

# Appendix-A LTE Band 12

## Effective (Isotropic) Radiated Power Output Data

### Test Result

| Band   | Bandwidth | Modulation | Channel | RB Configuration | Result (dBm) | ERP (dBm) | Limit (dBm) | Verdict |
|--------|-----------|------------|---------|------------------|--------------|-----------|-------------|---------|
| Band12 | 1.4MHz    | QPSK       | 23017   | 1RB#0            | 23.12        | 20.47     | 34.77       | PASS    |
| Band12 | 1.4MHz    | QPSK       | 23017   | 1RB#2            | 23.34        | 20.69     | 34.77       | PASS    |
| Band12 | 1.4MHz    | QPSK       | 23017   | 1RB#5            | 23.16        | 20.51     | 34.77       | PASS    |
| Band12 | 1.4MHz    | QPSK       | 23017   | 6RB#0            | 22.74        | 20.09     | 34.77       | PASS    |
| Band12 | 1.4MHz    | 16QAM      | 23017   | 1RB#0            | 22.46        | 19.81     | 34.77       | PASS    |
| Band12 | 1.4MHz    | 16QAM      | 23017   | 1RB#2            | 22.62        | 19.97     | 34.77       | PASS    |
| Band12 | 1.4MHz    | 16QAM      | 23017   | 1RB#5            | 22.52        | 19.87     | 34.77       | PASS    |
| Band12 | 1.4MHz    | 16QAM      | 23017   | 6RB#0            | 21.76        | 19.11     | 34.77       | PASS    |
| Band12 | 1.4MHz    | QPSK       | 23095   | 1RB#0            | 23.16        | 20.51     | 34.77       | PASS    |
| Band12 | 1.4MHz    | QPSK       | 23095   | 1RB#2            | 23.24        | 20.59     | 34.77       | PASS    |
| Band12 | 1.4MHz    | QPSK       | 23095   | 1RB#5            | 23.33        | 20.68     | 34.77       | PASS    |
| Band12 | 1.4MHz    | QPSK       | 23095   | 6RB#0            | 22.7         | 20.05     | 34.77       | PASS    |
| Band12 | 1.4MHz    | 16QAM      | 23095   | 1RB#0            | 22.58        | 19.93     | 34.77       | PASS    |
| Band12 | 1.4MHz    | 16QAM      | 23095   | 1RB#2            | 22.59        | 19.94     | 34.77       | PASS    |
| Band12 | 1.4MHz    | 16QAM      | 23095   | 1RB#5            | 22.52        | 19.87     | 34.77       | PASS    |
| Band12 | 1.4MHz    | 16QAM      | 23095   | 6RB#0            | 21.75        | 19.1      | 34.77       | PASS    |
| Band12 | 1.4MHz    | QPSK       | 23173   | 1RB#0            | 23.25        | 20.6      | 34.77       | PASS    |
| Band12 | 1.4MHz    | QPSK       | 23173   | 1RB#2            | 23.03        | 20.38     | 34.77       | PASS    |
| Band12 | 1.4MHz    | QPSK       | 23173   | 1RB#5            | 23.26        | 20.61     | 34.77       | PASS    |
| Band12 | 1.4MHz    | QPSK       | 23173   | 6RB#0            | 22.3         | 19.65     | 34.77       | PASS    |
| Band12 | 1.4MHz    | 16QAM      | 23173   | 1RB#0            | 22.35        | 19.7      | 34.77       | PASS    |
| Band12 | 1.4MHz    | 16QAM      | 23173   | 1RB#2            | 22.35        | 19.7      | 34.77       | PASS    |
| Band12 | 1.4MHz    | 16QAM      | 23173   | 1RB#5            | 22.28        | 19.63     | 34.77       | PASS    |
| Band12 | 1.4MHz    | 16QAM      | 23173   | 6RB#0            | 21.25        | 18.6      | 34.77       | PASS    |
| Band12 | 3MHz      | QPSK       | 23025   | 1RB#0            | 23.18        | 20.53     | 34.77       | PASS    |
| Band12 | 3MHz      | QPSK       | 23025   | 1RB#8            | 23.31        | 20.66     | 34.77       | PASS    |
| Band12 | 3MHz      | QPSK       | 23025   | 1RB#14           | 23.28        | 20.63     | 34.77       | PASS    |
| Band12 | 3MHz      | QPSK       | 23025   | 15RB#0           | 22.66        | 20.01     | 34.77       | PASS    |
| Band12 | 3MHz      | 16QAM      | 23025   | 1RB#0            | 22.38        | 19.73     | 34.77       | PASS    |
| Band12 | 3MHz      | 16QAM      | 23025   | 1RB#8            | 22.63        | 19.98     | 34.77       | PASS    |
| Band12 | 3MHz      | 16QAM      | 23025   | 1RB#14           | 22.59        | 19.94     | 34.77       | PASS    |
| Band12 | 3MHz      | 16QAM      | 23025   | 15RB#0           | 21.66        | 19.01     | 34.77       | PASS    |
| Band12 | 3MHz      | QPSK       | 23095   | 1RB#0            | 23.4         | 20.75     | 34.77       | PASS    |
| Band12 | 3MHz      | QPSK       | 23095   | 1RB#8            | 23.17        | 20.52     | 34.77       | PASS    |
| Band12 | 3MHz      | QPSK       | 23095   | 1RB#14           | 23.21        | 20.56     | 34.77       | PASS    |
| Band12 | 3MHz      | QPSK       | 23095   | 15RB#0           | 22.75        | 20.1      | 34.77       | PASS    |
| Band12 | 3MHz      | 16QAM      | 23095   | 1RB#0            | 22.27        | 19.62     | 34.77       | PASS    |

|        |       |       |       |        |       |       |       |      |
|--------|-------|-------|-------|--------|-------|-------|-------|------|
| Band12 | 3MHz  | 16QAM | 23095 | 1RB#8  | 22.43 | 19.78 | 34.77 | PASS |
| Band12 | 3MHz  | 16QAM | 23095 | 1RB#14 | 22.33 | 19.68 | 34.77 | PASS |
| Band12 | 3MHz  | 16QAM | 23095 | 15RB#0 | 21.71 | 19.06 | 34.77 | PASS |
| Band12 | 3MHz  | QPSK  | 23165 | 1RB#0  | 23.2  | 20.55 | 34.77 | PASS |
| Band12 | 3MHz  | QPSK  | 23165 | 1RB#8  | 23.04 | 20.39 | 34.77 | PASS |
| Band12 | 3MHz  | QPSK  | 23165 | 1RB#14 | 23.17 | 20.52 | 34.77 | PASS |
| Band12 | 3MHz  | QPSK  | 23165 | 15RB#0 | 22.5  | 19.85 | 34.77 | PASS |
| Band12 | 3MHz  | 16QAM | 23165 | 1RB#0  | 22.36 | 19.71 | 34.77 | PASS |
| Band12 | 3MHz  | 16QAM | 23165 | 1RB#8  | 22.19 | 19.54 | 34.77 | PASS |
| Band12 | 3MHz  | 16QAM | 23165 | 1RB#14 | 22.03 | 19.38 | 34.77 | PASS |
| Band12 | 3MHz  | 16QAM | 23165 | 15RB#0 | 21.3  | 18.65 | 34.77 | PASS |
| Band12 | 5MHz  | QPSK  | 23035 | 1RB#0  | 23.05 | 20.4  | 34.77 | PASS |
| Band12 | 5MHz  | QPSK  | 23035 | 1RB#12 | 23.45 | 20.8  | 34.77 | PASS |
| Band12 | 5MHz  | QPSK  | 23035 | 1RB#24 | 23.08 | 20.43 | 34.77 | PASS |
| Band12 | 5MHz  | QPSK  | 23035 | 25RB#0 | 22.53 | 19.88 | 34.77 | PASS |
| Band12 | 5MHz  | 16QAM | 23035 | 1RB#0  | 22.75 | 20.1  | 34.77 | PASS |
| Band12 | 5MHz  | 16QAM | 23035 | 1RB#12 | 22.4  | 19.75 | 34.77 | PASS |
| Band12 | 5MHz  | 16QAM | 23035 | 1RB#24 | 22.61 | 19.96 | 34.77 | PASS |
| Band12 | 5MHz  | 16QAM | 23035 | 25RB#0 | 21.43 | 18.78 | 34.77 | PASS |
| Band12 | 5MHz  | QPSK  | 23095 | 1RB#0  | 23.33 | 20.68 | 34.77 | PASS |
| Band12 | 5MHz  | QPSK  | 23095 | 1RB#12 | 23.78 | 21.13 | 34.77 | PASS |
| Band12 | 5MHz  | QPSK  | 23095 | 1RB#24 | 23.03 | 20.38 | 34.77 | PASS |
| Band12 | 5MHz  | QPSK  | 23095 | 25RB#0 | 22.57 | 19.92 | 34.77 | PASS |
| Band12 | 5MHz  | 16QAM | 23095 | 1RB#0  | 22.43 | 19.78 | 34.77 | PASS |
| Band12 | 5MHz  | 16QAM | 23095 | 1RB#12 | 22.74 | 20.09 | 34.77 | PASS |
| Band12 | 5MHz  | 16QAM | 23095 | 1RB#24 | 22.17 | 19.52 | 34.77 | PASS |
| Band12 | 5MHz  | 16QAM | 23095 | 25RB#0 | 21.63 | 18.98 | 34.77 | PASS |
| Band12 | 5MHz  | QPSK  | 23155 | 1RB#0  | 23.11 | 20.46 | 34.77 | PASS |
| Band12 | 5MHz  | QPSK  | 23155 | 1RB#12 | 23.34 | 20.69 | 34.77 | PASS |
| Band12 | 5MHz  | QPSK  | 23155 | 1RB#24 | 23.1  | 20.45 | 34.77 | PASS |
| Band12 | 5MHz  | QPSK  | 23155 | 25RB#0 | 22.47 | 19.82 | 34.77 | PASS |
| Band12 | 5MHz  | 16QAM | 23155 | 1RB#0  | 22.42 | 19.77 | 34.77 | PASS |
| Band12 | 5MHz  | 16QAM | 23155 | 1RB#12 | 22.89 | 20.24 | 34.77 | PASS |
| Band12 | 5MHz  | 16QAM | 23155 | 1RB#24 | 22.63 | 19.98 | 34.77 | PASS |
| Band12 | 5MHz  | 16QAM | 23155 | 25RB#0 | 21.52 | 18.87 | 34.77 | PASS |
| Band12 | 10MHz | QPSK  | 23060 | 1RB#0  | 23.22 | 20.57 | 34.77 | PASS |
| Band12 | 10MHz | QPSK  | 23060 | 1RB#24 | 23.32 | 20.67 | 34.77 | PASS |
| Band12 | 10MHz | QPSK  | 23060 | 1RB#49 | 23.21 | 20.56 | 34.77 | PASS |
| Band12 | 10MHz | QPSK  | 23060 | 50RB#0 | 22.66 | 20.01 | 34.77 | PASS |
| Band12 | 10MHz | 16QAM | 23060 | 1RB#0  | 22.31 | 19.66 | 34.77 | PASS |
| Band12 | 10MHz | 16QAM | 23060 | 1RB#24 | 22.53 | 19.88 | 34.77 | PASS |
| Band12 | 10MHz | 16QAM | 23060 | 1RB#49 | 22.68 | 20.03 | 34.77 | PASS |
| Band12 | 10MHz | 16QAM | 23060 | 50RB#0 | 21.59 | 18.94 | 34.77 | PASS |
| Band12 | 10MHz | QPSK  | 23095 | 1RB#0  | 23.32 | 20.67 | 34.77 | PASS |
| Band12 | 10MHz | QPSK  | 23095 | 1RB#24 | 23.59 | 20.94 | 34.77 | PASS |

