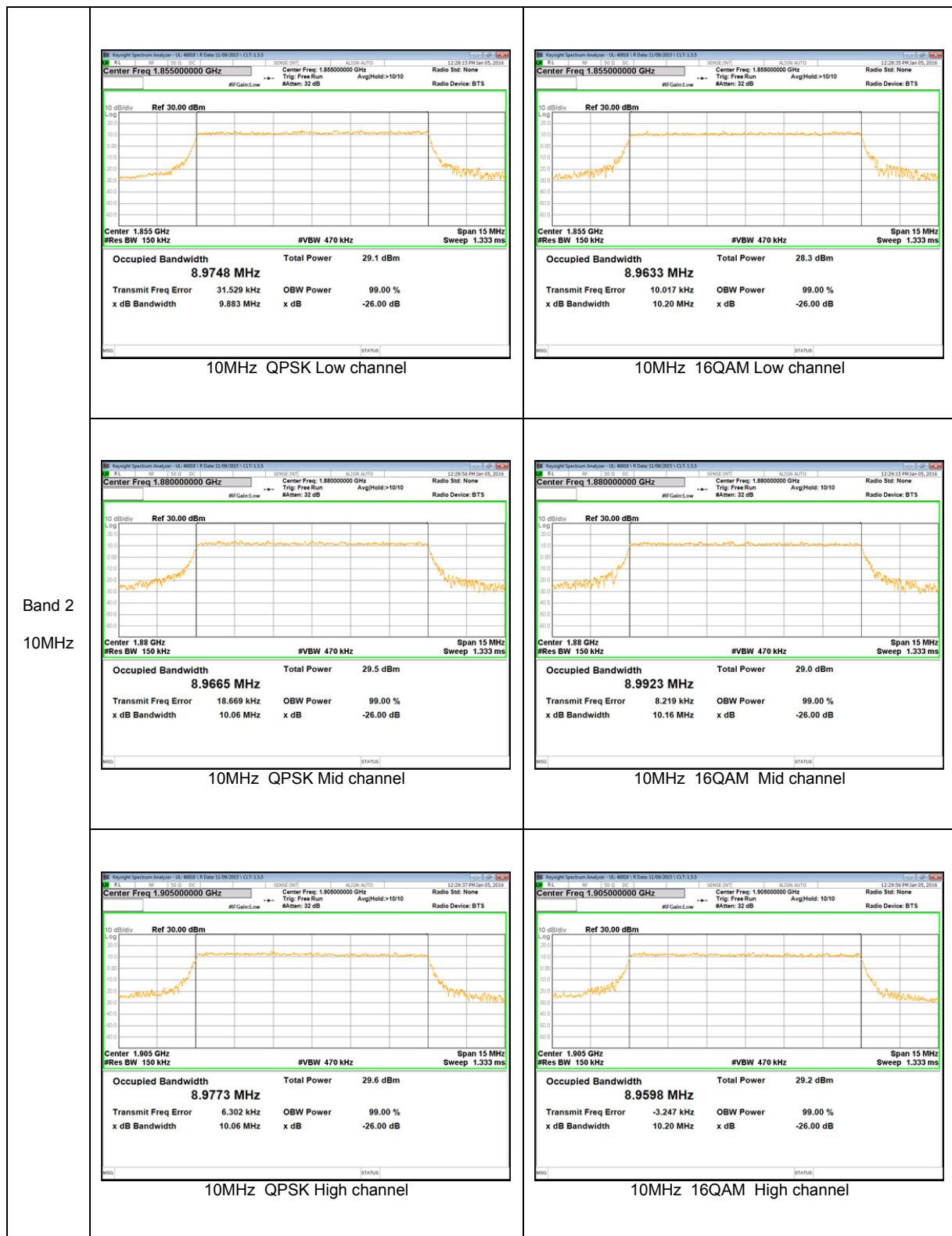
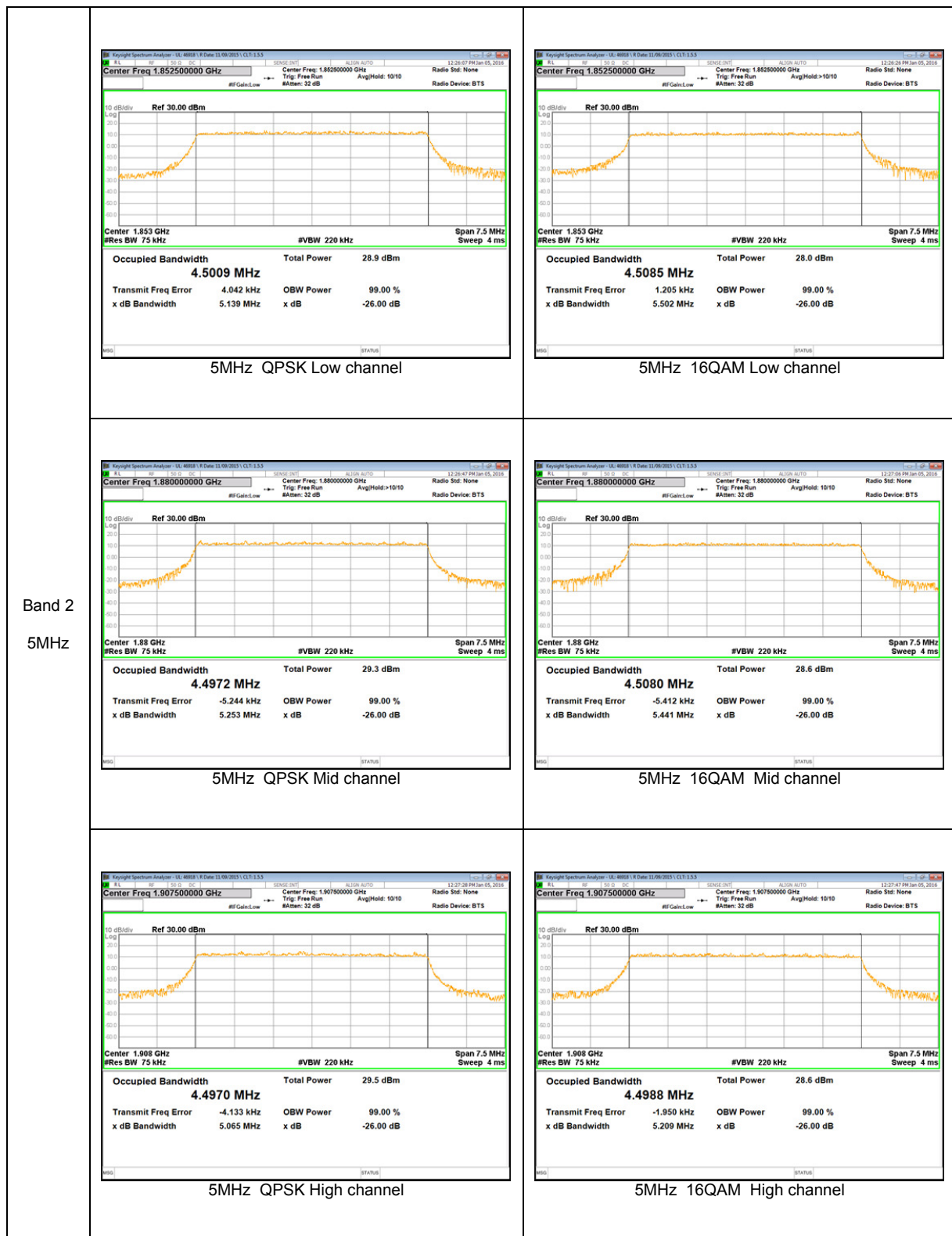
