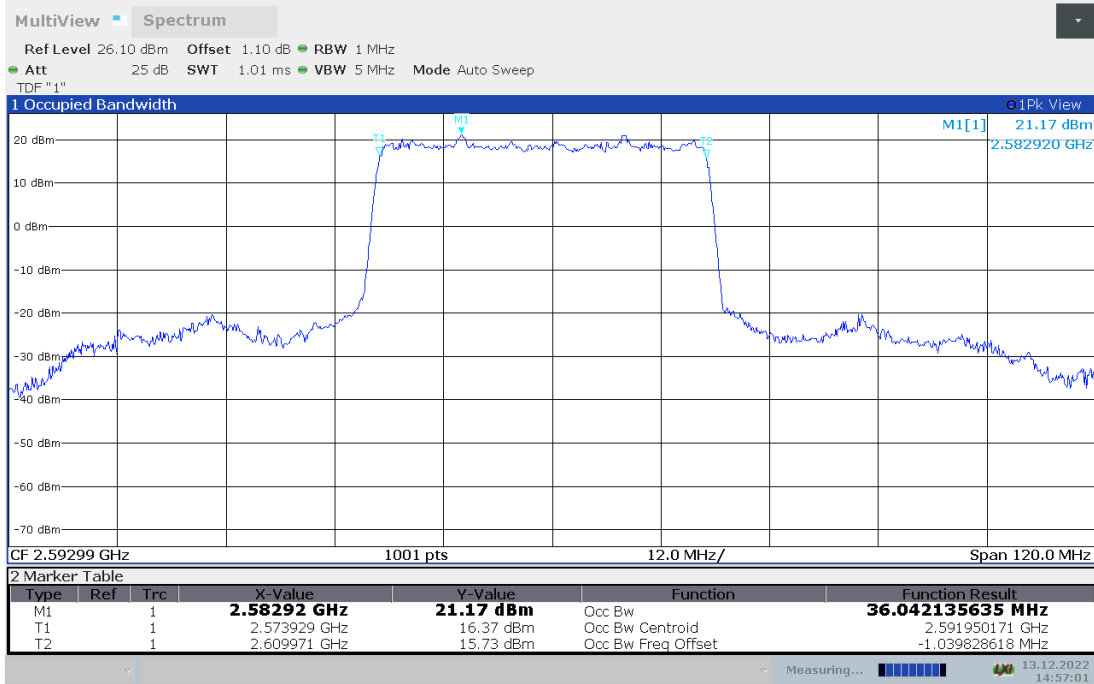




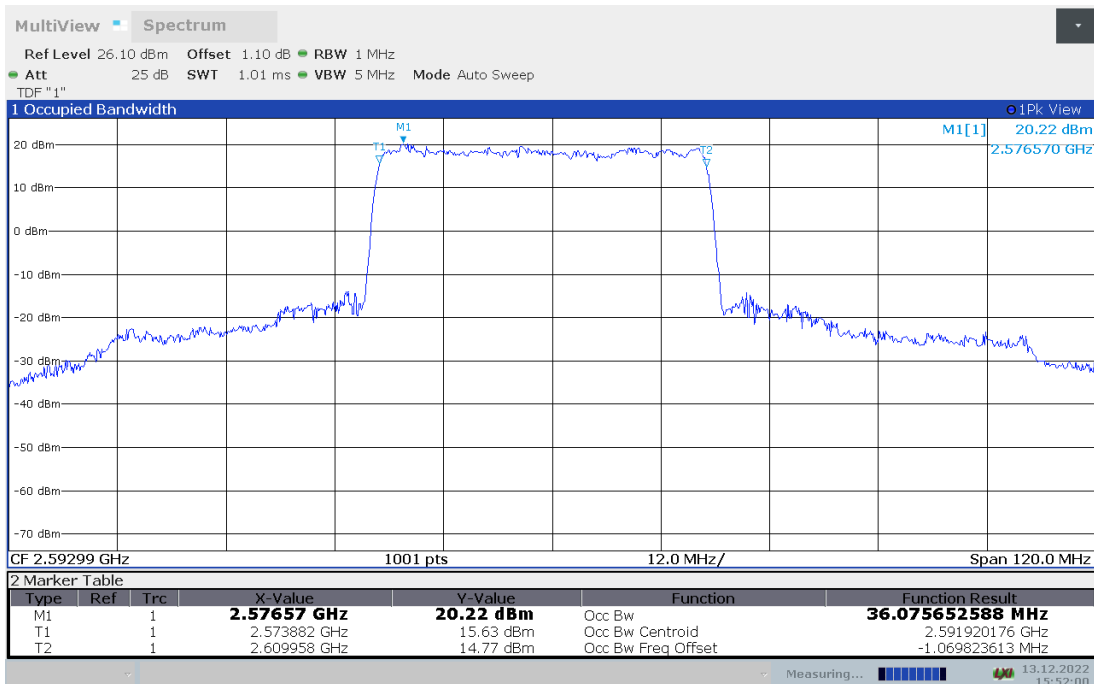
**n41,40MHz(99%)**

Frequency (MHz)	Occupied Bandwidth (99%) (MHz)	
	DFT-s-pi/2 BPSK	DFT-s-QPSK
2592.99	36.042	36.076

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



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

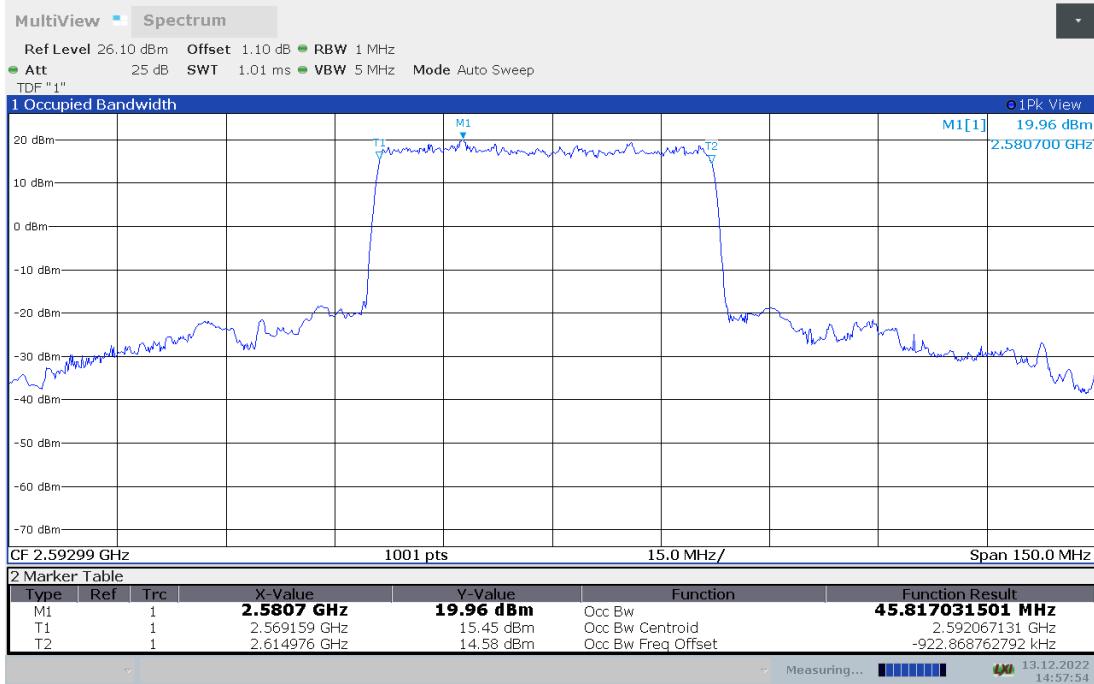




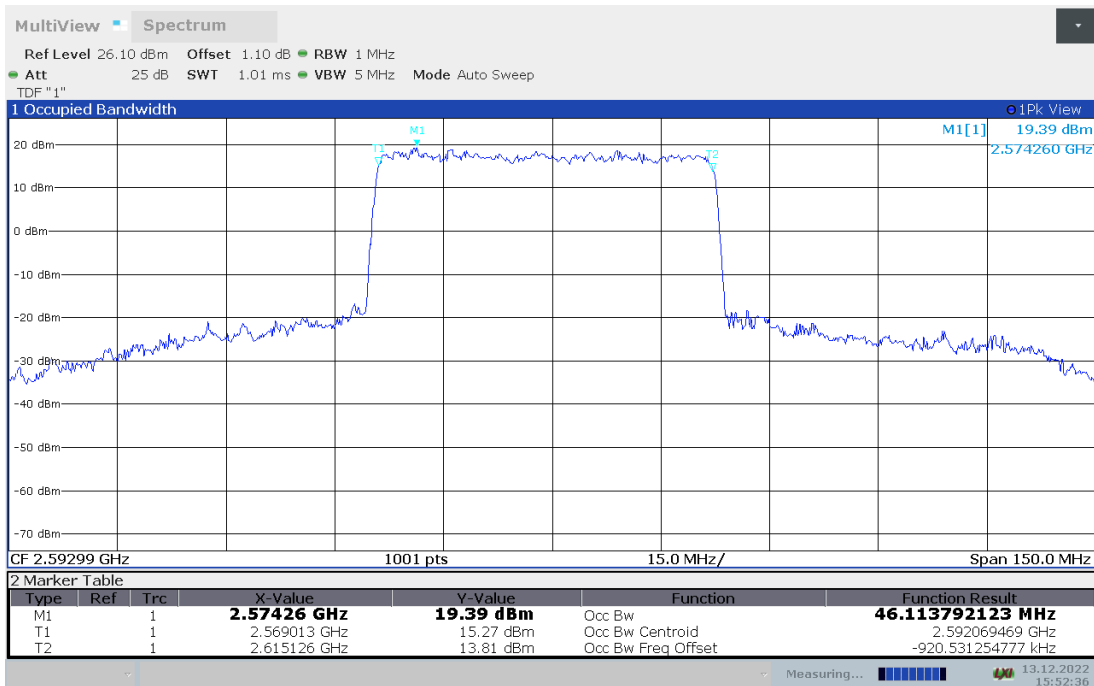
n41,50MHz(99%)

Frequency (MHz)	Occupied Bandwidth (99%) (MHz)	
	DFT-s-pi/2 BPSK	DFT-s-QPSK
2592.99	45.817	46.114

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



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

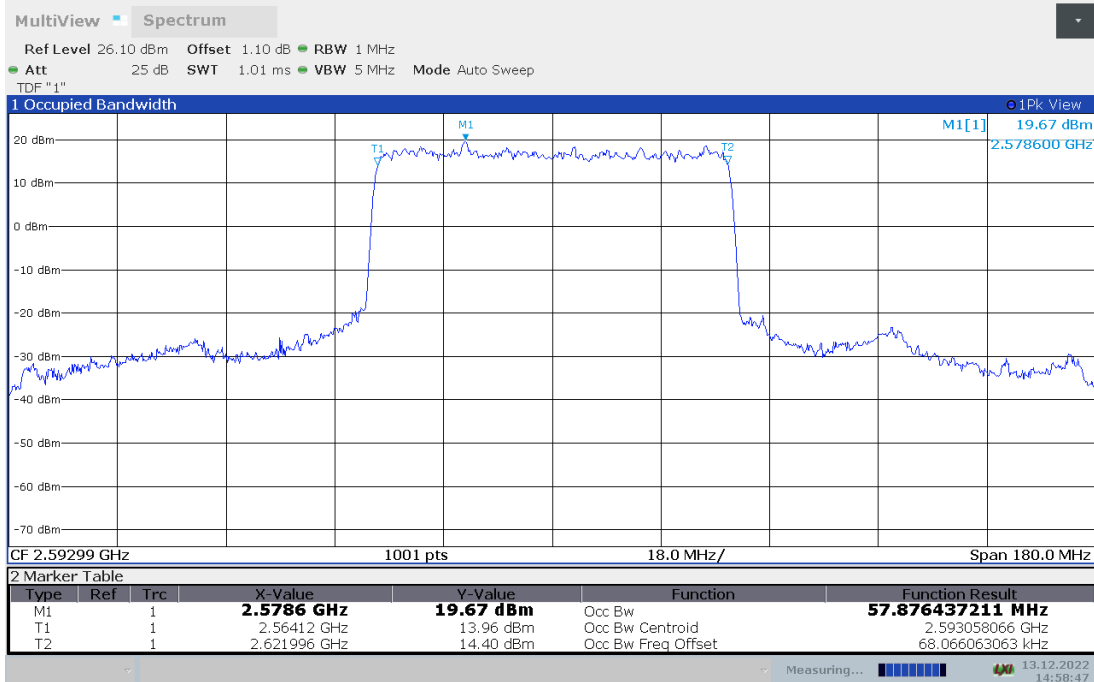




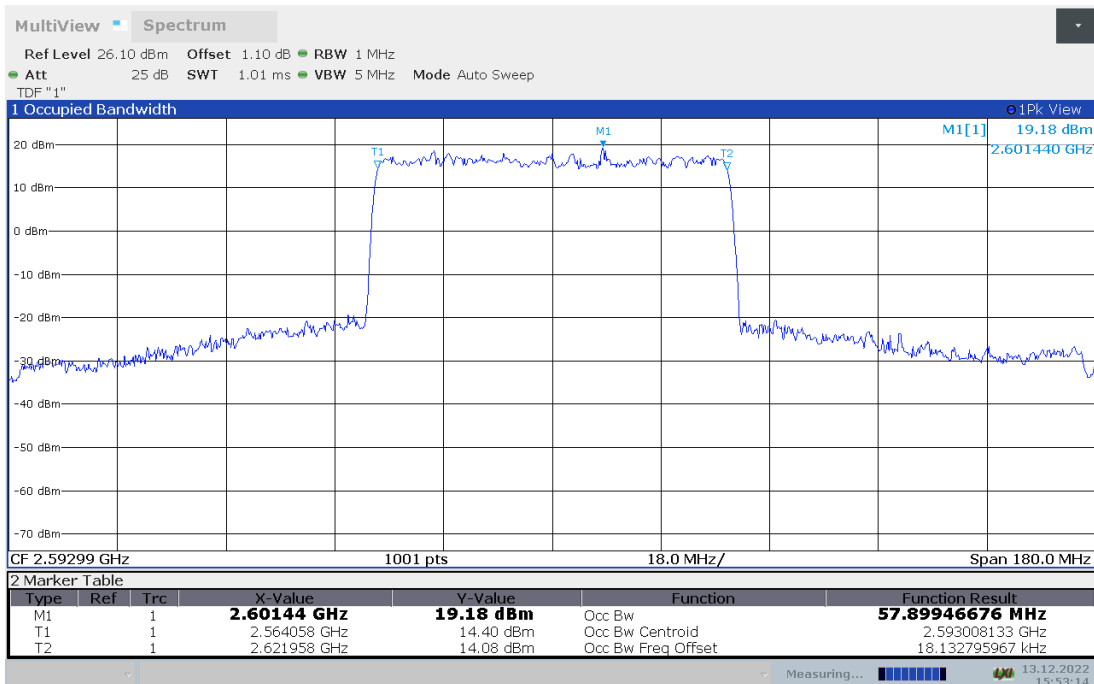
n41,60MHz(99%)

Frequency (MHz)	Occupied Bandwidth (99%) (MHz)	
	DFT-s-pi/2 BPSK	DFT-s-QPSK
2592.99	57.876	57.899

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



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

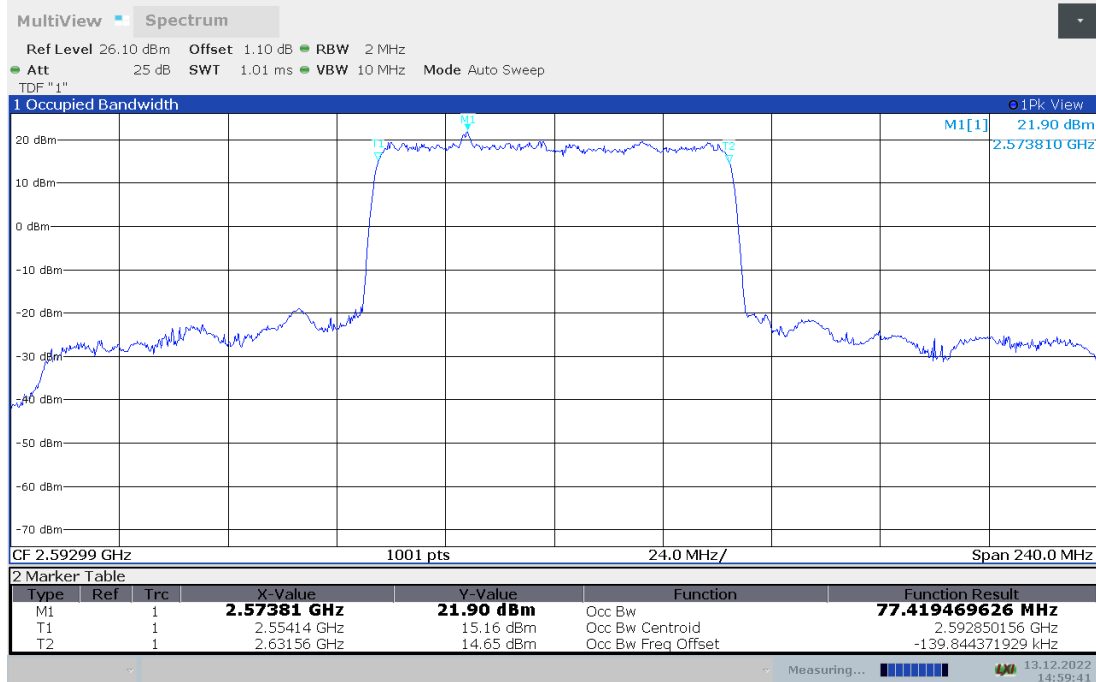




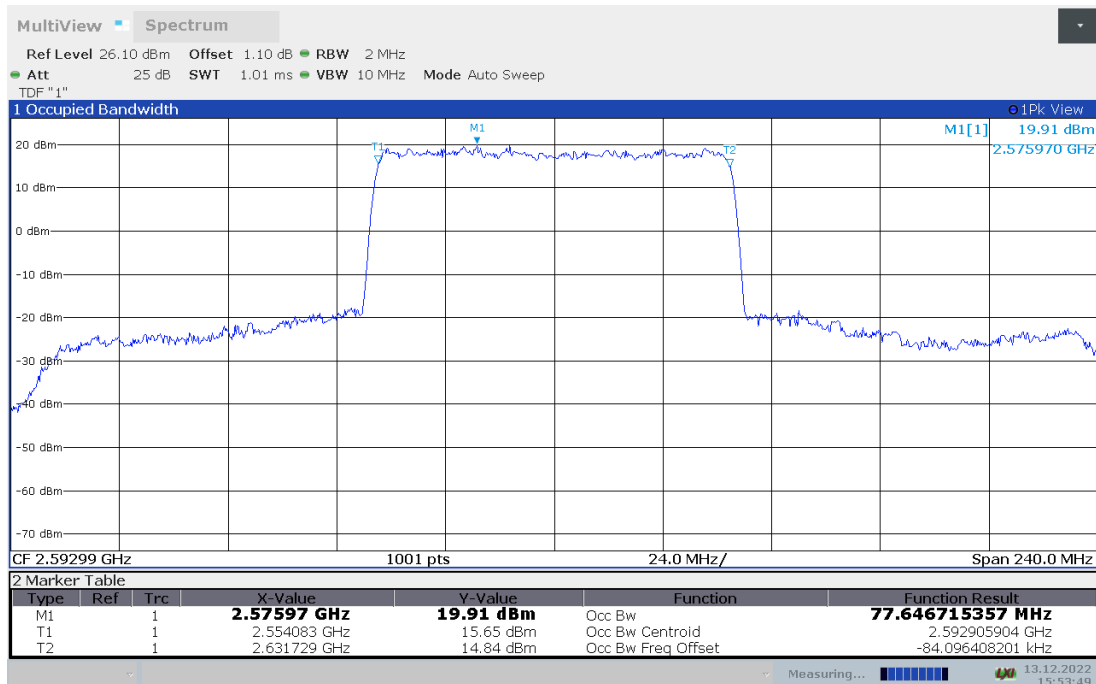
n41,80MHz(99%)

Frequency (MHz)	Occupied Bandwidth (99%) (MHz)	
	DFT-s-pi/2 BPSK	DFT-s-QPSK
2592.99	77.419	77.647

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



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

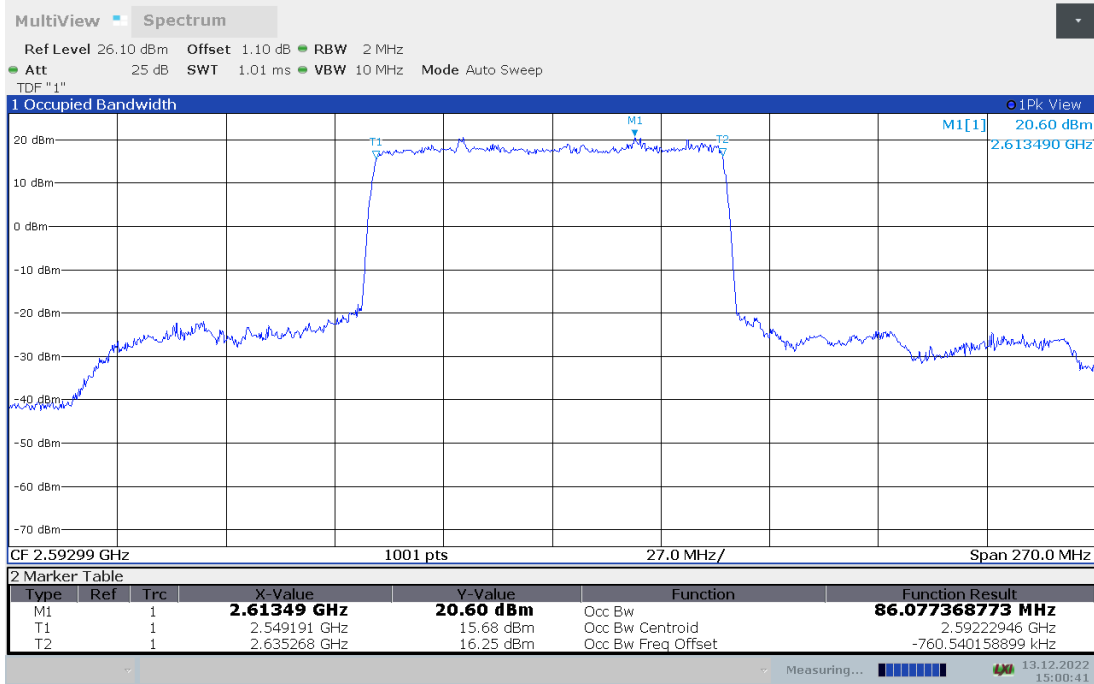




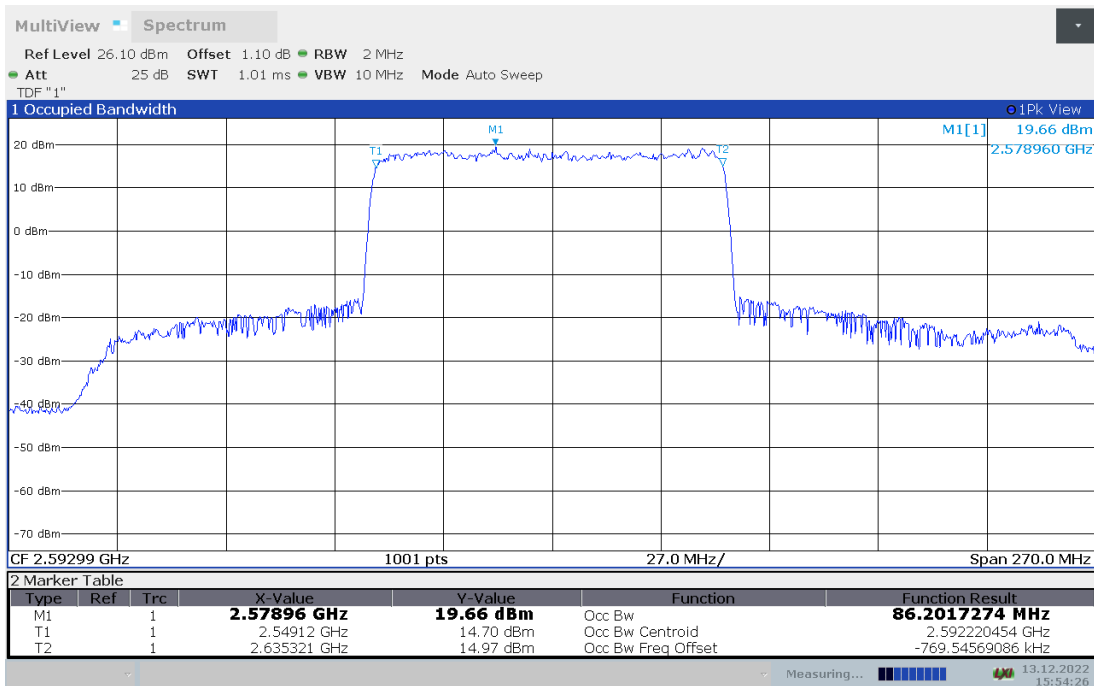
n41,90MHz(99%)

Frequency (MHz)	Occupied Bandwidth (99%) (MHz)	
	DFT-s-pi/2 BPSK	DFT-s-QPSK
2592.99	86.077	86.202

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



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

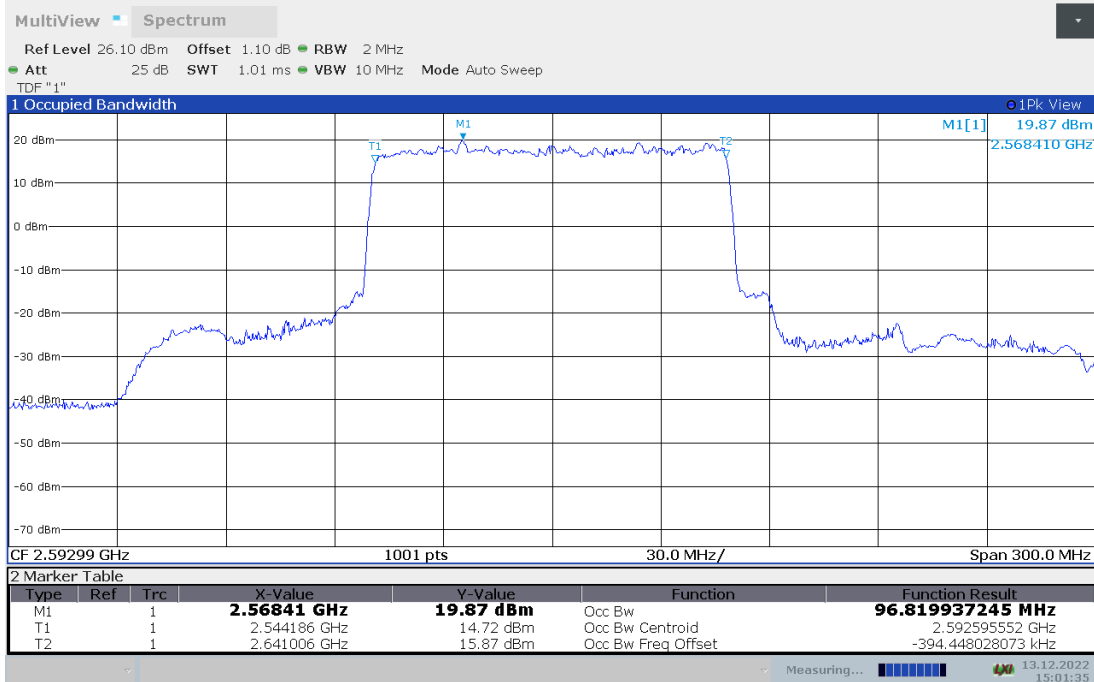




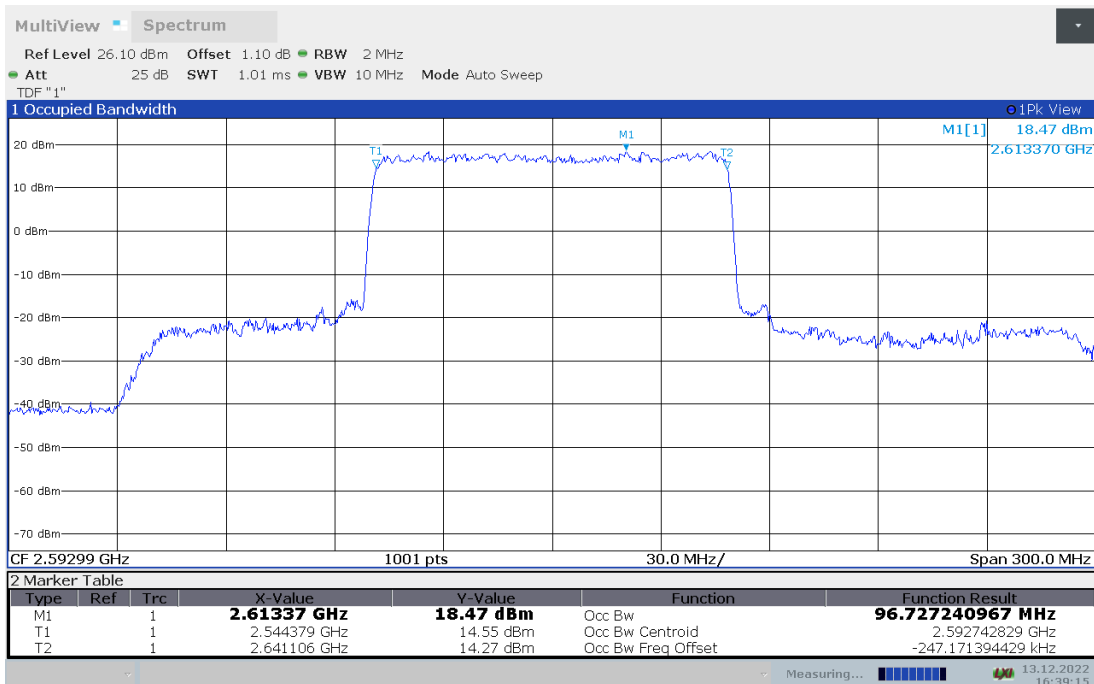
n41,100MHz(99%)

Frequency (MHz)	Occupied Bandwidth (99%) (MHz)	
	DFT-s-pi/2 BPSK	DFT-s-QPSK
2592.99	96.820	96.727

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



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



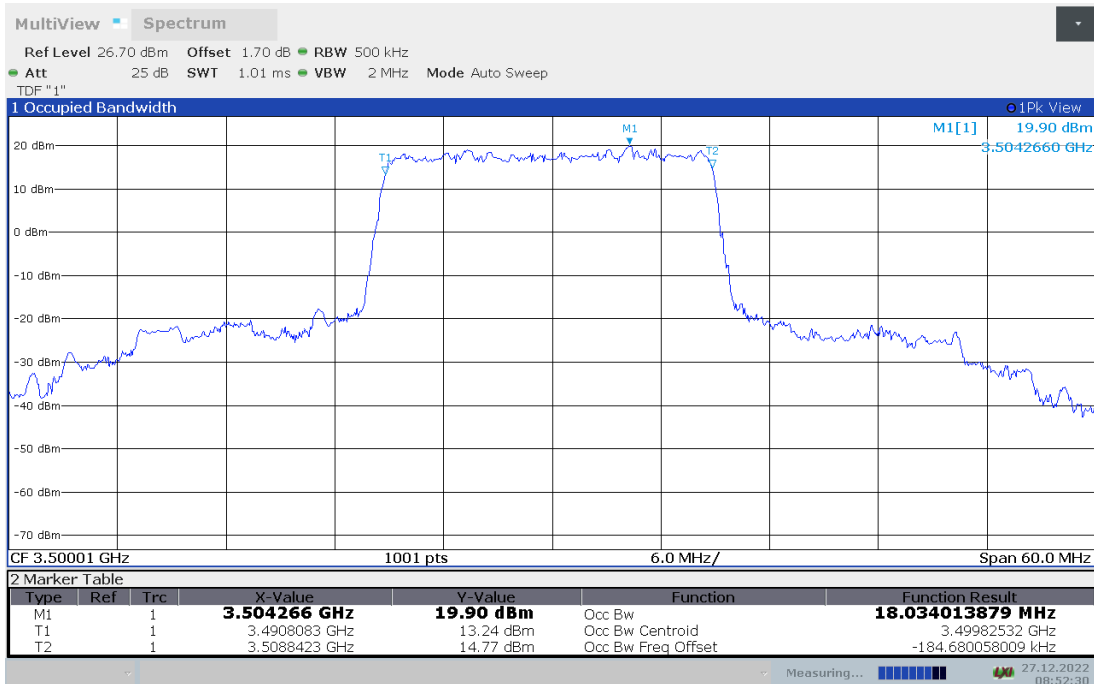


n78

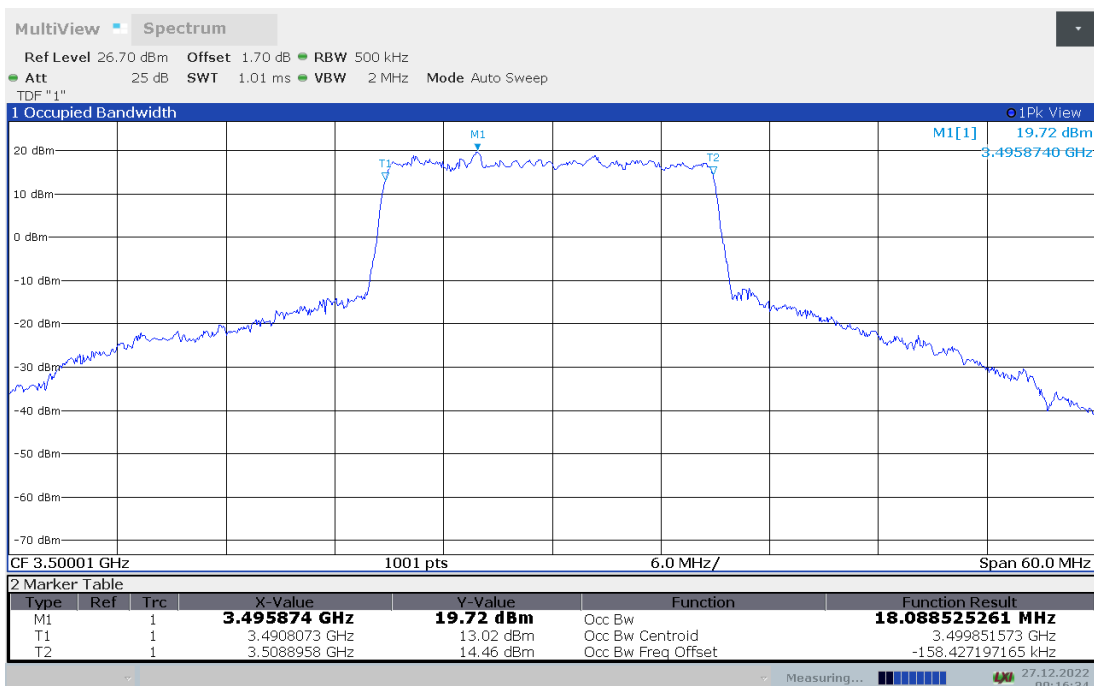
**n78,20MHz(99%)**

Frequency (MHz)	Occupied Bandwidth (99%) (MHz)	
	DFT-s-pi/2 BPSK	DFT-s-QPSK
3500.01	18.034	18.089

**n78,20MHz Bandwidth,DFT-s-pi/2 BPSK (99% BW)**



**n78,20MHz Bandwidth,DFT-s-QPSK (99% BW)**

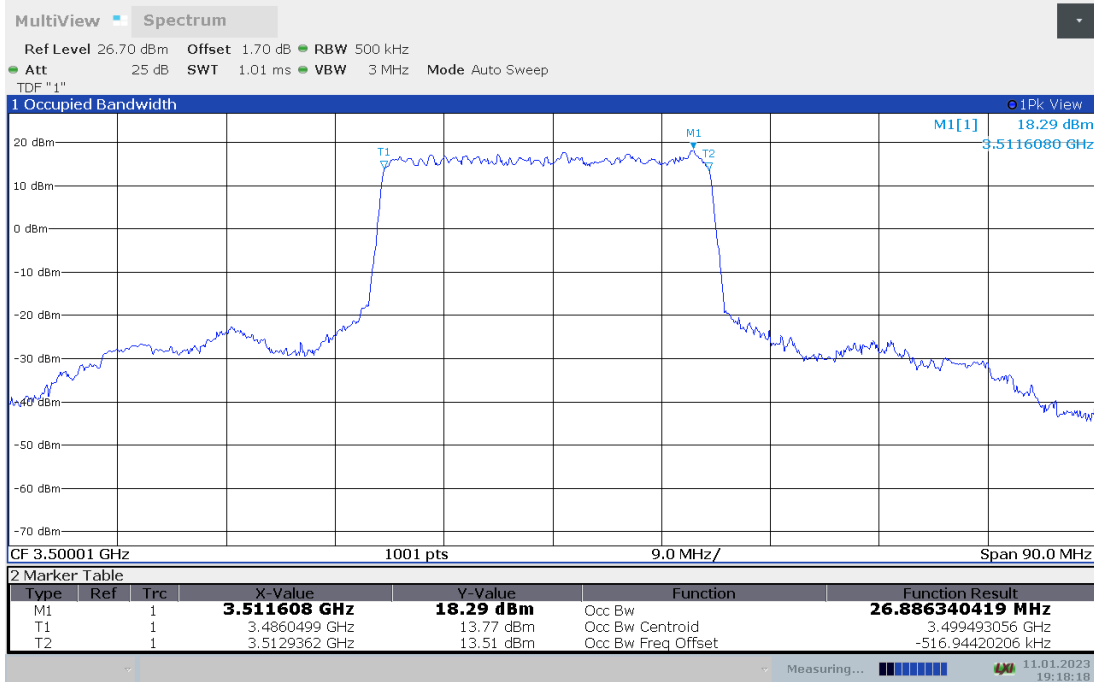




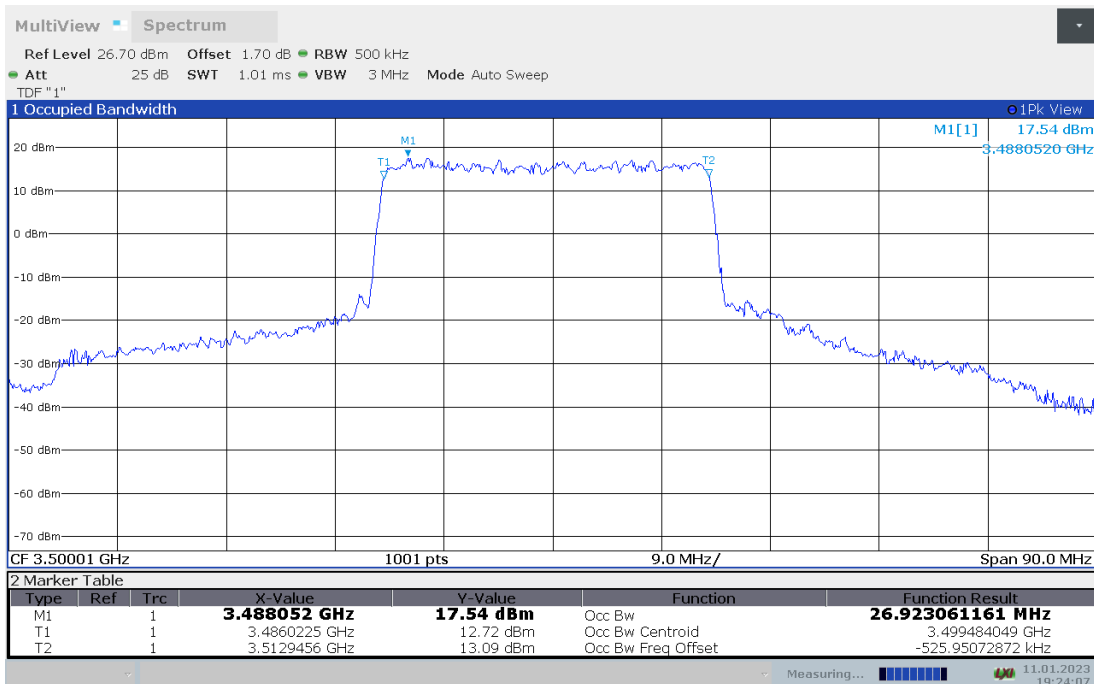
n78,30MHz(99%)

Frequency (MHz)	Occupied Bandwidth (99%) (MHz)	
	DFT-s-pi/2 BPSK	DFT-s-QPSK
3500.01	26.886	26.923

n78,30MHz Bandwidth,DFT-s-pi/2 BPSK (99% BW)



n78,30MHz Bandwidth,DFT-s-QPSK (99% BW)



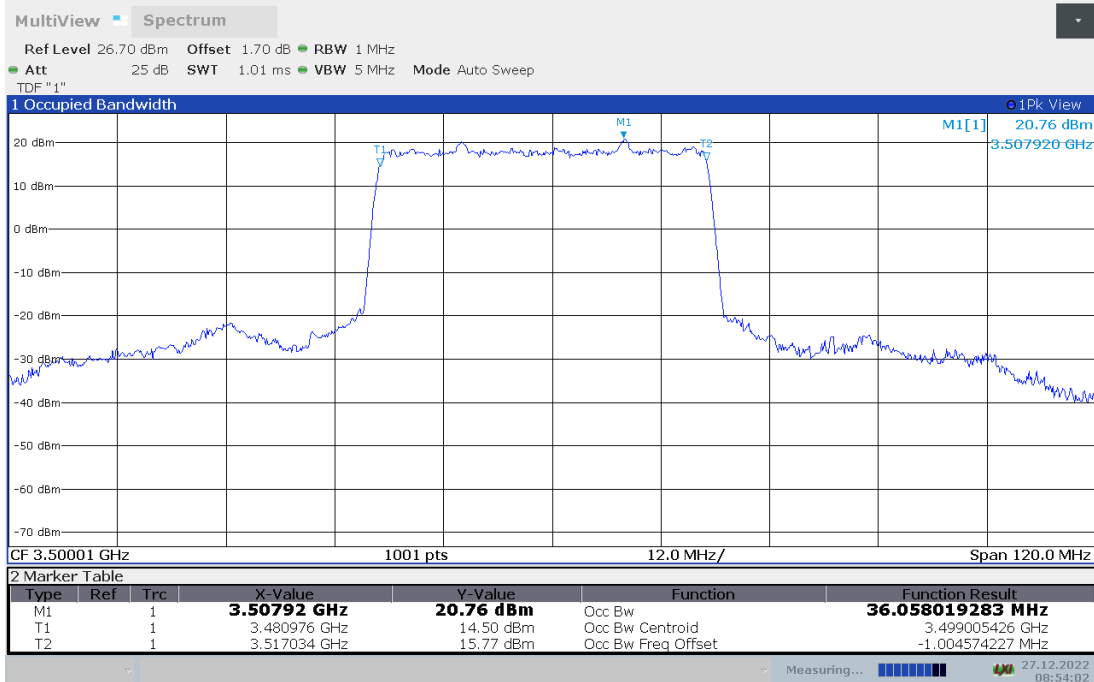




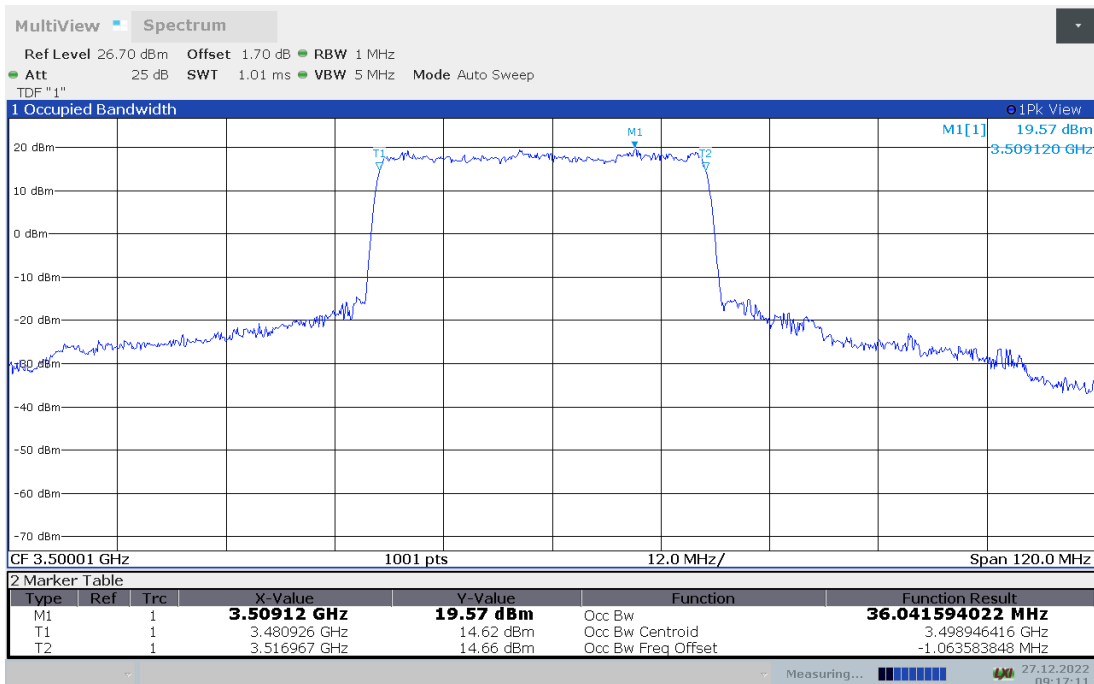
n78,40MHz(99%)

Frequency (MHz)	Occupied Bandwidth (99%) (MHz)	
	DFT-s-pi/2 BPSK	DFT-s-QPSK
3500.01	36.058	36.042

n78,40MHz Bandwidth,DFT-s-pi/2 BPSK (99% BW)



n78,40MHz Bandwidth,DFT-s-QPSK (99% BW)

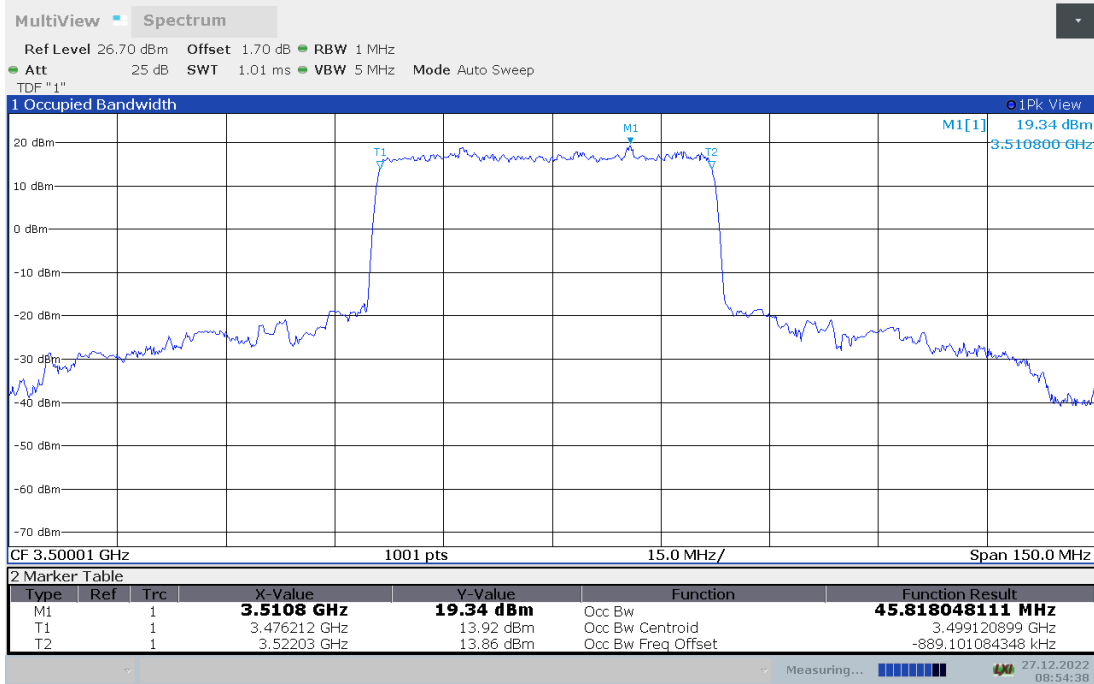




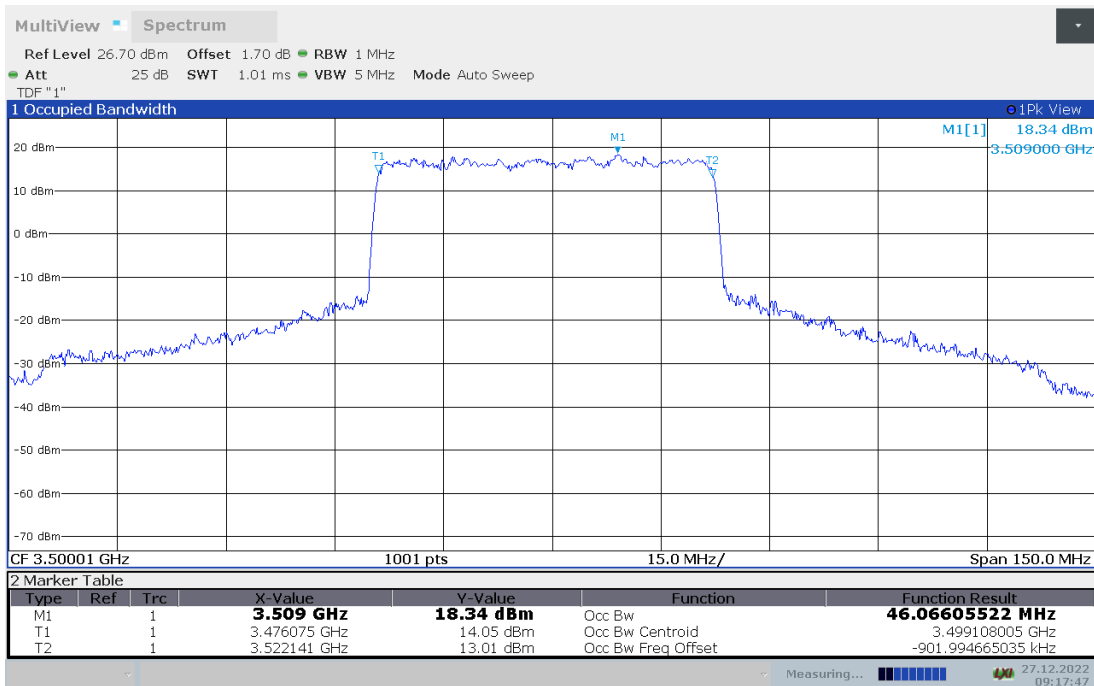
**n78,50MHz(99%)**

Frequency (MHz)	Occupied Bandwidth (99%) (MHz)	
	DFT-s-pi/2 BPSK	DFT-s-QPSK
3500.01	45.818	46.066

