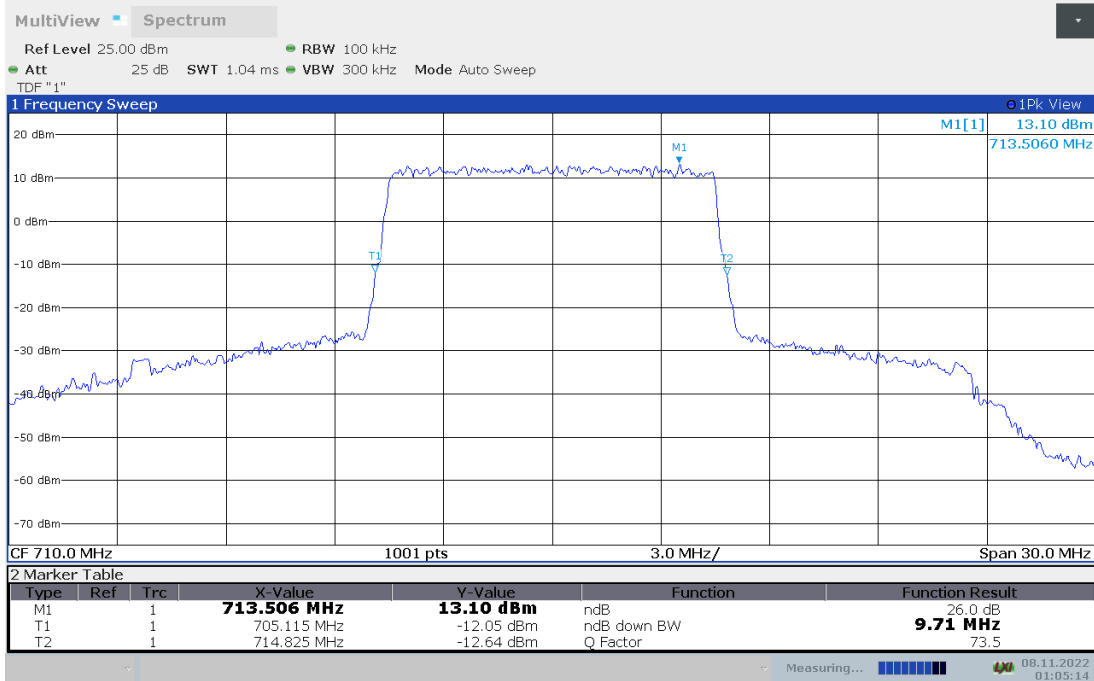




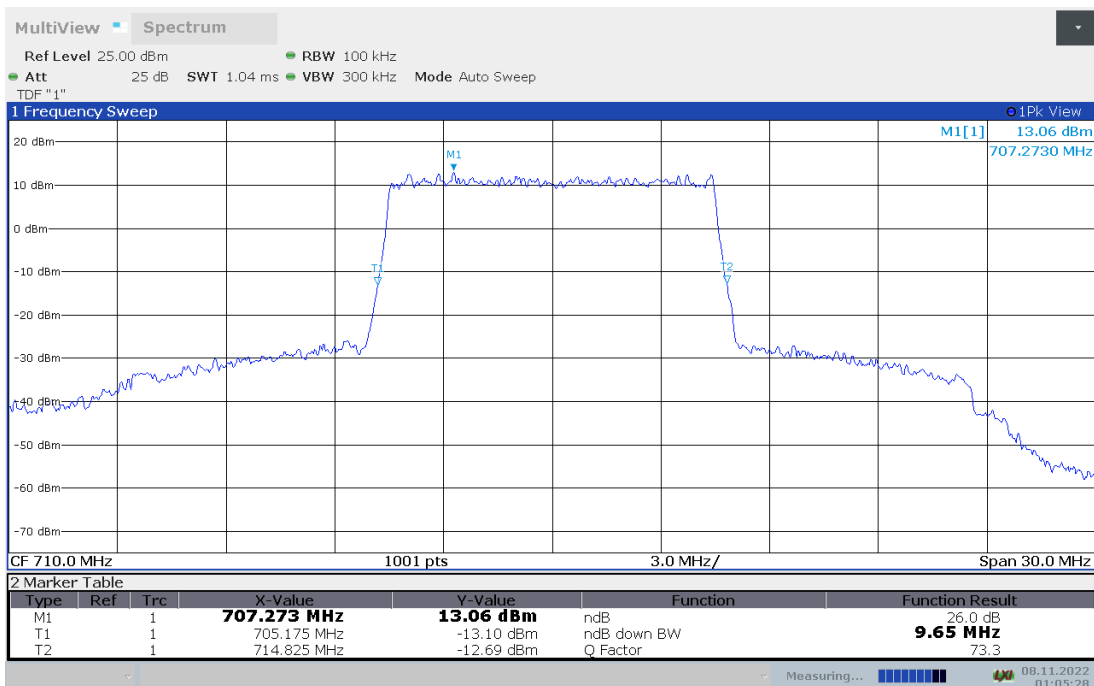
LTE band 17,10MHz(-26dBc BW)

Frequency(MHz)	Emission Bandwidth (-26dBc BW)(MHz)	
	QPSK	16QAM
710	9.710	9.650

LTE band 17 , 10MHz Bandwidth,QPSK (-26dBc BW)



LTE band 17 , 10MHz Bandwidth,16QAM (-26dBc BW)

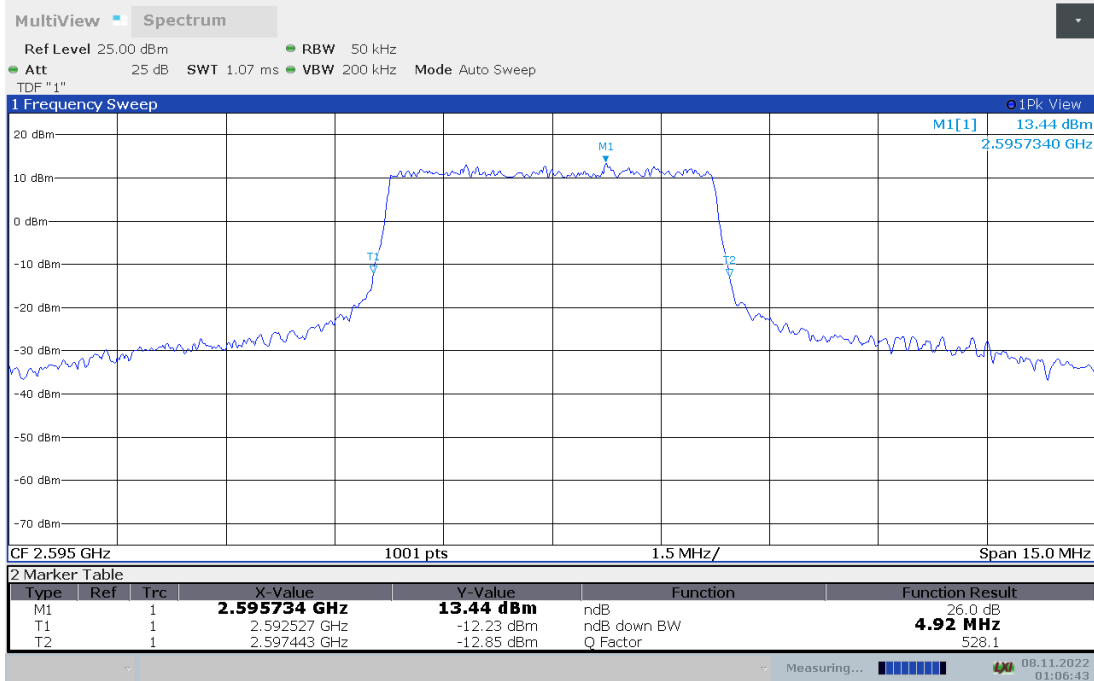




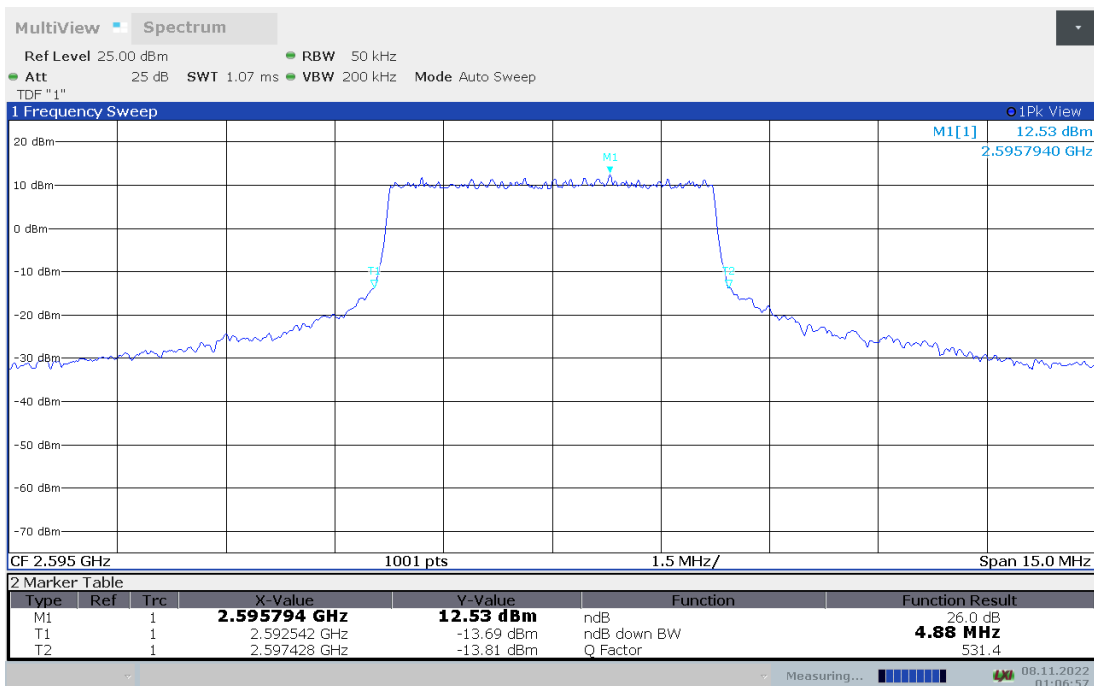
LTE band 38,5MHz(-26dBc BW)

Frequency(MHz)	Emission Bandwidth (-26dBc BW)(MHz)	
	QPSK	16QAM
2595	4.915	4.885

LTE band 38 , 5MHz Bandwidth,QPSK (-26dBc BW)



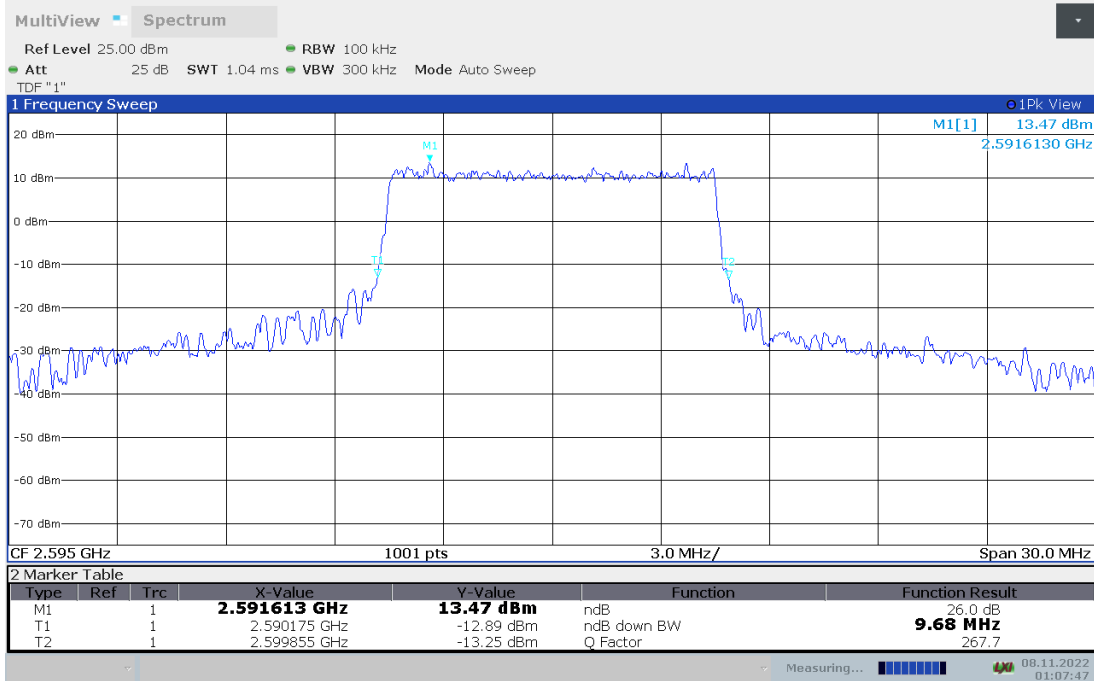
LTE band 38 , 5MHz Bandwidth,16QAM (-26dBc BW)



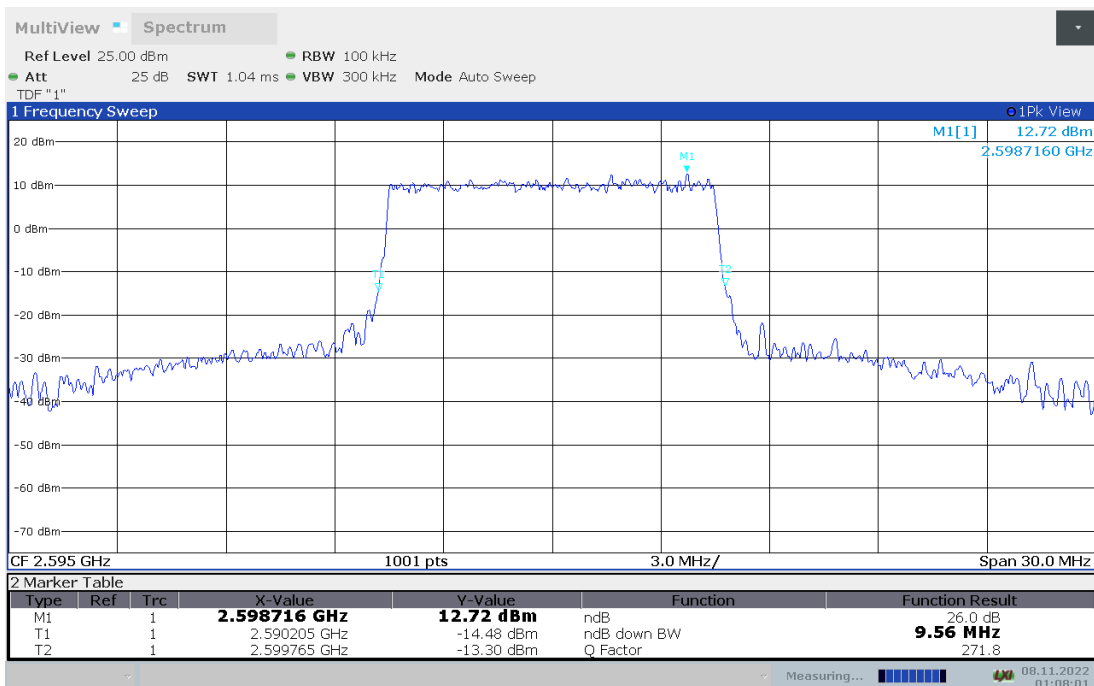
LTE band 38,10MHz(-26dBc BW)

Frequency(MHz)	Emission Bandwidth (-26dBc BW)(MHz)	
	QPSK	16QAM
2595	9.680	9.560

LTE band 38 , 10MHz Bandwidth,QPSK (-26dBc BW)



LTE band 38 , 10MHz Bandwidth,16QAM (-26dBc BW)

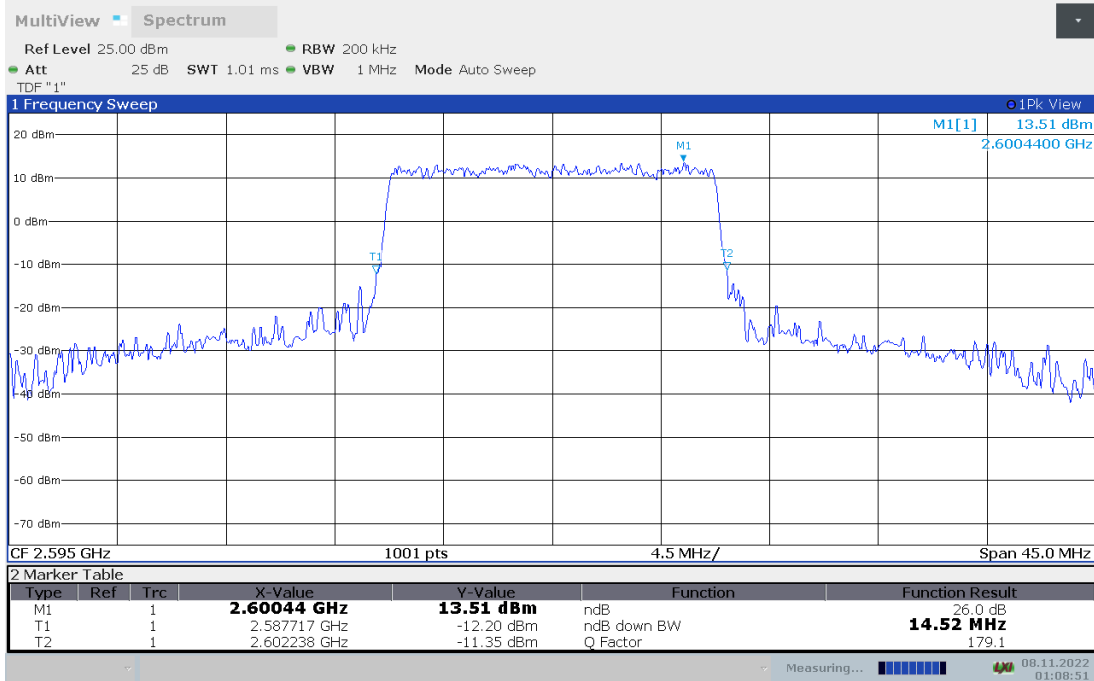




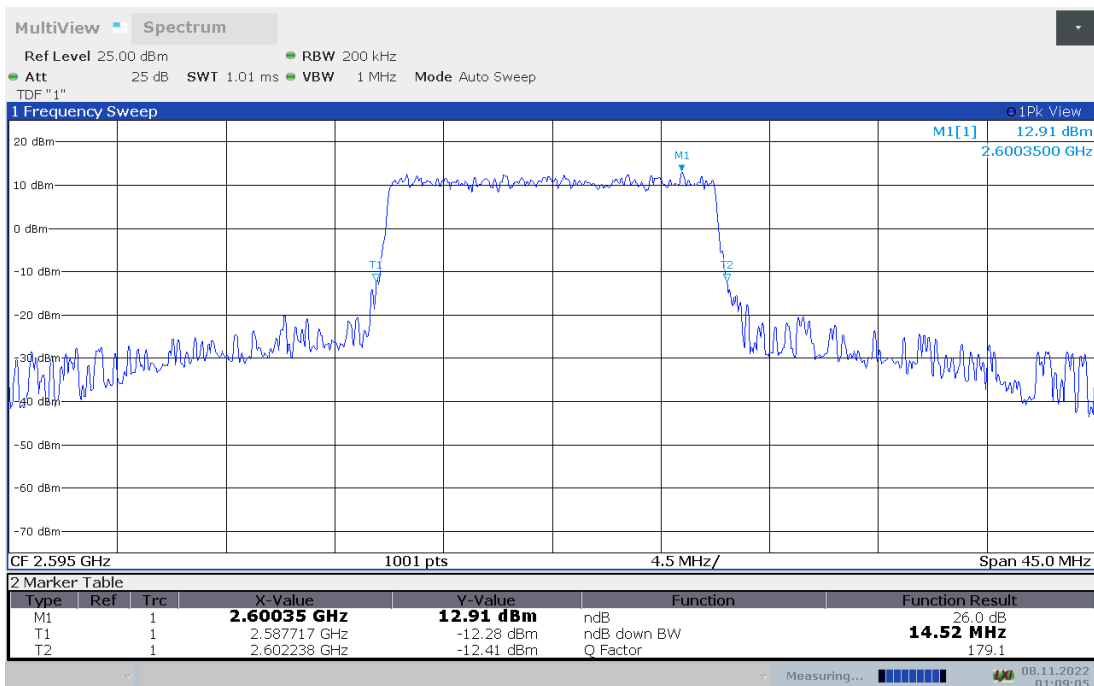
LTE band 38,15MHz(-26dBc BW)

Frequency(MHz)	Emission Bandwidth (-26dBc BW)(MHz)	
	QPSK	16QAM
2595	14.520	14.520

LTE band 38 , 15MHz Bandwidth,QPSK (-26dBc BW)



LTE band 38 , 15MHz Bandwidth,16QAM (-26dBc BW)

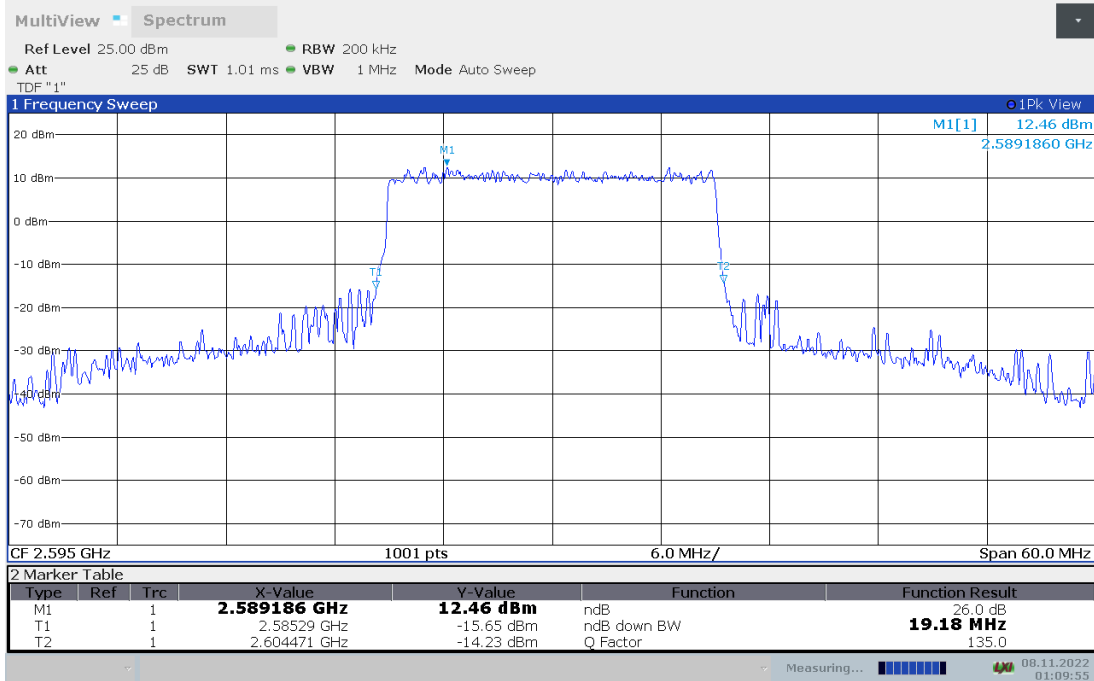




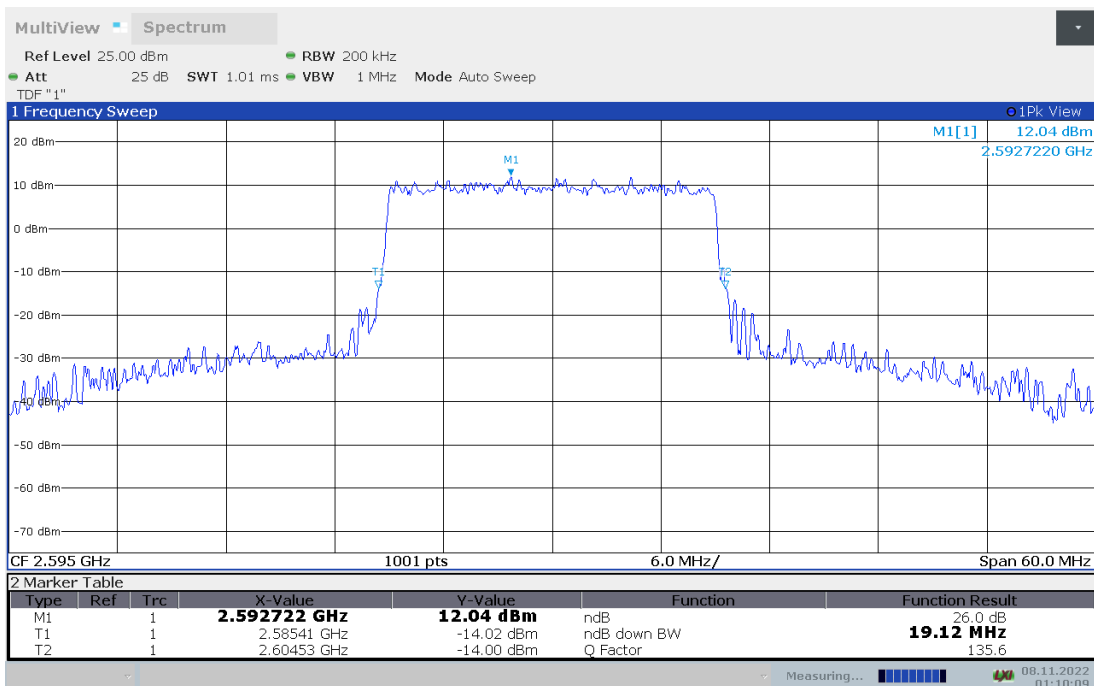
LTE band 38,20MHz(-26dBc BW)

Frequency(MHz)	Emission Bandwidth (-26dBc BW)(MHz)	
	QPSK	16QAM
2595	19.181	19.121

LTE band 38 , 20MHz Bandwidth,QPSK (-26dBc BW)



LTE band 38 , 20MHz Bandwidth,16QAM (-26dBc BW)

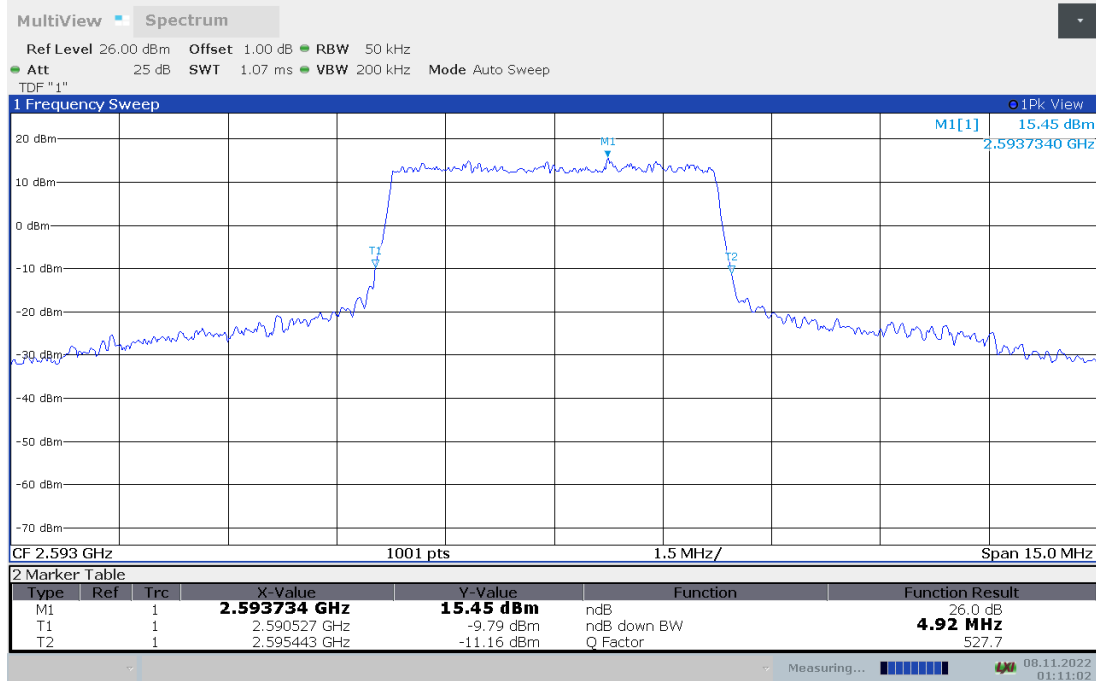




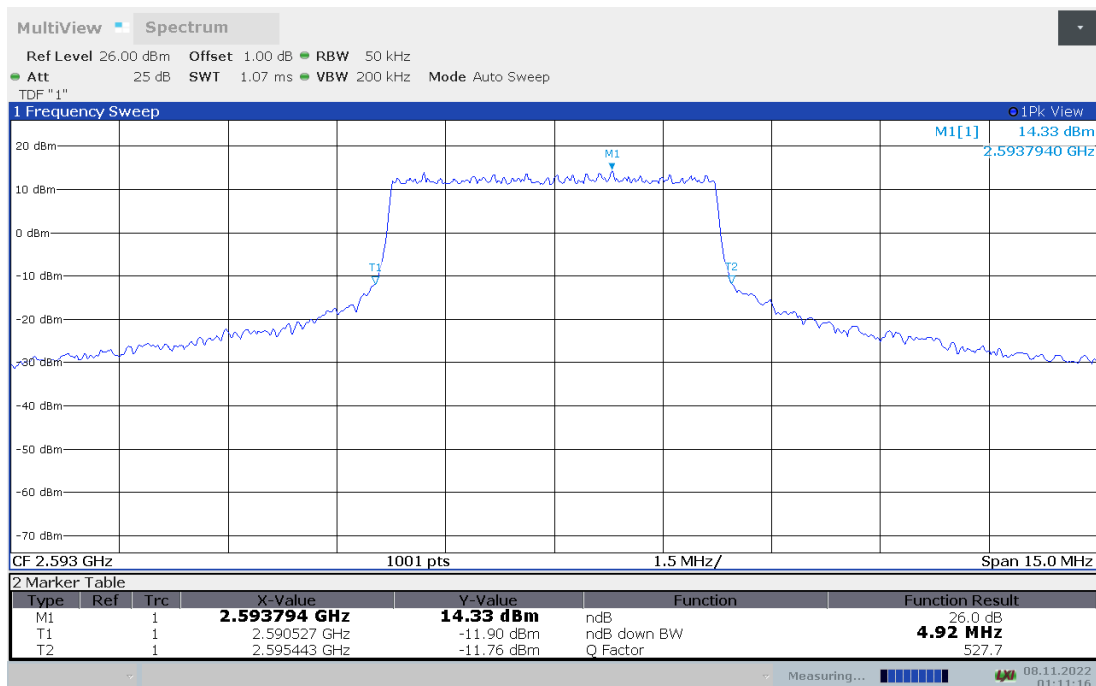
LTE band 41,5MHz(-26dBc BW)

Frequency(MHz)	Emission Bandwidth (-26dBc BW)(MHz)	
	QPSK	16QAM
2593	4.915	4.915

LTE band 41 , 5MHz Bandwidth,QPSK (-26dBc BW)



LTE band 41 , 5MHz Bandwidth,16QAM (-26dBc BW)

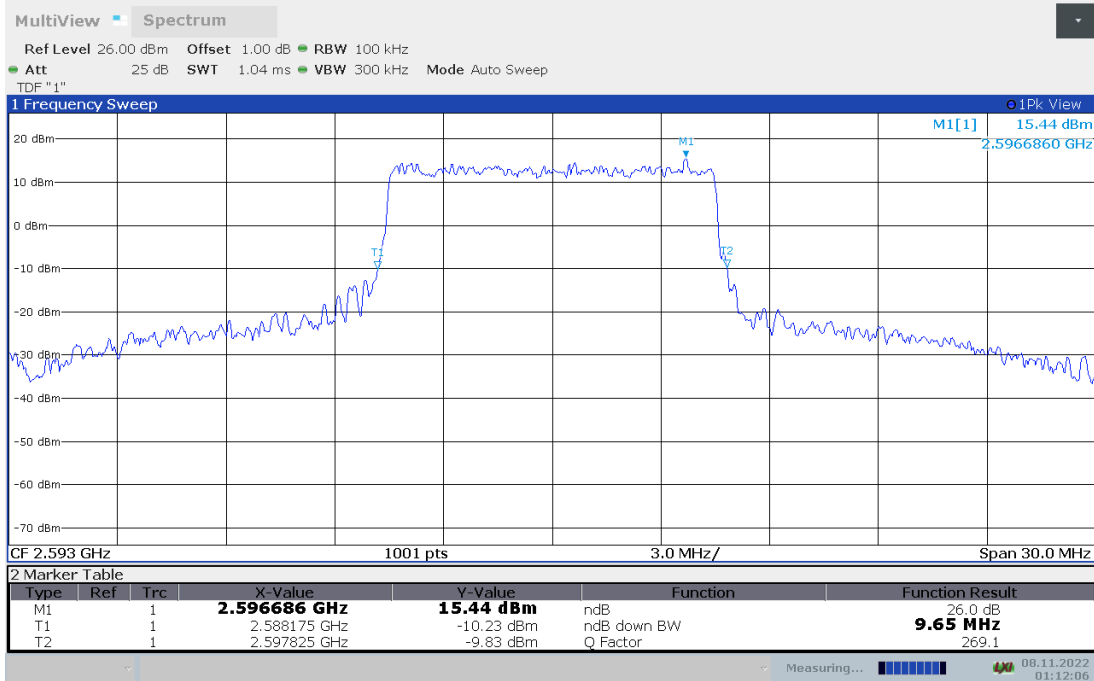




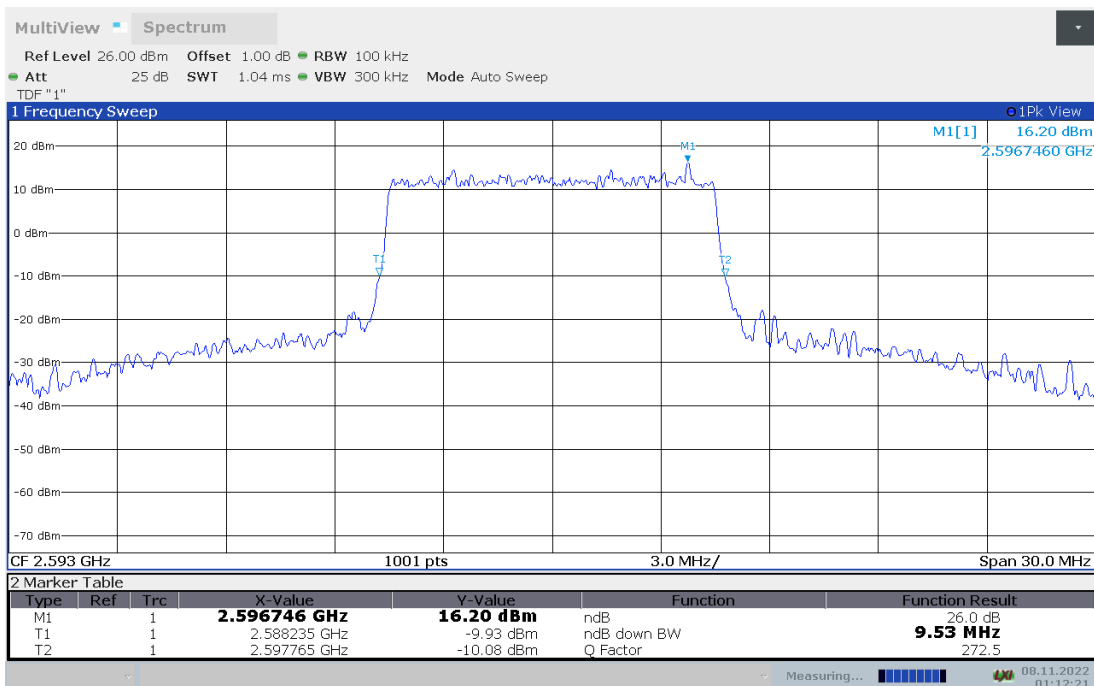
LTE band 41,10MHz(-26dBc BW)

