

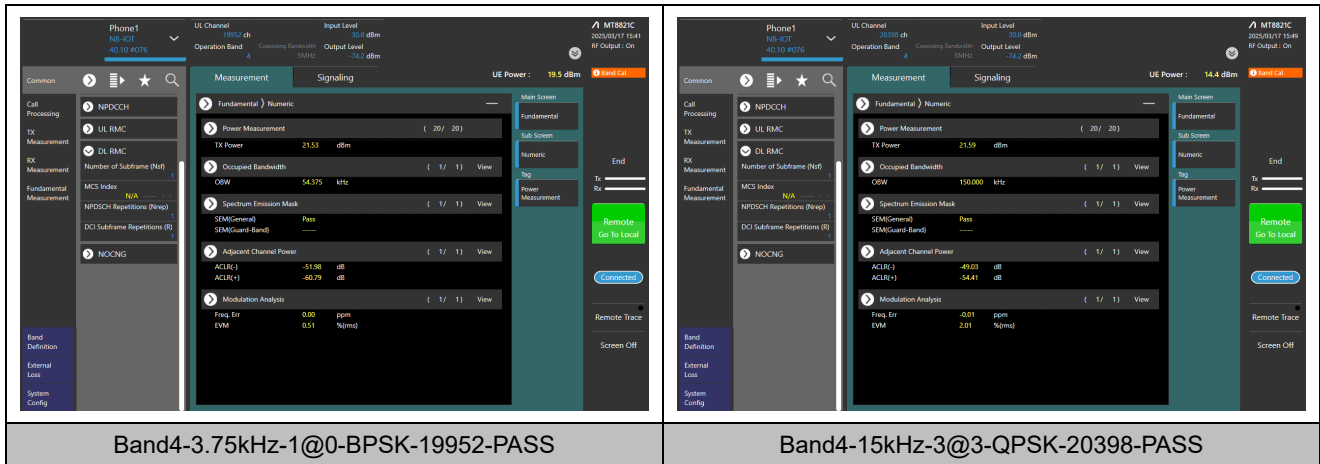
# Appendix-C LTE NB-IoT Band 4

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

### Test Result

| Band  | OpMode      | SCS     | BW   | Modulation | Channel | Tones | POWER (dBm) | EIRP (dBm) | Limit (dBm) | Verdict |
|-------|-------------|---------|------|------------|---------|-------|-------------|------------|-------------|---------|
| Band4 | Stand-Alone | 3.75kHz | 0.18 | BPSK       | 19952   | 1@0   | 21.53       | 23.53      | 30          | PASS    |
| Band4 | Stand-Alone | 3.75kHz | 0.18 | QPSK       | 19952   | 1@0   | 21.53       | 23.53      | 30          | PASS    |
| Band4 | Stand-Alone | 3.75kHz | 0.18 | BPSK       | 19952   | 1@47  | 21.53       | 23.53      | 30          | PASS    |
| Band4 | Stand-Alone | 3.75kHz | 0.18 | QPSK       | 19952   | 1@47  | 21.43       | 23.43      | 30          | PASS    |
| Band4 | Stand-Alone | 3.75kHz | 0.18 | BPSK       | 20175   | 1@0   | 21.4        | 23.4       | 30          | PASS    |
| Band4 | Stand-Alone | 3.75kHz | 0.18 | QPSK       | 20175   | 1@0   | 21.4        | 23.4       | 30          | PASS    |
| Band4 | Stand-Alone | 3.75kHz | 0.18 | BPSK       | 20175   | 1@47  | 21.3        | 23.3       | 30          | PASS    |
| Band4 | Stand-Alone | 3.75kHz | 0.18 | QPSK       | 20175   | 1@47  | 21.27       | 23.27      | 30          | PASS    |
| Band4 | Stand-Alone | 3.75kHz | 0.18 | BPSK       | 20398   | 1@0   | 21.51       | 23.51      | 30          | PASS    |
| Band4 | Stand-Alone | 3.75kHz | 0.18 | QPSK       | 20398   | 1@0   | 21.42       | 23.42      | 30          | PASS    |
| Band4 | Stand-Alone | 3.75kHz | 0.18 | BPSK       | 20398   | 1@47  | 21.38       | 23.38      | 30          | PASS    |
| Band4 | Stand-Alone | 3.75kHz | 0.18 | QPSK       | 20398   | 1@47  | 21.34       | 23.34      | 30          | PASS    |
| Band4 | Stand-Alone | 15kHz   | 0.18 | BPSK       | 19952   | 1@0   | 21.3        | 23.3       | 30          | PASS    |
| Band4 | Stand-Alone | 15kHz   | 0.18 | QPSK       | 19952   | 1@0   | 21.37       | 23.37      | 30          | PASS    |
| Band4 | Stand-Alone | 15kHz   | 0.18 | BPSK       | 19952   | 1@11  | 21.31       | 23.31      | 30          | PASS    |
| Band4 | Stand-Alone | 15kHz   | 0.18 | QPSK       | 19952   | 1@11  | 21.33       | 23.33      | 30          | PASS    |
| Band4 | Stand-Alone | 15kHz   | 0.18 | BPSK       | 20175   | 1@0   | 20.97       | 22.97      | 30          | PASS    |
| Band4 | Stand-Alone | 15kHz   | 0.18 | QPSK       | 20175   | 1@0   | 21.05       | 23.05      | 30          | PASS    |
| Band4 | Stand-Alone | 15kHz   | 0.18 | BPSK       | 20175   | 1@11  | 20.94       | 22.94      | 30          | PASS    |
| Band4 | Stand-Alone | 15kHz   | 0.18 | QPSK       | 20175   | 1@11  | 20.94       | 22.94      | 30          | PASS    |
| Band4 | Stand-Alone | 15kHz   | 0.18 | BPSK       | 20398   | 1@0   | 21.37       | 23.37      | 30          | PASS    |
| Band4 | Stand-Alone | 15kHz   | 0.18 | QPSK       | 20398   | 1@0   | 21.42       | 23.42      | 30          | PASS    |
| Band4 | Stand-Alone | 15kHz   | 0.18 | BPSK       | 20398   | 1@11  | 21.35       | 23.35      | 30          | PASS    |
| Band4 | Stand-Alone | 15kHz   | 0.18 | QPSK       | 20398   | 1@11  | 21.36       | 23.36      | 30          | PASS    |
| Band4 | Stand-Alone | 15kHz   | 0.18 | QPSK       | 19952   | 3@3   | 21.5        | 23.5       | 30          | PASS    |
| Band4 | Stand-Alone | 15kHz   | 0.18 | QPSK       | 20175   | 3@3   | 21.19       | 23.19      | 30          | PASS    |
| Band4 | Stand-Alone | 15kHz   | 0.18 | QPSK       | 20398   | 3@3   | 21.59       | 23.59      | 30          | PASS    |

