



## Appendix A

### RF Test Data for BLE (Conducted Measurement)

Product Name: LED Controller

Test Model: LX-RGBIC

#### Environmental Conditions

|                    |           |
|--------------------|-----------|
| Temperature:       | 24.6° C   |
| Relative Humidity: | 54.1%     |
| ATM Pressure:      | 100.0 kPa |
| Test Engineer:     | Bill Zhu  |
| Supervised by:     | Li Huan   |

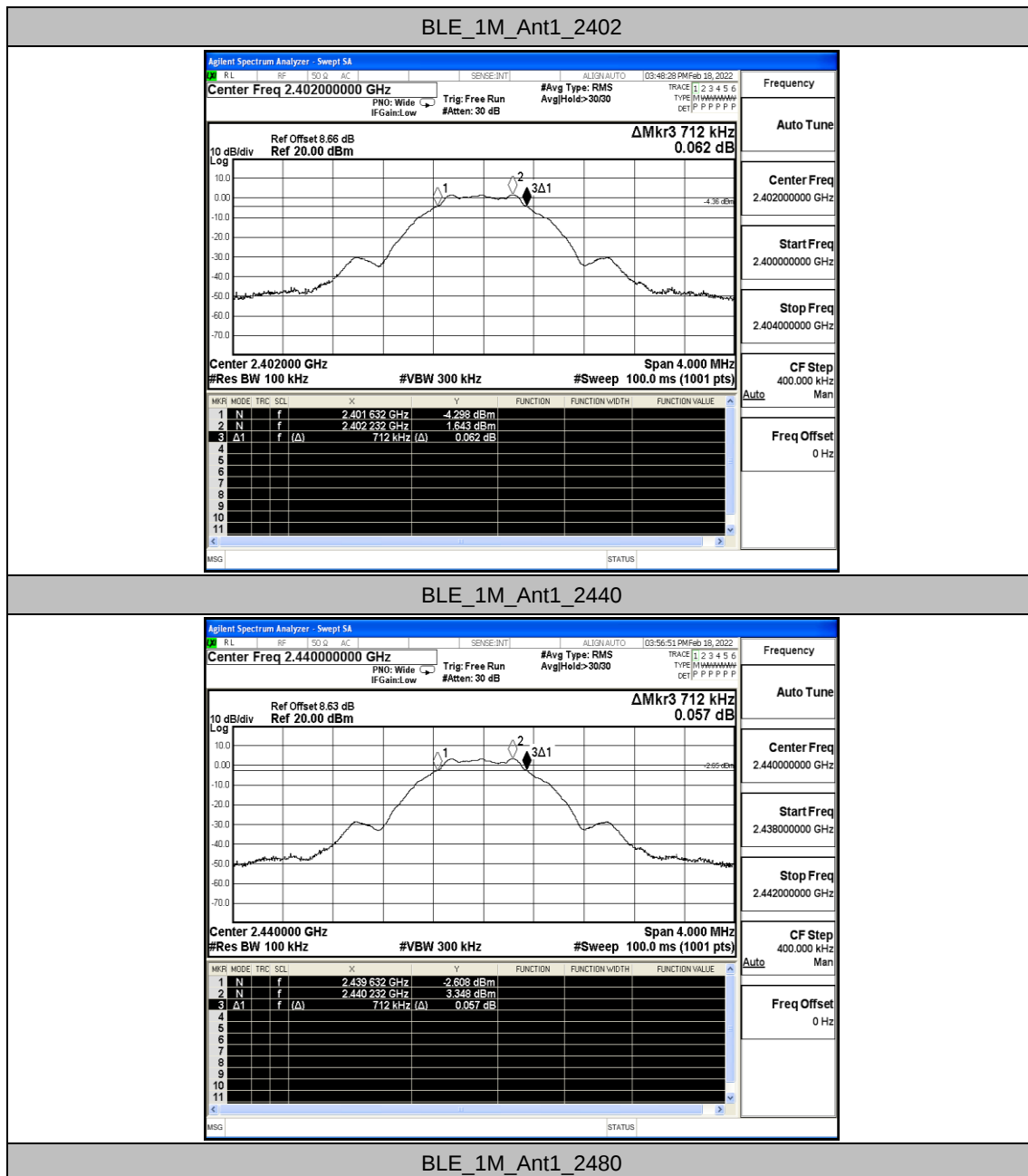


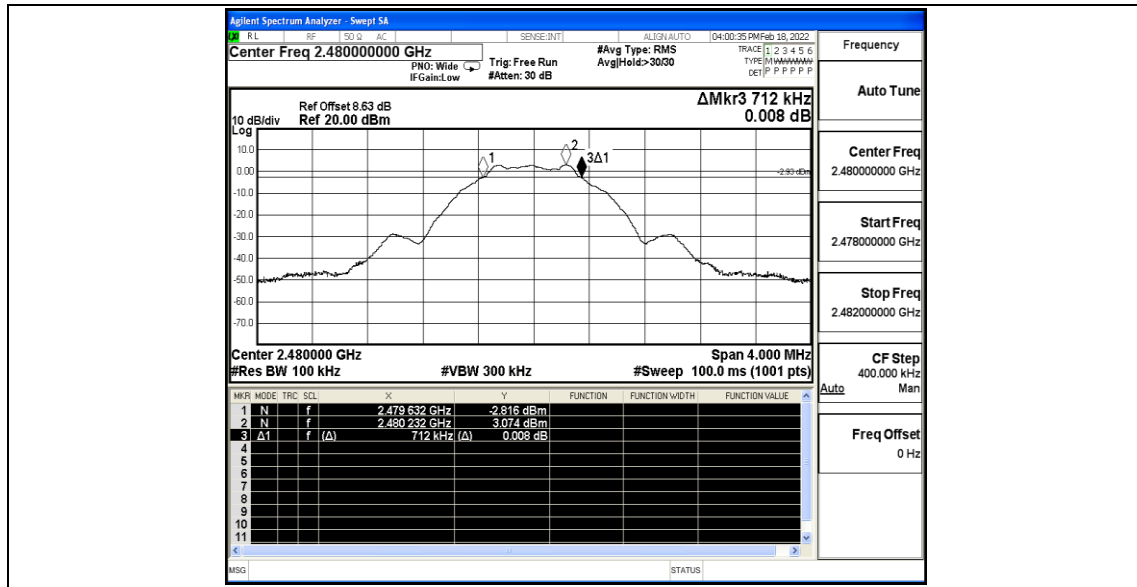
## A.1 6dB Bandwidth

### Test Result

| TestMode | Antenna | Channel | DTS BW [MHz] | FL[MHz]  | FH[MHz]  | Limit[MHz] | Verdict |
|----------|---------|---------|--------------|----------|----------|------------|---------|
| BLE_1M   | Ant1    | 2402    | 0.712        | 2401.632 | 2402.344 | 0.5        | PASS    |
|          |         | 2440    | 0.712        | 2439.632 | 2440.344 | 0.5        | PASS    |
|          |         | 2480    | 0.712        | 2479.632 | 2480.344 | 0.5        | PASS    |