Frequency(MHz)	Emission Bandwidth (-26dBc BW)(MHz)	
	QPSK	16QAM
2593	9.650	9.530

LTE band 41 , 10MHz Bandwidth,QPSK (-26dBc BW)



LTE band 41 , 10MHz Bandwidth,16QAM (-26dBc BW)

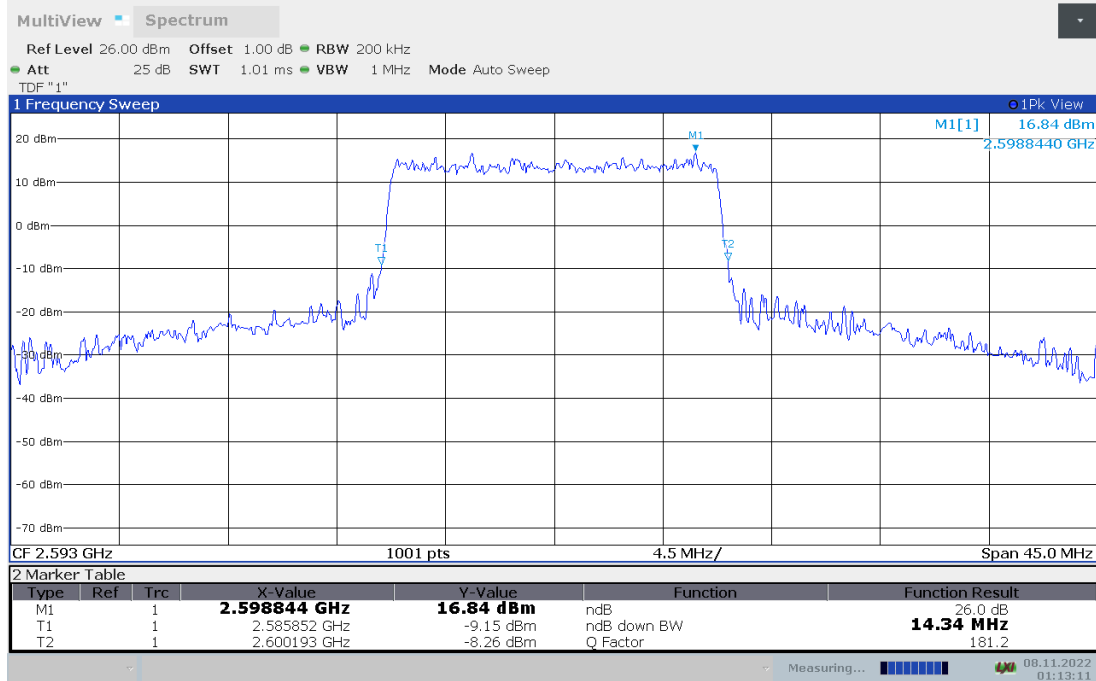




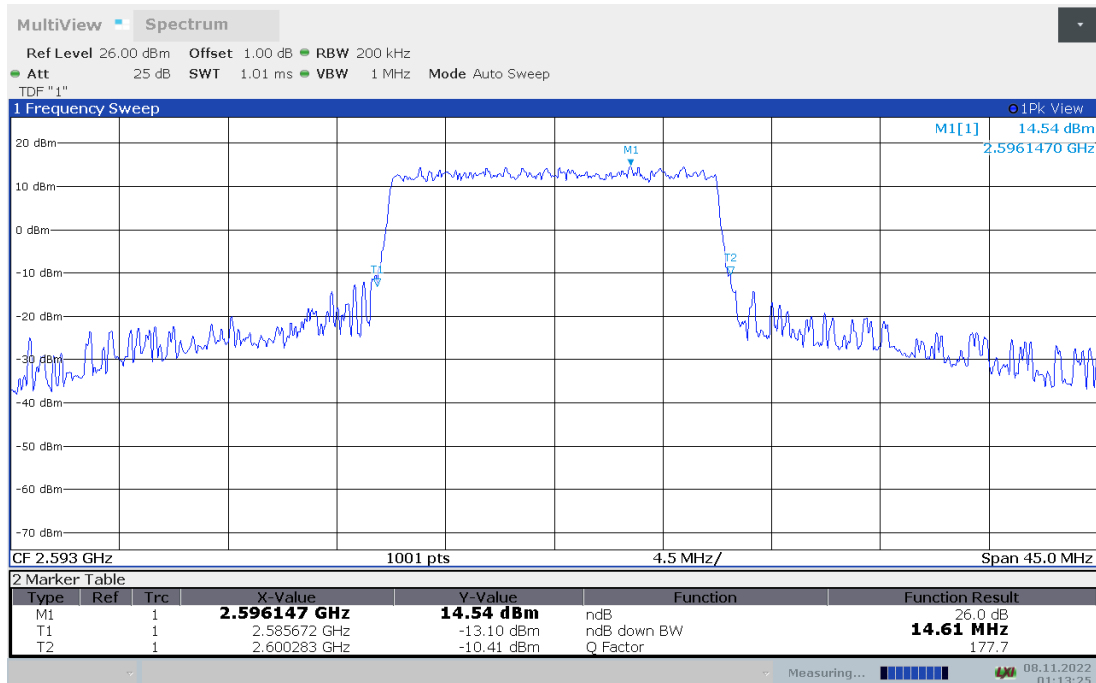
LTE band 41,15MHz(-26dBc BW)

Frequency(MHz)	Emission Bandwidth (-26dBc BW)(MHz)	
	QPSK	16QAM
2593	14.341	14.610

LTE band 41 , 15MHz Bandwidth,QPSK (-26dBc BW)



LTE band 41 , 15MHz Bandwidth,16QAM (-26dBc BW)

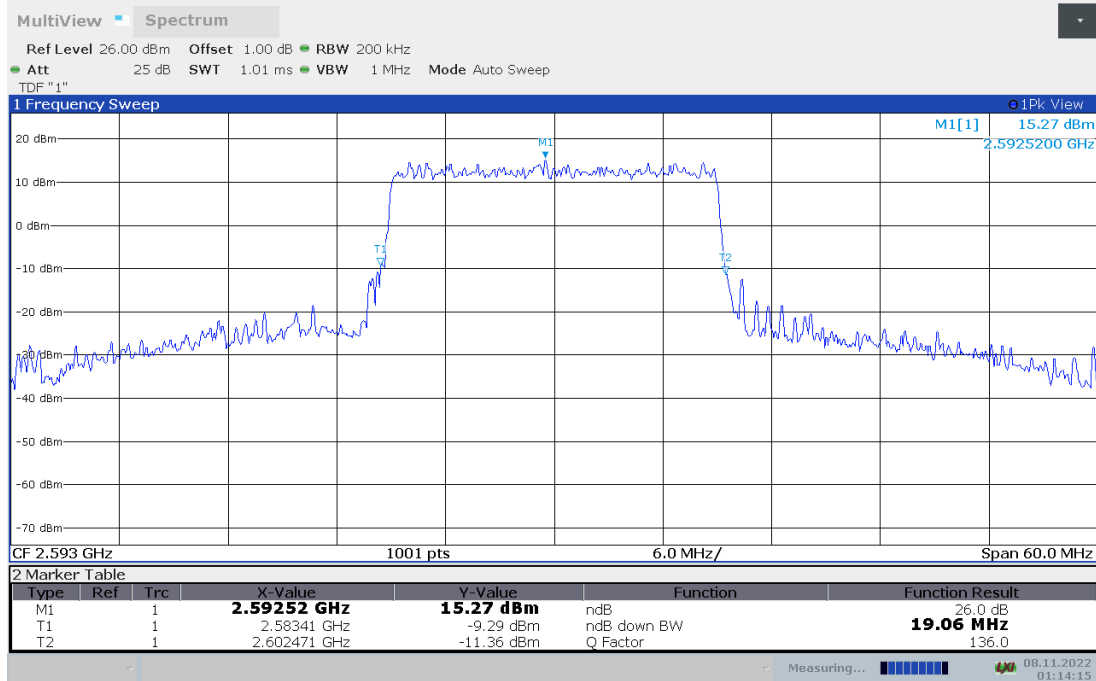




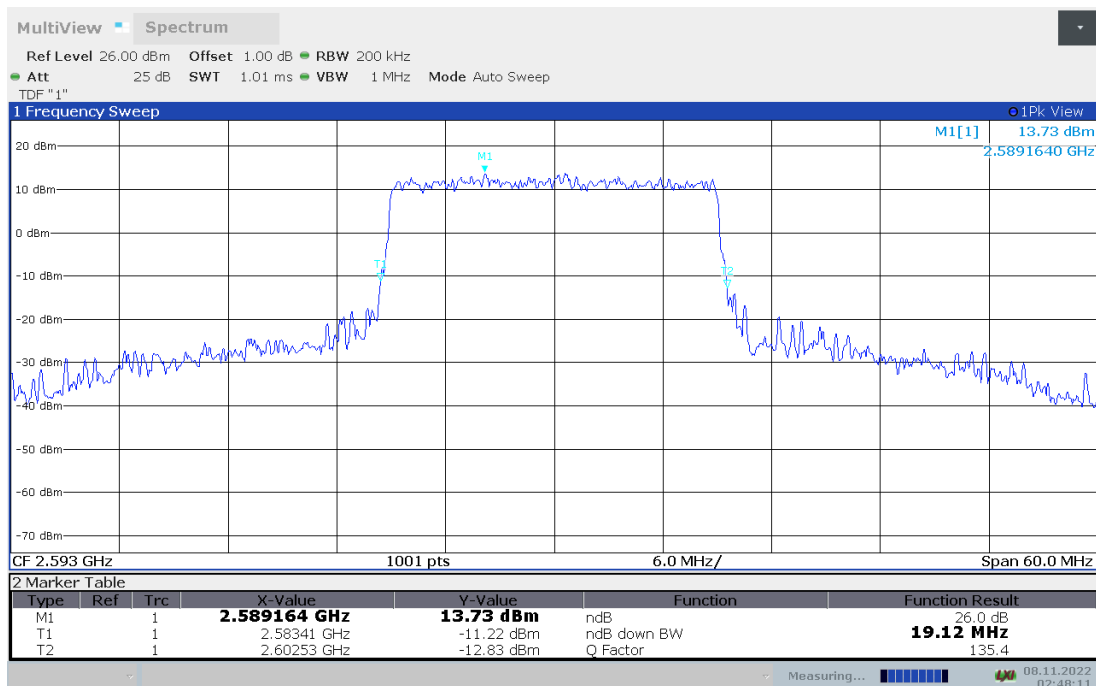
LTE band 41,20MHz(-26dBc BW)

Frequency(MHz)	Emission Bandwidth (-26dBc BW)(MHz)	
	QPSK	16QAM
2593	19.061	19.121

LTE band 41 , 20MHz Bandwidth,QPSK (-26dBc BW)



LTE band 41 , 20MHz Bandwidth,16QAM (-26dBc BW)

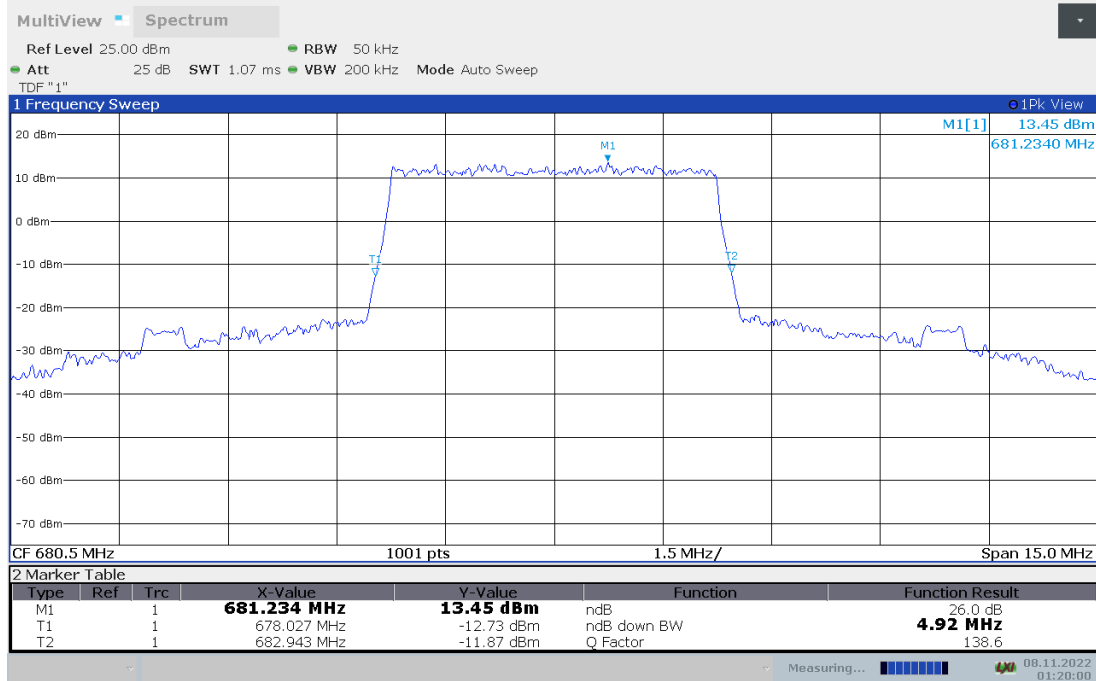




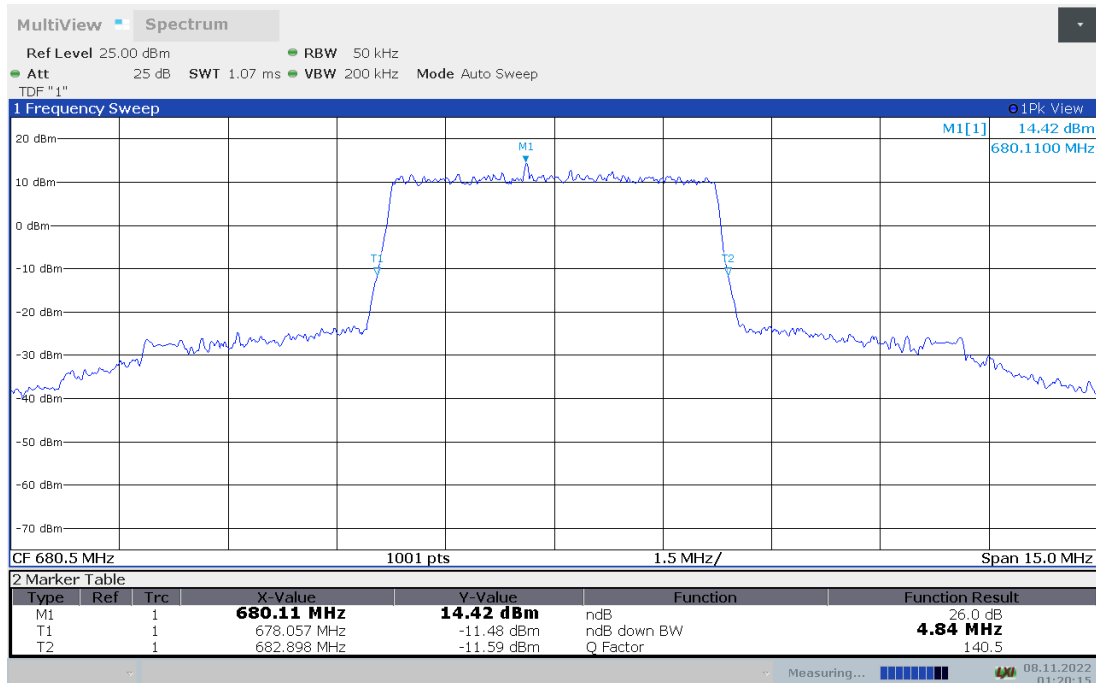
LTE band 71,5MHz(-26dBc BW)

Frequency(MHz)	Emission Bandwidth (-26dBc BW)(MHz)	
	QPSK	16QAM
680.5	4.915	4.840

LTE band 71 , 5MHz Bandwidth,QPSK (-26dBc BW)



LTE band 71 , 5MHz Bandwidth,16QAM (-26dBc BW)

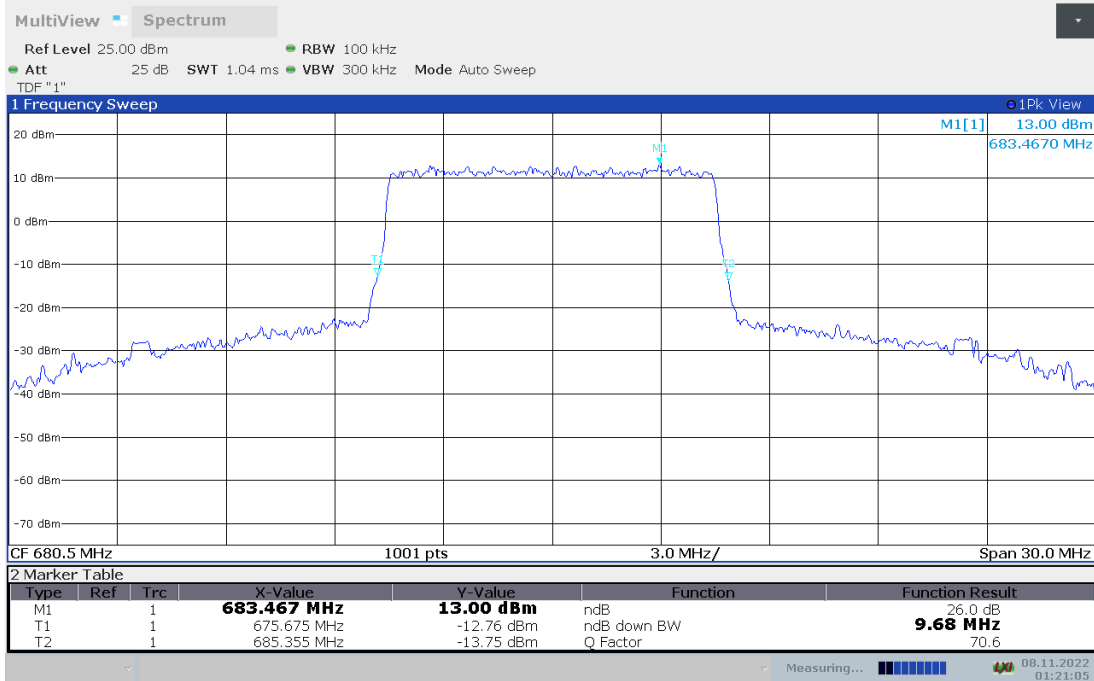




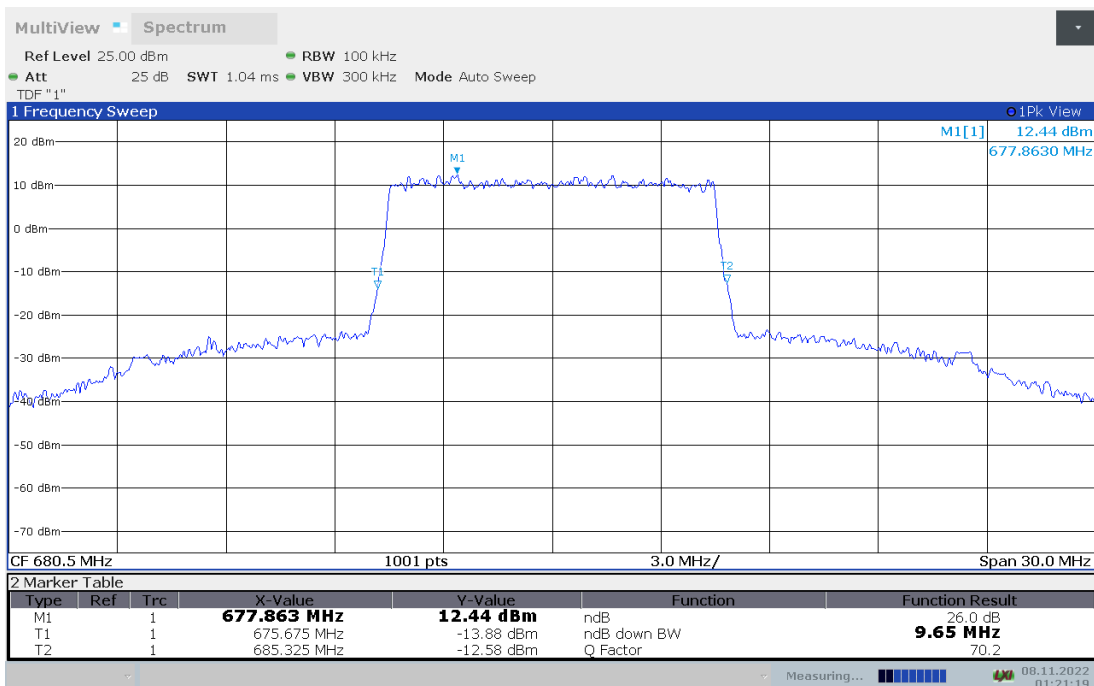
LTE band 71,10MHz(-26dBc BW)

Frequency(MHz)	Emission Bandwidth (-26dBc BW)(MHz)	
	QPSK	16QAM
680.5	9.680	9.650

LTE band 71 , 10MHz Bandwidth,QPSK (-26dBc BW)



LTE band 71 , 10MHz Bandwidth,16QAM (-26dBc BW)

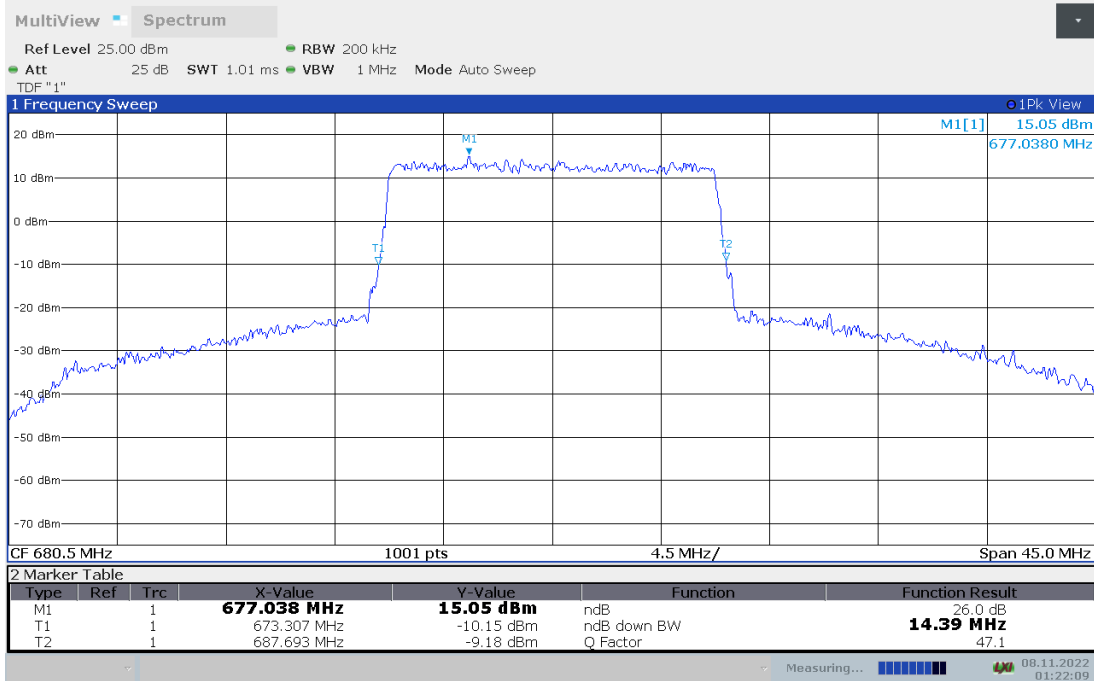




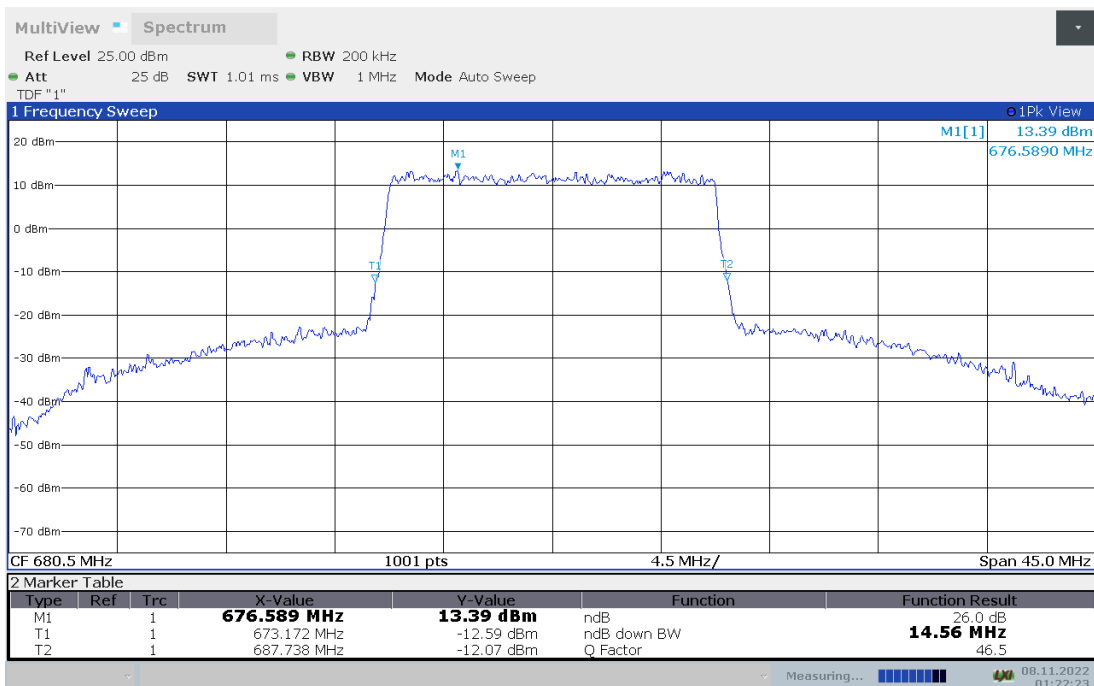
LTE band 71,15MHz(-26dBc BW)

Frequency(MHz)	Emission Bandwidth (-26dBc BW)(MHz)	
	QPSK	16QAM
680.5	14.386	14.565

LTE band 71 , 15MHz Bandwidth,QPSK (-26dBc BW)



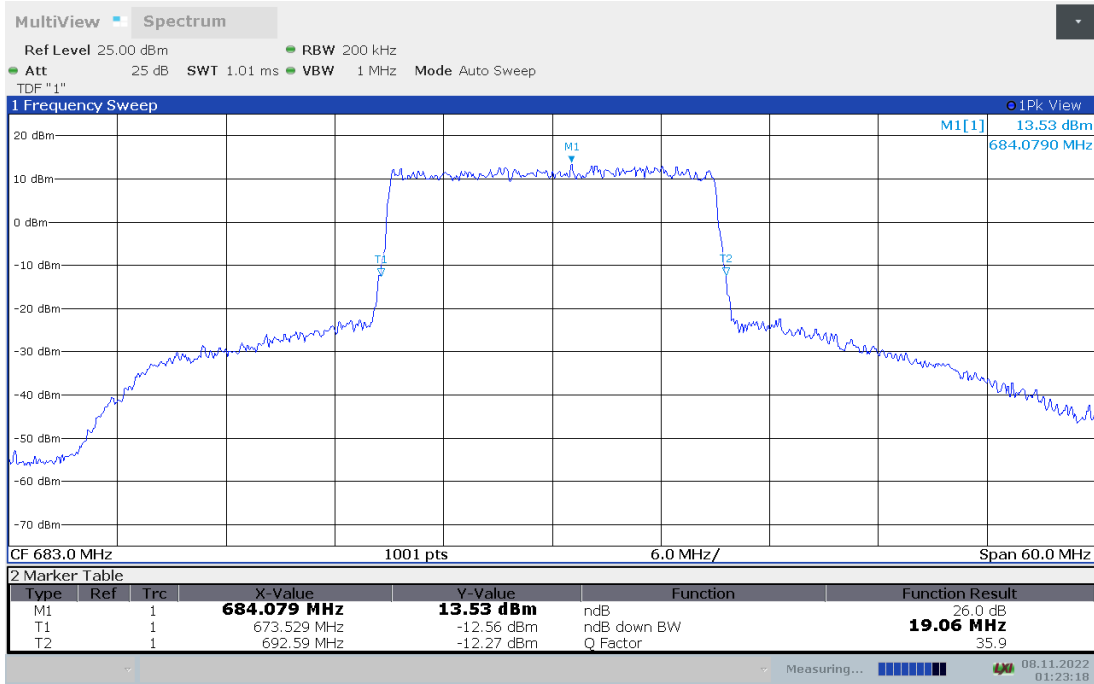
LTE band 71 , 15MHz Bandwidth,16QAM (-26dBc BW)



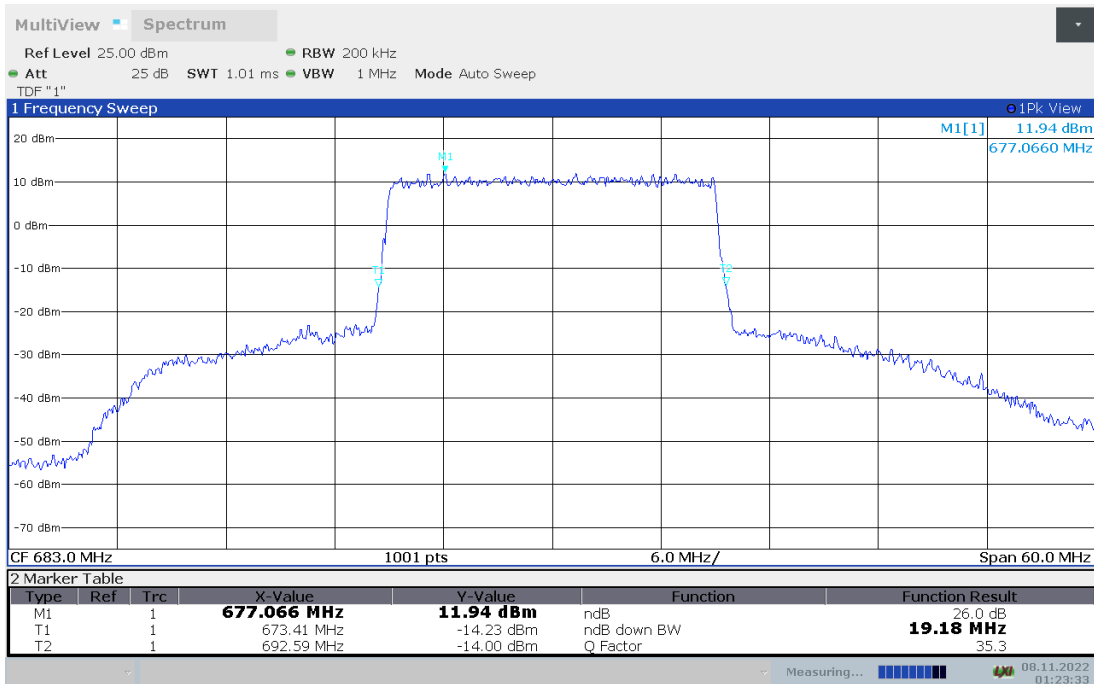
LTE band 71,20MHz(-26dBc BW)

Frequency(MHz)	Emission Bandwidth (-26dBc BW)(MHz)	
	QPSK	16QAM
683	19.061	19.181

LTE band 71 , 20MHz Bandwidth,QPSK (-26dBc BW)



LTE band 71 , 20MHz Bandwidth,16QAM (-26dBc BW)



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

A.6 BAND EDGE COMPLIANCE

Reference

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

A.6.1 Measurement limit

Part 22.917 For operations in the 824–849MHz band, the FCC limit is $43 + 10 \log (P)$ dB below the transmitter power(P) in a 100kHz bandwidth. However, in the 1MHz 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.

