

## RF Test Data for LTE (Conducted Measurement)

Product Name: tempmate-GM2

Trade Mark: tempmate

Test Model: GM2-000

Sample ID: CTA240222011-1#

FCC ID: 2A3GU-GM2

## Environmental Conditions

|                    |           |
|--------------------|-----------|
| Temperature:       | 25.5°C    |
| Relative Humidity: | 55%       |
| ATM Pressure:      | 100.0 kPa |
| Test Engineer:     | Anna Hu   |
| Supervised by:     | Hugo Chen |
| NOTE               | N/A       |

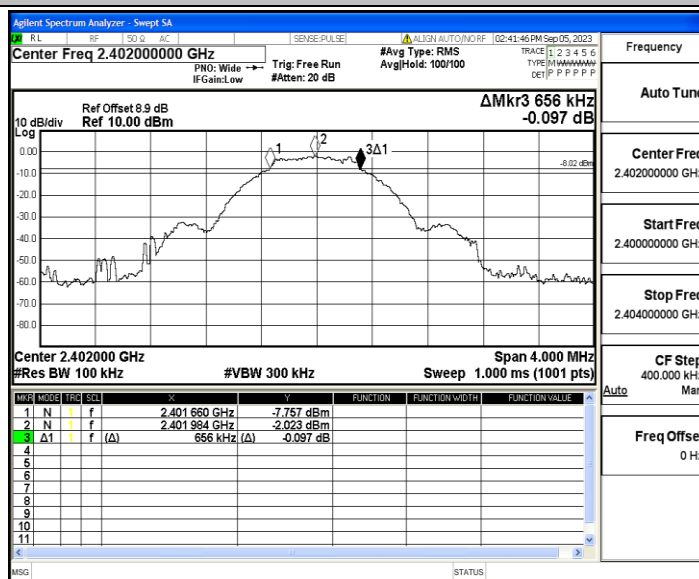
## Appendix A: DTS Bandwidth

### Test Result

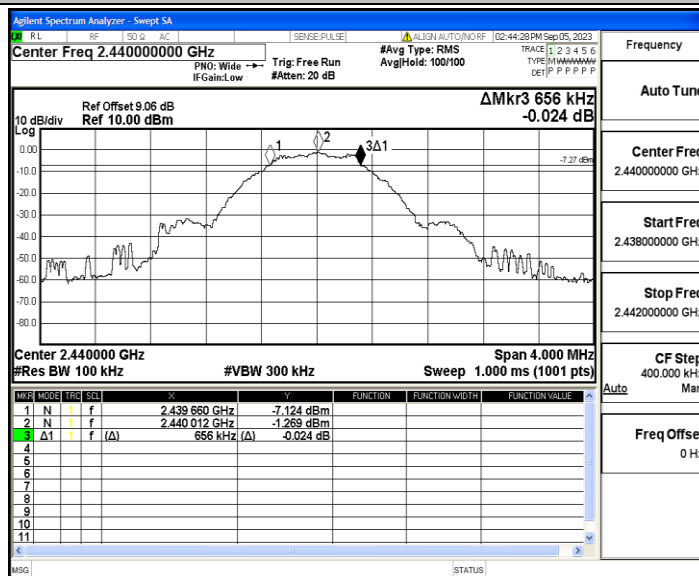
| TestMode | Antenna | Channel | DTS BW [MHz] | FL[MHz]  | FH[MHz]  | Limit[MHz] | Verdict |
|----------|---------|---------|--------------|----------|----------|------------|---------|
| BLE_1M   | Ant1    | 2402    | 0.656        | 2401.660 | 2402.316 | 0.5        | PASS    |
|          |         | 2440    | 0.656        | 2439.660 | 2440.316 | 0.5        | PASS    |
|          |         | 2480    | 0.660        | 2479.664 | 2480.324 | 0.5        | PASS    |
| BLE_2M   | Ant1    | 2402    | 1.080        | 2401.456 | 2402.536 | 0.5        | PASS    |
|          |         | 2440    | 1.020        | 2439.520 | 2440.540 | 0.5        | PASS    |
|          |         | 2480    | 1.120        | 2479.436 | 2480.556 | 0.5        | PASS    |

## Test Graphs

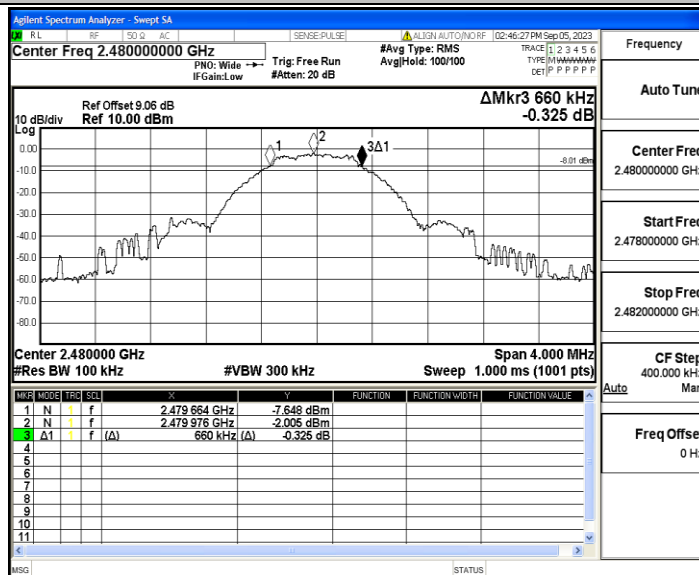
BLE\_1M\_Ant1\_2402



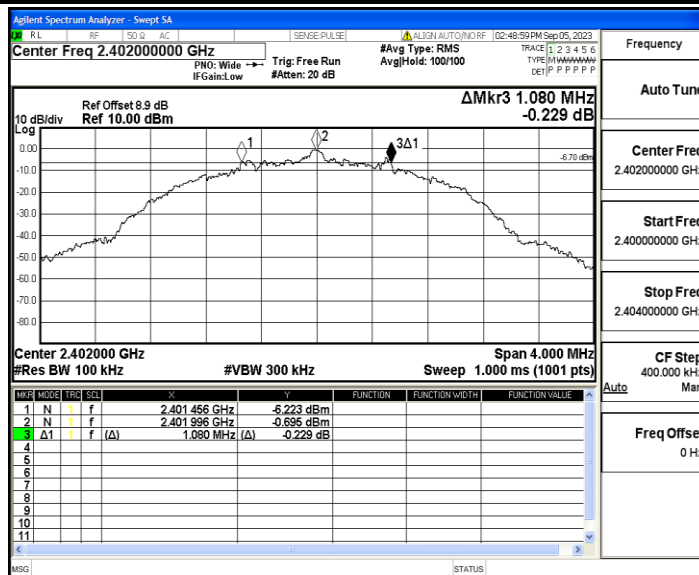
BLE\_1M\_Ant1\_2440



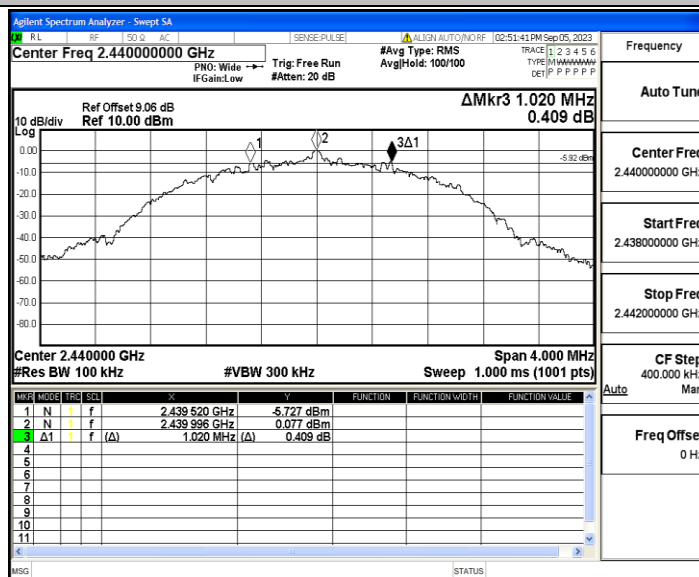
BLE\_1M\_Ant1\_2480



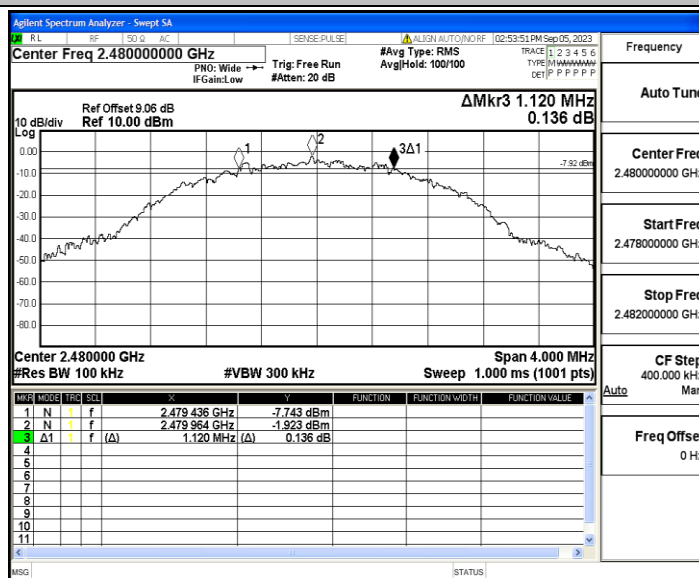
BLE\_2M\_Ant1\_2402



BLE\_2M\_Ant1\_2440



BLE\_2M\_Ant1\_2480



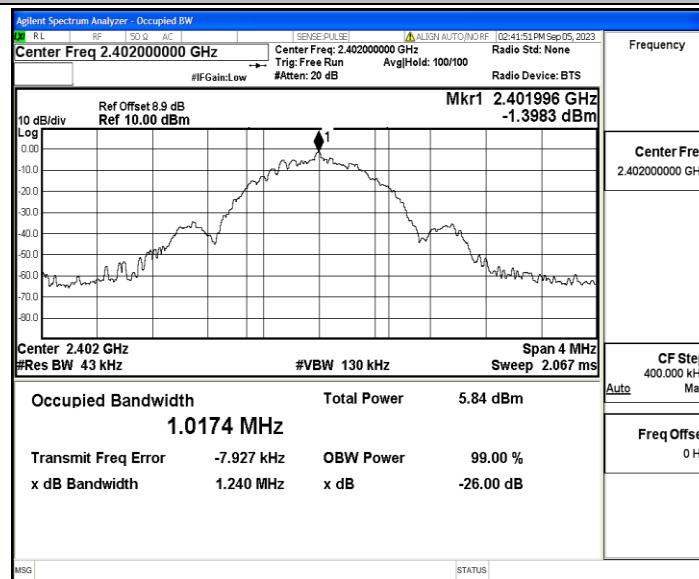
## Appendix B: Occupied Channel Bandwidth