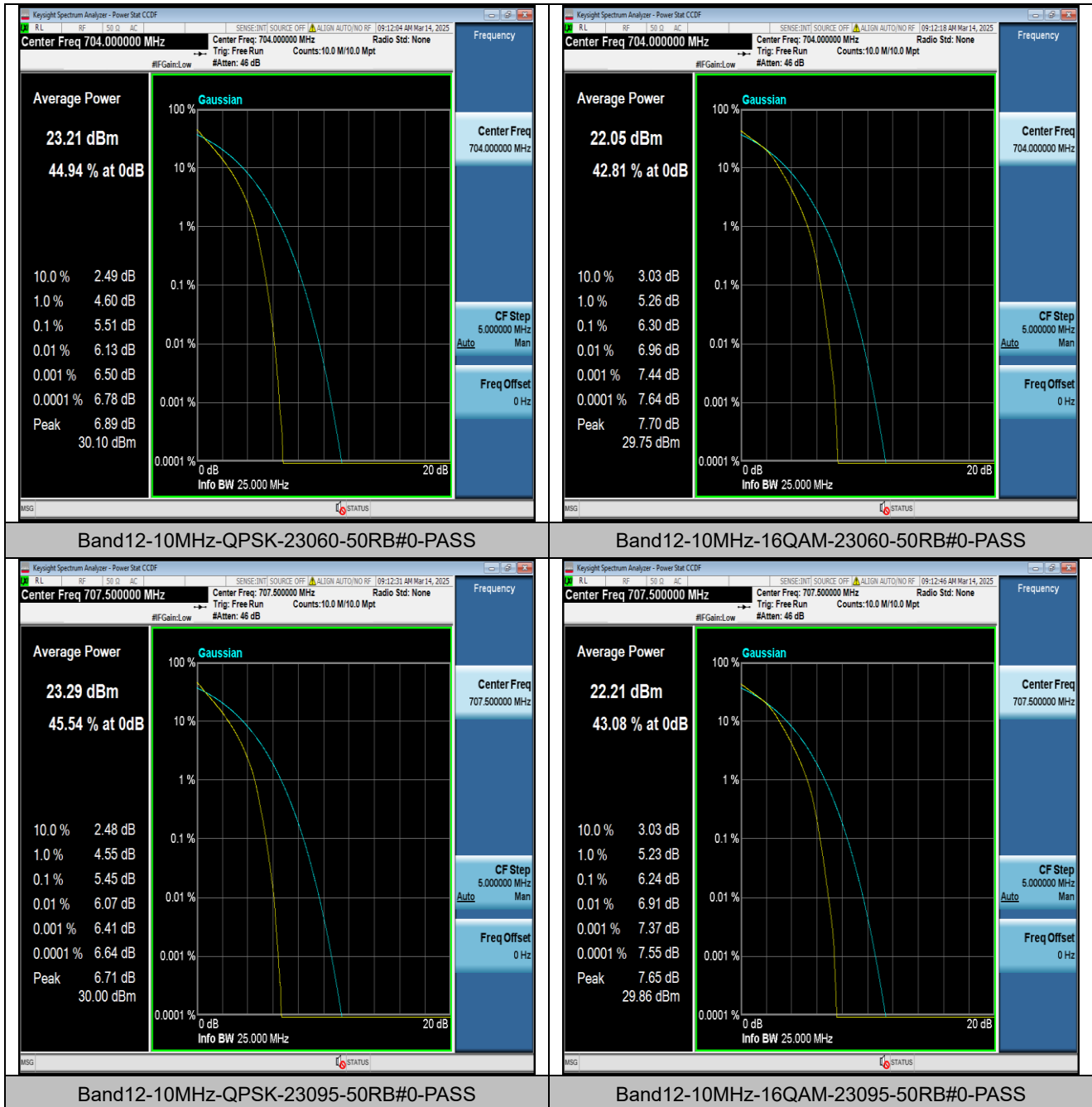
|        |       |       |       |        |       |       |       |      |
|--------|-------|-------|-------|--------|-------|-------|-------|------|
| Band12 | 10MHz | QPSK  | 23095 | 1RB#49 | 23.06 | 20.41 | 34.77 | PASS |
| Band12 | 10MHz | QPSK  | 23095 | 50RB#0 | 22.64 | 19.99 | 34.77 | PASS |
| Band12 | 10MHz | 16QAM | 23095 | 1RB#0  | 22.53 | 19.88 | 34.77 | PASS |
| Band12 | 10MHz | 16QAM | 23095 | 1RB#24 | 22.51 | 19.86 | 34.77 | PASS |
| Band12 | 10MHz | 16QAM | 23095 | 1RB#49 | 22.49 | 19.84 | 34.77 | PASS |
| Band12 | 10MHz | 16QAM | 23095 | 50RB#0 | 21.59 | 18.94 | 34.77 | PASS |
| Band12 | 10MHz | QPSK  | 23130 | 1RB#0  | 23.31 | 20.66 | 34.77 | PASS |
| Band12 | 10MHz | QPSK  | 23130 | 1RB#24 | 23.52 | 20.87 | 34.77 | PASS |
| Band12 | 10MHz | QPSK  | 23130 | 1RB#49 | 23.01 | 20.36 | 34.77 | PASS |
| Band12 | 10MHz | QPSK  | 23130 | 50RB#0 | 22.54 | 19.89 | 34.77 | PASS |
| Band12 | 10MHz | 16QAM | 23130 | 1RB#0  | 22.8  | 20.15 | 34.77 | PASS |
| Band12 | 10MHz | 16QAM | 23130 | 1RB#24 | 22.54 | 19.89 | 34.77 | PASS |
| Band12 | 10MHz | 16QAM | 23130 | 1RB#49 | 22.36 | 19.71 | 34.77 | PASS |
| Band12 | 10MHz | 16QAM | 23130 | 50RB#0 | 21.4  | 18.75 | 34.77 | PASS |

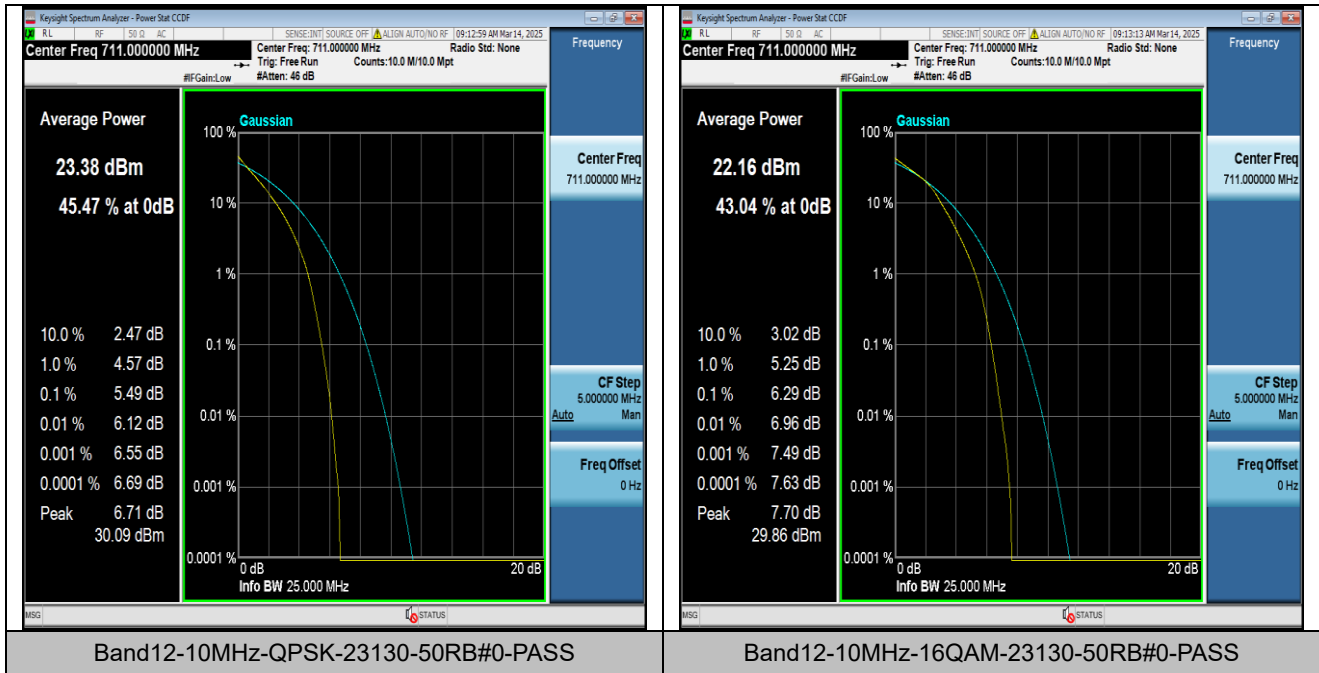
## Peak-to-Average Ratio(CCDF)

