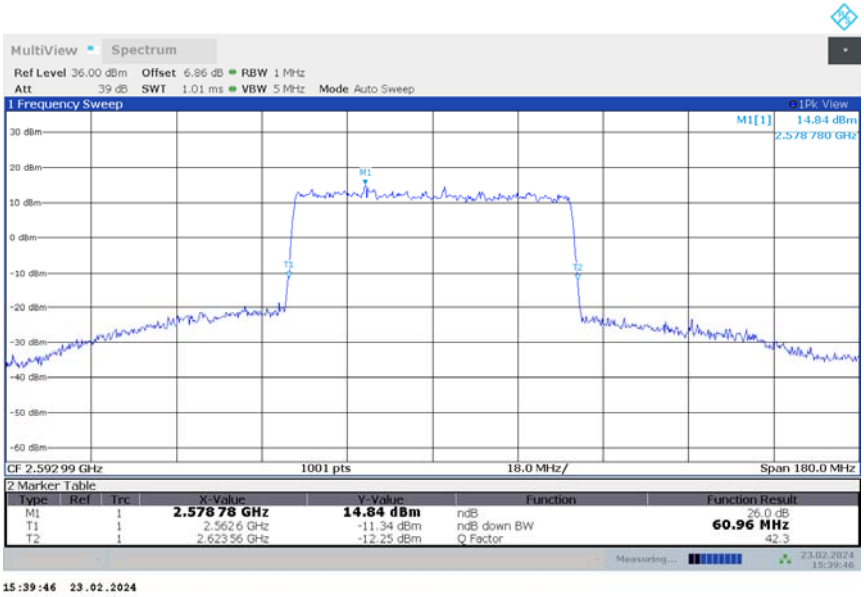
n41-MIMO

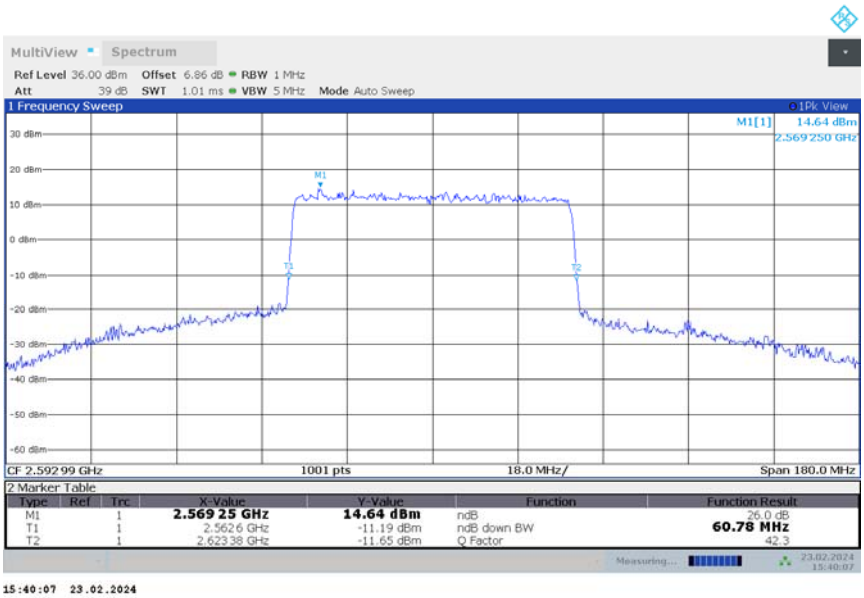
n41-MIMO,60MHz(-26dBc)

Frequency (MHz)	Emission Bandwidth (-26dBc) (MHz)	
	CP-QPSK	CP-16QAM
2592.99	60.960	60.780

n41,60MHz Bandwidth,CP-QPSK (-26dBc BW)



n41,60MHz Bandwidth,CP-16QAM (-26dBc BW)



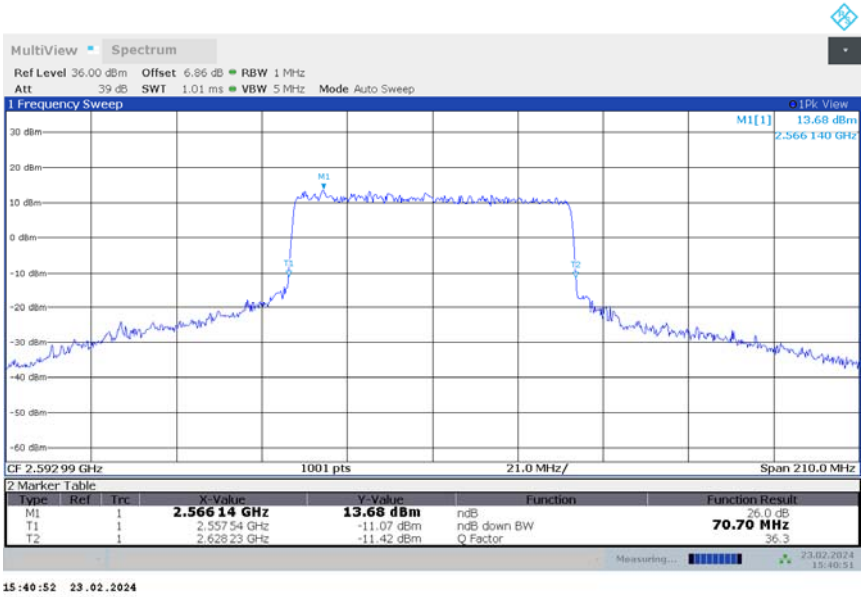
©Copyright. All rights reserved by CTTL.

n41-MIMO

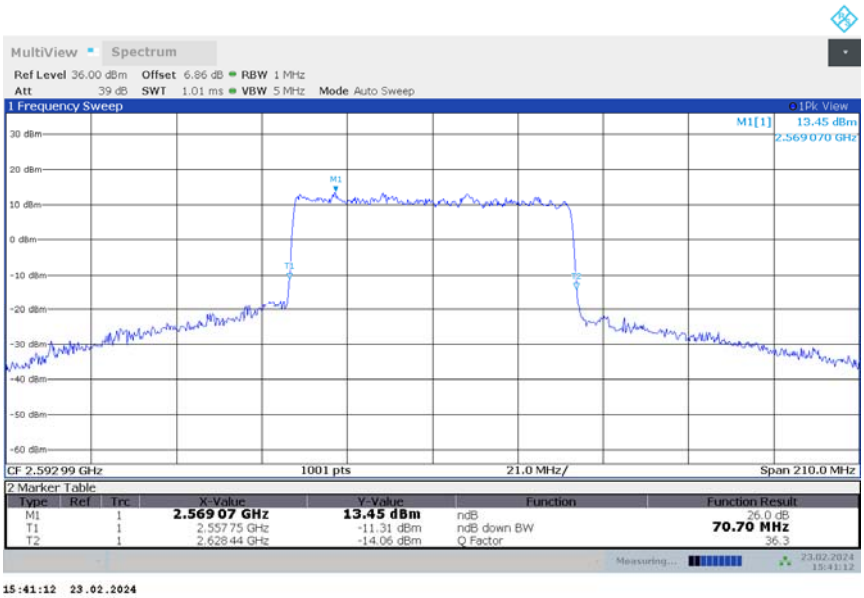
n41-MIMO,70MHz(-26dBc)

Frequency (MHz)	Emission Bandwidth (-26dBc) (MHz)	
	CP-QPSK	CP-16QAM
2592.99	70.700	70.700

n41,70MHz Bandwidth,CP-QPSK (-26dBc BW)



n41,70MHz Bandwidth,CP-16QAM (-26dBc BW)



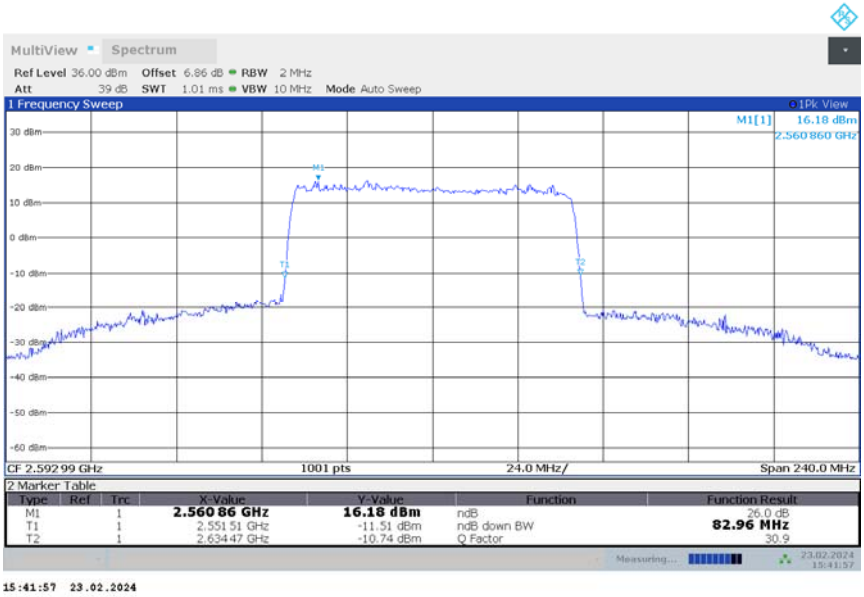
©Copyright. All rights reserved by CTTL.

n41-MIMO

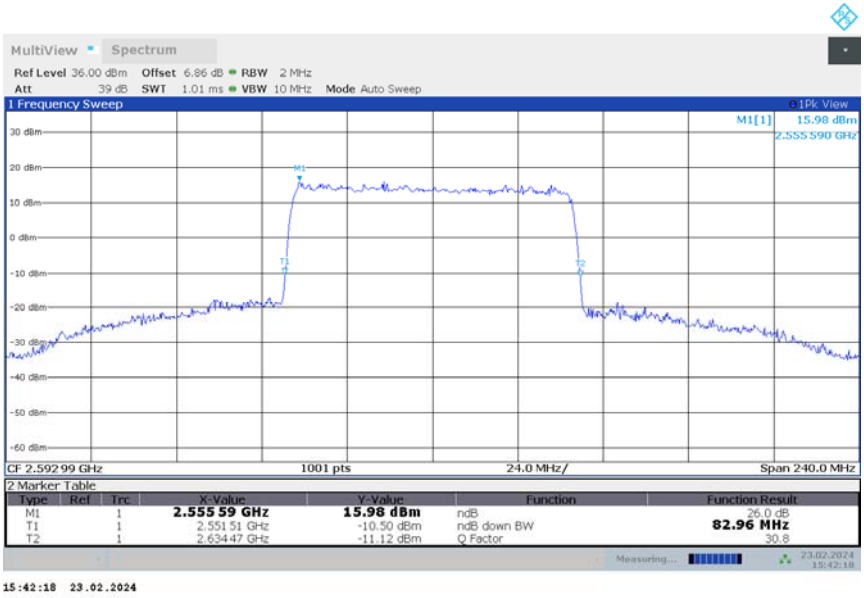
n41-MIMO,80MHz(-26dBc)

Frequency (MHz)	Emission Bandwidth (-26dBc) (MHz)	
	CP-QPSK	CP-16QAM
2592.99	82.960	82.960

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



n41,80MHz Bandwidth,CP-16QAM (-26dBc BW)



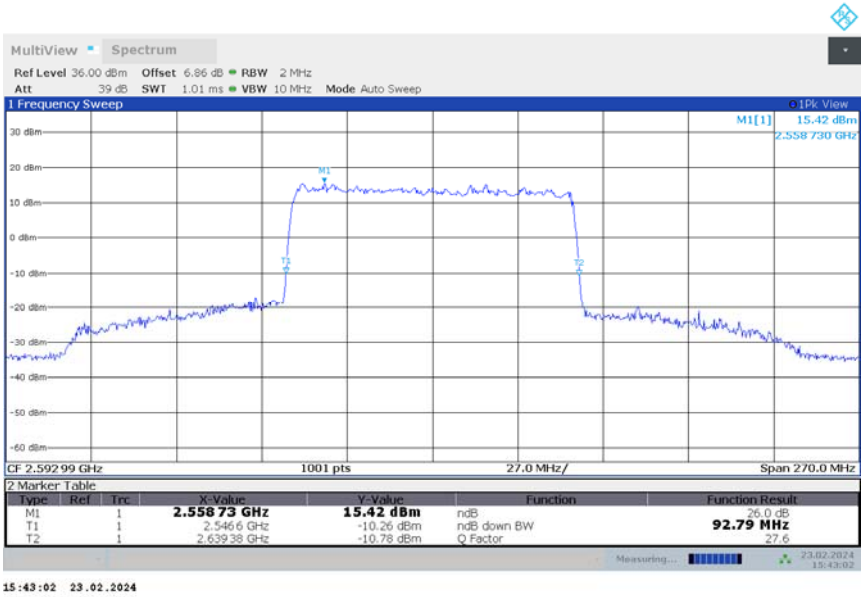
©Copyright. All rights reserved by CTTL.

n41-MIMO

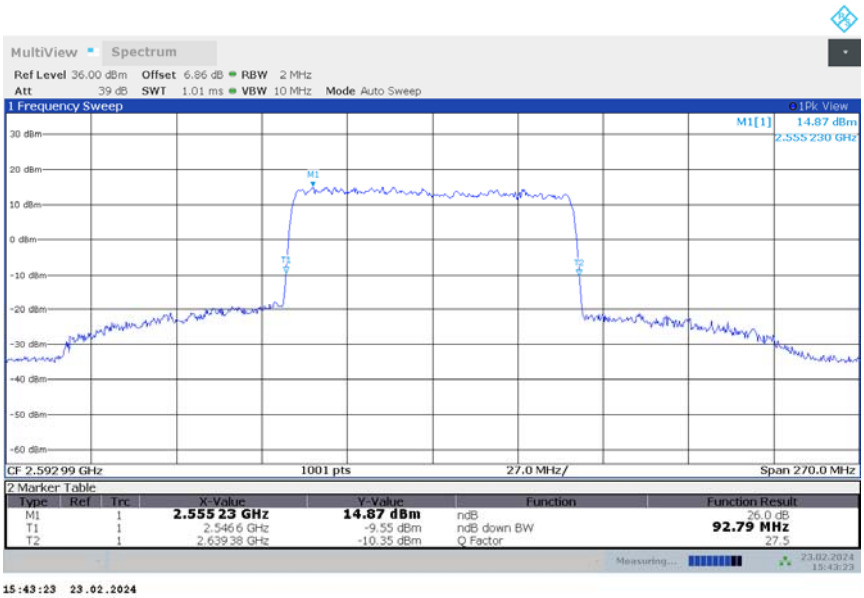
n41-MIMO,90MHz(-26dBc)

Frequency (MHz)	Emission Bandwidth (-26dBc) (MHz)	
	CP-QPSK	CP-16QAM
2592.99	92.790	92.790

n41,90MHz Bandwidth,CP-QPSK (-26dBc BW)



n41,90MHz Bandwidth,CP-16QAM (-26dBc BW)



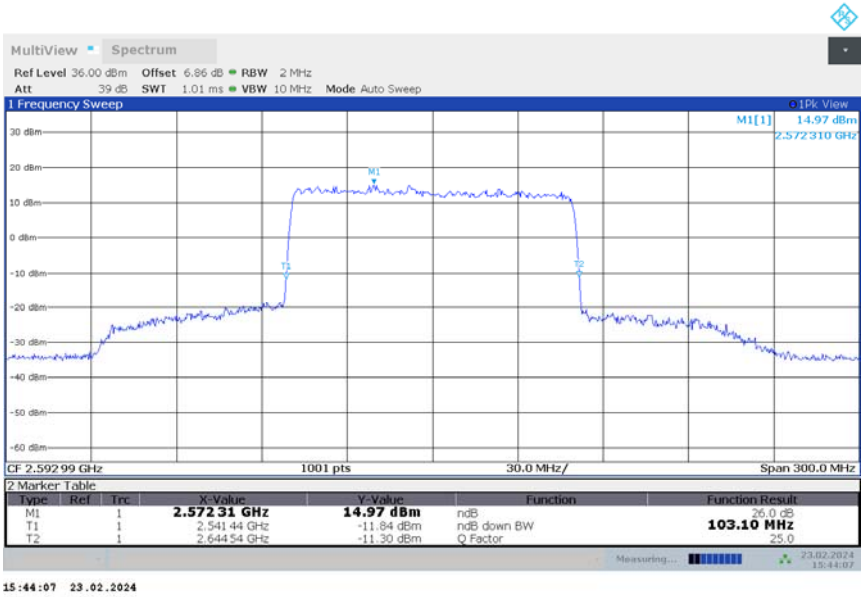
©Copyright. All rights reserved by CTTL.

n41-MIMO

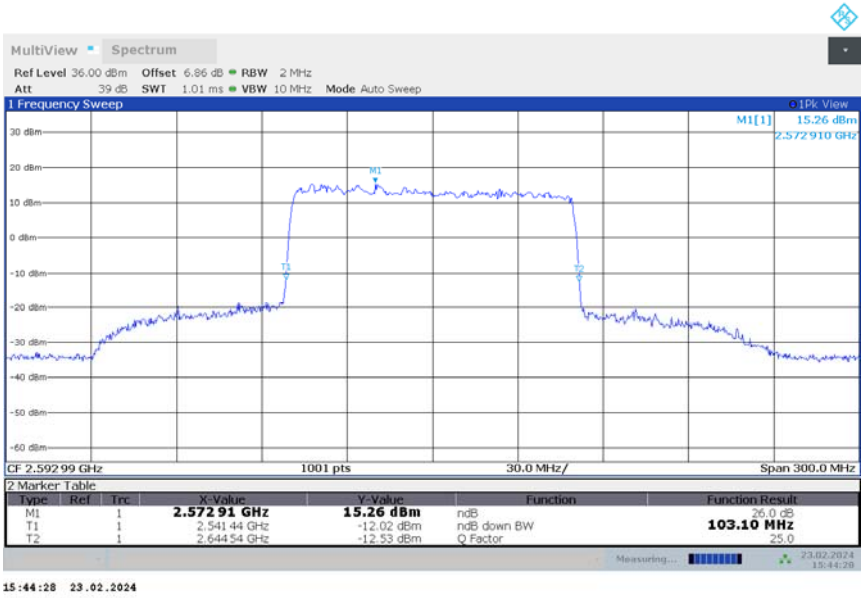
n41-MIMO,100MHz(-26dBc)

Frequency (MHz)	Emission Bandwidth (-26dBc) (MHz)	
	CP-QPSK	CP-16QAM
2592.99	103.100	103.100

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



n41,100MHz Bandwidth,CP-16QAM (-26dBc BW)



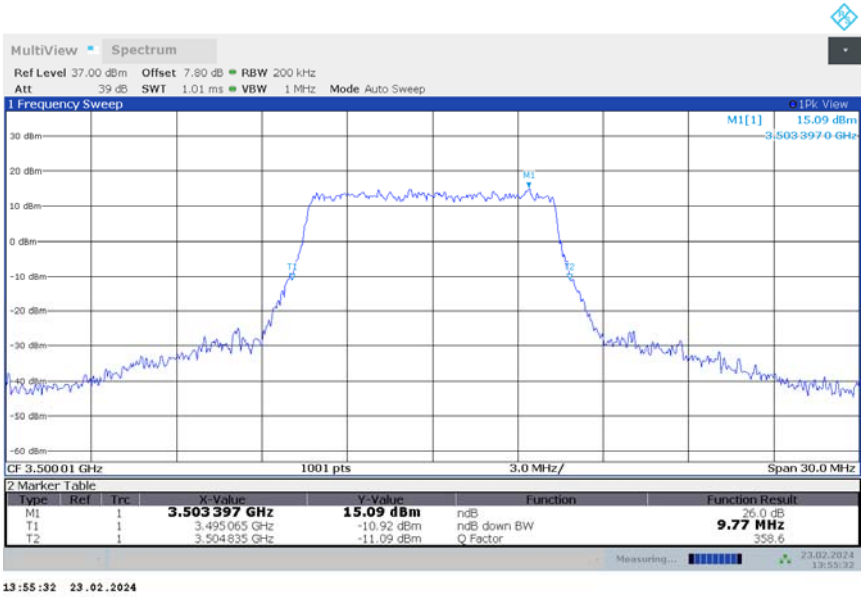
©Copyright. All rights reserved by CTTL.

n77L-MIMO

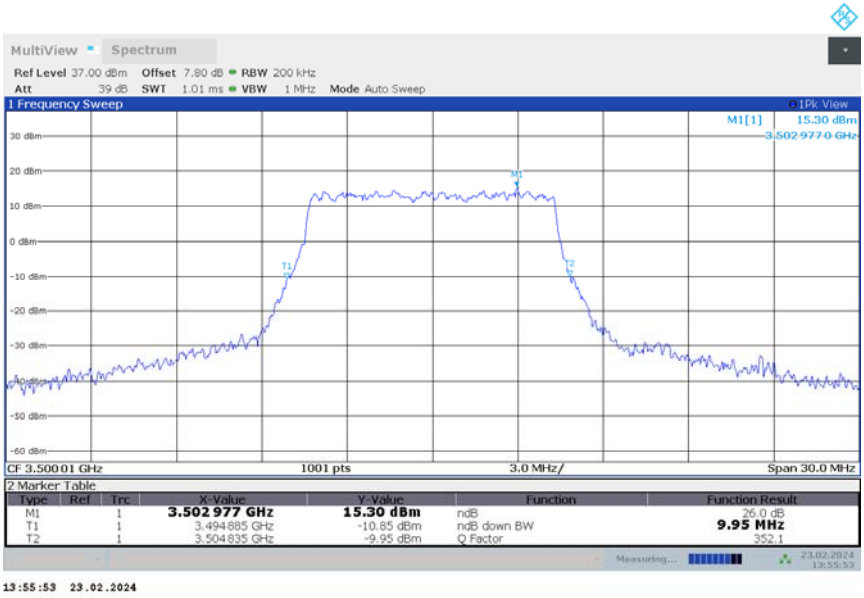
n77L-MIMO,10MHz(-26dBc)

Frequency (MHz)	Emission Bandwidth (-26dBc) (MHz)	
	CP-QPSK	CP-16QAM
3500.01	9.770	9.950

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



n77L,10MHz Bandwidth,CP-16QAM (-26dBc BW)



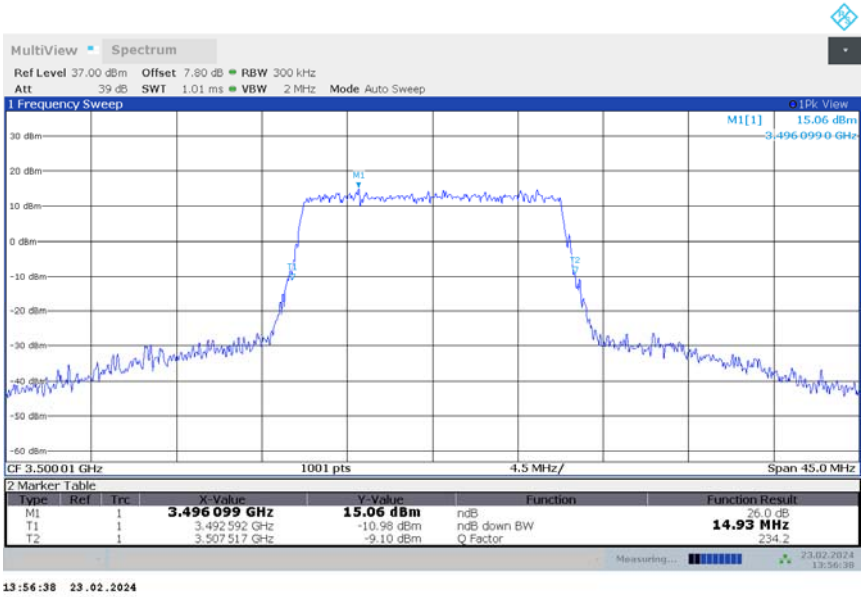
©Copyright. All rights reserved by CTTL.

