

## Appendix F: Frequency Stability

### Test Result

LTE Band 2 part:

| Reference Frequency: LTE Band 2 (10MHz) Middle channel=18900 Frequency=1880.0MHz |                  |                 |           |                                   |        |
|--|------------------|-----------------|-----------|-----------------------------------|--------|
| Temperature  |                  |                 |           |                                   |        |
| Power supplied (Vdc)   | Temperature (°C) | Frequency error |           | Limit (ppm)                       | Result |
|  |                  | Hz              | ppm       |                                   |        |
| QPSK   |                  |                 |           |                                   |        |
| 3.85   | -30              | -17.64          | -0.009383 | Within authorized band for Band 2 | Pass   |
|  | -20              | -21.69          | -0.011537 |                                   |        |
|  | -10              | -18.12          | -0.009638 |                                   |        |
|  | 0                | -16.64          | -0.008851 |                                   |        |
|  | 10               | -20.93          | -0.011133 |                                   |        |
|  | 20               | -18.58          | -0.009883 |                                   |        |
|  | 30               | -11.23          | -0.005973 |                                   |        |
|  | 40               | -5.28           | -0.002809 |                                   |        |
|  | 50               | -19.91          | -0.010590 |                                   |        |
| 16QAM  |                  |                 |           |                                   |        |
| 3.85   | -30              | -13.35          | -0.007101 | Within authorized band for Band 2 | Pass   |
|  | -20              | -16.35          | -0.008697 |                                   |        |
|  | -10              | 4.13            | 0.002197  |                                   |        |
|  | 0                | -3.69           | -0.001963 |                                   |        |
|  | 10               | -14.38          | -0.007649 |                                   |        |
|  | 20               | -17.02          | -0.009053 |                                   |        |
|  | 30               | -19.18          | -0.010202 |                                   |        |
|  | 40               | -15.72          | -0.008362 |                                   |        |
|  | 50               | -15.39          | -0.008186 |                                   |        |
| 64QAM  |                  |                 |           |                                   |        |
| 3.85   | -30              | -18.07          | -0.009612 | Within authorized band for Band 2 | Pass   |
|  | -20              | -15.94          | -0.008479 |                                   |        |
|  | -10              | -19.76          | -0.010511 |                                   |        |
|  | 0                | 2.75            | 0.001463  |                                   |        |
|  | 10               | -19.33          | -0.010282 |                                   |        |
|  | 20               | -16.39          | -0.008718 |                                   |        |
|  | 30               | 5.65            | 0.003005  |                                   |        |
|  | 40               | -19.23          | -0.010229 |                                   |        |
|  | 50               | -15.79          | -0.008399 |                                   |        |

| Voltage   |                      |                 |           |                                   |        |
|---|----------------------|-----------------|-----------|-----------------------------------|--------|
| Temperature (°C)  | Power supplied (Vdc) | Frequency error |           | Limit (ppm)                       | Result |
|   |                      | Hz              | ppm       |                                   |        |
| QPSK  |                      |                 |           |                                   |        |
| 25  | 3.60                 | -18.30          | -0.009734 | Within authorized band for Band 2 | Pass   |
|   | 3.85                 | -28.12          | -0.014957 |                                   |        |
|   | 4.40                 | -17.51          | -0.009314 |                                   |        |
| 16QAM   |                      |                 |           |                                   |        |
| 25  | 3.60                 | -17.07          | -0.009080 | Within authorized band for Band 2 | Pass   |
|   | 3.85                 | -17.55          | -0.009335 |                                   |        |
|   | 4.40                 | -16.79          | -0.008931 |                                   |        |
| 64QAM   |                      |                 |           |                                   |        |
| 25  | 3.60                 | -4.95           | -0.002633 | Within authorized band for Band 2 | Pass   |
|   | 3.85                 | -17.87          | -0.009505 |                                   |        |
|   | 4.40                 | -17.48          | -0.009298 |                                   |        |
| <i>Remark: All bandwidth and all modulation had been tested, but only the worst case data displayed in this report.</i> |                      |                 |           |                                   |        |

LTE Band 7 part:

| Reference Frequency: LTE Band 7(10MHz) Middle channel=21100 Frequency=2535.0MHz |                  |                 |           |                                   |        |
|---|------------------|-----------------|-----------|-----------------------------------|--------|
| Temperature   |                  |                 |           |                                   |        |
| Power supplied (Vdc)  | Temperature (°C) | Frequency error |           | Limit (ppm)                       | Result |
|   |                  | Hz              | ppm       |                                   |        |
| QPSK  |                  |                 |           |                                   |        |
| 3.85  | -30              | 67.06           | 0.026454  | Within authorized band for Band 7 | Pass   |
|   | -20              | -28.85          | -0.011381 |                                   |        |
|   | -10              | -29.51          | -0.011641 |                                   |        |
|   | 0                | -28.24          | -0.011140 |                                   |        |
|   | 10               | -24.98          | -0.009854 |                                   |        |
|   | 20               | 57.65           | 0.022742  |                                   |        |
|   | 30               | -24.58          | -0.009696 |                                   |        |
|   | 40               | -14.96          | -0.005901 |                                   |        |
|   | 50               | -21.56          | -0.008505 |                                   |        |
| 16QAM   |                  |                 |           |                                   |        |
| 3.85  | -30              | -25.51          | -0.010063 | Within authorized band for Band 7 | Pass   |
|   | -20              | 47.81           | 0.018860  |                                   |        |
|   | -10              | -20.64          | -0.008142 |                                   |        |
|   | 0                | -21.86          | -0.008623 |                                   |        |
|   | 10               | 71.55           | 0.028225  |                                   |        |
|   | 20               | -22.00          | -0.008679 |                                   |        |
|   | 30               | -19.20          | -0.007574 |                                   |        |
|   | 40               | -29.21          | -0.011523 |                                   |        |
|   | 50               | -20.00          | -0.007890 |                                   |        |
| 64QAM   |                  |                 |           |                                   |        |
| 3.85  | -30              | -21.96          | -0.008663 | Within authorized band for Band 7 | Pass   |
|   | -20              | -38.82          | -0.015314 |                                   |        |
|   | -10              | -32.20          | -0.012702 |                                   |        |
|   | 0                | -25.69          | -0.010134 |                                   |        |
|   | 10               | -41.71          | -0.016454 |                                   |        |
|   | 20               | 20.63           | 0.008138  |                                   |        |
|   | 30               | 65.63           | 0.025890  |                                   |        |
|   | 40               | -29.43          | -0.011609 |                                   |        |
|   | 50               | -30.68          | -0.012103 |                                   |        |

