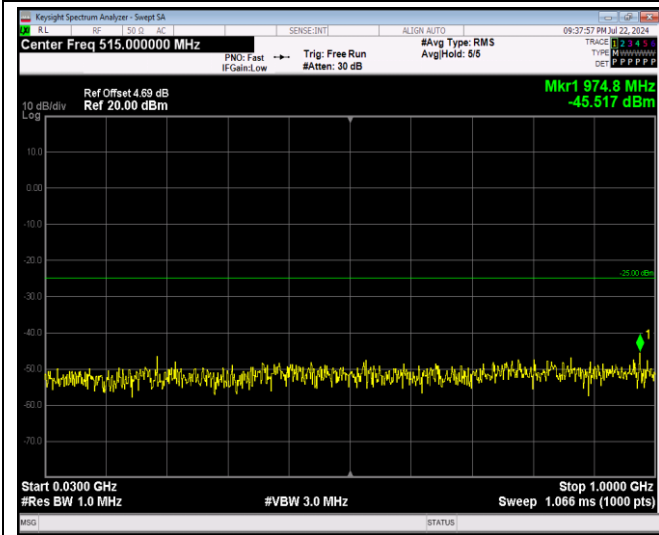


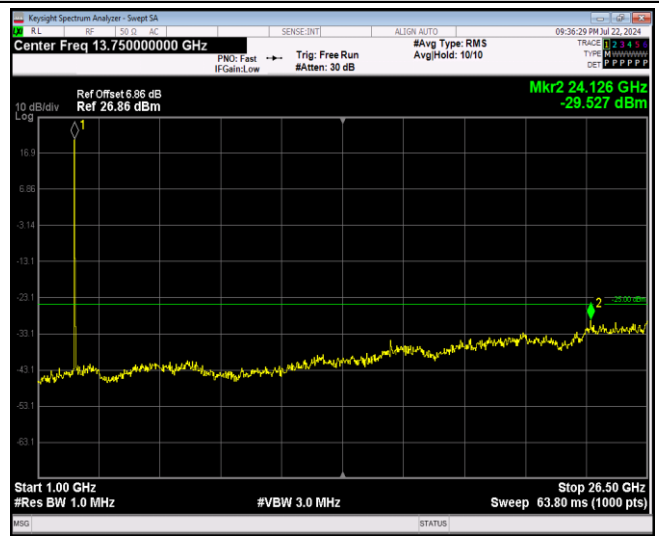
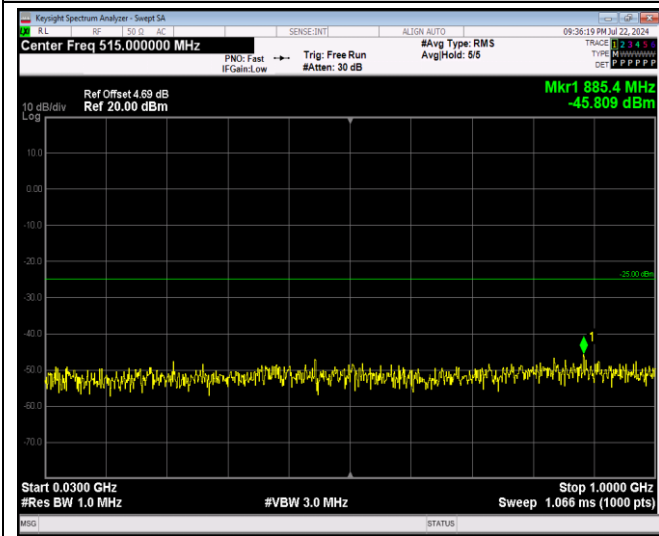
Band41-20MHz-QPSK-41140-1RB#0-Range1:30~1000MHz

