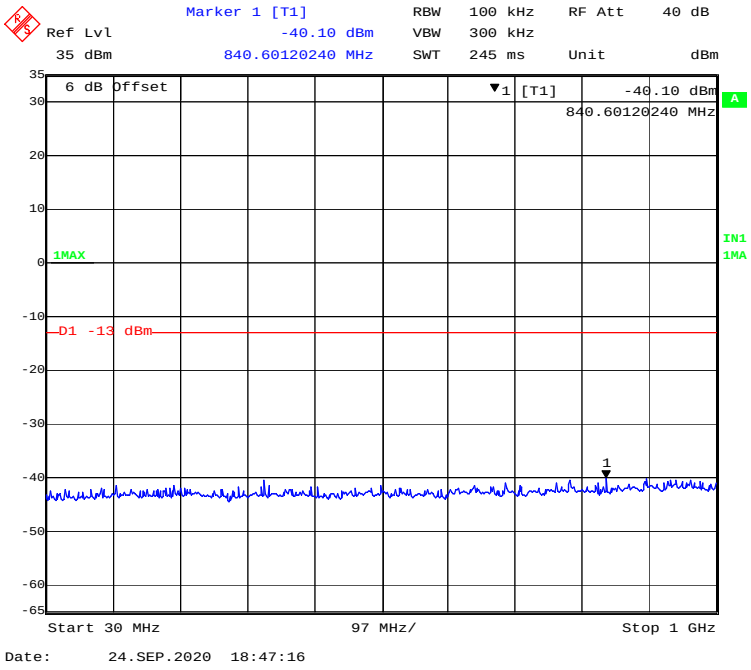
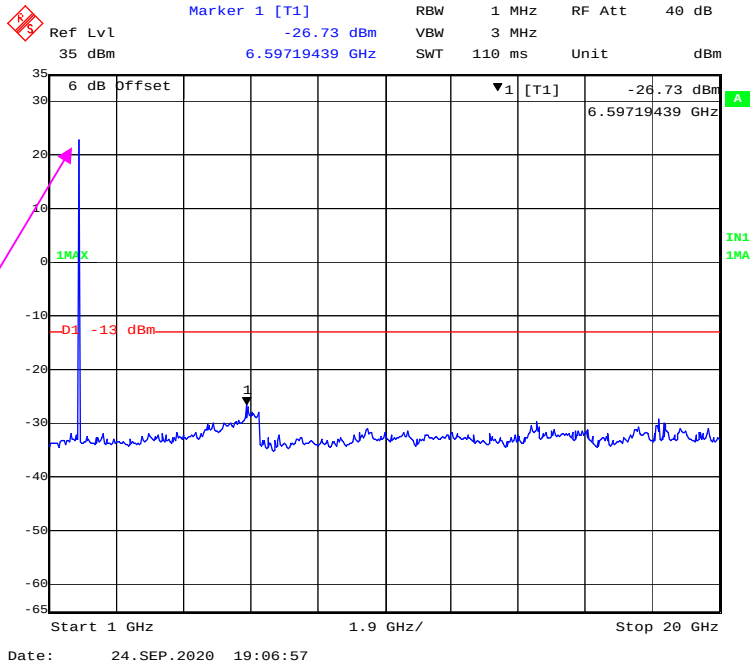
LTE Band 2:

30 MHz - 1 GHz (1.4 MHz, QPSK, Low Channel)

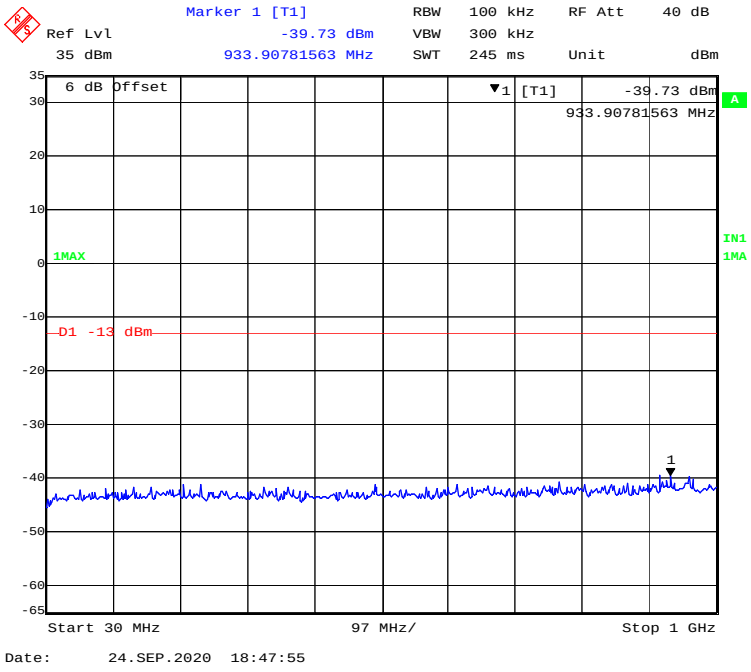


1 GHz – 20 GHz (1.4 MHz, QPSK, Low Channel)

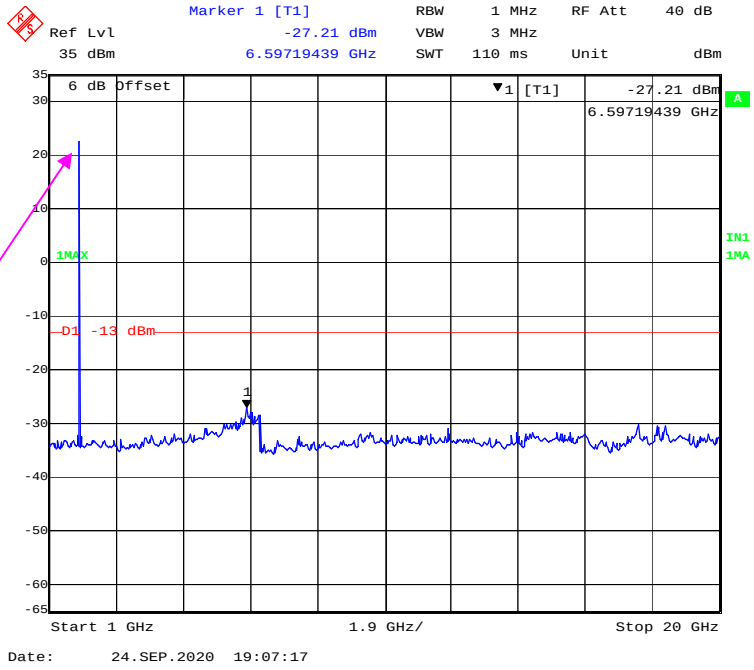


Fundamental

30 MHz - 1 GHz (1.4 MHz, 16-QAM, Low Channel)

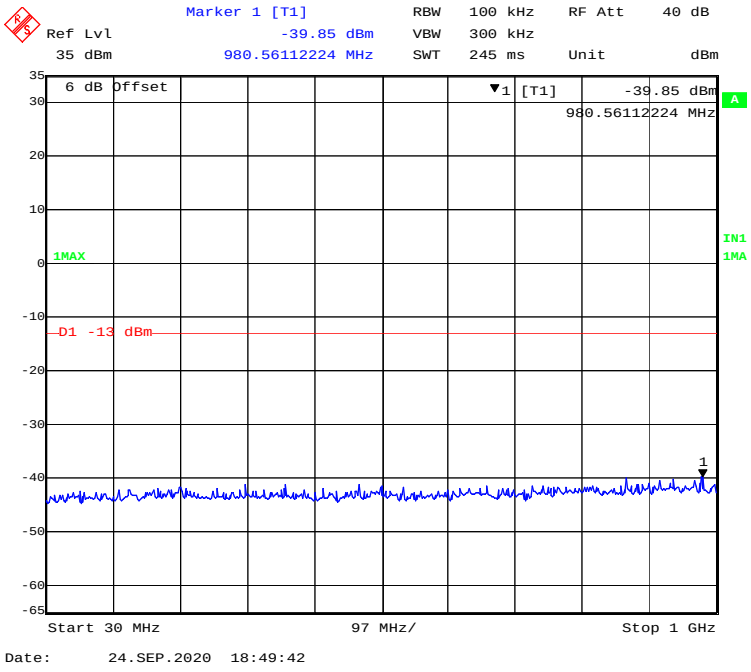


1 GHz – 20 GHz (1.4 MHz, 16-QAM, Low Channel)

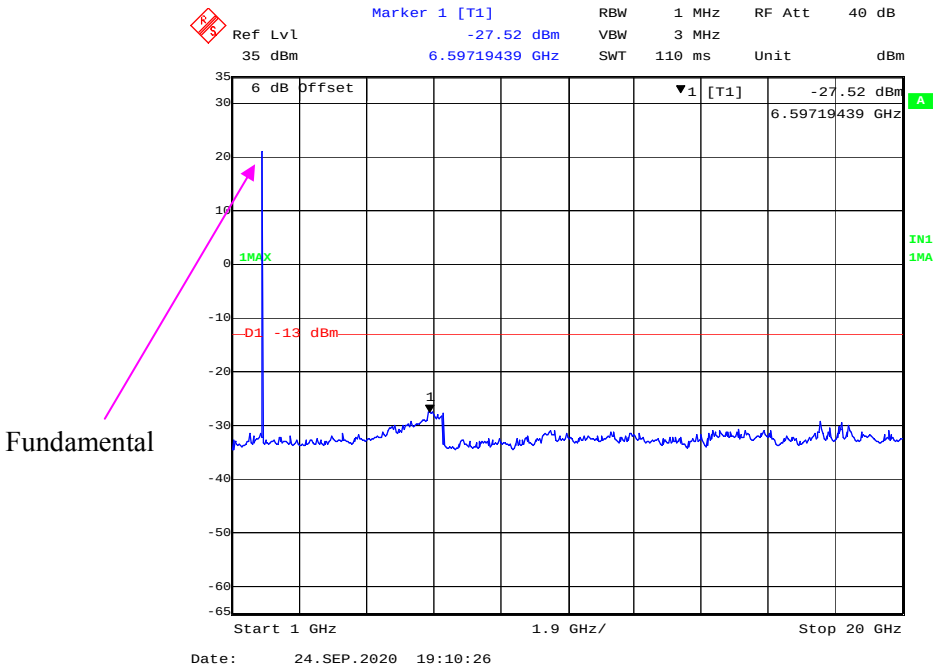


Fundamental

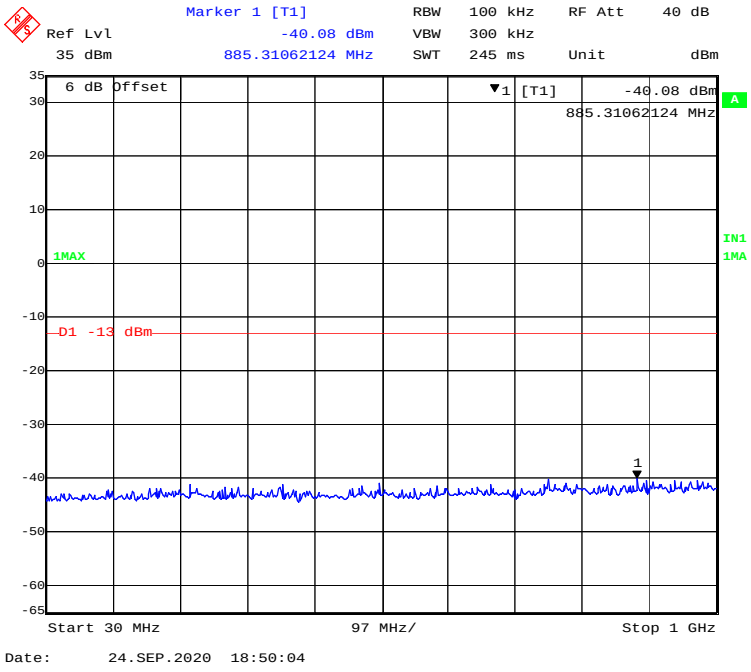
30 MHz - 1 GHz (3 MHz, QPSK, Low Channel)



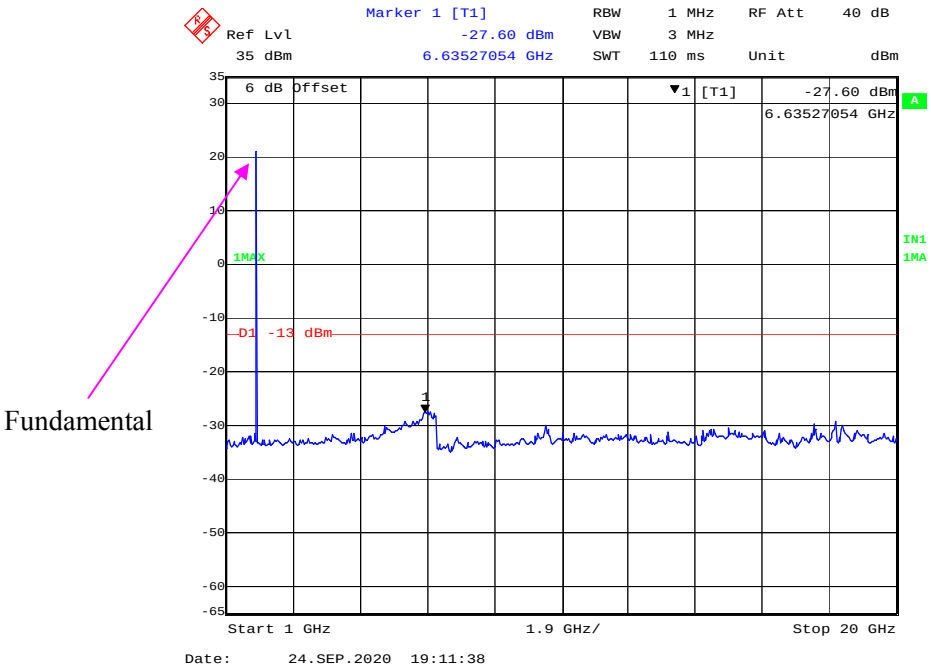
1 GHz – 20 GHz (3 MHz, QPSK, Low Channel)



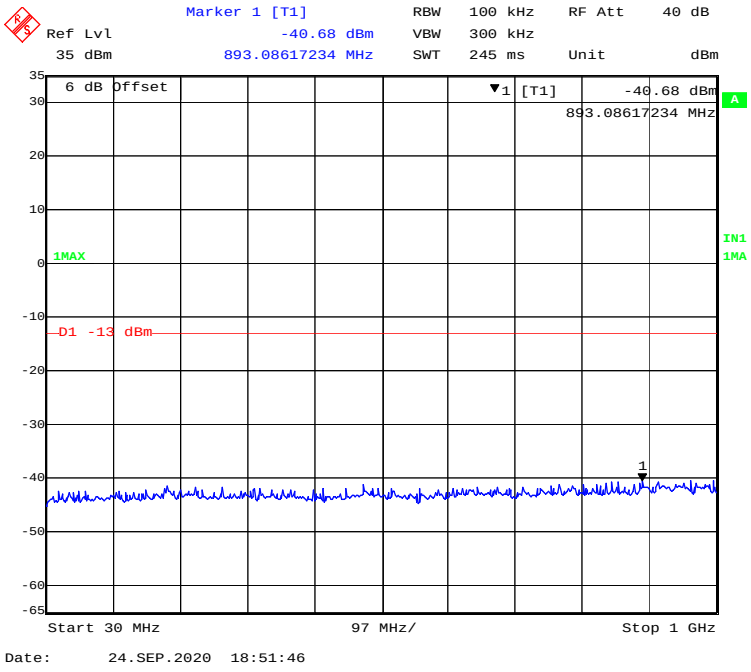
30 MHz - 1 GHz (3 MHz, 16-QAM, Low Channel)



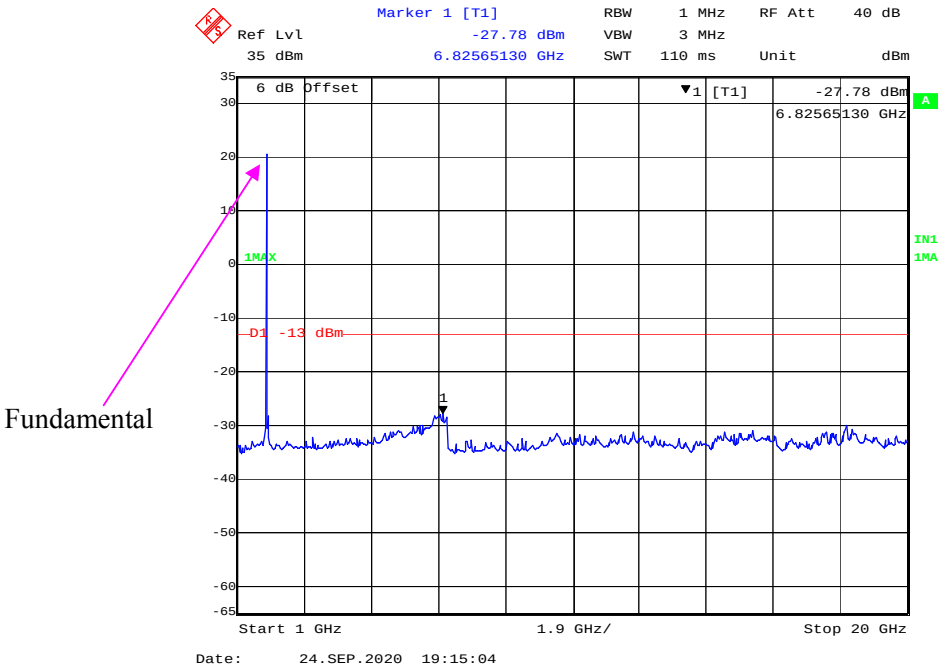
1 GHz – 20 GHz (3 MHz, 16-QAM, Low Channel)



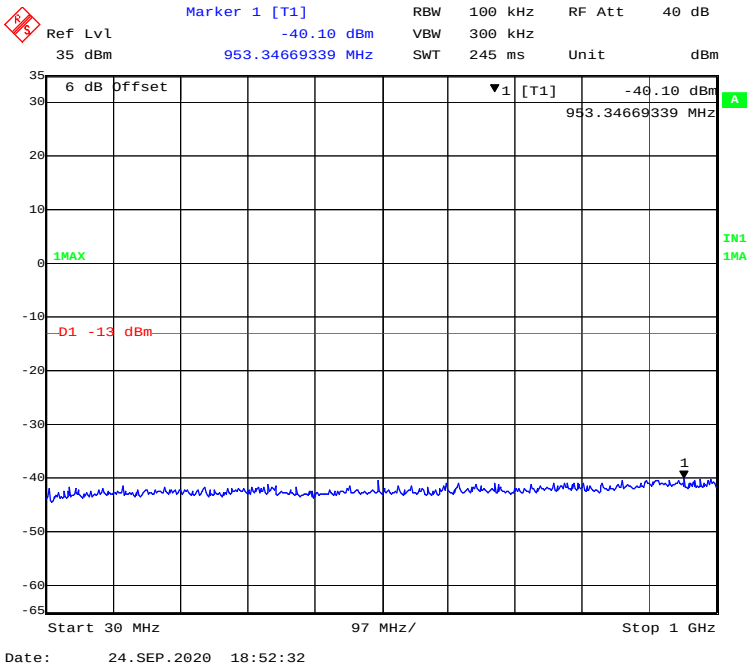
30 MHz - 1 GHz (5 MHz, QPSK, Low Channel)



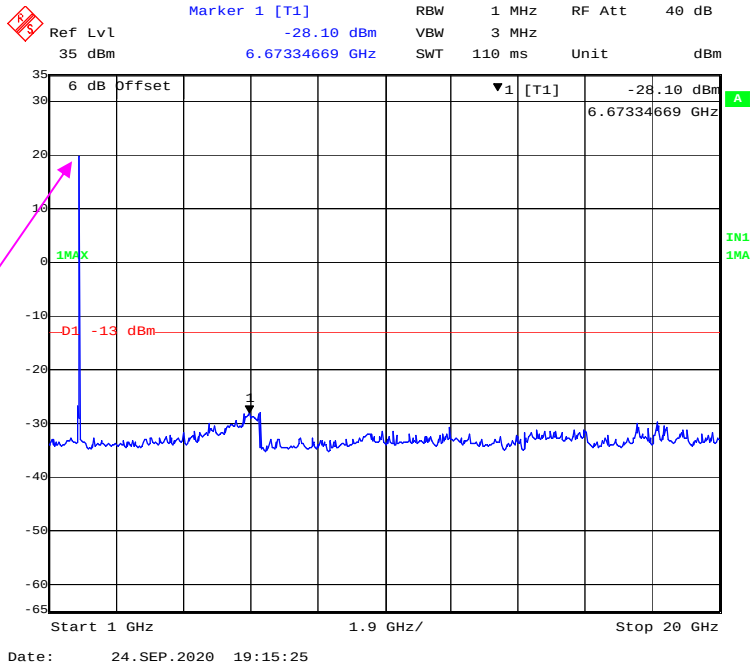
1 GHz – 20 GHz (5 MHz, QPSK, Low Channel)



