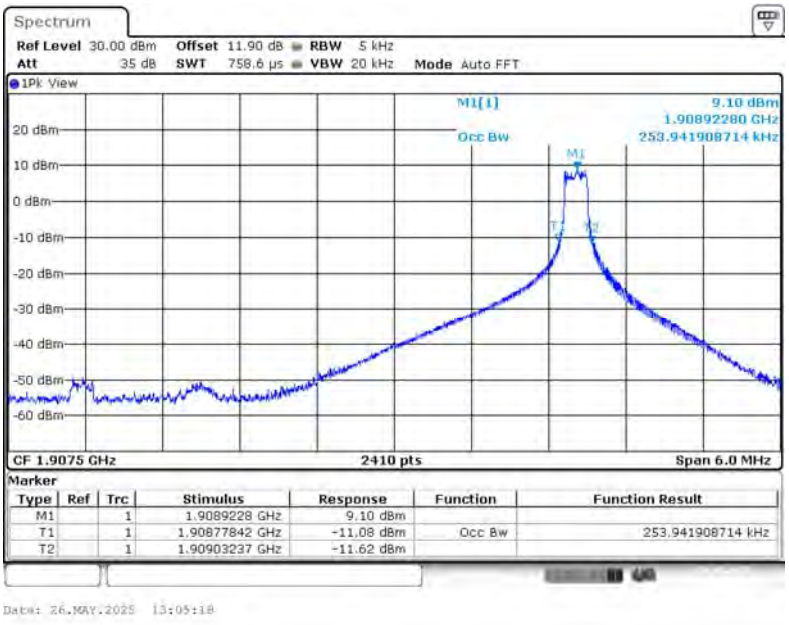
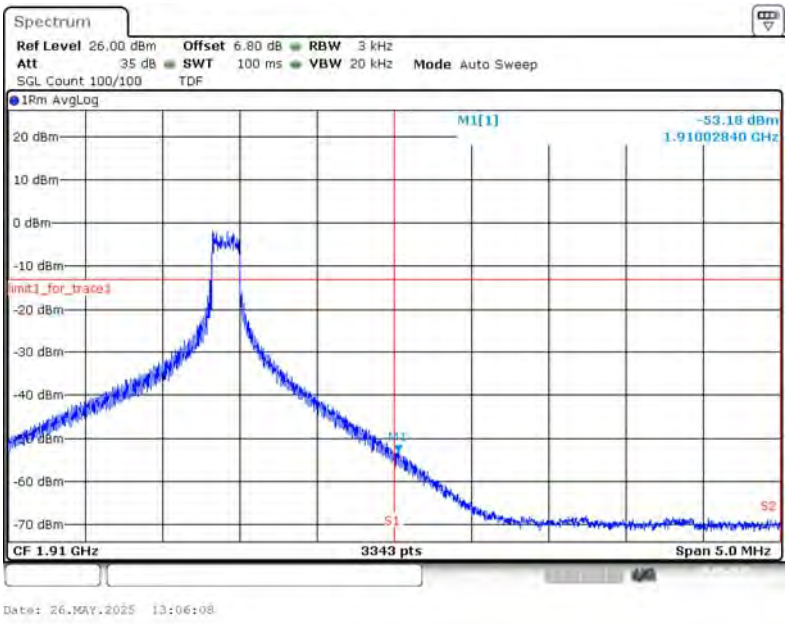
OBW: 1RB-HIGH_offset



HIGH BAND EDGE BLOCK-1RB-HIGH_offset



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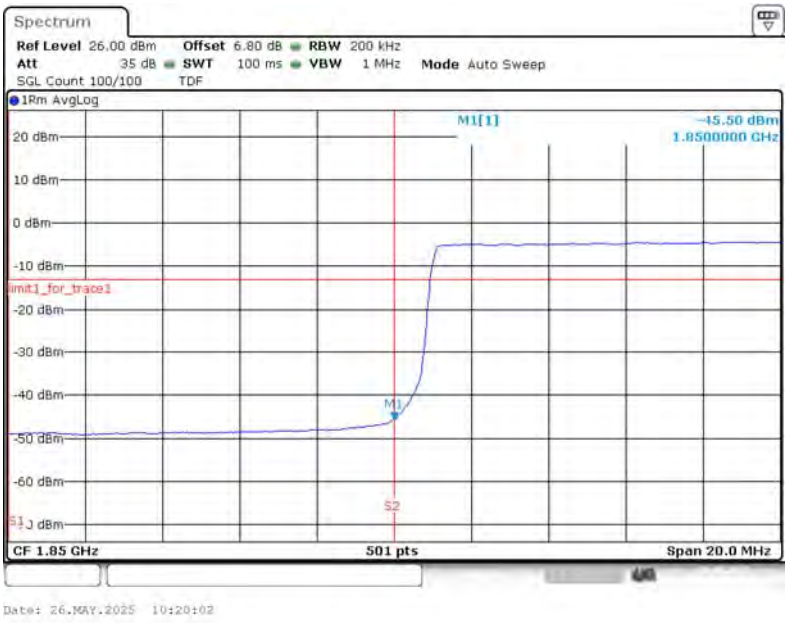
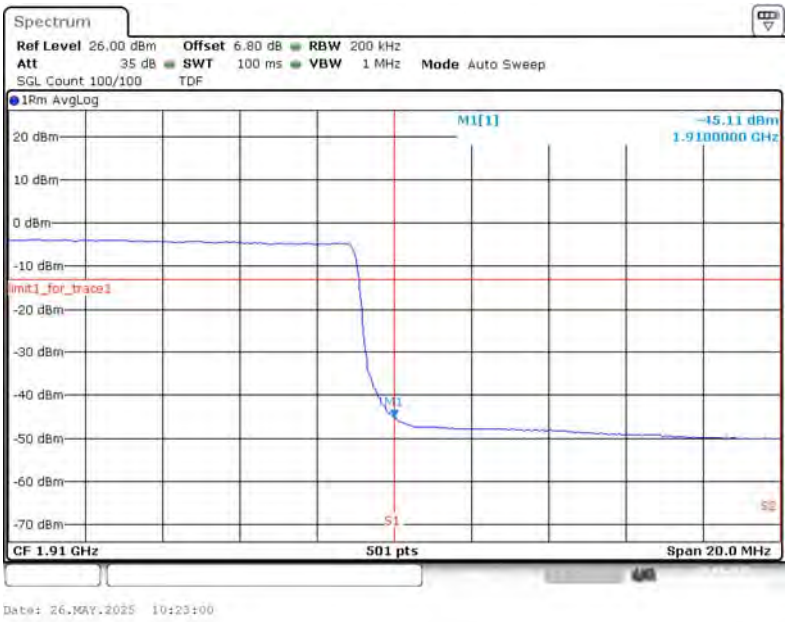
LOW BAND EDGE BLOCK-20MHz+10MHz-100%RB



HIGH BAND EDGE BLOCK-20MHz+10MHz-100%RB



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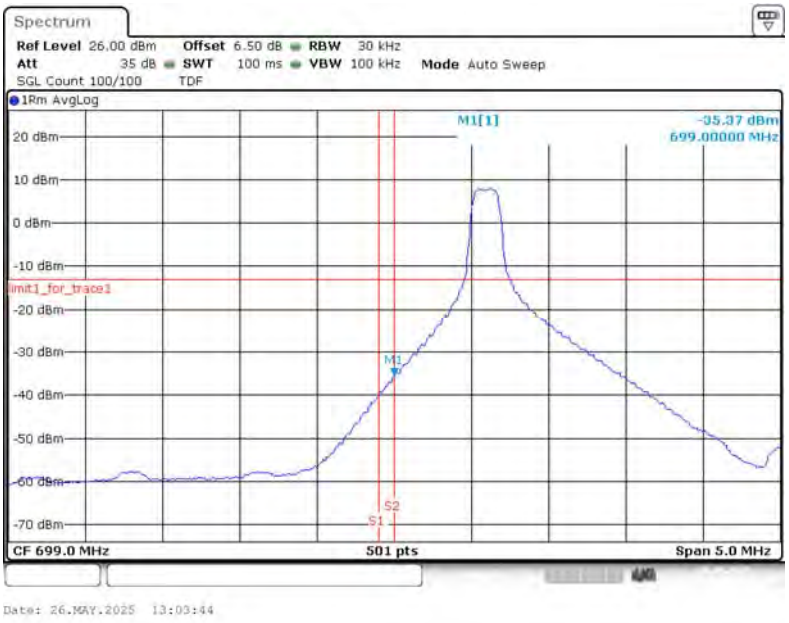
LTE band 12@CA 2A-12A

LOW BAND EDGE BLOCK-1RB-LOW_offset



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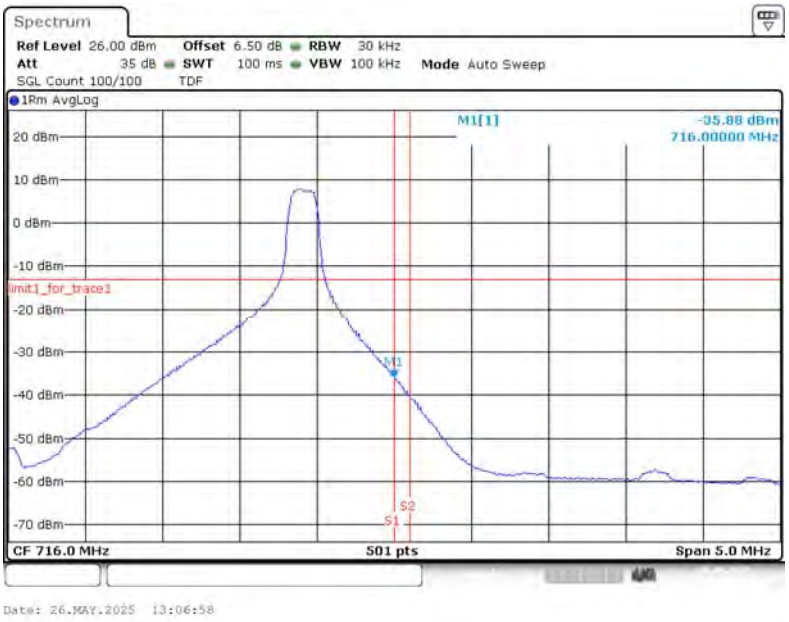

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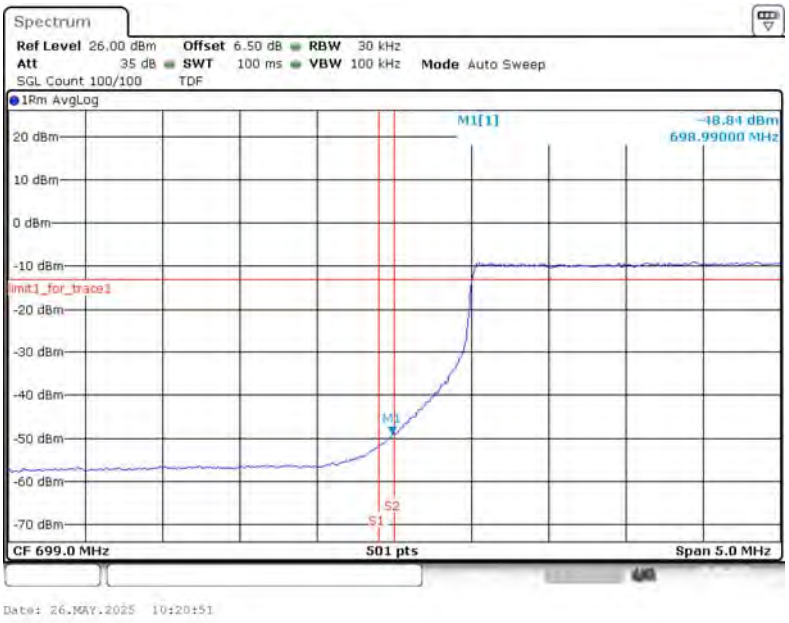
LOW BAND EDGE BLOCK-20MHz+10MHz-100%RB



HIGH BAND EDGE BLOCK-20MHz+10MHz-100%RB

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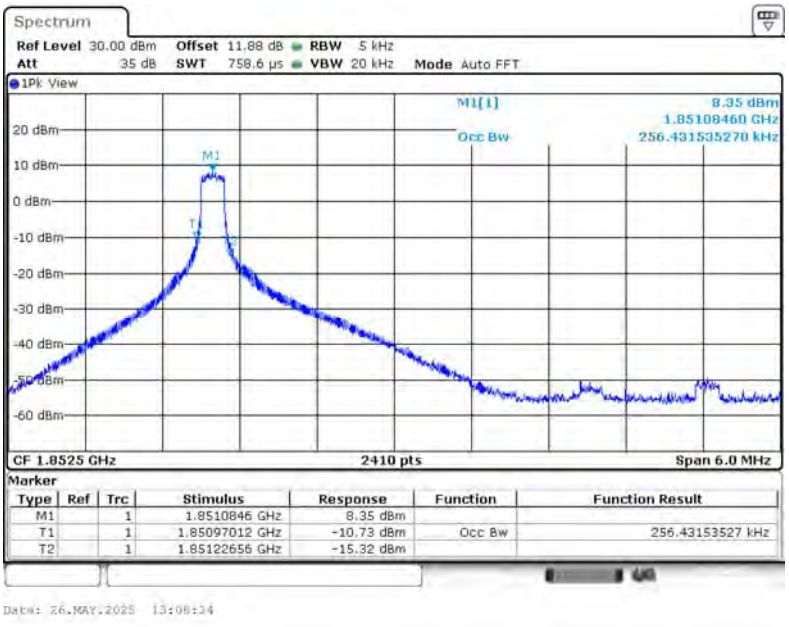
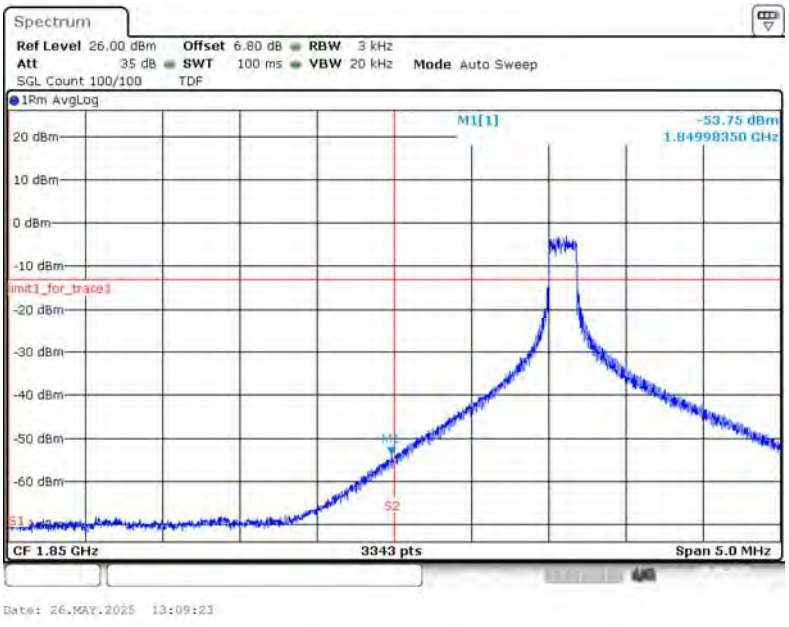
LTE band 2@CA 2A-14A

OBW: 1RB-LOW_offset



LOW BAND EDGE BLOCK-1RB-LOW_offset



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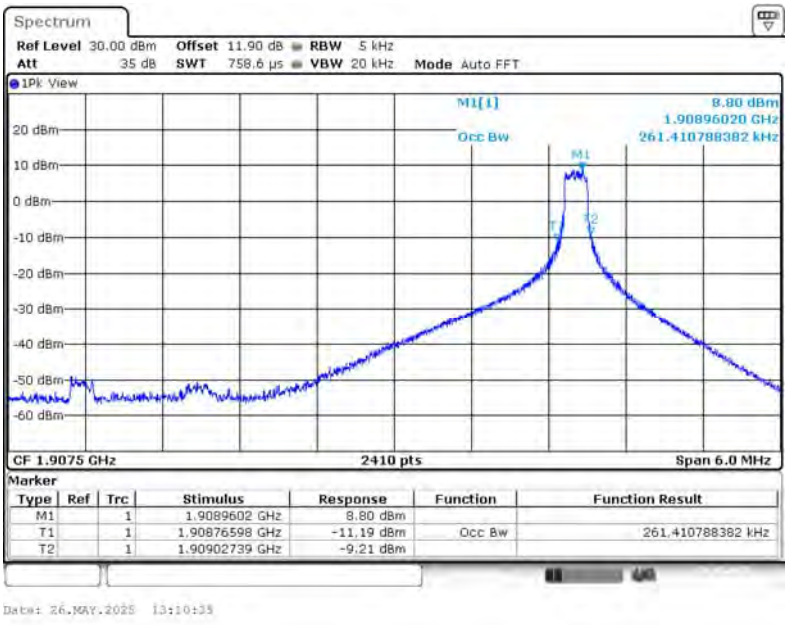
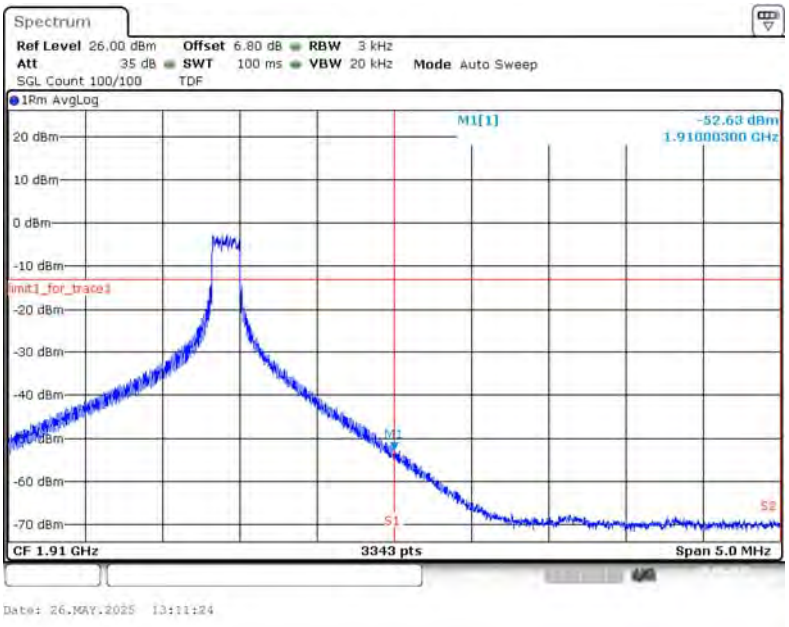
OBW: 1RB-HIGH_offset



HIGH BAND EDGE BLOCK-1RB-HIGH_offset



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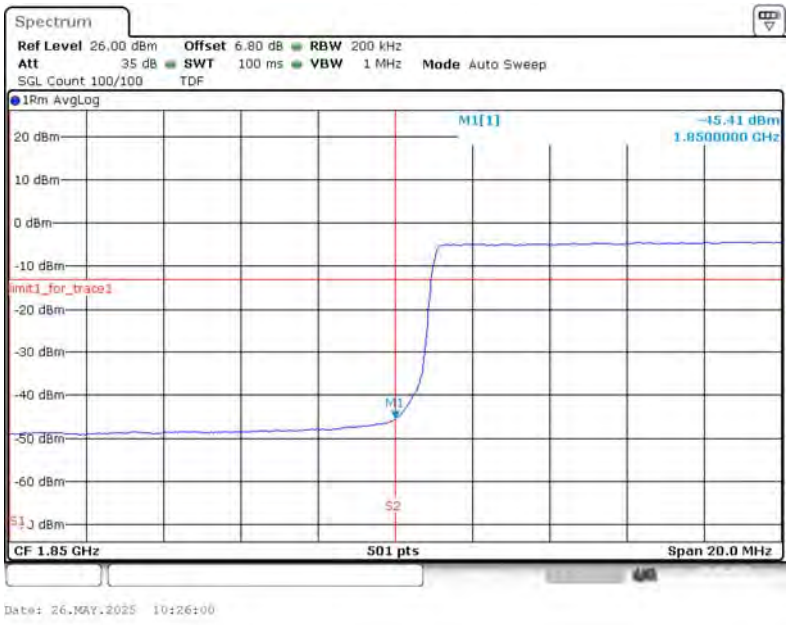
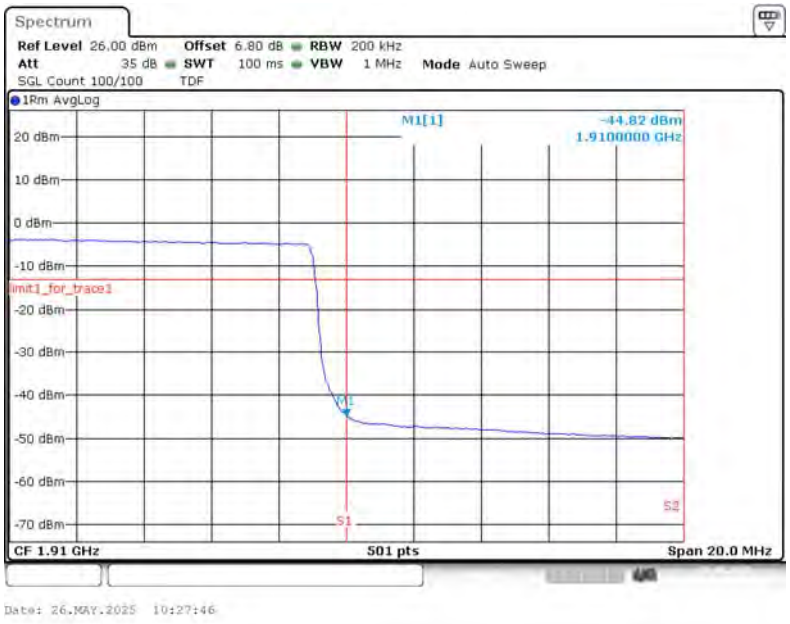
LOW BAND EDGE BLOCK-20MHz+10MHz-100%RB



