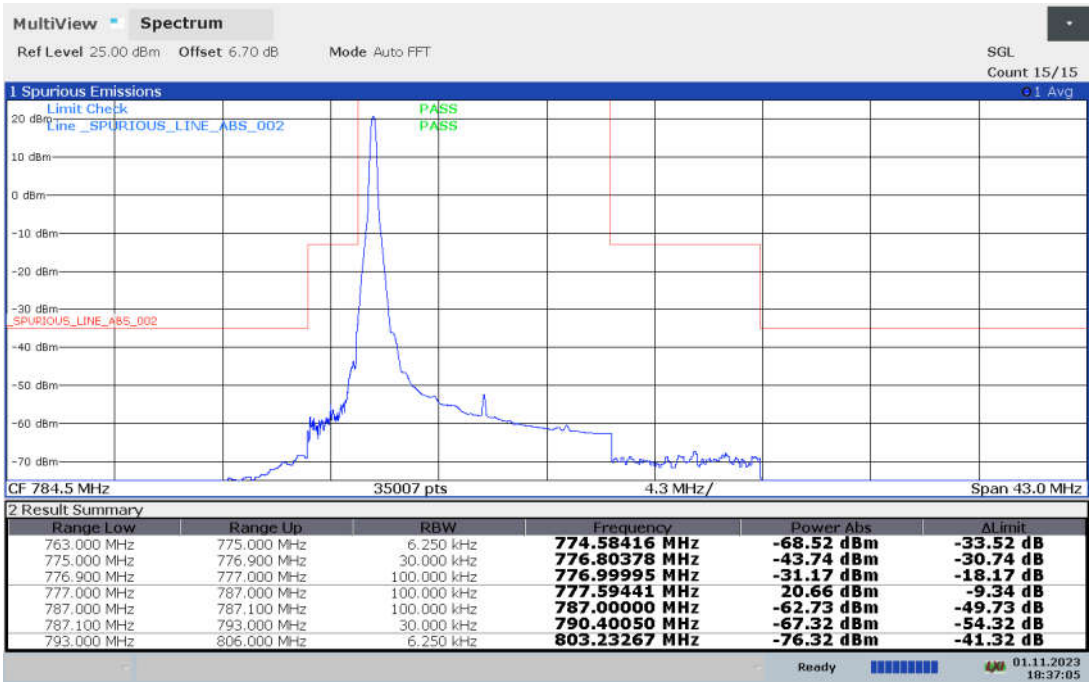
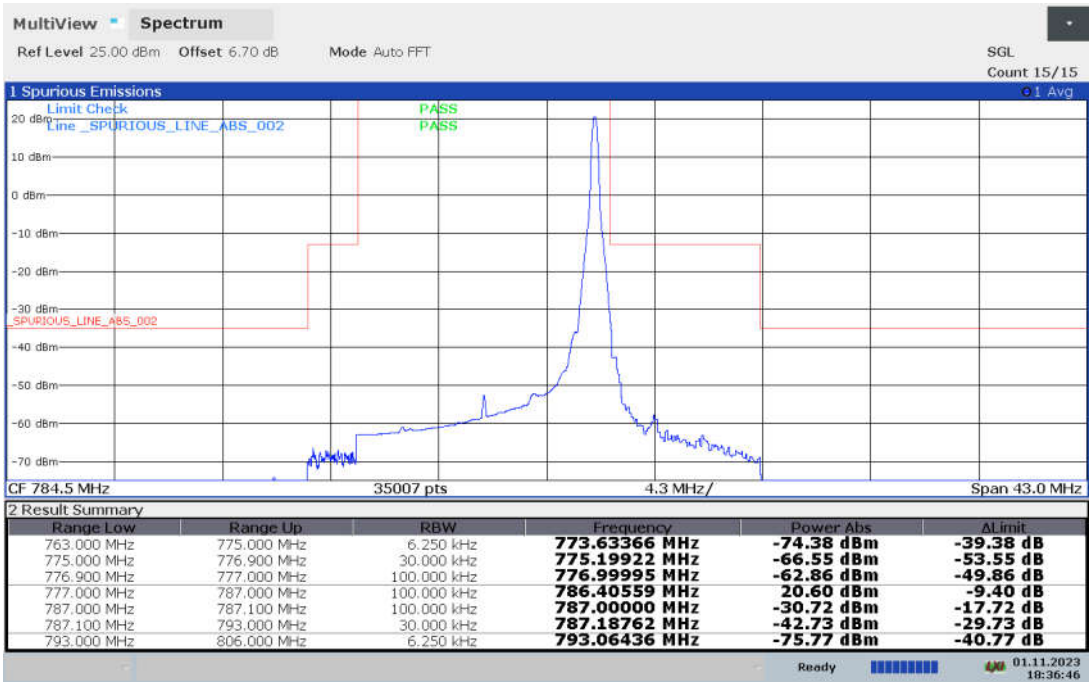
LTE band 13

LOW BAND EDGE BLOCK-1RB-low_offset



HIGH BAND EDGE BLOCK-1RB-high_offset



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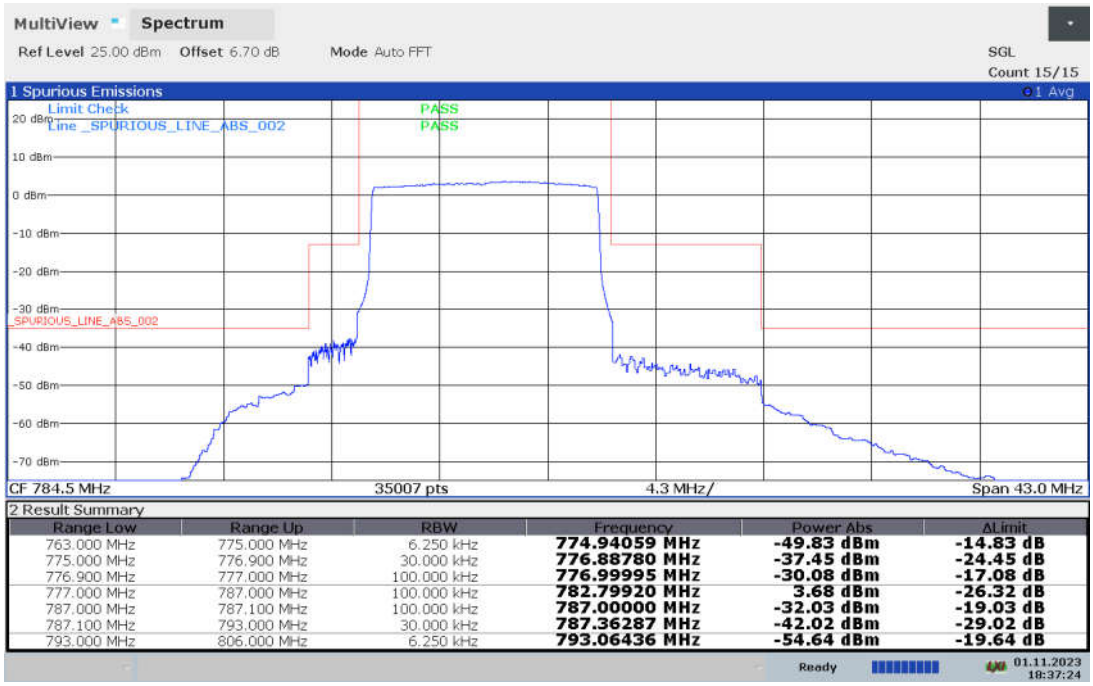
LOW/HIGH BAND EDGE BLOCK-20MHz-100%RB



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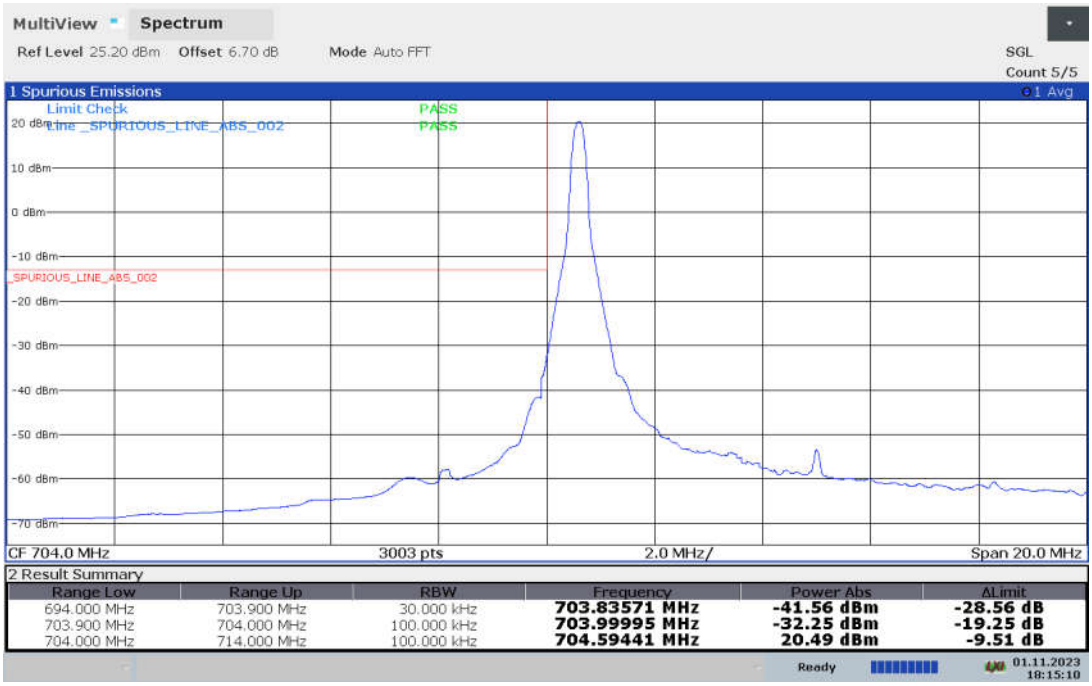
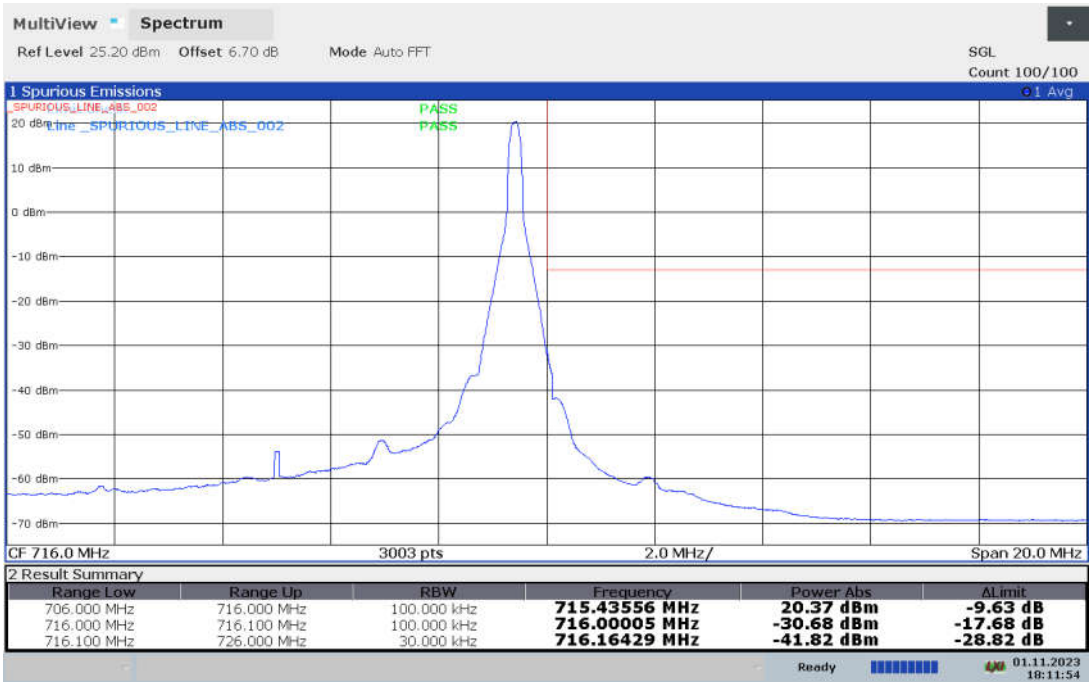
LTE band 17

LOW BAND EDGE BLOCK-1RB-low_offset



HIGH BAND EDGE BLOCK-1RB-high_offset



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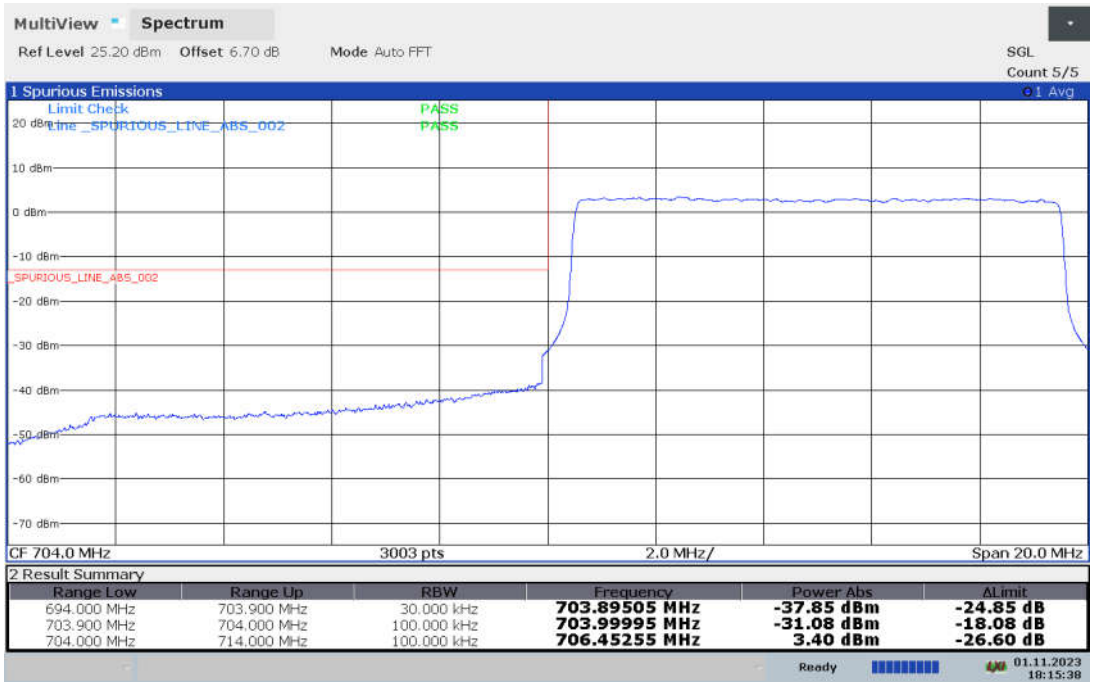
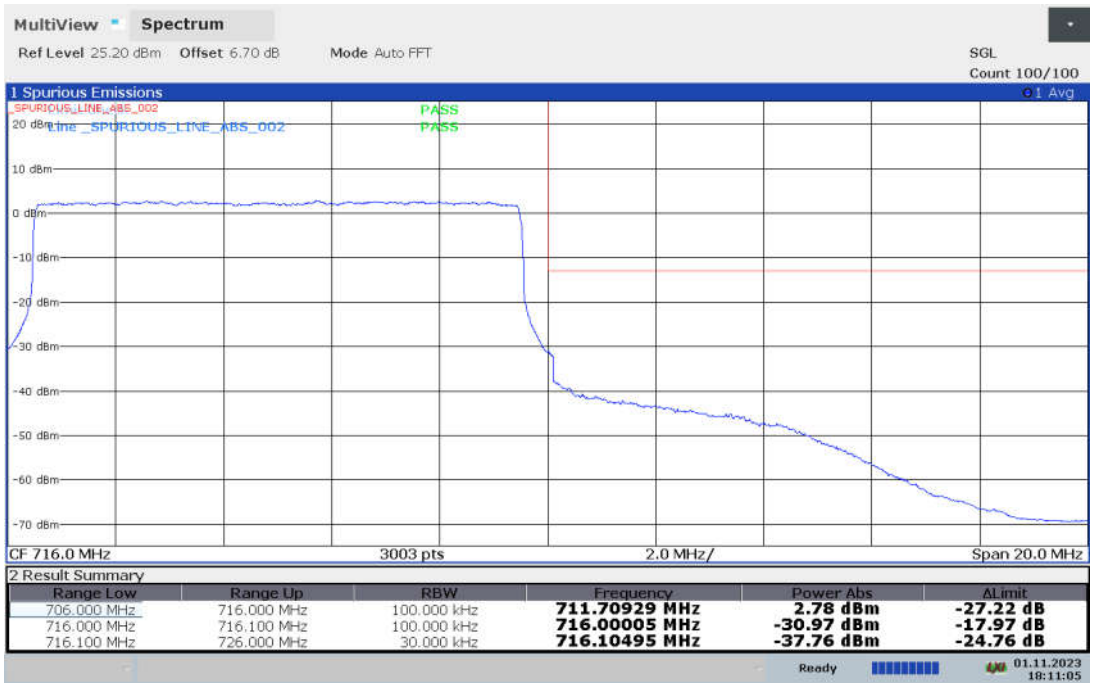
LOW BAND EDGE BLOCK-20MHz-100%RB



HIGH BAND EDGE BLOCK-20MHz-100%RB



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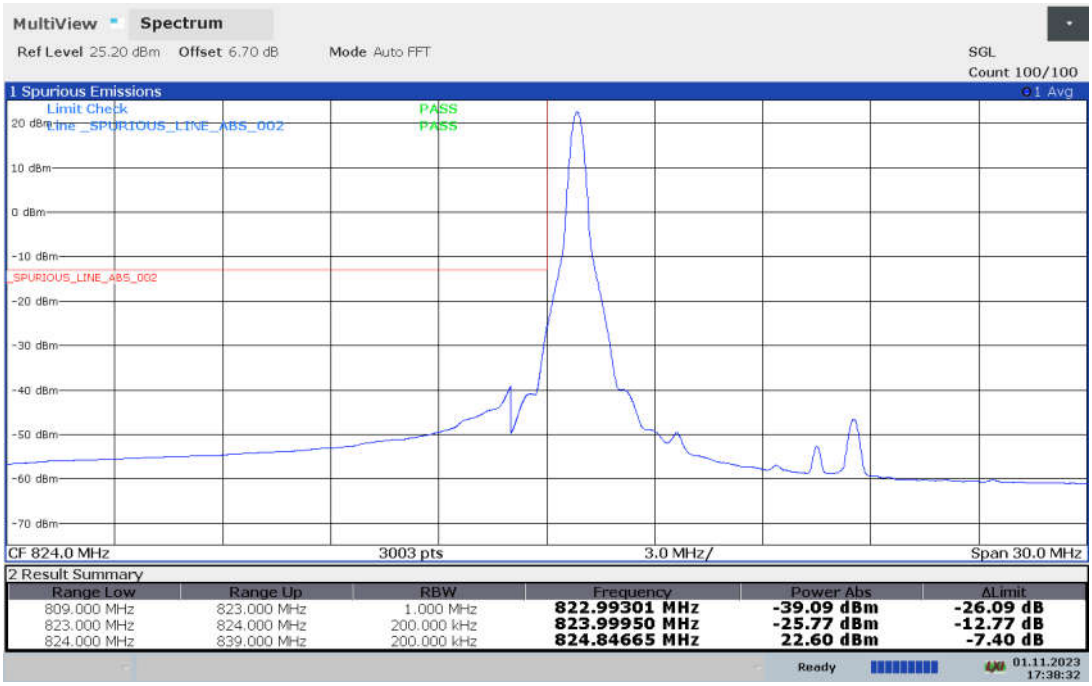
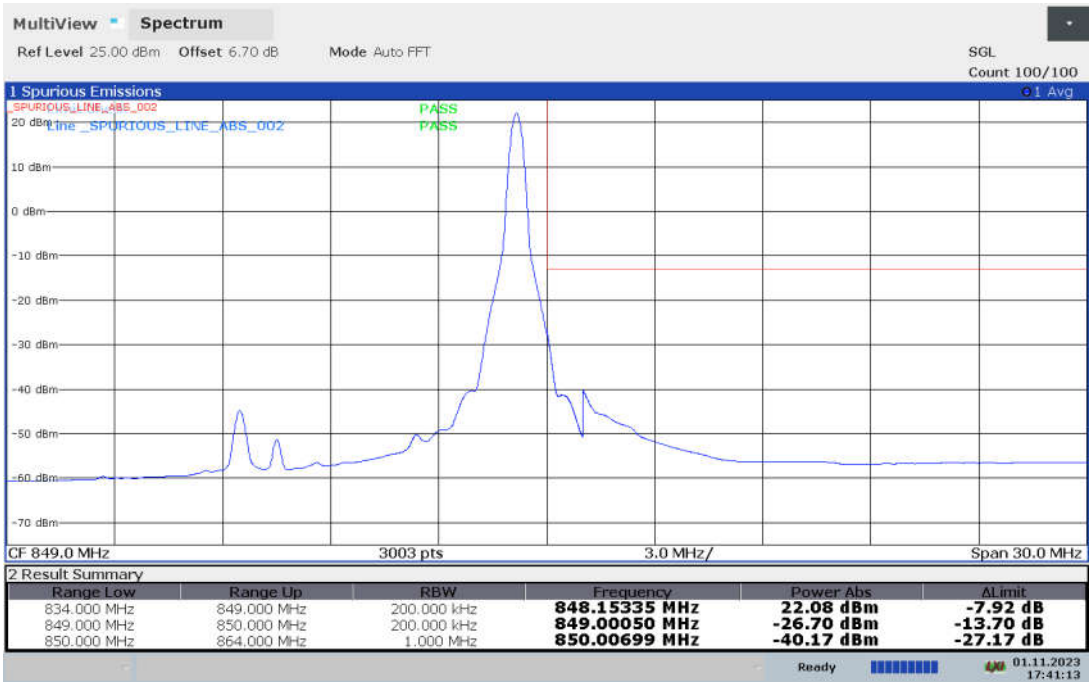
LTE band 26(824MHz-849MHz)