30 MHz - 1 GHz (5 MHz, 16-QAM, Low Channel)

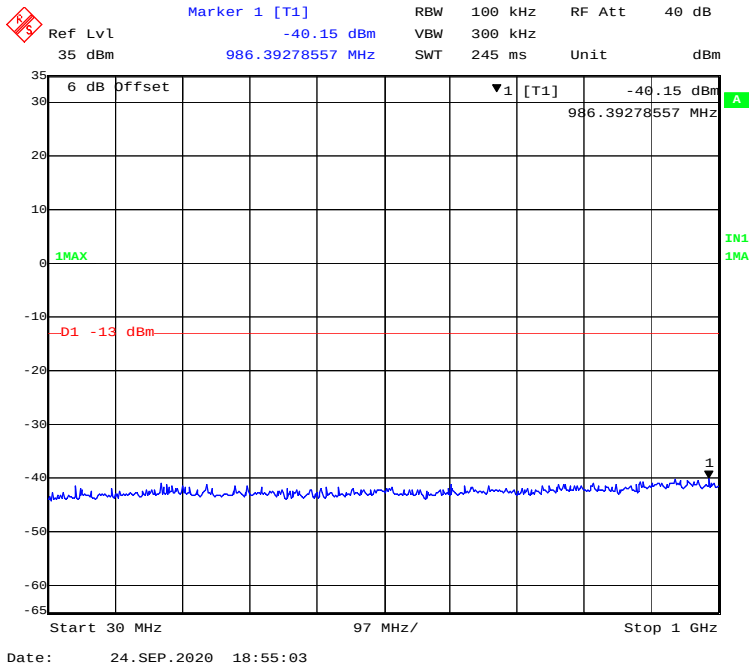


1 GHz – 20 GHz (5 MHz, 16-QAM, Low Channel)

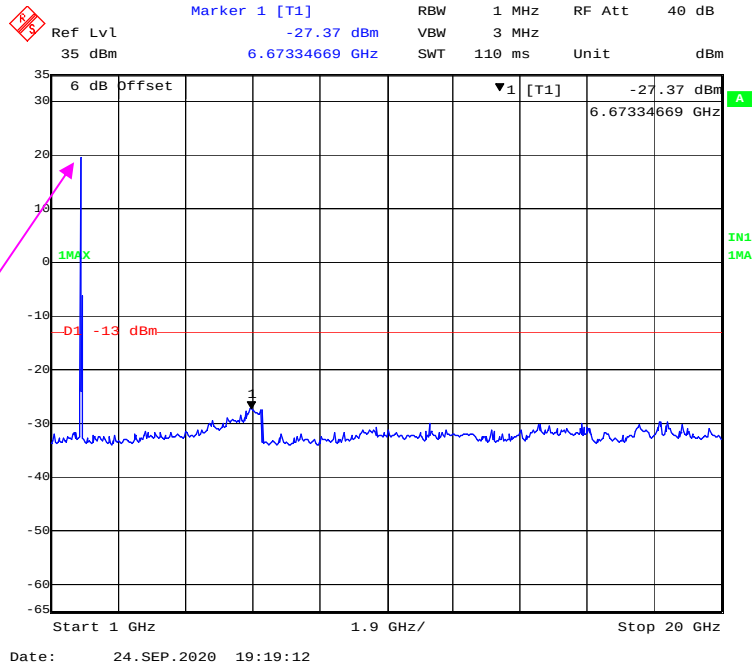


Fundamental

30 MHz - 1 GHz (10 MHz, QPSK, Low Channel)

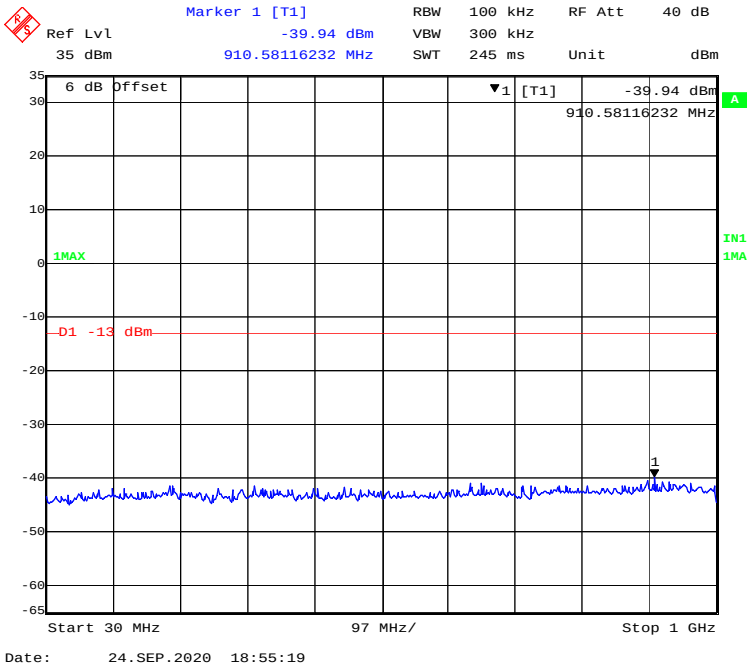


1 GHz – 20 GHz (10 MHz, QPSK, Low Channel)

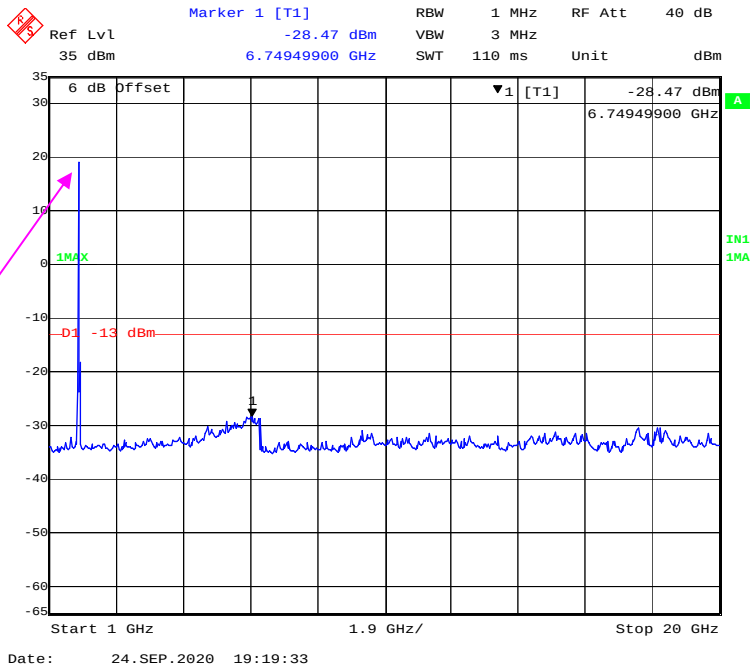


Fundamental

30 MHz - 1 GHz (10 MHz, 16-QAM, Low Channel)

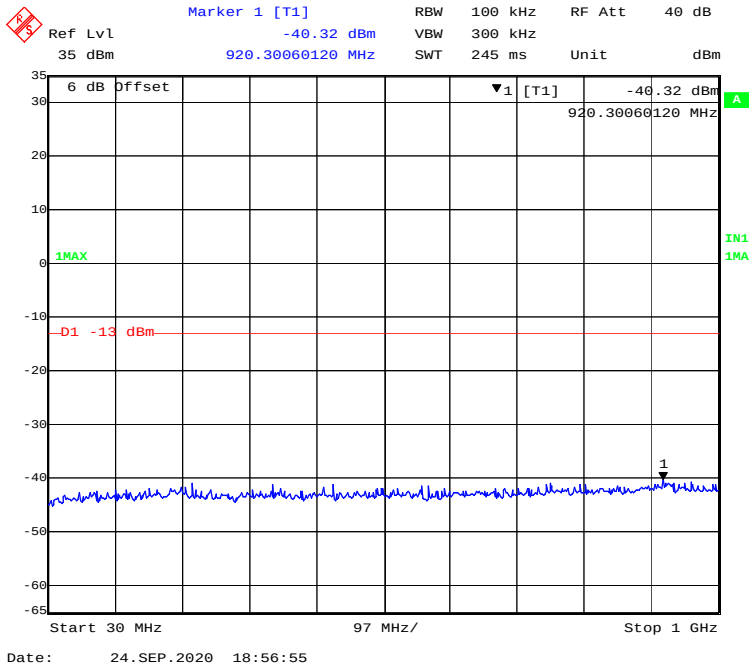


1 GHz – 20 GHz (10 MHz, 16-QAM, Low Channel)

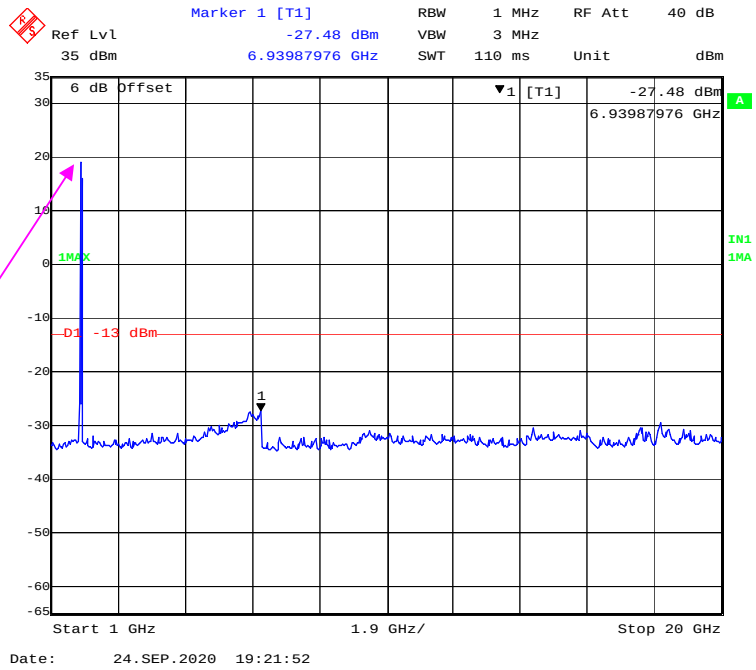


Fundamental

30 MHz - 1 GHz (15 MHz, QPSK, Low Channel)

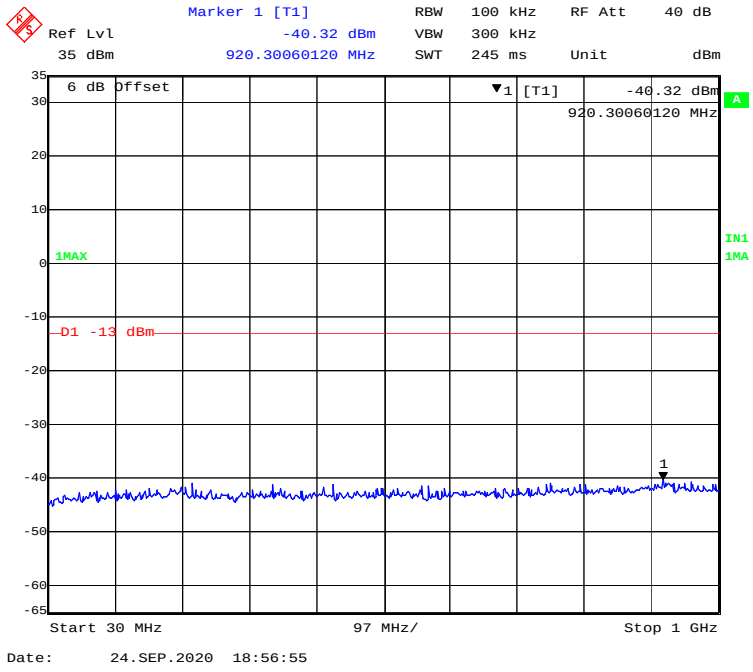


1 GHz – 20 GHz (15 MHz, QPSK, Low Channel)

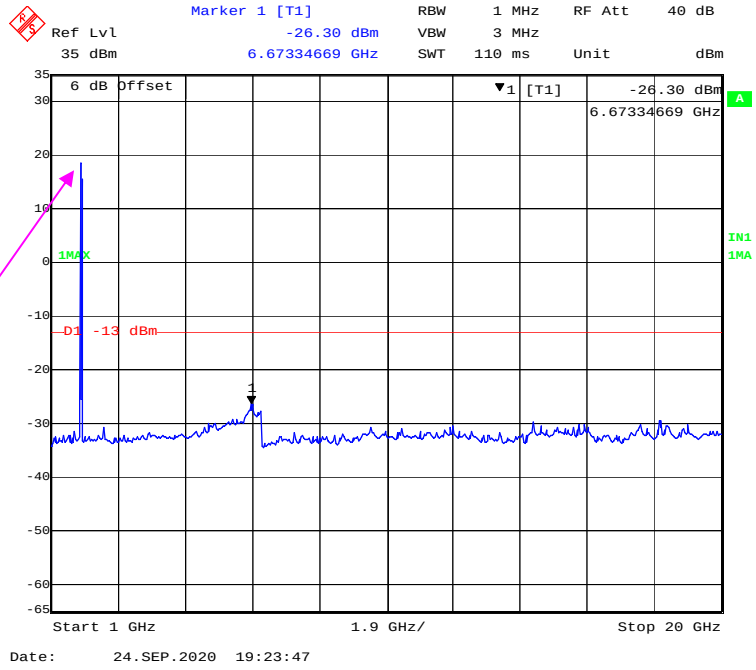


Fundamental

30 MHz - 1 GHz (15 MHz, 16-QAM, Low Channel)

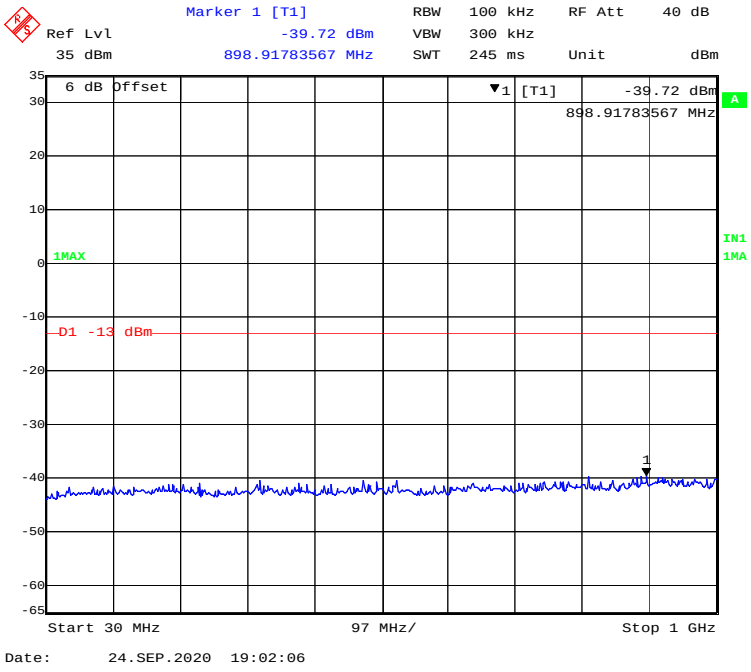


1 GHz – 20 GHz (15 MHz, 16-QAM, Low Channel)

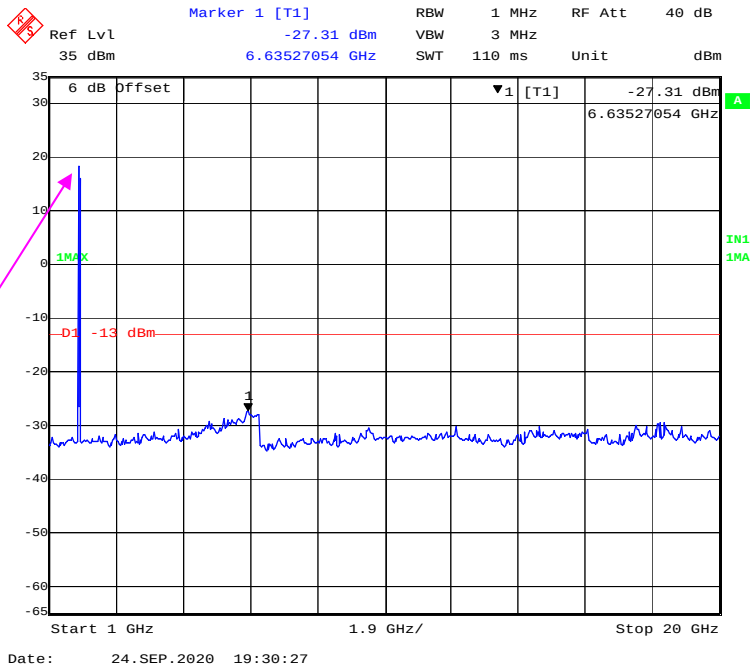


Fundamental

30 MHz - 1 GHz (20 MHz, QPSK, Low Channel)

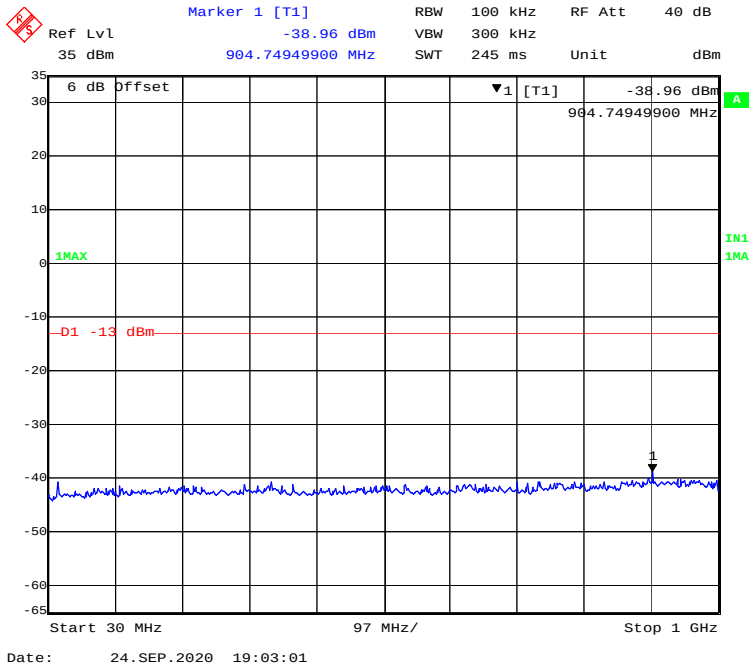


1 GHz – 20 GHz (20 MHz, QPSK, Low Channel)

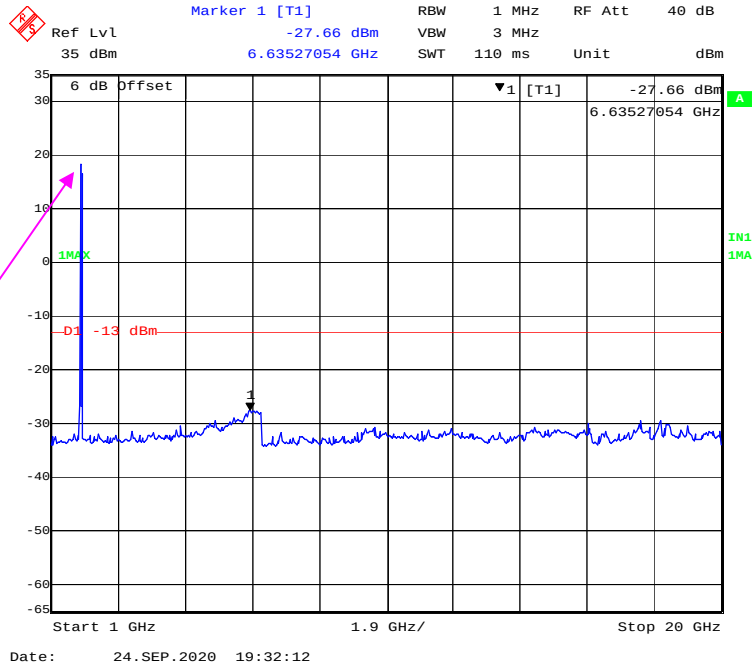


Fundamental

30 MHz - 1 GHz (20 MHz, 16-QAM, Low Channel)

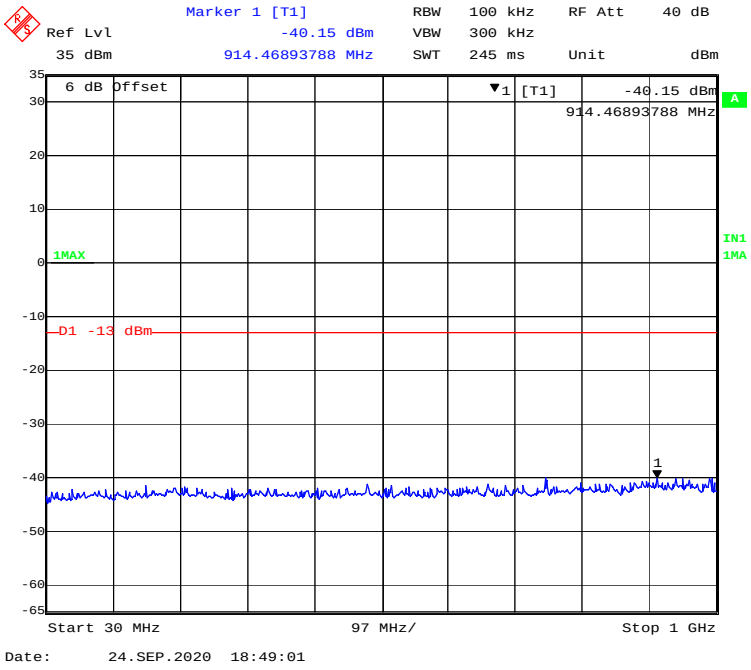


1 GHz – 20 GHz (20 MHz, 16-QAM, Low Channel)

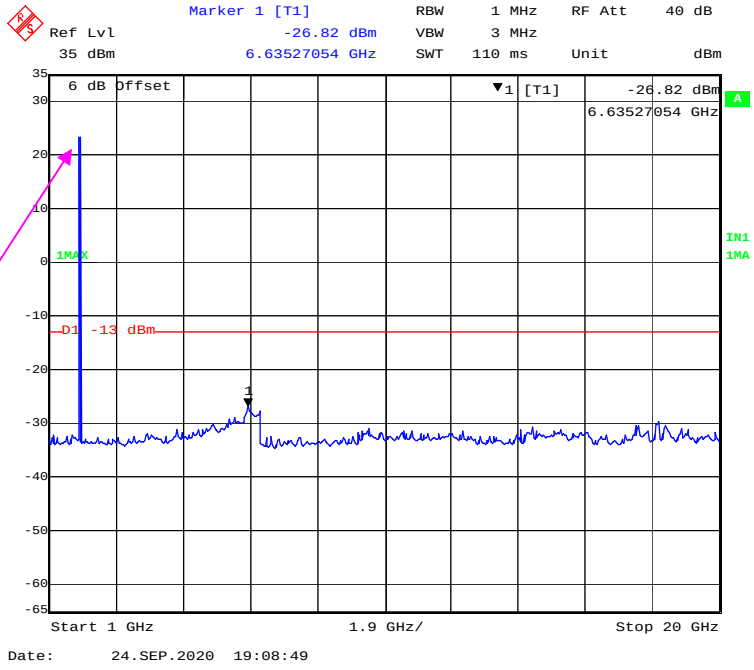


Fundamental

30 MHz - 1 GHz (1.4 MHz, QPSK, Middle Channel)

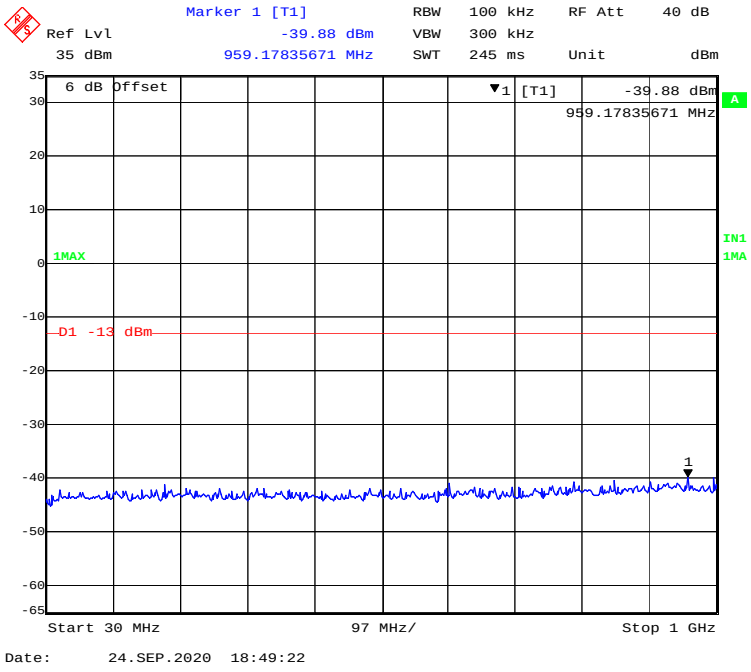


1 GHz – 20 GHz (1.4 MHz, QPSK, Middle Channel)

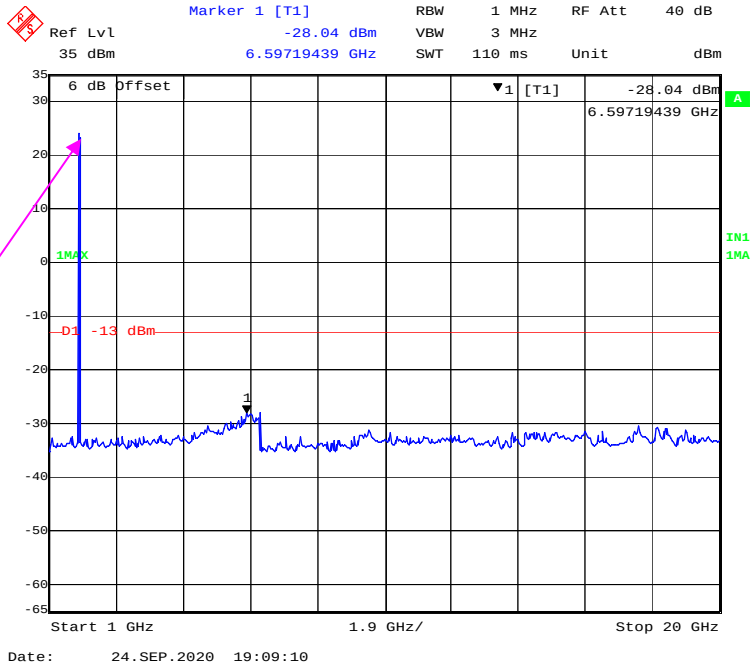


Fundamental

30 MHz - 1 GHz (1.4 MHz, 16-QAM, Middle Channel)

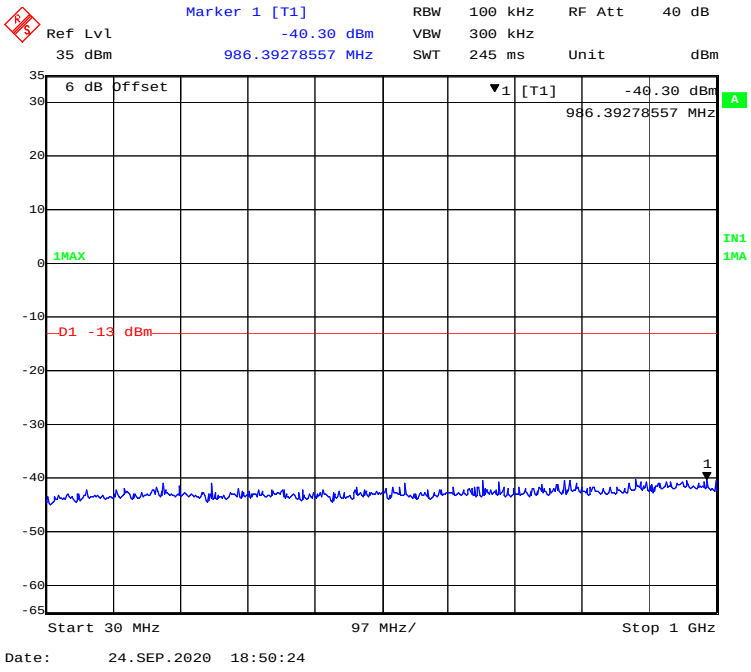


1 GHz – 20 GHz (1.4 MHz, 16-QAM, Middle Channel)

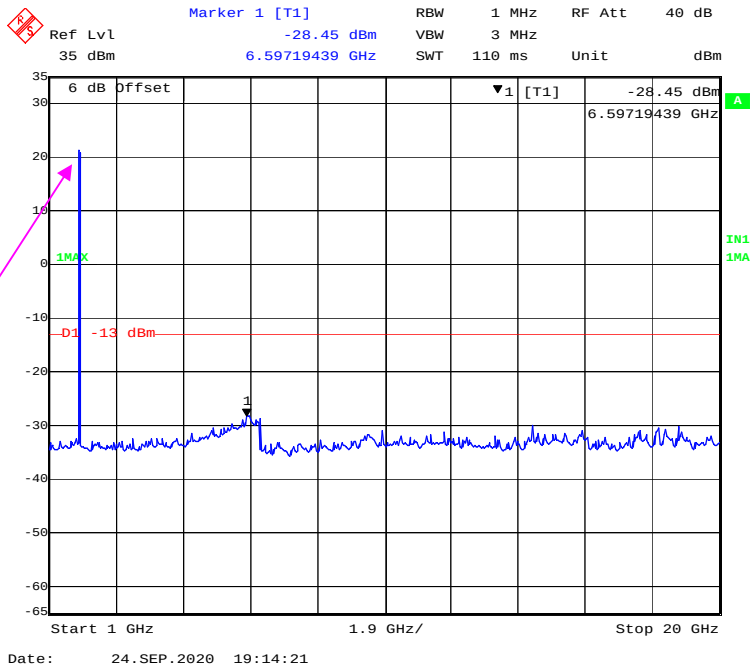


Fundamental

30 MHz - 1 GHz (3 MHz, QPSK, Middle Channel)

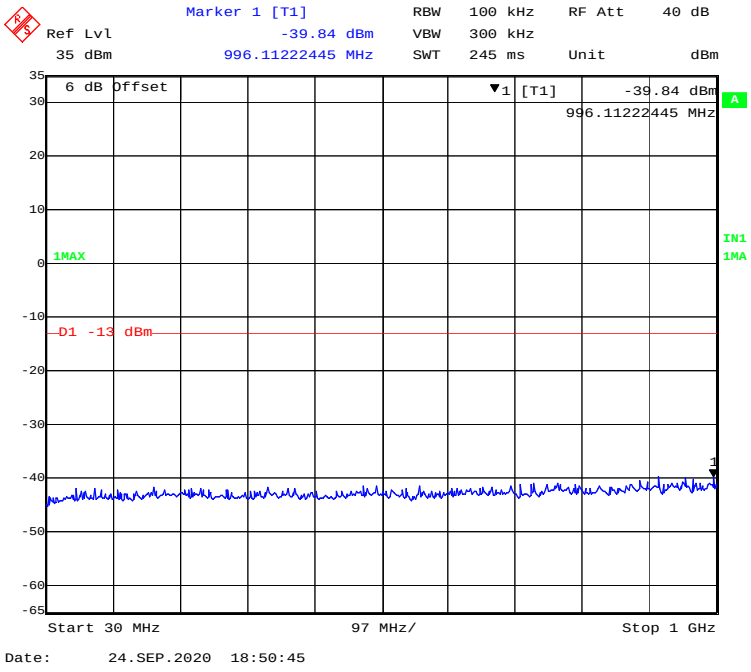


1 GHz – 20 GHz (3 MHz, QPSK, Middle Channel)

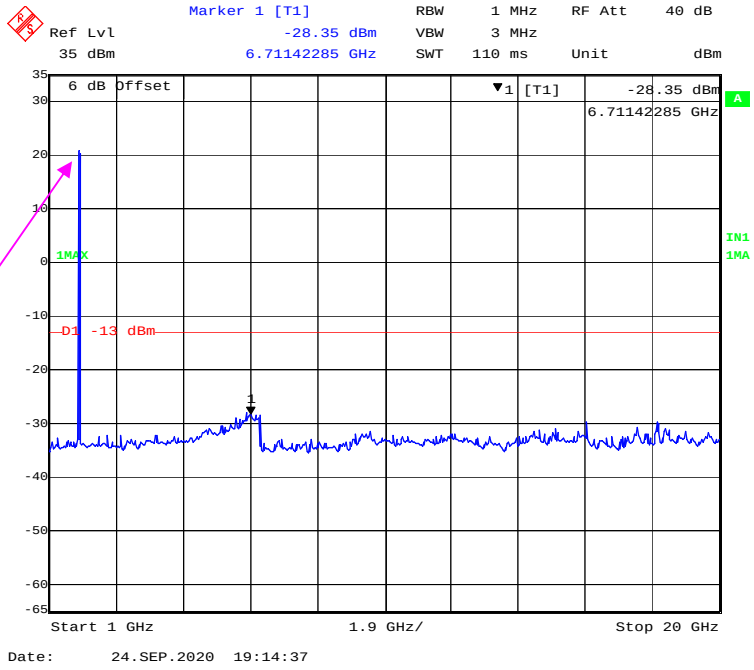


Fundamental

30 MHz - 1 GHz (3 MHz, 16-QAM, Middle Channel)

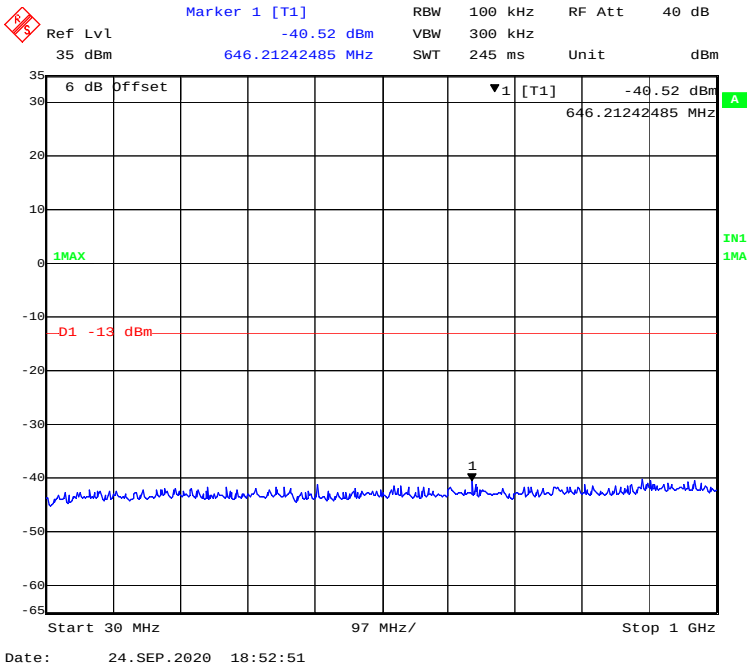


1 GHz – 20 GHz (3 MHz, 16-QAM, Middle Channel)

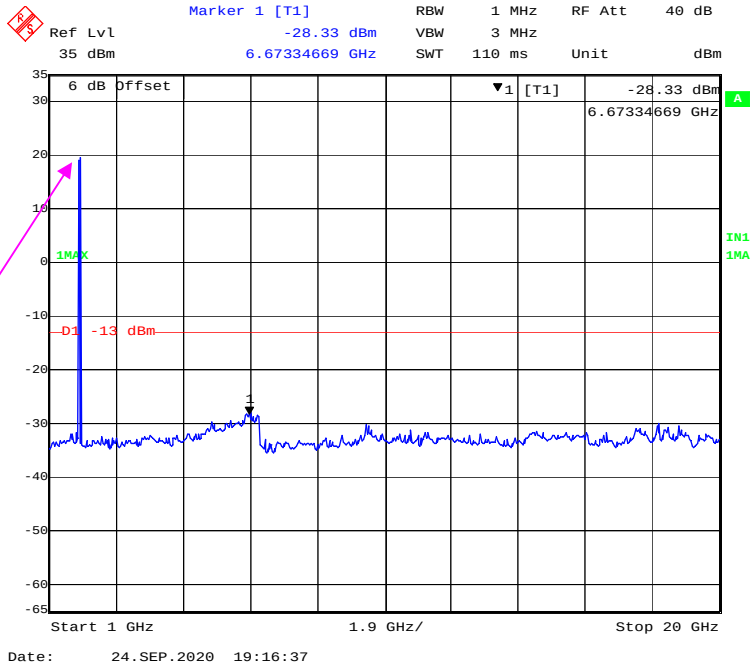


Fundamental

30 MHz - 1 GHz (5 MHz, QPSK, Middle Channel)

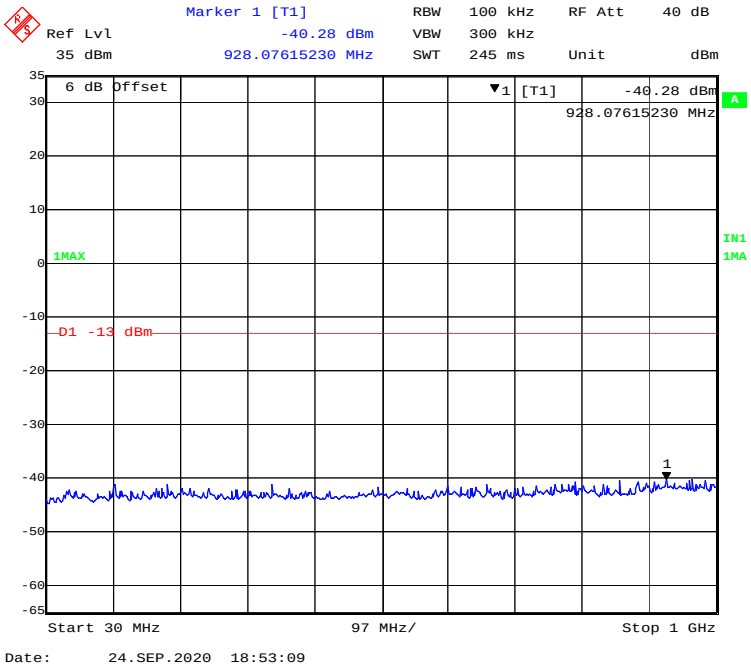


1 GHz – 20 GHz (5 MHz, QPSK, Middle Channel)

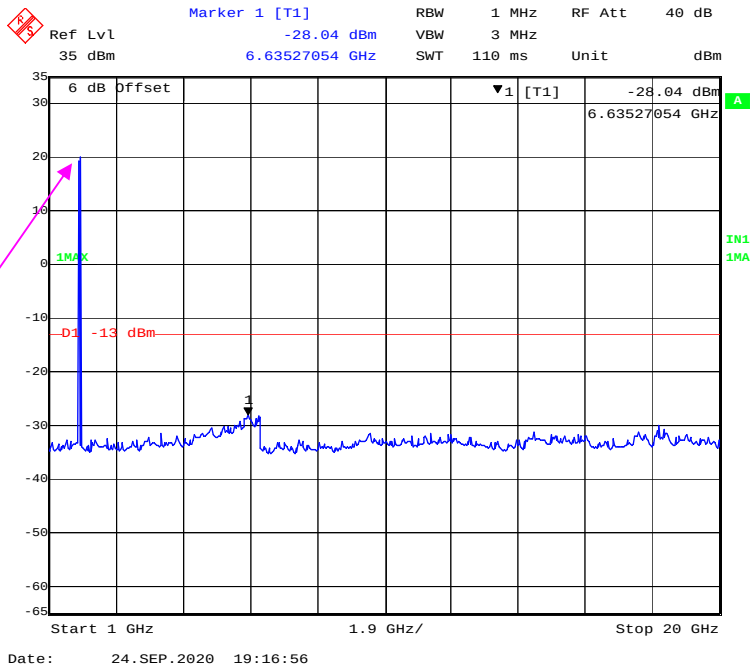


Fundamental

30 MHz - 1 GHz (5 MHz, 16-QAM, Middle Channel)

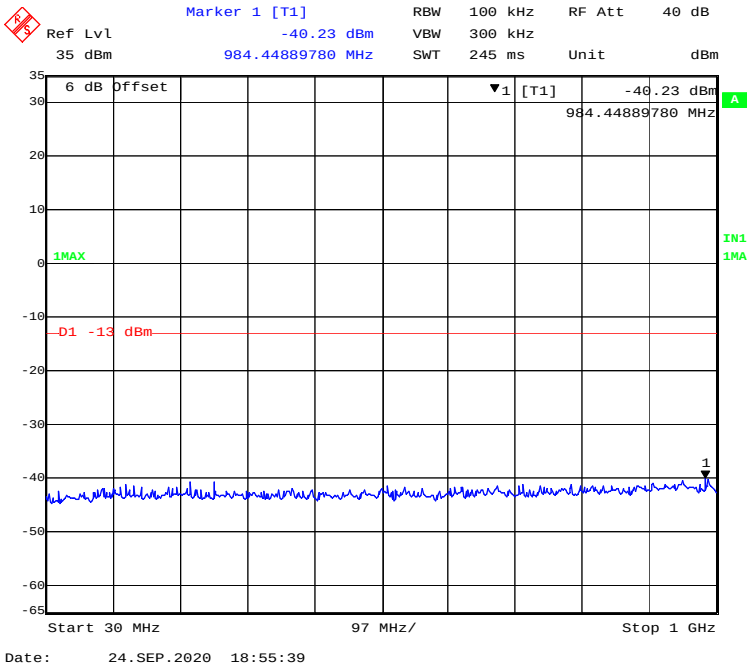


1 GHz – 20 GHz (5 MHz, 16-QAM, Middle Channel)

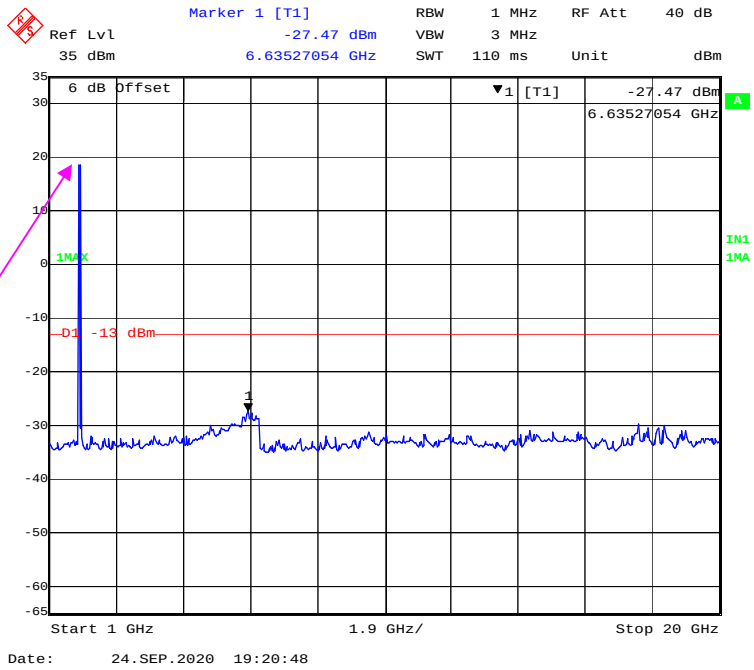


Fundamental

30 MHz - 1 GHz (10 MHz, QPSK, Middle Channel)

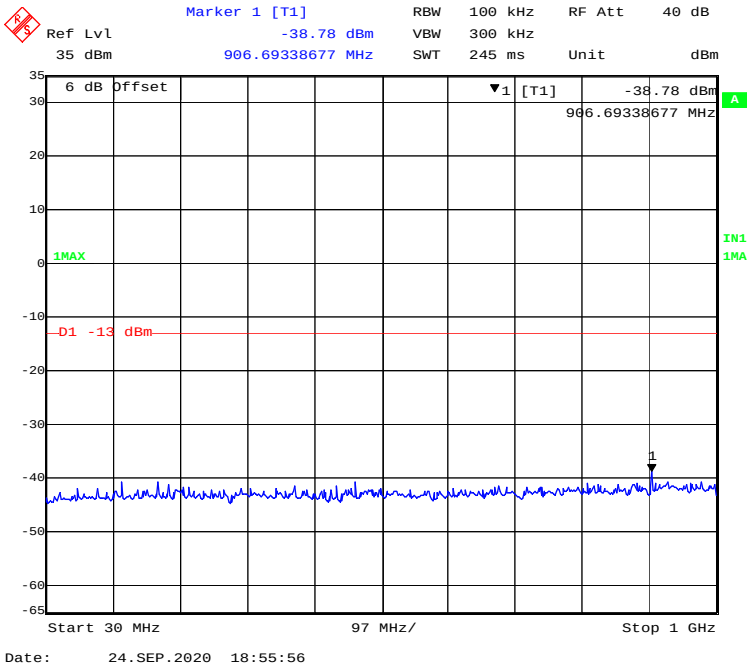


1 GHz – 20 GHz (10 MHz, QPSK, Middle Channel)

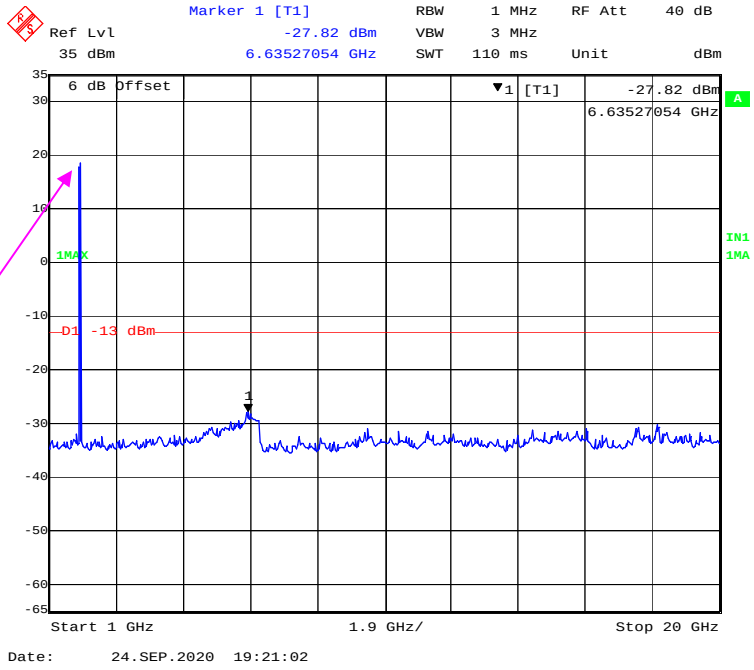


Fundamental

30 MHz - 1 GHz (10 MHz, 16-QAM, Middle Channel)

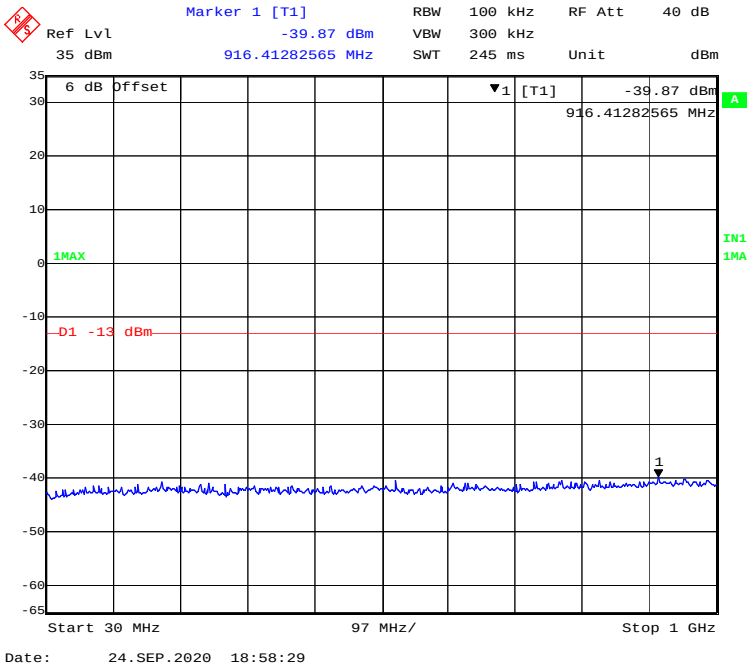


1 GHz – 20 GHz (10 MHz, 16-QAM, Middle Channel)

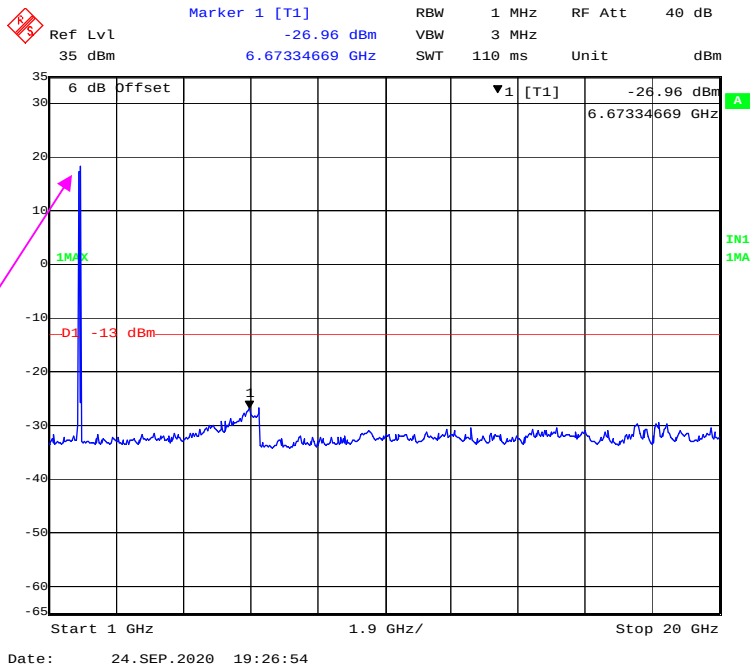


Fundamental

30 MHz - 1 GHz (15 MHz, QPSK, Middle Channel)

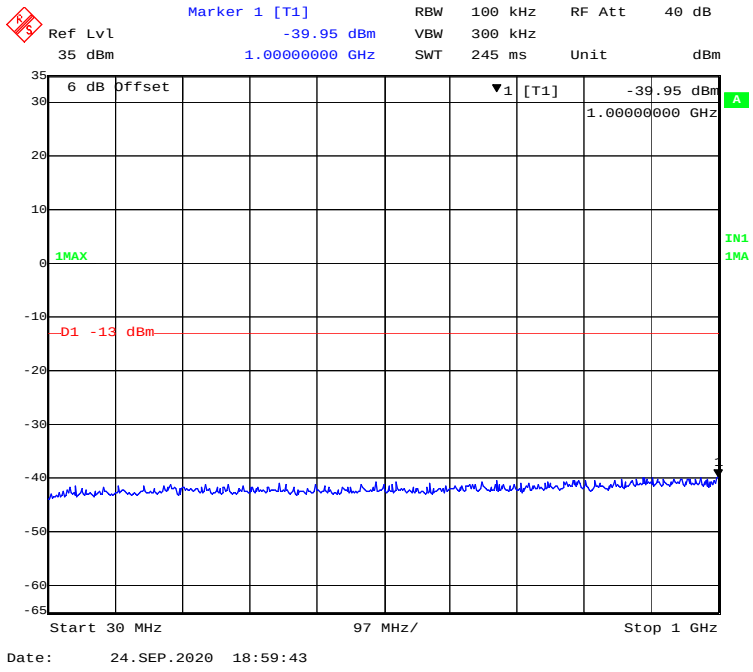


1 GHz – 20 GHz (15 MHz, QPSK, Middle Channel)

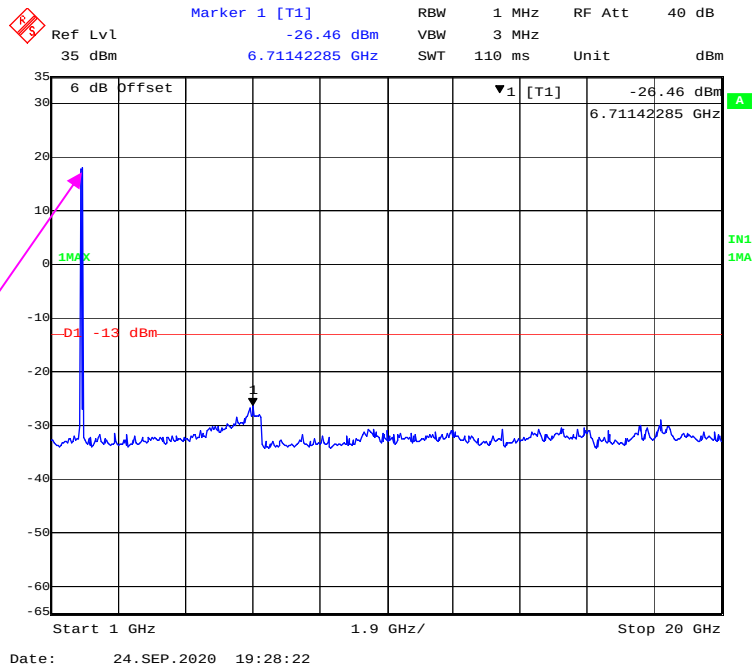


Fundamental

30 MHz - 1 GHz (15 MHz, 16-QAM, Middle Channel)

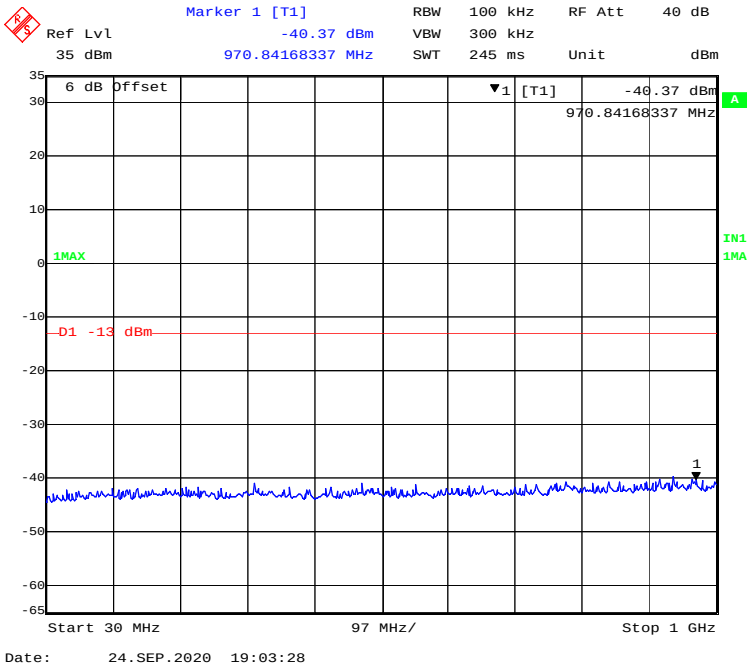


1 GHz – 20 GHz (15 MHz, 16-QAM, Middle Channel)

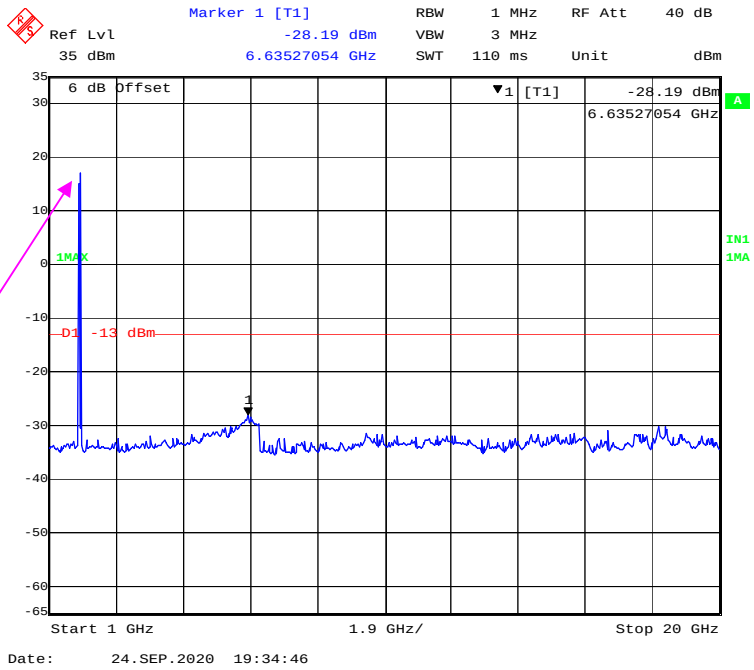


Fundamental

30 MHz - 1 GHz (20 MHz, QPSK, Middle Channel)

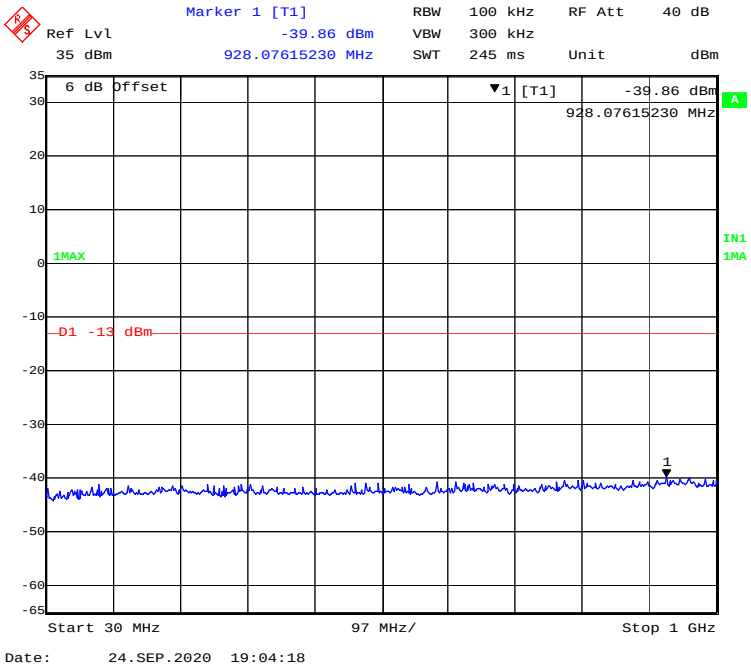


1 GHz – 20 GHz (20 MHz, QPSK, Middle Channel)

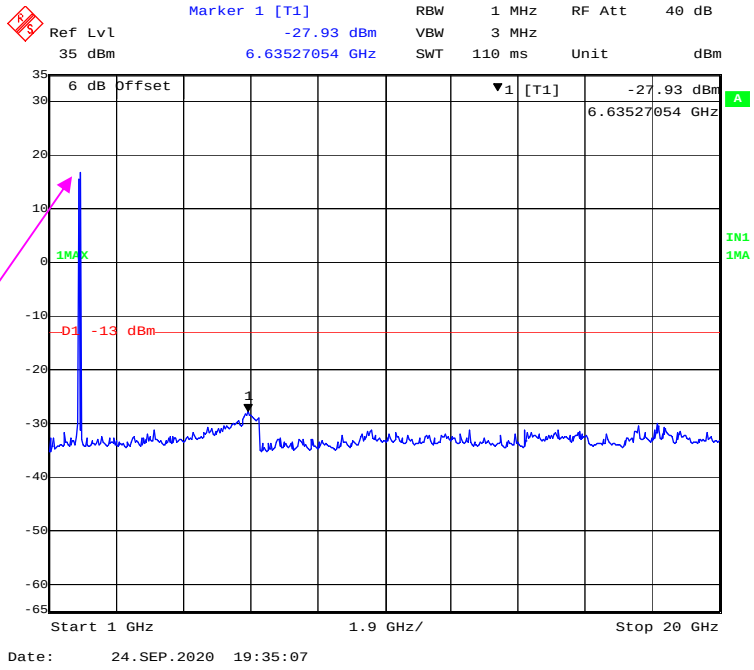


Fundamental

30 MHz - 1 GHz (20 MHz, 16-QAM, Middle Channel)

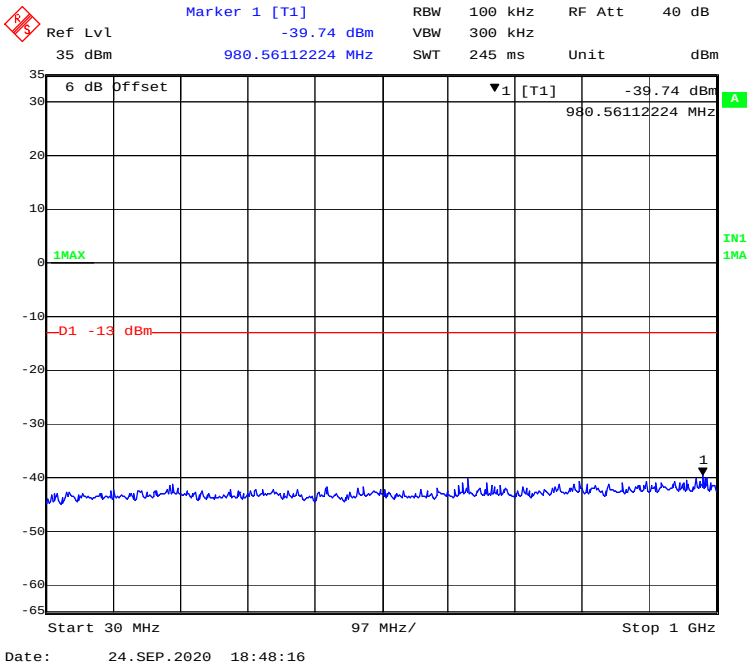


1 GHz – 20 GHz (20 MHz, 16-QAM, Middle Channel)

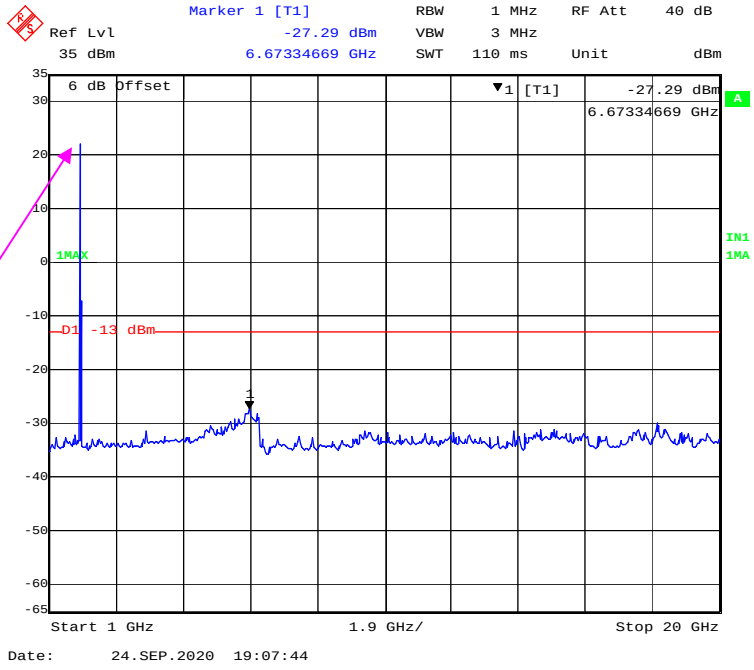


Fundamental

30 MHz - 1 GHz (1.4 MHz, QPSK, High Channel)

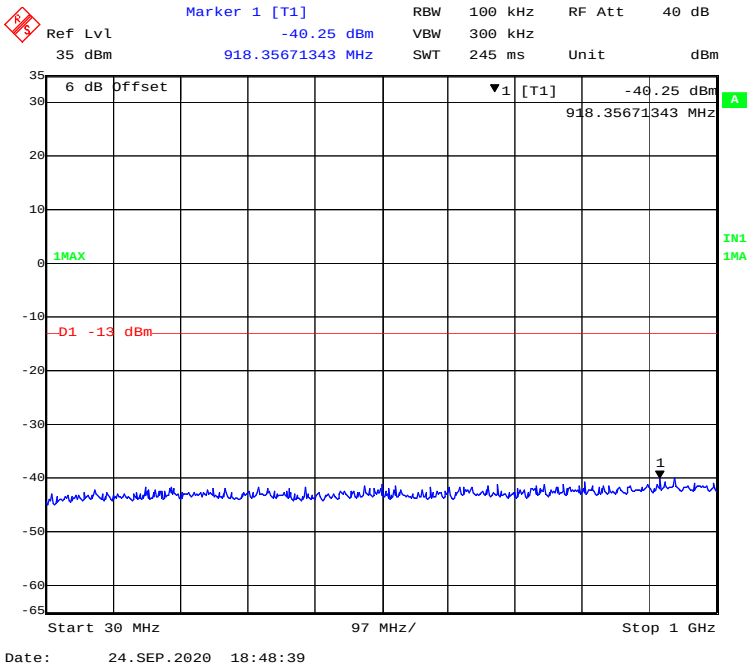


1 GHz – 20 GHz (1.4 MHz, QPSK, High Channel)

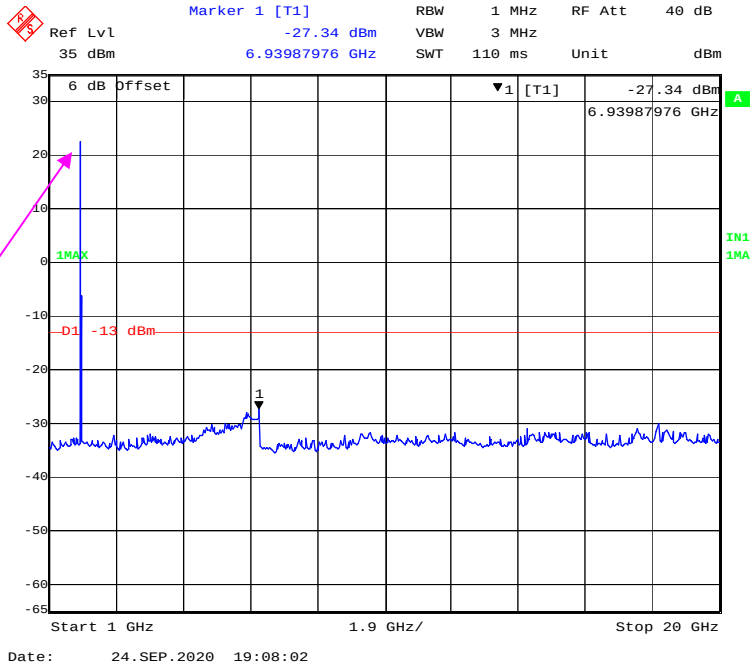


Fundamental

30 MHz - 1 GHz (1.4 MHz, 16-QAM, High Channel)

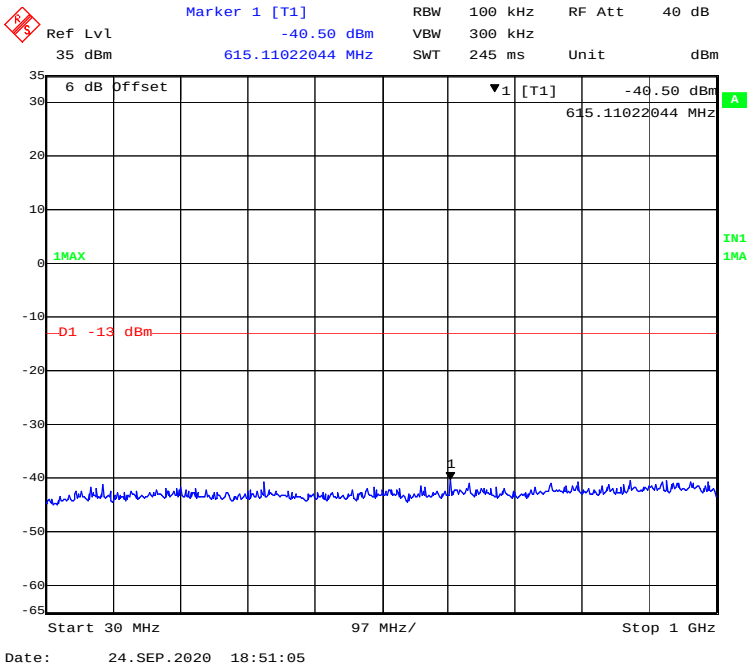


1 GHz – 20 GHz (1.4 MHz, 16-QAM, High Channel)

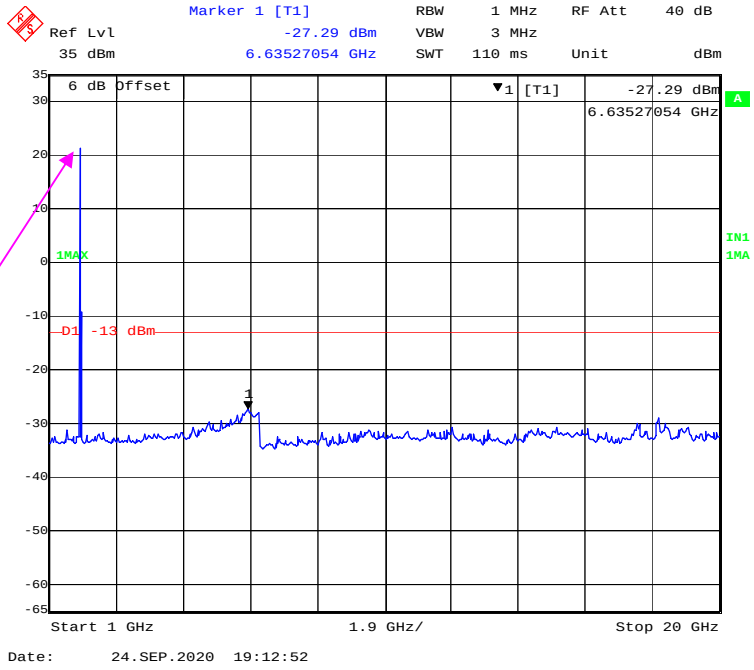


Fundamental

30 MHz - 1 GHz (3 MHz, QPSK, High Channel)

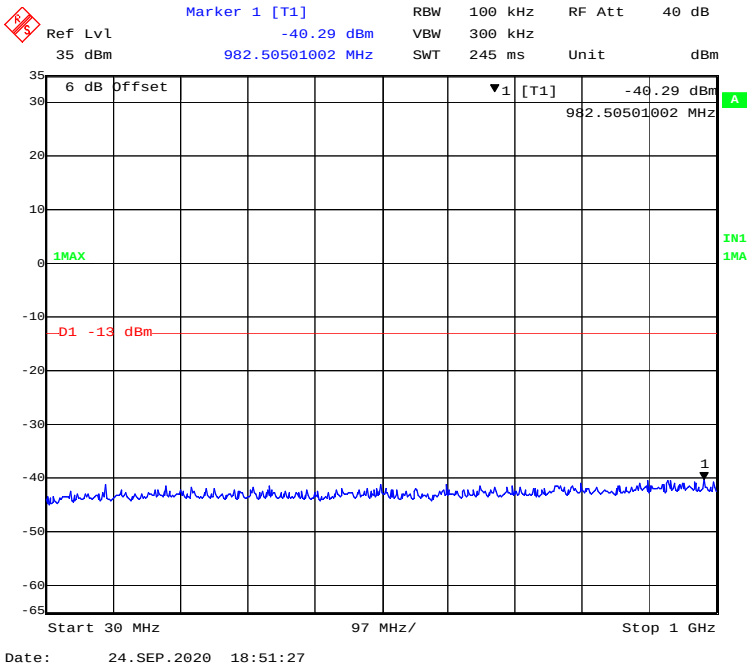


1 GHz – 20 GHz (3 MHz, QPSK, High Channel)

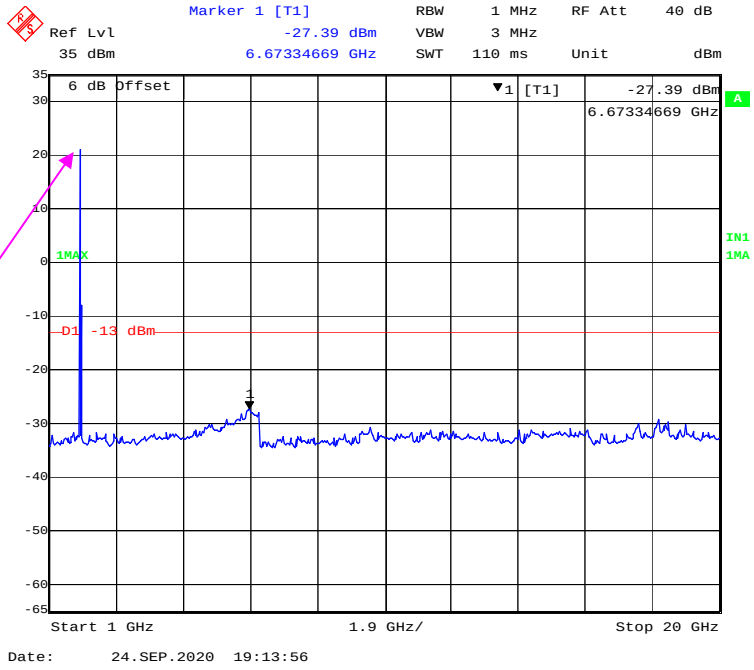


Fundamental

30 MHz - 1 GHz (3 MHz, 16-QAM, High Channel)

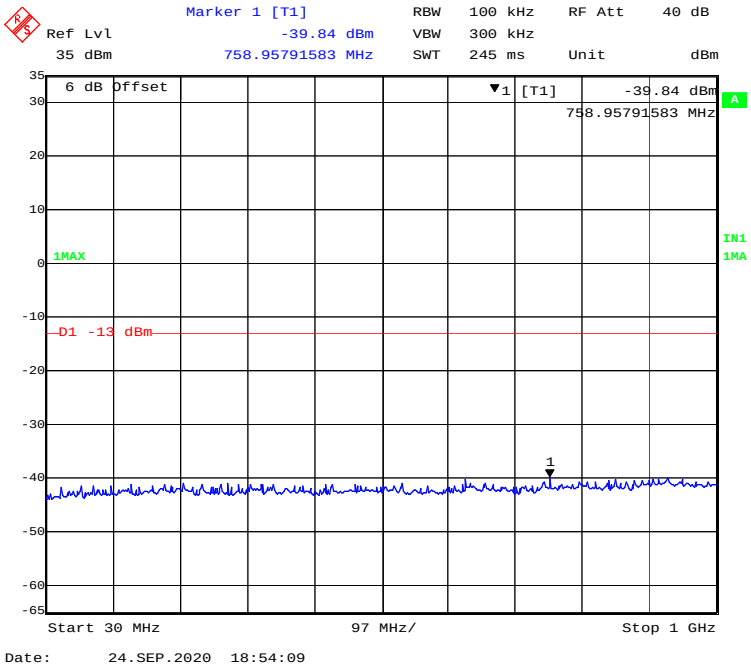


1 GHz – 20 GHz (3 MHz, 16-QAM, High Channel)

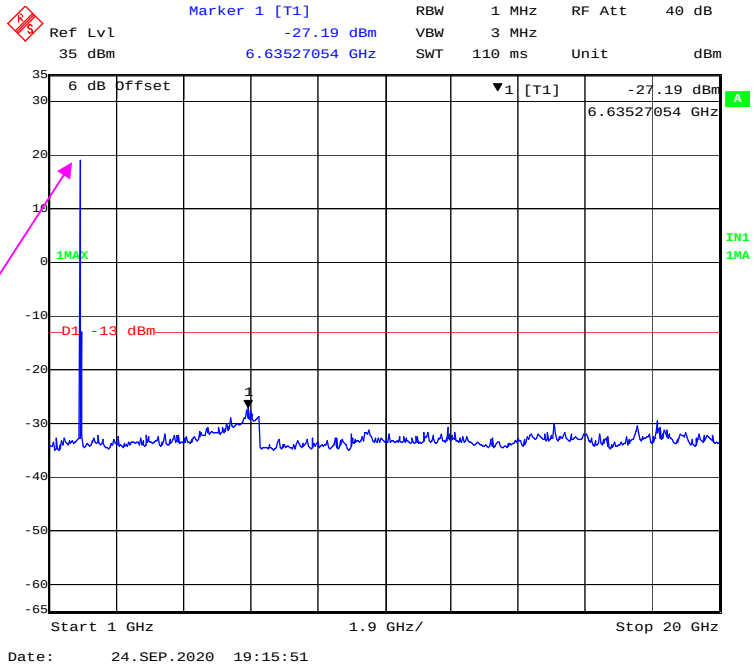


Fundamental

30 MHz - 1 GHz (5 MHz, QPSK, High Channel)

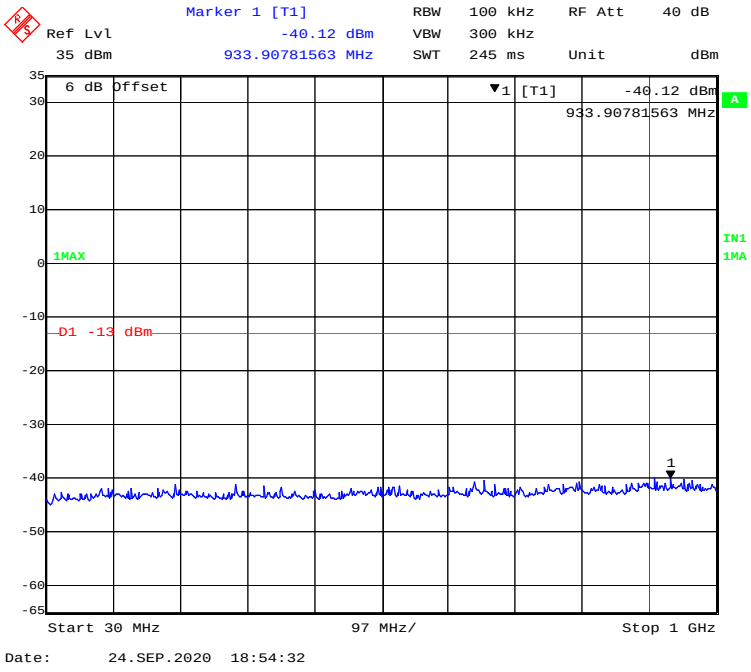


1 GHz – 20 GHz (5 MHz, QPSK, High Channel)

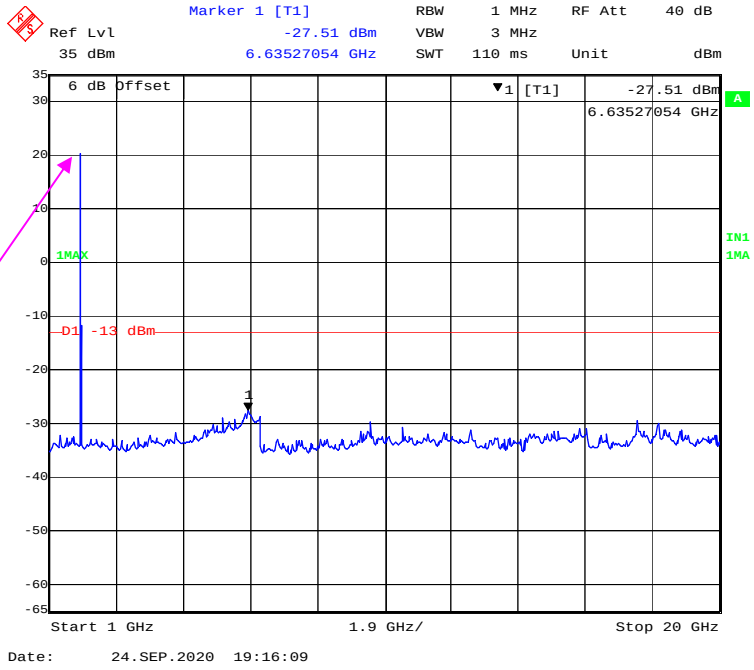


Fundamental

30 MHz - 1 GHz (5 MHz, 16-QAM, High Channel)

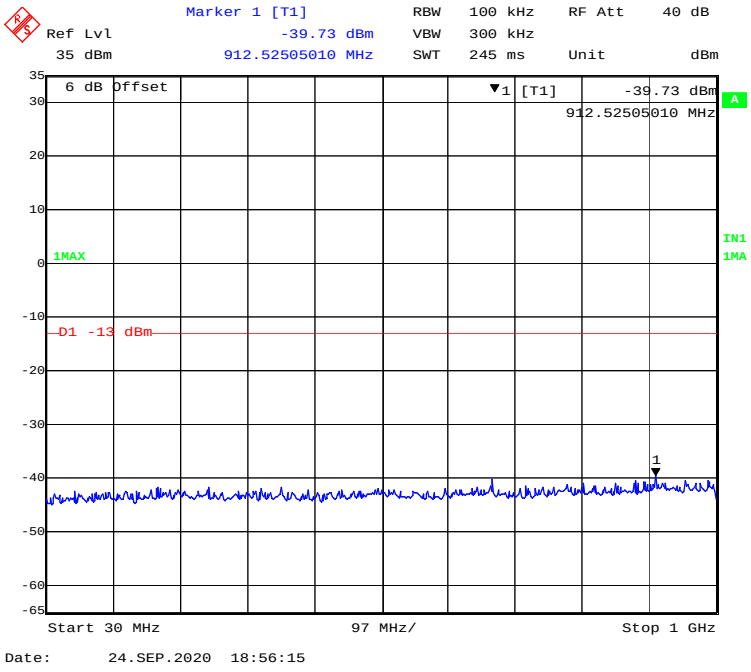


1 GHz – 20 GHz (5 MHz, 16-QAM, High Channel)

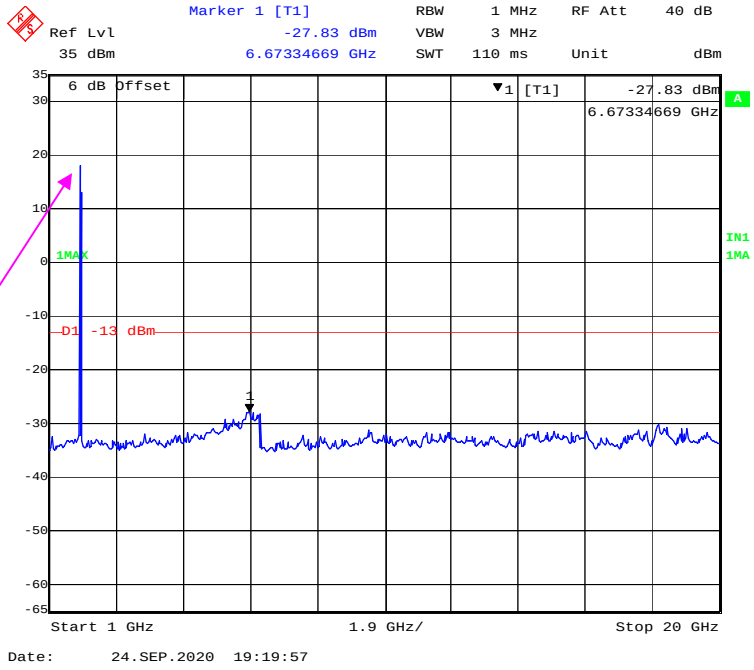


Fundamental

30 MHz - 1 GHz (10 MHz, QPSK, High Channel)

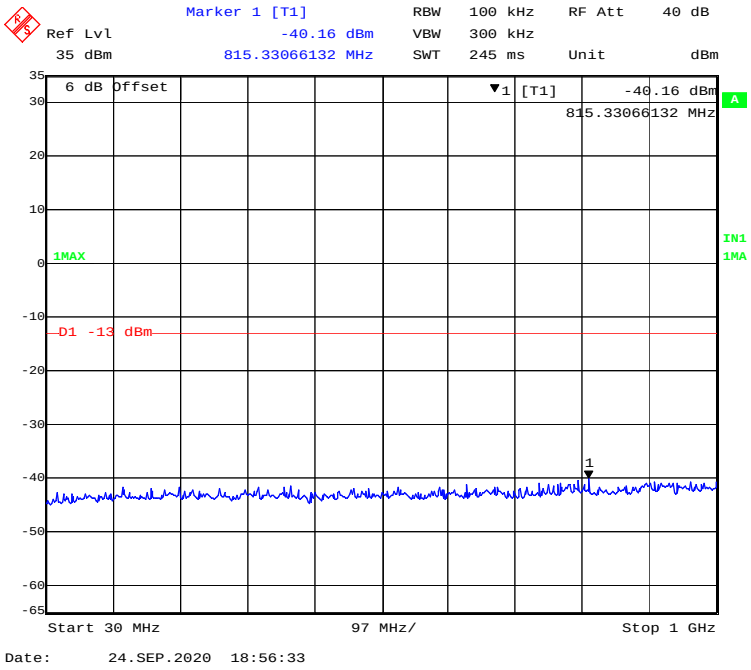


1 GHz – 20 GHz (10 MHz, QPSK, High Channel)

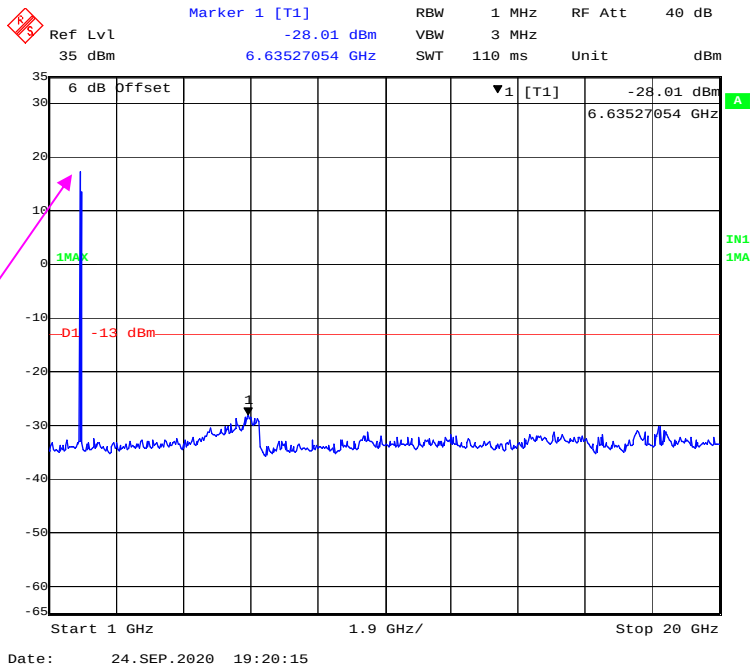


Fundamental

30 MHz - 1 GHz (10 MHz, 16-QAM, High Channel)

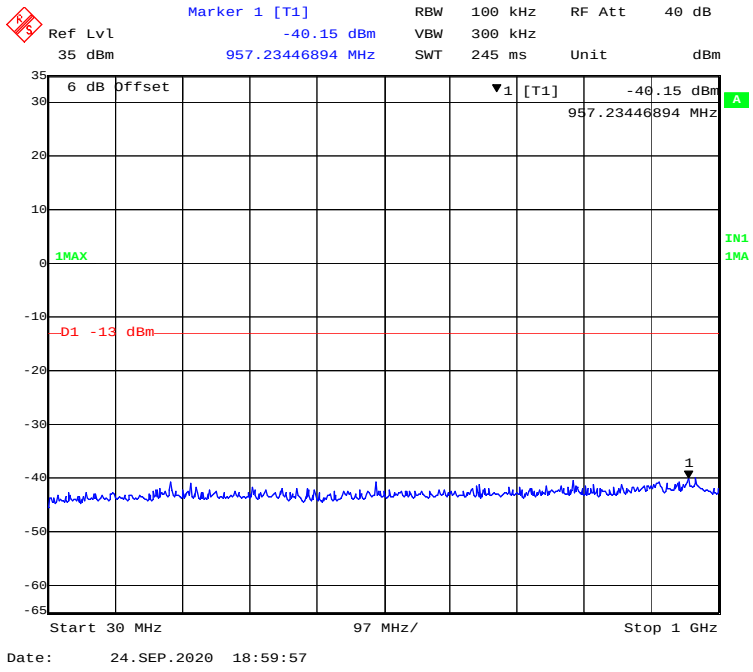


1 GHz – 20 GHz (10 MHz, 16-QAM, High Channel)

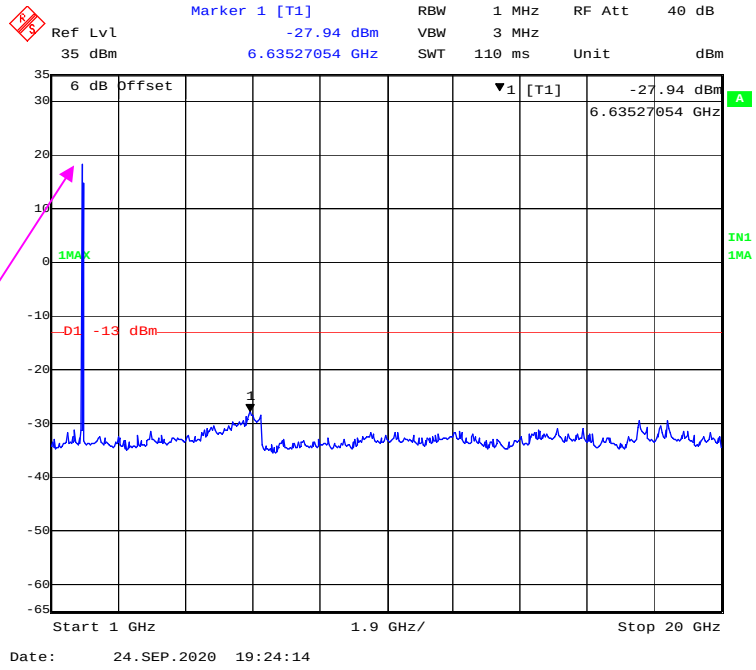


Fundamental

30 MHz - 1 GHz (15 MHz, QPSK, High Channel)

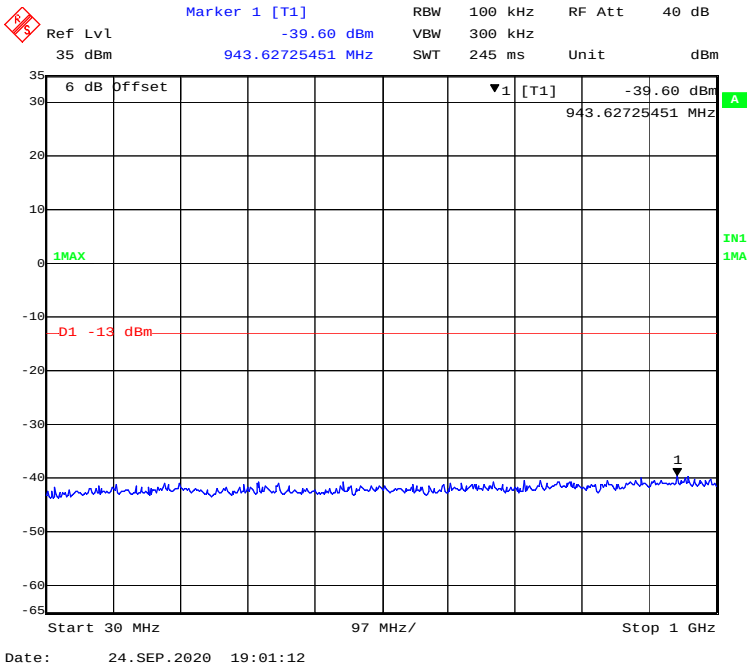


1 GHz – 20 GHz (15 MHz, QPSK, High Channel)

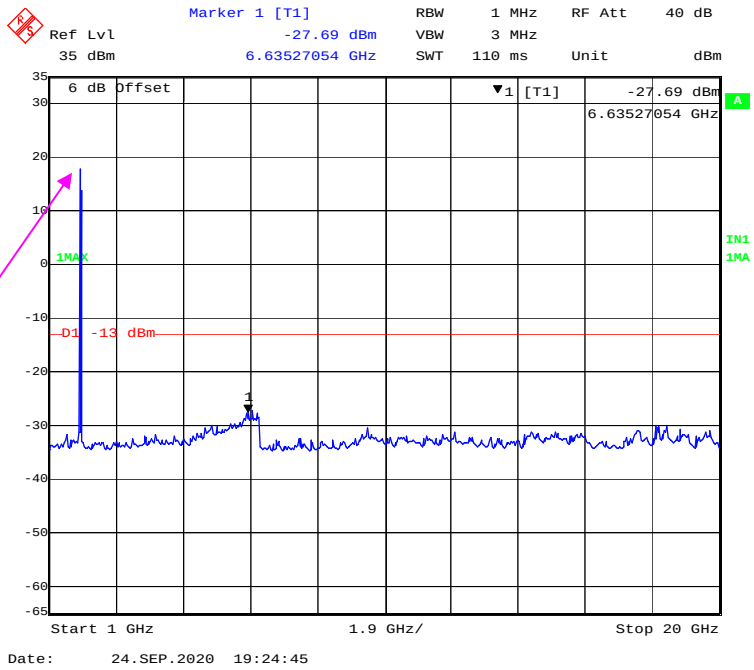


Fundamental

30 MHz - 1 GHz (15 MHz, 16-QAM, High Channel)

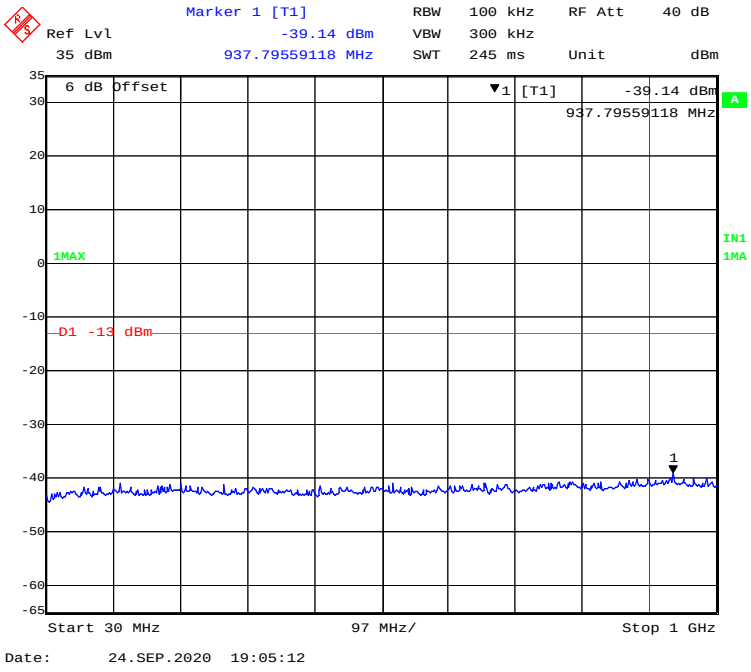


1 GHz – 20 GHz (15 MHz, 16-QAM, High Channel)

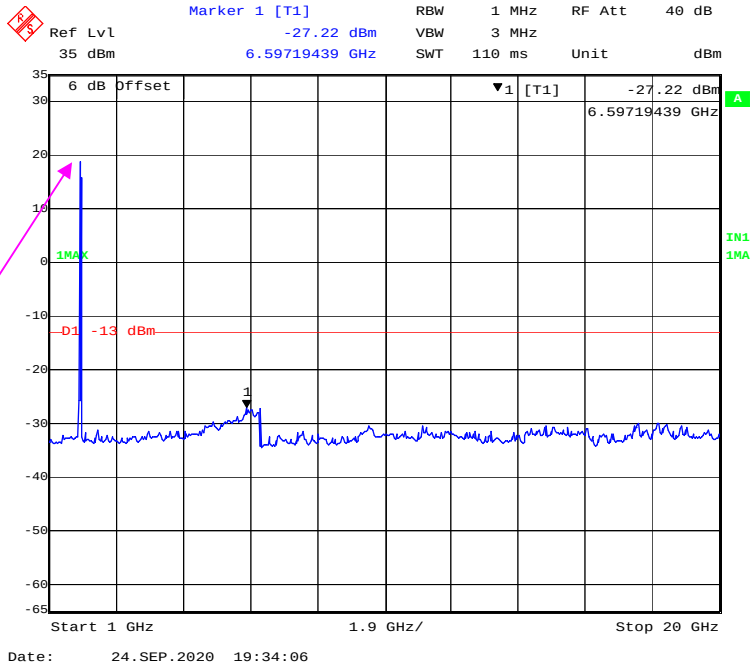


Fundamental

30 MHz - 1 GHz (20 MHz, QPSK, High Channel)

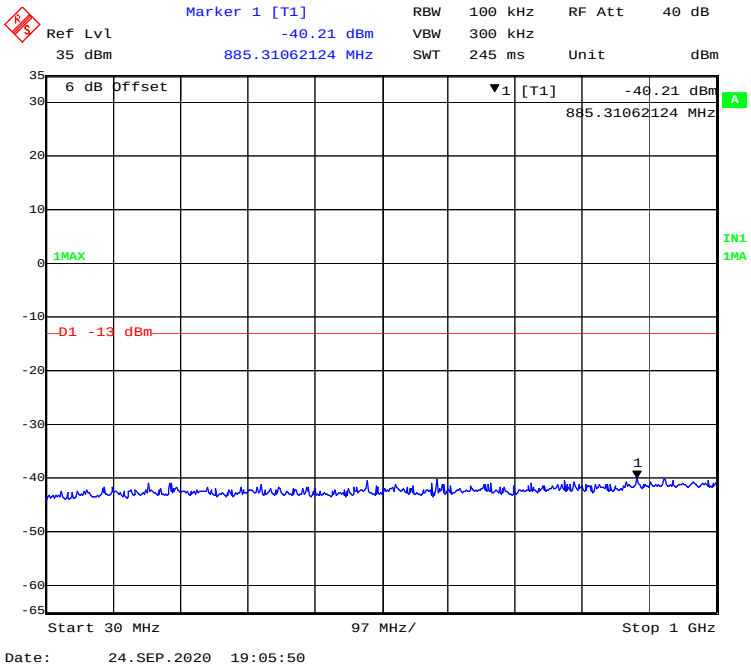


1 GHz – 20 GHz (20 MHz, QPSK, High Channel)

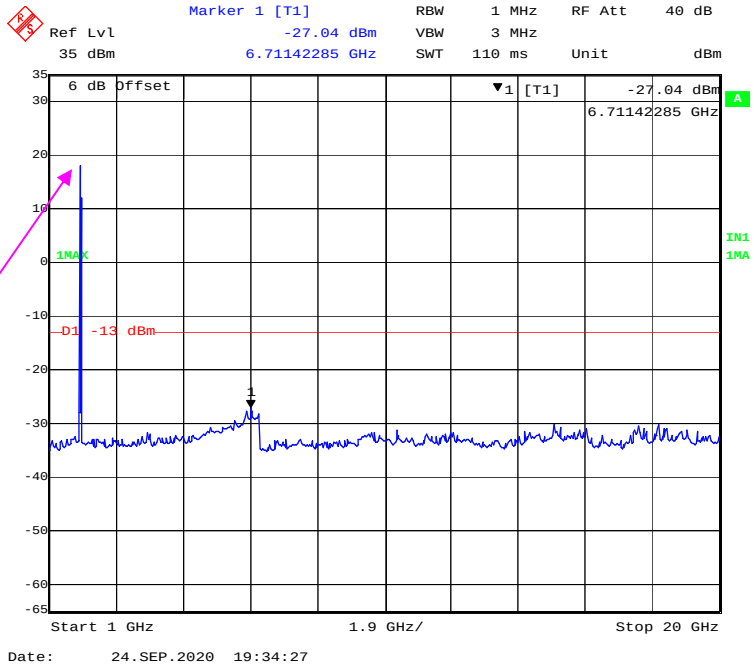


Fundamental

30 MHz - 1 GHz (20 MHz, 16-QAM, High Channel)



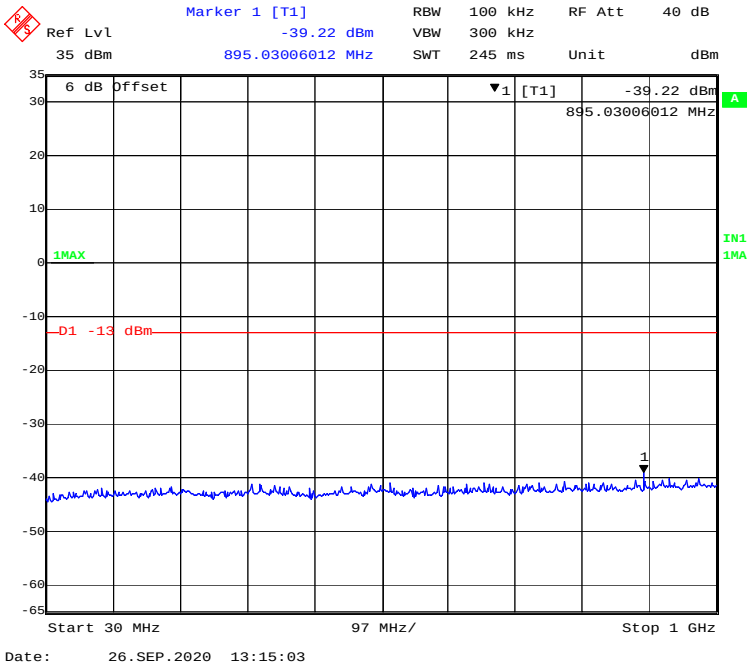
1 GHz – 20 GHz (20 MHz, 16-QAM, High Channel)



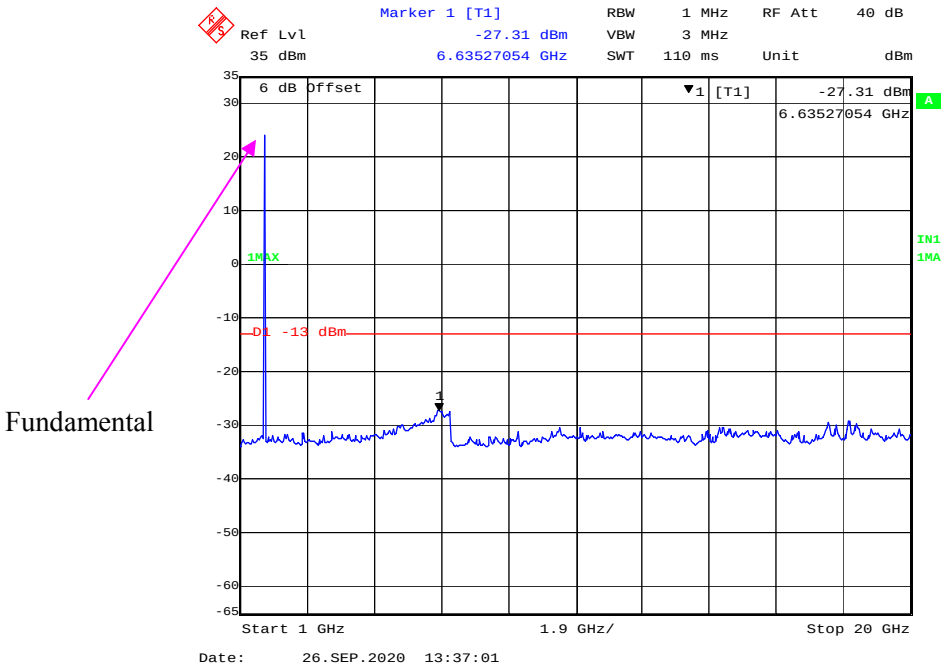
Fundamental

LTE Band 4:

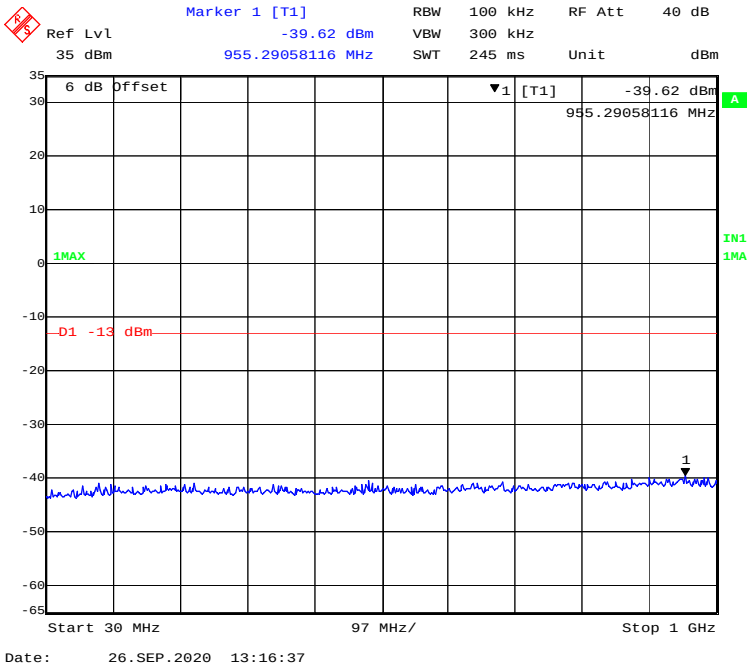
30 MHz - 1 GHz (1.4 MHz, QPSK, Low Channel)



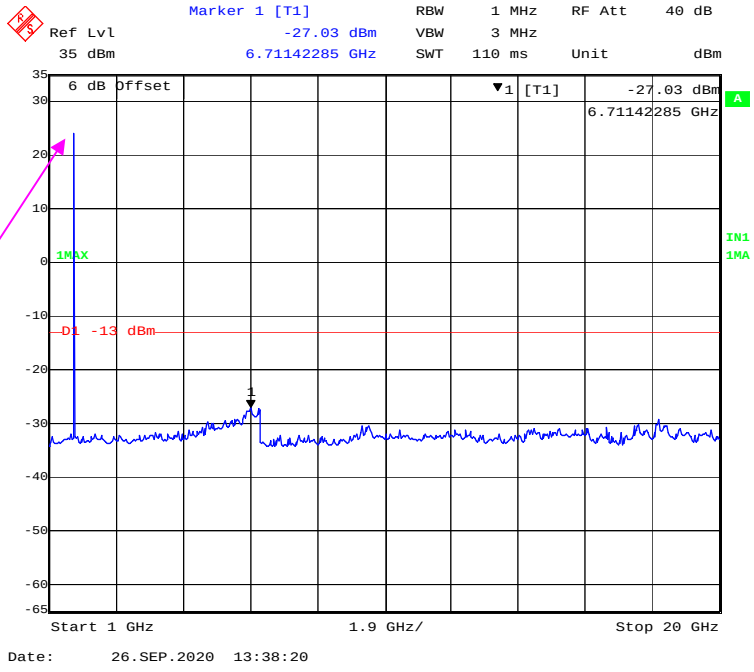
1 GHz – 20 GHz (1.4 MHz, QPSK, Low Channel)



30 MHz - 1 GHz (1.4 MHz, 16-QAM, Low Channel)

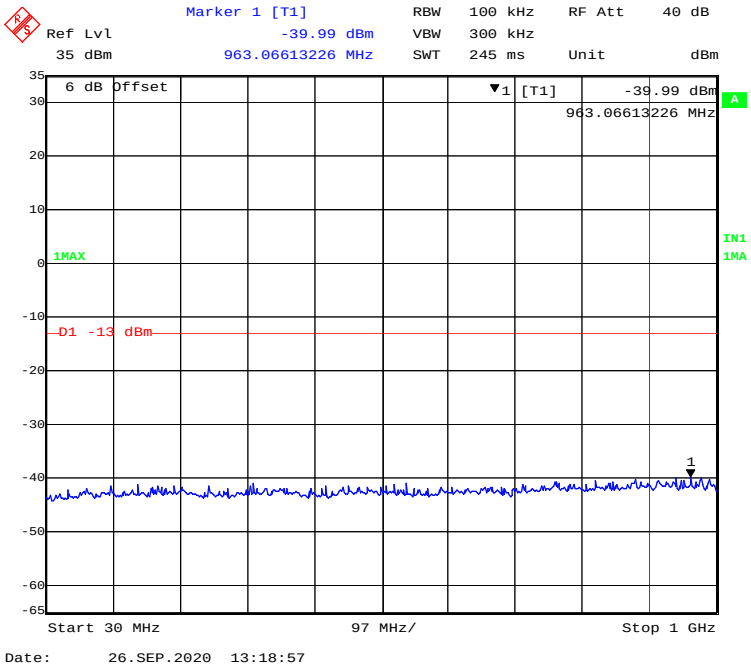


1 GHz – 20 GHz (1.4 MHz, 16-QAM, Low Channel)

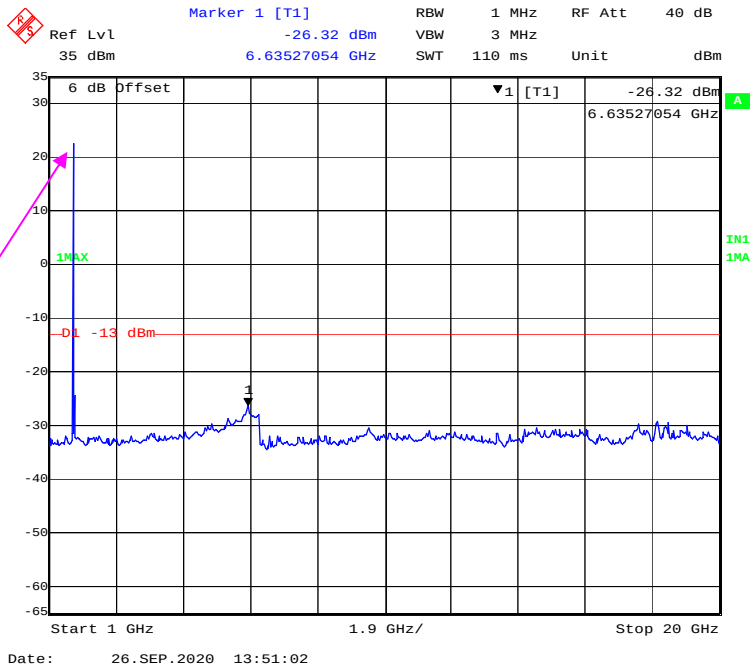


Fundamental

30 MHz - 1 GHz (3 MHz, QPSK, Low Channel)

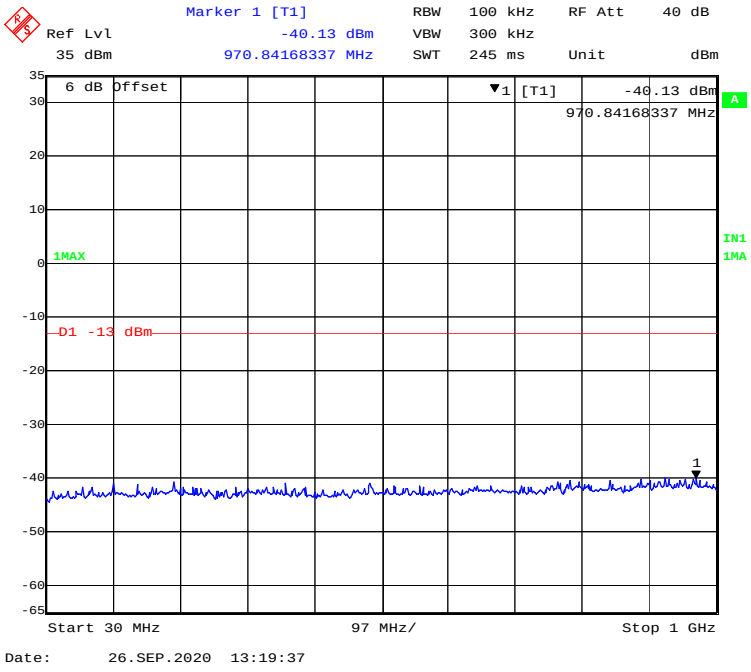


1 GHz – 20 GHz (3 MHz, QPSK, Low Channel)

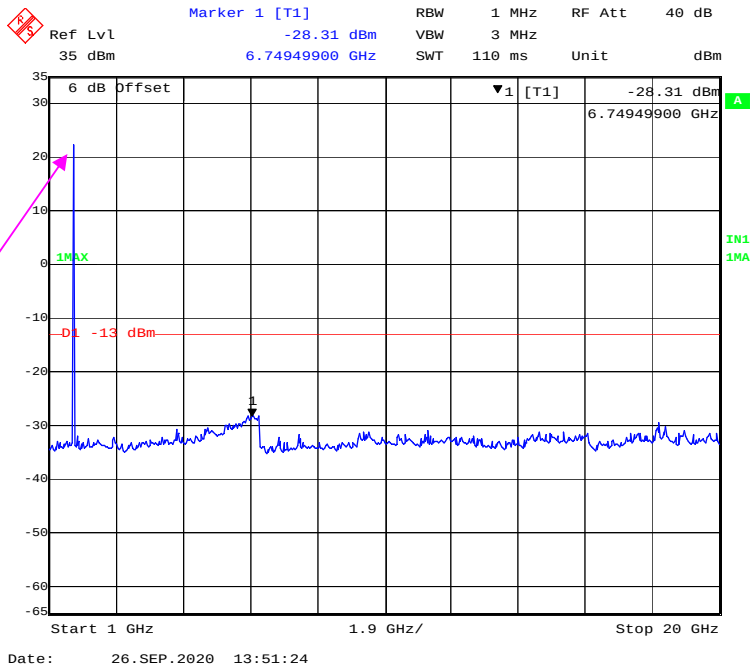


Fundamental

30 MHz - 1 GHz (3 MHz, 16-QAM, Low Channel)

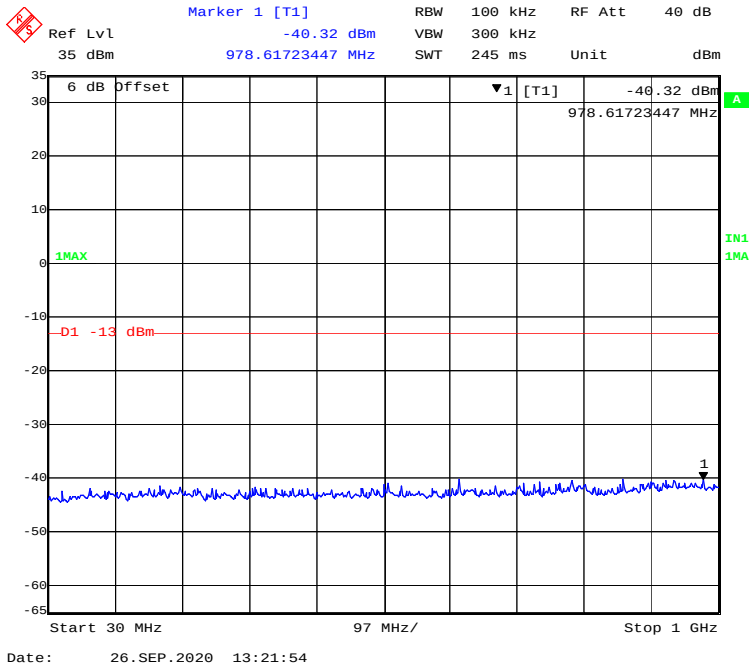


1 GHz – 20 GHz (3 MHz, 16-QAM, Low Channel)

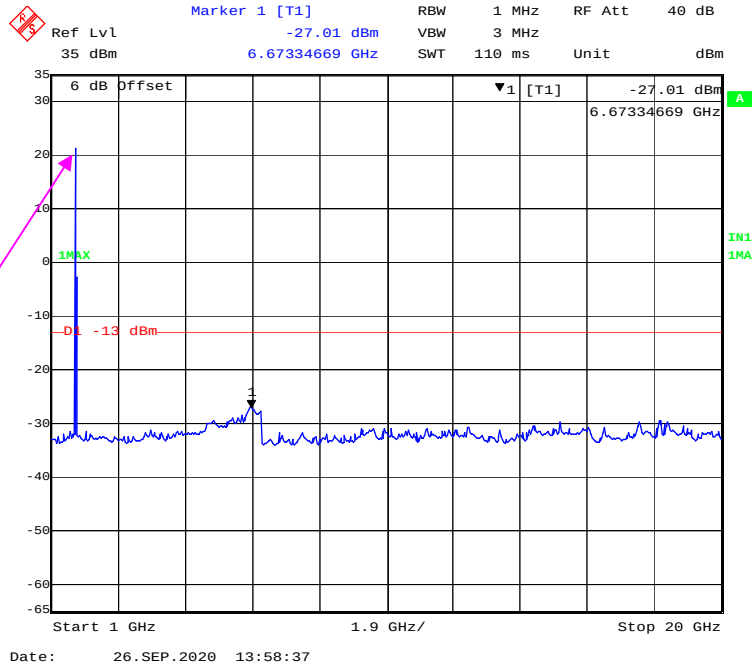


Fundamental

30 MHz - 1 GHz (5 MHz, QPSK, Low Channel)

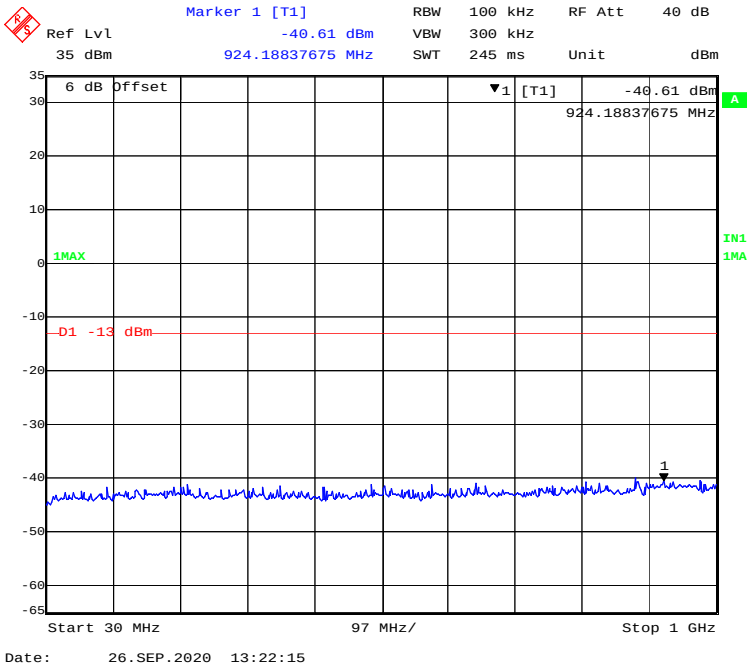


1 GHz – 20 GHz (5 MHz, QPSK, Low Channel)

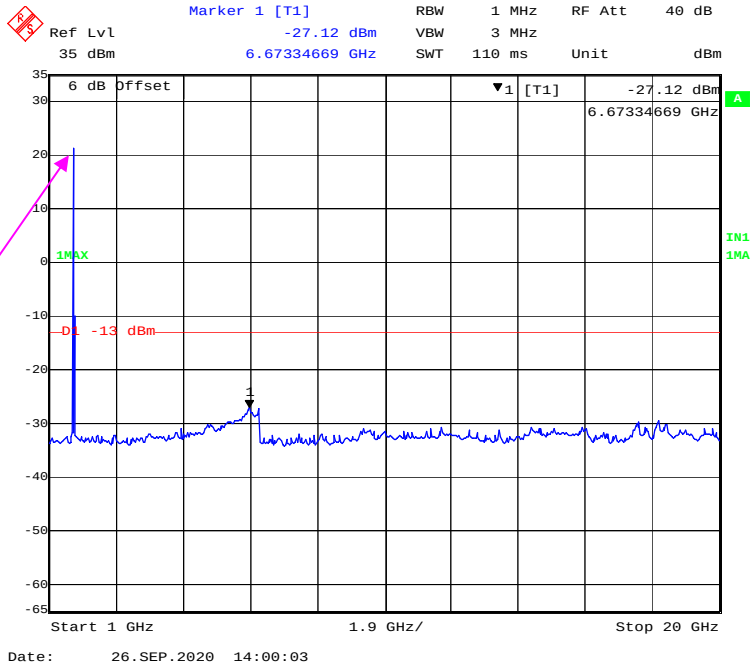


Fundamental

30 MHz - 1 GHz (5 MHz, 16-QAM, Low Channel)

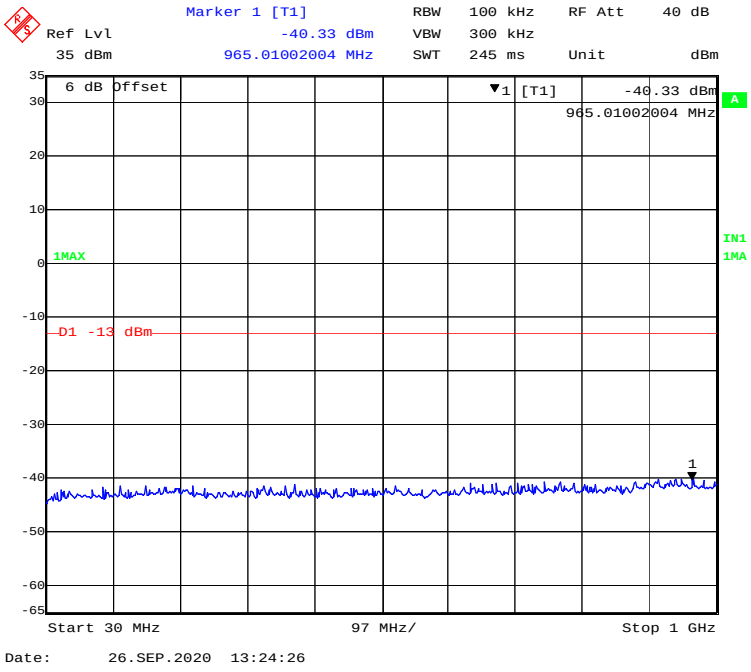


1 GHz – 20 GHz (5 MHz, 16-QAM, Low Channel)

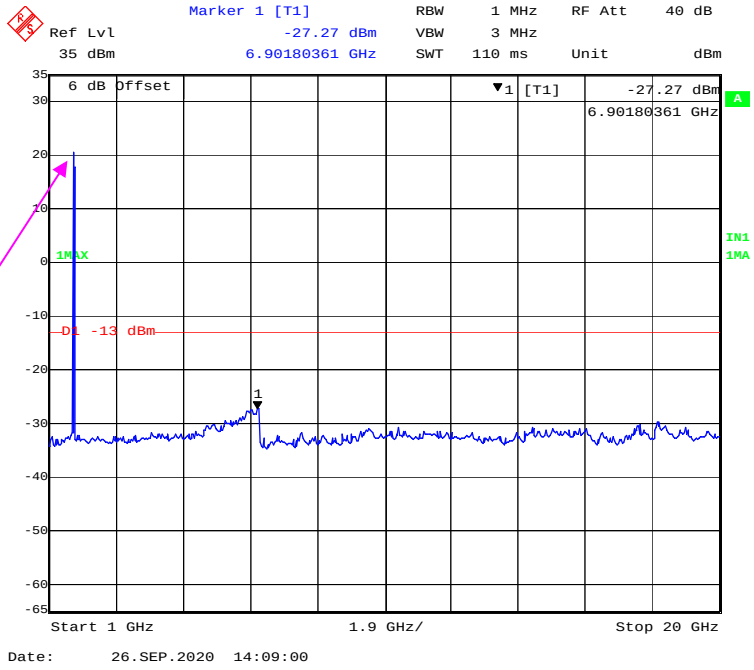


Fundamental

30 MHz - 1 GHz (10 MHz, QPSK, Low Channel)

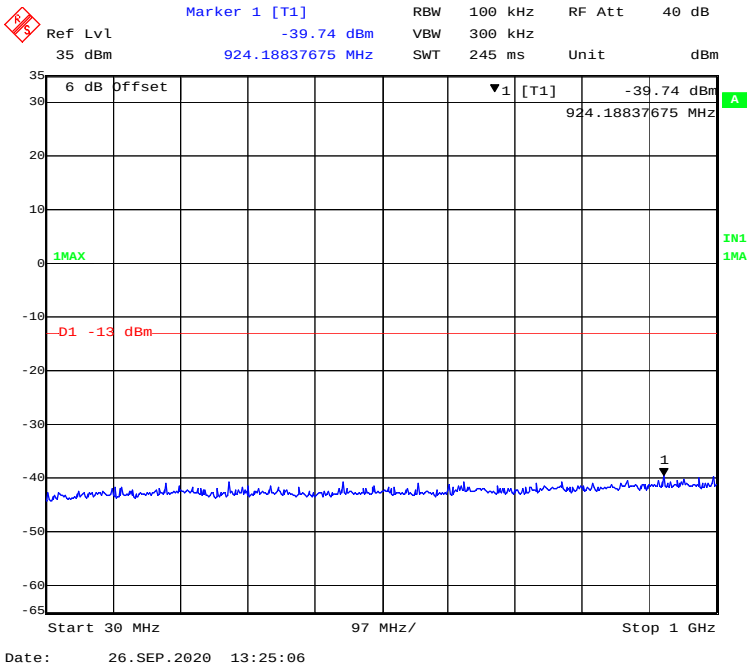


1 GHz – 20 GHz (10 MHz, QPSK, Low Channel)

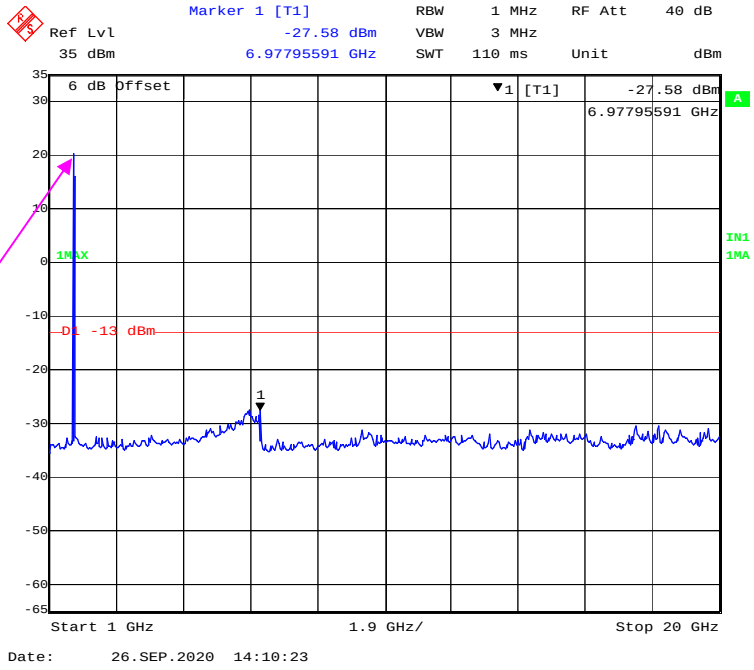


Fundamental

30 MHz - 1 GHz (10 MHz, 16-QAM, Low Channel)

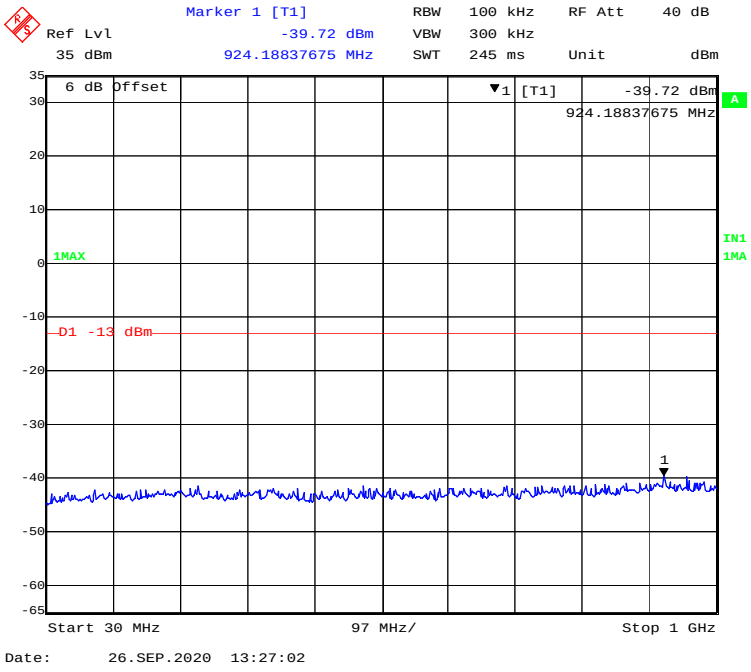


1 GHz – 20 GHz (10 MHz, 16-QAM, Low Channel)

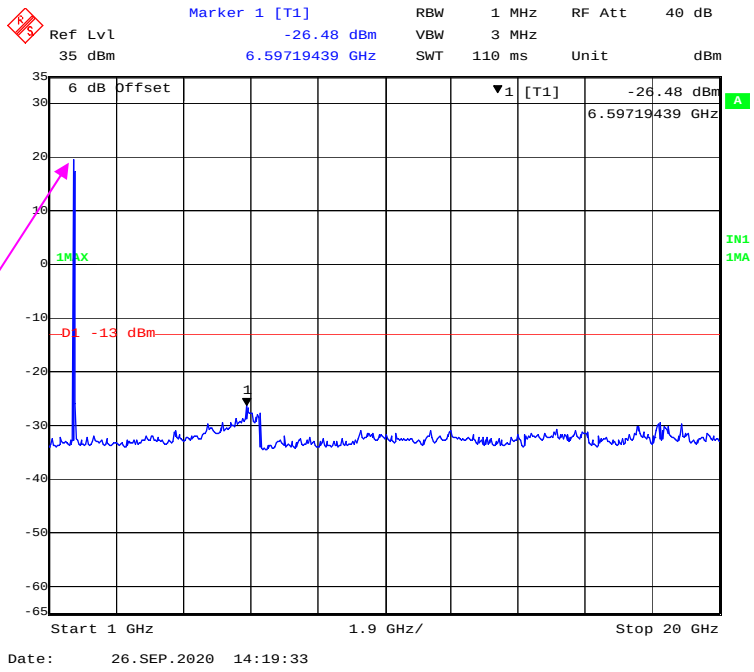


Fundamental

30 MHz - 1 GHz (15 MHz, QPSK, Low Channel)

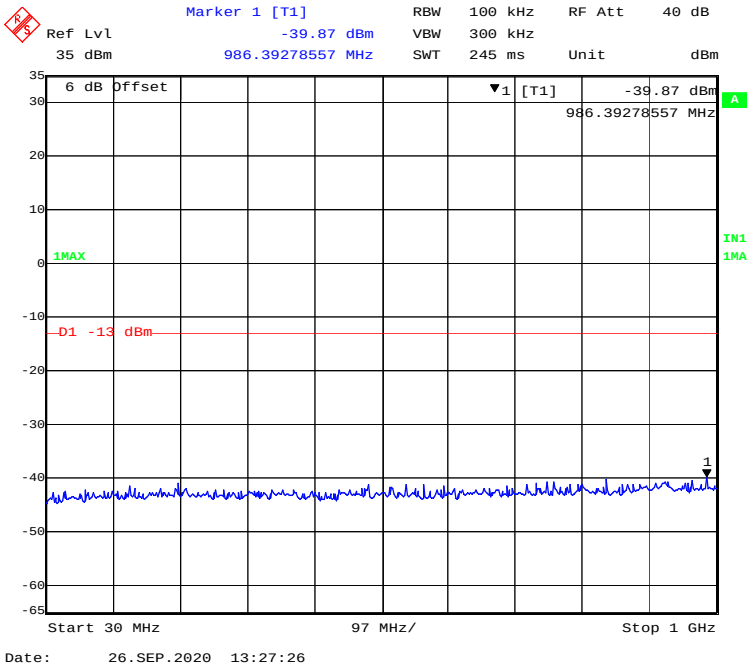


1 GHz – 20 GHz (15 MHz, QPSK, Low Channel)

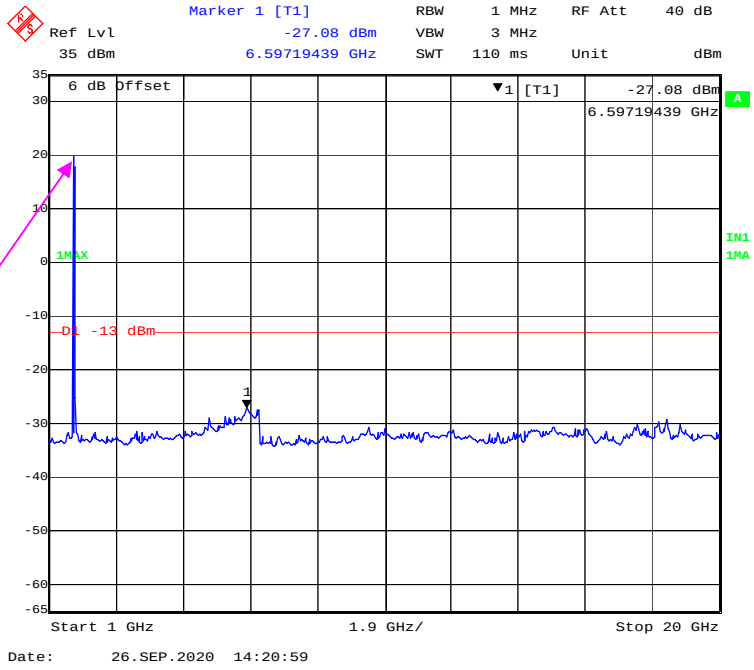


Fundamental

30 MHz - 1 GHz (15 MHz, 16-QAM, Low Channel)

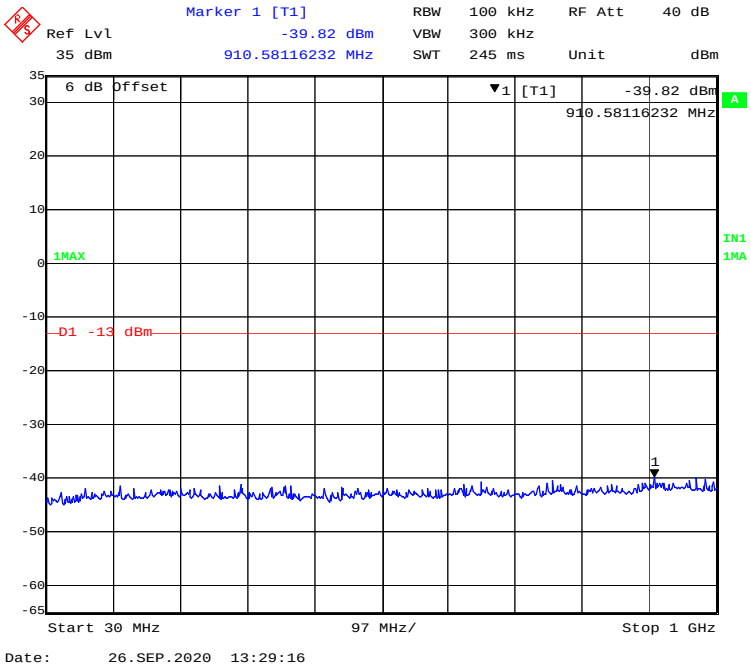


1 GHz – 20 GHz (15 MHz, 16-QAM, Low Channel)

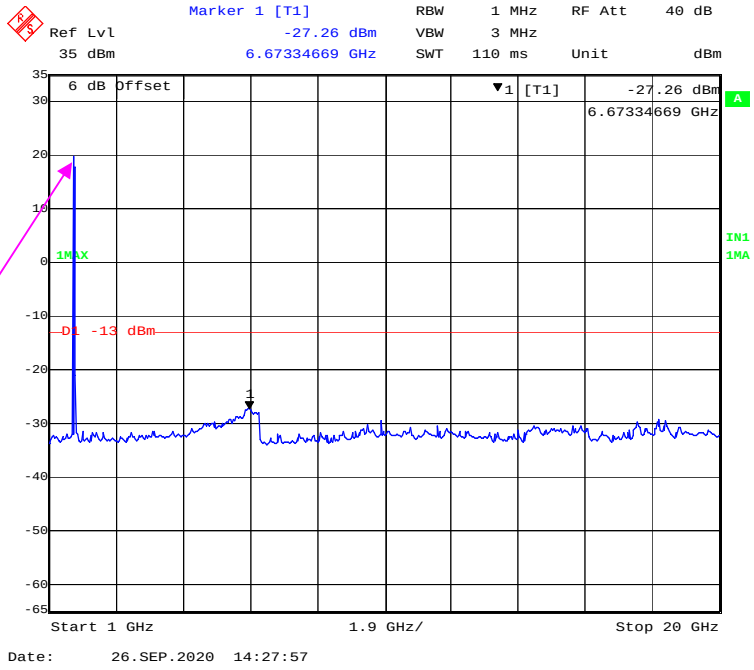


Fundamental

30 MHz - 1 GHz (20 MHz, QPSK, Low Channel)

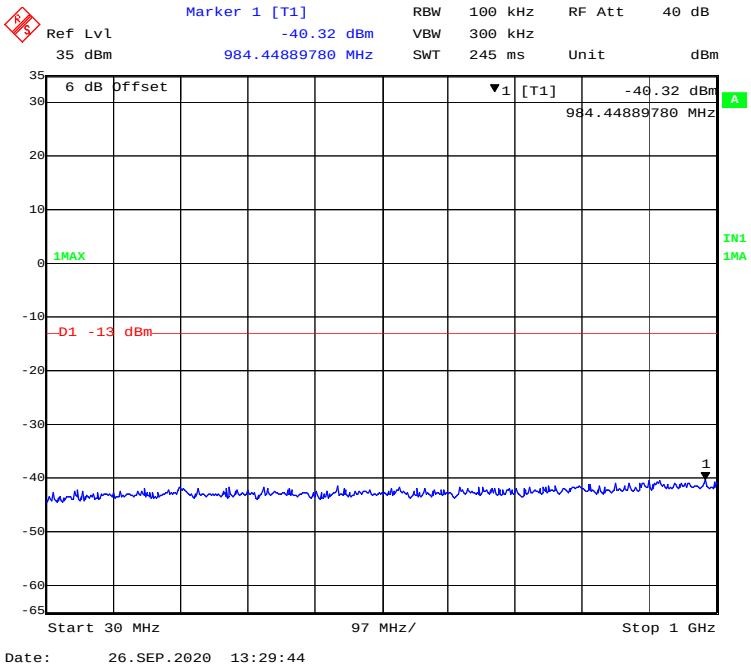


1 GHz – 20 GHz (20 MHz, QPSK, Low Channel)

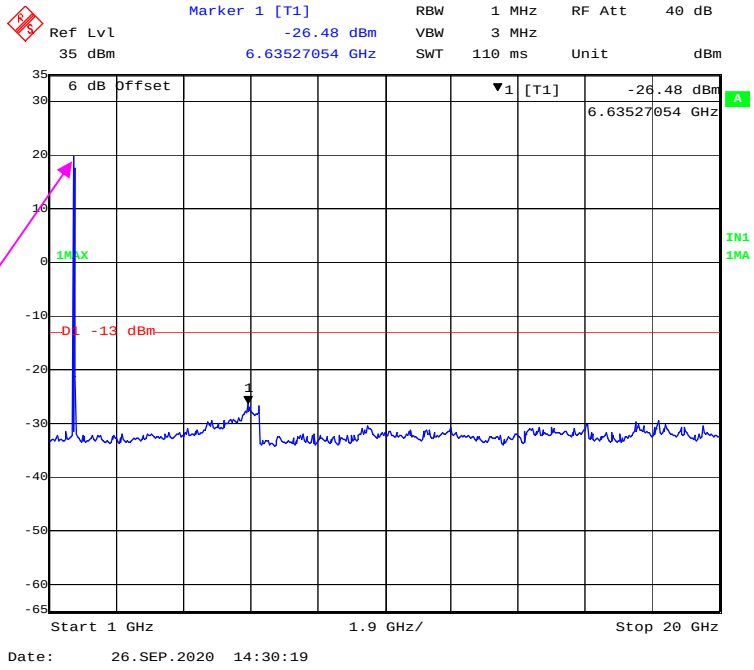


Fundamental

30 MHz - 1 GHz (20 MHz, 16-QAM, Low Channel)

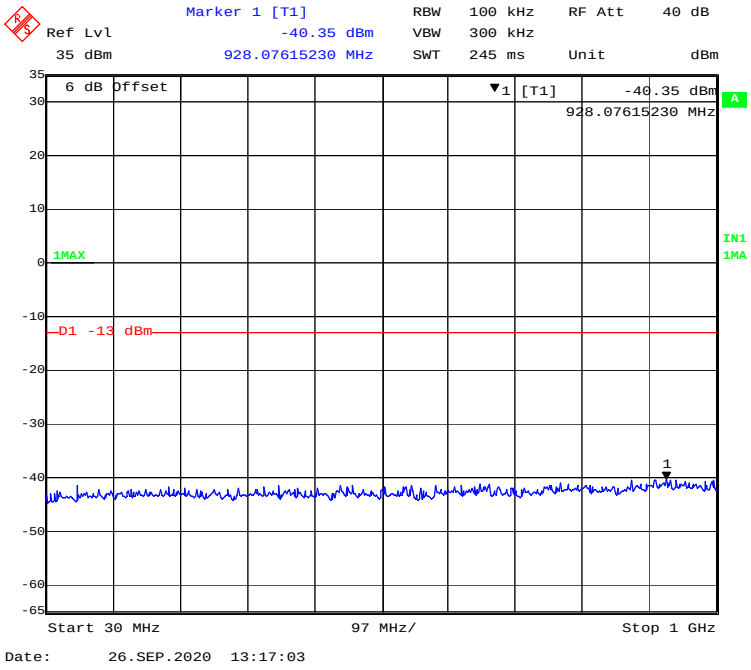


1 GHz – 20 GHz (20 MHz, 16-QAM, Low Channel)

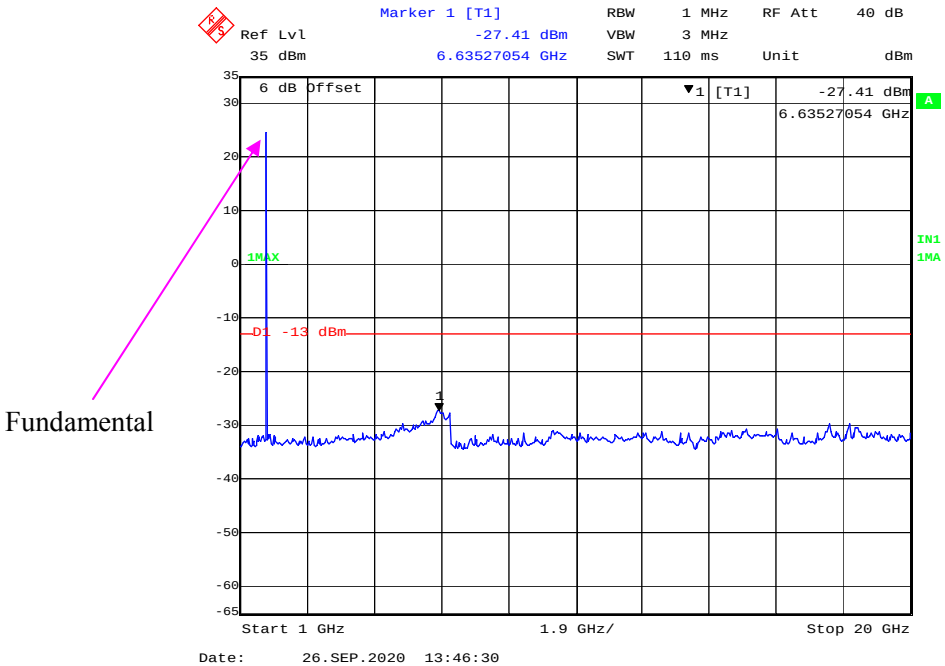


Fundamental

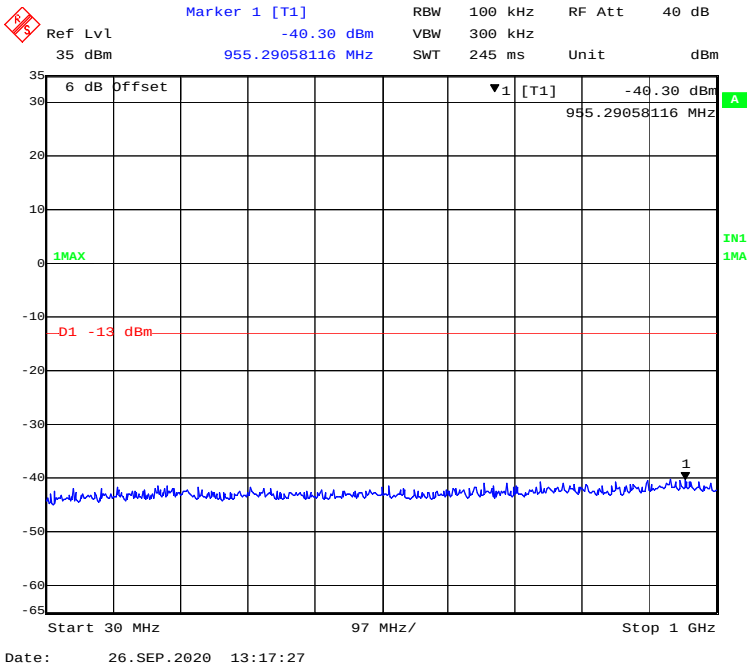
30 MHz - 1 GHz (1.4 MHz, QPSK, Middle Channel)



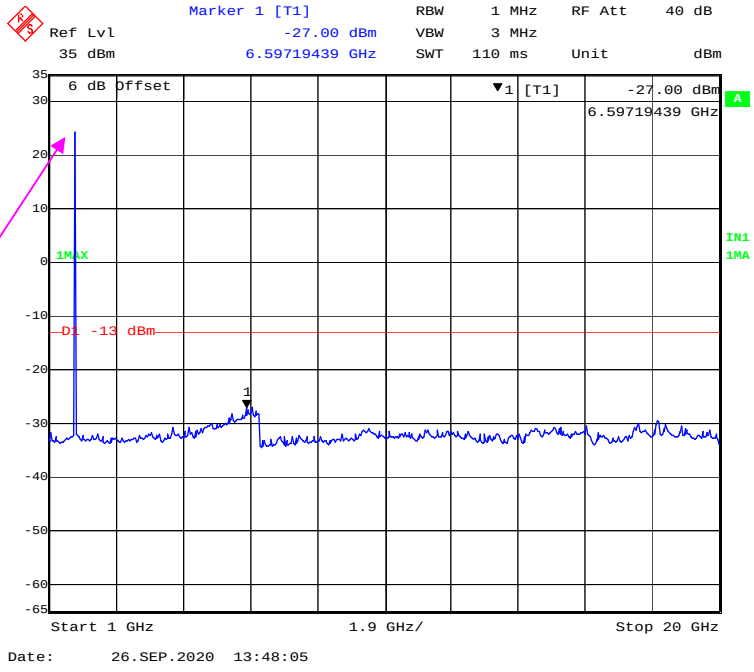
1 GHz – 20 GHz (1.4 MHz, QPSK, Middle Channel)