n77L-MIMO

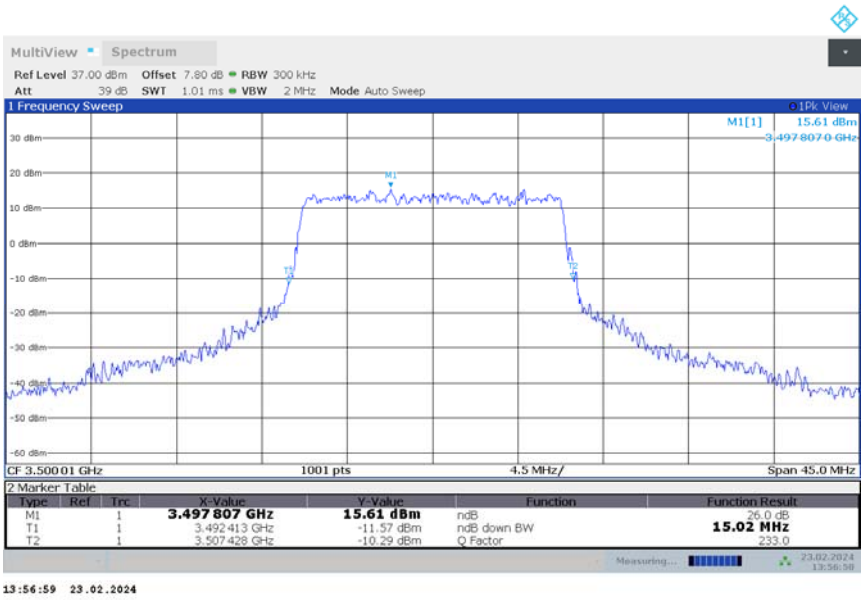
n77L-MIMO,15MHz(-26dBc)

Frequency (MHz)	Emission Bandwidth (-26dBc) (MHz)	
	CP-QPSK	CP-16QAM
3500.01	14.925	15.015

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



n77L,15MHz Bandwidth,CP-16QAM (-26dBc BW)



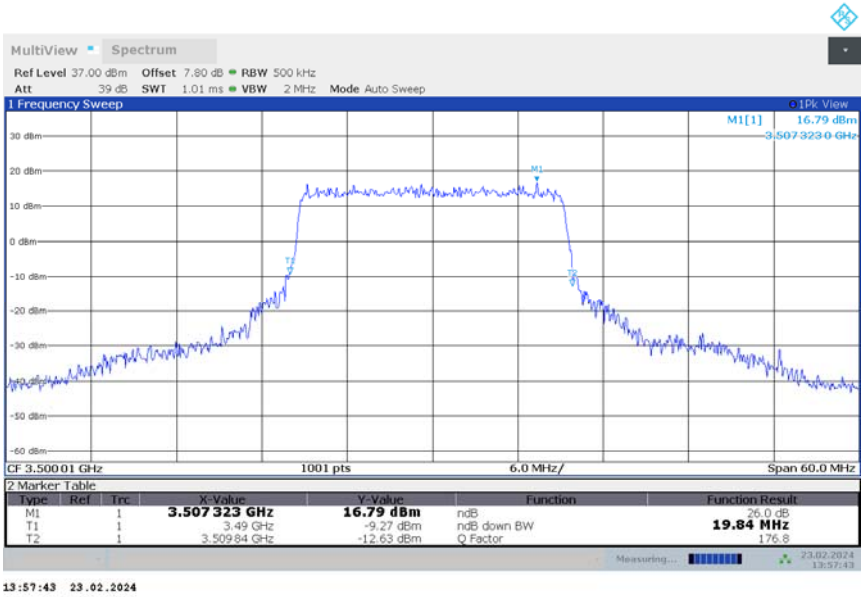
©Copyright. All rights reserved by CTTL.

n77L-MIMO

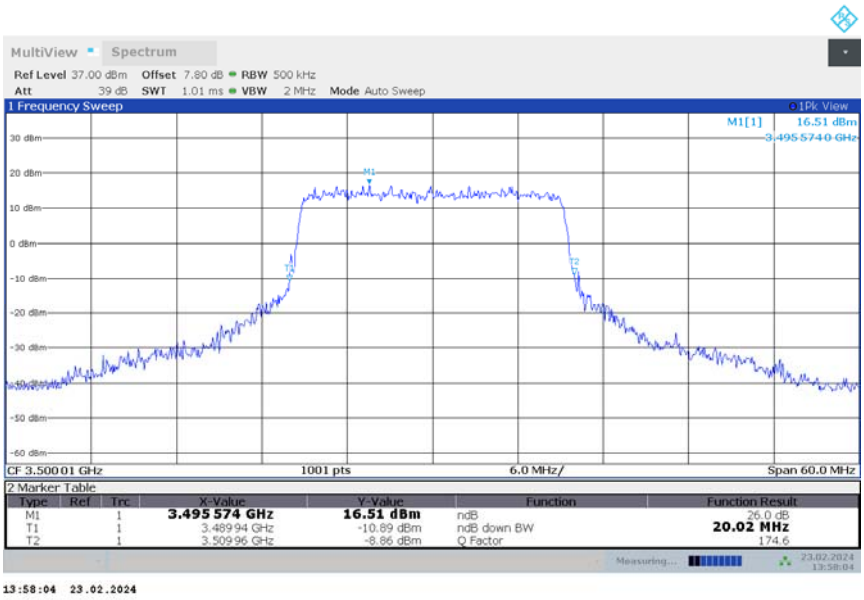
n77L-MIMO,20MHz(-26dBc)

Frequency (MHz)	Emission Bandwidth (-26dBc) (MHz)	
	CP-QPSK	CP-16QAM
3500.01	19.840	20.020

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



n77L,20MHz Bandwidth,CP-16QAM (-26dBc BW)



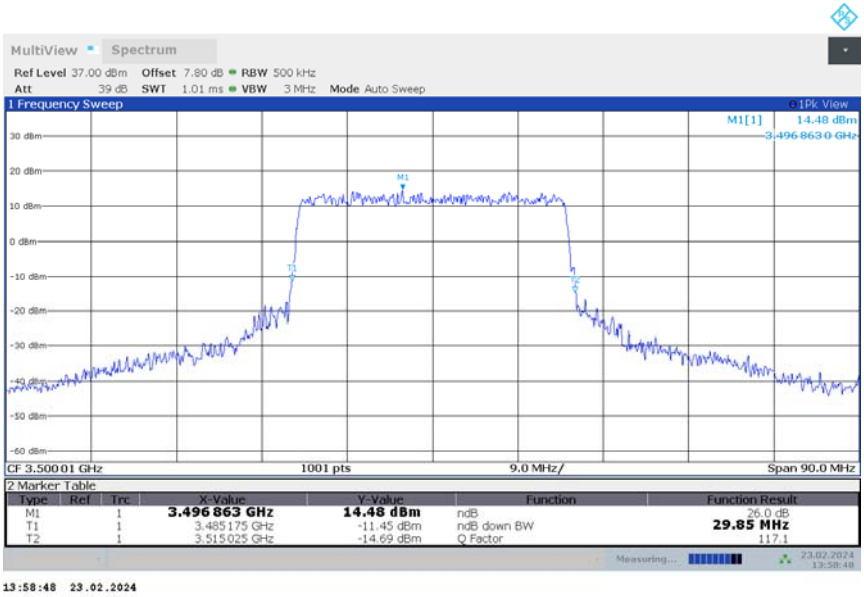
©Copyright. All rights reserved by CTTL.

n77L-MIMO

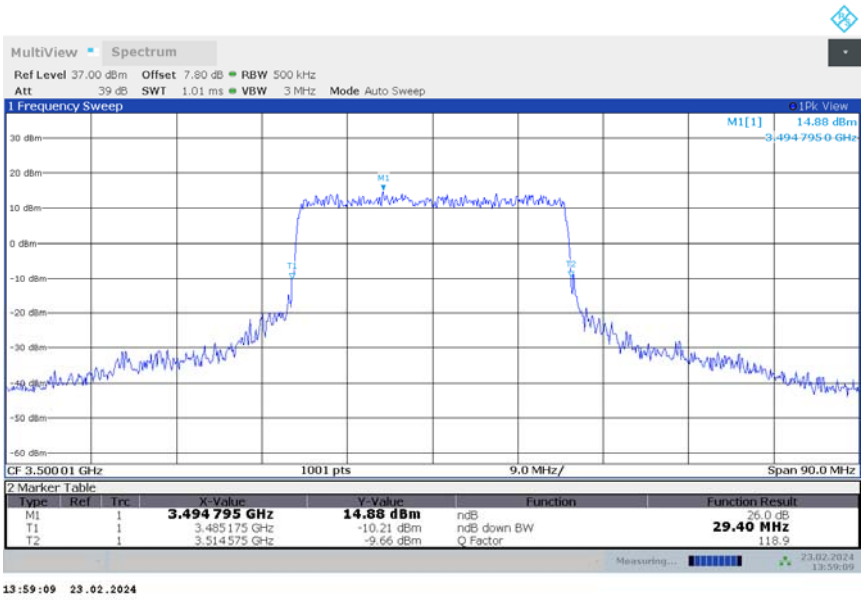
n77L-MIMO,30MHz(-26dBc)

Frequency (MHz)	Emission Bandwidth (-26dBc) (MHz)	
	CP-QPSK	CP-16QAM
3500.01	29.850	29.401

n77L,30MHz Bandwidth,CP-QPSK (-26dBc BW)



n77L,30MHz Bandwidth,CP-16QAM (-26dBc BW)



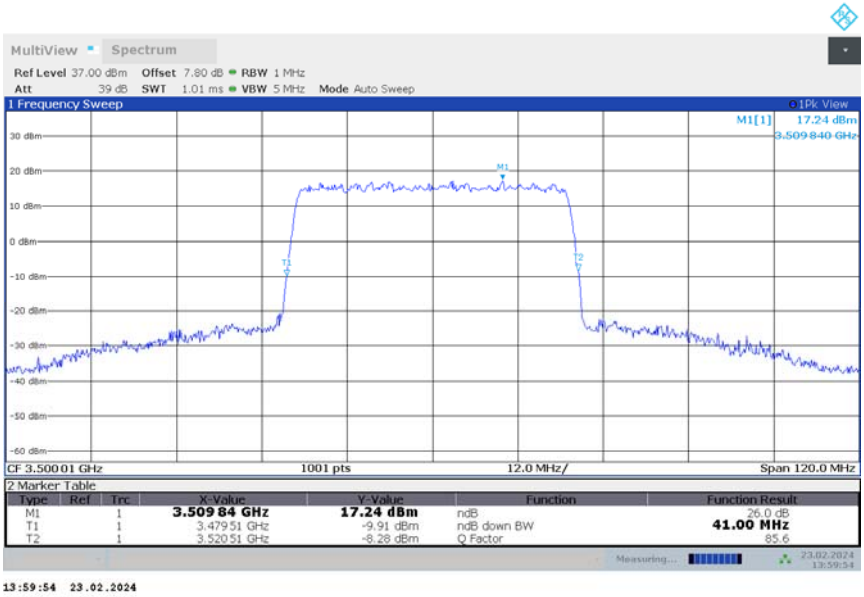
©Copyright. All rights reserved by CTTL.

n77L-MIMO

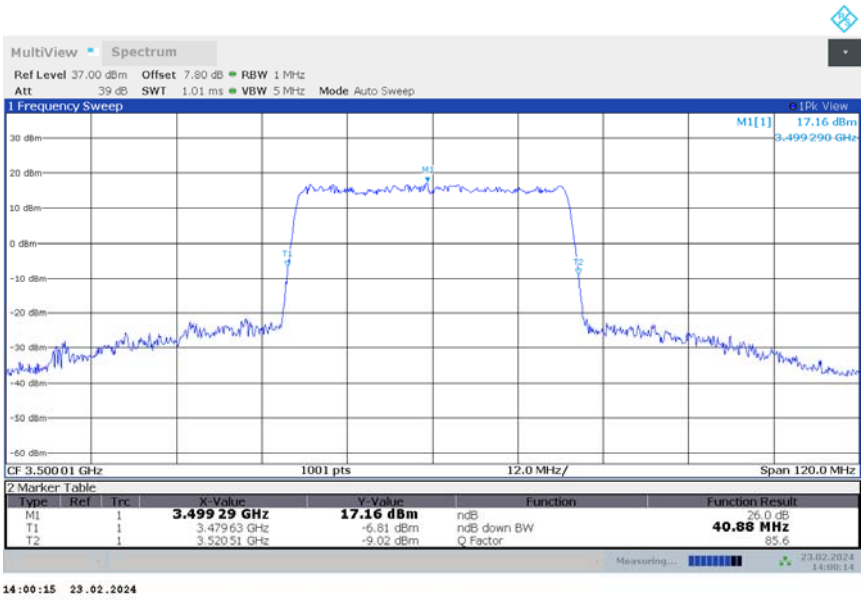
n77L-MIMO,40MHz(-26dBc)

Frequency (MHz)	Emission Bandwidth (-26dBc) (MHz)	
	CP-QPSK	CP-16QAM
3500.01	41.000	40.880

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



n77L,40MHz Bandwidth,CP-16QAM (-26dBc BW)



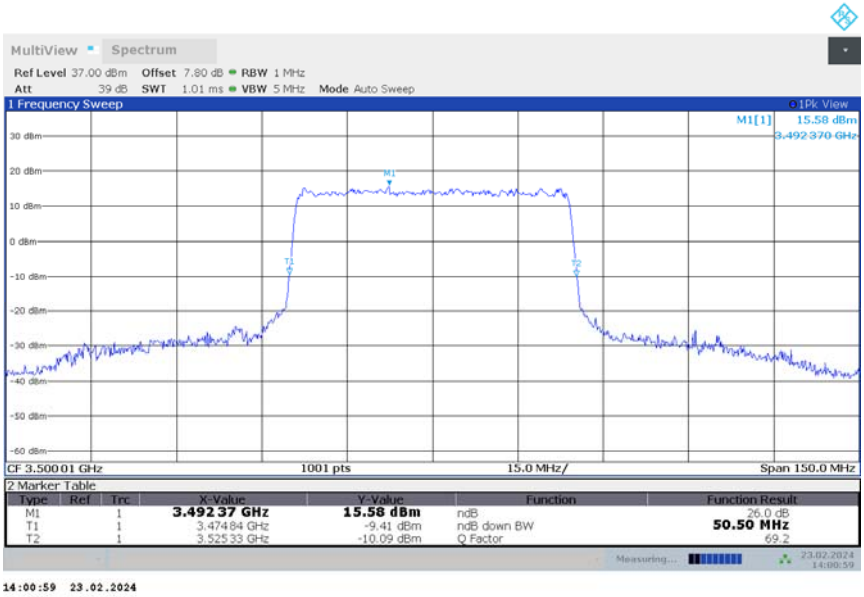
©Copyright. All rights reserved by CTTL.

n77L-MIMO

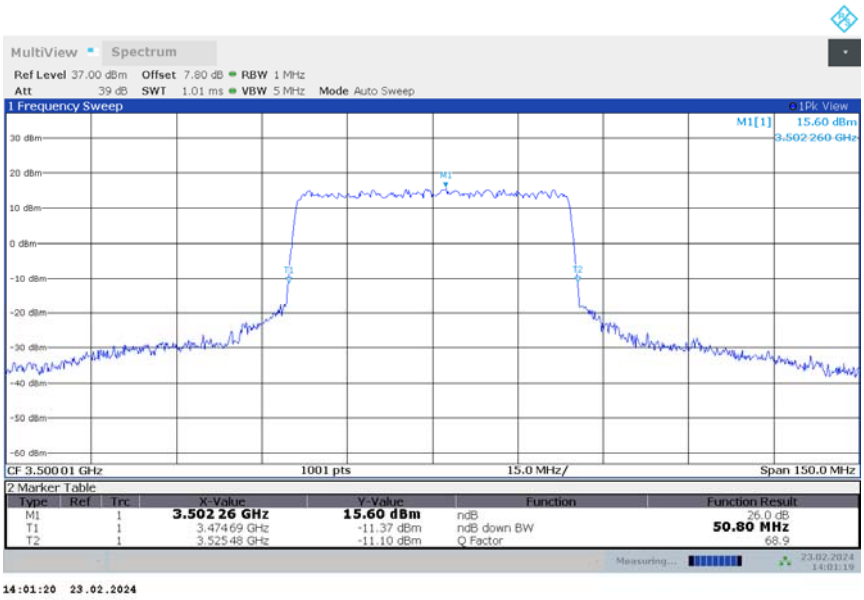
n77L-MIMO,50MHz(-26dBc)

Frequency (MHz)	Emission Bandwidth (-26dBc) (MHz)	
	CP-QPSK	CP-16QAM
3500.01	50.500	50.800

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



n77L,50MHz Bandwidth,CP-16QAM (-26dBc BW)



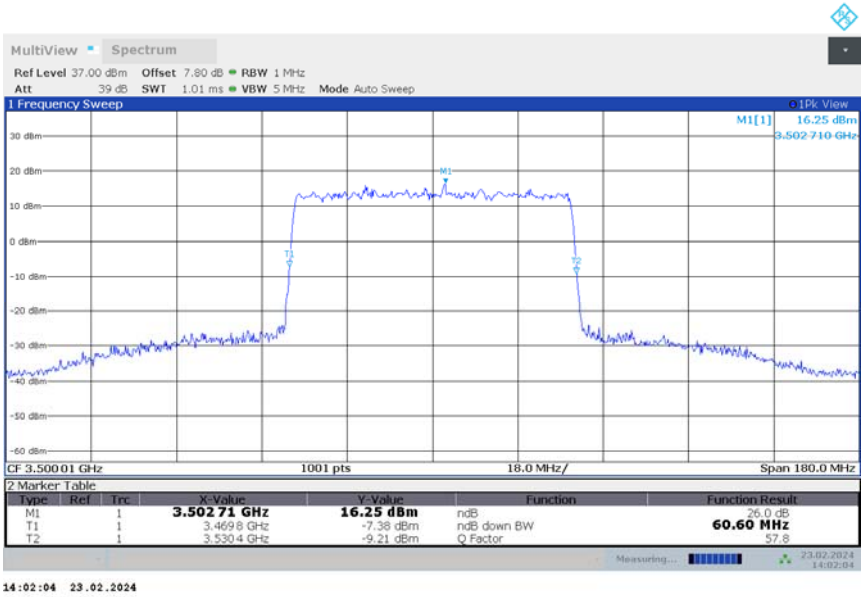
©Copyright. All rights reserved by CTTL.

n77L-MIMO

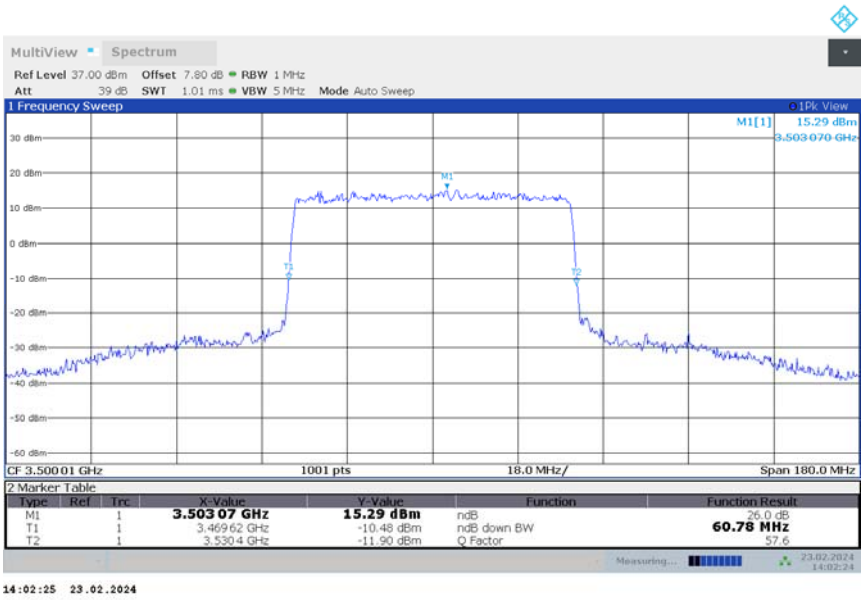
n77L-MIMO,60MHz(-26dBc)

Frequency (MHz)	Emission Bandwidth (-26dBc) (MHz)	
	CP-QPSK	CP-16QAM
3500.01	60.600	60.780

n77L,60MHz Bandwidth,CP-QPSK (-26dBc BW)



n77L,60MHz Bandwidth,CP-16QAM (-26dBc BW)



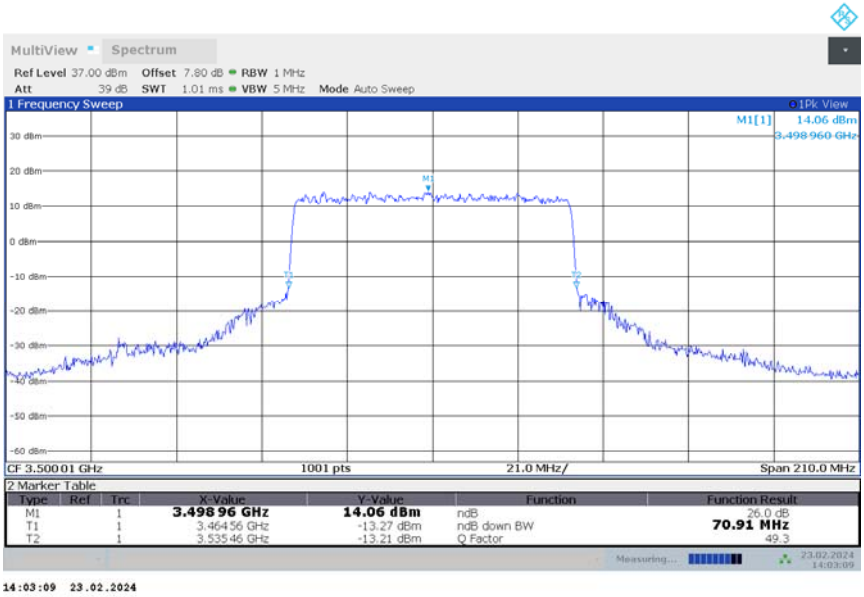
©Copyright. All rights reserved by CTTL.

