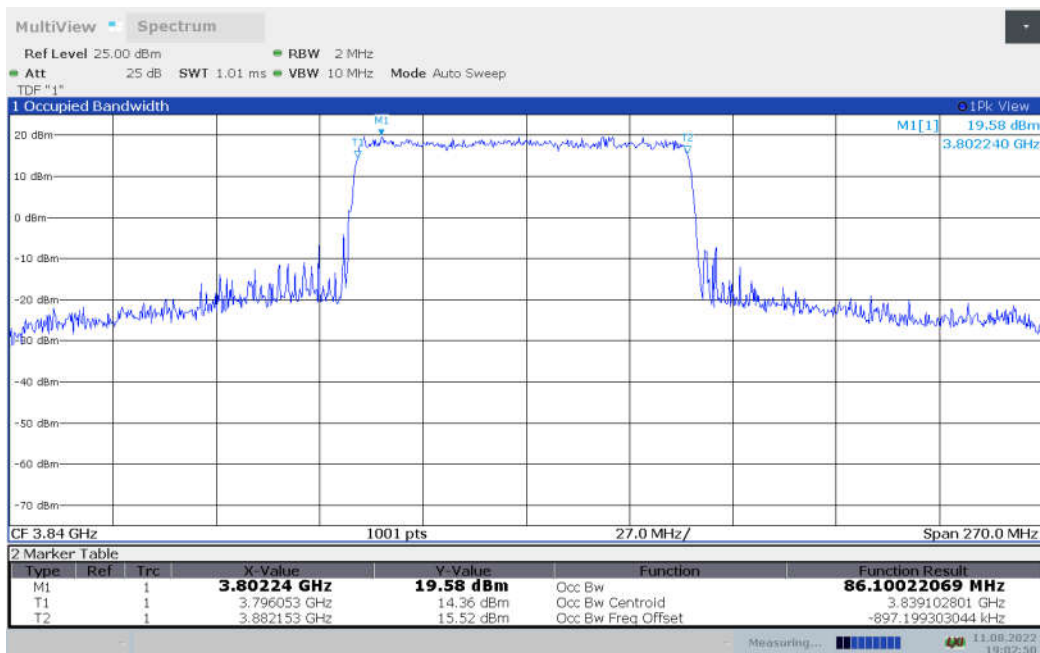
DC_2A_n77A(3700 MHz-3980 MHz)

n77H,100MHz(99%)

Frequency (MHz)	Occupied Bandwidth (99%) (MHz)	
	DFT-s-pi/2 BPSK	DFT-s-QPSK
3840	96.469	96.401

n77H,100MHz Bandwidth,DFT-s-pi/2 BPSK (99% BW)
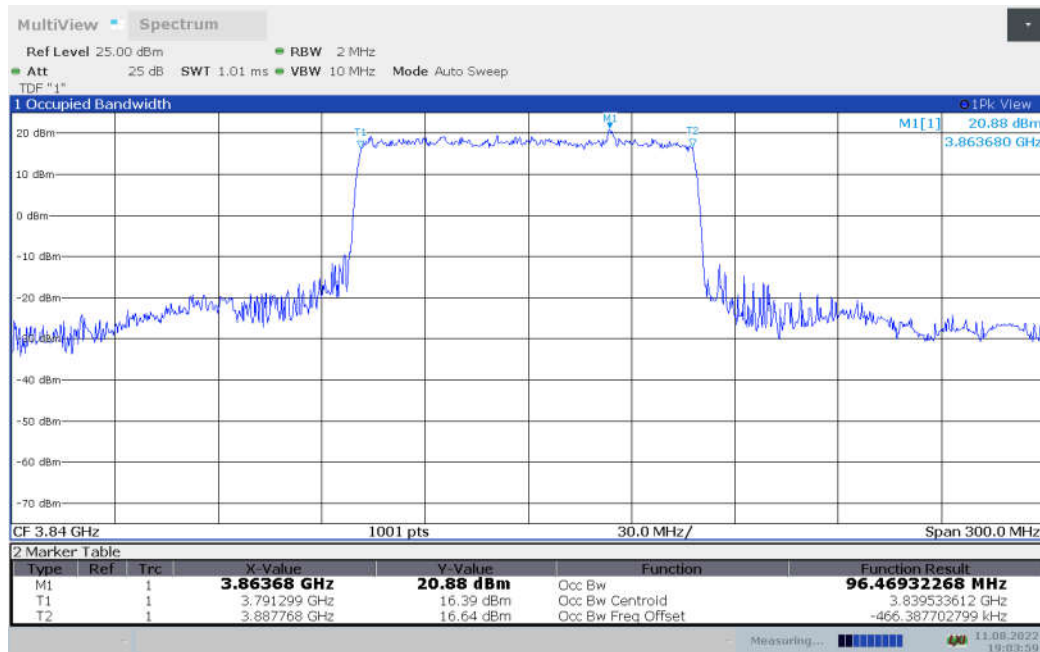
n77H,100MHz Bandwidth,DFT-s-QPSK (99% BW)
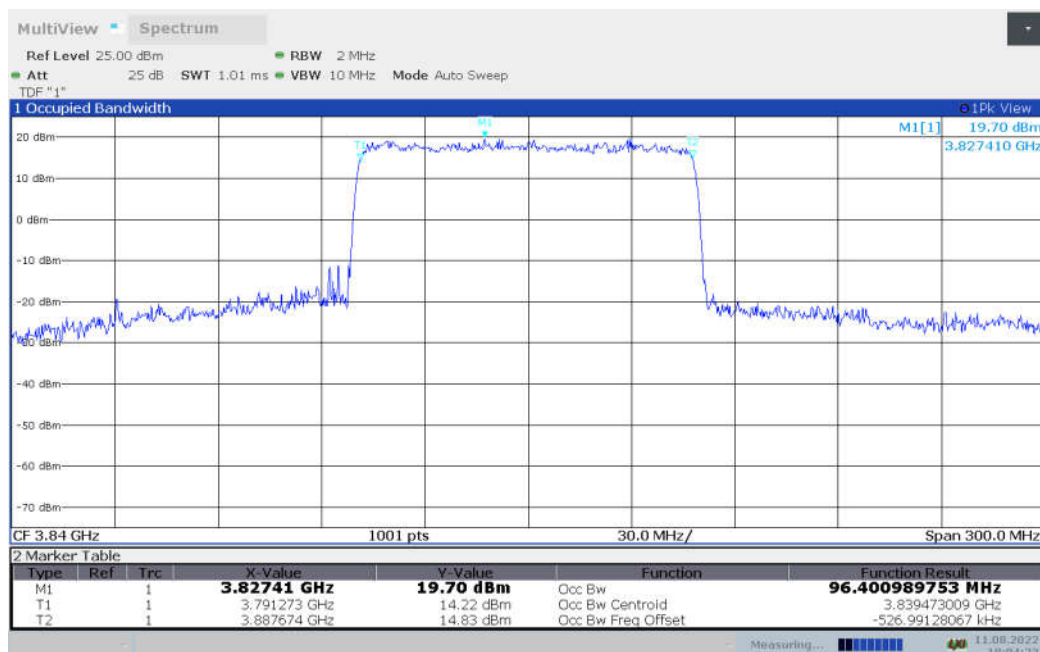
Note: Expanded measurement uncertainty is *U* = 3428 Hz, *k* = 2

A.4 EMISSION BANDWIDTH

Reference

FCC: CFR Part 2.1049, 22.917, 24.238, 27.53.

A.4.1 Measurement Procedure

The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power.

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 (i.e., two to five times the OBW).

b) The nominal IF filter bandwidth 3 dB (RBW) shall be in the range of 1 to 5 % of the anticipated OBW, and the VBW shall be at least 3 times the RBW.

c) Set the reference level of the instrument as required to keep the signal from exceeding the maximum input mixer level for linear operation. In general, the peak of the spectral envelope must be at least 10log (OBW / RBW) below the reference level.

d) Set the detection mode to peak, and the trace mode to max hold.

e) Use the 26dB bandwidth function of the spectrum analyzer and report the measured bandwidth.

A.4.2 Emission Bandwidth Results

Similar to conducted emissions; Emission bandwidth measurements are only provided for selected frequencies in order to reduce the amount of submitted data. Data were taken at the extreme and mid frequencies. Table below lists the measured -26dBc BW. Spectrum analyzer plots are included on the following pages.
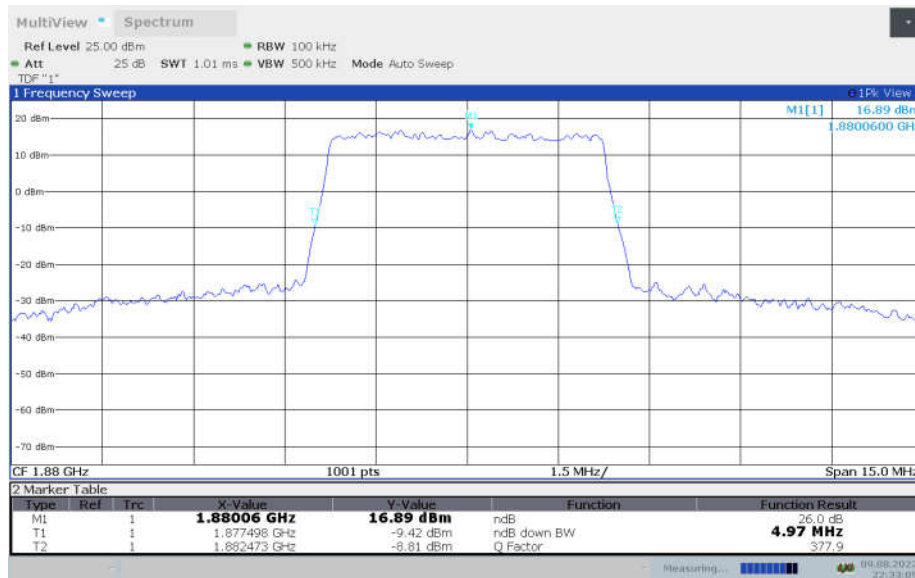
DC_5A_n2A

n2,5MHz(-26dBc)

Frequency (MHz)	Emission Bandwidth (-26dBc) (MHz)	
	DFT-s-pi/2 BPSK	DFT-s-QPSK
1880	4.990	4.975

n2,5MHz Bandwidth,DFT-s-pi/2 BPSK (-26dBc BW)
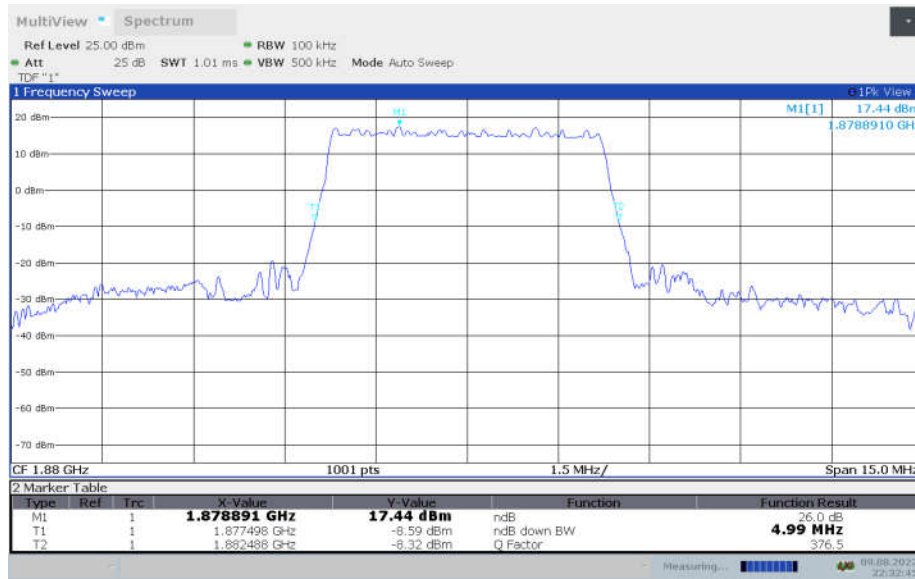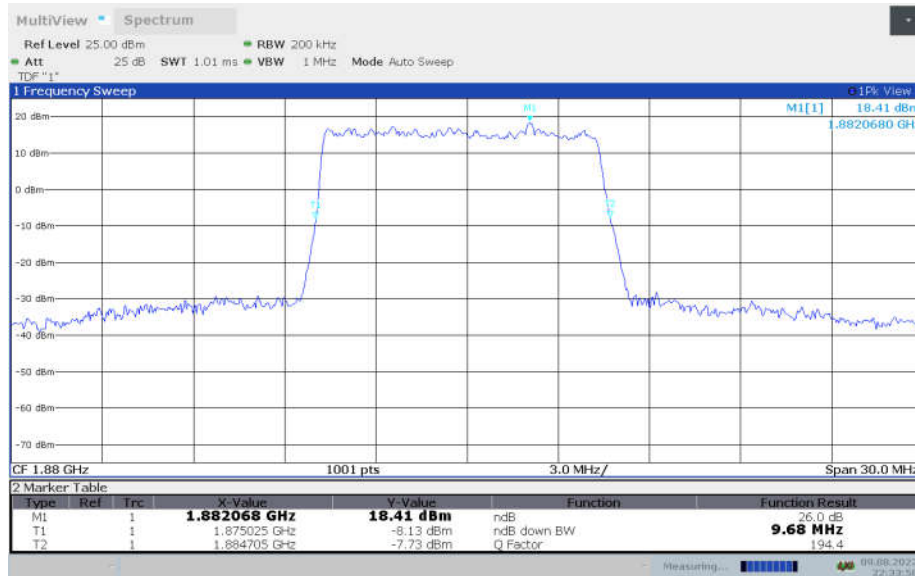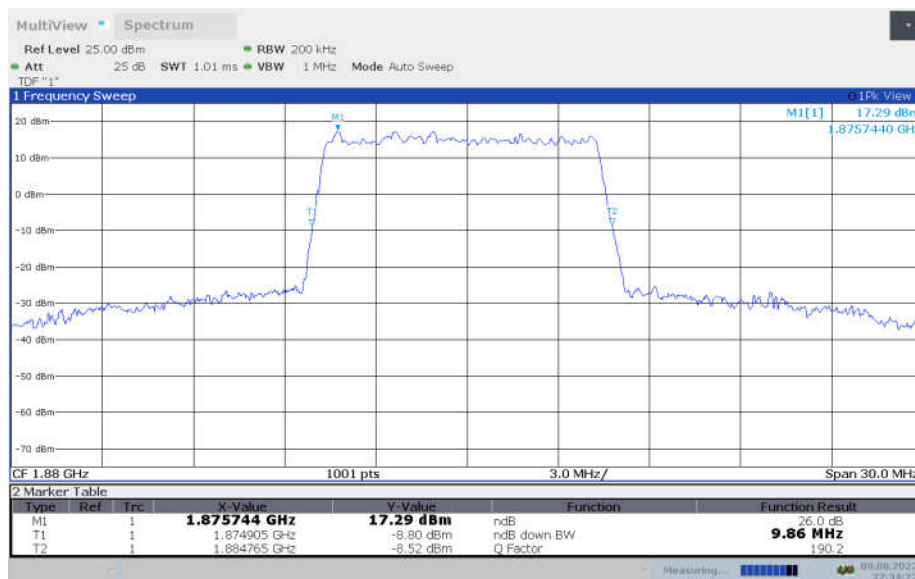
n2,5MHz Bandwidth,DFT-s-QPSK (-26dBc BW)

DC_5A_n2A

n2,10MHz(-26dBc)

Frequency (MHz)	Emission Bandwidth (-26dBc) (MHz)	
	DFT-s-pi/2 BPSK	DFT-s-QPSK
1880	9.680	9.860

n2,10MHz Bandwidth,DFT-s-pi/2 BPSK (-26dBc BW)

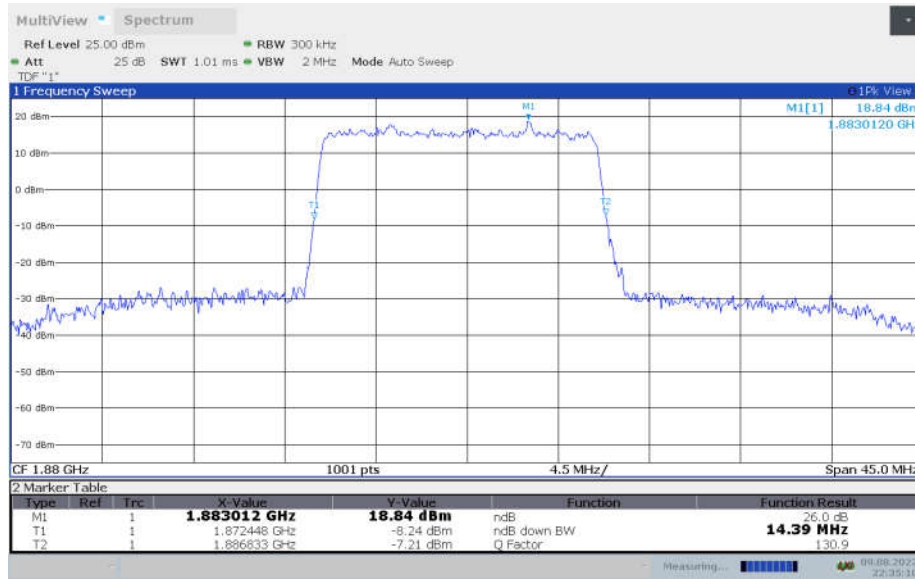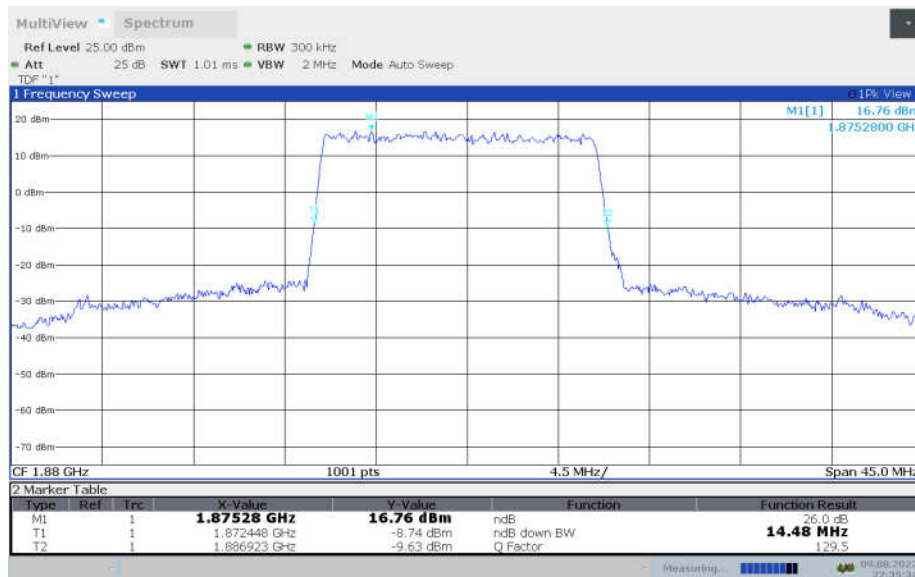**n2,10MHz Bandwidth,DFT-s-QPSK (-26dBc BW)**

　　　　　　　　　Page **224** of **277**

DC_5A_n2A

n2,15MHz(-26dBc)

Frequency (MHz)	Emission Bandwidth (-26dBc) (MHz)	
	DFT-s-pi/2 BPSK	DFT-s-QPSK
1880	14.386	14.476

n2,15MHz Bandwidth,DFT-s-pi/2 BPSK (-26dBc BW)