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.

A.6.2 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.

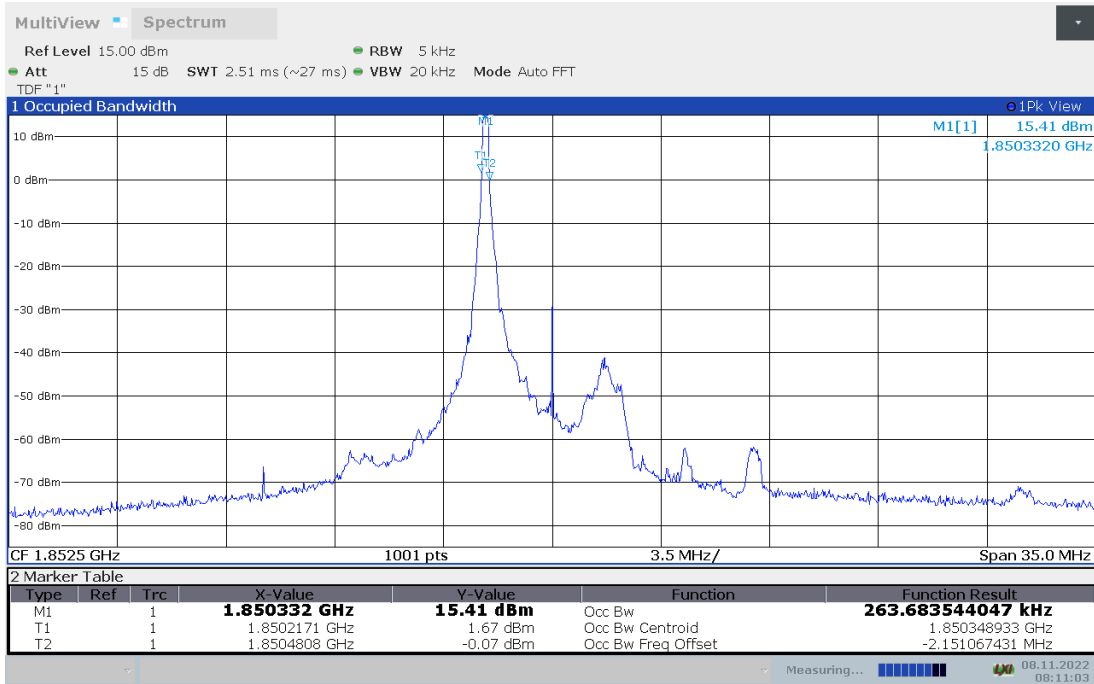
A.6.3 Measurement result

Only worst case result is given below

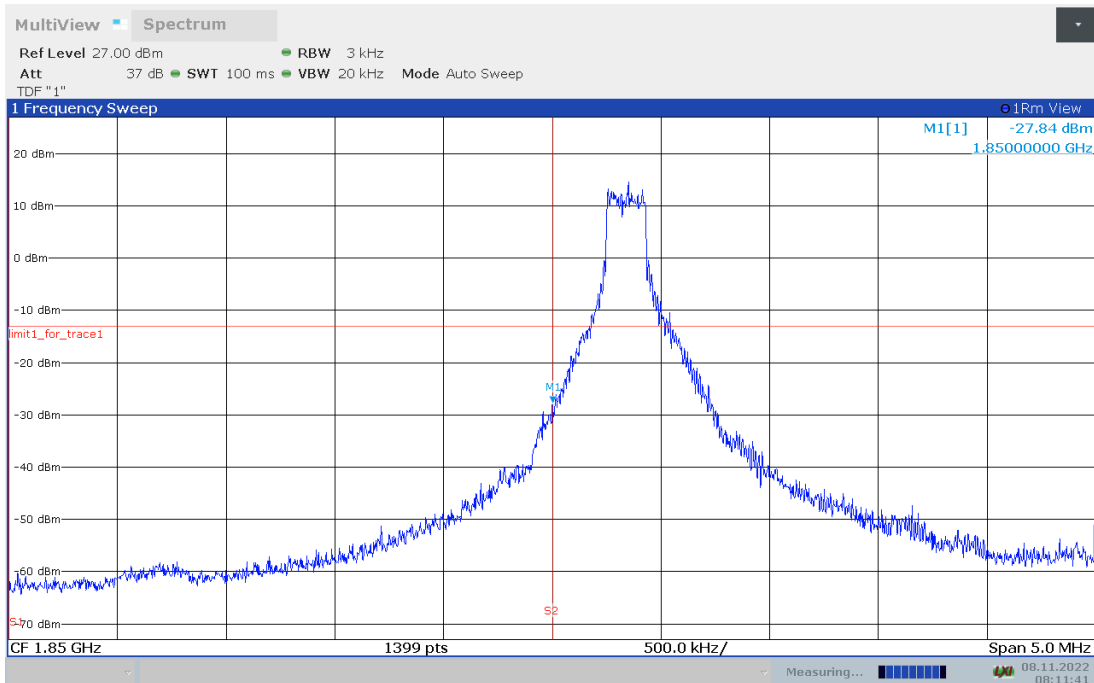


LTE band 2

OBW: 1RB-LOW_offset

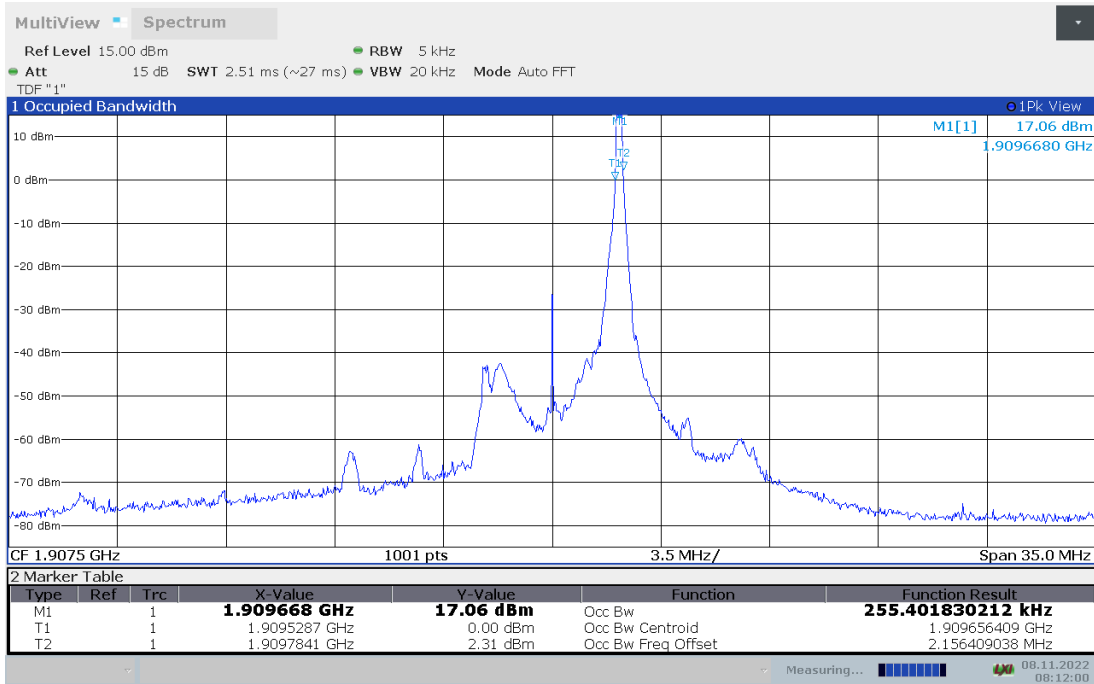


LOW BAND EDGE BLOCK-1RB-LOW_offset

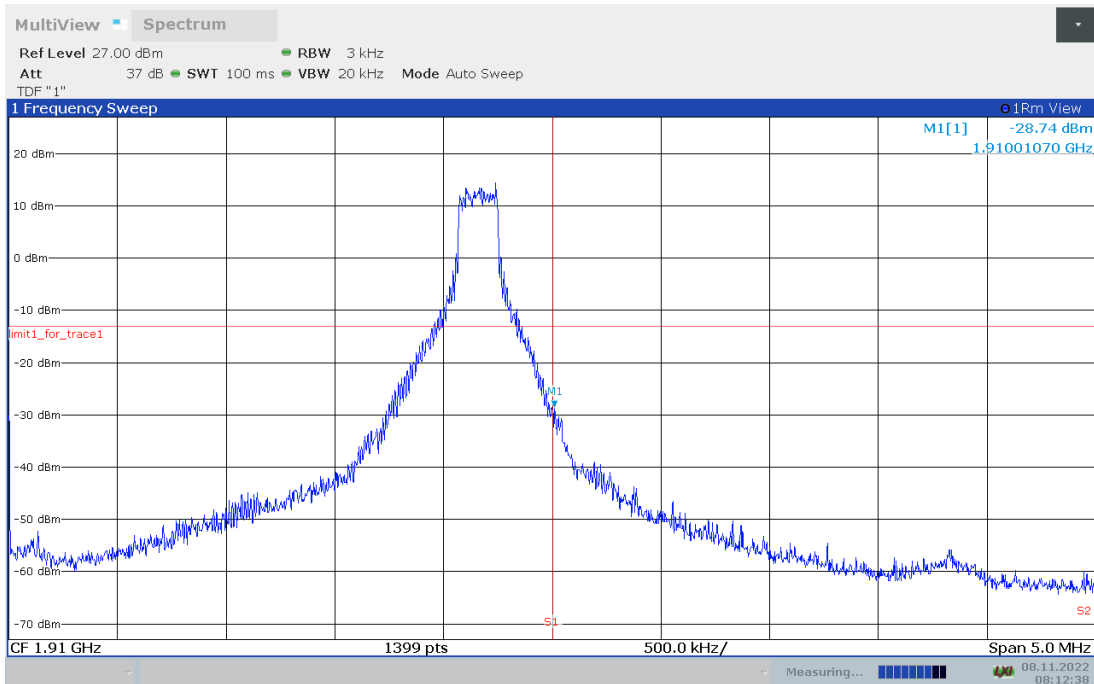




OBW: 1RB-HIGH_offset

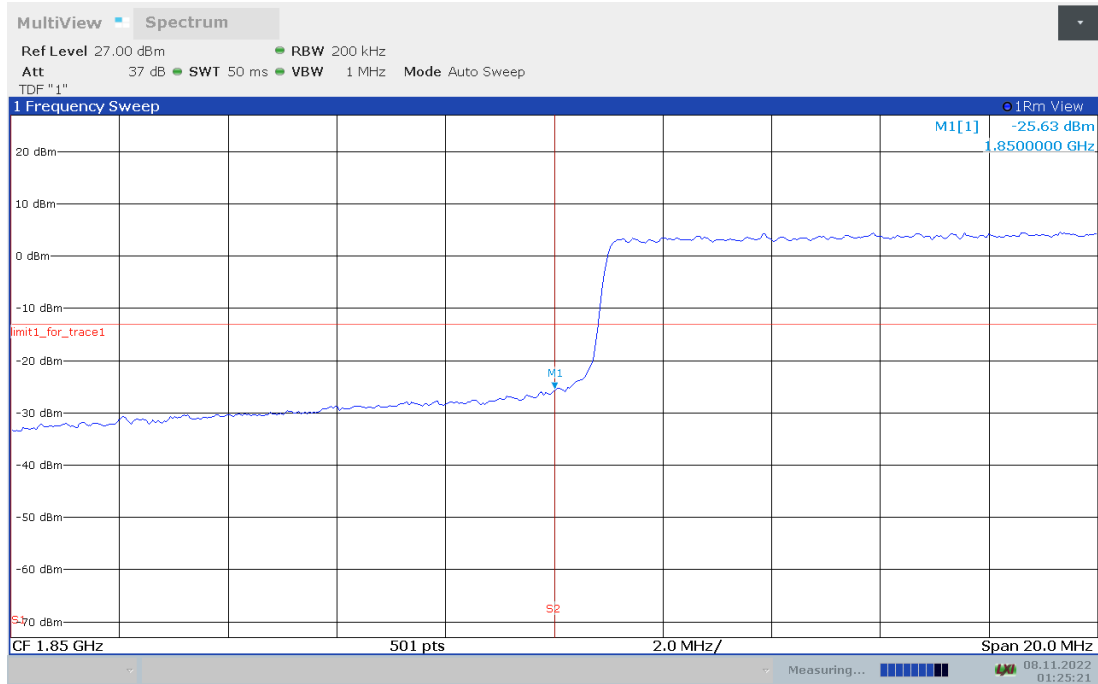


HIGH BAND EDGE BLOCK-1RB-HIGH_offset





LOW BAND EDGE BLOCK-20M-100%RB

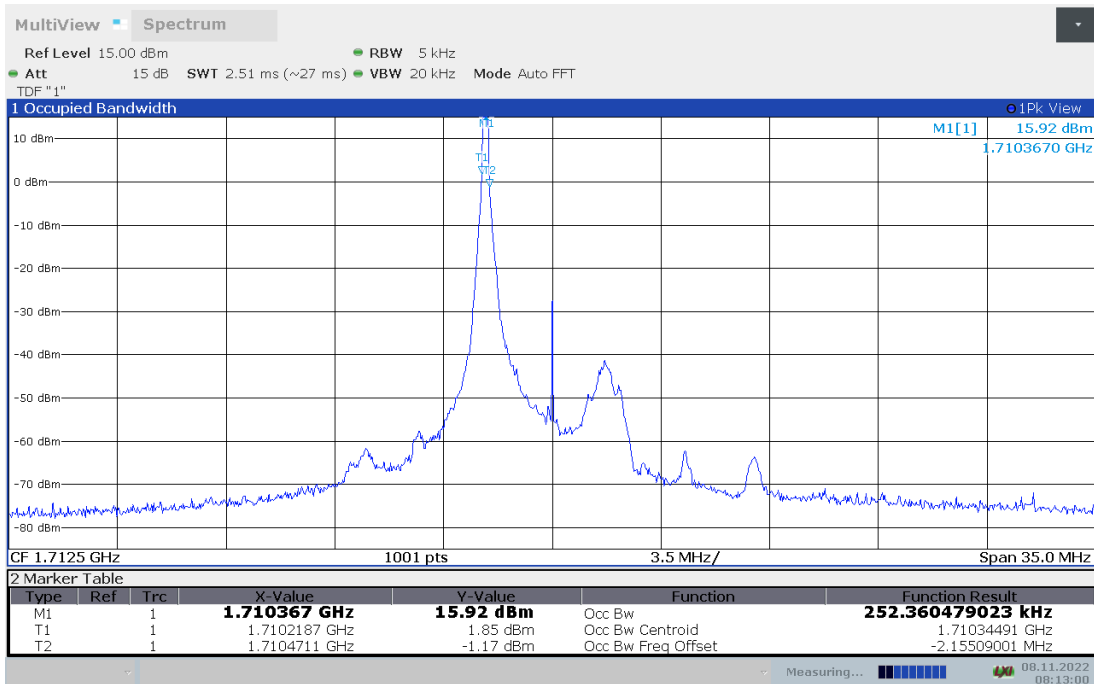


HIGH BAND EDGE BLOCK-20M-100%RB

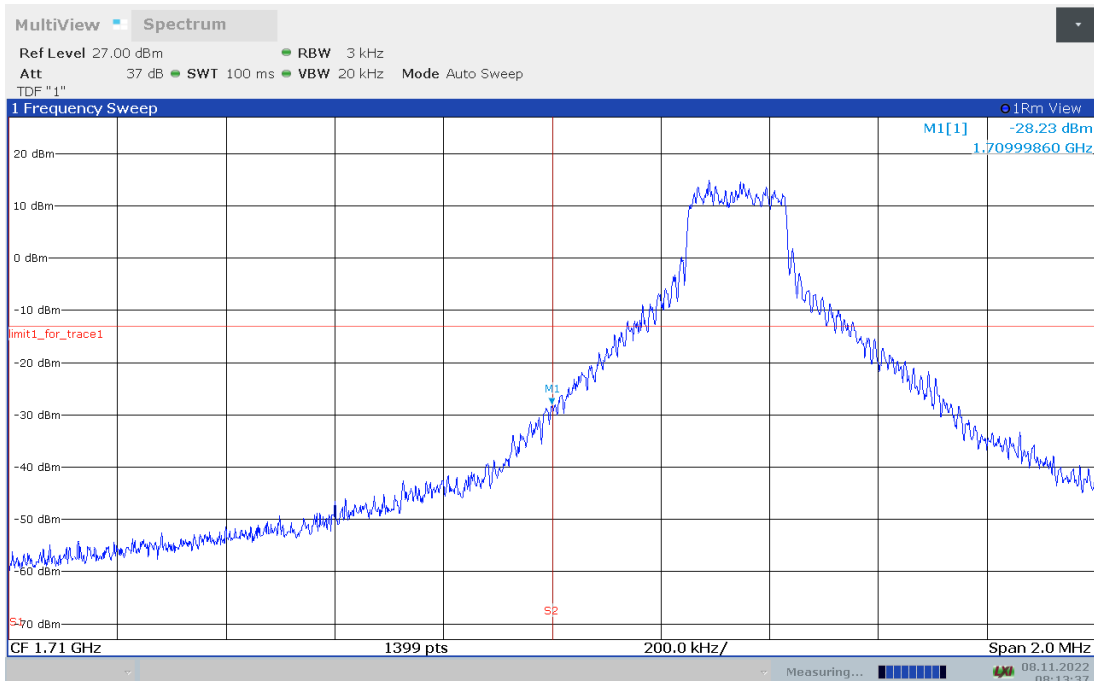


LTE band 4

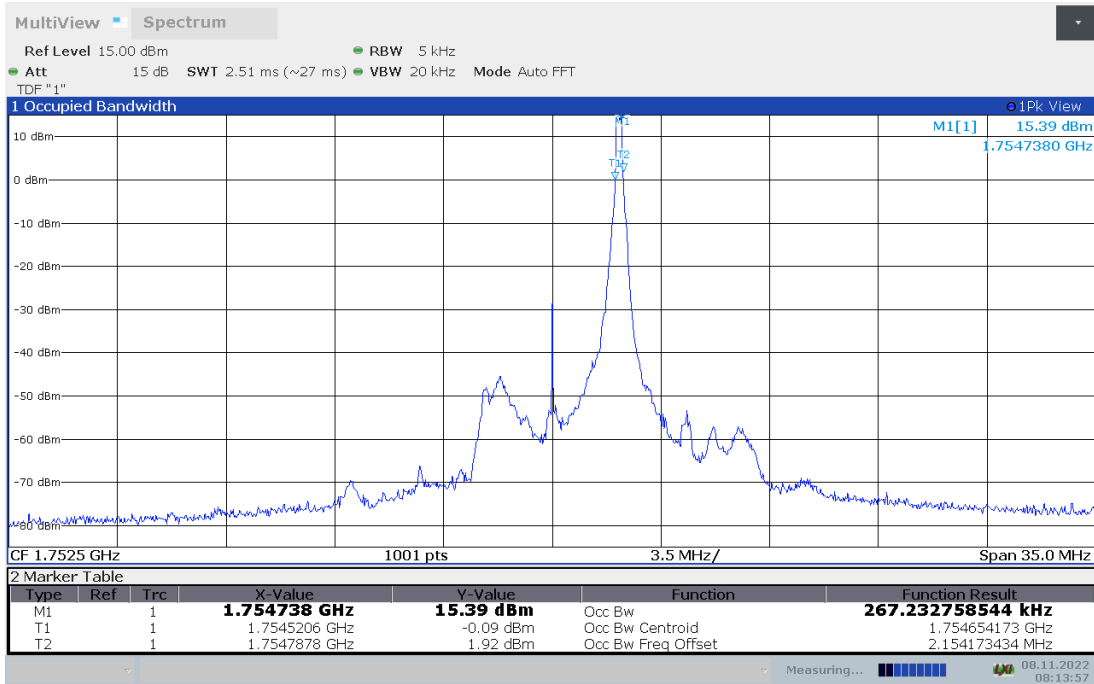
OBW: 1RB-LOW_offset



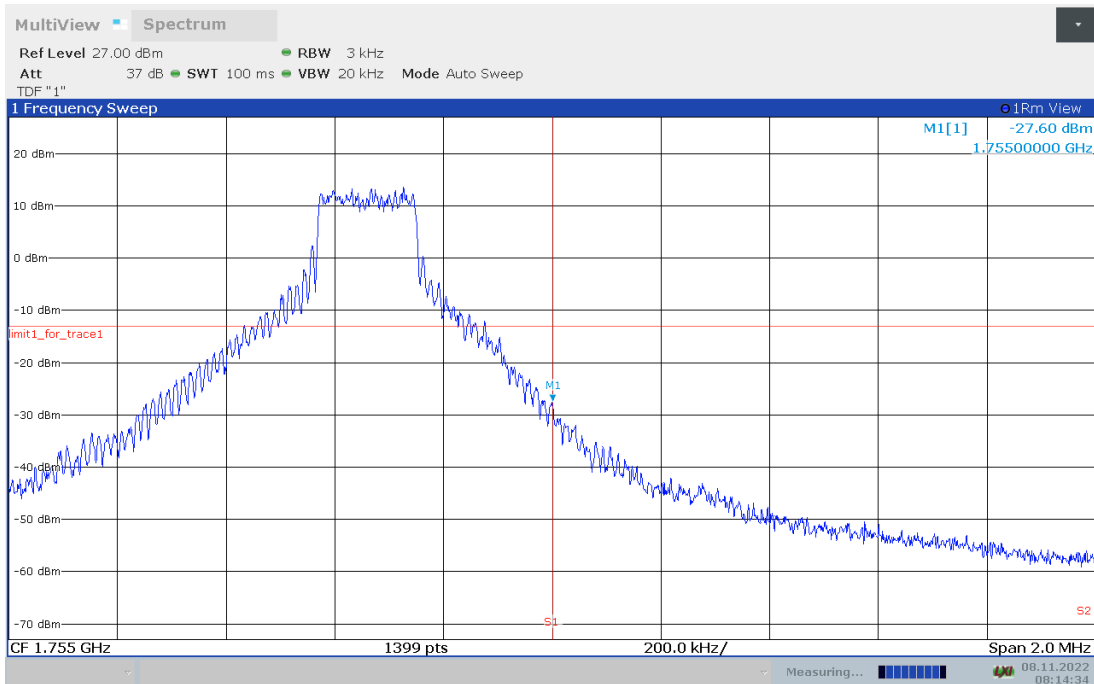
LOW BAND EDGE BLOCK-1RB-LOW_offset



OBW: 1RB-HIGH_offset

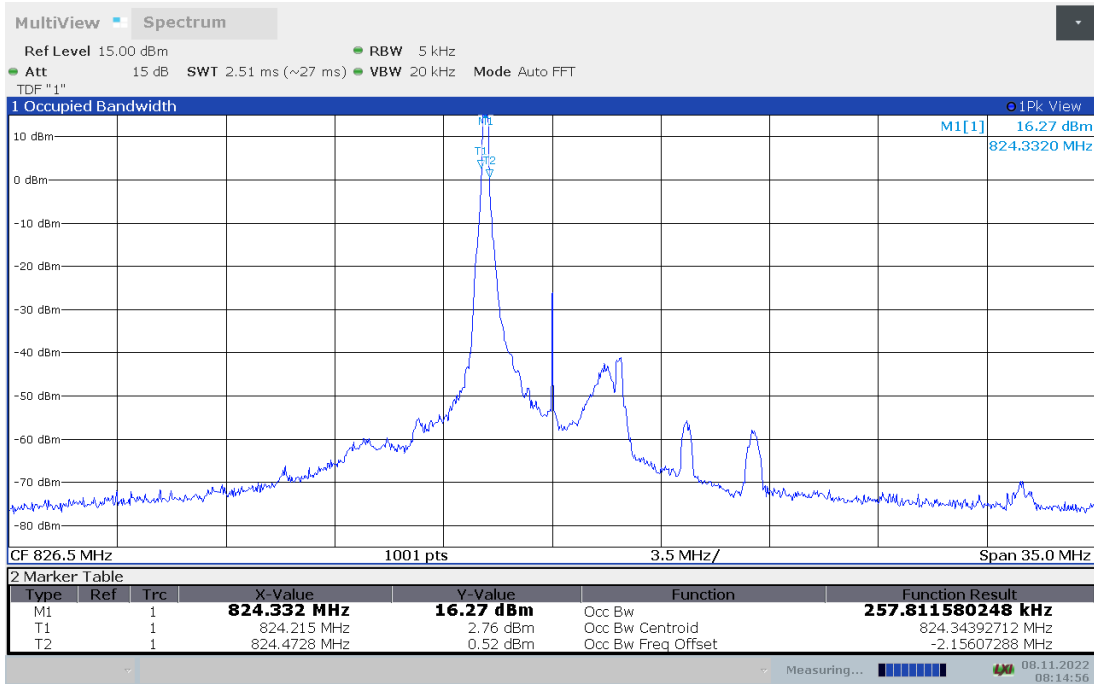


HIGH BAND EDGE BLOCK-1RB-HIGH_offset

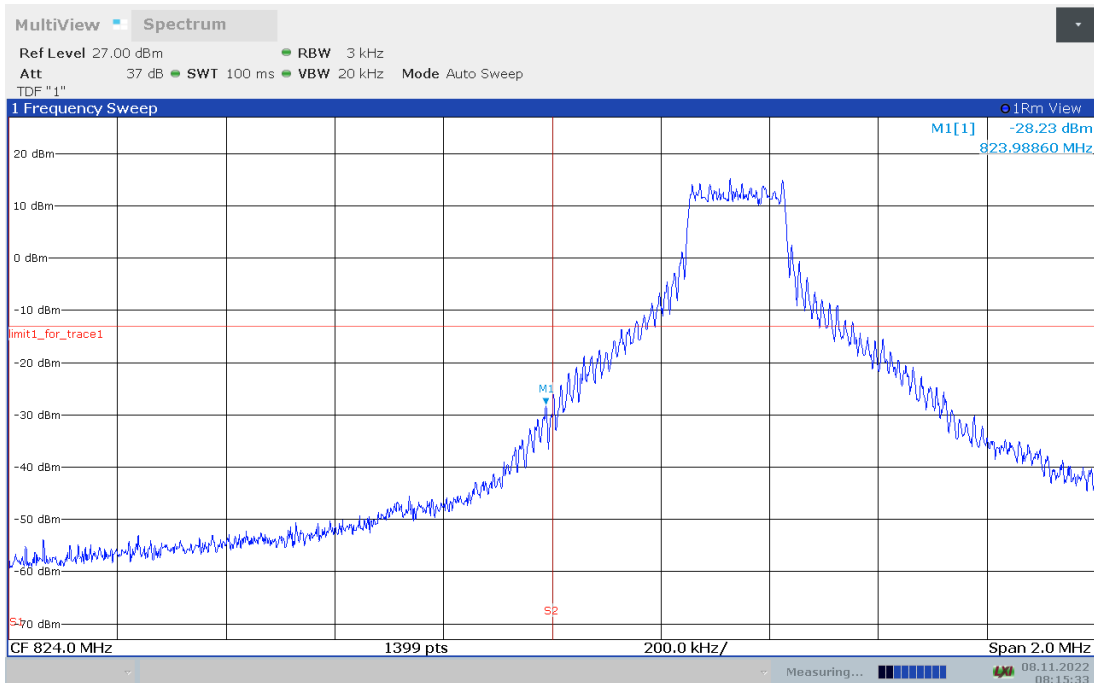


LTE band 5

OBW: 1RB-LOW_offset

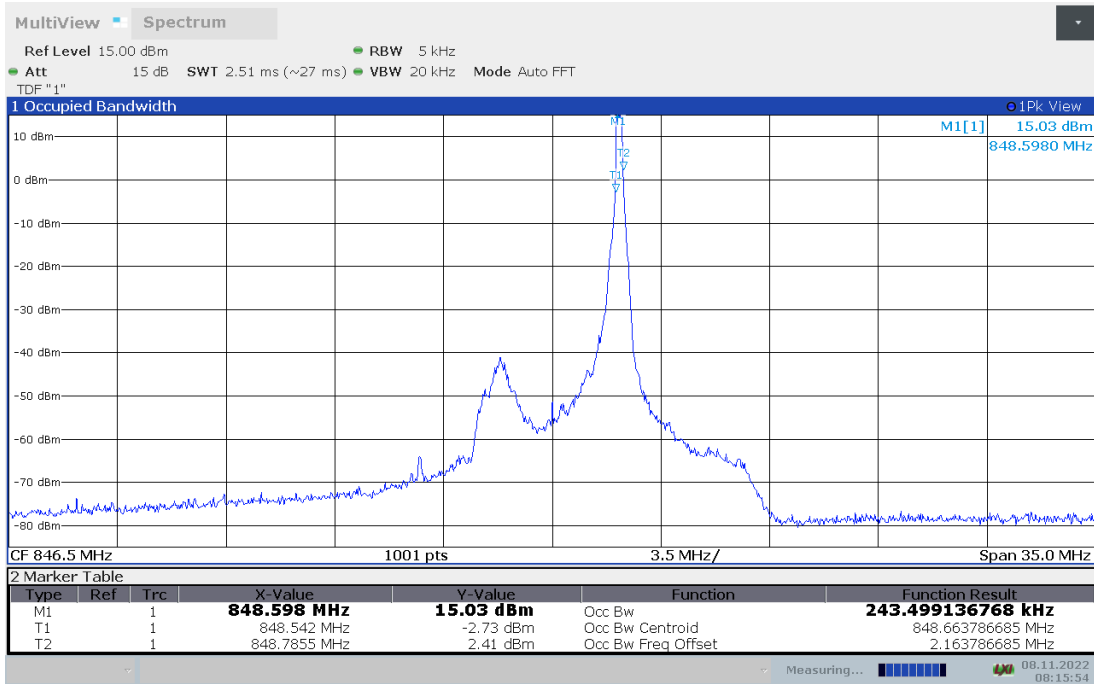


LOW BAND EDGE BLOCK-1RB-LOW_offset

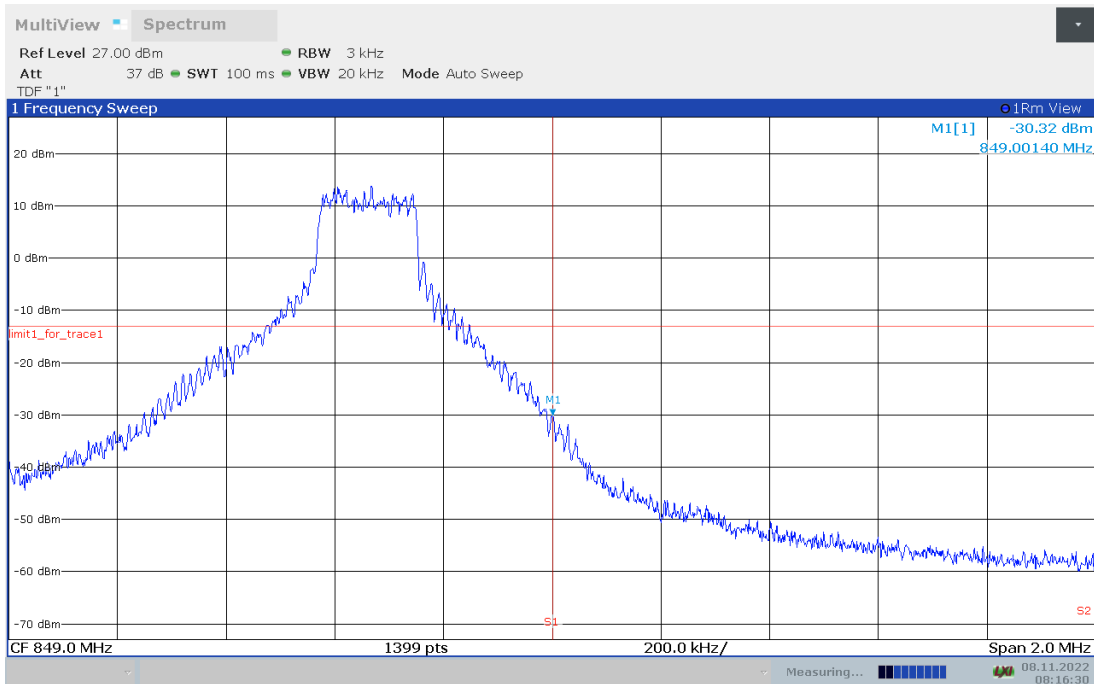




OBW: 1RB-HIGH_offset

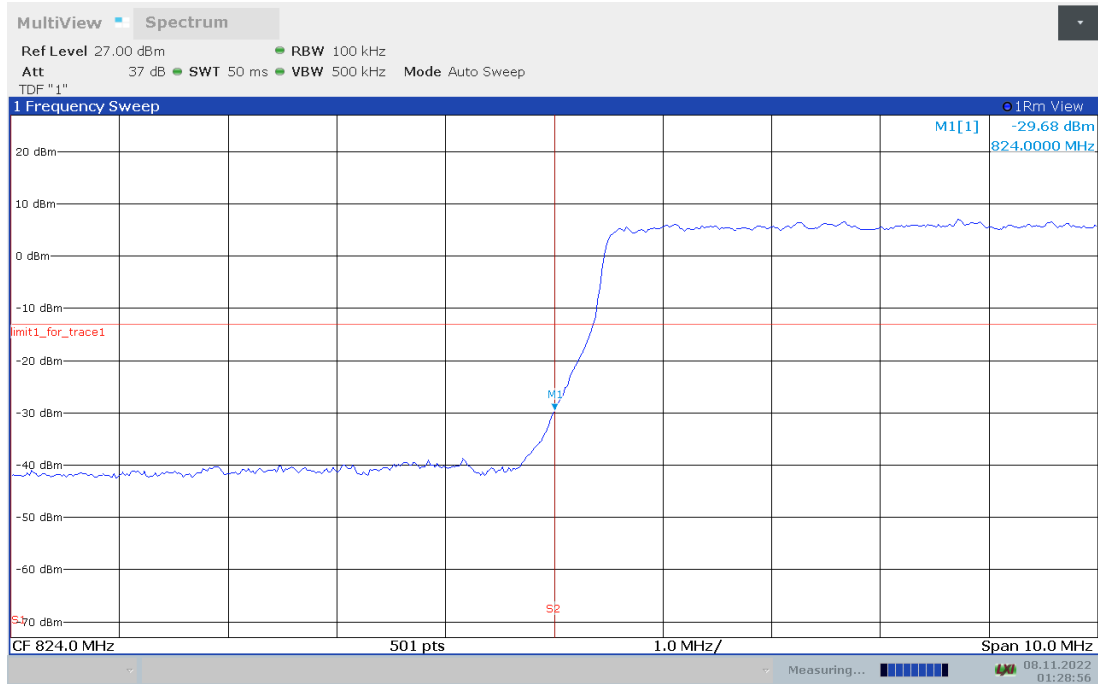


HIGH BAND EDGE BLOCK-1RB-HIGH_offset

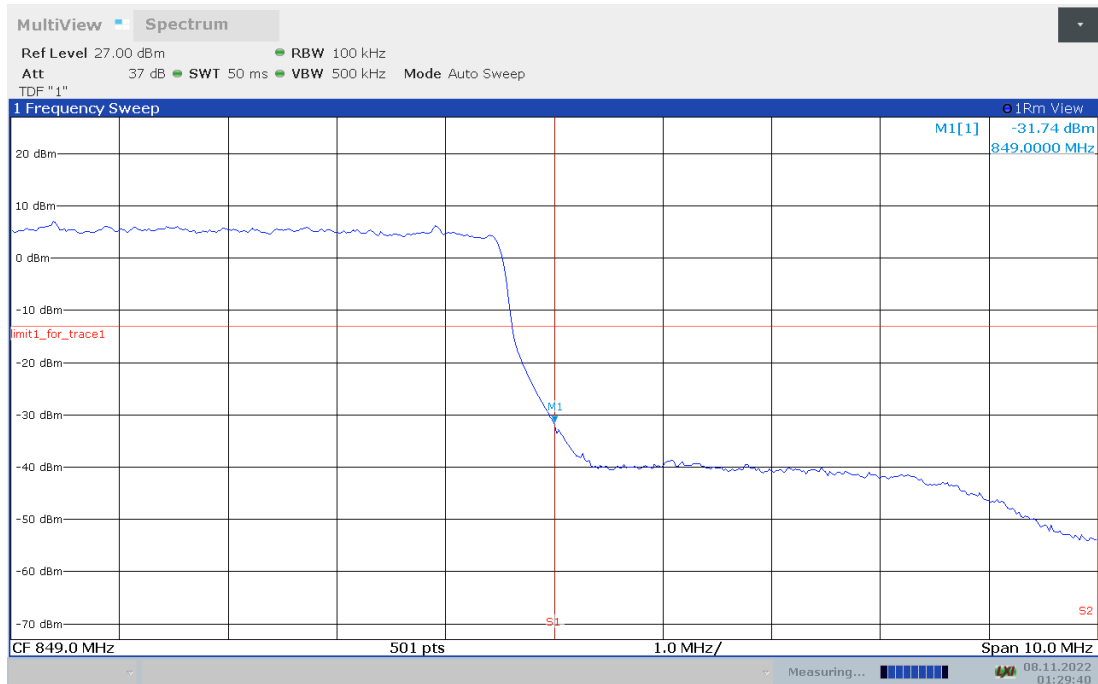




LOW BAND EDGE BLOCK-10M-100%RB