LOW BAND EDGE BLOCK-1RB-low_offset



HIGH BAND EDGE BLOCK-1RB-high_offset



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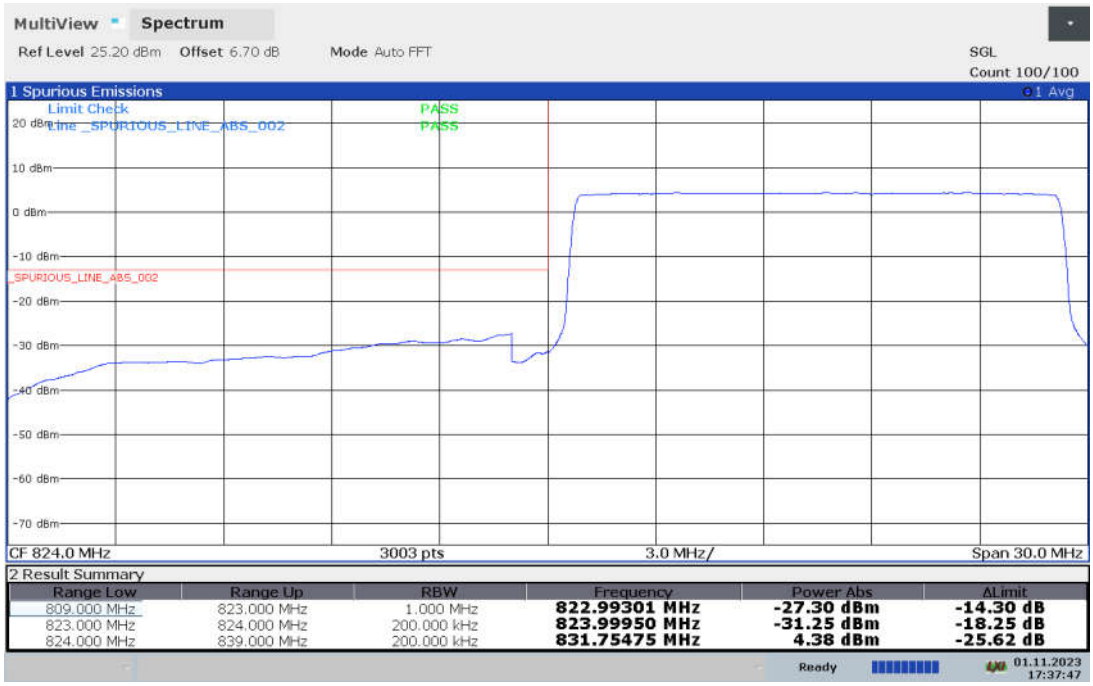
LOW BAND EDGE BLOCK-20MHz-100%RB



HIGH BAND EDGE BLOCK-20MHz-100%RB

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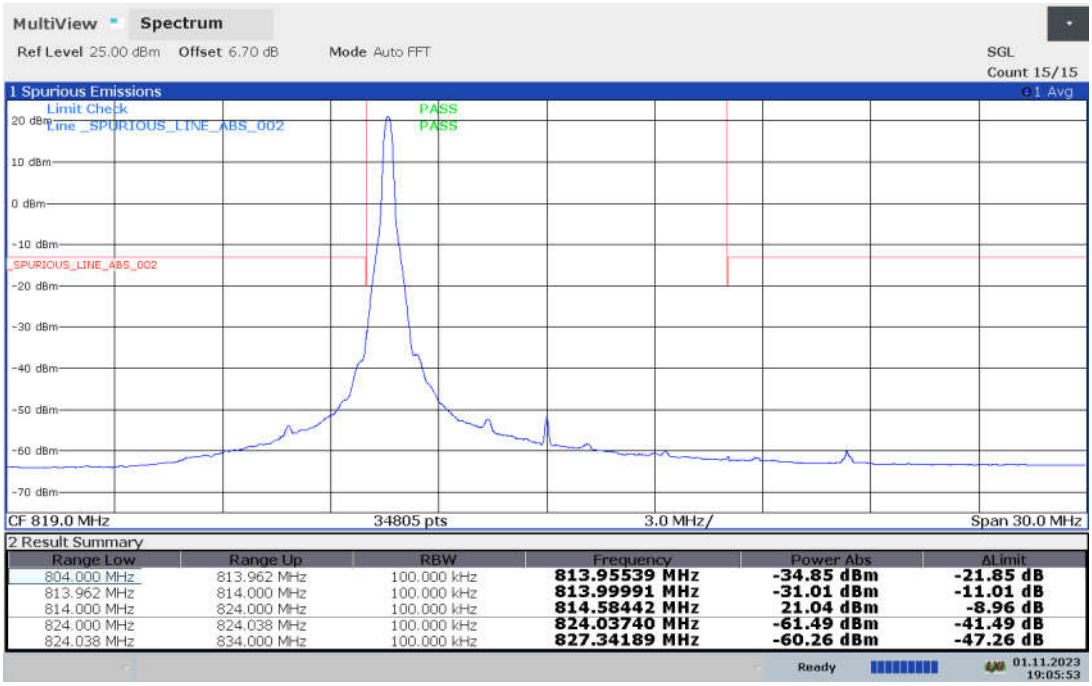
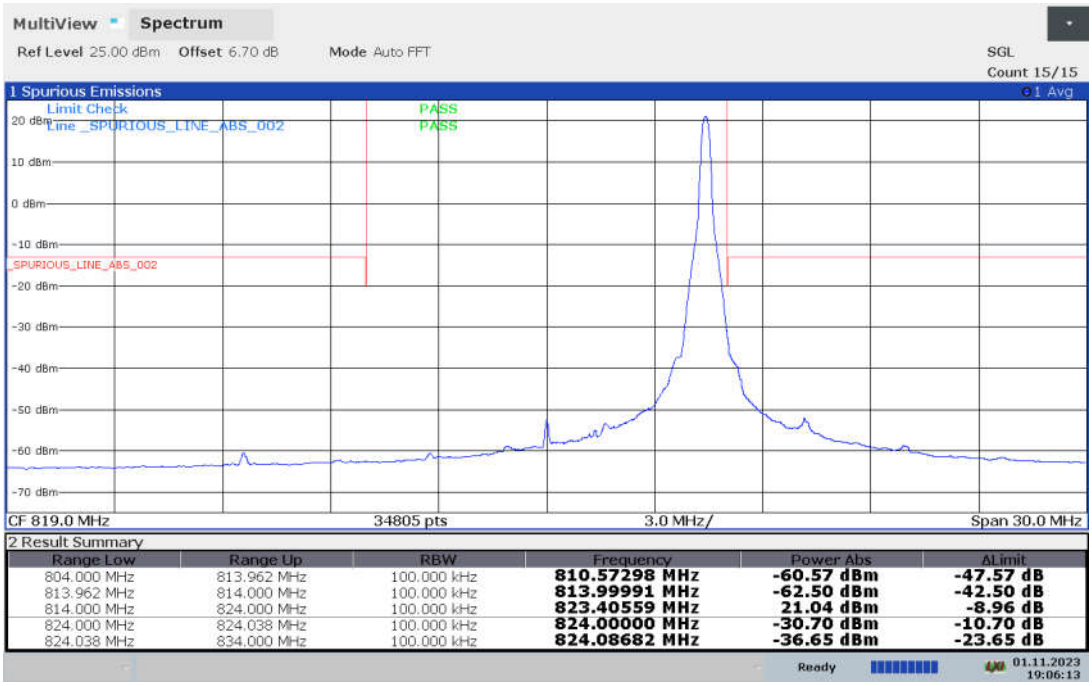
LTE band 26(814MHz-824MHz)

LOW BAND EDGE BLOCK-1RB-low_offset



HIGH BAND EDGE BLOCK-1RB-high_offset



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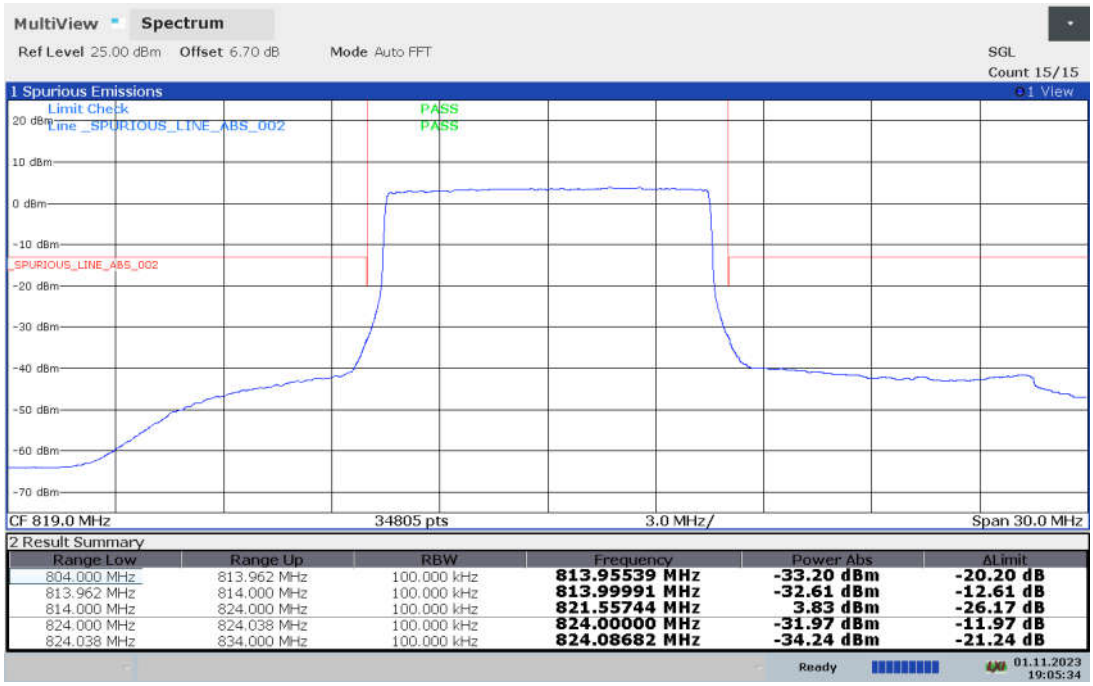
LOW/HIGH BAND EDGE BLOCK-20MHz-100%RB



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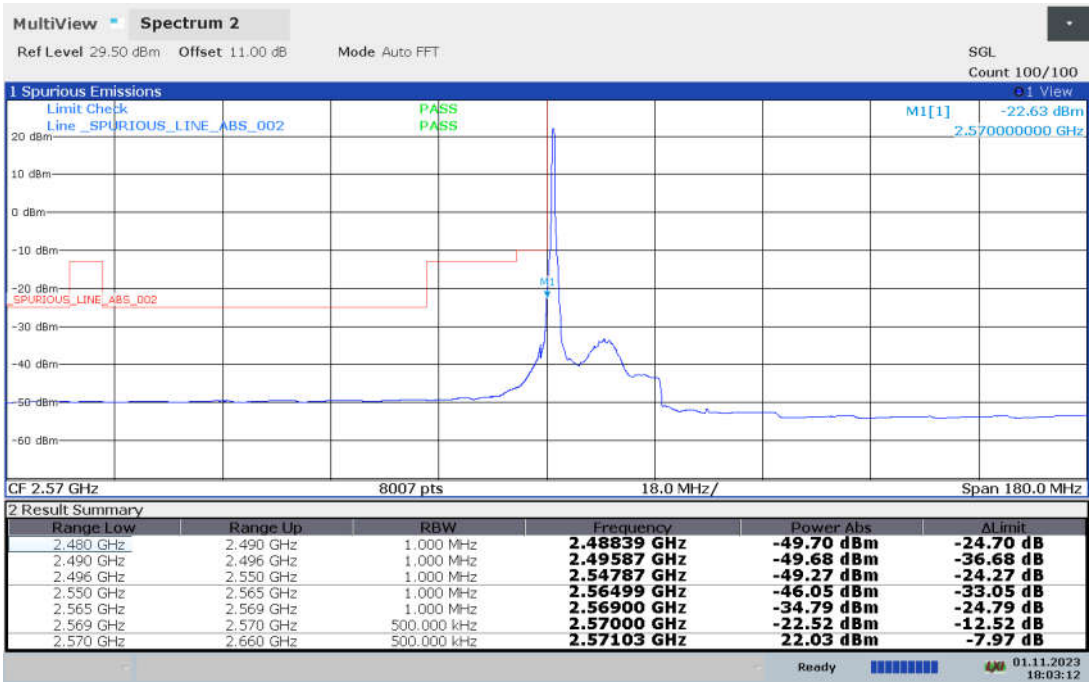
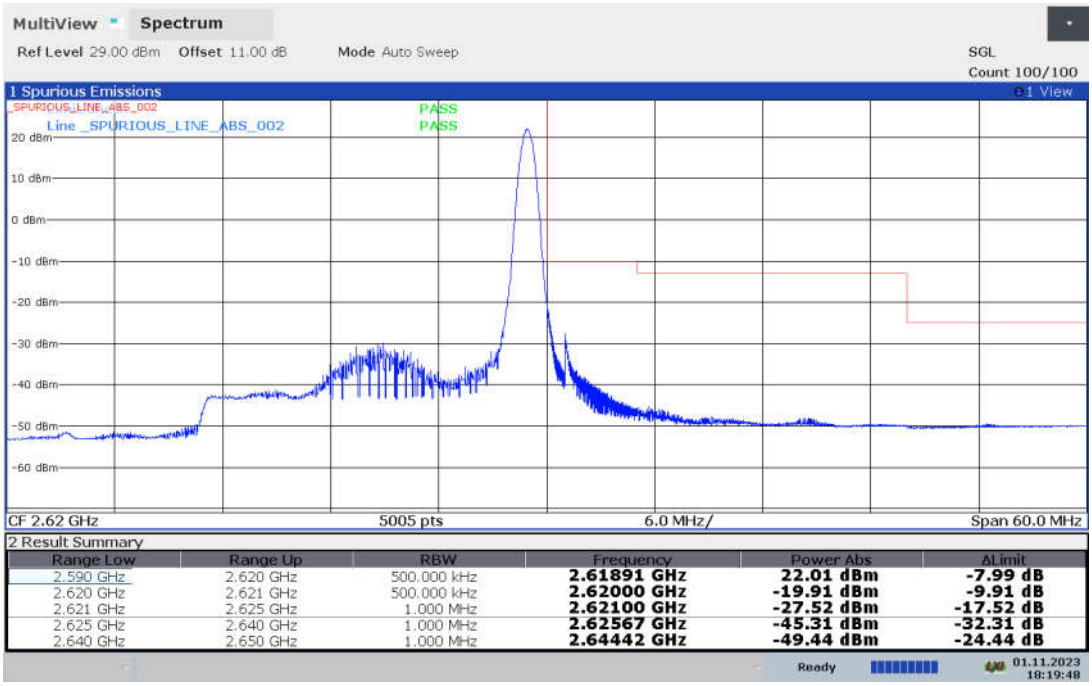
LTE band 38

LOW BAND EDGE BLOCK-1RB-low_offset



HIGH BAND EDGE BLOCK-1RB-high_offset



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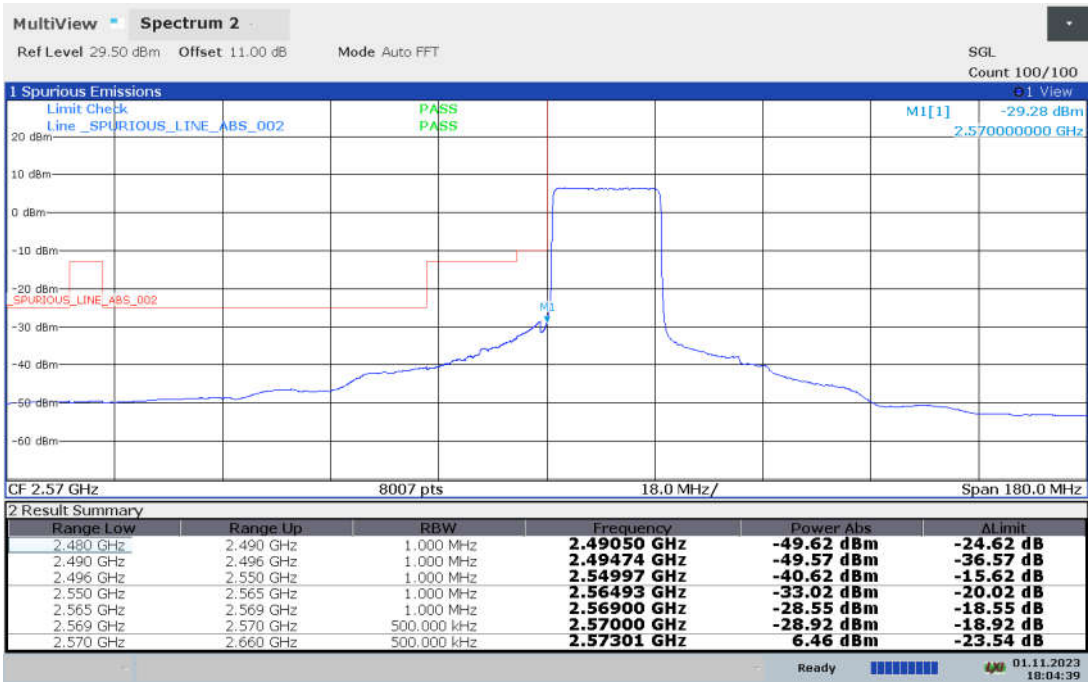
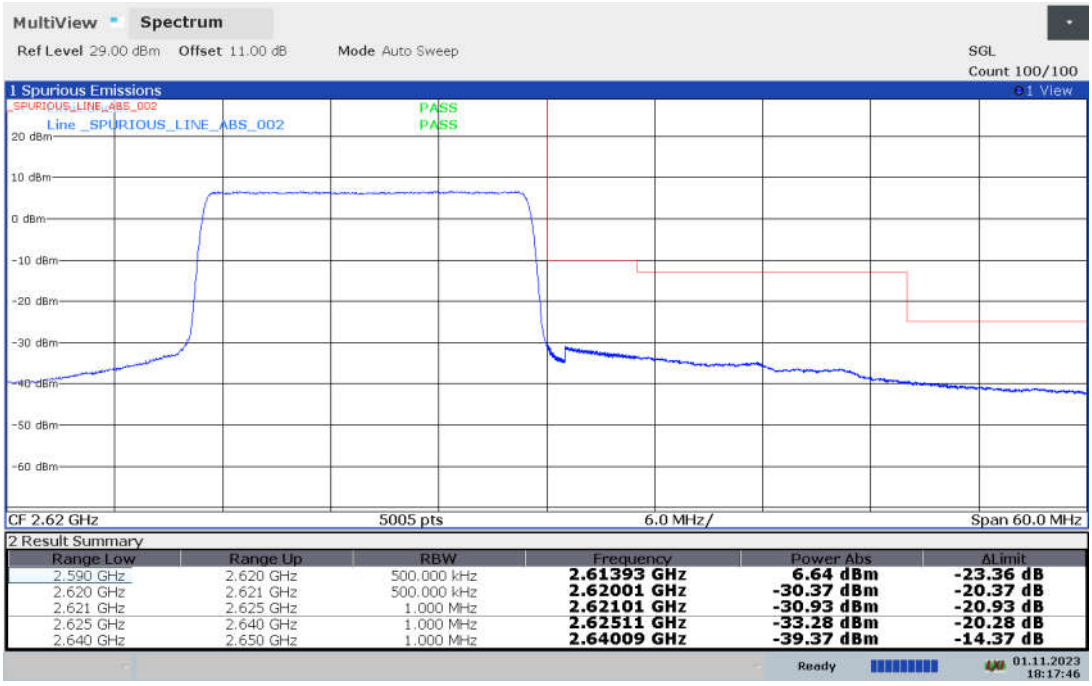
LOW BAND EDGE BLOCK-20MHz-100%RB



