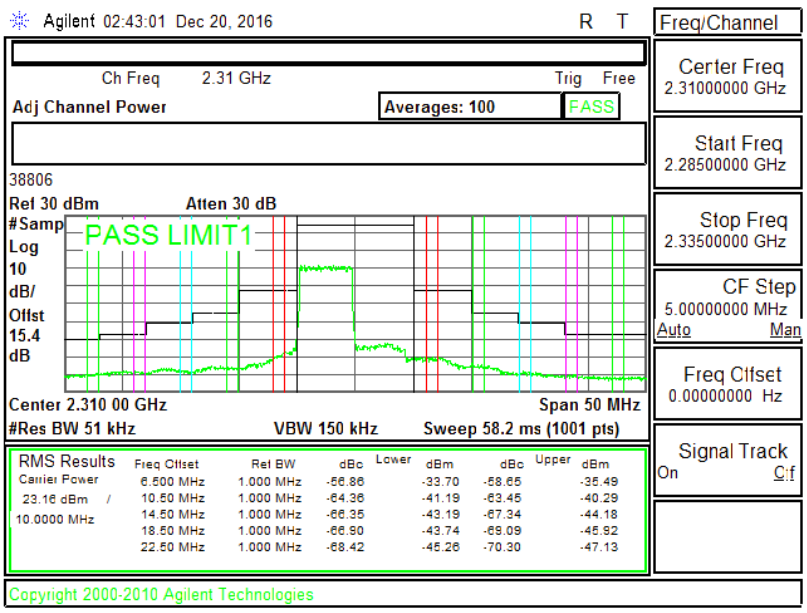
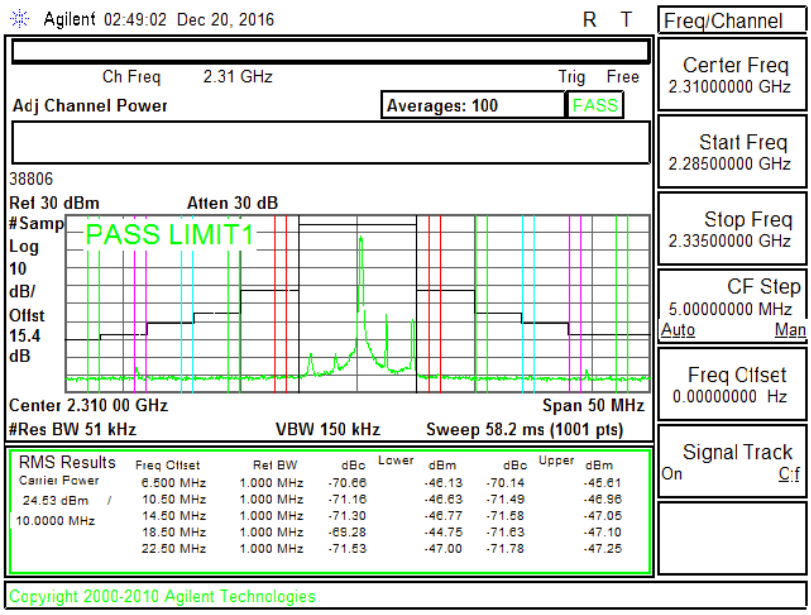
LOW CH, RB25-0



HIGH CH, RB1-0



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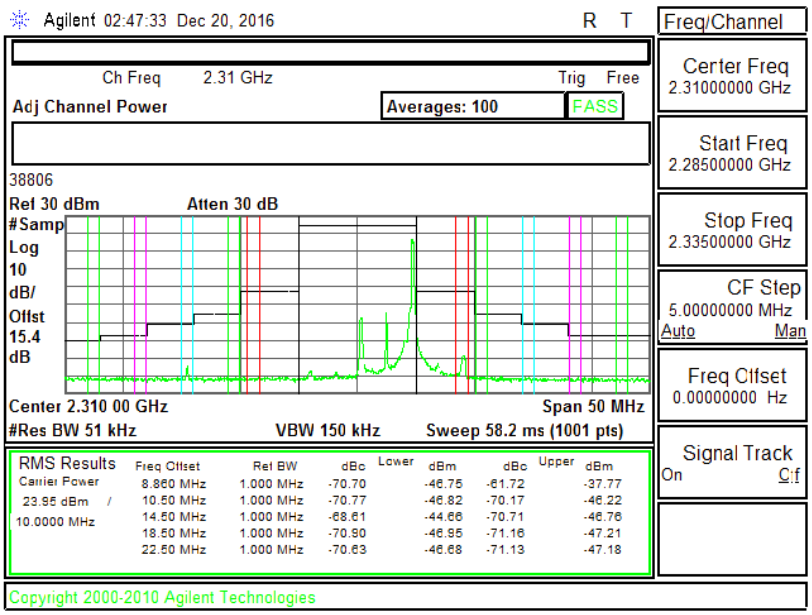
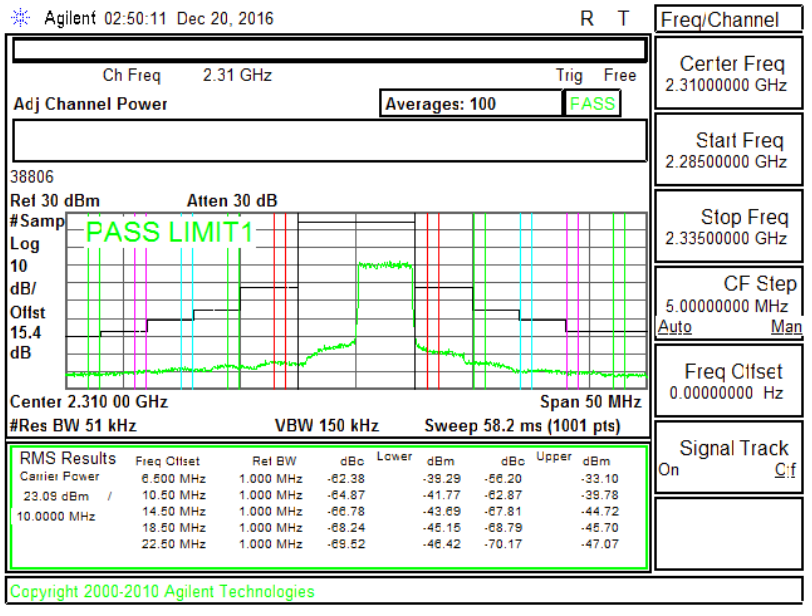
HIGH CH, RB1-24



HIGH CH, RB25-0



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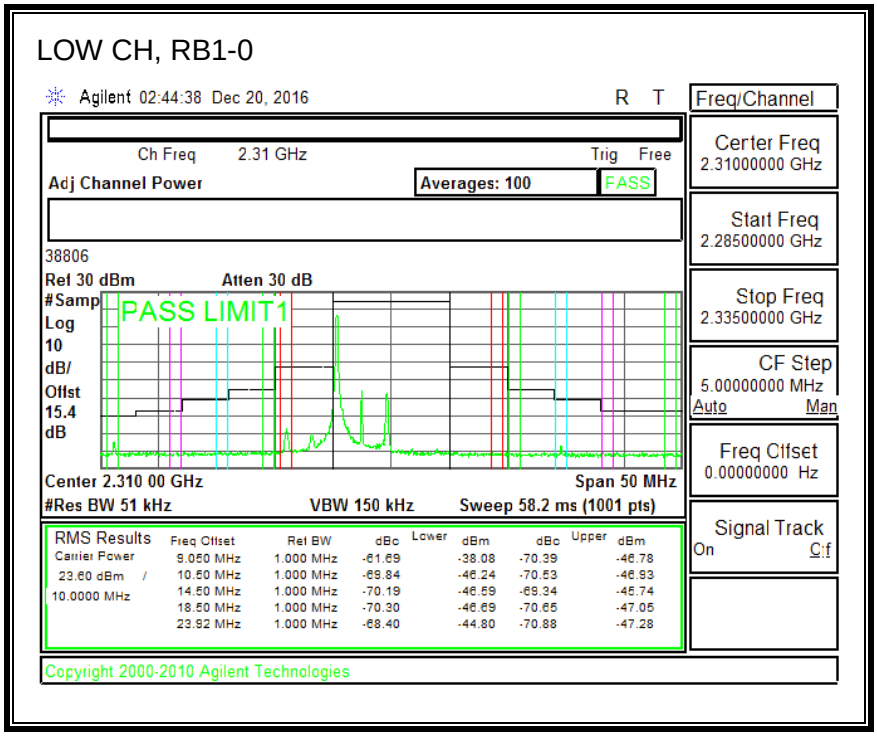
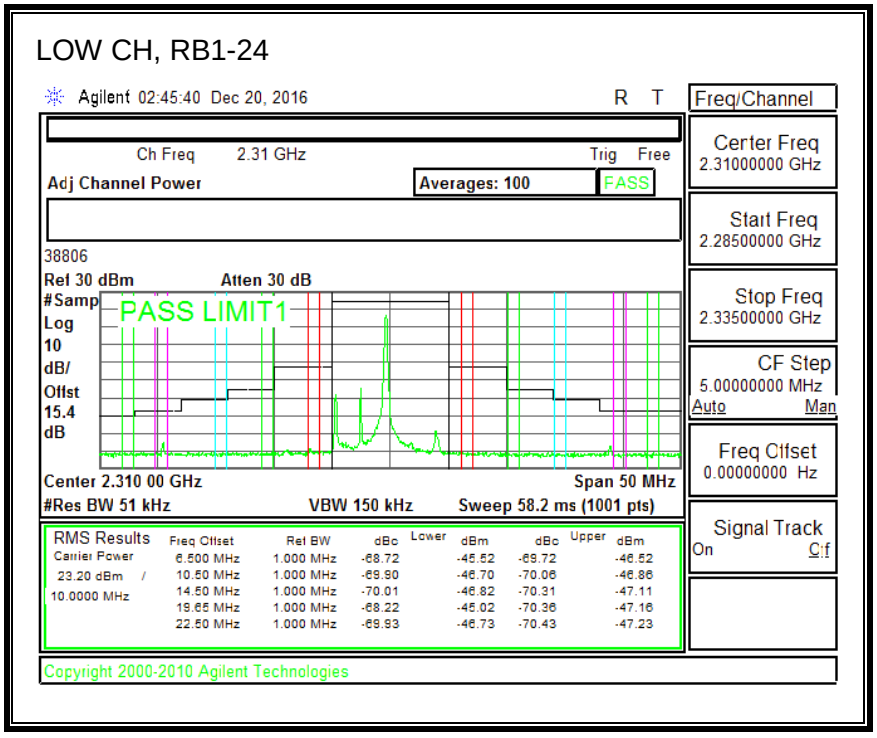
16QAM, (5.0 MHz BAND WIDTH)





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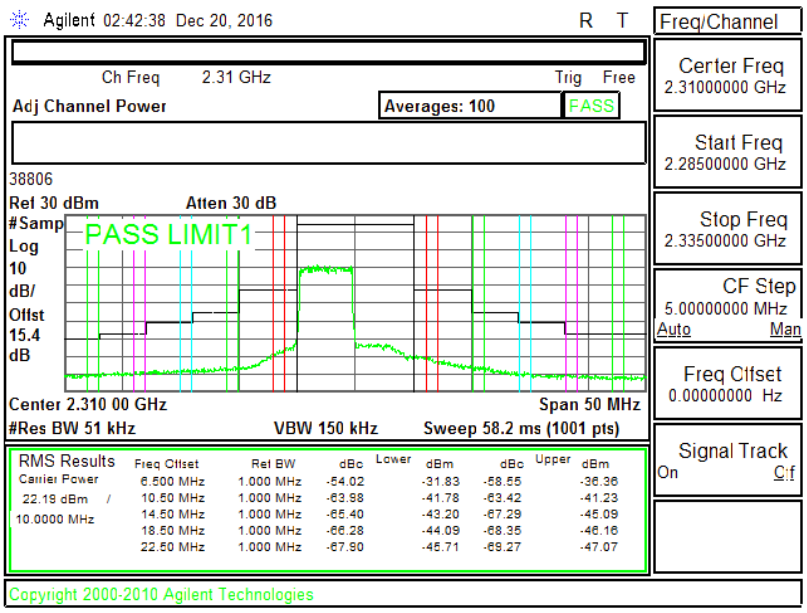
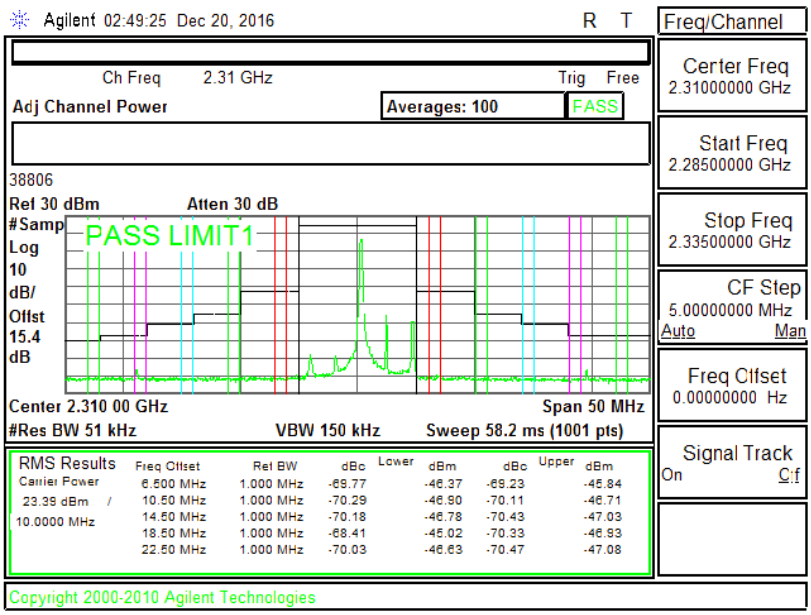
LOW CH, RB25-0



HIGH CH, RB1-0



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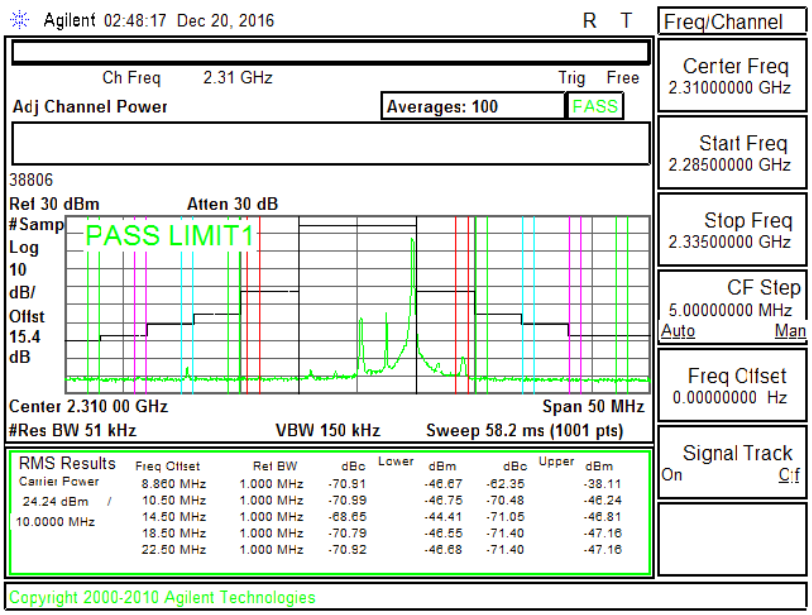
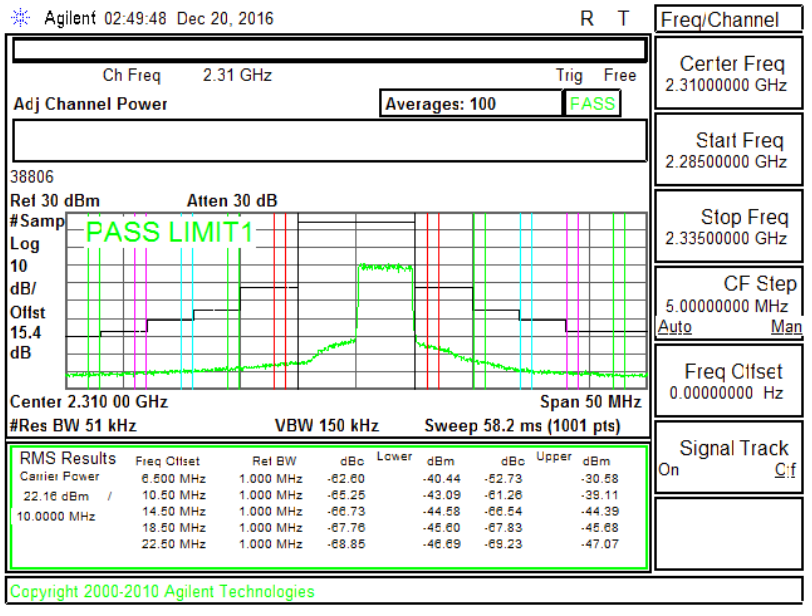
HIGH CH, RB1-24



HIGH CH, RB25-0



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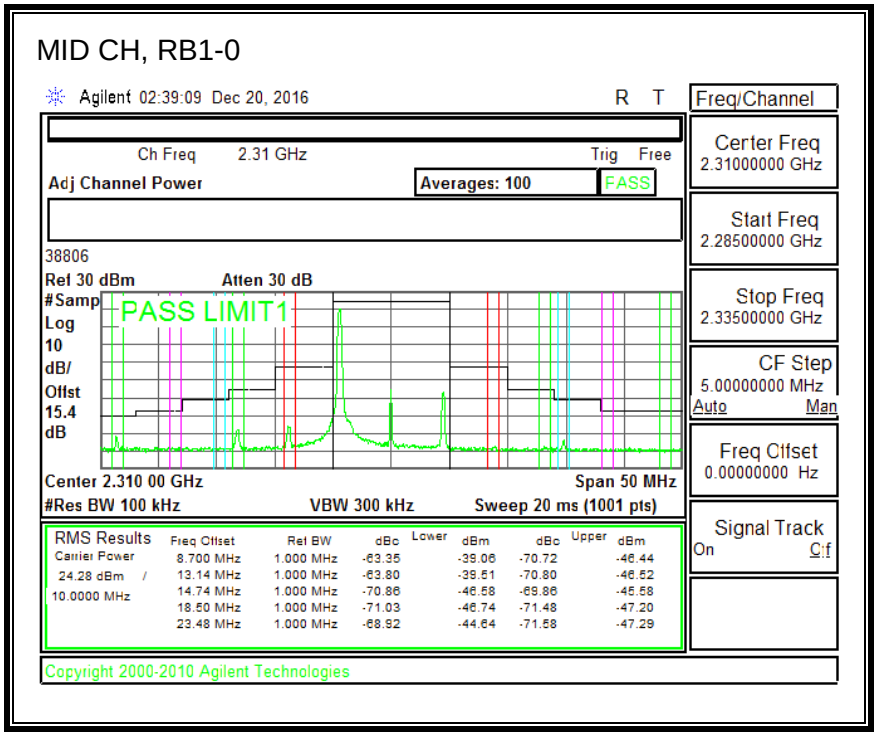
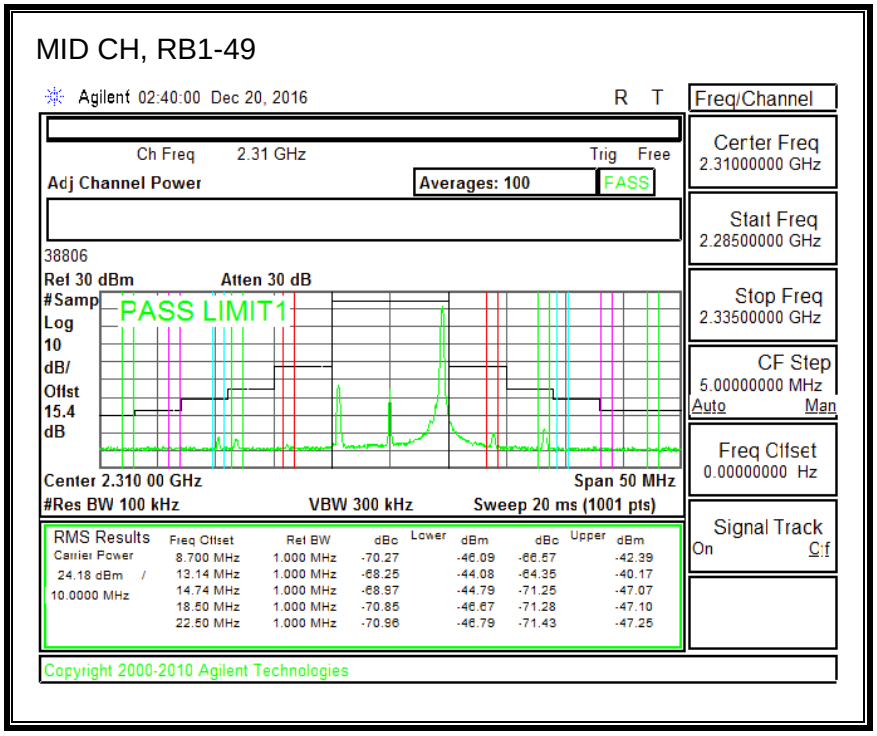
QPSK, (10.0 MHz BAND WIDTH)





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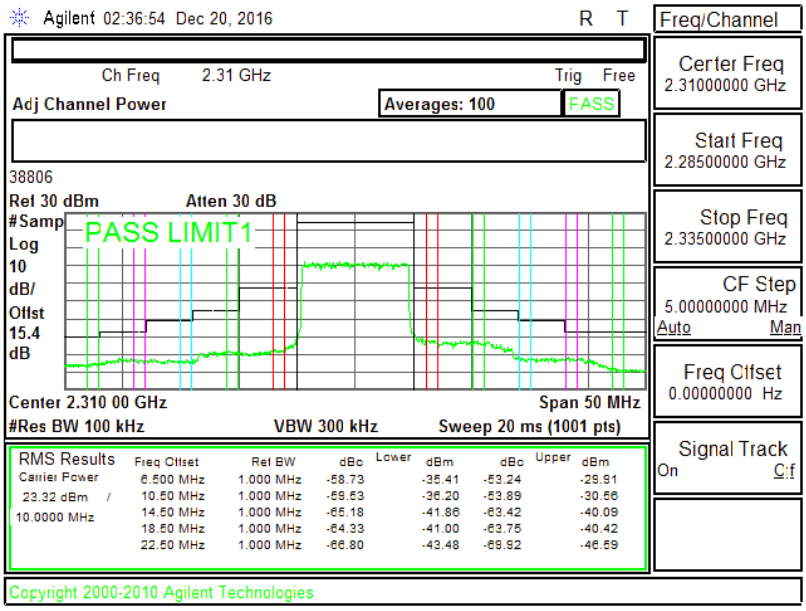
MID CH, RB50-0



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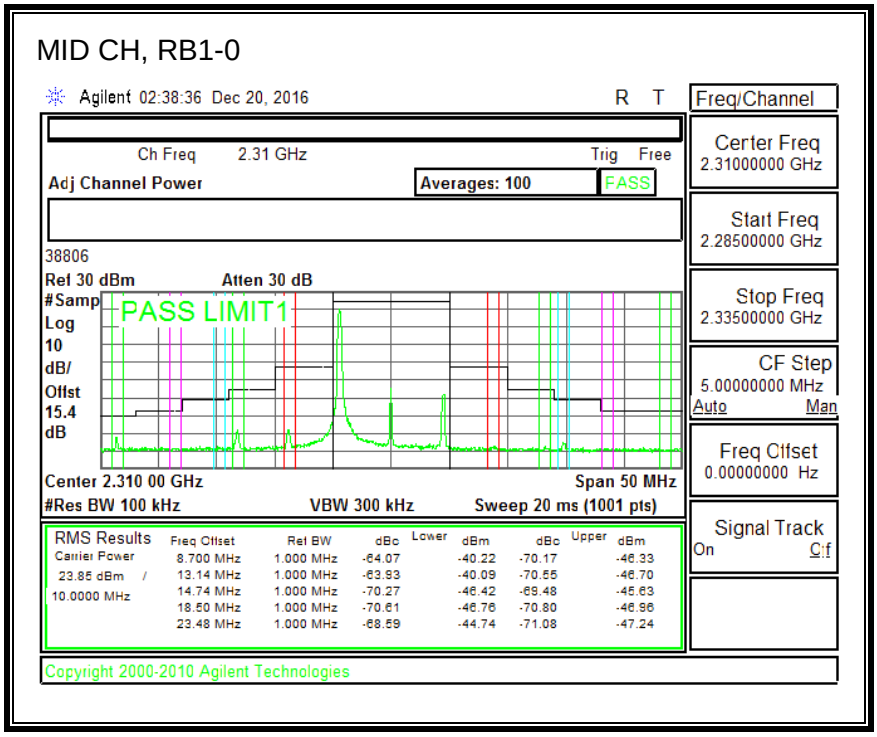
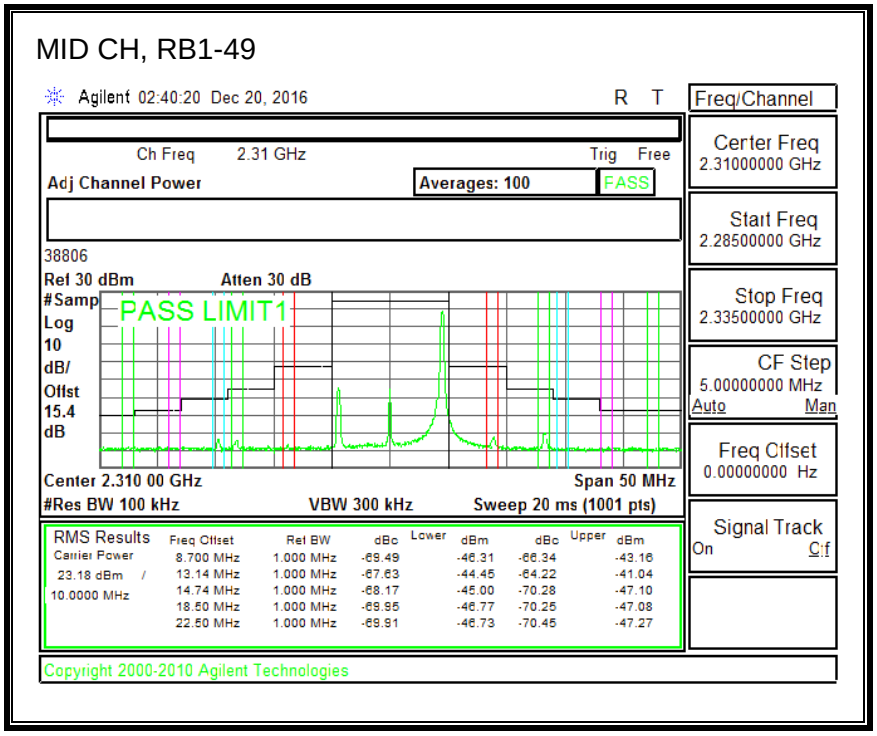
16QAM, (10.0 MHz BAND WIDTH)





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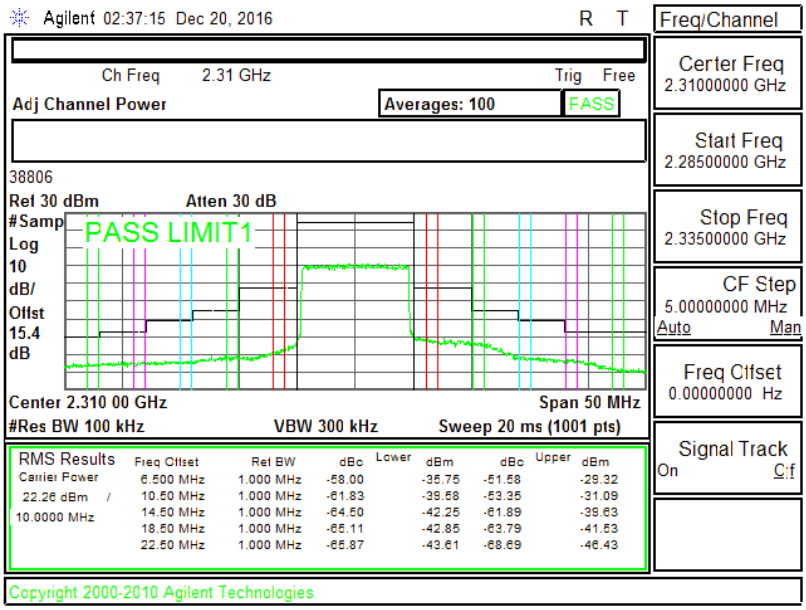
MID CH, RB50-0



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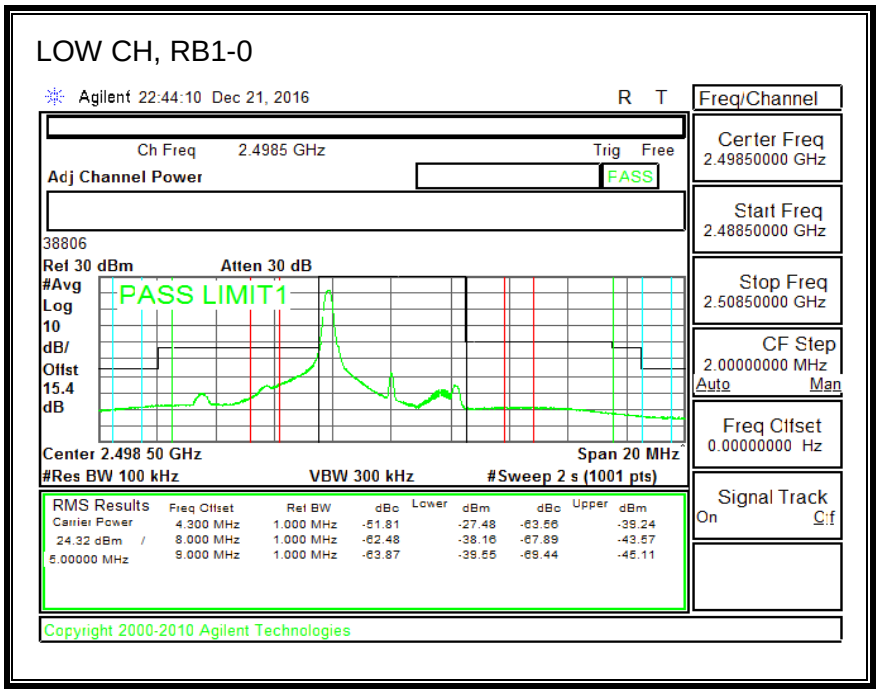
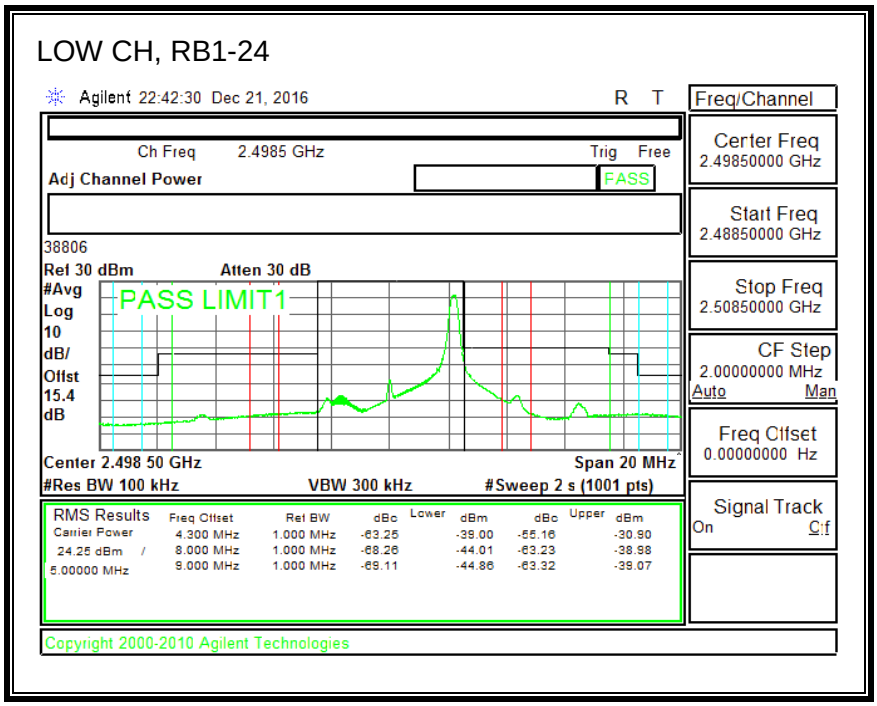
8.2.12. LTE BAND 41 ADJACENT CHANNEL POWER (FCC)