| Voltage   |                      |                 |           |                                   |        |
|---|----------------------|-----------------|-----------|-----------------------------------|--------|
| Temperature (°C)  | Power supplied (Vdc) | Frequency error |           | Limit (ppm)                       | Result |
|   |                      | Hz              | ppm       |                                   |        |
| QPSK  |                      |                 |           |                                   |        |
| 25  | 3.60                 | -29.95          | -0.011815 | Within authorized band for Band 7 | Pass   |
|   | 3.85                 | 40.28           | 0.015890  |                                   |        |
|   | 4.40                 | 17.75           | 0.007002  |                                   |        |
| 16QAM   |                      |                 |           |                                   |        |
| 25  | 3.60                 | -11.00          | -0.004339 | Within authorized band for Band 7 | Pass   |
|   | 3.85                 | -29.23          | -0.011531 |                                   |        |
|   | 4.40                 | -28.31          | -0.011168 |                                   |        |
| 64QAM   |                      |                 |           |                                   |        |
| 25  | 3.60                 | -19.23          | -0.007586 | Within authorized band for Band 7 | Pass   |
|   | 3.85                 | -32.60          | -0.012860 |                                   |        |
|   | 4.40                 | -29.43          | -0.011609 |                                   |        |
| <i>Remark: All bandwidth and all modulation had been tested, but only the worst case data displayed in this report.</i> |                      |                 |           |                                   |        |

LTE Band 12 part:

| Reference Frequency: LTE Band 12(10MHz) Middle channel=23095 Frequency=707.5MHz |                  |                 |           |                                    |        |
|---|------------------|-----------------|-----------|------------------------------------|--------|
| Temperature   |                  |                 |           |                                    |        |
| Power supplied (Vdc)  | Temperature (°C) | Frequency error |           | Limit (ppm)                        | Result |
|   |                  | Hz              | ppm       |                                    |        |
| QPSK  |                  |                 |           |                                    |        |
| 3.85  | -30              | -15.02          | -0.021230 | Within authorized band for Band 12 | Pass   |
|   | -20              | -3.78           | -0.005343 |                                    |        |
|   | -10              | -14.18          | -0.020042 |                                    |        |
|   | 0                | -15.13          | -0.021385 |                                    |        |
|   | 10               | -9.67           | -0.013668 |                                    |        |
|   | 20               | -12.85          | -0.018163 |                                    |        |
|   | 30               | -11.54          | -0.016311 |                                    |        |
|   | 40               | -15.39          | -0.021753 |                                    |        |
|   | 50               | -9.16           | -0.012947 |                                    |        |
| 16QAM   |                  |                 |           |                                    |        |
| 3.85  | -30              | -18.64          | -0.026346 | Within authorized band for Band 12 | Pass   |
|   | -20              | -11.57          | -0.016353 |                                    |        |
|   | -10              | -1.70           | -0.002403 |                                    |        |
|   | 0                | -16.31          | -0.023053 |                                    |        |
|   | 10               | -8.23           | -0.011633 |                                    |        |
|   | 20               | 14.25           | 0.020141  |                                    |        |
|   | 30               | -11.72          | -0.016565 |                                    |        |
|   | 40               | -8.67           | -0.012254 |                                    |        |
|   | 50               | -24.00          | -0.033922 |                                    |        |
| 64QAM   |                  |                 |           |                                    |        |
| 3.85  | -30              | -4.52           | -0.006389 | Within authorized band for Band 12 | Pass   |
|   | -20              | -16.19          | -0.022883 |                                    |        |
|   | -10              | 1.29            | 0.001823  |                                    |        |
|   | 0                | -9.63           | -0.013611 |                                    |        |
|   | 10               | -10.00          | -0.014134 |                                    |        |
|   | 20               | -3.75           | -0.005300 |                                    |        |
|   | 30               | -9.46           | -0.013371 |                                    |        |
|   | 40               | -15.55          | -0.021979 |                                    |        |
|   | 50               | 10.51           | 0.014855  |                                    |        |

| Voltage   |                      |                 |           |                                    |        |
|---|----------------------|-----------------|-----------|------------------------------------|--------|
| Temperature (°C)  | Power supplied (Vdc) | Frequency error |           | Limit (ppm)                        | Result |
|   |                      | Hz              | ppm       |                                    |        |
| QPSK  |                      |                 |           |                                    |        |
| 25  | 3.60                 | -12.57          | -0.017767 | Within authorized band for Band 12 | Pass   |
|   | 3.85                 | -18.64          | -0.026346 |                                    |        |
|   | 4.40                 | -18.22          | -0.025753 |                                    |        |
| 16QAM   |                      |                 |           |                                    |        |
| 25  | 3.60                 | -4.46           | -0.006304 | Within authorized band for Band 12 | Pass   |
|   | 3.85                 | 8.00            | 0.011307  |                                    |        |
|   | 4.40                 | 2.10            | 0.002968  |                                    |        |
| 64QAM   |                      |                 |           |                                    |        |
| 25  | 3.60                 | -3.58           | -0.005060 | Within authorized band for Band 12 | Pass   |
|   | 3.85                 | -11.04          | -0.015604 |                                    |        |
|   | 4.40                 | -11.43          | -0.016155 |                                    |        |
| <i>Remark: All bandwidth and all modulation had been tested, but only the worst case data displayed in this report.</i> |                      |                 |           |                                    |        |

LTE Band 13 part:

| Reference Frequency: LTE Band 13(10MHz) Middle channel=23230 Frequency=782.0MHz |                  |                 |           |                                    |        |
|---|------------------|-----------------|-----------|------------------------------------|--------|
| Temperature   |                  |                 |           |                                    |        |
| Power supplied (Vdc)  | Temperature (°C) | Frequency error |           | Limit (ppm)                        | Result |
|   |                  | Hz              | ppm       |                                    |        |
| QPSK  |                  |                 |           |                                    |        |
| 3.85  | -30              | -16.92          | -0.021637 | Within authorized band for Band 13 | Pass   |
|   | -20              | -13.98          | -0.017877 |                                    |        |
|   | -10              | 7.77            | 0.009936  |                                    |        |
|   | 0                | -9.21           | -0.011777 |                                    |        |
|   | 10               | -14.20          | -0.018159 |                                    |        |
|   | 20               | -14.92          | -0.019079 |                                    |        |
|   | 30               | -13.05          | -0.016688 |                                    |        |
|   | 40               | -2.47           | -0.003159 |                                    |        |
|   | 50               | -13.53          | -0.017302 |                                    |        |
| 16QAM   |                  |                 |           |                                    |        |
| 3.85  | -30              | -13.06          | -0.016701 | Within authorized band for Band 13 | Pass   |
|   | -20              | -9.08           | -0.011611 |                                    |        |
|   | -10              | -10.77          | -0.013772 |                                    |        |
|   | 0                | 3.78            | 0.004834  |                                    |        |
|   | 10               | -12.69          | -0.016228 |                                    |        |
|   | 20               | -7.37           | -0.009425 |                                    |        |
|   | 30               | 7.10            | 0.009079  |                                    |        |
|   | 40               | -13.29          | -0.016995 |                                    |        |
|   | 50               | -9.20           | -0.011765 |                                    |        |
| 64QAM   |                  |                 |           |                                    |        |
| 3.85  | -30              | -5.08           | -0.006496 | Within authorized band for Band 13 | Pass   |
|   | -20              | -16.48          | -0.021074 |                                    |        |
|   | -10              | -14.46          | -0.018491 |                                    |        |
|   | 0                | -10.27          | -0.013133 |                                    |        |
|   | 10               | -9.48           | -0.012123 |                                    |        |
|   | 20               | -8.91           | -0.011394 |                                    |        |
|   | 30               | -1.56           | -0.001995 |                                    |        |
|   | 40               | -6.35           | -0.008120 |                                    |        |
|   | 50               | -9.30           | -0.011893 |                                    |        |