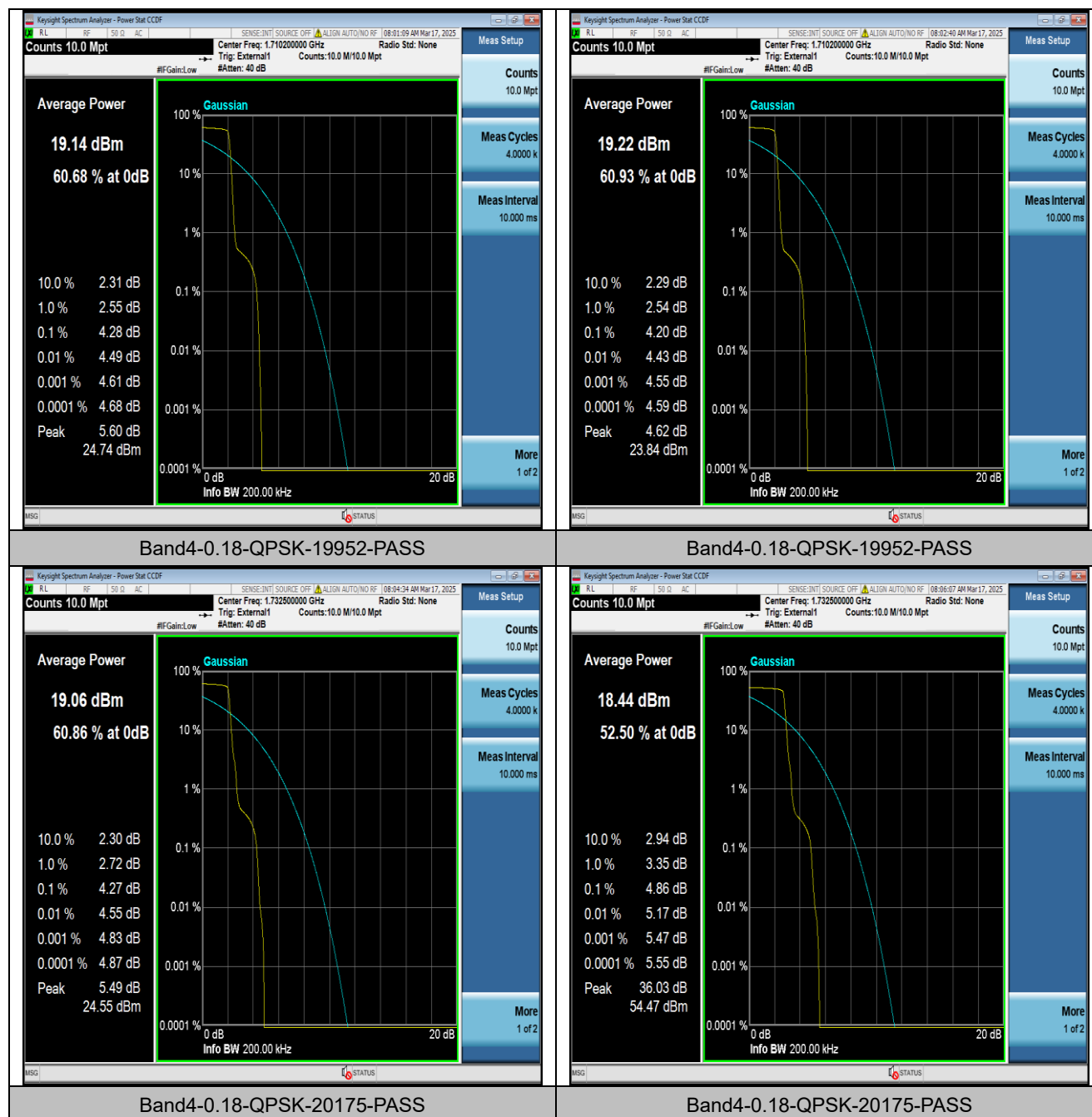
## Test Graphs

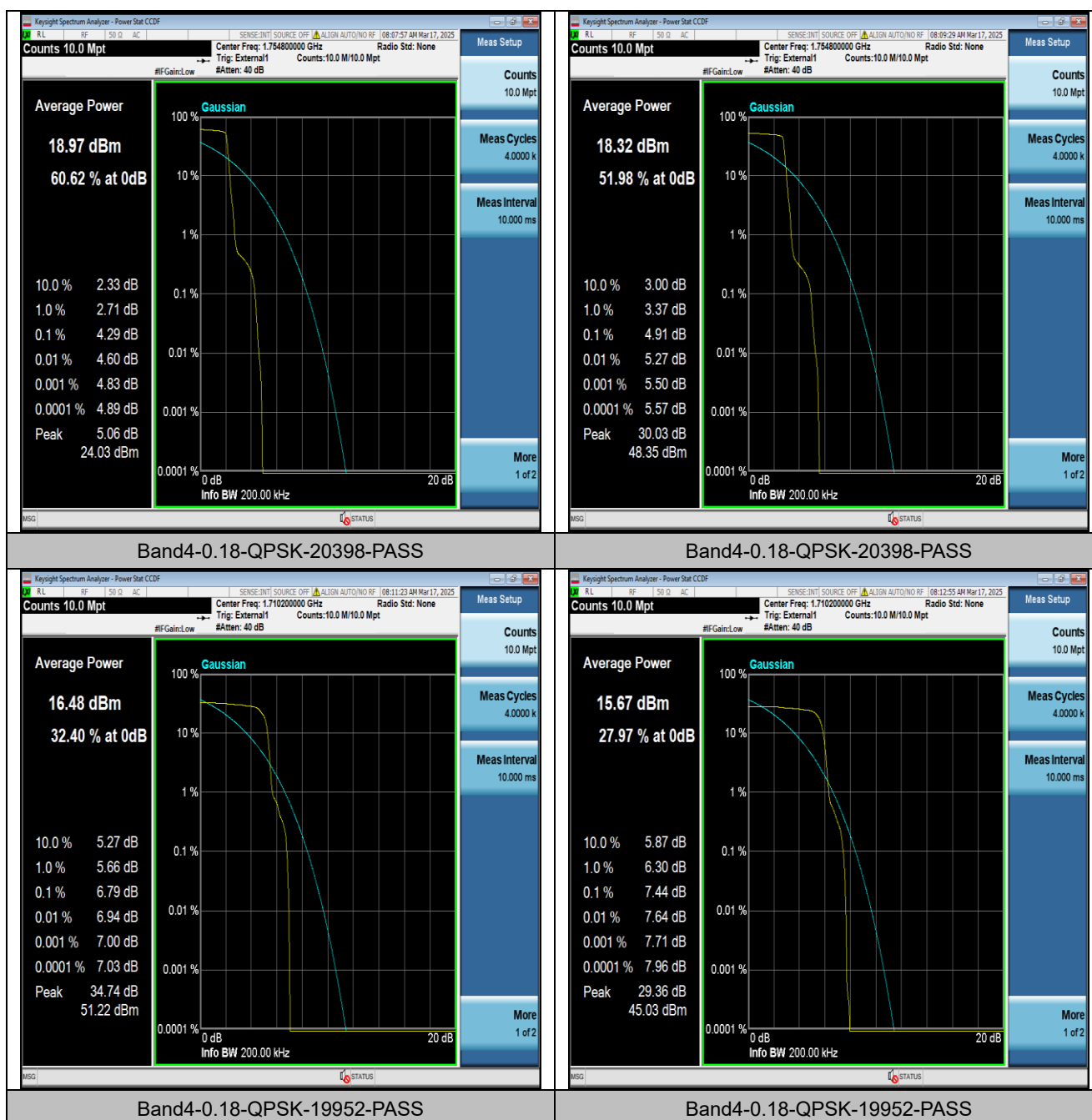


**Peak-to-Average Ratio(CCDF) for NB1****Test Result**

| Band  | OpMode      | SCS     | BW   | Modulation | Channel | Tones | Result (dBm) | Limit (dBm) | Verdict |
|-------|-------------|---------|------|------------|---------|-------|--------------|-------------|---------|
| Band4 | Stand-Alone | 3.75kHz | 0.18 | QPSK       | 19952   | 1@0   | 4.28         | <=13        | PASS    |
| Band4 | Stand-Alone | 3.75kHz | 0.18 | QPSK       | 19952   | 1@47  | 4.2          | <=13        | PASS    |
| Band4 | Stand-Alone | 3.75kHz | 0.18 | QPSK       | 20175   | 1@0   | 4.27         | <=13        | PASS    |
| Band4 | Stand-Alone | 3.75kHz | 0.18 | QPSK       | 20175   | 1@47  | 4.86         | <=13        | PASS    |
| Band4 | Stand-Alone | 3.75kHz | 0.18 | QPSK       | 20398   | 1@0   | 4.29         | <=13        | PASS    |
| Band4 | Stand-Alone | 3.75kHz | 0.18 | QPSK       | 20398   | 1@47  | 4.91         | <=13        | PASS    |
| Band4 | Stand-Alone | 15kHz   | 0.18 | QPSK       | 19952   | 1@0   | 6.79         | <=13        | PASS    |
| Band4 | Stand-Alone | 15kHz   | 0.18 | QPSK       | 19952   | 1@11  | 7.44         | <=13        | PASS    |
| Band4 | Stand-Alone | 15kHz   | 0.18 | QPSK       | 20175   | 1@0   | 6.87         | <=13        | PASS    |
| Band4 | Stand-Alone | 15kHz   | 0.18 | QPSK       | 20175   | 1@11  | 7.48         | <=13        | PASS    |
| Band4 | Stand-Alone | 15kHz   | 0.18 | QPSK       | 20398   | 1@0   | 6.78         | <=13        | PASS    |
| Band4 | Stand-Alone | 15kHz   | 0.18 | QPSK       | 20398   | 1@11  | 7.48         | <=13        | PASS    |