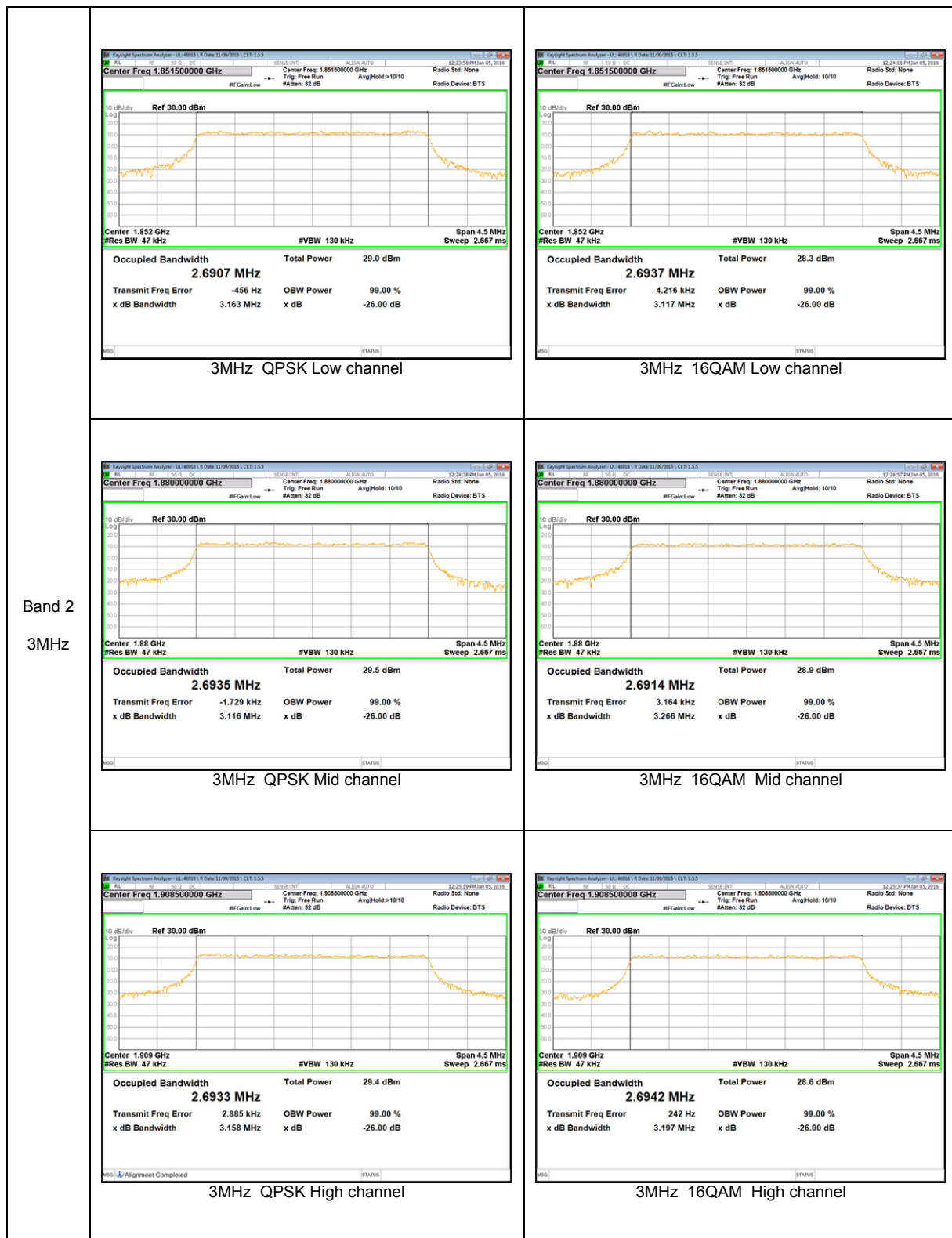
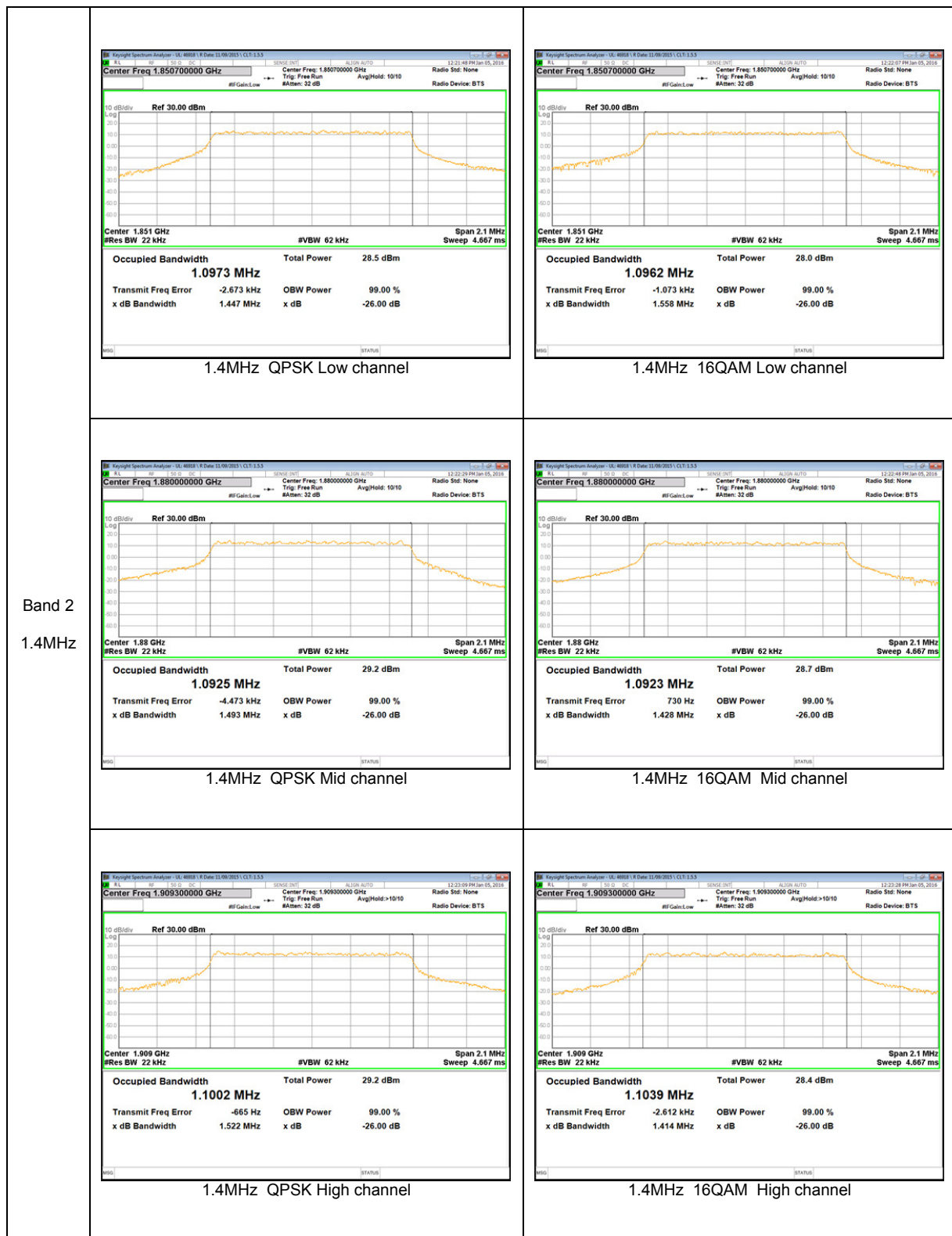










