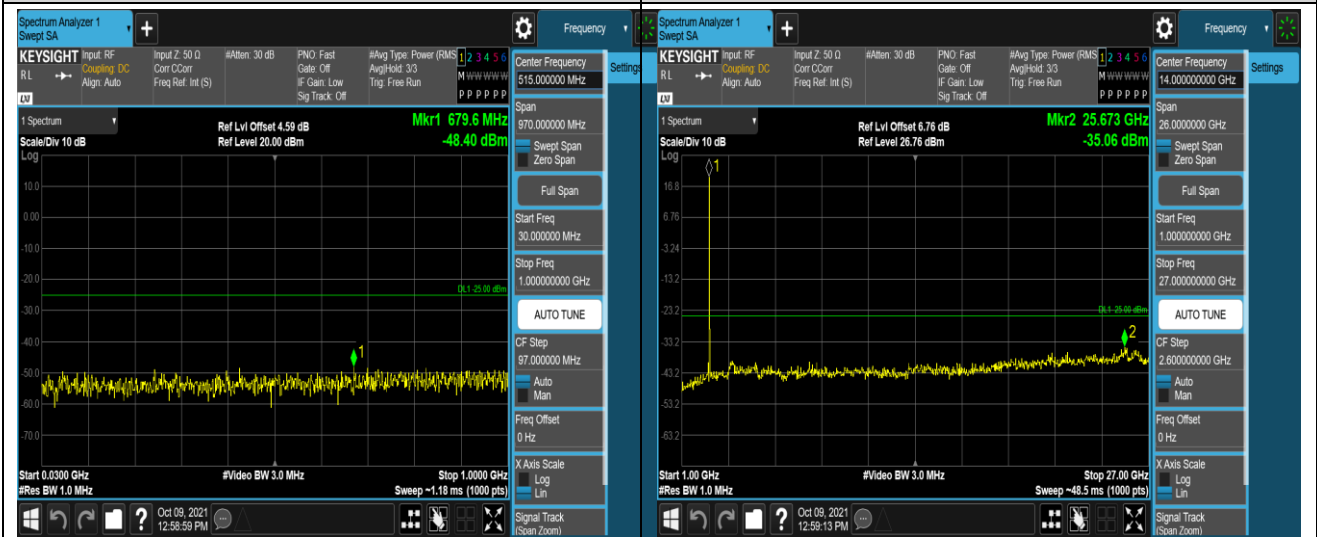


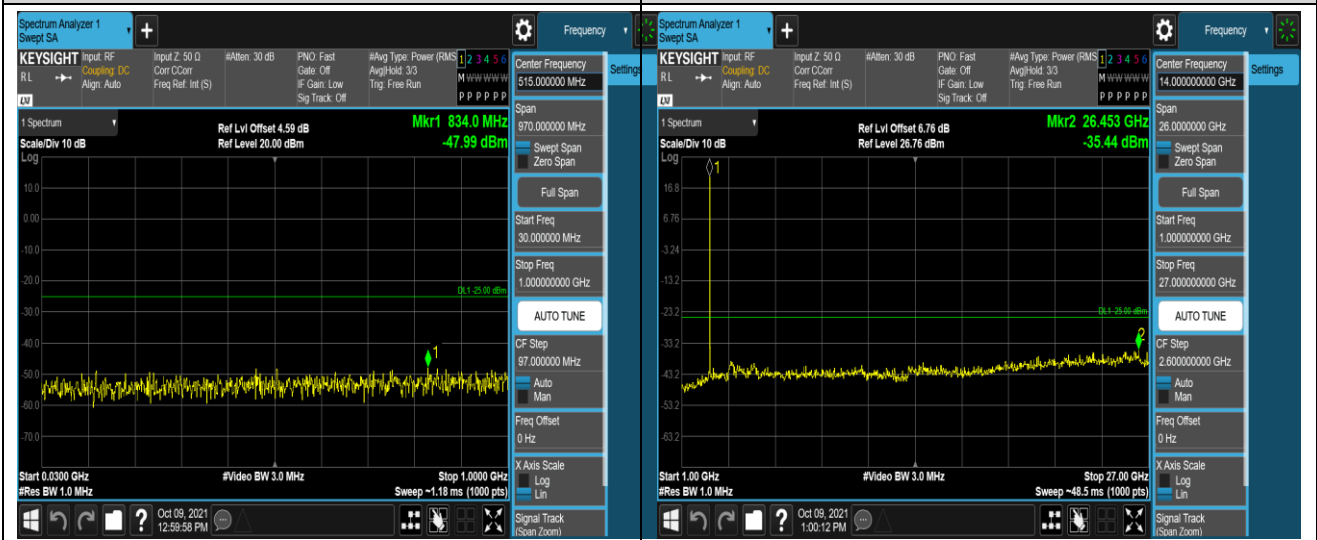
Band7-20MHz-QPSK-20850-1RB#0-Range1:30~1000MHz

