

# Appendix-C LTE NB-IoT Band 85

## Effective (Isotropic) Radiated Power Output Data for NB1

### Test Result

| Band   | OpMode      | SCS     | BW   | Modulation | Channel | Tones | POWER (dBm) | ERP (dBm) | Limit (dBm) | Verdict |
|--------|-------------|---------|------|------------|---------|-------|-------------|-----------|-------------|---------|
| Band85 | Stand-Alone | 3.75kHz | 0.18 | BPSK       | 134004  | 1@0   | 21.15       | 22.95     | 34.77       | PASS    |
| Band85 | Stand-Alone | 3.75kHz | 0.18 | QPSK       | 134004  | 1@0   | 21.17       | 22.97     | 34.77       | PASS    |
| Band85 | Stand-Alone | 3.75kHz | 0.18 | BPSK       | 134004  | 1@47  | 21.07       | 22.87     | 34.77       | PASS    |
| Band85 | Stand-Alone | 3.75kHz | 0.18 | QPSK       | 134004  | 1@47  | 21.07       | 22.87     | 34.77       | PASS    |
| Band85 | Stand-Alone | 3.75kHz | 0.18 | BPSK       | 134092  | 1@0   | 20.99       | 22.79     | 34.77       | PASS    |
| Band85 | Stand-Alone | 3.75kHz | 0.18 | QPSK       | 134092  | 1@0   | 20.99       | 22.79     | 34.77       | PASS    |
| Band85 | Stand-Alone | 3.75kHz | 0.18 | BPSK       | 134092  | 1@47  | 20.92       | 22.72     | 34.77       | PASS    |
| Band85 | Stand-Alone | 3.75kHz | 0.18 | QPSK       | 134092  | 1@47  | 20.89       | 22.69     | 34.77       | PASS    |
| Band85 | Stand-Alone | 15kHz   | 0.18 | BPSK       | 134004  | 1@0   | 21.41       | 23.21     | 34.77       | PASS    |
| Band85 | Stand-Alone | 15kHz   | 0.18 | QPSK       | 134004  | 1@0   | 21.43       | 23.23     | 34.77       | PASS    |
| Band85 | Stand-Alone | 15kHz   | 0.18 | BPSK       | 134004  | 1@11  | 21.35       | 23.15     | 34.77       | PASS    |
| Band85 | Stand-Alone | 15kHz   | 0.18 | QPSK       | 134004  | 1@11  | 21.34       | 23.14     | 34.77       | PASS    |
| Band85 | Stand-Alone | 15kHz   | 0.18 | BPSK       | 134092  | 1@0   | 21.21       | 23.01     | 34.77       | PASS    |
| Band85 | Stand-Alone | 15kHz   | 0.18 | QPSK       | 134092  | 1@0   | 21.22       | 23.02     | 34.77       | PASS    |
| Band85 | Stand-Alone | 15kHz   | 0.18 | BPSK       | 134092  | 1@11  | 21.14       | 22.94     | 34.77       | PASS    |
| Band85 | Stand-Alone | 15kHz   | 0.18 | QPSK       | 134092  | 1@11  | 21.14       | 22.94     | 34.77       | PASS    |
| Band85 | Stand-Alone | 15kHz   | 0.18 | BPSK       | 134180  | 1@0   | 21.39       | 23.19     | 34.77       | PASS    |
| Band85 | Stand-Alone | 15kHz   | 0.18 | QPSK       | 134180  | 1@0   | 21.41       | 23.21     | 34.77       | PASS    |
| Band85 | Stand-Alone | 15kHz   | 0.18 | BPSK       | 134180  | 1@11  | 21.33       | 23.13     | 34.77       | PASS    |
| Band85 | Stand-Alone | 15kHz   | 0.18 | QPSK       | 134180  | 1@11  | 21.33       | 23.13     | 34.77       | PASS    |
| Band85 | Stand-Alone | 15kHz   | 0.18 | QPSK       | 134004  | 3@3   | 21.27       | 23.07     | 34.77       | PASS    |
| Band85 | Stand-Alone | 15kHz   | 0.18 | QPSK       | 134092  | 3@3   | 21.21       | 23.01     | 34.77       | PASS    |
| Band85 | Stand-Alone | 15kHz   | 0.18 | QPSK       | 134180  | 3@3   | 21.15       | 22.95     | 34.77       | PASS    |
| Band85 | Stand-Alone | 3.75kHz | 0.18 | BPSK       | 134180  | 1@0   | 21.06       | 22.86     | 34.77       | PASS    |
| Band85 | Stand-Alone | 3.75kHz | 0.18 | QPSK       | 134180  | 1@0   | 21.11       | 22.91     | 34.77       | PASS    |
| Band85 | Stand-Alone | 3.75kHz | 0.18 | BPSK       | 134180  | 1@47  | 21.07       | 22.87     | 34.77       | PASS    |
| Band85 | Stand-Alone | 3.75kHz | 0.18 | QPSK       | 134180  | 1@47  | 21.06       | 22.86     | 34.77       | PASS    |

