

9.3. OUT OF BAND EMISSIONS

RULE PART(S)

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

LIMITS

FCC: §22.917, §24.238, §27.53 (c), (g), (h), §90.691

The minimum permissible attenuation level of any spurious emissions is $43 + 10 \log (P)$ dB where transmitting power (P) in Watts.

FCC: §27.53 (m) (Band 41)

The minimum permissible attenuation level of any spurious emissions is $55 + 10 \log (P)$ dB where transmitting power (P) in Watts.

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:

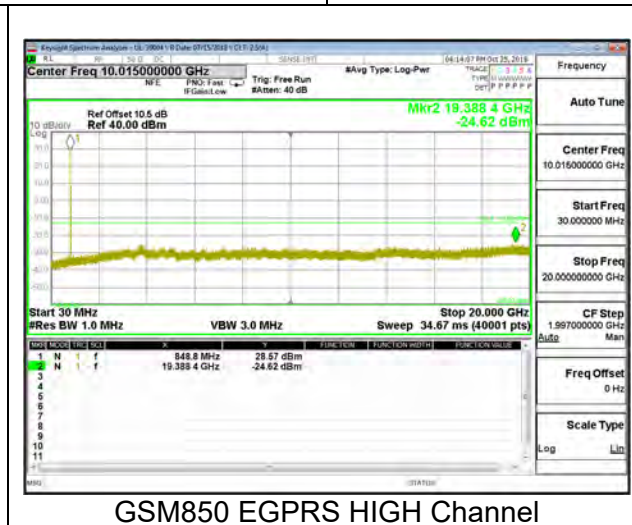
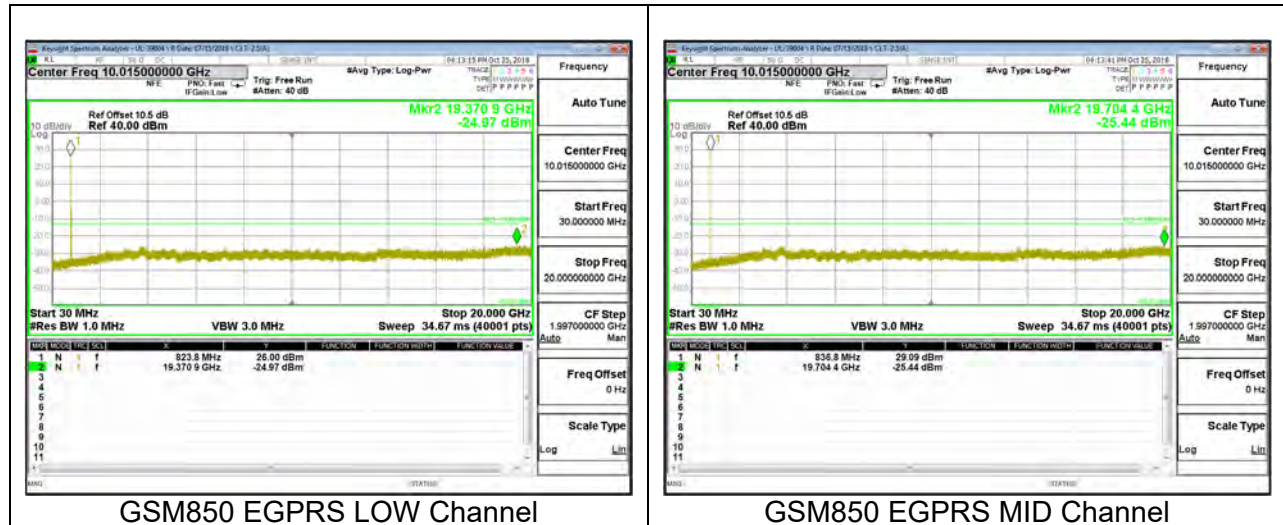
- Set display line at -13 dBm, -25dBm and -40dBm according to the band Limit
- Set RBW & VBW to 100 kHz for the measurement below 1 GHz, and 1 MHz for the measurement above 1 GHz. (NOTE: Worst case set RBW/VBW to 1MHz/3MHz)

MODES TESTED

- GSM 850
- GSM 1900
- WCDMA Band 5
- WCDMA Band 2
- WCDMA Band 4
- LTE Band 2
- LTE Band 4
- LTE Band 5
- LTE Band 12
- LTE Band 13
- LTE Band 17
- LTE Band 25
- LTE Band 26
- LTE Band 41
- LTE Band 66

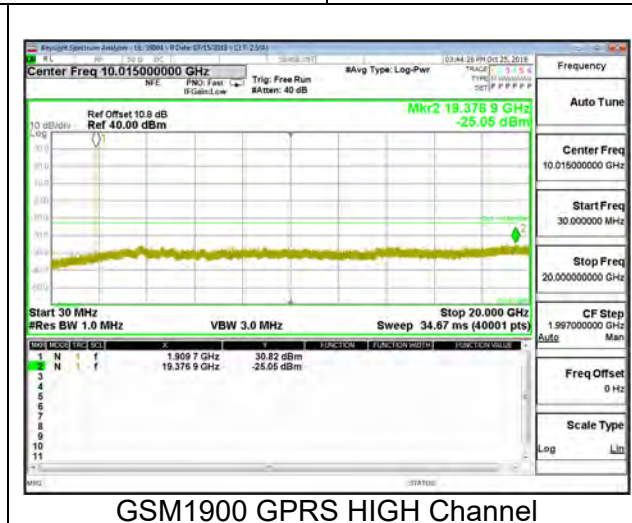
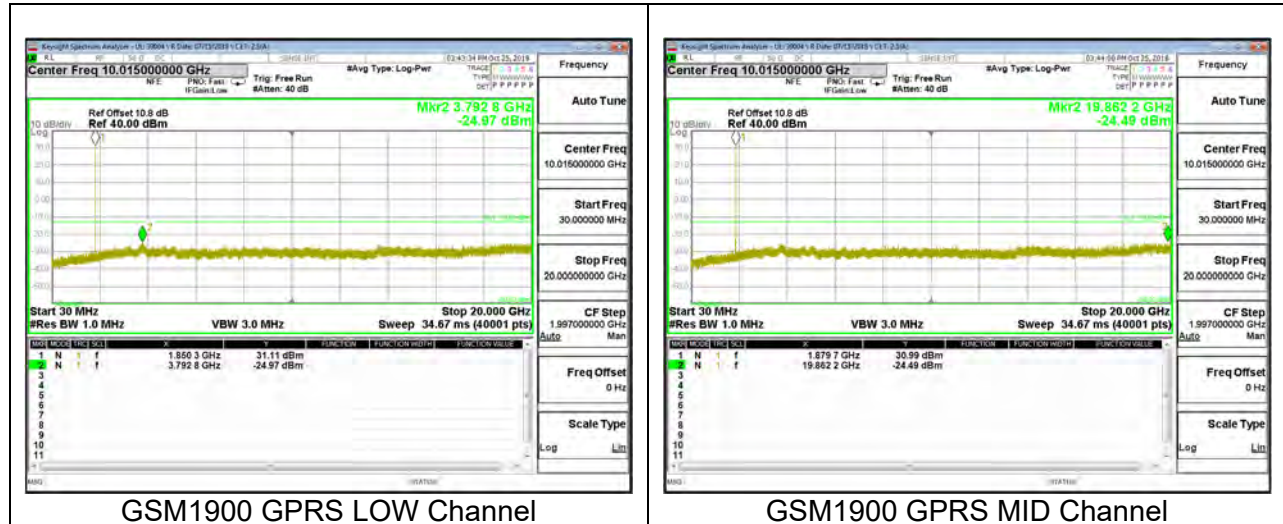
RESULTS

EGPRS

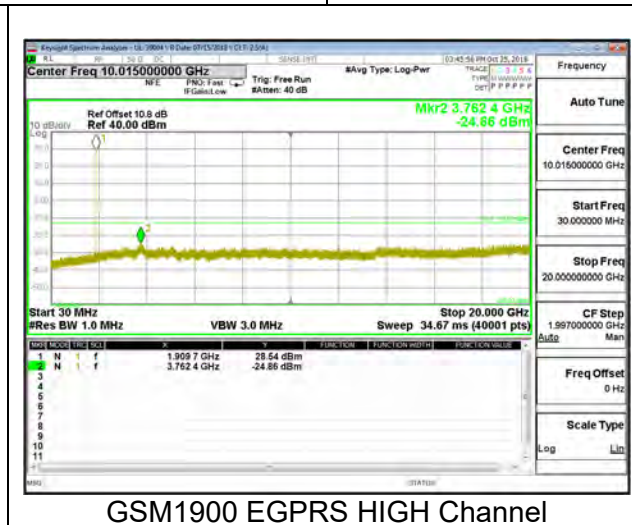
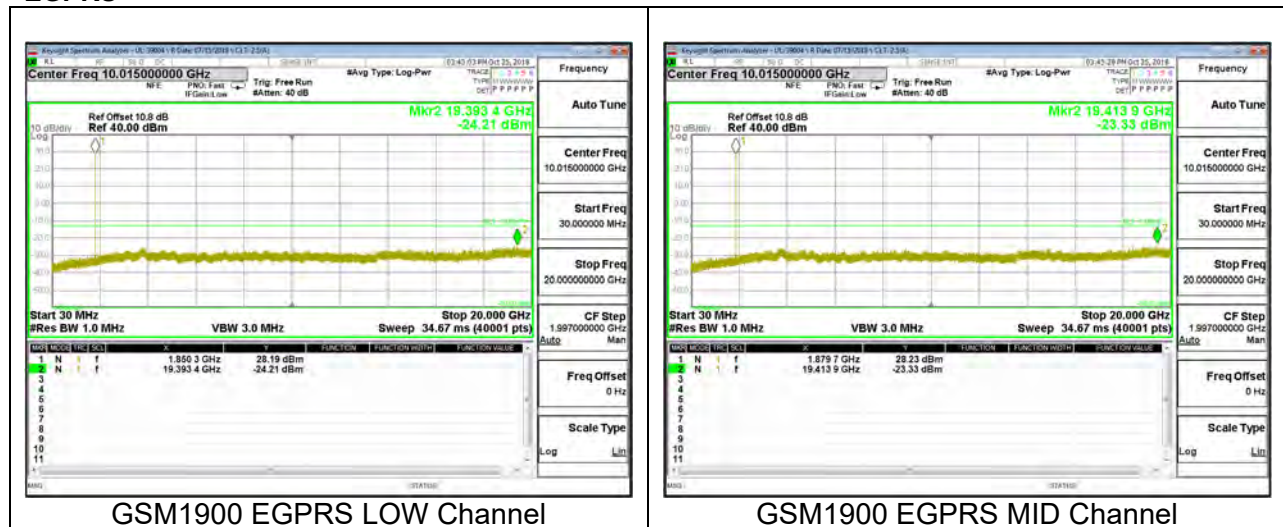


9.3.2. GSM1900

GPRS

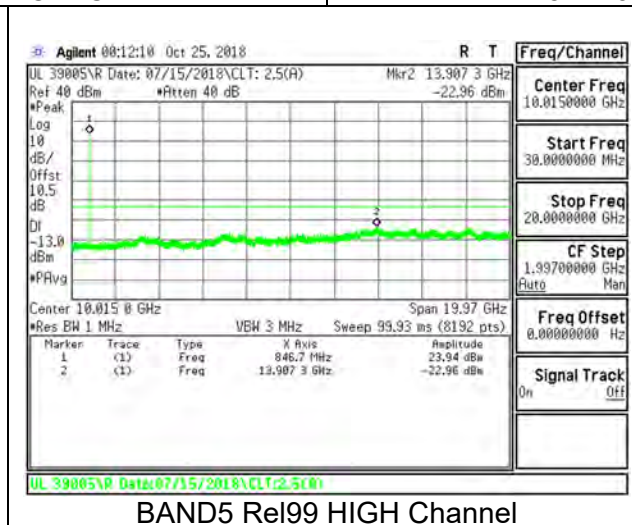
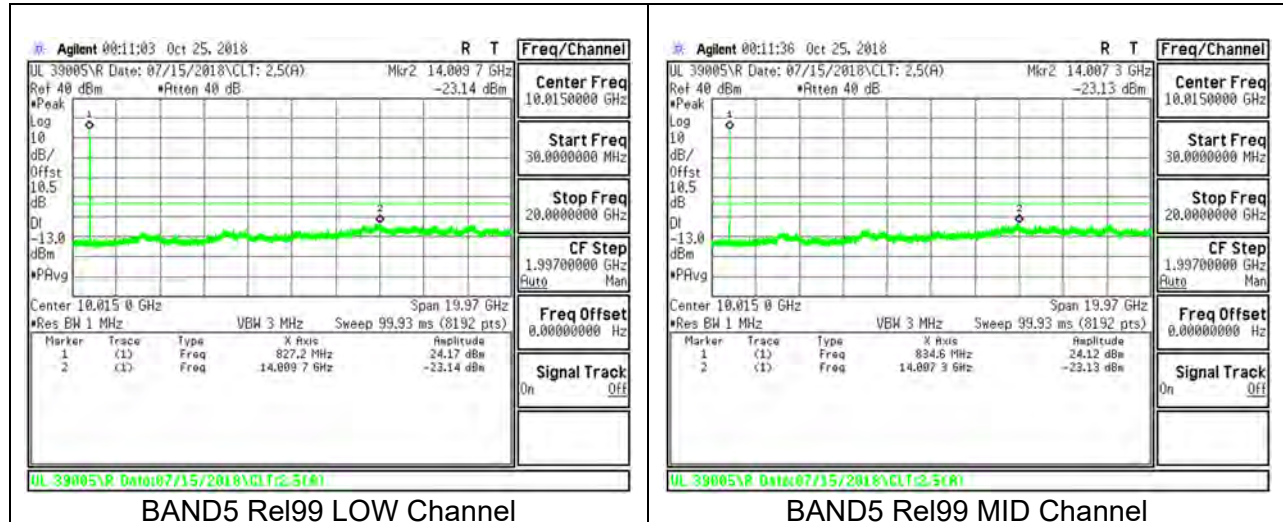


EGPRS

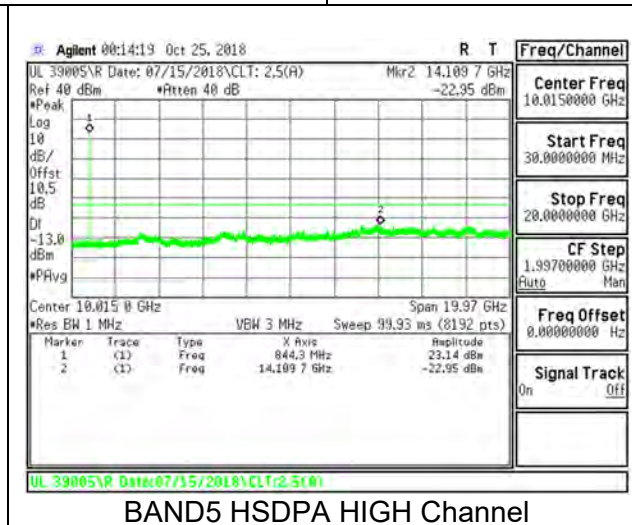
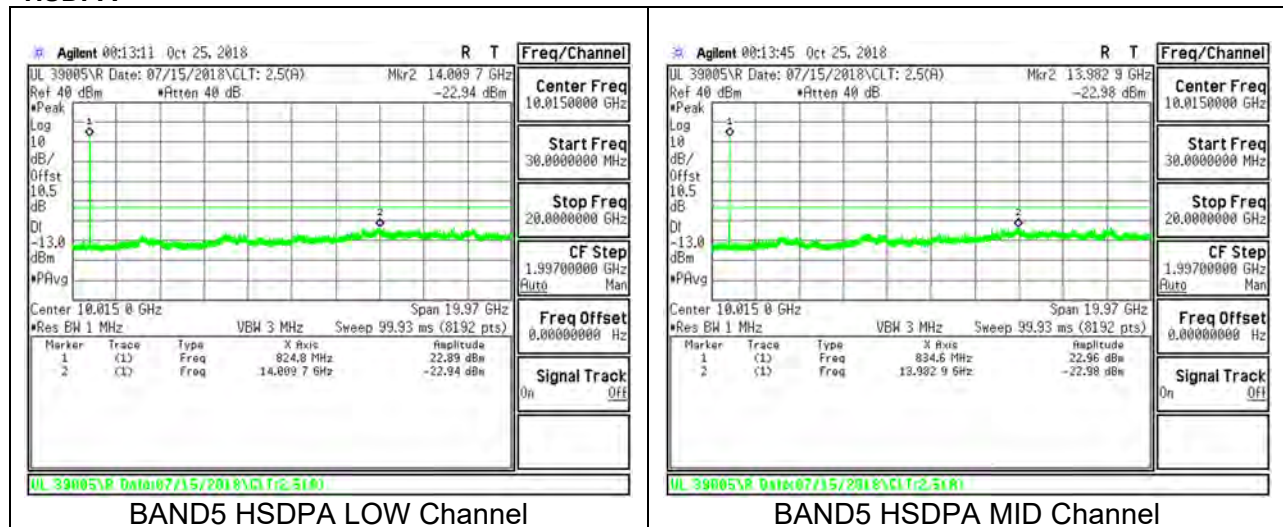


9.3.3. WCDMA BAND5

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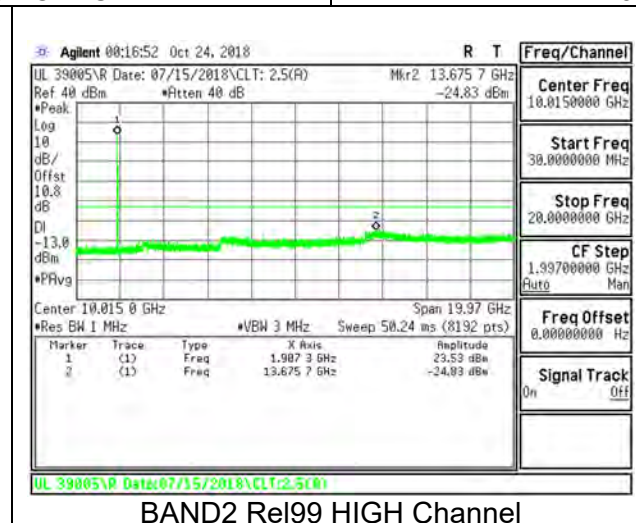
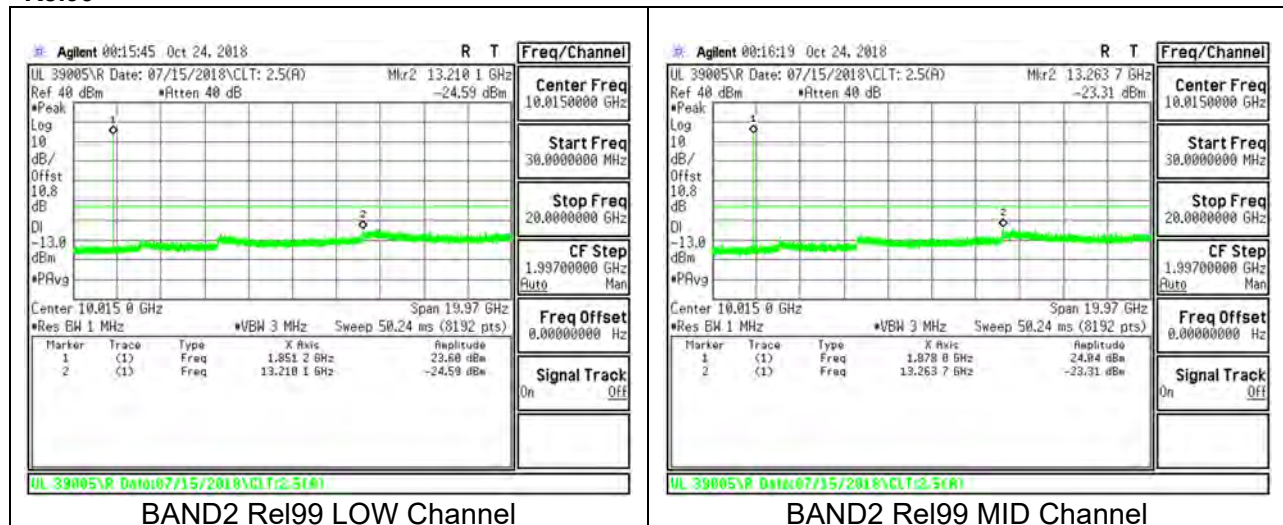


HSDPA

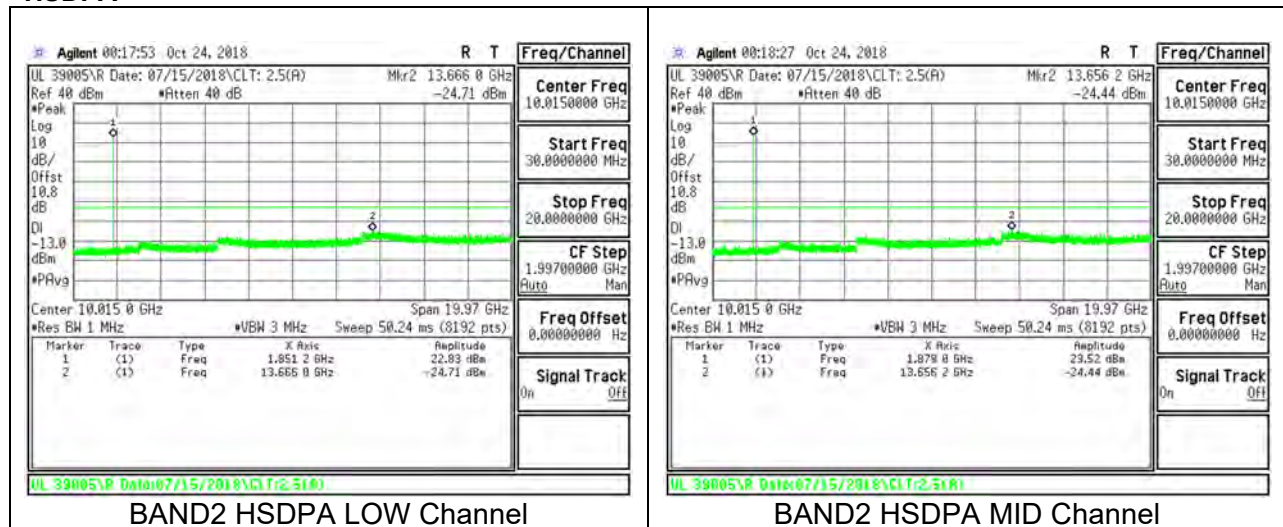


9.3.4. WCDMA BAND2

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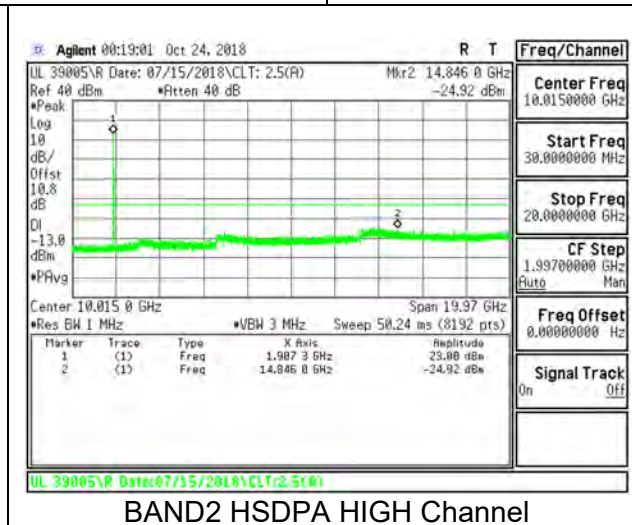


HSDPA



BAND2 HSDPA LOW Channel

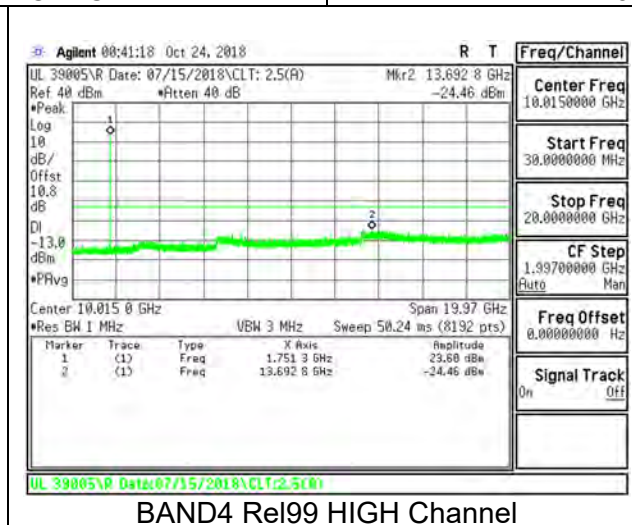
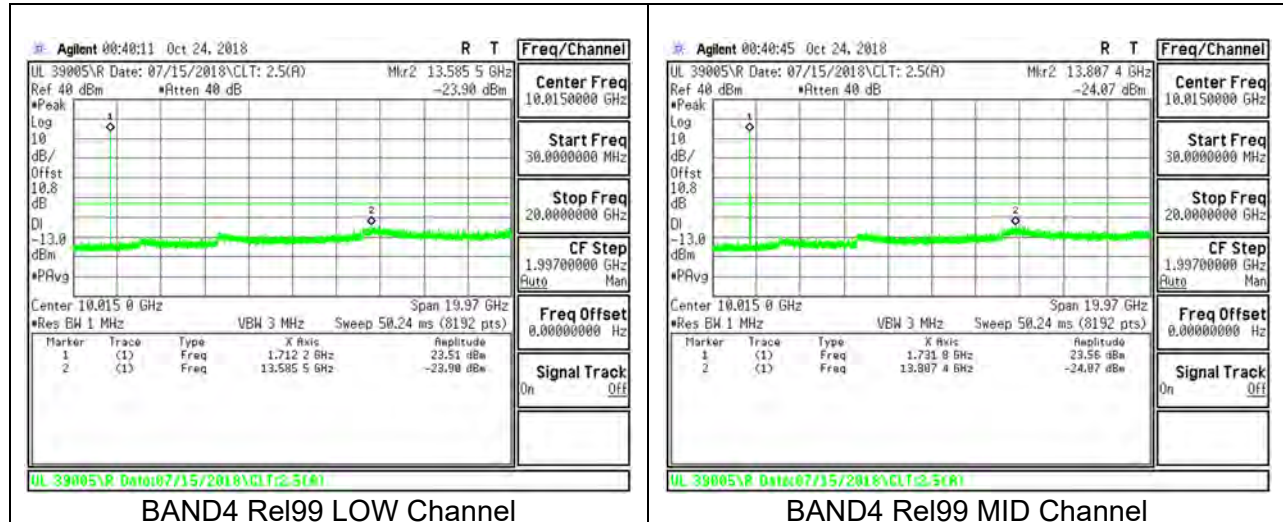
BAND2 HSDPA MID Channel



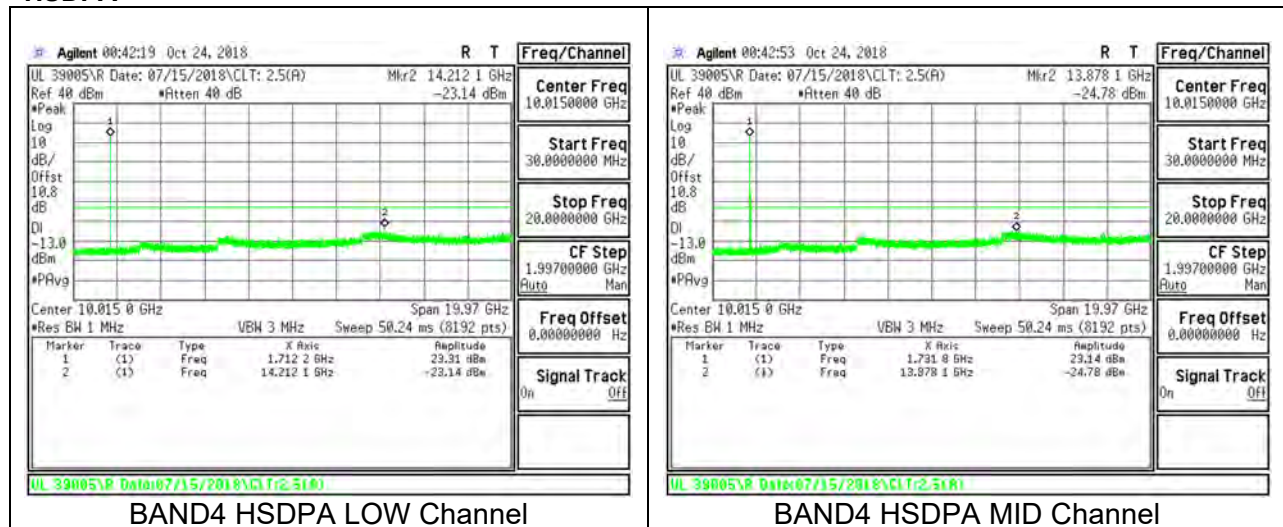
BAND2 HSDPA HIGH Channel

9.3.5. WCDMA BAND4

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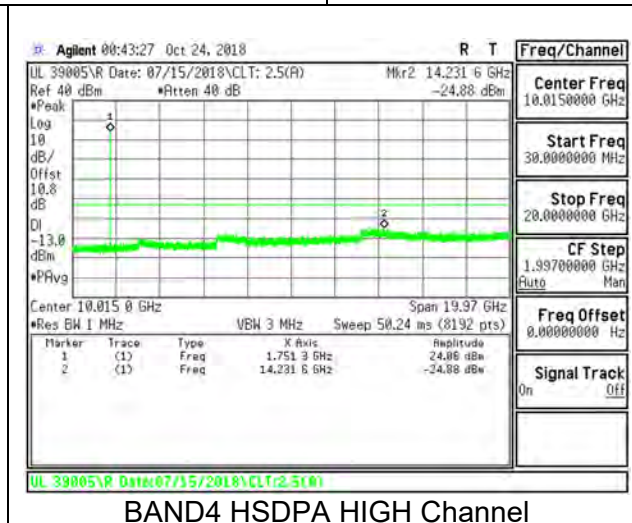