QPSK, (5.0 MHz BAND WIDTH)





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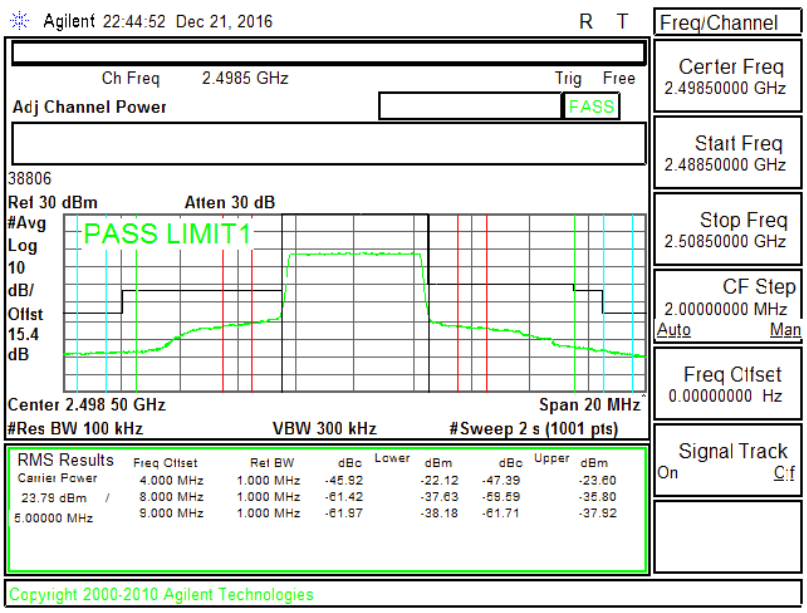
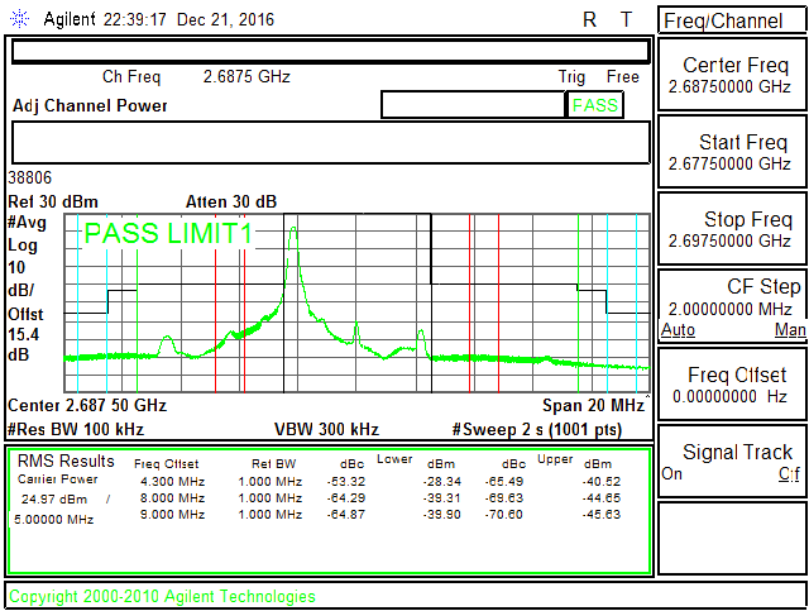
LOW CH, RB25-0



HIGH CH, RB1-0



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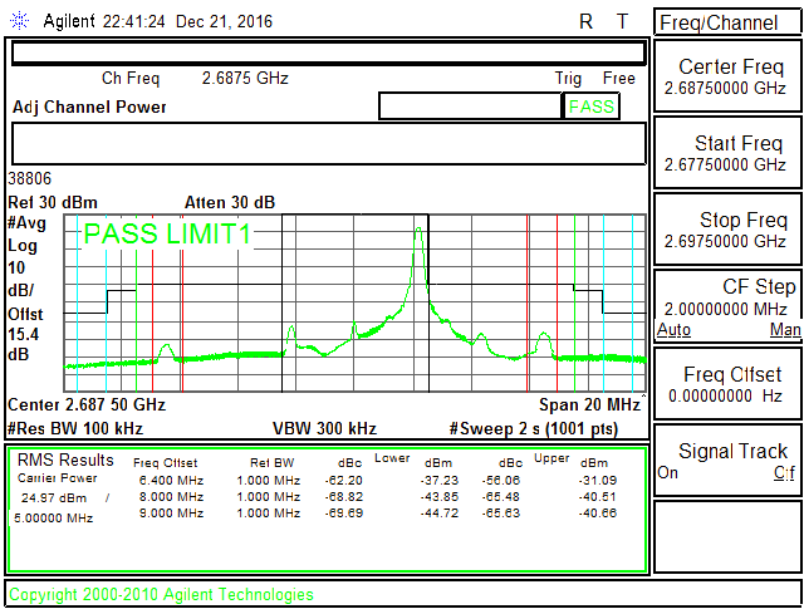
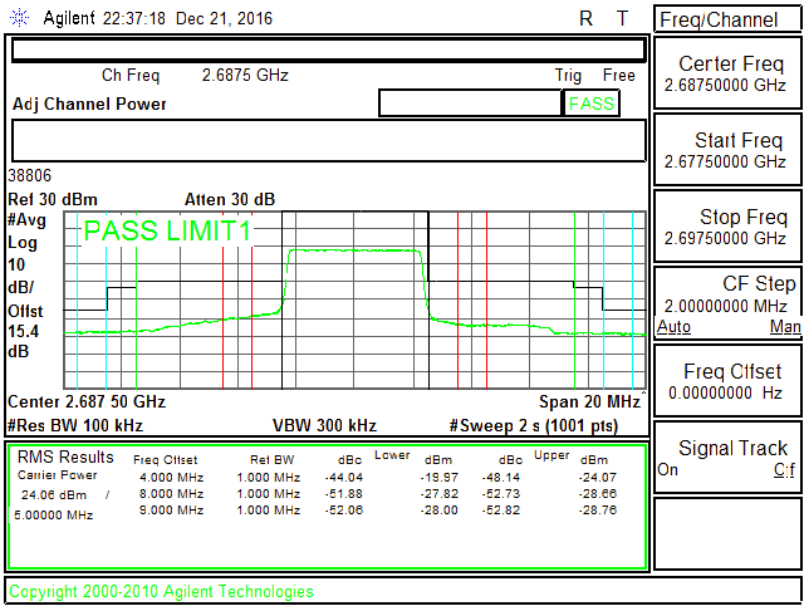
HIGH CH, RB1-24



HIGH CH, RB25-0



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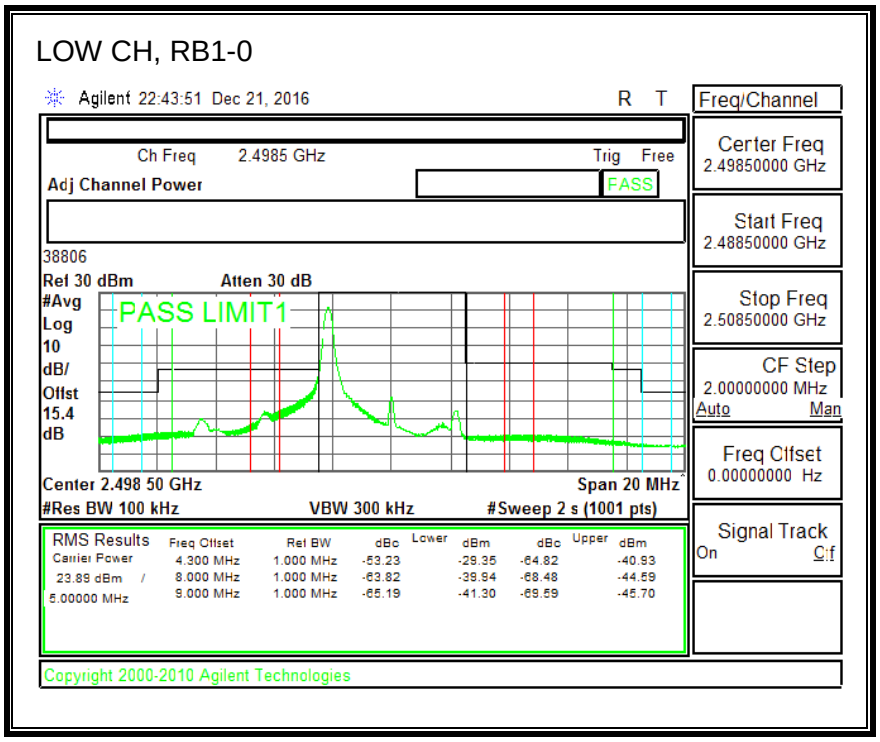
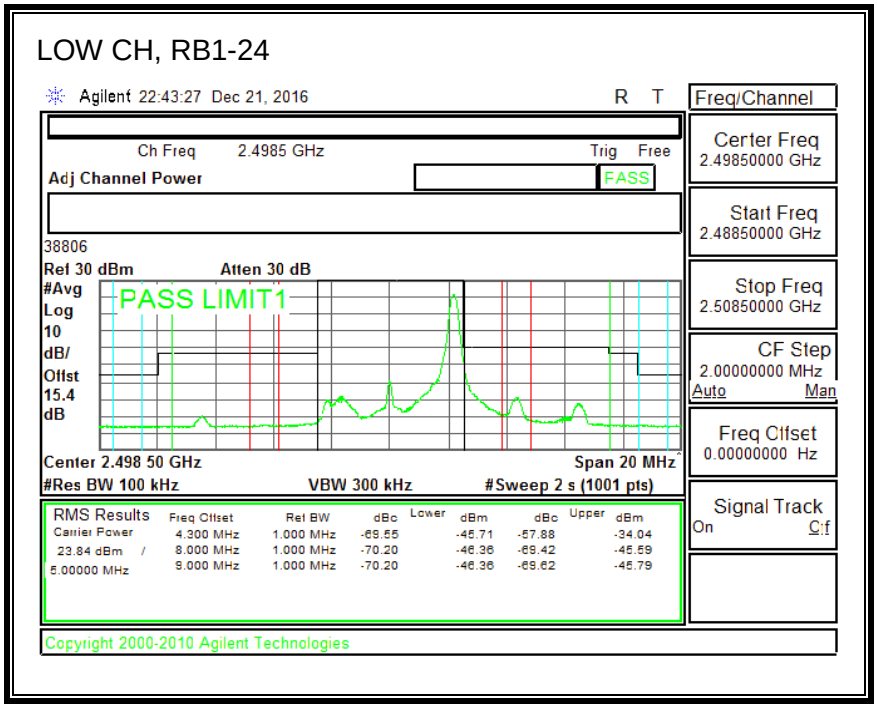
16QAM, (5.0 MHz BAND WIDTH)





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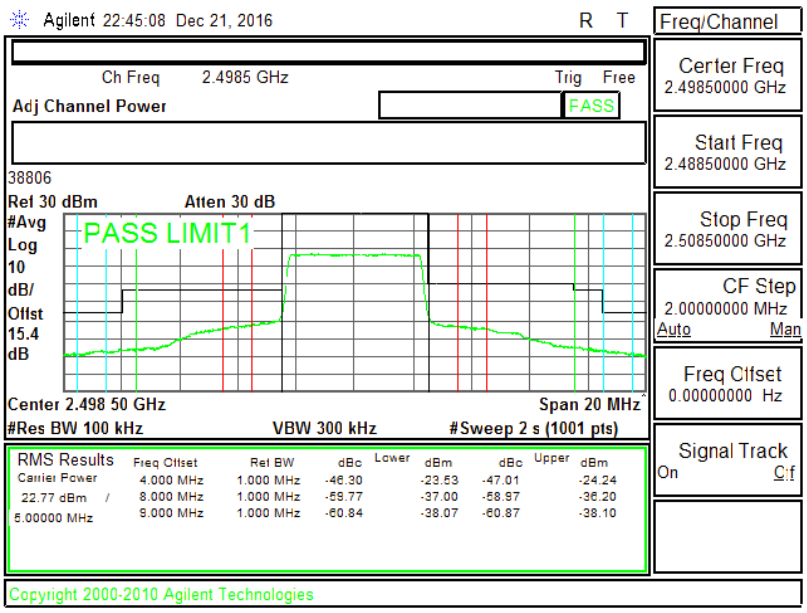
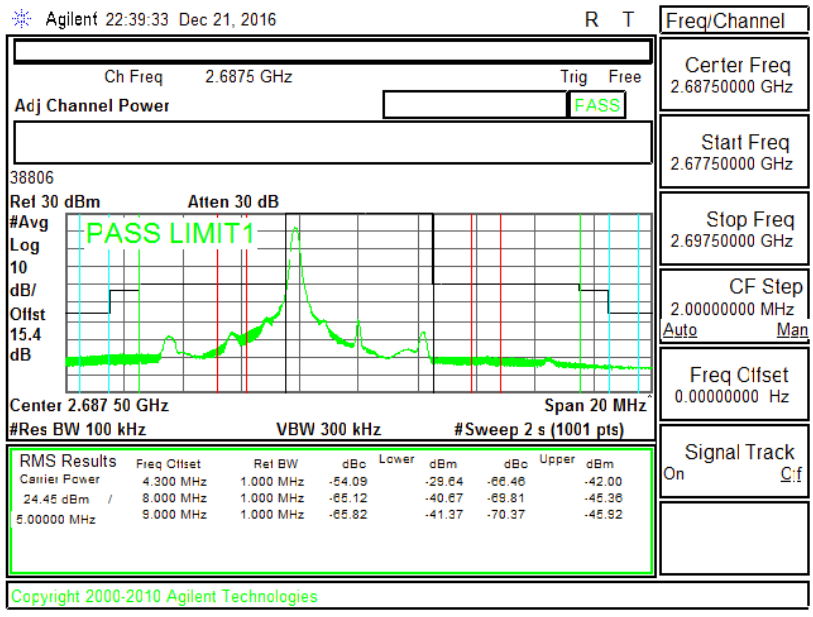
LOW CH, RB25-0



HIGH CH, RB1-0



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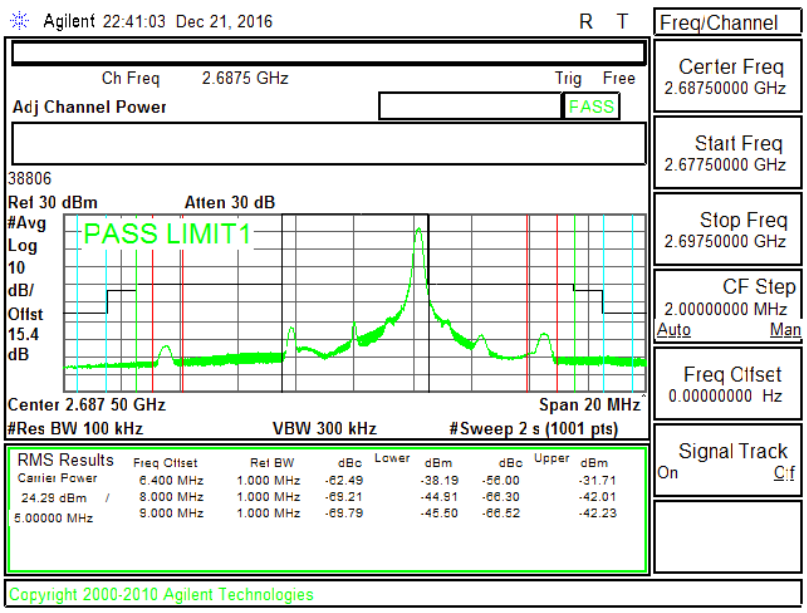
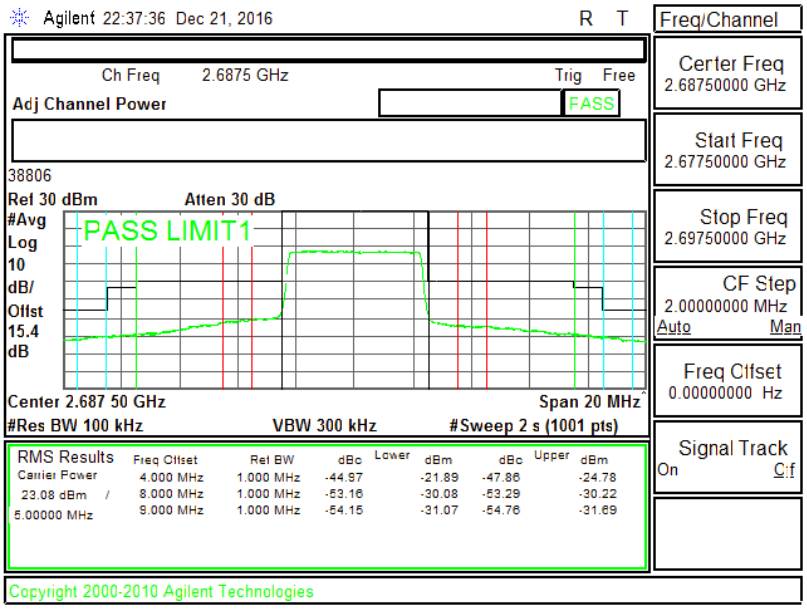
HIGH CH, RB1-24



HIGH CH, RB25-0



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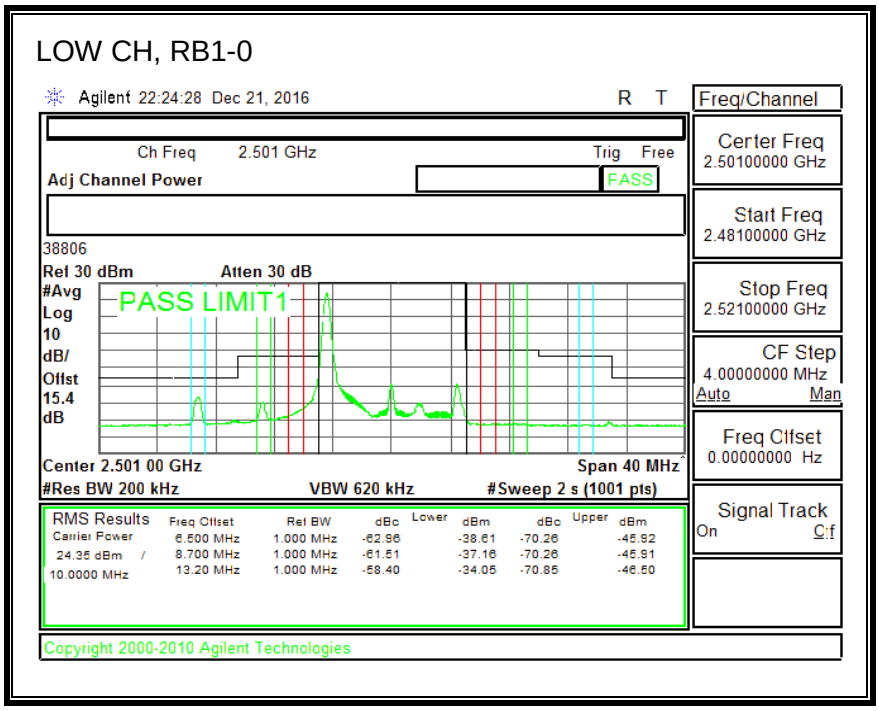
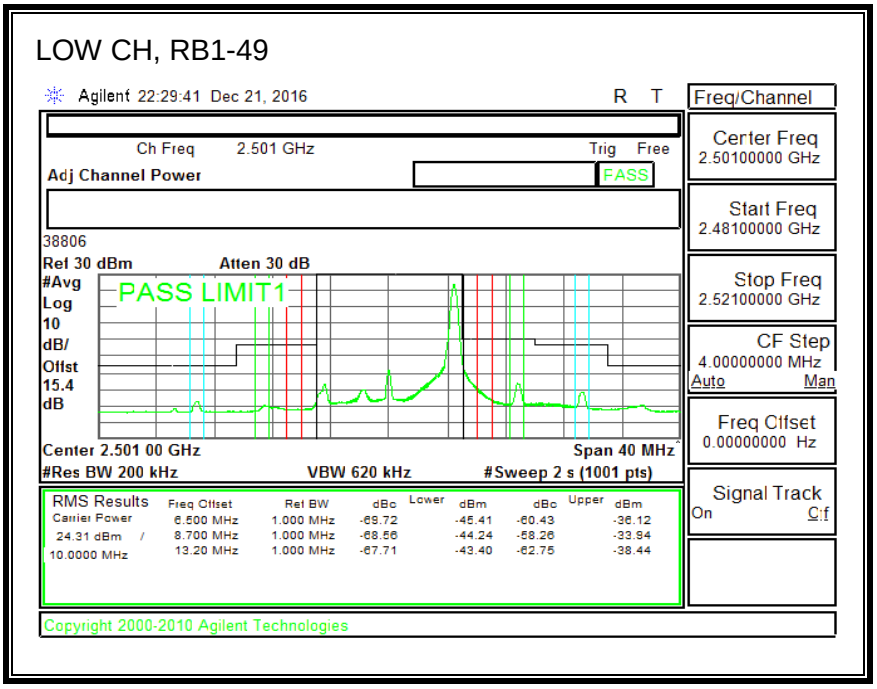
QPSK, (10.0 MHz BAND WIDTH)





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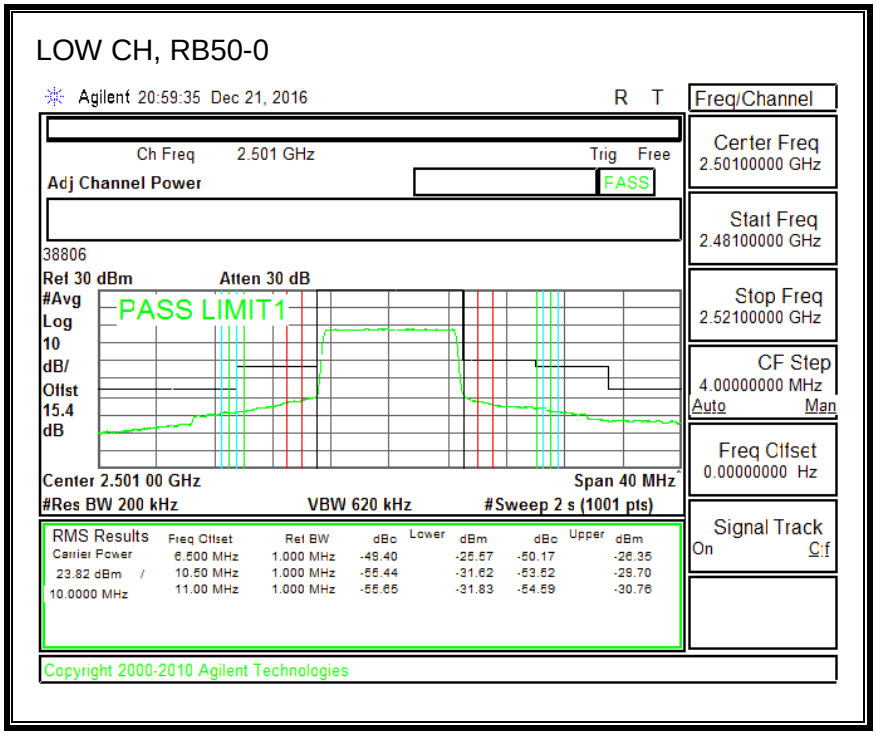
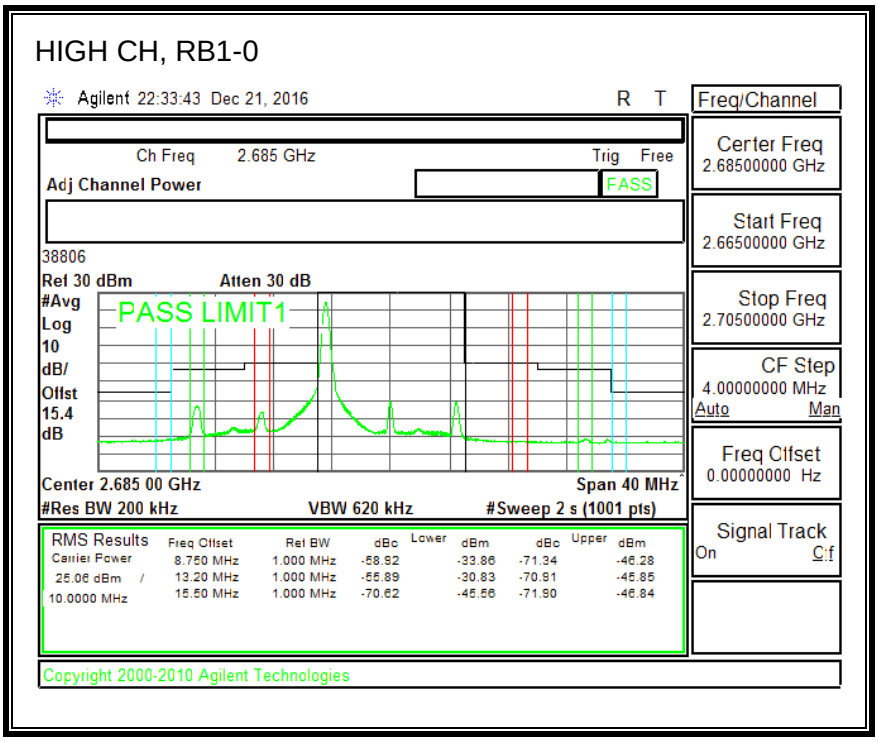
LOW CH, RB50-0



HIGH CH, RB1-0



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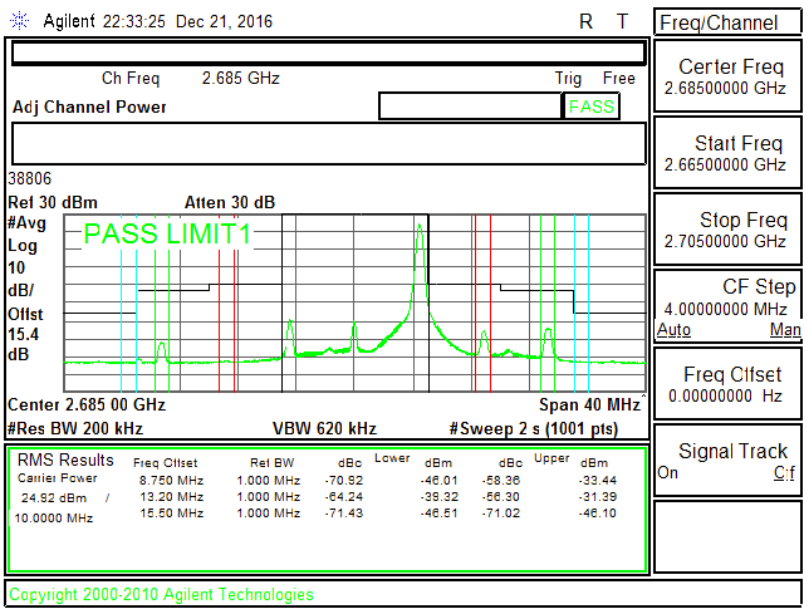
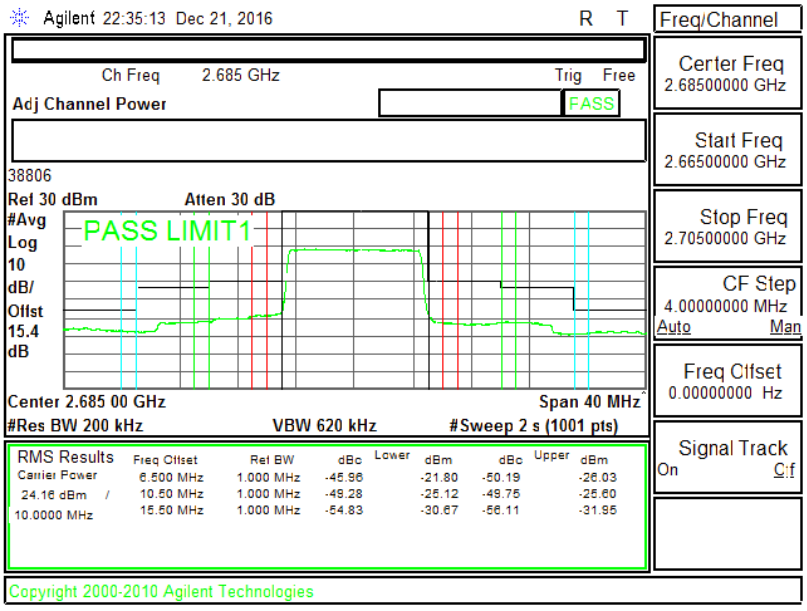
HIGH CH, RB1-49