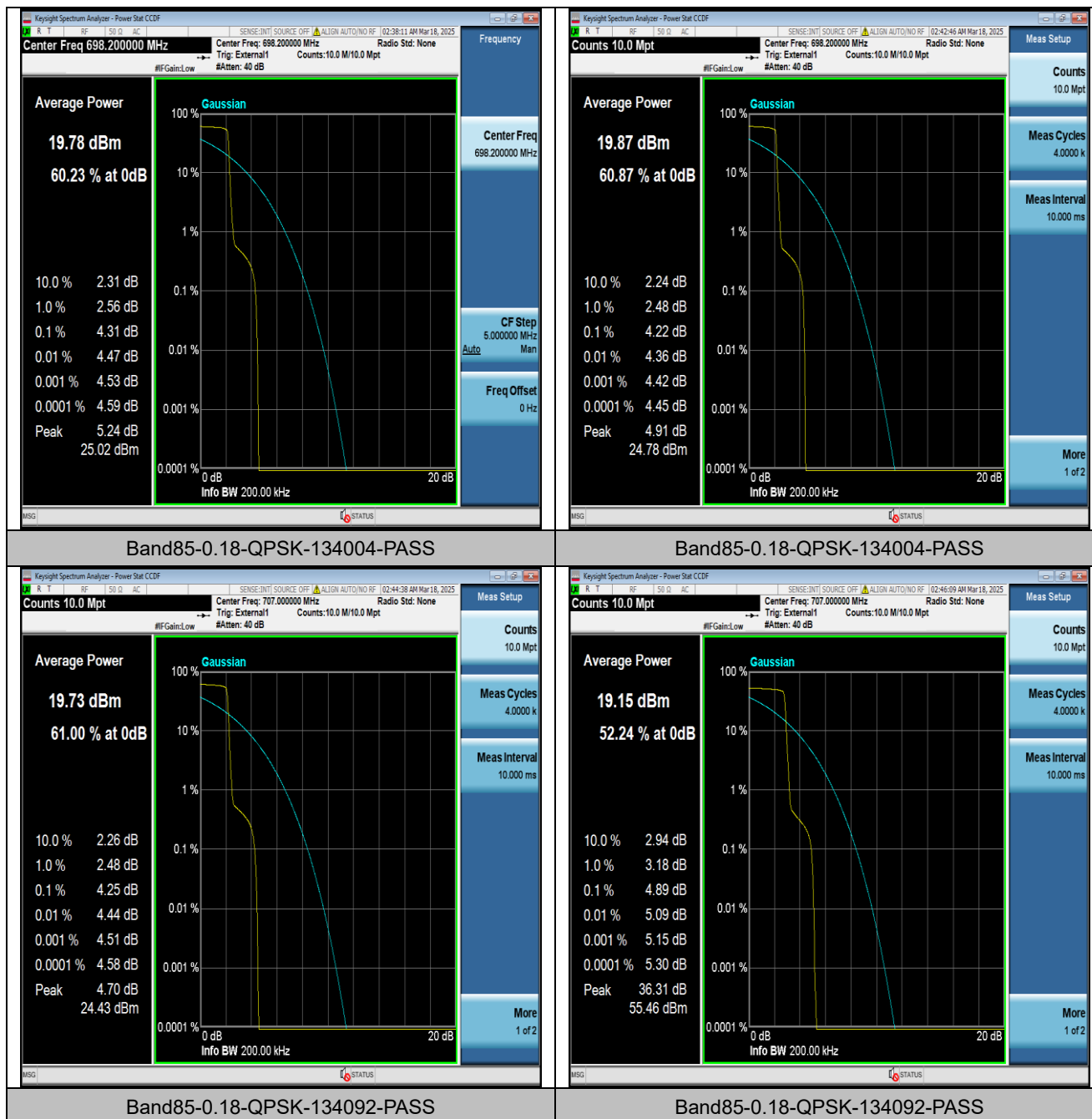
**Band85-15kHz-1@0-BPSK-134004-PASS**

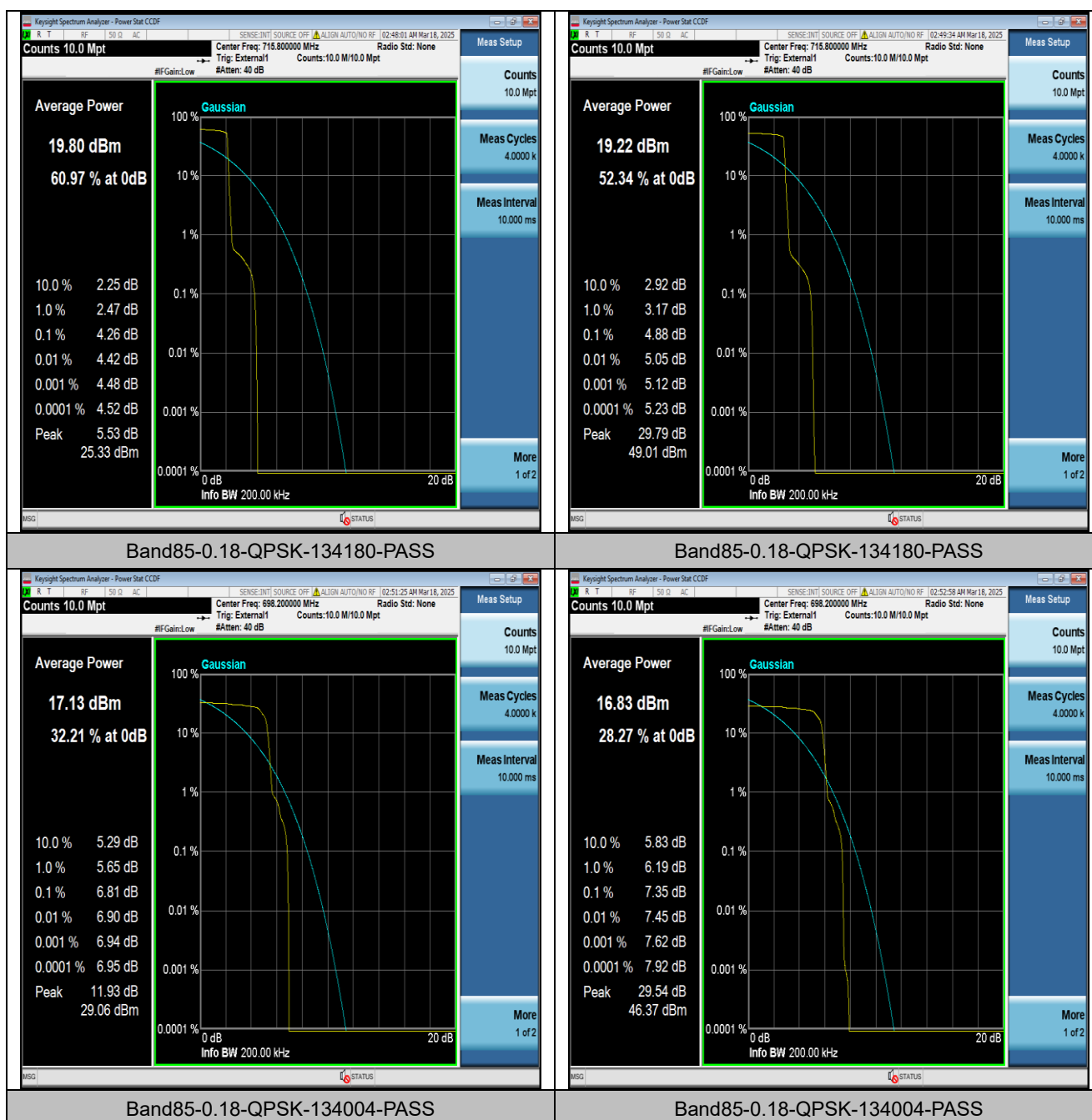
**Band85-15kHz-1@0-QPSK-134004-PASS**

**Peak-to-Average Ratio(CCDF) for NB1****Test Result**

| Band   | OpMode      | SCS     | BW   | Modulation | Channel | Tones | Result (dBm) | Limit (dBm) | Verdict |
|--------|-------------|---------|------|------------|---------|-------|--------------|-------------|---------|
| Band85 | Stand-Alone | 3.75kHz | 0.18 | QPSK       | 134004  | 1@0   | 4.31         | <=13        | PASS    |
| Band85 | Stand-Alone | 3.75kHz | 0.18 | QPSK       | 134004  | 1@47  | 4.22         | <=13        | PASS    |
| Band85 | Stand-Alone | 3.75kHz | 0.18 | QPSK       | 134092  | 1@0   | 4.25         | <=13        | PASS    |
| Band85 | Stand-Alone | 3.75kHz | 0.18 | QPSK       | 134092  | 1@47  | 4.89         | <=13        | PASS    |
| Band85 | Stand-Alone | 3.75kHz | 0.18 | QPSK       | 134180  | 1@0   | 4.26         | <=13        | PASS    |
| Band85 | Stand-Alone | 3.75kHz | 0.18 | QPSK       | 134180  | 1@47  | 4.88         | <=13        | PASS    |
| Band85 | Stand-Alone | 15kHz   | 0.18 | QPSK       | 134004  | 1@0   | 6.81         | <=13        | PASS    |
| Band85 | Stand-Alone | 15kHz   | 0.18 | QPSK       | 134004  | 1@11  | 7.35         | <=13        | PASS    |
| Band85 | Stand-Alone | 15kHz   | 0.18 | QPSK       | 134092  | 1@0   | 6.8          | <=13        | PASS    |
| Band85 | Stand-Alone | 15kHz   | 0.18 | QPSK       | 134092  | 1@11  | 7.31         | <=13        | PASS    |
| Band85 | Stand-Alone | 15kHz   | 0.18 | QPSK       | 134180  | 1@0   | 6.86         | <=13        | PASS    |
| Band85 | Stand-Alone | 15kHz   | 0.18 | QPSK       | 134180  | 1@11  | 7.36         | <=13        | PASS    |

