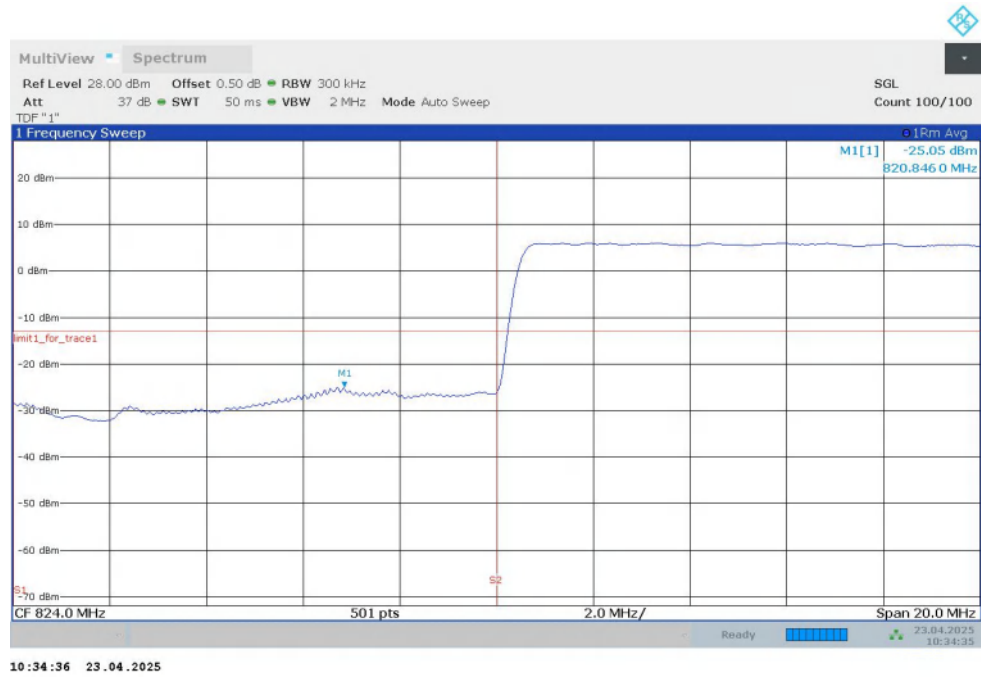
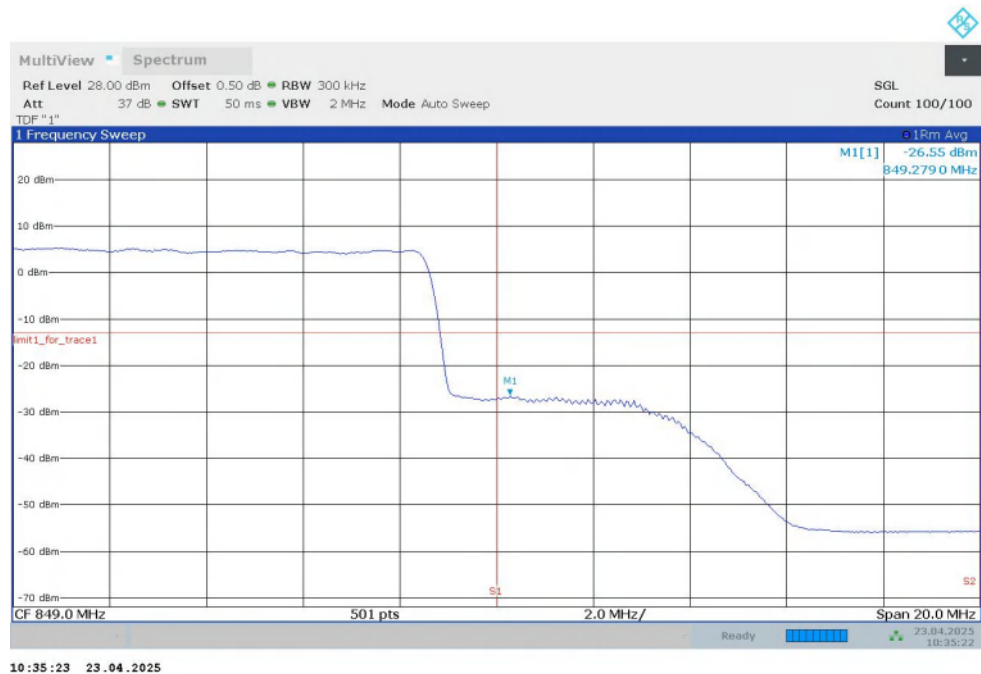


