

## **FCC Appendix RF Test Data for BLE**

**FCC ID** : 2ARKF-I-16

**Company** : Shenzhen Innotrik Technology Co., Ltd

**EUT** : AI Mini Microphone Speaker

**Model Number** : I-16

**Report No.** : CTA25112401201

**Reviewed By** : Eric Wang

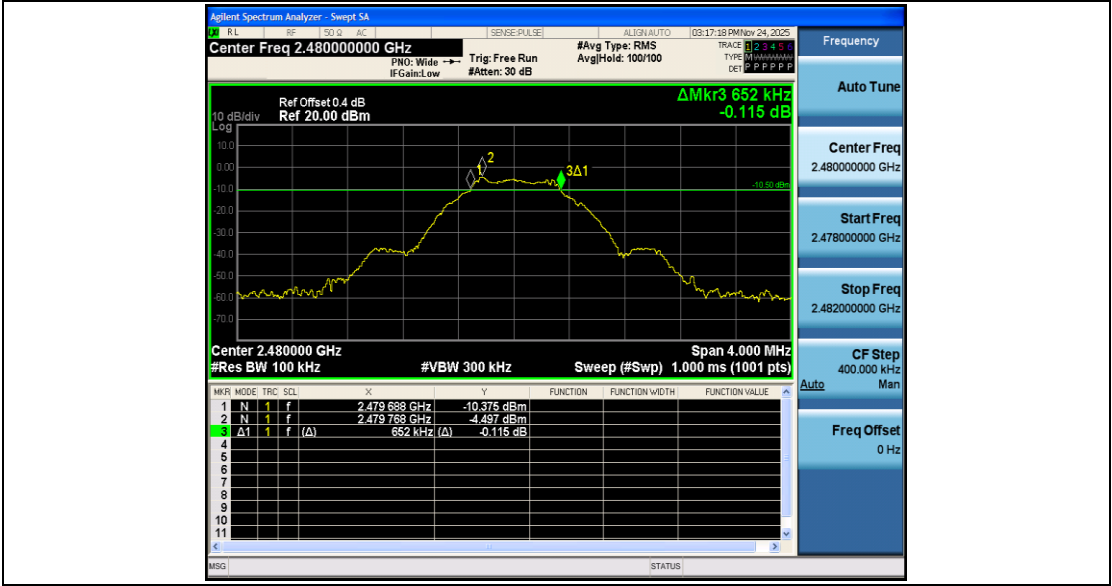
## Appendix A: DTS Bandwidth

### Test Result

| TestMode | Antenna | Freq(MHz) | DTS BW<br>[MHz] | FL[MHz]  | FH[MHz]  | Limit[MHz] | Verdict |
|----------|---------|-----------|-----------------|----------|----------|------------|---------|
| BLE_1M   | Ant1    | 2402      | 0.640           | 2401.696 | 2402.336 | 0.5        | PASS    |
|          |         | 2440      | 0.652           | 2439.688 | 2440.340 | 0.5        | PASS    |
|          |         | 2480      | 0.652           | 2479.688 | 2480.340 | 0.5        | PASS    |