HSDPA



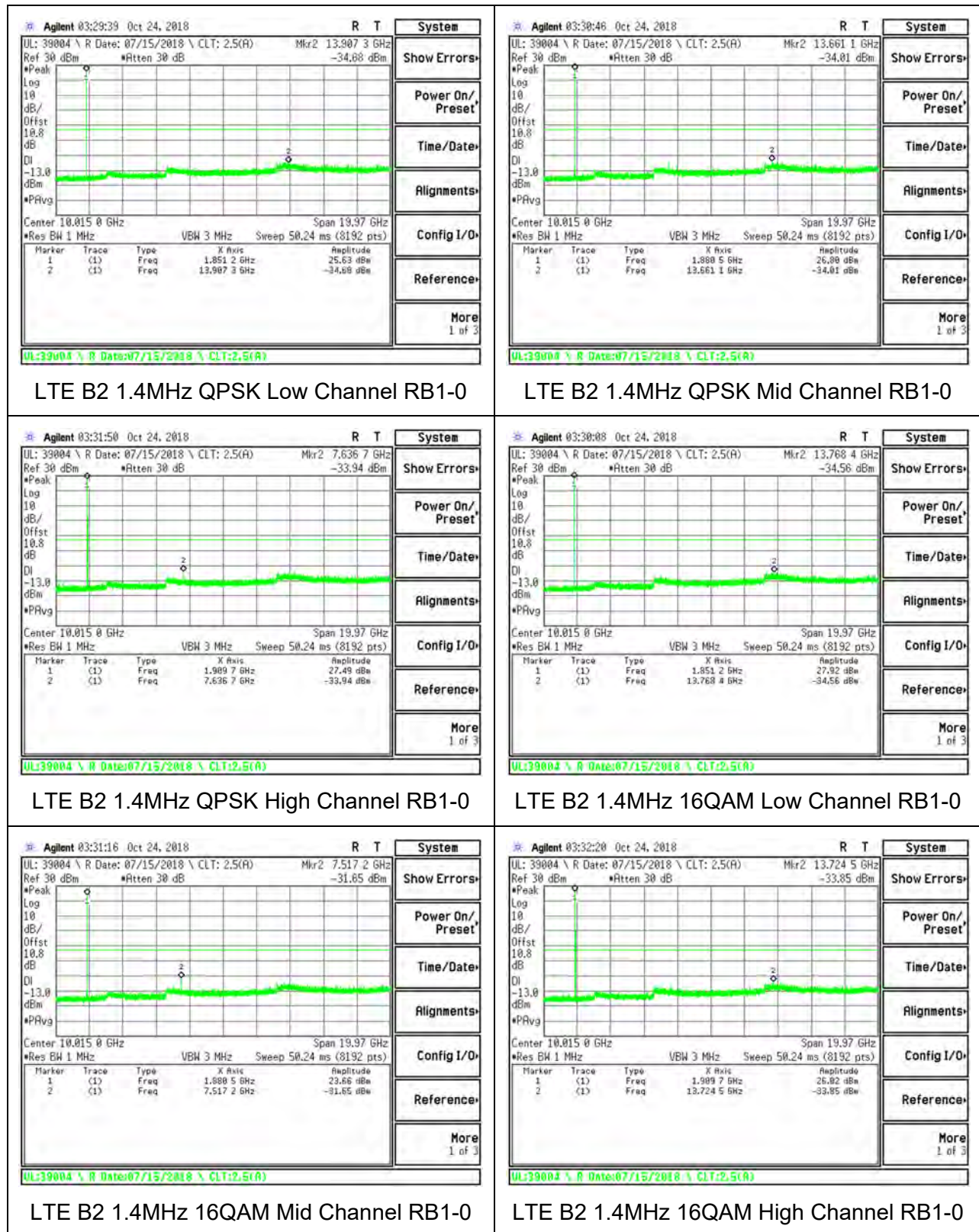
BAND4 HSDPA LOW Channel

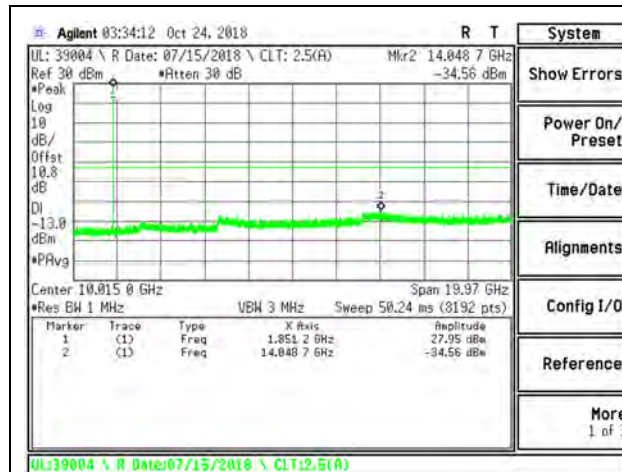
BAND4 HSDPA MID Channel



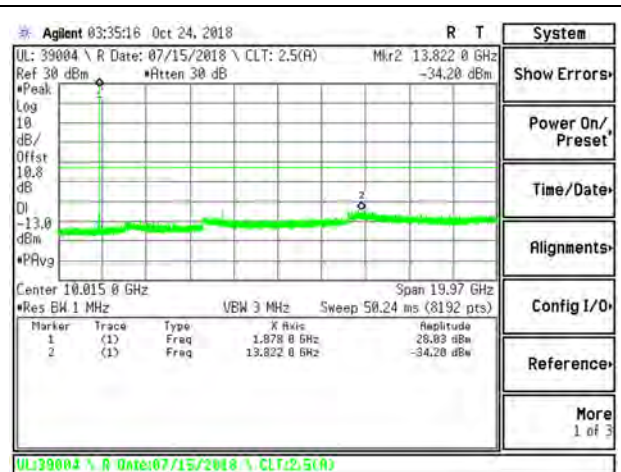
BAND4 HSDPA HIGH Channel

9.3.6. LTE BAND 2

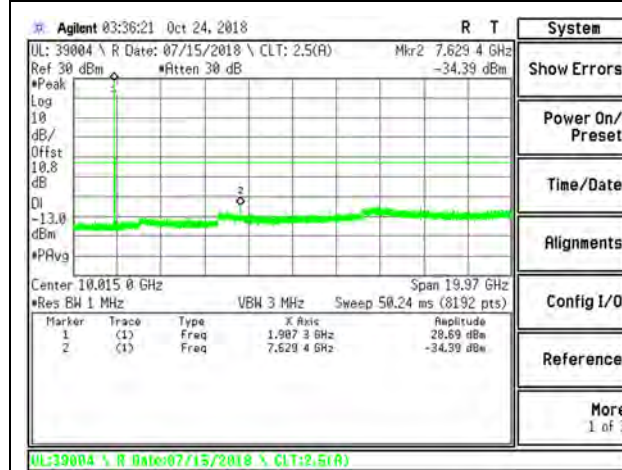




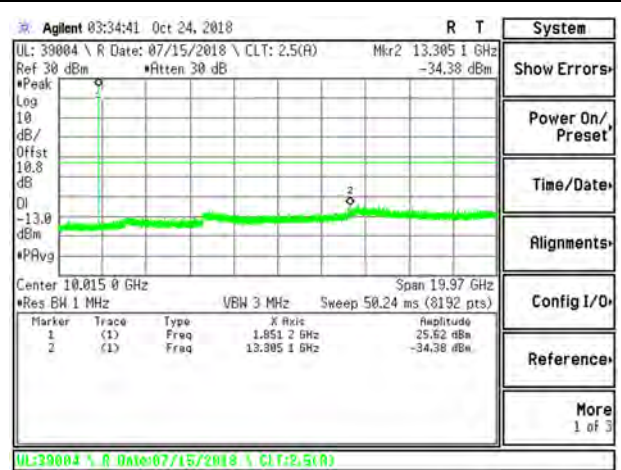
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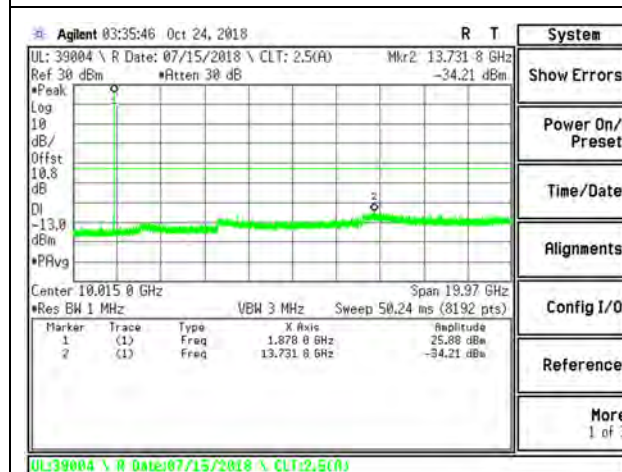
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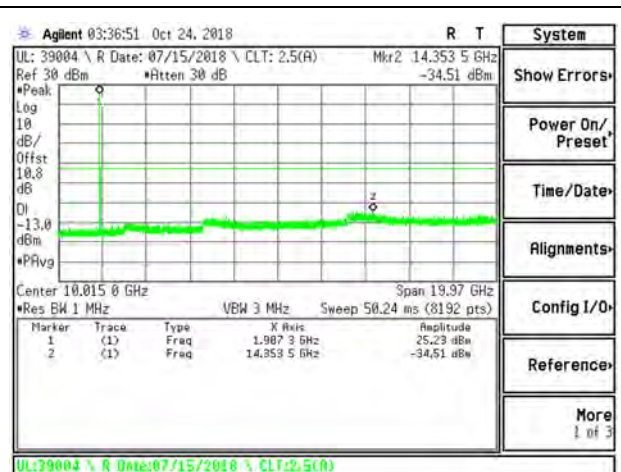
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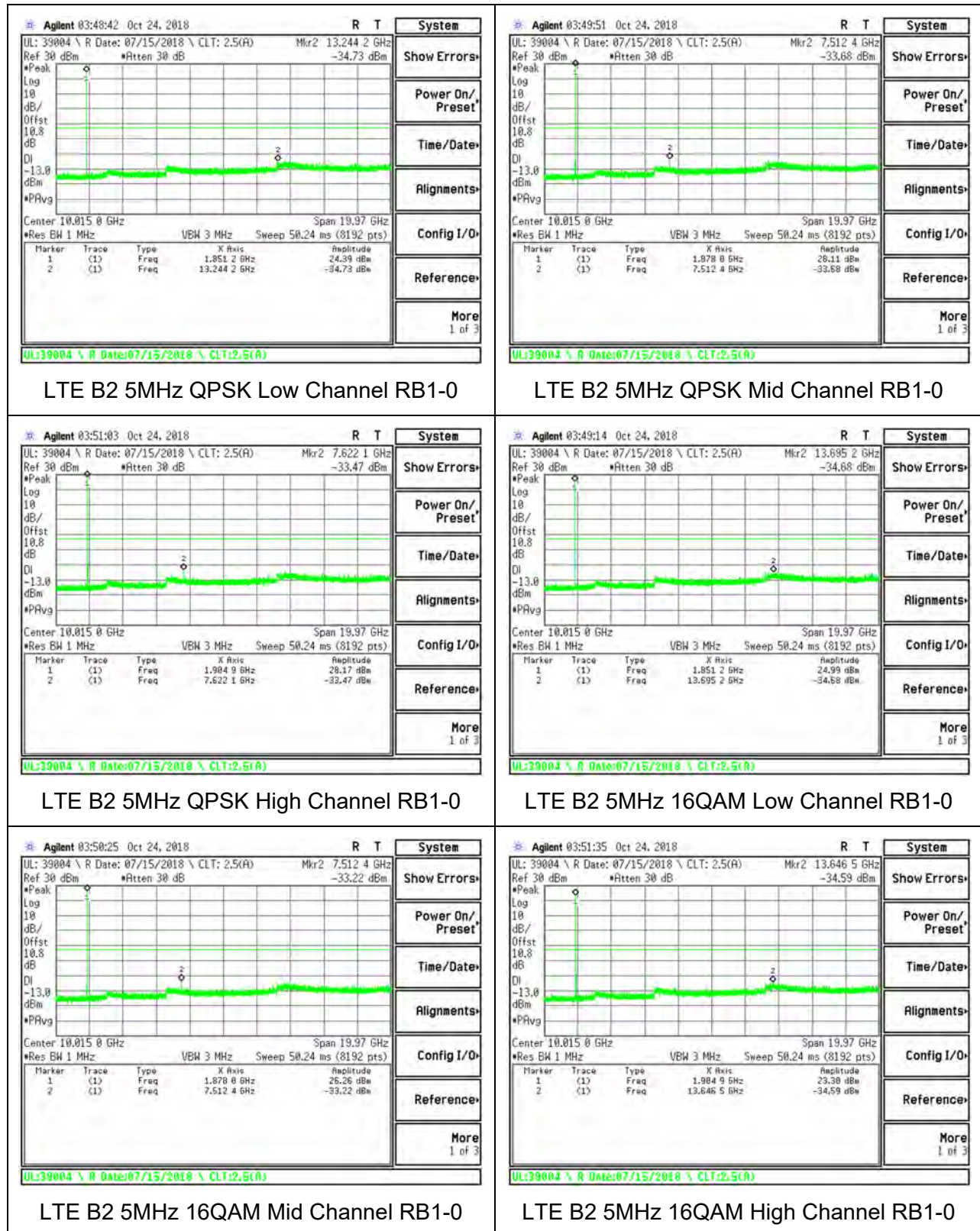
LTE B2 3MHz 16QAM Low Channel RB1-0

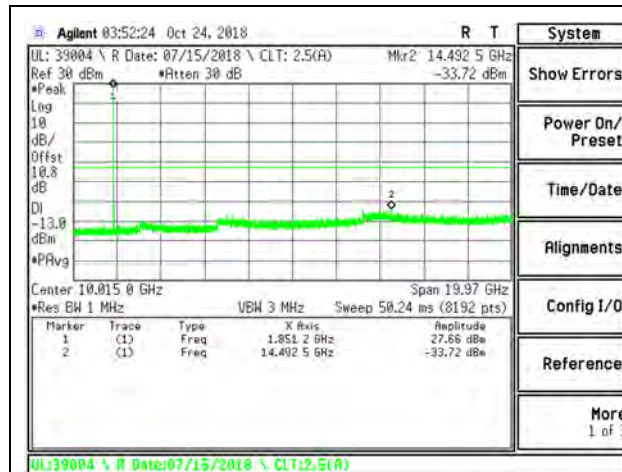


LTE B2 3MHz 16QAM Mid Channel RB1-0

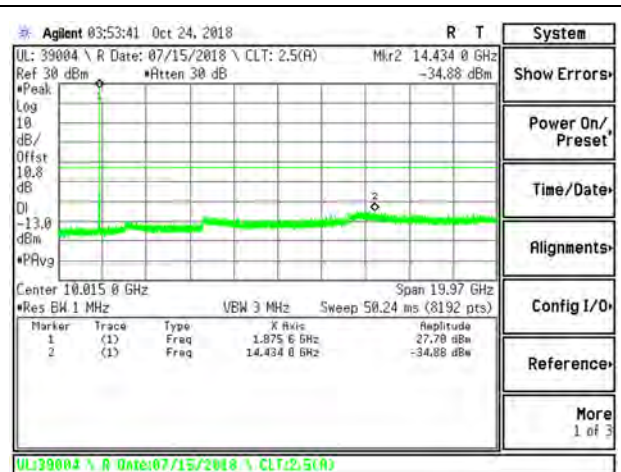


LTE B2 3MHz 16QAM High Channel RB1-0

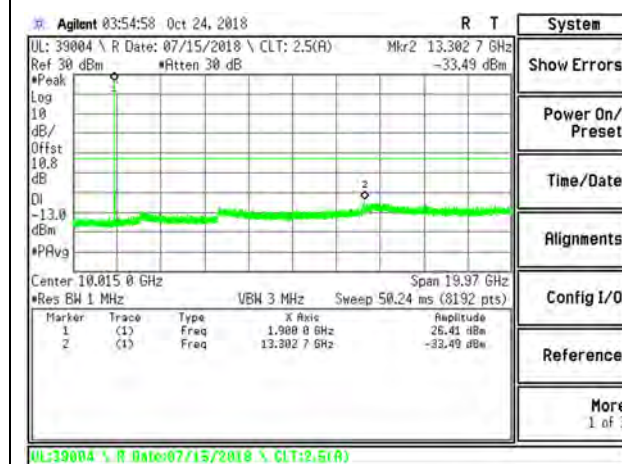




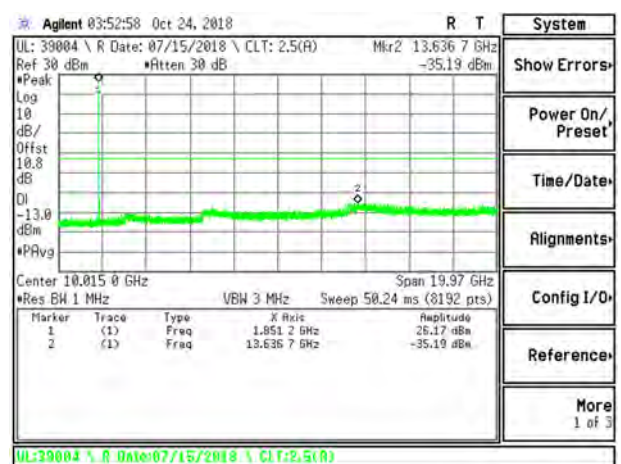
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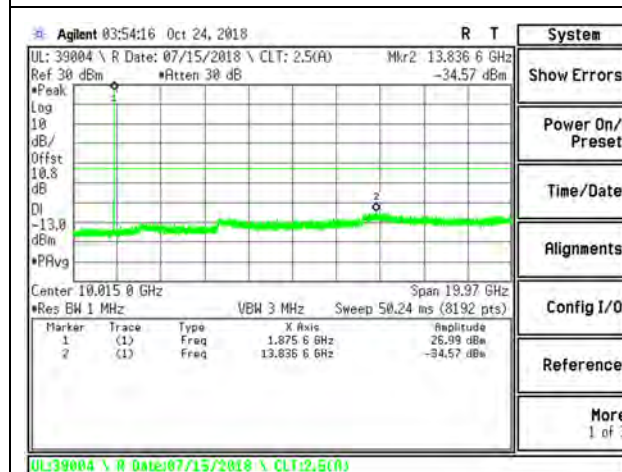
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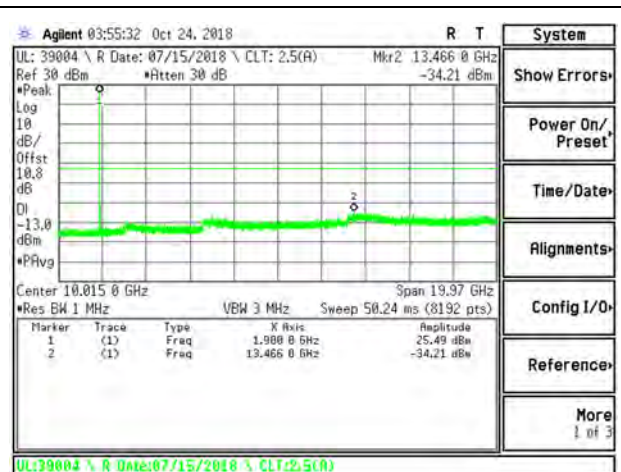
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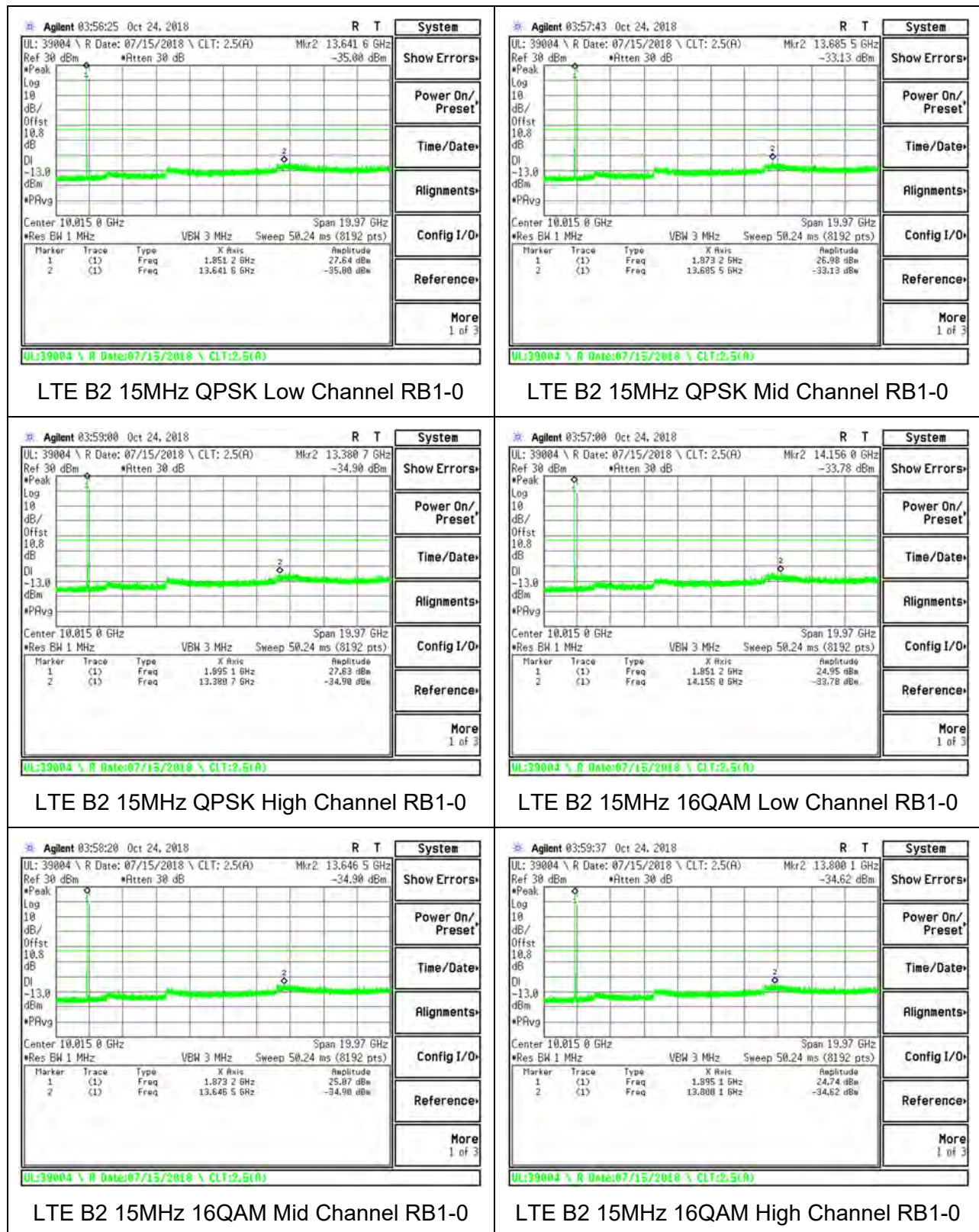
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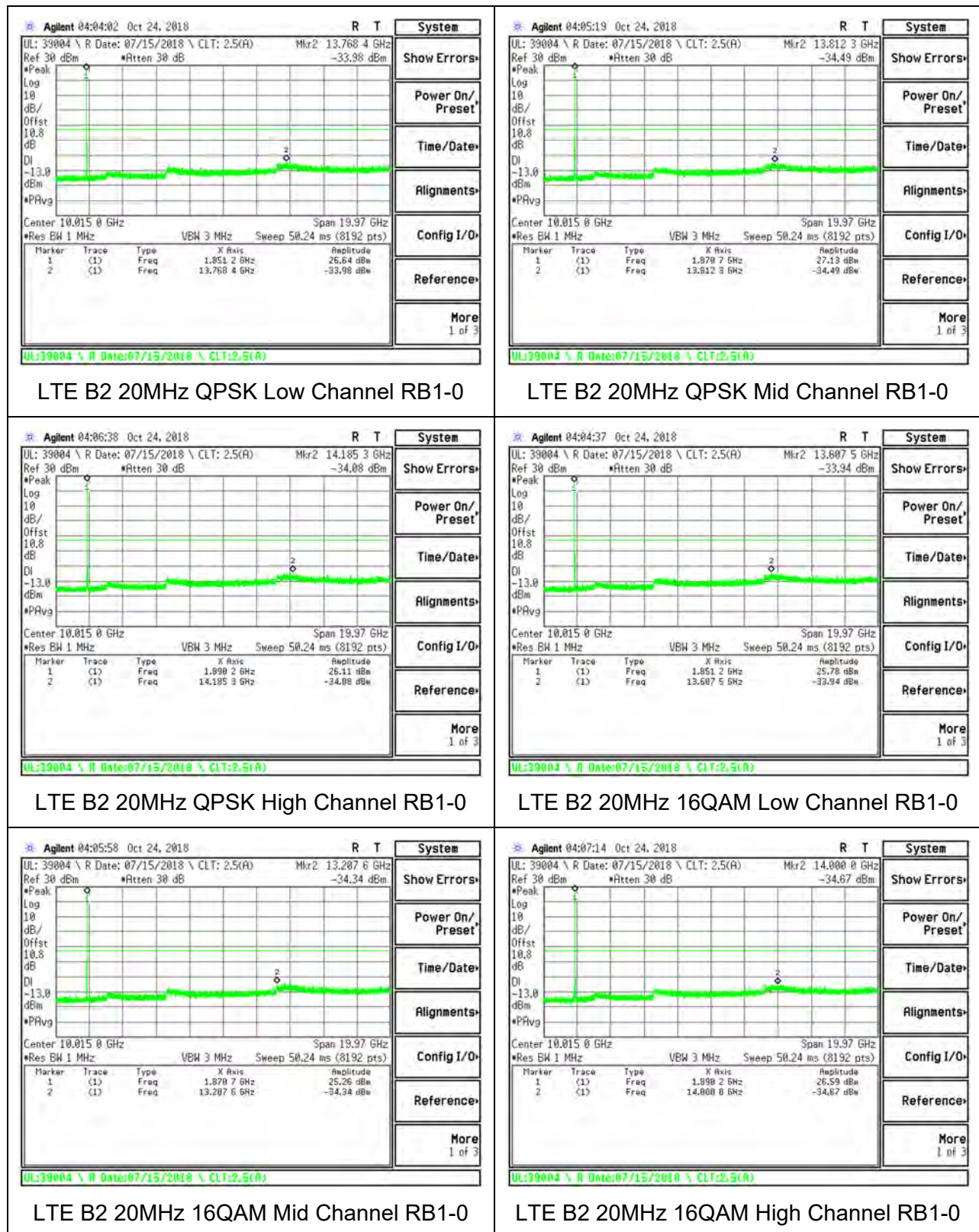


LTE B2 10MHz 16QAM Mid Channel RB1-0

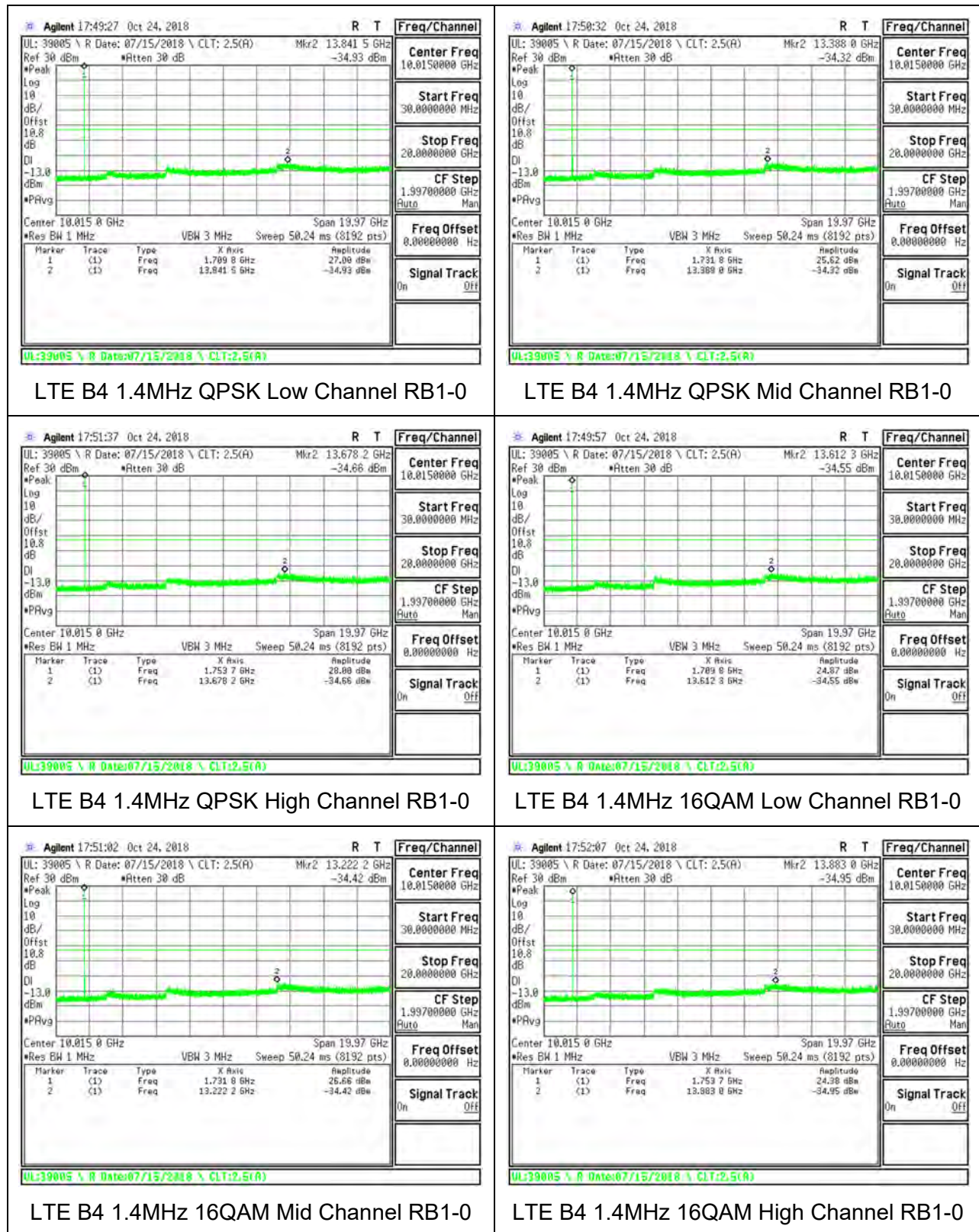


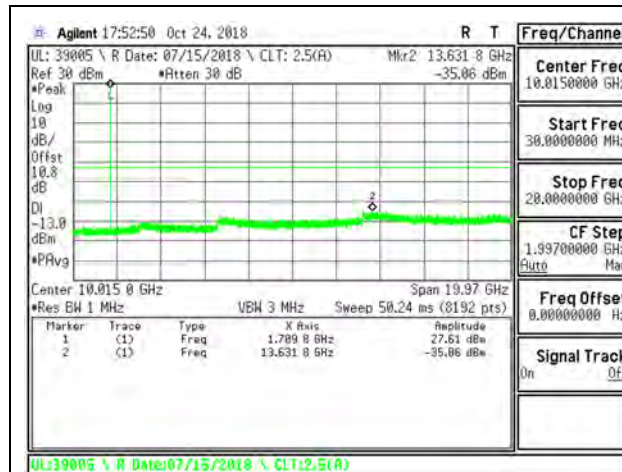
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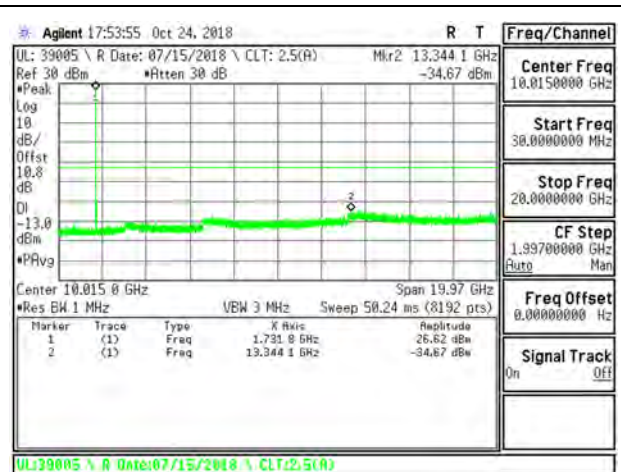


9.3.7. LTE BAND 4

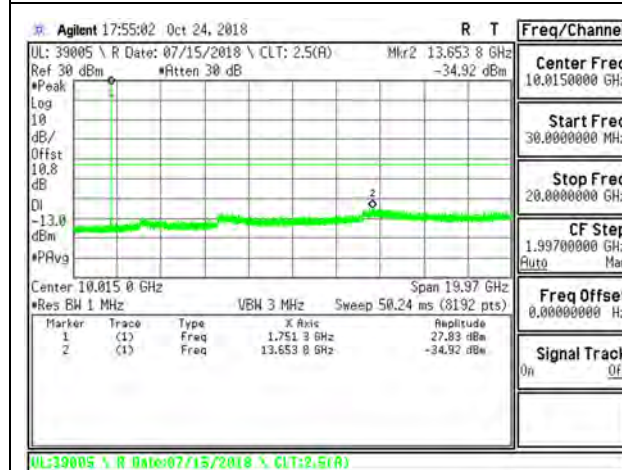




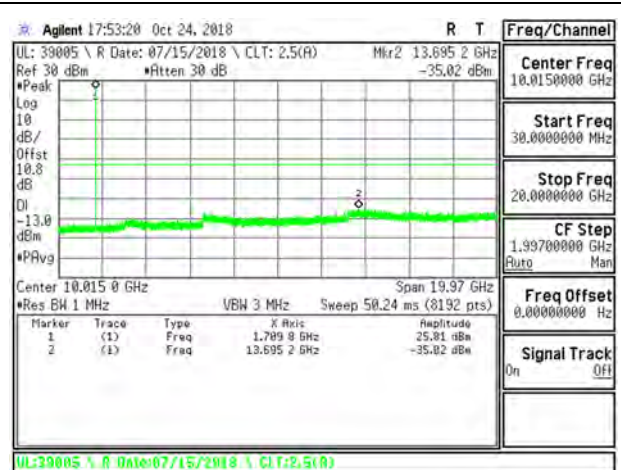
LTE B4 3MHz QPSK Low Channel RB1-0



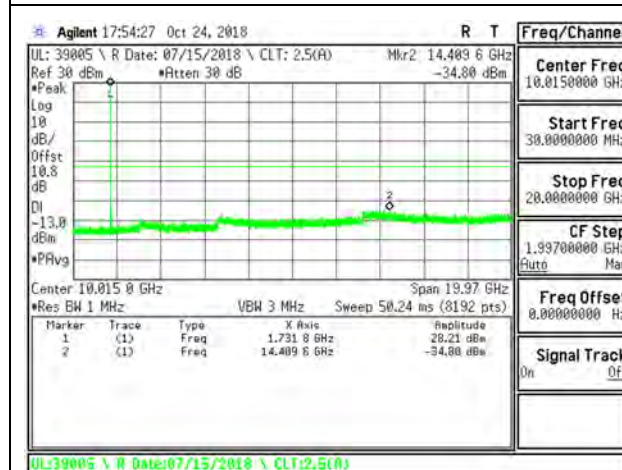
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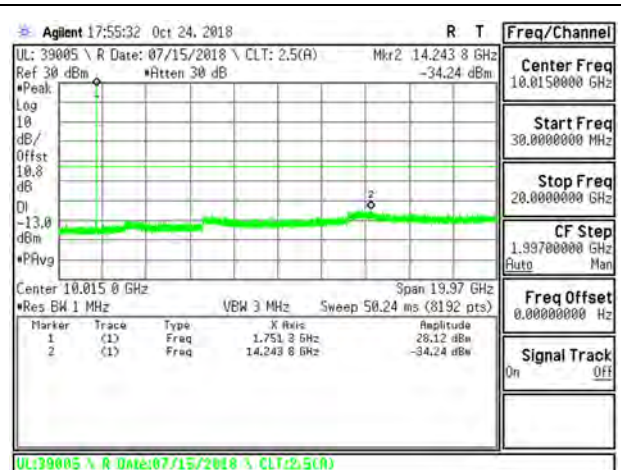
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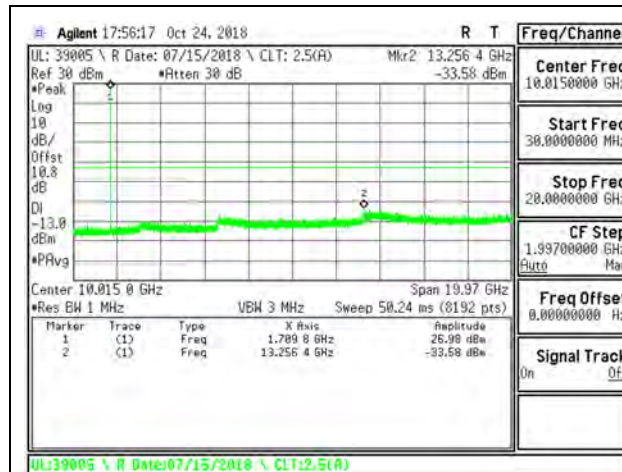
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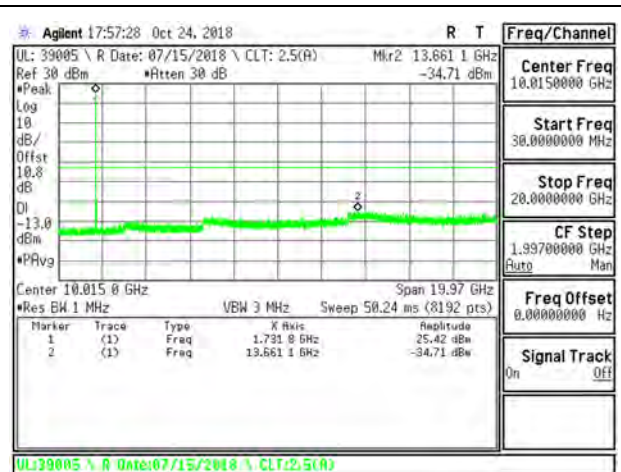
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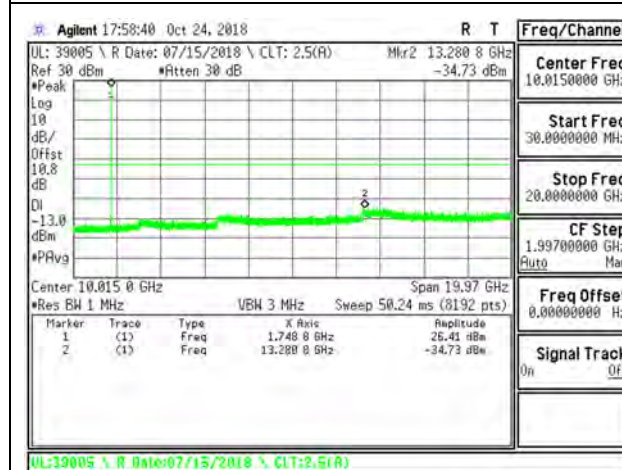
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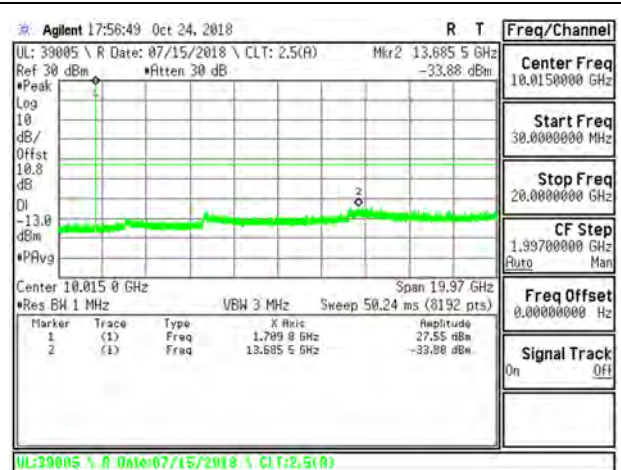
LTE B4 5MHz QPSK Low Channel RB1-0