HIGH BAND EDGE BLOCK-20MHz+10MHz-100%RB



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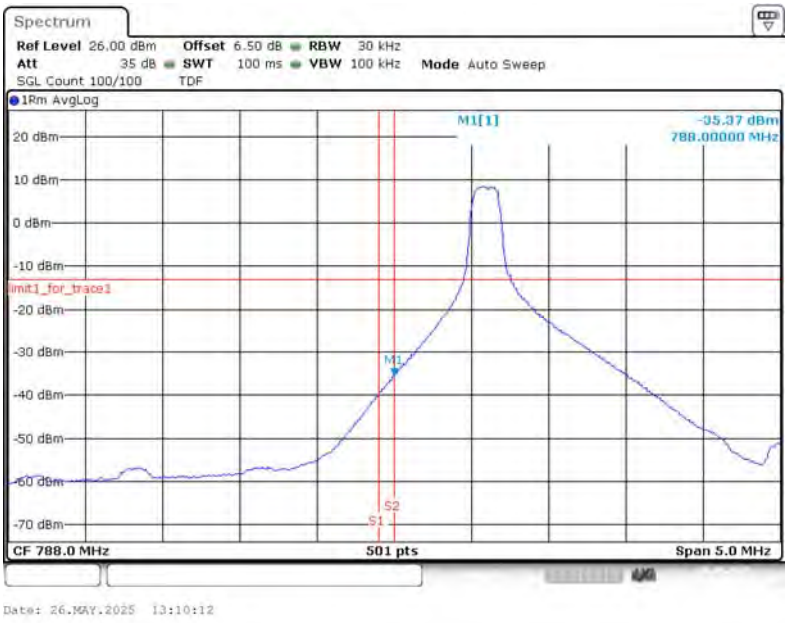
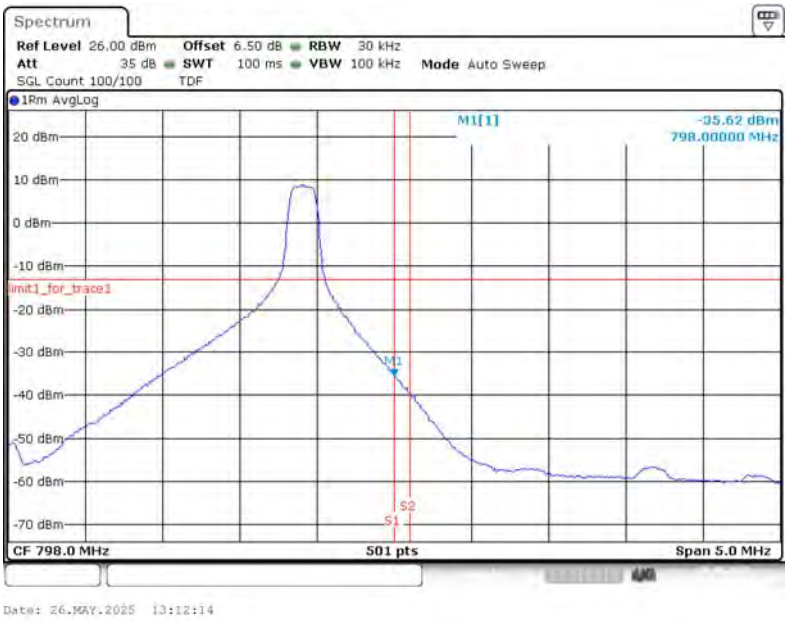
LTE band 14@CA 2A-14A

LOW BAND EDGE BLOCK-1RB-LOW_offset



HIGH BAND EDGE BLOCK-1RB-HIGH_offset



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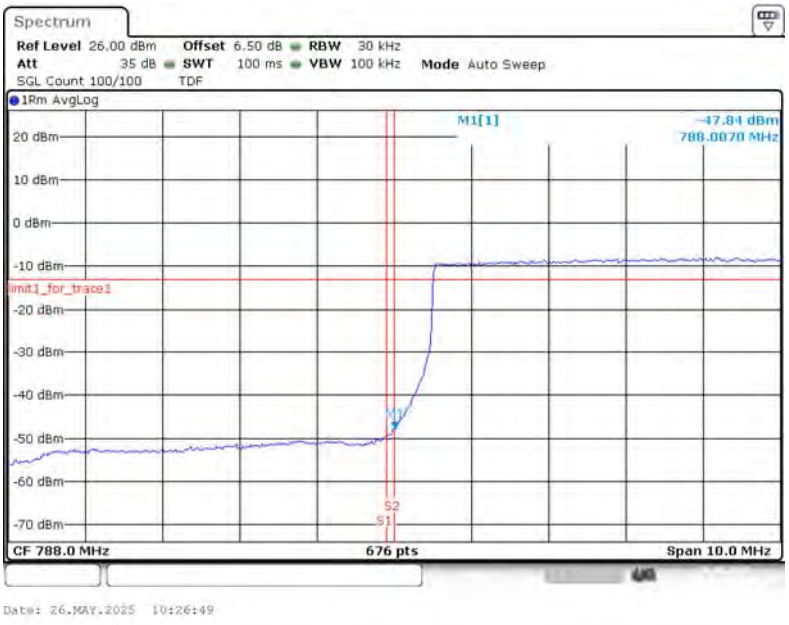
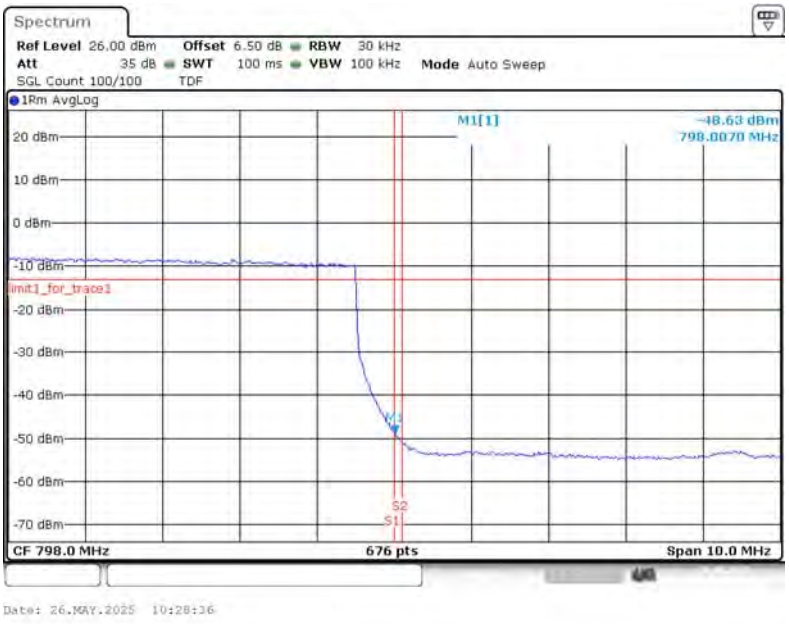
LOW BAND EDGE BLOCK-20MHz+10MHz-100%RB



HIGH BAND EDGE BLOCK-20MHz+10MHz-100%RB



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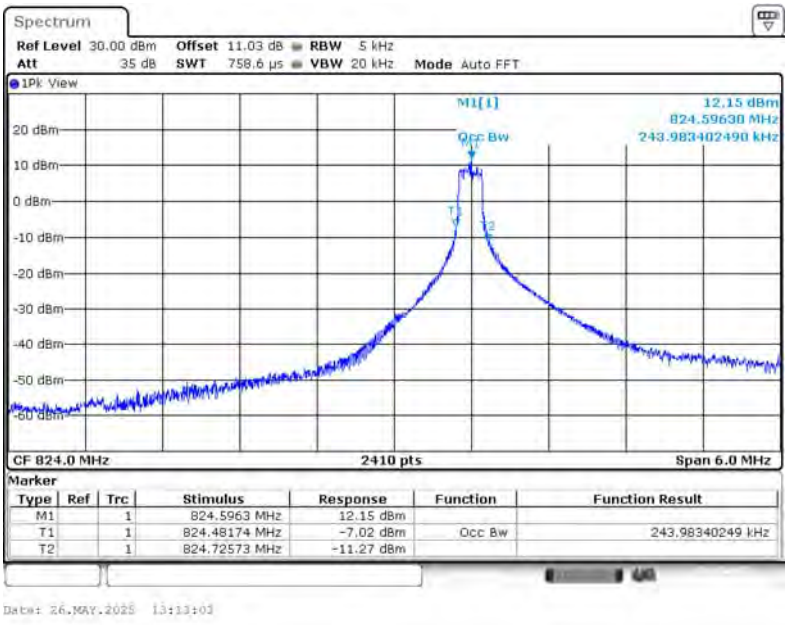
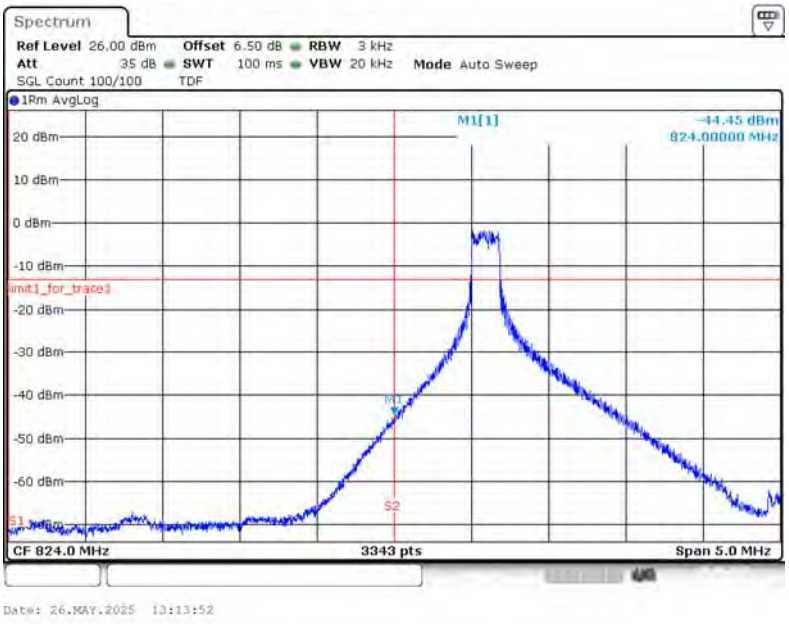
LTE band 5@CA 5A-30A

OBW: 1RB-LOW_offset



LOW BAND EDGE BLOCK-1RB-LOW_offset



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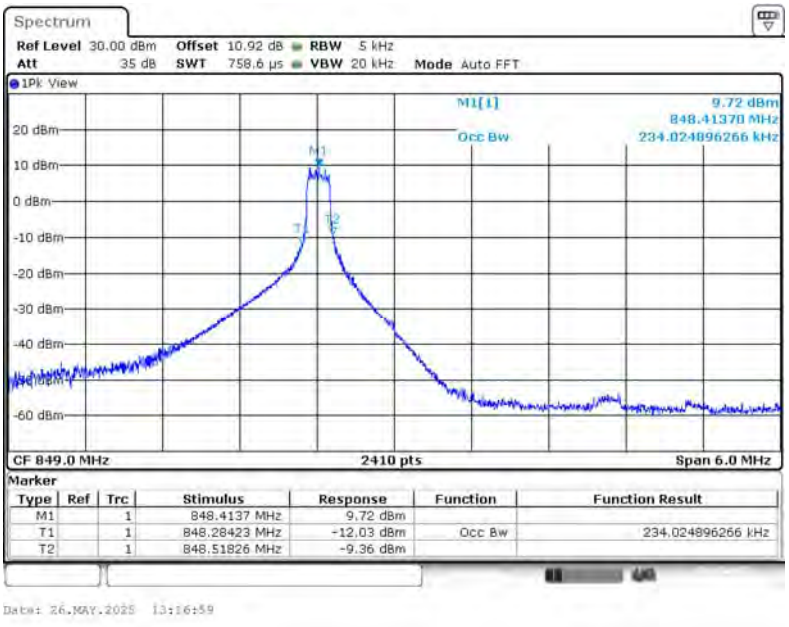
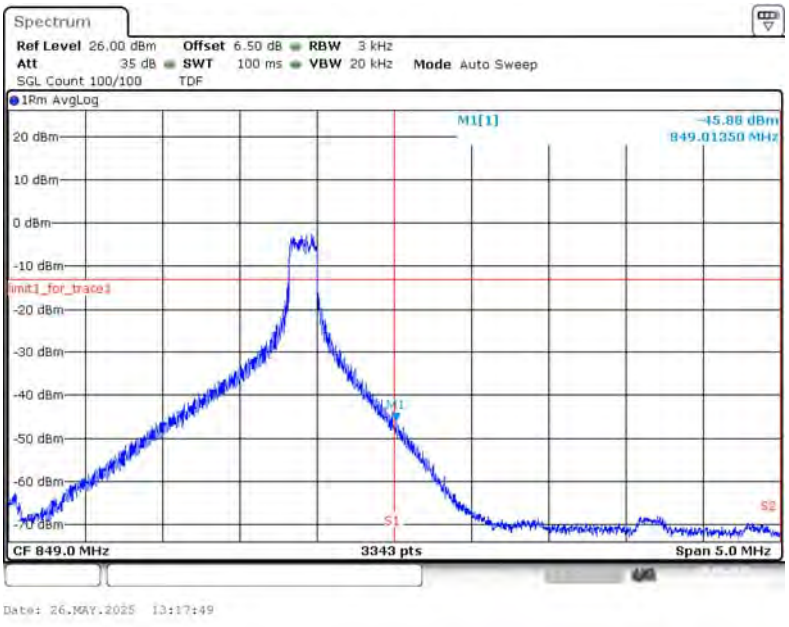
OBW: 1RB-HIGH_offset



HIGH BAND EDGE BLOCK-1RB-HIGH_offset



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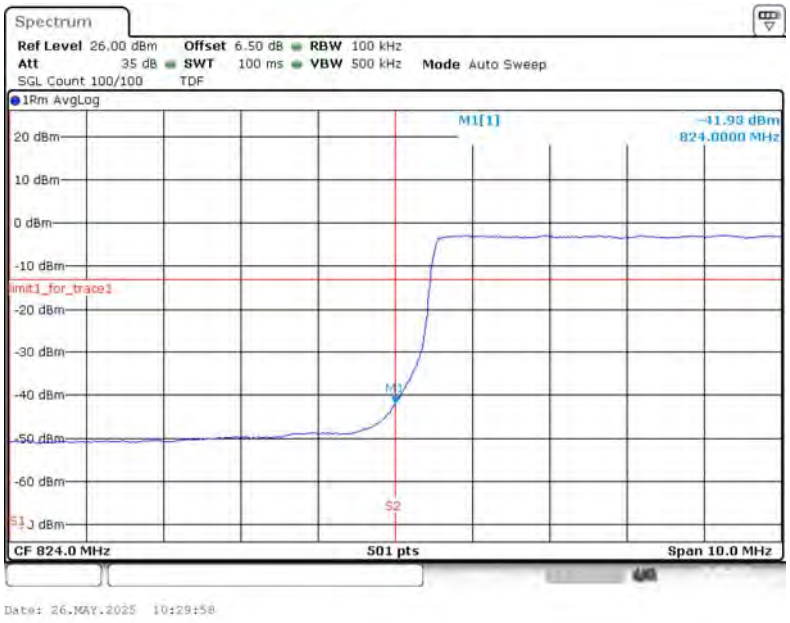
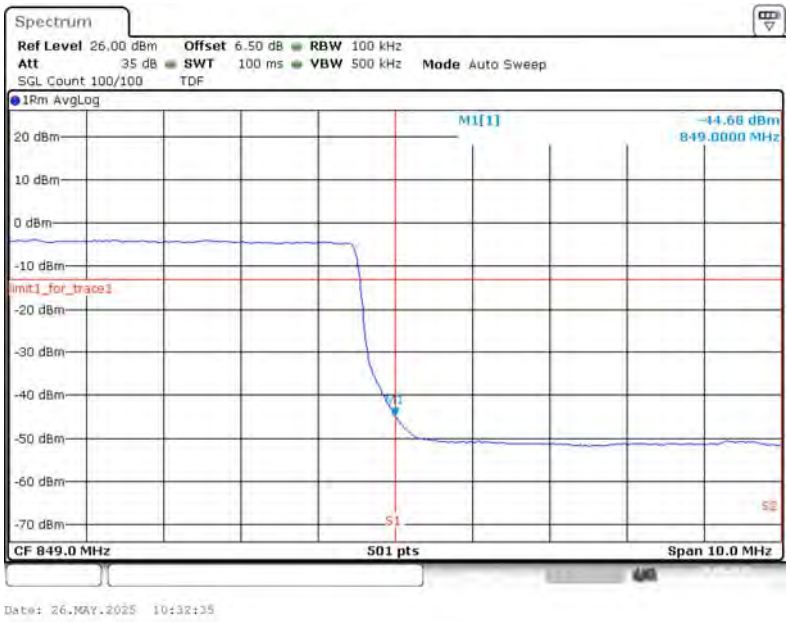
LOW BAND EDGE BLOCK-10MHz+10MHz-100%RB



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



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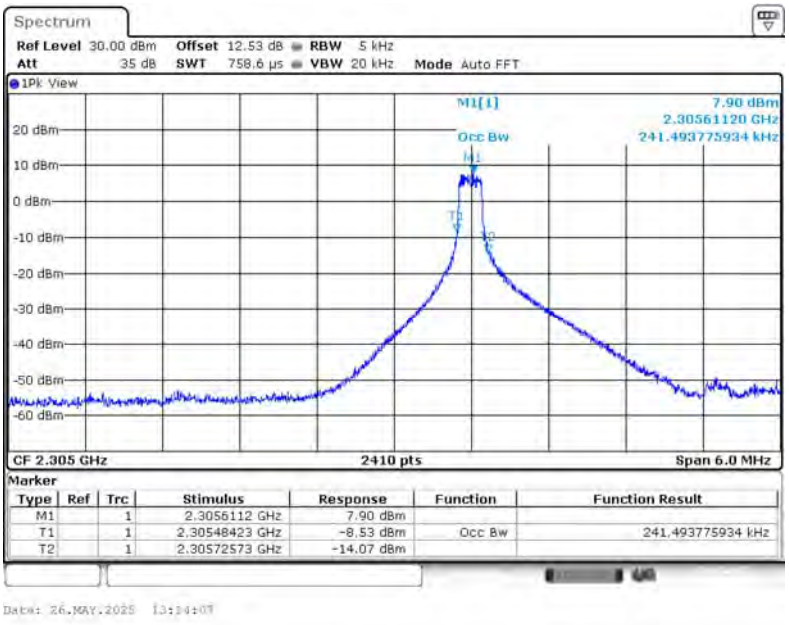
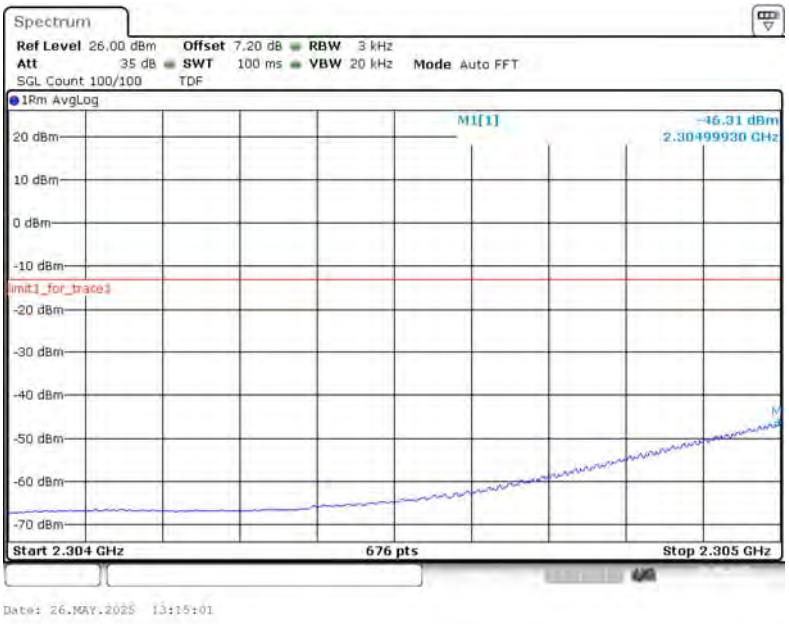
LTE band 30@CA 5A-30A