Test Graphs



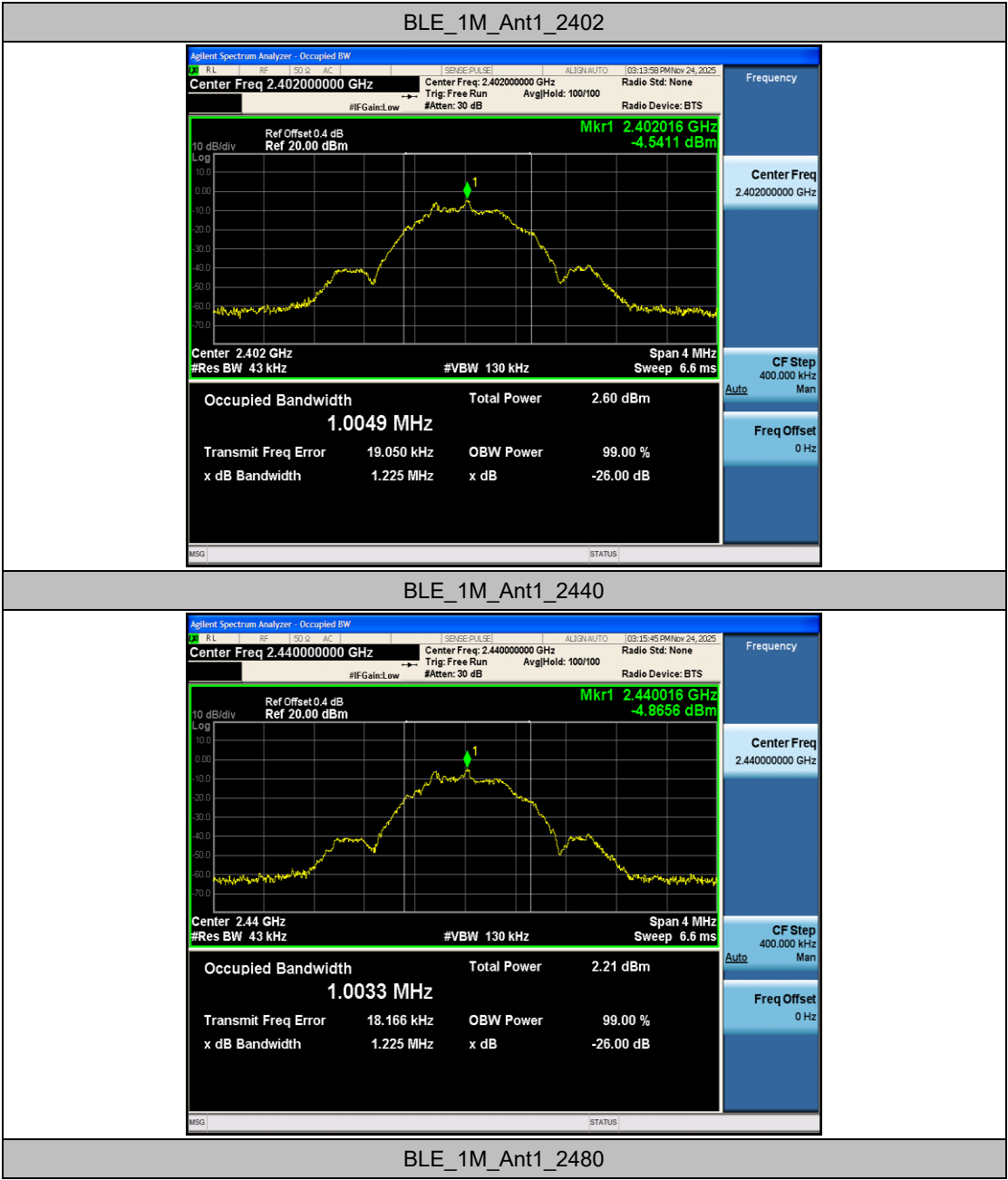


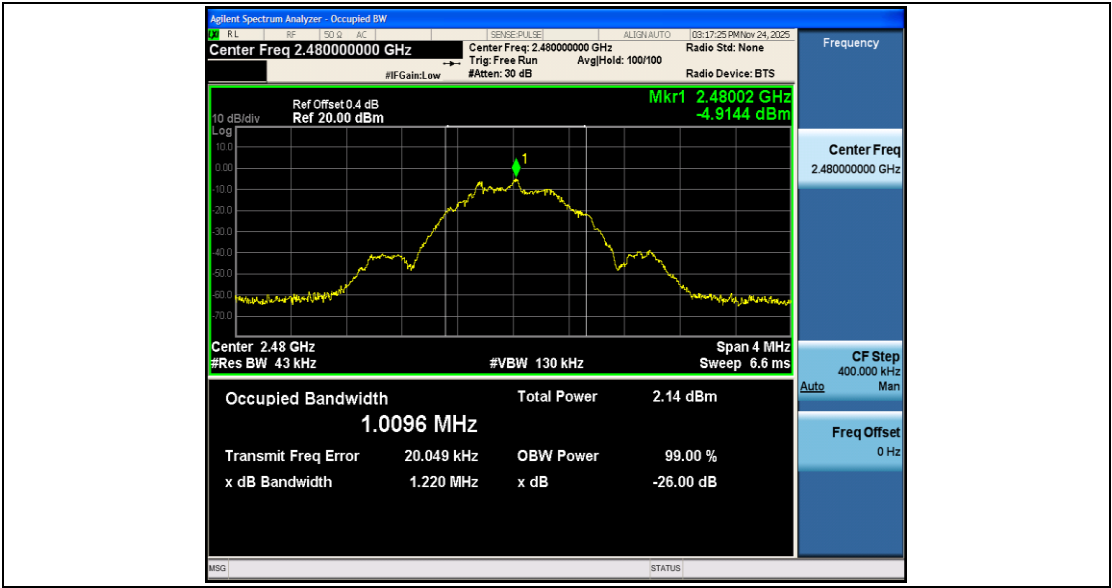
## Appendix B: Occupied Channel Bandwidth

### Test Result

| TestMode | Antenna | Freq(MHz) | OCB [MHz] | FL[MHz]   | FH[MHz]   | Limit[MHz] | Verdict |
|----------|---------|-----------|-----------|-----------|-----------|------------|---------|
| BLE_1M   | Ant1    | 2402      | 1.0049    | 2401.5166 | 2402.5215 | ---        | ---     |
|          |         | 2440      | 1.0033    | 2439.5165 | 2440.5198 | ---        | ---     |
|          |         | 2480      | 1.0096    | 2479.5153 | 2480.5249 | ---        | ---     |

Test Graphs