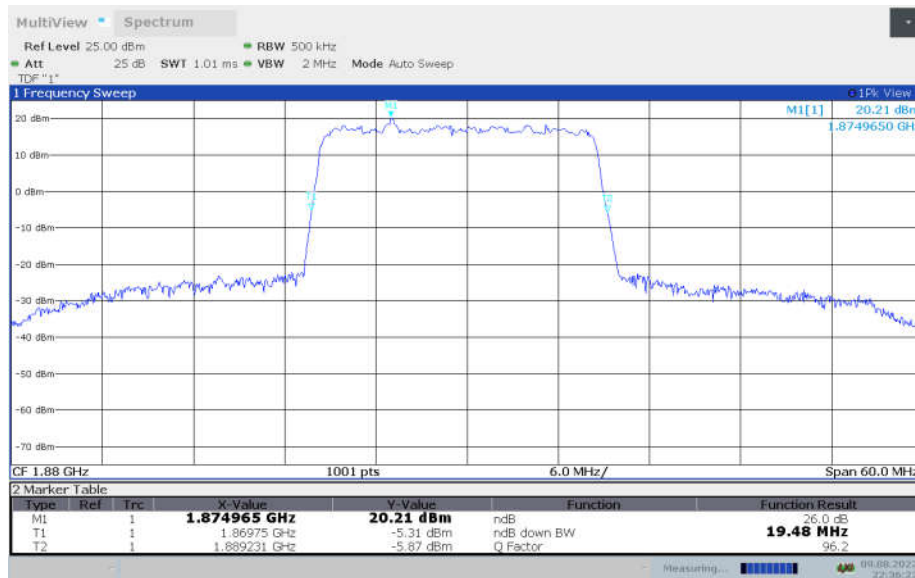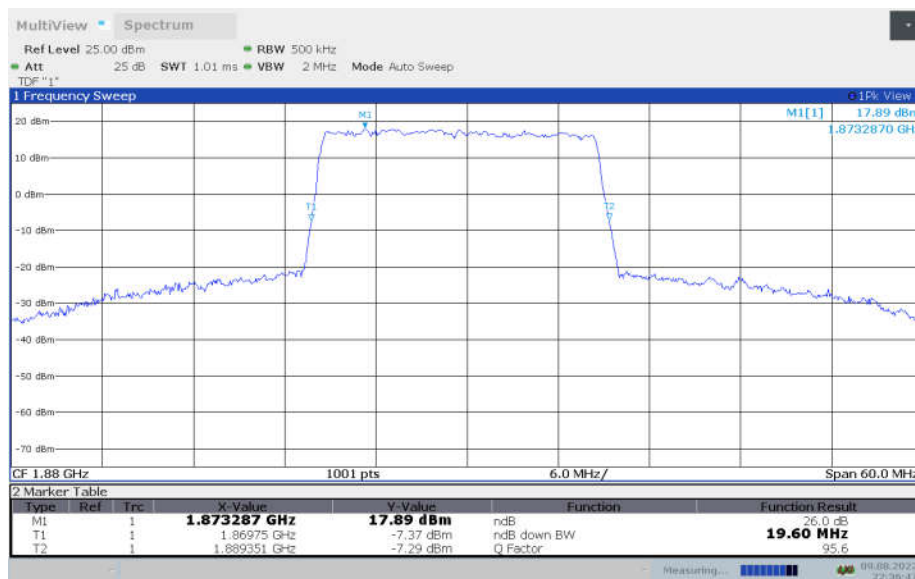
n2,15MHz Bandwidth,DFT-s-QPSK (-26dBc BW)

DC_5A_n2A

n2,20MHz(-26dBc)

Frequency (MHz)	Emission Bandwidth (-26dBc) (MHz)	
	DFT-s-pi/2 BPSK	DFT-s-QPSK
1880	19.481	19.600

n2,20MHz Bandwidth,DFT-s-pi/2 BPSK (-26dBc BW)

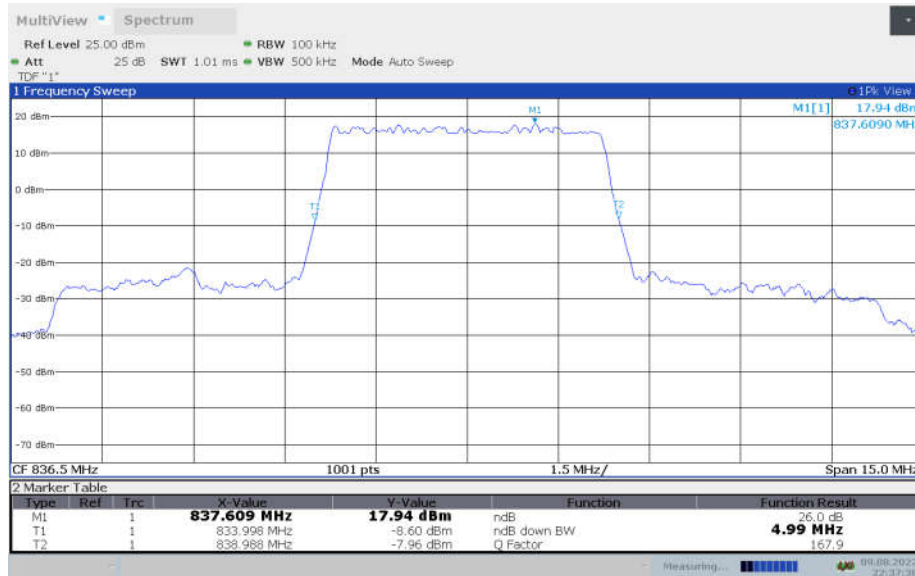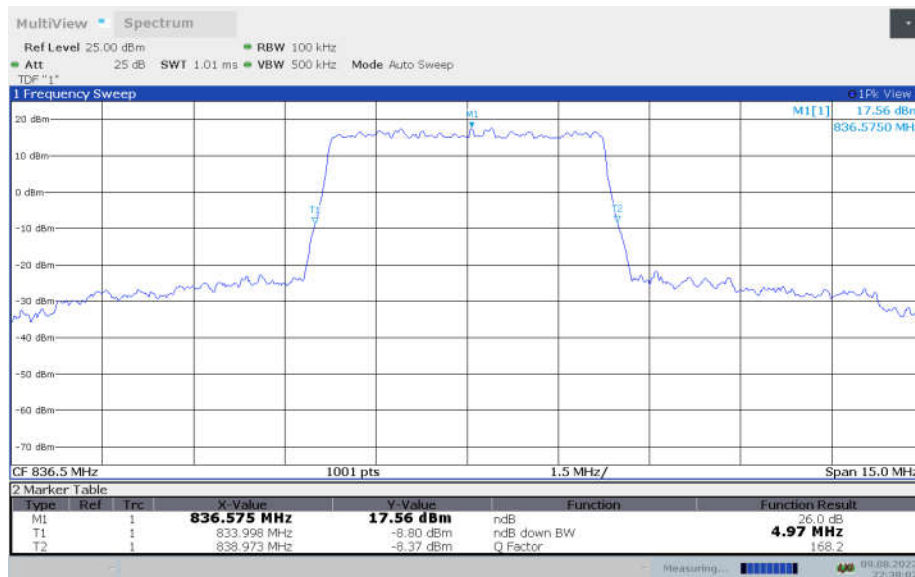
n2,20MHz Bandwidth,DFT-s-QPSK (-26dBc BW)

DC_2A_n5A

n5,5MHz(-26dBc)

Frequency (MHz)	Emission Bandwidth (-26dBc) (MHz)	
	DFT-s-pi/2 BPSK	DFT-s-QPSK
836.5	4.990	4.975

n5,5MHz Bandwidth,DFT-s-pi/2 BPSK (-26dBc BW)

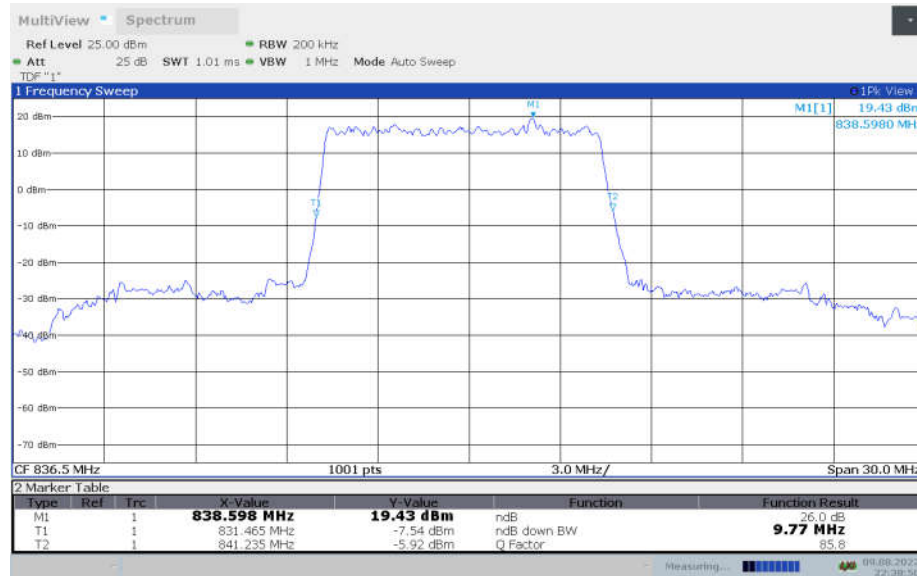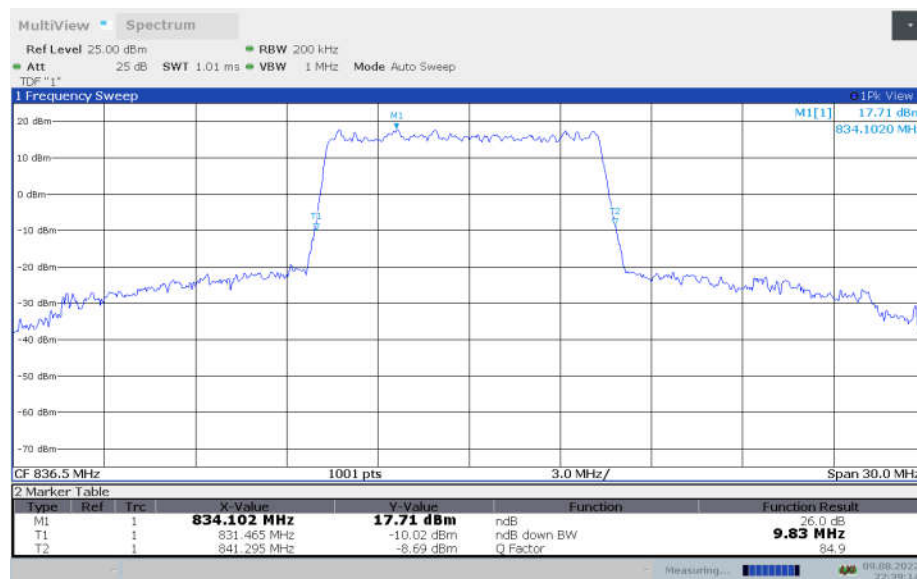**n5,5MHz Bandwidth,DFT-s-QPSK (-26dBc BW)**

　　　　　　　　　　Page 227 of 277

DC_2A_n5A

n5,10MHz(-26dBc)

Frequency (MHz)	Emission Bandwidth (-26dBc) (MHz)	
	DFT-s-pi/2 BPSK	DFT-s-QPSK
836.5	9.770	9.830

n5,10MHz Bandwidth,DFT-s-pi/2 BPSK (-26dBc BW)

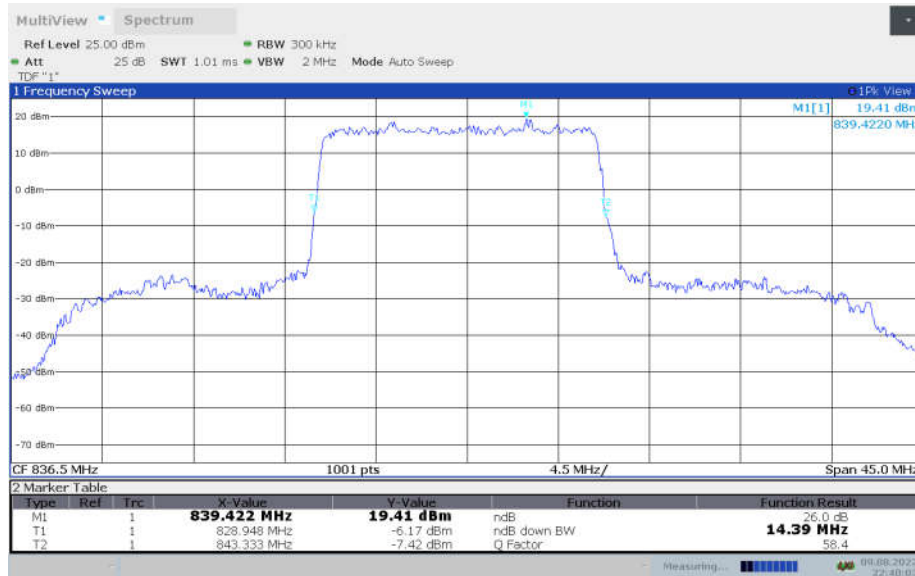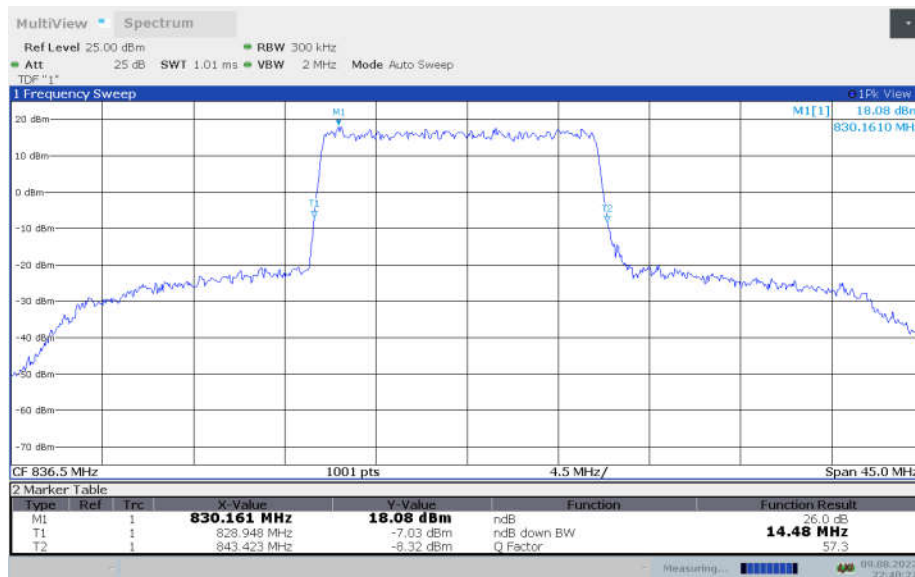**n5,10MHz Bandwidth,DFT-s-QPSK (-26dBc BW)**

DC_2A_n5A

n5,15MHz(-26dBc)

Frequency (MHz)	Emission Bandwidth (-26dBc) (MHz)	
	DFT-s-pi/2 BPSK	DFT-s-QPSK
836.5	14.386	14.476

n5,15MHz Bandwidth,DFT-s-pi/2 BPSK (-26dBc BW)
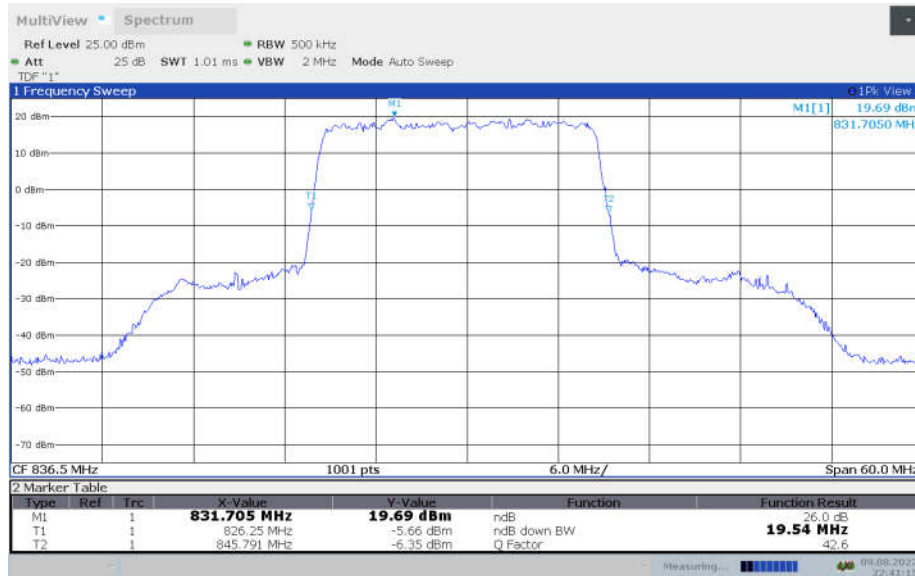

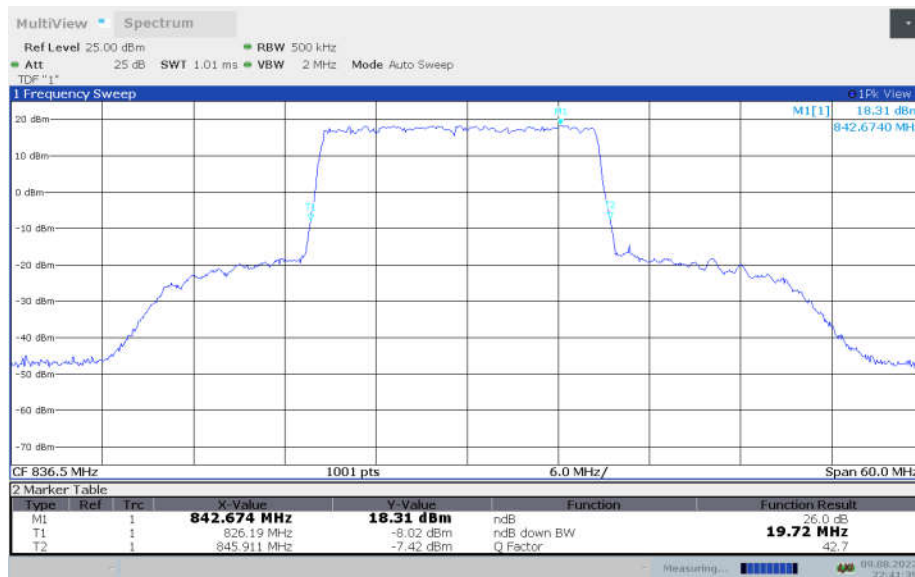**n5,15MHz Bandwidth,DFT-s-QPSK (-26dBc BW)**

DC_2A_n5A

n5,20MHz(-26dBc)

Frequency (MHz)	Emission Bandwidth (-26dBc) (MHz)	
	DFT-s-pi/2 BPSK	DFT-s-QPSK
836.5	19.540	19.720

n5,20MHz Bandwidth,DFT-s-pi/2 BPSK (-26dBc BW)
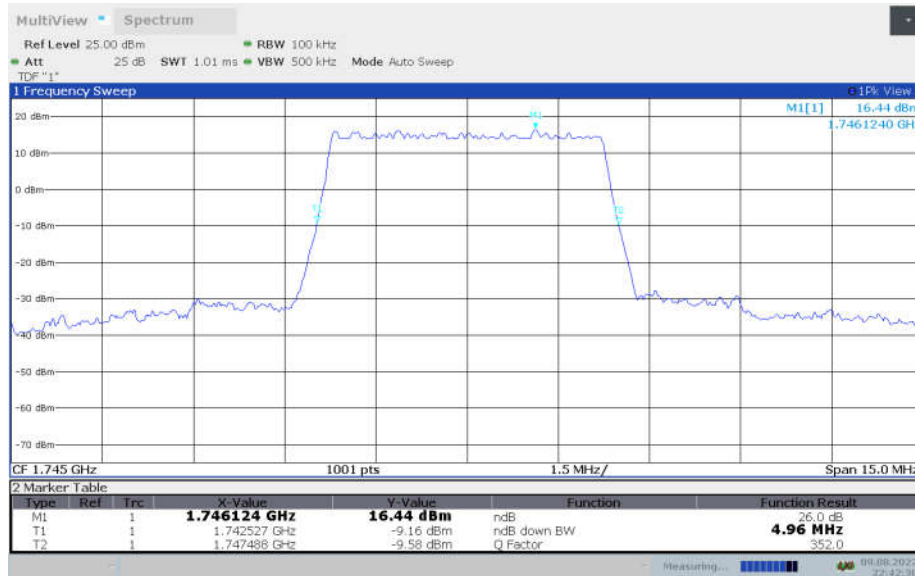