## LOW BAND EDGE BLOCK-25MHz-100%RB

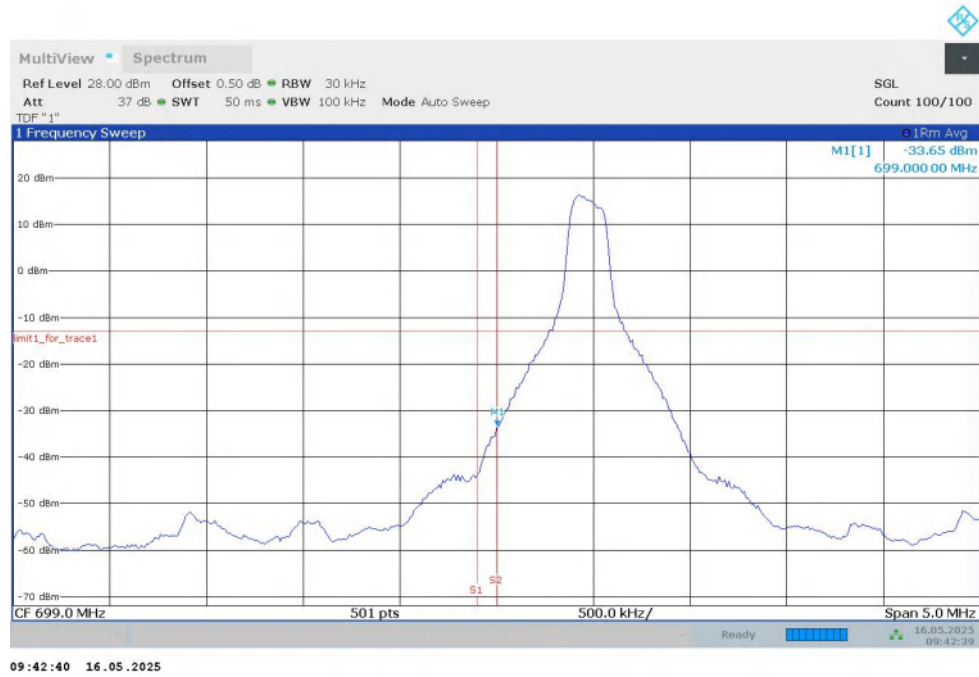


## HIGH BAND EDGE BLOCK-25MHz-100%RB

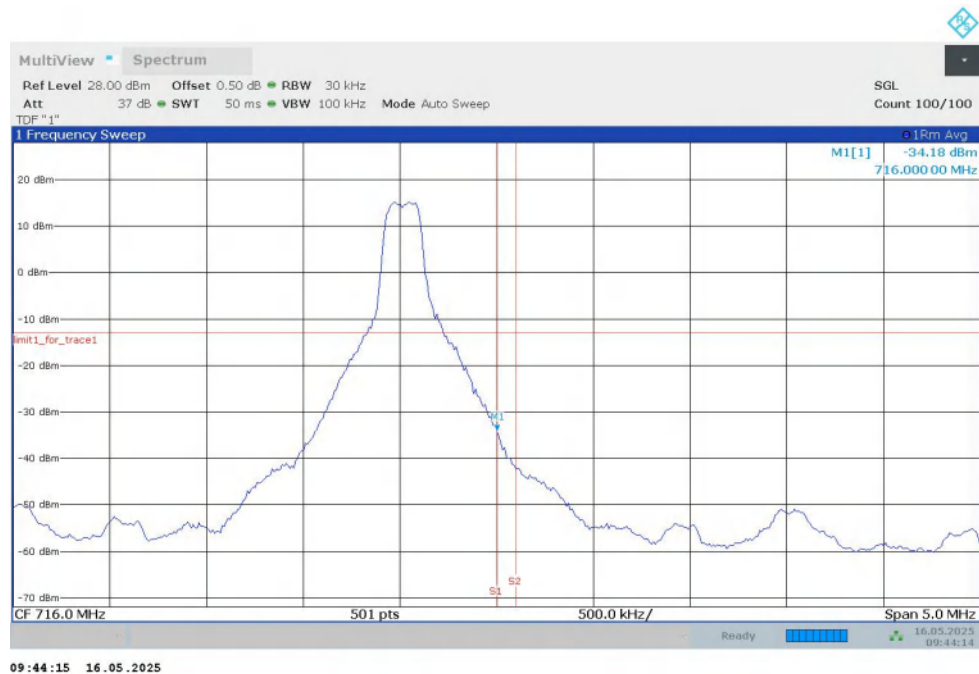


NR n12

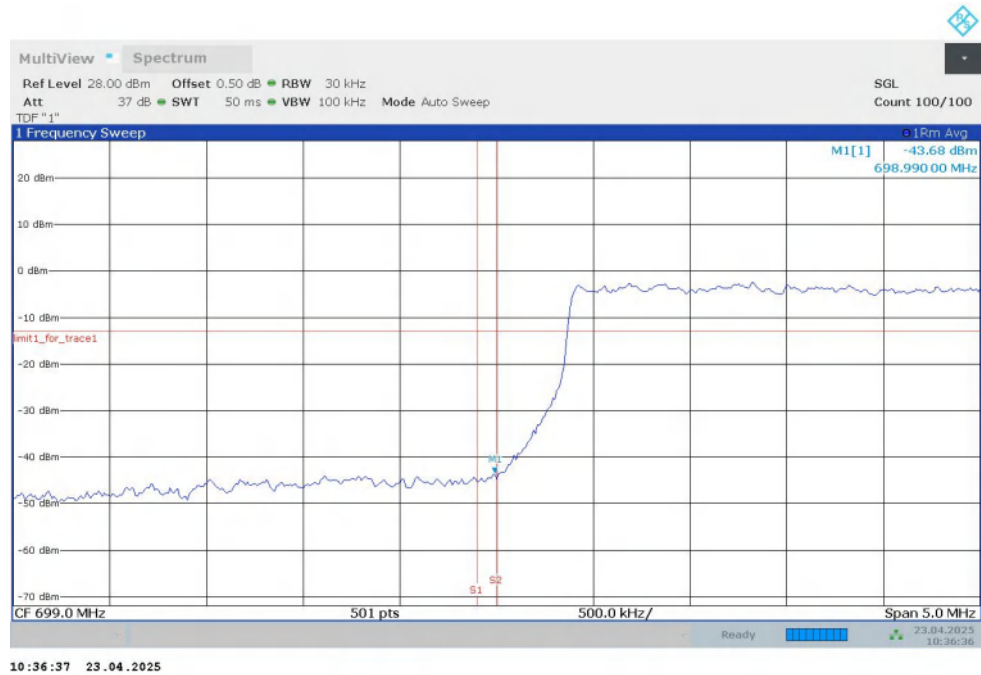
LOW BAND EDGE BLOCK-1RB-LOW\_offset



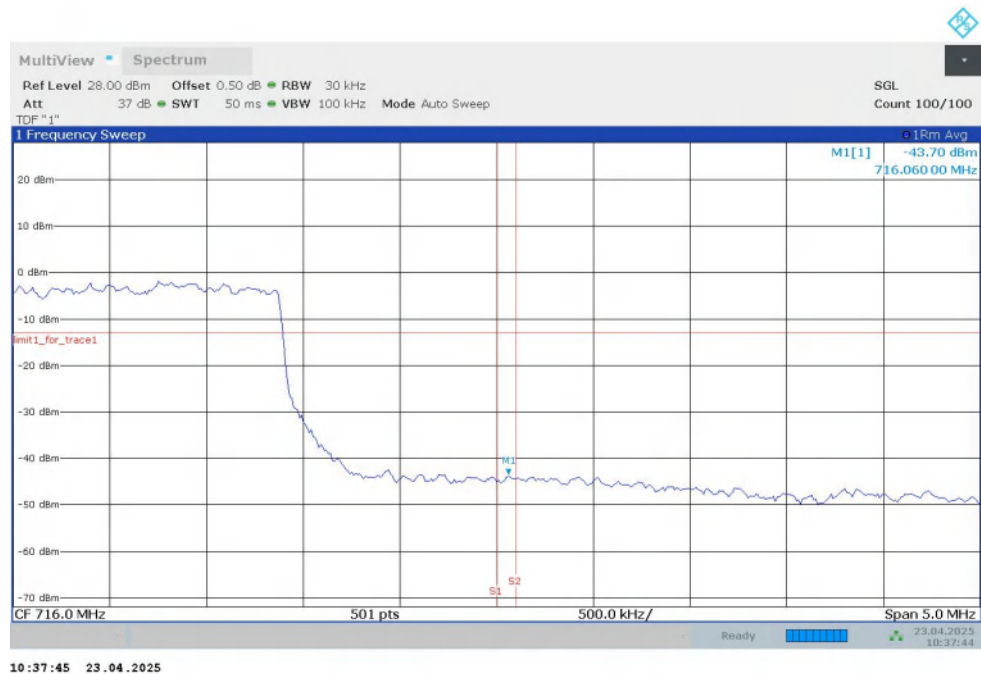
HIGH BAND EDGE BLOCK-1RB-HIGH\_offset



## LOW BAND EDGE BLOCK-15MHz-100%RB

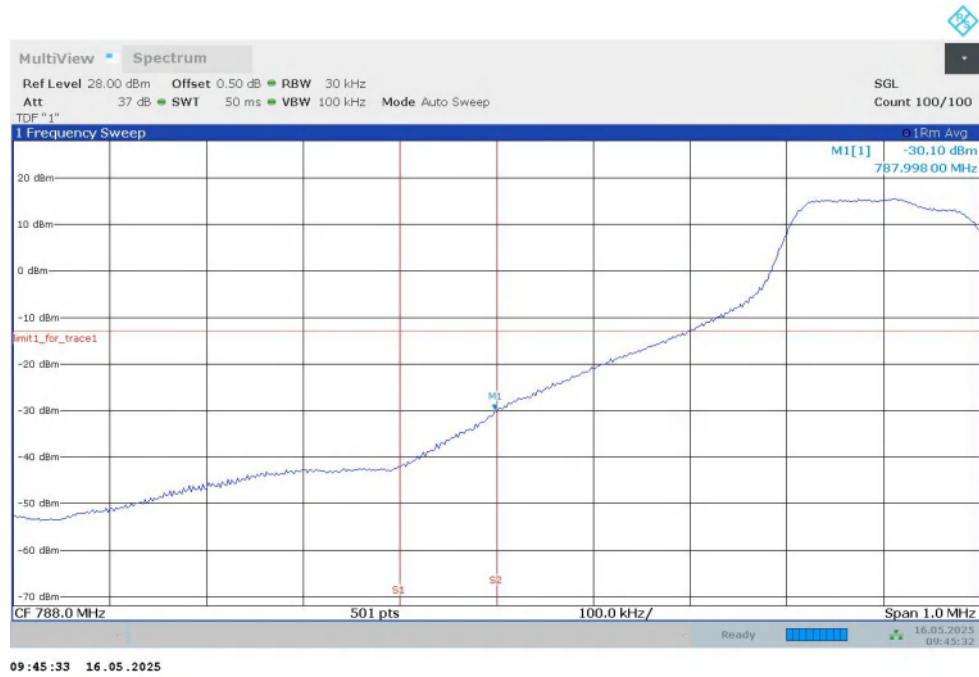


## HIGH BAND EDGE BLOCK-15MHz-100%RB

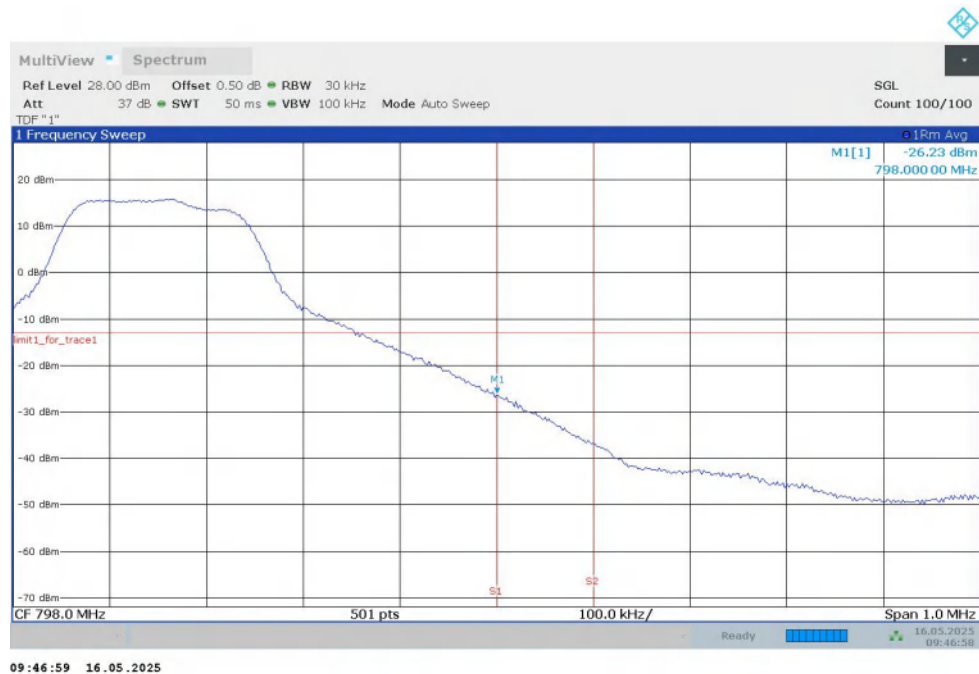


NR n14

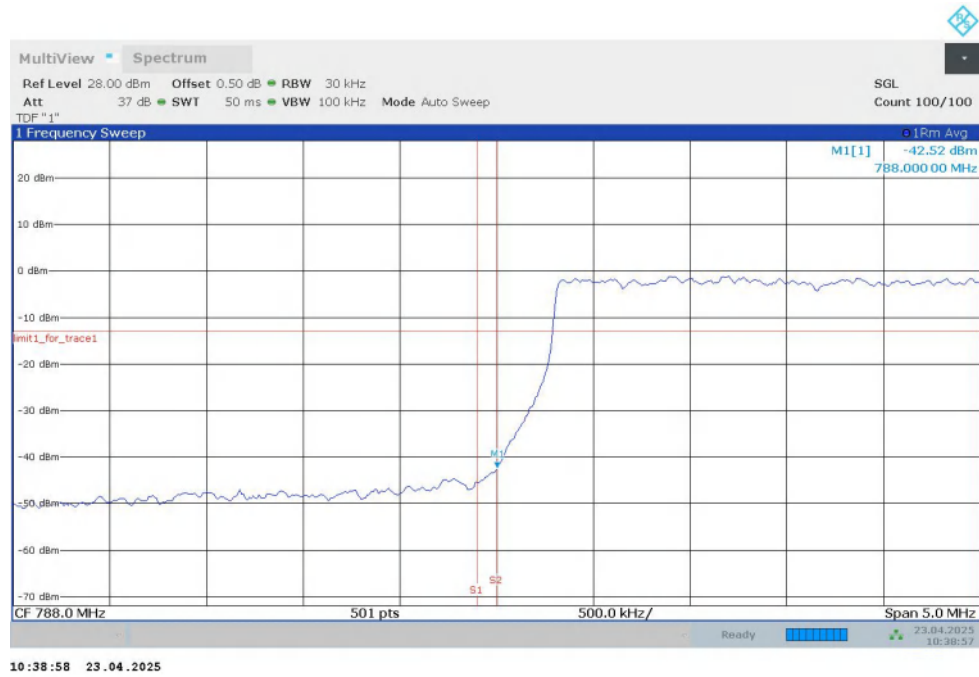
LOW BAND EDGE BLOCK-1RB-LOW\_offset



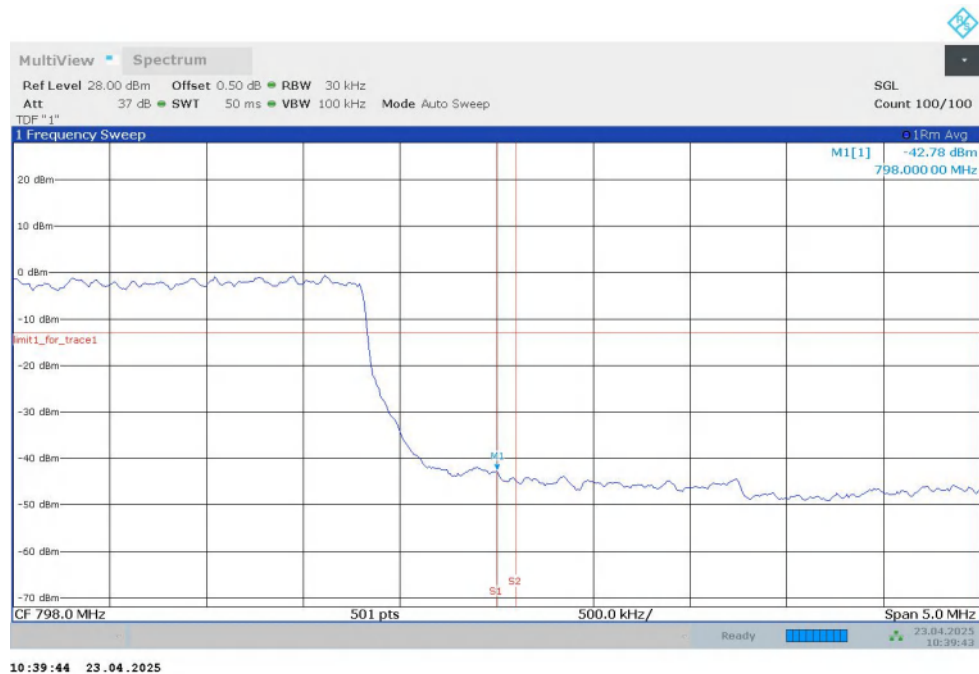
HIGH BAND EDGE BLOCK-1RB-HIGH\_offset



## LOW BAND EDGE BLOCK-10MHz-100%RB

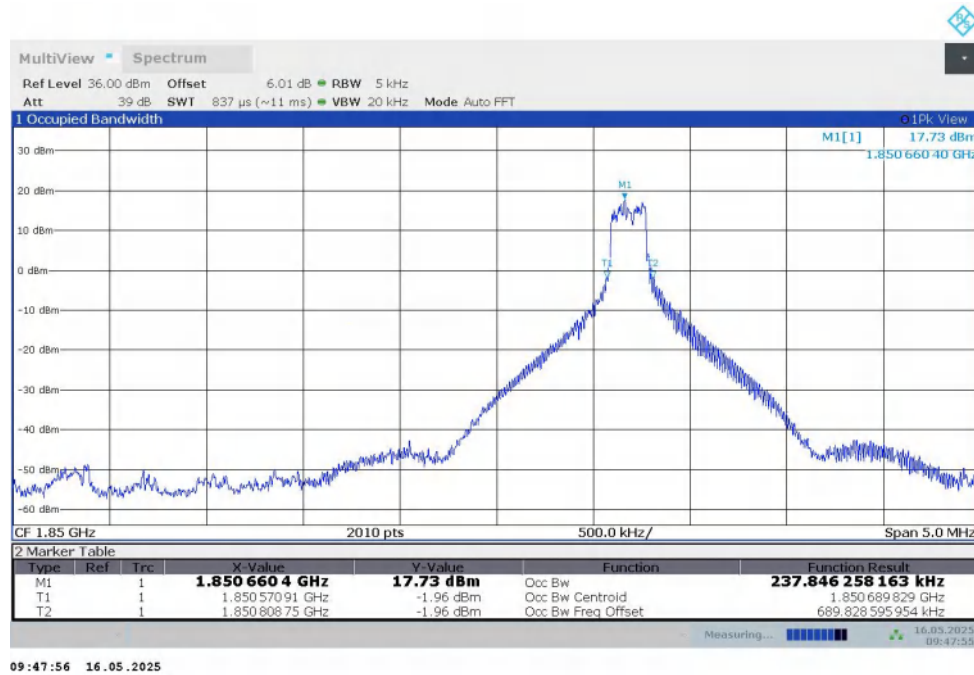


## HIGH BAND EDGE BLOCK-10MHz-100%RB

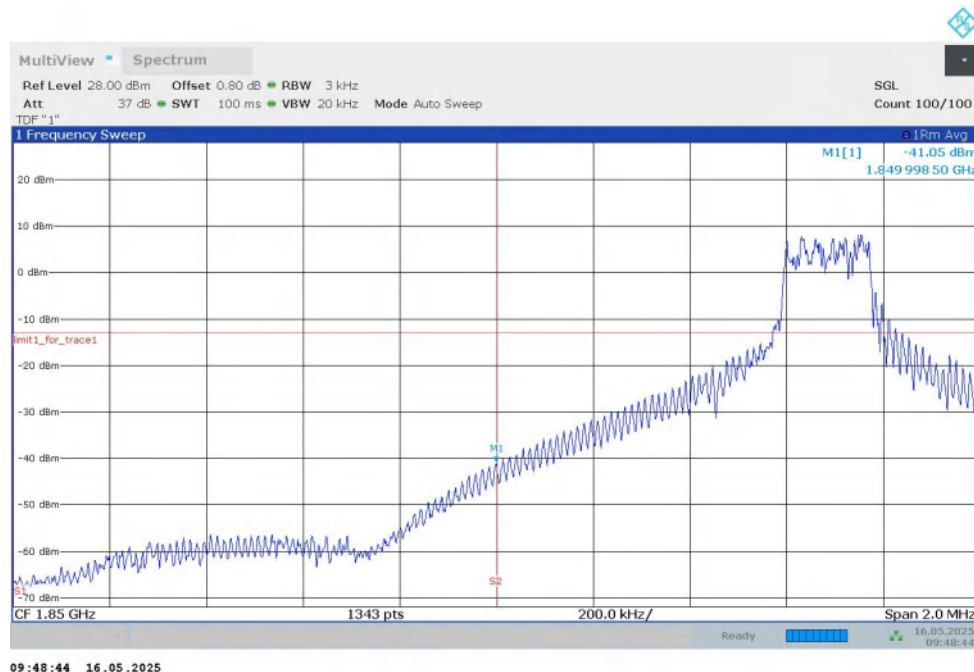


NR n25

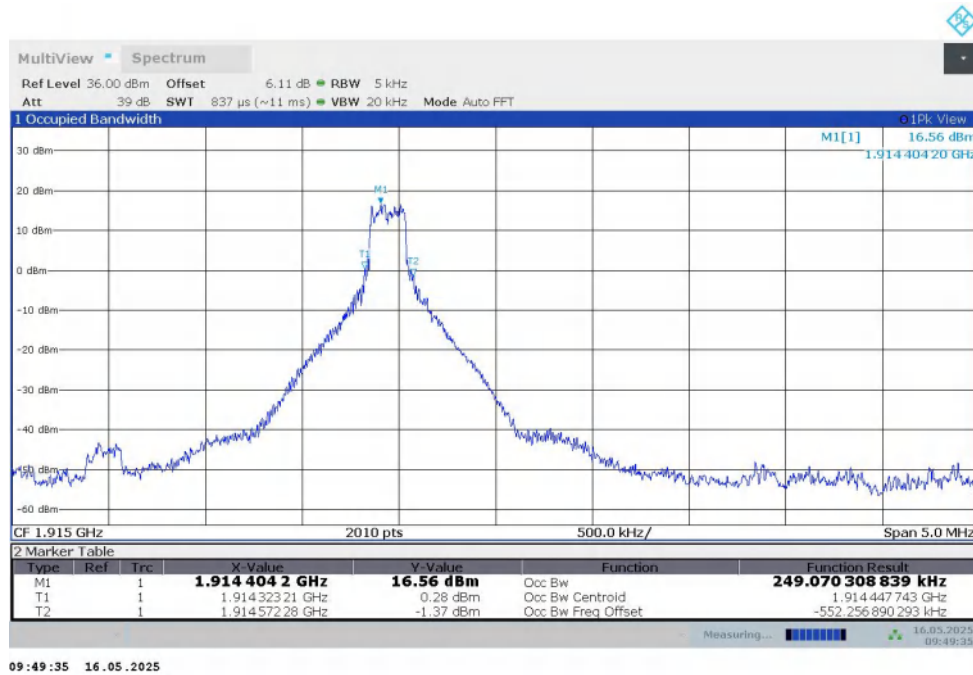
OBW: 1RB-LOW\_offset



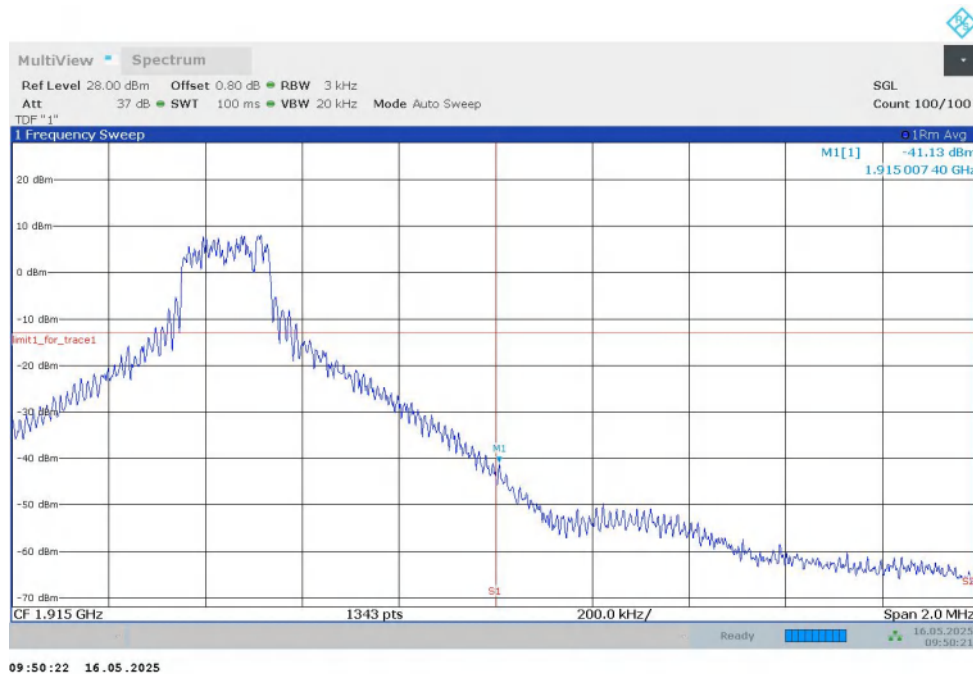
LOW BAND EDGE BLOCK-1RB-LOW\_offset



## OBW: 1RB-HIGH\_offset

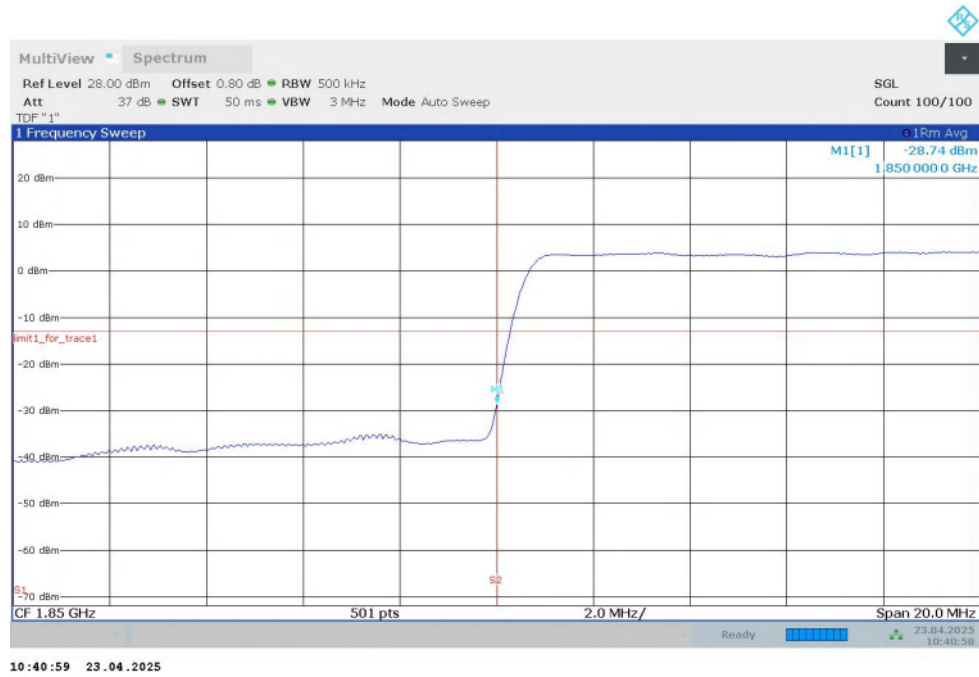


## HIGH BAND EDGE BLOCK-1RB-HIGH\_offset

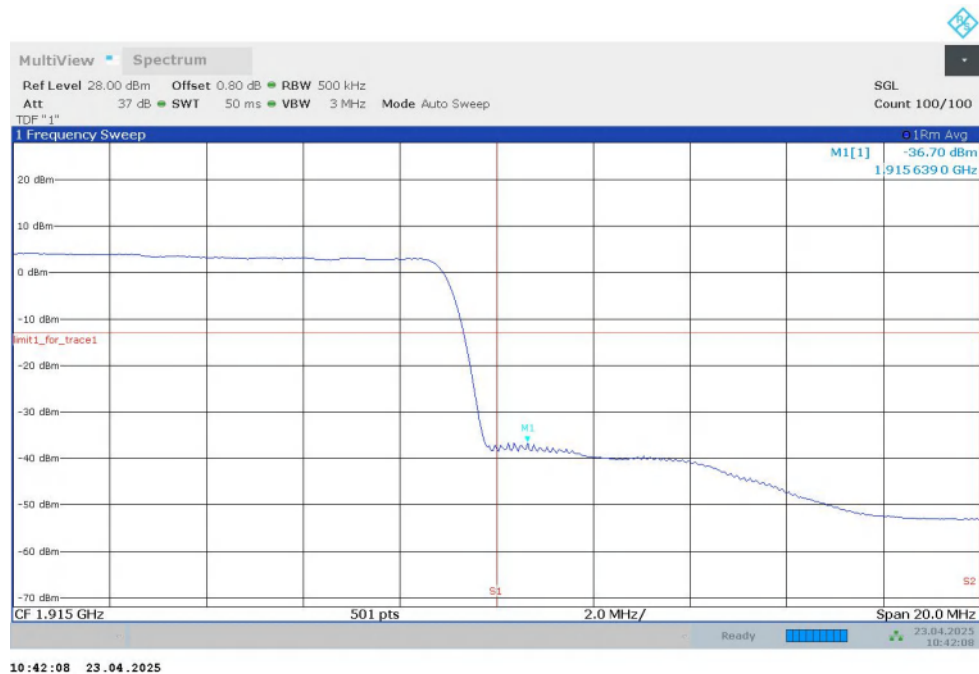




## LOW BAND EDGE BLOCK-45MHz-100%RB



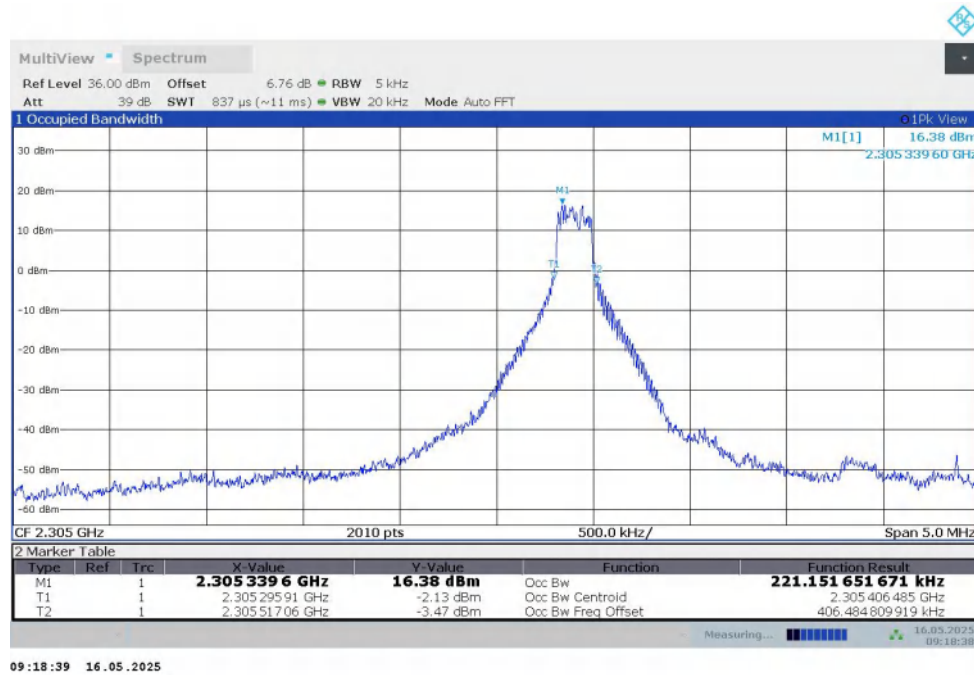
## HIGH BAND EDGE BLOCK-45MHz-100%RB



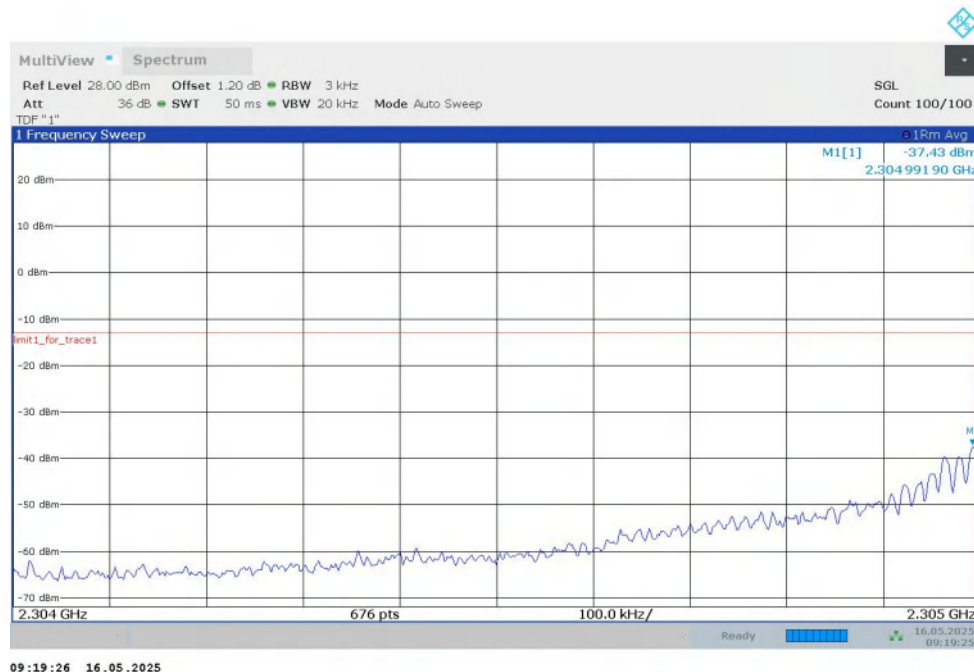


NR n30

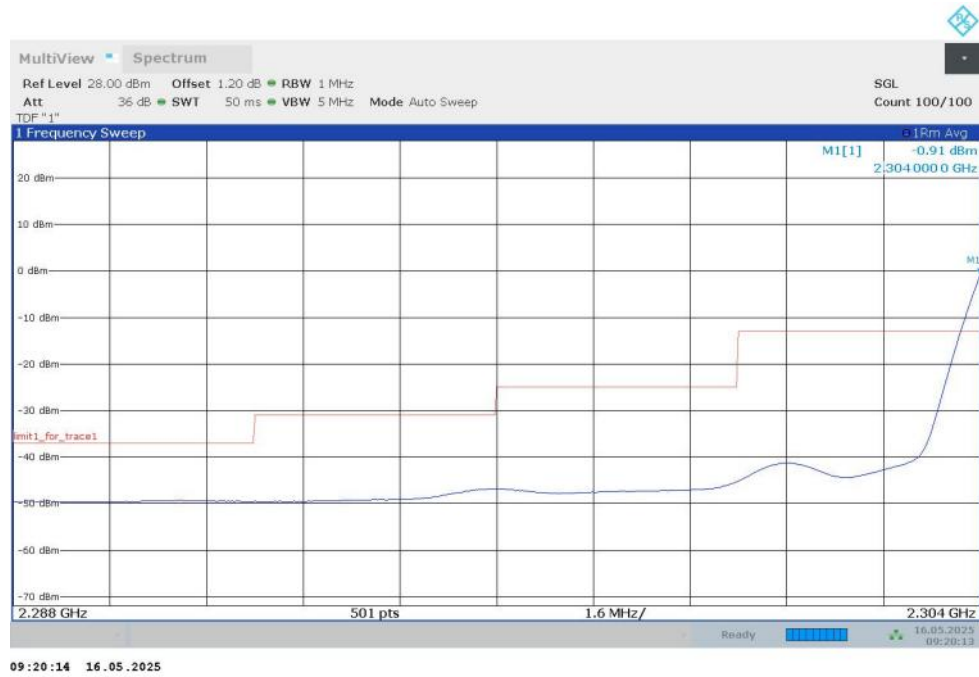
OBW: 1RB-LOW\_offset



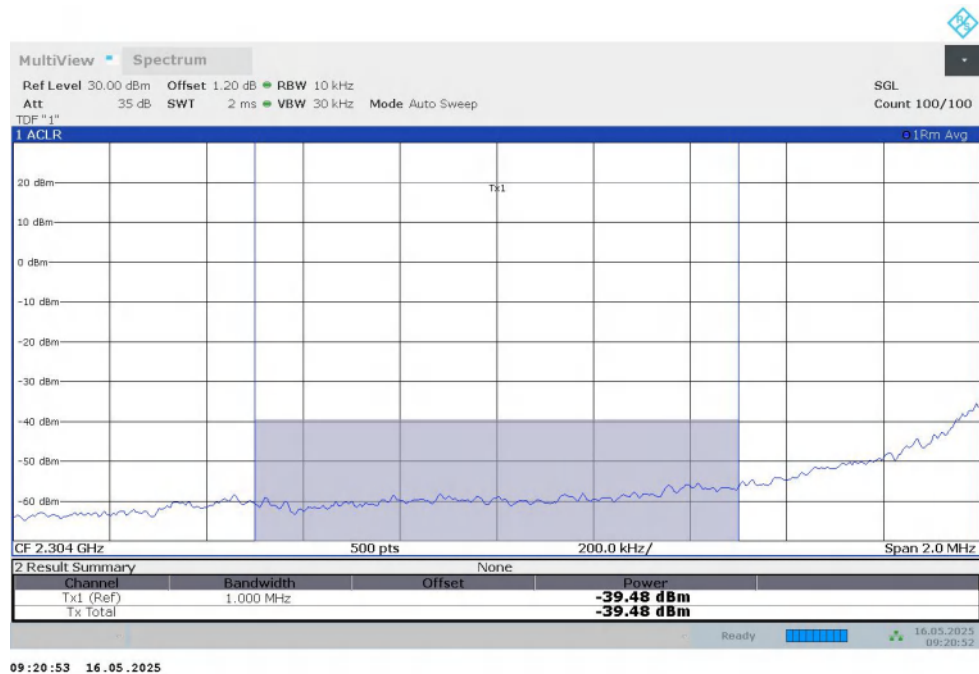
LOW BAND EDGE BLOCK-1RB-LOW\_offset



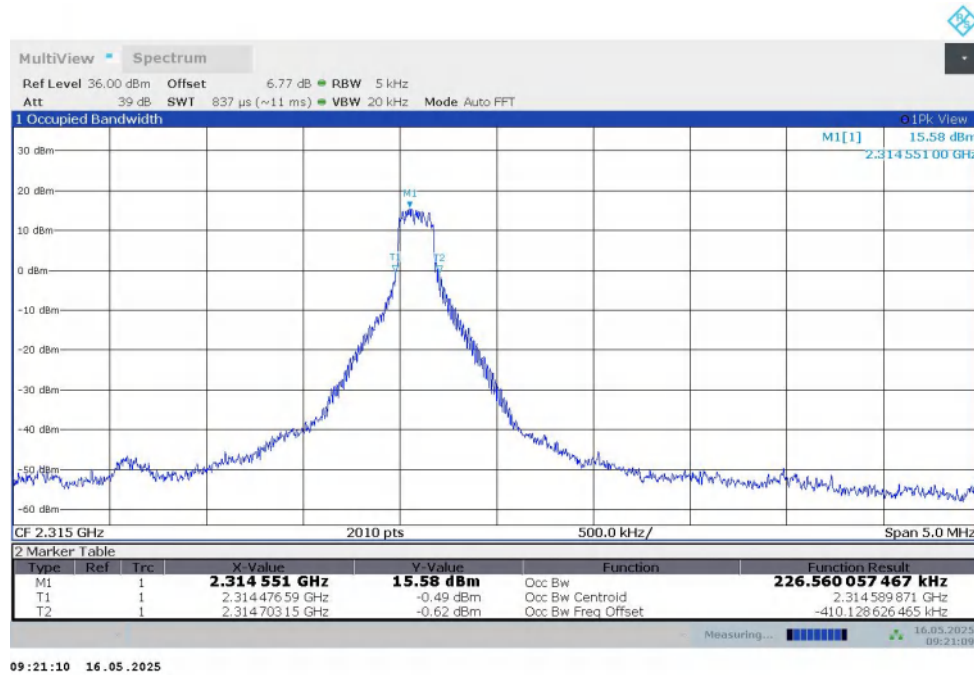
## LOW BAND EDGE BLOCK-1RB-LOW\_offset



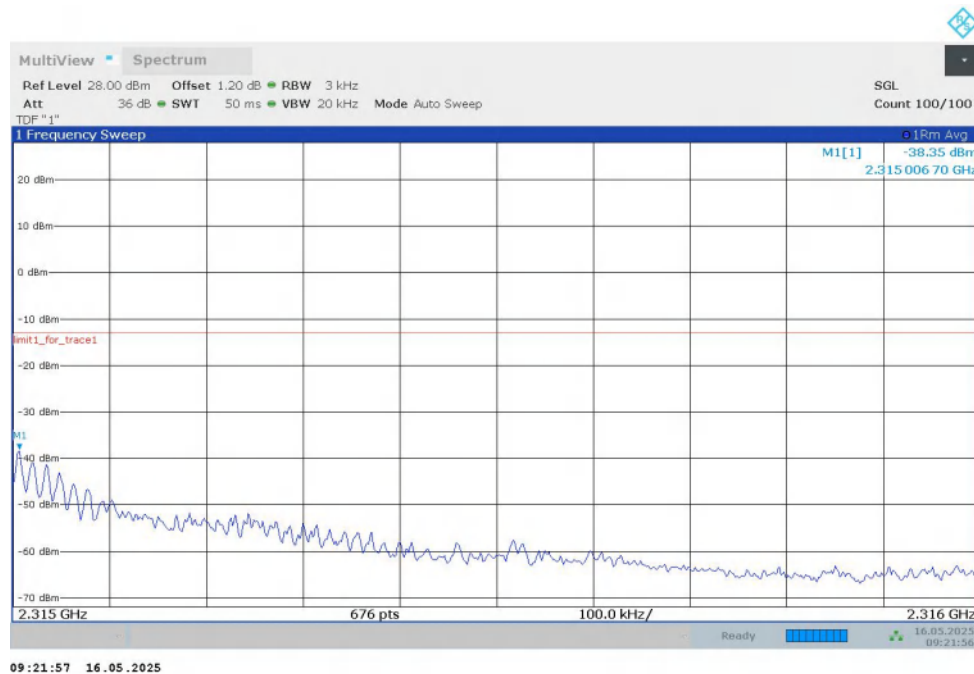
## Channel power



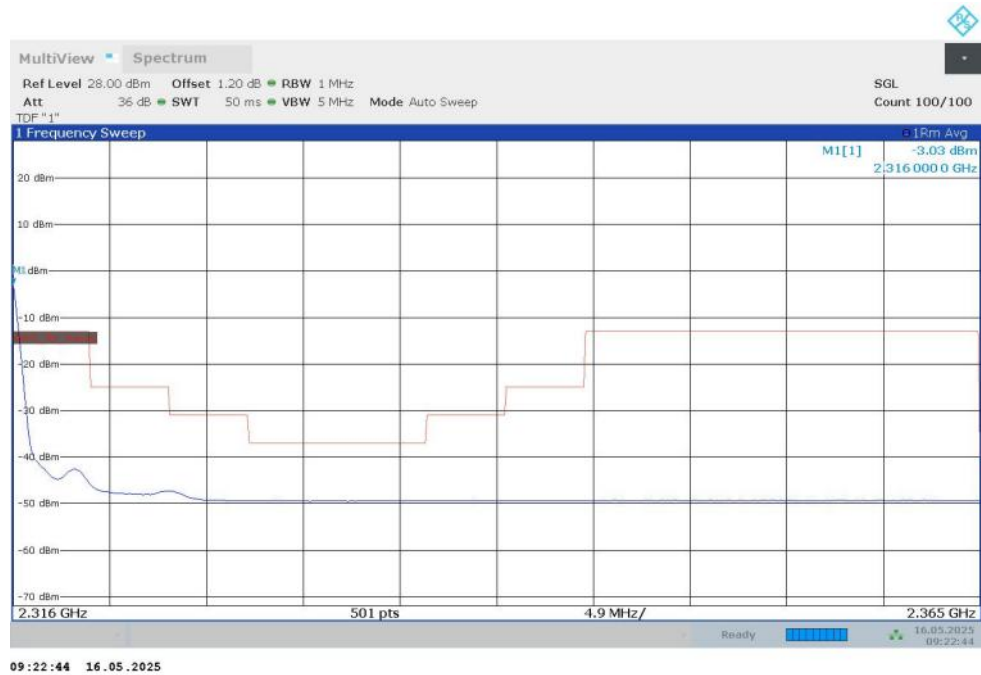
## OBW: 1RB-HIGH\_offset



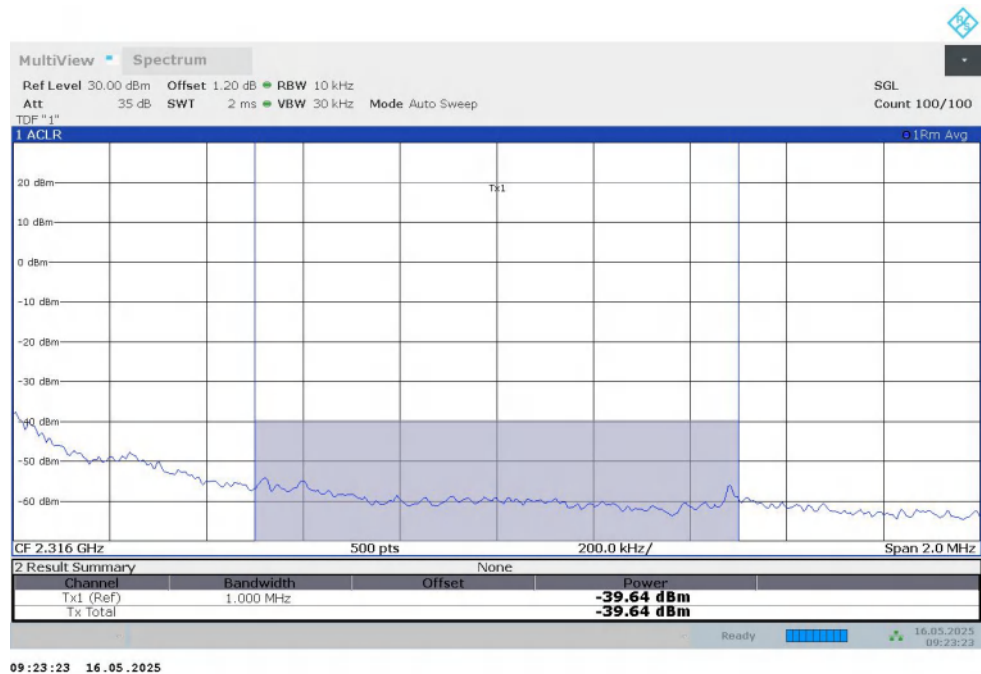
## HIGH BAND EDGE BLOCK-1RB-HIGH\_offset



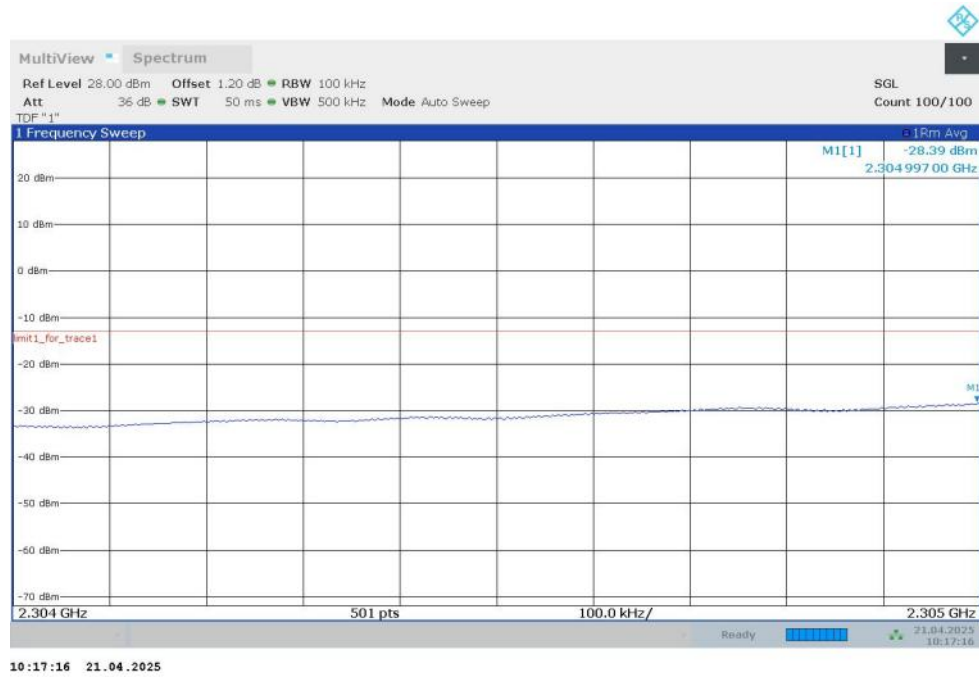
## HIGH BAND EDGE BLOCK-1RB-HIGH\_offset