**n78,50MHz Bandwidth,DFT-s-pi/2 BPSK (99% BW)**



**n78,50MHz Bandwidth,DFT-s-QPSK (99% BW)**

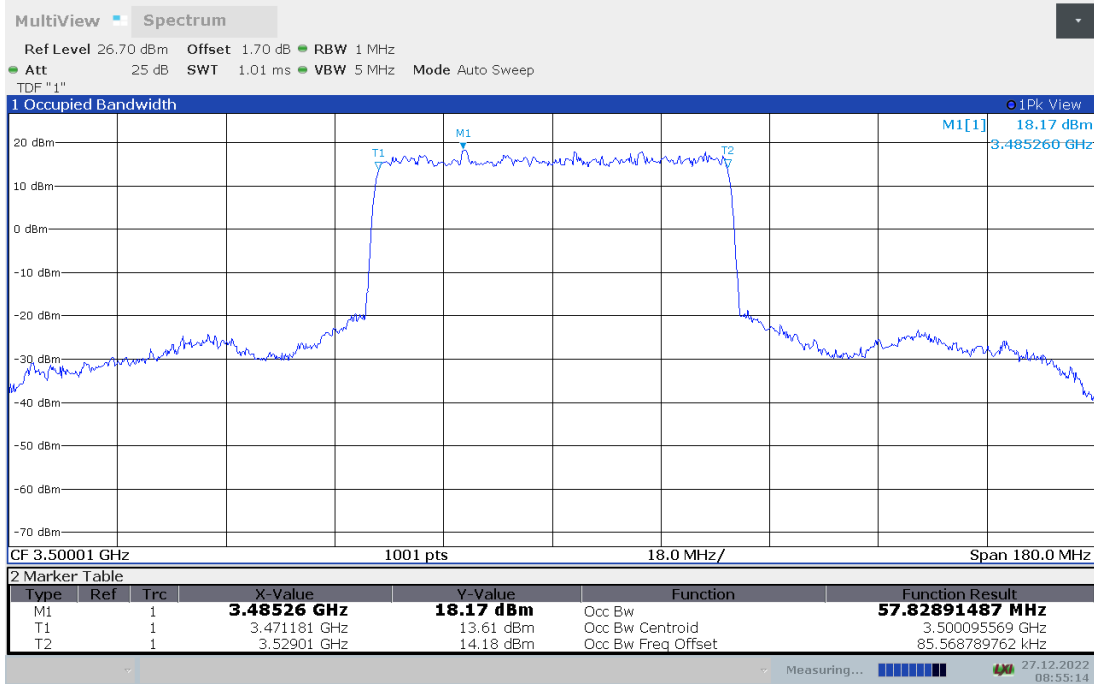




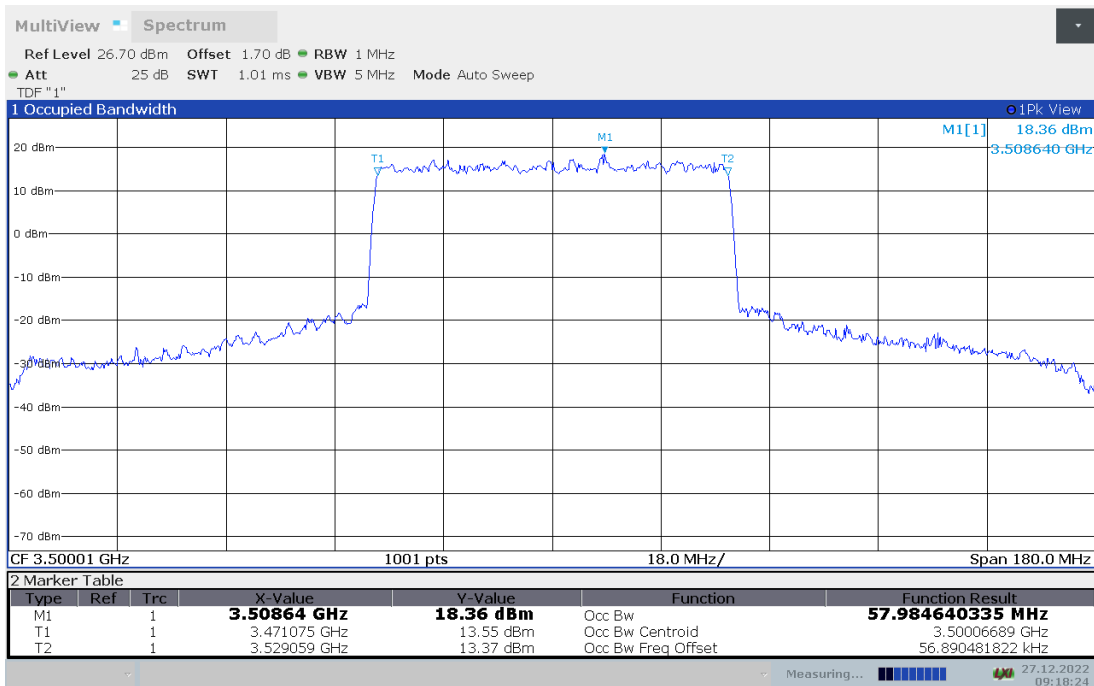
n78,60MHz(99%)

Frequency (MHz)	Occupied Bandwidth (99%) (MHz)	
	DFT-s-pi/2 BPSK	DFT-s-QPSK
3500.01	57.829	57.985

n78,60MHz Bandwidth,DFT-s-pi/2 BPSK (99% BW)



n78,60MHz Bandwidth,DFT-s-QPSK (99% BW)

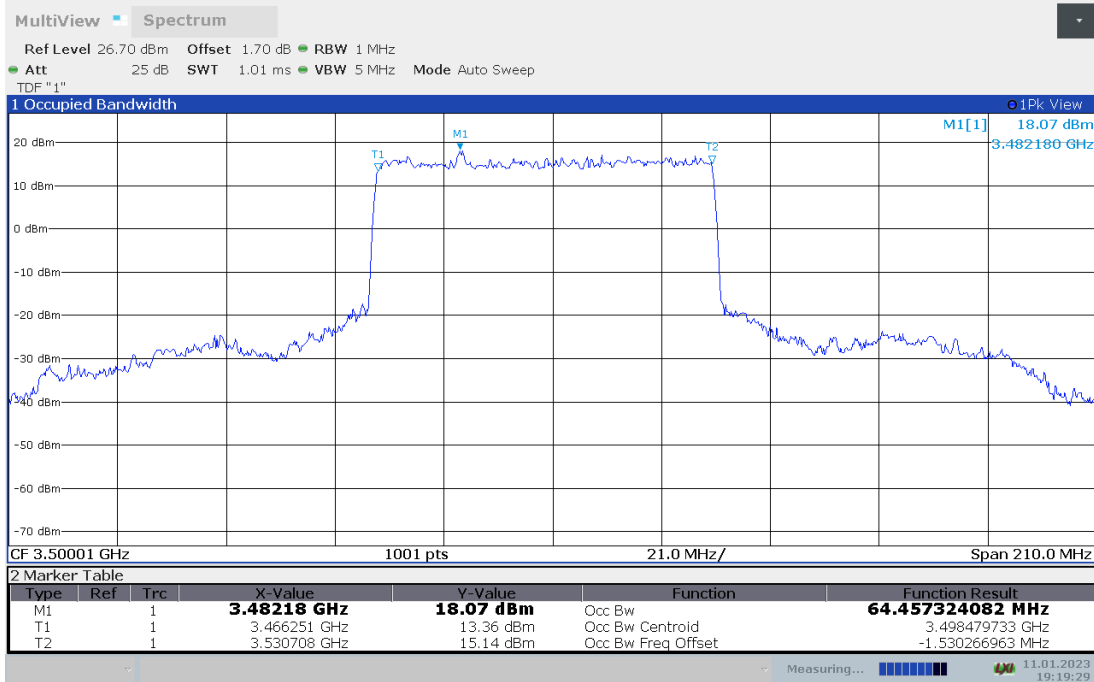




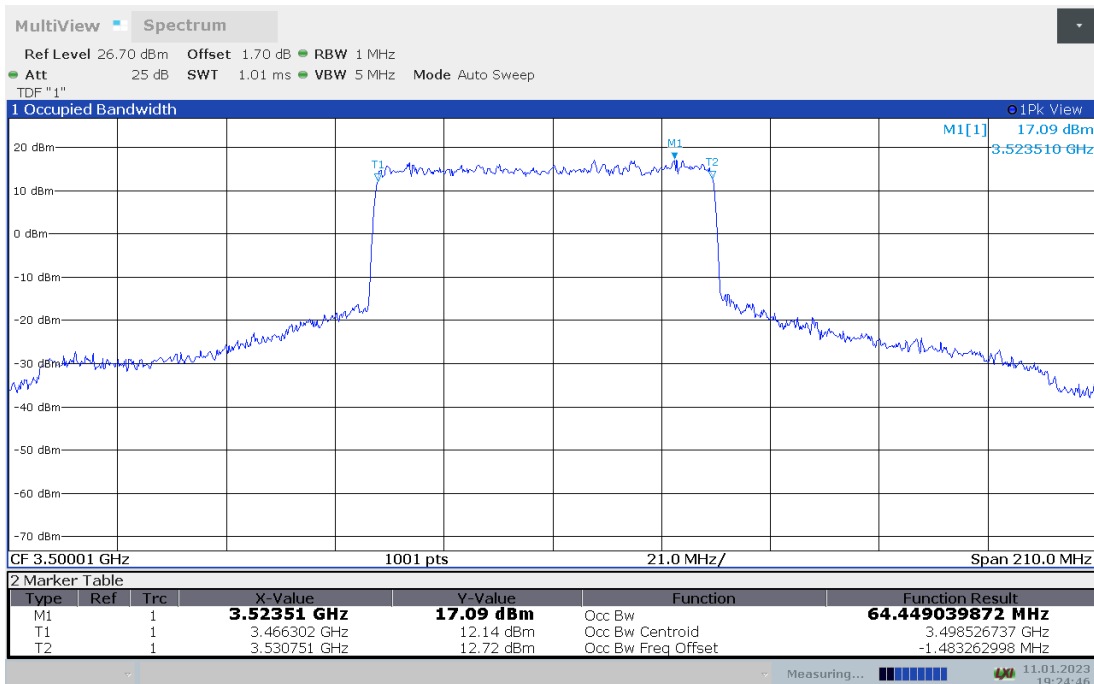
n78,70MHz(99%)

Frequency (MHz)	Occupied Bandwidth (99%) (MHz)	
	DFT-s-pi/2 BPSK	DFT-s-QPSK
3500.01	64.457	64.449

n78,70MHz Bandwidth,DFT-s-pi/2 BPSK (99% BW)



n78,70MHz Bandwidth,DFT-s-QPSK (99% BW)

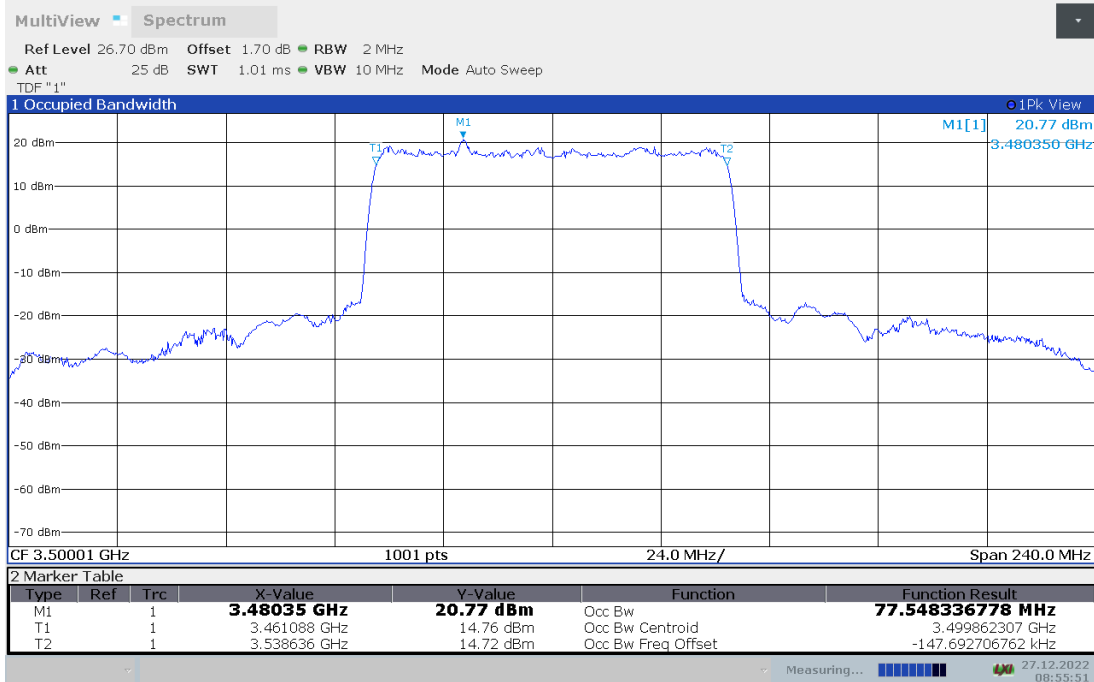




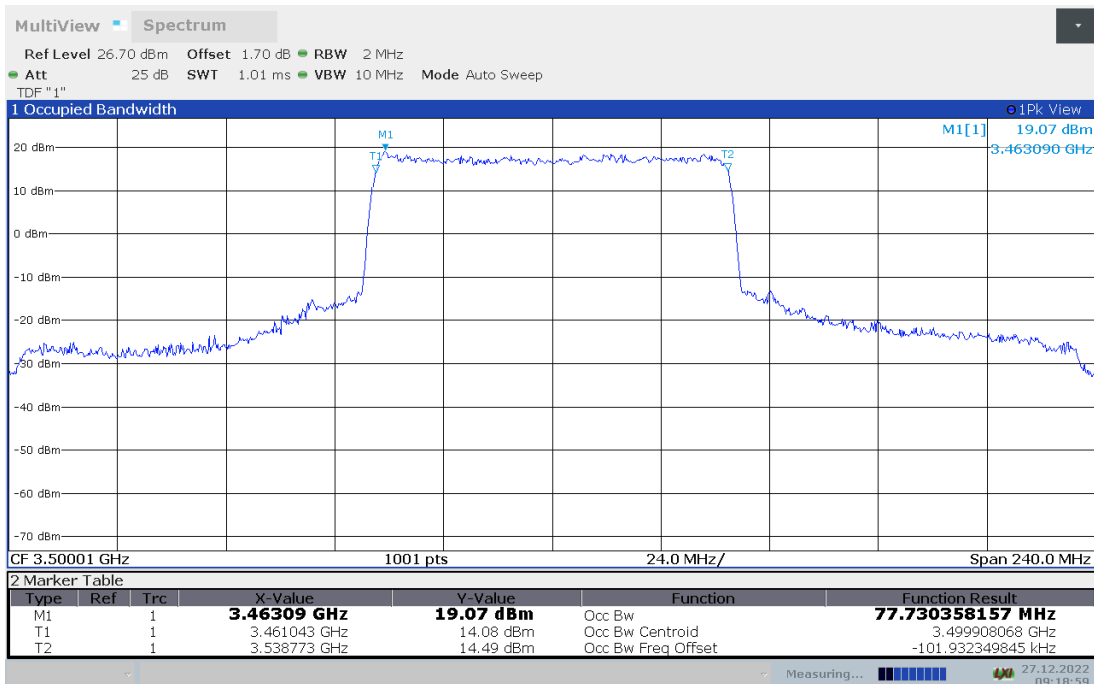
n78,80MHz(99%)

Frequency (MHz)	Occupied Bandwidth (99%) (MHz)	
	DFT-s-pi/2 BPSK	DFT-s-QPSK
3500.01	77.548	77.730

n78,80MHz Bandwidth,DFT-s-pi/2 BPSK (99% BW)



n78,80MHz Bandwidth,DFT-s-QPSK (99% BW)

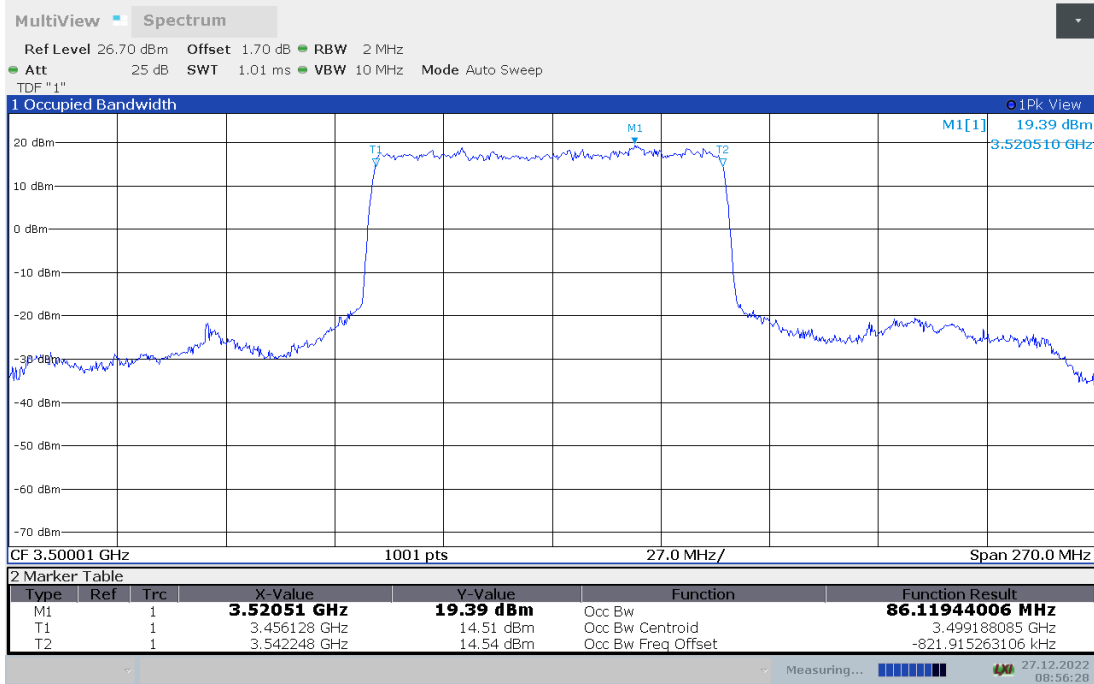




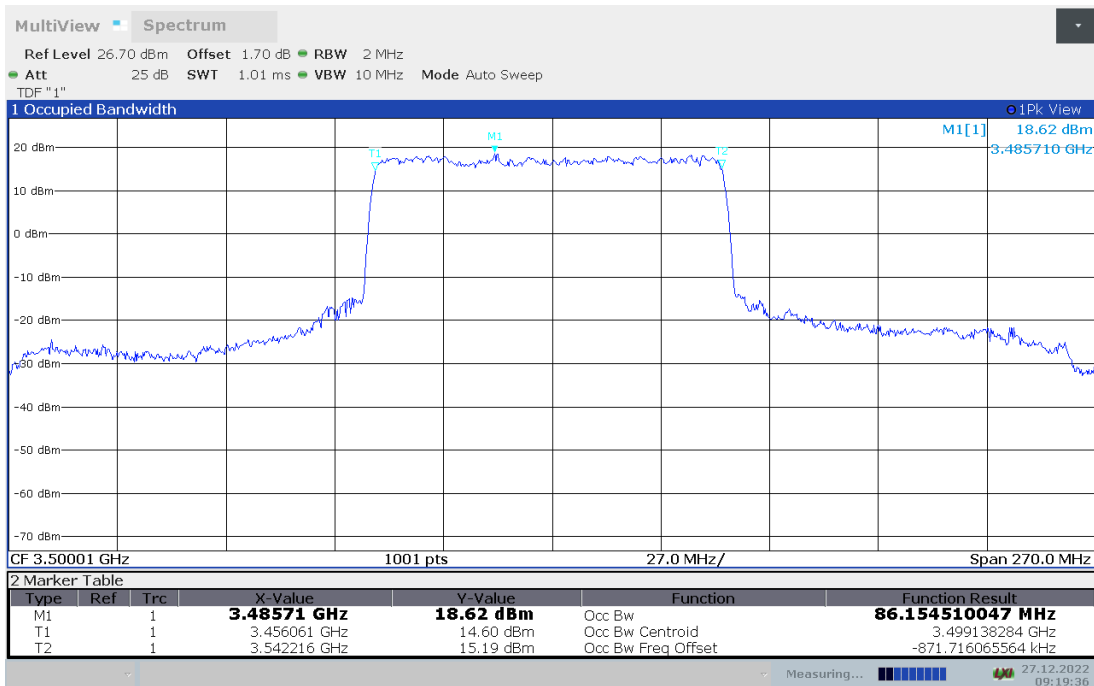
n78,90MHz(99%)

Frequency (MHz)	Occupied Bandwidth (99%) (MHz)	
	DFT-s-pi/2 BPSK	DFT-s-QPSK
3500.01	86.119	86.155

n78,90MHz Bandwidth,DFT-s-pi/2 BPSK (99% BW)



n78,90MHz Bandwidth,DFT-s-QPSK (99% BW)

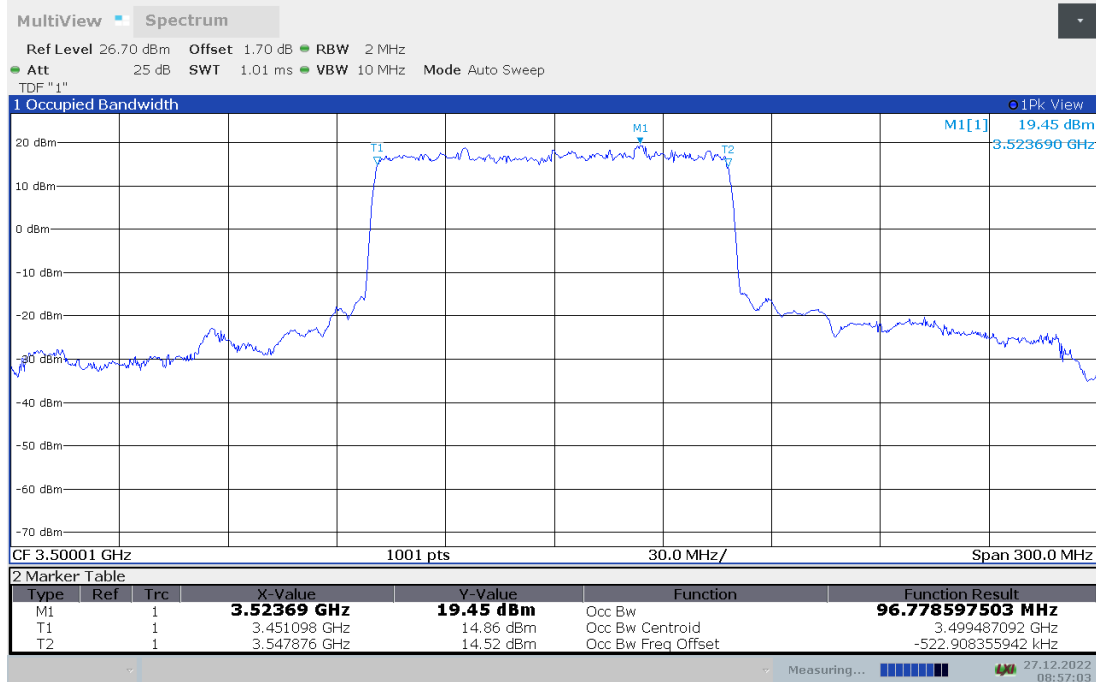




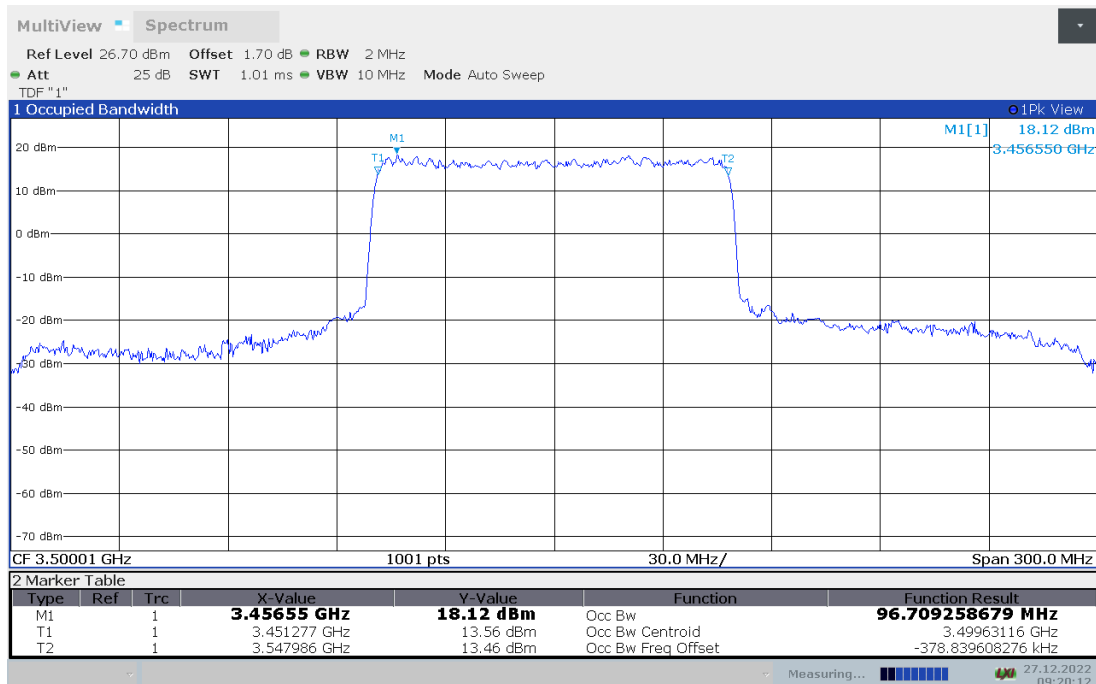
n78,100MHz(99%)

Frequency (MHz)	Occupied Bandwidth (99%) (MHz)	
	DFT-s-pi/2 BPSK	DFT-s-QPSK
3500.01	96.779	96.709

n78,100MHz Bandwidth,DFT-s-pi/2 BPSK (99% BW)



n78,100MHz 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, 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  $10\log(\text{OBW} / \text{RBW})$  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.



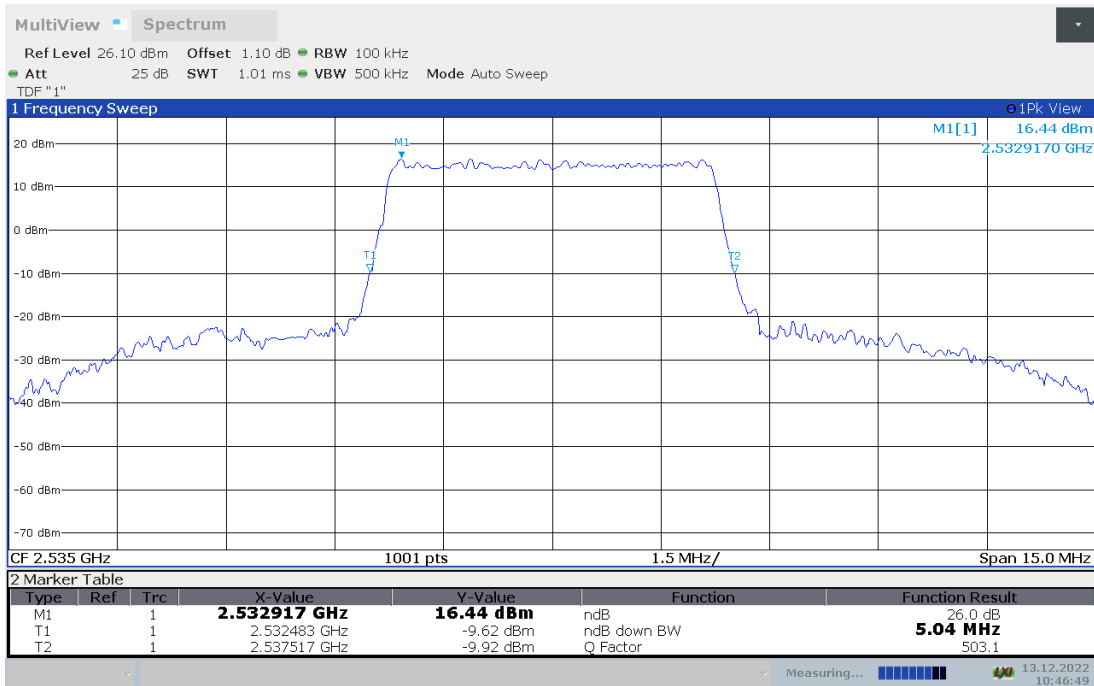


n7

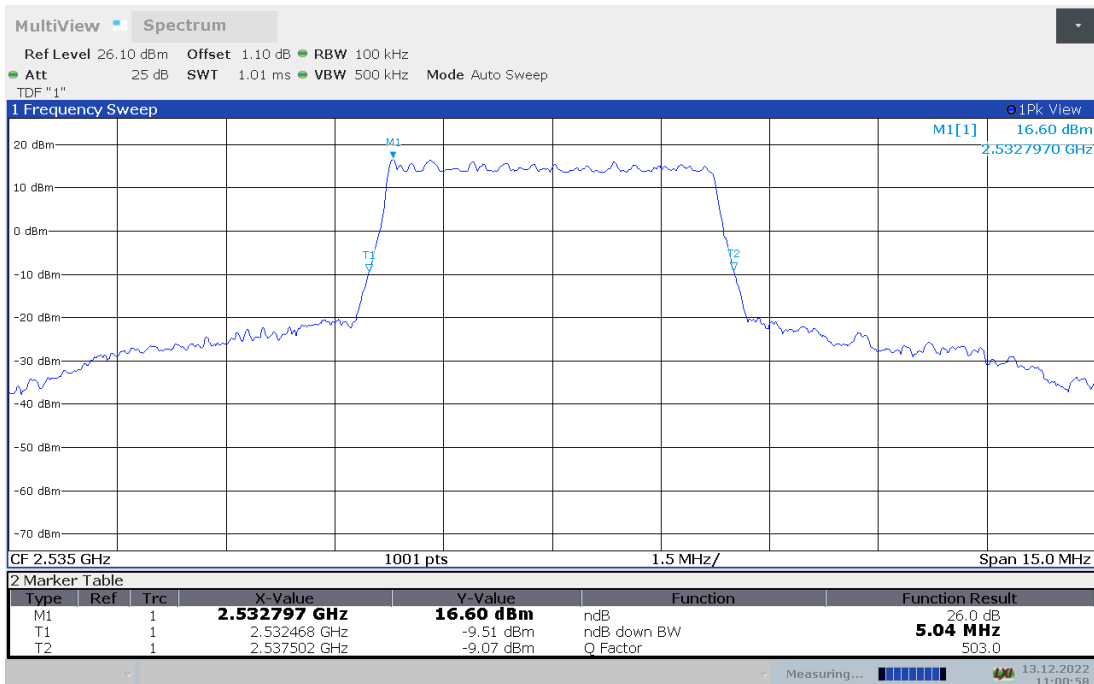
n7,5MHz(-26dBc)

Frequency (MHz)	Emission Bandwidth (-26dBc) (MHz)	
	DFT-s-pi/2 BPSK	DFT-s-QPSK
2535	5.035	5.035

n7,5MHz Bandwidth,DFT-s-pi/2 BPSK (-26dBc BW)



n7,5MHz Bandwidth,DFT-s-QPSK (-26dBc BW)

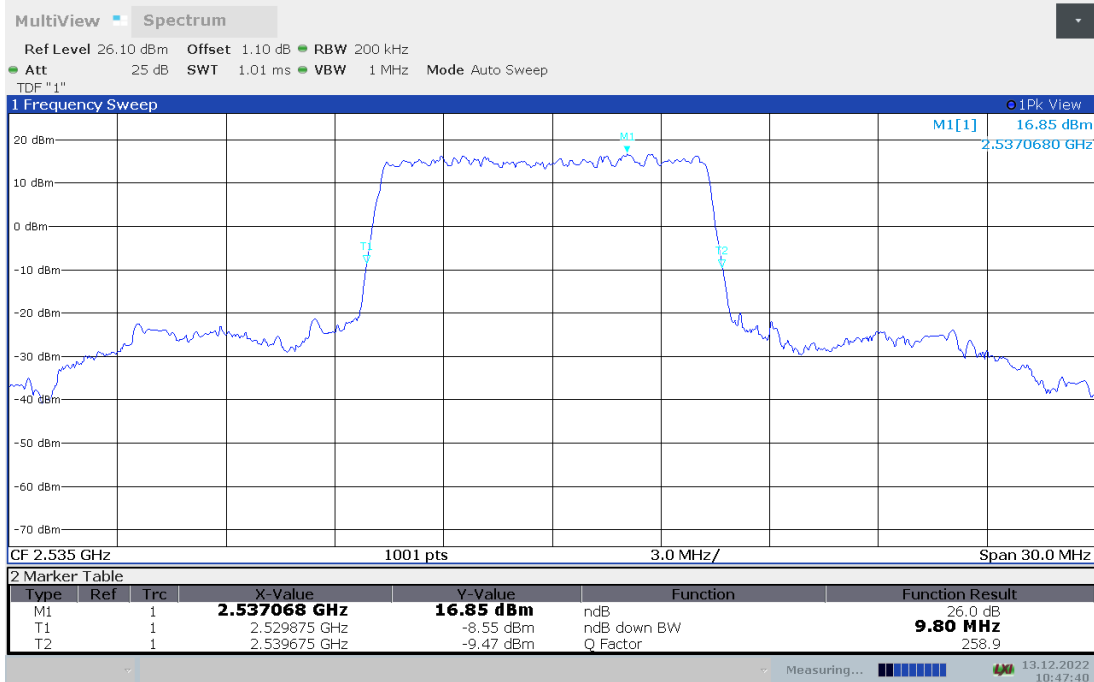




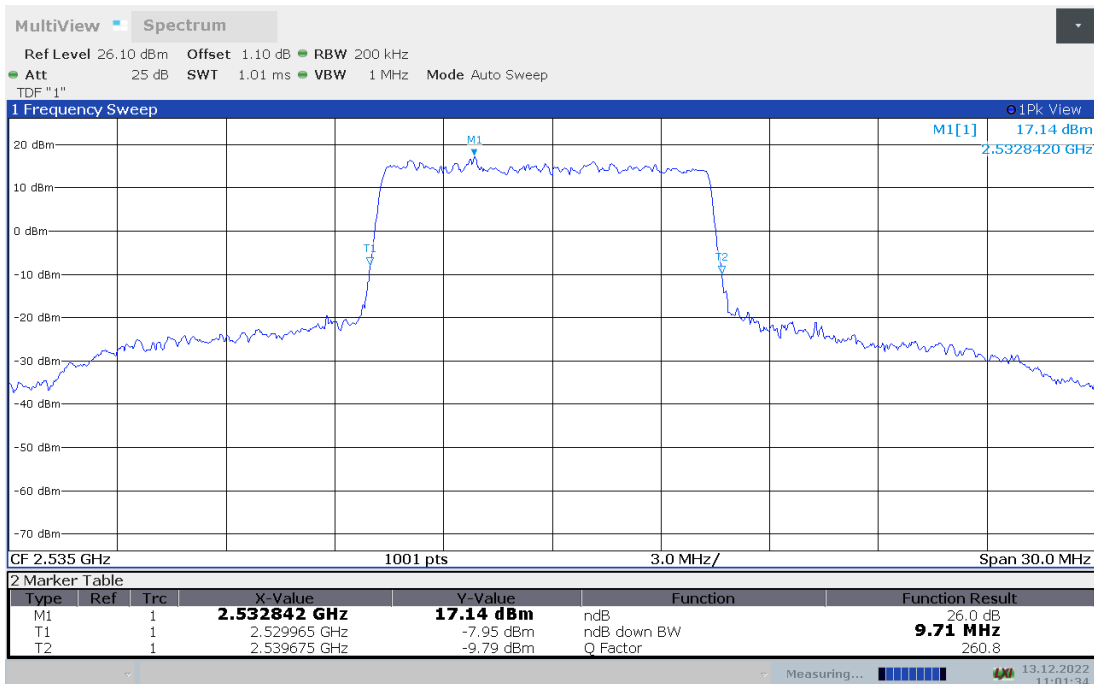
n7,10MHz(-26dBc)

Frequency (MHz)	Emission Bandwidth (-26dBc) (MHz)	
	DFT-s-pi/2 BPSK	DFT-s-QPSK
2535	9.800	9.710

n7,10MHz Bandwidth,DFT-s-pi/2 BPSK (-26dBc BW)



n7,10MHz Bandwidth,DFT-s-QPSK (-26dBc BW)

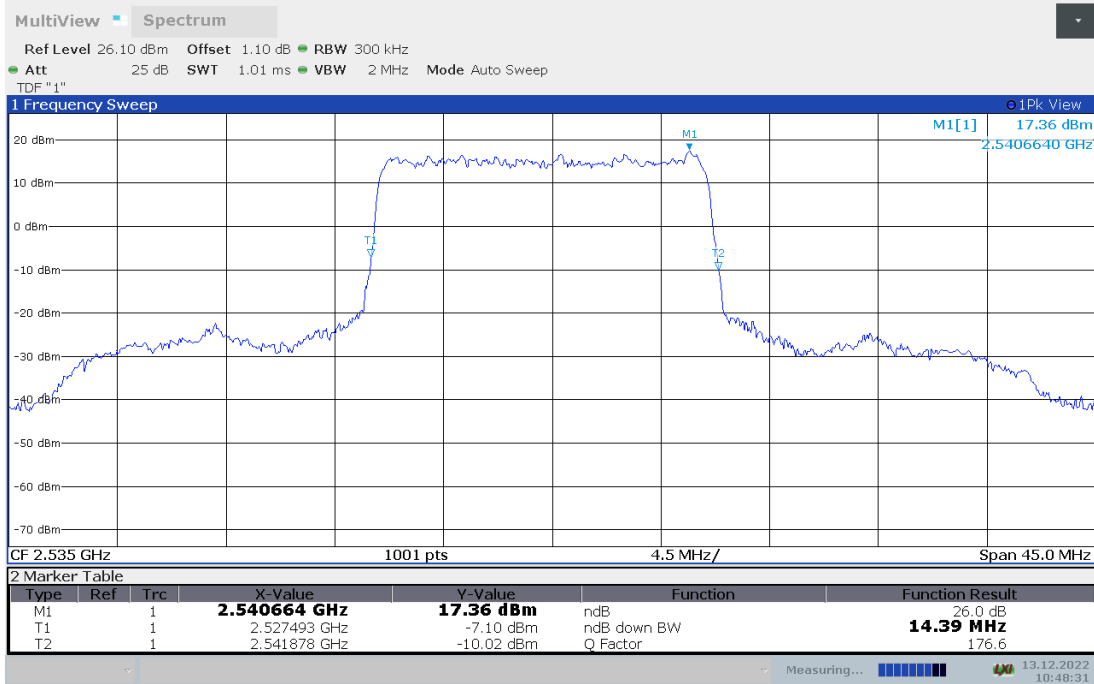




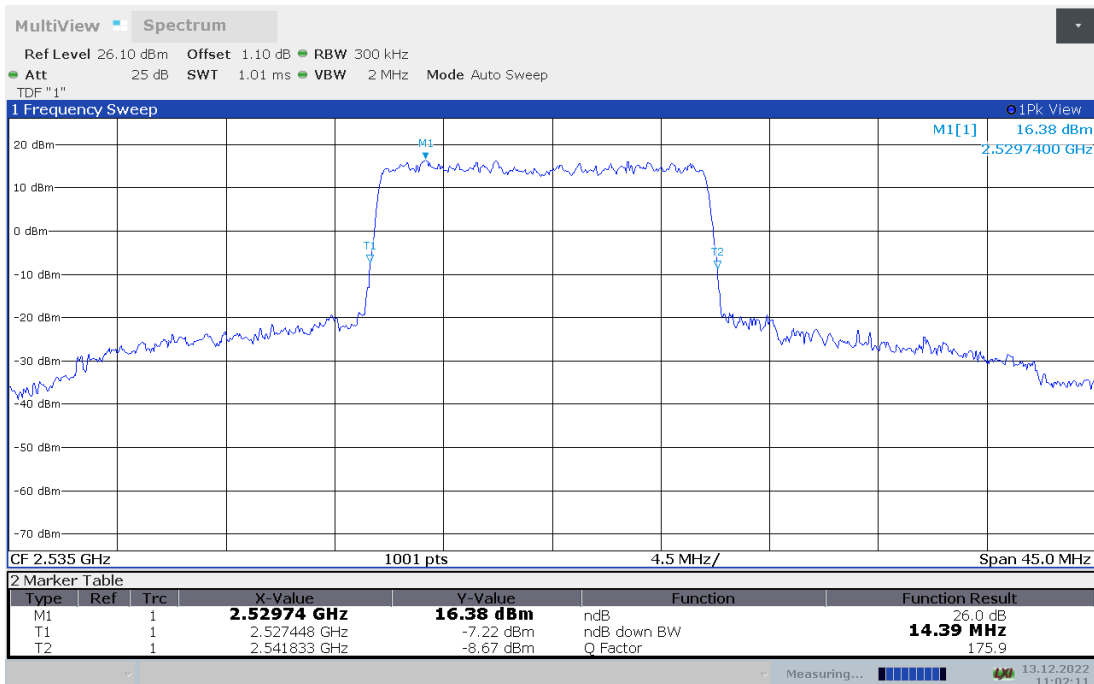
n7,15MHz(-26dBc)

Frequency (MHz)	Emission Bandwidth (-26dBc) (MHz)	
	DFT-s-pi/2 BPSK	DFT-s-QPSK
2535	14.386	14.386

n7,15MHz Bandwidth,DFT-s-pi/2 BPSK (-26dBc BW)



n7,15MHz Bandwidth,DFT-s-QPSK (-26dBc BW)





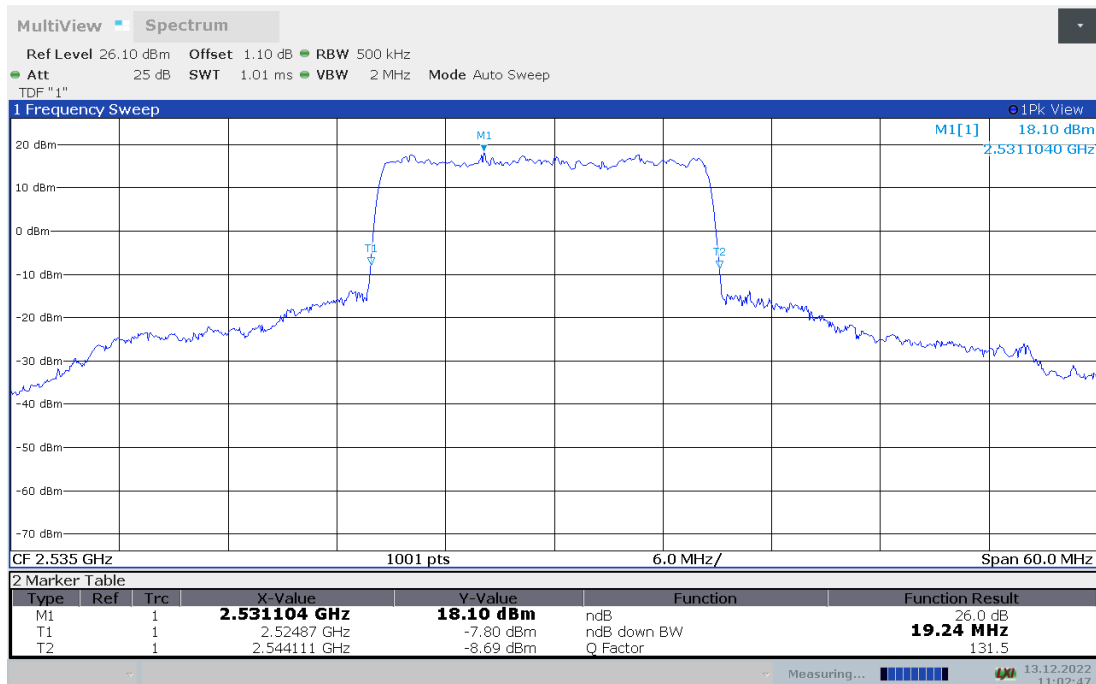
n7,20MHz(-26dBc)

Frequency (MHz)	Emission Bandwidth (-26dBc) (MHz)	
	DFT-s-pi/2 BPSK	DFT-s-QPSK
2535	19.301	19.241

n7,20MHz Bandwidth,DFT-s-pi/2 BPSK (-26dBc BW)



n7,20MHz Bandwidth,DFT-s-QPSK (-26dBc BW)