### Test Graphs





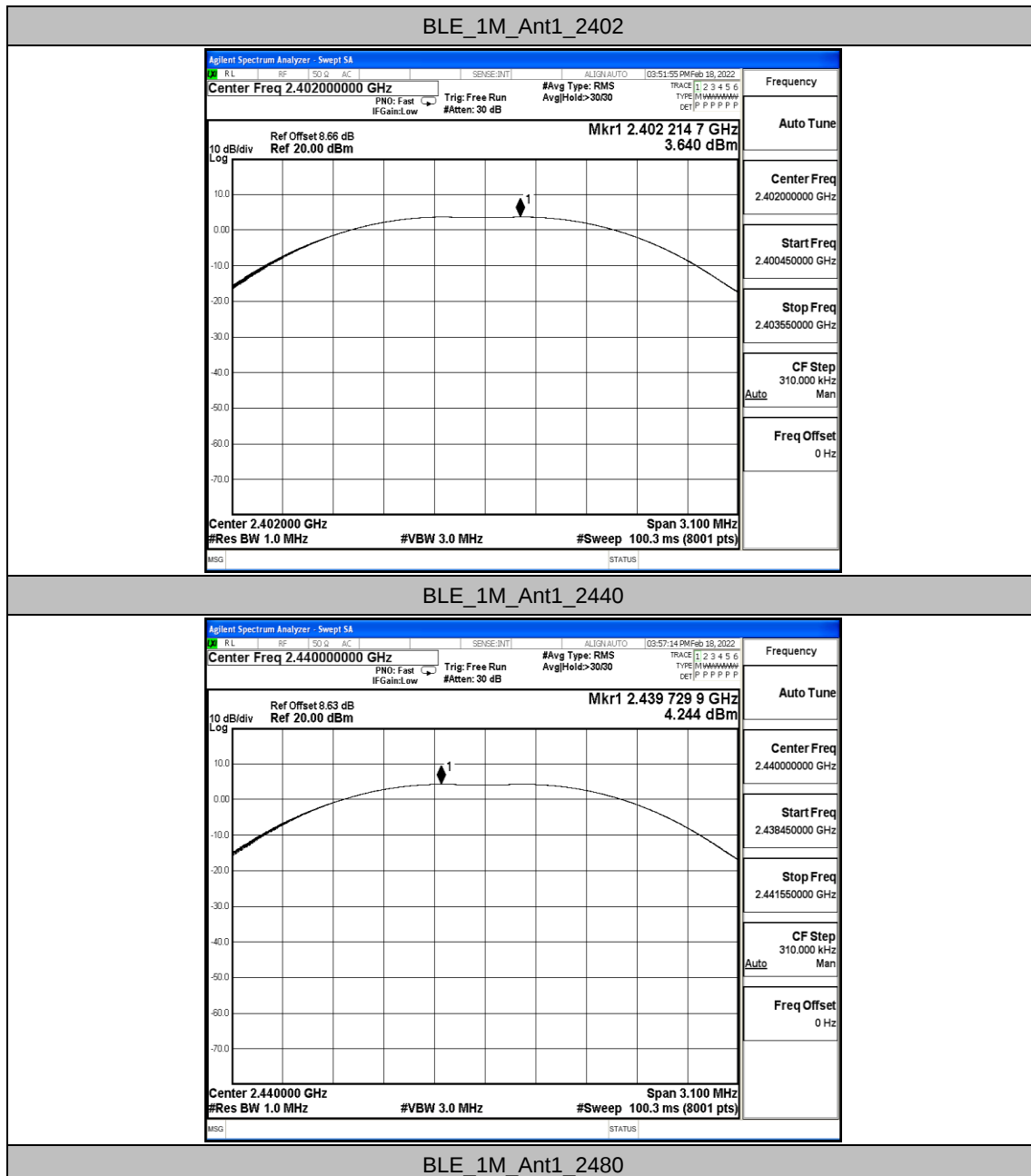


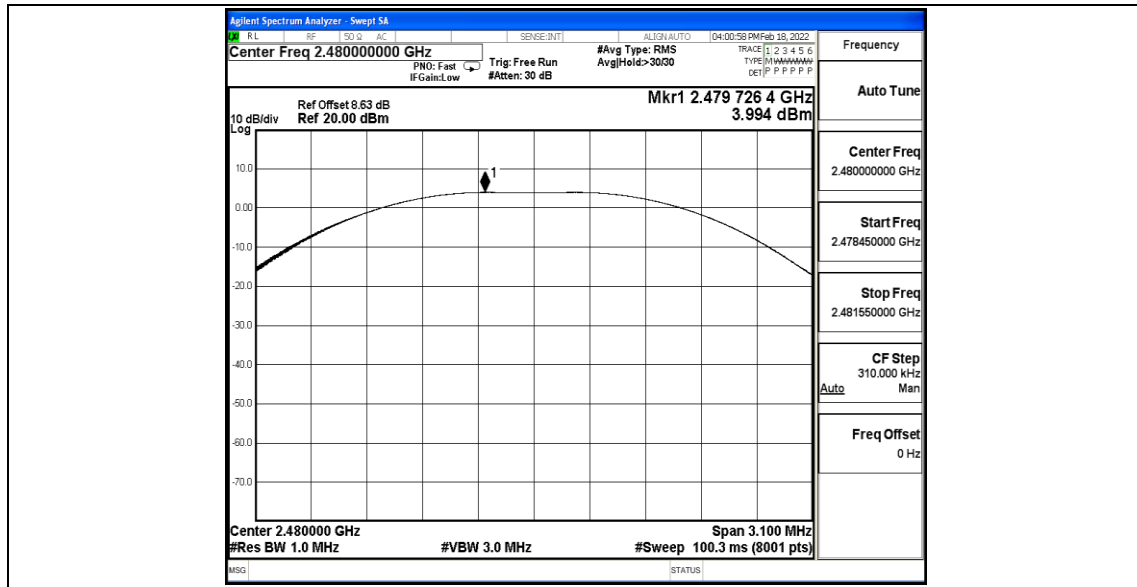
## A.2 Maximum conducted output power

### Test Result

| TestMode | Antenna | Channel | Result[dBm] | Limit[dBm] | Verdict |
|----------|---------|---------|-------------|------------|---------|
| BLE_1M   | Ant1    | 2402    | 3.64        | ≤30        | PASS    |
|          |         | 2440    | 4.24        | ≤30        | PASS    |
|          |         | 2480    | 3.99        | ≤30        | PASS    |