| Voltage   |                      |                 |           |                                    |        |
|---|----------------------|-----------------|-----------|------------------------------------|--------|
| Temperature (°C)  | Power supplied (Vdc) | Frequency error |           | Limit (ppm)                        | Result |
|   |                      | Hz              | ppm       |                                    |        |
| QPSK  |                      |                 |           |                                    |        |
| 25  | 3.60                 | -16.99          | -0.021726 | Within authorized band for Band 13 | Pass   |
|   | 3.85                 | 7.48            | 0.009565  |                                    |        |
|   | 4.40                 | -15.98          | -0.020435 |                                    |        |
| 16QAM   |                      |                 |           |                                    |        |
| 25  | 3.60                 | -18.41          | -0.023542 | Within authorized band for Band 13 | Pass   |
|   | 3.85                 | -13.50          | -0.017263 |                                    |        |
|   | 4.40                 | 2.05            | 0.002621  |                                    |        |
| 64QAM   |                      |                 |           |                                    |        |
| 25  | 3.60                 | -16.22          | -0.020742 | Within authorized band for Band 13 | Pass   |
|   | 3.85                 | -12.22          | -0.015627 |                                    |        |
|   | 4.40                 | 9.10            | 0.011637  |                                    |        |
| <i>Remark: All bandwidth and all modulation had been tested, but only the worst case data displayed in this report.</i> |                      |                 |           |                                    |        |



LTE Band 26 part:

| Reference Frequency: LTE Band 26(10MHz) Middle channel=26740 Frequency=819.0MHz |                  |                 |           |                                    |        |
|---|------------------|-----------------|-----------|------------------------------------|--------|
| Temperature   |                  |                 |           |                                    |        |
| Power supplied (Vdc)  | Temperature (°C) | Frequency error |           | Limit (ppm)                        | Result |
|   |                  | Hz              | ppm       |                                    |        |
| QPSK  |                  |                 |           |                                    |        |
| 3.85  | -30              | -8.67           | -0.010586 | Within authorized band for Band 26 | Pass   |
|   | -20              | -6.34           | -0.007741 |                                    |        |
|   | -10              | -10.34          | -0.012625 |                                    |        |
|   | 0                | -9.74           | -0.011893 |                                    |        |
|   | 10               | -3.96           | -0.004835 |                                    |        |
|   | 20               | -13.23          | -0.016154 |                                    |        |
|   | 30               | -11.73          | -0.014322 |                                    |        |
|   | 40               | -9.71           | -0.011856 |                                    |        |
|   | 50               | -13.90          | -0.016972 |                                    |        |
| 16QAM   |                  |                 |           |                                    |        |
| 3.85  | -30              | 2.63            | 0.003211  | Within authorized band for Band 26 | Pass   |
|   | -20              | -11.47          | -0.014005 |                                    |        |
|   | -10              | -6.88           | -0.008400 |                                    |        |
|   | 0                | -8.18           | -0.009988 |                                    |        |
|   | 10               | 2.40            | 0.002930  |                                    |        |
|   | 20               | -6.42           | -0.007839 |                                    |        |
|   | 30               | -12.45          | -0.015201 |                                    |        |
|   | 40               | -7.68           | -0.009377 |                                    |        |
|   | 50               | -9.93           | -0.012125 |                                    |        |
| 64QAM   |                  |                 |           |                                    |        |
| 3.85  | -30              | -9.26           | -0.011306 | Within authorized band for Band 26 | Pass   |
|   | -20              | -7.90           | -0.009646 |                                    |        |
|   | -10              | -8.83           | -0.010781 |                                    |        |
|   | 0                | -13.00          | -0.015873 |                                    |        |
|   | 10               | -6.11           | -0.007460 |                                    |        |
|   | 20               | -13.38          | -0.016337 |                                    |        |
|   | 30               | -6.39           | -0.007802 |                                    |        |
|   | 40               | -9.03           | -0.011026 |                                    |        |
|   | 50               | -8.57           | -0.010464 |                                    |        |

| Voltage   |                      |                 |           |                                    |        |
|---|----------------------|-----------------|-----------|------------------------------------|--------|
| Temperature (°C)  | Power supplied (Vdc) | Frequency error |           | Limit (ppm)                        | Result |
|   |                      | Hz              | ppm       |                                    |        |
| QPSK  |                      |                 |           |                                    |        |
| 25  | 3.60                 | -7.90           | -0.009646 | Within authorized band for Band 26 | Pass   |
|   | 3.85                 | -7.95           | -0.009707 |                                    |        |
|   | 4.40                 | -8.91           | -0.010879 |                                    |        |
| 16QAM   |                      |                 |           |                                    |        |
| 25  | 3.60                 | -7.00           | -0.008547 | Within authorized band for Band 26 | Pass   |
|   | 3.85                 | 1.99            | 0.002430  |                                    |        |
|   | 4.40                 | -4.53           | -0.005531 |                                    |        |
| 64QAM   |                      |                 |           |                                    |        |
| 25  | 3.60                 | -10.97          | -0.013394 | Within authorized band for Band 26 | Pass   |
|   | 3.85                 | -7.35           | -0.008974 |                                    |        |
|   | 4.40                 | -6.57           | -0.008022 |                                    |        |
| <i>Remark: All bandwidth and all modulation had been tested, but only the worst case data displayed in this report.</i> |                      |                 |           |                                    |        |

