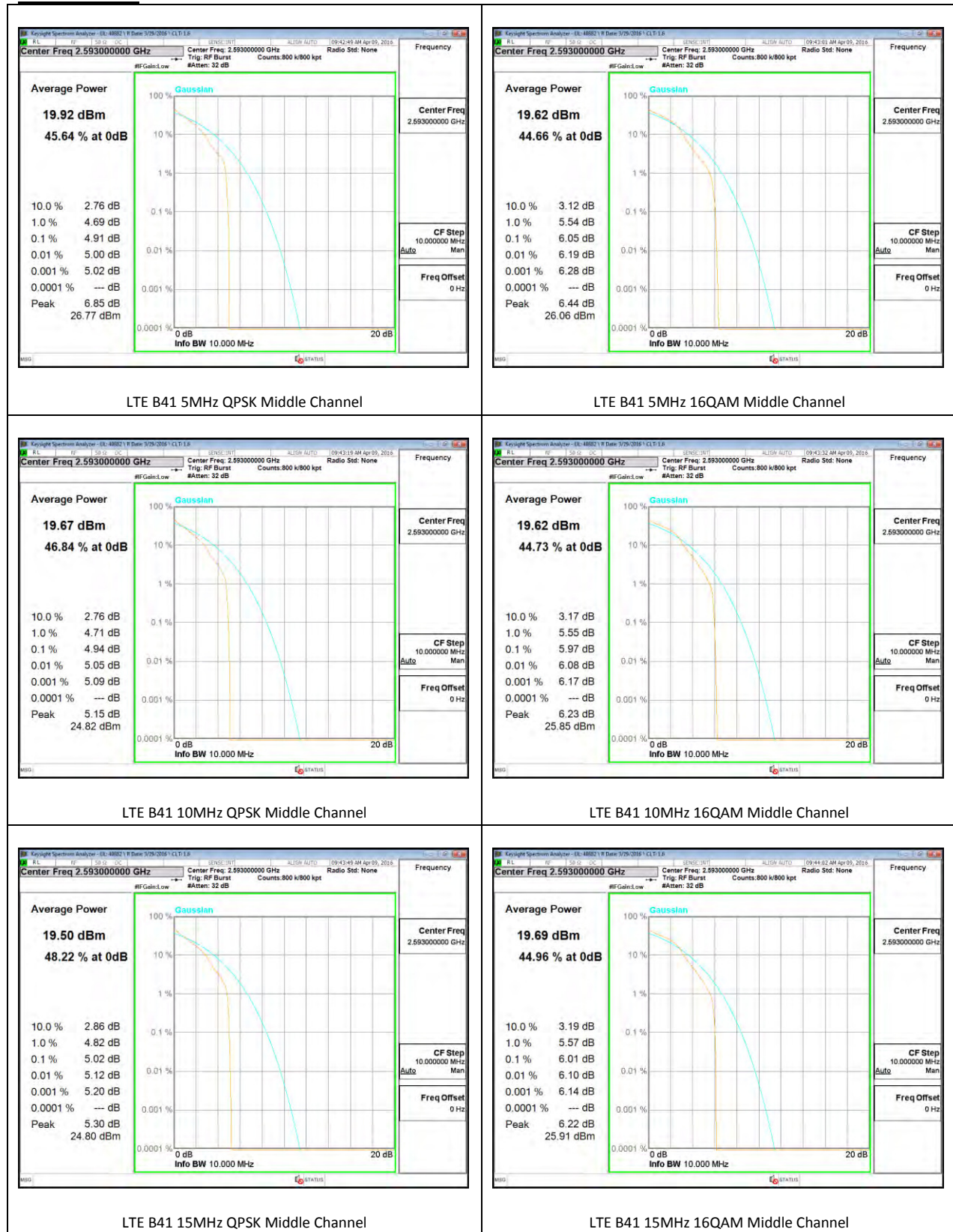
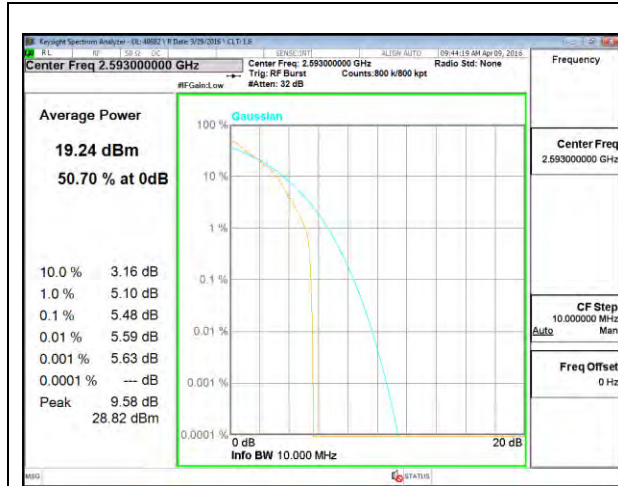
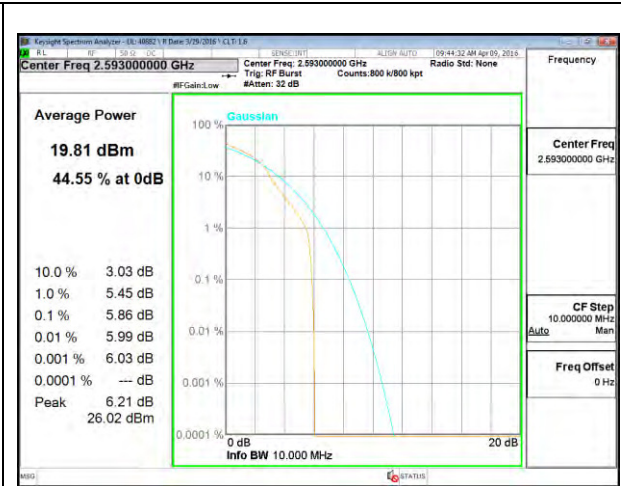


LTE Band 41





LTE B41 20MHz QPSK Middle Channel



LTE B41 20MHz 16QAM Middle Channel

10. OCCUPIED BANDWIDTH

RULE PART(S)

FCC: §2.1049

IC: RSS-132, 4.5; RSS-133, 6.5

LIMITS

For reporting purposes only

TEST PROCEDURE

The transmitter output was connected to a calibrated coaxial cable and coupler, the other end of which was connected to a spectrum analyzer. The occupied bandwidth was measured with the spectrum analyzer at the low, middle and high channel in each band. The -26dB bandwidth was also measured and recorded.

(KDB 971168 D01 Power Meas License Digital Systems v02r02)

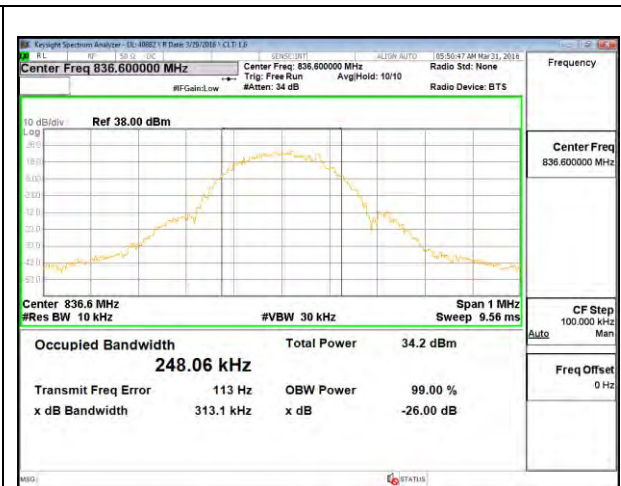
10.1. OCCUPIED BANDWIDTH RESULTS AND PLOTS

GSM

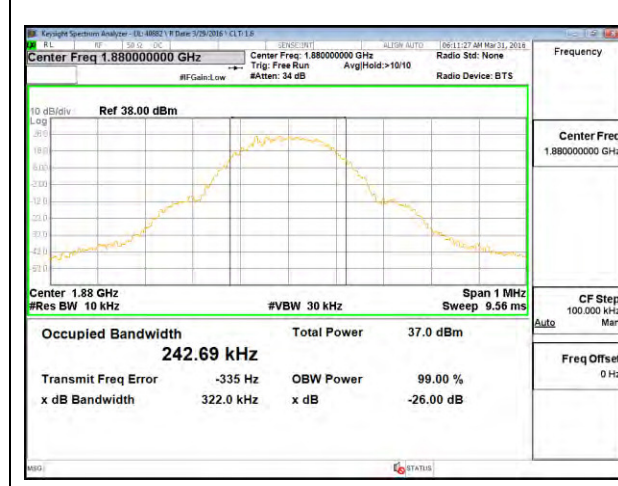
| Band | Mode | Channel | f (MHz) | 99% BW (kHz) | -26dB (kHz) |
|---------|-------|---------|---------|--------------|-------------|
| GSM850 | GPRS | 128 | 824.2 | 243.7 | 319.4 |
| GSM850 | GPRS | 190 | 836.6 | 245.3 | 318.3 |
| GSM850 | GPRS | 251 | 848.8 | 246.4 | 322.1 |
| GSM850 | EGPRS | 128 | 824.2 | 239.2 | 308.8 |
| GSM850 | EGPRS | 190 | 836.6 | 248.1 | 313.1 |
| GSM850 | EGPRS | 251 | 848.8 | 244.3 | 317.2 |
| GSM1900 | GPRS | 512 | 1850.2 | 247.2 | 319.6 |
| GSM1900 | GPRS | 661 | 1880 | 242.7 | 322 |
| GSM1900 | GPRS | 810 | 1909.8 | 248.3 | 314.6 |
| GSM1900 | EGPRS | 512 | 1850.2 | 243.6 | 312.3 |
| GSM1900 | EGPRS | 661 | 1880 | 240.8 | 316.8 |
| GSM1900 | EGPRS | 810 | 1909.8 | 238.1 | 306.5 |