HIGH CH, RB50-0



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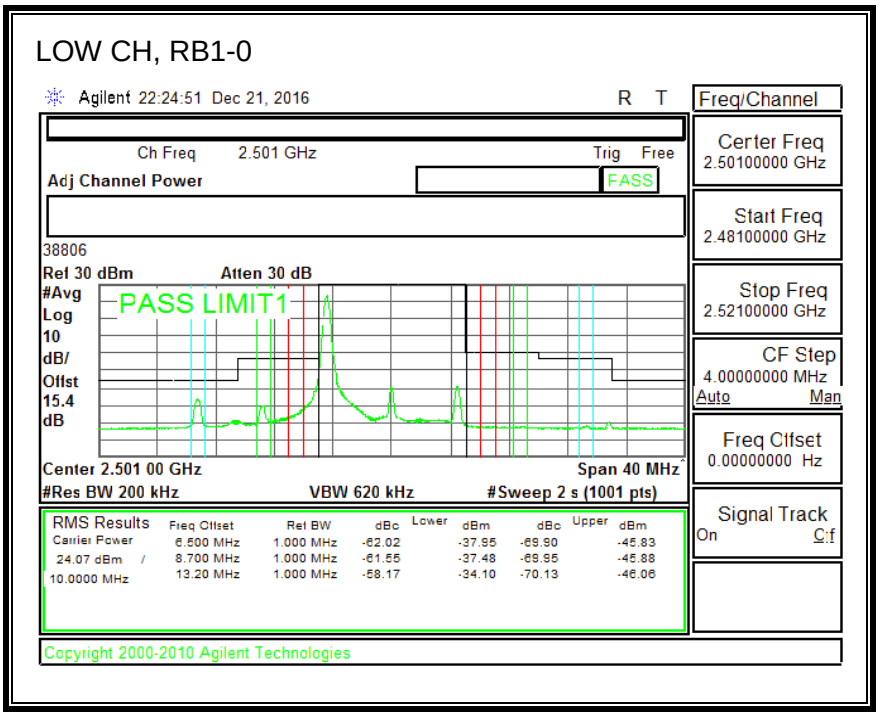
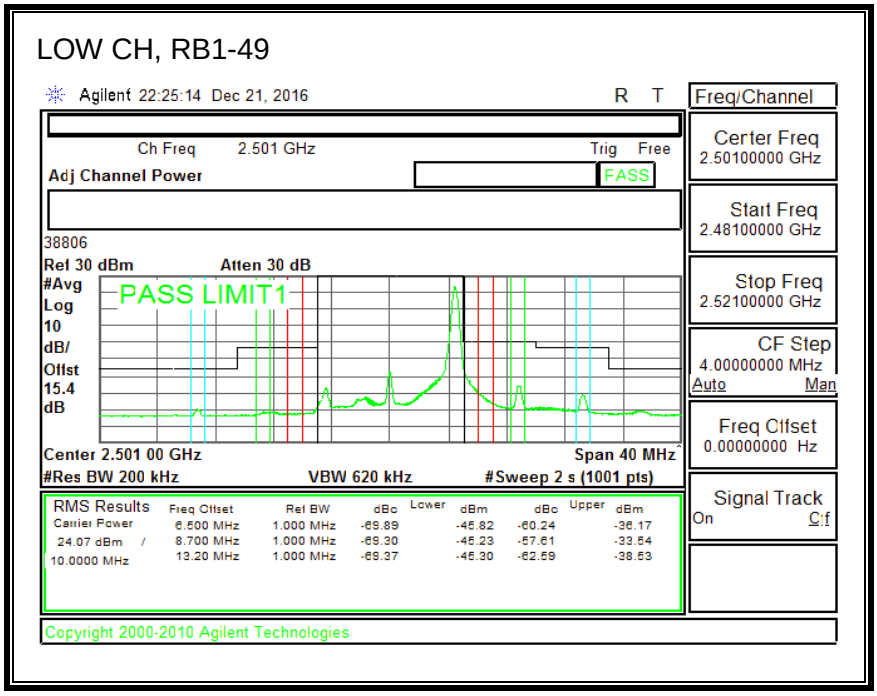
16QAM, (10.0 MHz BAND WIDTH)





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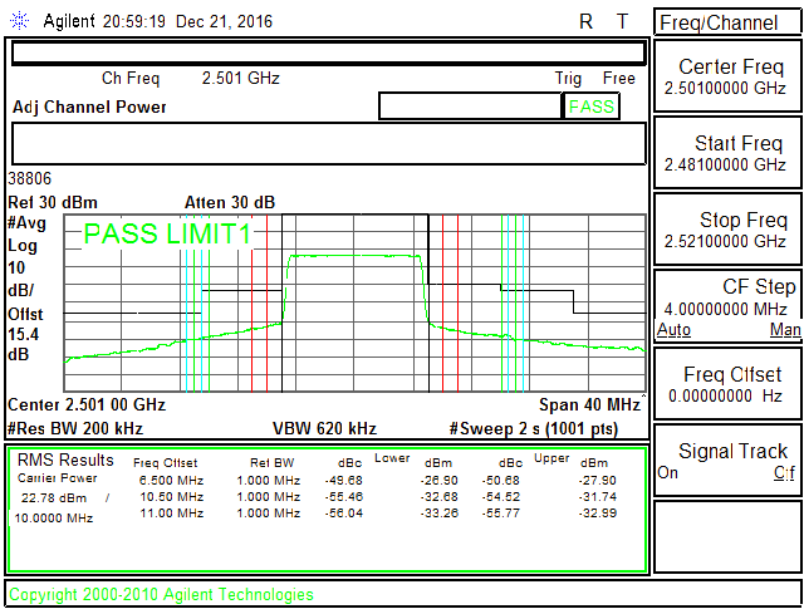
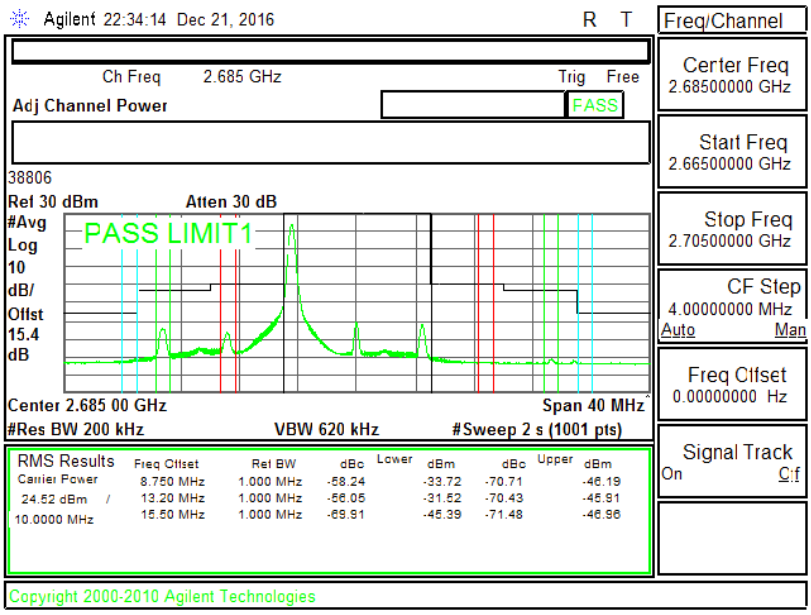
LOW CH, RB50-0



HIGH CH, RB1-0



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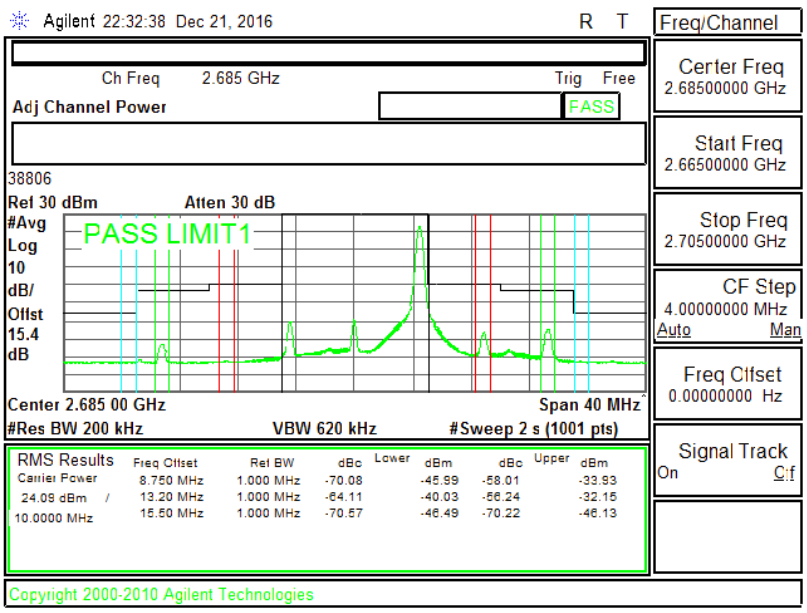
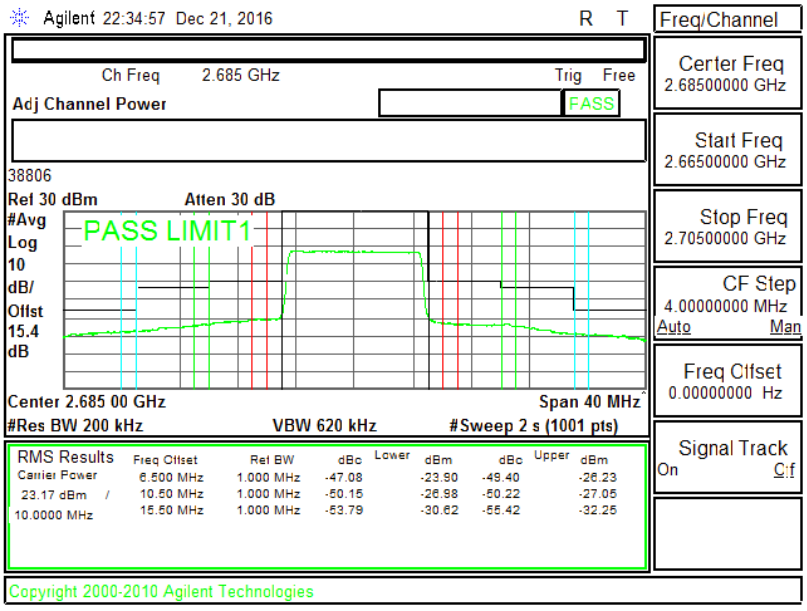
HIGH CH, RB1-49



HIGH CH, RB50-0



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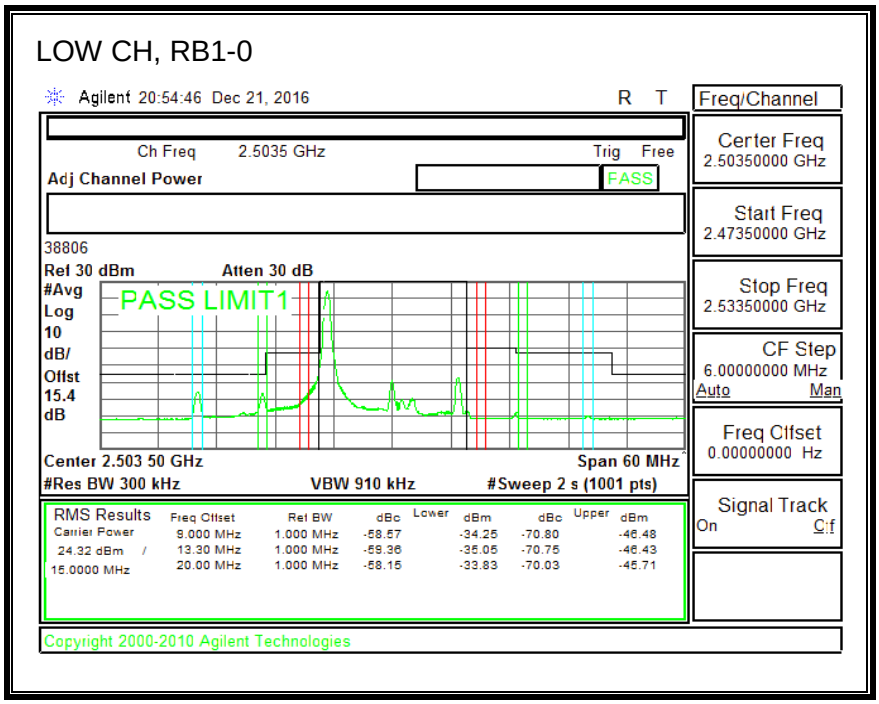
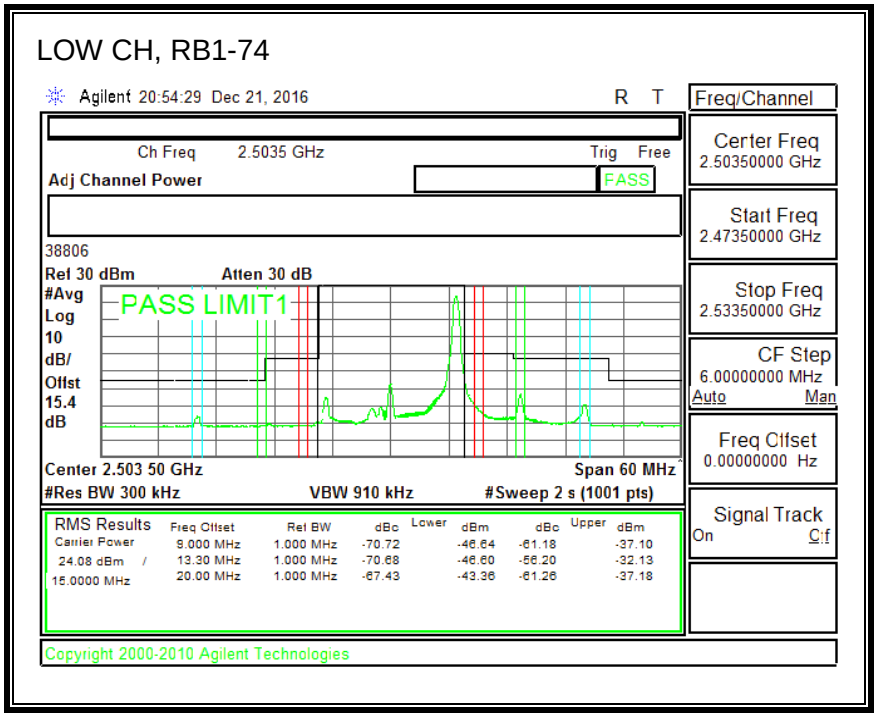
QPSK, (15.0 MHz BAND WIDTH)





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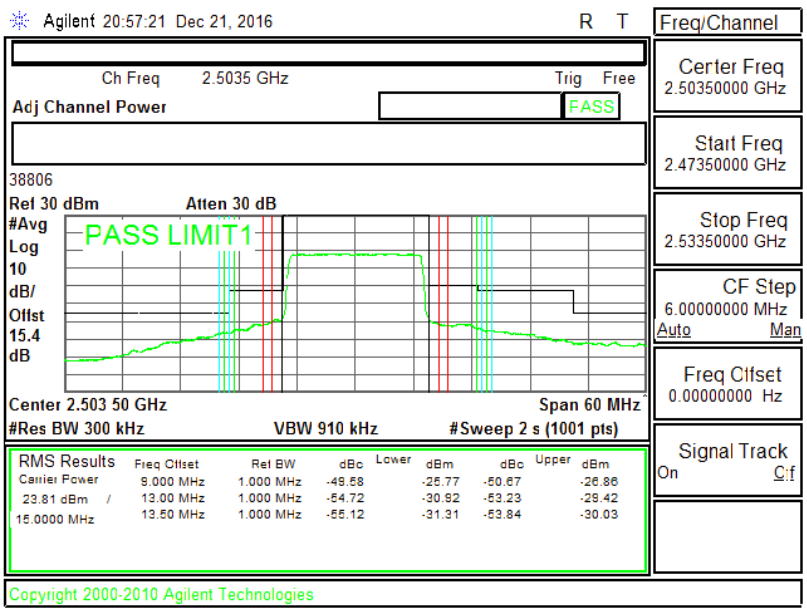
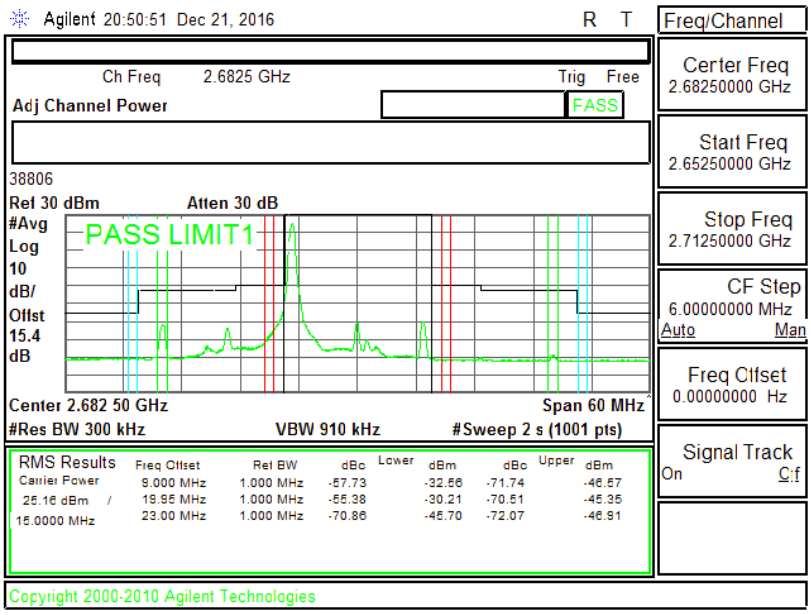
LOW CH, RB75-0



HIGH CH, RB1-0



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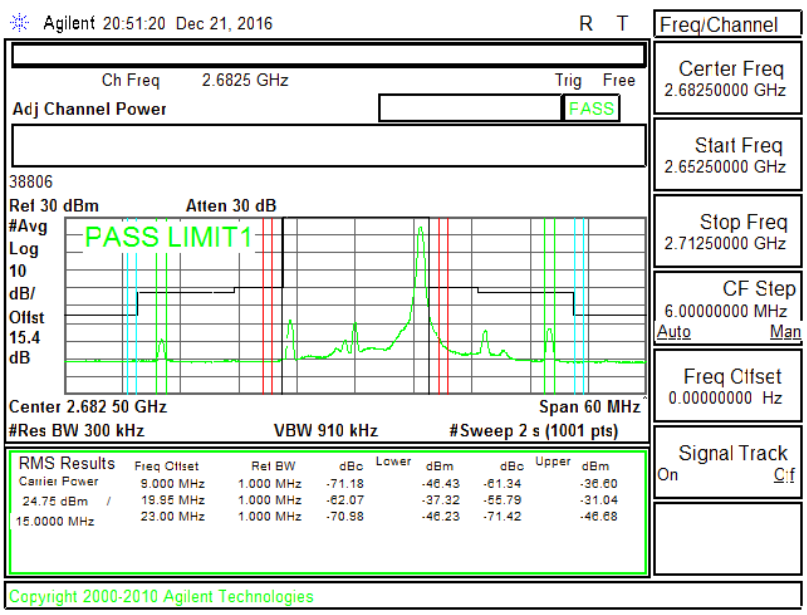
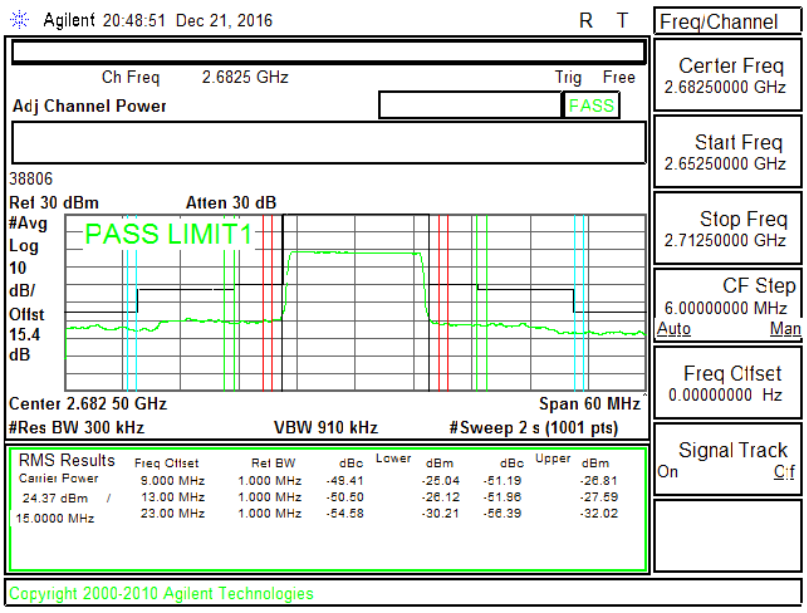
HIGH CH, RB1-74



HIGH CH, RB75-0



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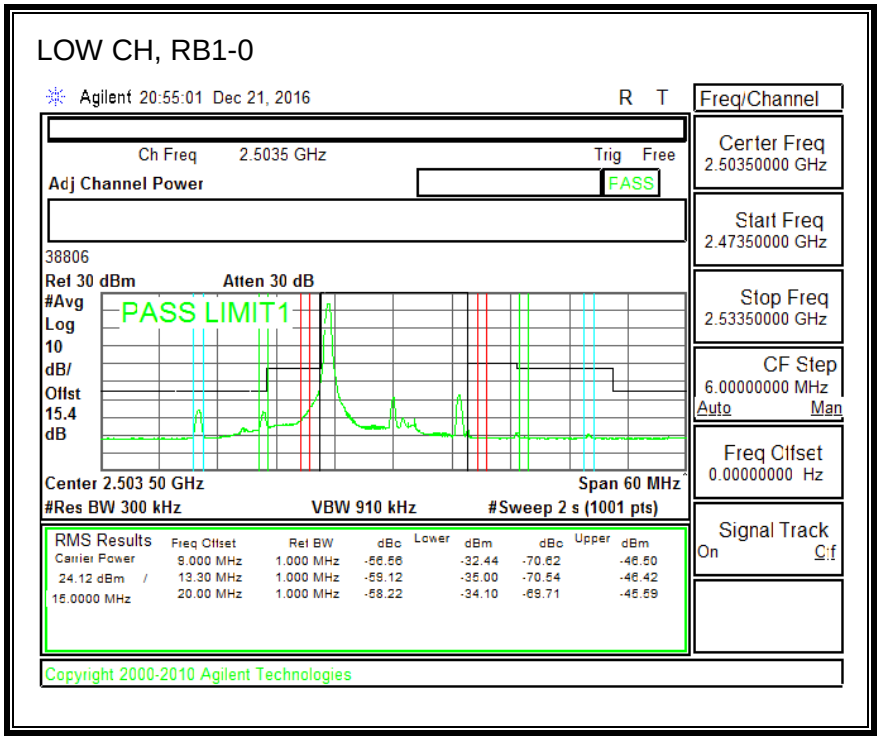
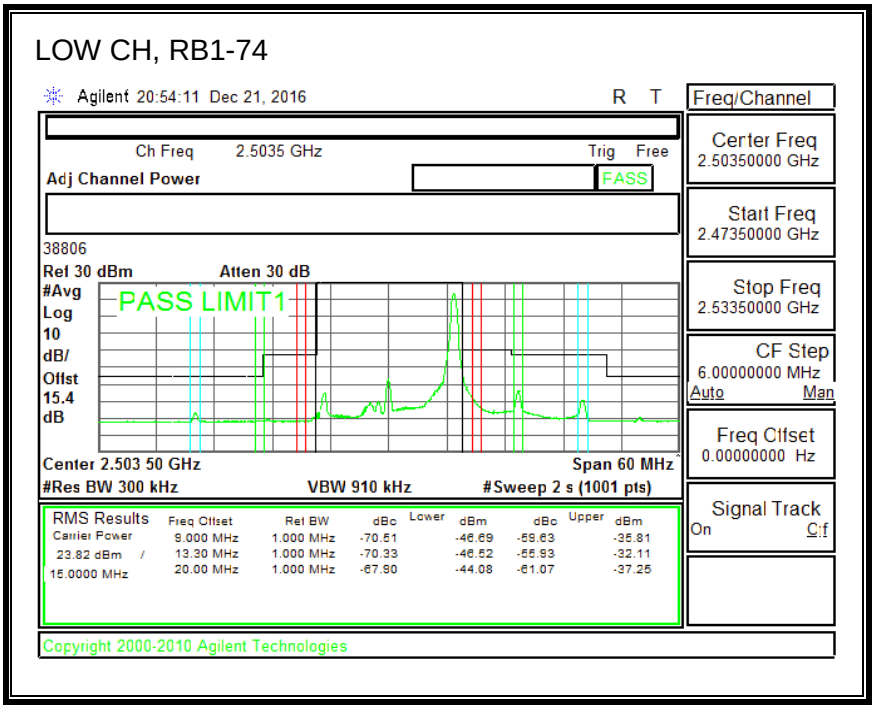
16QAM, (15.0 MHz BAND WIDTH)





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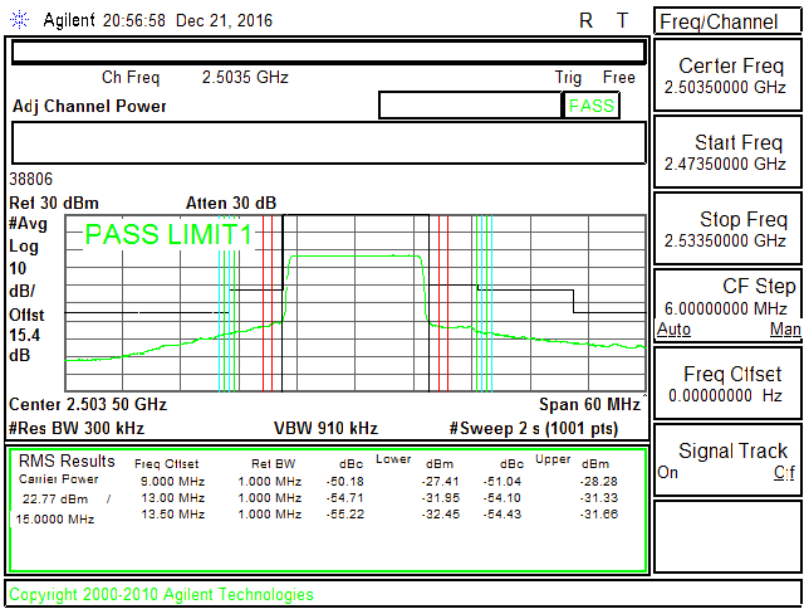
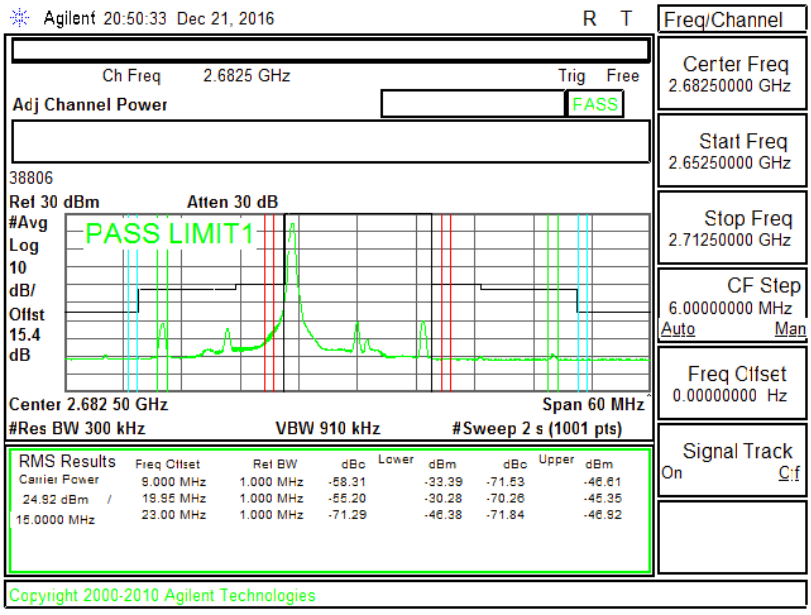
LOW CH, RB75-0



HIGH CH, RB1-0



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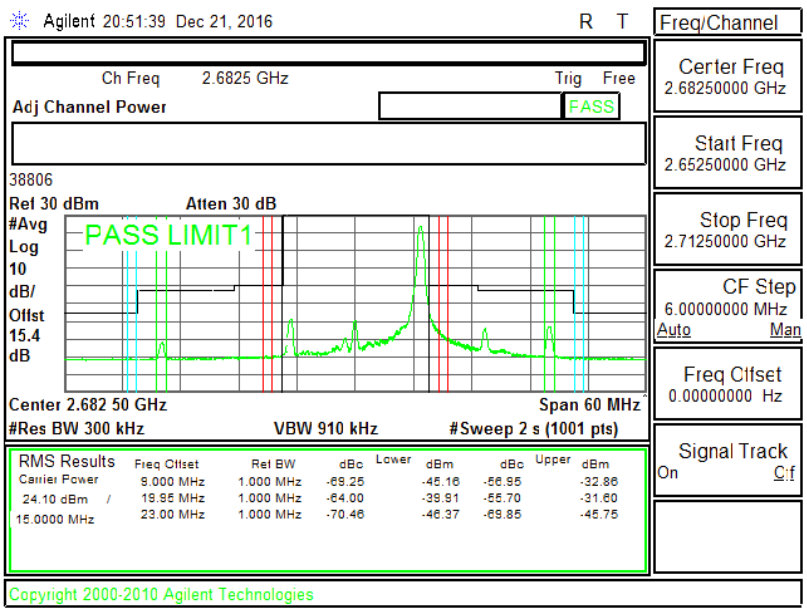
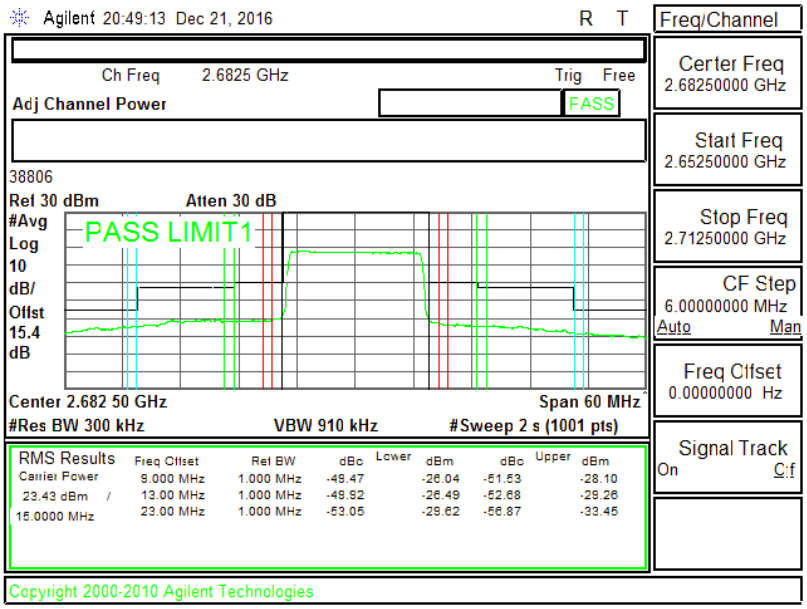
HIGH CH, RB1-74