LTE Band 26 part:

| Reference Frequency: LTE Band 26(10MHz) Middle channel=26915 Frequency=836.5MHz |                  |                 |           |                                    |        |
|---|------------------|-----------------|-----------|------------------------------------|--------|
| Temperature   |                  |                 |           |                                    |        |
| Power supplied (Vdc)  | Temperature (°C) | Frequency error |           | Limit (ppm)                        | Result |
|   |                  | Hz              | ppm       |                                    |        |
| QPSK  |                  |                 |           |                                    |        |
| 3.85  | -30              | -13.76          | -0.016449 | Within authorized band for Band 26 | Pass   |
|   | -20              | -11.32          | -0.013533 |                                    |        |
|   | -10              | -7.61           | -0.009097 |                                    |        |
|   | 0                | -13.09          | -0.015649 |                                    |        |
|   | 10               | -11.79          | -0.014094 |                                    |        |
|   | 20               | -16.28          | -0.019462 |                                    |        |
|   | 30               | -11.86          | -0.014178 |                                    |        |
|   | 40               | -9.14           | -0.010926 |                                    |        |
|   | 50               | -12.99          | -0.015529 |                                    |        |
| 16QAM   |                  |                 |           |                                    |        |
| 3.85  | -30              | -12.33          | -0.014740 | Within authorized band for Band 26 | Pass   |
|   | -20              | -13.15          | -0.015720 |                                    |        |
|   | -10              | -10.26          | -0.012265 |                                    |        |
|   | 0                | -7.68           | -0.009181 |                                    |        |
|   | 10               | -14.63          | -0.017490 |                                    |        |
|   | 20               | -3.71           | -0.004435 |                                    |        |
|   | 30               | -9.86           | -0.011787 |                                    |        |
|   | 40               | -6.68           | -0.007986 |                                    |        |
|   | 50               | -9.50           | -0.011357 |                                    |        |
| 64QAM   |                  |                 |           |                                    |        |
| 3.85  | -30              | -12.15          | -0.014525 | Within authorized band for Band 26 | Pass   |
|   | -20              | -12.72          | -0.015206 |                                    |        |
|   | -10              | -12.43          | -0.014860 |                                    |        |
|   | 0                | -11.62          | -0.013891 |                                    |        |
|   | 10               | -5.38           | -0.006432 |                                    |        |
|   | 20               | -11.37          | -0.013592 |                                    |        |
|   | 30               | -12.17          | -0.014549 |                                    |        |
|   | 40               | -11.70          | -0.013987 |                                    |        |
|   | 50               | -12.97          | -0.015505 |                                    |        |

| Voltage   |                      |                 |           |                                    |        |
|---|----------------------|-----------------|-----------|------------------------------------|--------|
| Temperature (°C)  | Power supplied (Vdc) | Frequency error |           | Limit (ppm)                        | Result |
|   |                      | Hz              | ppm       |                                    |        |
| QPSK  |                      |                 |           |                                    |        |
| 25  | 3.60                 | -13.95          | -0.016677 | Within authorized band for Band 26 | Pass   |
|   | 3.85                 | -18.38          | -0.021973 |                                    |        |
|   | 4.40                 | -8.70           | -0.010400 |                                    |        |
| 16QAM   |                      |                 |           |                                    |        |
| 25  | 3.60                 | -14.48          | -0.017310 | Within authorized band for Band 26 | Pass   |
|   | 3.85                 | -11.29          | -0.013497 |                                    |        |
|   | 4.40                 | -4.62           | -0.005523 |                                    |        |
| 64QAM   |                      |                 |           |                                    |        |
| 25  | 3.60                 | -14.09          | -0.016844 | Within authorized band for Band 26 | Pass   |
|   | 3.85                 | -8.53           | -0.010197 |                                    |        |
|   | 4.40                 | -11.80          | -0.014106 |                                    |        |
| <i>Remark: All bandwidth and all modulation had been tested, but only the worst case data displayed in this report.</i> |                      |                 |           |                                    |        |

LTE Band 41 part:

| Reference Frequency: LTE Band 41 (10MHz) Middle channel=40640 Frequency=2595.0MHz |                  |                 |           |                                    |        |
|---|------------------|-----------------|-----------|------------------------------------|--------|
| Temperature   |                  |                 |           |                                    |        |
| Power supplied (Vdc)  | Temperature (°C) | Frequency error |           | Limit (ppm)                        | Result |
|   |                  | Hz              | ppm       |                                    |        |
| QPSK  |                  |                 |           |                                    |        |
| 3.85  | -30              | -6.79           | -0.002607 | Within authorized band for Band 41 | Pass   |
|   | -20              | -8.47           | -0.003251 |                                    |        |
|   | -10              | 5.14            | 0.001973  |                                    |        |
|   | 0                | -4.42           | -0.001697 |                                    |        |
|   | 10               | 6.59            | 0.002530  |                                    |        |
|   | 20               | -5.65           | -0.002169 |                                    |        |
|   | 30               | -7.78           | -0.002987 |                                    |        |
|   | 40               | -4.48           | -0.001720 |                                    |        |
|   | 50               | -4.82           | -0.001850 |                                    |        |
| 16QAM   |                  |                 |           |                                    |        |
| 3.85  | -30              | -8.21           | -0.003152 | Within authorized band for Band 41 | Pass   |
|   | -20              | -6.98           | -0.002679 |                                    |        |
|   | -10              | 7.77            | 0.002983  |                                    |        |
|   | 0                | -7.75           | -0.002975 |                                    |        |
|   | 10               | -8.50           | -0.003263 |                                    |        |
|   | 20               | -3.53           | -0.001355 |                                    |        |
|   | 30               | -6.94           | -0.002664 |                                    |        |
|   | 40               | 3.75            | 0.001440  |                                    |        |
|   | 50               | -5.49           | -0.002107 |                                    |        |
| 64QAM   |                  |                 |           |                                    |        |
| 3.85  | -30              | -2.85           | -0.001094 | Within authorized band for Band 41 | Pass   |
|   | -20              | -5.01           | -0.001923 |                                    |        |
|   | -10              | -8.84           | -0.003393 |                                    |        |
|   | 0                | -4.05           | -0.001555 |                                    |        |
|   | 10               | -8.77           | -0.003367 |                                    |        |
|   | 20               | -4.46           | -0.001712 |                                    |        |
|   | 30               | 3.45            | 0.001324  |                                    |        |
|   | 40               | -7.48           | -0.002871 |                                    |        |
|   | 50               | -3.79           | -0.001455 |                                    |        |

| Voltage   |                      |                 |           |                                    |        |
|---|----------------------|-----------------|-----------|------------------------------------|--------|
| Temperature (°C)  | Power supplied (Vdc) | Frequency error |           | Limit (ppm)                        | Result |
|   |                      | Hz              | ppm       |                                    |        |
| QPSK  |                      |                 |           |                                    |        |
| 25  | 3.60                 | -9.56           | -0.003670 | Within authorized band for Band 41 | Pass   |
|   | 3.85                 | -19.86          | -0.007624 |                                    |        |
|   | 4.40                 | -2.62           | -0.001006 |                                    |        |
| 16QAM   |                      |                 |           |                                    |        |
| 25  | 3.60                 | -7.58           | -0.002910 | Within authorized band for Band41  | Pass   |
|   | 3.85                 | 5.14            | 0.001973  |                                    |        |
|   | 4.40                 | -8.25           | -0.003167 |                                    |        |
| 64QAM   |                      |                 |           |                                    |        |
| 25  | 3.60                 | 2.35            | 0.000902  | Within authorized band for Band41  | Pass   |
|   | 3.85                 | -6.90           | -0.002649 |                                    |        |
|   | 4.40                 | -6.88           | -0.002641 |                                    |        |
| <i>Remark: All bandwidth and all modulation had been tested, but only the worst case data displayed in this report.</i> |                      |                 |           |                                    |        |