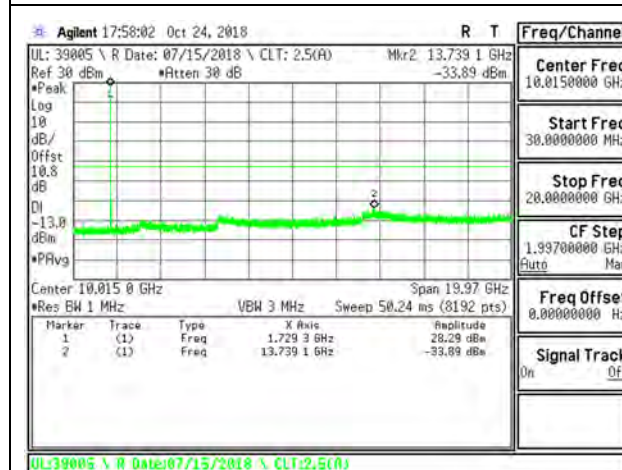
LTE B4 5MHz QPSK Mid Channel RB1-0



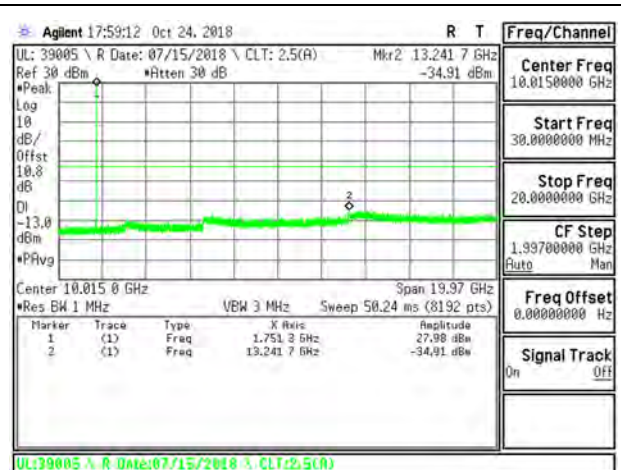
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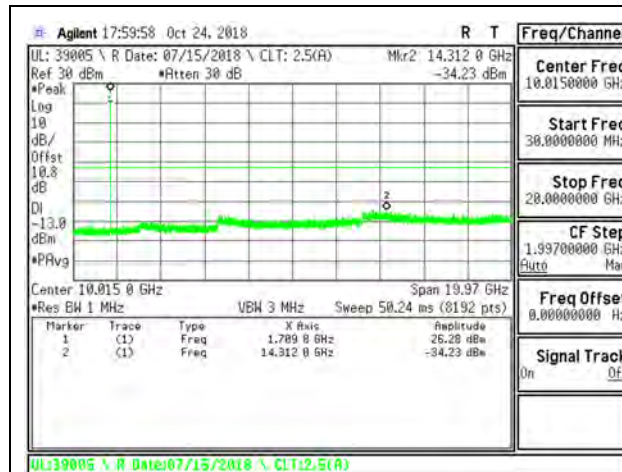
LTE B4 5MHz 16QAM Low Channel RB1-0



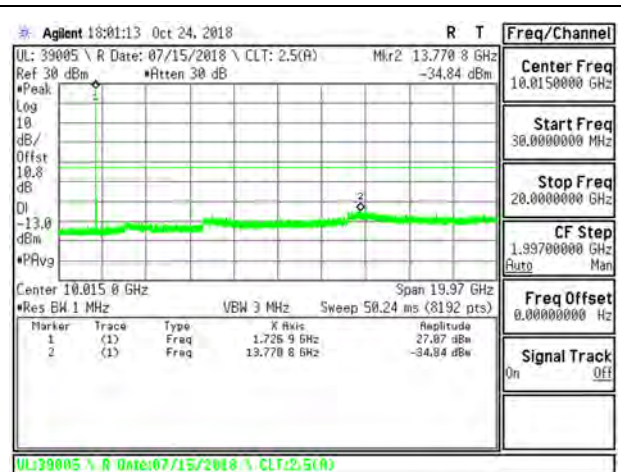
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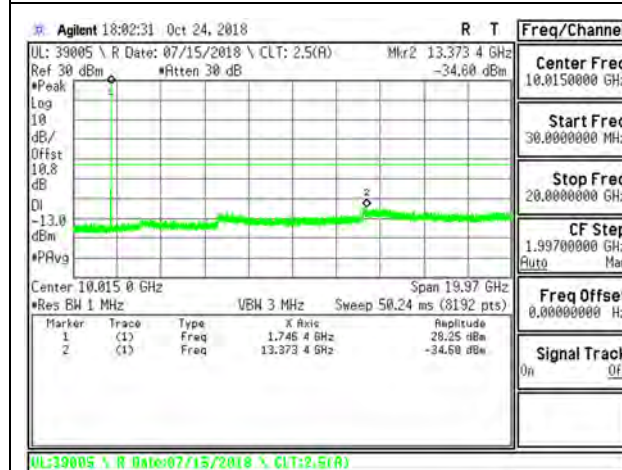
LTE B4 5MHz 16QAM High Channel RB1-0



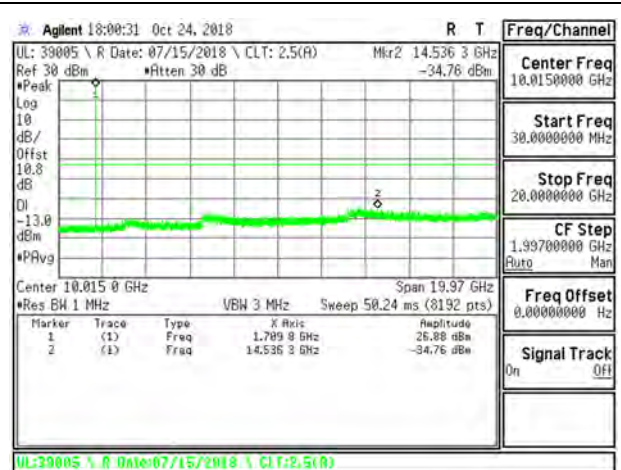
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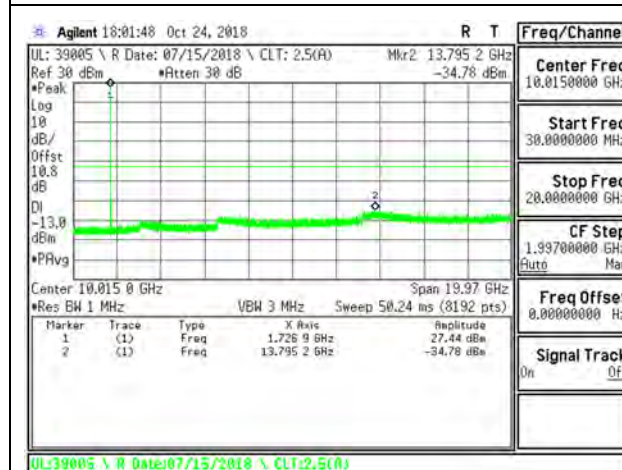
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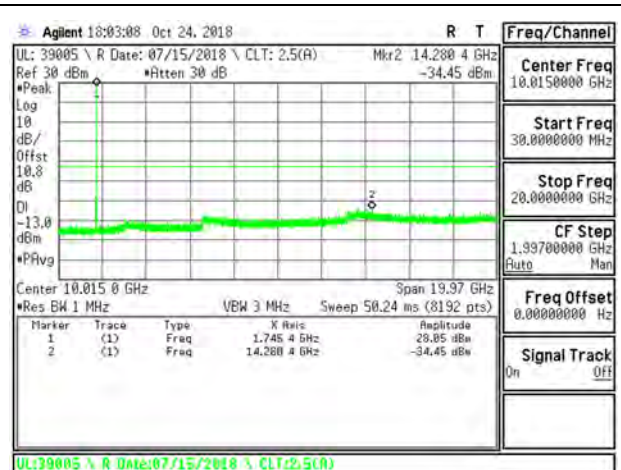
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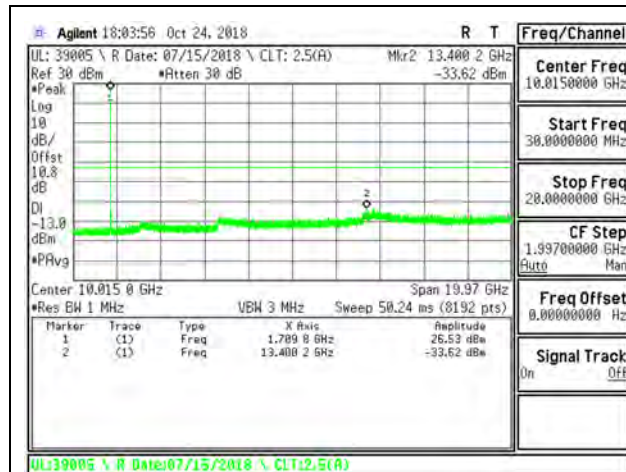
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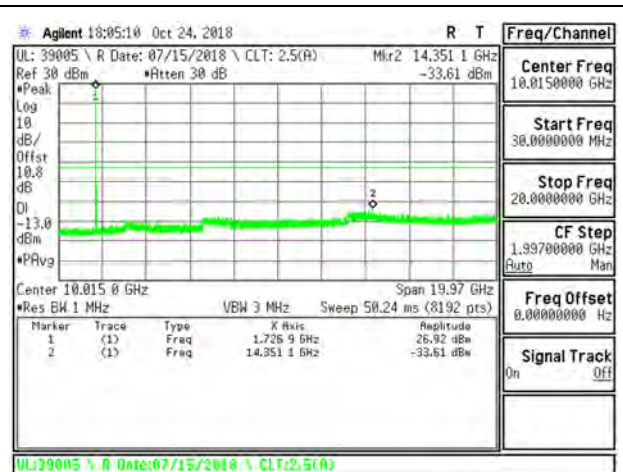
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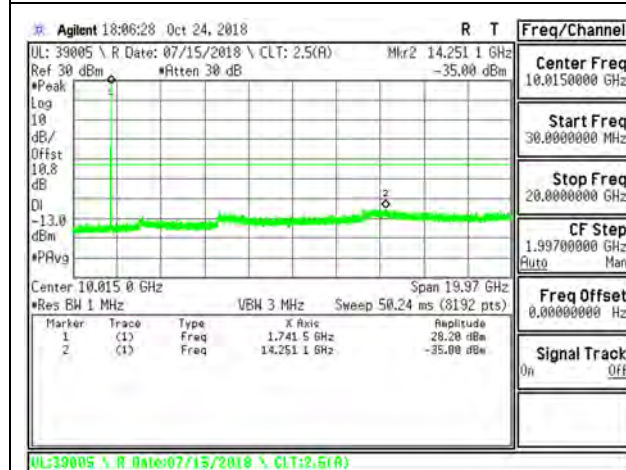
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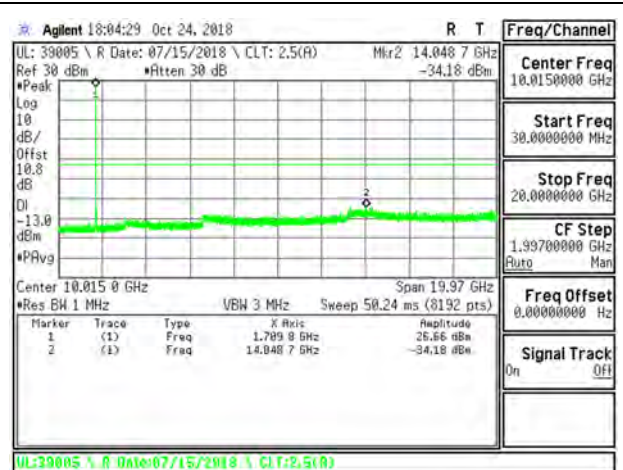
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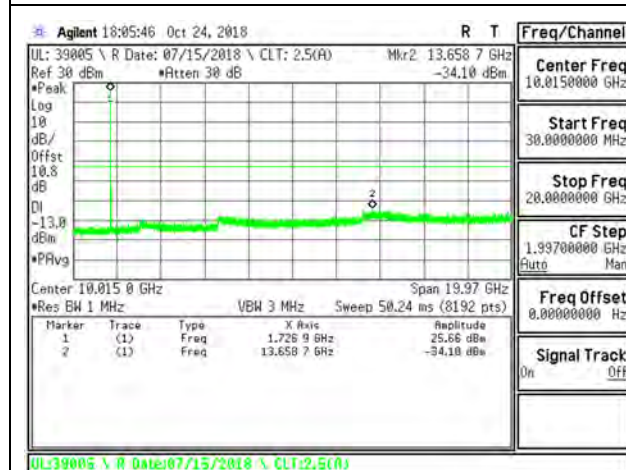
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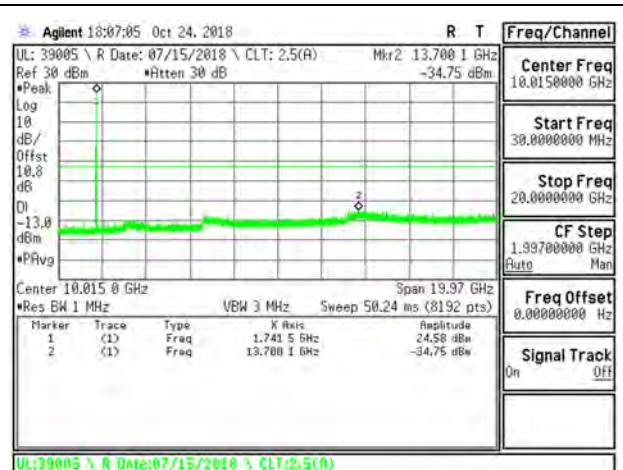
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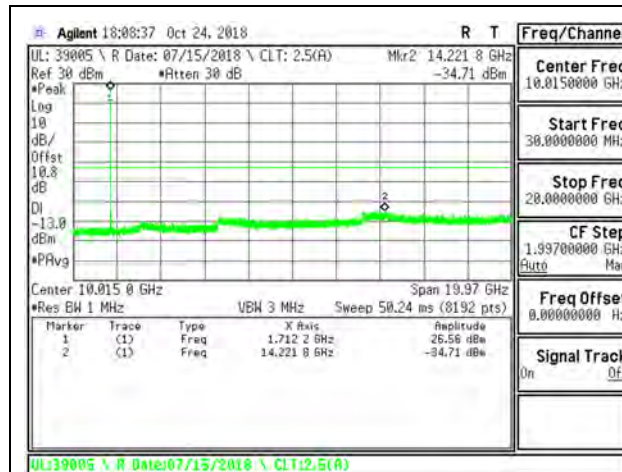
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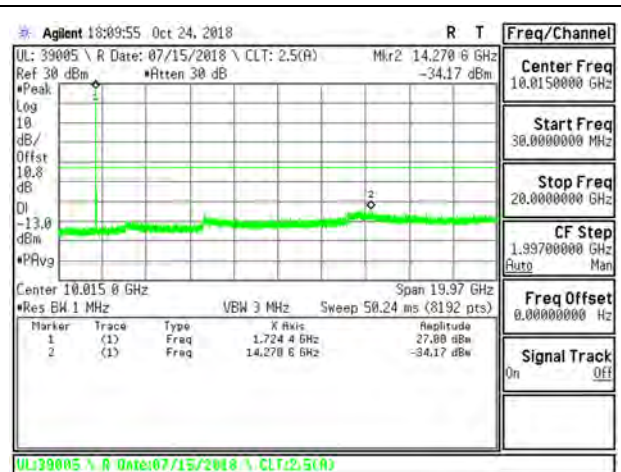
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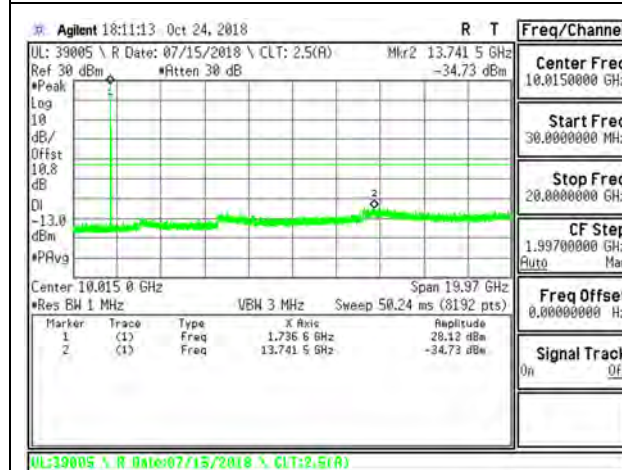
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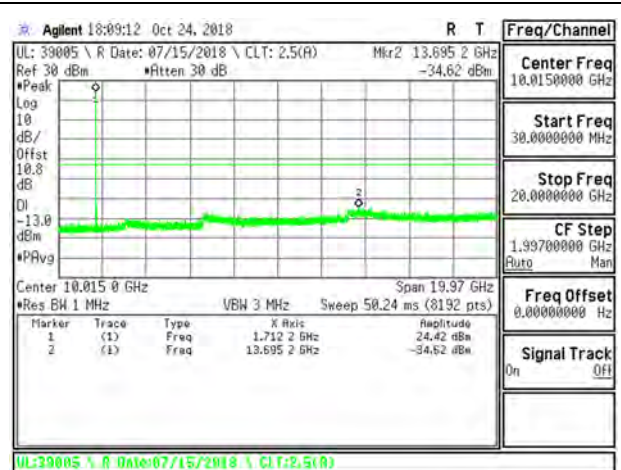
LTE B4 20MHz QPSK Low Channel RB1-0



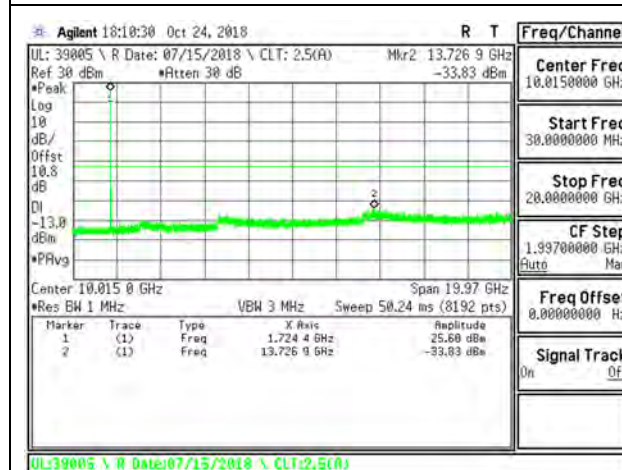
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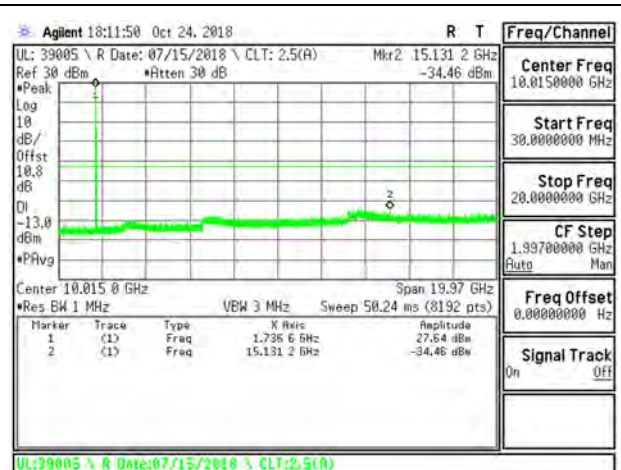
LTE B4 20MHz QPSK High Channel RB1-0



LTE B4 20MHz 16QAM Low Channel RB1-0

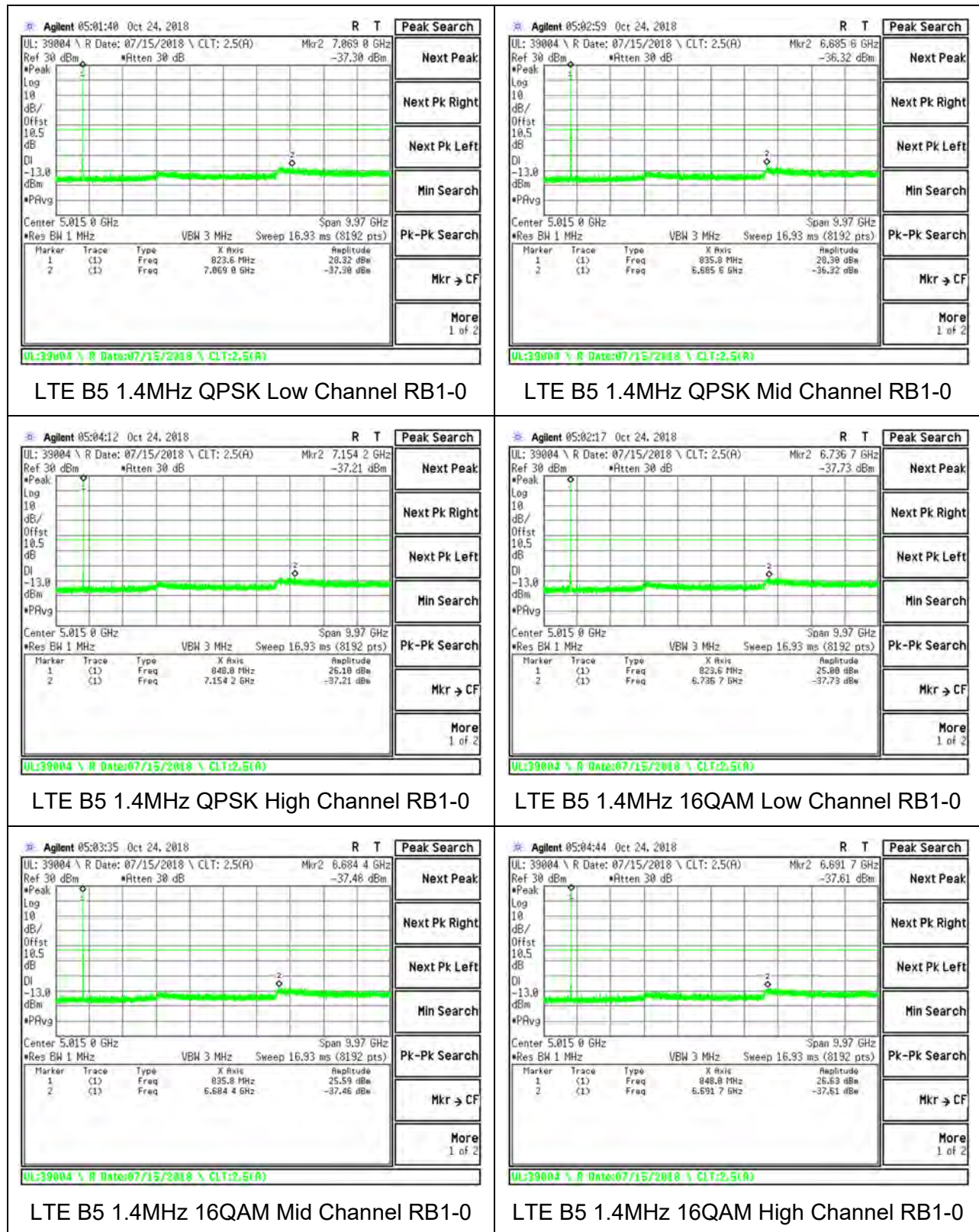


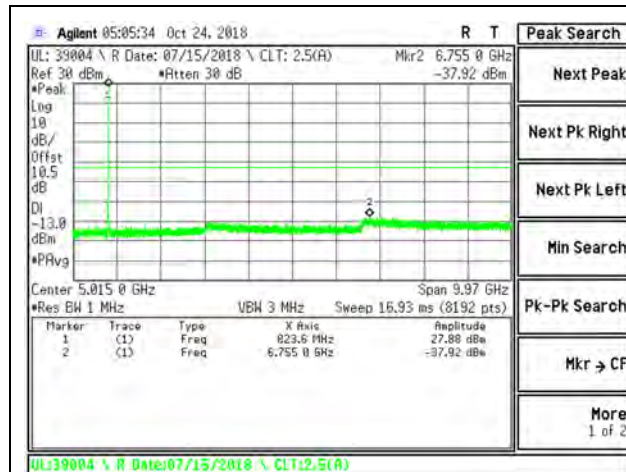
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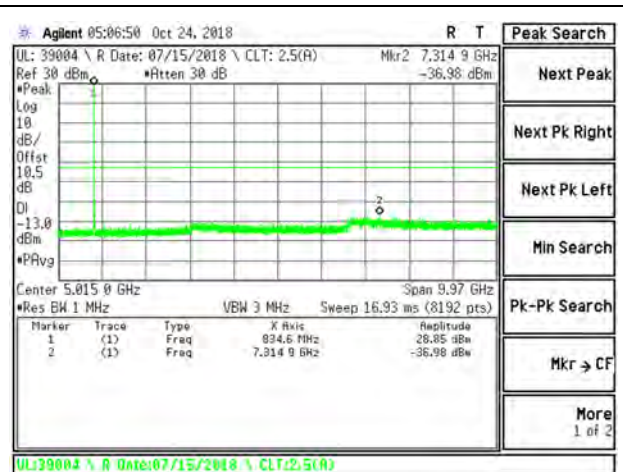
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9.3.8. LTE BAND 5

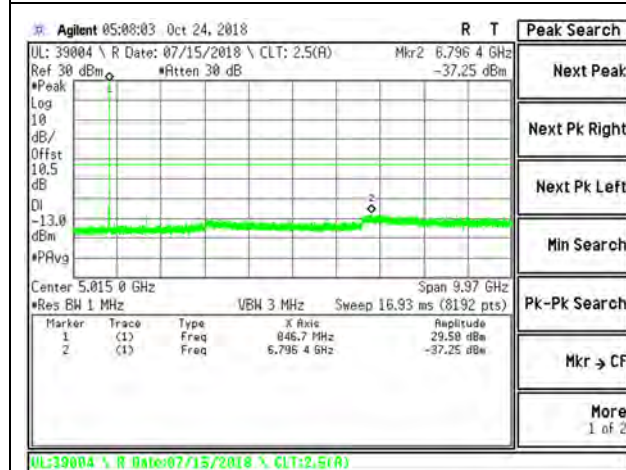




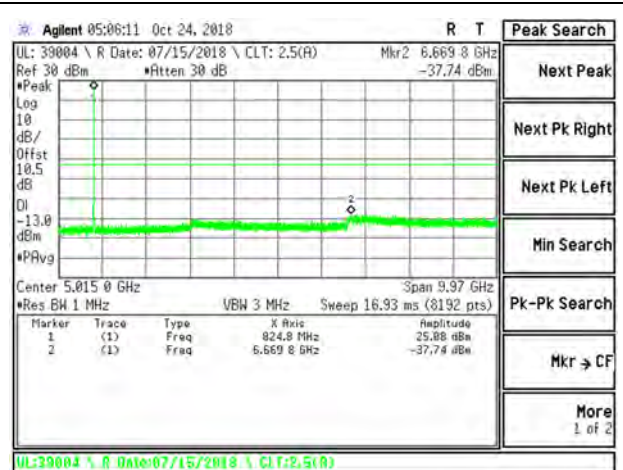
LTE B5 3MHz QPSK Low Channel RB1-0



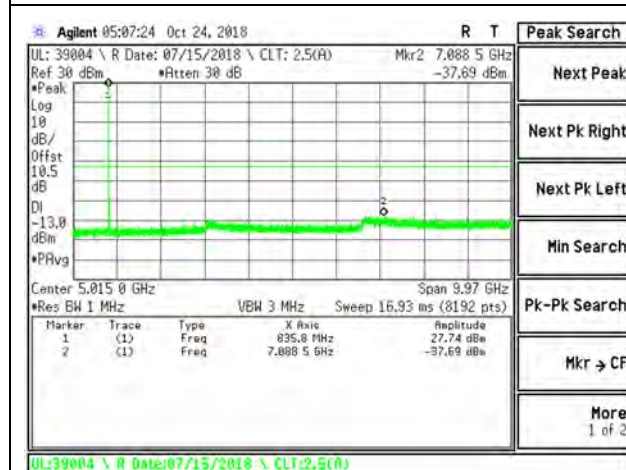
LTE B5 3MHz QPSK Mid Channel RB1-0



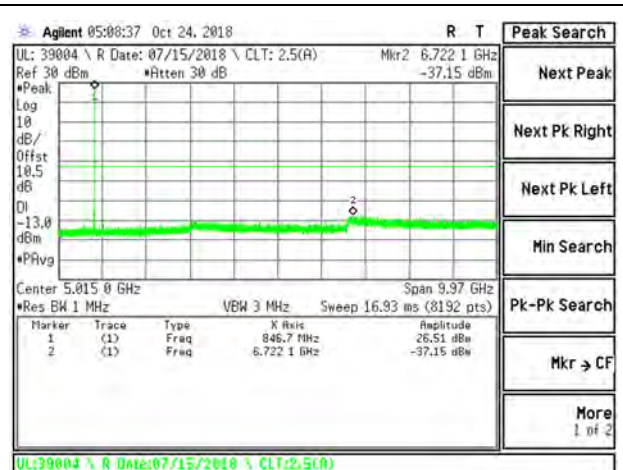
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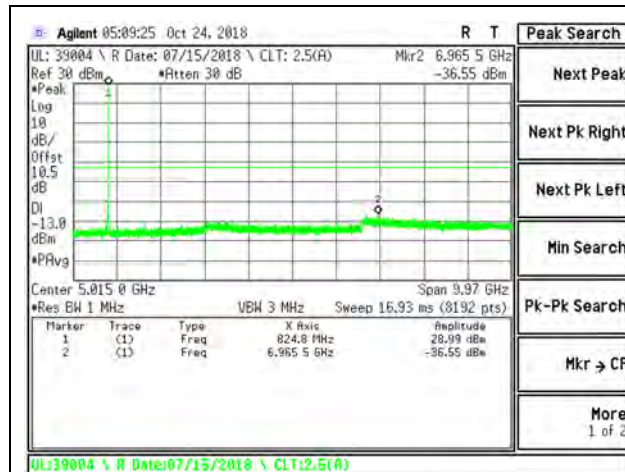
LTE B5 3MHz 16QAM Low Channel RB1-0