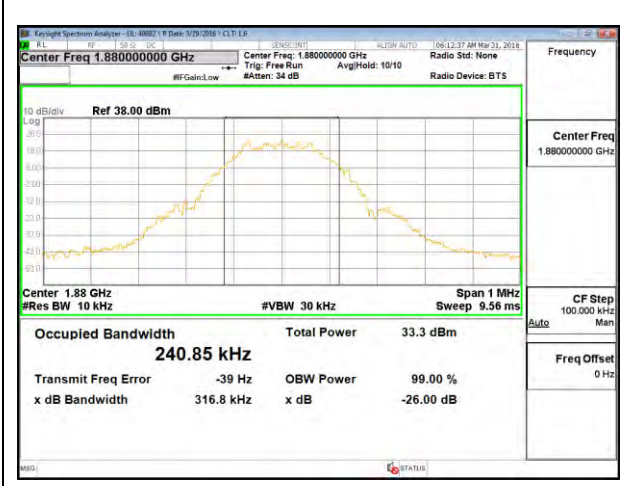
GSM850 GPRS Middle Channel



GSM850 EGPRS Middle Channel



GSM1900 GPRS Middle Channel



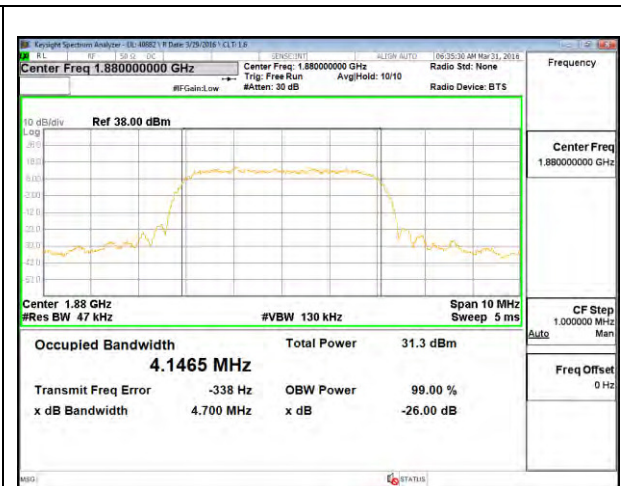
GSM1900 EGPRS Middle Channel

WCDMA

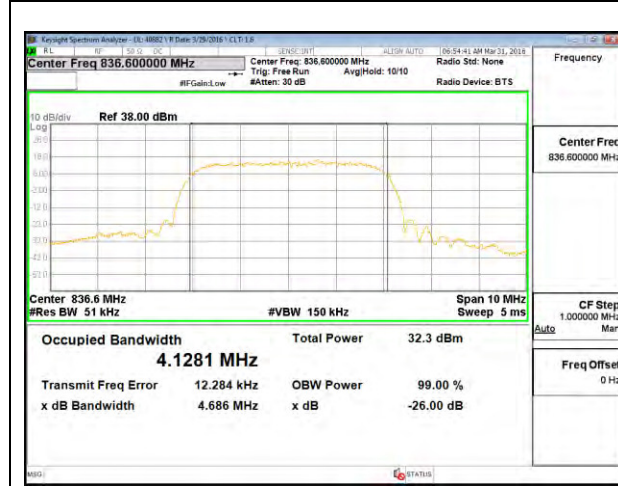
| Band | Mode | Channel | f (MHz) | 99% BW (MHz) | -26dB (MHz) |
|--------|-------|---------|---------|--------------|-------------|
| Band 2 | REL99 | 9262 | 1852.4 | 4.148 | 4.675 |
| Band 2 | REL99 | 9400 | 1880 | 4.142 | 4.701 |
| Band 2 | REL99 | 9538 | 1907.6 | 4.13 | 4.699 |
| Band 2 | HSDPA | 9262 | 1852.4 | 4.151 | 4.709 |
| Band 2 | HSDPA | 9400 | 1880 | 4.146 | 4.7 |
| Band 2 | HSDPA | 9538 | 1907.6 | 4.147 | 4.671 |
| Band 5 | REL99 | 4132 | 826.4 | 4.122 | 4.699 |
| Band 5 | REL99 | 4183 | 836.6 | 4.128 | 4.686 |
| Band 5 | REL99 | 4233 | 846.6 | 4.14 | 4.708 |
| Band 5 | HSDPA | 4132 | 826.4 | 4.122 | 4.691 |
| Band 5 | HSDPA | 4183 | 836.6 | 4.122 | 4.694 |
| Band 5 | HSDPA | 4233 | 846.6 | 4.135 | 4.687 |



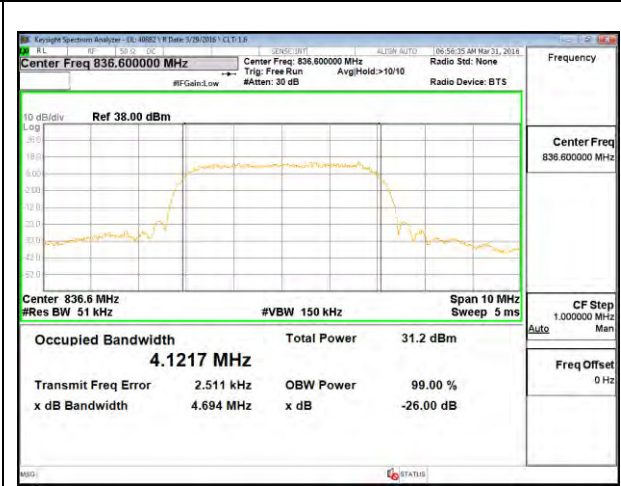
B2 REL99 Middle Channel



B2 HSDPA Middle Channel



B5 REL99 Middle Channel



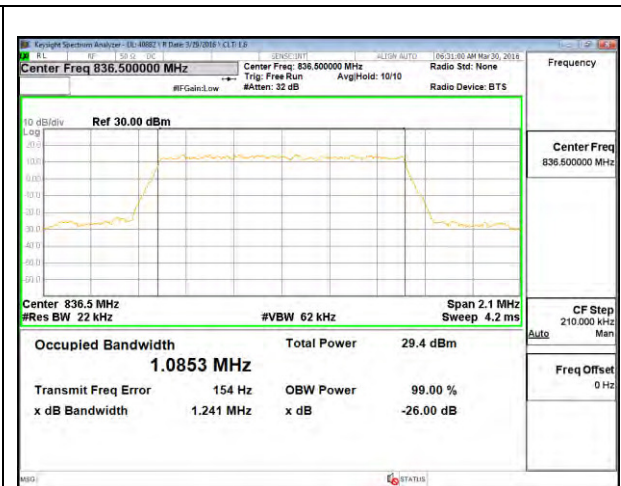
B5 HSDPA Middle Channel

LTE Band 5

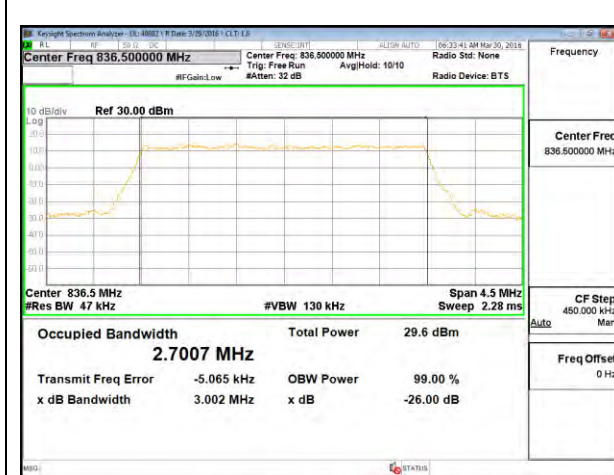
| BW(MHz) | Mode | RB/RB Size | f (MHz) | 99% BW (MHz) | -26dB BW (MHz) |
|---------|-------|------------|---------|--------------|----------------|
| 1.4 | QPSK | 6/0 | 824.7 | 1.09 | 1.24 |
| 1.4 | QPSK | 6/0 | 836.5 | 1.08 | 1.23 |
| 1.4 | QPSK | 6/0 | 848.3 | 1.08 | 1.24 |
| 1.4 | 16QAM | 6/0 | 824.7 | 1.08 | 1.24 |
| 1.4 | 16QAM | 6/0 | 836.5 | 1.08 | 1.24 |
| 1.4 | 16QAM | 6/0 | 848.3 | 1.09 | 1.25 |
| 3 | QPSK | 15/0 | 825.5 | 2.7 | 3 |
| 3 | QPSK | 15/0 | 836.5 | 2.7 | 3 |
| 3 | QPSK | 15/0 | 847.5 | 2.7 | 2.99 |
| 3 | 16QAM | 15/0 | 825.5 | 2.7 | 2.99 |
| 3 | 16QAM | 15/0 | 836.5 | 2.69 | 3.02 |
| 3 | 16QAM | 15/0 | 847.5 | 2.7 | 3.03 |
| 5 | QPSK | 25/0 | 826.5 | 4.48 | 4.93 |
| 5 | QPSK | 25/0 | 836.5 | 4.5 | 4.95 |
| 5 | QPSK | 25/0 | 846.5 | 4.49 | 5 |
| 5 | 16QAM | 25/0 | 826.5 | 4.48 | 4.91 |
| 5 | 16QAM | 25/0 | 836.5 | 4.5 | 4.97 |
| 5 | 16QAM | 25/0 | 846.5 | 4.49 | 4.94 |
| 10 | QPSK | 50/0 | 829 | 8.96 | 9.75 |
| 10 | QPSK | 50/0 | 836.5 | 8.98 | 9.77 |
| 10 | QPSK | 50/0 | 844 | 8.94 | 9.75 |
| 10 | 16QAM | 50/0 | 829 | 8.98 | 9.74 |
| 10 | 16QAM | 50/0 | 836.5 | 8.95 | 9.82 |
| 10 | 16QAM | 50/0 | 844 | 8.97 | 9.77 |