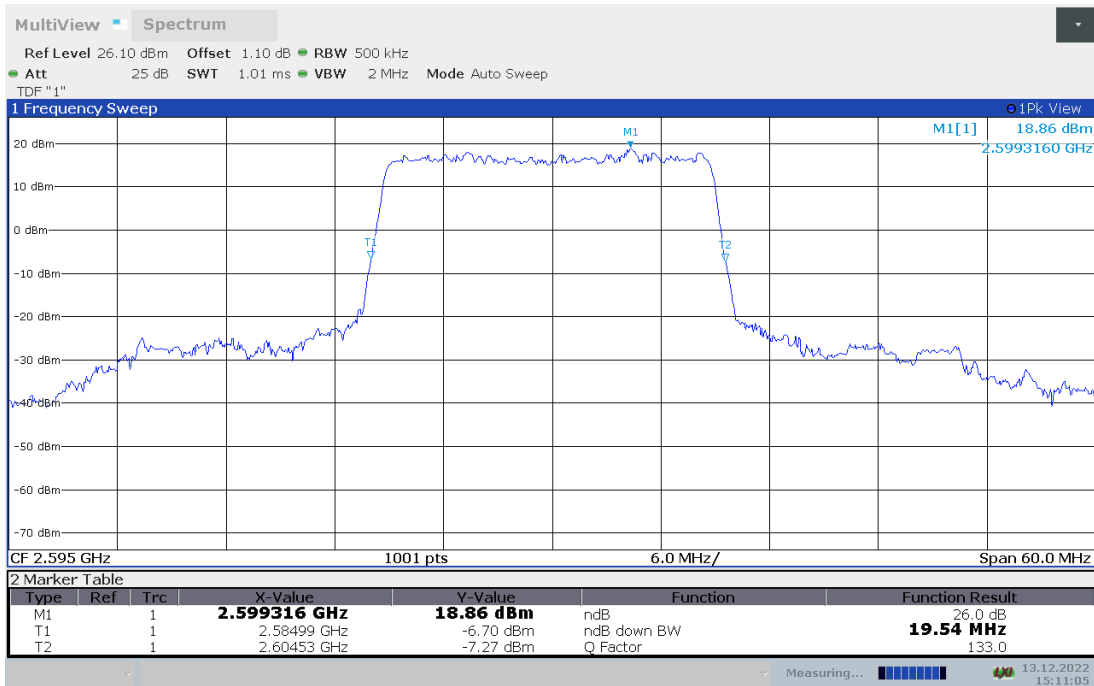


n38

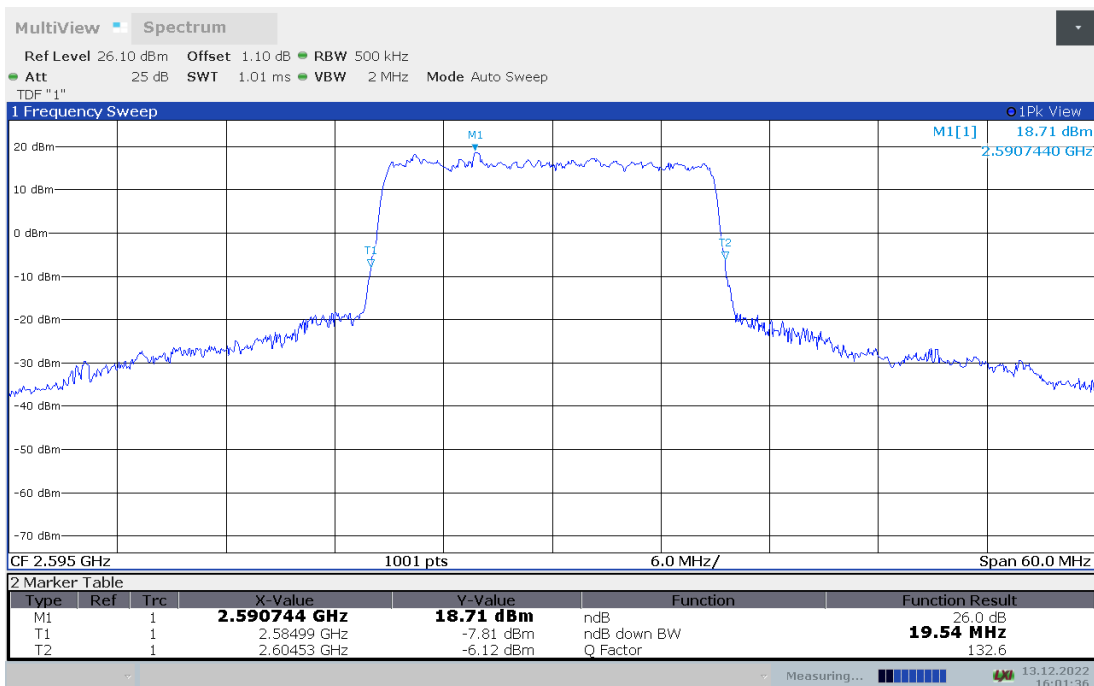
n38,20MHz(-26dBc)

Frequency (MHz)	Emission Bandwidth (-26dBc) (MHz)	
	DFT-s-pi/2 BPSK	DFT-s-QPSK
2595	19.540	19.540

n38,20MHz Bandwidth,DFT-s-pi/2 BPSK (-26dBc BW)



n38,20MHz Bandwidth,DFT-s-QPSK (-26dBc BW)



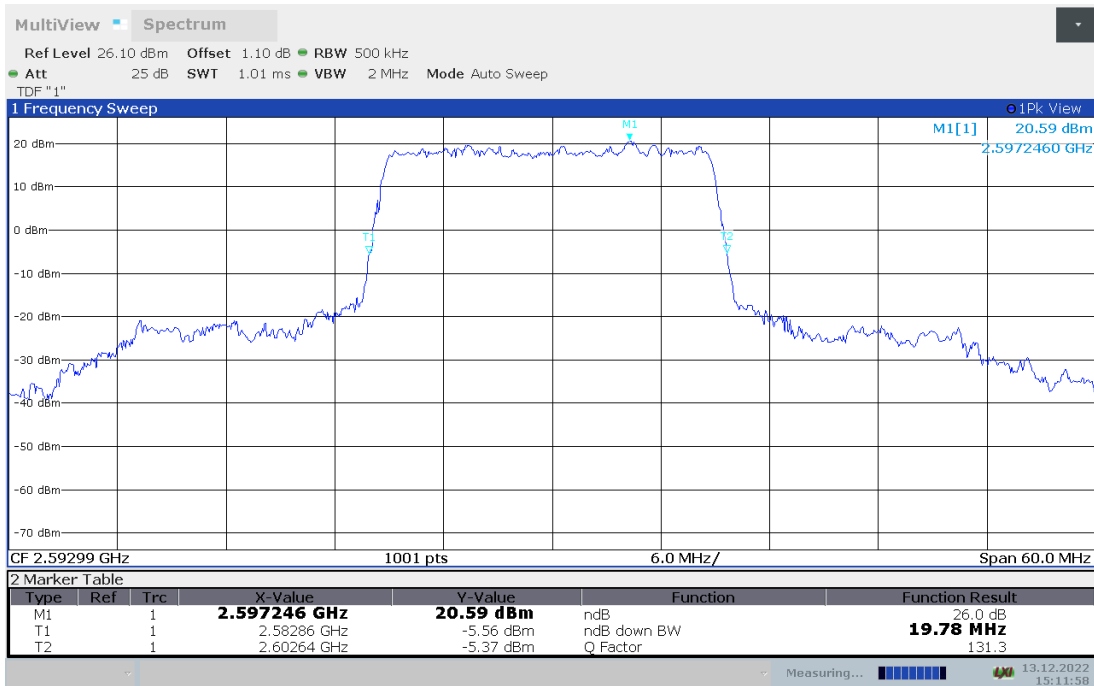


n41

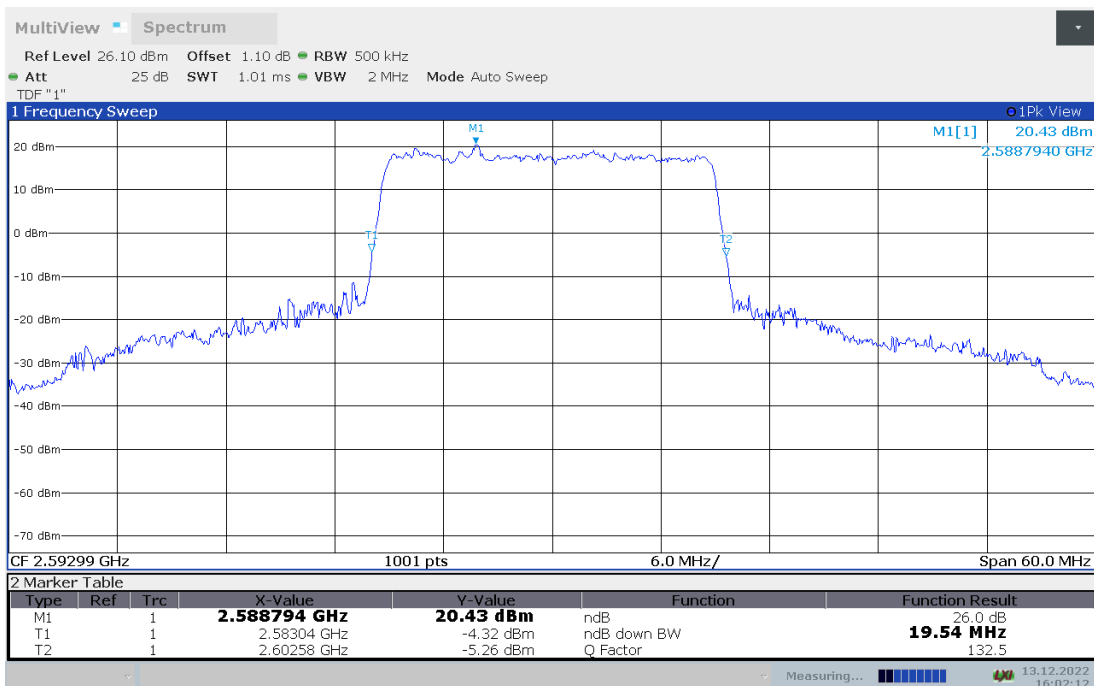
n41,20MHz(-26dBc)

Frequency (MHz)	Emission Bandwidth (-26dBc) (MHz)	
	DFT-s-pi/2 BPSK	DFT-s-QPSK
2592.99	19.780	19.540

n41,20MHz Bandwidth,DFT-s-pi/2 BPSK (-26dBc BW)



n41,20MHz Bandwidth,DFT-s-QPSK (-26dBc BW)

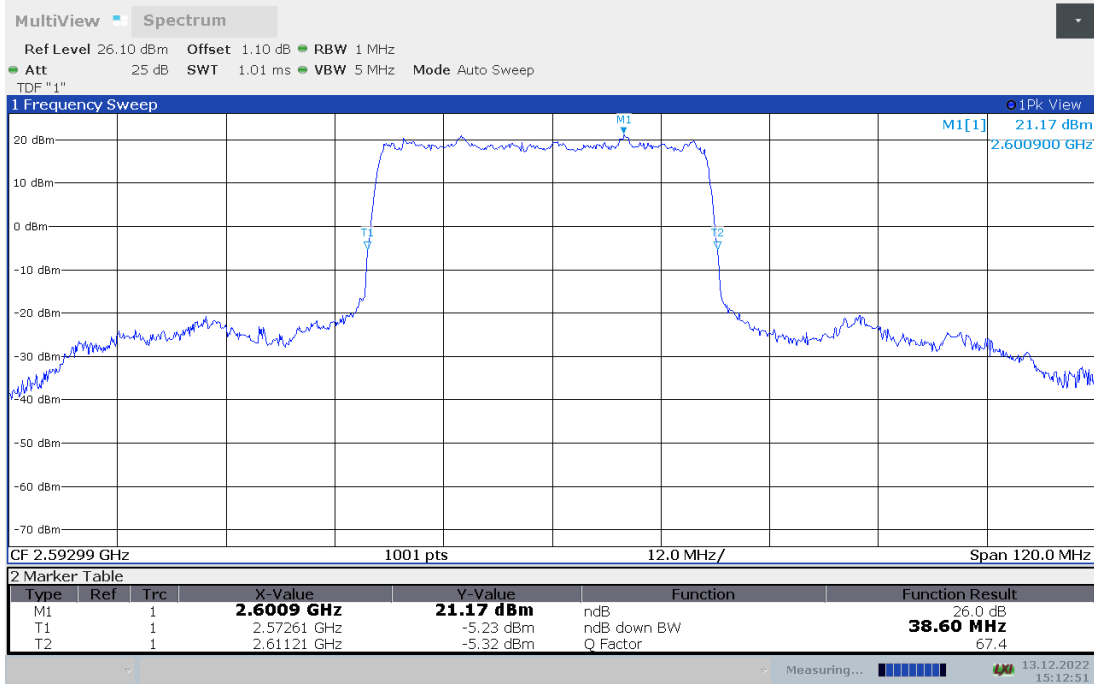




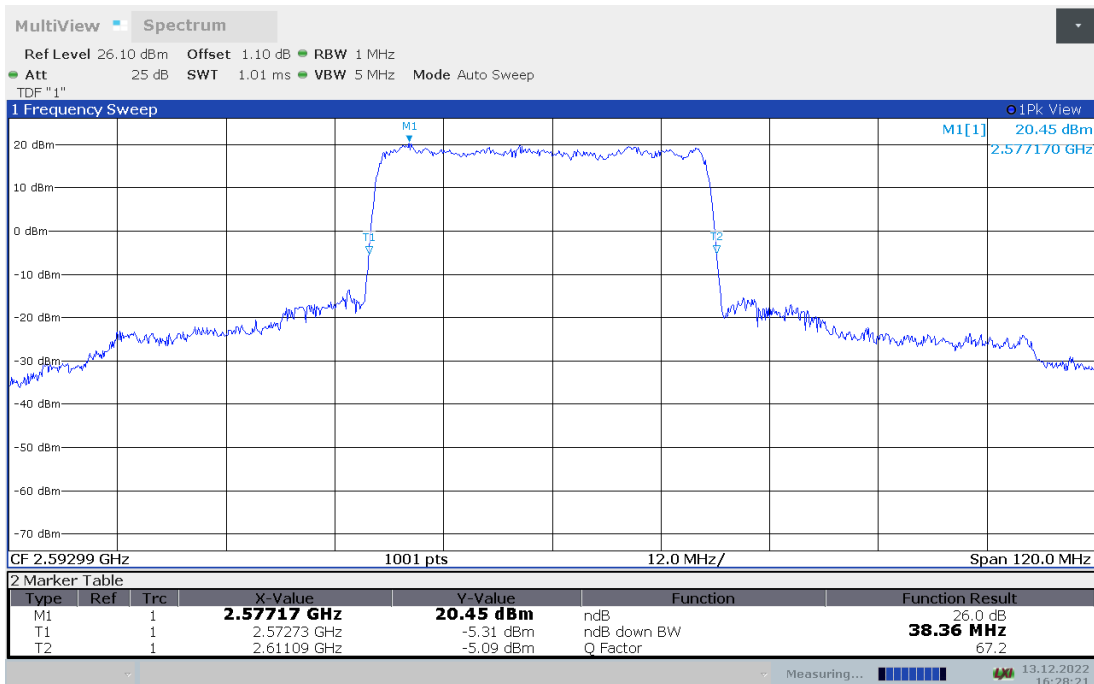
n41,40MHz(-26dBc)

Frequency (MHz)	Emission Bandwidth (-26dBc) (MHz)	
	DFT-s-pi/2 BPSK	DFT-s-QPSK
2592.99	38.600	38.360

n41,40MHz Bandwidth,DFT-s-pi/2 BPSK (-26dBc BW)



n41,40MHz Bandwidth,DFT-s-QPSK (-26dBc BW)

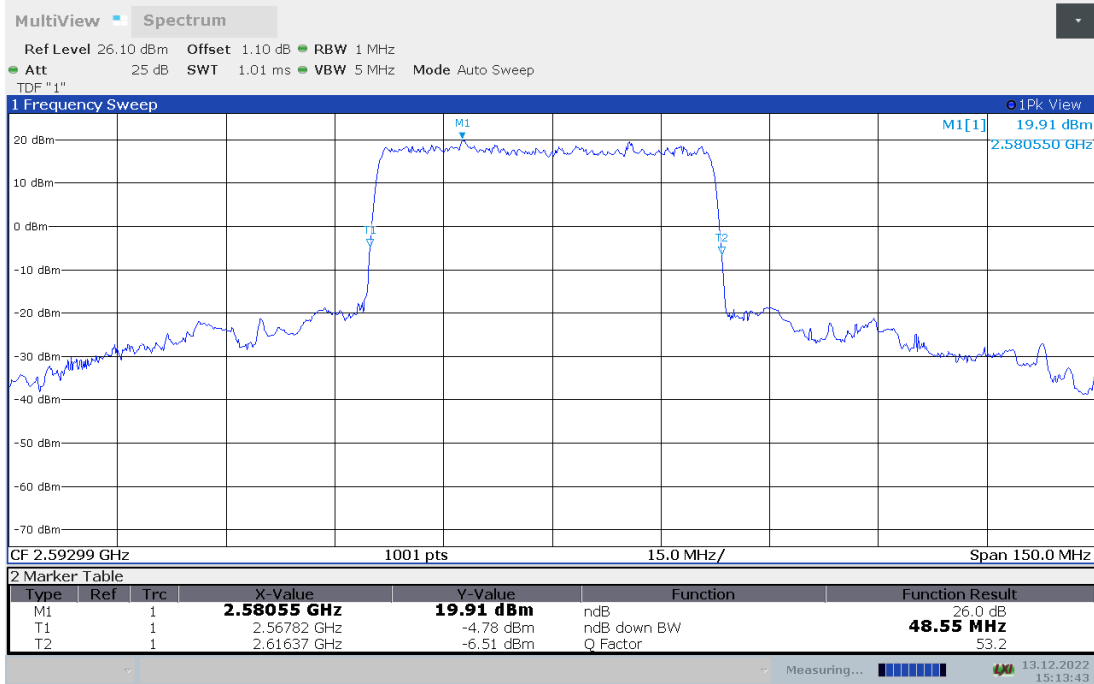




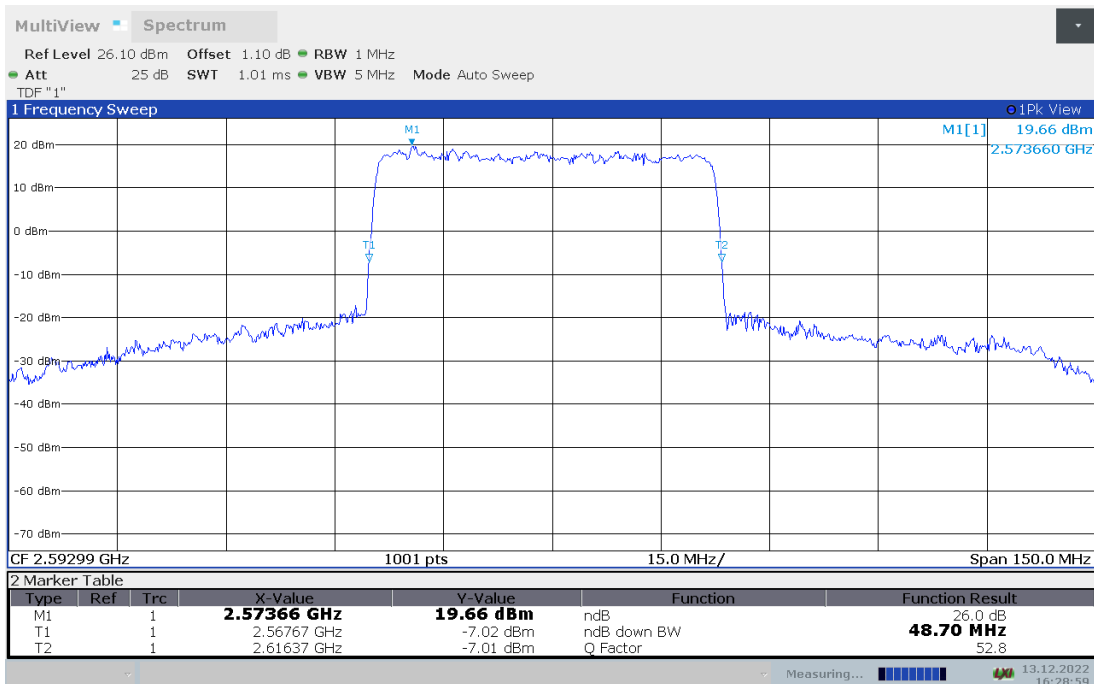
**n41,50MHz(-26dBc)**

Frequency (MHz)	Emission Bandwidth (-26dBc) (MHz)	
	DFT-s-pi/2 BPSK	DFT-s-QPSK
2592.99	48.550	48.700

**n41,50MHz Bandwidth,DFT-s-pi/2 BPSK (-26dBc BW)**



**n41,50MHz Bandwidth,DFT-s-QPSK (-26dBc BW)**



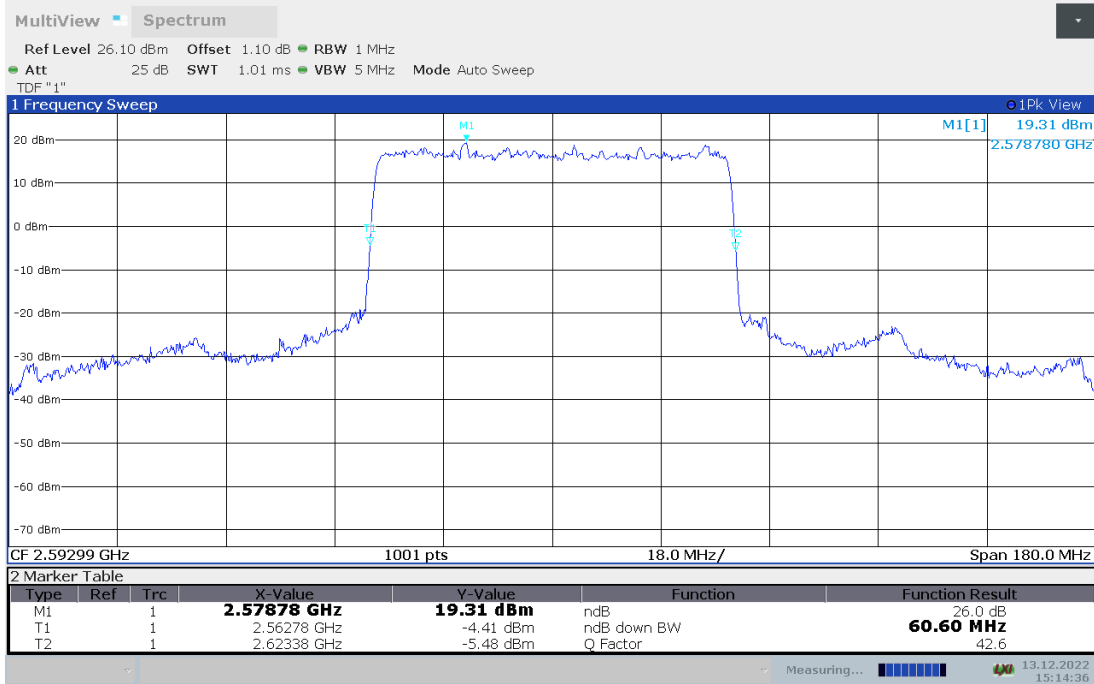




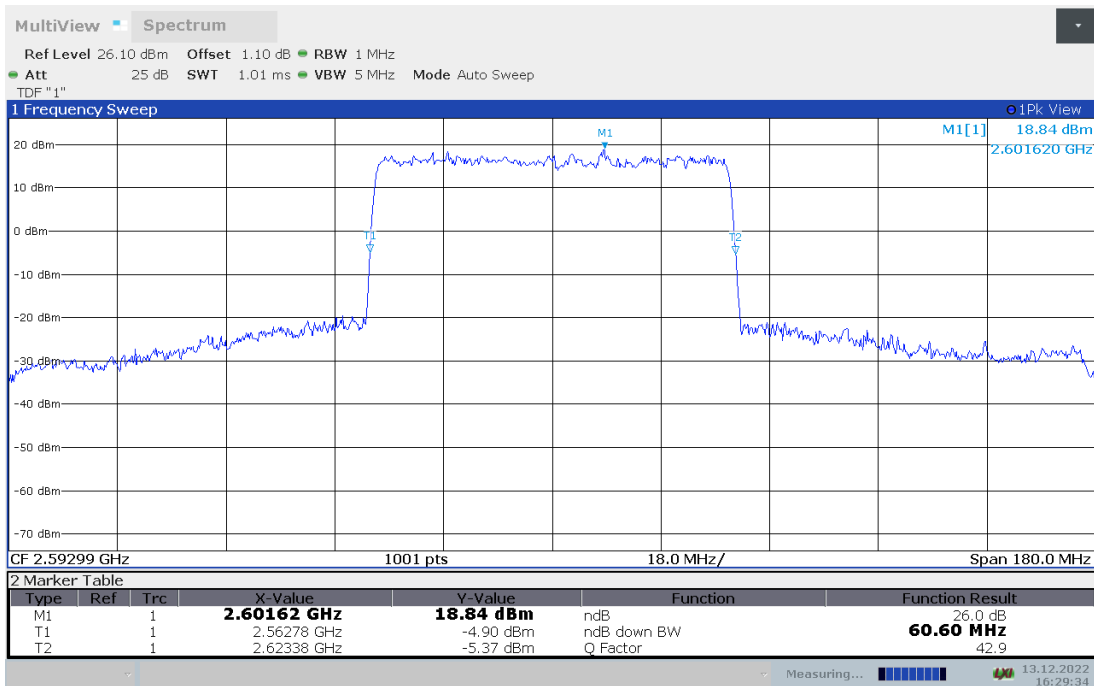
**n41,60MHz(-26dBc)**

Frequency (MHz)	Emission Bandwidth (-26dBc) (MHz)	
	DFT-s-pi/2 BPSK	DFT-s-QPSK
2592.99	60.600	60.600

**n41,60MHz Bandwidth,DFT-s-pi/2 BPSK (-26dBc BW)**



**n41,60MHz Bandwidth,DFT-s-QPSK (-26dBc BW)**

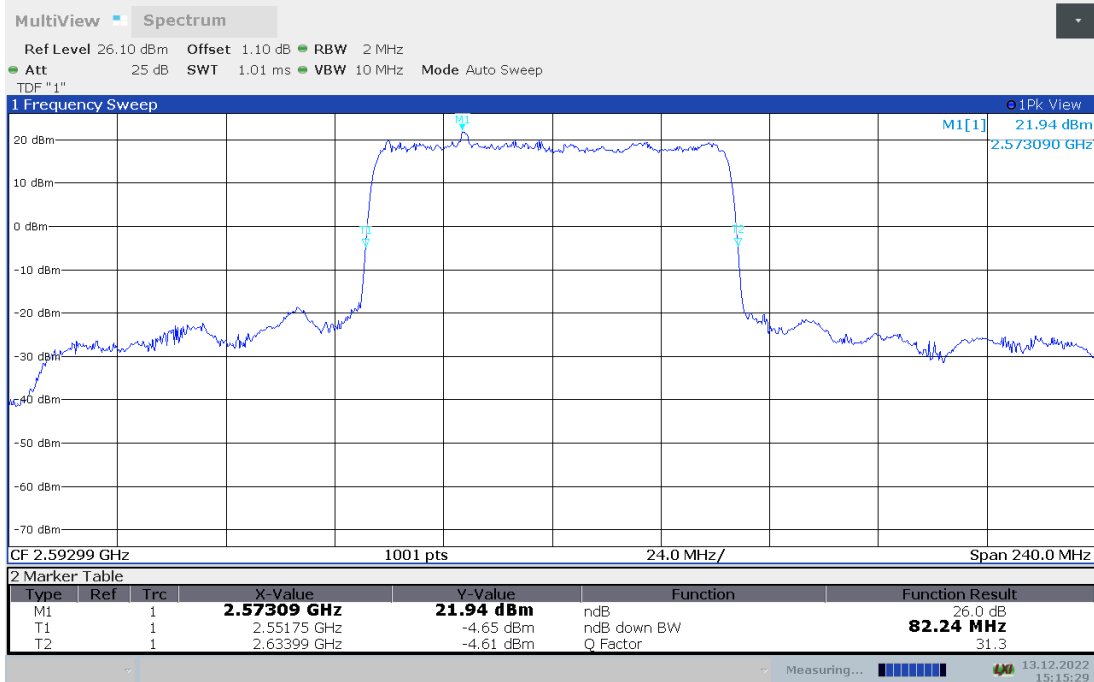




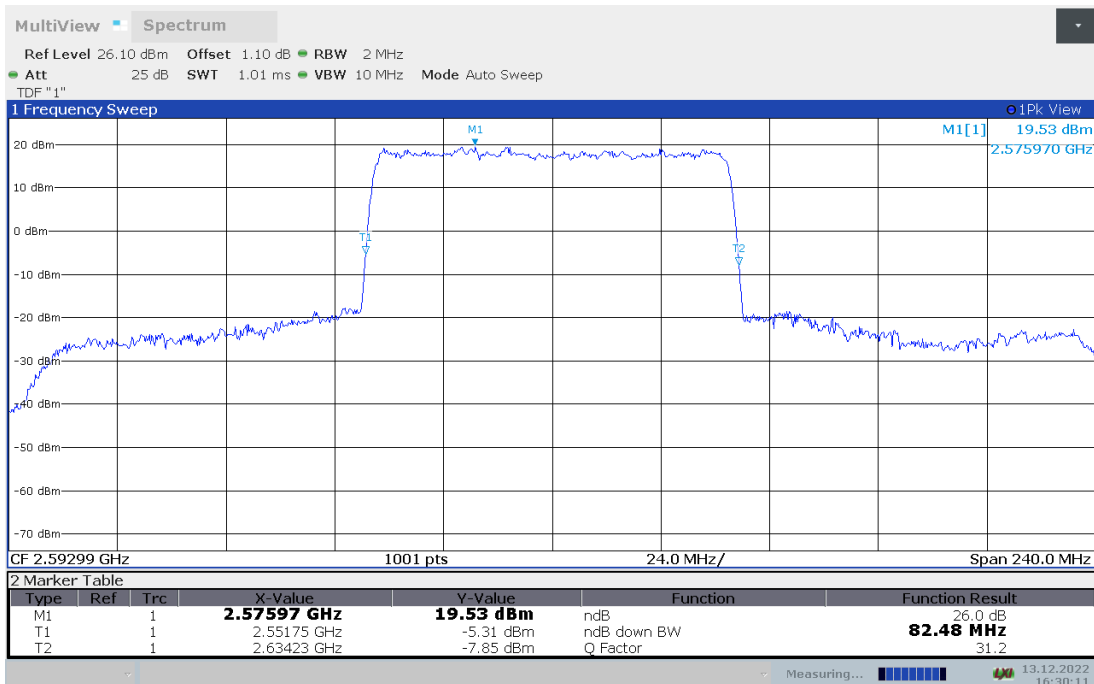
n41,80MHz(-26dBc)

Frequency (MHz)	Emission Bandwidth (-26dBc) (MHz)	
	DFT-s-pi/2 BPSK	DFT-s-QPSK
2592.99	82.240	82.480

n41,80MHz Bandwidth,DFT-s-pi/2 BPSK (-26dBc BW)



n41,80MHz Bandwidth,DFT-s-QPSK (-26dBc BW)

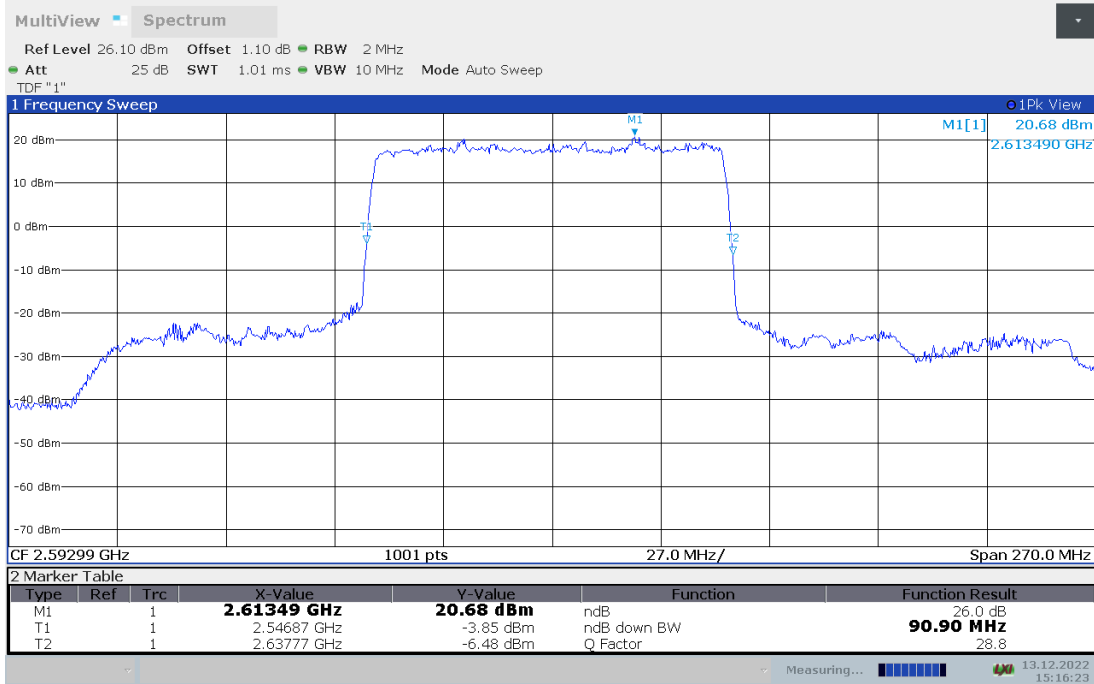




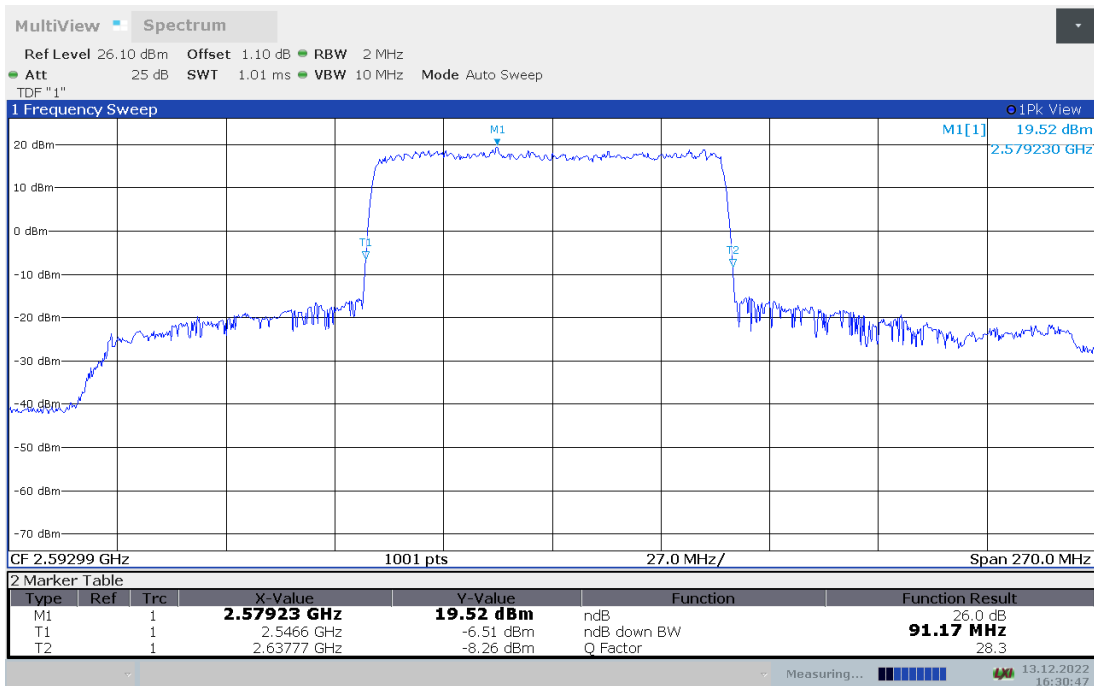
**n41,90MHz(-26dBc)**

Frequency (MHz)	Emission Bandwidth (-26dBc) (MHz)	
	DFT-s-pi/2 BPSK	DFT-s-QPSK
2592.99	90.900	91.170

**n41,90MHz Bandwidth,DFT-s-pi/2 BPSK (-26dBc BW)**



**n41,90MHz Bandwidth,DFT-s-QPSK (-26dBc BW)**

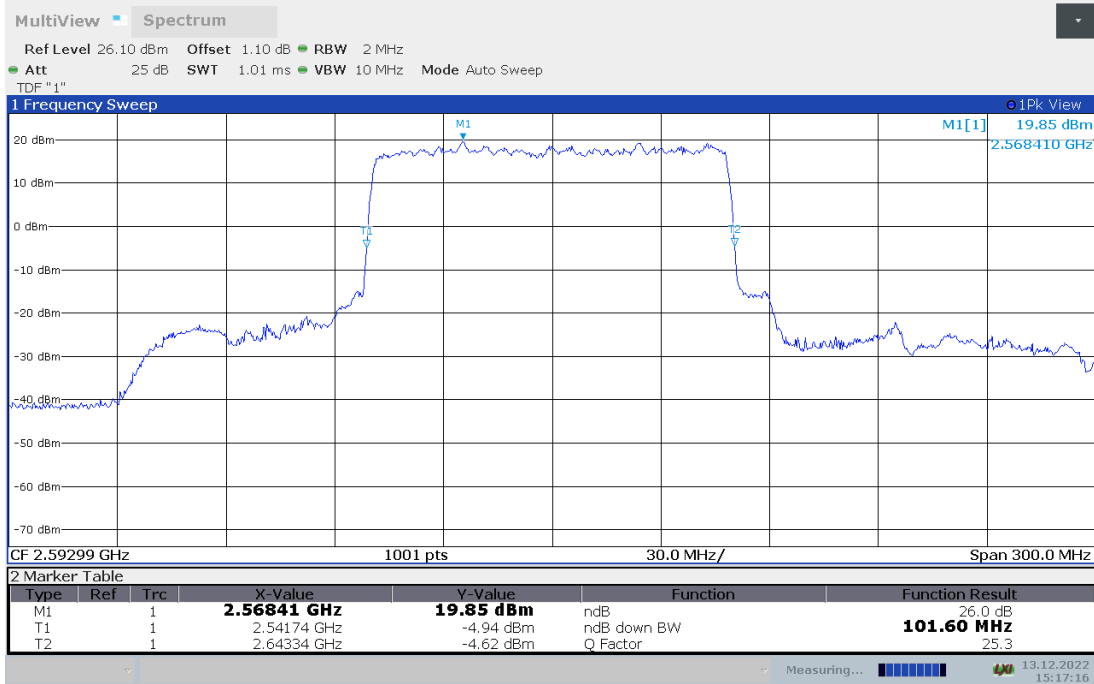




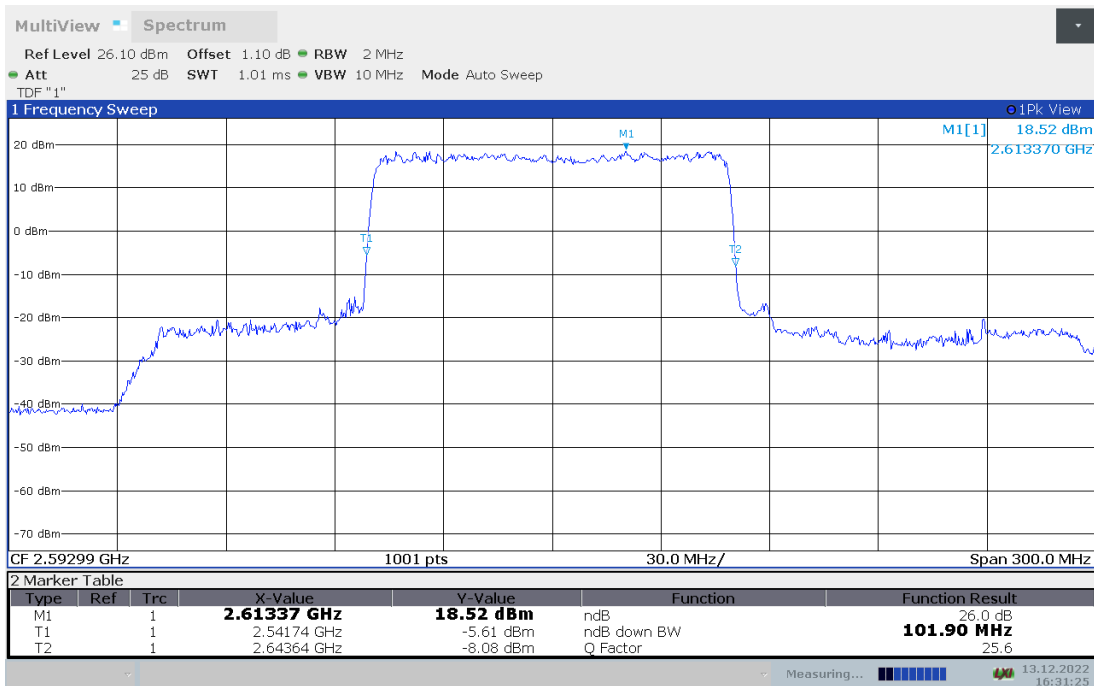
n41,100MHz(-26dBc)

Frequency (MHz)	Emission Bandwidth (-26dBc) (MHz)	
	DFT-s-pi/2 BPSK	DFT-s-QPSK
2592.99	101.600	101.900

n41,100MHz Bandwidth,DFT-s-pi/2 BPSK (-26dBc BW)



n41,100MHz Bandwidth,DFT-s-QPSK (-26dBc BW)



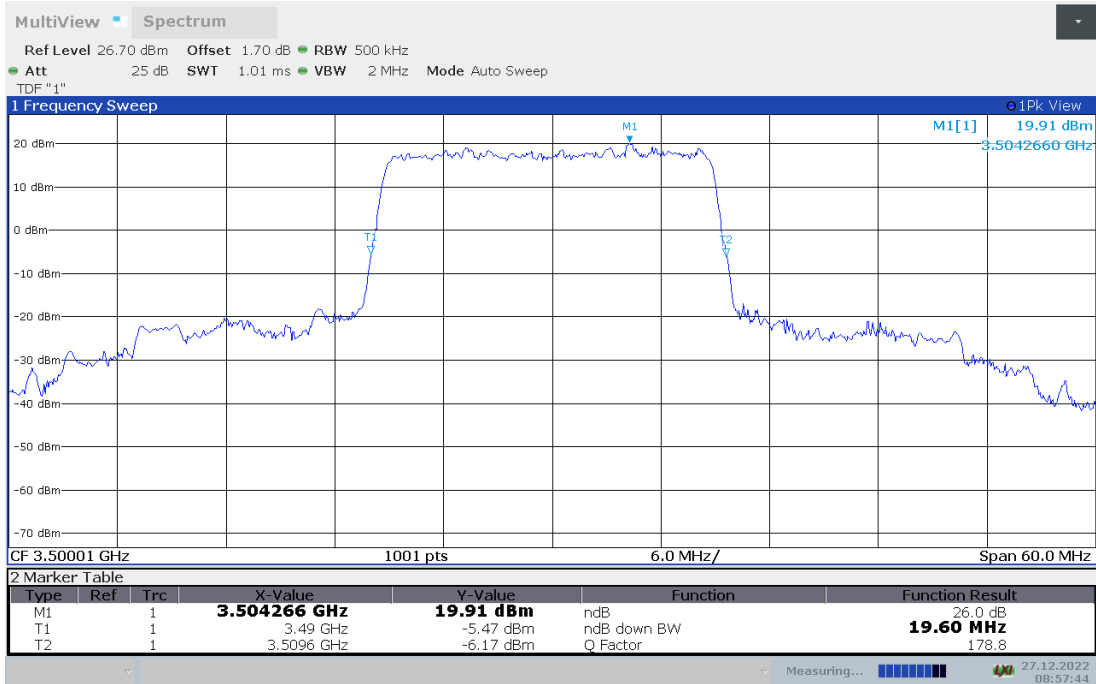


n78

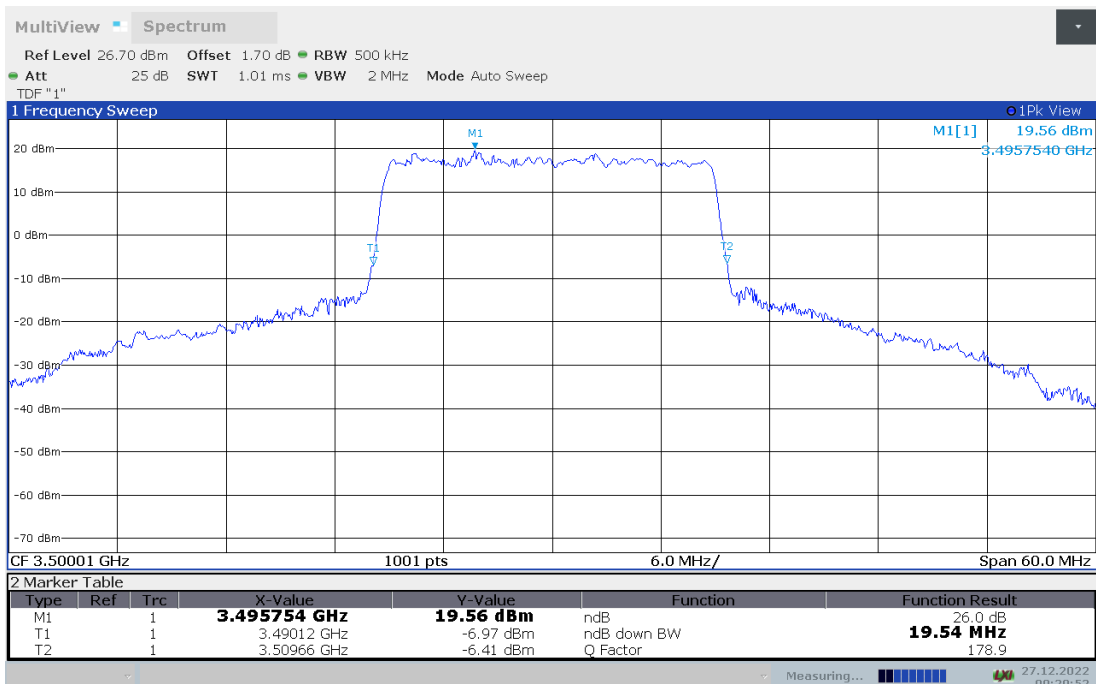
**n78,20MHz(-26dBc)**

Frequency (MHz)	Emission Bandwidth (-26dBc) (MHz)	
	DFT-s-pi/2 BPSK	DFT-s-QPSK
3500.01	19.600	19.540

**n78,20MHz Bandwidth,DFT-s-pi/2 BPSK (-26dBc BW)**



**n78,20MHz Bandwidth,DFT-s-QPSK (-26dBc BW)**

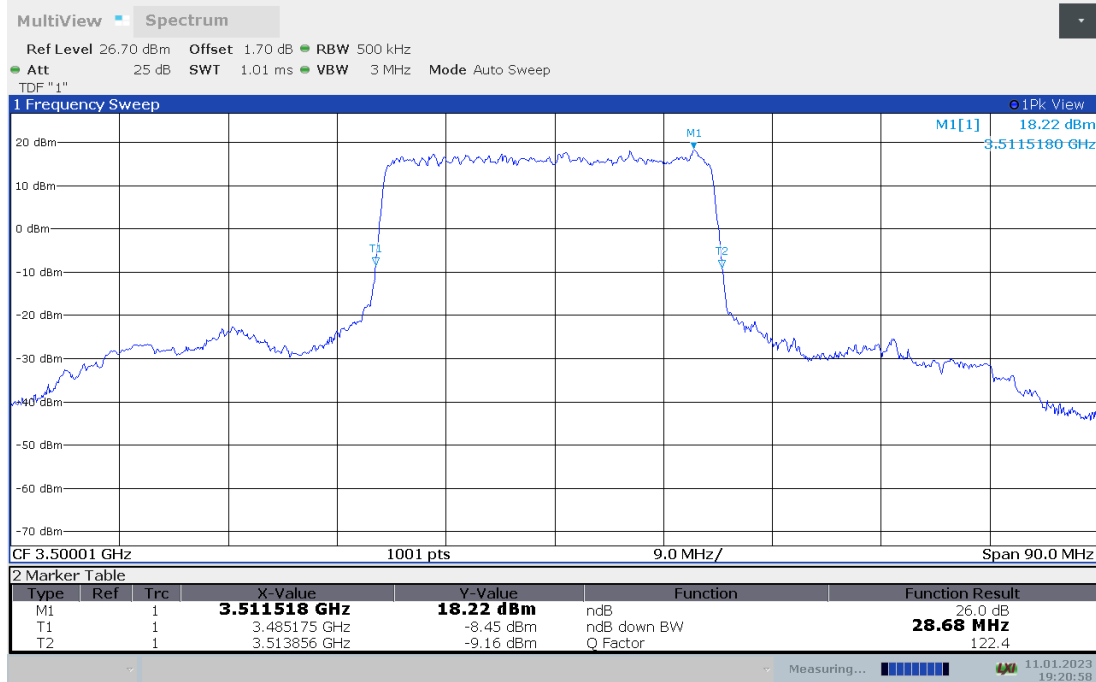




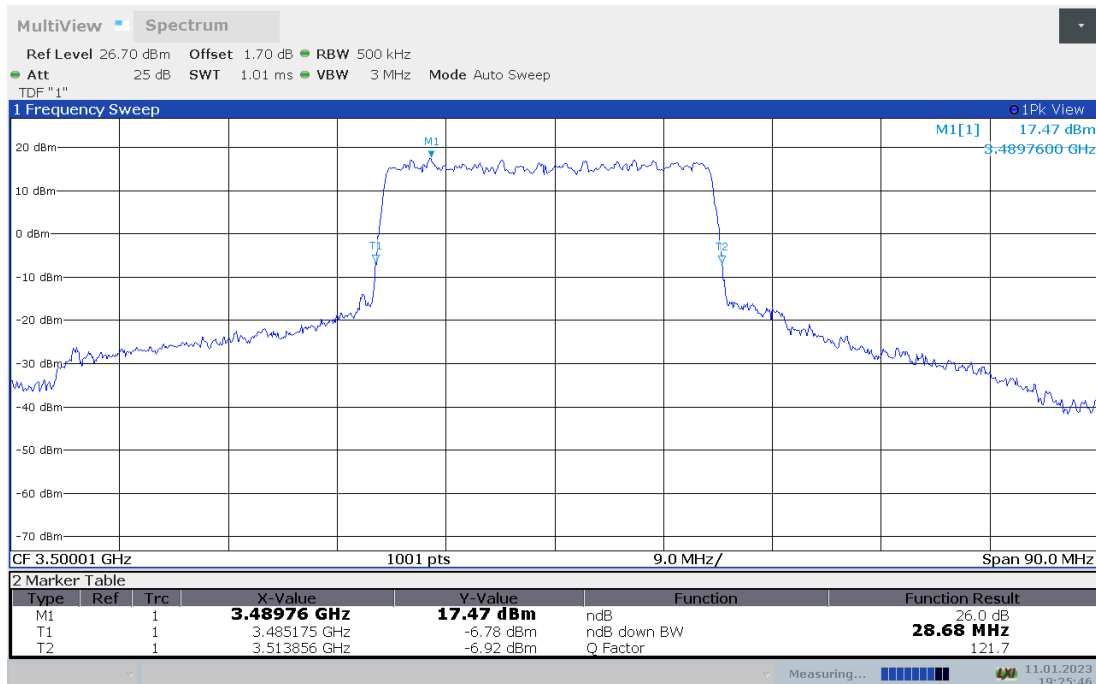
n78,30MHz(-26dBc)