### Test Result

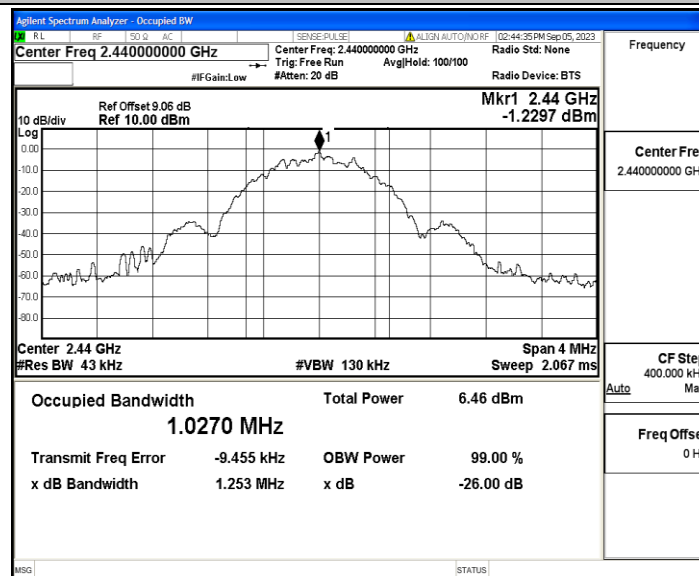
| TestMode | Antenna | Channel | OCB [MHz] | FL[MHz]   | FH[MHz]   | Limit[MHz] | Verdict |
|----------|---------|---------|-----------|-----------|-----------|------------|---------|
| BLE_1M   | Ant1    | 2402    | 1.0174    | 2401.4834 | 2402.5008 | ---        | ---     |
|          |         | 2440    | 1.0270    | 2439.4771 | 2440.5041 | ---        | ---     |
|          |         | 2480    | 1.0355    | 2479.4733 | 2480.5088 | ---        | ---     |
| BLE_2M   | Ant1    | 2402    | 2.0513    | 2400.9799 | 2403.0312 | ---        | ---     |
|          |         | 2440    | 2.0382    | 2438.9862 | 2441.0244 | ---        | ---     |
|          |         | 2480    | 2.0785    | 2478.9615 | 2481.0400 | ---        | ---     |

## Test Graphs

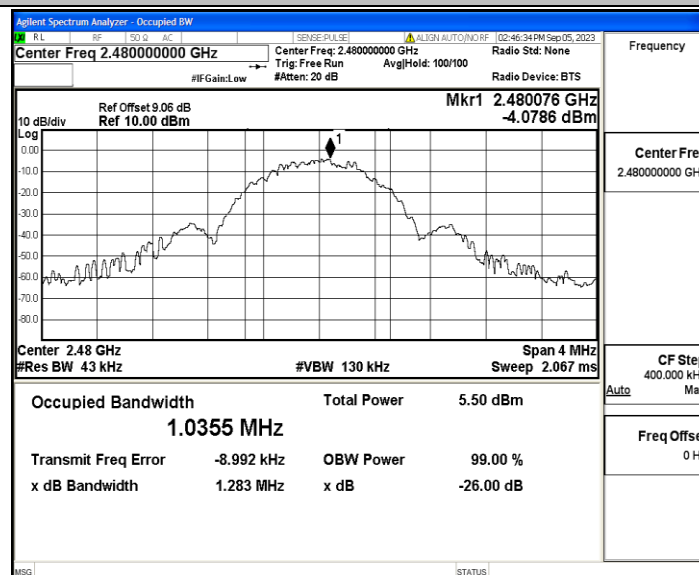
BLE\_1M\_Ant1\_2402



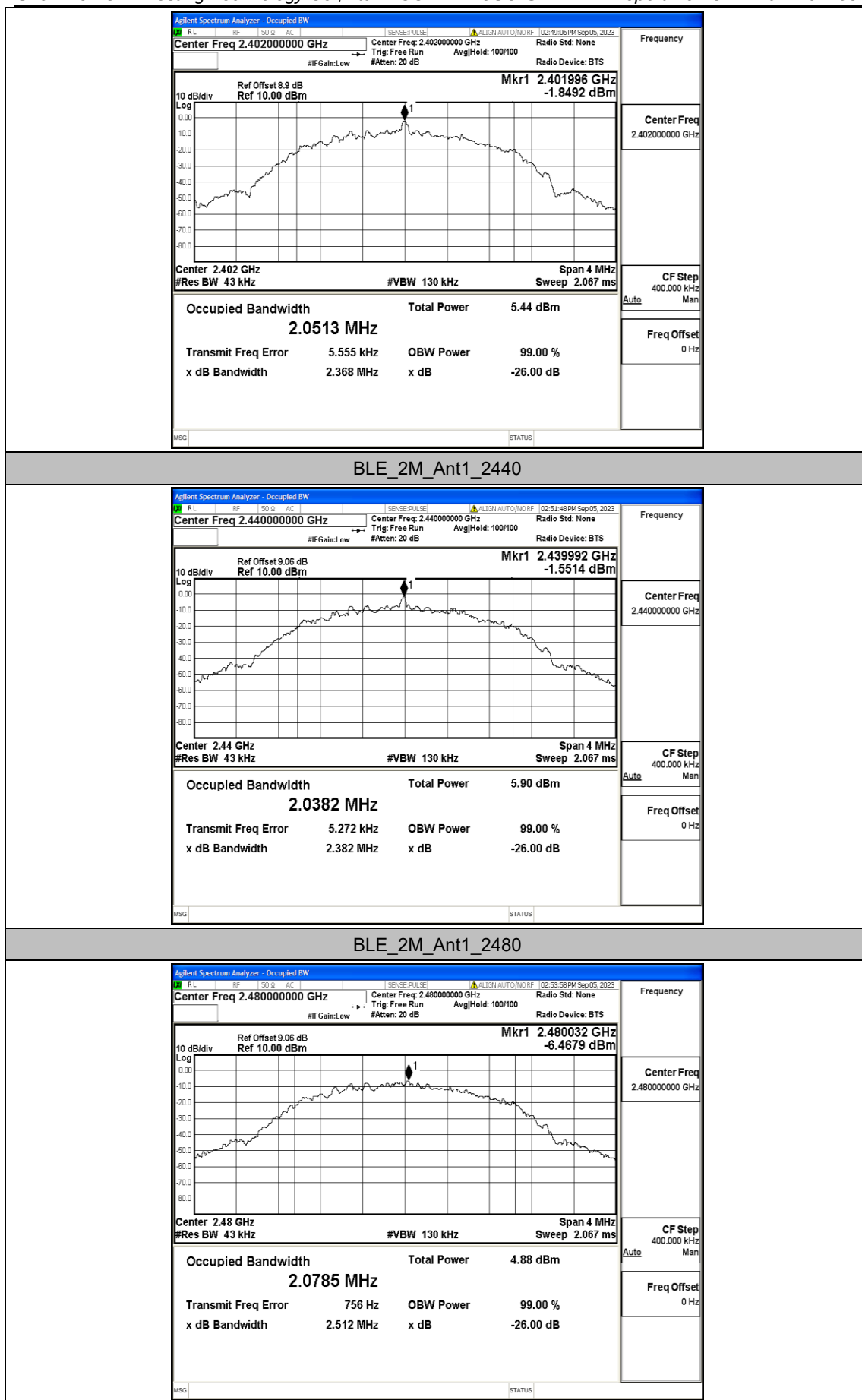
BLE\_1M\_Ant1\_2440



BLE\_1M\_Ant1\_2480



BLE\_2M\_Ant1\_2402



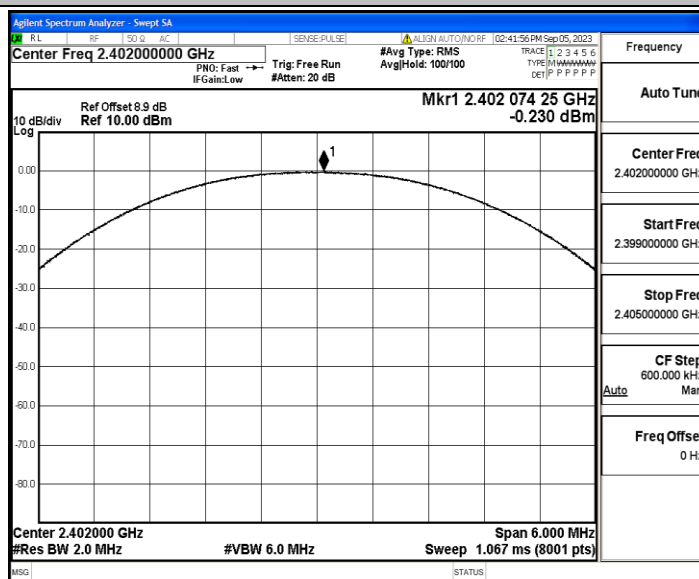
## Appendix C: Maximum Peak conducted output power

### Test Result

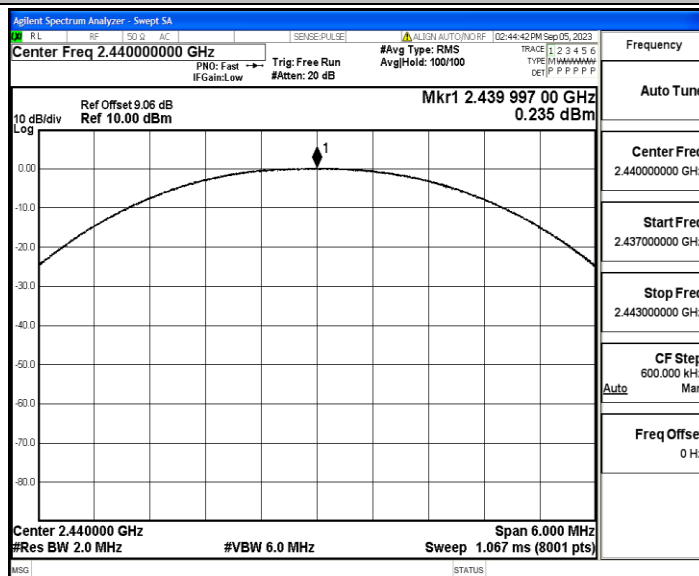
| TestMode | Antenna | Channel | Result[dBm] | Limit[dBm] | Verdict |
|----------|---------|---------|-------------|------------|---------|
| BLE_1M   | Ant1    | 2402    | -0.23       | ≤30        | PASS    |
|          |         | 2440    | 0.24        | ≤30        | PASS    |
|          |         | 2480    | -0.15       | ≤30        | PASS    |
| BLE_2M   | Ant1    | 2402    | -0.42       | ≤30        | PASS    |
|          |         | 2440    | 0.29        | ≤30        | PASS    |
|          |         | 2480    | -0.3        | ≤30        | PASS    |