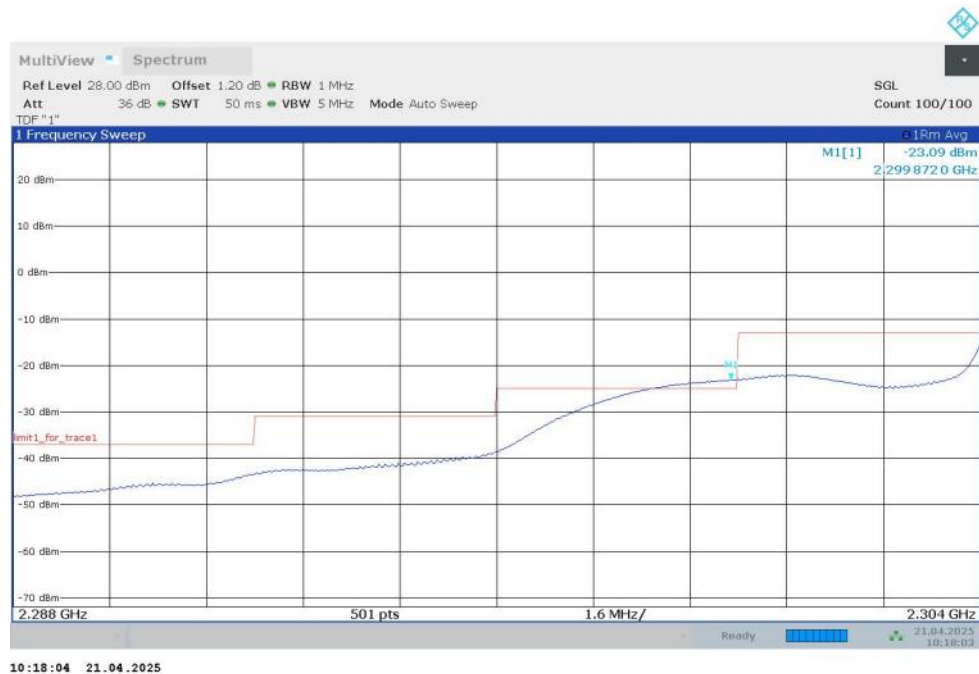
## Channel power



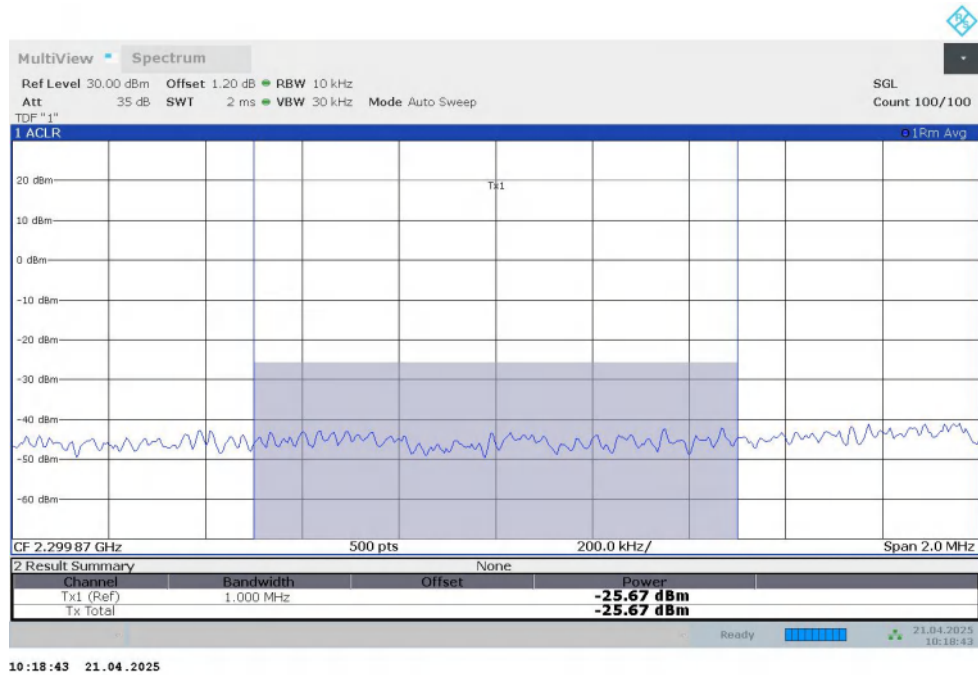
## LOW BAND EDGE BLOCK-10MHz-100%RB



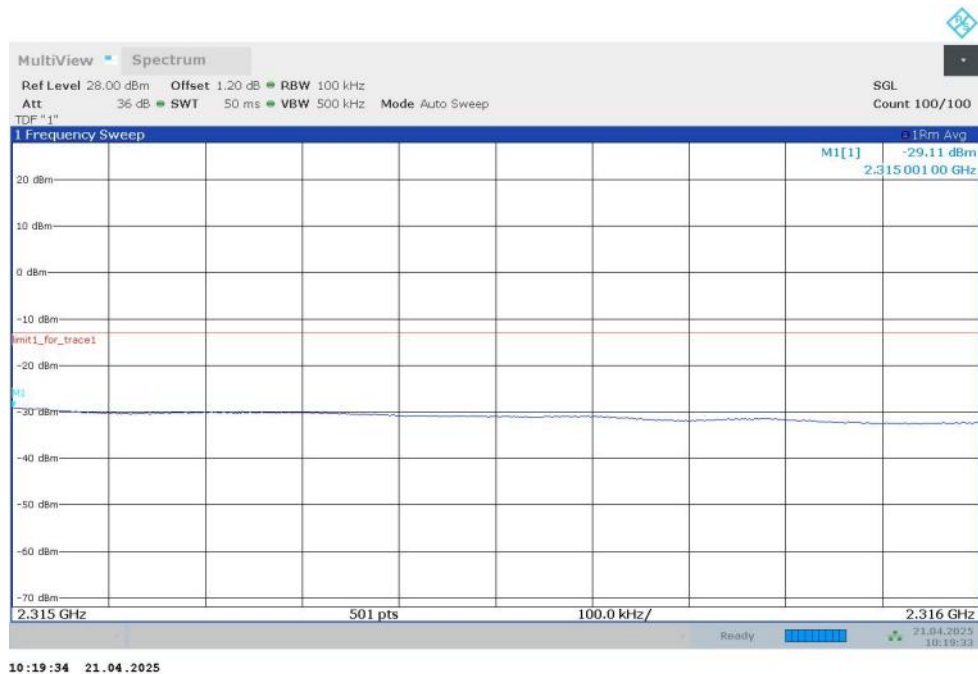
## LOW BAND EDGE BLOCK-10MHz-100%RB



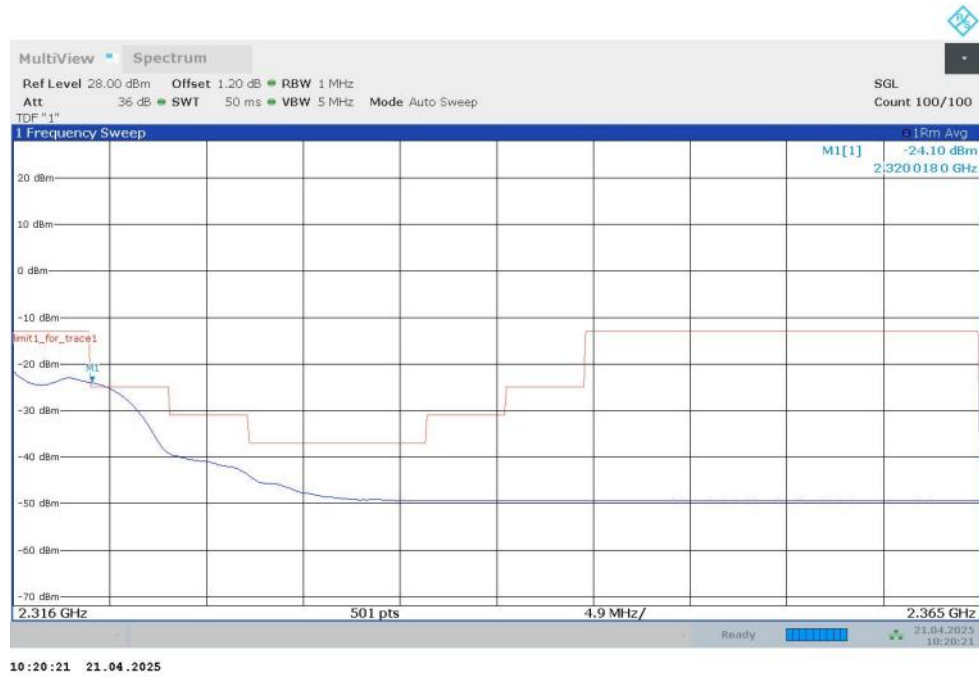
## Channel power



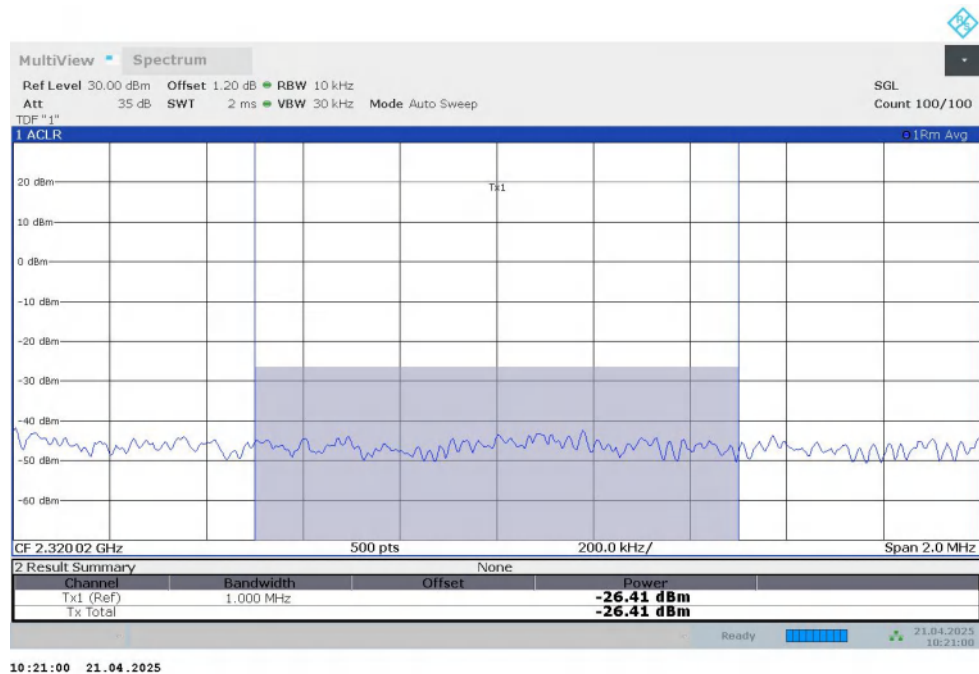
## HIGH BAND EDGE BLOCK-10MHz-100%RB



## HIGH BAND EDGE BLOCK-10MHz-100%RB



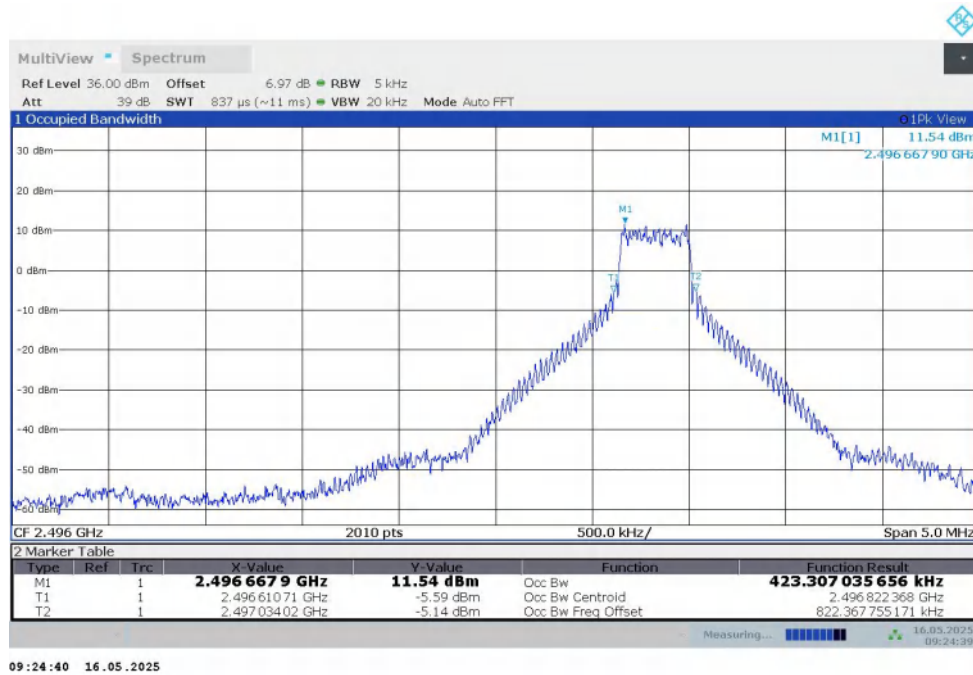
## Channel power



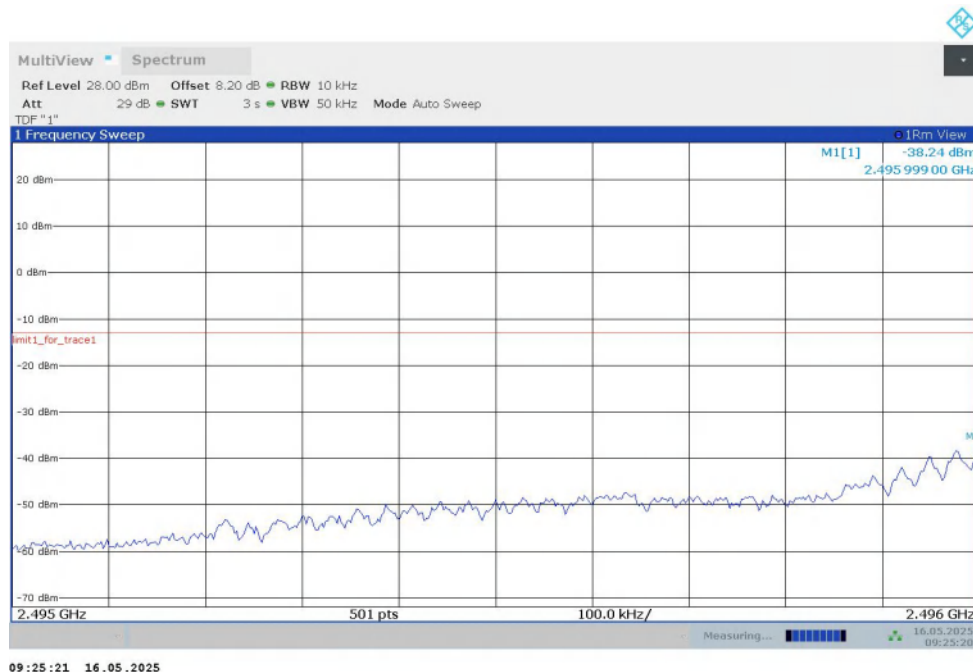


NR n41

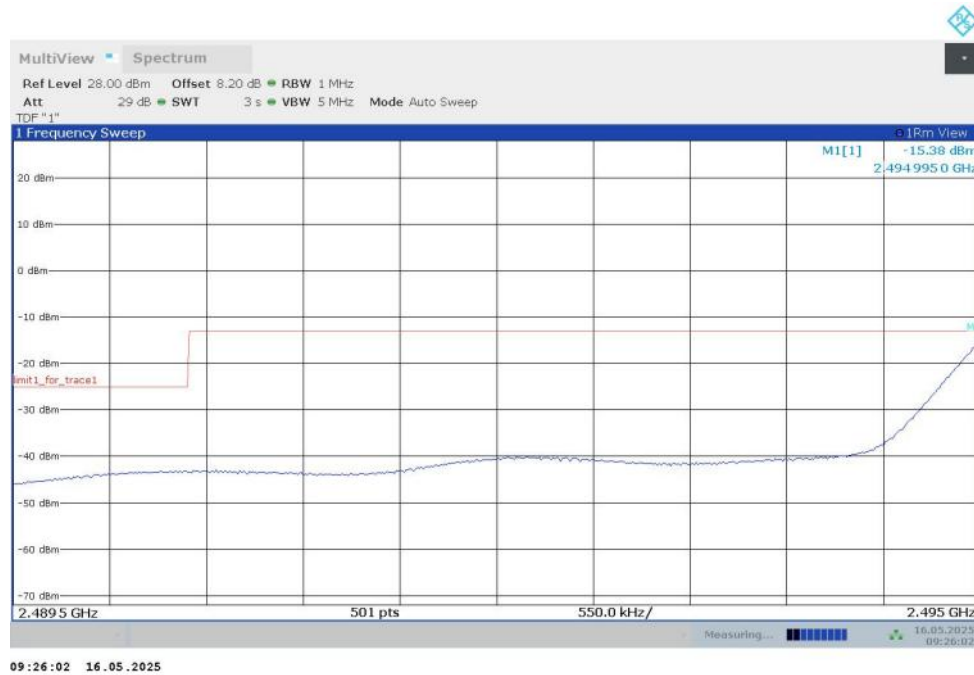
OBW: 1RB-LOW\_offset



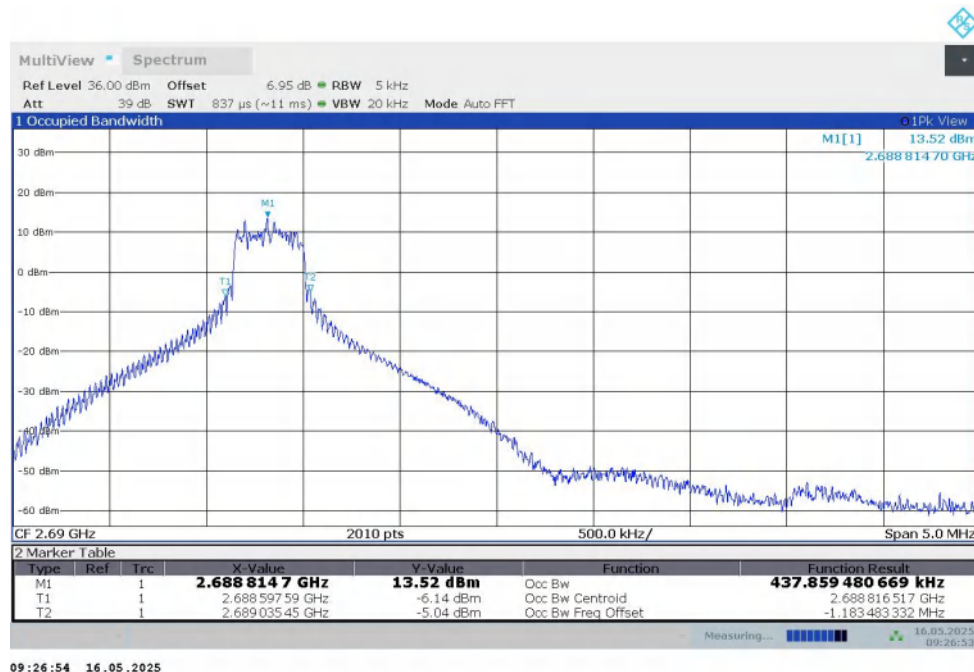
LOW BAND EDGE BLOCK-1RB-LOW\_offset



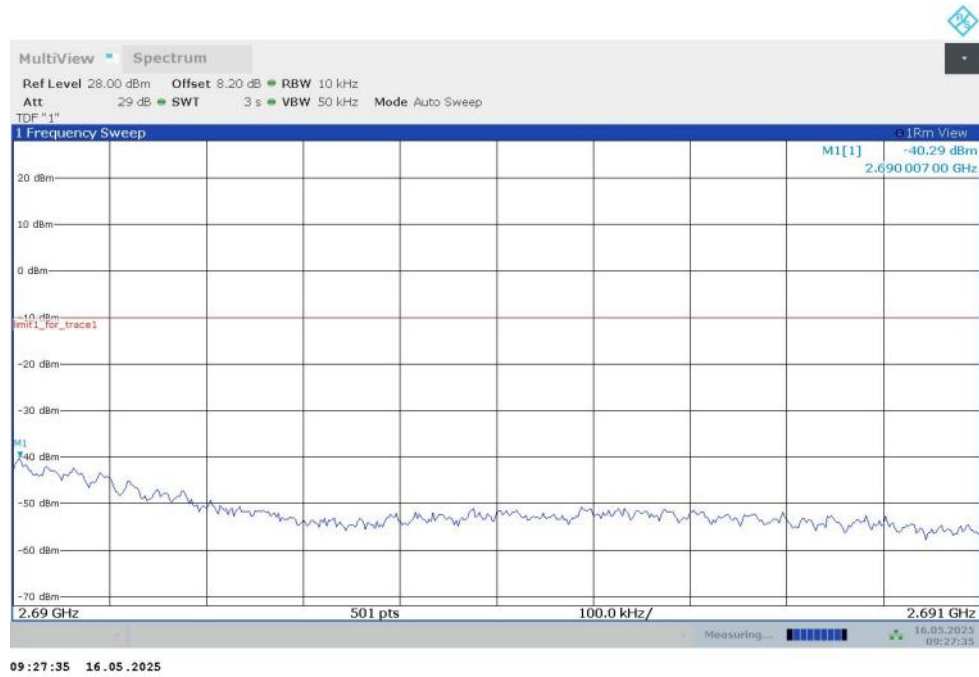
## LOW BAND EDGE BLOCK-1RB-LOW\_offset



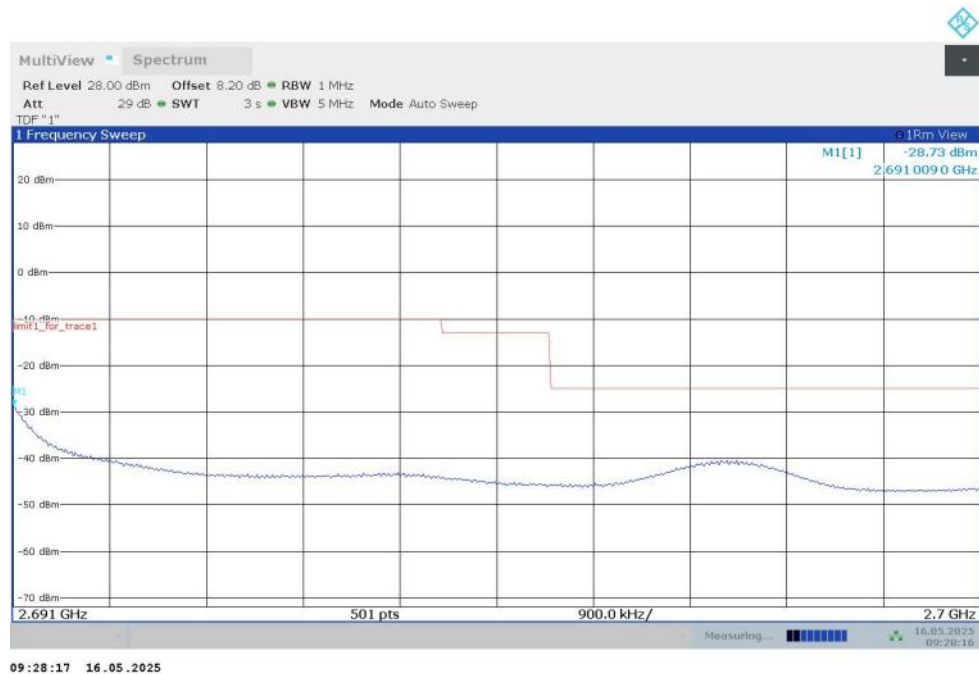
## OBW: 1RB-HIGH\_offset



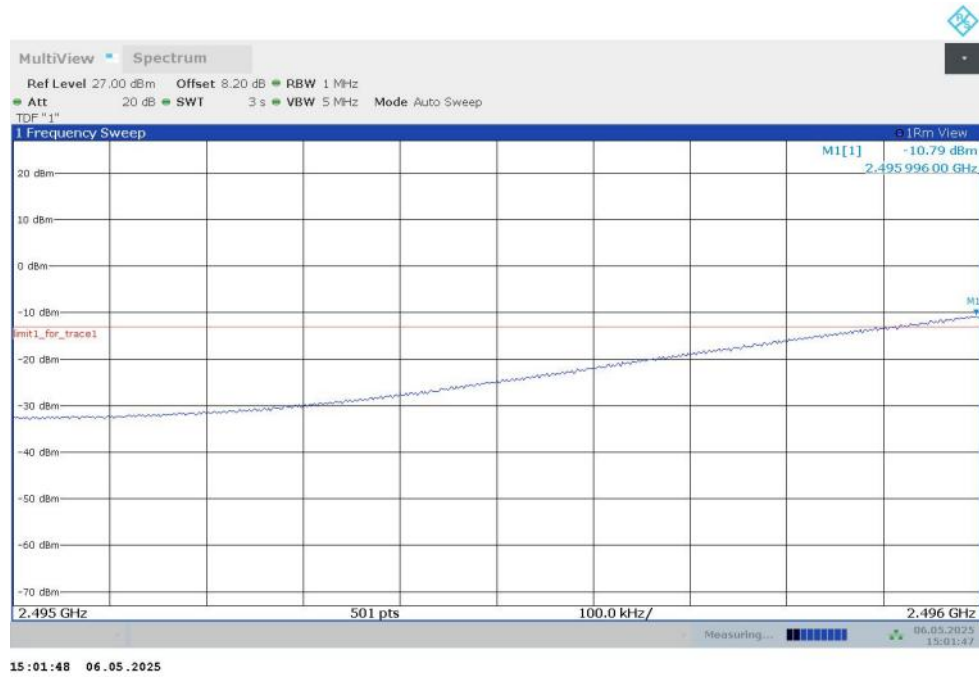
## HIGH BAND EDGE BLOCK-1RB-HIGH\_offset