Frequency (MHz)	Emission Bandwidth (-26dBc) (MHz)	
	DFT-s-pi/2 BPSK	DFT-s-QPSK
3500.01	28.681	28.681

n78,30MHz Bandwidth,DFT-s-pi/2 BPSK (-26dBc BW)



n78,30MHz Bandwidth,DFT-s-QPSK (-26dBc BW)

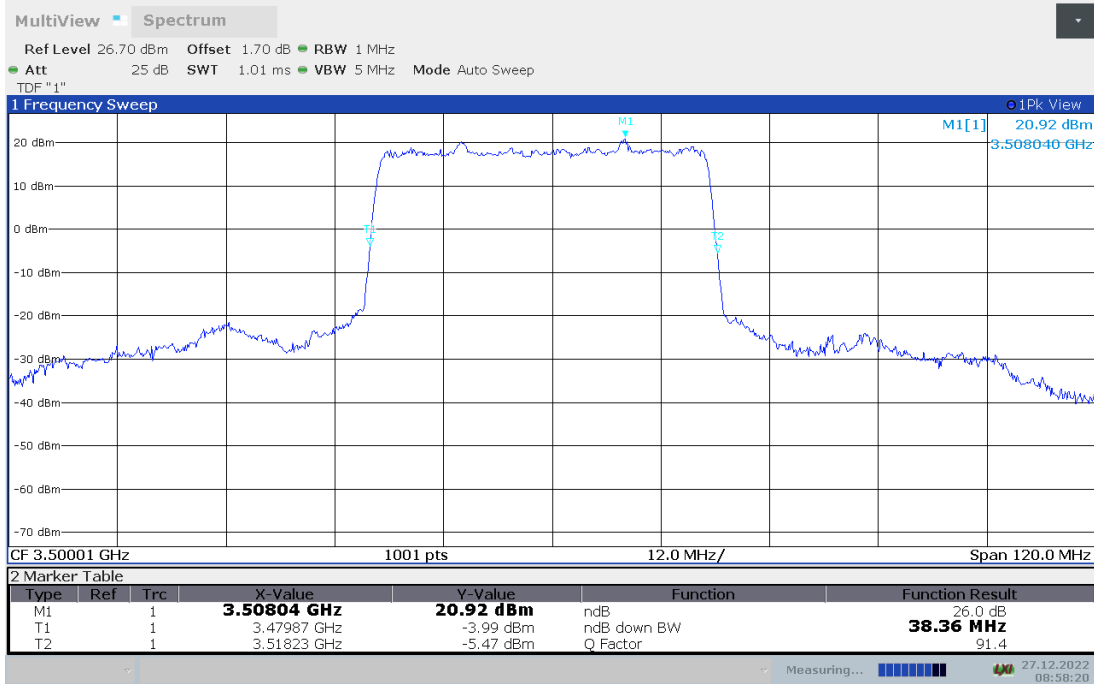




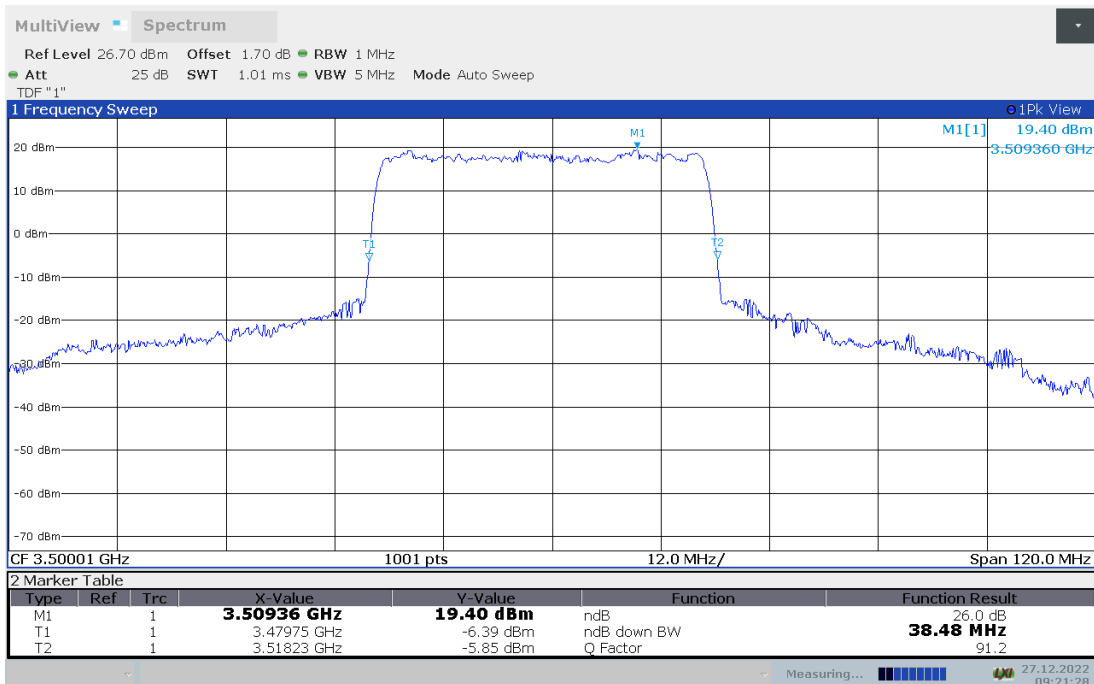
**n78,40MHz(-26dBc)**

Frequency (MHz)	Emission Bandwidth (-26dBc) (MHz)	
	DFT-s-pi/2 BPSK	DFT-s-QPSK
3500.01	38.360	38.480

**n78,40MHz Bandwidth,DFT-s-pi/2 BPSK (-26dBc BW)**



**n78,40MHz Bandwidth,DFT-s-QPSK (-26dBc BW)**

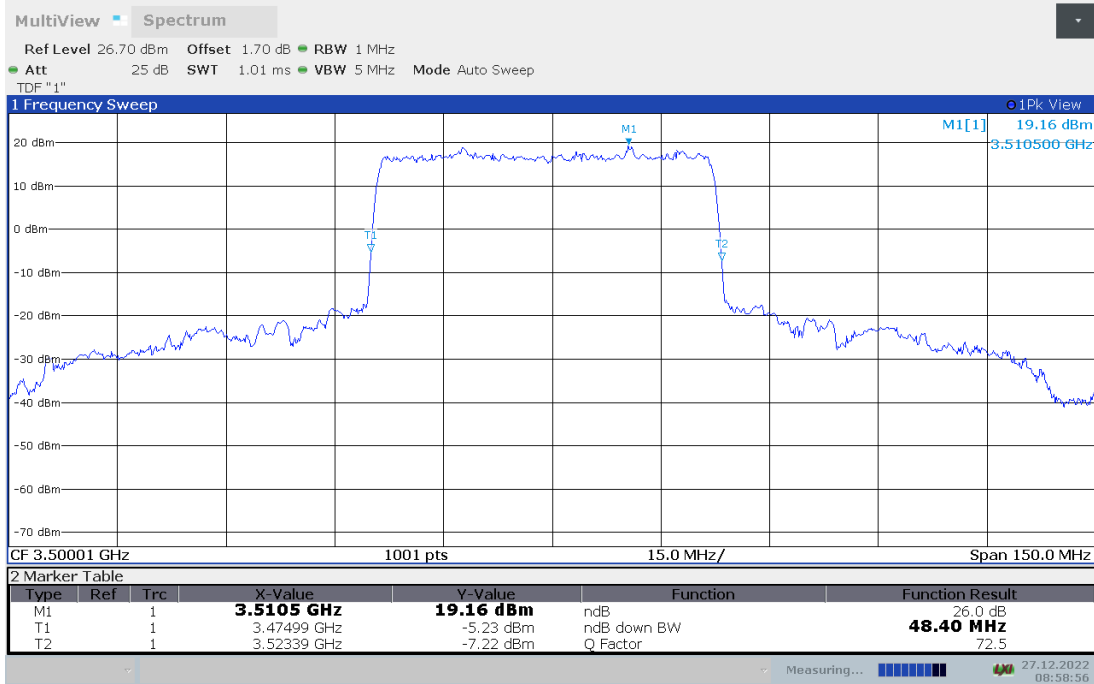




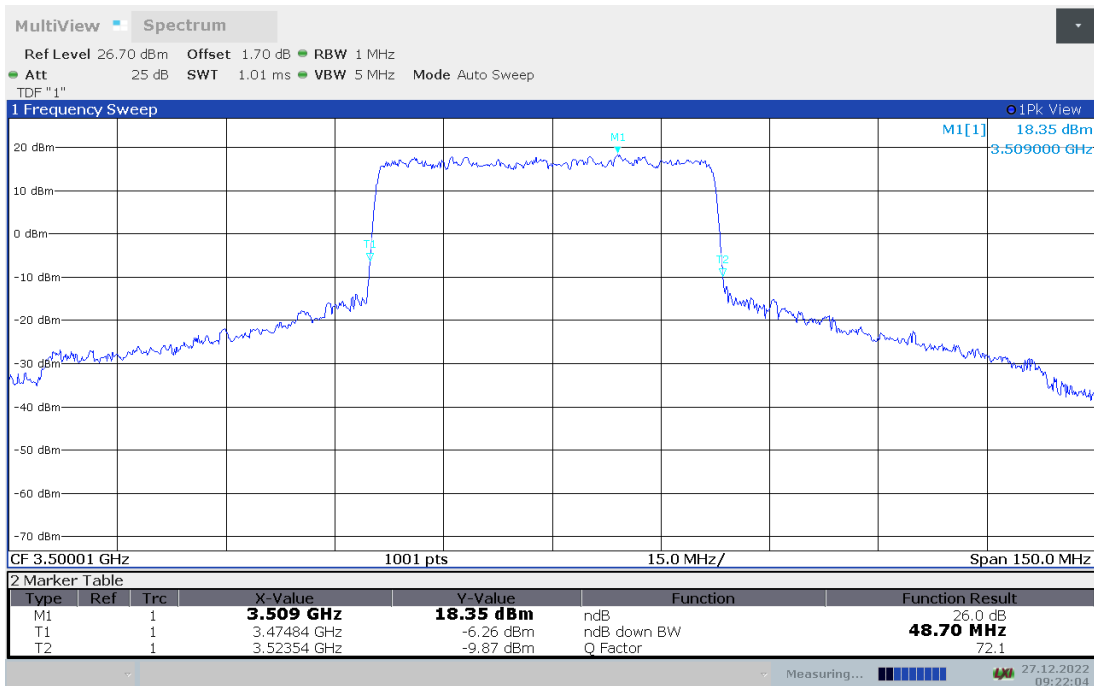
**n78,50MHz(-26dBc)**

Frequency (MHz)	Emission Bandwidth (-26dBc) (MHz)	
	DFT-s-pi/2 BPSK	DFT-s-QPSK
3500.01	48.400	48.700

**n78,50MHz Bandwidth,DFT-s-pi/2 BPSK (-26dBc BW)**



**n78,50MHz Bandwidth,DFT-s-QPSK (-26dBc BW)**



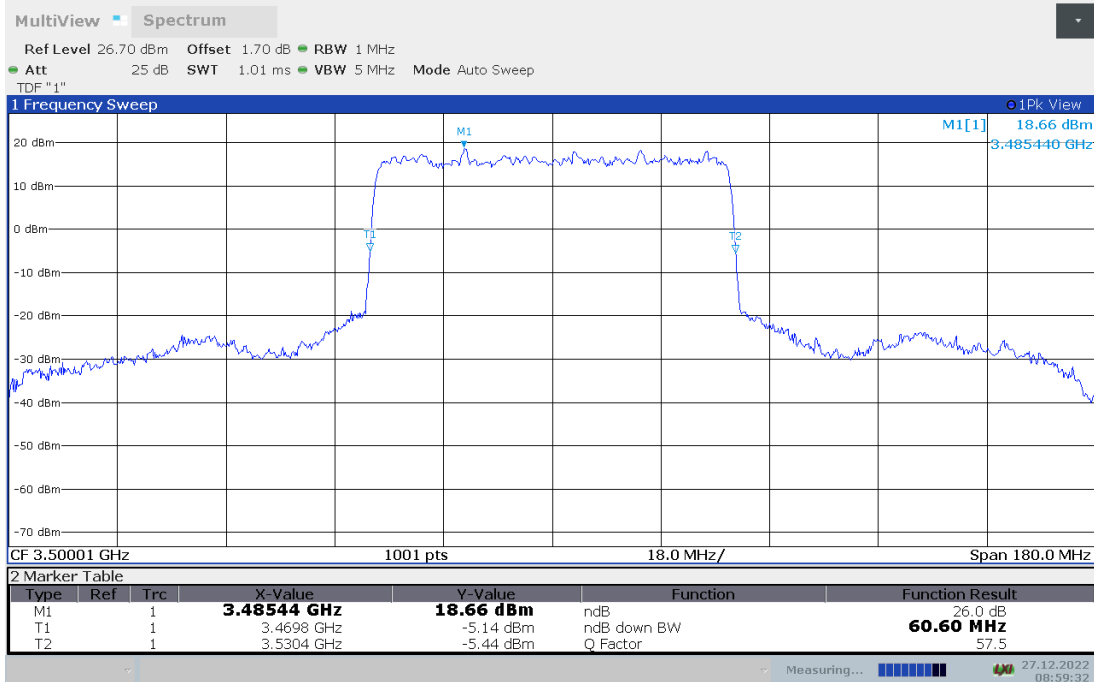




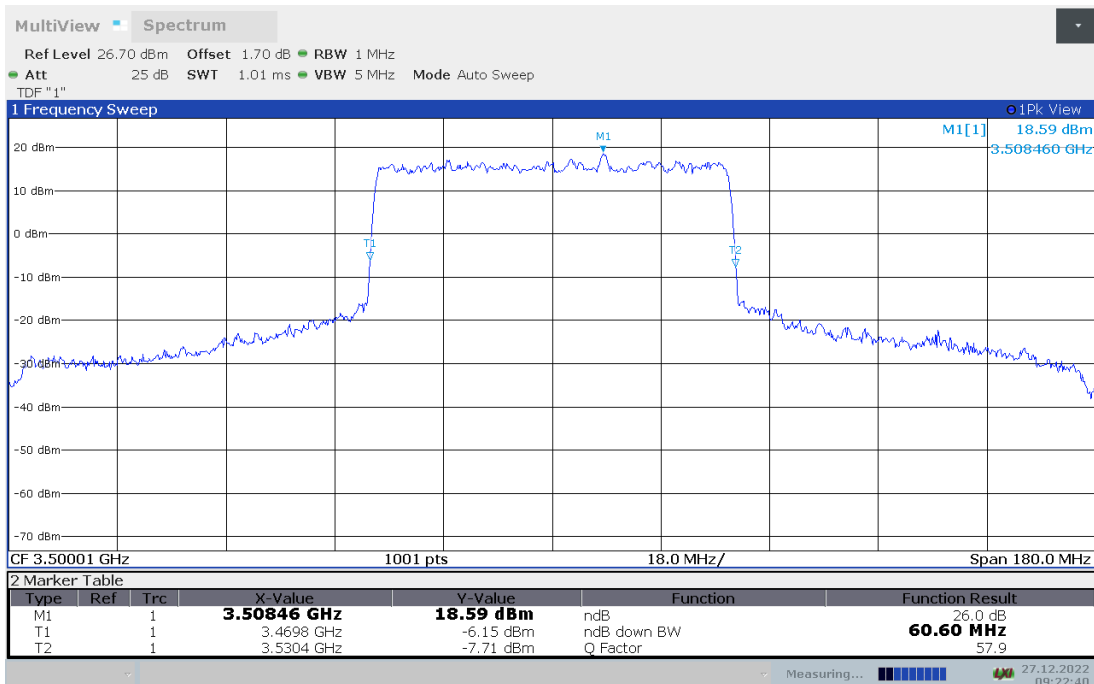
**n78,60MHz(-26dBc)**

Frequency (MHz)	Emission Bandwidth (-26dBc) (MHz)	
	DFT-s-pi/2 BPSK	DFT-s-QPSK
3500.01	60.600	60.600

**n78,60MHz Bandwidth,DFT-s-pi/2 BPSK (-26dBc BW)**



**n78,60MHz Bandwidth,DFT-s-QPSK (-26dBc BW)**

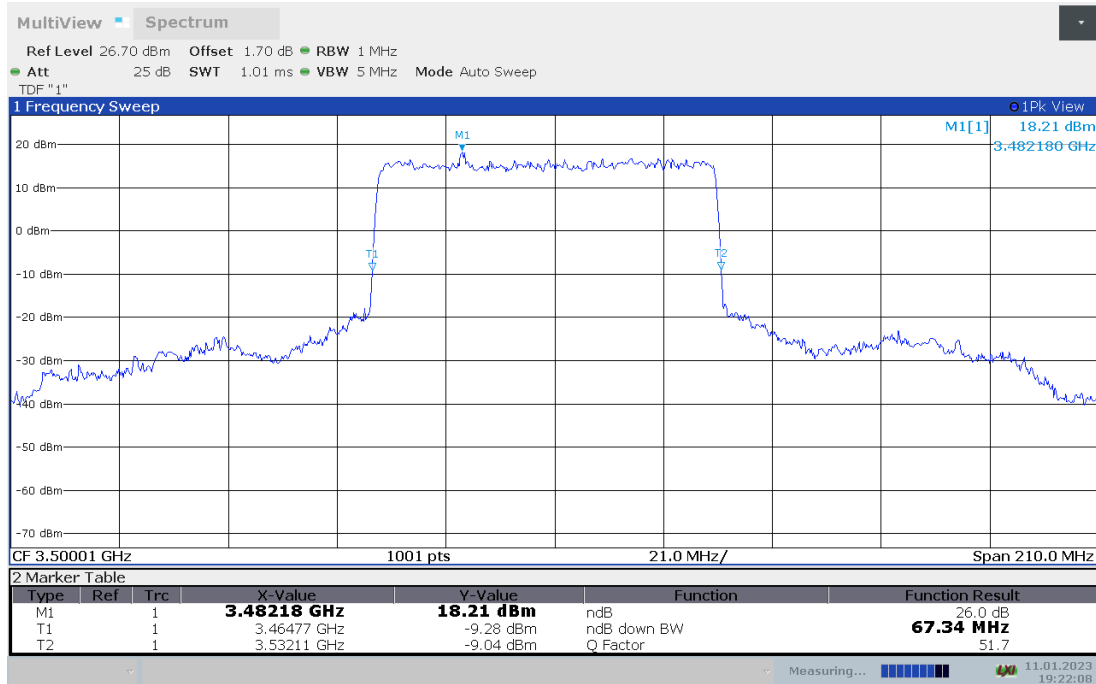




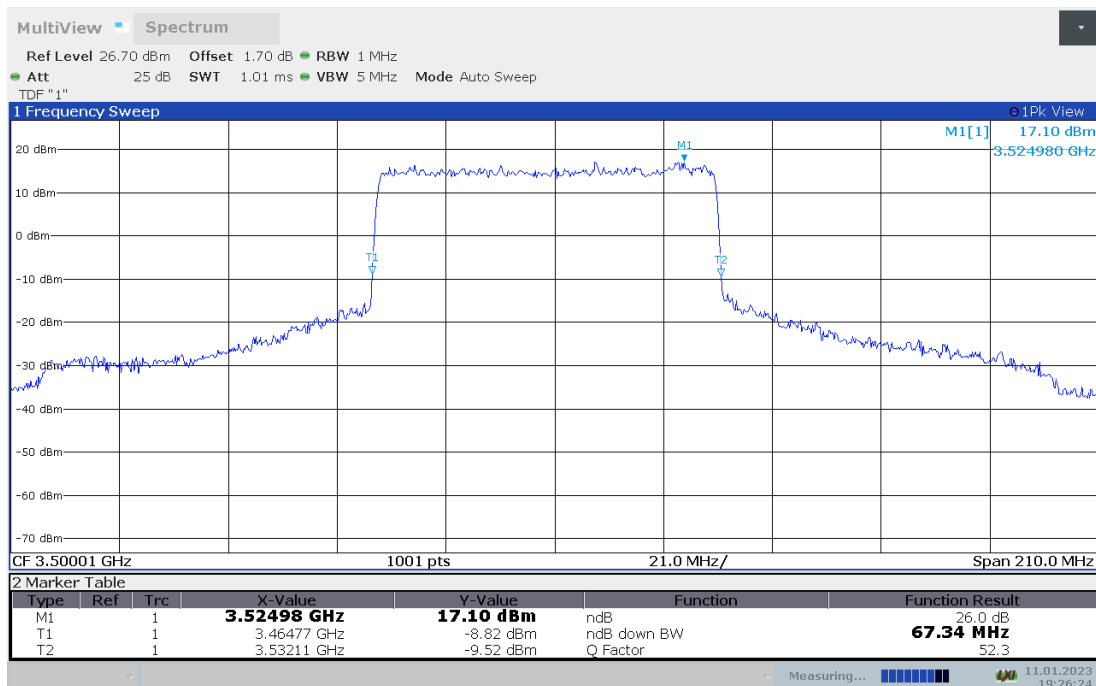
n78,70MHz(-26dBc)

Frequency (MHz)	Emission Bandwidth (-26dBc) (MHz)	
	DFT-s-pi/2 BPSK	DFT-s-QPSK
3500.01	67.340	67.340

n78,70MHz Bandwidth,DFT-s-pi/2 BPSK (-26dBc BW)



n78,70MHz Bandwidth,DFT-s-QPSK (-26dBc BW)

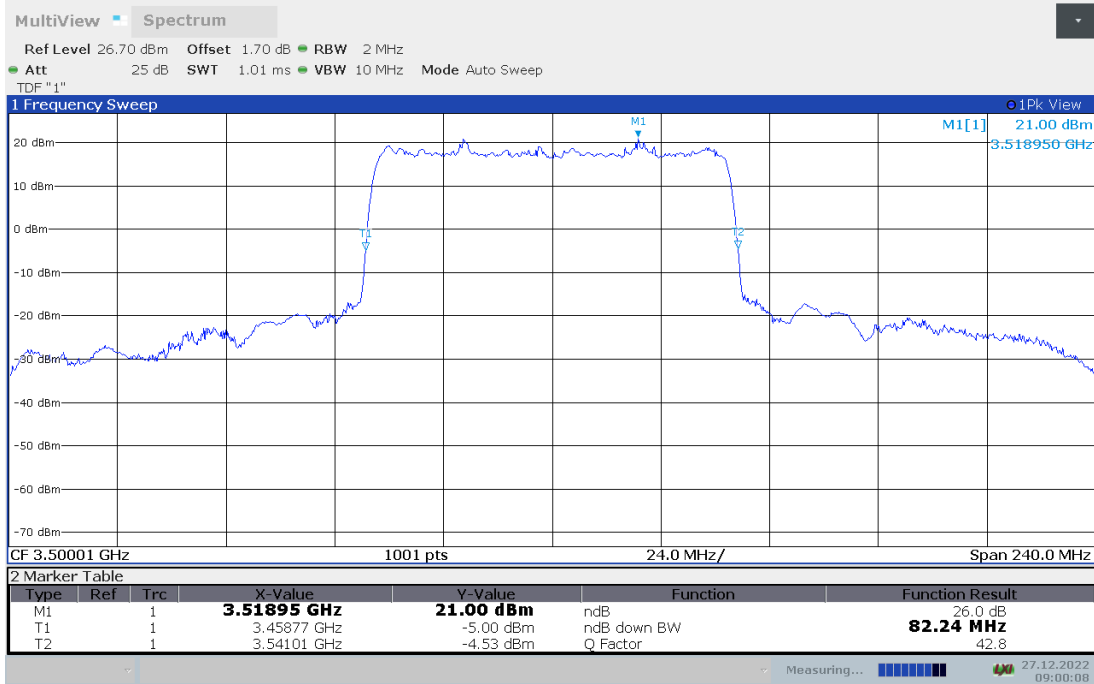




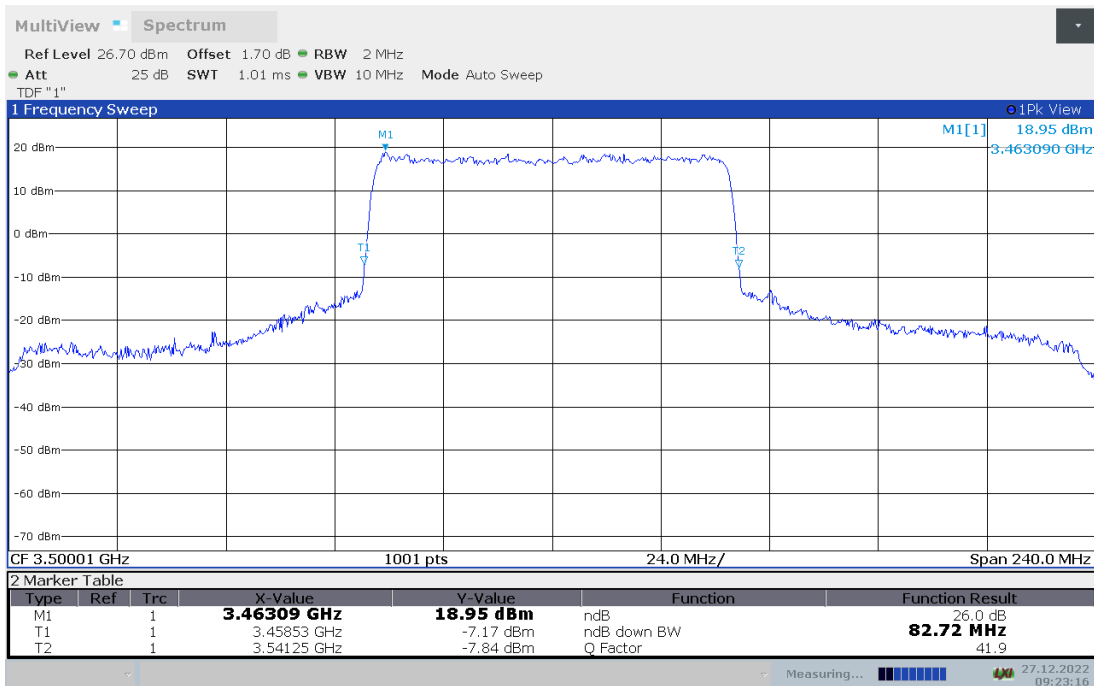
**n78,80MHz(-26dBc)**

Frequency (MHz)	Emission Bandwidth (-26dBc) (MHz)	
	DFT-s-pi/2 BPSK	DFT-s-QPSK
3500.01	82.240	82.720

**n78,80MHz Bandwidth,DFT-s-pi/2 BPSK (-26dBc BW)**



**n78,80MHz Bandwidth,DFT-s-QPSK (-26dBc BW)**

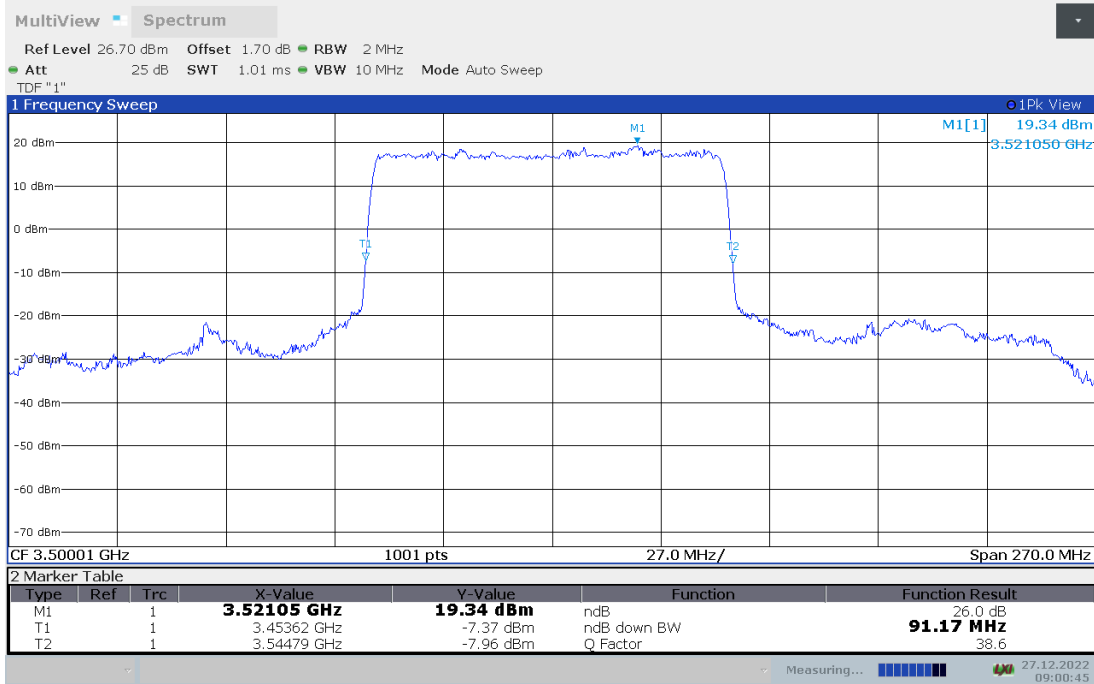




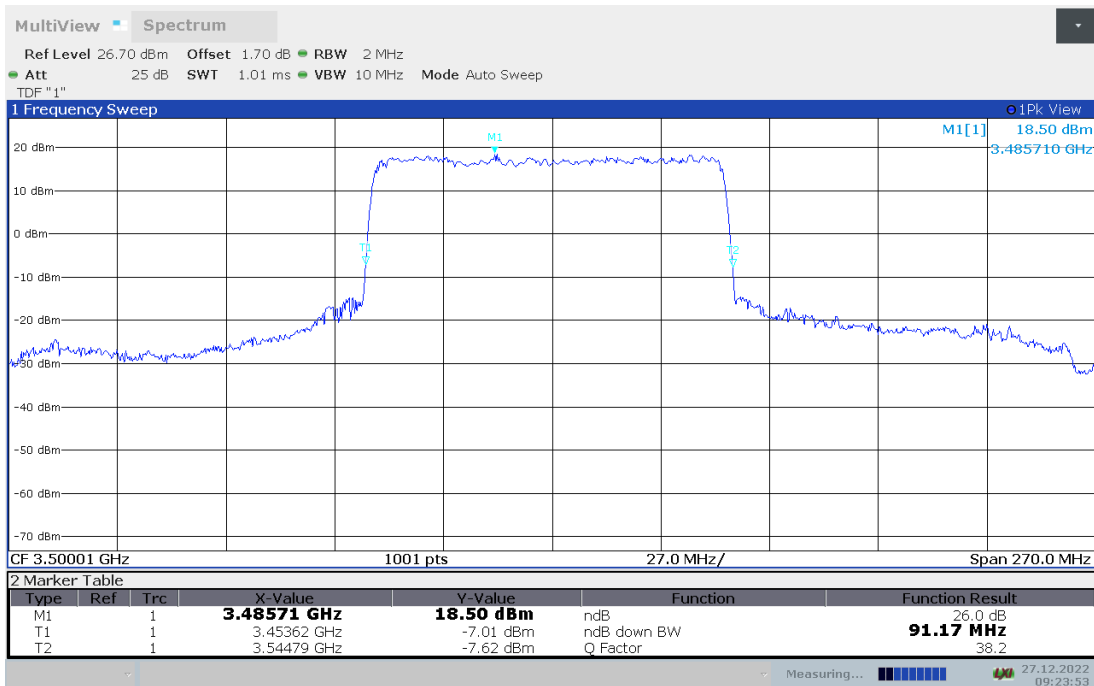
n78,90MHz(-26dBc)

Frequency (MHz)	Emission Bandwidth (-26dBc) (MHz)	
	DFT-s-pi/2 BPSK	DFT-s-QPSK
3500.01	91.170	91.170

n78,90MHz Bandwidth,DFT-s-pi/2 BPSK (-26dBc BW)



n78,90MHz Bandwidth,DFT-s-QPSK (-26dBc BW)

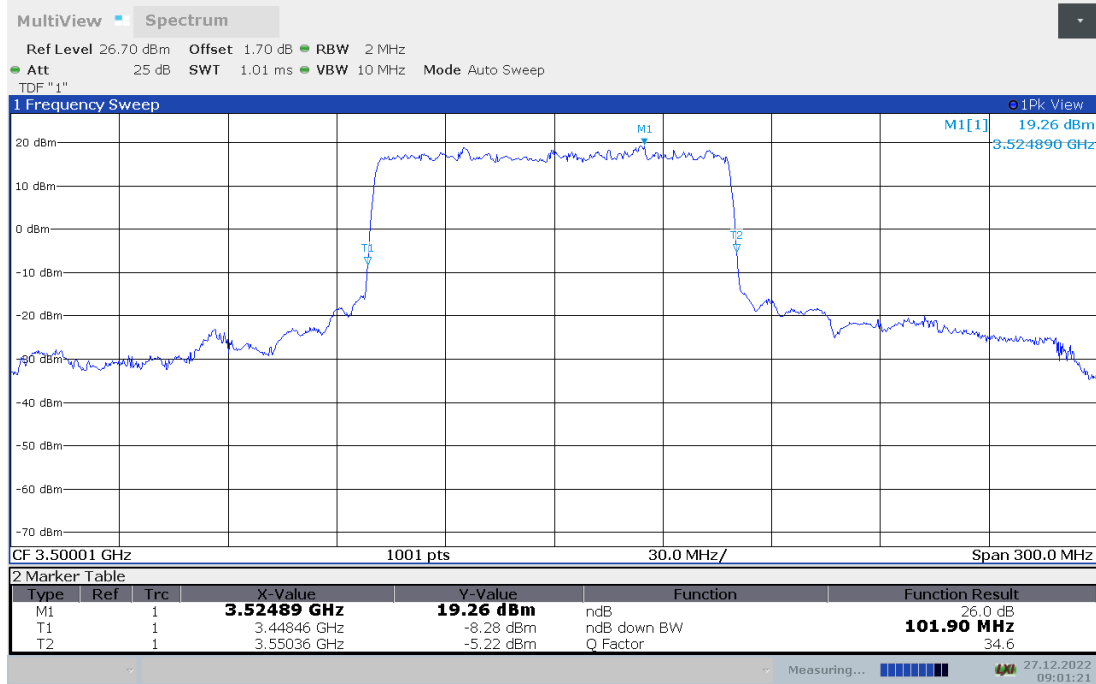




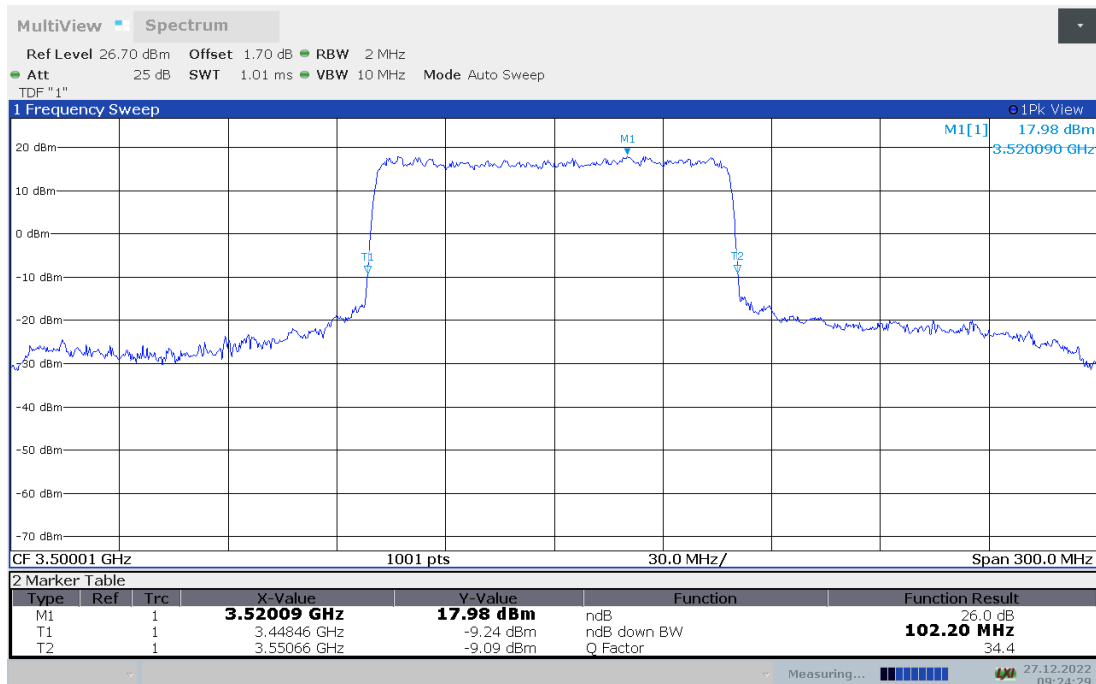
**n78,100MHz(-26dBc)**

Frequency (MHz)	Emission Bandwidth (-26dBc) (MHz)	
	DFT-s-pi/2 BPSK	DFT-s-QPSK
3500.01	101.900	102.200

**n78,100MHz Bandwidth,DFT-s-pi/2 BPSK (-26dBc BW)**



**n78,100MHz Bandwidth,DFT-s-QPSK (-26dBc BW)**



Note: Expanded measurement uncertainty is  $U = 3428 \text{ Hz}$ ,  $k = 2$



## **A.5 BAND EDGE COMPLIANCE**

### **Reference**

FCC: CFR Part 2.1051, 27.53.

#### **A.4.1 Measurement limit**

Part 27.53(m) specifies for mobile digital stations, the attenuation factor shall be not less than  $40 + 10 \log (P)$  dB on all frequencies between the channel edge and 5 megahertz from the channel edge,  $43 + 10 \log (P)$  dB on all frequencies between 5 megahertz and X megahertz from the channel edge, and  $55 + 10 \log (P)$  dB on all frequencies more than X megahertz from the channel edge, where X is the greater of 6 megahertz or the actual emission bandwidth as defined in paragraph (m)(6) of this section. In addition, the attenuation factor shall not be less than  $43 + 10 \log (P)$  dB on all frequencies between 2490.5 MHz and 2496 MHz and  $55 + 10 \log (P)$  dB at or below 2490.5 MHz. Mobile Satellite Service licensees operating on frequencies below 2495 MHz may also submit a documented interference complaint against BRS licensees operating on channel BRS Channel 1 on the same terms and conditions as adjacent channel BRS or EBS licensees.

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. frequency block, a resolution bandwidth of at least 30 kHz may be employed.

#### **A.4.2 Measurement Procedure**

The testing follows ANSI C63.26

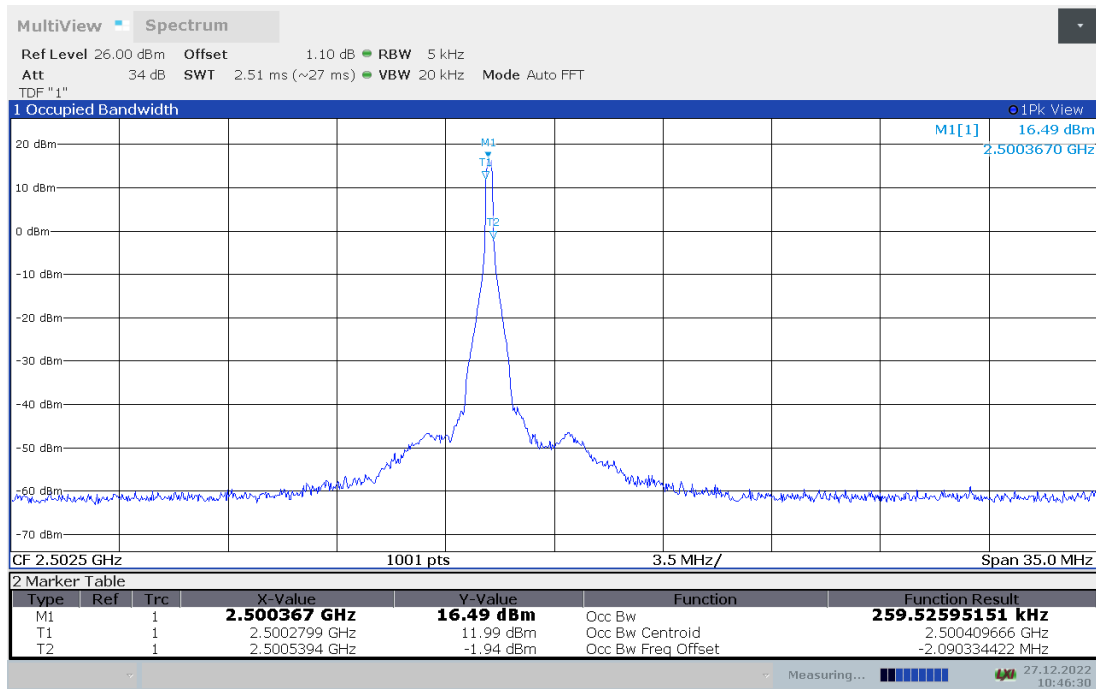
- a) The EUT was connected to spectrum analyzer and system simulator via a power divider.
- b) The band edges of low and high channels for the highest RF powers were measured.
- c) Set RBW  $\geq 1\%$  EBW in the 1MHz band immediately outside and adjacent to the band edge.
- d) Set spectrum analyzer 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.4.3 Measurement result