## Test Graphs





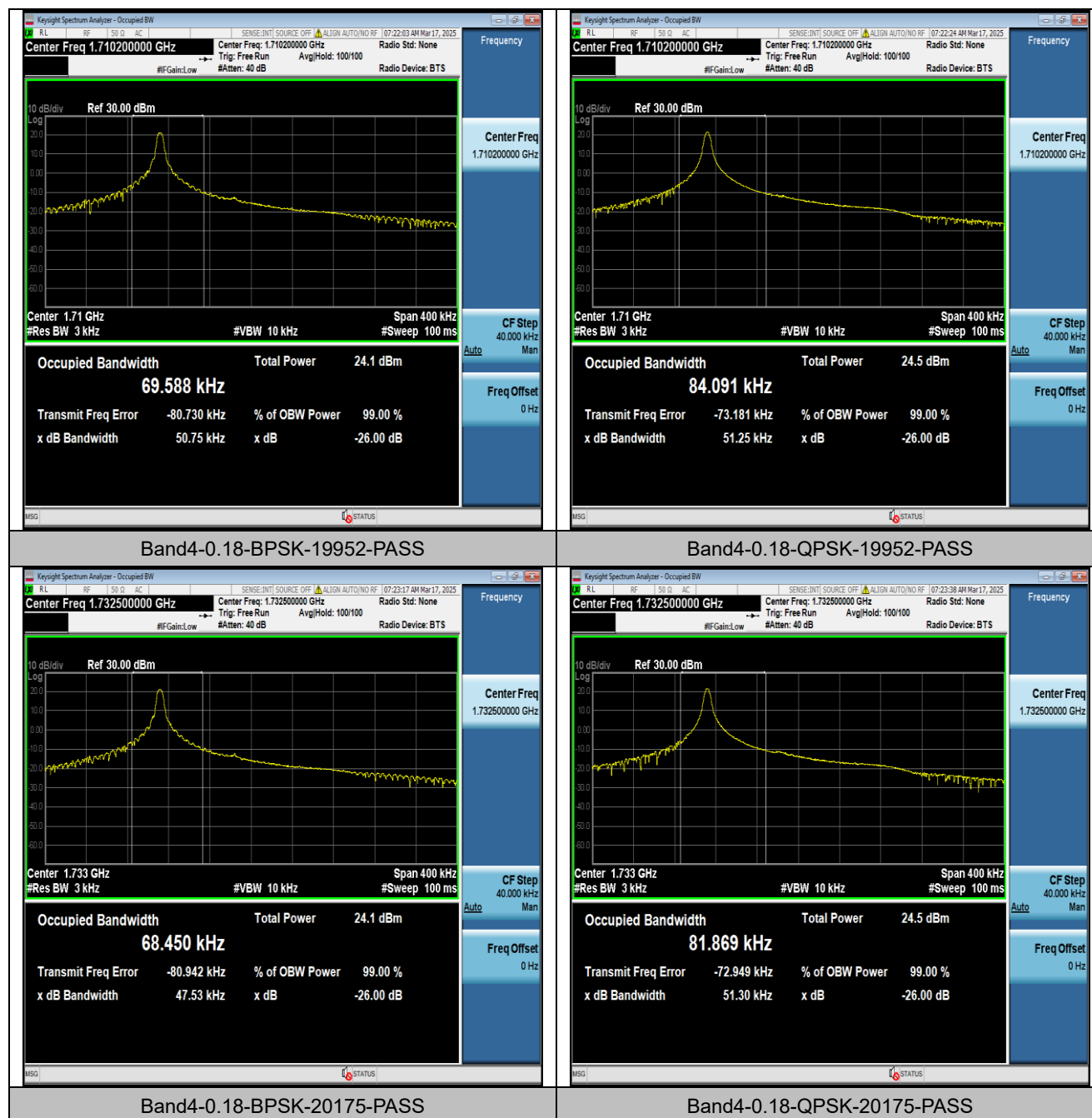


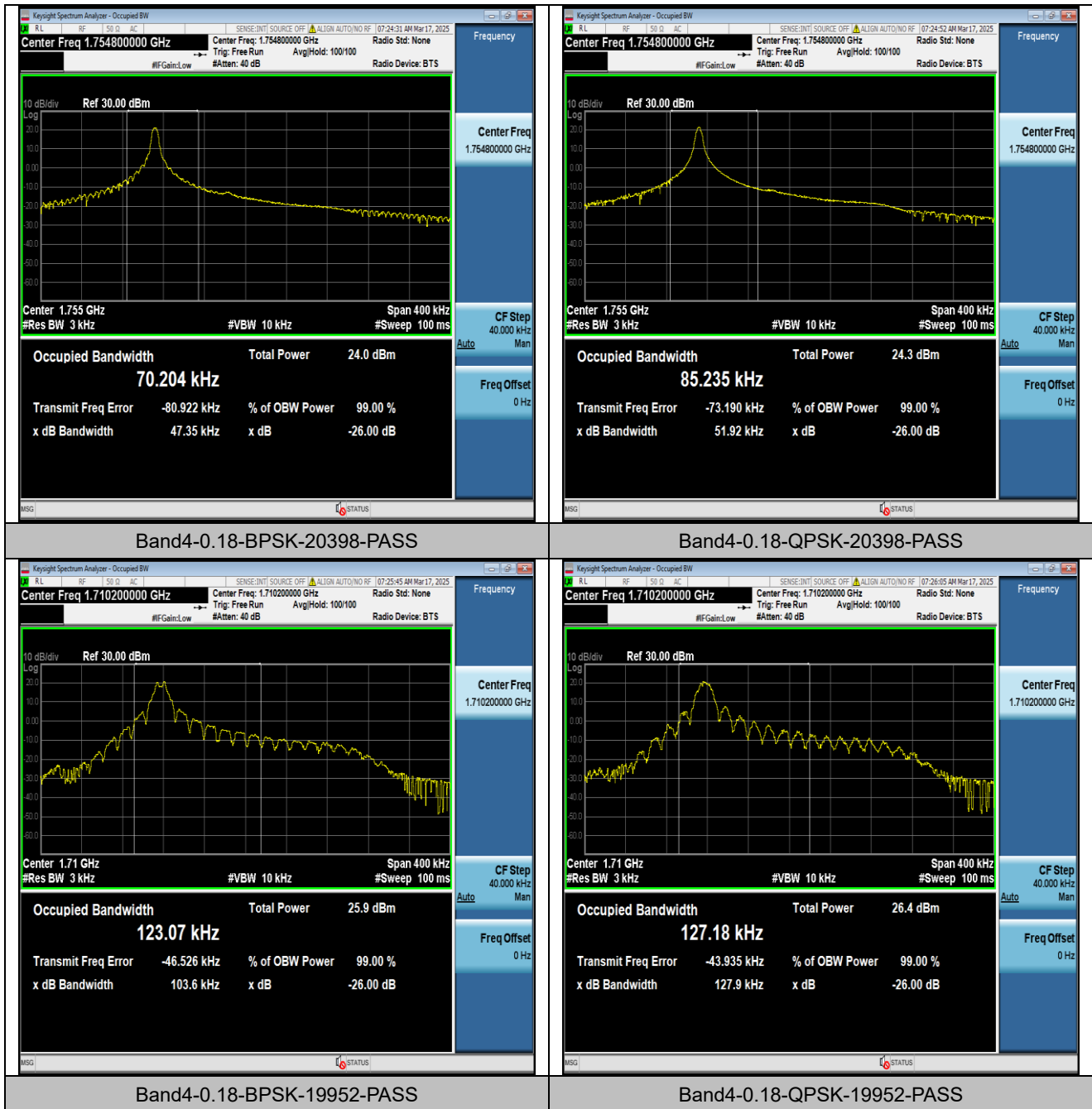
## Emission Bandwidth for NB1

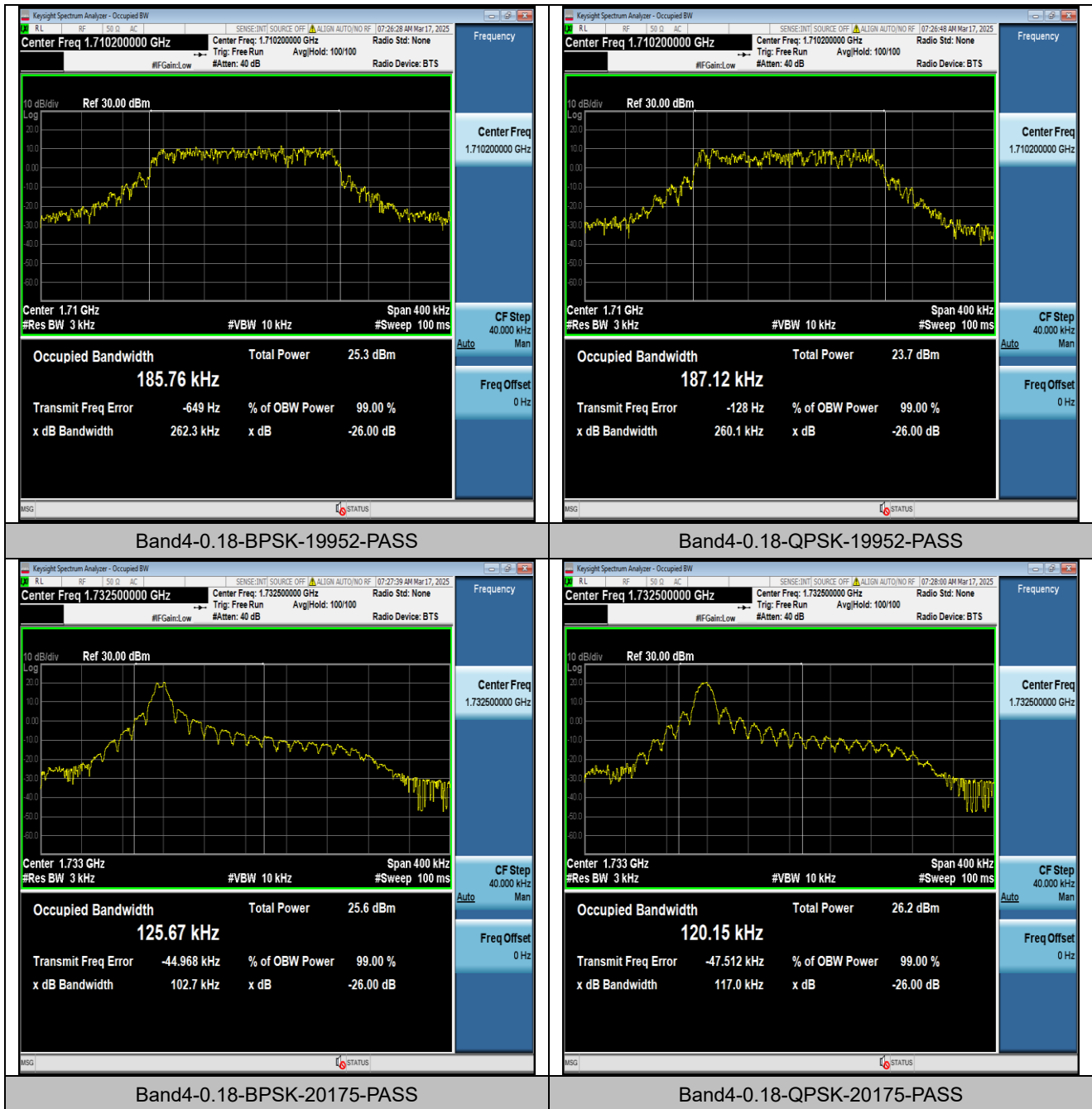
### Test Result

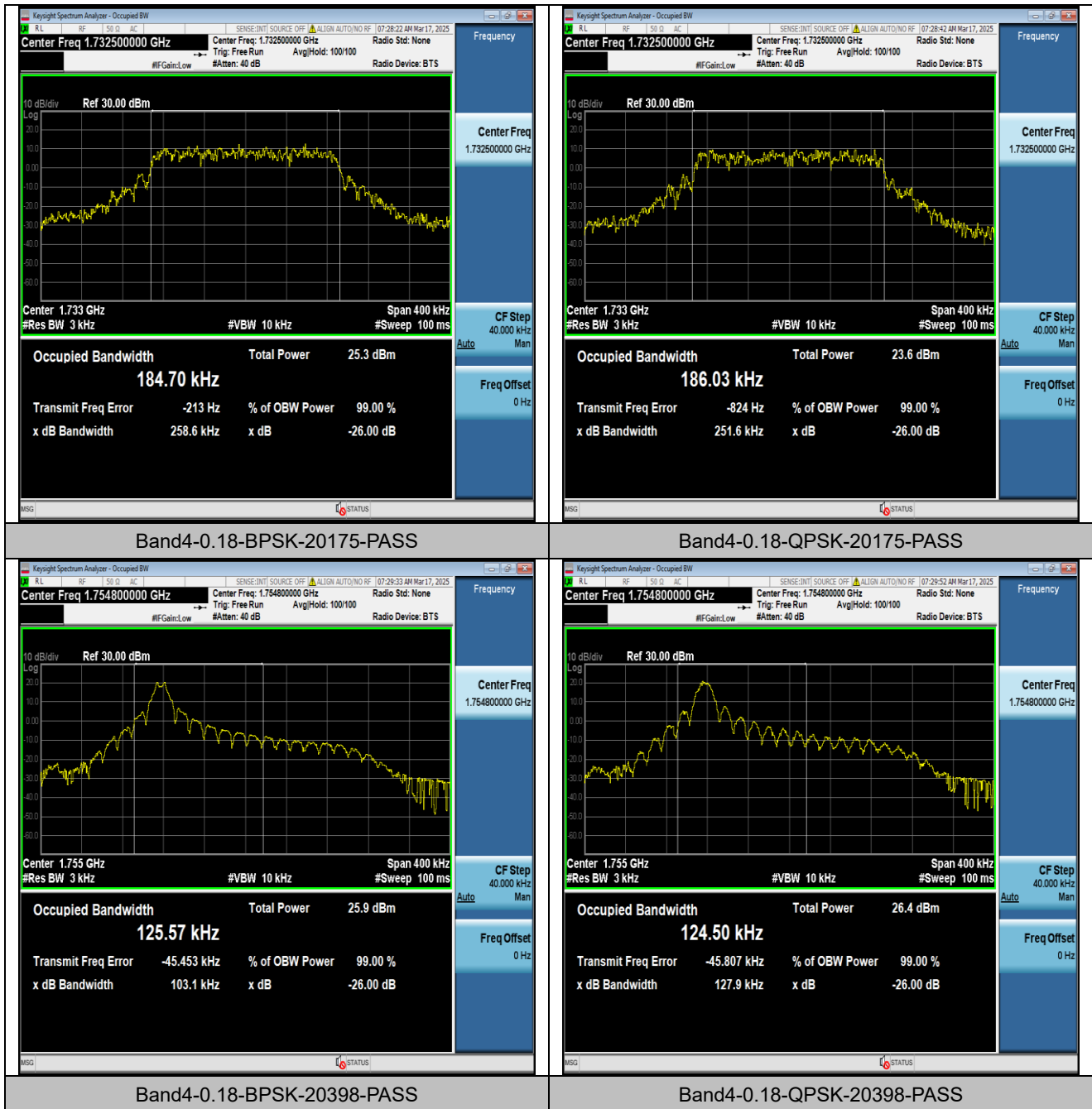
| Band  | OpMode      | SCS     | BW   | Modulation | Channel | Tones | OBW(MHz) | EBW(MHz) | Verdict |
|-------|-------------|---------|------|------------|---------|-------|----------|----------|---------|
| Band4 | Stand-Alone | 3.75kHz | 0.18 | BPSK       | 19952   | 1@0   | 0.06959  | 0.0508   | PASS    |
| Band4 | Stand-Alone | 3.75kHz | 0.18 | QPSK       | 19952   | 1@0   | 0.08409  | 0.0512   | PASS    |
| Band4 | Stand-Alone | 3.75kHz | 0.18 | BPSK       | 20175   | 1@0   | 0.06845  | 0.0475   | PASS    |
| Band4 | Stand-Alone | 3.75kHz | 0.18 | QPSK       | 20175   | 1@0   | 0.08187  | 0.0513   | PASS    |
| Band4 | Stand-Alone | 3.75kHz | 0.18 | BPSK       | 20398   | 1@0   | 0.07020  | 0.0474   | PASS    |
| Band4 | Stand-Alone | 3.75kHz | 0.18 | QPSK       | 20398   | 1@0   | 0.08524  | 0.0519   | PASS    |
| Band4 | Stand-Alone | 15kHz   | 0.18 | BPSK       | 19952   | 1@0   | 0.12307  | 0.1036   | PASS    |