30 MHz - 1 GHz (1.4 MHz, 16-QAM, Middle Channel)

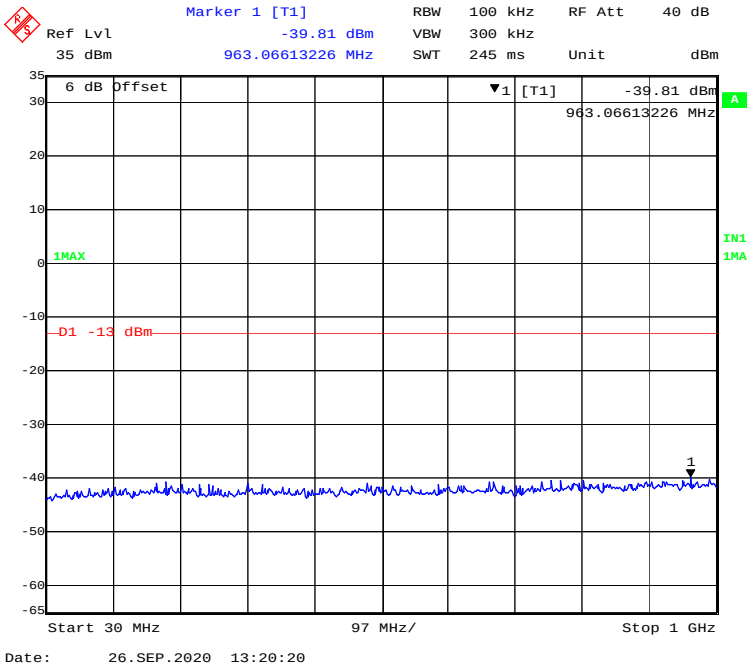


1 GHz – 20 GHz (1.4 MHz, 16-QAM, Middle Channel)

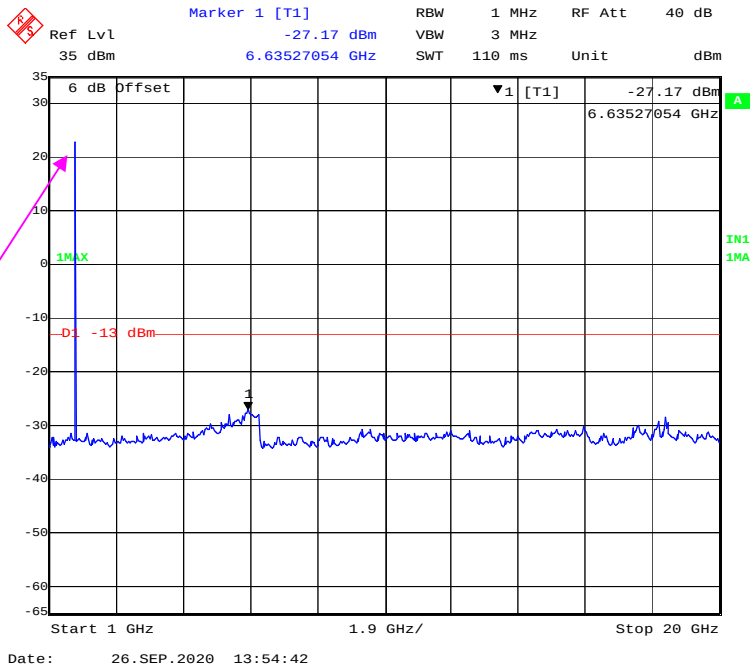


Fundamental

30 MHz - 1 GHz (3 MHz, QPSK, Middle Channel)

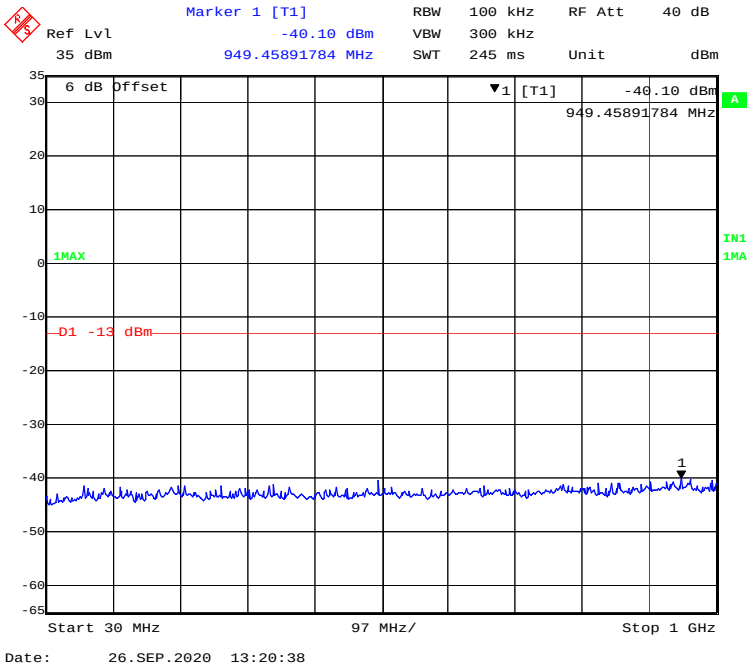


1 GHz – 20 GHz (3 MHz, QPSK, Middle Channel)

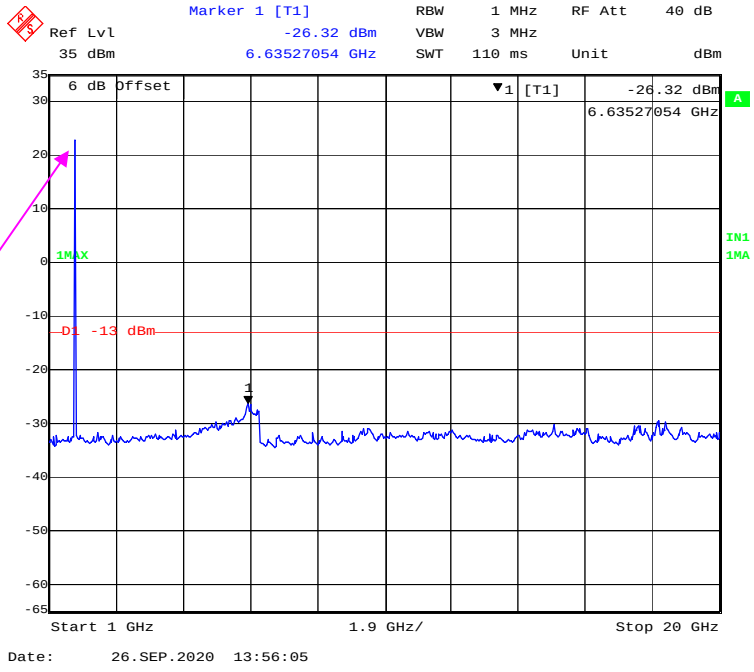


Fundamental

30 MHz - 1 GHz (3 MHz, 16-QAM, Middle Channel)

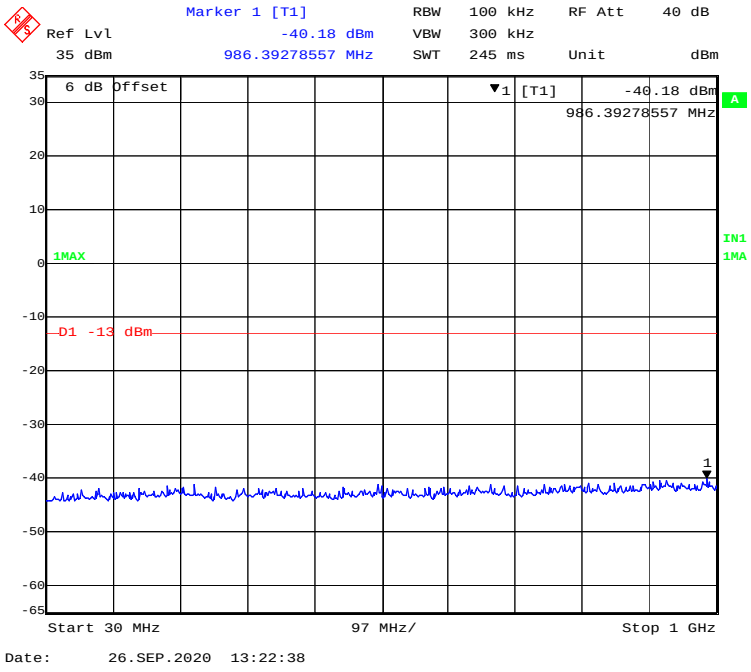


1 GHz – 20 GHz (3 MHz, 16-QAM, Middle Channel)

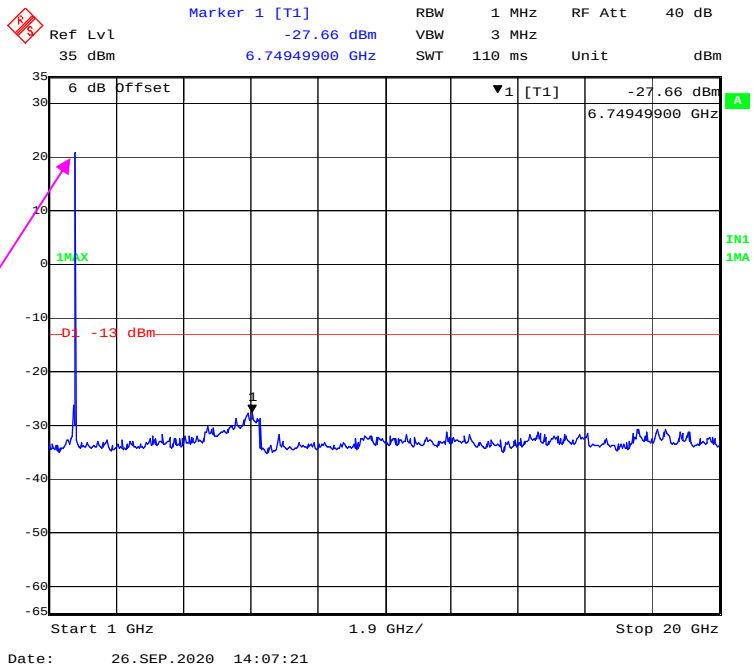


Fundamental

30 MHz - 1 GHz (5 MHz, QPSK, Middle Channel)

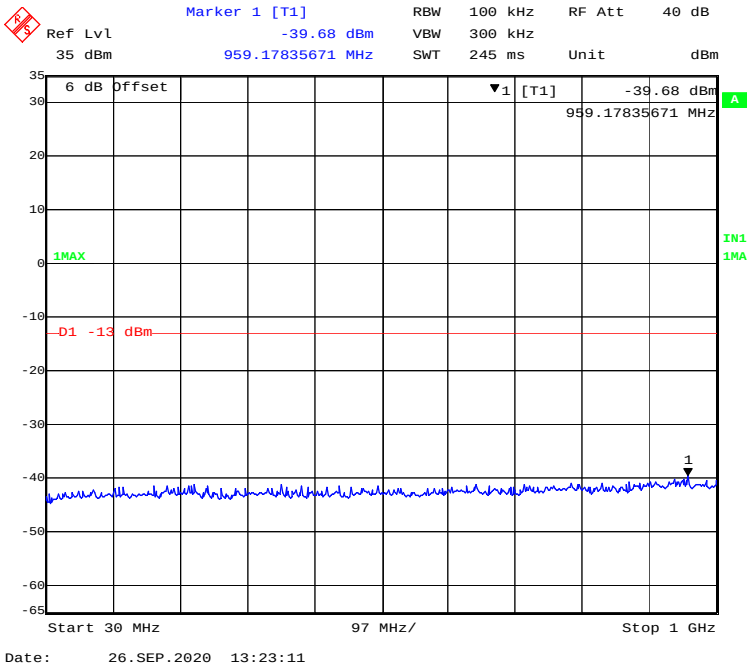


1 GHz – 20 GHz (5 MHz, QPSK, Middle Channel)

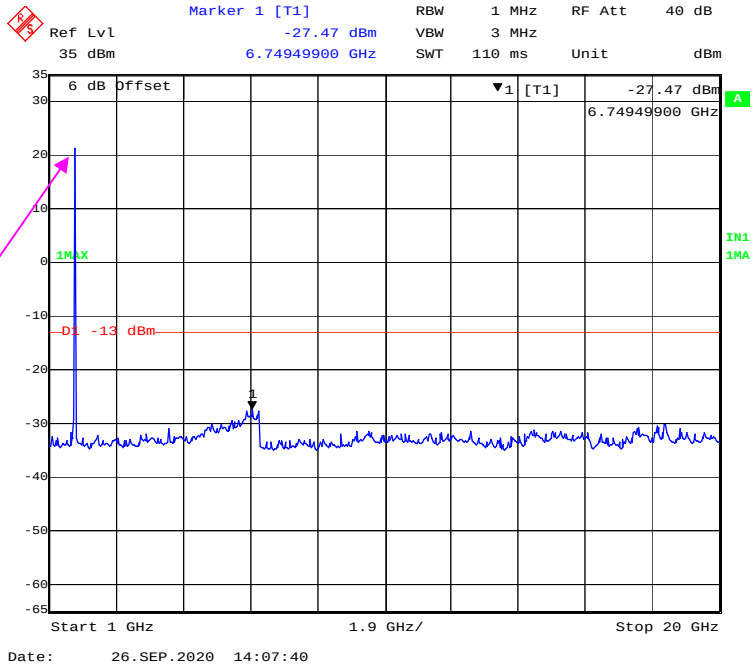


Fundamental

30 MHz - 1 GHz (5 MHz, 16-QAM, Middle Channel)

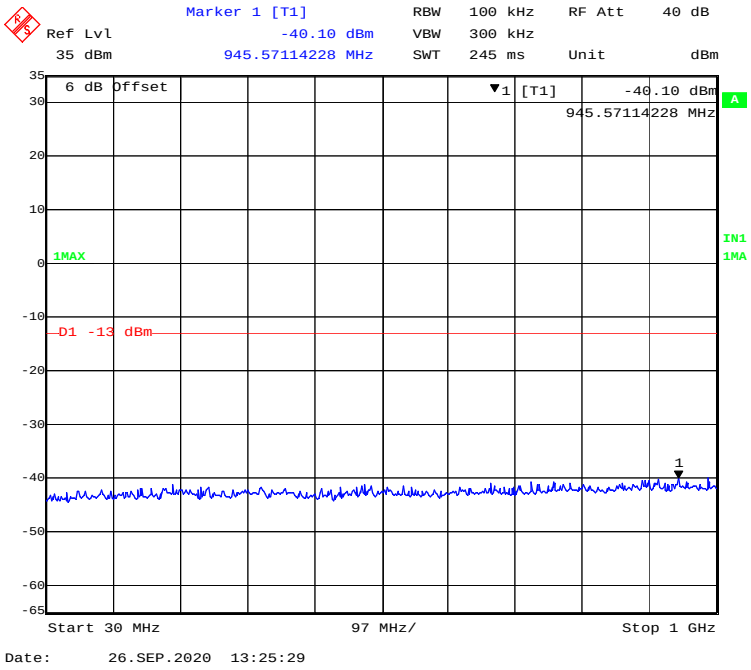


1 GHz – 20 GHz (5 MHz, 16-QAM, Middle Channel)

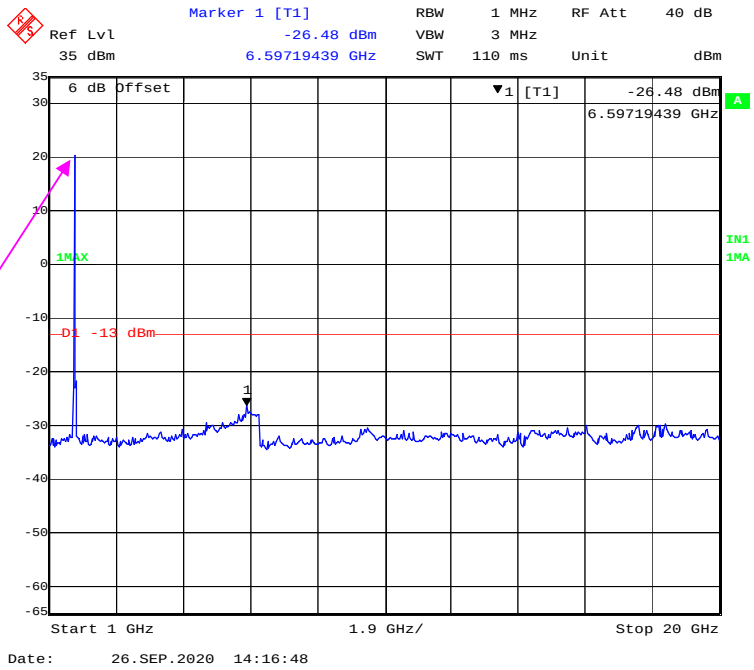


Fundamental

30 MHz - 1 GHz (10 MHz, QPSK, Middle Channel)

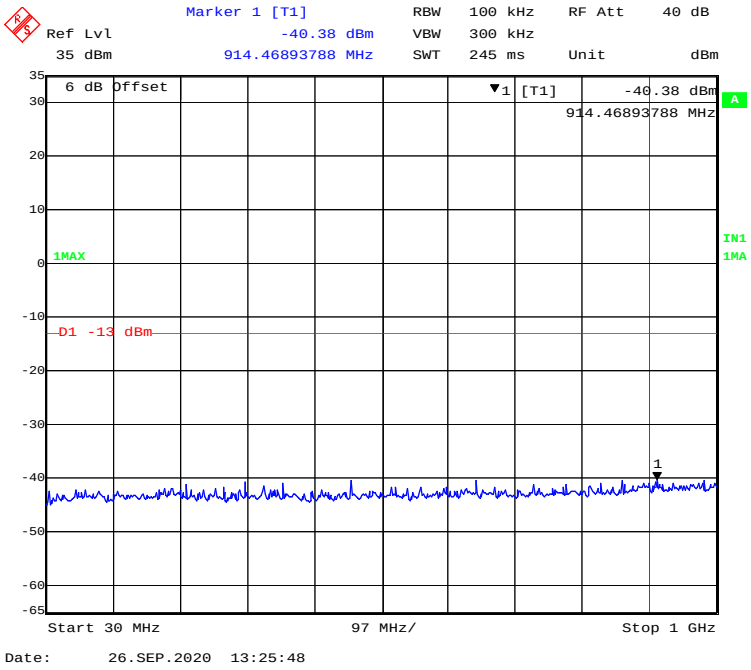


1 GHz – 20 GHz (10 MHz, QPSK, Middle Channel)

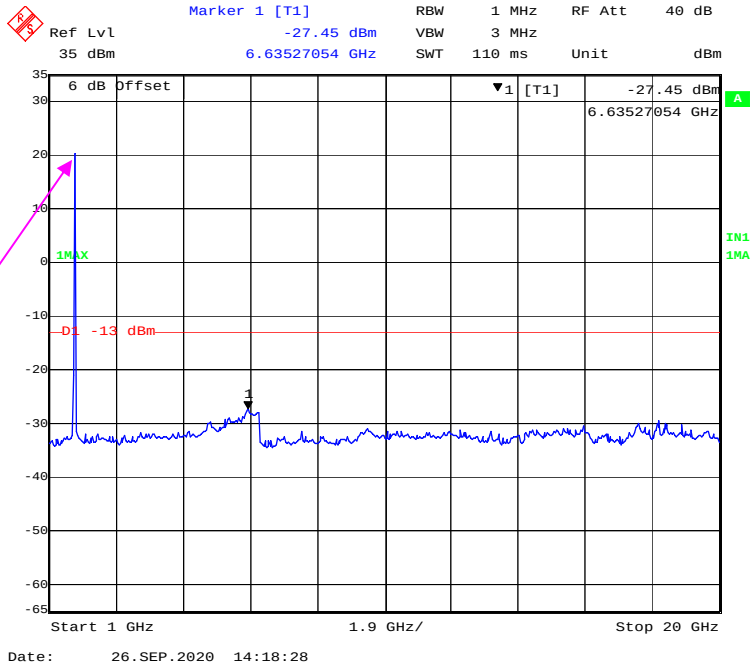


Fundamental

30 MHz - 1 GHz (10 MHz, 16-QAM, Middle Channel)

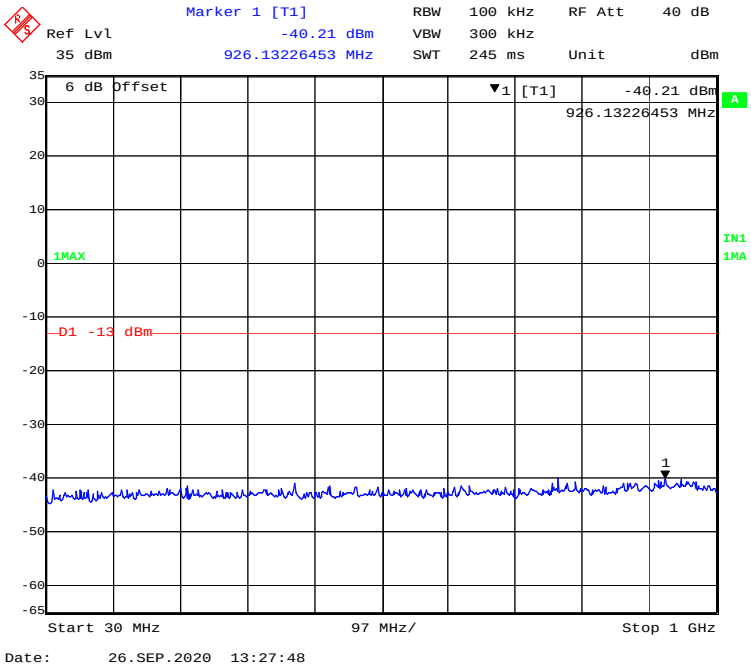


1 GHz – 20 GHz (10 MHz, 16-QAM, Middle Channel)

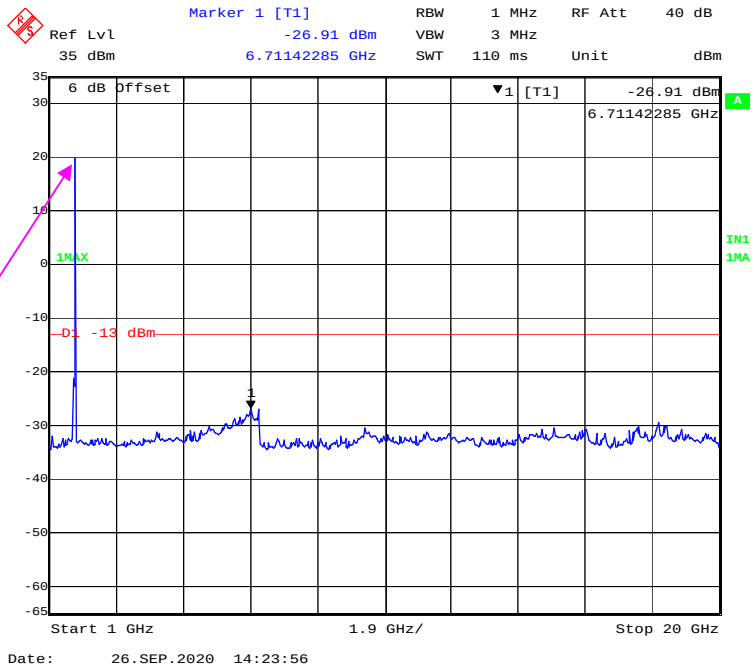


Fundamental

30 MHz - 1 GHz (15 MHz, QPSK, Middle Channel)

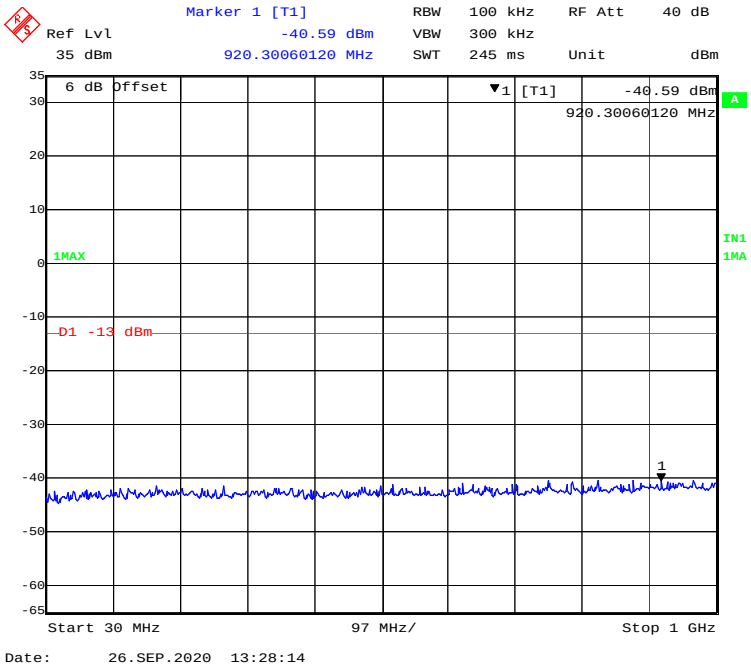


1 GHz – 20 GHz (15 MHz, QPSK, Middle Channel)

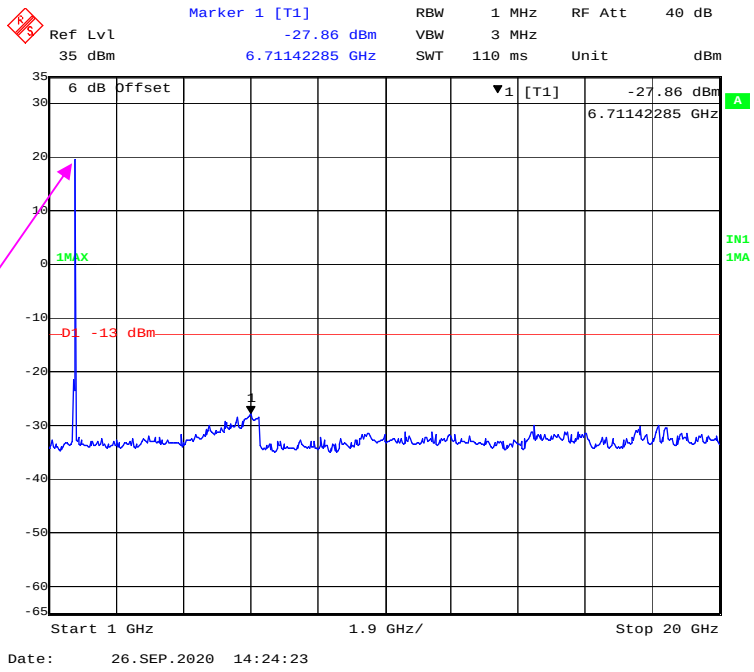


Fundamental

30 MHz - 1 GHz (15 MHz, 16-QAM, Middle Channel)

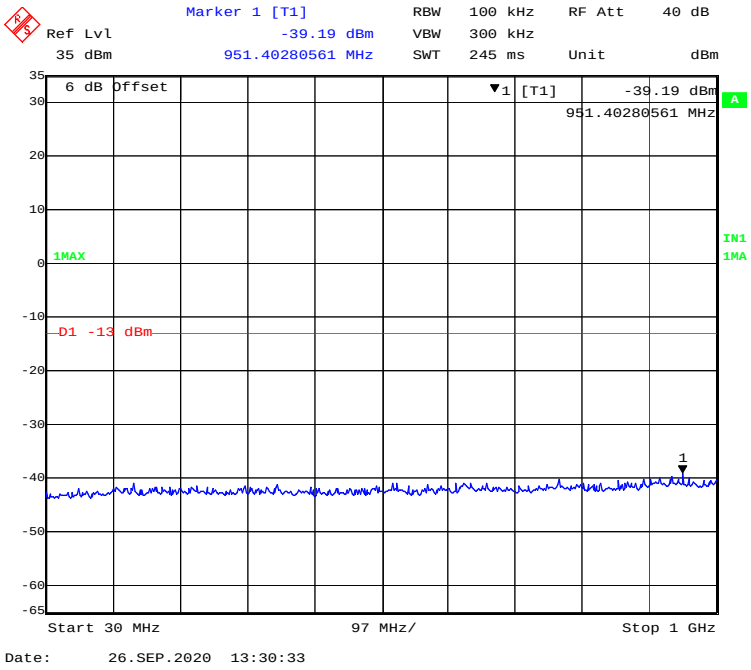


1 GHz – 20 GHz (15 MHz, 16-QAM, Middle Channel)

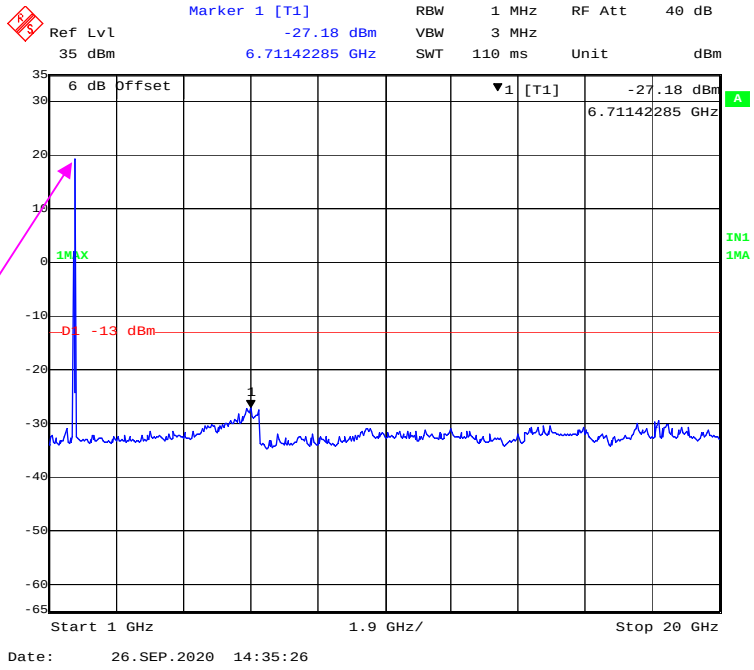


Fundamental

30 MHz - 1 GHz (20 MHz, QPSK, Middle Channel)

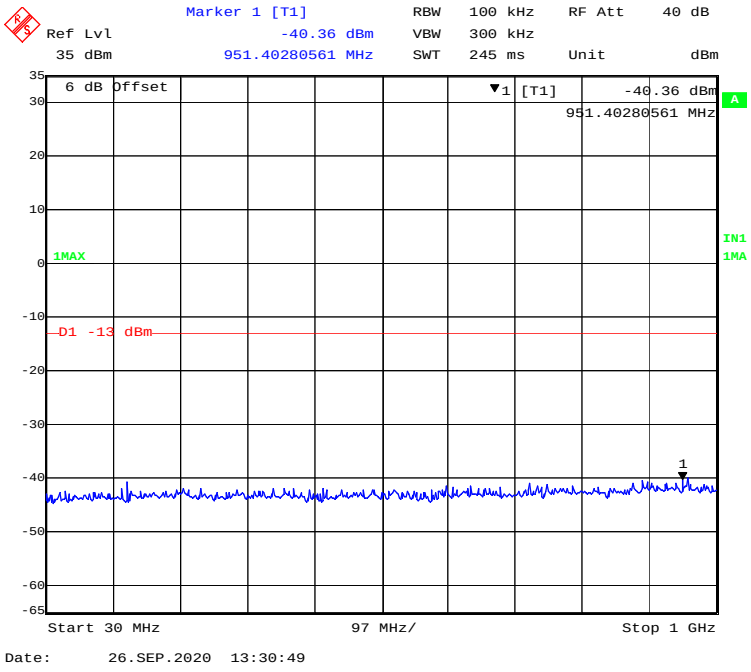


1 GHz – 20 GHz (20 MHz, QPSK, Middle Channel)

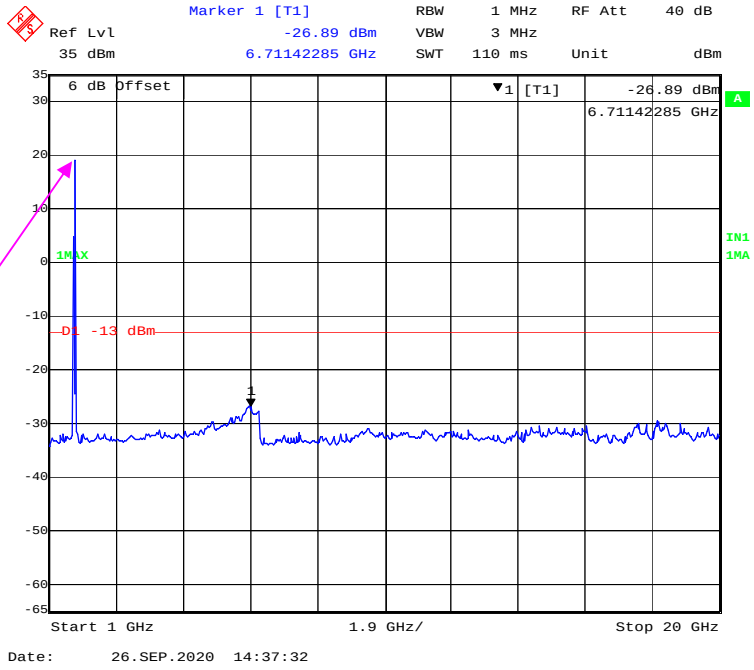


Fundamental

30 MHz - 1 GHz (20 MHz, 16-QAM, Middle Channel)

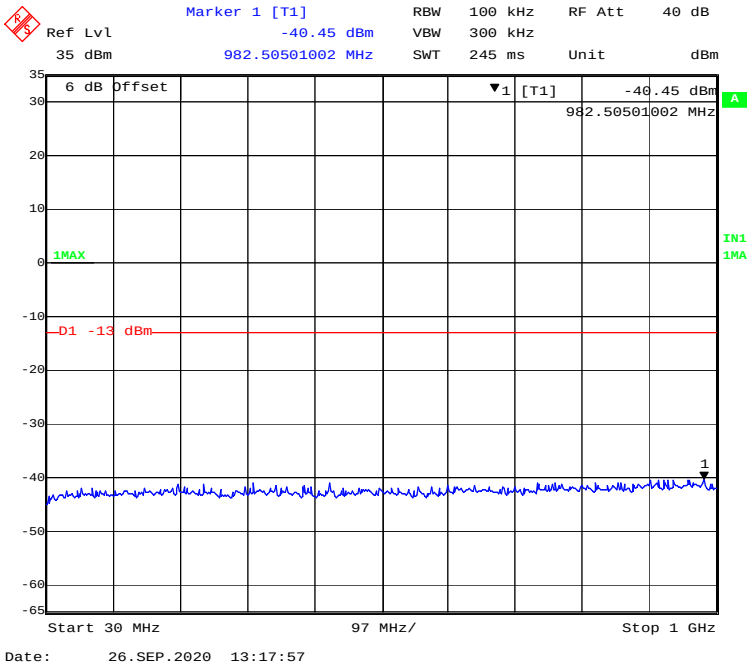


1 GHz – 20 GHz (20 MHz, 16-QAM, Middle Channel)

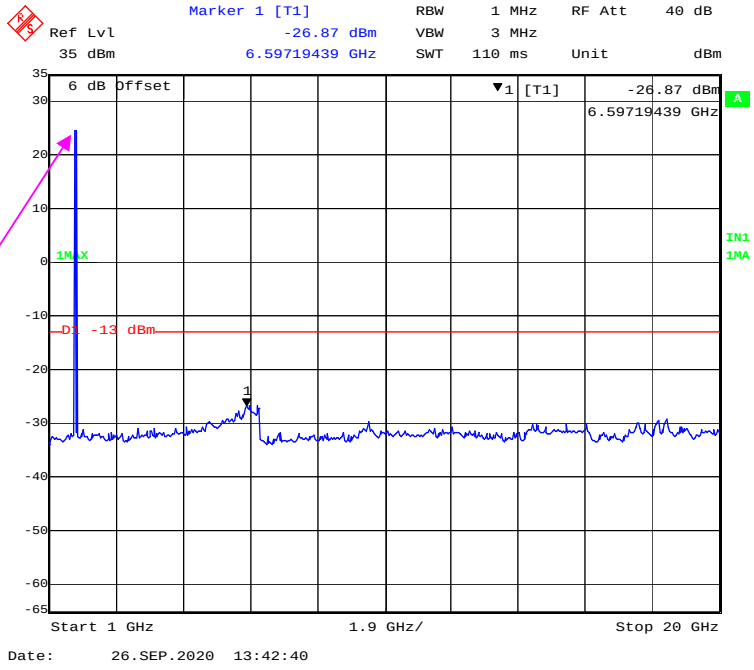


Fundamental

30 MHz - 1 GHz (1.4 MHz, QPSK, High Channel)

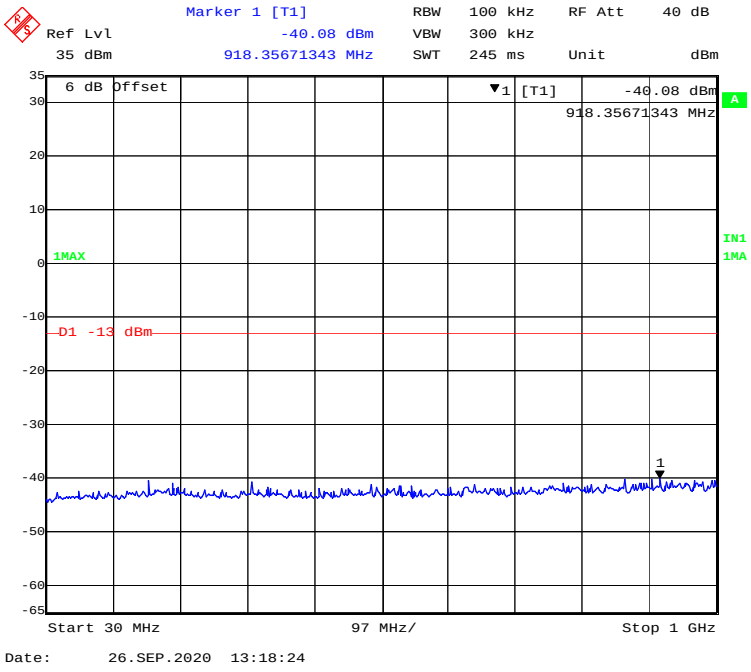


1 GHz – 20 GHz (1.4 MHz, QPSK, High Channel)

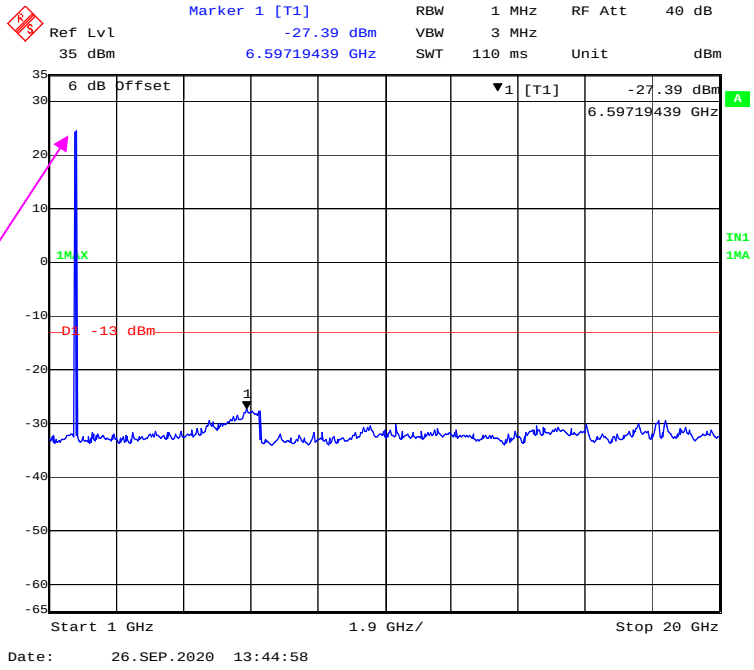


Fundamental

30 MHz - 1 GHz (1.4 MHz, 16-QAM, High Channel)

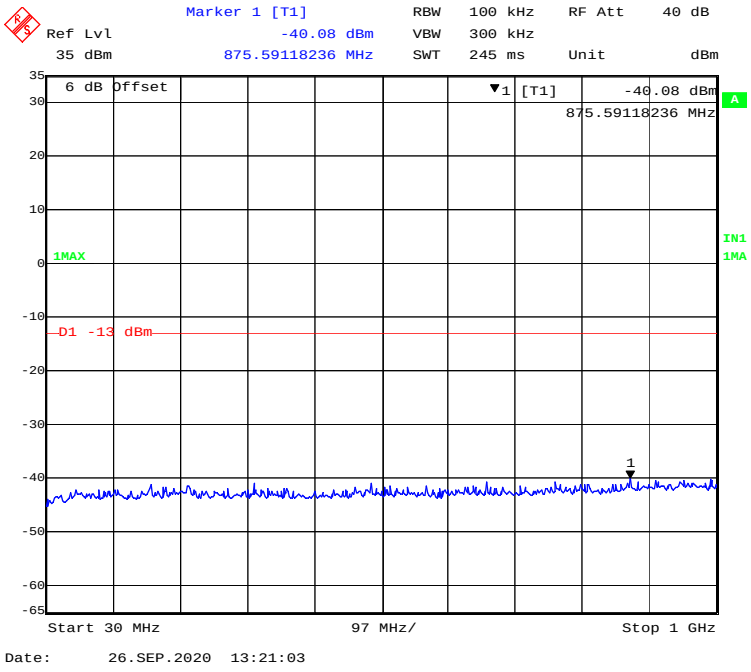


1 GHz – 20 GHz (1.4 MHz, 16-QAM, High Channel)

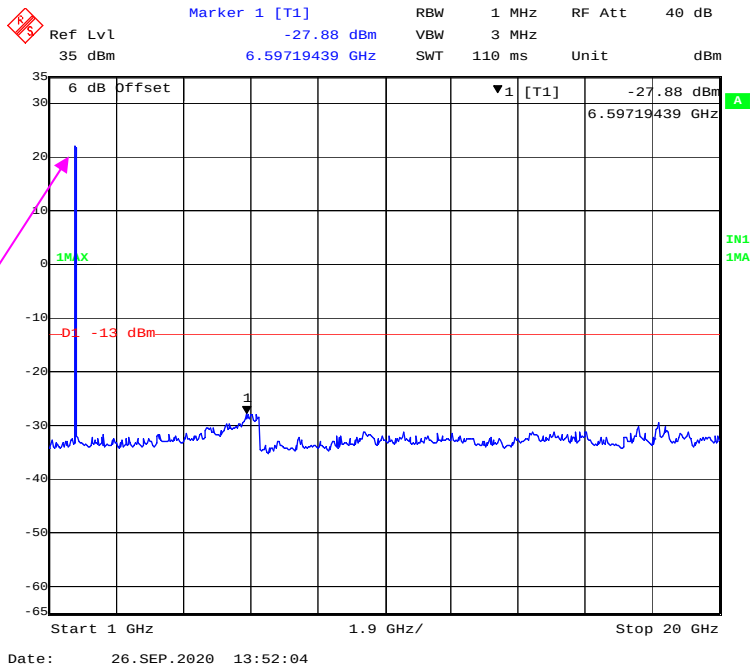


Fundamental

30 MHz - 1 GHz (3 MHz, QPSK, High Channel)

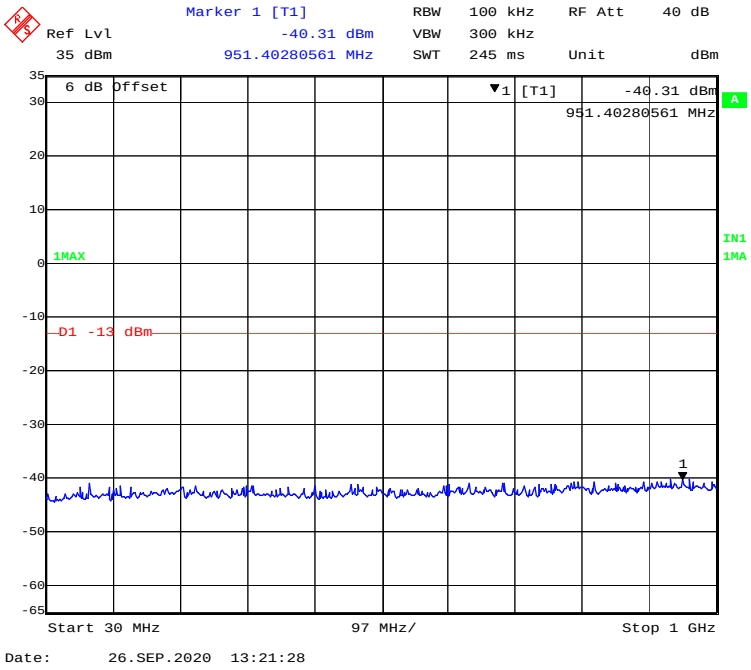


1 GHz – 20 GHz (3 MHz, QPSK, High Channel)

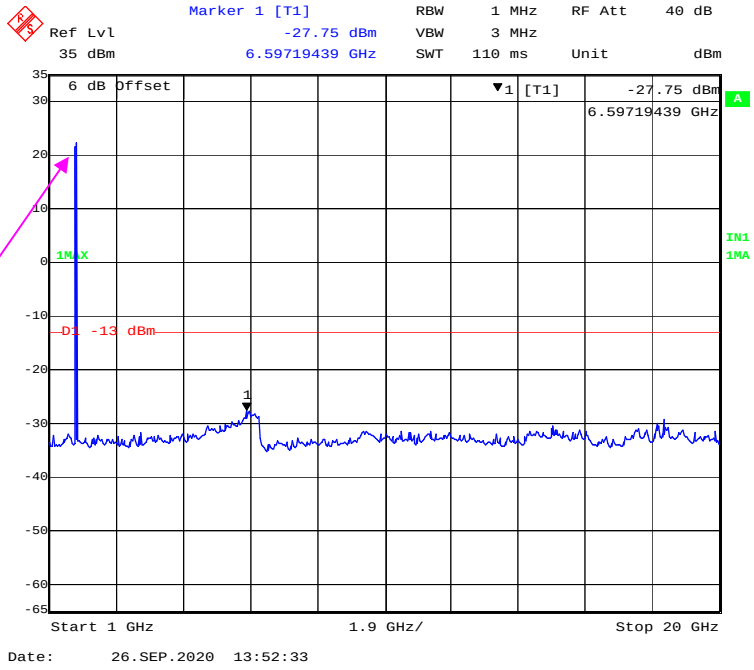


Fundamental

30 MHz - 1 GHz (3 MHz, 16-QAM, High Channel)

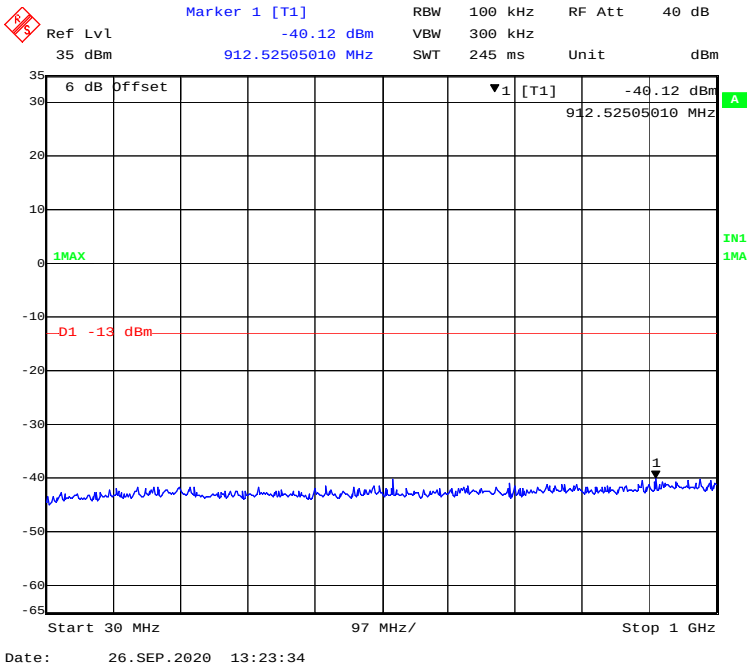


1 GHz – 20 GHz (3 MHz, 16-QAM, High Channel)

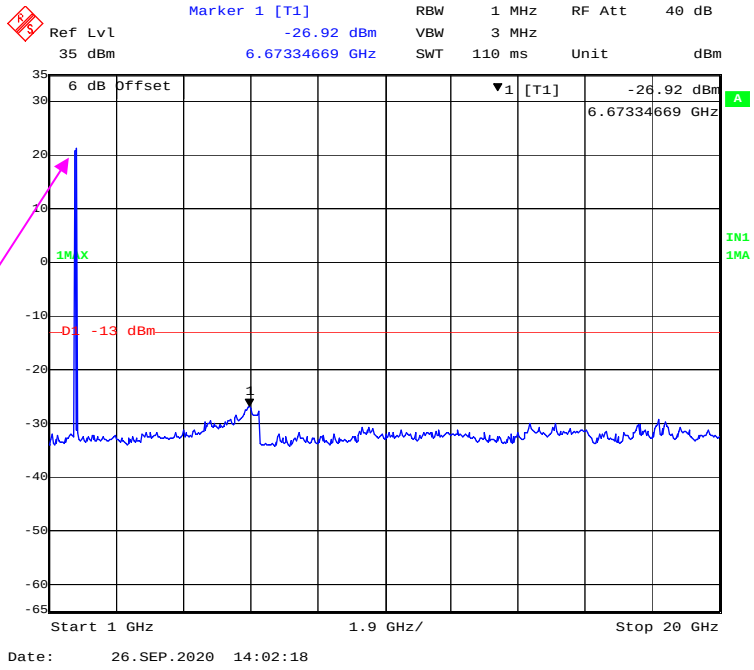


Fundamental

30 MHz - 1 GHz (5 MHz, QPSK, High Channel)

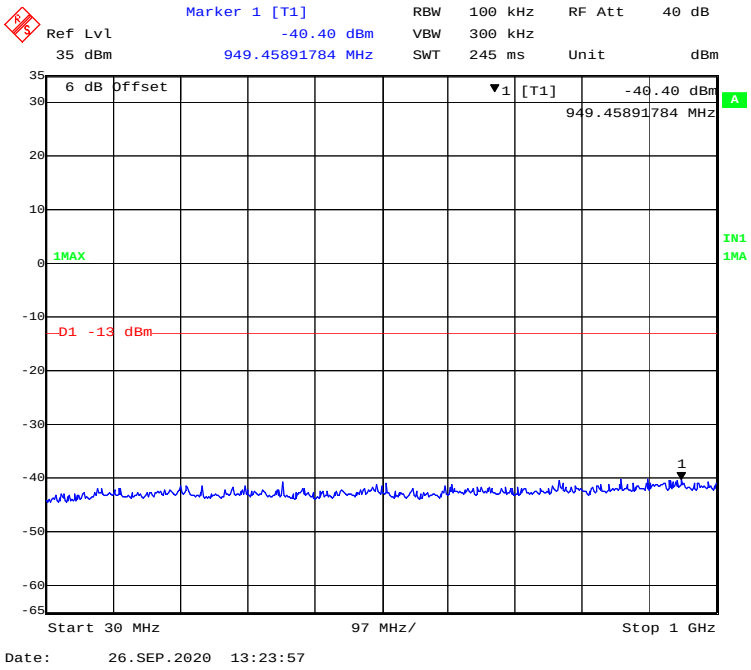


1 GHz – 20 GHz (5 MHz, QPSK, High Channel)

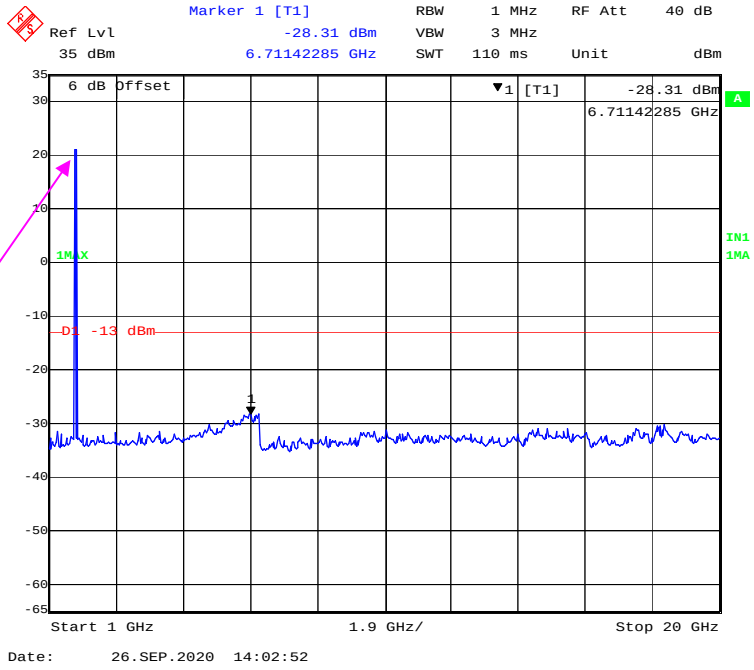


Fundamental

30 MHz - 1 GHz (5 MHz, 16-QAM, High Channel)

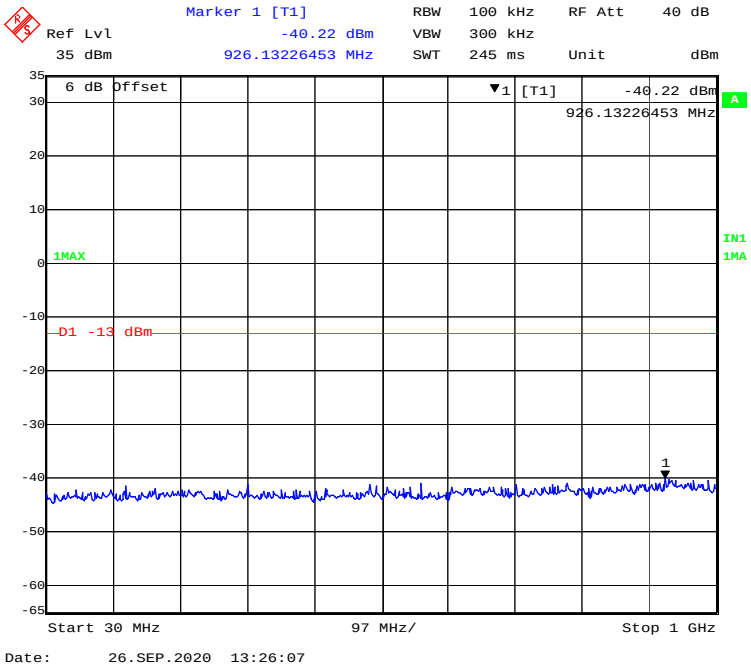


1 GHz – 20 GHz (5 MHz, 16-QAM, High Channel)

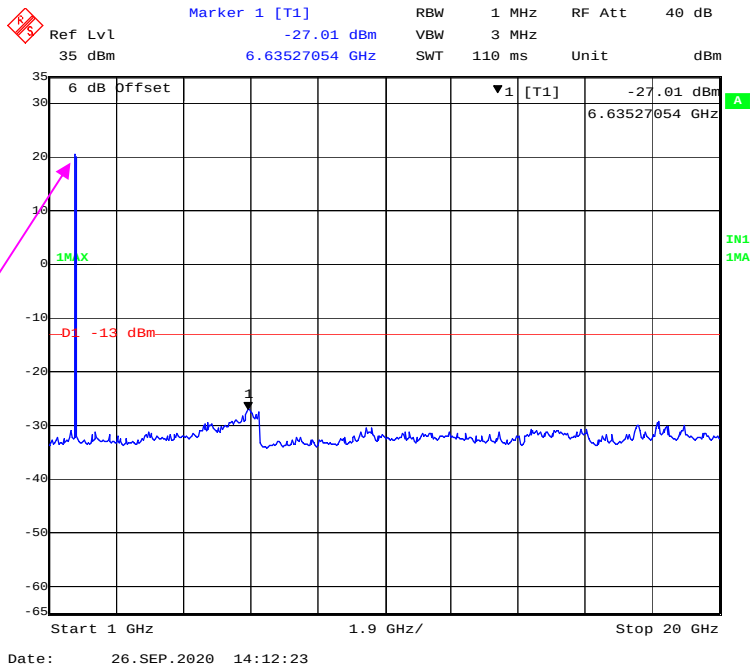


Fundamental

30 MHz - 1 GHz (10 MHz, QPSK, High Channel)

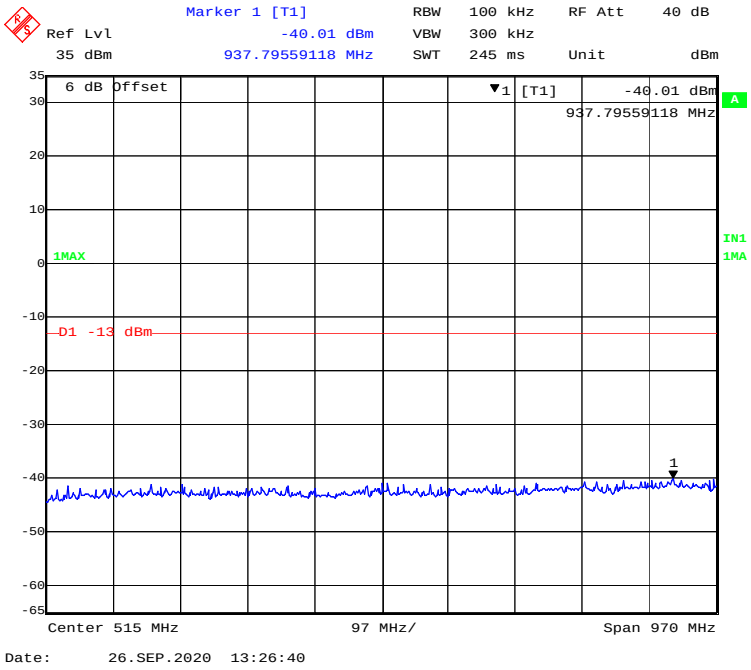


1 GHz – 20 GHz (10 MHz, QPSK, High Channel)

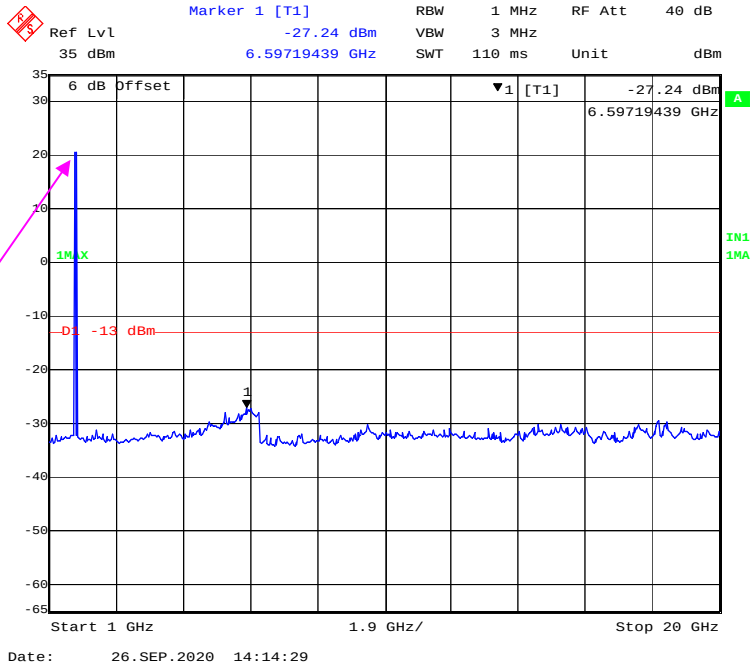


Fundamental

30 MHz - 1 GHz (10 MHz, 16-QAM, High Channel)

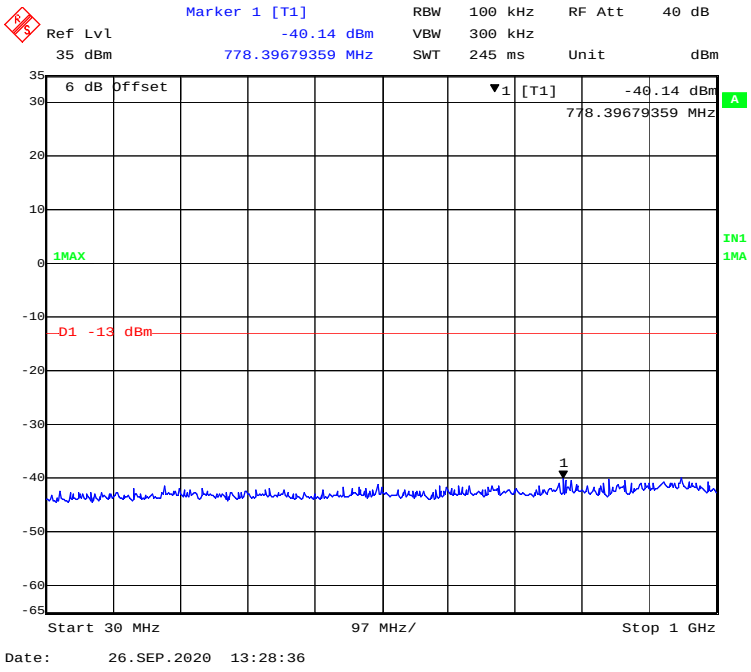


1 GHz – 20 GHz (10 MHz, 16-QAM, High Channel)

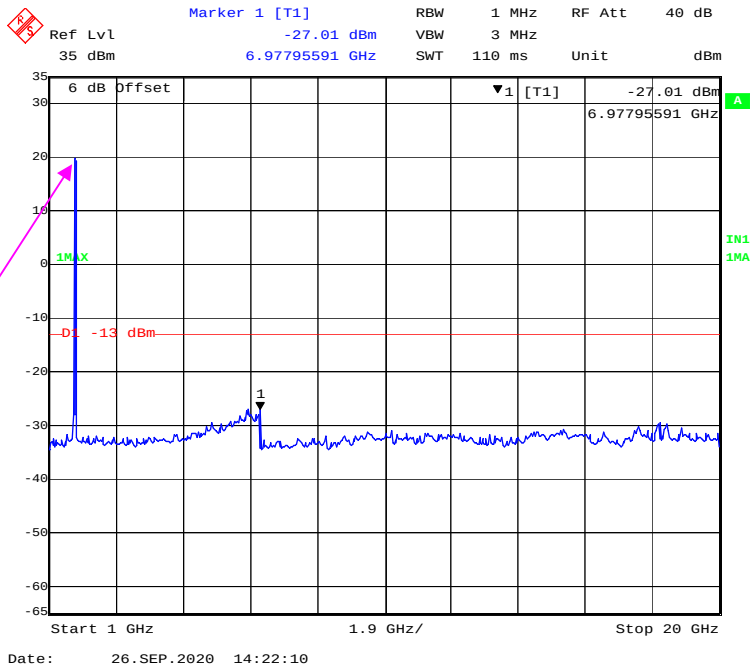


Fundamental

30 MHz - 1 GHz (15 MHz, QPSK, High Channel)

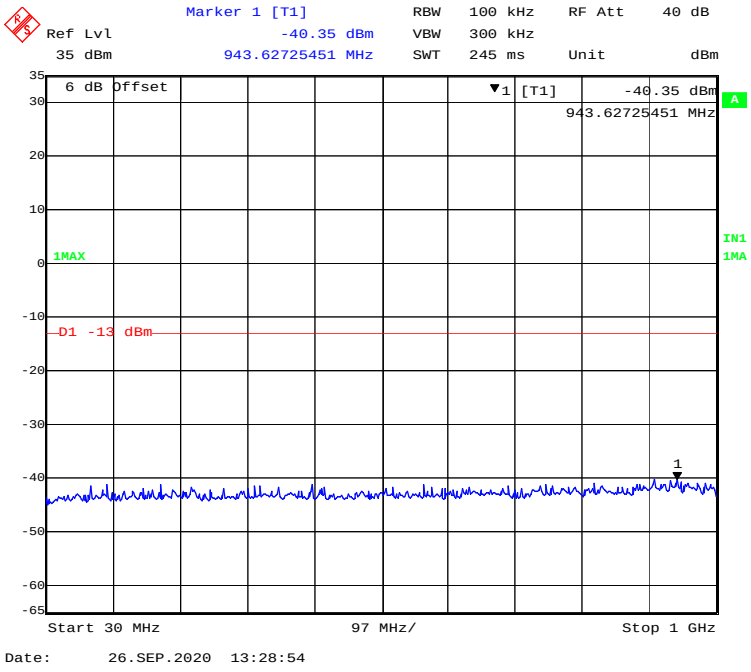


1 GHz – 20 GHz (15 MHz, QPSK, Middle Channel)

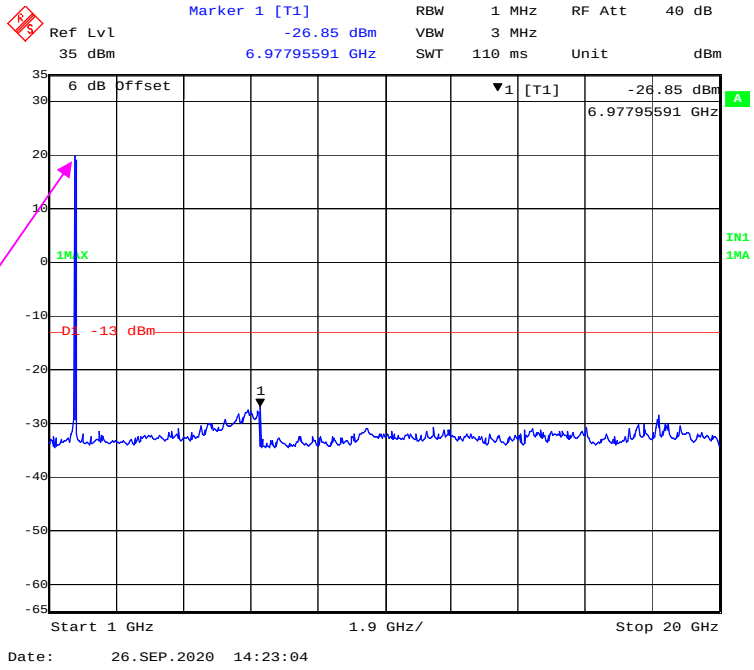


Fundamental

30 MHz - 1 GHz (15 MHz, 16-QAM, High Channel)

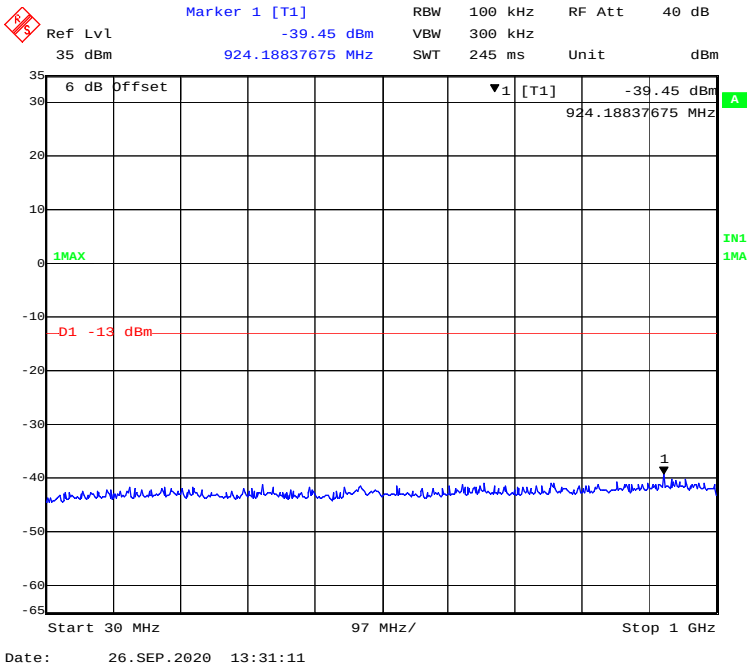


1 GHz – 20 GHz (15 MHz, 16-QAM, High Channel)

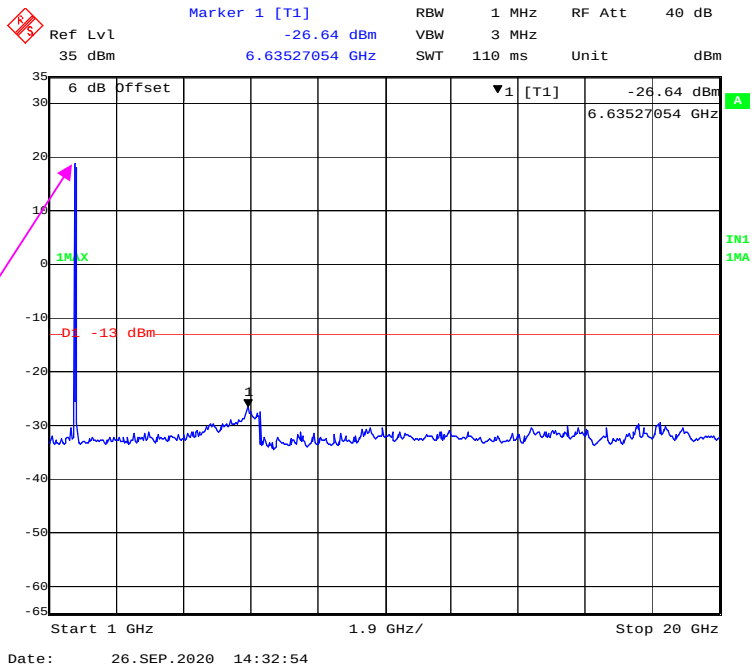


Fundamental

30 MHz - 1 GHz (20 MHz, QPSK, High Channel)

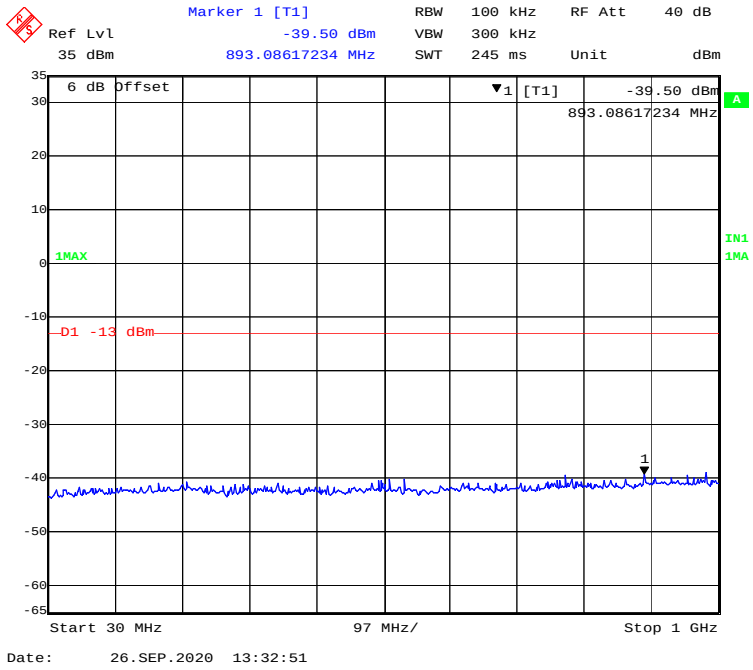


1 GHz – 20 GHz (20 MHz, QPSK, High Channel)

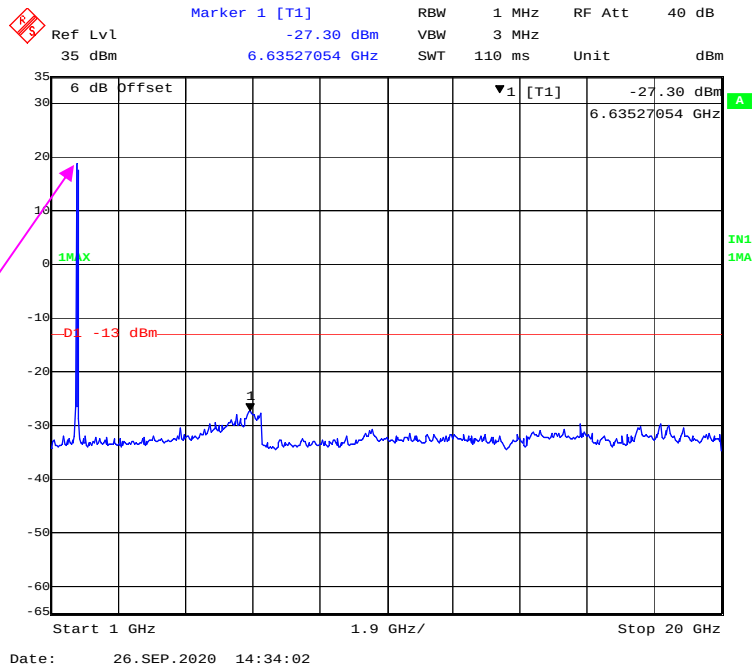


Fundamental

30 MHz - 1 GHz (20 MHz, 16-QAM, High Channel)



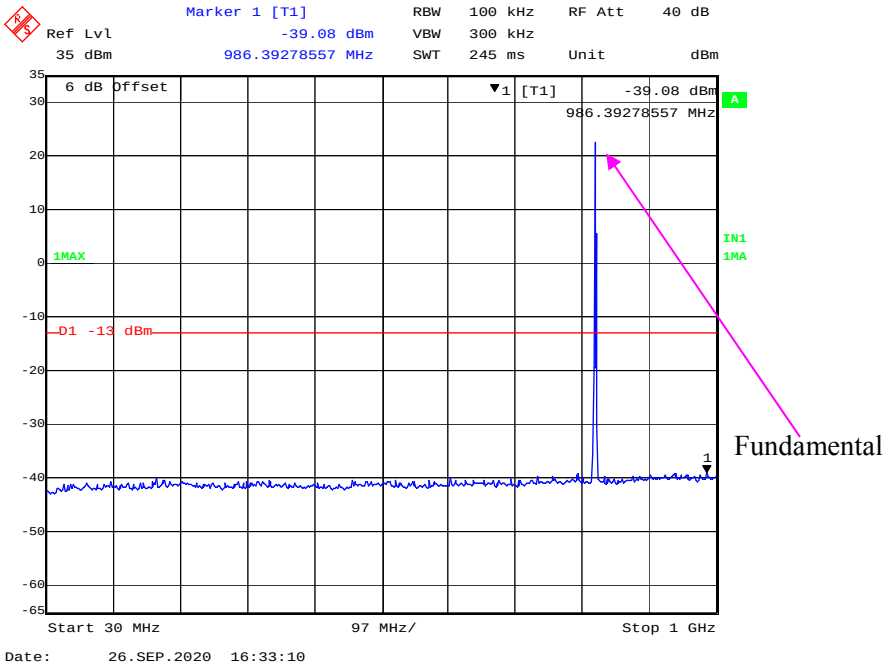
1 GHz – 20 GHz (20 MHz, 16-QAM, High Channel)



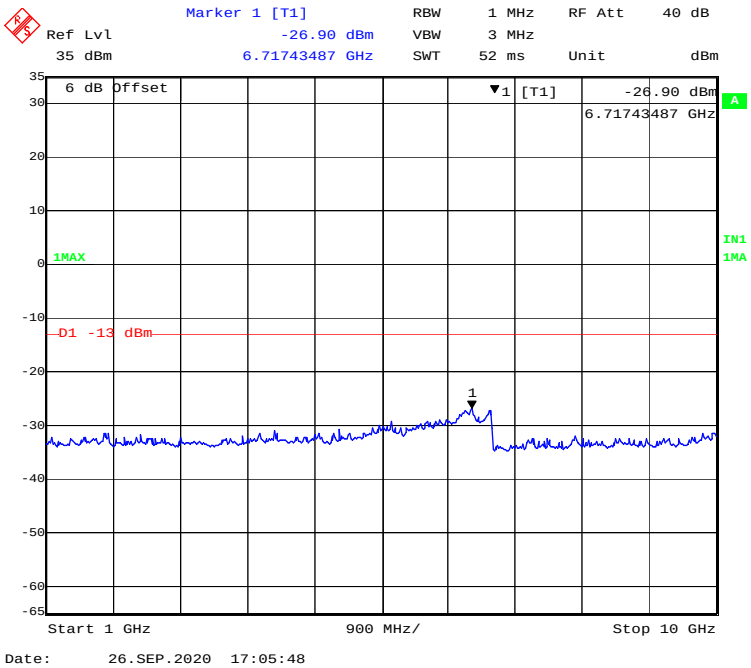
Fundamental

LTE Band 5:

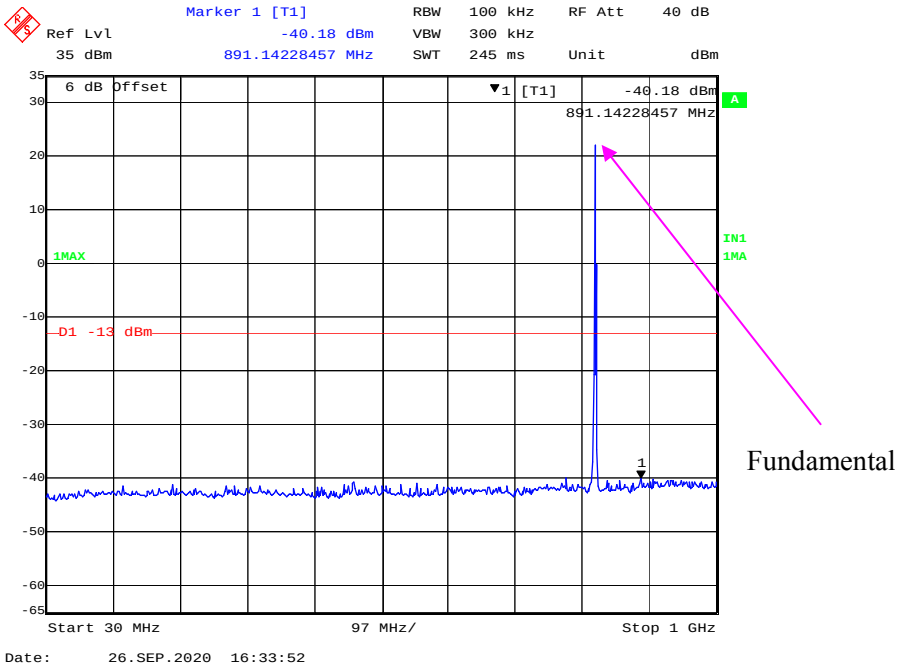
30 MHz - 1 GHz (QPSK, 1.4 MHz, Low Channel)



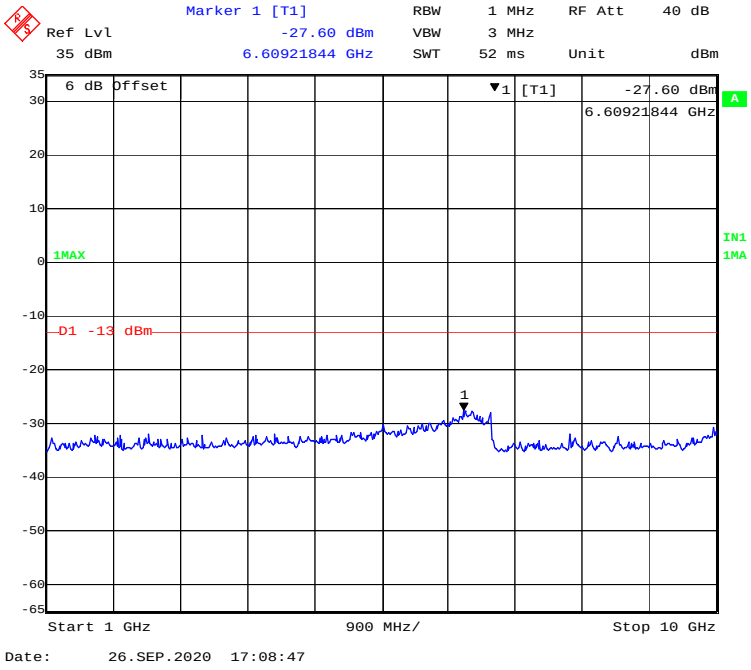
1 GHz – 10 GHz (QPSK, 1.4 MHz, Low Channel)



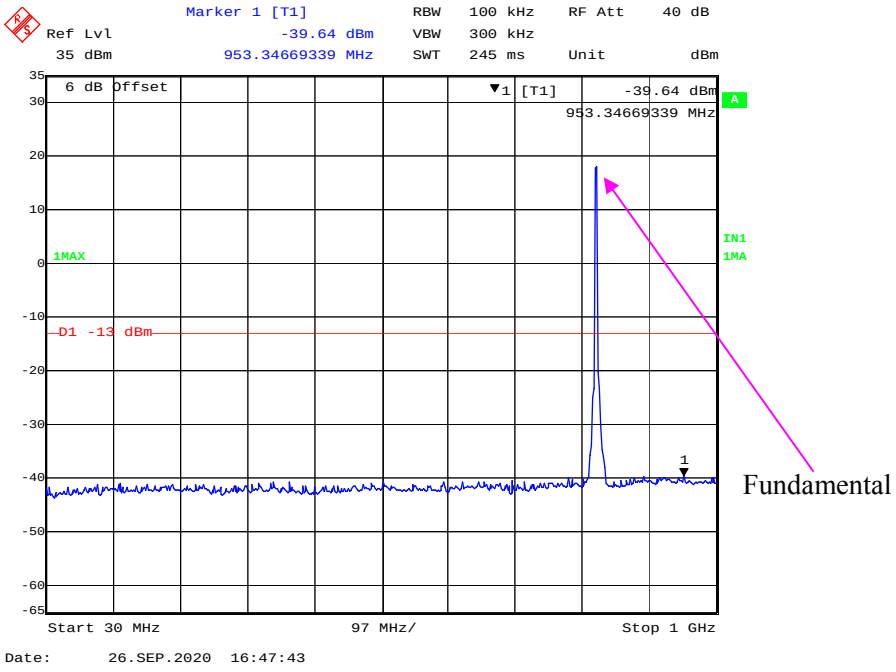
30 MHz - 1 GHz (QPSK, 3.0 MHz, Low Channel)



1 GHz – 10 GHz (QPSK, 3.0 MHz, Low Channel)

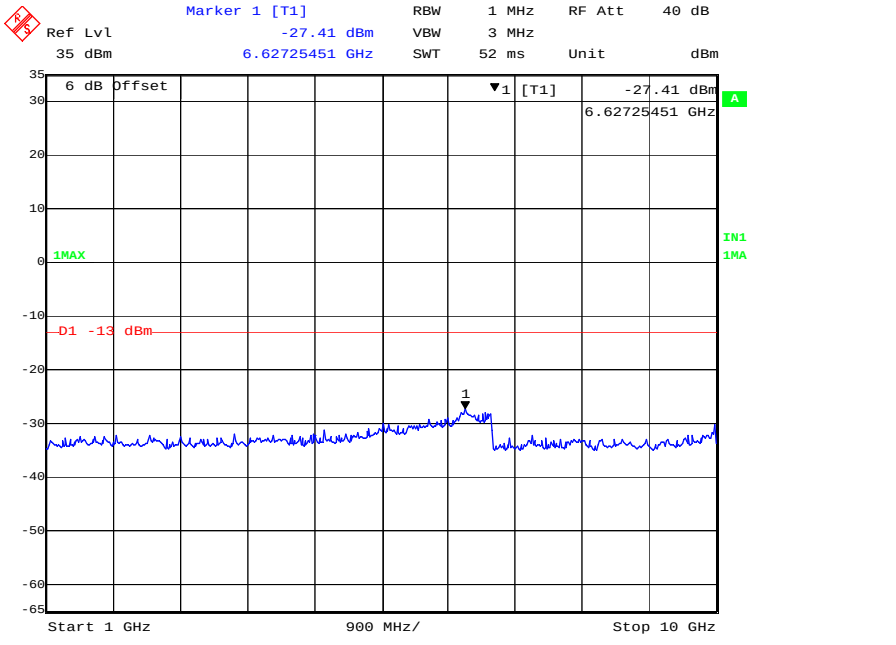


30 MHz - 1 GHz (QPSK, 5.0 MHz, Low Channel)



Date: 26.SEP.2020 16:47:43

1 GHz – 10 GHz (QPSK, 5.0MHz, Low Channel)



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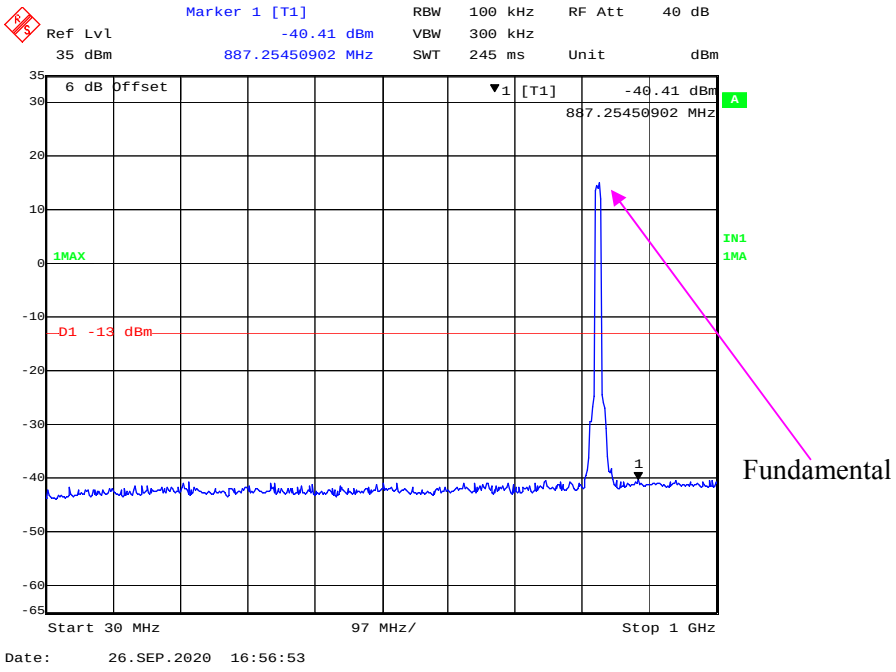
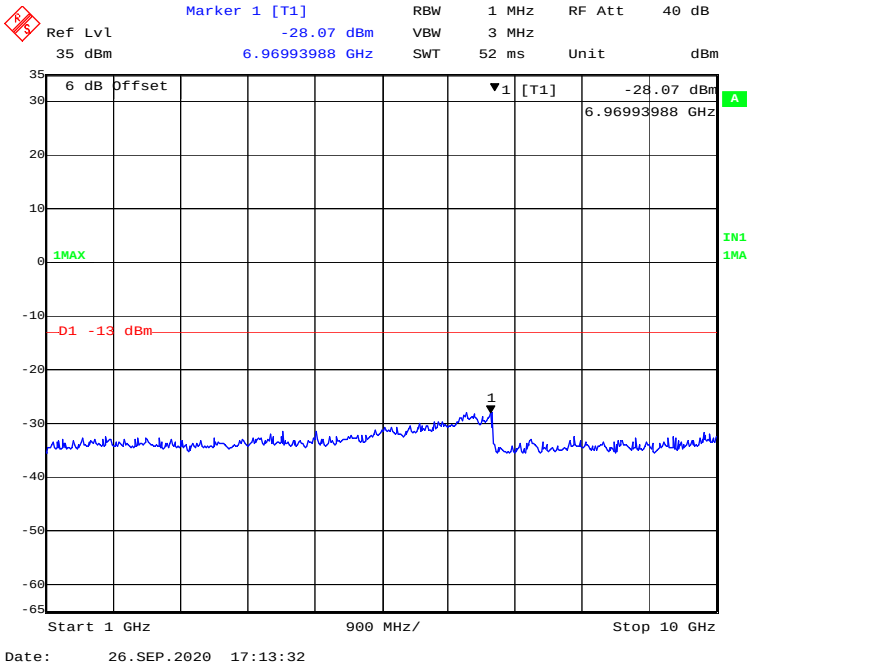
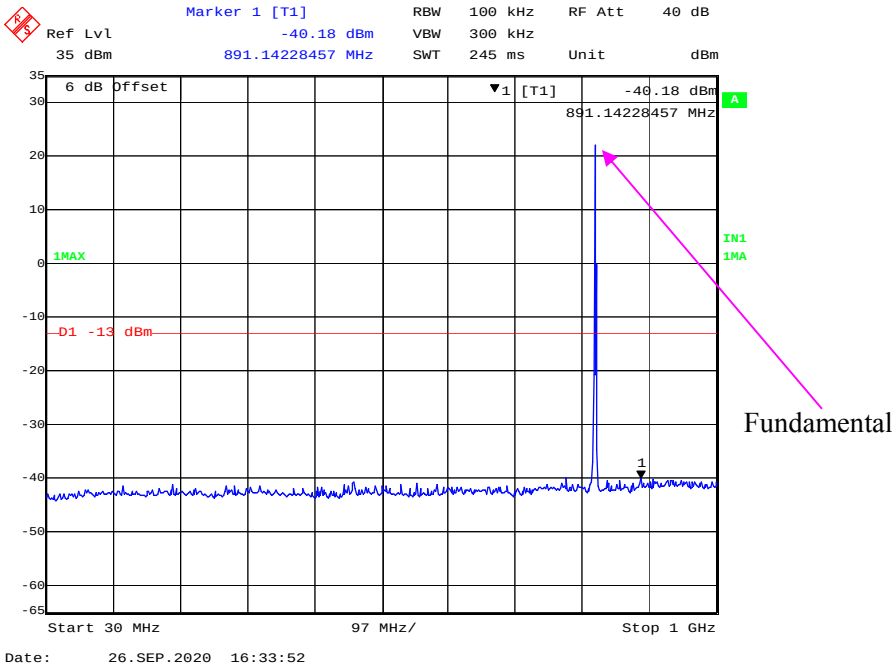
30 MHz - 1 GHz (QPSK, 10.0 MHz, Low Channel)



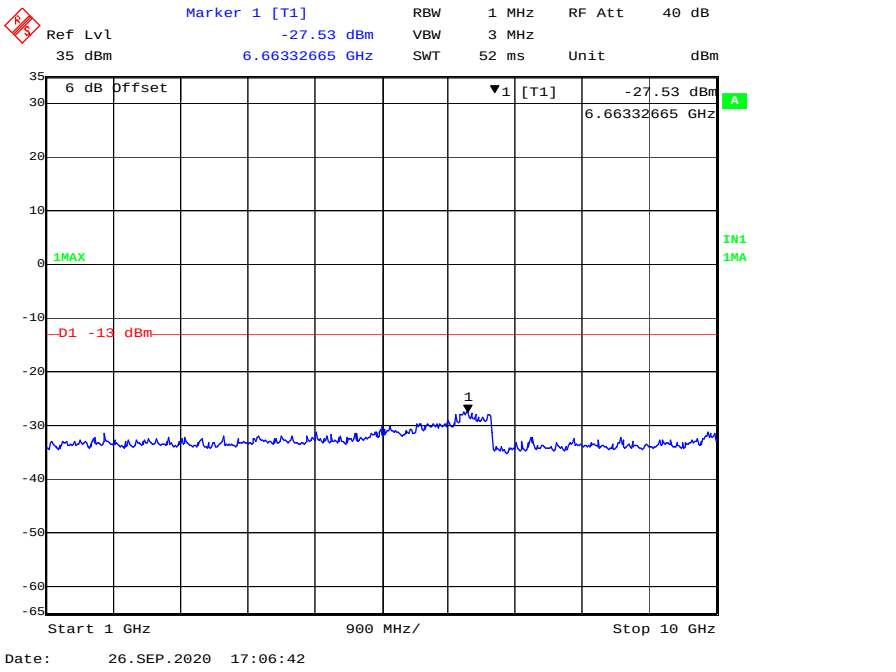
1 GHz – 10 GHz (QPSK, 10.0 MHz, Low Channel)



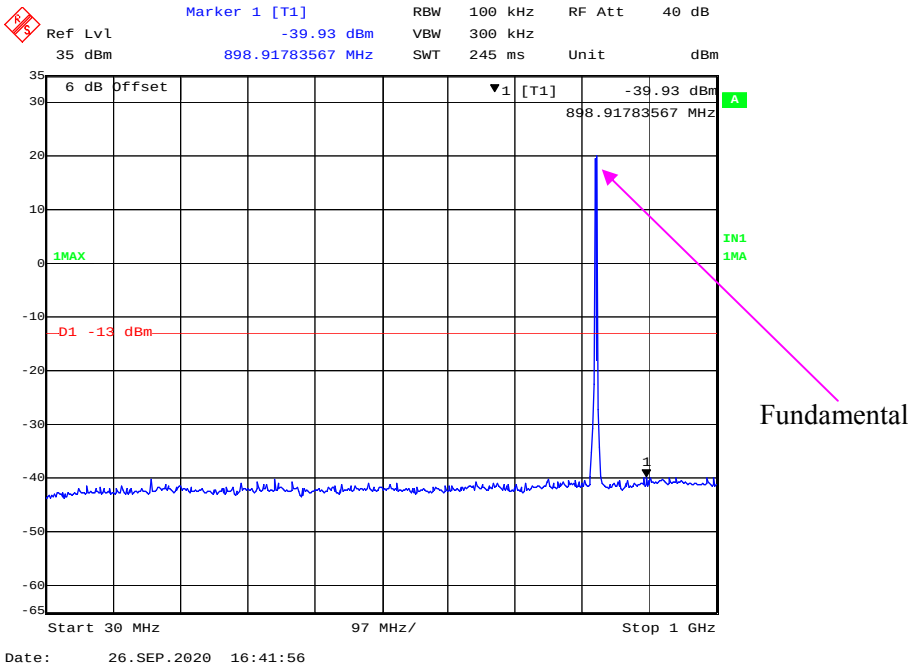
30 MHz - 1 GHz (16QAM, 1.4 MHz, Low Channel)



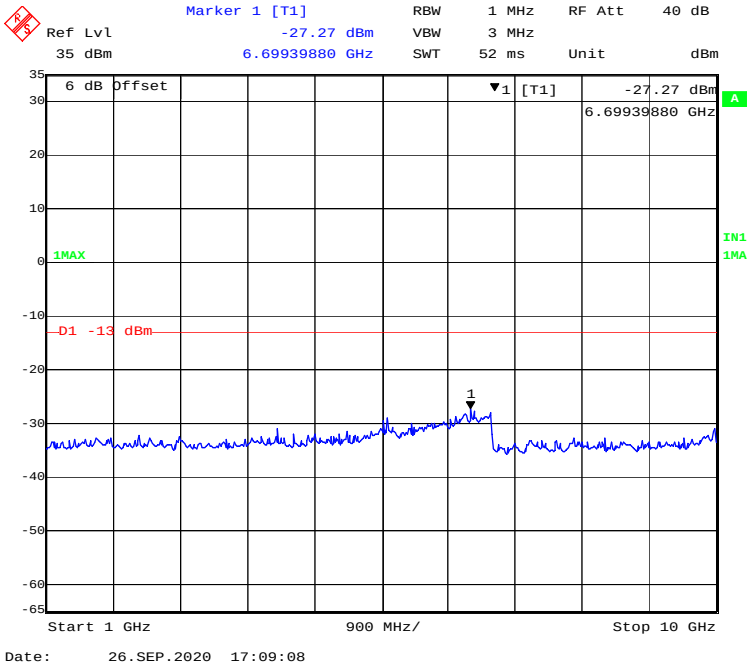
1 GHz – 10 GHz (16QAM, 1.4 MHz, Low Channel)



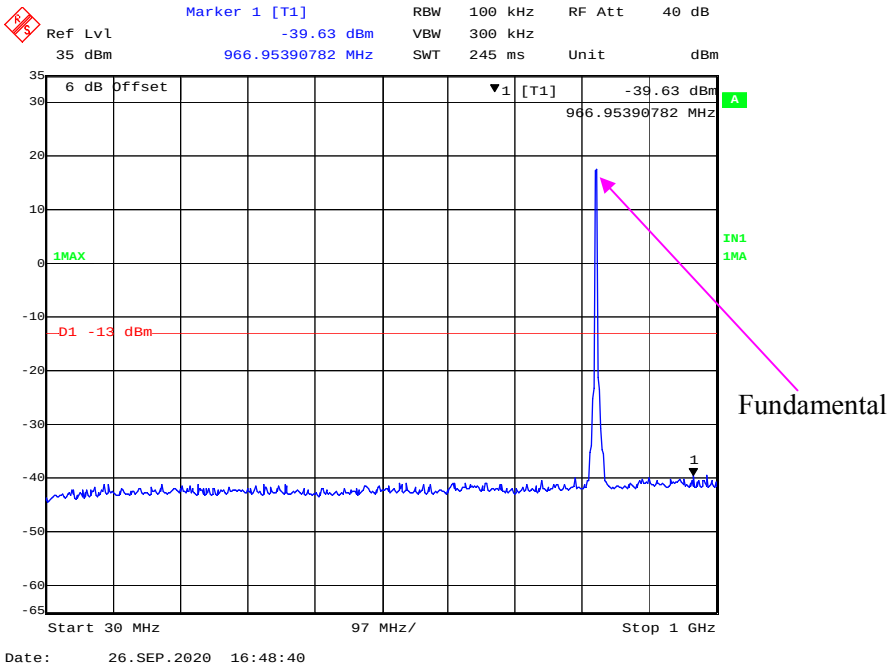
30 MHz - 1 GHz (16QAM, 3.0 MHz, Low Channel)



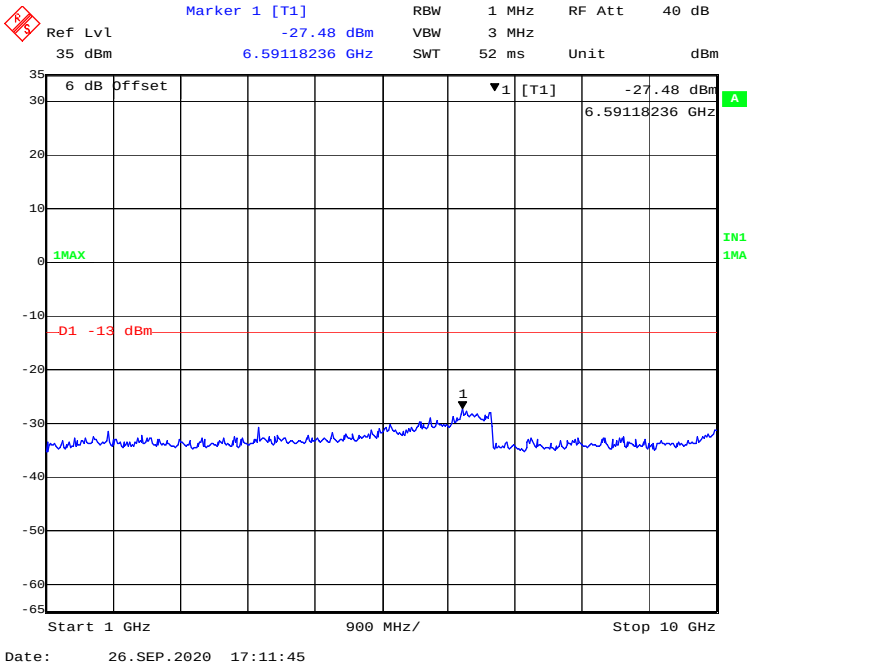
1 GHz – 10 GHz (16QAM, 3.0 MHz, Low Channel)



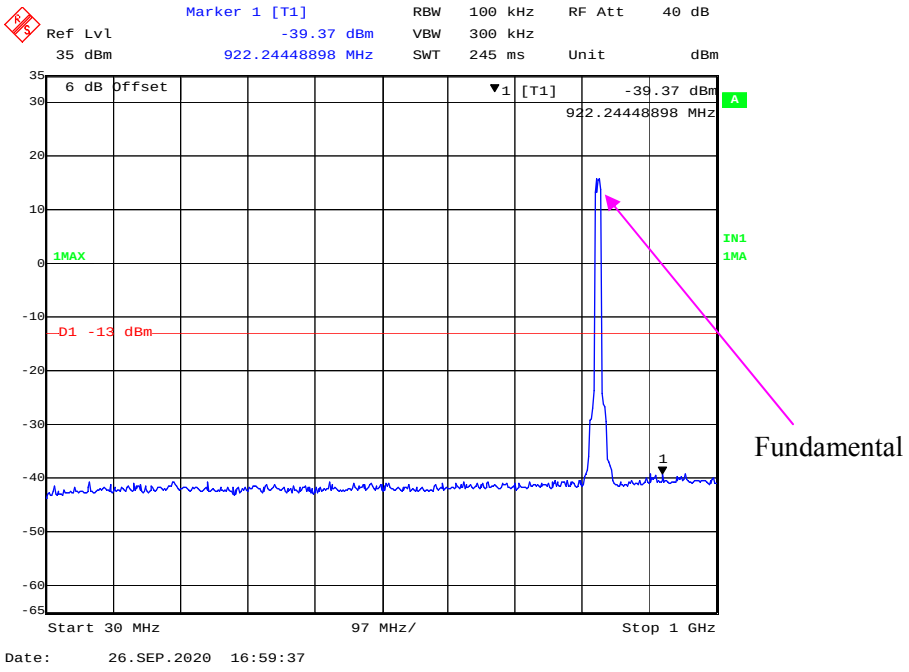
30 MHz - 1 GHz (16QAM, 5.0 MHz, Low Channel)



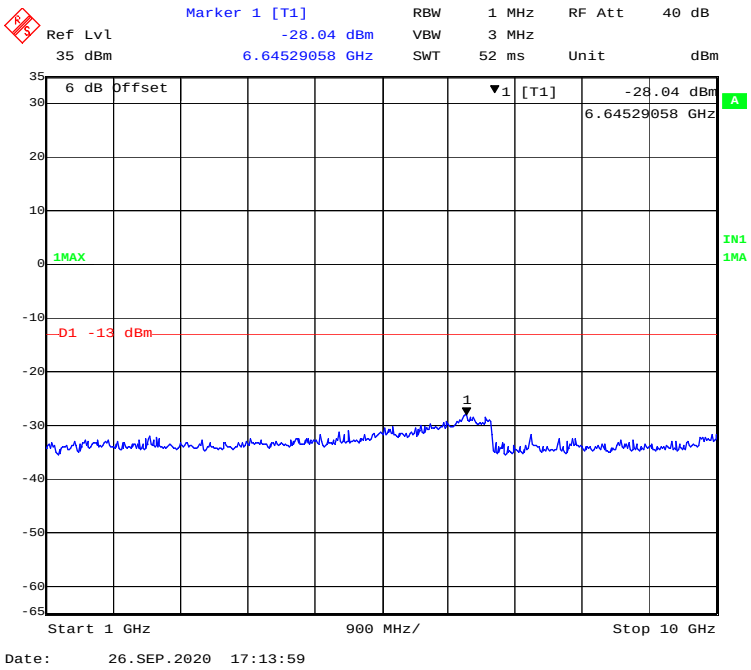
1 GHz – 10 GHz (16QAM, 5.0MHz, Low Channel)



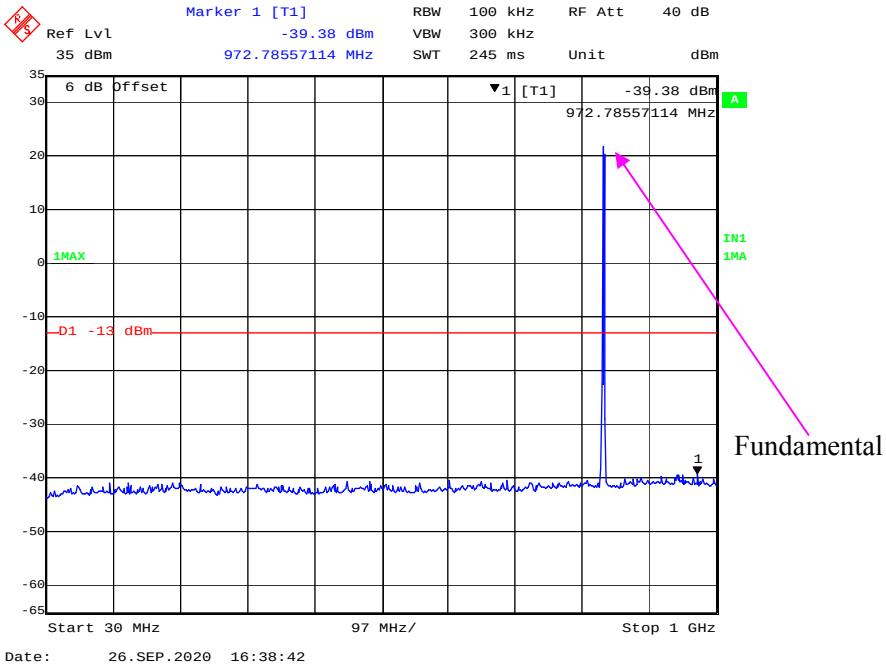
30 MHz - 1 GHz (16QAM, 10.0 MHz, Low Channel)



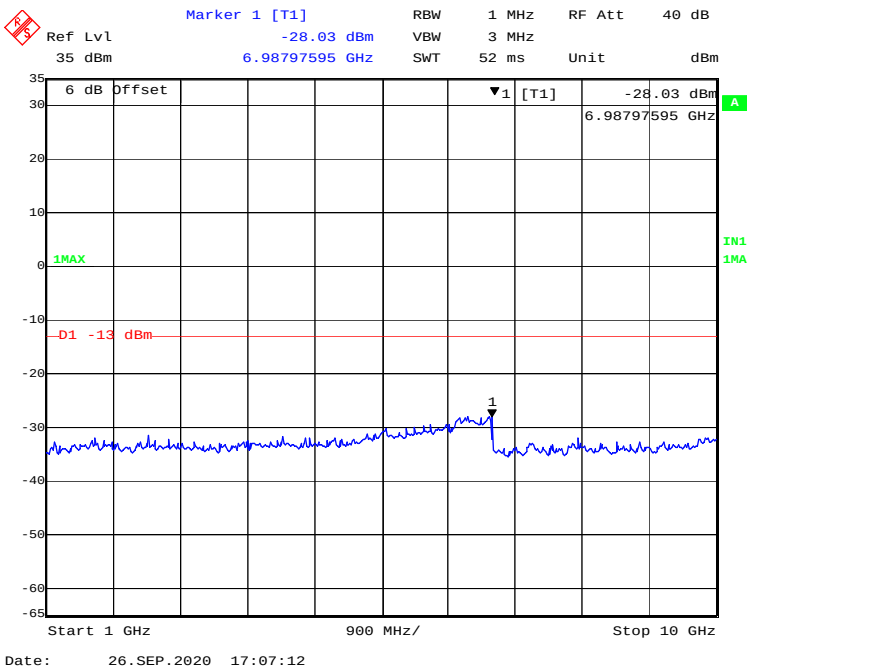
1 GHz – 10 GHz (16QAM, 10.0 MHz, Low Channel)