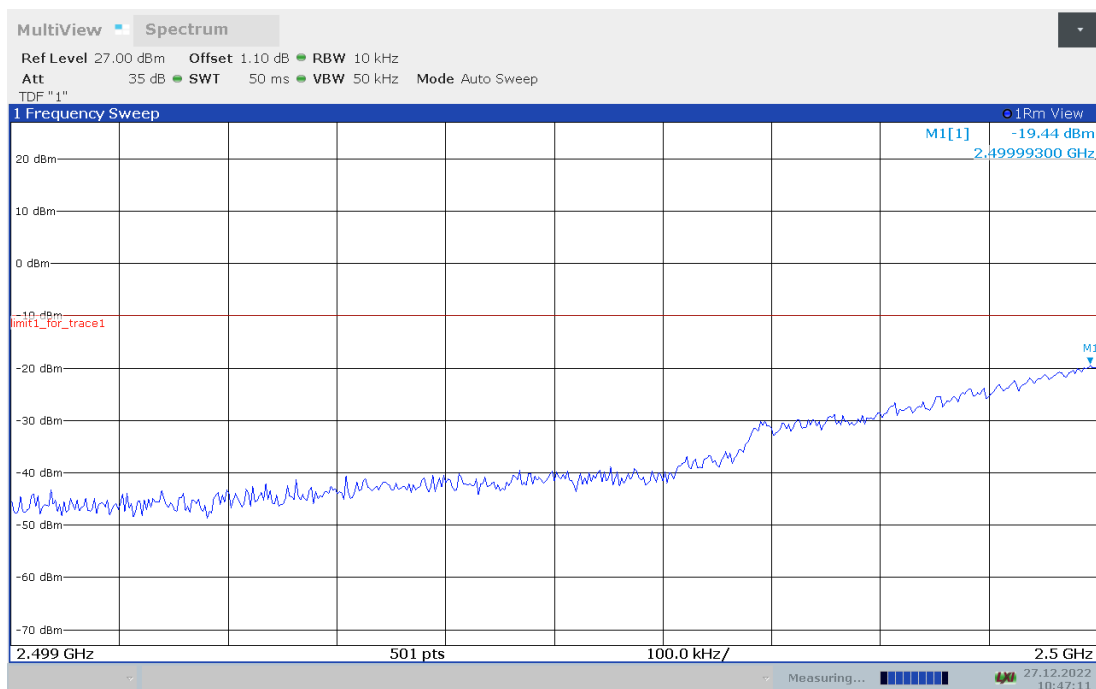
One worst case result is given below

n7

OBW: 1RB-LOW\_offset

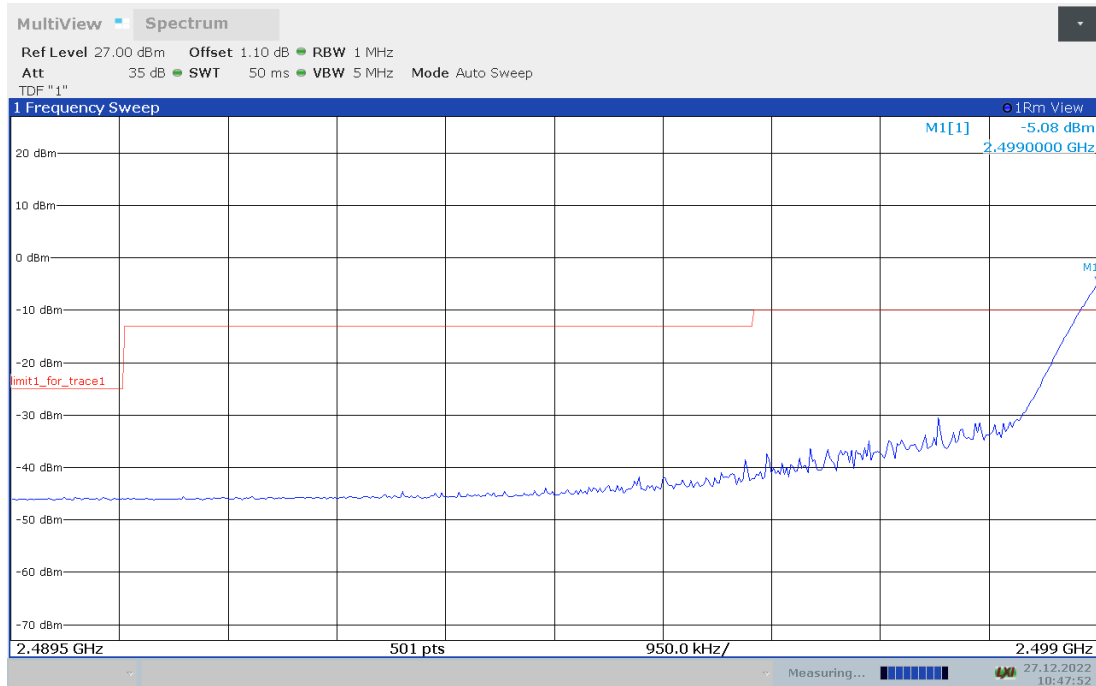


### LOW BAND EDGE BLOCK-1RB-LOW\_offset

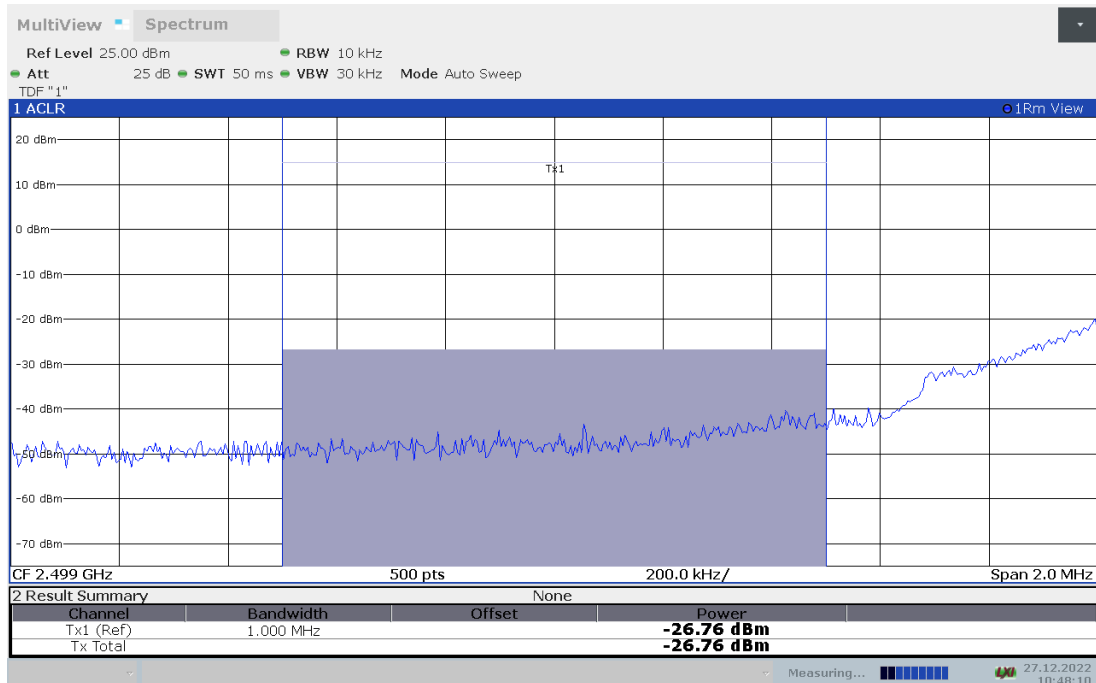




### LOW BAND EDGE BLOCK-1RB-LOW\_offset

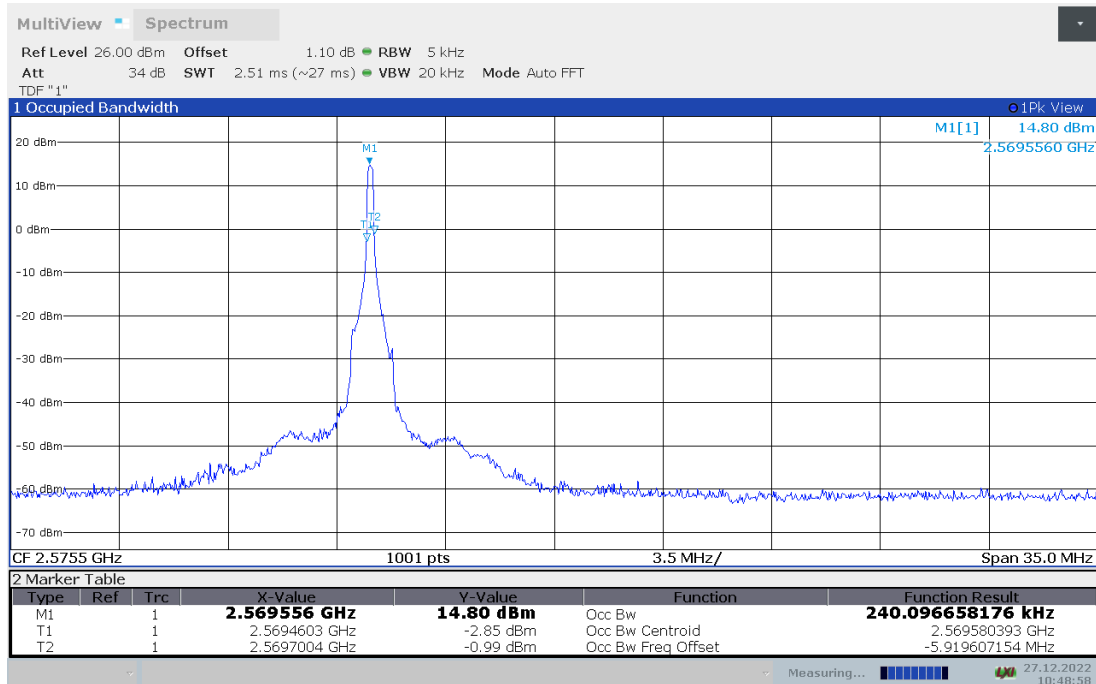


### Channel power

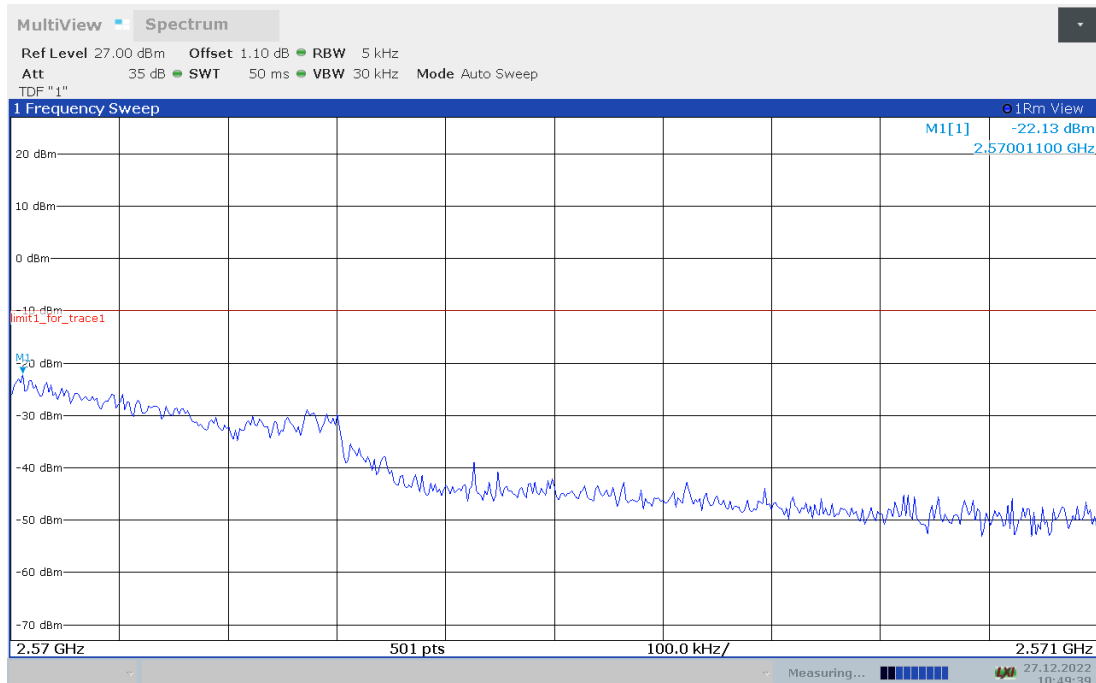




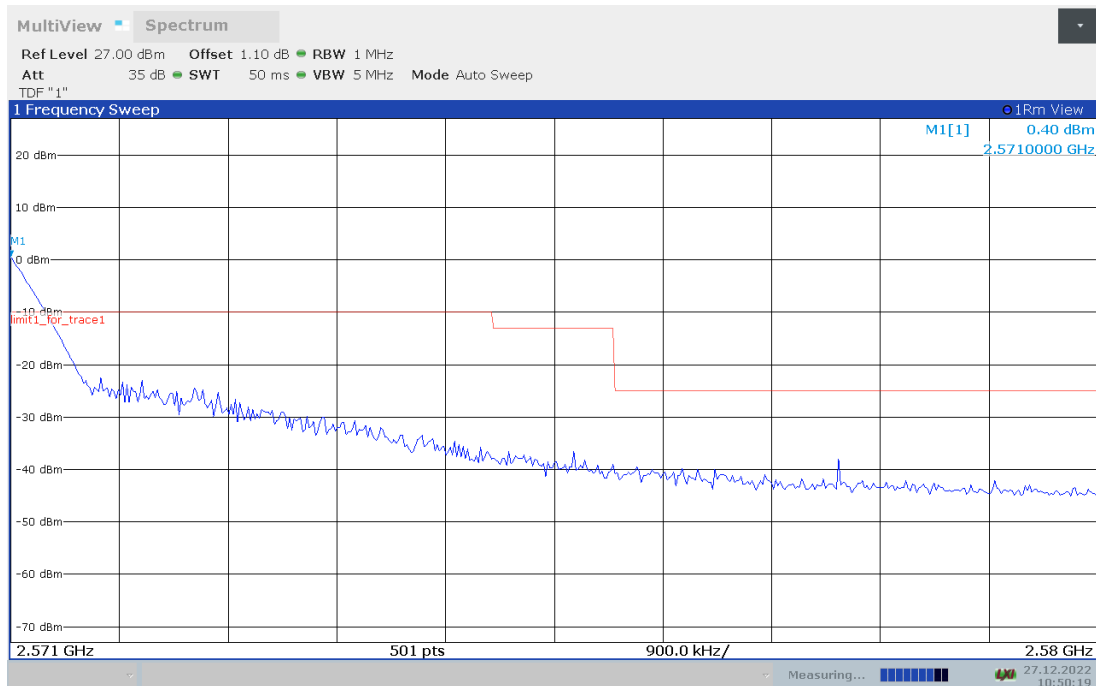
**OBW: 1RB-HIGH\_offset**



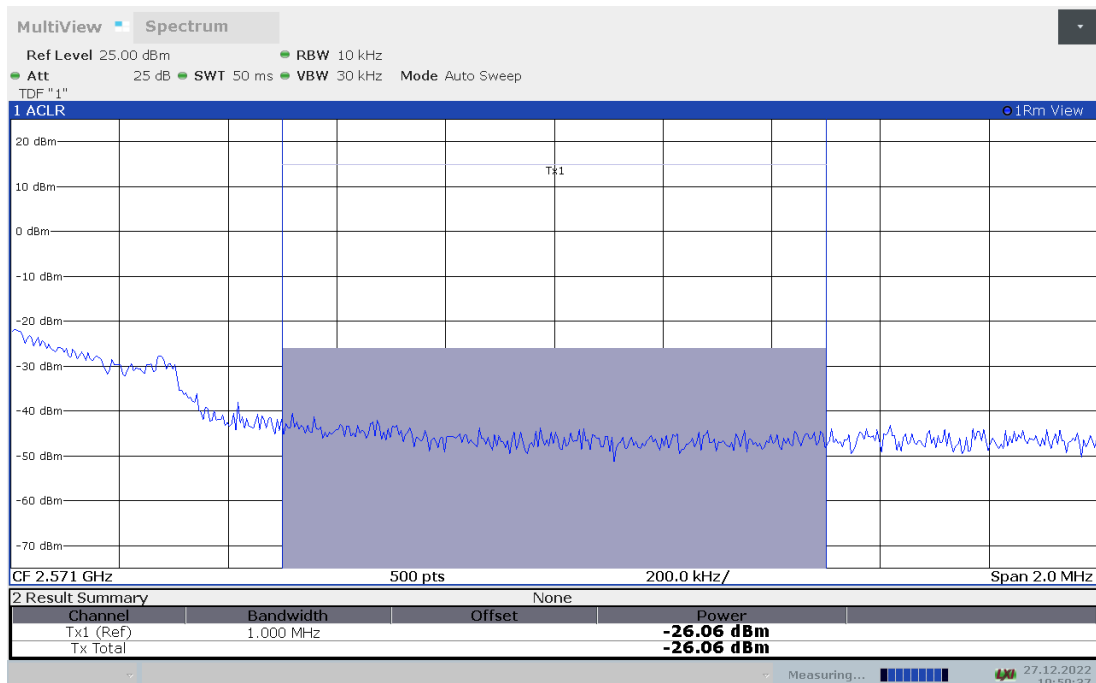
**HIGH BAND EDGE BLOCK-1RB-HIGH\_offset**