| Band4 | Stand-Alone | 15kHz   | 0.18 | QPSK       | 19952   | 1@0   | 0.12718  | 0.1279   | PASS    |
| Band4 | Stand-Alone | 15kHz   | 0.18 | BPSK       | 19952   | 12@0  | 0.18576  | 0.2623   | PASS    |
| Band4 | Stand-Alone | 15kHz   | 0.18 | QPSK       | 19952   | 12@0  | 0.18712  | 0.2601   | PASS    |
| Band4 | Stand-Alone | 15kHz   | 0.18 | BPSK       | 20175   | 1@0   | 0.12567  | 0.1027   | PASS    |
| Band4 | Stand-Alone | 15kHz   | 0.18 | QPSK       | 20175   | 1@0   | 0.12015  | 0.1170   | PASS    |
| Band4 | Stand-Alone | 15kHz   | 0.18 | BPSK       | 20175   | 12@0  | 0.18470  | 0.2586   | PASS    |
| Band4 | Stand-Alone | 15kHz   | 0.18 | QPSK       | 20175   | 12@0  | 0.18603  | 0.2516   | PASS    |
| Band4 | Stand-Alone | 15kHz   | 0.18 | BPSK       | 20398   | 1@0   | 0.12557  | 0.1031   | PASS    |
| Band4 | Stand-Alone | 15kHz   | 0.18 | QPSK       | 20398   | 1@0   | 0.12450  | 0.1279   | PASS    |
| Band4 | Stand-Alone | 15kHz   | 0.18 | BPSK       | 20398   | 12@0  | 0.18622  | 0.2377   | PASS    |
| Band4 | Stand-Alone | 15kHz   | 0.18 | QPSK       | 20398   | 12@0  | 0.19051  | 0.2543   | PASS    |