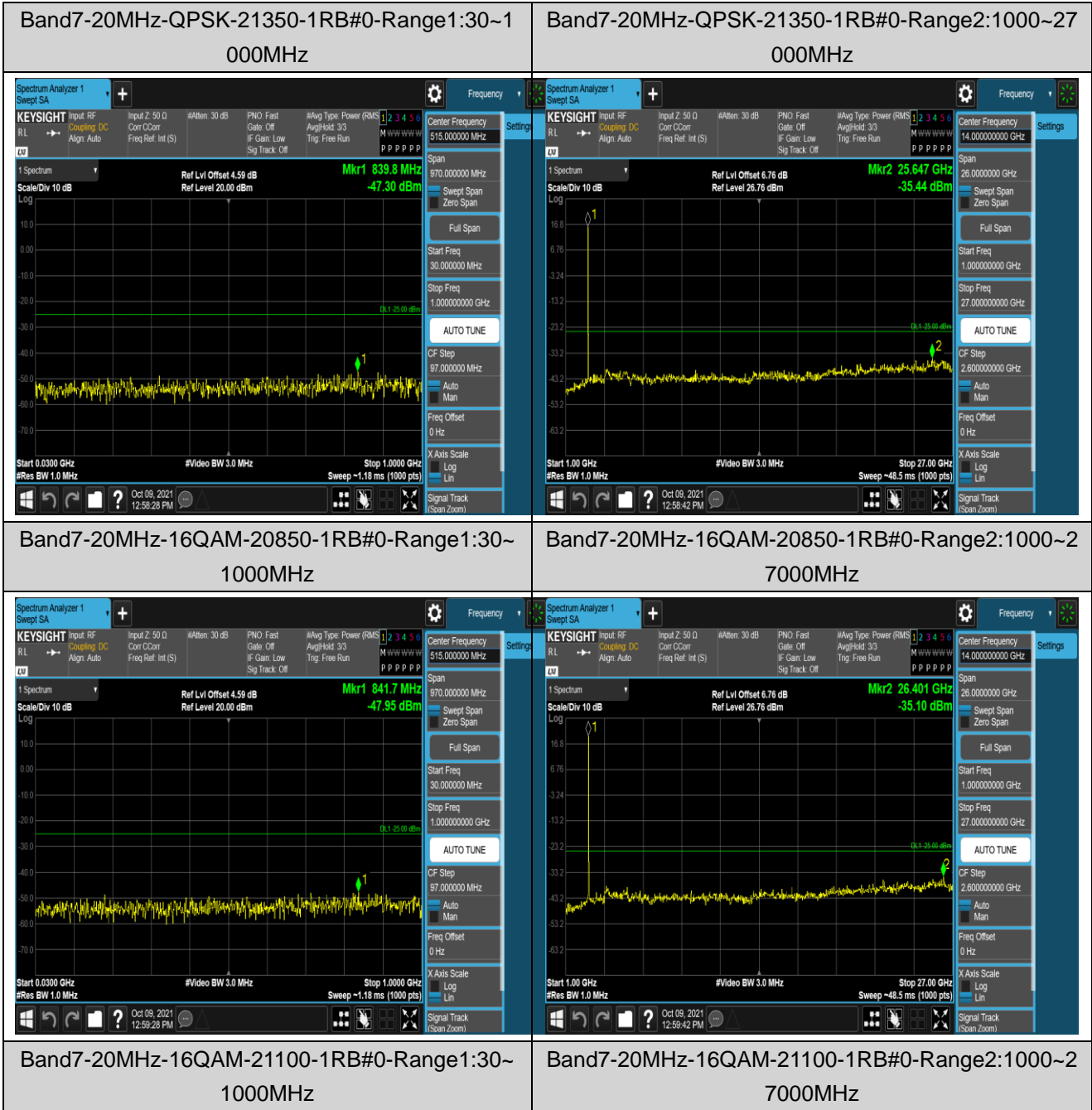
Band7-20MHz-QPSK-20850-1RB#0-Range2:1000~27000MHz