**HIGH BAND EDGE BLOCK-1RB-HIGH\_offset**

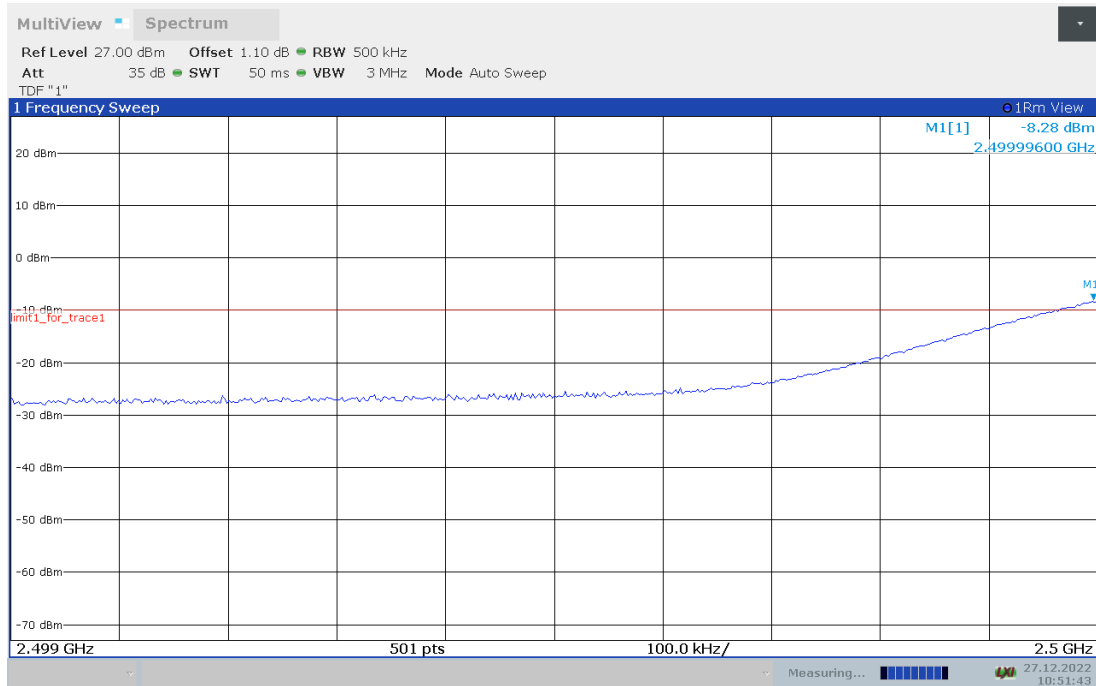


**Channel power**

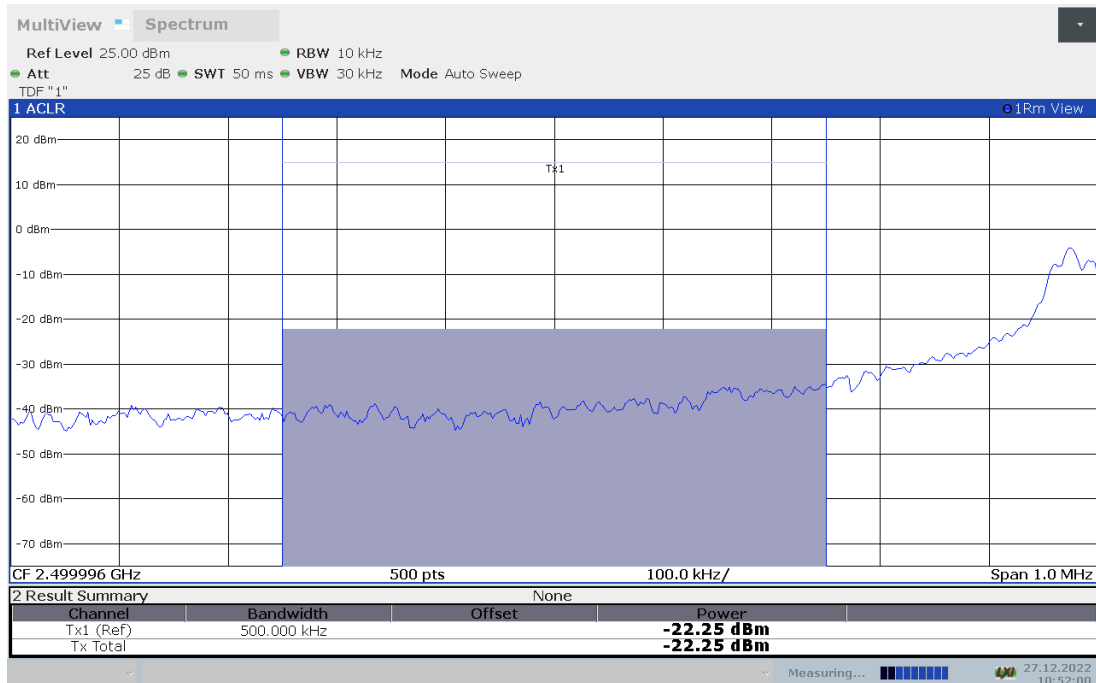




**LOW BAND EDGE BLOCK-20M-100%RB**

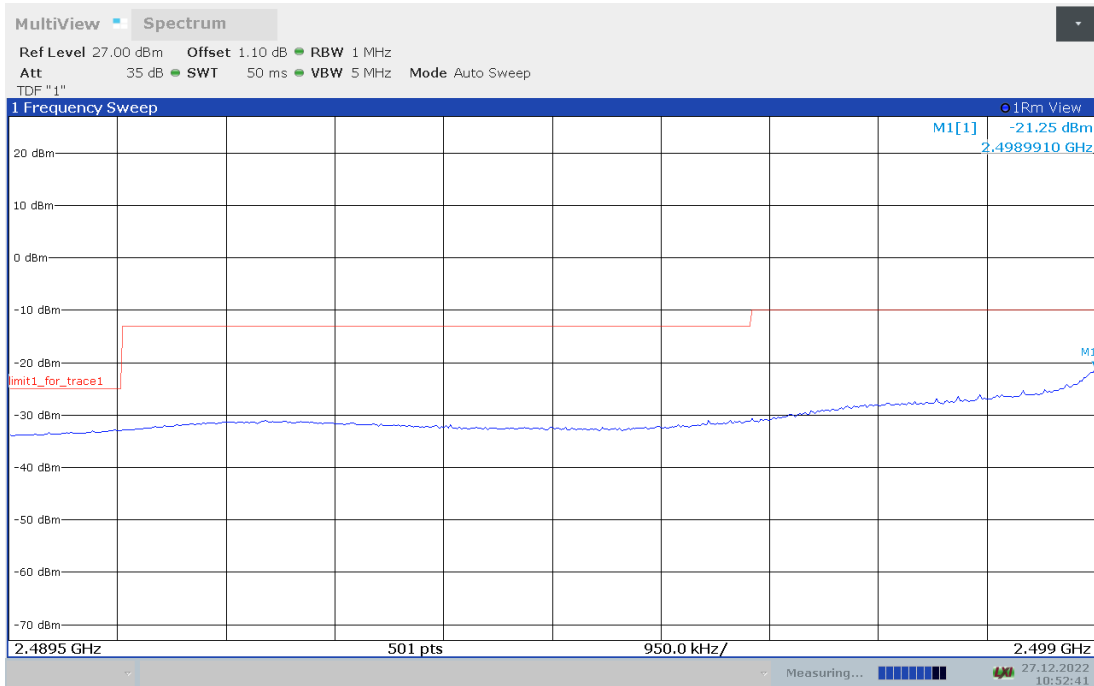


**Channel power**

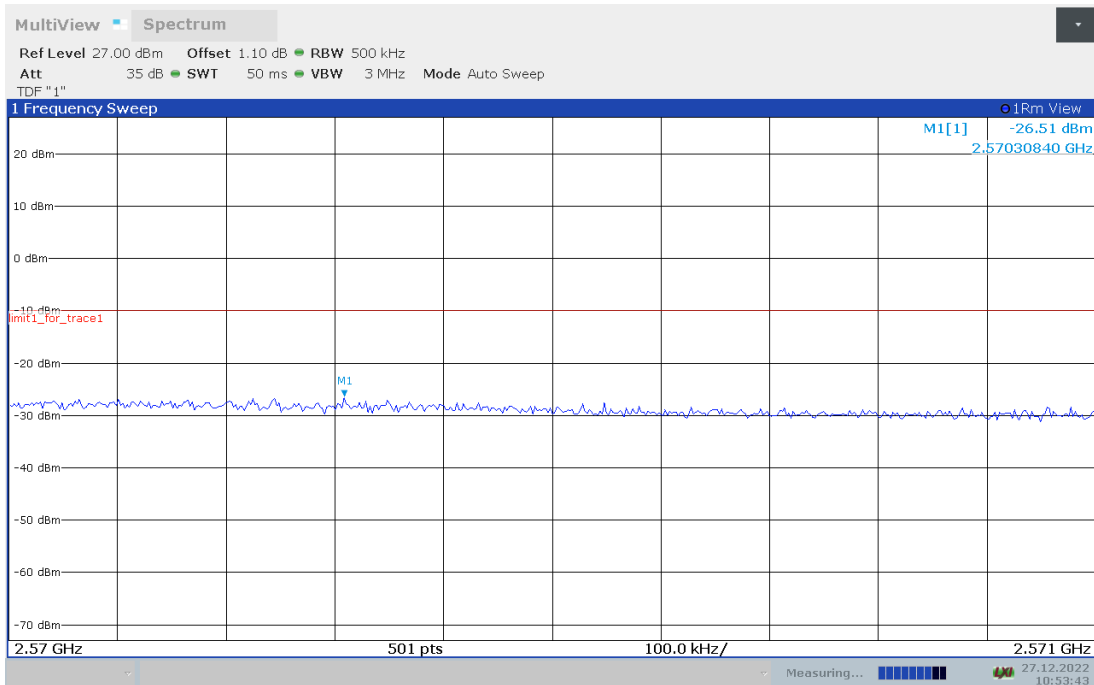




### LOW BAND EDGE BLOCK-20M-100%RB

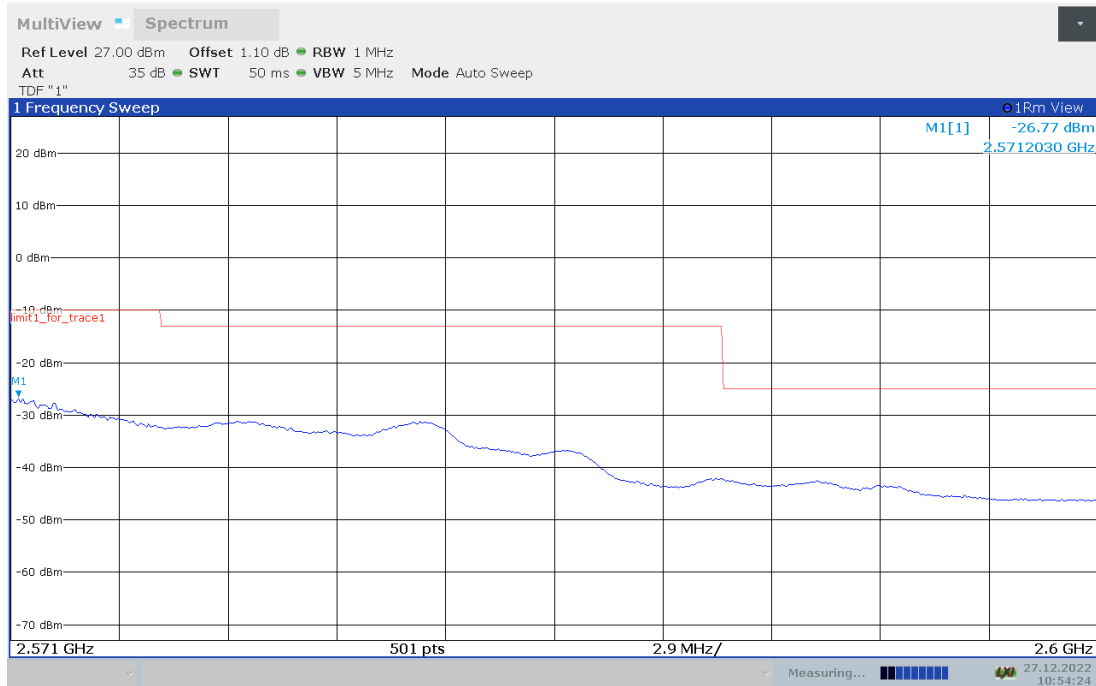


### HIGH BAND EDGE BLOCK-20M-100%RB





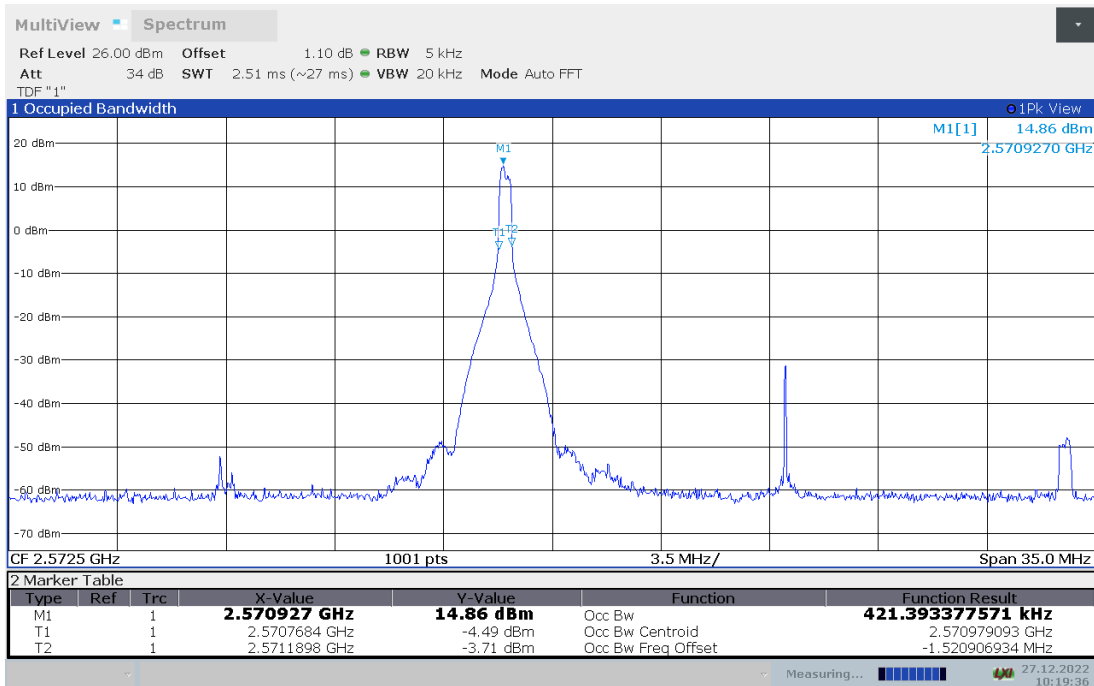
### HIGH BAND EDGE BLOCK-20M-100%RB



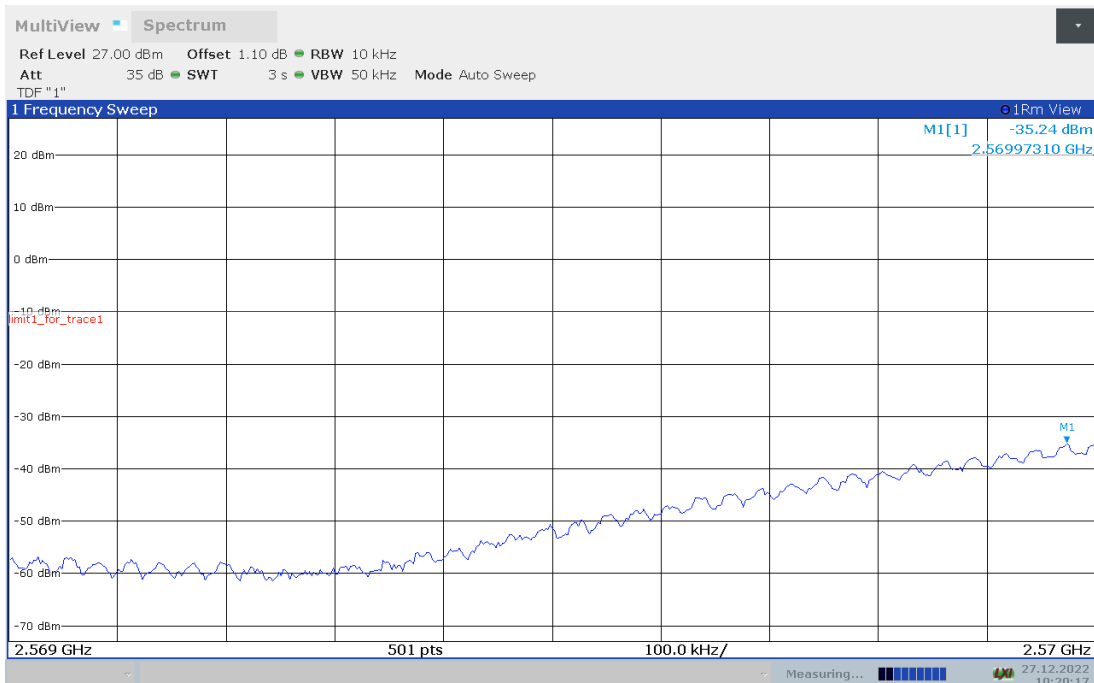


n38

OBW: 1RB-LOW\_offset

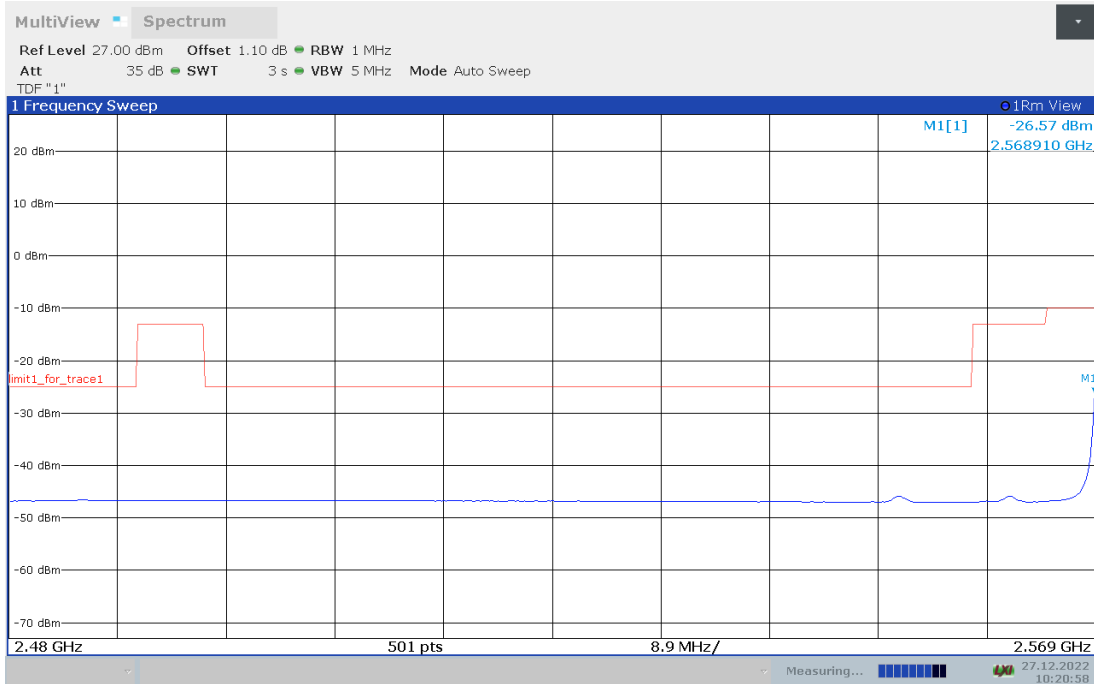


LOW BAND EDGE BLOCK-1RB-LOW\_offset

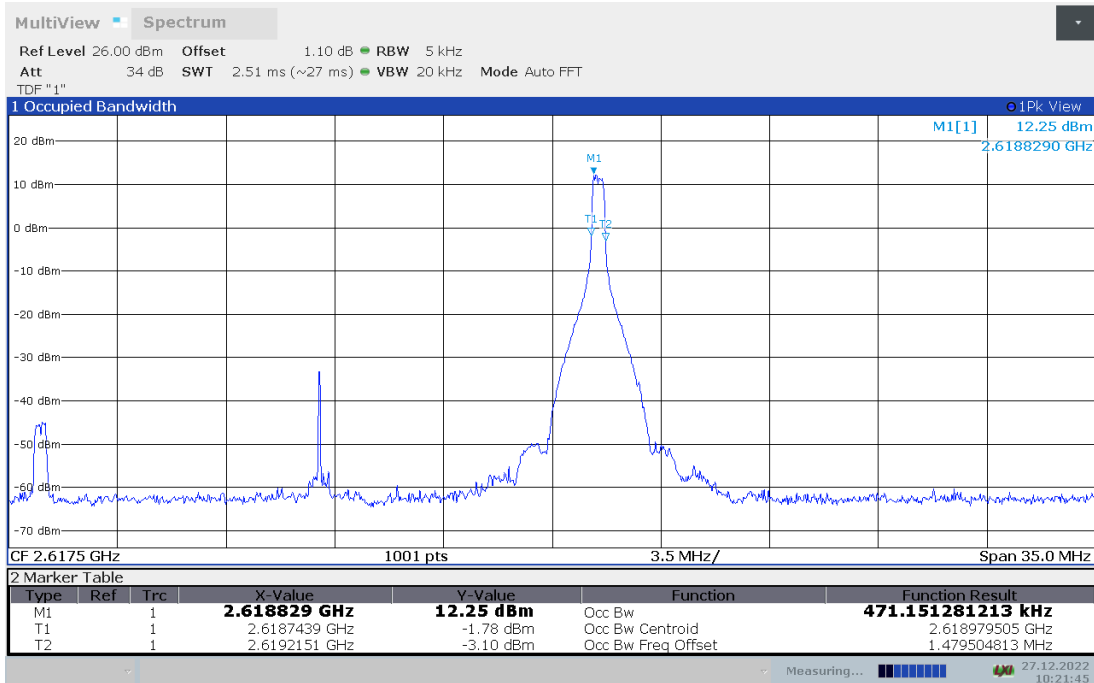




**LOW BAND EDGE BLOCK-1RB-LOW\_offset**

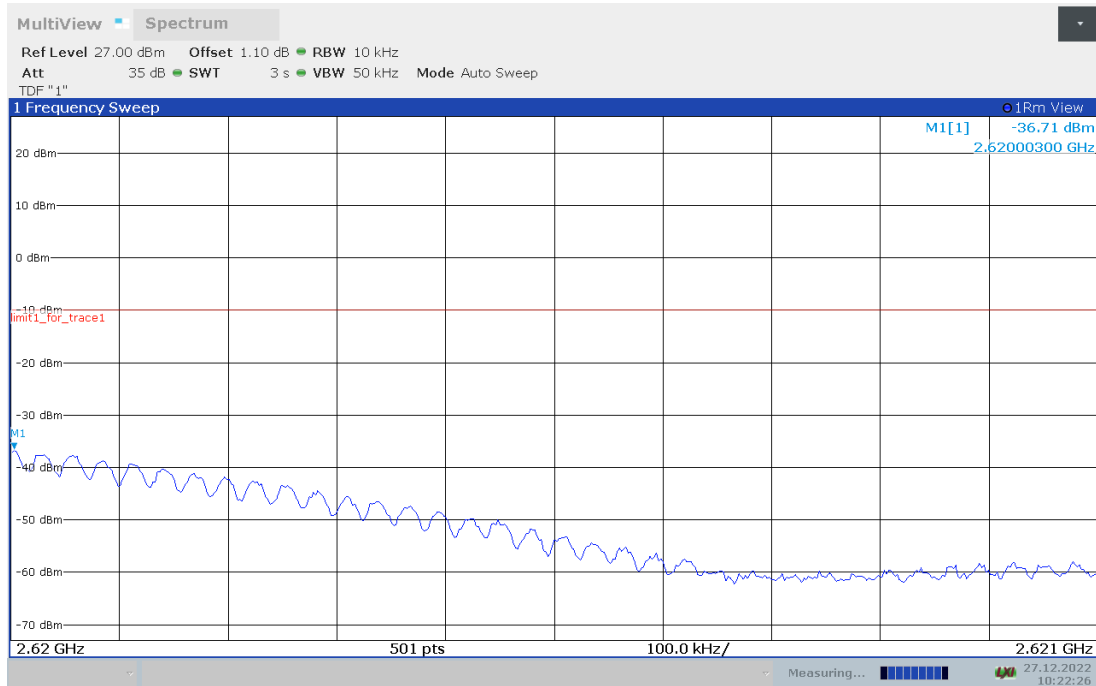


**OBW: 1RB-HIGH\_offset**

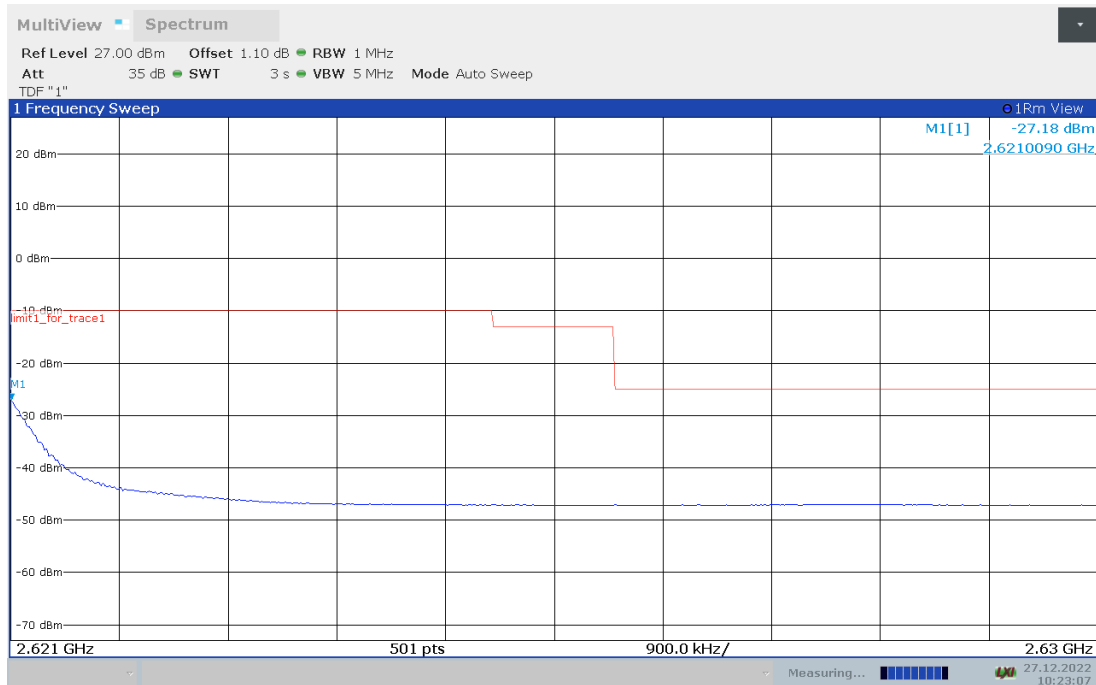




### HIGH BAND EDGE BLOCK-1RB-HIGH\_offset

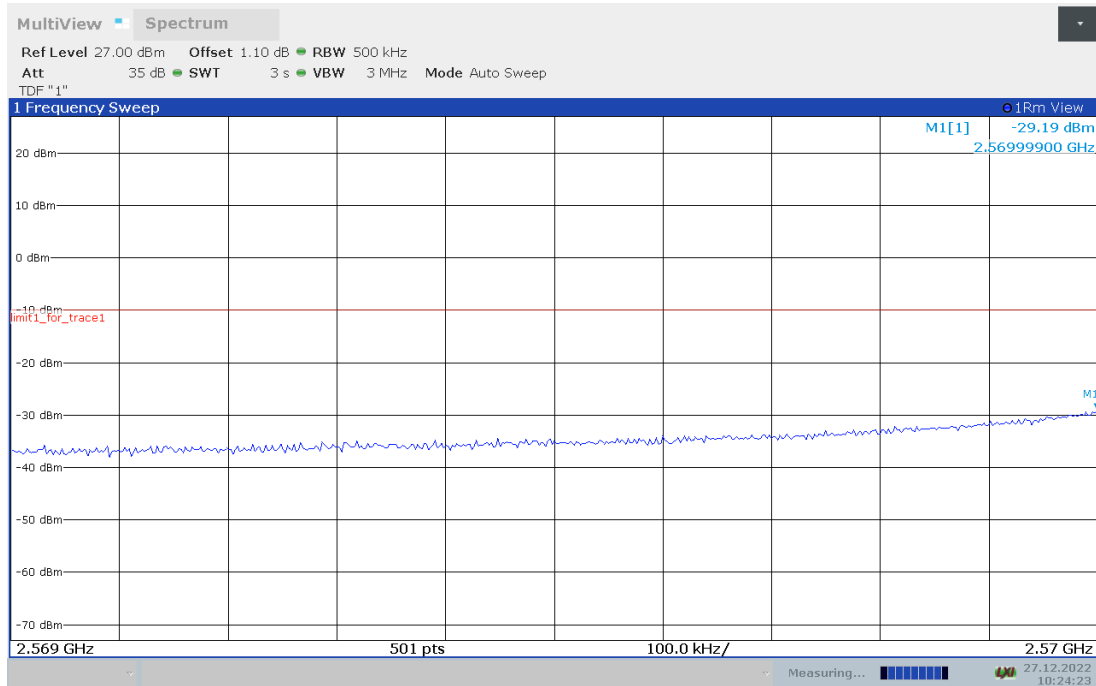


### HIGH BAND EDGE BLOCK-1RB-HIGH\_offset

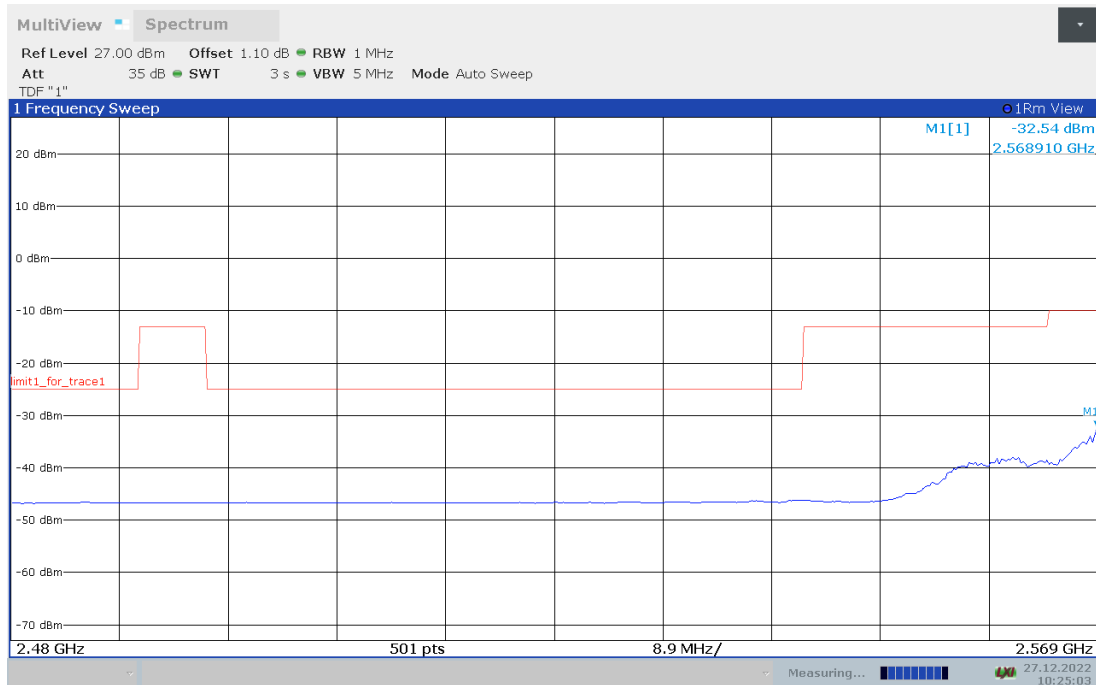




**LOW BAND EDGE BLOCK-20M-100%RB**

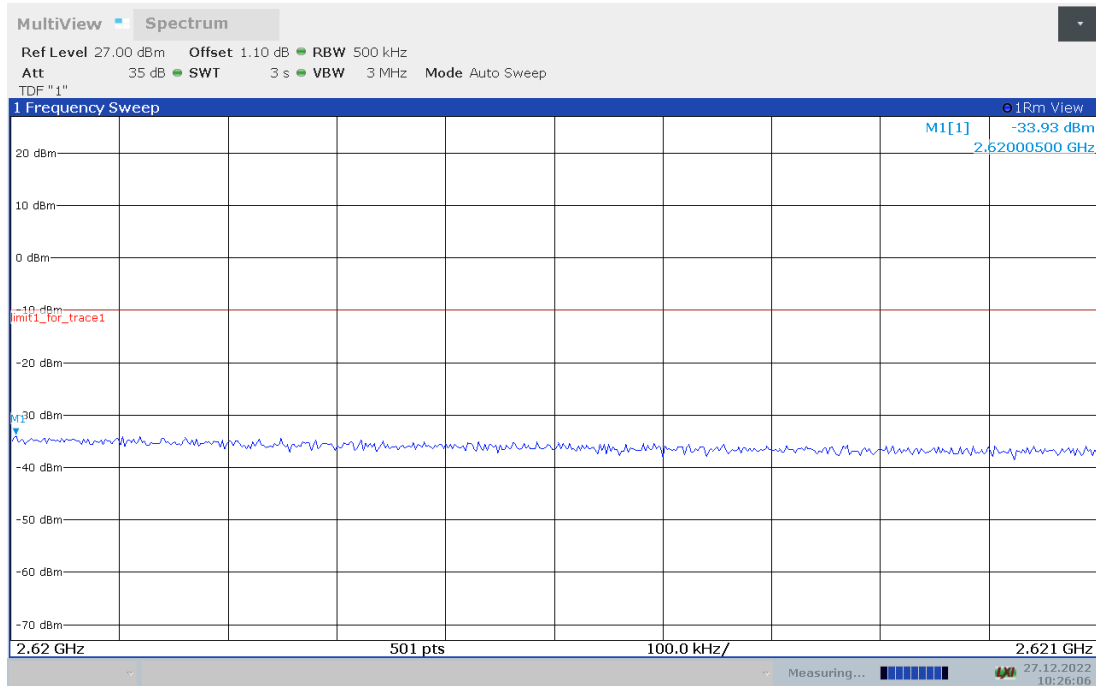


**LOW BAND EDGE BLOCK-20M-100%RB**

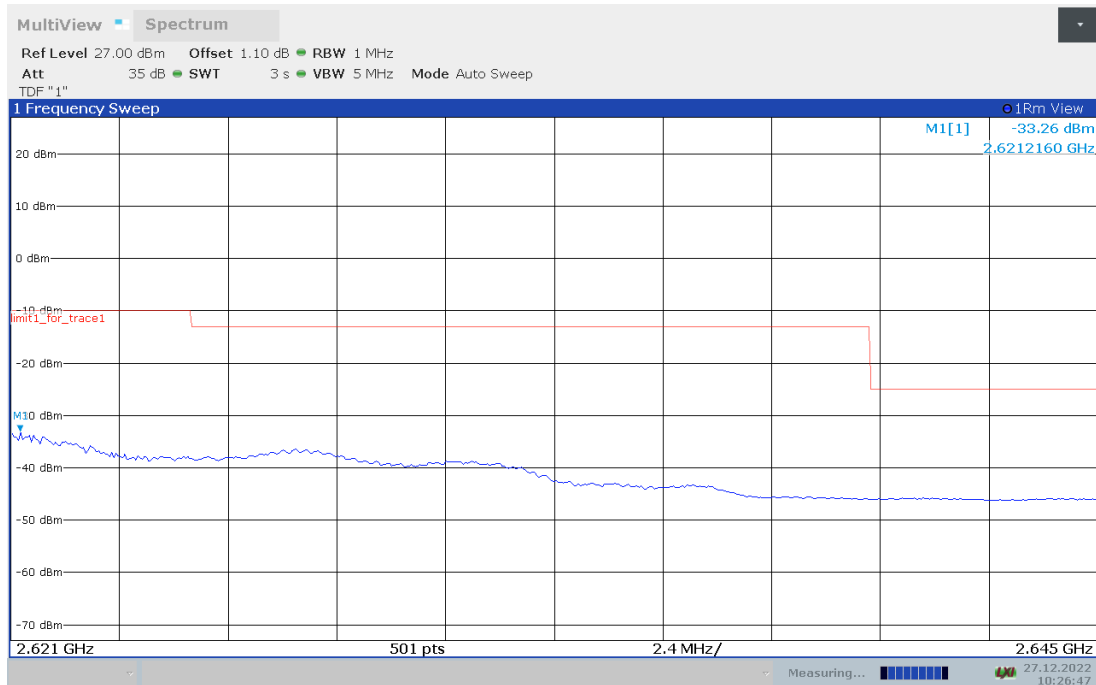




### HIGH BAND EDGE BLOCK-20M-100%RB



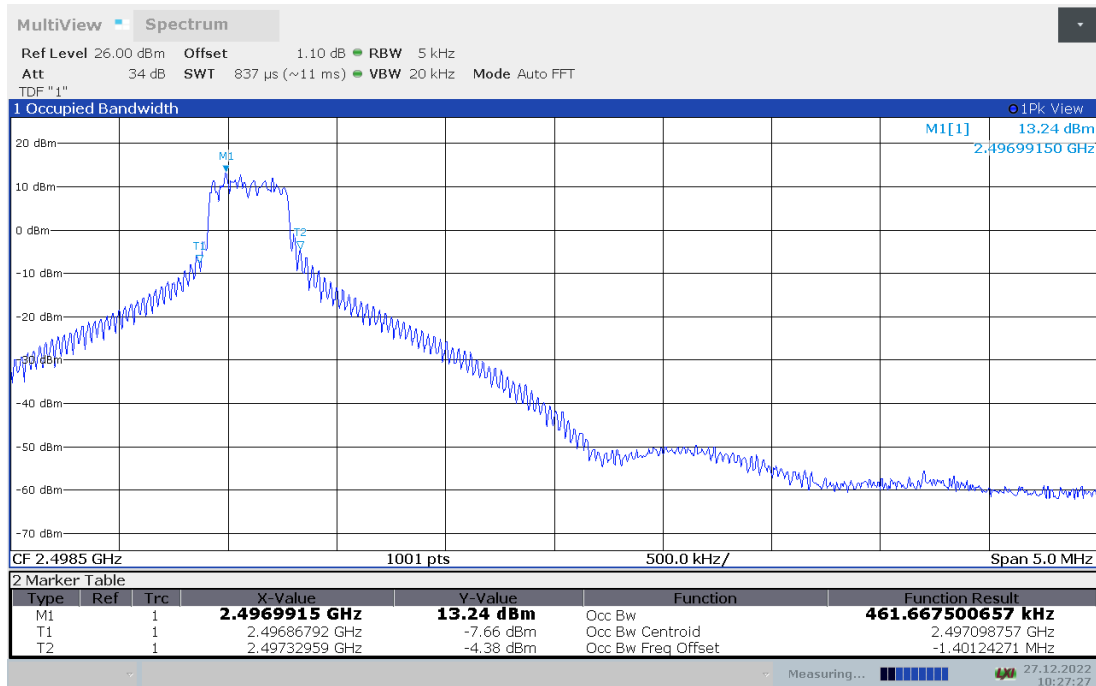
### HIGH BAND EDGE BLOCK-20M-100%RB



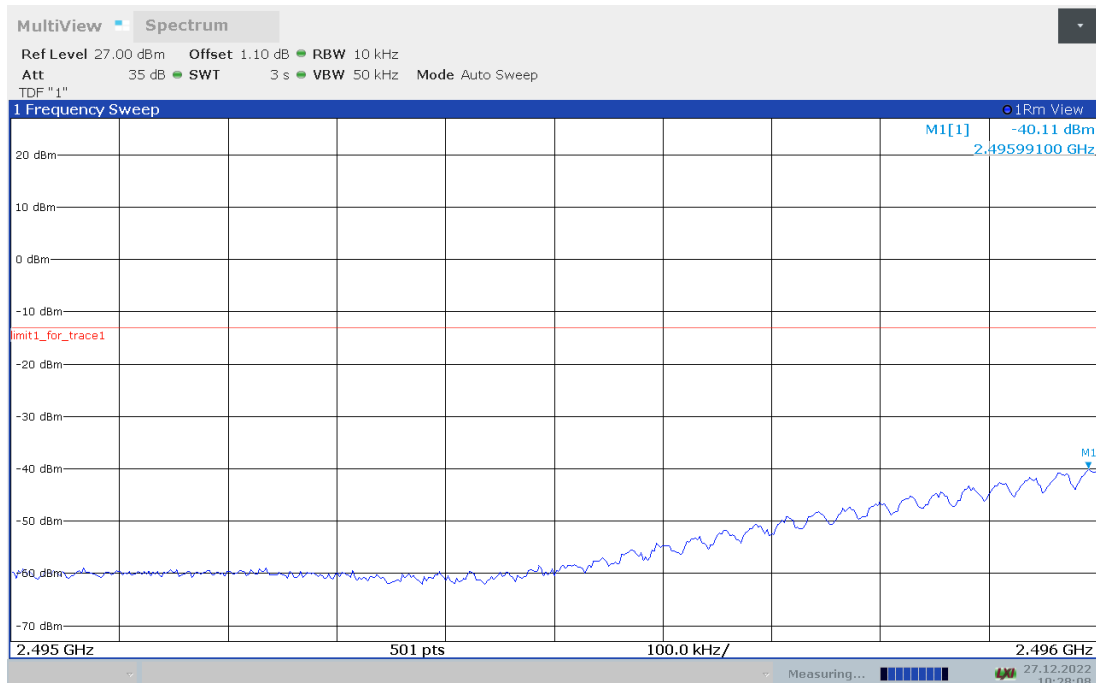


n41

OBW: 1RB-LOW\_offset

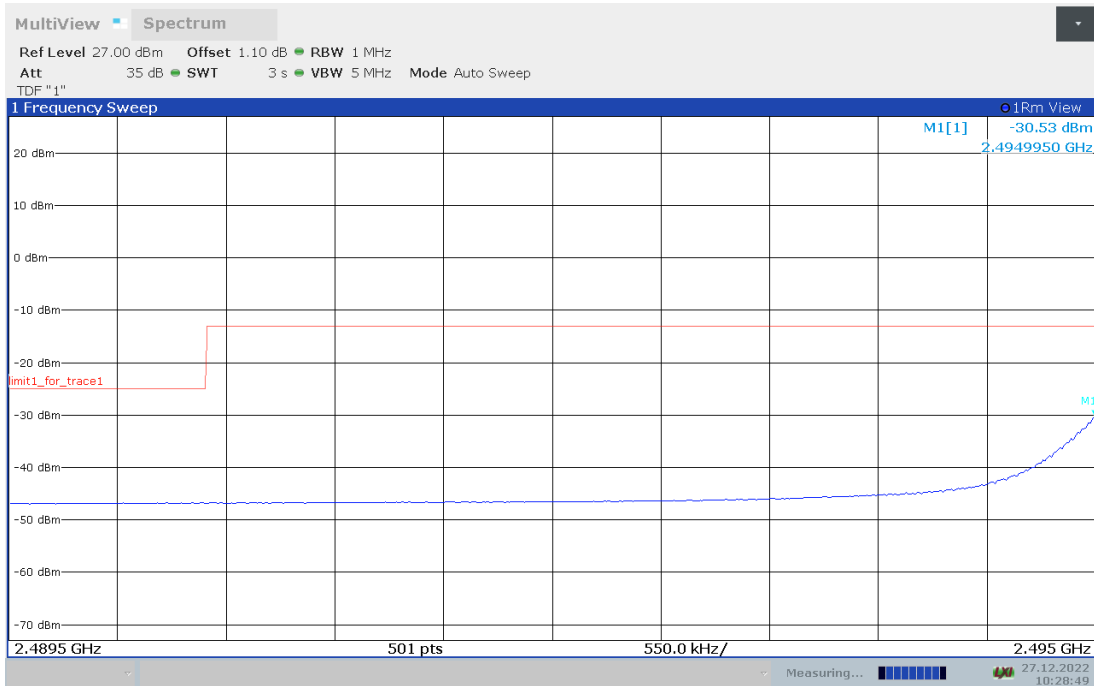


LOW BAND EDGE BLOCK-1RB-LOW\_offset

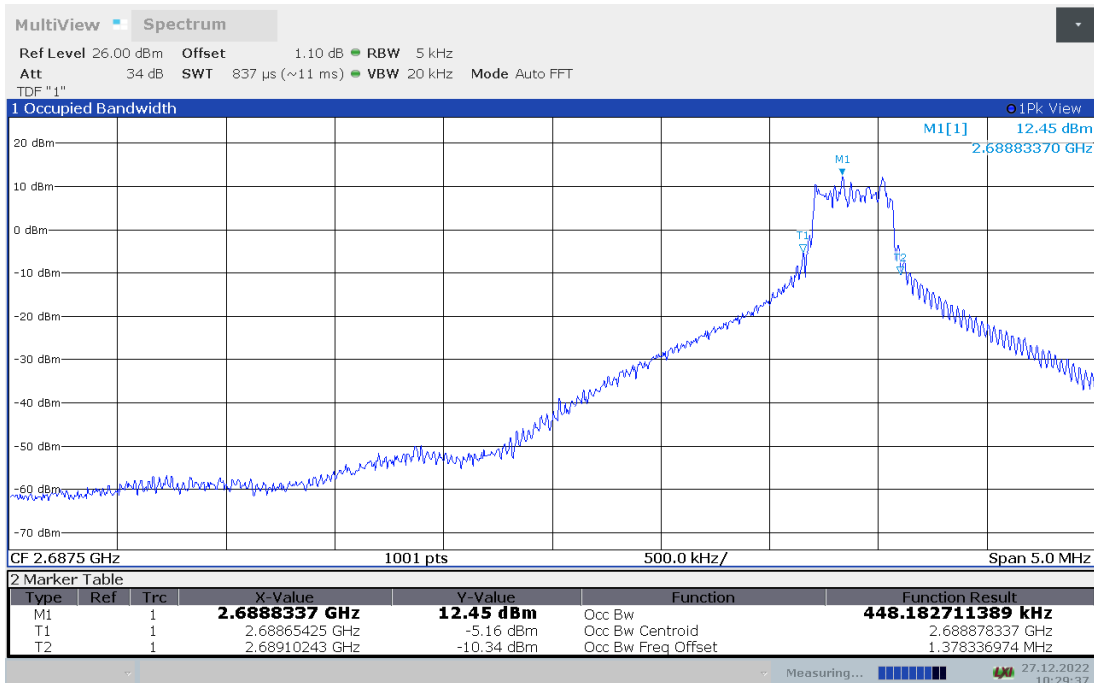




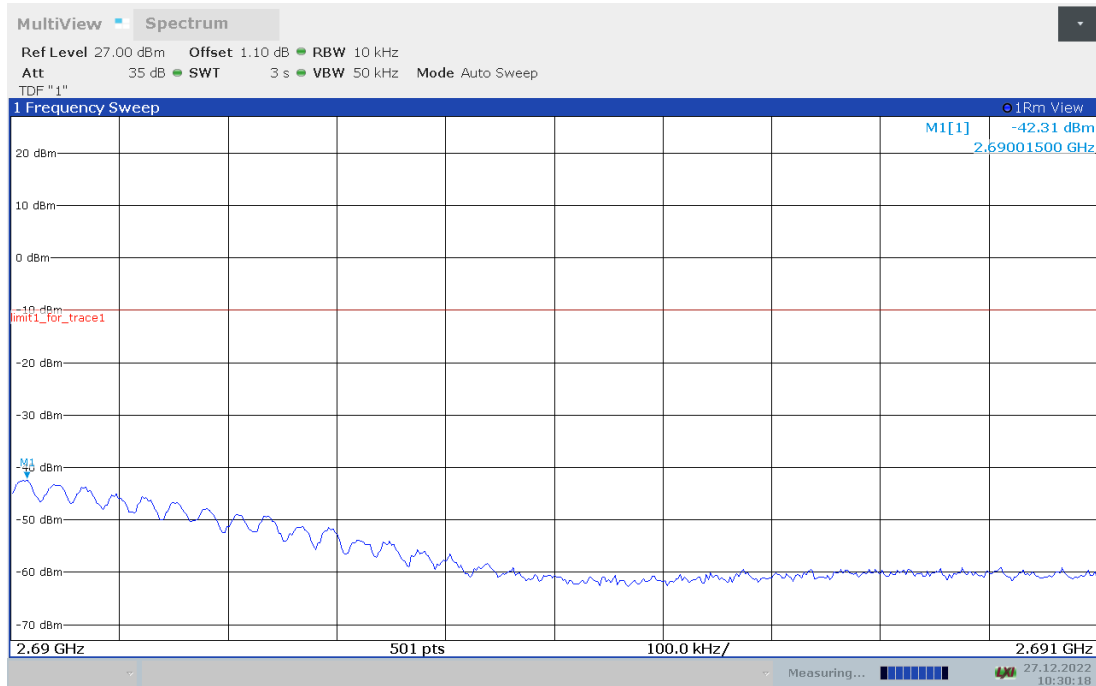
**LOW BAND EDGE BLOCK-1RB-LOW\_offset**



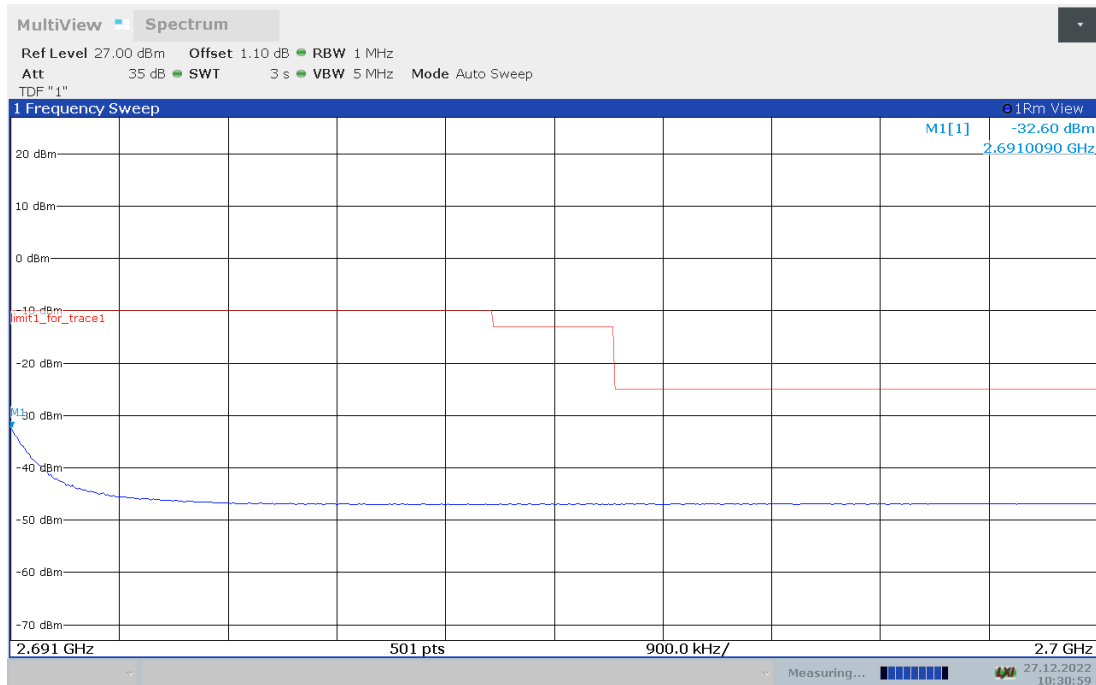
**OBW: 1RB-HIGH\_offset**



**HIGH BAND EDGE BLOCK-1RB-HIGH\_offset**

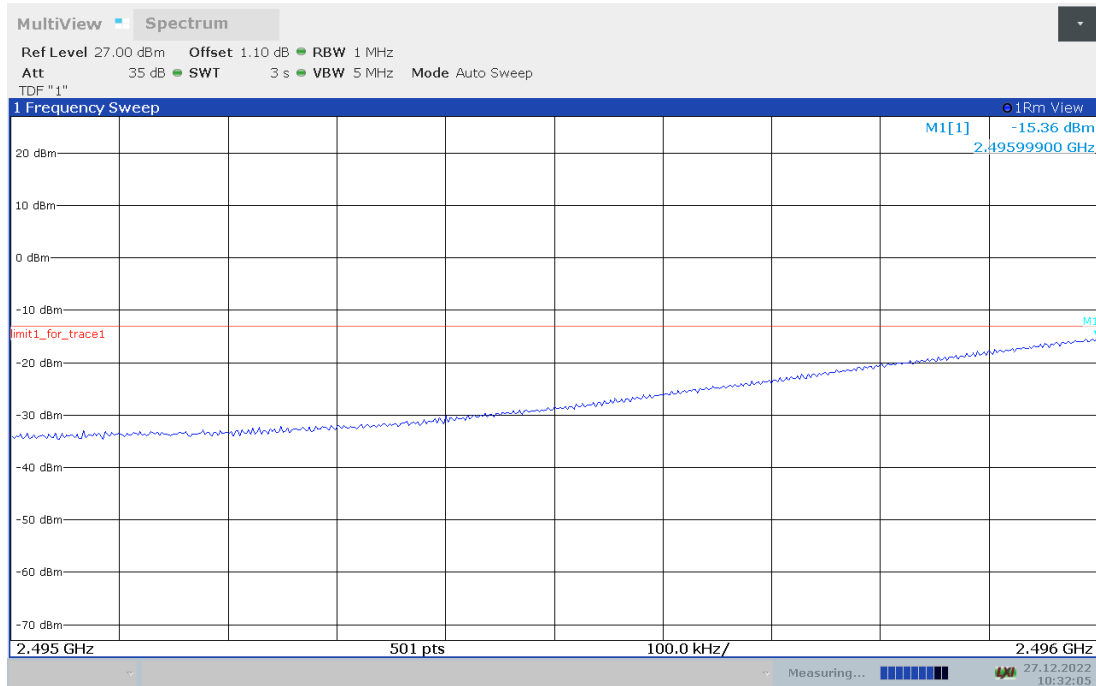


**HIGH BAND EDGE BLOCK-1RB-HIGH\_offset**

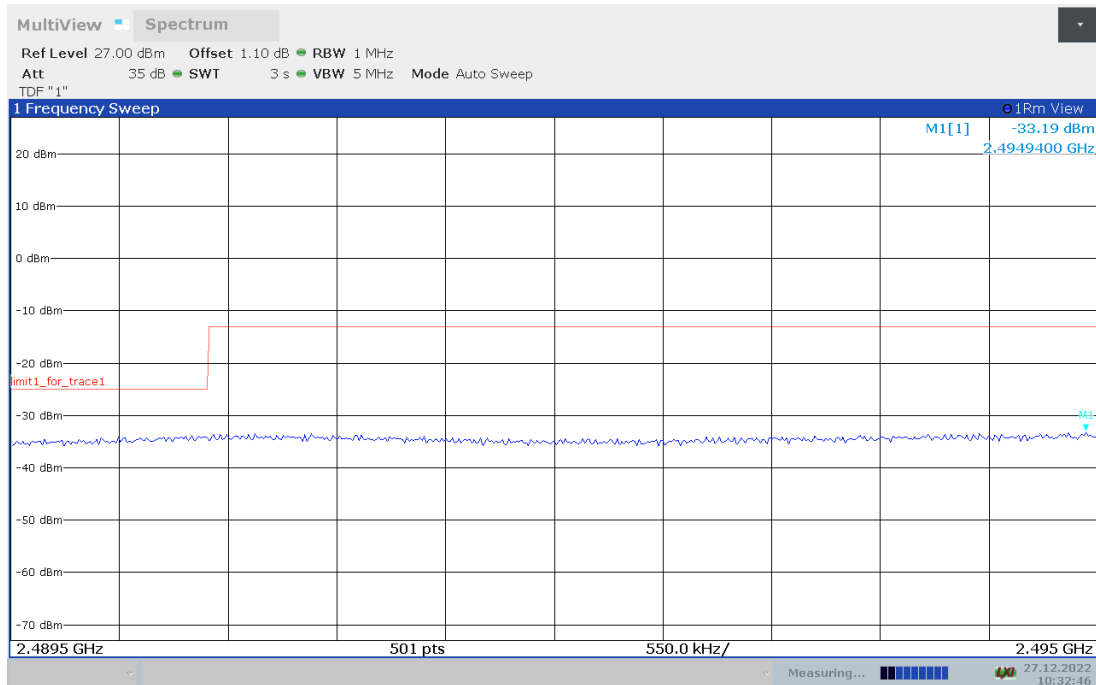




### LOW BAND EDGE BLOCK-100M-100%RB

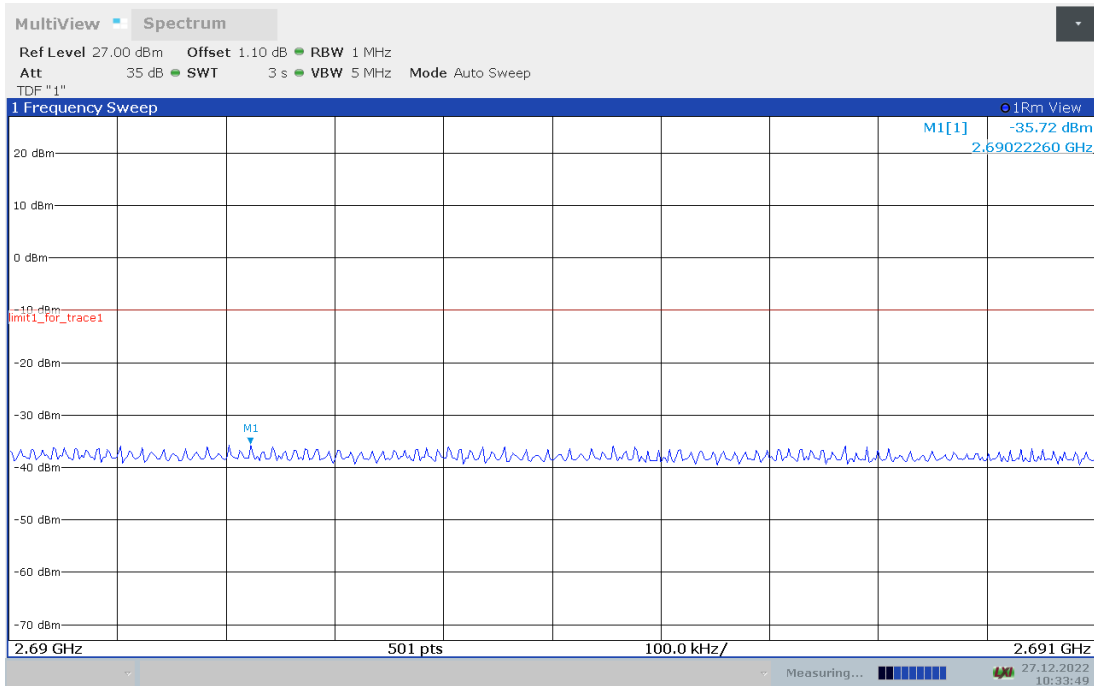


### LOW BAND EDGE BLOCK-100M-100%RB

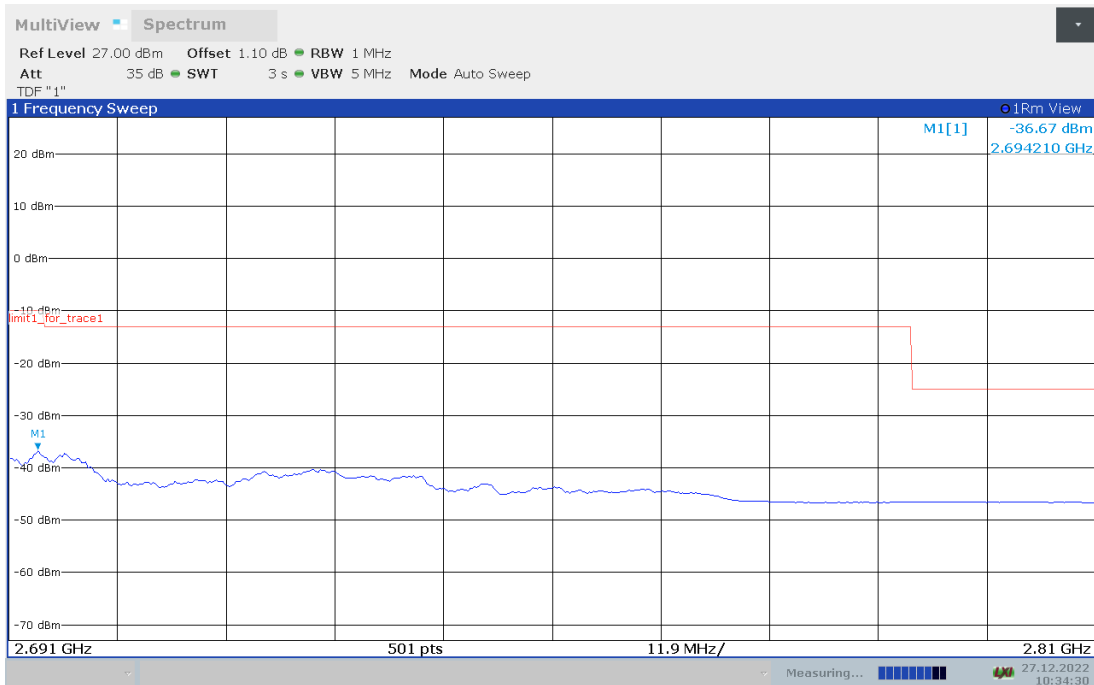




### HIGH BAND EDGE BLOCK-100M-100%RB



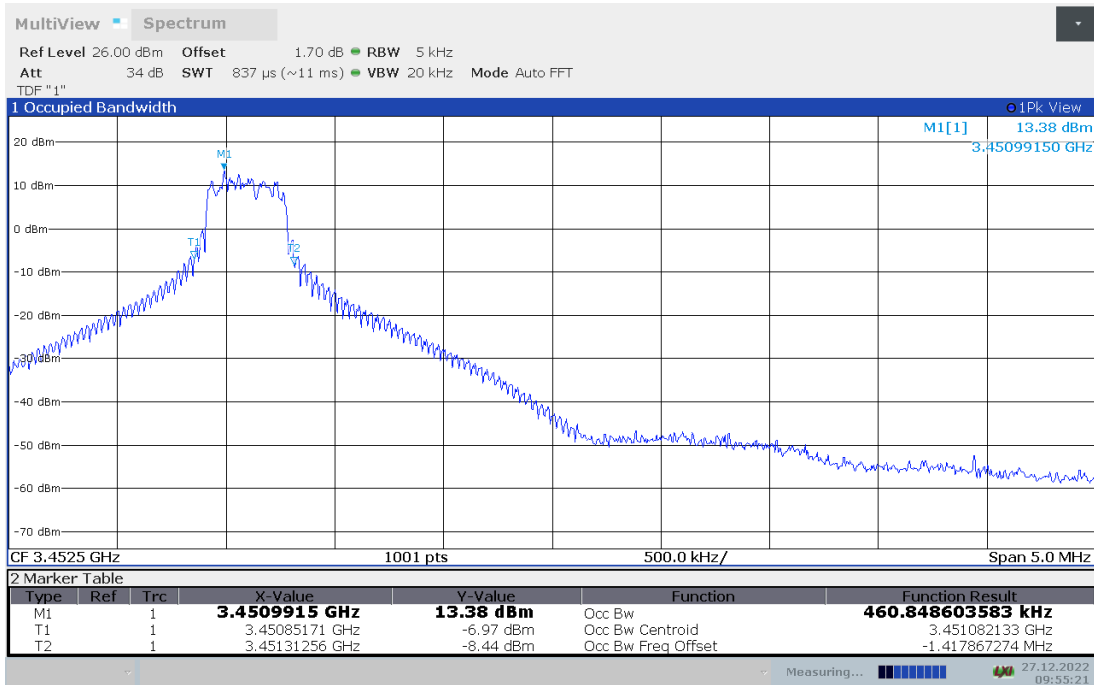
### HIGH BAND EDGE BLOCK-100M-100%RB



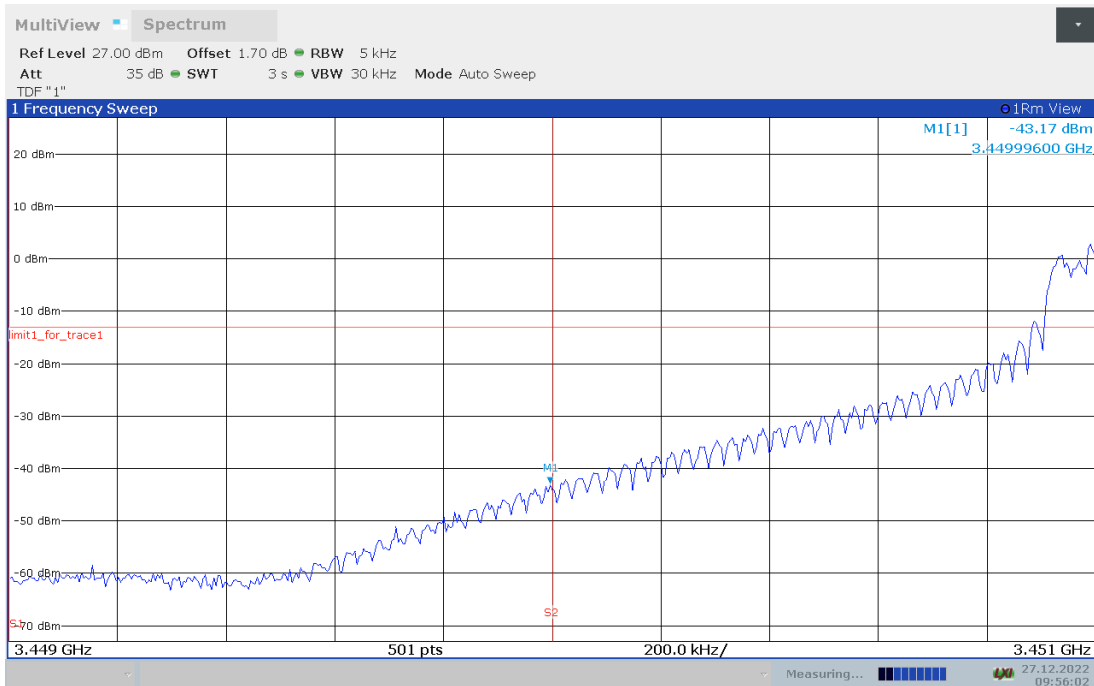


n78

OBW: 1RB-LOW\_offset

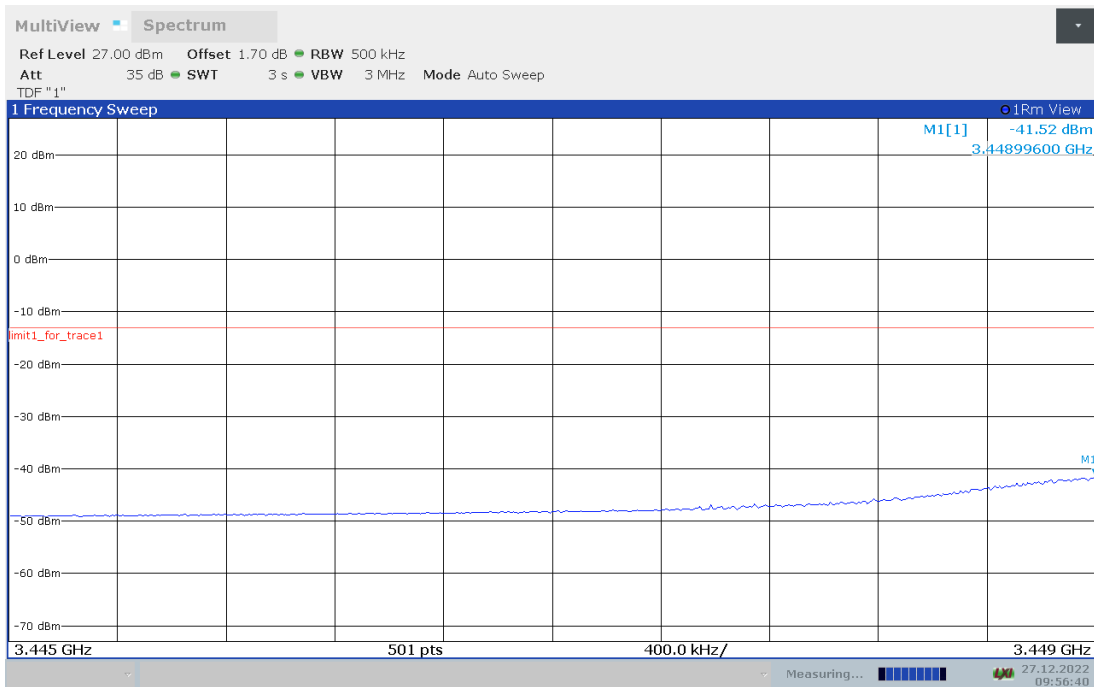


LOW BAND EDGE BLOCK-1RB-LOW\_offset

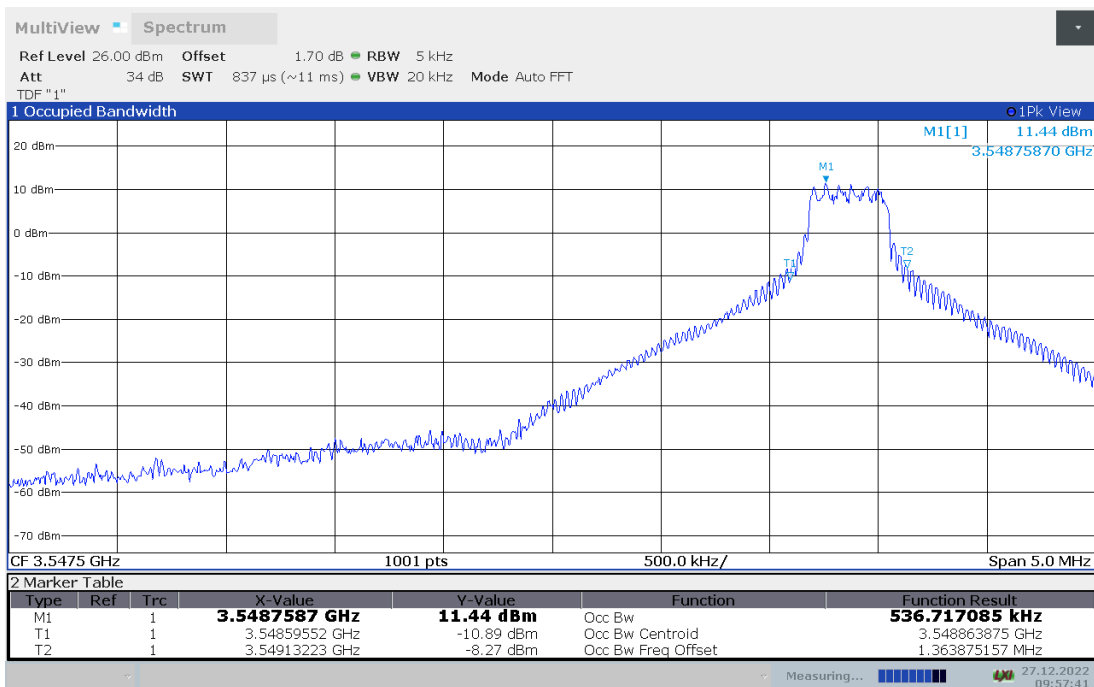


LOW BAND EDGE BLOCK-1RB-LOW\_offset



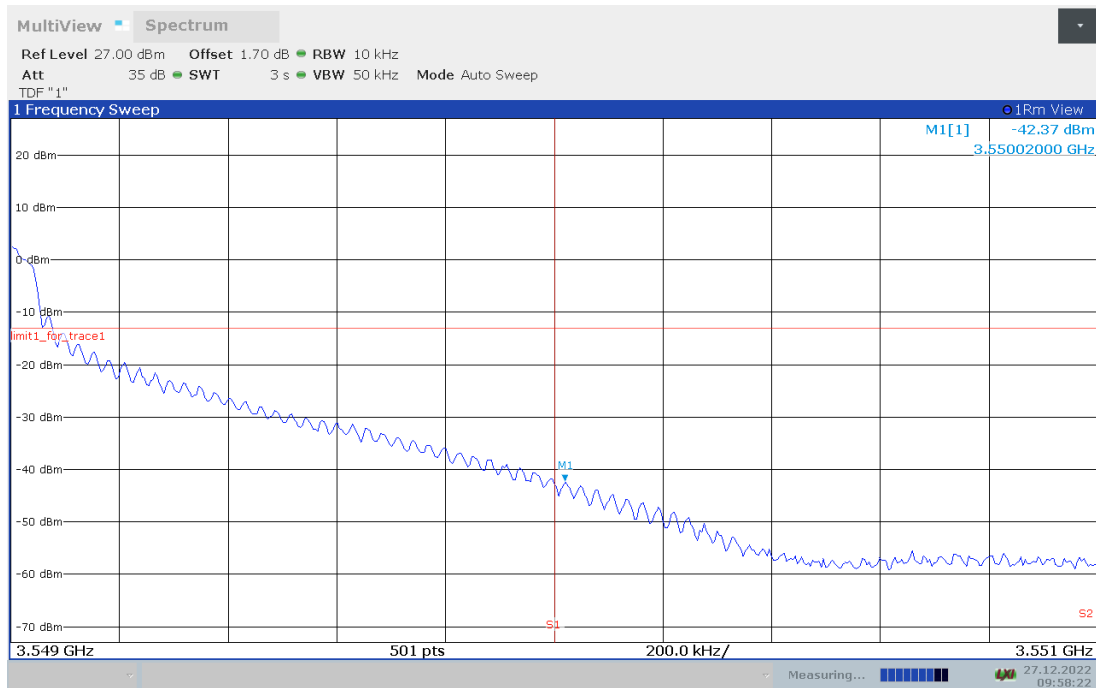


OBW: 1RB-HIGH\_offset

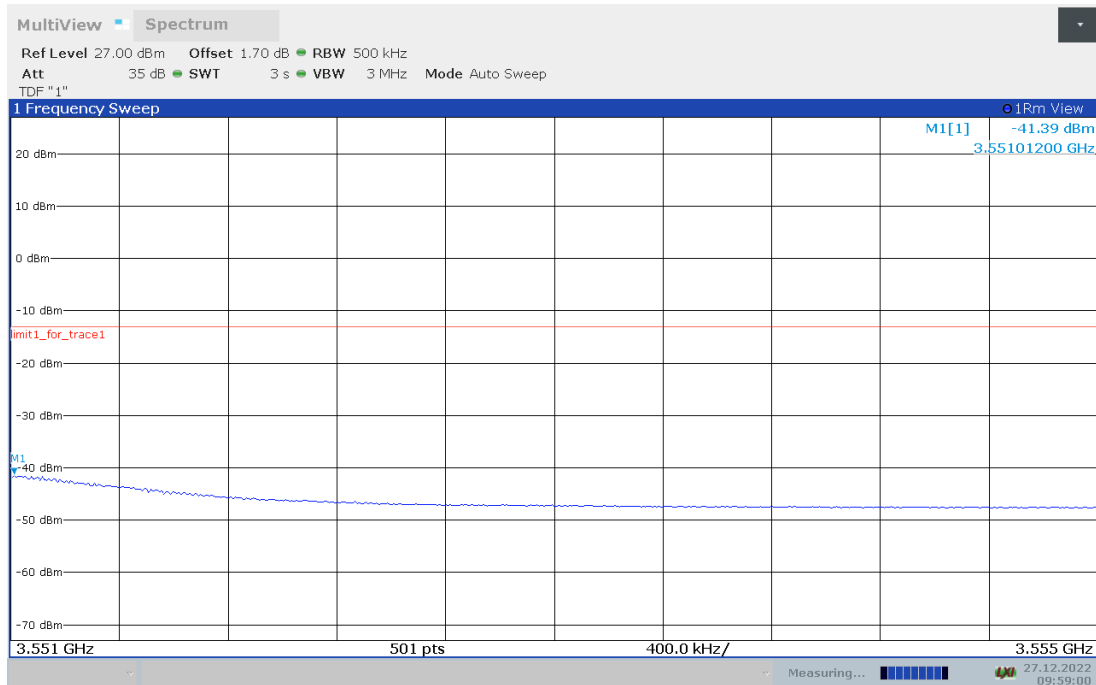




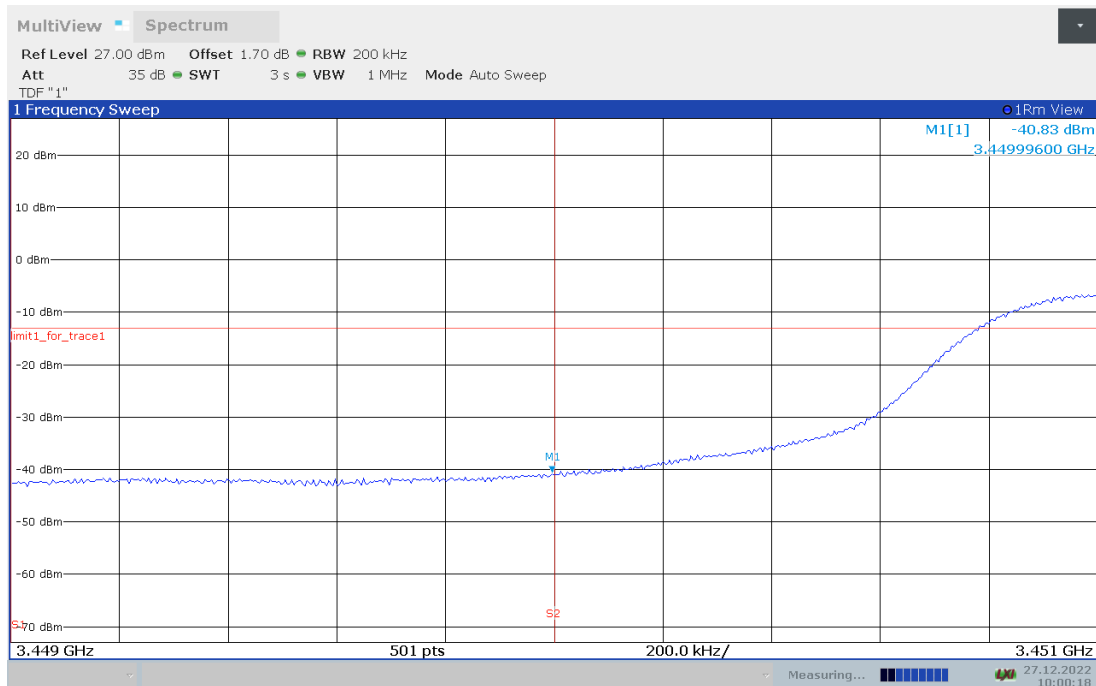
### HIGH BAND EDGE BLOCK-1RB-HIGH\_offset



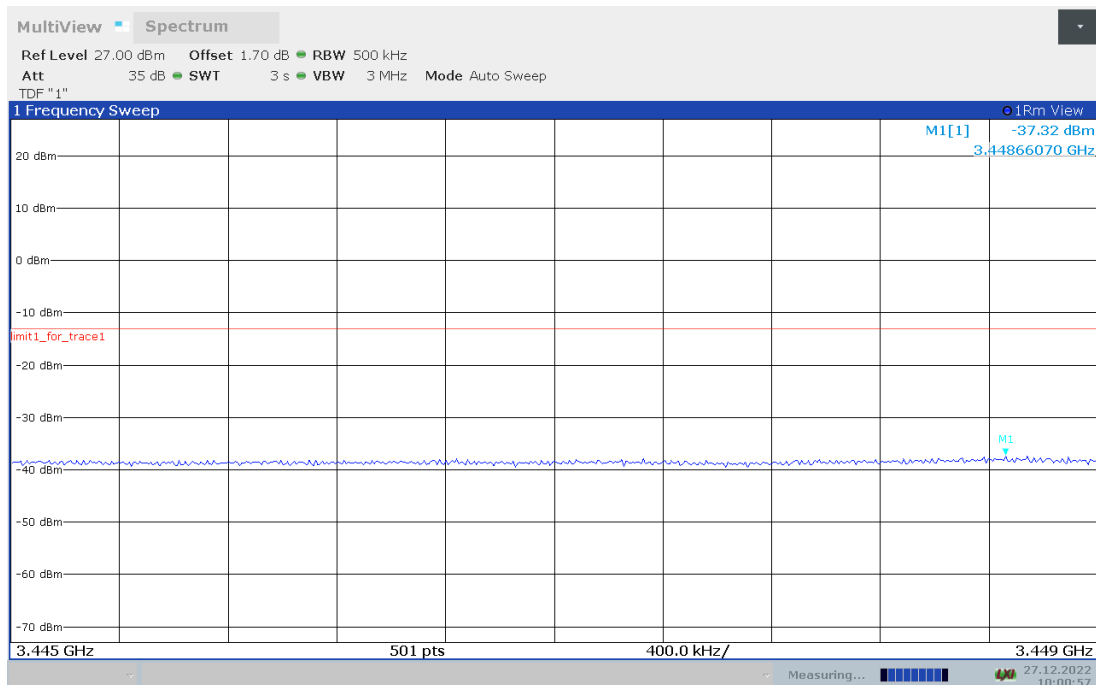
### HIGH BAND EDGE BLOCK-1RB-HIGH\_offset



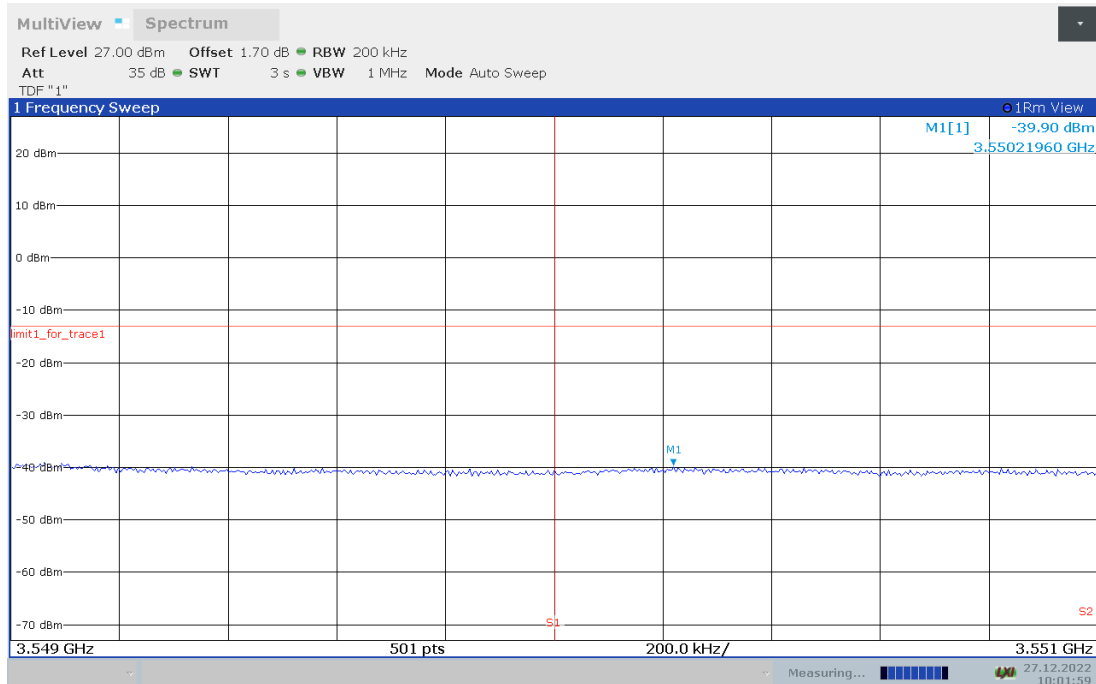
**LOW BAND EDGE BLOCK-100M-100%RB**



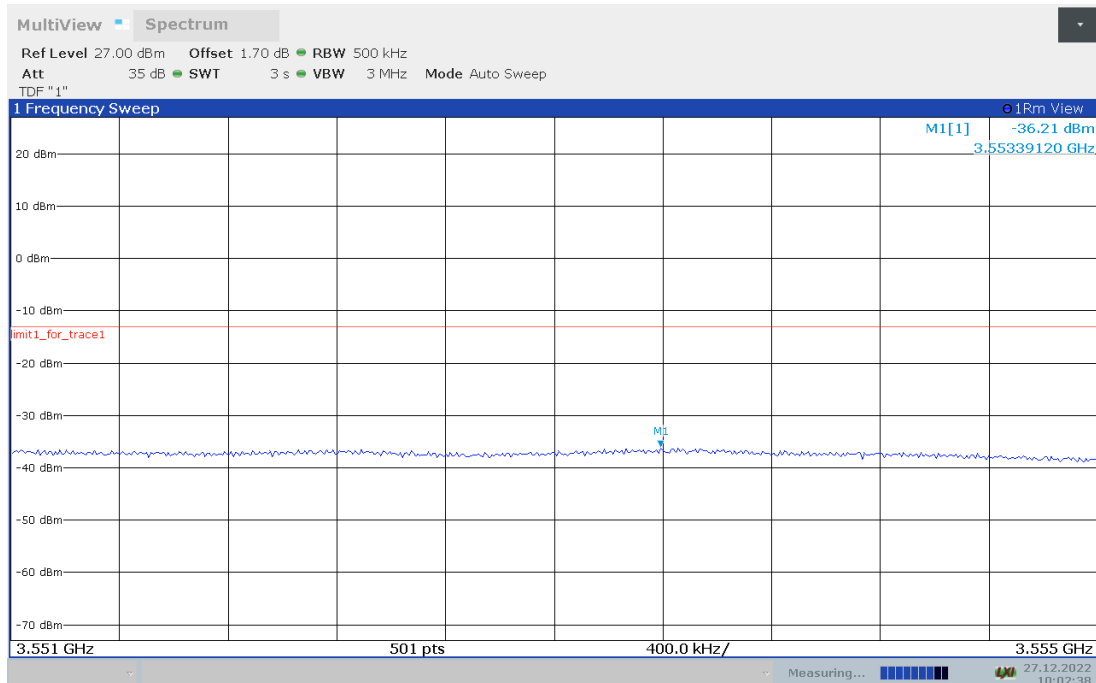
**LOW BAND EDGE BLOCK-100M-100%RB**



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



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



Note: Expanded measurement uncertainty is  $U = 0.49\text{dB}(100\text{kHz}-2\text{GHz})/1.21\text{dB}(2\text{GHz}-26.5\text{GHz})$ ,  $k = 1.96$



## **A.6 CONDUCTED SPURIOUS EMISSION**

### **Reference**

FCC: CFR Part 2.1051, 27.53.

### **A.5.1 Measurement Method**

The following steps outline the procedure used to measure the conducted emissions from the EUT.

1. Determine frequency range for measurements: From CFR 2.1051 the spectrum should be investigated from the lowest radio frequency generated in the equipment up to at least the 10th harmonic of the carrier frequency. For the mobile station equipment tested, this equates to a frequency range of 13 MHz to 9 GHz, data taken from 10 MHz to 25 GHz.
2. Determine EUT transmit frequencies: below outlines the band edge frequencies pertinent to conducted emissions testing.
3. The number of sweep points of spectrum analyzer is set to 30001 which is greater than span/RBW.