## Test Graphs

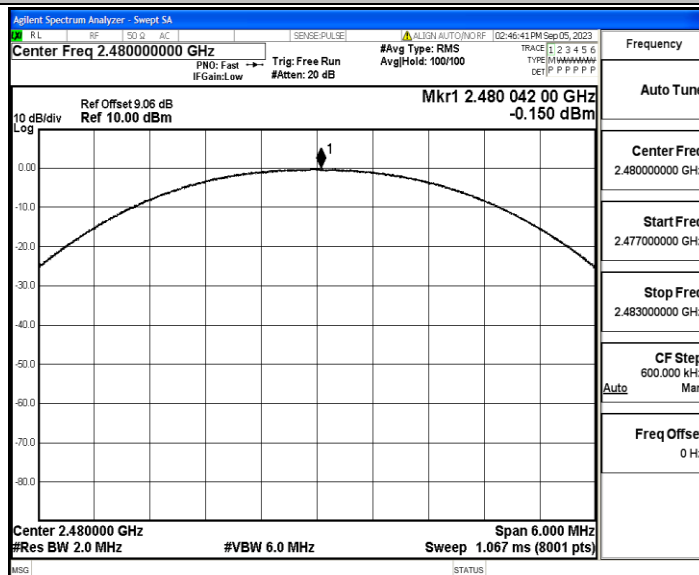
BLE\_1M\_Ant1\_2402



BLE\_1M\_Ant1\_2440

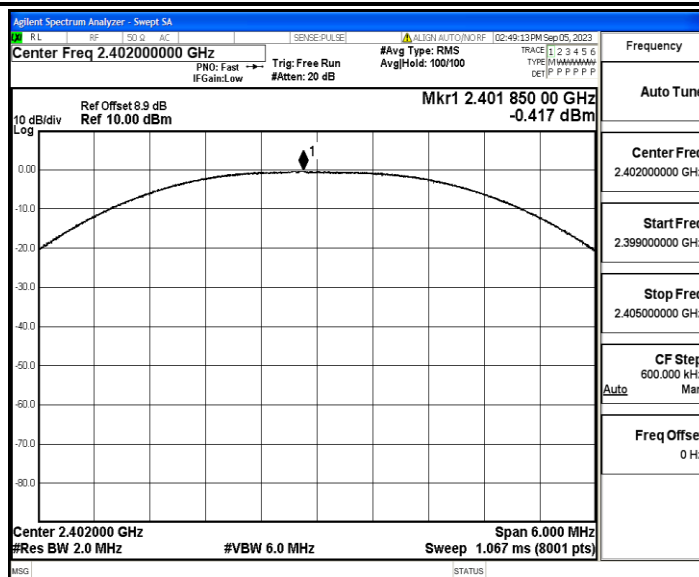


BLE\_1M\_Ant1\_2480

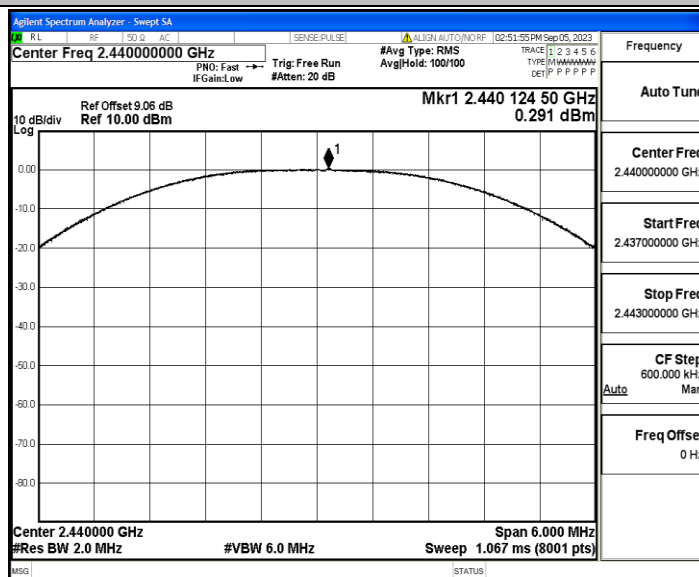


BLE\_2M\_Ant1\_2402

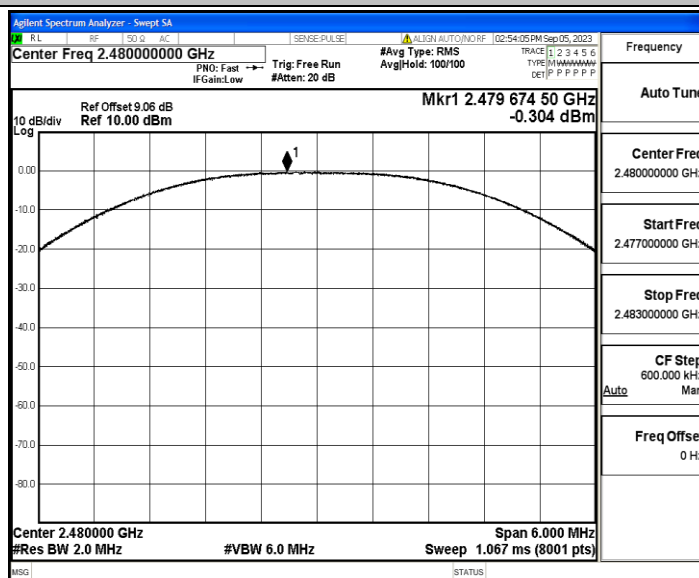




BLE\_2M\_Ant1\_2440



BLE\_2M\_Ant1\_2480



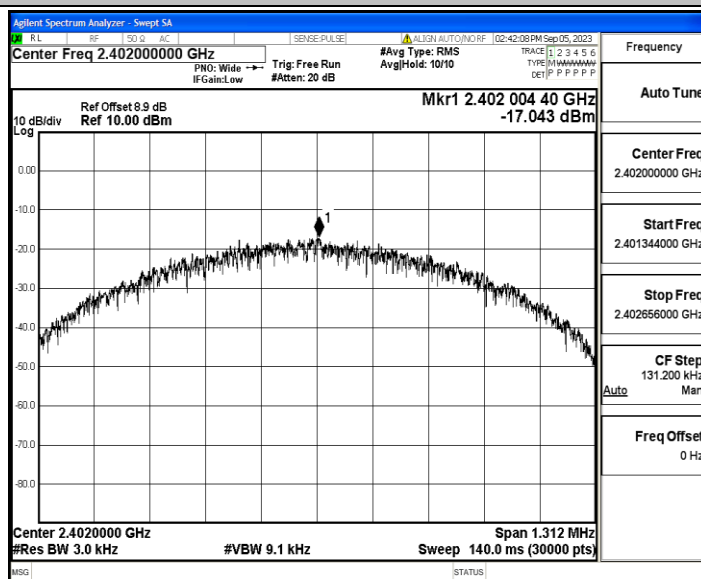
## Appendix D: Maximum power spectral density

### Test Result

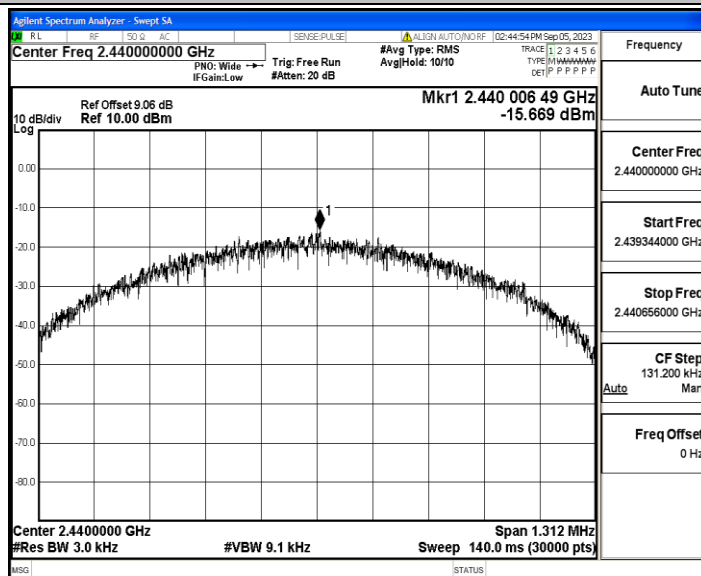
| TestMode | Antenna | Channel | Result[dBm/3-100kHz] | Limit[dBm/3kHz] | Verdict |
|----------|---------|---------|----------------------|-----------------|---------|
| BLE_1M   | Ant1    | 2402    | -17.04               | ≤8.00           | PASS    |
|          |         | 2440    | -15.67               | ≤8.00           | PASS    |
|          |         | 2480    | -16.23               | ≤8.00           | PASS    |
| BLE_2M   | Ant1    | 2402    | -17.97               | ≤8.00           | PASS    |
|          |         | 2440    | -17.52               | ≤8.00           | PASS    |
|          |         | 2480    | -17.68               | ≤8.00           | PASS    |