## Test Graphs





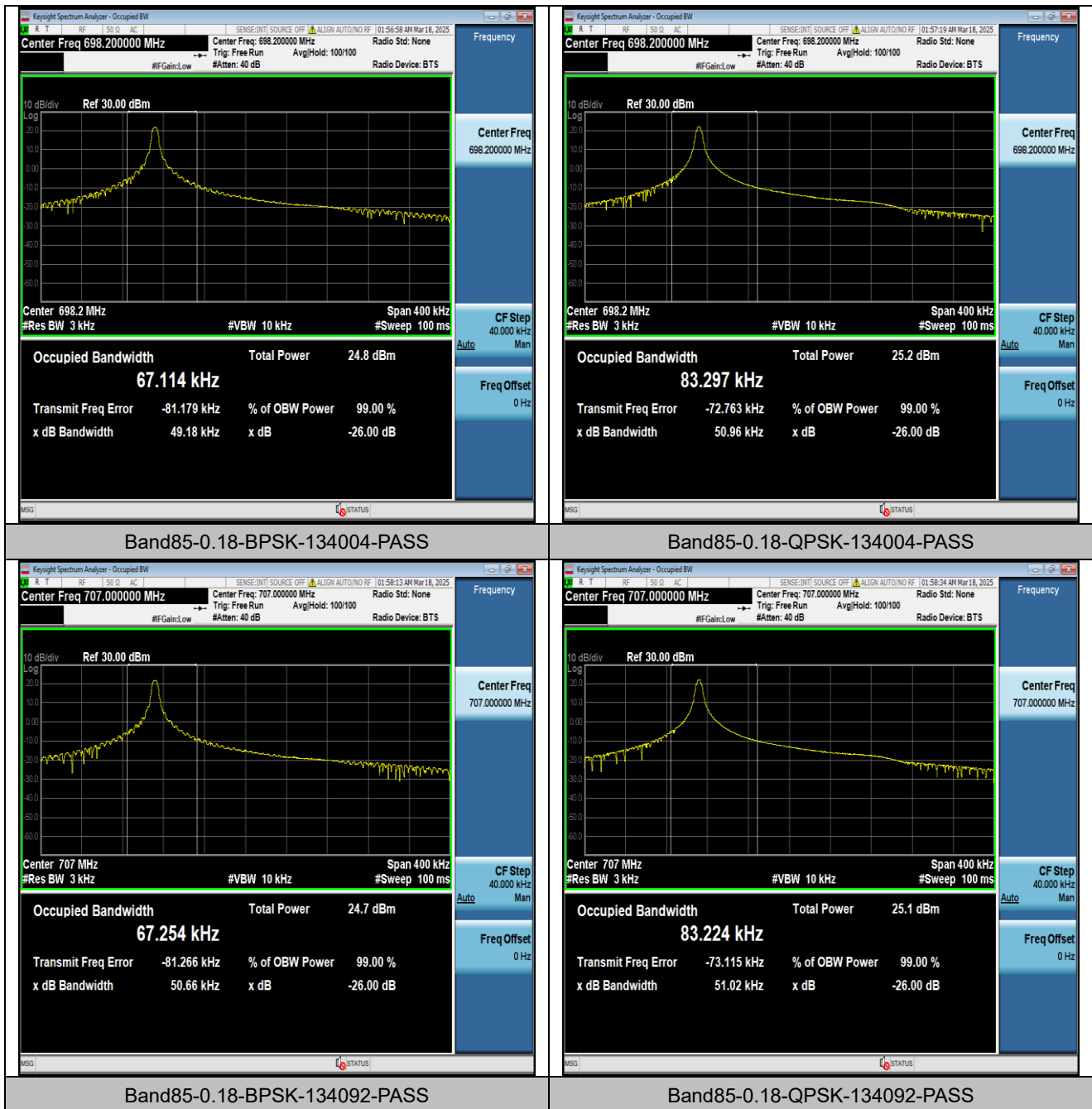


## Emission Bandwidth for NB1

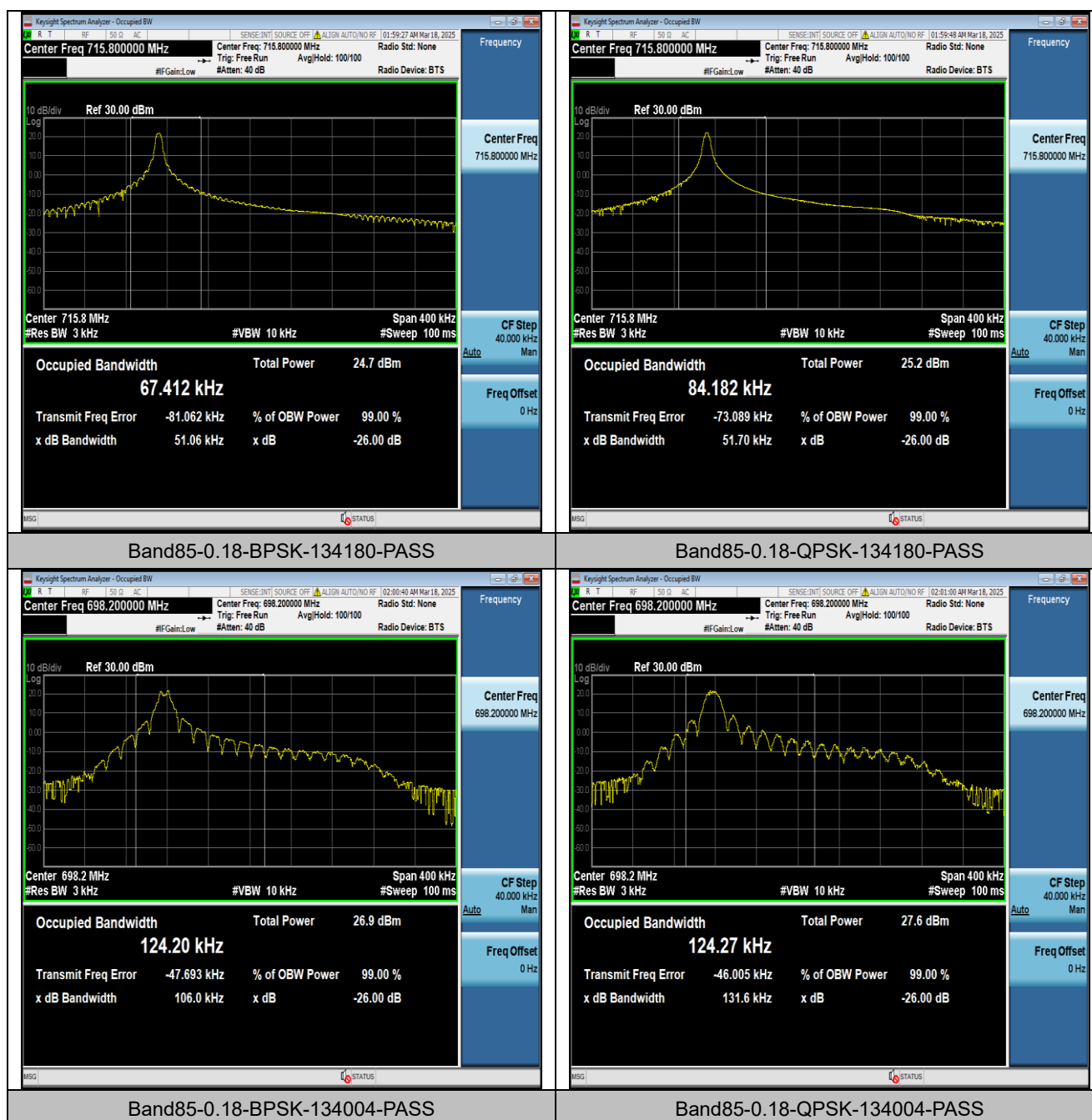
### Test Result

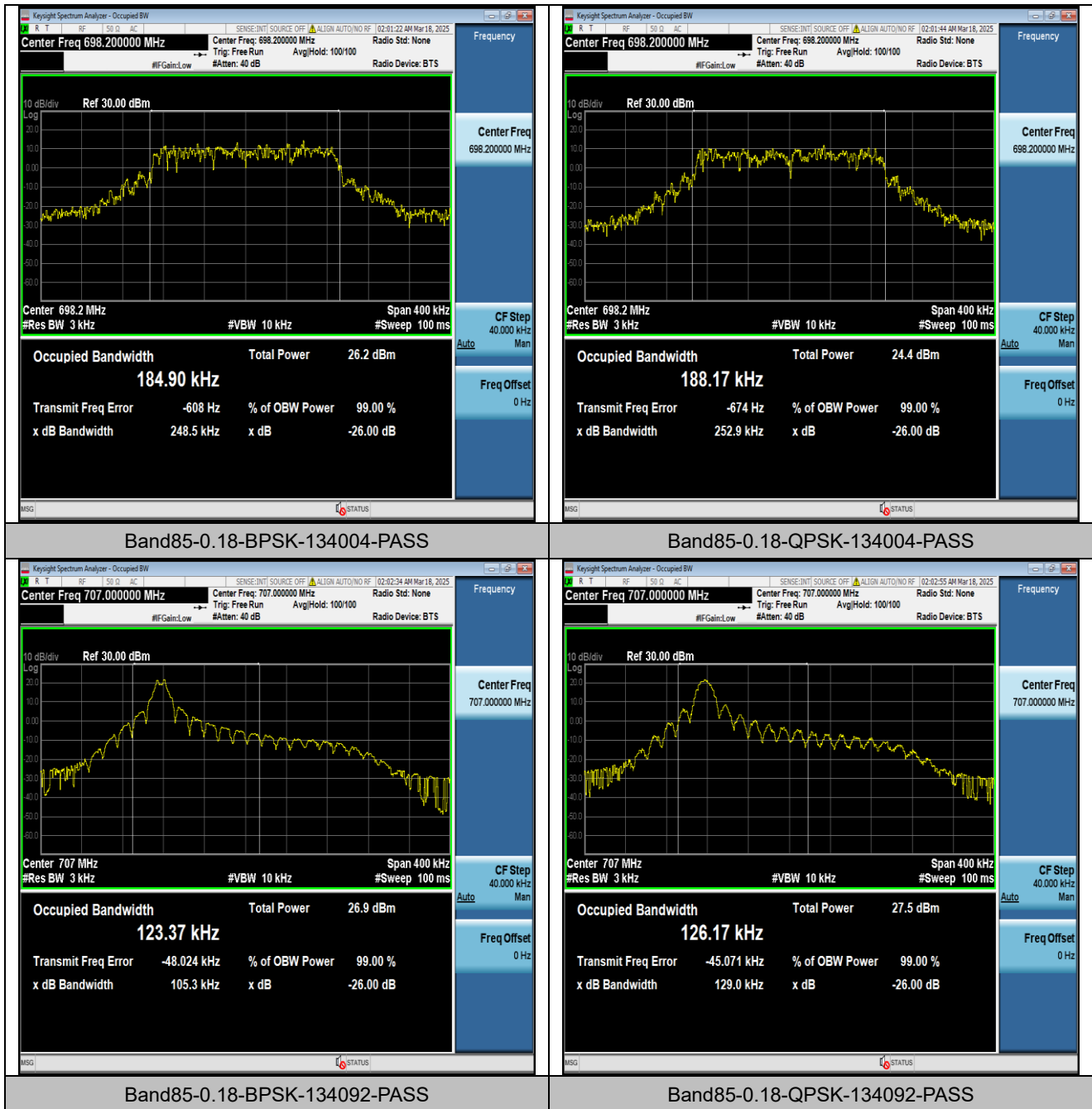
| Band   | OpMode      | SCS     | BW   | Modulation | Channel | Tones | OBW(MHz) | EBW(MHz) | Verdict |
|--------|-------------|---------|------|------------|---------|-------|----------|----------|---------|
| Band85 | Stand-Alone | 3.75kHz | 0.18 | BPSK       | 134004  | 1@0   | 0.06711  | 0.0492   | PASS    |
| Band85 | Stand-Alone | 3.75kHz | 0.18 | QPSK       | 134004  | 1@0   | 0.08330  | 0.0510   | PASS    |
| Band85 | Stand-Alone | 3.75kHz | 0.18 | BPSK       | 134092  | 1@0   | 0.06725  | 0.0507   | PASS    |
| Band85 | Stand-Alone | 3.75kHz | 0.18 | QPSK       | 134092  | 1@0   | 0.08322  | 0.0510   | PASS    |
| Band85 | Stand-Alone | 3.75kHz | 0.18 | BPSK       | 134180  | 1@0   | 0.06741  | 0.0511   | PASS    |
| Band85 | Stand-Alone | 3.75kHz | 0.18 | QPSK       | 134180  | 1@0   | 0.08418  | 0.0517   | PASS    |
| Band85 | Stand-Alone | 15kHz   | 0.18 | BPSK       | 134004  | 1@0   | 0.12420  | 0.1060   | PASS    |
| Band85 | Stand-Alone | 15kHz   | 0.18 | QPSK       | 134004  | 1@0   | 0.12427  | 0.1316   | PASS    |
| Band85 | Stand-Alone | 15kHz   | 0.18 | BPSK       | 134004  | 12@0  | 0.18490  | 0.2485   | PASS    |
| Band85 | Stand-Alone | 15kHz   | 0.18 | QPSK       | 134004  | 12@0  | 0.18817  | 0.2529   | PASS    |
| Band85 | Stand-Alone | 15kHz   | 0.18 | BPSK       | 134092  | 1@0   | 0.12337  | 0.1053   | PASS    |
| Band85 | Stand-Alone | 15kHz   | 0.18 | QPSK       | 134092  | 1@0   | 0.12617  | 0.1290   | PASS    |
| Band85 | Stand-Alone | 15kHz   | 0.18 | BPSK       | 134092  | 12@0  | 0.18465  | 0.2597   | PASS    |
| Band85 | Stand-Alone | 15kHz   | 0.18 | QPSK       | 134092  | 12@0  | 0.18552  | 0.2534   | PASS    |
| Band85 | Stand-Alone | 15kHz   | 0.18 | BPSK       | 134180  | 1@0   | 0.12424  | 0.1056   | PASS    |
| Band85 | Stand-Alone | 15kHz   | 0.18 | QPSK       | 134180  | 1@0   | 0.12938  | 0.1178   | PASS    |
| Band85 | Stand-Alone | 15kHz   | 0.18 | BPSK       | 134180  | 12@0  | 0.18553  | 0.2397   | PASS    |
| Band85 | Stand-Alone | 15kHz   | 0.18 | QPSK       | 134180  | 12@0  | 0.18884  | 0.2534   | PASS    |