## Appendix C: Maximum conducted output power

### Test Result Peak

| TestMode | Antenna | Freq(MHz) | Conducted Peak Power[dBm] | Conducted Limit[dBm] | Verdict |
|----------|---------|-----------|---------------------------|----------------------|---------|
| BLE_1M   | Ant1    | 2402      | -3.49                     | ≤30                  | PASS    |
|          |         | 2440      | -3.82                     | ≤30                  | PASS    |
|          |         | 2480      | -3.88                     | ≤30                  | PASS    |

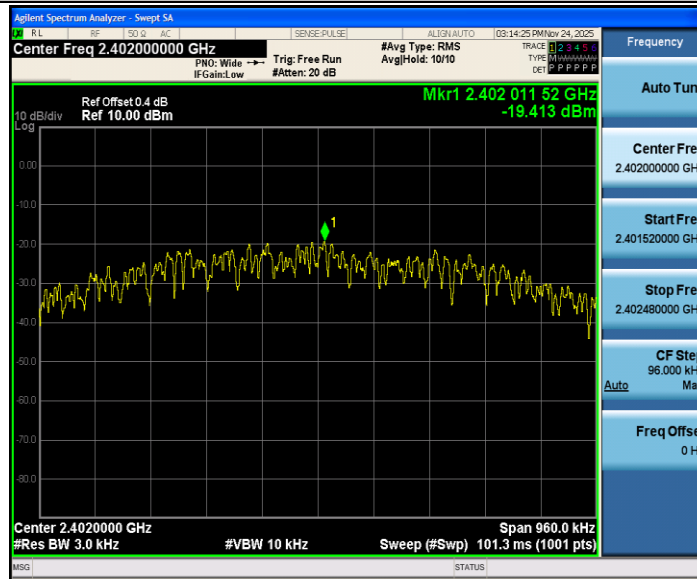
## Appendix D: Maximum power spectral density