HIGH BAND EDGE BLOCK-20MHz-100%RB



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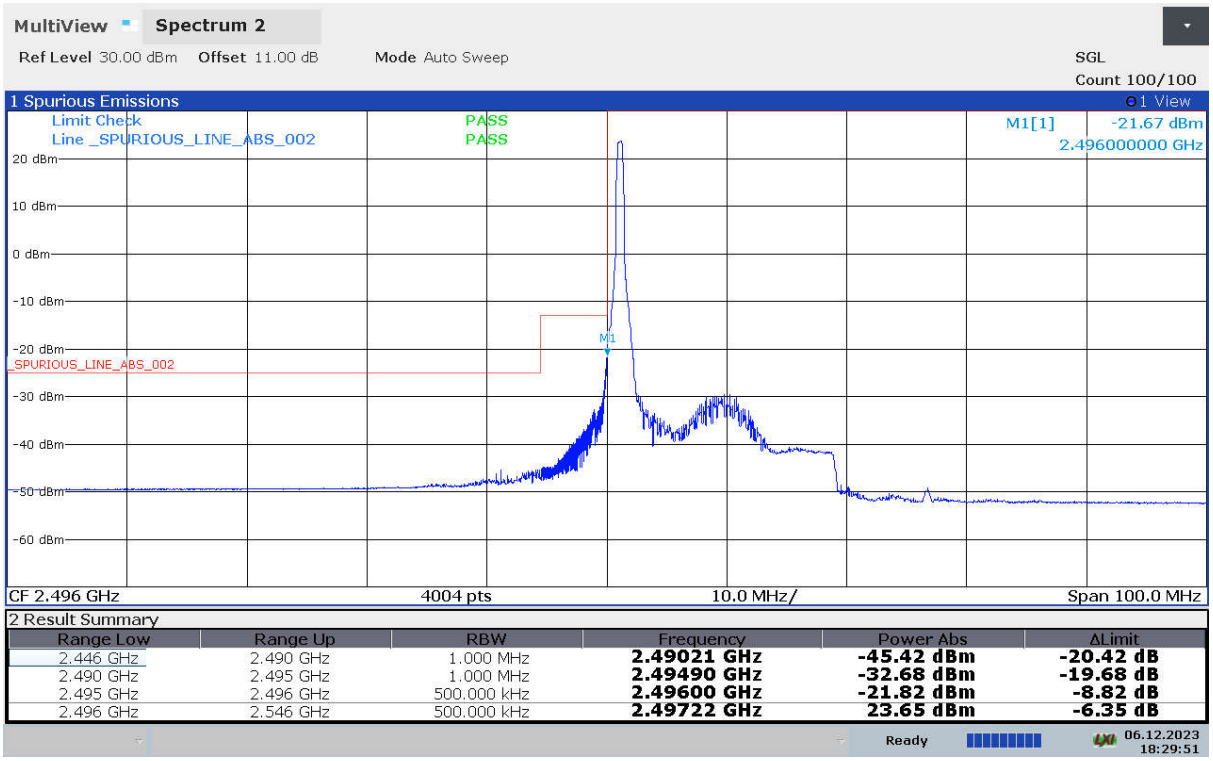
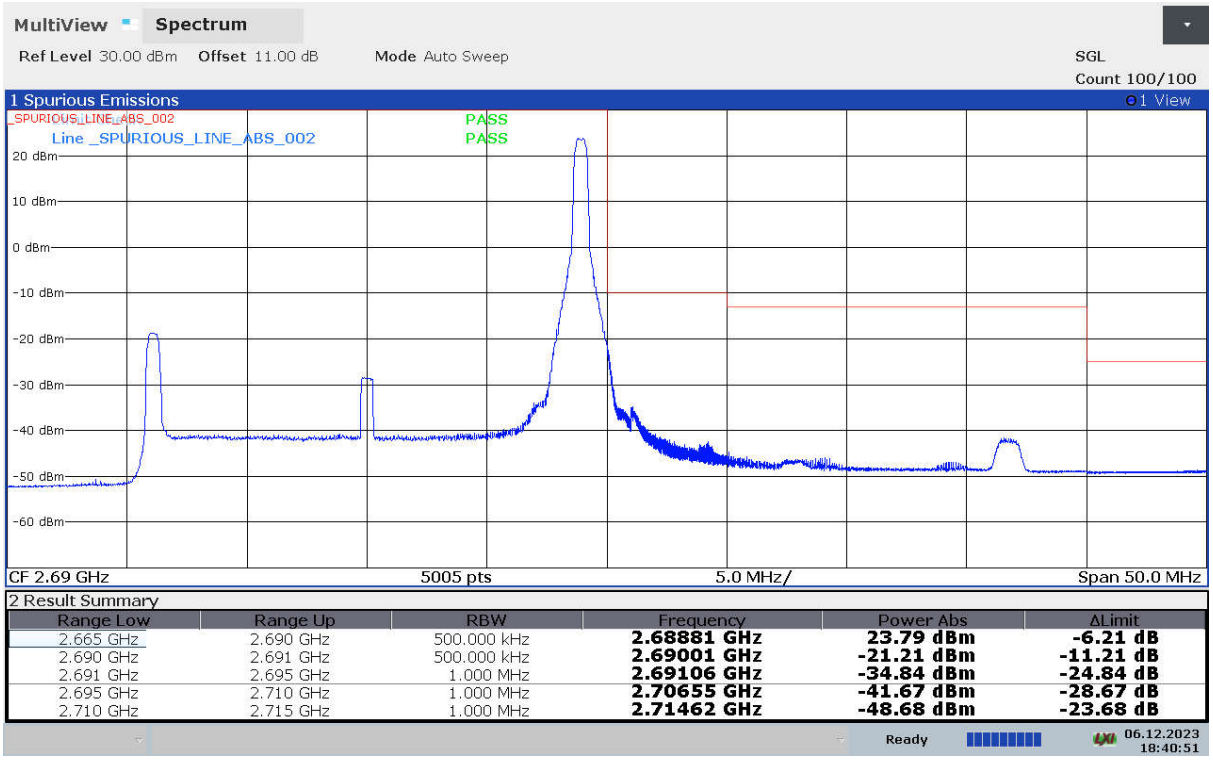
LTE band 41

LOW BAND EDGE BLOCK-1RB-low_offset



HIGH BAND EDGE BLOCK-1RB-high_offset



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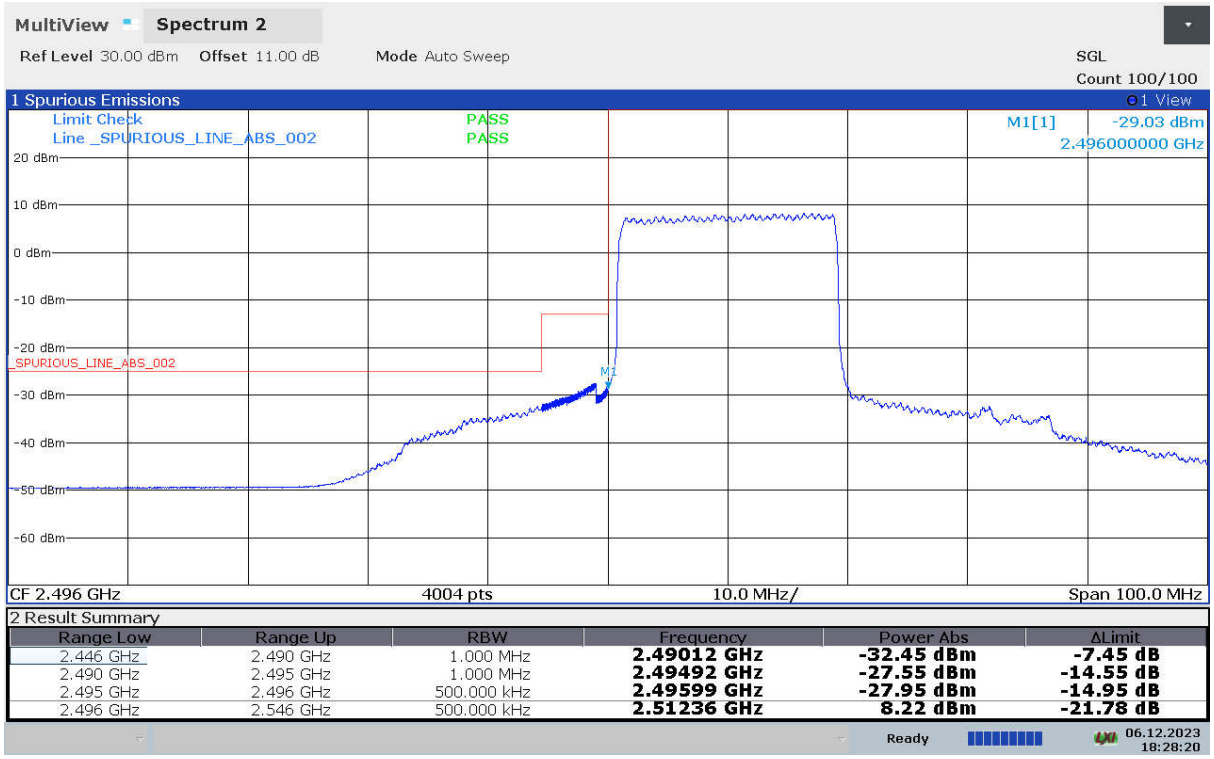
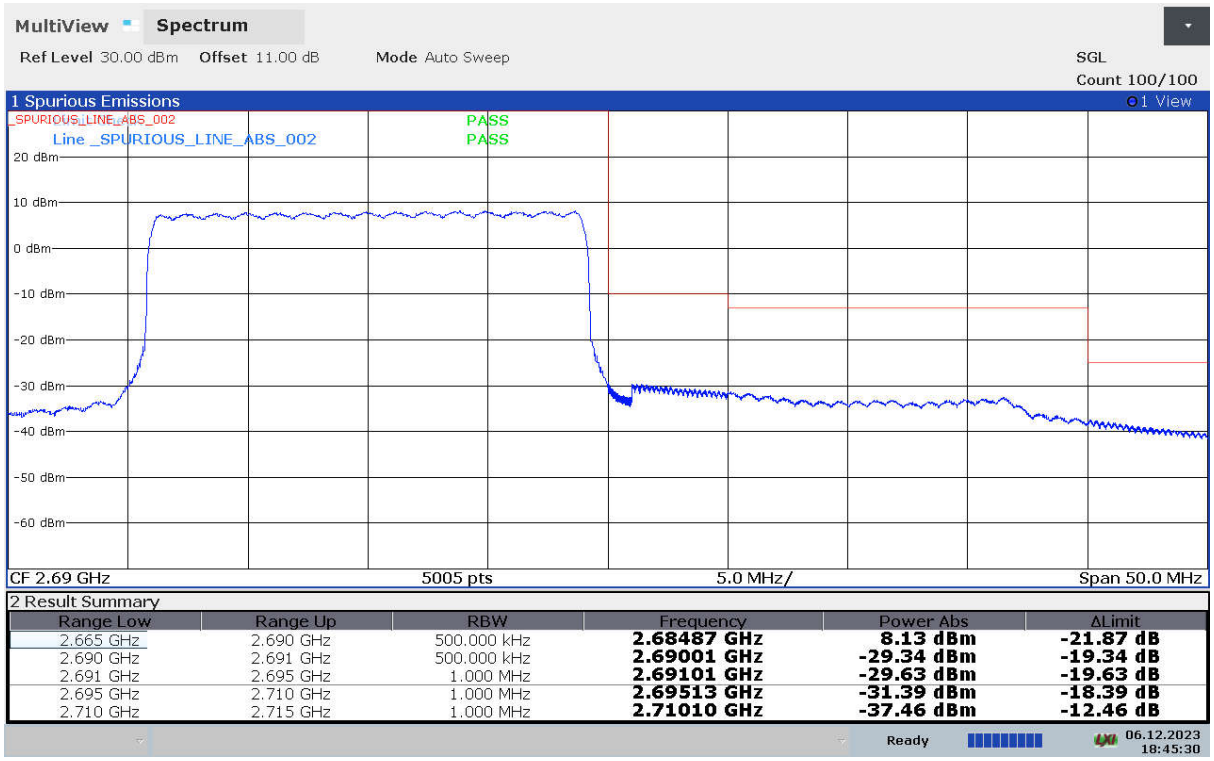
LOW BAND EDGE BLOCK-20MHz-100%RB



HIGH BAND EDGE BLOCK-20MHz-100%RB



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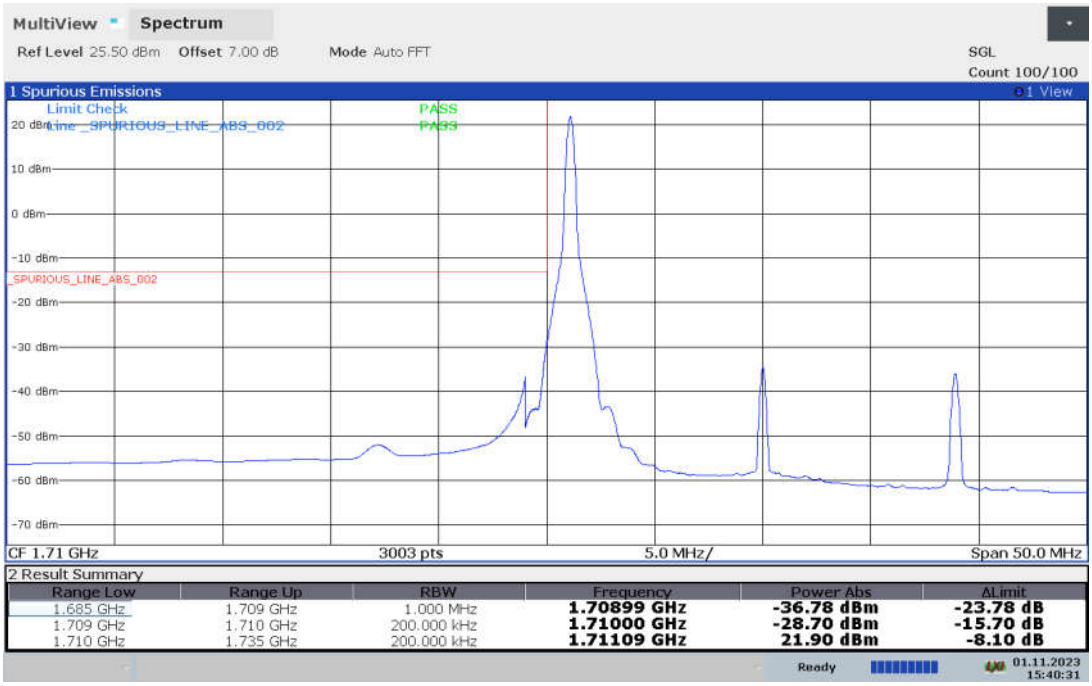
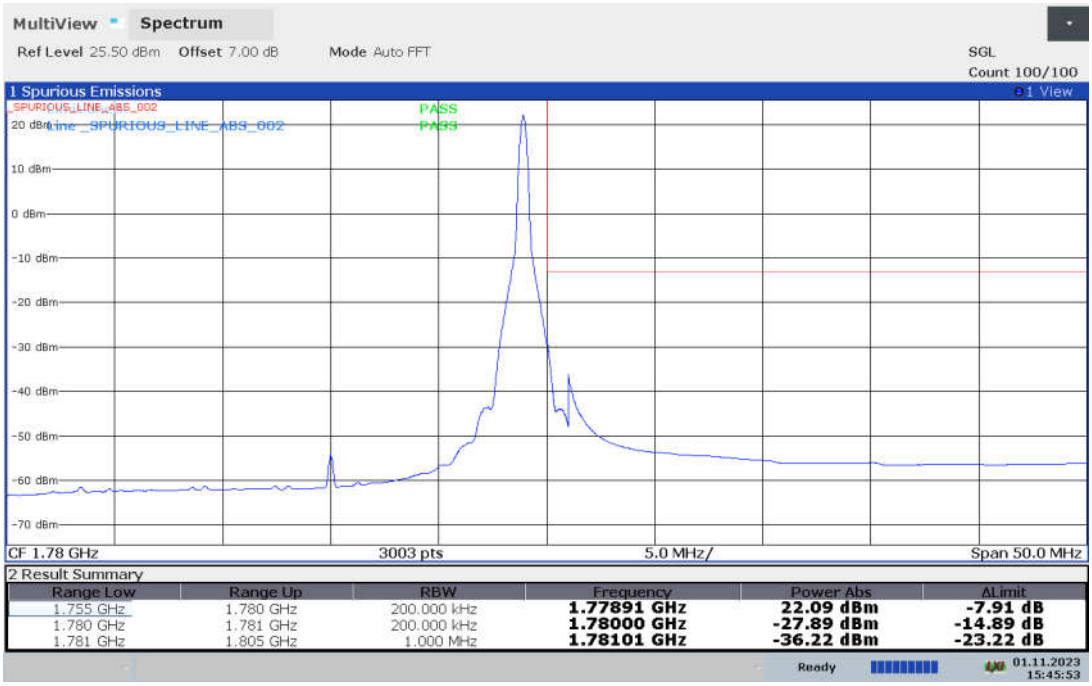
LTE band 66

LOW BAND EDGE BLOCK-1RB-low_offset



HIGH BAND EDGE BLOCK-1RB-high_offset



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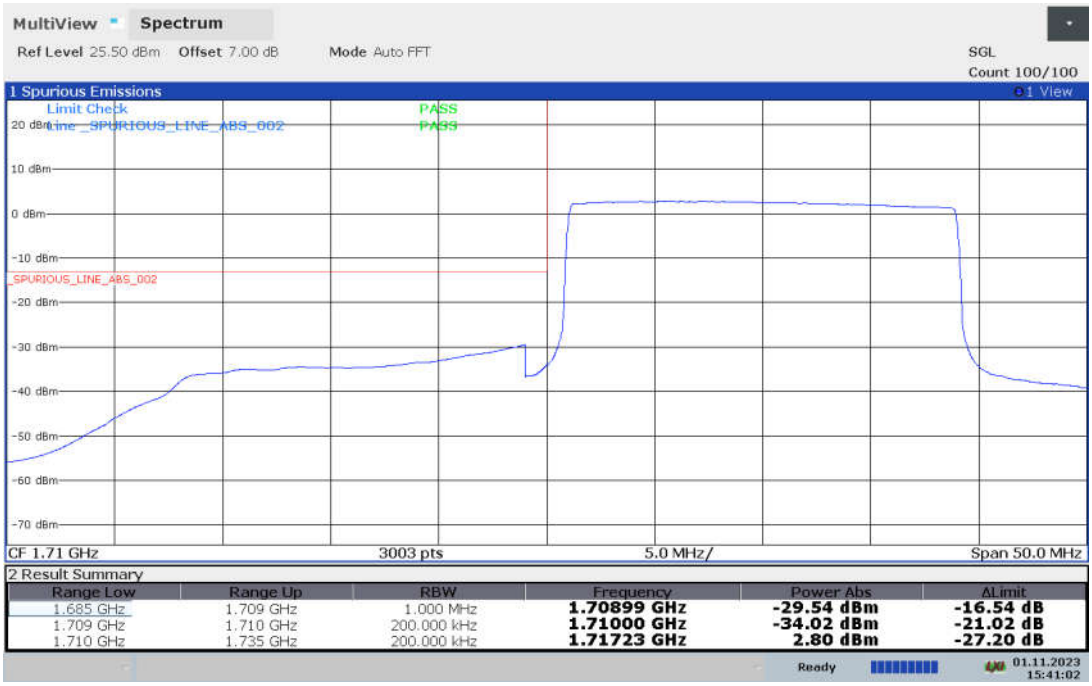
LOW BAND EDGE BLOCK-20MHz-100%RB



HIGH BAND EDGE BLOCK-20MHz-100%RB

Note: Expanded measurement uncertainty is U = 0.49dB(100KHz-2GHz)/1.21dB(2GHz-26.5GHz), k = 1.96