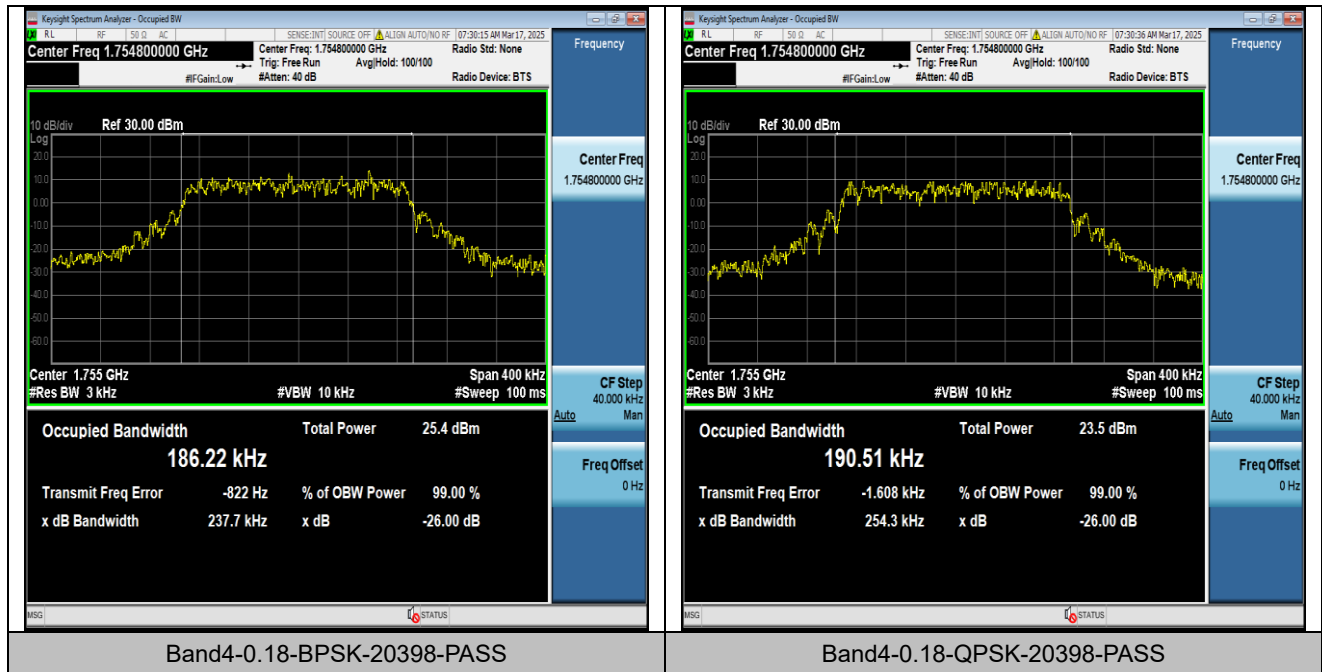
## Test Graphs





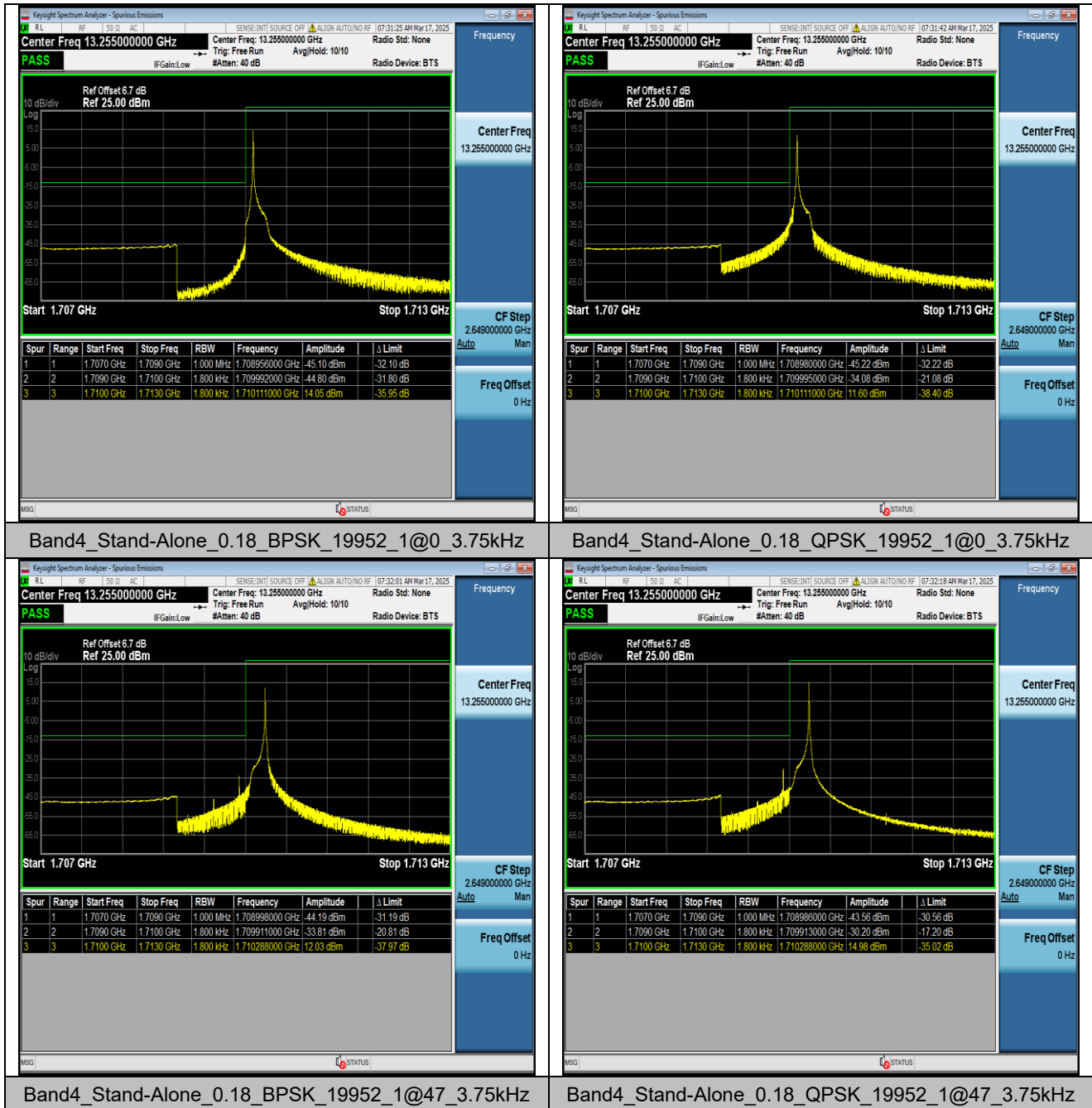


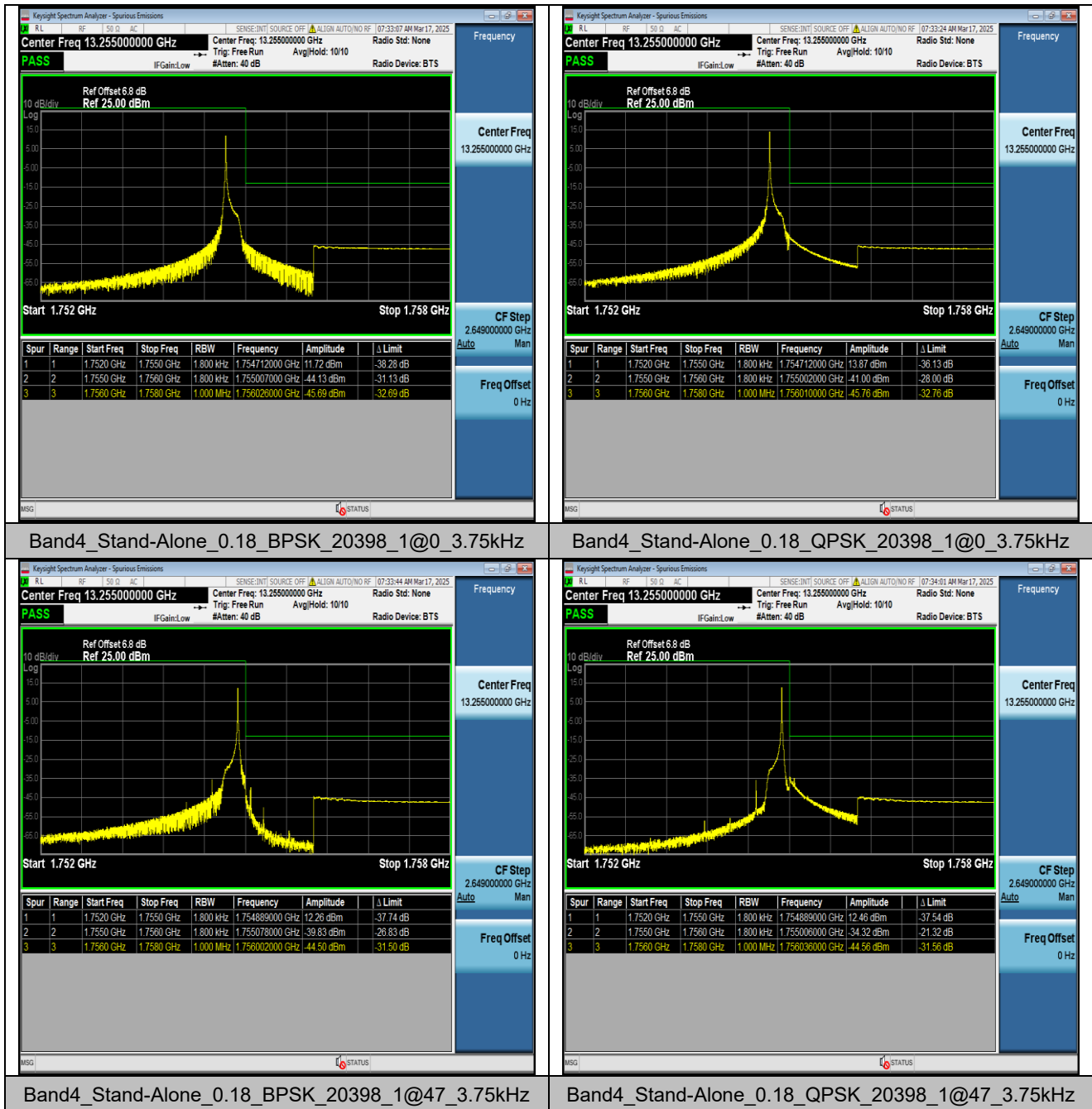


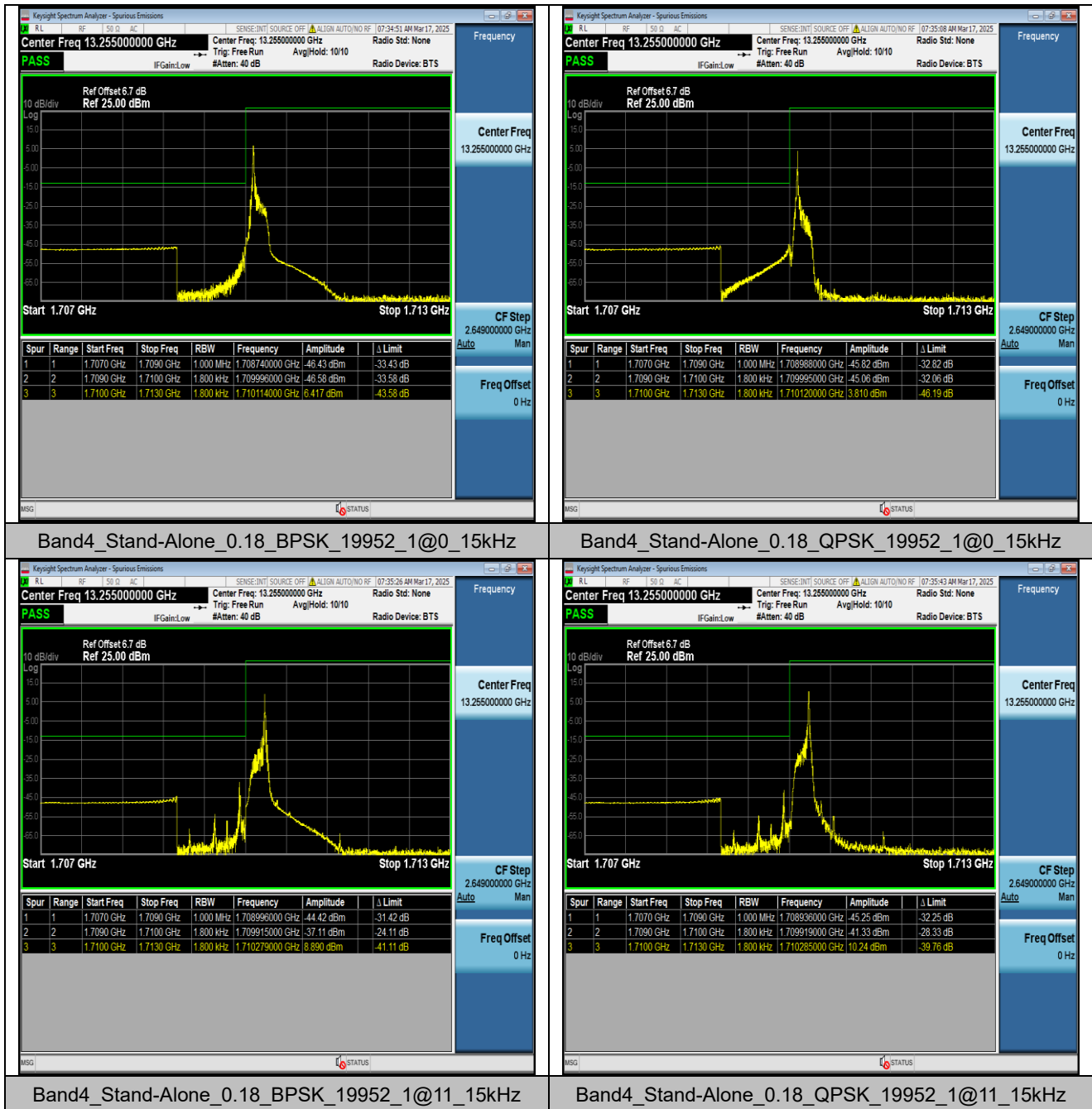


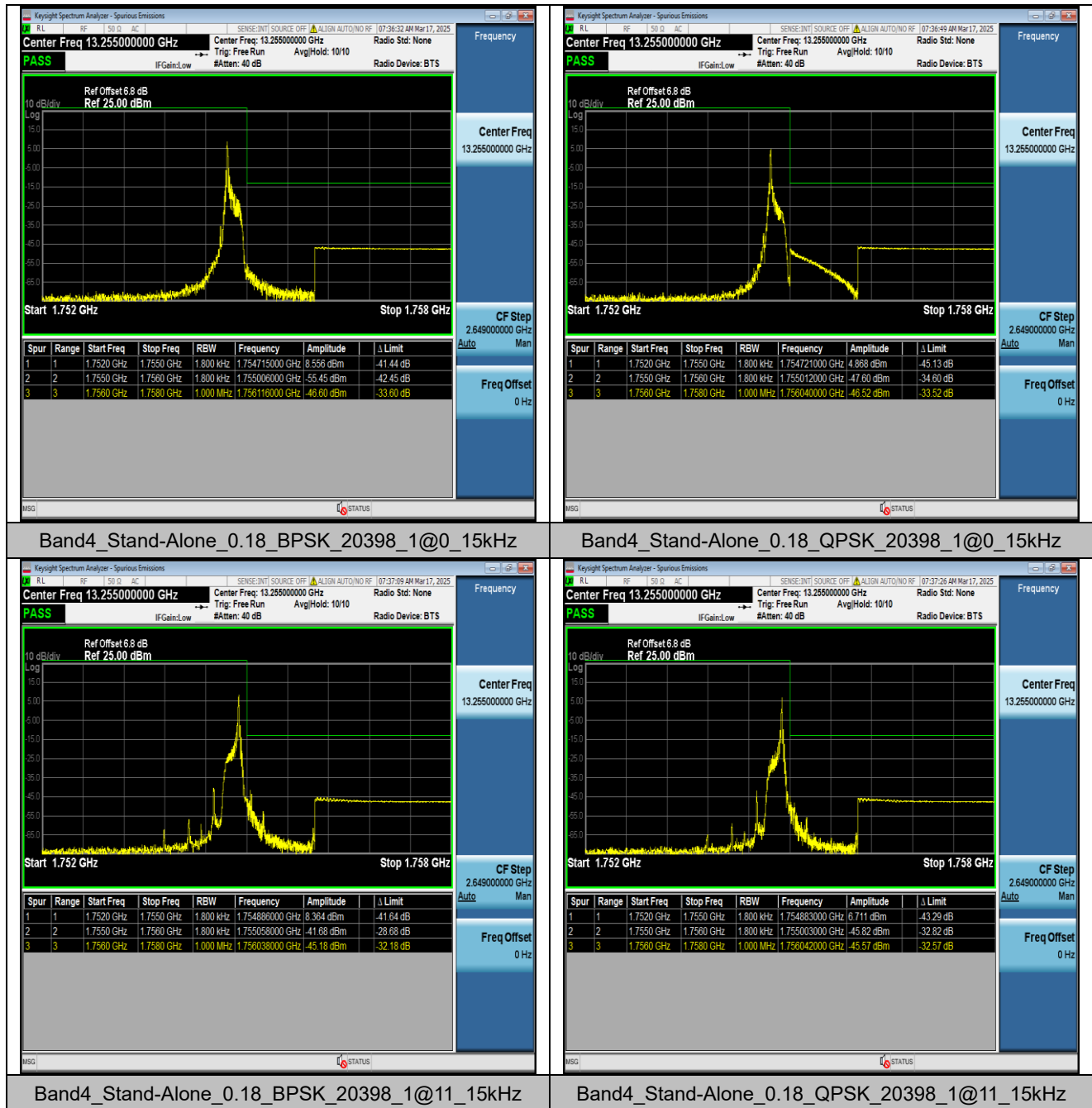
## Band Edge for NB1

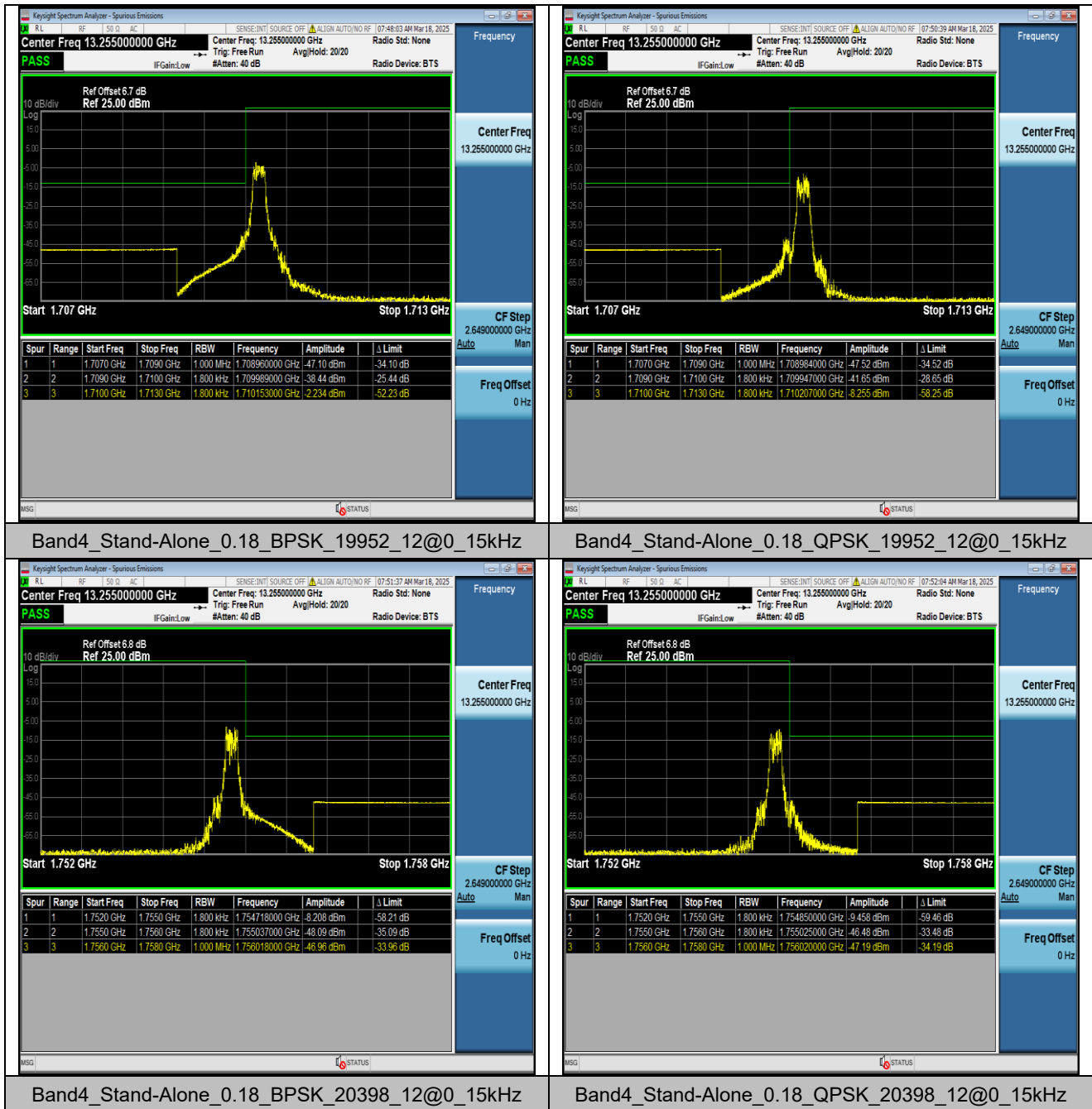
## Test Graphs





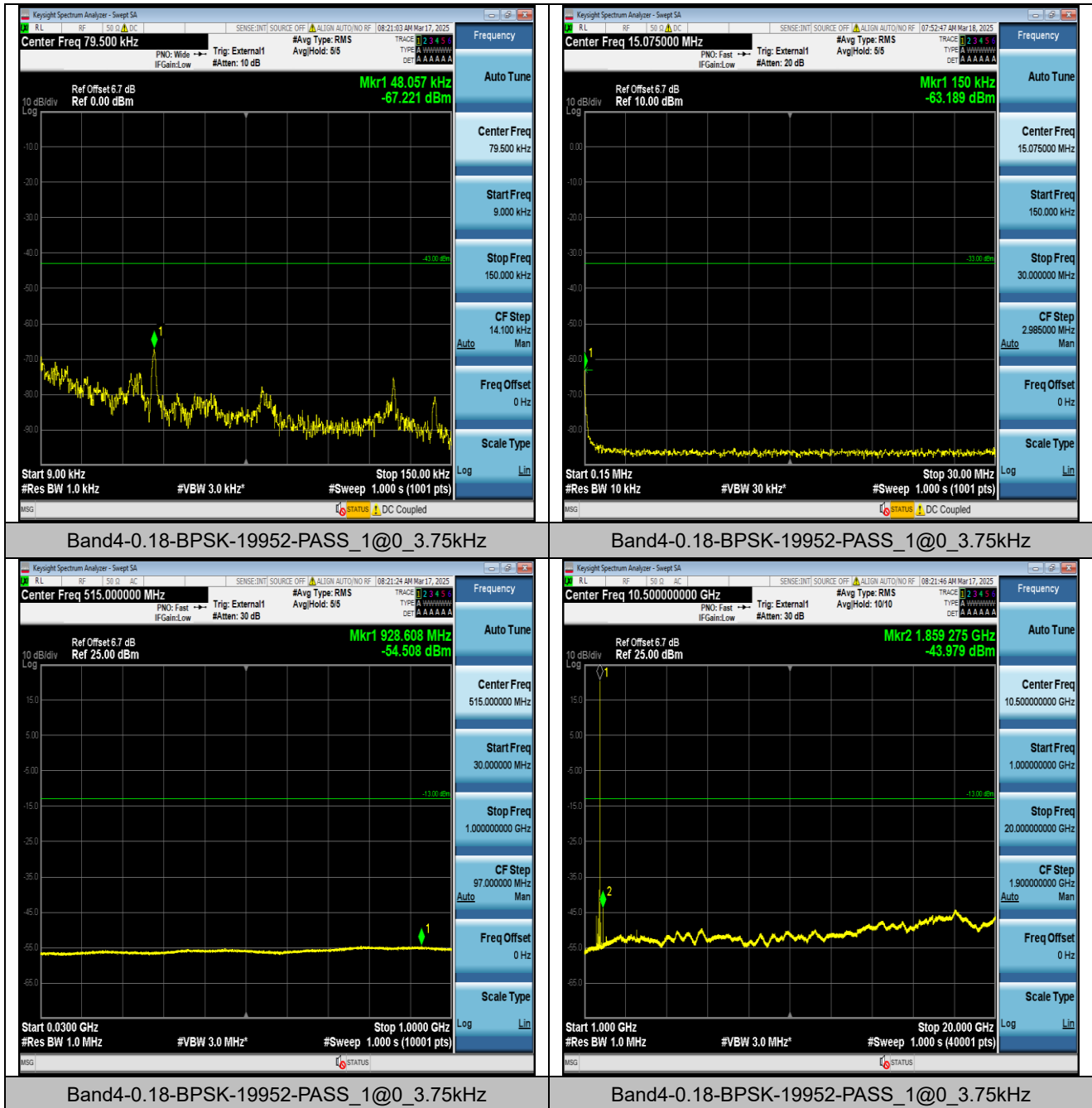


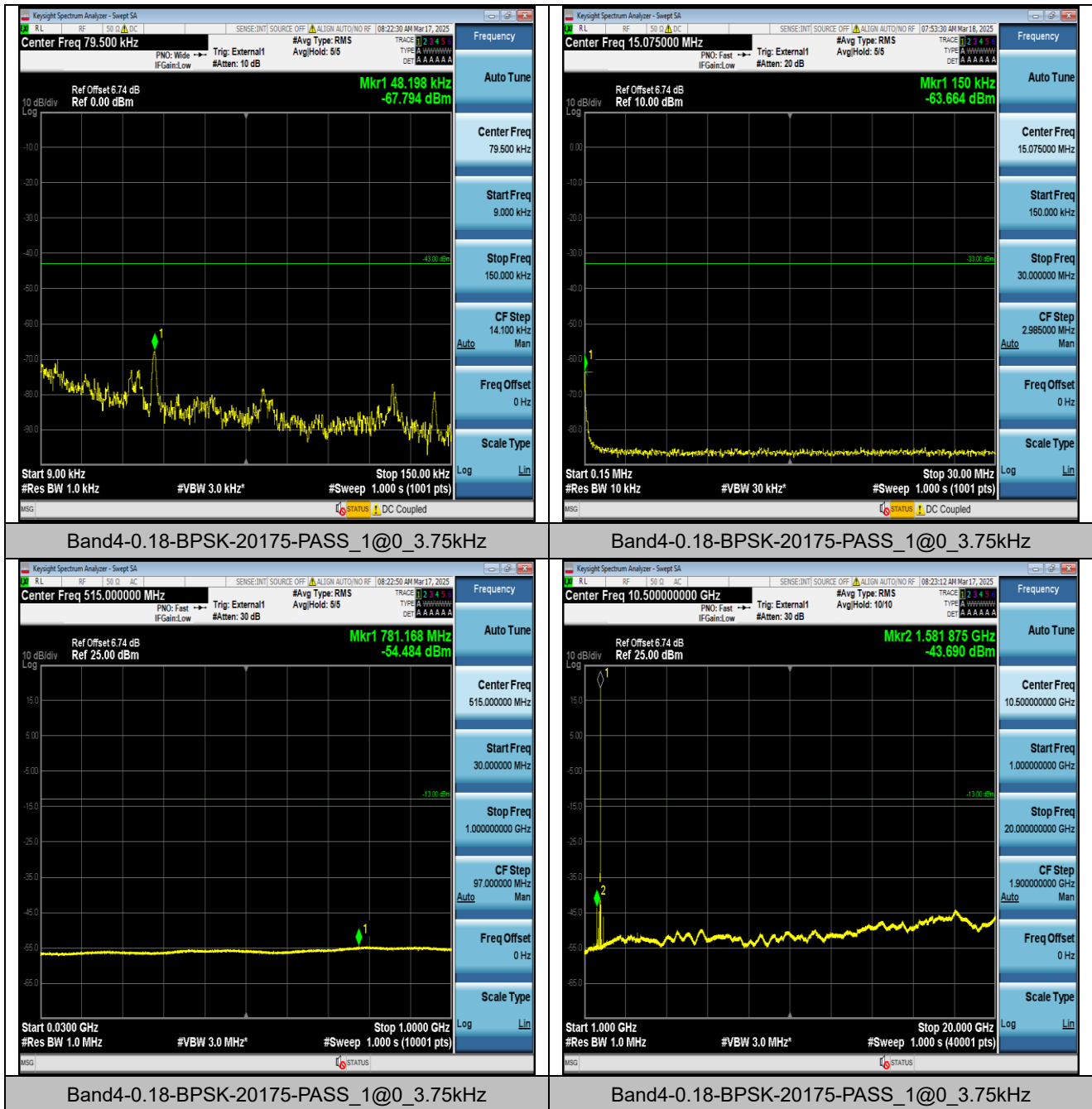


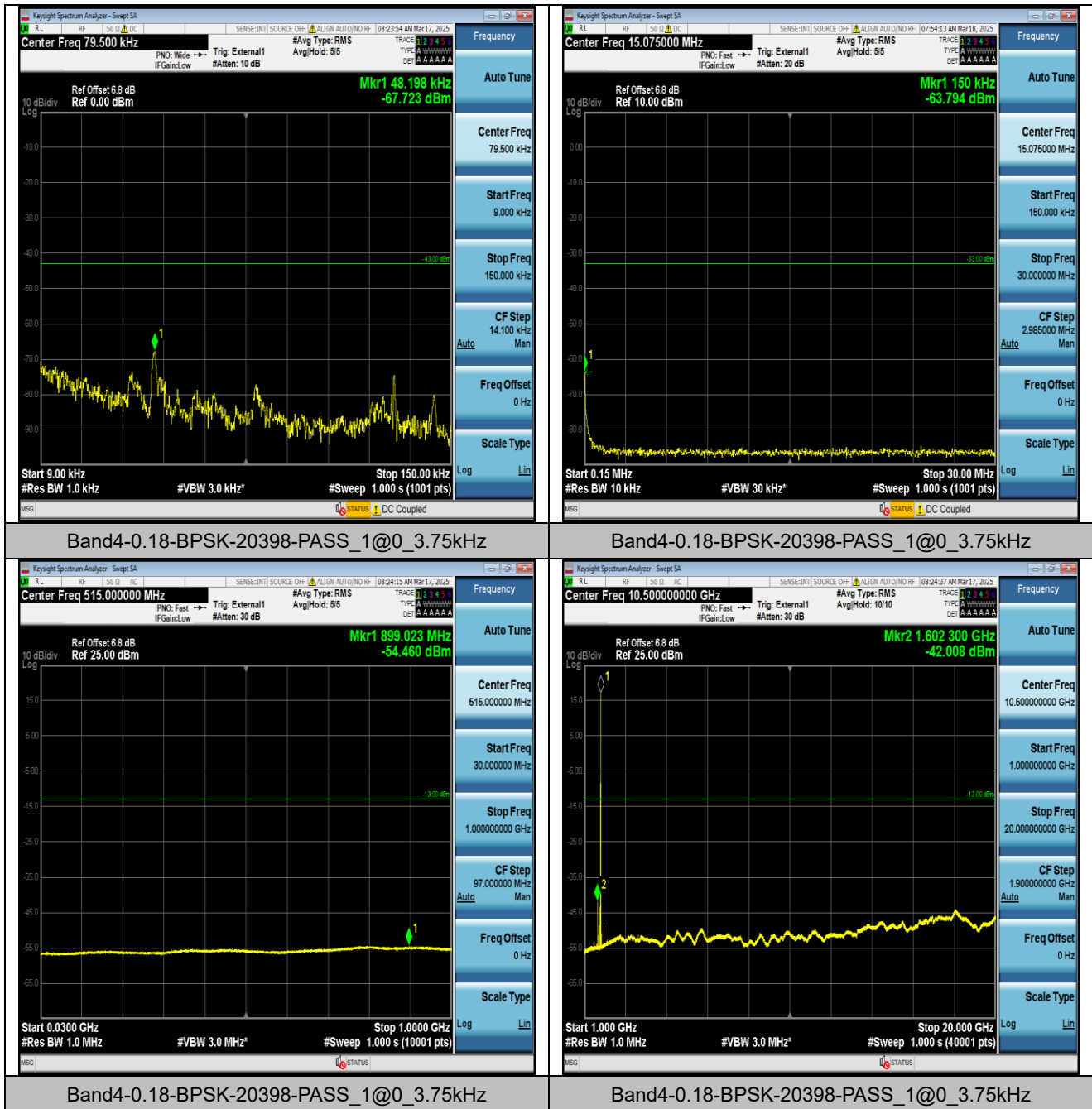


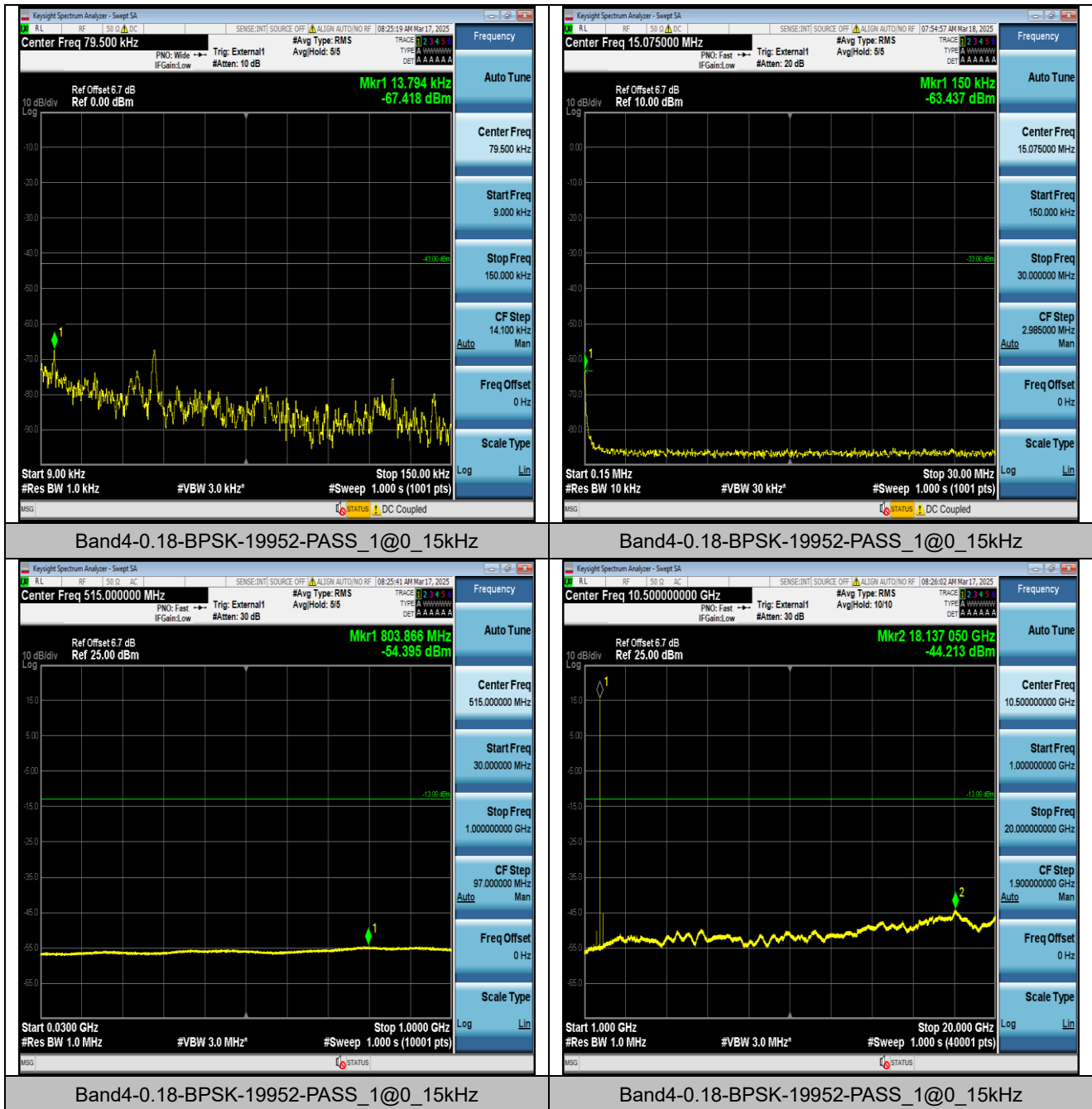
## Conducted Spurious Emission for NB1

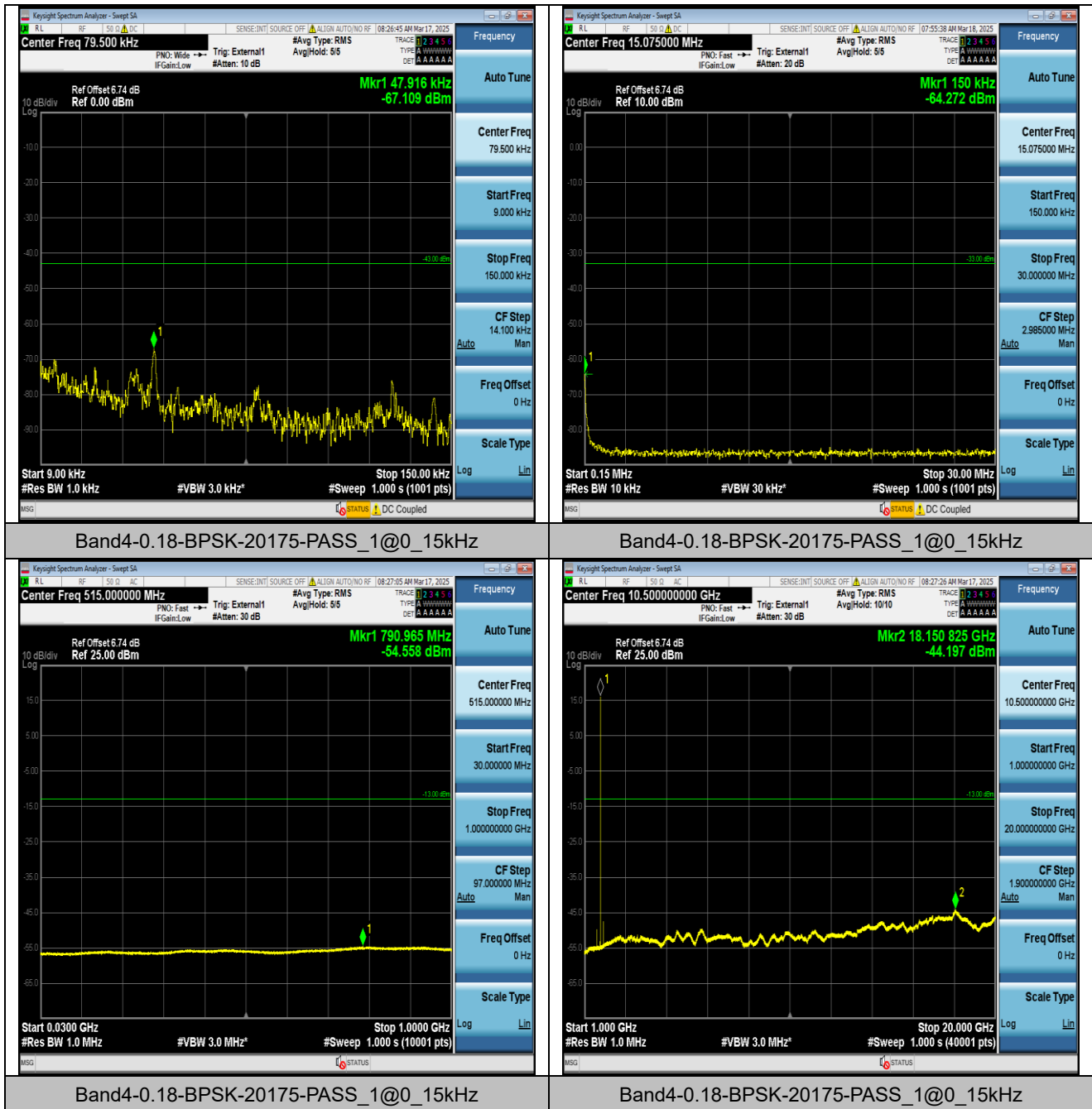
### Test Graphs

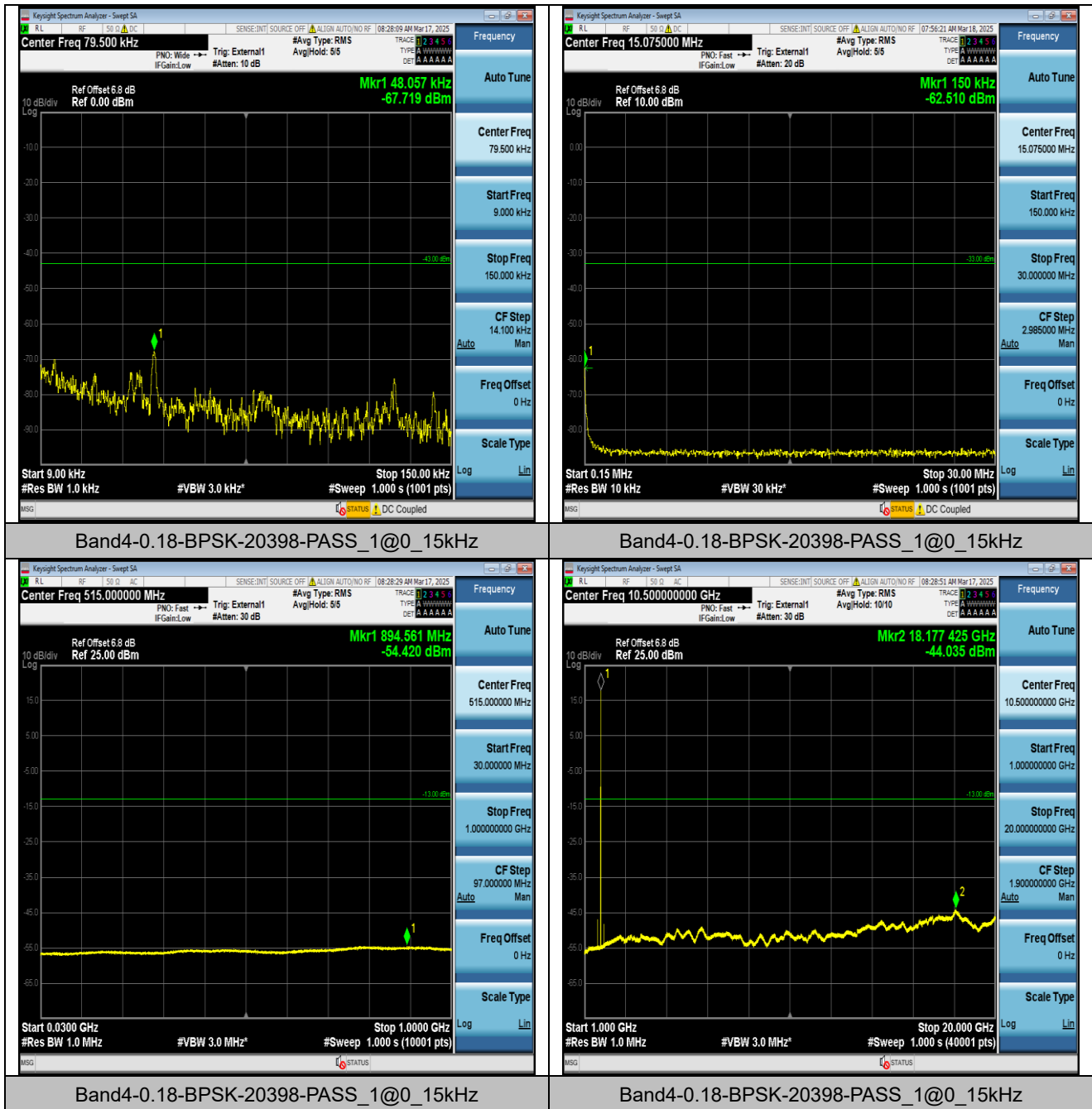












## Frequency Stability for NB1

### Test Result

| Voltage |             |         |           |            |         |       |               |                  |                |                 |         |
|---------|-------------|---------|-----------|------------|---------|-------|---------------|------------------|----------------|-----------------|---------|
| Band    | OpMode      | SCS     | Bandwidth | Modulation | Channel | Tones | Voltage [Vdc] | Temperature (°C) | Deviation (Hz) | Deviation (ppm) | Verdict |
| Band4   | Stand-Alone | 3.75kHz | 0.18      | QPSK       | 20175   | 1@0   | VN            | NT               | -16.20         | -0.009351       | PASS    |