### Test Result

| Band   | Bandwidth | Modulation | Channel | RB Configuration | Result (dB) | Limit (dB) | Verdict |
|--------|-----------|------------|---------|------------------|-------------|------------|---------|
| Band12 | 10MHz     | QPSK       | 23060   | 50RB#0           | 5.51        | 13         | PASS    |
| Band12 | 10MHz     | 16QAM      | 23060   | 50RB#0           | 6.30        | 13         | PASS    |
| Band12 | 10MHz     | QPSK       | 23095   | 50RB#0           | 5.45        | 13         | PASS    |
| Band12 | 10MHz     | 16QAM      | 23095   | 50RB#0           | 6.24        | 13         | PASS    |
| Band12 | 10MHz     | QPSK       | 23130   | 50RB#0           | 5.49        | 13         | PASS    |
| Band12 | 10MHz     | 16QAM      | 23130   | 50RB#0           | 6.29        | 13         | PASS    |

## Test Graphs



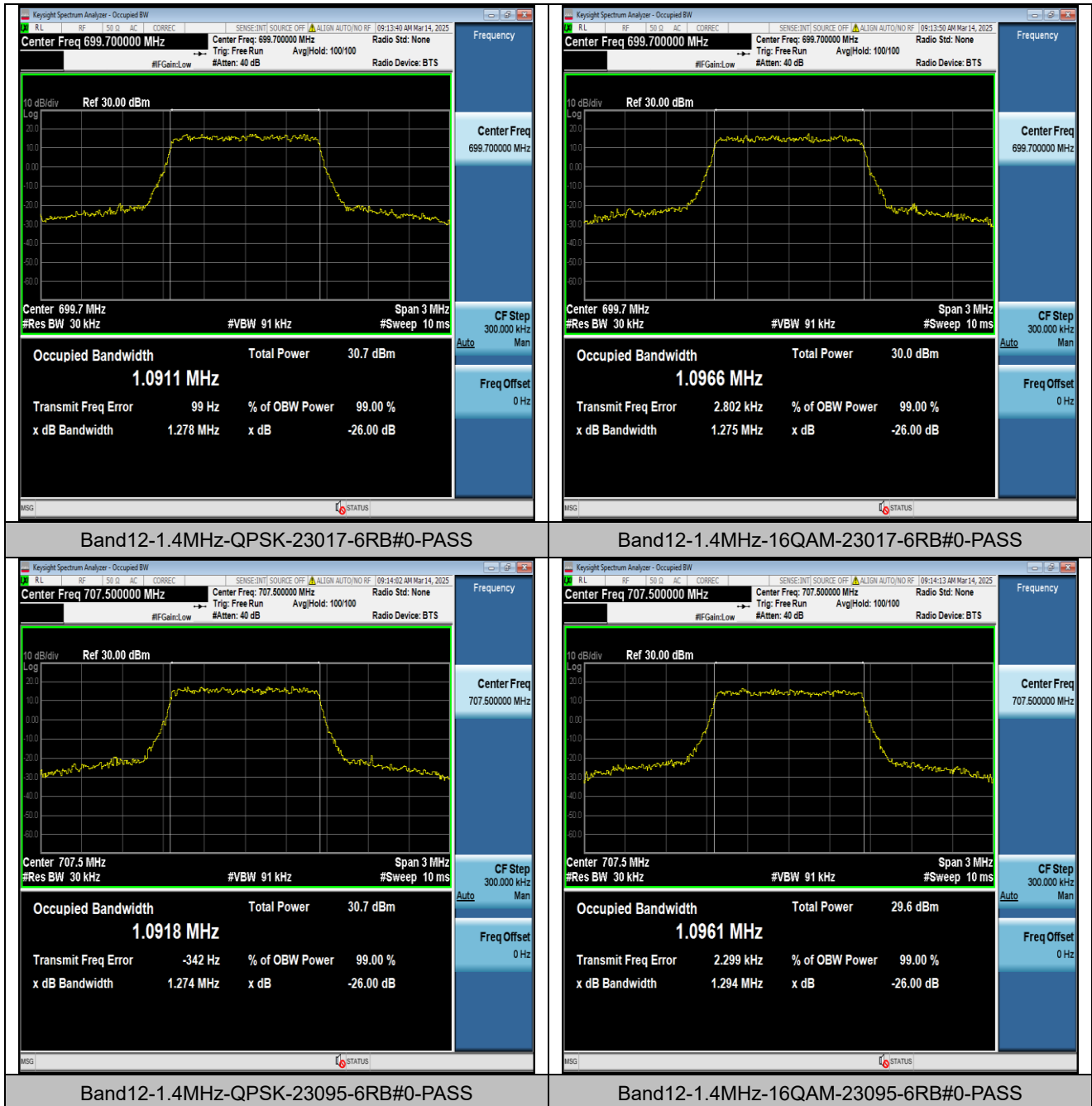


## 26dB Bandwidth and Occupied Bandwidth

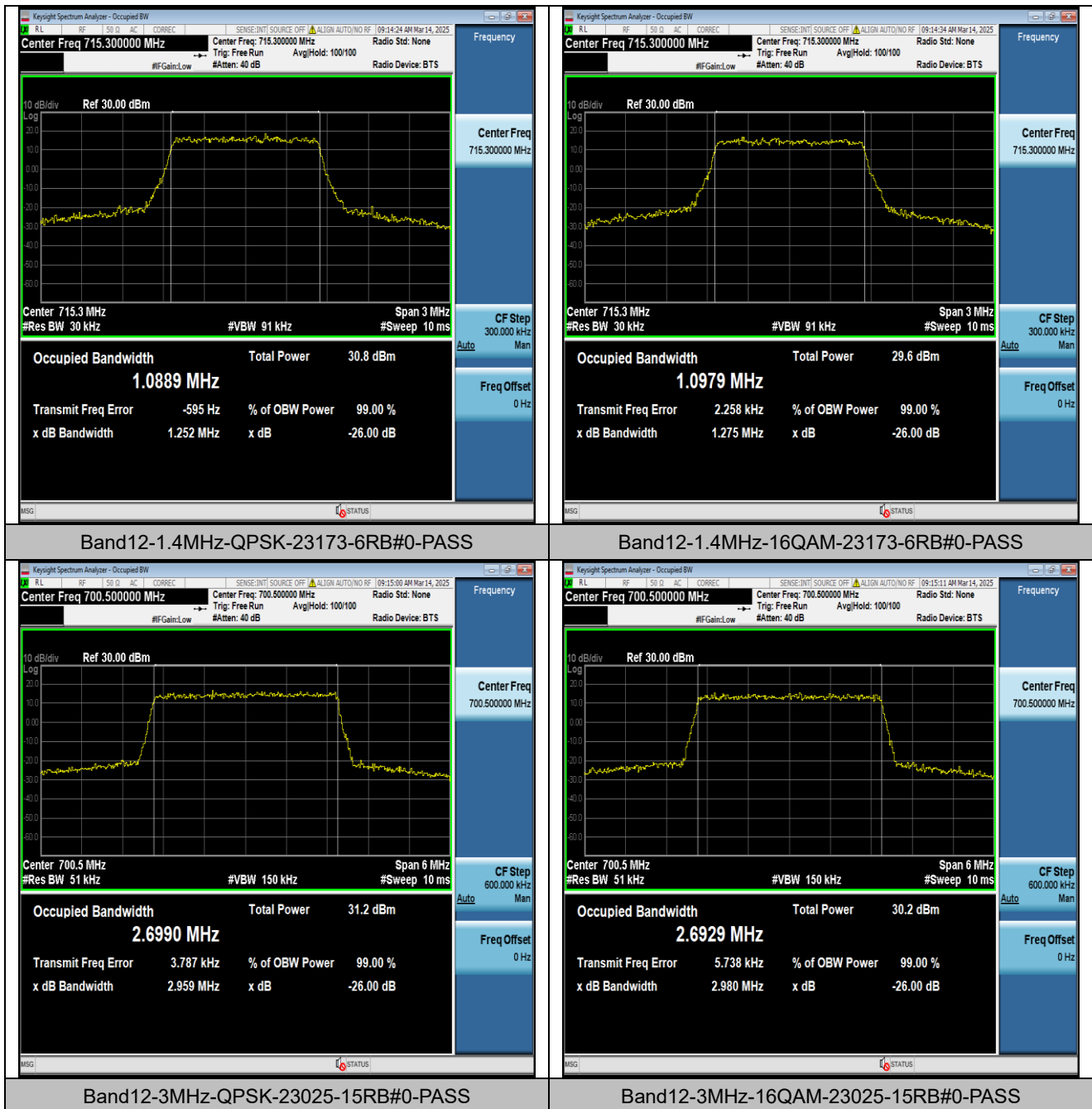
### Test Result

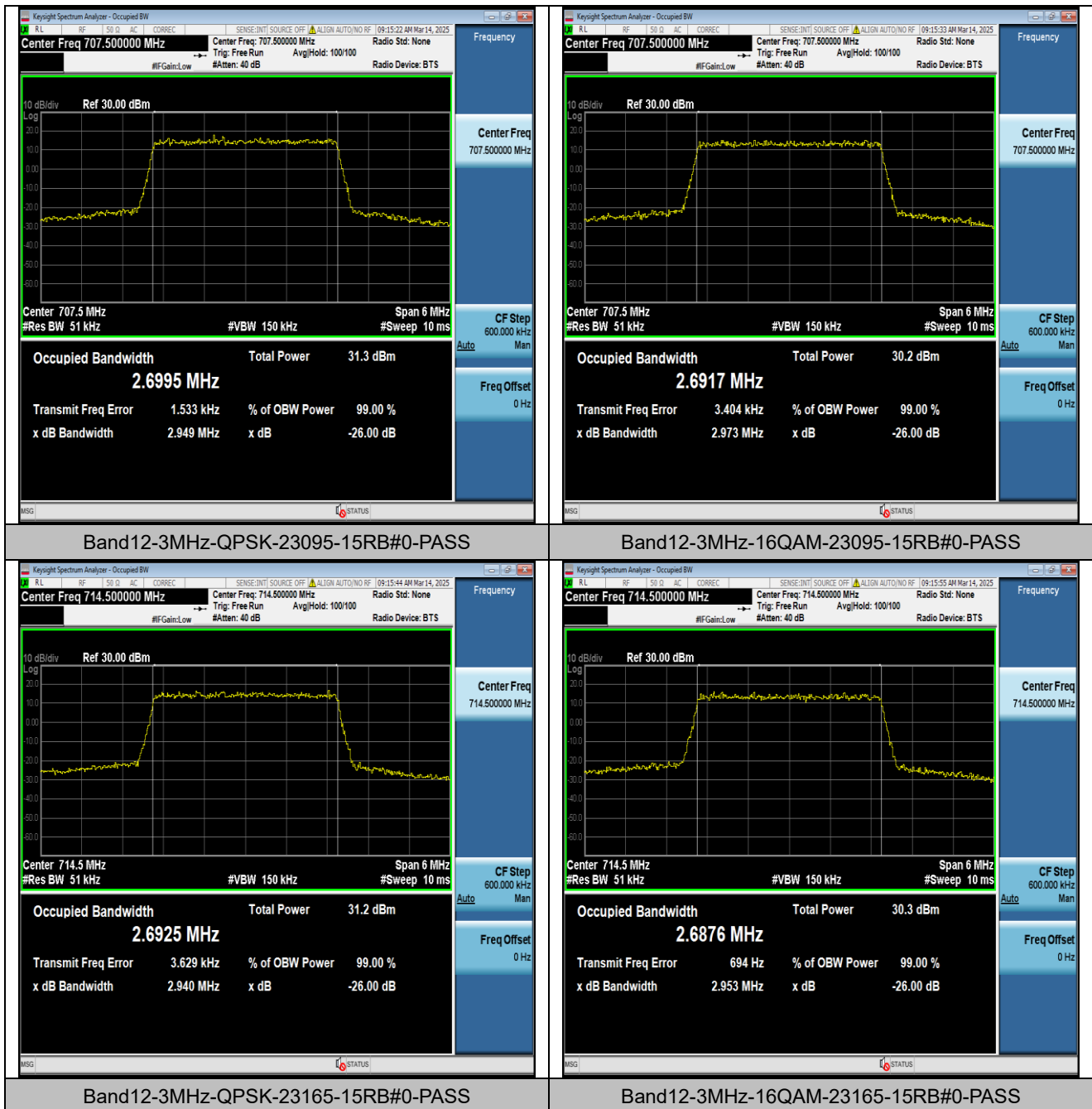
| Band   | Bandwidth | Modulation | Channel | RB Configuration | OBW (MHz) | 26dB EBW (MHz) | Verdict |
|--------|-----------|------------|---------|------------------|-----------|----------------|---------|
| Band12 | 1.4MHz    | QPSK       | 23017   | 6RB#0            | 1.0911    | 1.278          | PASS    |
| Band12 | 1.4MHz    | 16QAM      | 23017   | 6RB#0            | 1.0966    | 1.275          | PASS    |
| Band12 | 1.4MHz    | QPSK       | 23095   | 6RB#0            | 1.0918    | 1.274          | PASS    |
| Band12 | 1.4MHz    | 16QAM      | 23095   | 6RB#0            | 1.0961    | 1.294          | PASS    |
| Band12 | 1.4MHz    | QPSK       | 23173   | 6RB#0            | 1.0889    | 1.252          | PASS    |
| Band12 | 1.4MHz    | 16QAM      | 23173   | 6RB#0            | 1.0979    | 1.275          | PASS    |