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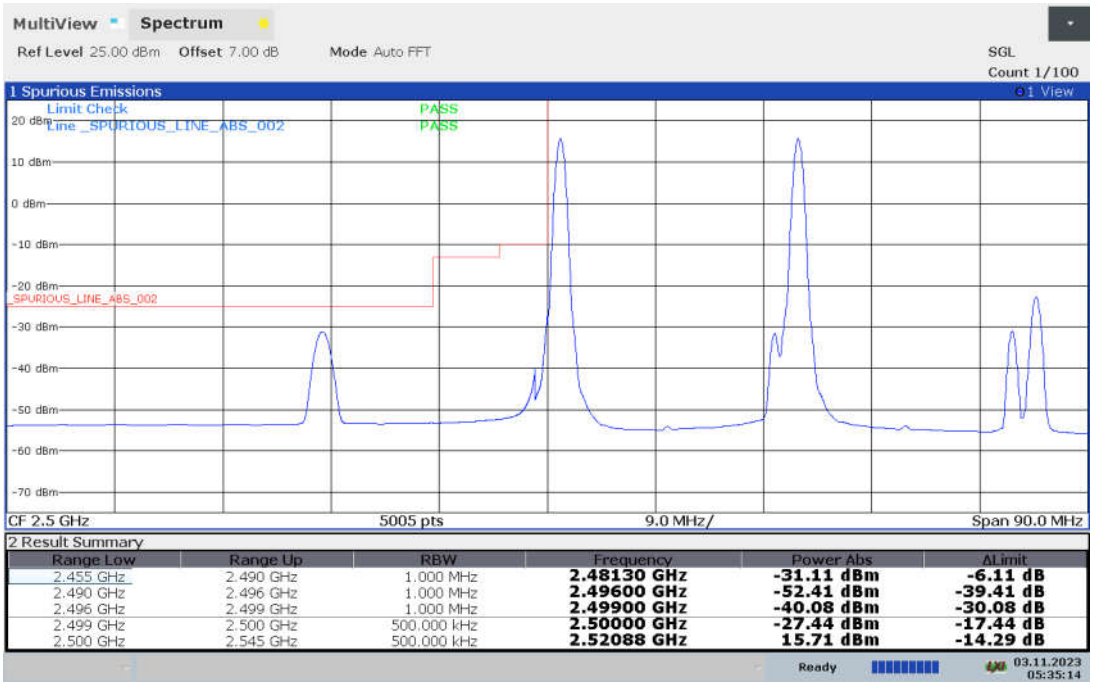
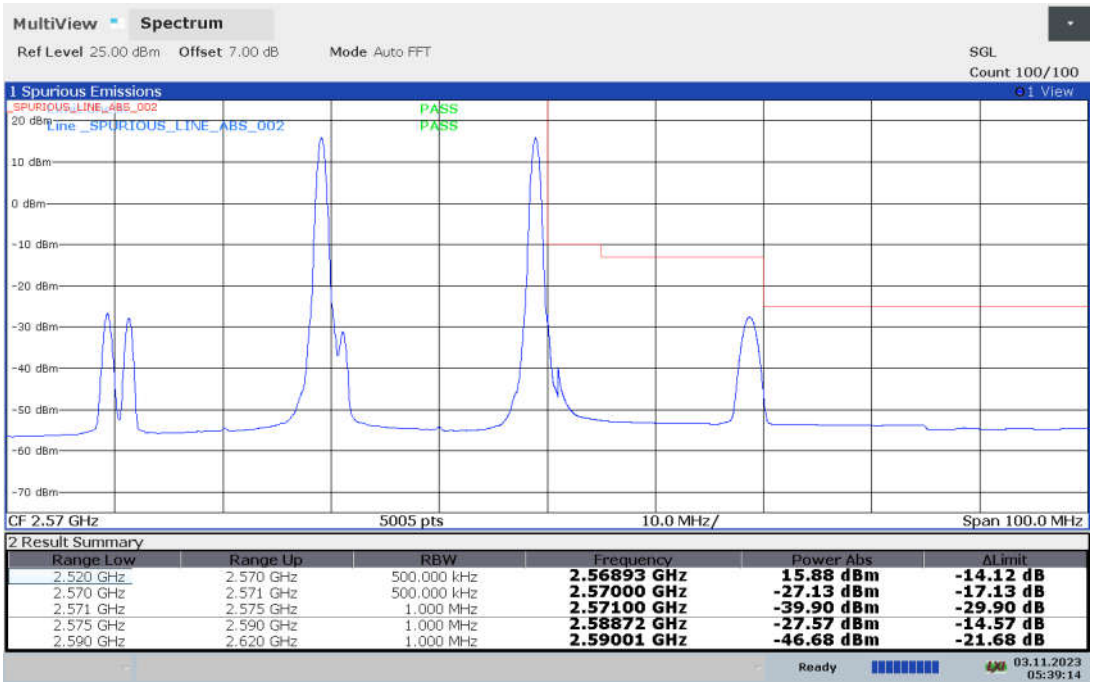
LTE CA_7C

LOW BAND EDGE BLOCK-1RB-low_offset



HIGH BAND EDGE BLOCK-1RB-high_offset



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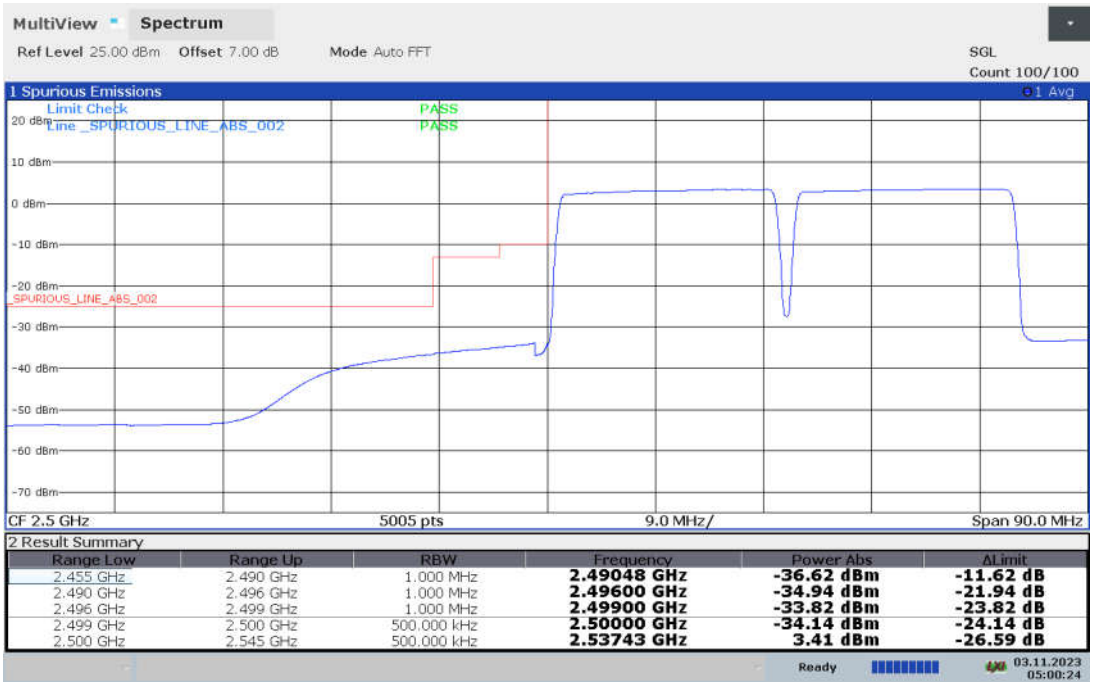
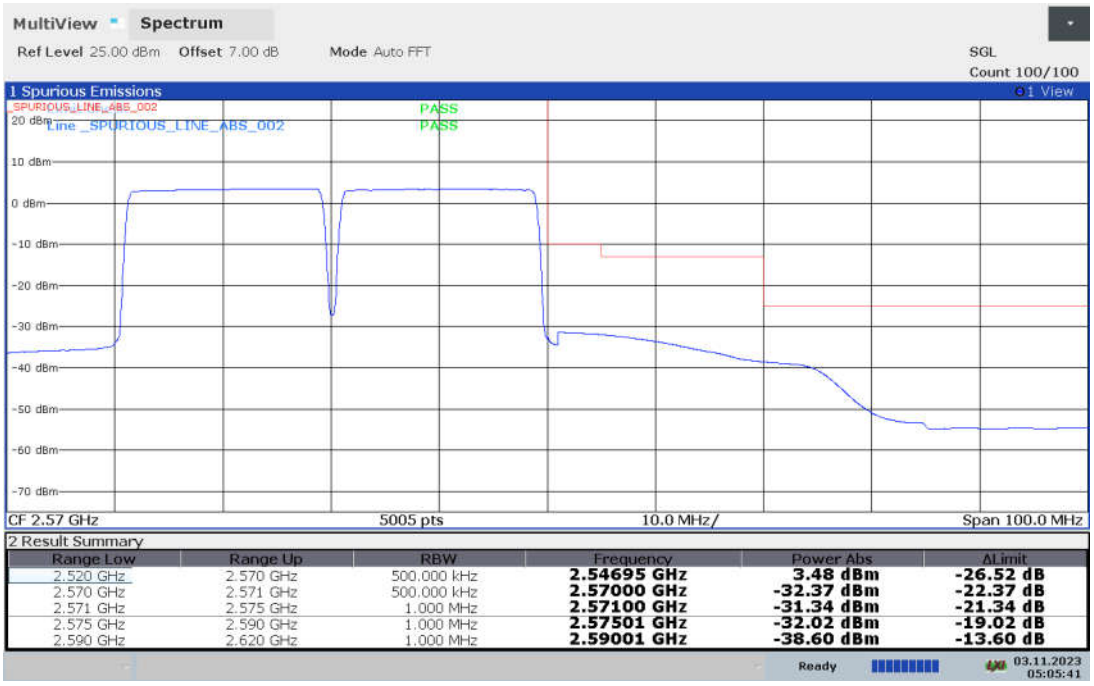
LOW BAND EDGE BLOCK-20MHz-100%RB



HIGH BAND EDGE BLOCK-20MHz-100%RB



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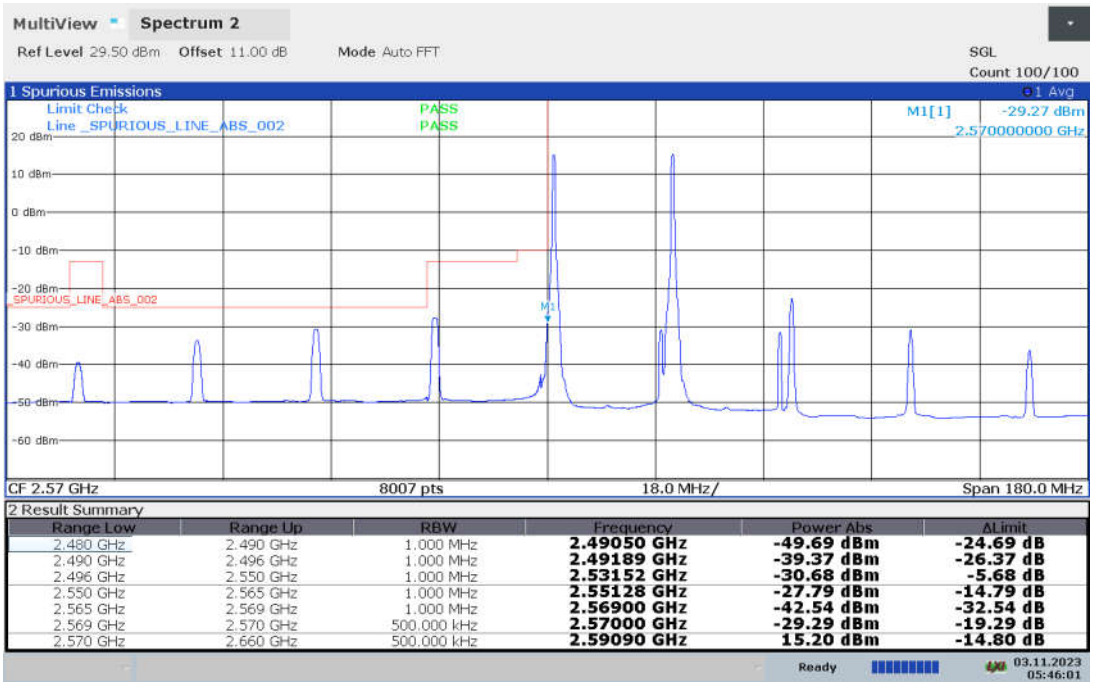
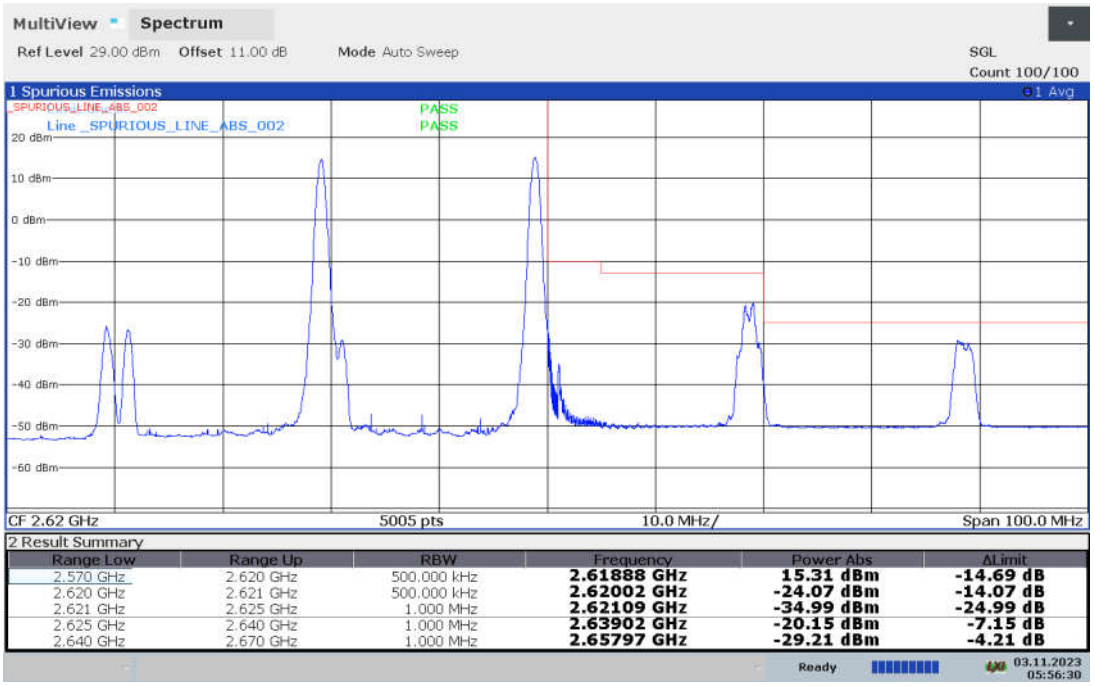
LTE CA_38C

LOW BAND EDGE BLOCK-1RB-low_offset



HIGH BAND EDGE BLOCK-1RB-high_offset



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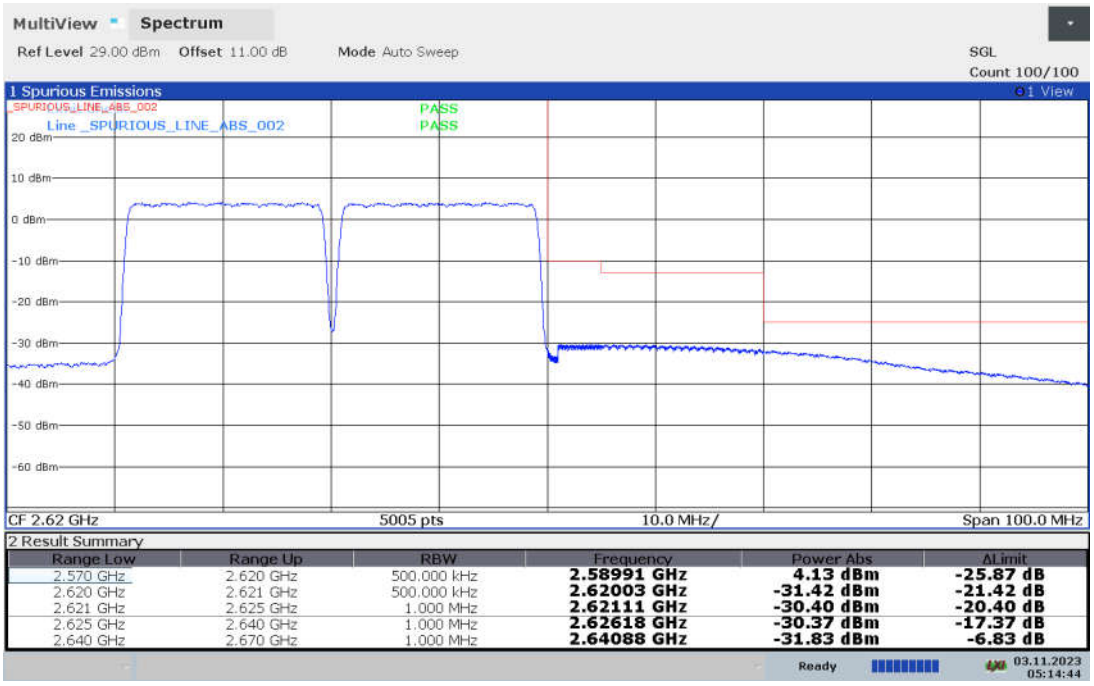
LOW BAND EDGE BLOCK-20MHz-100%RB

HIGH BAND EDGE BLOCK-20MHz-100%RB



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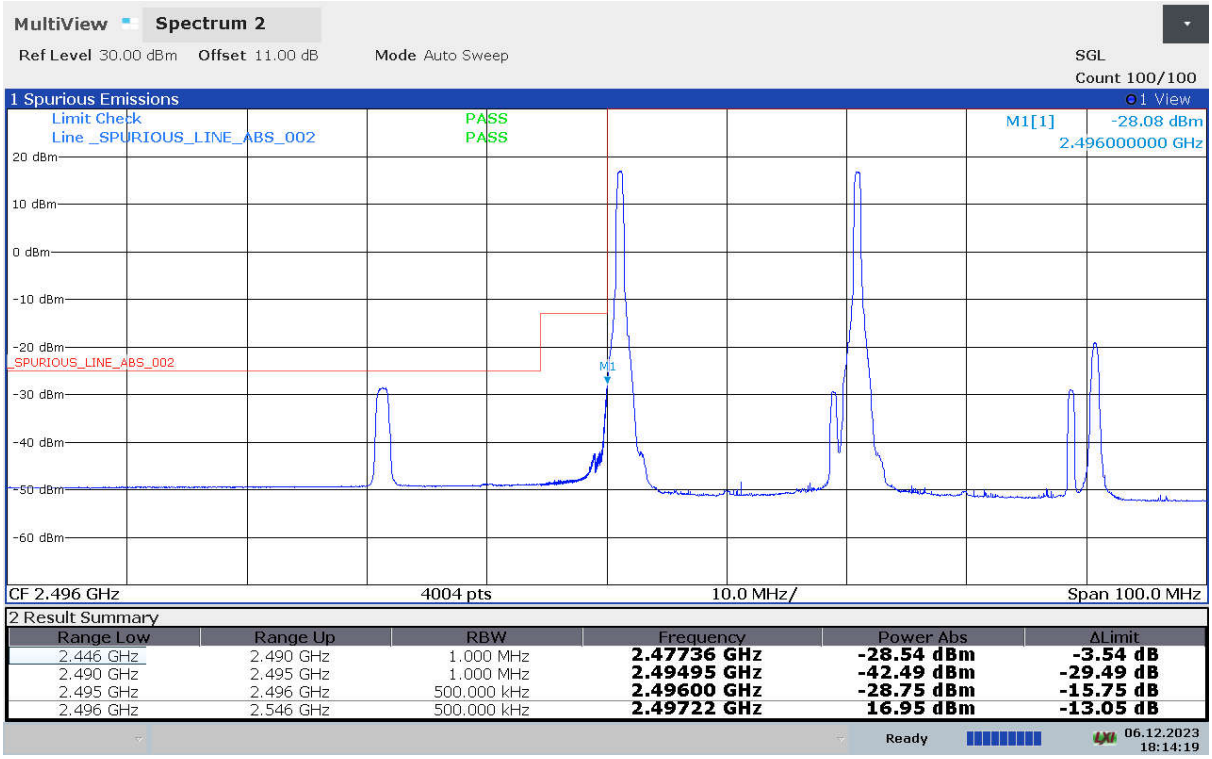
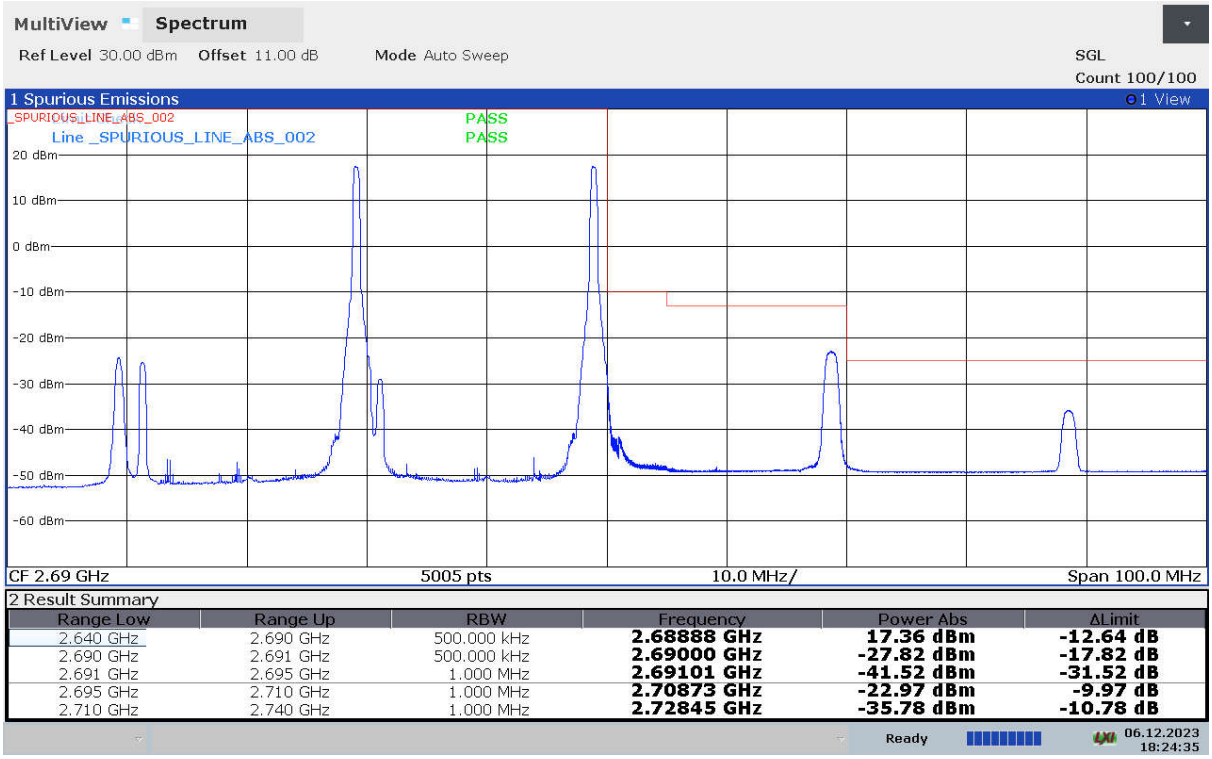
LTE CA_41C