n77L-MIMO

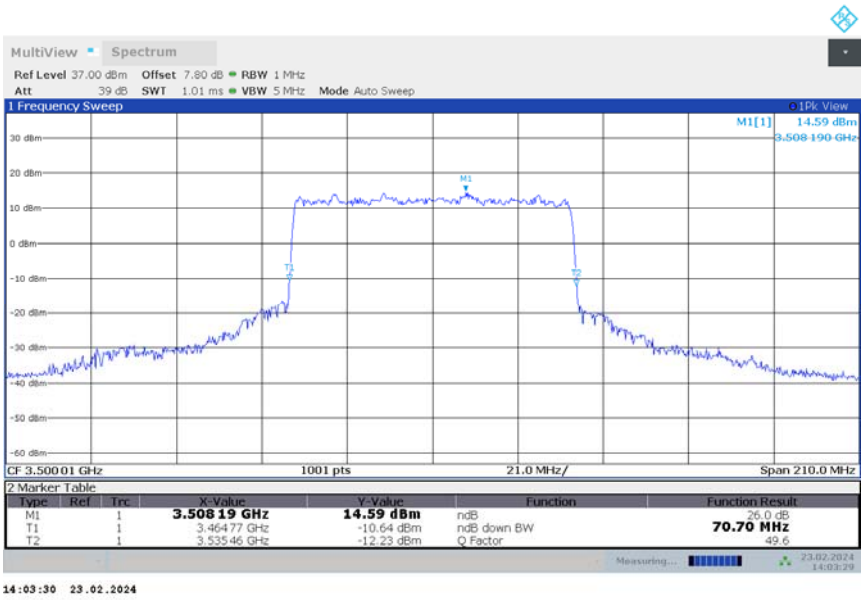
n77L-MIMO,70MHz(-26dBc)

Frequency (MHz)	Emission Bandwidth (-26dBc) (MHz)	
	CP-QPSK	CP-16QAM
3500.01	70.910	70.700

n77L,70MHz Bandwidth,CP-QPSK (-26dBc BW)



n77L,70MHz Bandwidth,CP-16QAM (-26dBc BW)



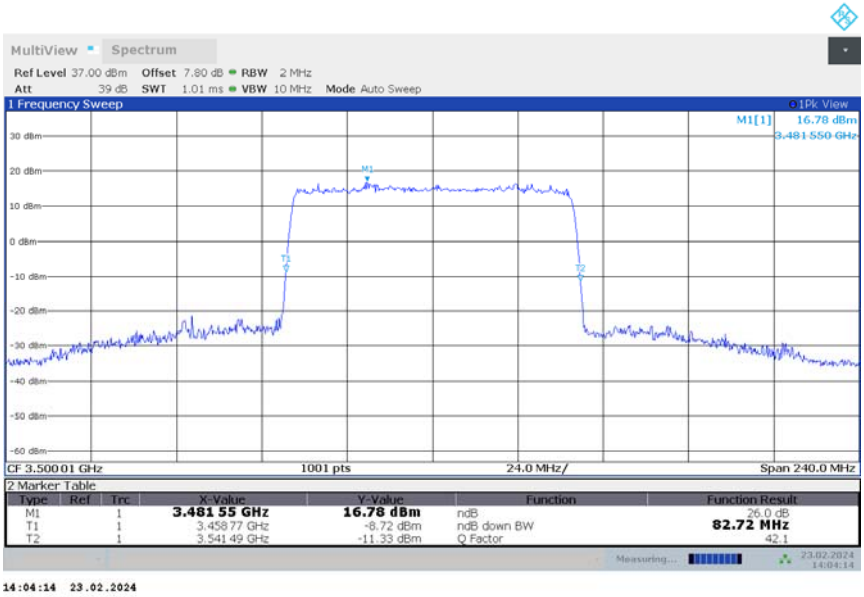
©Copyright. All rights reserved by CTTL.

n77L-MIMO

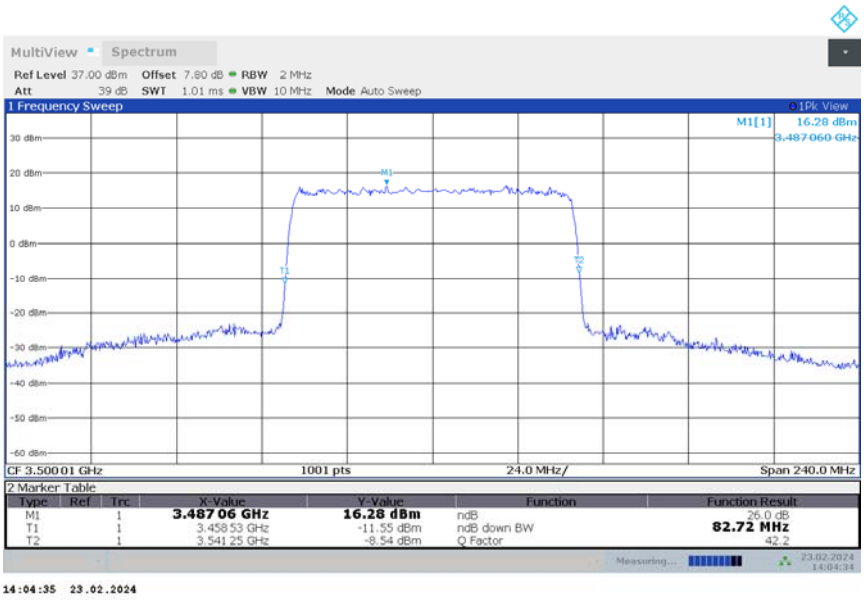
n77L-MIMO,80MHz(-26dBc)

Frequency (MHz)	Emission Bandwidth (-26dBc) (MHz)	
	CP-QPSK	CP-16QAM
3500.01	82.720	82.720

n77L,80MHz Bandwidth,CP-QPSK (-26dBc BW)



n77L,80MHz Bandwidth,CP-16QAM (-26dBc BW)



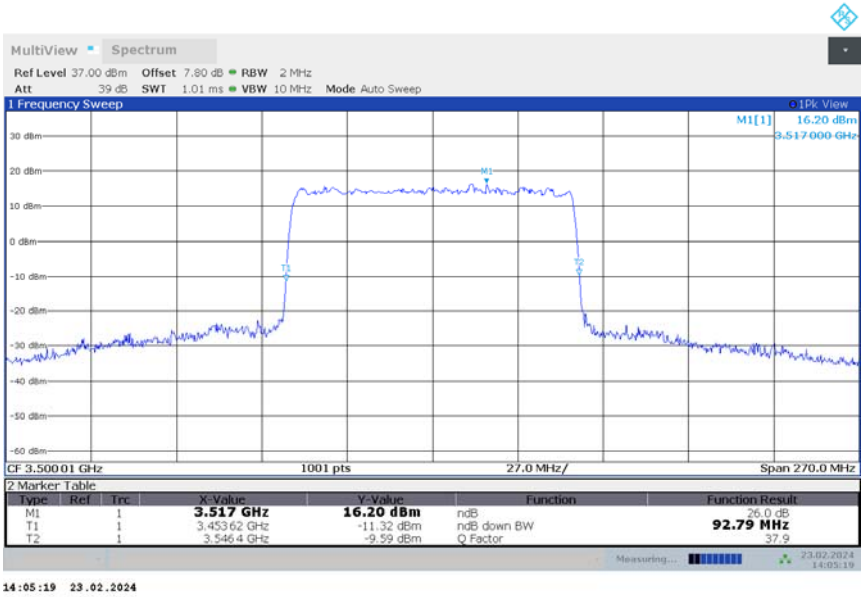
©Copyright. All rights reserved by CTTL.

n77L-MIMO

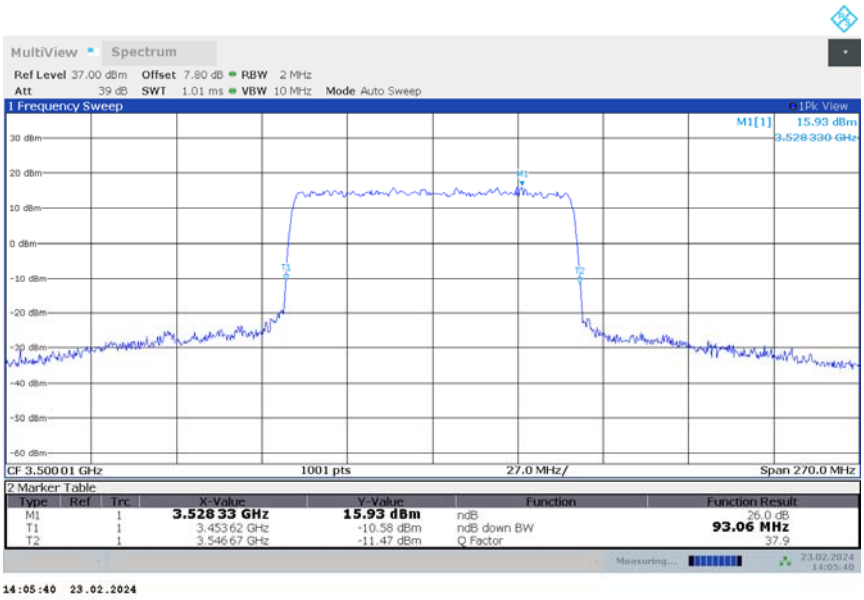
n77L-MIMO,90MHz(-26dBc)

Frequency (MHz)	Emission Bandwidth (-26dBc) (MHz)	
	CP-QPSK	CP-16QAM
3500.01	92.790	93.060

n77L,90MHz Bandwidth,CP-QPSK (-26dBc BW)



n77L,90MHz Bandwidth,CP-16QAM (-26dBc BW)



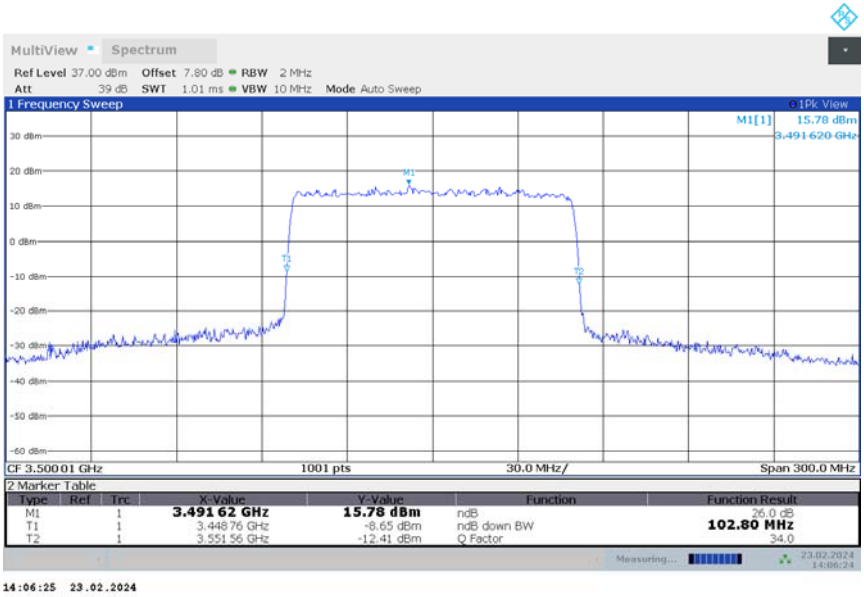
©Copyright. All rights reserved by CTTL.

n77L-MIMO

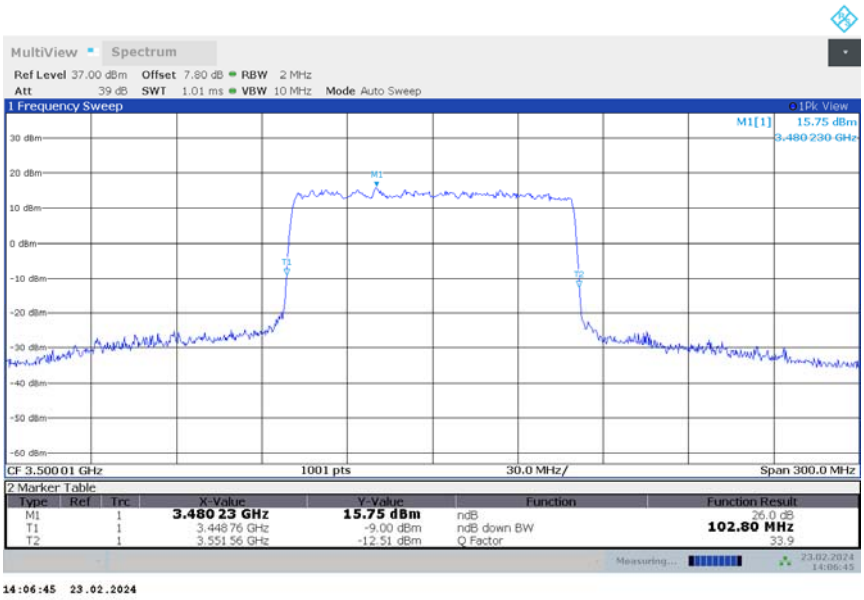
n77L-MIMO,100MHz(-26dBc)

Frequency (MHz)	Emission Bandwidth (-26dBc) (MHz)	
	CP-QPSK	CP-16QAM
3500.01	102.800	102.800

n77L,100MHz Bandwidth,CP-QPSK (-26dBc BW)



n77L,100MHz Bandwidth,CP-16QAM (-26dBc BW)



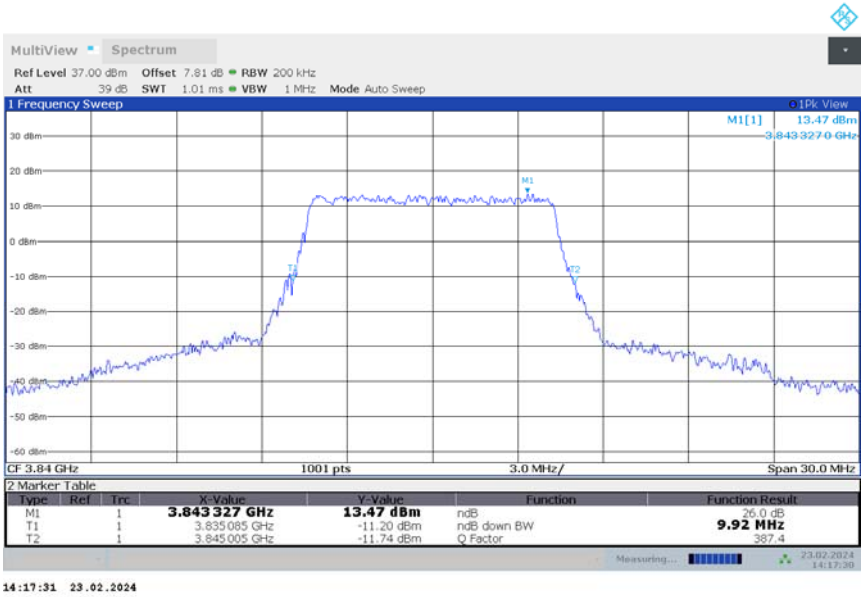
©Copyright. All rights reserved by CTTL.

n77H-MIMO

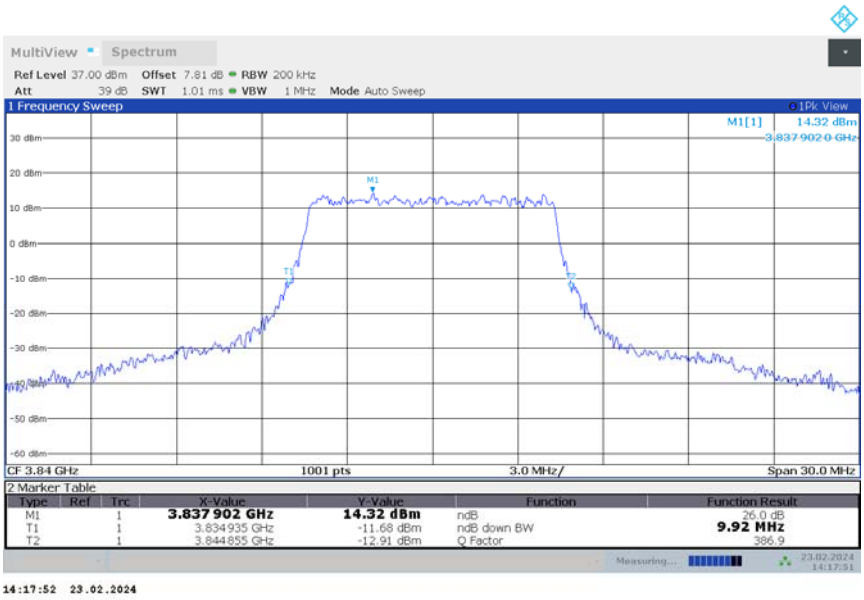
n77H-MIMO,10MHz(-26dBc)

Frequency (MHz)	Emission Bandwidth (-26dBc) (MHz)	
	CP-QPSK	CP-16QAM
3840	9.920	9.920

n77H,10MHz Bandwidth,CP-QPSK (-26dBc BW)



n77H,10MHz Bandwidth,CP-16QAM (-26dBc BW)



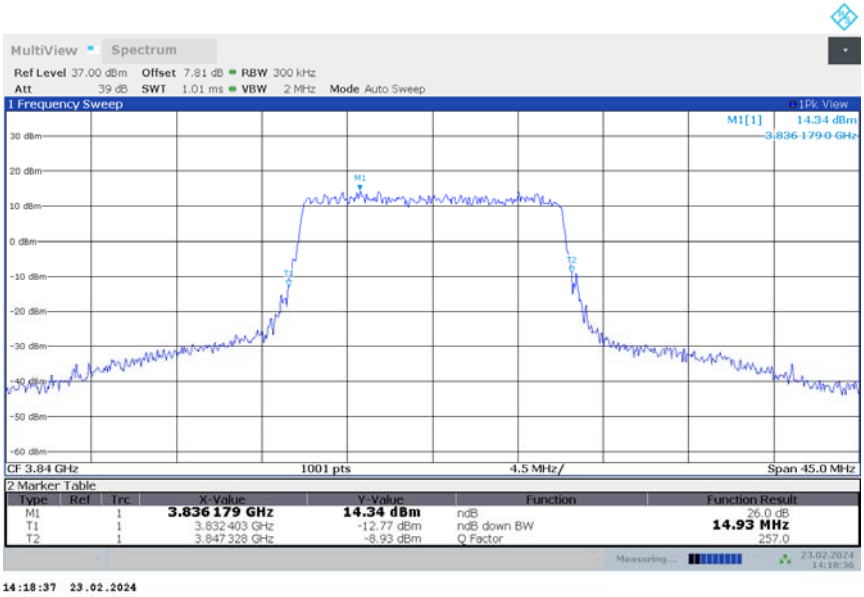
©Copyright. All rights reserved by CTTL.

n77H-MIMO

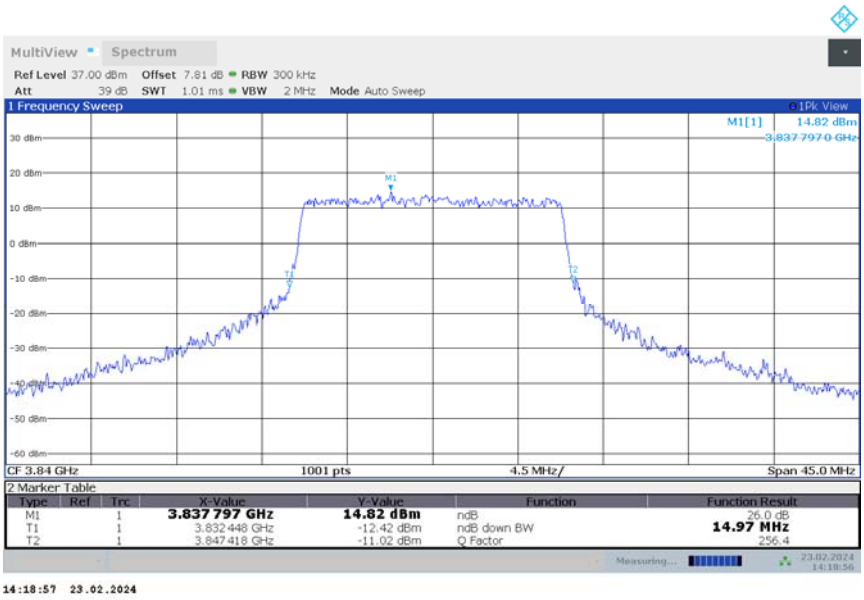
n77H-MIMO,15MHz(-26dBc)

Frequency (MHz)	Emission Bandwidth (-26dBc) (MHz)	
	CP-QPSK	CP-16QAM
3840	14.925	14.970

n77H,15MHz Bandwidth,CP-QPSK (-26dBc BW)



n77H,15MHz Bandwidth,CP-16QAM (-26dBc BW)



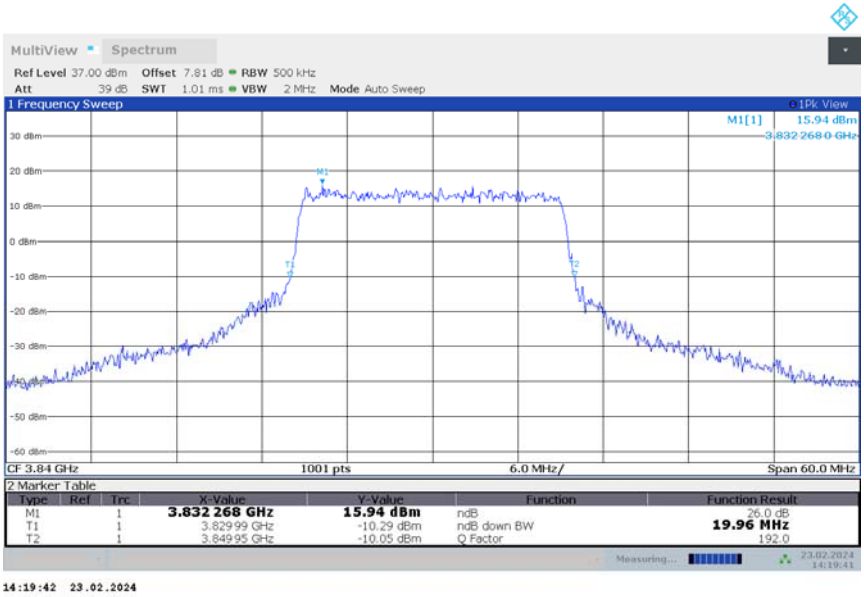
©Copyright. All rights reserved by CTTL.

n77H-MIMO

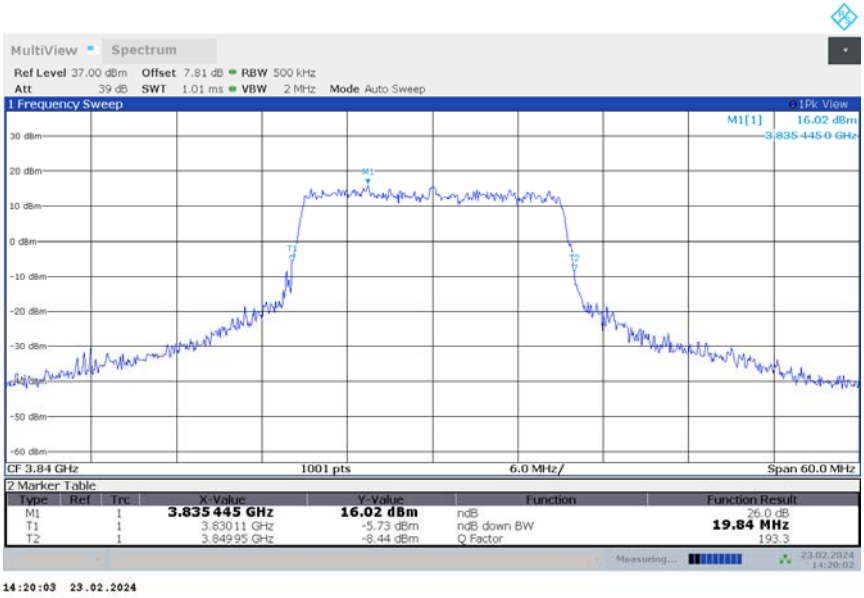
n77H-MIMO,20MHz(-26dBc)