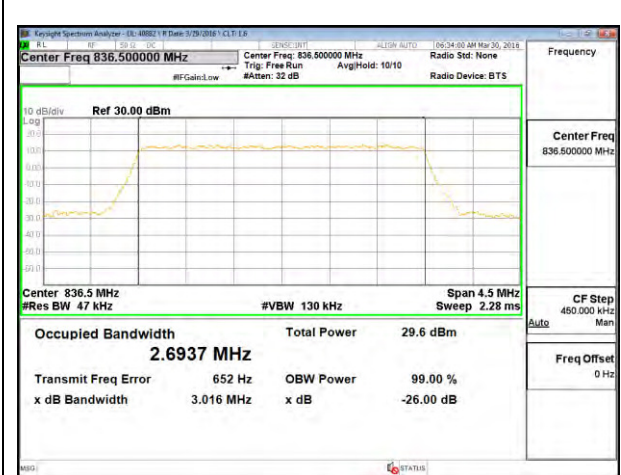
LTE B5 1.4MHz QPSK Middle Channel



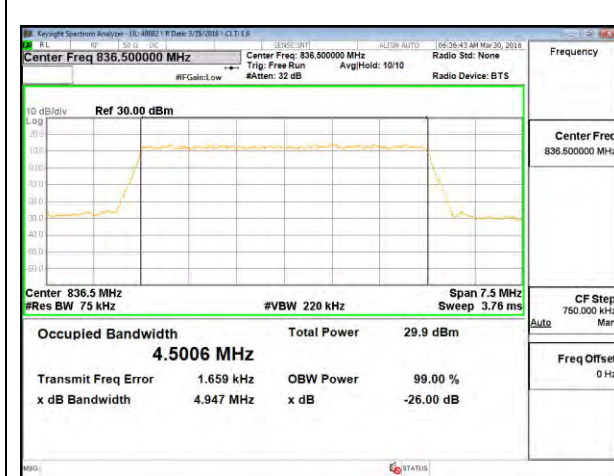
LTE B5 1.4MHz 16QAM Middle Channel



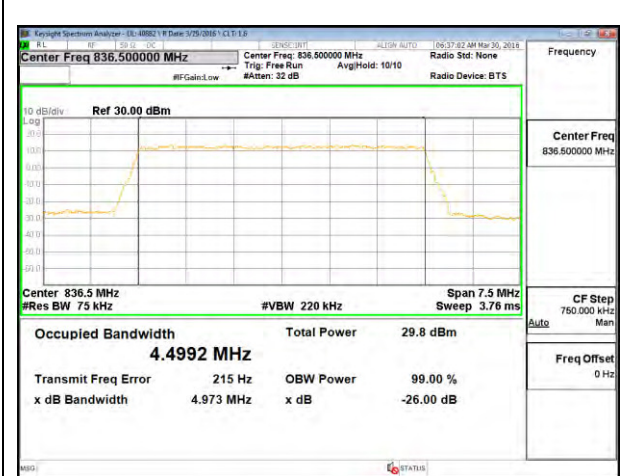
LTE B5 3MHz QPSK Middle Channel



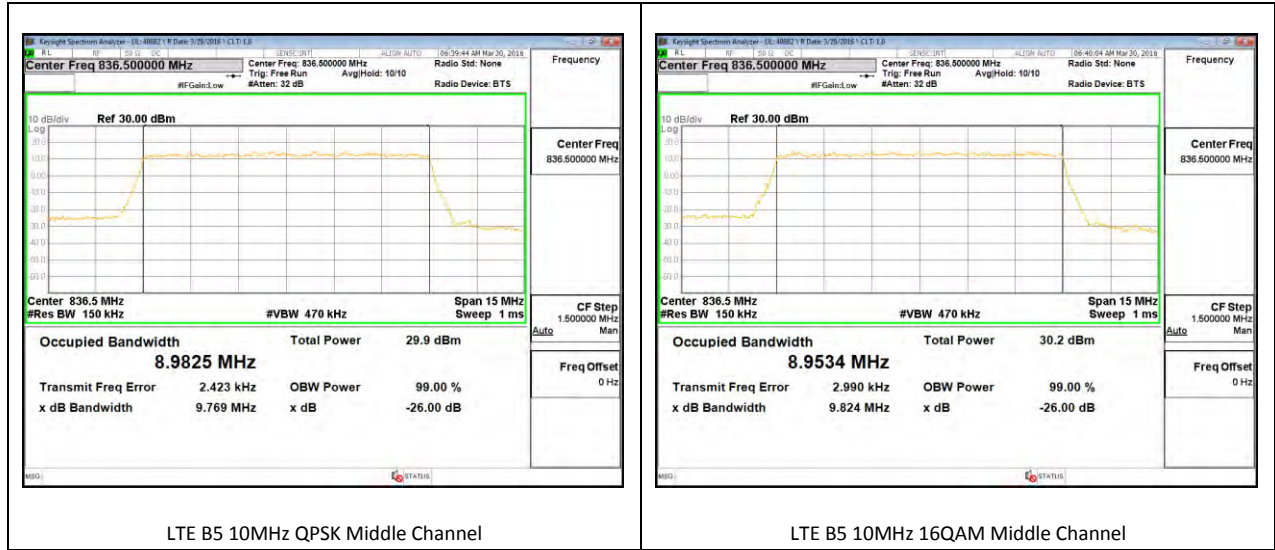
LTE B5 3MHz 16QAM Middle Channel



LTE B5 5MHz QPSK Middle Channel



LTE B5 5MHz 16QAM Middle Channel

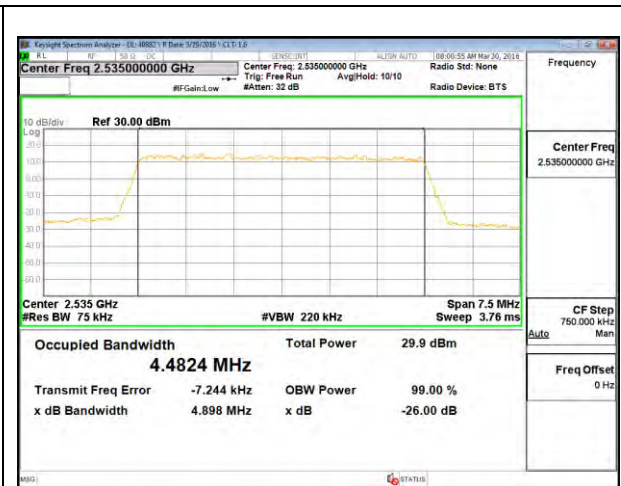


LTE Band 7

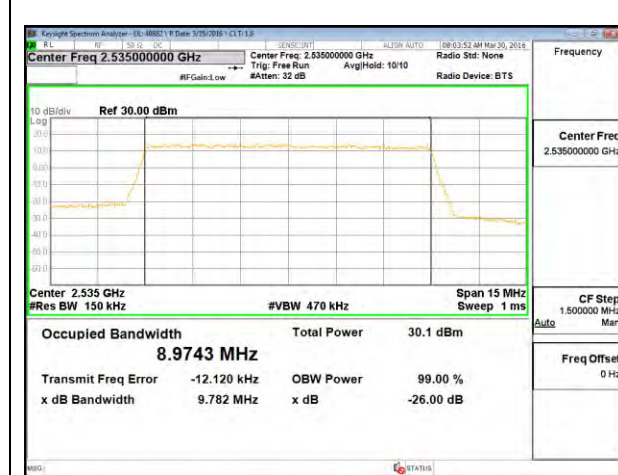
| BW(MHz) | Mode | RB/RB Size | f (MHz) | 99% BW (MHz) | -26dB BW (MHz) |
|---------|-------|------------|---------|--------------|----------------|
| 5 | QPSK | 25/0 | 2502.5 | 4.5 | 4.94 |
| 5 | QPSK | 25/0 | 2535 | 4.48 | 4.91 |
| 5 | QPSK | 25/0 | 2567.5 | 4.5 | 4.95 |
| 5 | 16QAM | 25/0 | 2502.5 | 4.49 | 4.93 |
| 5 | 16QAM | 25/0 | 2535 | 4.48 | 4.9 |
| 5 | 16QAM | 25/0 | 2567.5 | 4.5 | 4.96 |
| 10 | QPSK | 50/0 | 2505 | 8.97 | 9.75 |
| 10 | QPSK | 50/0 | 2535 | 8.97 | 9.78 |
| 10 | QPSK | 50/0 | 2565 | 8.94 | 9.68 |
| 10 | 16QAM | 50/0 | 2505 | 8.97 | 9.74 |
| 10 | 16QAM | 50/0 | 2535 | 8.96 | 9.71 |
| 10 | 16QAM | 50/0 | 2565 | 8.96 | 9.72 |
| 15 | QPSK | 75/0 | 2507.5 | 13.44 | 14.57 |
| 15 | QPSK | 75/0 | 2535 | 13.45 | 14.55 |
| 15 | QPSK | 75/0 | 2562.5 | 13.41 | 14.51 |
| 15 | 16QAM | 75/0 | 2507.5 | 13.44 | 14.6 |
| 15 | 16QAM | 75/0 | 2535 | 13.45 | 14.66 |
| 15 | 16QAM | 75/0 | 2562.5 | 13.38 | 14.46 |
| 20 | QPSK | 100/0 | 2510 | 17.91 | 19.27 |
| 20 | QPSK | 100/0 | 2535 | 17.97 | 19.35 |
| 20 | QPSK | 100/0 | 2560 | 17.86 | 19.26 |
| 20 | 16QAM | 100/0 | 2510 | 17.92 | 19.3 |
| 20 | 16QAM | 100/0 | 2535 | 17.92 | 19.43 |
| 20 | 16QAM | 100/0 | 2560 | 17.84 | 19.33 |