| Band12 | 3MHz      | QPSK       | 23025   | 15RB#0           | 2.6990    | 2.959          | PASS    |
| Band12 | 3MHz      | 16QAM      | 23025   | 15RB#0           | 2.6929    | 2.980          | PASS    |
| Band12 | 3MHz      | QPSK       | 23095   | 15RB#0           | 2.6995    | 2.949          | PASS    |
| Band12 | 3MHz      | 16QAM      | 23095   | 15RB#0           | 2.6917    | 2.973          | PASS    |
| Band12 | 3MHz      | QPSK       | 23165   | 15RB#0           | 2.6925    | 2.940          | PASS    |
| Band12 | 3MHz      | 16QAM      | 23165   | 15RB#0           | 2.6876    | 2.953          | PASS    |
| Band12 | 5MHz      | QPSK       | 23035   | 25RB#0           | 4.4856    | 4.961          | PASS    |
| Band12 | 5MHz      | 16QAM      | 23035   | 25RB#0           | 4.4691    | 4.956          | PASS    |
| Band12 | 5MHz      | QPSK       | 23095   | 25RB#0           | 4.4830    | 4.941          | PASS    |
| Band12 | 5MHz      | 16QAM      | 23095   | 25RB#0           | 4.4780    | 4.938          | PASS    |
| Band12 | 5MHz      | QPSK       | 23155   | 25RB#0           | 4.4799    | 4.926          | PASS    |
| Band12 | 5MHz      | 16QAM      | 23155   | 25RB#0           | 4.4777    | 4.910          | PASS    |
| Band12 | 10MHz     | QPSK       | 23060   | 50RB#0           | 8.9583    | 9.812          | PASS    |
| Band12 | 10MHz     | 16QAM      | 23060   | 50RB#0           | 8.9276    | 9.719          | PASS    |
| Band12 | 10MHz     | QPSK       | 23095   | 50RB#0           | 8.9590    | 9.807          | PASS    |
| Band12 | 10MHz     | 16QAM      | 23095   | 50RB#0           | 8.9575    | 9.794          | PASS    |
| Band12 | 10MHz     | QPSK       | 23130   | 50RB#0           | 8.9524    | 9.760          | PASS    |
| Band12 | 10MHz     | 16QAM      | 23130   | 50RB#0           | 8.9469    | 9.755          | PASS    |