## 10.2. BAND EDGE EMISSIONS

### RULE PART(S)

FCC: §22.359, §24.238 and §27.53

### LIMITS

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

### TEST PROCEDURE

Per KDB 971168 D01 Power Meas License Digital Systems v02r02

The transmitter output was connected to 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.

### RESULTS

#### GSM

| Band    | Mode  | Side  | f [MHz]  | Level [dBm] | Limit [dBm] |
|---------|-------|-------|----------|-------------|-------------|
| GSM850  | GPRS  | Lower | 823.977  | -15.121     | -13.00      |
|         |       | Upper | 849.023  | -15.074     |             |
|         | EGPRS | Lower | 823.987  | -23.215     |             |
|         |       | Upper | 849.003  | -20.745     |             |
| GSM1900 | GPRS  | Lower | 1849.977 | -17.142     |             |
|         |       | Upper | 1910.023 | -16.588     |             |
|         | EGPRS | Lower | 1849.982 | -24.106     |             |
|         |       | Upper | 1910.000 | -19.778     |             |

**WCDMA**

| Band   | Mode  | Side  | f [MHz]  | Level [dBm] | Limit [dBm] |
|--------|-------|-------|----------|-------------|-------------|
| Band 5 | REL99 | Lower | 824.000  | -29.595     | -13.00      |
|        |       | Upper | 849.000  | -31.834     |             |
|        | HSDPA | Lower | 824.000  | -31.425     |             |
|        |       | Upper | 849.000  | -32.275     |             |
| Band 4 | REL99 | Lower | 1710.000 | -26.356     |             |
|        |       | Upper | 1755.000 | -26.275     |             |
|        | HSDPA | Lower | 1710.000 | -31.189     |             |
|        |       | Upper | 1755.000 | -32.024     |             |
| Band 2 | REL99 | Lower | 1850.000 | -29.833     |             |
|        |       | Upper | 1910.000 | -33.126     |             |
|        | HSDPA | Lower | 1850.000 | -32.952     |             |
|        |       | Upper | 1910.000 | -33.645     |             |

**LTE 17**

| Bandwidth | Mode  | Side  | RB Status | f [MHz] | Level [dBm] | Limit [dBm] |
|-----------|-------|-------|-----------|---------|-------------|-------------|
| 10 MHz    | QPSK  | Lower | 1RB       | 704.000 | -23.952     | -13.00      |
|           |       |       | FRB       | 704.000 | -36.194     |             |
|           |       | Upper | 1RB       | 716.000 | -21.125     |             |
|           |       |       | FRB       | 716.000 | -34.156     |             |
|           | 16QAM | Lower | 1RB       | 704.000 | -22.230     |             |
|           |       |       | FRB       | 704.000 | -37.187     |             |
|           |       | Upper | 1RB       | 716.000 | -23.257     |             |
|           |       |       | FRB       | 716.000 | -32.909     |             |
| 5 MHz     | QPSK  | Lower | 1RB       | 704.000 | -15.528     | -13.00      |
|           |       |       | FRB       | 704.000 | -26.309     |             |
|           |       | Upper | 1RB       | 716.000 | -14.337     |             |
|           |       |       | FRB       | 716.000 | -27.016     |             |
|           | 16QAM | Lower | 1RB       | 704.000 | -15.854     |             |
|           |       |       | FRB       | 704.000 | -27.282     |             |
|           |       | Upper | 1RB       | 716.000 | -15.890     |             |
|           |       |       | FRB       | 716.000 | -26.703     |             |