OBW: 1RB-LOW_offset



LOW BAND EDGE BLOCK-1RB-LOW_offset



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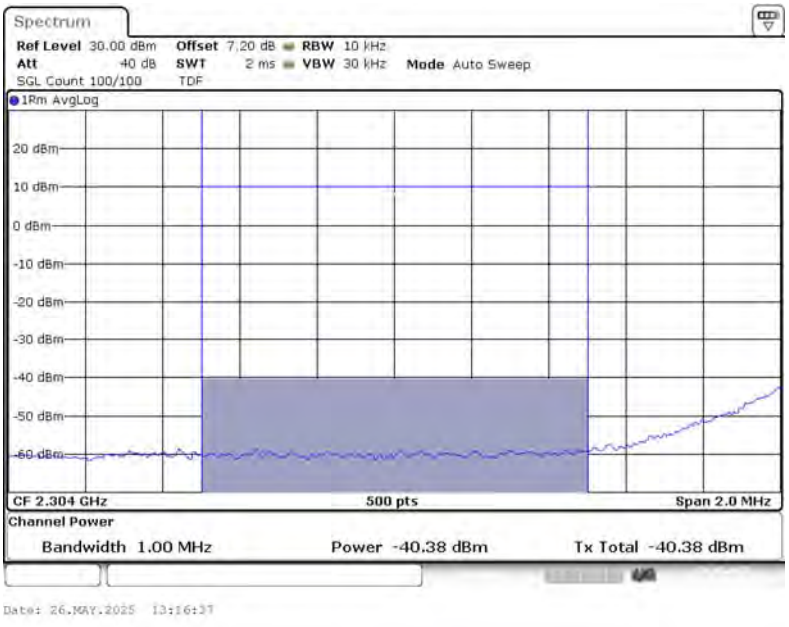
LOW BAND EDGE BLOCK-1RB-LOW_offset

Channel power



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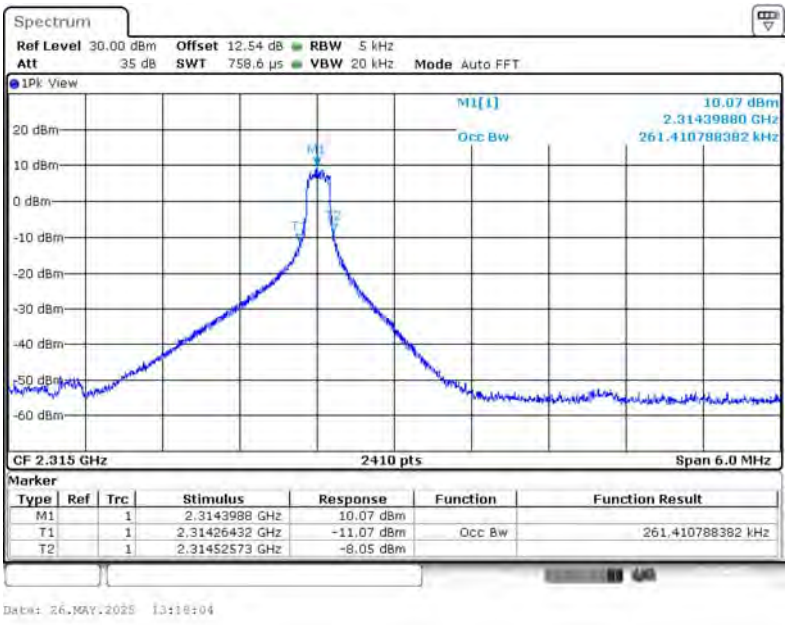
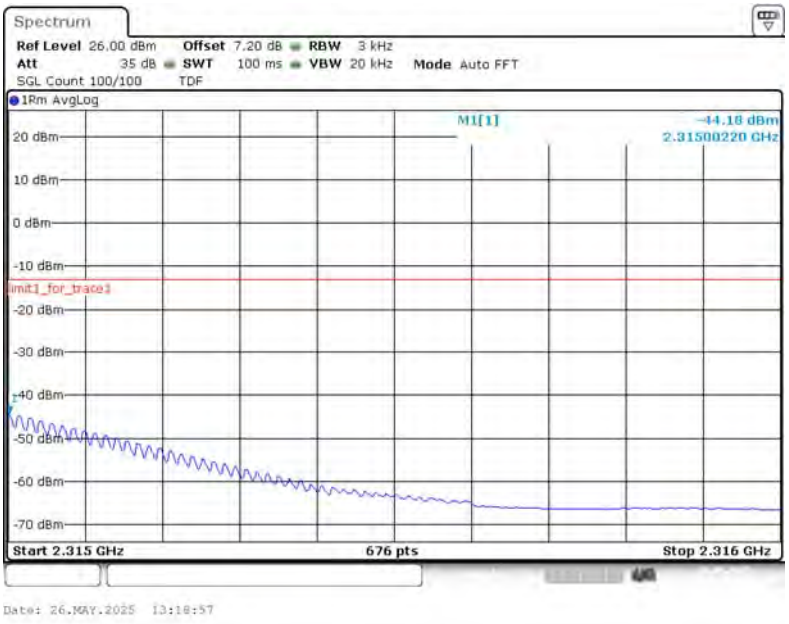
OBW: 1RB-HIGH_offset



HIGH BAND EDGE BLOCK-1RB-HIGH_offset



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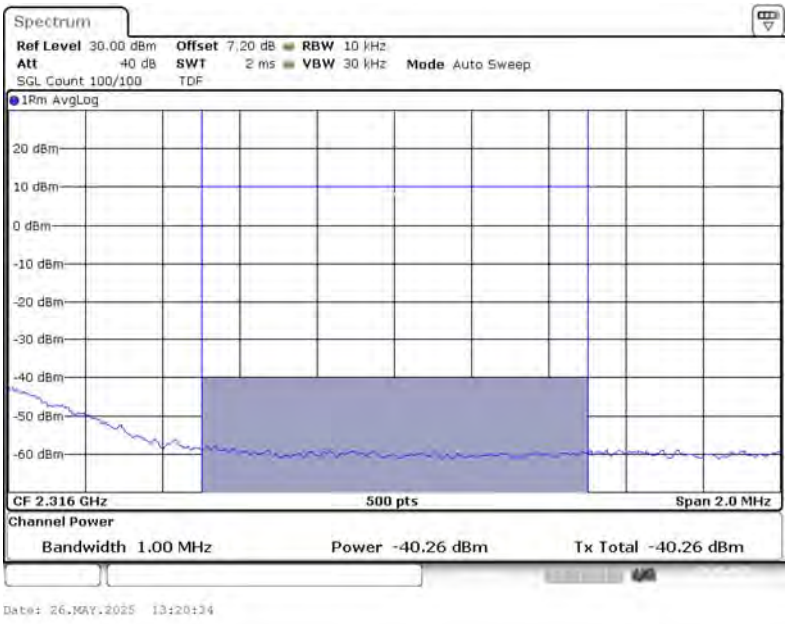
HIGH BAND EDGE BLOCK-1RB-HIGH_offset

Channel power



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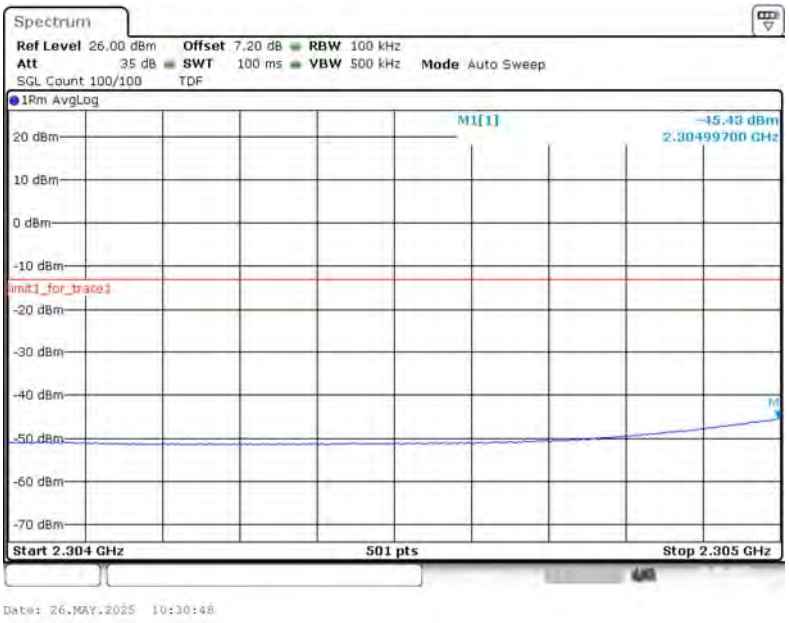
LOW BAND EDGE BLOCK-10MHz+10MHz-100%RB



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

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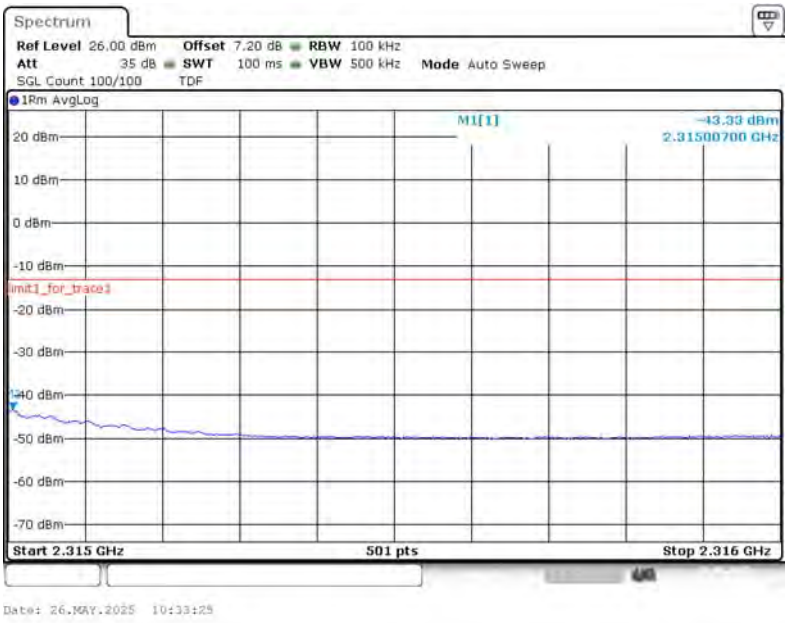
HIGH BAND EDGE BLOCK-10MHz+10MHz-100%RB



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

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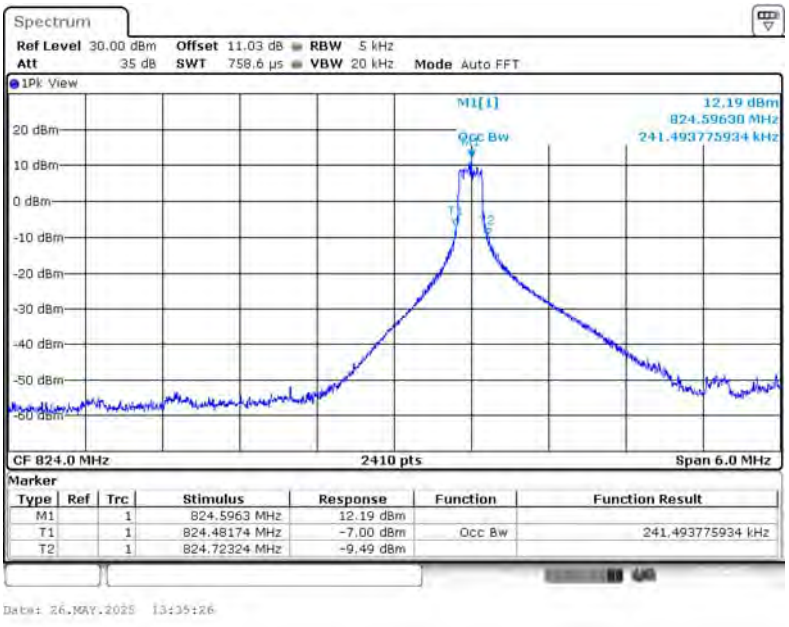
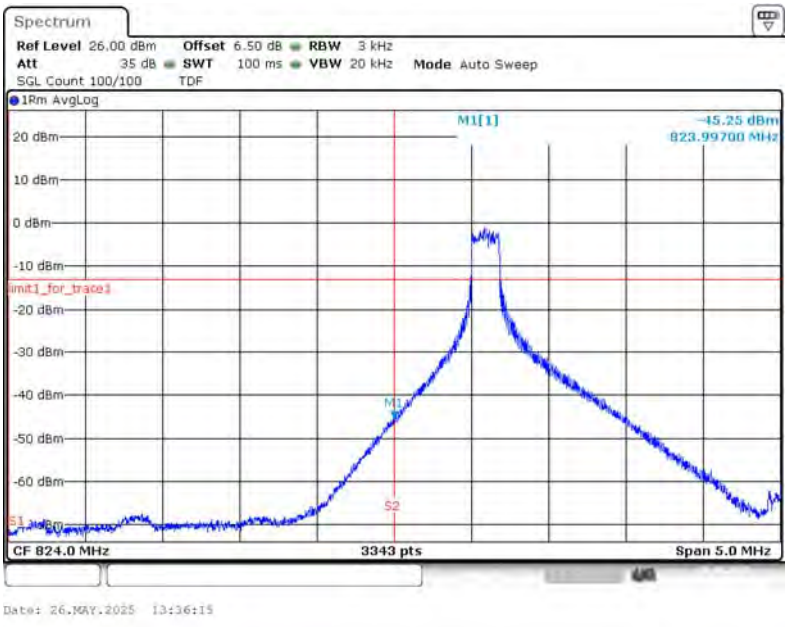
LTE band 5@CA 5A-66A

OBW: 1RB-LOW_offset



LOW BAND EDGE BLOCK-1RB-LOW_offset



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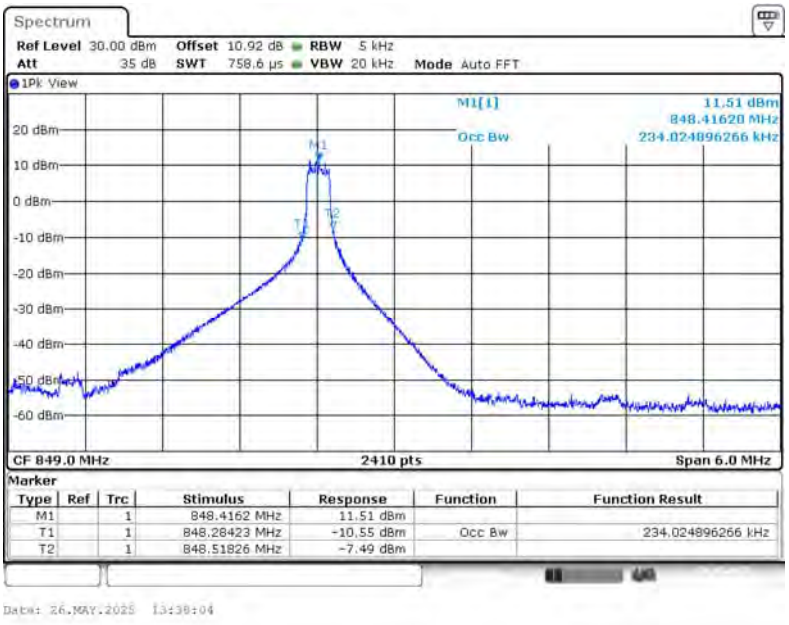
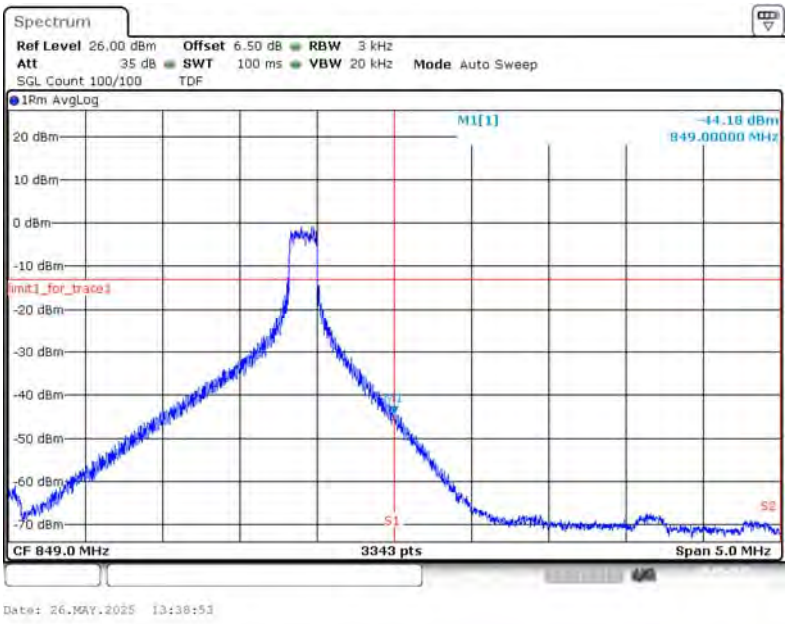
OBW: 1RB-HIGH_offset



HIGH BAND EDGE BLOCK-1RB-HIGH_offset



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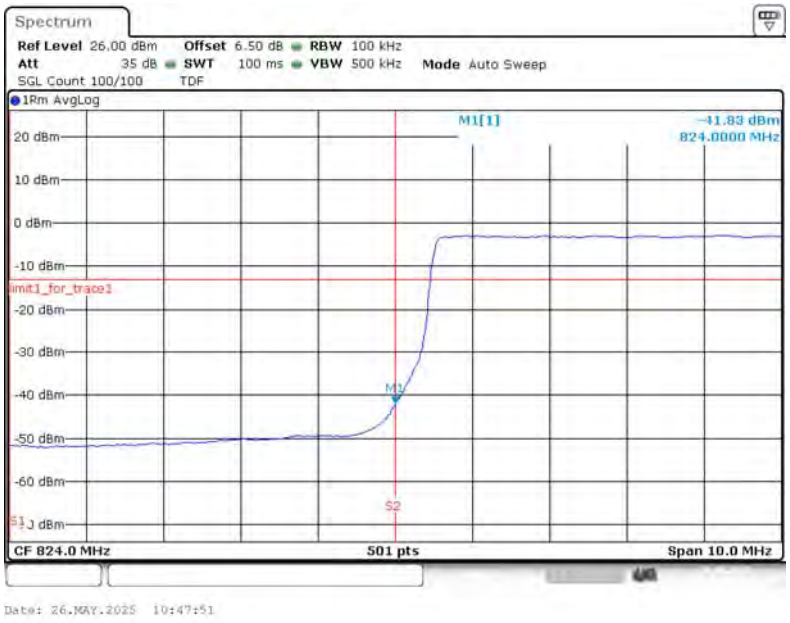
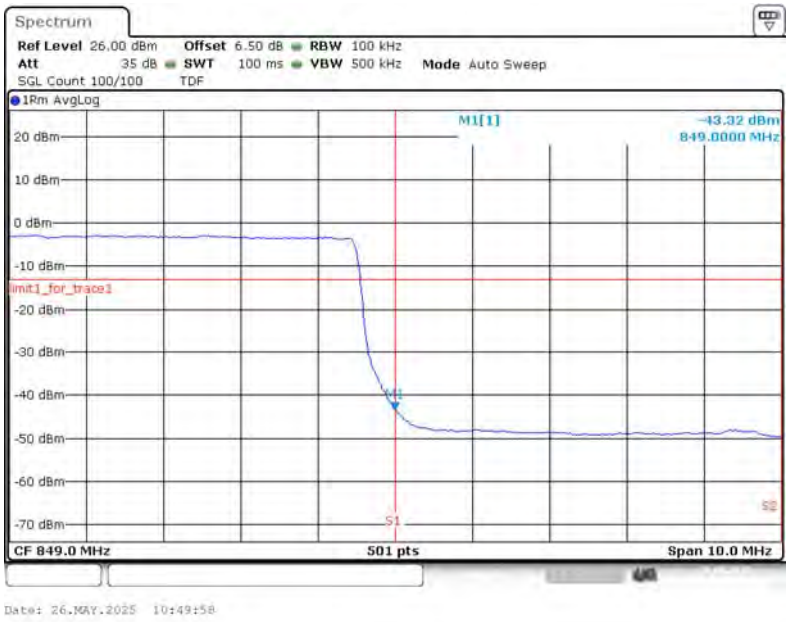
LOW BAND EDGE BLOCK-10MHz+20MHz-100%RB