HIGH BAND EDGE BLOCK-10M-100%RB



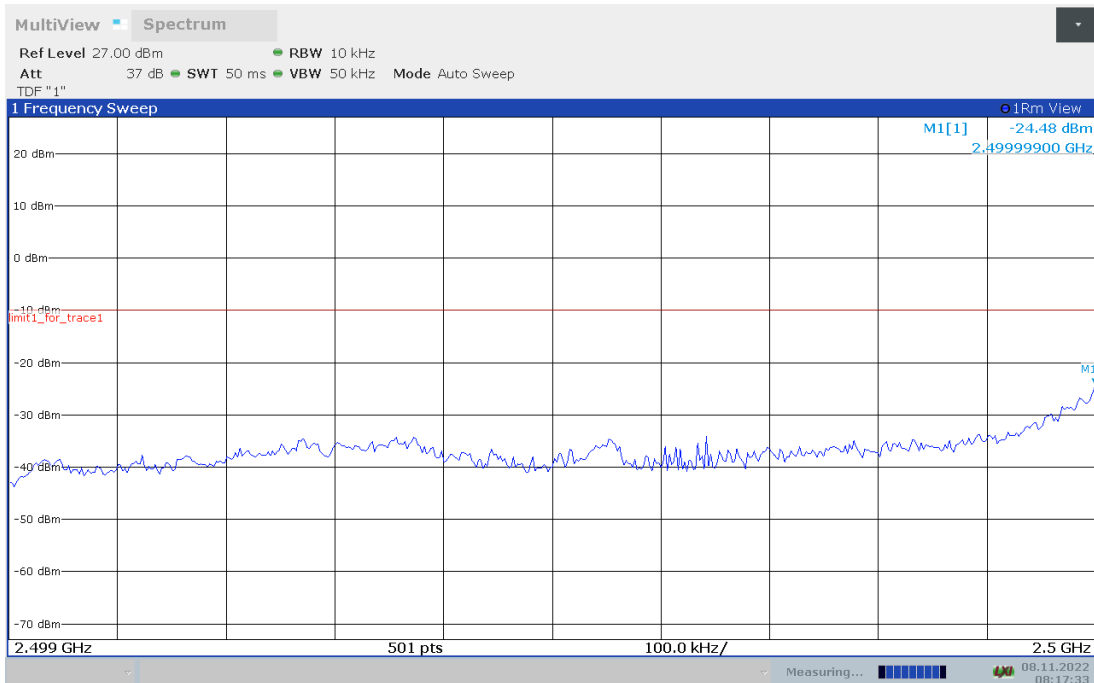


LTE band 7

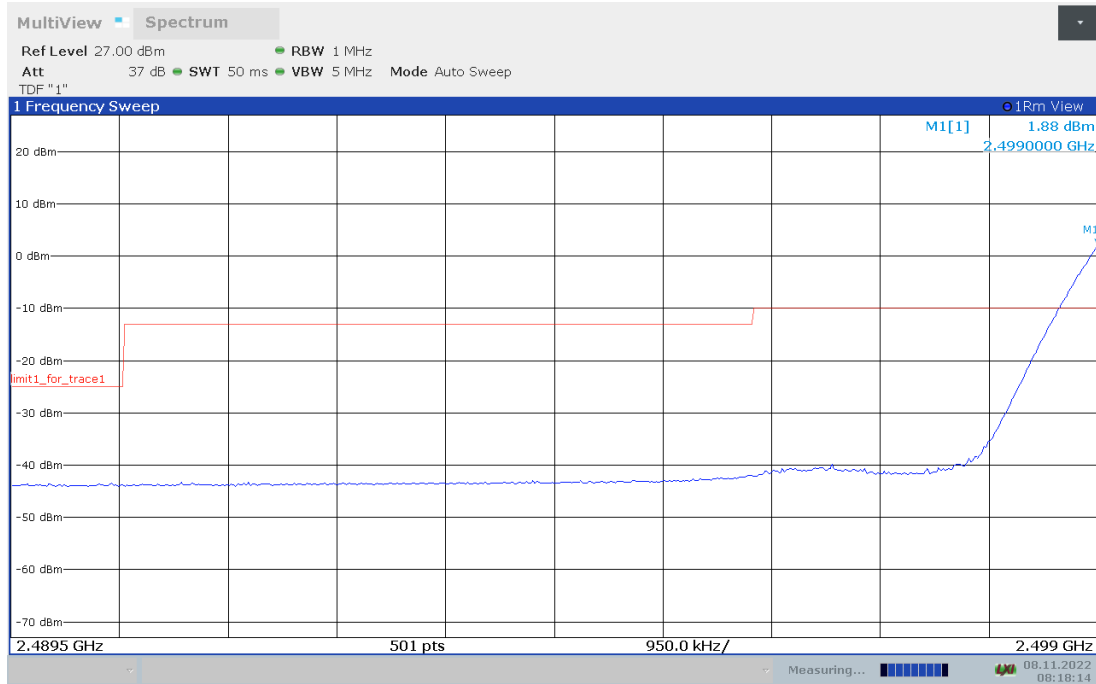
OBW: 1RB-LOW_offset



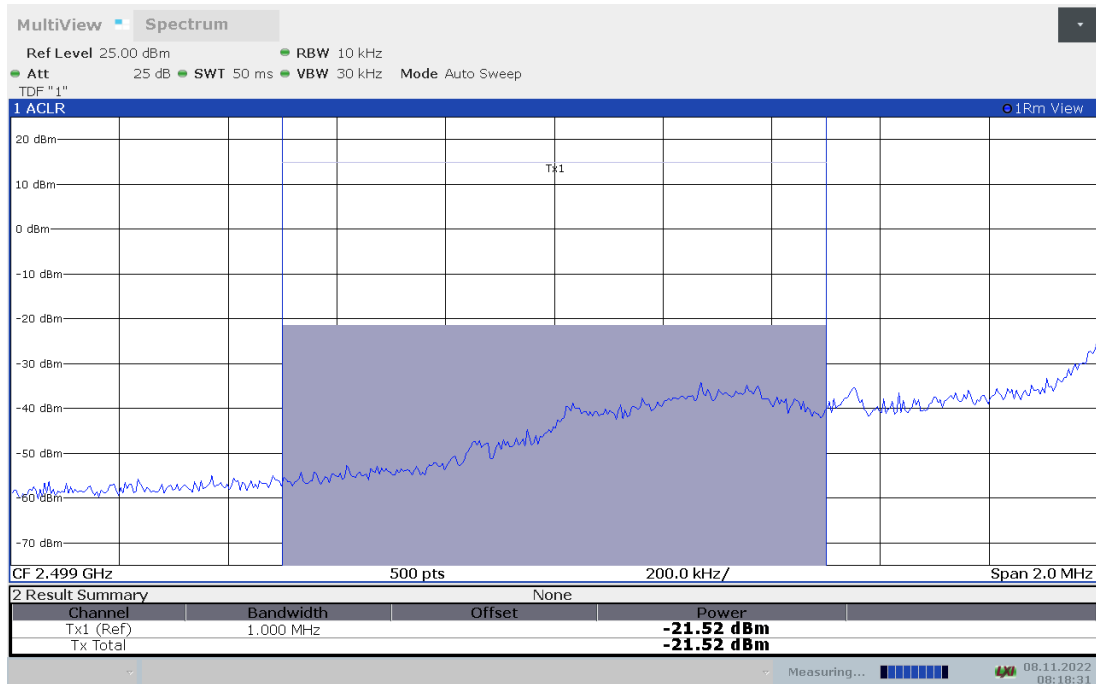
LOW BAND EDGE BLOCK-1RB-LOW_offset



LOW BAND EDGE BLOCK-1RB-LOW_offset

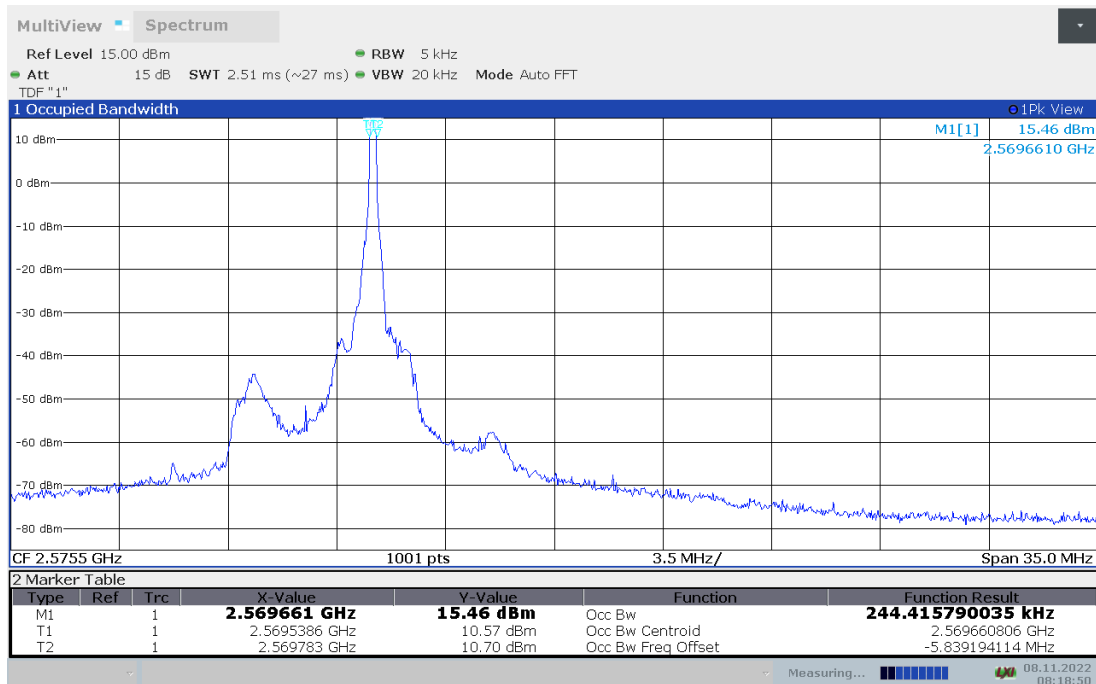


Channel power

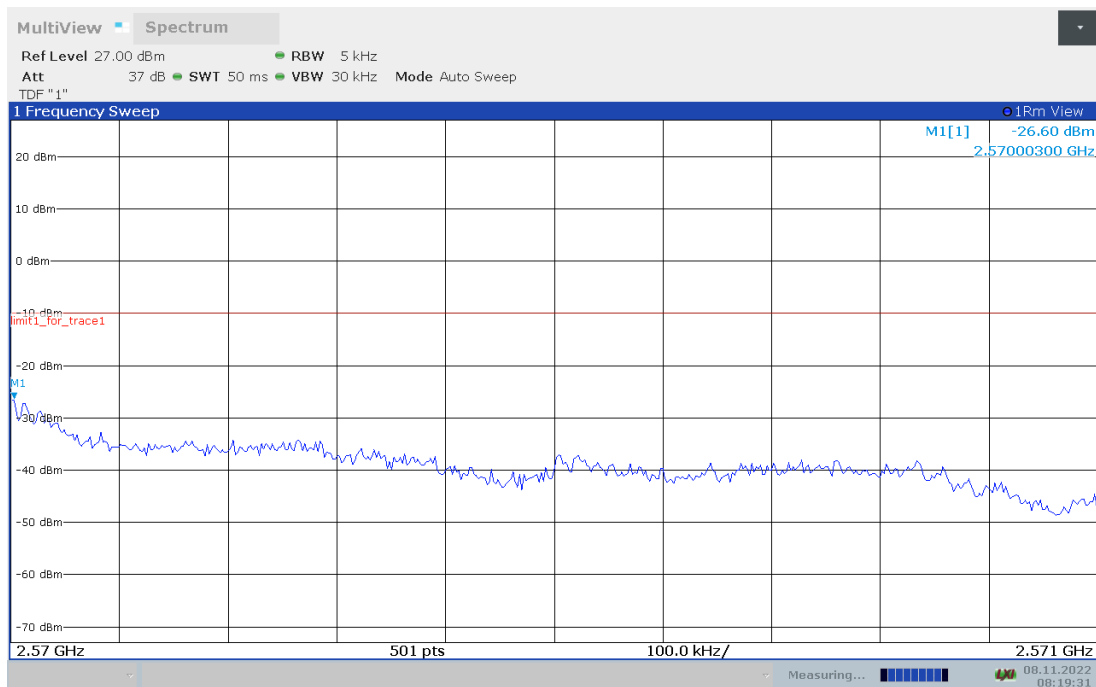




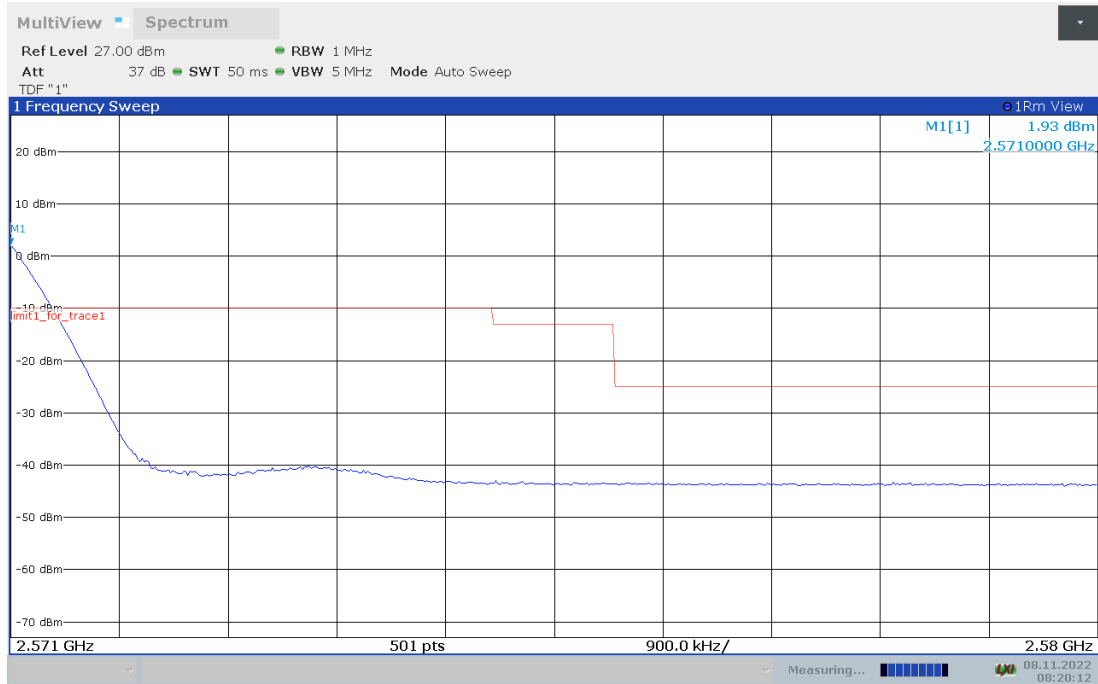
OBW: 1RB-HIGH_offset



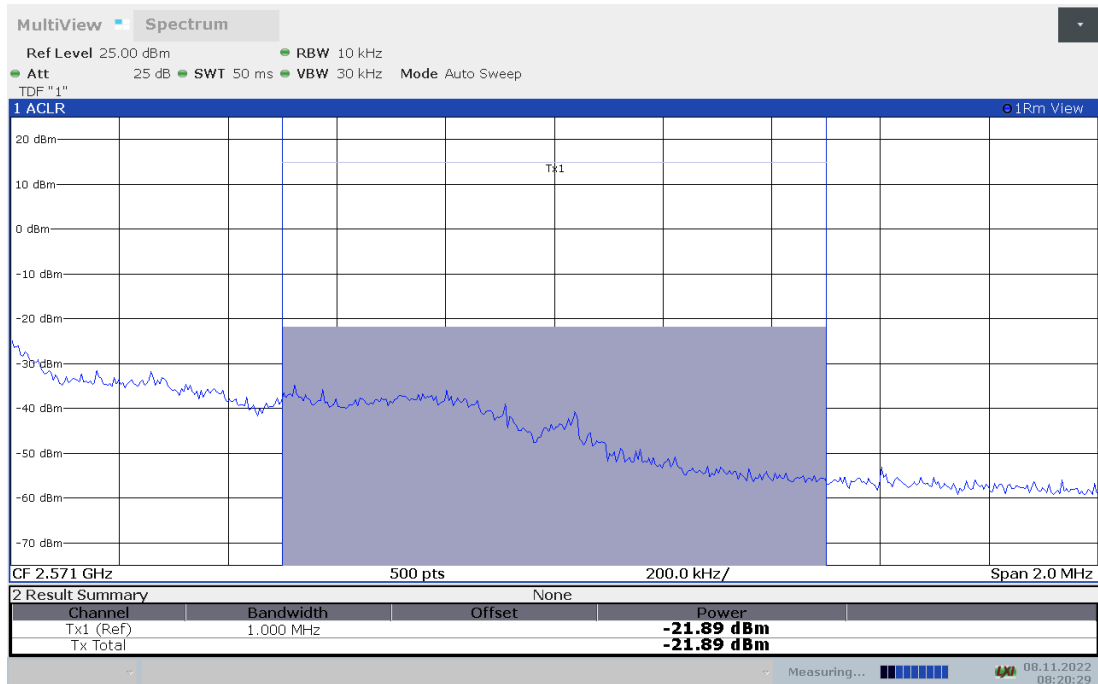
HIGH BAND EDGE BLOCK-1RB-HIGH_offset



HIGH BAND EDGE BLOCK-1RB-HIGH_offset

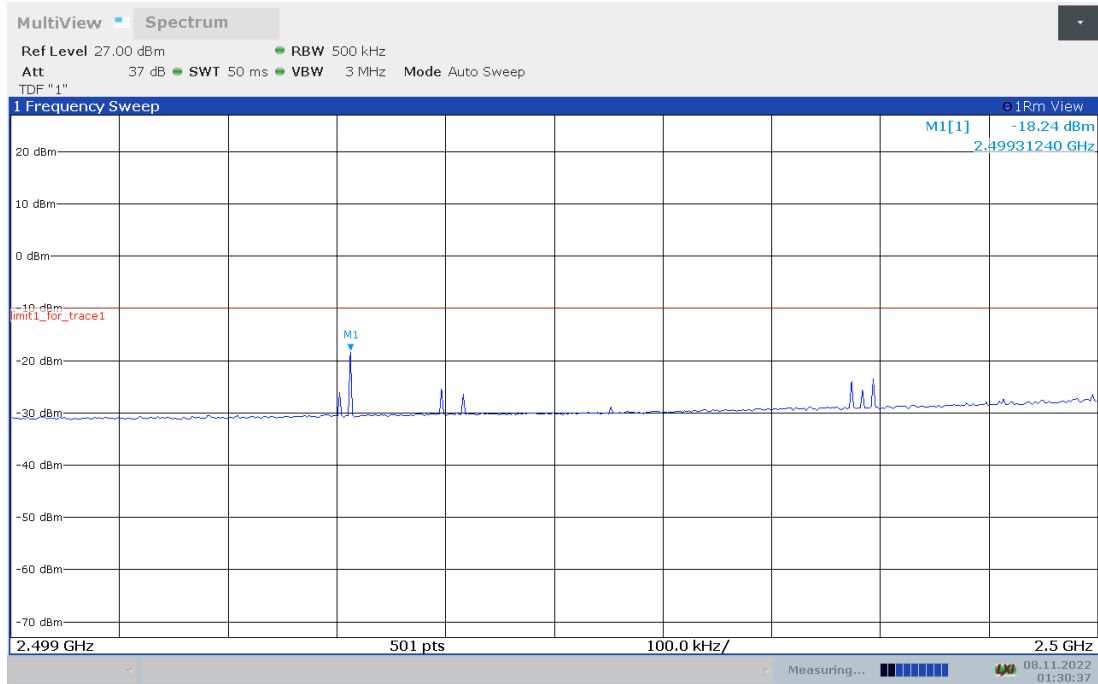


Channel power

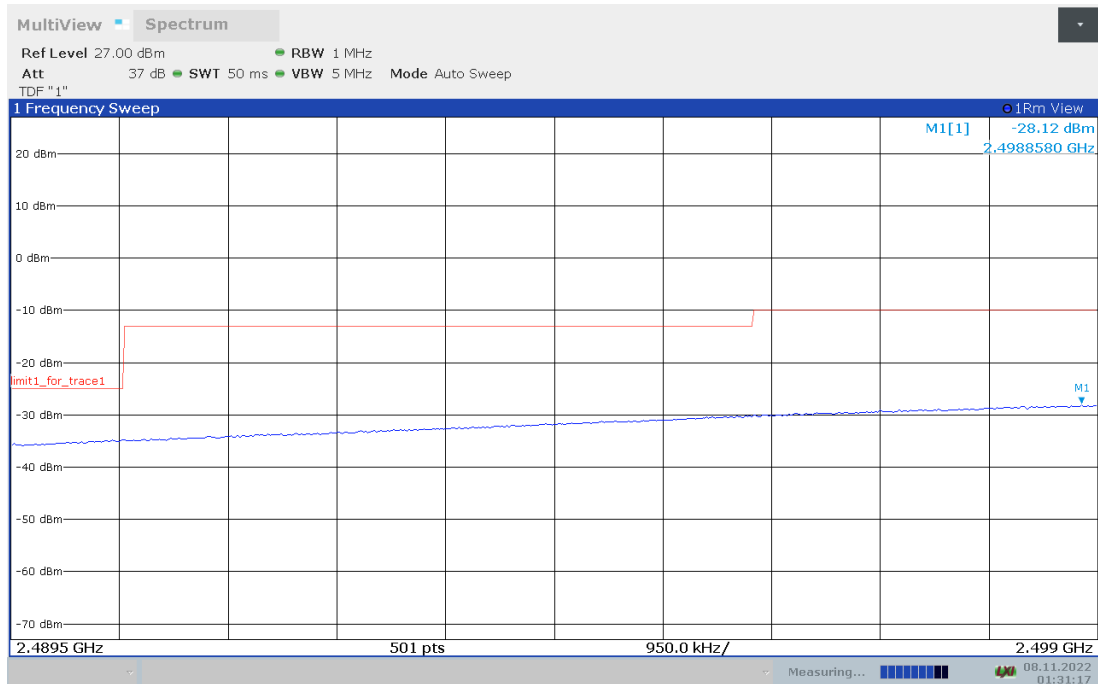




LOW BAND EDGE BLOCK-20M-100%RB



LOW BAND EDGE BLOCK-20M-100%RB

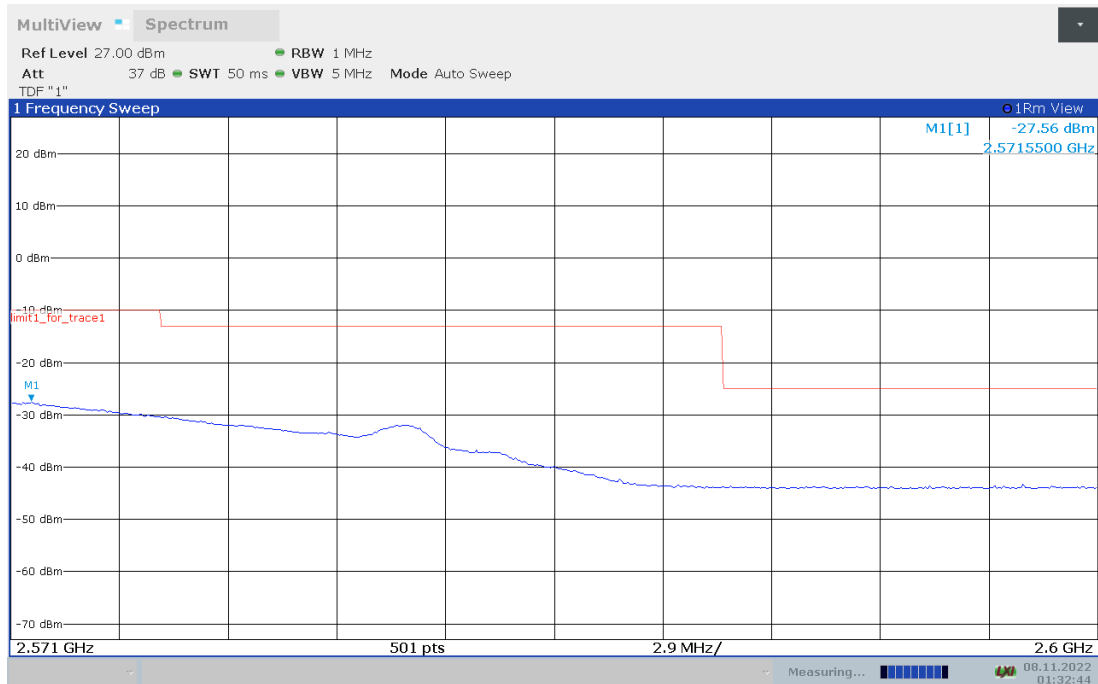




HIGH BAND EDGE BLOCK-20M-100%RB

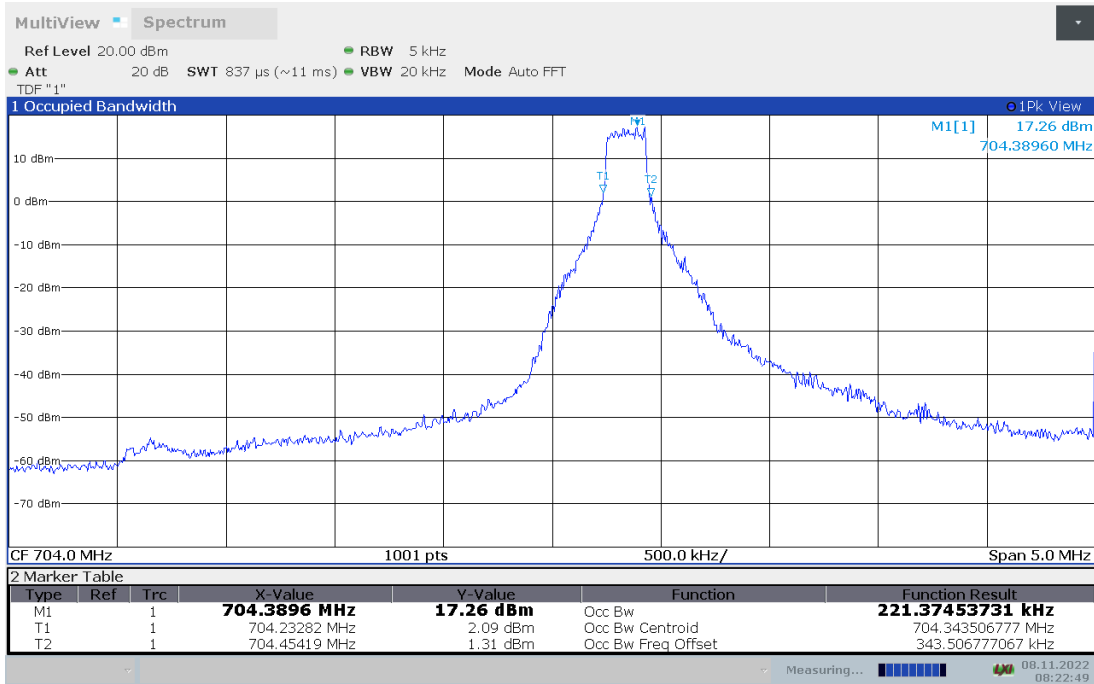


HIGH BAND EDGE BLOCK-20M-100%RB

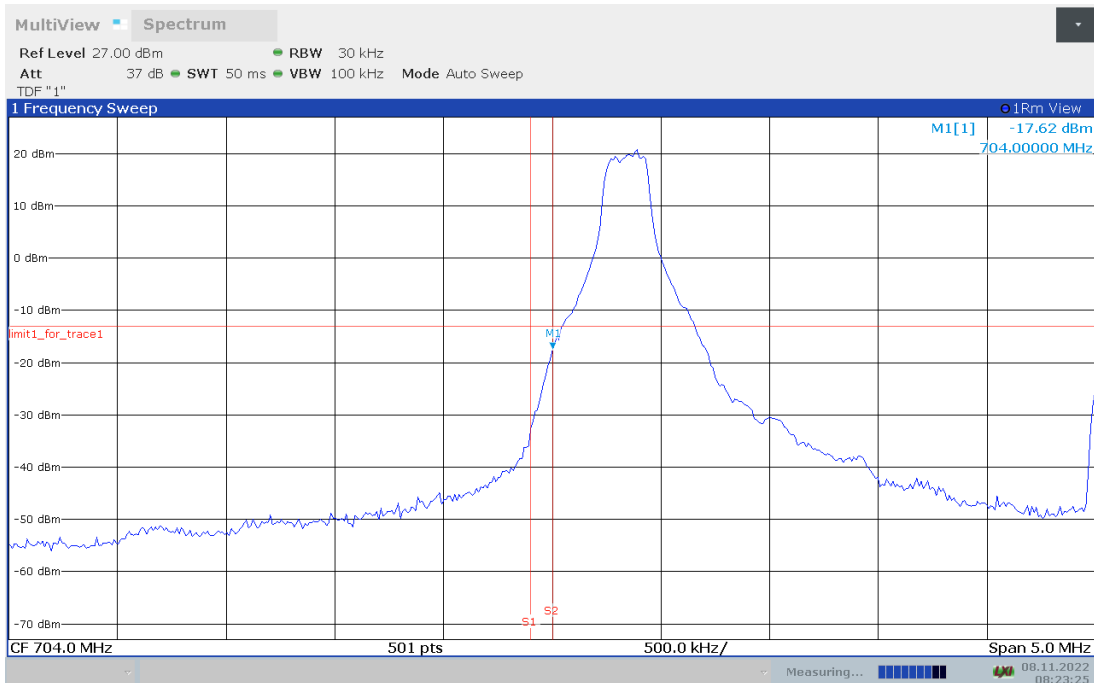


LTE band 17

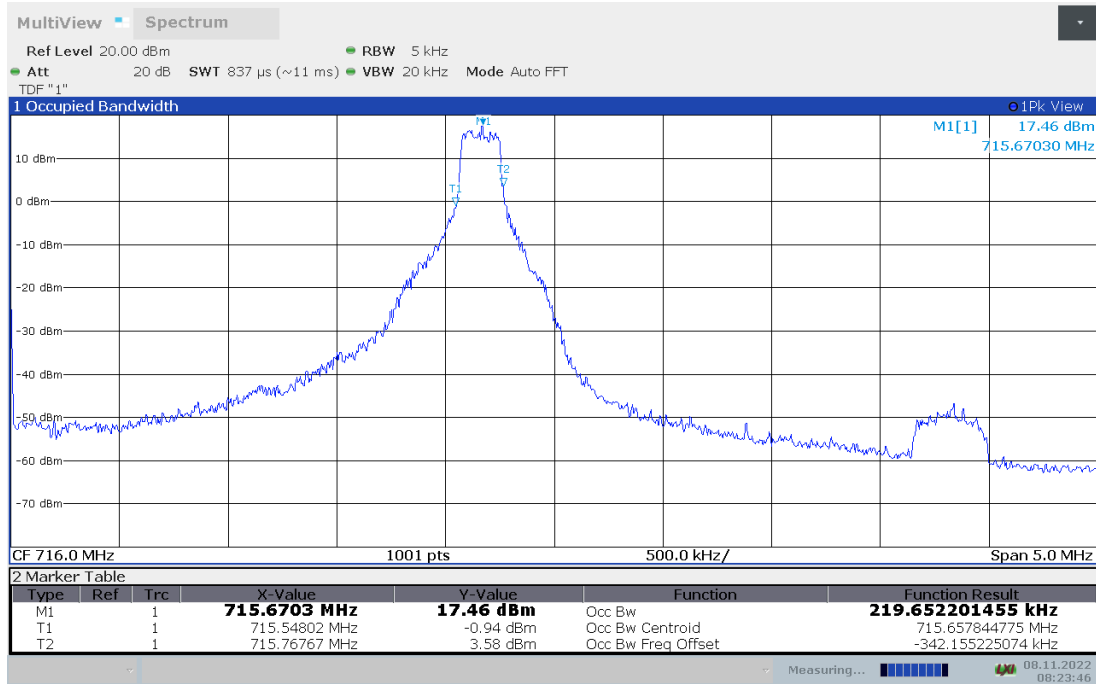
OBW: 1RB-LOW_offset



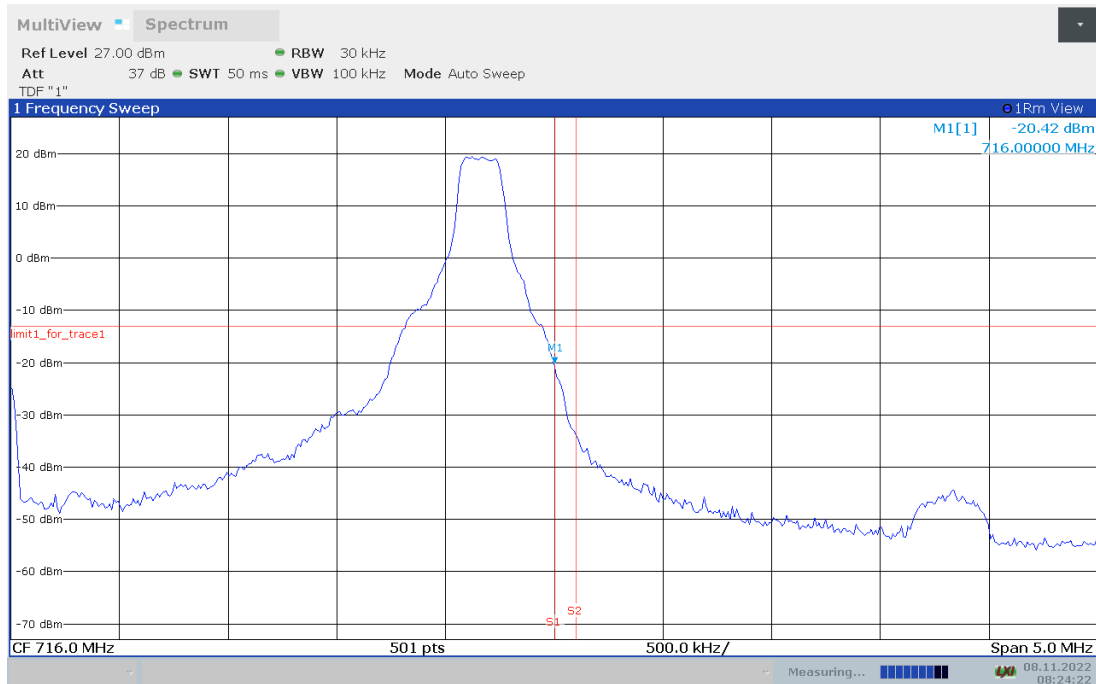
LOW BAND EDGE BLOCK-1RB-LOW_offset



OBW: 1RB-HIGH_offset

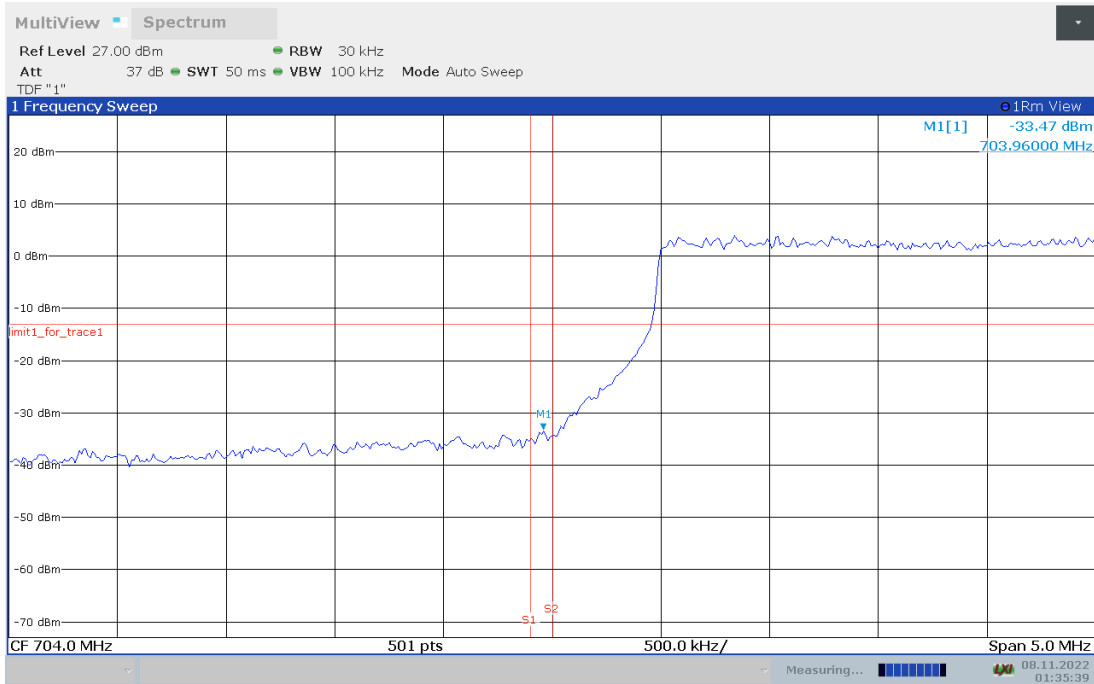


HIGH BAND EDGE BLOCK-1RB-HIGH_offset

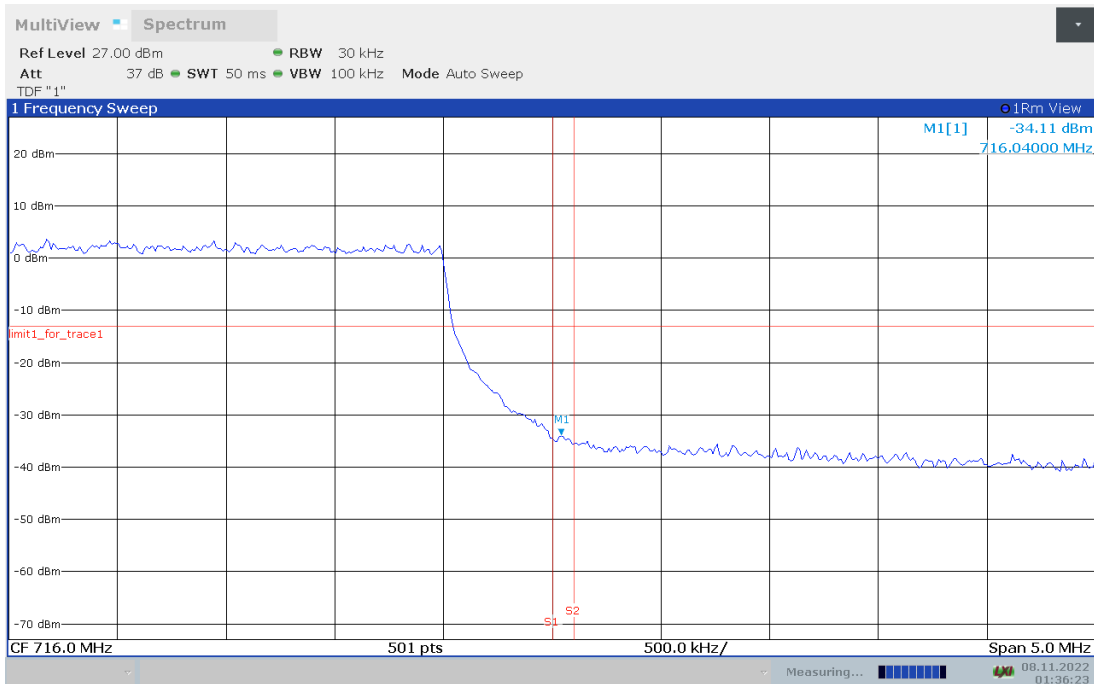




LOW BAND EDGE BLOCK-10M-100%RB



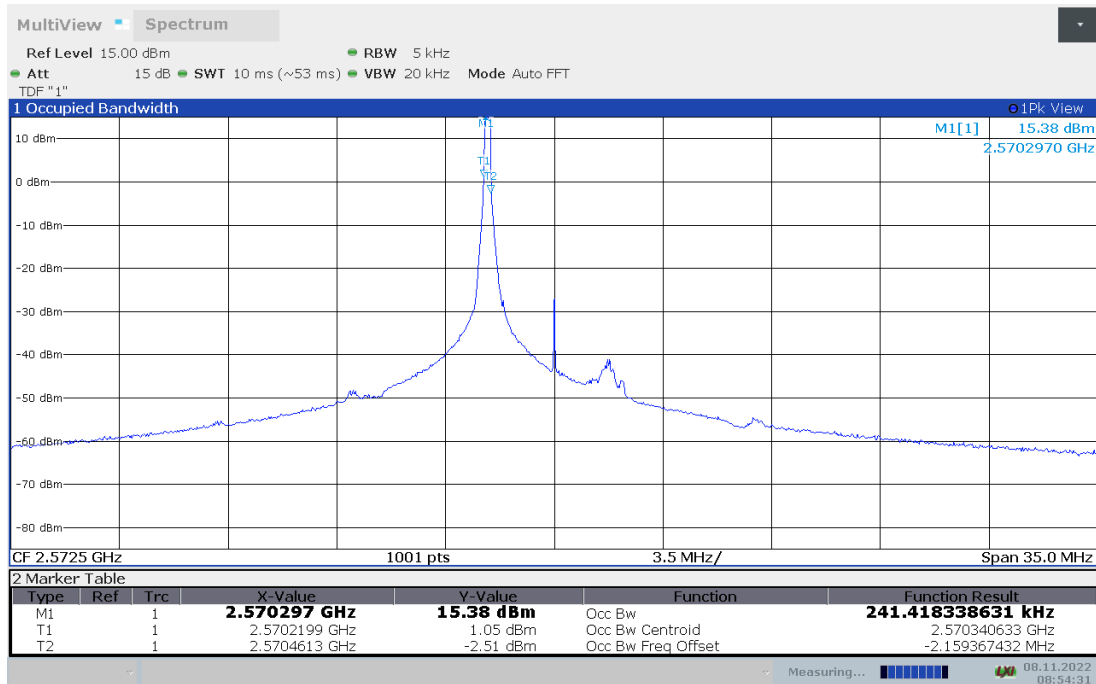
HIGH BAND EDGE BLOCK-10M-100%RB