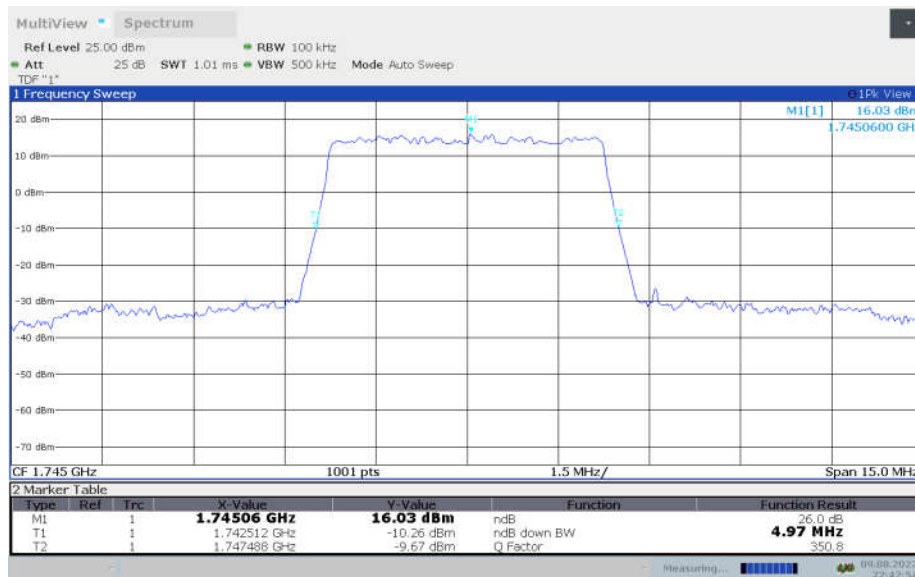**n5,20MHz Bandwidth,DFT-s-QPSK (-26dBc BW)**

DC_2A_n66A

n66,5MHz(-26dBc)

Frequency (MHz)	Emission Bandwidth (-26dBc) (MHz)	
	DFT-s-pi/2 BPSK	DFT-s-QPSK
1745	4.960	4.975

n66,5MHz Bandwidth,DFT-s-pi/2 BPSK (-26dBc BW)

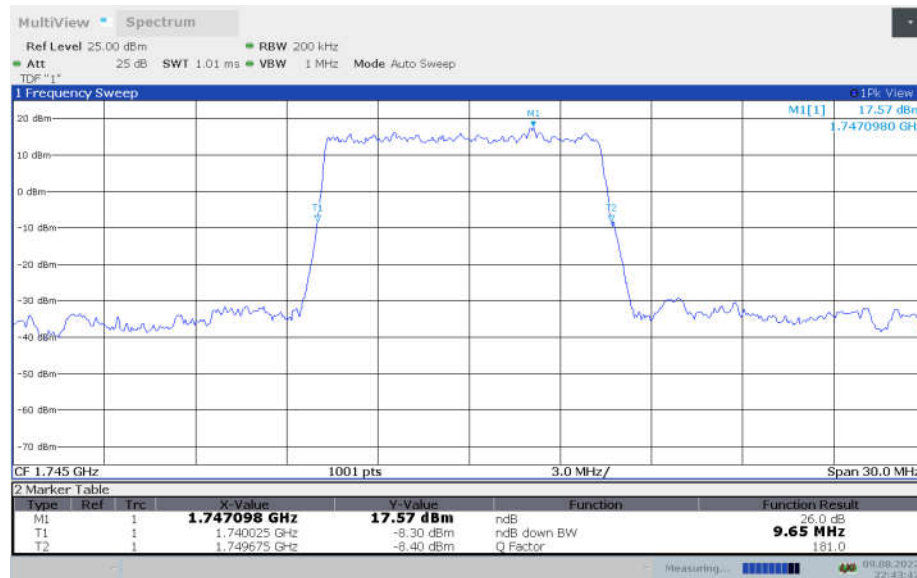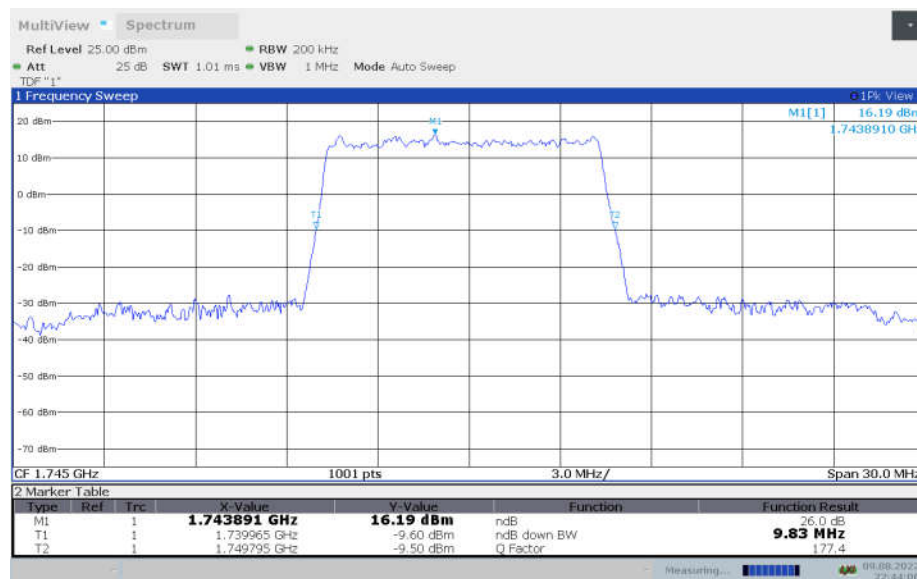**n66,5MHz Bandwidth,DFT-s-QPSK (-26dBc BW)**

DC_2A_n66A

n66,10MHz(-26dBc)

Frequency (MHz)	Emission Bandwidth (-26dBc) (MHz)	
	DFT-s-pi/2 BPSK	DFT-s-QPSK
1745	9.650	9.830

n66,10MHz Bandwidth,DFT-s-pi/2 BPSK (-26dBc BW)

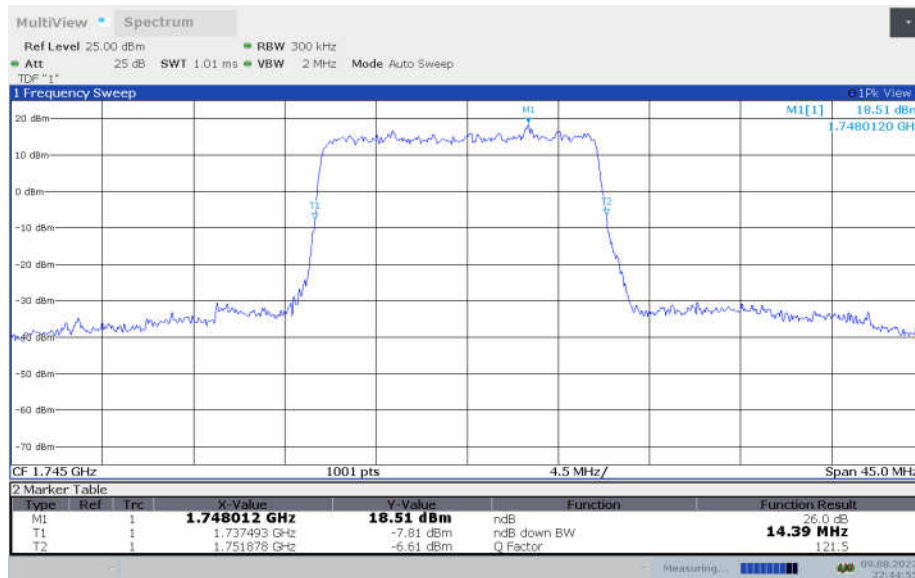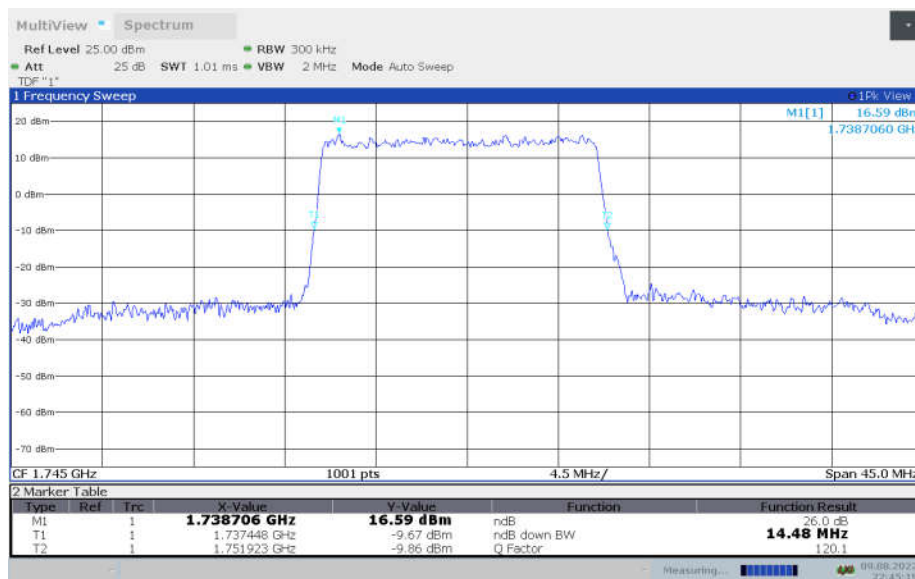**n66,10MHz Bandwidth,DFT-s-QPSK (-26dBc BW)**

DC_2A_n66A

n66,15MHz(-26dBc)

Frequency (MHz)	Emission Bandwidth (-26dBc) (MHz)	
	DFT-s-pi/2 BPSK	DFT-s-QPSK
1745	14.386	14.476

n66,15MHz Bandwidth,DFT-s-pi/2 BPSK (-26dBc BW)

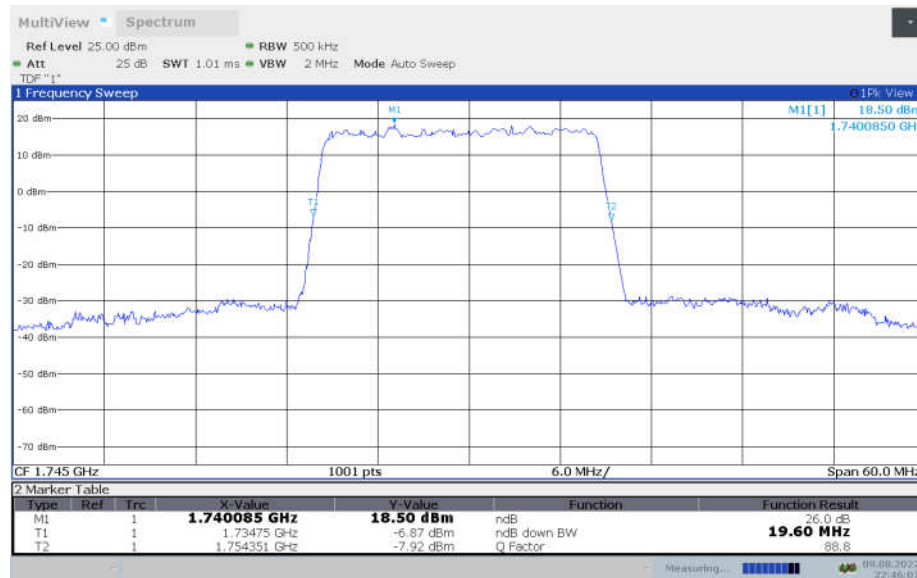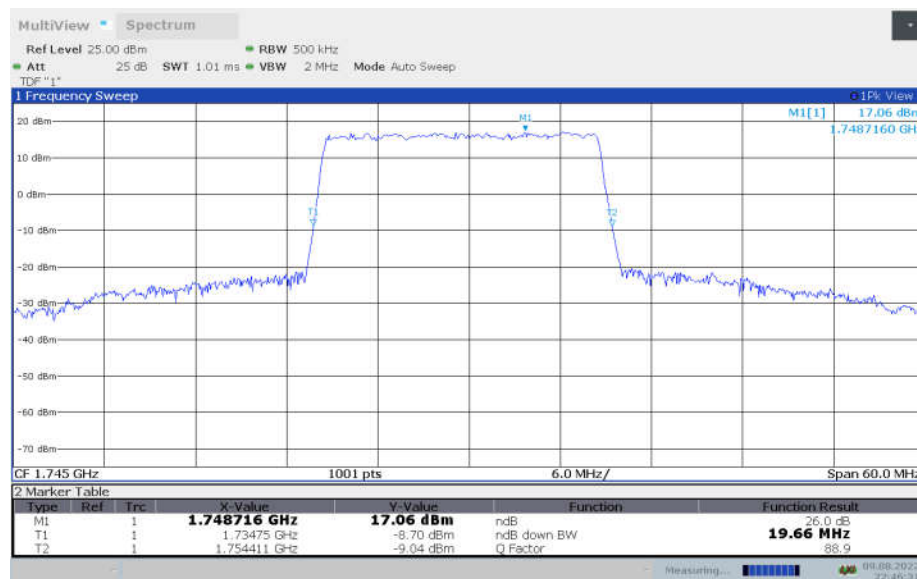**n66,15MHz Bandwidth,DFT-s-QPSK (-26dBc BW)**

DC_2A_n66A

n66,20MHz(-26dBc)

Frequency (MHz)	Emission Bandwidth (-26dBc) (MHz)	
	DFT-s-pi/2 BPSK	DFT-s-QPSK
1745	19.600	19.660

n66,20MHz Bandwidth,DFT-s-pi/2 BPSK (-26dBc BW)

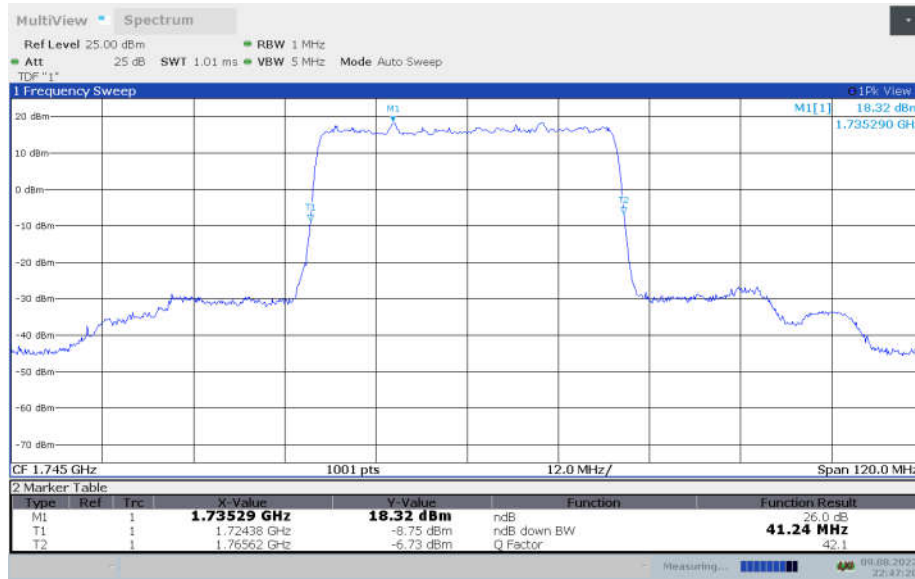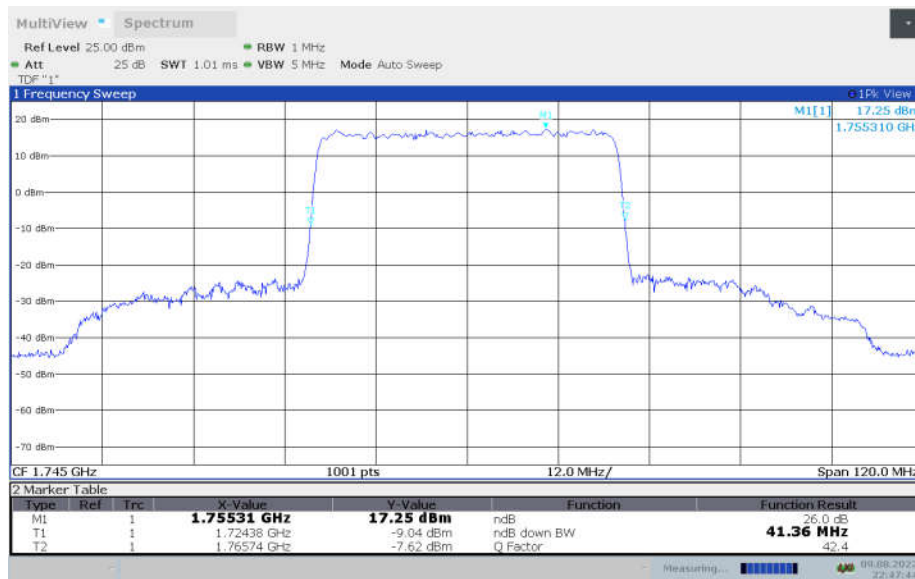**n66,20MHz Bandwidth,DFT-s-QPSK (-26dBc BW)**

DC_2A_n66A

n66,40MHz(-26dBc)

Frequency (MHz)	Emission Bandwidth (-26dBc) (MHz)	
	DFT-s-pi/2 BPSK	DFT-s-QPSK
1745	41.240	41.360

n66,40MHz Bandwidth,DFT-s-pi/2 BPSK (-26dBc BW)

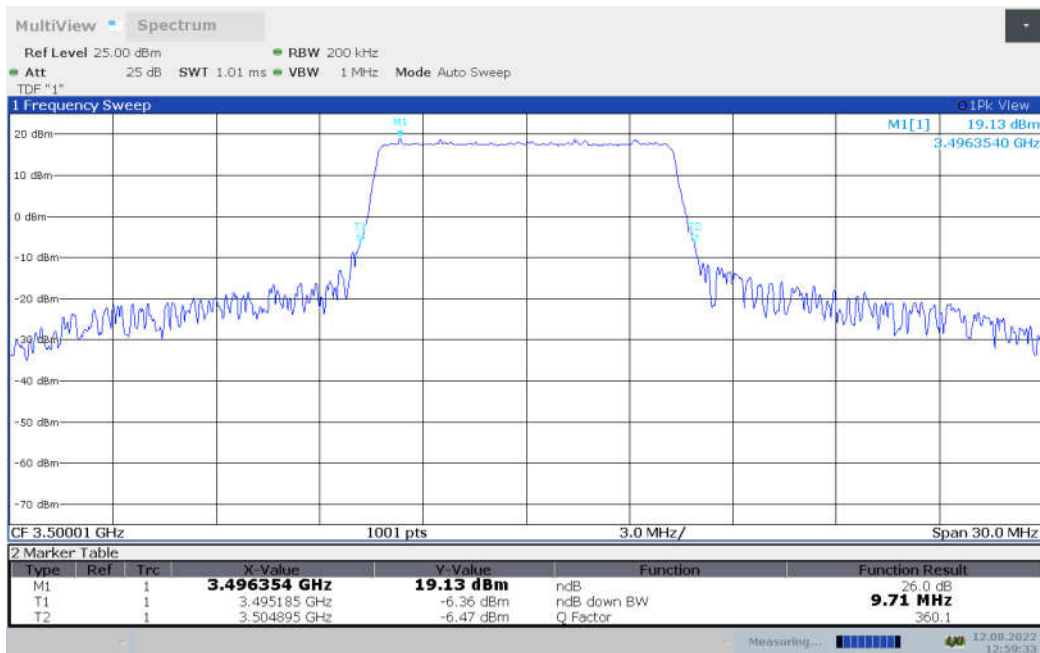**n66,40MHz Bandwidth,DFT-s-QPSK (-26dBc BW)**

DC_2A_n77A(3450 MHz-3550 MHz)

n77L,10MHz(-26dBc)