## Test Graphs

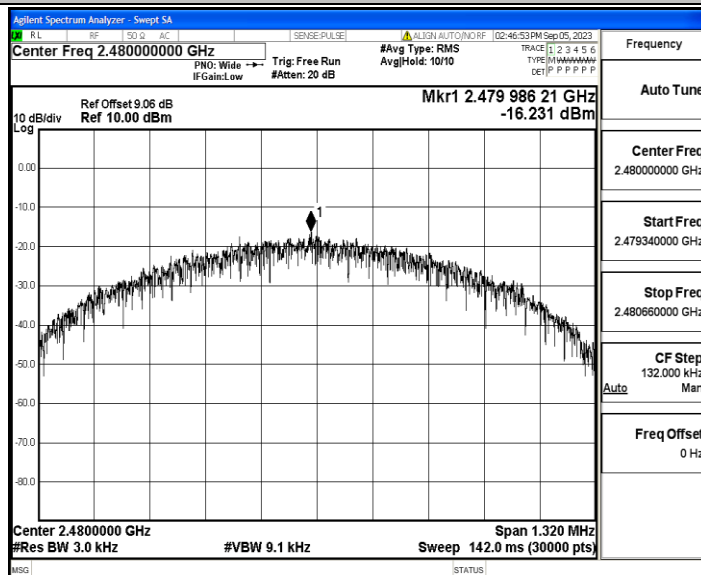
BLE\_1M\_Ant1\_2402



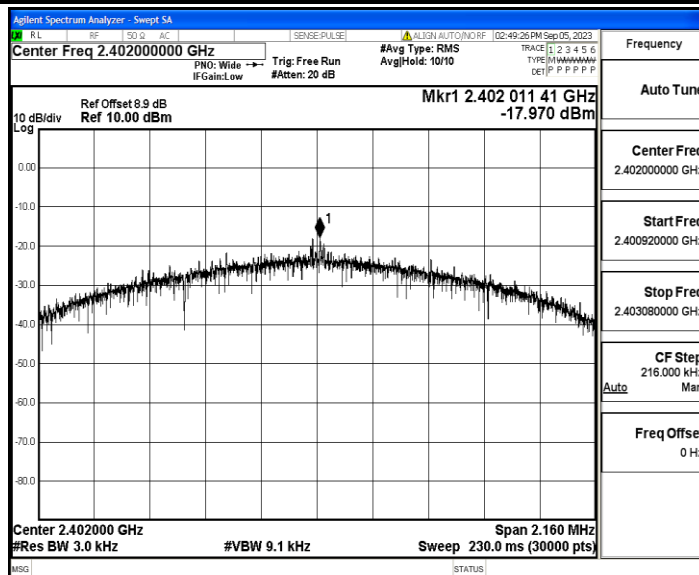
BLE\_1M\_Ant1\_2440



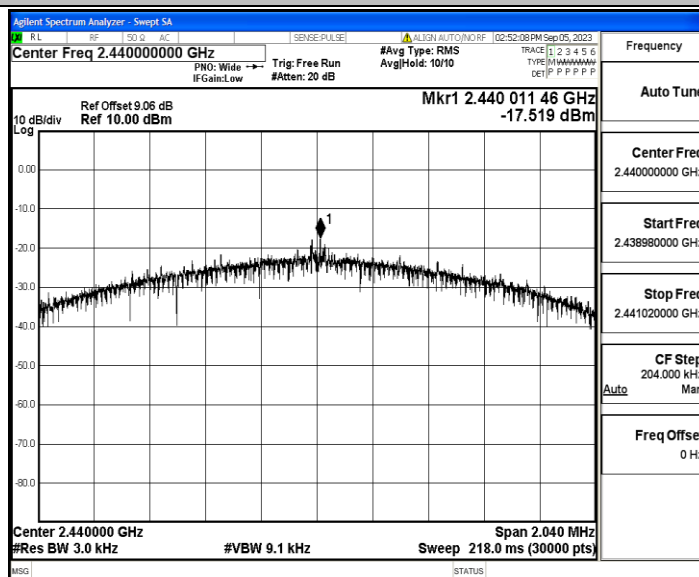
BLE\_1M\_Ant1\_2480



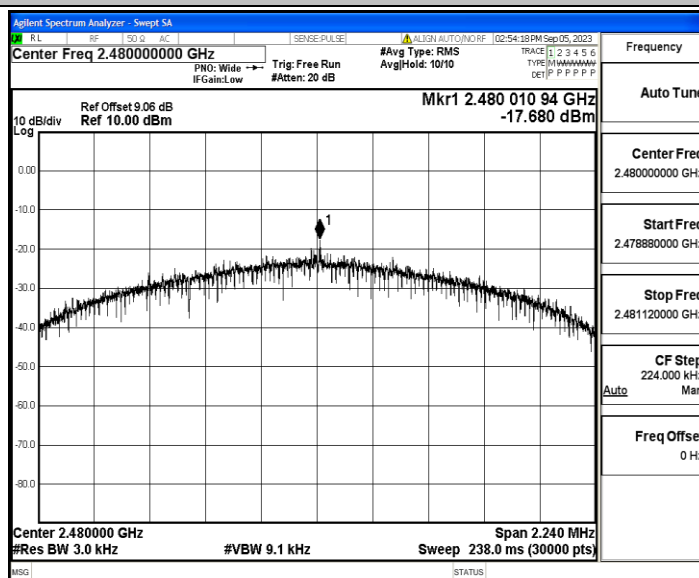
BLE\_2M\_Ant1\_2402



BLE\_2M\_Ant1\_2440



BLE\_2M\_Ant1\_2480



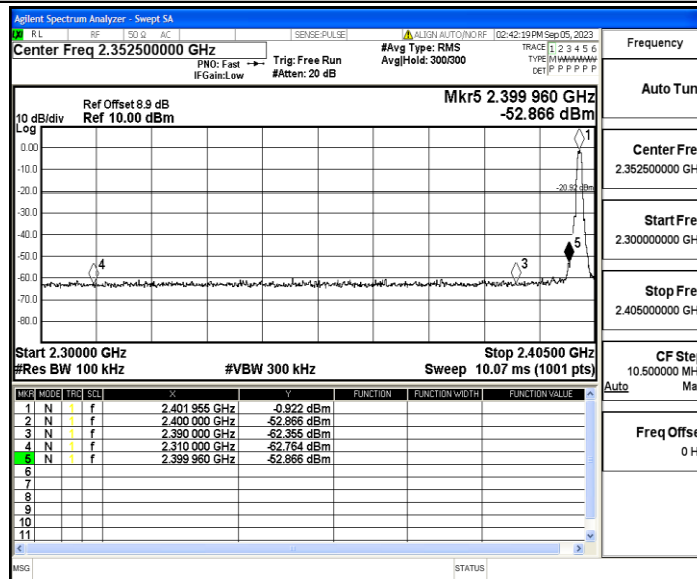
## Appendix E: Band edge measurements

### Test Result

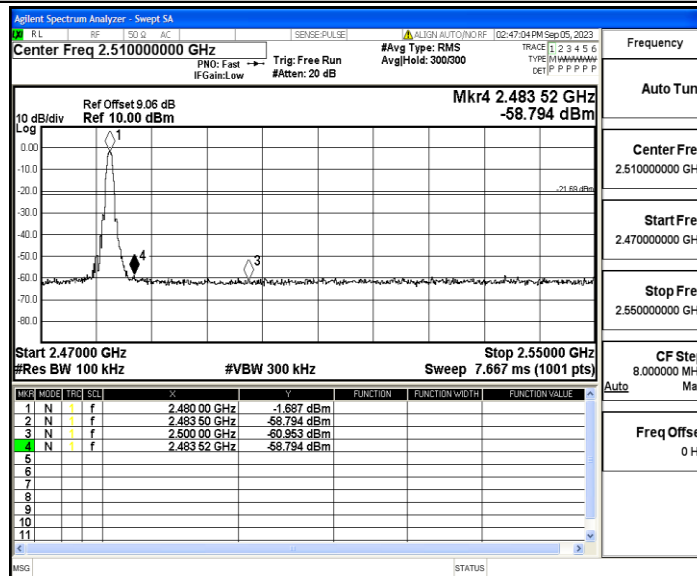
| TestMode | Antenna | ChName | Channel | RefLevel[dBm] | Result[dBm] | Limit[dBm] | Verdict |
|----------|---------|--------|---------|---------------|-------------|------------|---------|
| BLE_1M   | Ant1    | Low    | 2402    | -0.92         | -52.87      | ≤-20.92    | PASS    |
|          |         | High   | 2480    | -1.69         | -58.79      | ≤-21.69    | PASS    |
| BLE_2M   | Ant1    | Low    | 2402    | -1.06         | -48.56      | ≤-21.06    | PASS    |
|          |         | High   | 2480    | -0.82         | -58.06      | ≤-20.82    | PASS    |

## Test Graphs

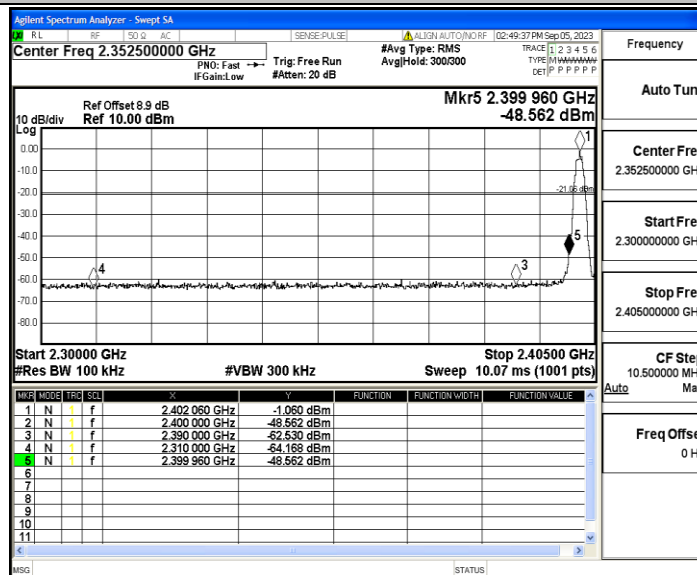
BLE\_1M\_Ant1\_Low\_2402



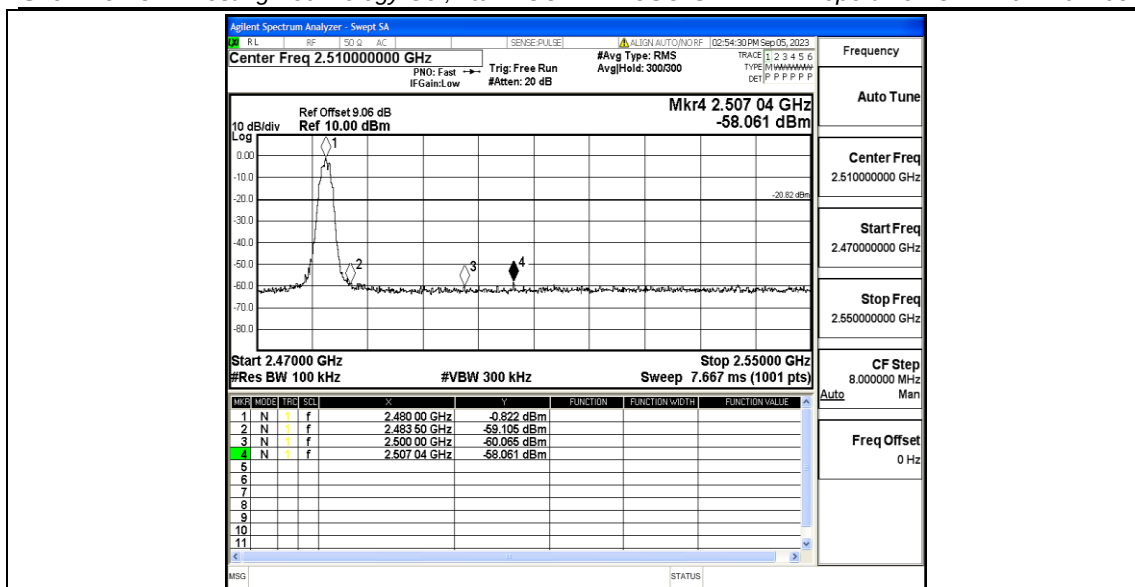
BLE\_1M\_Ant1\_High\_2480



BLE\_2M\_Ant1\_Low\_2402



BLE\_2M\_Ant1\_High\_2480



## Appendix F: Conducted Spurious Emission

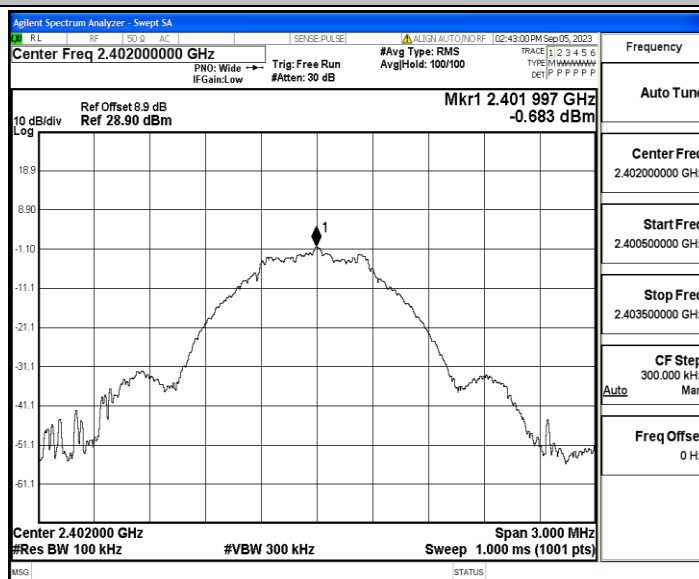
### Test Result

| TestMode | Antenna | Channel | FreqRange<br>[MHz] | RefLevel<br>[dBm] | Result[dBm] | Limit[dBm] | Verdict |
|----------|---------|---------|--------------------|-------------------|-------------|------------|---------|
| BLE_1M   | Ant1    | 2402    | Reference          | -0.68             | -0.68       | ---        | PASS    |
|          |         |         | 30~1000            | -0.68             | -46.7       | ≤-20.68    | PASS    |
|          |         |         | 1000~26500         | -0.68             | -49.48      | ≤-20.68    | PASS    |
|          |         | 2440    | Reference          | -1.30             | -1.30       | ---        | PASS    |
|          |         |         | 30~1000            | -1.30             | -45.94      | ≤-21.3     | PASS    |
|          |         |         | 1000~26500         | -1.30             | -49.95      | ≤-21.3     | PASS    |
|          |         | 2480    | Reference          | -1.65             | -1.65       | ---        | PASS    |
|          |         |         | 30~1000            | -1.65             | -46.55      | ≤-21.65    | PASS    |
|          |         |         | 1000~26500         | -1.65             | -48.88      | ≤-21.65    | PASS    |
| BLE_2M   | Ant1    | 2402    | Reference          | -2.44             | -2.44       | ---        | PASS    |
|          |         |         | 30~1000            | -2.44             | -45.67      | ≤-22.44    | PASS    |
|          |         |         | 1000~26500         | -2.44             | -50.12      | ≤-22.44    | PASS    |
|          |         | 2440    | Reference          | -0.69             | -0.69       | ---        | PASS    |
|          |         |         | 30~1000            | -0.69             | -49.23      | ≤-20.69    | PASS    |
|          |         |         | 1000~26500         | -0.69             | -50.41      | ≤-20.69    | PASS    |
|          |         | 2480    | Reference          | -1.39             | -1.39       | ---        | PASS    |
|          |         |         | 30~1000            | -1.39             | -45.72      | ≤-21.39    | PASS    |
|          |         |         | 1000~26500         | -1.39             | -50.03      | ≤-21.39    | PASS    |