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



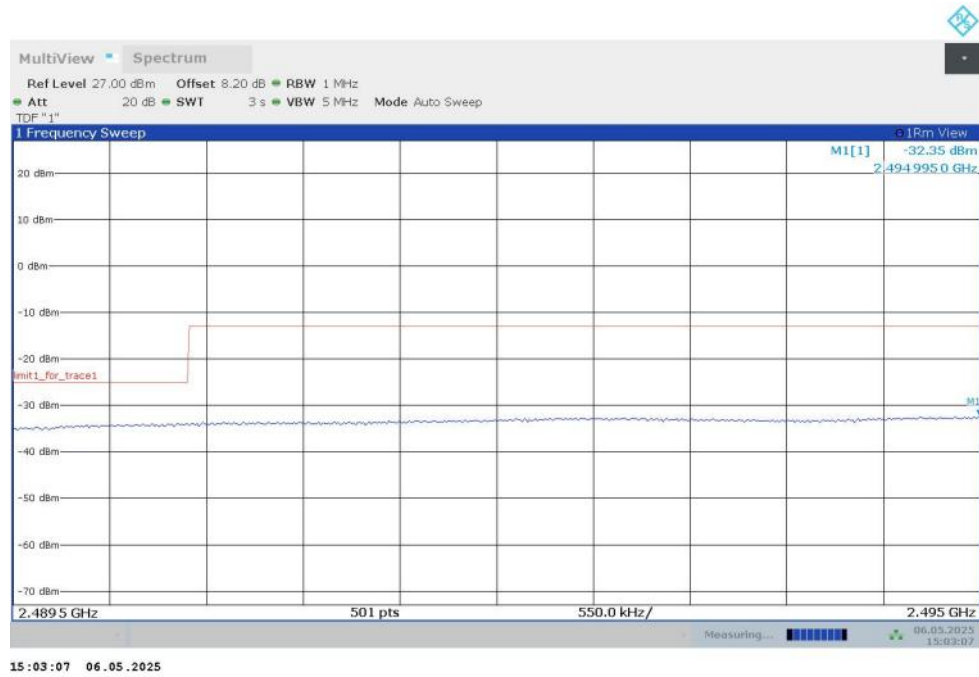
## LOW BAND EDGE BLOCK-100MHz-100%RB



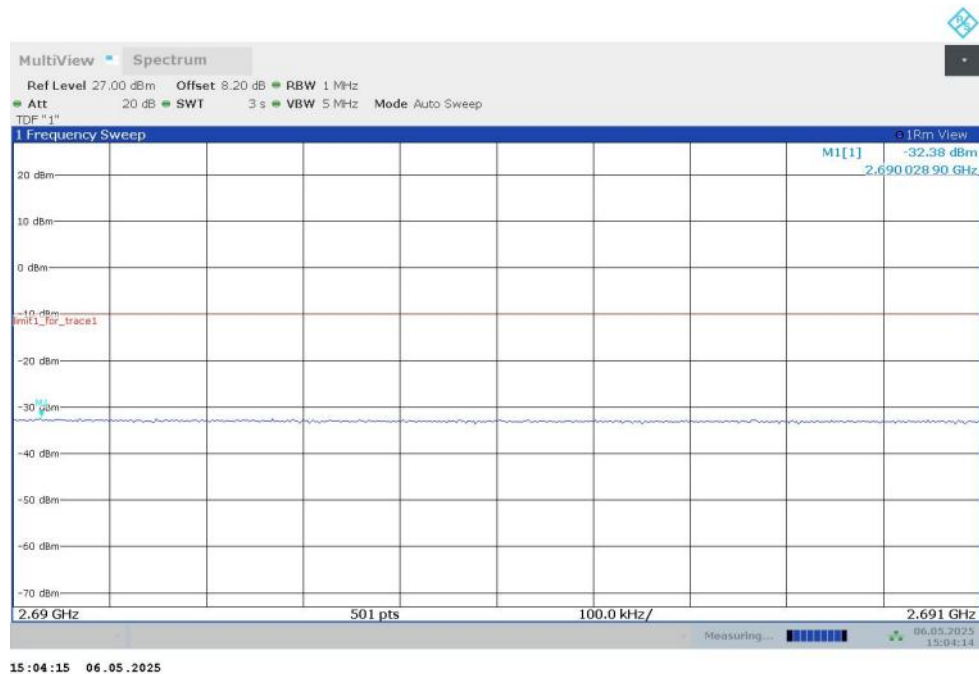
## Channel power



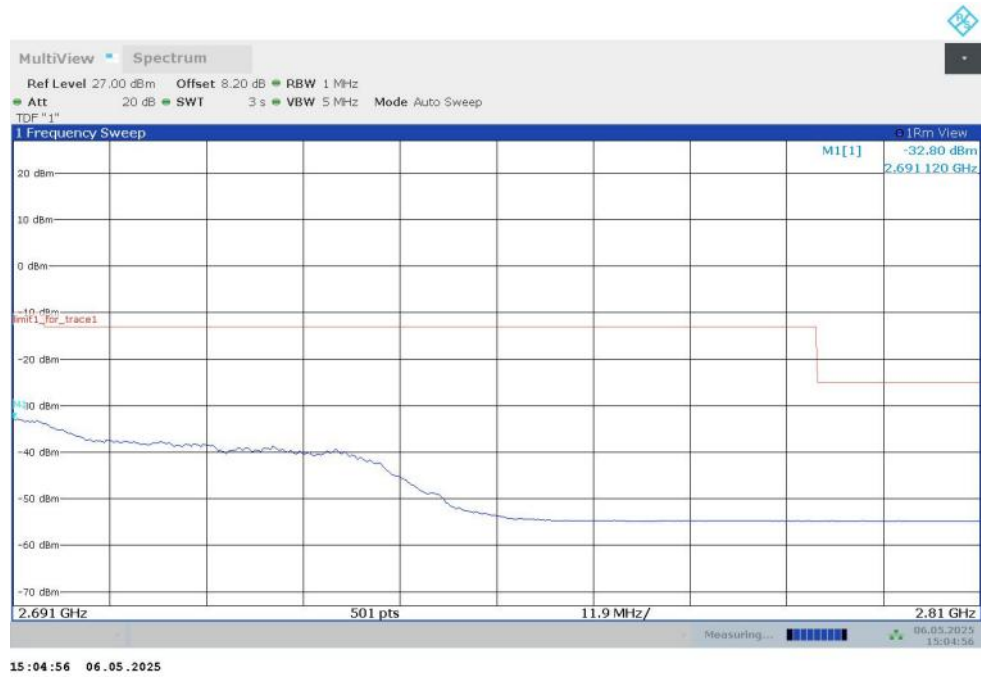
## LOW BAND EDGE BLOCK-100MHz-100%RB



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

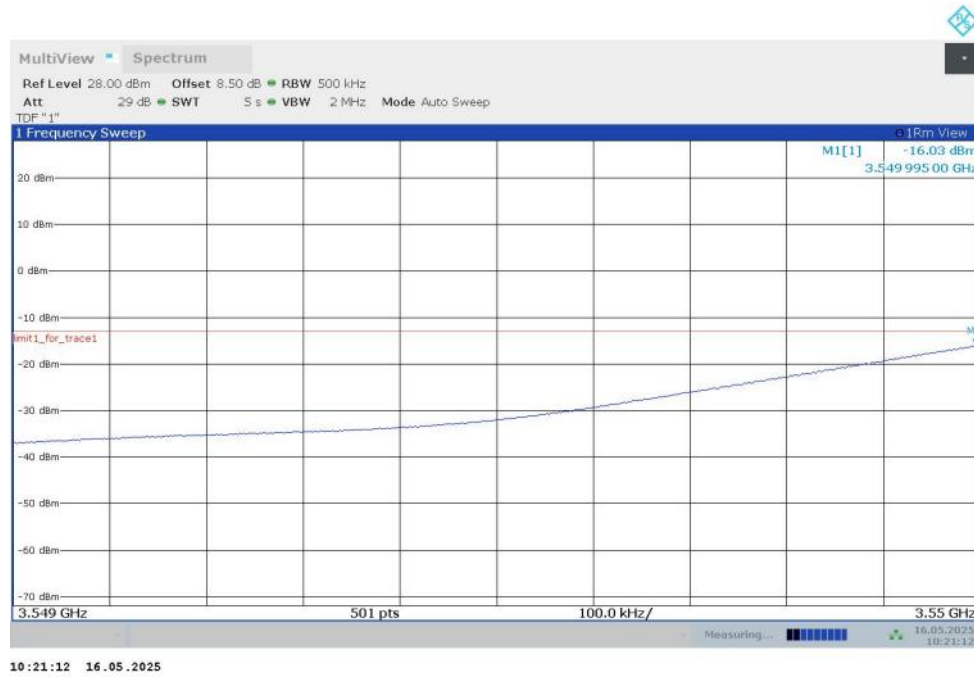


## HIGH BAND EDGE BLOCK-100MHz-100%RB

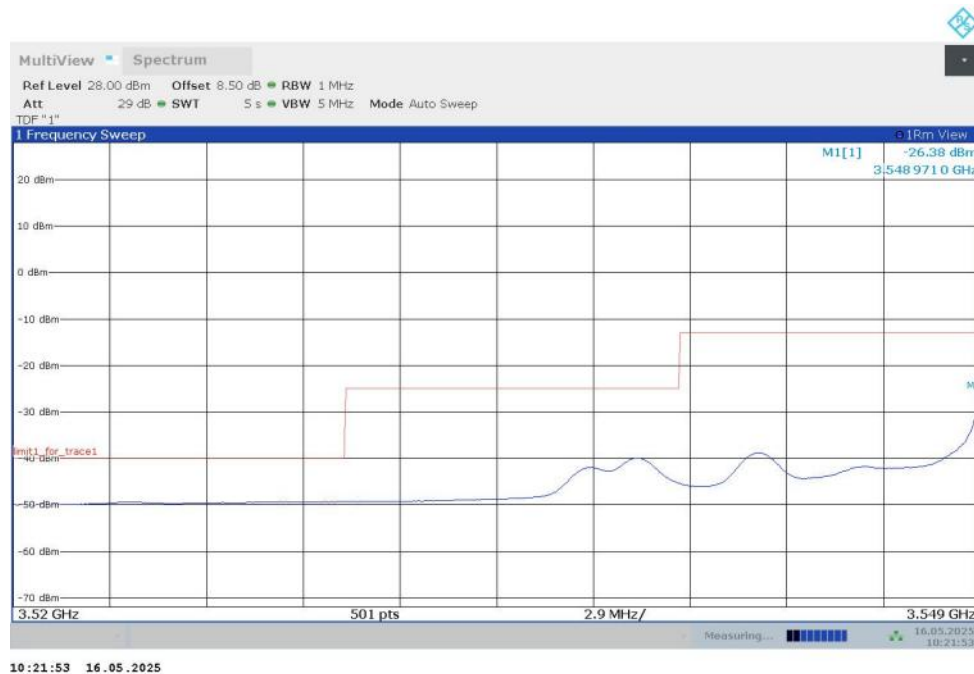


NR n48

LOW BAND EDGE BLOCK-1RB-LOW\_offset

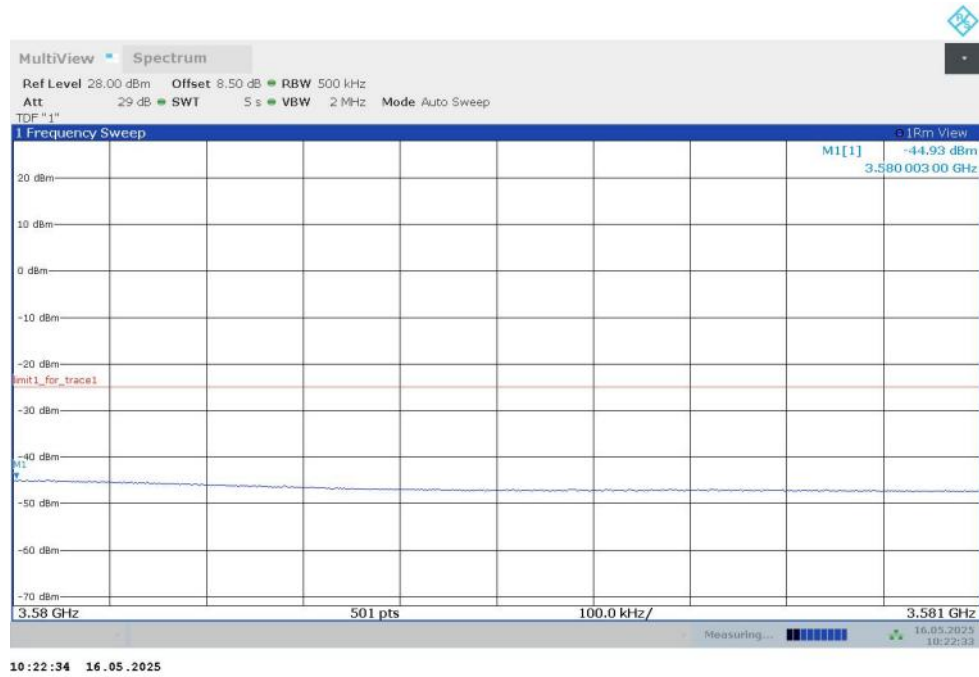


LOW BAND EDGE BLOCK-1RB-LOW\_offset

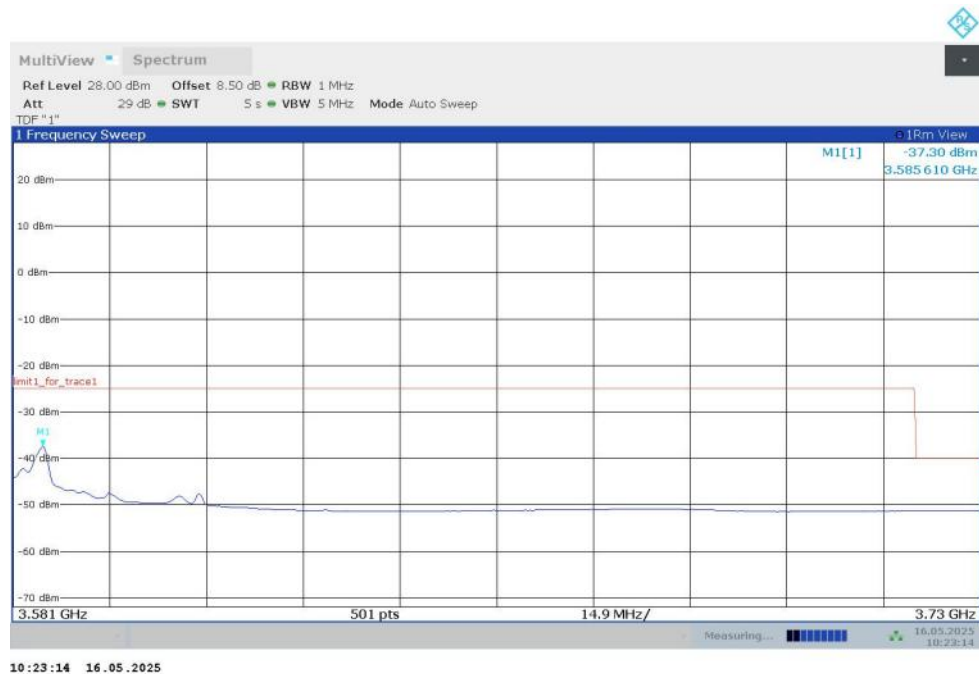




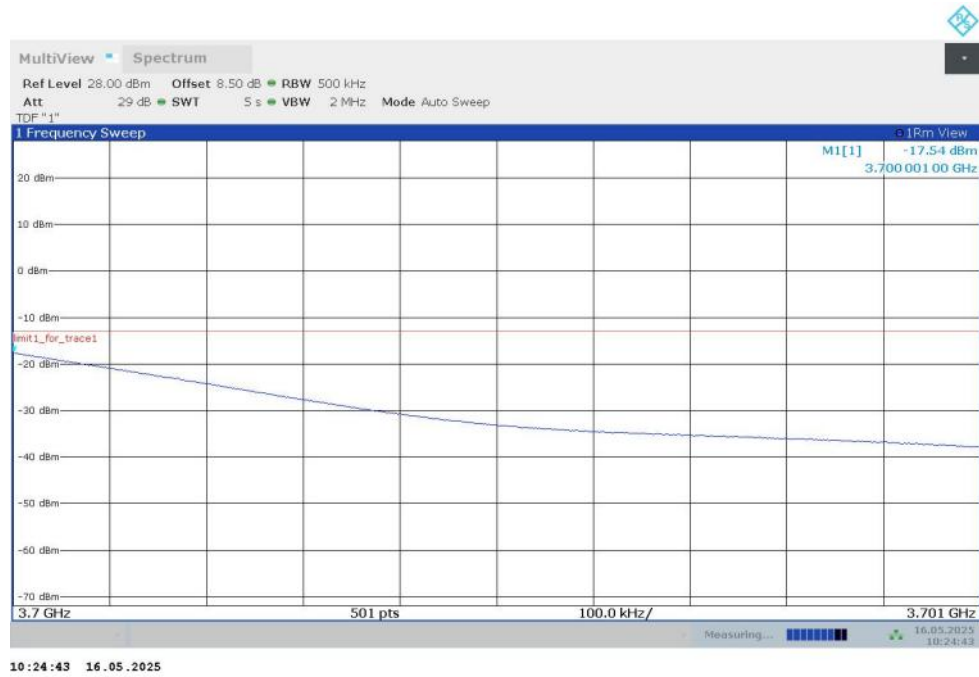
## LOW BAND EDGE BLOCK-1RB-LOW\_offset



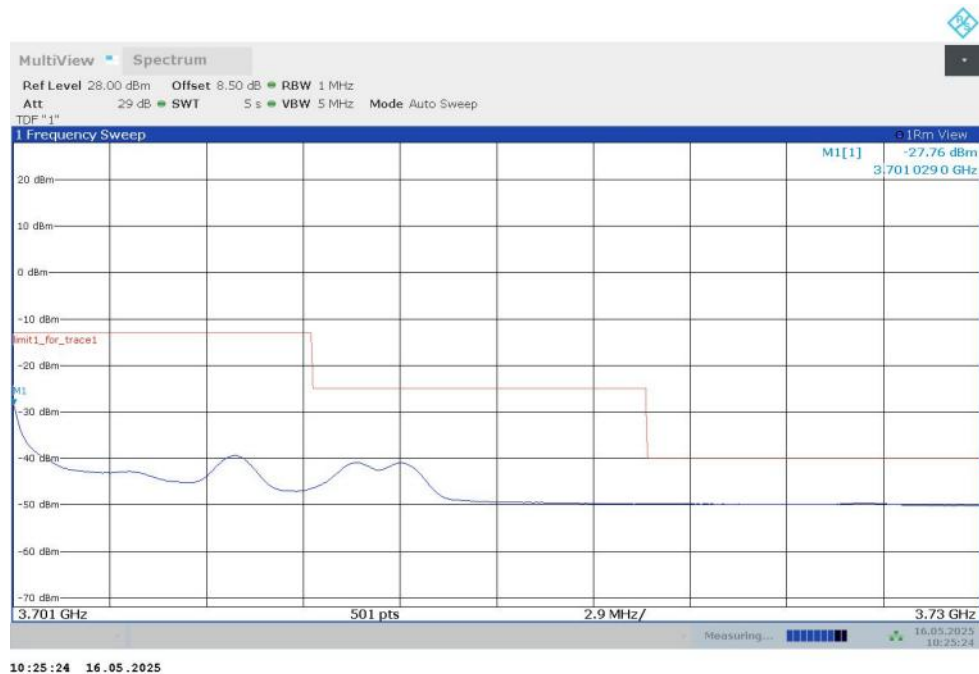
## LOW BAND EDGE BLOCK-1RB-LOW\_offset



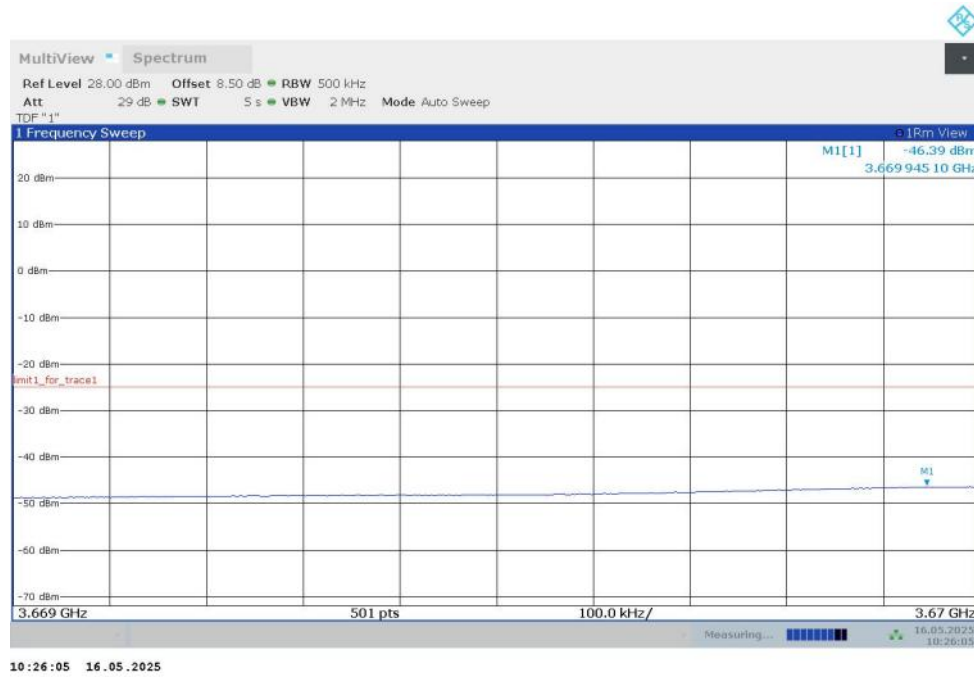
## HIGH BAND EDGE BLOCK-1RB-HIGH\_offset



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



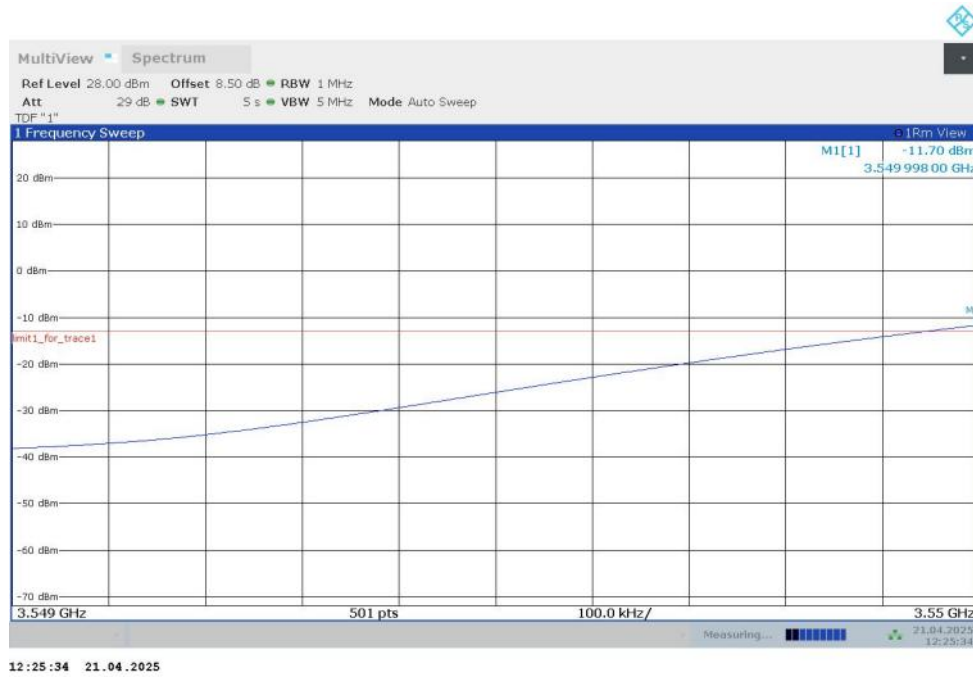
## HIGH BAND EDGE BLOCK-1RB-HIGH\_offset



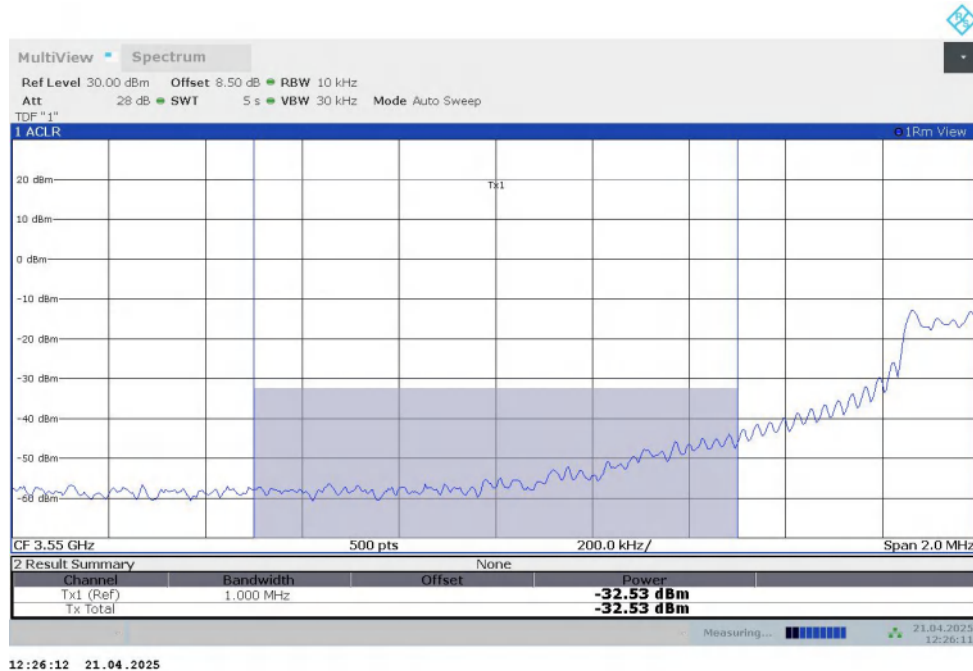
## HIGH BAND EDGE BLOCK-1RB-HIGH\_offset