### Test Result

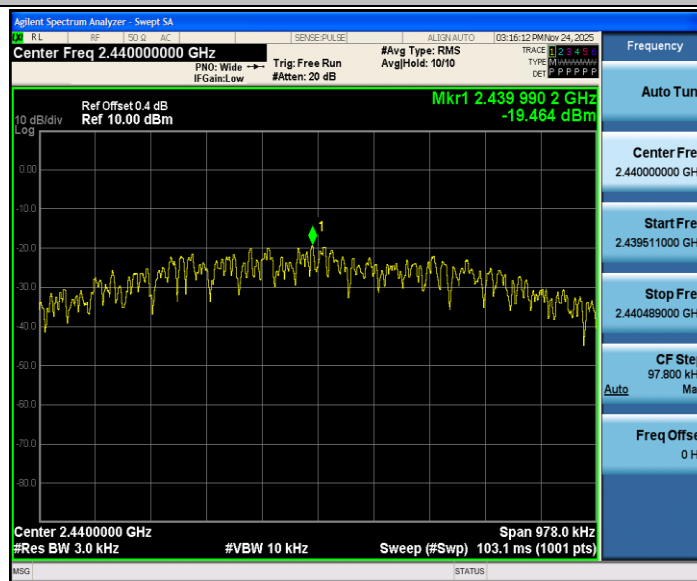
| TestMode | Antenna | Freq(MHz) | Result[dBm/3kHz] | Limit[dBm/3kHz] | Verdict |
|----------|---------|-----------|------------------|-----------------|---------|
| BLE_1M   | Ant1    | 2402      | -19.41           | ≤8.00           | PASS    |
|          |         | 2440      | -19.46           | ≤8.00           | PASS    |
|          |         | 2480      | -19.60           | ≤8.00           | PASS    |