| Band4   | Stand-Alone | 3.75kHz | 0.18      | QPSK       | 20175   | 1@0   | VL            | NT               | -17.80         | -0.010274       | PASS    |
| Band4   | Stand-Alone | 3.75kHz | 0.18      | QPSK       | 20175   | 1@0   | VH            | NT               | -14.00         | -0.008081       | PASS    |
| Band4   | Stand-Alone | 15kHz   | 0.18      | QPSK       | 20175   | 12@0  | VN            | NT               | -7.20          | -0.004156       | PASS    |
| Band4   | Stand-Alone | 15kHz   | 0.18      | QPSK       | 20175   | 12@0  | VL            | NT               | -10.10         | -0.005830       | PASS    |
| Band4   | Stand-Alone | 15kHz   | 0.18      | QPSK       | 20175   | 12@0  | VH            | NT               | -11.90         | -0.006869       | PASS    |

| Temperature |             |         |           |            |         |       |               |                  |                |                 |         |
|-------------|-------------|---------|-----------|------------|---------|-------|---------------|------------------|----------------|-----------------|---------|
| Band        | OpMode      | SCS     | Bandwidth | Modulation | Channel | Tones | Voltage [Vdc] | Temperature (°C) | Deviation (Hz) | Deviation (ppm) | Verdict |
| Band4       | Stand-Alone | 3.75kHz | 0.18      | QPSK       | 20175   | 1@0   | NV            | -30              | -13.10         | -0.007561       | PASS    |