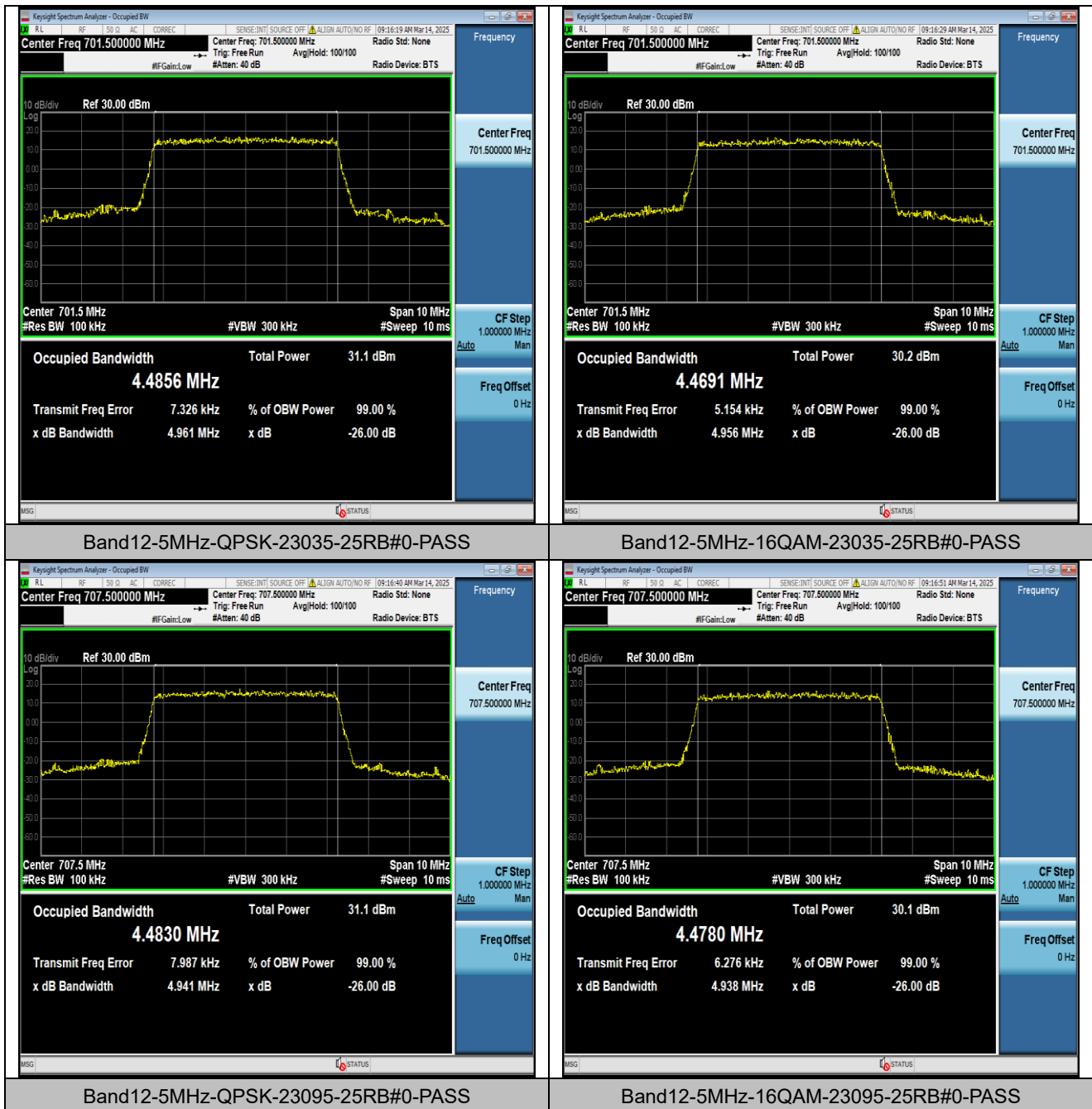
## Test Graphs

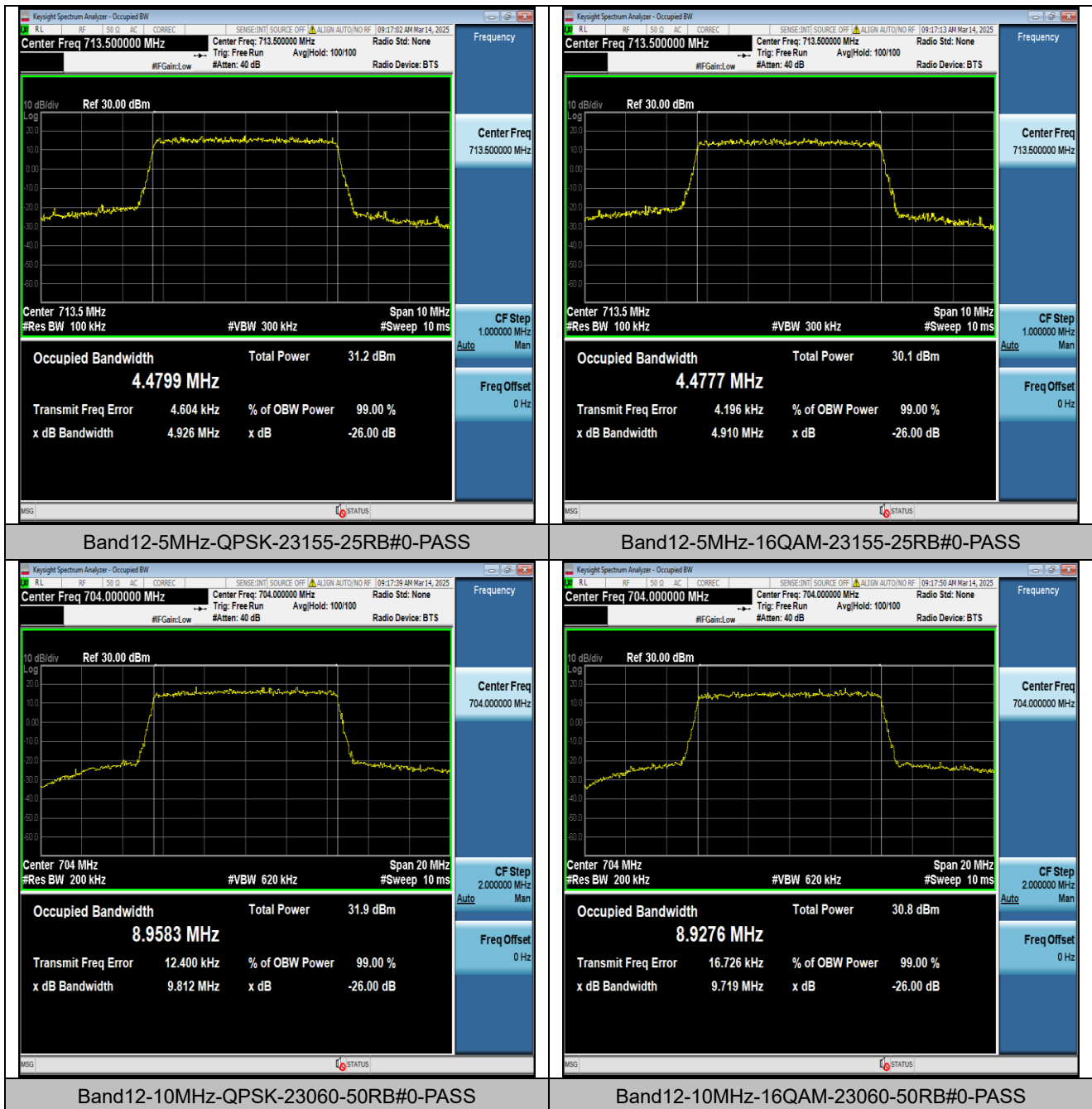


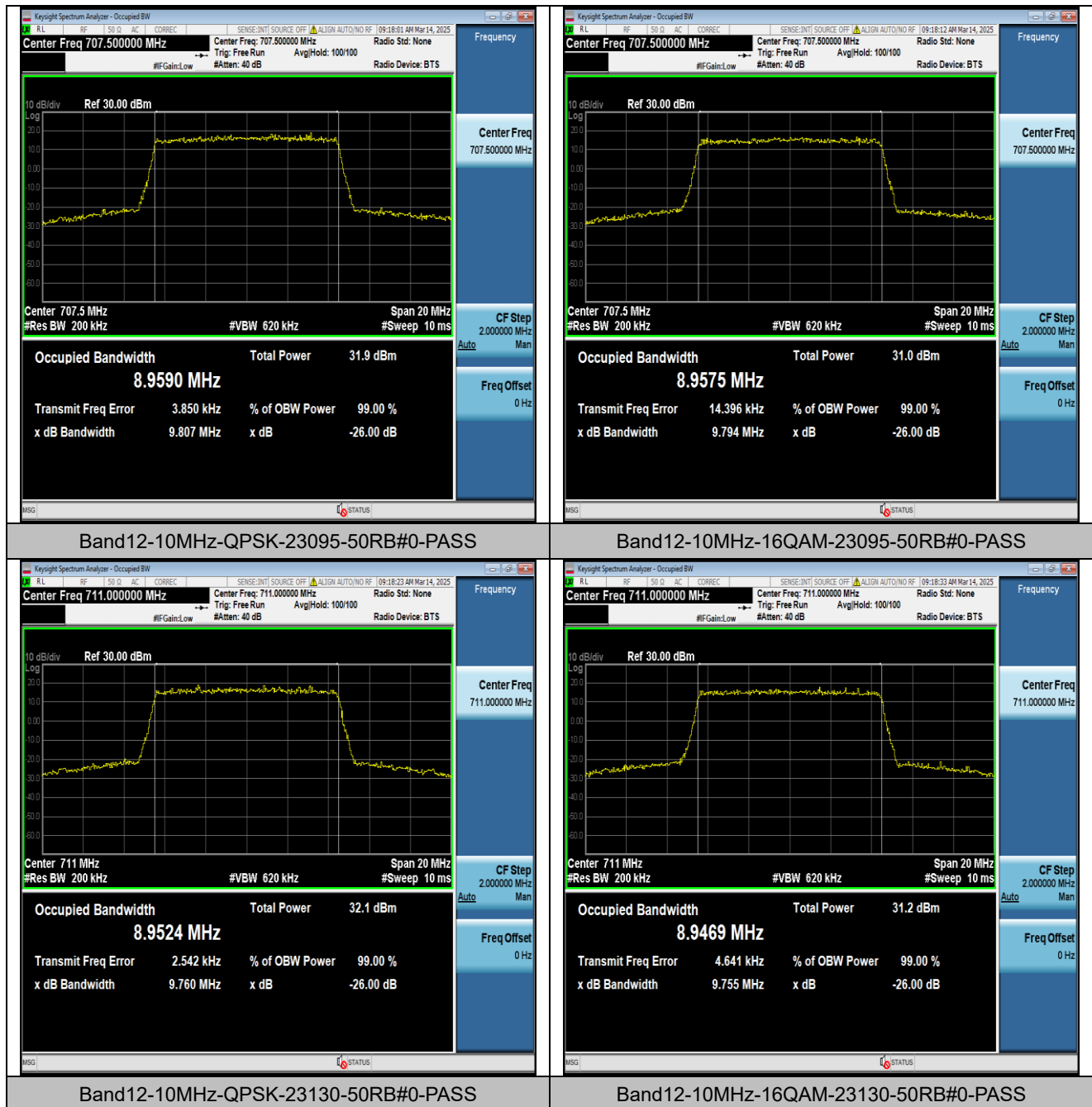






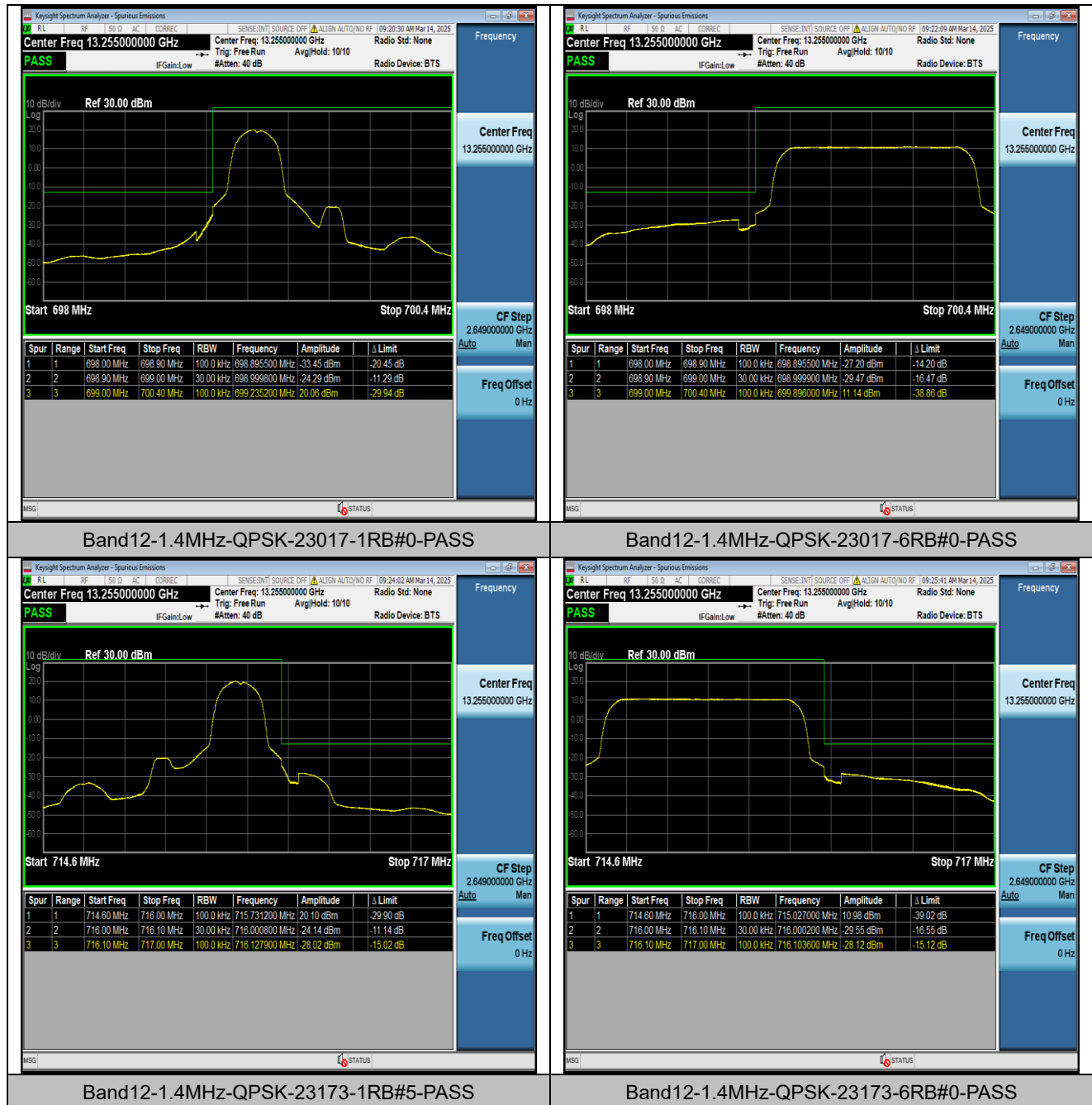


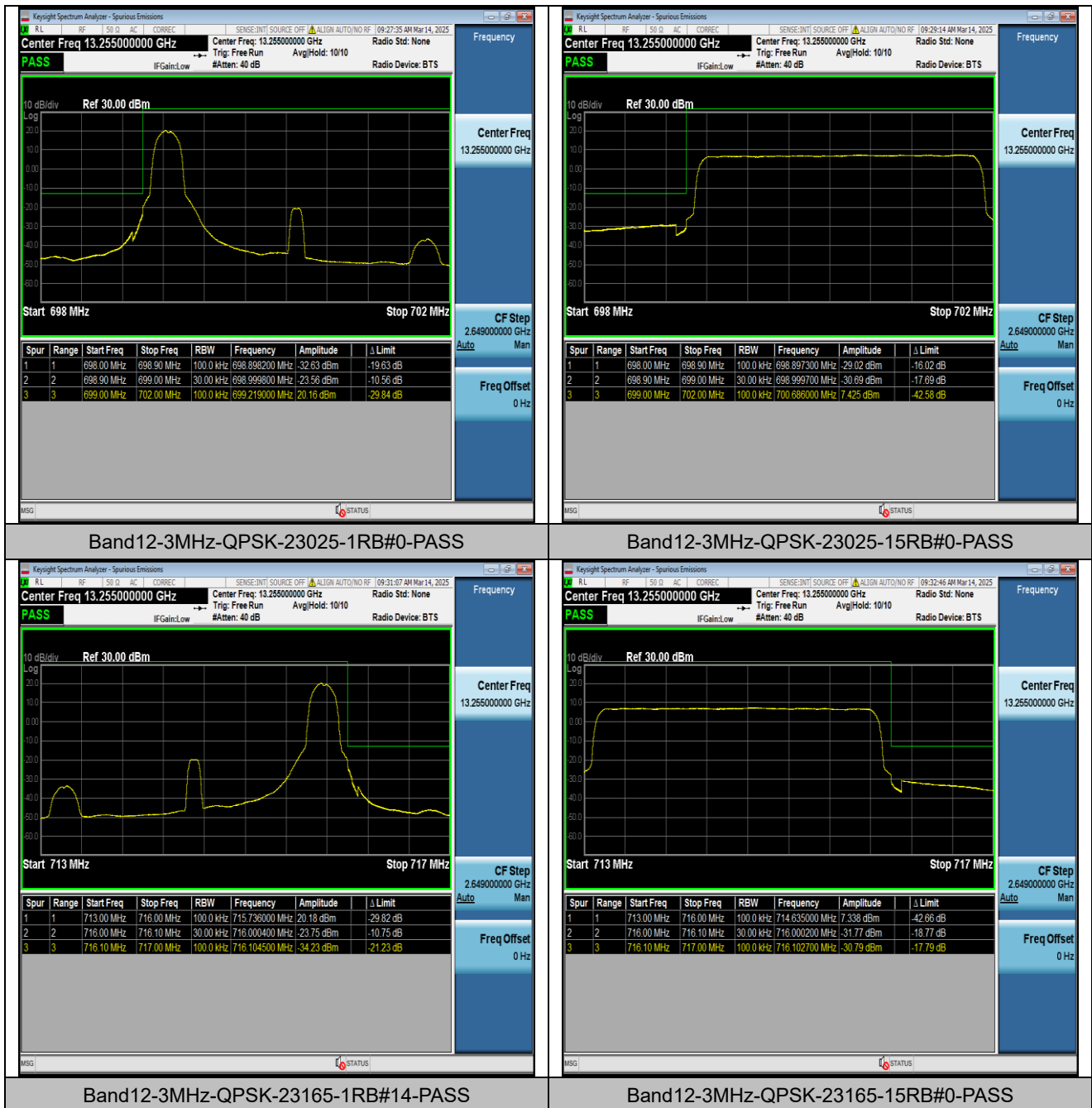