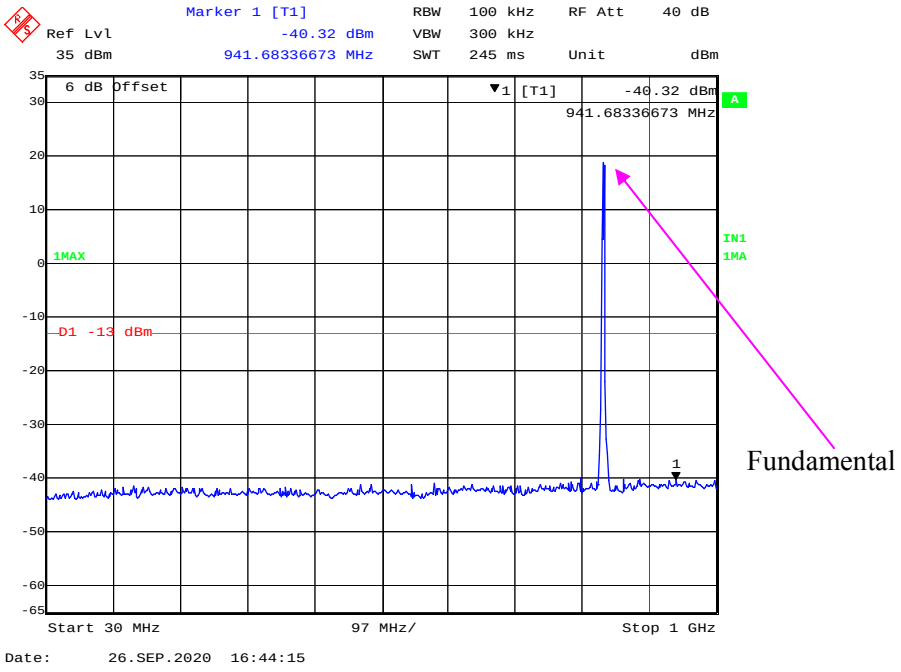
30 MHz - 1 GHz (QPSK, 1.4 MHz, Middle Channel)



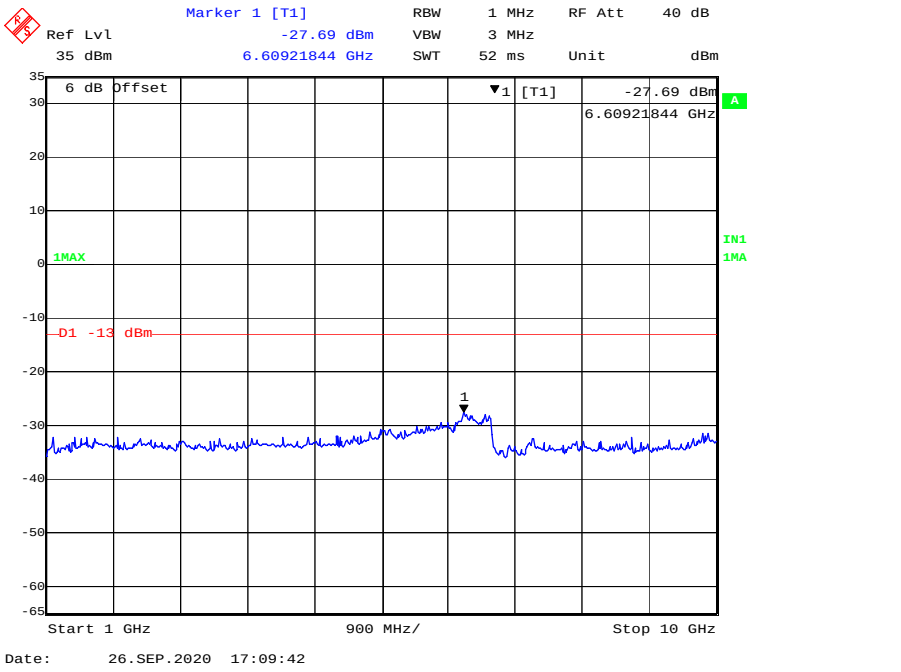
1 GHz – 10 GHz (QPSK, 1.4 MHz, Middle Channel)



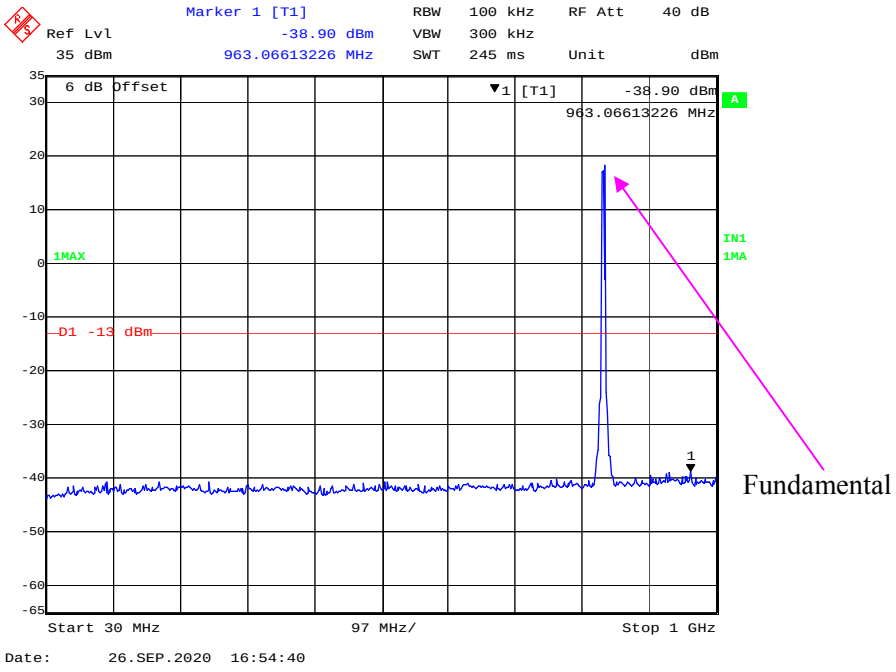
30 MHz - 1 GHz (QPSK, 3.0 MHz, Middle Channel)



1 GHz – 10 GHz (QPSK, 3.0 MHz, Middle Channel)



30 MHz - 1 GHz (QPSK, 5.0 MHz, Middle Channel)



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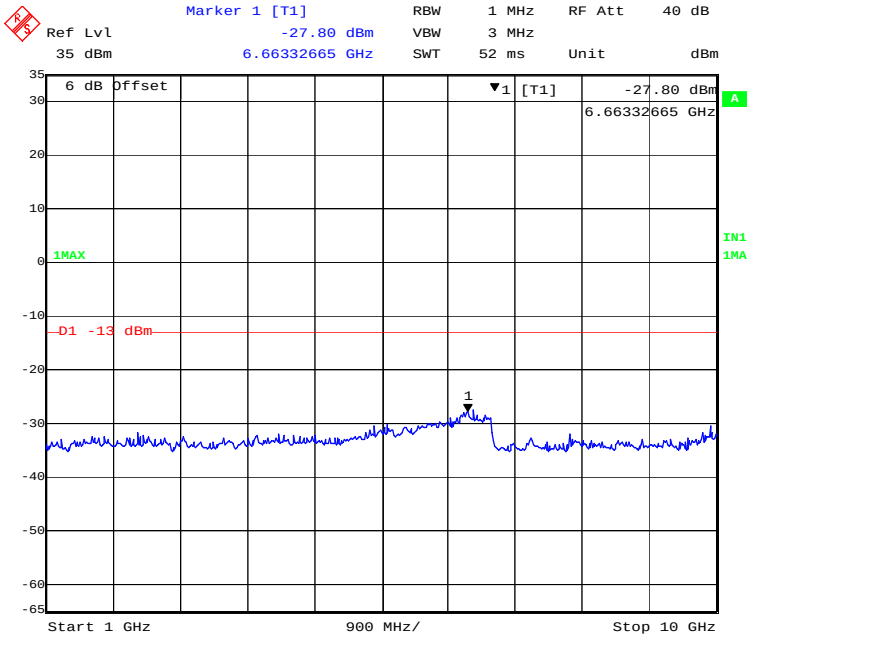
1 GHz – 10 GHz (QPSK, 5.0MHz, Middle Channel)



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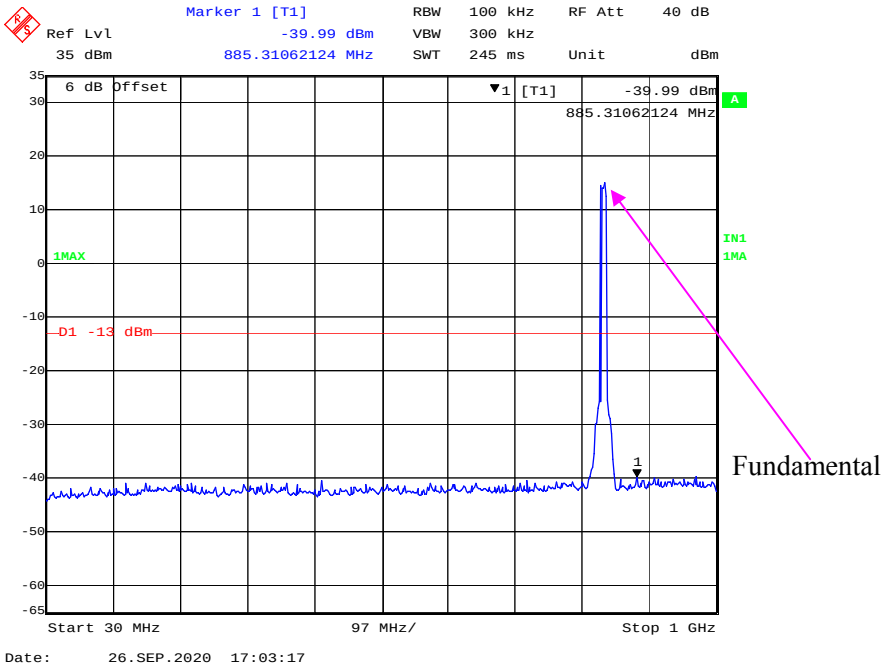
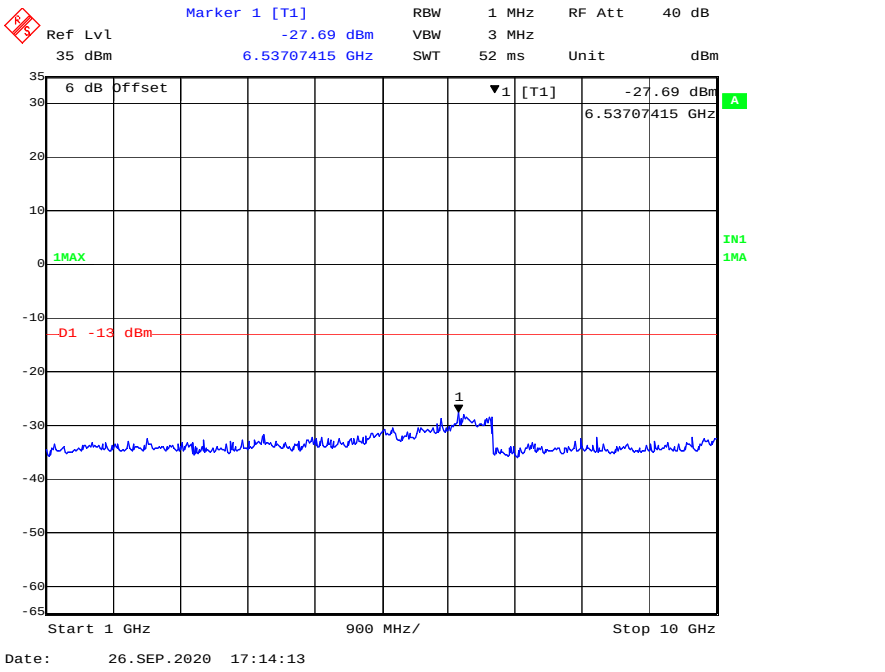
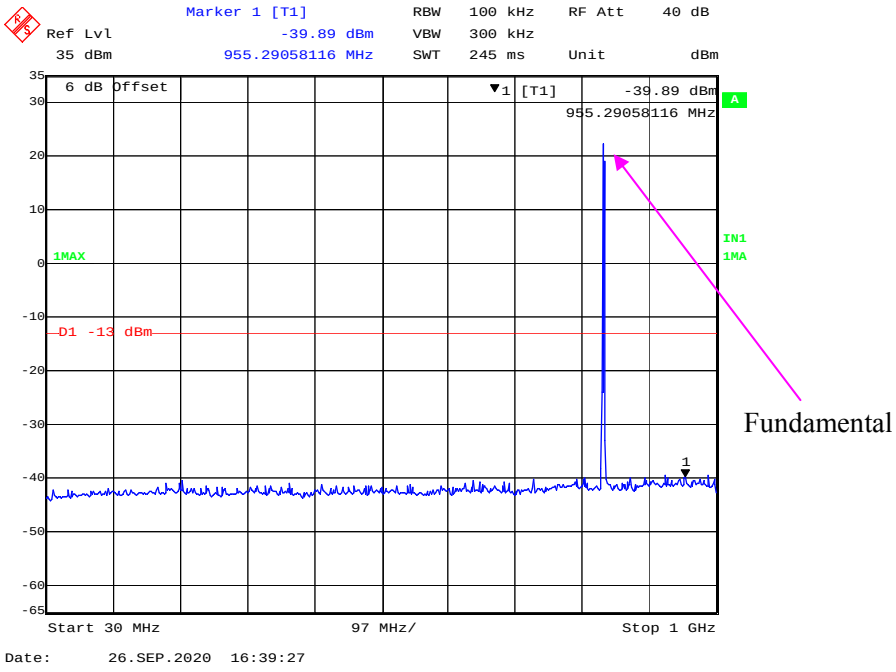
30 MHz - 1 GHz (QPSK, 10.0 MHz, Middle Channel)



1 GHz – 10 GHz (QPSK, 10.0 MHz, Middle Channel)



30 MHz - 1 GHz (16QAM, 1.4 MHz, Middle Channel)



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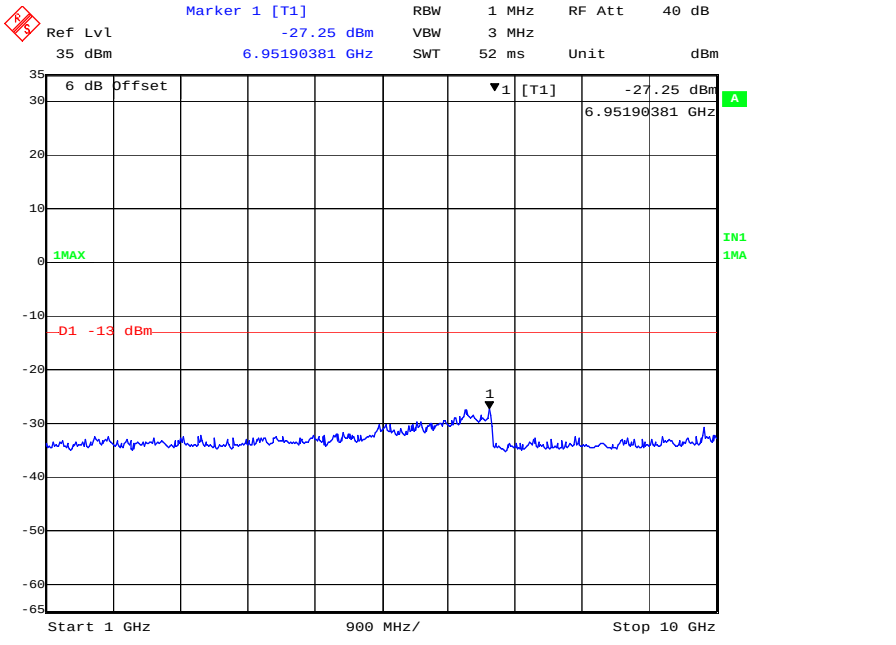
1 GHz – 10 GHz (16QAM, 1.4 MHz, Middle Channel)



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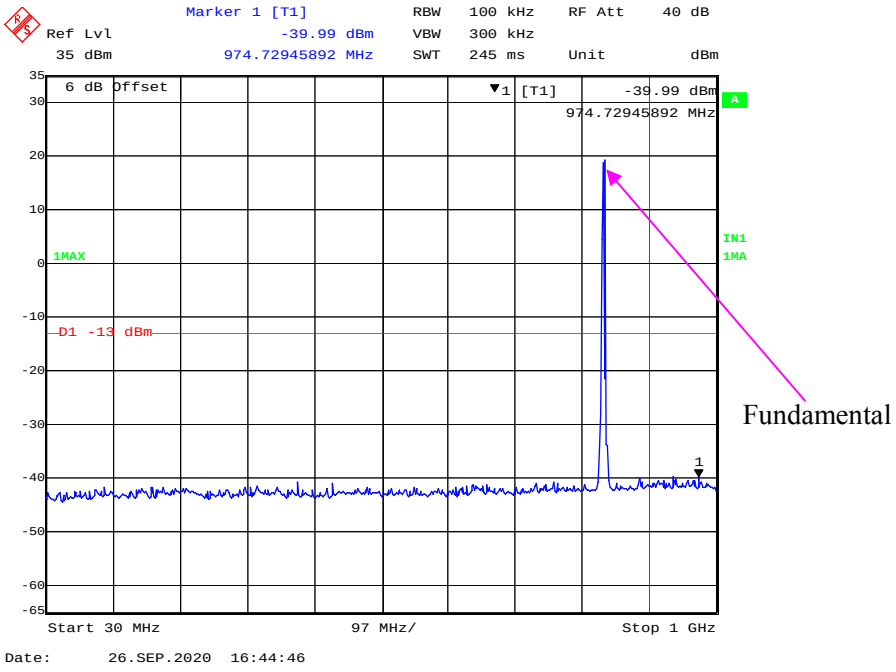
30 MHz - 1 GHz (16QAM, 3.0 MHz, Middle Channel)



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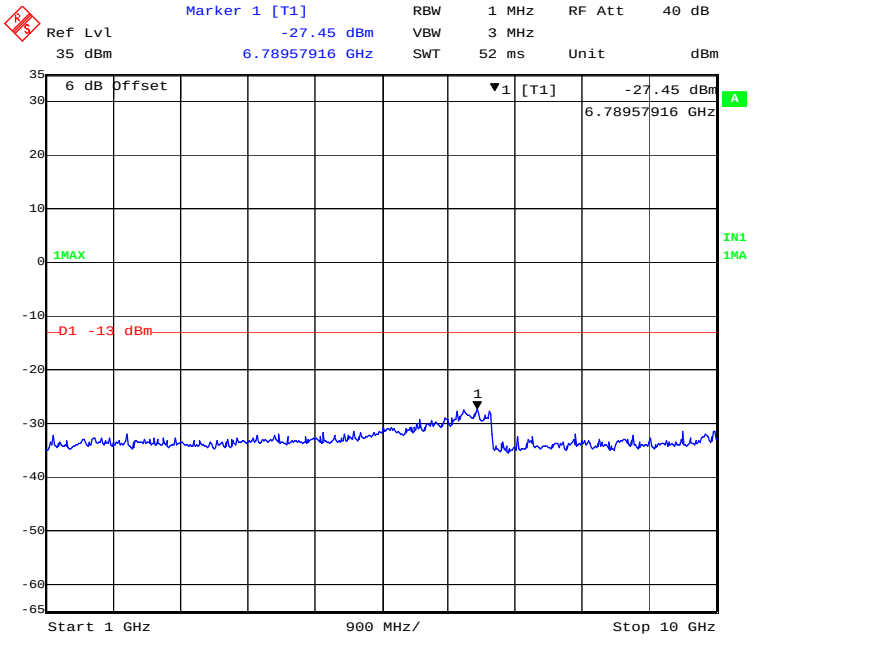
1 GHz – 10 GHz (16QAM, 3.0 MHz, Middle Channel)



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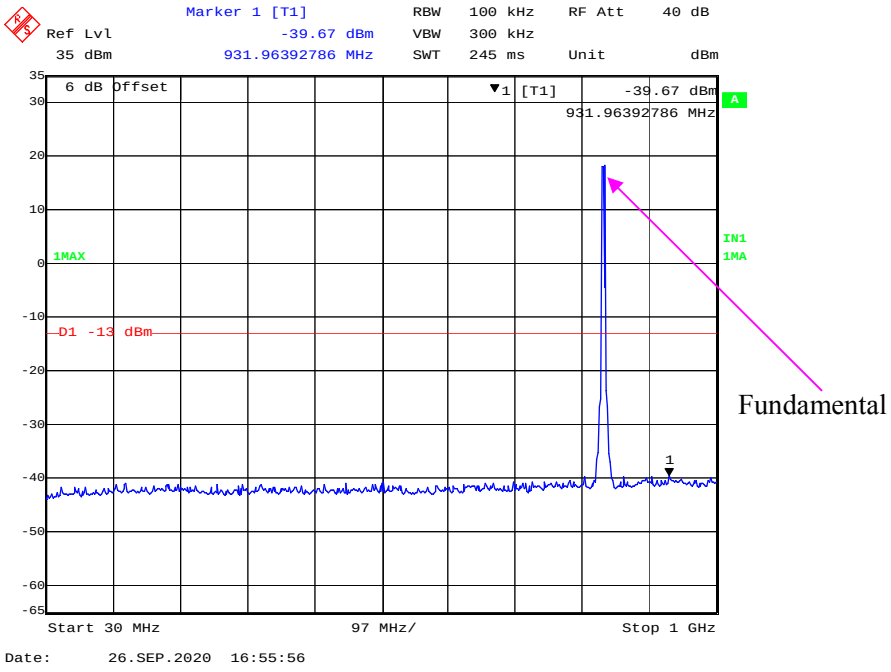
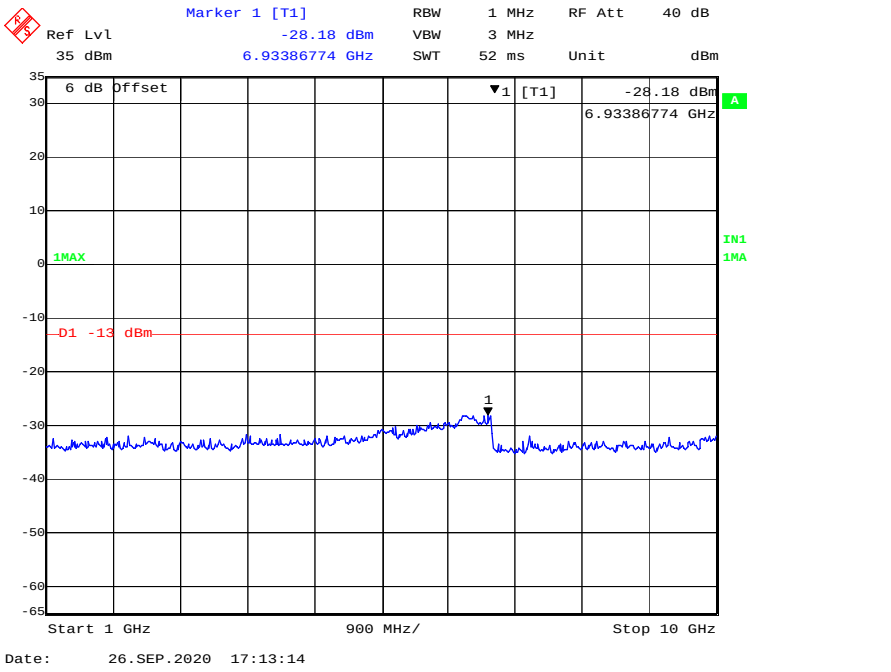
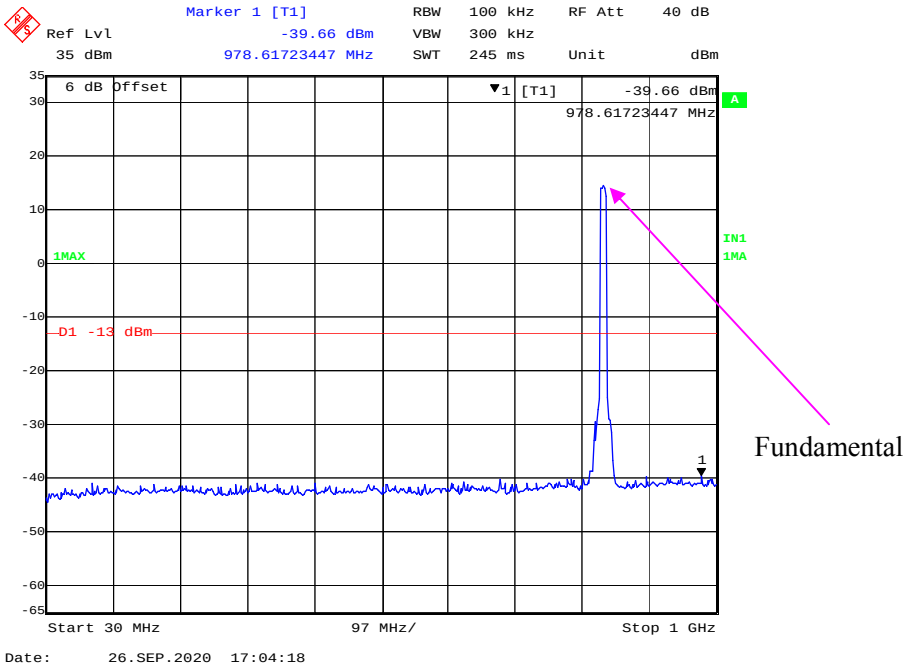
30 MHz - 1 GHz (16QAM, 5.0 MHz, Middle Channel)



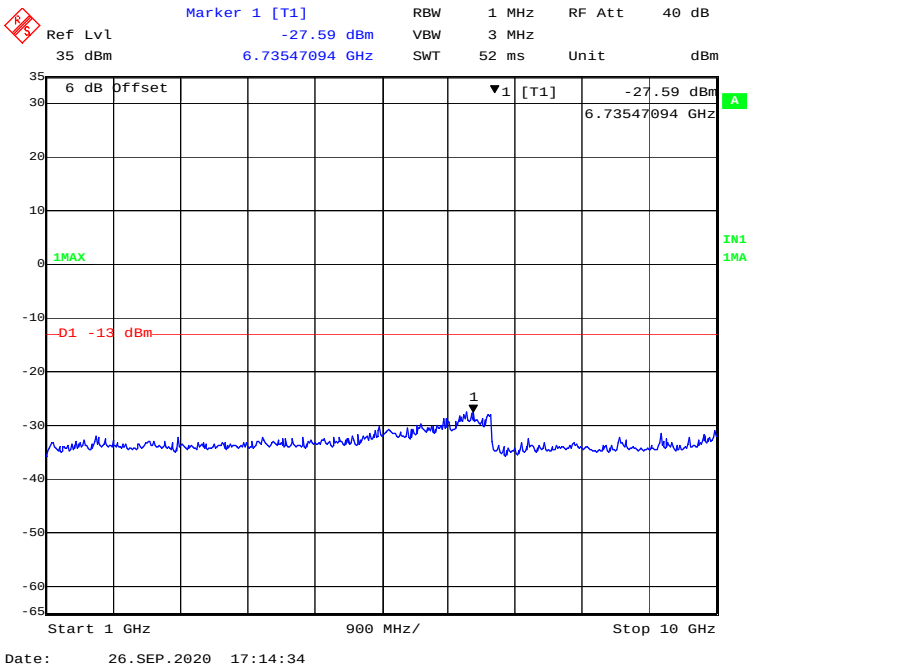
1 GHz – 10 GHz (16QAM, 5.0MHz, Middle Channel)



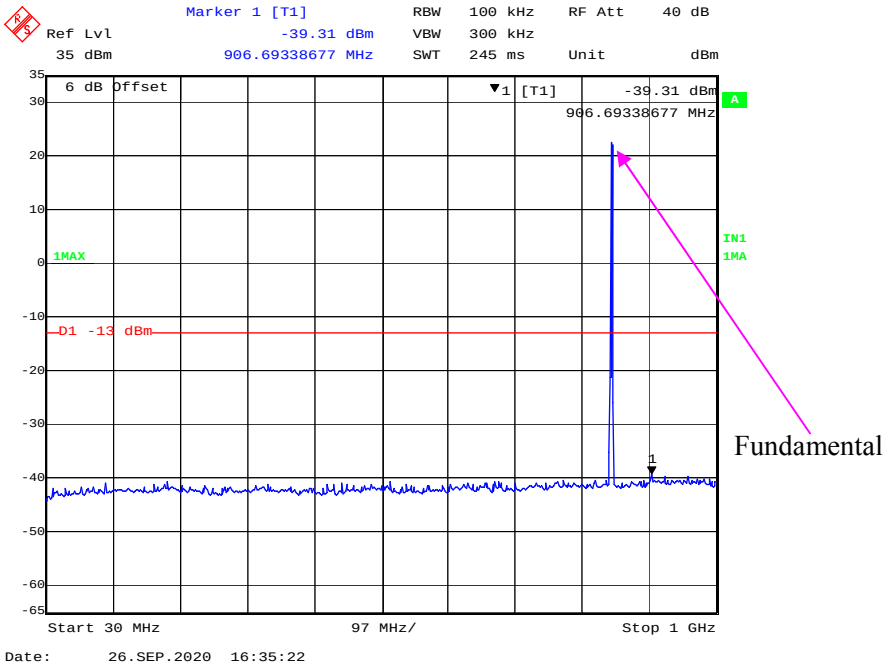
30 MHz - 1 GHz (16QAM, 10.0 MHz, Middle Channel)



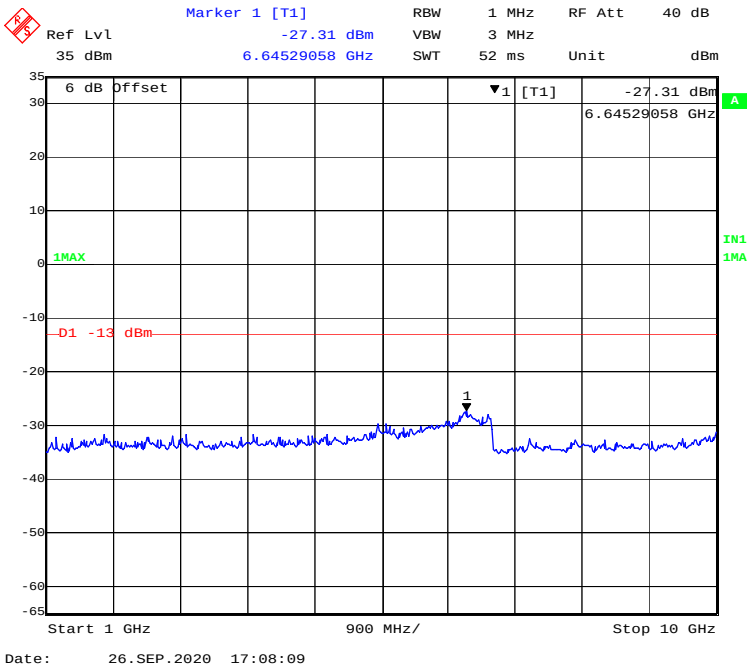
1 GHz – 10 GHz (16QAM, 10.0 MHz, Middle Channel)



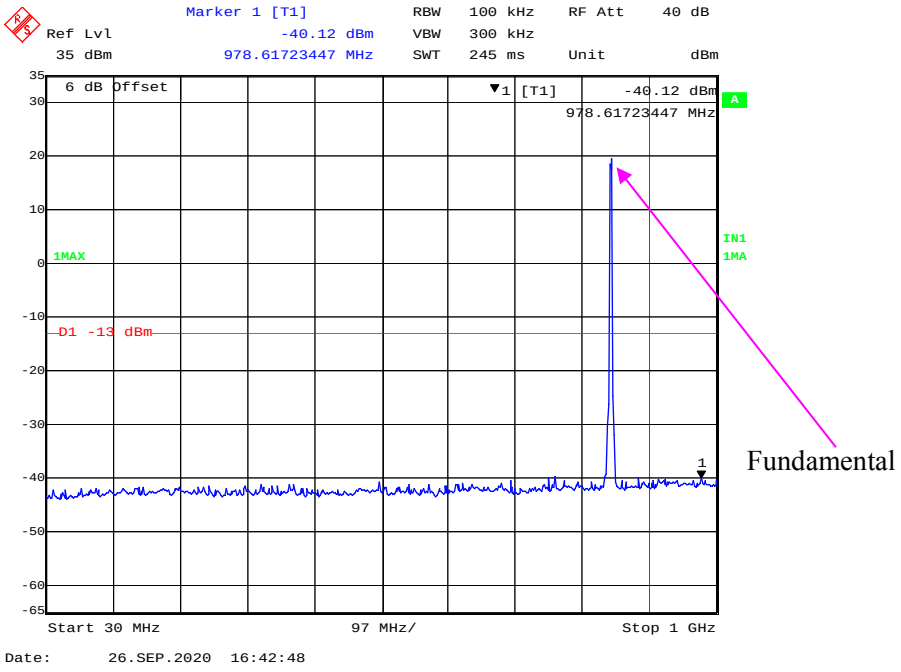
30 MHz - 1 GHz (QPSK, 1.4 MHz, High Channel)



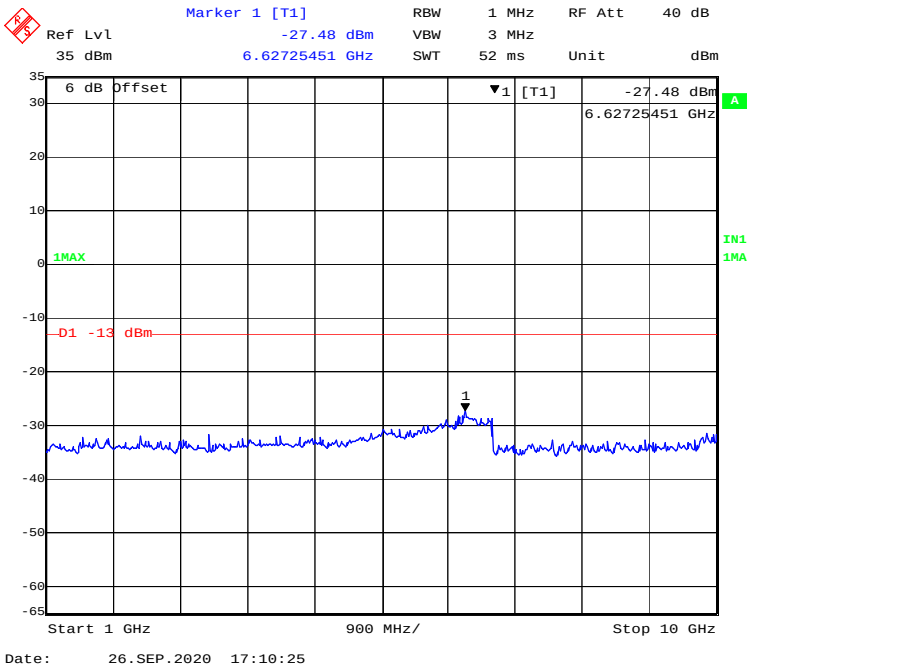
1 GHz – 10 GHz (QPSK, 1.4 MHz, High Channel)



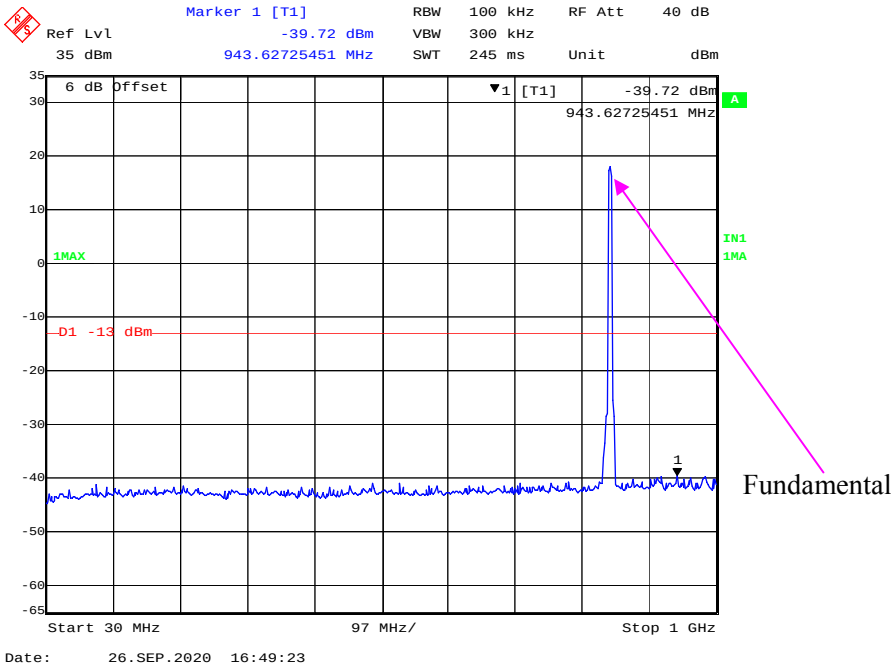
30 MHz - 1 GHz (QPSK, 3.0 MHz, High Channel)



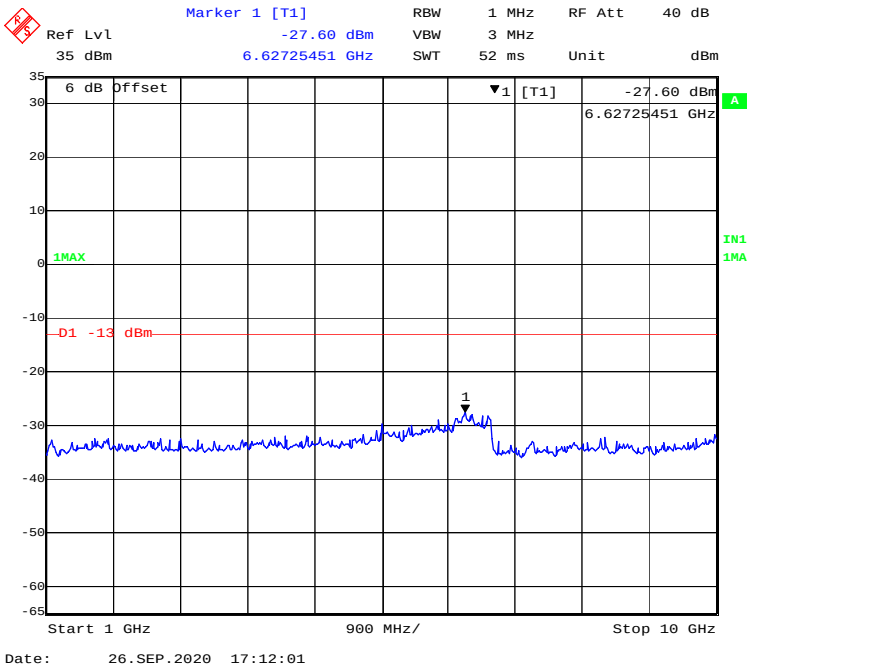
1 GHz – 10 GHz (QPSK, 3.0 MHz, High Channel)



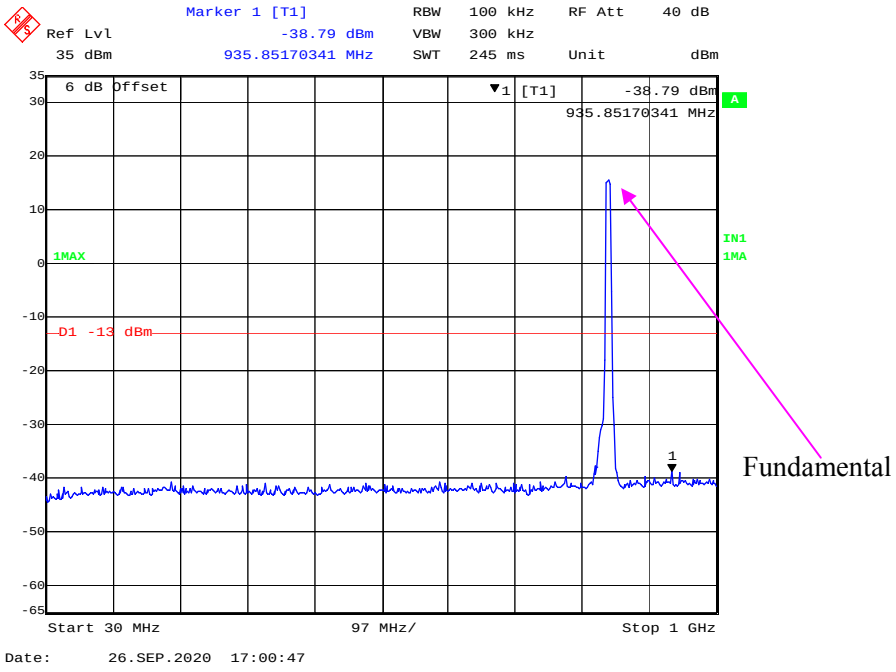
30 MHz - 1 GHz (QPSK, 5.0 MHz, High Channel)



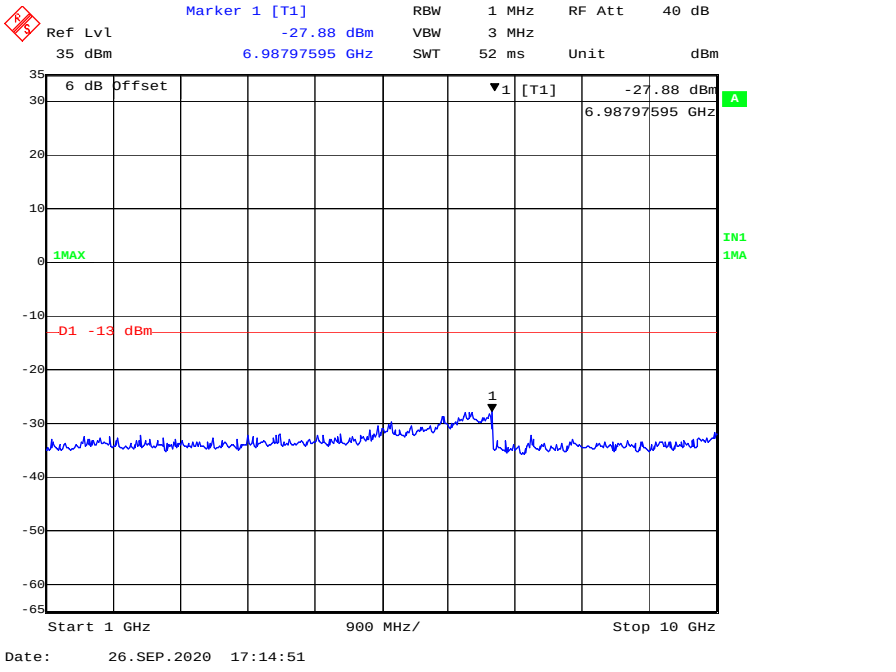
1 GHz – 10 GHz (QPSK, 5.0MHz, High Channel)



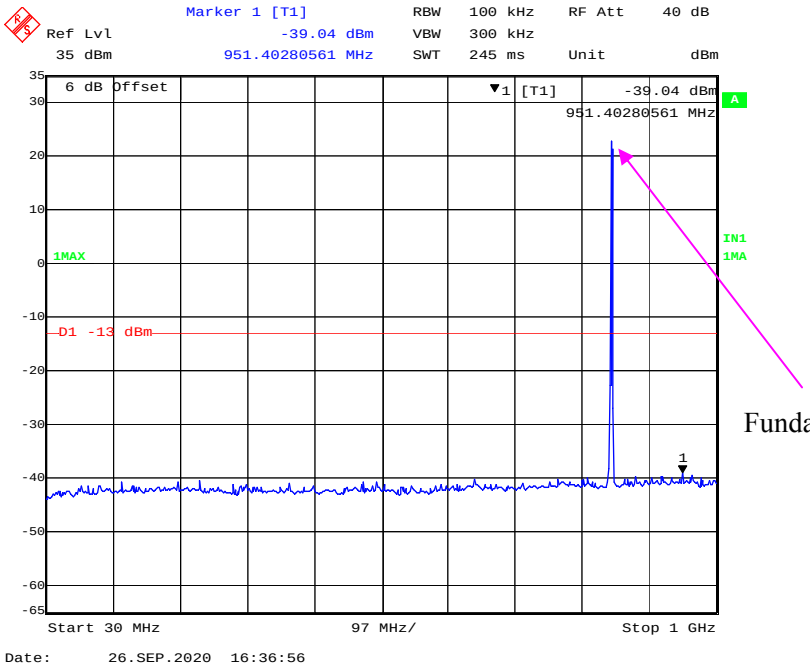
30 MHz - 1 GHz (QPSK, 10.0 MHz, High Channel)



1 GHz – 10 GHz (QPSK, 10.0 MHz, High Channel)



30 MHz - 1 GHz (16QAM, 1.4 MHz, High Channel)



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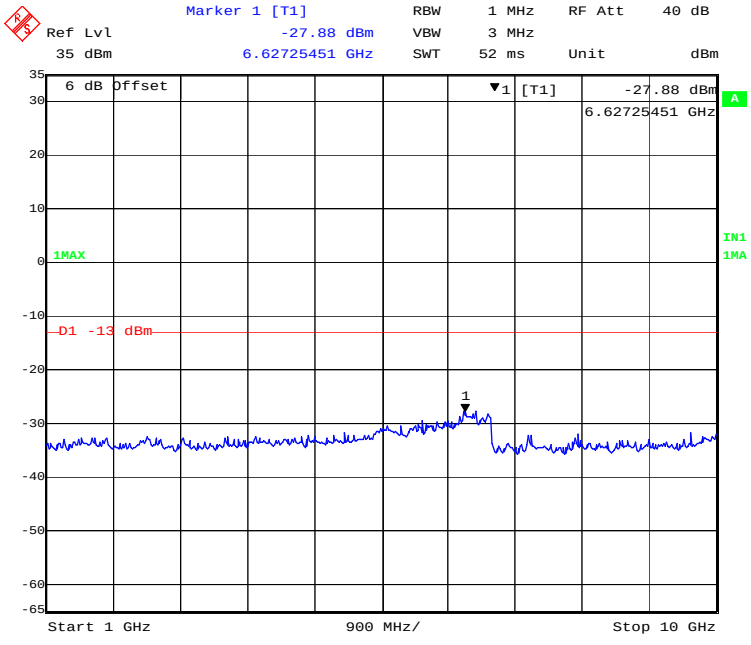
1 GHz – 10 GHz (16QAM, 1.4 MHz, High Channel)



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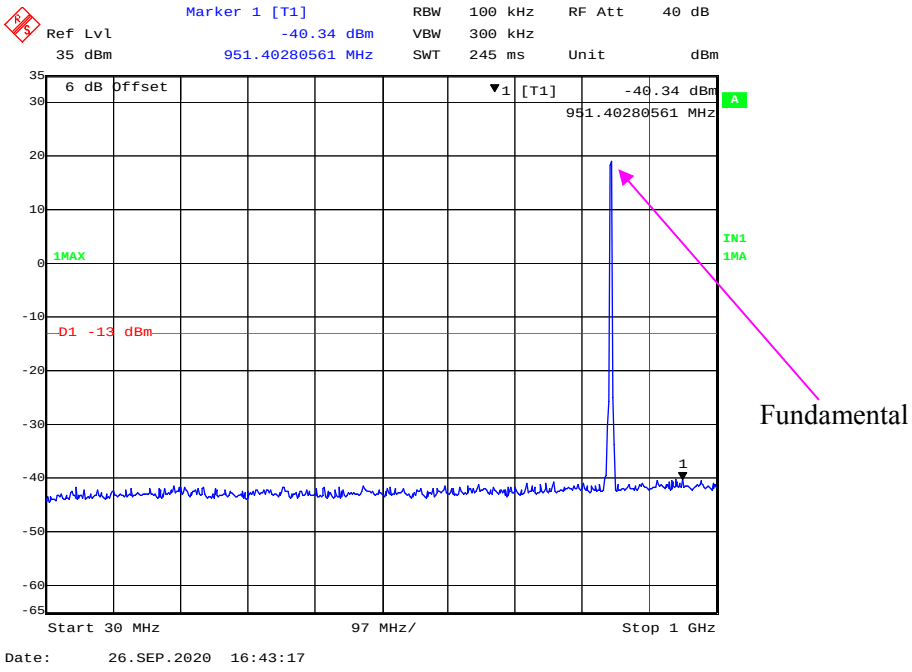
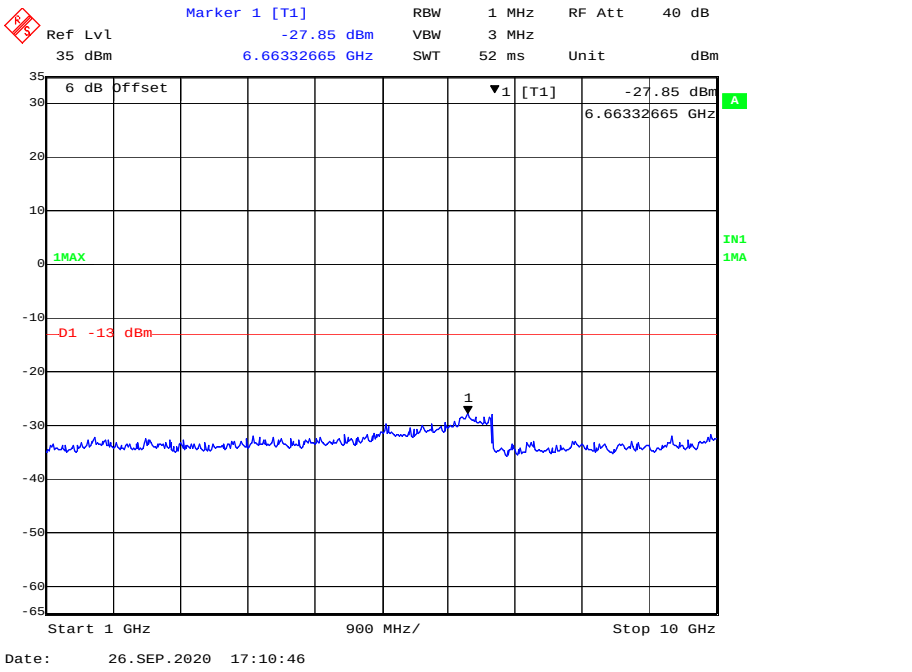
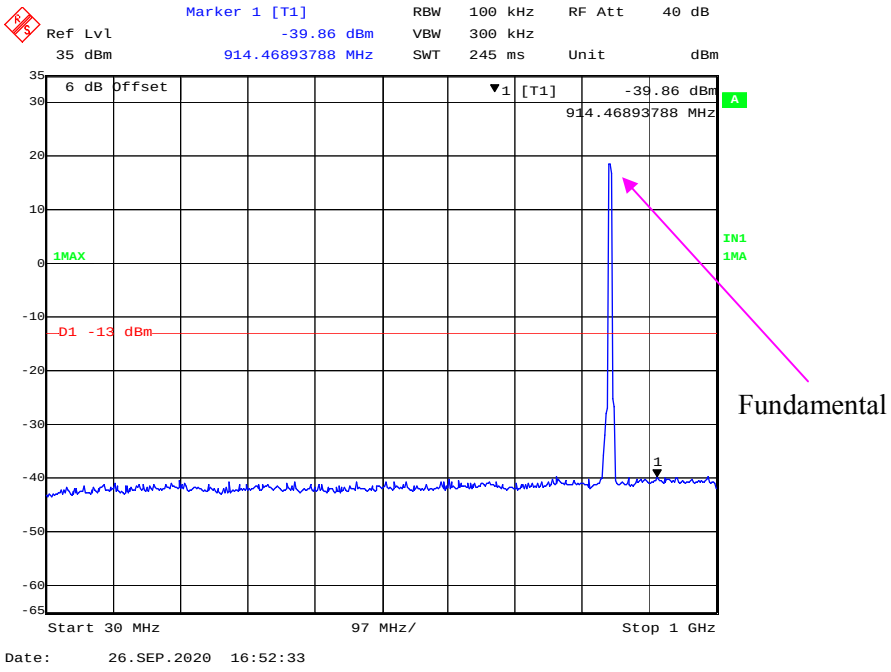
30 MHz - 1 GHz (16QAM, 3.0 MHz, High Channel)



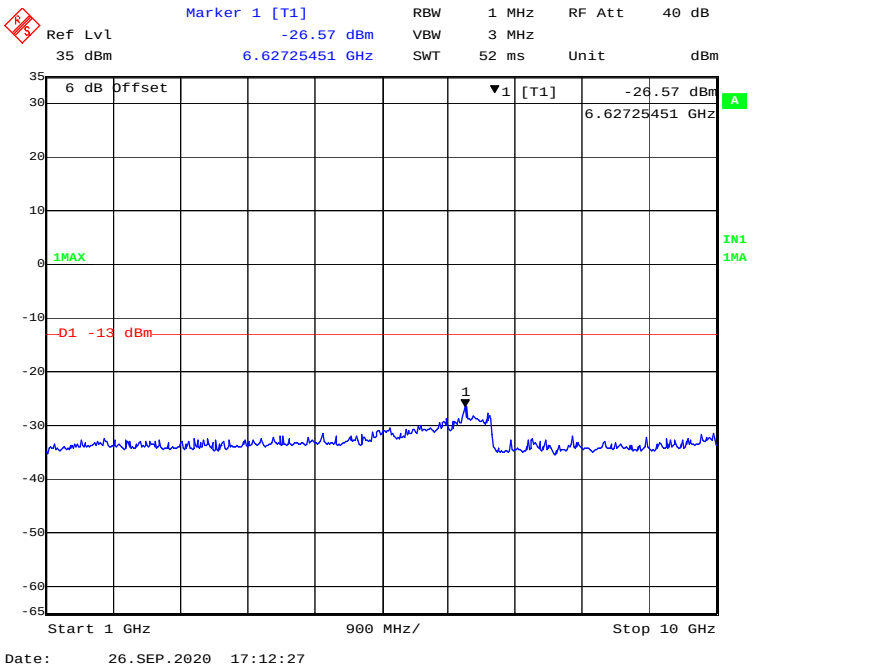
1 GHz – 10 GHz (16QAM, 3.0 MHz, High Channel)



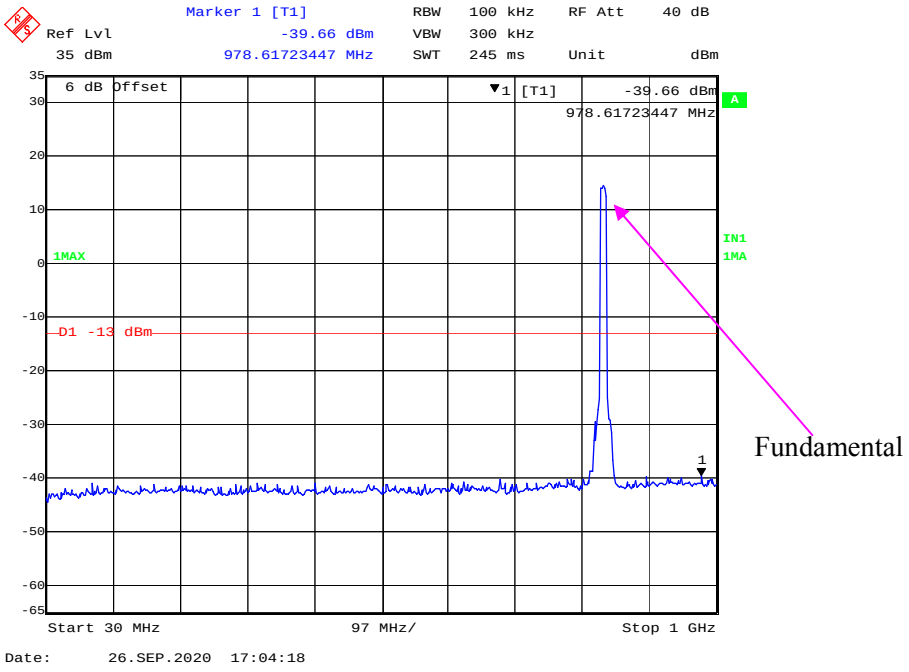
30 MHz - 1 GHz (16QAM, 5.0 MHz, High Channel)



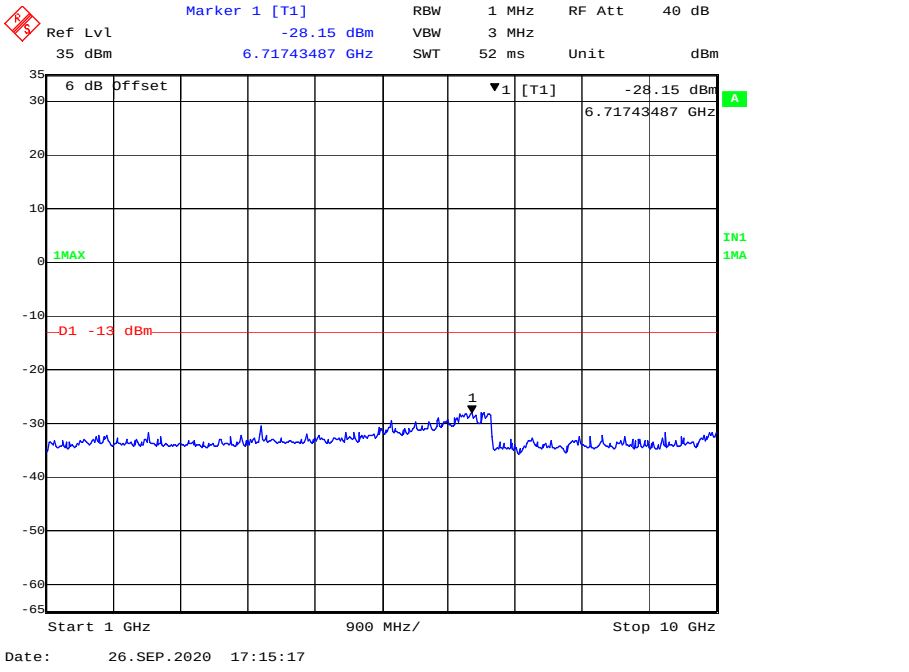
1 GHz – 10 GHz (16QAM, 5.0MHz, High Channel)



30 MHz - 1 GHz (16QAM, 10.0 MHz, High Channel)

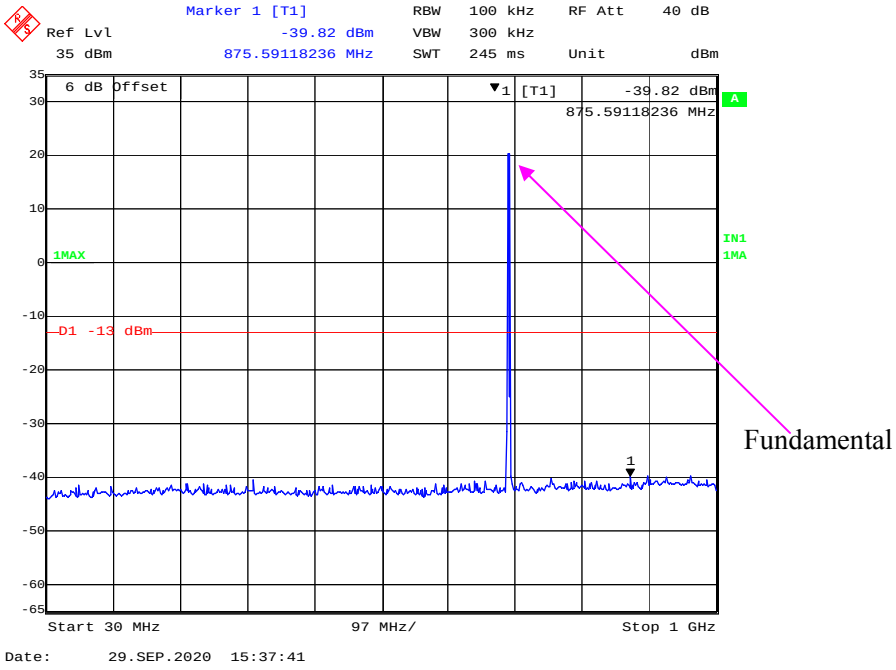


1 GHz – 10 GHz (16QAM, 10.0 MHz, High Channel)

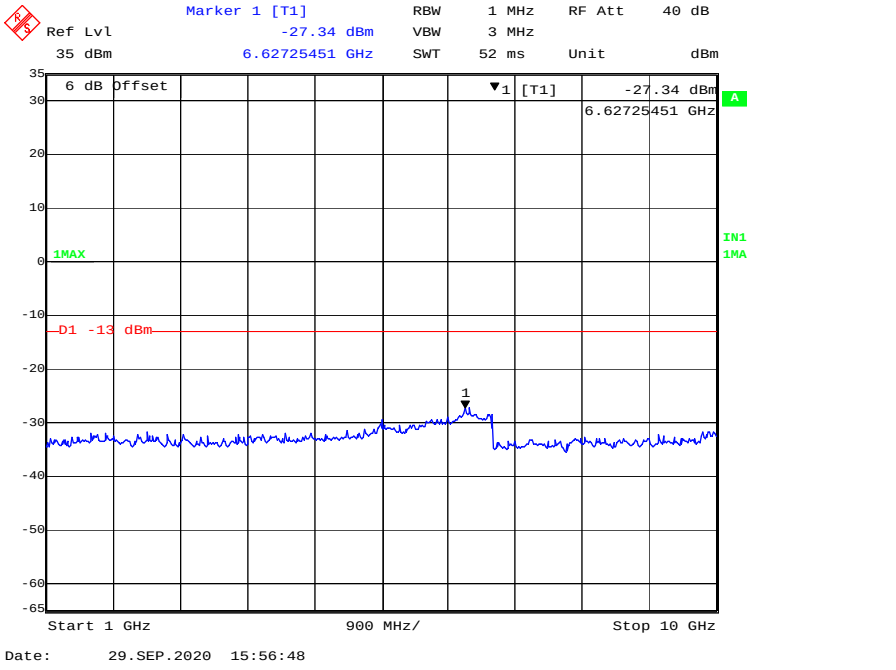


LTE Band 12:

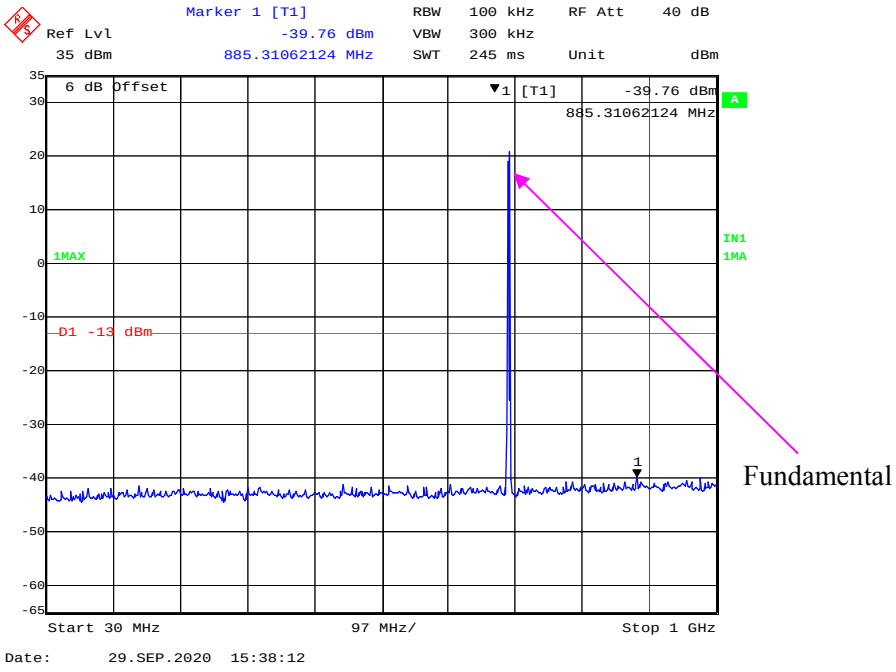
30 MHz - 1 GHz (1.4 MHz, QPSK, Low Channel)



1 GHz – 10 GHz (1.4 MHz, QPSK, Low Channel)



30 MHz - 1 GHz (1.4 MHz, 16-QAM, Low Channel)



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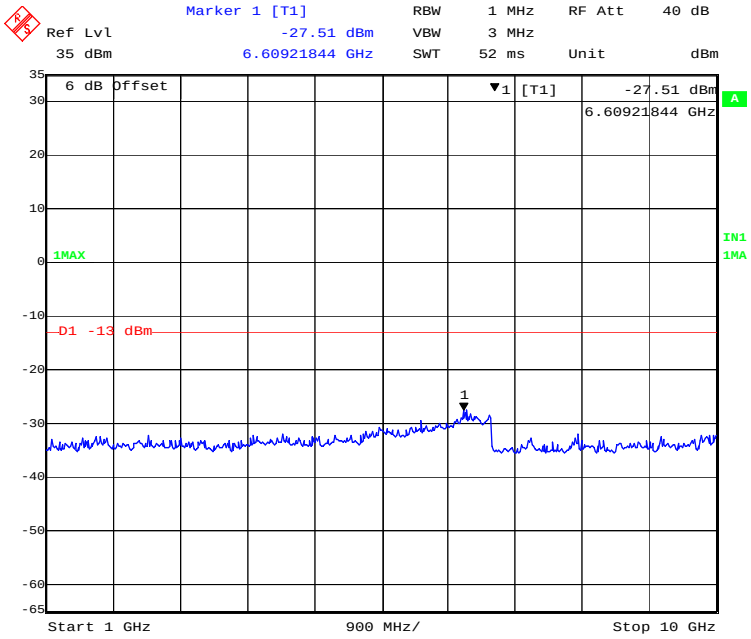
1 GHz – 10 GHz (1.4 MHz, 16-QAM, Low Channel)



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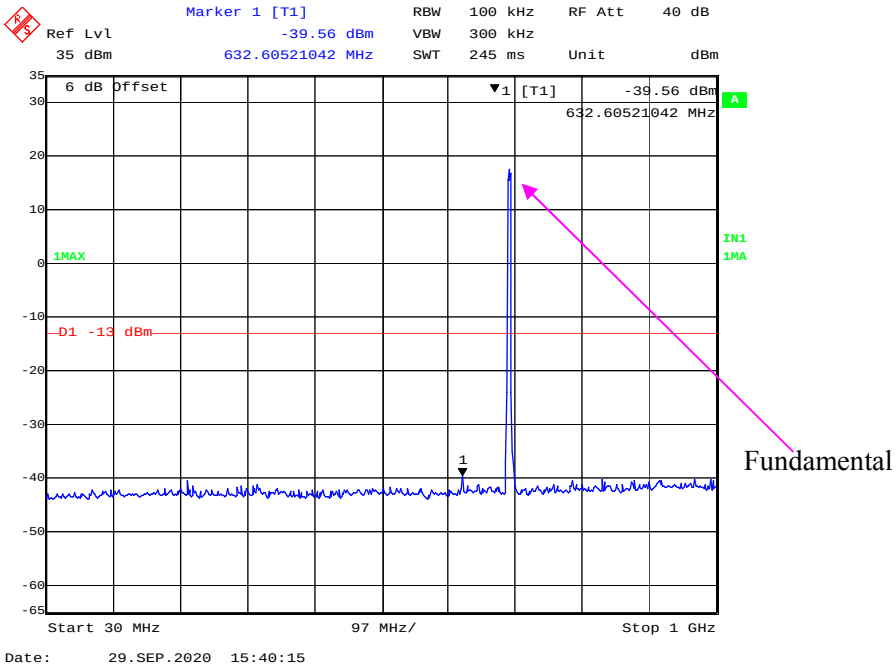
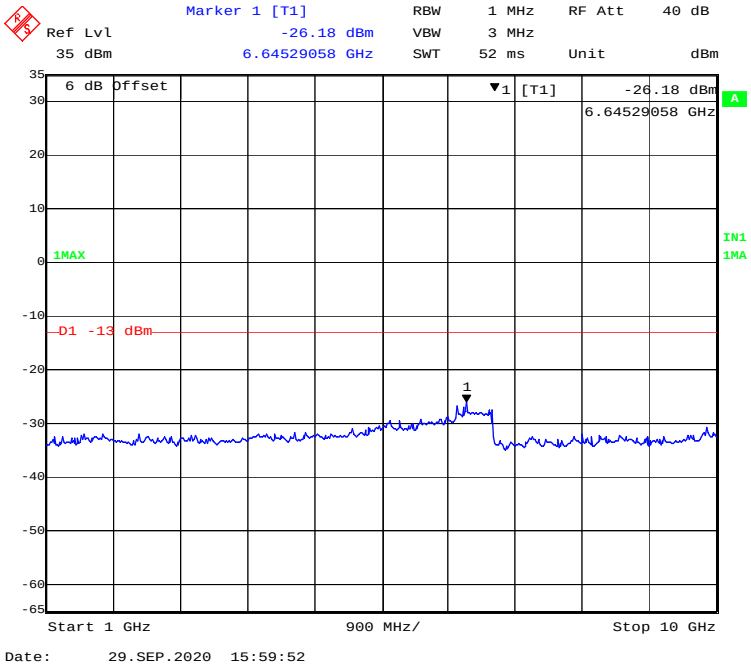
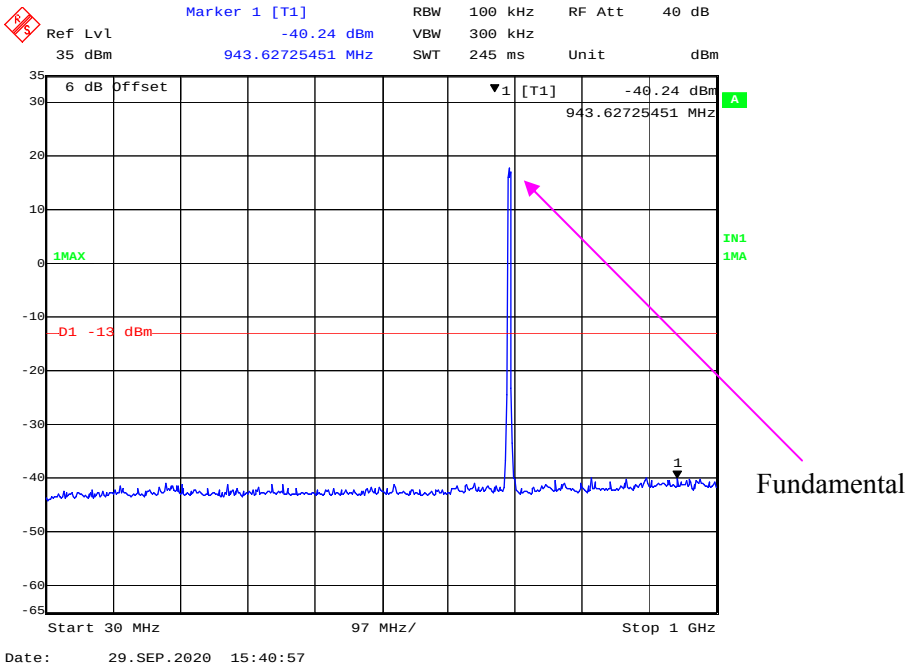
30 MHz - 1 GHz (3 MHz, QPSK, Low Channel)



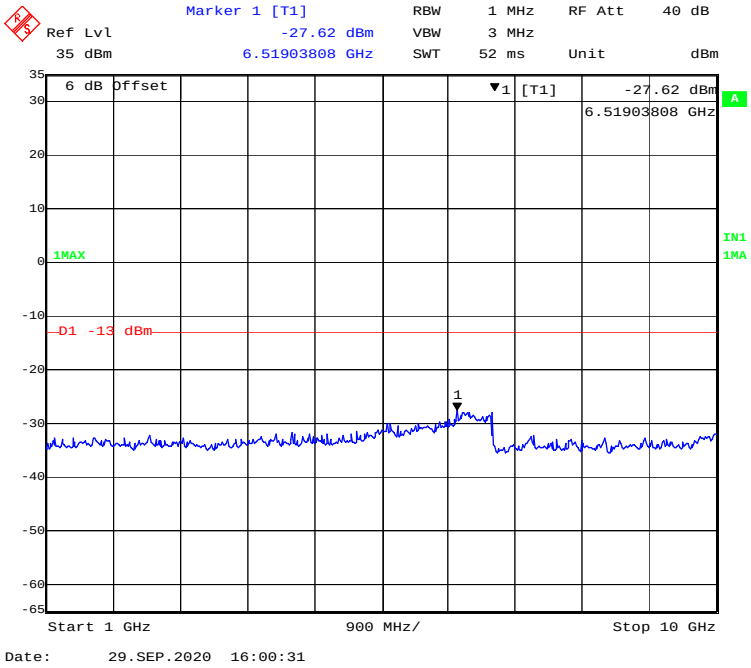
1 GHz – 10 GHz (3 MHz, QPSK, Low Channel)



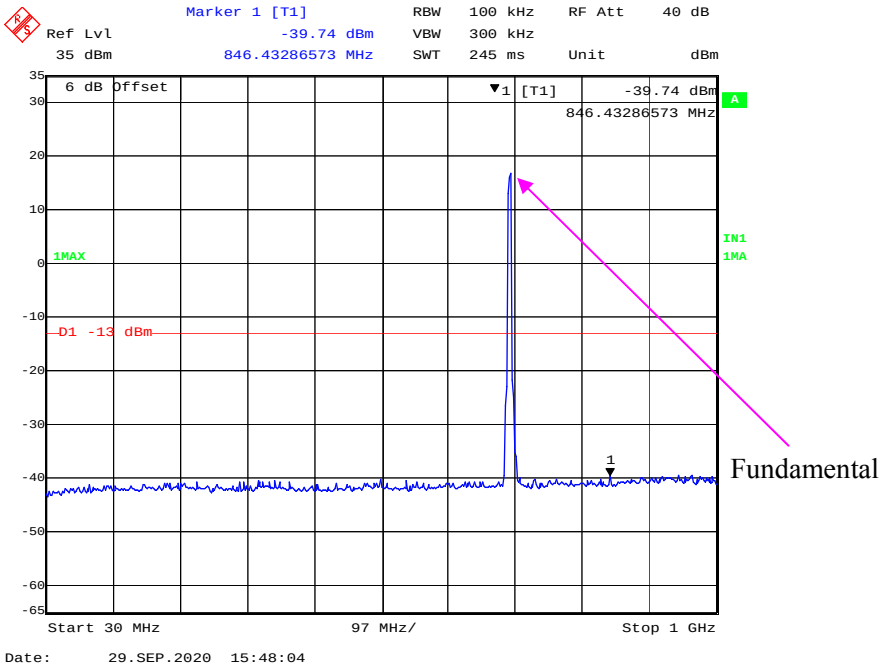
30 MHz - 1 GHz (3 MHz, 16-QAM, Low Channel)



1 GHz – 10 GHz (3 MHz, 16-QAM, Low Channel)



30 MHz - 1 GHz (5 MHz, QPSK, Low Channel)



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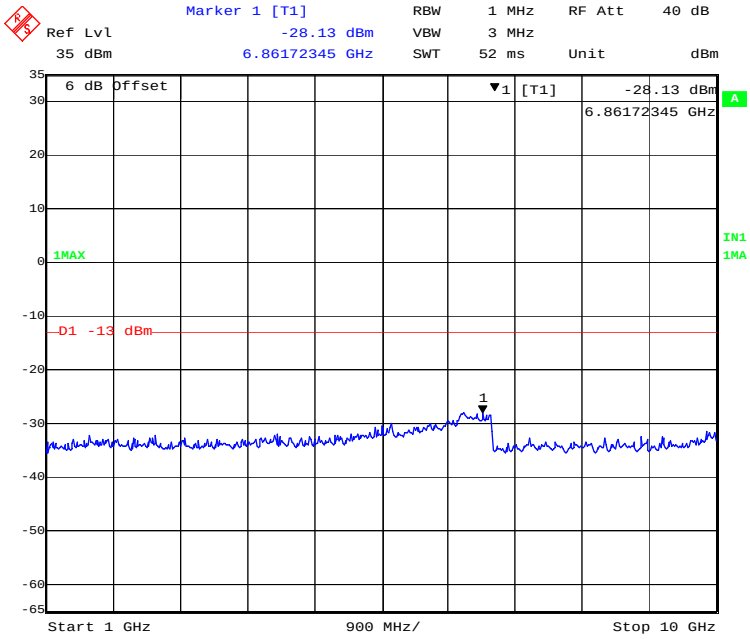
1 GHz – 10 GHz (5 MHz, QPSK, Low Channel)



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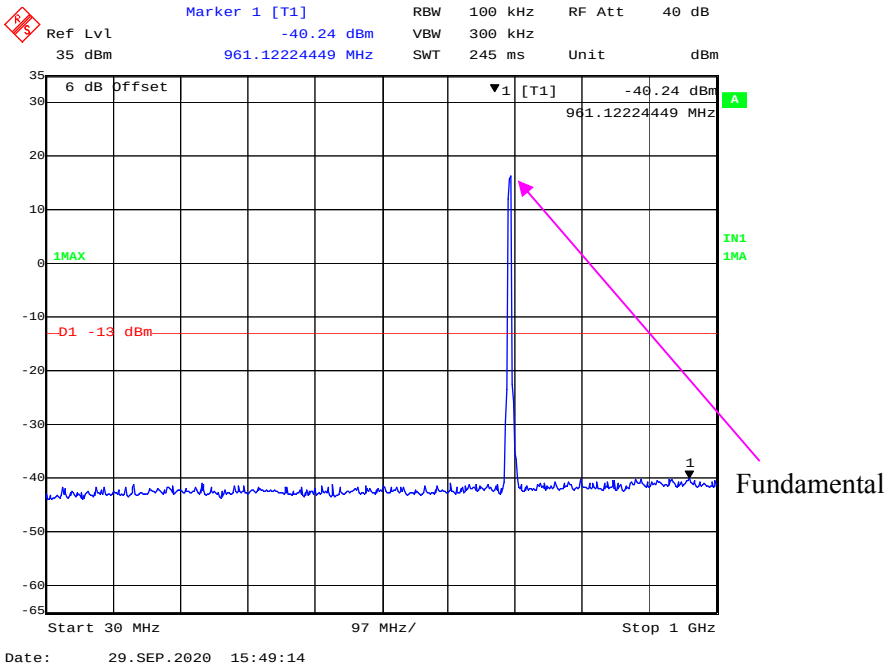
30 MHz - 1 GHz (5 MHz, 16-QAM, Low Channel)



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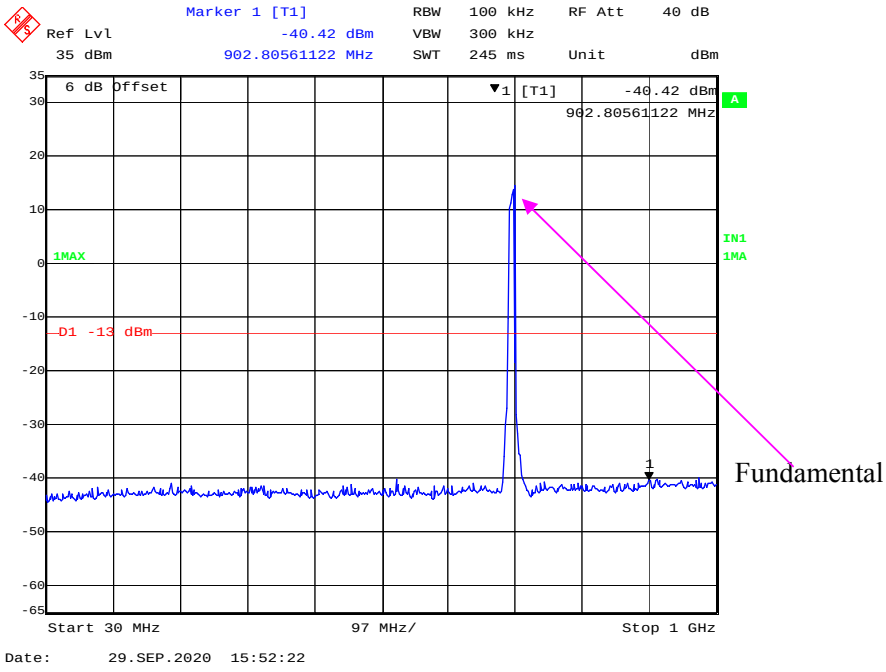
1 GHz – 10 GHz (5 MHz, 16-QAM, Low Channel)

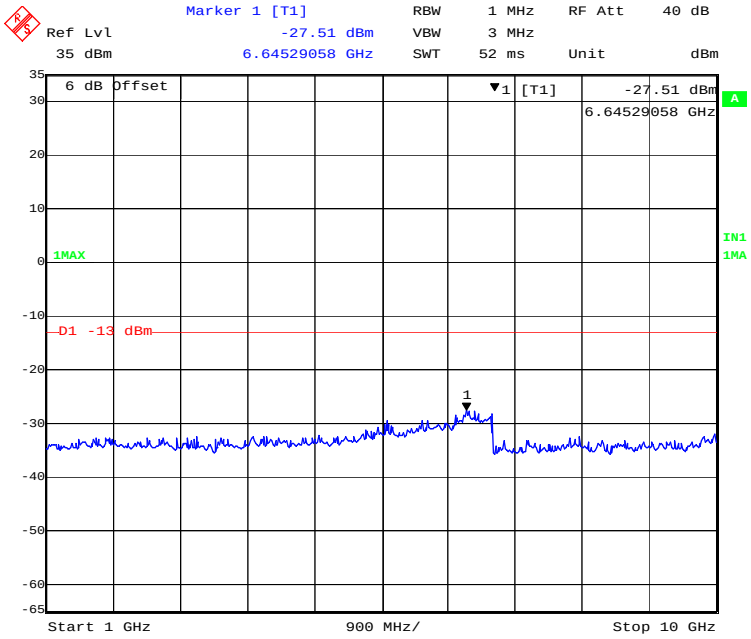
Date: 29.SEP.2020 16:02:15

30 MHz - 1 GHz (10 MHz, QPSK, Low Channel)



Date: 29.SEP.2020 15:52:22

1 GHz – 10 GHz (10 MHz, QPSK, Low Channel)



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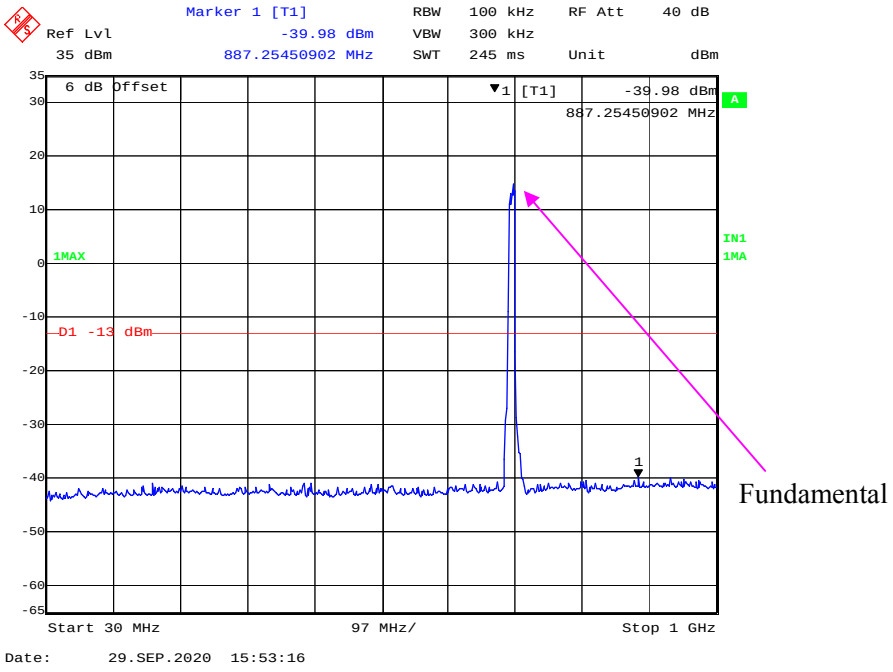
30 MHz - 1 GHz (10 MHz, 16-QAM, Low Channel)



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1 GHz – 10 GHz (10 MHz, 16-QAM, Low Channel)

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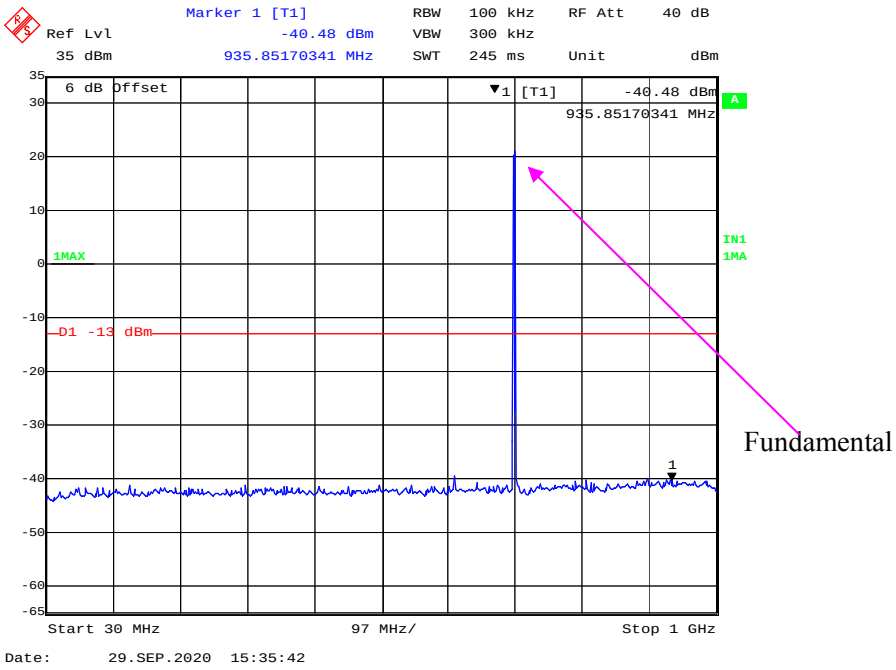
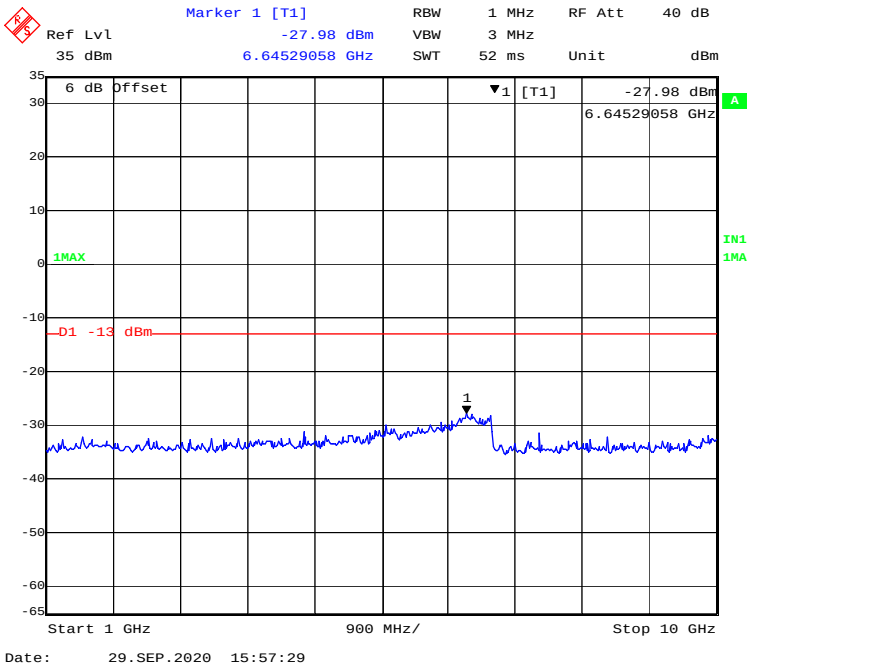
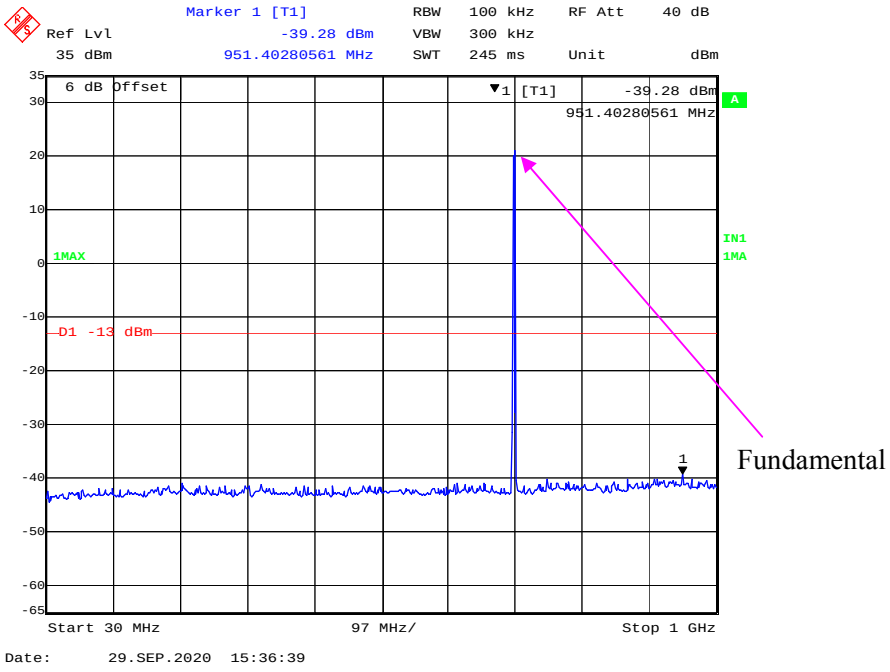
30 MHz - 1 GHz (1.4 MHz, QPSK, Middle Channel)



1 GHz – 10 GHz (1.4 MHz, QPSK, Middle Channel)



30 MHz - 1 GHz (1.4 MHz, 16-QAM, Middle Channel)



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1 GHz – 10 GHz (1.4 MHz, 16-QAM, Middle Channel)