LTE Band 66 part:

| Reference Frequency: LTE Band 66 (10MHz) Middle channel=132322 Frequency=1745.0MHz |                  |                 |           |                                    |        |
|--|------------------|-----------------|-----------|------------------------------------|--------|
| Temperature  |                  |                 |           |                                    |        |
| Power supplied (Vdc)   | Temperature (°C) | Frequency error |           | Limit (ppm)                        | Result |
|  |                  | Hz              | ppm       |                                    |        |
| QPSK   |                  |                 |           |                                    |        |
| 3.85   | -30              | -14.09          | -0.008074 | Within authorized band for Band 66 | Pass   |
|  | -20              | -13.35          | -0.007650 |                                    |        |
|  | -10              | -8.70           | -0.004986 |                                    |        |
|  | 0                | -14.51          | -0.008315 |                                    |        |
|  | 10               | -13.48          | -0.007725 |                                    |        |
|  | 20               | -13.42          | -0.007691 |                                    |        |
|  | 30               | -5.85           | -0.003352 |                                    |        |
|  | 40               | 8.78            | 0.005032  |                                    |        |
|  | 50               | -11.97          | -0.006860 |                                    |        |
| 16QAM  |                  |                 |           |                                    |        |
| 3.85   | -30              | -3.78           | -0.002166 | Within authorized band for Band 66 | Pass   |
|  | -20              | -12.36          | -0.007083 |                                    |        |
|  | -10              | -14.42          | -0.008264 |                                    |        |
|  | 0                | -14.08          | -0.008069 |                                    |        |
|  | 10               | -12.15          | -0.006963 |                                    |        |
|  | 20               | -13.00          | -0.007450 |                                    |        |
|  | 30               | -12.92          | -0.007404 |                                    |        |
|  | 40               | 13.45           | 0.007708  |                                    |        |
|  | 50               | -3.62           | -0.002074 |                                    |        |
| 64QAM  |                  |                 |           |                                    |        |
| 3.85   | -30              | -4.06           | -0.002327 | Within authorized band for Band 66 | Pass   |
|  | -20              | 10.31           | 0.005908  |                                    |        |
|  | -10              | -12.17          | -0.006974 |                                    |        |
|  | 0                | -14.28          | -0.008183 |                                    |        |
|  | 10               | 6.35            | 0.003639  |                                    |        |
|  | 20               | -11.03          | -0.006321 |                                    |        |
|  | 30               | -12.76          | -0.007312 |                                    |        |
|  | 40               | -11.52          | -0.006602 |                                    |        |
|  | 50               | -14.43          | -0.008269 |                                    |        |

| Voltage   |                      |                 |           |                                    |        |
|---|----------------------|-----------------|-----------|------------------------------------|--------|
| Temperature (°C)  | Power supplied (Vdc) | Frequency error |           | Limit (ppm)                        | Result |
|   |                      | Hz              | ppm       |                                    |        |
| QPSK  |                      |                 |           |                                    |        |
| 25  | 3.60                 | -11.44          | -0.006556 | Within authorized band for Band 66 | Pass   |
|   | 3.85                 | -21.97          | -0.012590 |                                    |        |
|   | 4.40                 | -13.58          | -0.007782 |                                    |        |
| 16QAM   |                      |                 |           |                                    |        |
| 25  | 3.60                 | -15.85          | -0.009083 | Within authorized band for Band 66 | Pass   |
|   | 3.85                 | -12.15          | -0.006963 |                                    |        |
|   | 4.40                 | -14.16          | -0.008115 |                                    |        |
| 64QAM   |                      |                 |           |                                    |        |
| 25  | 3.60                 | -8.48           | -0.004860 | Within authorized band for Band 66 | Pass   |
|   | 3.85                 | -11.07          | -0.006344 |                                    |        |
|   | 4.40                 | 7.87            | 0.004510  |                                    |        |
| <i>Remark: All bandwidth and all modulation had been tested, but only the worst case data displayed in this report.</i> |                      |                 |           |                                    |        |



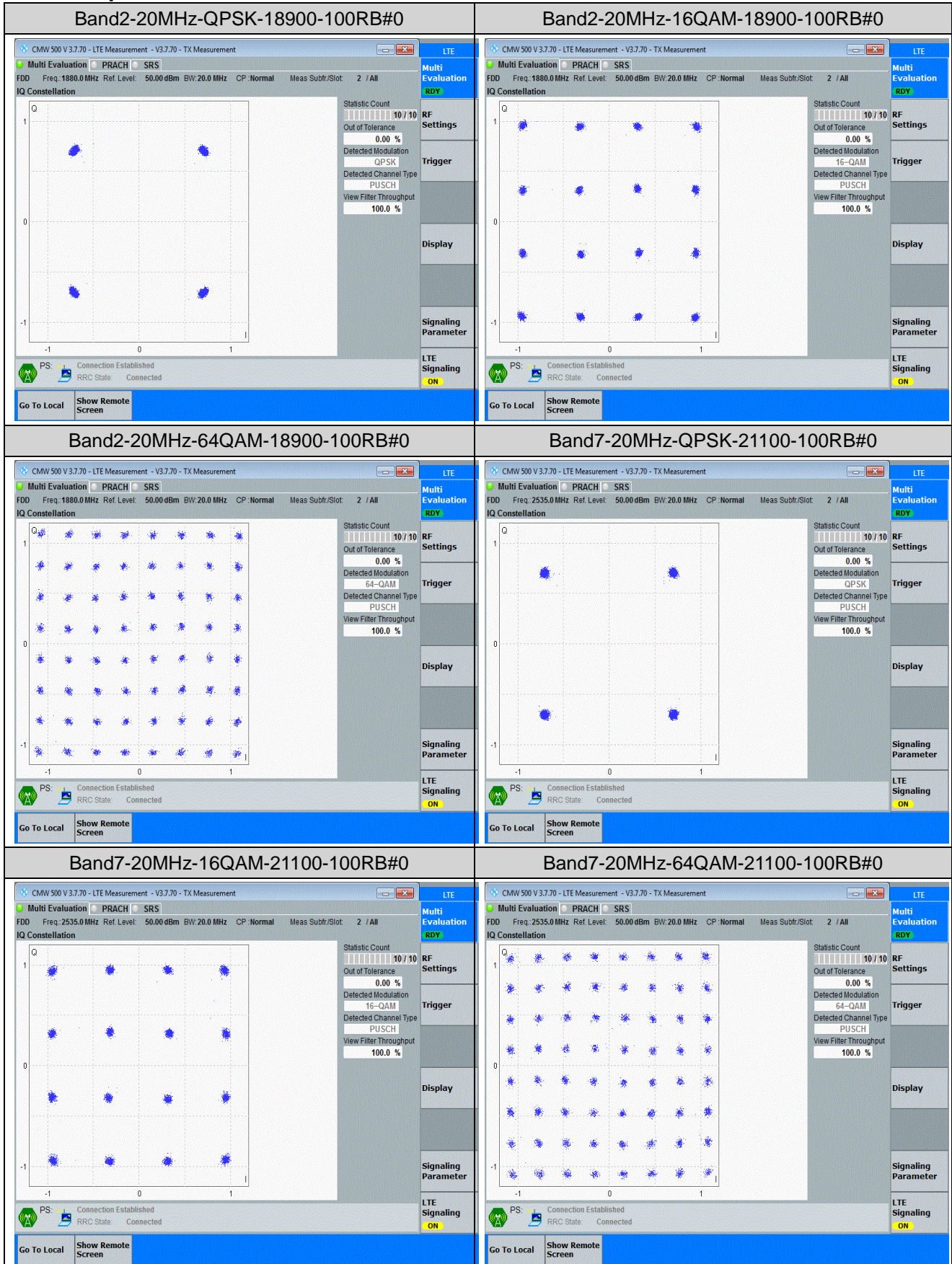
## Appendix G: Modulation Characteristics