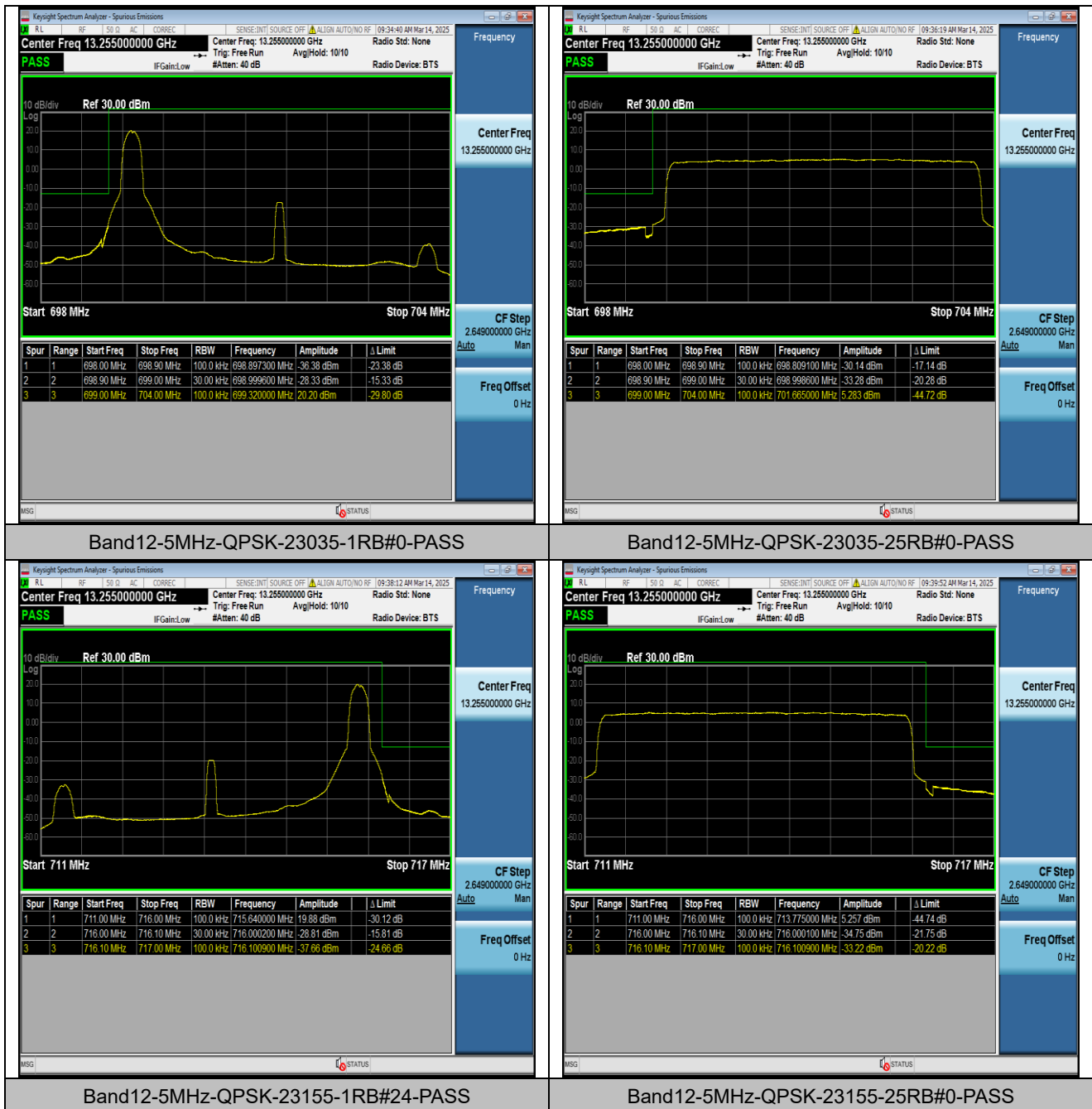


# Band Edge

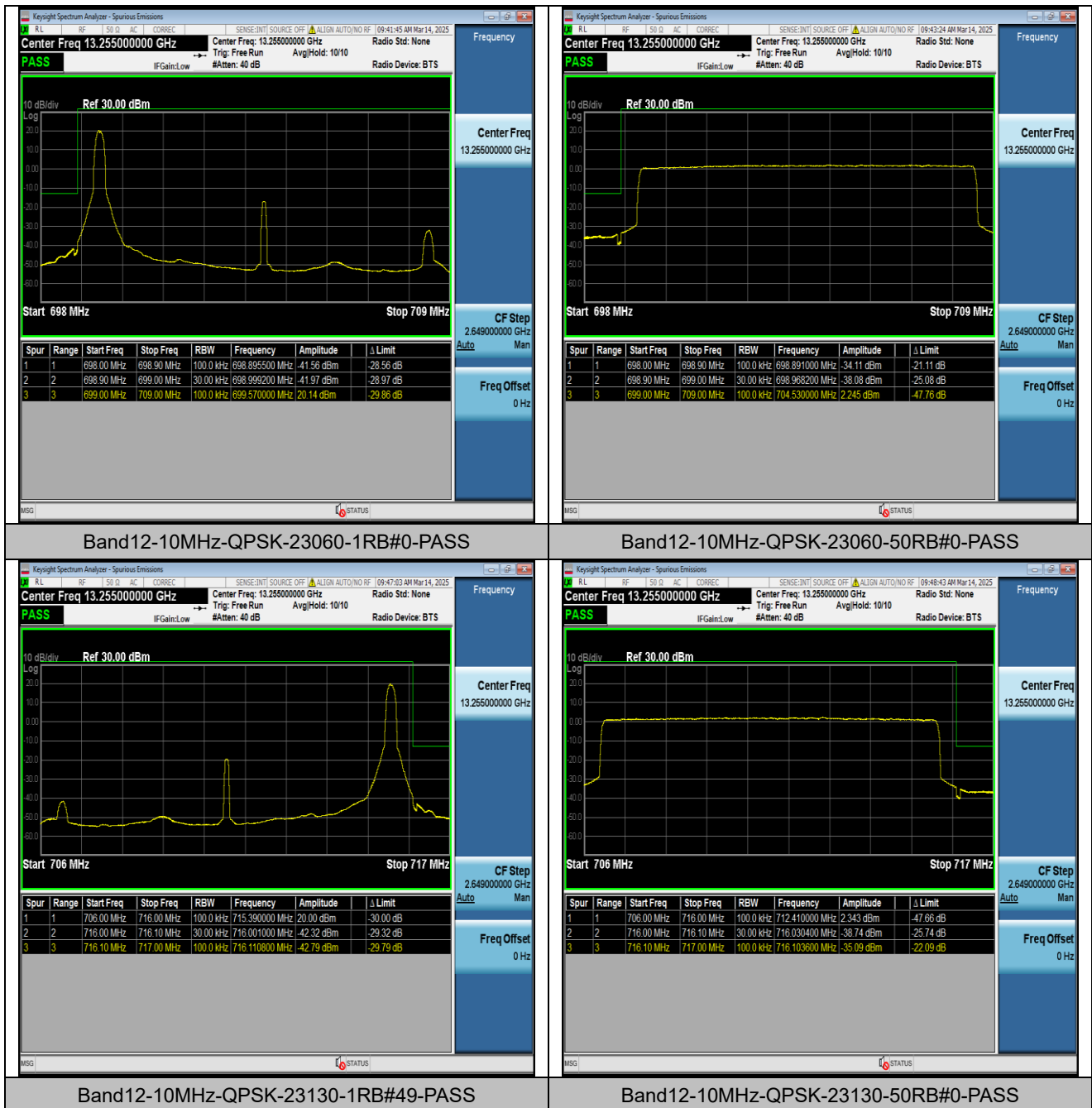
## Test Graphs





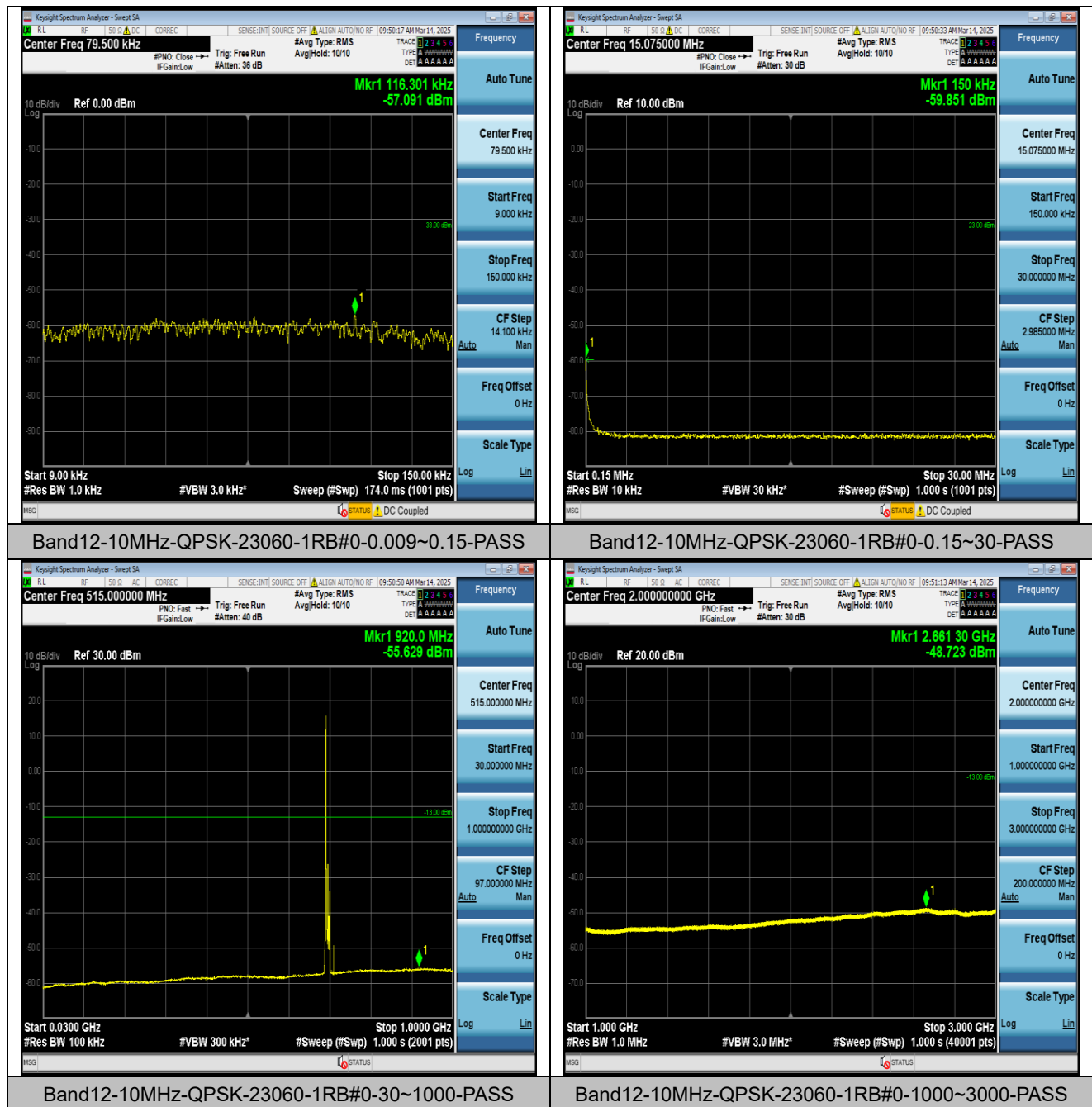


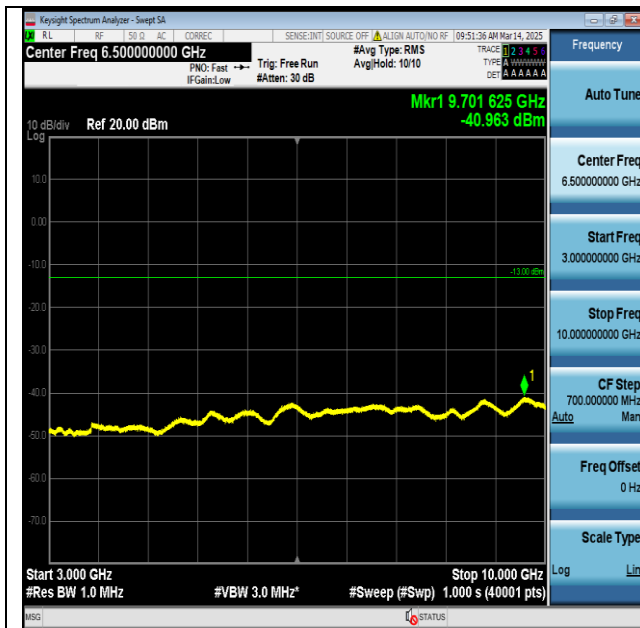