Frequency (MHz)	Emission Bandwidth (-26dBc) (MHz)	
	CP-QPSK	CP-16QAM
3840	19.960	19.840

n77H,20MHz Bandwidth,CP-QPSK (-26dBc BW)



n77H,20MHz Bandwidth,CP-16QAM (-26dBc BW)



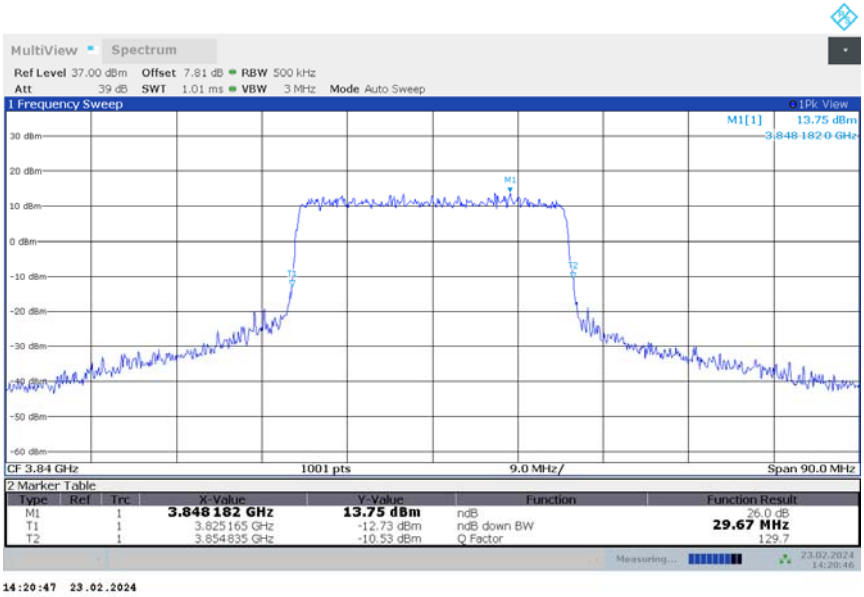
©Copyright. All rights reserved by CTTL.

n77H-MIMO

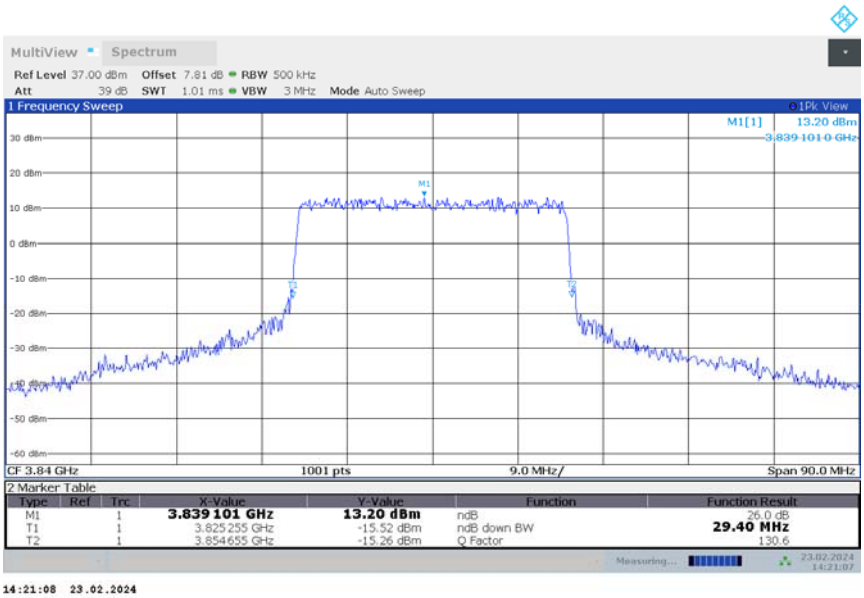
n77H-MIMO,30MHz(-26dBc)

Frequency (MHz)	Emission Bandwidth (-26dBc) (MHz)	
	CP-QPSK	CP-16QAM
3840	29.670	29.401

n77H,30MHz Bandwidth,CP-QPSK (-26dBc BW)



n77H,30MHz Bandwidth,CP-16QAM (-26dBc BW)



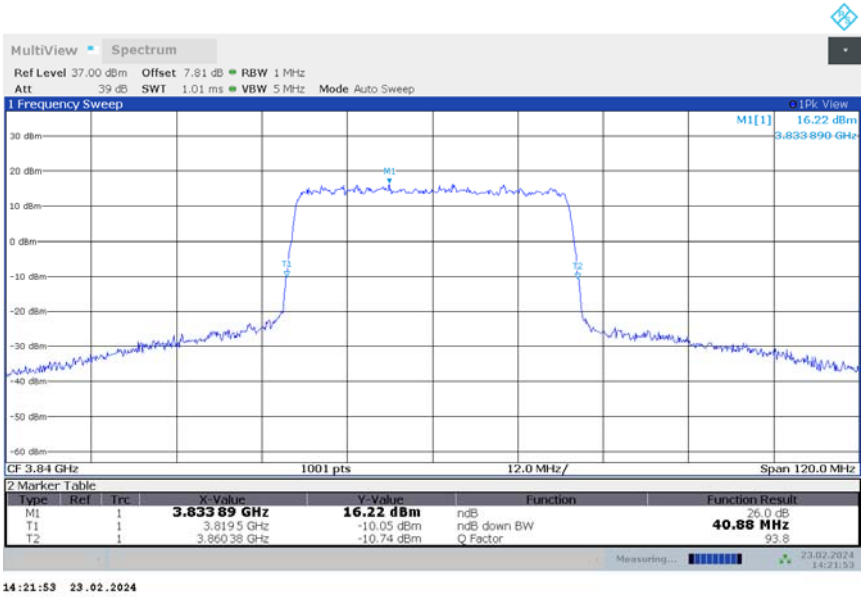
©Copyright. All rights reserved by CTTL.

n77H-MIMO

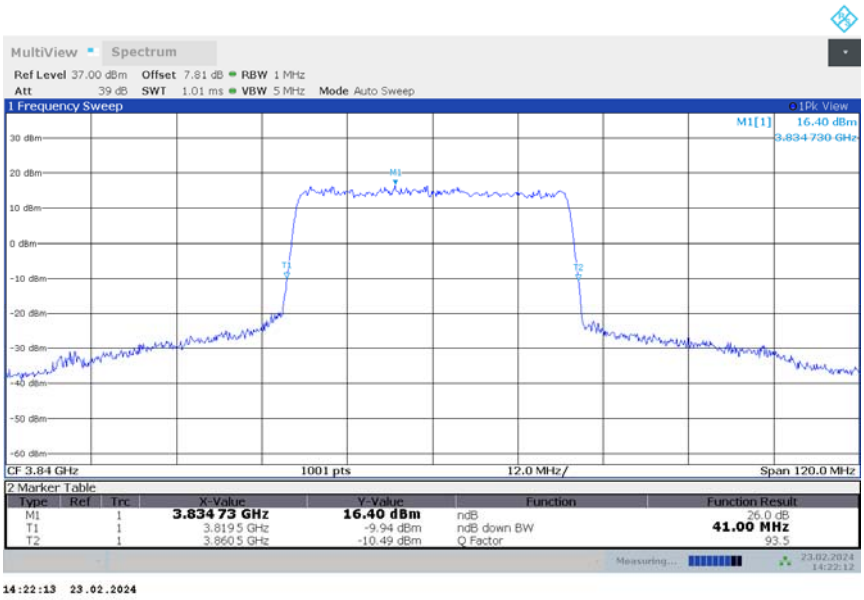
n77H-MIMO,40MHz(-26dBc)

Frequency (MHz)	Emission Bandwidth (-26dBc) (MHz)	
	CP-QPSK	CP-16QAM
3840	40.880	41.000

n77H,40MHz Bandwidth,CP-QPSK (-26dBc BW)



n77H,40MHz Bandwidth,CP-16QAM (-26dBc BW)



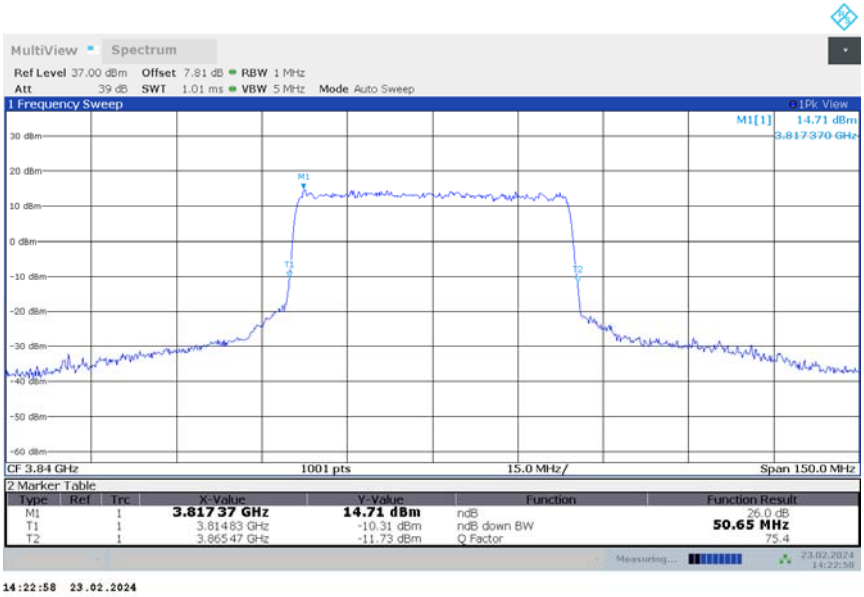
©Copyright. All rights reserved by CTTL.

n77H-MIMO

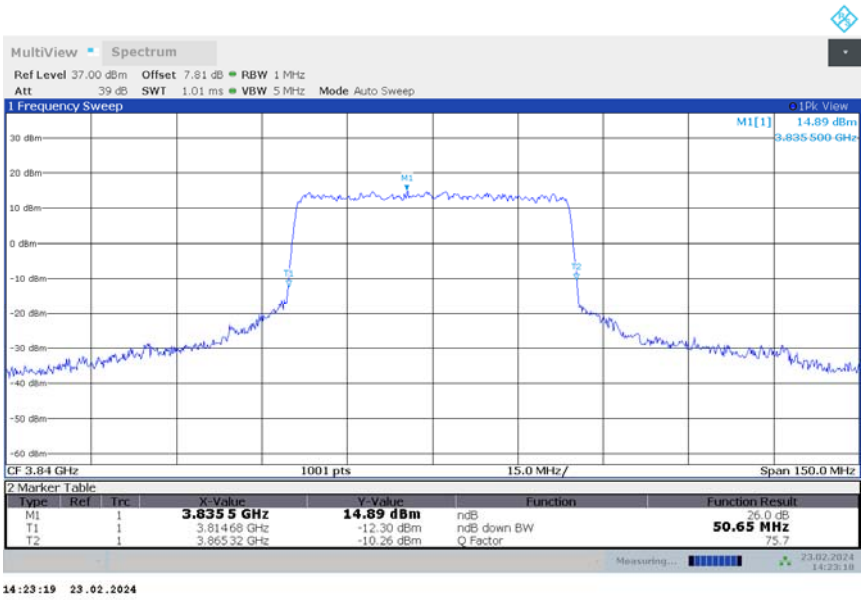
n77H-MIMO,50MHz(-26dBc)

Frequency (MHz)	Emission Bandwidth (-26dBc) (MHz)	
	CP-QPSK	CP-16QAM
3840	50.650	50.650

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



n77H,50MHz Bandwidth,CP-16QAM (-26dBc BW)



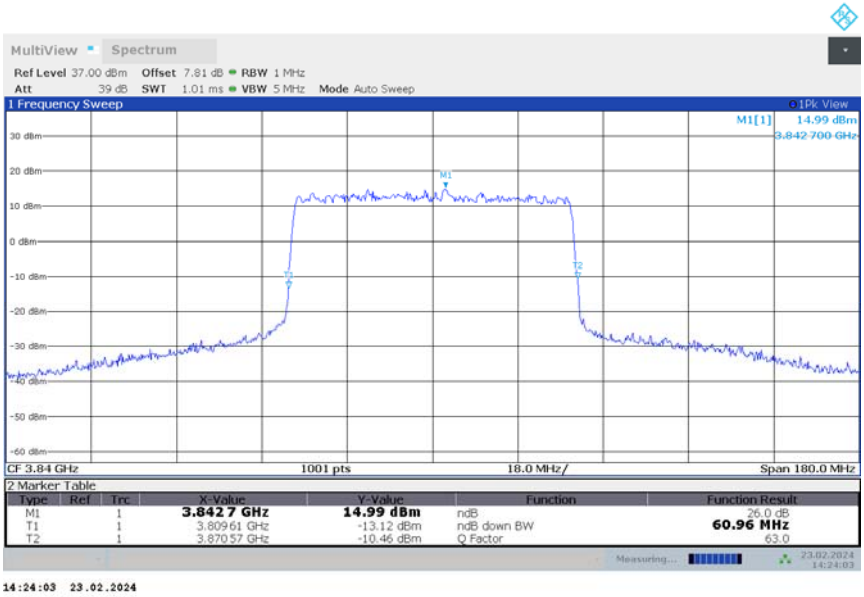
©Copyright. All rights reserved by CTTL.

n77H-MIMO

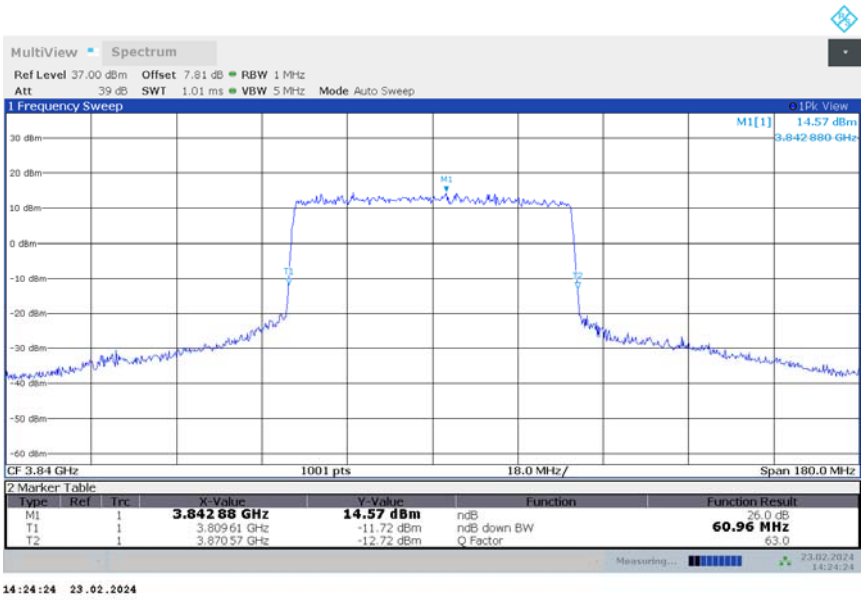
n77H-MIMO,60MHz(-26dBc)

Frequency (MHz)	Emission Bandwidth (-26dBc) (MHz)	
	CP-QPSK	CP-16QAM
3840	60.960	60.960

n77H,60MHz Bandwidth,CP-QPSK (-26dBc BW)



n77H,60MHz Bandwidth,CP-16QAM (-26dBc BW)



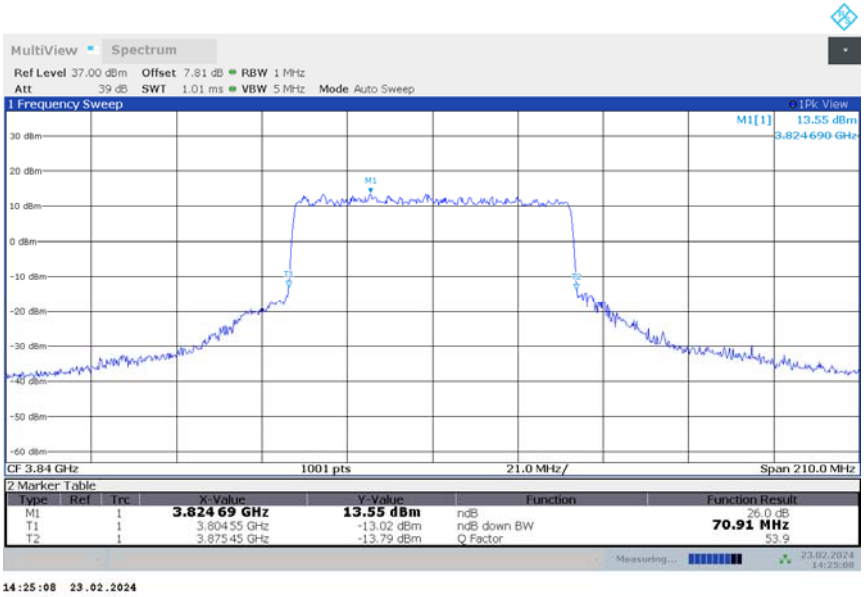
©Copyright. All rights reserved by CTTL.

n77H-MIMO

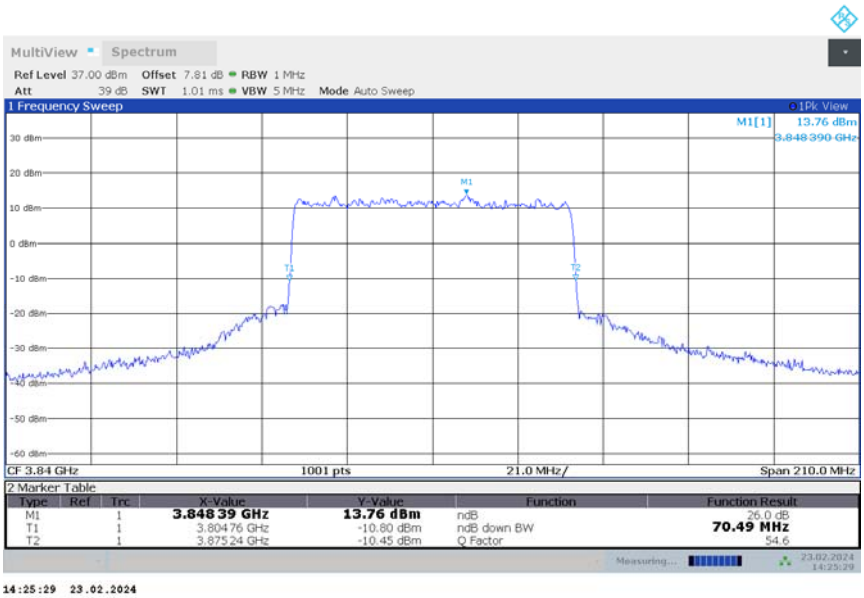
n77H-MIMO,70MHz(-26dBc)

Frequency (MHz)	Emission Bandwidth (-26dBc) (MHz)	
	CP-QPSK	CP-16QAM
3840	70.910	70.490

n77H,70MHz Bandwidth,CP-QPSK (-26dBc BW)



n77H,70MHz Bandwidth,CP-16QAM (-26dBc BW)



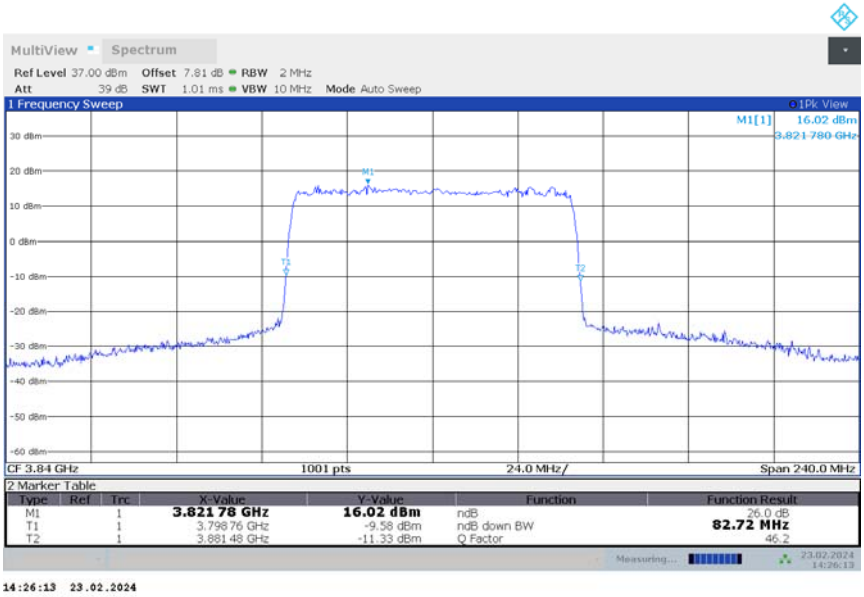
©Copyright. All rights reserved by CTTL.

n77H-MIMO

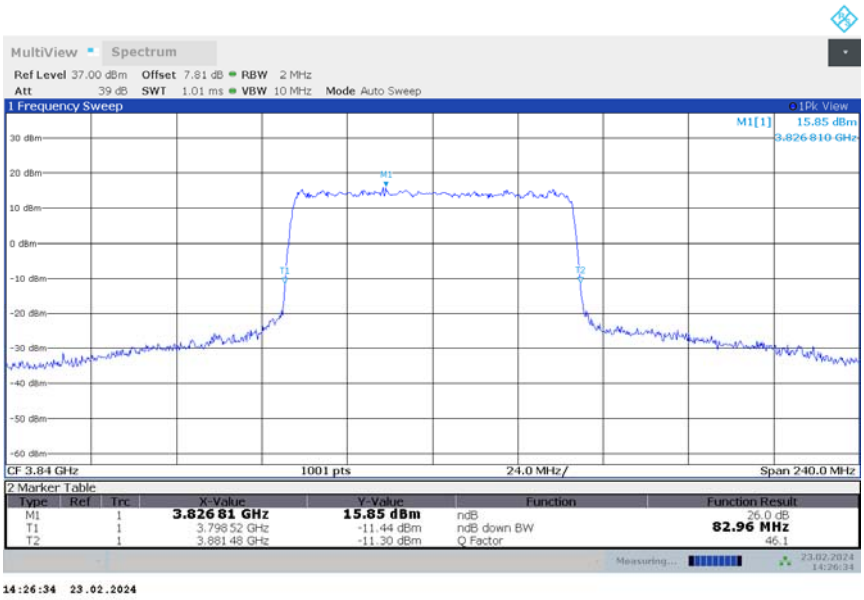
n77H-MIMO,80MHz(-26dBc)

Frequency (MHz)	Emission Bandwidth (-26dBc) (MHz)	
	CP-QPSK	CP-16QAM
3840	82.720	82.960

n77H,80MHz Bandwidth,CP-QPSK (-26dBc BW)



n77H,80MHz Bandwidth,CP-16QAM (-26dBc BW)