**LTE 5**

| Bandwidth | Mode  | Side  | RB Status | f [MHz] | Level [dBm] | Limit [dBm] |
|-----------|-------|-------|-----------|---------|-------------|-------------|
| 10 MHz    | QPSK  | Lower | 1RB       | 824.000 | -23.753     | -13.00      |
|           |       |       | FRB       | 824.000 | -30.149     |             |
|           |       | Upper | 1RB       | 849.000 | -22.144     |             |
|           |       |       | FRB       | 849.000 | -27.494     |             |
|           | 16QAM | Lower | 1RB       | 824.000 | -24.681     |             |
|           |       |       | FRB       | 824.000 | -30.906     |             |
|           |       | Upper | 1RB       | 849.000 | -19.977     |             |
|           |       |       | FRB       | 849.000 | -28.978     |             |
| 5 MHz     | QPSK  | Lower | 1RB       | 824.000 | -14.539     |             |
|           |       |       | FRB       | 824.000 | -25.327     |             |
|           |       | Upper | 1RB       | 849.000 | -14.872     |             |
|           |       |       | FRB       | 849.000 | -25.269     |             |
|           | 16QAM | Lower | 1RB       | 824.000 | -14.901     |             |
|           |       |       | FRB       | 824.000 | -25.085     |             |
|           |       | Upper | 1RB       | 849.000 | -15.930     |             |
|           |       |       | FRB       | 849.000 | -26.644     |             |
| 3 MHz     | QPSK  | Lower | 1RB       | 824.000 | -15.043     |             |
|           |       |       | FRB       | 824.000 | -25.608     |             |
|           |       | Upper | 1RB       | 849.000 | -14.481     |             |
|           |       |       | FRB       | 849.000 | -25.486     |             |
|           | 16QAM | Lower | 1RB       | 824.000 | -18.111     |             |
|           |       |       | FRB       | 824.000 | -26.221     |             |
|           |       | Upper | 1RB       | 849.000 | -17.109     |             |
|           |       |       | FRB       | 849.000 | -25.647     |             |
| 1.4 MHz   | QPSK  | Lower | 1RB       | 824.000 | -16.309     |             |
|           |       |       | FRB       | 824.000 | -22.644     |             |
|           |       | Upper | 1RB       | 849.000 | -15.801     |             |
|           |       |       | FRB       | 849.000 | -21.288     |             |
|           | 16QAM | Lower | 1RB       | 824.000 | -16.838     |             |
|           |       |       | FRB       | 824.000 | -22.669     |             |
|           |       | Upper | 1RB       | 849.000 | -16.041     |             |
|           |       |       | FRB       | 849.000 | -22.414     |             |

**LTE 4**

| Bandwidth | Mode  | Side  | RB Status | f [MHz]  | Level [dBm] | Limit [dBm] |
|-----------|-------|-------|-----------|----------|-------------|-------------|
| 20 MHz    | QPSK  | Lower | 1RB       | 1710.000 | -25.681     | -13.00      |
|           |       |       | FRB       | 1710.000 | -31.091     |             |
|           |       | Upper | 1RB       | 1755.000 | -22.404     |             |
|           |       |       | FRB       | 1755.000 | -29.898     |             |
|           | 16QAM | Lower | 1RB       | 1710.000 | -26.609     |             |
|           |       |       | FRB       | 1710.000 | -31.903     |             |
|           |       | Upper | 1RB       | 1755.000 | -19.365     |             |
|           |       |       | FRB       | 1755.000 | -30.958     |             |
| 15 MHz    | QPSK  | Lower | 1RB       | 1710.000 | -28.245     |             |
|           |       |       | FRB       | 1710.000 | -32.745     |             |
|           |       | Upper | 1RB       | 1755.000 | -22.577     |             |
|           |       |       | FRB       | 1755.000 | -29.591     |             |
|           | 16QAM | Lower | 1RB       | 1710.000 | -26.618     |             |
|           |       |       | FRB       | 1710.000 | -32.634     |             |
|           |       | Upper | 1RB       | 1755.000 | -28.949     |             |
|           |       |       | FRB       | 1755.000 | -32.165     |             |
| 10 MHz    | QPSK  | Lower | 1RB       | 1710.000 | -24.384     |             |
|           |       |       | FRB       | 1710.000 | -33.223     |             |
|           |       | Upper | 1RB       | 1755.000 | -19.084     |             |
|           |       |       | FRB       | 1755.000 | -28.897     |             |
|           | 16QAM | Lower | 1RB       | 1710.000 | -19.589     |             |
|           |       |       | FRB       | 1710.000 | -32.841     |             |
|           |       | Upper | 1RB       | 1755.000 | -22.405     |             |
|           |       |       | FRB       | 1755.000 | -33.535     |             |
| 5 MHz     | QPSK  | Lower | 1RB       | 1710.000 | -15.348     |             |
|           |       |       | FRB       | 1710.000 | -24.346     |             |
|           |       | Upper | 1RB       | 1755.000 | -14.329     |             |
|           |       |       | FRB       | 1755.000 | -26.441     |             |
|           | 16QAM | Lower | 1RB       | 1710.000 | -15.622     |             |
|           |       |       | FRB       | 1710.000 | -25.141     |             |
|           |       | Upper | 1RB       | 1755.000 | -14.424     |             |
|           |       |       | FRB       | 1755.000 | -25.179     |             |

| Bandwidth | Mode  | Side  | RB Status | f [MHz]  | Level [dBm] | Limit [dBm] |
|-----------|-------|-------|-----------|----------|-------------|-------------|
| 3 MHz     | QPSK  | Lower | 1RB       | 1710.000 | -14.123     | -13.00      |
|           |       |       | FRB       | 1710.000 | -22.261     |             |
|           |       | Upper | 1RB       | 1755.000 | -14.326     |             |
|           |       |       | FRB       | 1755.000 | -24.634     |             |
|           | 16QAM | Lower | 1RB       | 1710.000 | -14.571     |             |
|           |       |       | FRB       | 1710.000 | -24.847     |             |
|           |       | Upper | 1RB       | 1755.000 | -14.900     |             |
|           |       |       | FRB       | 1755.000 | -24.331     |             |
| 1.4 MHz   | QPSK  | Lower | 1RB       | 1710.000 | -14.446     | -13.00      |
|           |       |       | FRB       | 1710.000 | -20.020     |             |
|           |       | Upper | 1RB       | 1755.000 | -14.199     |             |
|           |       |       | FRB       | 1755.000 | -21.972     |             |
|           | 16QAM | Lower | 1RB       | 1710.000 | -14.205     |             |
|           |       |       | FRB       | 1710.000 | -22.294     |             |
|           |       | Upper | 1RB       | 1755.000 | -14.413     |             |
|           |       |       | FRB       | 1755.000 | -23.132     |             |