### Test Graphs





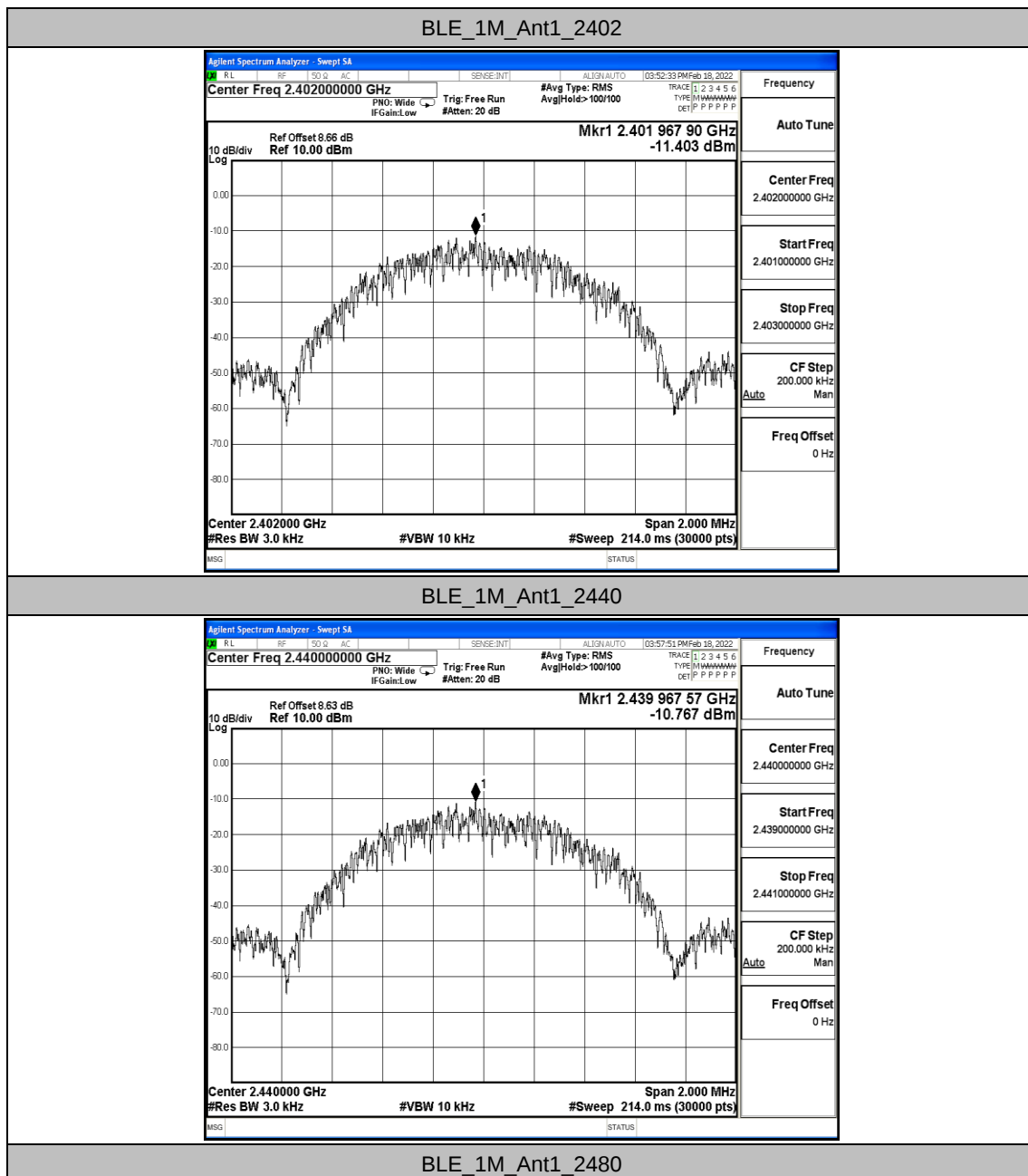


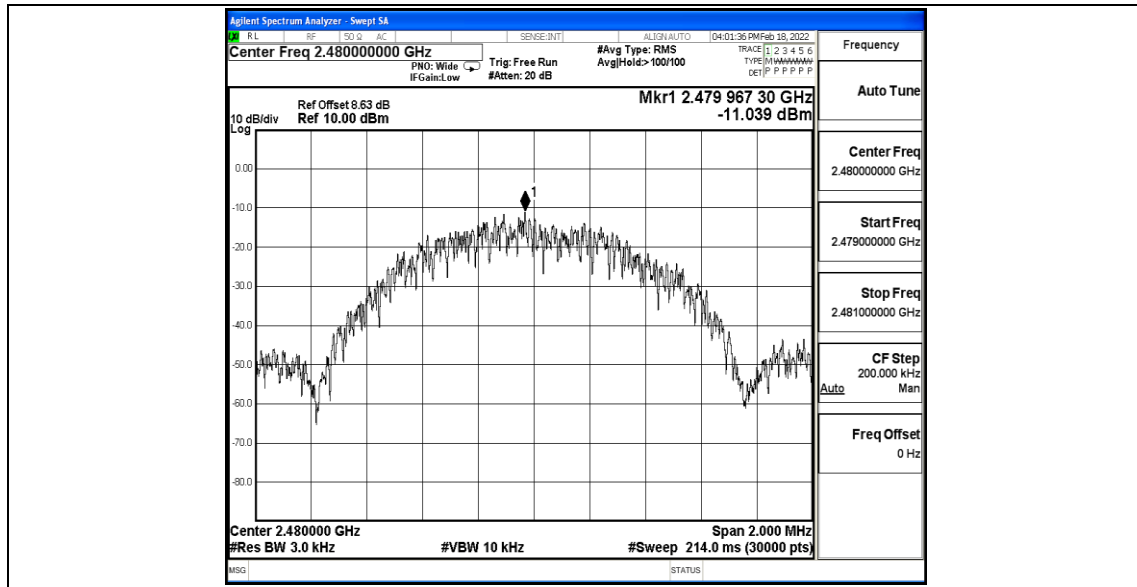
## A.3 Maximum power spectral density

### Test Result

| TestMode | Antenna | Channel | Result[dBm/3kHz] | Limit[dBm/3kHz] | Verdict |
|----------|---------|---------|------------------|-----------------|---------|
| BLE_1M   | Ant1    | 2402    | -11.4            | ≤8.00           | PASS    |
|          |         | 2440    | -10.77           | ≤8.00           | PASS    |
|          |         | 2480    | -11.04           | ≤8.00           | PASS    |