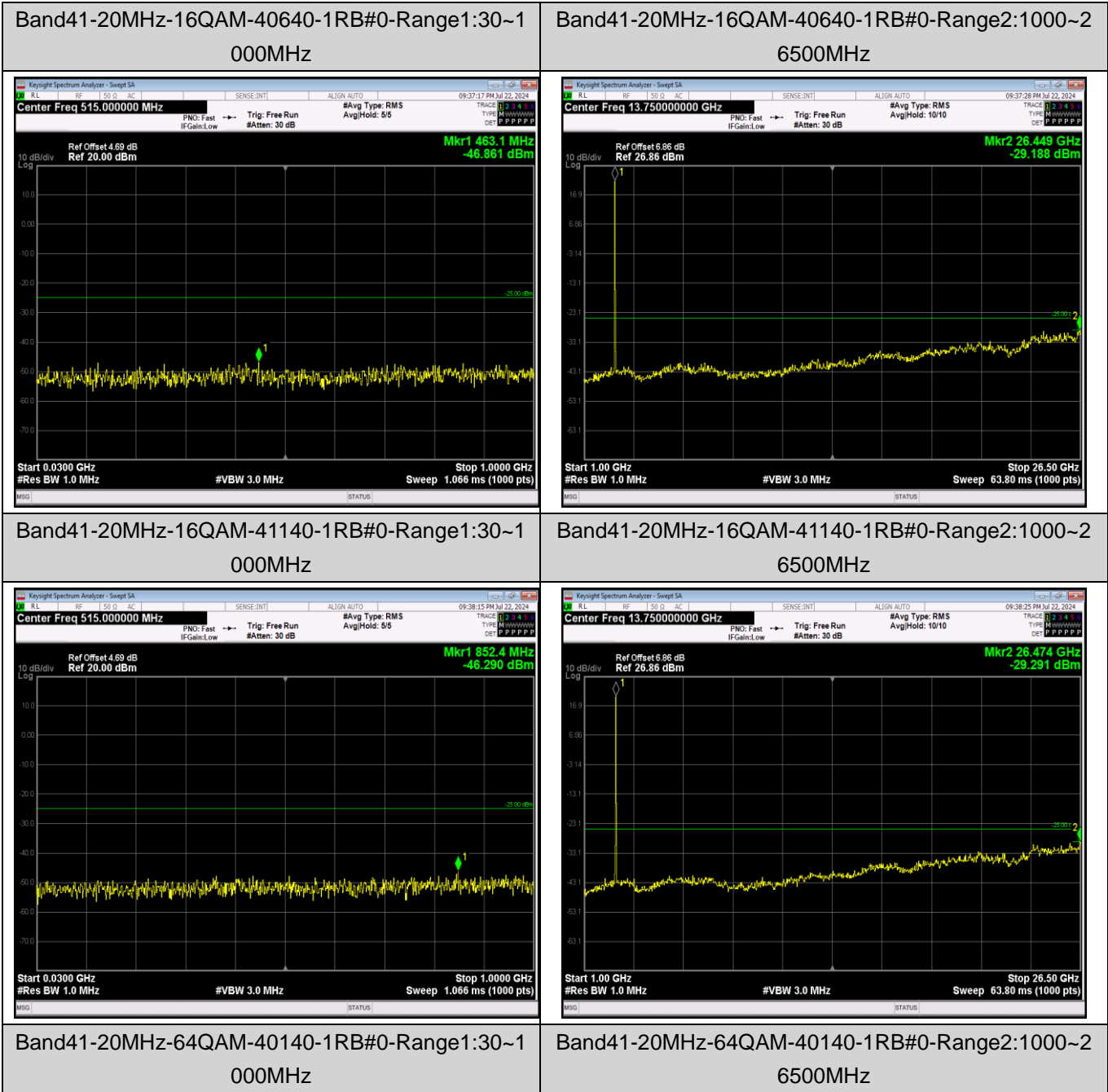
Band41-20MHz-QPSK-41140-1RB#0-Range2:1000~26500MHz

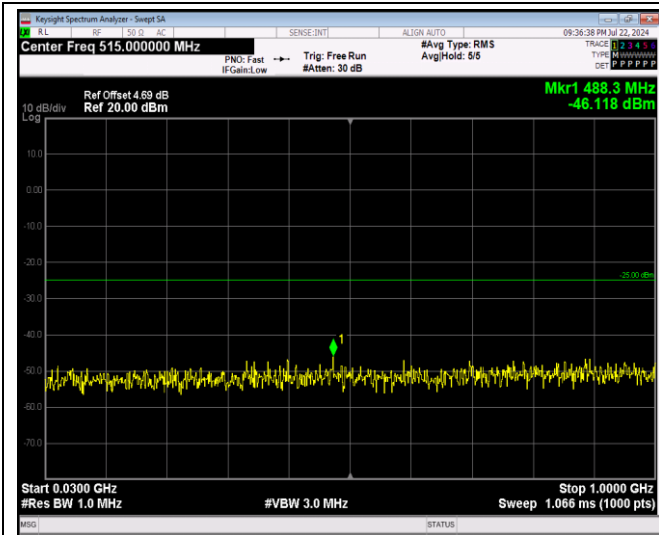


Band41-20MHz-16QAM-40140-1RB#0-Range1:30~1000MHz

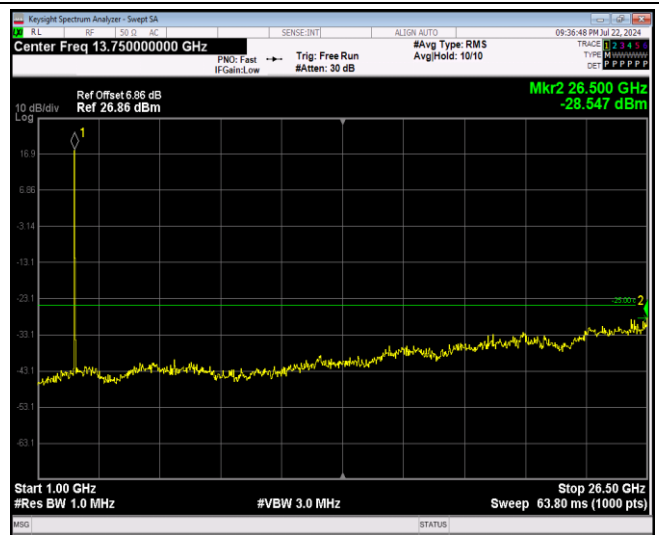
Band41-20MHz-16QAM-40140-1RB#0-Range2:1000~26500MHz