### **A. 6.2 Measurement Limit**

Part 27.53(m)(4) specifies for mobile digital stations, the attenuation factor shall be not less than  $40 + 10 \log (P)$  dB on all frequencies between the channel edge and 5 megahertz from the channel edge,  $43 + 10 \log (P)$  dB on all frequencies between 5 megahertz and X megahertz from the channel edge, and  $55 + 10 \log (P)$  dB on all frequencies more than X megahertz from the channel edge, where X is the greater of 6 megahertz or the actual emission bandwidth as defined in paragraph (m)(6) of this section. In addition, the attenuation factor shall not be less than  $43 + 10 \log (P)$  dB on all frequencies between 2490.5 MHz and 2496 MHz and  $55 + 10 \log (P)$  dB at or below 2490.5 MHz. Mobile Satellite Service licensees operating on frequencies below 2495 MHz may also submit a documented interference complaint against BRS licensees operating on channel BRS Channel 1 on the same terms and conditions as adjacent channel BRS or EBS licensees.

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.

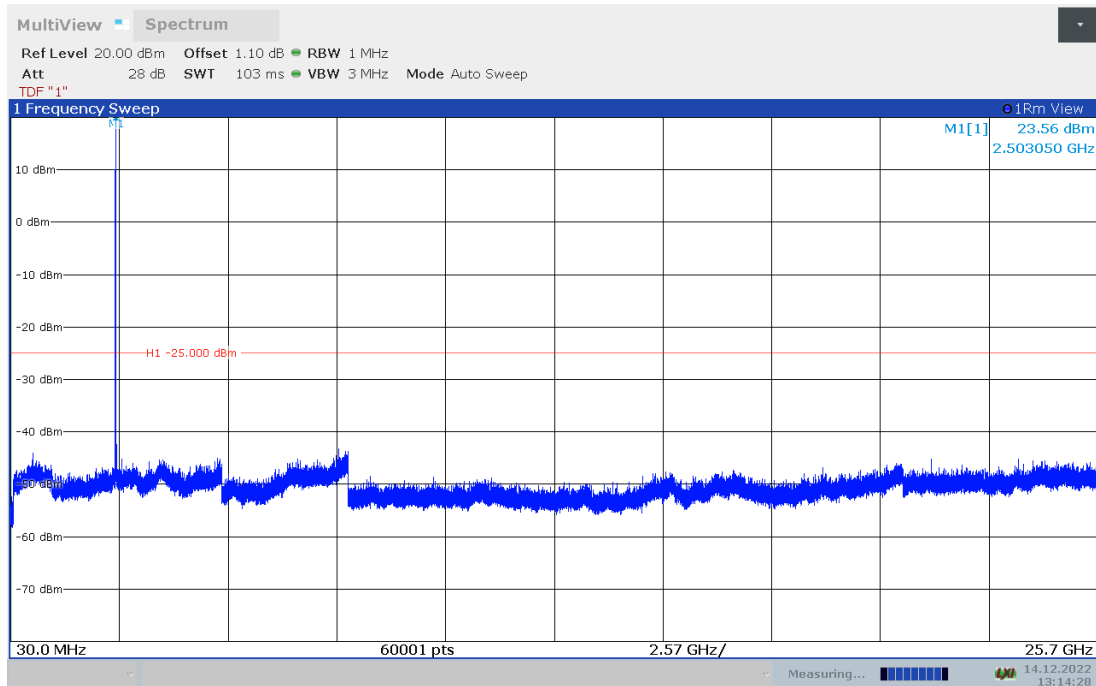
**A. 6.3 Measurement result**

Only worst case result is given below

**n7: 30MHz –25.7GHz**

Spurious emission limit –25dBm.

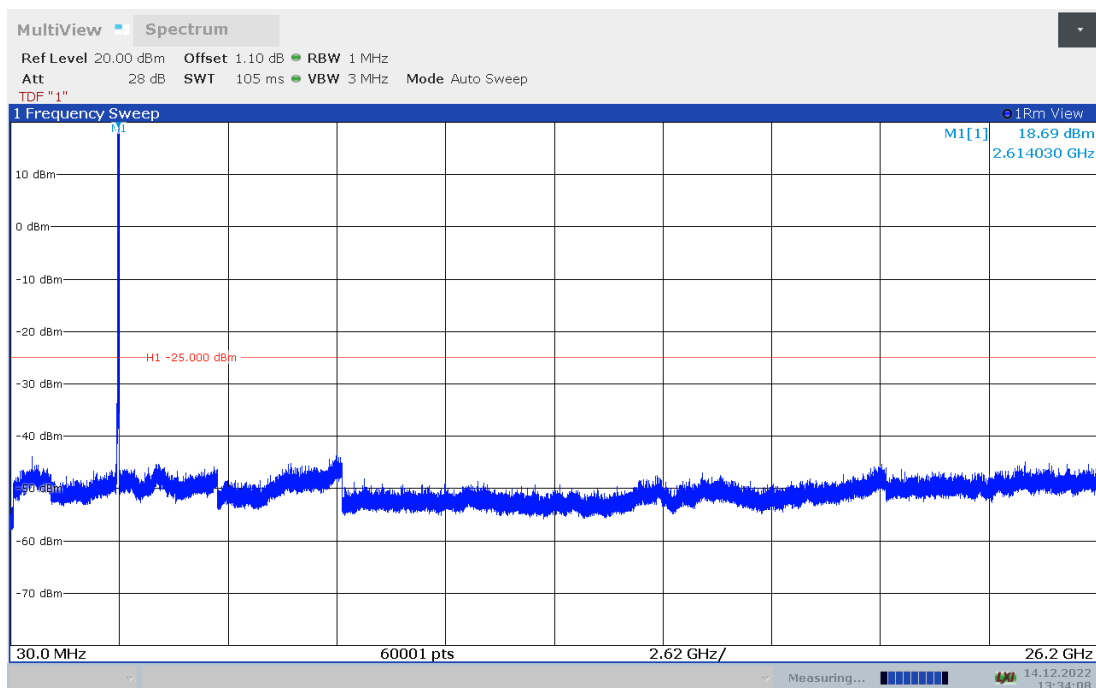
**NOTE: peak above the limit line is the carrier frequency.**



**n38: 30MHz –26.2GHz**

Spurious emission limit –25dBm.

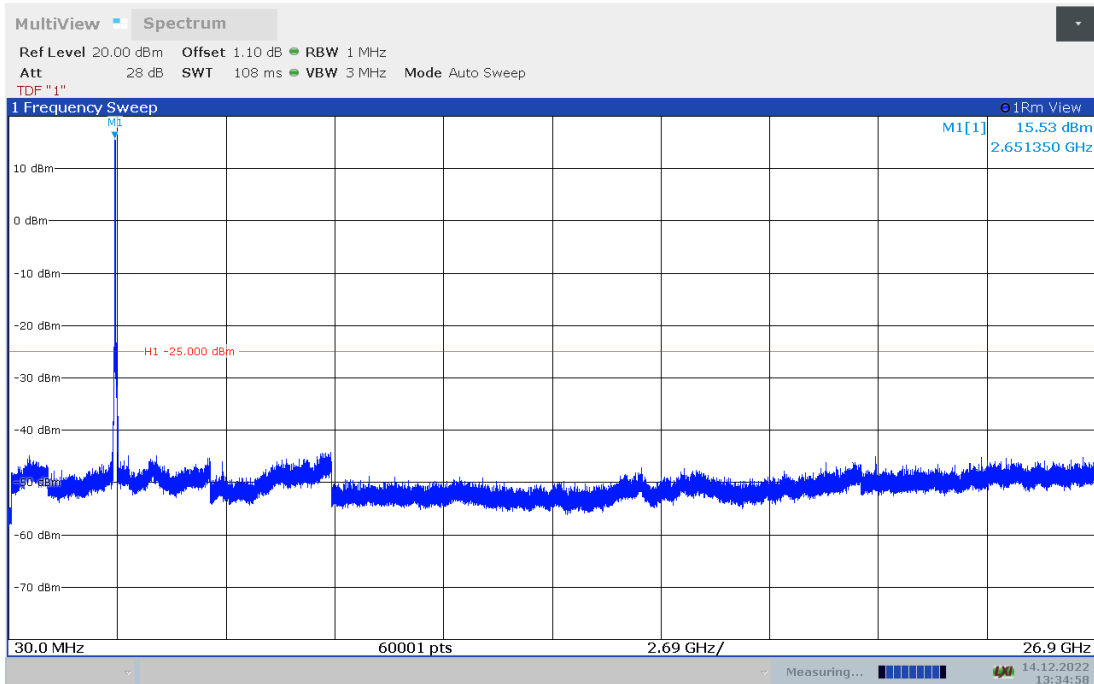
**NOTE: peak above the limit line is the carrier frequency.**



**n41: 30MHz –26.9GHz**

Spurious emission limit –25dBm.

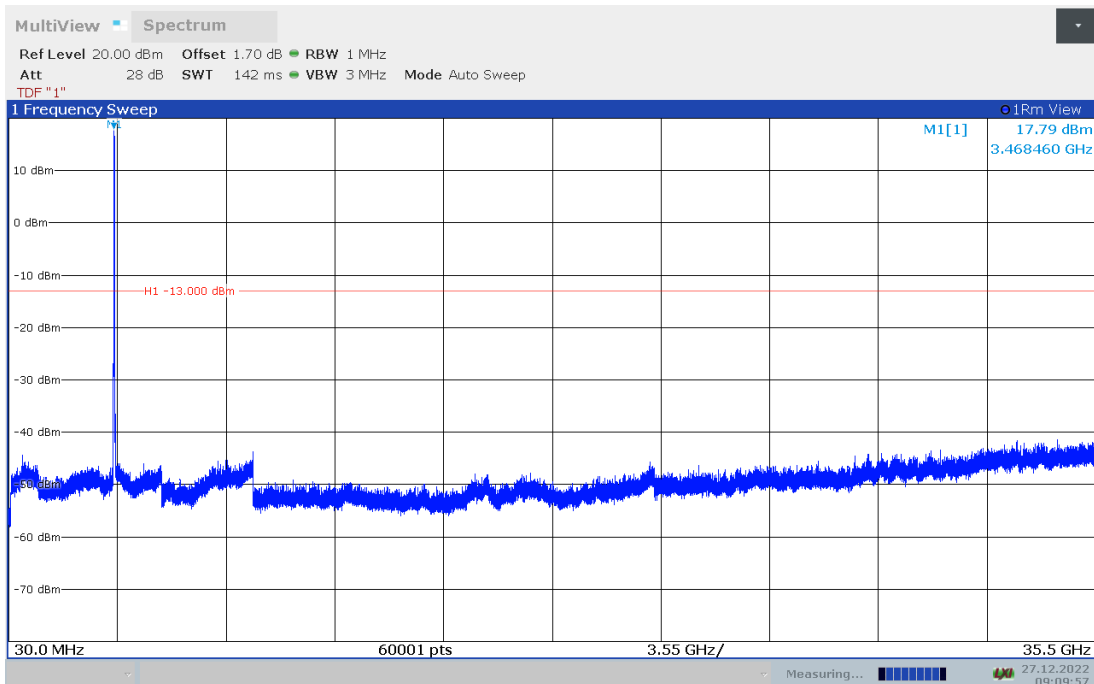
**NOTE: peak above the limit line is the carrier frequency.**



**n78: 30MHz –35.5GHz**

Spurious emission limit –13dBm.

**NOTE: peak above the limit line is the carrier frequency.**



Note: Expanded measurement uncertainty is  $U = 0.49\text{dB}(100\text{kHz}-2\text{GHz})/1.21\text{dB}(2\text{GHz}-26.5\text{GHz})$ ,  $k = 1.96$



**A.7 PEAK-TO-AVERAGE POWER RATIO**

**Reference**

FCC: CFR Part 27.50, KDB971168 D01(5.7).

The peak-to-average power ratio (PAPR) of the transmitter output power must not exceed 13 dB. The PAPR measurements should be made using either an instrument with complementary cumulative distribution function (CCDF) capabilities to determine that PAPR will not exceed 13 dB for more than 0.1 percent of the time or other Commission approved procedure. The measurement must be performed using a signal corresponding to the highest PAPR expected during periods of continuous transmission.

- a) Refer to instrument's analyzer instruction manual for details on how to use the power statistics/CCDF function;
- b) Set resolution/measurement bandwidth  $\geq$  signal's occupied bandwidth;
- c) Set the number of counts to a value that stabilizes the measured CCDF curve;
- d) Set the measurement interval to 1 ms
- e) Record the maximum PAPR level associated with a probability of 0.1%

**A.6.1 Measurement limit**

not exceed 13 dB

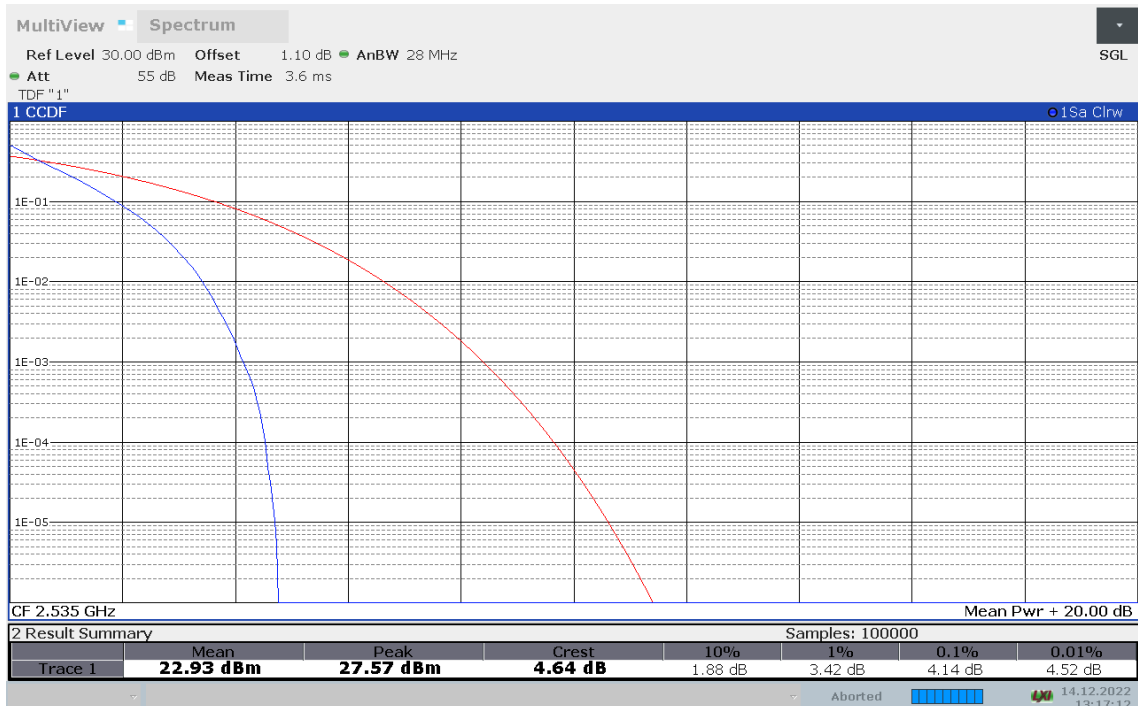
**A.6.2 Measurement results**

Only worst case result is given below

n7

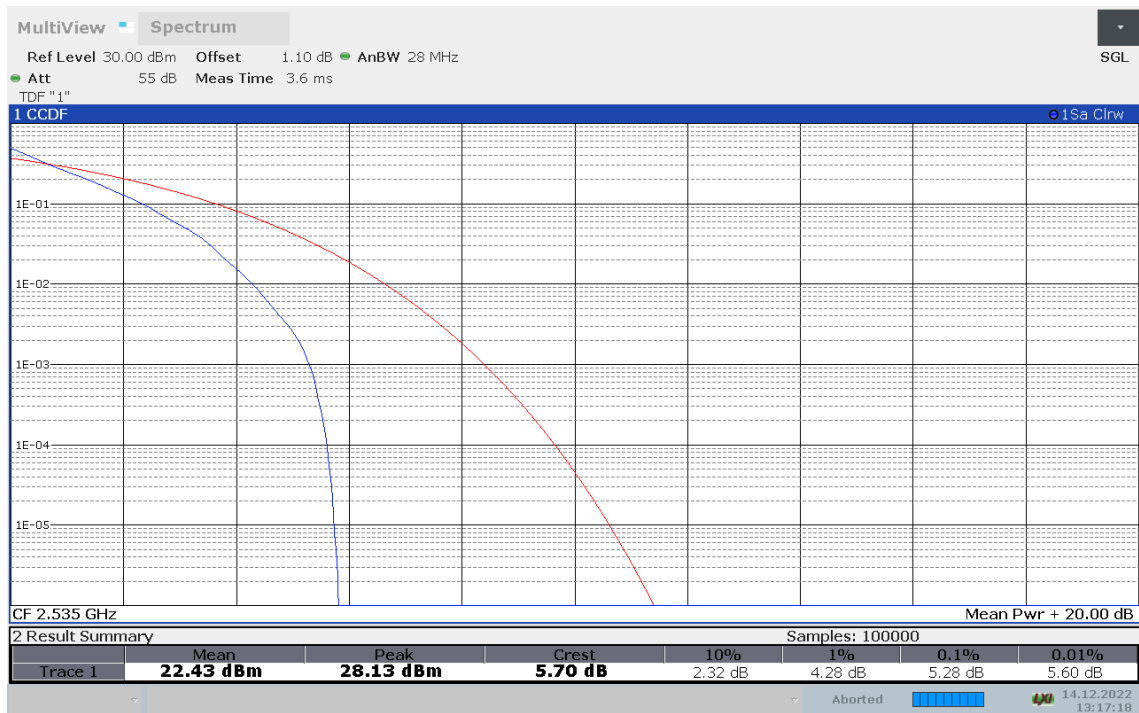
Frequency (MHz)	BW(MHz)	OFDM	PAPR(dB)				
			pi/2 BPSK	QPSK	16QAM	64QAM	256QAM
2535.0	20	DFT	4.14	5.28	6.12	6.04	6.44
		CP	N/A	6.96	6.86	7.34	8.12

**n7, DFT-s-pi/2 BPSK (PAPR)**





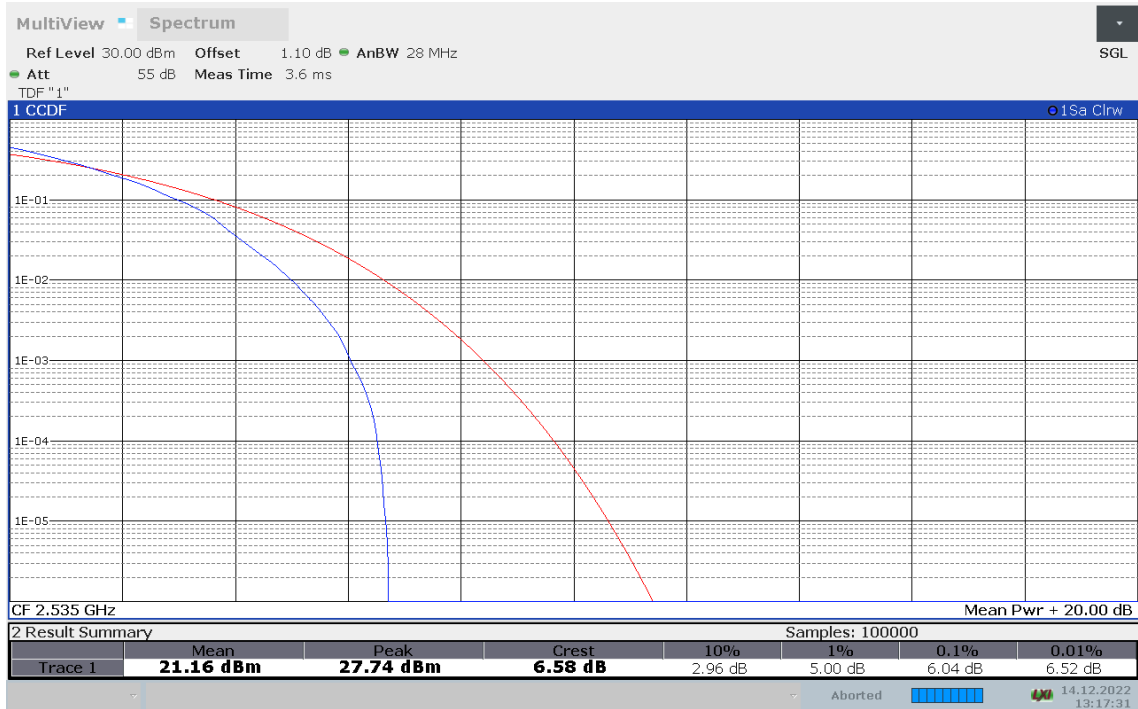
n7, DFT-s-QPSK (PAPR)



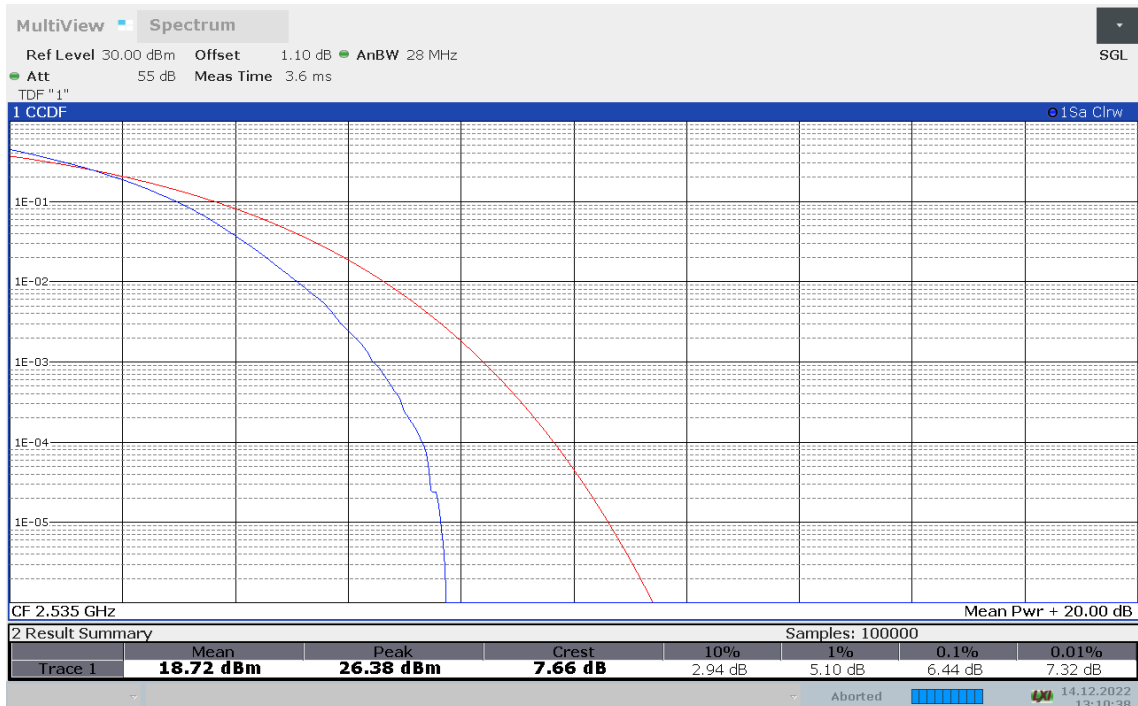
n7, DFT-s-16QAM (PAPR)



n7, DFT-s-64QAM (PAPR)

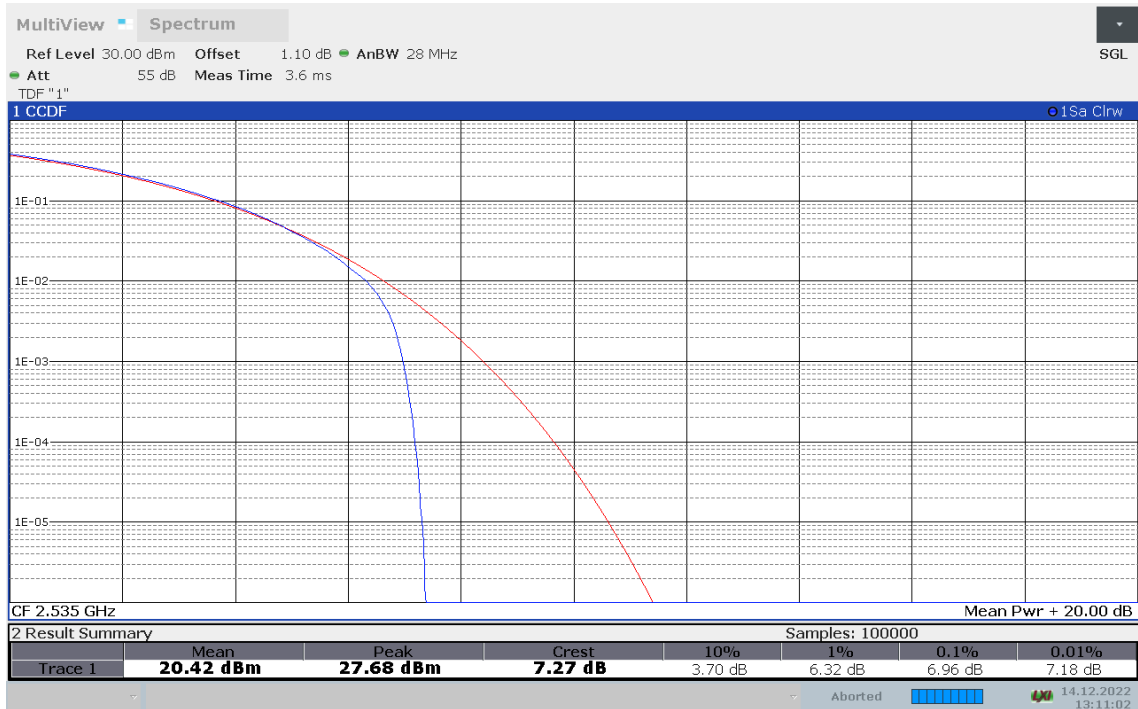


n7, DFT-s-256QAM (PAPR)





### n7, CP-QPSK (PAPR)

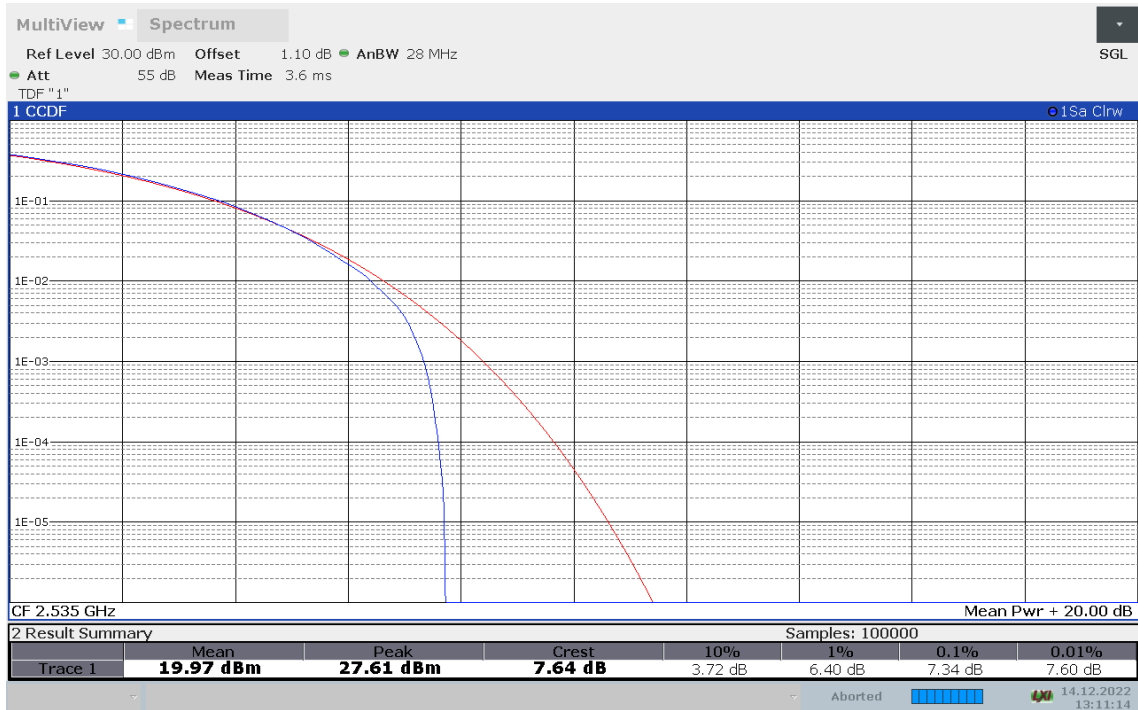


### n7, CP-16QAM (PAPR)

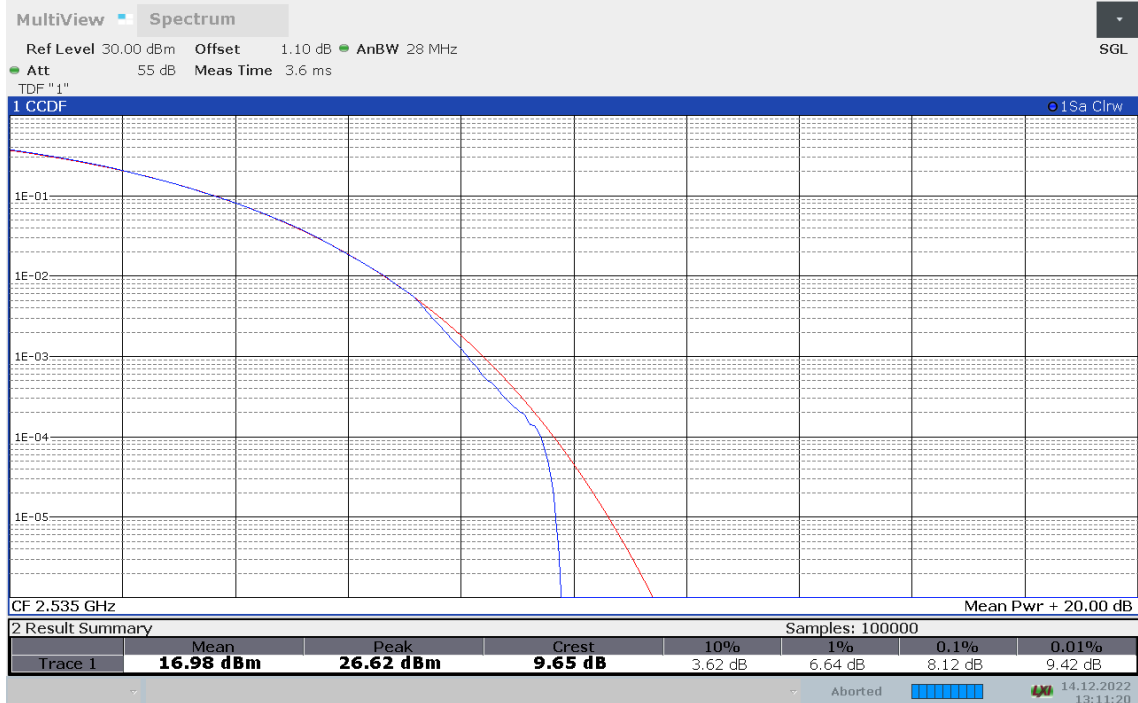




n7, CP-64QAM (PAPR)



n7, CP-256QAM (PAPR)

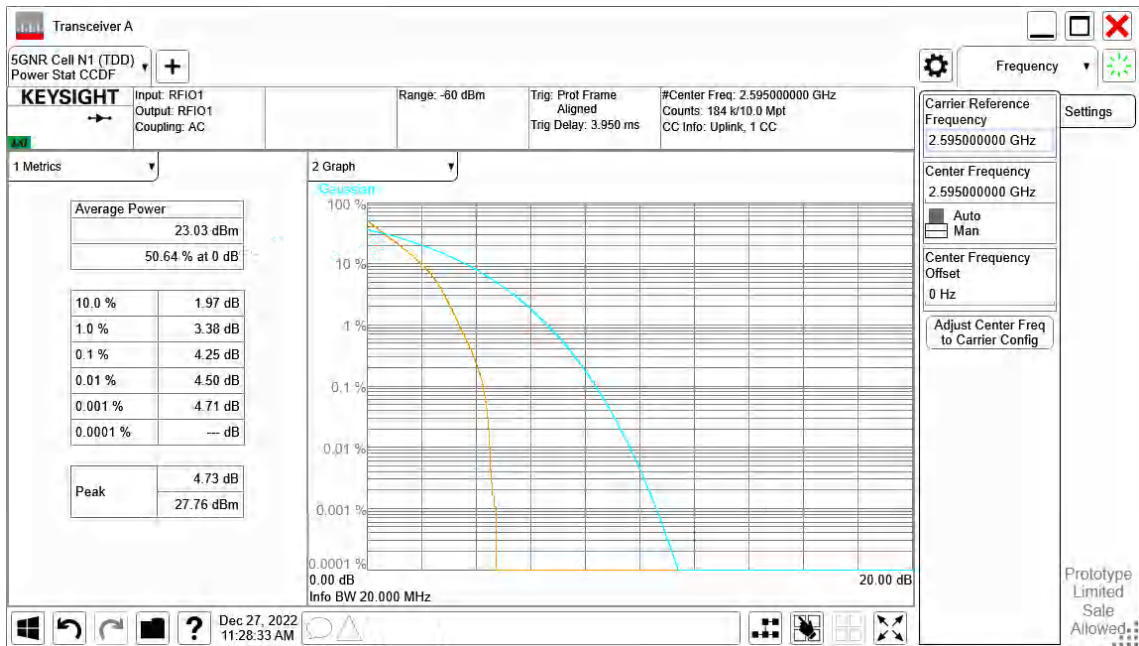




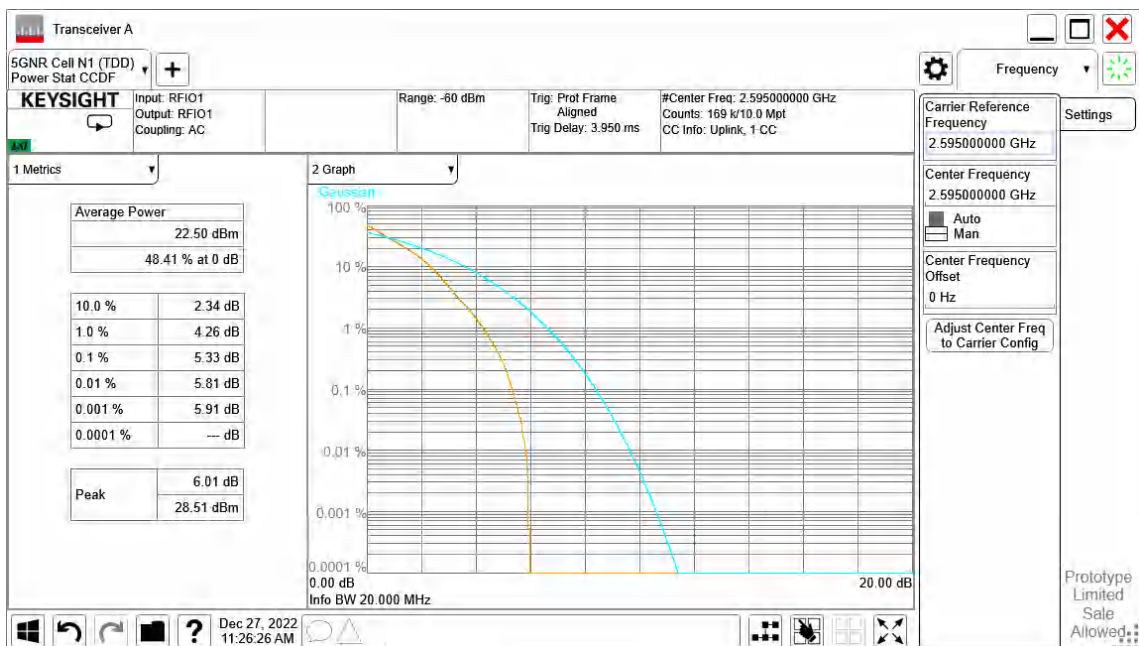
n38

Frequency (MHz)	BW(MHz)	OFDM	PAPR(dB)				
			pi/2 BPSK	QPSK	16QAM	64QAM	256QAM
2595.0	20	DFT	4.25	5.33	6.03	6.24	6.13
		CP	N/A	6.73	6.81	7.26	7.62

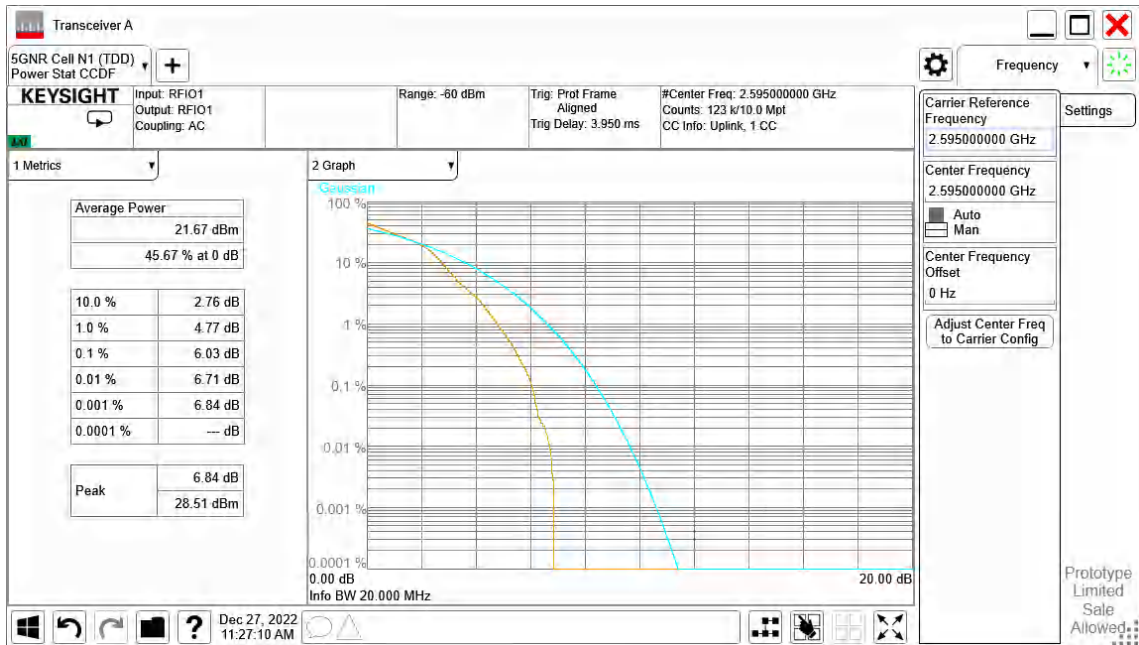
**n38, DFT-s-pi/2 BPSK (PAPR)**



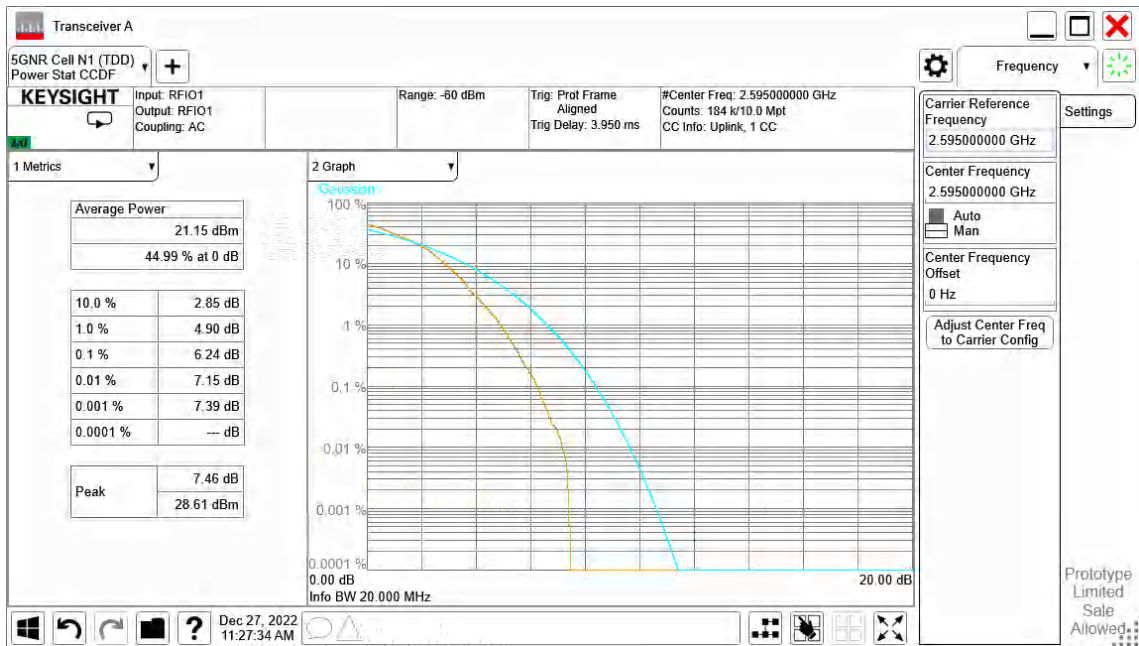
**n38, DFT-s-QPSK (PAPR)**



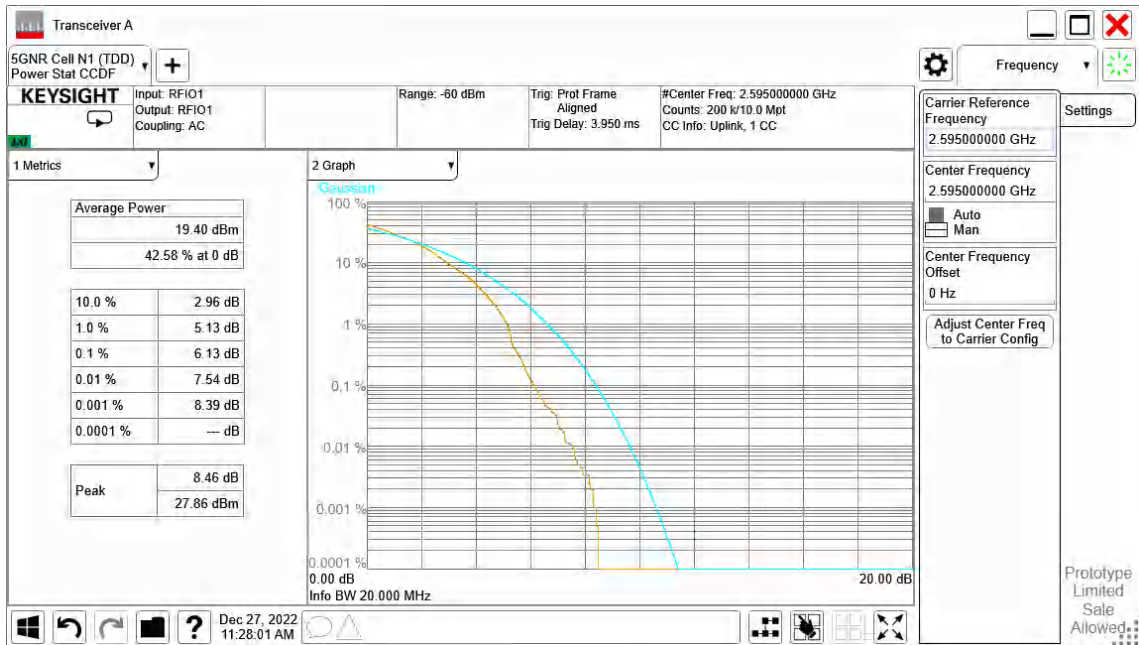
n38, DFT-s-16QAM (PAPR)



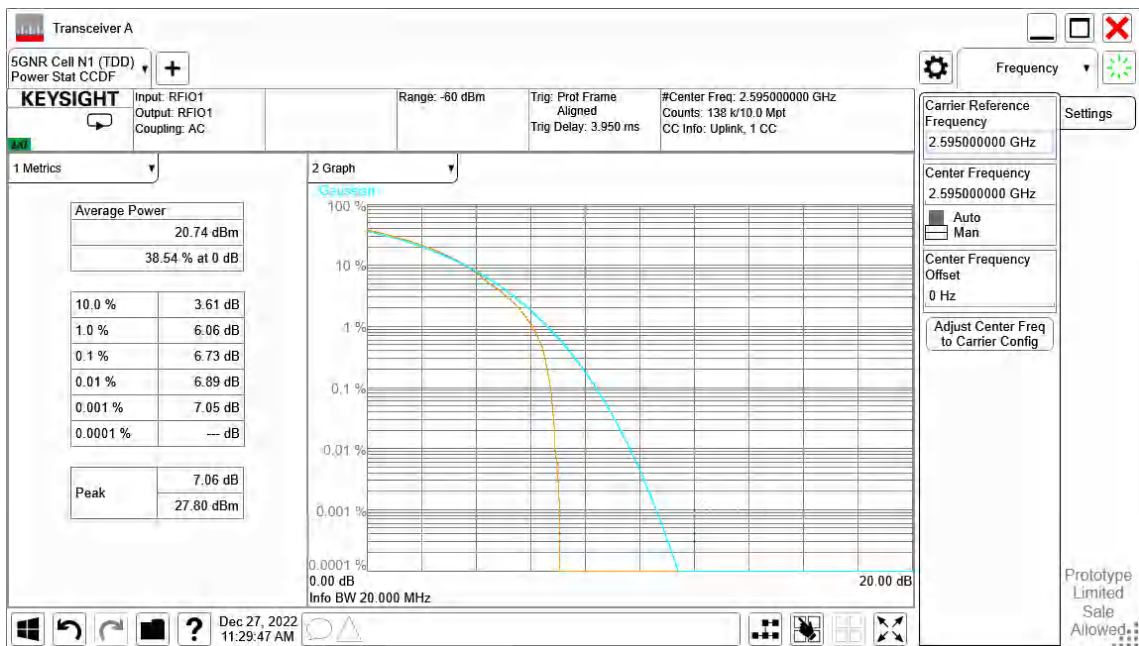
n38, DFT-s-64QAM (PAPR)



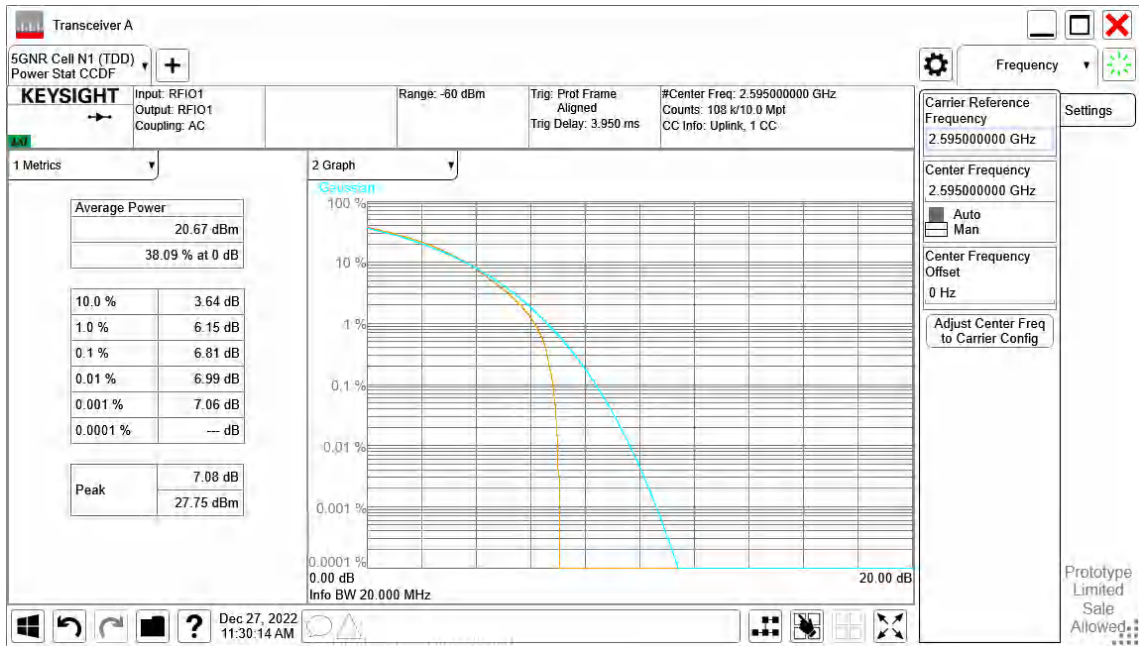
n38, DFT-s-256QAM (PAPR)