### Test Graphs





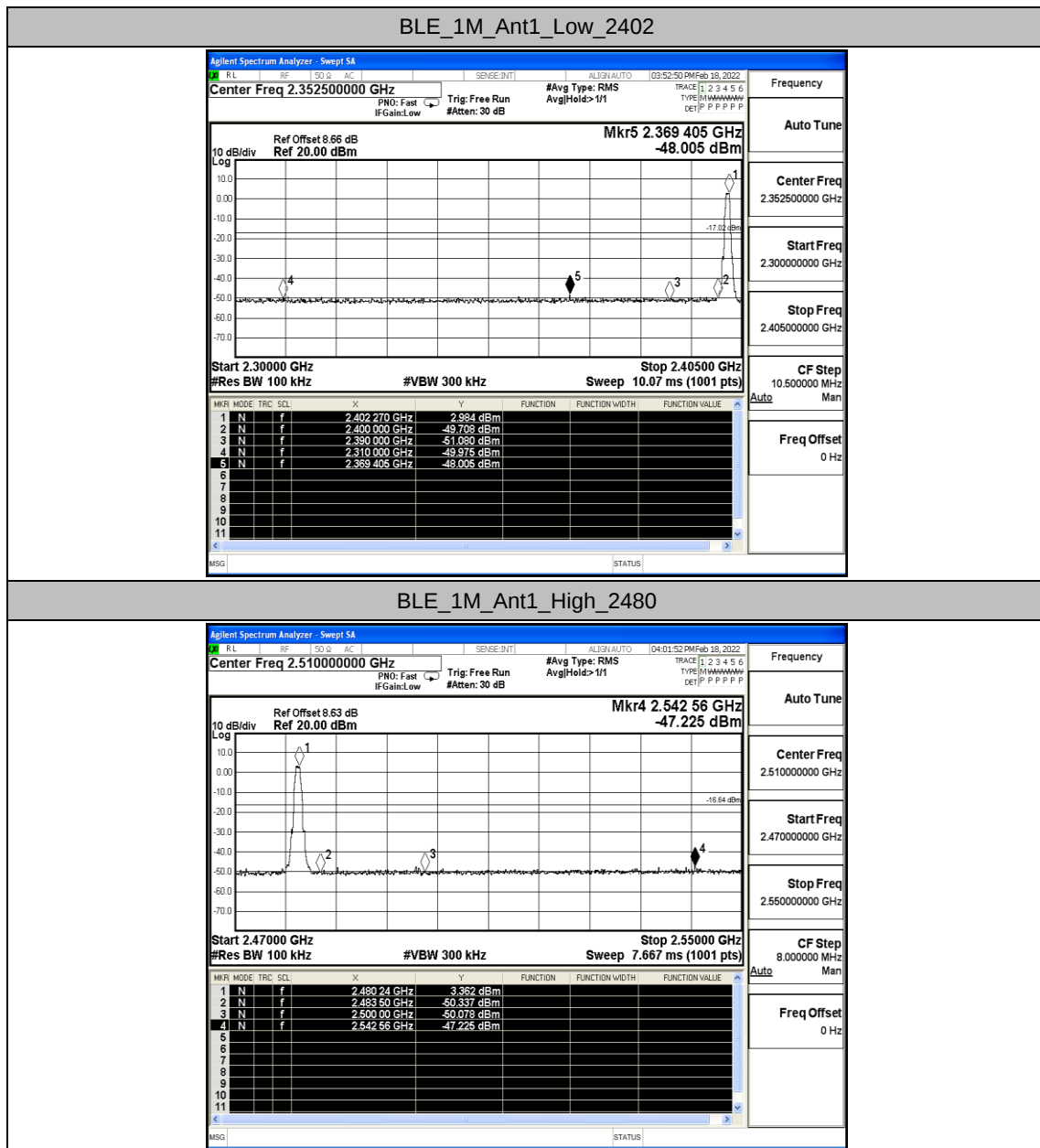


## A.4 Band edge measurements

### Test Result

| TestMode | Antenna | ChName | Channel | RefLevel[dBm] | Result[dBm] | Limit[dBm] | Verdict |
|----------|---------|--------|---------|---------------|-------------|------------|---------|
| BLE_1M   | Ant1    | Low    | 2402    | 2.98          | -48.01      | ≤-17.02    | PASS    |
|          |         | High   | 2480    | 3.36          | -47.23      | ≤-16.64    | PASS    |