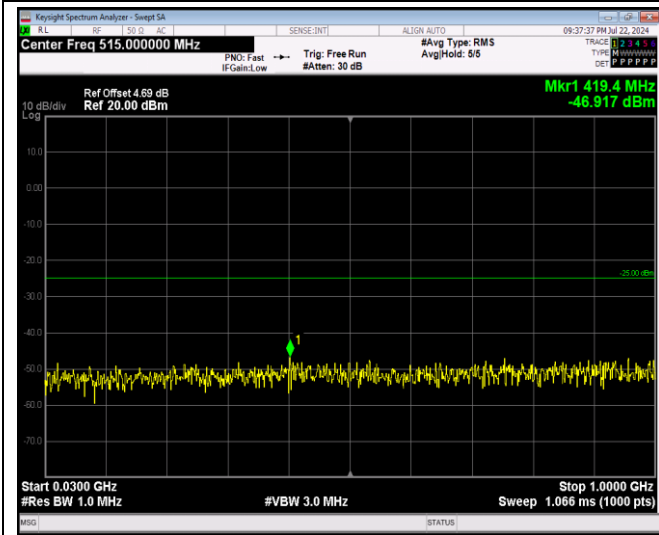




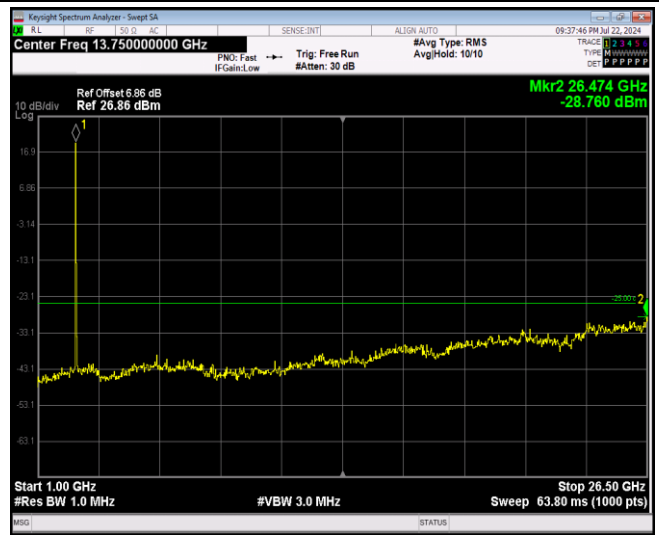
Band41-20MHz-64QAM-40640-1RB#0-Range1:30~1000MHz



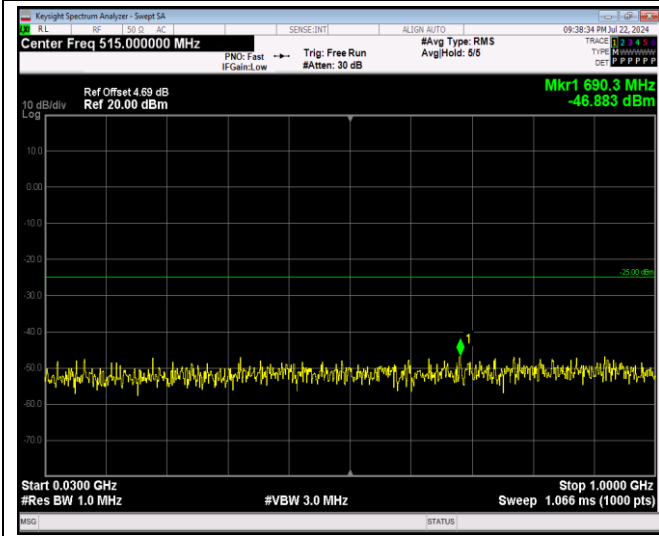
Band41-20MHz-64QAM-40640-1RB#0-Range2:1000~26500MHz



Band41-20MHz-64QAM-41140-1RB#0-Range1:30~1000MHz



Band41-20MHz-64QAM-41140-1RB#0-Range2:1000~26500MHz



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 | | | | | |
| 3.87 | -30 | -12.90 | -0.006862 | Within authorized band for Band 2 | Pass |
| | -20 | -11.46 | -0.006096 | | |
| | -10 | 12.46 | 0.006628 | | |
| | 0 | -10.34 | -0.005500 | | |
| | 10 | 10.63 | 0.005654 | | |
| | 20 | 6.78 | 0.003606 | | |
| | 30 | 6.51 | 0.003463 | | |
| | 40 | 7.32 | 0.003894 | | |
| | 50 | -6.22 | -0.003309 | | |
| 16QAM | | | | | |
| 3.87 | -30 | -6.27 | -0.003335 | Within authorized band for Band 2 | Pass |
| | -20 | -11.94 | -0.006351 | | |
| | -10 | 13.76 | 0.007319 | | |
| | 0 | 4.42 | 0.002351 | | |
| | 10 | 8.75 | 0.004654 | | |
| | 20 | 2.43 | 0.001293 | | |
| | 30 | -12.70 | -0.006755 | | |
| | 40 | -10.50 | -0.005585 | | |
| | 50 | -17.65 | -0.009388 | | |
| 64QAM | | | | | |
| 3.87 | -30 | -7.51 | -0.003995 | Within authorized band for Band 2 | Pass |
| | -20 | 10.39 | 0.005527 | | |
| | -10 | 11.92 | 0.006340 | | |
| | 0 | 8.67 | 0.004612 | | |
| | 10 | -6.39 | -0.003399 | | |
| | 20 | -7.74 | -0.004117 | | |
| | 30 | -6.59 | -0.003505 | | |
| | 40 | 2.55 | 0.001356 | | |
| | 50 | -10.76 | -0.005723 | | |