LOW BAND EDGE BLOCK-1RB-low_offset



HIGH BAND EDGE BLOCK-1RB-high_offset



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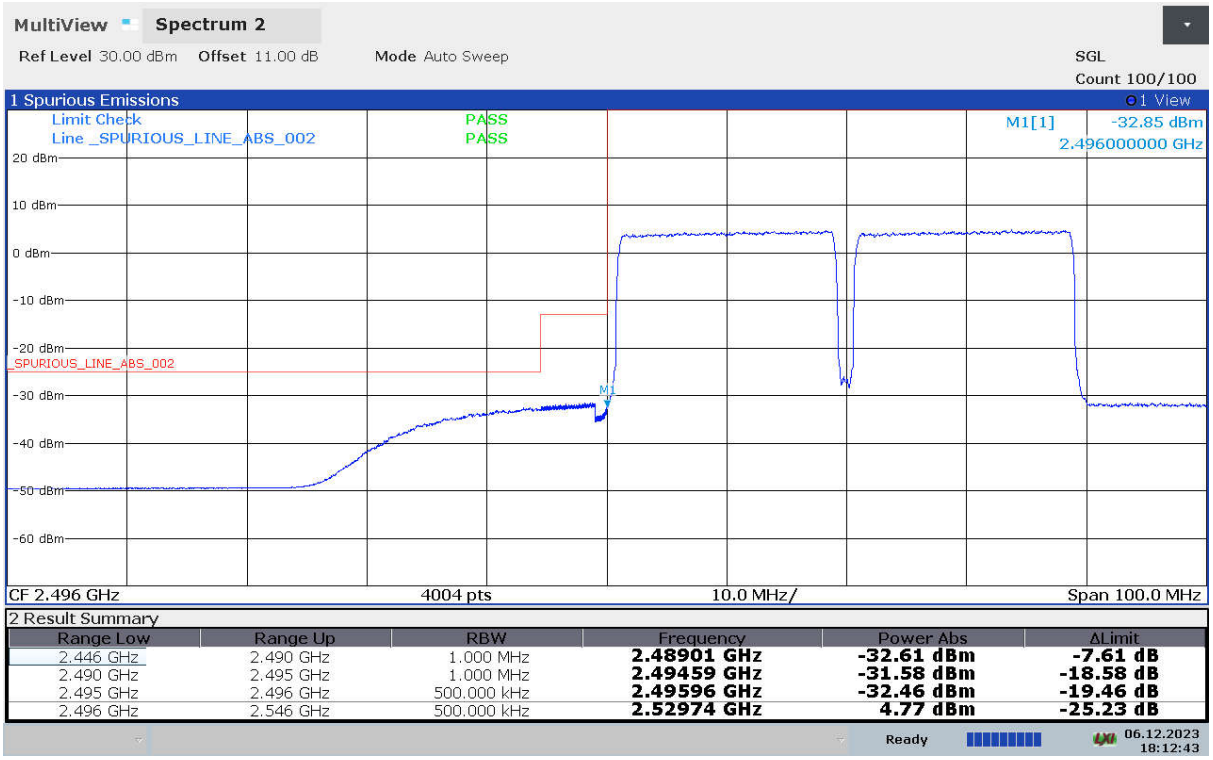
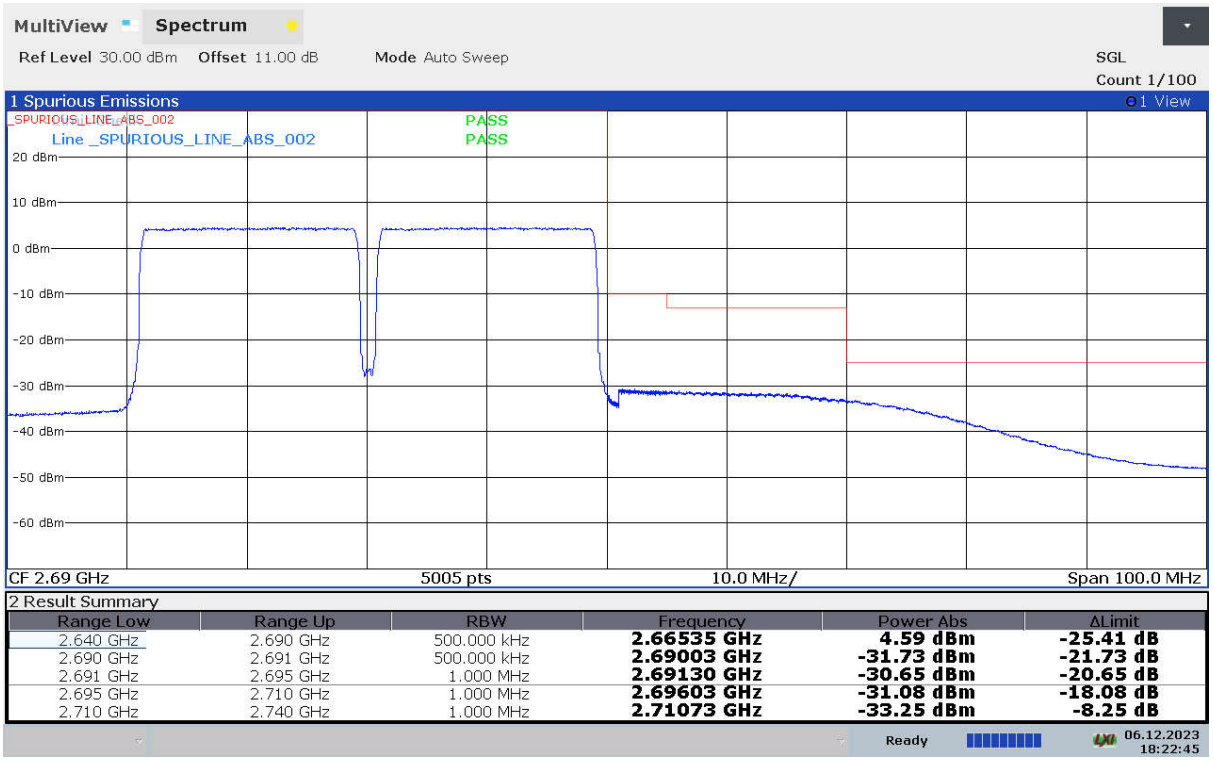
LOW BAND EDGE BLOCK-20MHz-100%RB



HIGH BAND EDGE BLOCK-20MHz-100%RB



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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×span/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(c) specifies On any frequency outside the 746-758 MHz band, the power of any emission shall be attenuated outside the band below the transmitter power (P) by at least 43 + 10 log (P) dB; On any frequency outside the 776-788 MHz band, the power of any emission shall be attenuated outside the band below the transmitter power (P) by at least 43 + 10 log (P) dB;On all frequencies between 763-775 MHz and 793-805 MHz, by a factor not less than 65 + 10 log (P) dB in a 6.25 kHz band segment, for mobile and portable stations; Compliance with the provisions of paragraphs (c)(1) and (c)(2) 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 at least 30 kHz may be employed; Compliance with the provisions of paragraphs (c)(3) and (c)(4) 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.

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 + 10log (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

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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 90.691 states that out-of-band emission requirement shall apply only to the "outer" channels included in an EA license and to spectrum adjacent to interior channels used by incumbent licensees. The emission limits are as follows:For any frequency removed from the EA licensee's frequency block by up to and including 37.5 kHz, the power of any emission shall be attenuated below the transmitter power (P) in watts by at least 116 Log10(f/6.1) decibels or 50 + 10 Log10(P) decibels or 80 decibels, whichever is the lesser attenuation, where f is the frequency removed from the center of the outer channel in the block in kilohertz and where f is greater than 12.5 kHz.For any frequency removed from the EA licensee's frequency block greater than 37.5 kHz, the power of any emission shall be attenuated below the transmitter power (P) in watts by at least 43 + 10Log10(P) decibels or 80 decibels, whichever is the lesser attenuation, where f is the frequency removed from the center of the outer channel in the block in kilohertz and where f is greater than 37.5 kHz.

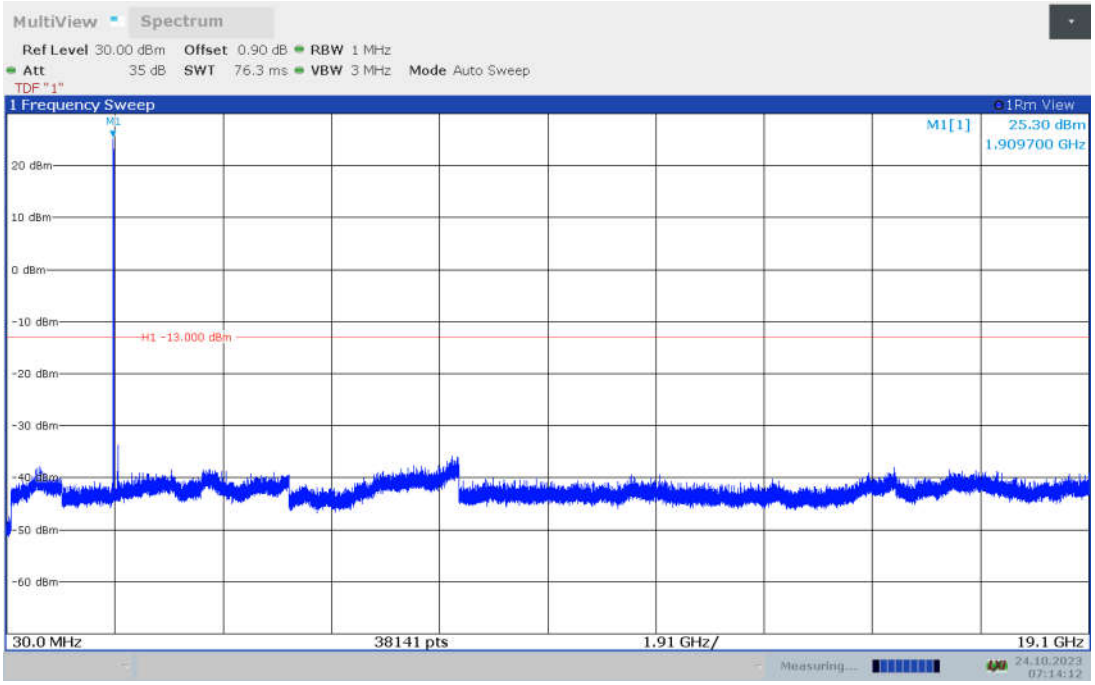
A. 7.3 Measurement result

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.



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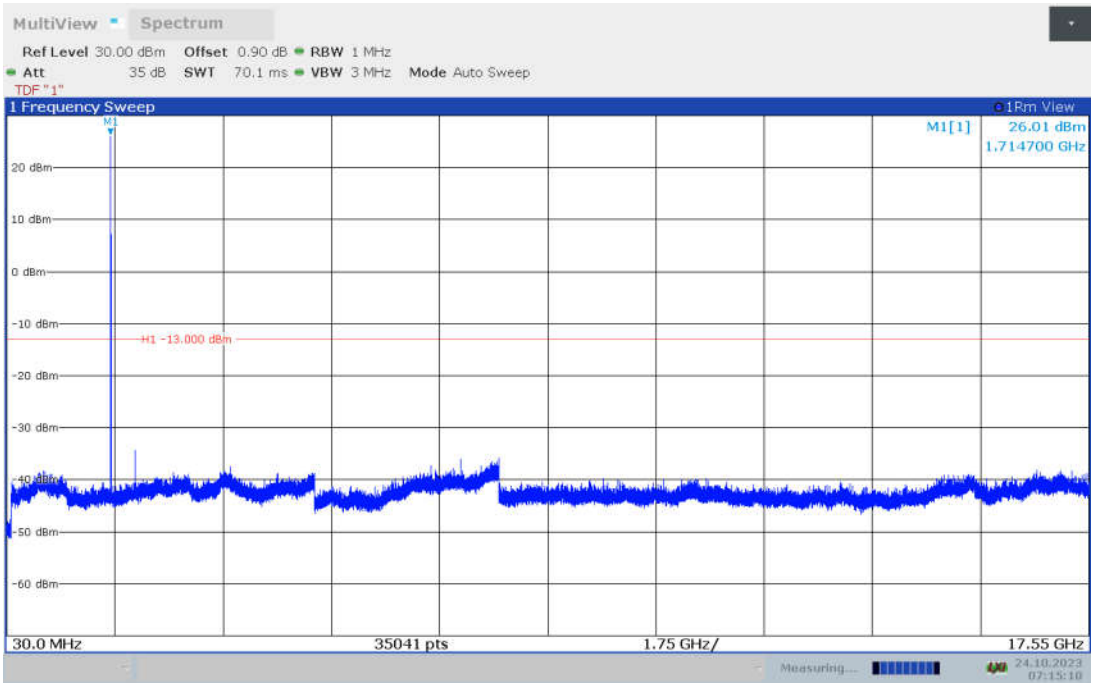
LTE band 4 : 30MHz – 17.55GHz

Spurious emission limit –13dBm.

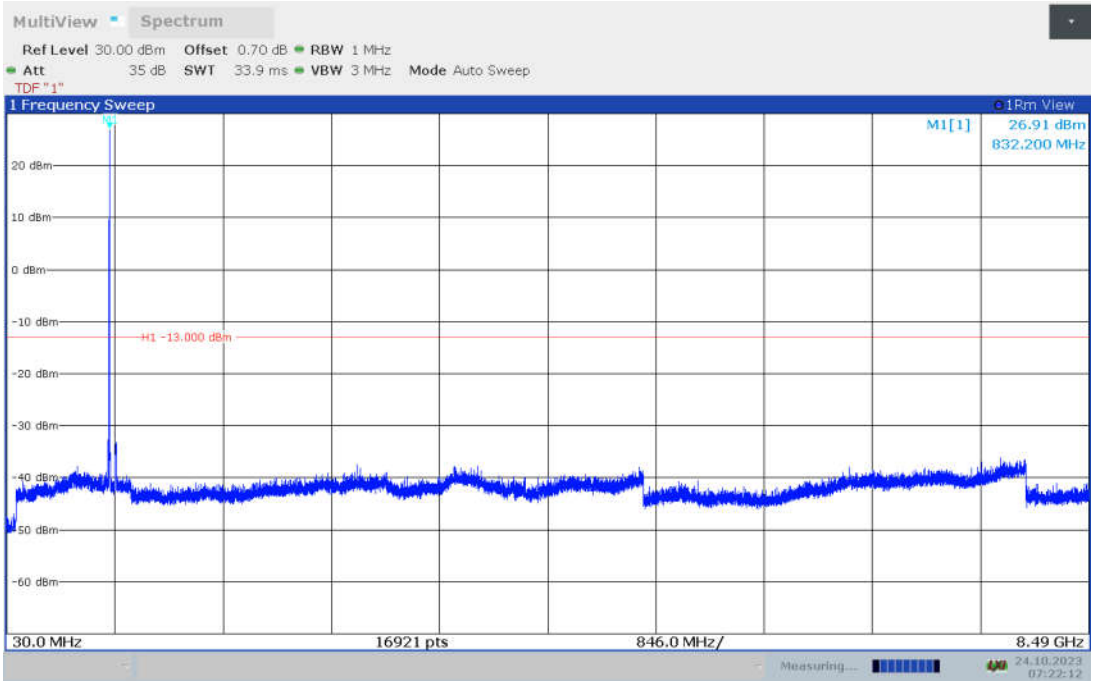
NOTE: peak above the limit line is the carrier frequency.



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

Spurious emission limit –25dBm.

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



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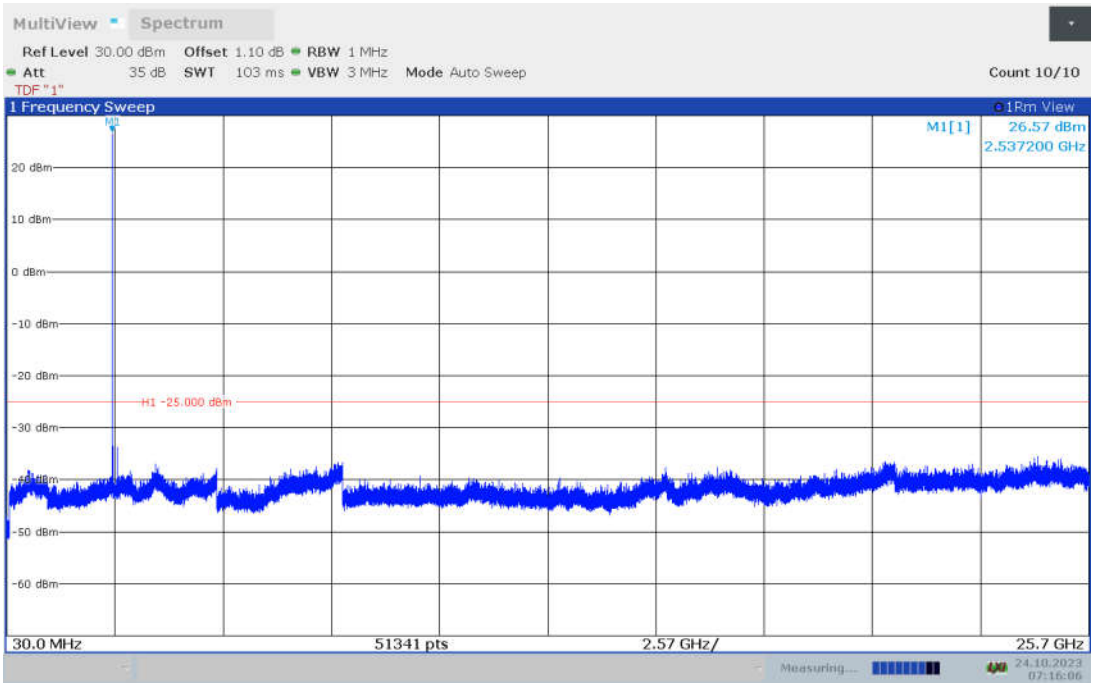
LTE band 7 20MHz QPSK: 30MHz – 25.7GHz

Spurious emission limit –25dBm.