Frequency (MHz)	Emission Bandwidth (-26dBc) (MHz)	
	DFT-s-pi/2 BPSK	DFT-s-QPSK
3500.01	9.620	9.710

n77L,10MHz Bandwidth,DFT-s-pi/2 BPSK (-26dBc BW)
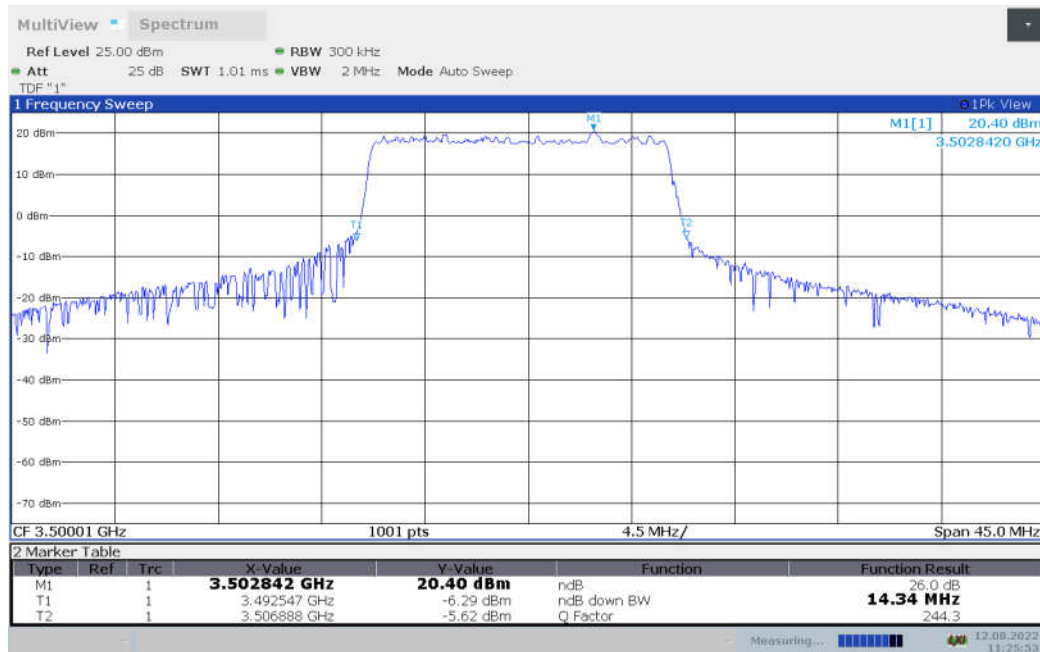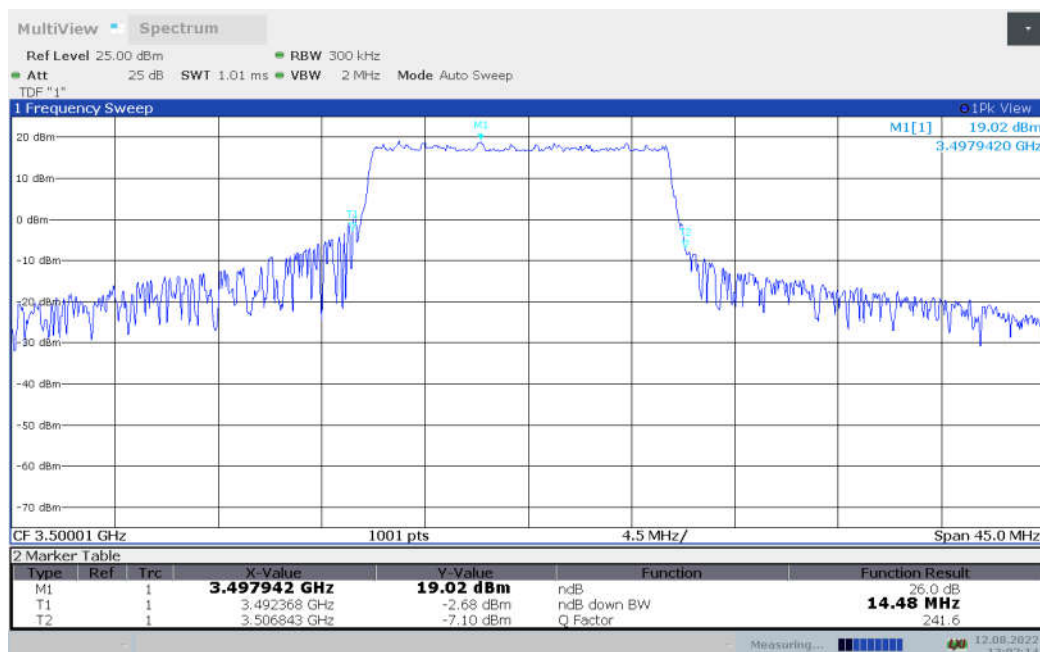

n77L,10MHz Bandwidth,DFT-s-QPSK (-26dBc BW)

DC_2A_n77A(3450 MHz-3550 MHz)

n77L,15MHz(-26dBc)

Frequency (MHz)	Emission Bandwidth (-26dBc) (MHz)	
	DFT-s-pi/2 BPSK	DFT-s-QPSK
3500.01	14.341	14.476

n77L,15MHz Bandwidth,DFT-s-pi/2 BPSK (-26dBc BW)
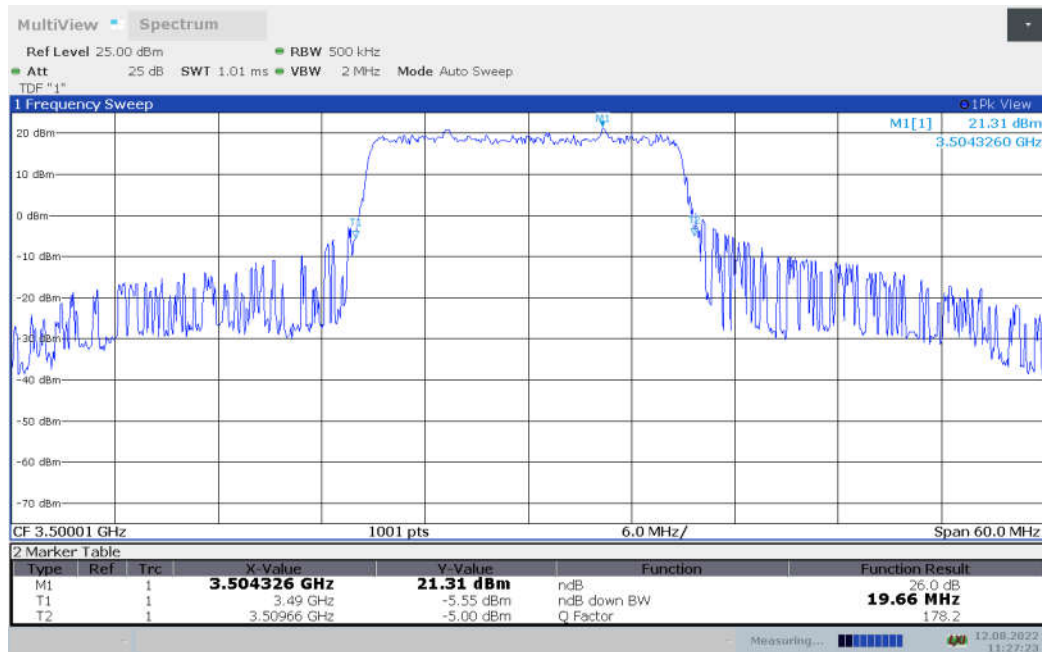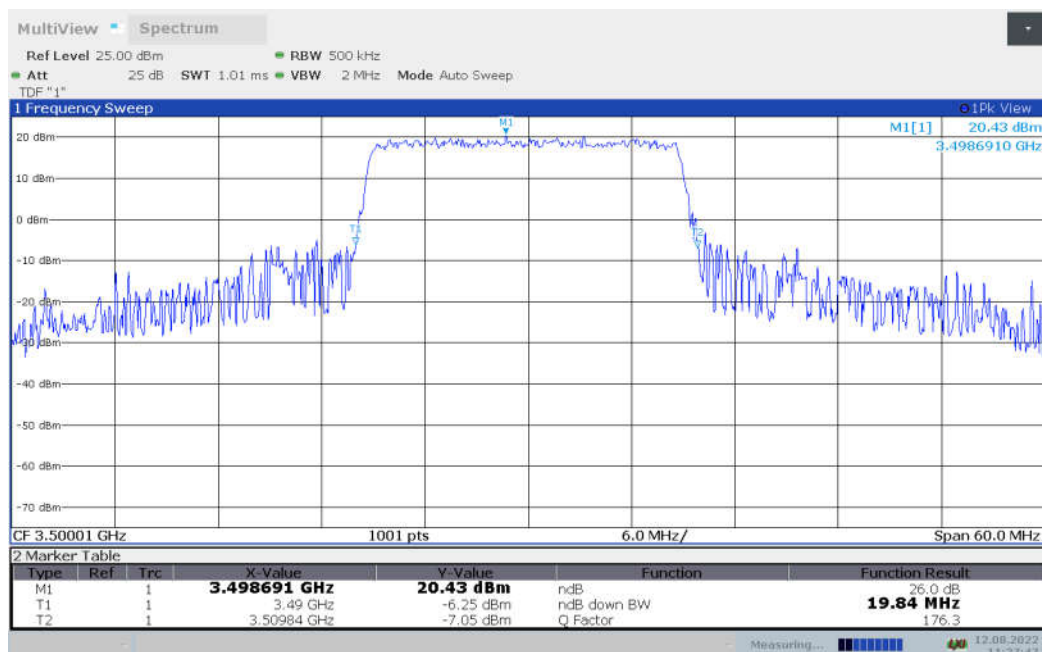

n77L,15MHz Bandwidth,DFT-s-QPSK (-26dBc BW)

DC_2A_n77A(3450 MHz-3550 MHz)

n77L,20MHz(-26dBc)

Frequency (MHz)	Emission Bandwidth (-26dBc) (MHz)	
	DFT-s-pi/2 BPSK	DFT-s-QPSK
3500.01	19.660	19.840

n77L,20MHz Bandwidth,DFT-s-pi/2 BPSK (-26dBc BW)
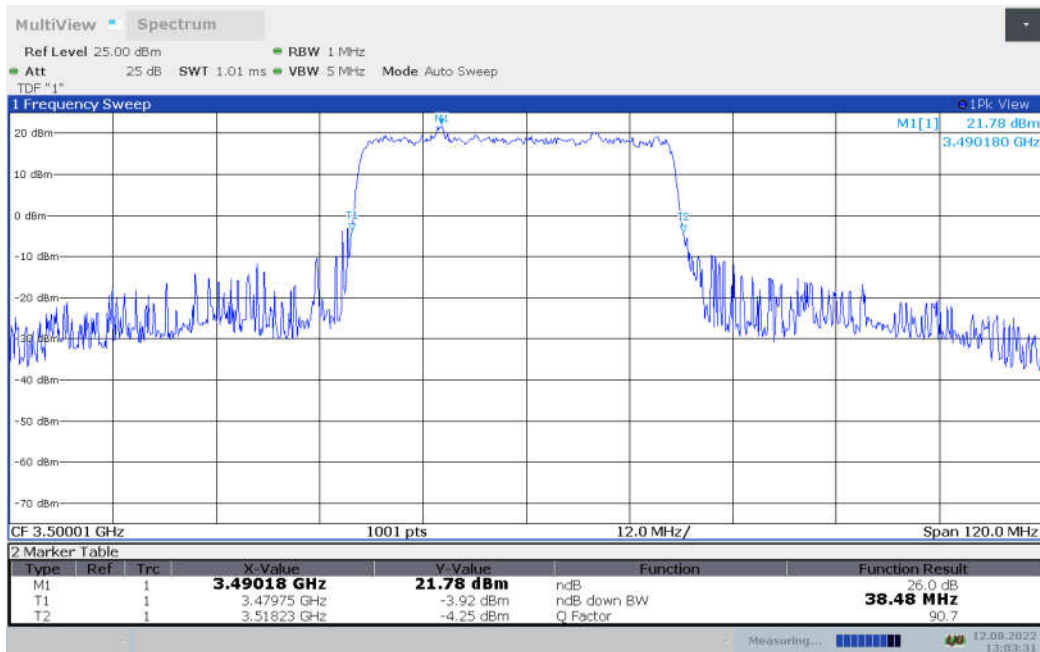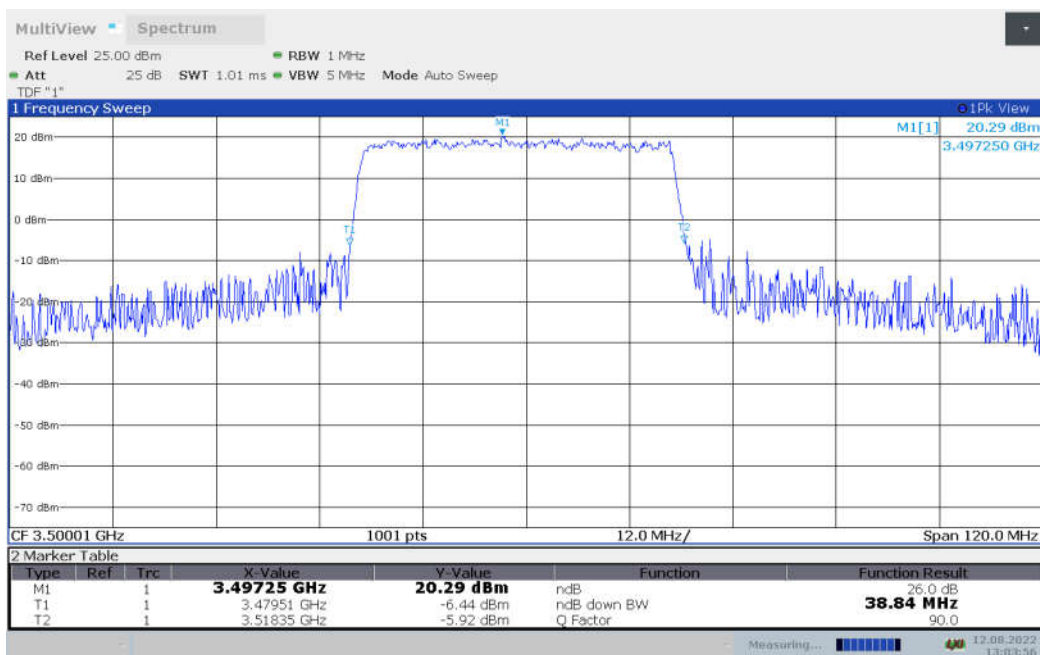

n77L,20MHz Bandwidth,DFT-s-QPSK (-26dBc BW)

DC_2A_n77A(3450 MHz-3550 MHz)

n77L,40MHz(-26dBc)

Frequency (MHz)	Emission Bandwidth (-26dBc) (MHz)	
	DFT-s-pi/2 BPSK	DFT-s-QPSK
3500.01	38.480	38.840

n77L,40MHz Bandwidth,DFT-s-pi/2 BPSK (-26dBc BW)
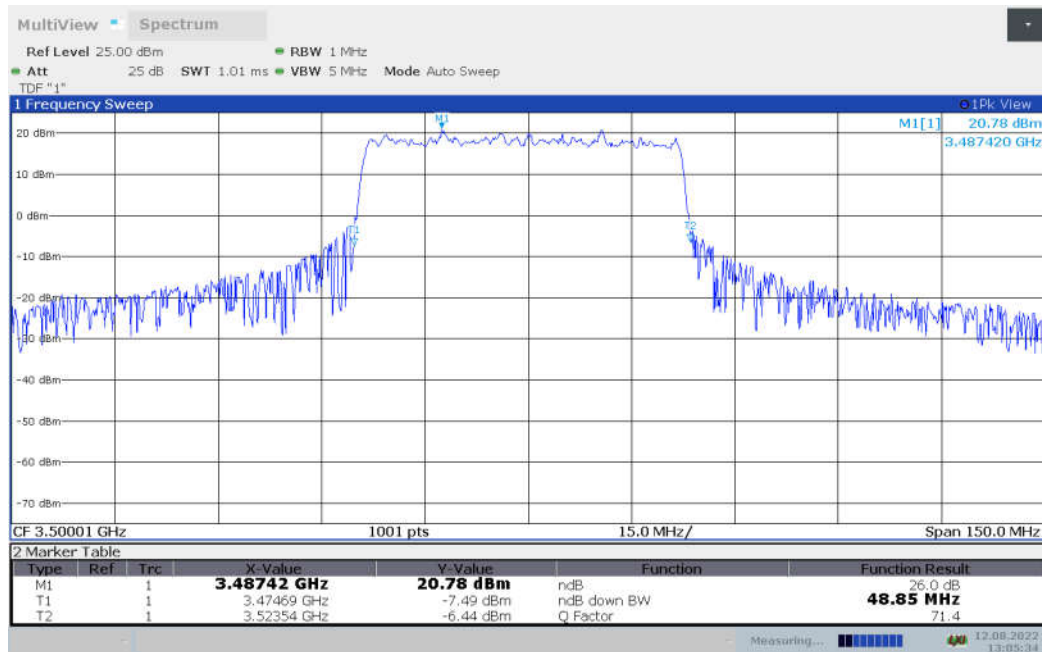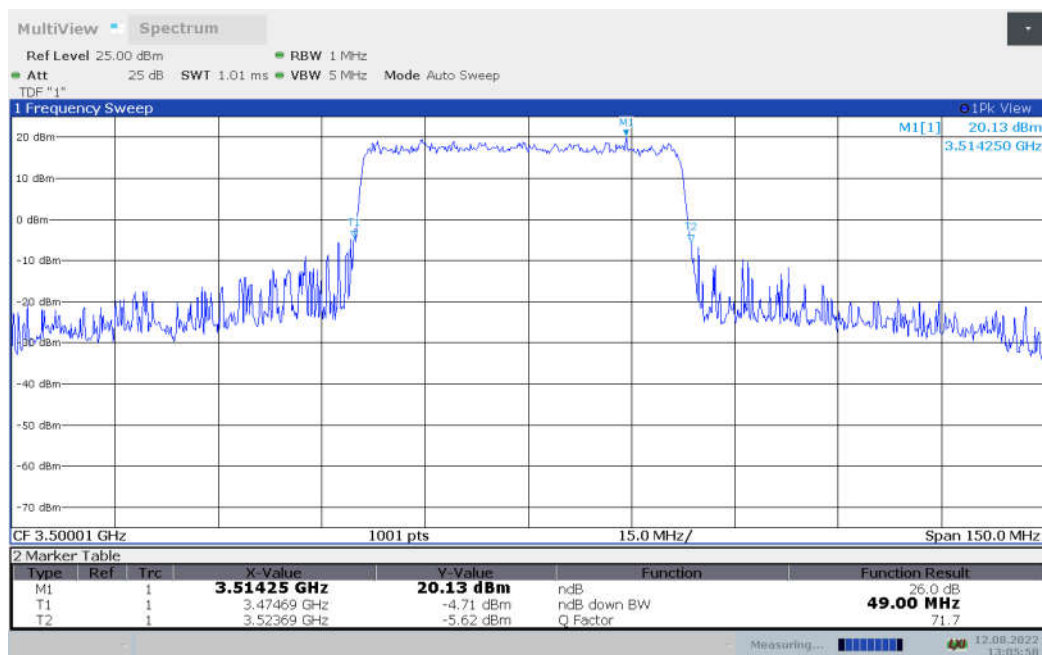

n77L,40MHz Bandwidth,DFT-s-QPSK (-26dBc BW)

DC_2A_n77A(3450 MHz-3550 MHz)

n77L,50MHz(-26dBc)