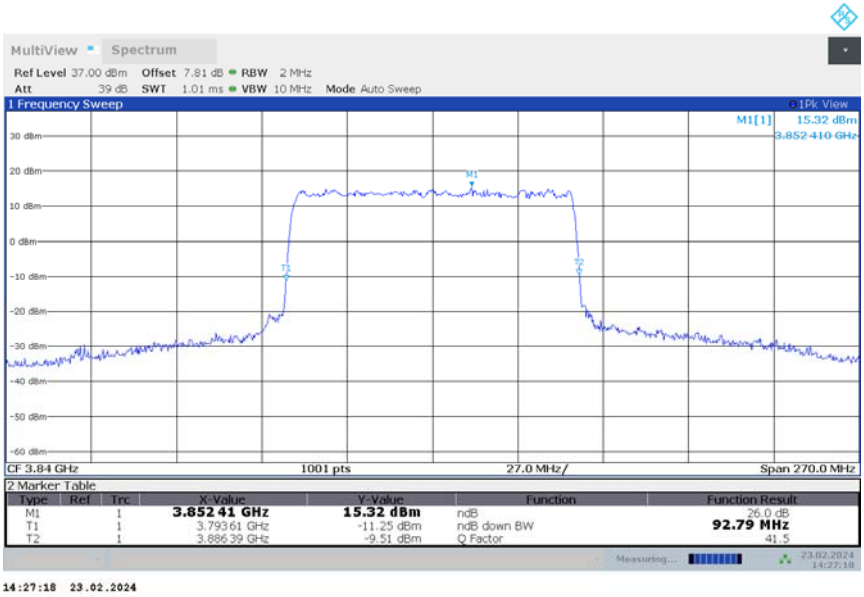
©Copyright. All rights reserved by CTTL.

n77H-MIMO

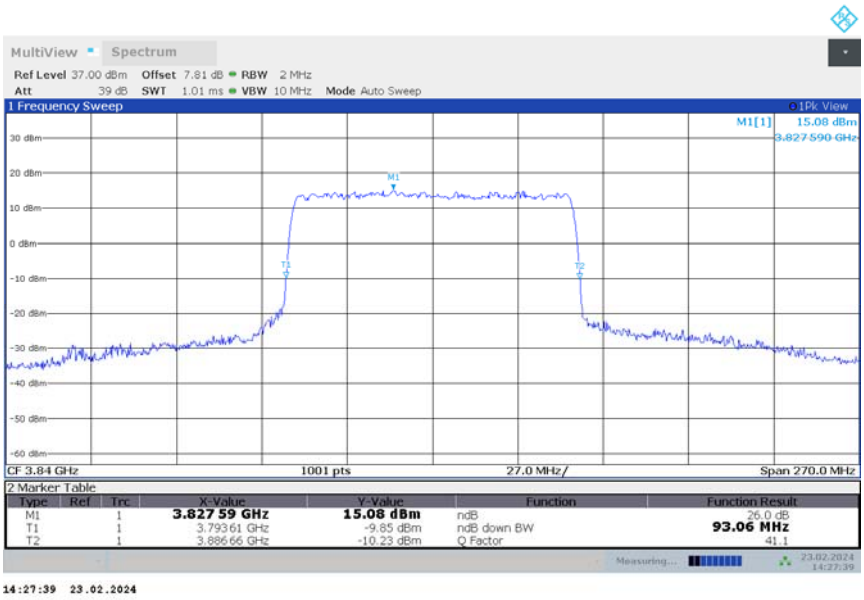
n77H-MIMO,90MHz(-26dBc)

Frequency (MHz)	Emission Bandwidth (-26dBc) (MHz)	
	CP-QPSK	CP-16QAM
3840	92.790	93.060

n77H,90MHz Bandwidth,CP-QPSK (-26dBc BW)



n77H,90MHz Bandwidth,CP-16QAM (-26dBc BW)



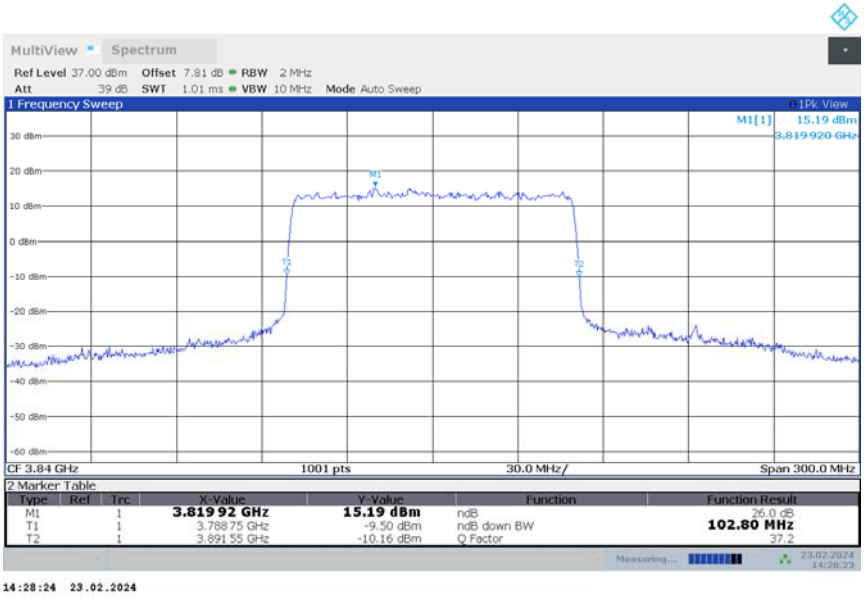
©Copyright. All rights reserved by CTTL.

n77H-MIMO

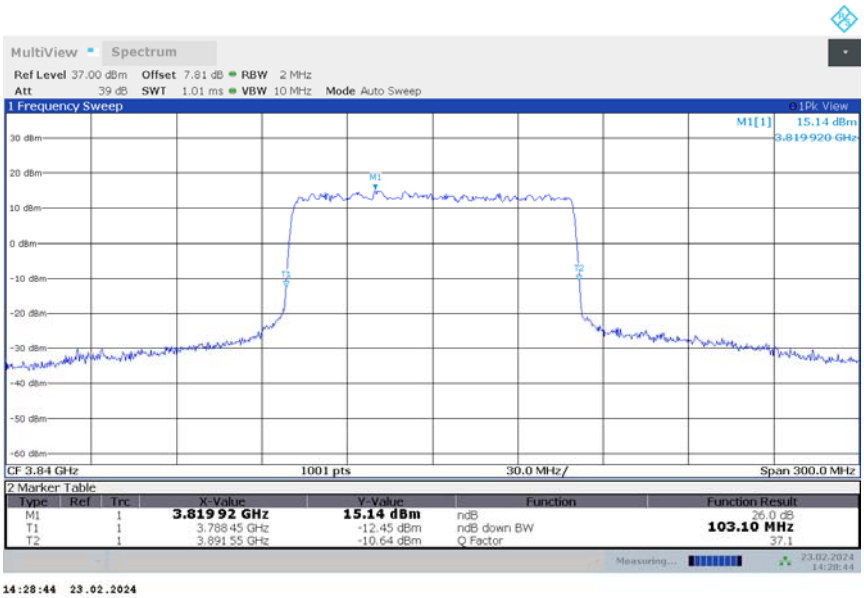
n77H-MIMO,100MHz(-26dBc)

Frequency (MHz)	Emission Bandwidth (-26dBc) (MHz)	
	CP-QPSK	CP-16QAM
3840	102.800	103.100

n77H,100MHz Bandwidth,CP-QPSK (-26dBc BW)



n77H,100MHz Bandwidth,CP-16QAM (-26dBc BW)



Note: The maximum value of expanded measurement uncertainty for this test item is U = 0.626 kHz, *k* = 2.

©Copyright. All rights reserved by CTTL.

A.6 Band Edge Compliance

A.6.1 Measurement limit

Part 24.238 and Part 27.53(h) specify that the power 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(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 that 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(g) states for operations in the 600 MHz band and the 698–746 MHz band, the power of any emission outside a licensee’s frequency band(s) of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, by at least 43 + 10 log (P) dB. Compliance with this provision is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kilohertz or greater. However, in the 100 kilohertz bands immediately outside and adjacent to a licensee’s frequency block, a resolution bandwidth of at least 30 kHz may be employed.

Part 27.53(n) states for mobile 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 this paragraph (n)(2) 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. In the bands between 1 and 5 MHz removed from the licensee's frequency block, the minimum resolution bandwidth for the measurement shall be 500 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.

Part 27.53(l) states for mobile 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)(2) 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, the minimum resolution bandwidth for the measurement shall be either one percent of the emission bandwidth of the fundamental emission of the transmitter or 350 kHz. In the bands between 1 and 5 MHz removed from the licensee's frequency block, the minimum resolution bandwidth for the measurement shall be 500 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

©Copyright. All rights reserved by CTTL.

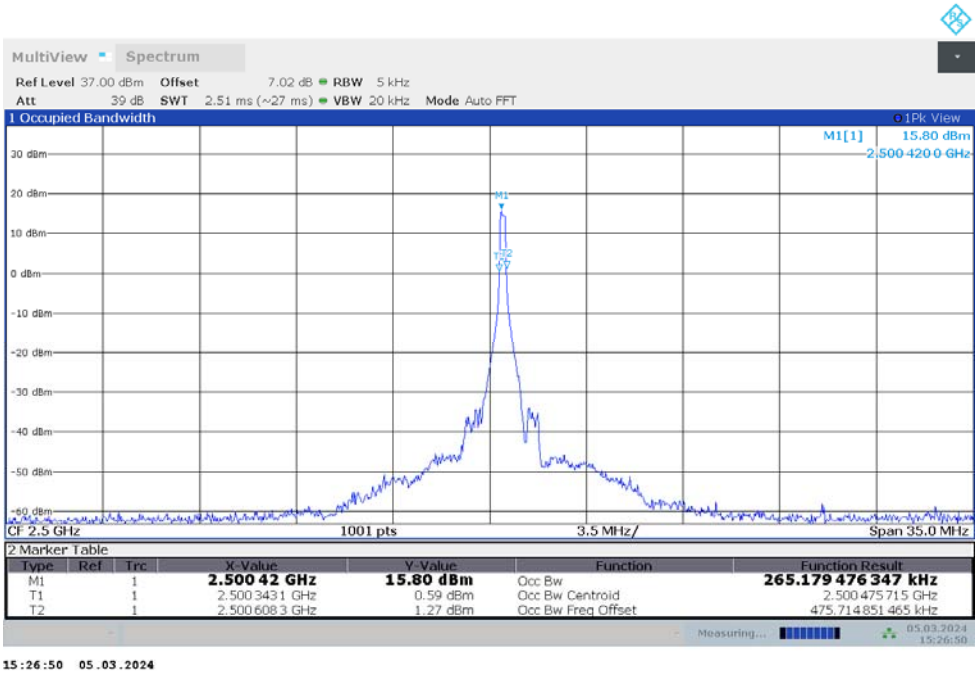
emissions are attenuated at least 26 dB below the transmitter power.
The spectrum analyzer readings are corrected by [10 log (1/duty cycle)] for the non-continuous transmitting scenario.

©Copyright. All rights reserved by CTTL.

A.6.2 Measurement result

NR n7

OBW: 1RB-LOW_offset



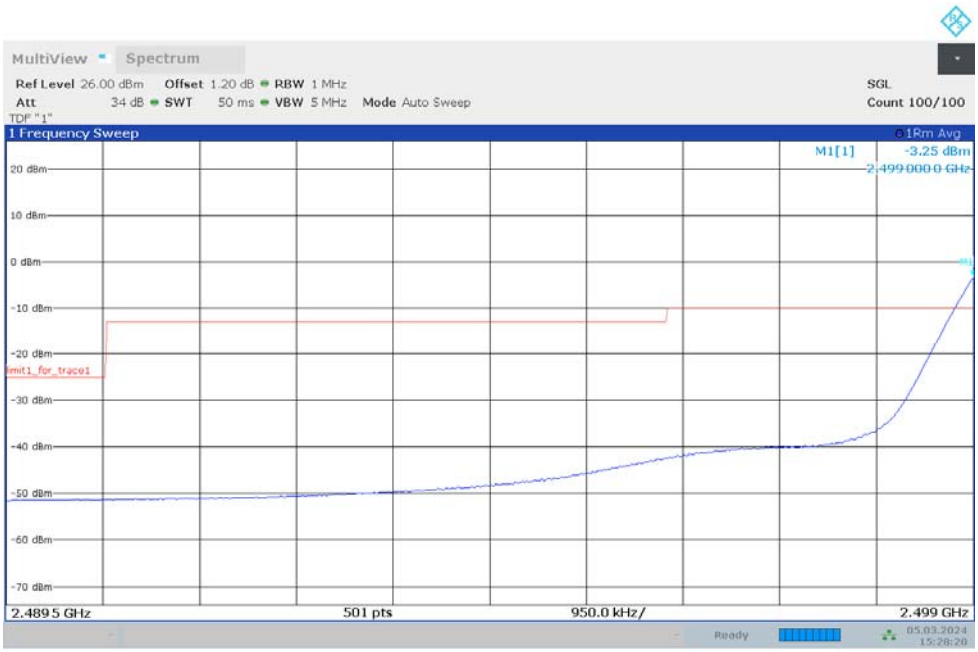
15:26:50 05.03.2024

LOW BAND EDGE BLOCK-1RB-LOW_offset

15:27:35 05.03.2024

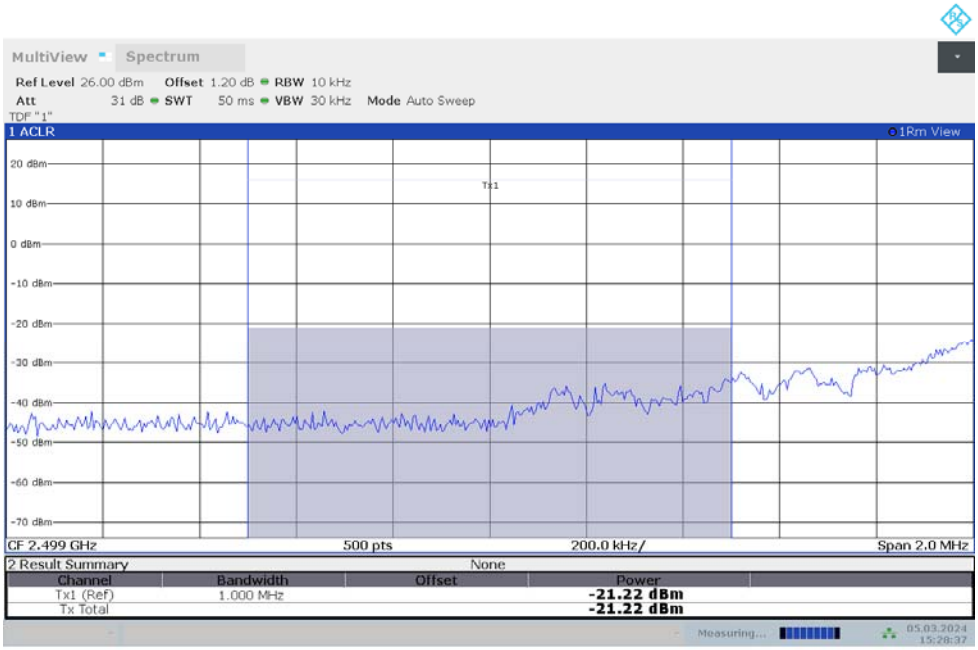
©Copyright. All rights reserved by CTTL.

LOW BAND EDGE BLOCK-1RB-LOW_offset



15:28:21 05.03.2024

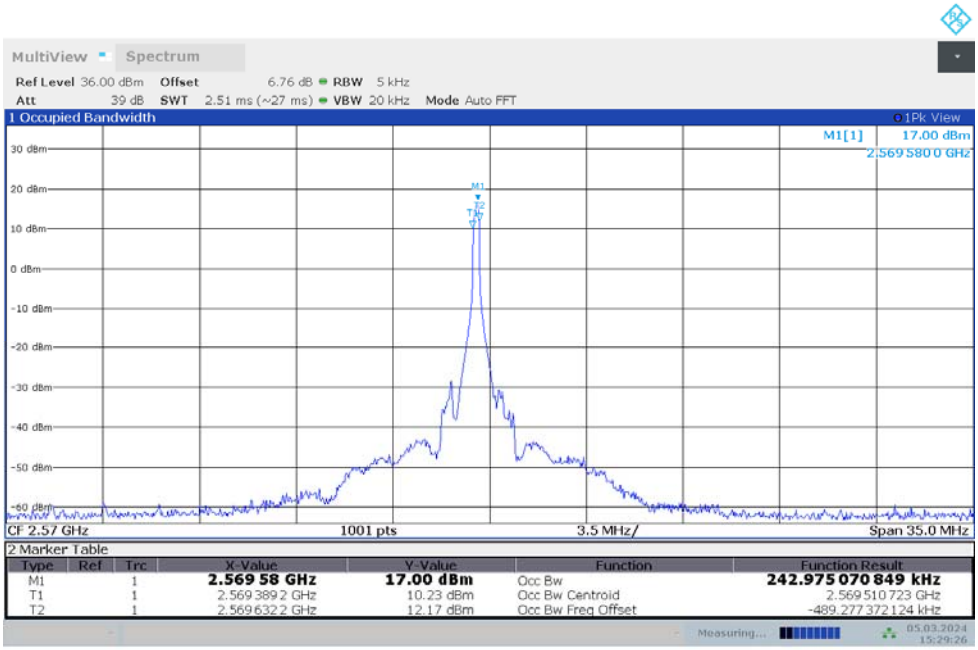
Channel power



15:28:37 05.03.2024

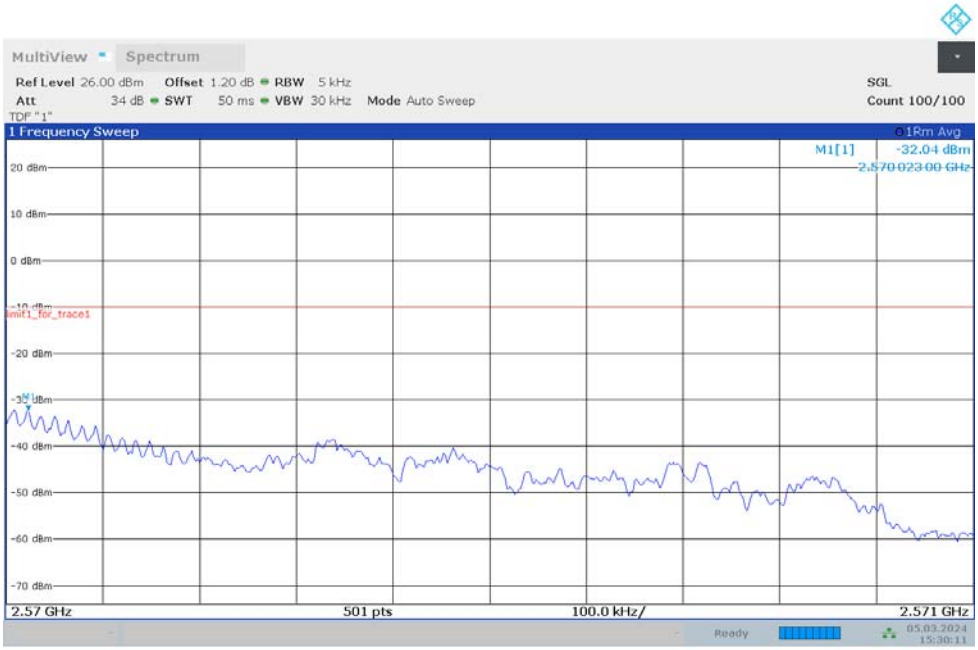
©Copyright. All rights reserved by CTTL.

OBW: 1RB-HIGH_offset



15:29:26 05.03.2024

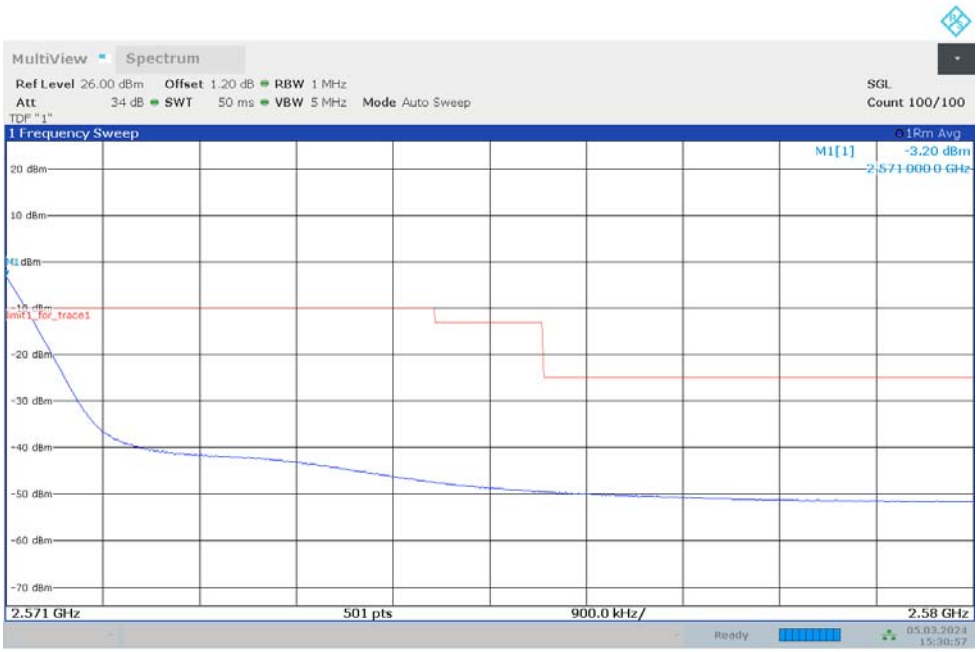
HIGH BAND EDGE BLOCK-1RB-HIGH_offset



15:30:11 05.03.2024

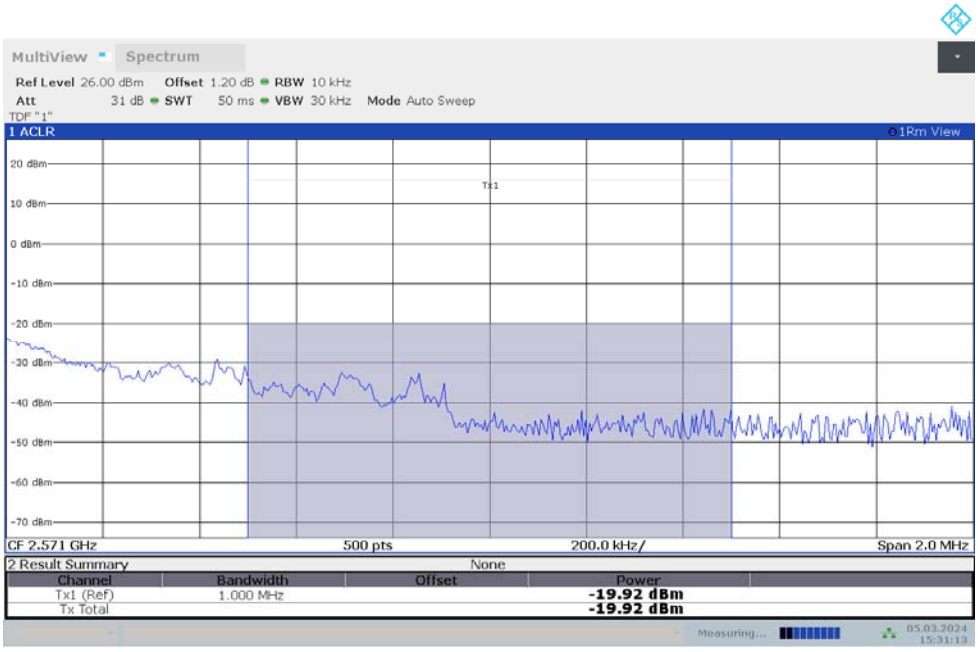
©Copyright. All rights reserved by CTTL.