| Voltage | | | | | |
|---|----------------------|-----------------|-----------|-----------------------------------|--------|
| Temperature (°C) | Power supplied (Vdc) | Frequency error | | Limit (ppm) | Result |
| | | Hz | ppm | | |
| QPSK | | | | | |
| 25 | 3.45 | -11.01 | -0.005856 | Within authorized band for Band 2 | Pass |
| | 3.87 | -10.26 | -0.005457 | | |
| | 4.45 | -14.32 | -0.007617 | | |
| 16QAM | | | | | |
| 25 | 3.45 | -8.57 | -0.004559 | Within authorized band for Band 2 | Pass |
| | 3.87 | -7.25 | -0.003856 | | |
| | 4.45 | 11.59 | 0.006165 | | |
| 64QAM | | | | | |
| 25 | 3.45 | -12.49 | -0.006644 | Within authorized band for Band 2 | Pass |
| | 3.87 | -11.22 | -0.005968 | | |
| | 4.45 | -13.59 | -0.007229 | | |
| <i>Remark: All bandwidth and all modulation had been tested, but only the worst case data displayed in this report.</i> | | | | | |

LTE Band 4 part:

| Reference Frequency: LTE Band 4(10MHz) Middle channel=20175 Frequency=1732.5MHz | | | | | |
|---|------------------|-----------------|-----------|-----------------------------------|--------|
| Temperature | | | | | |
| Power supplied (Vdc) | Temperature (°C) | Frequency error | | Limit (ppm) | Result |
| | | Hz | ppm | | |
| QPSK | | | | | |
| 3.87 | -30 | 6.21 | 0.003584 | Within authorized band for Band 4 | Pass |
| | -20 | 5.58 | 0.003221 | | |
| | -10 | -10.99 | -0.006343 | | |
| | 0 | -12.02 | -0.006938 | | |
| | 10 | -11.07 | -0.006390 | | |
| | 20 | -11.79 | -0.006805 | | |
| | 30 | -9.04 | -0.005218 | | |
| | 40 | -10.30 | -0.005945 | | |
| | 50 | -8.98 | -0.005183 | | |
| 16QAM | | | | | |
| 3.87 | -30 | 8.41 | 0.004854 | Within authorized band for Band 4 | Pass |
| | -20 | -10.97 | -0.006332 | | |
| | -10 | -9.76 | -0.005633 | | |
| | 0 | -9.77 | -0.005639 | | |
| | 10 | -6.90 | -0.003983 | | |
| | 20 | -5.64 | -0.003255 | | |
| | 30 | -4.98 | -0.002874 | | |
| | 40 | -5.15 | -0.002973 | | |
| | 50 | 8.53 | 0.004924 | | |
| 64QAM | | | | | |
| 3.87 | -30 | -1.70 | -0.000981 | Within authorized band for Band 4 | Pass |
| | -20 | 6.15 | 0.003550 | | |
| | -10 | 9.21 | 0.005316 | | |
| | 0 | -9.60 | -0.005541 | | |
| | 10 | -7.55 | -0.004358 | | |
| | 20 | -4.52 | -0.002609 | | |
| | 30 | -5.16 | -0.002978 | | |
| | 40 | -8.65 | -0.004993 | | |
| | 50 | -6.27 | -0.003619 | | |

| Voltage | | | | | |
|---|----------------------|-----------------|-----------|-----------------------------------|--------|
| Temperature (°C) | Power supplied (Vdc) | Frequency error | | Limit (ppm) | Result |
| | | Hz | ppm | | |
| QPSK | | | | | |
| 25 | 3.45 | -9.43 | -0.005443 | Within authorized band for Band 4 | Pass |
| | 3.87 | 4.89 | 0.002823 | | |
| | 4.45 | -7.18 | -0.004144 | | |
| 16QAM | | | | | |
| 25 | 3.45 | -8.34 | -0.004814 | Within authorized band for Band 4 | Pass |
| | 3.87 | -8.04 | -0.004641 | | |
| | 4.45 | 9.47 | 0.005466 | | |
| 64QAM | | | | | |
| 25 | 3.45 | -1.26 | -0.000727 | Within authorized band for Band 4 | Pass |
| | 3.87 | -6.08 | -0.003509 | | |
| | 4.45 | 9.48 | 0.005472 | | |
| <i>Remark: All bandwidth and all modulation had been tested, but only the worst case data displayed in this report.</i> | | | | | |