Frequency (MHz)	Emission Bandwidth (-26dBc) (MHz)	
	DFT-s-pi/2 BPSK	DFT-s-QPSK
3500.01	48.850	49.000

n77L,50MHz Bandwidth,DFT-s-pi/2 BPSK (-26dBc BW)
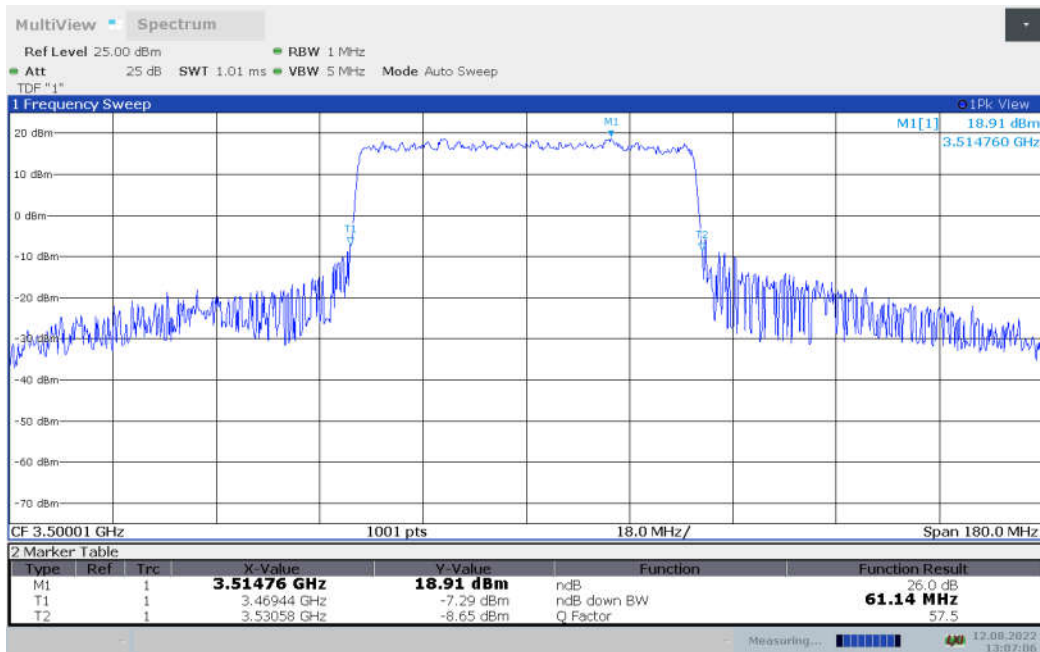

n77L,50MHz Bandwidth,DFT-s-QPSK (-26dBc BW)

DC_2A_n77A(3450 MHz-3550 MHz)

n77L,60MHz(-26dBc)

Frequency (MHz)	Emission Bandwidth (-26dBc) (MHz)	
	DFT-s-pi/2 BPSK	DFT-s-QPSK
3500.01	61.140	60.780

n77L,60MHz Bandwidth,DFT-s-pi/2 BPSK (-26dBc BW)

n77L,60MHz Bandwidth,DFT-s-QPSK (-26dBc BW)
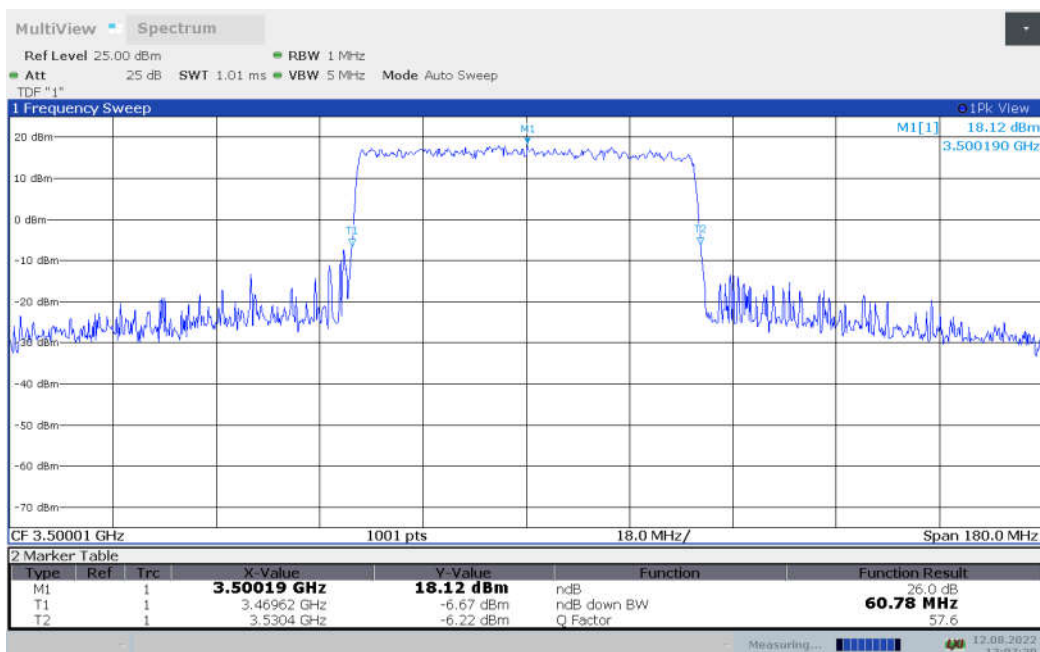
DC_2A_n77A(3450 MHz-3550 MHz)

n77L,80MHz(-26dBc)

Frequency (MHz)	Emission Bandwidth (-26dBc) (MHz)	
	DFT-s-pi/2 BPSK	DFT-s-QPSK
3500.01	82.240	82.960

n77L,80MHz Bandwidth,DFT-s-pi/2 BPSK (-26dBc BW)

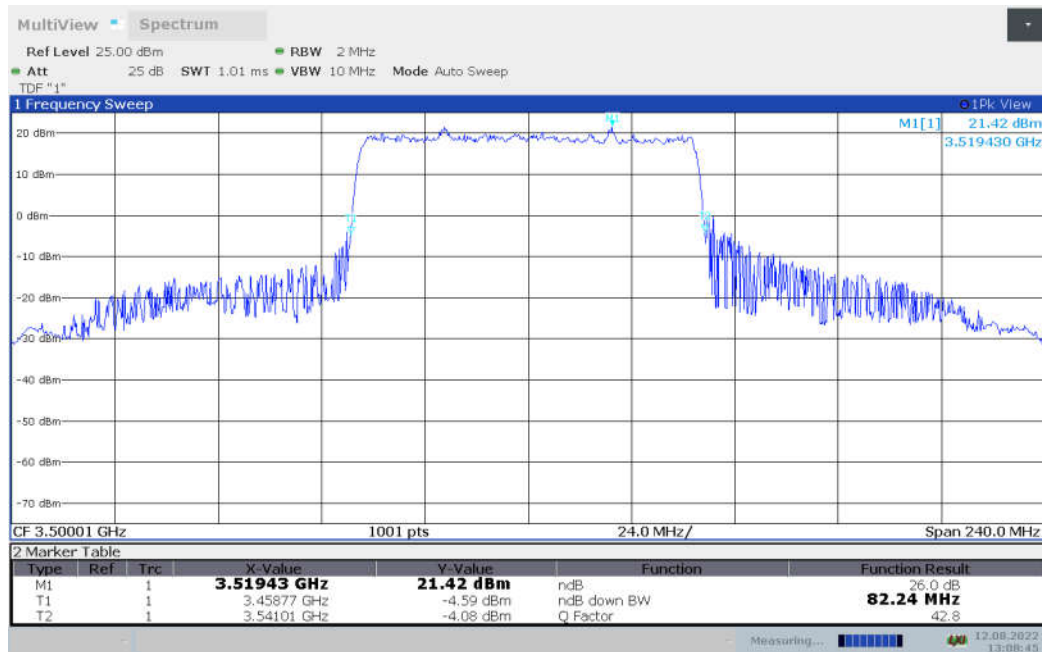**n77L,80MHz Bandwidth,DFT-s-QPSK (-26dBc BW)**
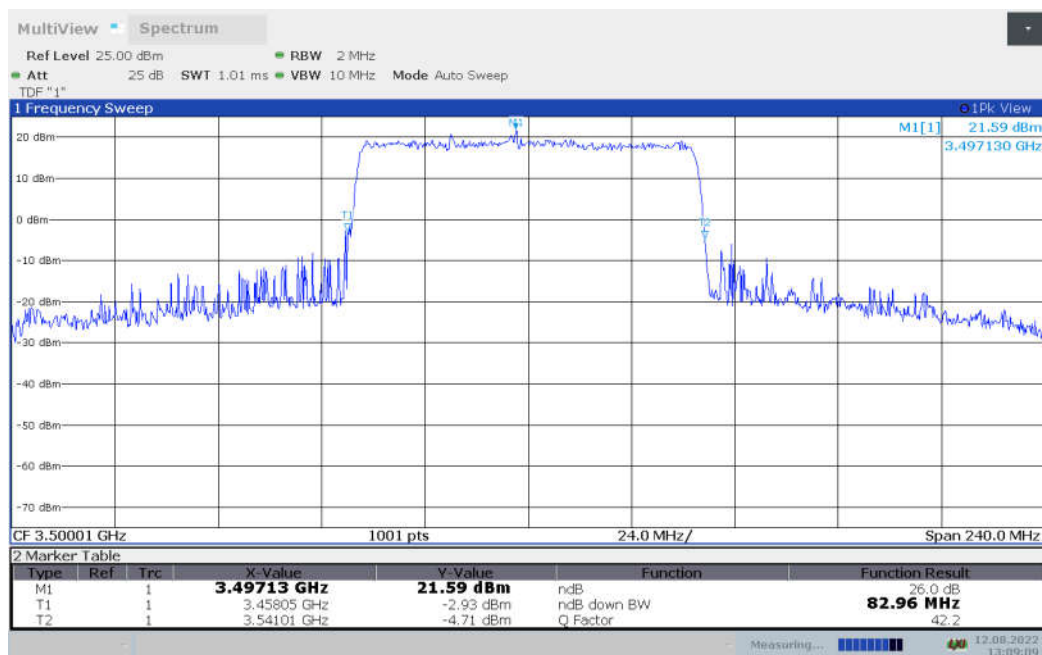
DC_2A_n77A(3450 MHz-3550 MHz)

n77L,90MHz(-26dBc)

Frequency (MHz)	Emission Bandwidth (-26dBc) (MHz)	
	DFT-s-pi/2 BPSK	DFT-s-QPSK
3500.01	91.440	94.140

n77L,90MHz Bandwidth,DFT-s-pi/2 BPSK (-26dBc BW)
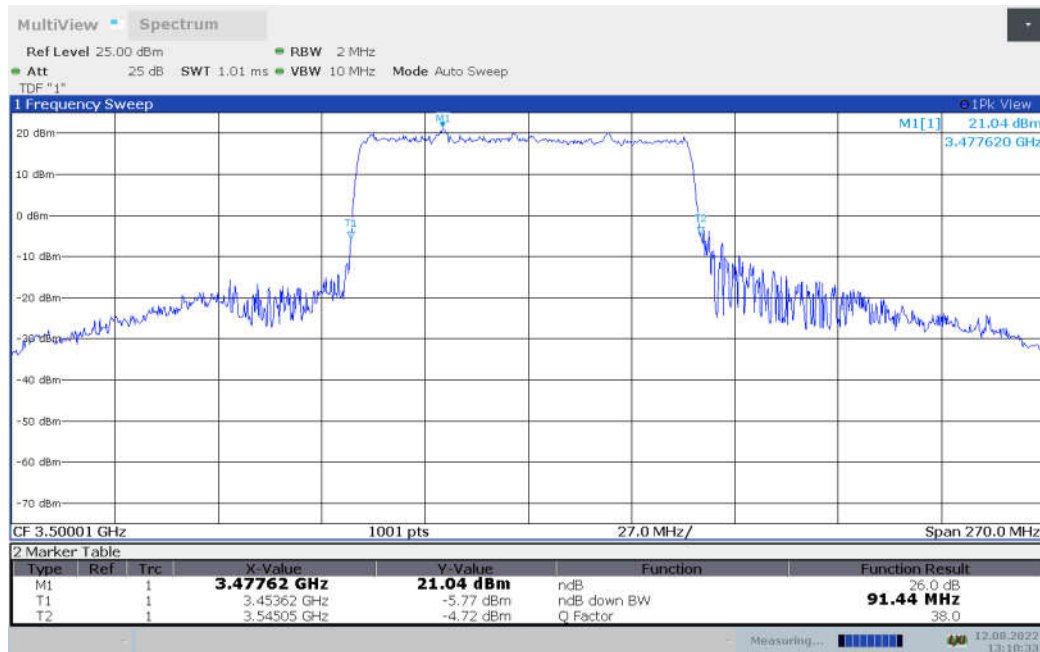

n77L,90MHz Bandwidth,DFT-s-QPSK (-26dBc BW)
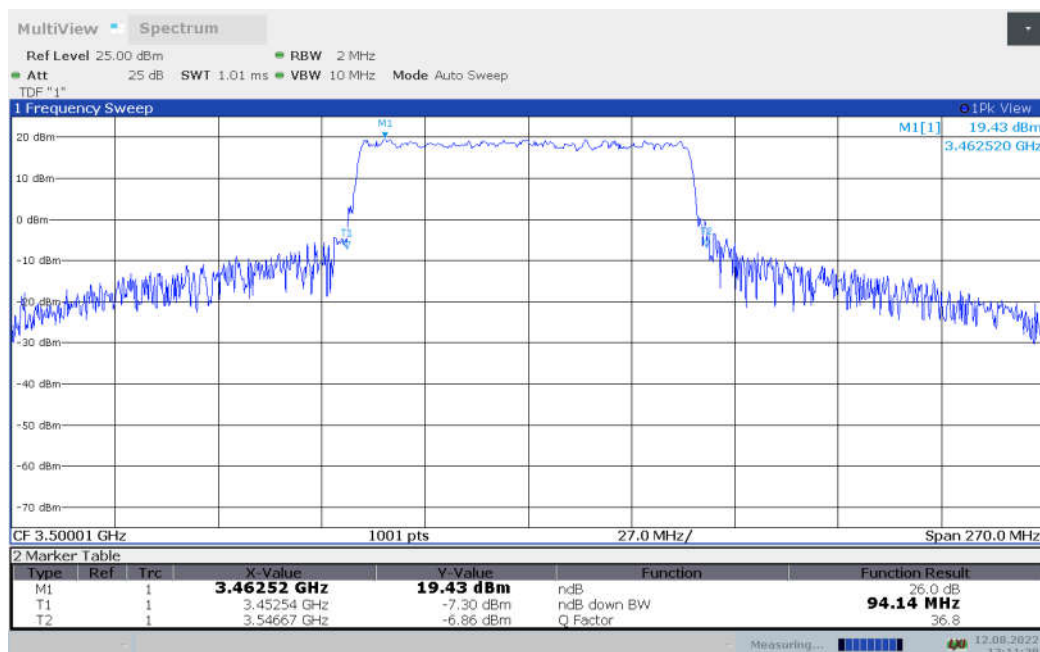
DC_2A_n77A(3450 MHz-3550 MHz)

n77L,100MHz(-26dBc)

Frequency (MHz)	Emission Bandwidth (-26dBc) (MHz)	
	DFT-s-pi/2 BPSK	DFT-s-QPSK
3500.01	101.600	101.600

n77L,100MHz Bandwidth,DFT-s-pi/2 BPSK (-26dBc BW)
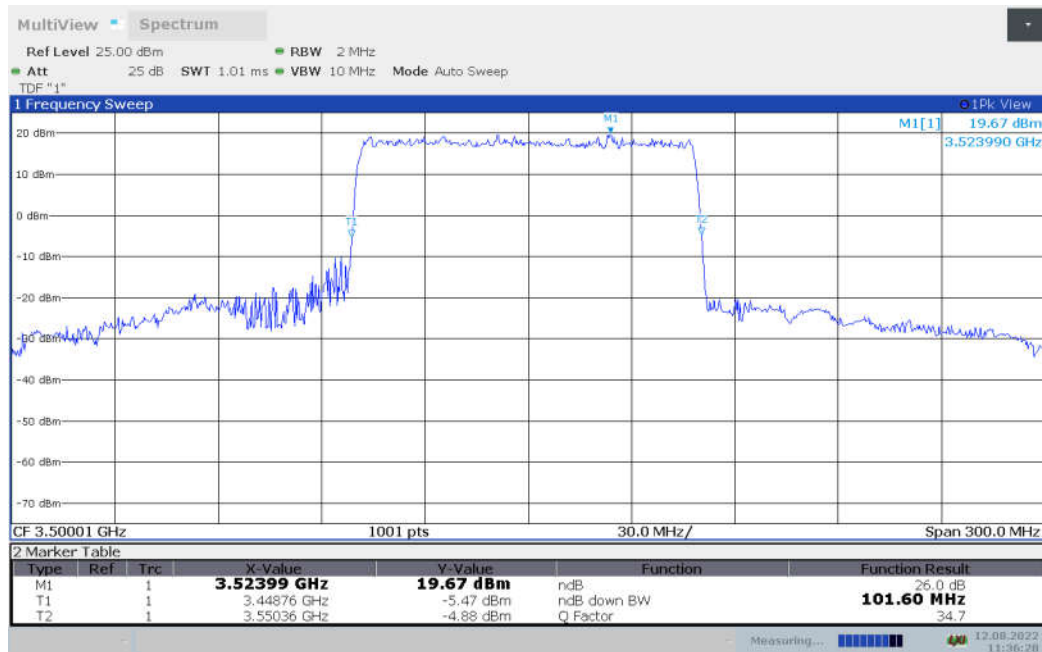
n77L,100MHz Bandwidth,DFT-s-QPSK (-26dBc BW)
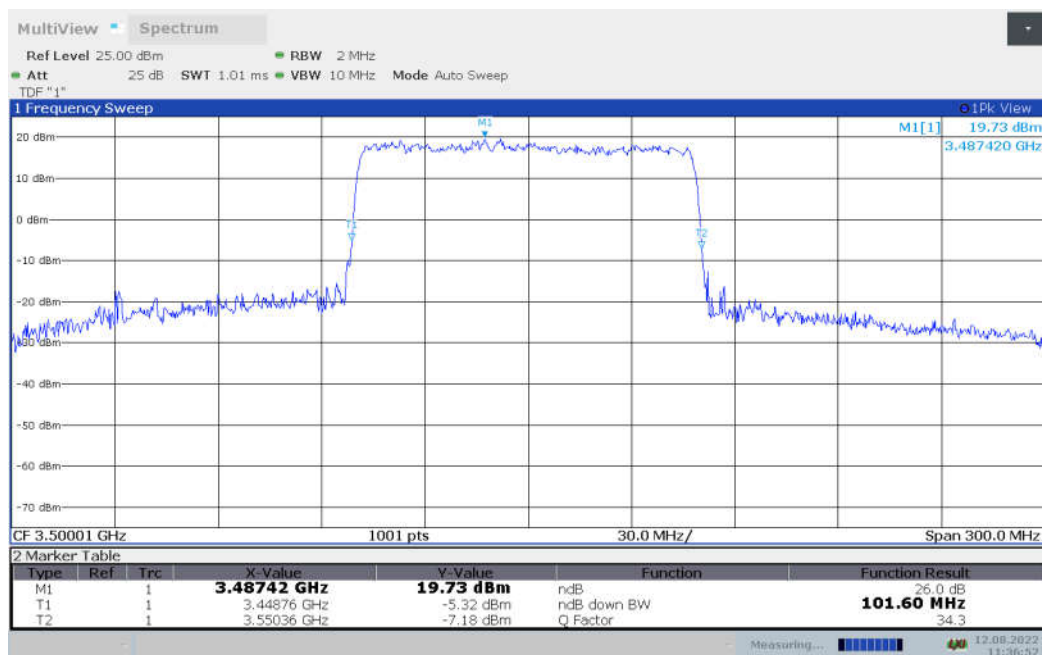
DC_2A_n77A(3700 MHz-3980 MHz)

n77H,10MHz(-26dBc)