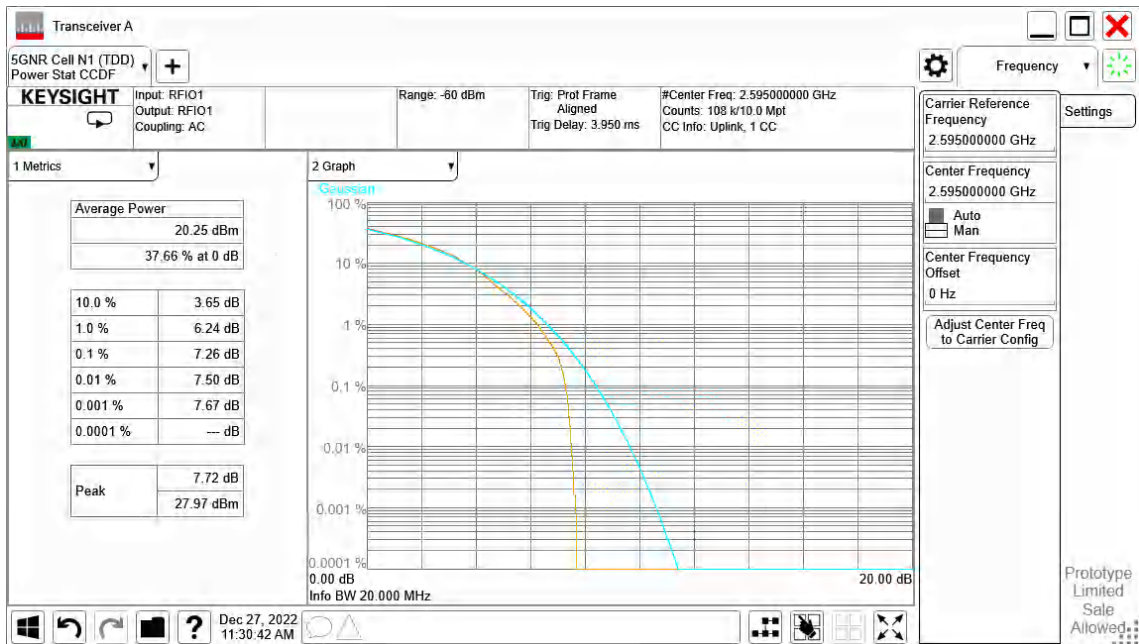
n38, CP-QPSK (PAPR)



n38, CP-16QAM (PAPR)



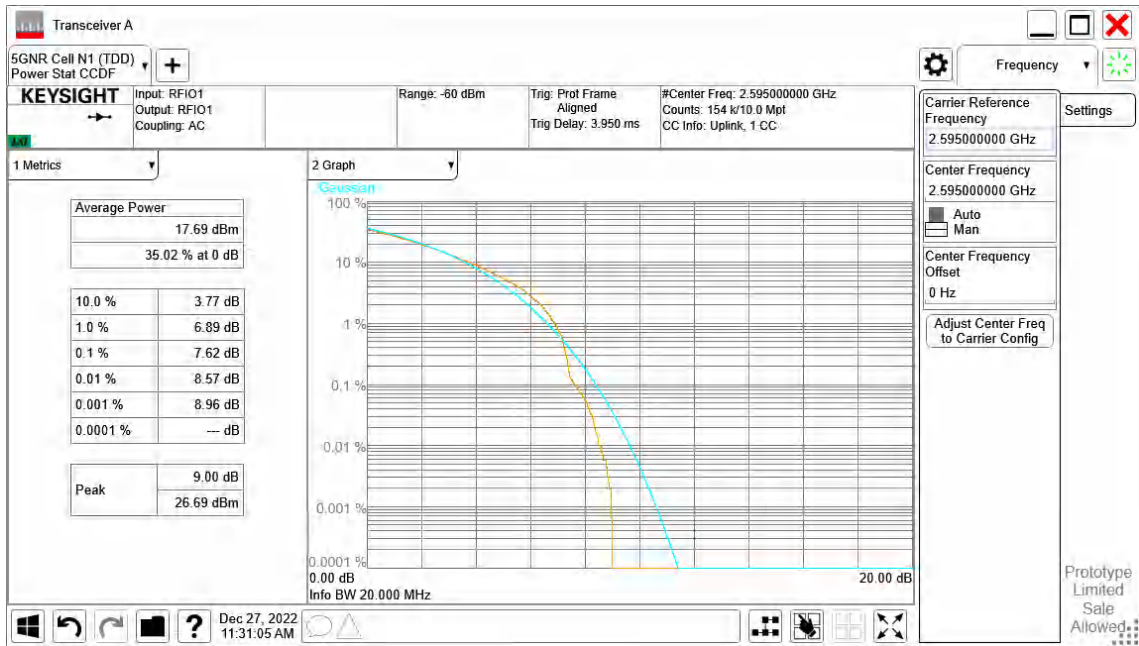
n38, CP-64QAM (PAPR)







n38, CP-256QAM (PAPR)

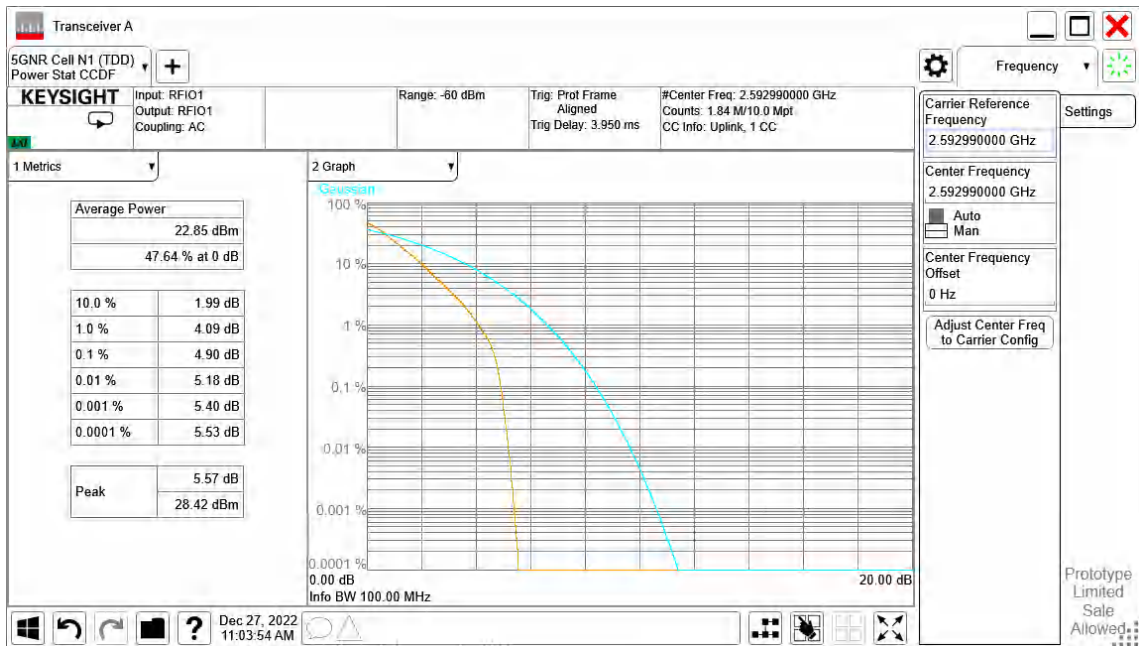




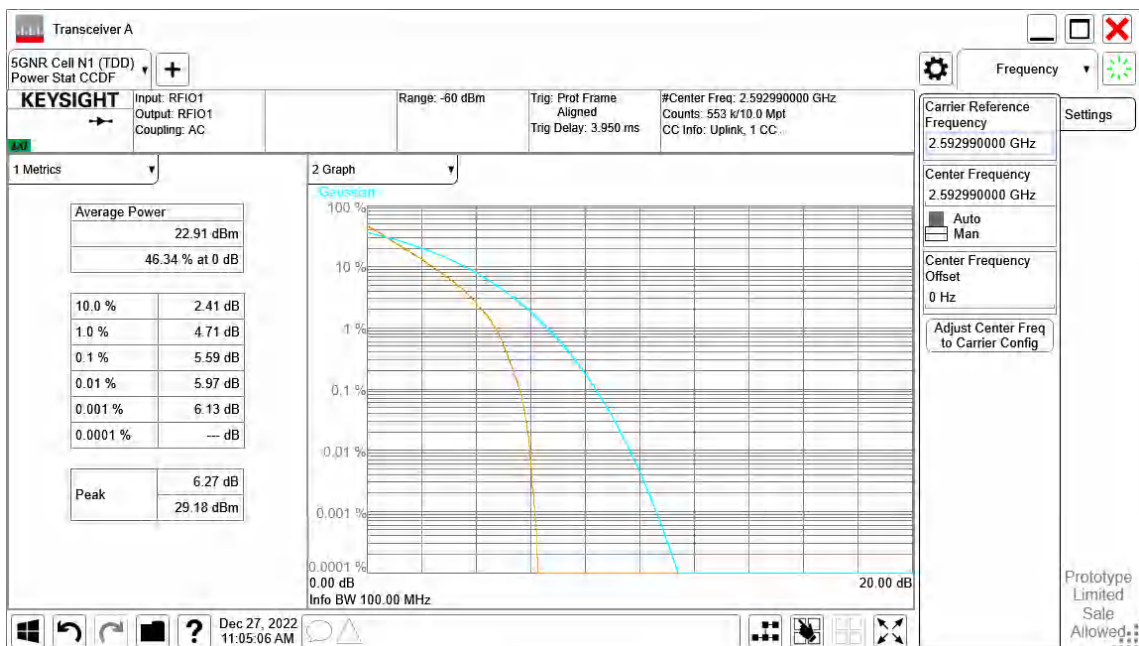
n41

Frequency (MHz)	BW(MHz)	OFDM	PAPR(dB)				
			pi/2 BPSK	QPSK	16QAM	64QAM	256QAM
2593.0	20	DFT	4.90	5.59	6.26	6.47	6.53
		CP	N/A	7.53	7.58	7.41	8.16

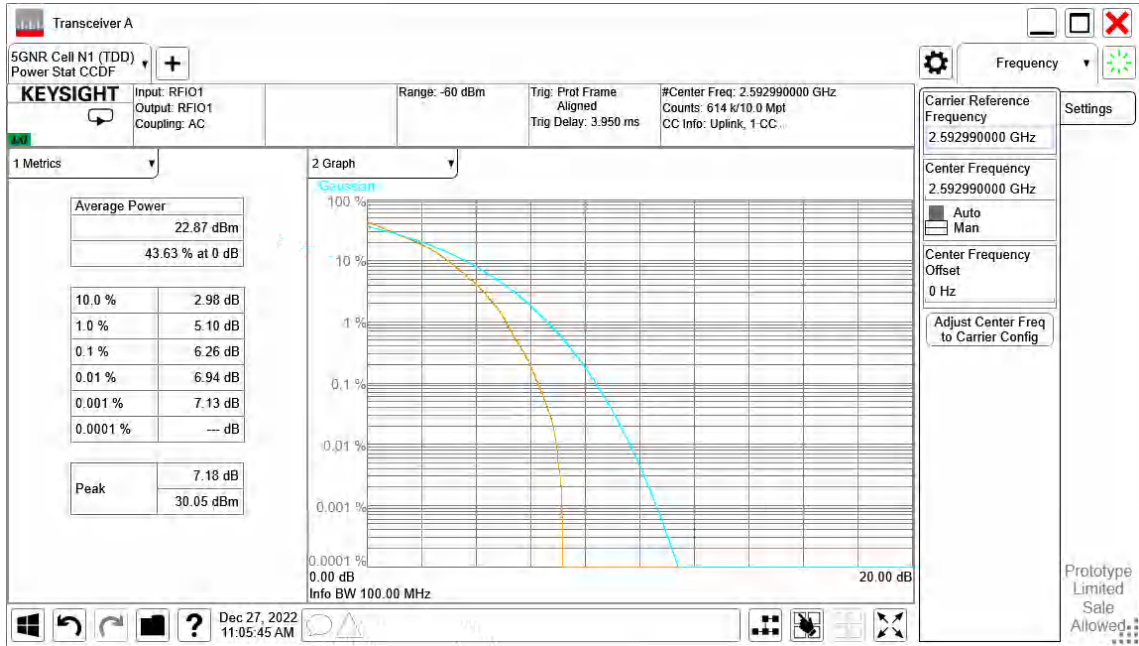
n41, DFT-s-pi/2 BPSK (PAPR)



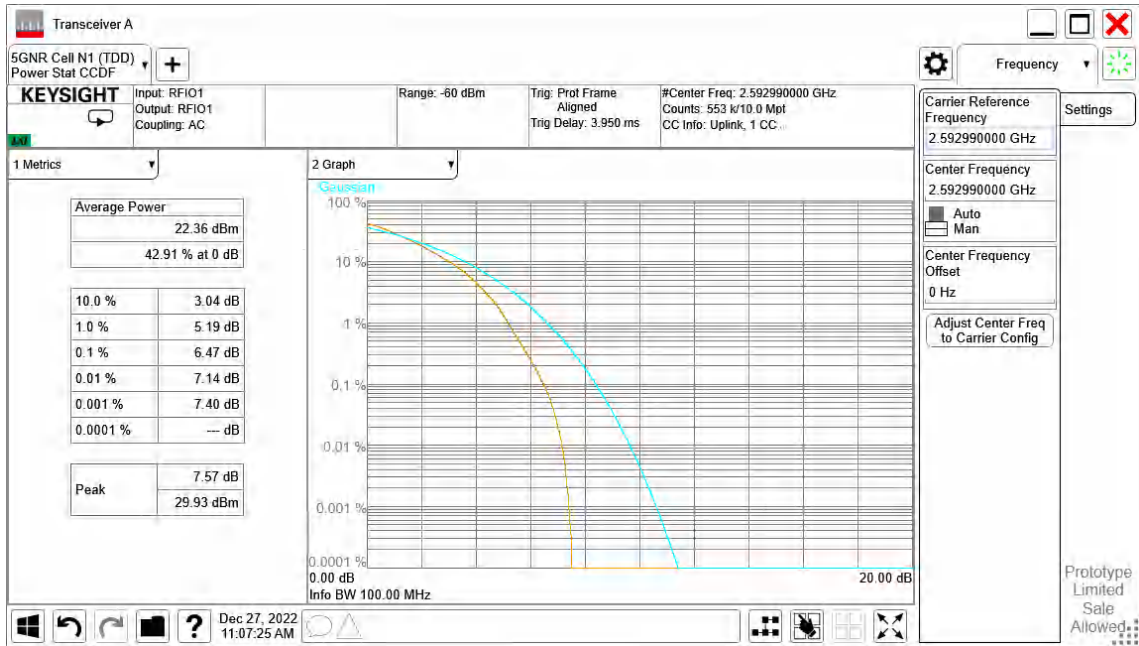
n41, DFT-s-QPSK (PAPR)



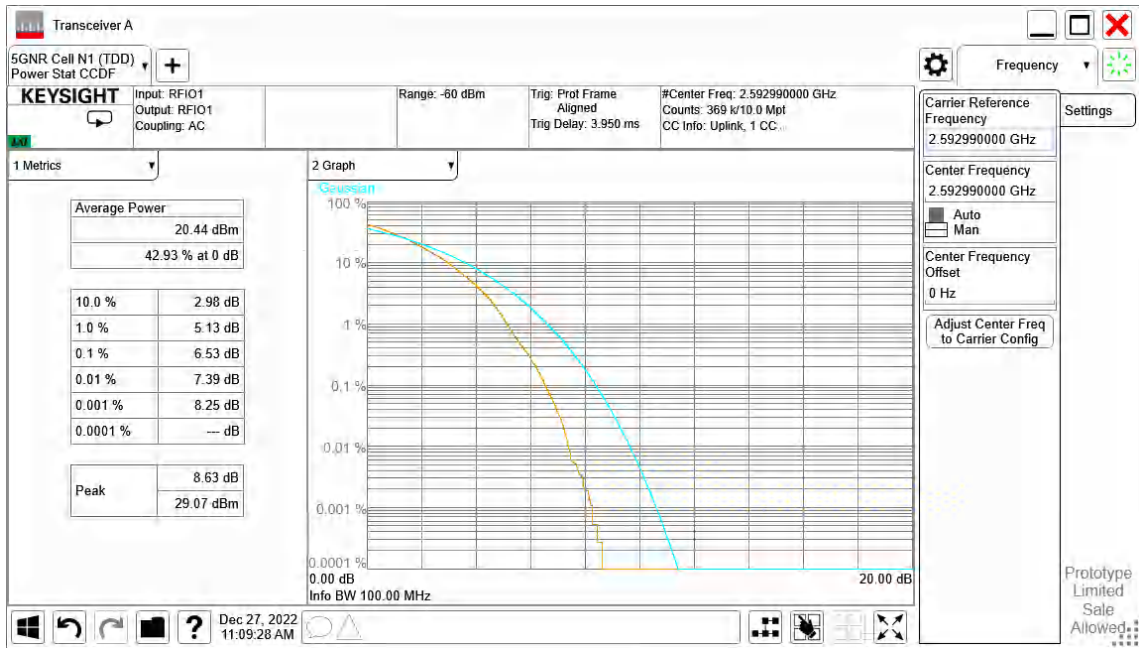
n41, DFT-s-16QAM (PAPR)



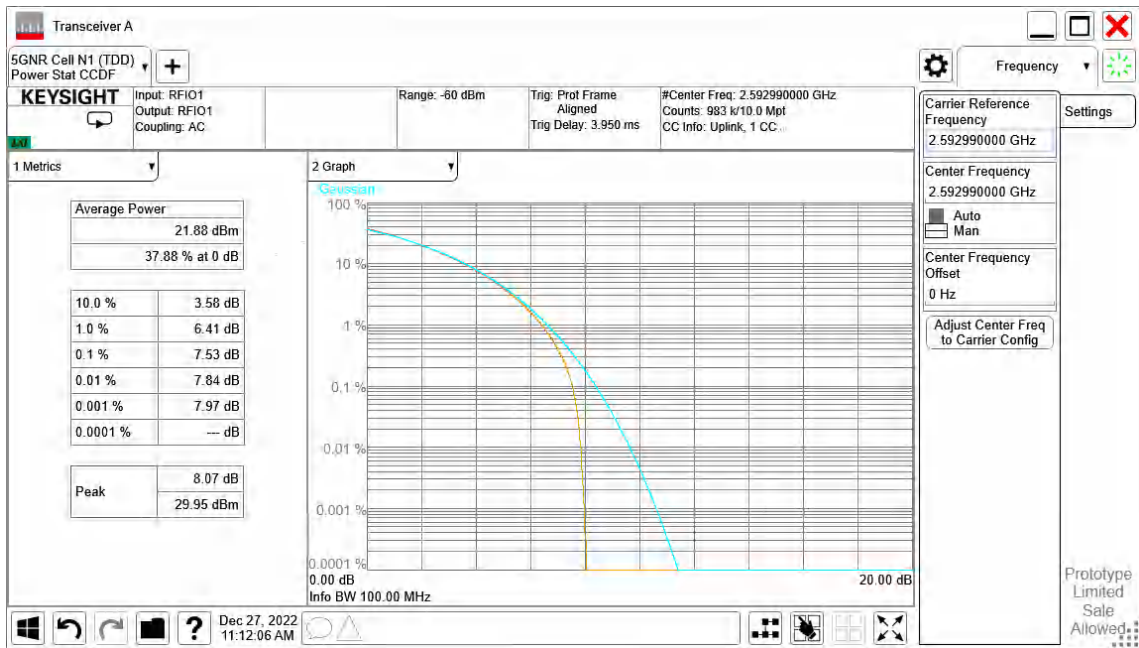
n41, DFT-s-64QAM (PAPR)



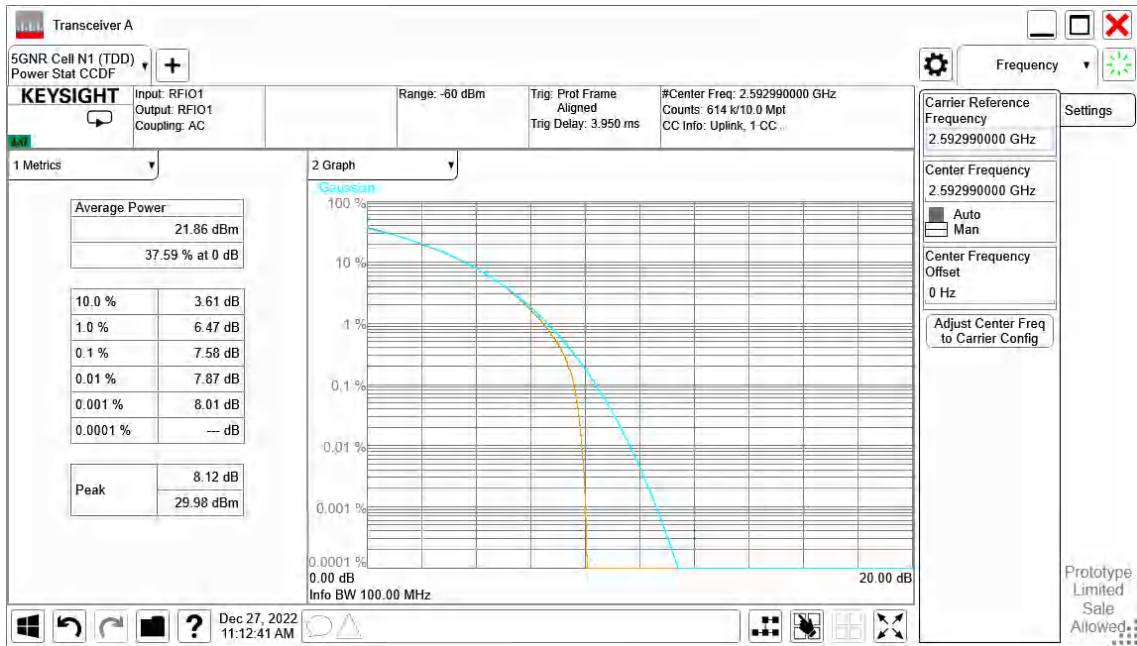
n41, DFT-s-256QAM (PAPR)



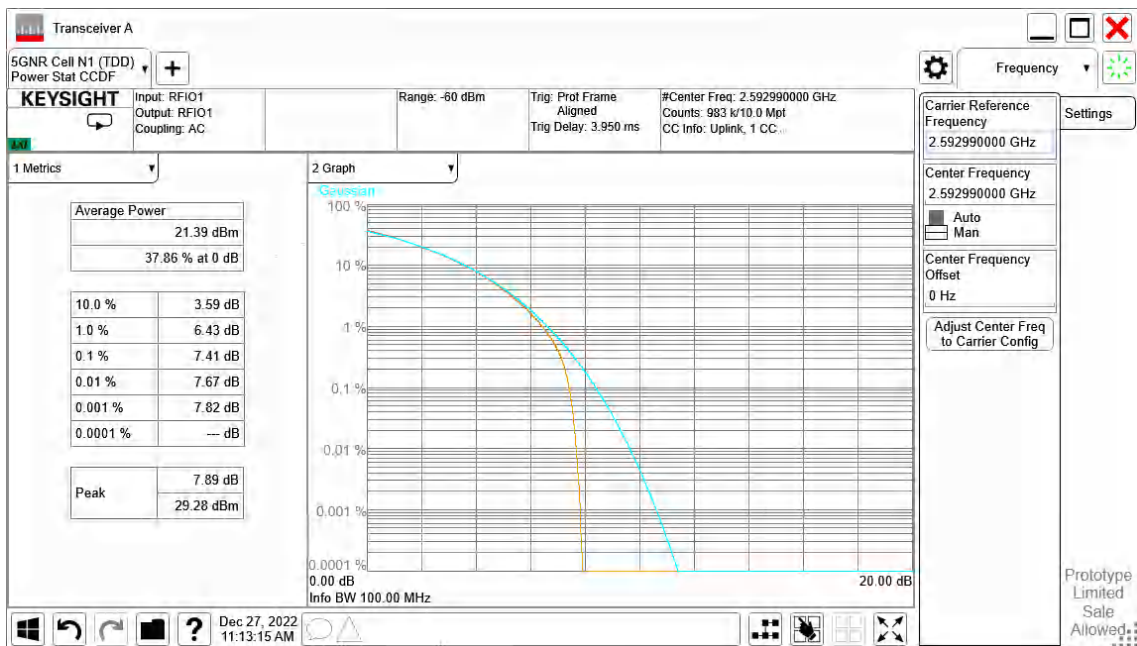
n41, CP-QPSK (PAPR)



n41, CP-16QAM (PAPR)

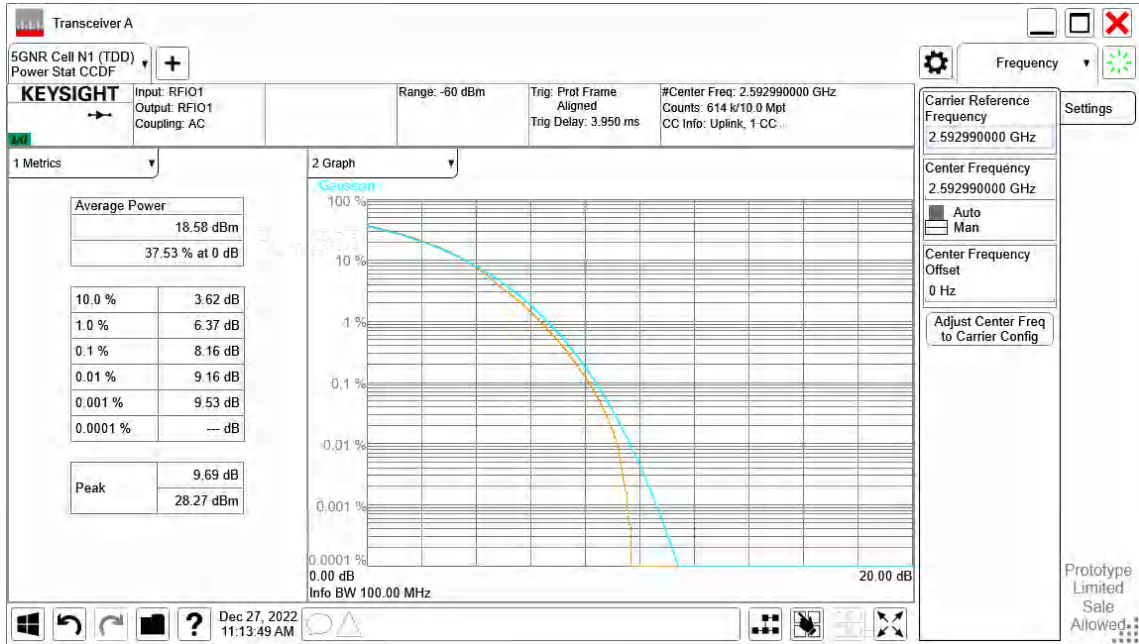


n41, CP-64QAM (PAPR)





n41, CP-256QAM (PAPR)

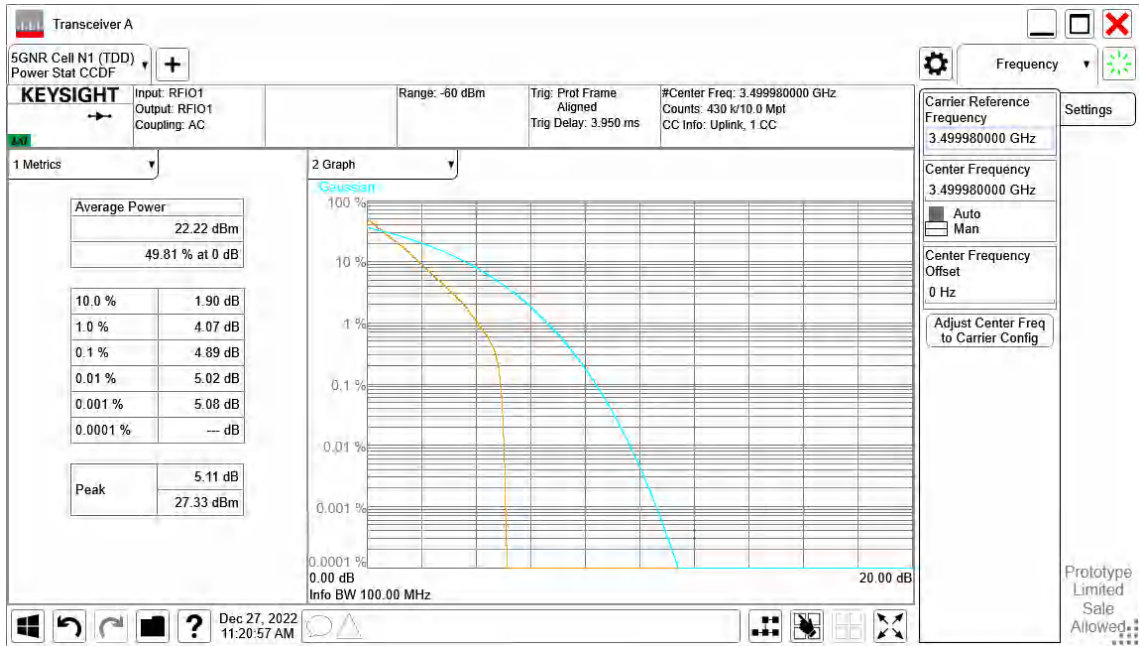




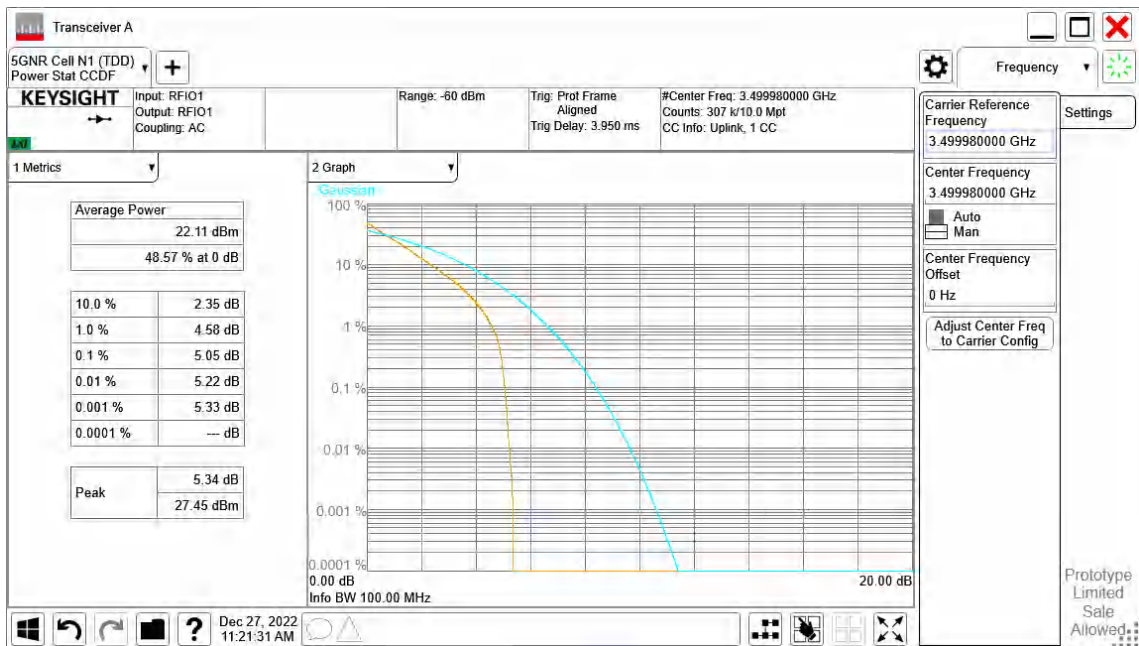
n78

Frequency (MHz)	BW(MHz)	OFDM	PAPR(dB)				
			pi/2 BPSK	QPSK	16QAM	64QAM	256QAM
3499.98	100	DFT	4.89	5.05	5.92	6.10	6.48
		CP	N/A	6.99	7.01	7.48	8.10

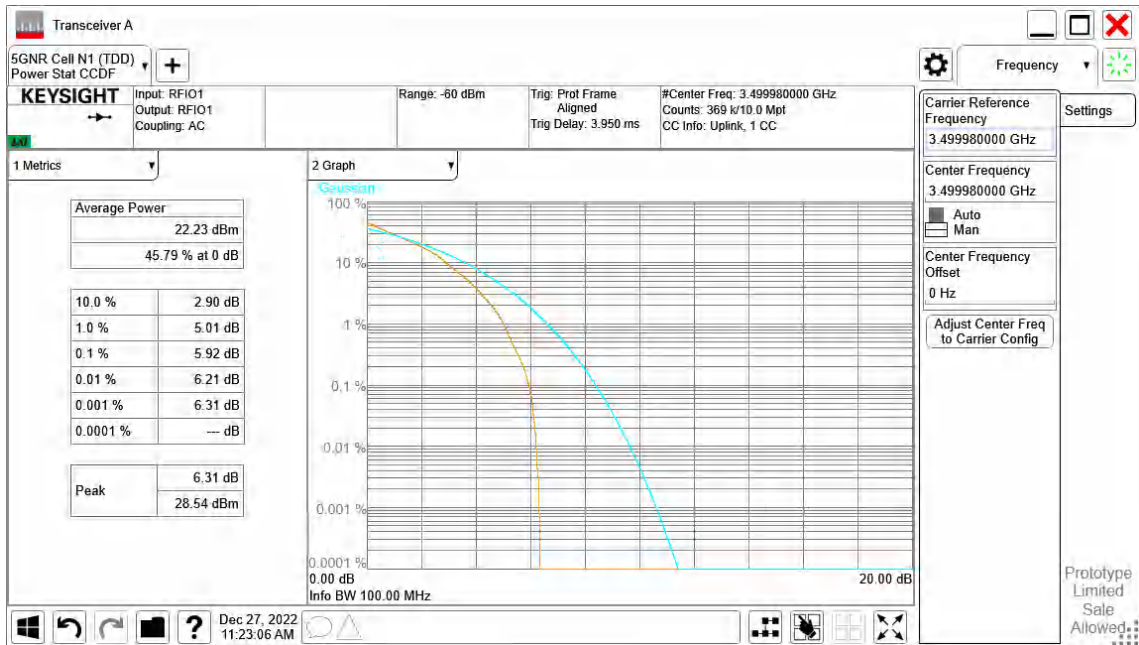
**n78, DFT-s-pi/2 BPSK (PAPR)**



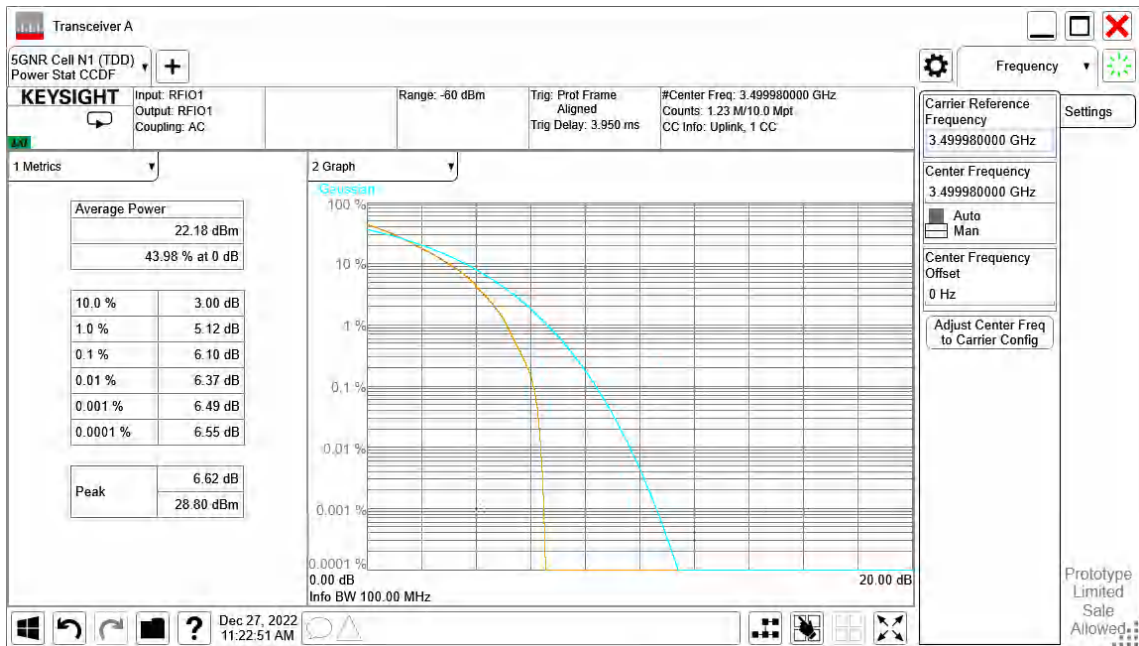
**n78, DFT-s-QPSK (PAPR)**



n78, DFT-s-16QAM (PAPR)



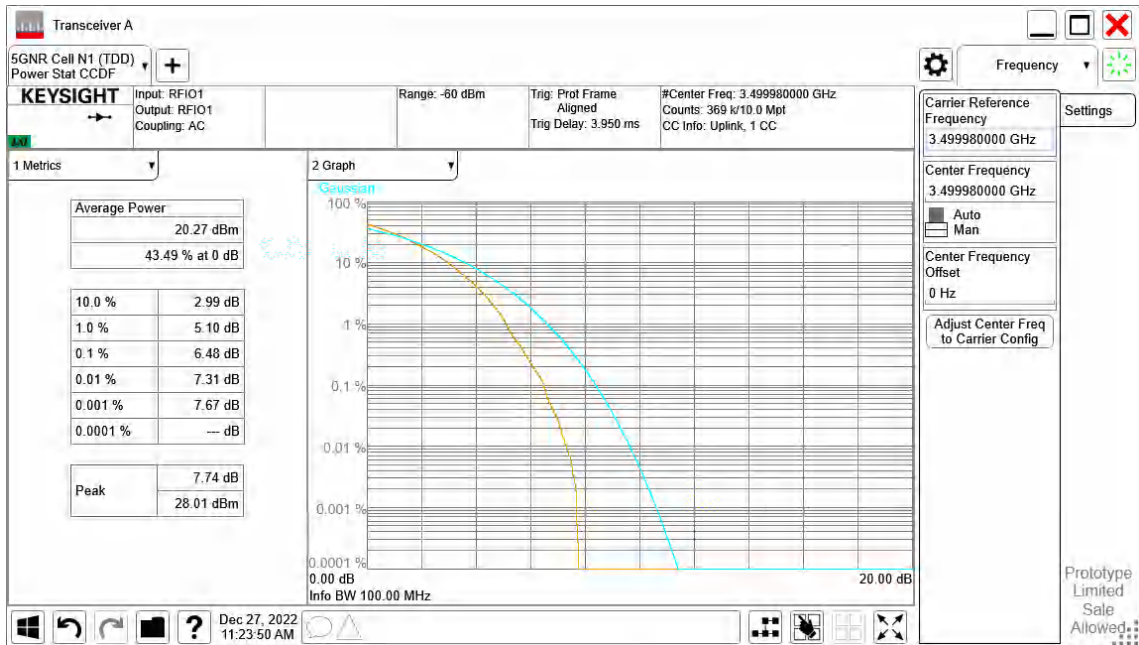
n78, DFT-s-64QAM (PAPR)



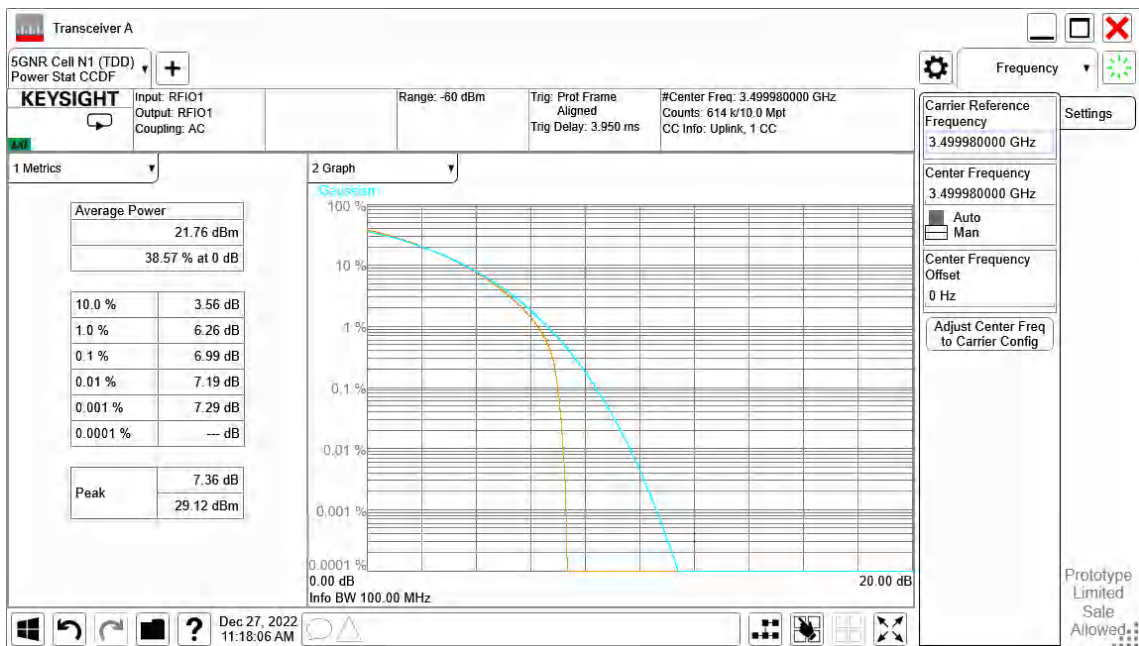




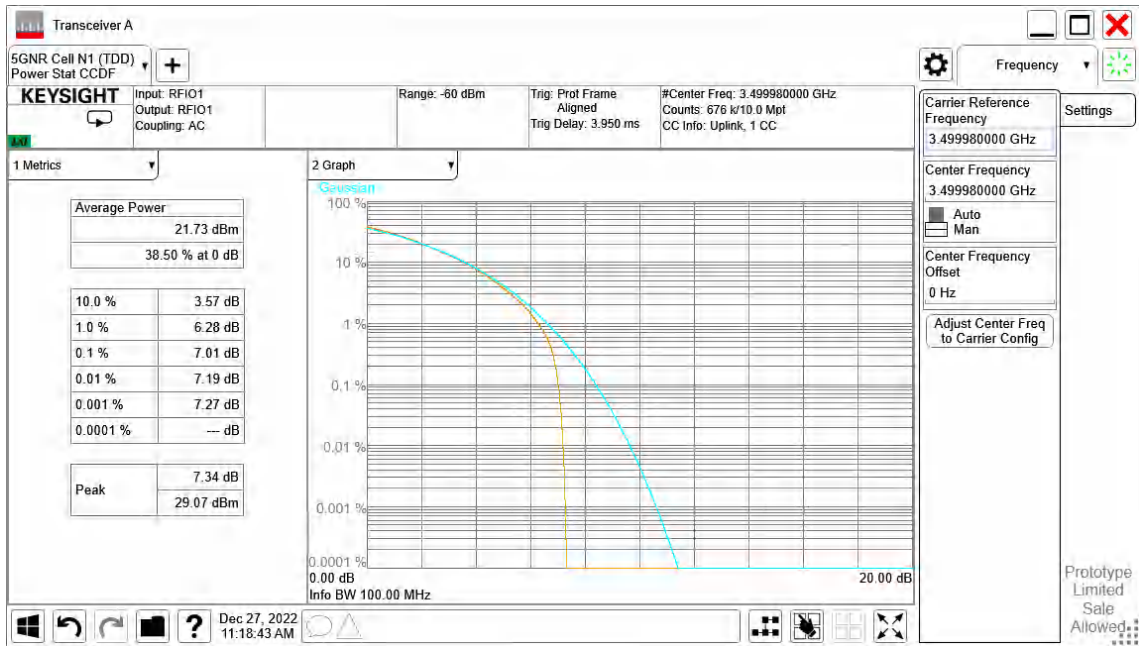
n78, DFT-s-256QAM (PAPR)



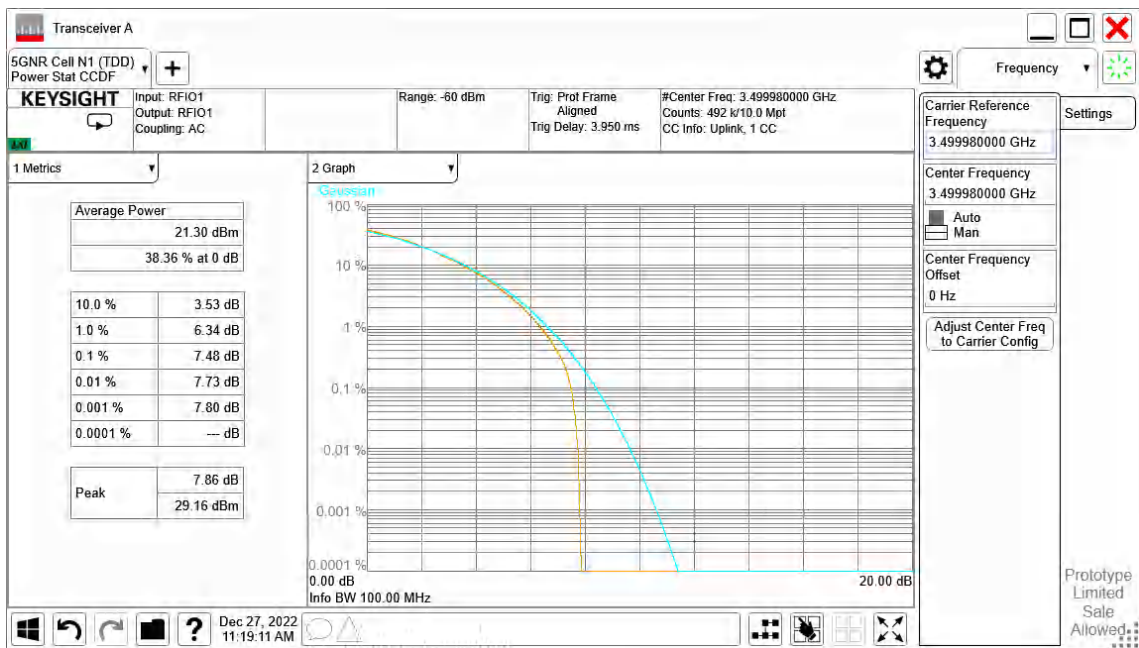
n78, CP-QPSK (PAPR)



n78, CP-16QAM (PAPR)

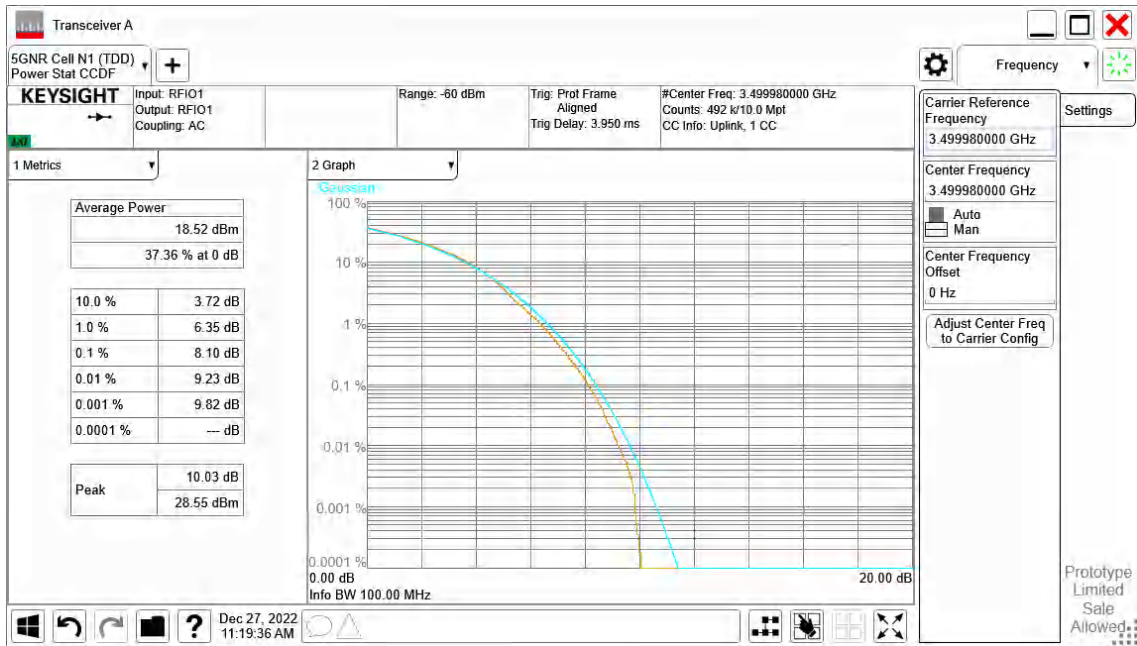


n78, CP-64QAM (PAPR)





n78, CP-256QAM (PAPR)



Note: Expanded measurement uncertainty is  $U = 0.48$ ,  $k = 2$

\*\*\*END OF REPORT\*\*\*