HIGH CH, RB75-0



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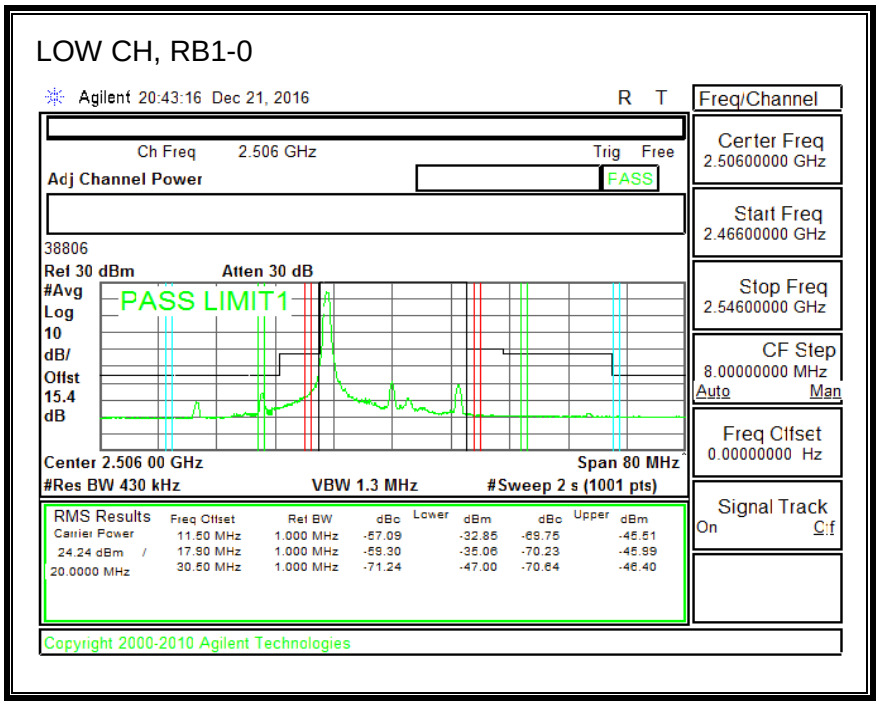
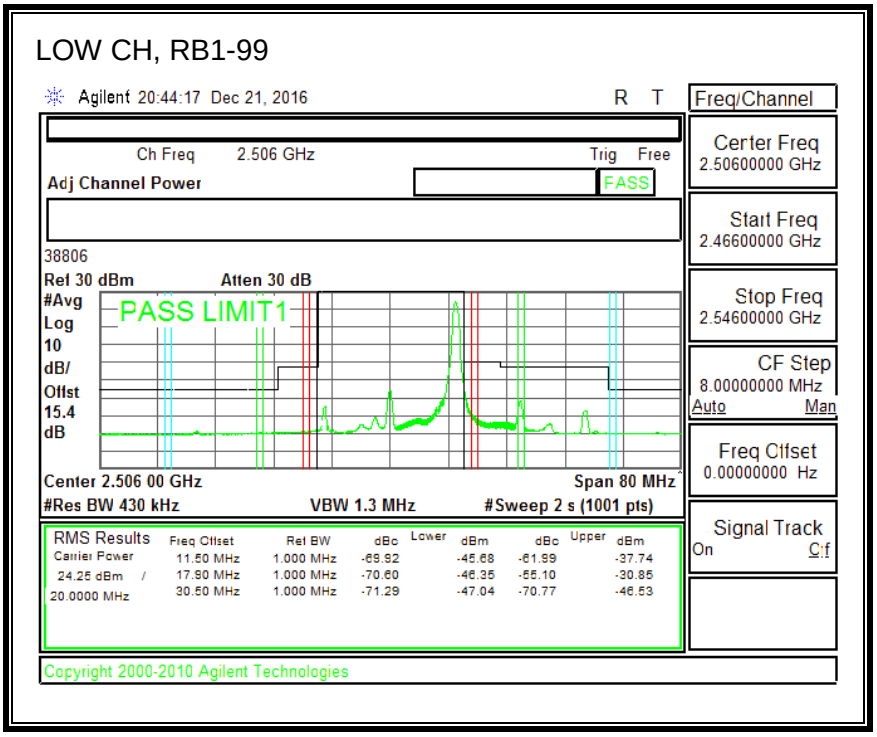
QPSK, (20.0 MHz BAND WIDTH)





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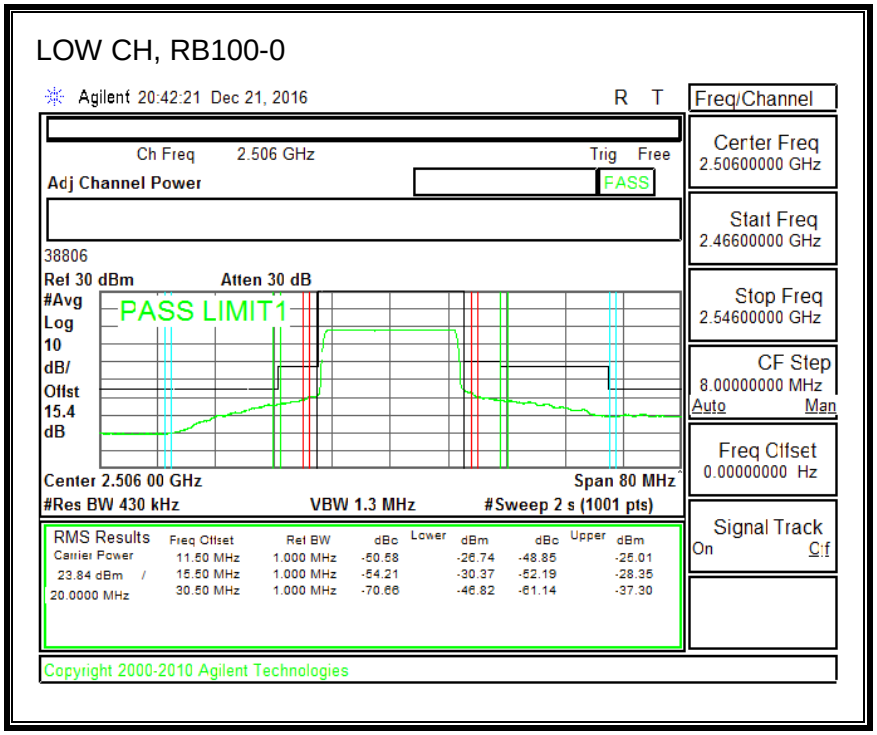
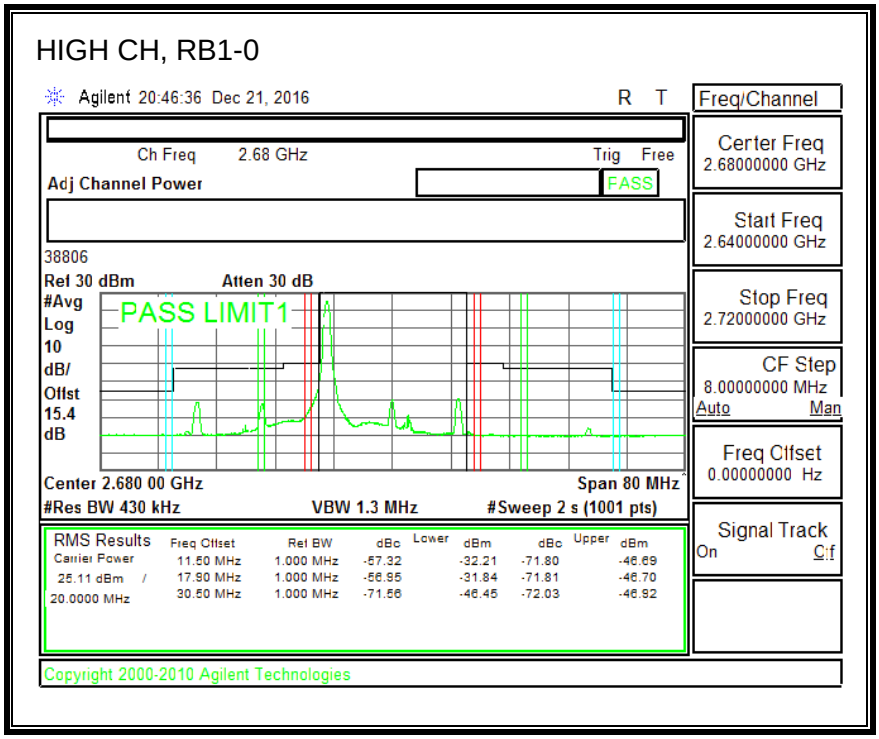
LOW CH, RB100-0



HIGH CH, RB1-0



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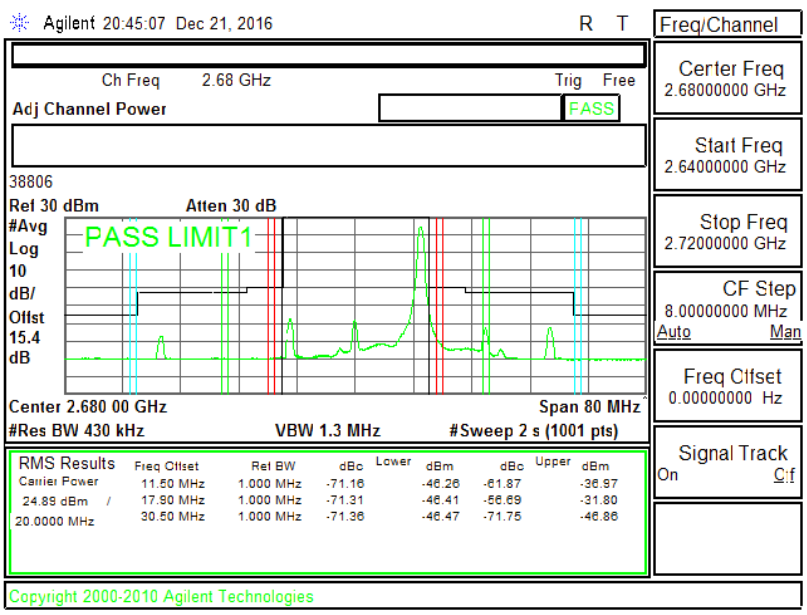
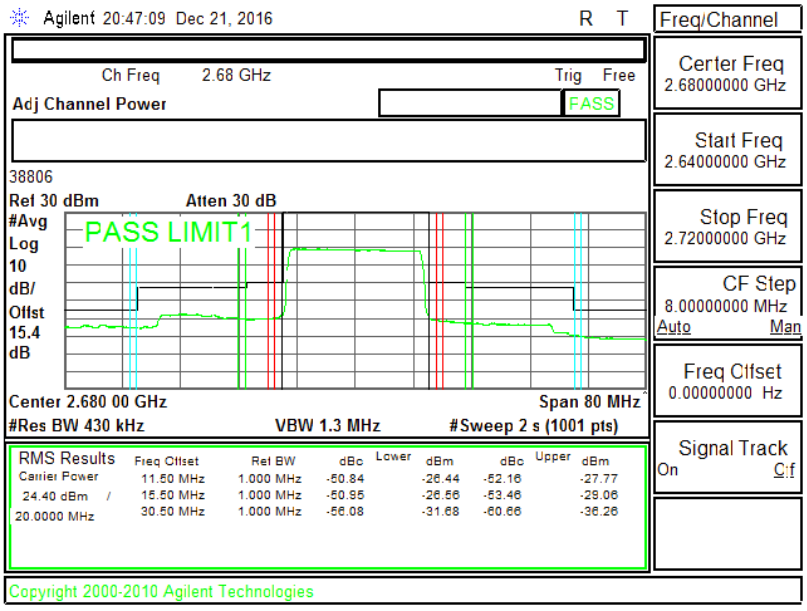
HIGH CH, RB1-99



HIGH CH, RB100-0



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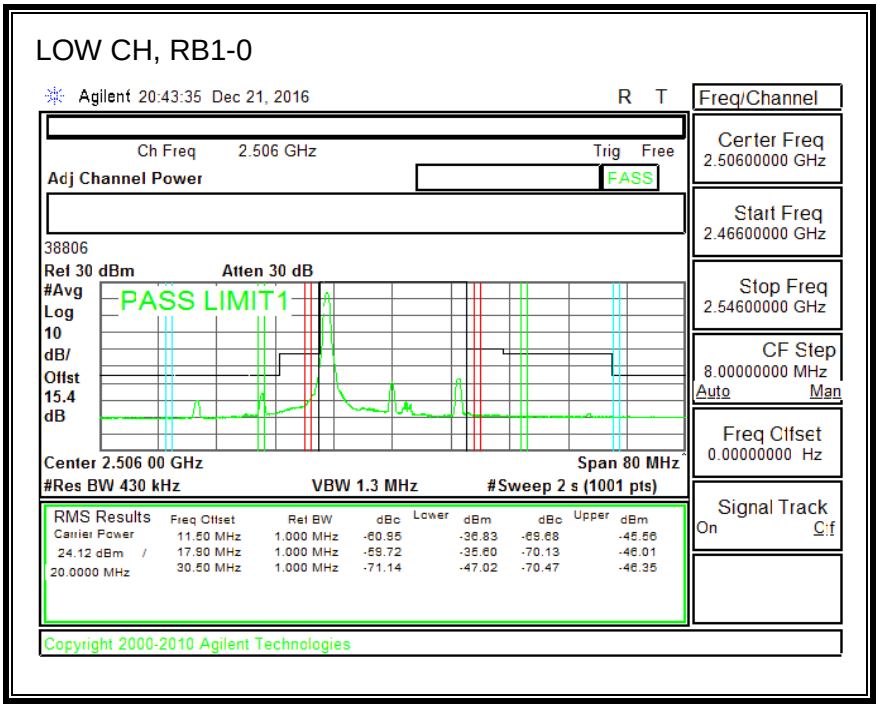
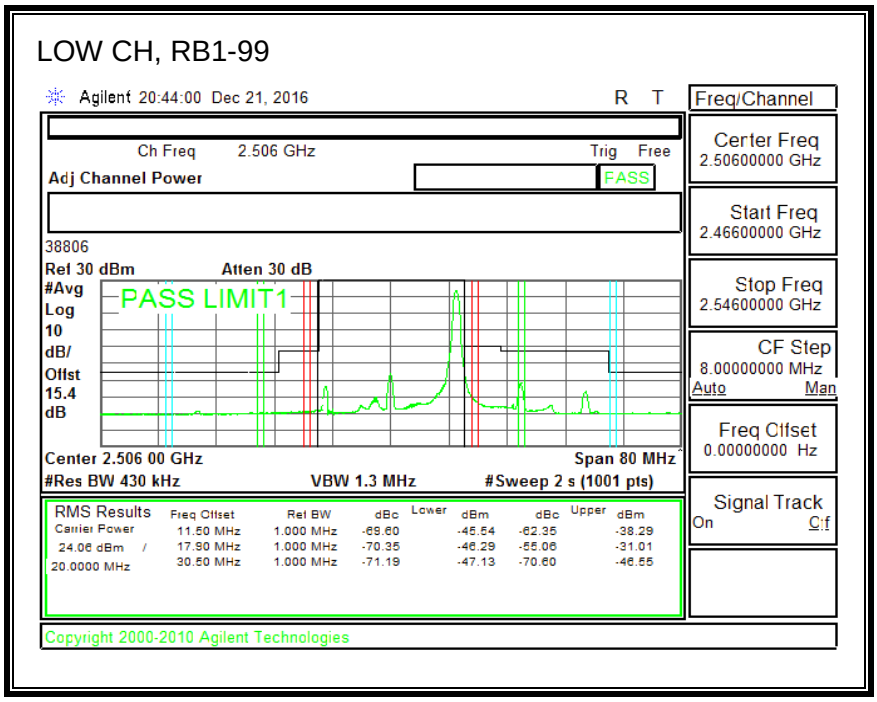
16QAM, (20.0 MHz BAND WIDTH)





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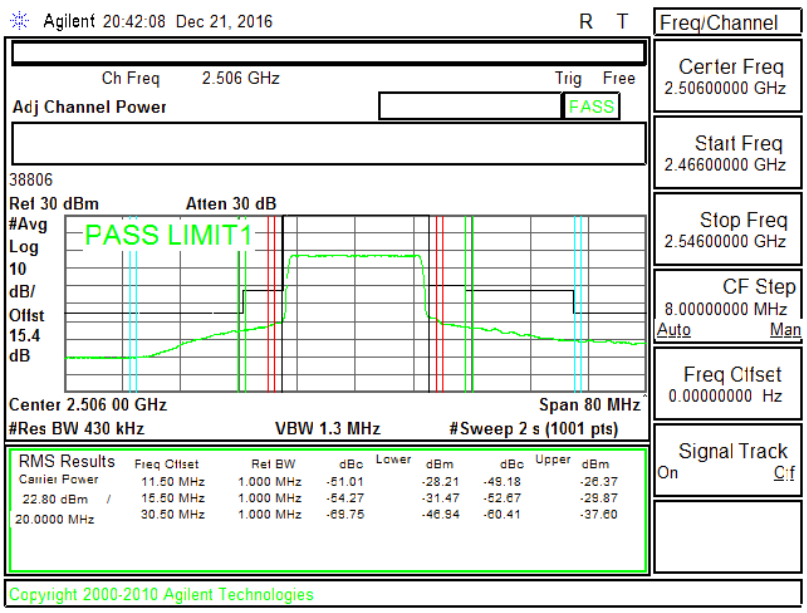
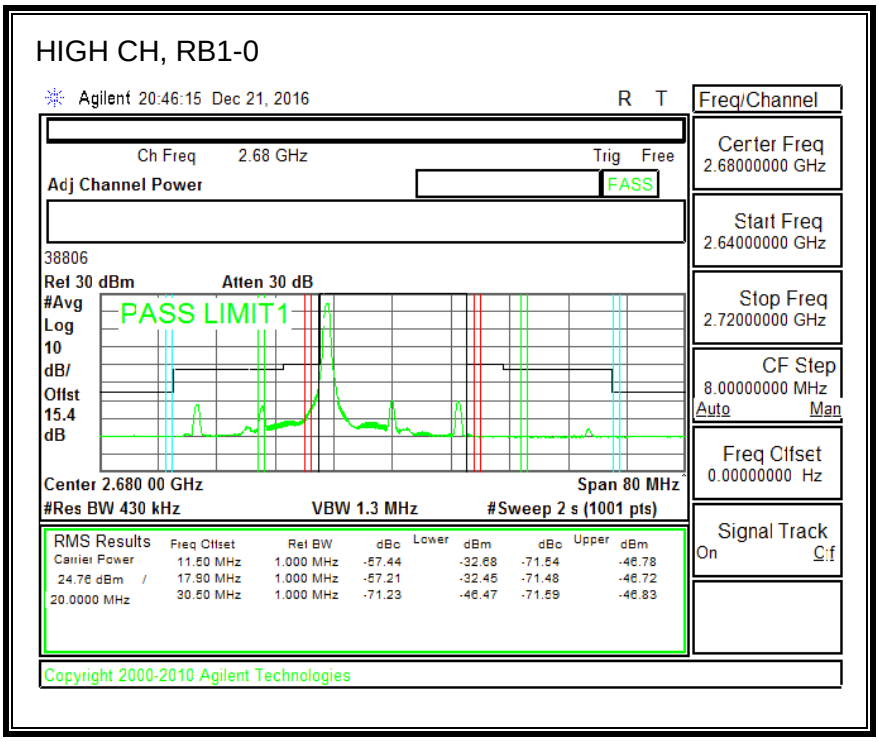
LOW CH, RB100-0



HIGH CH, RB1-0



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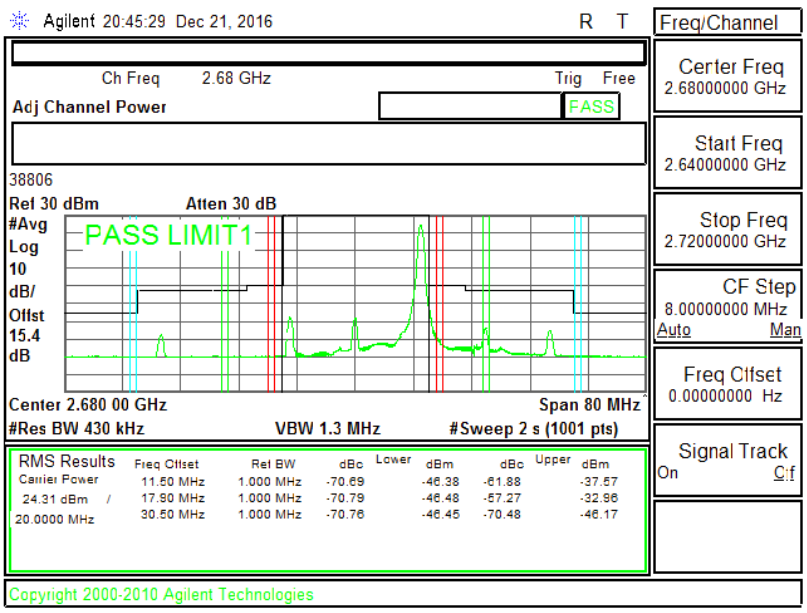
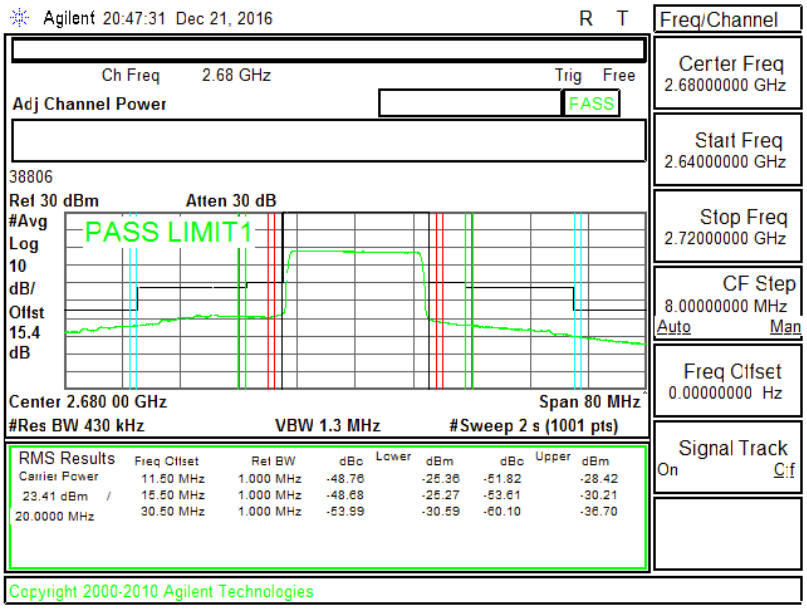
HIGH CH, RB1-99



HIGH CH, RB100-0



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8.3. OUT OF BAND EMISSIONS

RULE PART(S)

FCC: §2.1051, §22.901, §22.917, §24.238, §27.53 and §90.691

LIMITS

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.

For mobile and portable stations operating in the 2305-2315 MHz: by a factor of not less than 43 + 10 log (P) dB on all frequencies between 2360 and 2365 MHz, and not less than 70 + 10 log (P) dB above 2365 MHz

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.

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TEST PROCEDURE

The RF output of the transmitter was connected to a spectrum analyzer through a calibrated coaxial cable. Sufficient scans were taken to show the out-of-band Emissions, if any, up to 10th harmonic. Multiple sweeps were recorded in maximum hold mode using a peak detector to ensure that the worst-case emissions were caught.

For each out of band emissions measurement:

- Set display line at -13 dBm, -25dBm and -40dBm according to the band Limit
- Set RBW & VBW to 100 kHz for the measurement below 1 GHz, and 1 MHz for the measurement above 1 GHz. (NOTE: Worst case set RBW/VBW to 1MHz/3MHz)

MODES TESTED

- LTE Band 2
- LTE Band 4
- LTE Band 5
- LTE Band 7
- LTE Band 12
- LTE Band 13
- LTE Band 17
- LTE Band 25
- LTE Band 26
- LTE Band 27
- LTE Band 30
- LTE Band 41

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4031B
47173 BENICIA STREET, FREMONT, CA 94538, USA TEL: (510) 771-1000 FAX: (510) 661-0888
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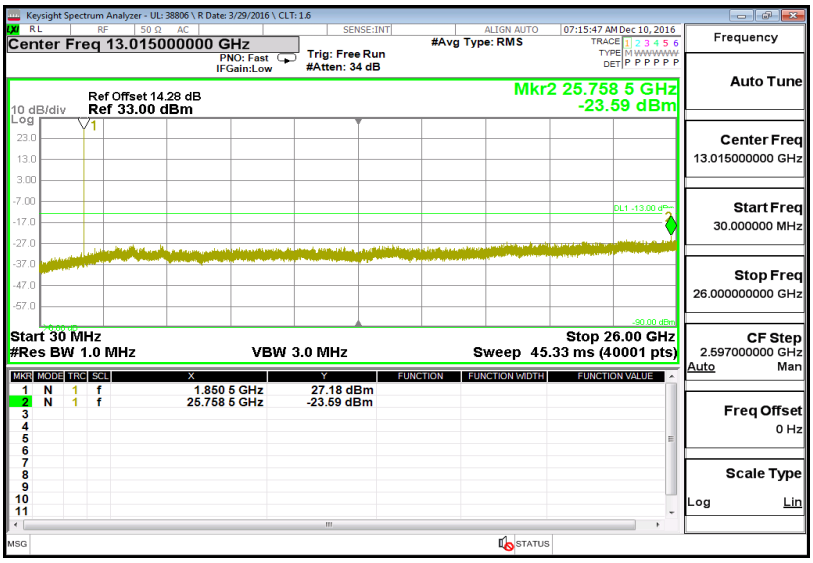
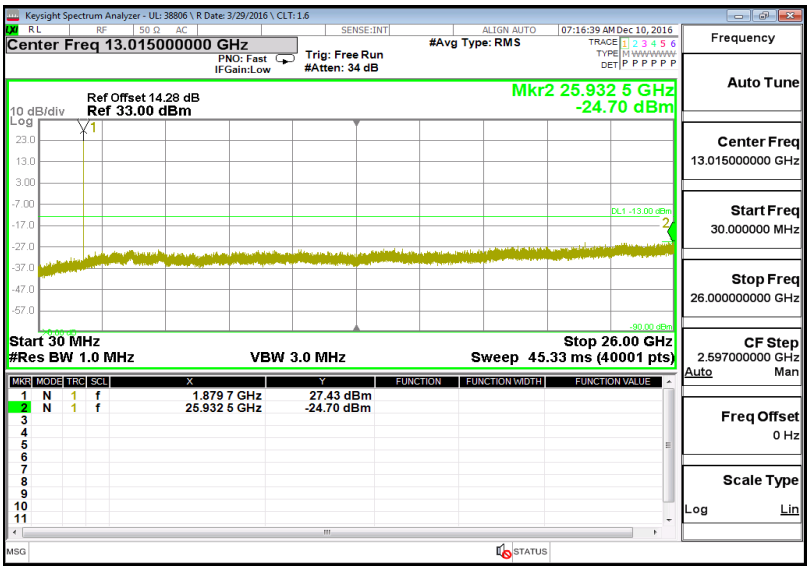
8.3.1. **LTE BAND 2**

QPSK, (1.4 MHz BAND WIDTH)

LOW, RB1-0, 30 TO 26000 MHz



MID, RB1-0, 30 TO 26000 MHz



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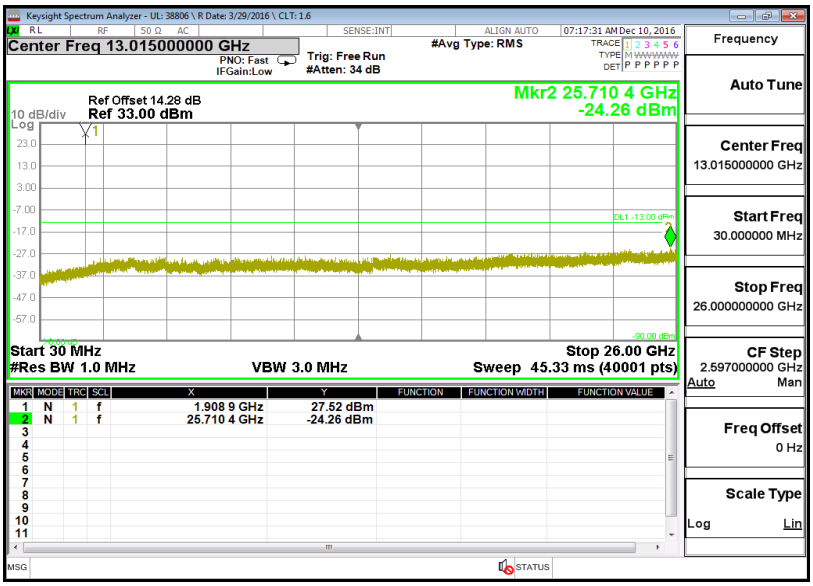
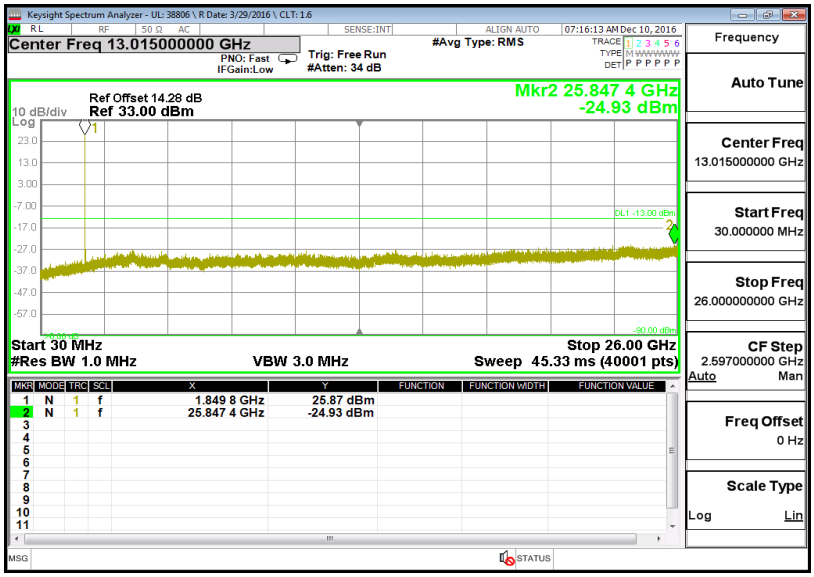
HIGH, RB1-0, 30 TO 26000 MHz



16QAM, (1.4 MHz BAND WIDTH)