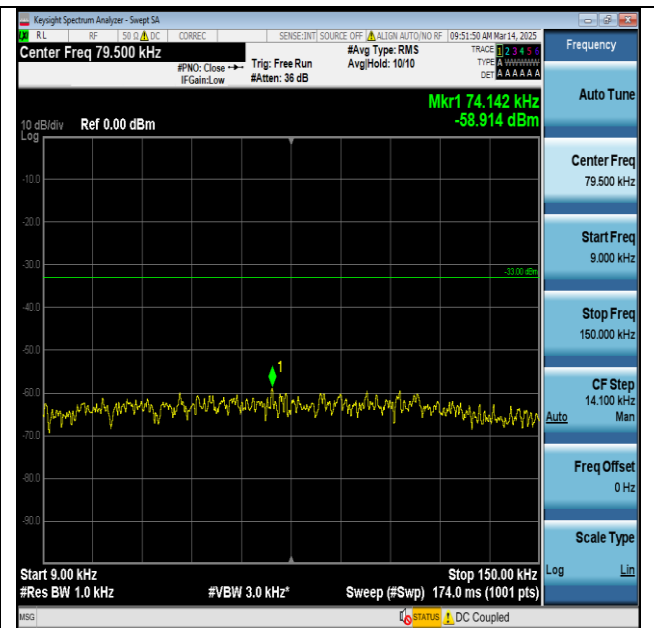
# Conducted Spurious Emission

## Test Graphs

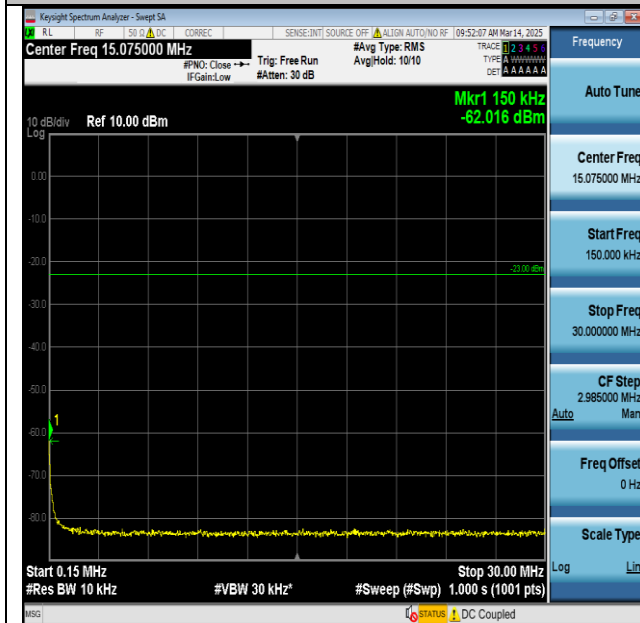




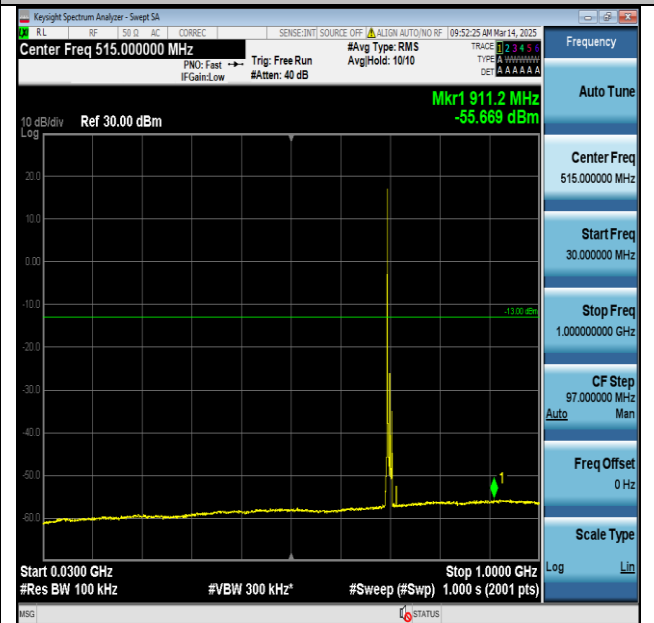
Band12-10MHz-QPSK-23060-1RB#0-3000~10000-PASS