LTE Band 5 part:

| Reference Frequency: LTE Band 5(10MHz) Middle channel=20525 Frequency=836.5MHz | | | | | |
|--|------------------|-----------------|-----------|-------------|--------|
| Temperature | | | | | |
| Power supplied (Vdc) | Temperature (°C) | Frequency error | | Limit (ppm) | Result |
| | | Hz | ppm | | |
| QPSK | | | | | |
| 3.87 | -30 | -5.65 | -0.006754 | ±2.5 | Pass |
| | -20 | -7.14 | -0.008536 | | |
| | -10 | -4.63 | -0.005535 | | |
| | 0 | -5.66 | -0.006766 | | |
| | 10 | -5.64 | -0.006742 | | |
| | 20 | -3.60 | -0.004304 | | |
| | 30 | -3.08 | -0.003682 | | |
| | 40 | -4.69 | -0.005607 | | |
| | 50 | -4.51 | -0.005392 | | |
| 16QAM | | | | | |
| 3.87 | -30 | -5.05 | -0.006037 | ±2.5 | Pass |
| | -20 | -4.49 | -0.005368 | | |
| | -10 | -4.86 | -0.005810 | | |
| | 0 | -5.84 | -0.006981 | | |
| | 10 | -5.92 | -0.007077 | | |
| | 20 | -2.13 | -0.002546 | | |
| | 30 | -6.98 | -0.008344 | | |
| | 40 | -4.38 | -0.005236 | | |
| | 50 | -5.64 | -0.006742 | | |
| 64QAM | | | | | |
| 3.87 | -30 | -3.88 | -0.004638 | ±2.5 | Pass |
| | -20 | -6.42 | -0.007675 | | |
| | -10 | -1.77 | -0.002116 | | |
| | 0 | -3.63 | -0.004340 | | |
| | 10 | -5.35 | -0.006396 | | |
| | 20 | -4.55 | -0.005439 | | |
| | 30 | -1.83 | -0.002188 | | |
| | 40 | 1.12 | 0.001339 | | |
| | 50 | -4.76 | -0.005690 | | |

| Voltage | | | | | |
|---|----------------------|-----------------|-----------|-------------|--------|
| Temperature (°C) | Power supplied (Vdc) | Frequency error | | Limit (ppm) | Result |
| | | Hz | ppm | | |
| QPSK | | | | | |
| 25 | 3.45 | -4.73 | -0.005655 | ±2.5 | Pass |
| | 3.87 | -5.56 | -0.006647 | | |
| | 4.45 | -3.86 | -0.004614 | | |
| 16QAM | | | | | |
| 25 | 3.45 | -5.51 | -0.006587 | ±2.5 | Pass |
| | 3.87 | -8.01 | -0.009576 | | |
| | 4.45 | -5.99 | -0.007161 | | |
| 64QAM | | | | | |
| 25 | 3.45 | -6.31 | -0.007543 | ±2.5 | Pass |
| | 3.87 | 4.61 | 0.005511 | | |
| | 4.45 | 4.61 | 0.005511 | | |
| <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 | | | | | |
| 3.87 | -30 | -16.65 | -0.006568 | Within authorized band for Band 7 | Pass |
| | -20 | -12.09 | -0.004769 | | |
| | -10 | -10.69 | -0.004217 | | |
| | 0 | -7.82 | -0.003085 | | |
| | 10 | -11.04 | -0.004355 | | |
| | 20 | -17.09 | -0.006742 | | |
| | 30 | 3.00 | 0.001183 | | |
| | 40 | -12.66 | -0.004994 | | |
| | 50 | -14.85 | -0.005858 | | |
| 16QAM | | | | | |
| 3.87 | -30 | -10.91 | -0.004304 | Within authorized band for Band 7 | Pass |
| | -20 | 6.87 | 0.002710 | | |
| | -10 | -14.81 | -0.005842 | | |
| | 0 | -4.98 | -0.001964 | | |
| | 10 | -14.96 | -0.005901 | | |
| | 20 | 11.83 | 0.004667 | | |
| | 30 | -7.27 | -0.002868 | | |
| | 40 | -4.92 | -0.001941 | | |
| | 50 | -16.98 | -0.006698 | | |
| 64QAM | | | | | |
| 3.87 | -30 | 10.19 | 0.004020 | Within authorized band for Band 7 | Pass |
| | -20 | 15.72 | 0.006201 | | |
| | -10 | -13.98 | -0.005515 | | |
| | 0 | -11.30 | -0.004458 | | |
| | 10 | -12.33 | -0.004864 | | |
| | 20 | -12.04 | -0.004750 | | |
| | 30 | 9.91 | 0.003909 | | |
| | 40 | 11.33 | 0.004469 | | |
| | 50 | -7.68 | -0.003030 | | |