### Test Graphs



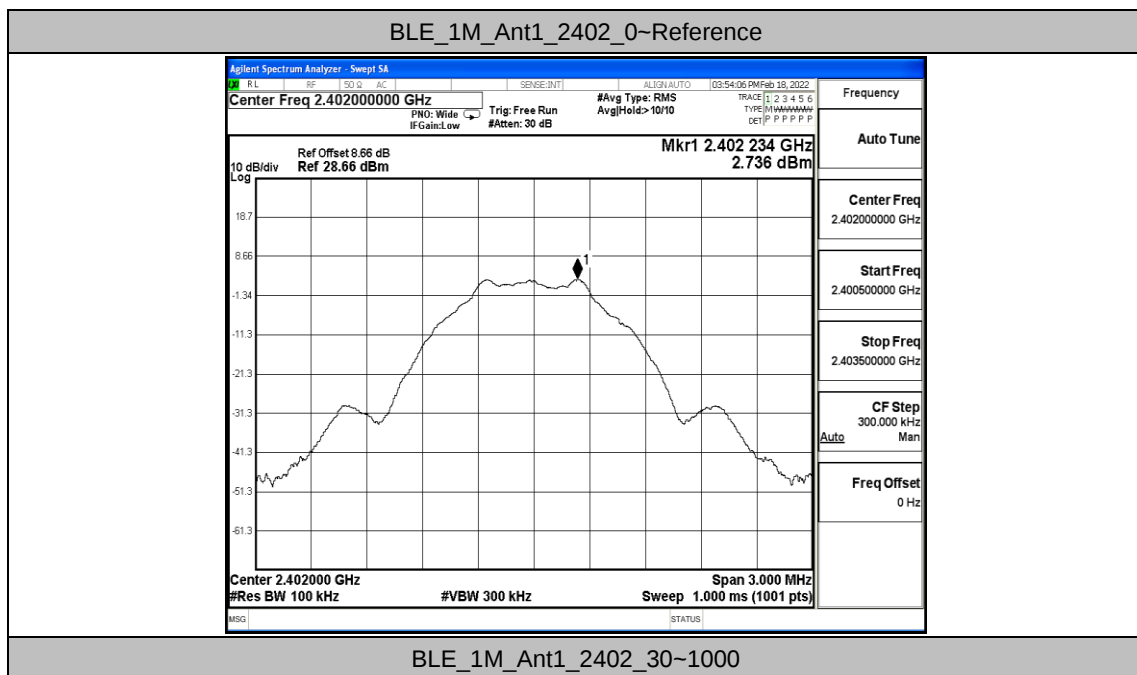


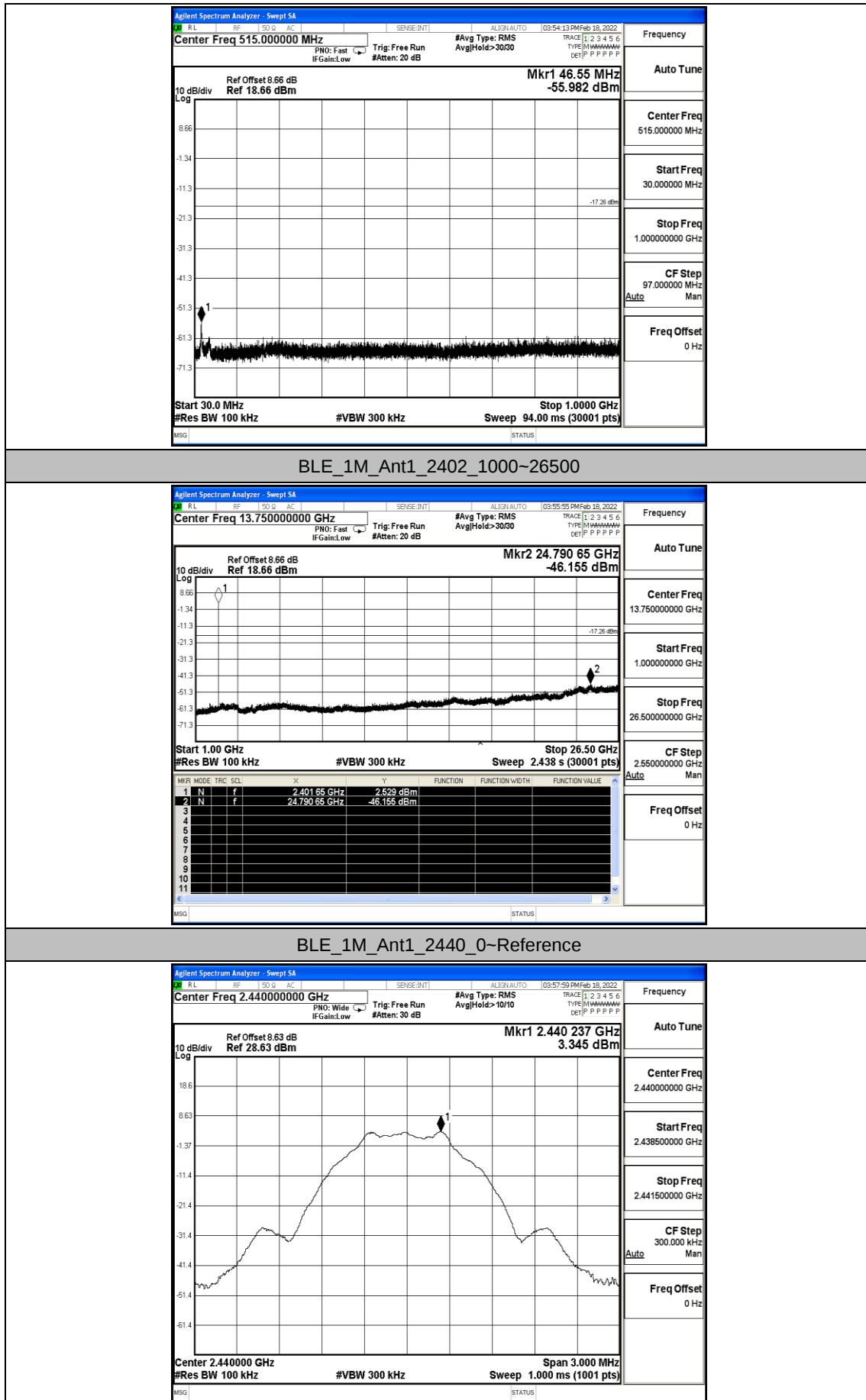
## A.5 Conducted Spurious Emission

### Test Result

| TestMode | Antenna | Channel | FreqRange [MHz] | RefLevel [dBm] | Result[dBm] | Limit[dBm] | Verdict |
|----------|---------|---------|-----------------|----------------|-------------|------------|---------|
| BLE_1M   | Ant1    | 2402    | Reference       | 2.74           | 2.74        | ---        | PASS    |
|          |         |         | 30~1000         | 2.74           | -55.98      | ≤-17.26    | PASS    |
|          |         |         | 1000~26500      | 2.74           | -46.16      | ≤-17.26    | PASS    |
|          |         | 2440    | Reference       | 3.35           | 3.35        | ---        | PASS    |
|          |         |         | 30~1000         | 3.35           | -56.78      | ≤-16.65    | PASS    |
|          |         |         | 1000~26500      | 3.35           | -46.53      | ≤-16.65    | PASS    |
|          |         | 2480    | Reference       | 3.10           | 3.10        | ---        | PASS    |
|          |         |         | 30~1000         | 3.10           | -53.21      | ≤-16.9     | PASS    |
|          |         |         | 1000~26500      | 3.10           | -46.51      | ≤-16.9     | PASS    |