LOW, RB1-0, 30 TO 26000 MHz



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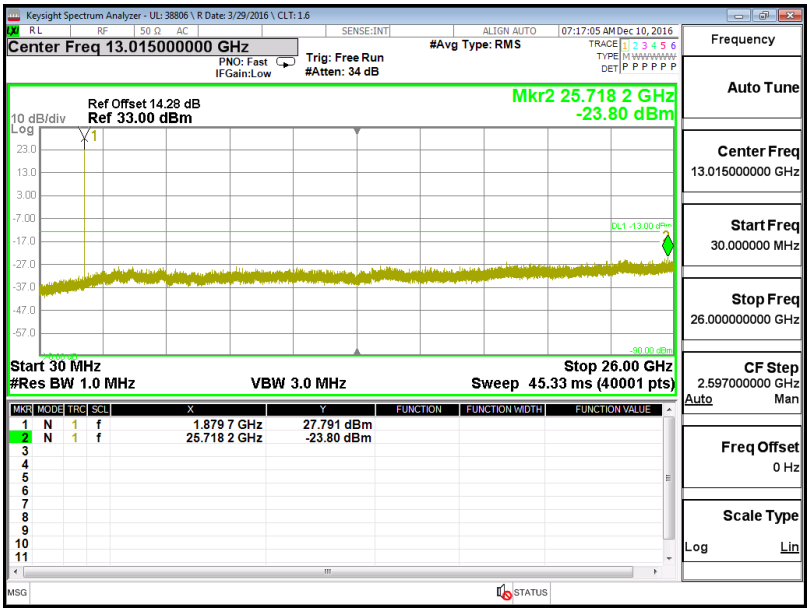
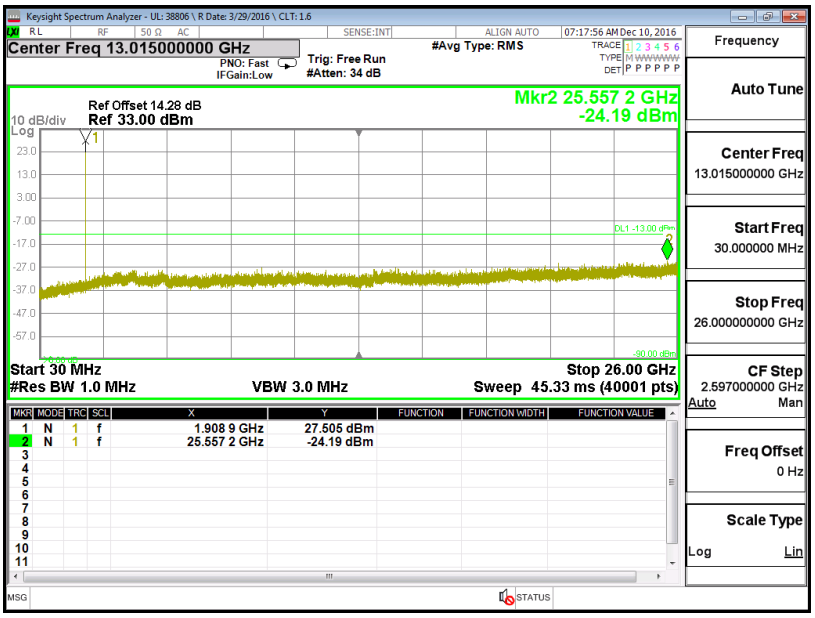
MID, RB1-0, 30 TO 26000 MHz



HIGH, RB1-0, 30 TO 26000 MHz



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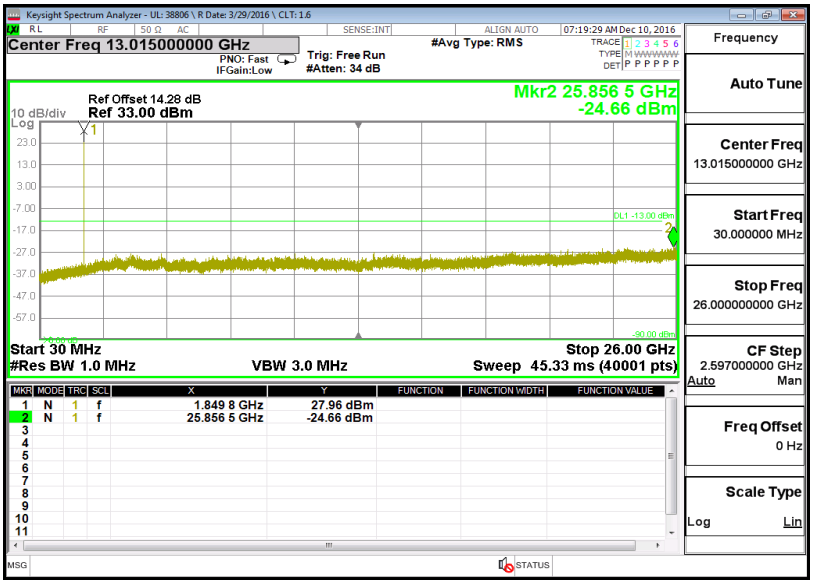
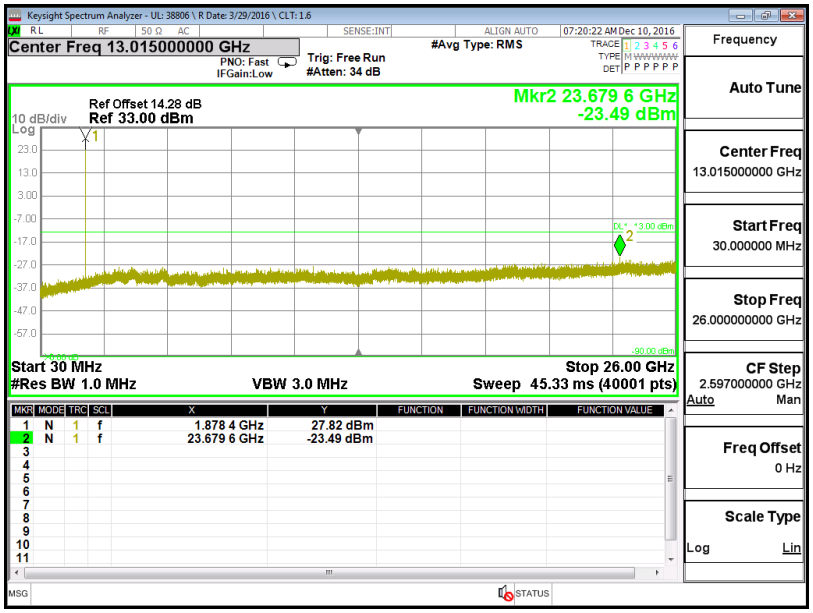
QPSK, (3.0 MHz BAND WIDTH)

LOW, RB1-0, 30 TO 26000 MHz



MID, RB1-0, 30 TO 26000 MHz



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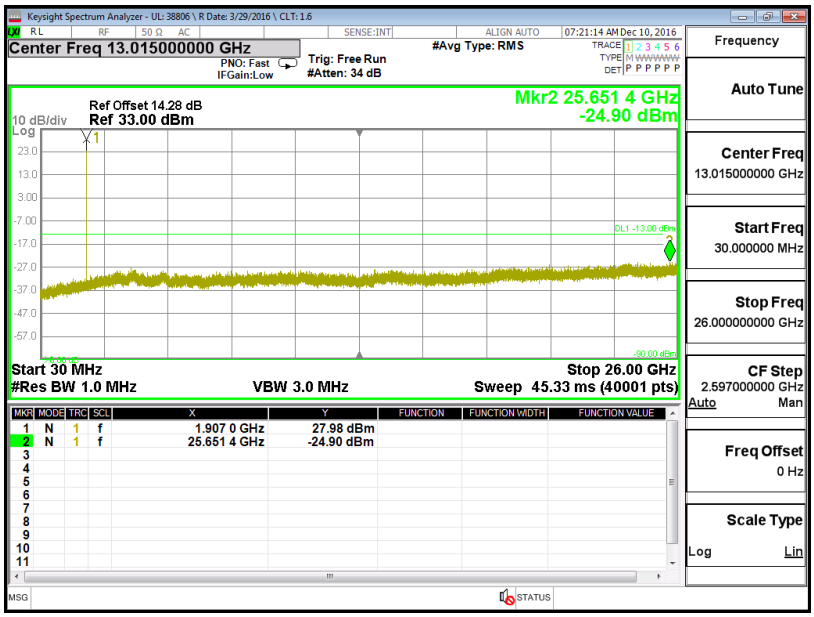
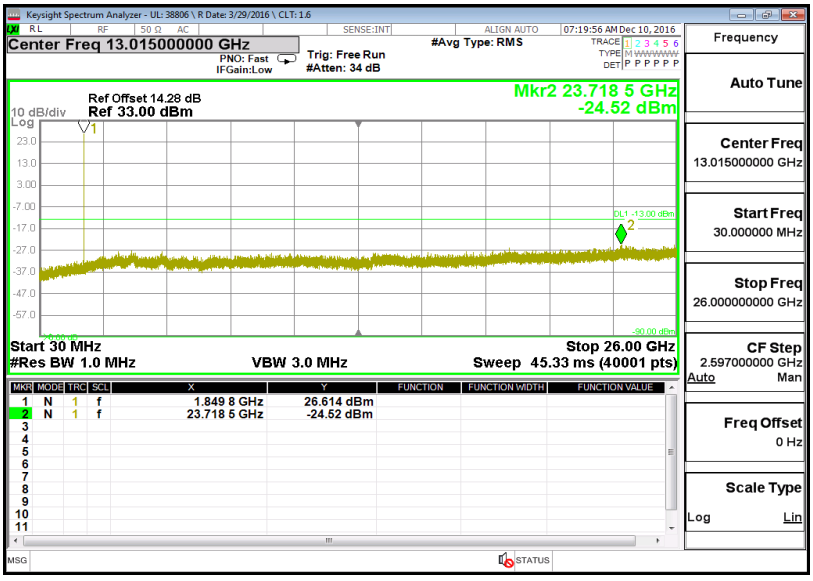
HIGH, RB1-0, 30 TO 26000 MHz



16QAM, (3.0 MHz BAND WIDTH)

LOW, RB1-0, 30 TO 26000 MHz



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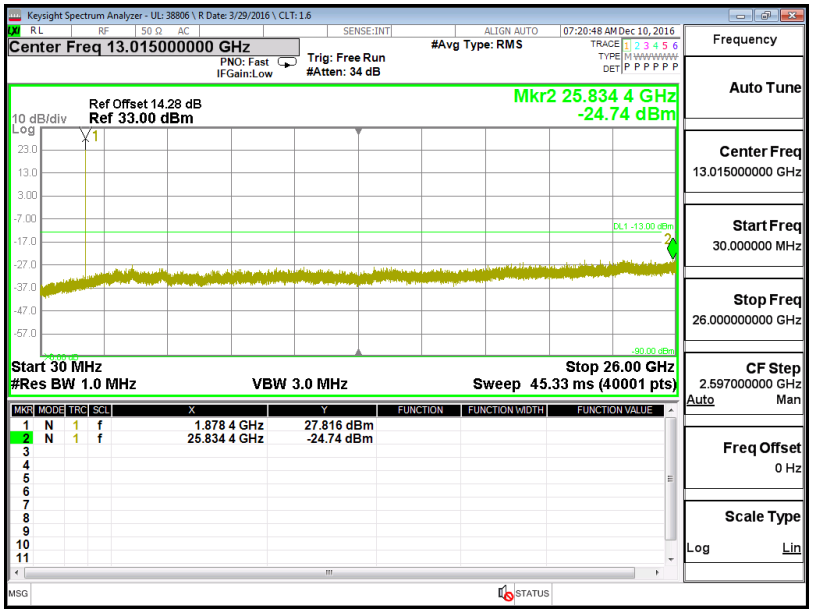
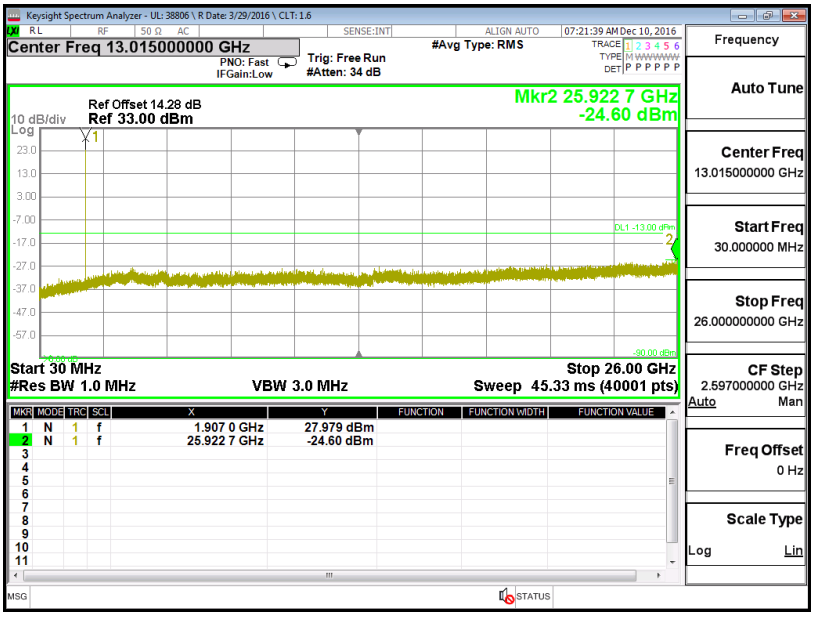
MID, RB1-0, 30 TO 26000 MHz



HIGH, RB1-0, 30 TO 26000 MHz



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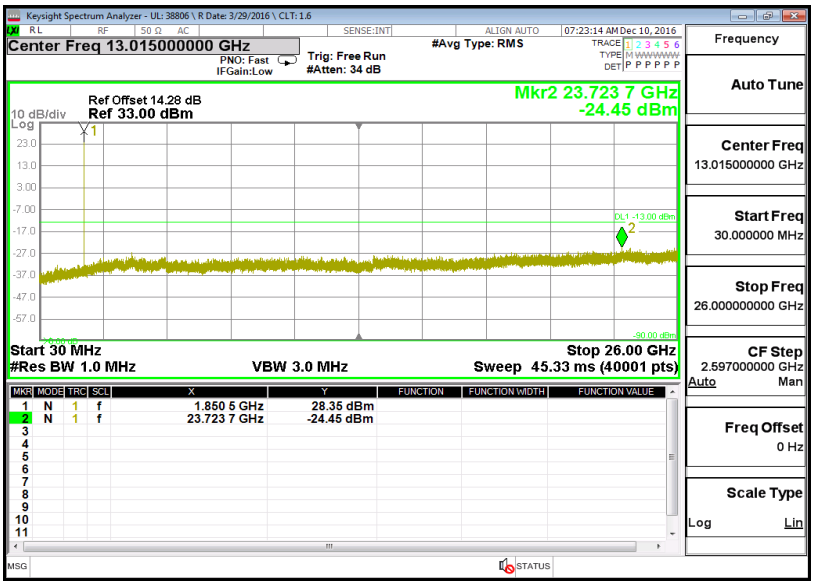
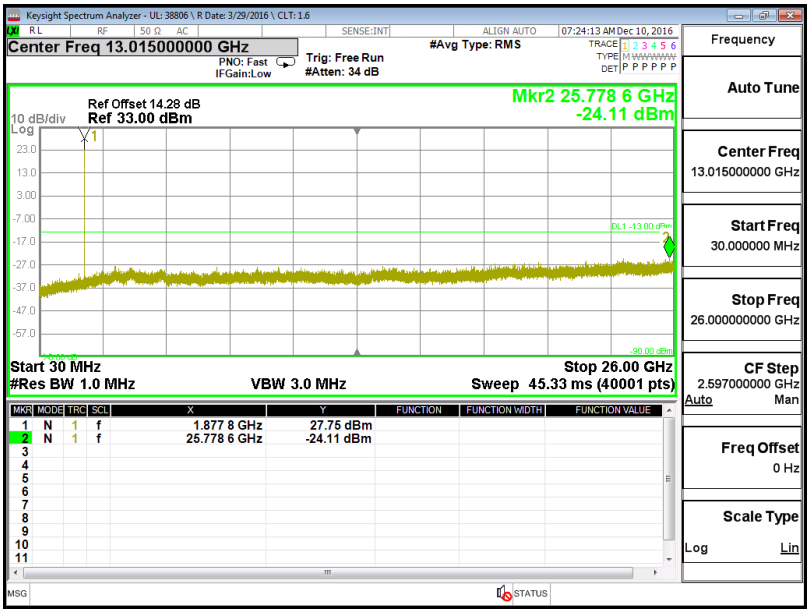
QPSK, (5.0 MHz BAND WIDTH)

LOW, RB1-0, 30 TO 26000 MHz



MID, RB1-0, 30 TO 26000 MHz



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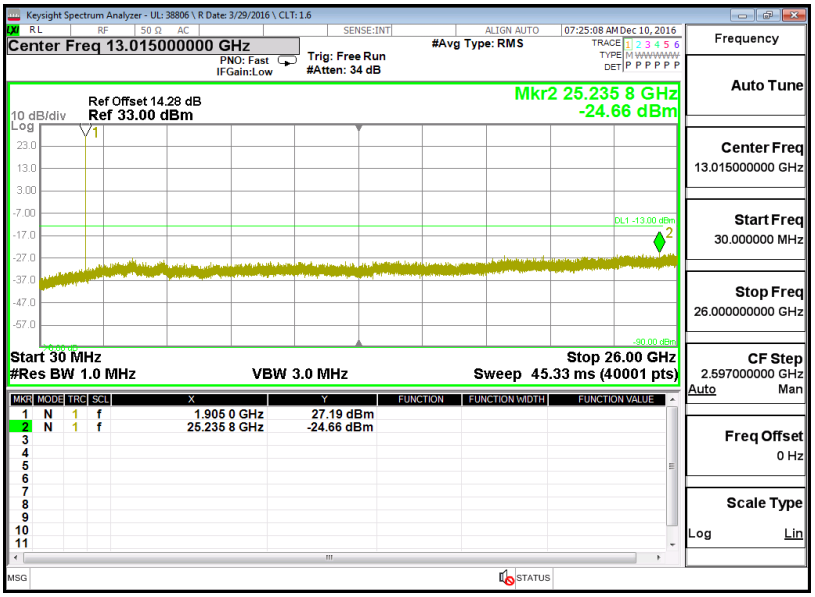
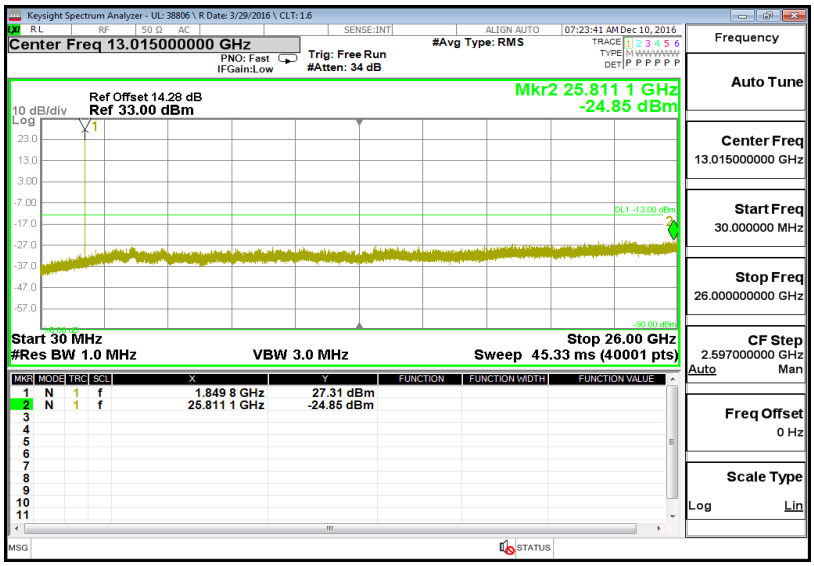
HIGH, RB1-0, 30 TO 26000 MHz



16QAM, (5.0 MHz BAND WIDTH)

LOW, RB1-0, 30 TO 26000 MHz



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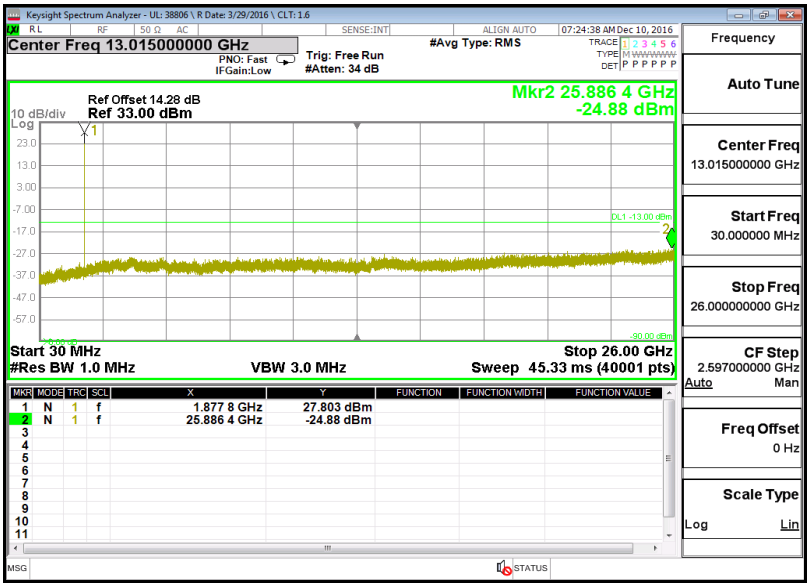
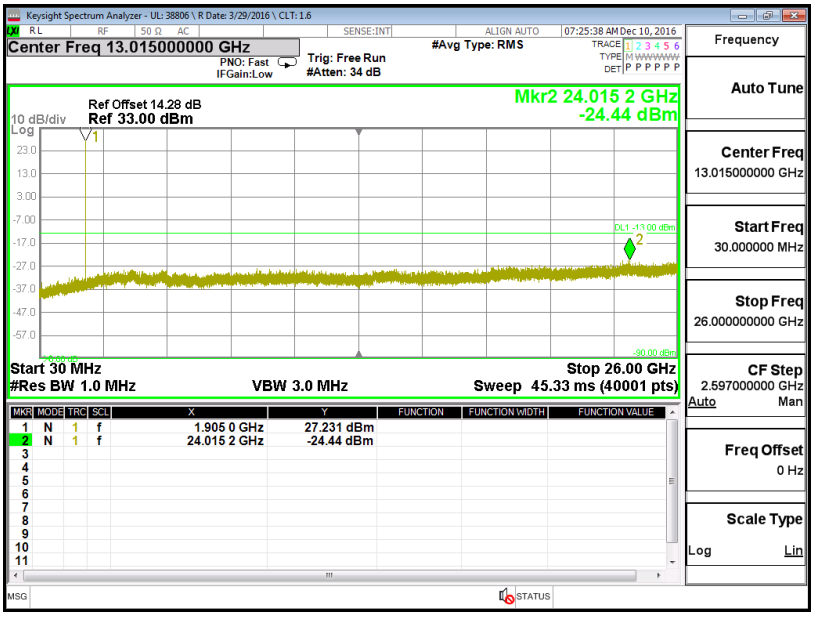
MID, RB1-0, 30 TO 26000 MHz



HIGH, RB1-0, 30 TO 26000 MHz



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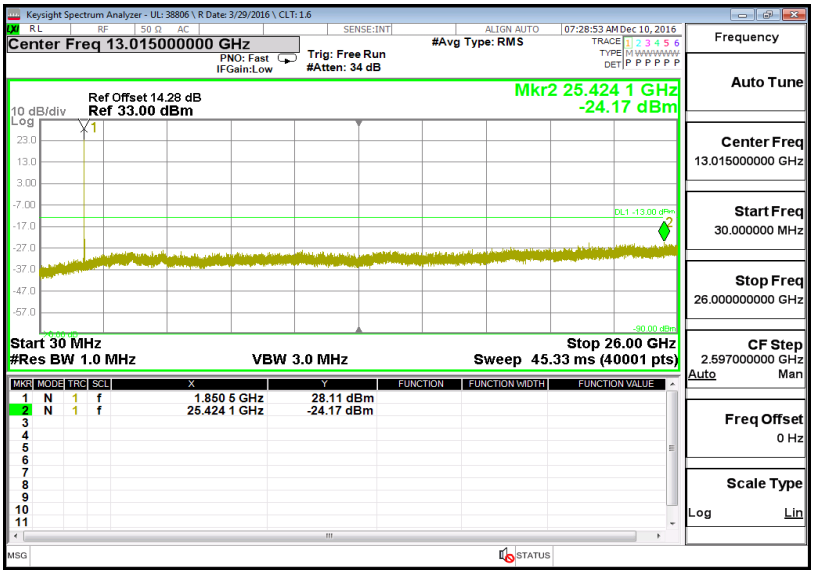
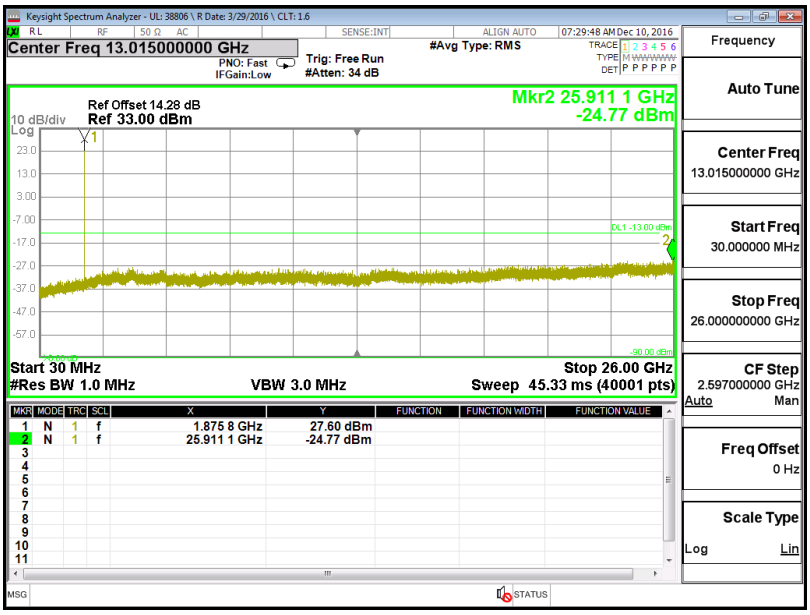
QPSK, (10.0 MHz BAND WIDTH)

LOW, RB1-0, 30 TO 26000 MHz



MID, RB1-0, 30 TO 26000 MHz



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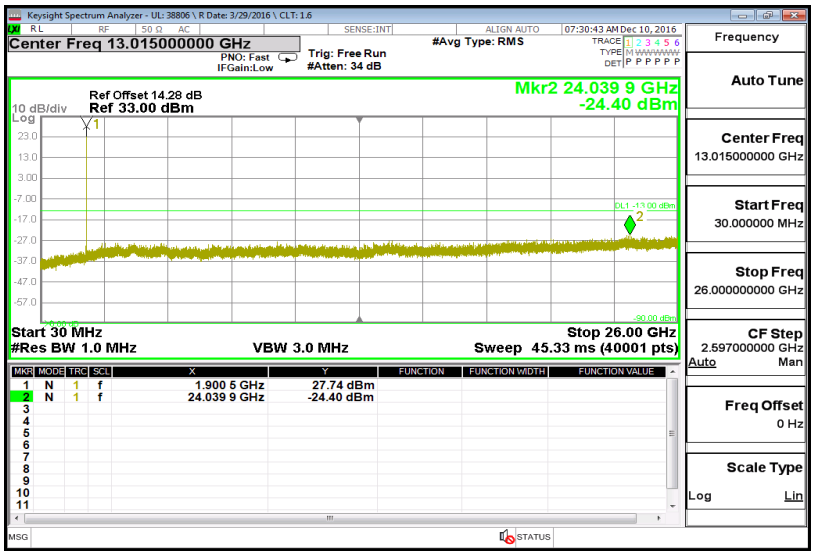
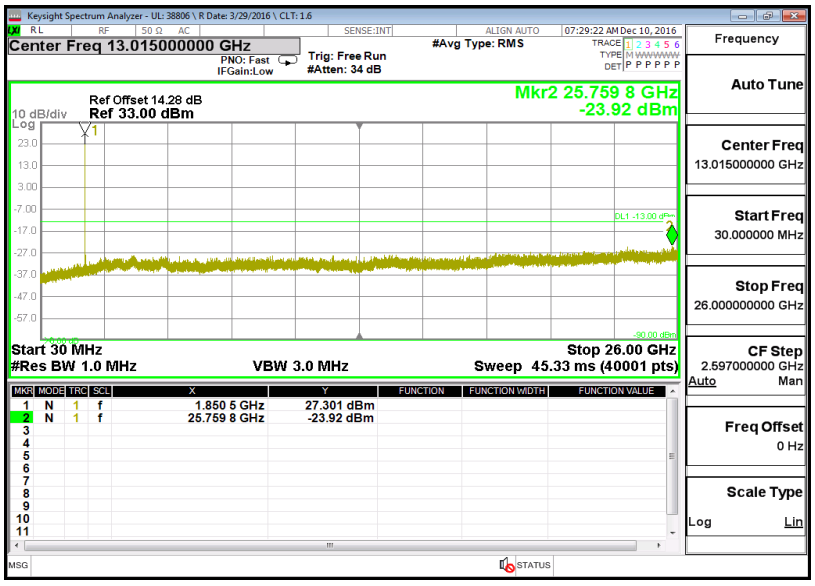
HIGH, RB1-0, 30 TO 26000 MHz



16QAM, (10.0 MHz BAND WIDTH)

LOW, RB1-0, 30 TO 26000 MHz



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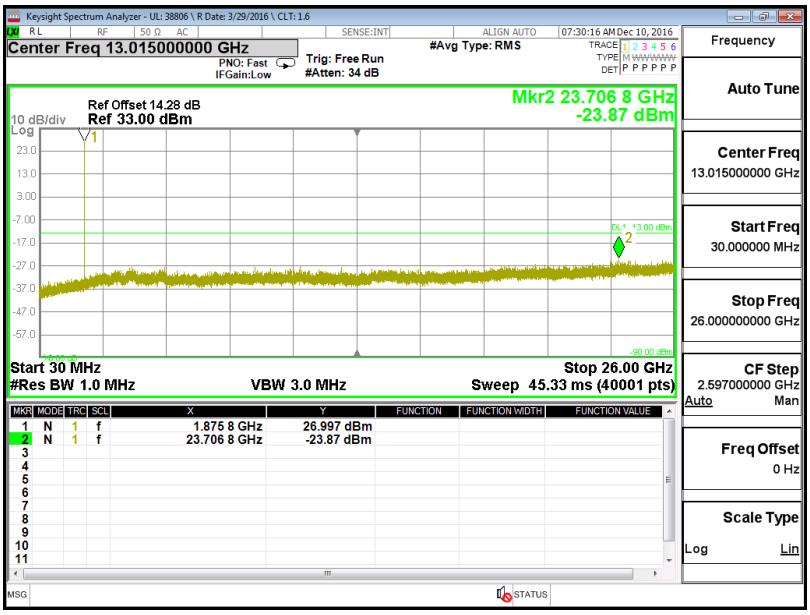
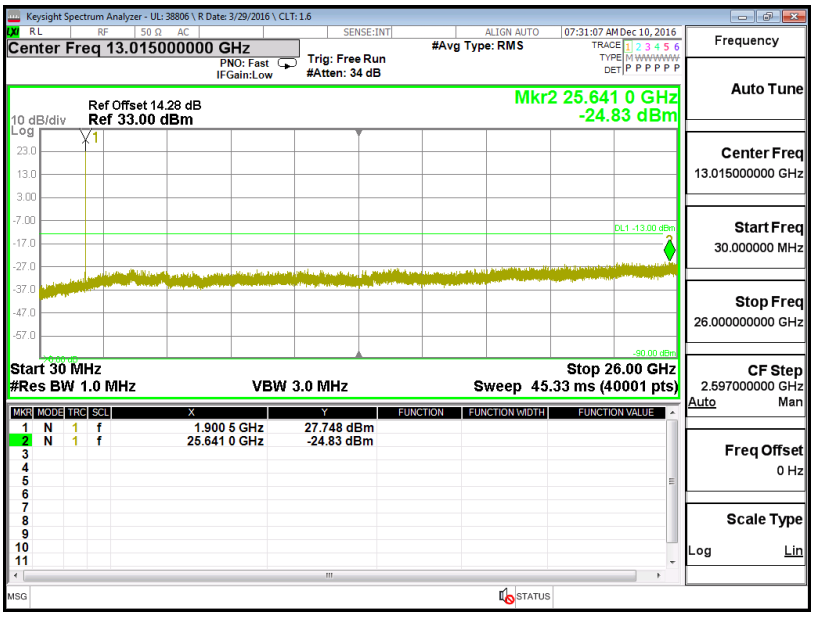
MID, RB1-0, 30 TO 26000 MHz