| Band4       | Stand-Alone | 3.75kHz | 0.18      | QPSK       | 20175   | 1@0   | NV            | -20              | -13.00         | -0.007504       | PASS    |
| Band4       | Stand-Alone | 3.75kHz | 0.18      | QPSK       | 20175   | 1@0   | NV            | -10              | -9.10          | -0.005253       | PASS    |
| Band4       | Stand-Alone | 3.75kHz | 0.18      | QPSK       | 20175   | 1@0   | NV            | 0                | -10.90         | -0.006291       | PASS    |
| Band4       | Stand-Alone | 3.75kHz | 0.18      | QPSK       | 20175   | 1@0   | NV            | 10               | -12.10         | -0.006984       | PASS    |
| Band4       | Stand-Alone | 3.75kHz | 0.18      | QPSK       | 20175   | 1@0   | NV            | 20               | -10.90         | -0.006291       | PASS    |
| Band4       | Stand-Alone | 3.75kHz | 0.18      | QPSK       | 20175   | 1@0   | NV            | 30               | -13.10         | -0.007561       | PASS    |
| Band4       | Stand-Alone | 3.75kHz | 0.18      | QPSK       | 20175   | 1@0   | NV            | 40               | -9.70          | -0.005599       | PASS    |
| Band4       | Stand-Alone | 3.75kHz | 0.18      | QPSK       | 20175   | 1@0   | NV            | 50               | -9.90          | -0.005714       | PASS    |
| Band4       | Stand-Alone | 15kHz   | 0.18      | QPSK       | 20175   | 12@0  | NV            | -30              | -10.30         | -0.005945       | PASS    |