HIGH BAND EDGE BLOCK-1RB-HIGH_offset



15:30:57 05.03.2024

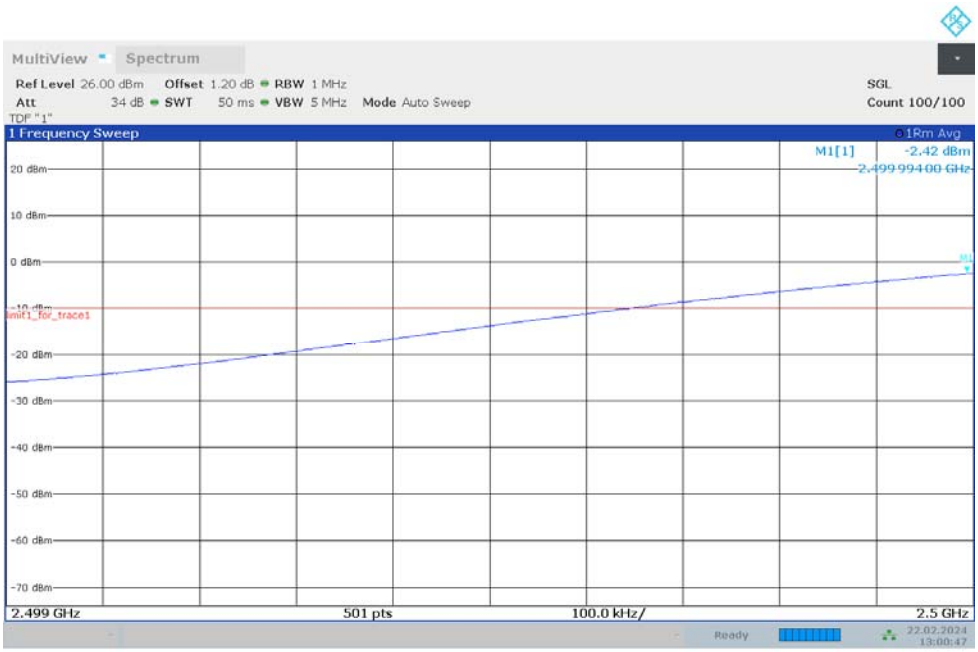
Channel power



15:31:14 05.03.2024

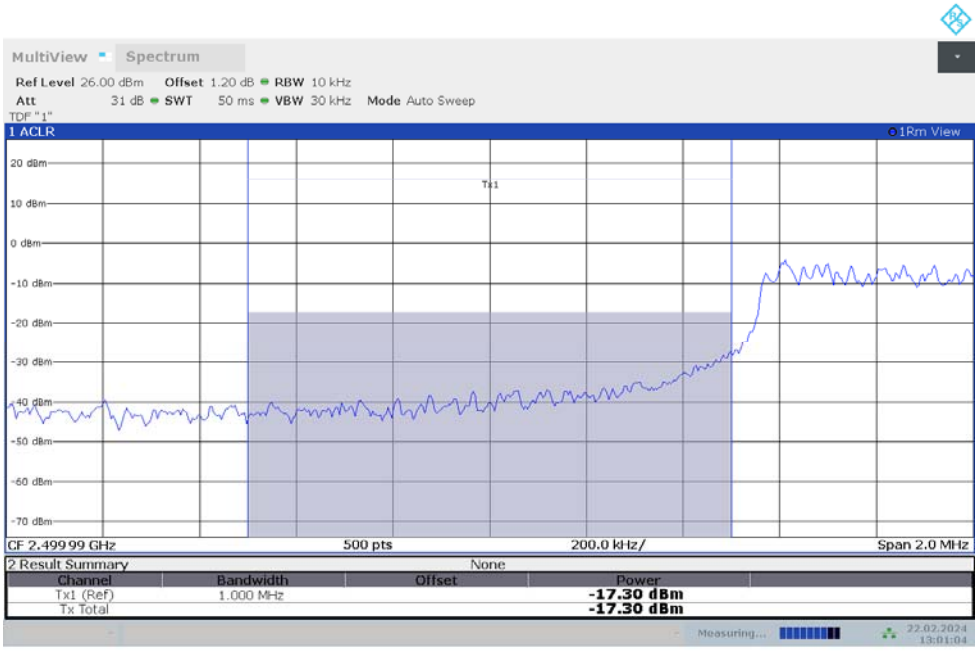
©Copyright. All rights reserved by CTTL.

LOW BAND EDGE BLOCK-40M-100%RB



13:00:48 22.02.2024

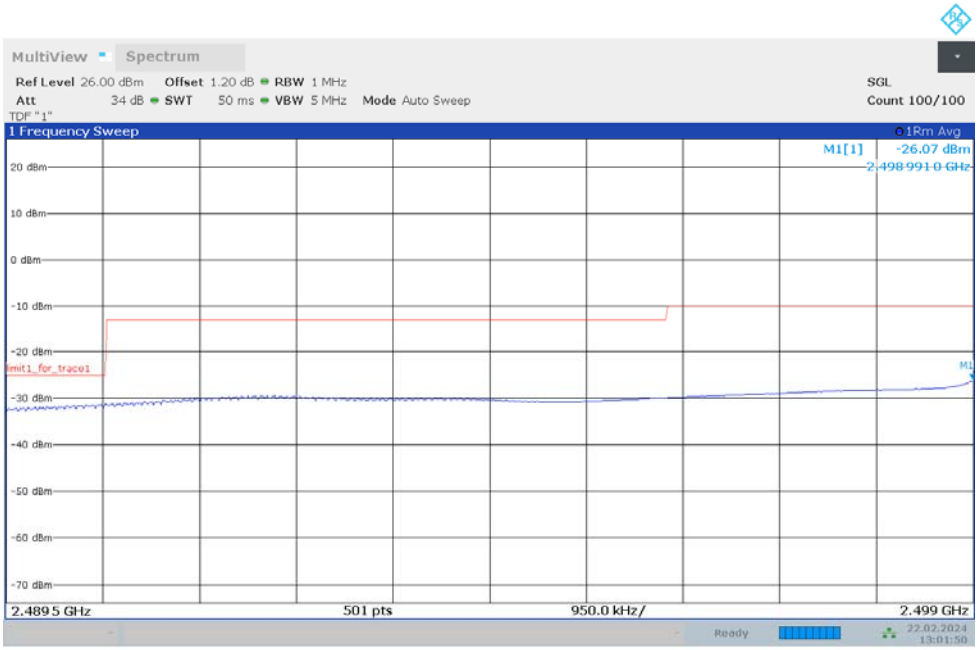
Channel power



13:01:05 22.02.2024

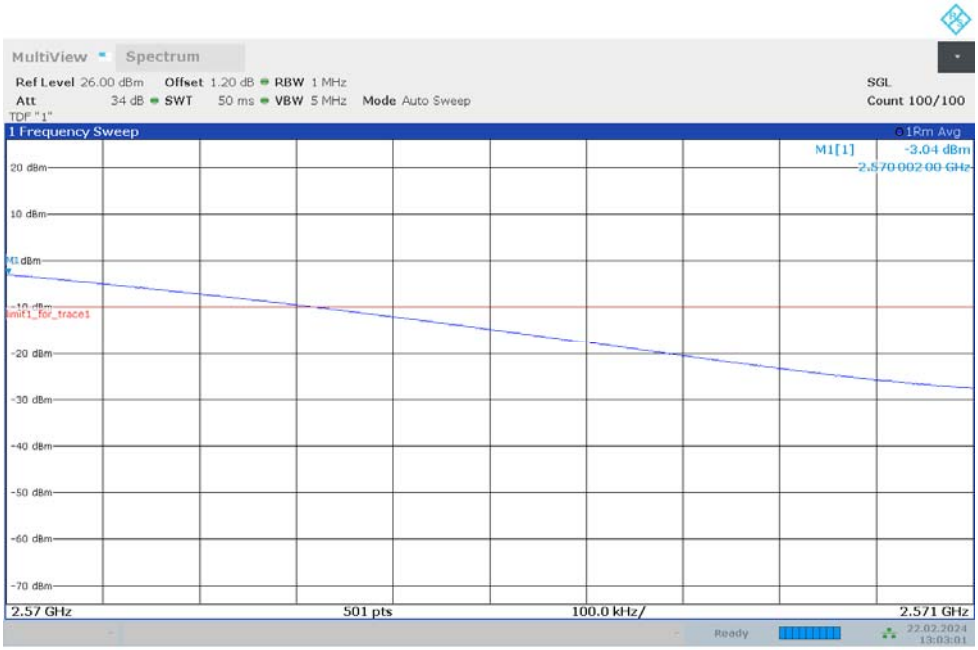
©Copyright. All rights reserved by CTTL.

LOW BAND EDGE BLOCK-40M-100%RB



13:01:50 22.02.2024

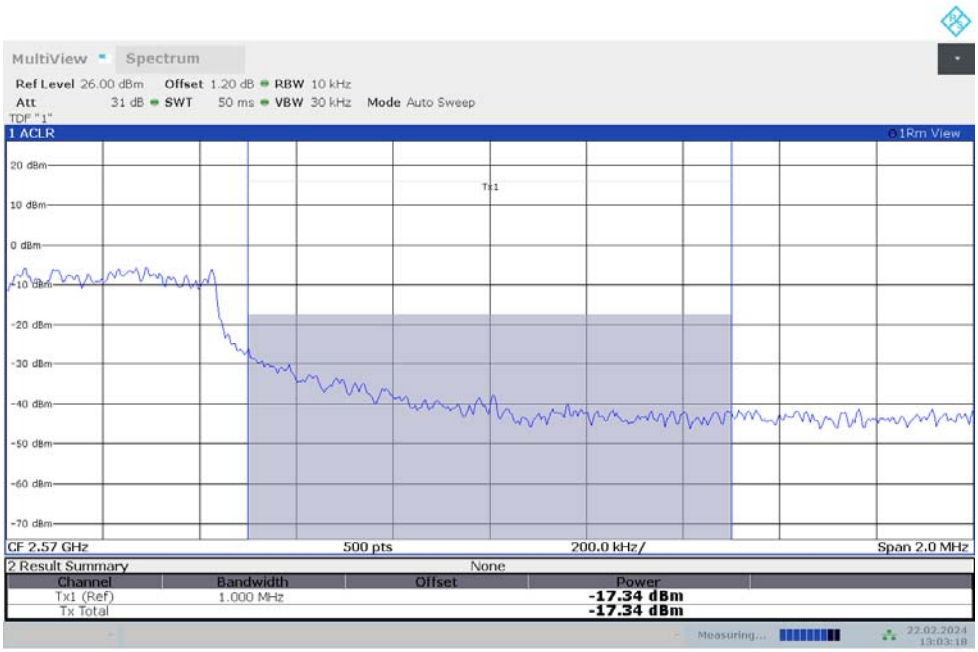
HIGH BAND EDGE BLOCK-40M-100%RB



13:03:01 22.02.2024

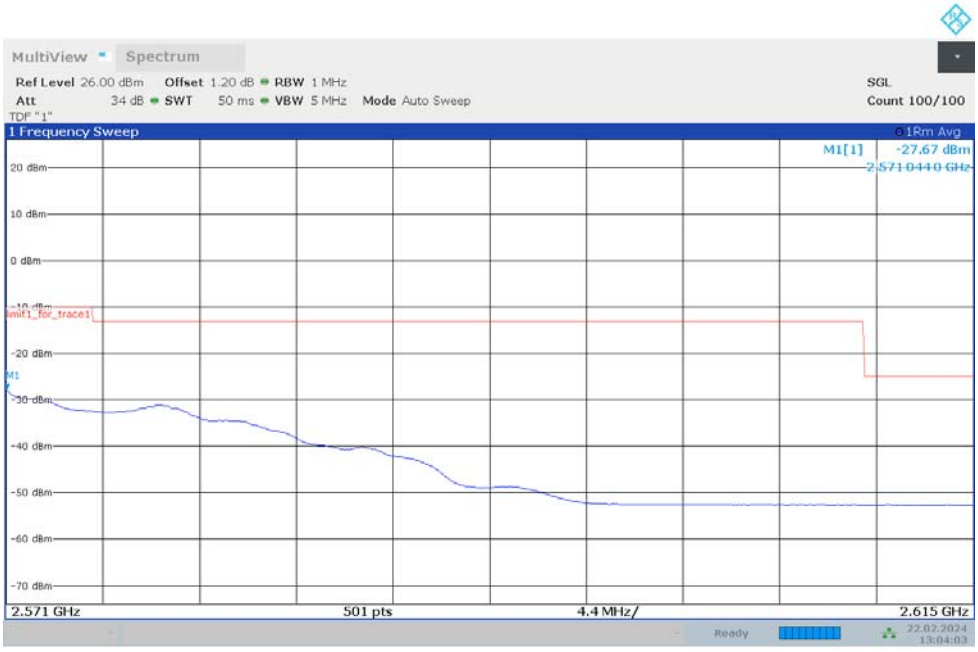
©Copyright. All rights reserved by CTTL.

Channel power



13:03:18 22.02.2024

HIGH BAND EDGE BLOCK-40M-100%RB

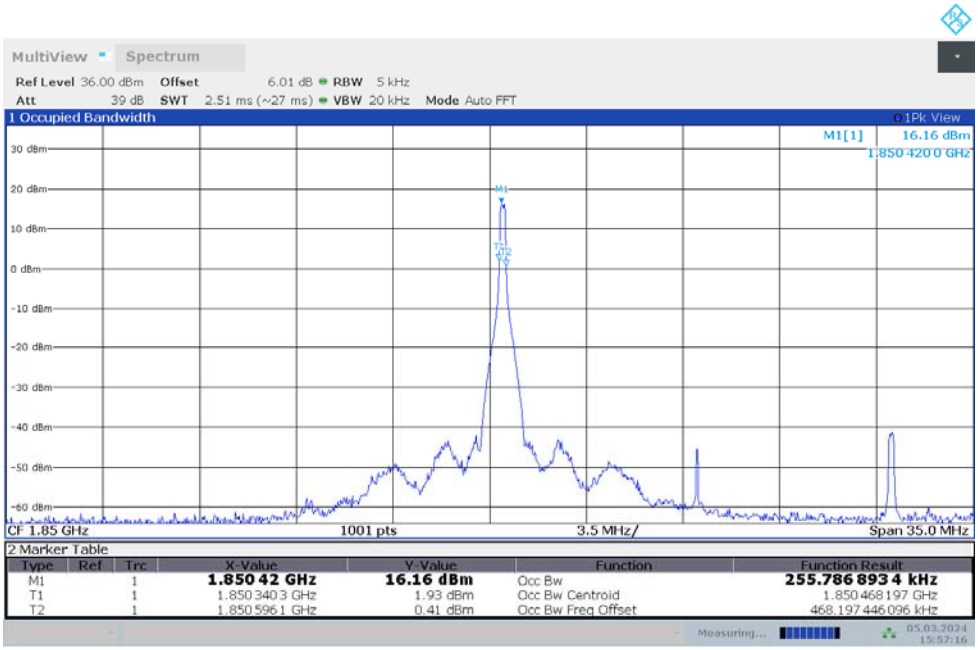


13:04:04 22.02.2024

©Copyright. All rights reserved by CTTL.

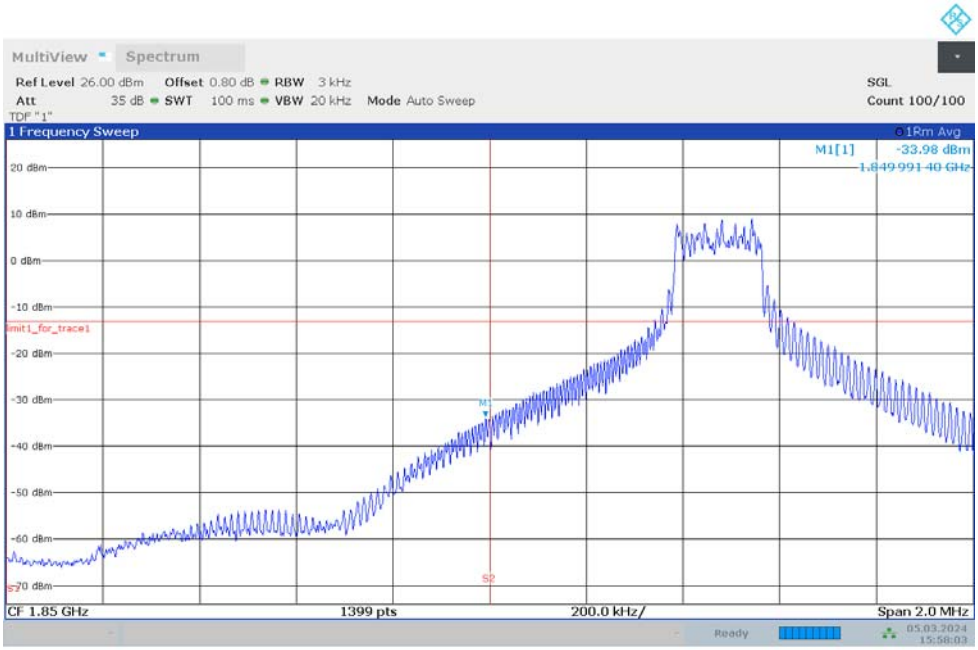
NR n25

OBW: 1RB-LOW_offset



15:57:17 05.03.2024

LOW BAND EDGE BLOCK-1RB-LOW_offset



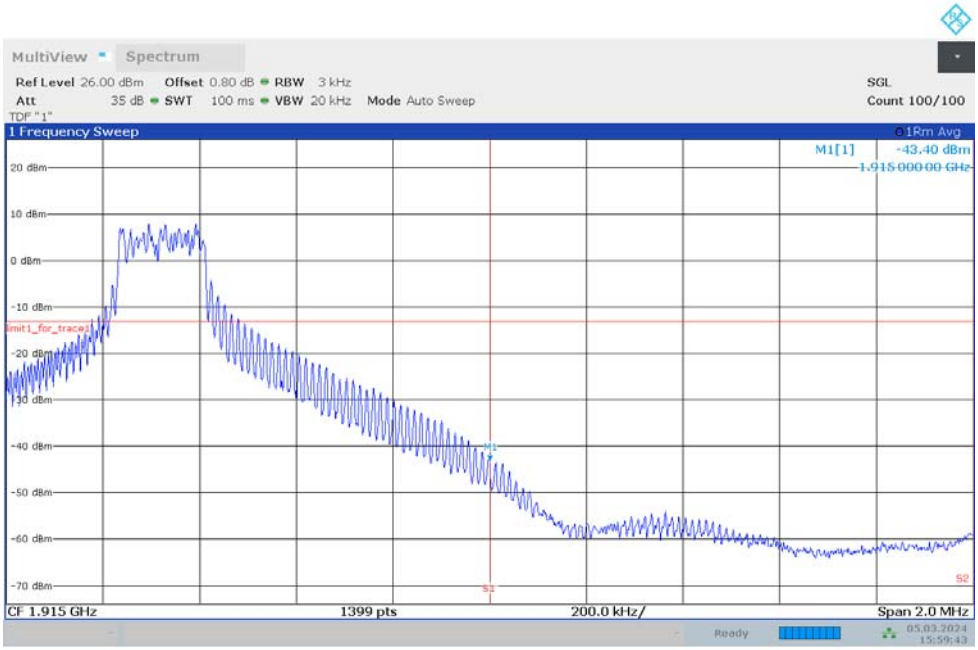
15:58:04 05.03.2024

©Copyright. All rights reserved by CTTL.

OBW: 1RB-HIGH_offset_35M

15:58:57 05.03.2024

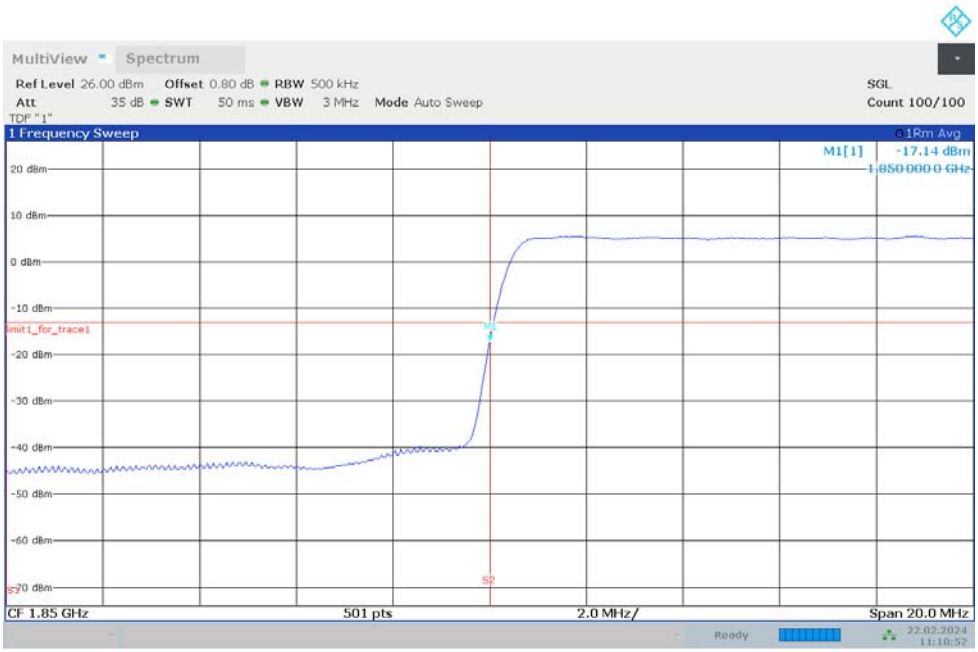
HIGH BAND EDGE BLOCK-1RB-HIGH_offset



15:59:44 05.03.2024

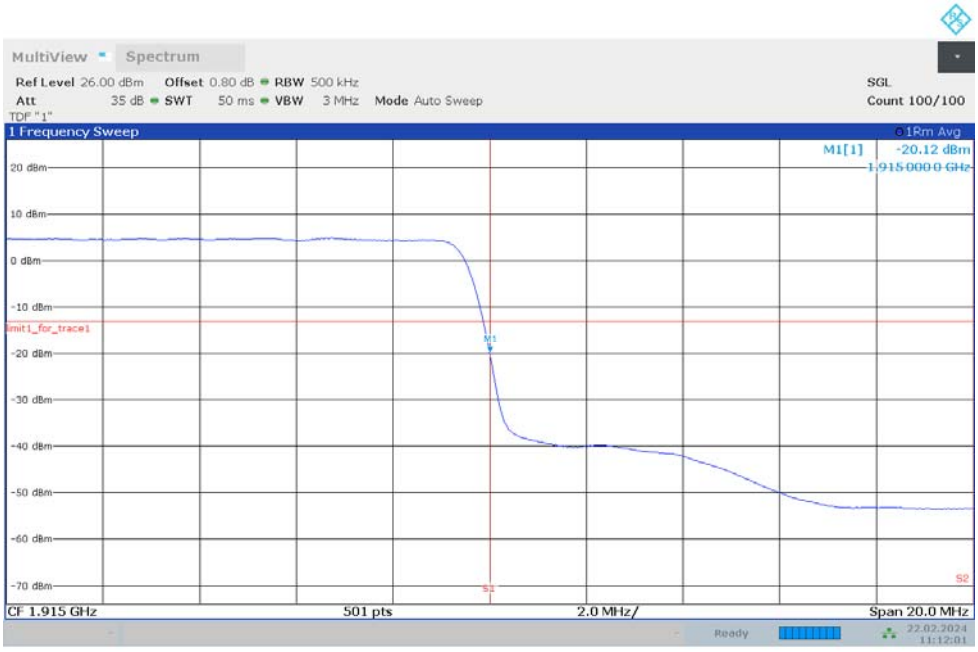
©Copyright. All rights reserved by CTTL.