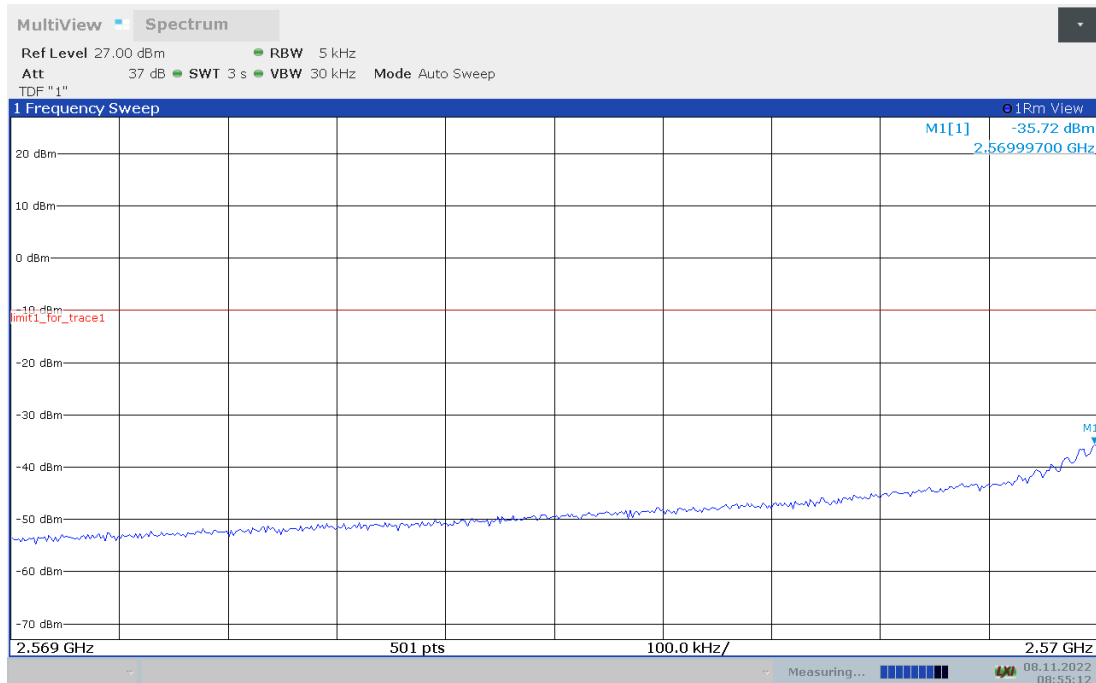


LTE band 38

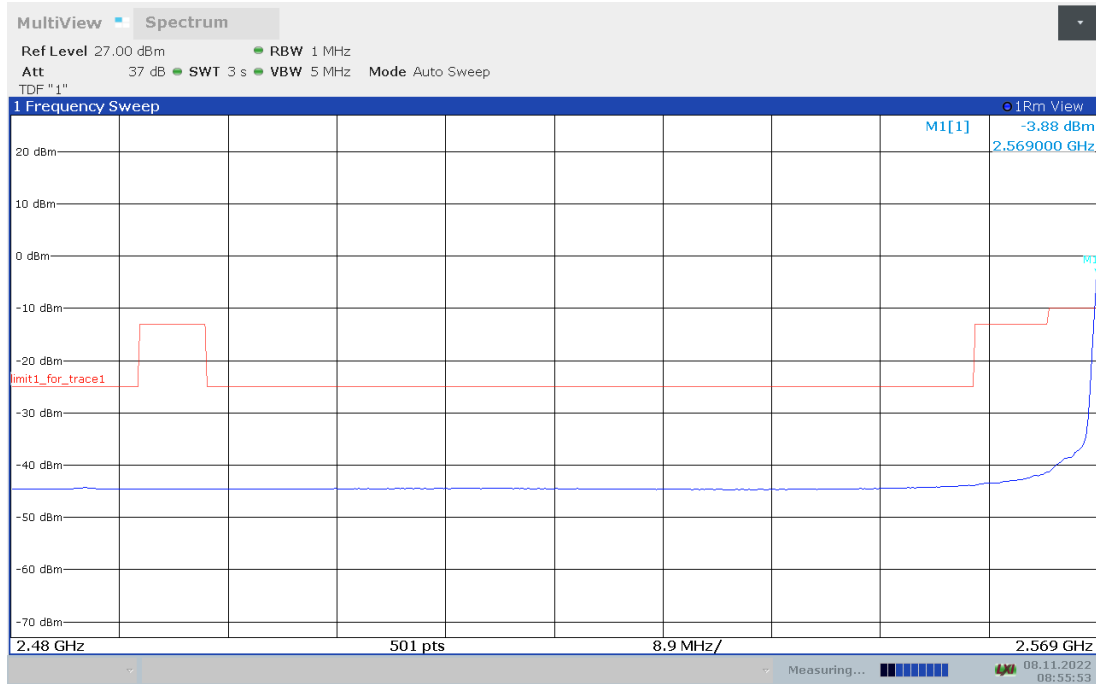
OBW: 1RB-LOW_offset



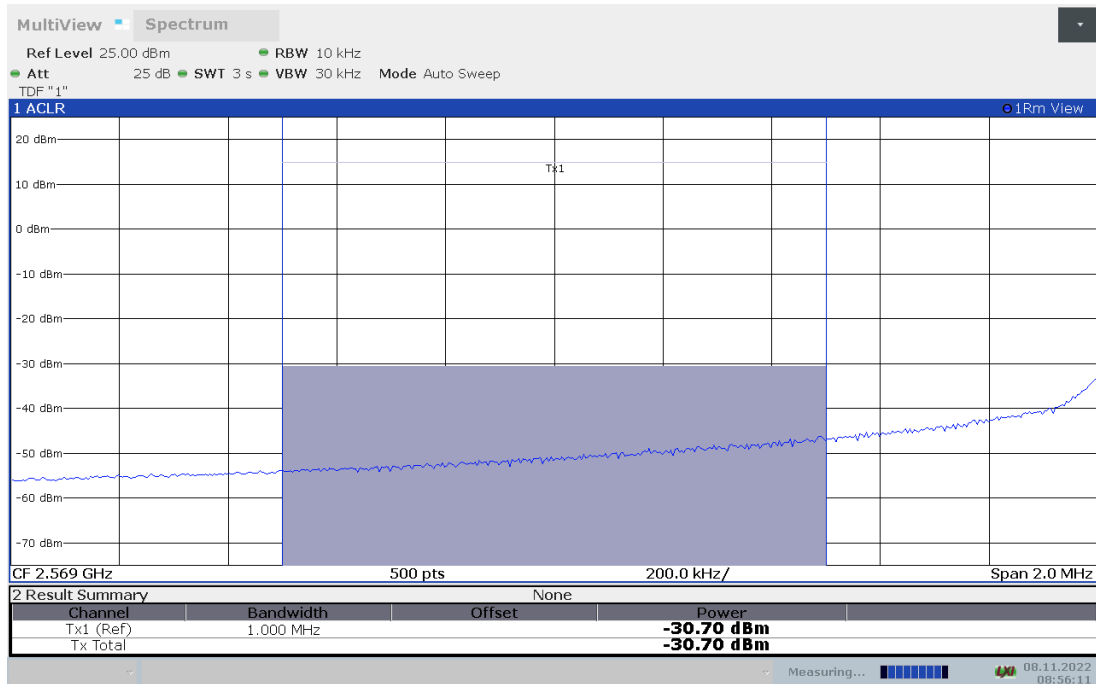
LOW BAND EDGE BLOCK-1RB-LOW_offset



LOW BAND EDGE BLOCK-1RB-LOW_offset

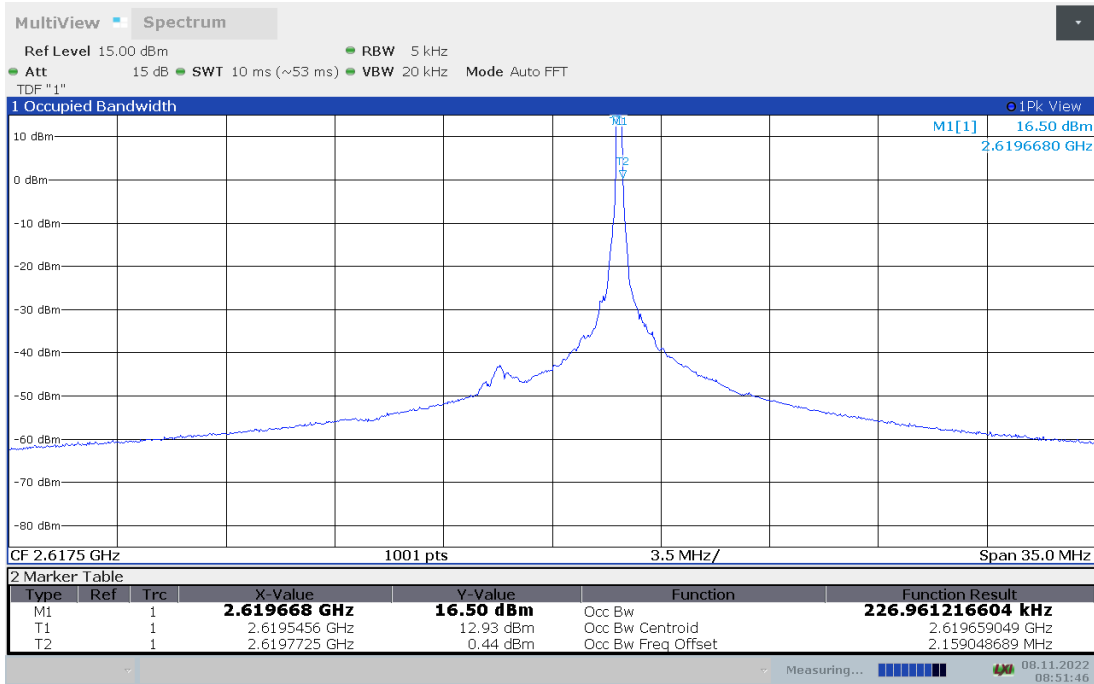


Channel power

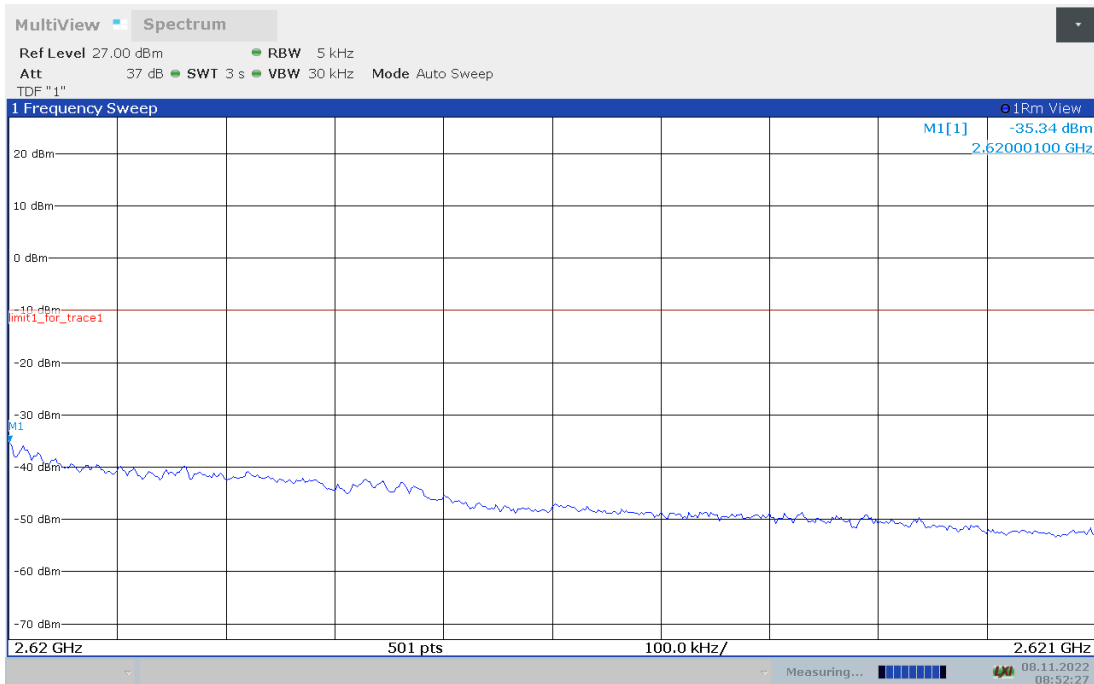




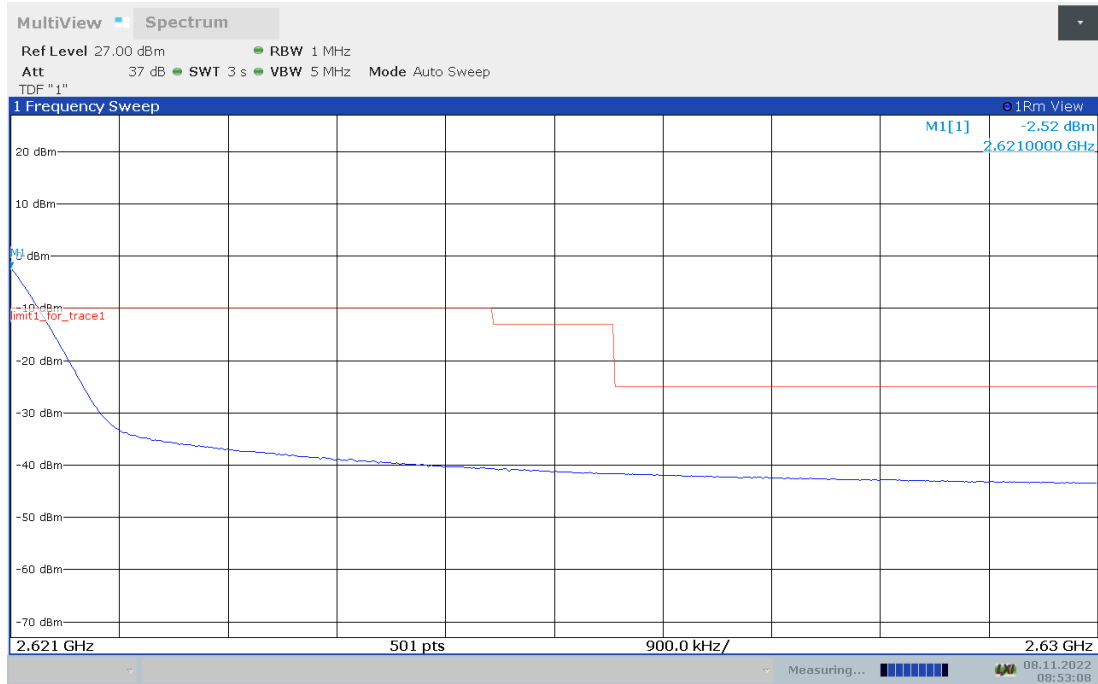
OBW: 1RB-HIGH_offset



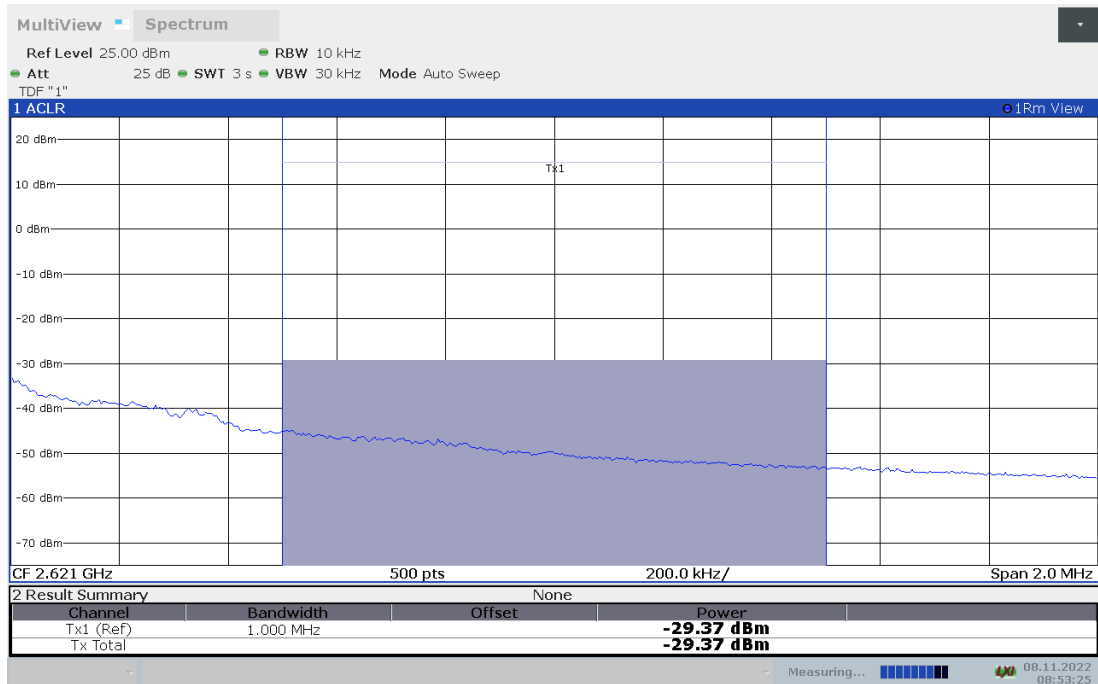
HIGH BAND EDGE BLOCK-1RB-HIGH_offset



HIGH BAND EDGE BLOCK-1RB-HIGH_offset

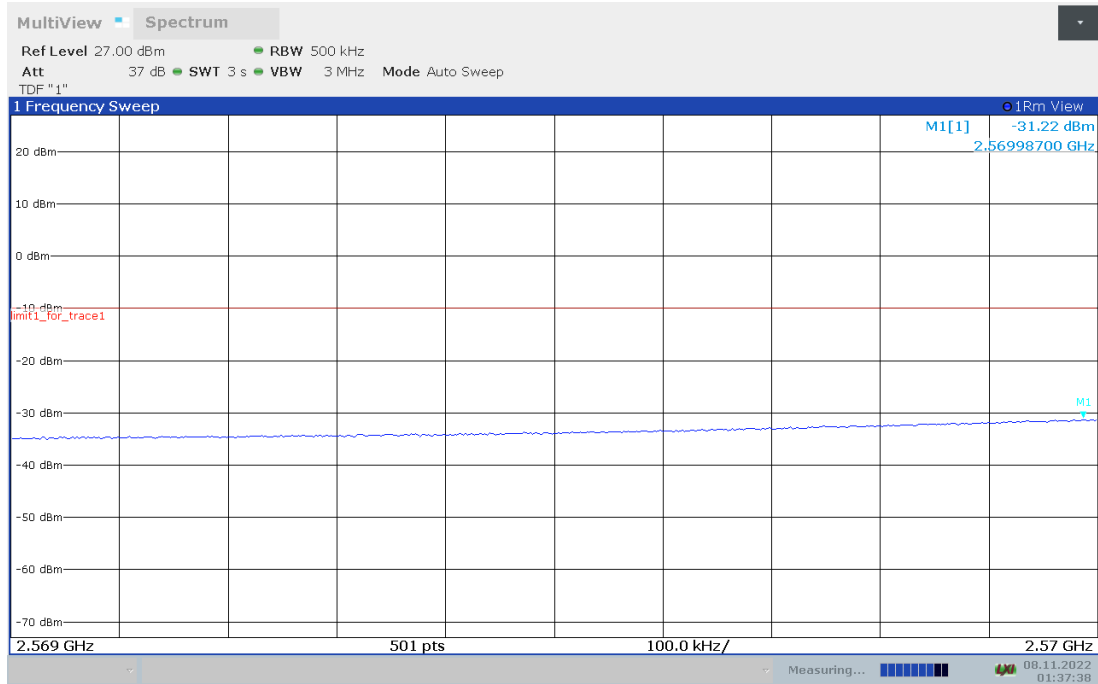


Channel power

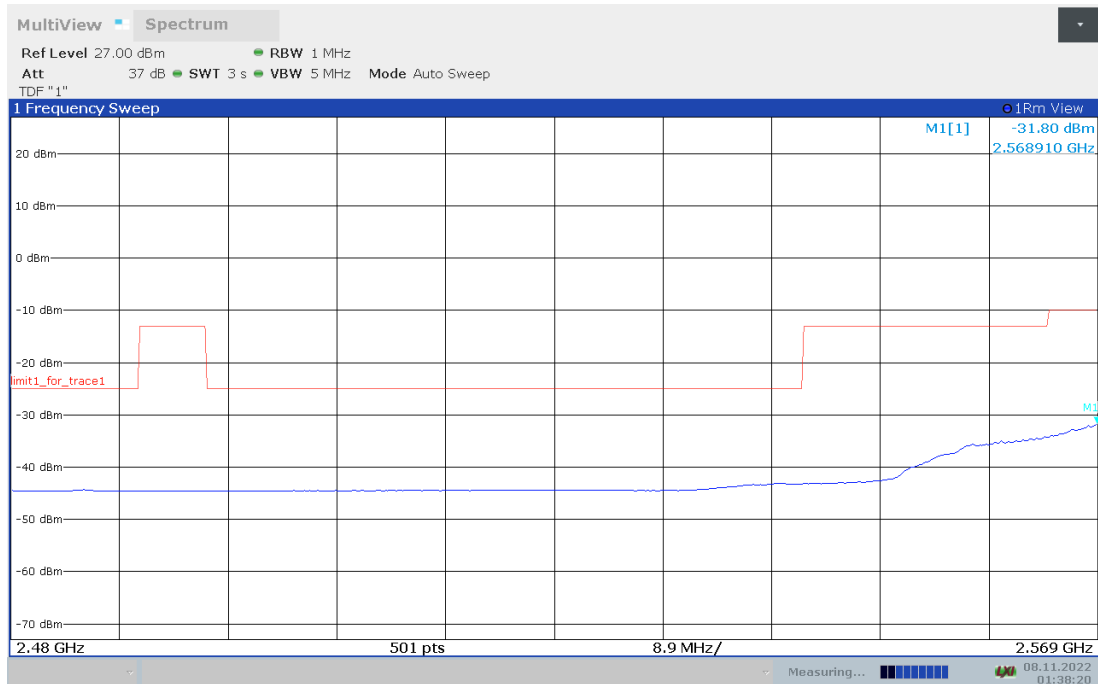




LOW BAND EDGE BLOCK-20M-100%RB

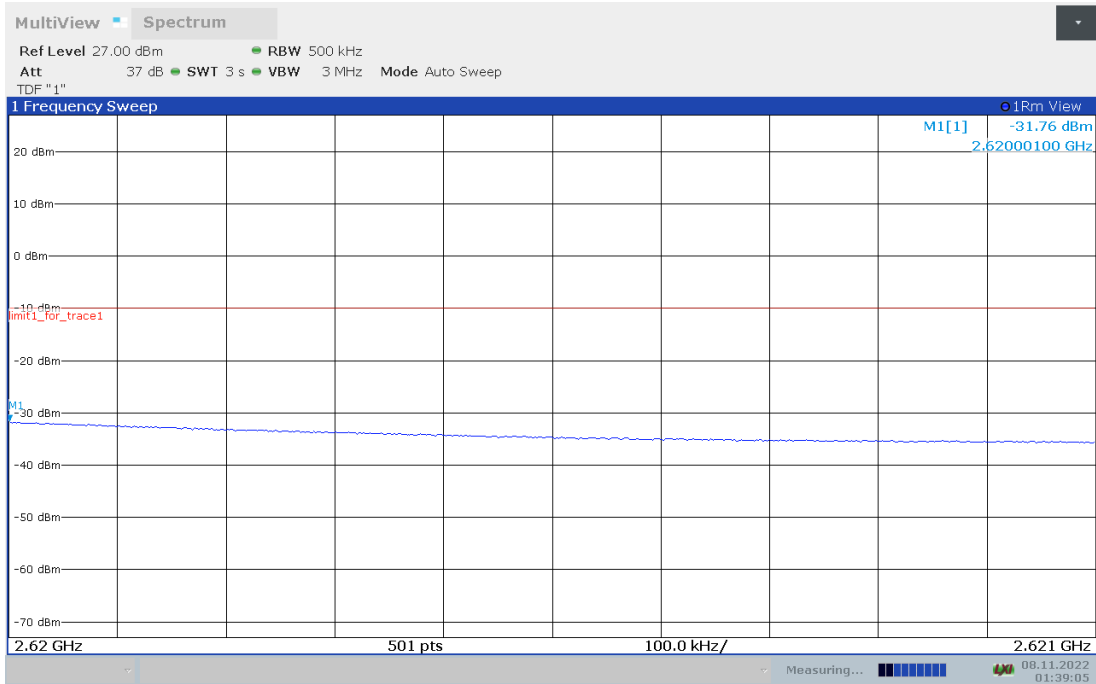


LOW BAND EDGE BLOCK-20M-100%RB

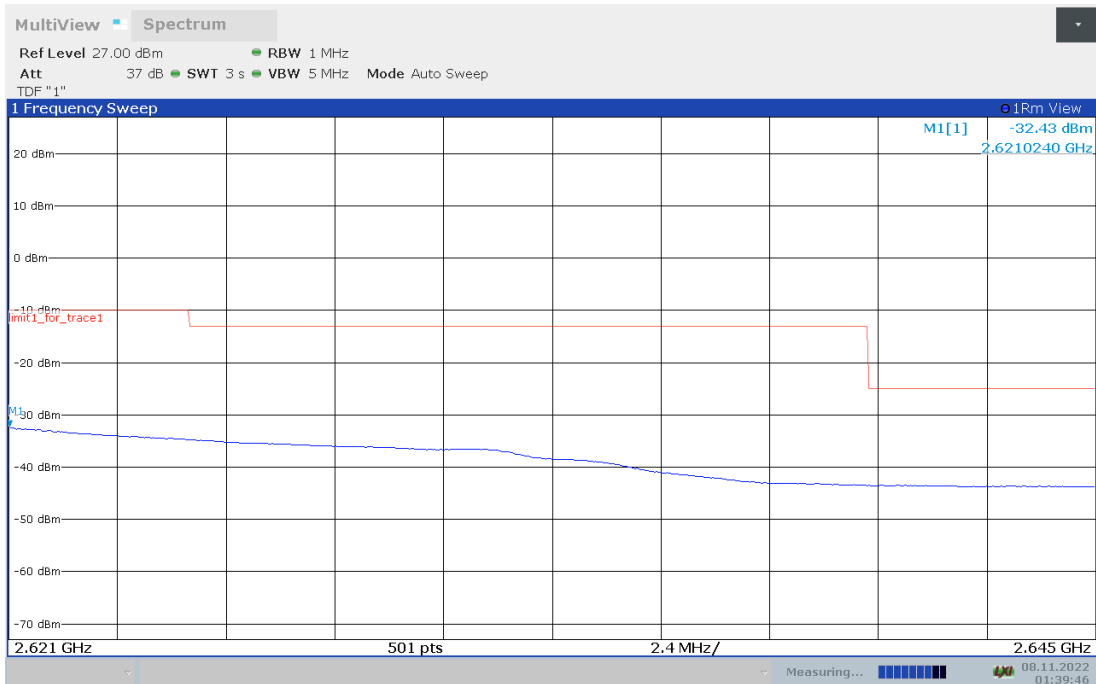




HIGH BAND EDGE BLOCK-20M-100%RB

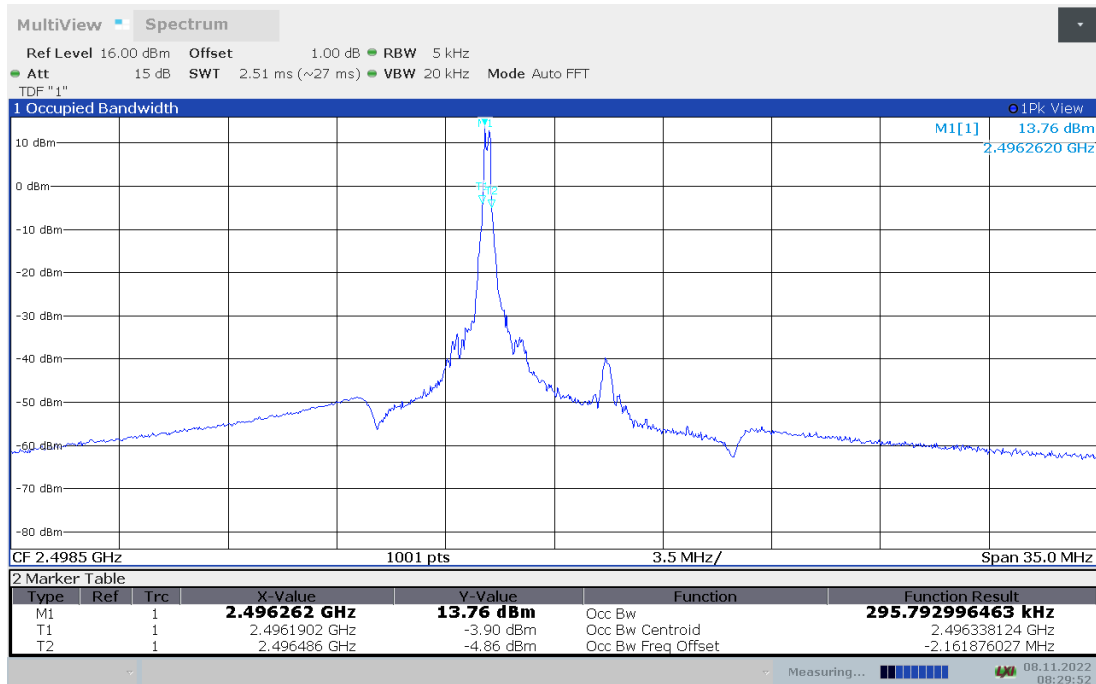


HIGH BAND EDGE BLOCK-20M-100%RB

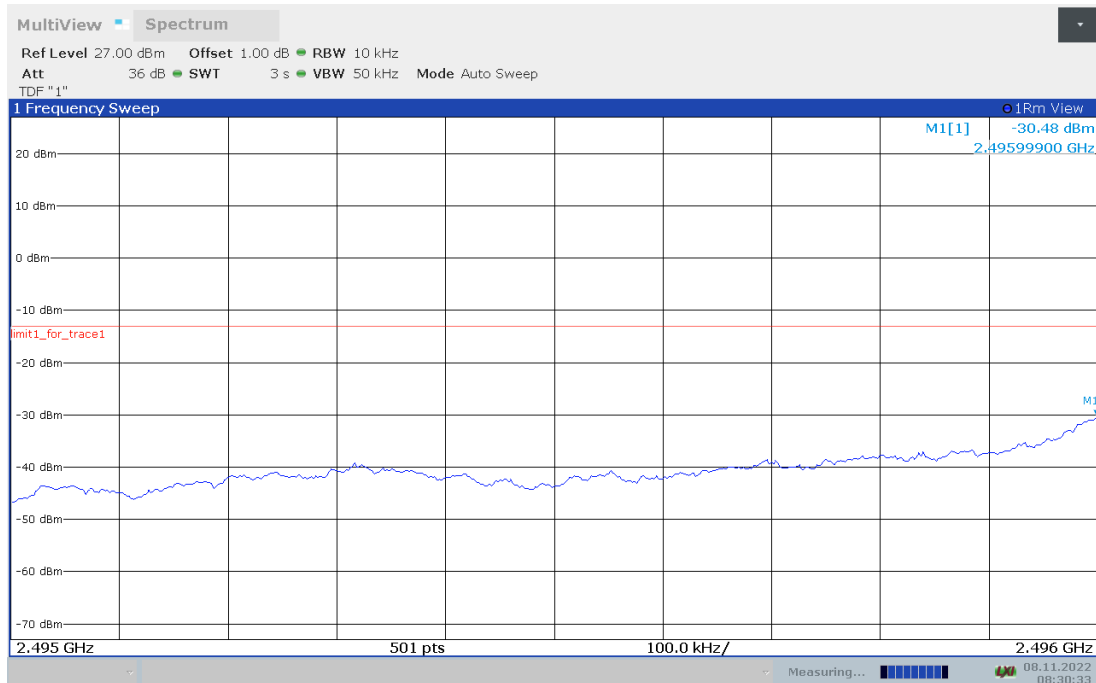


LTE band 41

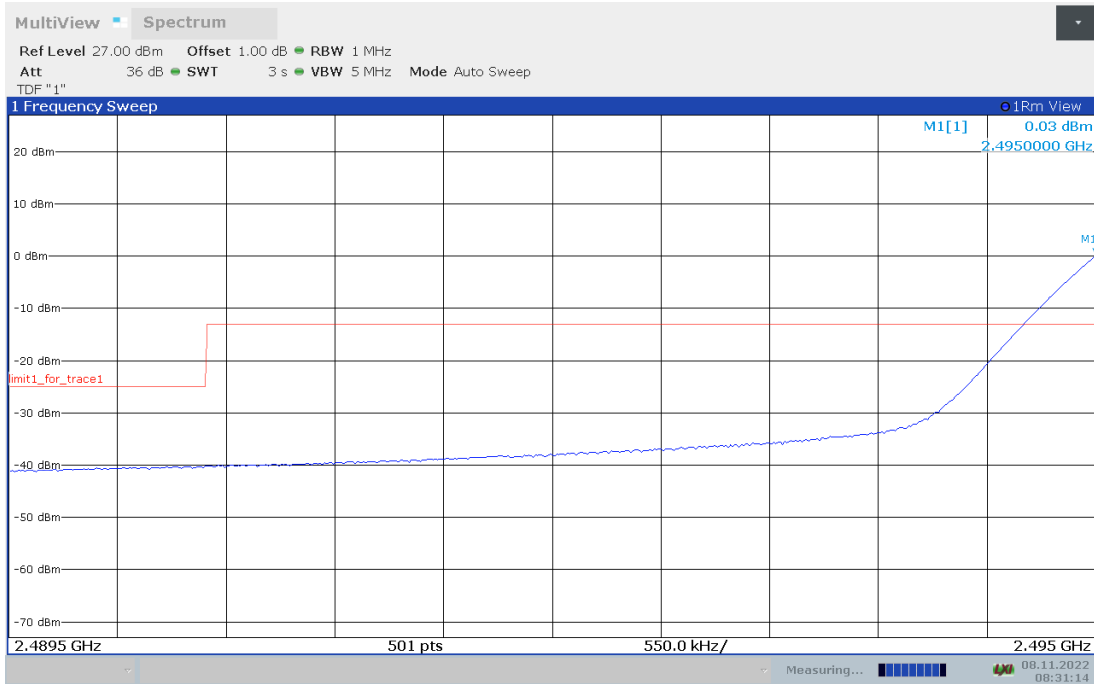
OBW: 1RB-LOW_offset



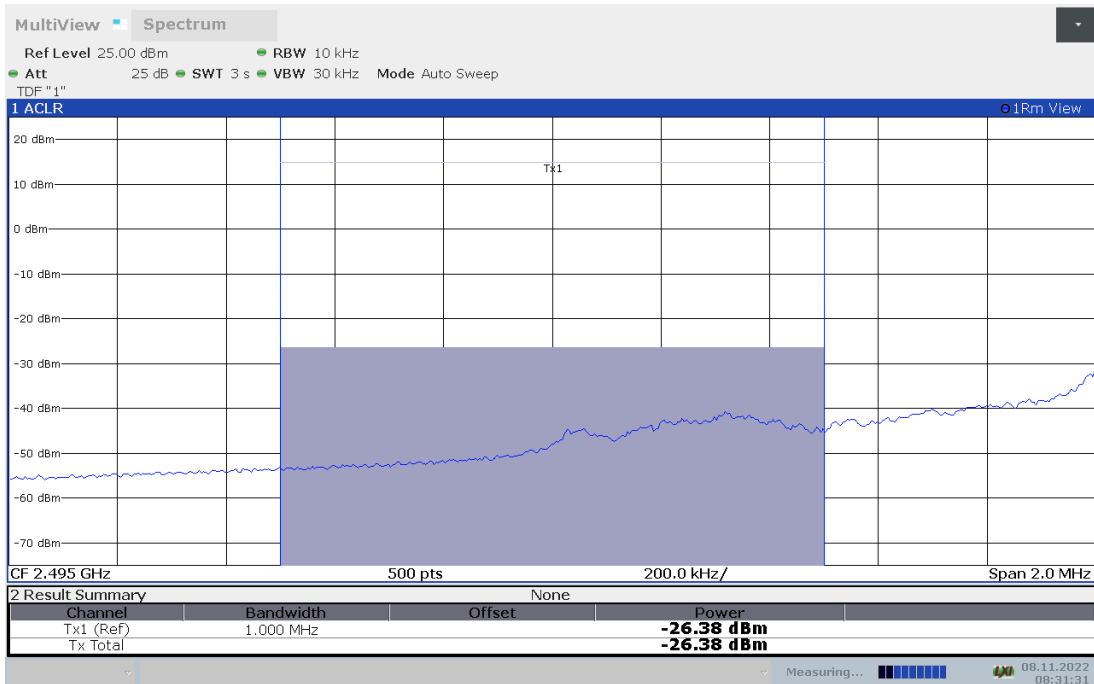
LOW BAND EDGE BLOCK-1RB-LOW_offset



LOW BAND EDGE BLOCK-1RB-LOW_offset

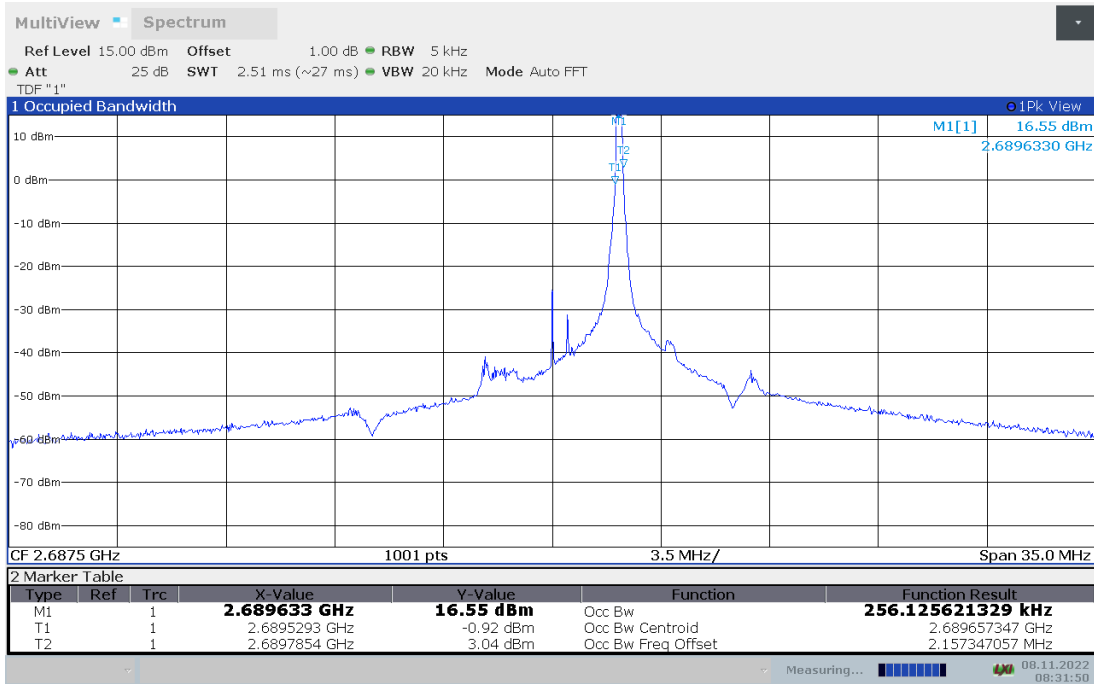


Channel power

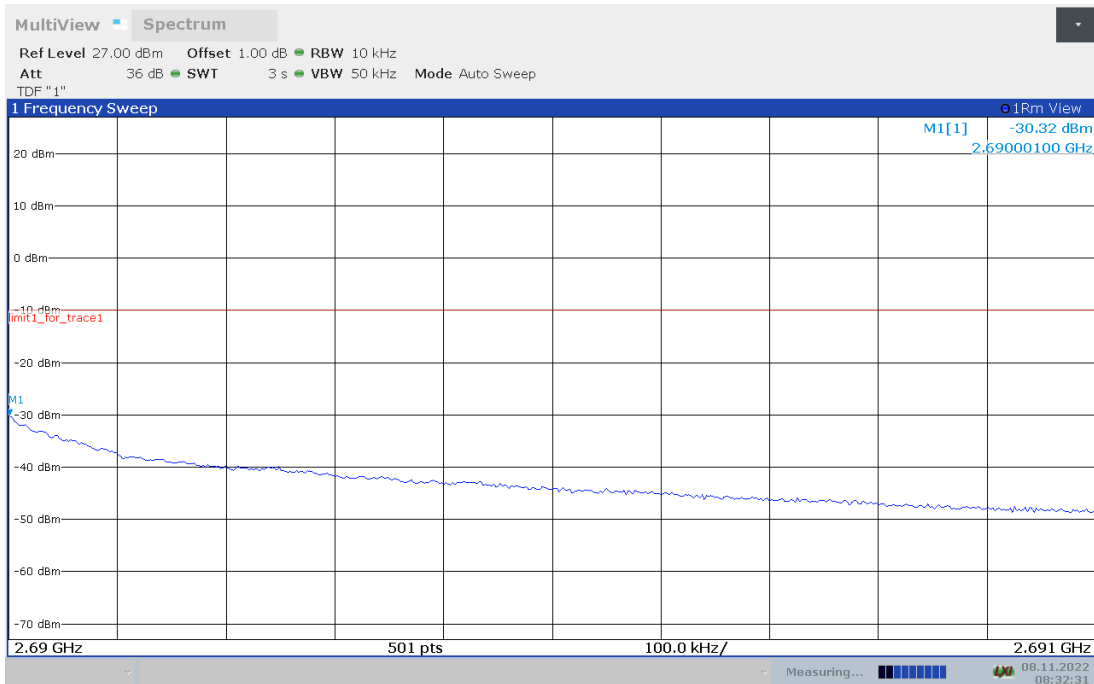




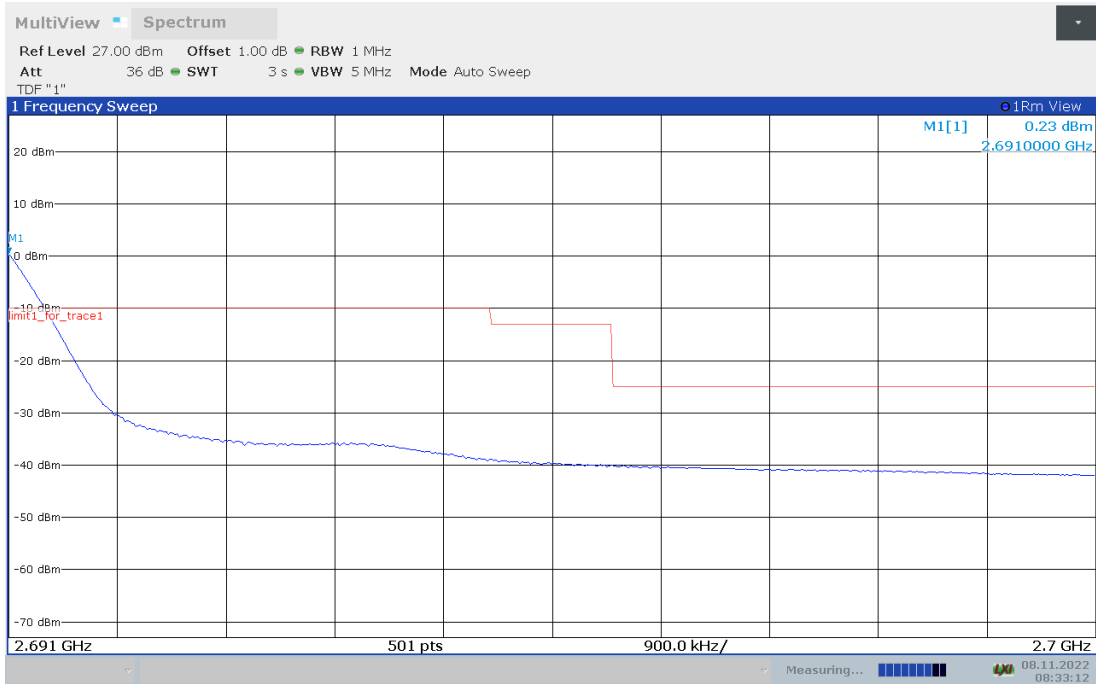
OBW: 1RB-HIGH_offset



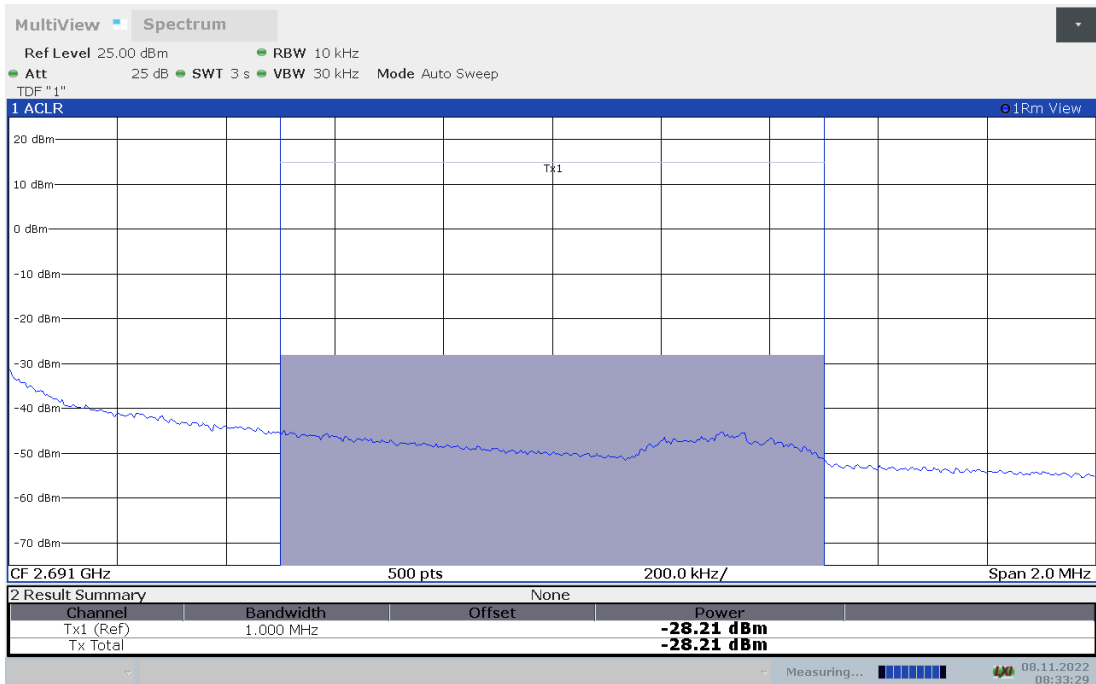