| Voltage | | | | | |
|---|----------------------|-----------------|-----------|-----------------------------------|--------|
| Temperature (°C) | Power supplied (Vdc) | Frequency error | | Limit (ppm) | Result |
| | | Hz | ppm | | |
| QPSK | | | | | |
| 25 | 3.45 | -8.03 | -0.003168 | Within authorized band for Band 7 | Pass |
| | 3.87 | -4.08 | -0.001609 | | |
| | 4.45 | -12.09 | -0.004769 | | |
| 16QAM | | | | | |
| 25 | 3.45 | 13.83 | 0.005456 | Within authorized band for Band 7 | Pass |
| | 3.87 | -16.42 | -0.006477 | | |
| | 4.45 | 15.16 | 0.005980 | | |
| 64QAM | | | | | |
| 25 | 3.45 | 10.76 | 0.004245 | Within authorized band for Band 7 | Pass |
| | 3.87 | -17.27 | -0.006813 | | |
| | 4.45 | -20.61 | -0.008130 | | |
| <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 | | | | | |
| 3.87 | -30 | -9.23 | -0.003557 | Within authorized band for Band 41 | Pass |
| | -20 | -10.00 | -0.003854 | | |
| | -10 | -7.30 | -0.002813 | | |
| | 0 | -3.89 | -0.001499 | | |
| | 10 | -11.03 | -0.004250 | | |
| | 20 | -1.59 | -0.000613 | | |
| | 30 | -4.66 | -0.001796 | | |
| | 40 | -6.38 | -0.002459 | | |
| | 50 | 3.26 | 0.001256 | | |
| 16QAM | | | | | |
| 3.87 | -30 | -5.01 | -0.001931 | Within authorized band for Band 41 | Pass |
| | -20 | -4.55 | -0.001753 | | |
| | -10 | -5.61 | -0.002162 | | |
| | 0 | -6.79 | -0.002617 | | |
| | 10 | -9.57 | -0.003688 | | |
| | 20 | 4.05 | 0.001561 | | |
| | 30 | -5.19 | -0.002000 | | |
| | 40 | -5.65 | -0.002177 | | |
| | 50 | 1.79 | 0.000690 | | |
| 64QAM | | | | | |
| 3.87 | -30 | -6.24 | -0.002405 | Within authorized band for Band 41 | Pass |
| | -20 | -8.33 | -0.003210 | | |
| | -10 | -3.38 | -0.001303 | | |
| | 0 | 6.44 | 0.002482 | | |
| | 10 | -3.32 | -0.001279 | | |
| | 20 | -4.95 | -0.001908 | | |
| | 30 | 2.10 | 0.000809 | | |
| | 40 | -7.37 | -0.002840 | | |
| | 50 | -5.94 | -0.002289 | | |

| Voltage | | | | | |
|---|----------------------|-----------------|-----------|------------------------------------|--------|
| Temperature (°C) | Power supplied (Vdc) | Frequency error | | Limit (ppm) | Result |
| | | Hz | ppm | | |
| QPSK | | | | | |
| 25 | 3.45 | -5.94 | -0.002289 | Within authorized band for Band 41 | Pass |
| | 3.87 | -10.53 | -0.004058 | | |
| | 4.45 | -9.23 | -0.003557 | | |
| 16QAM | | | | | |
| 25 | 3.45 | -3.76 | -0.001449 | Within authorized band for Band41 | Pass |
| | 3.87 | -3.52 | -0.001356 | | |
| | 4.45 | -2.95 | -0.001137 | | |
| 64QAM | | | | | |
| 25 | 3.45 | -11.12 | -0.004285 | Within authorized band for Band41 | Pass |
| | 3.87 | 2.60 | 0.001002 | | |
| | 4.45 | 3.78 | 0.001457 | | |
| <i>Remark: All bandwidth and all modulation had been tested, but only the worst case data displayed in this report.</i> | | | | | |