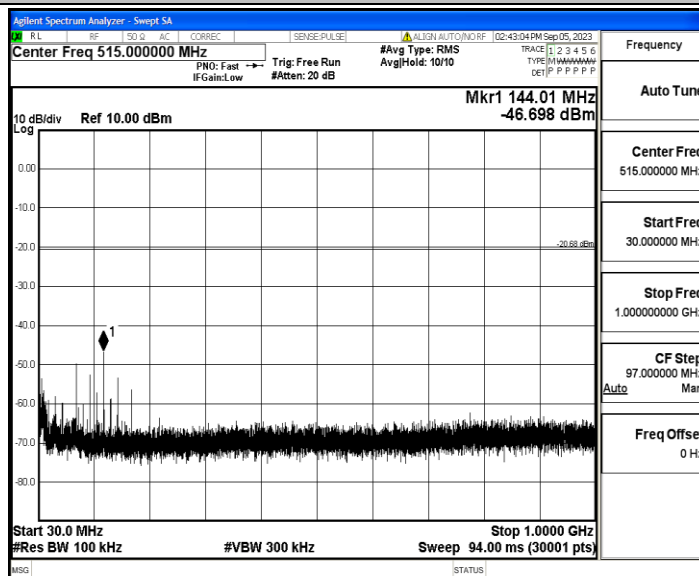


## Test Graphs

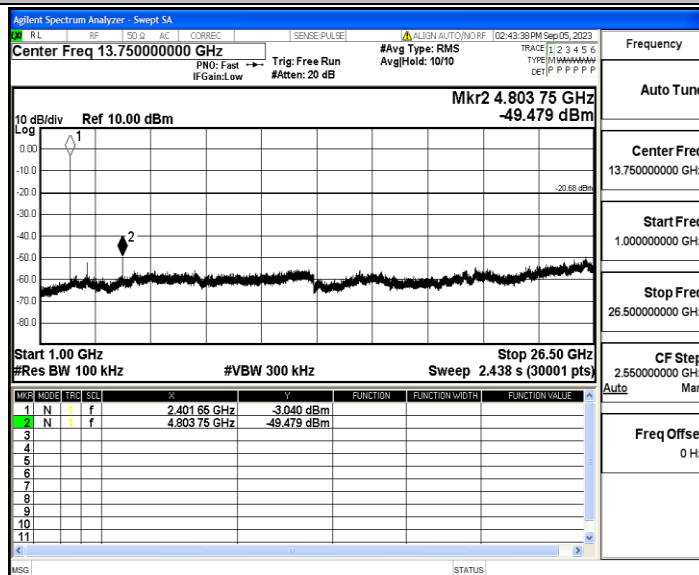
BLE\_1M\_Ant1\_2402\_0~Reference



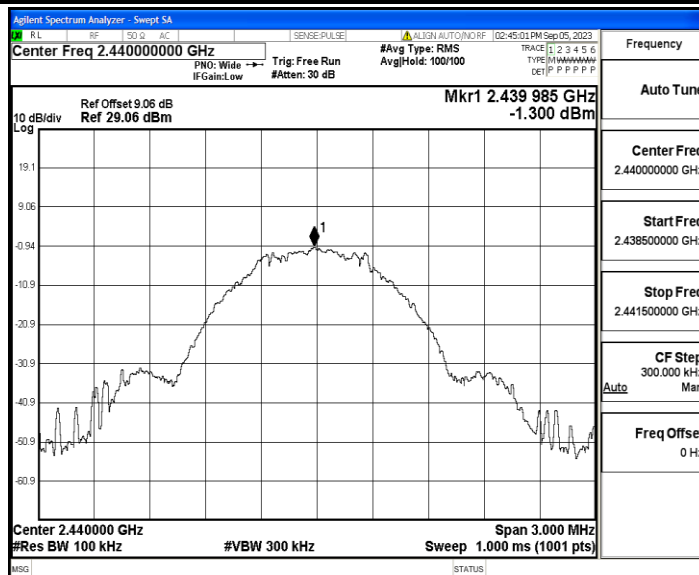
BLE\_1M\_Ant1\_2402\_30~1000



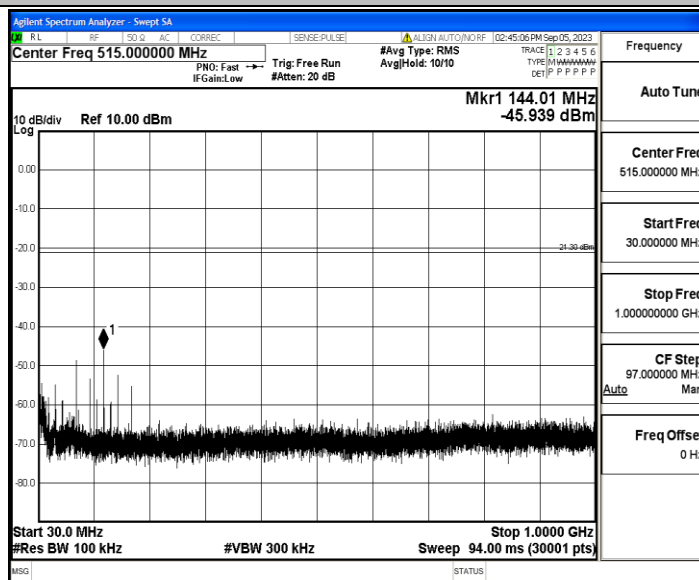
BLE\_1M\_Ant1\_2402\_1000~26500



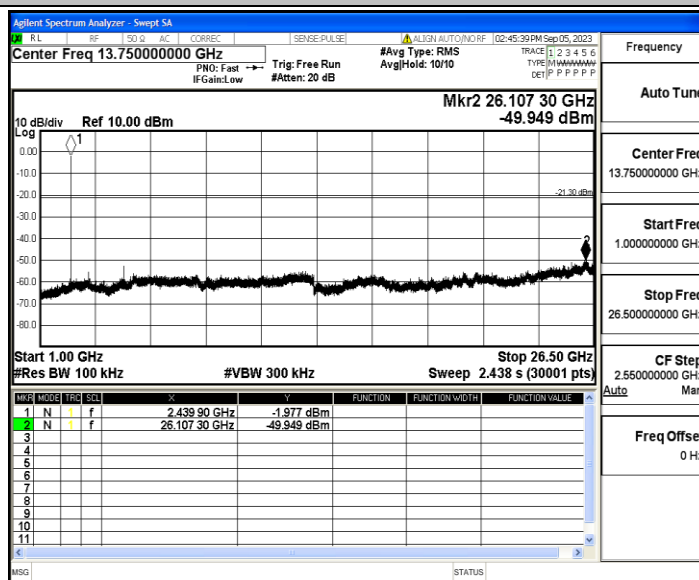
BLE\_1M\_Ant1\_2440\_0~Reference



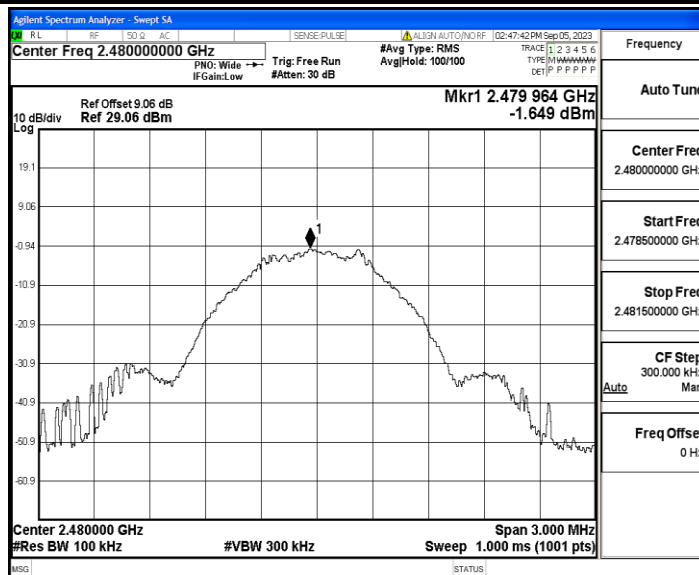
BLE\_1M\_Ant1\_2440\_30~1000



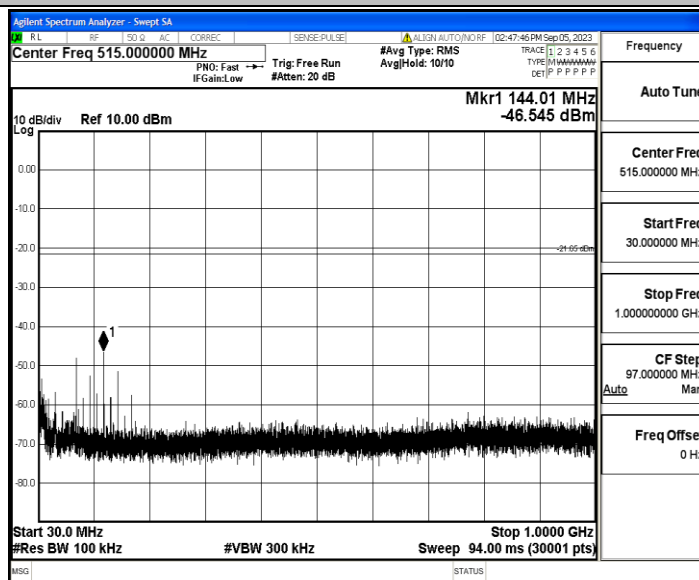
BLE\_1M\_Ant1\_2440\_1000~26500



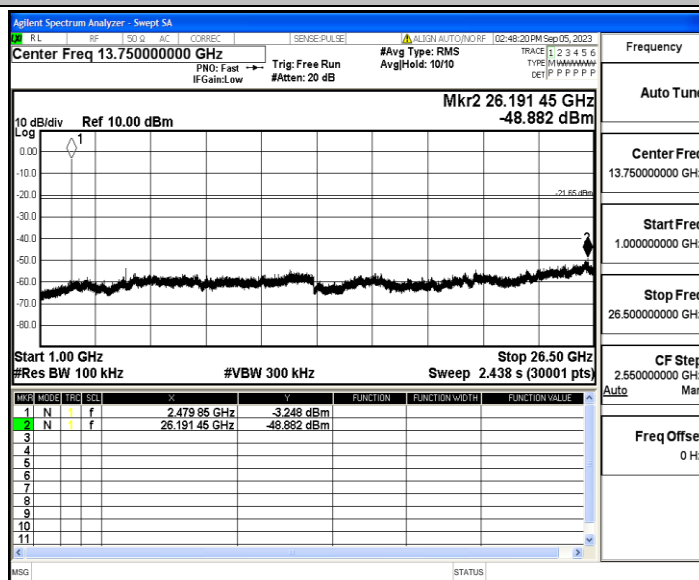
BLE\_1M\_Ant1\_2480\_0~Reference



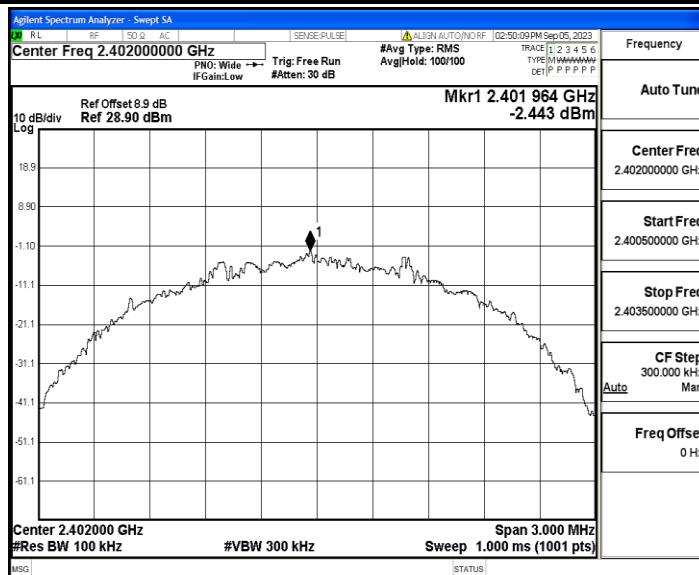
BLE\_1M\_Ant1\_2480\_30~1000



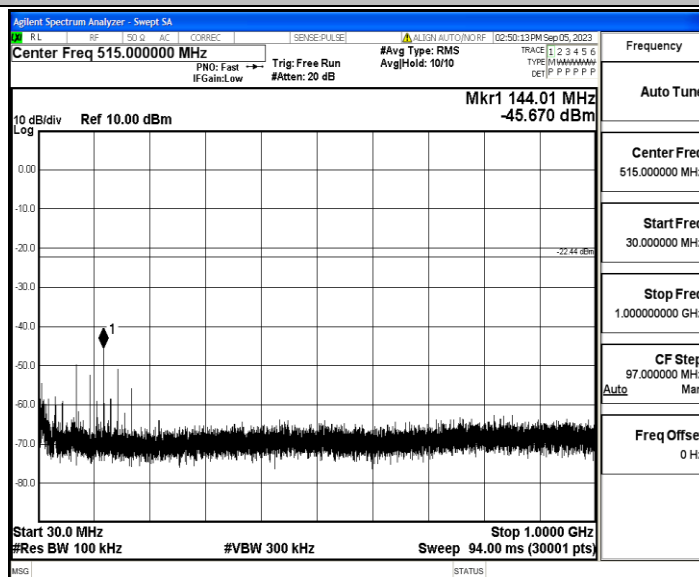
BLE\_1M\_Ant1\_2480\_1000~26500



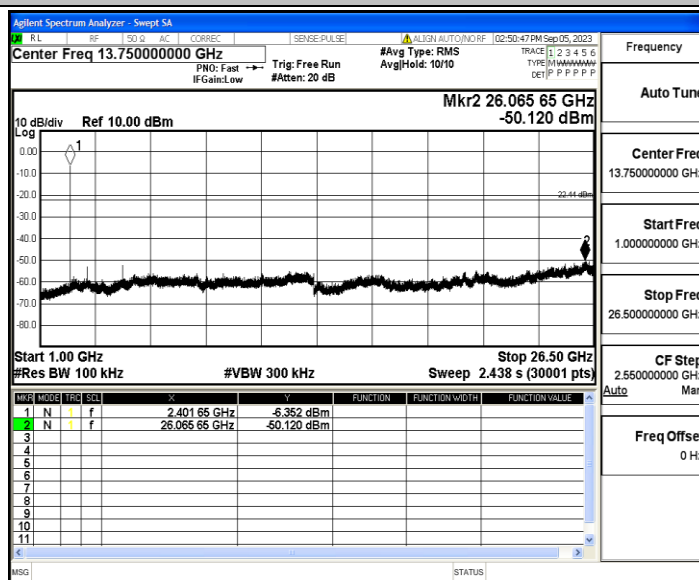
BLE\_2M\_Ant1\_2402\_0~Reference



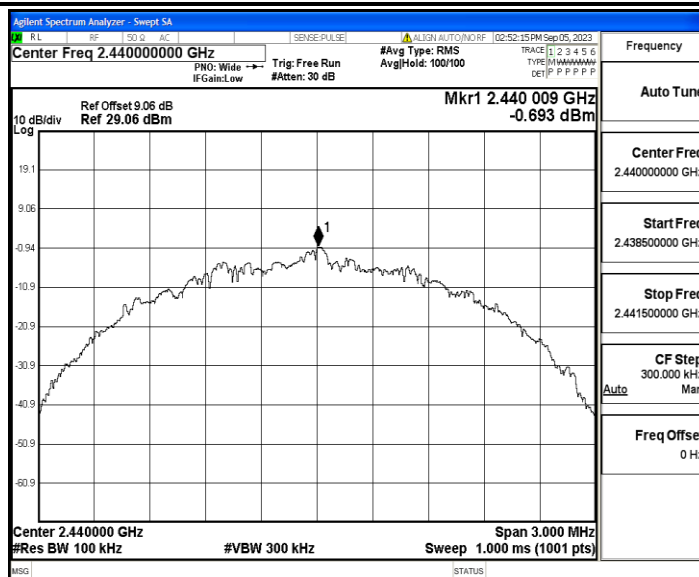
BLE\_2M\_Ant1\_2402\_30~1000



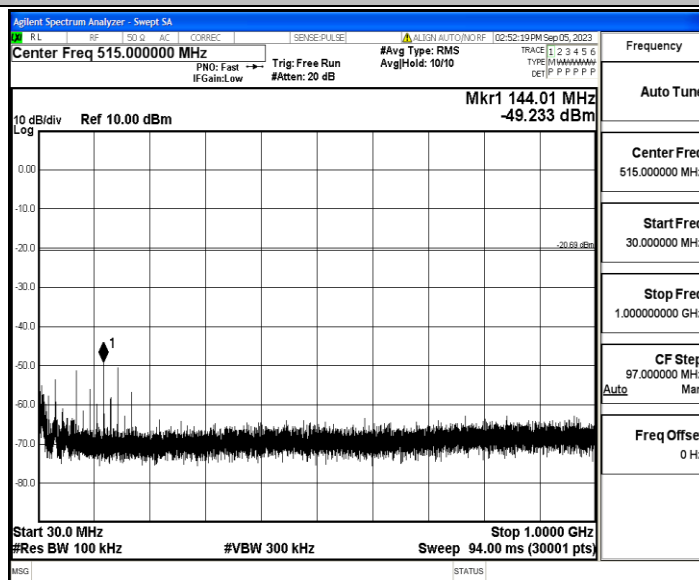
BLE\_2M\_Ant1\_2402\_1000~26500



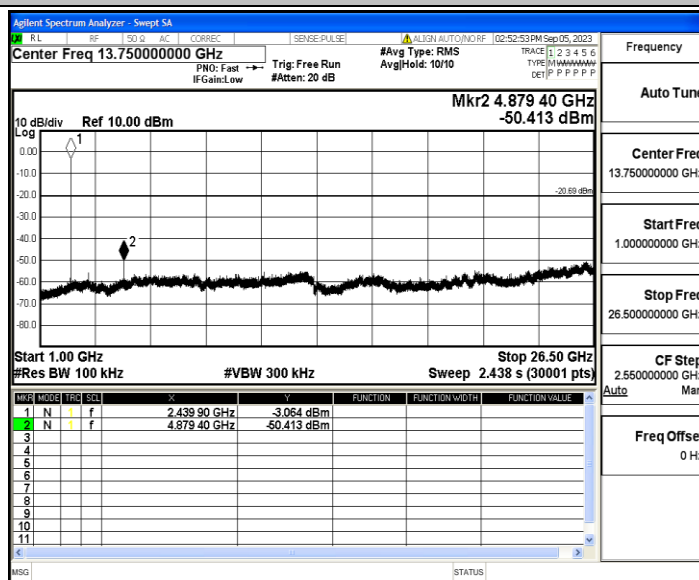
BLE\_2M\_Ant1\_2440\_0~Reference



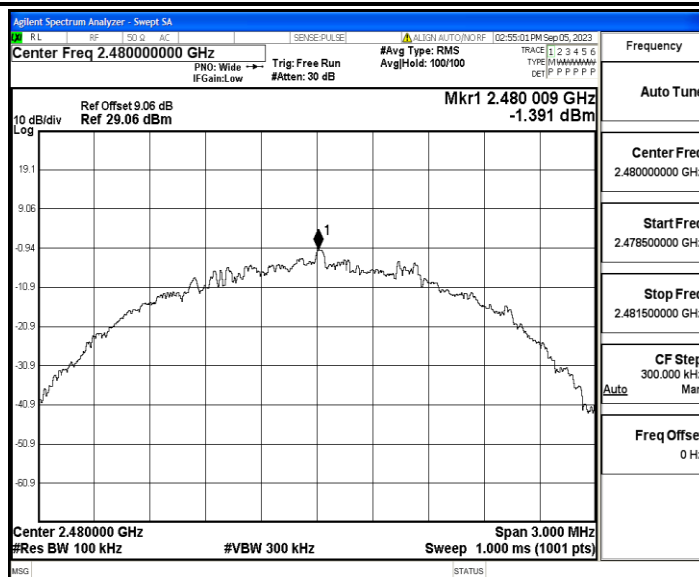
BLE\_2M\_Ant1\_2440\_30~1000



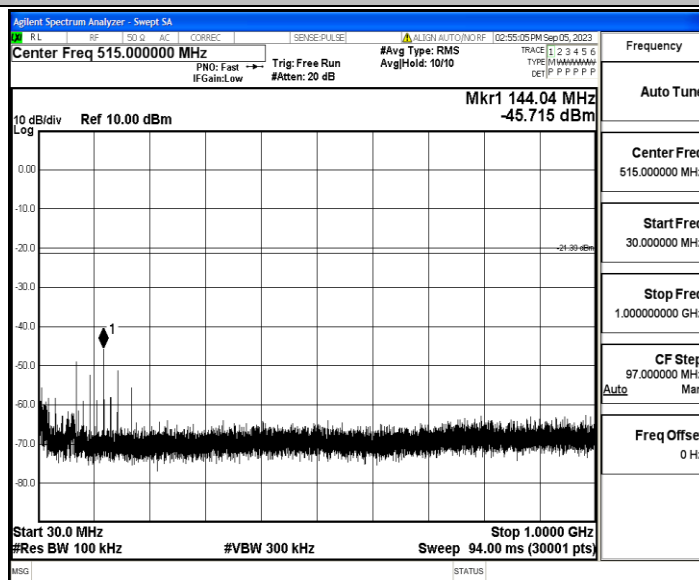
BLE\_2M\_Ant1\_2440\_1000~26500