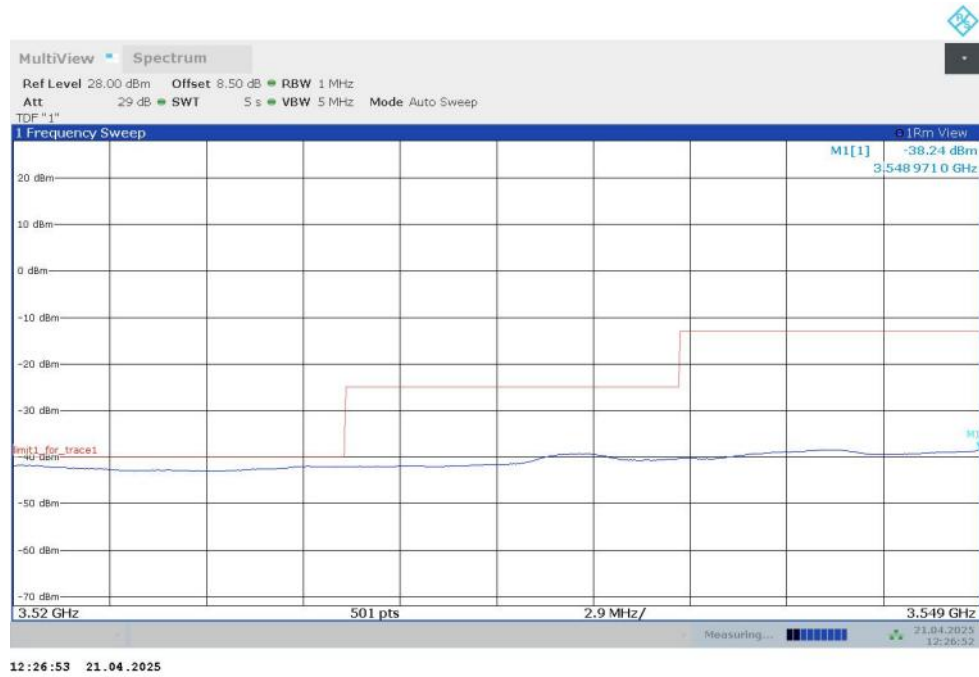
## LOW BAND EDGE BLOCK-100MHz-100%RB



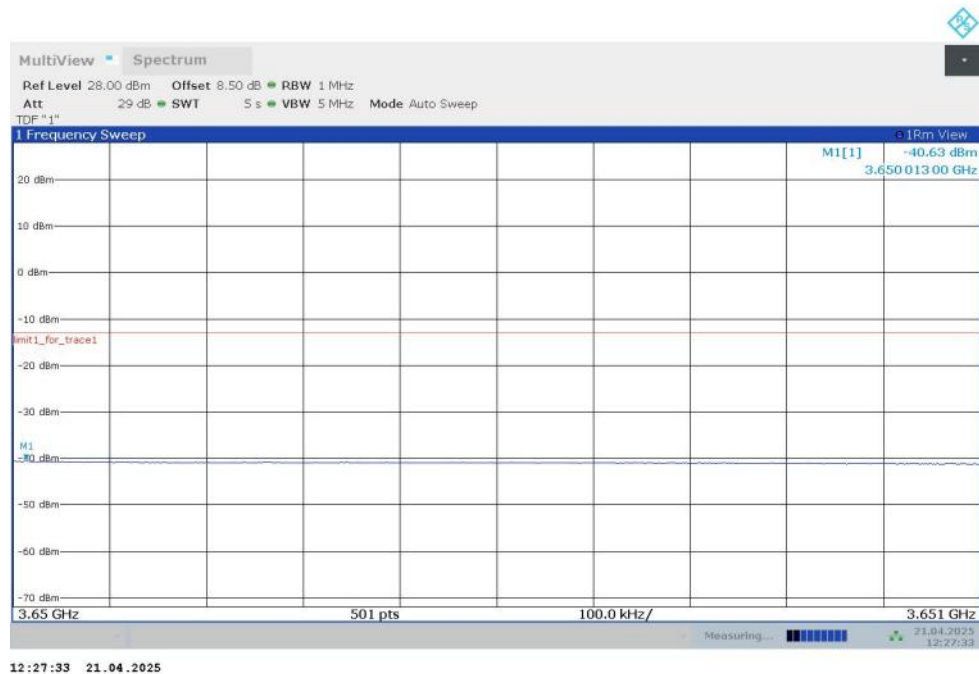
## Channel power



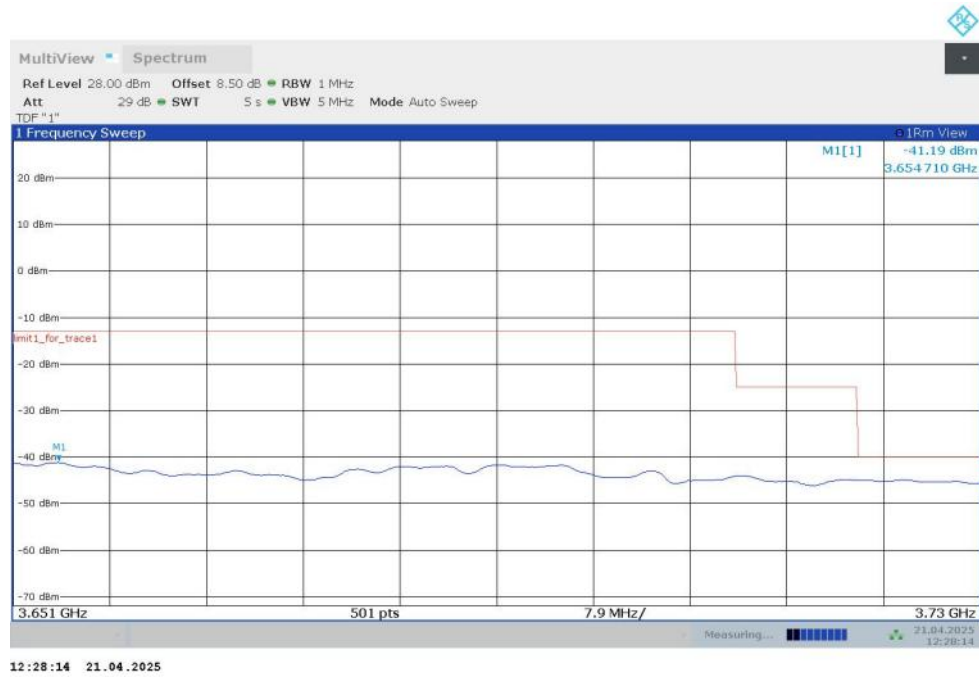
## LOW BAND EDGE BLOCK-100MHz-100%RB



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



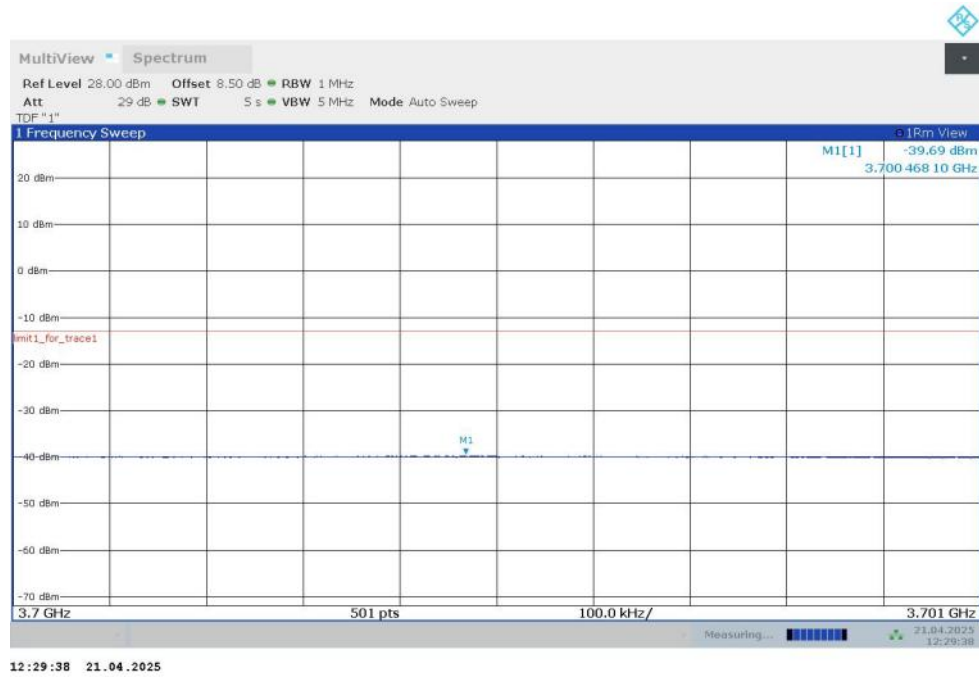
## LOW BAND EDGE BLOCK-100MHz-100%RB



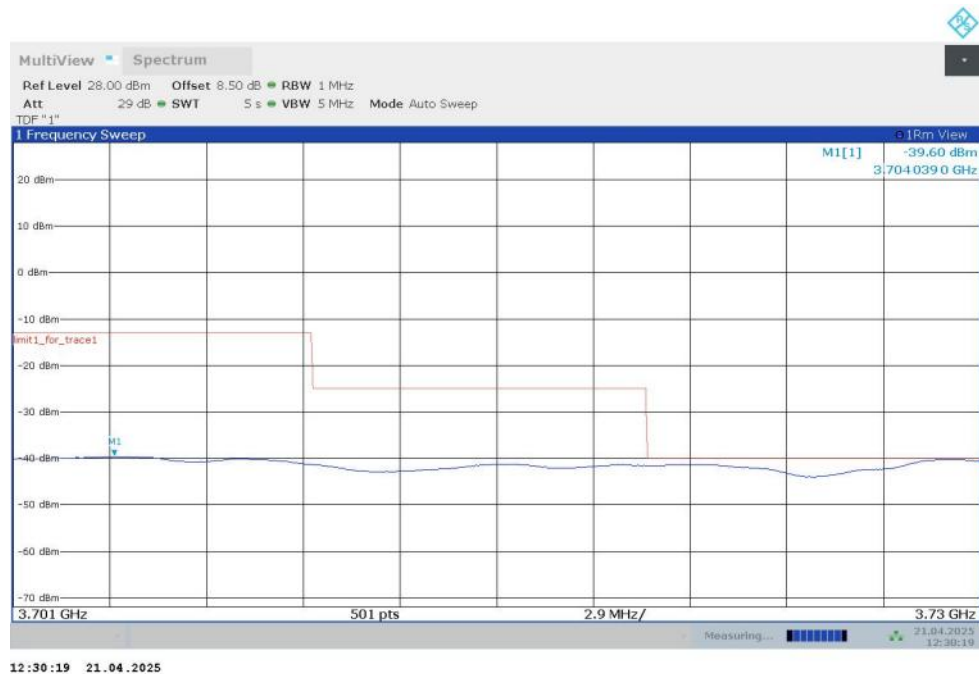
## ACLR



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

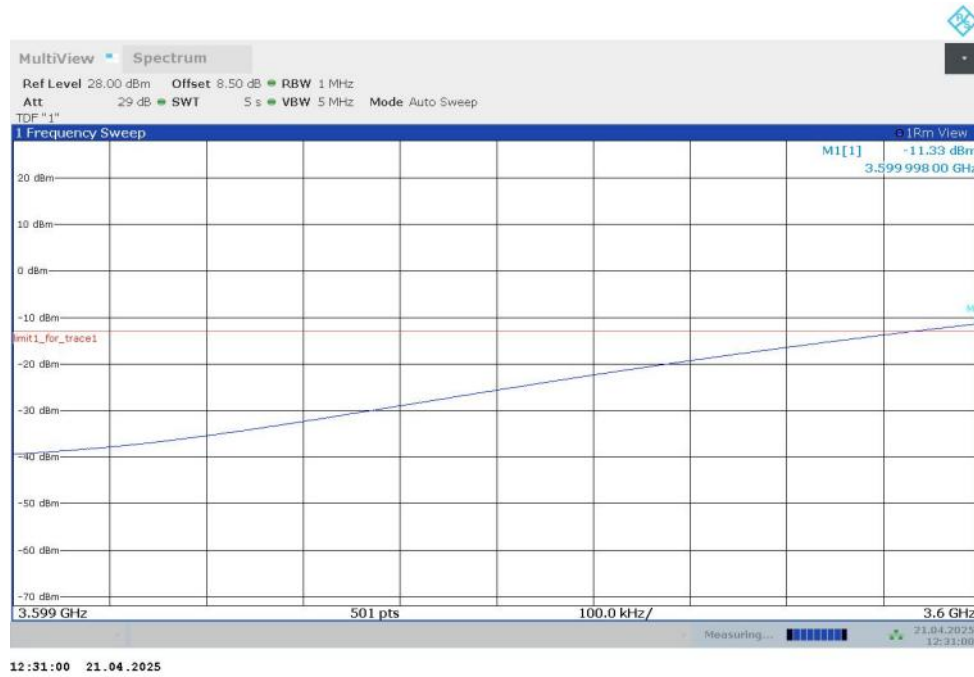


## HIGH BAND EDGE BLOCK-100MHz-100%RB





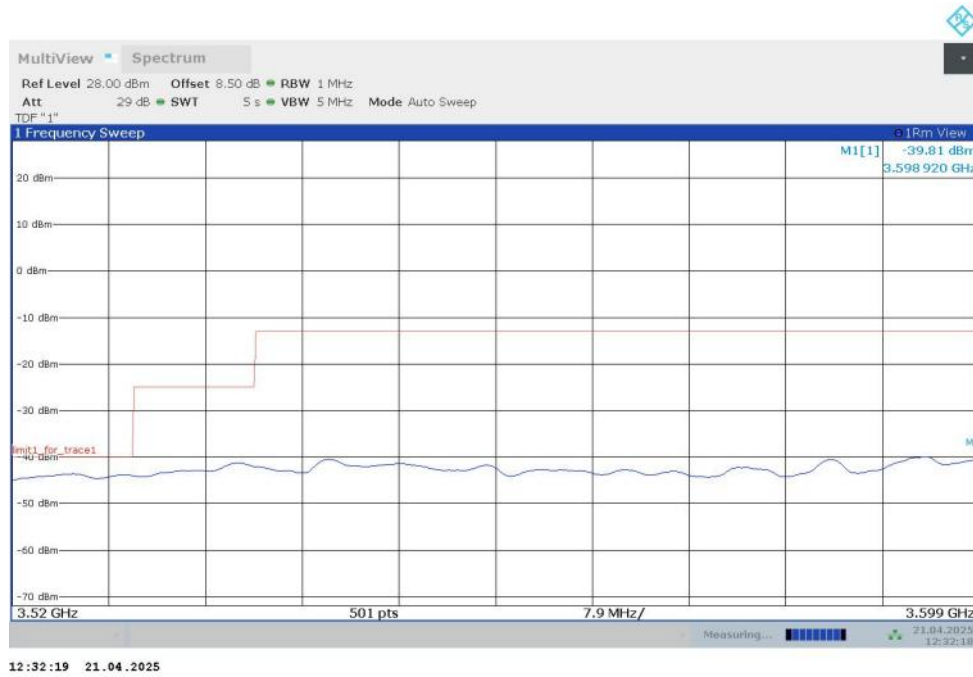
## HIGH BAND EDGE BLOCK-100MHz-100%RB



## Channel power



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

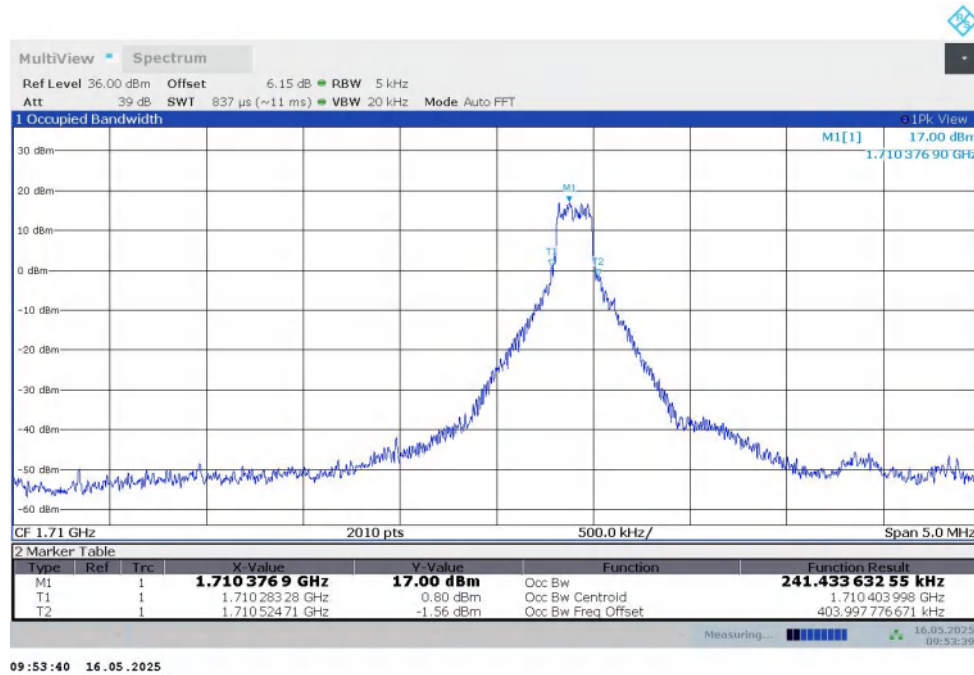


## ACLR

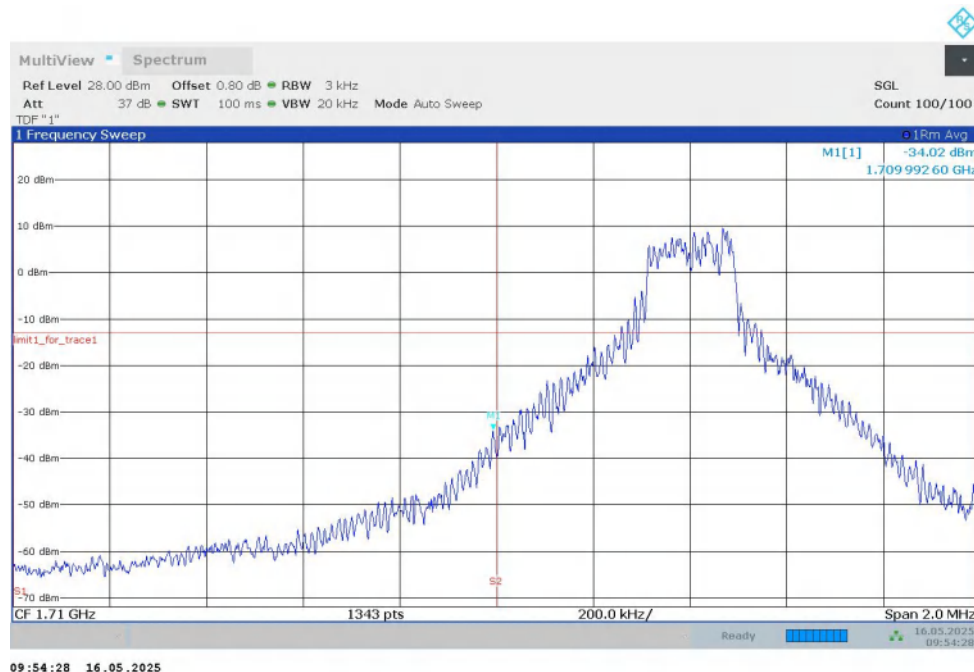


NR n66

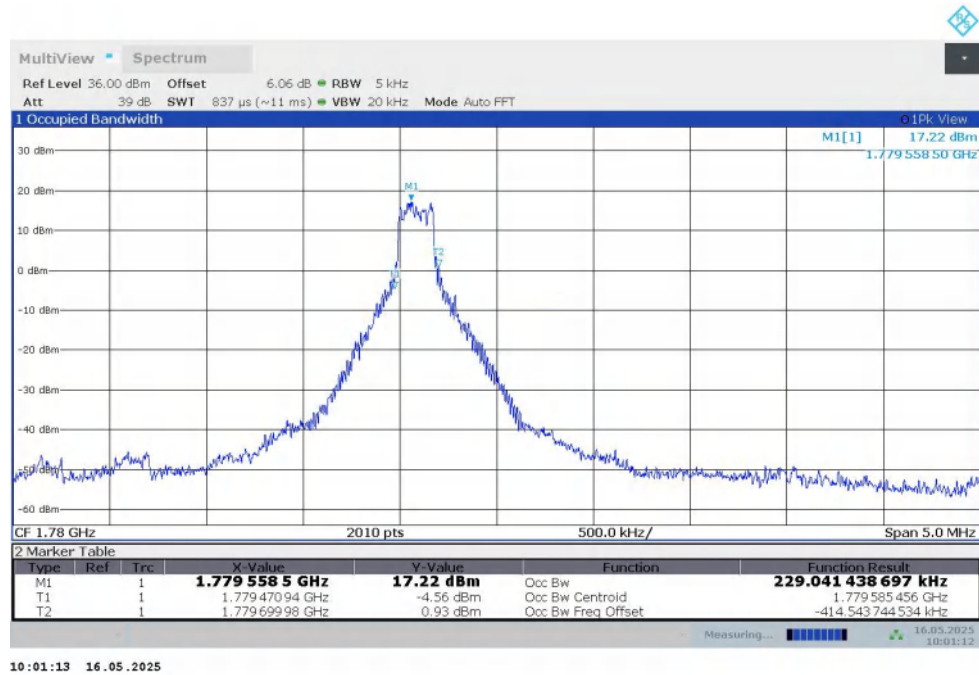
OBW: 1RB-LOW\_offset



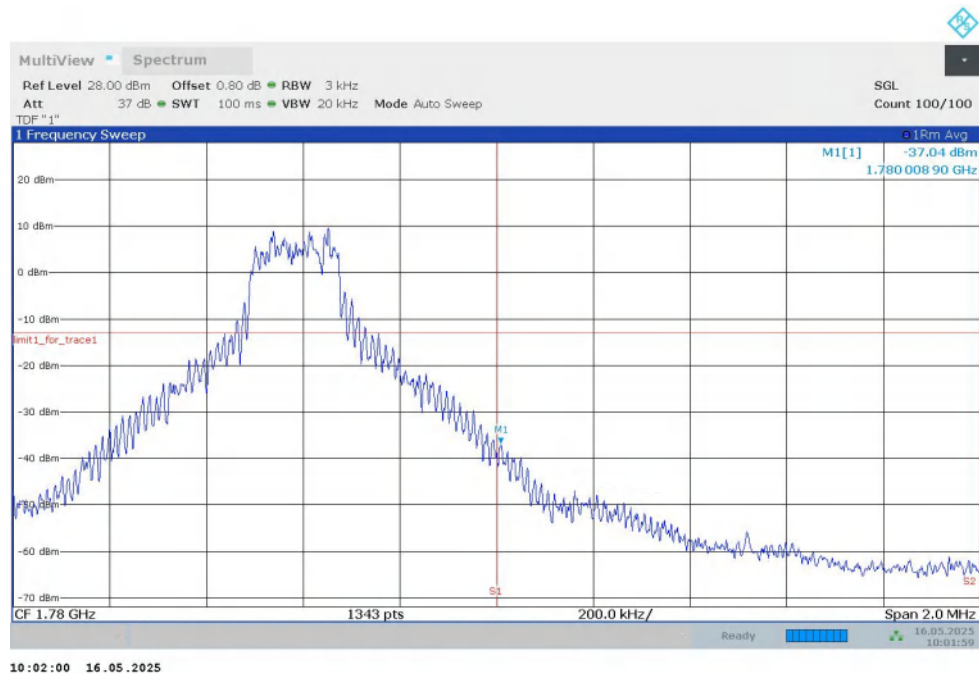
LOW BAND EDGE BLOCK-1RB-LOW\_offset



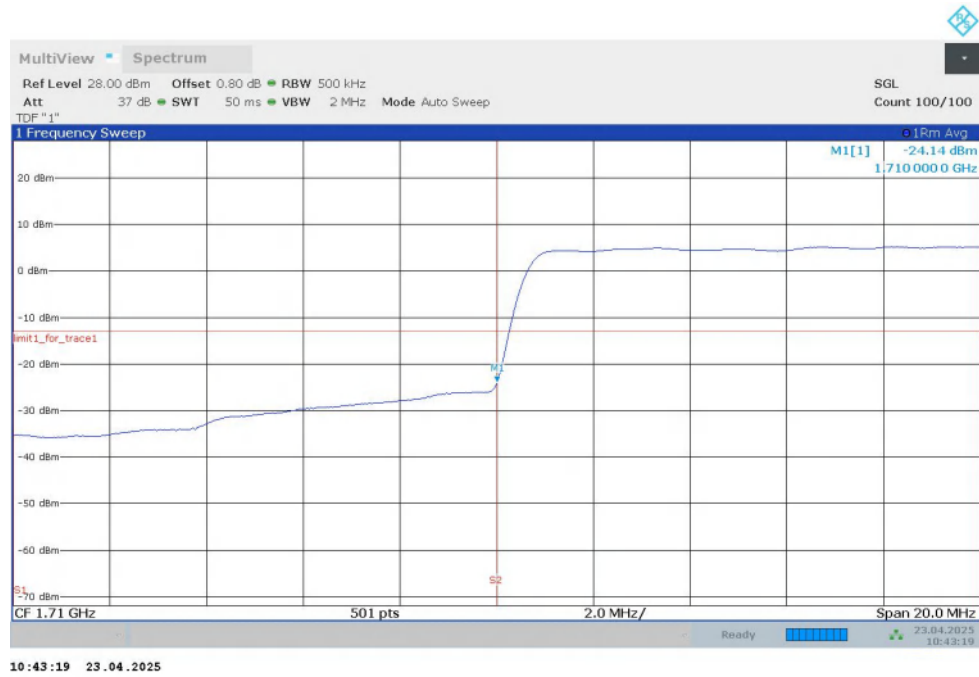
## OBW: 1RB-HIGH\_offset



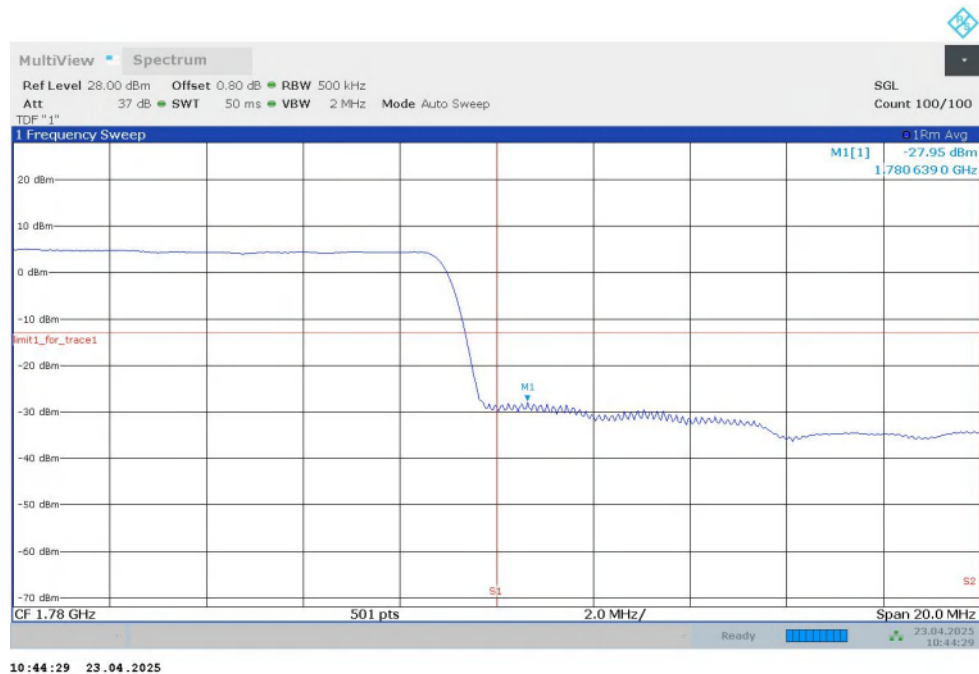
## HIGH BAND EDGE BLOCK-1RB-HIGH\_offset