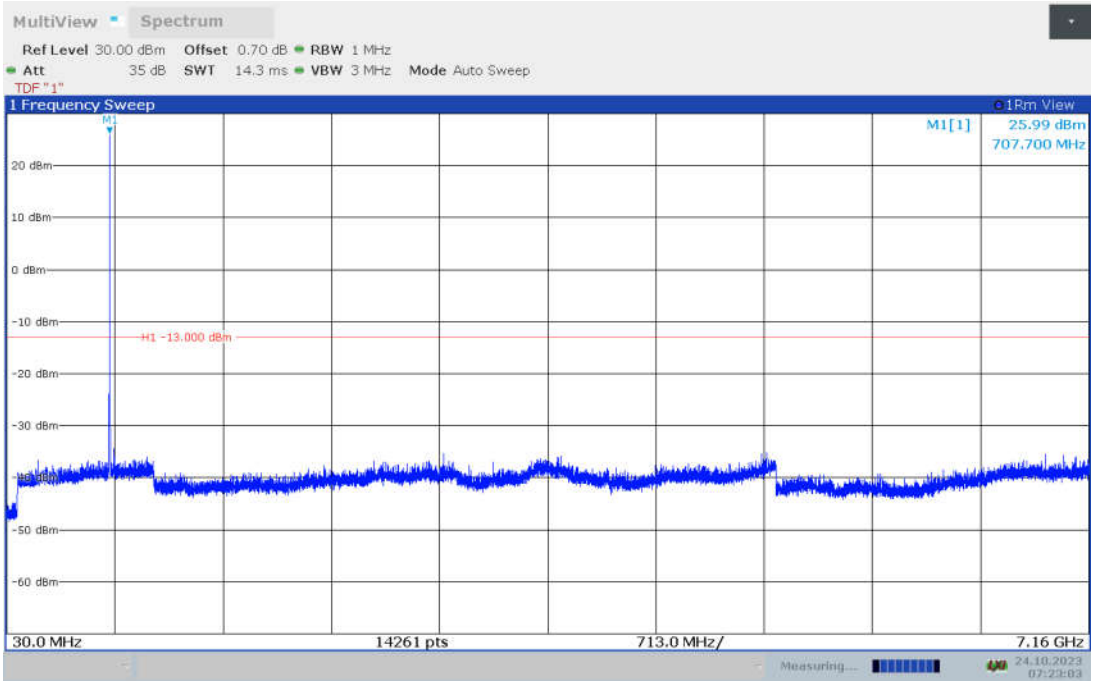
NOTE: peak above the limit line is the carrier frequency.



LTE band 12: 30MHz – 7.16GHz

Spurious emission limit –13dBm.

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



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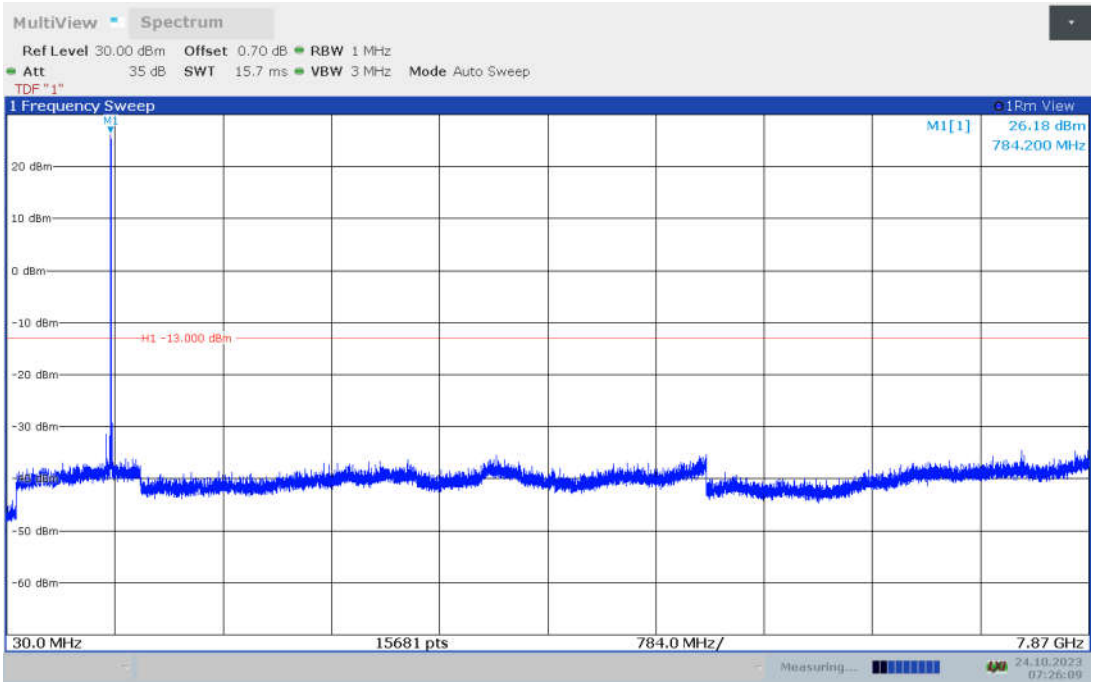
LTE band 13: 30MHz – 7.87GHz

Spurious emission limit –13dBm.

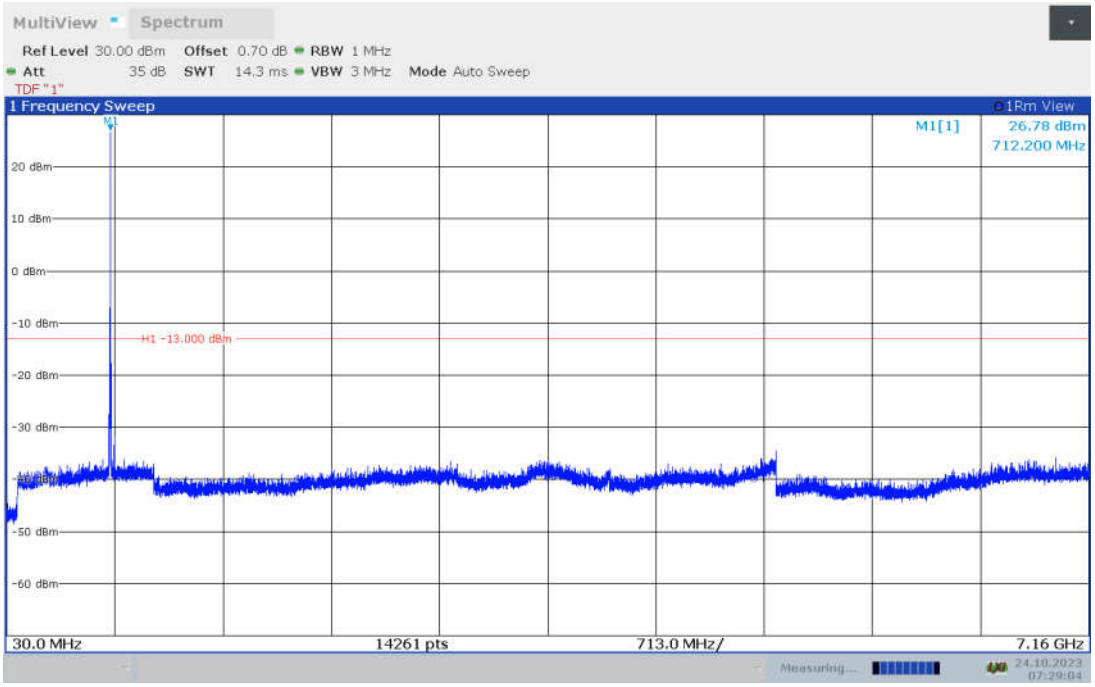
NOTE: peak above the limit line is the carrier frequency.



LTE band 17: 30MHz – 7.98GHz

Spurious emission limit –13dBm.

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



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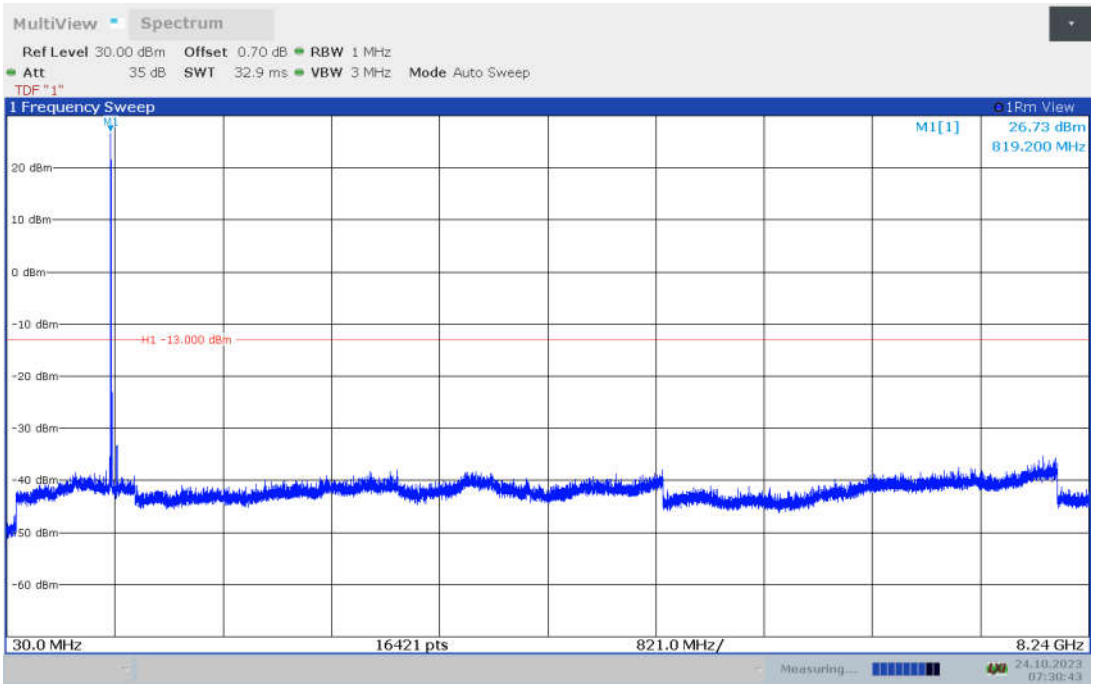
LTE band 26(814MHz-824MHz): 30MHz – 8.24GHz

Spurious emission limit –13dBm.

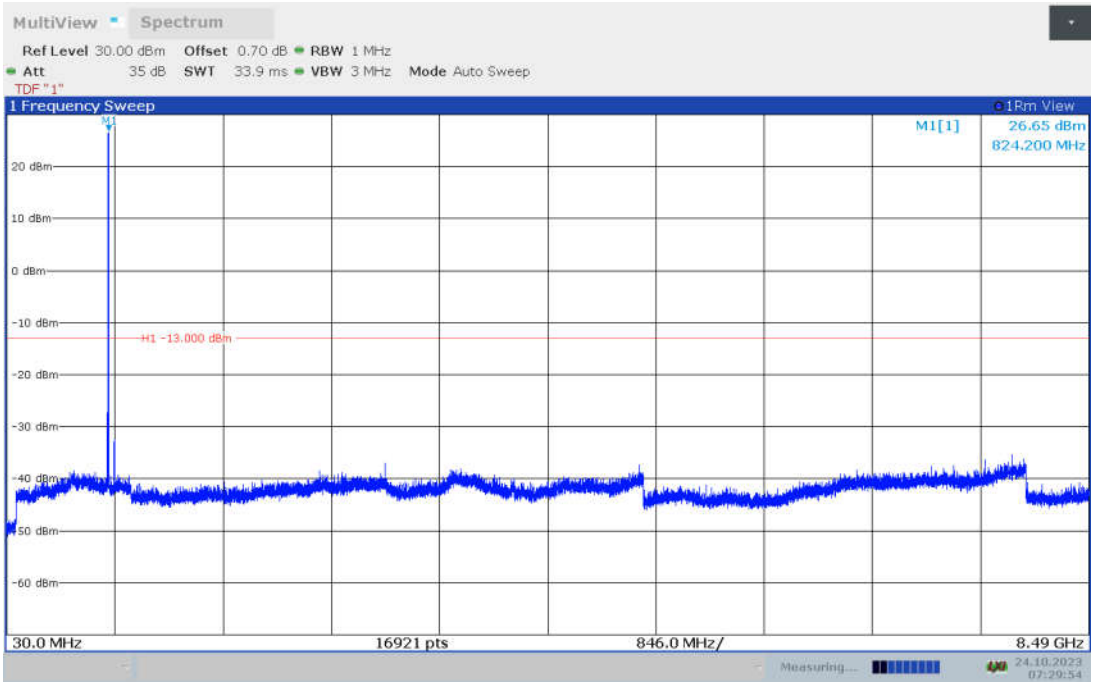
NOTE: peak above the limit line is the carrier frequency.



LTE band 26(824MHz-849MHz): 30MHz – 8.49GHz

Spurious emission limit –13dBm.

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



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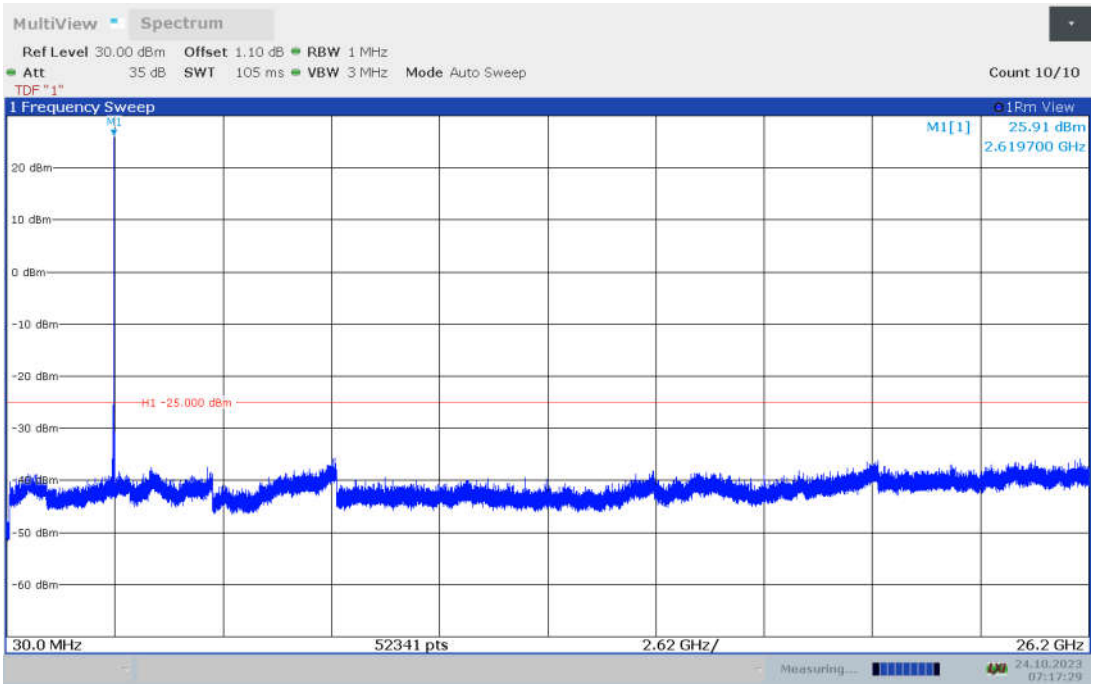
LTE band 38: 30MHz – 26.2GHz

Spurious emission limit –25dBm.

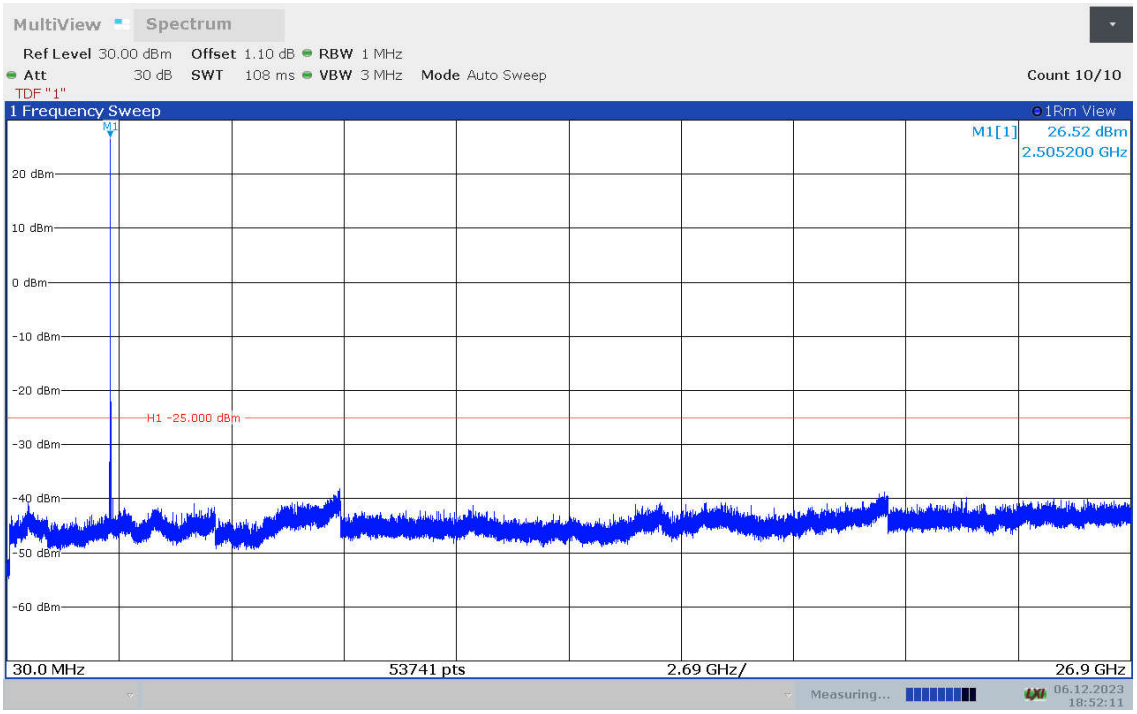
NOTE: peak above the limit line is the carrier frequency.



LTE band 41: 30MHz – 26.9GHz

Spurious emission limit –25dBm.

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



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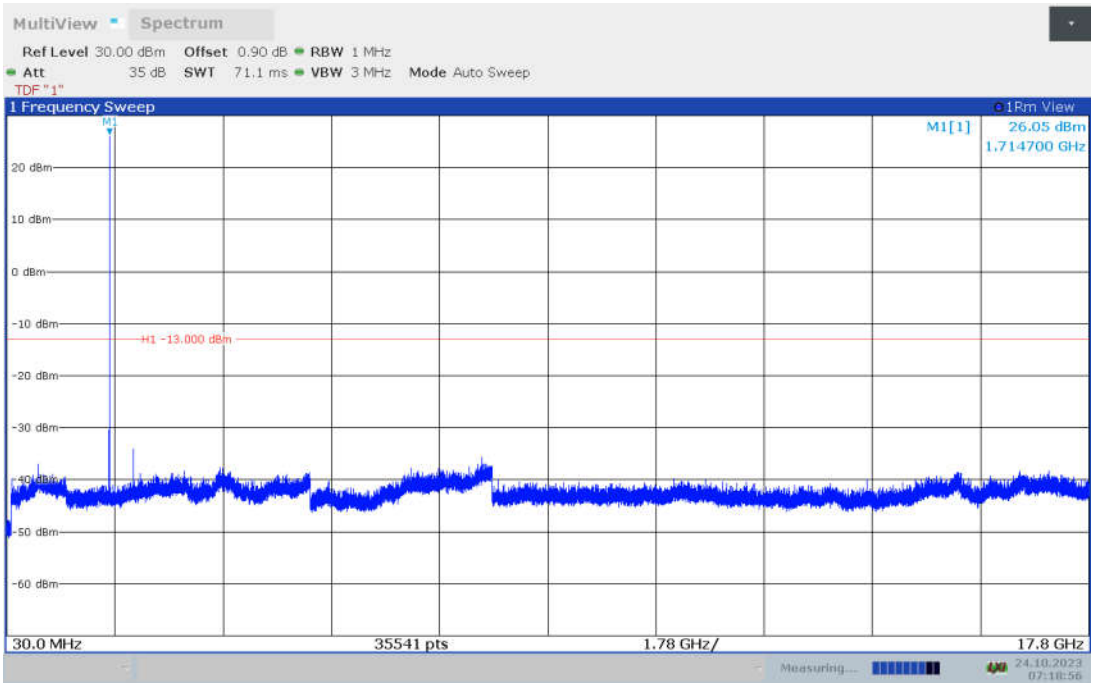
LTE Band 66: 30MHz – 17.8GHz

Spurious emission limit –13dBm.