HIGH, RB1-0, 30 TO 26000 MHz



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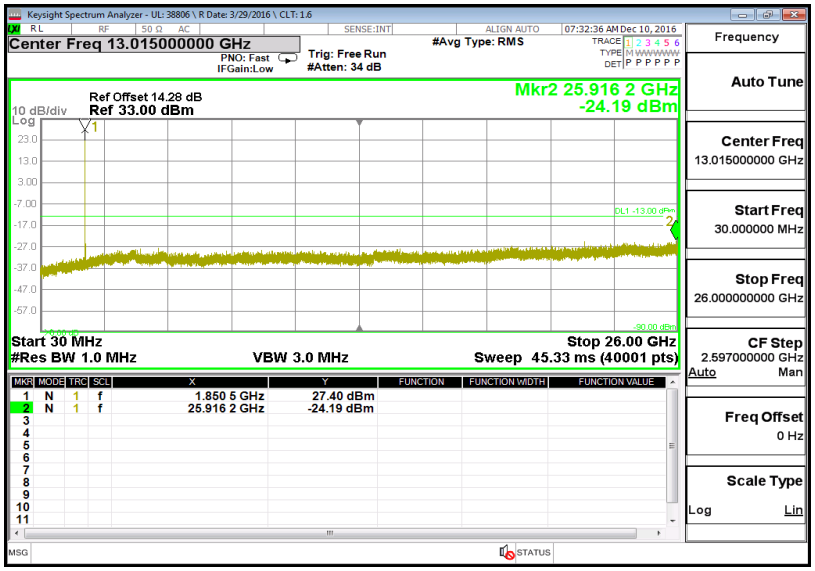
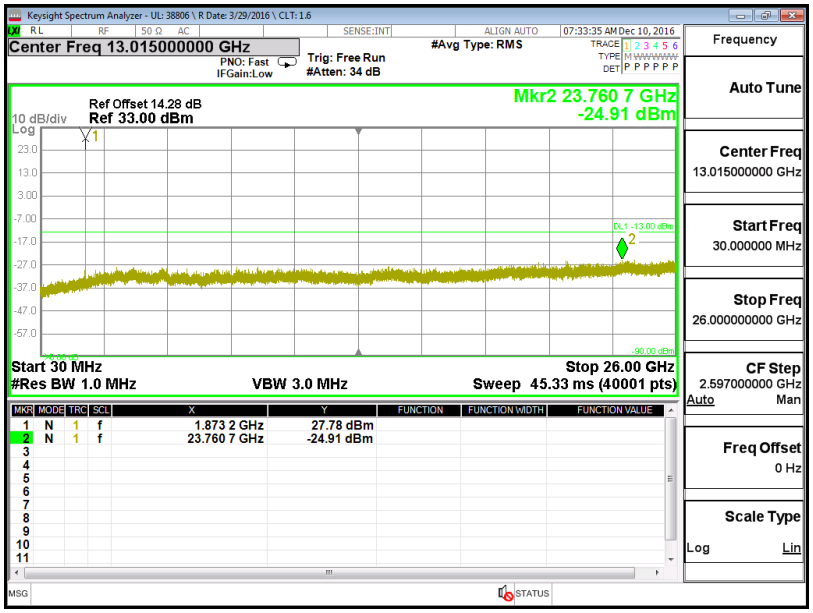
QPSK, (15.0 MHz BAND WIDTH)

LOW, RB1-0, 30 TO 26000 MHz



MID, RB1-0, 30 TO 26000 MHz



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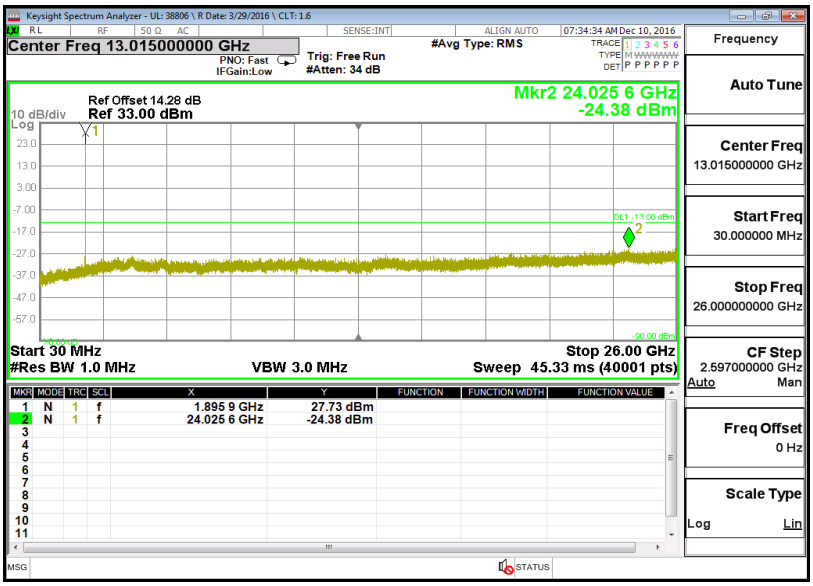
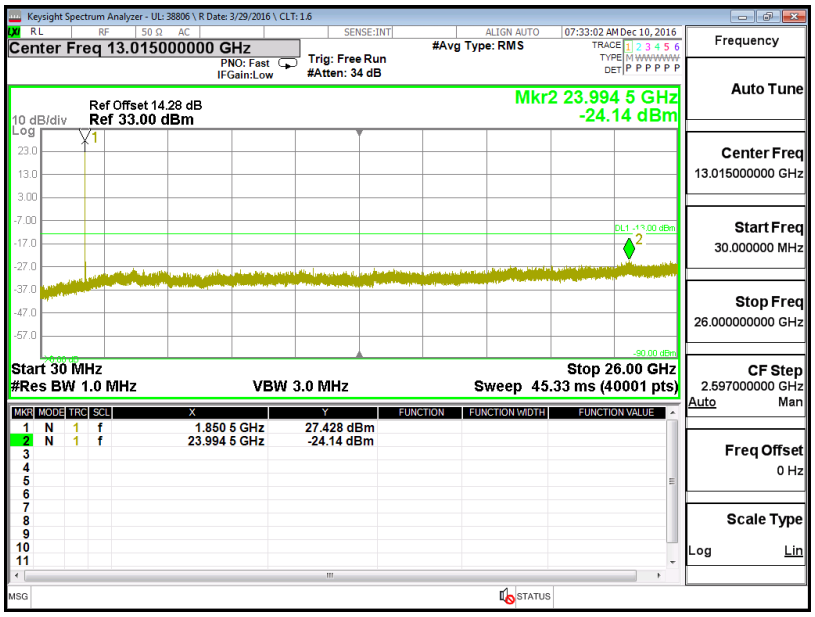
HIGH, RB1-0, 30 TO 26000 MHz



16QAM, (15.0 MHz BAND WIDTH)

LOW, RB1-0, 30 TO 26000 MHz



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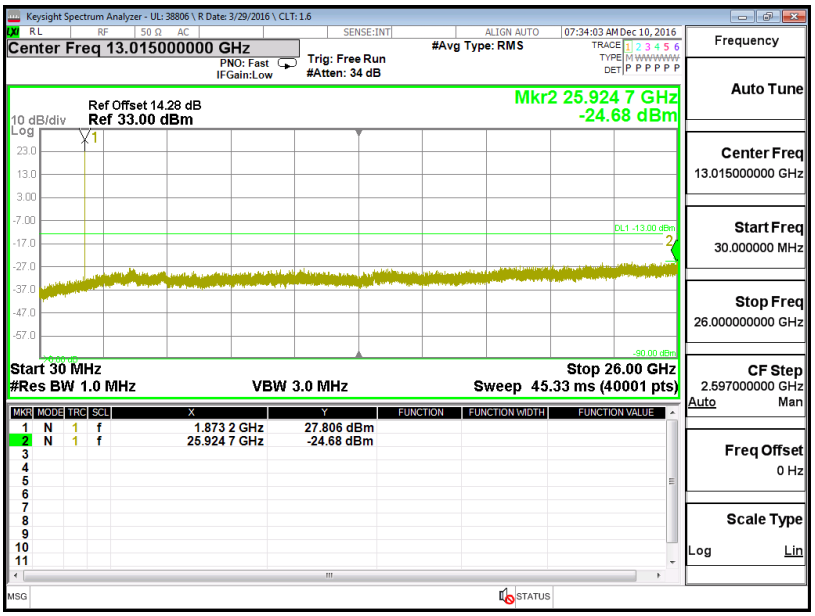
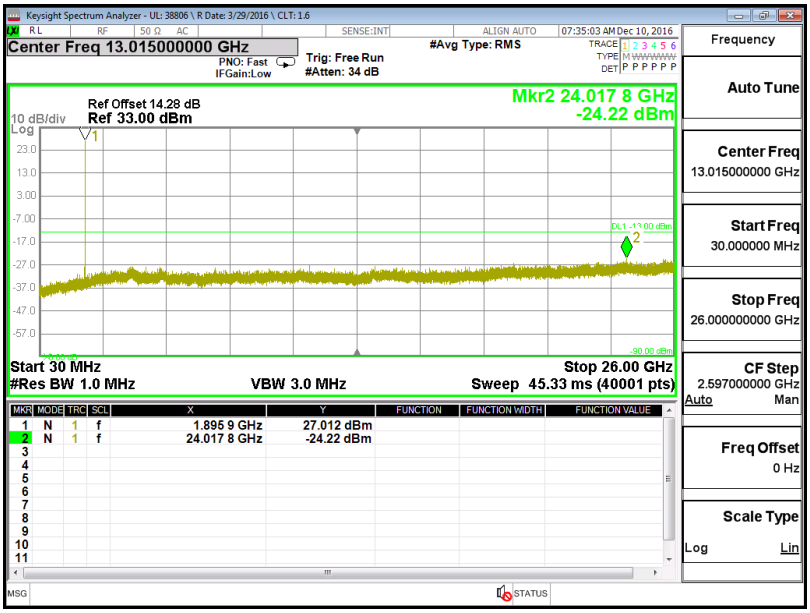
MID, RB1-0, 30 TO 26000 MHz



HIGH, RB1-0, 30 TO 26000 MHz



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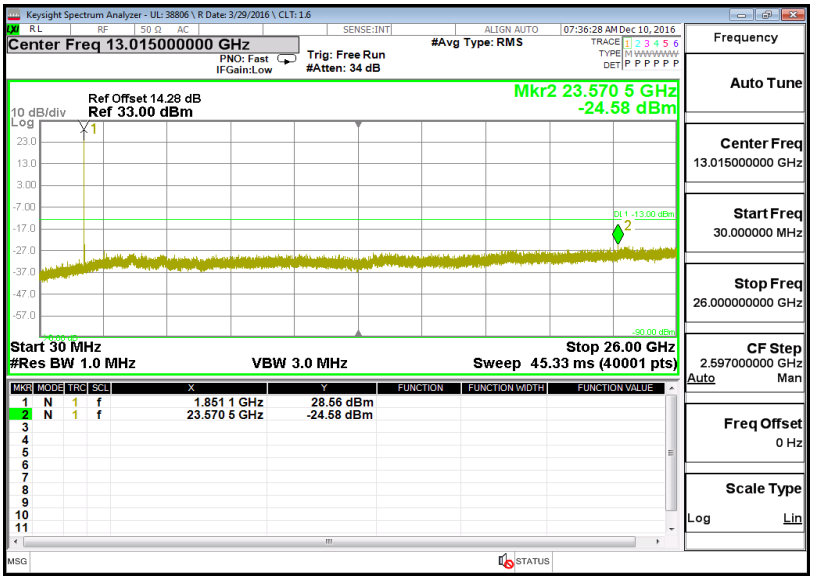
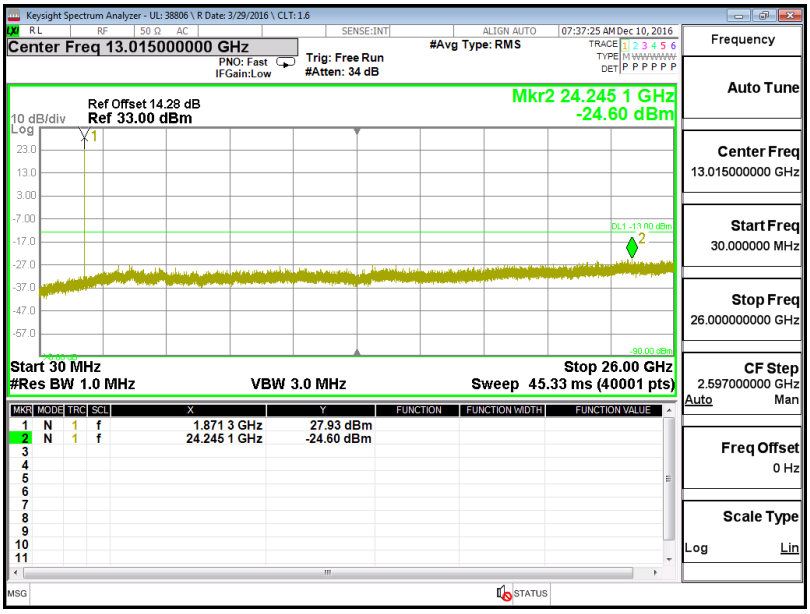
QPSK, (20.0 MHz BAND WIDTH)

LOW, RB1-0, 30 TO 26000 MHz



MID, RB1-0, 30 TO 26000 MHz



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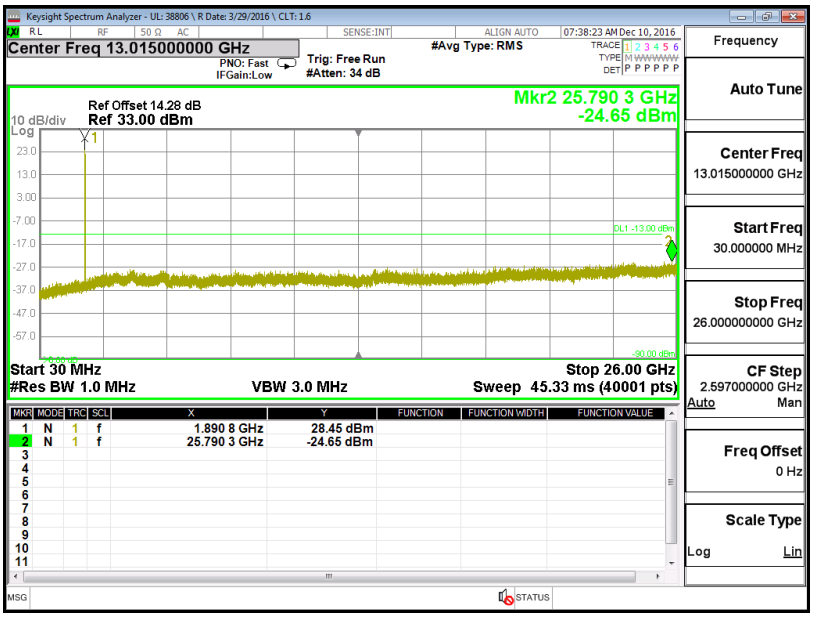
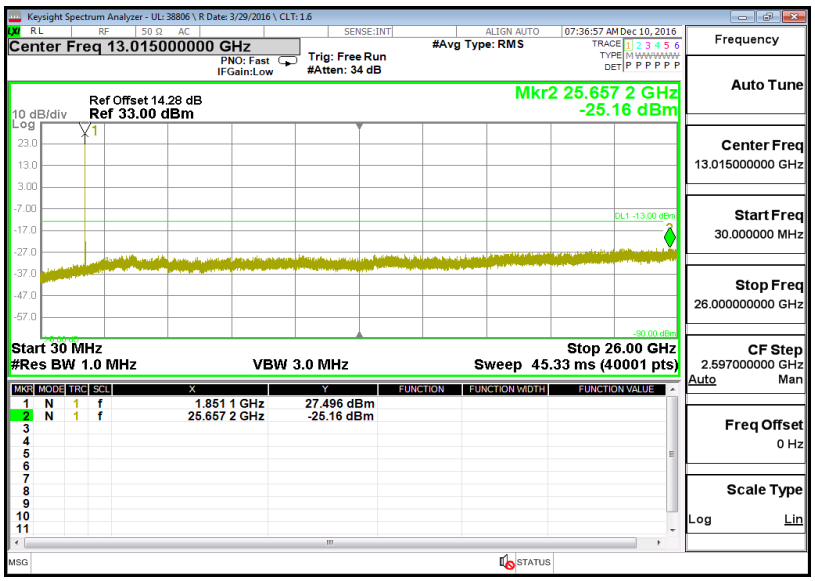
HIGH, RB1-0, 30 TO 26000 MHz



16QAM, (20.0 MHz BAND WIDTH)

LOW, RB1-0, 30 TO 26000 MHz



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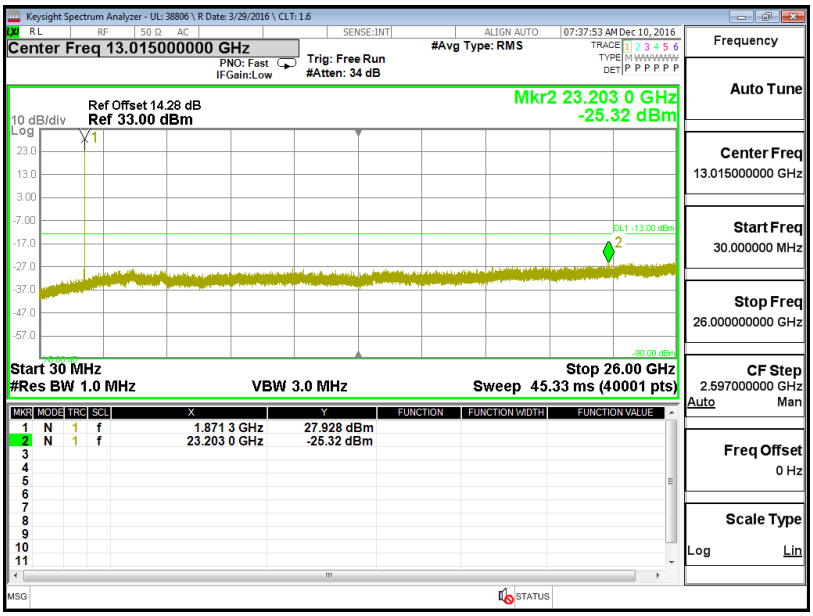
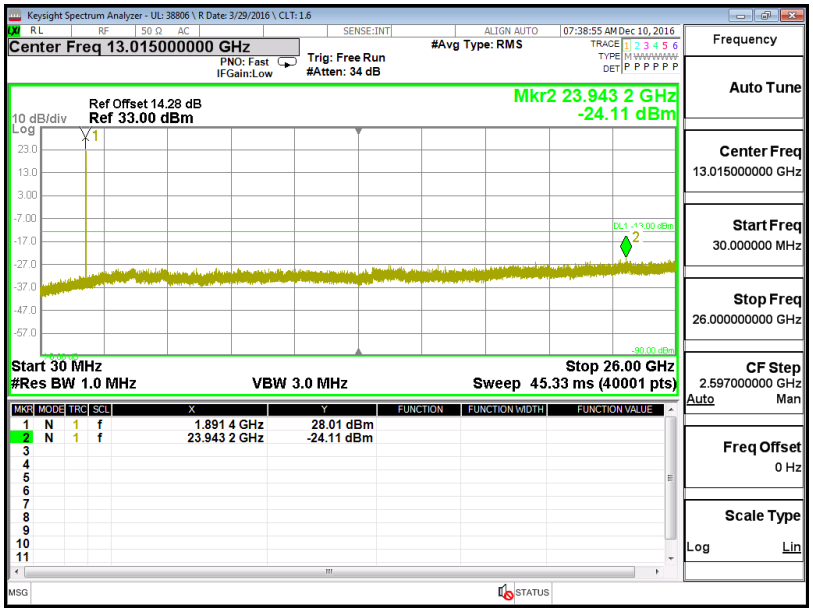
MID, RB1-0, 30 TO 26000 MHz



HIGH, RB1-0, 30 TO 26000 MHz



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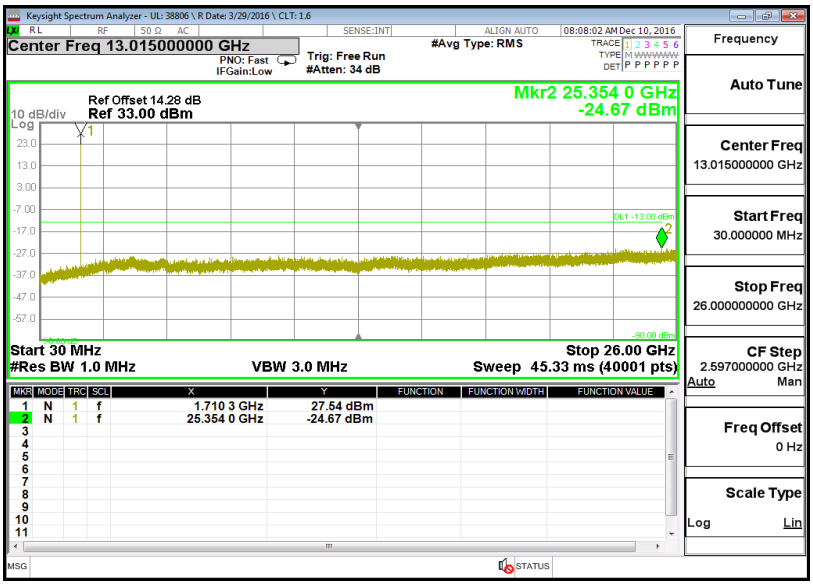
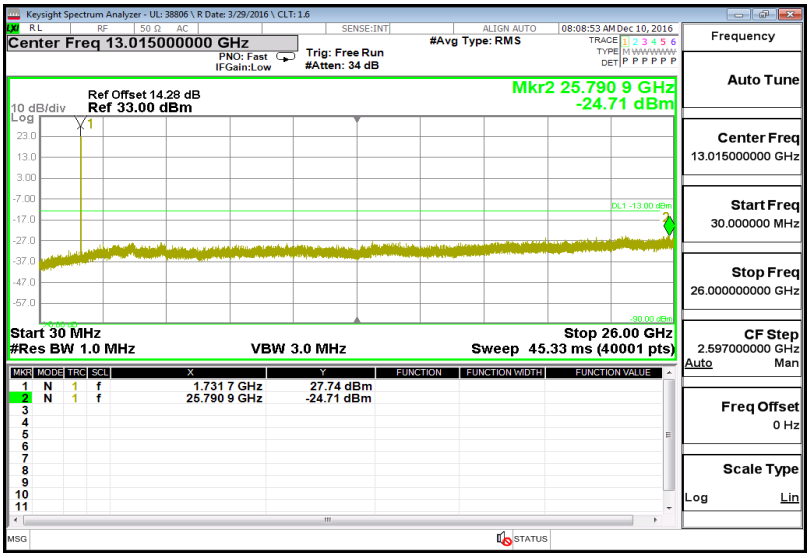
8.3.2. **LTE BAND 4**

QPSK, (1.4 MHz BAND WIDTH)

LOW, RB1-0, 30 TO 26000 MHz



MID, RB1-0, 30 TO 26000 MHz



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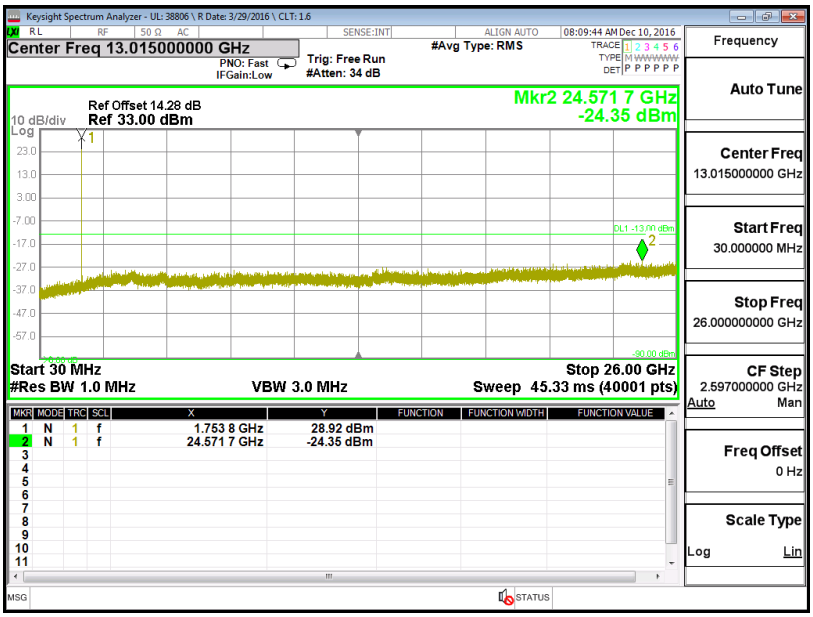
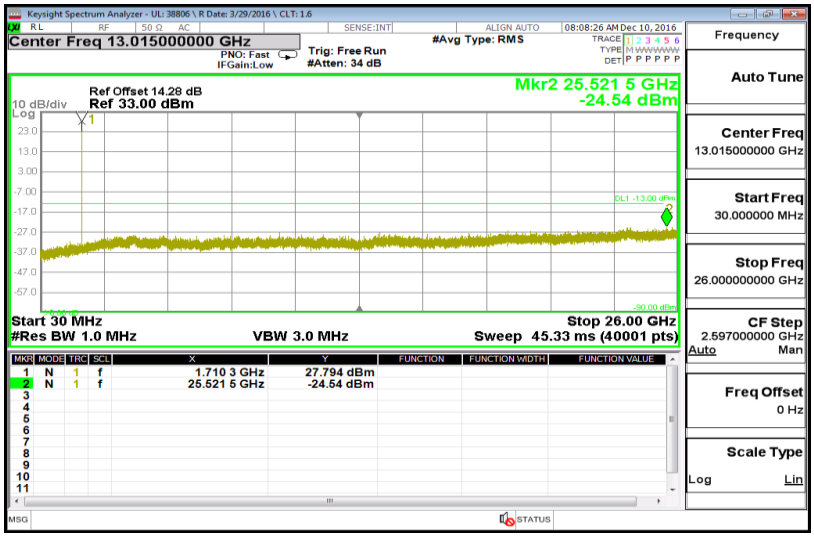
HIGH, RB1-0, 30 TO 26000 MHz



16QAM, (1.4 MHz BAND WIDTH)

LOW, RB1-0, 30 TO 26000 MHz



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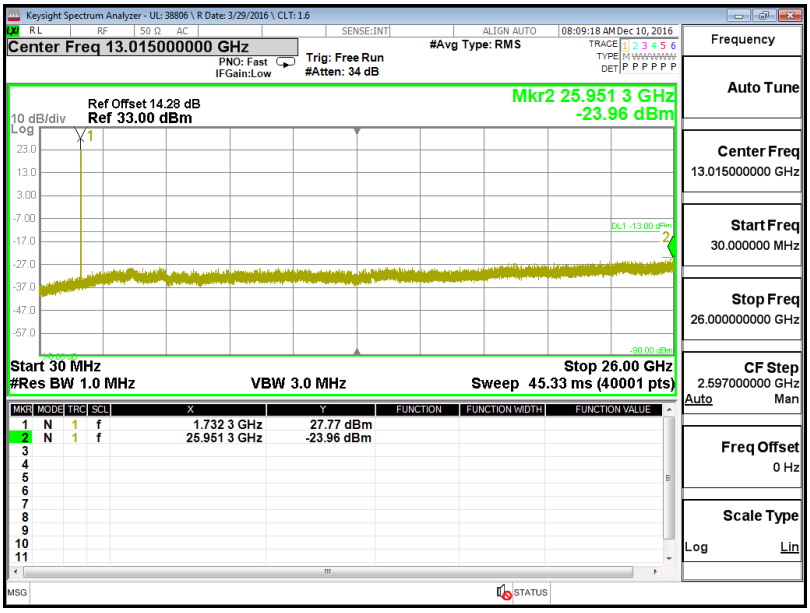
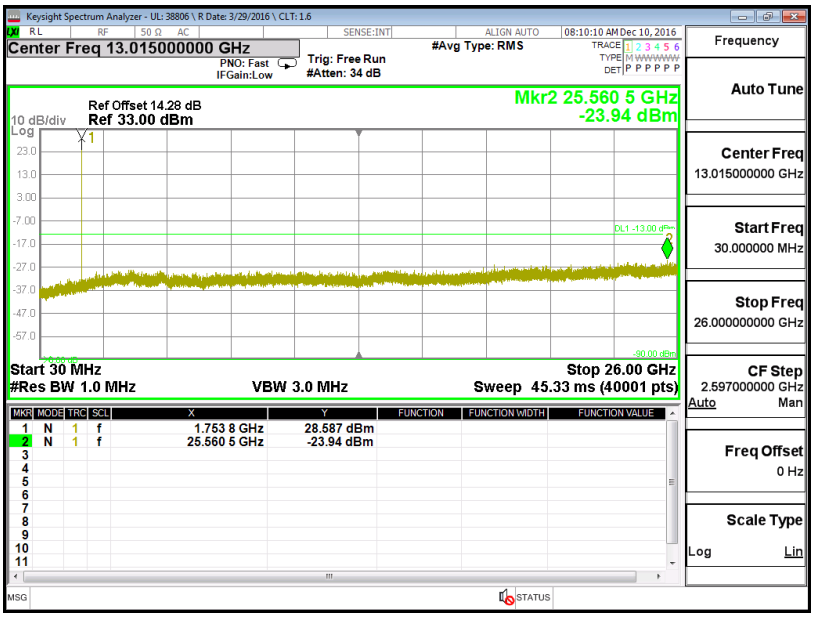
MID, RB1-0, 30 TO 26000 MHz