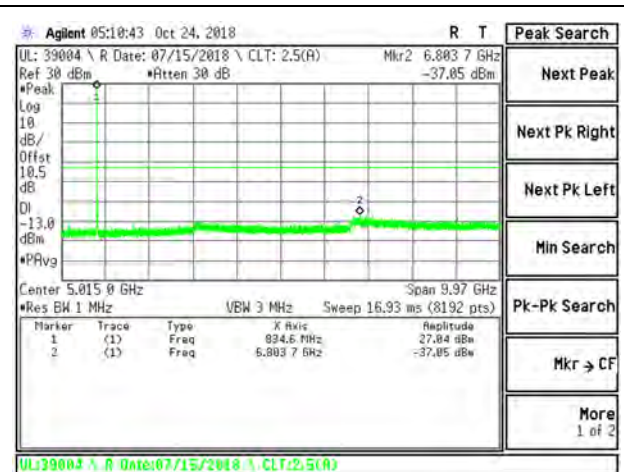
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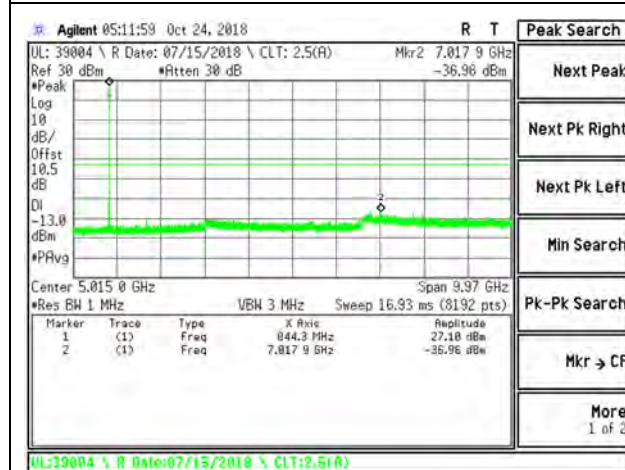
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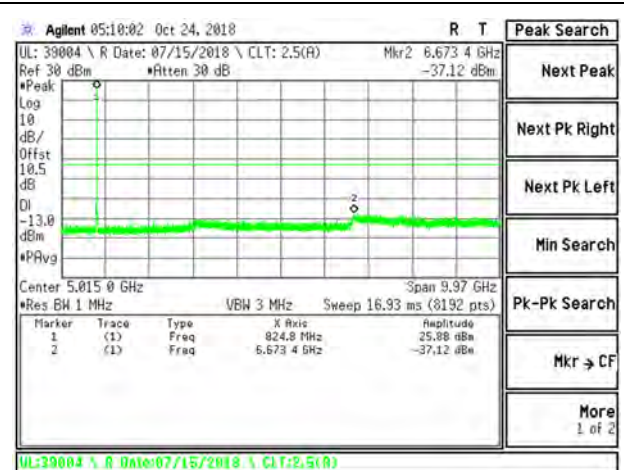
LTE B5 5MHz QPSK Low Channel RB1-0



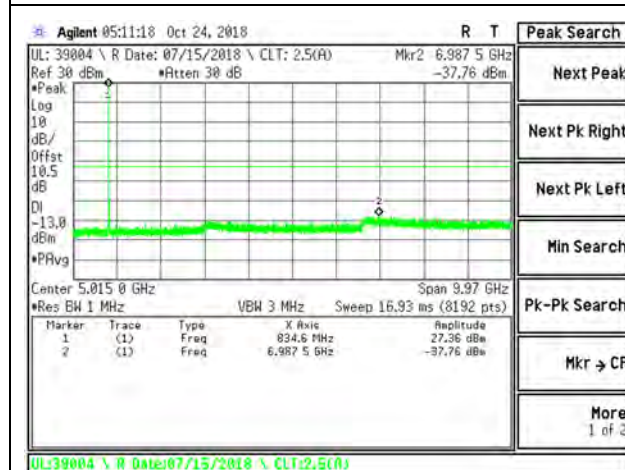
LTE B5 5MHz QPSK Mid Channel RB1-0



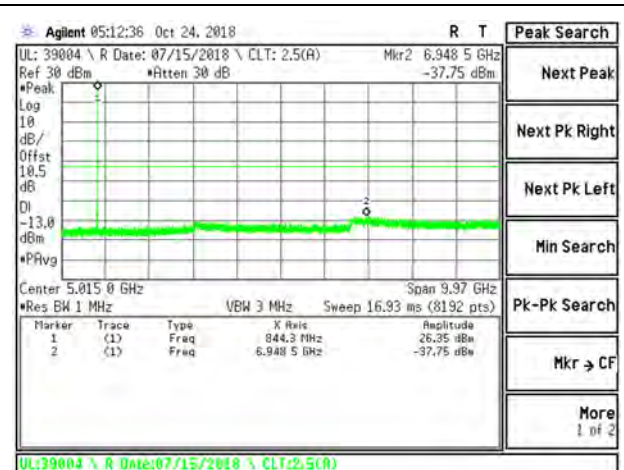
LTE B5 5MHz QPSK High Channel RB1-0



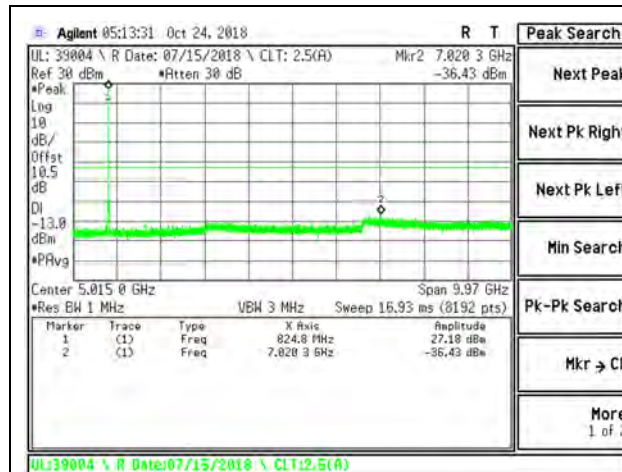
LTE B5 5MHz 16QAM Low Channel RB1-0



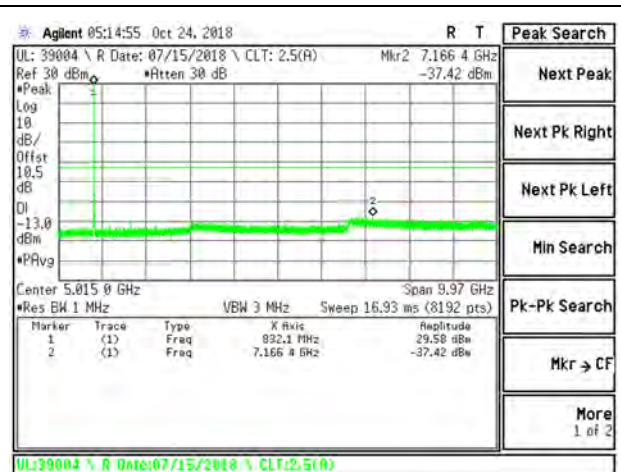
LTE B5 5MHz 16QAM Mid Channel RB1-0



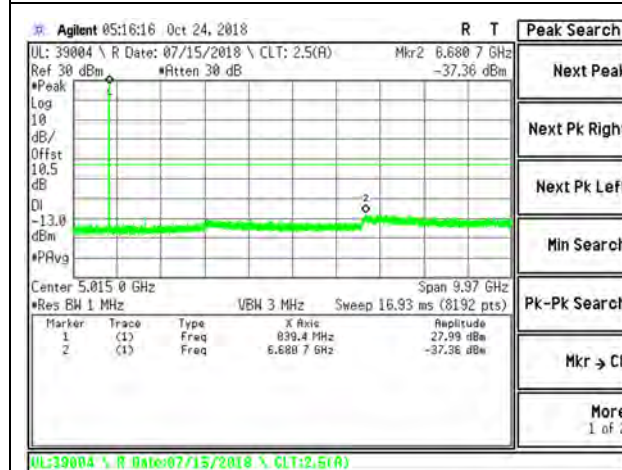
LTE B5 5MHz 16QAM High Channel RB1-0



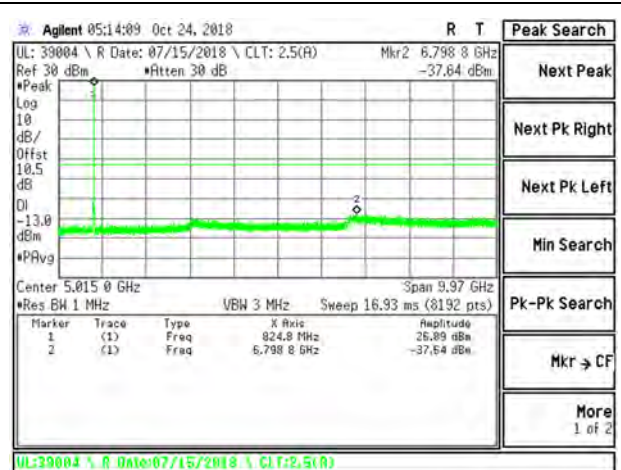
LTE B5 10MHz QPSK Low Channel RB1-0



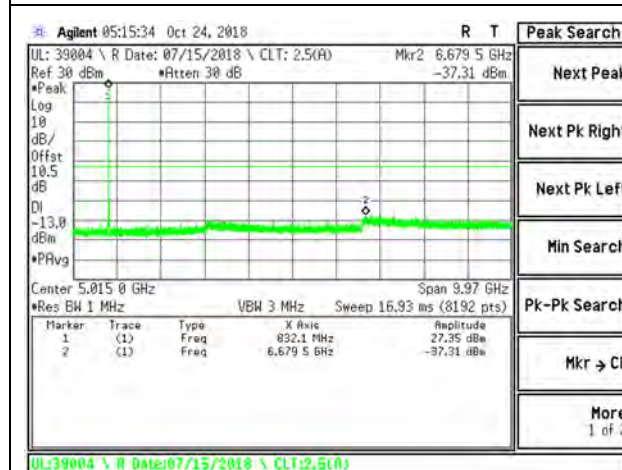
LTE B5 10MHz QPSK Mid Channel RB1-0



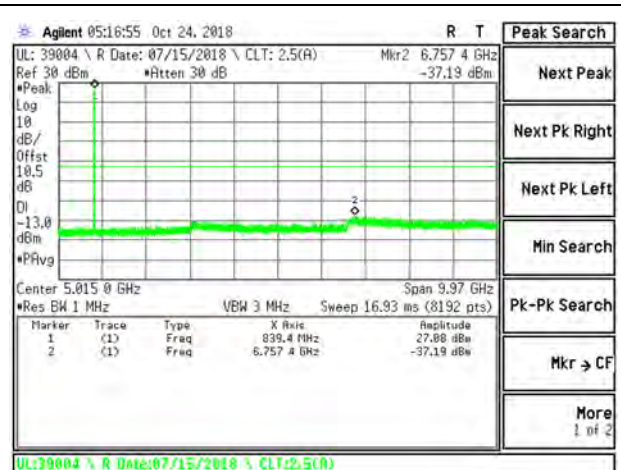
LTE B5 10MHz QPSK High Channel RB1-0



LTE B5 10MHz 16QAM Low Channel RB1-0

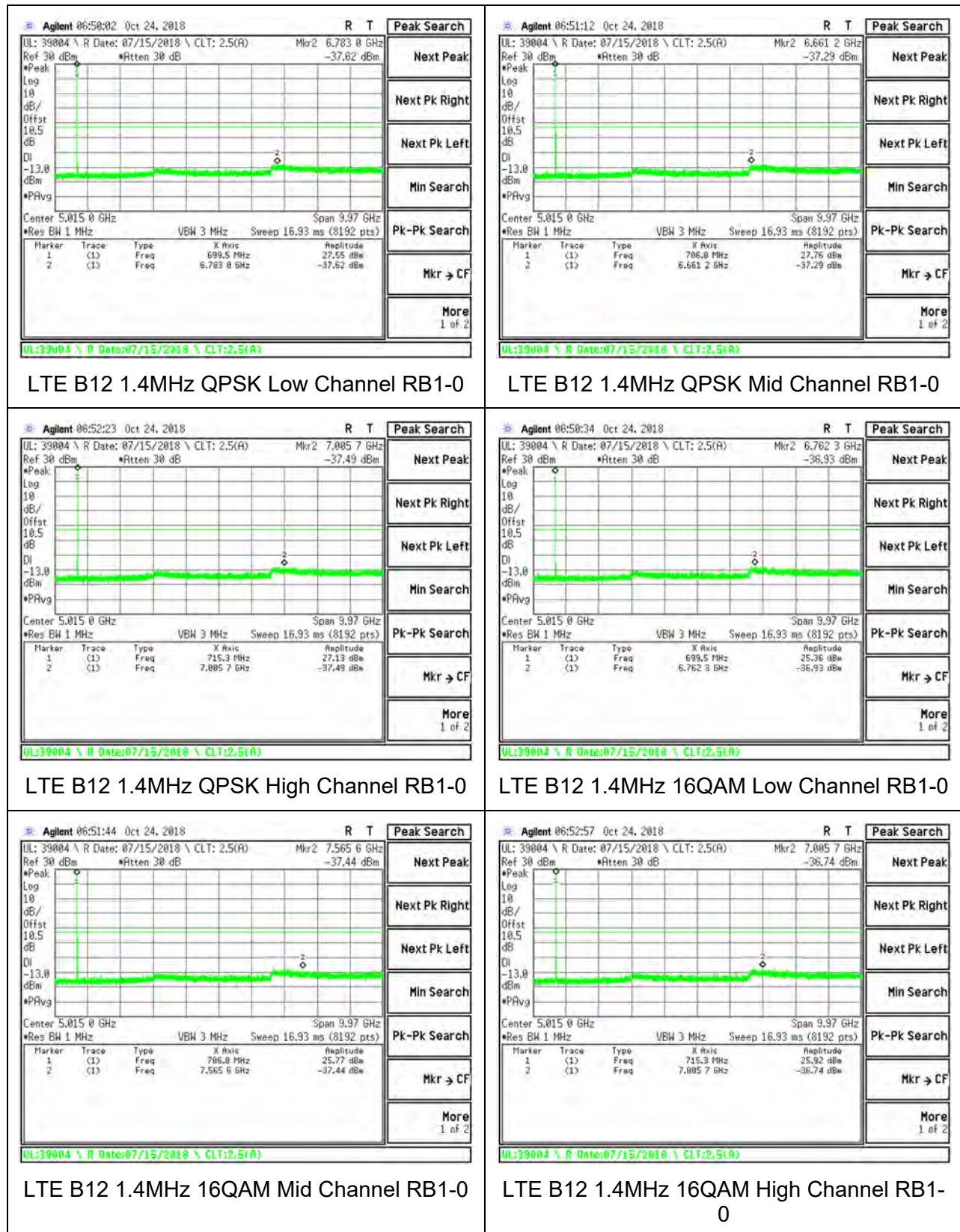


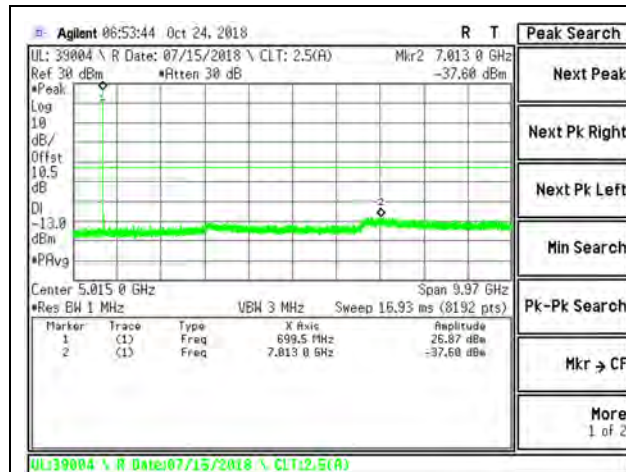
LTE B5 10MHz 16QAM Mid Channel RB1-0



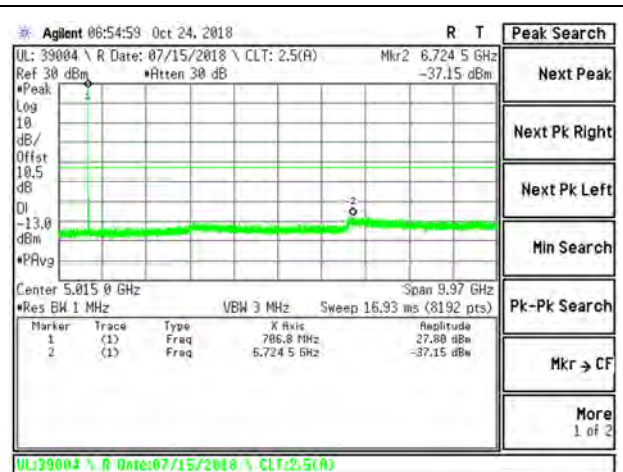
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9.3.9. LTE BAND 12

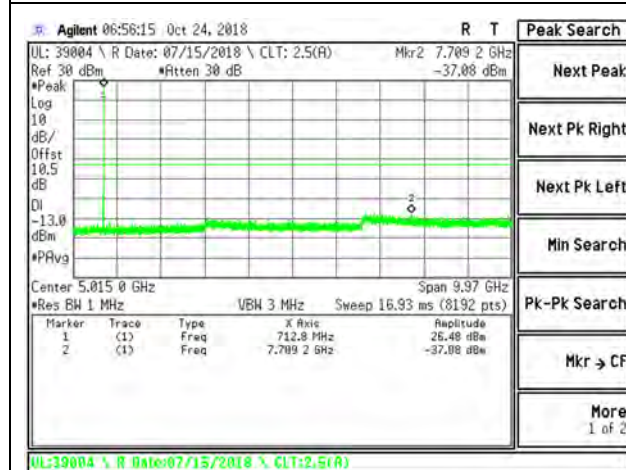




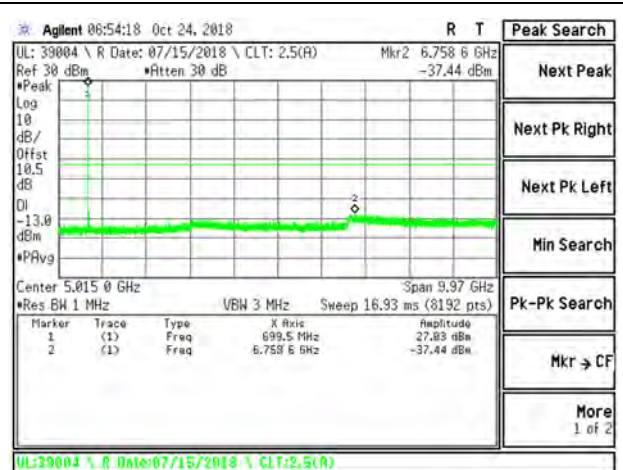
LTE B12 3MHz QPSK Low Channel RB1-0



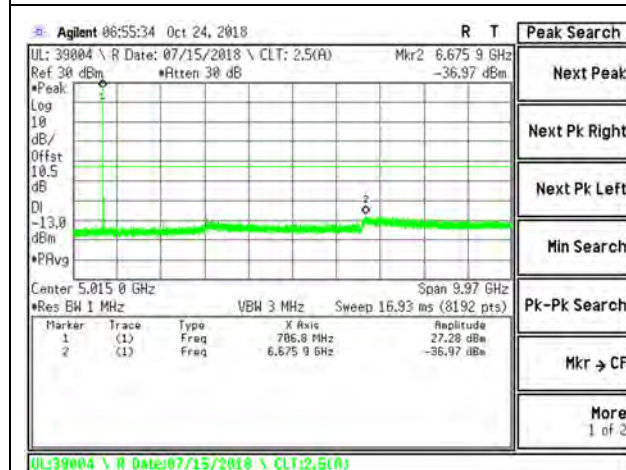
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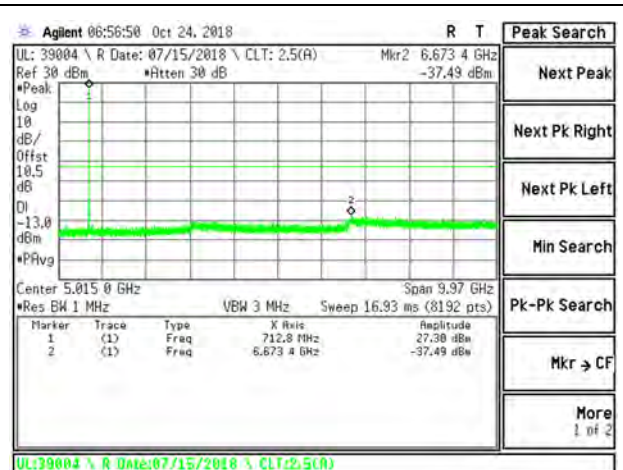
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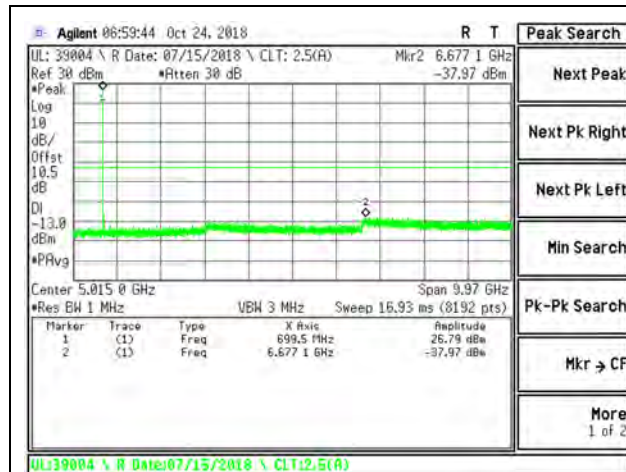
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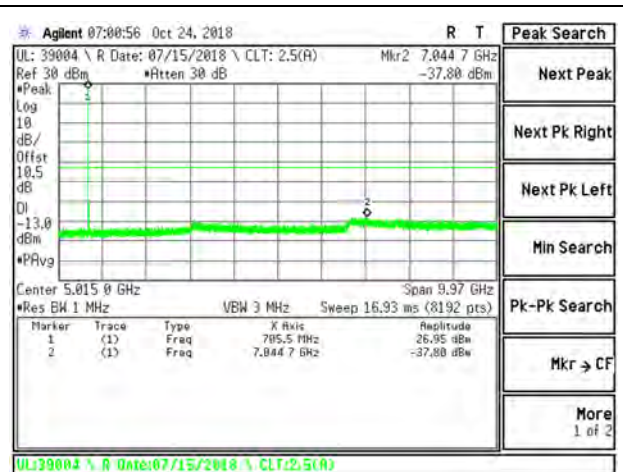
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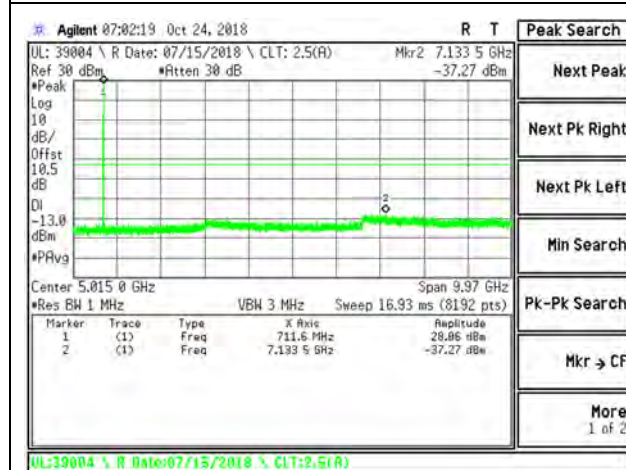
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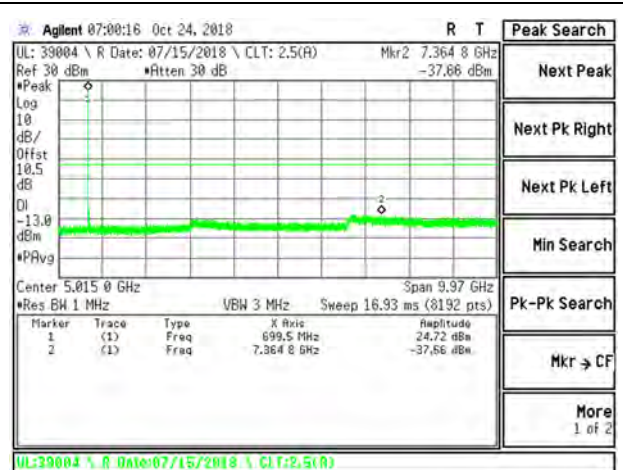
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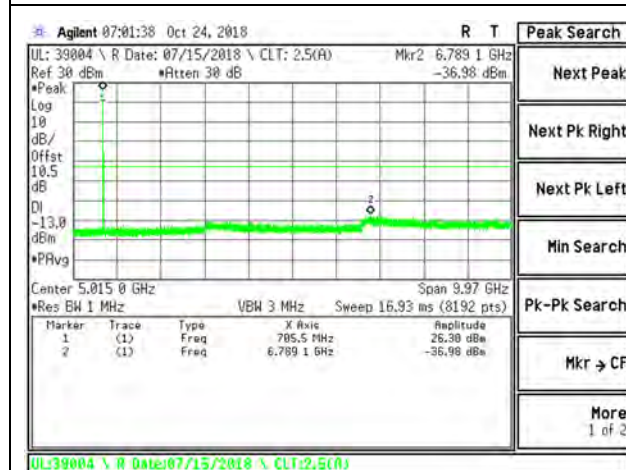
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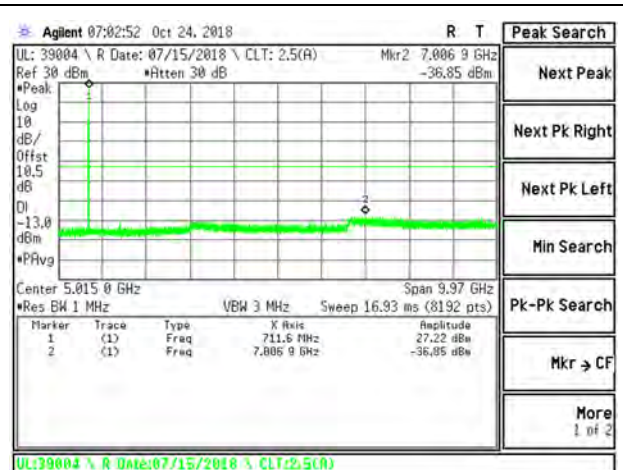
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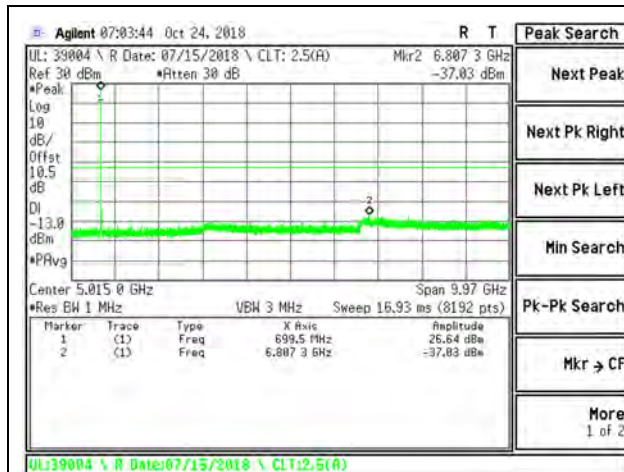
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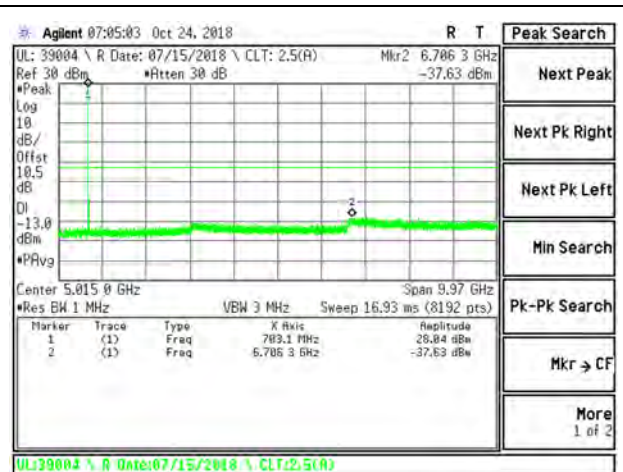
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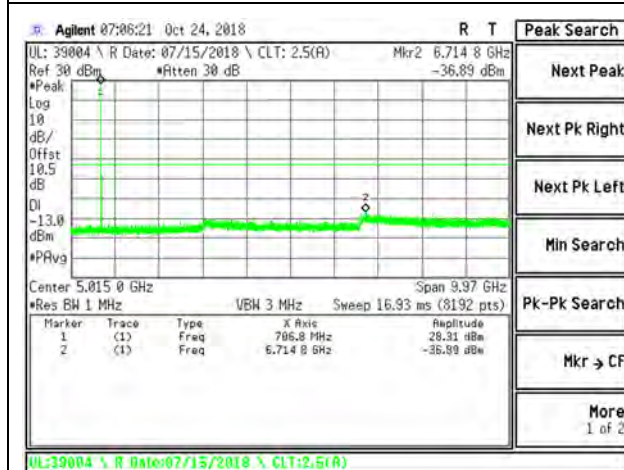
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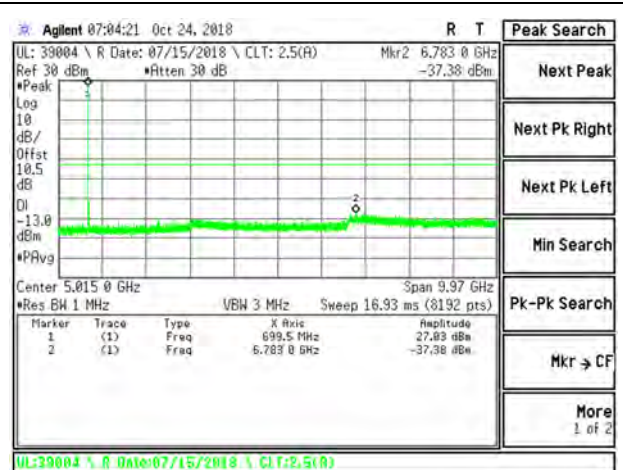
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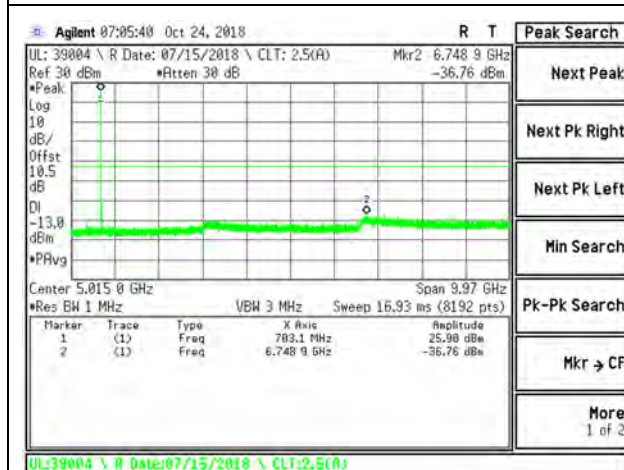
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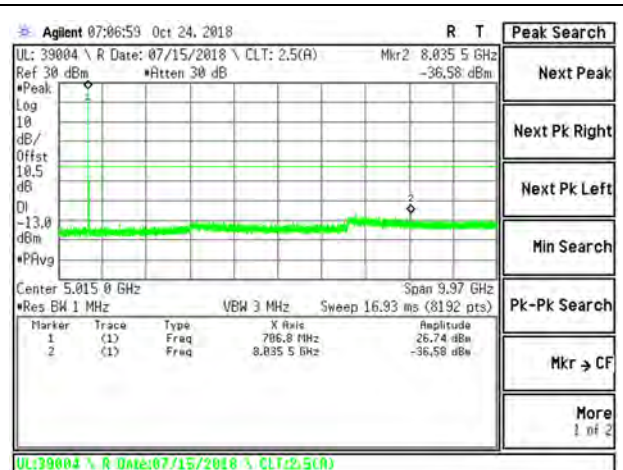
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LTE B12 10MHz 16QAM Low Channel RB1-0