Frequency (MHz)	Emission Bandwidth (-26dBc) (MHz)	
	DFT-s-pi/2 BPSK	DFT-s-QPSK
3840	9.530	9.620

n77H,10MHz Bandwidth,DFT-s-pi/2 BPSK (-26dBc BW)
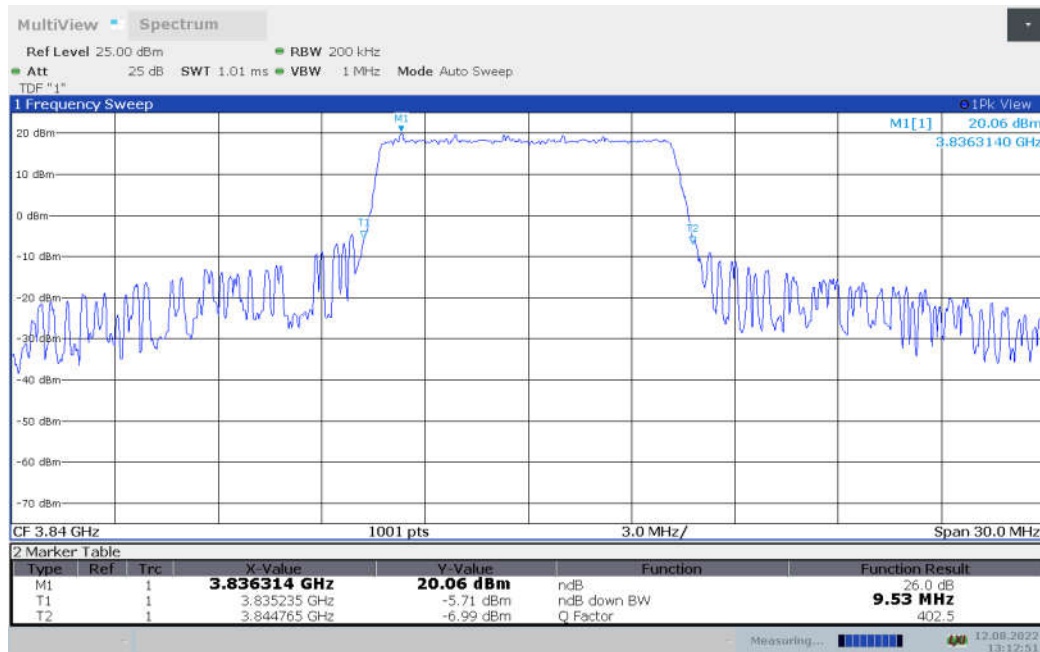
n77H,10MHz Bandwidth,DFT-s-QPSK (-26dBc BW)
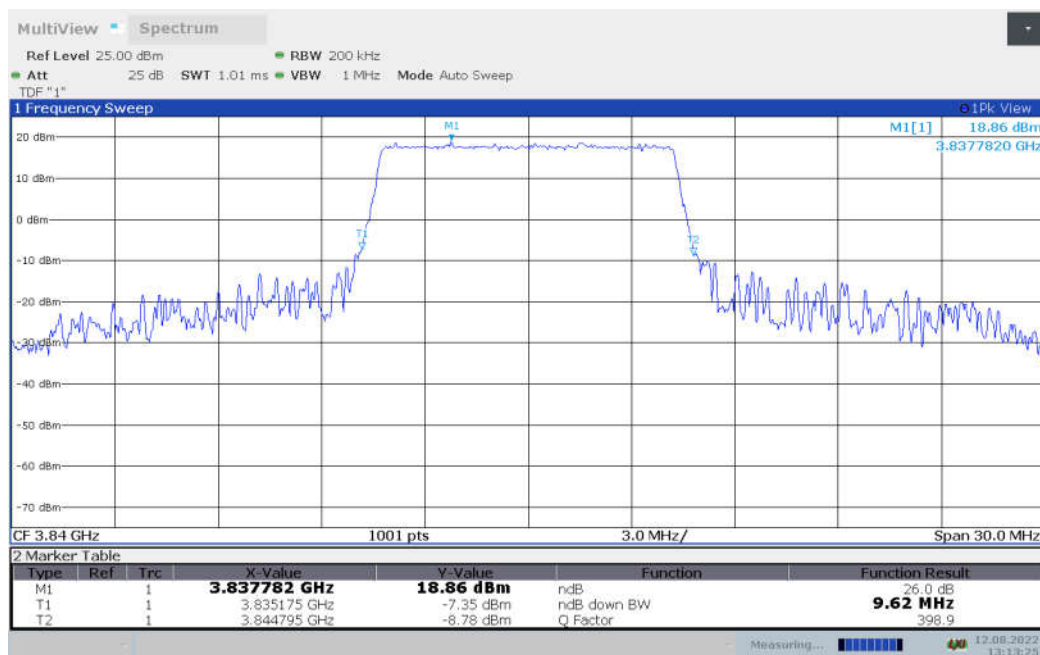
DC_2A_n77A(3700 MHz-3980 MHz)

n77H,15MHz(-26dBc)

Frequency (MHz)	Emission Bandwidth (-26dBc) (MHz)	
	DFT-s-pi/2 BPSK	DFT-s-QPSK
3840	14.341	14.251

n77H,15MHz Bandwidth,DFT-s-pi/2 BPSK (-26dBc BW)
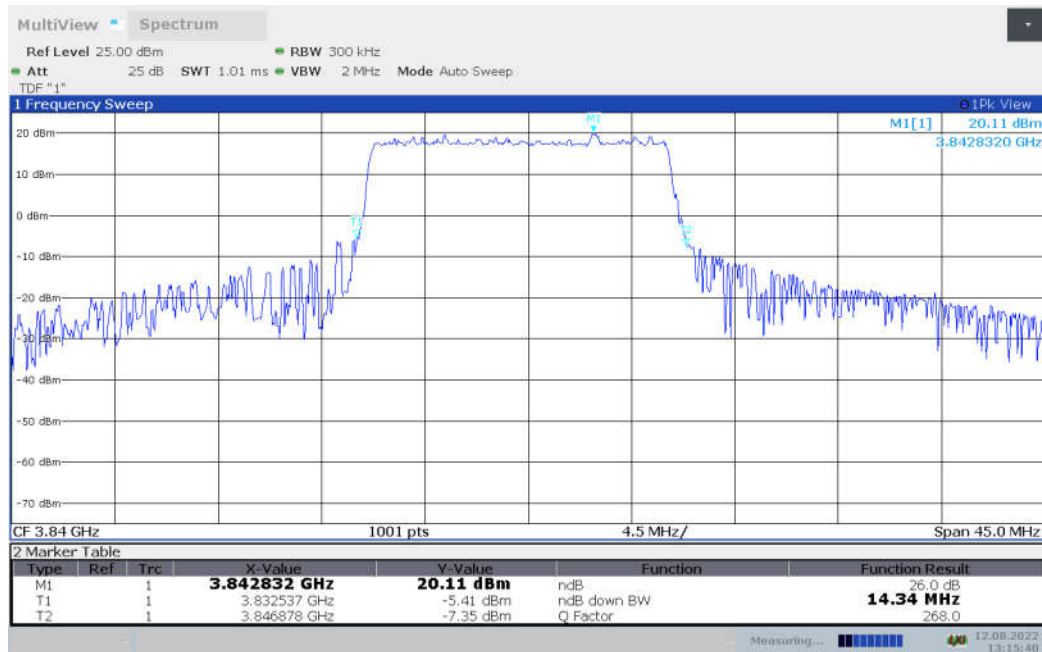
n77H,15MHz Bandwidth,DFT-s-QPSK (-26dBc BW)
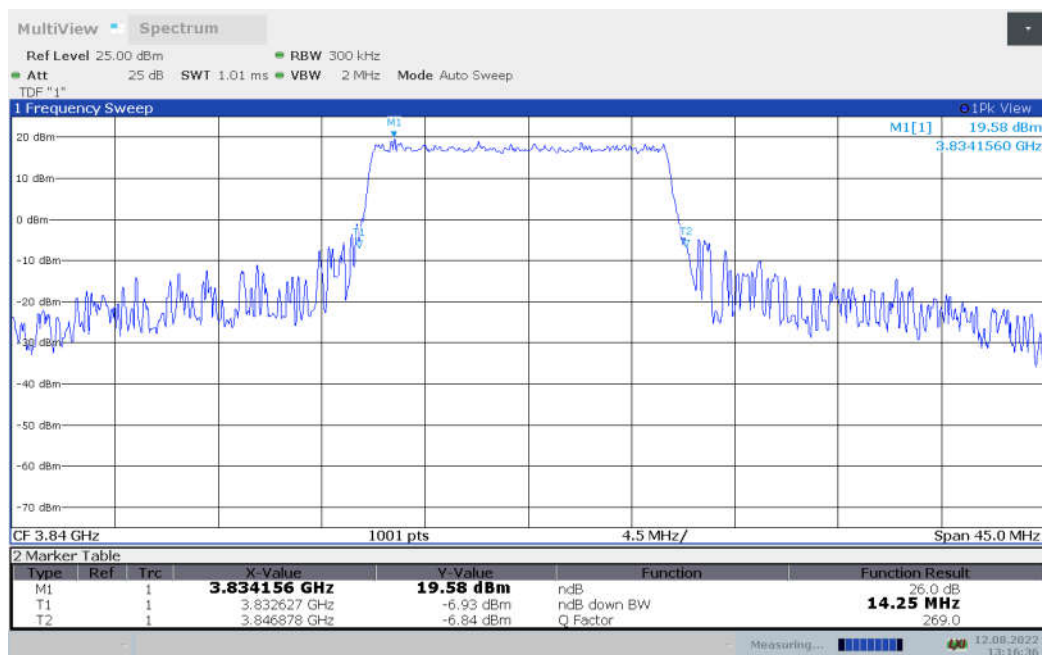
DC_2A_n77A(3700 MHz-3980 MHz)

n77H,20MHz(-26dBc)

Frequency (MHz)	Emission Bandwidth (-26dBc) (MHz)	
	DFT-s-pi/2 BPSK	DFT-s-QPSK
3840	20.080	19.660

n77H,20MHz Bandwidth,DFT-s-pi/2 BPSK (-26dBc BW)
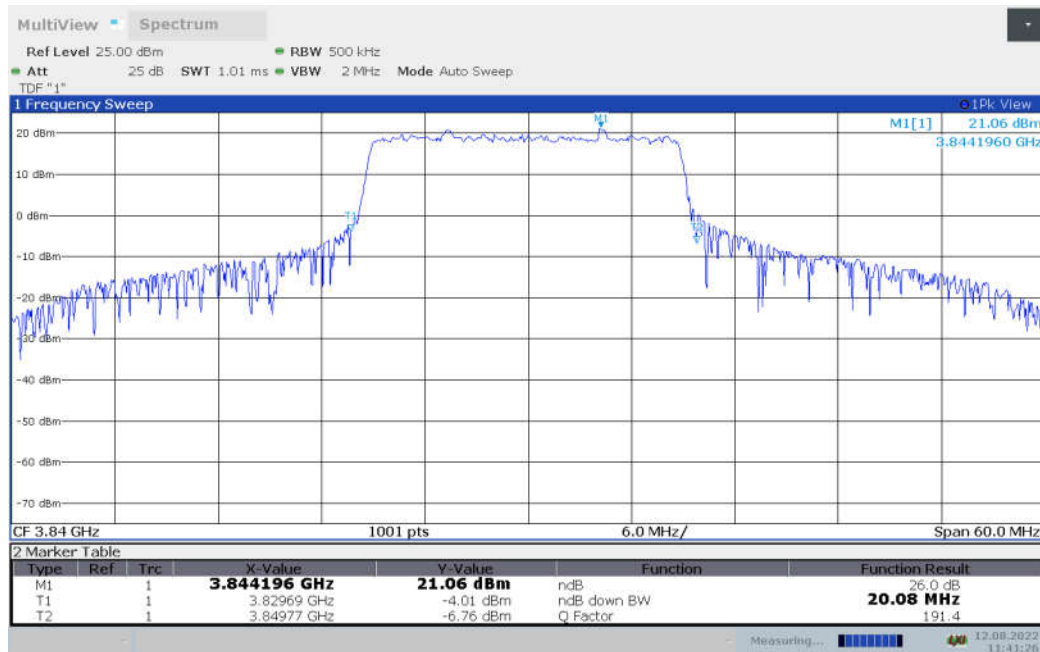
n77H,20MHz Bandwidth,DFT-s-QPSK (-26dBc BW)
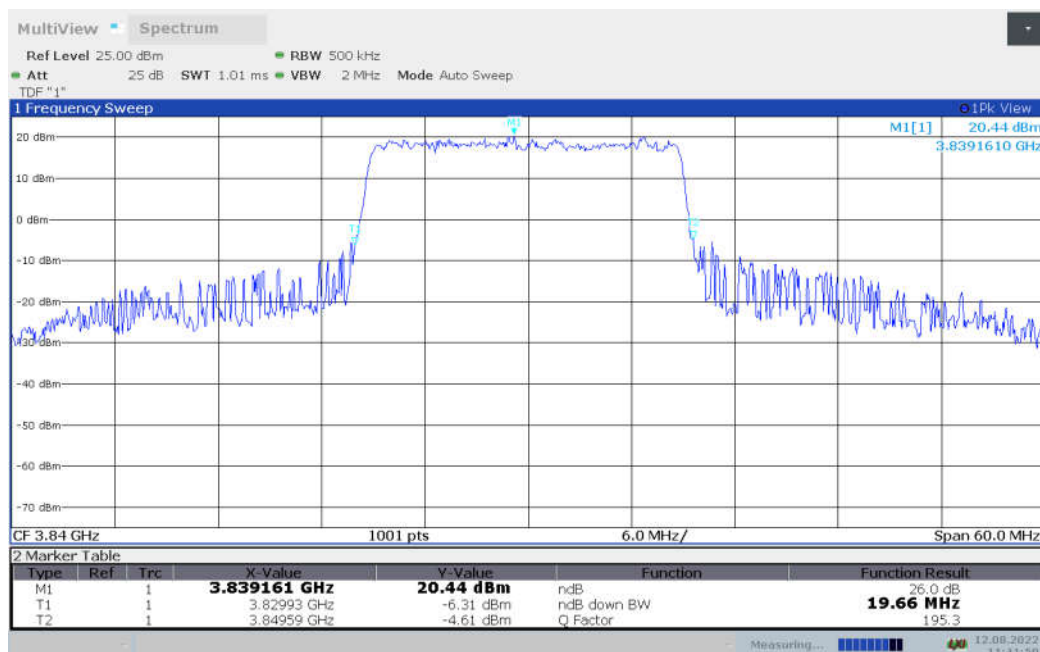
DC_2A_n77A(3700 MHz-3980 MHz)

n77H,40MHz(-26dBc)

Frequency (MHz)	Emission Bandwidth (-26dBc) (MHz)	
	DFT-s-pi/2 BPSK	DFT-s-QPSK
3840	39.440	39.800

n77H,40MHz Bandwidth,DFT-s-pi/2 BPSK (-26dBc BW)
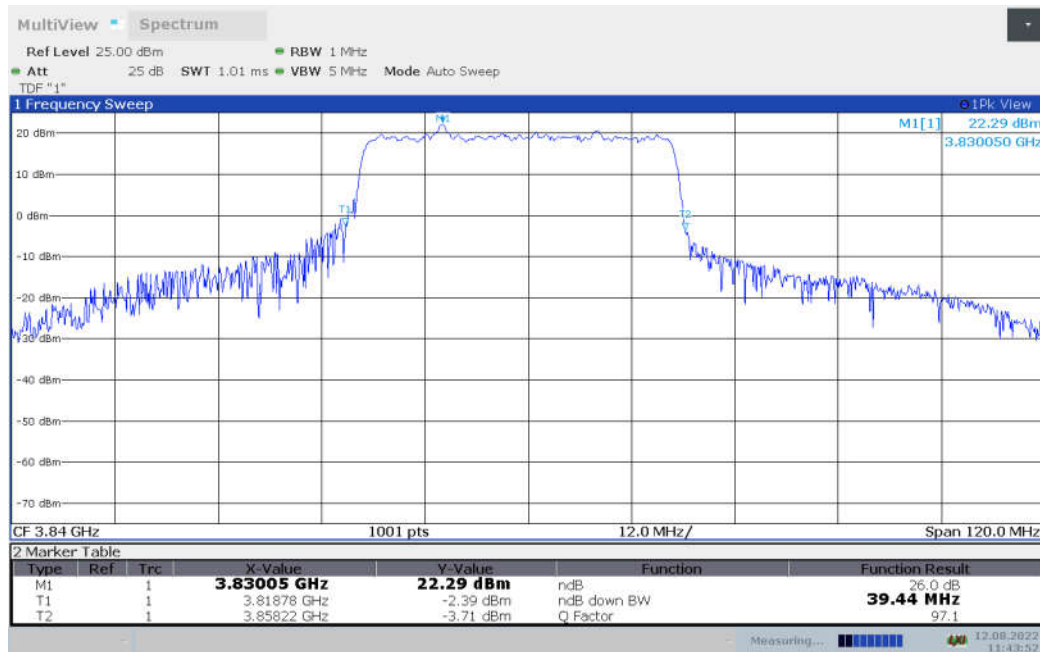
n77H,40MHz Bandwidth,DFT-s-QPSK (-26dBc BW)
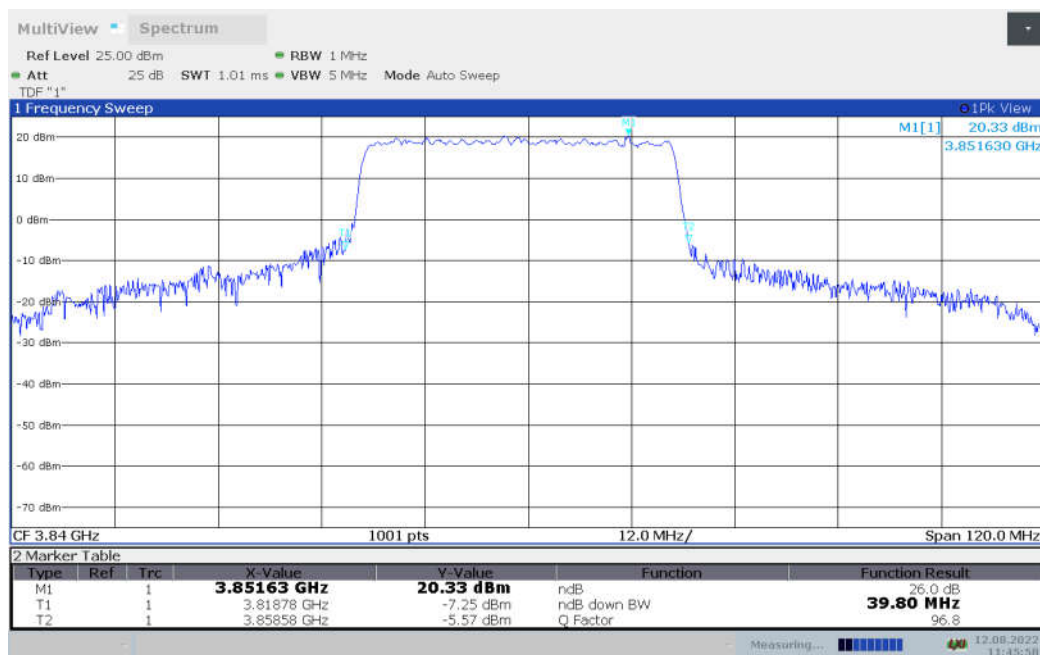
DC_2A_n77A(3700 MHz-3980 MHz)

n77H,50MHz(-26dBc)

Frequency (MHz)	Emission Bandwidth (-26dBc) (MHz)	
	DFT-s-pi/2 BPSK	DFT-s-QPSK
3840	50.050	48.850

n77H,50MHz Bandwidth,DFT-s-pi/2 BPSK (-26dBc BW)

n77H,50MHz Bandwidth,DFT-s-QPSK (-26dBc BW)