Band12-10MHz-QPSK-23095-1RB#0-0.009~0.15-PASS



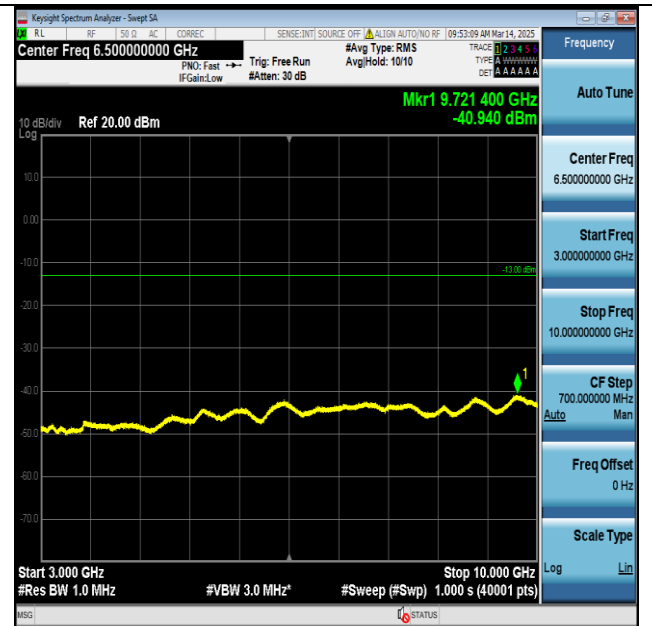
Band12-10MHz-QPSK-23095-1RB#0-0.15~30-PASS



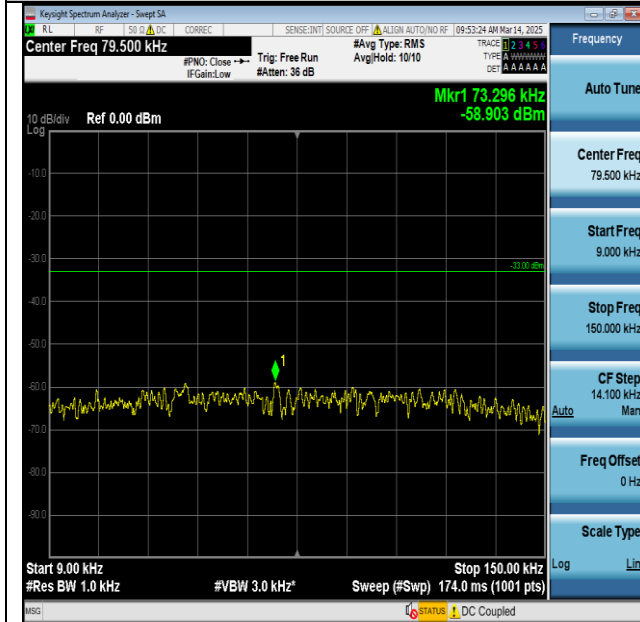
Band12-10MHz-QPSK-23095-1RB#0-30~1000-PASS



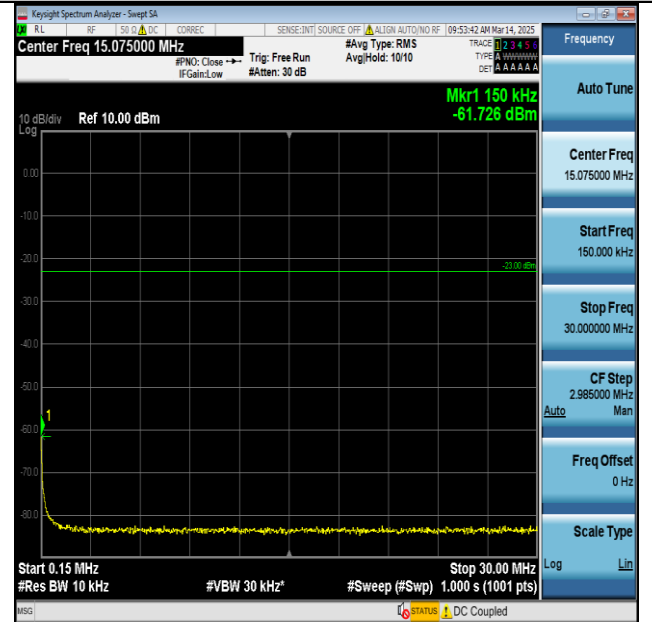
Band12-10MHz-QPSK-23095-1RB#0-1000~3000-PASS



Band12-10MHz-QPSK-23095-1RB#0-3000~10000-PASS



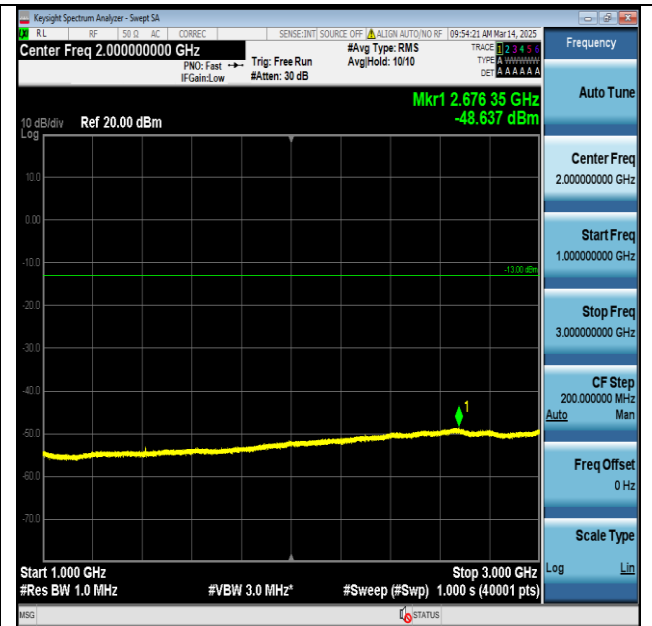
Band12-10MHz-QPSK-23130-1RB#0-0.009~0.15-PASS



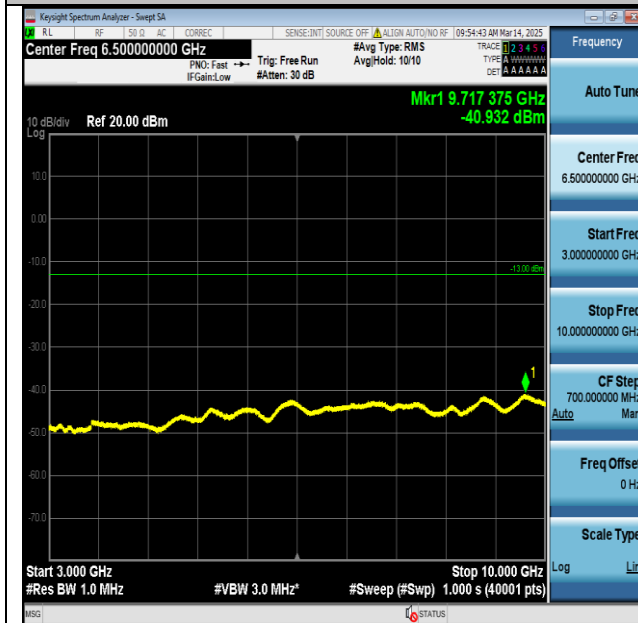
Band12-10MHz-QPSK-23130-1RB#0-0.15~30-PASS



Band12-10MHz-QPSK-23130-1RB#0-30~1000-PASS



Band12-10MHz-QPSK-23130-1RB#0-1000~3000-PASS



Band12-10MHz-QPSK-23130-1RB#0-3000~10000-PASS

## Frequency Stability

### Test Result

| Voltage |           |            |         |              |               |                  |                |                 |         |
|---------|-----------|------------|---------|--------------|---------------|------------------|----------------|-----------------|---------|
| Band    | Bandwidth | Modulation | Channel | RB Configure | Voltage [Vdc] | Temperature (°C) | Deviation (Hz) | Deviation (ppm) | Verdict |
| Band12  | 10MHz     | QPSK       | 23095   | 100RB#0      | VN            | NT               | 0.90           | 0.001272        | PASS    |
| Band12  | 10MHz     | QPSK       | 23095   | 100RB#0      | VL            | NT               | 0.40           | 0.000565        | PASS    |
| Band12  | 10MHz     | QPSK       | 23095   | 100RB#0      | VH            | NT               | 0.70           | 0.000989        | PASS    |

| Temperature |           |            |         |              |               |                  |                |                 |         |
|-------------|-----------|------------|---------|--------------|---------------|------------------|----------------|-----------------|---------|
| Band        | Bandwidth | Modulation | Channel | RB Configure | Voltage [Vdc] | Temperature (°C) | Deviation (Hz) | Deviation (ppm) | Verdict |
| Band12      | 10MHz     | QPSK       | 23095   | 100RB#0      | NV            | -30              | -0.70          | -0.000989       | PASS    |
| Band12      | 10MHz     | QPSK       | 23095   | 100RB#0      | NV            | -20              | -0.80          | -0.001131       | PASS    |
| Band12      | 10MHz     | QPSK       | 23095   | 100RB#0      | NV            | -10              | -0.10          | -0.000141       | PASS    |
| Band12      | 10MHz     | QPSK       | 23095   | 100RB#0      | NV            | 0                | -0.20          | -0.000283       | PASS    |
| Band12      | 10MHz     | QPSK       | 23095   | 100RB#0      | NV            | 10               | 0.50           | 0.000707        | PASS    |
| Band12      | 10MHz     | QPSK       | 23095   | 100RB#0      | NV            | 20               | 0.70           | 0.000989        | PASS    |
| Band12      | 10MHz     | QPSK       | 23095   | 100RB#0      | NV            | 30               | 0.60           | 0.000848        | PASS    |
| Band12      | 10MHz     | QPSK       | 23095   | 100RB#0      | NV            | 40               | -0.40          | -0.000565       | PASS    |
| Band12      | 10MHz     | QPSK       | 23095   | 100RB#0      | NV            | 50               | 0.10           | 0.000141        | PASS    |

~The End~