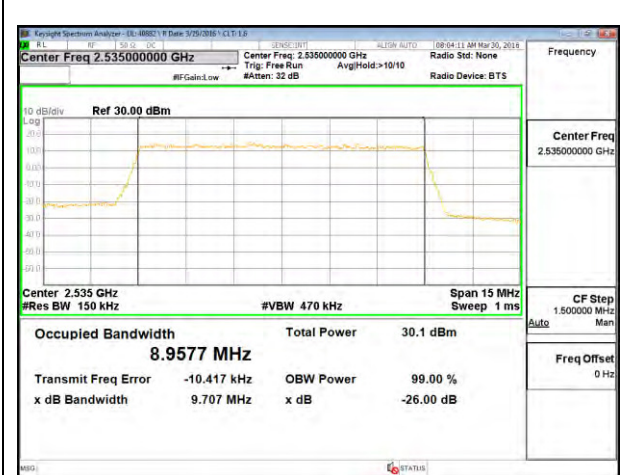
LTE B7 5MHz QPSK Middle Channel



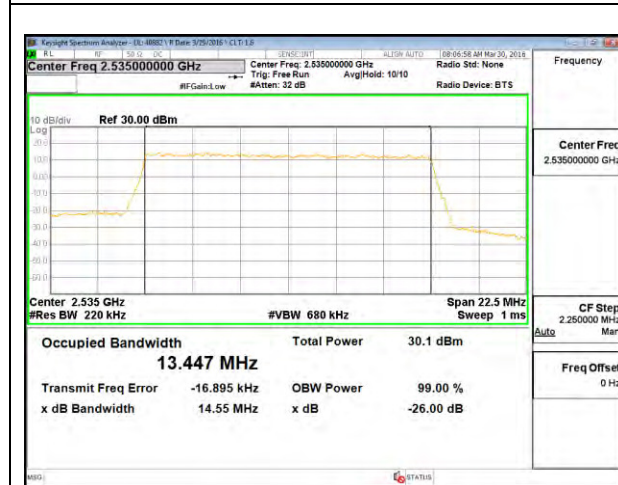
LTE B7 5MHz 16QAM Middle Channel



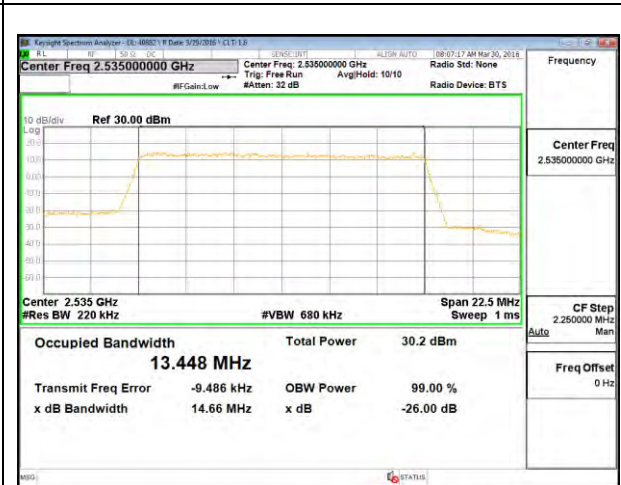
LTE B7 10MHz QPSK Middle Channel



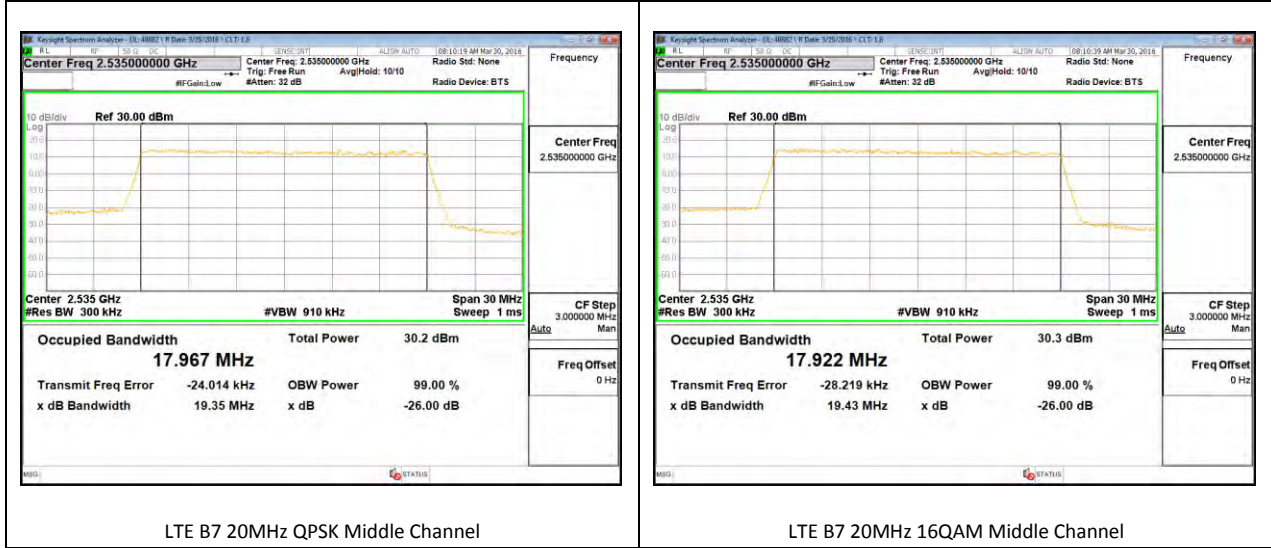
LTE B7 10MHz 16QAM Middle Channel



LTE B7 15MHz QPSK Middle Channel

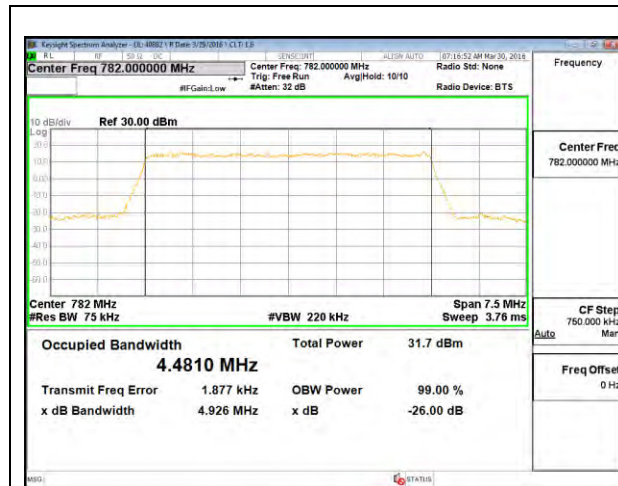


LTE B7 15MHz 16QAM Middle Channel

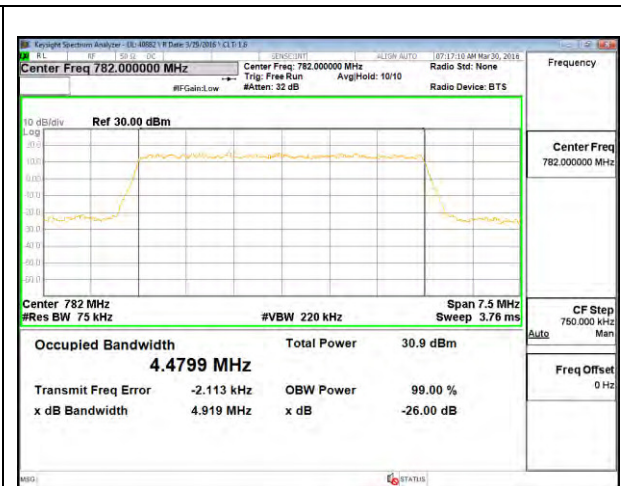


LTE Band 13

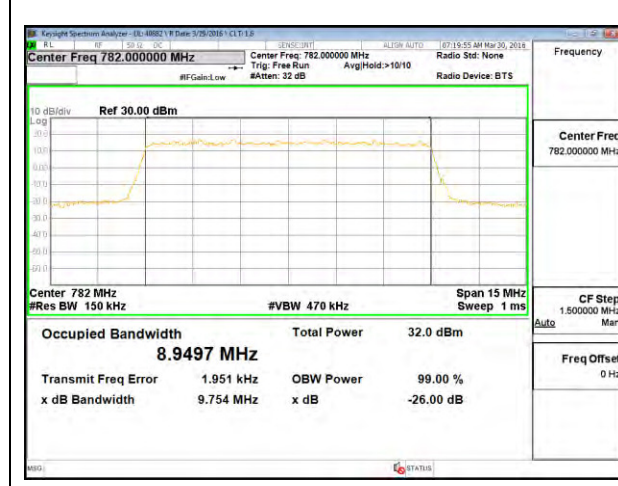
| BW(MHz) | Mode | RB/RB Size | f (MHz) | 99% BW (MHz) | -26dB BW (MHz) |
|---------|-------|------------|---------|--------------|----------------|
| 5 | QPSK | 25/0 | 779.5 | 4.5 | 4.97 |
| 5 | QPSK | 25/0 | 782 | 4.48 | 4.93 |
| 5 | QPSK | 25/0 | 784.5 | 4.5 | 4.93 |
| 5 | 16QAM | 25/0 | 779.5 | 4.49 | 4.94 |
| 5 | 16QAM | 25/0 | 782 | 4.48 | 4.92 |
| 5 | 16QAM | 25/0 | 784.5 | 4.5 | 4.96 |
| 10 | QPSK | 50/0 | 782 | 8.95 | 9.75 |
| 10 | 16QAM | 50/0 | 782 | 8.98 | 9.69 |



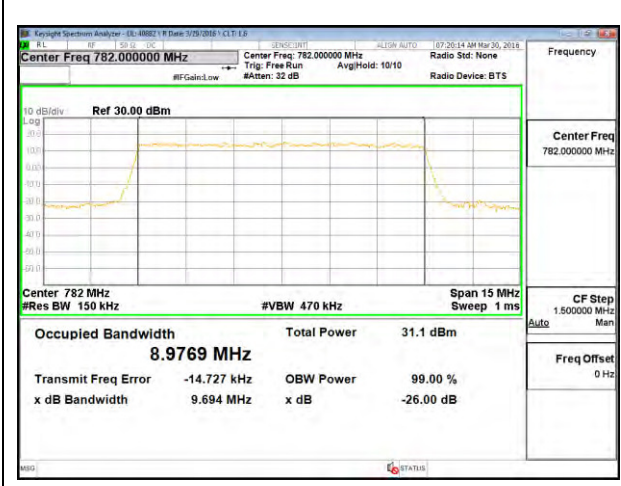
LTE B13 5MHz QPSK Middle Channel



LTE B13 5MHz 16QAM Middle Channel



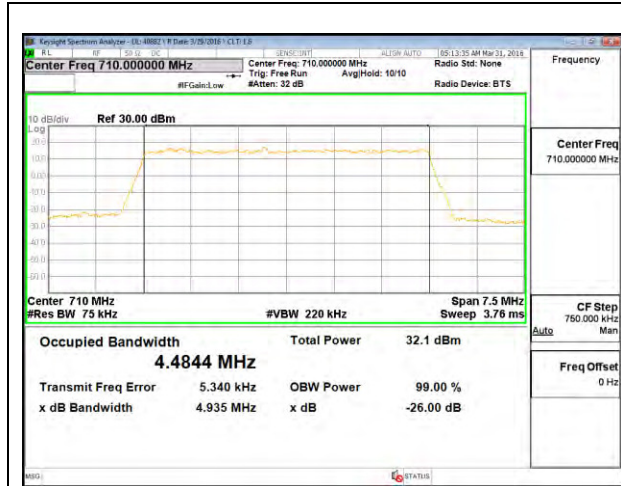
LTE B13 10MHz QPSK Middle Channel



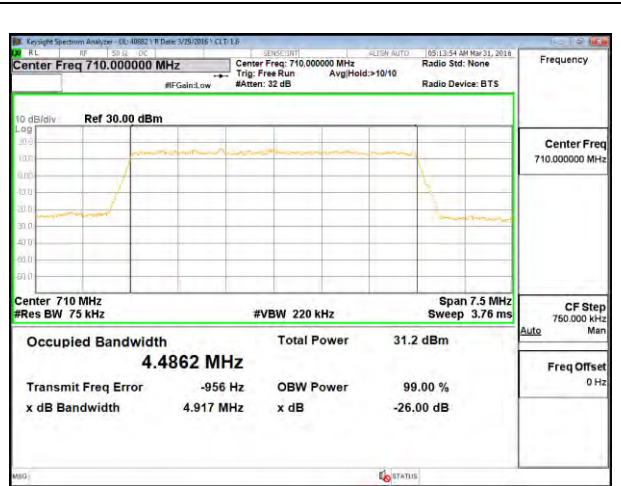
LTE B13 10MHz 16QAM Middle Channel

LTE Band 17

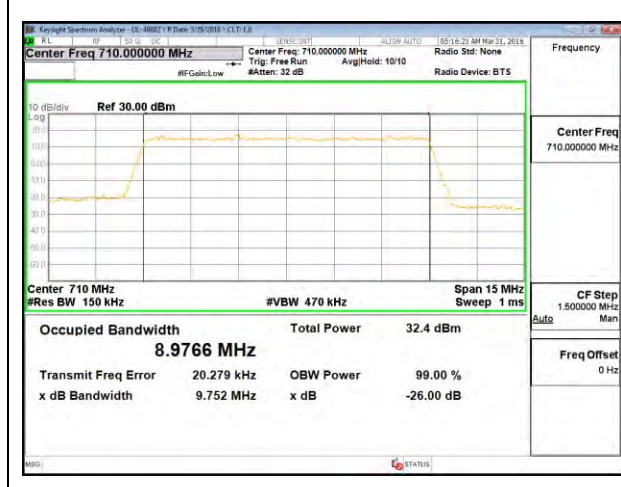
| BW(MHz) | Mode | RB/RB Size | f (MHz) | 99% BW (MHz) | -26dB BW (MHz) |
|---------|-------|------------|---------|--------------|----------------|
| 5 | QPSK | 25/0 | 706.5 | 4.49 | 4.97 |
| 5 | QPSK | 25/0 | 710 | 4.48 | 4.93 |
| 5 | QPSK | 25/0 | 713.5 | 4.5 | 4.93 |
| 5 | 16QAM | 25/0 | 706.5 | 4.49 | 4.93 |
| 5 | 16QAM | 25/0 | 710 | 4.49 | 4.92 |
| 5 | 16QAM | 25/0 | 713.5 | 4.5 | 4.95 |
| 10 | QPSK | 50/0 | 709 | 8.96 | 9.74 |
| 10 | QPSK | 50/0 | 710 | 8.98 | 9.75 |
| 10 | QPSK | 50/0 | 711 | 8.96 | 9.69 |
| 10 | 16QAM | 50/0 | 709 | 8.98 | 9.77 |
| 10 | 16QAM | 50/0 | 710 | 8.96 | 9.76 |
| 10 | 16QAM | 50/0 | 711 | 9 | 9.8 |