## LTE 2

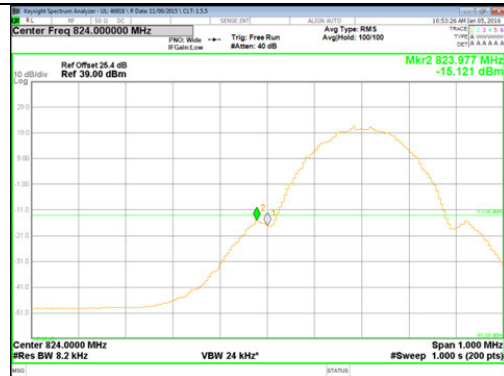
| Bandwidth | Mode  | Side  | RB Status | f [MHz]  | Level [dBm] | Limit [dBm] |
|-----------|-------|-------|-----------|----------|-------------|-------------|
| 20 MHz    | QPSK  | Lower | 1RB       | 1850.000 | -20.322     | -13.00      |
|           |       |       | FRB       | 1850.000 | -27.341     |             |
|           |       | Upper | 1RB       | 1910.000 | -21.614     |             |
|           |       |       | FRB       | 1910.000 | -26.638     |             |
|           | 16QAM | Lower | 1RB       | 1850.000 | -21.491     |             |
|           |       |       | FRB       | 1850.000 | -28.763     |             |
|           |       | Upper | 1RB       | 1910.000 | -24.667     |             |
|           |       |       | FRB       | 1910.000 | -27.597     |             |
| 15 MHz    | QPSK  | Lower | 1RB       | 1850.000 | -18.453     |             |
|           |       |       | FRB       | 1850.000 | -28.255     |             |
|           |       | Upper | 1RB       | 1910.000 | -23.467     |             |
|           |       |       | FRB       | 1910.000 | -26.686     |             |
|           | 16QAM | Lower | 1RB       | 1850.000 | -20.017     |             |
|           |       |       | FRB       | 1850.000 | -28.112     |             |
|           |       | Upper | 1RB       | 1910.000 | -18.759     |             |
|           |       |       | FRB       | 1910.000 | -28.157     |             |

| Bandwidth | Mode  | Side  | RB Status | f [MHz]  | Level [dBm] | Limit [dBm] |
|-----------|-------|-------|-----------|----------|-------------|-------------|
| 10 MHz    | QPSK  | Lower | 1RB       | 1850.000 | -22.509     | -13.00      |
|           |       |       | FRB       | 1850.000 | -28.827     |             |
|           |       | Upper | 1RB       | 1910.000 | -19.823     |             |
|           |       |       | FRB       | 1910.000 | -28.634     |             |
|           | 16QAM | Lower | 1RB       | 1850.000 | -24.605     |             |
|           |       |       | FRB       | 1850.000 | -28.959     |             |
|           |       | Upper | 1RB       | 1910.000 | -24.705     |             |
|           |       |       | FRB       | 1910.000 | -29.100     |             |
| 5 MHz     | QPSK  | Lower | 1RB       | 1850.000 | -14.320     |             |
|           |       |       | FRB       | 1850.000 | -24.483     |             |
|           |       | Upper | 1RB       | 1910.000 | -14.141     |             |
|           |       |       | FRB       | 1910.000 | -25.492     |             |
|           | 16QAM | Lower | 1RB       | 1850.000 | -16.583     |             |
|           |       |       | FRB       | 1850.000 | -22.541     |             |
|           |       | Upper | 1RB       | 1910.000 | -14.241     |             |
|           |       |       | FRB       | 1910.000 | -25.622     |             |
| 3 MHz     | QPSK  | Lower | 1RB       | 1850.000 | -14.320     |             |
|           |       |       | FRB       | 1850.000 | -25.573     |             |
|           |       | Upper | 1RB       | 1910.000 | -14.145     |             |
|           |       |       | FRB       | 1910.000 | -25.897     |             |
|           | 16QAM | Lower | 1RB       | 1850.000 | -16.416     |             |
|           |       |       | FRB       | 1850.000 | -25.768     |             |
|           |       | Upper | 1RB       | 1910.000 | -16.065     |             |
|           |       |       | FRB       | 1910.000 | -24.965     |             |
| 1.4 MHz   | QPSK  | Lower | 1RB       | 1850.000 | -14.966     |             |
|           |       |       | FRB       | 1850.000 | -21.386     |             |
|           |       | Upper | 1RB       | 1910.000 | -14.318     |             |
|           |       |       | FRB       | 1910.000 | -21.257     |             |
|           | 16QAM | Lower | 1RB       | 1850.000 | -15.136     |             |
|           |       |       | FRB       | 1850.000 | -21.530     |             |
|           |       | Upper | 1RB       | 1910.000 | -15.665     |             |
|           |       |       | FRB       | 1910.000 | -20.747     |             |