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



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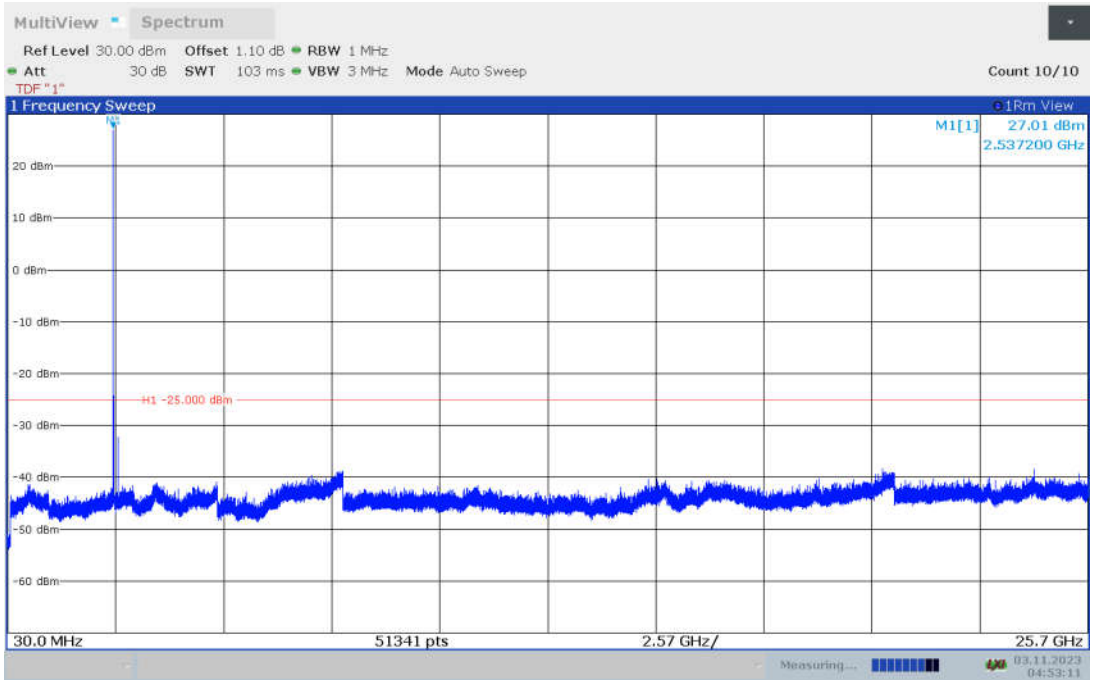
LTE CA_7C Hz QPSK: 30MHz – 25.7GHz

Spurious emission limit –25dBm.

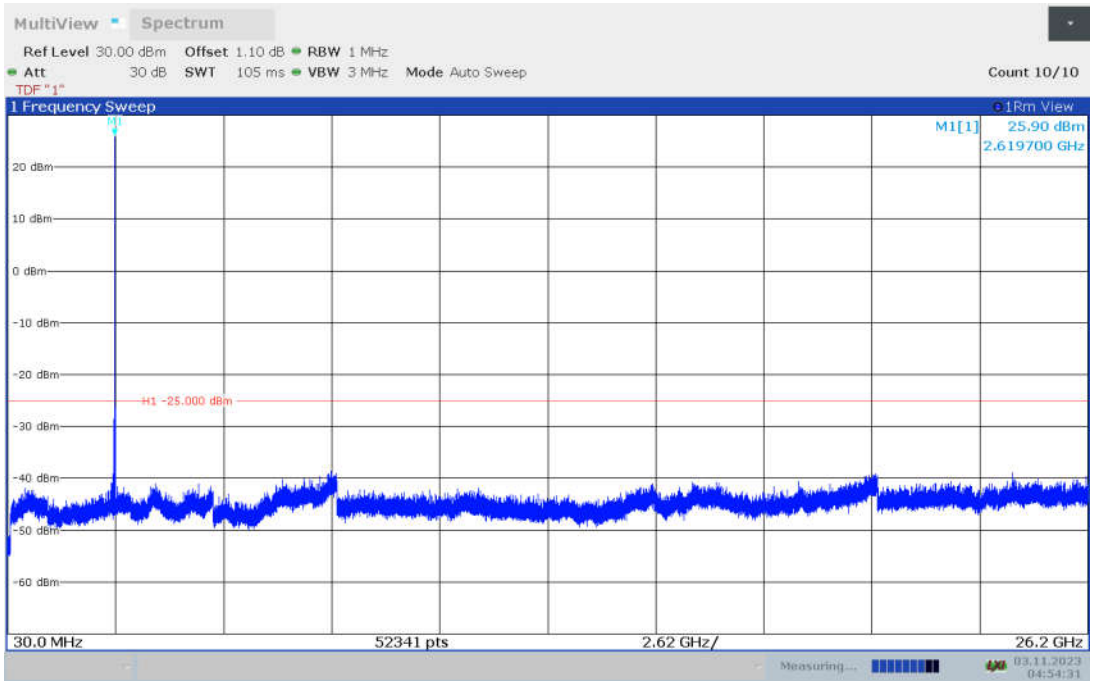
NOTE: peak above the limit line is the carrier frequency.



LTE CA_38C Hz QPSK: 30MHz – 26.2GHz

Spurious emission limit –25dBm.

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



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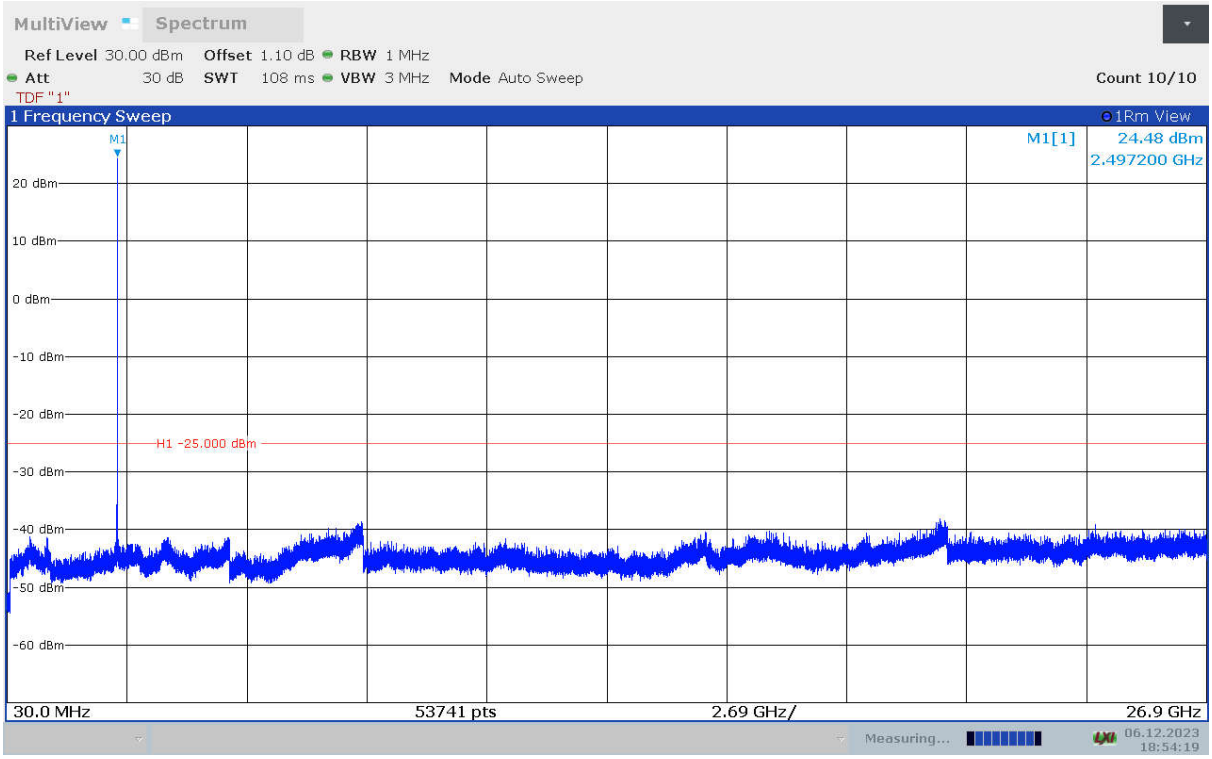
LTE CA_41C Hz QPSK: 30MHz – 26.9GHz

Spurious emission limit –25dBm.

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



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A.8 PEAK-TO-AVERAGE POWER RATIO

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

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

Measurement results

Only worst case result is given below

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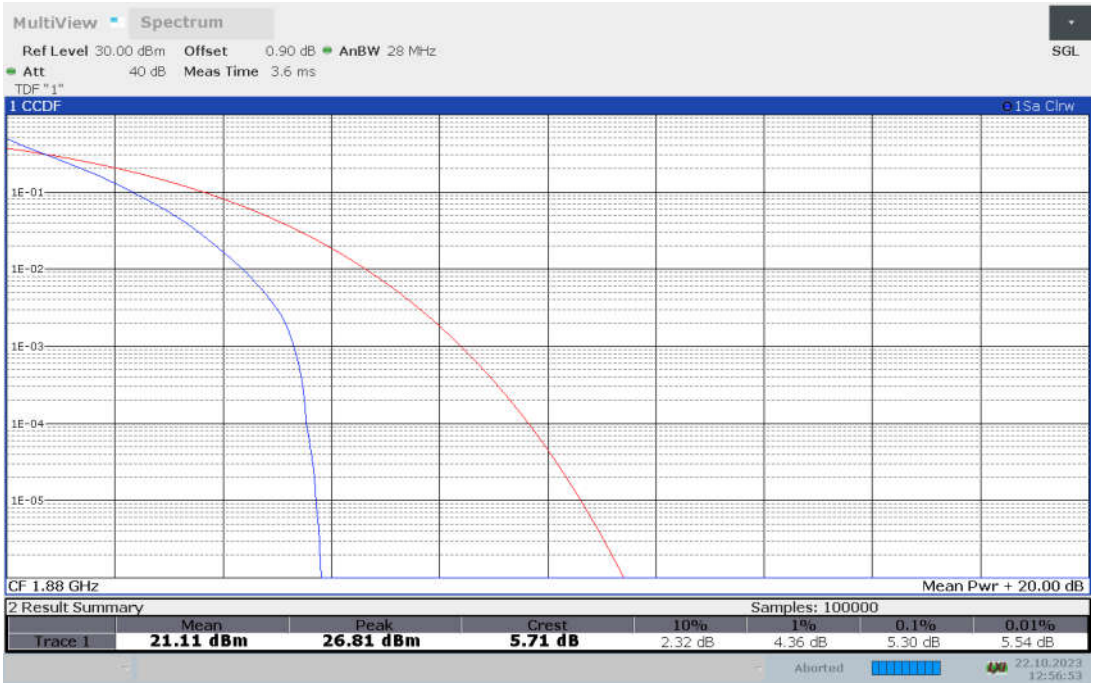
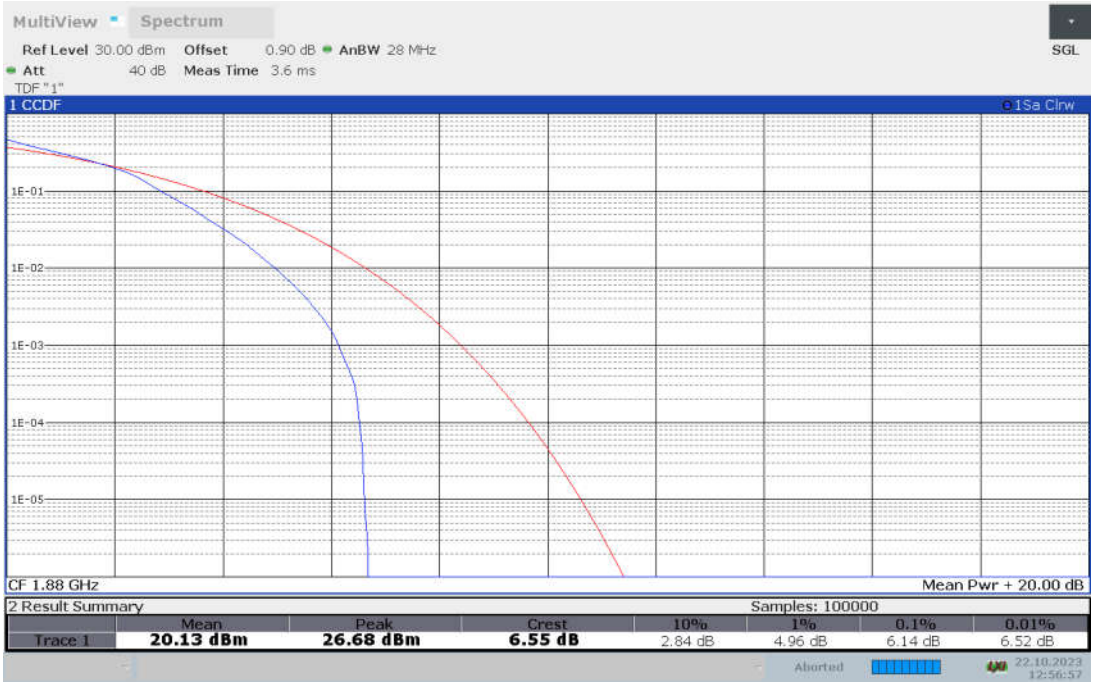
LTE band 2

Frequency(MHz)	Bandwidth(MHz)	PAPR(dB)	
		QPSK	16QAM
1880.0	20	5.30	6.14

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



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



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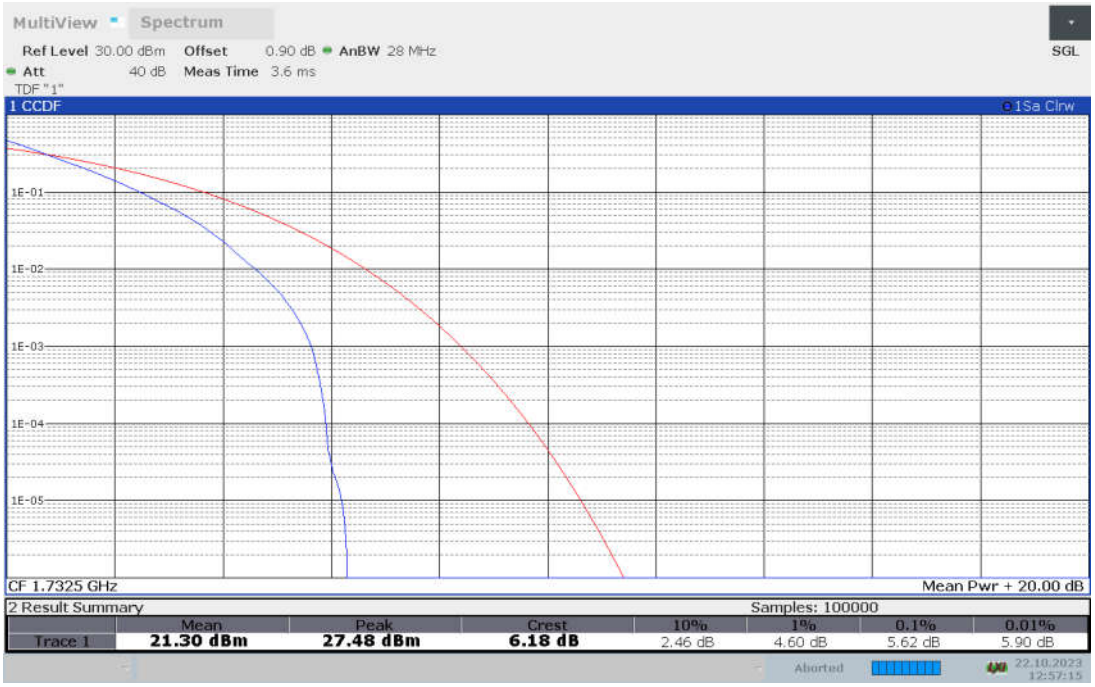
LTE band 4

Frequency(MHz)	Bandwidth(MHz)	PAPR(dB)	
		QPSK	16QAM
1732.5	20	5.62	6.46

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



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

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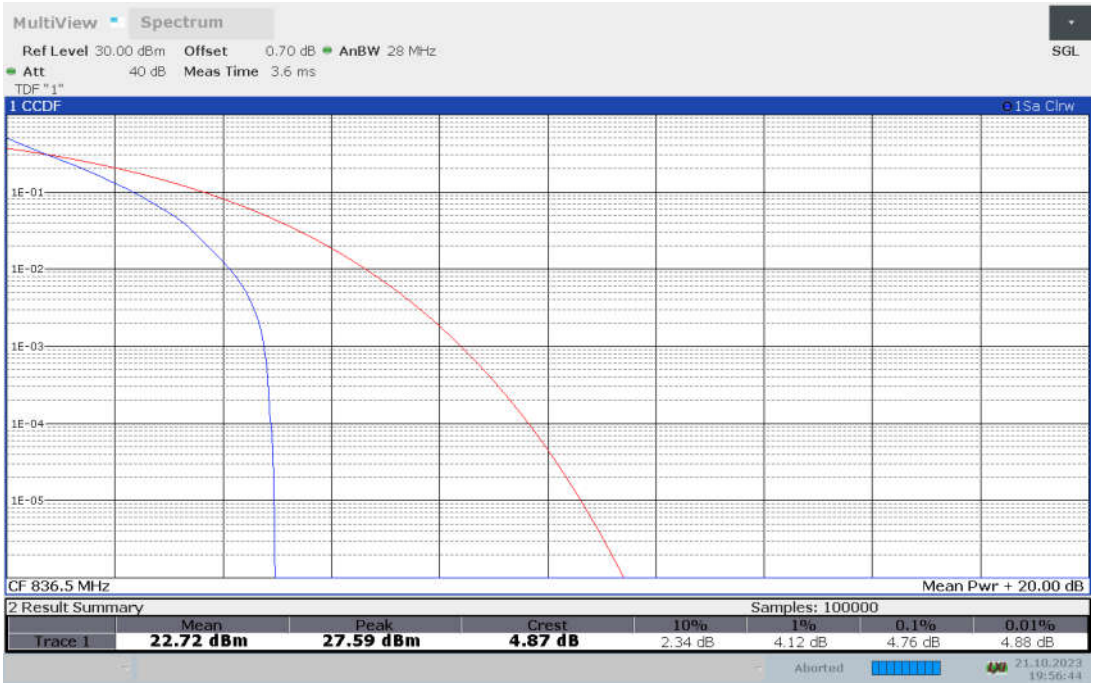
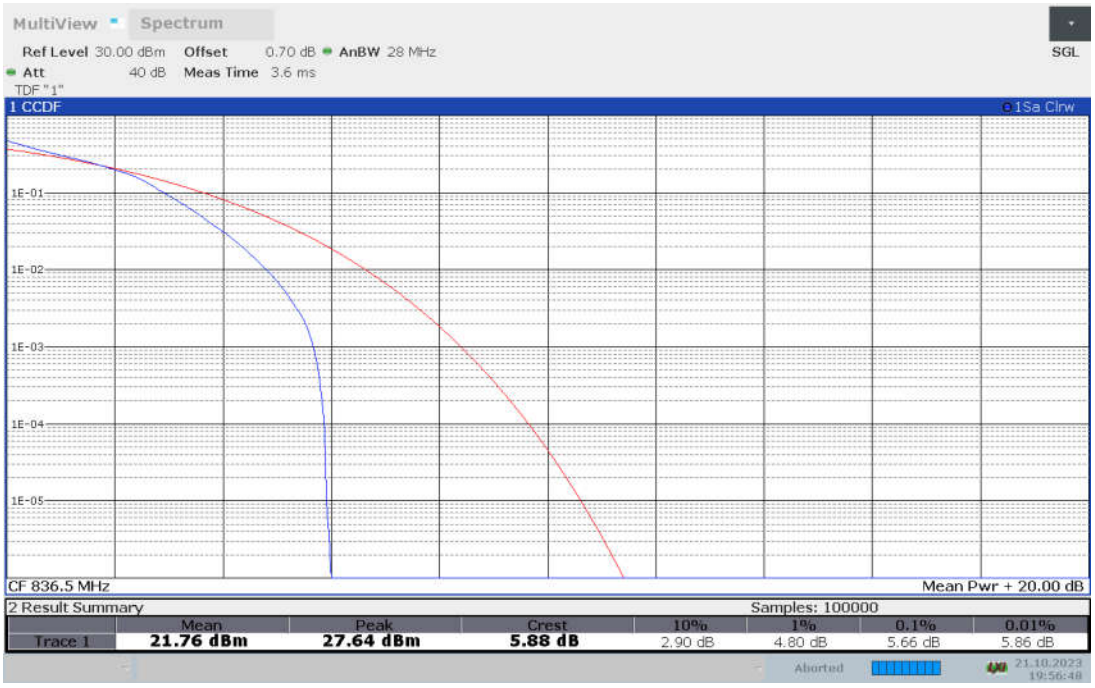
LTE band 5