## Test Graphs

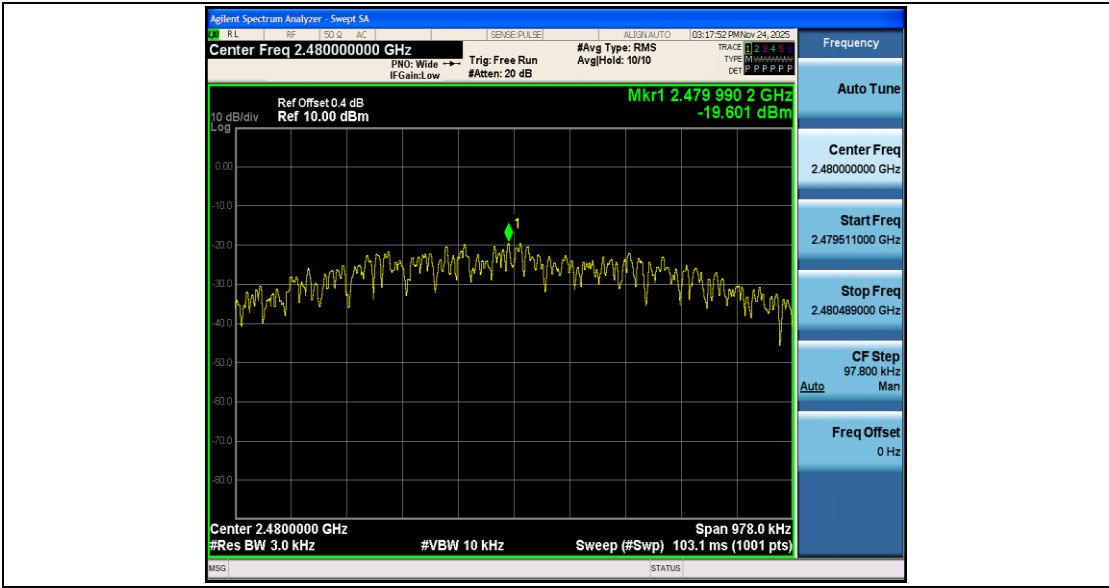
BLE\_1M\_Ant1\_2402



BLE\_1M\_Ant1\_2440



BLE\_1M\_Ant1\_2480

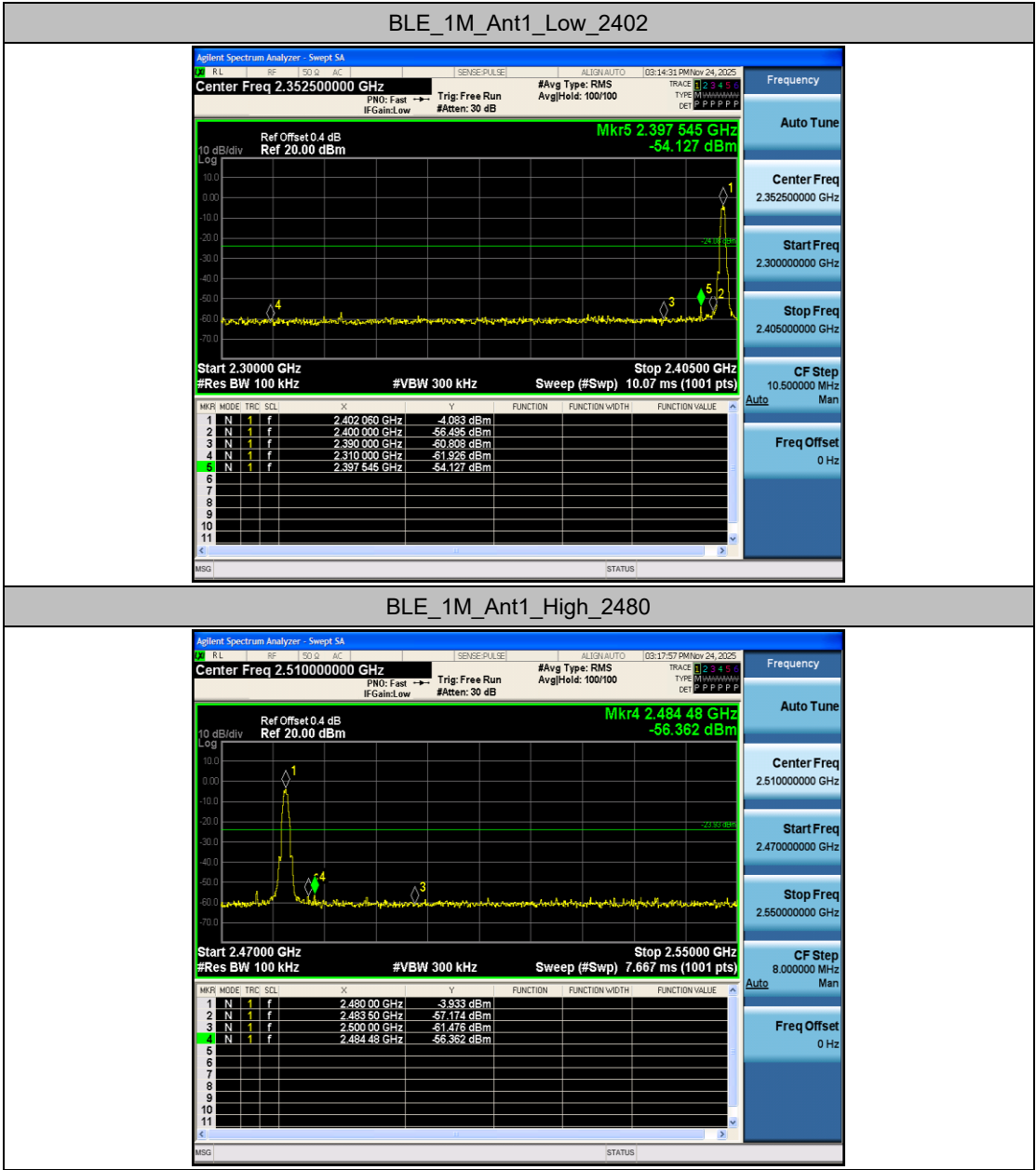


## Appendix E: Band edge measurements

### Test Result

| TestMod<br>e | Antenn<br>a | ChNam<br>e | Freq(MHz<br>) | RefLevel[dBm<br>] | Result[dBm<br>] | Limit[dBm<br>] | Verdic<br>t |
|--------------|-------------|------------|---------------|-------------------|-----------------|----------------|-------------|
| BLE_1M       | Ant1        | Low        | 2402          | -4.08             | -54.13          | ≤-24.08        | PASS        |
|              |             | High       | 2480          | -3.93             | -56.36          | ≤-23.93        | PASS        |