LOW BAND EDGE BLOCK-40M-100%RB



11:10:53 22.02.2024

HIGH BAND EDGE BLOCK-40M-100%RB

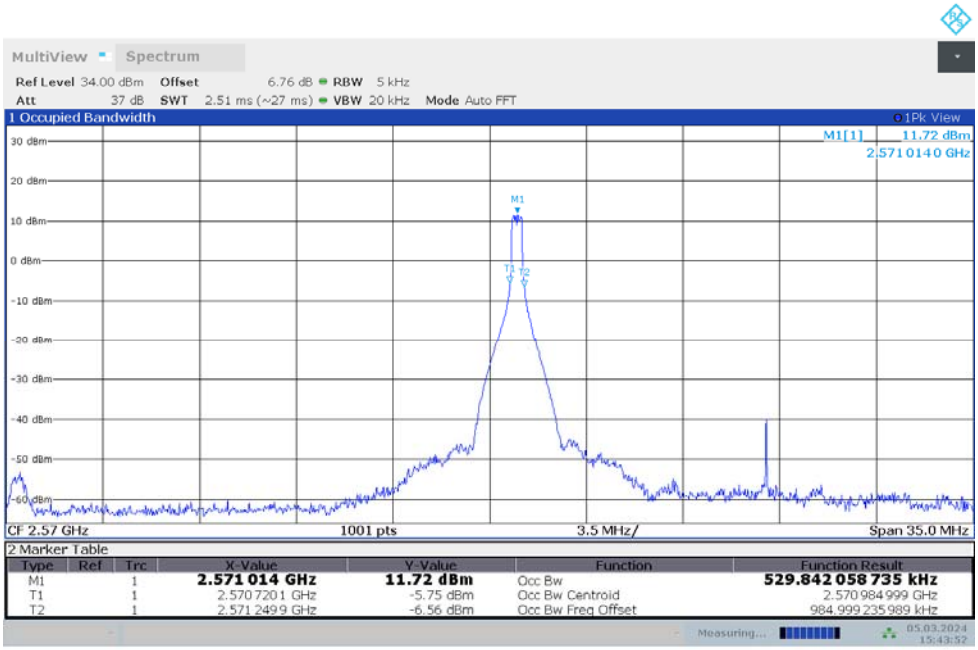


11:12:01 22.02.2024

©Copyright. All rights reserved by CTTL.

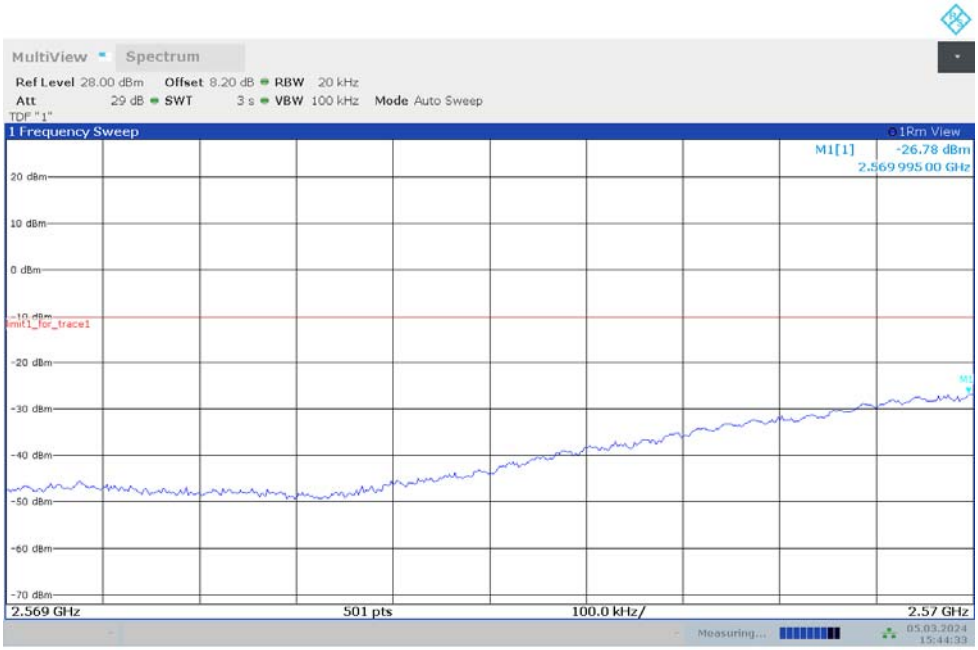
NR n38

OBW: 1RB-LOW_offset



15:43:53 05.03.2024

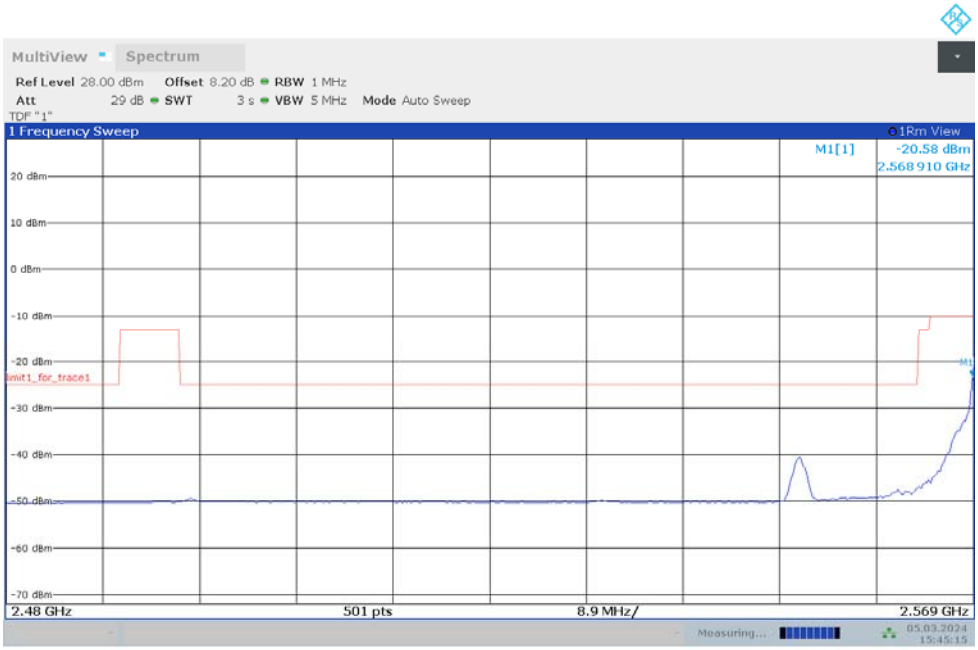
LOW BAND EDGE BLOCK-1RB-LOW_offset



15:44:34 05.03.2024

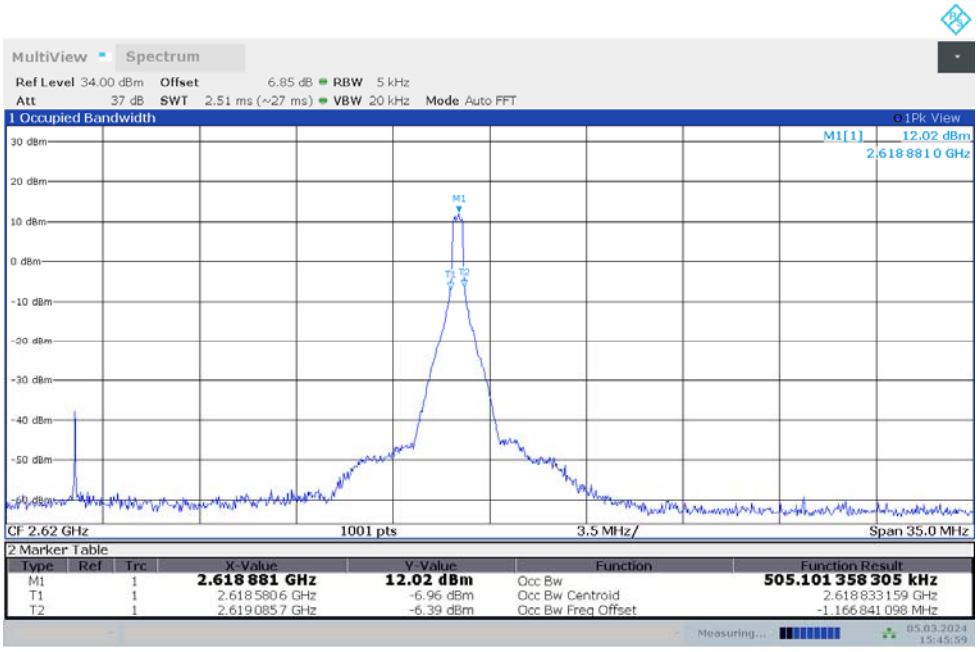
©Copyright. All rights reserved by CTTL.

LOW BAND EDGE BLOCK-1RB-LOW_offset



15:45:16 05.03.2024

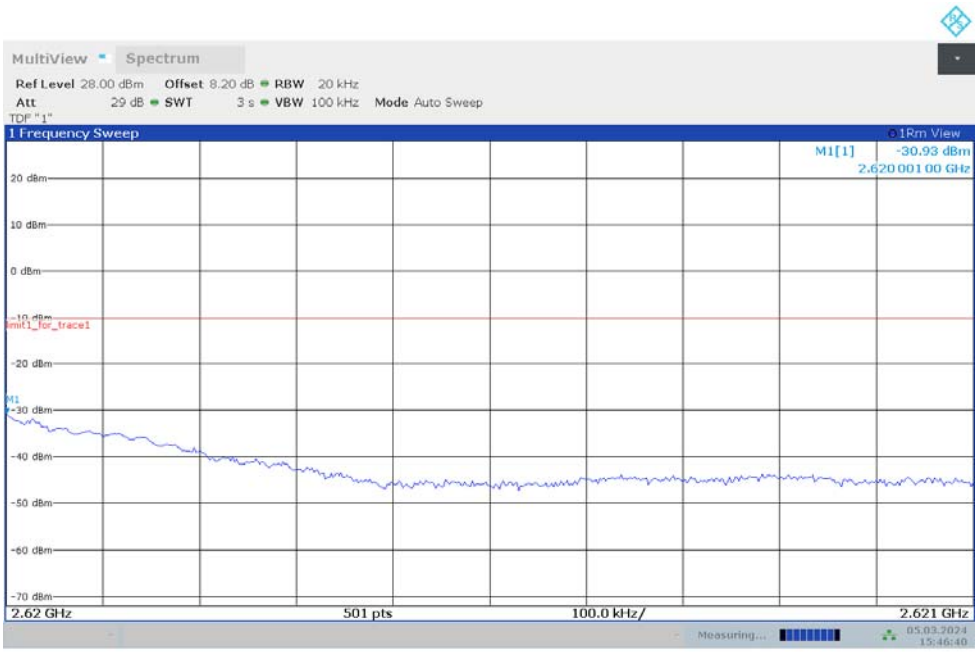
OBW: 1RB-HIGH_offset



15:45:59 05.03.2024

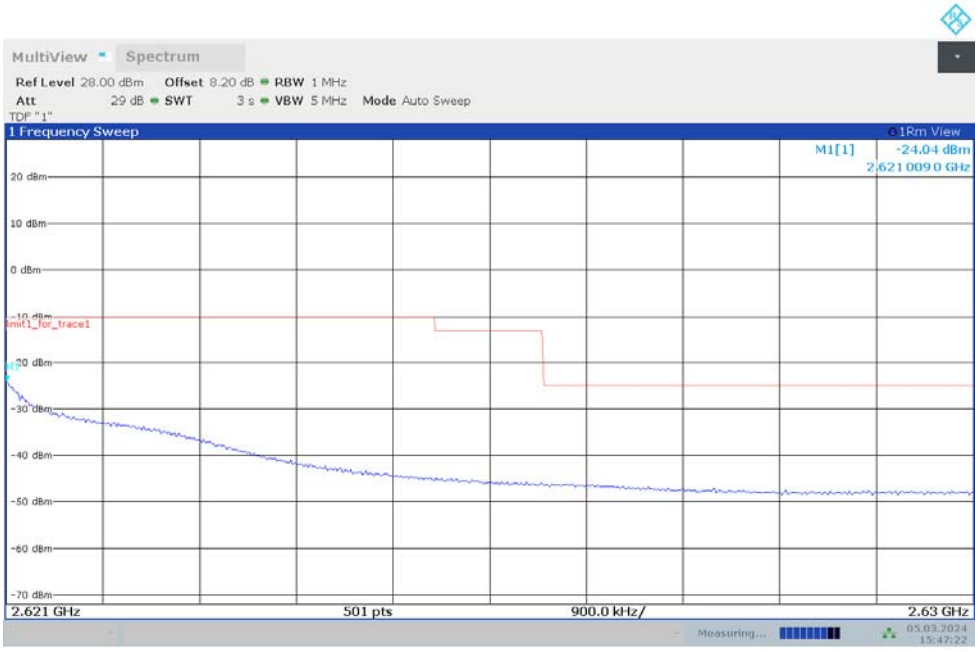
©Copyright. All rights reserved by CTTL.

HIGH BAND EDGE BLOCK-1RB-HIGH_offset



15:46:41 05.03.2024

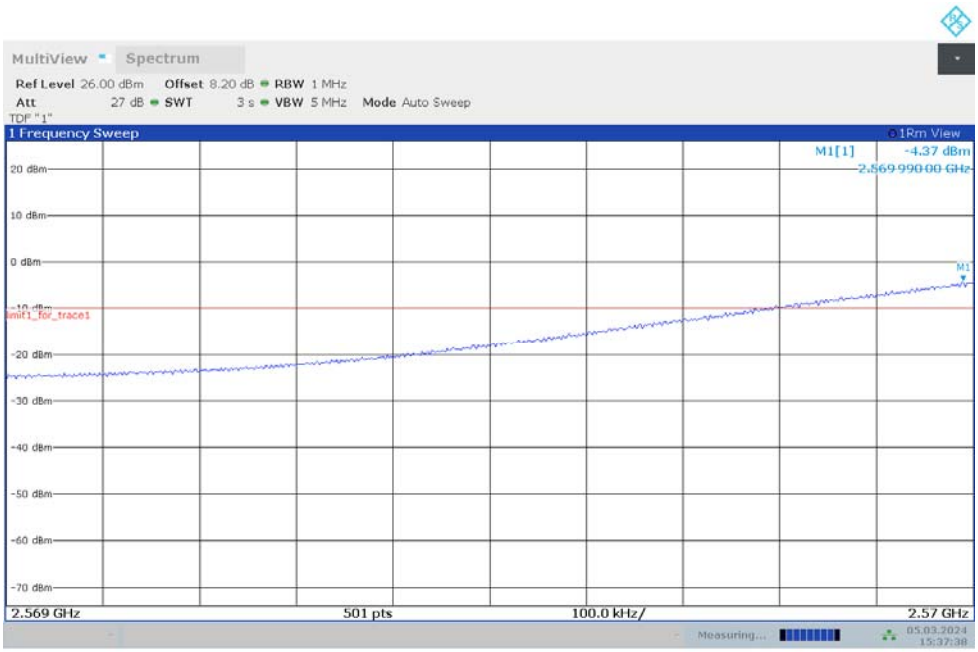
HIGH BAND EDGE BLOCK-1RB-HIGH_offset



15:47:22 05.03.2024

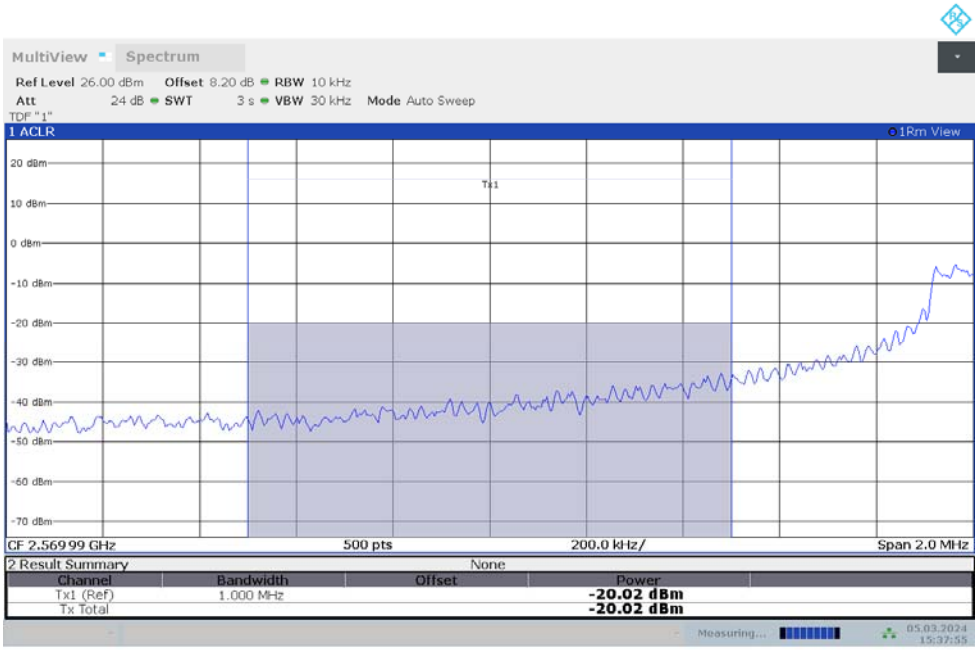
©Copyright. All rights reserved by CTTL.

LOW BAND EDGE BLOCK-40M-100%RB



15:37:39 05.03.2024

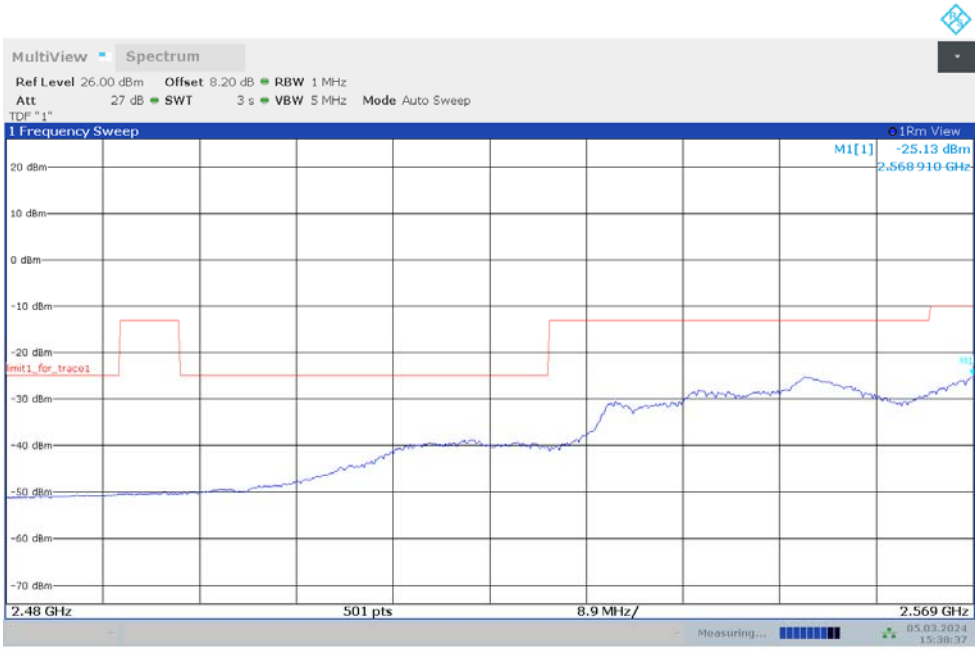
Channel power



15:37:56 05.03.2024

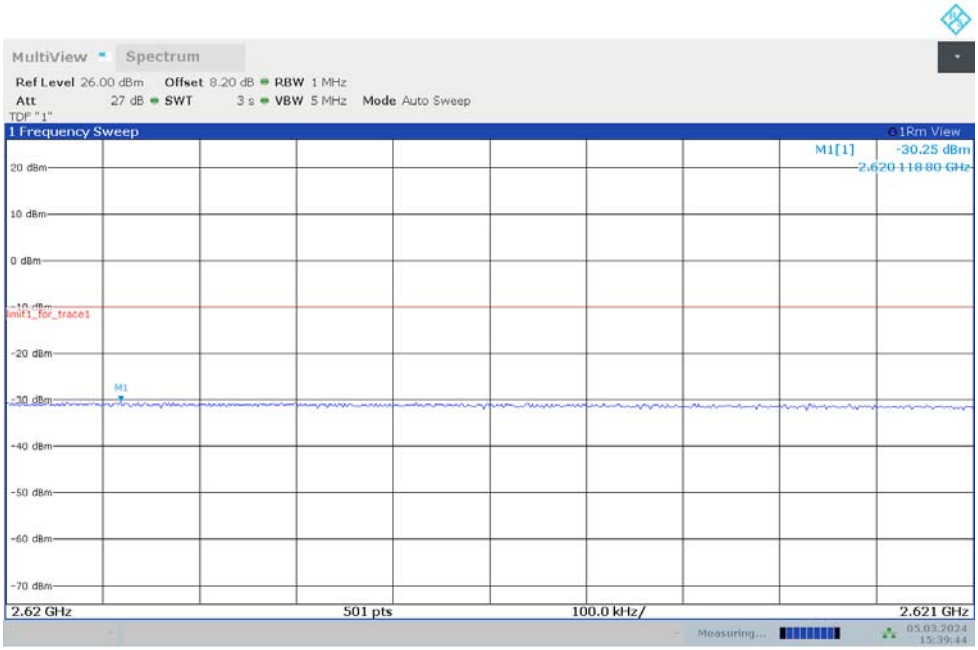
©Copyright. All rights reserved by CTTL.