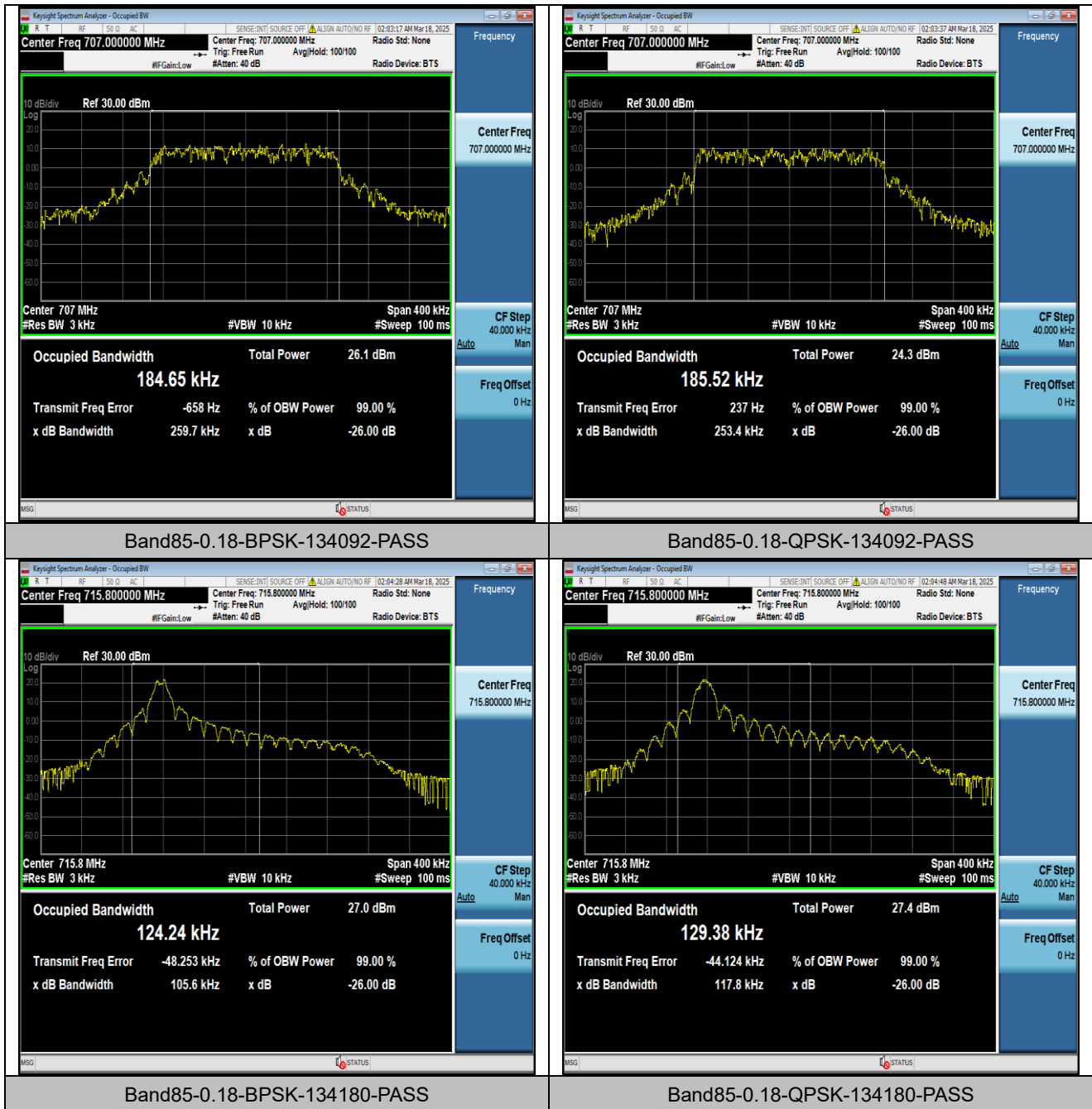
## Test Graphs

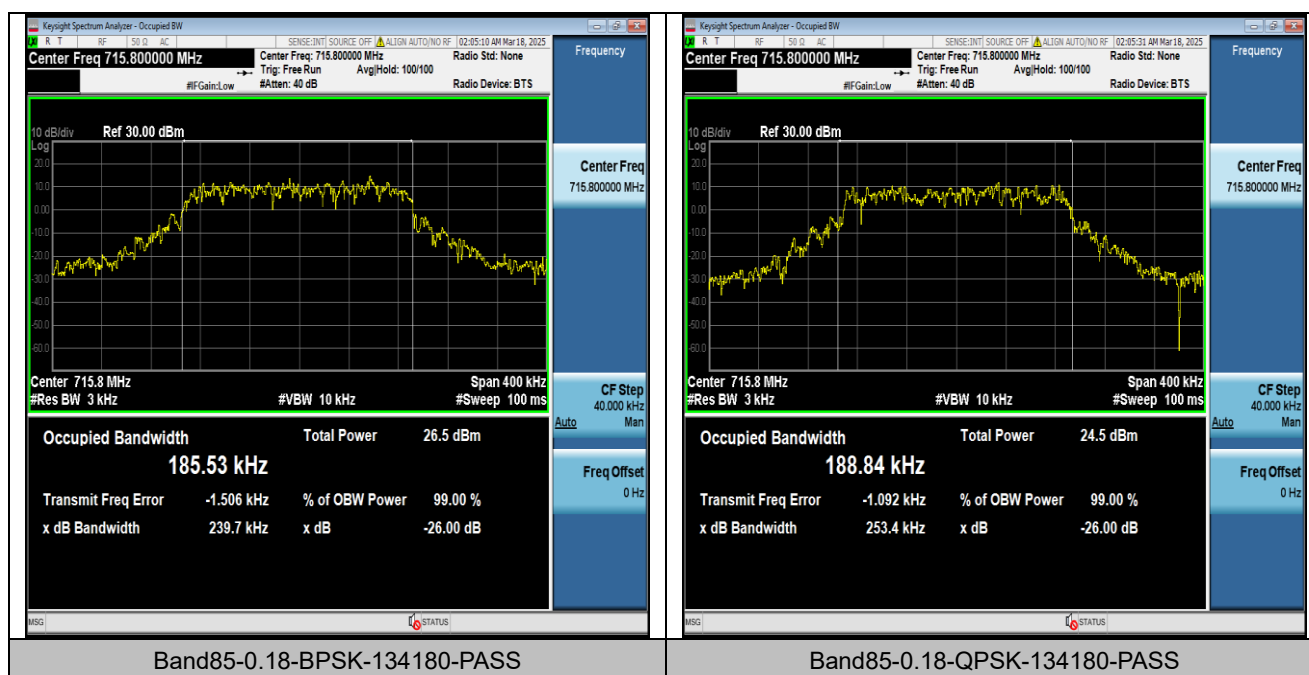






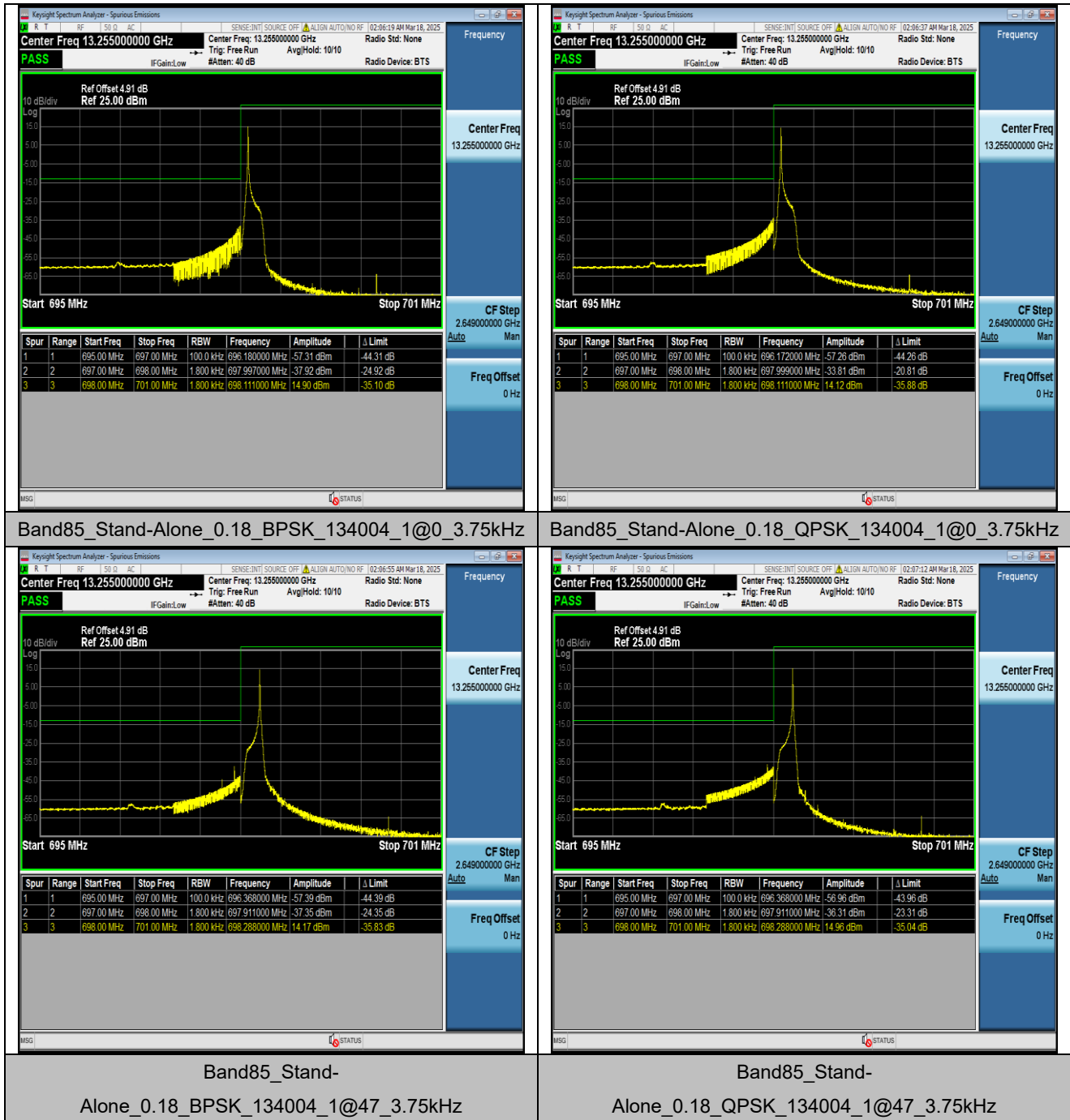


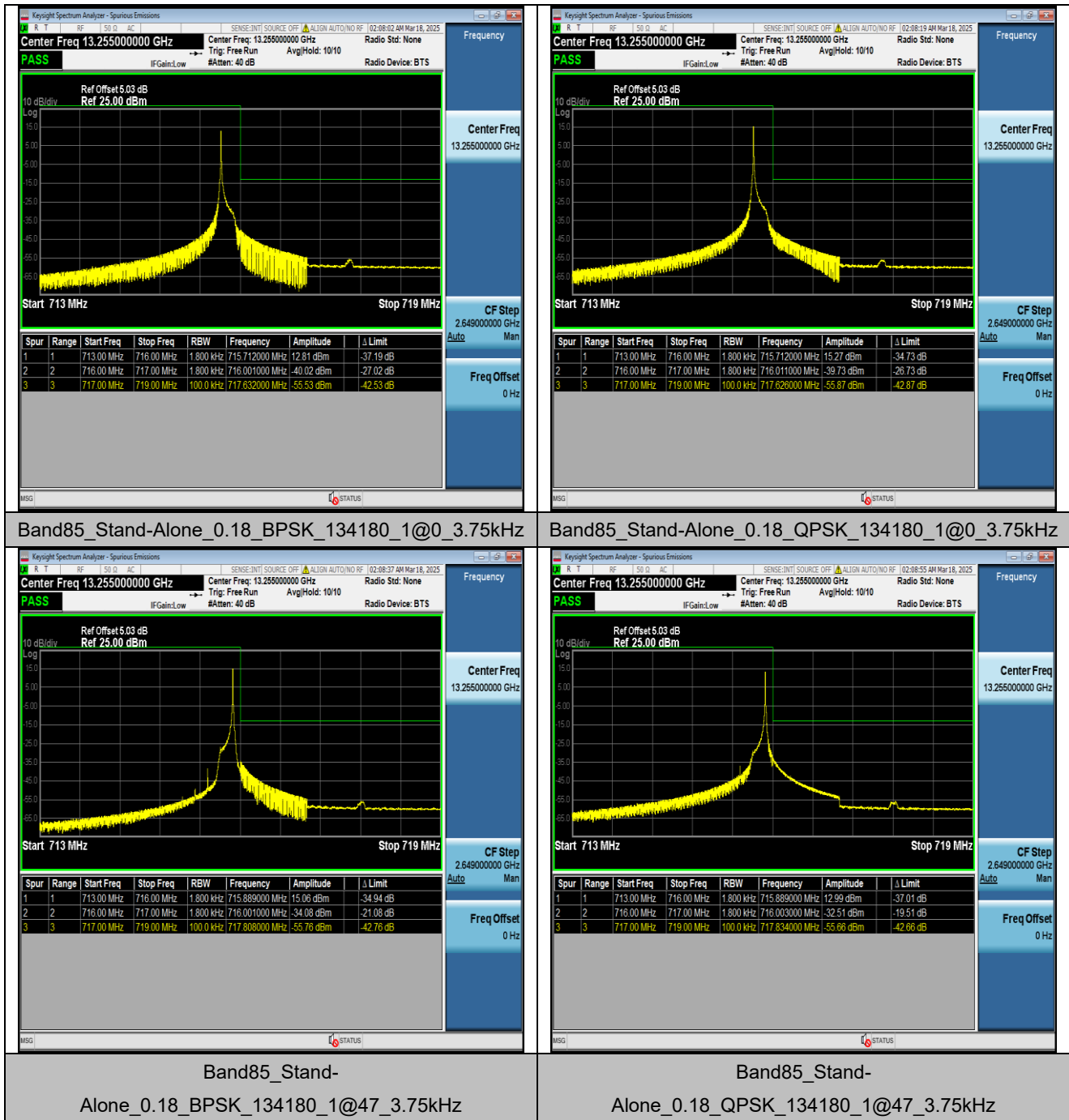


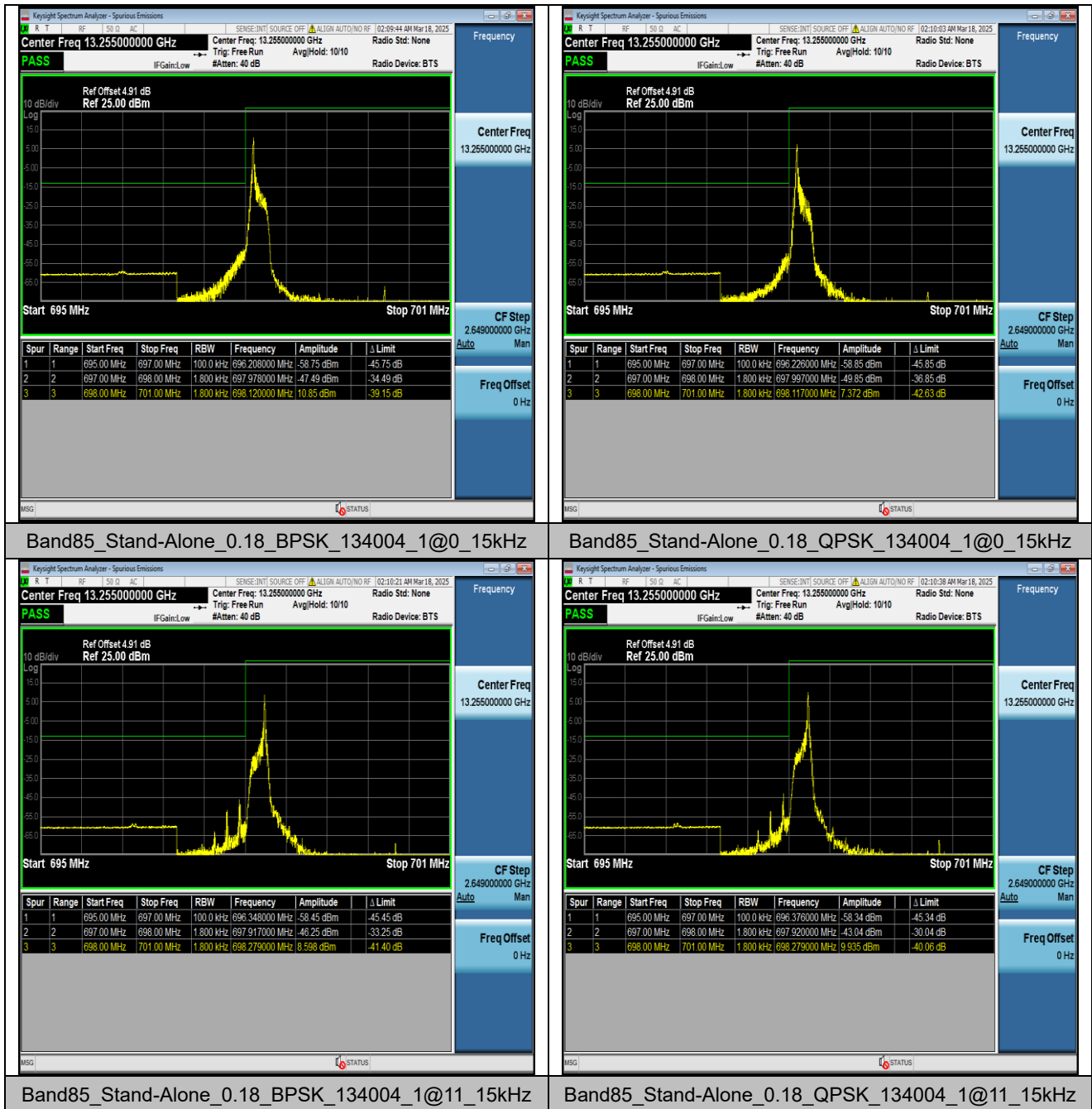


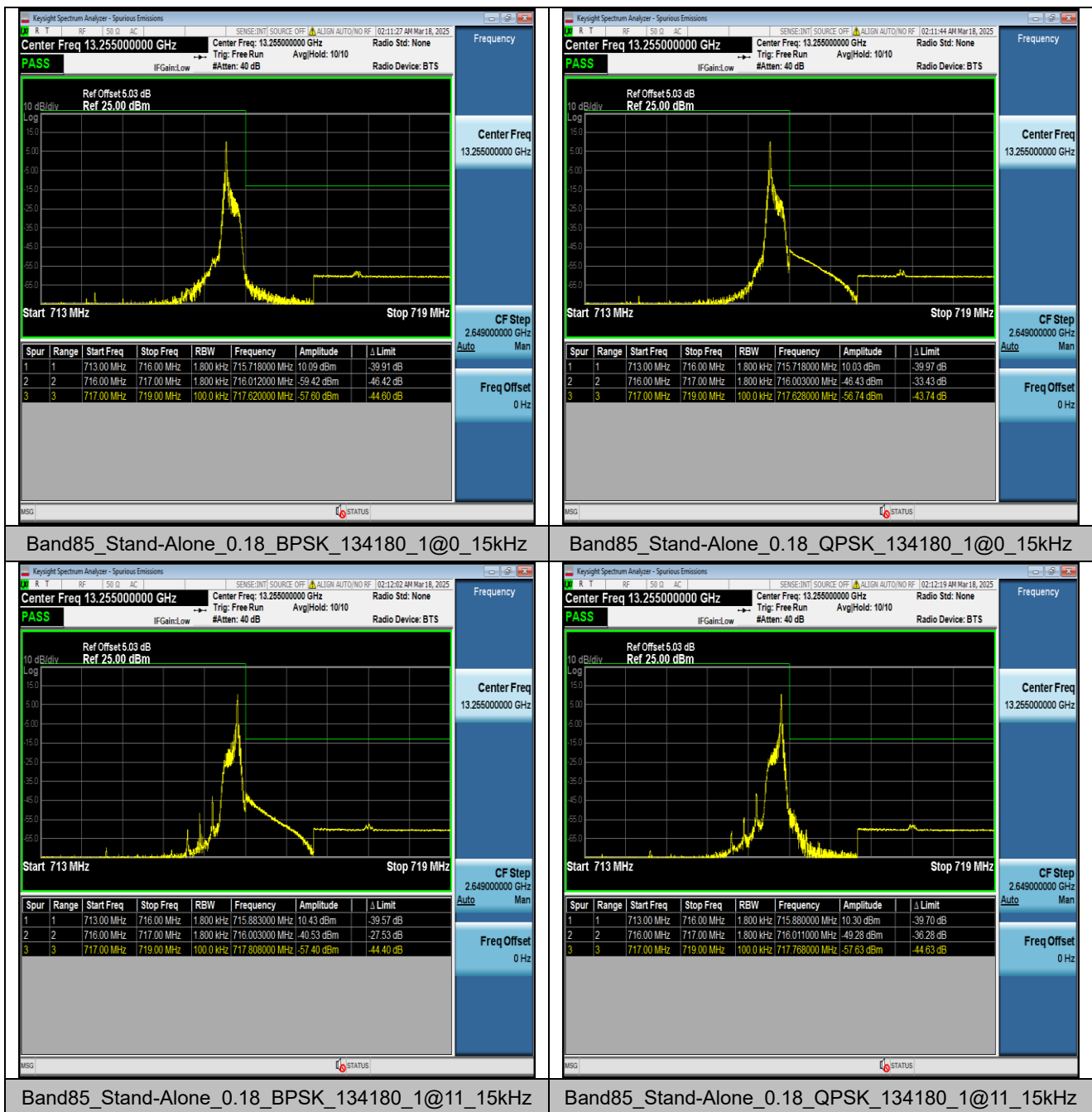
## Band Edge for NB1

## Test Graphs

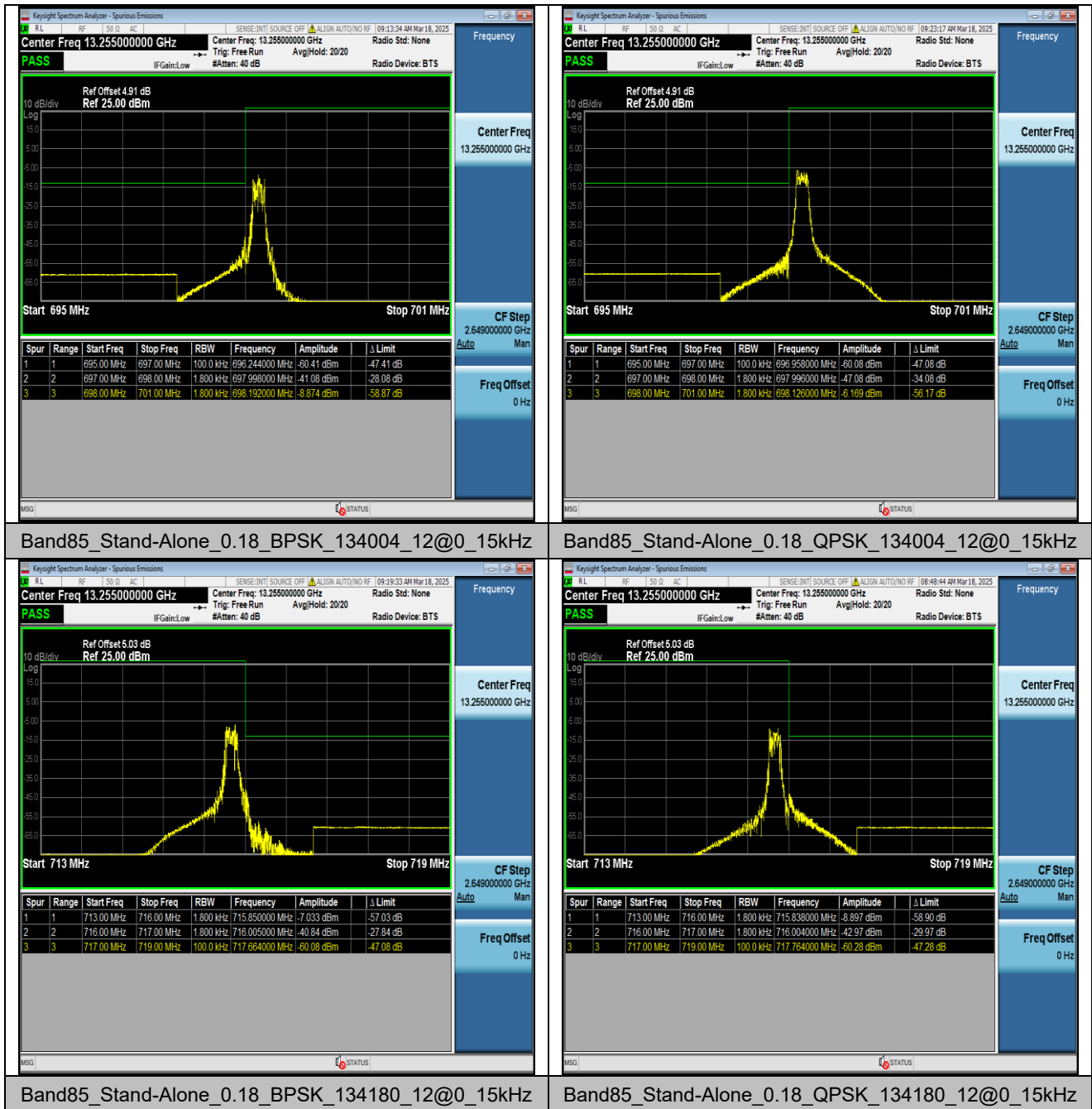






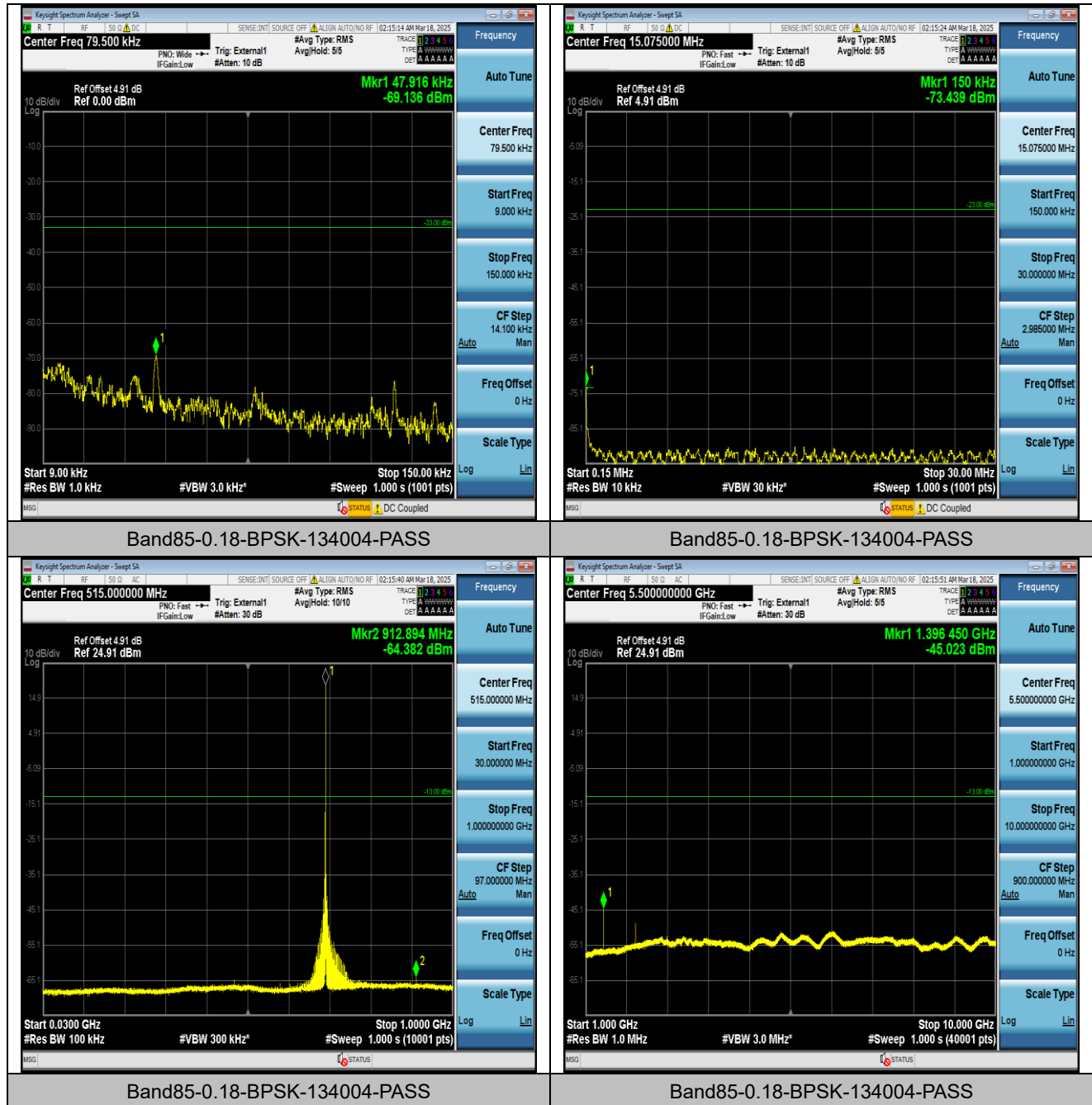


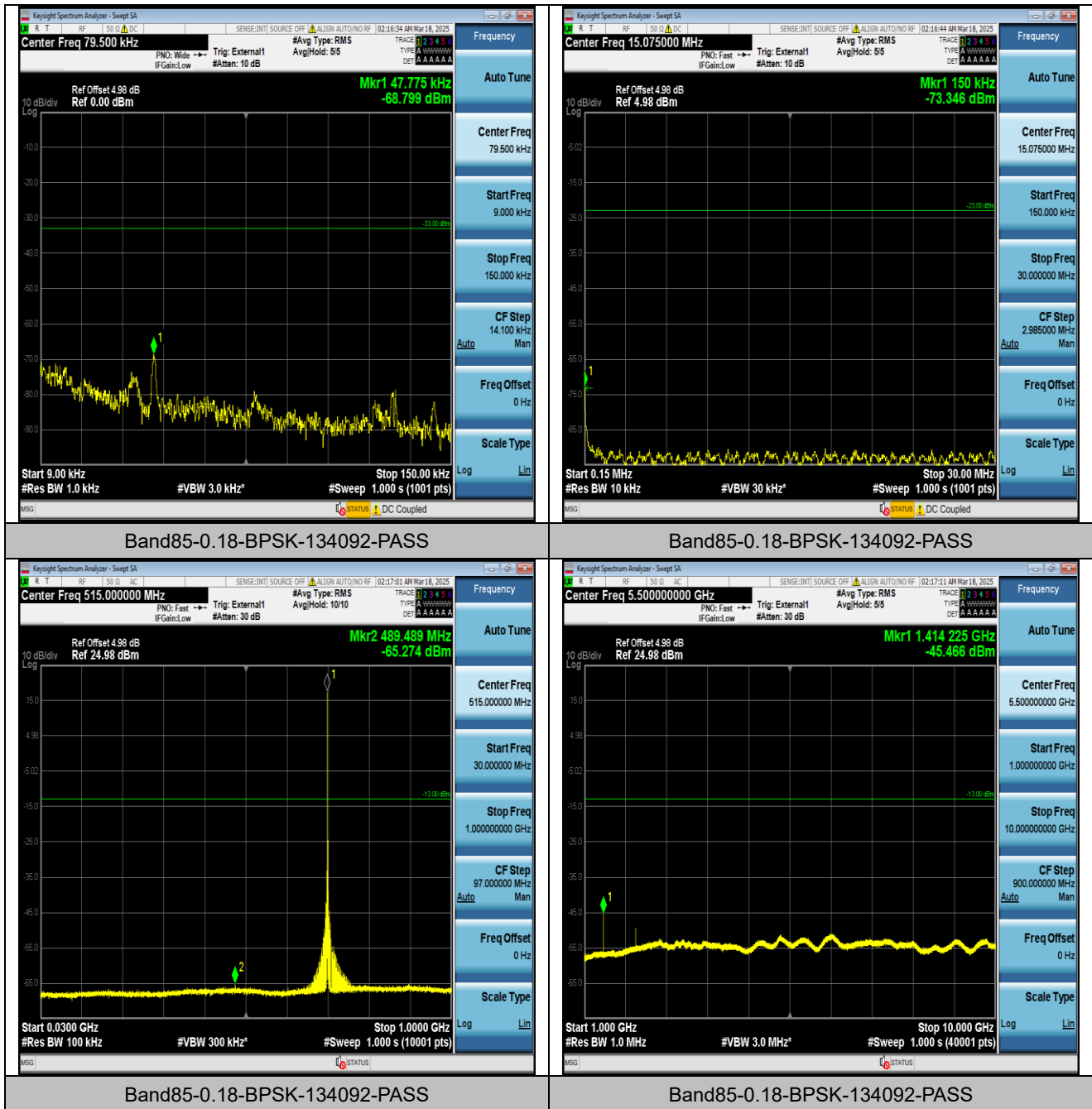


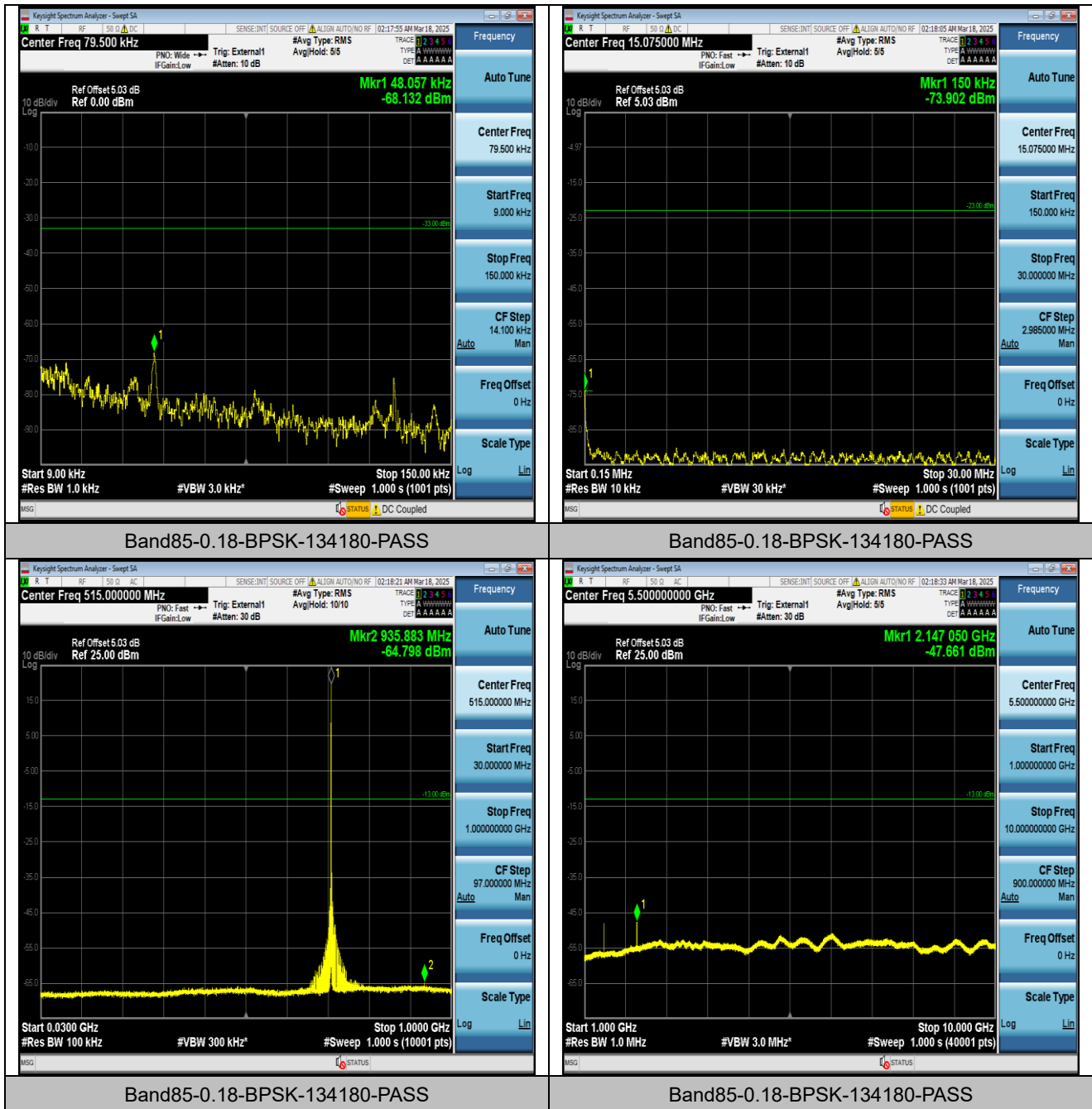


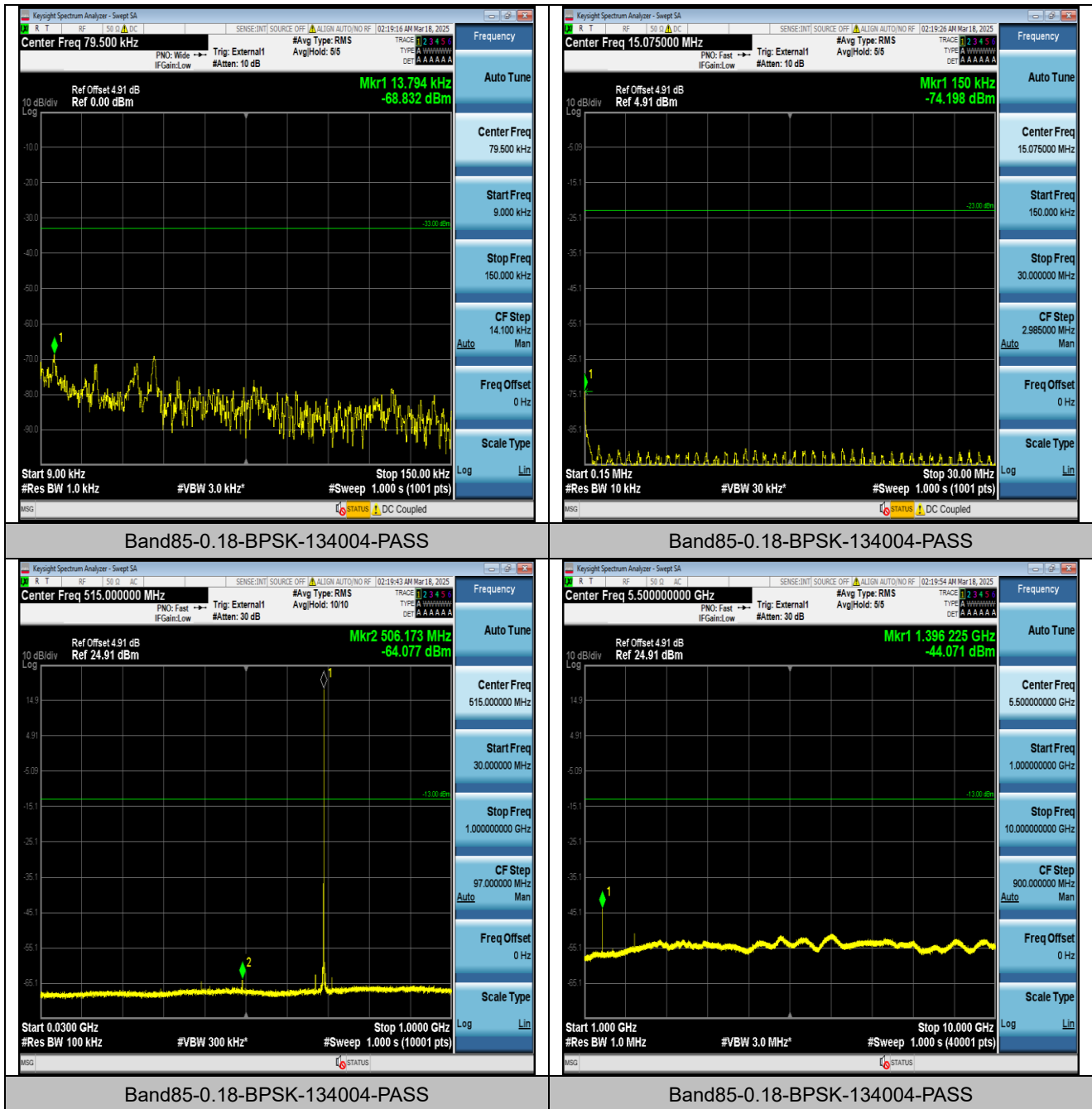
# Conducted Spurious Emission for NB1

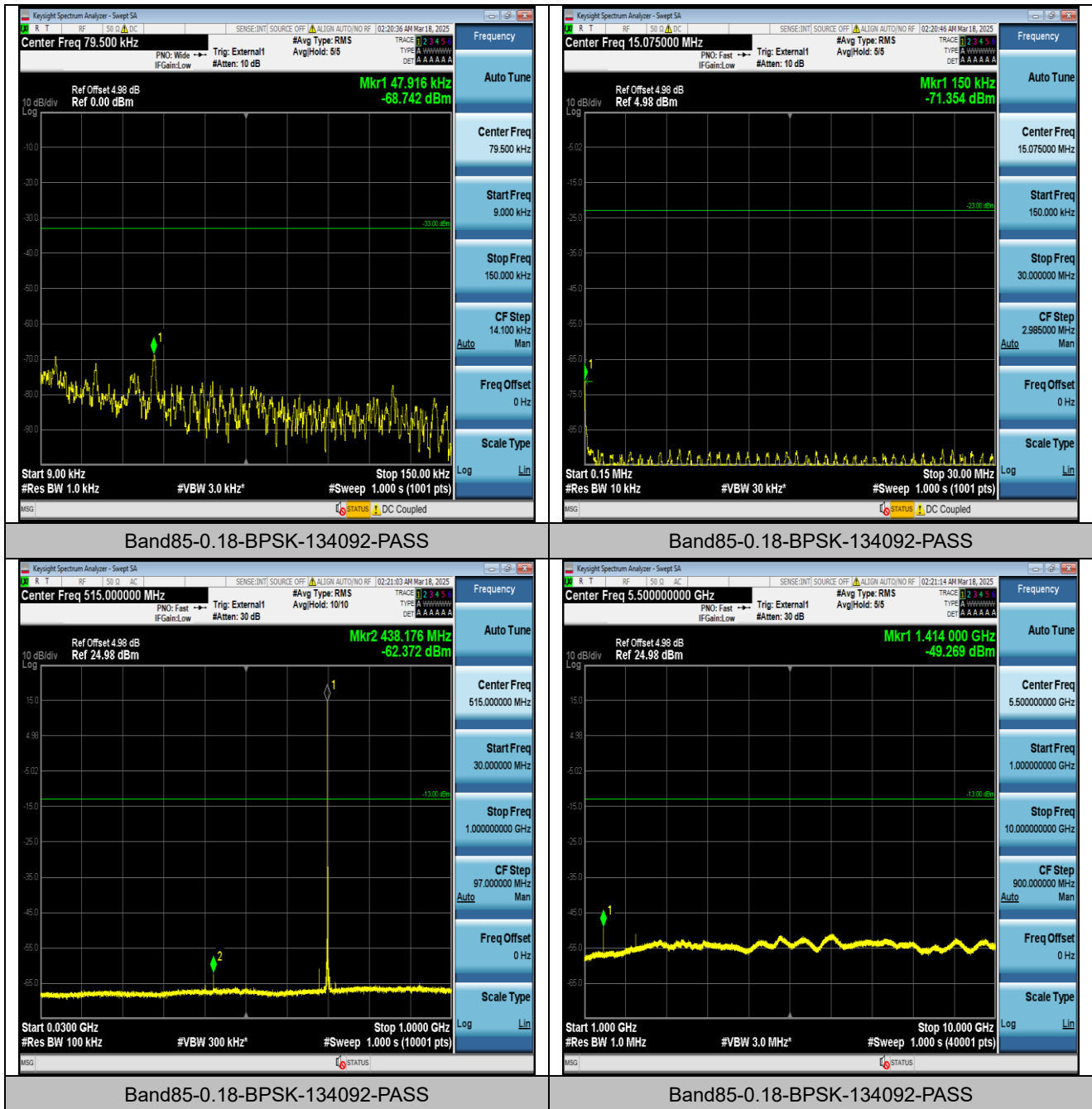
## Test Graphs

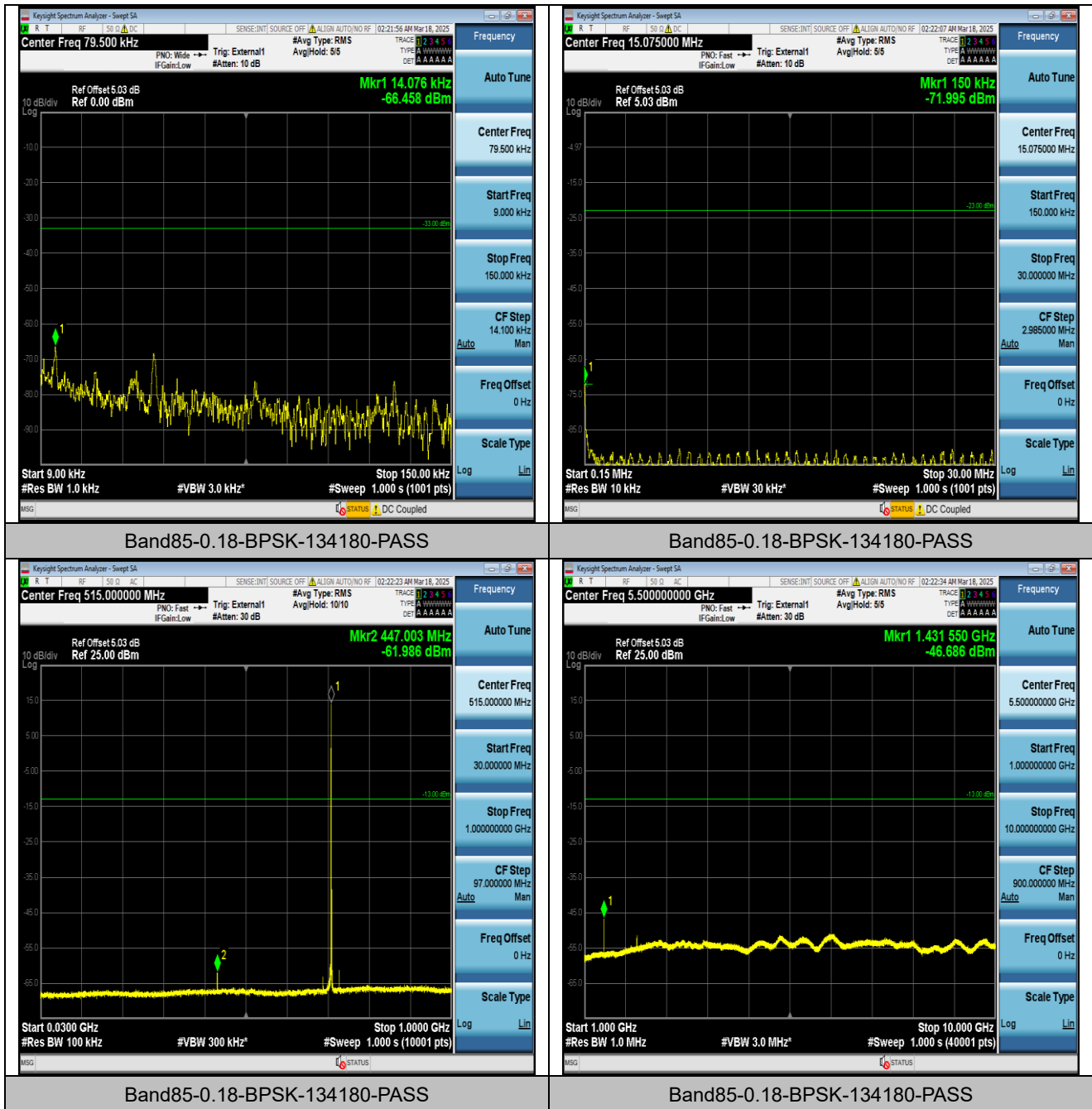












## Frequency Stability for NB1

### Test Result

| Voltage |             |         |           |            |         |       |               |                  |                |                 |         |
|---------|-------------|---------|-----------|------------|---------|-------|---------------|------------------|----------------|-----------------|---------|