Frequency(MHz)	Bandwidth(MHz)	PAPR(dB)	
		QPSK	16QAM
826.5	10	4.76	5.66

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



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



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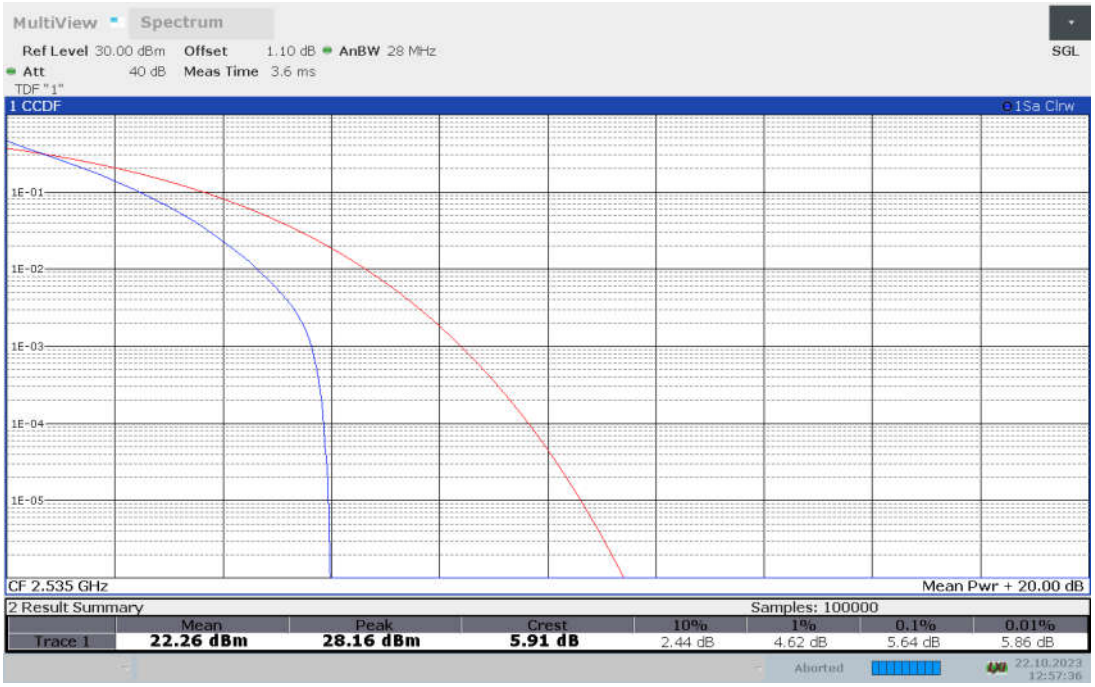
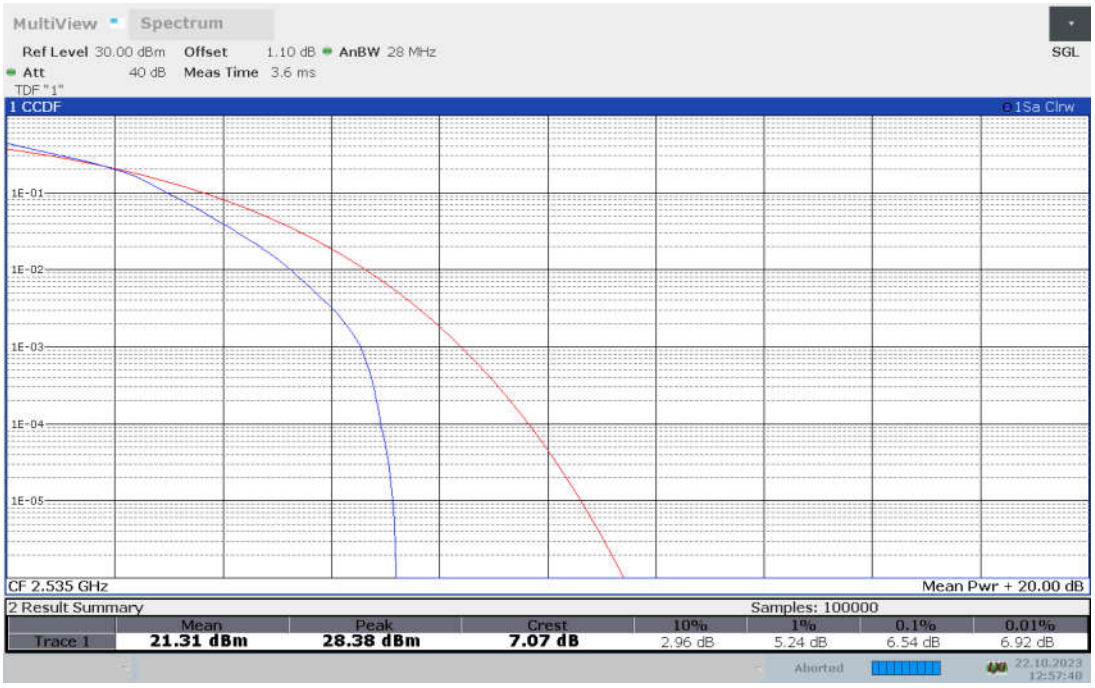
LTE band 7

Frequency(MHz)	Bandwidth(MHz)	PAPR(dB)	
		QPSK	16QAM
2535.0	20	5.64	6.54

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



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



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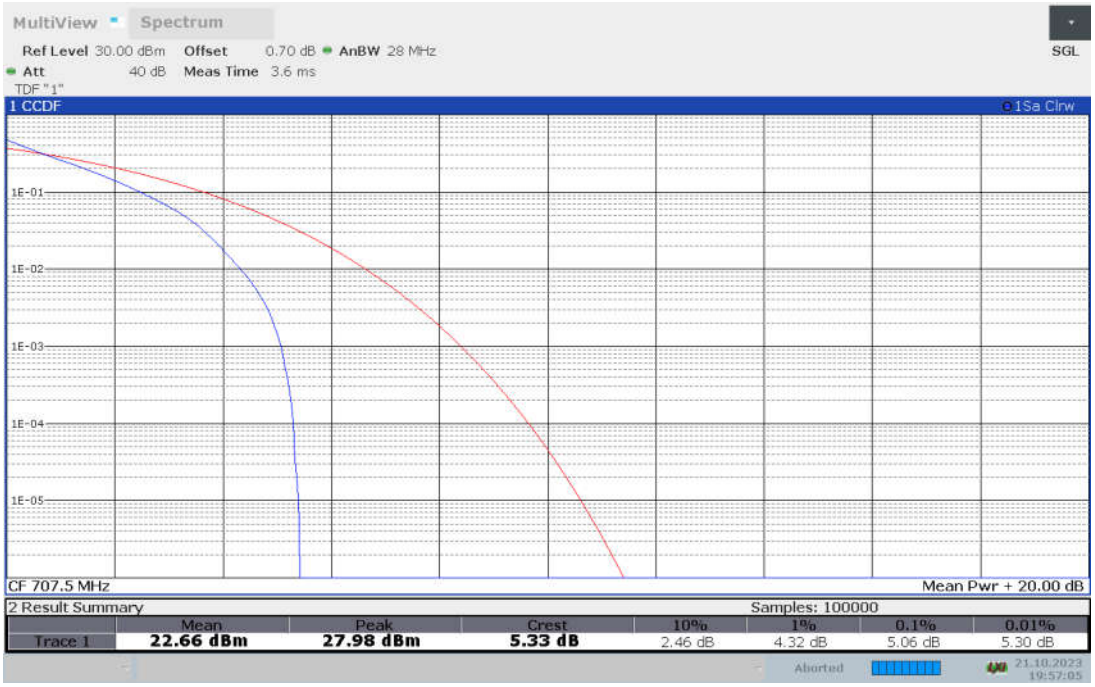
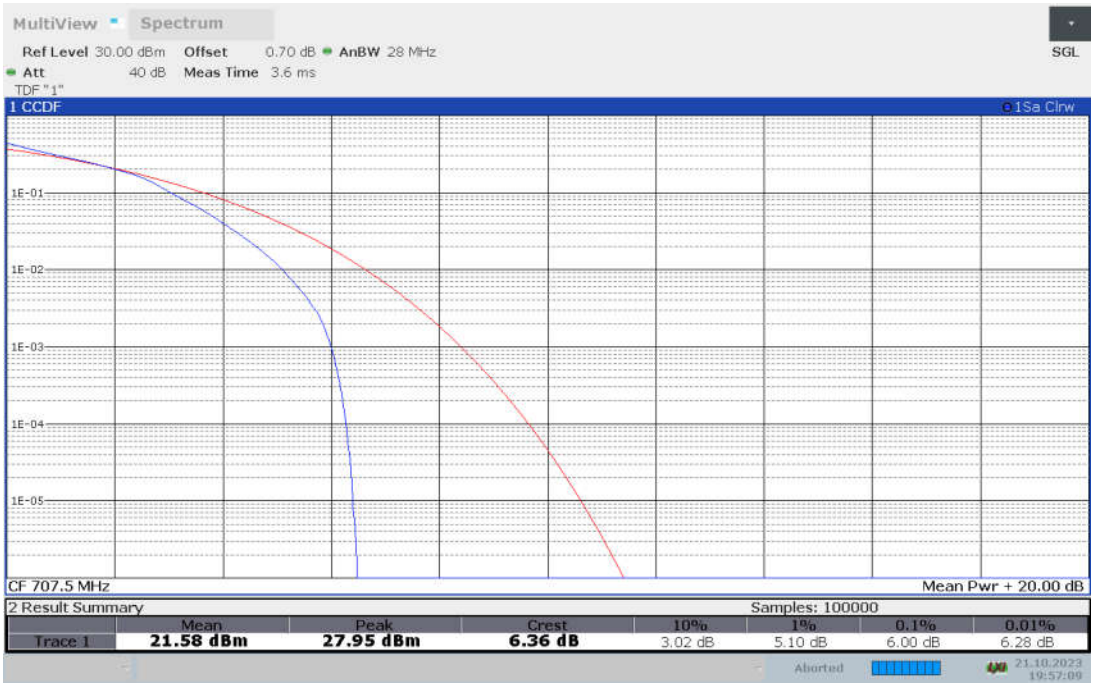
LTE band 12

Frequency(MHz)	Bandwidth(MHz)	PAPR(dB)	
		QPSK	16QAM
707.5	10	5.06	6.00

LTE band 12, 10MHz Bandwidth, QPSK (PAPR)



LTE band 12, 10MHz Bandwidth, 16QAM (PAPR)



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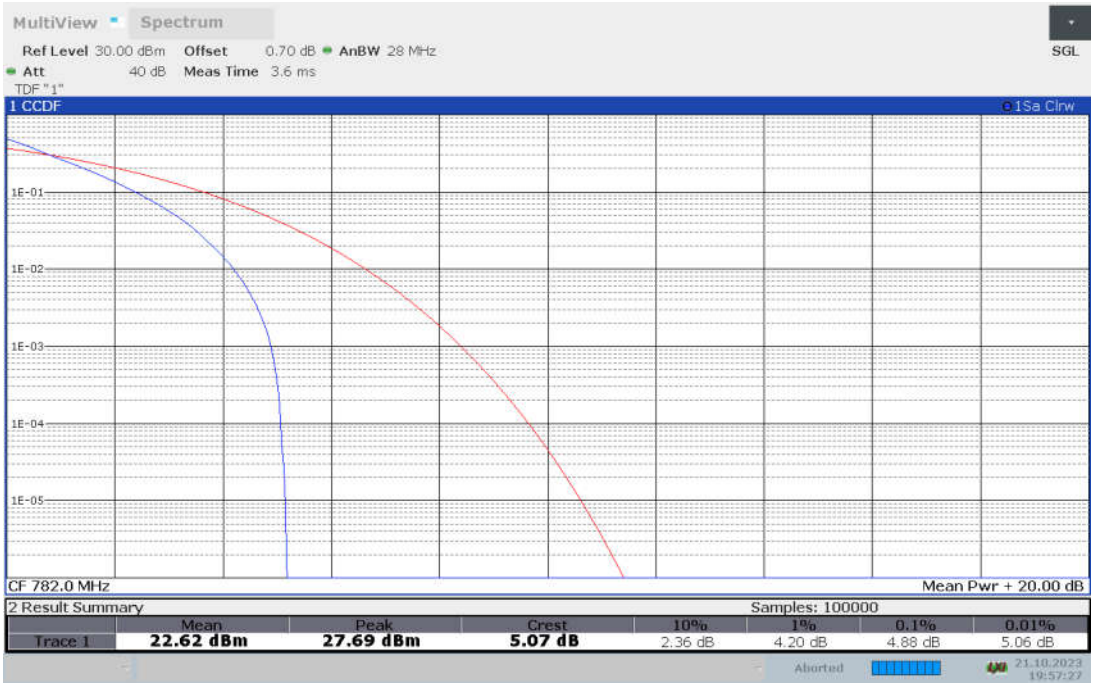
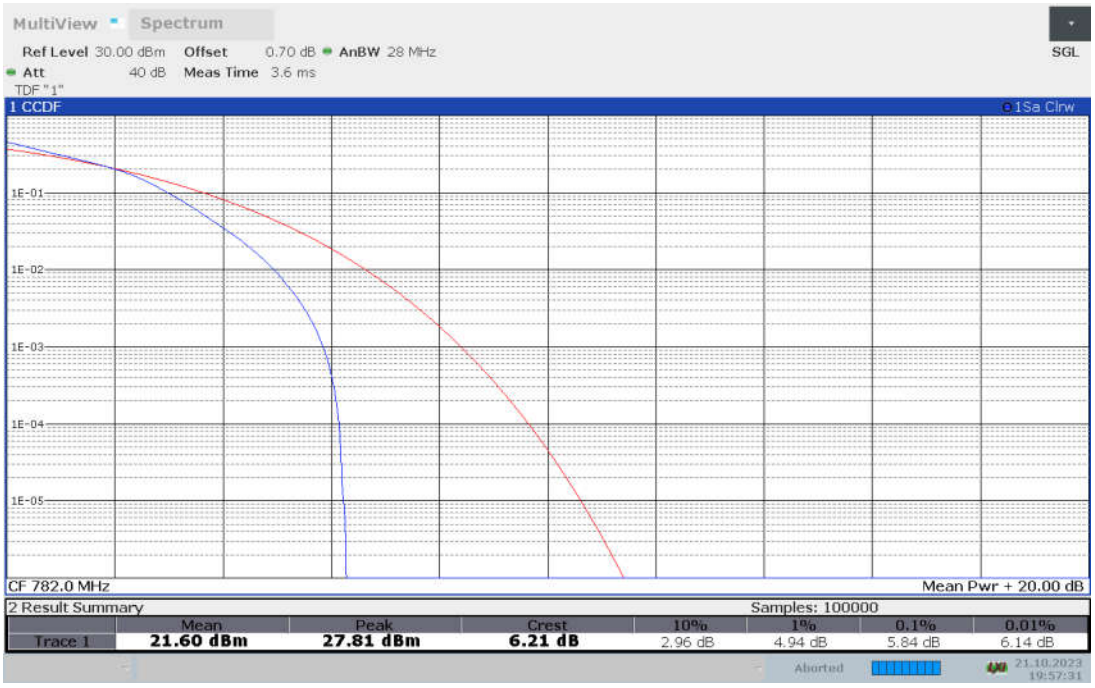
LTE band 13

Frequency(MHz)	Bandwidth(MHz)	PAPR(dB)	
		QPSK	16QAM
782.0	10	4.88	5.84

LTE band 13, 10MHz Bandwidth, QPSK (PAPR)



LTE band 13, 10MHz Bandwidth, 16QAM (PAPR)



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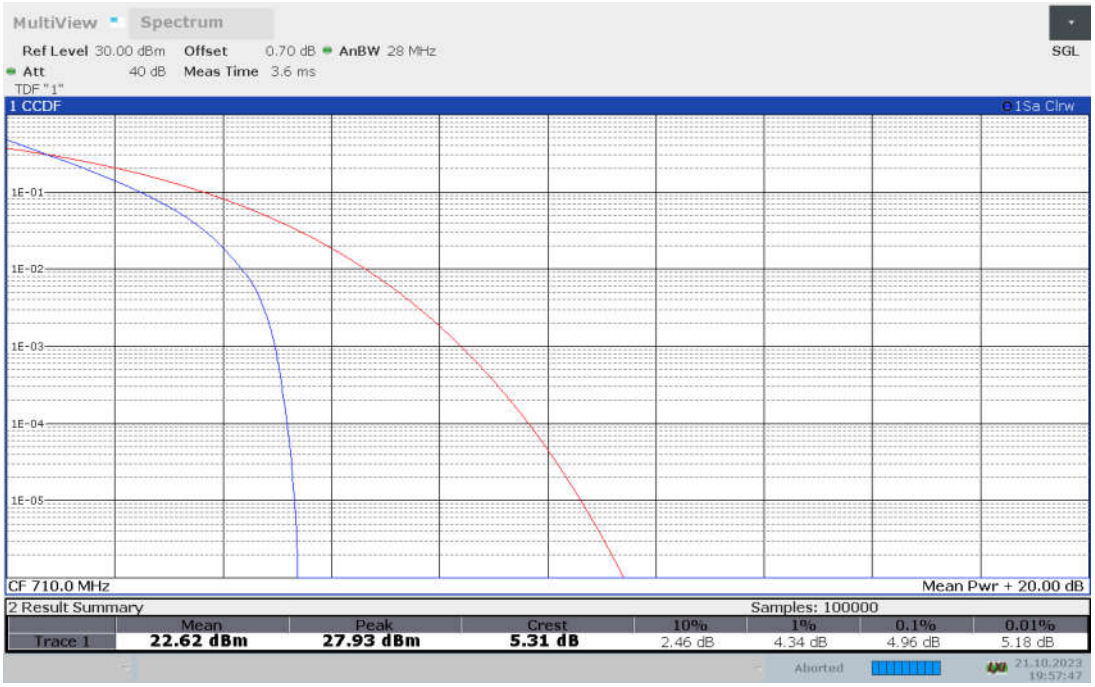
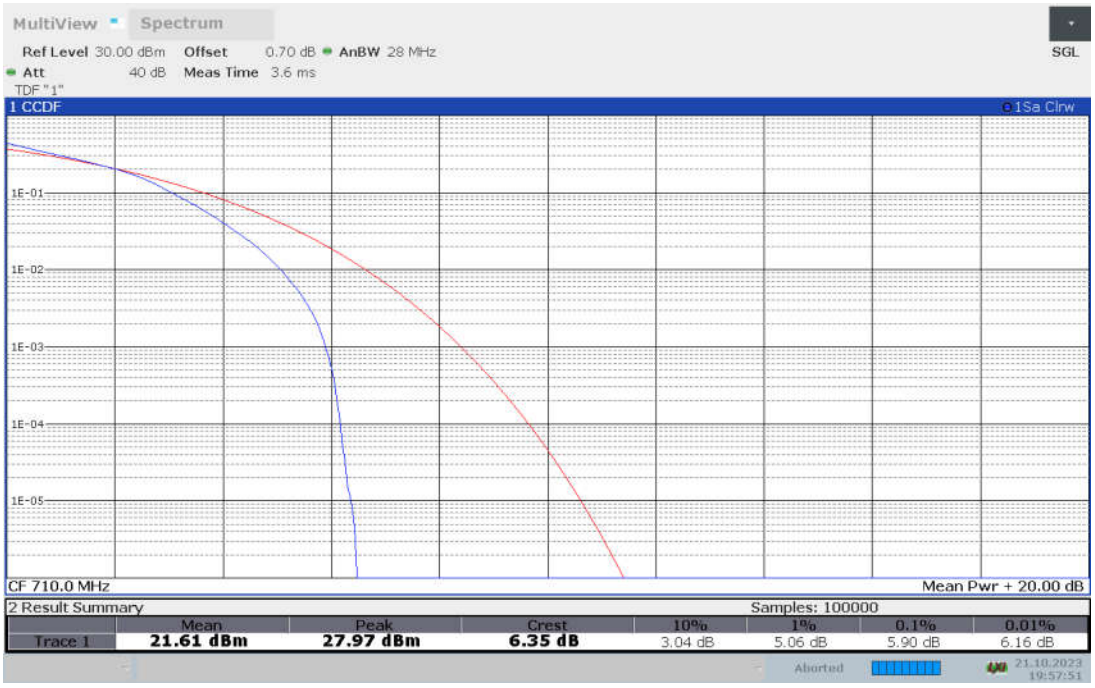
LTE band 17

Frequency(MHz)	Bandwidth(MHz)	PAPR(dB)	
		QPSK	16QAM
710.0	10	4.96	5.90

LTE band 17, 10MHz Bandwidth, QPSK (PAPR)



LTE band 17, 10MHz Bandwidth, 16QAM (PAPR)



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