## LOW BAND EDGE BLOCK-45MHz-100%RB

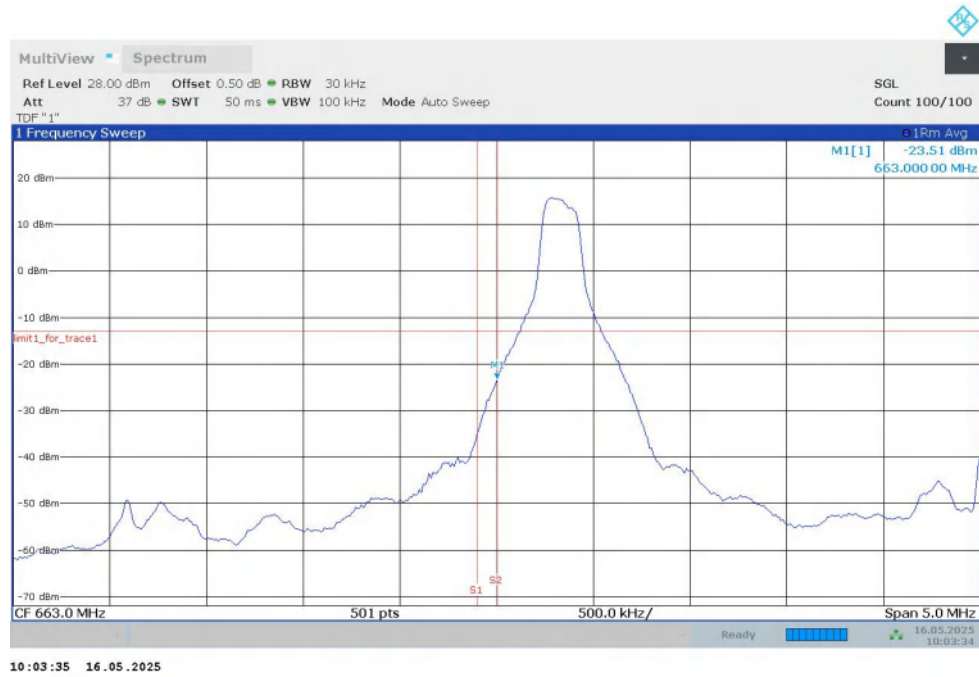


## HIGH BAND EDGE BLOCK-45MHz-100%RB

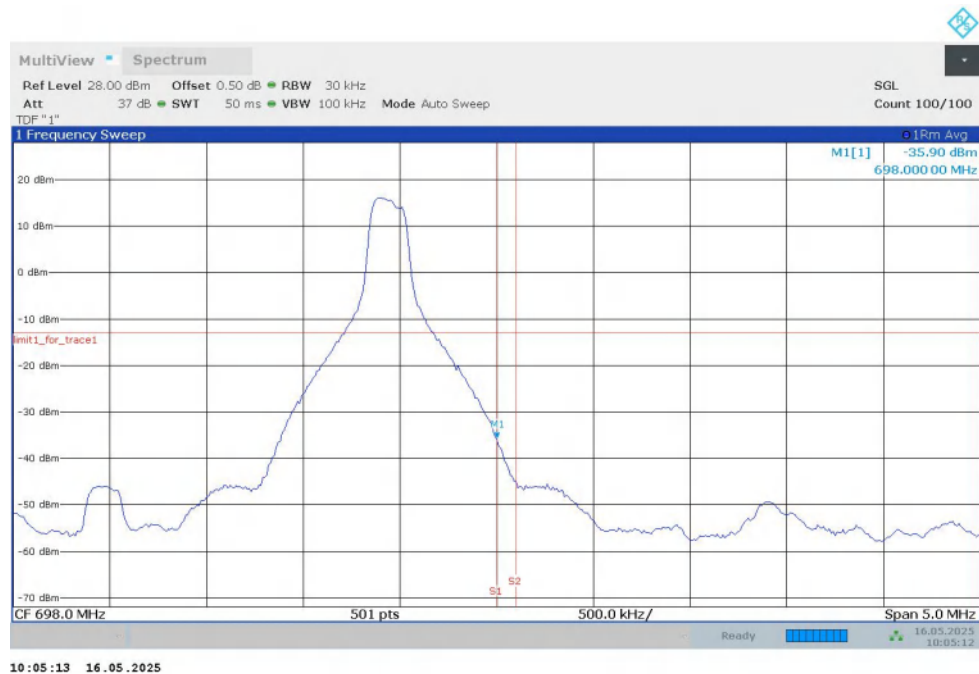


NR n71

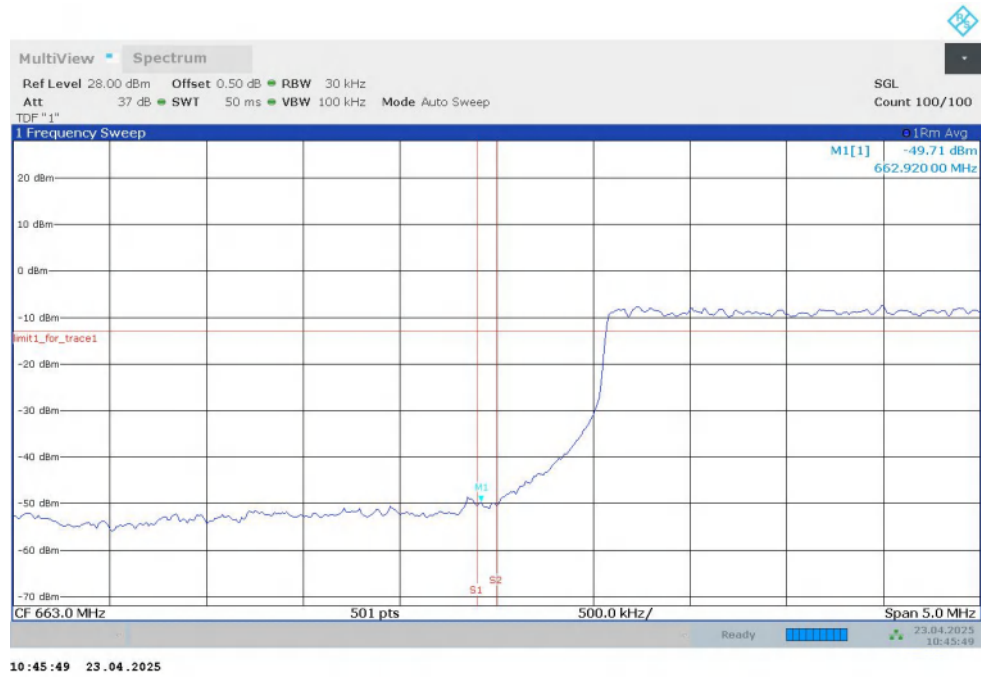
LOW BAND EDGE BLOCK-1RB-LOW\_offset



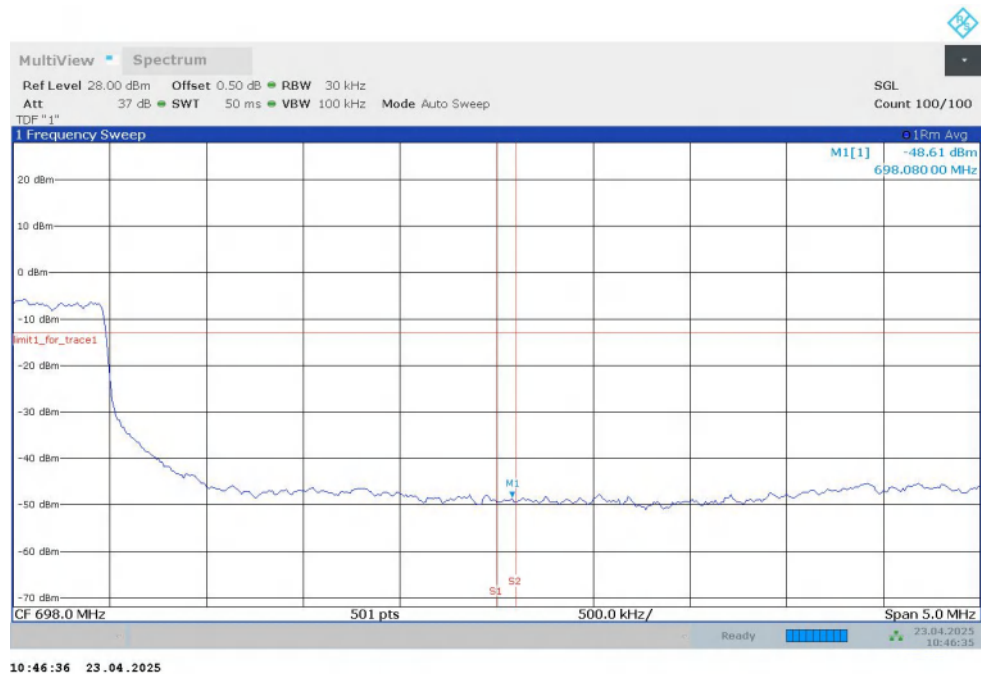
HIGH BAND EDGE BLOCK-1RB-HIGH\_offset



## LOW BAND EDGE BLOCK-35MHz-100%RB



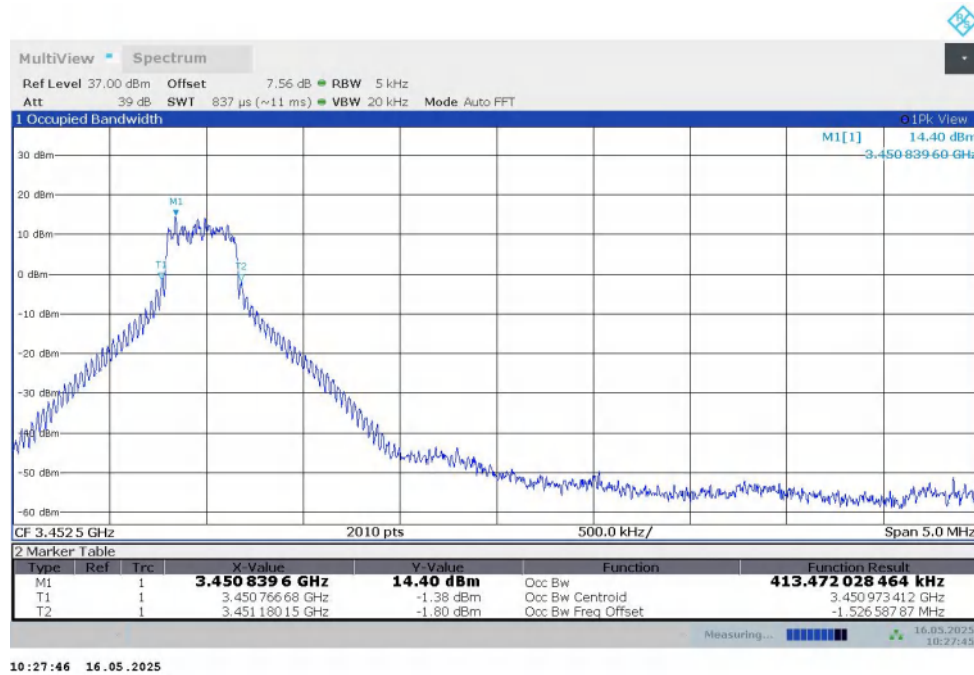
## HIGH BAND EDGE BLOCK-35MHz-100%RB



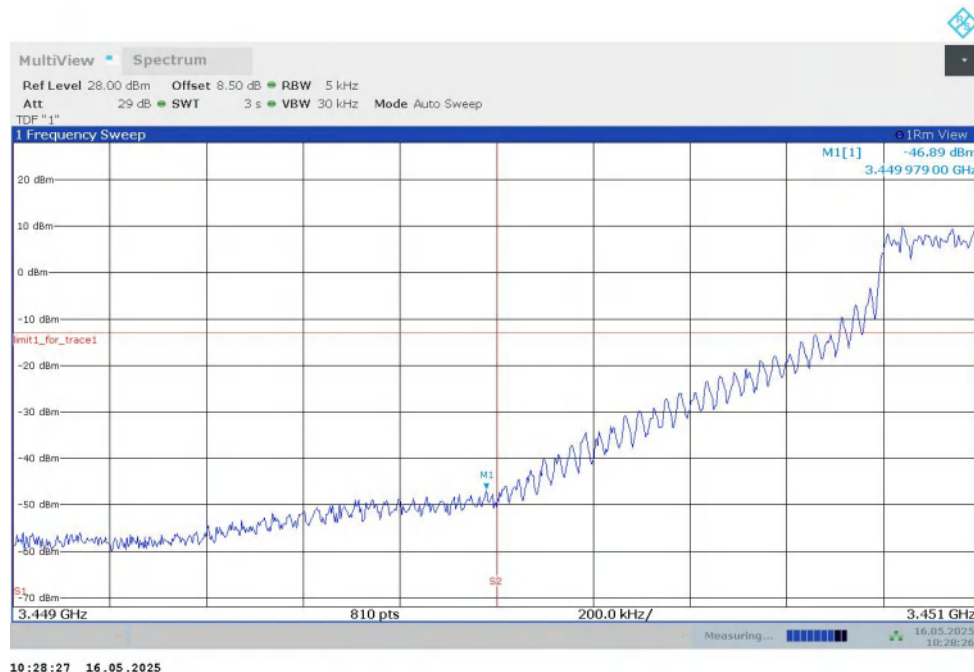


NR n77L

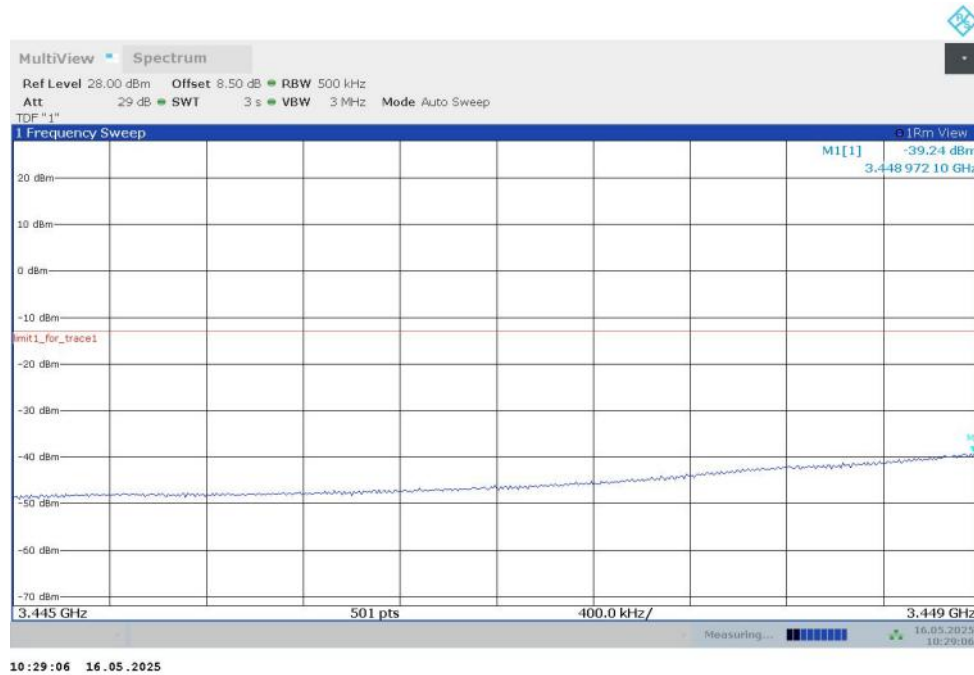
OBW: 1RB-LOW\_offset



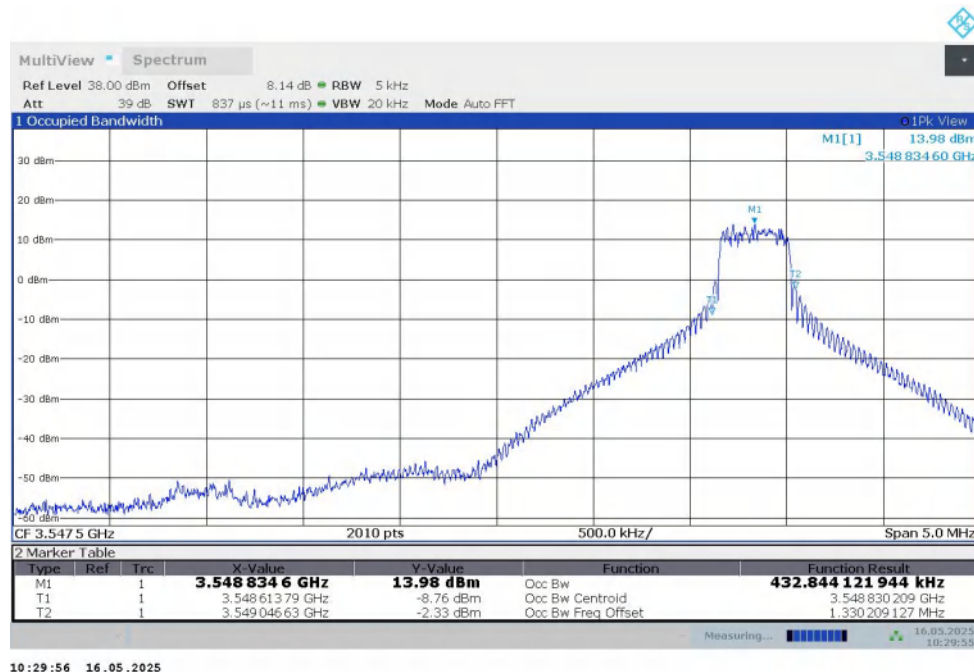
LOW BAND EDGE BLOCK-1RB-LOW\_offset



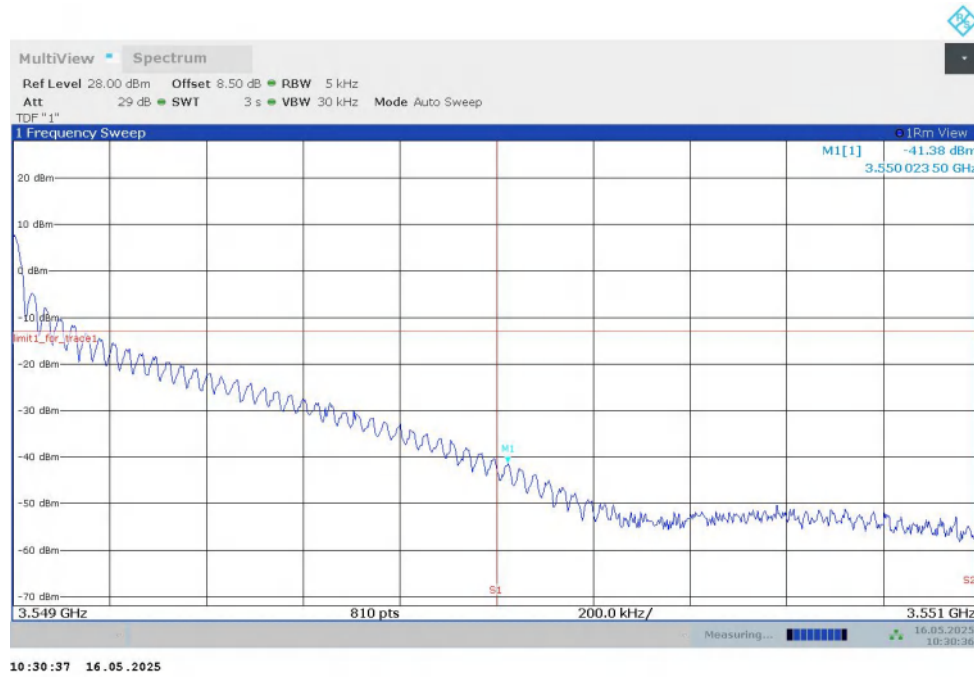
## LOW BAND EDGE BLOCK-1RB-LOW\_offset



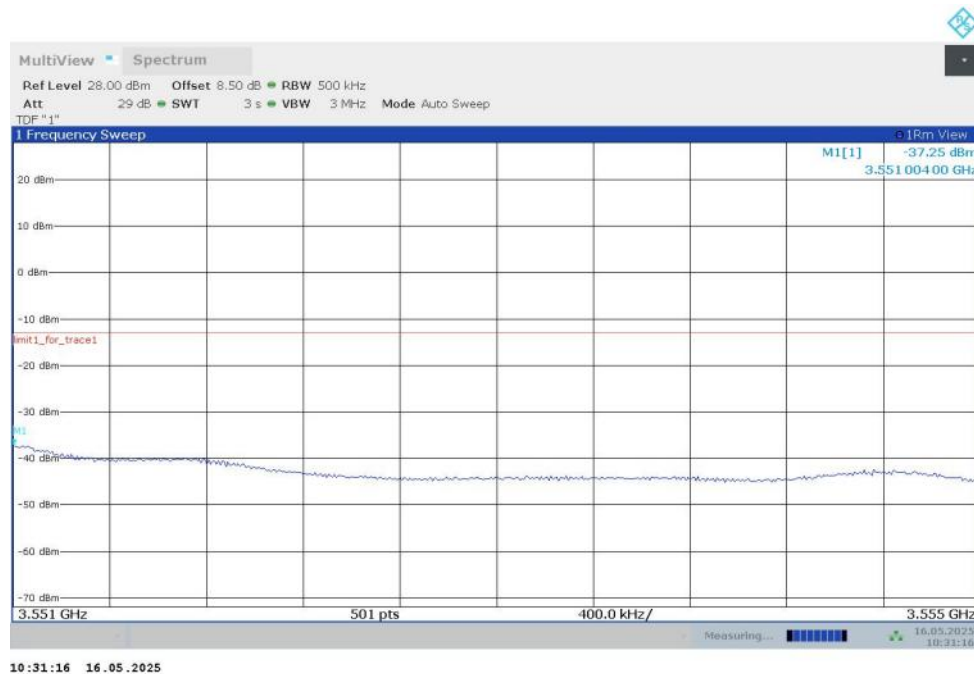
## OBW: 1RB-HIGH\_offset



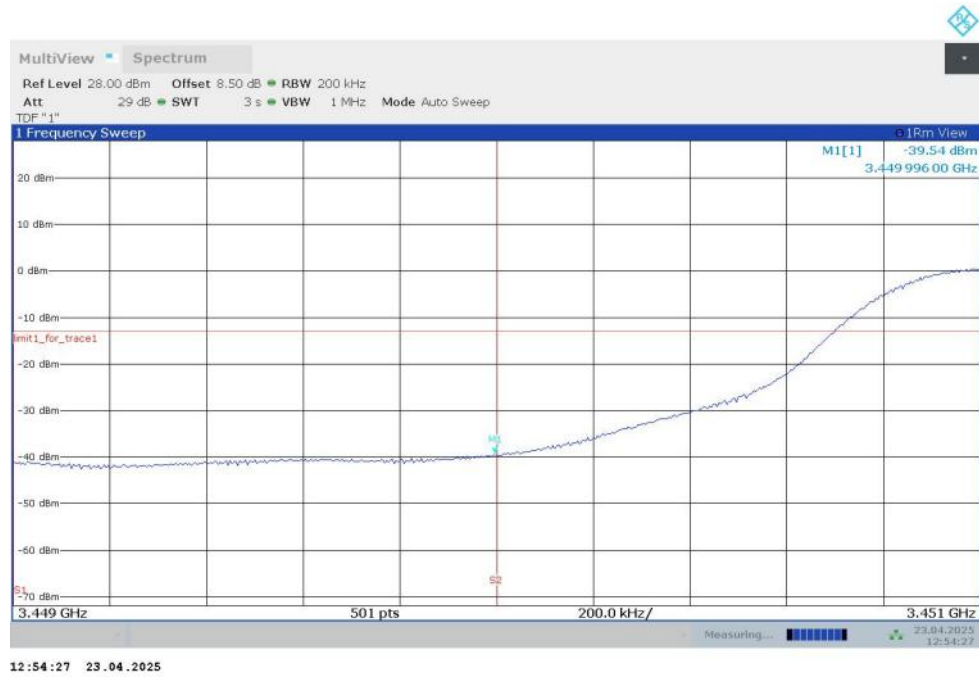
## HIGH BAND EDGE BLOCK-1RB-HIGH\_offset



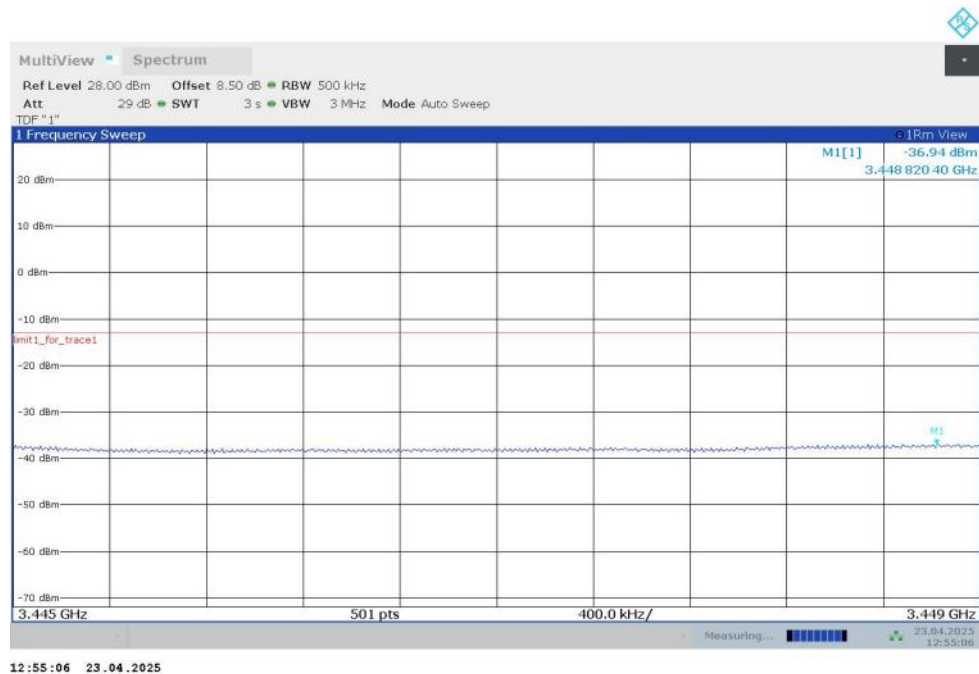
## HIGH BAND EDGE BLOCK-1RB-HIGH\_offset



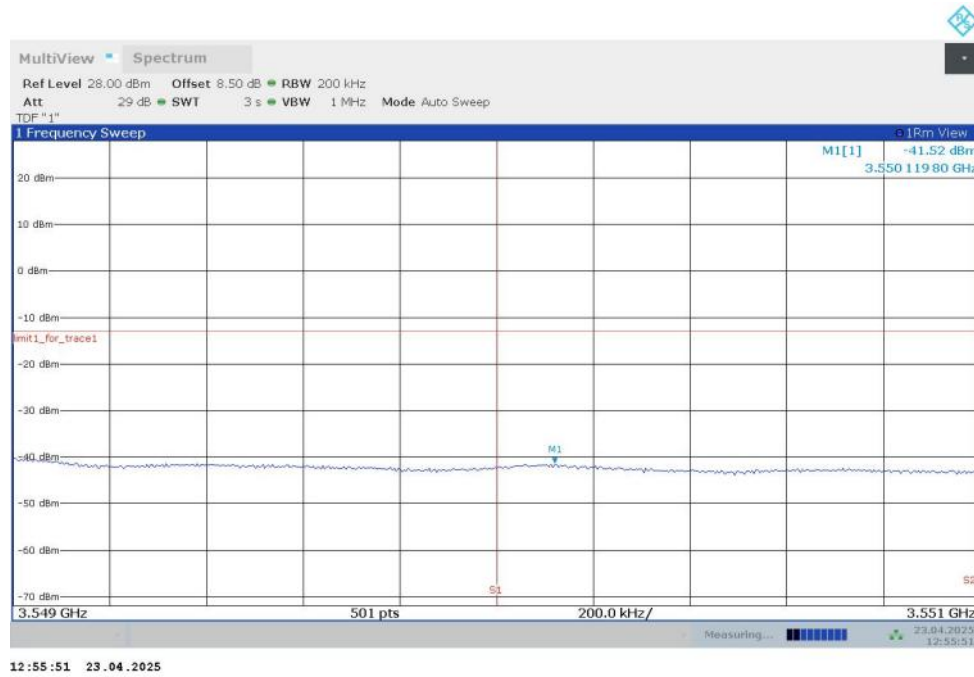
## LOW BAND EDGE BLOCK-100MHz-100%RB



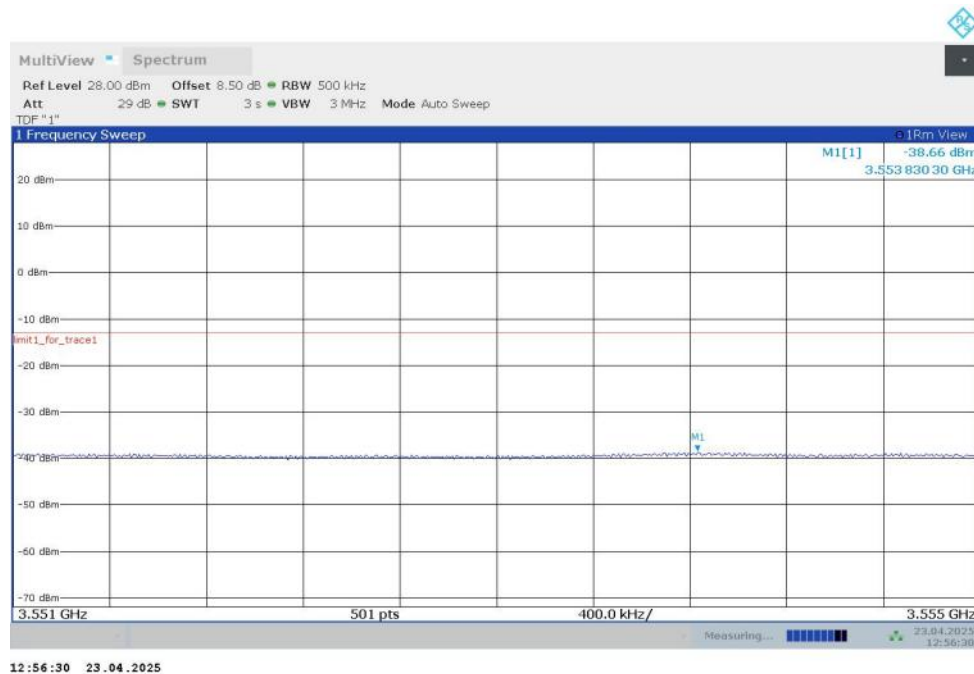
## LOW BAND EDGE BLOCK-100MHz-100%RB



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

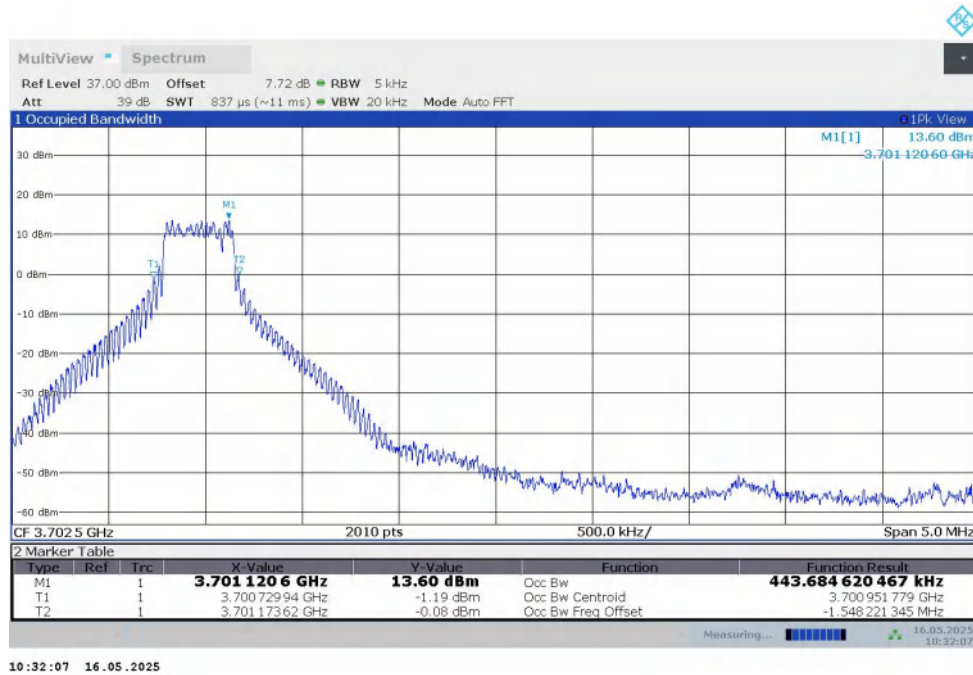


## HIGH BAND EDGE BLOCK-100MHz-100%RB

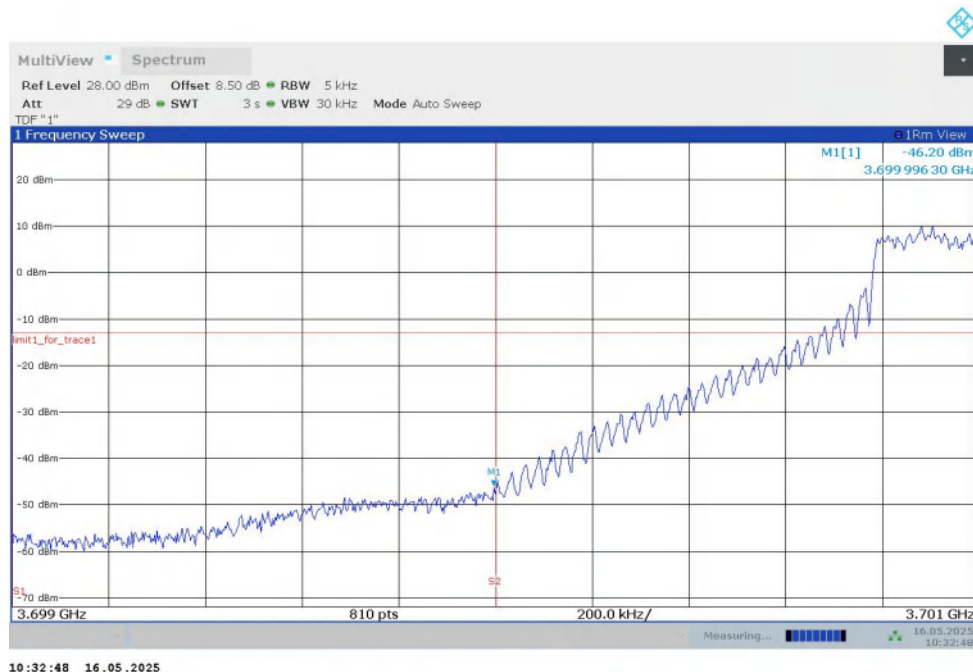


NR n77H

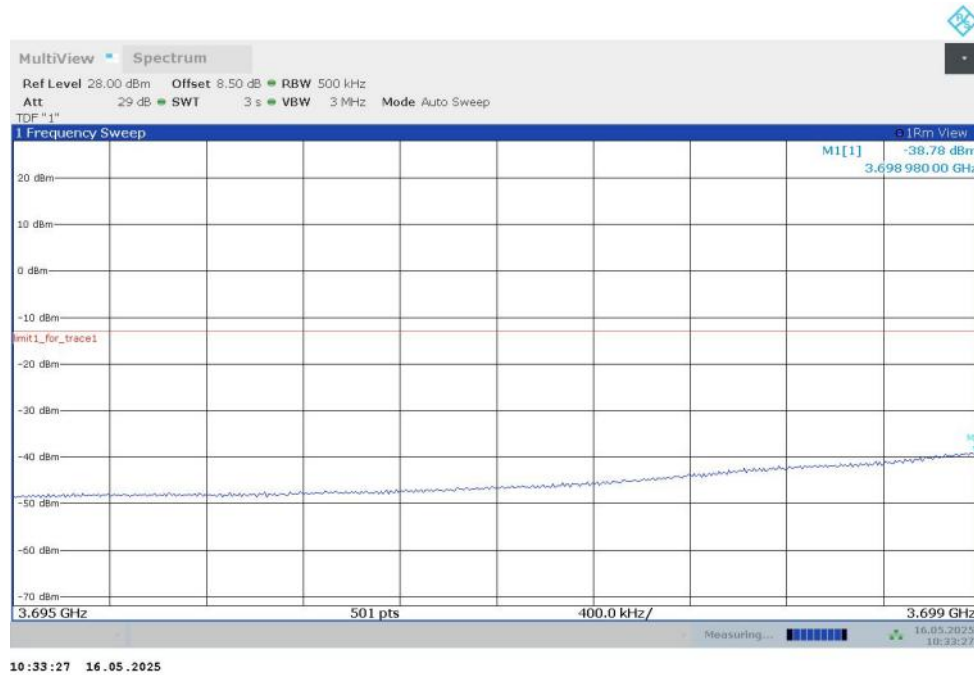
OBW: 1RB-LOW\_offset



LOW BAND EDGE BLOCK-1RB-LOW\_offset



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

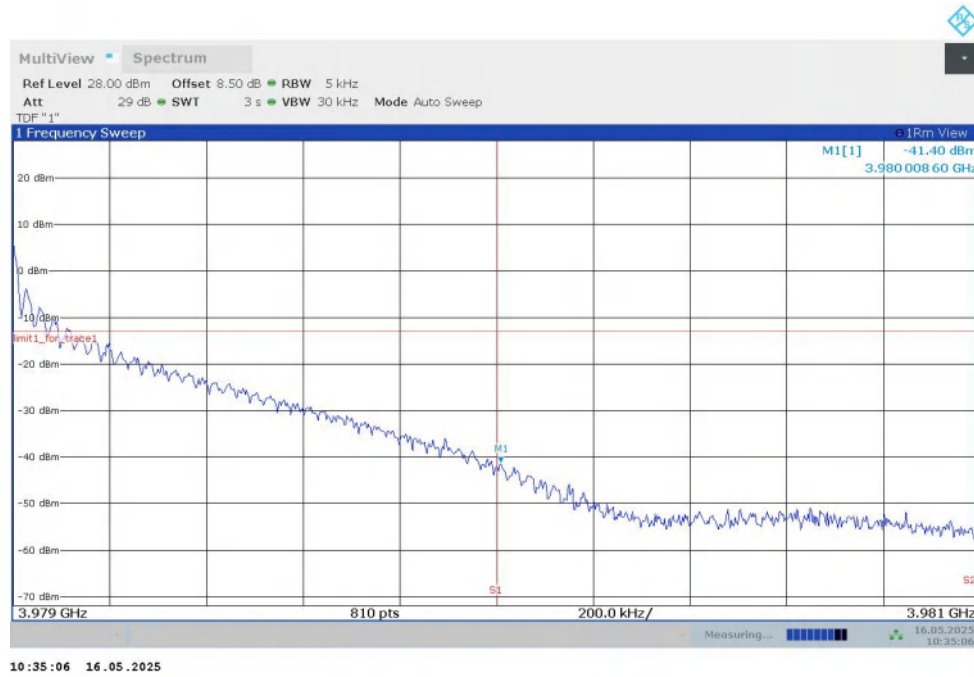


## OBW: 1RB-HIGH\_offset

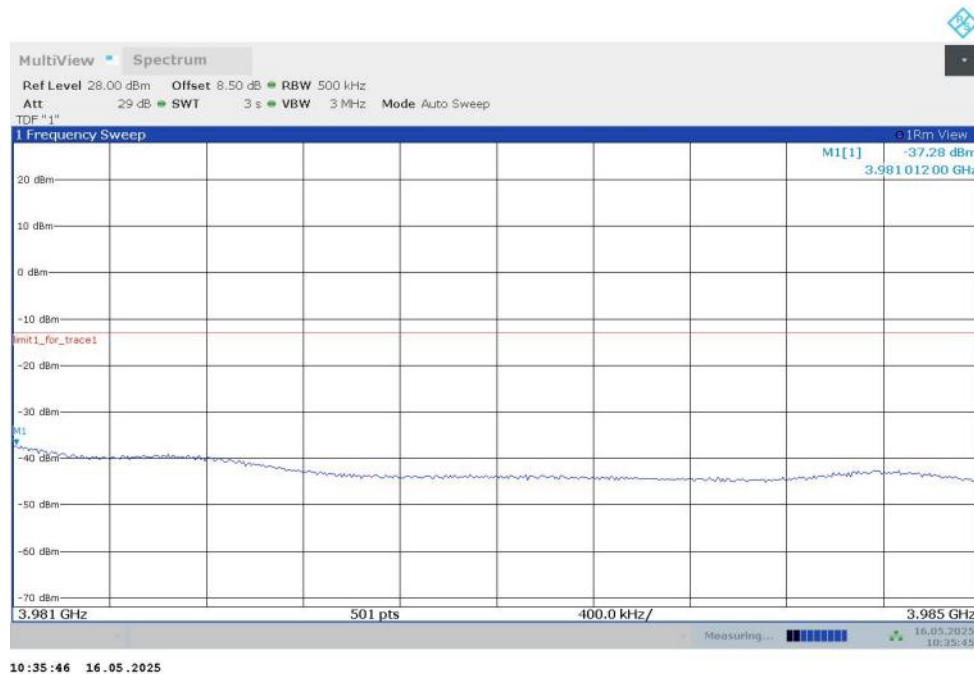




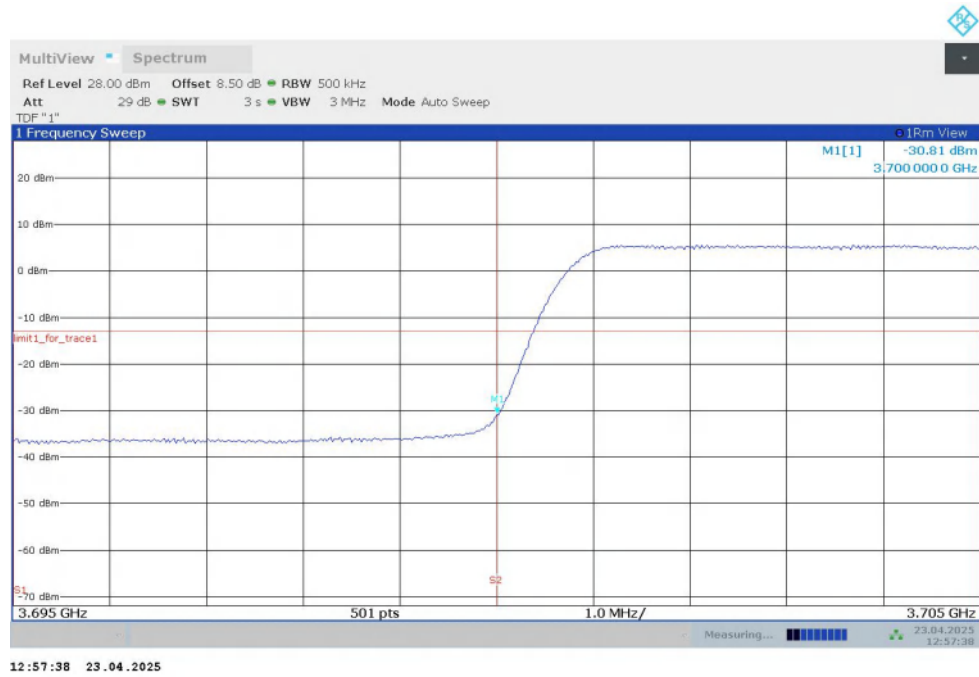
## HIGH BAND EDGE BLOCK-1RB-HIGH\_offset



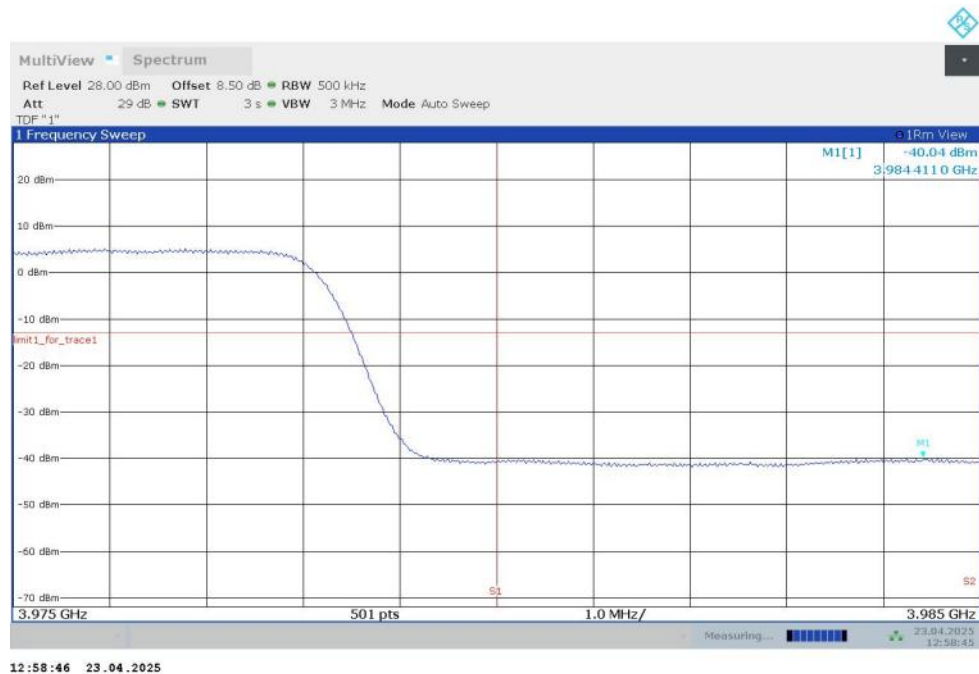
## HIGH BAND EDGE BLOCK-1RB-HIGH\_offset