| Band    | OpMode      | SCS     | Bandwidth | Modulation | Channel | Tones | Voltage [Vdc] | Temperature (°C) | Deviation (Hz) | Deviation (ppm) | Verdict |
| Band85  | Stand-Alone | 3.75kHz | 0.18      | QPSK       | 134092  | 1@0   | VN            | NT               | -2.60          | -0.003678       | PASS    |
| Band85  | Stand-Alone | 3.75kHz | 0.18      | QPSK       | 134092  | 1@0   | VL            | NT               | -3.30          | -0.004668       | PASS    |
| Band85  | Stand-Alone | 3.75kHz | 0.18      | QPSK       | 134092  | 1@0   | VH            | NT               | -1.50          | -0.002122       | PASS    |
| Band85  | Stand-Alone | 15kHz   | 0.18      | QPSK       | 134092  | 12@0  | VN            | NT               | -0.70          | -0.000990       | PASS    |
| Band85  | Stand-Alone | 15kHz   | 0.18      | QPSK       | 134092  | 12@0  | VL            | NT               | -2.70          | -0.003819       | PASS    |
| Band85  | Stand-Alone | 15kHz   | 0.18      | QPSK       | 134092  | 12@0  | VH            | NT               | -1.20          | -0.001697       | PASS    |

| Temperature |             |         |           |            |         |       |               |                  |                |                 |         |
|-------------|-------------|---------|-----------|------------|---------|-------|---------------|------------------|----------------|-----------------|---------|
| Band        | OpMode      | SCS     | Bandwidth | Modulation | Channel | Tones | Voltage [Vdc] | Temperature (°C) | Deviation (Hz) | Deviation (ppm) | Verdict |
| Band85      | Stand-Alone | 3.75kHz | 0.18      | QPSK       | 134092  | 1@0   | NV            | -30              | -0.90          | -0.001273       | PASS    |
| Band85      | Stand-Alone | 3.75kHz | 0.18      | QPSK       | 134092  | 1@0   | NV            | -20              | -2.40          | -0.003395       | PASS    |
| Band85      | Stand-Alone | 3.75kHz | 0.18      | QPSK       | 134092  | 1@0   | NV            | -10              | -3.00          | -0.004243       | PASS    |
| Band85      | Stand-Alone | 3.75kHz | 0.18      | QPSK       | 134092  | 1@0   | NV            | 0                | -2.90          | -0.004102       | PASS    |