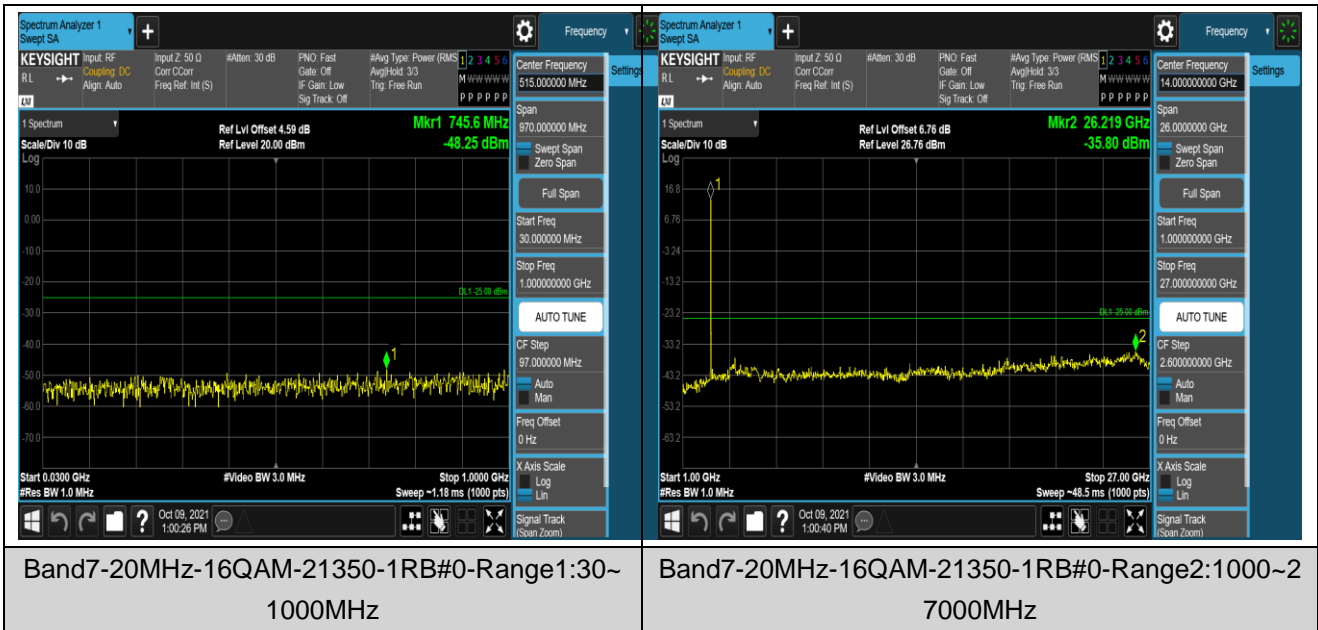


Band7-20MHz-QPSK-21100-1RB#0-Range1:30~1000MHz

Band7-20MHz-QPSK-21100-1RB#0-Range2:1000~27000MHz







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 | -4.08 | -0.002170 | Within authorized band for Band 2 | Pass |
| | -20 | -4.55 | -0.002420 | | |
| | -10 | -3.03 | -0.001612 | | |
| | 0 | -4.81 | -0.002559 | | |
| | 10 | -4.11 | -0.002186 | | |
| | 20 | -1.92 | -0.001021 | | |
| | 30 | -4.42 | -0.002351 | | |
| | 40 | 4.73 | 0.002516 | | |
| | 50 | 3.06 | 0.001628 | | |
| 16QAM | | | | | |
| 3.85 | -30 | 3.63 | 0.001931 | Within authorized band for Band 2 | Pass |
| | -20 | 3.71 | 0.001973 | | |
| | -10 | -3.08 | -0.001638 | | |
| | 0 | -2.85 | -0.001516 | | |
| | 10 | 4.71 | 0.002505 | | |
| | 20 | -4.25 | -0.002261 | | |
| | 30 | 2.23 | 0.001186 | | |
| | 40 | -5.81 | -0.003090 | | |
| | 50 | 2.07 | 0.001101 | | |
| Voltage | | | | | |
| Temperature (°C) | Power supplied (Vdc) | Frequency error | | Limit (ppm) | Result |
| | | Hz | ppm | | |
| QPSK | | | | | |
| 25 | 3.50 | 3.91 | 0.002080 | Within authorized band for Band 2 | Pass |
| | 3.85 | -1.56 | -0.000830 | | |
| | 4.40 | 2.23 | 0.001186 | | |
| 16QAM | | | | | |
| 25 | 3.50 | 4.49 | 0.002388 | Within authorized band for Band 2 | Pass |
| | 3.85 | -3.82 | -0.002032 | | |