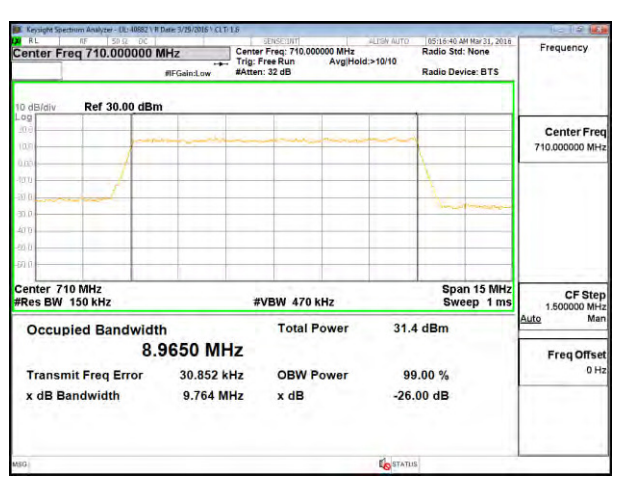
LTE B17 5MHz QPSK Middle Channel



LTE B17 5MHz 16QAM Middle Channel



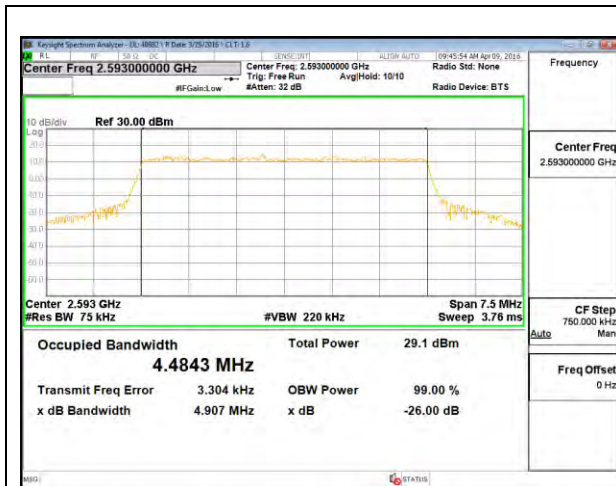
LTE B17 10MHz QPSK Middle Channel



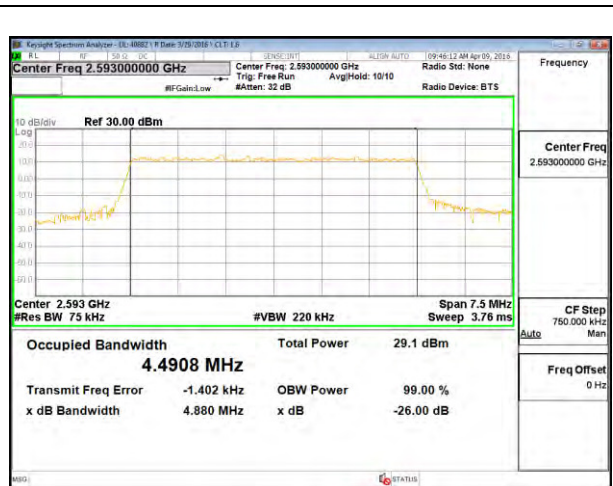
LTE B17 10MHz 16QAM Middle Channel

LTE Band 41

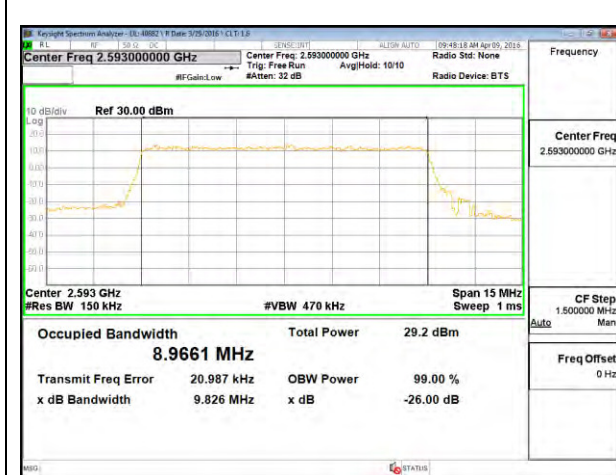
| BW(MHz) | Mode | RB/RB Size | f (MHz) | 99% BW (MHz) | -26dB BW (MHz) |
|---------|-------|------------|---------|--------------|----------------|
| 5 | QPSK | 25/0 | 2498.5 | 4.49 | 4.89 |
| 5 | QPSK | 25/0 | 2593 | 4.48 | 4.91 |
| 5 | QPSK | 25/0 | 2687.5 | 4.5 | 4.94 |
| 5 | 16QAM | 25/0 | 2498.5 | 4.49 | 4.92 |
| 5 | 16QAM | 25/0 | 2593 | 4.49 | 4.88 |
| 5 | 16QAM | 25/0 | 2687.5 | 4.49 | 4.97 |
| 10 | QPSK | 50/0 | 2501 | 8.95 | 9.73 |
| 10 | QPSK | 50/0 | 2593 | 8.97 | 9.83 |
| 10 | QPSK | 50/0 | 2685 | 8.97 | 9.73 |
| 10 | 16QAM | 50/0 | 2501 | 9.01 | 10.15 |
| 10 | 16QAM | 50/0 | 2593 | 8.99 | 9.85 |
| 10 | 16QAM | 50/0 | 2685 | 8.95 | 9.84 |
| 15 | QPSK | 75/0 | 2503.5 | 13.44 | 14.68 |
| 15 | QPSK | 75/0 | 2593 | 13.47 | 14.91 |
| 15 | QPSK | 75/0 | 2682.5 | 13.45 | 14.7 |
| 15 | 16QAM | 75/0 | 2503.5 | 13.46 | 14.7 |
| 15 | 16QAM | 75/0 | 2593 | 13.44 | 15.64 |
| 15 | 16QAM | 75/0 | 2682.5 | 13.45 | 14.52 |
| 20 | QPSK | 100/0 | 2506 | 17.95 | 19.97 |
| 20 | QPSK | 100/0 | 2593 | 17.94 | 19.3 |
| 20 | QPSK | 100/0 | 2680 | 17.91 | 19.38 |
| 20 | 16QAM | 100/0 | 2506 | 17.94 | 19.84 |
| 20 | 16QAM | 100/0 | 2593 | 17.94 | 20.06 |
| 20 | 16QAM | 100/0 | 2680 | 17.92 | 19.88 |



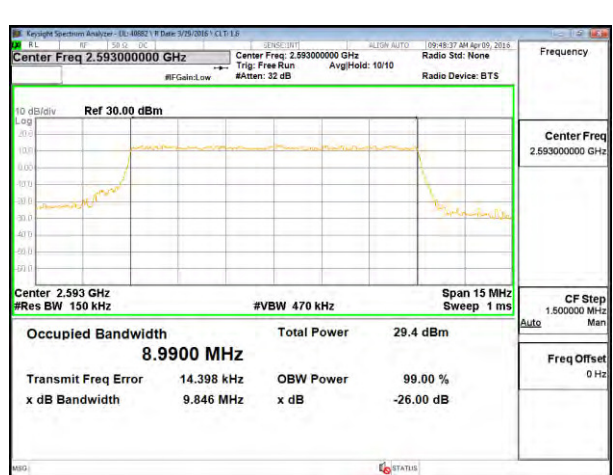
LTE B41 5MHz QPSK Middle Channel



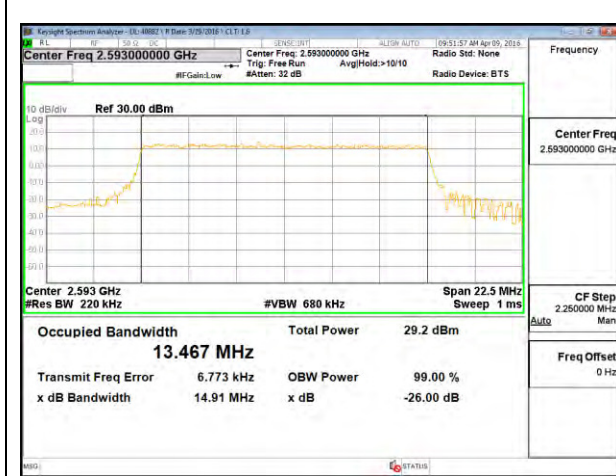
LTE B41 5MHz 16QAM Middle Channel



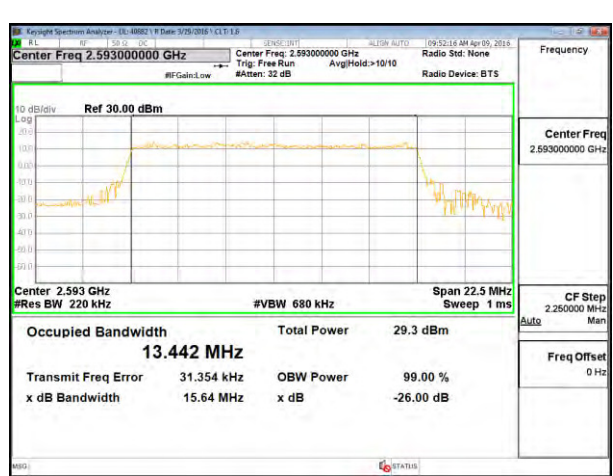
LTE B41 10MHz QPSK Middle Channel



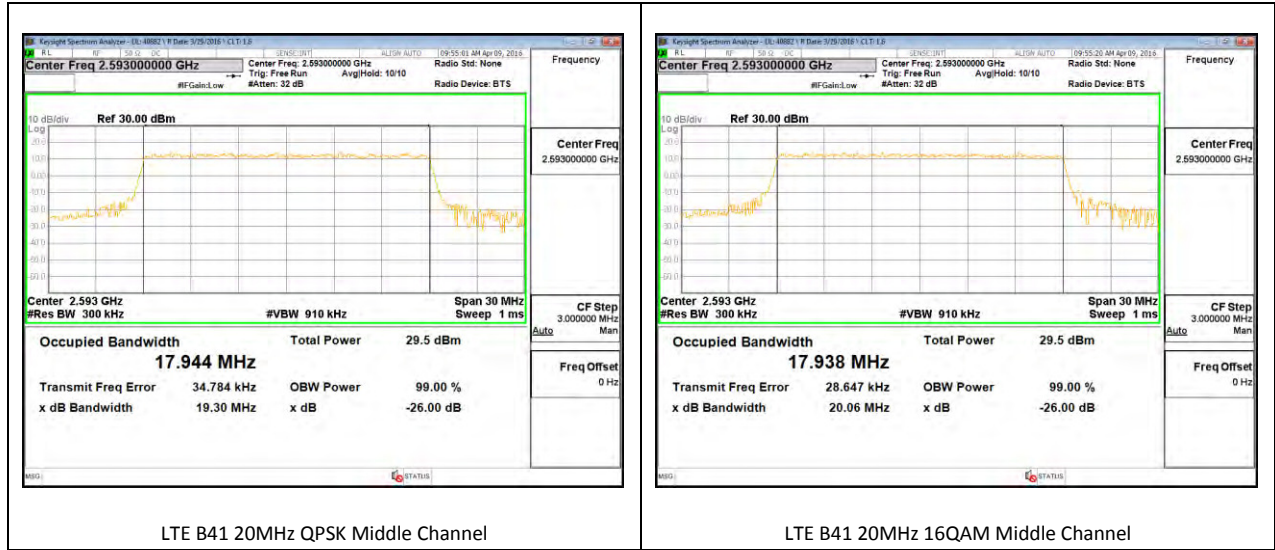
LTE B41 10MHz 16QAM Middle Channel



LTE B41 15MHz QPSK Middle Channel



LTE B41 15MHz 16QAM Middle Channel



LTE B41 20MHz QPSK Middle Channel

LTE B41 20MHz 16QAM Middle Channel

11. BAND EDGE EMISSIONS

RULE PART(S)

FCC: §22.359, §24.238 and §27.53

LIMITS

Part 24.238(a) & Part 22.917(a) The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10 \log (P)$ dB.

Part 27: (m)(4) (4) 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 than $43 + 10 \log (P)$ dB on all frequencies between 2490.5 MHz and 2496 MHz and $55 + 10 \log (P)$ dB at or below 2490.5 MHz. Mobile Satellite Service licensees operating on frequencies below 2495 MHz may also submit a documented interference complaint against BRS licensees operating on channel BRS Channel 1 on the same terms and conditions as adjacent channel BRS or EBS licensees.

TEST PROCEDURE

Per KDB 971168 D01 Power Meas License Digital Systems v02r02

The transmitter output was connected to an Agilent 8960 or a CMW500 Test Set and configured to operate at maximum power. The band edge emissions were measured at the required operating frequencies in each band on the Spectrum Analyzer.