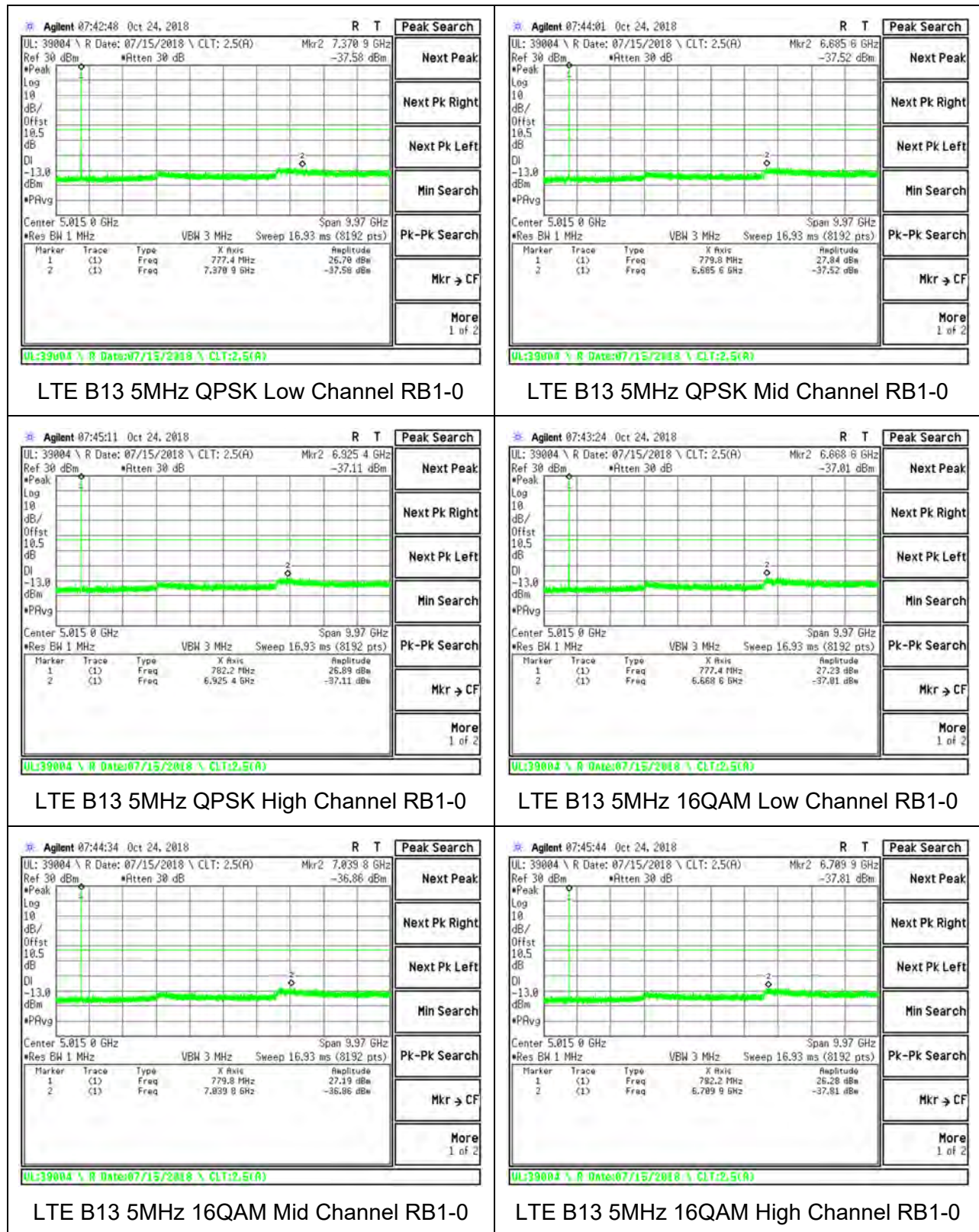


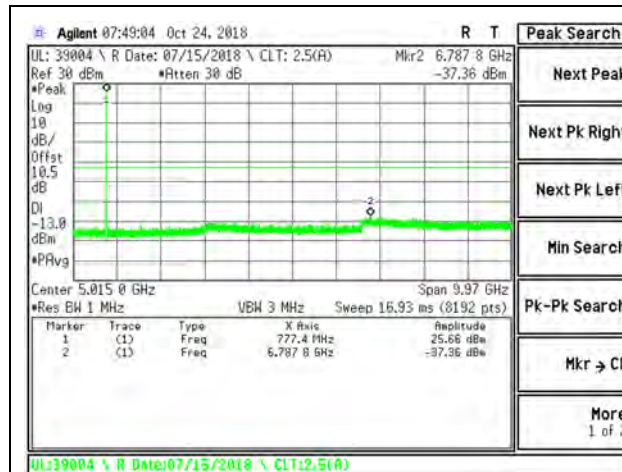
LTE B12 10MHz 16QAM Mid Channel RB1-0



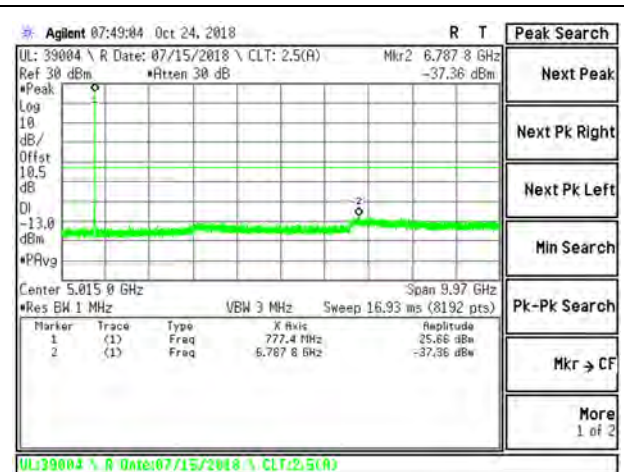
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9.3.10. LTE BAND 13

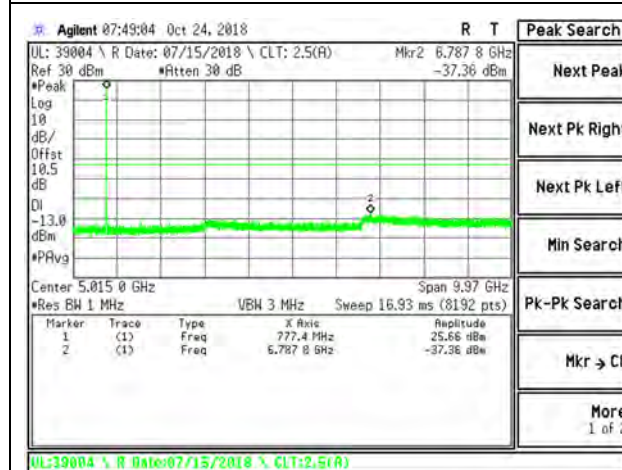




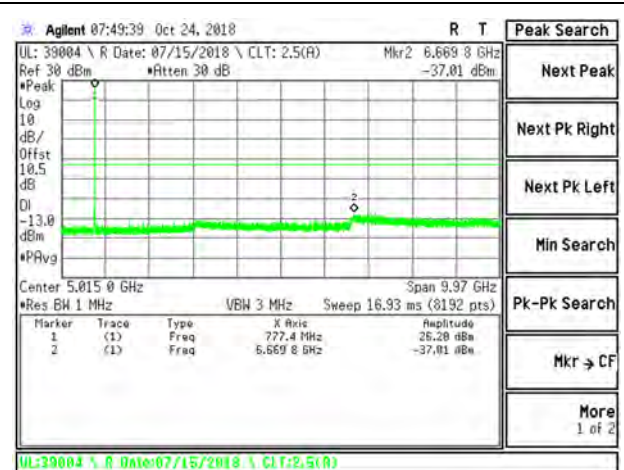
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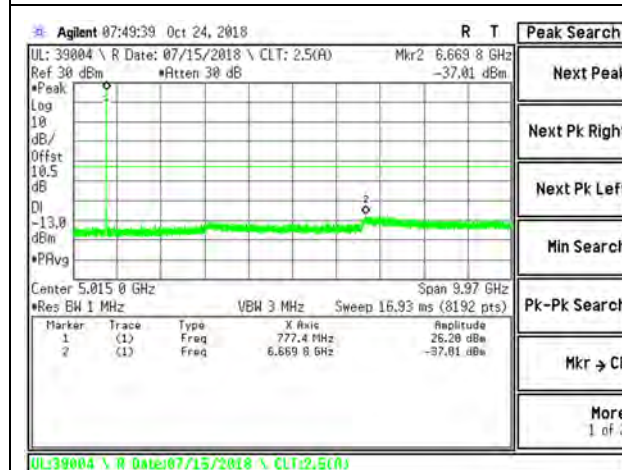
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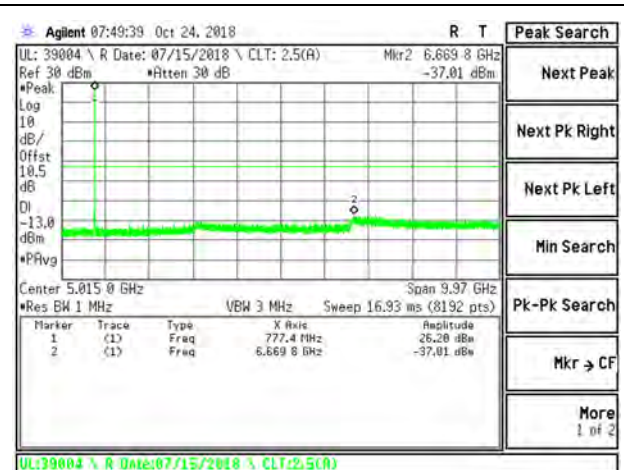
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LTE B13 10MHz 16QAM Low Channel RB1-0

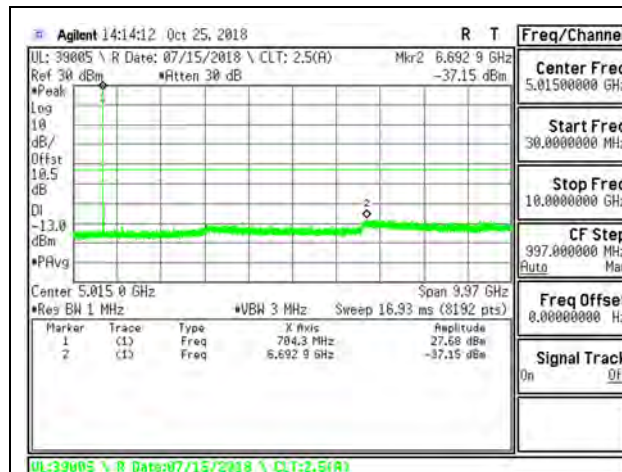


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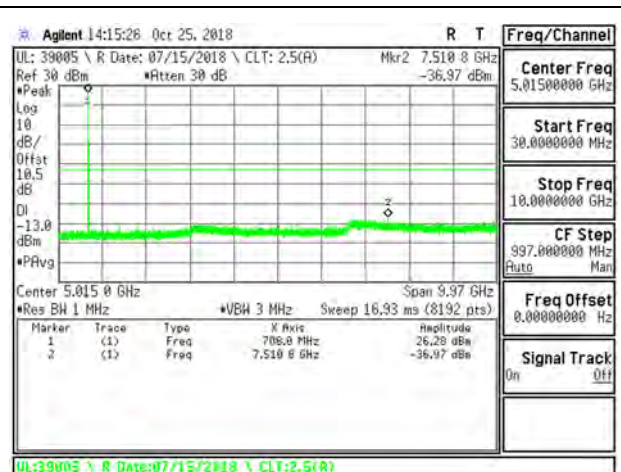


LTE B13 10MHz 16QAM High Channel RB1-0

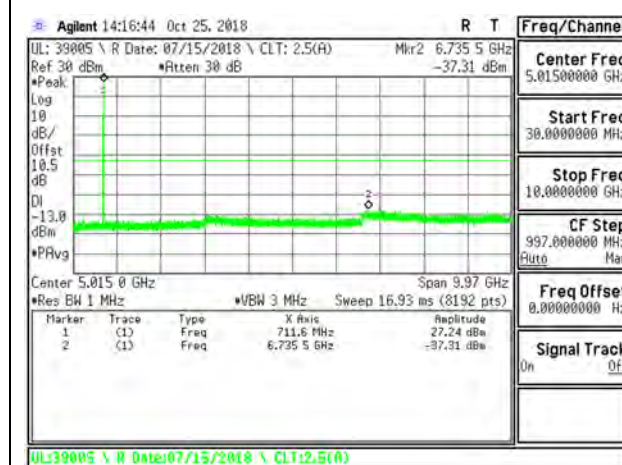
9.3.11. LTE BAND 17



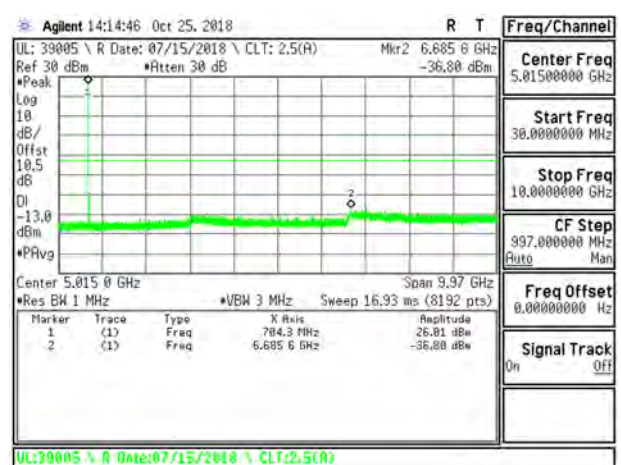
LTE B17 5MHz QPSK Low Channel RB1-0



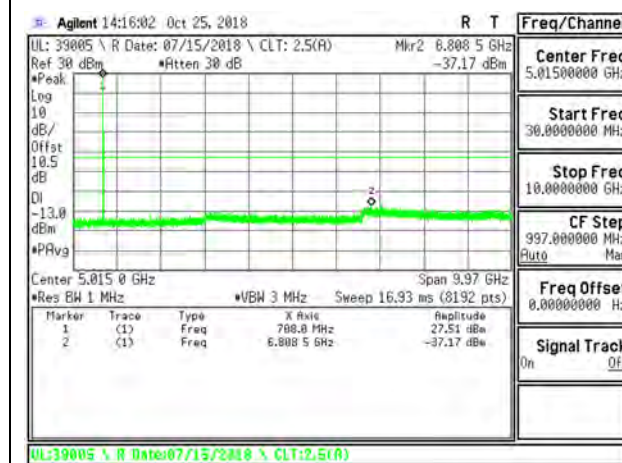
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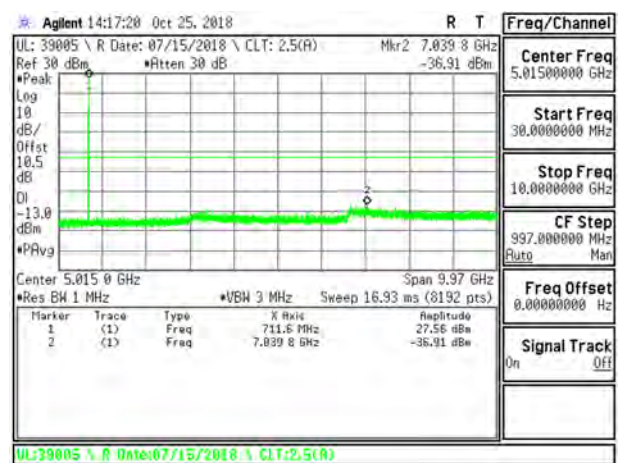
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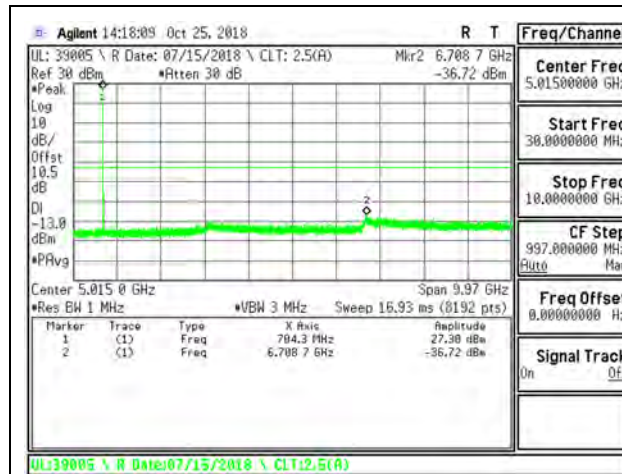
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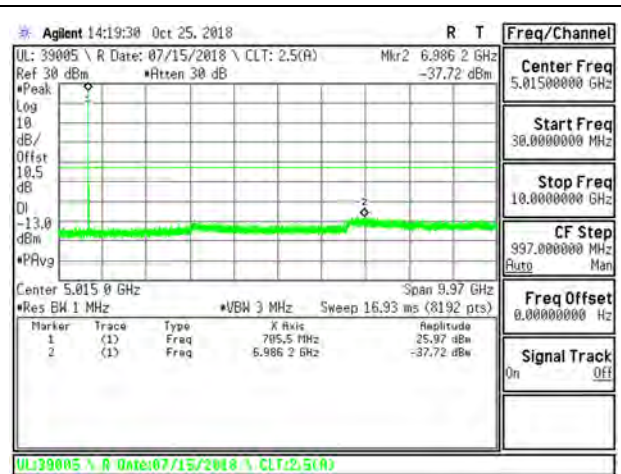
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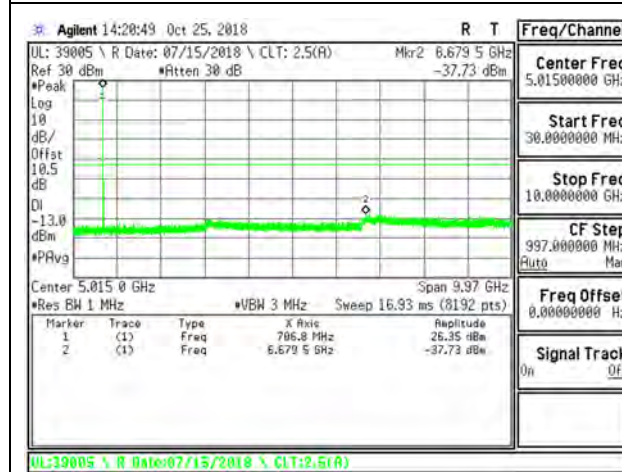
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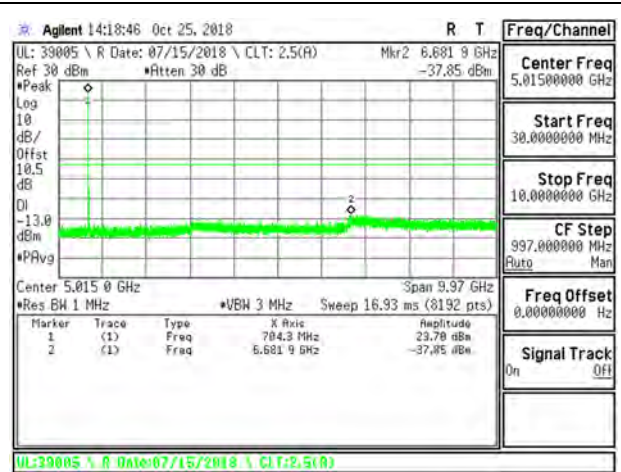
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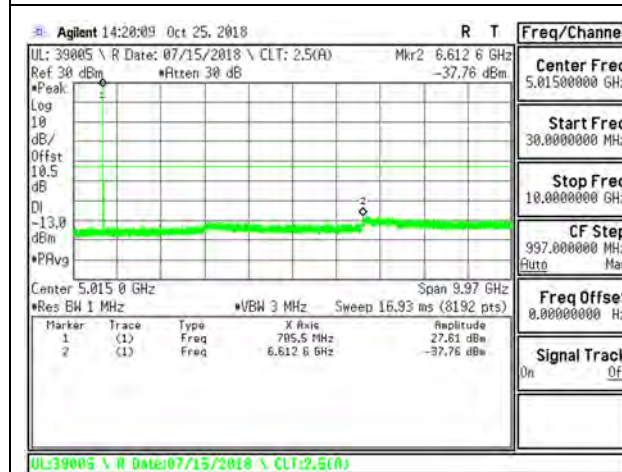
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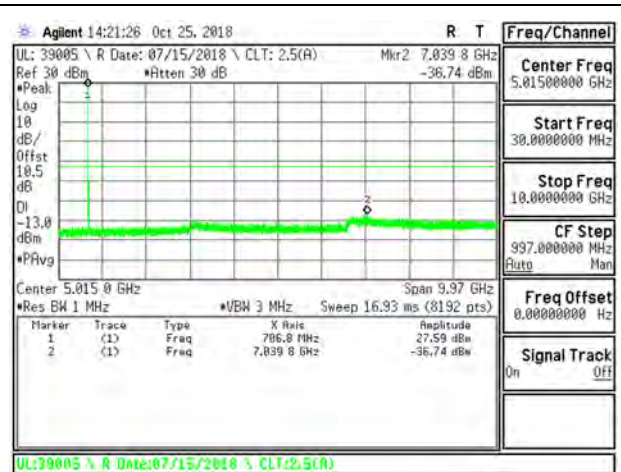
LTE B17 10MHz QPSK High Channel RB1-0



LTE B17 10MHz 16QAM Low Channel RB1-0

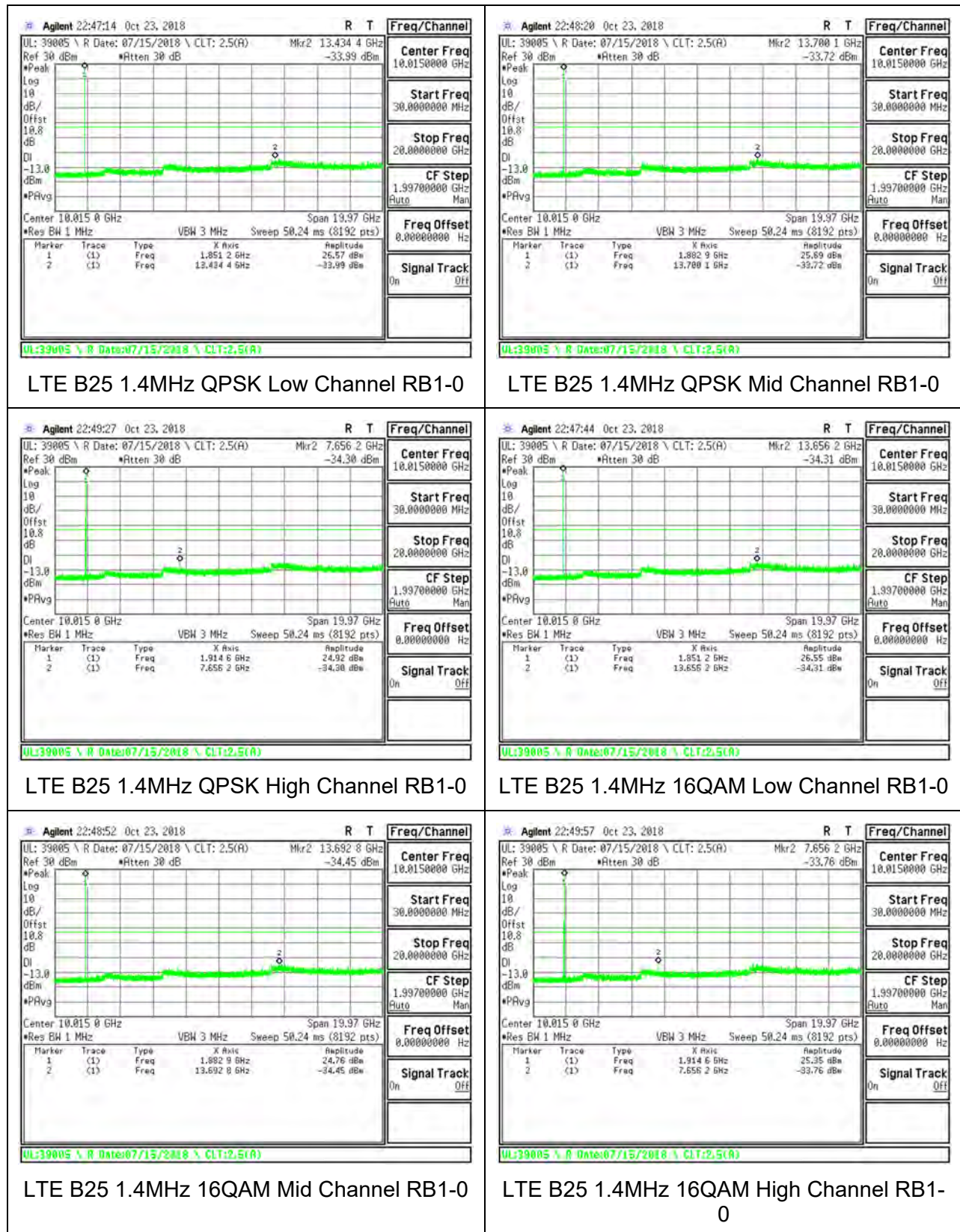


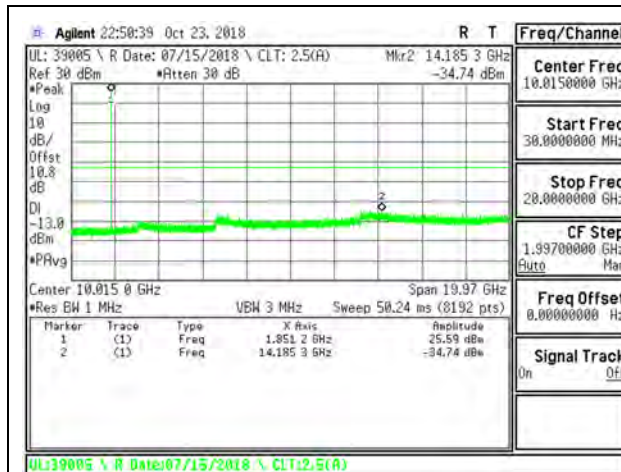
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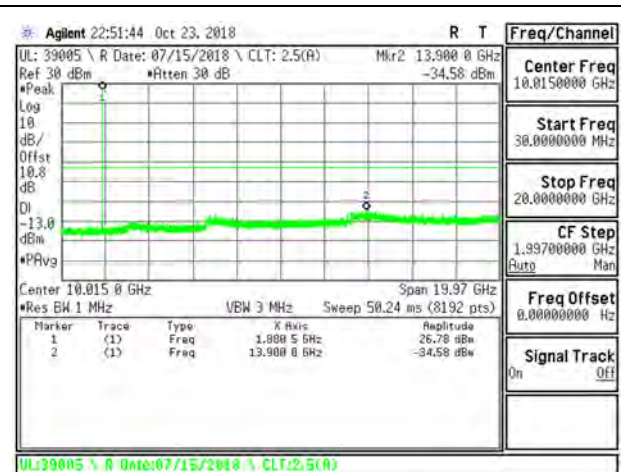
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9.3.12. LTE BAND 25

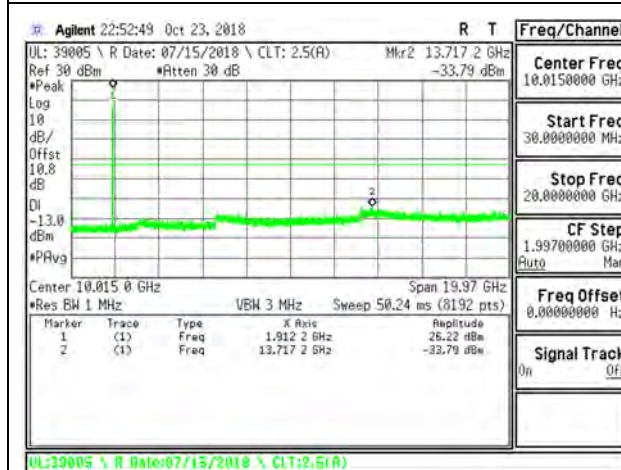




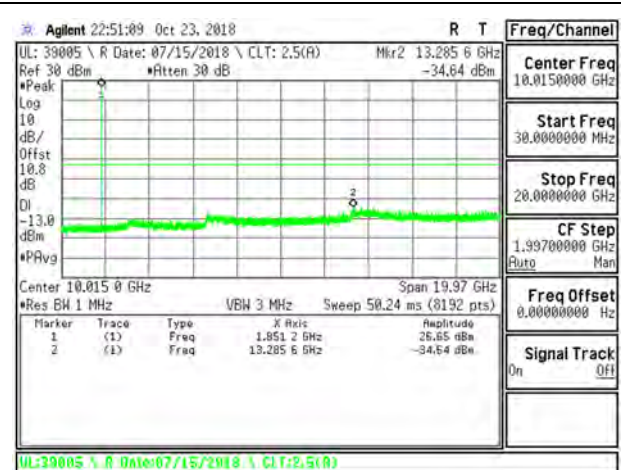
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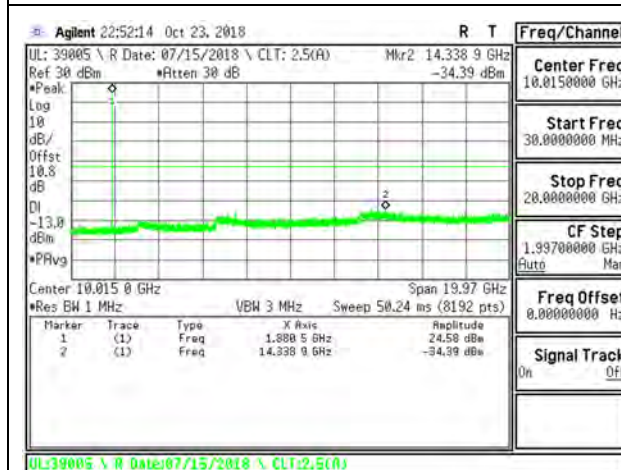
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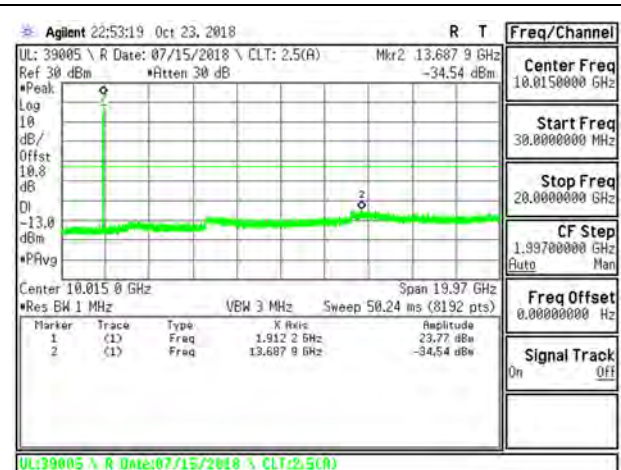
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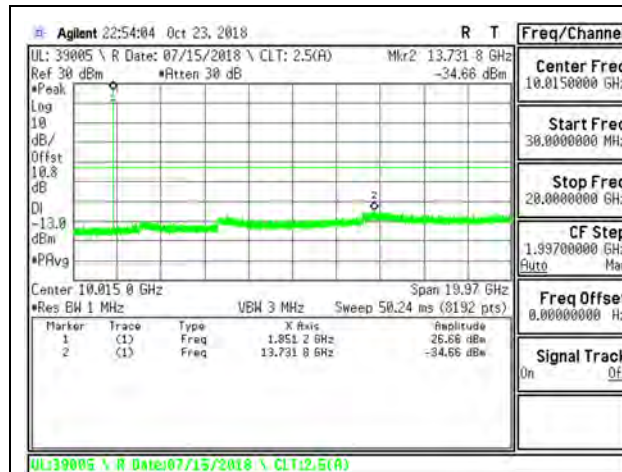
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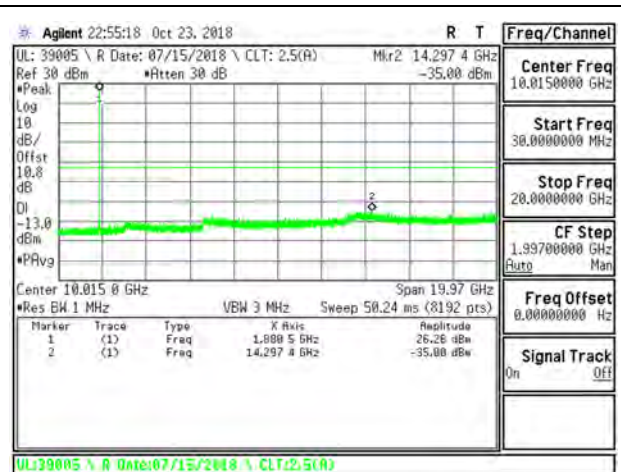
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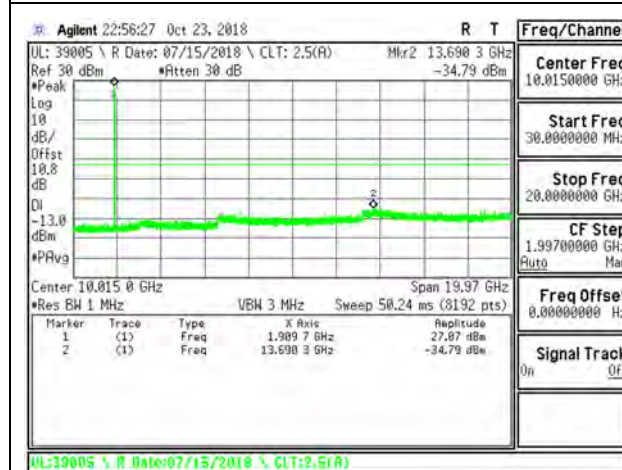
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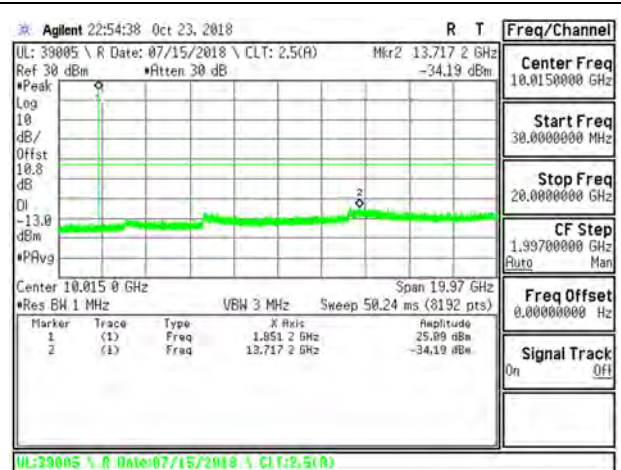
LTE B25 5MHz QPSK Low Channel RB1-0