| | 4.40 | -3.50 | -0.001862 | | |

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

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 | | | | | |
| 3.85 | -30 | -4.11 | -0.002372 | Within authorized band for Band 4 | Pass |
| | -20 | 1.80 | 0.001039 | | |
| | -10 | 2.75 | 0.001587 | | |
| | 0 | 5.12 | 0.002955 | | |
| | 10 | -1.44 | -0.000831 | | |
| | 20 | 1.52 | 0.000877 | | |
| | 30 | -2.15 | -0.001241 | | |
| | 40 | 2.15 | 0.001241 | | |
| | 50 | 2.40 | 0.001385 | | |
| 16QAM | | | | | |
| 3.85 | -30 | -3.43 | -0.001980 | Within authorized band for Band 4 | Pass |
| | -20 | 2.26 | 0.001304 | | |
| | -10 | 2.80 | 0.001616 | | |
| | 0 | 2.49 | 0.001437 | | |
| | 10 | -3.92 | -0.002263 | | |
| | 20 | 4.22 | 0.002436 | | |
| | 30 | 5.38 | 0.003105 | | |
| | 40 | -2.83 | -0.001633 | | |
| | 50 | -3.02 | -0.001743 | | |
| Voltage | | | | | |
| Temperature (°C) | Power supplied (Vdc) | Frequency error | | Limit (ppm) | Result |
| | | Hz | ppm | | |
| QPSK | | | | | |
| 25 | 3.50 | 2.62 | 0.001512 | Within authorized band for Band 4 | Pass |
| | 3.85 | -3.56 | -0.002055 | | |
| | 4.40 | -2.03 | -0.001172 | | |
| 16QAM | | | | | |
| 25 | 3.50 | -2.65 | -0.001530 | Within authorized band for Band 4 | Pass |
| | 3.85 | 5.04 | 0.002909 | | |
| | 4.40 | -3.58 | -0.002066 | | |