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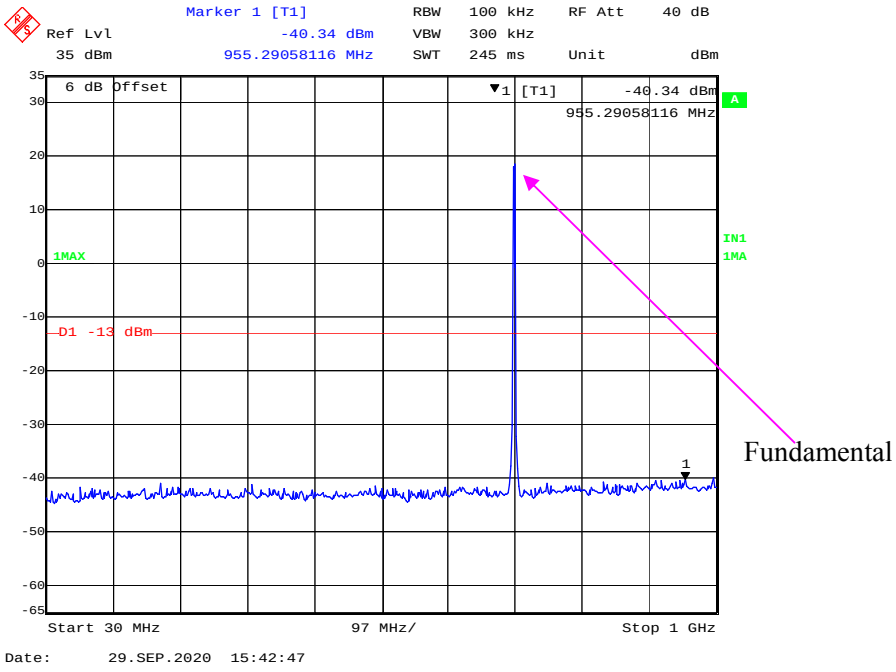
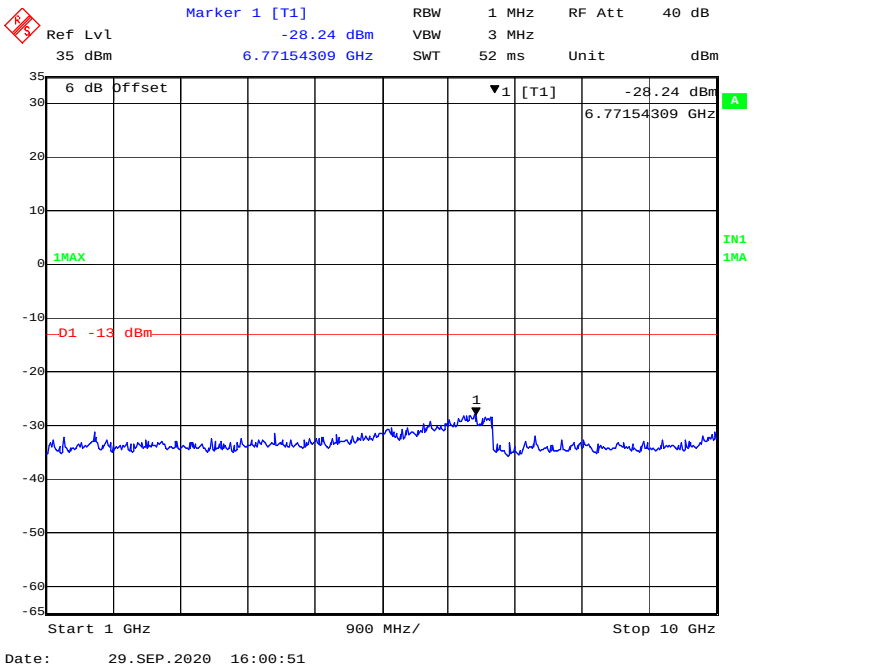
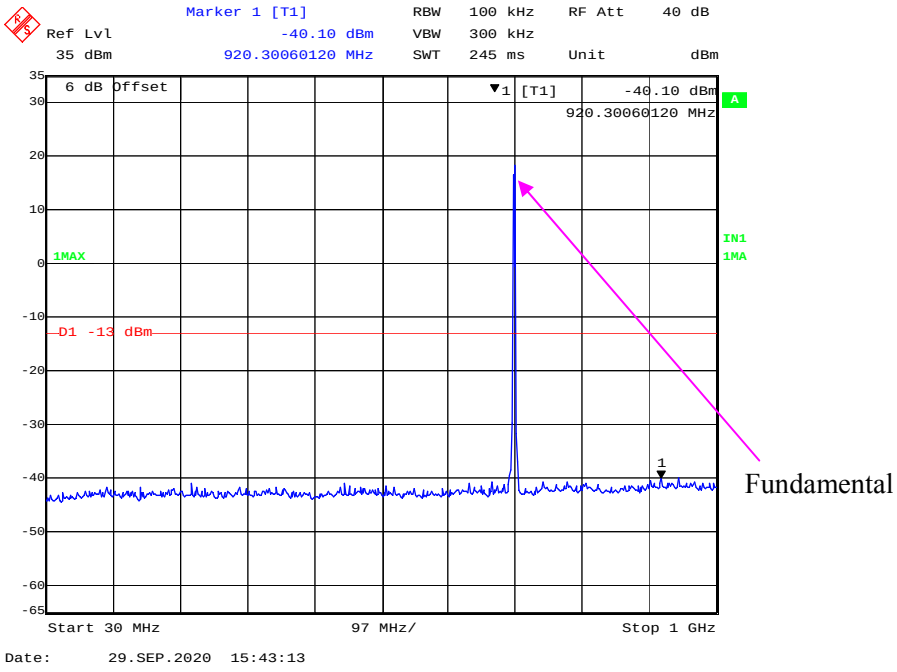
30 MHz - 1 GHz (3 MHz, QPSK, Middle Channel)



1 GHz – 10 GHz (3 MHz, QPSK, Middle Channel)



30 MHz - 1 GHz (3 MHz, 16-QAM, Middle Channel)



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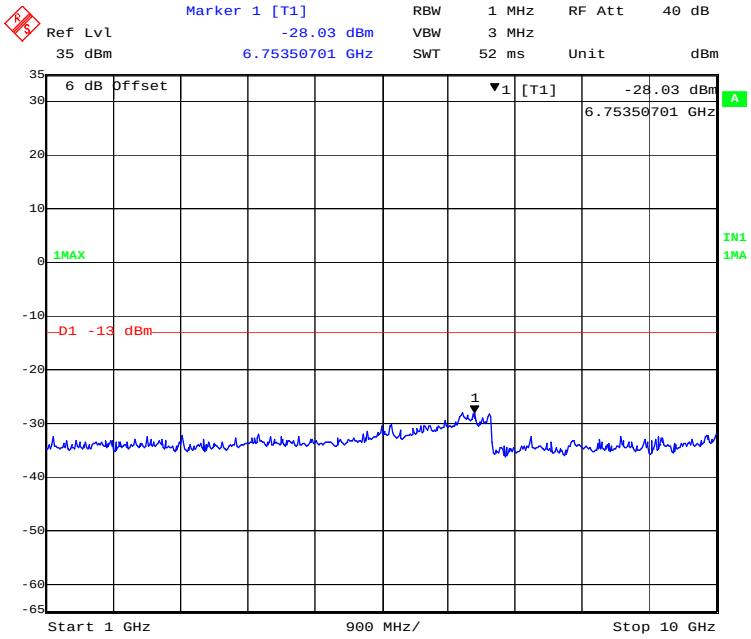
1 GHz – 10 GHz (3 MHz, 16-QAM, Middle Channel)



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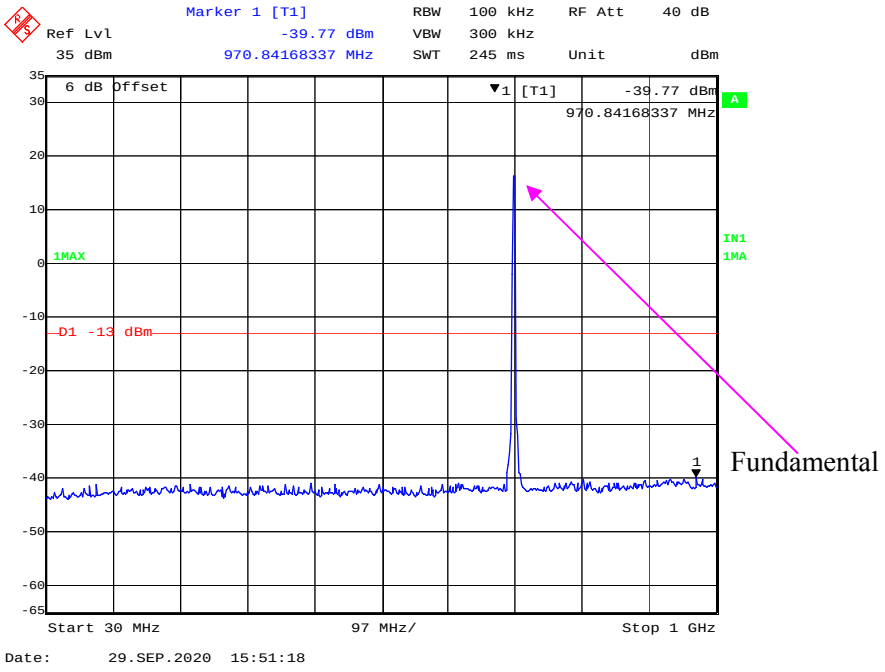
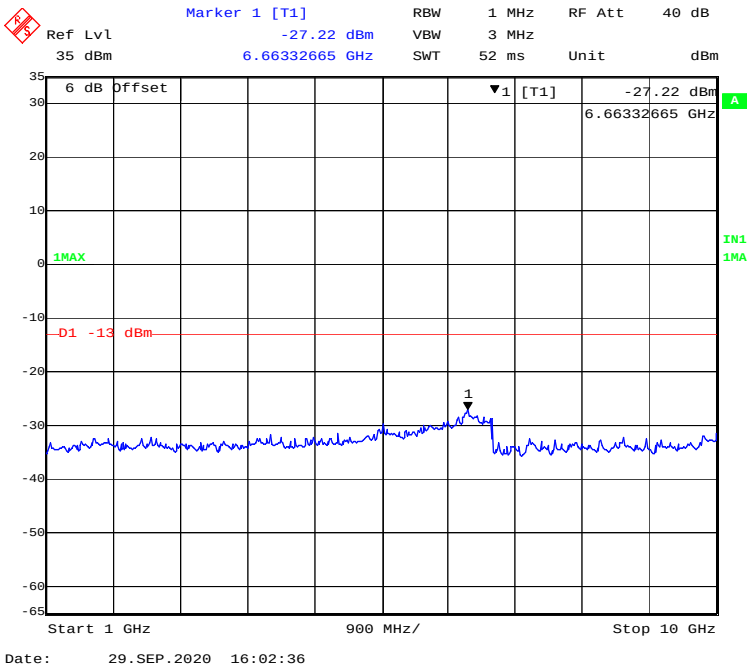
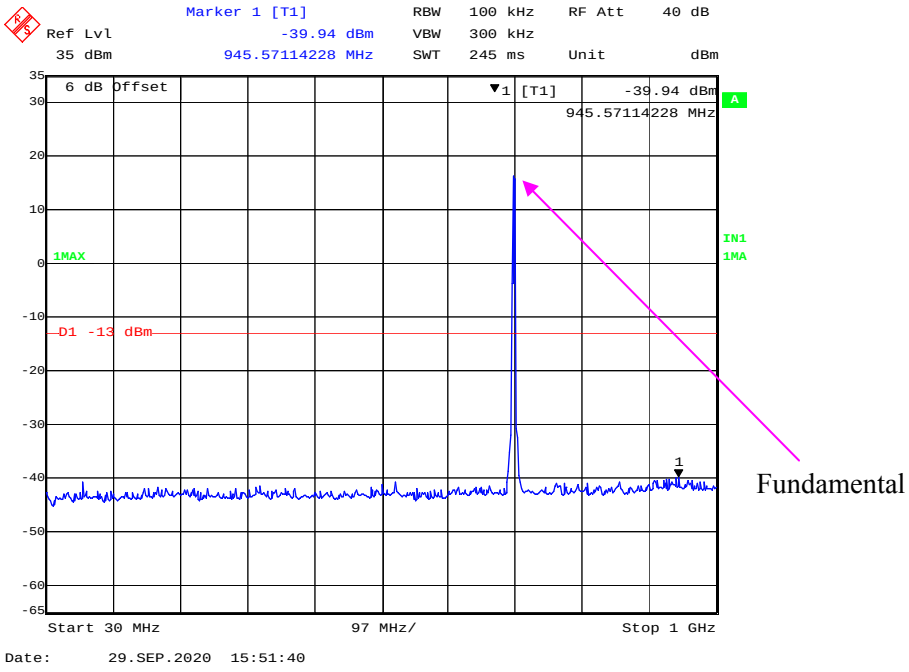
30 MHz - 1 GHz (5 MHz, QPSK, Middle Channel)



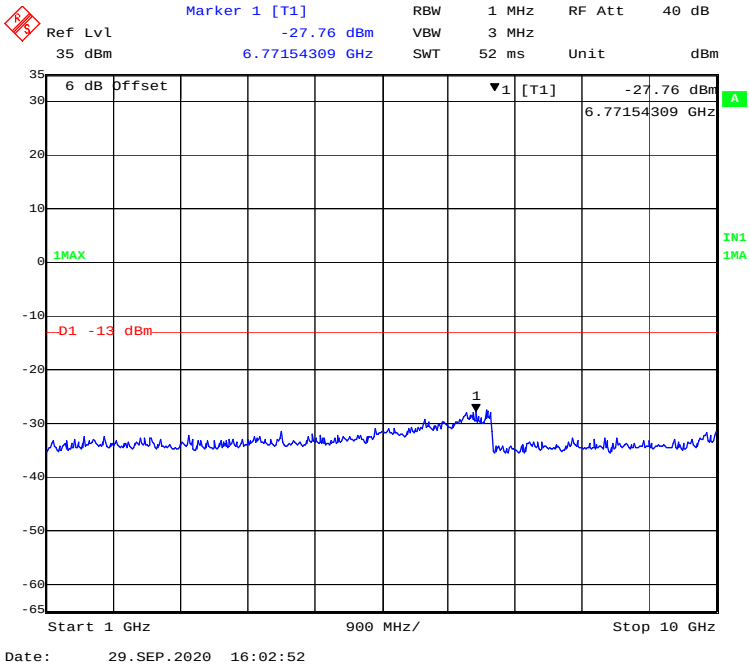
1 GHz – 10 GHz (5 MHz, QPSK, Middle Channel)



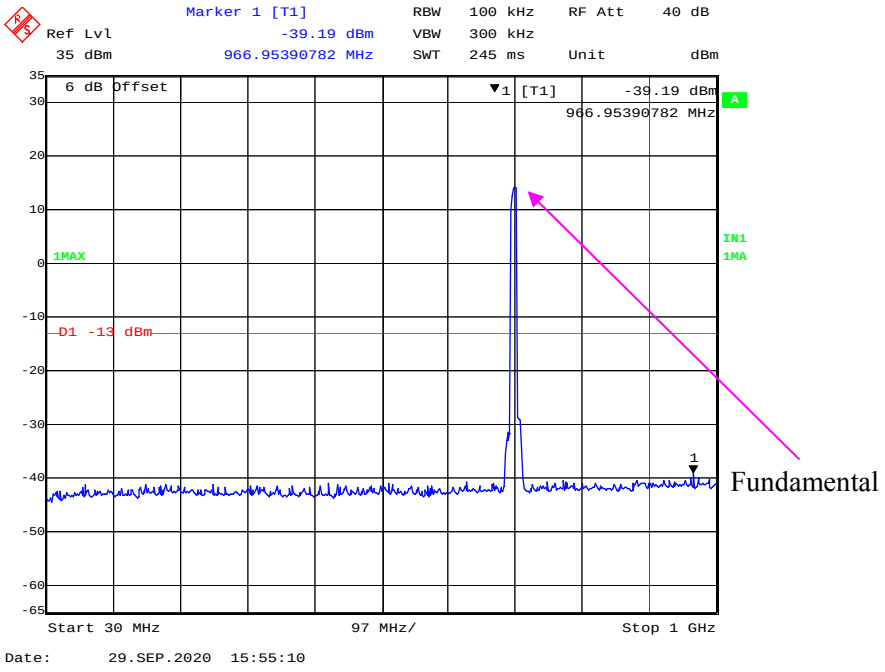
30 MHz - 1 GHz (5 MHz, 16-QAM, Middle Channel)



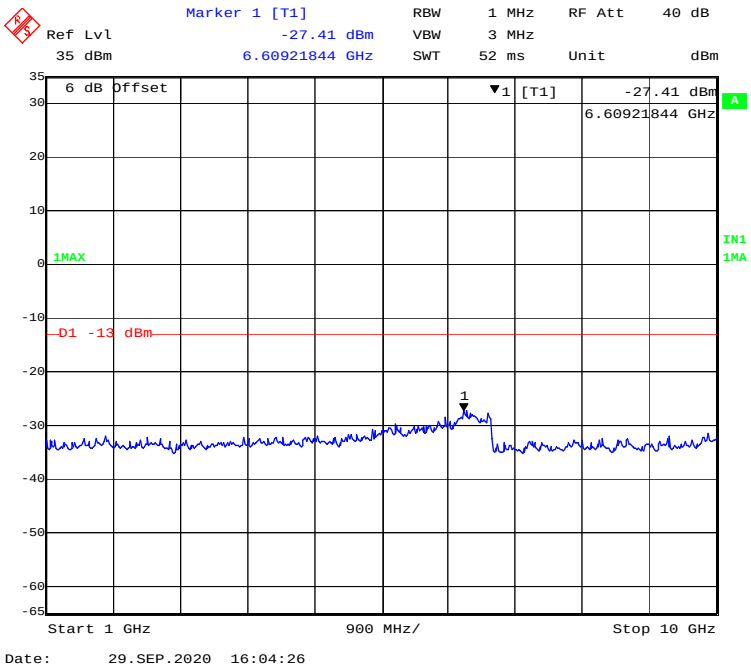
1 GHz – 10 GHz (5 MHz, 16-QAM, Middle Channel)



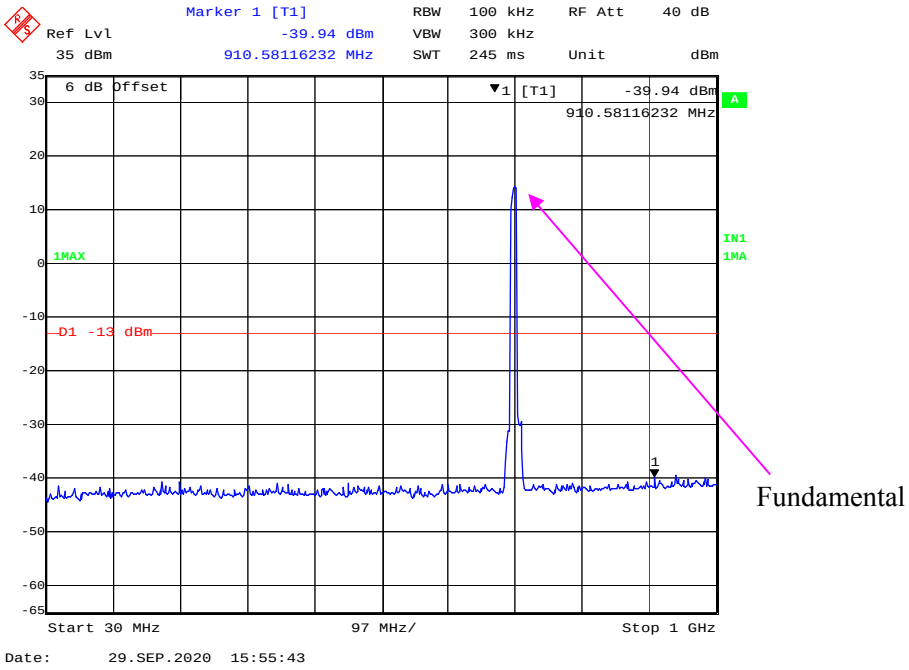
30 MHz - 1 GHz (10 MHz, QPSK, Middle Channel)



1 GHz – 10 GHz (10 MHz, QPSK, Middle Channel)



30 MHz - 1 GHz (10 MHz, 16-QAM, Middle Channel)



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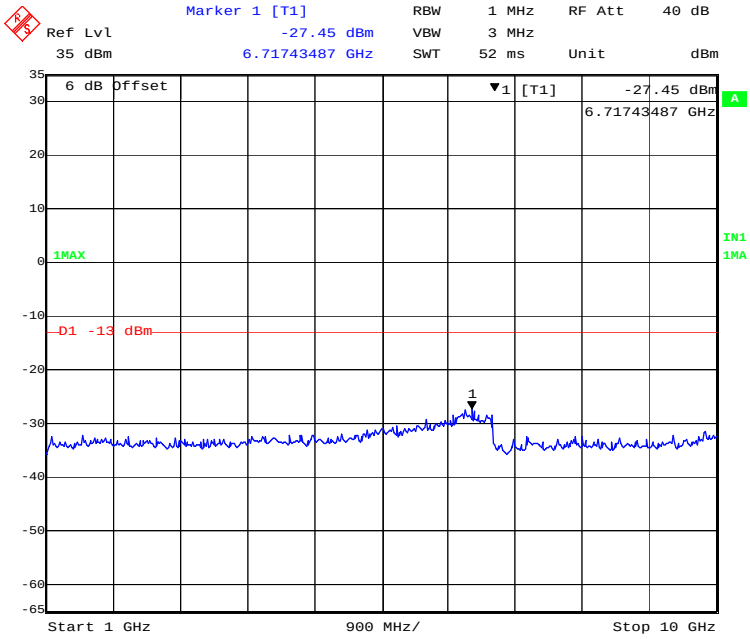
1 GHz – 10 GHz (10 MHz, 16-QAM, Middle Channel)



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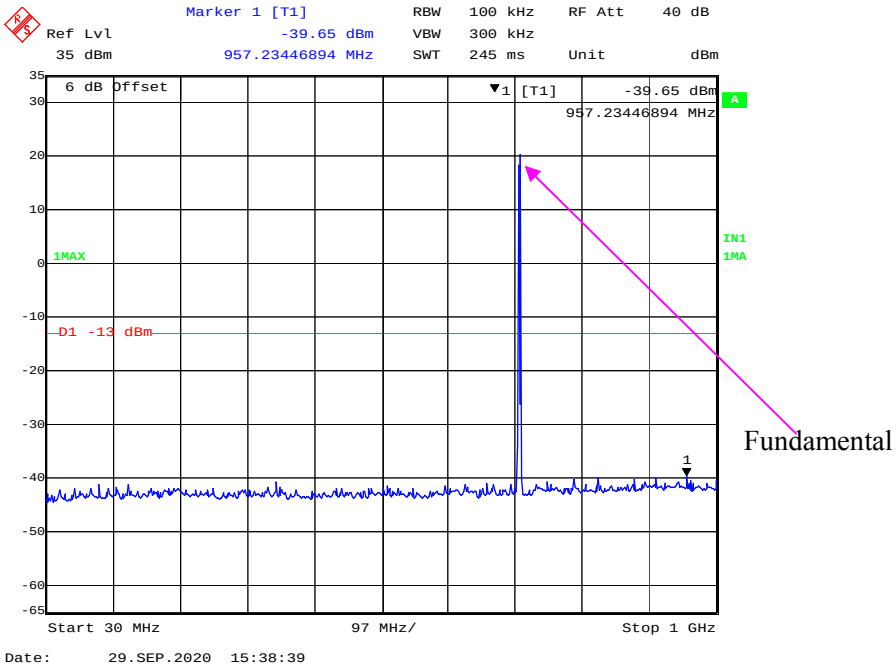
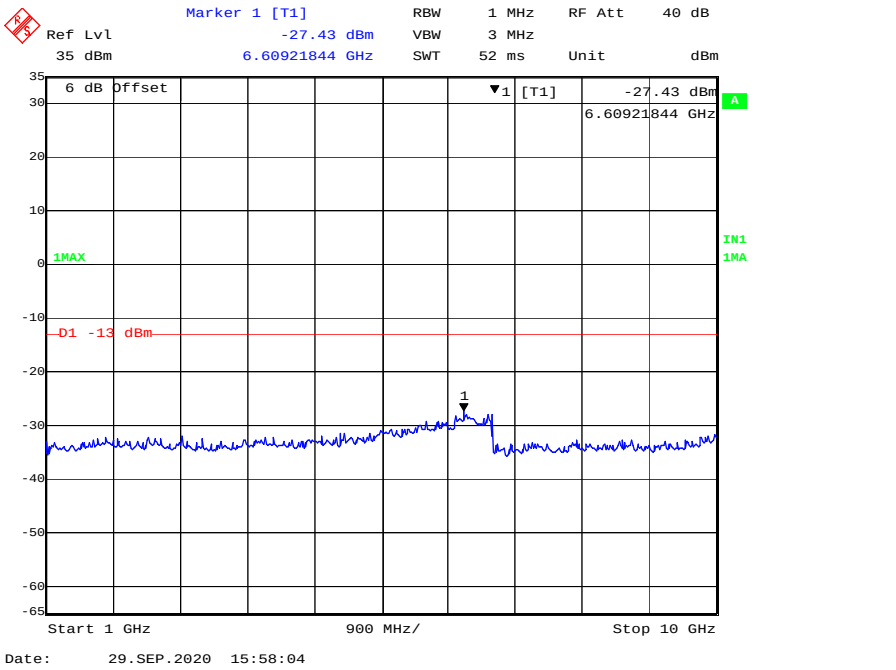
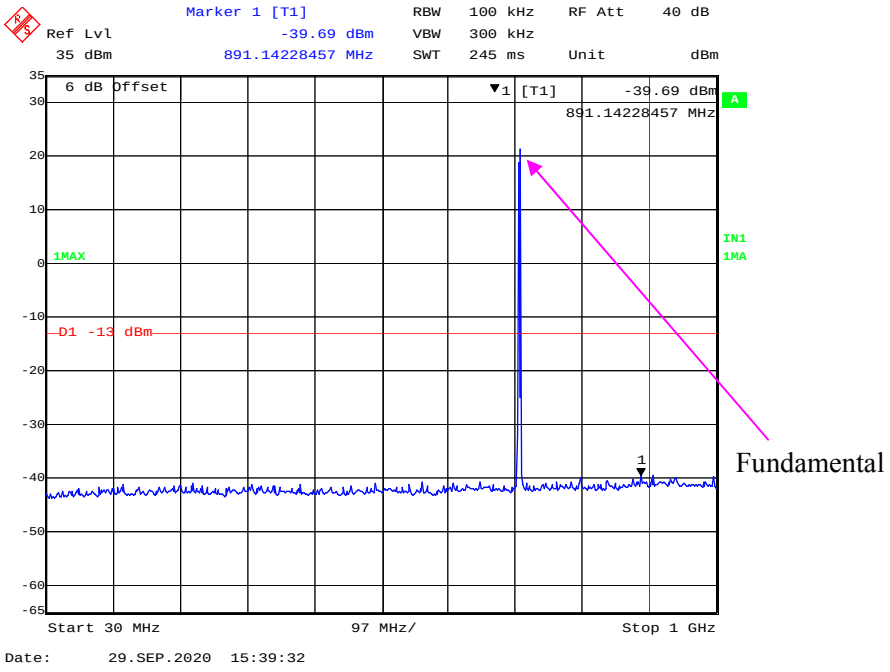
30 MHz - 1 GHz (1.4 MHz, QPSK, High Channel)



1 GHz – 10 GHz (1.4 MHz, QPSK, High Channel)



30 MHz - 1 GHz (1.4 MHz, 16-QAM, High Channel)



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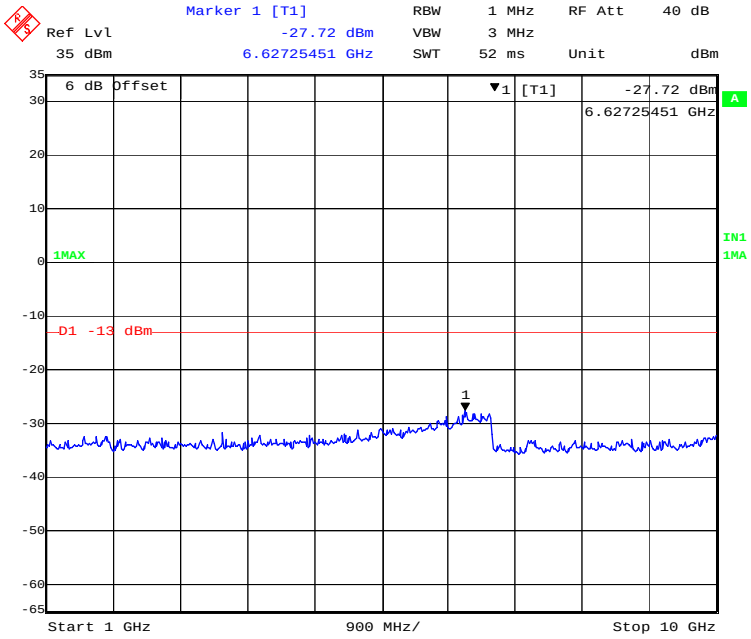
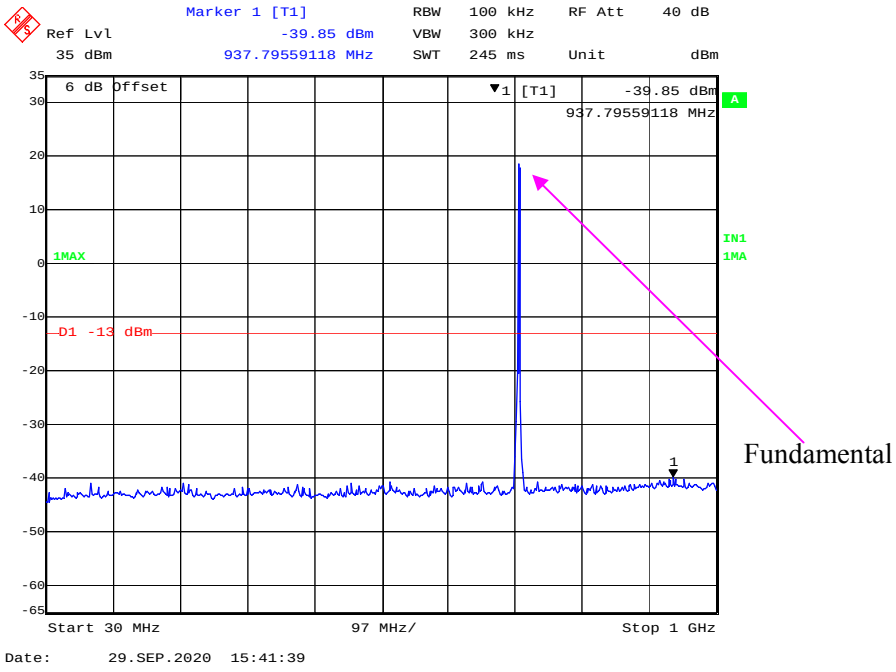
1 GHz – 10 GHz (1.4 MHz, 16-QAM, High Channel)

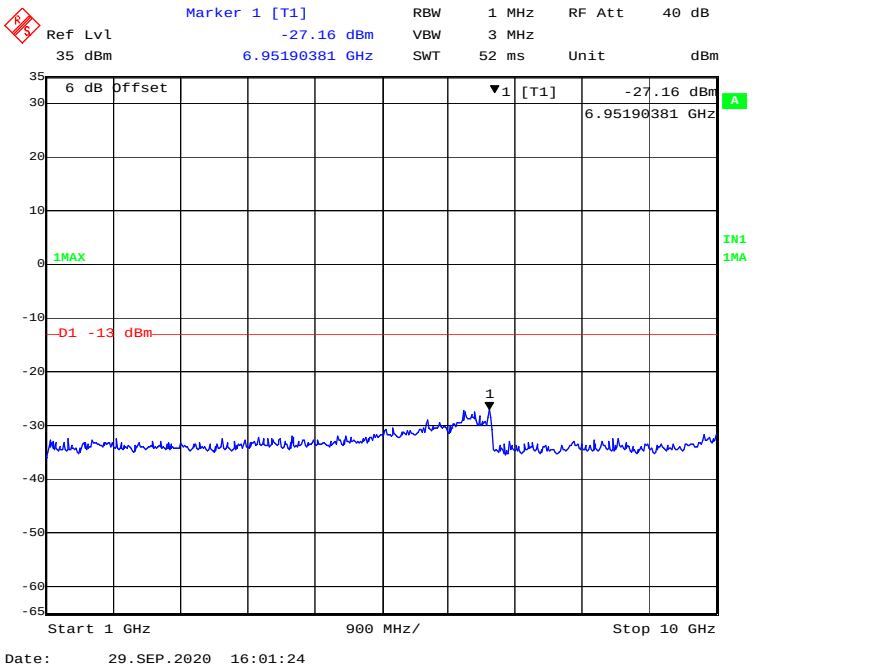


Date: 29.SEP.2020 15:58:20

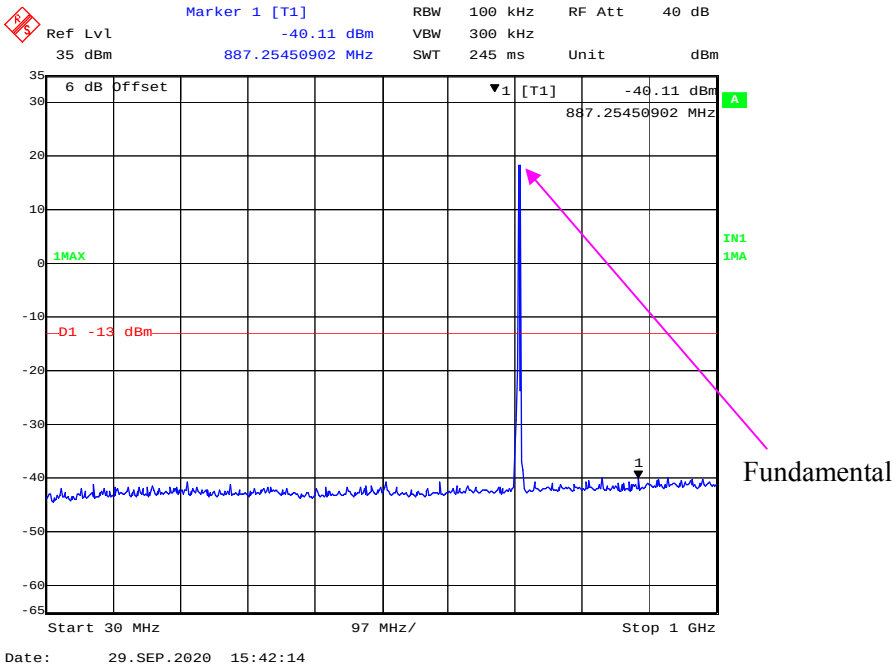
30 MHz - 1 GHz (3 MHz, QPSK, High Channel)



1 GHz – 10 GHz (3 MHz, QPSK, High Channel)



30 MHz - 1 GHz (3 MHz, 16-QAM, High Channel)



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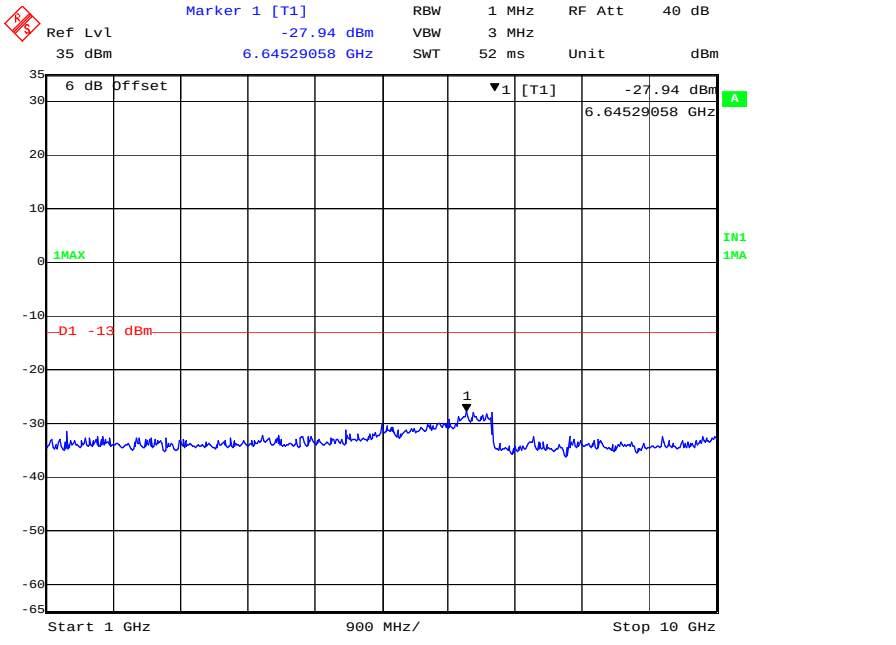
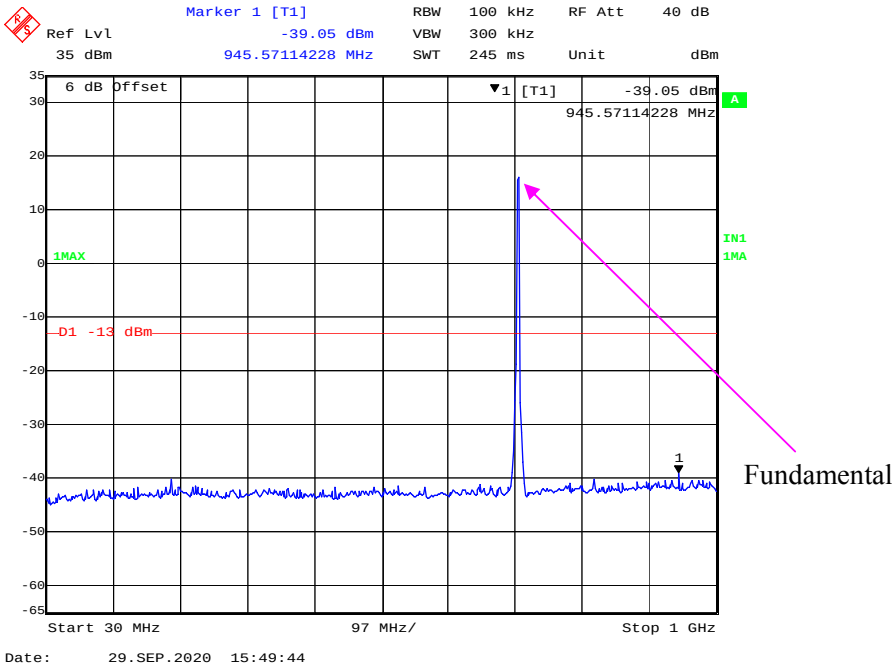
1 GHz – 10 GHz (3 MHz, 16-QAM, High Channel)

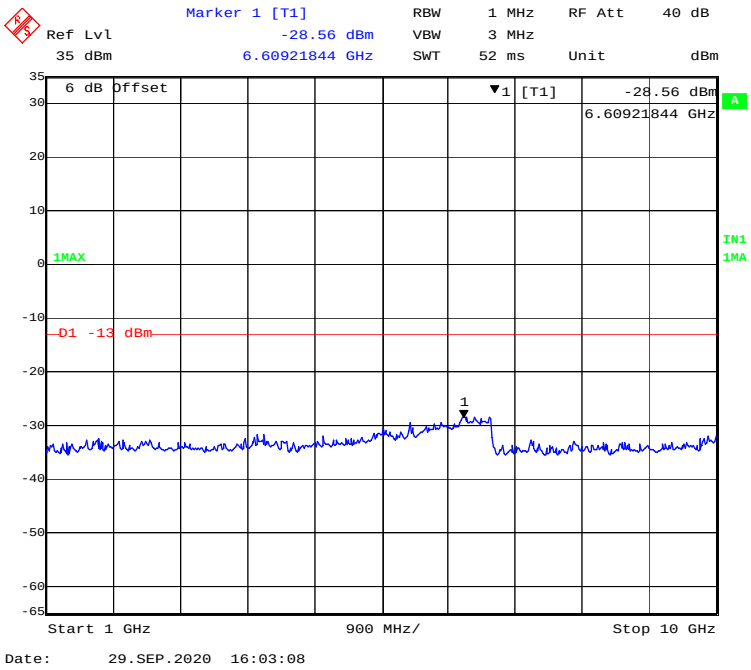


Date: 29.SEP.2020 16:01:40

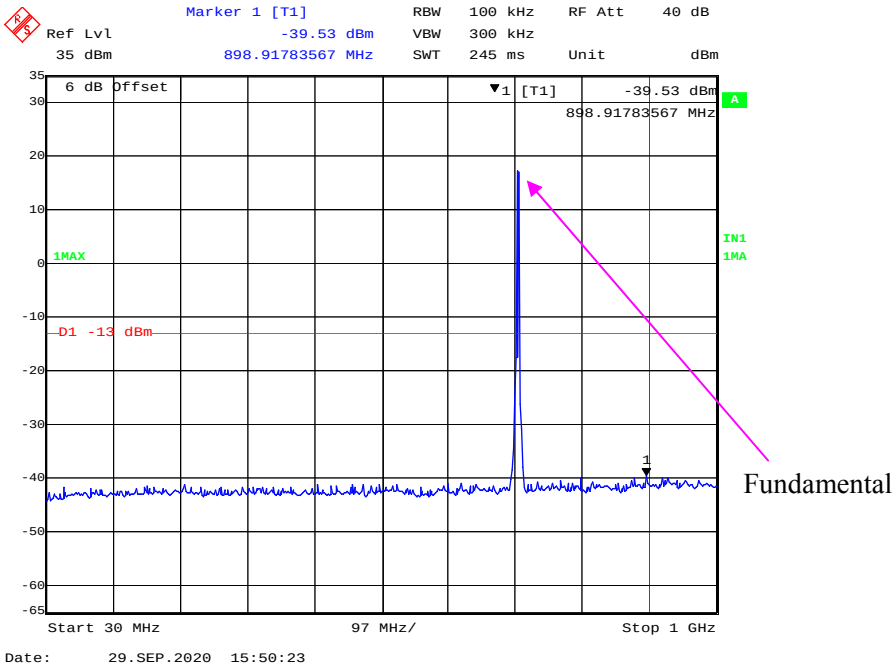
30 MHz - 1 GHz (5 MHz, QPSK, High Channel)



1 GHz – 10 GHz (5 MHz, QPSK, High Channel)



30 MHz - 1 GHz (5 MHz, 16-QAM, High Channel)



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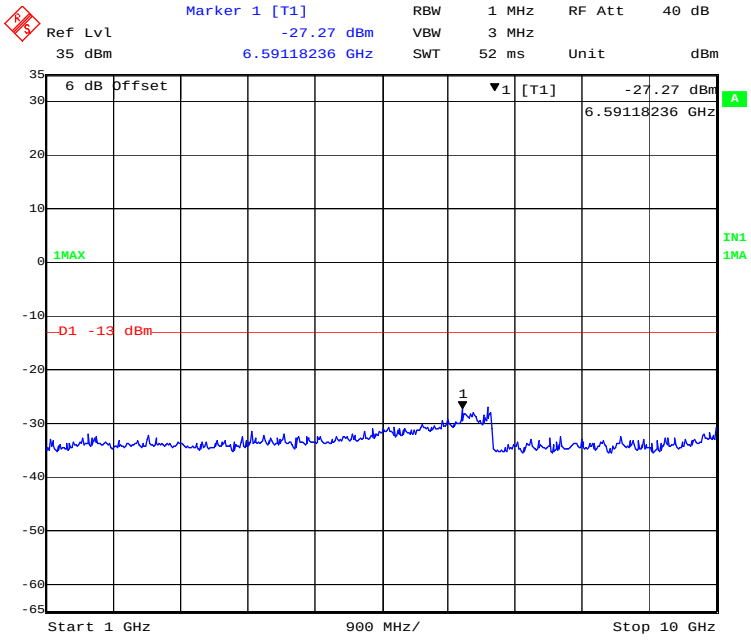
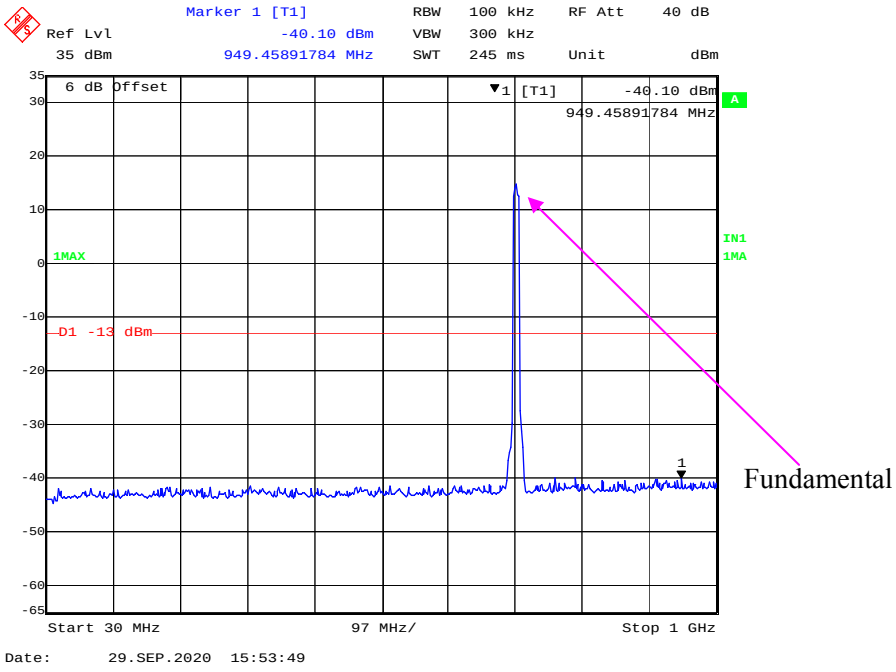
1 GHz – 10 GHz (5 MHz, 16-QAM, High Channel)



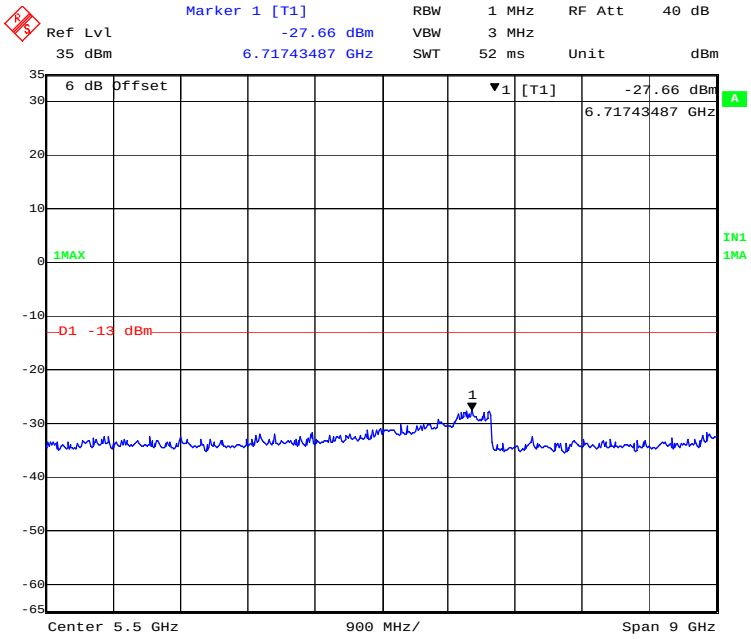
Date: 29.SEP.2020 16:03:27

30 MHz - 1 GHz (10 MHz, QPSK, High Channel)



Date: 29.SEP.2020 15:53:49

1 GHz – 10 GHz (10 MHz, QPSK, High Channel)



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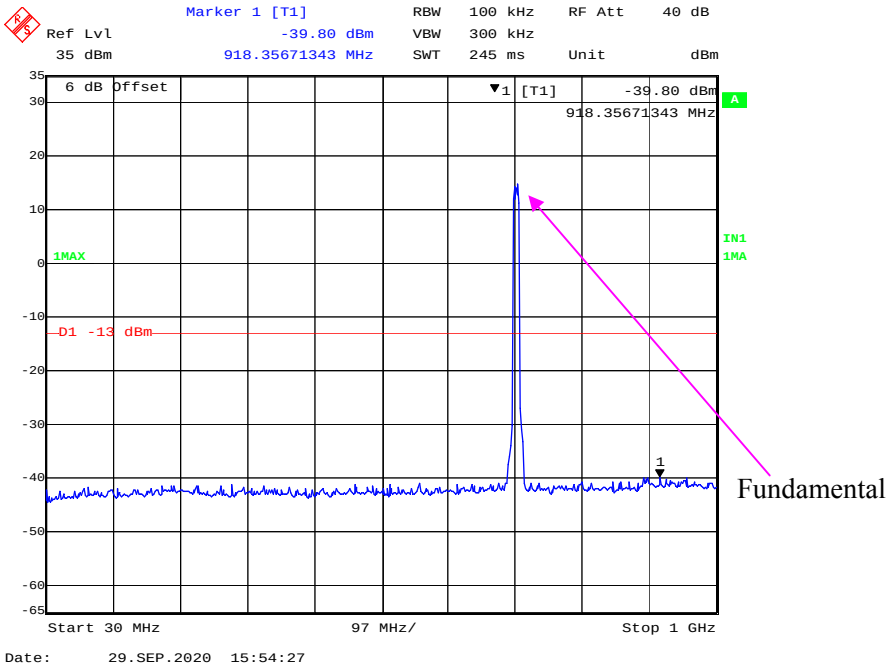
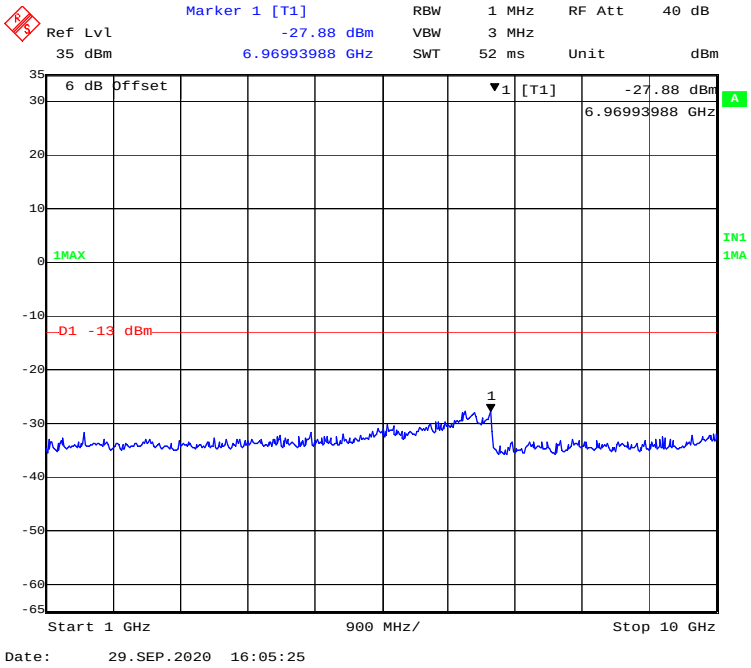
30 MHz - 1 GHz (10 MHz, 16-QAM, High Channel)

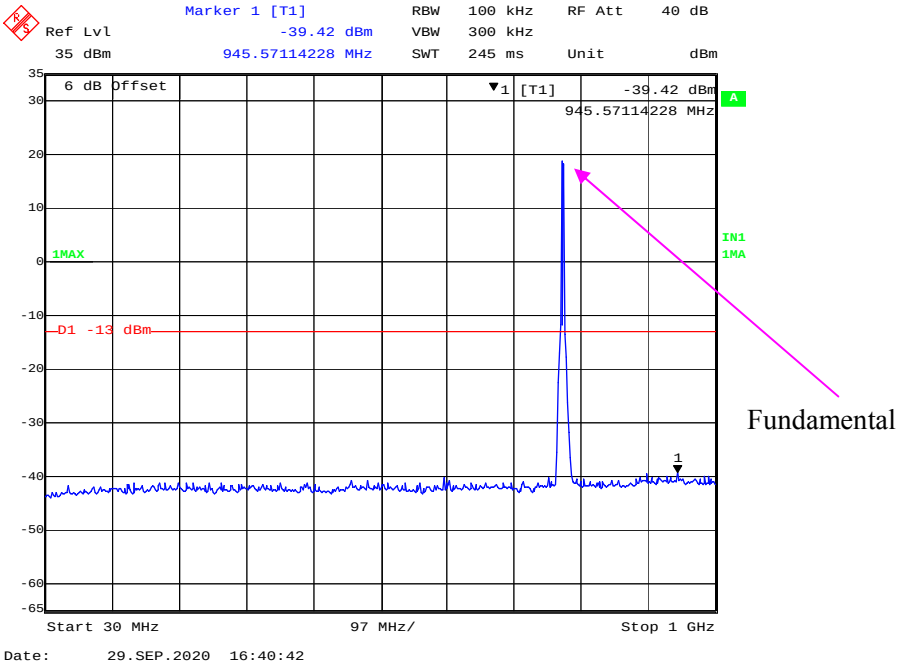


1 GHz – 10 GHz (10 MHz, 16-QAM, High Channel)

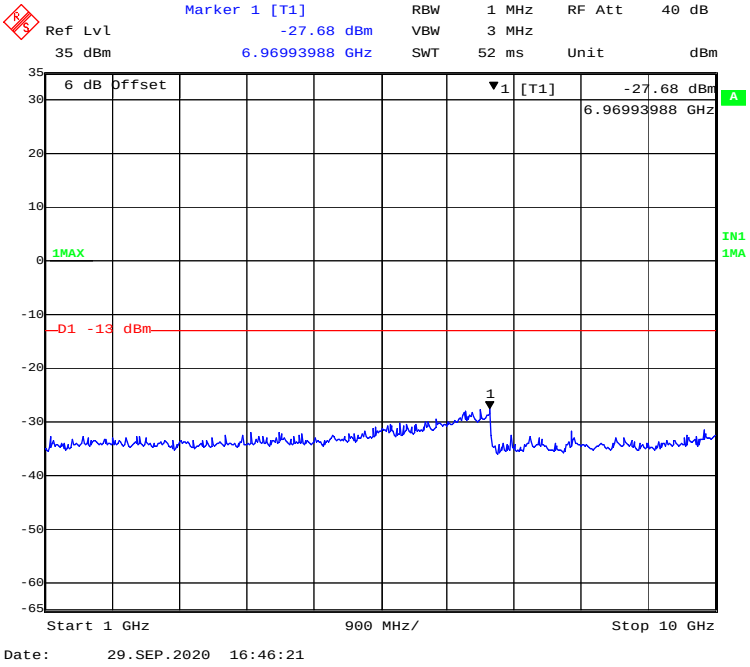


LTE Band 13:

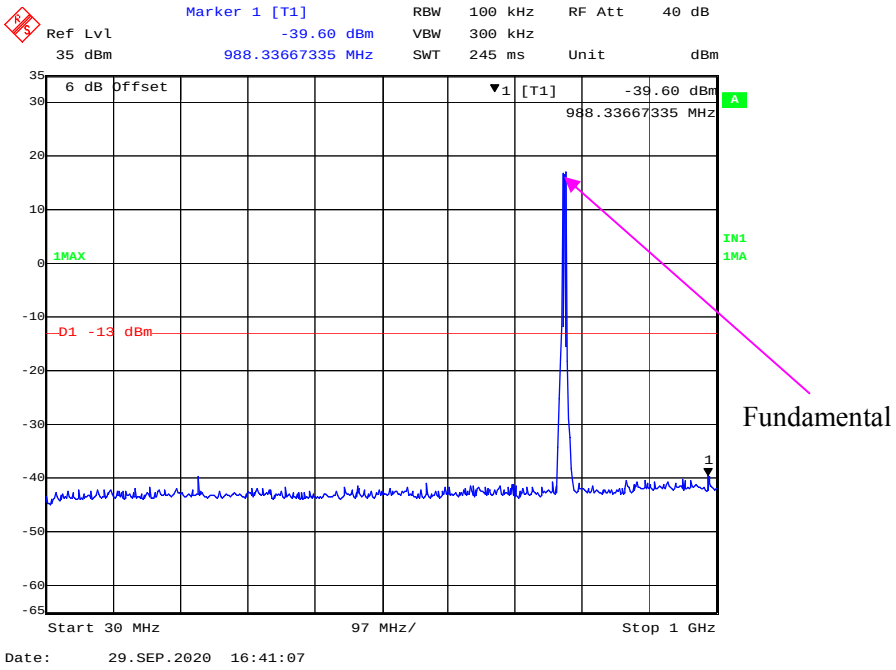
30 MHz - 1 GHz (5 MHz, QPSK, Low Channel)



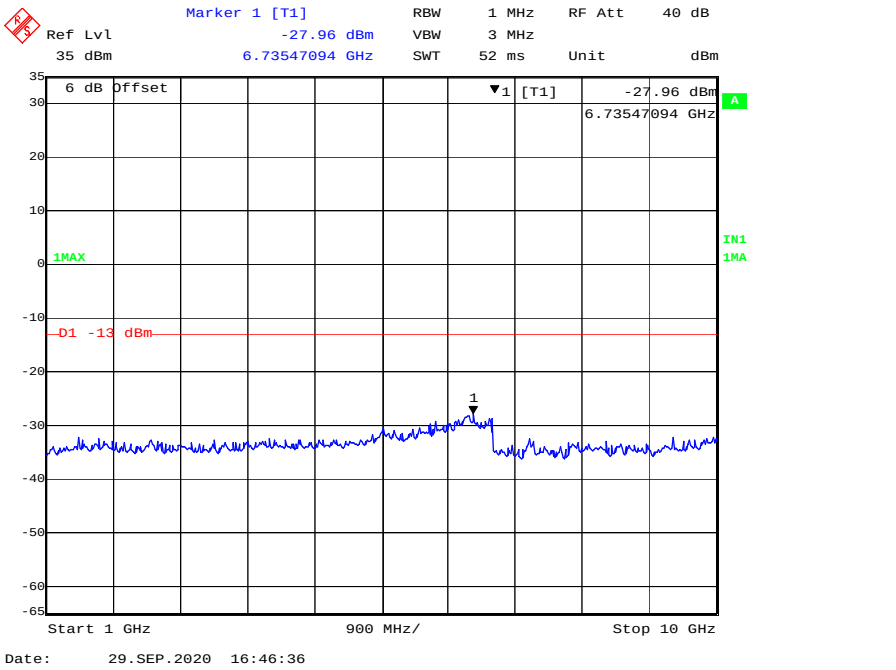
1 GHz – 10 GHz (5 MHz, QPSK, Low Channel)



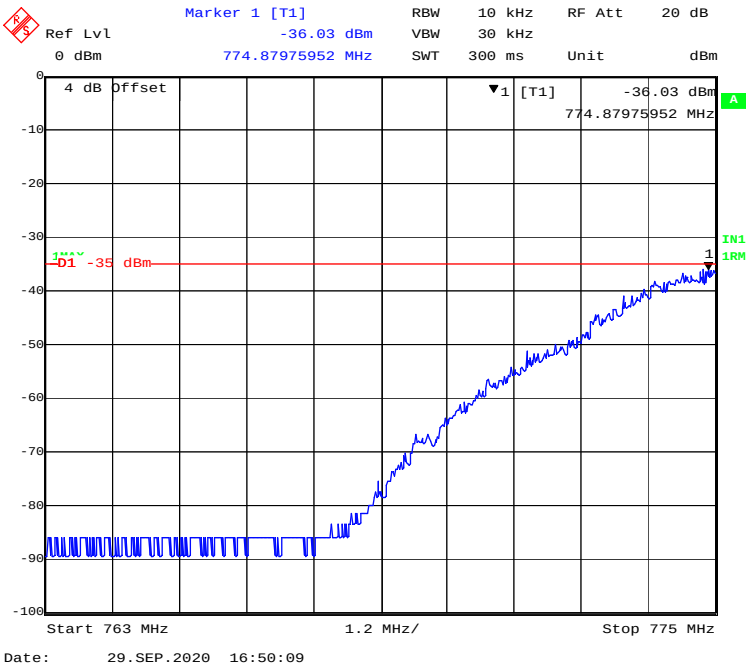
30 MHz - 1 GHz (5 MHz, 16-QAM, Low Channel)



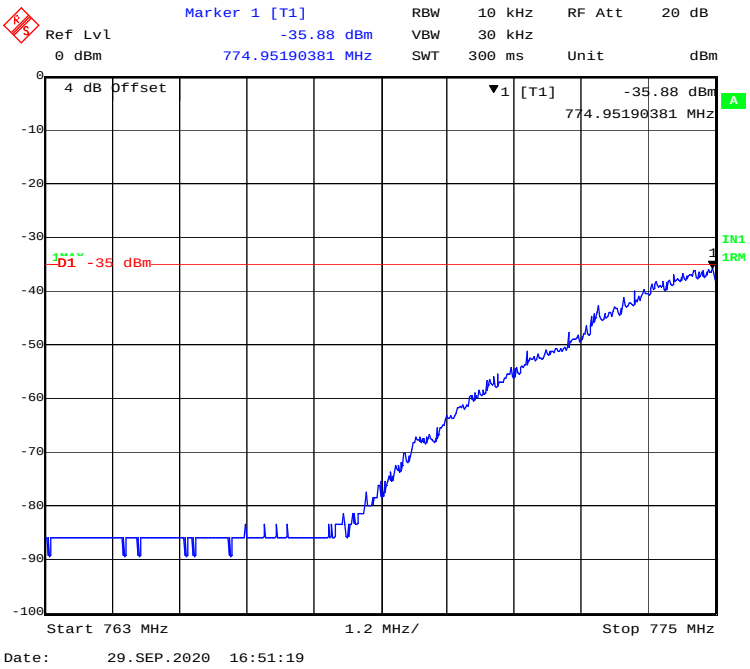
1 GHz – 10 GHz (5 MHz, 16-QAM, Low Channel)



763 MHz - 775 MHz (5 MHz, QPSK, Low Channel)



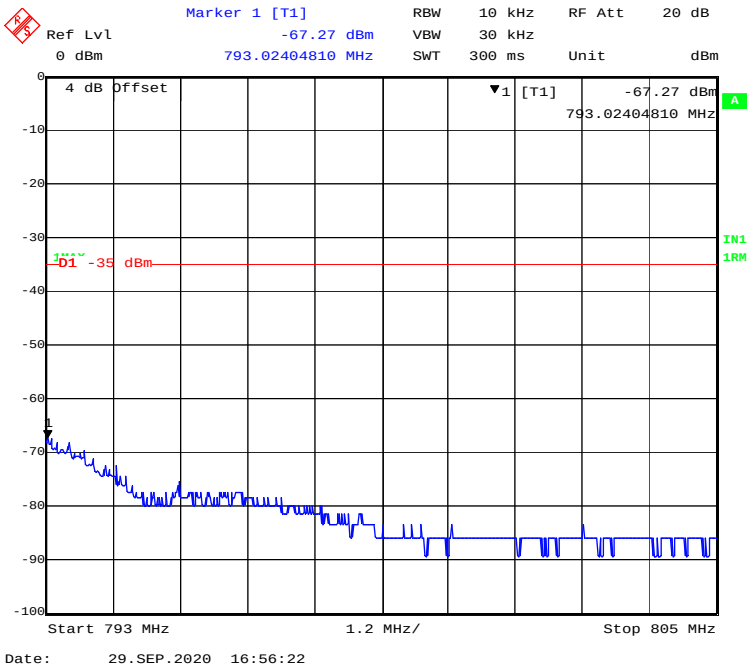
763 MHz - 775 MHz (5 MHz, 16-QAM, Low Channel)



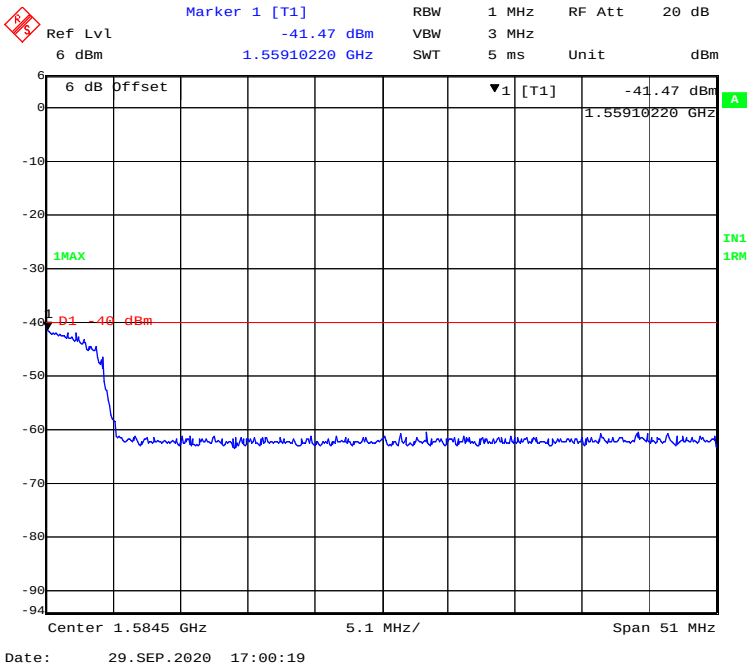
Additional Conducted Spurious Emissions Evaluations in accordance with FCC §27.53 (c)
Note: because of RBW 10kHz convert to 6.25kHz, 10lg (10/6.25) = 2, offset reduced with more 2dB.

793 MHz - 805 MHz (5 MHz, QPSK, Low Channel)

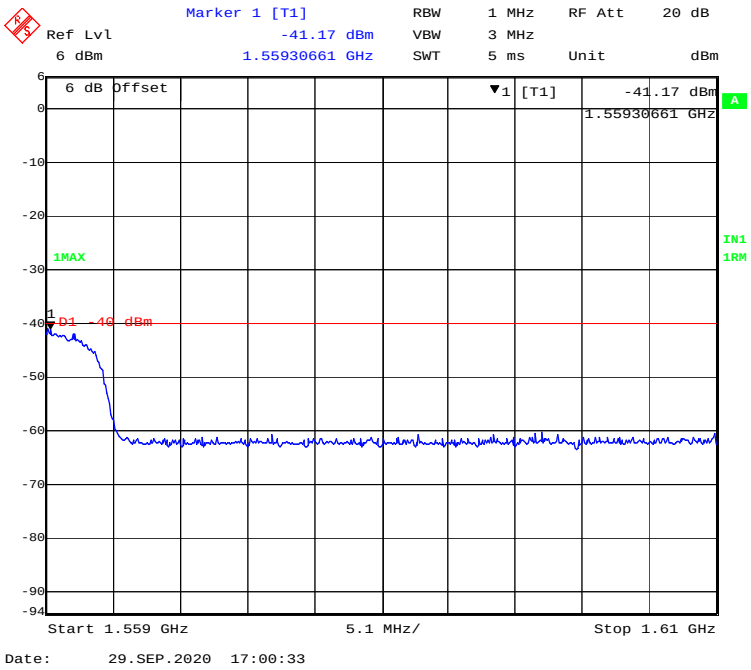
793 MHz - 805 MHz (5 MHz, 16-QAM, Low Channel)



1559 MHz - 1610 MHz (5 MHz, QPSK, Low Channel)

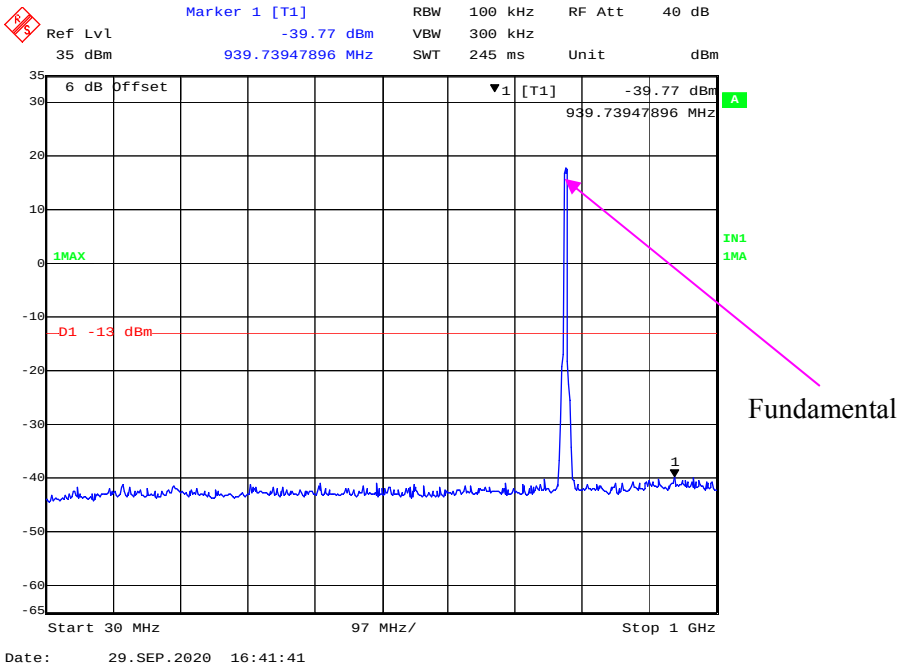


1559 MHz - 1610 MHz (5 MHz, 16-QAM, Low Channel)



Additional Conducted Spurious Emissions Evaluations in accordance with FCC §27.53 (f)

30 MHz - 1 GHz (5 MHz, QPSK, Middle Channel)



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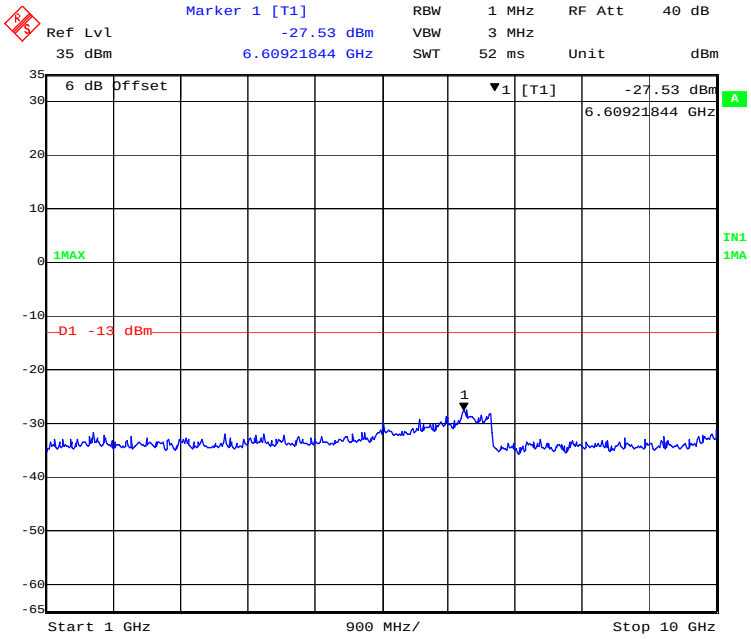
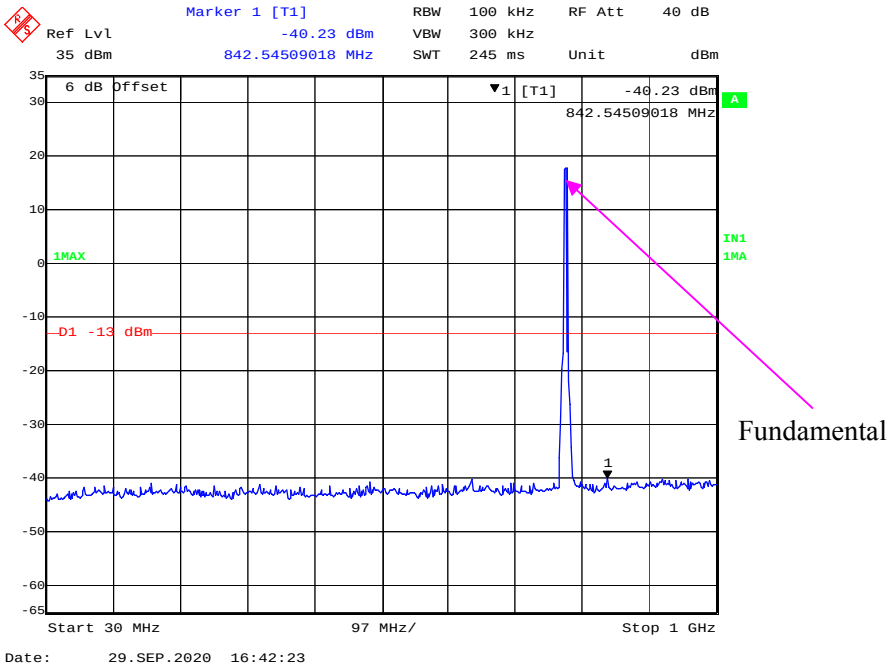
1 GHz – 10 GHz (5 MHz, QPSK, Middle Channel)

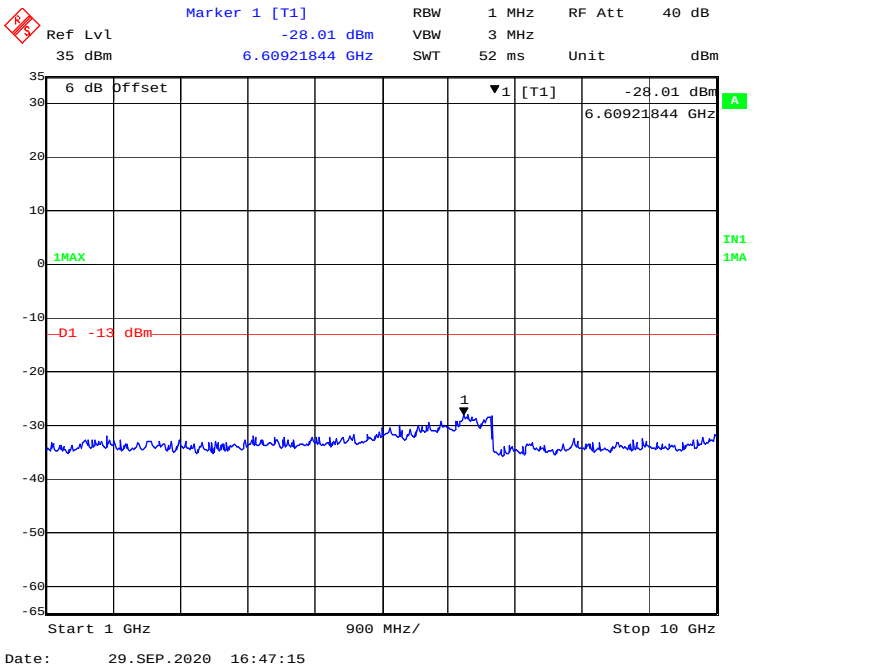


Date: 29.SEP.2020 16:46:57

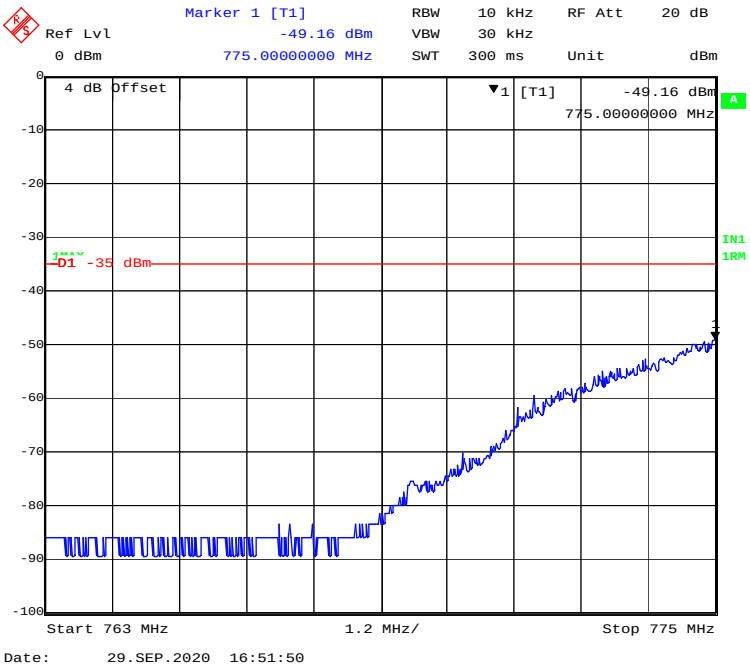
30 MHz - 1 GHz (5 MHz, 16-QAM, Middle Channel)



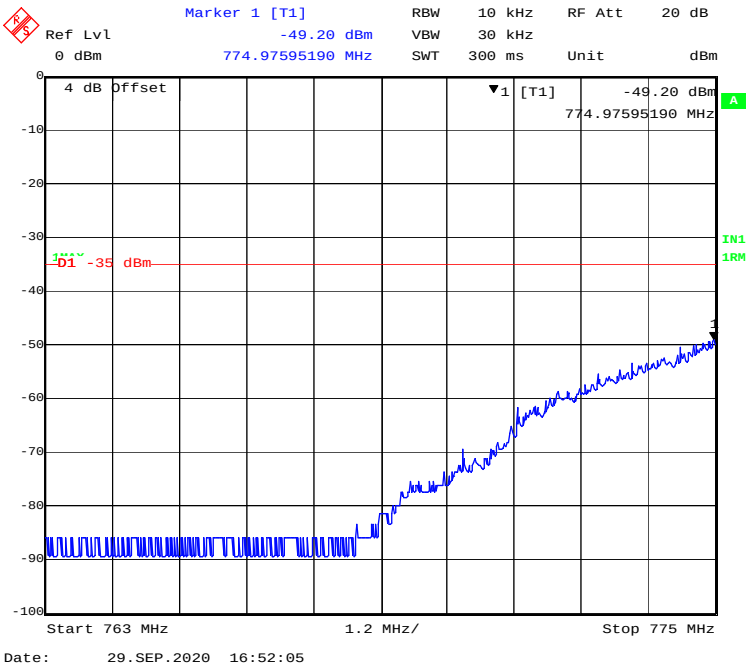
1 GHz – 10 GHz (5 MHz, 16-QAM, Middle Channel)



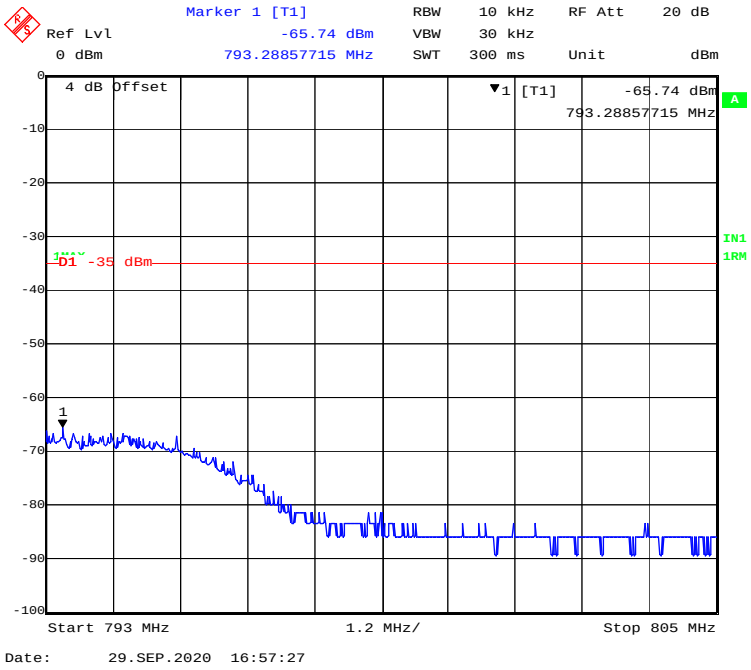
763 MHz - 775 MHz (5 MHz, QPSK, Middle Channel)



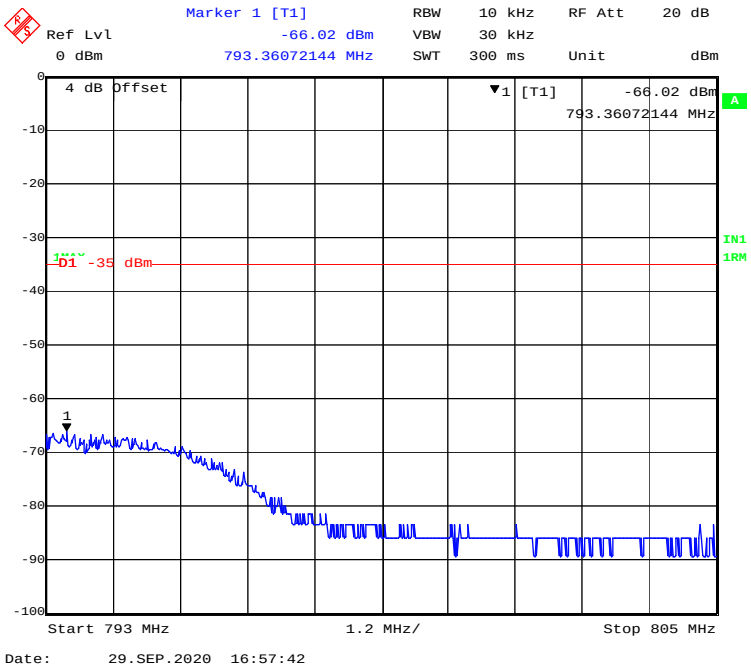
763 MHz - 775 MHz (5 MHz, 16-QAM, Middle Channel)



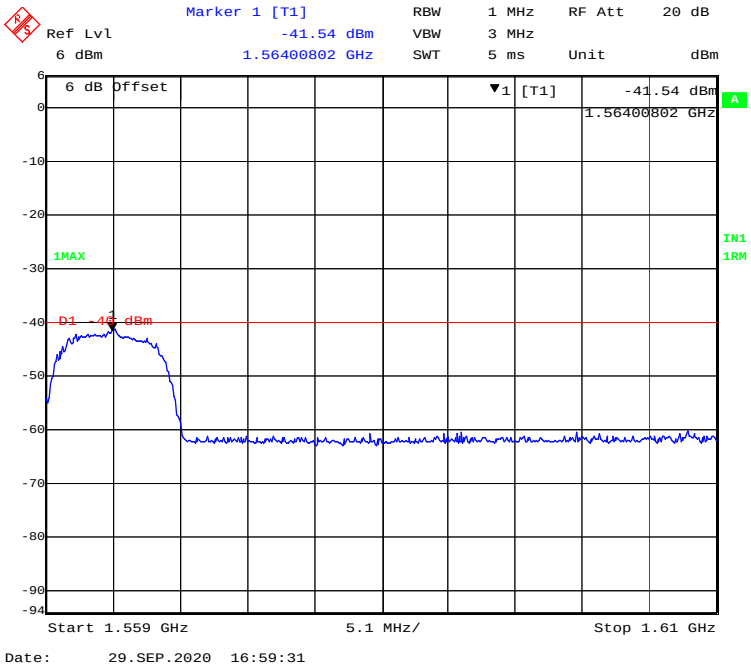
793 MHz - 805 MHz (5 MHz, QPSK, Middle Channel)



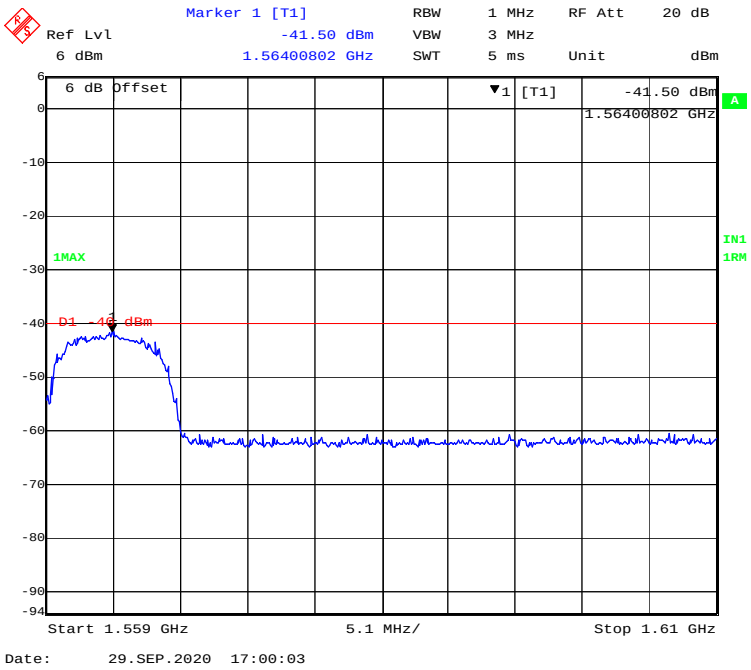
793 MHz - 805 MHz (5 MHz, 16-QAM, Middle Channel)



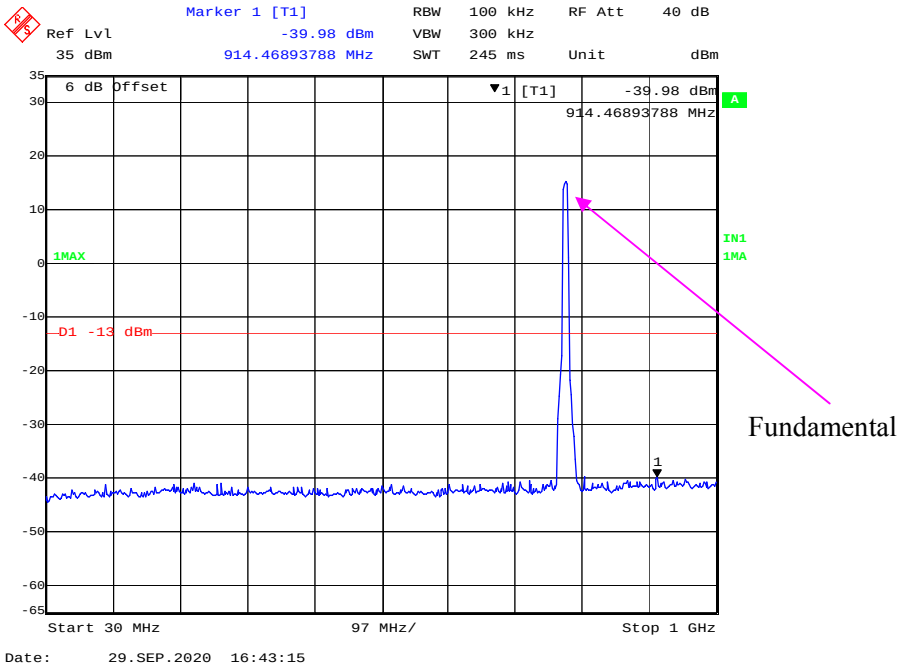
1559 MHz - 1610 MHz (5 MHz, QPSK, Middle Channel)



1559 MHz - 1610 MHz (5 MHz, 16-QAM, Middle Channel)



30 MHz - 1 GHz (10 MHz, QPSK, Middle Channel)



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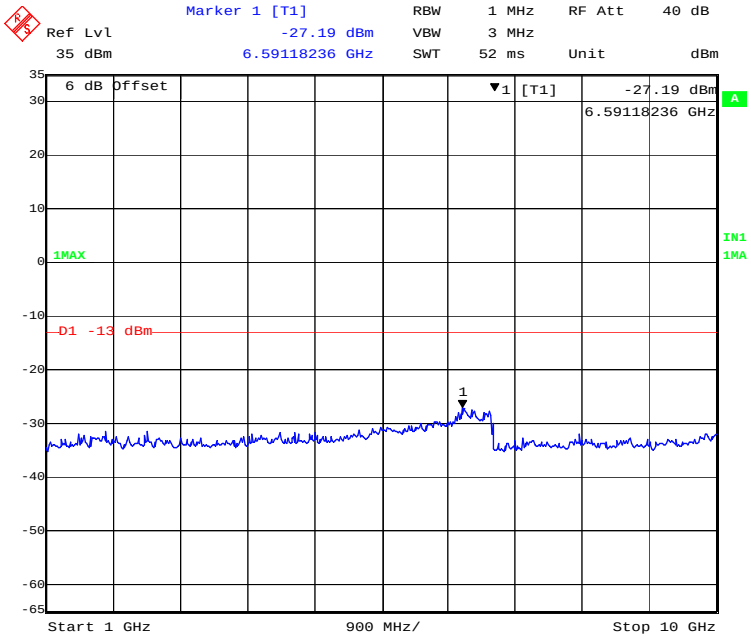
1 GHz – 10 GHz (10 MHz, QPSK, Middle Channel)



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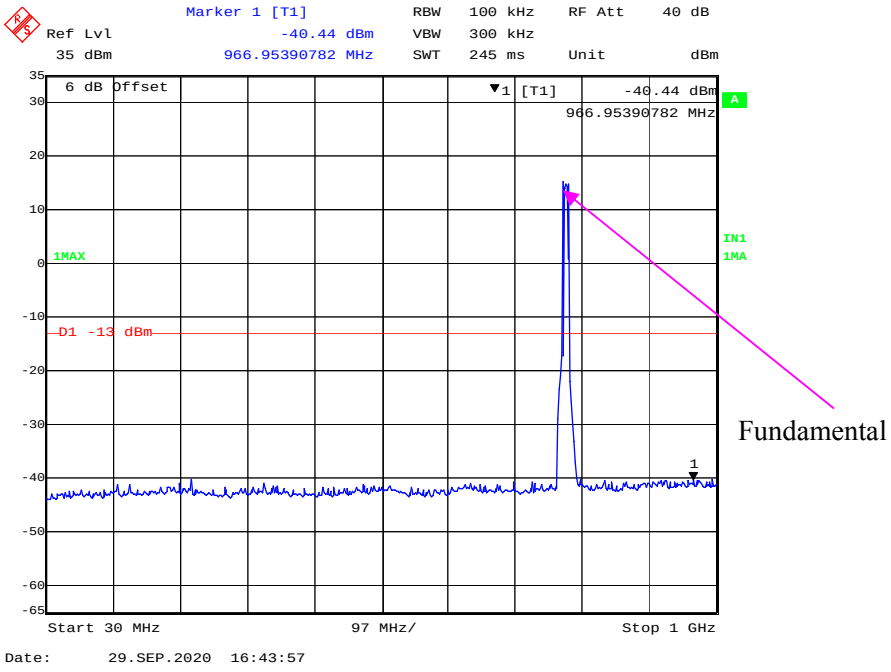
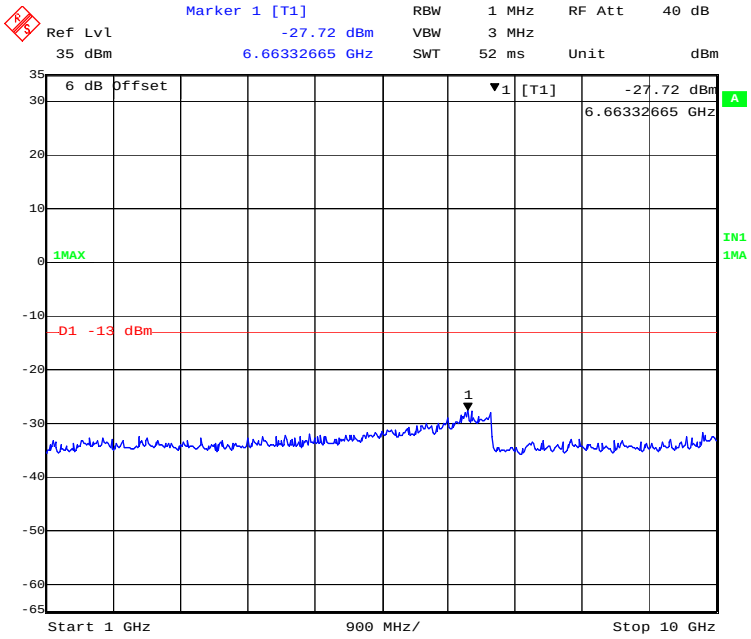
30 MHz - 1 GHz (10 MHz, 16-QAM, Middle Channel)



Date: 29.SEP.2020 16:43:57

1 GHz – 10 GHz (10 MHz, 16-QAM, Middle Channel)



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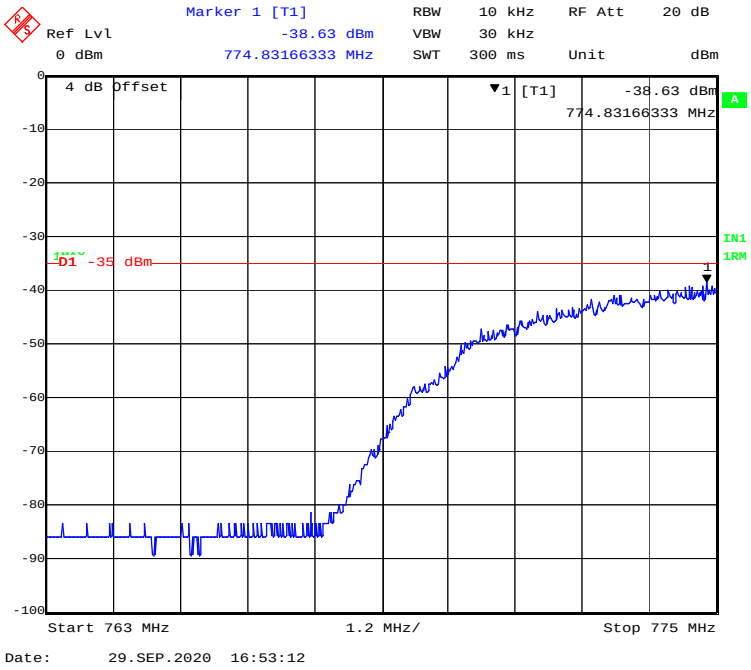
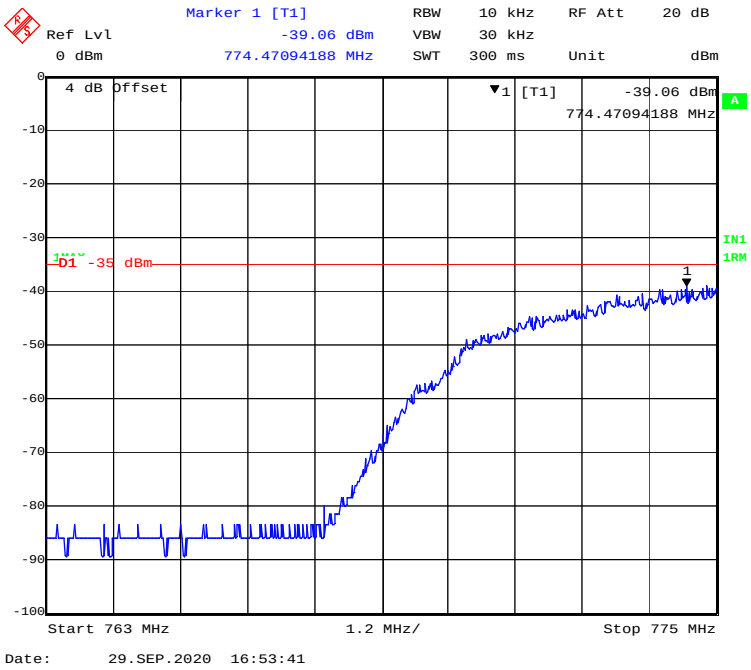
763 MHz - 775 MHz (10 MHz, QPSK, Middle Channel)

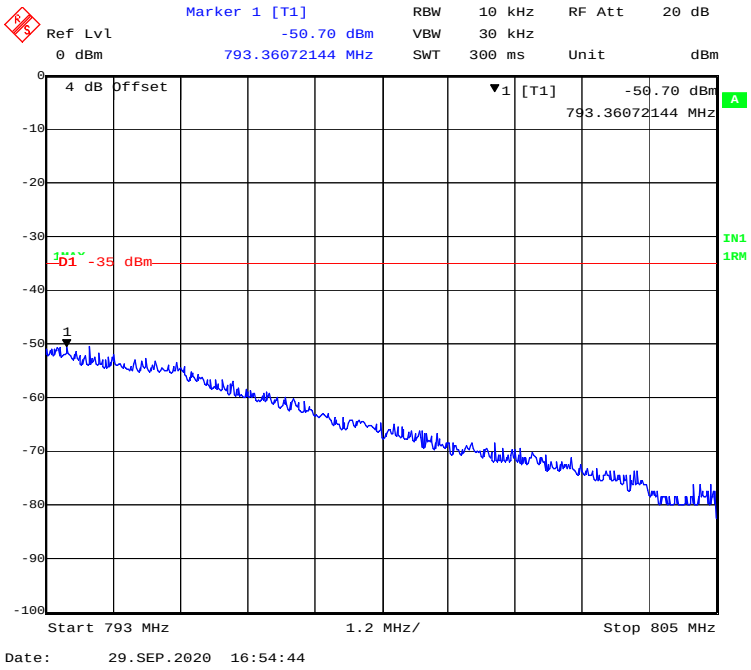


763 MHz - 775 MHz (10 MHz, 16-QAM, Middle Channel)

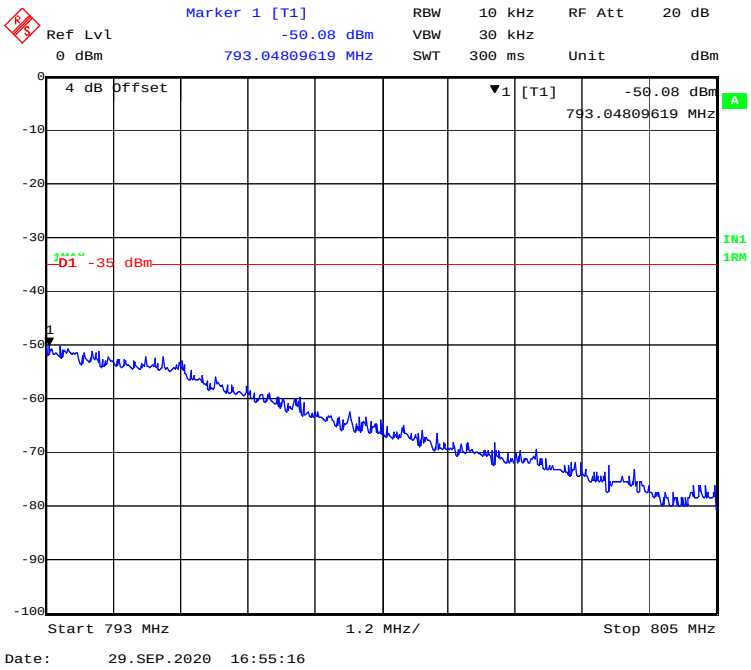


Additional Conducted Spurious Emissions Evaluations in accordance with FCC §27.53 (c)
Note: because of RBW 10kHz convert to 6.25kHz, 10lg (10/6.25) = 2, offset reduced with more 2dB.