HIGH BAND EDGE BLOCK-1RB-HIGH_offset



HIGH BAND EDGE BLOCK-1RB-HIGH_offset

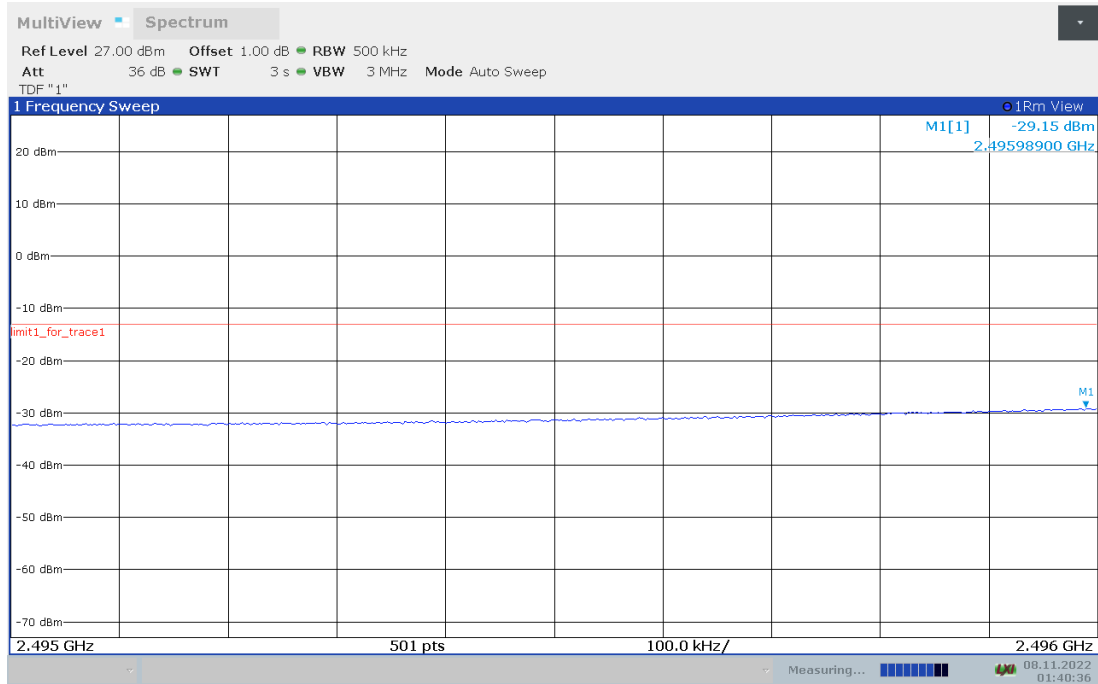


Channel power

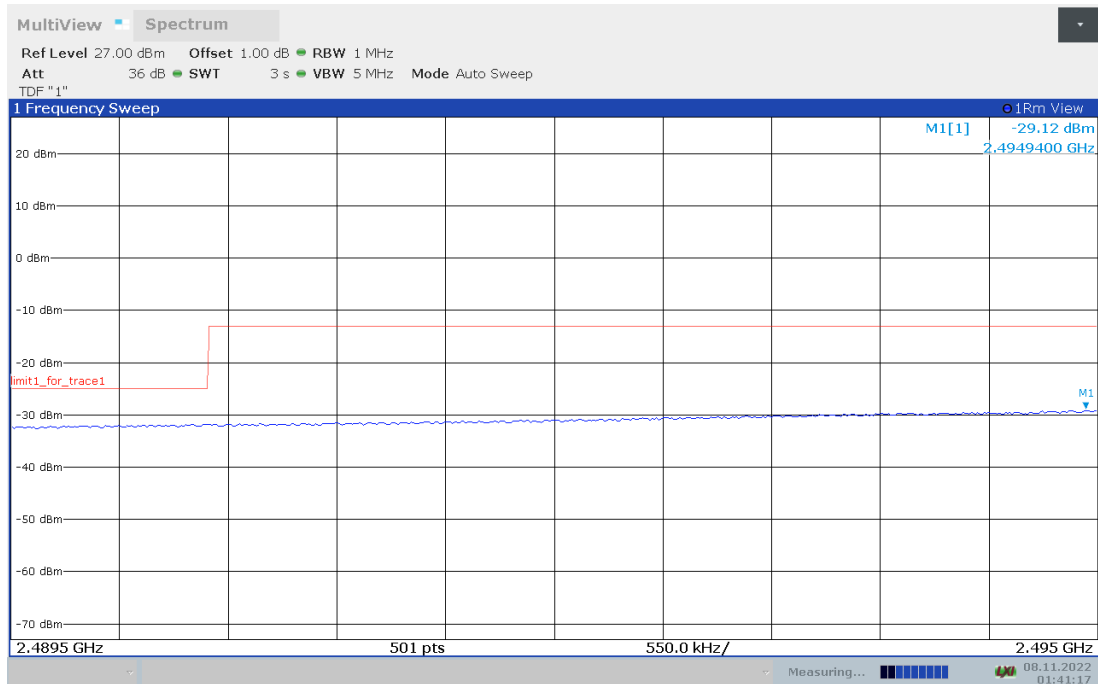




LOW BAND EDGE BLOCK-20M-100%RB

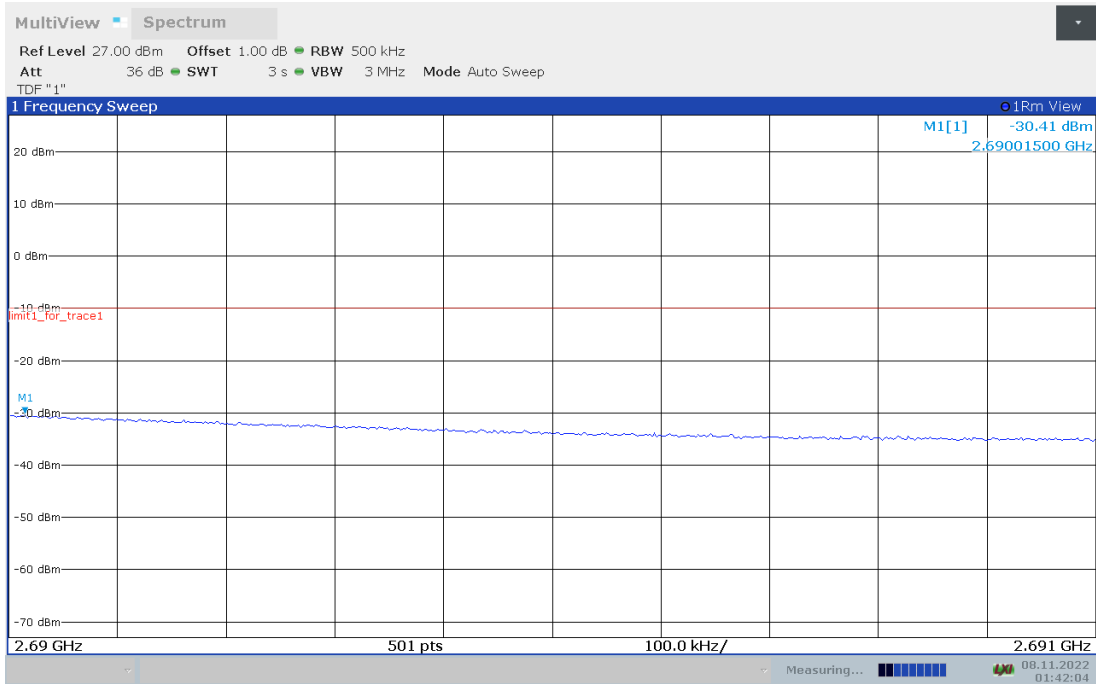


LOW BAND EDGE BLOCK-20M-100%RB

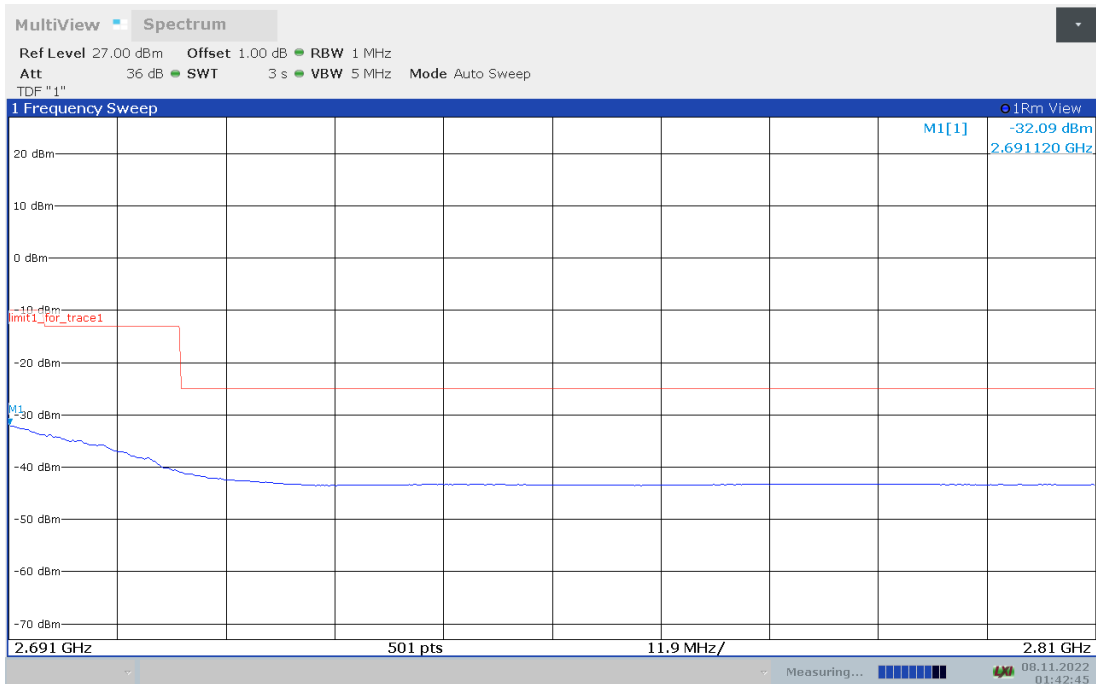




HIGH BAND EDGE BLOCK-20M-100%RB

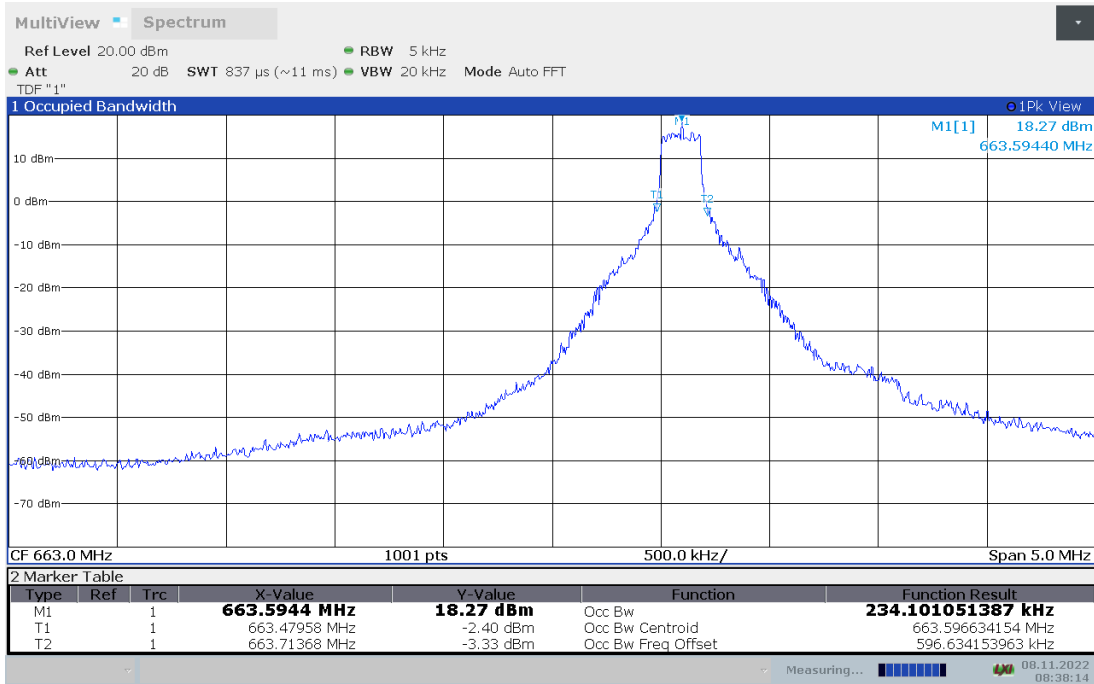


HIGH BAND EDGE BLOCK-20M-100%RB

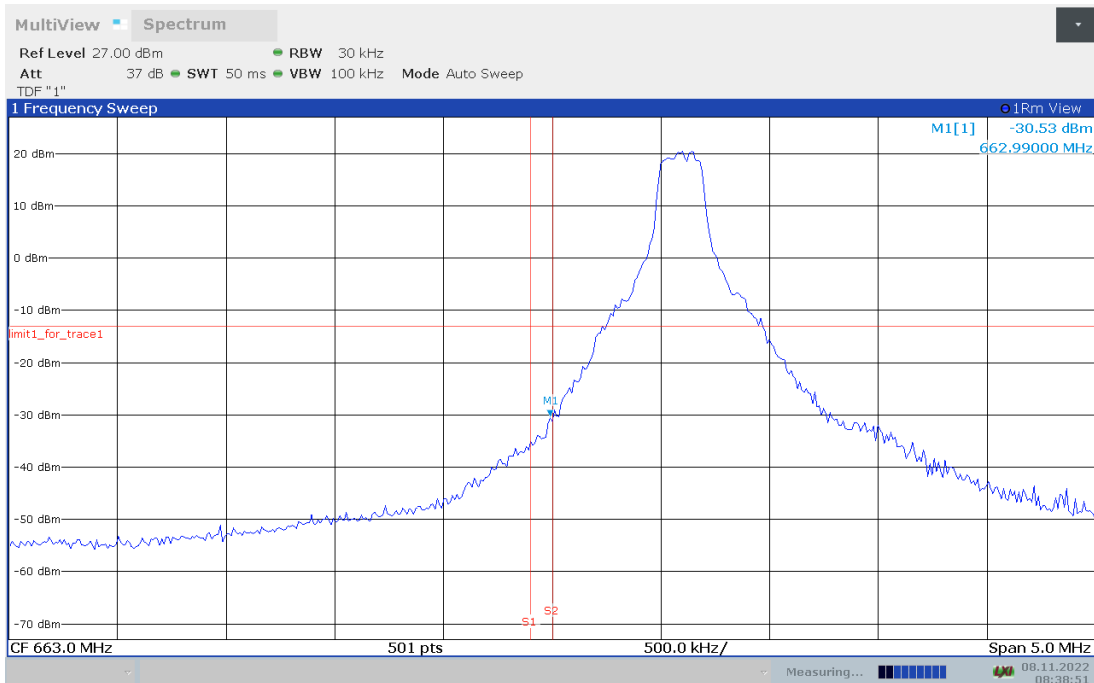


LTE band 71

OBW: 1RB-LOW_offset

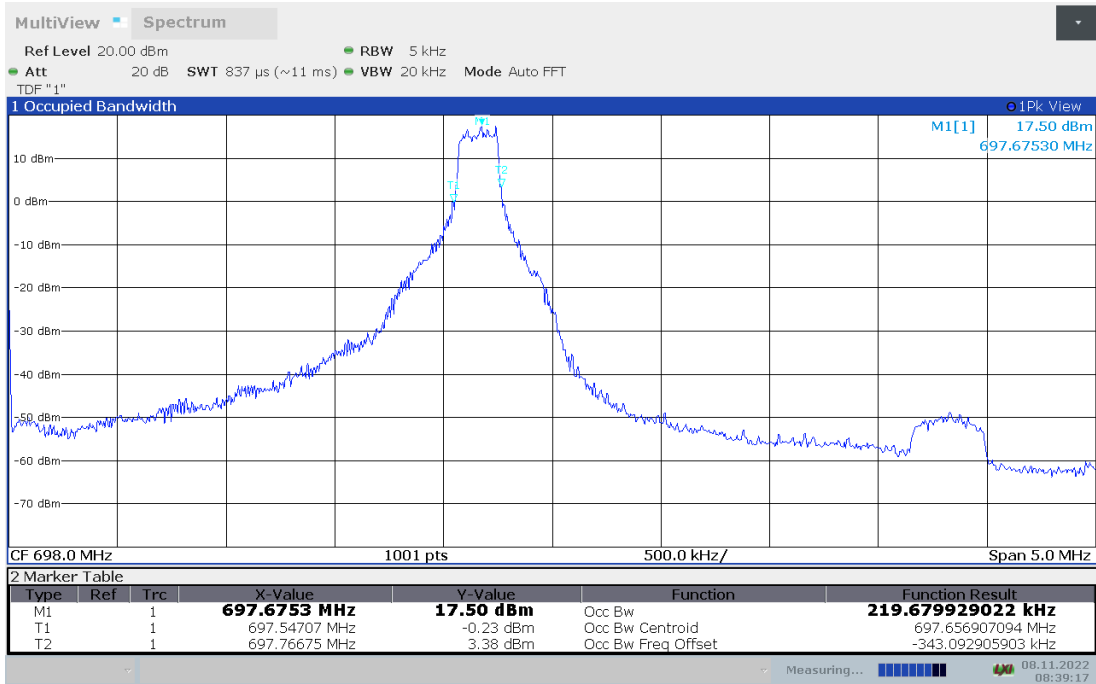


LOW BAND EDGE BLOCK-1RB-LOW_offset

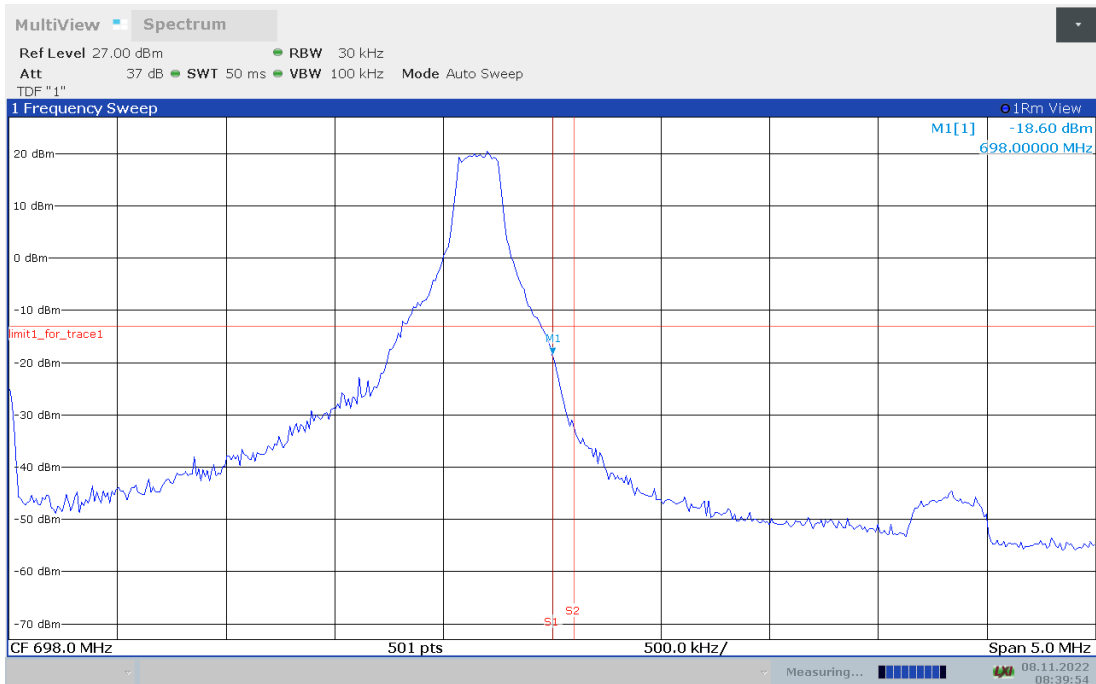




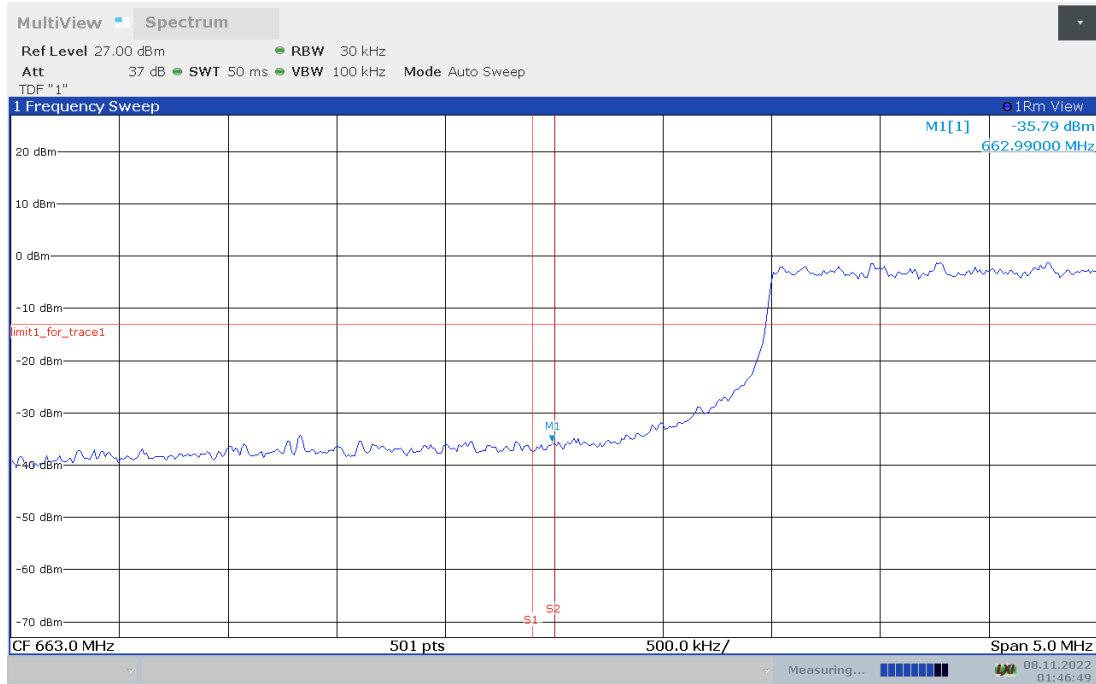
OBW: 1RB-HIGH_offset



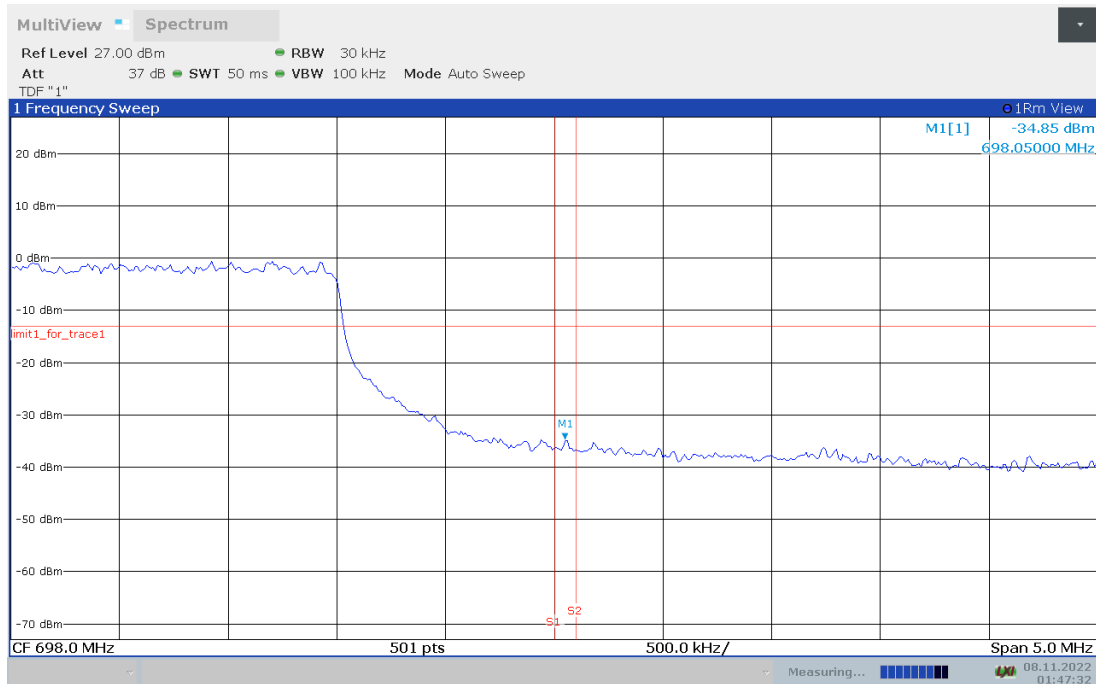
HIGH BAND EDGE BLOCK-1RB-HIGH_offset



LOW BAND EDGE BLOCK-20M-100%RB



HIGH BAND EDGE BLOCK-20M-100%RB



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 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.

The specification that emissions shall be attenuated below the transmitter power (P) by at least $43 + 10 \log(P)$ dB, translates in the relevant power range (1 to 0.001 W) to -13 dBm. At 1 W the specified minimum attenuation becomes 43 dB and relative to a 30 dBm (1 W) carrier becomes a limit of -13 dBm. At 0.001 W (0 dBm) the minimum attenuation is 13 dB, which again yields a limit of -13 dBm. In this way a translation of the specification from relative to absolute terms is carried out.