11.1. BAND EDGE PLOTS GSM



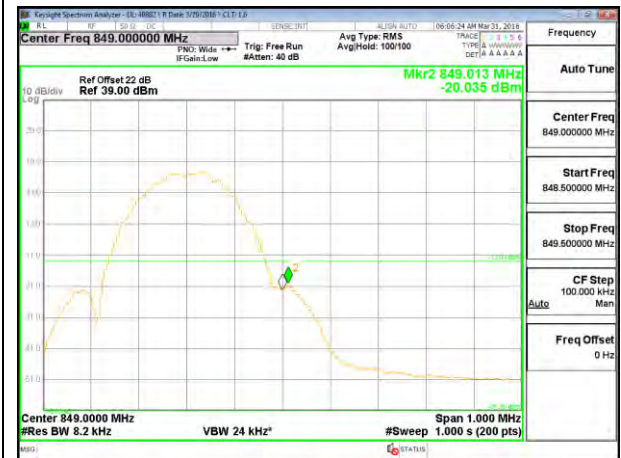
GSM850 GPRS Low Channel



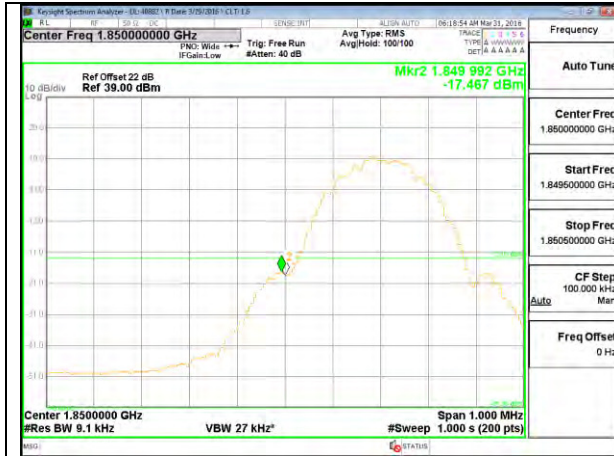
GSM850 GPRS High Channel



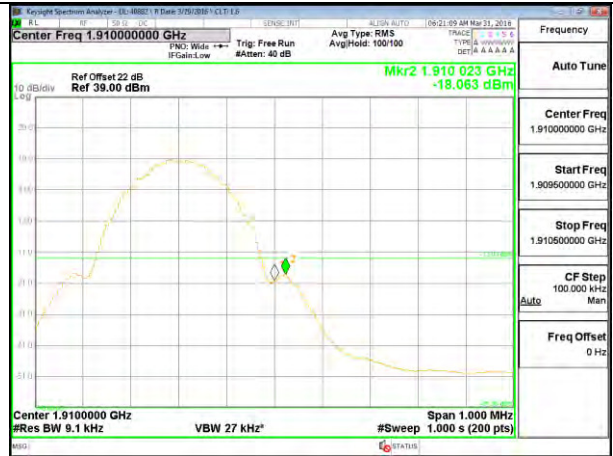
GSM850 EGPRS Low Channel



GSM850 EGPRS High Channel



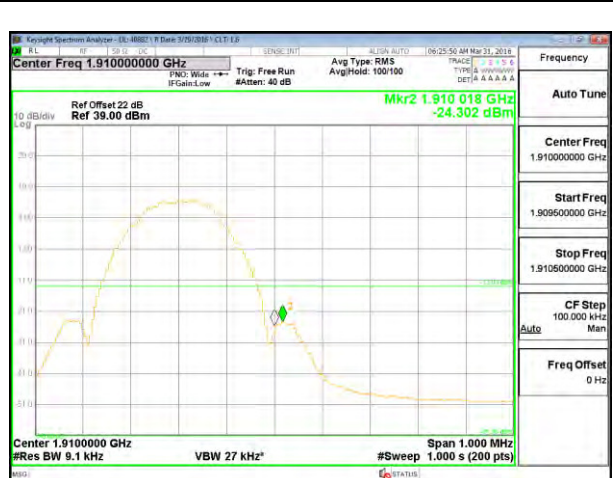
GSM1900 GPRS Low Channel



GSM1900 GPRS High Channel

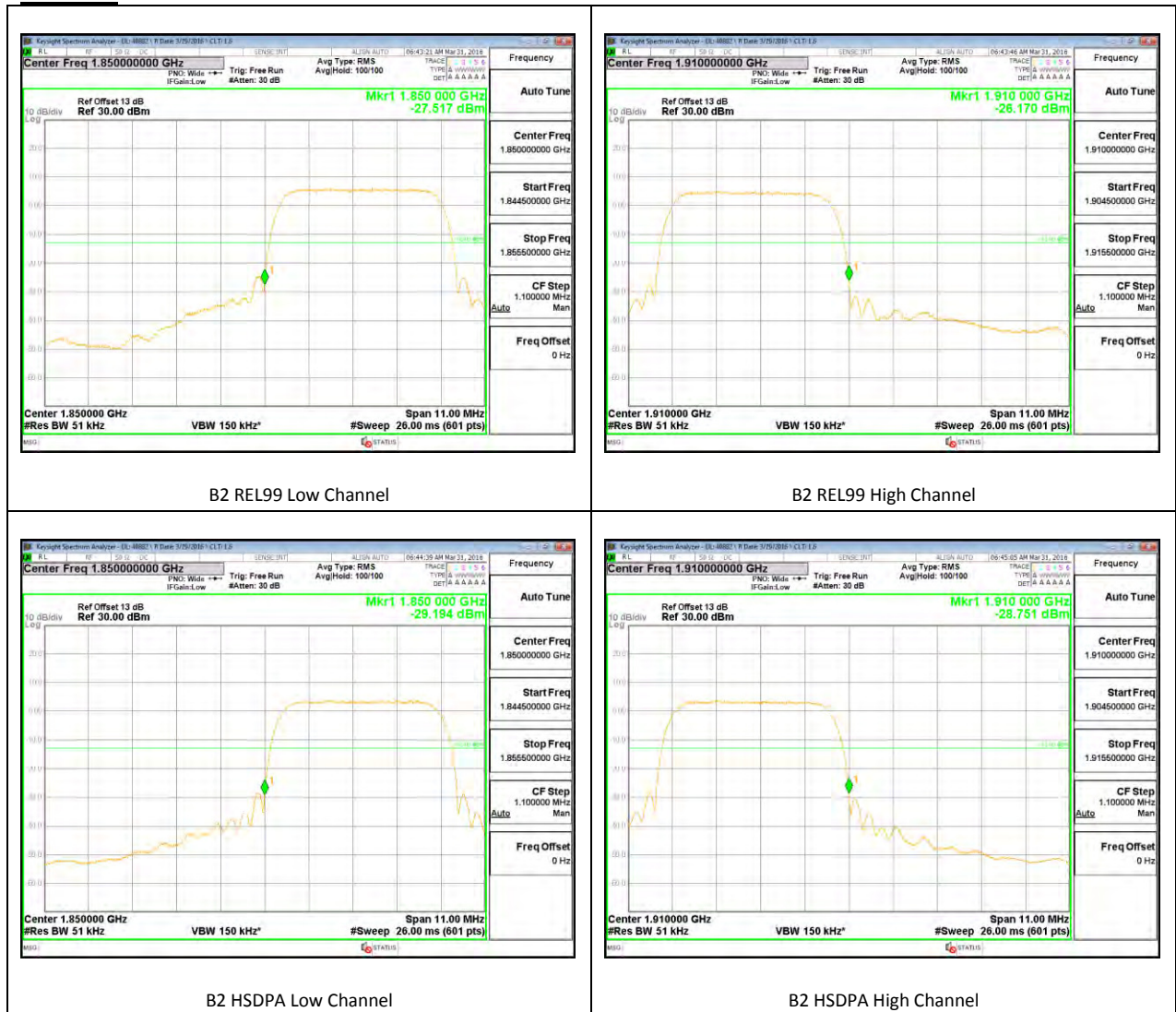


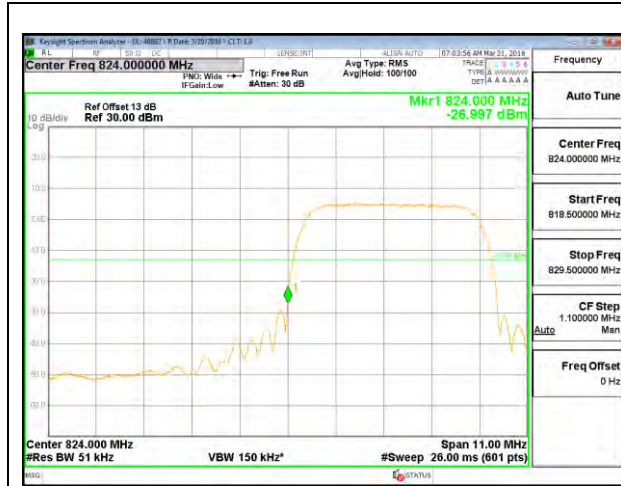
GSM1900 EGPRS Low Channel



GSM1900 EGPRS High Channel

WCDMA





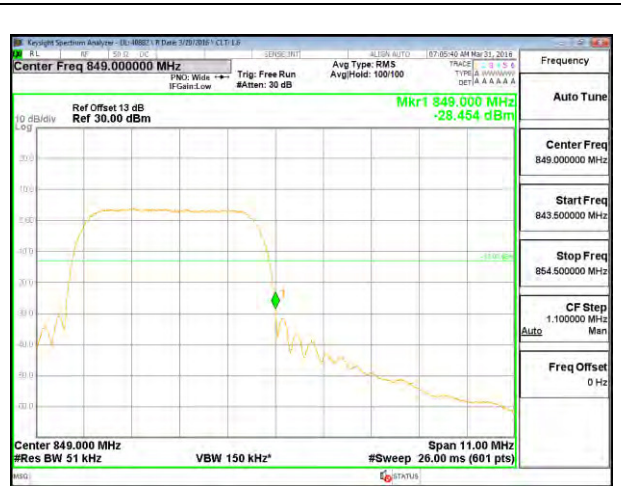
B5 REL99 Low Channel



B5 REL99 High Channel

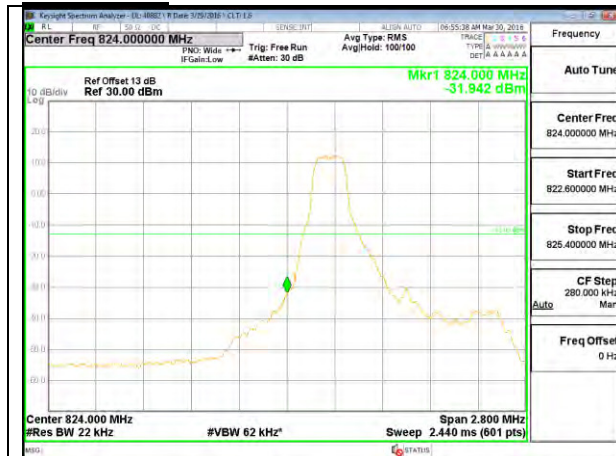


B5 HSDPA Low Channel

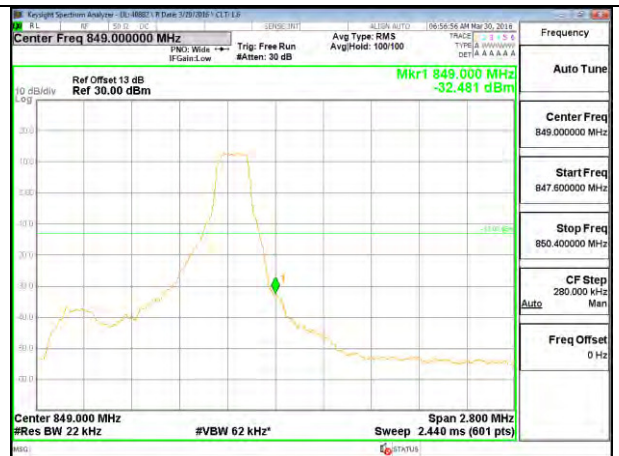


B5 HSDPA High Channel

LTE Band 5



LTE B5 1.4MHz QPSK Low Channel 1RB