HIGH BAND EDGE BLOCK-10MHz+20MHz-100%RB



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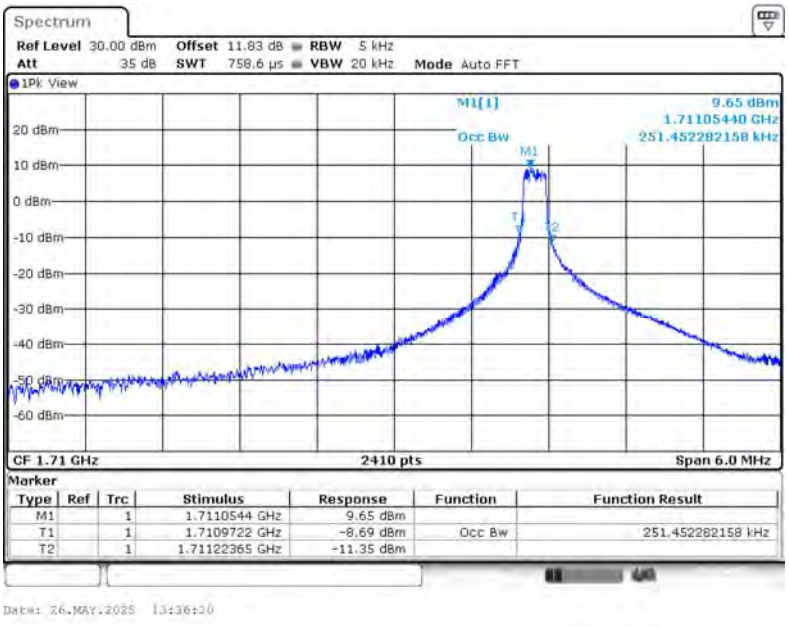
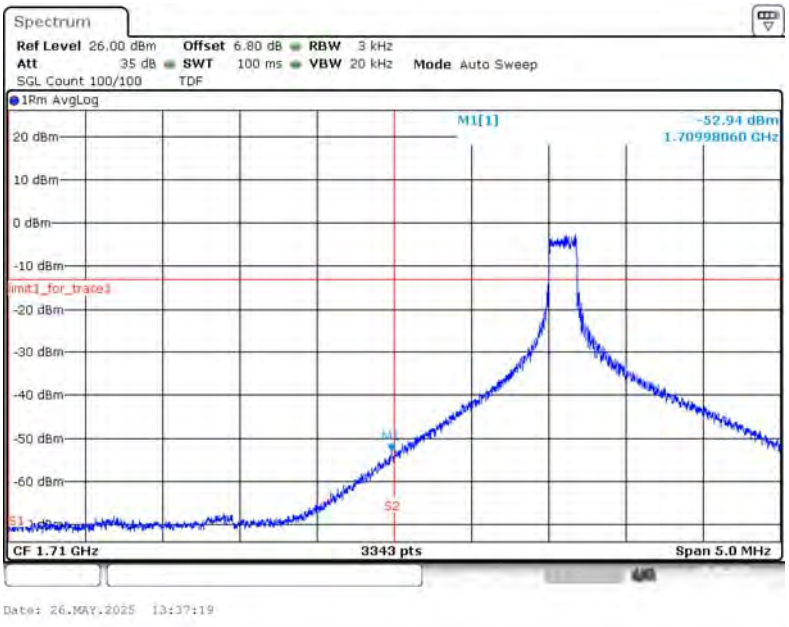
LTE band 66@CA 5A-66A

OBW: 1RB-LOW_offset



LOW BAND EDGE BLOCK-1RB-LOW_offset



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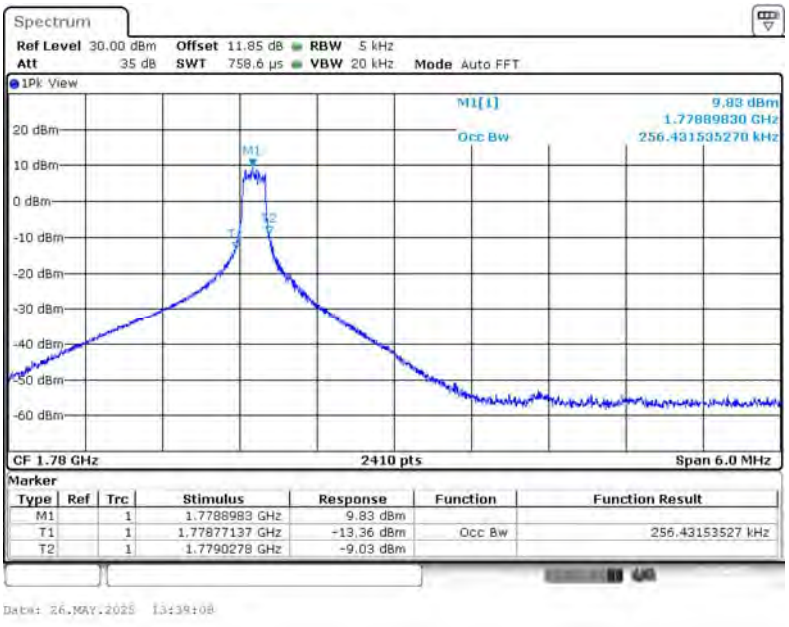
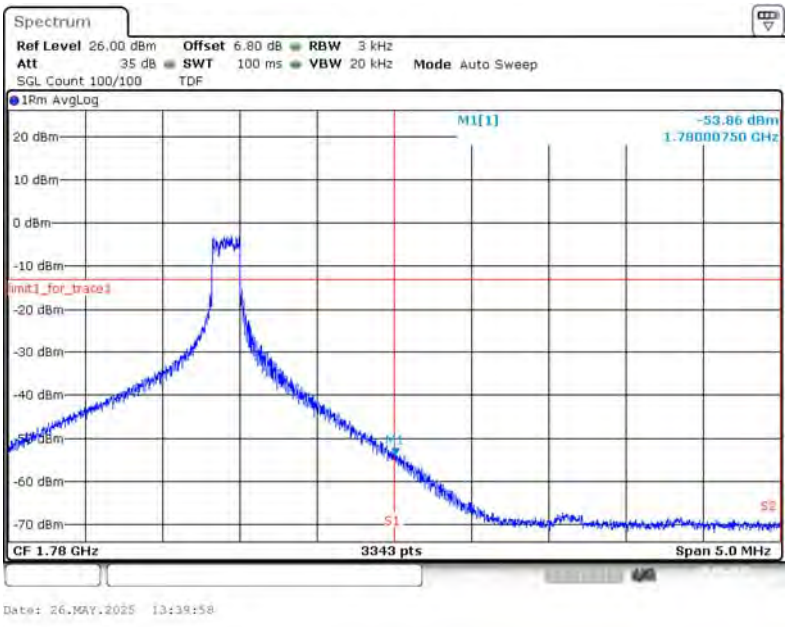
OBW: 1RB-HIGH_offset



HIGH BAND EDGE BLOCK-1RB-HIGH_offset



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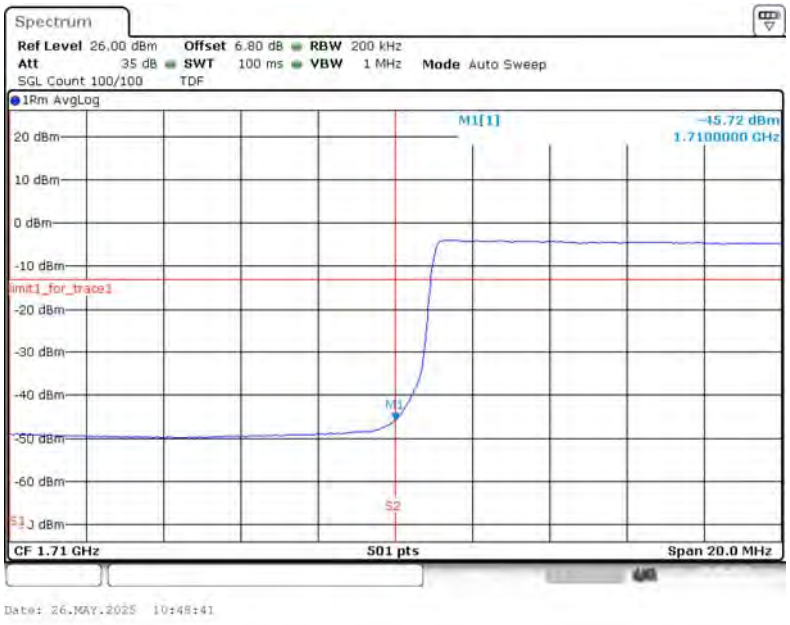
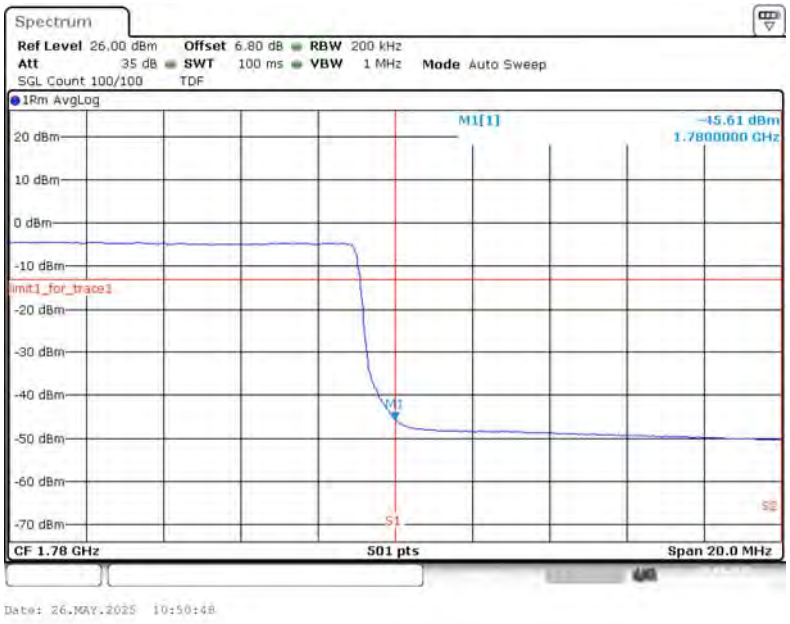
LOW BAND EDGE BLOCK-10MHz+20MHz-100%RB



HIGH BAND EDGE BLOCK-10MHz+20MHz-100%RB



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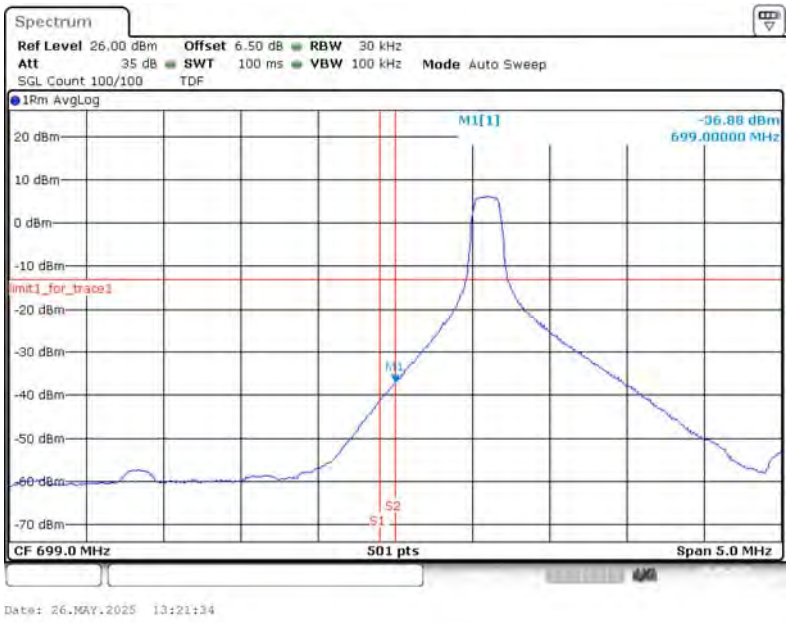
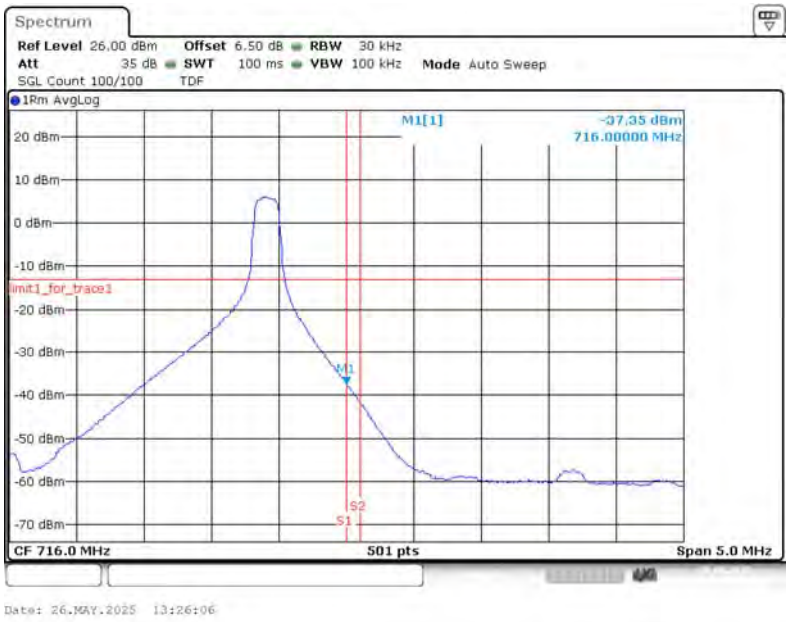
LTE band 12@CA 12A-30A

LOW BAND EDGE BLOCK-1RB-LOW_offset



HIGH BAND EDGE BLOCK-1RB-HIGH_offset



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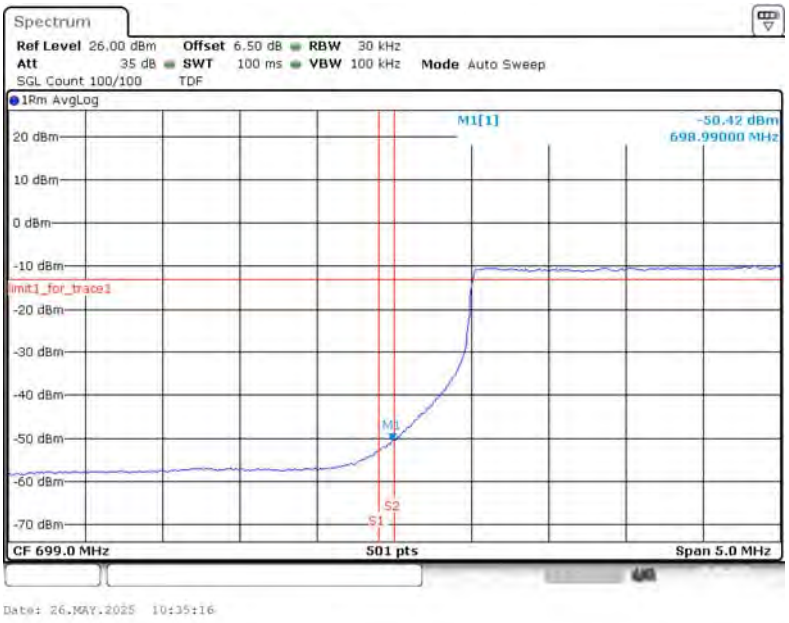
LOW BAND EDGE BLOCK-10MHz+10MHz-100%RB



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

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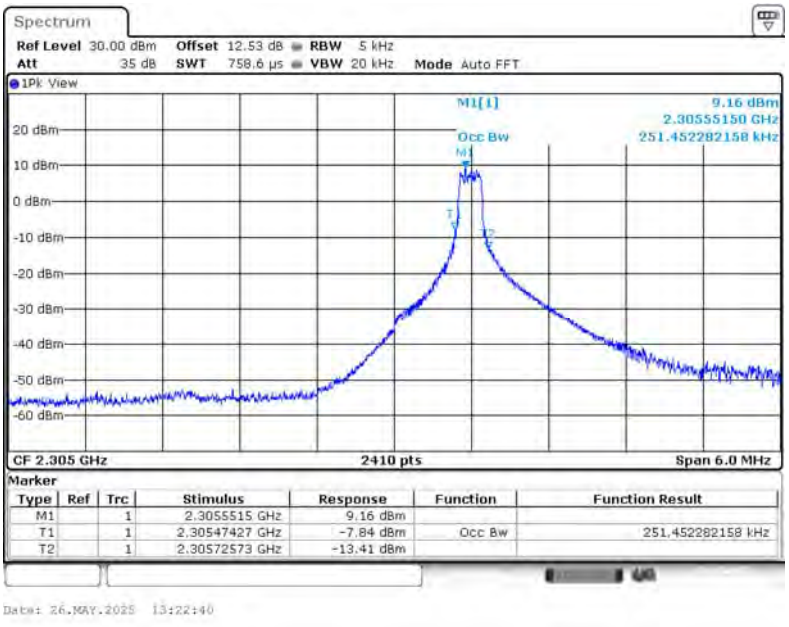
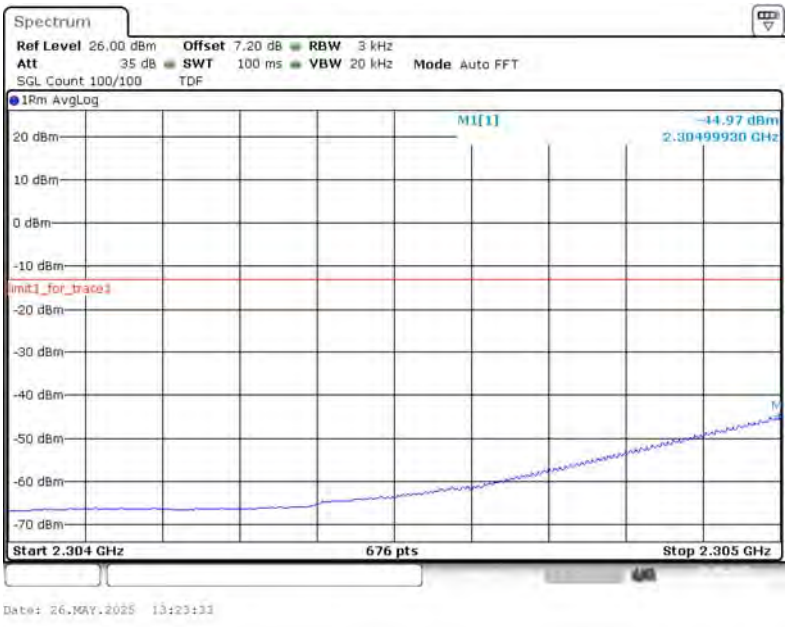
LTE band 30@CA 12A-30A

OBW: 1RB-LOW_offset



LOW BAND EDGE BLOCK-1RB-LOW_offset



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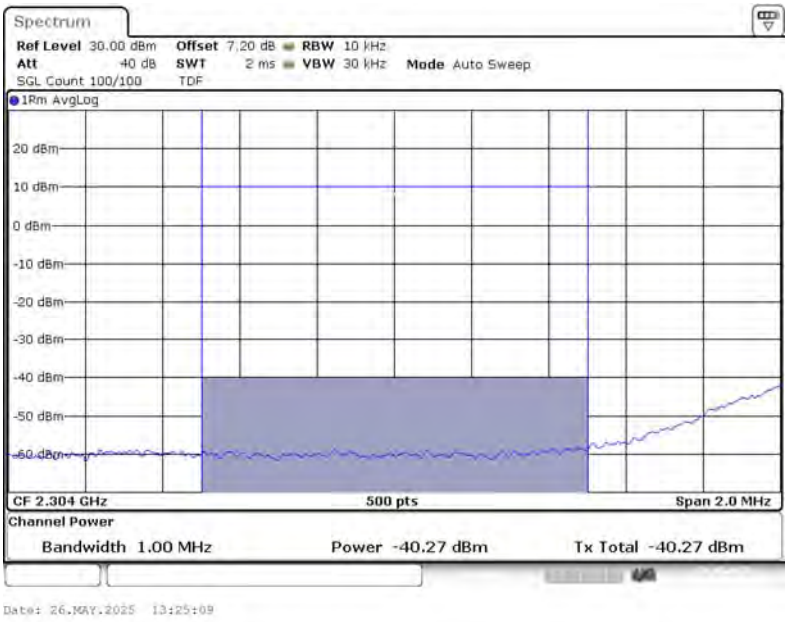
LOW BAND EDGE BLOCK-1RB-LOW_offset