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(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 2300MHz, $61 + 10 \log (P)$ 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.

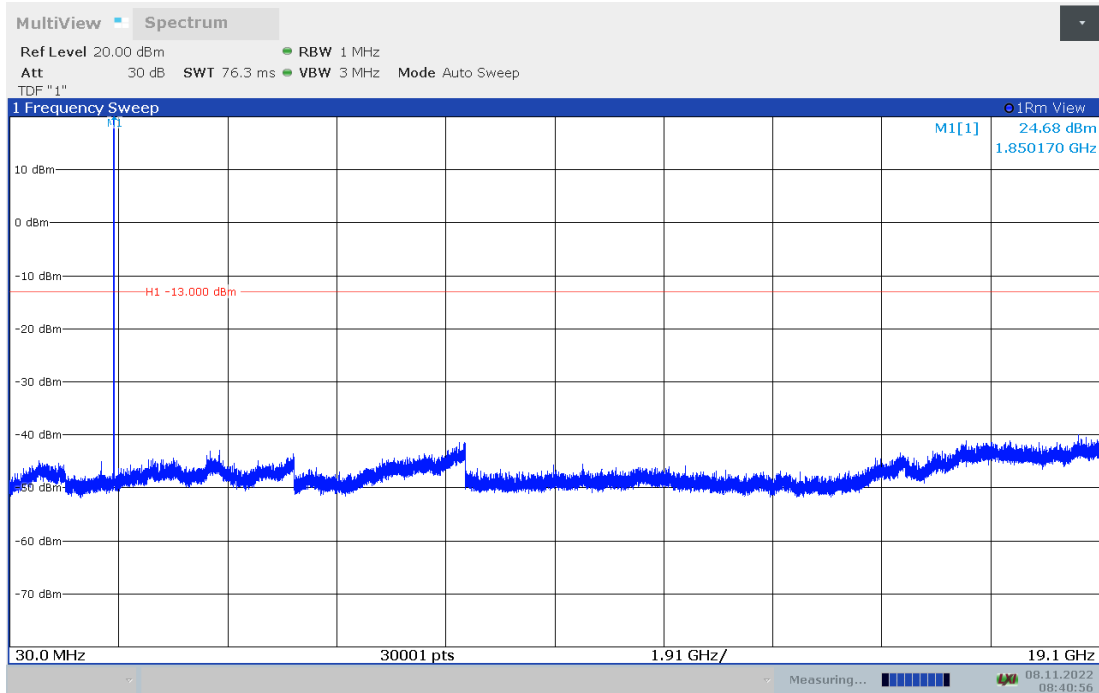
A. 7.3 Measurement result

Only worst case result is given below

LTE band 2 : 30MHz – 19.1GHz

Spurious emission limit –13dBm.

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

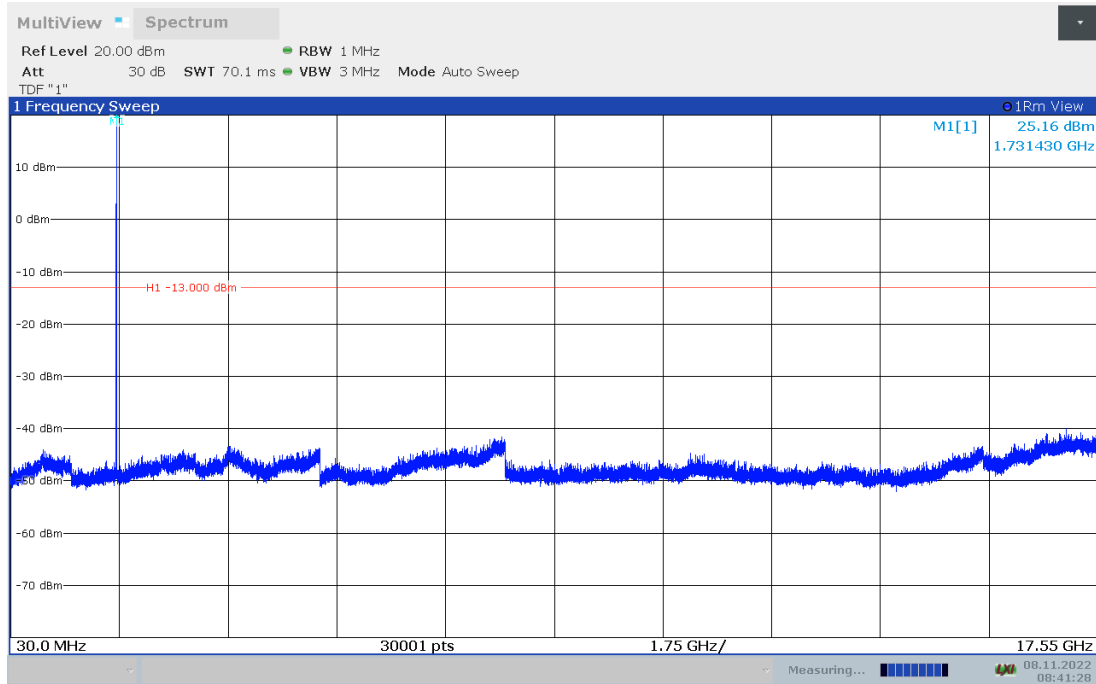




LTE band 4 : 30MHz – 17.55GHz

Spurious emission limit –13dBm.

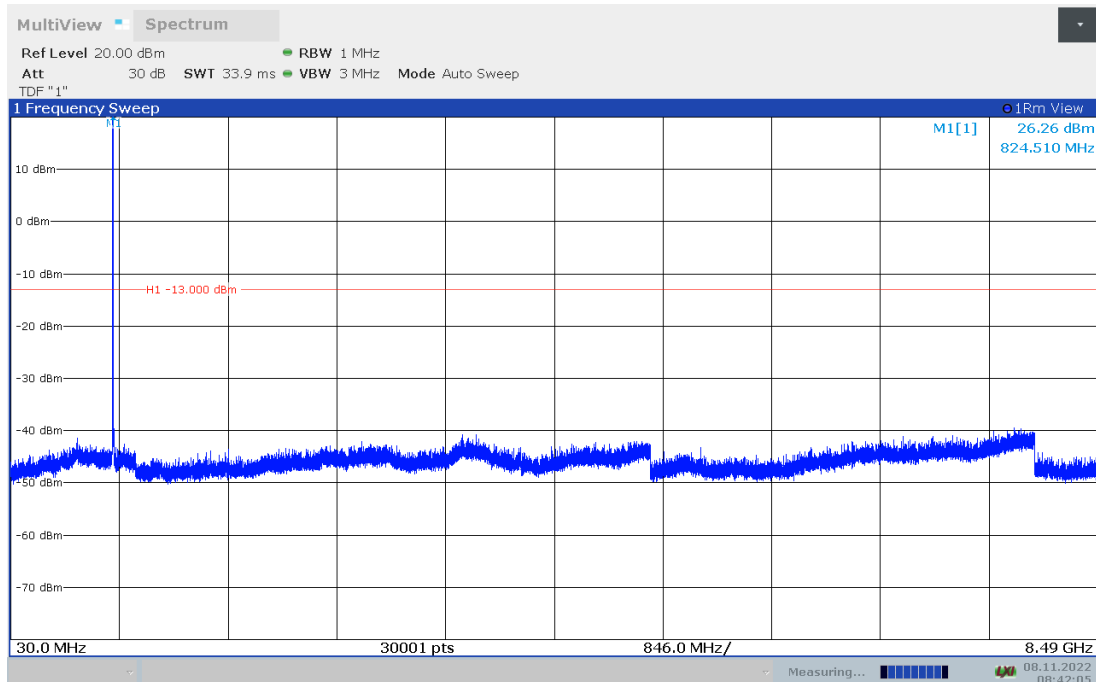
NOTE: peak above the limit line is the carrier frequency.



LTE band 5 20MHz QPSK: 30MHz – 8.49GHz

Spurious emission limit –25dBm.

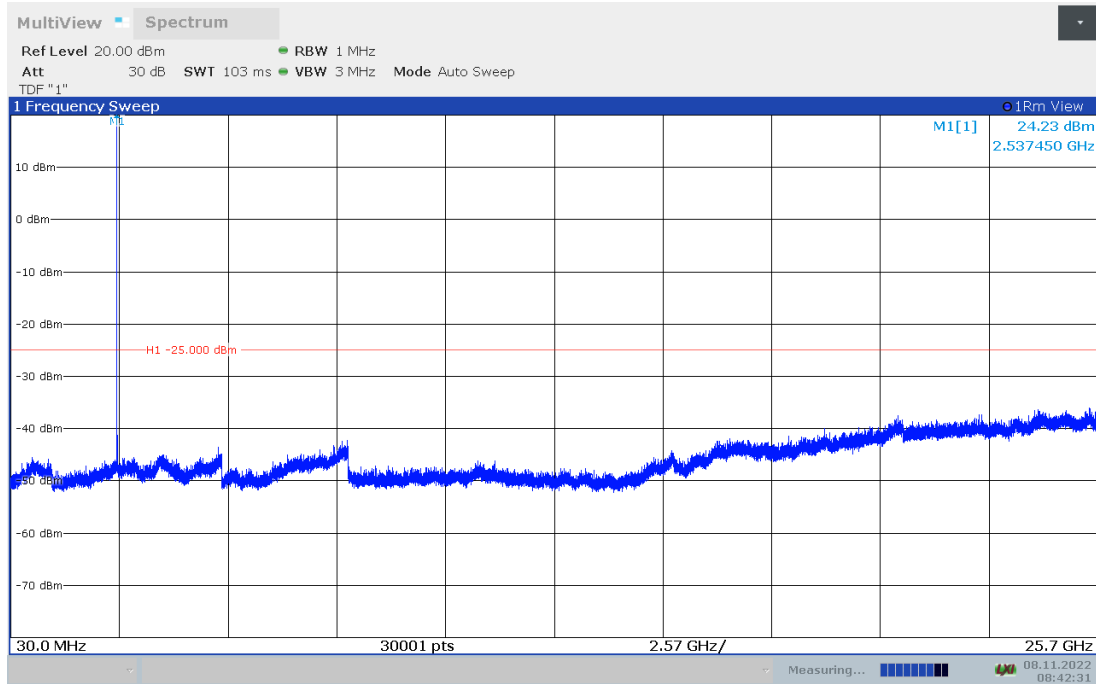
NOTE: peak above the limit line is the carrier frequency.



LTE band 7 20MHz QPSK: 30MHz – 25.7GHz

Spurious emission limit –25dBm.

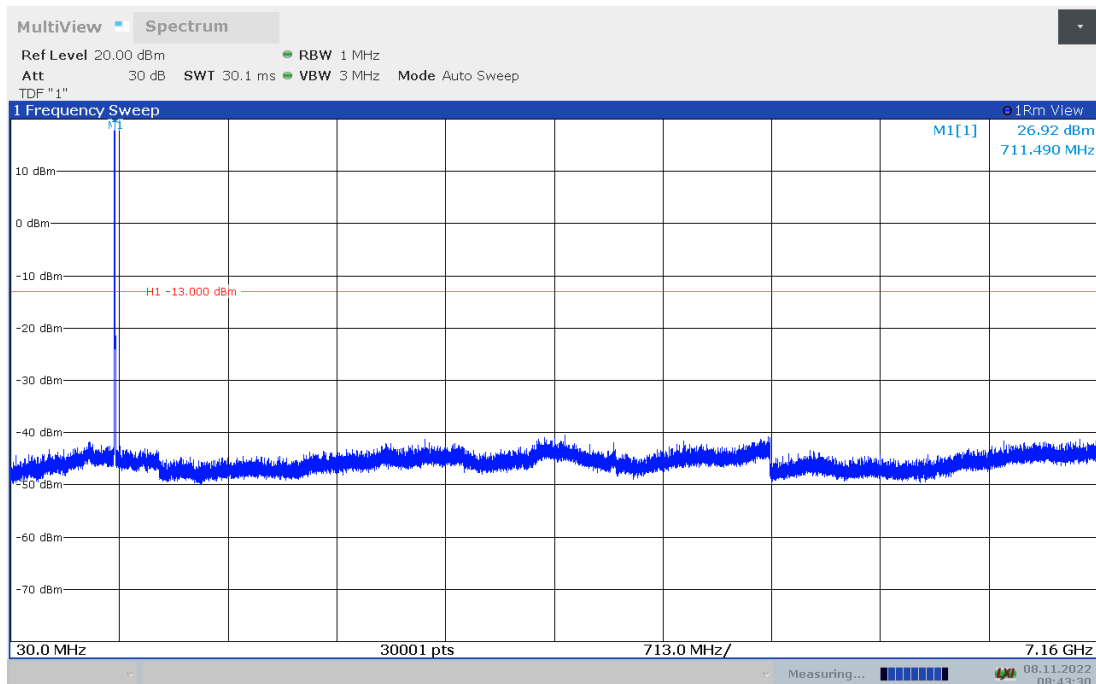
NOTE: peak above the limit line is the carrier frequency.



LTE band 17: 30MHz – 7.16GHz

Spurious emission limit –13dBm.

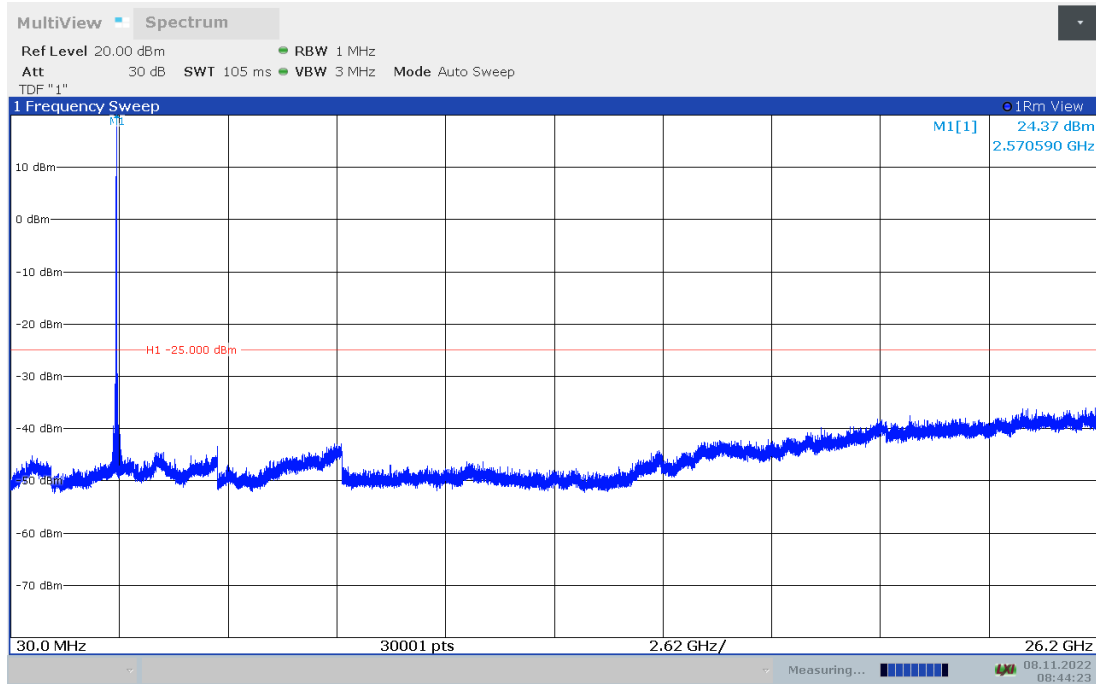
NOTE: peak above the limit line is the carrier frequency.



LTE band 38: 30MHz – 26.2GHz

Spurious emission limit –25dBm.