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

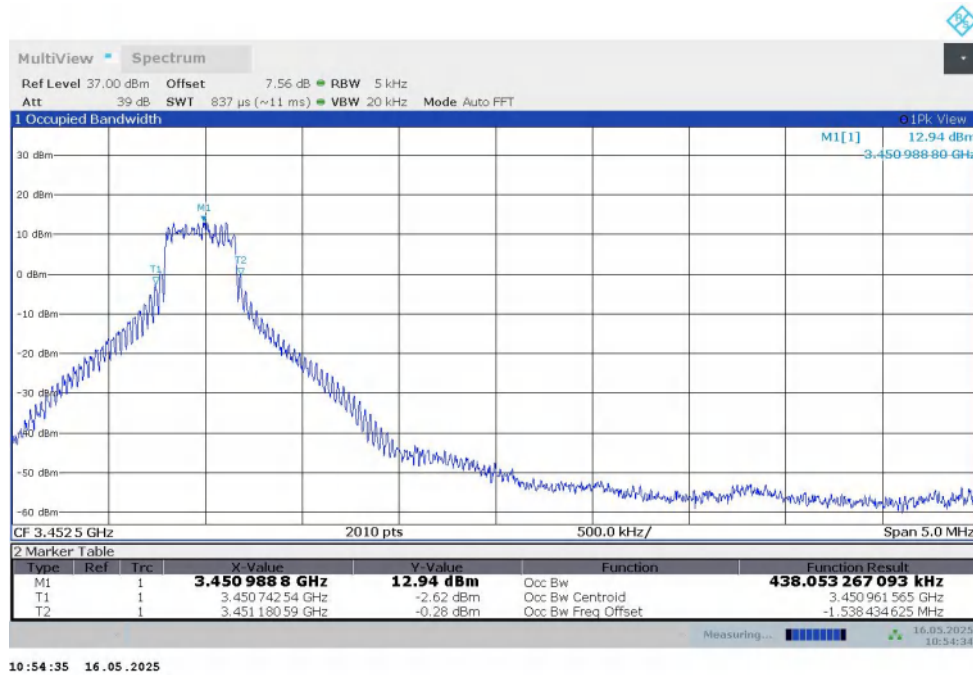


## HIGH BAND EDGE BLOCK-100MHz-100%RB

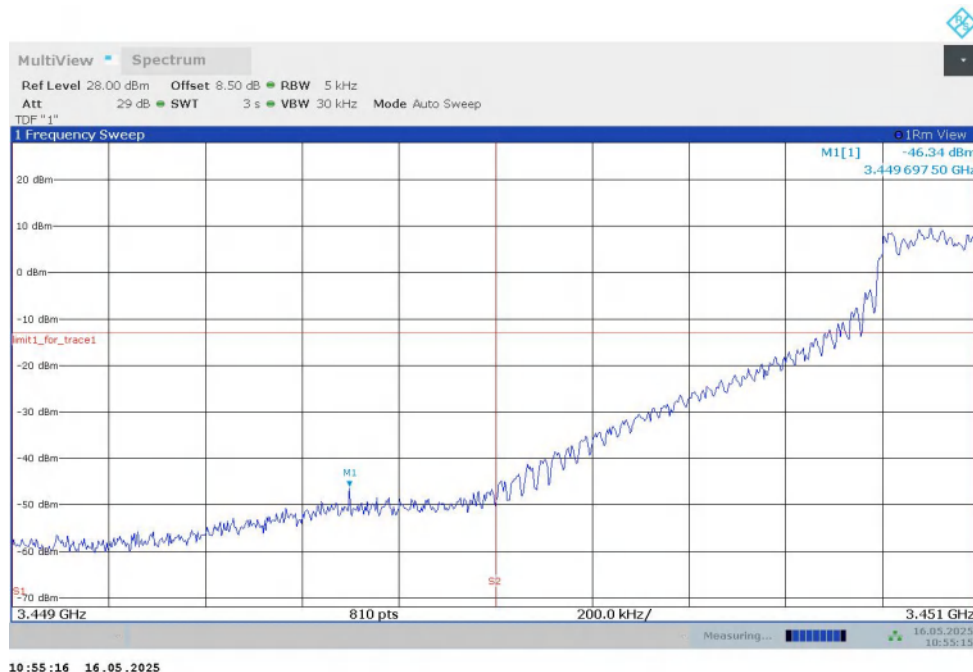


NR n78L

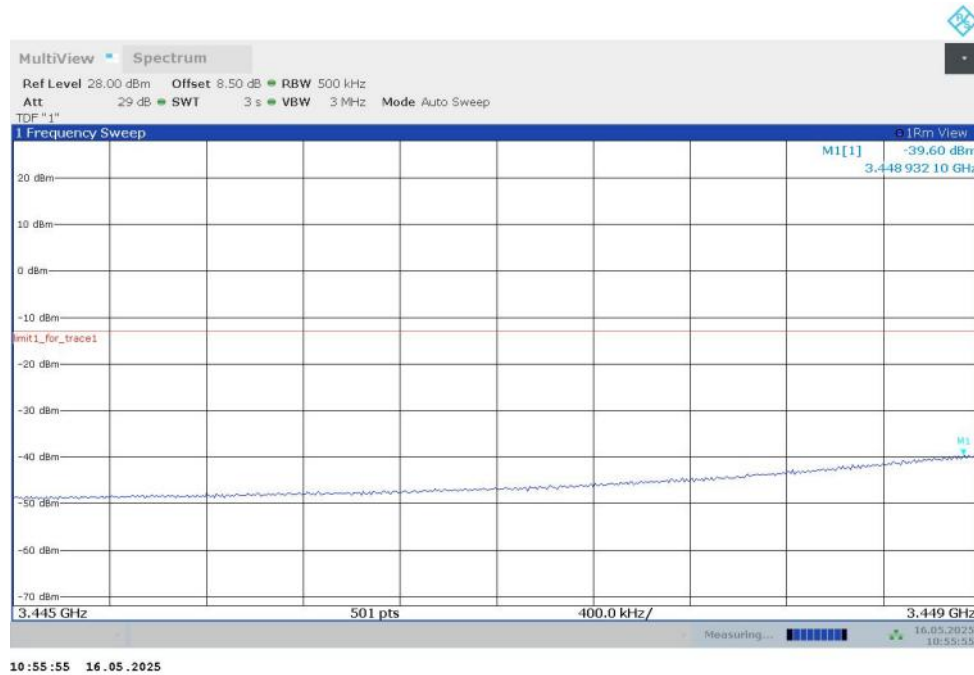
OBW: 1RB-LOW\_offset



LOW BAND EDGE BLOCK-1RB-LOW\_offset



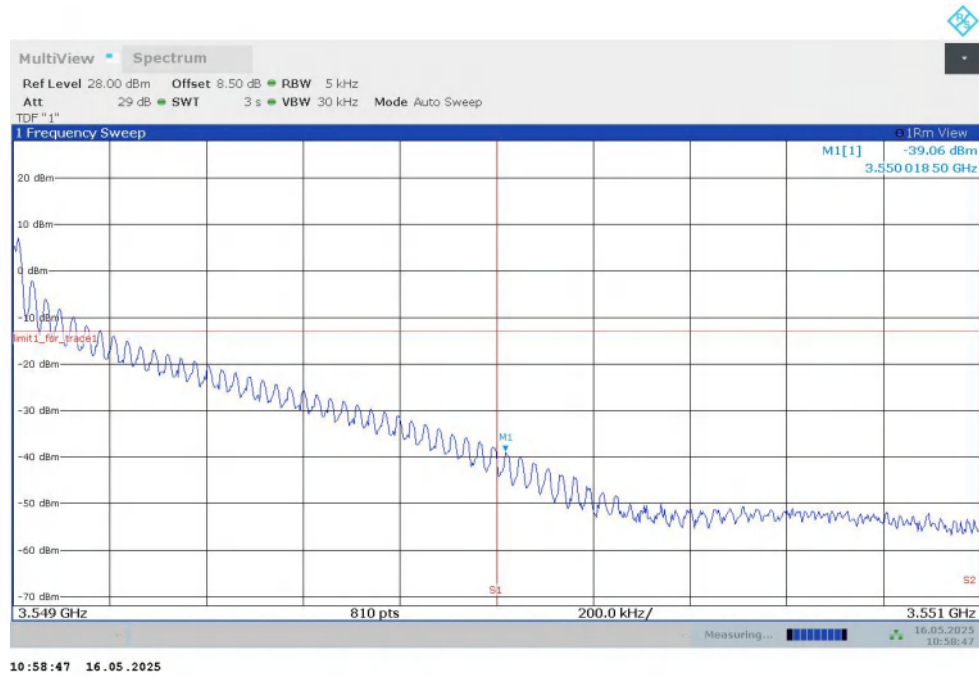
## LOW BAND EDGE BLOCK-1RB-LOW\_offset



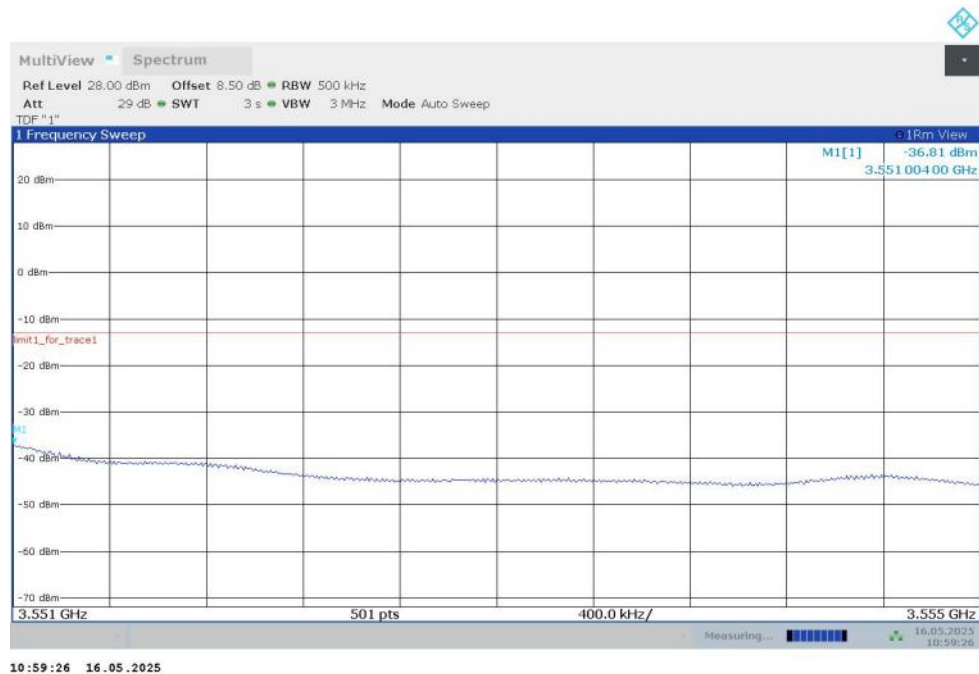
## OBW: 1RB-HIGH\_offset



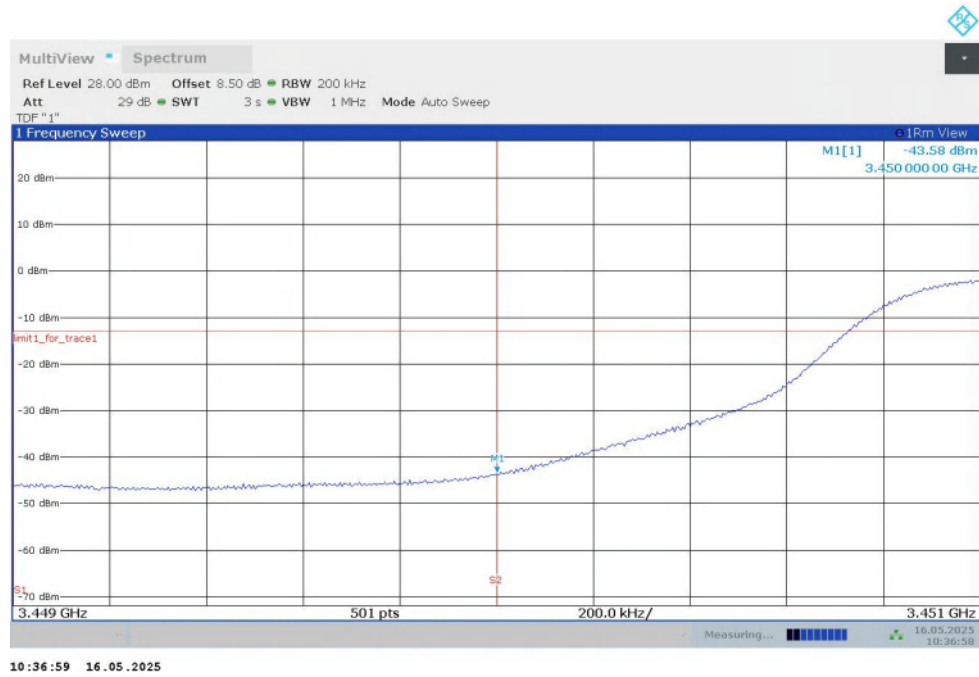
## HIGH BAND EDGE BLOCK-1RB-HIGH\_offset



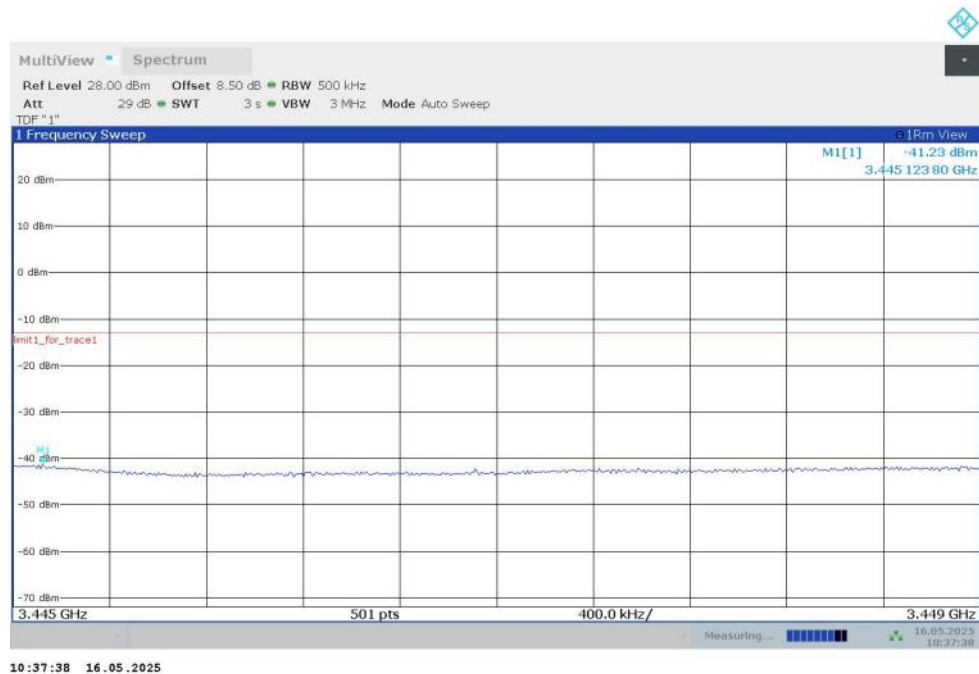
## HIGH BAND EDGE BLOCK-1RB-HIGH\_offset



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



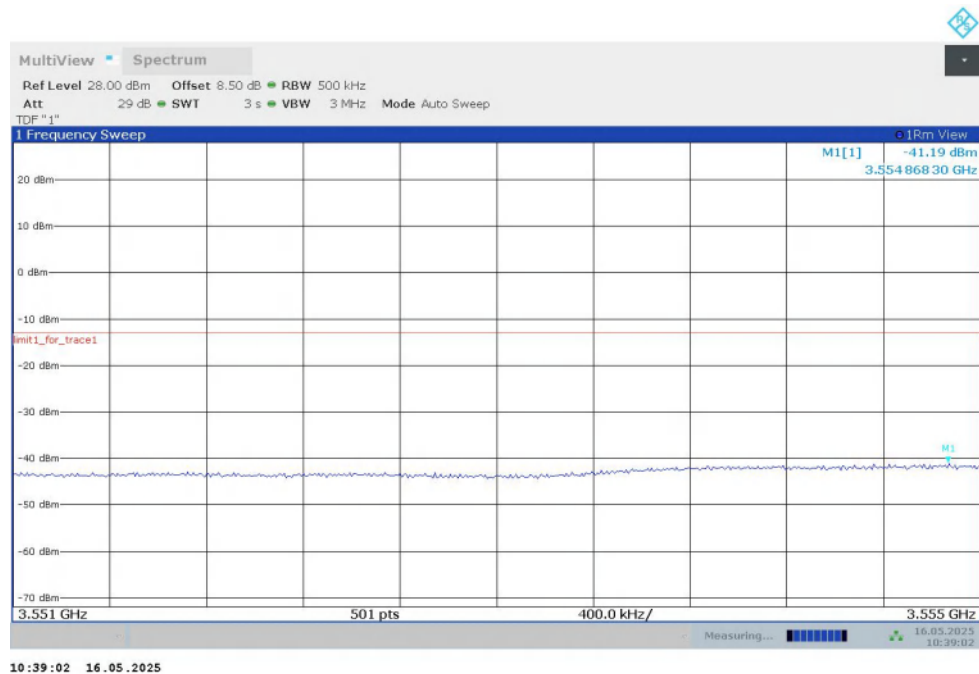
## LOW BAND EDGE BLOCK-100MHz-100%RB



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



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





## **A.7 Conducted Spurious Emission**

### **A.7.1 Measurement Method**

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

1. In measuring unwanted emissions, the spectrum shall be investigated from 30 MHz or the lowest radio frequency signal generated in the equipment, whichever is lower, without going below 9 kHz, up to at least the frequency given below:
  - (a) If the equipment operates below 10 GHz: to the tenth harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower.
  - (b) If the equipment operates at or above 10 GHz: to the fifth harmonic of the highest fundamental frequency or to 100 GHz, whichever is lower.
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 greater than  $2 \times \text{span} / \text{RBW}$ .

### **A. 7.2 Measurement Limit**

Part 22.917, 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 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(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(a) states for mobile and portable stations operating in the 2305–2315 MHz and 2350–2360 MHz bands: By a factor of not less than:  $43 + 10 \log(P)$  dB on all frequencies between 2305 and 2320 MHz and on all frequencies between 2345 and 2360 MHz that are outside the licensed band(s) of operation, not less than  $55 + 10 \log(P)$  dB on all frequencies between 2320 and 2324 MHz and on all frequencies between 2341 and 2345 MHz, not less than  $61 + 10 \log(P)$

dB on all frequencies between 2324 and 2328 MHz and on all frequencies between 2337 and 2341 MHz, and not less than  $67 + 10 \log (P)$  dB on all frequencies between 2328 and 2337 MHz; By a factor of not less than  $43 + 10 \log (P)$  dB on all frequencies between 2300 and 2305 MHz,  $55 + 10 \log (P)$  dB on all frequencies between 2296 and 2300 MHz,  $61 + 10 \log (P)$  dB on all frequencies between 2292 and 2296 MHz,  $67 + 10 \log (P)$  dB on all frequencies between 2288 and 2292 MHz, and  $70 + 10 \log (P)$  dB below 2288 MHz; By a factor of not less than  $43 + 10 \log (P)$  dB on all frequencies between 2360 and 2365 MHz, and not less than  $70 + 10 \log (P)$  dB above 2365 MHz.

Part 90.543 states that for operations in the 758–768 MHz and the 788–798 MHz bands, the power of any emission outside the 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, in accordance with the following: (1) On all frequencies between 769–775 MHz and 799–805 MHz, by a factor not less than  $76 + 10 \log (P)$  dB in a 6.25 kHz band segment, for base and fixed stations. (2) On all frequencies between 769–775 MHz and 799–805 MHz, by a factor not less than  $65 + 10 \log (P)$  dB in a 6.25 kHz band segment, for mobile and portable stations. (3) On any frequency between 775–788 MHz, above 805 MHz, and below 758 MHz, by at least  $43 + 10 \log (P)$  dB. (4) Compliance with the provisions of paragraphs (e)(1) and (2) of this section is based on the use of measurement instrumentation such that the reading taken with any resolution bandwidth setting should be adjusted to indicate spectral energy in a 6.25 kHz segment. (5) Compliance with the provisions of paragraph (e)(3) of this section is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kHz or greater. However, in the 100 kHz bands immediately outside and adjacent to the frequency block, a resolution bandwidth of 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.

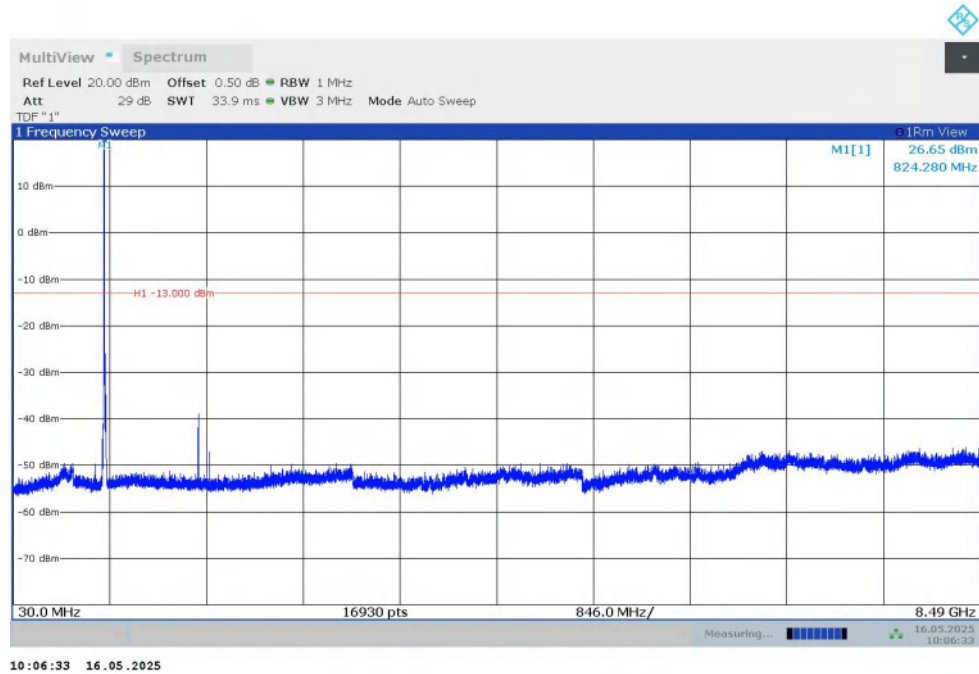
Part 27.53(l) states for mobile operations in the 3700-3980 MHz band, the conducted power of any emission outside the licensee's authorized bandwidth shall not exceed  $-13$  dBm/MHz. Compliance with this paragraph (l)(2) is based on the use of measurement instrumentation employing a resolution bandwidth of 1 megahertz or greater.

Part 96.41(e) states for channel and frequency assignments made by a CBSD to End User Devices, the conducted power of any End User Device emission outside the fundamental emission (whether in or outside of the authorized band) shall not exceed  $-13$  dBm/MHz within 0 to B megahertz (where B is the bandwidth in megahertz of the assigned channel or multiple contiguous channels of the End User Device) above the upper CBSD-assigned channel edge and within 0 to B megahertz below the lower CBSD-assigned channel edge. At all frequencies greater than B megahertz above the upper CBSD assigned channel edge and less than B megahertz below the lower CBSD-assigned channel edge, the conducted power of any End User Device emission shall not exceed  $-25$  dBm/MHz. The conducted power of emissions below 3540 MHz or above 3710 MHz shall not exceed  $-25$  dBm/MHz, and the conducted power of emissions below 3530 MHz or above 3720 MHz shall not exceed  $-40$  dBm/MHz.

### A.7.3 Measurement result

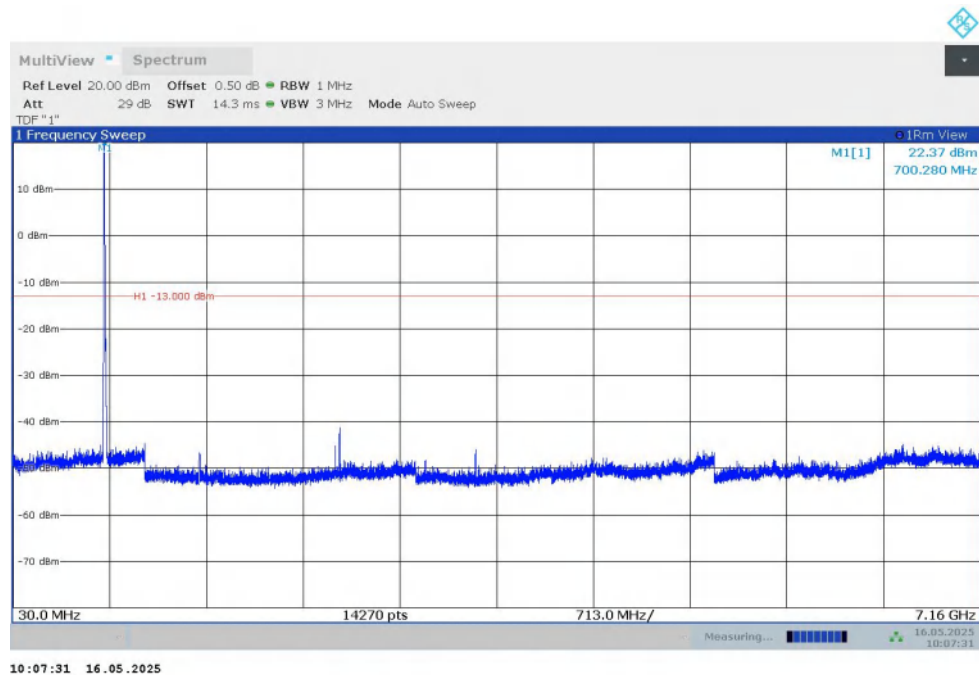
n5

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



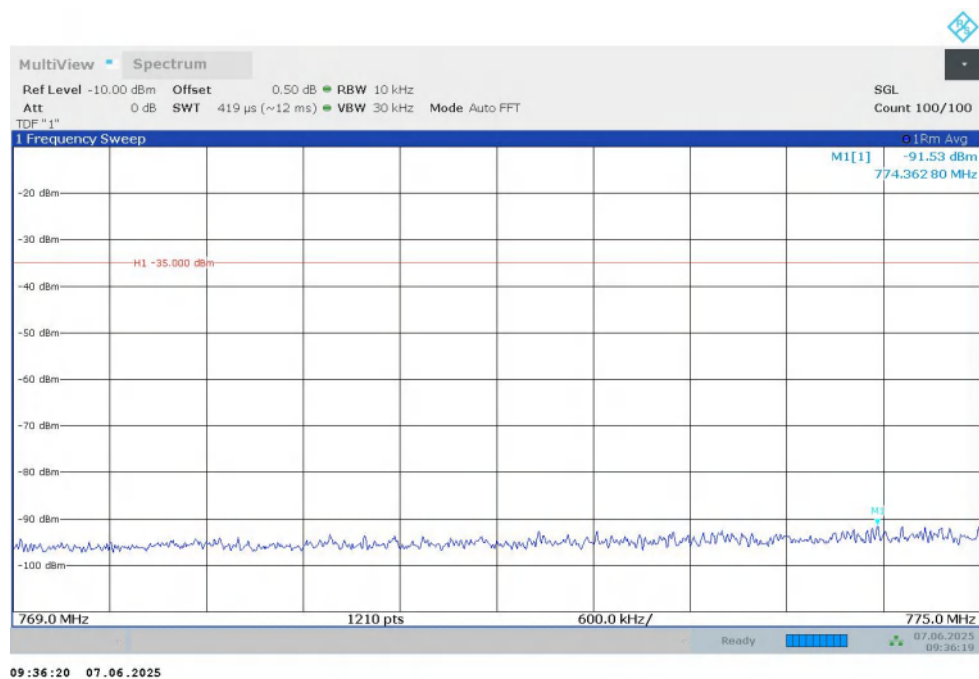
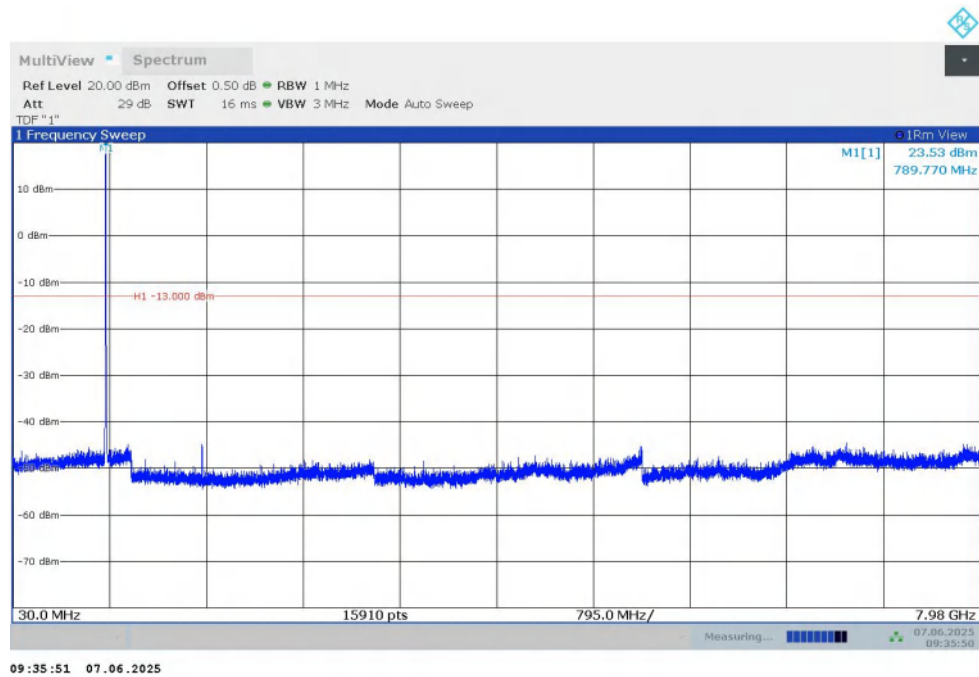
n12