Channel power



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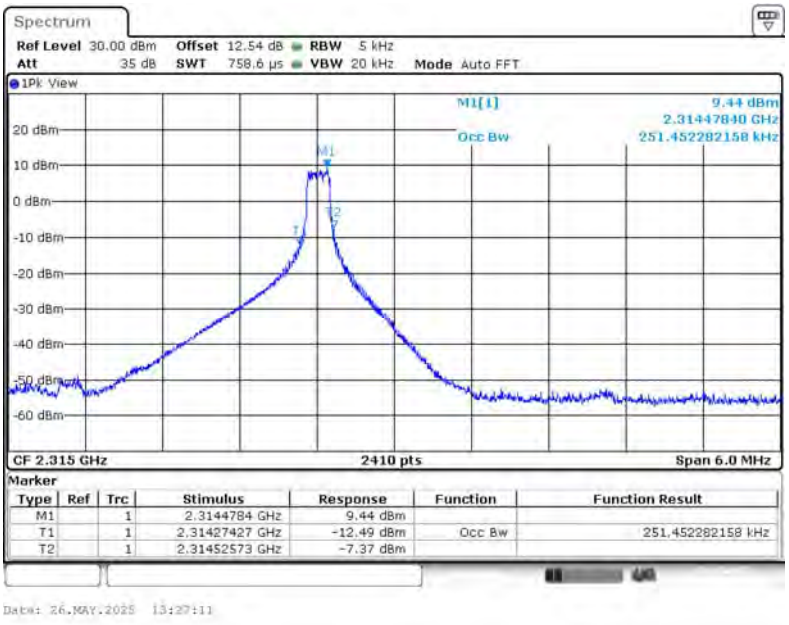
OBW: 1RB-HIGH_offset



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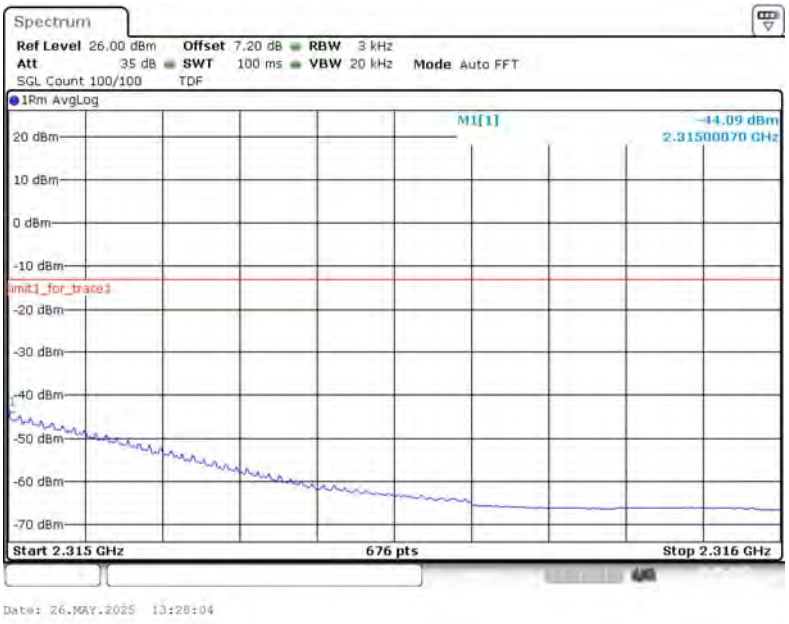

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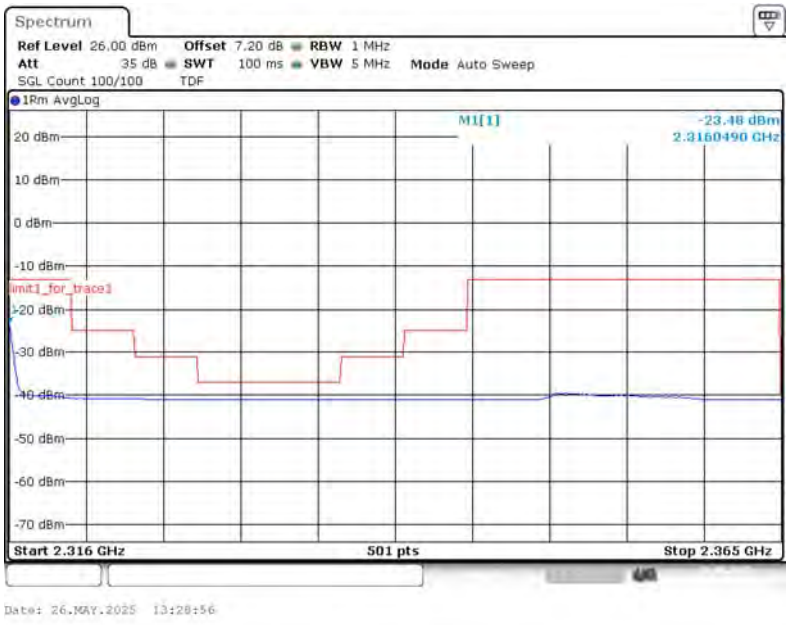
HIGH BAND EDGE BLOCK-1RB-HIGH_offset



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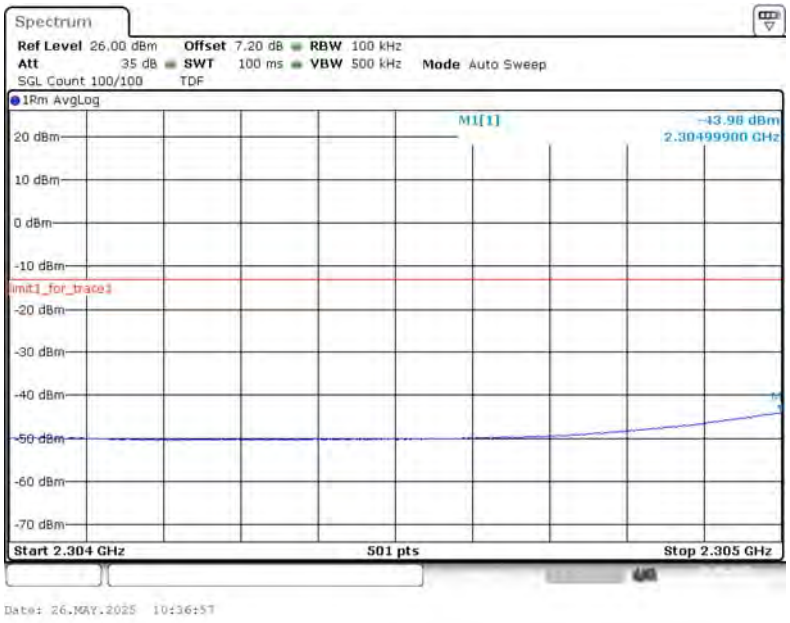
LOW BAND EDGE BLOCK-10MHz+10MHz-100%RB



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

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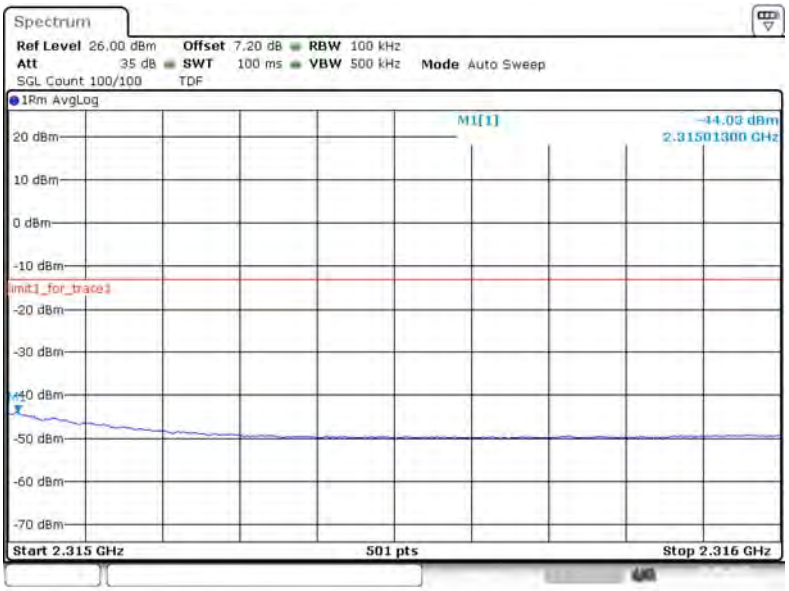
HIGH BAND EDGE BLOCK-10MHz+10MHz-100%RB



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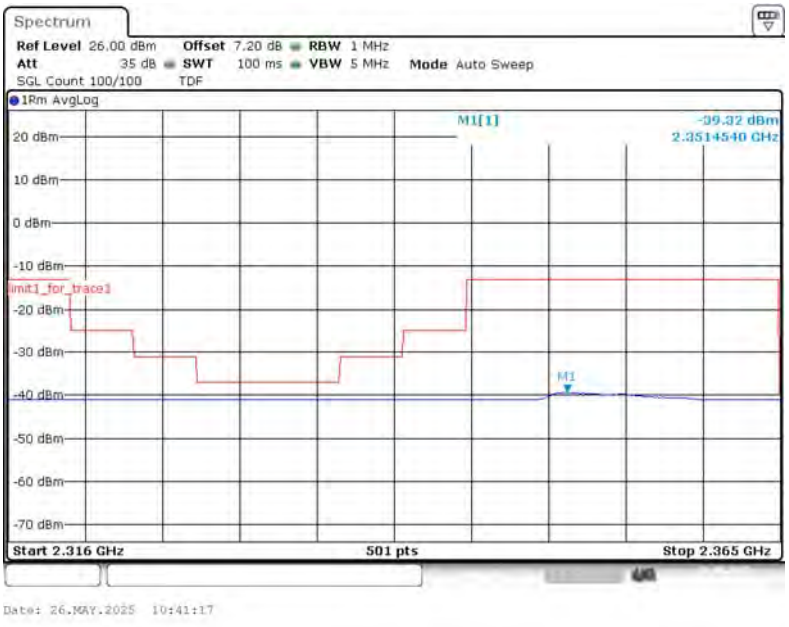

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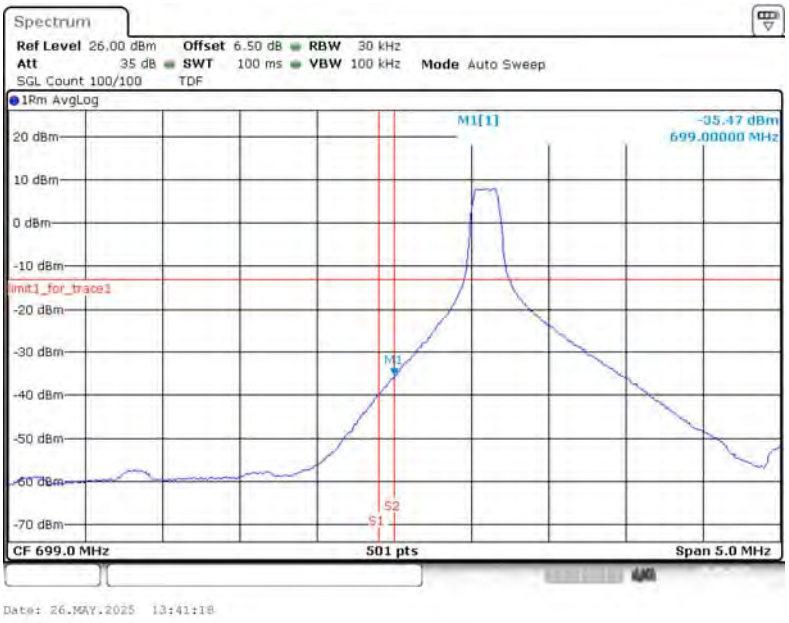
LTE band 12@CA 12A-66A

LOW BAND EDGE BLOCK-1RB-LOW_offset



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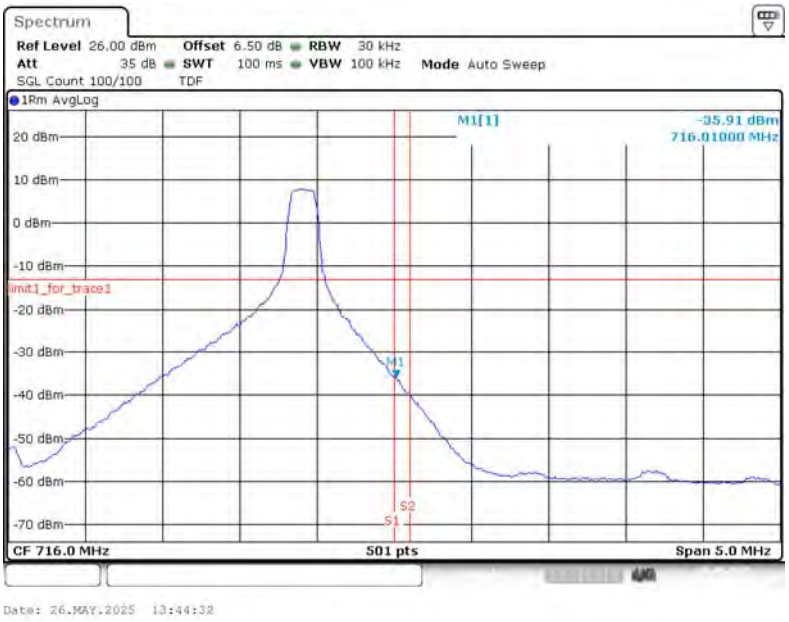

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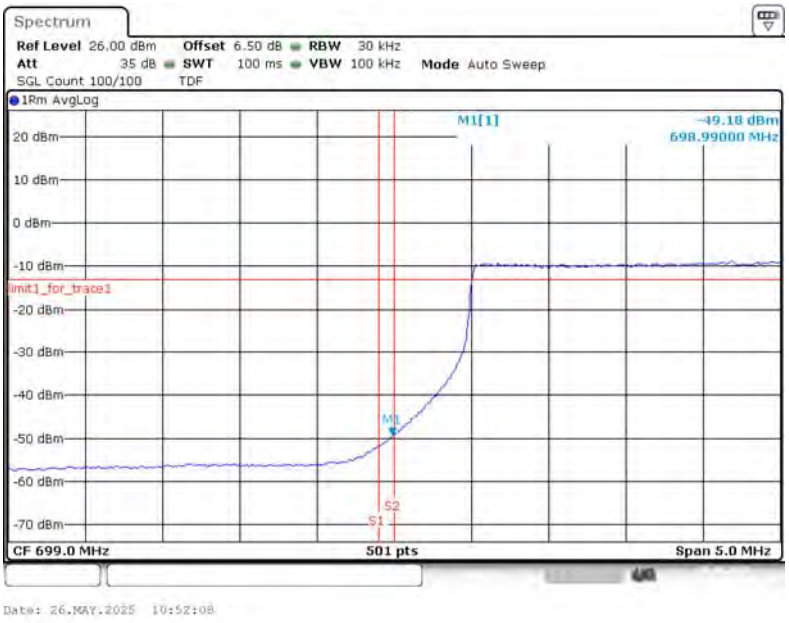
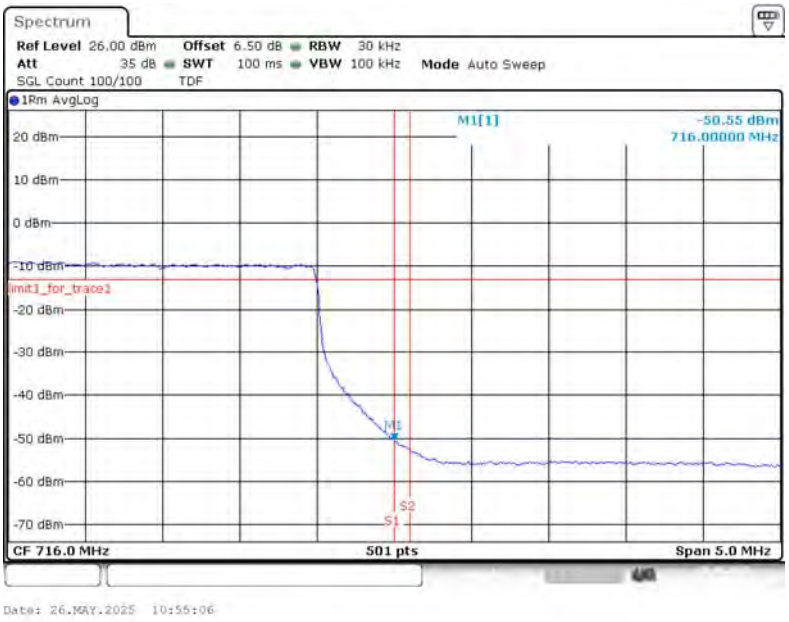
LOW BAND EDGE BLOCK-10MHz+20MHz-100%RB



HIGH BAND EDGE BLOCK-10MHz+20MHz-100%RB



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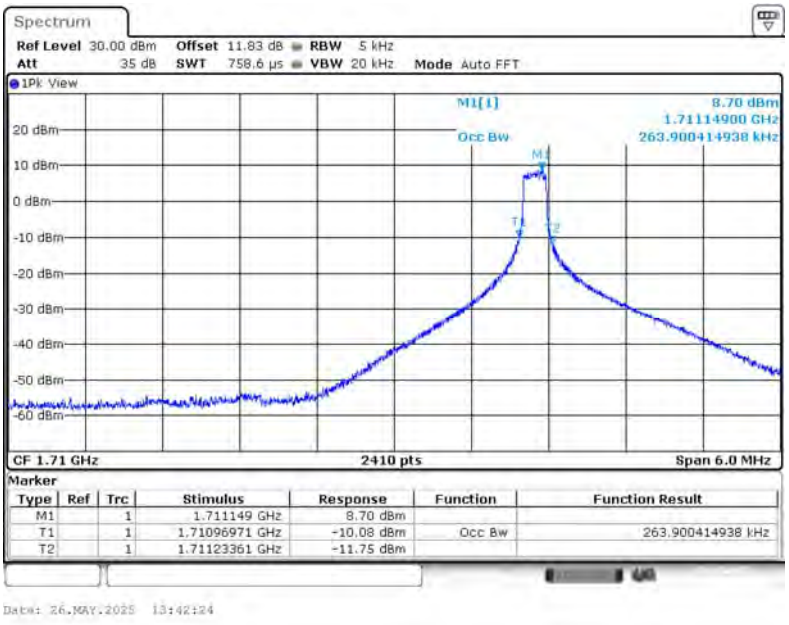
LTE band 66@CA 12A-66A

OBW: 1RB-LOW_offset



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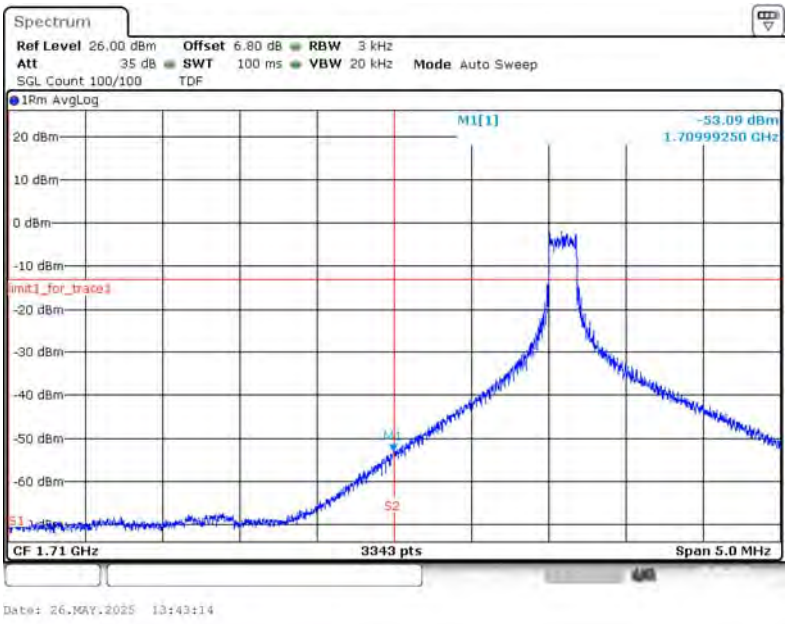