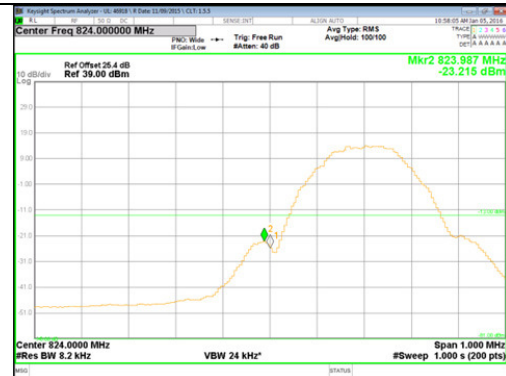
## 10.2.1. BAND EDGE PLOTS

### GSM

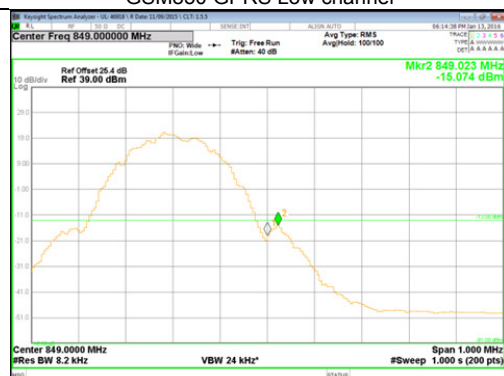
GSM  
850



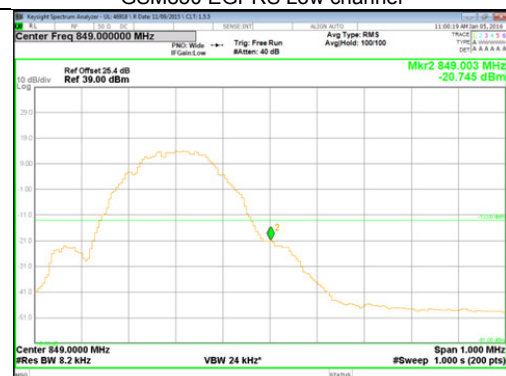
GSM850 GPRS Low channel



GSM850 EGPRS Low channel

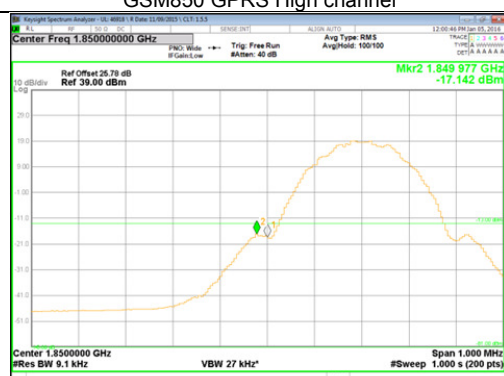


GSM850 GPRS High channel

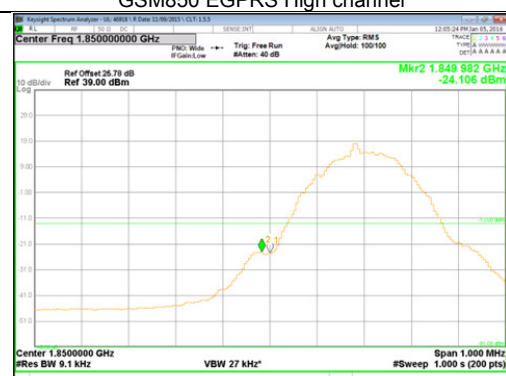


GSM850 EGPRS High channel

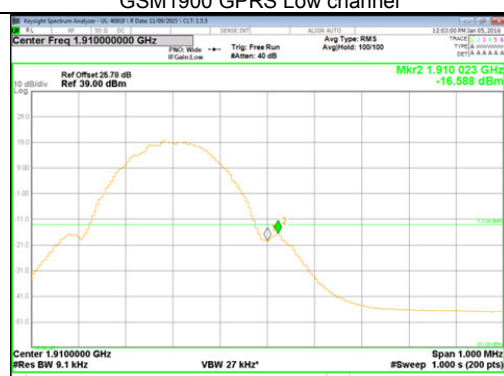
GSM  
1900



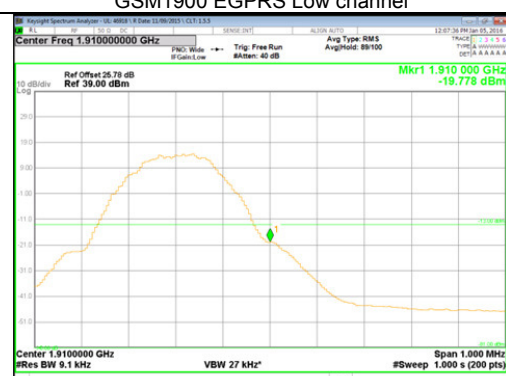
GSM1900 GPRS Low channel



GSM1900 EGPRS Low channel



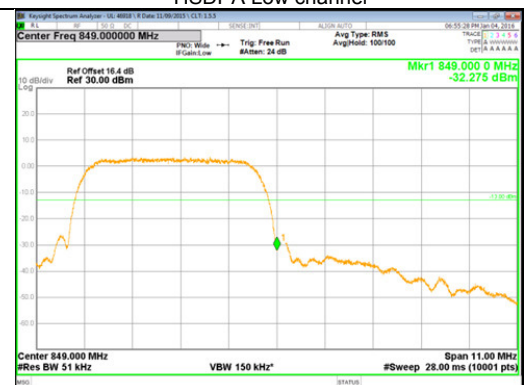
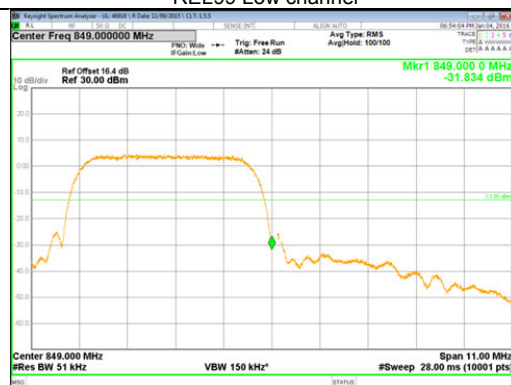
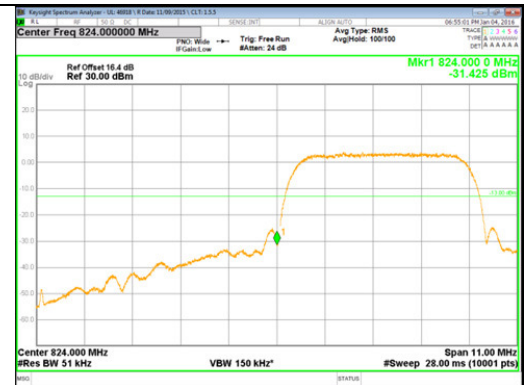
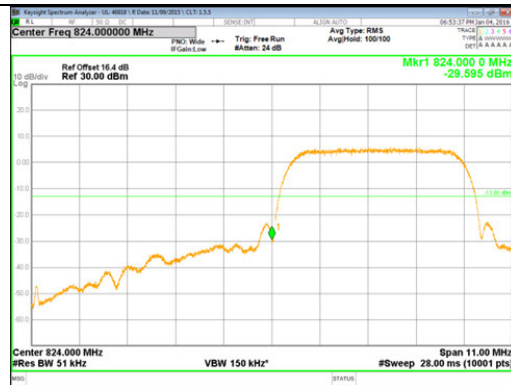
GSM1900 GPRS High channel