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

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 | | | | | |
| 3.85 | -30 | 2.16 | 0.002582 | ±2.5 | Pass |
| | -20 | 1.47 | 0.001757 | | |
| | -10 | 1.54 | 0.001841 | | |
| | 0 | 4.99 | 0.005965 | | |
| | 10 | 2.50 | 0.002989 | | |
| | 20 | 1.75 | 0.002092 | | |
| | 30 | 1.56 | 0.001865 | | |
| | 40 | 1.33 | 0.001590 | | |
| | 50 | 5.45 | 0.006515 | | |
| 16QAM | | | | | |
| 3.85 | -30 | 3.68 | 0.004399 | ±2.5 | Pass |
| | -20 | 3.76 | 0.004495 | | |
| | -10 | 3.36 | 0.004017 | | |
| | 0 | 3.26 | 0.003897 | | |
| | 10 | 2.66 | 0.003180 | | |
| | 20 | 3.06 | 0.003658 | | |
| | 30 | 1.93 | 0.002307 | | |
| | 40 | 4.62 | 0.005523 | | |
| | 50 | 4.52 | 0.005403 | | |
| Voltage | | | | | |
| Temperature (°C) | Power supplied (Vdc) | Frequency error | | Limit (ppm) | Result |
| | | Hz | ppm | | |
| QPSK | | | | | |
| 25 | 3.50 | 5.44 | 0.006503 | ±2.5 | Pass |
| | 3.85 | 5.19 | 0.006204 | | |
| | 4.40 | 4.58 | 0.005475 | | |
| 16QAM | | | | | |
| 25 | 3.50 | 4.61 | 0.005511 | ±2.5 | Pass |
| | 3.85 | 2.80 | 0.003347 | | |
| | 4.40 | 4.39 | 0.005248 | | |

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

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 | 7.14 | 0.002817 | Within authorized band for Band 7 | Pass |
| | -20 | 7.90 | 0.003116 | | |
| | -10 | 4.65 | 0.001834 | | |
| | 0 | 5.31 | 0.002095 | | |
| | 10 | 8.30 | 0.003274 | | |
| | 20 | 6.38 | 0.002517 | | |
| | 30 | 5.89 | 0.002323 | | |
| | 40 | 5.99 | 0.002363 | | |
| | 50 | 5.38 | 0.002122 | | |
| 16QAM | | | | | |
| 3.85 | -30 | 4.91 | 0.001937 | Within authorized band for Band 7 | Pass |
| | -20 | 3.89 | 0.001535 | | |
| | -10 | 5.21 | 0.002055 | | |
| | 0 | 2.90 | 0.001144 | | |
| | 10 | 5.14 | 0.002028 | | |
| | 20 | 7.12 | 0.002809 | | |
| | 30 | 8.14 | 0.003211 | | |
| | 40 | 7.62 | 0.003006 | | |
| | 50 | 2.96 | 0.001168 | | |
| Voltage | | | | | |
| Temperature (°C) | Power supplied (Vdc) | Frequency error | | Limit (ppm) | Result |
| | | Hz | ppm | | |
| QPSK | | | | | |
| 25 | 3.50 | 4.88 | 0.001925 | Within authorized band for Band 7 | Pass |
| | 3.85 | 3.35 | 0.001321 | | |
| | 4.40 | 5.95 | 0.002347 | | |
| 16QAM | | | | | |
| 25 | 3.50 | 6.69 | 0.002639 | Within authorized band for Band 7 | Pass |
| | 3.85 | 5.71 | 0.002252 | | |
| | 4.40 | 7.75 | 0.003057 | | |

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

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 |
| Band4 | 20MHz | QPSK | 20175 | 100RB#0 | PASS | PASS |
| Band4 | 20MHz | 16QAM | 20175 | 100RB#0 | PASS | PASS |
| Band5 | 10MHz | QPSK | 20525 | 50RB#0 | PASS | PASS |
| Band5 | 10MHz | 16QAM | 20525 | 50RB#0 | PASS | PASS |
| Band7 | 20MHz | QPSK | 21100 | 100RB#0 | PASS | PASS |
| Band7 | 20MHz | 16QAM | 21100 | 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