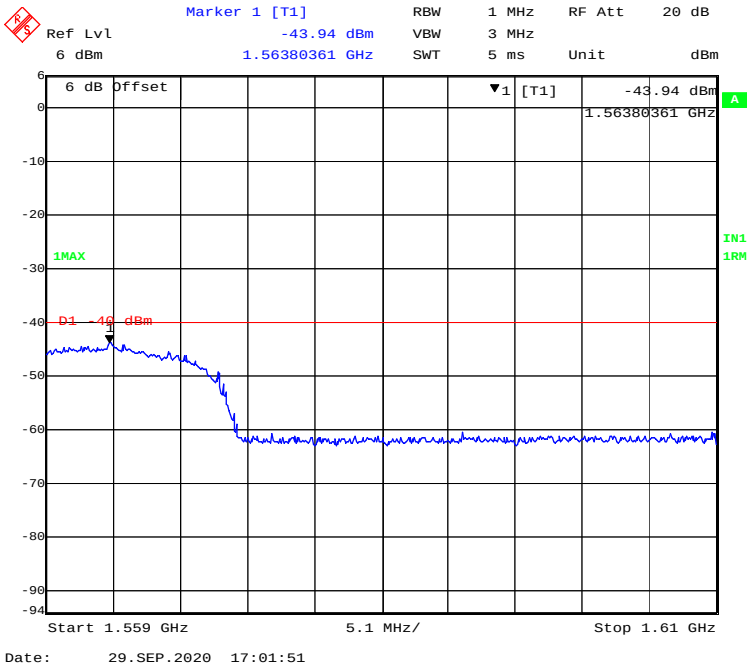
793 MHz - 805 MHz (10 MHz, QPSK, Middle Channel)



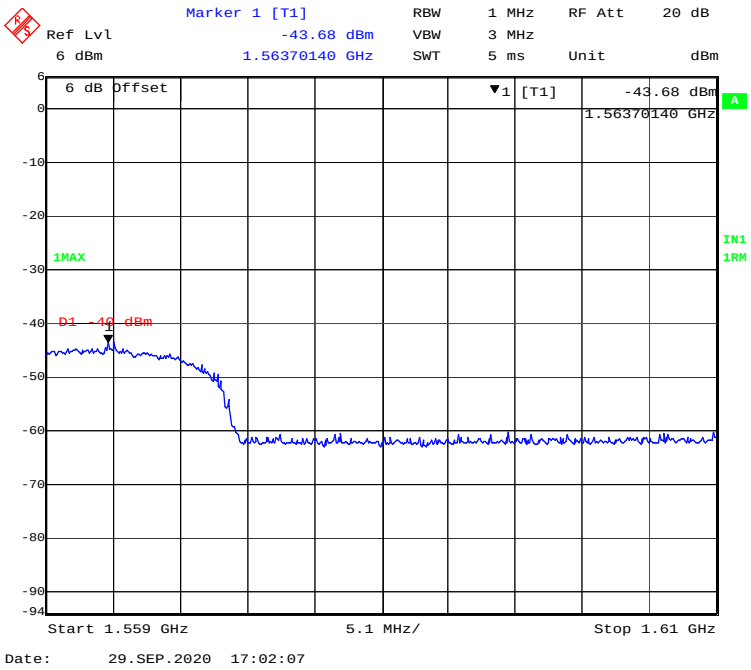
793 MHz - 805 MHz (10 MHz, 16-QAM, Middle Channel)



1559 MHz - 1610 MHz (10 MHz, QPSK, Middle Channel)

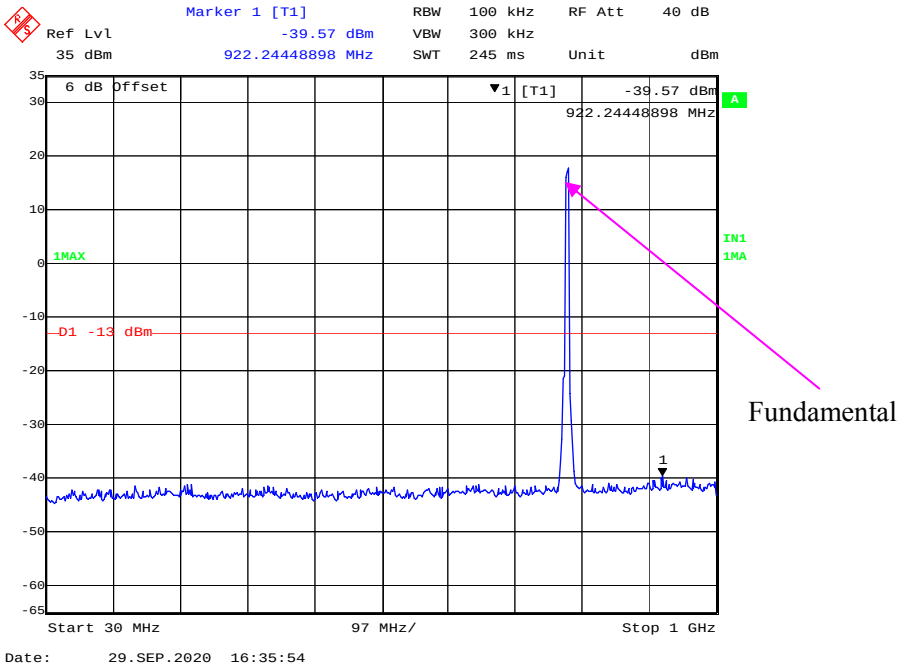


1559 MHz - 1610 MHz (10 MHz, 16-QAM, Middle Channel)



Additional Conducted Spurious Emissions Evaluations in accordance with FCC §27.53 (f)

30 MHz - 1 GHz (5 MHz, QPSK, High Channel)



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1 GHz – 10 GHz (5 MHz, QPSK, High Channel)

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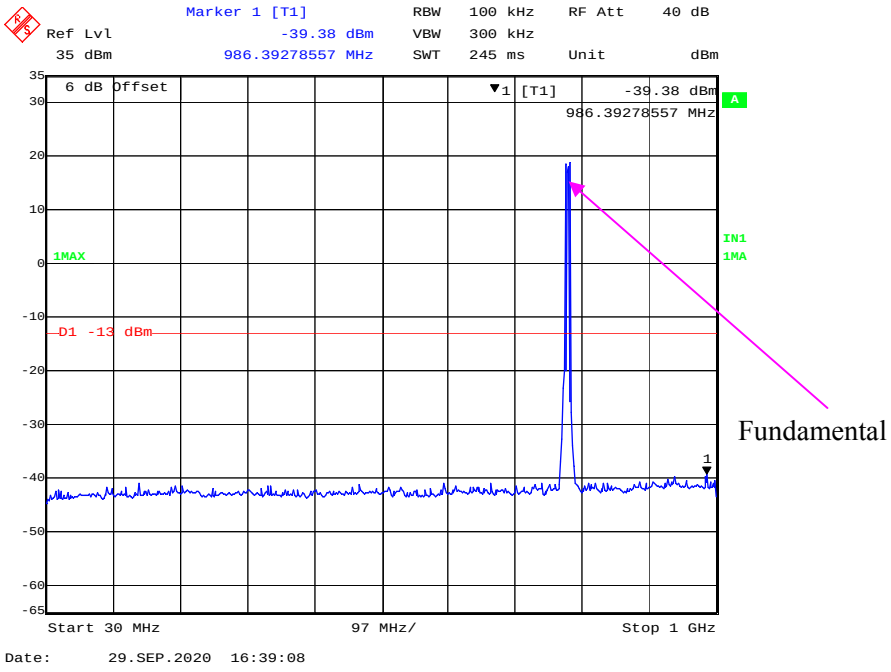
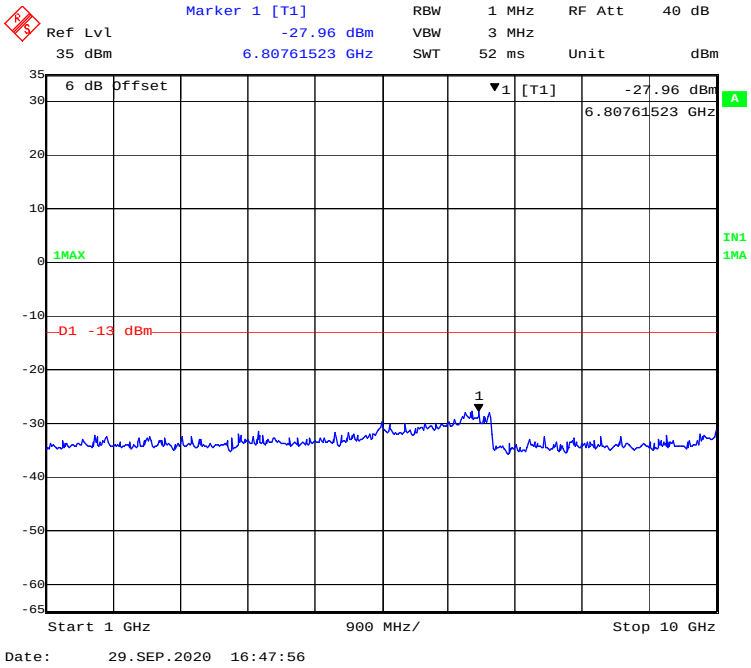
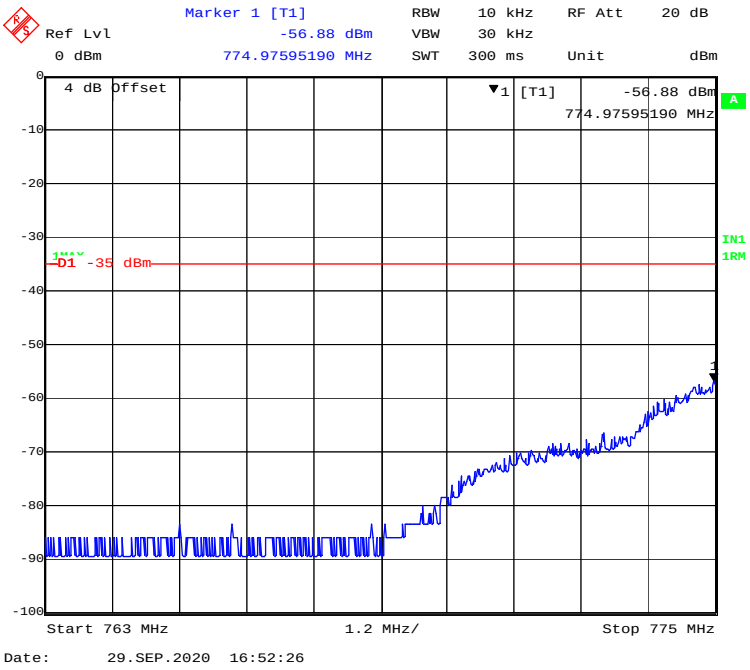
30 MHz - 1 GHz (5 MHz, 16-QAM, High Channel)



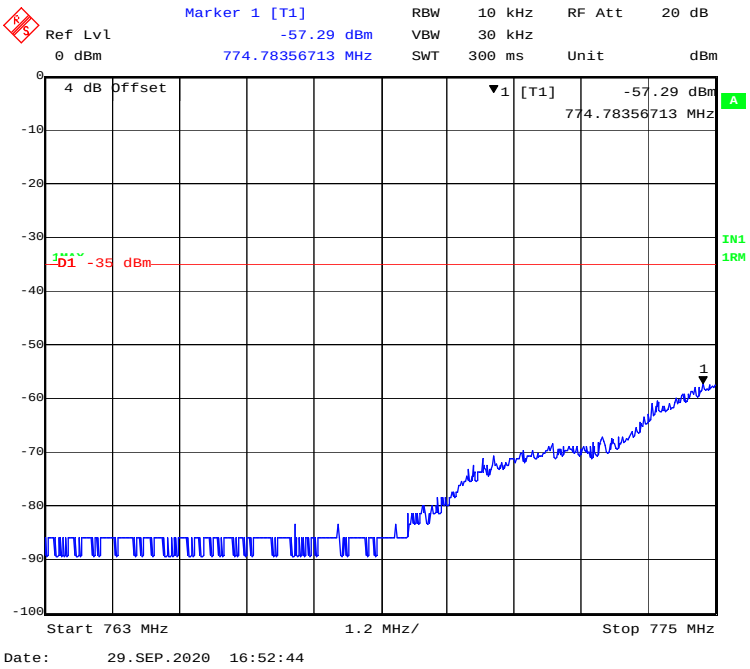
1 GHz – 10 GHz (5 MHz, 16-QAM, High Channel)



763 MHz - 775 MHz (5 MHz, QPSK, High Channel)

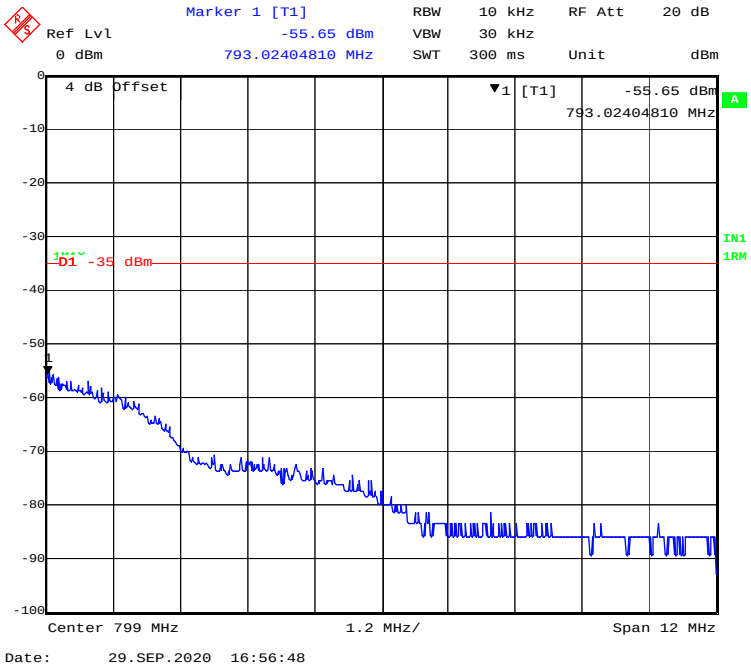


763 MHz - 775 MHz (5 MHz, 16-QAM, High Channel)

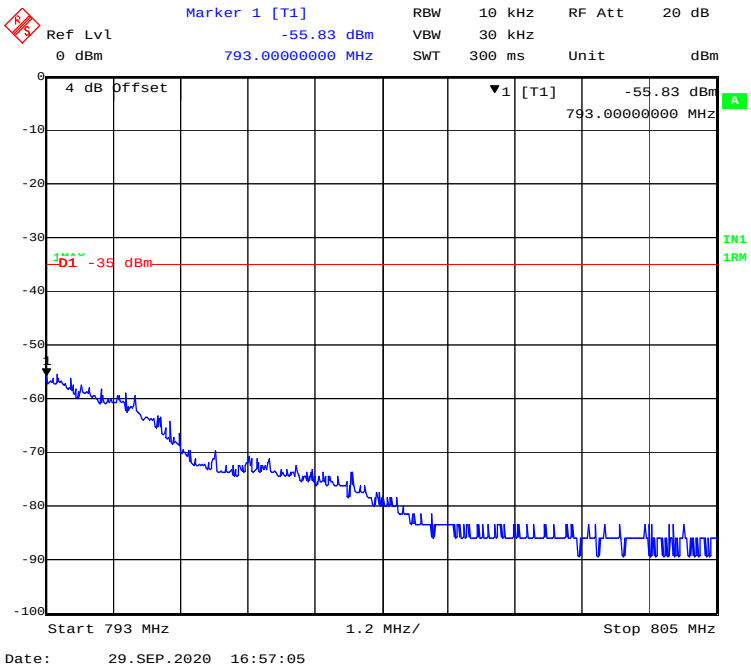


Additional Conducted Spurious Emissions Evaluations in accordance with FCC §27.53 (c)
Note: because of RBW 10kHz convert to 6.25kHz, 10lg (10/6.25) = 2, offset reduced with more 2dB.

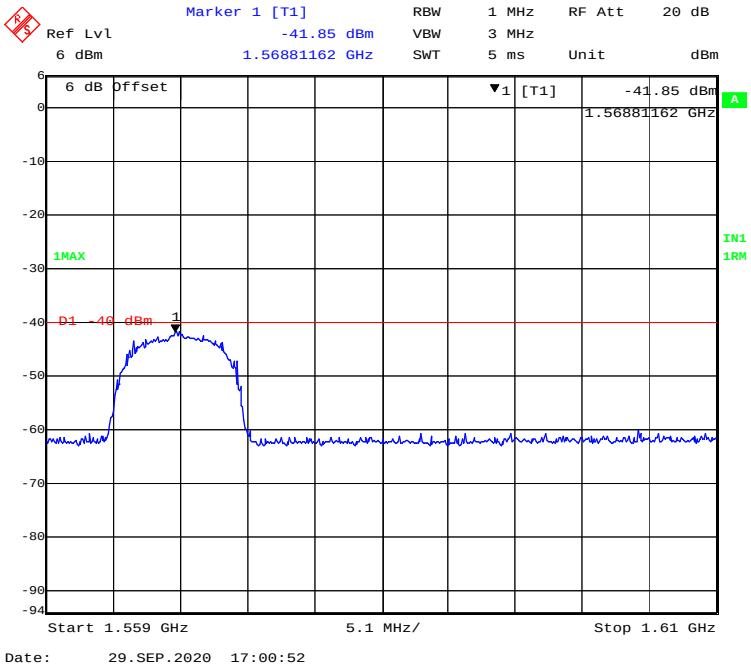
793 MHz - 805 MHz (5 MHz, QPSK, High Channel)



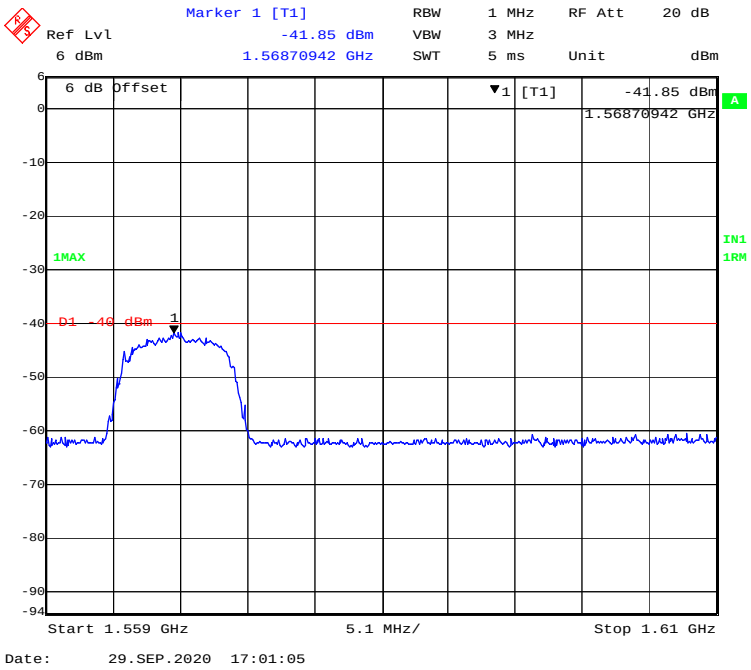
793 MHz - 805 MHz (5 MHz, 16-QAM, High Channel)



1559 MHz - 1610 MHz (5 MHz, QPSK, High Channel)



1559 MHz - 1610 MHz (5 MHz, 16-QAM, High Channel)



Additional Conducted Spurious Emissions Evaluations in accordance with FCC §27.53 (f)

FCC § 2.1053; § 22.917 (a); § 24.238 (a); §27.53 (m) - SPURIOUS RADIATED EMISSIONS

Applicable Standards

FCC § 2.1053, §22.917(a) ,§ 24.238(a) and § 27.53(m)

22.917 (a) Out of band emissions. 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.

24.238 (a) Out of band emissions. 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.

§ 27.53(m) 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.

Test Procedure

The transmitter was placed on a wooden turntable, and it was transmitting into a non-radiating load which was also placed on the turntable.

The measurement antenna was placed at a distance of 3 meters from the EUT. During the tests, the antenna height and polarization as well as EUT azimuth were varied in order to identify the maximum level of emissions from the EUT. The test was performed by placing the EUT on 3-orthogonal axis.

The frequency range up to tenth harmonic of the fundamental frequency was investigated.

Remove the EUT and replace it with substitution antenna. A signal generator was connected to the substitution antenna by a non-radiating cable. The absolute levels of the spurious emissions were measured by the substitution.

Spurious emissions in dB = 10 lg (TX pwr in Watts/0.001) – the absolute level

Spurious attenuation limit in dB = 43 + 10 Log_{10} (power out in Watts)

Test Data

Environmental Conditions

Temperature:	23.5~24.9 ℃
Relative Humidity:	50~52 %
ATM Pressure:	100.7~101.9 kPa

The testing was performed by CK Huang on 2020-10-12.

Test mode: Transmitting (Pre-scan with low, middle and high channels, and the worse case data as below)

30 MHz ~ 10 GHz:

GPRS 850 Band

Frequency (MHz)	Receiver Reading (dBμV)	Turntable Angle Degree	Rx Antenna		Substituted			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Height (cm)	Polar (H/V)	Submitted Level (dBm)	Cable Loss (dB)	Antenna Gain (dBd/dBi)			
GPRS Mode, Low channel										
296.99	57.81	231	210	H	-49.06	0.46	-2.16	-51.68	-13	38.68
296.99	58.88	24	158	V	-47.99	0.46	-2.16	-50.61	-13	37.61
1648.40	47.26	72	125	H	-66.09	0.84	8.44	-58.49	-13	45.49
1648.40	46.59	91	139	V	-66.76	0.84	8.44	-59.16	-13	46.16
GPRS Mode, Middle channel										
296.99	58.56	124	210	H	-48.31	0.46	-2.16	-50.93	-13	37.93
296.99	57.36	52	158	V	-49.51	0.46	-2.16	-52.13	-13	39.13
1673.20	45.87	45	125	H	-67.52	0.84	8.48	-59.88	-13	46.88
1673.20	47.26	98	139	V	-66.13	0.84	8.48	-58.49	-13	45.49
GPRS Mode, High channel										
296.99	58.68	123	210	H	-48.19	0.46	-2.16	-50.81	-13	37.81
296.99	57.37	127	158	V	-49.50	0.46	-2.16	-52.12	-13	39.12
1697.60	47.87	74	125	H	-65.14	0.84	8.52	-57.46	-13	44.46
1697.60	48.47	62	139	V	-64.54	0.84	8.52	-56.86	-13	43.86

WCDMA Band V

Frequency (MHz)	Receiver Reading (dBμV)	Turntable Angle Degree	Rx Antenna		Substituted			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Height (cm)	Polar (H/V)	Submitted Level (dBm)	Cable Loss (dB)	Antenna Gain (dBd/dBi)			
WCDMA Mode, Low channel										
296.99	56.02	251	143	H	-50.85	0.46	-2.16	-53.47	-13	40.47
296.99	55.16	25	127	V	-51.71	0.46	-2.16	-54.33	-13	41.33
1652.80	55.87	145	104	H	-57.45	0.84	8.44	-49.85	-13	36.85
1652.80	56.93	264	201	V	-56.39	0.84	8.44	-48.79	-13	35.79
WCDMA Mode, Middle channel										
296.99	55.87	332	143	H	-51.00	0.46	-2.16	-53.62	-13	40.62
296.99	54.21	12	127	V	-52.66	0.46	-2.16	-55.28	-13	42.28
1673.20	55.31	145	104	H	-58.01	0.84	8.2	-50.65	-13	37.65
1673.20	56.08	264	201	V	-57.24	0.84	8.2	-49.88	-13	36.88
WCDMA Mode, High channel										
296.99	55.37	352	143	H	-51.50	0.46	-2.16	-54.12	-13	41.12
296.99	54.29	122	127	V	-52.58	0.46	-2.16	-55.20	-13	42.20
1693.20	56.54	145	104	H	-56.49	0.84	8.51	-48.82	-13	35.82
1693.20	57.16	264	201	V	-55.87	0.84	8.51	-48.2	-13	35.20

30 MHz ~ 20 GHz:

PCS 1900 Band

Frequency (MHz)	Receiver Reading (dBµV)	Turntable Angle Degree	Rx Antenna		Substituted			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Height (cm)	Polar (H/V)	Submitted Level (dBm)	Cable Loss (dB)	Antenna Gain (dBd/dBi)			
GPRS Mode, Low channel										
296.99	58.96	12	145	H	-47.91	0.46	-2.16	-50.53	-13	37.53
296.99	57.96	312	156	V	-48.91	0.46	-2.16	-51.53	-13	38.53
3700.40	40.18	225	189	H	-66.79	0.95	9.78	-57.96	-13	44.96
3700.40	38.65	110	200	V	-68.32	0.95	9.78	-59.49	-13	46.49
GPRS Mode, Middle channel										
296.99	58.70	23	145	H	-48.17	0.46	-2.16	-50.79	-13	37.79
296.99	57.46	301	156	V	-49.41	0.46	-2.16	-52.03	-13	39.03
3760.00	40.02	225	189	H	-56.69	0.95	9.74	-47.90	-13	34.90
3760.00	41.73	110	200	V	-54.98	0.95	9.74	-46.19	-13	33.19
GPRS Mode, High channel										
296.99	57.38	45	145	H	-49.49	0.46	-2.16	-52.11	-13	39.11
296.99	58.71	11	156	V	-48.16	0.46	-2.16	-50.78	-13	37.78
3819.60	39.35	225	189	H	-67.24	0.96	9.71	-58.49	-13	45.49
3819.60	38.35	110	200	V	-68.24	0.96	9.71	-59.49	-13	46.49

WCDMA Band II

Frequency (MHz)	Receiver Reading (dBμV)	Turntable Angle Degree	Rx Antenna		Substituted			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Height (cm)	Polar (H/V)	Submitted Level (dBm)	Cable Loss (dB)	Antenna Gain (dBd/dBi)			
WCDMA Mode, Low channel										
296.99	55.19	152	156	H	-51.68	0.46	-2.16	-54.3	-13	41.30
296.99	56.42	314	141	V	-50.45	0.46	-2.16	-53.07	-13	40.07
3704.80	46.03	245	207	H	-60.93	0.95	9.78	-52.1	-13	39.10
3704.80	47.55	216	162	V	-59.41	0.95	9.78	-50.58	-13	37.58
WCDMA Mode, Middle channel										
296.99	54.61	112	156	H	-52.26	0.46	-2.16	-54.88	-13	41.88
296.99	55.46	325	141	V	-51.41	0.46	-2.16	-54.03	-13	41.03
3760.00	46.33	245	207	H	-51.34	0.93	9.9	-42.37	-13	29.37
3760.00	47.09	216	162	V	-51.05	0.93	9.9	-42.08	-13	29.08
WCDMA Mode, High channel										
296.99	54.39	25	156	H	-52.48	0.46	-2.16	-55.10	-13	42.10
296.99	55.17	211	141	V	-51.70	0.46	-2.16	-54.32	-13	41.32
3815.20	45.33	245	207	H	-61.27	0.96	9.71	-52.52	-13	39.52
3815.20	47.59	216	162	V	-59.01	0.96	9.71	-50.26	-13	37.26

Note:
1) Absolute Level (dBm) = Submitted Level (dBm) - Cable loss (dB) + Antenna Gain (dBd/dBi)
2) Margin (dB) = Limit (dBm) - Absolute Level (dBm)

WCDMA Band IV

Frequency (MHz)	Receiver Reading (dBμV)	Turntable Angle Degree	Rx Antenna		Substituted			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Height (cm)	Polar (H/V)	Submitted Level (dBm)	Cable Loss (dB)	Antenna Gain (dBd/dBi)			
WCDMA Mode, Low channel										
296.99	55.19	115	156	H	-51.68	0.46	-2.16	-54.30	-13	41.30
296.99	56.74	354	141	V	-50.13	0.46	-2.16	-52.75	-13	39.75
3430.00	46.32	245	207	H	-61.58	0.93	9.83	-52.68	-13	39.68
3430.00	48.93	216	162	V	-58.97	0.93	9.83	-50.07	-13	37.07
WCDMA Mode, Middle channel										
296.99	54.55	115	156	H	-52.32	0.46	-2.16	-54.94	-13	41.94
296.99	55.48	351	141	V	-51.39	0.46	-2.16	-54.01	-13	41.01
3465.20	47.61	245	207	H	-60.14	0.93	9.87	-51.20	-13	38.20
3465.20	48.35	216	162	V	-59.40	0.93	9.87	-50.46	-13	37.46
WCDMA Mode, High channel										
296.99	55.49	158	156	H	-51.38	0.46	-2.16	-54.00	-13	41.00
296.99	54.39	311	141	V	-52.48	0.46	-2.16	-55.10	-13	42.10
3500.00	47.03	245	207	H	-60.57	0.93	9.90	-51.60	-13	38.60
3500.00	47.95	216	162	V	-59.65	0.93	9.90	-50.68	-13	37.68

Note:
1) Absolute Level (dBm) = Submitted Level (dBm) - Cable loss (dB) + Antenna Gain (dBd/dBi)
2) Margin (dB) = Limit (dBm) - Absolute Level (dBm)

Test mode: Transmitting (Pre-scan with all the bandwidth, and worse case as below)

30 MHz ~ 10 GHz:
LTE Band 2:

Frequency (MHz)	Receiver Reading (dBµV)	Turntable Angle Degree	Rx Antenna		Substituted			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Height (cm)	Polar (H/V)	Submitted Level (dBm)	Cable Loss (dB)	Antenna Gain (dBd/dBi)			
QPSK 1.4MHz Bandwidth Low Channel										
296.99	54.66	219	150	H	-52.21	0.46	-2.16	-54.83	-13	41.83
296.99	54.01	91	150	V	-52.86	0.46	-2.16	-55.48	-13	42.48
3701.40	41.07	5	200	H	-65.89	0.95	9.78	-57.06	-13	44.06
3701.40	41.96	77	200	V	-65.00	0.95	9.78	-56.17	-13	43.17
16-QAM 1.4MHz Bandwidth Low Channel										
296.99	55.05	210	150	H	-51.82	0.46	-2.16	-54.44	-13	41.44
296.99	54.69	98	150	V	-52.18	0.46	-2.16	-54.80	-13	41.80
3701.40	41.28	76	200	H	-65.68	0.95	9.78	-56.85	-13	43.85
3701.40	41.11	91	200	V	-65.85	0.95	9.78	-57.02	-13	44.02

Frequency (MHz)	Receiver Reading (dBµV)	Turntable Angle Degree	Rx Antenna		Substituted			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Height (cm)	Polar (H/V)	Submitted Level (dBm)	Cable Loss (dB)	Antenna Gain (dBd/dBi)			
QPSK 1.4MHz Bandwidth Middle Channel										
296.99	54.98	254	150	H	-51.89	0.46	-2.16	-54.51	-13	41.51
296.99	55.16	93	150	V	-51.71	0.46	-2.16	-54.33	-13	41.33
3760.00	42.63	192	200	H	-65.35	0.95	9.74	-56.56	-13	43.56
3760.00	42.00	251	200	V	-65.98	0.95	9.74	-57.19	-13	44.19
16-QAM 1.4MHz Bandwidth Middle Channel										
296.99	54.69	221	150	H	-52.18	0.46	-2.16	-54.80	-13	41.80
296.99	55.06	77	150	V	-51.81	0.46	-2.16	-54.43	-13	41.43
3760.00	41.80	105	200	H	-66.18	0.95	9.74	-57.39	-13	44.39
3760.00	43.11	209	200	V	-64.87	0.95	9.74	-56.08	-13	43.08

Frequency (MHz)	Receiver Reading (dBμV)	Turntable Angle Degree	Rx Antenna		Substituted			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Height (cm)	Polar (H/V)	Submitted Level (dBm)	Cable Loss (dB)	Antenna Gain (dBd/dBi)			
QPSK 1.4MHz Bandwidth High Channel										
296.99	55.16	214	150	H	-51.71	0.46	-2.16	-54.33	-13	41.33
296.99	54.39	14	150	V	-52.48	0.46	-2.16	-55.10	-13	42.10
3818.60	40.69	211	200	H	-65.91	0.96	9.71	-57.16	-13	44.16
3818.60	40.89	305	200	V	-65.71	0.96	9.71	-56.96	-13	43.96
16-QAM 1.4MHz Bandwidth High Channel										
296.99	55.22	332	150	H	-51.65	0.46	-2.16	-54.27	-13	41.27
296.99	54.96	58	150	V	-51.91	0.46	-2.16	-54.53	-13	41.53
3818.60	41.66	74	200	H	-64.94	0.96	9.71	-56.19	-13	43.19
3818.60	40.99	228	200	V	-65.61	0.96	9.71	-56.86	-13	43.86

30 MHz ~ 20 GHz:
LTE Band 4:

Frequency (MHz)	Receiver Reading (dBµV)	Turntable Angle Degree	Rx Antenna		Substituted			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Height (cm)	Polar (H/V)	Submitted Level (dBm)	Cable Loss (dB)	Antenna Gain (dBd/dBi)			
QPSK 1.4MHz Bandwidth Low Channel										
296.99	54.05	219	150	H	-52.82	0.46	-2.16	-55.44	-13	42.44
296.99	55.31	91	150	V	-51.56	0.46	-2.16	-54.18	-13	41.18
3421.40	44.98	320	200	H	-62.96	0.93	9.82	-54.07	-13	41.07
3421.40	45.52	273	200	V	-62.42	0.93	9.82	-53.53	-13	40.53
16-QAM 1.4MHz Bandwidth Low Channel										
296.99	55.09	209	150	H	-51.78	0.46	-2.16	-54.40	-13	41.40
296.99	54.51	91	200	V	-52.36	0.46	-2.16	-54.98	-13	41.98
3421.40	45.86	202	200	H	-62.08	0.93	9.82	-53.19	-13	40.19
3421.40	44.20	111	200	V	-63.74	0.93	9.82	-54.85	-13	41.85

Frequency (MHz)	Receiver Reading (dBµV)	Turntable Angle Degree	Rx Antenna		Substituted			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Height (cm)	Polar (H/V)	Submitted Level (dBm)	Cable Loss (dB)	Antenna Gain (dBd/dBi)			
QPSK 1.4MHz Bandwidth Middle Channel										
296.99	55.46	207	150	H	-51.41	0.46	-2.16	-54.03	-13	41.03
296.99	54.69	93	150	V	-52.18	0.46	-2.16	-54.80	-13	41.80
3465.00	36.59	78	200	H	-62.22	0.93	9.87	-53.28	-13	40.28
3465.00	35.78	128	200	V	-63.03	0.93	9.87	-54.09	-13	41.09
16-QAM 1.4MHz Bandwidth Middle Channel										
296.99	54.87	219	150	H	-52.00	0.46	-2.16	-54.62	-13	41.62
296.99	55.96	66	150	V	-50.91	0.46	-2.16	-53.53	-13	40.53
3465.00	36.38	357	200	H	-62.43	0.93	9.87	-53.49	-13	40.49
3465.00	35.02	298	200	V	-63.79	0.93	9.87	-54.85	-13	41.85

Frequency (MHz)	Receiver Reading (dBµV)	Turntable Angle Degree	Rx Antenna		Substituted			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Height (cm)	Polar (H/V)	Submitted Level (dBm)	Cable Loss (dB)	Antenna Gain (dBd/dBi)			
QPSK 1.4MHz Bandwidth High Channel										
296.99	55.39	22	150	H	-51.48	0.46	-2.16	-54.10	-13	41.10
296.99	53.83	91	150	V	-53.04	0.46	-2.16	-55.66	-13	42.66
3508.60	44.45	67	200	H	-63.12	0.93	9.90	-54.15	-13	41.15
3508.60	44.64	83	200	V	-62.93	0.93	9.90	-53.96	-13	40.96
16-QAM 1.4MHz Bandwidth High Channel										
296.99	54.96	155	150	H	-51.91	0.46	-2.16	-54.53	-13	41.53
296.99	55.19	191	150	V	-51.68	0.46	-2.16	-54.30	-13	41.30
3508.60	44.54	97	200	H	-63.03	0.93	9.90	-54.06	-13	41.06
3508.60	44.64	43	200	V	-62.93	0.93	9.90	-53.96	-13	40.96

LTE Band 5:

Frequency (MHz)	Receiver Reading (dBμV)	Turntable Angle Degree	Rx Antenna		Substituted			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Height (cm)	Polar (H/V)	Submitted Level (dBm)	Cable Loss (dB)	Antenna Gain (dBd/dBi)			
QPSK 1.4MHz Bandwidth Low Channel										
296.99	55.09	29	150	H	-51.78	0.46	-2.16	-54.40	-13	41.40
296.99	54.96	225	150	V	-51.91	0.46	-2.16	-54.53	-13	41.53
1649.40	47.25	145	200	H	-66.09	0.84	8.44	-58.49	-13	45.49
1649.40	45.88	313	200	V	-67.46	0.84	8.44	-59.86	-13	46.86
16-QAM 1.4MHz Bandwidth Low Channel										
296.99	54.96	23	150	H	-51.91	0.46	-2.16	-54.53	-13	41.53
296.99	55.09	93	150	V	-51.78	0.46	-2.16	-54.40	-13	41.40
1649.40	46.25	62	200	H	-67.09	0.84	8.44	-59.49	-13	46.49
1649.40	45.55	299	200	V	-67.79	0.84	8.44	-60.19	-13	47.19

Frequency (MHz)	Receiver Reading (dBμV)	Turntable Angle Degree	Rx Antenna		Substituted			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Height (cm)	Polar (H/V)	Submitted Level (dBm)	Cable Loss (dB)	Antenna Gain (dBd/dBi)			
QPSK 1.4MHz Bandwidth Middle Channel										
296.99	55.49	215	150	H	-51.38	0.46	-2.16	-54.00	-13	41.00
296.99	54.63	17	150	V	-52.24	0.46	-2.16	-54.86	-13	41.86
1673.00	38.68	182	200	H	-66.85	0.84	8.48	-59.21	-13	46.21
1673.00	37.70	220	200	V	-67.83	0.84	8.48	-60.19	-13	47.19
16-QAM 1.4MHz Bandwidth Middle Channel										
296.99	55.16	141	150	H	-51.71	0.46	-2.16	-54.33	-13	41.33
296.99	54.19	25	150	V	-52.68	0.46	-2.16	-55.30	-13	42.30
1673.00	38.70	128	200	H	-66.83	0.84	8.48	-59.19	-13	46.19
1673.00	38.86	237	200	V	-66.67	0.84	8.48	-59.03	-13	46.03

Frequency (MHz)	Receiver Reading (dBμV)	Turntable Angle Degree	Rx Antenna		Substituted			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Height (cm)	Polar (H/V)	Submitted Level (dBm)	Cable Loss (dB)	Antenna Gain (dBd/dBi)			
QPSK 1.4MHz Bandwidth High Channel										
296.99	55.19	125	150	H	-51.68	0.46	-2.16	-54.30	-13	41.30
296.99	54.85	152	150	V	-52.02	0.46	-2.16	-54.64	-13	41.64
1696.60	45.18	194	200	H	-67.83	0.84	8.51	-60.16	-13	47.16
1696.60	45.97	196	200	V	-67.04	0.84	8.51	-59.37	-13	46.37
16-QAM 1.4MHz Bandwidth High Channel										
296.99	56.01	231	150	H	-50.86	0.46	-2.16	-53.48	-13	40.48
296.99	55.46	74	150	V	-51.41	0.46	-2.16	-54.03	-13	41.03
1696.60	45.85	7	200	H	-67.16	0.84	8.51	-59.49	-13	46.49
1696.60	46.85	136	200	V	-66.16	0.84	8.51	-58.49	-13	45.49

30 MHz ~ 10 GHz:
LTE Band 12:

Frequency (MHz)	Receiver Reading (dBµV)	Turntable Angle Degree	Rx Antenna		Substituted			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Height (cm)	Polar (H/V)	Submitted Level (dBm)	Cable Loss (dB)	Antenna Gain (dBd/dBi)			
QPSK 1.4MHz Bandwidth Low Channel										
296.99	55.19	179	100	H	-51.68	0.46	-2.16	-49.06	-13	36.06
296.99	54.42	200	200	V	-52.45	0.46	-2.16	-49.83	-13	36.83
1399.40	56.6	106	150	H	-57.57	0.82	7.92	-50.47	-13	37.47
1399.40	56.11	241	100	V	-58.06	0.82	7.92	-50.96	-13	37.96
16-QAM 1.4MHz Bandwidth Low Channel										
296.99	55.13	120	200	H	-51.74	0.46	-2.16	-49.12	-13	36.12
296.99	55.09	23	150	V	-51.78	0.46	-2.16	-49.16	-13	36.16
1399.40	55.59	46	200	H	-58.58	0.82	7.92	-51.48	-13	38.48
1399.40	56.71	189	200	V	-57.46	0.82	7.92	-50.36	-13	37.36

Frequency (MHz)	Receiver Reading (dBµV)	Turntable Angle Degree	Rx Antenna		Substituted			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Height (cm)	Polar (H/V)	Submitted Level (dBm)	Cable Loss (dB)	Antenna Gain (dBd/dBi)			
QPSK 1.4MHz Bandwidth Middle Channel										
296.99	54.69	74	100	H	-52.18	0.46	-2.16	-49.56	-13	36.56
296.99	55.81	38	200	V	-51.06	0.46	-2.16	-48.44	-13	35.44
1415.00	56.87	142	150	H	-57.33	0.82	7.96	-50.19	-13	37.19
1415.00	55.57	238	100	V	-58.63	0.82	7.96	-51.49	-13	38.49
16-QAM 1.4MHz Bandwidth Middle Channel										
296.99	55.19	134	150	H	-51.68	0.46	-2.16	-49.06	-13	36.06
296.99	54.96	108	150	V	-51.91	0.46	-2.16	-49.29	-13	36.29
1415.00	56.57	151	200	H	-57.63	0.82	7.96	-50.49	-13	37.49
1415.00	55.73	81	200	V	-58.47	0.82	7.96	-51.33	-13	38.33

Frequency (MHz)	Receiver Reading (dBµV)	Turntable Angle Degree	Rx Antenna		Substituted			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Height (cm)	Polar (H/V)	Submitted Level (dBm)	Cable Loss (dB)	Antenna Gain (dBd/dBi)			
QPSK 1.4MHz Bandwidth High Channel										
296.99	55.49	99	100	H	-51.38	0.46	-2.16	-48.76	-13	35.76
296.99	55.02	305	200	V	-51.85	0.46	-2.16	-49.23	-13	36.23
1430.60	56.59	269	150	H	-57.64	0.82	8	-50.46	-13	37.46
1430.60	55.09	330	100	V	-59.14	0.82	8	-51.96	-13	38.96
16-QAM 1.4MHz Bandwidth High Channel										
296.99	55.15	343	150	H	-51.72	0.46	-2.16	-49.10	-13	36.10
296.99	54.85	57	150	V	-52.02	0.46	-2.16	-49.40	-13	36.40
1430.60	55.36	13	200	H	-58.87	0.82	8	-51.69	-13	38.69
1430.60	56.56	118	200	V	-57.67	0.82	8	-50.49	-13	37.49

30 MHz ~ 10 GHz:
LTE Band 13:

Frequency (MHz)	Receiver Reading (dBµV)	Turntable Angle Degree	Rx Antenna		Substituted			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Height (cm)	Polar (H/V)	Submitted Level (dBm)	Cable Loss (dB)	Antenna Gain (dBd/dBi)			
QPSK 5MHz Bandwidth Low Channel										
296.99	55.69	145	200	H	-51.18	0.46	-2.16	-48.56	-13	35.56
296.99	54.29	10	200	V	-52.58	0.46	-2.16	-49.96	-13	36.96
1559.00	54.65	30	100	H	-59.31	0.83	8.29	-51.85	-13	38.85
1559.00	53.02	339	150	V	-60.94	0.83	8.29	-53.48	-13	40.48
16-QAM 5MHz Bandwidth Low Channel										
296.99	55.72	11	100	H	-51.15	0.46	-2.16	-48.53	-13	35.53
296.99	54.31	355	150	V	-52.56	0.46	-2.16	-49.94	-13	36.94
1559.00	52.65	155	150	H	-61.31	0.83	8.29	-53.85	-13	40.85
1559.00	53.76	92	200	V	-60.20	0.83	8.29	-52.74	-13	39.74

Frequency (MHz)	Receiver Reading (dBµV)	Turntable Angle Degree	Rx Antenna		Substituted			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Height (cm)	Polar (H/V)	Submitted Level (dBm)	Cable Loss (dB)	Antenna Gain (dBd/dBi)			
QPSK 5MHz Bandwidth Middle Channel										
296.99	55.06	254	200	H	-51.81	0.46	-2.16	-49.19	-13	36.19
296.99	56.12	89	200	V	-50.75	0.46	-2.16	-48.13	-13	35.13
1564.00	54.97	249	100	H	-58.96	0.83	8.30	-51.49	-13	38.49
1564.00	53.97	316	150	V	-59.96	0.83	8.30	-52.49	-13	39.49
16-QAM 5MHz Bandwidth Middle Channel										
296.99	54.19	257	100	H	-52.68	0.46	-2.16	-50.06	-13	37.06
296.99	55.63	250	150	V	-51.24	0.46	-2.16	-48.62	-13	35.62
1564.00	54.61	85	150	H	-59.32	0.83	8.30	-51.85	-13	38.85
1564.00	53.97	213	200	V	-59.96	0.83	8.30	-52.49	-13	39.49

Frequency (MHz)	Receiver Reading (dBμV)	Turntable Angle Degree	Rx Antenna		Substituted			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Height (cm)	Polar (H/V)	Submitted Level (dBm)	Cable Loss (dB)	Antenna Gain (dBd/dBi)			
QPSK 5MHz Bandwidth High Channel										
296.99	56.15	283	200	H	-50.72	0.46	-2.16	-48.10	-13	35.10
296.99	55.07	161	200	V	-51.80	0.46	-2.16	-49.18	-13	36.18
1569.00	54.92	22	100	H	-58.97	0.83	8.31	-51.49	-13	38.49
1569.00	53.62	263	150	V	-60.27	0.83	8.31	-52.79	-13	39.79
16-QAM 5MHz Bandwidth High Channel										
296.99	55.12	315	100	H	-51.75	0.46	-2.16	-49.13	-13	36.13
296.99	56.09	341	150	V	-50.78	0.46	-2.16	-48.16	-13	35.16
1569.00	54.39	232	150	H	-59.50	0.83	8.31	-52.02	-13	39.02
1569.00	54.56	156	200	V	-59.33	0.83	8.31	-51.85	-13	38.85

Note:
1) Absolute Level (dBm) = Submitted Level (dBm) - Cable loss (dB) + Antenna Gain (dBd/dBi)
2) Margin (dB) = Limit (dBm) - Absolute Level (dBm)

FCC § 22.917 (a); § 24.238 (a); §27.53 (m) - BAND EDGES

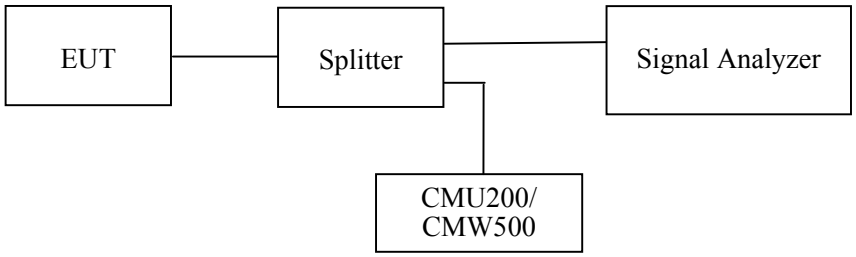
Applicable Standards

According to § 22.917(a), the power of any emissions 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.
According to §24.238(a), the power of any emissions 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.
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.
FCC §2.1051.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 1 MHz or less, but at least one percent of the emission bandwidth of the fundamental emission of the transmitter, provided the measured energy is integrated over a 1 MHz bandwidth.

Test Procedure

The RF output of the transmitter was connected to the input of the spectrum analyzer through sufficient attenuation.

The center of the spectrum analyzer was set to block edge frequency.



Test Data

Environmental Conditions

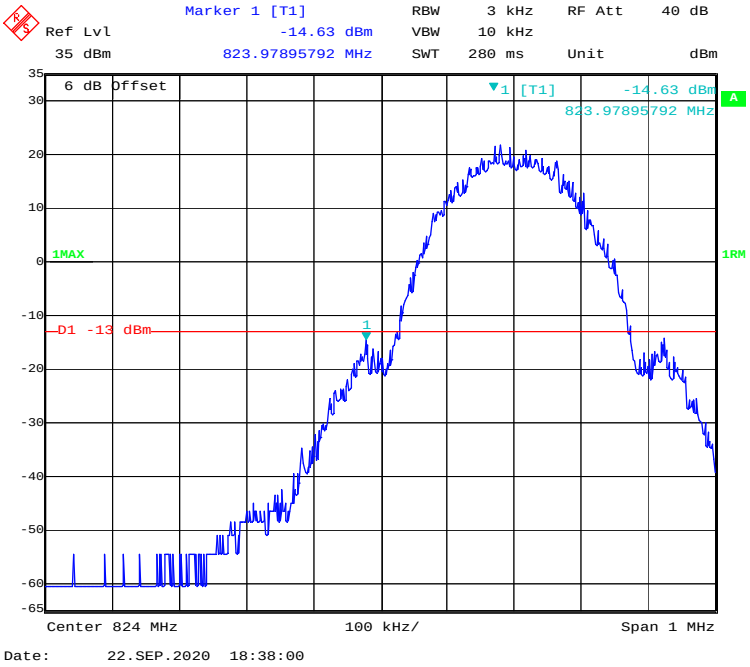
Temperature:	24.9~25.3 ℃
Relative Humidity:	50~52 %
ATM Pressure:	100.7~102.9 kPa

The testing was performed by CK Huang from 2020-09-22 to 2020-09-29.

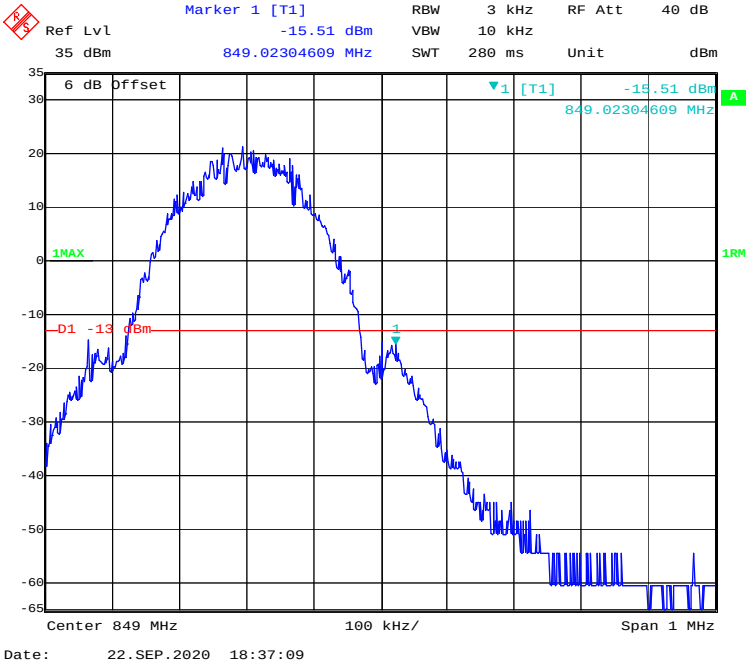
EUT operation mode: Transmitting
Test Result: Compliance.

GSM 850 Band:

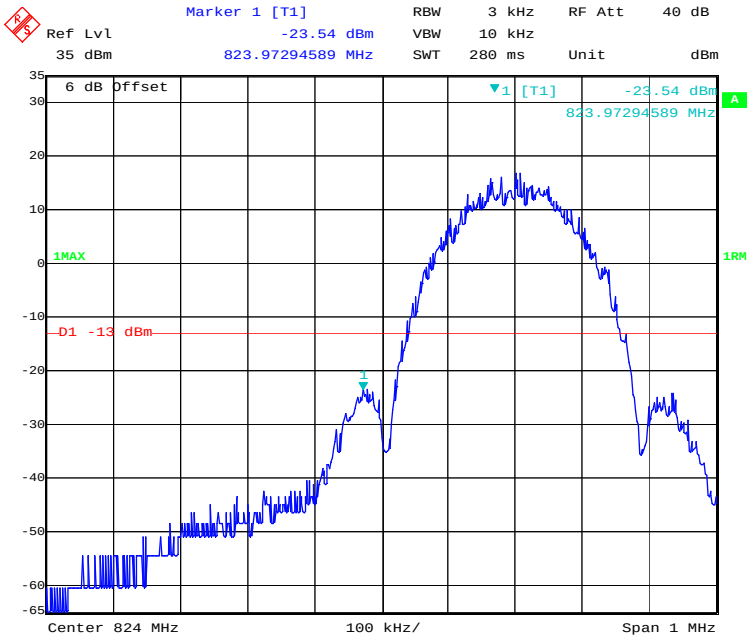
GPRS Mode, Left Band Edge



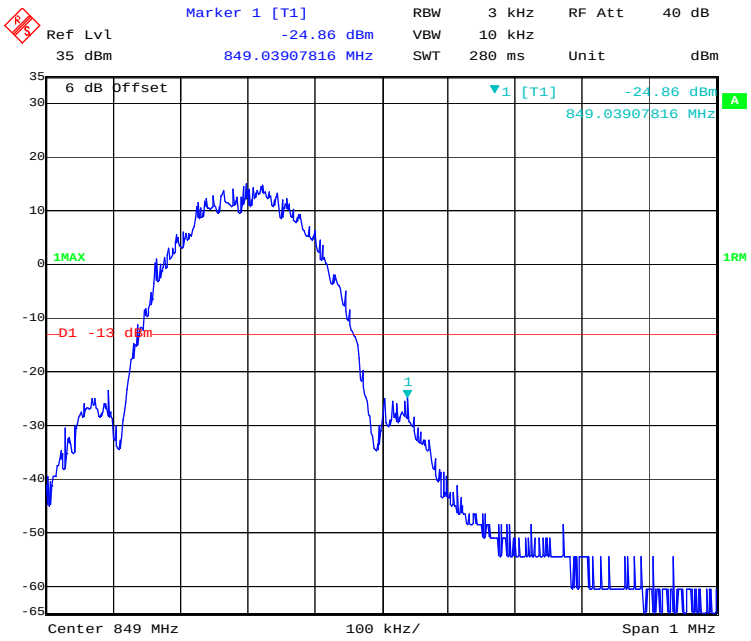
GPRS Mode, Right Band Edge



EGPRS Mode, Left Band Edge

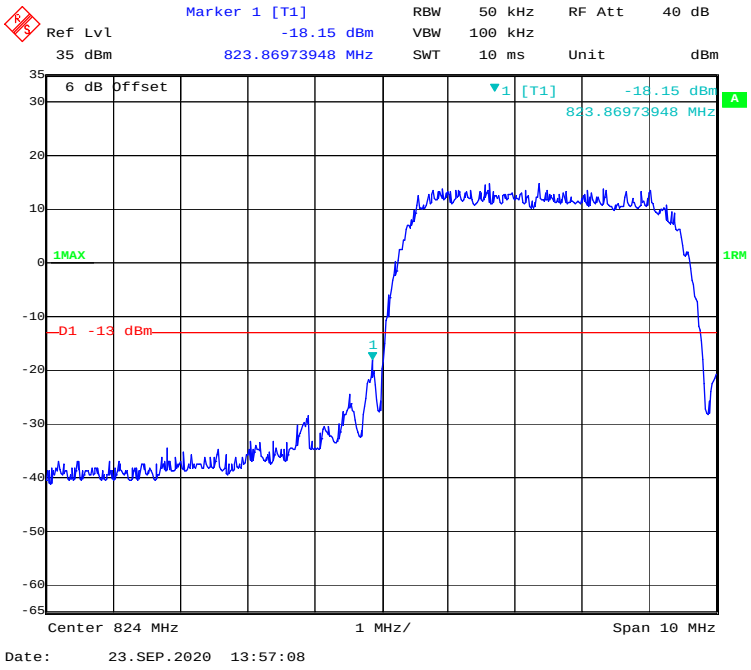


EGPRS Mode, Right Band Edge

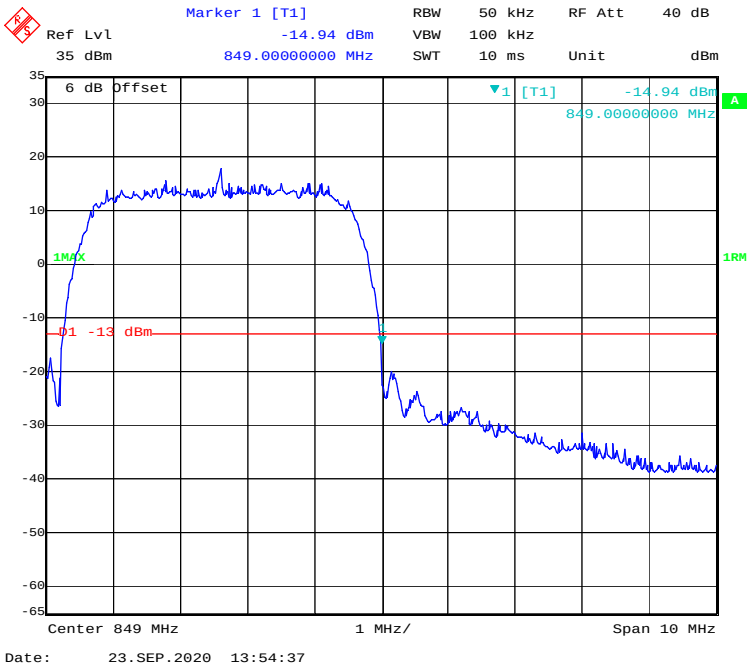


WCDMA Band V

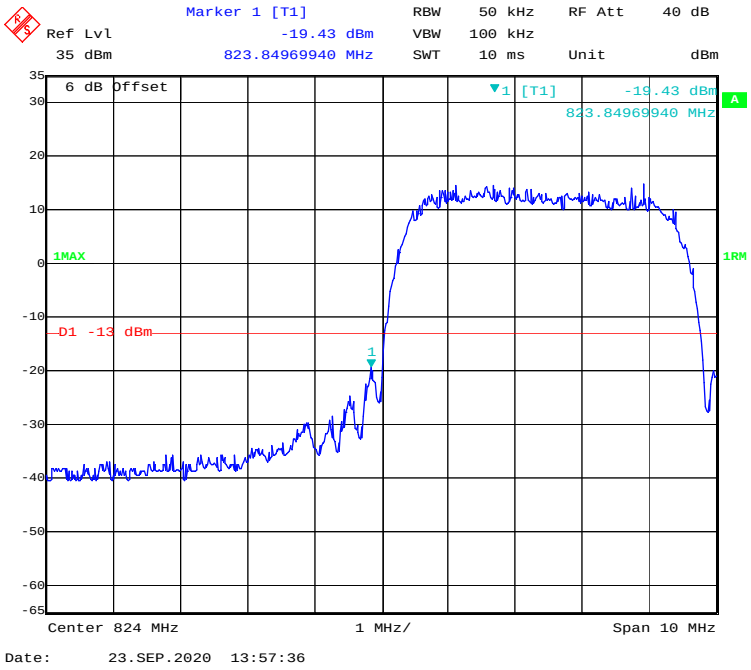
WCDMA (Rel 99) Mode, Left Band Edge



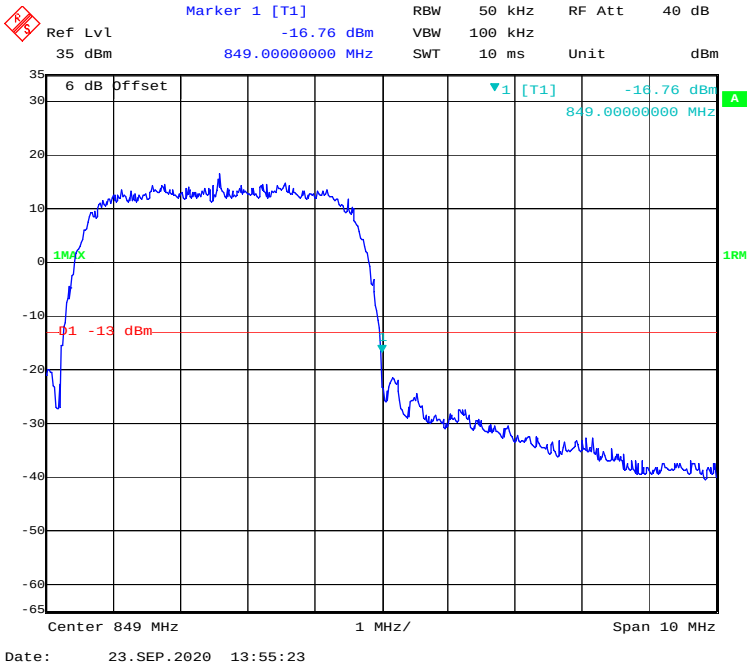
WCDMA (Rel 99) Mode, Right Band Edge



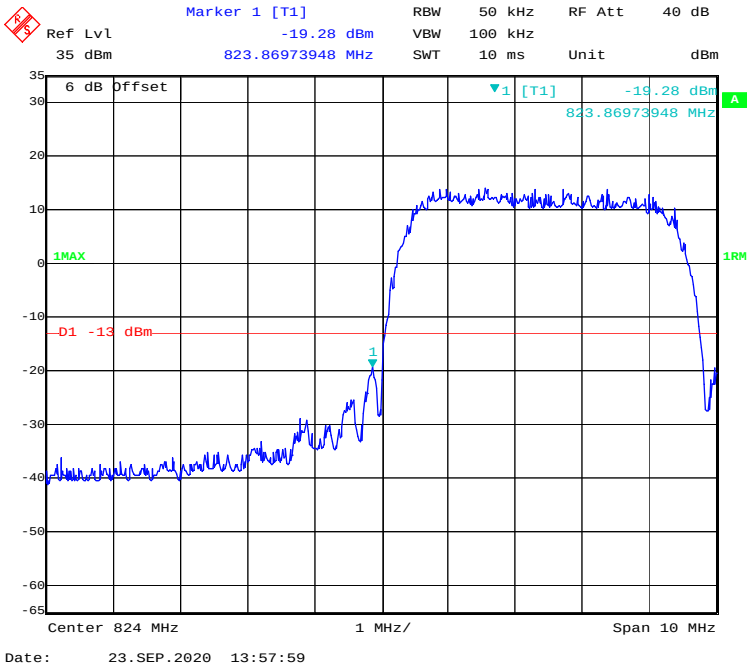
WCDMA (HSDPA) Mode, Left Band Edge



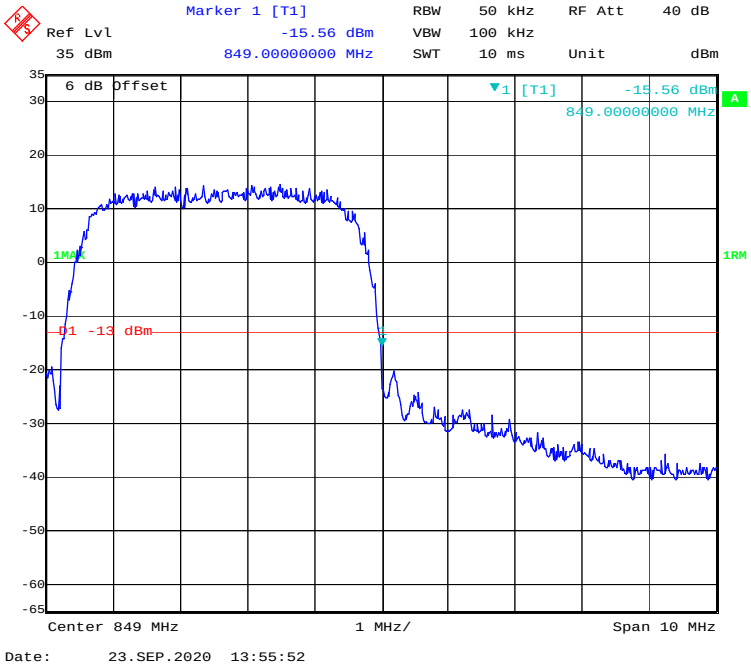
WCDMA (HSDPA) Mode, Right Band Edge



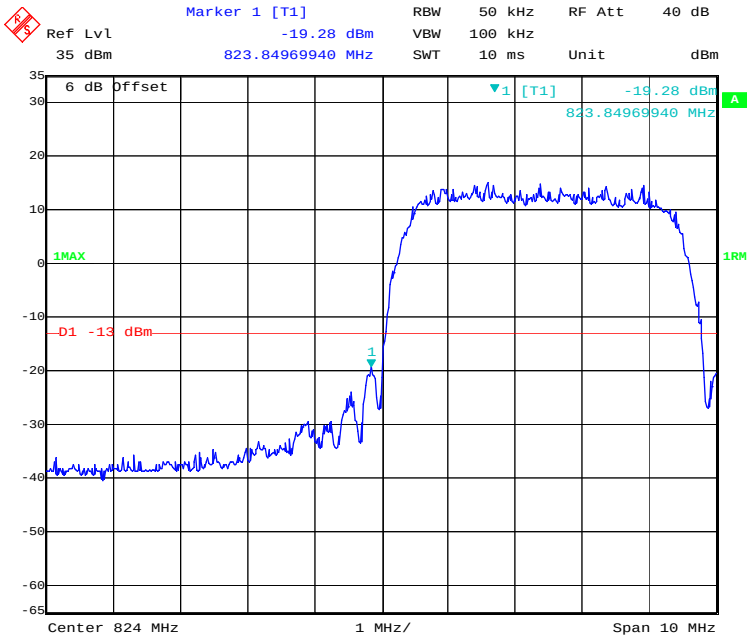
WCDMA (HSUPA) Mode, Left Band Edge



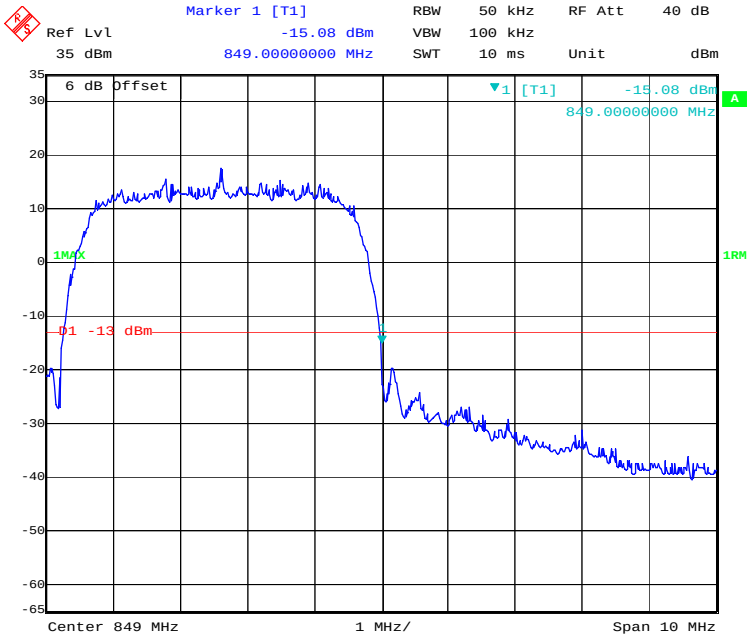
WCDMA (HSUPA) Mode, Right Band Edge



WCDMA (HSPA+) Mode, Left Band Edge

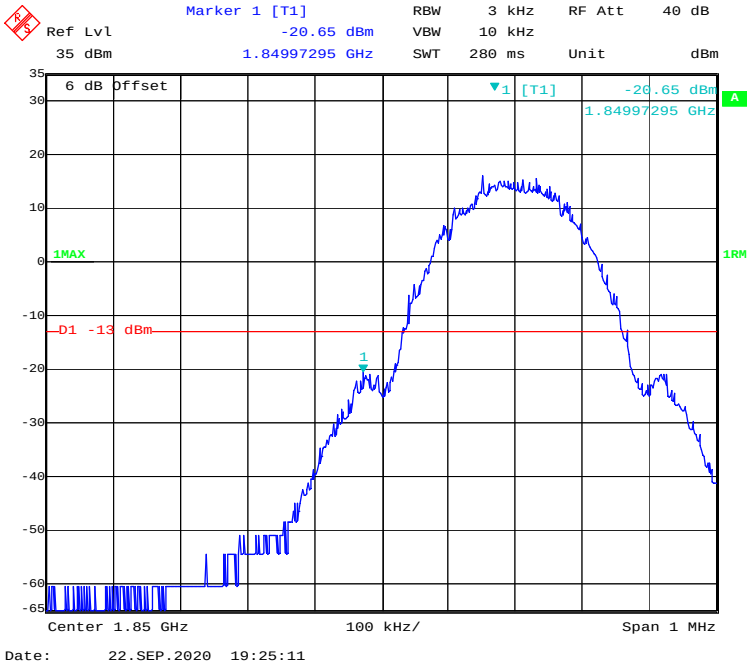


WCDMA (HSPA+) Mode, Right Band Edge

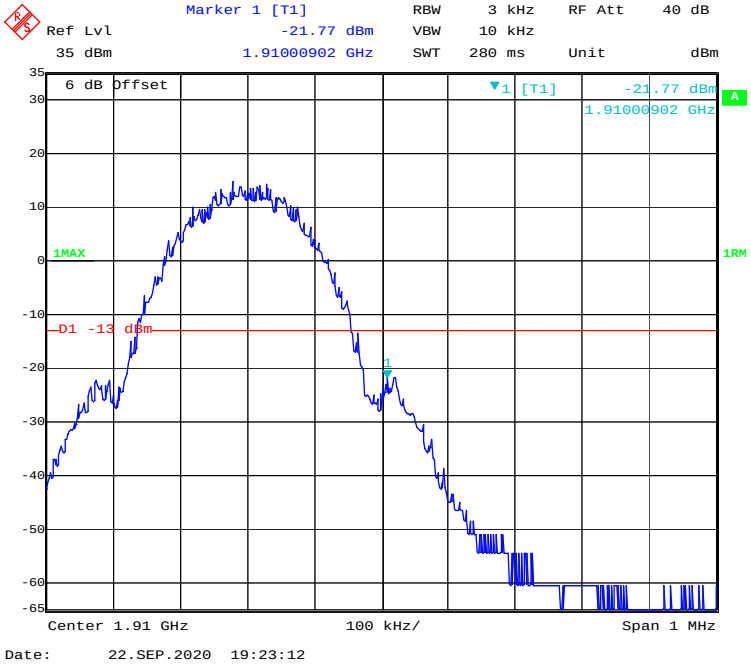


PCS 1900 Band:

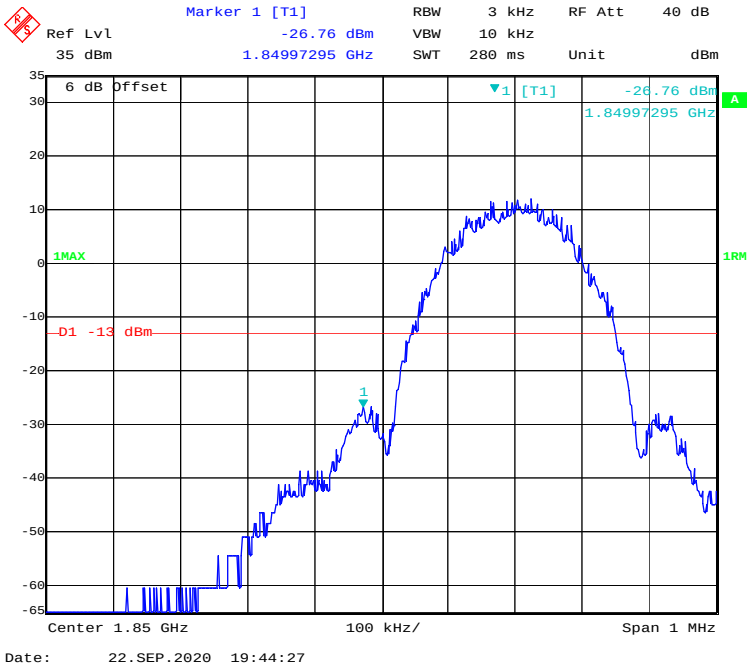
GPRS Mode, Left Band Edge



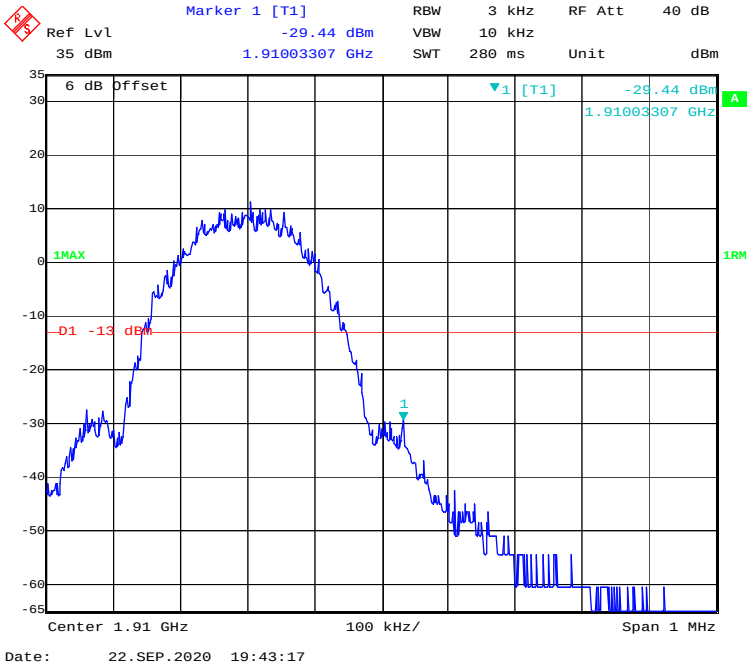
GPRS Mode, Right Band Edge



EGPRS Mode, Left Band Edge

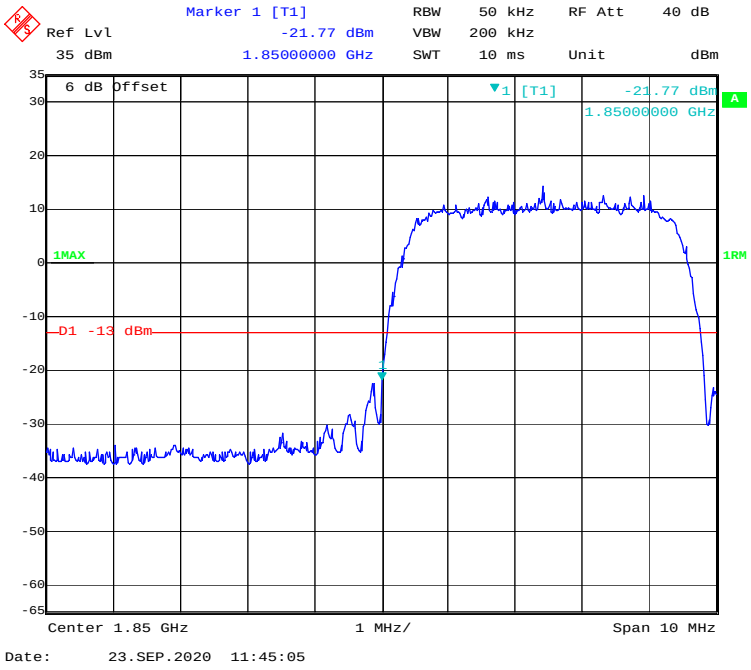


EGPRS Mode, Right Band Edge

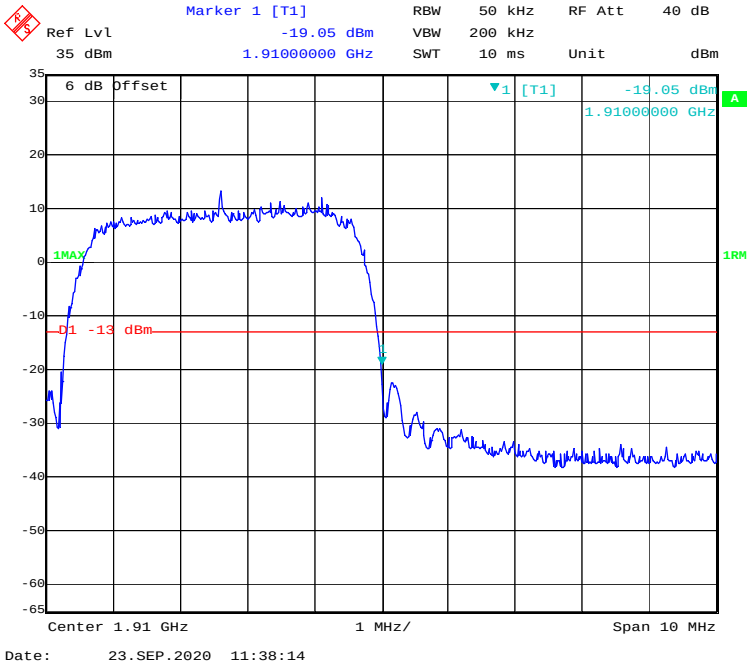


WCDMA Band II

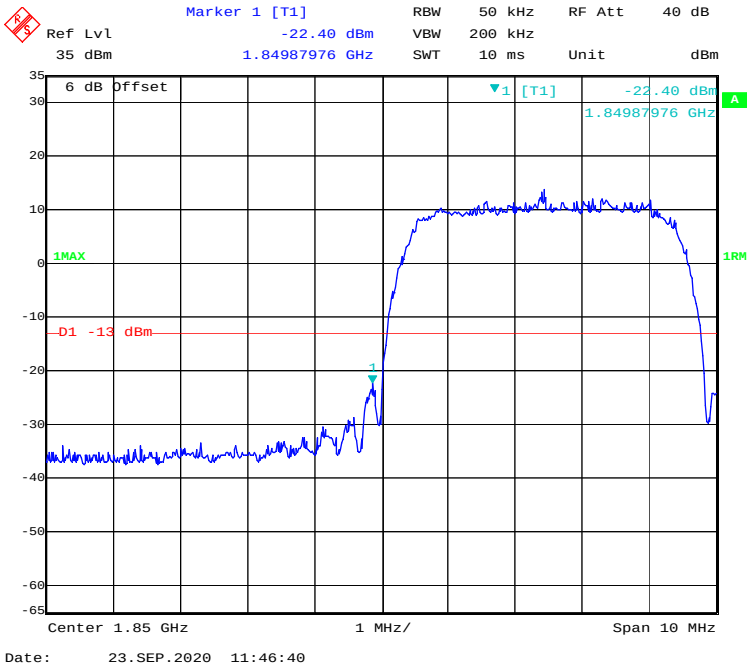
WCDMA (Rel 99) Mode, Left Band Edge



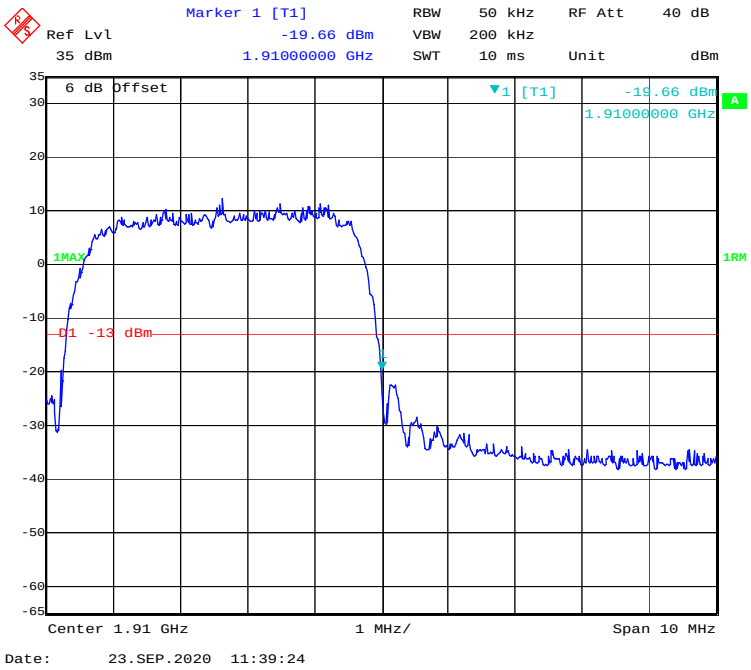
WCDMA (Rel 99) Mode, Right Band Edge



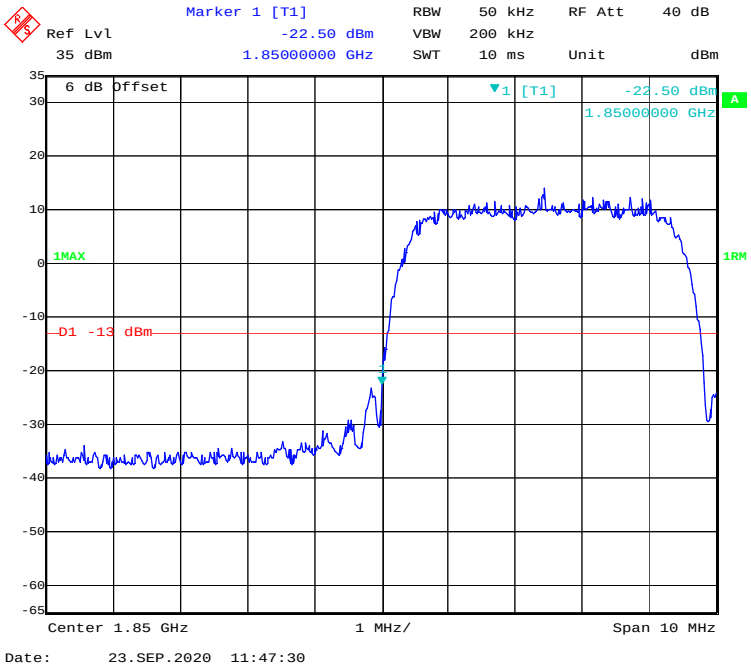
WCDMA (HSDPA) Mode, Left Band Edge



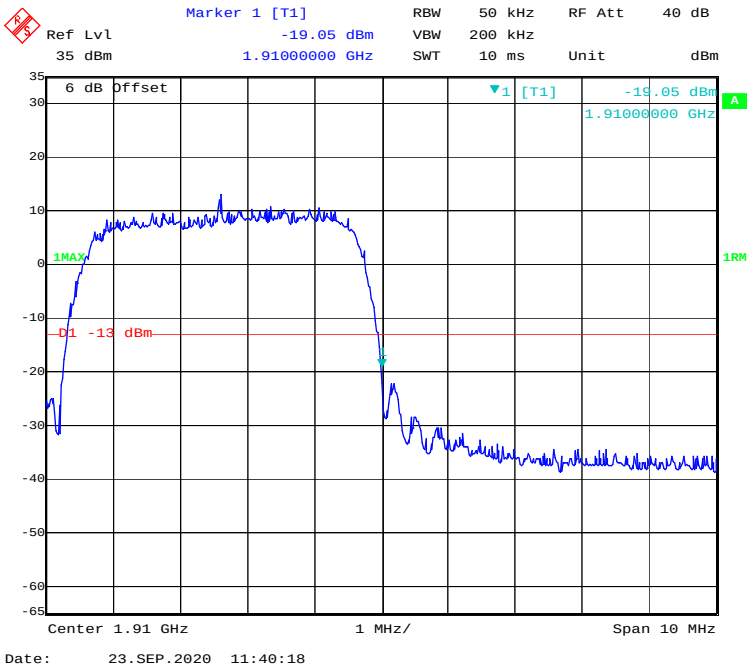
WCDMA (HSDPA) Mode, Right Band Edge



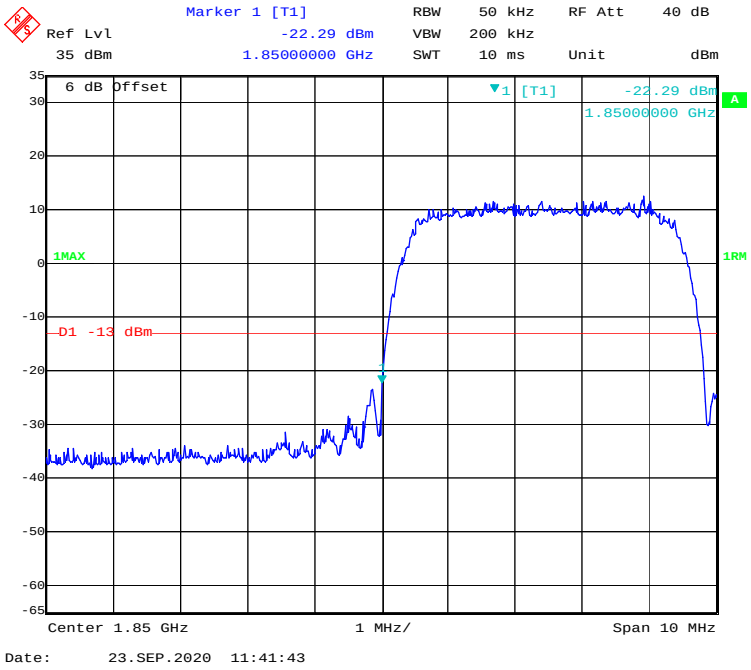
WCDMA (HSUPA) Mode, Left Band Edge



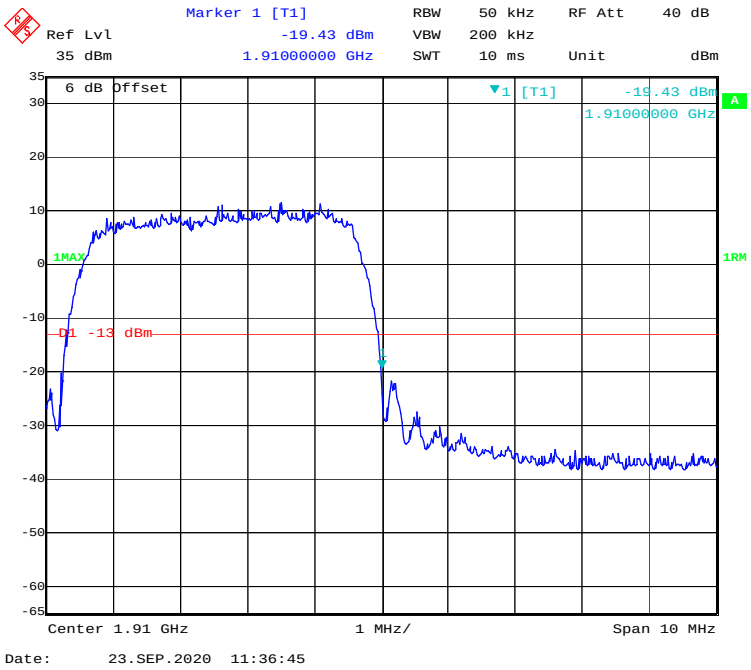
WCDMA (HSUPA) Mode, Right Band Edge



WCDMA (HSPA+) Mode, Left Band Edge

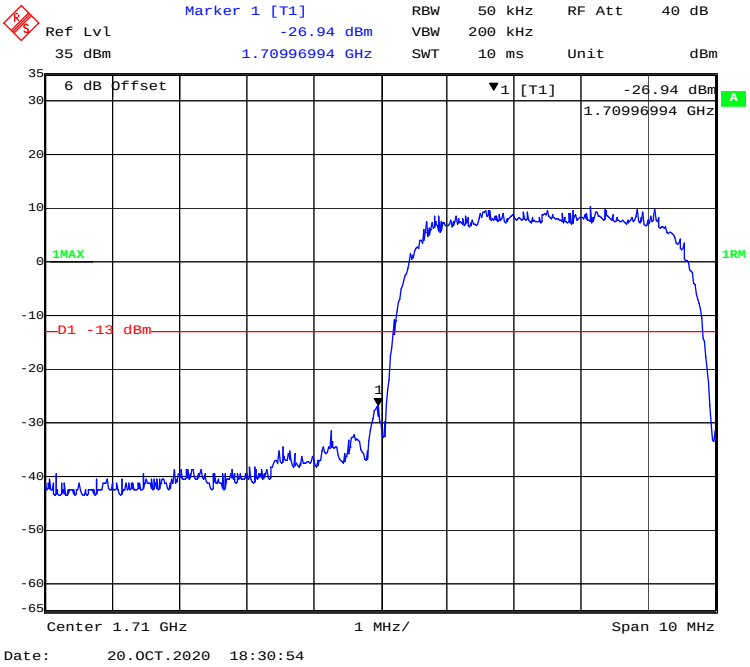


WCDMA (HSPA+) Mode, Right Band Edge

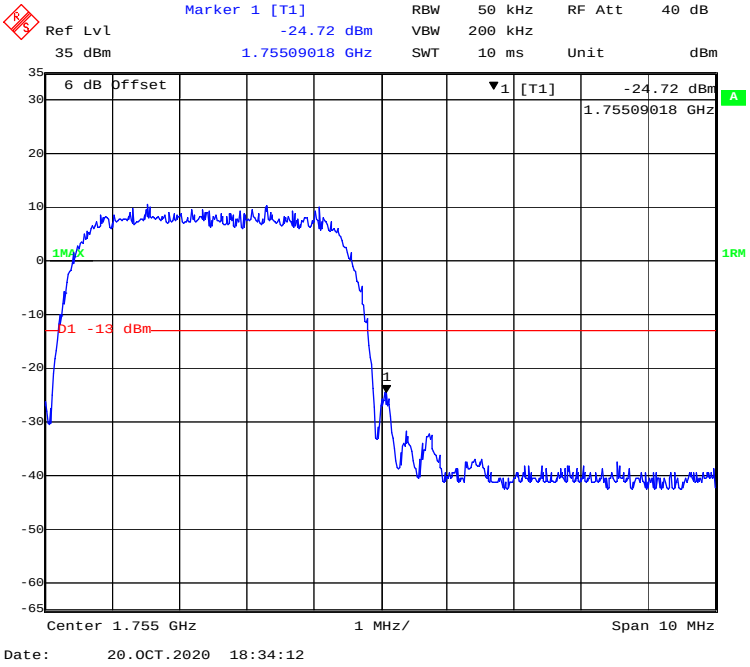


WCDMA Band IV

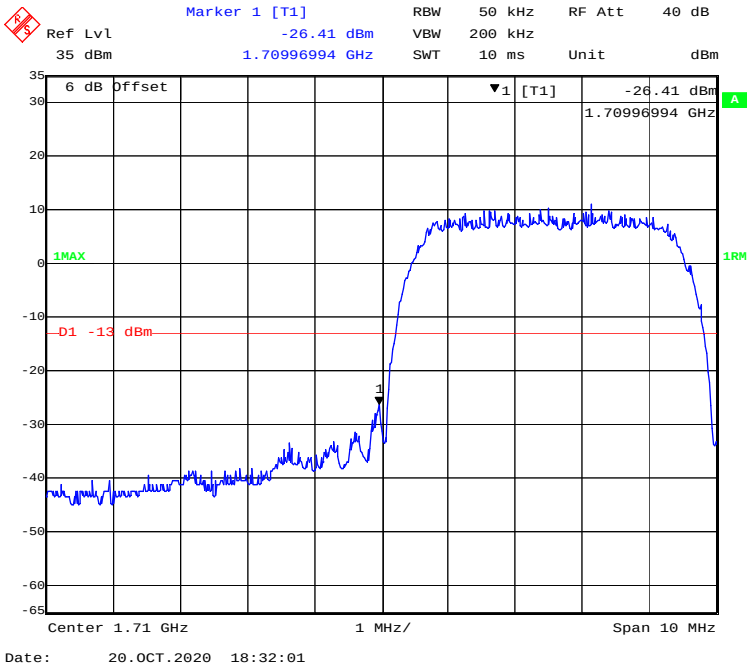
WCDMA (Rel99) Mode, Left Band Edge



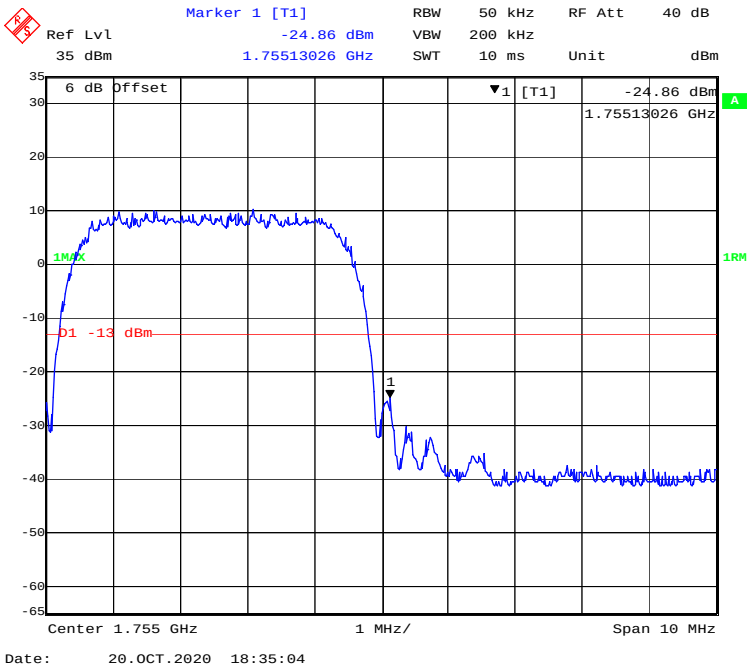
WCDMA (Rel99) Mode, Right Band Edge



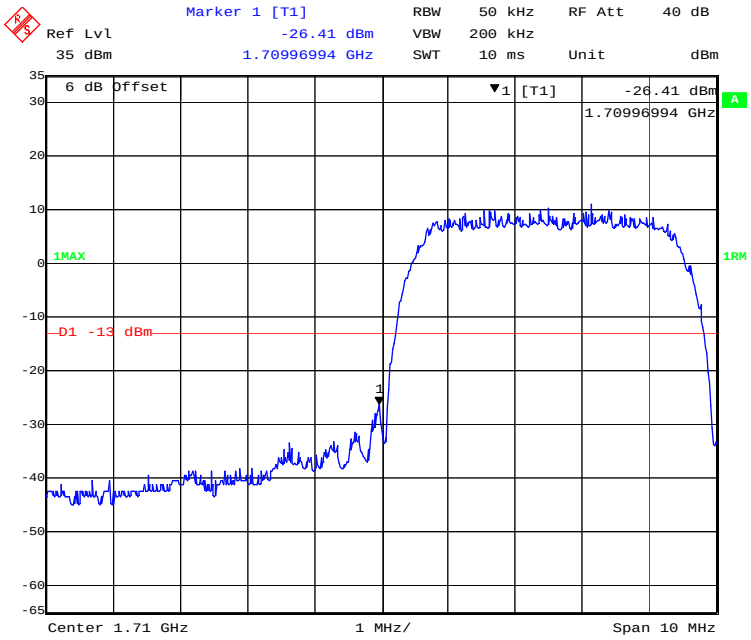
WCDMA (HSDPA) Mode, Left Band Edge



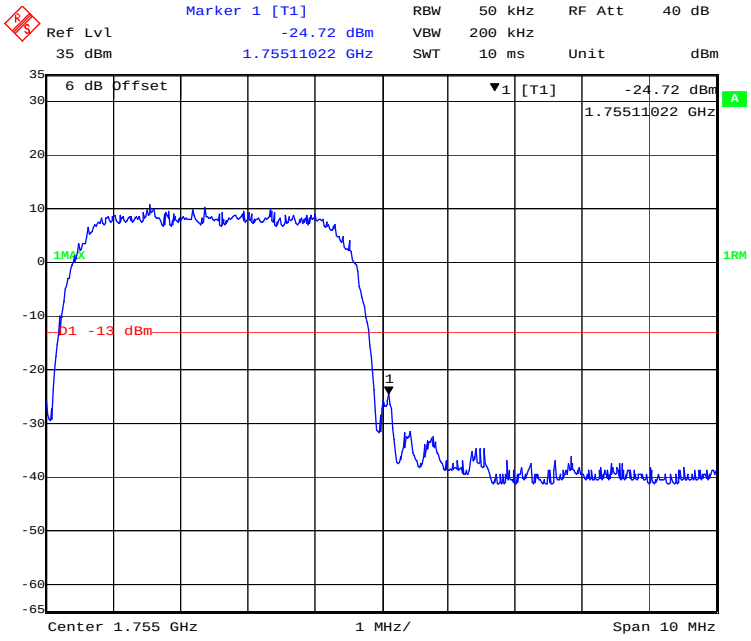
WCDMA (HSDPA) Mode, Right Band Edge



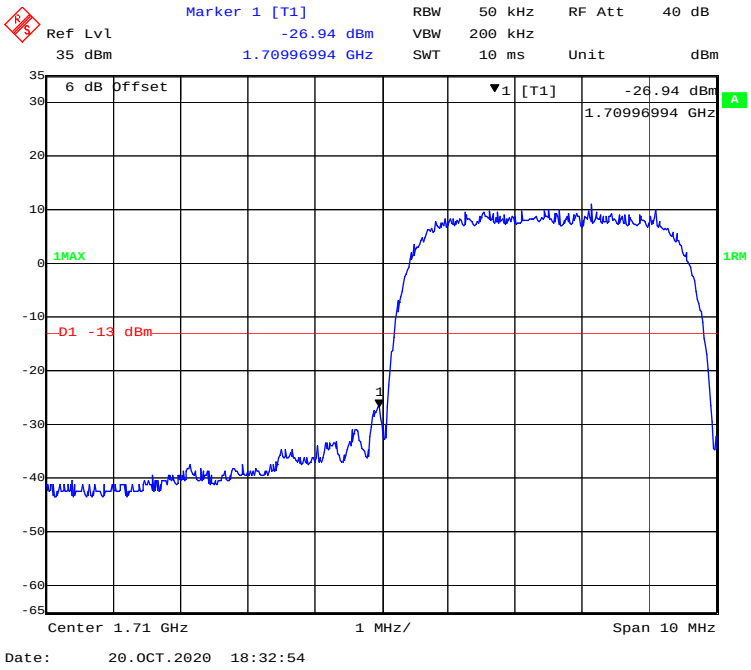
WCDMA (HSUPA) Mode, Left Band Edge



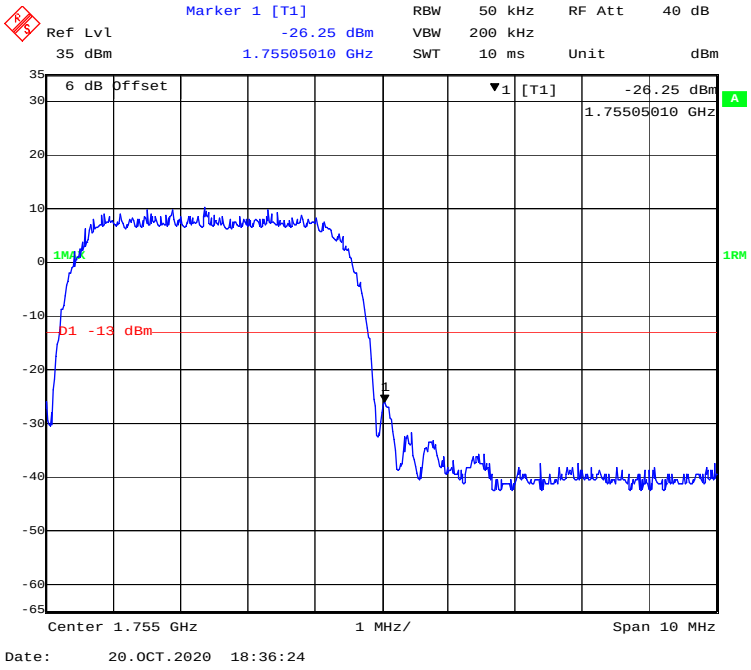
WCDMA (HSUPA) Mode, Right Band Edge



WCDMA (HSPA+) Mode, Left Band Edge

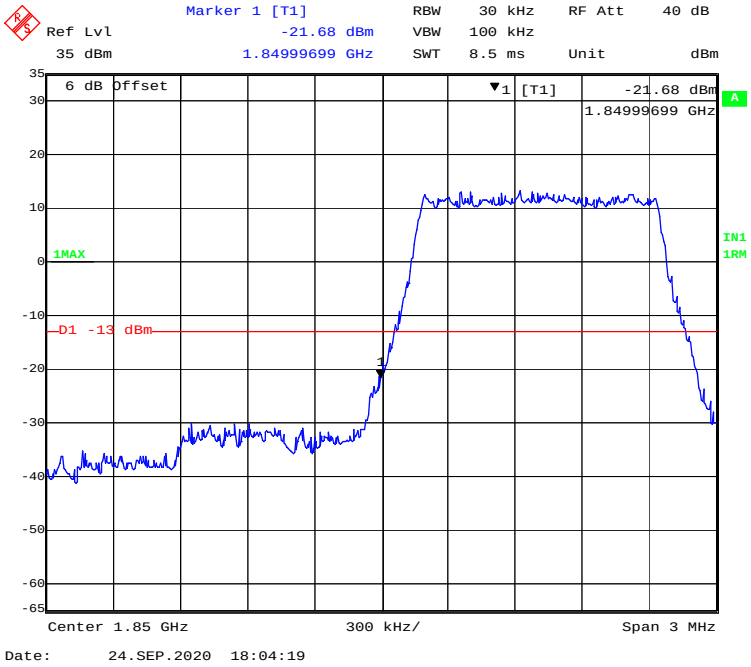


WCDMA (HSPA+) Mode, Right Band Edge

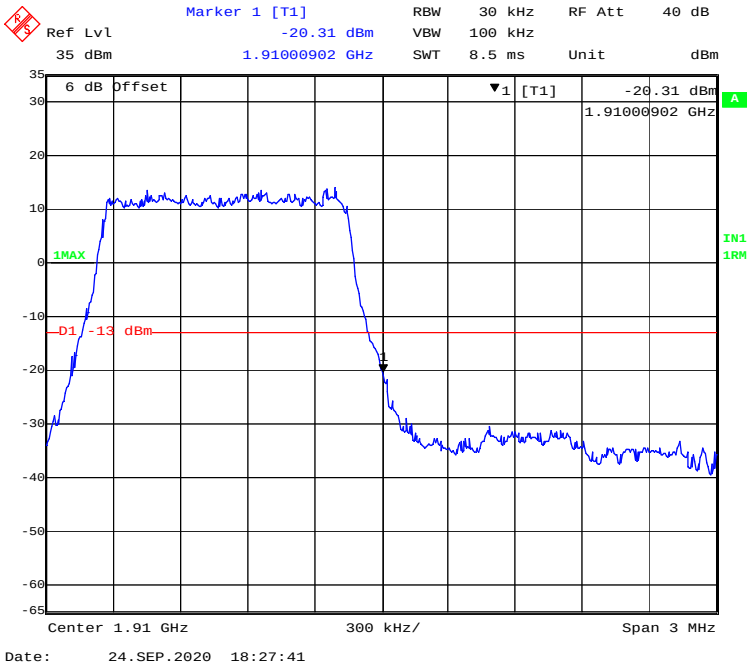


LTE Band 2:

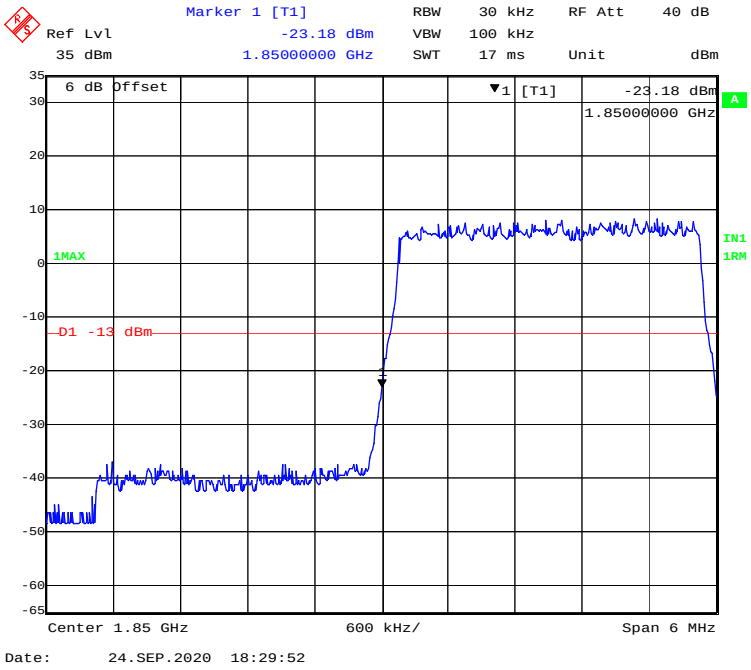
QPSK (1.4 MHz, FULL RB) - Left Band Edge



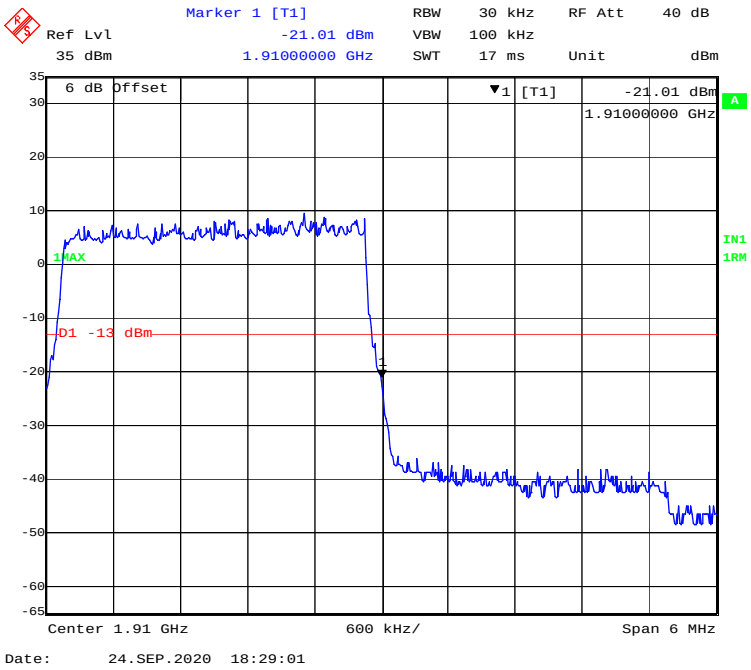
QPSK (1.4 MHz, FULL RB) - Right Band Edge



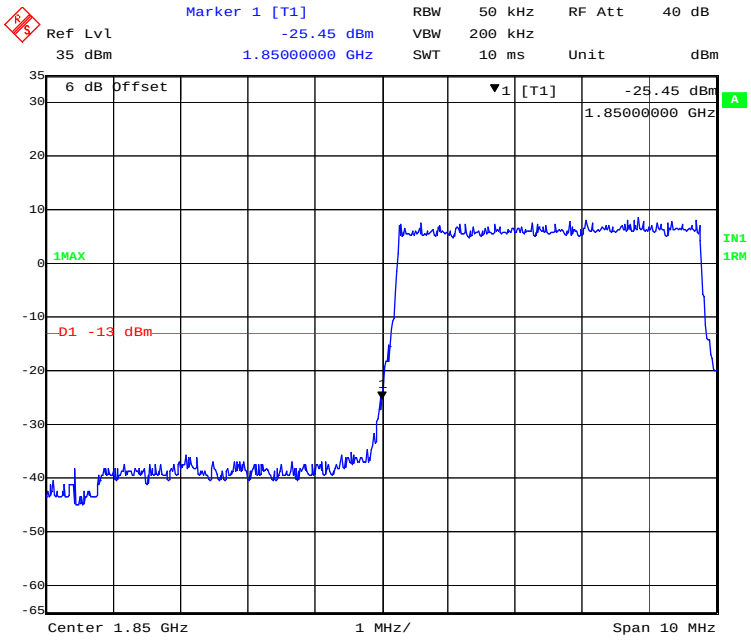
QPSK (3 MHz, FULL RB) - Left Band Edge



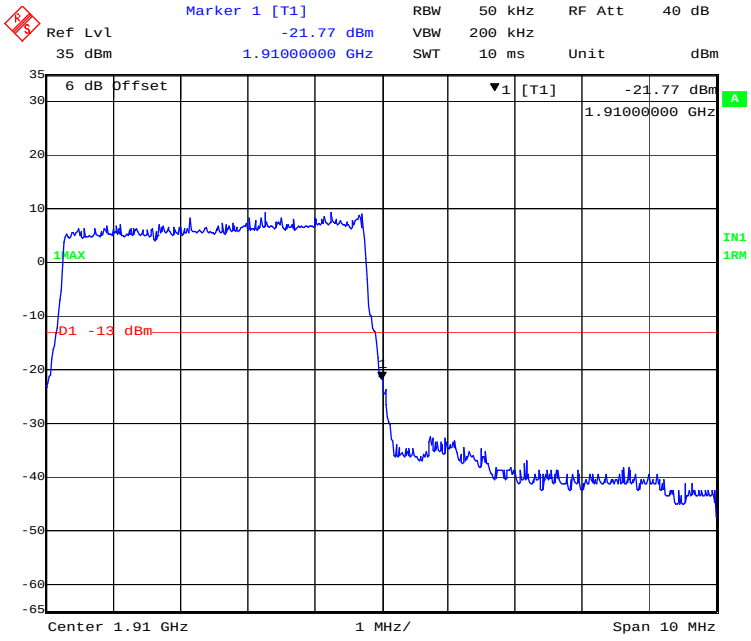
QPSK (3 MHz, FULL RB) - Right Band Edge



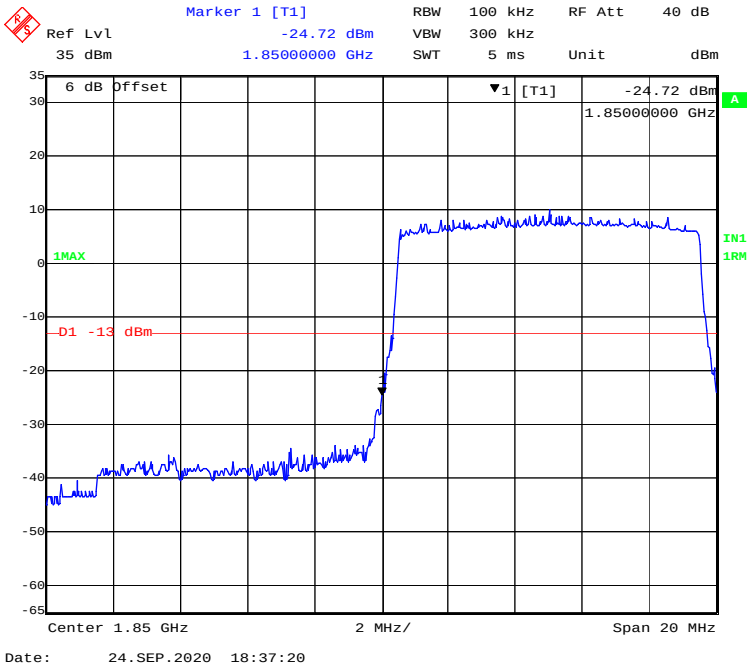
QPSK (5 MHz, FULL RB) - Left Band Edge



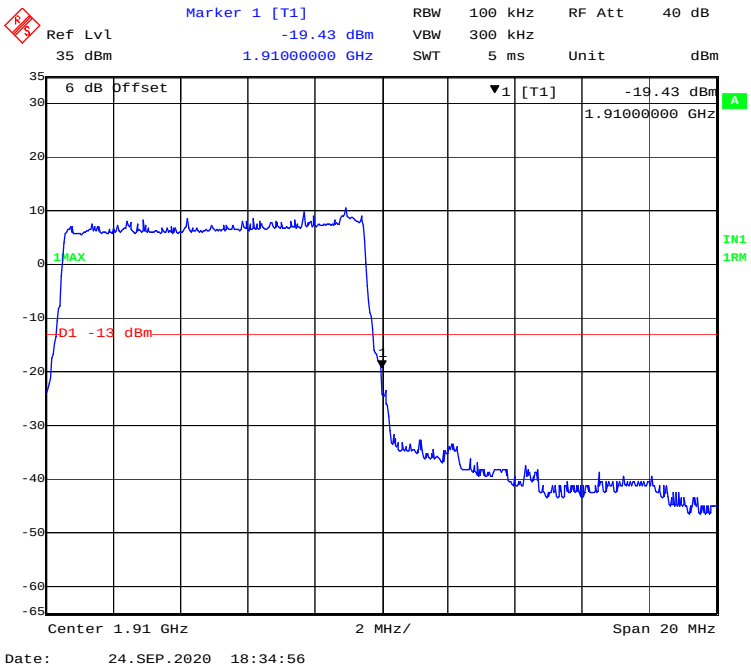
QPSK (5 MHz, FULL RB) - Right Band Edge



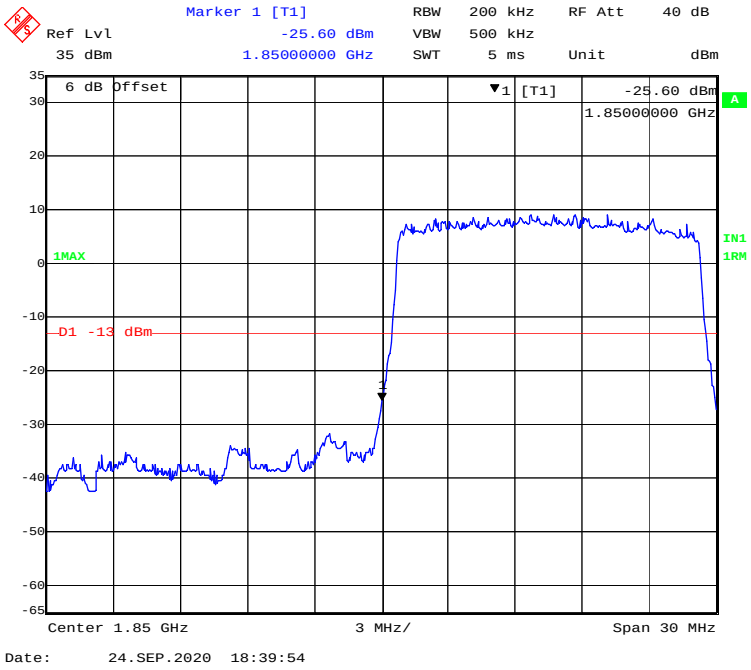
QPSK (10 MHz, FULL RB) - Left Band Edge



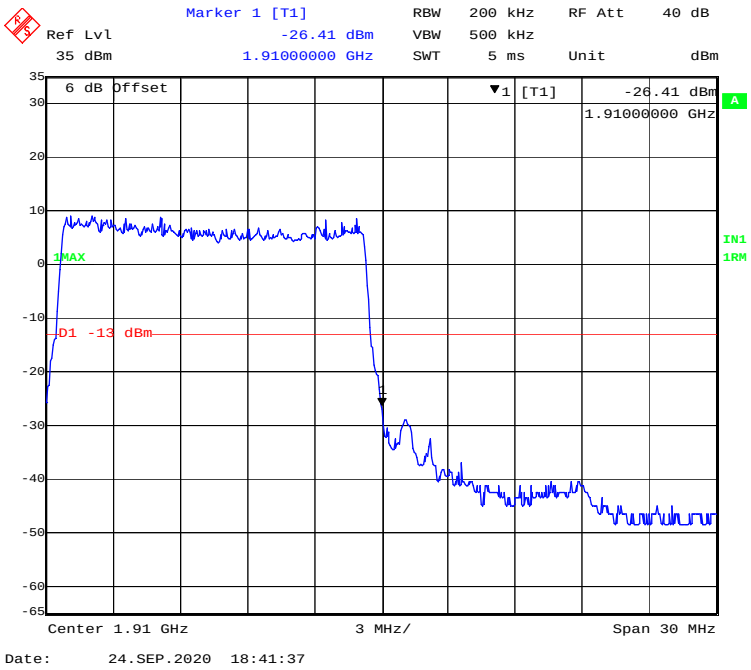
QPSK (10 MHz, FULL RB) - Right Band Edge



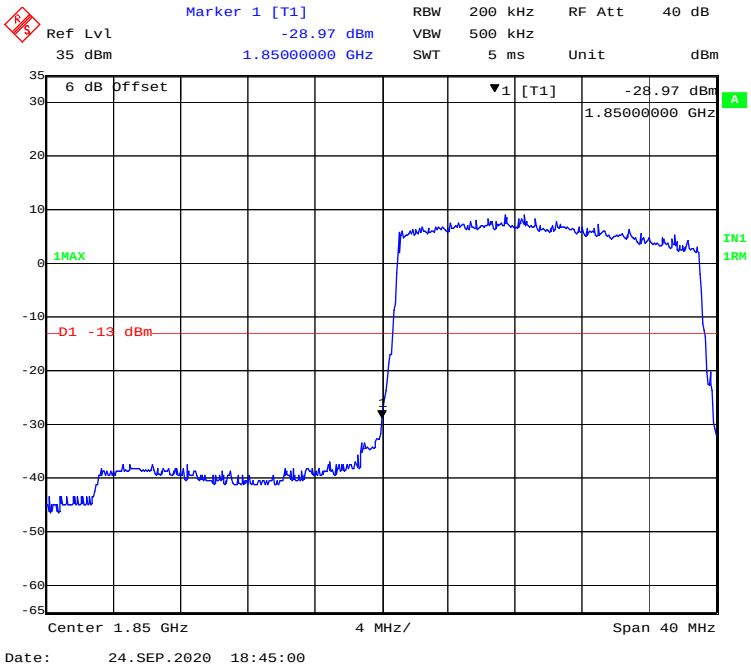
QPSK (15 MHz, FULL RB) - Left Band Edge



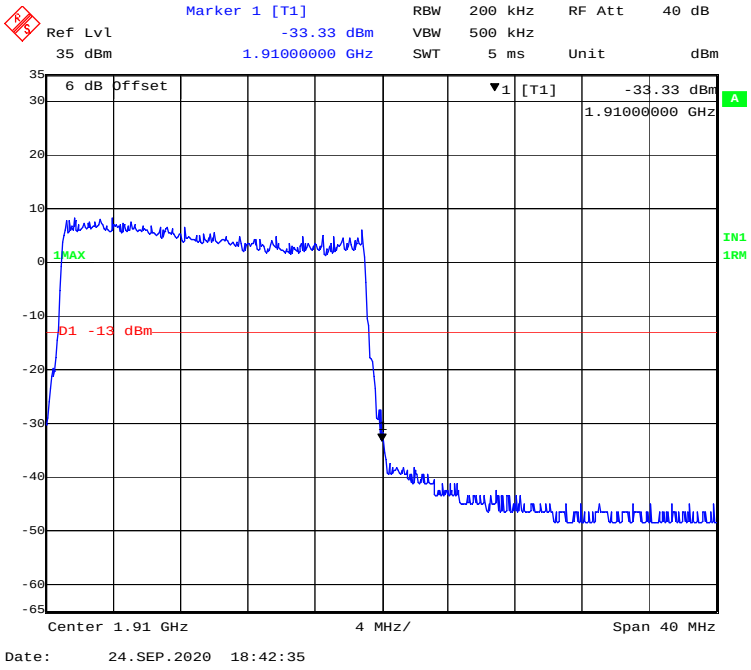
QPSK (15 MHz, FULL RB) - Right Band Edge



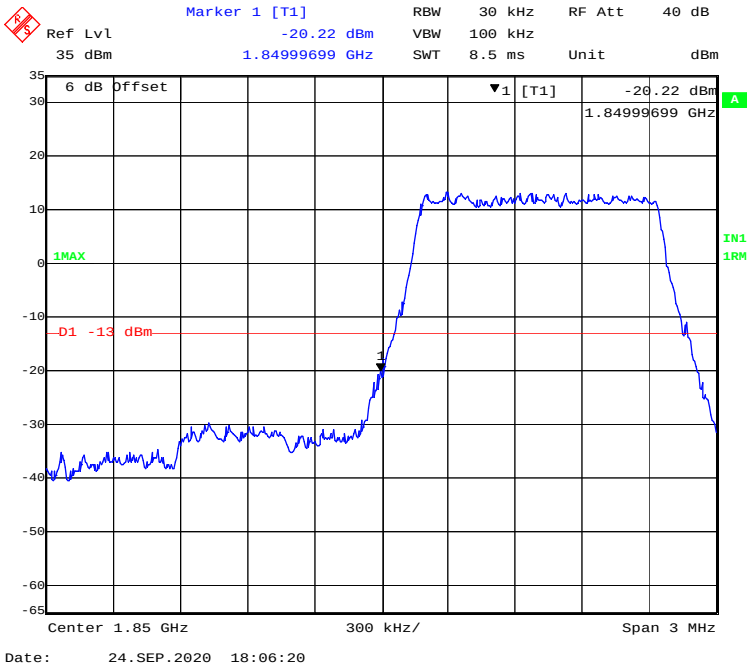
QPSK (20 MHz, FULL RB) - Left Band Edge



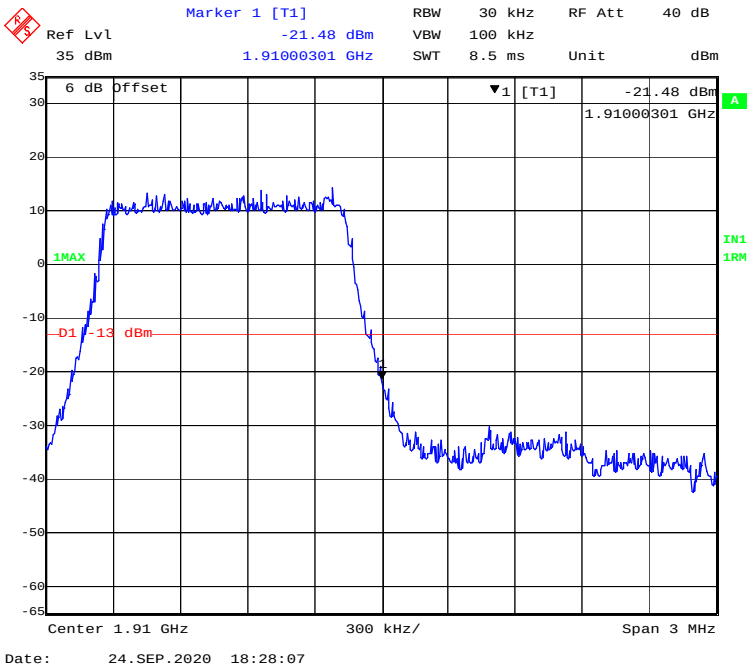
QPSK (20 MHz, FULL RB) - Right Band Edge



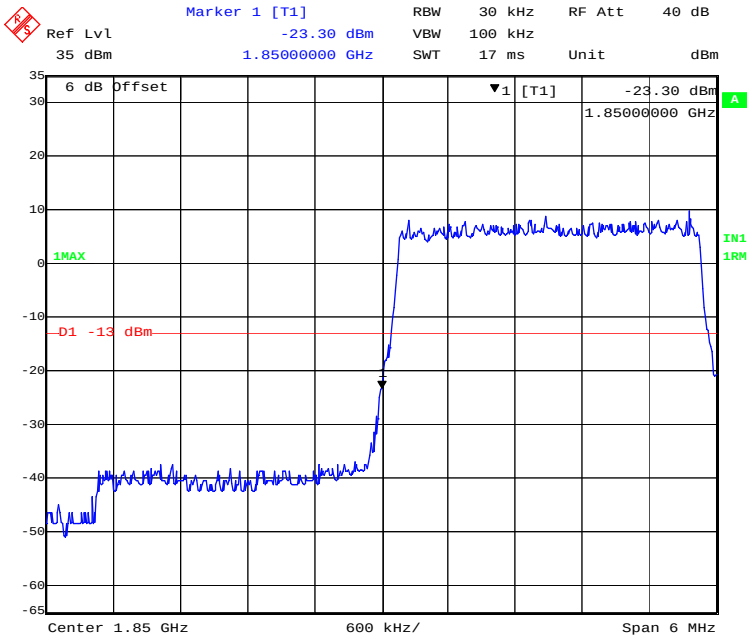
16-QAM (1.4 MHz, FULL RB) - Left Band Edge



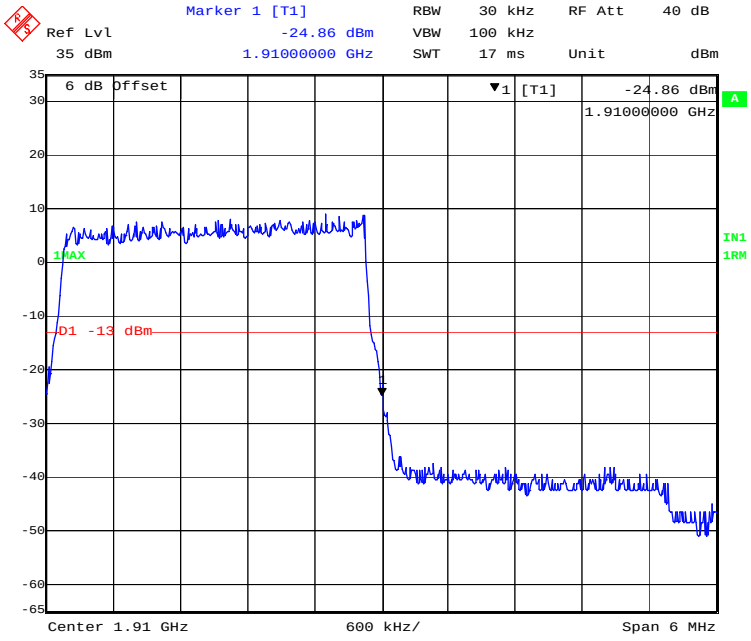
16-QAM (1.4 MHz, FULL RB) - Right Band Edge



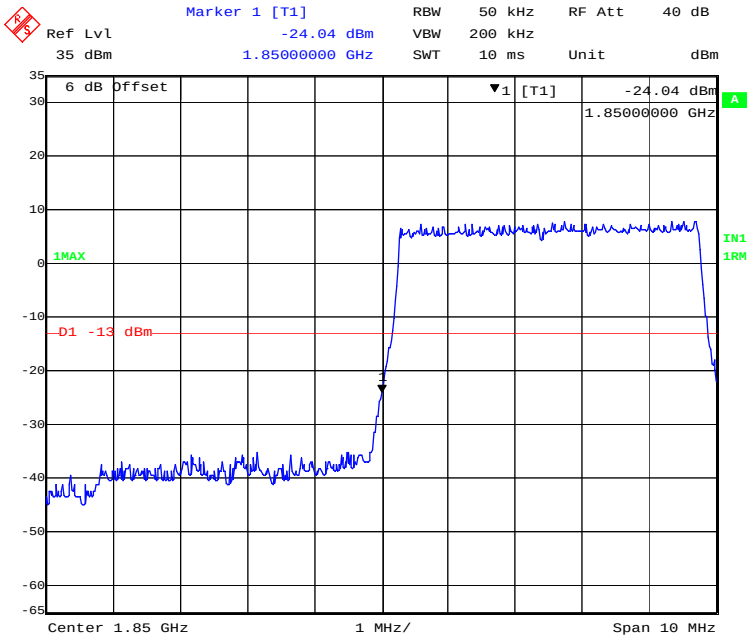
16-QAM (3 MHz, FULL RB) - Left Band Edge



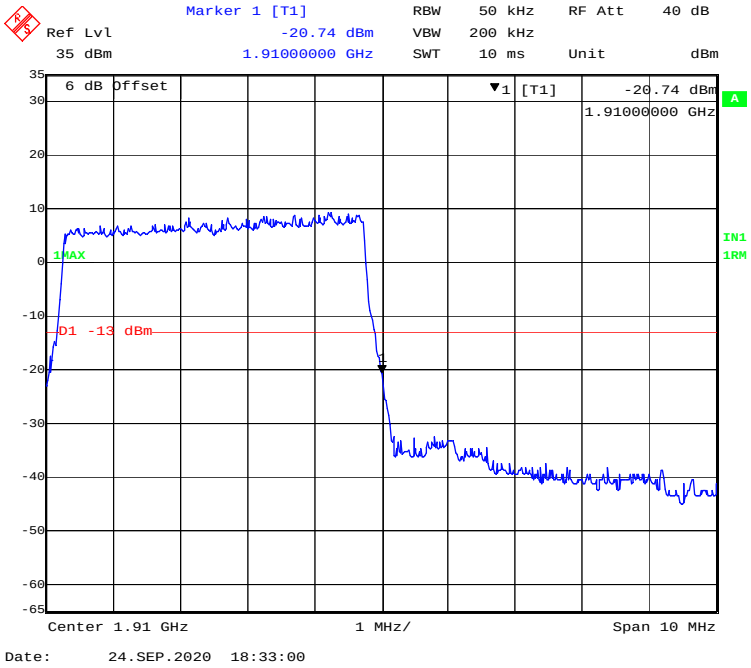
16-QAM (3 MHz, FULL RB) - Right Band Edge



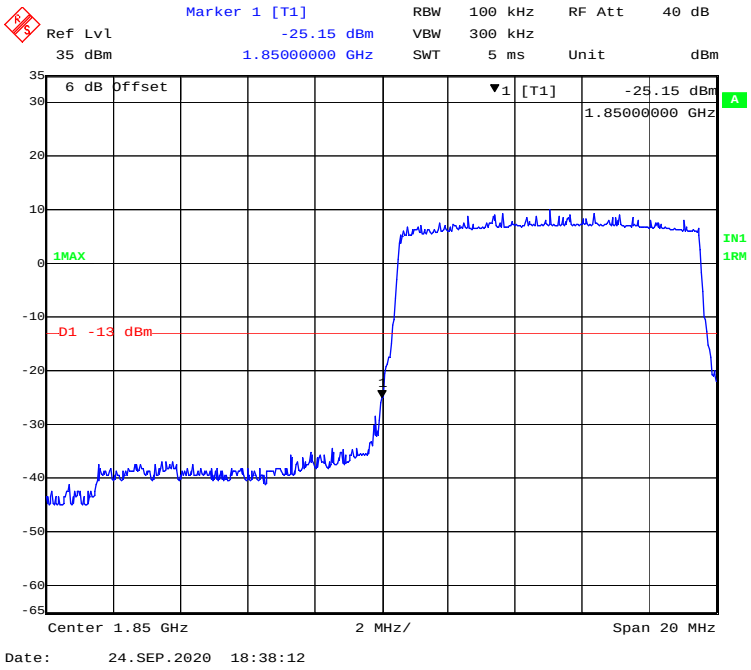
16-QAM (5 MHz, FULL RB) - Left Band Edge



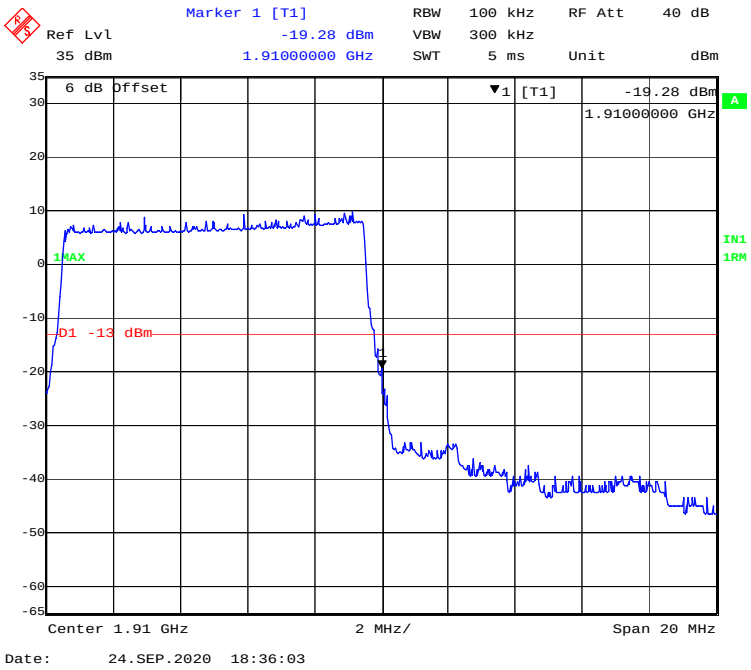
16-QAM (5 MHz, FULL RB) - Right Band Edge



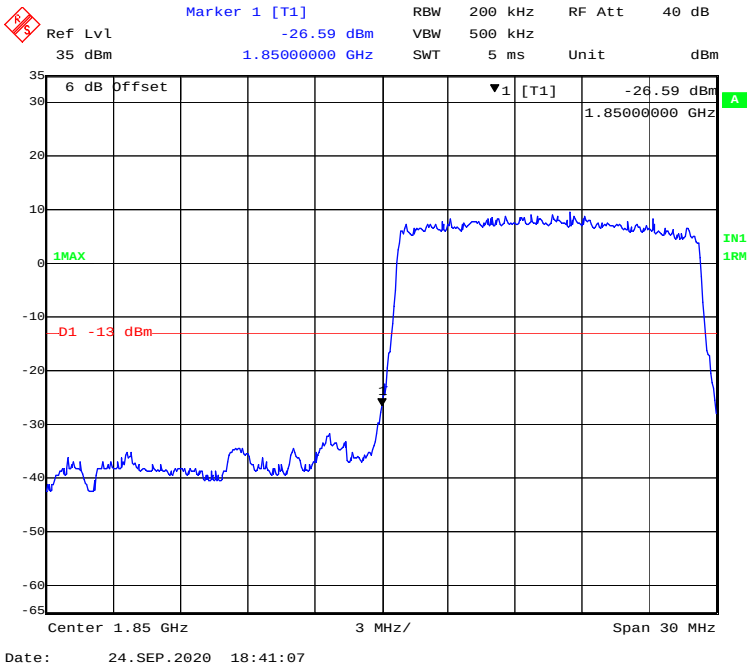
16-QAM (10 MHz, FULL RB) - Left Band Edge



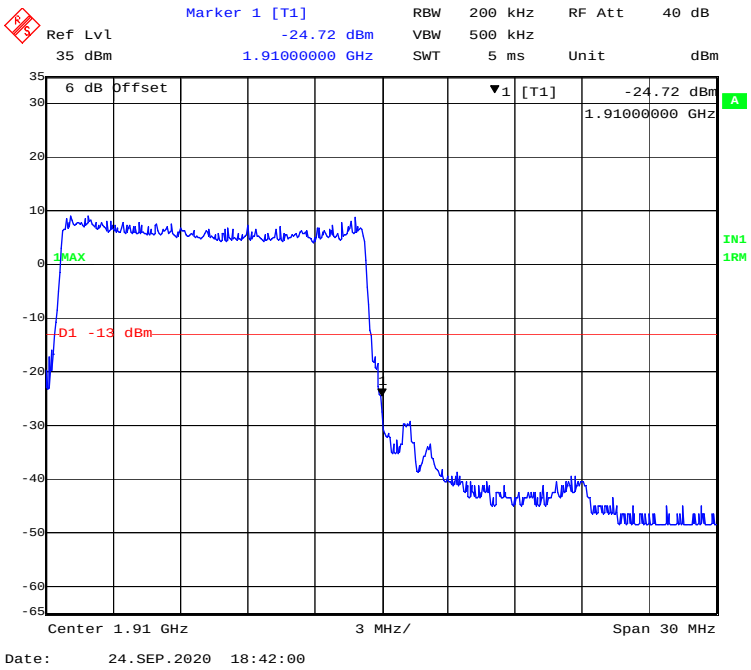
16-QAM (10 MHz, FULL RB) - Right Band Edge



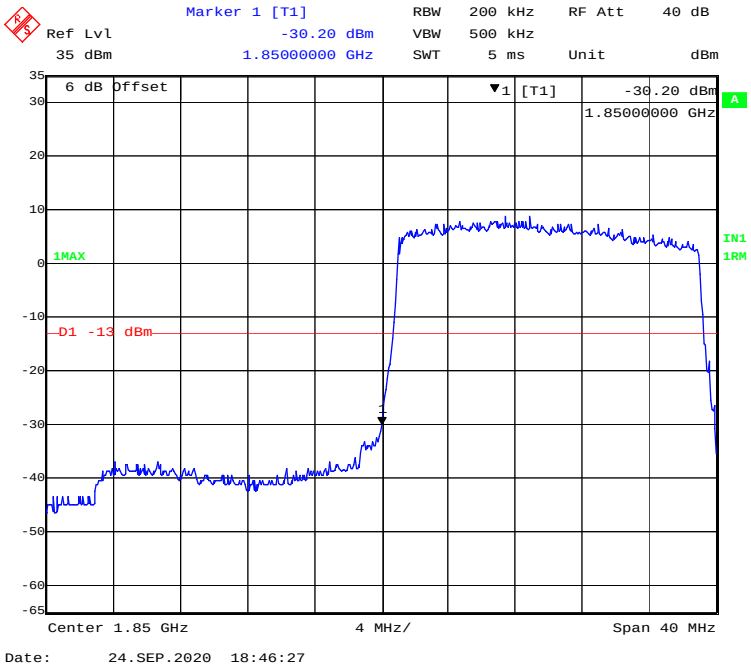
16-QAM (15 MHz, FULL RB) - Left Band Edge



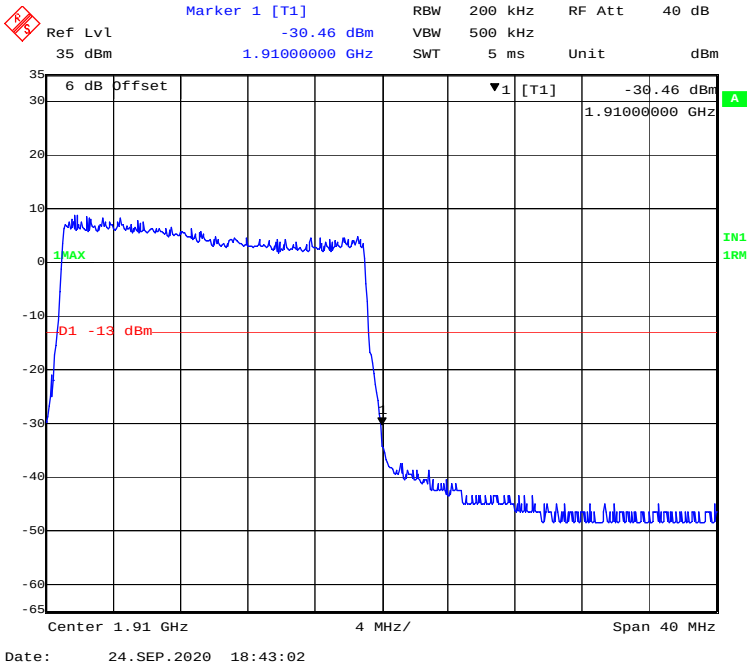
16-QAM (15 MHz, FULL RB) - Right Band Edge



16-QAM (20 MHz, FULL RB) - Left Band Edge

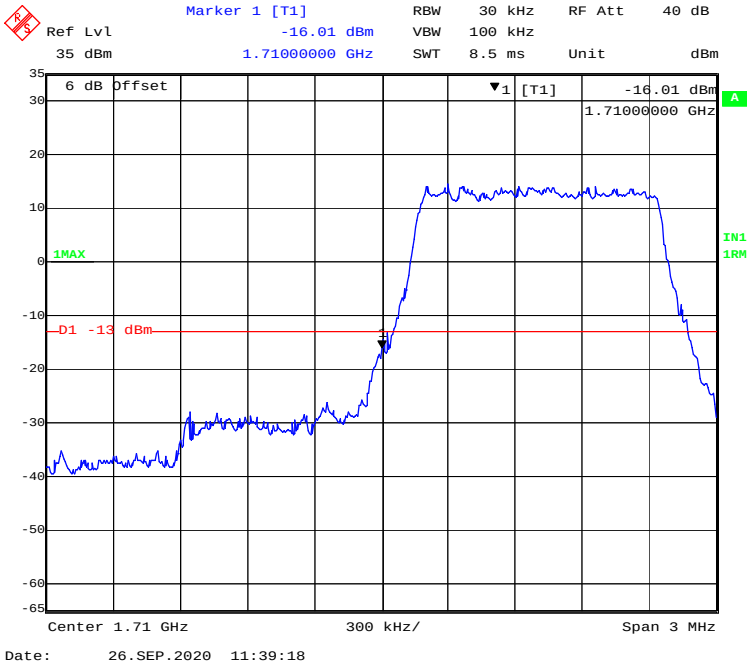


16-QAM (20 MHz, FULL RB) - Right Band Edge

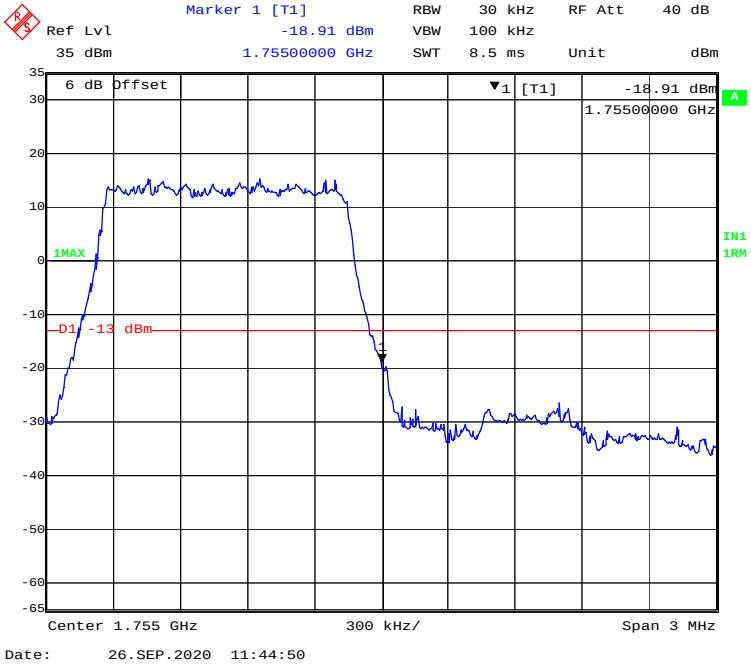


LTE Band 4:

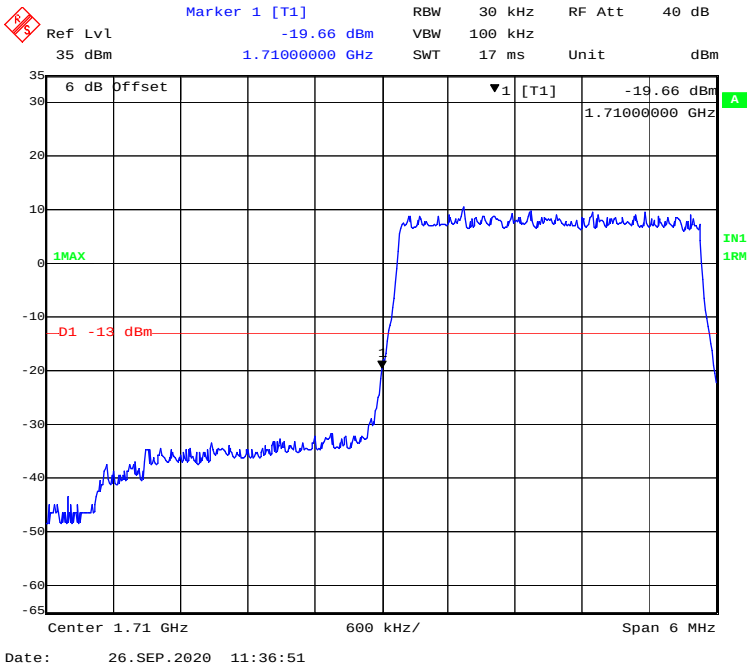
QPSK (1.4 MHz, FULL RB) - Left Band Edge



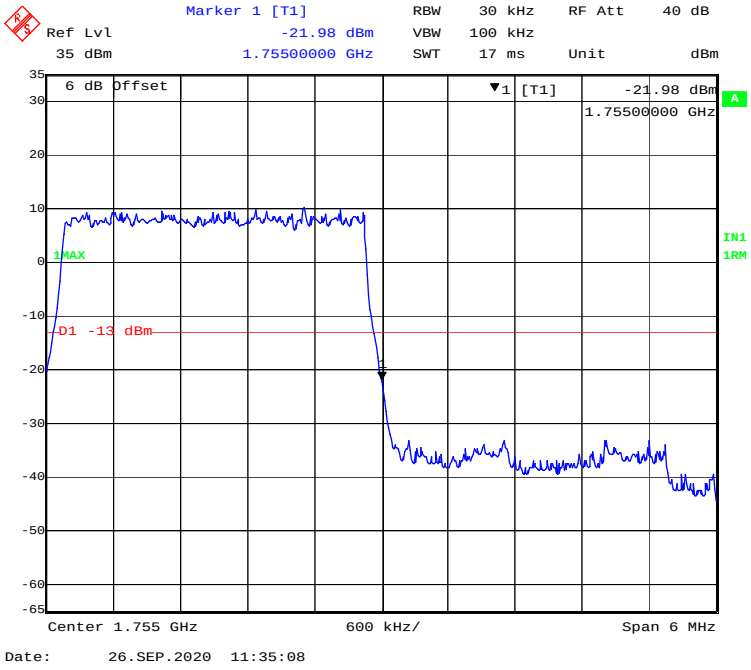
QPSK (1.4 MHz, FULL RB) - Right Band Edge



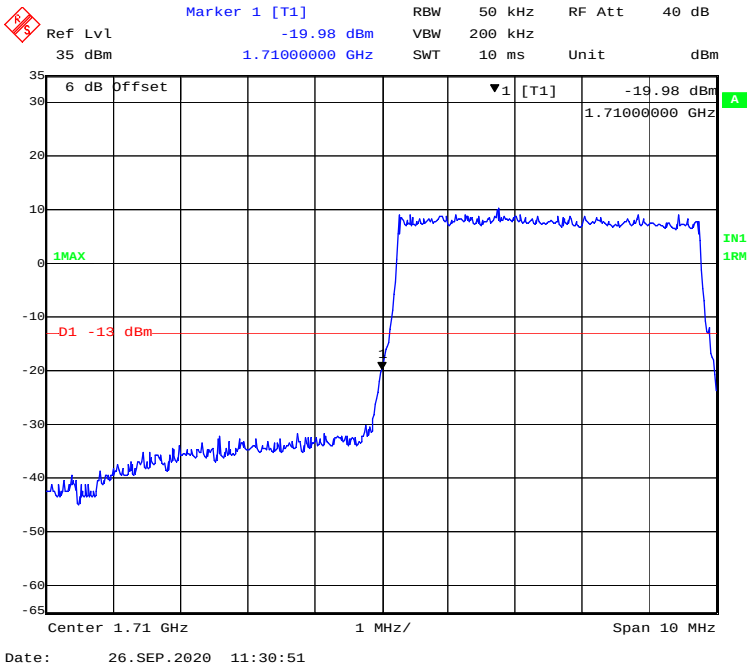
QPSK (3 MHz, FULL RB) - Left Band Edge



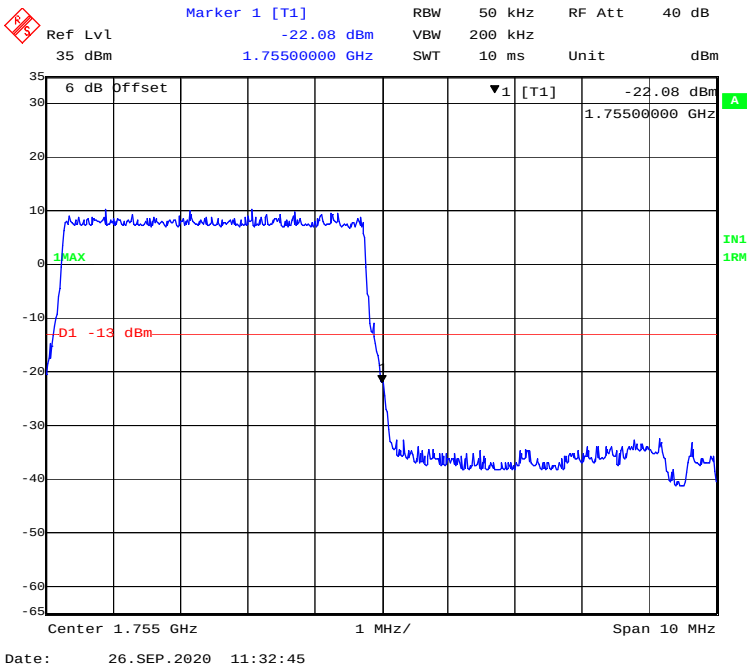
QPSK (3 MHz, FULL RB) - Right Band Edge



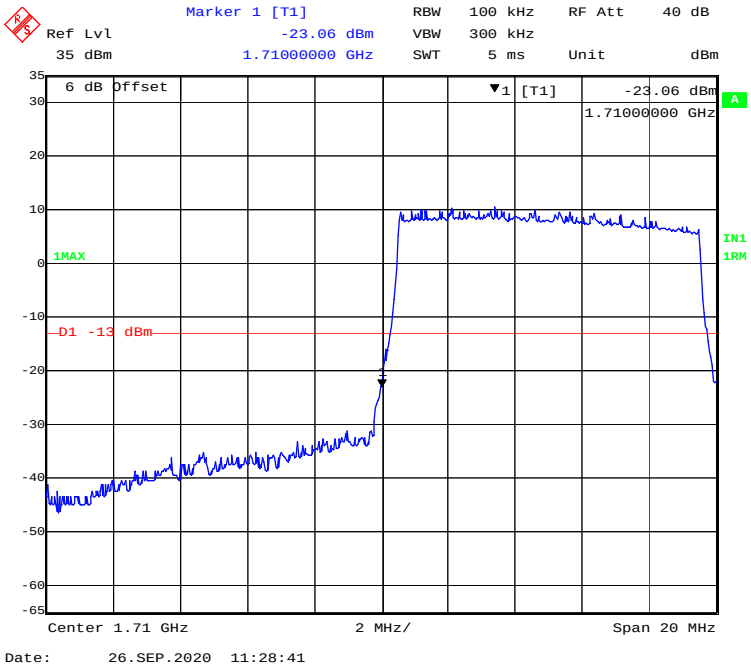
QPSK (5 MHz, FULL RB) - Left Band Edge



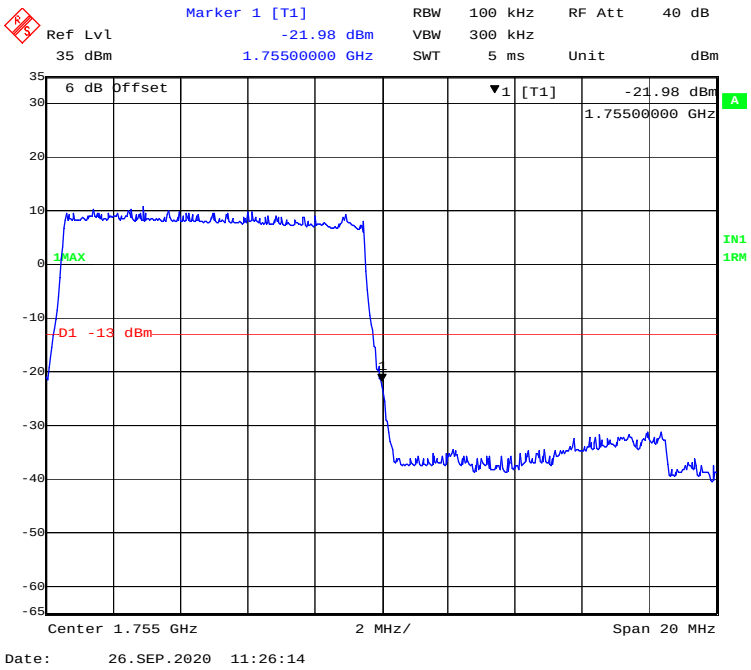
QPSK (5 MHz, FULL RB) - Right Band Edge



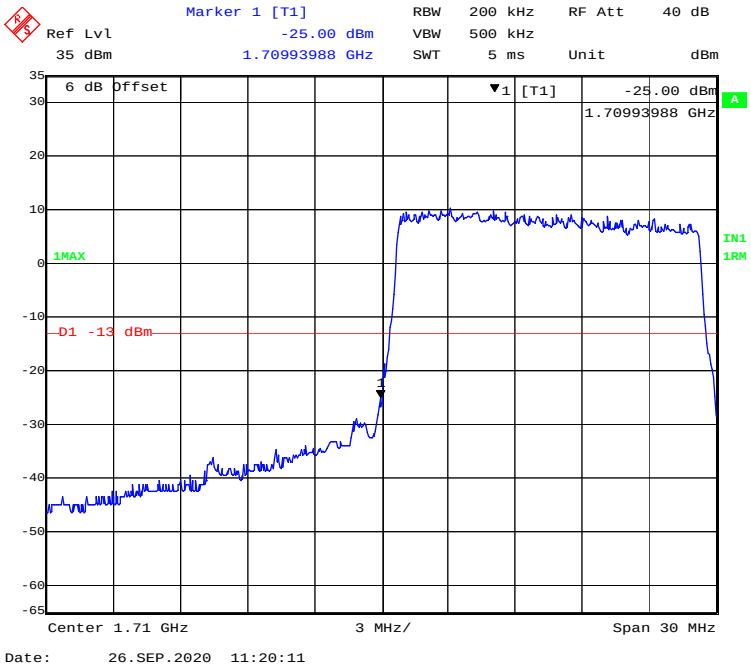
QPSK (10 MHz, FULL RB) - Left Band Edge



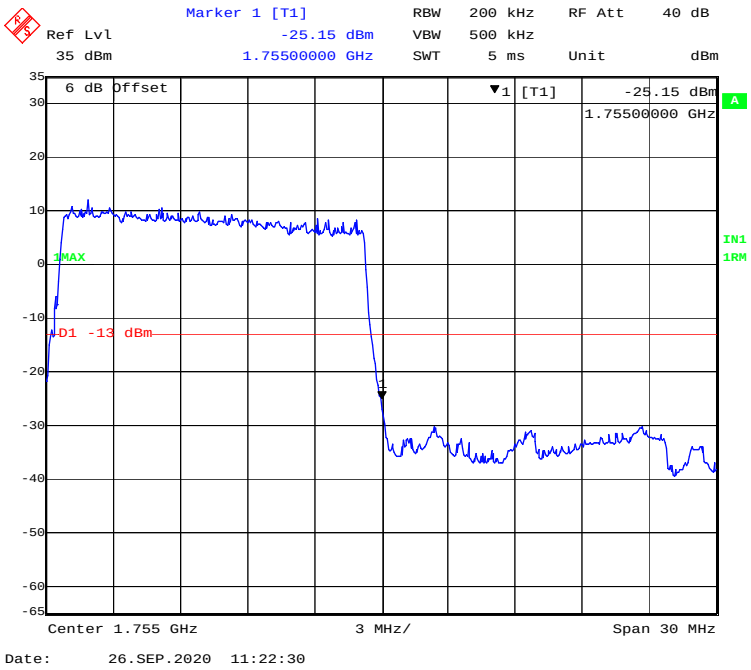
QPSK (10 MHz, FULL RB) - Right Band Edge



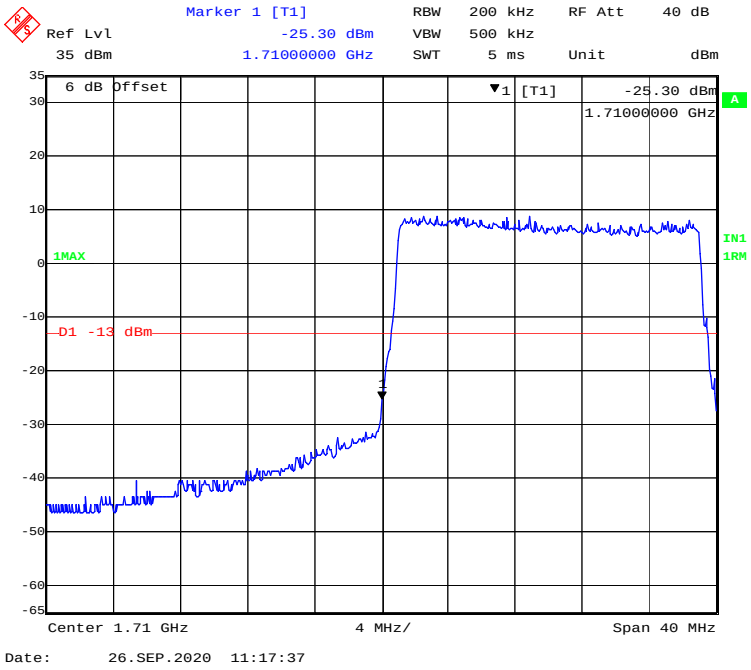
QPSK (15 MHz, FULL RB) - Left Band Edge



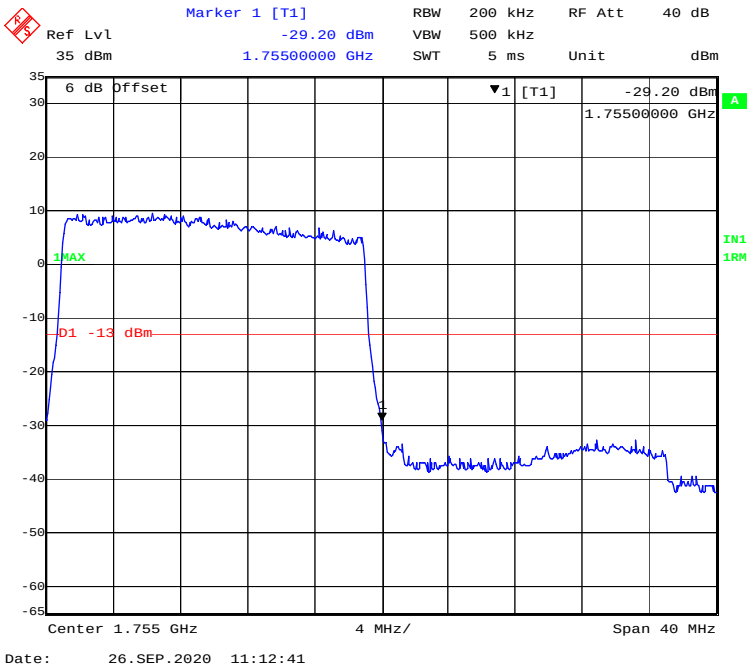
QPSK (15 MHz, FULL RB) - Right Band Edge



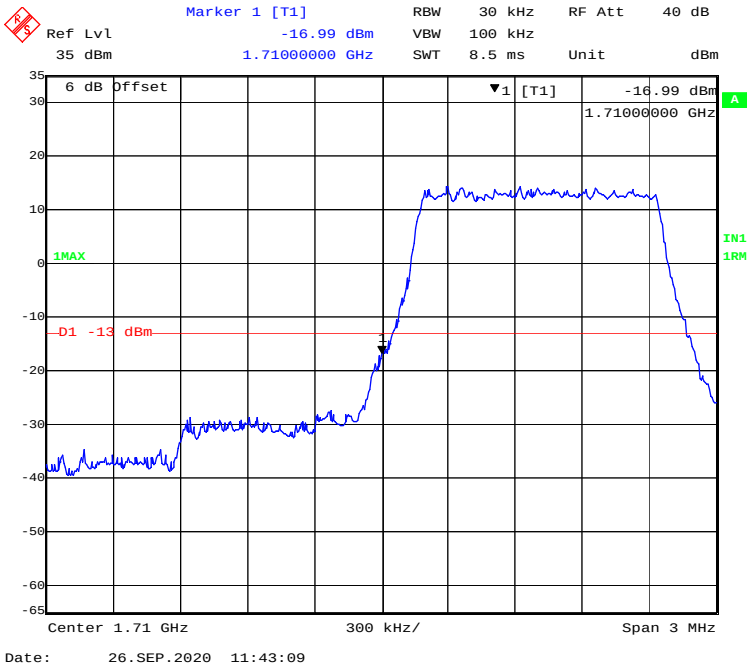
QPSK (20 MHz, FULL RB) - Left Band Edge



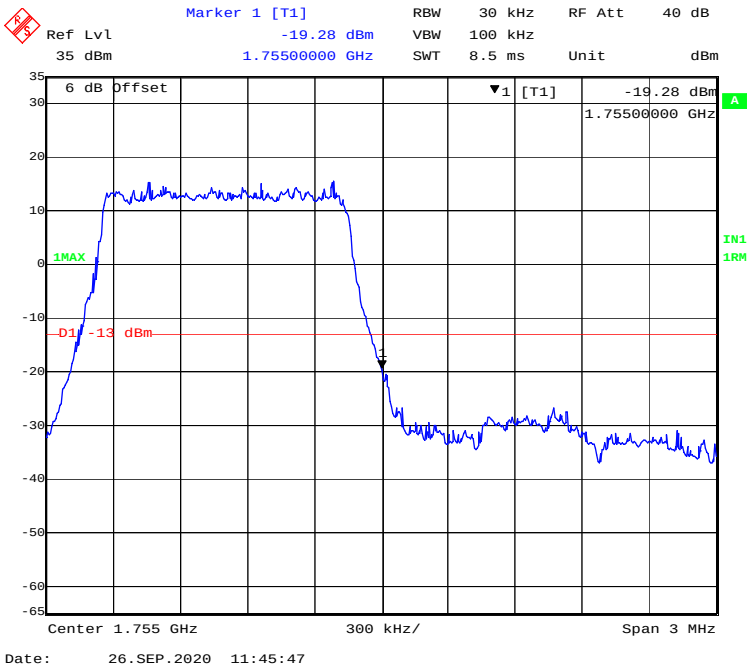
QPSK (20 MHz, FULL RB) - Right Band Edge



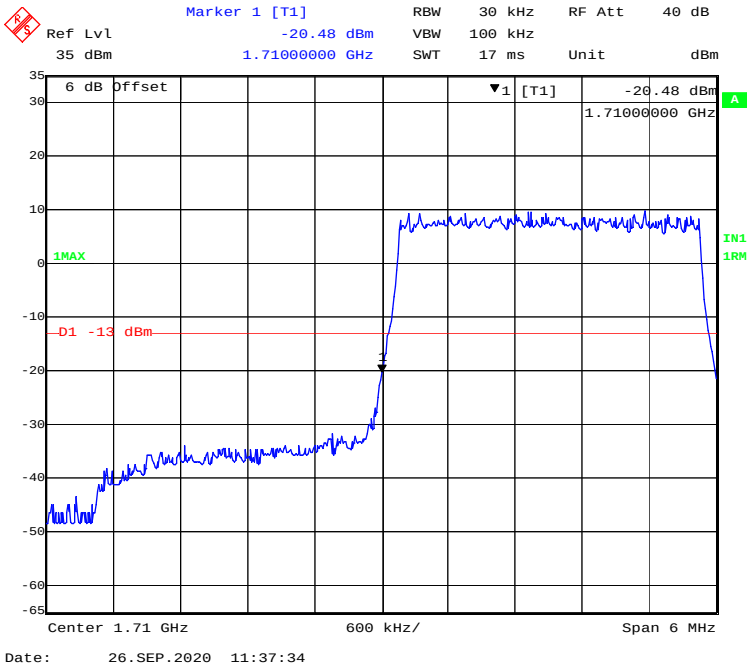
16-QAM (1.4 MHz, FULL RB) - Left Band Edge



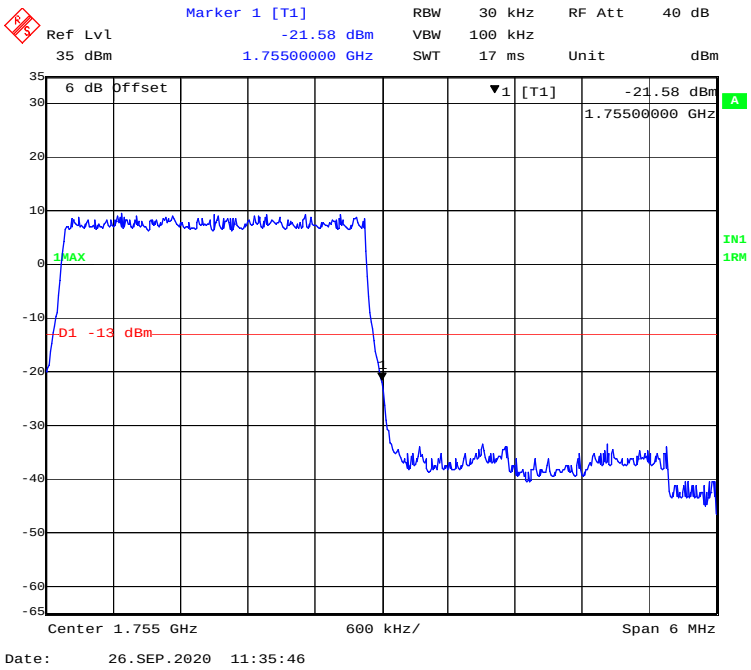
16-QAM (1.4 MHz, FULL RB) - Right Band Edge



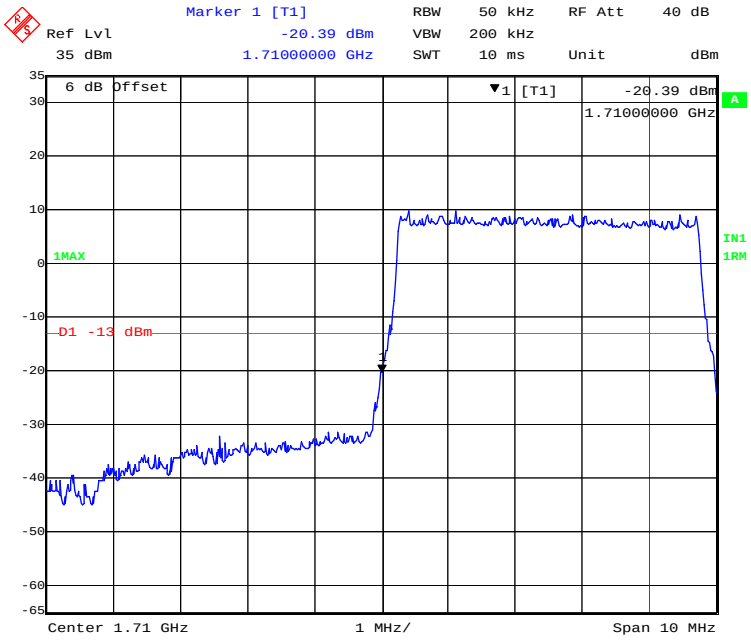
16-QAM (3 MHz, FULL RB) - Left Band Edge



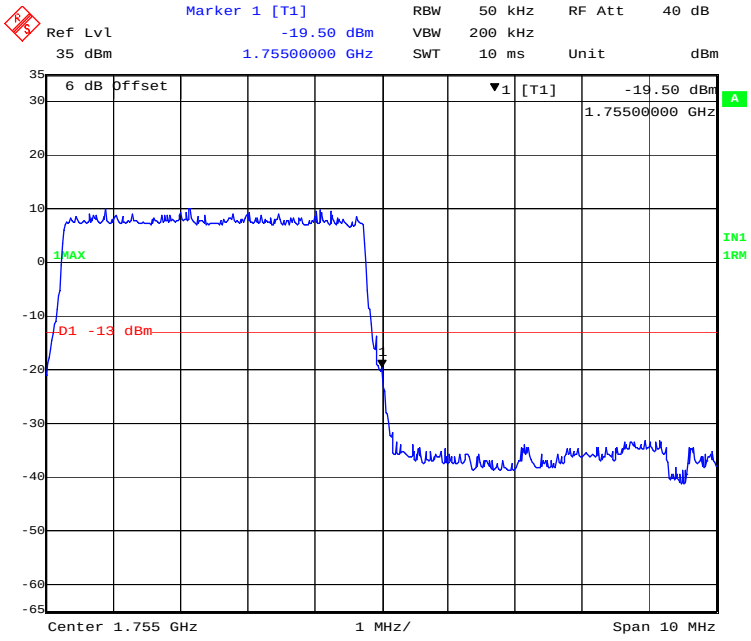
16-QAM (3 MHz, FULL RB) - Right Band Edge



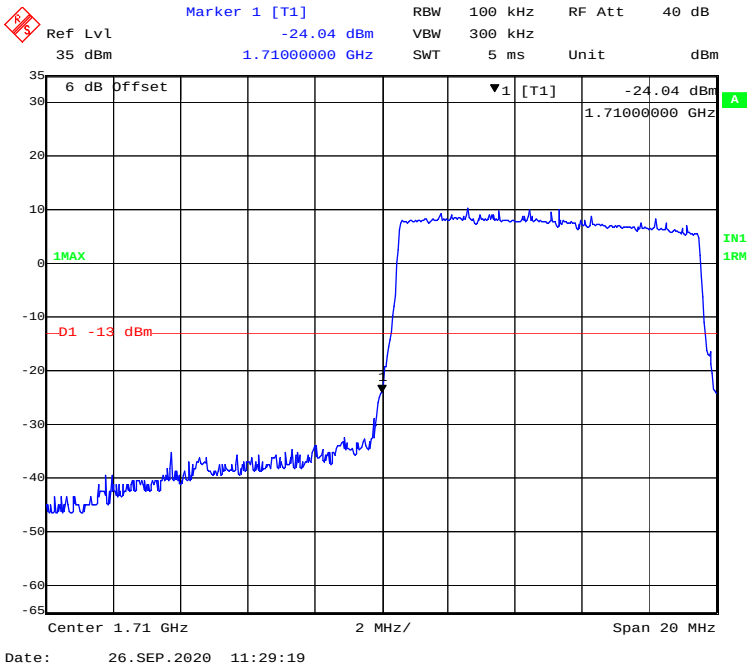
16-QAM (5 MHz, FULL RB) - Left Band Edge



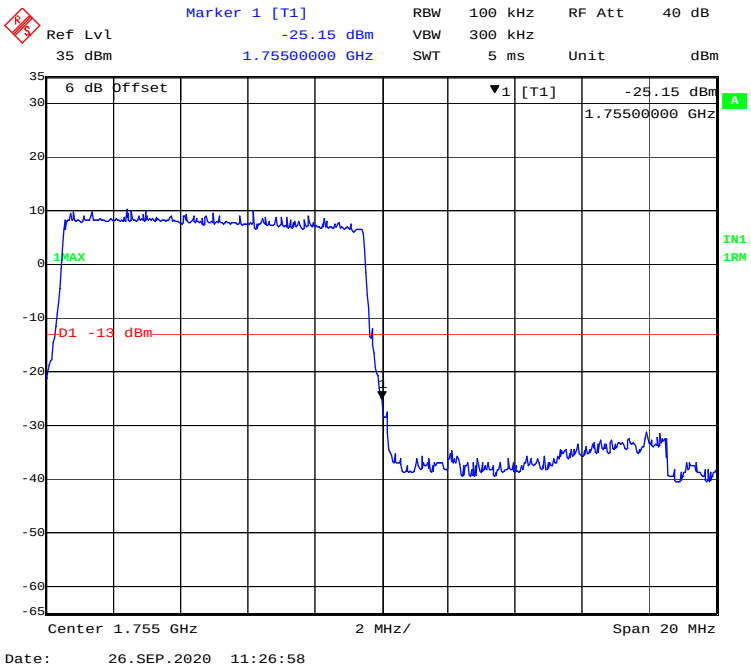
16-QAM (5 MHz, FULL RB) - Right Band Edge



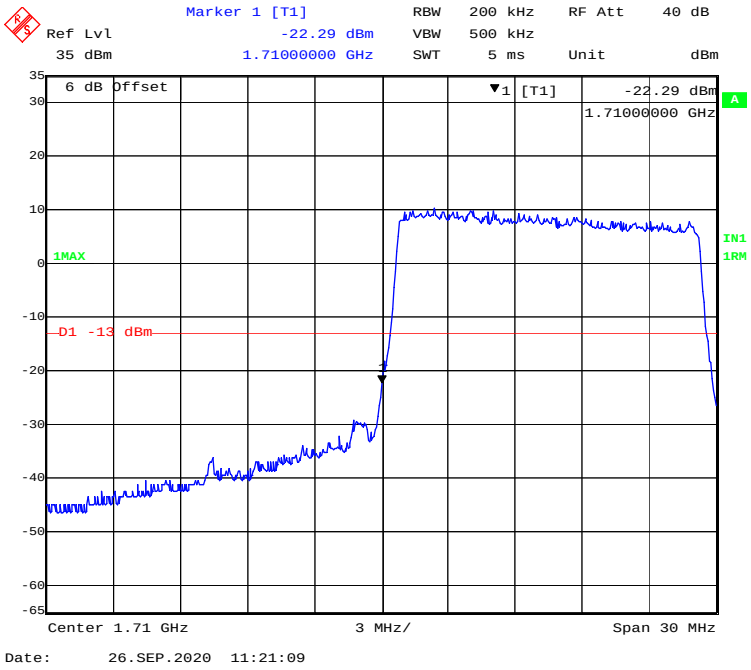
16-QAM (10 MHz, FULL RB) - Left Band Edge



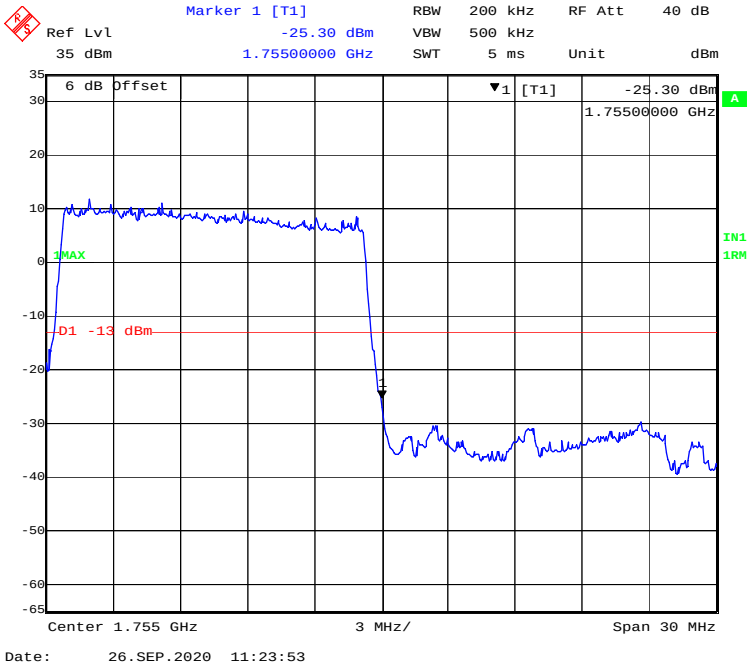
16-QAM (10 MHz, FULL RB) - Right Band Edge



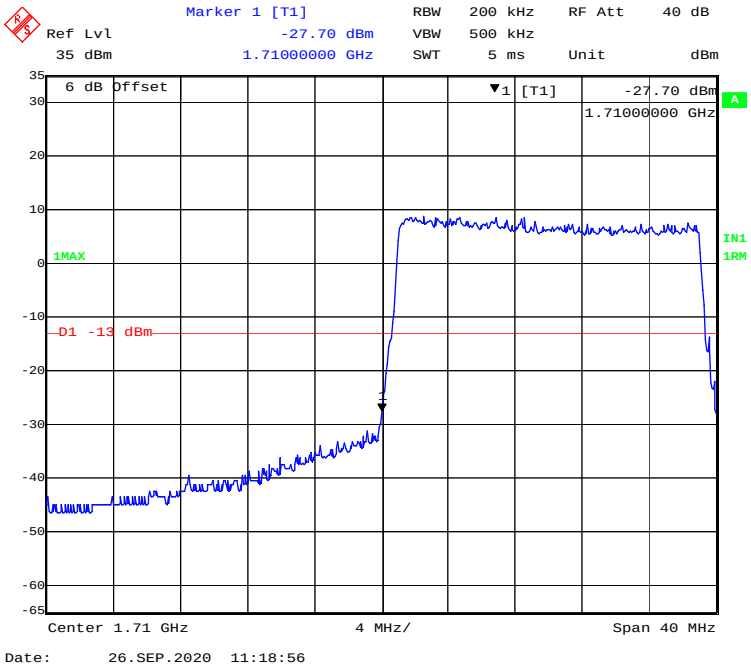
16-QAM (15 MHz, FULL RB) - Left Band Edge



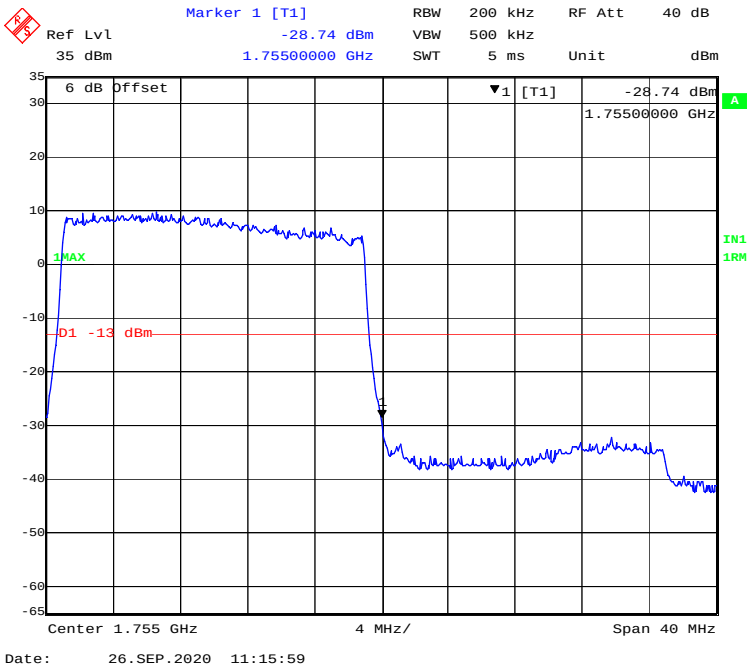
16-QAM (15 MHz, FULL RB) - Right Band Edge