| Band4       | Stand-Alone | 15kHz   | 0.18      | QPSK       | 20175   | 12@0  | NV            | -20              | -10.80         | -0.006234       | PASS    |
| Band4       | Stand-Alone | 15kHz   | 0.18      | QPSK       | 20175   | 12@0  | NV            | -10              | -8.80          | -0.005079       | PASS    |
| Band4       | Stand-Alone | 15kHz   | 0.18      | QPSK       | 20175   | 12@0  | NV            | 0                | -8.90          | -0.005137       | PASS    |
| Band4       | Stand-Alone | 15kHz   | 0.18      | QPSK       | 20175   | 12@0  | NV            | 10               | -13.00         | -0.007504       | PASS    |
| Band4       | Stand-Alone | 15kHz   | 0.18      | QPSK       | 20175   | 12@0  | NV            | 20               | -9.10          | -0.005253       | PASS    |
| Band4       | Stand-Alone | 15kHz   | 0.18      | QPSK       | 20175   | 12@0  | NV            | 30               | -8.20          | -0.004733       | PASS    |
| Band4       | Stand-Alone | 15kHz   | 0.18      | QPSK       | 20175   | 12@0  | NV            | 40               | -8.80          | -0.005079       | PASS    |
| Band4       | Stand-Alone | 15kHz   | 0.18      | QPSK       | 20175   | 12@0  | NV            | 50               | -6.70          | -0.003867       | PASS    |

~The End~