Page 249 of 277
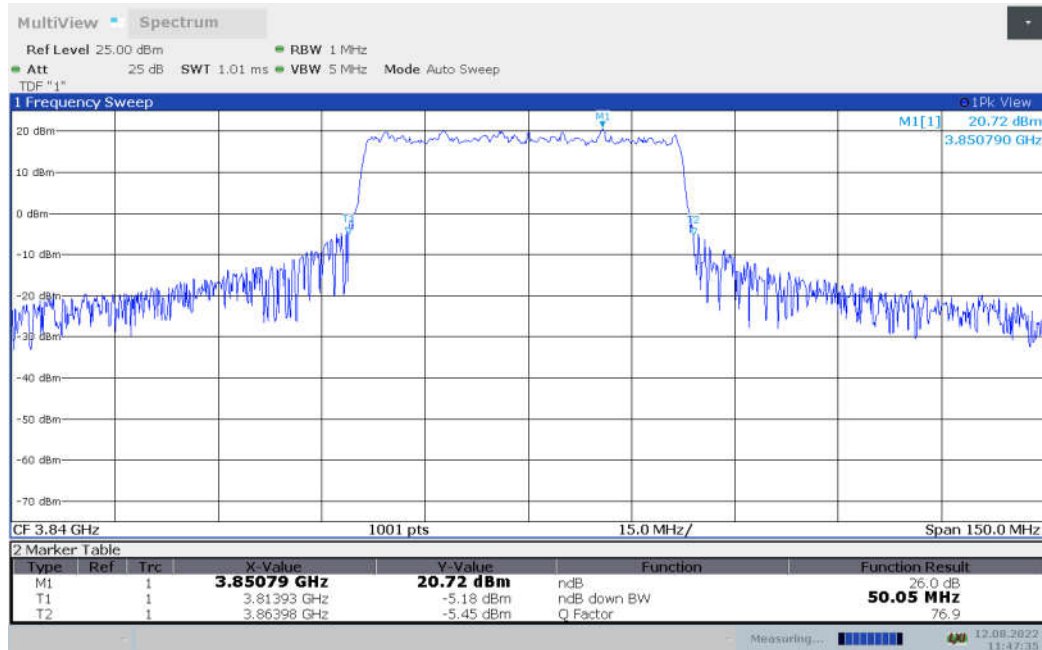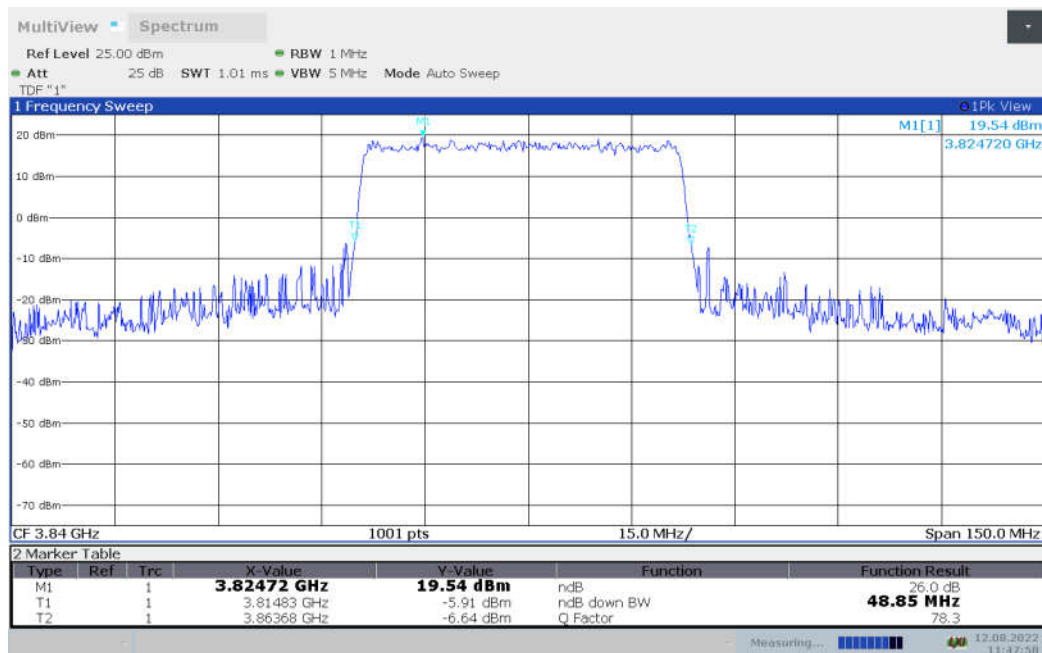
DC_2A_n77A(3700 MHz-3980 MHz)

n77H,60MHz(-26dBc)

Frequency (MHz)	Emission Bandwidth (-26dBc) (MHz)	
	DFT-s-pi/2 BPSK	DFT-s-QPSK
3840	60.960	61.140

n77H,60MHz Bandwidth,DFT-s-pi/2 BPSK (-26dBc BW)
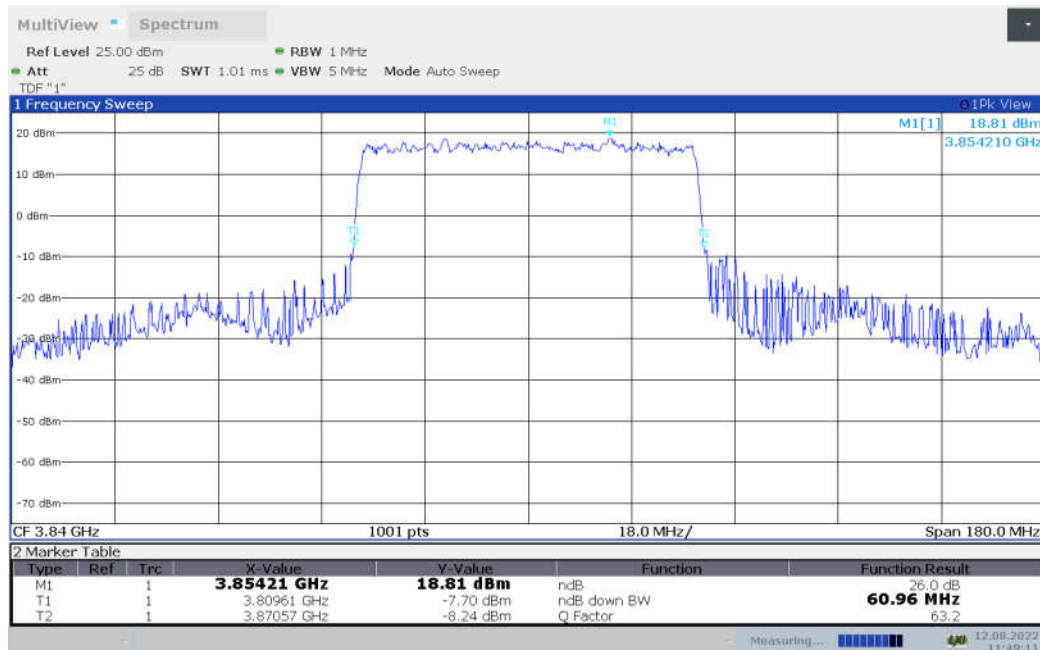
n77H,60MHz Bandwidth,DFT-s-QPSK (-26dBc BW)
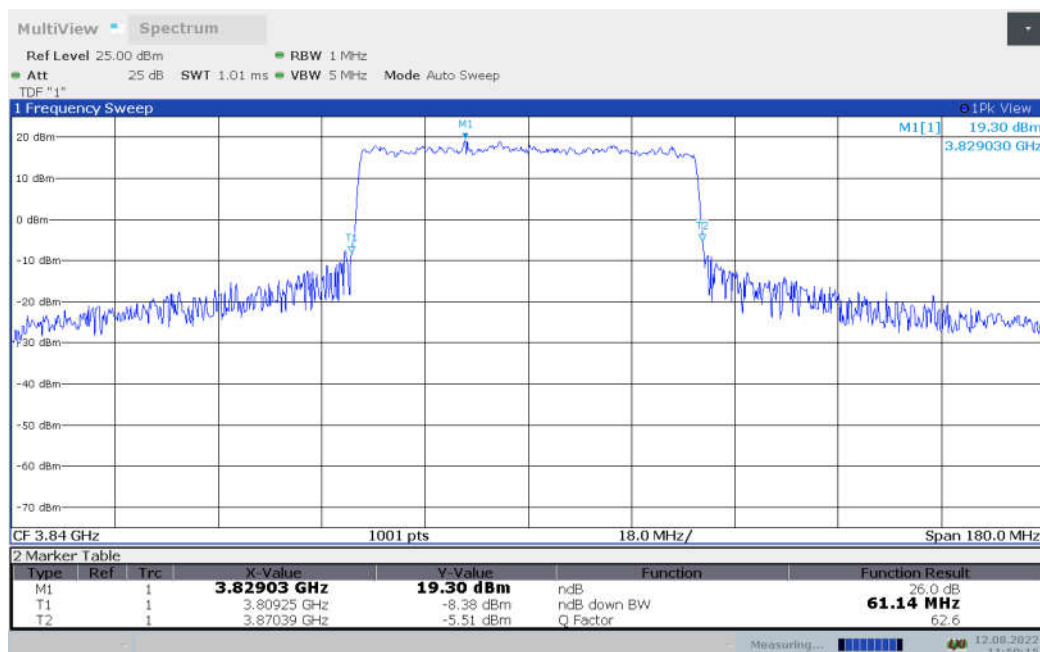
DC_2A_n77A(3700 MHz-3980 MHz)

n77H,80MHz(-26dBc)

Frequency (MHz)	Emission Bandwidth (-26dBc) (MHz)	
	DFT-s-pi/2 BPSK	DFT-s-QPSK
3840	82.480	82.240

n77H,80MHz Bandwidth,DFT-s-pi/2 BPSK (-26dBc BW)
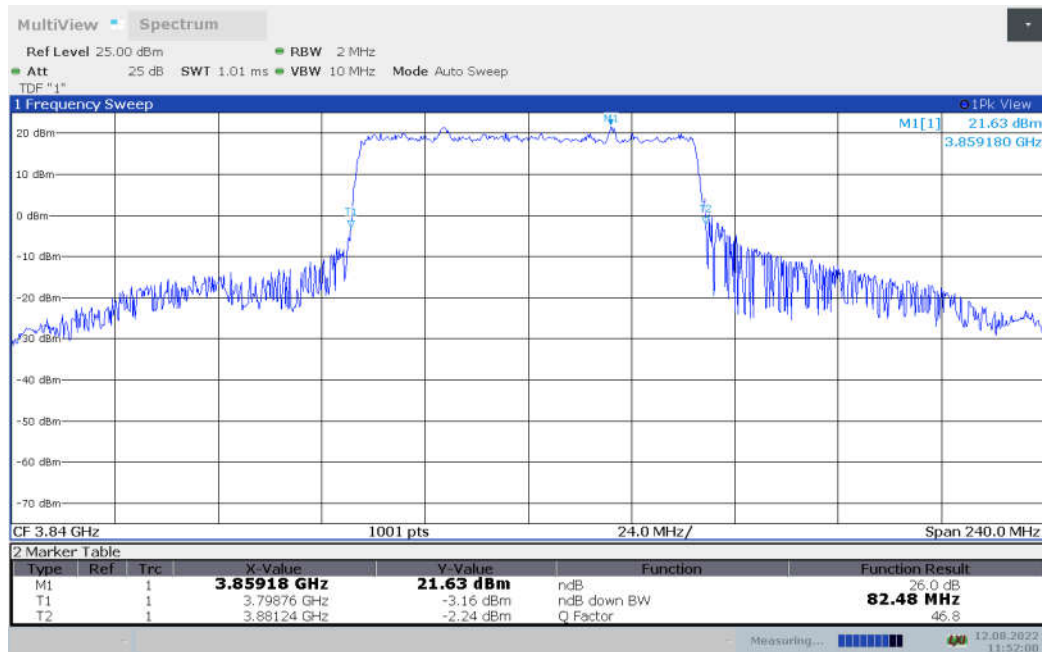
n77H,80MHz Bandwidth,DFT-s-QPSK (-26dBc BW)
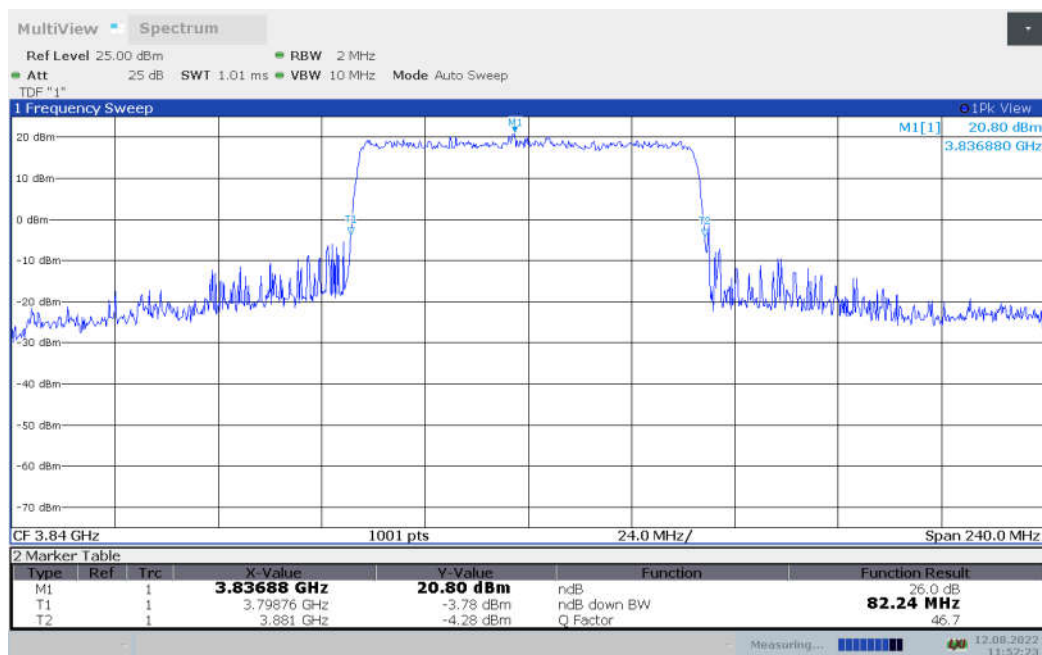
DC_2A_n77A(3700 MHz-3980 MHz)

n77H,90MHz(-26dBc)

Frequency (MHz)	Emission Bandwidth (-26dBc) (MHz)	
	DFT-s-pi/2 BPSK	DFT-s-QPSK
3840	90.630	91.170

n77H,90MHz Bandwidth,DFT-s-pi/2 BPSK (-26dBc BW)
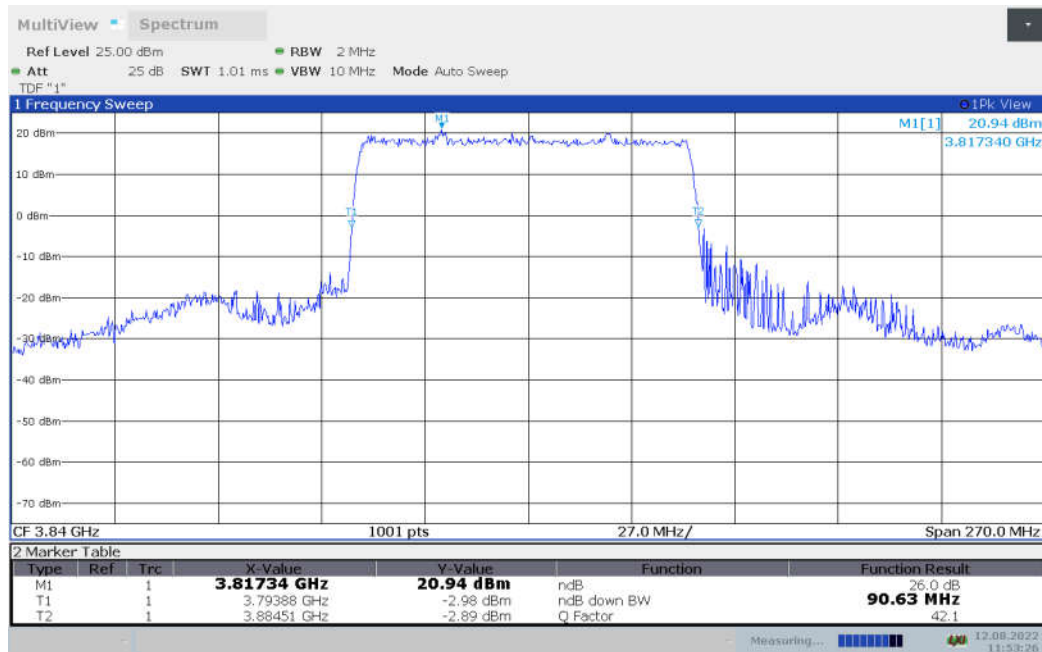
n77H,90MHz Bandwidth,DFT-s-QPSK (-26dBc BW)
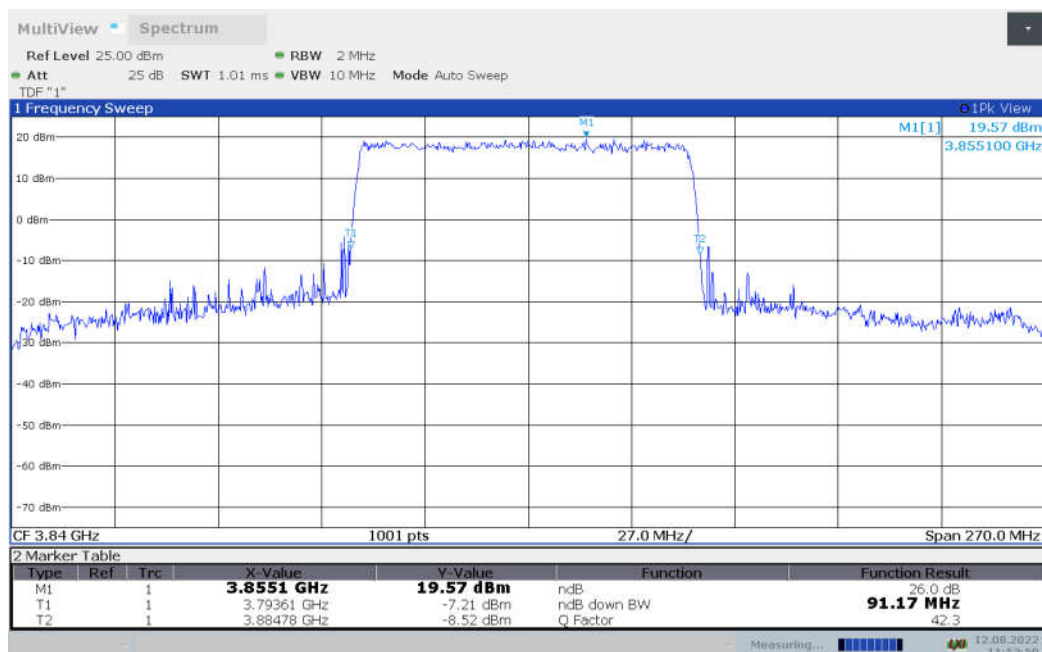
DC_2A_n77A(3700 MHz-3980 MHz)

n77H,100MHz(-26dBc)

Frequency (MHz)	Emission Bandwidth (-26dBc) (MHz)	
	DFT-s-pi/2 BPSK	DFT-s-QPSK
3840	101.600	101.600

n77H,100MHz Bandwidth,DFT-s-pi/2 BPSK (-26dBc BW)
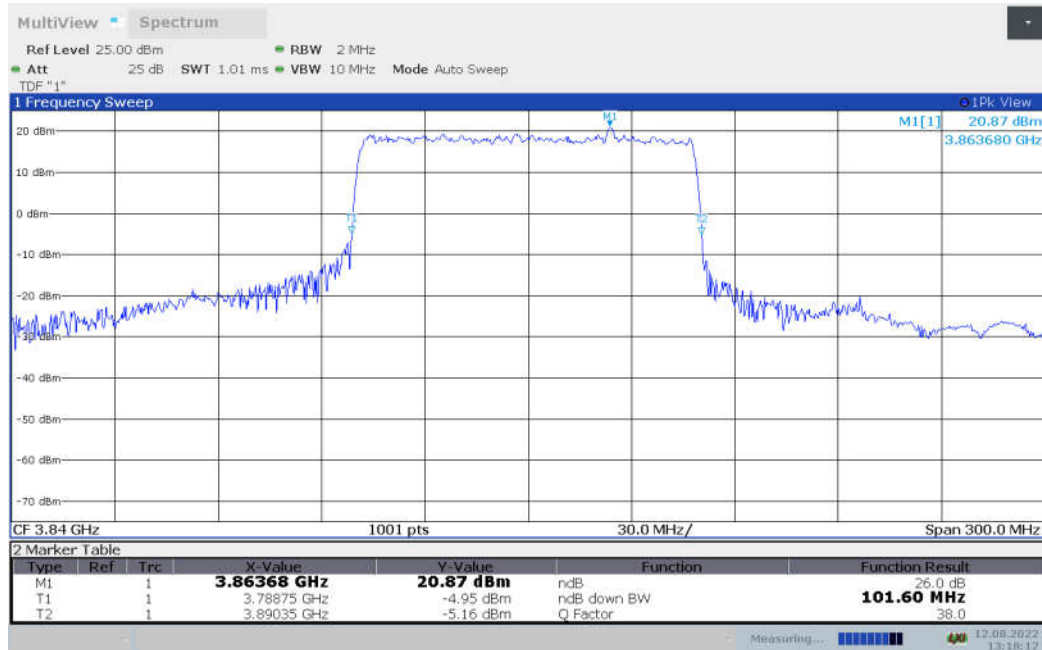
n77H,100MHz Bandwidth,DFT-s-QPSK (-26dBc BW)
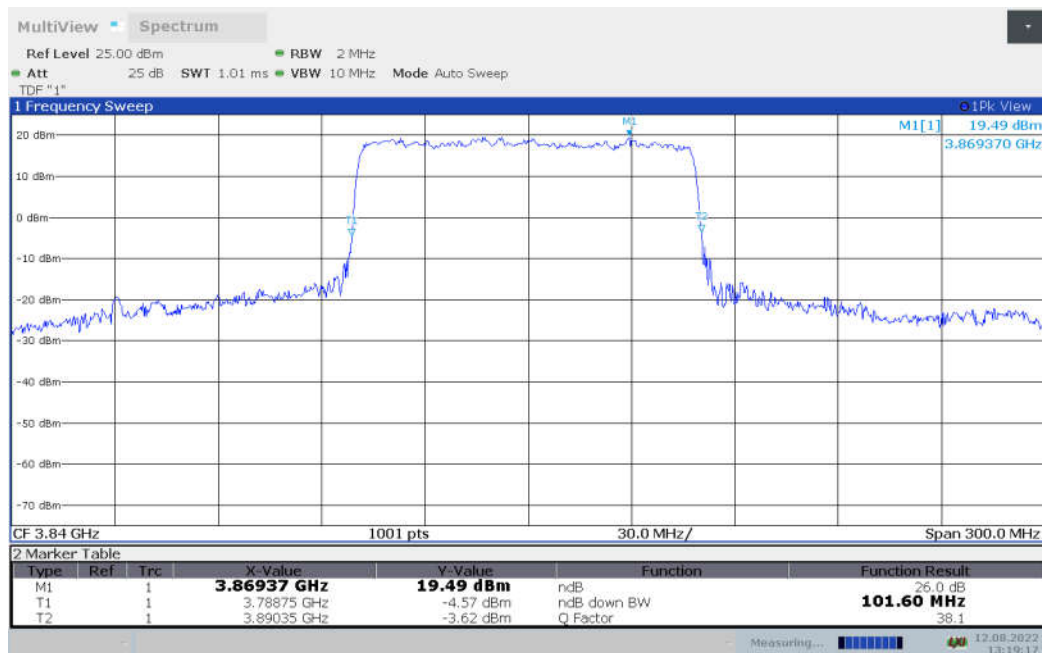
Note: Expanded measurement uncertainty is U = 3428 Hz, k = 2

A.5 BAND EDGE COMPLIANCE

Reference

FCC: CFR Part 2.1051, 22.917, 24.238, 27.53.