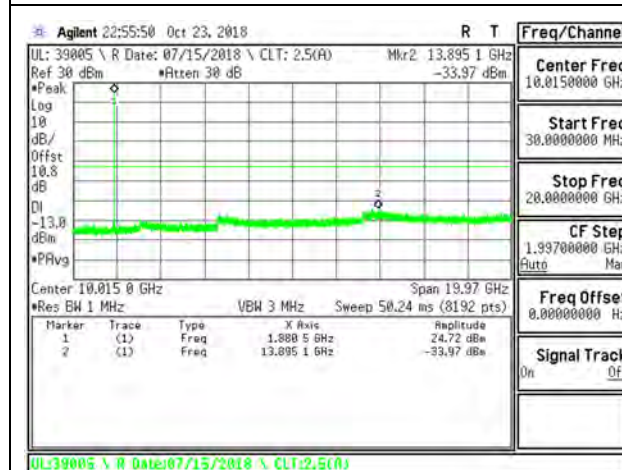
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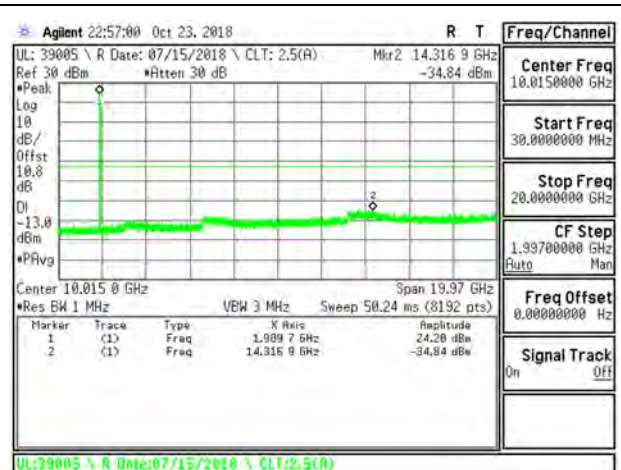
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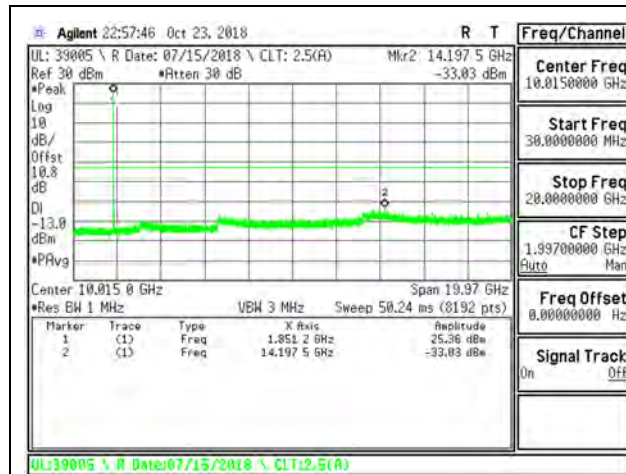
LTE B25 5MHz 16QAM Low Channel RB1-0



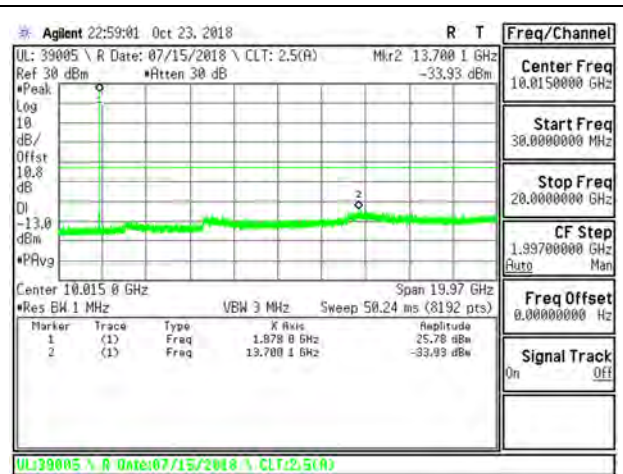
LTE B25 5MHz 16QAM Mid Channel RB1-0



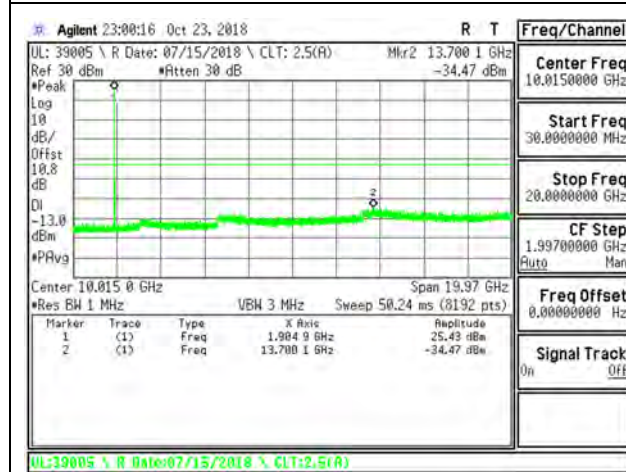
LTE B25 5MHz 16QAM High Channel RB1-0



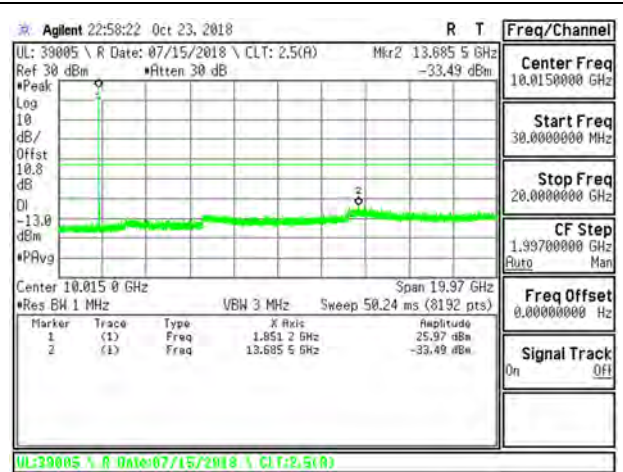
LTE B25 10MHz QPSK Low Channel RB1-0



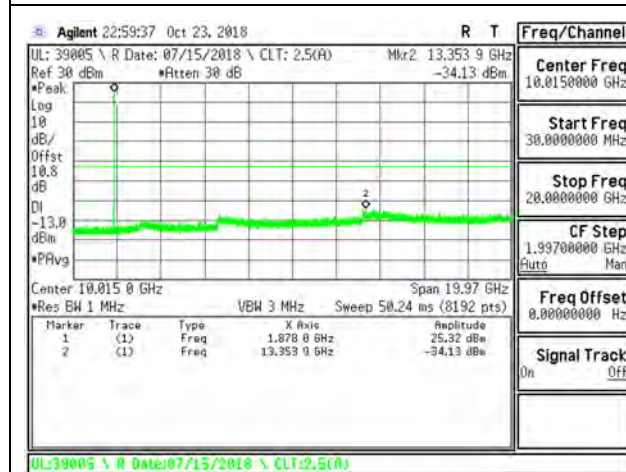
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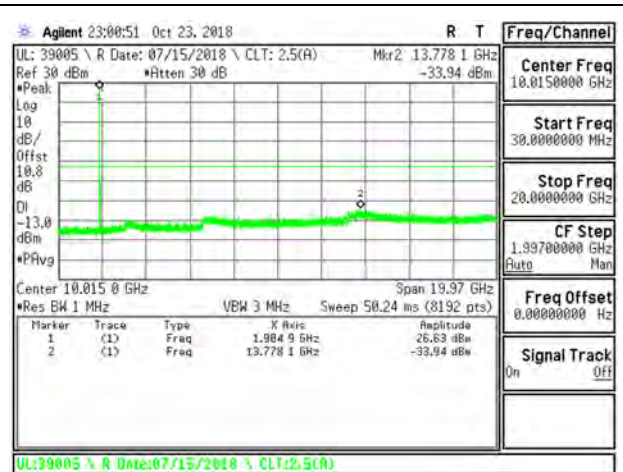
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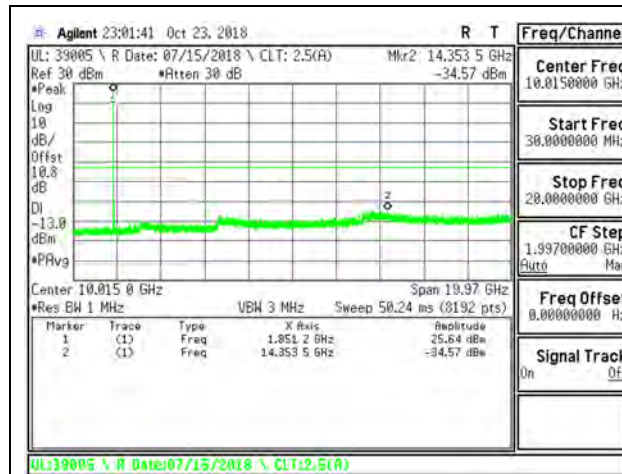
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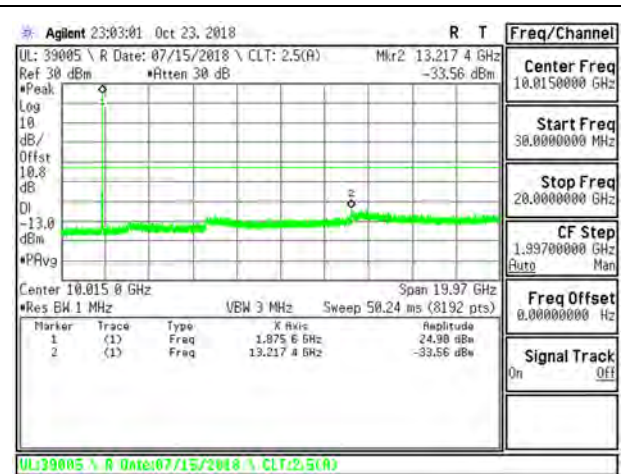
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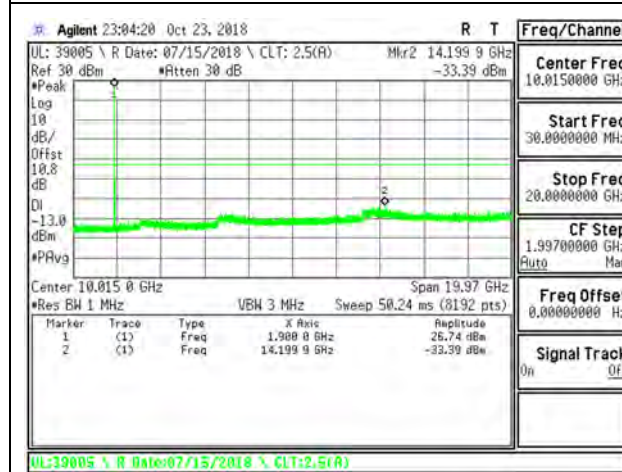
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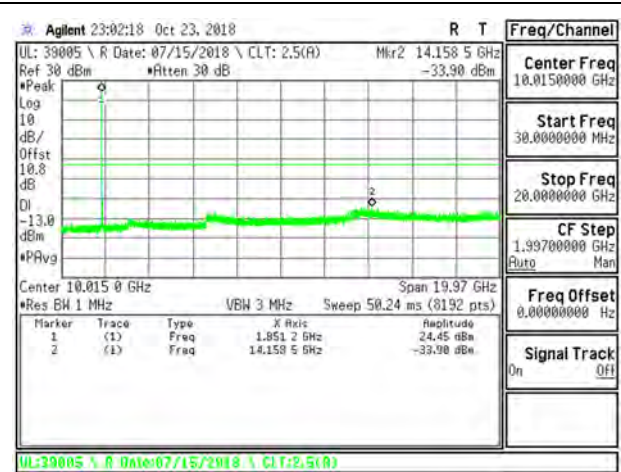
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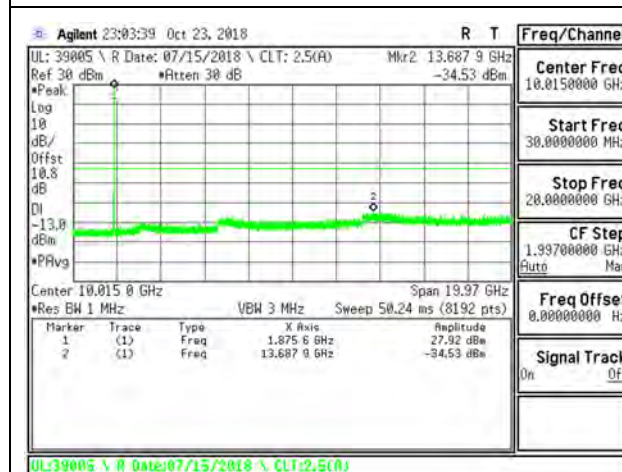
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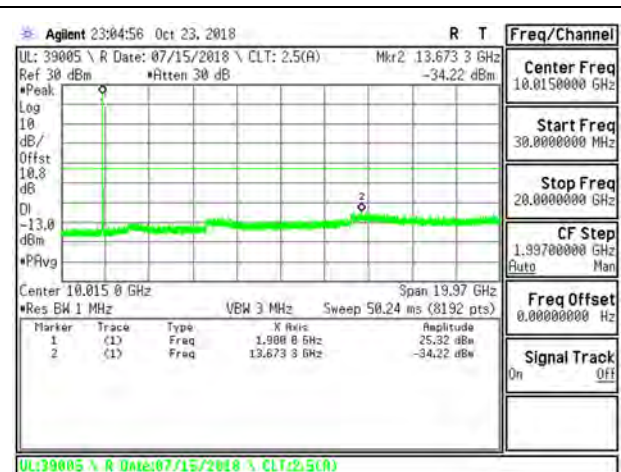
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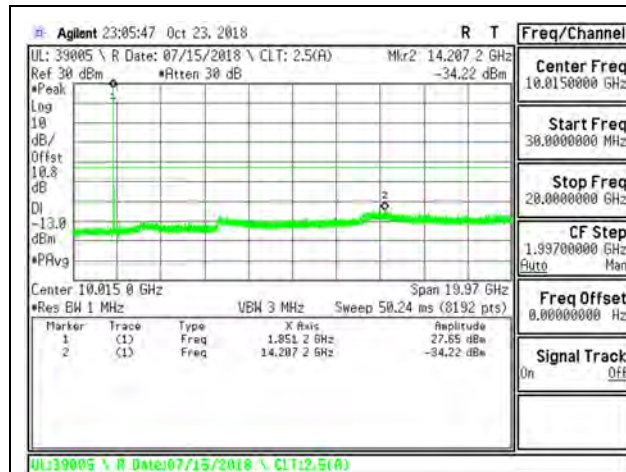
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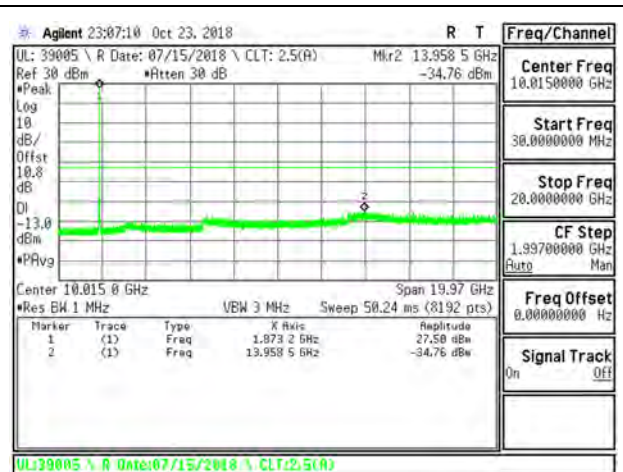
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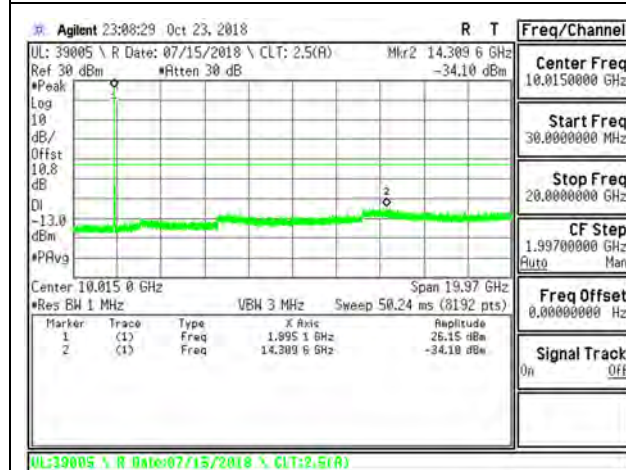
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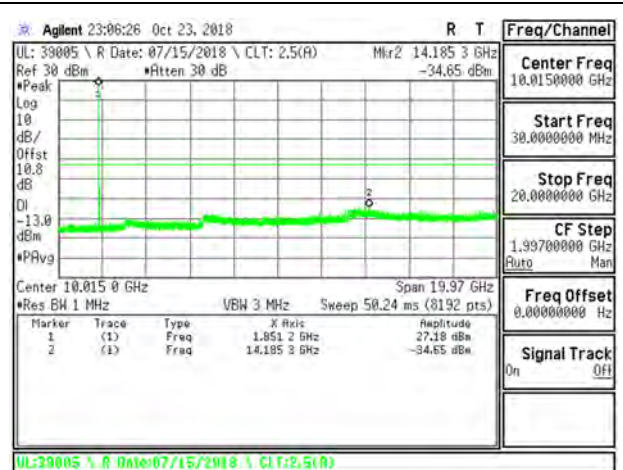
LTE B25 20MHz QPSK Low Channel RB1-0



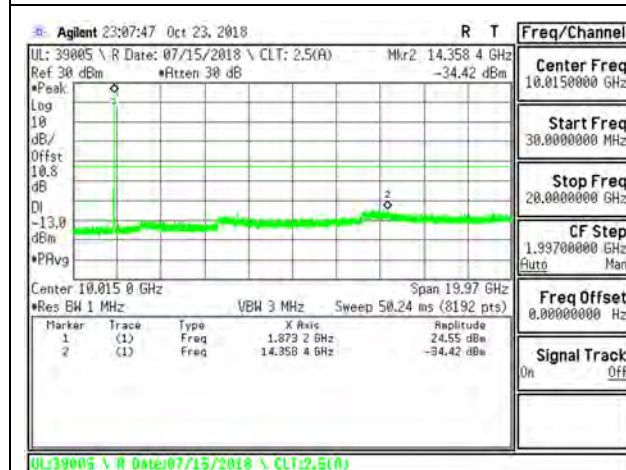
LTE B25 20MHz QPSK Mid Channel RB1-0



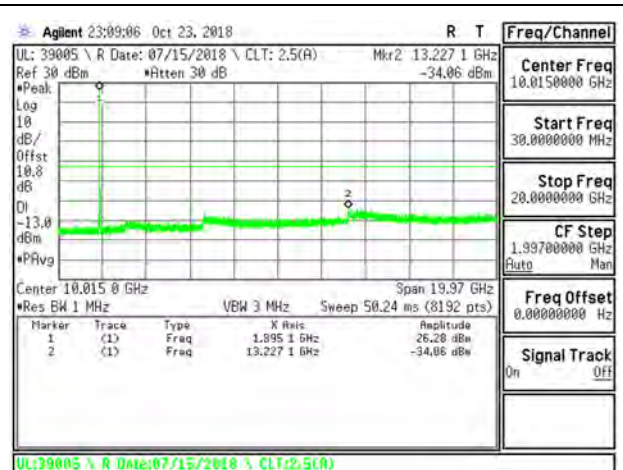
LTE B25 20MHz QPSK High Channel RB1-0



LTE B25 20MHz 16QAM Low Channel RB1-0

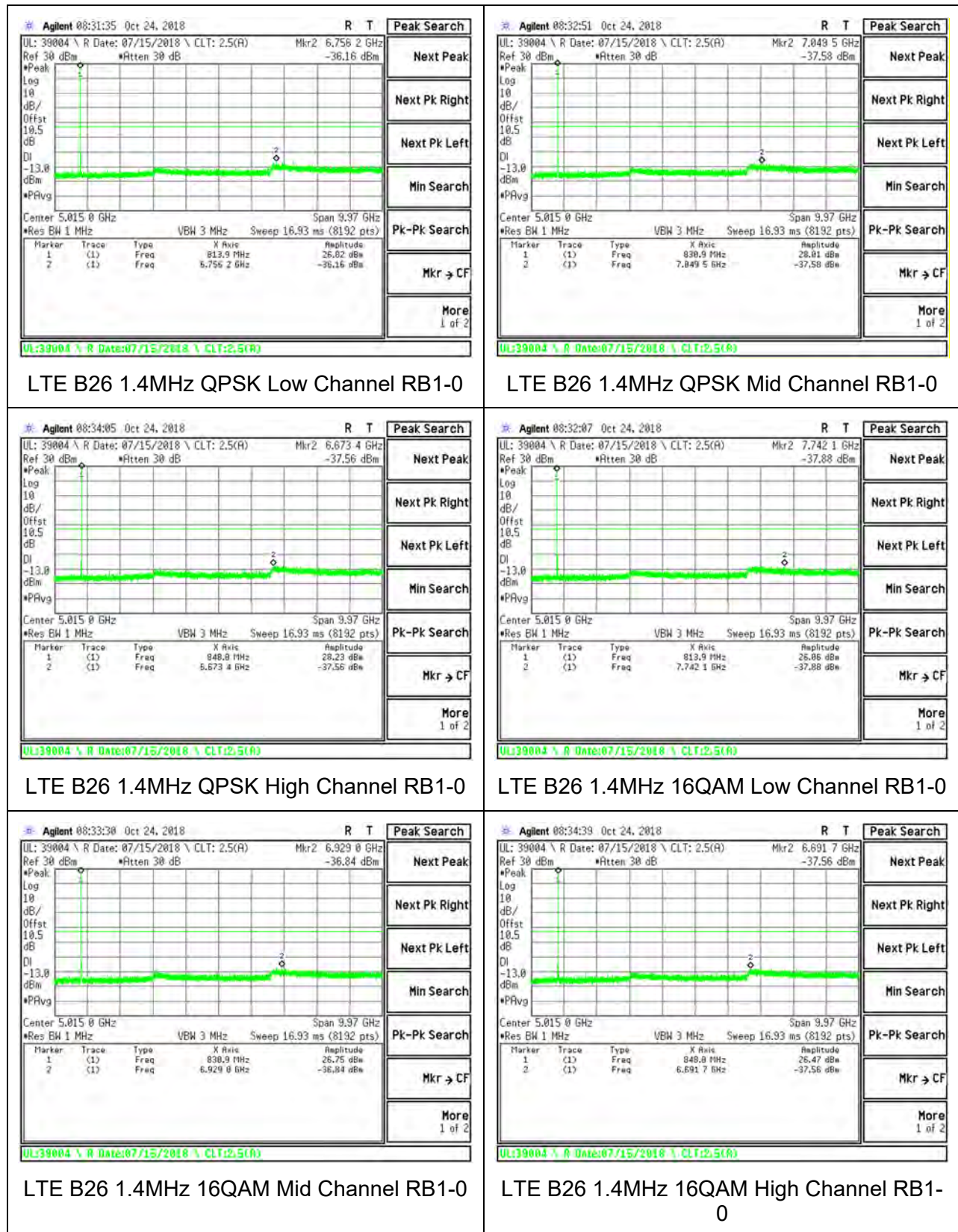


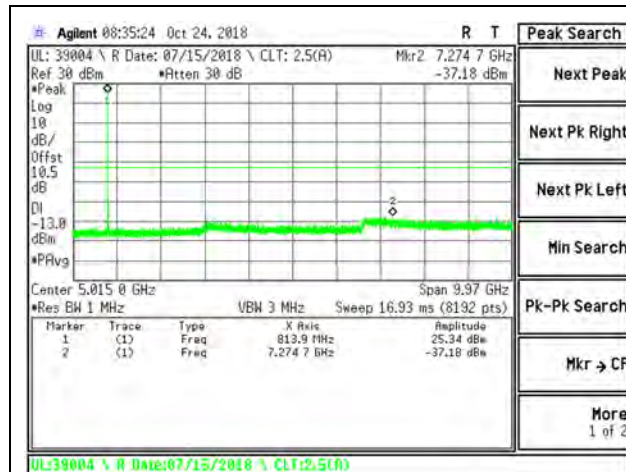
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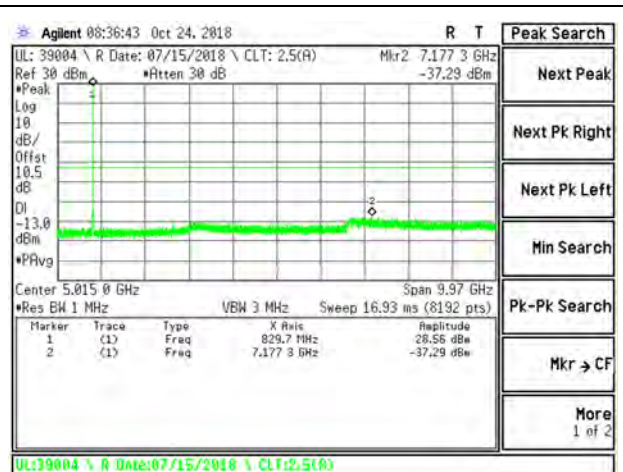
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9.3.13. LTE BAND 26

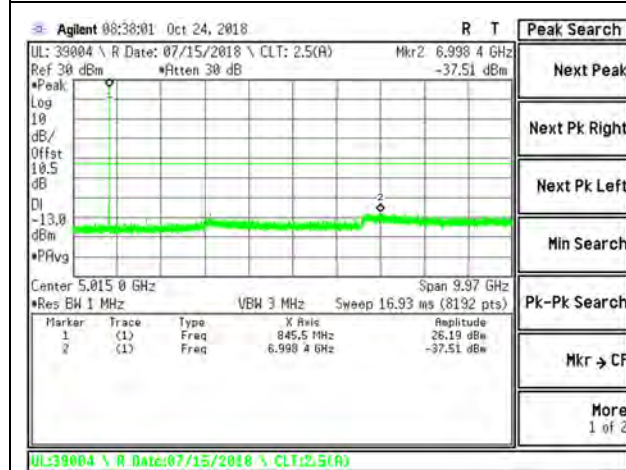




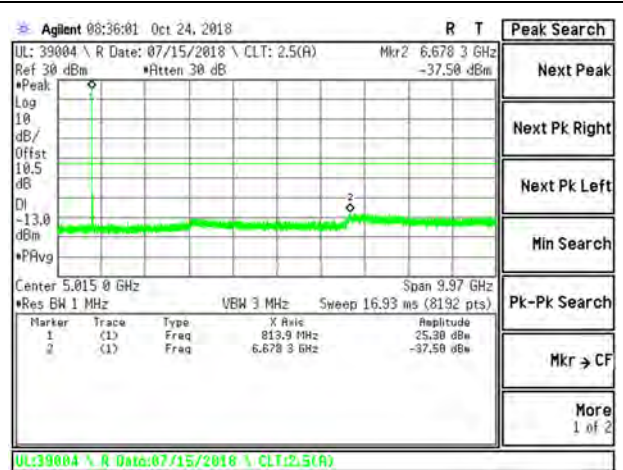
LTE B26 3MHz QPSK Low Channel RB1-0



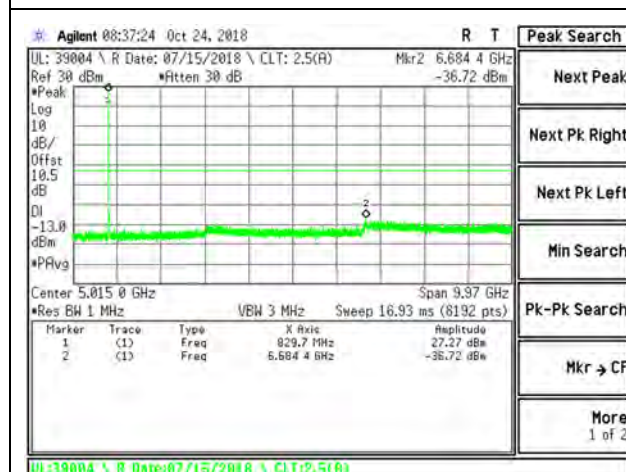
LTE B26 3MHz QPSK Mid Channel RB1-0



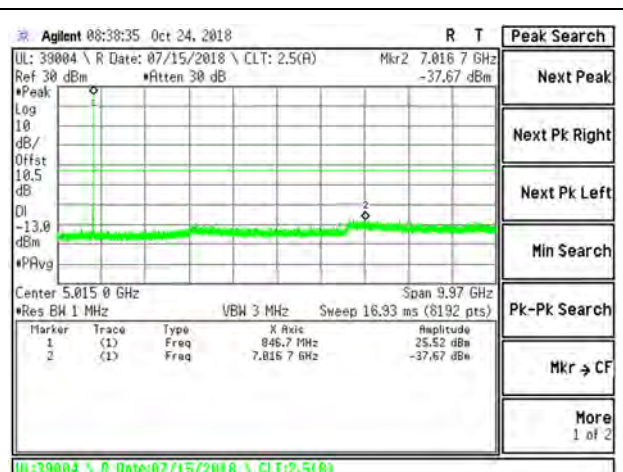
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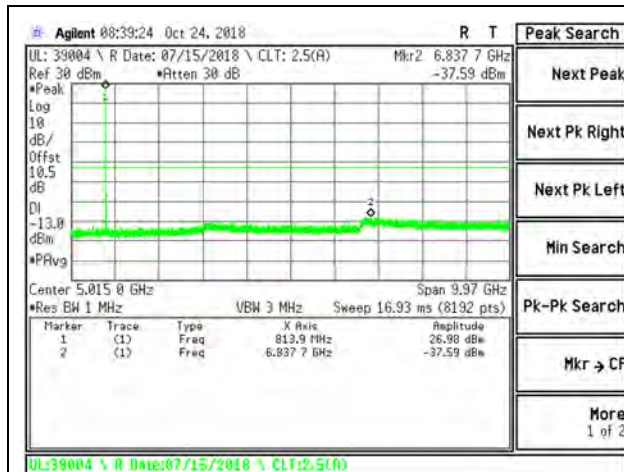
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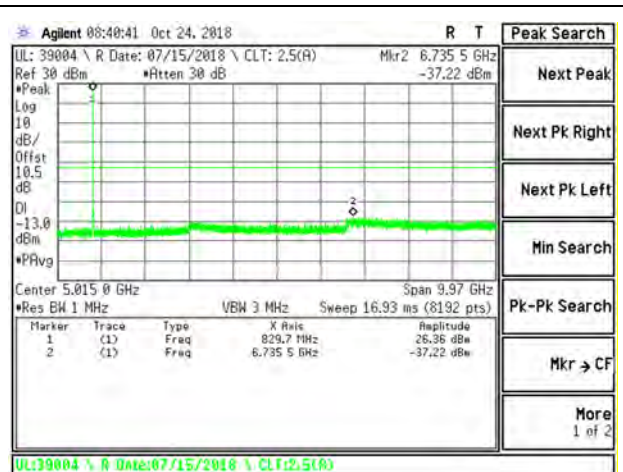
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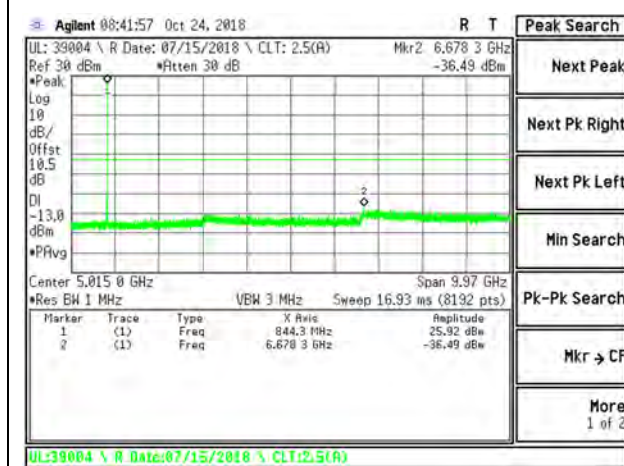
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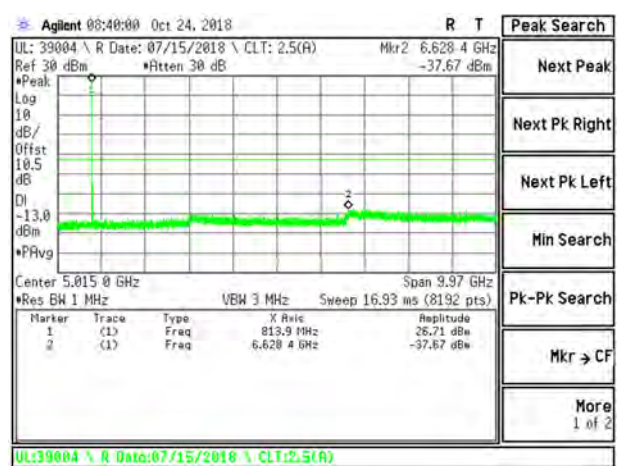
LTE B26 5MHz QPSK Low Channel RB1-0