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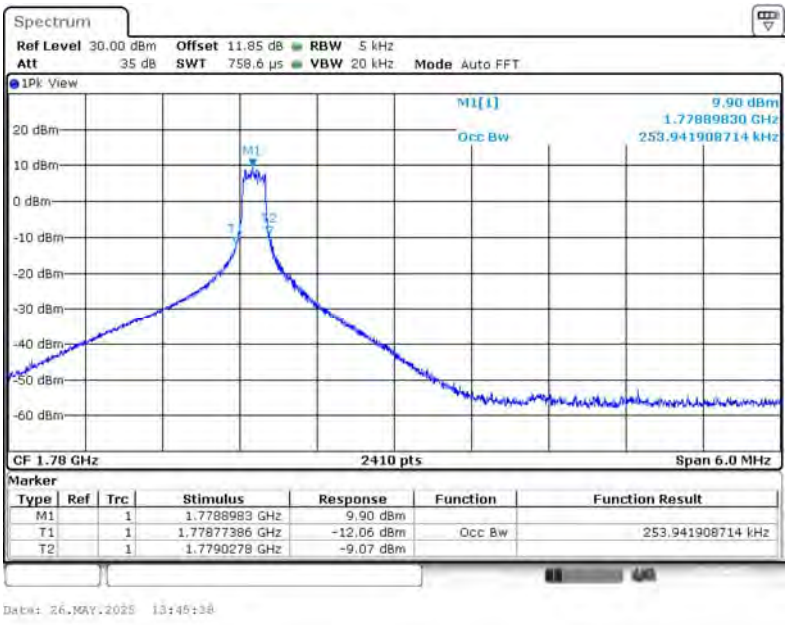
OBW: 1RB-HIGH_offset



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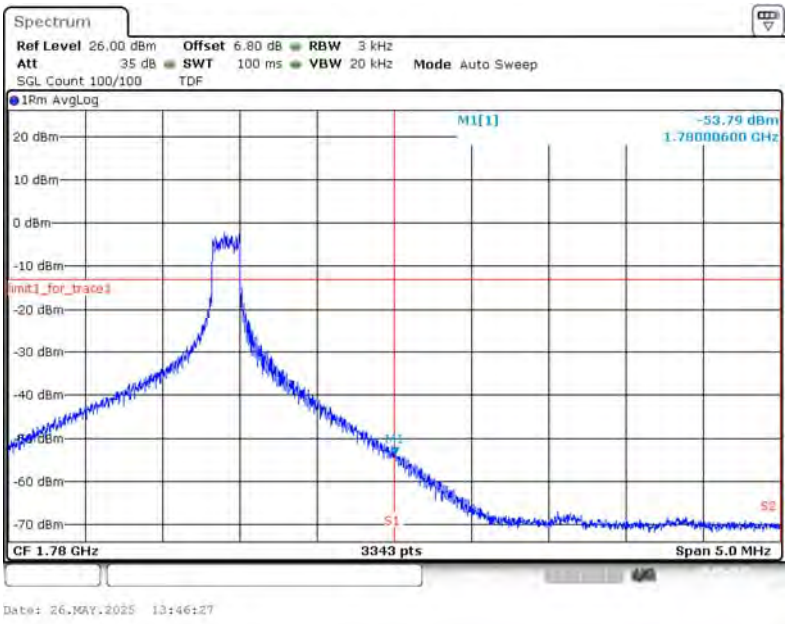

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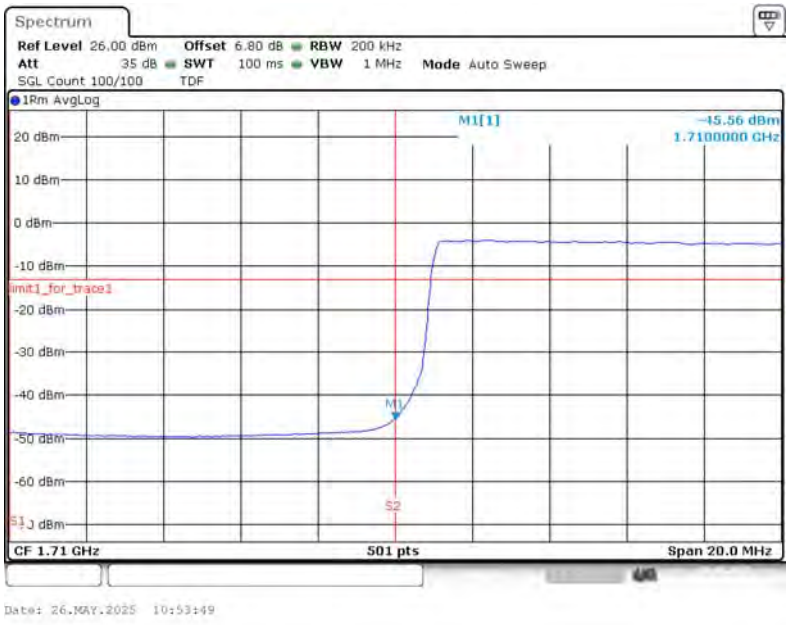
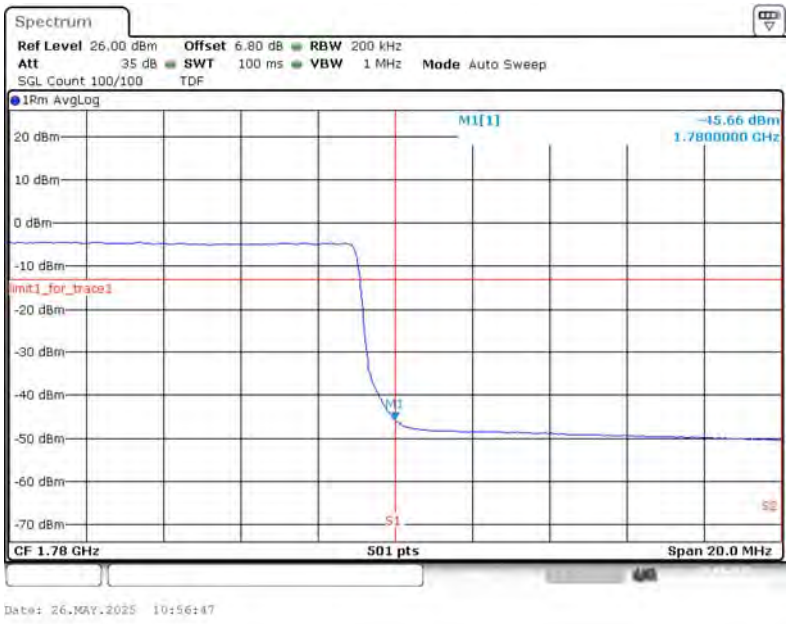
LOW BAND EDGE BLOCK-10MHz+20MHz-100%RB



HIGH BAND EDGE BLOCK-10MHz+20MHz-100%RB



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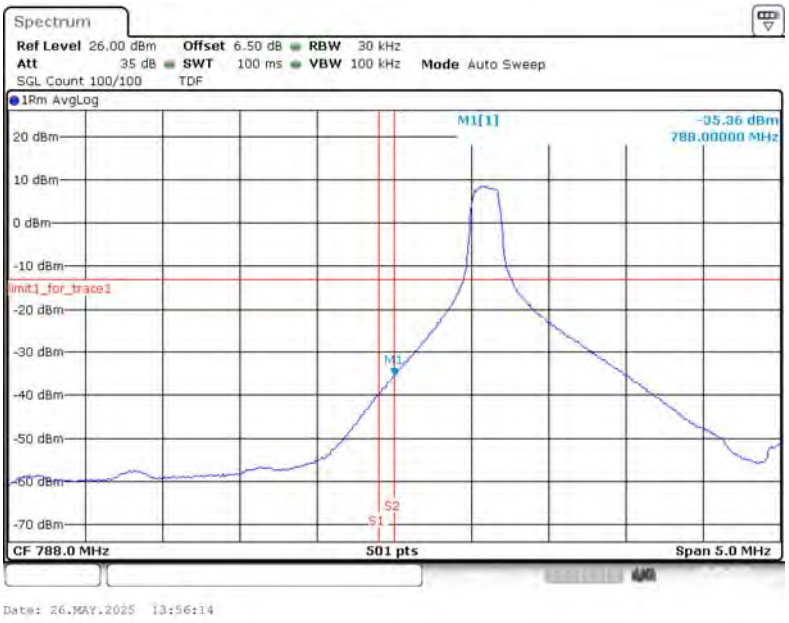
LTE band 14@CA 14A-30A

LOW BAND EDGE BLOCK-1RB-LOW_offset



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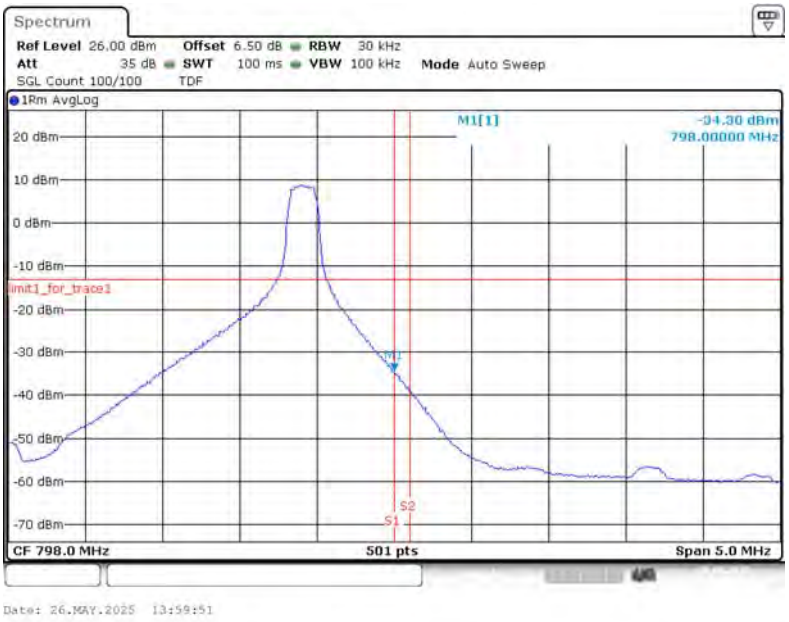

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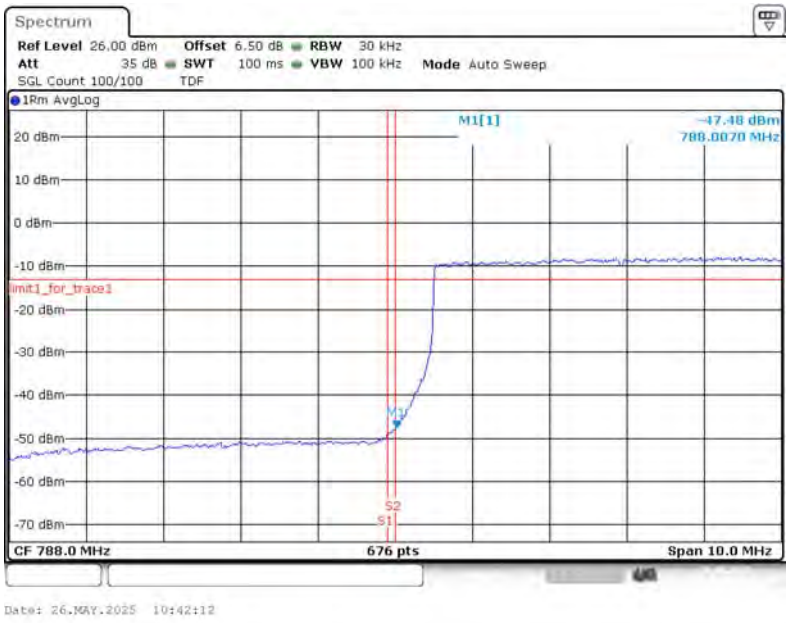
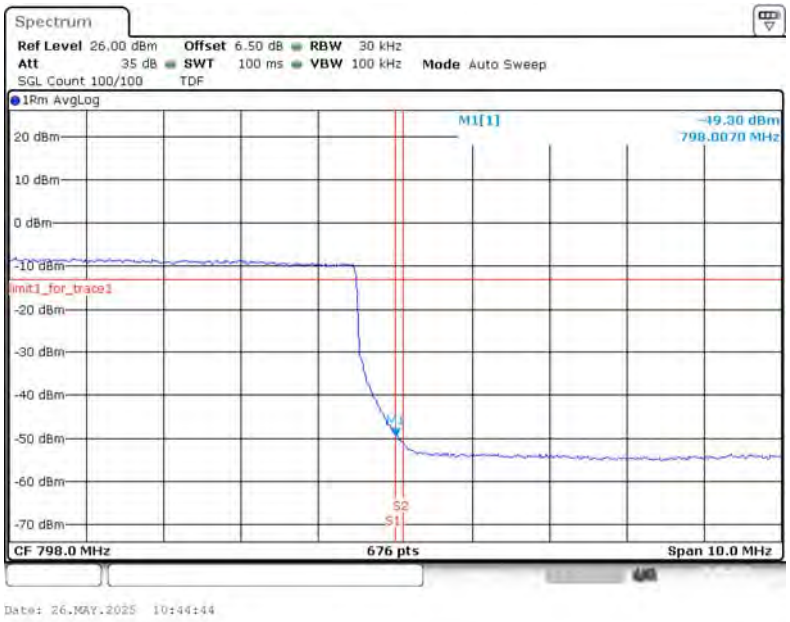
LOW BAND EDGE BLOCK-10MHz+10MHz-100%RB



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



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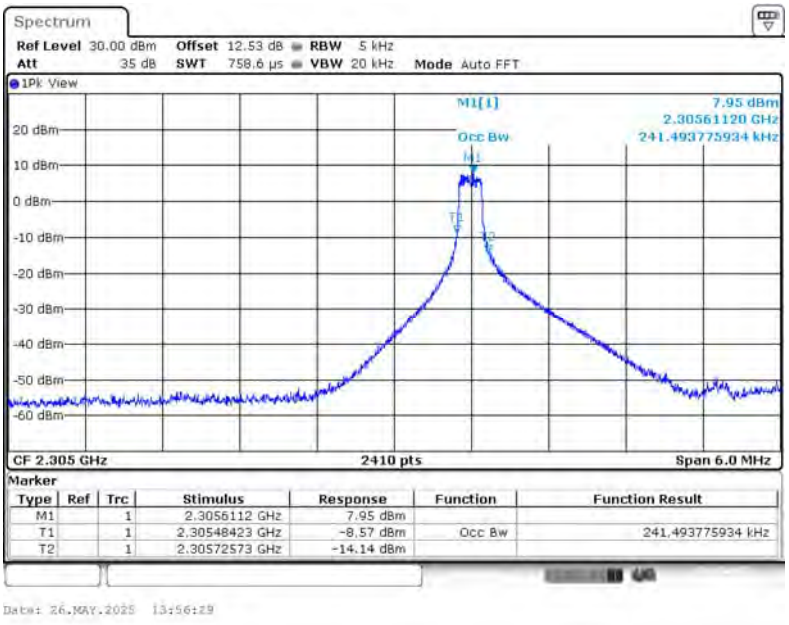
LTE band 30@CA 14A-30A

OBW: 1RB-LOW_offset



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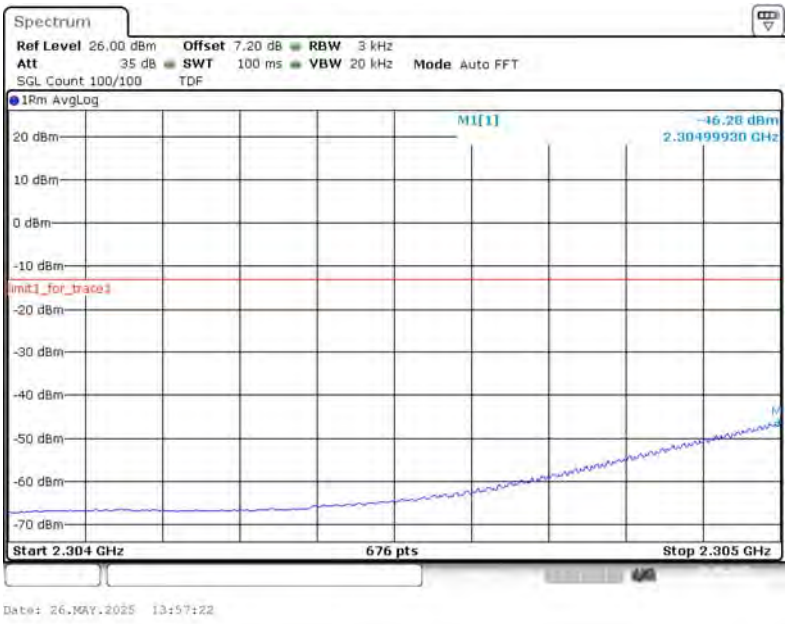

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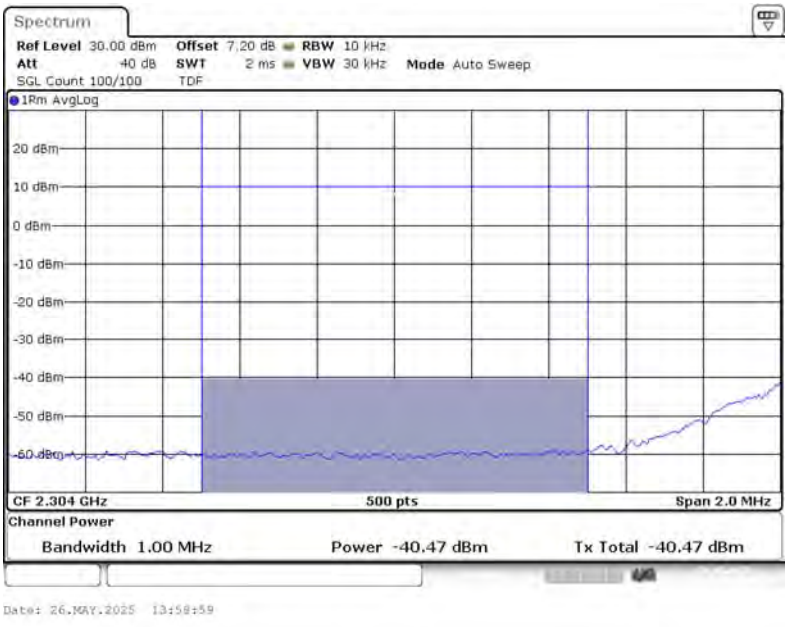
LOW BAND EDGE BLOCK-1RB-LOW_offset

Channel power



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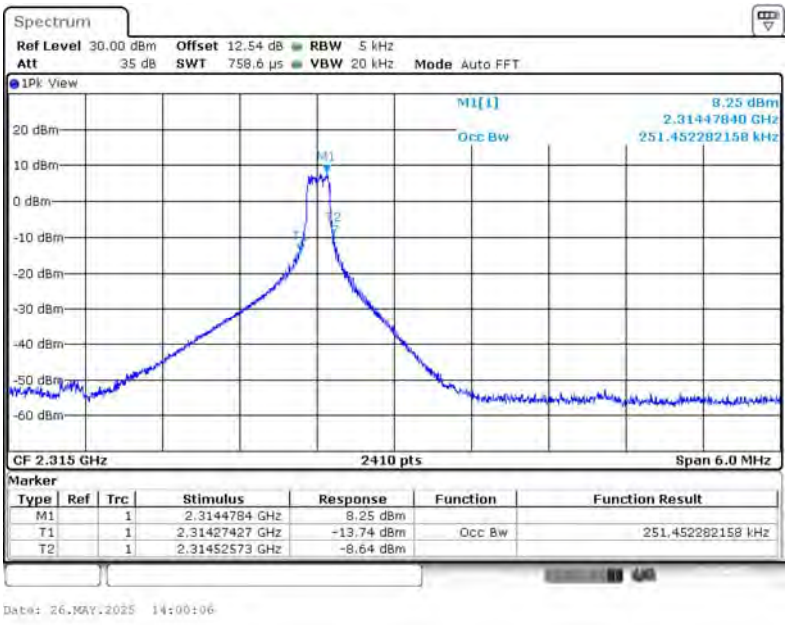
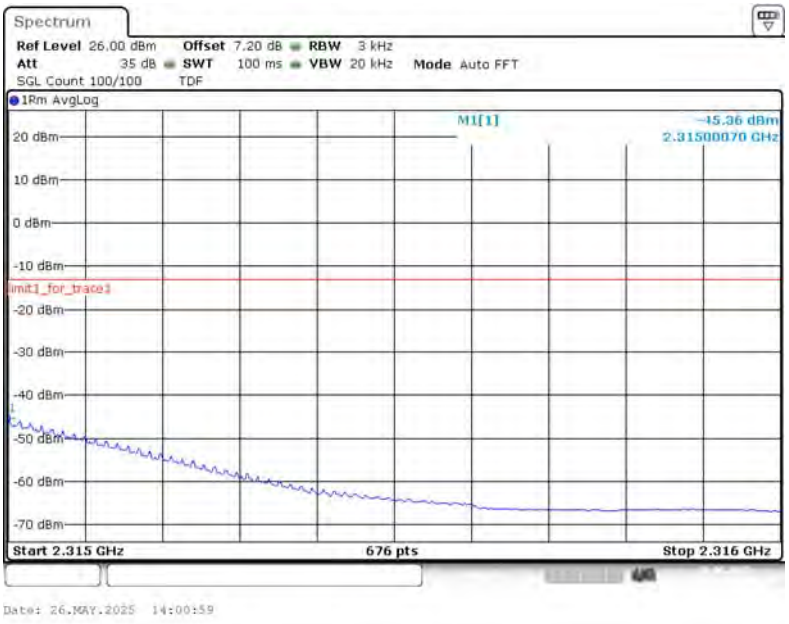
OBW: 1RB-HIGH_offset