LOW BAND EDGE BLOCK-40M-100%RB



15:38:37 05.03.2024

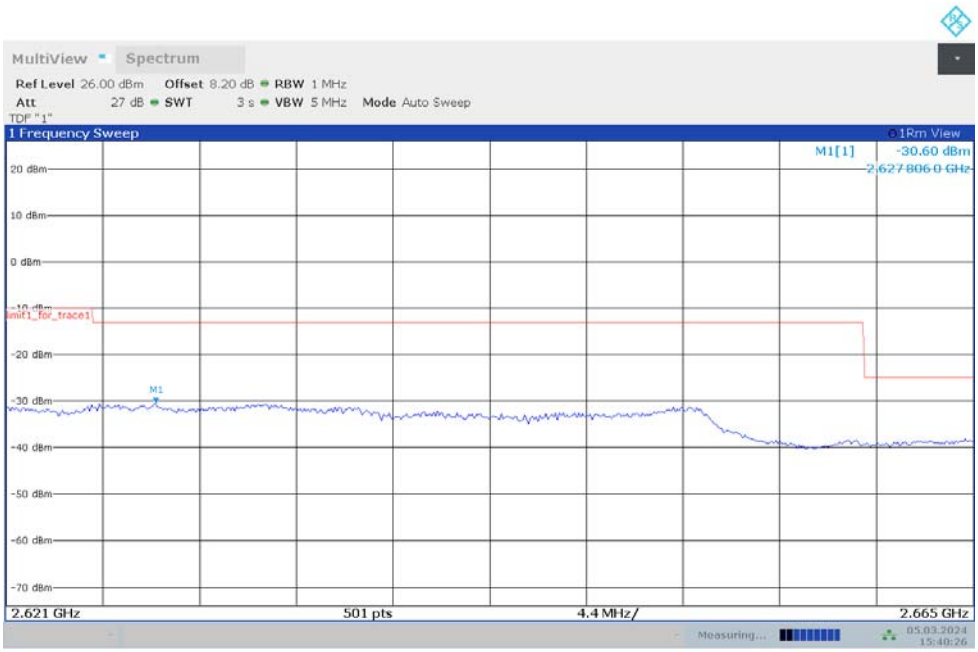
HIGH BAND EDGE BLOCK-40M-100%RB



15:39:45 05.03.2024

©Copyright. All rights reserved by CTTL.

HIGH BAND EDGE BLOCK-40M-100%RB

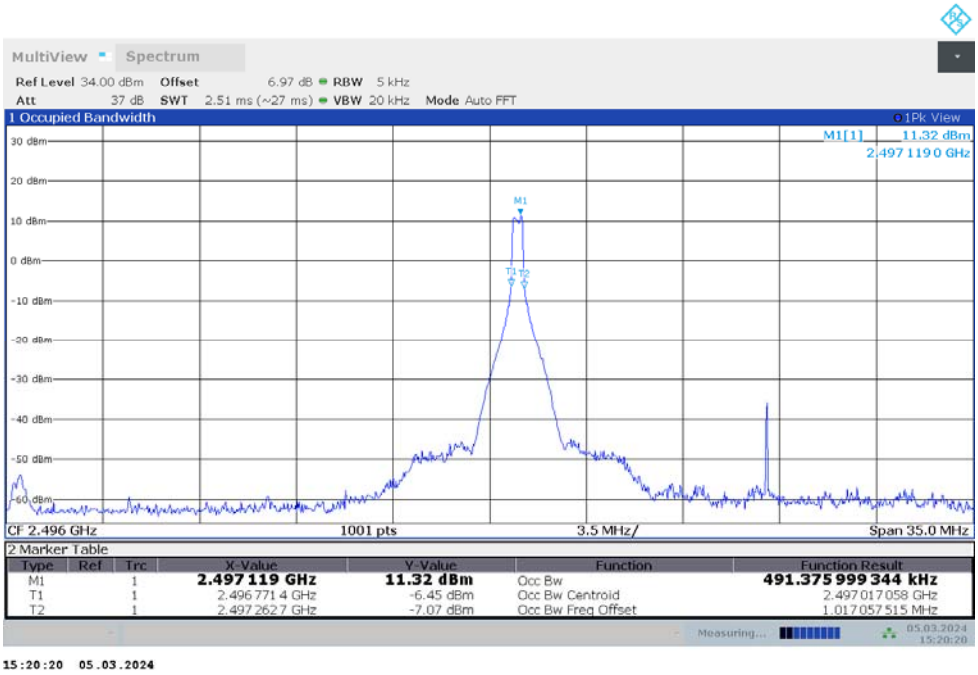


15:40:26 05.03.2024

©Copyright. All rights reserved by CTTL.

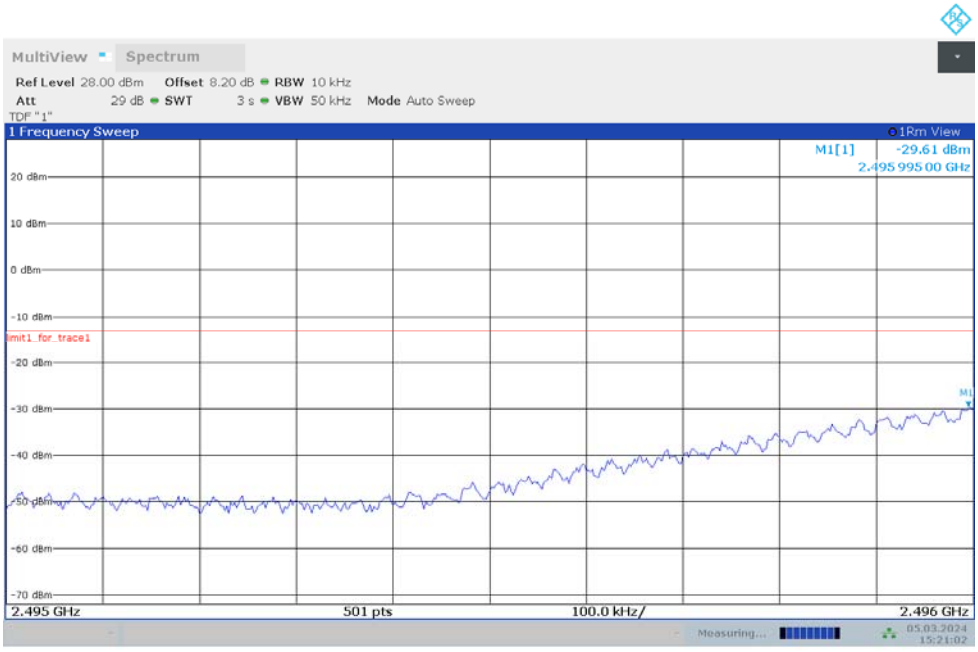
NR n41

OBW: 1RB-LOW_offset



15:20:20 05.03.2024

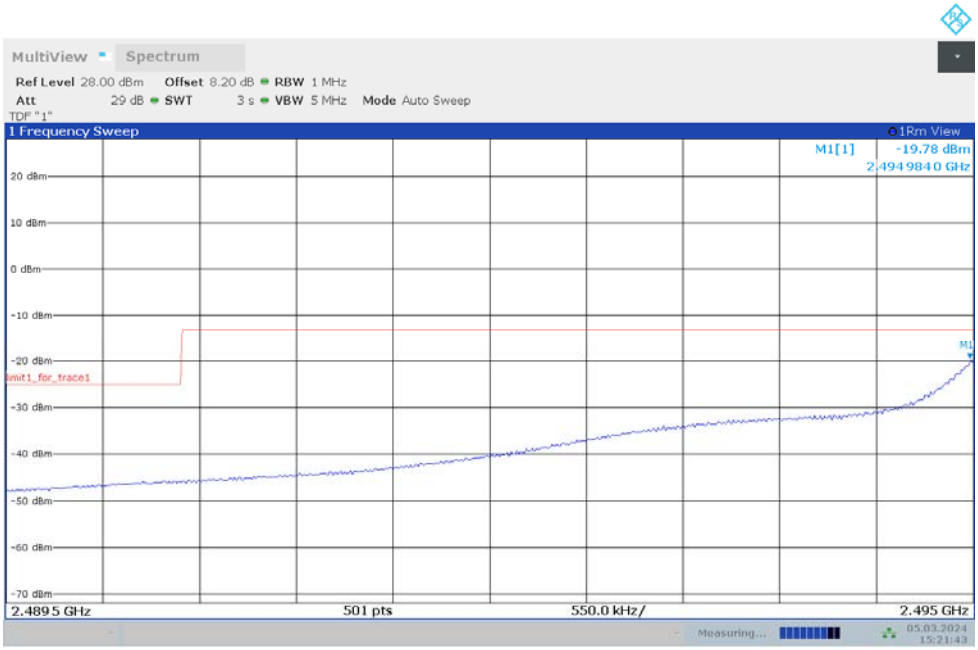
LOW BAND EDGE BLOCK-1RB-LOW_offset



15:21:02 05.03.2024

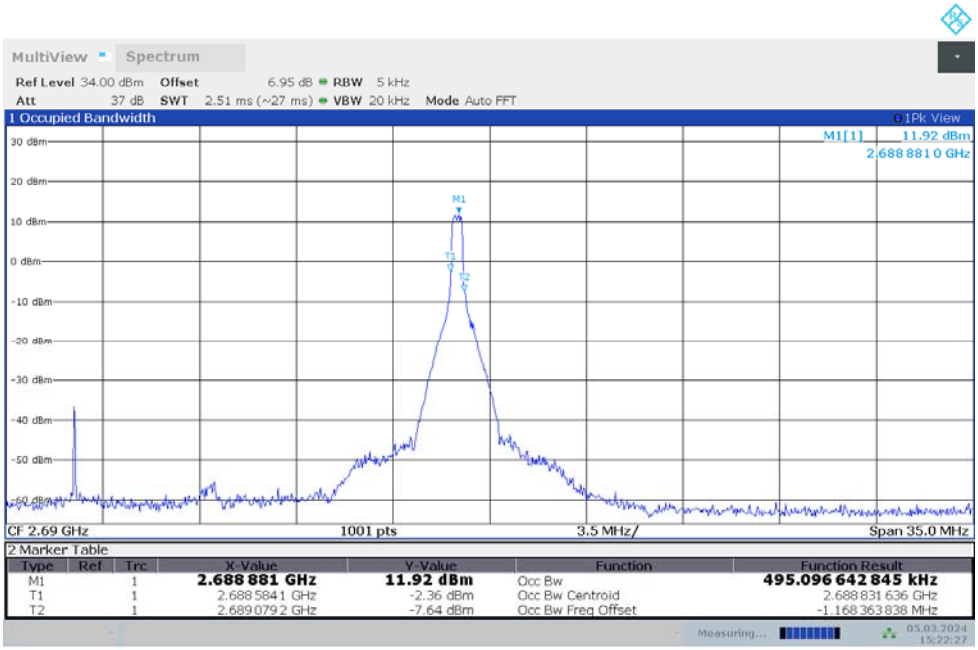
©Copyright. All rights reserved by CTTL.

LOW BAND EDGE BLOCK-20M-1RB-LOW_offset



15:21:43 05.03.2024

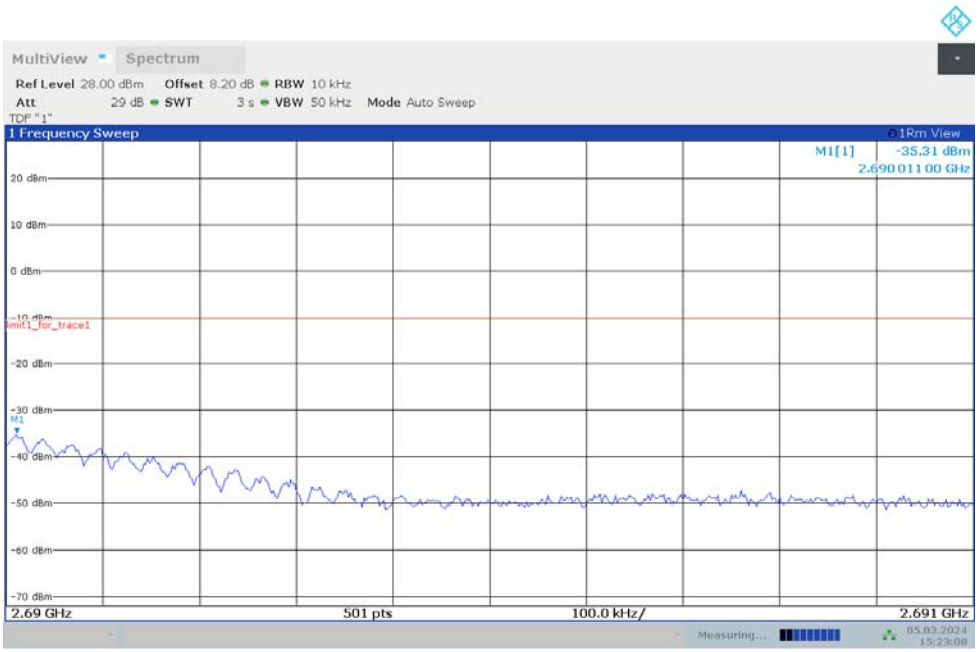
OBW: 1RB-HIGH_offset



15:22:27 05.03.2024

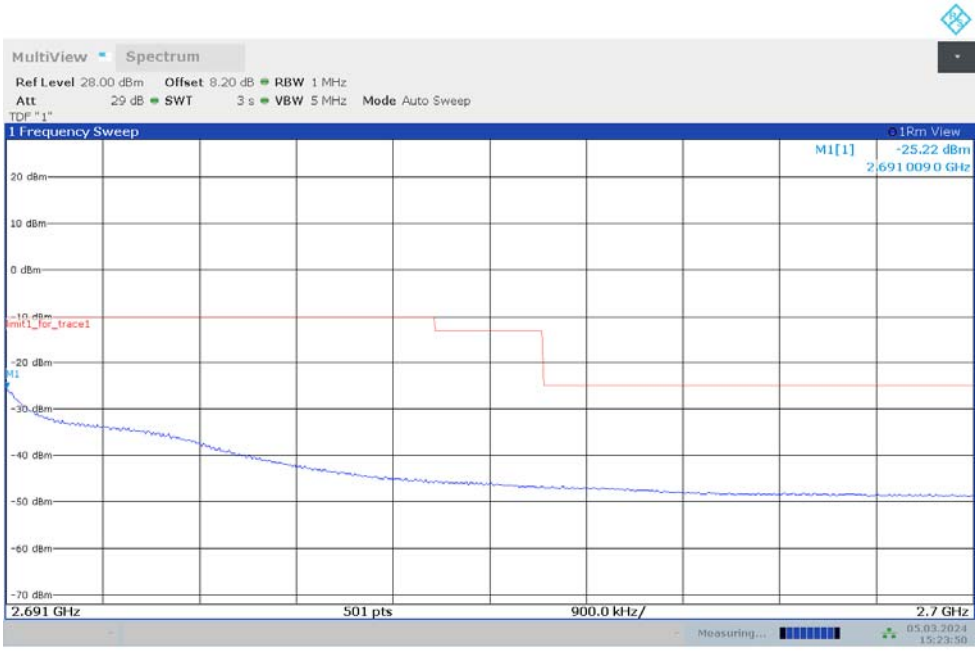
©Copyright. All rights reserved by CTTL.

HIGH BAND EDGE BLOCK-1RB-HIGH_offset



15:23:08 05.03.2024

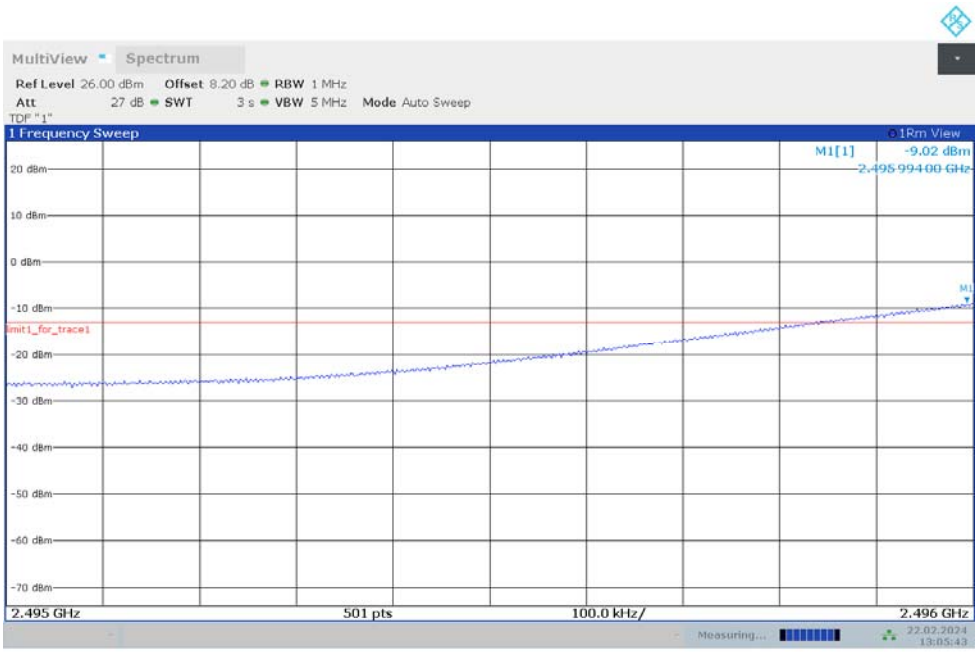
HIGH BAND EDGE BLOCK-1RB-HIGH_offset



15:23:50 05.03.2024

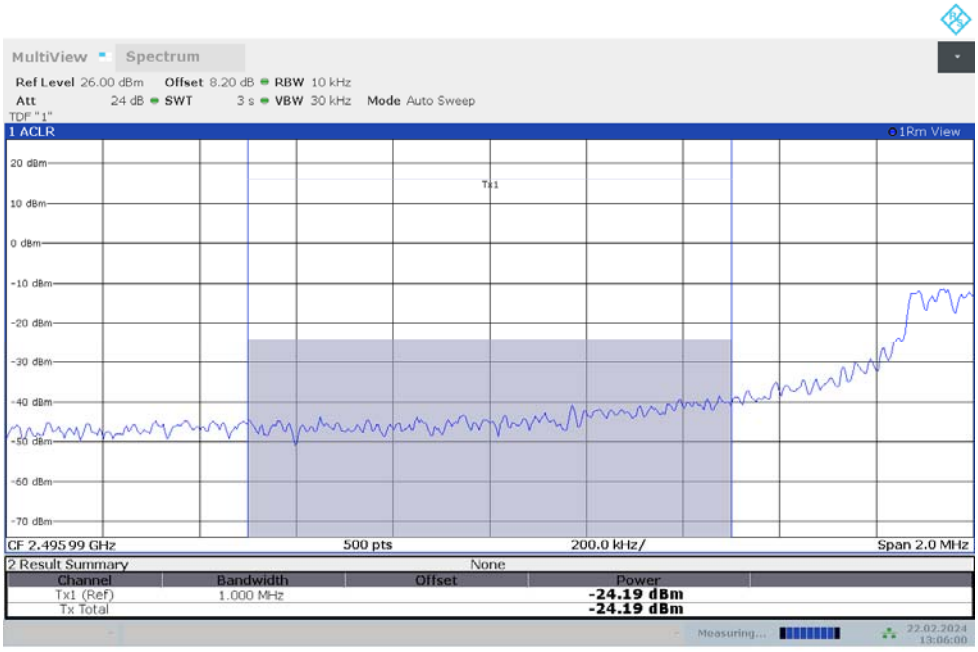
©Copyright. All rights reserved by CTTL.

LOW BAND EDGE BLOCK-100M-100%RB



13:05:43 22.02.2024

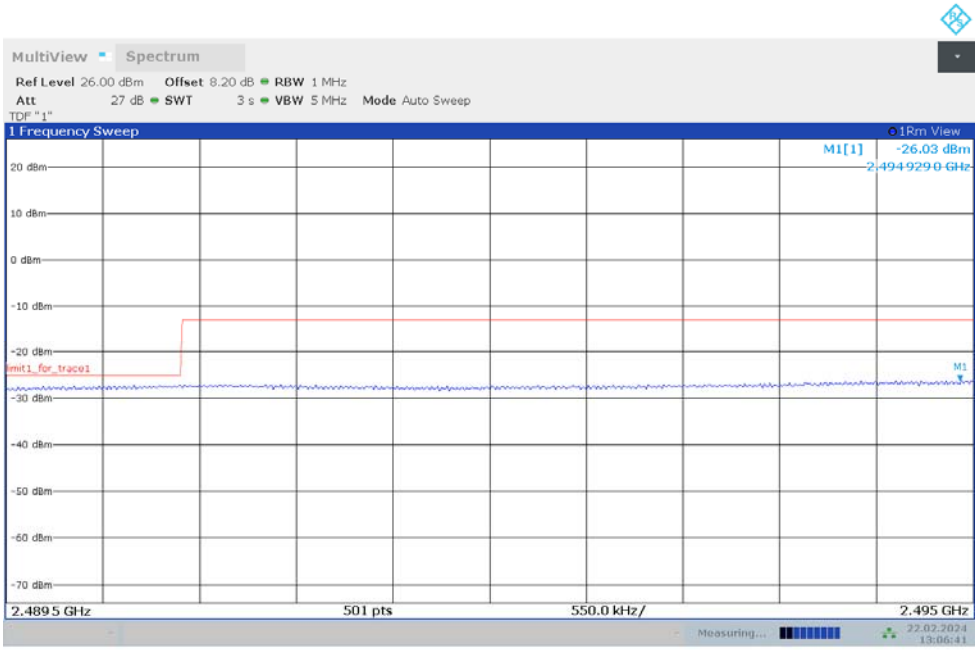
Channel power



13:06:00 22.02.2024

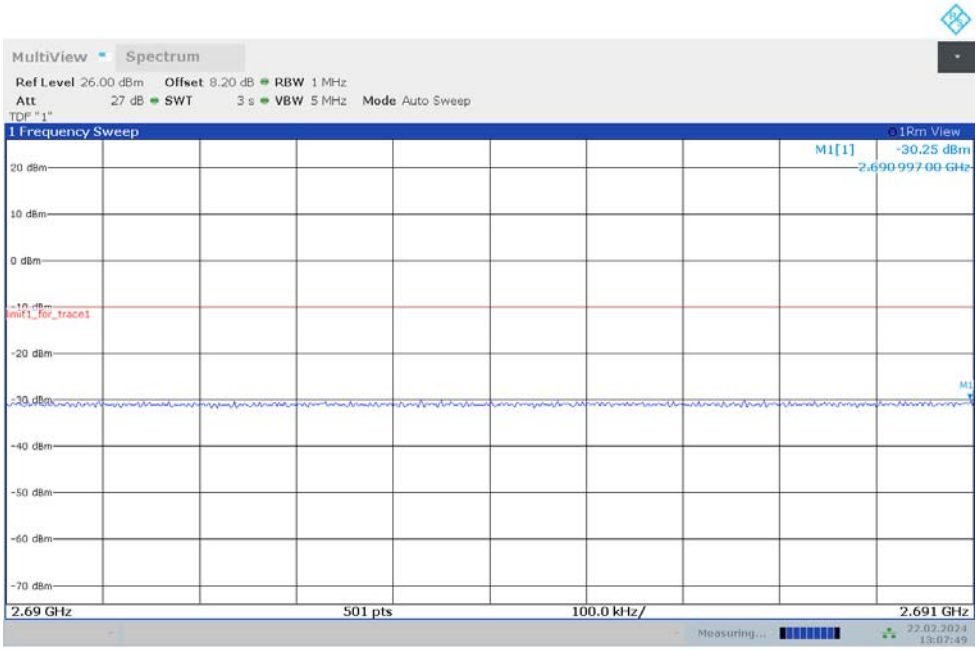
©Copyright. All rights reserved by CTTL.

LOW BAND EDGE BLOCK-100M-100%RB



13:06:42 22.02.2024

HIGH BAND EDGE BLOCK-100M-100%RB



13:07:49 22.02.2024

©Copyright. All rights reserved by CTTL.