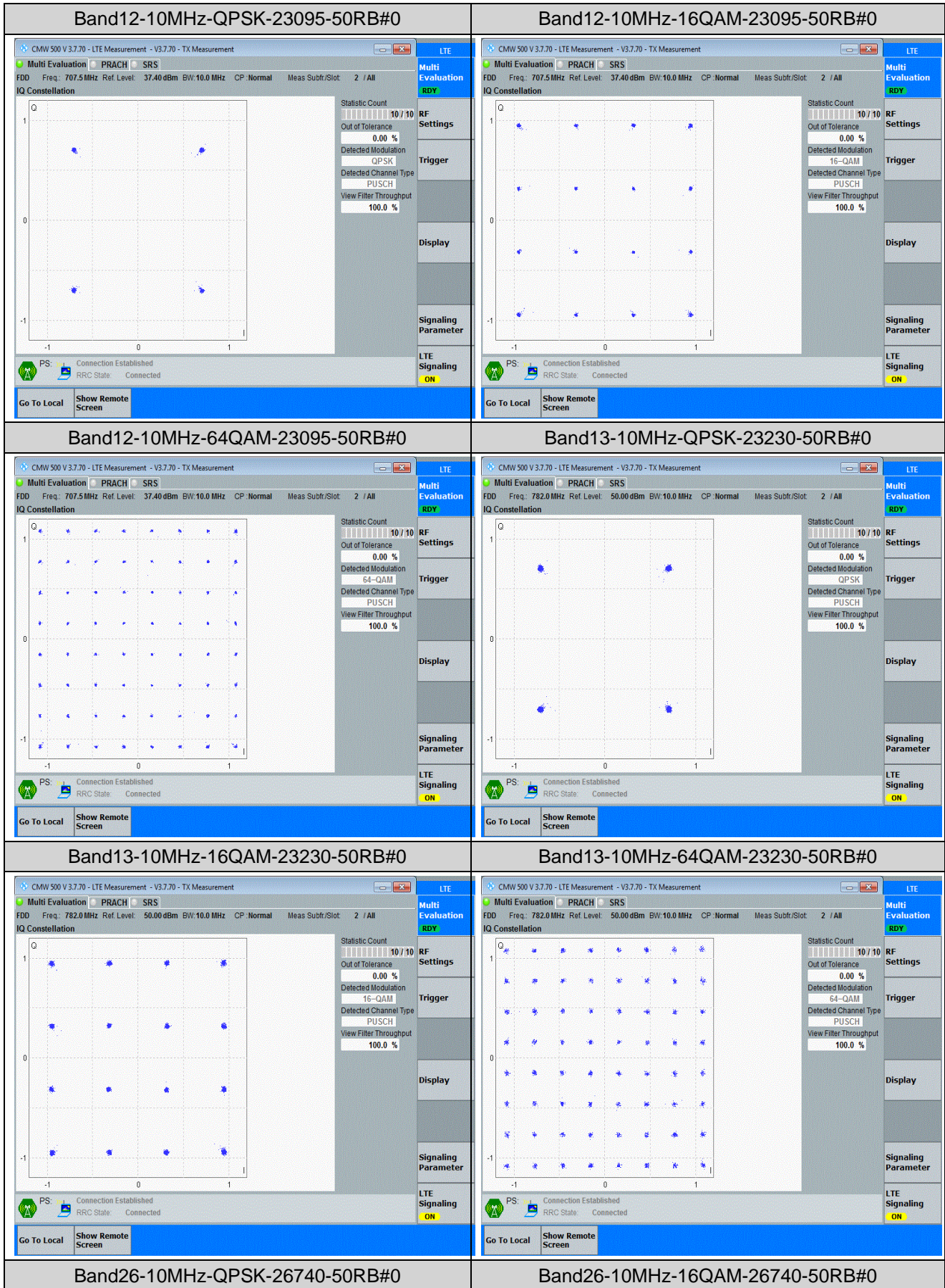
### Test Result

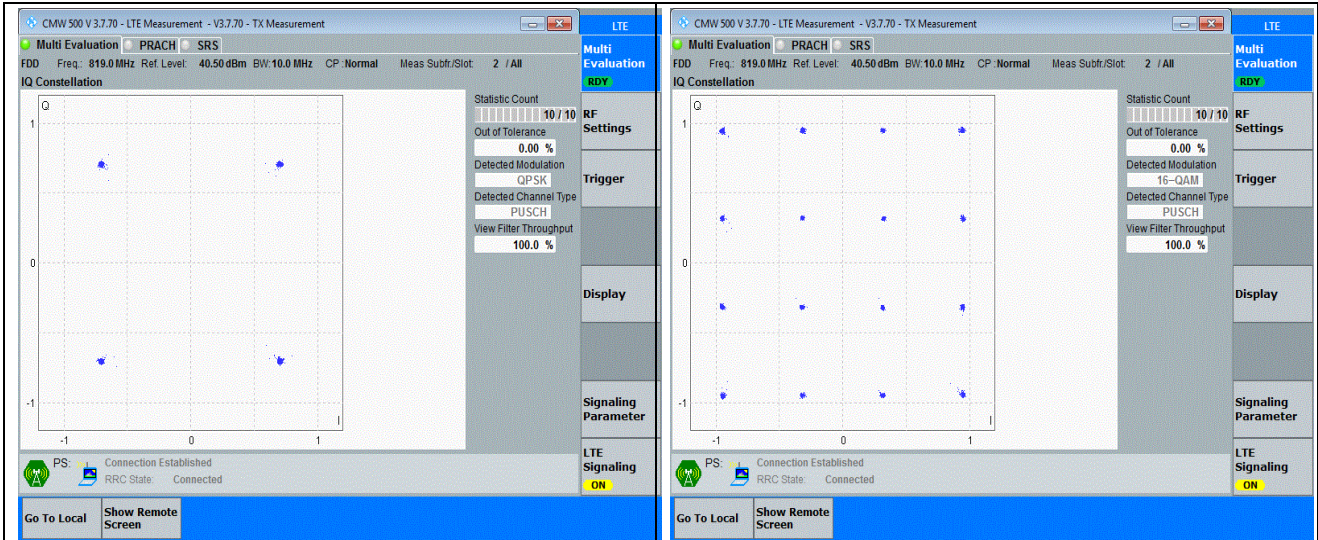
| Band   | Bandwidth | Modulation | Channel | RB Configuration | Result | Verdict |
|--------|-----------|------------|---------|------------------|--------|---------|
| Band2  | 20MHz     | QPSK       | 18900   | 100RB#0          | PASS   | PASS    |
| Band2  | 20MHz     | 16QAM      | 18900   | 100RB#0          | PASS   | PASS    |
| Band2  | 20MHz     | 64QAM      | 18900   | 100RB#0          | PASS   | PASS    |
| Band7  | 20MHz     | QPSK       | 21100   | 100RB#0          | PASS   | PASS    |
| Band7  | 20MHz     | 16QAM      | 21100   | 100RB#0          | PASS   | PASS    |
| Band7  | 20MHz     | 64QAM      | 21100   | 100RB#0          | PASS   | PASS    |
| Band12 | 10MHz     | QPSK       | 23095   | 50RB#0           | PASS   | PASS    |
| Band12 | 10MHz     | 16QAM      | 23095   | 50RB#0           | PASS   | PASS    |
| Band12 | 10MHz     | 64QAM      | 23095   | 50RB#0           | PASS   | PASS    |
| Band13 | 10MHz     | QPSK       | 23230   | 50RB#0           | PASS   | PASS    |
| Band13 | 10MHz     | 16QAM      | 23230   | 50RB#0           | PASS   | PASS    |
| Band13 | 10MHz     | 64QAM      | 23230   | 50RB#0           | PASS   | PASS    |
| Band26 | 10MHz     | QPSK       | 26740   | 50RB#0           | PASS   | PASS    |
| Band26 | 10MHz     | 16QAM      | 26740   | 50RB#0           | PASS   | PASS    |
| Band26 | 10MHz     | 64QAM      | 26740   | 50RB#0           | PASS   | PASS    |
| Band26 | 15MHz     | QPSK       | 26915   | 75RB#0           | PASS   | PASS    |
| Band26 | 15MHz     | 16QAM      | 26915   | 75RB#0           | PASS   | PASS    |
| Band26 | 15MHz     | 64QAM      | 26915   | 75RB#0           | PASS   | PASS    |
| Band41 | 20MHz     | QPSK       | 40740   | 100RB#0          | PASS   | PASS    |
| Band41 | 20MHz     | 16QAM      | 40740   | 100RB#0          | PASS   | PASS    |
| Band41 | 20MHz     | 64QAM      | 40740   | 100RB#0          | PASS   | PASS    |
| Band66 | 20MHz     | QPSK       | 132322  | 100RB#0          | PASS   | PASS    |
| Band66 | 20MHz     | 16QAM      | 132322  | 100RB#0          | PASS   | PASS    |
| Band66 | 20MHz     | 64QAM      | 132322  | 100RB#0          | PASS   | PASS    |

*Remark: All bandwidth and all modulation had been tested, but only the worst case data displayed in this report.*