HIGH, RB1-0, 30 TO 26000 MHz



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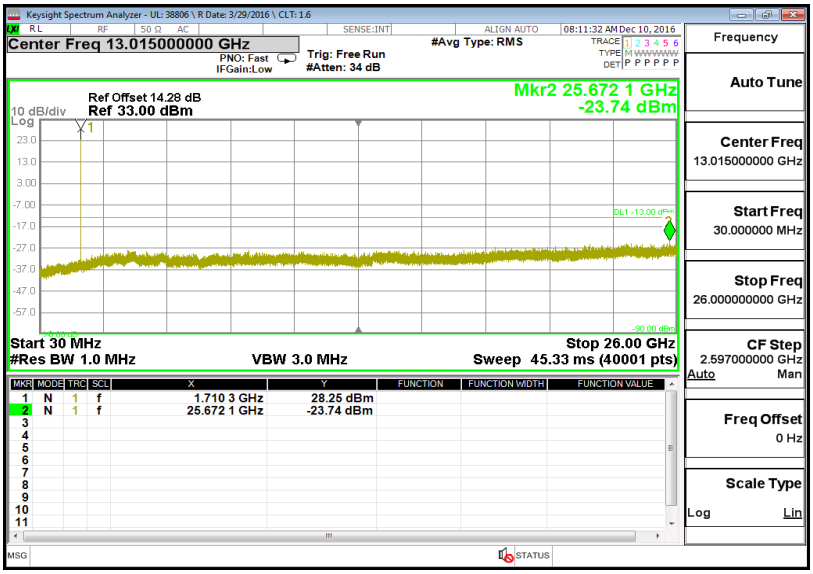
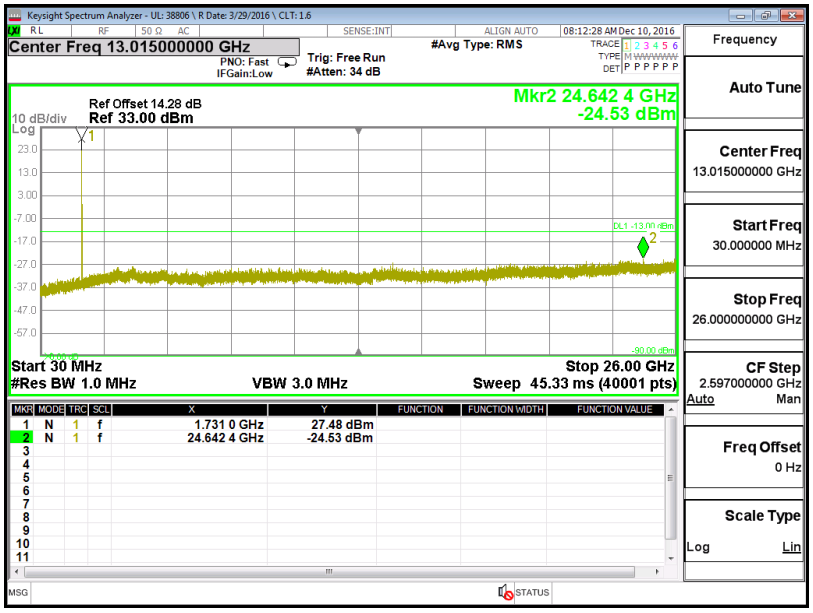
QPSK, (3.0 MHz BAND WIDTH)

LOW, RB1-0, 30 TO 26000 MHz



MID, RB1-0, 30 TO 26000 MHz



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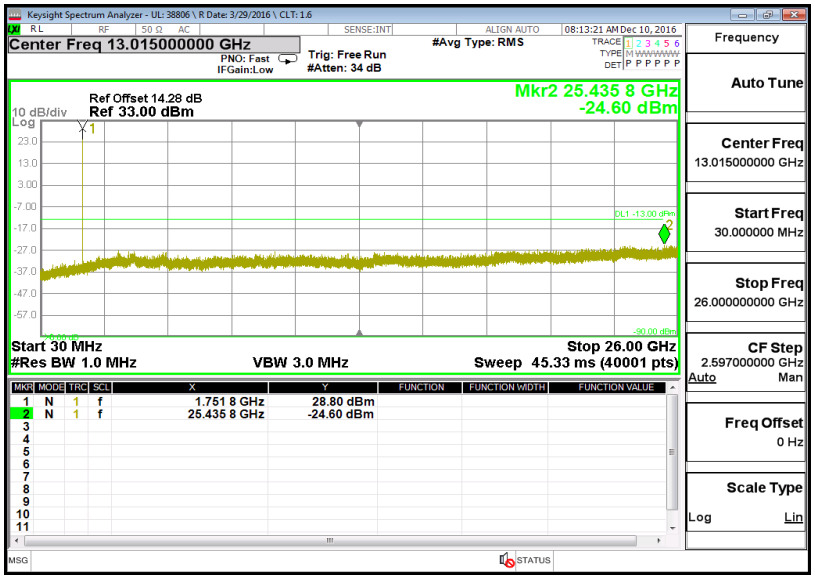
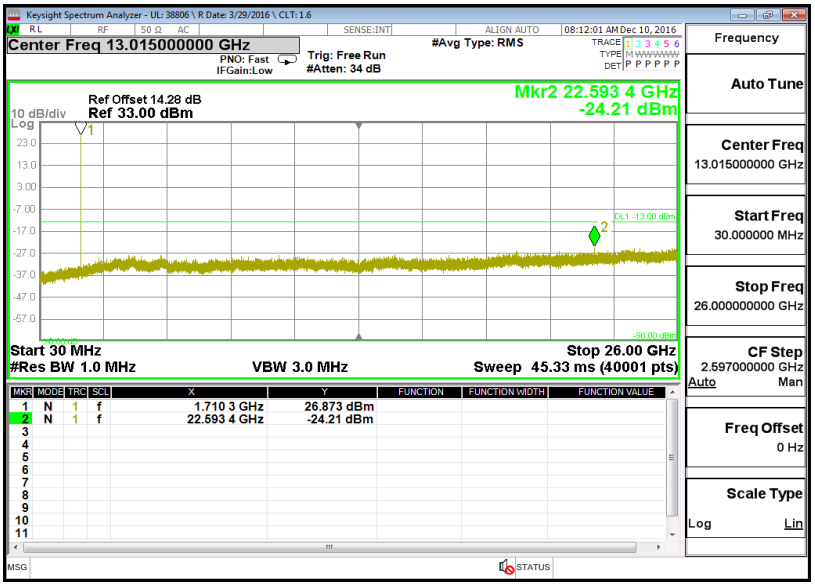
HIGH, RB1-0, 30 TO 26000 MHz



16QAM, (3.0 MHz BAND WIDTH)

LOW, RB1-0, 30 TO 26000 MHz



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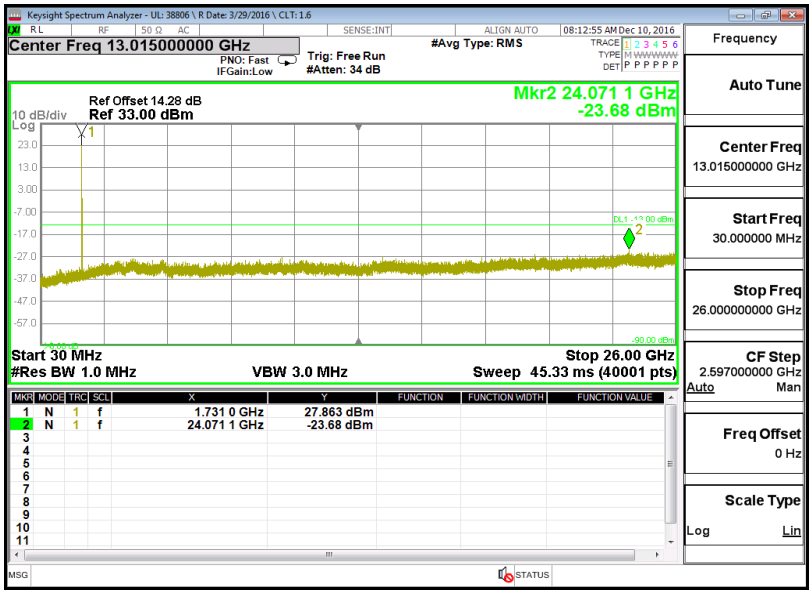
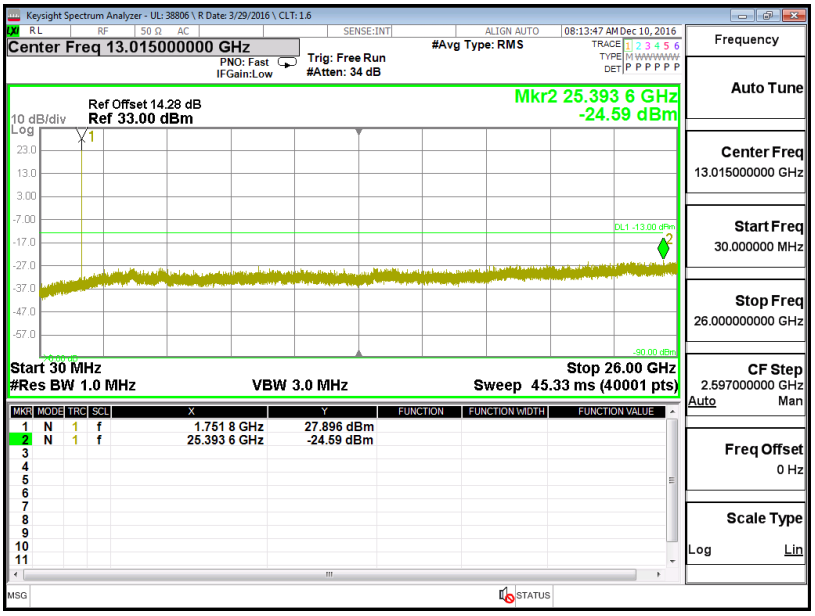
MID, RB1-0, 30 TO 26000 MHz



HIGH, RB1-0, 30 TO 26000 MHz



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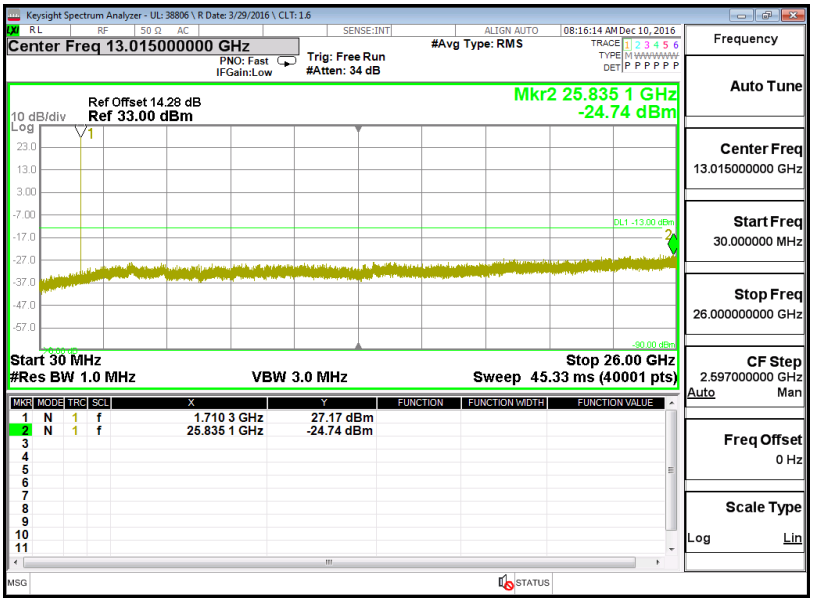
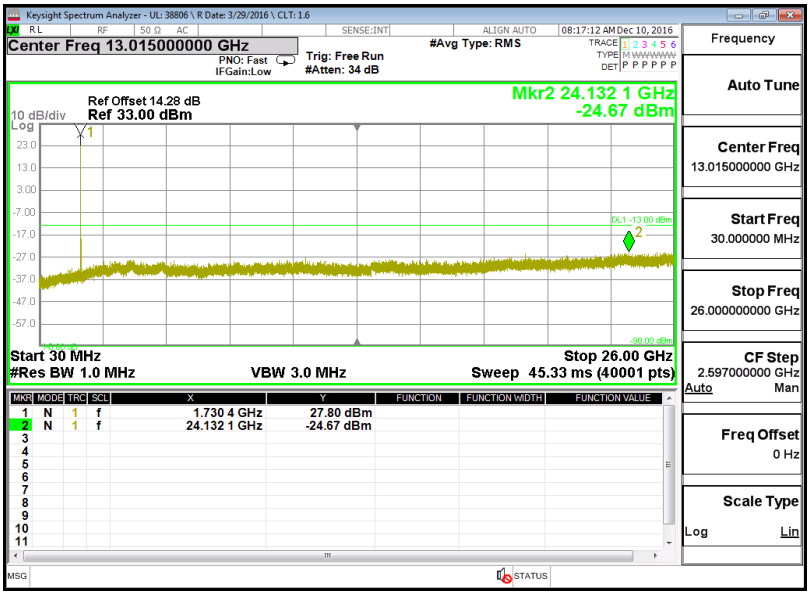
QPSK, (5.0 MHz BAND WIDTH)

LOW, RB1-0, 30 TO 26000 MHz



MID, RB1-0, 30 TO 26000 MHz



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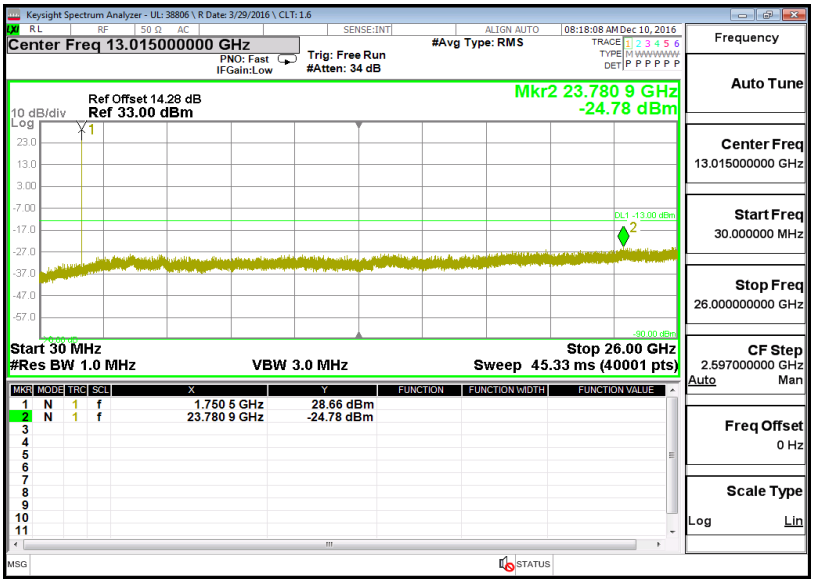
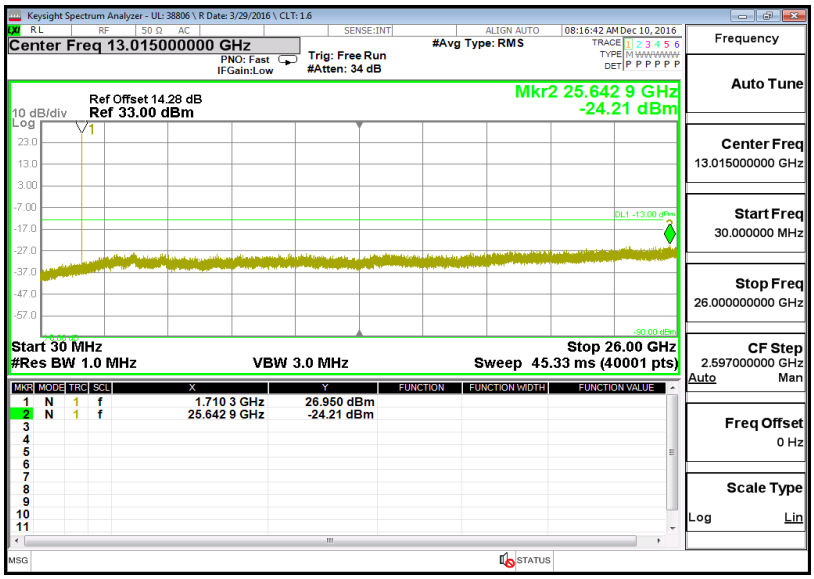
HIGH, RB1-0, 30 TO 26000MHz



16QAM, (5.0 MHz BAND WIDTH)

LOW, RB1-0, 30 TO 26000 MHz



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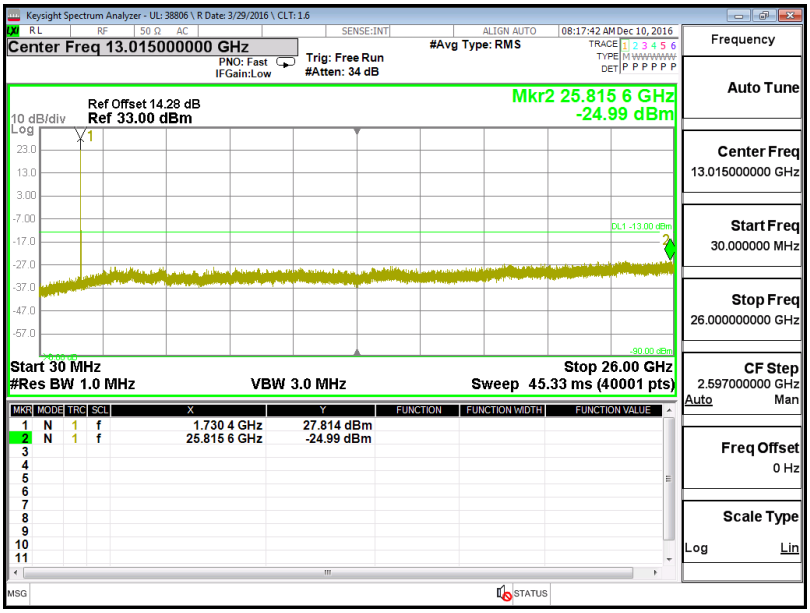
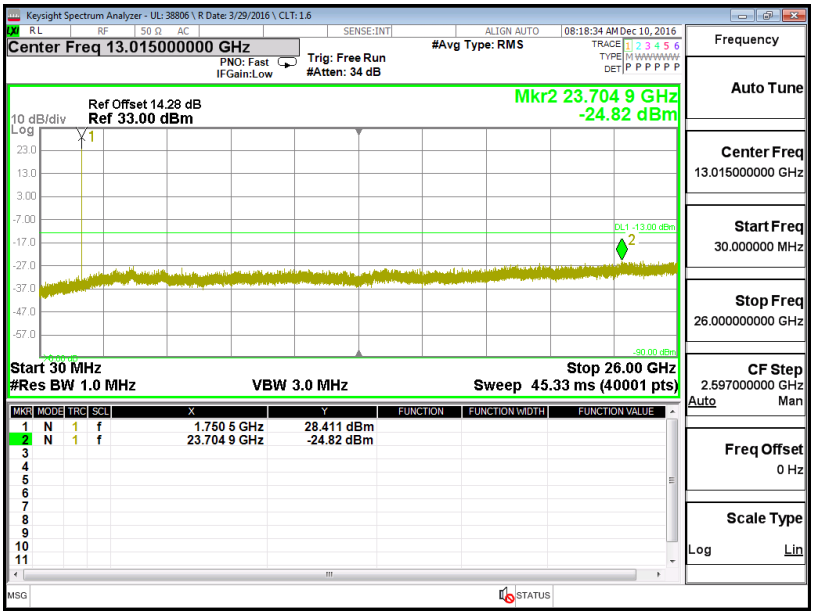
MID, RB1-0, 30 TO 26000MHz



HIGH, RB1-0, 30 TO 26000 MHz



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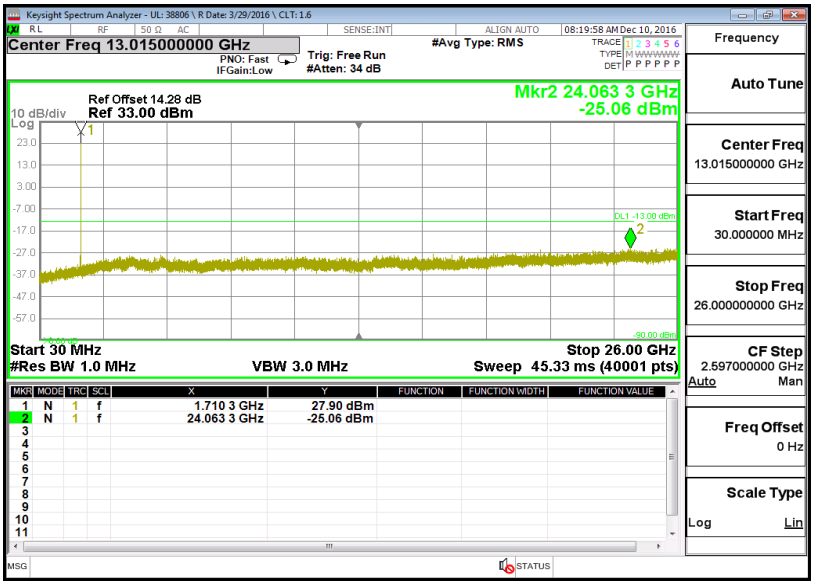
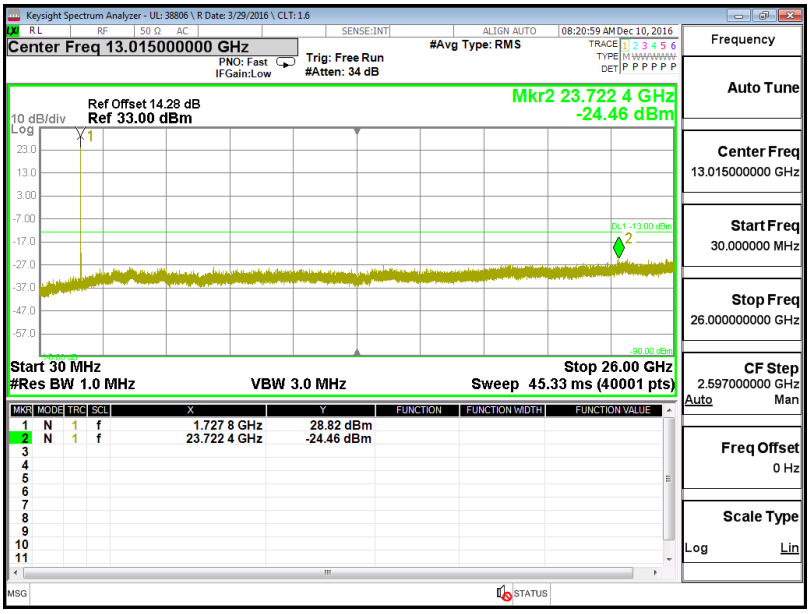
QPSK, (10.0 MHz BAND WIDTH)

LOW, RB1-0, 30 TO 26000 MHz



MID, RB1-0, 30 TO 26000 MHz



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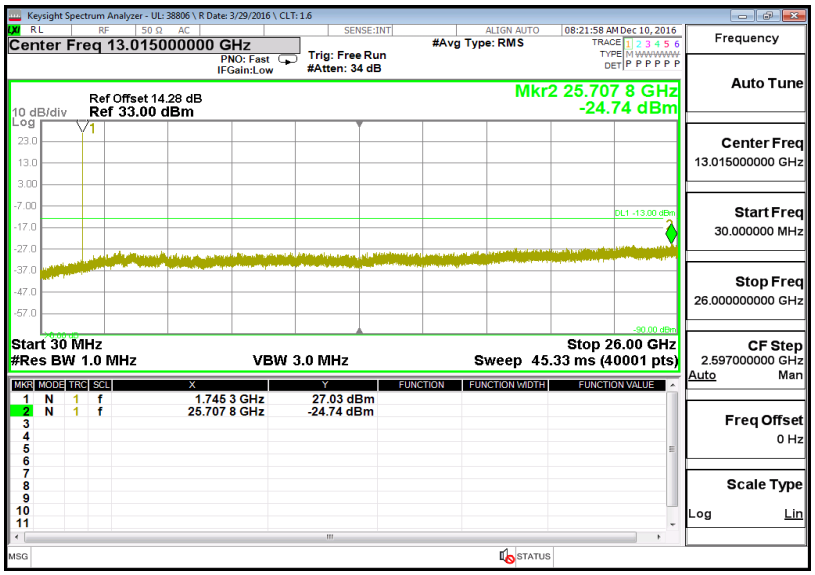
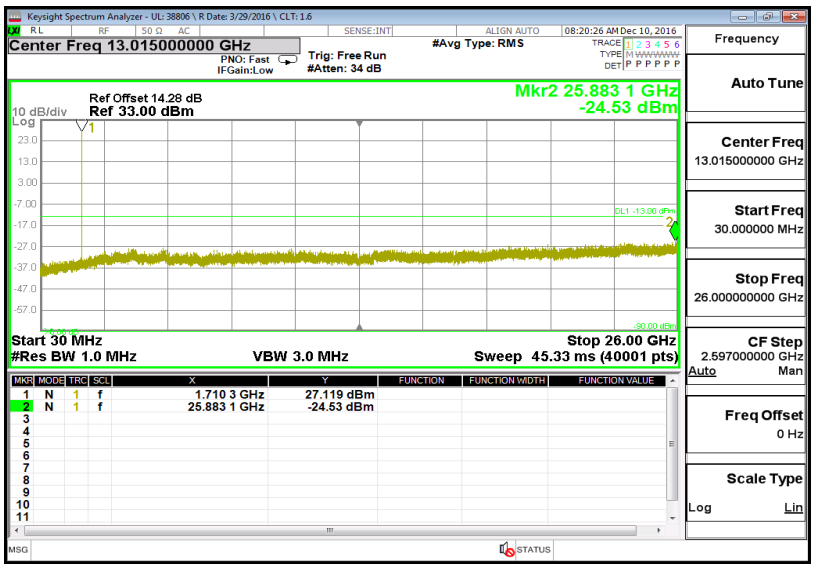
HIGH, RB1-0, 30 TO 26000 MHz



16QAM, (10.0 MHz BAND WIDTH)

LOW, RB1-0, 30 TO 26000 MHz



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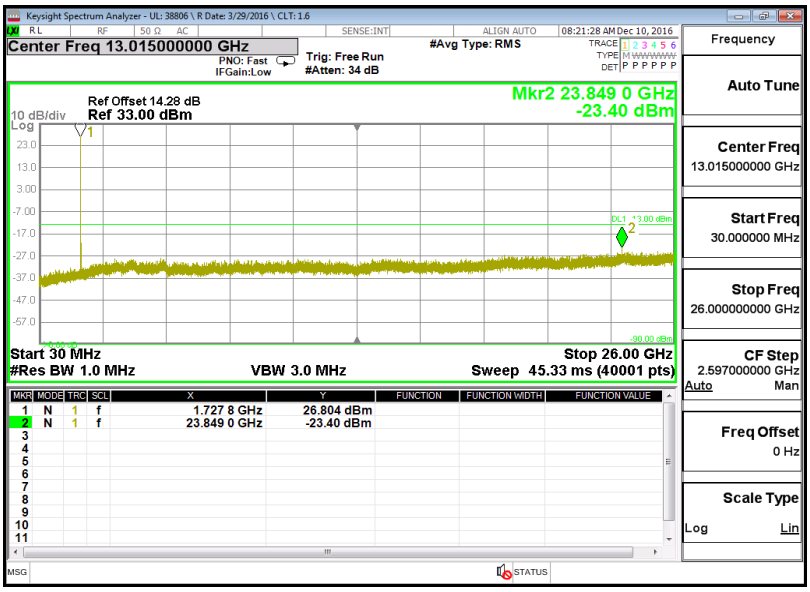
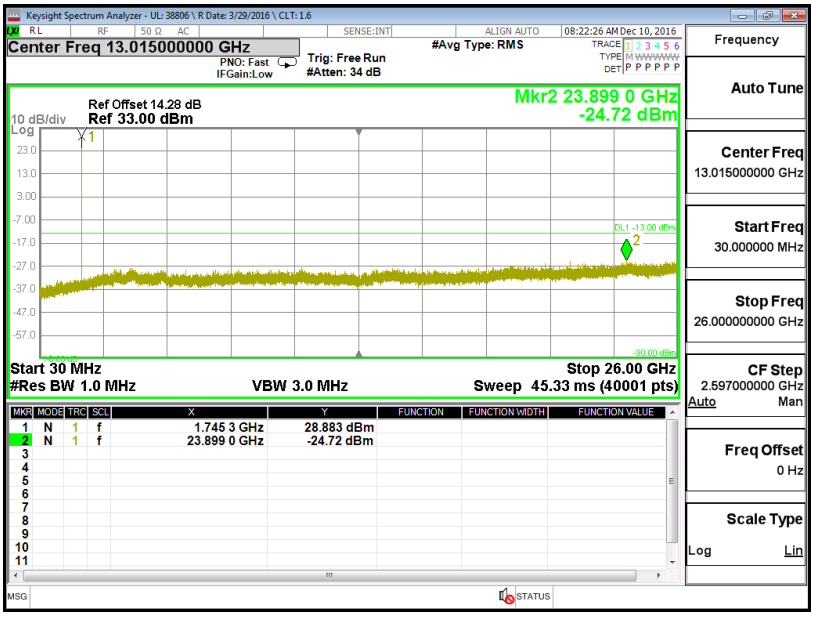
MID, RB1-0, 30 TO 26000 MHz



HIGH, RB1-0, 30 TO 26000 MHz



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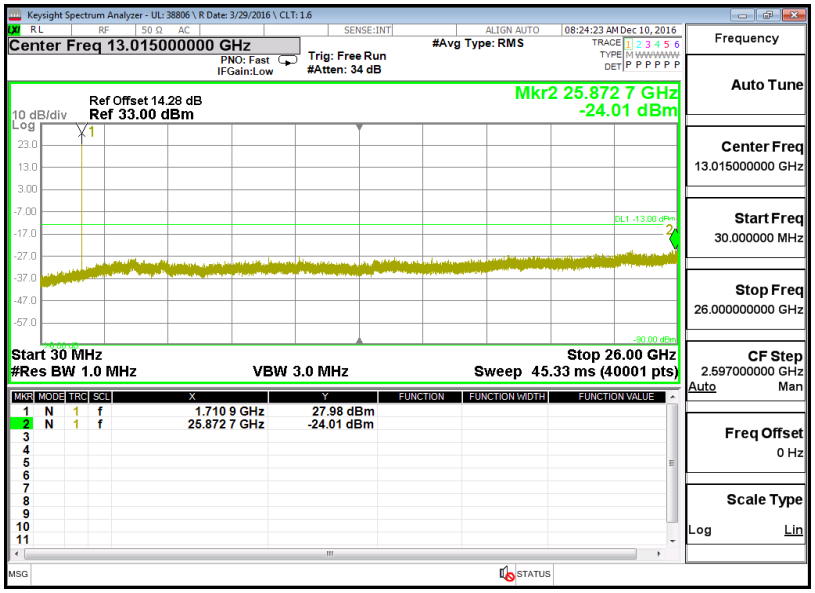
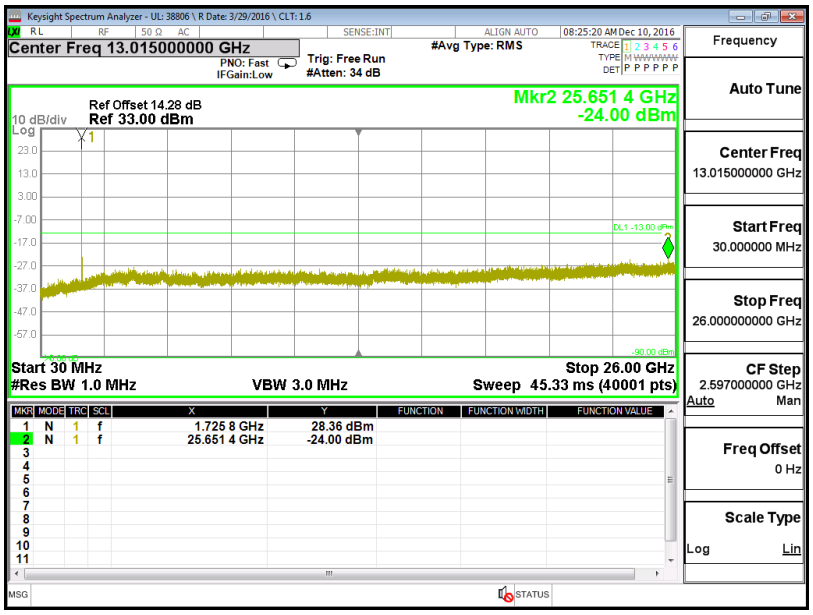
QPSK, (15.0 MHz BAND WIDTH)