HIGH BAND EDGE BLOCK-1RB-HIGH_offset



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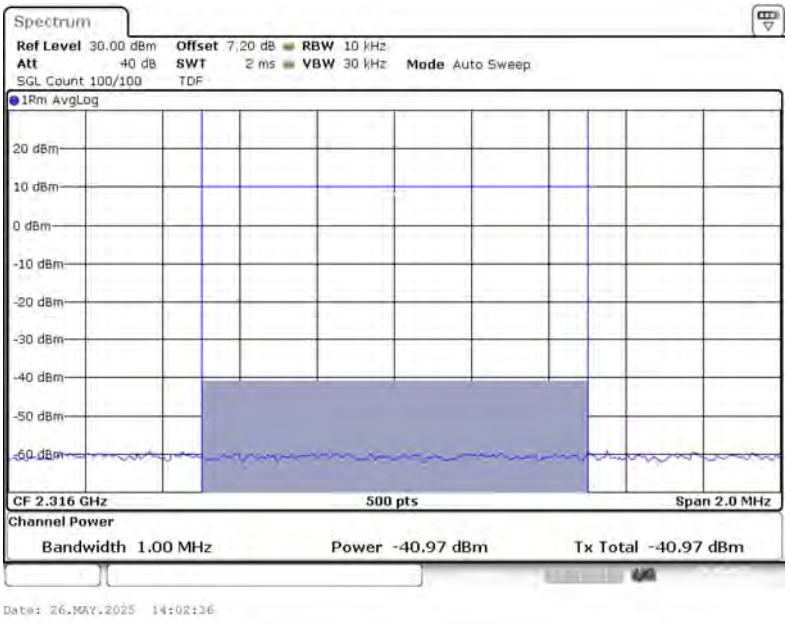
HIGH BAND EDGE BLOCK-1RB-HIGH_offset

Channel power



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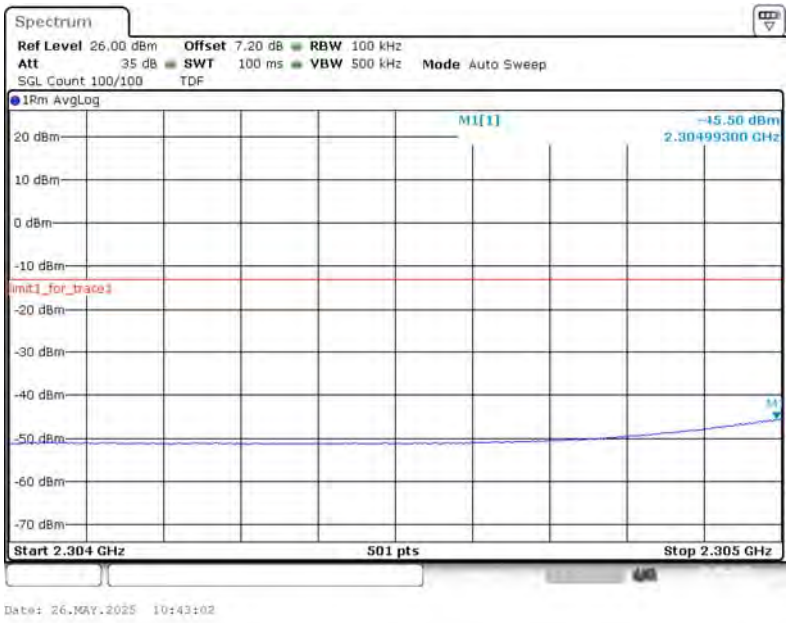
LOW BAND EDGE BLOCK-10MHz+10MHz-100%RB



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

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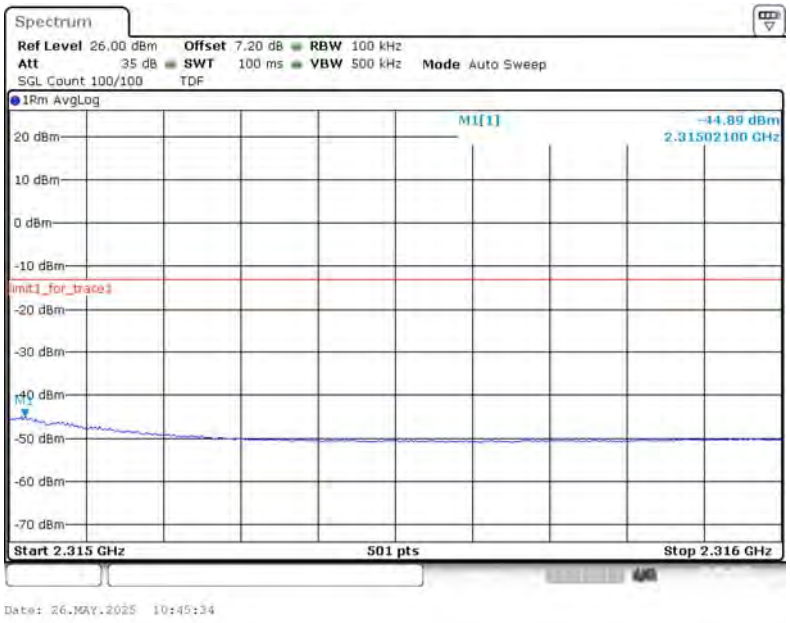
HIGH BAND EDGE BLOCK-10MHz+10MHz-100%RB



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

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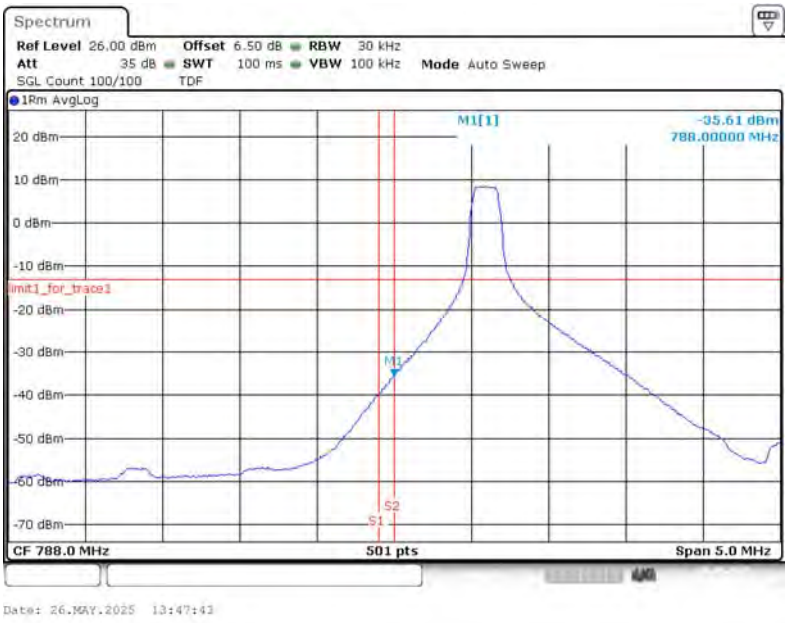
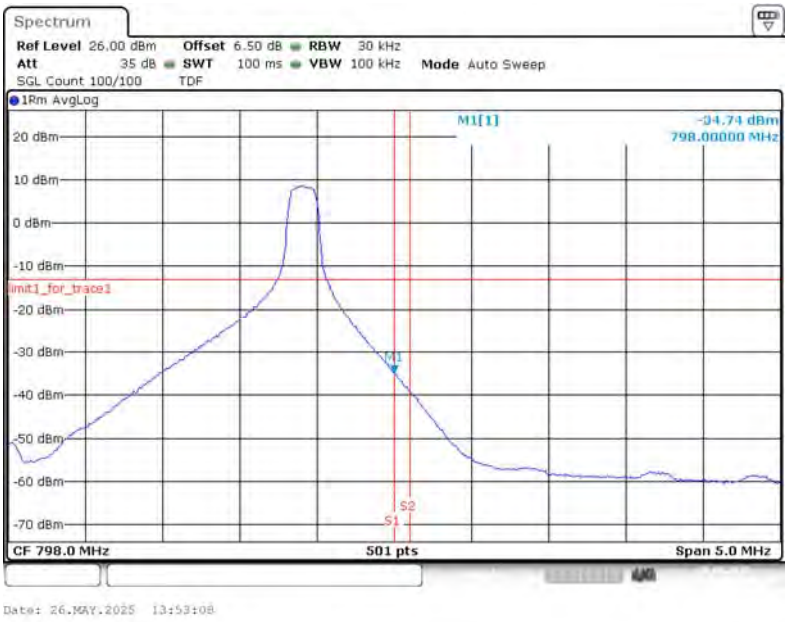
LTE band 14@CA 14A-66A

LOW BAND EDGE BLOCK-1RB-LOW_offset



HIGH BAND EDGE BLOCK-1RB-HIGH_offset



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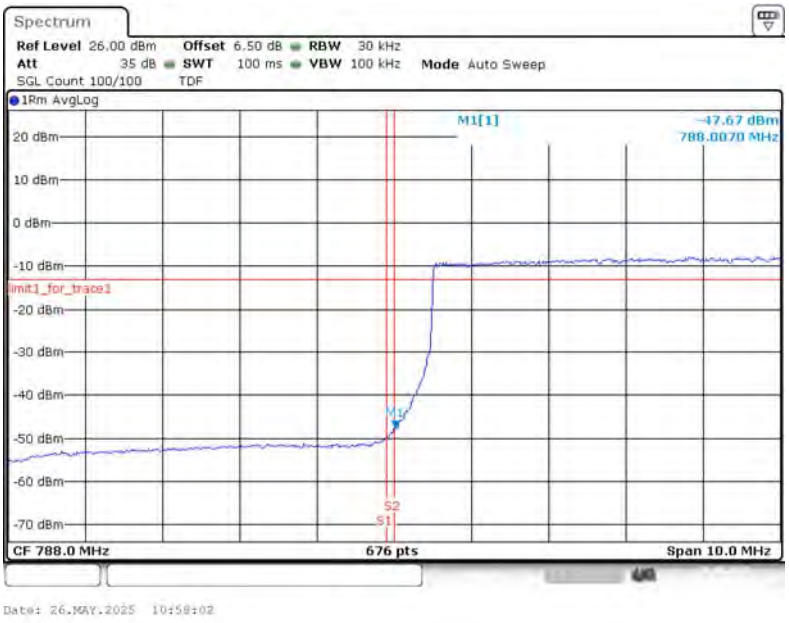
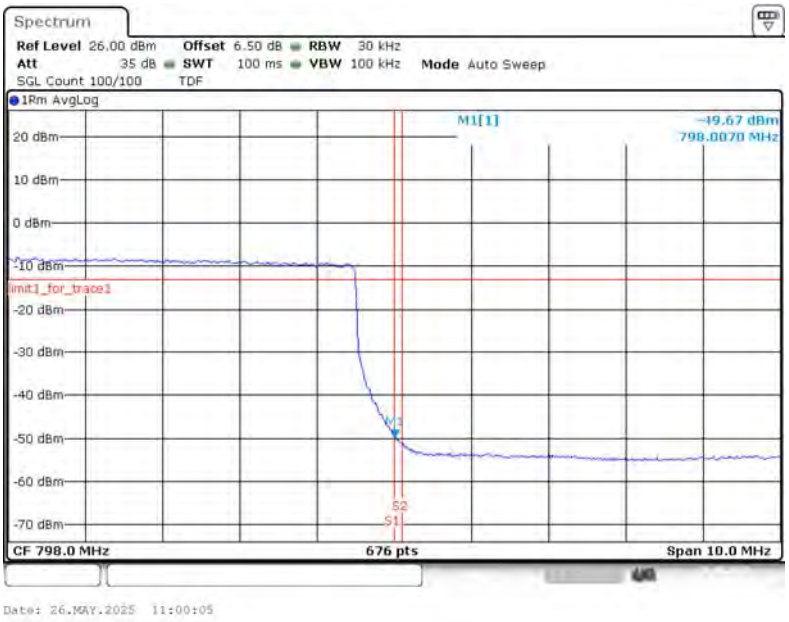
LOW BAND EDGE BLOCK-10MHz+20MHz-100%RB



HIGH BAND EDGE BLOCK-10MHz+20MHz-100%RB



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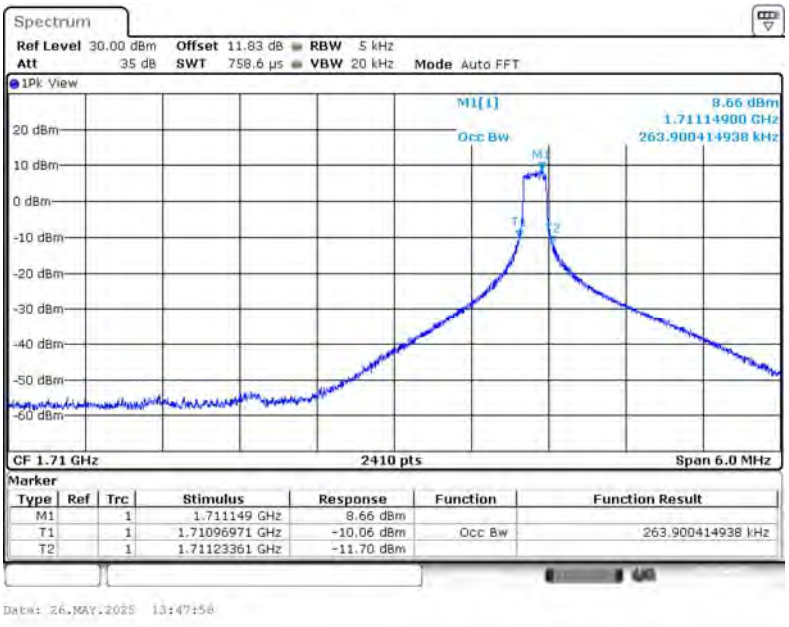
LTE band 66@CA 14A-66A

OBW: 1RB-LOW_offset



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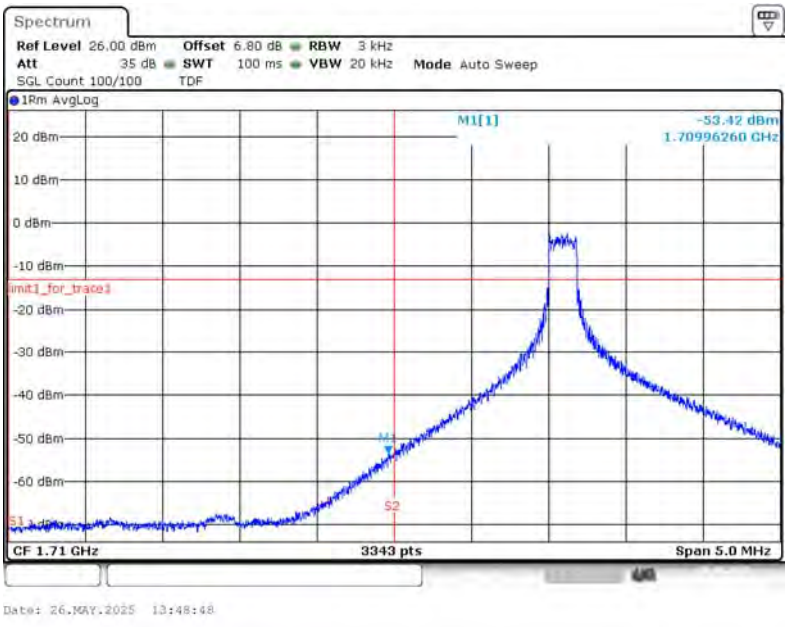

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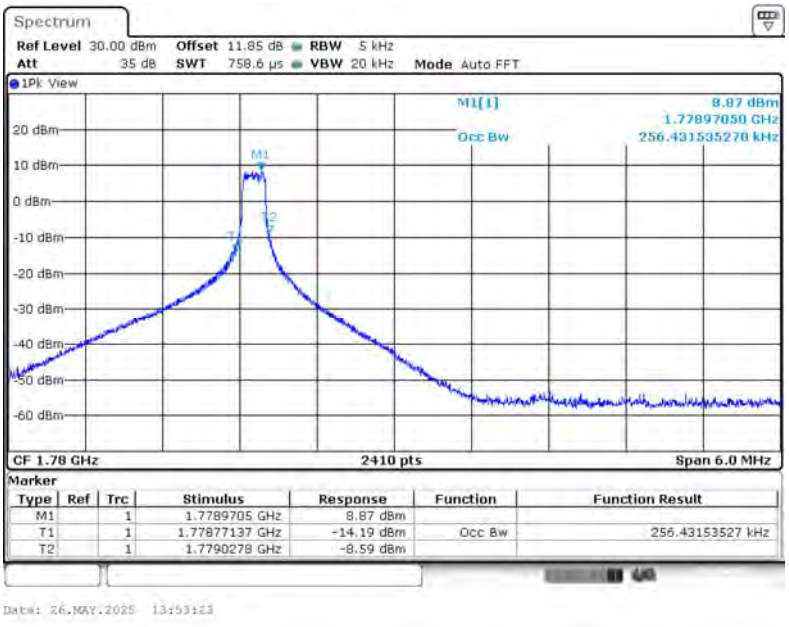
OBW: 1RB-HIGH_offset



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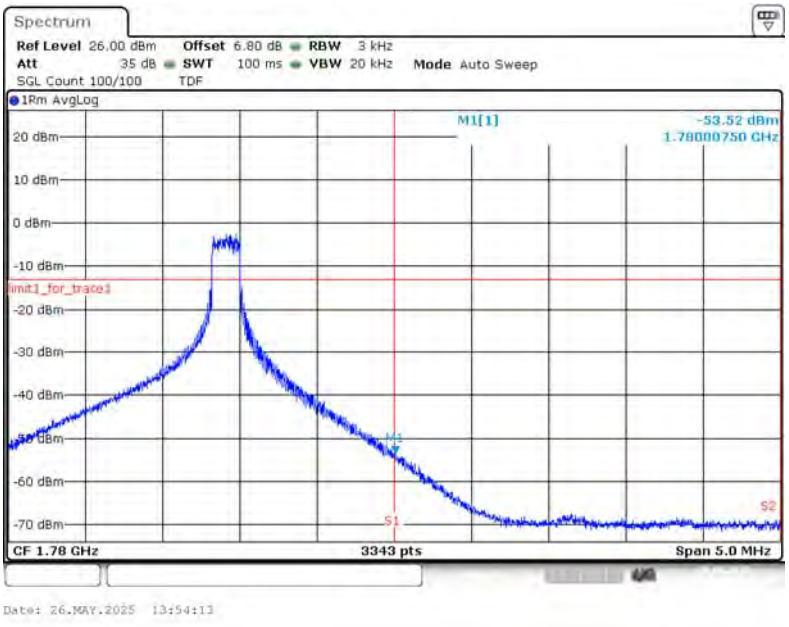

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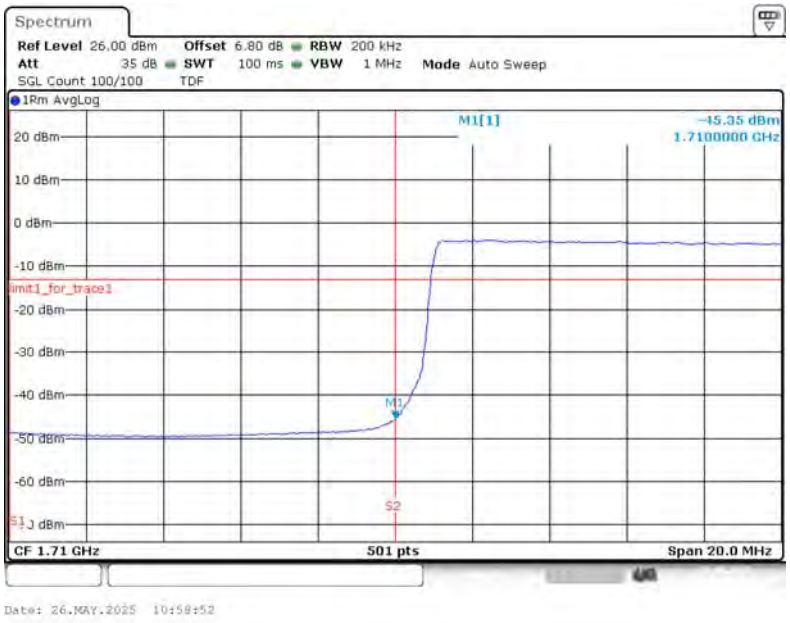
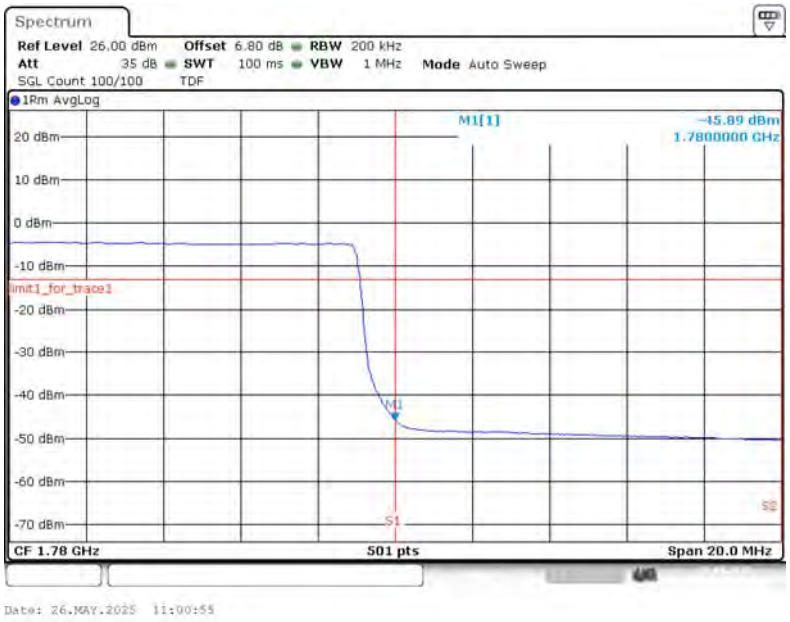
LOW BAND EDGE BLOCK-10MHz+20MHz-100%RB



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

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

Part 27.53(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

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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 2337MHz; 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.