## Test Graphs

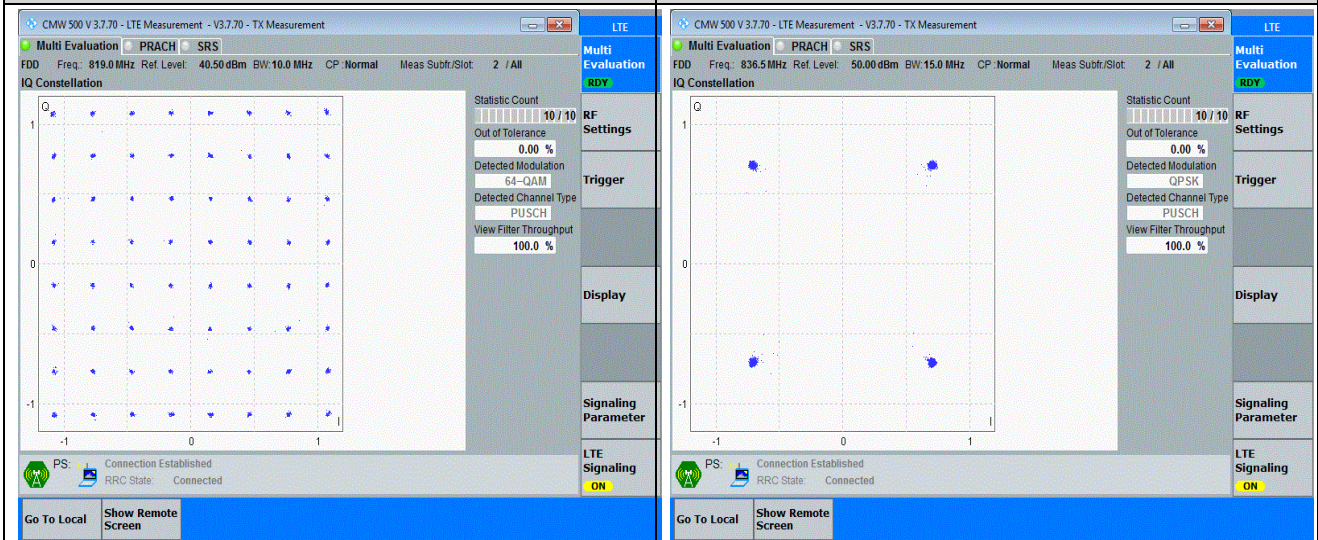






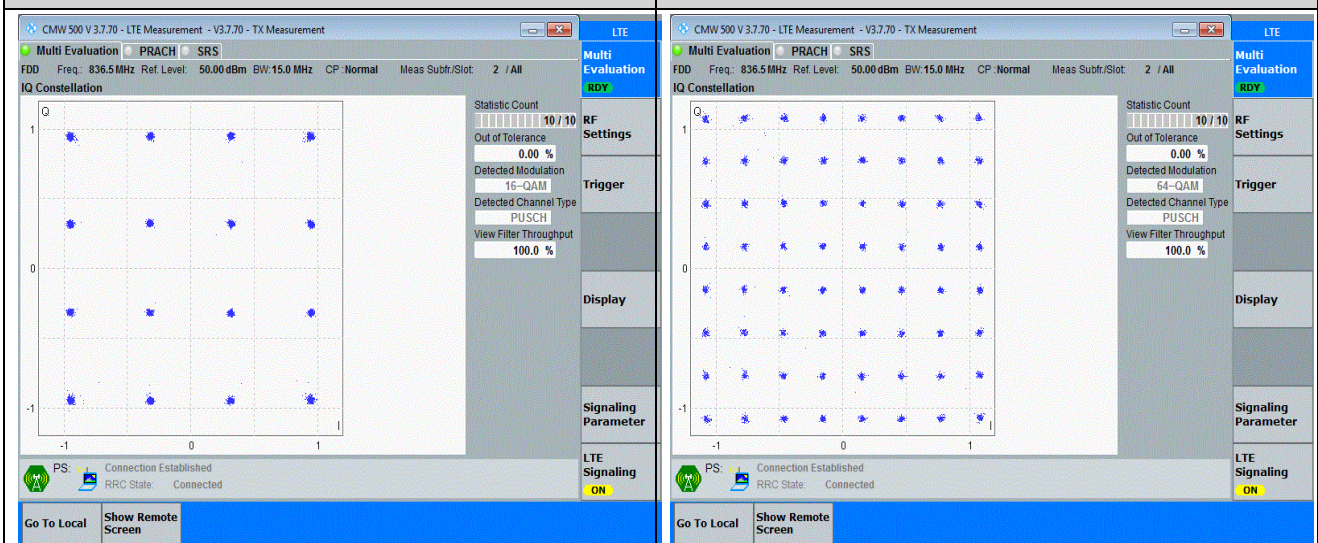
Band26-10MHz-64QAM-26740-50RB#0

Band26-15MHz-QPSK-26915-75RB#0



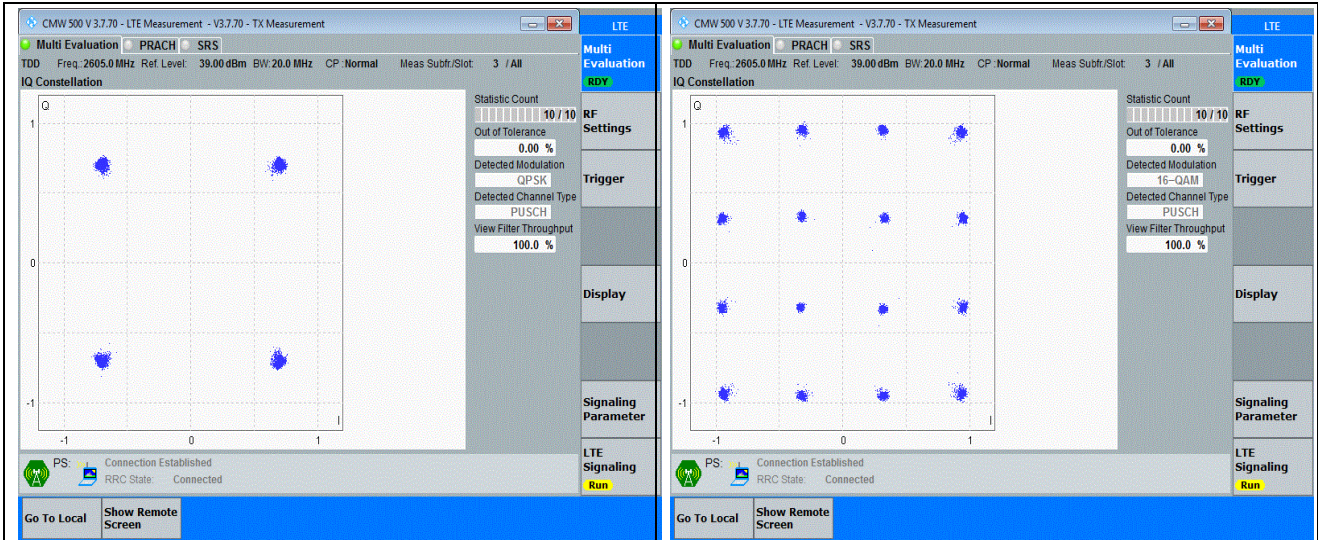
Band26-15MHz-16QAM-26915-75RB#0

Band26-15MHz-64QAM-26915-75RB#0