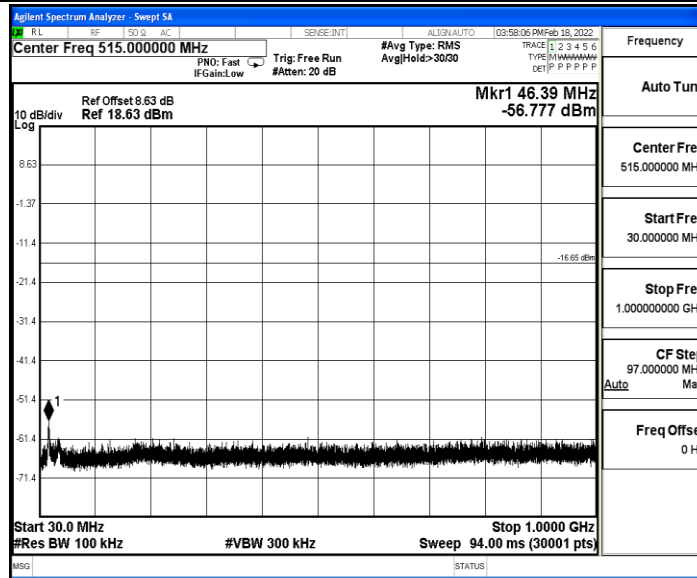
### Test Graphs



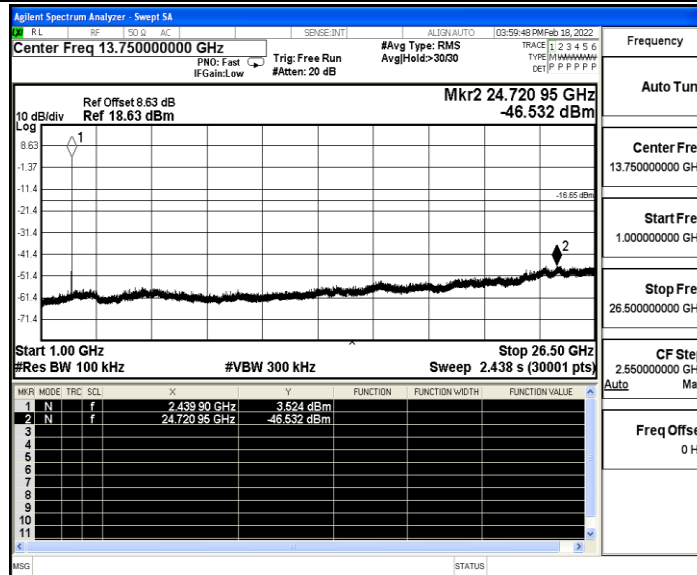




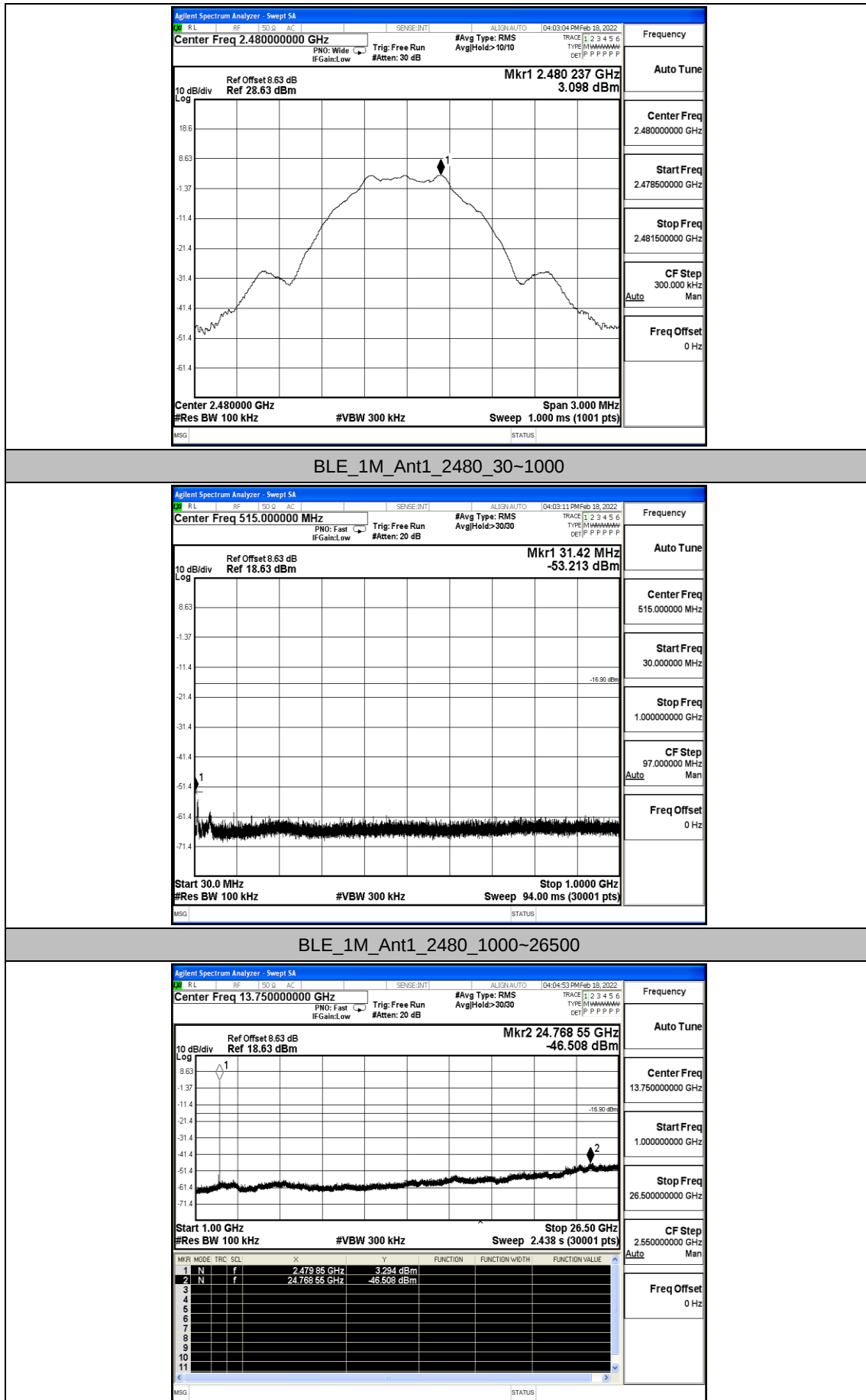
BLE\_1M\_Ant1\_2440\_30~1000



BLE\_1M\_Ant1\_2440\_1000~26500



BLE\_1M\_Ant1\_2480\_0~Reference



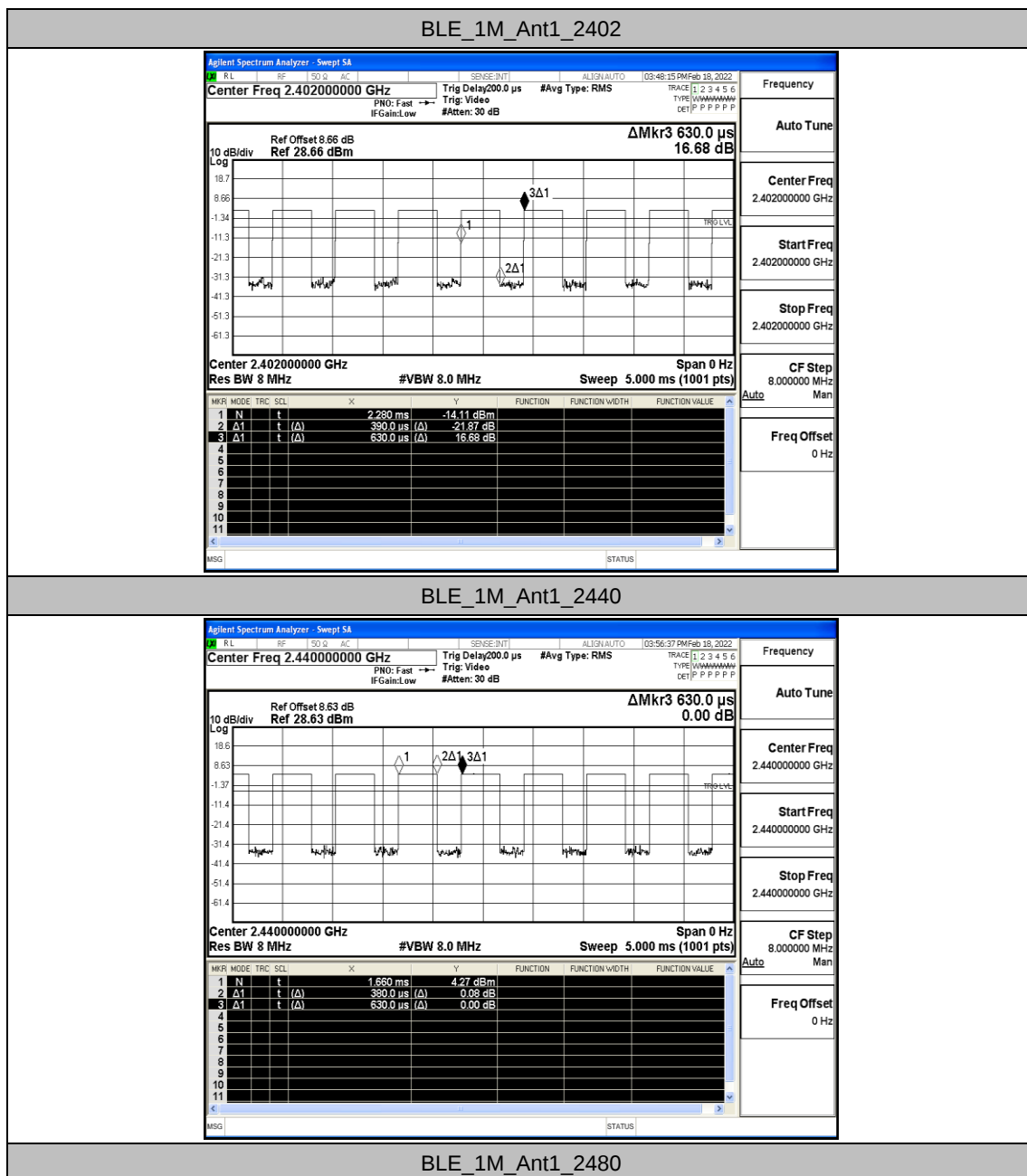


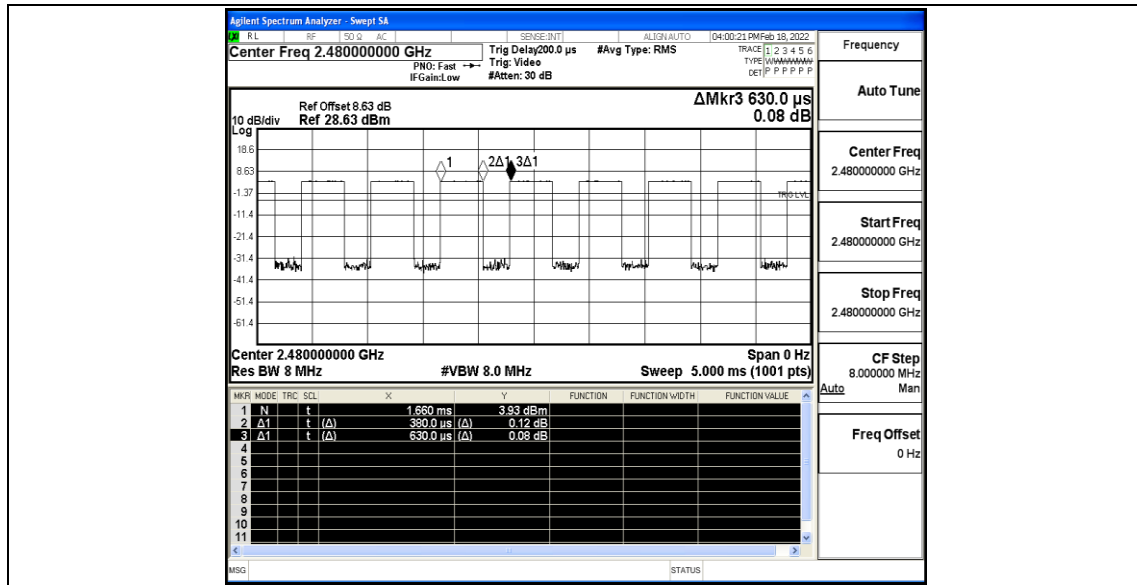
## A.6 Duty Cycle

### Test Result

| TestMode | Antenna | Channel | ON Time [ms] | Period [ms] | X      | DC [%] | xFactor | Limit | Verdict |
|----------|---------|---------|--------------|-------------|--------|--------|---------|-------|---------|
| BLE_1M   | Ant1    | 2402    | 0.39         | 0.63        | 0.6190 | 61.90  | 2.08    | ---   | ---     |
|          |         | 2440    | 0.38         | 0.63        | 0.6032 | 60.32  | 2.20    | ---   | ---     |
|          |         | 2480    | 0.38         | 0.63        | 0.6032 | 60.32  | 2.20    | ---   | ---     |

### Test Graphs







## A.7 Emissions in Restricted Bands

### Test Result

| TestMode | Channel | Detector | Freq.<br>[MHz] | Result<br>[dBm] | Limit<br>[dBm] | Result<br>[dBuV/m] | Limit<br>[dBuV/m] | Verdict |