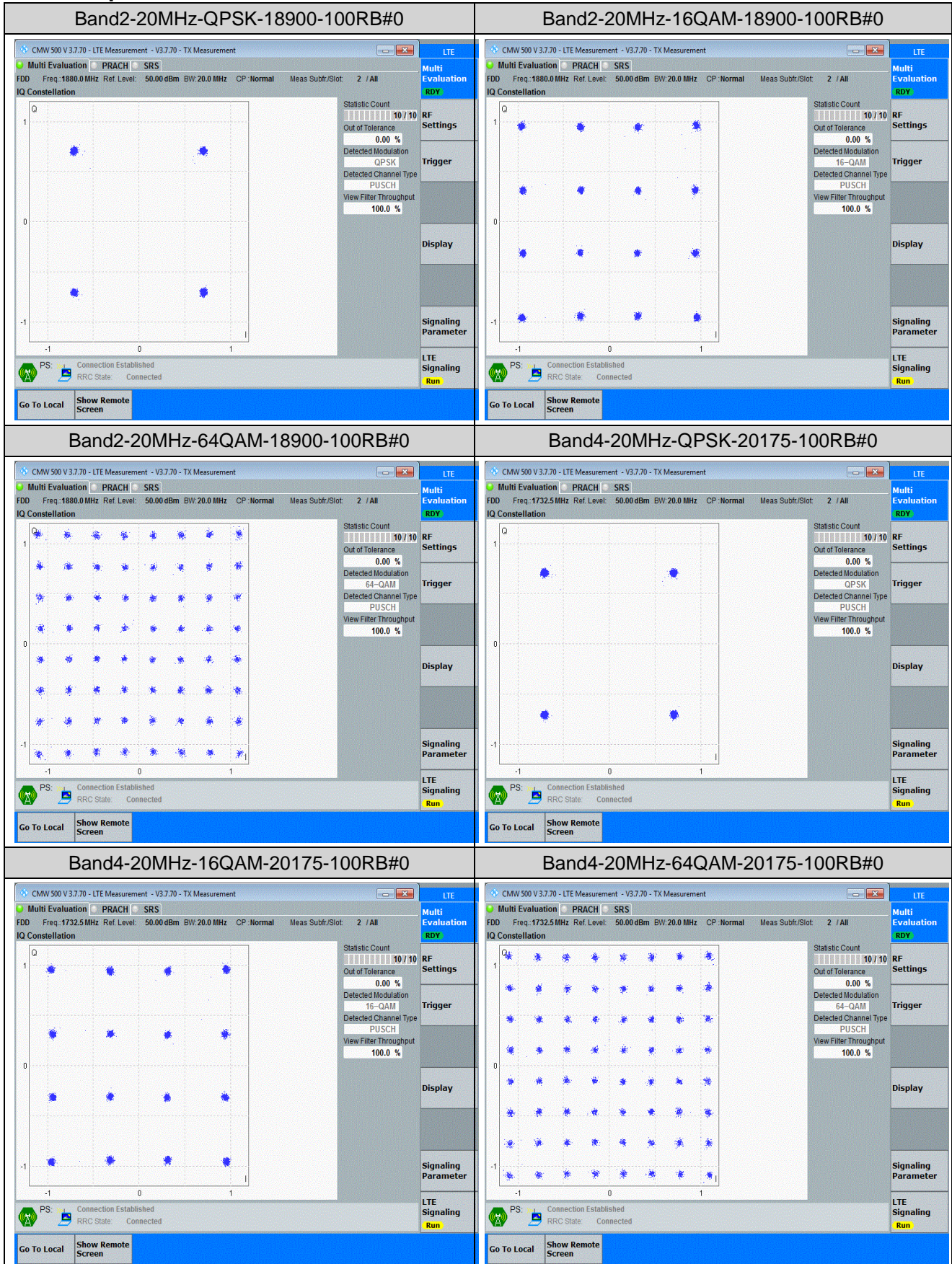
Appendix G: Modulation Characteristics

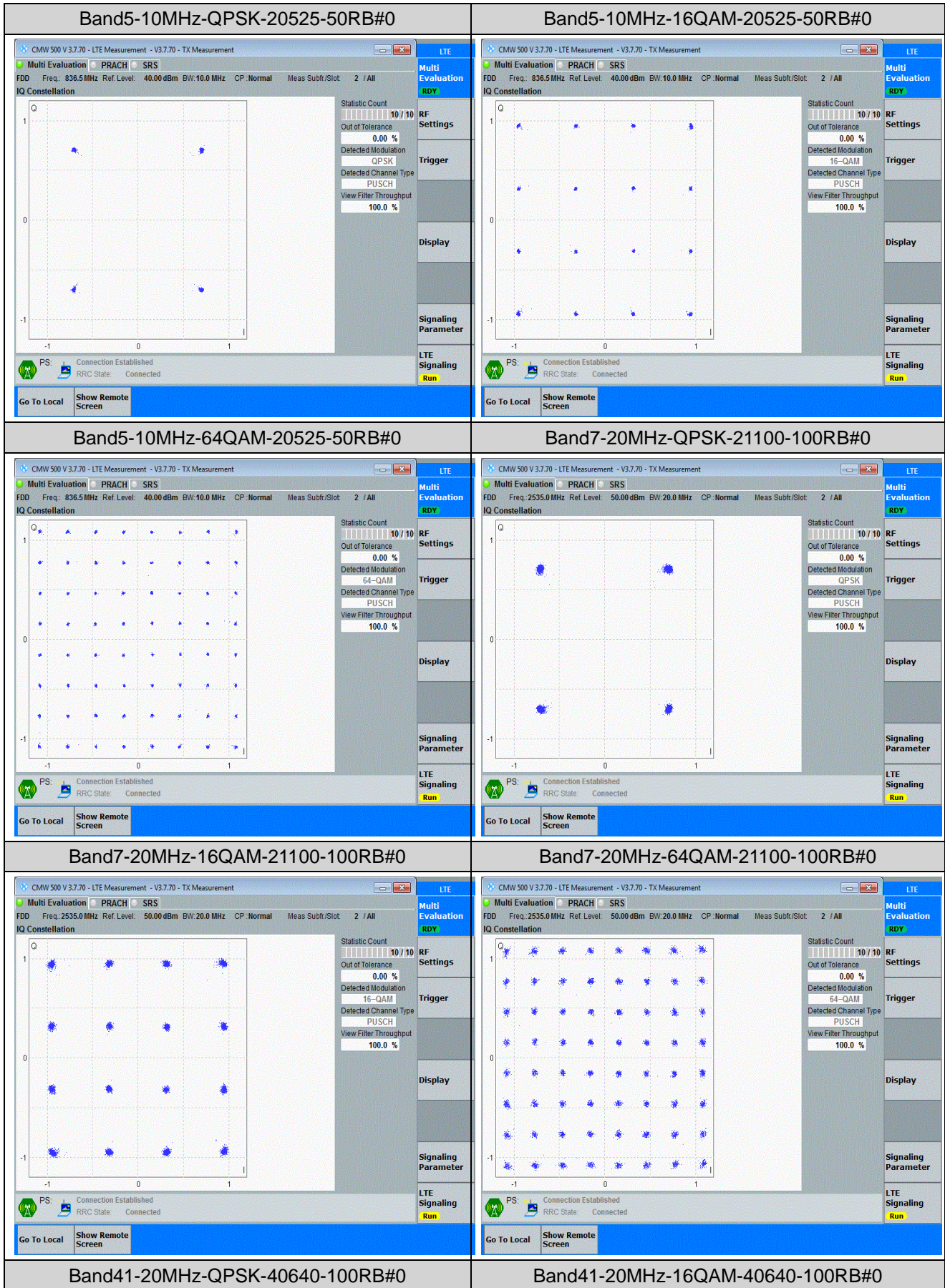
Test Result

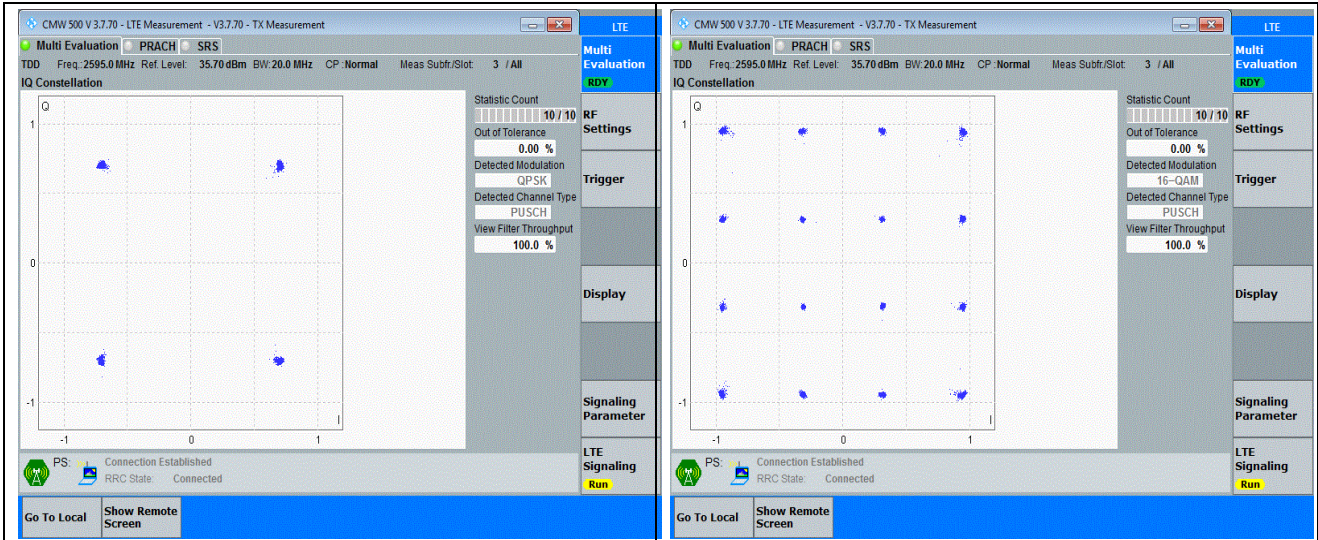
| Band | Bandwidth | Modulation | Channel | RB Configuration | Result | Verdict |
|--------|-----------|------------|---------|------------------|--------|---------|
| Band2 | 20MHz | QPSK | 18900 | 100RB#0 | PASS | PASS |
| Band2 | 20MHz | 16QAM | 18900 | 100RB#0 | PASS | PASS |
| Band2 | 20MHz | 64QAM | 18900 | 100RB#0 | PASS | PASS |
| Band4 | 20MHz | QPSK | 20175 | 100RB#0 | PASS | PASS |
| Band4 | 20MHz | 16QAM | 20175 | 100RB#0 | PASS | PASS |
| Band4 | 20MHz | 64QAM | 20175 | 100RB#0 | PASS | PASS |
| Band5 | 10MHz | QPSK | 20525 | 50RB#0 | PASS | PASS |
| Band5 | 10MHz | 16QAM | 20525 | 50RB#0 | PASS | PASS |
| Band5 | 10MHz | 64QAM | 20525 | 50RB#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 |
| Band41 | 20MHz | QPSK | 40640 | 100RB#0 | PASS | PASS |
| Band41 | 20MHz | 16QAM | 40640 | 100RB#0 | PASS | PASS |
| Band41 | 20MHz | 64QAM | 40640 | 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







Band41-20MHz-64QAM-40640-100RB#0