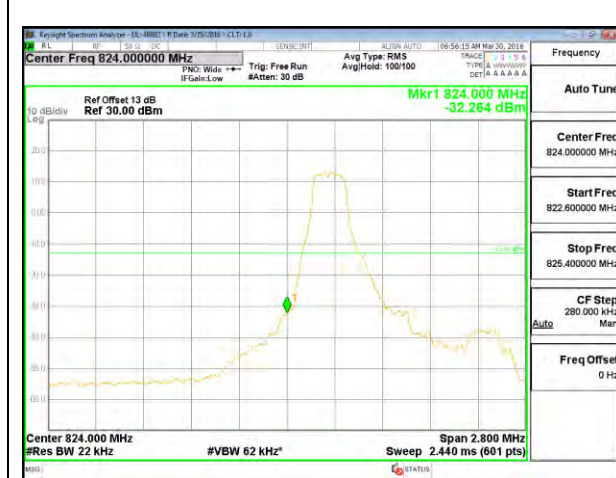
LTE B5 1.4MHz QPSK High Channel 1RB



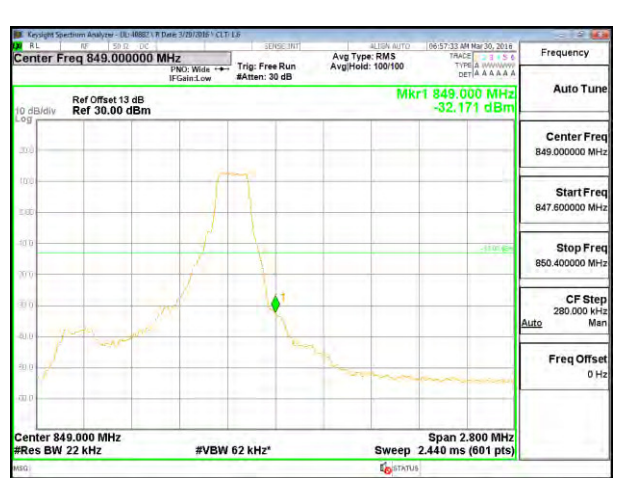
LTE B5 1.4MHz QPSK Low Channel FRB



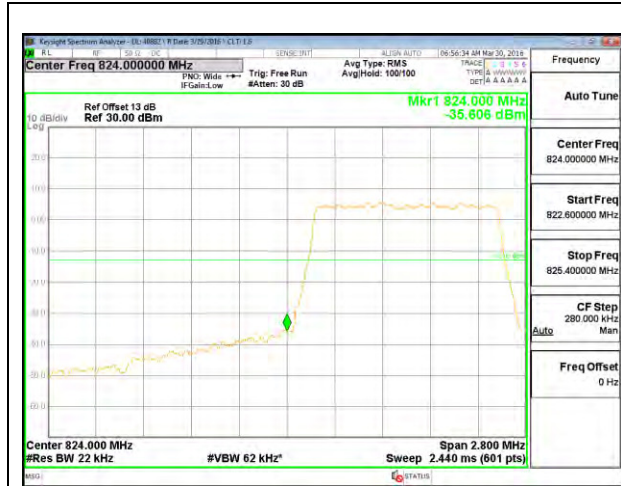
LTE B5 1.4MHz QPSK High Channel FRB



LTE B5 1.4MHz 16QAM Low Channel 1RB



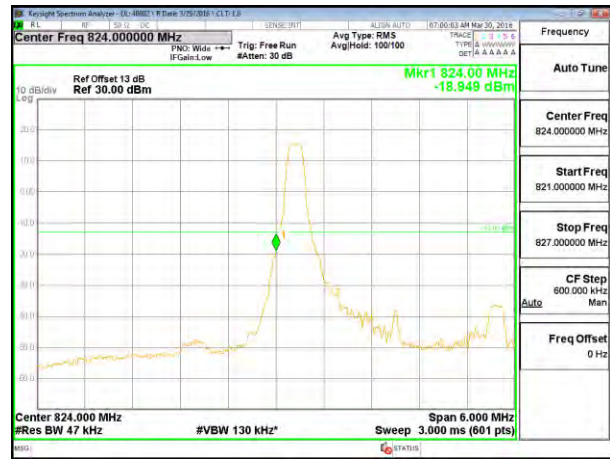
LTE B5 1.4MHz 16QAM High Channel 1RB



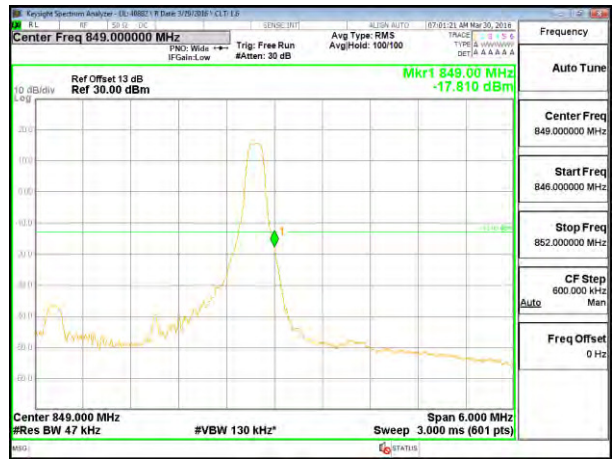
LTE B5 1.4MHz 16QAM Low Channel FRB



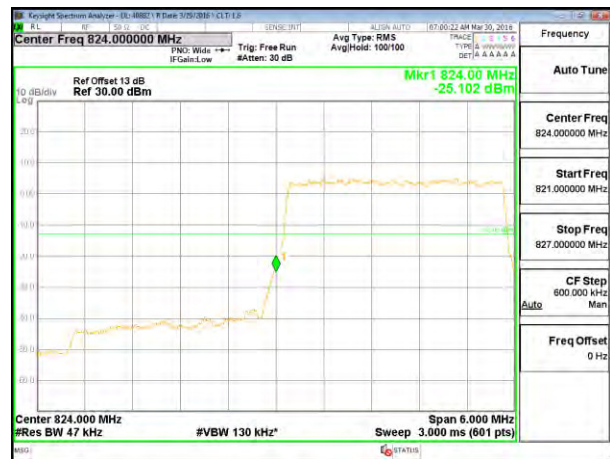
LTE B5 1.4MHz 16QAM High Channel FRB



LTE B5 3MHz QPSK Low Channel 1RB



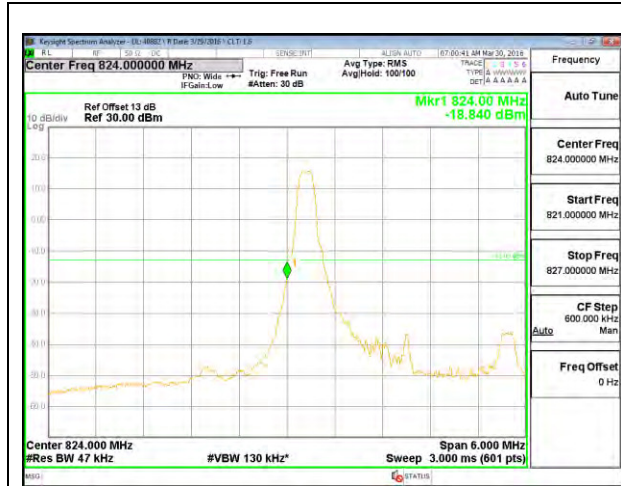
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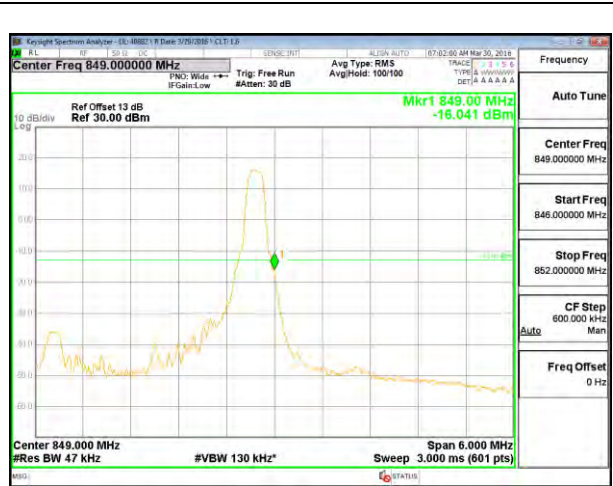
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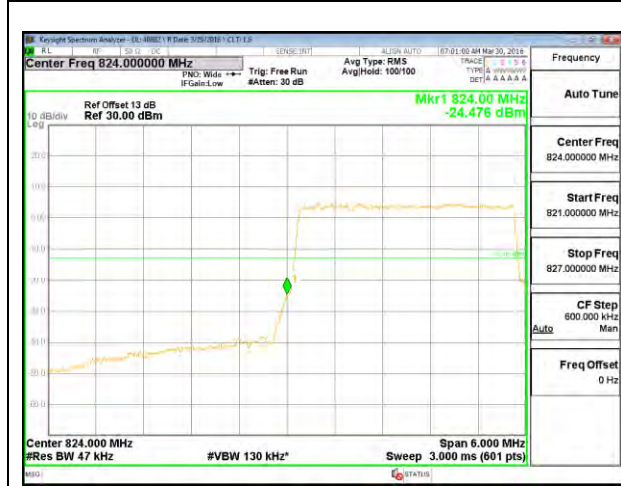
LTE B5 3MHz QPSK High Channel FRB