|----------|---------|----------|----------------|-----------------|----------------|--------------------|-------------------|---------|
| BLE_1M   | 2402    | AV       | 2310.000       | -47.72          | ≤-41.20        | 47.48              | ≤54               | PASS    |
|          |         | AV       | 2389.250       | -46.78          | ≤-41.20        | 48.42              | ≤54               | PASS    |
|          |         | AV       | 2390.000       | -47.29          | ≤-41.20        | 47.91              | ≤54               | PASS    |
|          |         | Peak     | 2310.000       | -38.63          | ≤-21.20        | 56.57              | ≤74               | PASS    |
|          |         | Peak     | 2354.705       | -36.34          | ≤-21.20        | 58.86              | ≤74               | PASS    |
|          |         | Peak     | 2390.000       | -37.76          | ≤-21.20        | 57.44              | ≤74               | PASS    |
|          | 2480    | AV       | 2483.500       | -45.93          | ≤-41.20        | 49.27              | ≤54               | PASS    |
|          |         | AV       | 2483.520       | -45.93          | ≤-41.20        | 49.27              | ≤54               | PASS    |
|          |         | AV       | 2500.000       | -46.7           | ≤-41.20        | 48.50              | ≤54               | PASS    |
|          |         | Peak     | 2483.500       | -38.53          | ≤-21.20        | 56.67              | ≤74               | PASS    |
|          |         | Peak     | 2497.680       | -36.42          | ≤-21.20        | 58.78              | ≤74               | PASS    |
|          |         | Peak     | 2500.000       | -37.57          | ≤-21.20        | 57.63              | ≤74               | PASS    |

Note:

1. The Antenna Gain is compensated in the graph.
2. The limit in dBm for average detector is conversion from 54dBuV/m, according to 15.209(a). The limit in dBm for peak detector is 20dB above the limit of average detector in dBm.



## Test Graphs