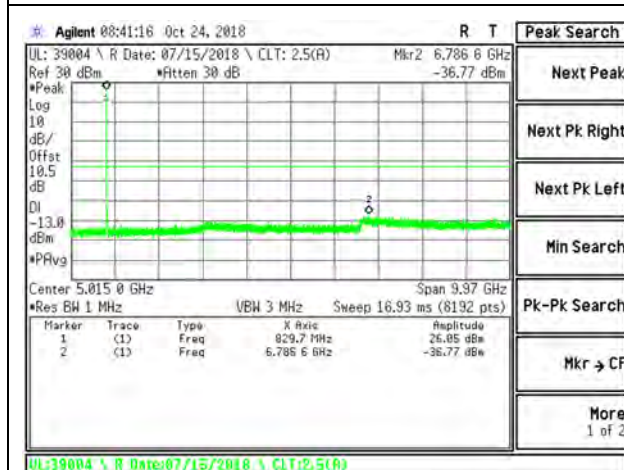
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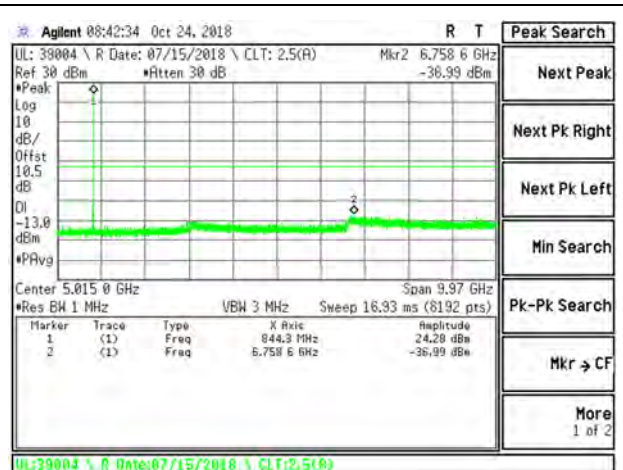
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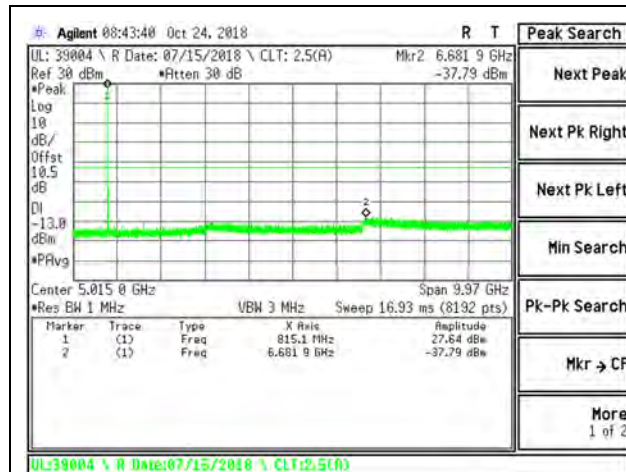
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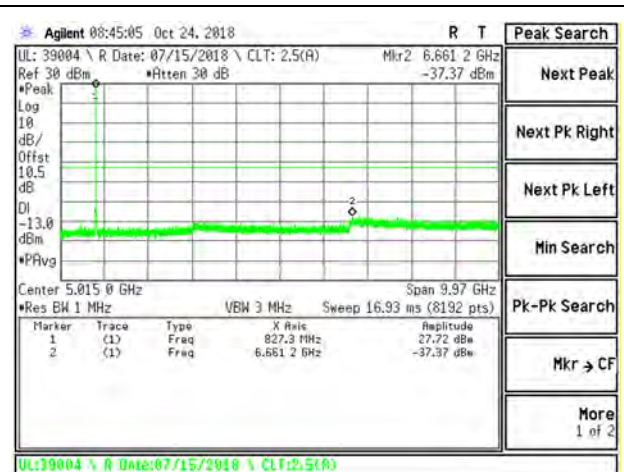
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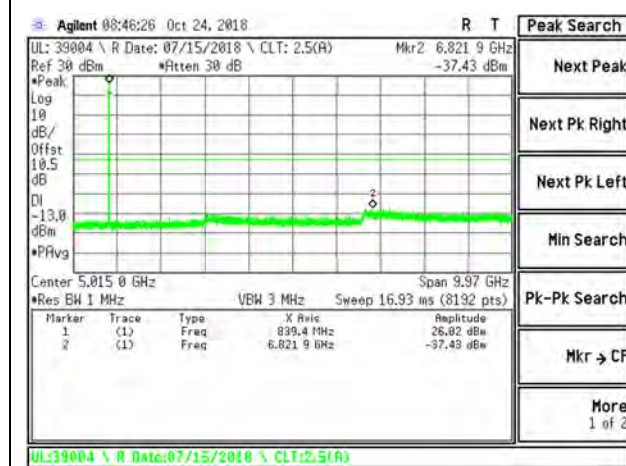
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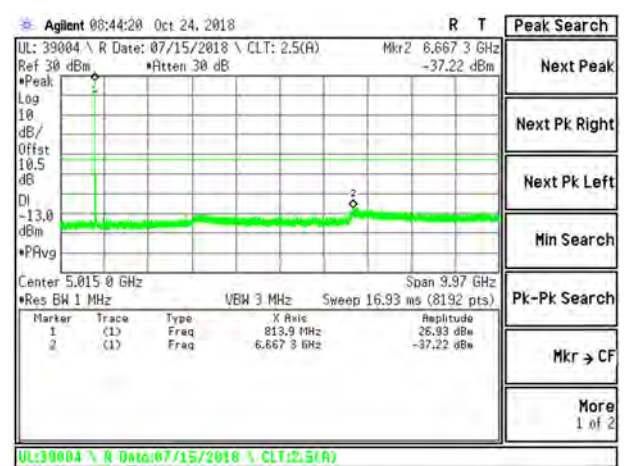
LTE B26 10MHz QPSK Low Channel RB1-0



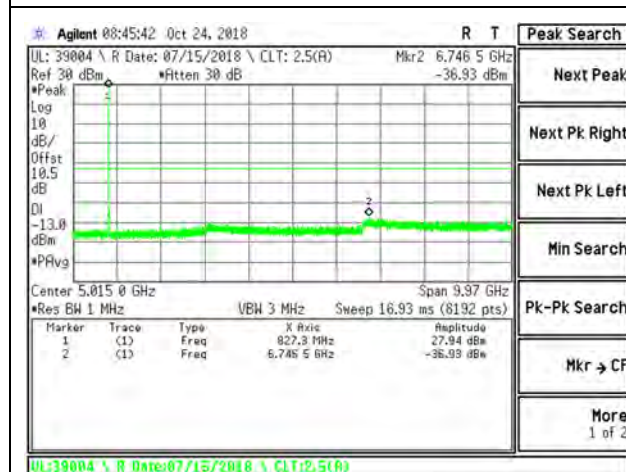
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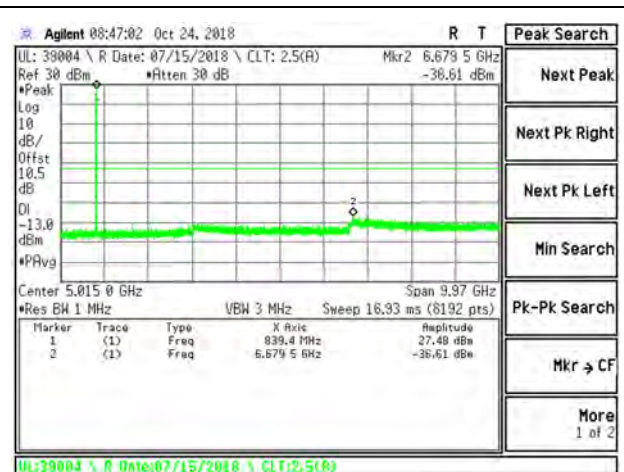
LTE B26 10MHz QPSK High Channel RB1-0



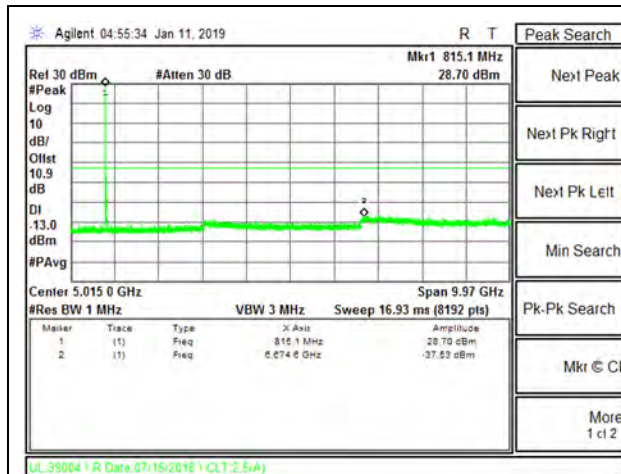
LTE B26 10MHz 16QAM Low Channel RB1-0



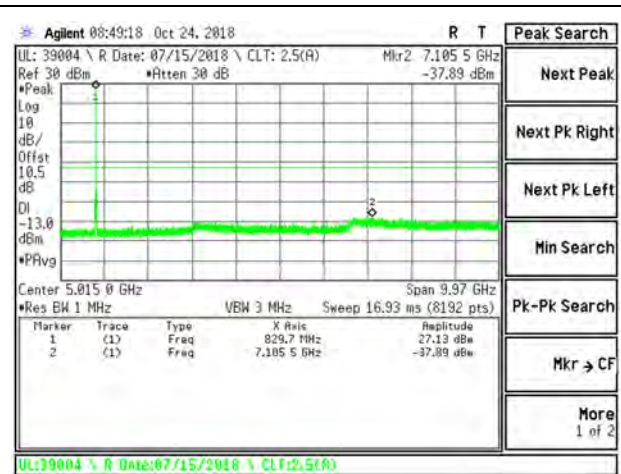
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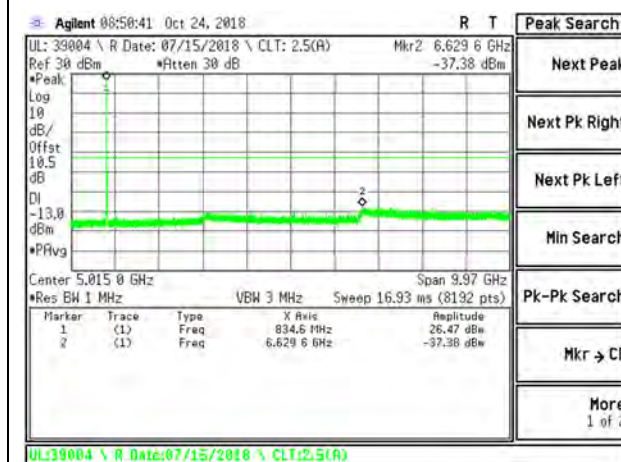
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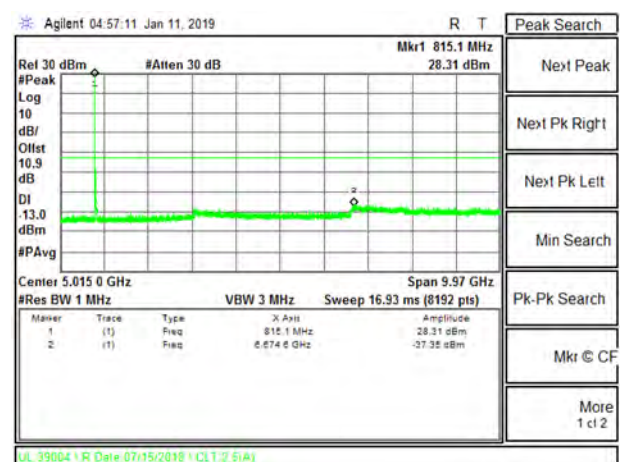
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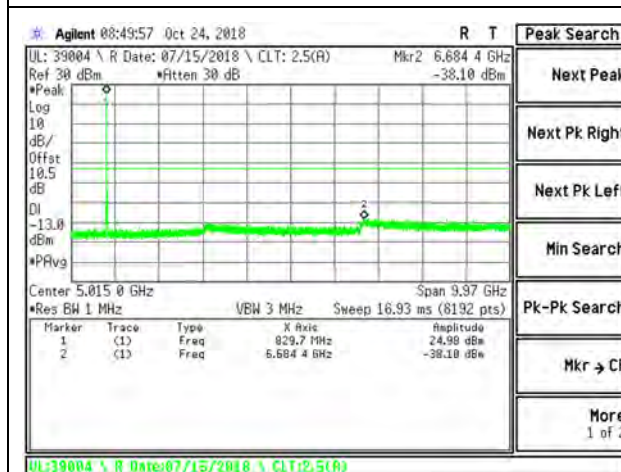
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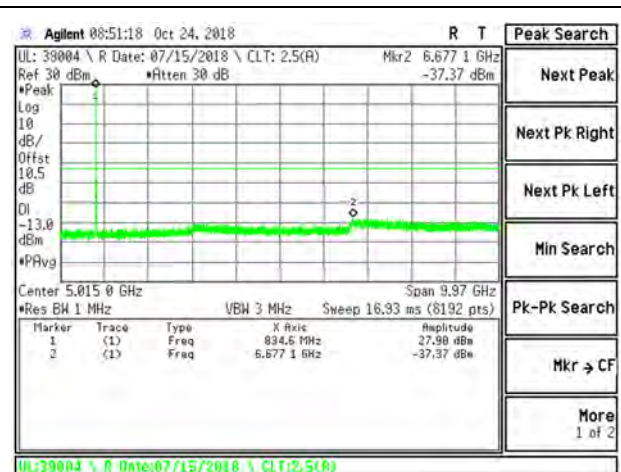
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LTE B26 15MHz 16QAM Low Channel RB1-0

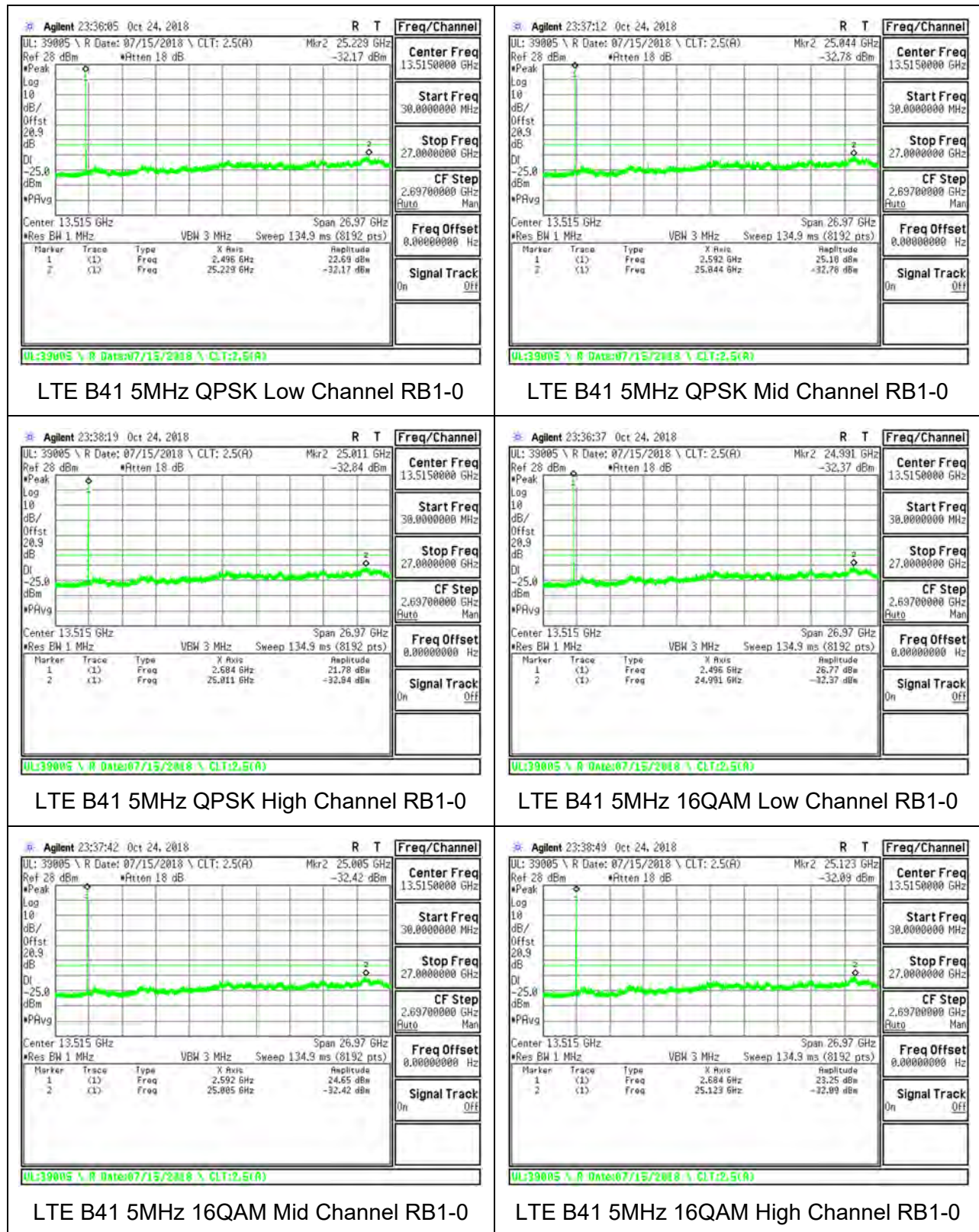


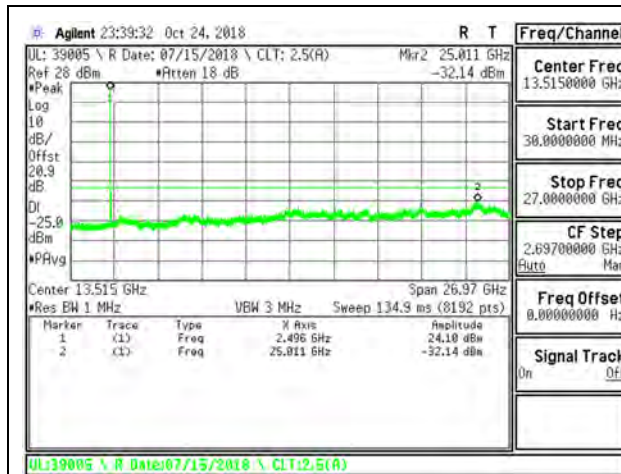
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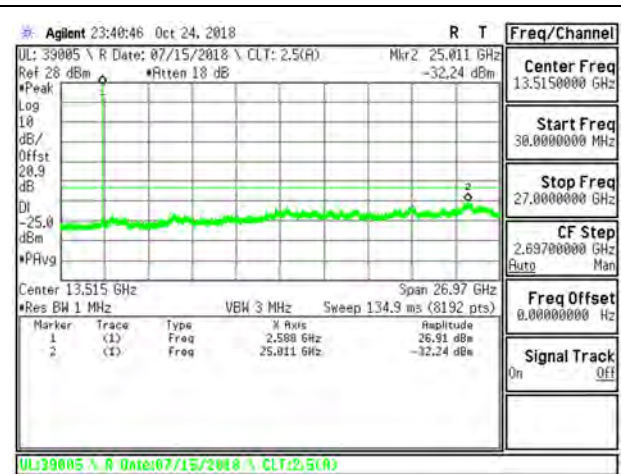
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9.3.14. LTE BAND 41

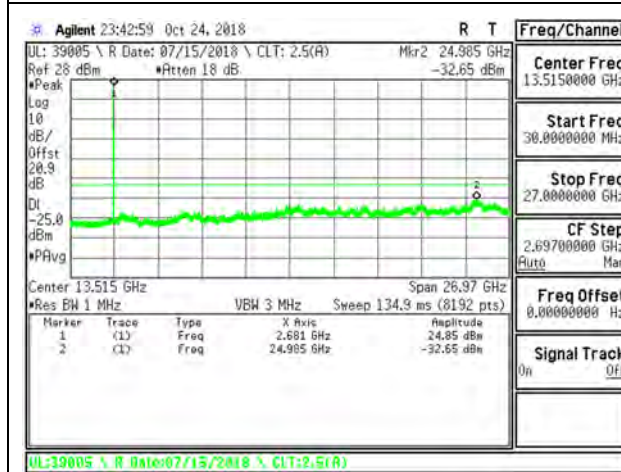




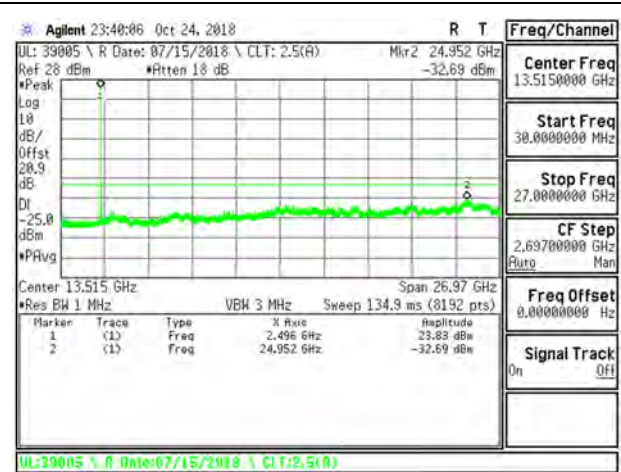
LTE B41 10MHz QPSK Low Channel RB1-0



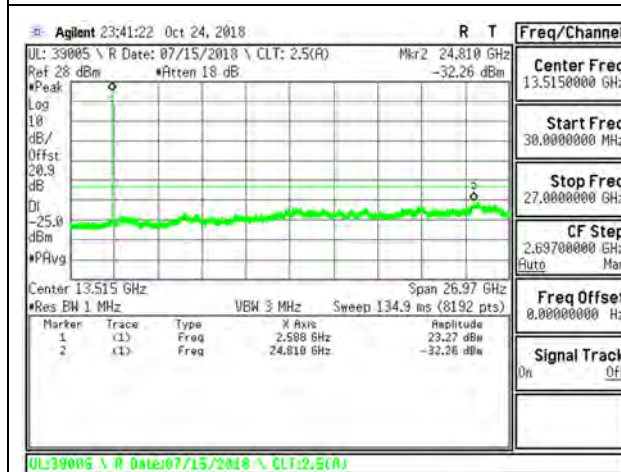
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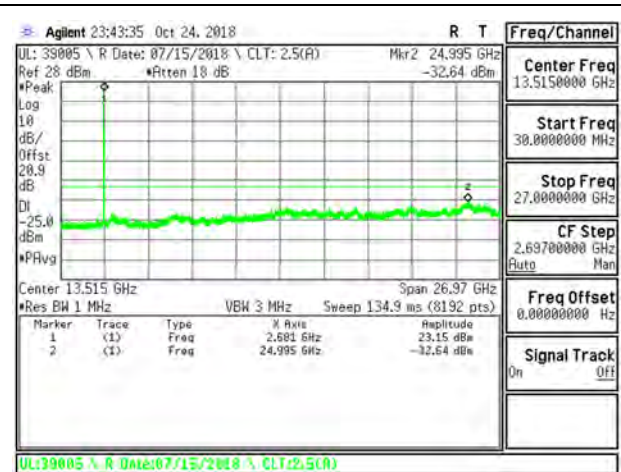
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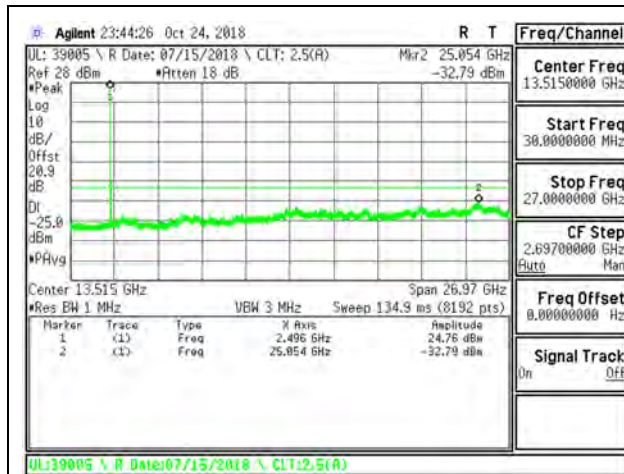
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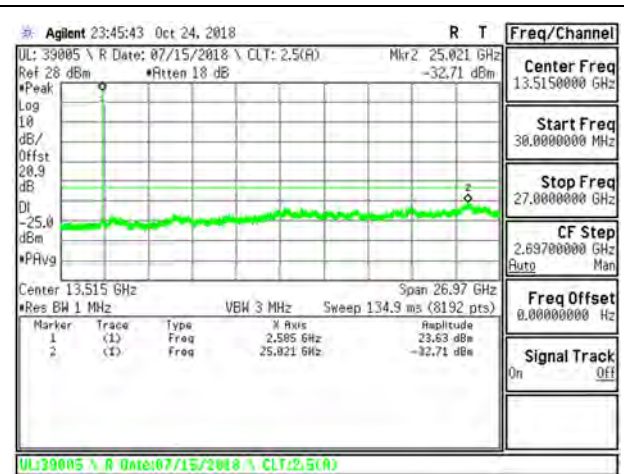
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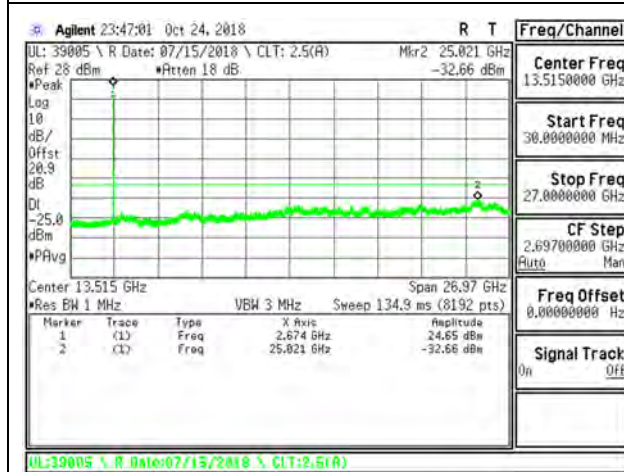
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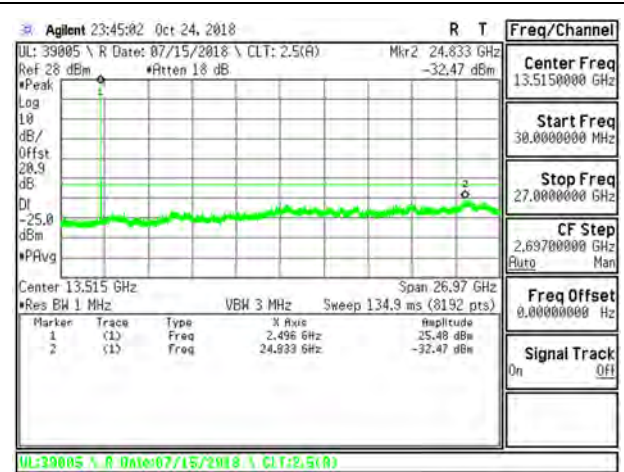
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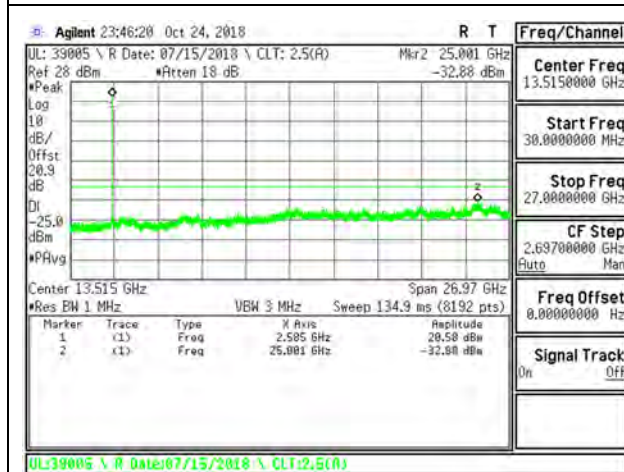
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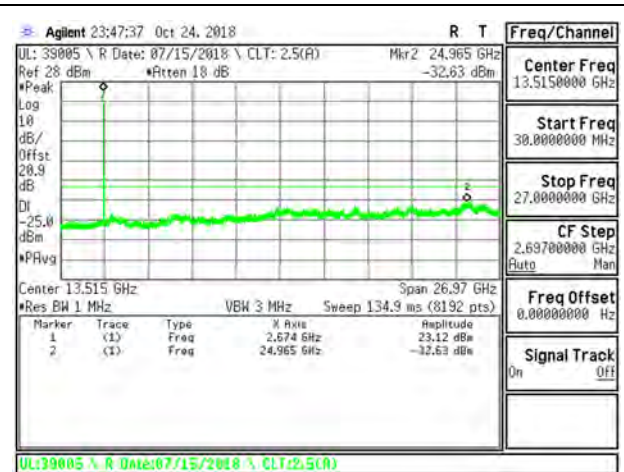
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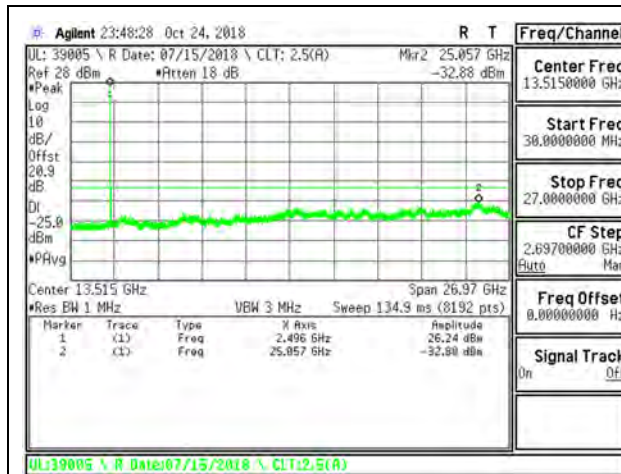
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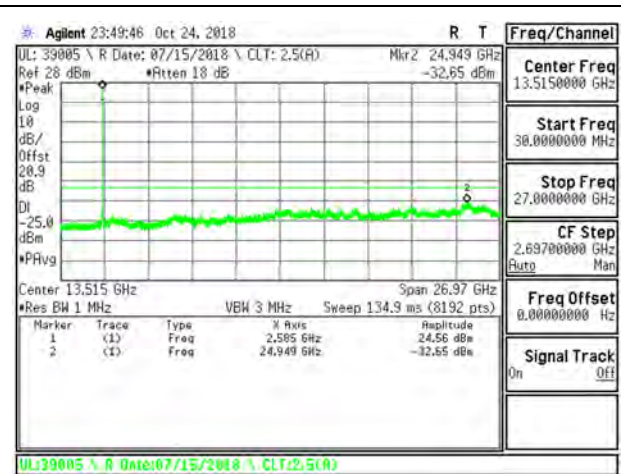
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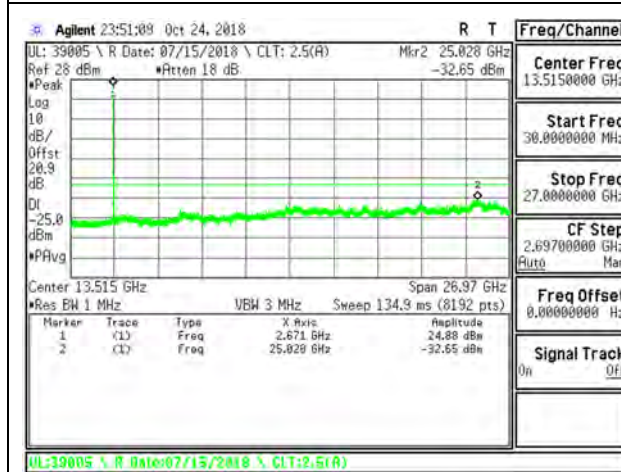
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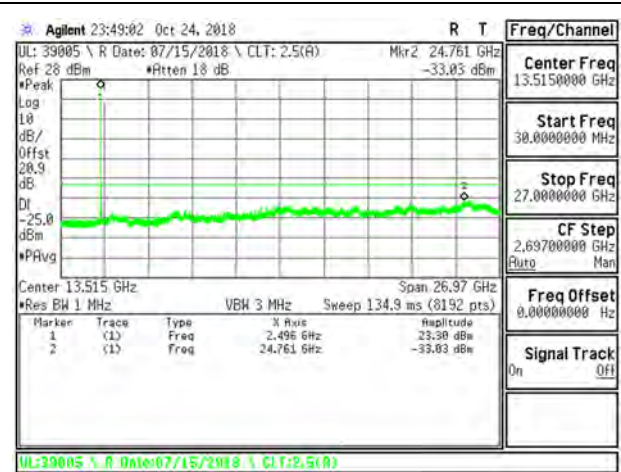
LTE B41 20MHz QPSK Low Channel RB1-0