A.5.1 Measurement limit

Part 22.917, Part 24.238 and Part 27.53(h) specify that thepower of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log(P) dB.

Part 27.53(n) states for base station operations in the 3450-3550 MHz band, the conducted power of any emission outside the licensee's authorized bandwidth shall not exceed −13 dBm/MHz. Compliance with the provisions of this paragraph (n)(1) is based on the use of measurement instrumentation employing a resolution bandwidth of 1 megahertz or greater. However, in the 1 megahertz bands immediately outside and adjacent to the licensee's frequency block, a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed, but limited to a maximum of 200 kHz. The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power. Notwithstanding the channel edge requirement of −13 dBm per megahertz, for base station operations in the 3450-3550 MHz band, the conducted power of any emission below 3440 MHz or above 3560 MHz shall not exceed −25 dBm/MHz, and the conducted power of emissions below 3430 MHz or above 3570 MHz shall not exceed −40 dBm/MHz.

Part 27.53(l) states for base station operations in the 3700-3980 MHz band, the conducted power of any emission outside the licensee's authorized bandwidth shall not exceed −13 dBm/MHz. Compliance with this paragraph (l)(1) is based on the use of measurement instrumentation employing a resolution bandwidth of 1 megahertz or greater. However, in the 1 megahertz bands immediately outside and adjacent to the licensee's frequency block, a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed. The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power.

A.5.2 Measurement Procedure

The testing follows ANSI C63.26

a) The EUT was connected to spectrum analyzer and system simulator via a power divider.

b) The band edges of low and high channels for the highest RF powers were measured.

c) Set RBW >= 1% EBW in the 1MHz band immediately outside and adjacent to the band edge.

d) Set spectrum analyzer with RMS detector.

e) The RF fundamental frequency should be excluded against the limit line in the operating frequency band.

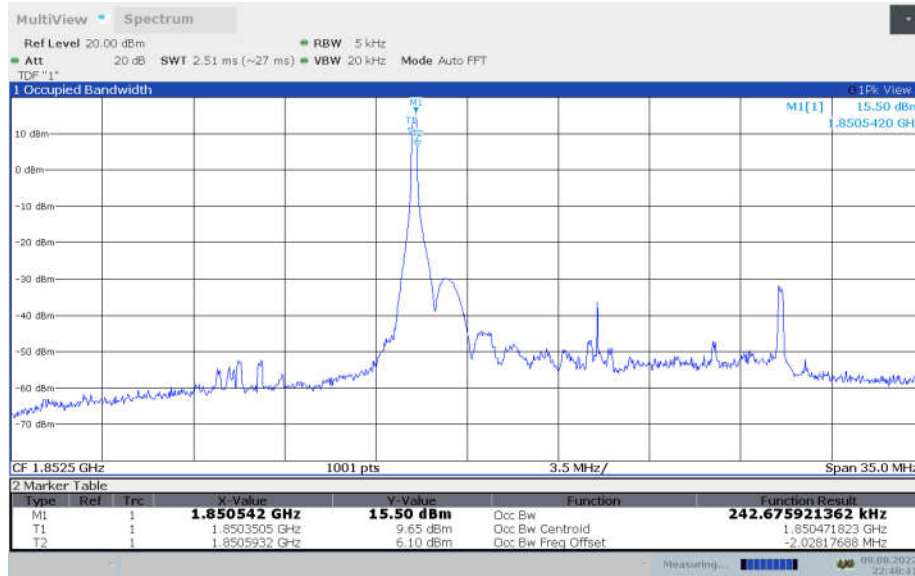f) Checked that all the results comply with the emission limit line.
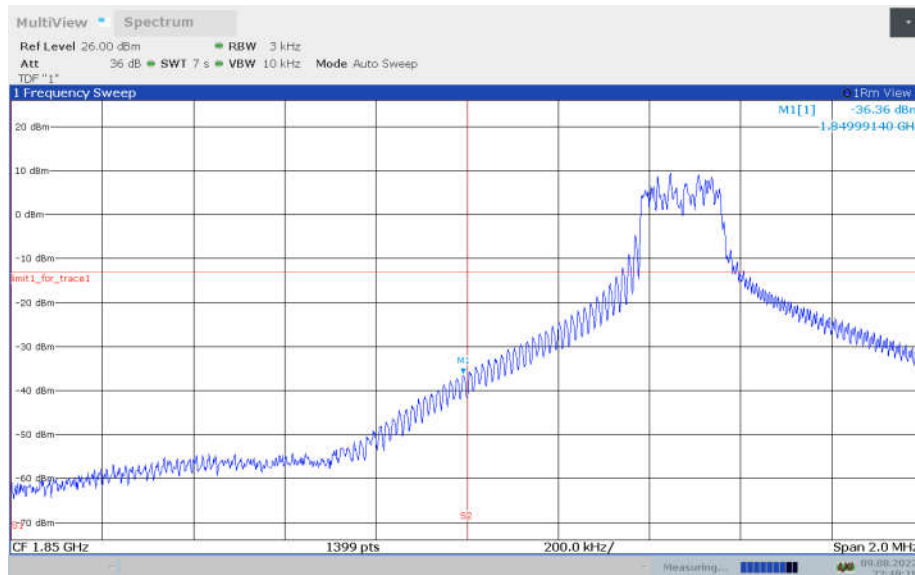
A.5.3 Measurement result
Only worst case result is given below
DC_5A_n2A
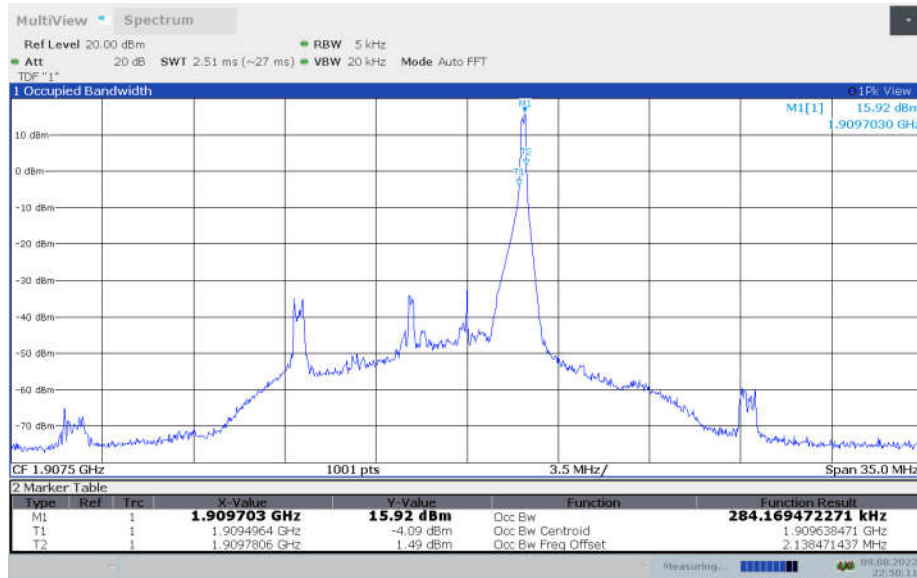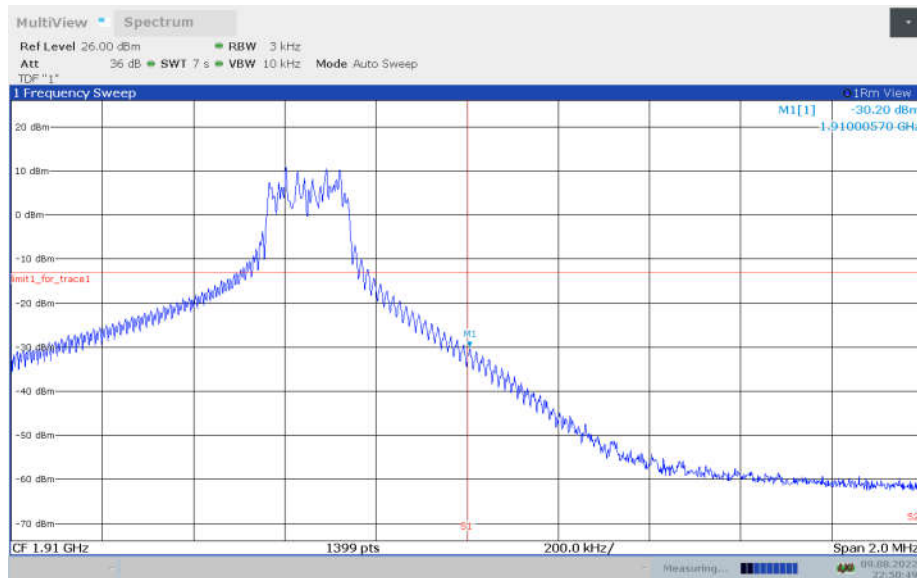**OBW: 1RB-LOW_offset**

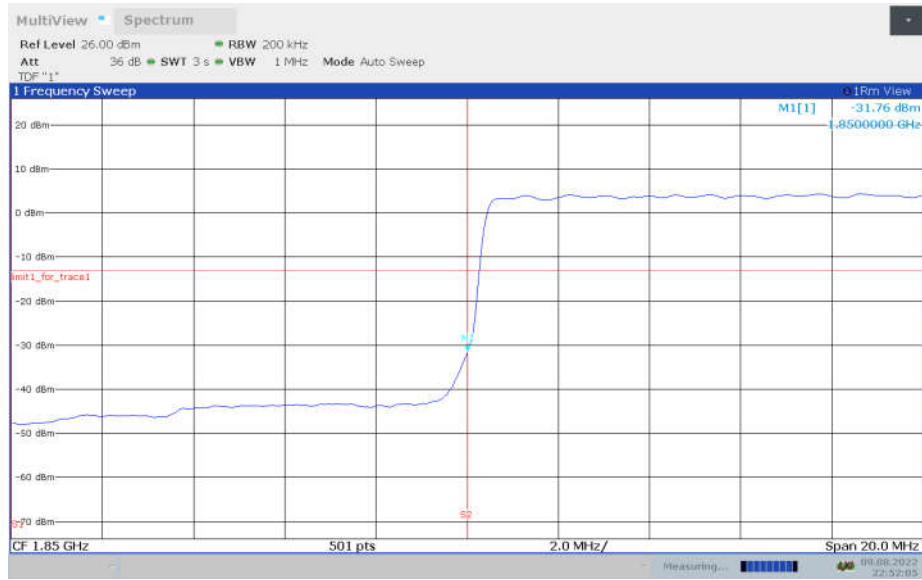**LOW BAND EDGE BLOCK-1RB-LOW_offset**

OBW: 1RB-HIGH_offset
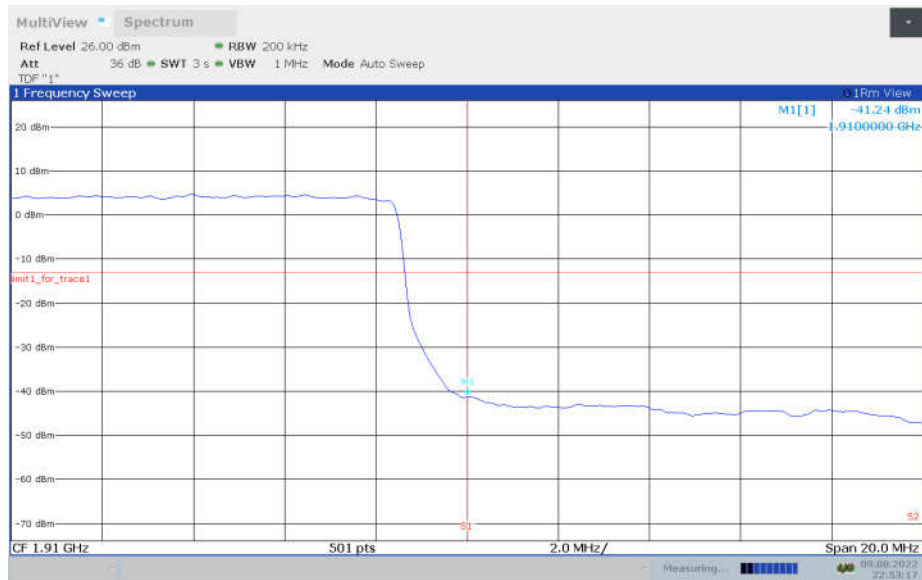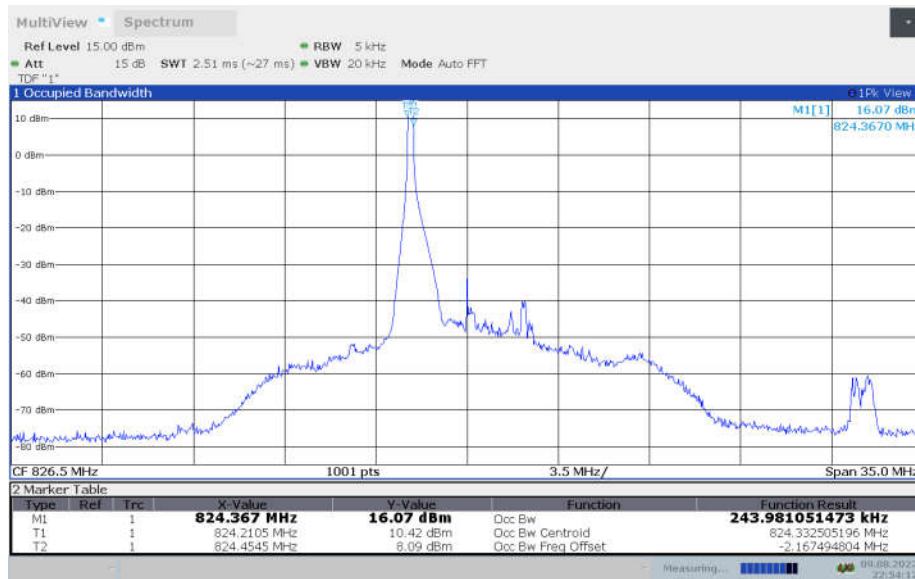

HIGH BAND EDGE BLOCK-1RB-HIGH_offset

LOW BAND EDGE BLOCK-20M-100%RB

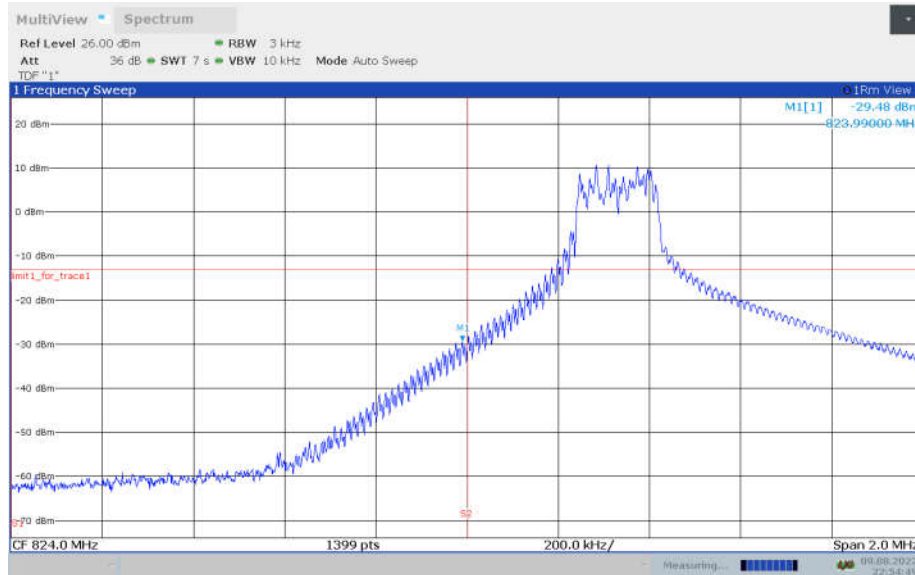**HIGH BAND EDGE BLOCK-20M-100%RB**

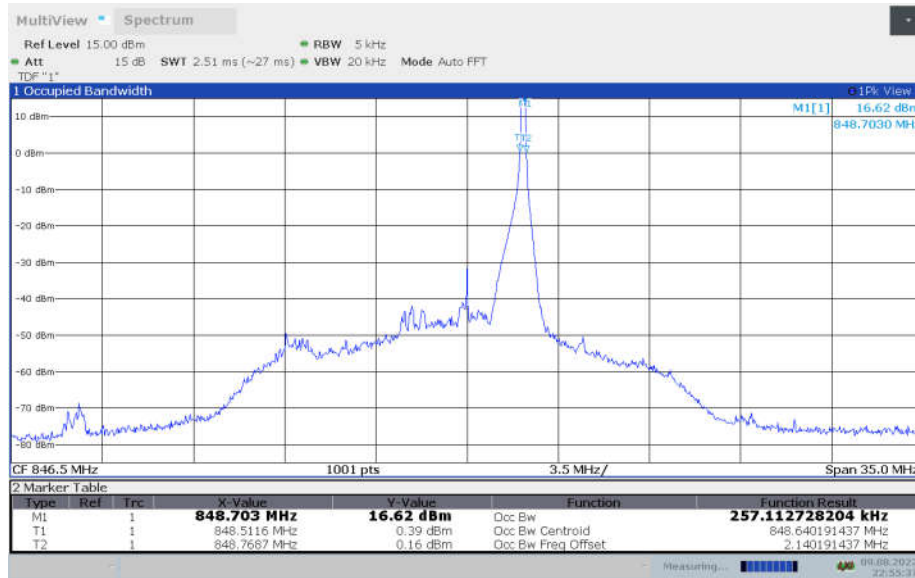**DC_2A_n5A**

OBW: 1RB-LOW_offset

LOW BAND EDGE BLOCK-1RB-LOW_offset

OBW: 1RB-HIGH_offset

HIGH BAND EDGE BLOCK-1RB-HIGH_offset