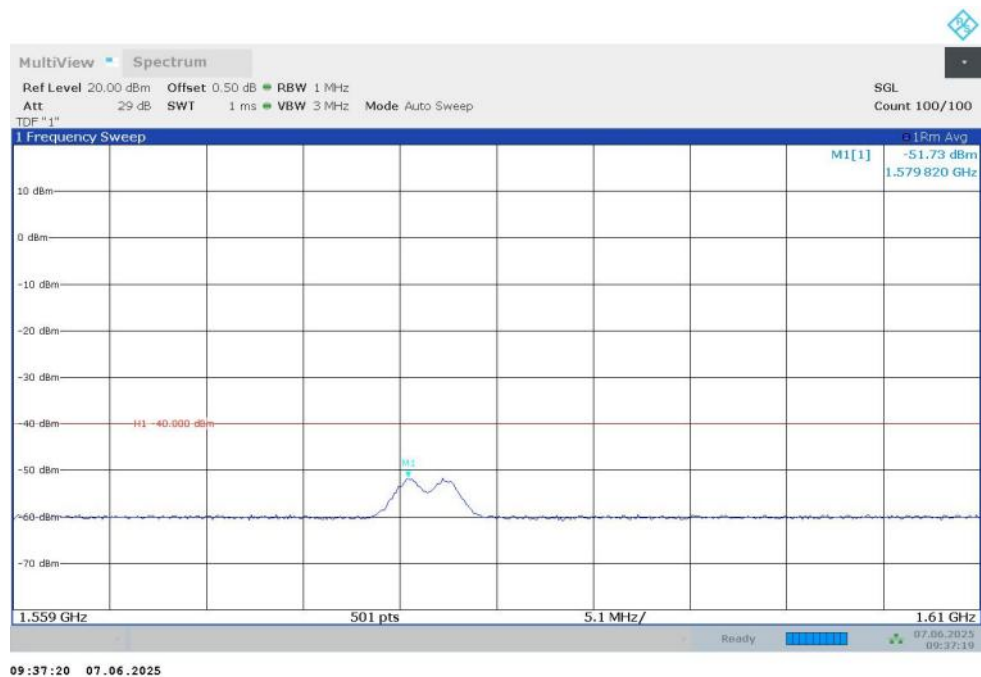
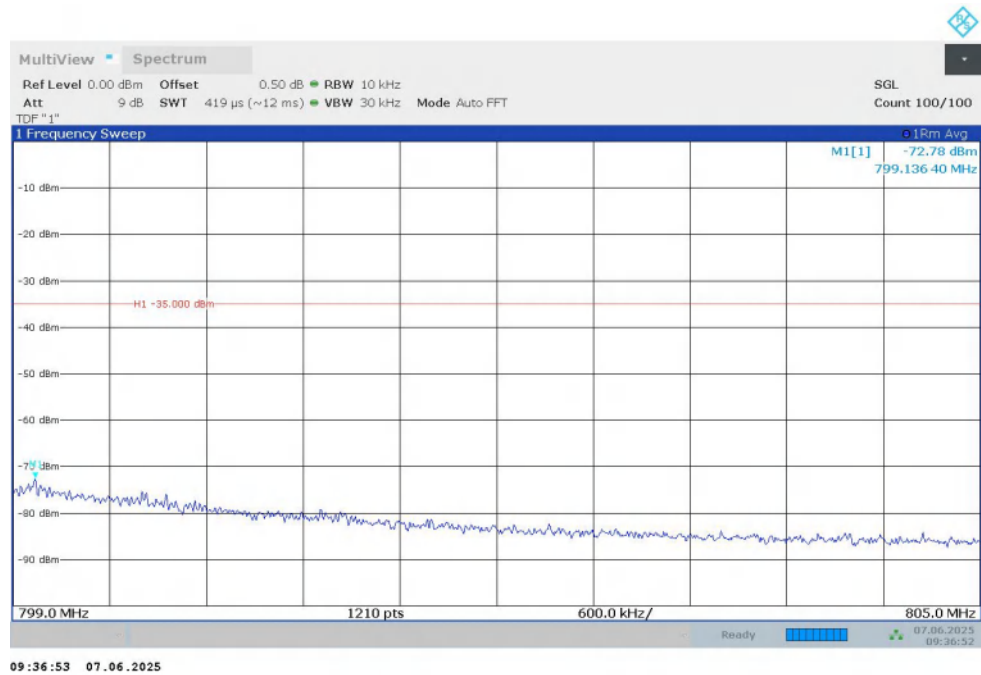
NOTE: peak above the limit line is the carrier frequency.



n14

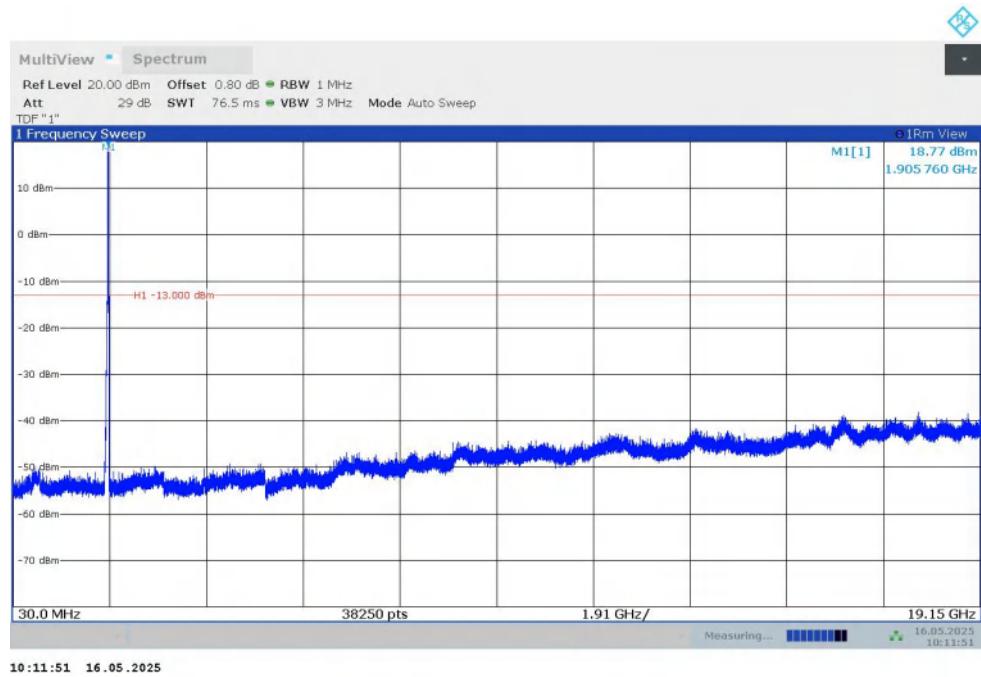
NOTE: peak above the limit line is the carrier frequency.





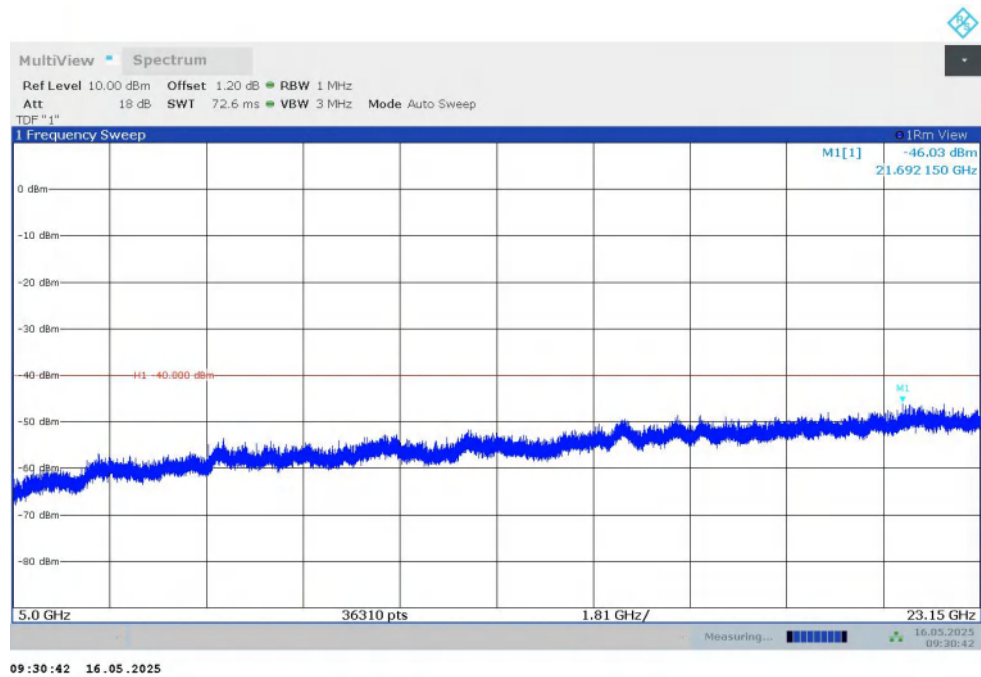
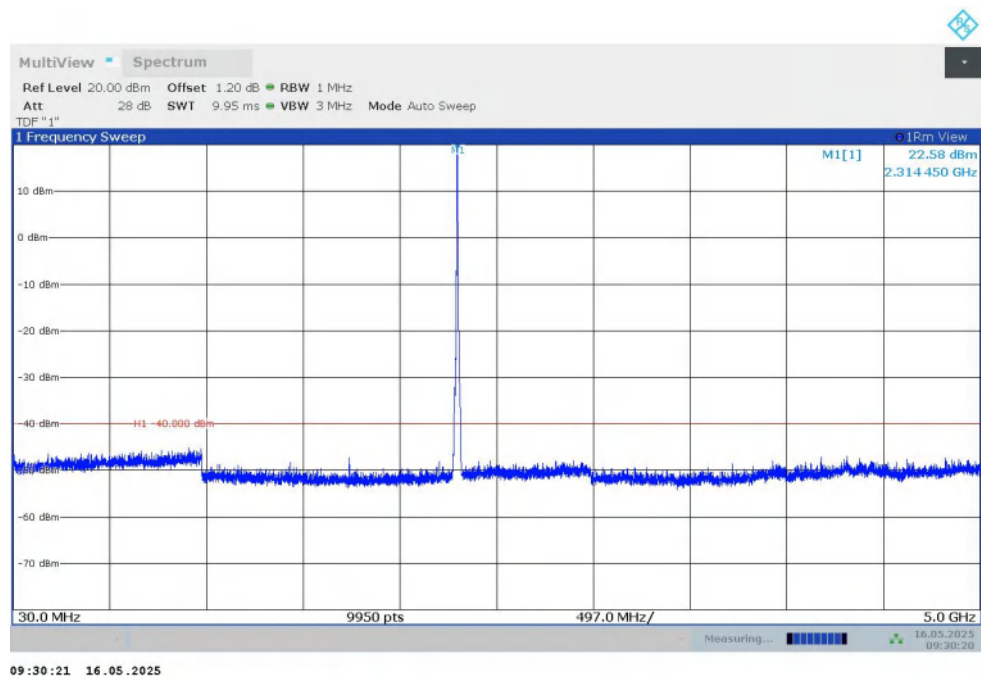
n25

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



n30

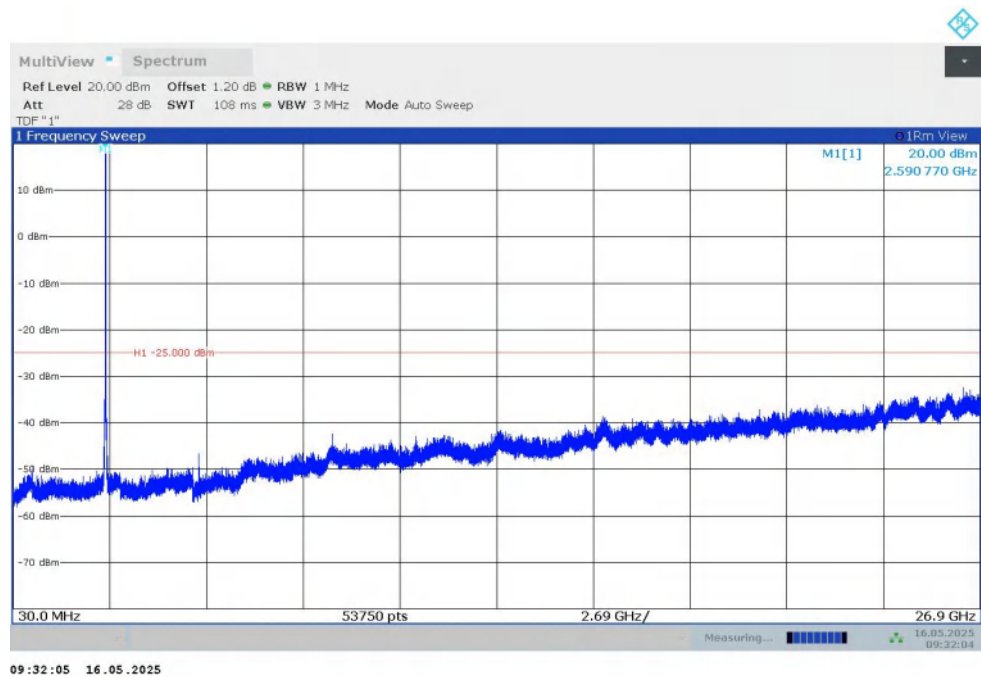
NOTE: peak above the limit line is the carrier frequency.





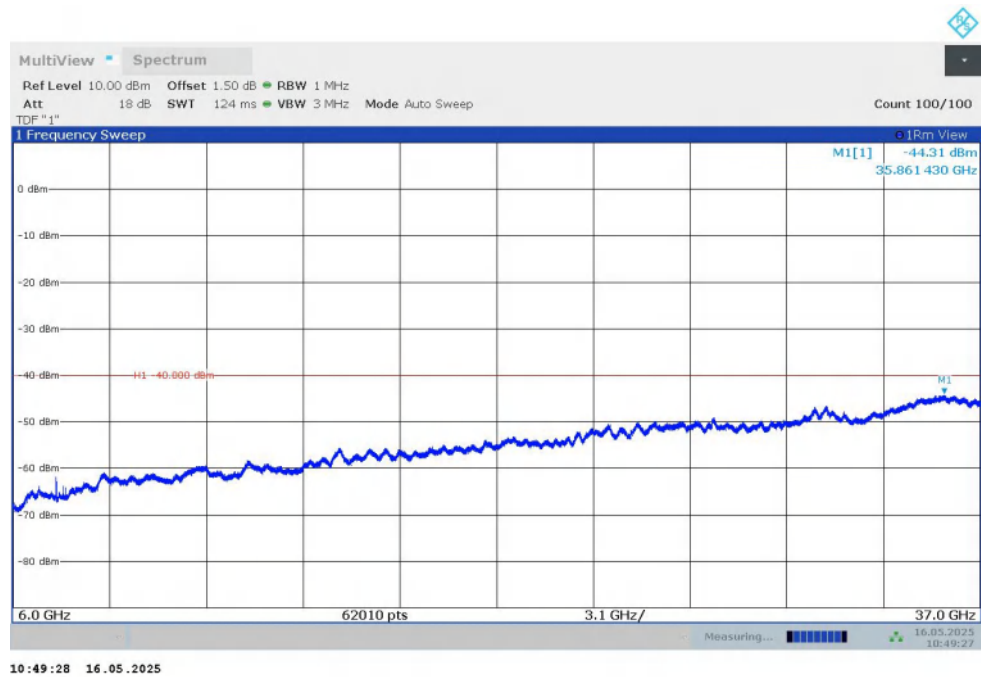
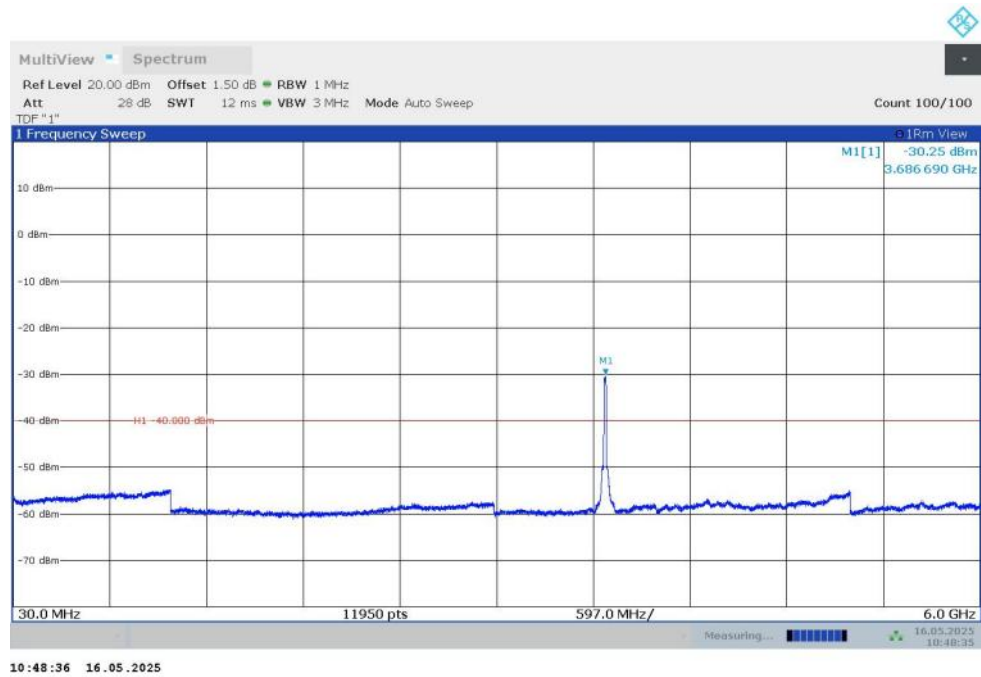
n41

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



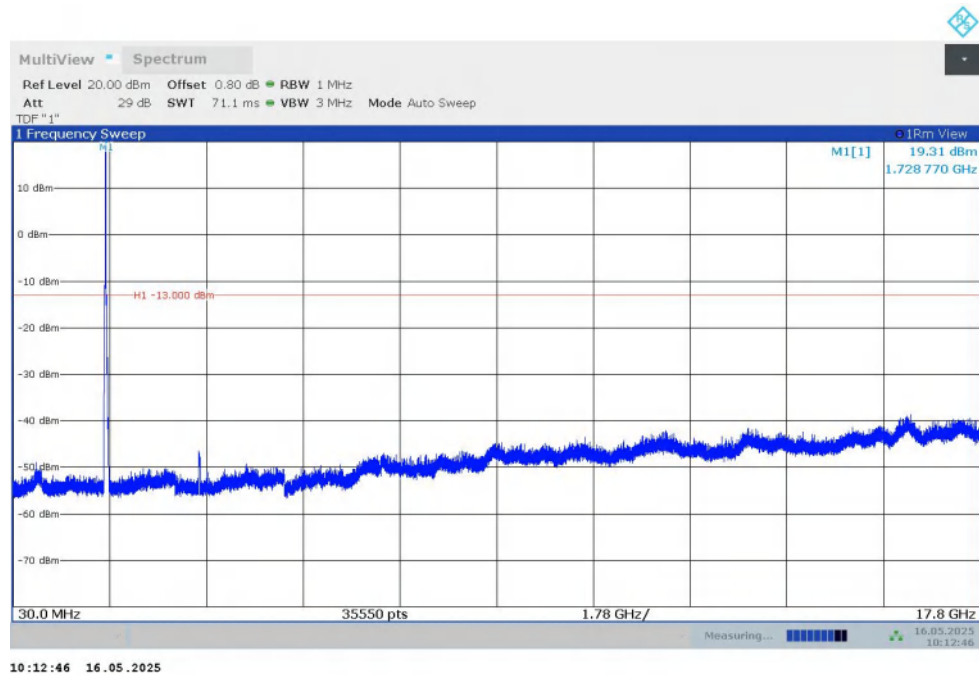
n48

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



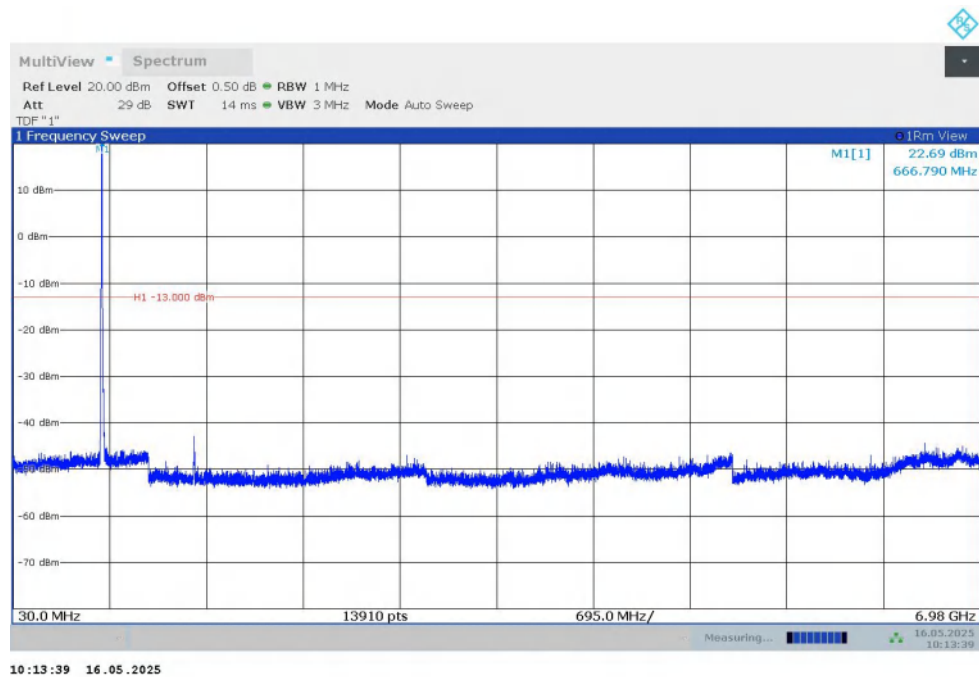
n66

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



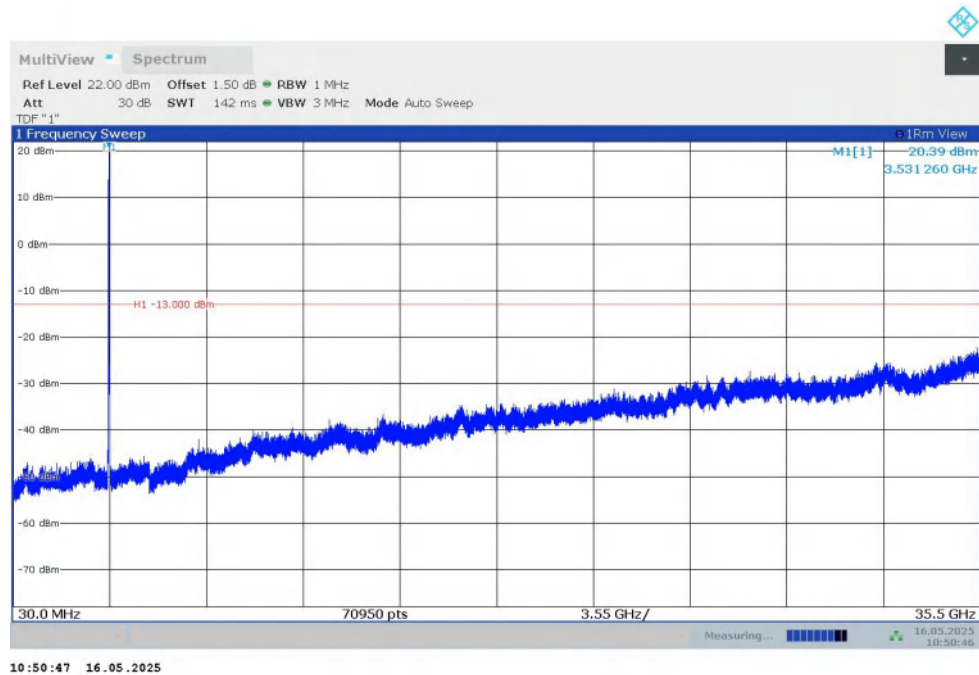
n71

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



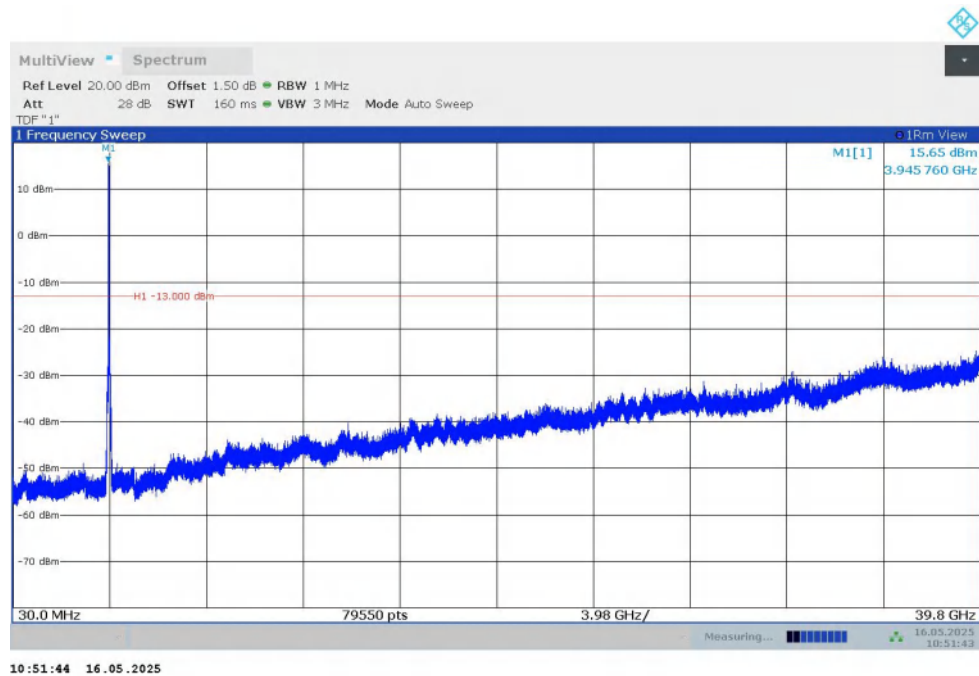
n77L

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



n77H

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



## A.8 Peak-to-Average Power Ratio

The peak-to-average ratio (PAR) of the transmission may not exceed 13 dB

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

### Measurement results

#### n12,15MHz

Frequency (MHz)	PAPR (dB)								
	DFT-s-pi/2 BPSK	DFT-s-QPSK	DFT-s-16QAM	DFT-s-64QAM	DFT-s-256QAM	CP-QPSK	CP-16QAM	CP-64QAM	CP-256QAM
707.5	4.33	5.29	6.10	6.36	6.64	7.65	7.52	7.79	8.60

#### n25,45MHz

Frequency (MHz)	PAPR (dB)								
	DFT-s-pi/2 BPSK	DFT-s-QPSK	DFT-s-16QAM	DFT-s-64QAM	DFT-s-256QAM	CP-QPSK	CP-16QAM	CP-64QAM	CP-256QAM
1882.5	4.20	4.95	5.69	6.00	6.66	7.21	7.19	7.47	8.55

#### n30,10MHz

Frequency (MHz)	PAPR (dB)								
	DFT-s-pi/2 BPSK	DFT-s-QPSK	DFT-s-16QAM	DFT-s-64QAM	DFT-s-256QAM	CP-QPSK	CP-16QAM	CP-64QAM	CP-256QAM
2310	4.04	4.89	5.64	6.04	6.49	7.25	7.29	7.52	8.34

#### n41,100MHz

Frequency (MHz)	PAPR (dB)								
	DFT-s-pi/2 BPSK	DFT-s-QPSK	DFT-s-16QAM	DFT-s-64QAM	DFT-s-256QAM	CP-QPSK	CP-16QAM	CP-64QAM	CP-256QAM
2592.99	5.00	5.82	6.36	6.57	6.92	8.11	8.15	8.52	8.81

#### n48,100MHz

Frequency (MHz)	PAPR (dB)								
	DFT-s-pi/2 BPSK	DFT-s-QPSK	DFT-s-16QAM	DFT-s-64QAM	DFT-s-256QAM	CP-QPSK	CP-16QAM	CP-64QAM	CP-256QAM
3624.99	5.07	5.64	6.37	6.53	6.82	8.29	8.65	8.22	8.49

#### n66,45MHz

Frequency (MHz)	PAPR (dB)								
	DFT-s-pi/2 BPSK	DFT-s-QPSK	DFT-s-16QAM	DFT-s-64QAM	DFT-s-256QAM	CP-QPSK	CP-16QAM	CP-64QAM	CP-256QAM
1745	3.96	4.50	5.35	5.66	6.51	6.83	6.81	7.12	8.46

#### n71,35MHz

Frequency (MHz)	PAPR (dB)								
	DFT-s-pi/2 BPSK	DFT-s-QPSK	DFT-s-16QAM	DFT-s-64QAM	DFT-s-256QAM	CP-QPSK	CP-16QAM	CP-64QAM	CP-256QAM
680.5	4.68	5.41	6.15	6.38	6.60	8.02	8.06	8.15	8.63

**n77L,100MHz**

Frequency (MHz)	PAPR (dB)								
	DFT-s-pi/2 BPSK	DFT-s-QPSK	DFT-s-16QAM	DFT-s-64QAM	DFT-s-256QAM	CP-QPSK	CP-16QAM	CP-64QAM	CP-256QAM
3500.01	5.20	5.72	6.79	6.62	6.77	8.28	8.32	8.35	8.76

**n77H,100MHz**

Frequency (MHz)	PAPR (dB)								
	DFT-s-pi/2 BPSK	DFT-s-QPSK	DFT-s-16QAM	DFT-s-64QAM	DFT-s-256QAM	CP-QPSK	CP-16QAM	CP-64QAM	CP-256QAM
3840	5.12	5.79	6.42	6.64	6.76	8.29	8.30	8.31	8.51

## Annex B: Accreditation Certificate



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