| Band85      | Stand-Alone | 3.75kHz | 0.18      | QPSK       | 134092  | 1@0   | NV            | 10               | -2.50          | -0.003536       | PASS    |
| Band85      | Stand-Alone | 3.75kHz | 0.18      | QPSK       | 134092  | 1@0   | NV            | 20               | -0.70          | -0.000990       | PASS    |
| Band85      | Stand-Alone | 3.75kHz | 0.18      | QPSK       | 134092  | 1@0   | NV            | 30               | -2.60          | -0.003678       | PASS    |
| Band85      | Stand-Alone | 3.75kHz | 0.18      | QPSK       | 134092  | 1@0   | NV            | 40               | -0.90          | -0.001273       | PASS    |
| Band85      | Stand-Alone | 3.75kHz | 0.18      | QPSK       | 134092  | 1@0   | NV            | 50               | -1.20          | -0.001697       | PASS    |
| Band85      | Stand-Alone | 15kHz   | 0.18      | QPSK       | 134092  | 12@0  | NV            | -30              | 0.10           | 0.000141        | PASS    |
| Band85      | Stand-Alone | 15kHz   | 0.18      | QPSK       | 134092  | 12@0  | NV            | -20              | -1.20          | -0.001697       | PASS    |
| Band85      | Stand-Alone | 15kHz   | 0.18      | QPSK       | 134092  | 12@0  | NV            | -10              | -1.20          | -0.001697       | PASS    |
| Band85      | Stand-Alone | 15kHz   | 0.18      | QPSK       | 134092  | 12@0  | NV            | 0                | -0.60          | -0.000849       | PASS    |
| Band85      | Stand-Alone | 15kHz   | 0.18      | QPSK       | 134092  | 12@0  | NV            | 10               | -2.90          | -0.004102       | PASS    |
| Band85      | Stand-Alone | 15kHz   | 0.18      | QPSK       | 134092  | 12@0  | NV            | 20               | -1.90          | -0.002687       | PASS    |
| Band85      | Stand-Alone | 15kHz   | 0.18      | QPSK       | 134092  | 12@0  | NV            | 30               | -1.70          | -0.002405       | PASS    |
| Band85      | Stand-Alone | 15kHz   | 0.18      | QPSK       | 134092  | 12@0  | NV            | 40               | -3.20          | -0.004526       | PASS    |
| Band85      | Stand-Alone | 15kHz   | 0.18      | QPSK       | 134092  | 12@0  | NV            | 50               | -3.30          | -0.004668       | PASS    |

~The End~