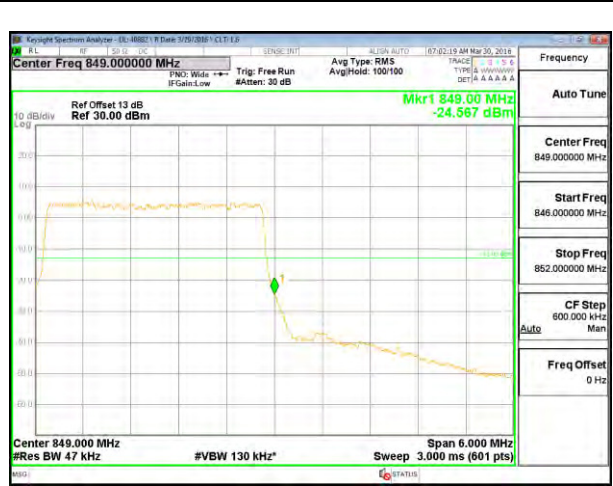
LTE B5 3MHz 16QAM Low Channel 1RB



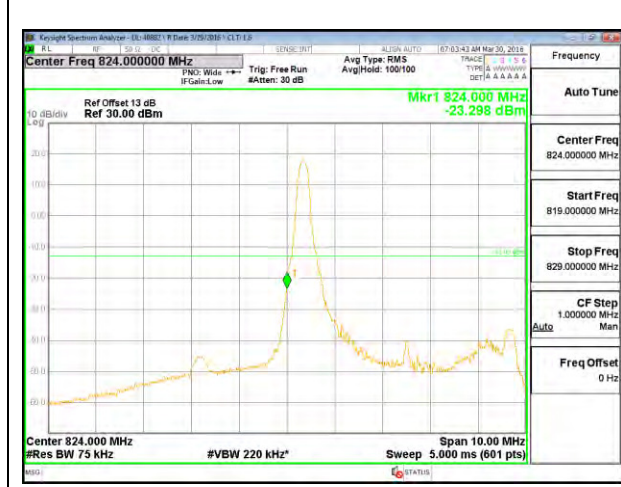
LTE B5 3MHz 16QAM High Channel 1RB



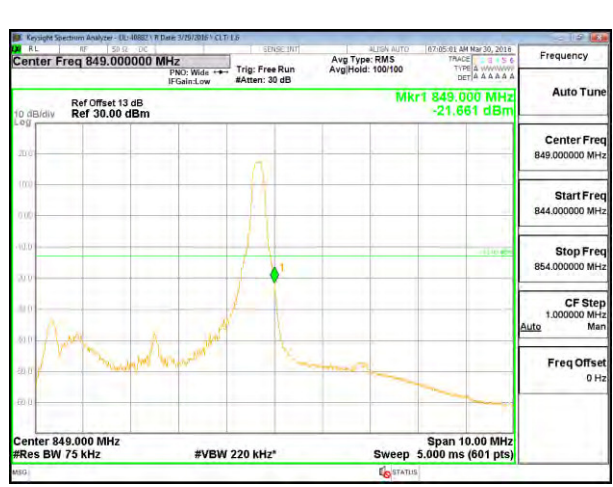
LTE B5 3MHz 16QAM Low Channel FRB



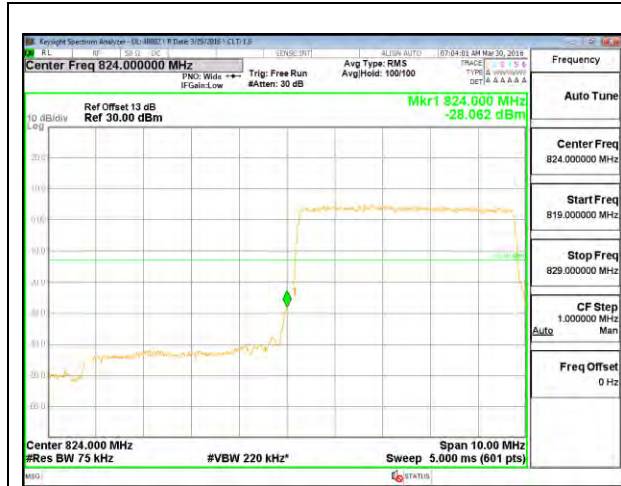
LTE B5 3MHz 16QAM High Channel FRB



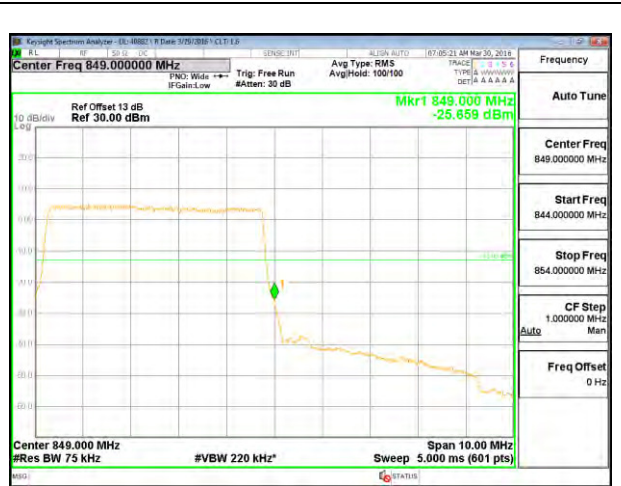
LTE B5 5MHz QPSK Low Channel 1RB



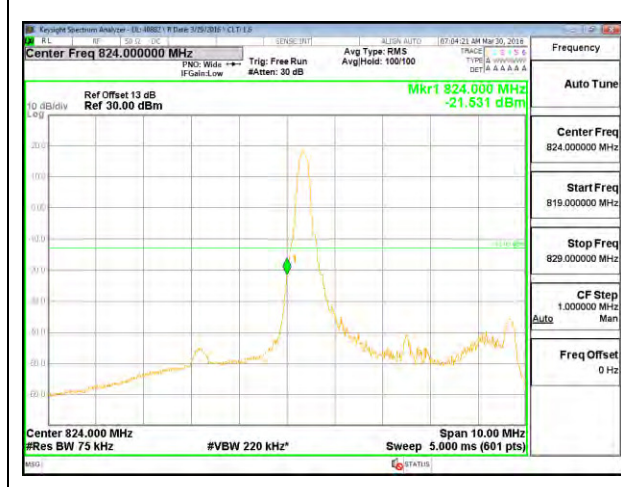
LTE B5 5MHz QPSK High Channel 1RB



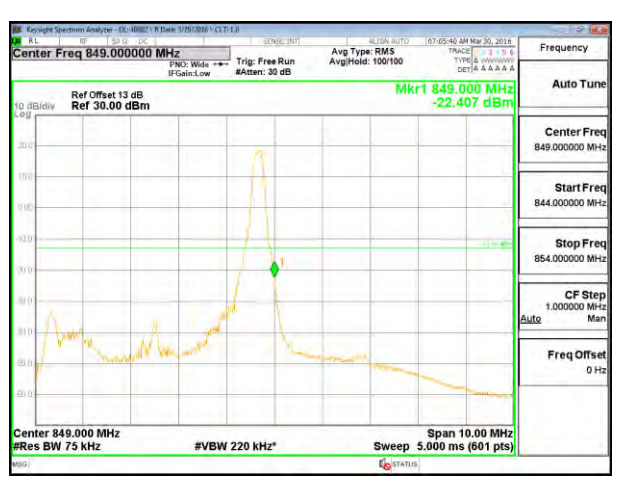
LTE B5 5MHz QPSK Low Channel FRB



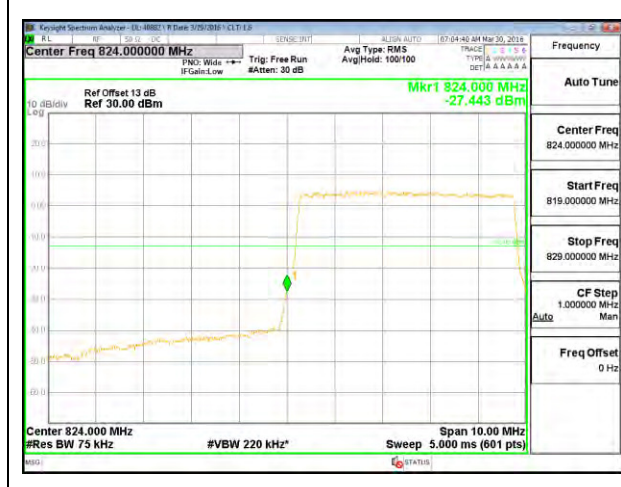
LTE B5 5MHz QPSK High Channel FRB



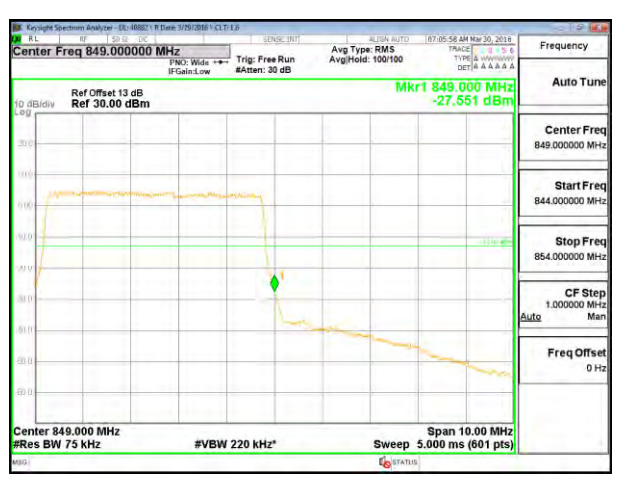
LTE B5 5MHz 16QAM Low Channel 1RB



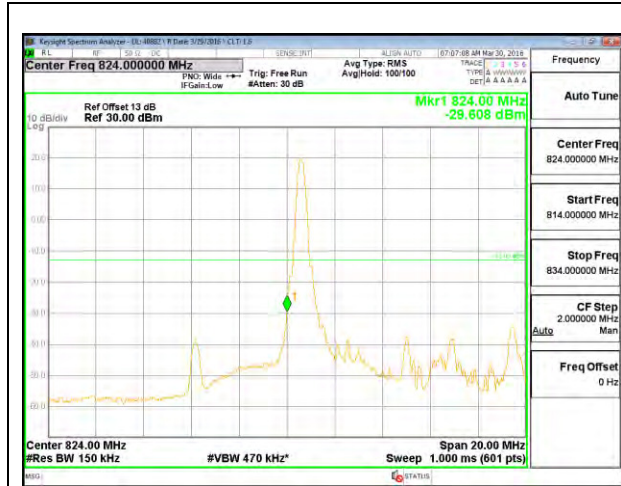
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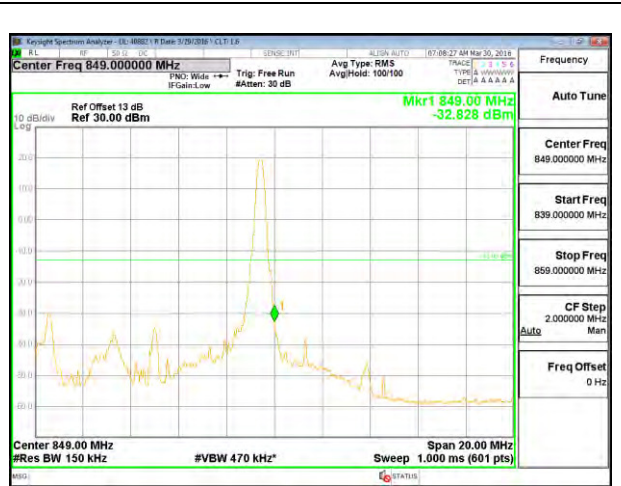
LTE B5 5MHz 16QAM Low Channel FRB



LTE B5 5MHz 16QAM High Channel FRB



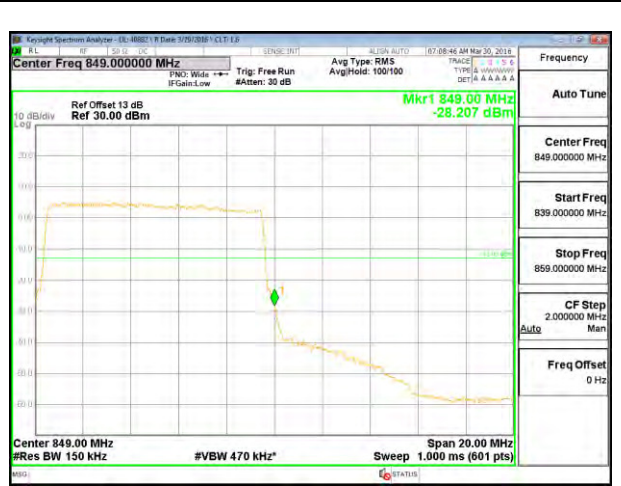
LTE B5 10MHz QPSK Low Channel 1RB



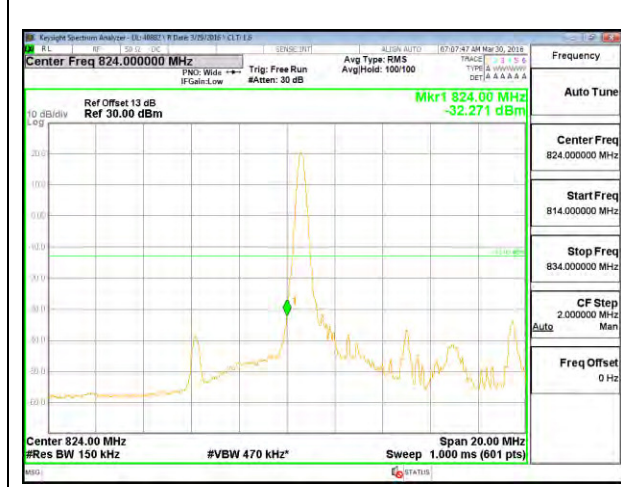
LTE B5 10MHz QPSK High Channel 1RB



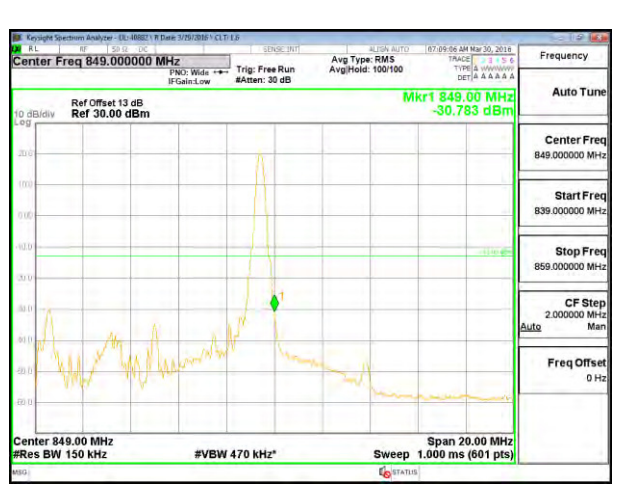
LTE B5 10MHz QPSK Low Channel FRB



LTE B5 10MHz QPSK High Channel FRB



LTE B5 10MHz 16QAM Low Channel 1RB



LTE B5 10MHz 16QAM High Channel 1RB