LOW, RB1-0, 30 TO 26000 MHz



MID, RB1-0, 30 TO 26000 MHz



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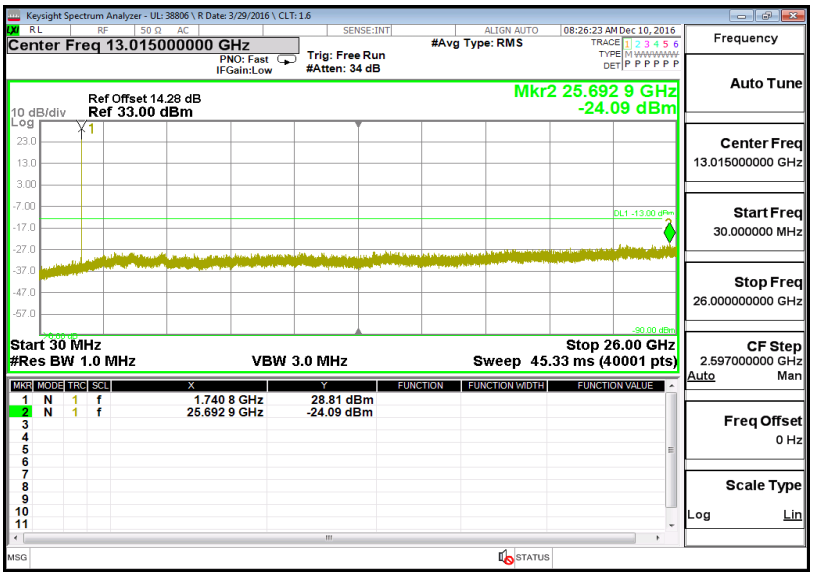
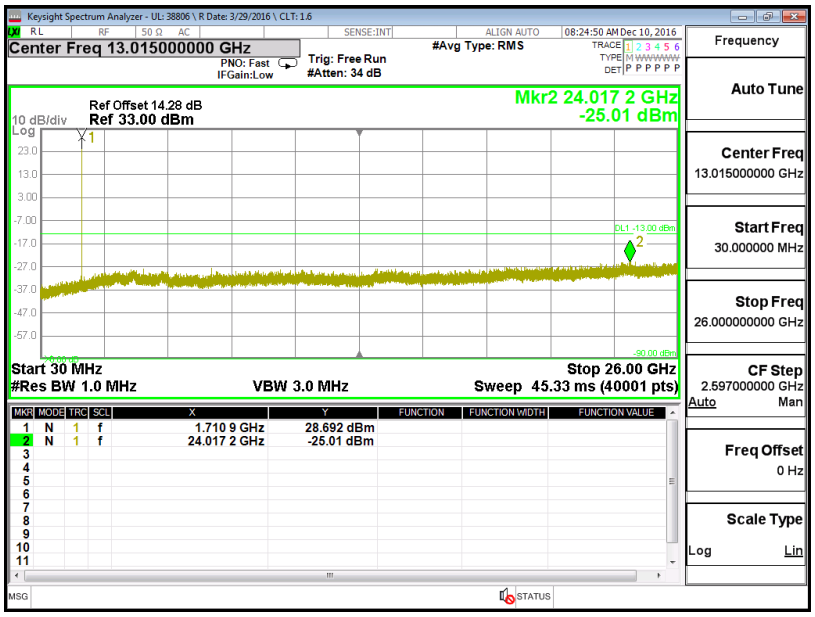
HIGH, RB1-0, 30 TO 26000 MHz



16QAM, (15.0 MHz BAND WIDTH)

LOW, RB1-0, 30 TO 26000 MHz



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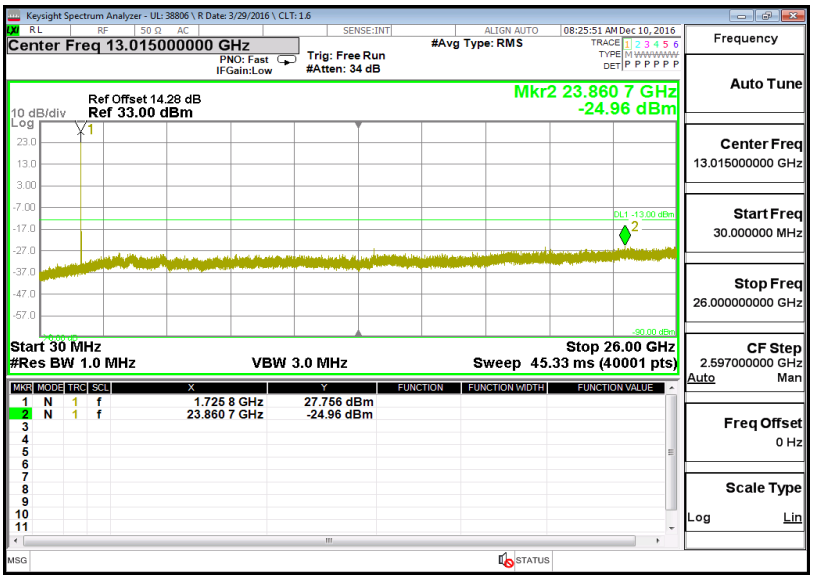
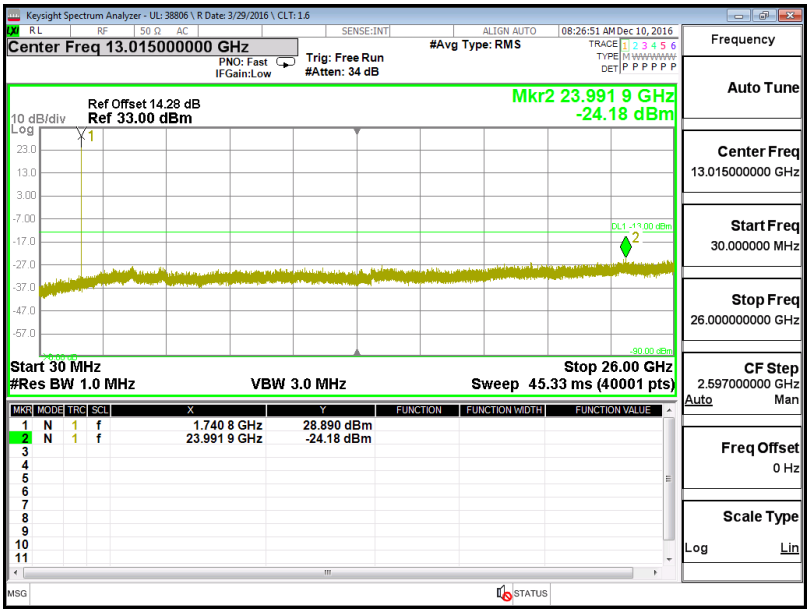
MID, RB1-0, 30 TO 26000 MHz



HIGH, RB1-0, 30 TO 26000 MHz



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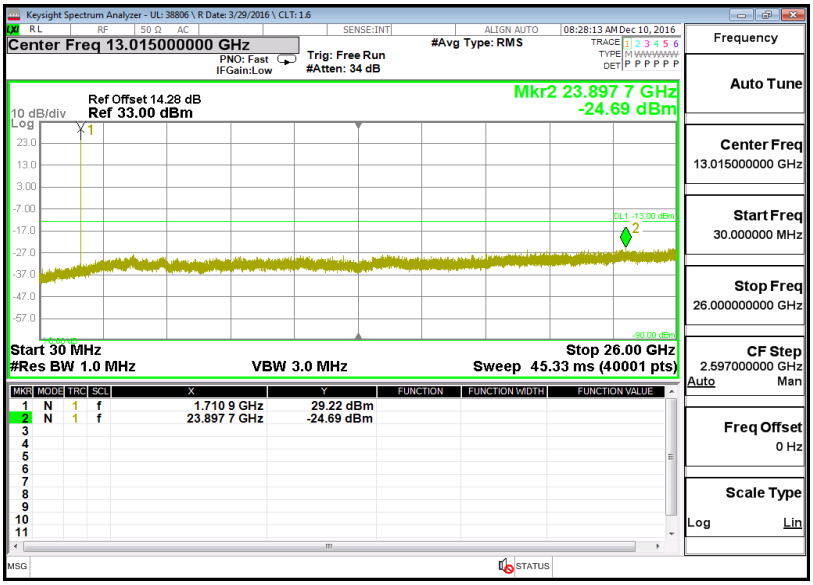
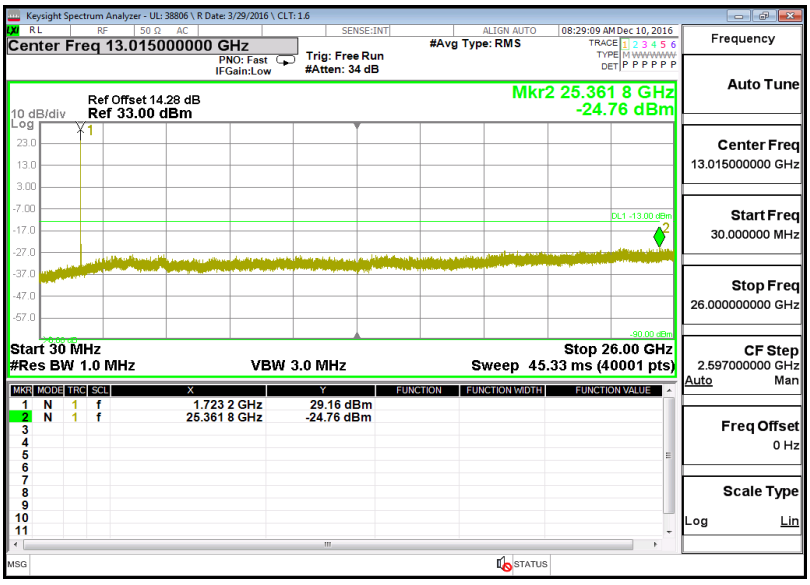
QPSK, (20.0 MHz BAND WIDTH)

LOW, RB1-0, 30 TO 26000 MHz



MID, RB1-0, 30 TO 26000 MHz



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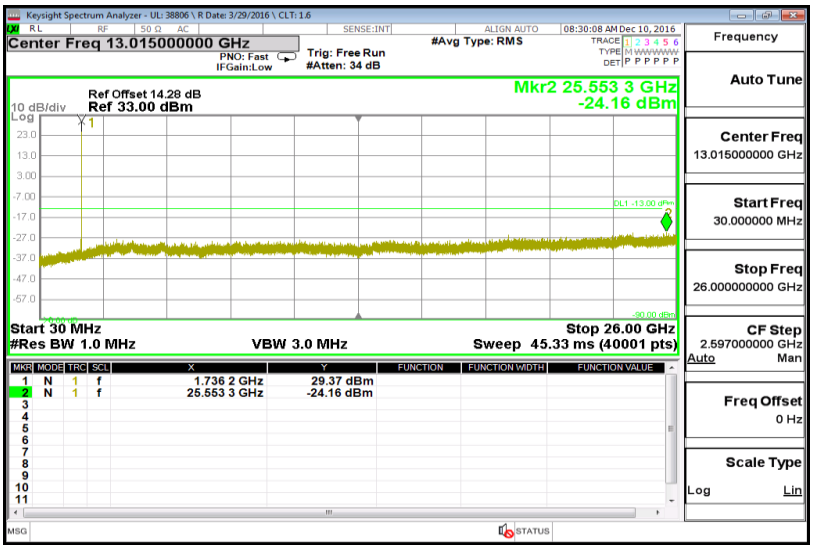
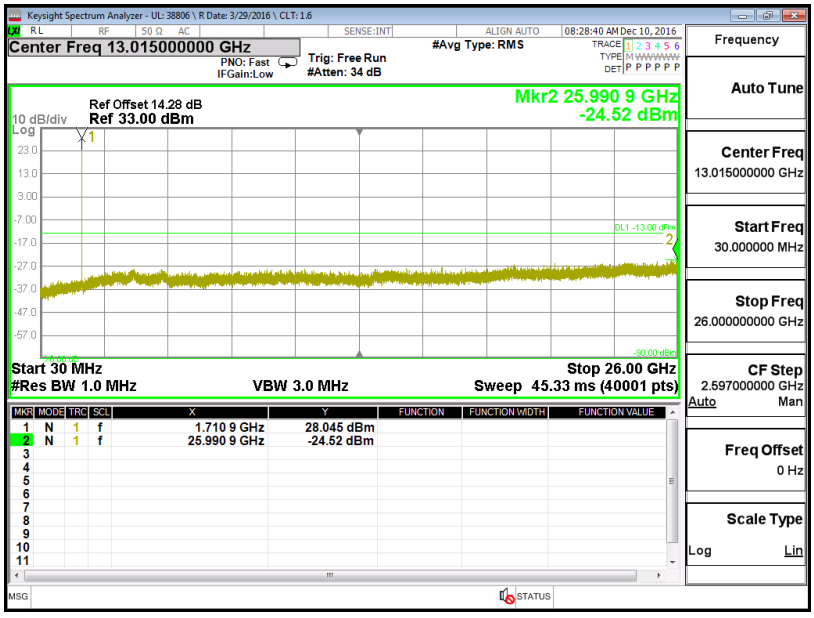
HIGH, RB1-0, 30 TO 26000 MHz



16QAM, (20.0 MHz BAND WIDTH)

LOW, RB1-0, 30 TO 26000 MHz



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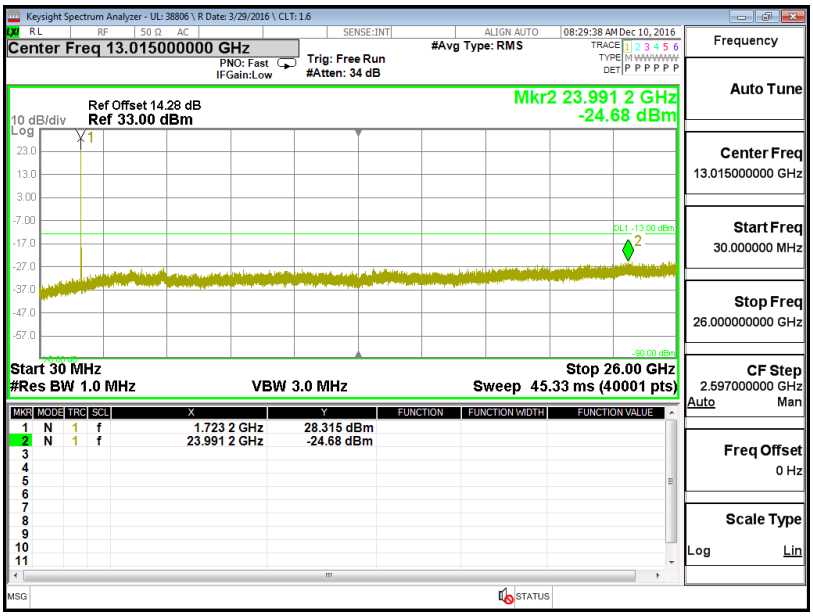
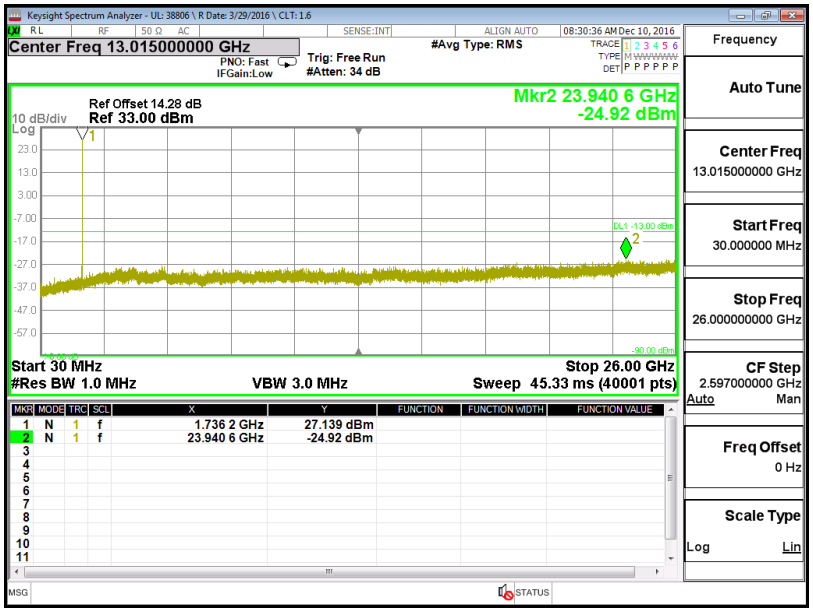
MID, RB1-0, 30 TO 26000 MHz



HIGH, RB1-0, 30 TO 26000 MHz



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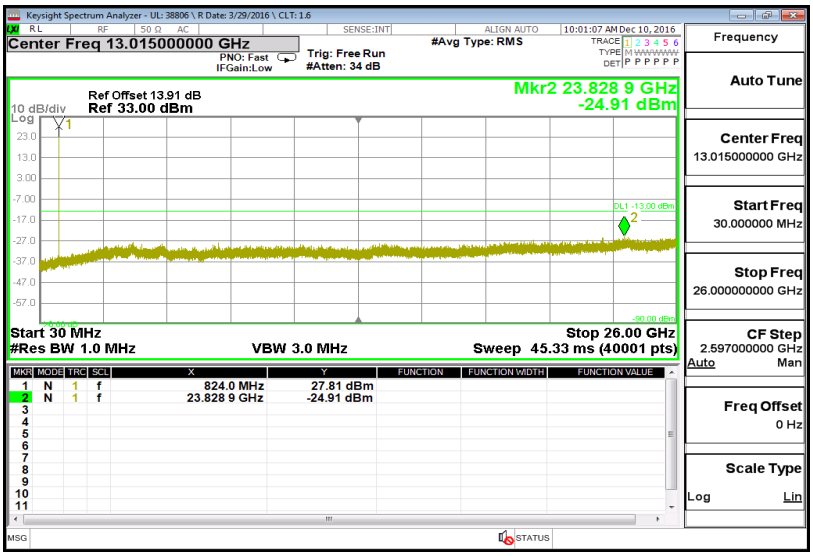
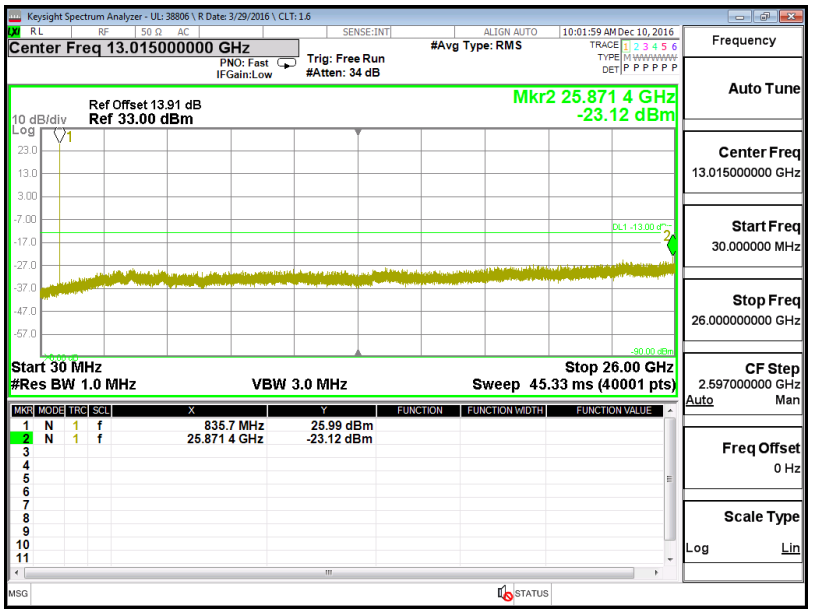
8.3.3. **LTE BAND 5**

QPSK, (1.4 MHz BAND WIDTH)

LOW, RB1-0, 30 TO 26000 MHz



MID, RB1-0, 30 TO 26000 MHz



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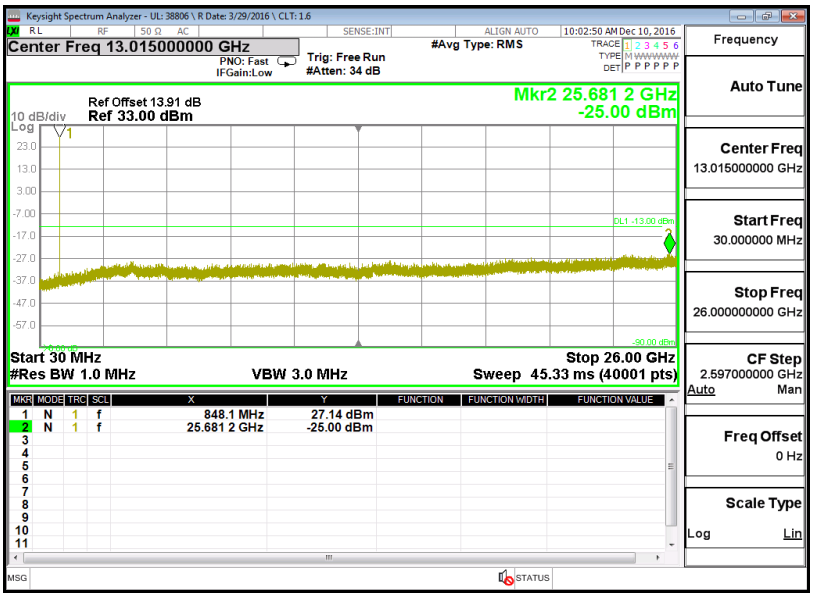
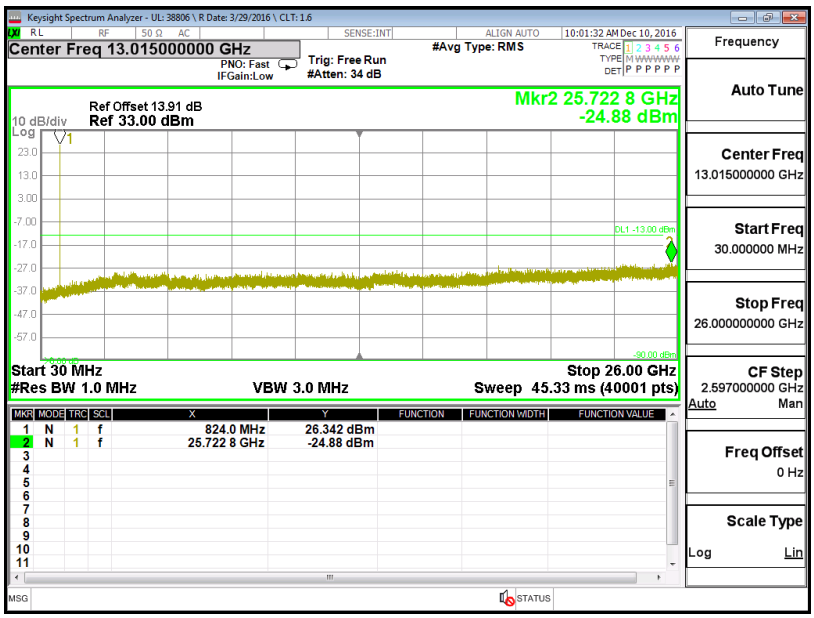
HIGH, RB1-0, 30 TO 26000 MHz



16QAM, (1.4 MHz BAND WIDTH)

LOW, RB1-0, 30 TO 26000 MHz



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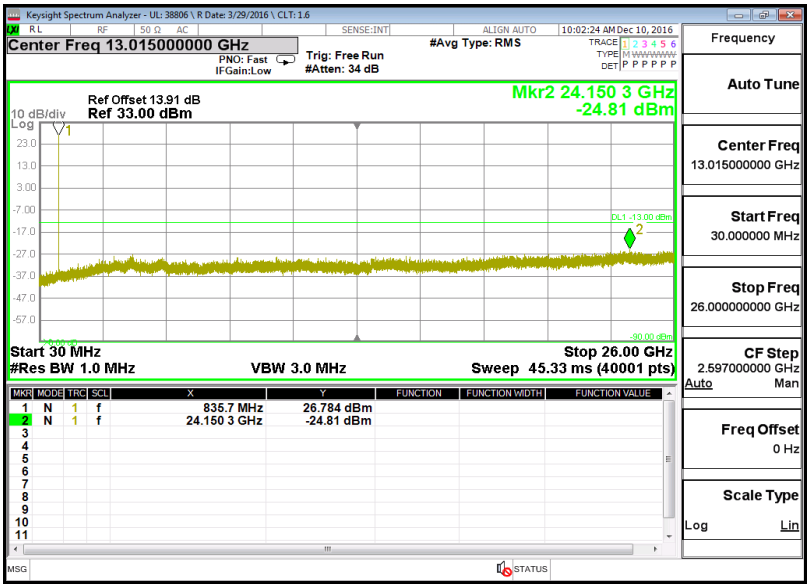
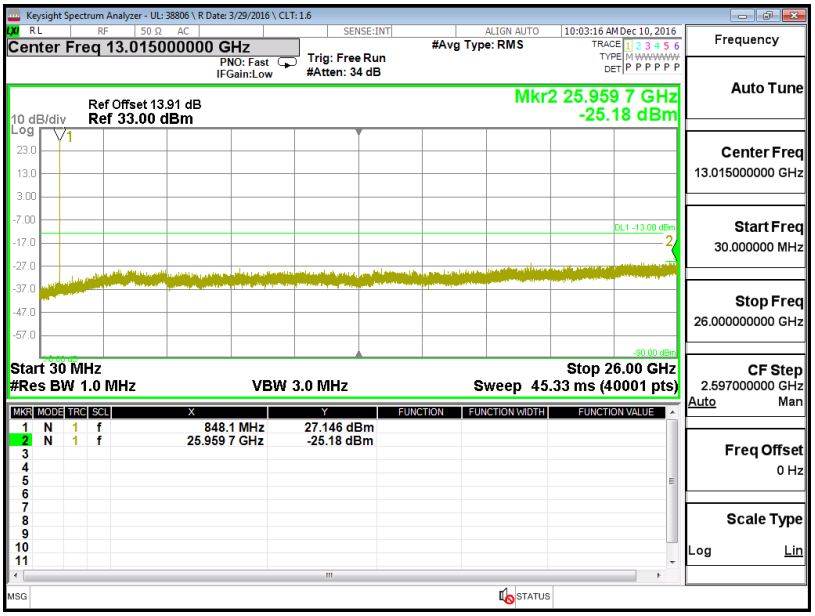
MID, RB1-0, 30 TO 26000 MHz



HIGH, RB1-0, 30 TO 26000 MHz



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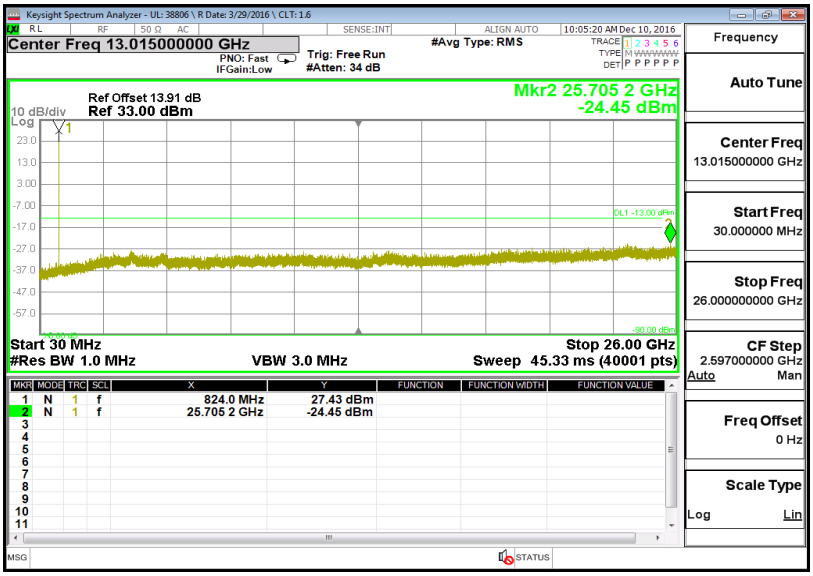
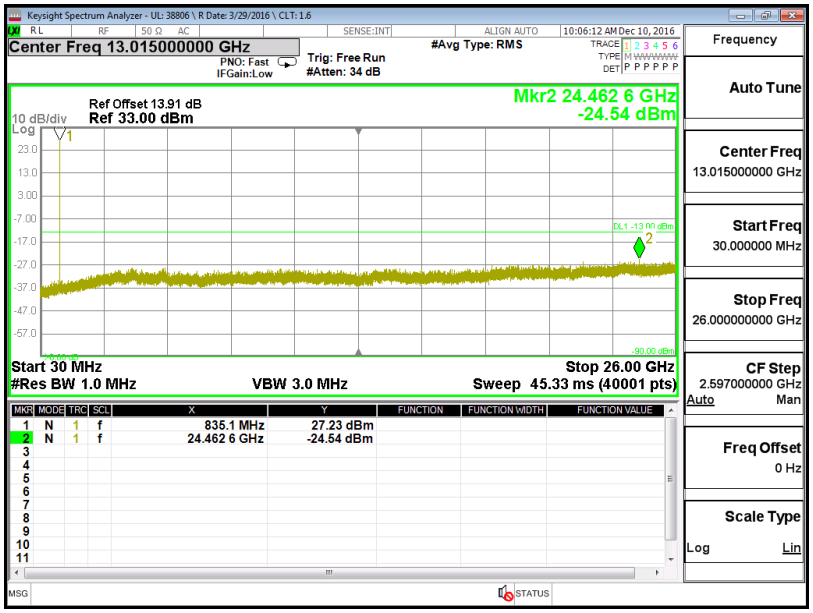
QPSK, (3.0 MHz BAND WIDTH)

LOW, RB1-0, 30 TO 26000 MHz



MID, RB1-0, 30 TO 26000 MHz



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