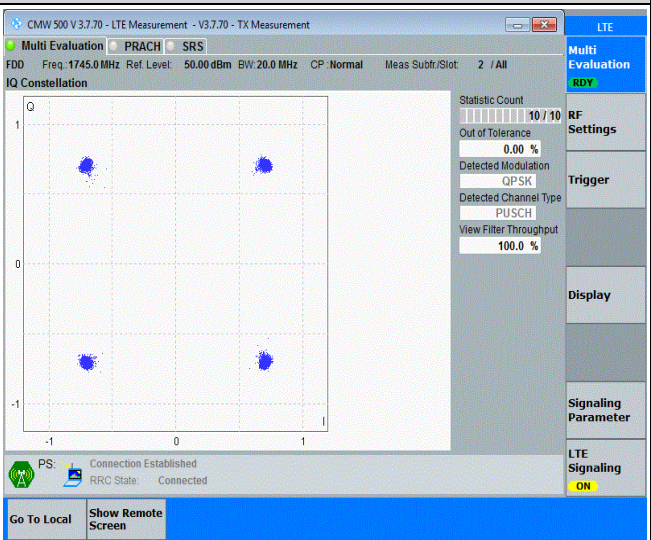
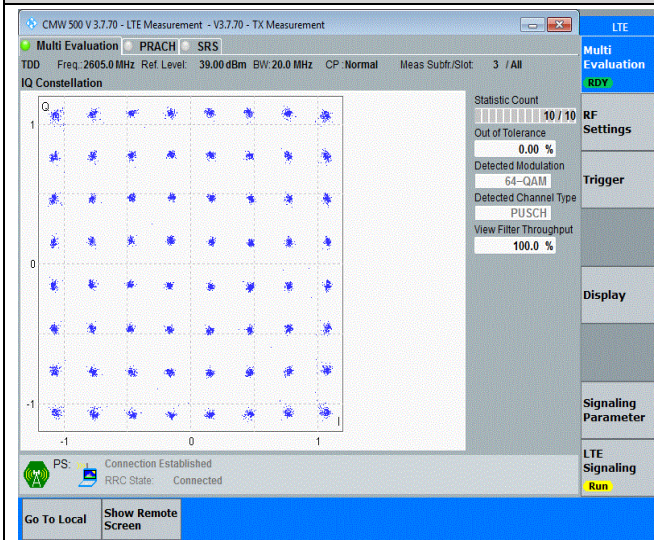
Band41-20MHz-QPSK-40740-100RB#0

Band41-20MHz-16QAM-40740-100RB#0



Band41-20MHz-64QAM-40740-100RB#0

Band66-20MHz-QPSK-132322-100RB#0



Band66-20MHz-16QAM-132322-100RB#0

Band66-20MHz-64QAM-132322-100RB#0