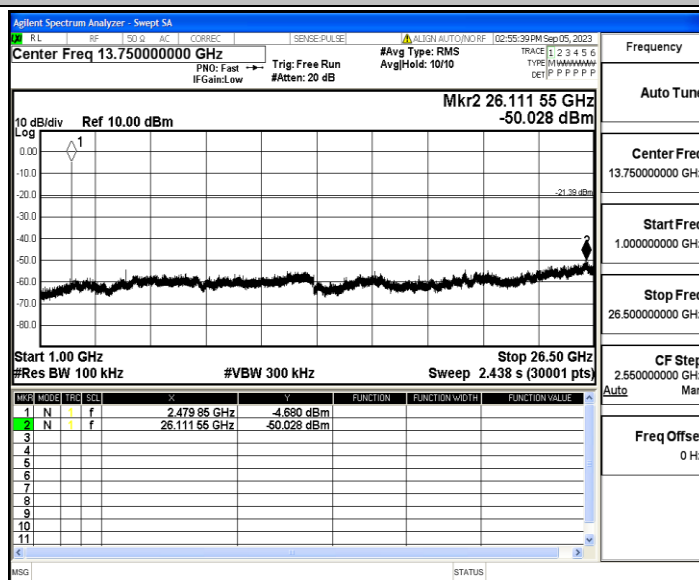
BLE\_2M\_Ant1\_2480\_0~Reference



BLE\_2M\_Ant1\_2480\_30~1000



BLE\_2M\_Ant1\_2480\_1000~26500



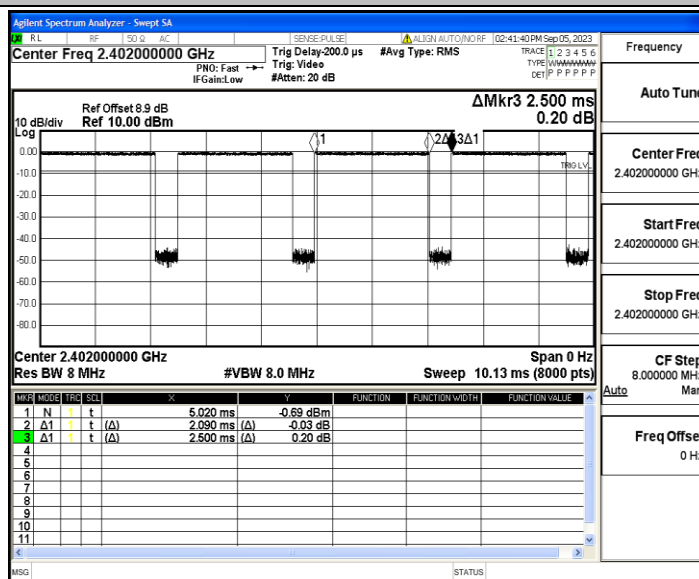
## Appendix G: Duty Cycle

### Test Result

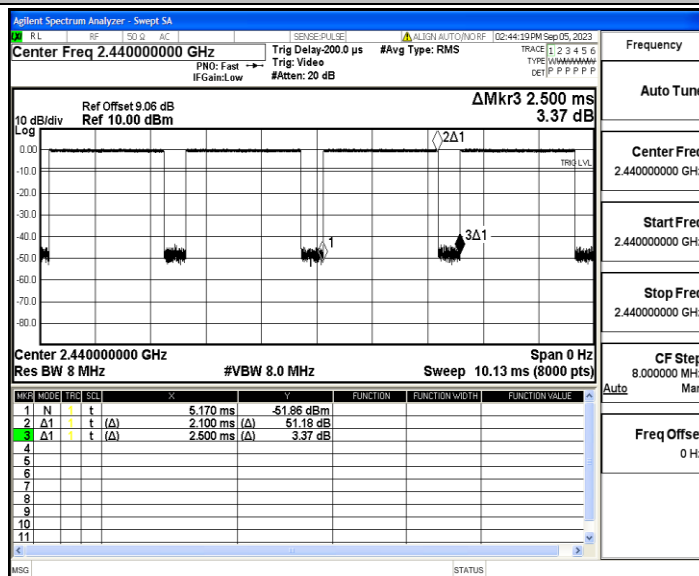
| TestMode | Antenna | Channel | Transmission Duration [ms] | Transmission Period [ms] | Duty Cycle [%] | 1/T[kHz] |
|----------|---------|---------|----------------------------|--------------------------|----------------|----------|
| BLE_1M   | Ant1    | 2402    | 2.09                       | 2.50                     | 83.60          | 0.48     |
|          |         | 2440    | 2.10                       | 2.50                     | 84.00          | 0.48     |
|          |         | 2480    | 2.09                       | 2.50                     | 83.60          | 0.48     |
| BLE_2M   | Ant1    | 2402    | 1.06                       | 1.87                     | 56.68          | 0.94     |
|          |         | 2440    | 1.06                       | 1.88                     | 56.38          | 0.94     |
|          |         | 2480    | 1.06                       | 1.88                     | 56.38          | 0.94     |