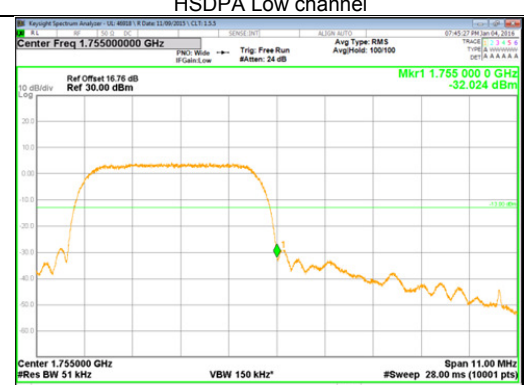
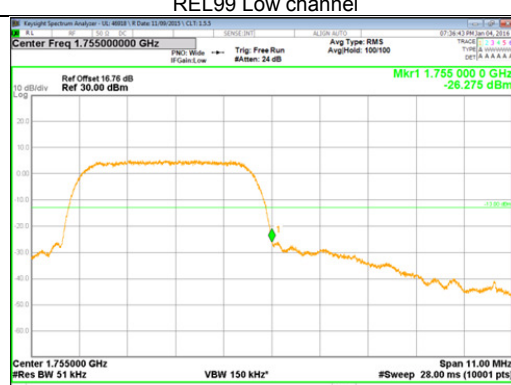
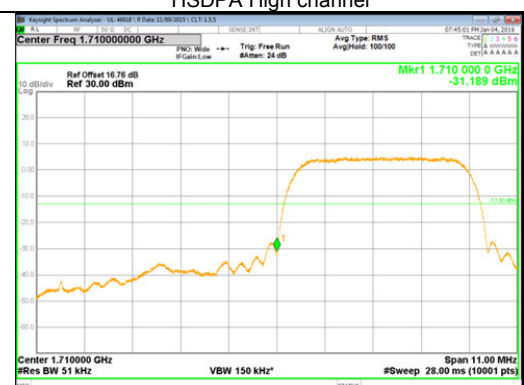
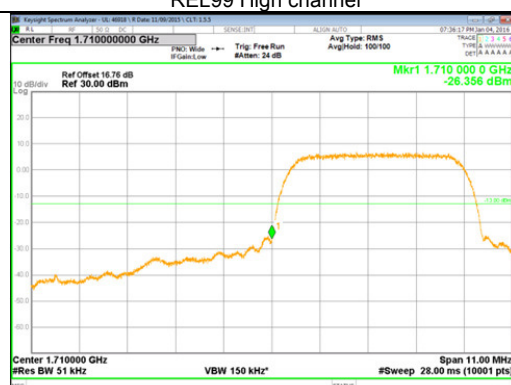
GSM1900 EGPRS High channel