16-QAM (20 MHz, FULL RB) - Left Band Edge

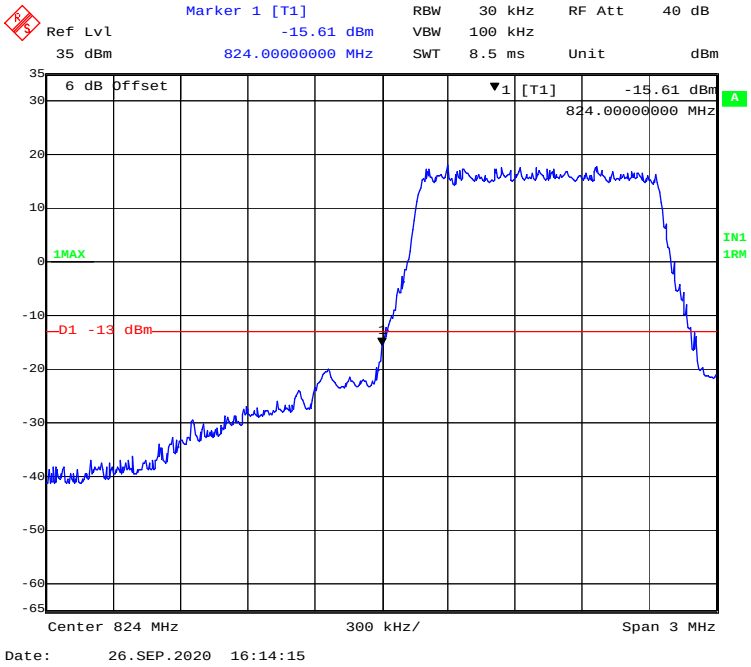


16-QAM (20 MHz, FULL RB) - Right Band Edge

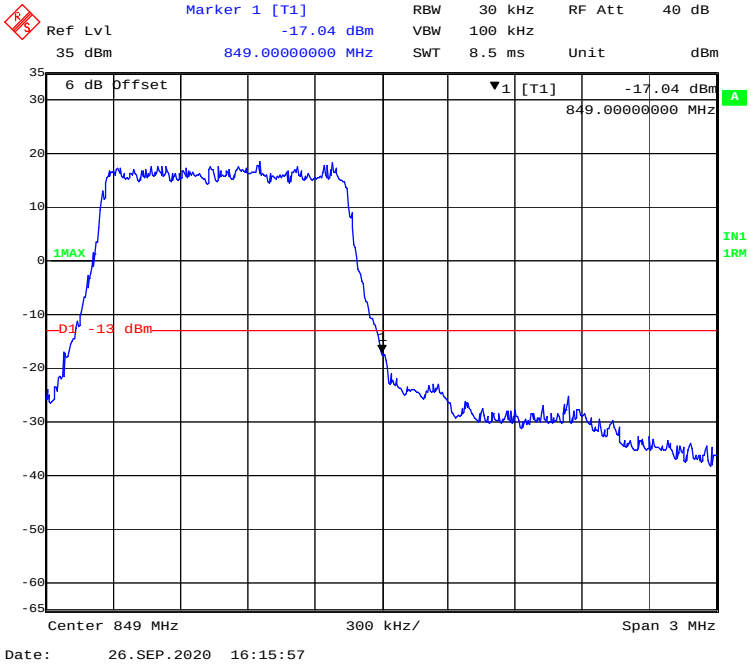


LTE Band 5:

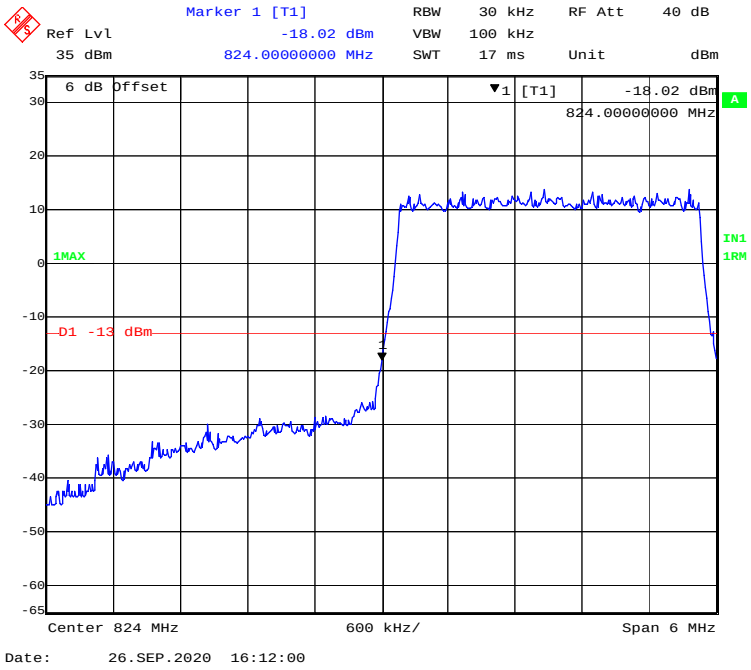
QPSK (1.4 MHz, FULL RB) - Left Band Edge



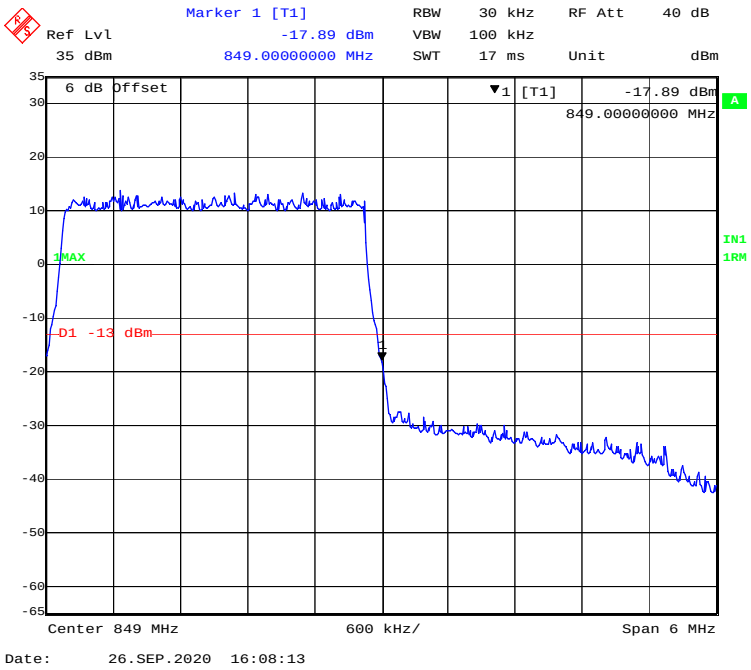
QPSK (1.4 MHz, FULL RB) - Right Band Edge



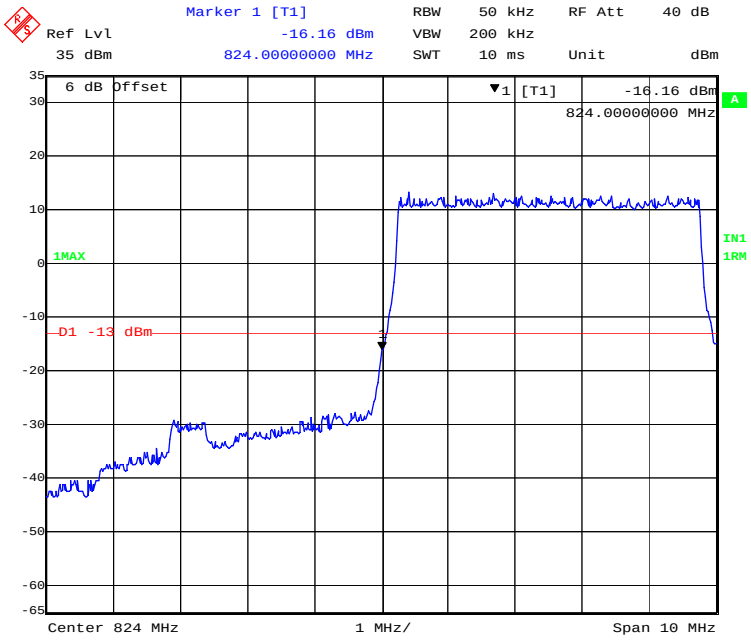
QPSK (3.0 MHz, FULL RB) - Left Band Edge



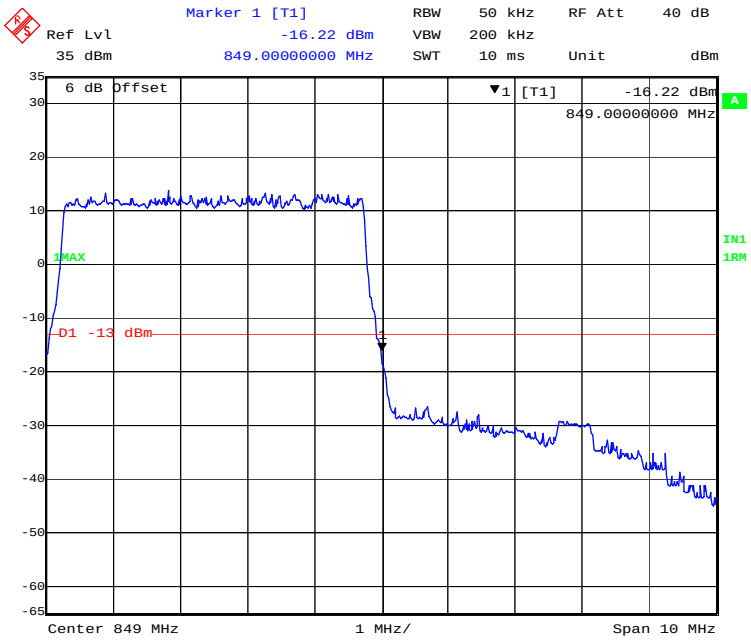
QPSK (3.0 MHz, FULL RB) - Right Band Edge



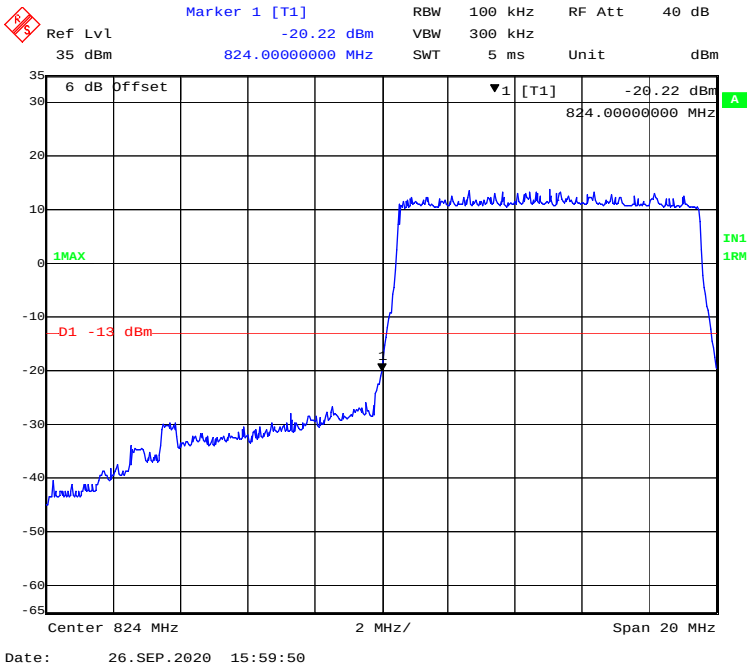
QPSK (5.0 MHz, FULL RB) - Left Band Edge



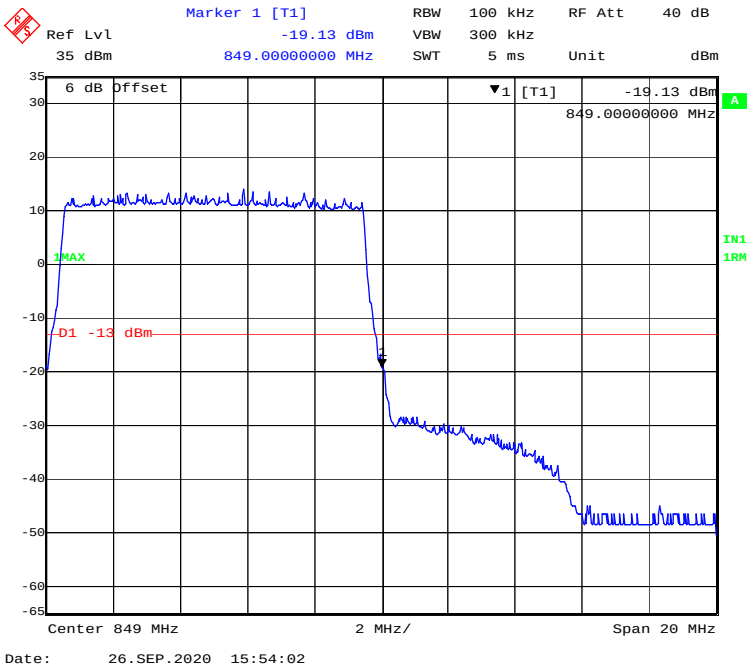
QPSK (5.0 MHz, FULL RB) - Right Band Edge



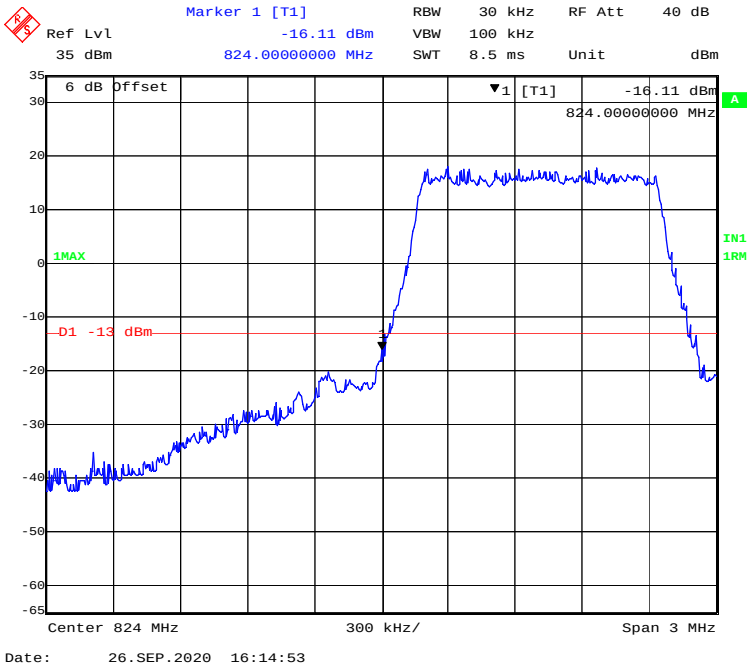
QPSK (10.0 MHz, FULL RB) - Left Band Edge



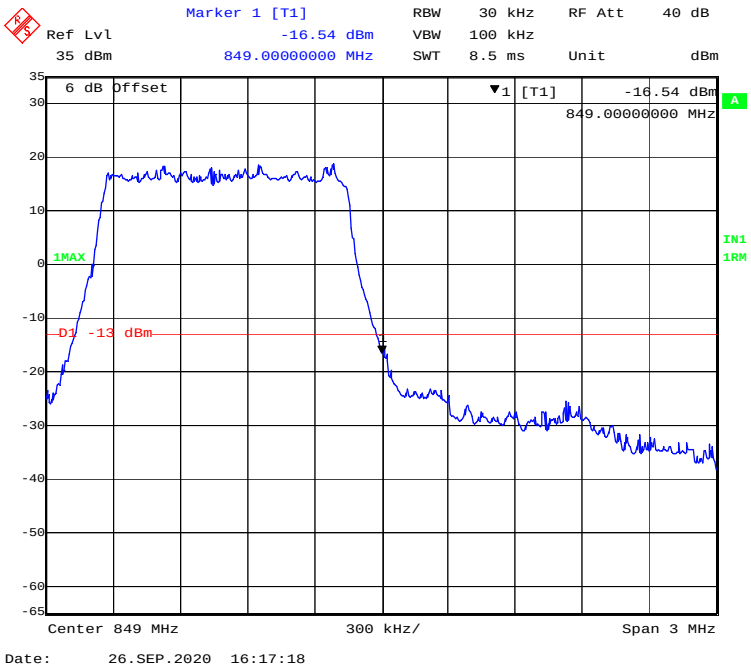
QPSK (10.0 MHz, FULL RB) - Right Band Edge



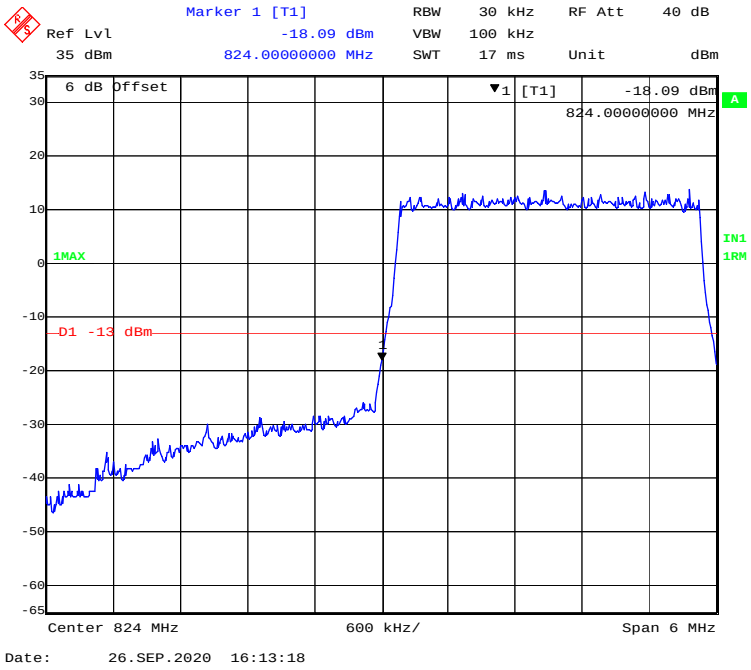
16-QAM (1.4 MHz, FULL RB) - Left Band Edge



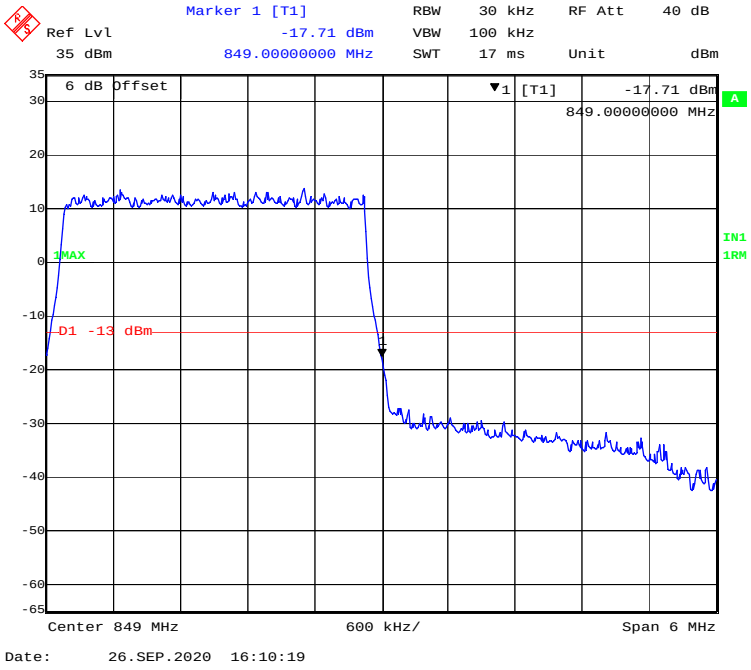
16-QAM (1.4 MHz, FULL RB) - Right Band Edge



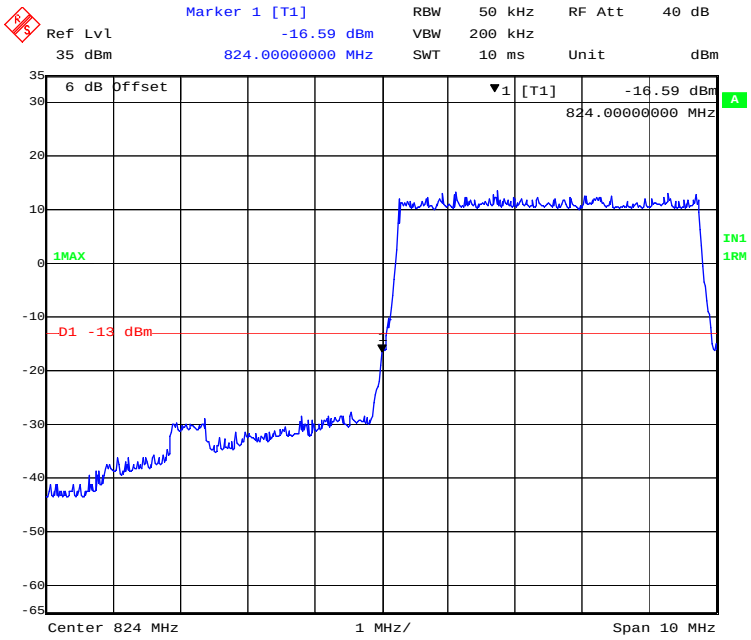
16-QAM (3.0 MHz, FULL RB) - Left Band Edge



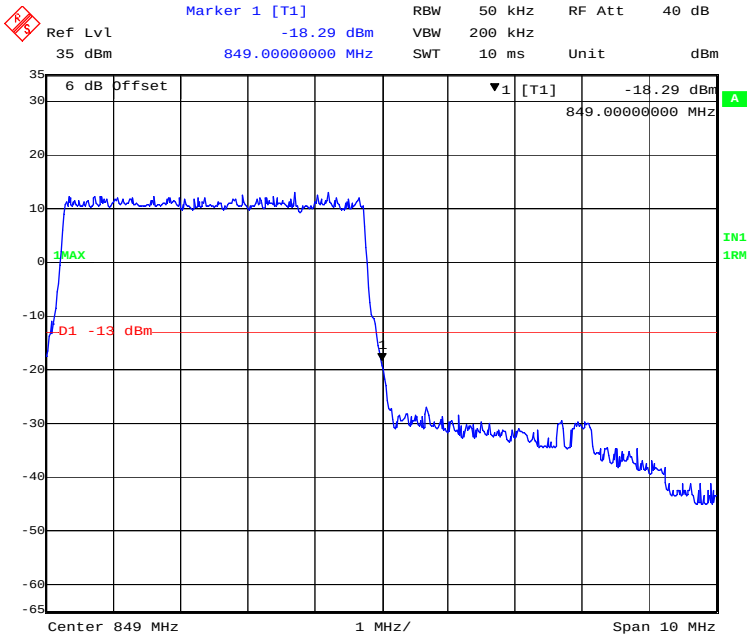
16-QAM (3.0 MHz, FULL RB) - Right Band Edge



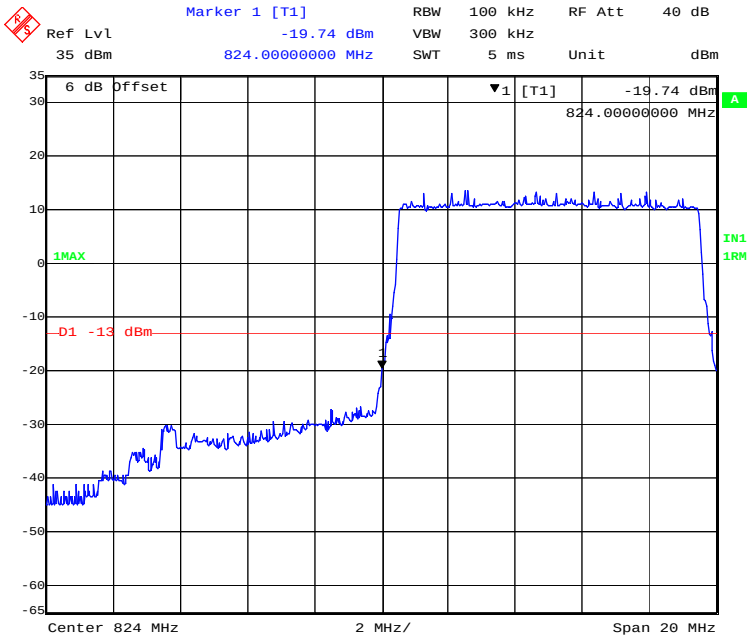
16-QAM (5.0 MHz, FULL RB) - Left Band Edge



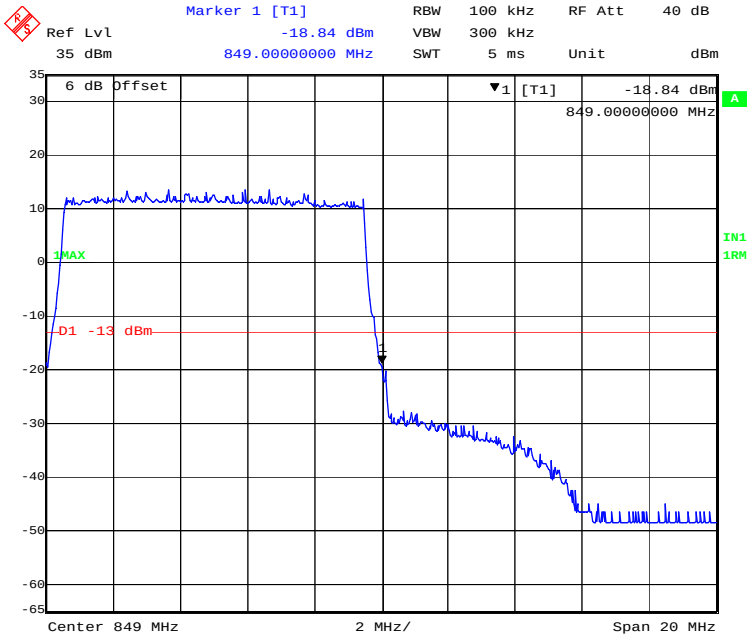
16-QAM (5.0 MHz, FULL RB) - Right Band Edge



16-QAM (10.0 MHz, FULL RB) - Left Band Edge

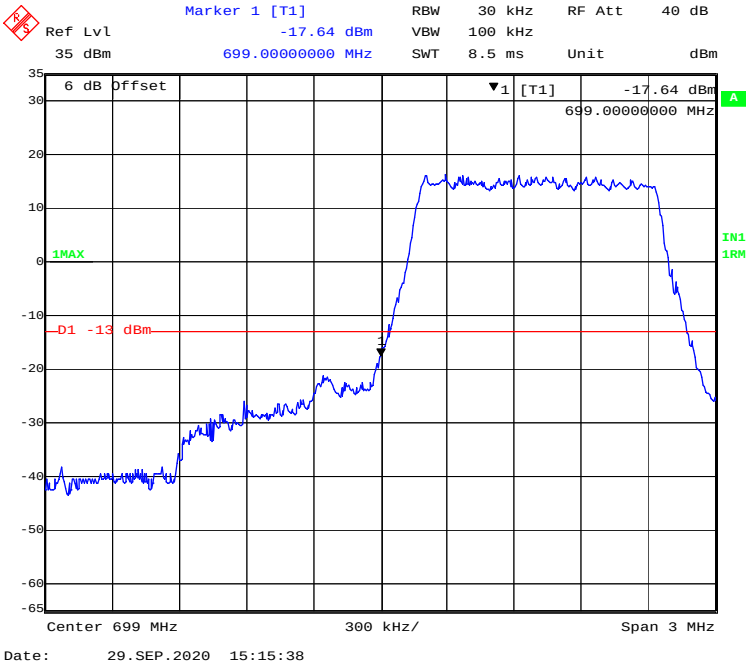


16-QAM (10.0 MHz, FULL RB) - Right Band Edge

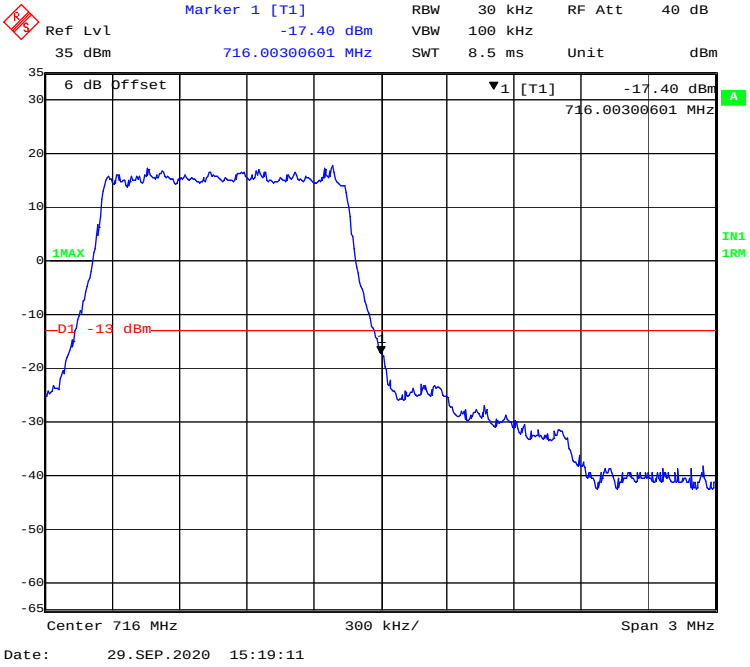


LTE Band 12:

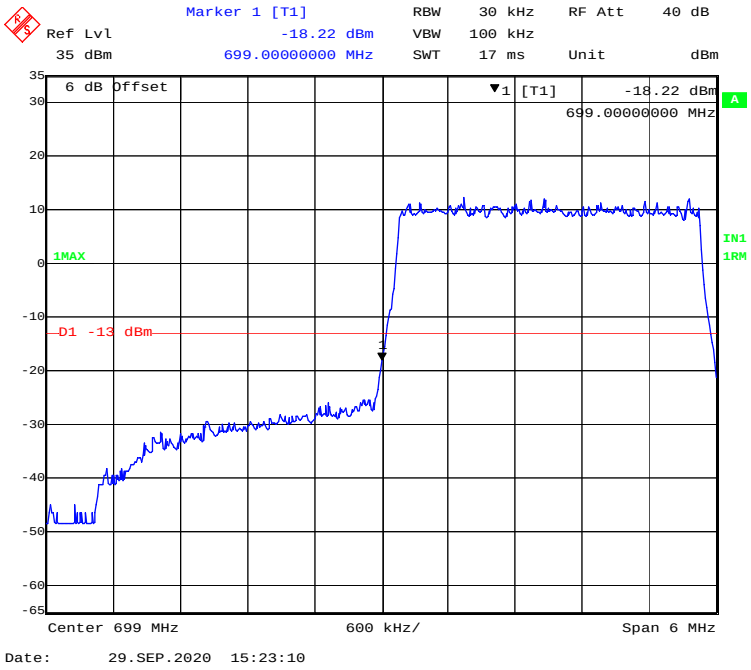
QPSK (1.4 MHz, FULL RB) - Left Band Edge



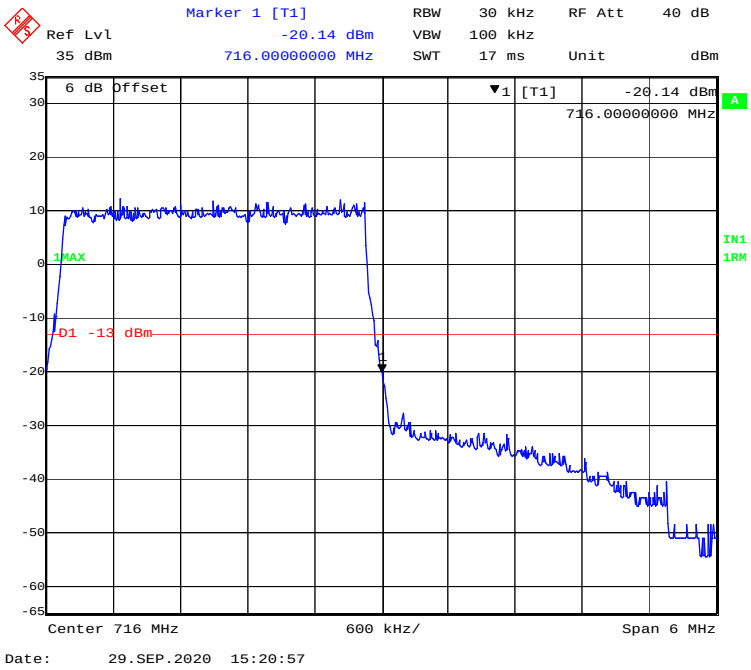
QPSK (1.4 MHz, FULL RB) - Right Band Edge



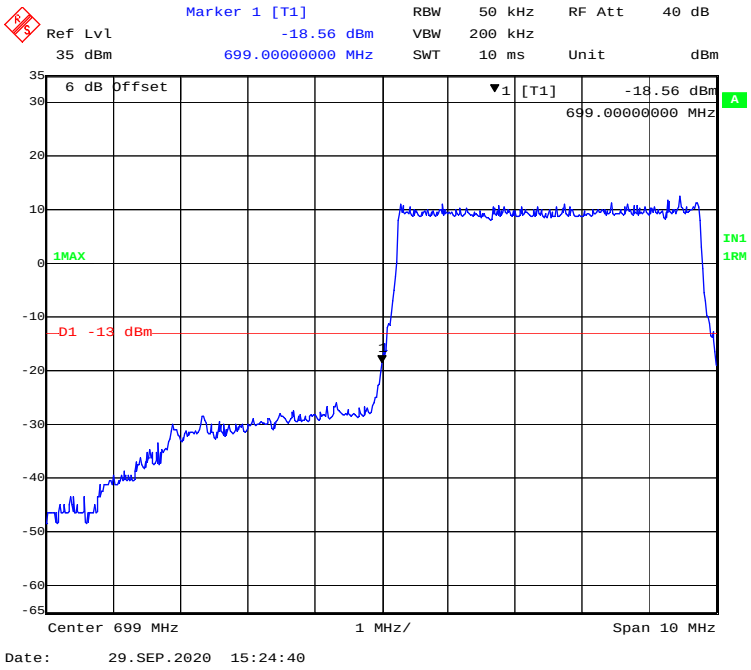
QPSK (3 MHz, FULL RB) - Left Band Edge



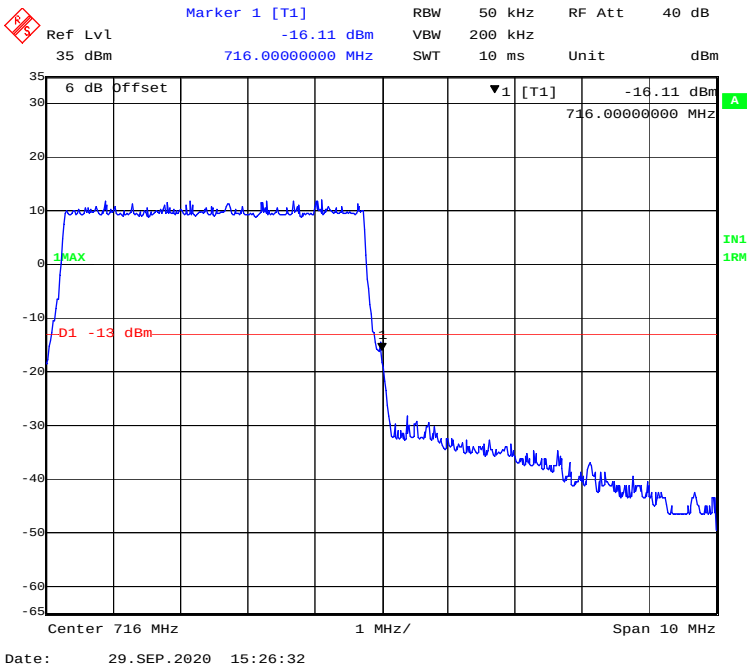
QPSK (3 MHz, FULL RB) - Right Band Edge



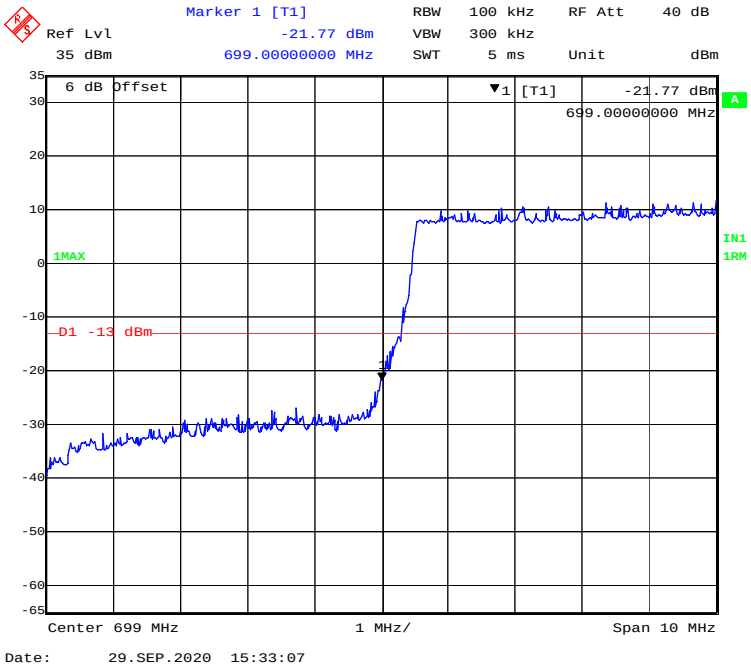
QPSK (5 MHz, FULL RB) - Left Band Edge



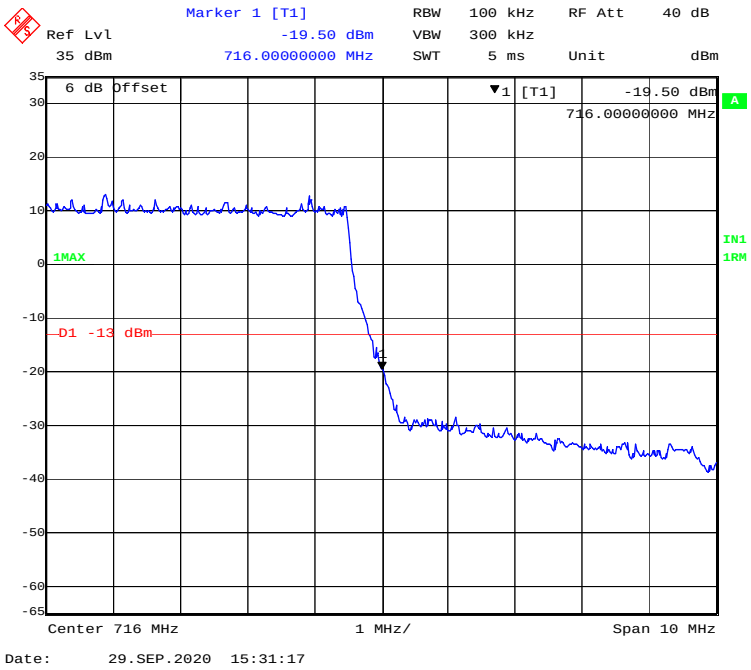
QPSK (5 MHz, FULL RB) - Right Band Edge



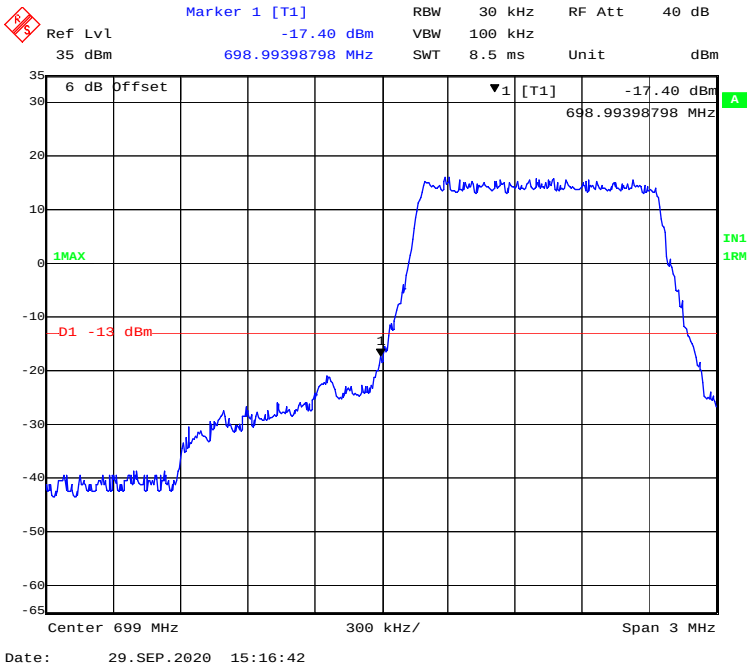
QPSK (10 MHz, FULL RB) - Left Band Edge



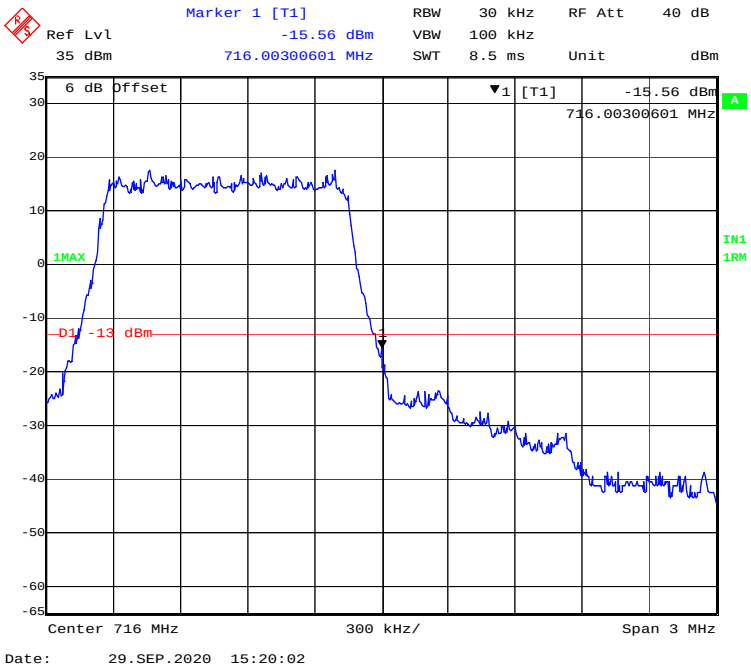
QPSK (10 MHz, FULL RB) - Right Band Edge



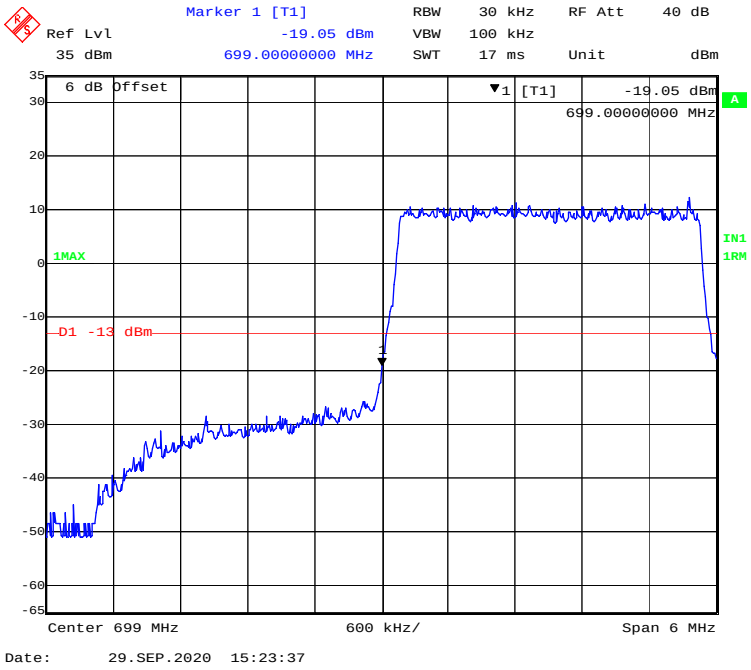
16-QAM (1.4 MHz, FULL RB) - Left Band Edge



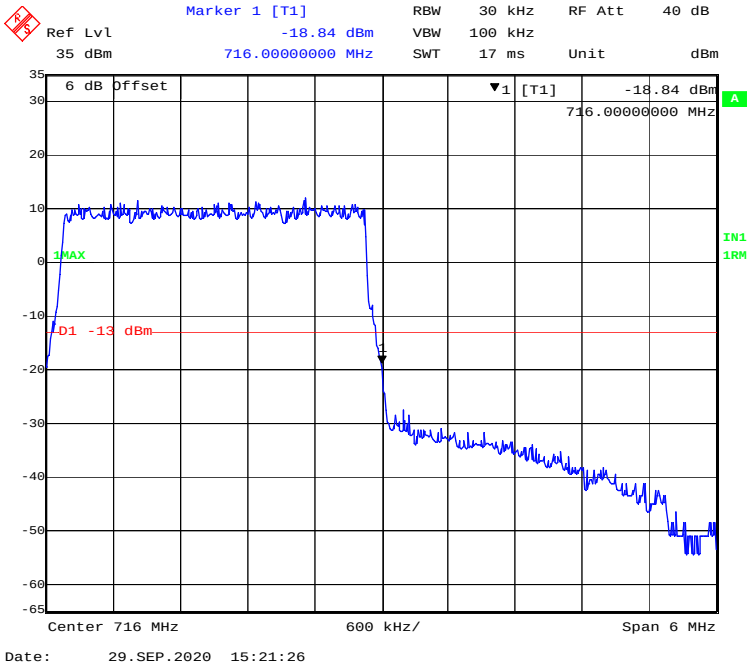
16-QAM (1.4 MHz, FULL RB) - Right Band Edge



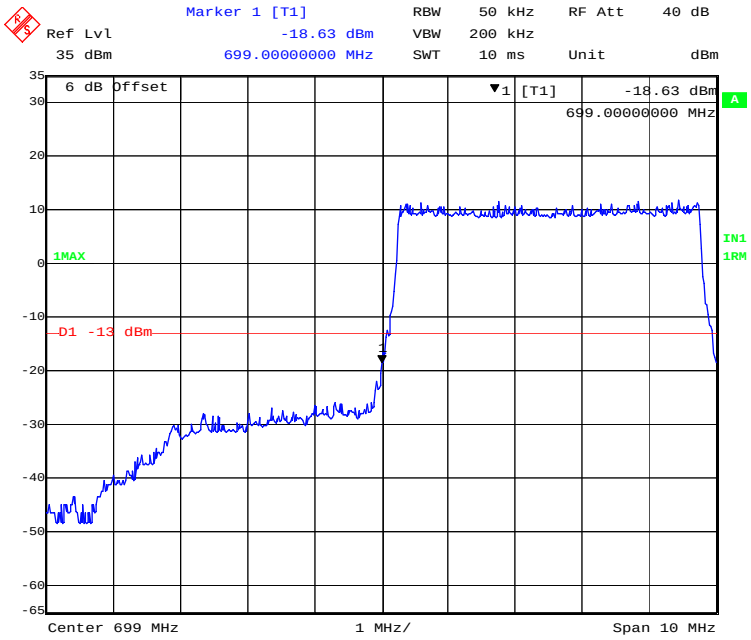
16-QAM (3 MHz, FULL RB) - Left Band Edge



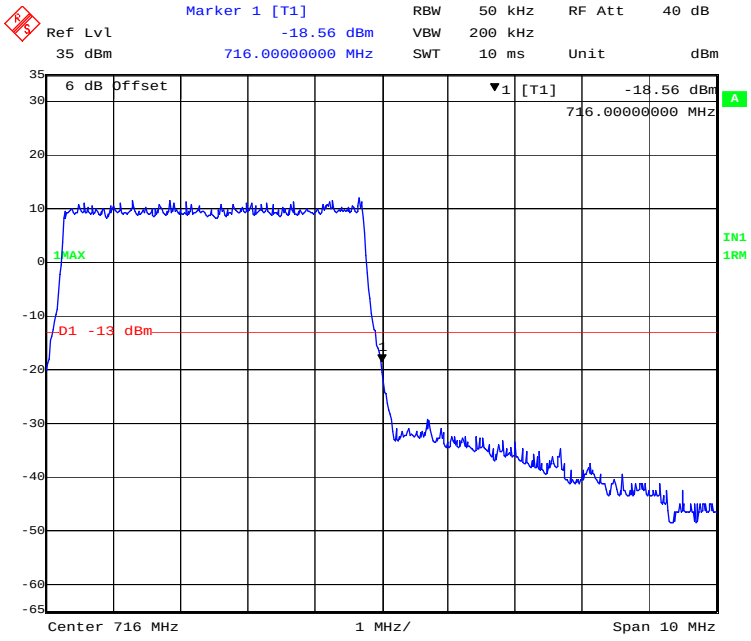
16-QAM (3 MHz, FULL RB) - Right Band Edge



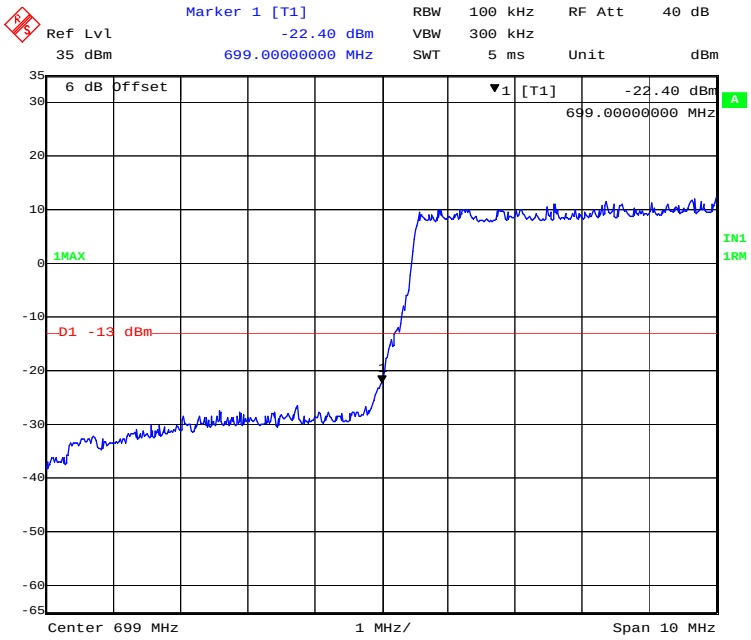
16-QAM (5 MHz, FULL RB) - Left Band Edge



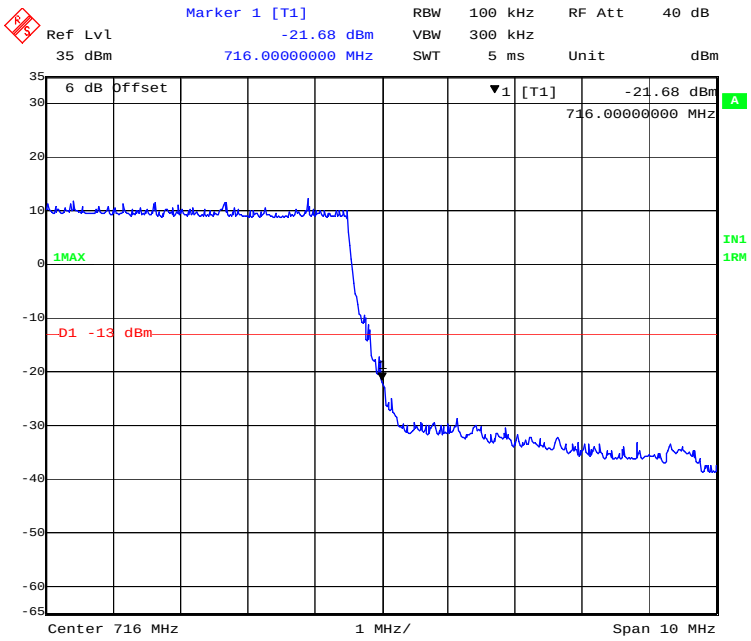
16-QAM (5 MHz, FULL RB) - Right Band Edge



16-QAM (10 MHz, FULL RB) - Left Band Edge

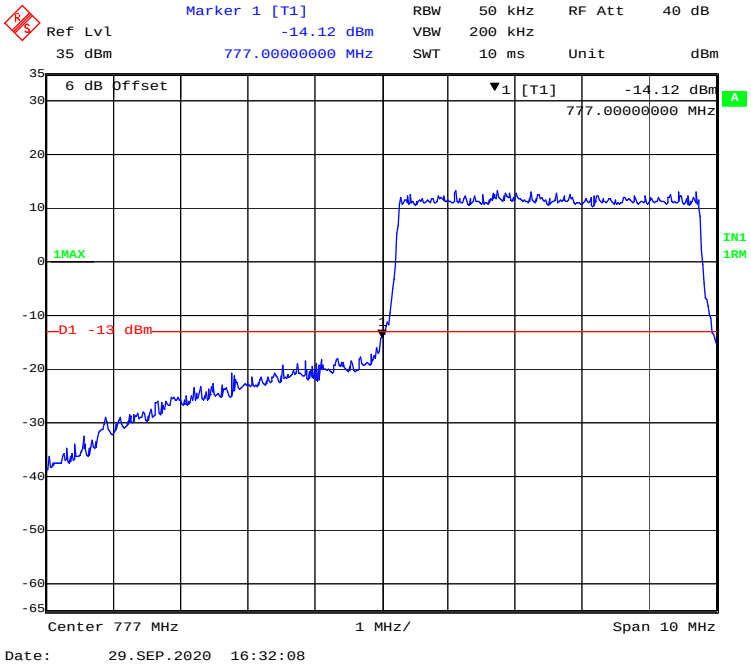


16-QAM (10 MHz, FULL RB) - Right Band Edge

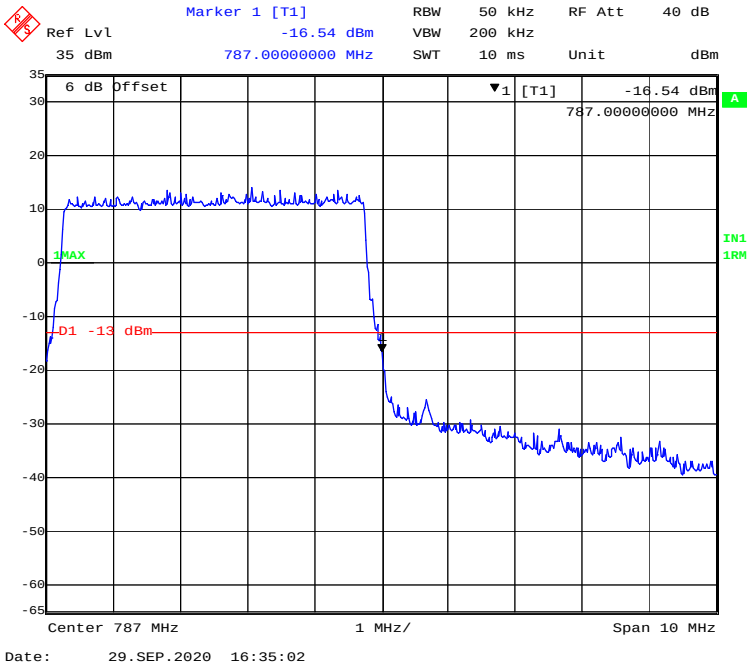


LTE Band 13:

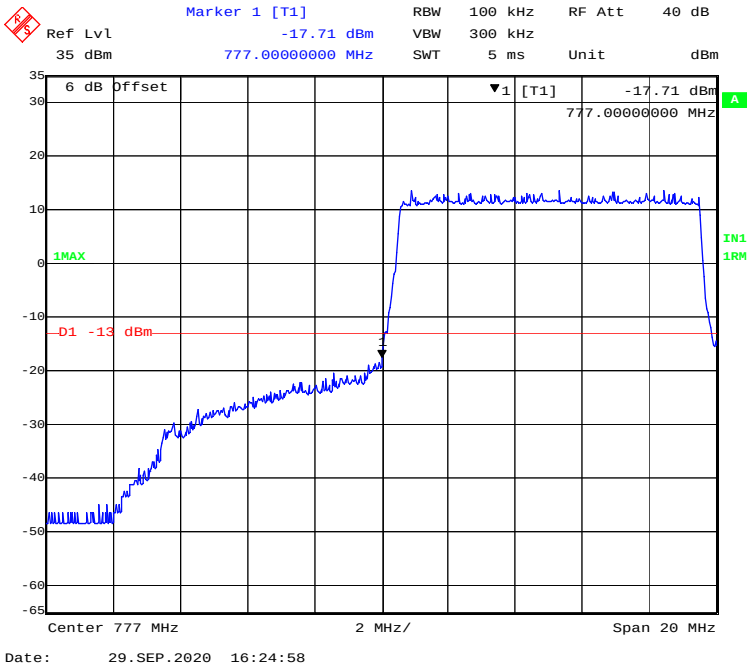
QPSK (5 MHz, FULL RB) - Left Band Edge



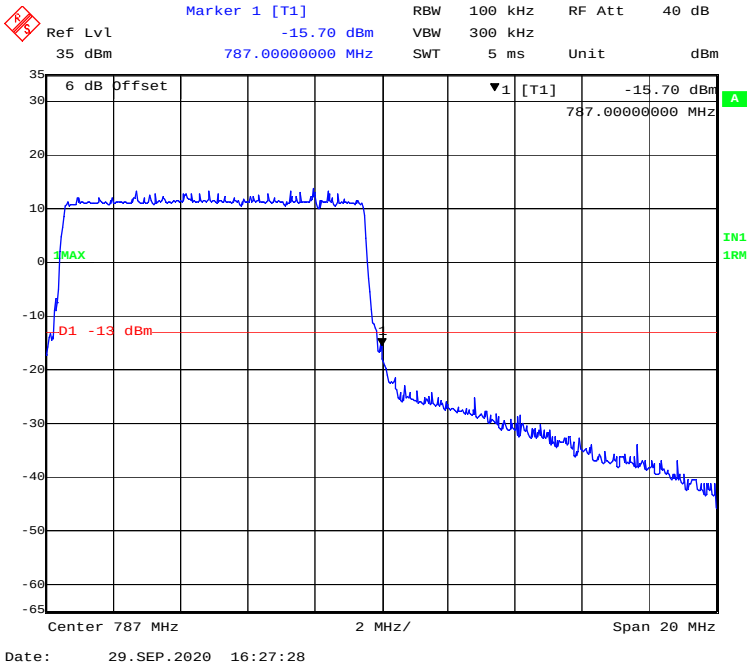
QPSK (5 MHz, FULL RB) - Right Band Edge



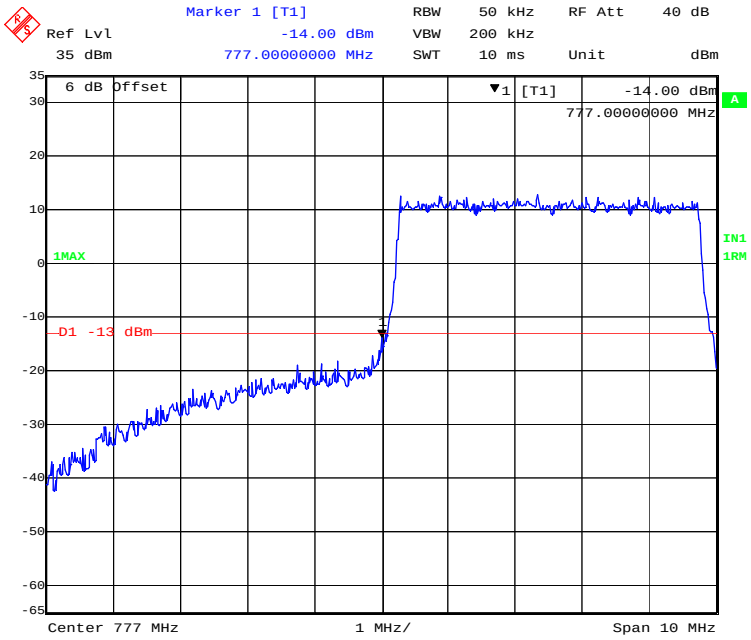
QPSK (10 MHz, FULL RB) - Left Band Edge



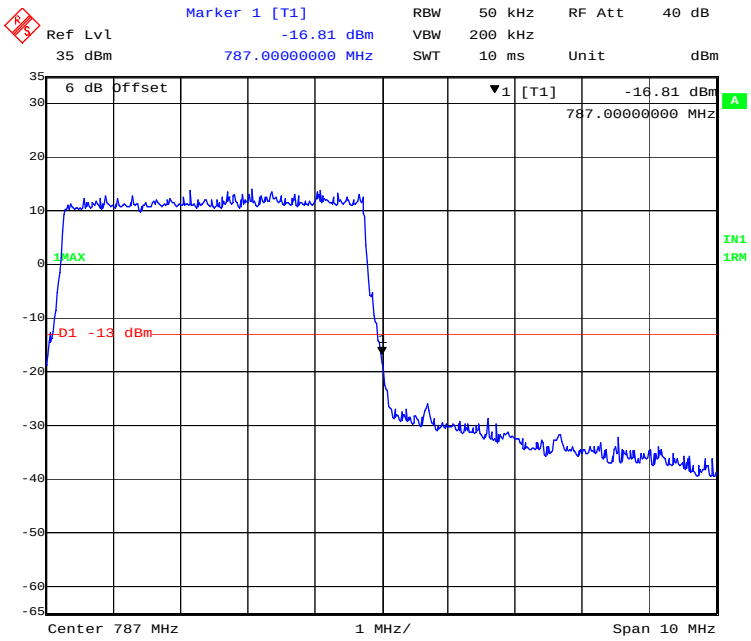
QPSK (10 MHz, FULL RB) - Right Band Edge



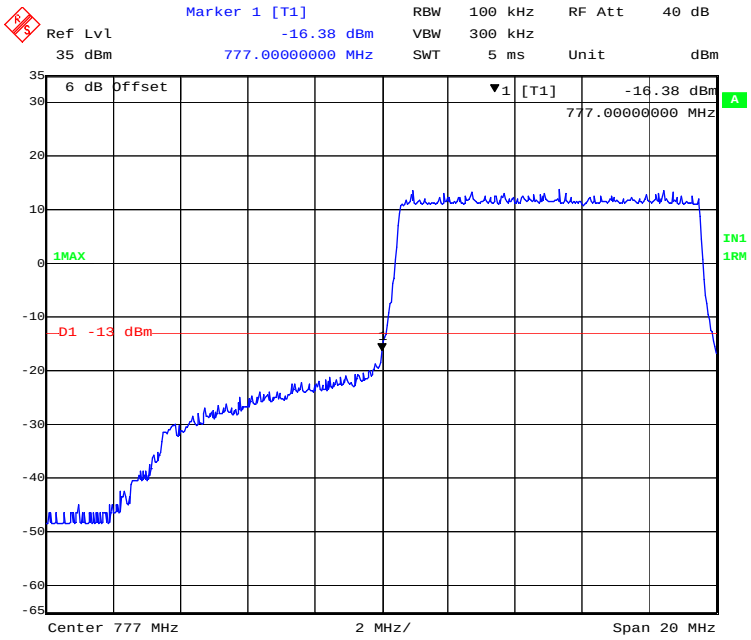
16-QAM (5 MHz, FULL RB) - Left Band Edge



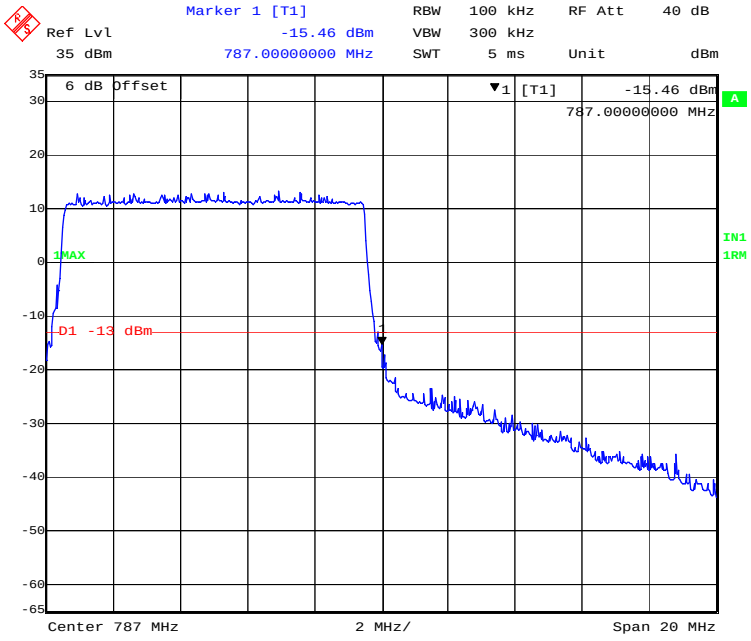
16-QAM (5 MHz, FULL RB) - Right Band Edge



16-QAM (10 MHz, FULL RB) - Left Band Edge



16-QAM (10 MHz, FULL RB) - Right Band Edge



FCC § 2.1055; § 22.355; § 24.235; §27.54 - FREQUENCY STABILITY

Applicable Standards

FCC § 2.1055, §22.355, §24.235 and §27.54.

According to FCC §2.1055, the frequency stability shall be sufficient to ensure that the fundamental emissions stay within the authorized bands of operation.

According to §22.355, the carrier frequency of each transmitter in the Public Mobile Services must be maintained within the tolerances given in Table below:

Frequency Tolerance for Transmitters in the Public Mobile Services

Frequency Range (MHz)	Base, fixed (ppm)	Mobile > 3 watts (ppm)	Mobile ≤ 3 watts (ppm)
25 to 50	20.0	20.0	50.0
50 to 450	5.0	5.0	50.0
450 to 512	2.5	5.0	5.0
821 to 896	1.5	2.5	2.5
928 to 929.	5.0	N/A	N/A
929 to 960.	1.5	N/A	N/A
2110 to 2220	10.0	N/A	N/A

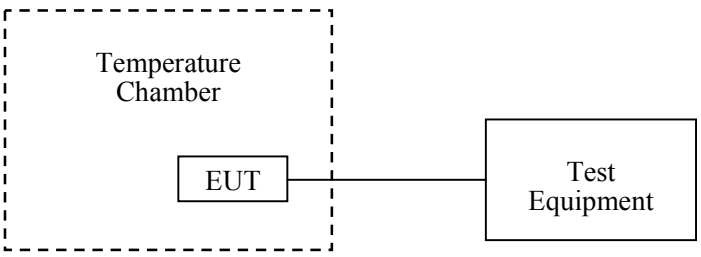
According to §24.235, the frequency stability shall be sufficient to ensure that the fundamental emissions stays within the authorized frequency block.

Test Procedure

Frequency Stability vs. Temperature: The equipment under test was connected to an external DC power supply and the RF output was connected to communication test set via feed-through attenuators. The EUT was placed inside the temperature chamber. The DC leads and RF output cable exited the chamber through an opening made for the purpose.

After the temperature stabilized for approximately 20 minutes, the frequency output was recorded from the communication test set.

Frequency Stability vs. Voltage: For hand carried, battery powered equipment; reduce primary supply voltage to the battery operating end point which shall be specified by the manufacturer.



Test Data

Environmental Conditions

Temperature:	24.9 ℃
Relative Humidity:	52 %
ATM Pressure:	101.9 kPa

The testing was performed by CK Huang on 2020-10-12.

EUT operation mode: Transmitting

Test Result: Compliance.

DC 6.4V from battery:

GPRS 850 Band:

GPRS Mode, Middle Channel, f_o=836.6 MHz				
Temperature (℃)	**Power Supplied (V_{DC})**	**Frequency Error (Hz)**	**Frequency Error (ppm)**	**Limit (ppm)**
-30	6.4	15	0.01793	2.5
-20		12	0.01434	2.5
-10		11	0.01315	2.5
0		8	0.00956	2.5
10		7	0.00837	2.5
20		12	0.01434	2.5
30		8	0.00956	2.5
40		7	0.00837	2.5
50		9	0.01076	2.5
25	V min.= 6.08	12	0.01434	2.5
25	V max.= 7.04	11	0.01315	2.5

EGPRS Mode, Middle Channel, f_o=836.6 MHz				
Temperature (℃)	**Power Supplied (V_{DC})**	**Frequency Error (Hz)**	**Frequency Error (ppm)**	**Limit (ppm)**
-30	6.4	16	0.01913	2.5
-20		13	0.01554	2.5
-10		12	0.01434	2.5
0		10	0.01195	2.5
10		9	0.01076	2.5
20		10	0.01195	2.5
30		7	0.00837	2.5
40		6	0.00717	2.5
50		9	0.01076	2.5
25	V min.= 6.08	12	0.01434	2.5
25	V max.= 7.04	11	0.01315	2.5

WCDMA Band V:

WCDMA Mode, Middle Channel, f_o = 836.6 MHz				
Temperature (℃)	**Power Supplied (V_{DC})**	**Frequency Error (Hz)**	**Frequency Error (ppm)**	**Limit (ppm)**
-30	6.4	14	0.0167	2.5
-20		5	0.0060	2.5
-10		13	0.0155	2.5
0		11	0.0131	2.5
10		9	0.0108	2.5
20		8	0.0096	2.5
30		10	0.0120	2.5
40		6	0.0072	2.5
50		9	0.0108	2.5
25	V min.= 6.08	13	0.0155	2.5
25	V max.= 7.04	9	0.0108	2.5

PCS 1900 Band

GPRS Mode, Middle Channel, f_o=1880.0 MHz				
Temperature (℃)	**Power Supplied (V_{DC})**	**Frequency Error (Hz)**	**Frequency Error (ppm)**	**Result**
-30	6.4	-10	-0.00532	pass
-20		-9	-0.00479	pass
-10		-5	-0.00266	pass
0		-4	-0.00213	pass
10		-10	-0.00532	pass
20		-4	-0.00213	pass
30		-4	-0.00213	pass
40		-11	-0.00585	pass
50		-10	-0.00532	pass
25	V min.= 6.08	-11	-0.00585	pass
25	V max.= 7.04	-6	-0.00319	pass

EGPRS Mode, Middle Channel, f_o=1880.0 MHz				
Temperature (℃)	**Power Supplied (V_{DC})**	**Frequency Error (Hz)**	**Frequency Error (ppm)**	**Result**
-30	6.4	-9	-0.00479	pass
-20		-7	-0.00372	pass
-10		-5	-0.00266	pass
0		-4	-0.00213	pass
10		-1	-0.00053	pass
20		1	0.00053	pass
30		-6	-0.00319	pass
40		-2	-0.00106	pass
50		-10	-0.00532	pass
25	V min.= 6.08	-8	-0.00426	pass
25	V max.= 7.04	-7	-0.00372	pass

WCDMA Band II:

WCDMA Mode, Middle Channel, f_o = 1880.0 MHz				
Temperature (℃)	**Power Supplied (V_{DC})**	**Frequency Error (Hz)**	**Frequency Error (ppm)**	**Result**
-30	6.4	-2	-0.0011	pass
-20		-8	-0.0043	pass
-10		-4	-0.0021	pass
0		-3	-0.0016	pass
10		2	0.0011	pass
20		-7	-0.0037	pass
30		3	0.0016	pass
40		-11	-0.0059	pass
50		-8	-0.0043	pass
25	V min.= 6.08	-7	-0.0037	pass
25	V max.= 7.04	-10	-0.0053	pass

WCDMA Band IV:

WCDMA Mode, Low Channel & High Channel					
Temperature	**Power Supplied**	**F_L**	**F_H**	**F_L Limit**	**F_H Limit**
(℃)	**(V_{DC})**	**(MHz)**	**(MHz)**	**(MHz)**	**(MHz)**
-30	6.4	1710.3862	1754.7649	1710	1755
-20		1710.3819	1754.7659	1710	1755
-10		1710.3829	1754.7692	1710	1755
0		1710.3610	1754.7639	1710	1755
10		1710.3991	1754.7655	1710	1755
20		1710.3374	1754.7697	1710	1755
30		1710.3742	1754.7664	1710	1755
40		1710.4258	1754.7639	1710	1755
50		1710.4215	1754.7616	1710	1755
25	V min.= 6.08	1710.4237	1754.7604	1710	1755
25	V max.= 7.04	1710.3446	1754.7654	1710	1755

LTE Band 2:

Middle Channel, f_o=1880.0 MHz (QPSK) /Channel Bandwidth:20MHz				
Temperature (℃)	**Power Supplied (V_{DC})**	**Frequency Error (Hz)**	**Frequency Error (ppm)**	**Result**
-30	6.4	13	0.0069	pass
-20		11	0.0059	pass
-10		10	0.0053	pass
0		10	0.0053	pass
10		9	0.0048	pass
20		7	0.0037	pass
30		6	0.0032	pass
40		10	0.0053	pass
50		11	0.0059	pass
25	V min.= 6.08	13	0.0069	pass
25	V max.= 7.04	12	0.0064	pass

Middle Channel, f_o=1880.0 MHz (16-QAM) /Channel Bandwidth:20MHz				
Temperature (℃)	**Power Supplied (V_{DC})**	**Frequency Error (Hz)**	**Frequency Error (ppm)**	**Result**
-30	6.4	14	0.0074	pass
-20		12	0.0064	pass
-10		11	0.0059	pass
0		9	0.0048	pass
10		9	0.0048	pass
20		8	0.0043	pass
30		7	0.0037	pass
40		9	0.0048	pass
50		11	0.0059	pass
25	V min.= 6.08	10	0.0053	pass
25	V max.= 7.04	11	0.0059	pass

LTE Band 4:

Low Channel & High Channel (QPSK) /Channel Bandwidth:20MHz					
Temperature	Power Supplied	F_L	F_H	F_L Limit	F_H Limit
(℃)	(V_{DC})	(MHz)	(MHz)	(MHz)	(MHz)
-30	6.4	1710.0493	1754.9432	1710	1755
-20		1710.0492	1754.9427	1710	1755
-10		1710.0425	1754.9443	1710	1755
0		1710.0411	1754.9489	1710	1755
10		1710.0431	1754.9428	1710	1755
20		1710.0440	1754.9444	1710	1755
30		1710.0416	1754.9417	1710	1755
40		1710.0459	1754.9448	1710	1755
50		1710.0406	1754.9402	1710	1755
25	V min.= 6.08	1710.0405	1754.9486	1710	1755
25	V max.= 7.04	1710.0493	1754.9496	1710	1755

Low Channel & High Channel (16-QAM) /Channel Bandwidth:20MHz					
Temperature	Power Supplied	F_L	F_H	F_L Limit	F_H Limit
(℃)	(V_{DC})	(MHz)	(MHz)	(MHz)	(MHz)
-30	6.4	1710.0437	1754.9465	1710	1755
-20		1710.0476	1754.9495	1710	1755
-10		1710.0469	1754.9475	1710	1755
0		1710.0401	1754.9493	1710	1755
10		1710.0444	1754.9401	1710	1755
20		1710.0427	1754.9496	1710	1755
30		1710.0499	1754.9402	1710	1755
40		1710.0490	1754.9431	1710	1755
50		1710.0406	1754.9450	1710	1755
25	V min.= 6.08	1710.0423	1754.9408	1710	1755
25	V max.= 7.04	1710.0431	1754.9445	1710	1755

LTE Band 5:

Middle Channel, f_o = 836.5 MHz (QPSK) /Channel Bandwidth:10MHz				
Temperature	Power Supplied	Frequency Error	Frequency Error	Limit
(℃)	(V_{DC})	(Hz)	(ppm)	(ppm)
-30	6.4	13	0.0155	2.5
-20		12	0.0143	2.5
-10		11	0.0132	2.5
0		9	0.0108	2.5
10		8	0.0096	2.5
20		7	0.0084	2.5
30		7	0.0084	2.5
40		10	0.0120	2.5
50		12	0.0143	2.5
25	V min.= 6.08	13	0.0155	2.5
25	V max.= 7.04	11	0.0132	2.5

Middle Channel, f_o = 836.5 MHz (16-QAM) /Channel Bandwidth:10MHz				
Temperature	Power Supplied	Frequency Error	Frequency Error	Limit
(℃)	(V_{DC})	(Hz)	(ppm)	(ppm)
-30	6.4	13	0.0155	2.5
-20		12	0.0143	2.5
-10		10	0.0120	2.5
0		7	0.0084	2.5
10		9	0.0108	2.5
20		7	0.0084	2.5
30		7	0.0084	2.5
40		8	0.0096	2.5
50		10	0.0120	2.5
25	V min.= 6.08	10	0.0120	2.5
25	V max.= 7.04	11	0.0132	2.5

LTE Band 12:

Low Channel & High Channel (QPSK) /Channel Bandwidth:10MHz					
Temperature	Power Supplied	F_L	F_H	F_L Limit	F_H Limit
(℃)	(V_{DC})	(MHz)	(MHz)	(MHz)	(MHz)
-30	6.4	699.1389	715.7647	699	716
-20		699.1163	715.6689	699	716
-10		699.2820	715.8043	699	716
0		699.0428	715.9745	699	716
10		699.2237	715.9851	699	716
20		699.0858	715.9939	699	716
30		699.2676	715.9893	699	716
40		699.3256	715.6758	699	716
50		699.1979	715.7645	699	716
25	V min.= 6.08	699.1607	715.8477	699	716
25	V max.= 7.04	699.0578	715.6496	699	716

Low Channel & High Channel (16-QAM) /Channel Bandwidth:10MHz					
Temperature	Power Supplied	F_L	F_H	F_L Limit	F_H Limit
(℃)	(V_{DC})	(MHz)	(MHz)	(MHz)	(MHz)
-30	6.4	699.0745	715.8395	699	716
-20		699.2272	715.9904	699	716
-10		699.2658	715.7142	699	716
0		699.1272	715.8427	699	716
10		699.2364	715.8581	699	716
20		699.1985	715.8016	699	716
30		699.2949	715.8626	699	716
40		699.0387	715.9961	699	716
50		699.0857	715.9321	699	716
25	V min.= 6.08	699.2466	715.7896	699	716
25	V max.= 7.04	699.3991	715.8825	699	716

LTE Band 13:

Low Channel & High Channel (QPSK) /Channel Bandwidth:10MHz					
Temperature	Power Supplied	F_L	F_H	F_L Limit	F_H Limit
(℃)	(V_{DC})	(MHz)	(MHz)	(MHz)	(MHz)
-30	6.4	777.2851	786.8630	777	787
-20		777.0712	786.6839	777	787
-10		777.3615	786.9544	777	787
0		777.3575	786.7978	777	787
10		777.0284	786.6281	777	787
20		777.3848	786.8563	777	787
30		777.3355	786.8056	777	787
40		777.3047	786.7234	777	787
50		777.3450	786.6534	777	787
25	V min.= 6.08	777.2187	786.8166	777	787
25	V max.= 7.04	777.2960	786.7631	777	787

Low Channel & High Channel (16-QAM) /Channel Bandwidth:10MHz					
Temperature	Power Supplied	F_L	F_H	F_L Limit	F_H Limit
(℃)	(V_{DC})	(MHz)	(MHz)	(MHz)	(MHz)
-30	6.4	777.2469	786.6873	777	787
-20		777.2598	786.9116	777	787
-10		777.0918	786.9216	777	787
0		777.1785	786.7511	777	787
10		777.1632	786.6253	777	787
20		777.1525	786.8605	777	787
30		777.3919	786.9445	777	787
40		777.2913	786.6438	777	787
50		777.3975	786.7966	777	787
25	V min.= 6.08	777.1161	786.8745	777	787
25	V max.= 7.04	777.0812	786.9427	777	787

DC 8-32V from external power supply(typical DC 24V):

GPRS 850 Band:

GPRS Mode, Middle Channel, f_o=836.6 MHz				
Temperature (℃)	**Power Supplied (V_{DC})**	**Frequency Error (Hz)**	**Frequency Error (ppm)**	**Limit (ppm)**
-30	24	14	0.01673	2.5
-20		13	0.01554	2.5
-10		11	0.01315	2.5
0		9	0.01076	2.5
10		8	0.00956	2.5
20		11	0.01315	2.5
30		10	0.01195	2.5
40		9	0.01076	2.5
50		7	0.00837	2.5
25	V min.= 8	13	0.01554	2.5
25	V max.=32	12	0.01434	2.5

EGPRS Mode, Middle Channel, f_o=836.6 MHz				
Temperature (℃)	**Power Supplied (V_{DC})**	**Frequency Error (Hz)**	**Frequency Error (ppm)**	**Limit (ppm)**
-30	24	16	0.01913	2.5
-20		15	0.01793	2.5
-10		13	0.01554	2.5
0		11	0.01315	2.5
10		10	0.01195	2.5
20		9	0.01076	2.5
30		8	0.00956	2.5
40		7	0.00837	2.5
50		10	0.01195	2.5
25	V min.= 8	13	0.01554	2.5
25	V max.=32	12	0.01434	2.5

WCDMA Band V:

WCDMA Mode, Middle Channel, f_o = 836.6 MHz				
Temperature (℃)	**Power Supplied (V_{DC})**	**Frequency Error (Hz)**	**Frequency Error (ppm)**	**Limit (ppm)**
-30	24	15	0.0179	2.5
-20		11	0.0131	2.5
-10		10	0.0120	2.5
0		9	0.0108	2.5
10		7	0.0084	2.5
20		8	0.0096	2.5
30		10	0.0120	2.5
40		11	0.0131	2.5
50		12	0.0143	2.5
25	V min.= 8	13	0.0155	2.5
25	V max.=32	12	0.0143	2.5

PCS 1900 Band

GPRS Mode, Middle Channel, f_o=1880.0 MHz				
Temperature (℃)	**Power Supplied (V_{DC})**	**Frequency Error (Hz)**	**Frequency Error (ppm)**	**Result**
-30	24	-11	-0.00585	pass
-20		-11	-0.00585	pass
-10		-8	-0.00426	pass
0		-7	-0.00372	pass
10		-3	-0.00160	pass
20		-2	-0.00106	pass
30		-1	-0.00053	pass
40		1	0.00053	pass
50		-7	-0.00372	pass
25	V min.= 8	-12	-0.00638	pass
25	V max.=32	-10	-0.00532	pass

EGPRS Mode, Middle Channel, f_o=1880.0 MHz				
Temperature (℃)	**Power Supplied (V_{DC})**	**Frequency Error (Hz)**	**Frequency Error (ppm)**	**Result**
-30	24	-10	-0.00532	pass
-20		-9	-0.00479	pass
-10		-6	-0.00319	pass
0		-3	-0.00160	pass
10		-2	-0.00106	pass
20		0	0.00000	pass
30		-2	-0.00106	pass
40		-3	-0.00160	pass
50		-11	-0.00585	pass
25	V min.= 8	-11	-0.00585	pass
25	V max.=32	-13	-0.00691	pass

WCDMA Band II:

WCDMA Mode, Middle Channel, f_o = 1880.0 MHz				
Temperature (℃)	**Power Supplied (V_{DC})**	**Frequency Error (Hz)**	**Frequency Error (ppm)**	**Result**
-30	24	-8	-0.0043	pass
-20		-7	-0.0037	pass
-10		-3	-0.0016	pass
0		-2	-0.0011	pass
10		1	0.0005	pass
20		-8	-0.0043	pass
30		4	0.0021	pass
40		-10	-0.0053	pass
50		-7	-0.0037	pass
25	V min.= 8	-11	-0.0059	pass
25	V max.=32	-9	-0.0048	pass

WCDMA Band IV:

WCDMA Mode, Low Channel & High Channel					
Temperature	**Power Supplied**	**F_L**	**F_H**	**F_L Limit**	**F_H Limit**
(℃)	**(V_{DC})**	**(MHz)**	**(MHz)**	**(MHz)**	**(MHz)**
-30	24	1710.0479	1754.7456	1710	1755
-20		1710.0488	1754.7488	1710	1755
-10		1710.0411	1754.7481	1710	1755
0		1710.0426	1754.7466	1710	1755
10		1710.0460	1754.7413	1710	1755
20		1710.0453	1754.7404	1710	1755
30		1710.0435	1754.7431	1710	1755
40		1710.0409	1754.7428	1710	1755
50		1710.0475	1754.7405	1710	1755
25	V min.= 8	1710.0448	1754.7455	1710	1755
25	V max.=32	1710.0490	1754.7432	1710	1755

LTE Band 2:

Middle Channel, f_o=1880.0 MHz (QPSK) /Channel Bandwidth:20MHz				
Temperature (℃)	**Power Supplied (V_{DC})**	**Frequency Error (Hz)**	**Frequency Error (ppm)**	**Result**
-30	24	14	0.0074	pass
-20		12	0.0064	pass
-10		11	0.0059	pass
0		9	0.0048	pass
10		8	0.0043	pass
20		6	0.0032	pass
30		5	0.0027	pass
40		11	0.0059	pass
50		12	0.0064	pass
25	V min.= 8	11	0.0059	pass
25	V max.=32	13	0.0069	pass

Middle Channel, f_o=1880.0 MHz (16-QAM) /Channel Bandwidth:20MHz				
Temperature (℃)	**Power Supplied (V_{DC})**	**Frequency Error (Hz)**	**Frequency Error (ppm)**	**Result**
-30	24	15	0.0080	pass
-20		13	0.0069	pass
-10		12	0.0064	pass
0		8	0.0043	pass
10		9	0.0048	pass
20		8	0.0043	pass
30		7	0.0037	pass
40		10	0.0053	pass
50		13	0.0069	pass
25	V min.= 8	13	0.0069	pass
25	V max.=32	12	0.0064	pass

LTE Band 4:

Low Channel & High Channel (QPSK) /Channel Bandwidth:20MHz					
Temperature	**Power Supplied**	**F_L**	**F_H**	**F_L Limit**	**F_H Limit**
(℃)	**(V_{DC})**	**(MHz)**	**(MHz)**	**(MHz)**	**(MHz)**
-30	24	1710.0468	1754.9438	1710	1755
-20		1710.0483	1754.9470	1710	1755
-10		1710.0434	1754.9409	1710	1755
0		1710.0456	1754.9499	1710	1755
10		1710.0402	1754.9433	1710	1755
20		1710.0454	1754.9418	1710	1755
30		1710.0404	1754.9492	1710	1755
40		1710.0479	1754.9401	1710	1755
50		1710.0441	1754.9485	1710	1755
25	V min.= 8	1710.0448	1754.9423	1710	1755
25	V max.=32	1710.0431	1754.9459	1710	1755

Low Channel & High Channel (16-QAM) /Channel Bandwidth:20MHz					
Temperature	**Power Supplied**	**F_L**	**F_H**	**F_L Limit**	**F_H Limit**
(℃)	**(V_{DC})**	**(MHz)**	**(MHz)**	**(MHz)**	**(MHz)**
-30	24	1710.0427	1754.9491	1710	1755
-20		1710.0482	1754.9441	1710	1755
-10		1710.0460	1754.9422	1710	1755
0		1710.0457	1754.9446	1710	1755
10		1710.0463	1754.9419	1710	1755
20		1710.0444	1754.9438	1710	1755
30		1710.0490	1754.9425	1710	1755
40		1710.0457	1754.9432	1710	1755
50		1710.0478	1754.9405	1710	1755
25	V min.= 8	1710.0492	1754.9429	1710	1755
25	V max.=32	1710.0445	1754.9426	1710	1755

LTE Band 5:

Middle Channel, f_o = 836.5 MHz (QPSK) /Channel Bandwidth:10MHz				
Temperature	**Power Supplied**	**Frequency Error**	**Frequency Error**	**Limit**
(℃)	**(V_{DC})**	**(Hz)**	**(ppm)**	**(ppm)**
-30	24	15	0.0179	2.5
-20		13	0.0155	2.5
-10		12	0.0143	2.5
0		10	0.0120	2.5
10		9	0.0108	2.5
20		8	0.0096	2.5
30		9	0.0108	2.5
40		10	0.0120	2.5
50		11	0.0132	2.5
25	V min.= 8	11	0.0132	2.5
25	V max.=32	12	0.0143	2.5

Middle Channel, f_o = 836.5 MHz (16-QAM) /Channel Bandwidth:10MHz				
Temperature	**Power Supplied**	**Frequency Error**	**Frequency Error**	**Limit**
(℃)	**(V_{DC})**	**(Hz)**	**(ppm)**	**(ppm)**
-30	24	15	0.0179	2.5
-20		13	0.0155	2.5
-10		12	0.0143	2.5
0		11	0.0132	2.5
10		10	0.0120	2.5
20		9	0.0108	2.5
30		8	0.0096	2.5
40		7	0.0084	2.5
50		9	0.0108	2.5
25	V min.= 8	12	0.0143	2.5
25	V max.=32	13	0.0155	2.5

LTE Band 12:

Low Channel & High Channel (QPSK) /Channel Bandwidth:10MHz					
Temperature	Power Supplied	F_L	F_H	F_L Limit	F_H Limit
(℃)	(V_{DC})	(MHz)	(MHz)	(MHz)	(MHz)
-30	24	699.0481	715.9494	699	716
-20		699.0474	715.9497	699	716
-10		699.0424	715.9485	699	716
0		699.0476	715.9419	699	716
10		699.0488	715.9433	699	716
20		699.0410	715.9471	699	716
30		699.0471	715.9422	699	716
40		699.0442	715.9411	699	716
50		699.0476	715.9401	699	716
25	V min.= 8	699.0492	715.9471	699	716
25	V max.=32	699.0487	715.9454	699	716

Low Channel & High Channel (16-QAM) /Channel Bandwidth:10MHz					
Temperature	Power Supplied	F_L	F_H	F_L Limit	F_H Limit
(℃)	(V_{DC})	(MHz)	(MHz)	(MHz)	(MHz)
-30	24	699.0432	715.9418	699	716
-20		699.0463	715.9444	699	716
-10		699.0436	715.9437	699	716
0		699.0445	715.9433	699	716
10		699.0482	715.9413	699	716
20		699.0461	715.9497	699	716
30		699.0483	715.9407	699	716
40		699.0413	715.9405	699	716
50		699.0492	715.9449	699	716
25	V min.= 8	699.0470	715.9487	699	716
25	V max.=32	699.0491	715.9414	699	716

LTE Band 13:

Low Channel & High Channel (QPSK) /Channel Bandwidth:10MHz					
Temperature	Power Supplied	F_L	F_H	F_L Limit	F_H Limit
(℃)	(V_{DC})	(MHz)	(MHz)	(MHz)	(MHz)
-30	24	777.0493	786.9443	777	787
-20		777.0468	786.9428	777	787
-10		777.0411	786.9423	777	787
0		777.0446	786.9488	777	787
10		777.0455	786.9407	777	787
20		777.0448	786.9465	777	787
30		777.0485	786.9435	777	787
40		777.0430	786.9496	777	787
50		777.0453	786.9457	777	787
25	V min.= 8	777.0480	786.9439	777	787
25	V max.=32	777.0450	786.9456	777	787

Low Channel & High Channel (16-QAM) /Channel Bandwidth:10MHz					
Temperature	Power Supplied	F_L	F_H	F_L Limit	F_H Limit
(℃)	(V_{DC})	(MHz)	(MHz)	(MHz)	(MHz)
-30	24	777.0483	786.9433	777	787
-20		777.0431	786.9493	777	787
-10		777.0424	786.9409	777	787
0		777.0449	786.9451	777	787
10		777.0494	786.9405	777	787
20		777.0487	786.9475	777	787
30		777.0424	786.9416	777	787
40		777.0405	786.9480	777	787
50		777.0432	786.9424	777	787
25	V min.= 8	777.0451	786.9475	777	787
25	V max.=32	777.0462	786.9440	777	787

Declarations

1: BACL is not responsible for the authenticity of any test data provided by the applicant. Data included from the applicant that may affect test results are marked with an asterisk '*'. Customer model name, addresses, names, trademarks etc. are not considered data.

2: Unless otherwise stated the results shown in this test report refer only to the sample(s) tested.

3: Otherwise required by the applicant or Product Regulations, Decision Rule in this report did not consider the uncertainty.

4: The extended uncertainty given in this report is obtained by combining the standard uncertainty times the coverage factor K with the 95% confidence interval.

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