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.

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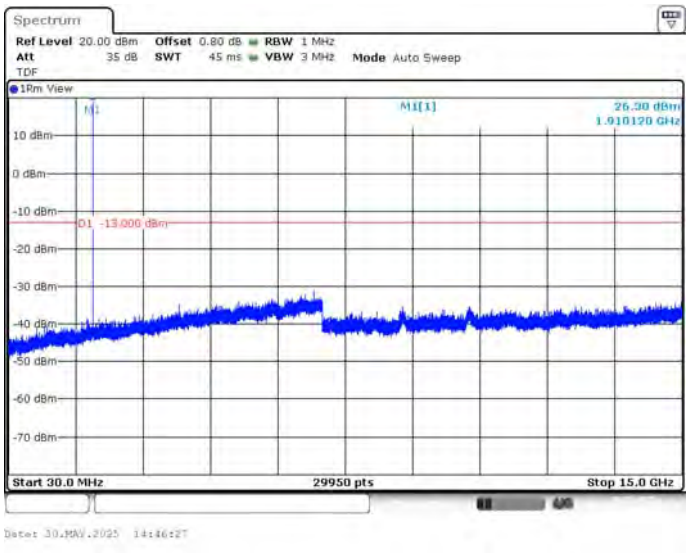
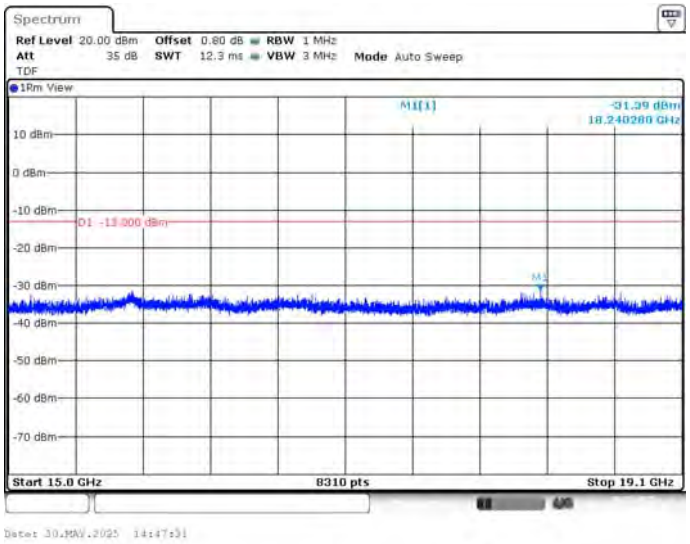
A.7.3 Measurement result

LTE band 2

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





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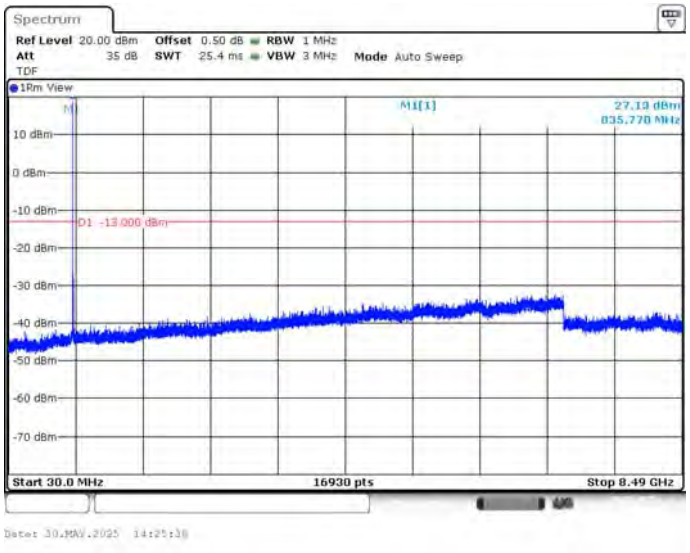
LTE band 5

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



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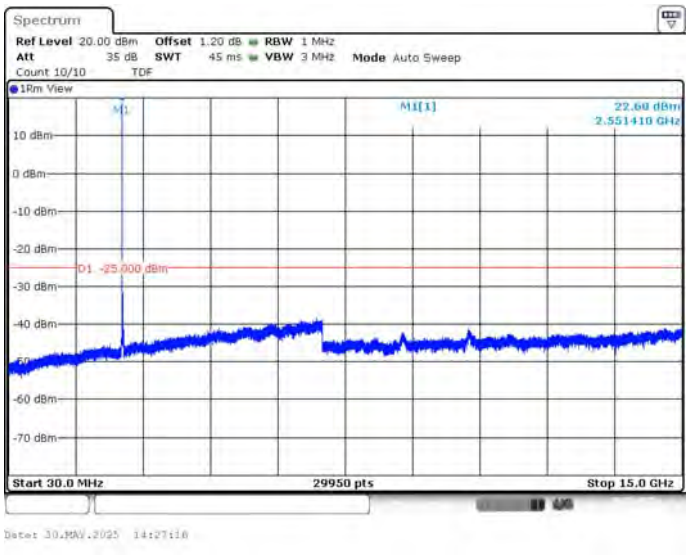
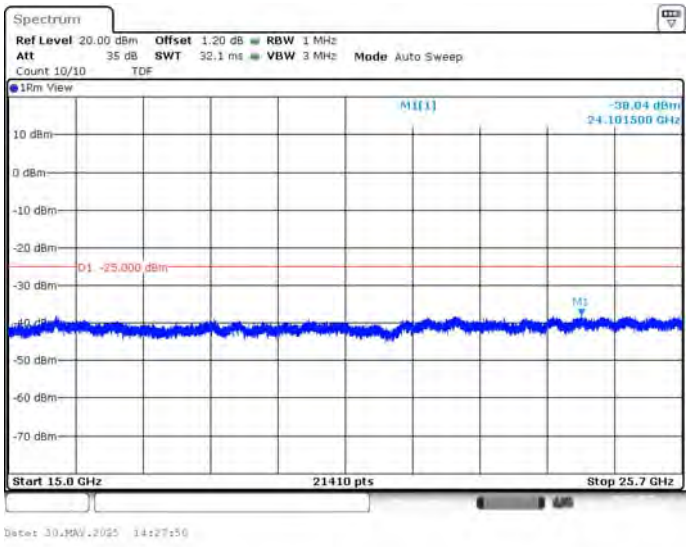
LTE band 7

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





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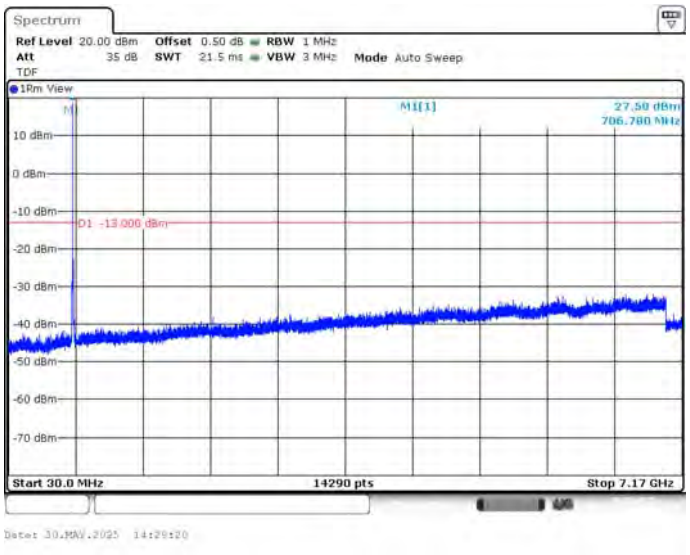
LTE band 12

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



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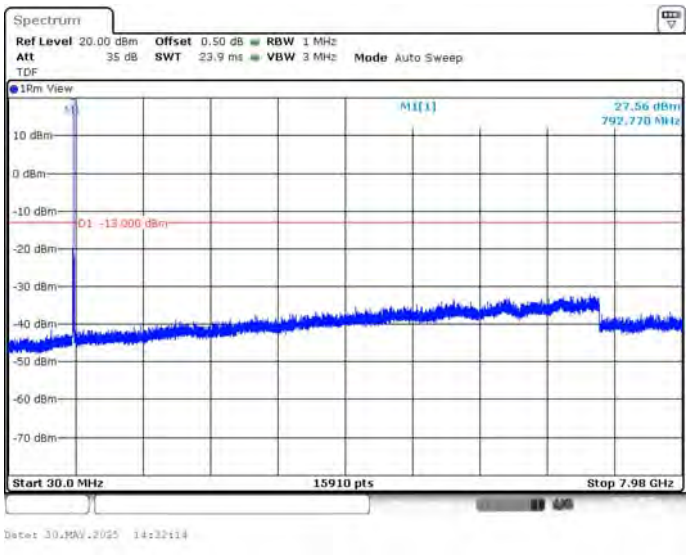
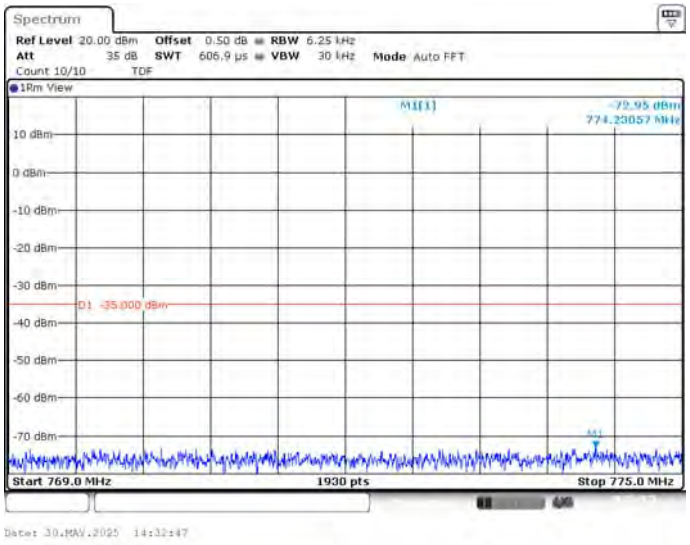
LTE band 14

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





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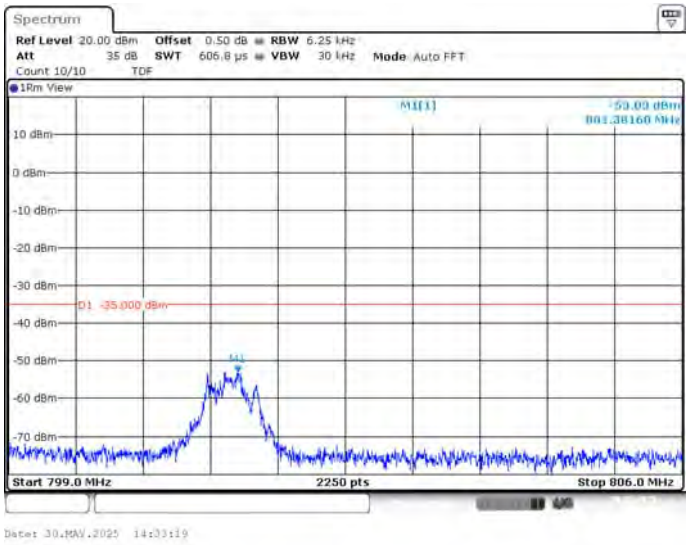

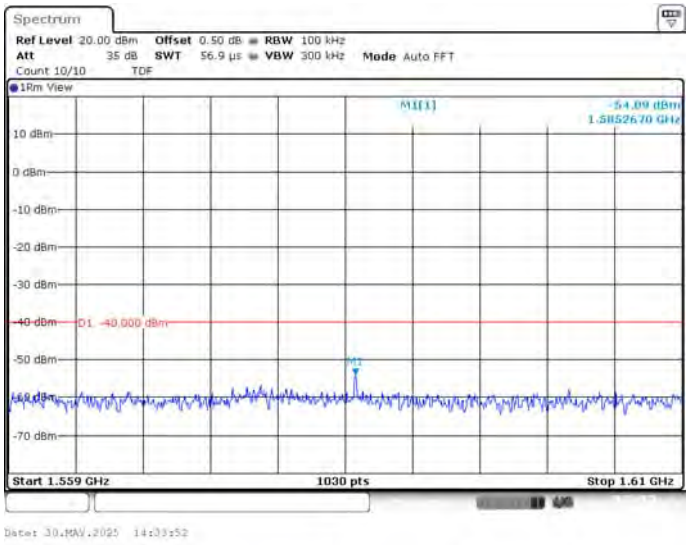

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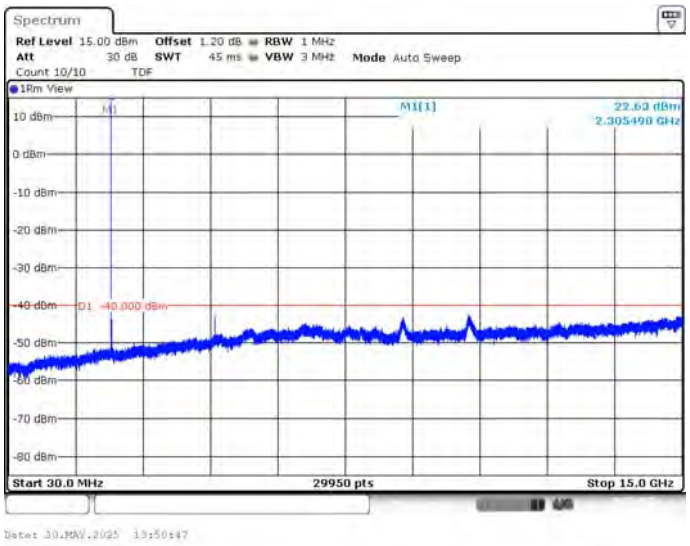
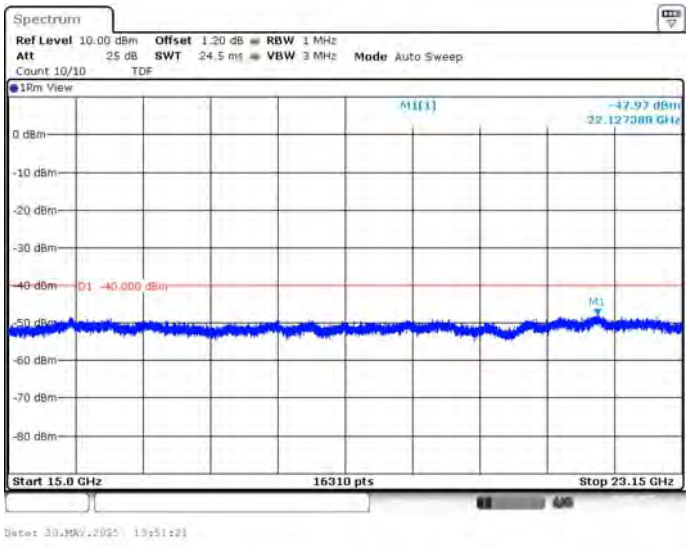
LTE band 30

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





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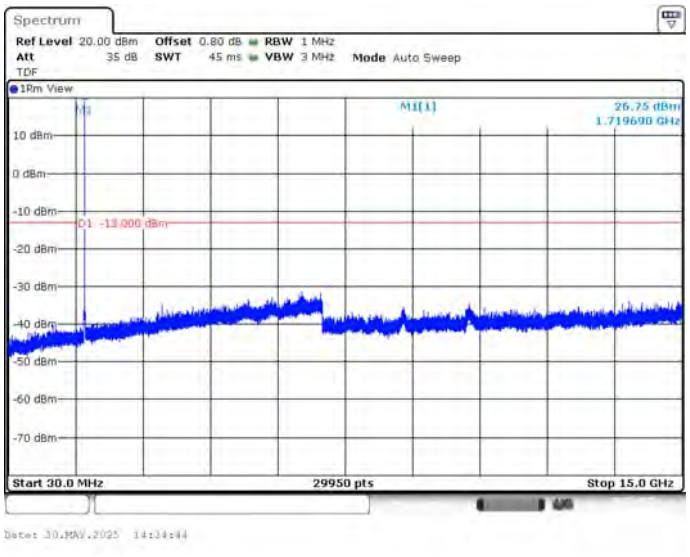
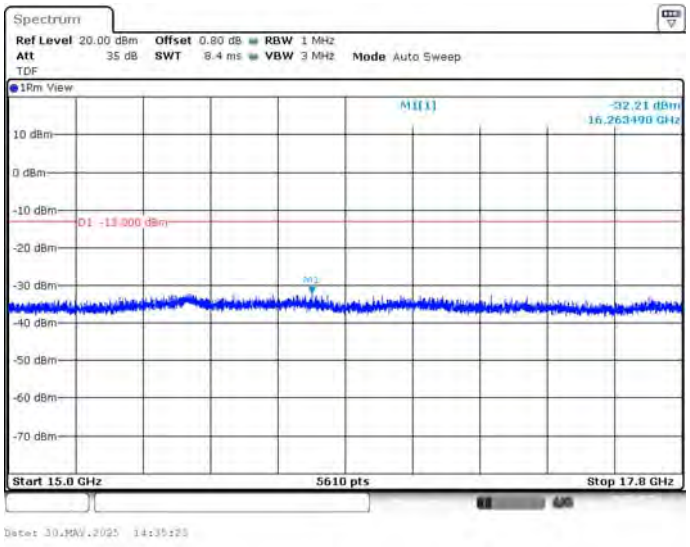
LTE band 66

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

LTE Band 2, 20MHz

Frequency (MHz)	RB	PAPR (dB)			
		QPSK	16QAM	64QAM	256QAM
1880	100%,0	5.16	5.83	6.52	6.64

LTE Band 7, 20MHz

Frequency (MHz)	RB	PAPR (dB)			
		QPSK	16QAM	64QAM	256QAM
2535	100%,0	5.16	5.83	6.58	6.81

LTE Band 12, 10MHz

Frequency (MHz)	RB	PAPR (dB)			
		QPSK	16QAM	64QAM	256QAM
707.5	100%,0	5.28	5.94	6.32	6.55

LTE Band 30, 10MHz

Frequency (MHz)	RB	PAPR (dB)			
		QPSK	16QAM	64QAM	256QAM
2310	100%,0	5.28	5.97	6.35	6.96

LTE Band 66, 20MHz

Frequency (MHz)	RB	PAPR (dB)			
		QPSK	16QAM	64QAM	256QAM
1745	100%,0	5.16	5.80	6.64	6.58

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Annex B: Accreditation Certificate

Accredited Laboratory

A2LA has accredited

TELECOMMUNICATION TECHNOLOGY LABS, CAICT

Beijing, 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 July 2024.

Mr. Trace McInturff, Vice President, Accreditation Services
For the Accreditation Council
Certificate Number 7049.01
Valid to July 31, 2026

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

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

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