## Test Graphs

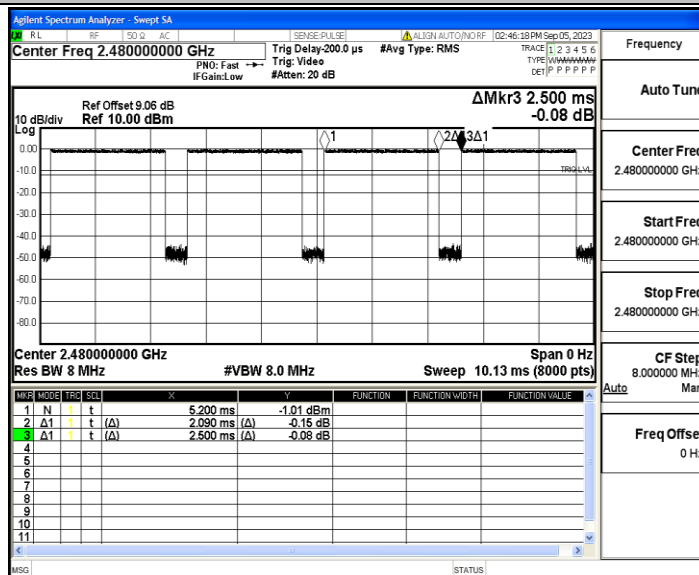
BLE\_1M\_Ant1\_2402



BLE\_1M\_Ant1\_2440

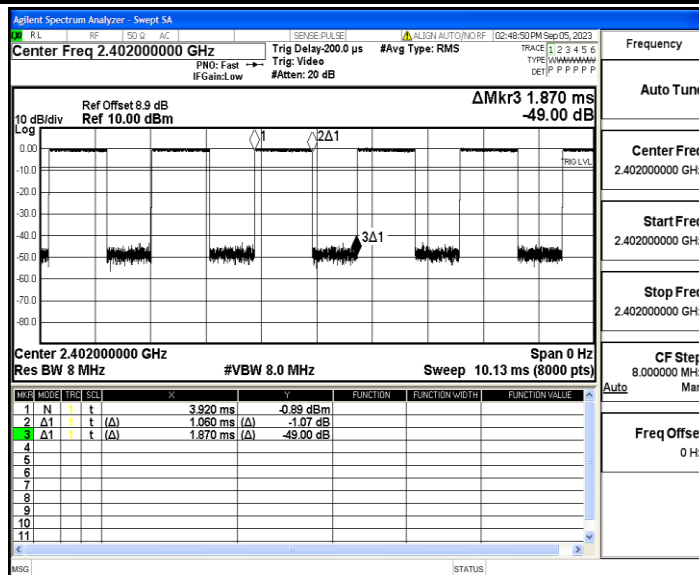


BLE\_1M\_Ant1\_2480

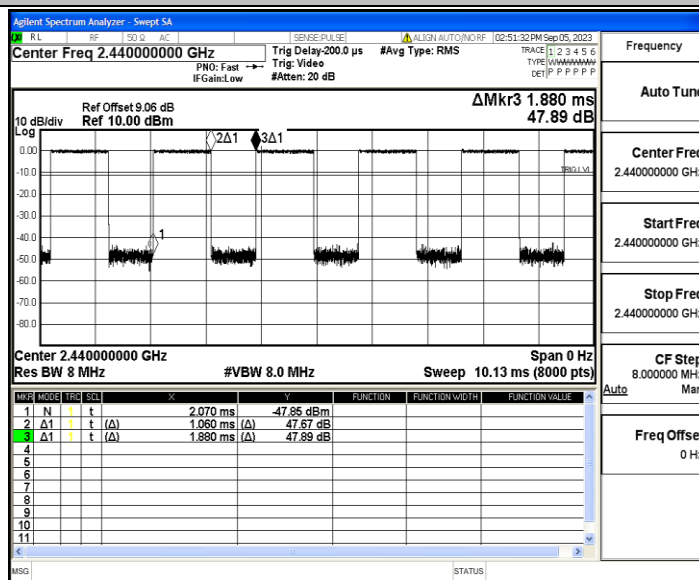


BLE\_2M\_Ant1\_2402

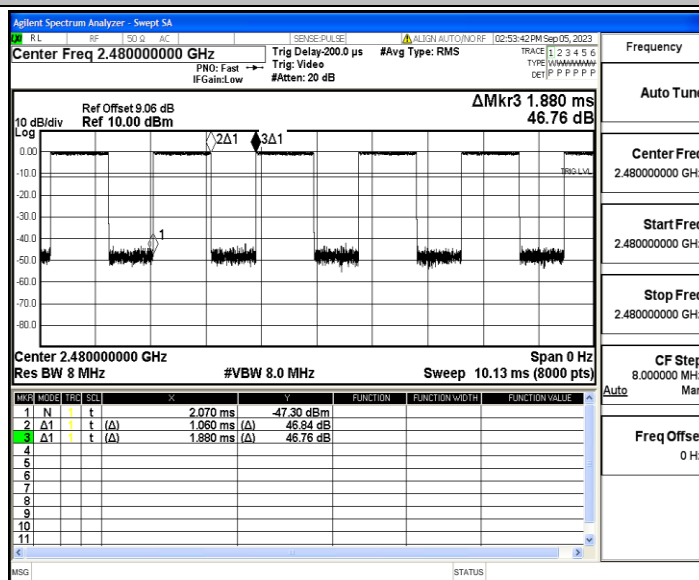




BLE\_2M\_Ant1\_2440



BLE\_2M\_Ant1\_2480



## Appendix H: Emissions in Restricted Bands

### Test Result

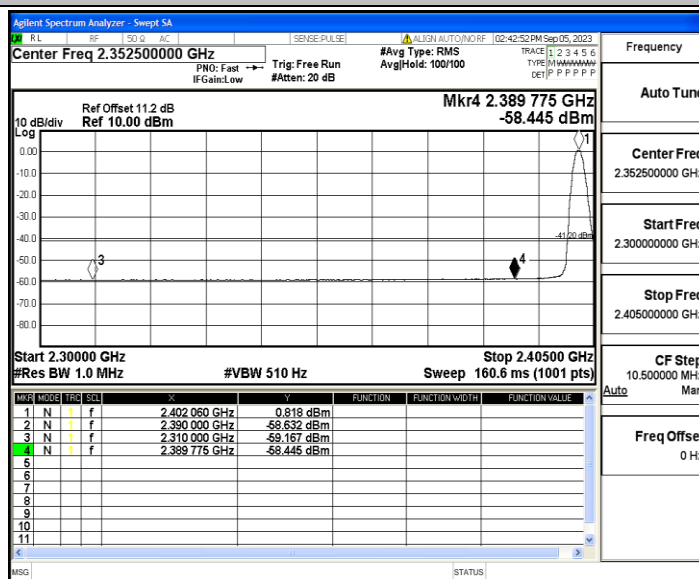
| TestMode | Antenna | ChName | Channel | Detector | Freq. [MHz] | Result [dBm] | Limit [dBm] | Verdict |
|----------|---------|--------|---------|----------|-------------|--------------|-------------|---------|
| BLE_1M   | Ant1    | Low    | 2402    | AV       | 2310.000    | -59.17       | ≤-41.20     | PASS    |
|          |         |        |         | AV       | 2389.775    | -58.44       | ≤-41.20     | PASS    |
|          |         |        |         | AV       | 2390.000    | -58.63       | ≤-41.20     | PASS    |
|          |         |        |         | Peak     | 2310.000    | -51.49       | ≤-21.20     | PASS    |
|          |         |        |         | Peak     | 2370.665    | -48.73       | ≤-21.20     | PASS    |
|          |         |        |         | Peak     | 2390.000    | -52.09       | ≤-21.20     | PASS    |
|          |         | High   | 2480    | AV       | 2483.500    | -54.5        | ≤-41.20     | PASS    |
|          |         |        |         | AV       | 2483.520    | -54.49       | ≤-41.20     | PASS    |
|          |         |        |         | AV       | 2500.000    | -58.02       | ≤-41.20     | PASS    |
|          |         |        |         | Peak     | 2483.500    | -50          | ≤-21.20     | PASS    |
|          |         |        |         | Peak     | 2486.640    | -48.24       | ≤-21.20     | PASS    |
|          |         |        |         | Peak     | 2500.000    | -50.93       | ≤-21.20     | PASS    |
| BLE_2M   | Ant1    | Low    | 2402    | AV       | 2310.000    | -58.96       | ≤-41.20     | PASS    |