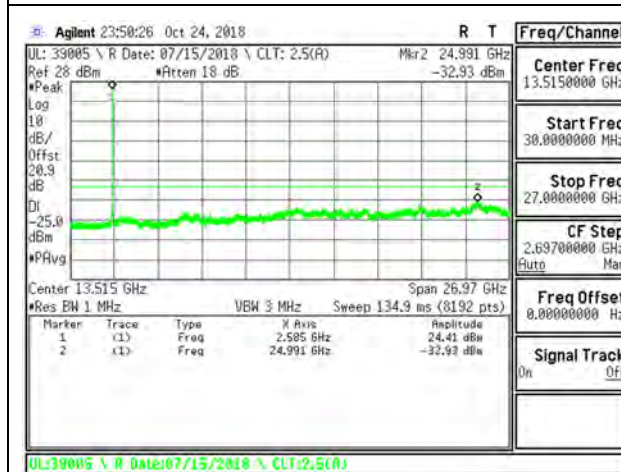
LTE B41 20MHz QPSK Mid Channel RB1-0



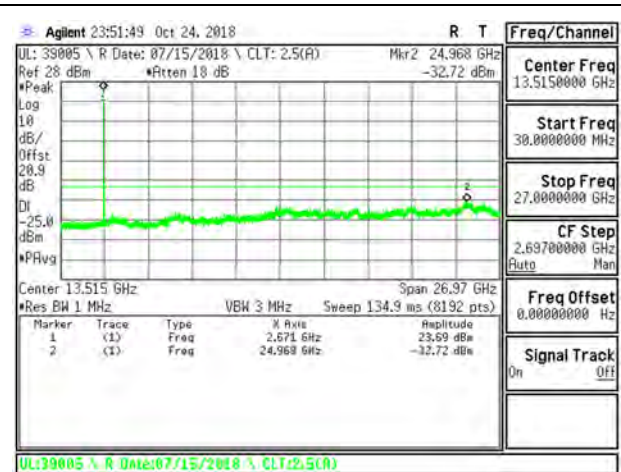
LTE B41 20MHz QPSK High Channel RB1-0



LTE B41 20MHz 16QAM Low Channel RB1-0

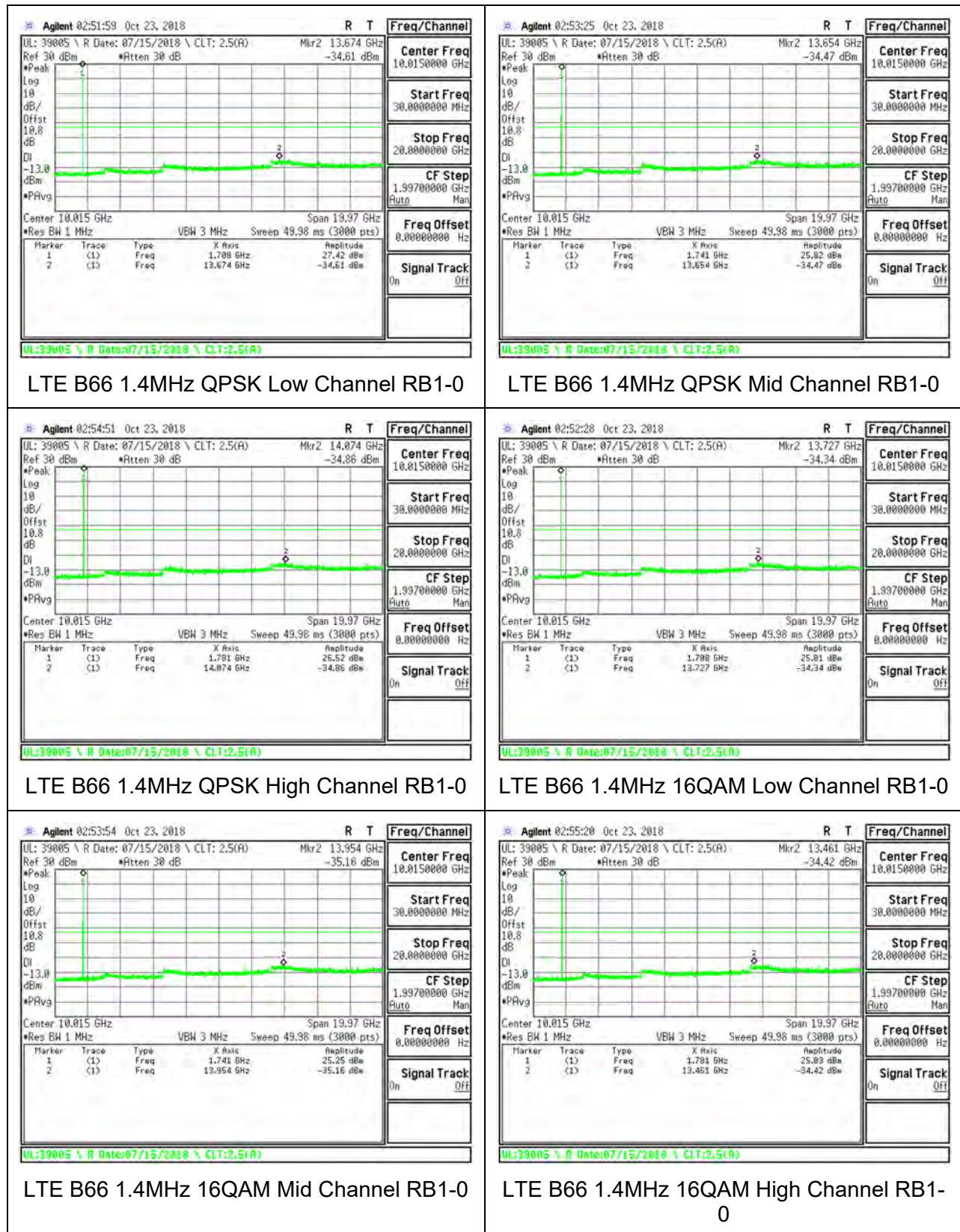


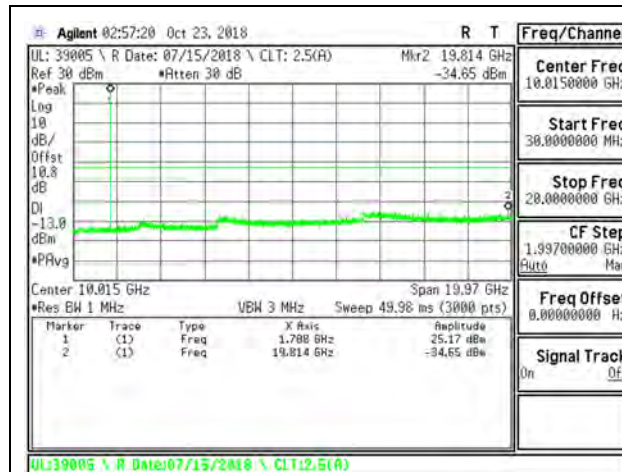
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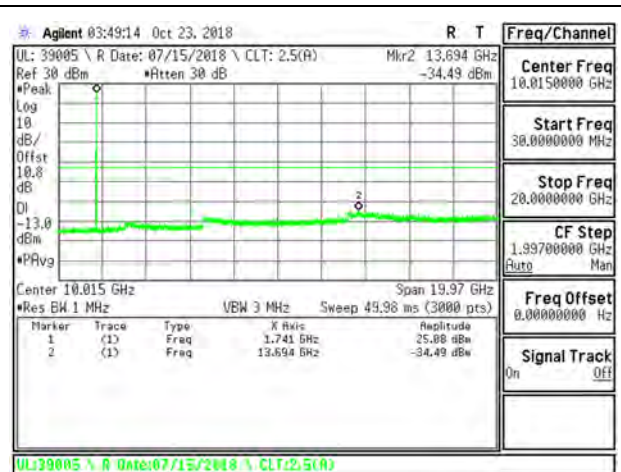
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9.3.15. LTE BAND 66

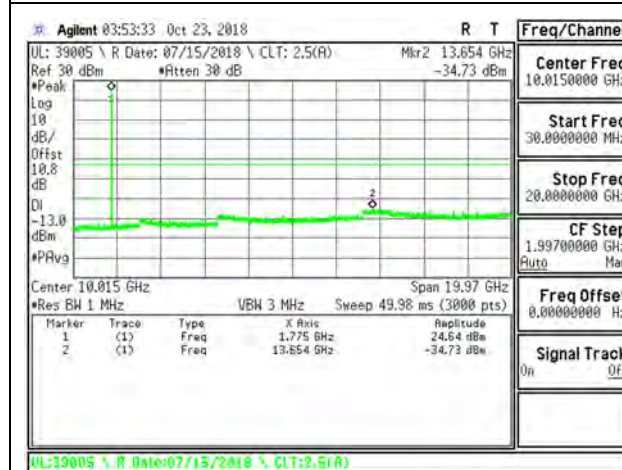




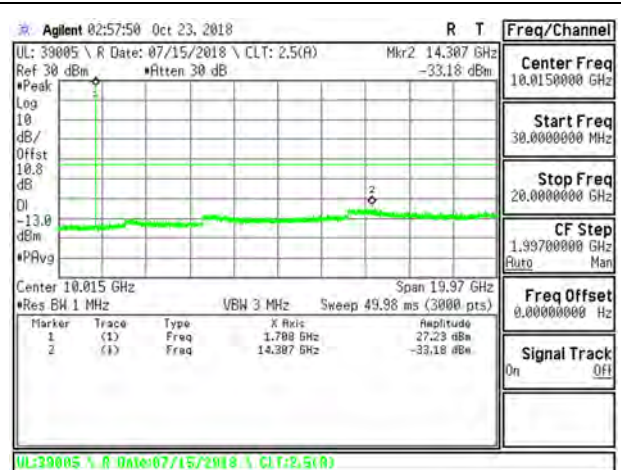
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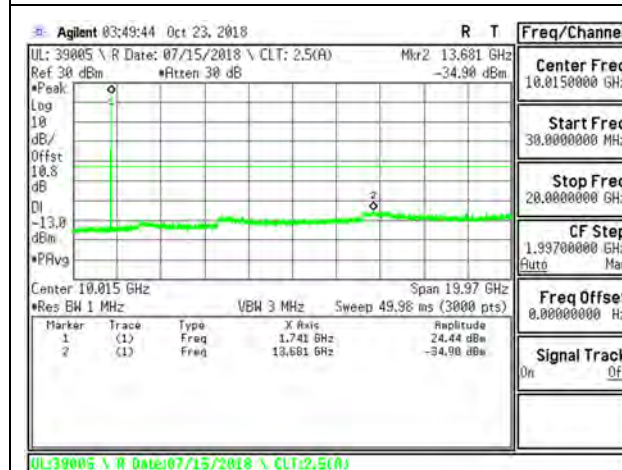
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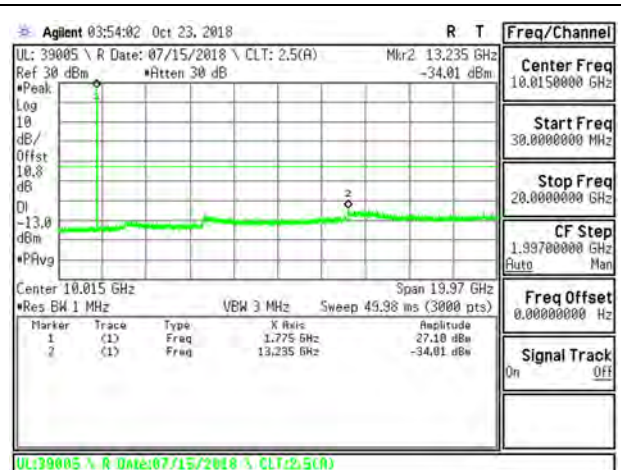
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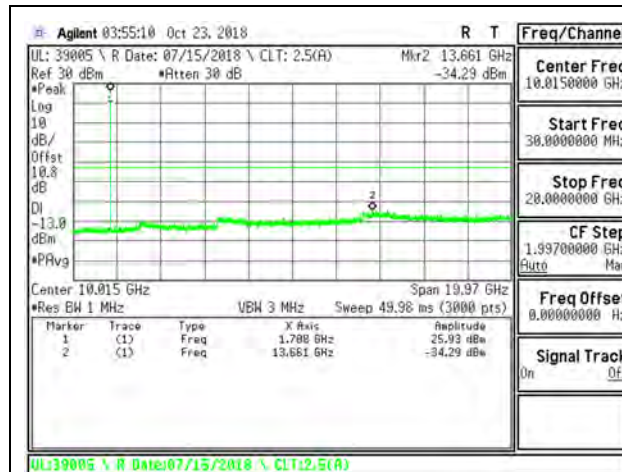
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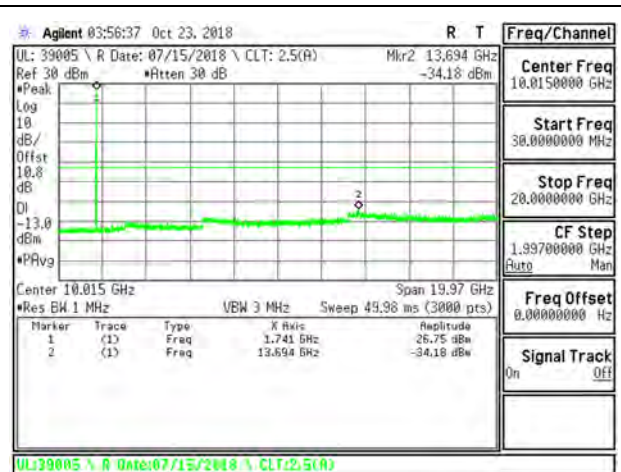
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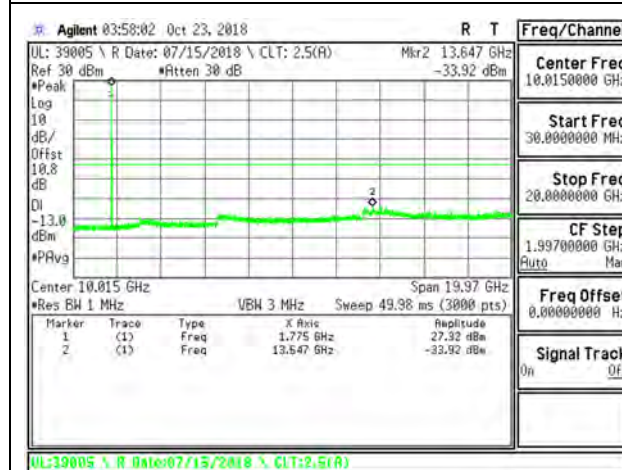
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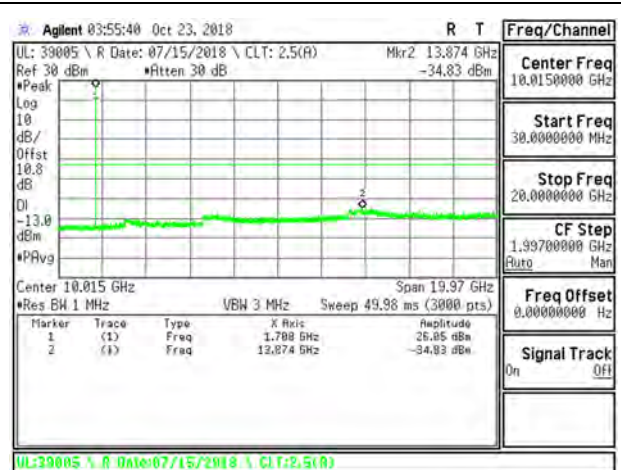
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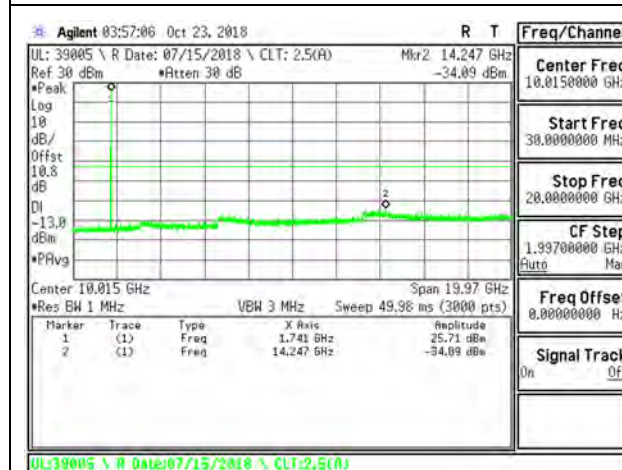
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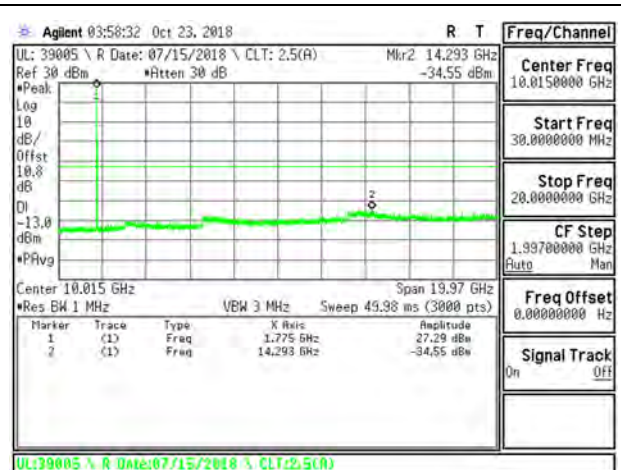
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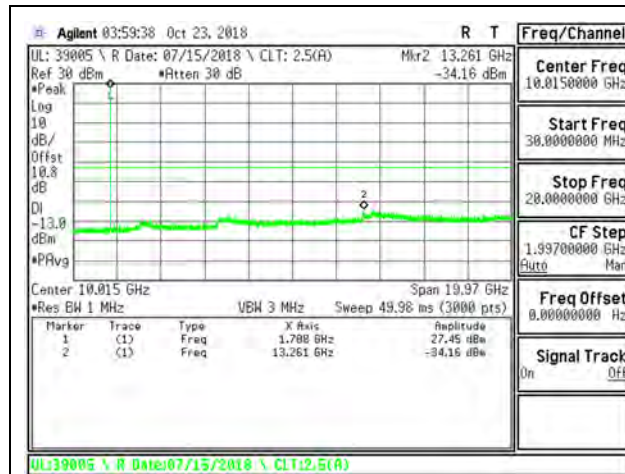
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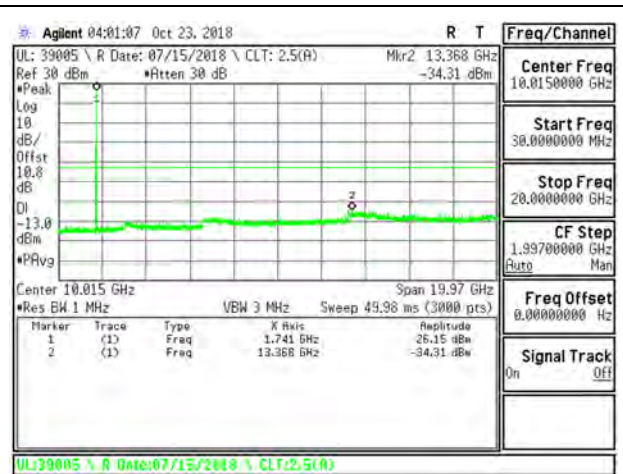
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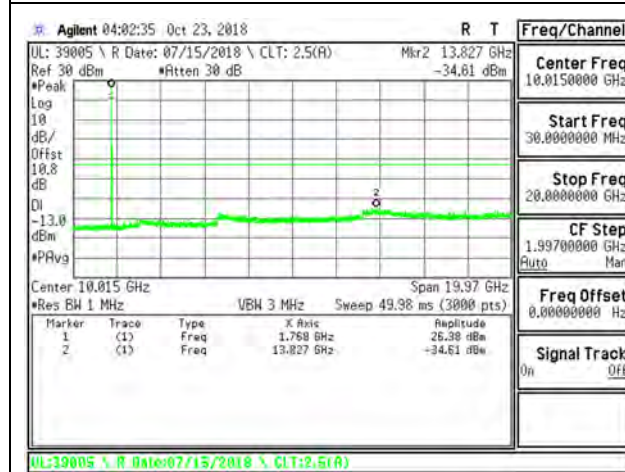
LTE B66 5MHz 16QAM High Channel RB1-0



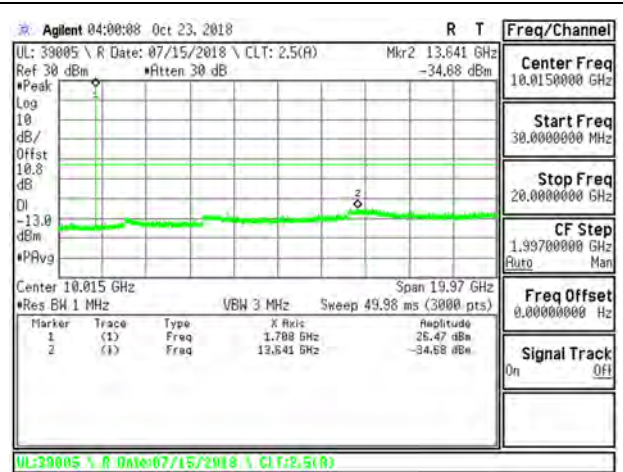
LTE B66 10MHz QPSK Low Channel RB1-0



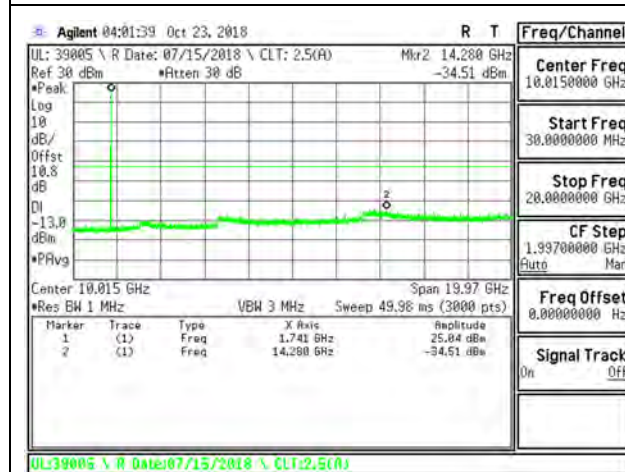
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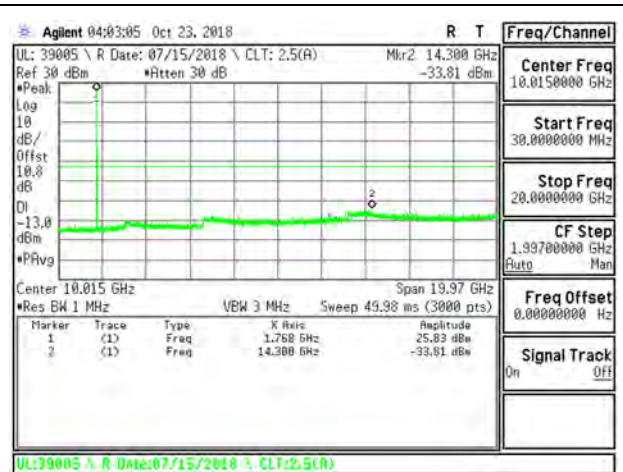
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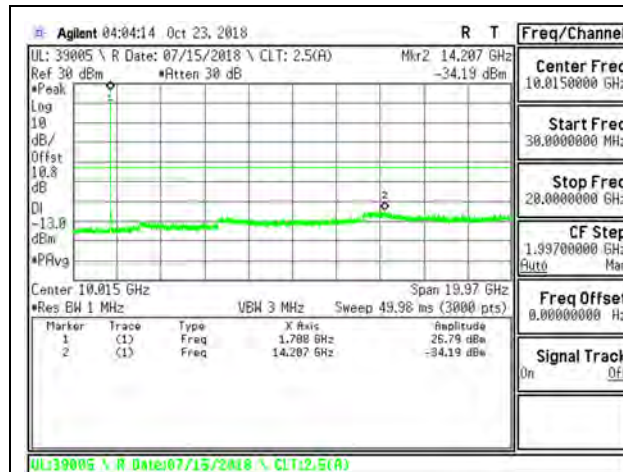
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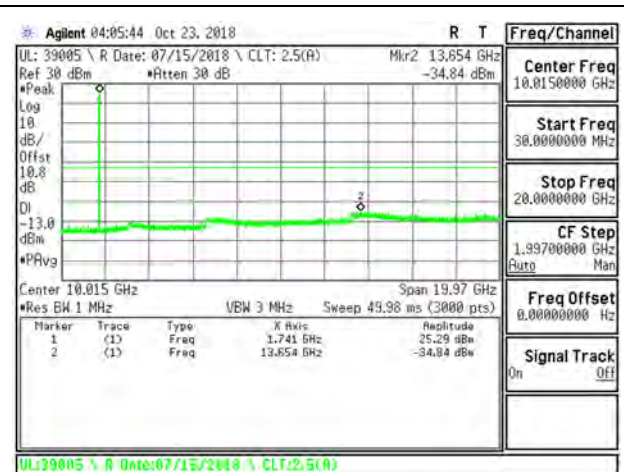
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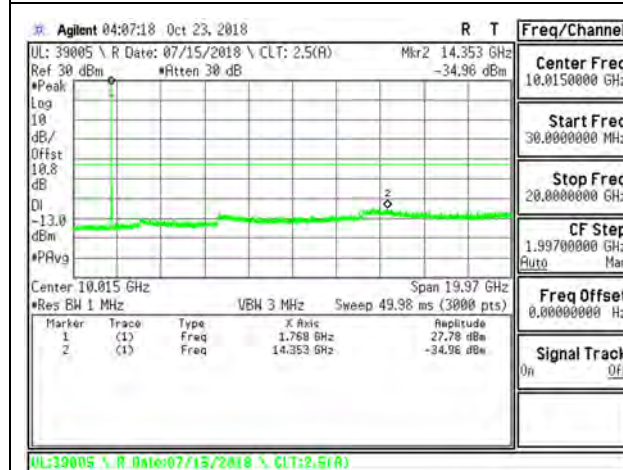
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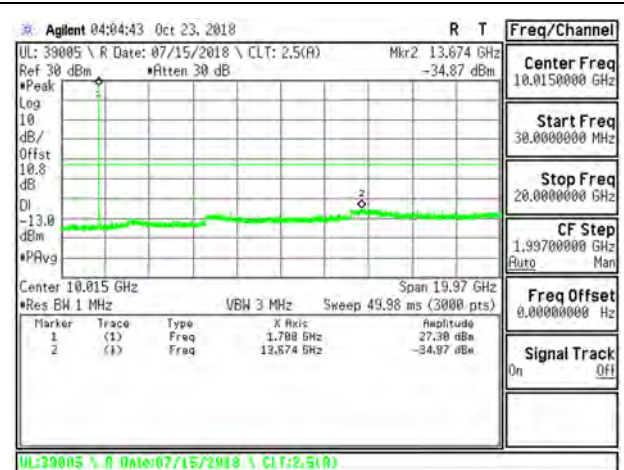
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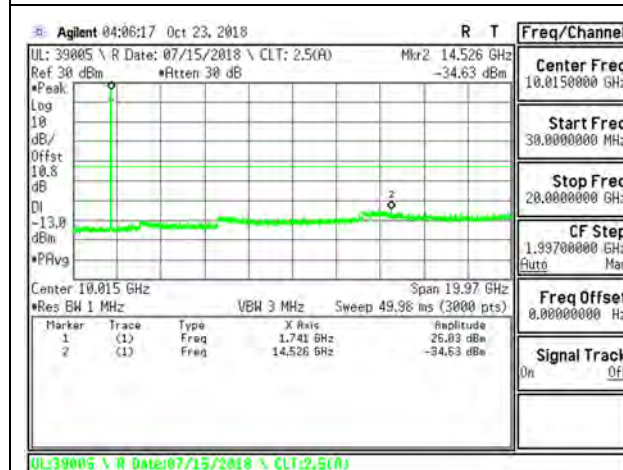
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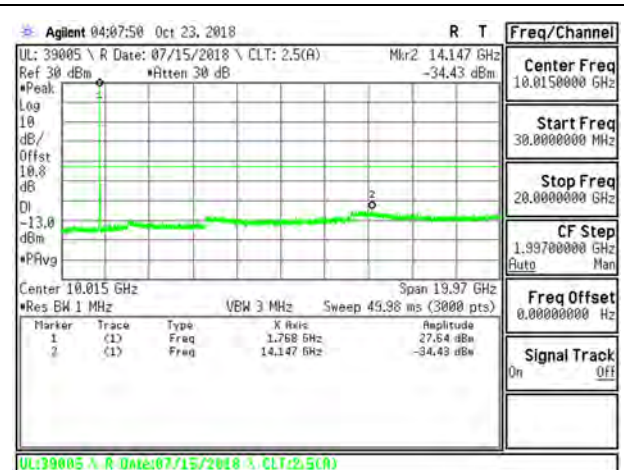
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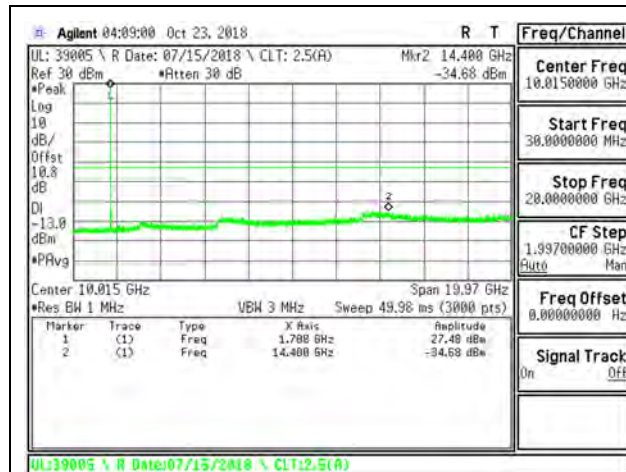
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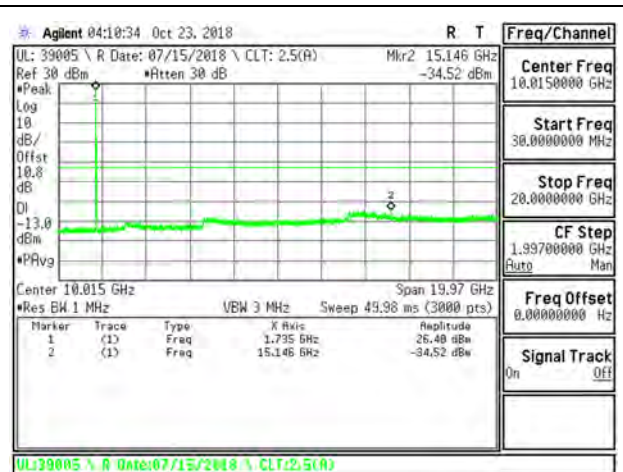
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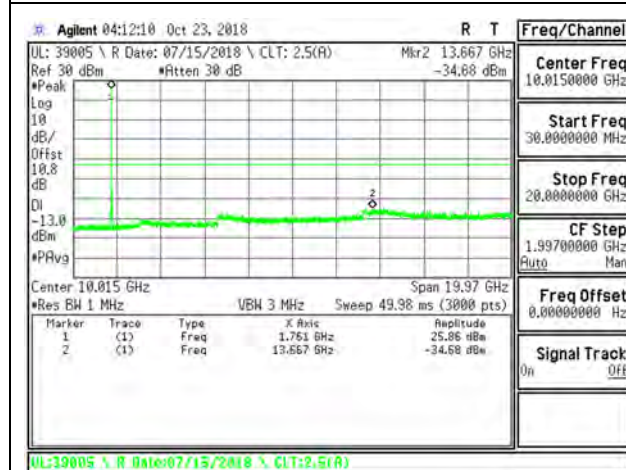
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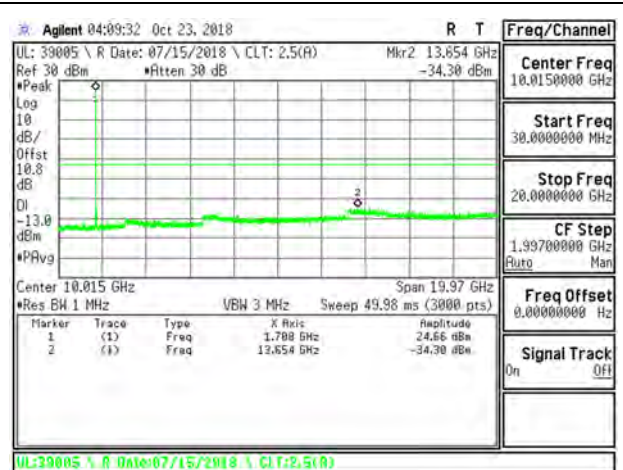
LTE B66 20MHz QPSK Low Channel RB1-0



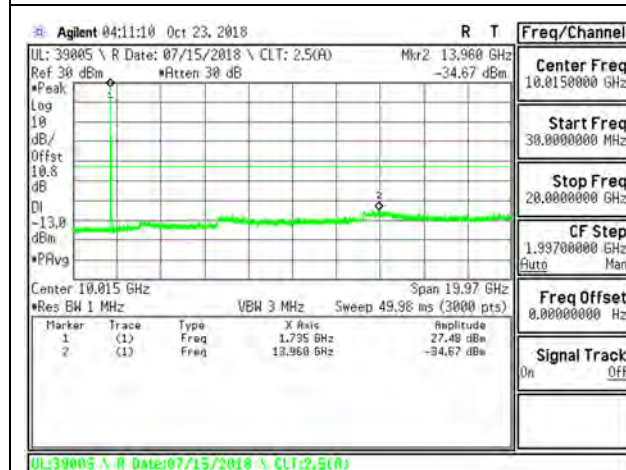
LTE B66 20MHz QPSK Mid Channel RB1-0



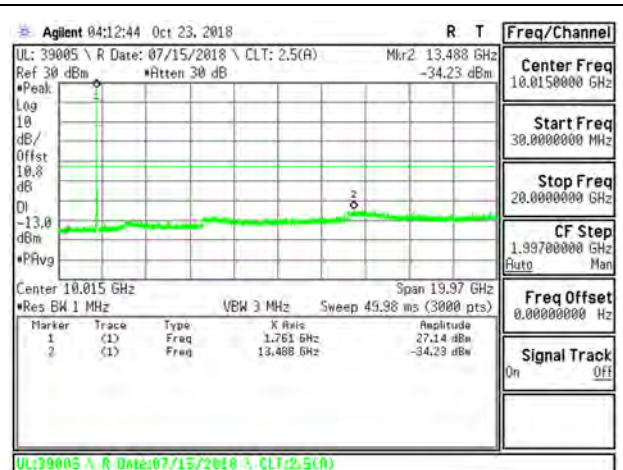
LTE B66 20MHz QPSK High Channel RB1-0



LTE B66 20MHz 16QAM Low Channel RB1-0



LTE B66 20MHz 16QAM Mid Channel RB1-0



LTE B66 20MHz 16QAM High Channel RB1-0