WCDMA

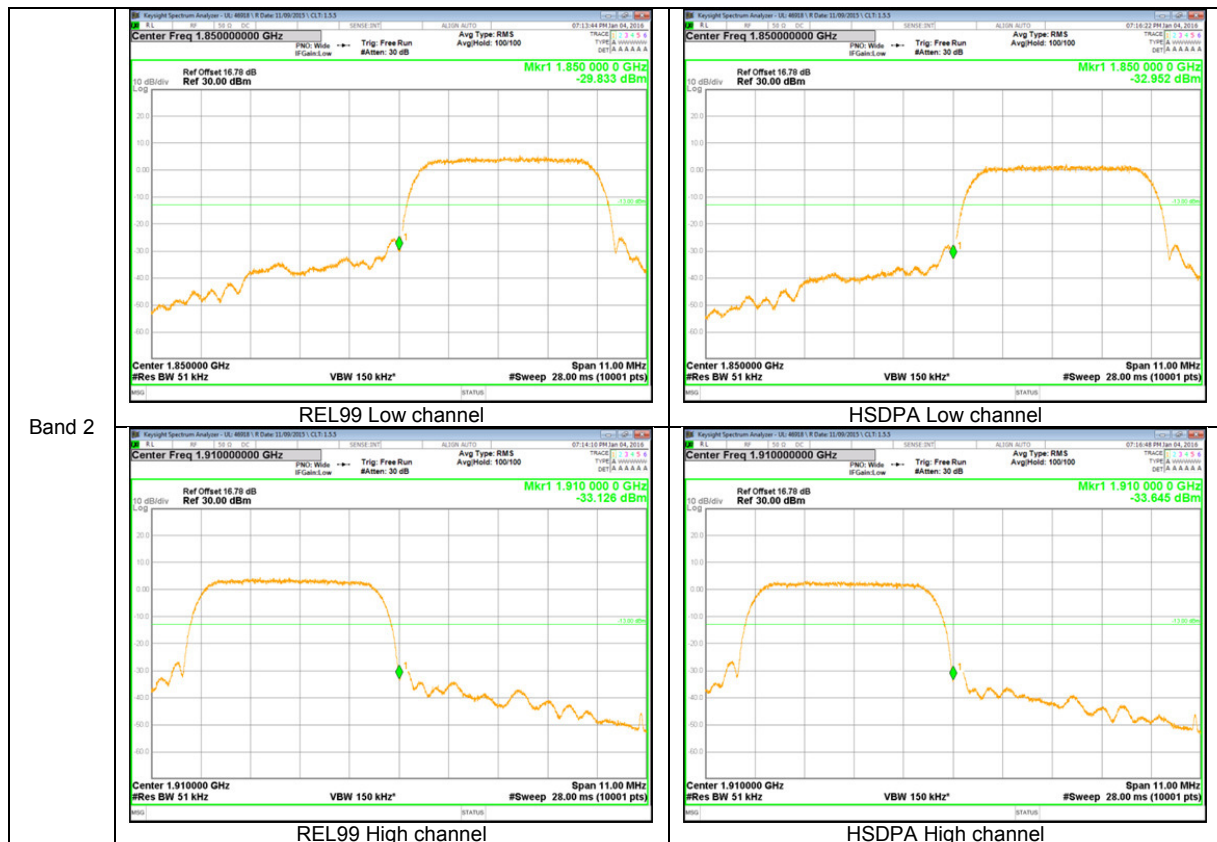
Band 5



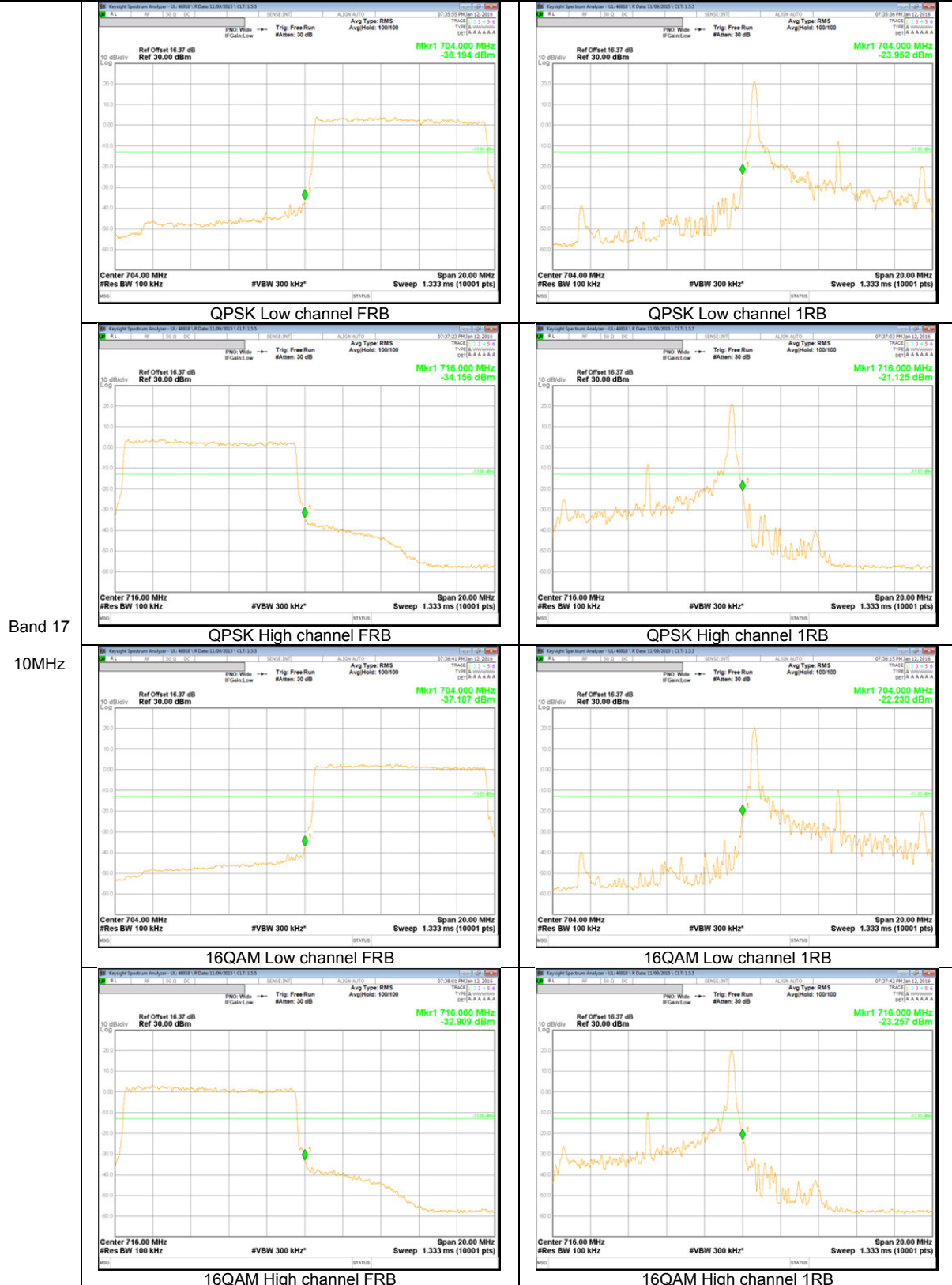
Band 4

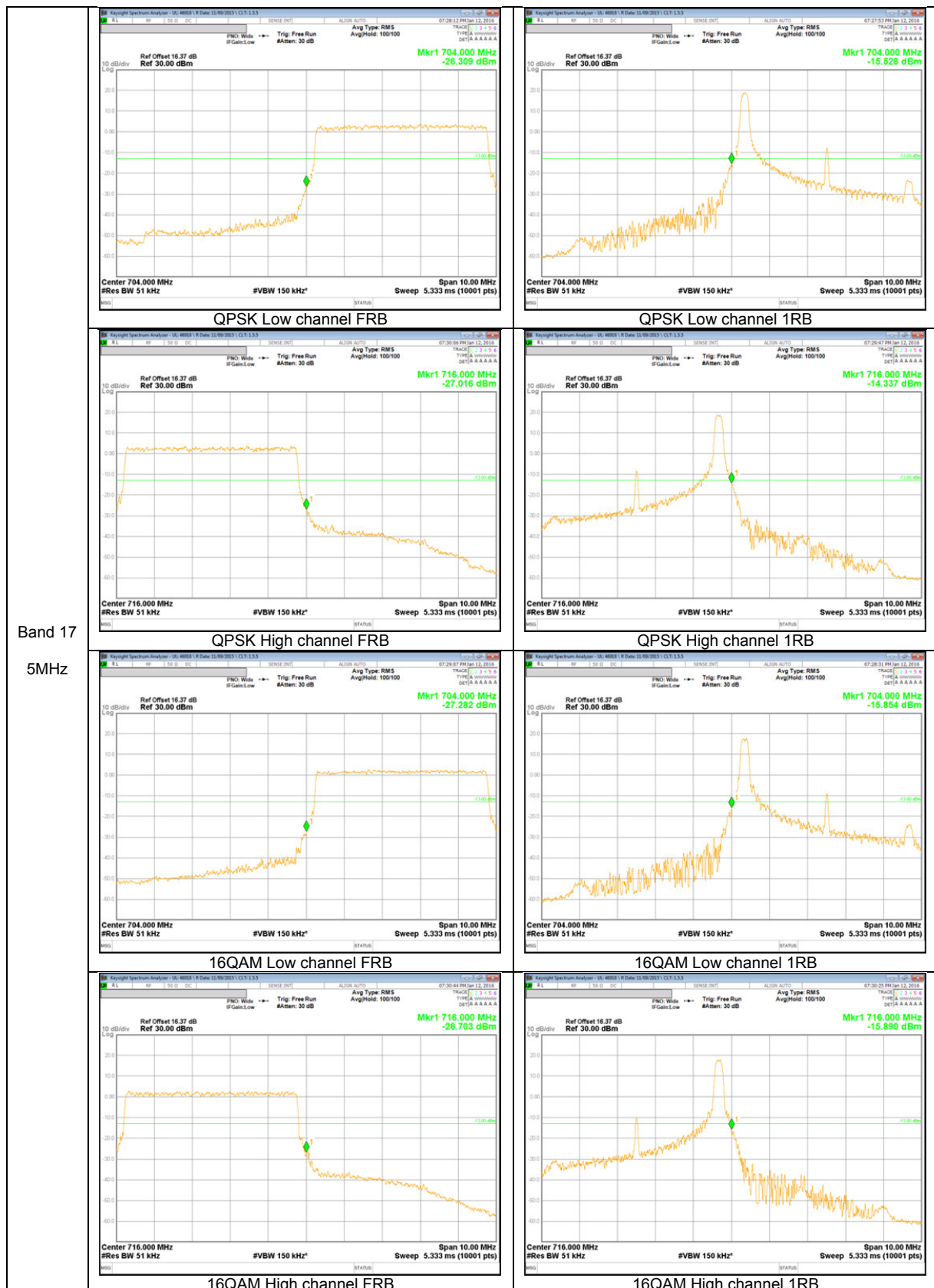


# WCDMA



LTE Band 17





# LTE Band 5