|          |         |        |         | AV       | 2388.830    | -58.04       | ≤-41.20     | PASS    |
|          |         |        |         | AV       | 2390.000    | -58.36       | ≤-41.20     | PASS    |
|          |         |        |         | Peak     | 2310.000    | -50.99       | ≤-21.20     | PASS    |
|          |         |        |         | Peak     | 2378.435    | -48.06       | ≤-21.20     | PASS    |
|          |         |        |         | Peak     | 2390.000    | -52.35       | ≤-21.20     | PASS    |
|          |         | High   | 2480    | AV       | 2483.500    | -51.48       | ≤-41.20     | PASS    |
|          |         |        |         | AV       | 2483.520    | -51.48       | ≤-41.20     | PASS    |
|          |         |        |         | AV       | 2500.000    | -57.52       | ≤-41.20     | PASS    |
|          |         |        |         | Peak     | 2483.500    | -47.84       | ≤-21.20     | PASS    |
|          |         |        |         | Peak     | 2484.320    | -45.6        | ≤-21.20     | PASS    |
|          |         |        |         | Peak     | 2500.000    | -52.78       | ≤-21.20     | PASS    |

Note:

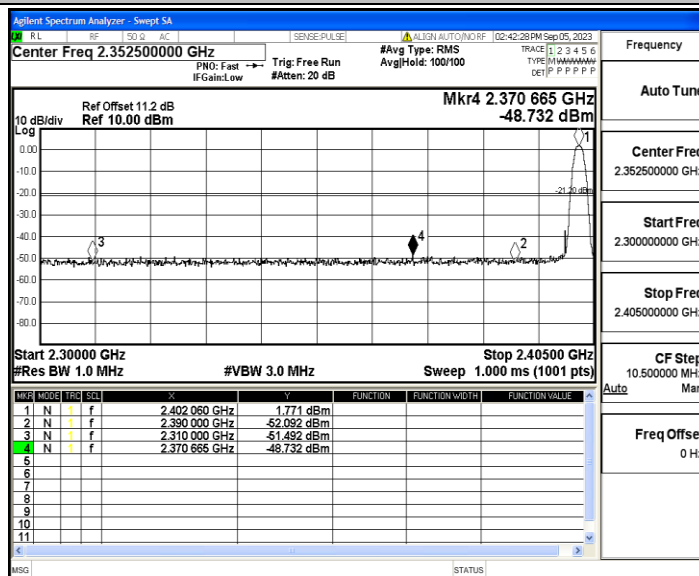
1. The Antenna Gain is compensated in the graph with 2dBi and Antenna Gain which is Higher.
2. The limit in dBm for average detector is conversion from 54dBuV/m, according to 15.209(a). The limit in dBm for peak detector is 20dB above the limit of average detector in dBm.

## Test Graphs

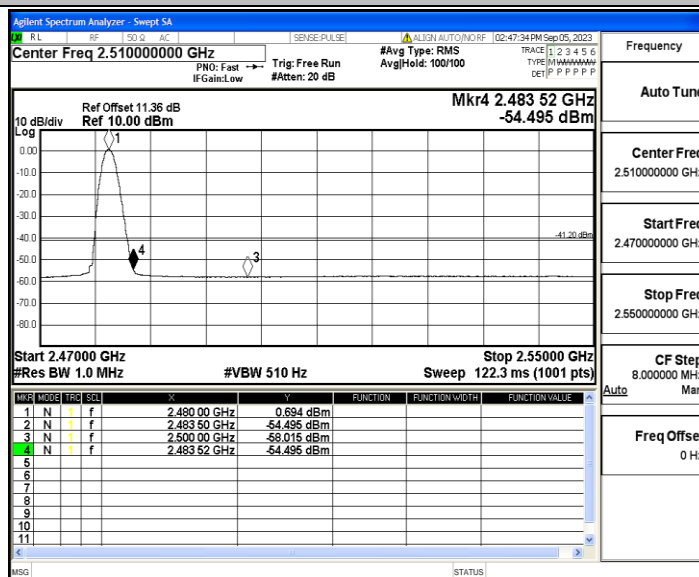
BLE\_1M\_Ant1\_Low\_2402\_AV



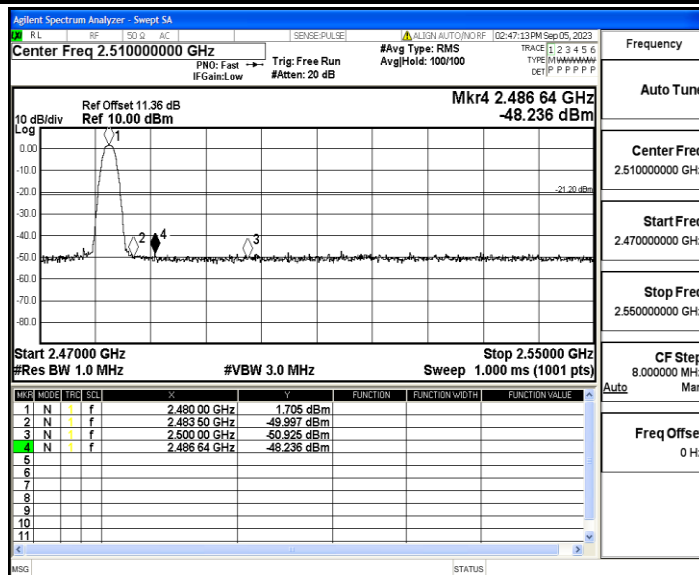
BLE\_1M\_Ant1\_Low\_2402\_Peak



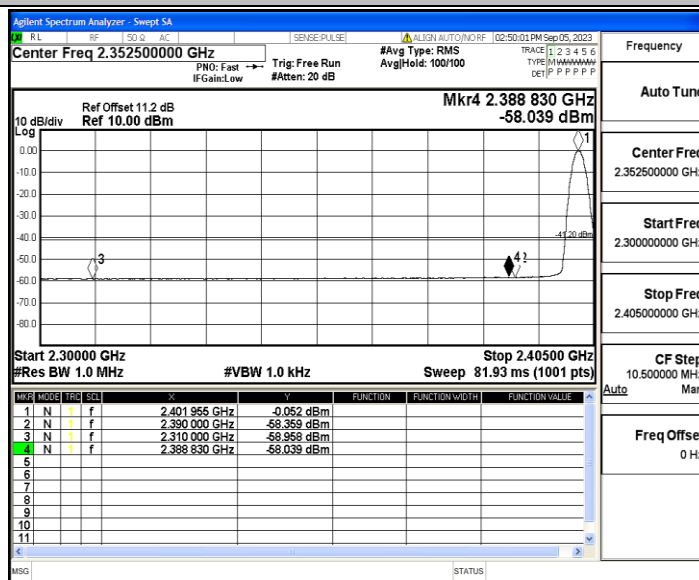
BLE\_1M\_Ant1\_High\_2480\_AV



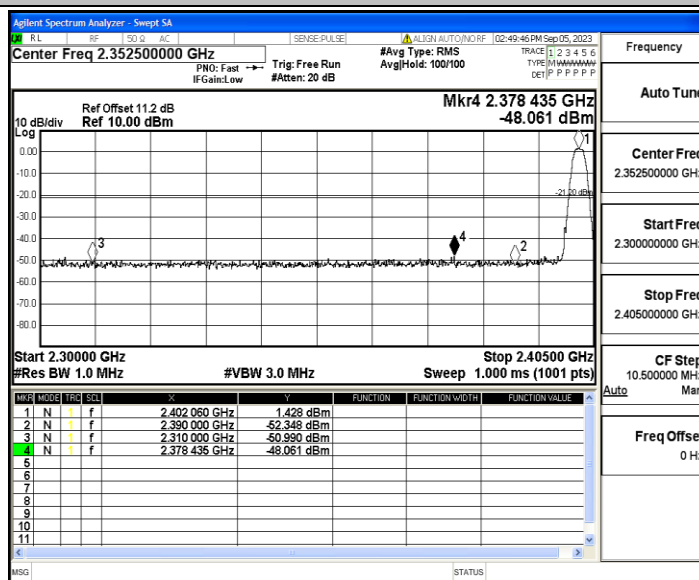
BLE\_1M\_Ant1\_High\_2480\_Peak



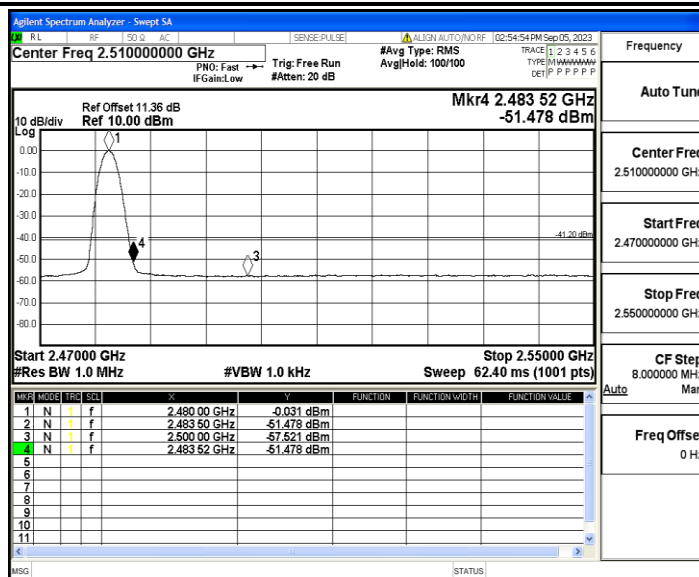
BLE\_2M\_Ant1\_Low\_2402\_AV



BLE\_2M\_Ant1\_Low\_2402\_Peak



BLE\_2M\_Ant1\_High\_2480\_AV



## BLE\_2M\_Ant1\_High\_2480\_Peak