# Test Graphs

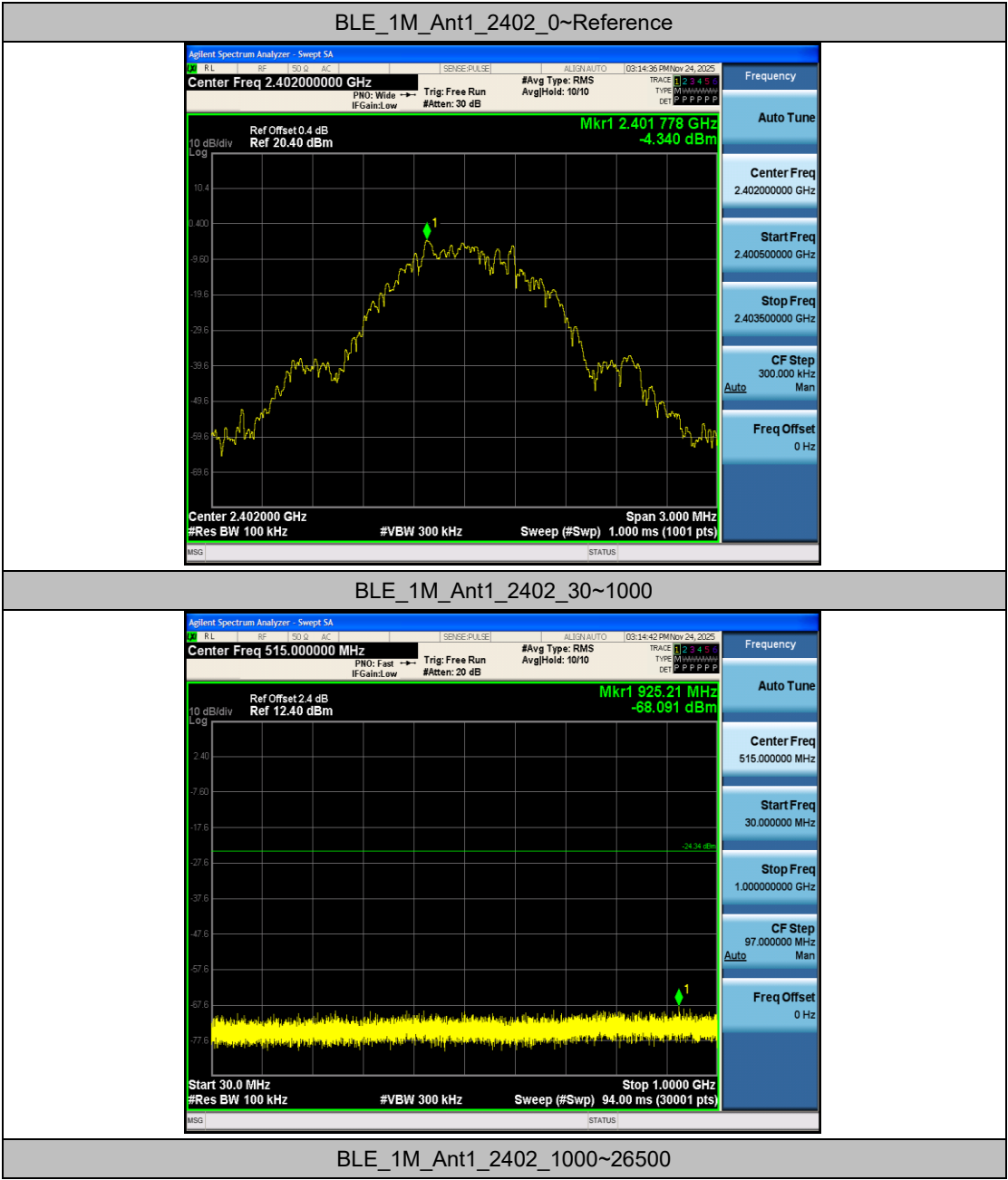


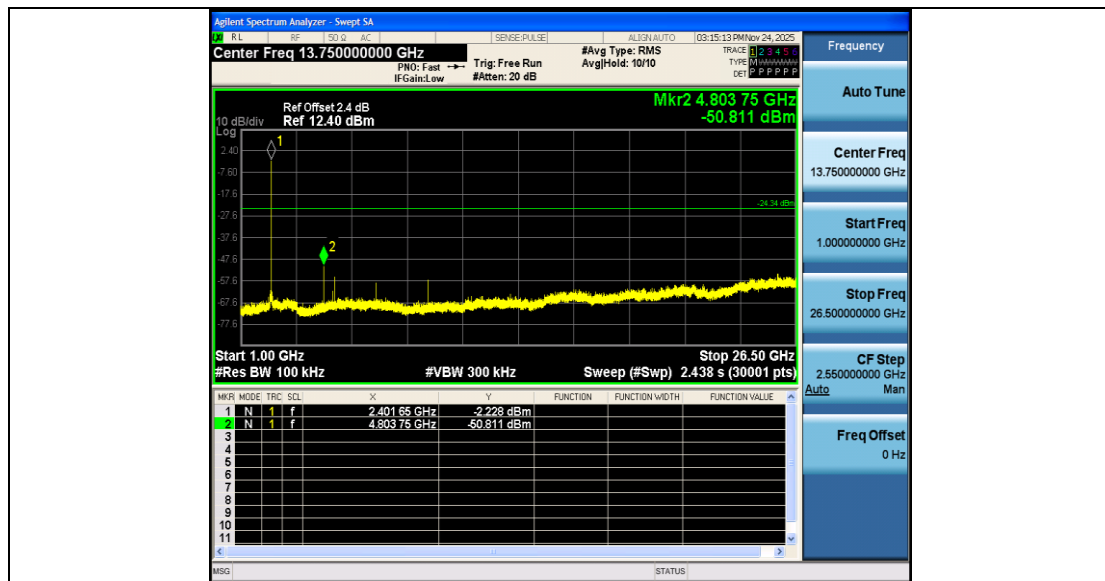
## Appendix F: Conducted Spurious Emission

### Test Result

| TestMode | Antenna | Freq(MHz) | FreqRange<br>[MHz] | RefLevel<br>[dBm] | Result[dBm] | Limit[dBm] | Verdict |
|----------|---------|-----------|--------------------|-------------------|-------------|------------|---------|
| BLE_1M   | Ant1    | 2402      | Reference          | -4.34             | -4.34       | ---        | PASS    |
|          |         |           | 30~1000            | -4.34             | -68.09      | ≤-24.34    | PASS    |
|          |         |           | 1000~26500         | -4.34             | -50.81      | ≤-24.34    | PASS    |
|          |         | 2440      | Reference          | -5.29             | -5.29       | ---        | PASS    |
|          |         |           | 30~1000            | -5.29             | -67.25      | ≤-25.29    | PASS    |
|          |         |           | 1000~26500         | -5.29             | -46.29      | ≤-25.29    | PASS    |
|          |         | 2480      | Reference          | -5.01             | -5.01       | ---        | PASS    |
|          |         |           | 30~1000            | -5.01             | -68.6       | ≤-25.01    | PASS    |
|          |         |           | 1000~26500         | -5.01             | -47.41      | ≤-25.01    | PASS    |