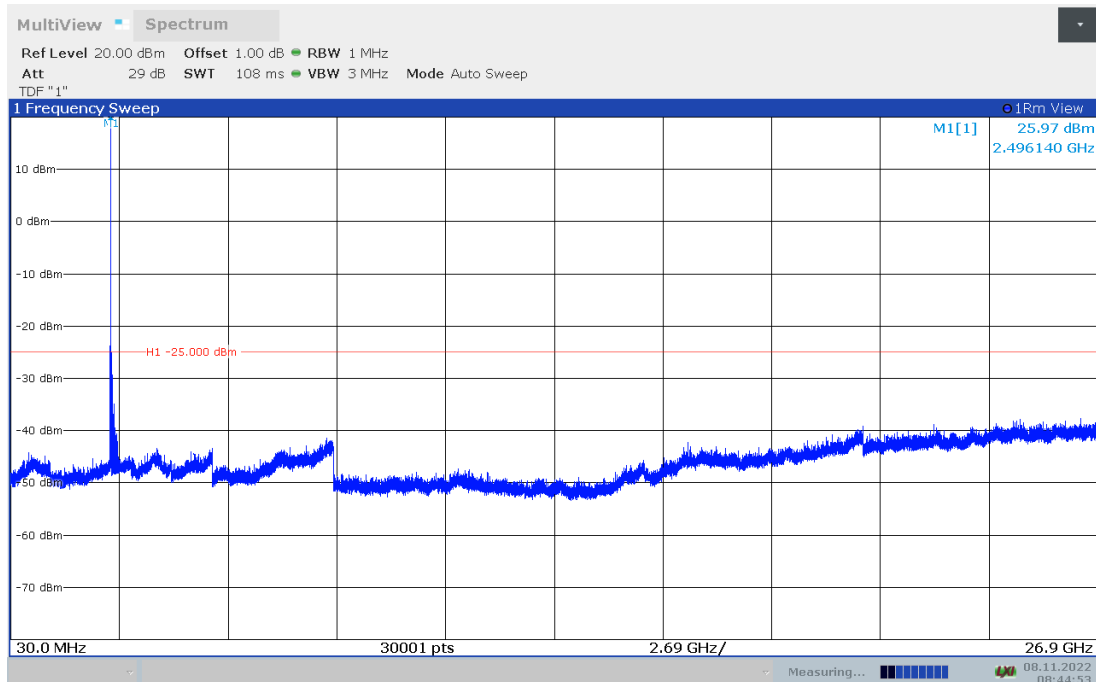
NOTE: peak above the limit line is the carrier frequency.



LTE band 41: 30MHz – 26.9GHz

Spurious emission limit –25dBm.

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

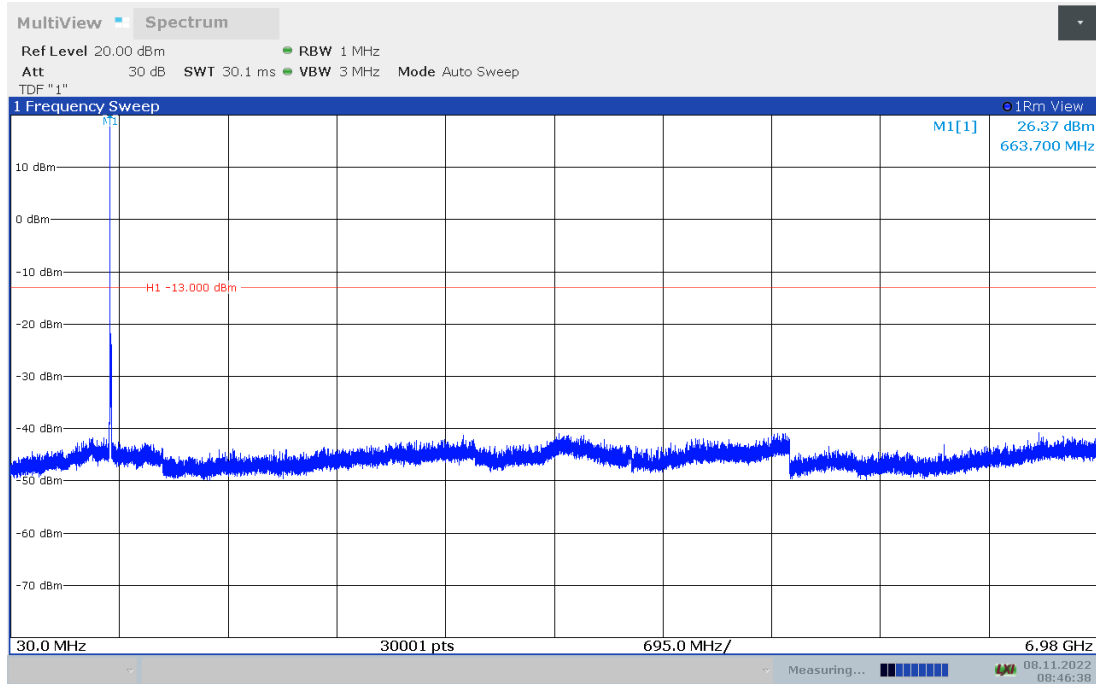




LTE Band 71: 30MHz – 6.98GHz

Spurious emission limit –13dBm.

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



A.8 PEAK-TO-AVERAGE POWER RATIO

The peak-to-average power ratio (PAPR) 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

Only worst case result is given below

LTE band 2

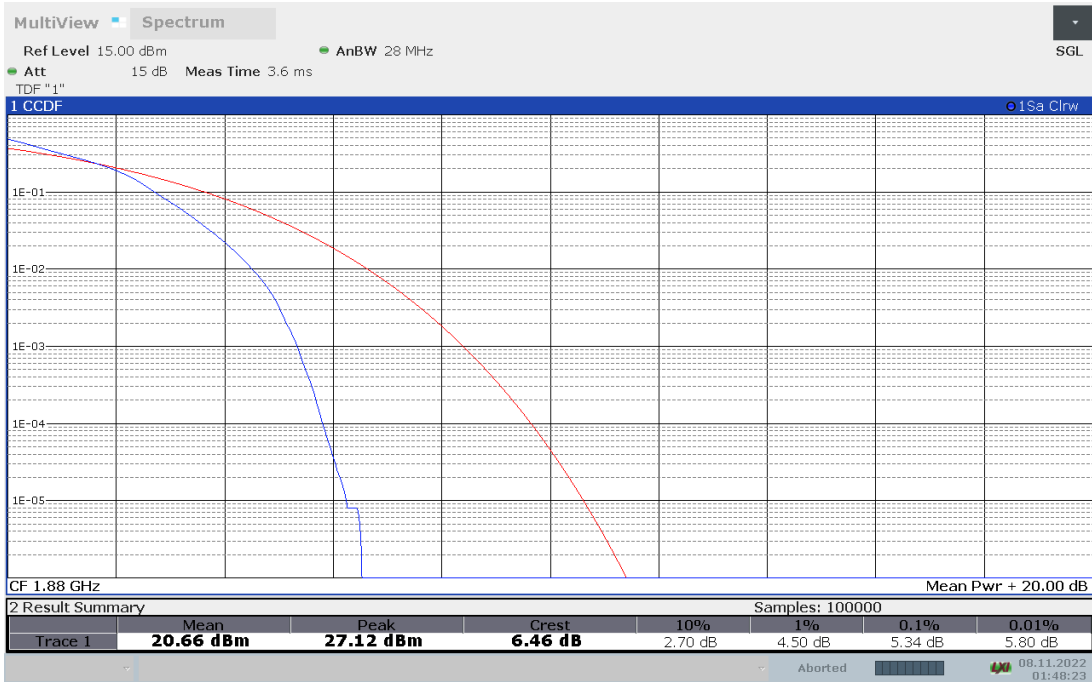
Frequency(MHz)	Bandwidth(MHz)	PAPR(dB)	
		QPSK	16QAM
1880.0	20	4.64	5.34

LTE band 2, 20MHz Bandwidth, QPSK (PAPR)





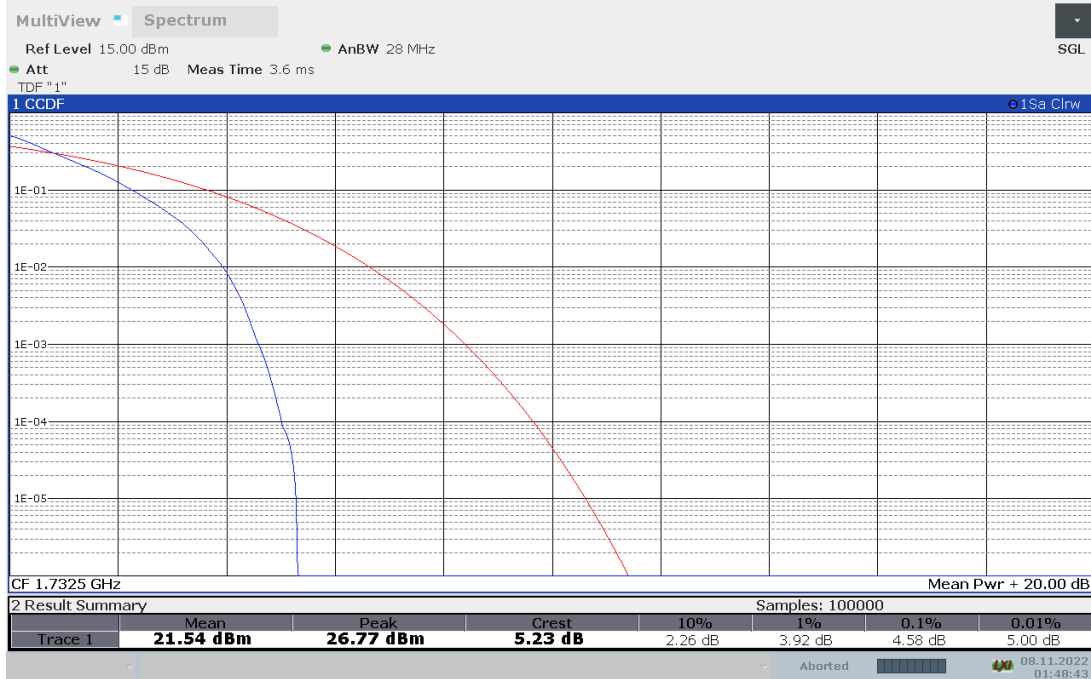
LTE band 2, 20MHz Bandwidth, 16QAM (PAPR)



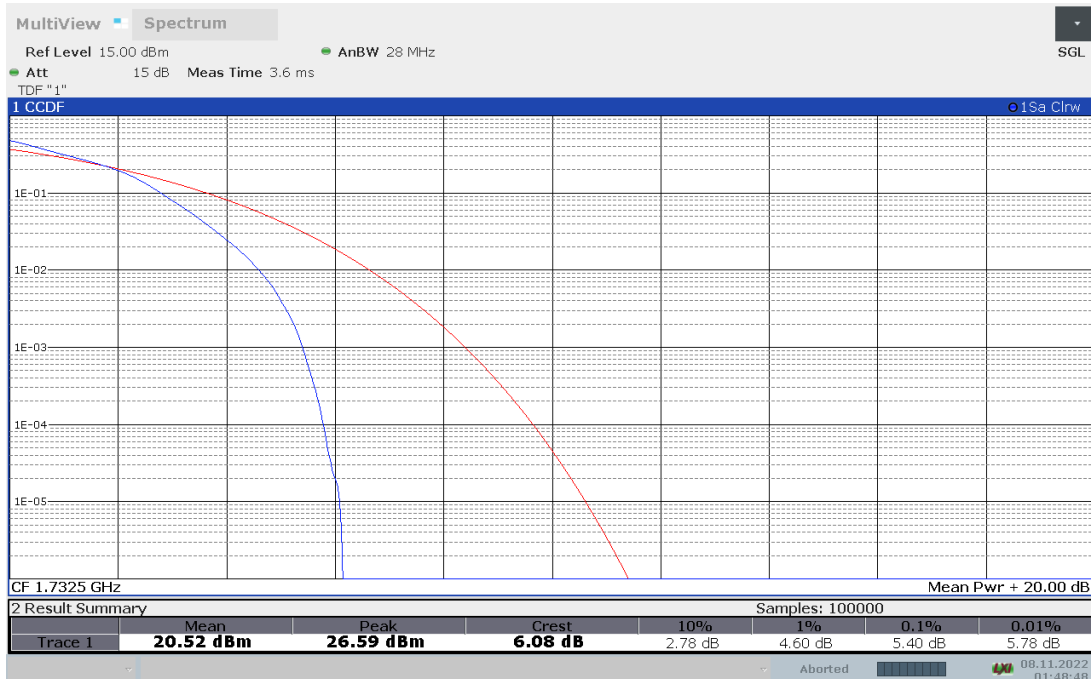
LTE band 4

Frequency(MHz)	Bandwidth(MHz)	PAPR(dB)	
		QPSK	16QAM
1732.5	20	4.58	5.40

LTE band 4, 20MHz Bandwidth, QPSK (PAPR)



LTE band 4, 20MHz Bandwidth, 16QAM (PAPR)



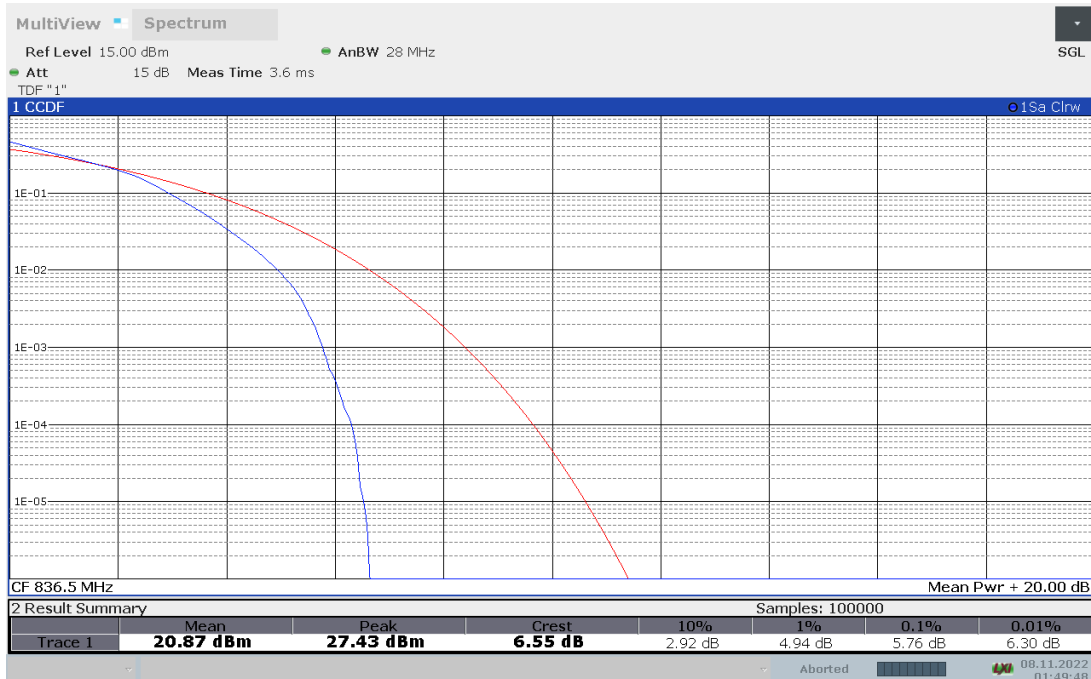
LTE band 5

Frequency(MHz)	Bandwidth(MHz)	PAPR(dB)	
		QPSK	16QAM
826.5	10	4.94	5.76

LTE band 5, 10MHz Bandwidth, QPSK (PAPR)



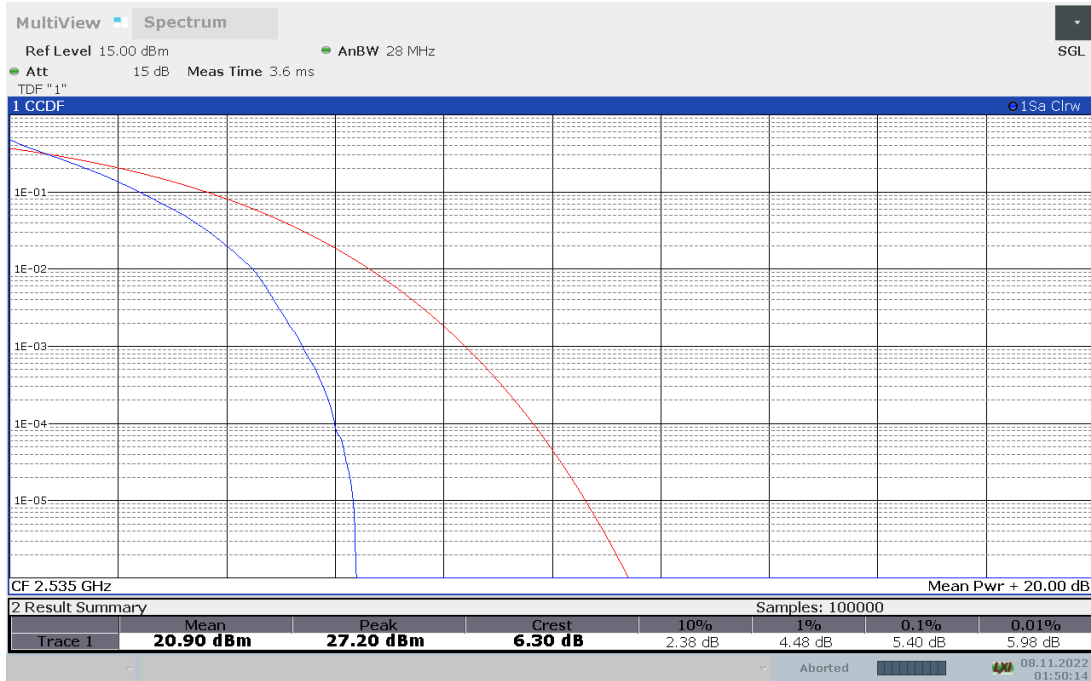
LTE band 5, 10MHz Bandwidth, 16QAM (PAPR)



LTE band 7

Frequency(MHz)	Bandwidth(MHz)	PAPR(dB)	
		QPSK	16QAM
2535.0	20	5.40	6.08

LTE band 7, 20MHz Bandwidth, QPSK (PAPR)



LTE band 7, 20MHz Bandwidth, 16QAM (PAPR)

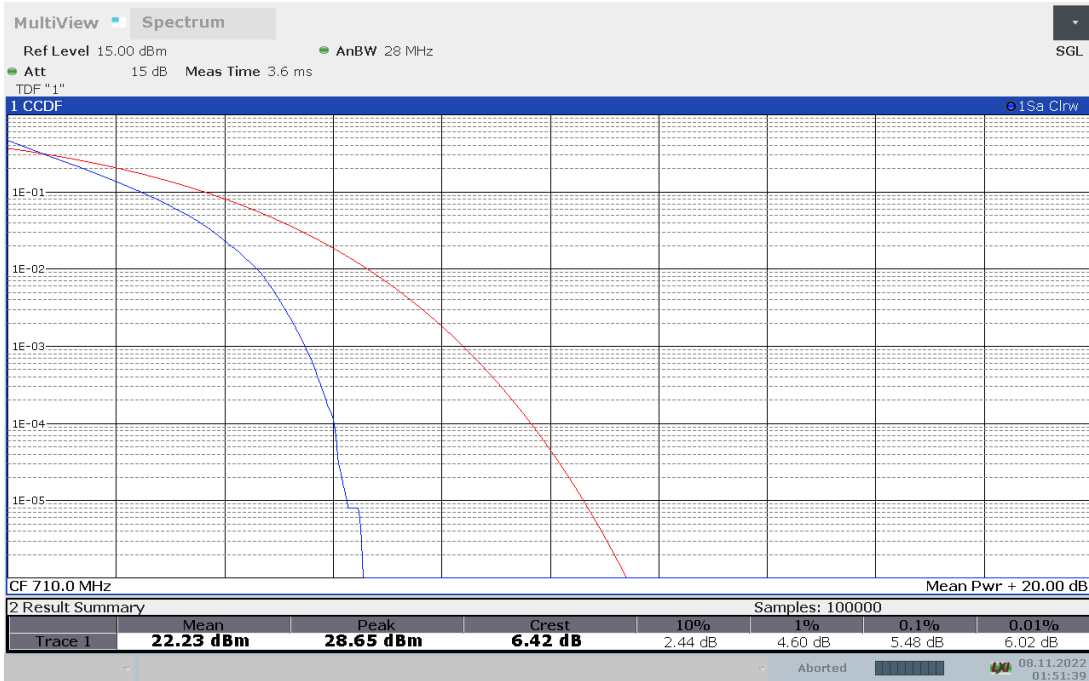




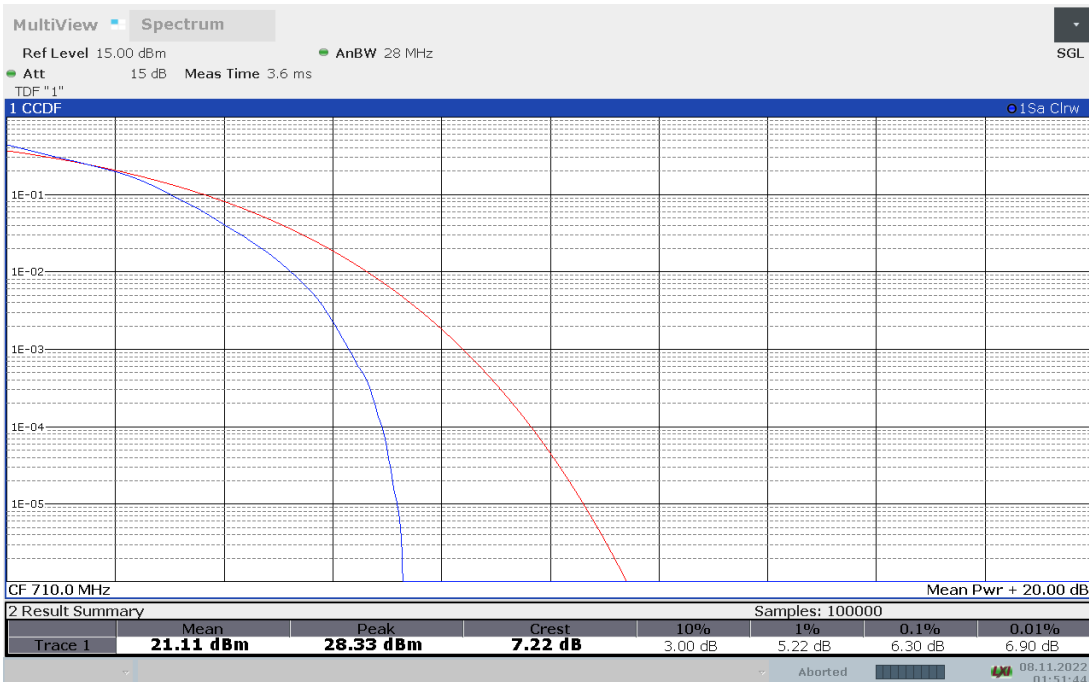
LTE band 17

Frequency(MHz)	Bandwidth(MHz)	PAPR(dB)	
		QPSK	16QAM
710.0	10	5.48	6.30

LTE band 17, 20MHz Bandwidth, QPSK (PAPR)



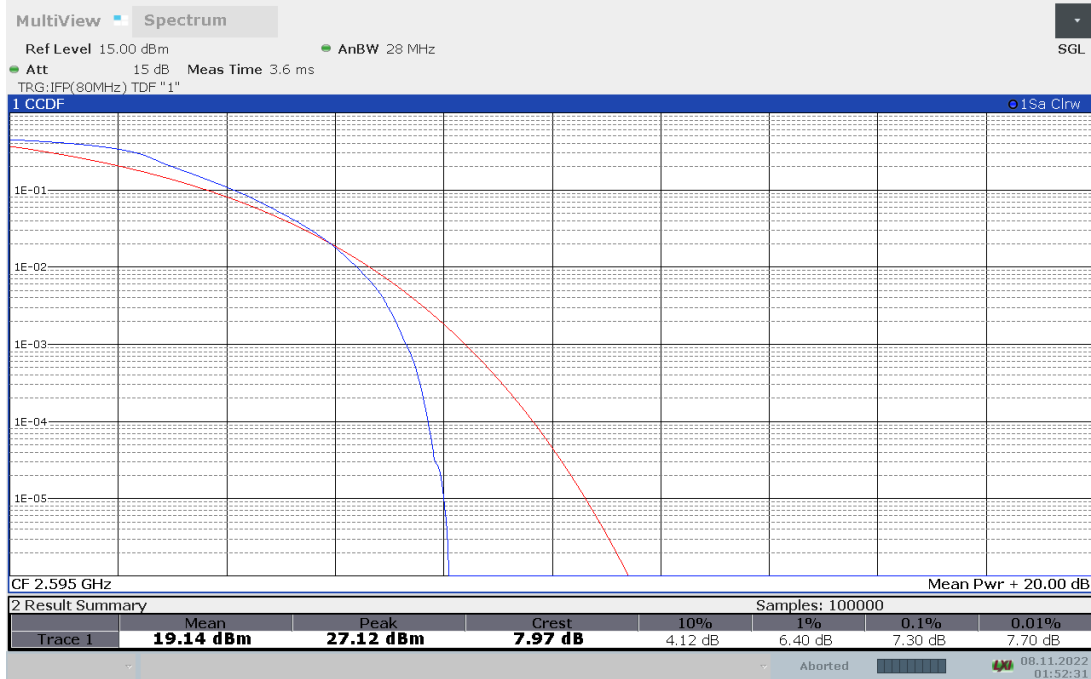
LTE band 17, 20MHz Bandwidth, 16QAM (PAPR)



LTE band 38

Frequency(MHz)	Bandwidth(MHz)	PAPR(dB)	
		QPSK	16QAM
2595.0	20	7.30	8.08

LTE band 38, 20MHz Bandwidth, QPSK (PAPR)



LTE band 38, 20MHz Bandwidth, 16QAM (PAPR)

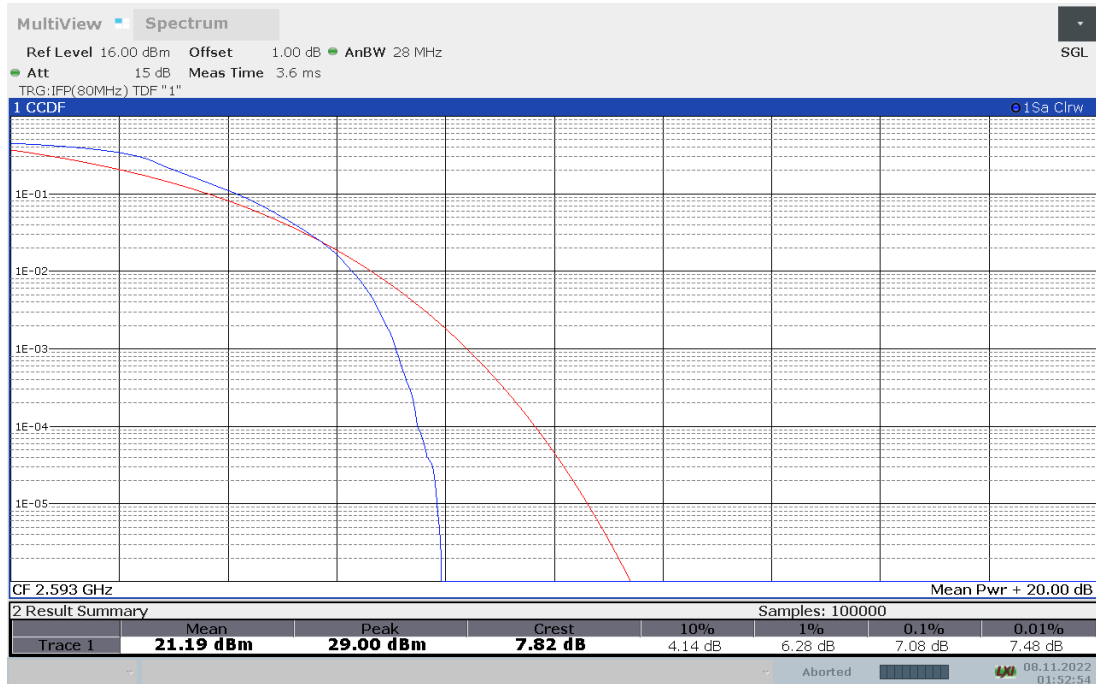




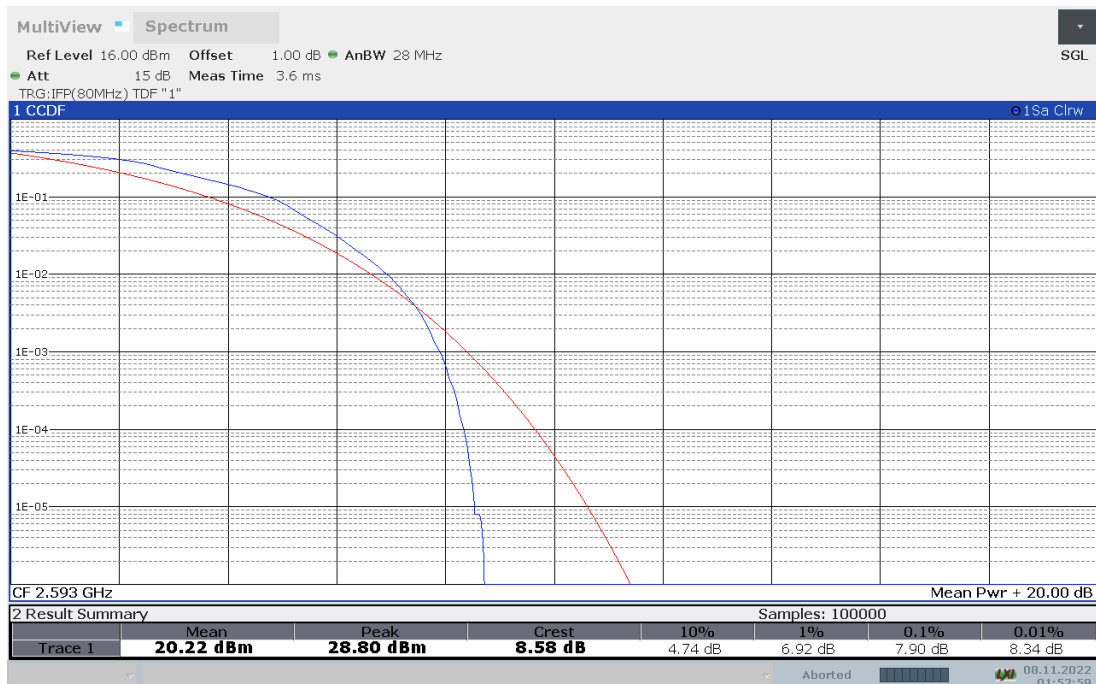
LTE band 41

Frequency(MHz)	Bandwidth(MHz)	PAPR(dB)	
		QPSK	16QAM
2335.0	20	7.08	7.90

LTE band 41, 20MHz Bandwidth, QPSK (PAPR)



LTE band 41, 20MHz Bandwidth, 16QAM (PAPR)

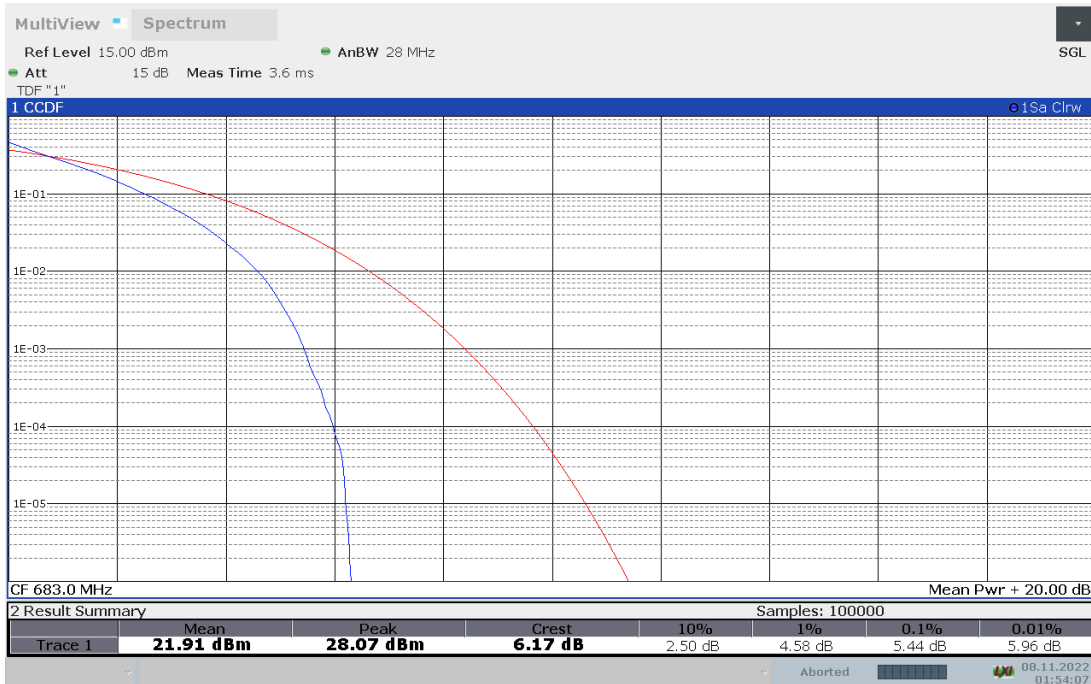




LTE band 71

Frequency(MHz)	Bandwidth(MHz)	PAPR(dB)	
		QPSK	16QAM
683.0	20	5.44	6.32

LTE band 71, 20MHz Bandwidth, QPSK (PAPR)



LTE band 71, 20MHz Bandwidth, 16QAM (PAPR)



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

ANNEX B accreditation Certificate



Accredited Laboratory

A2LA has accredited

SHENZHEN ACADEMY OF INFORMATION AND COMMUNICATIONS TECHNOLOGY

Shenzhen, People's Republic of China

for technical competence in the field of

Electrical Testing

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2017 *General requirements for the competence of testing and calibration laboratories*. This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (refer to joint ISO-ILAC-IAF Communiqué dated April 2017).



Presented this 23rd day of November 2021.



Vice President, Accreditation Services
For the Accreditation Council
Certificate Number 4353.01
Valid to November 30, 2023

For the tests to which this accreditation applies, please refer to the laboratory's Electrical Scope of Accreditation.

ANNEX C Certificate of Brand Authorization



END OF REPORT