Test Graphs

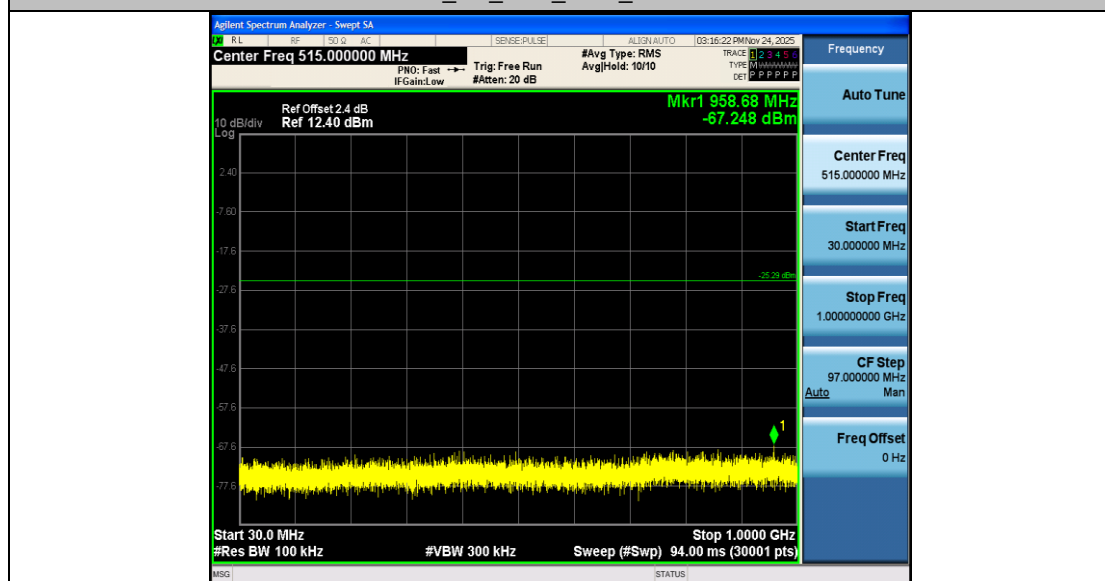




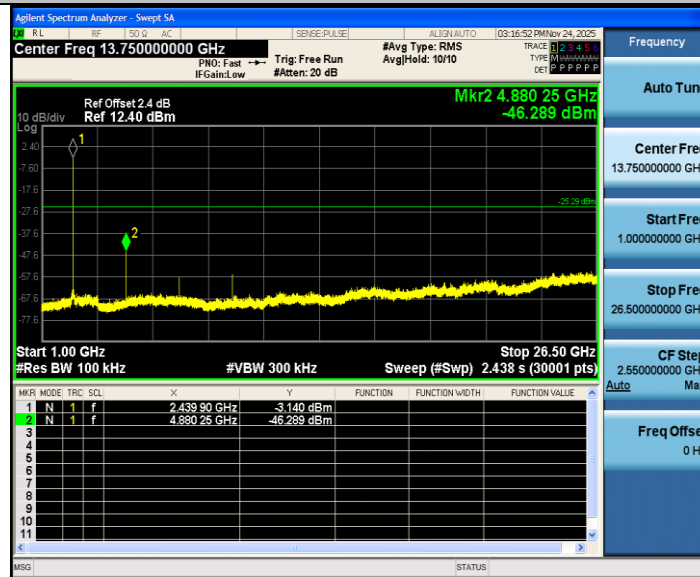
BLE\_1M\_Ant1\_2440\_0~Reference



BLE\_1M\_Ant1\_2440\_30~1000



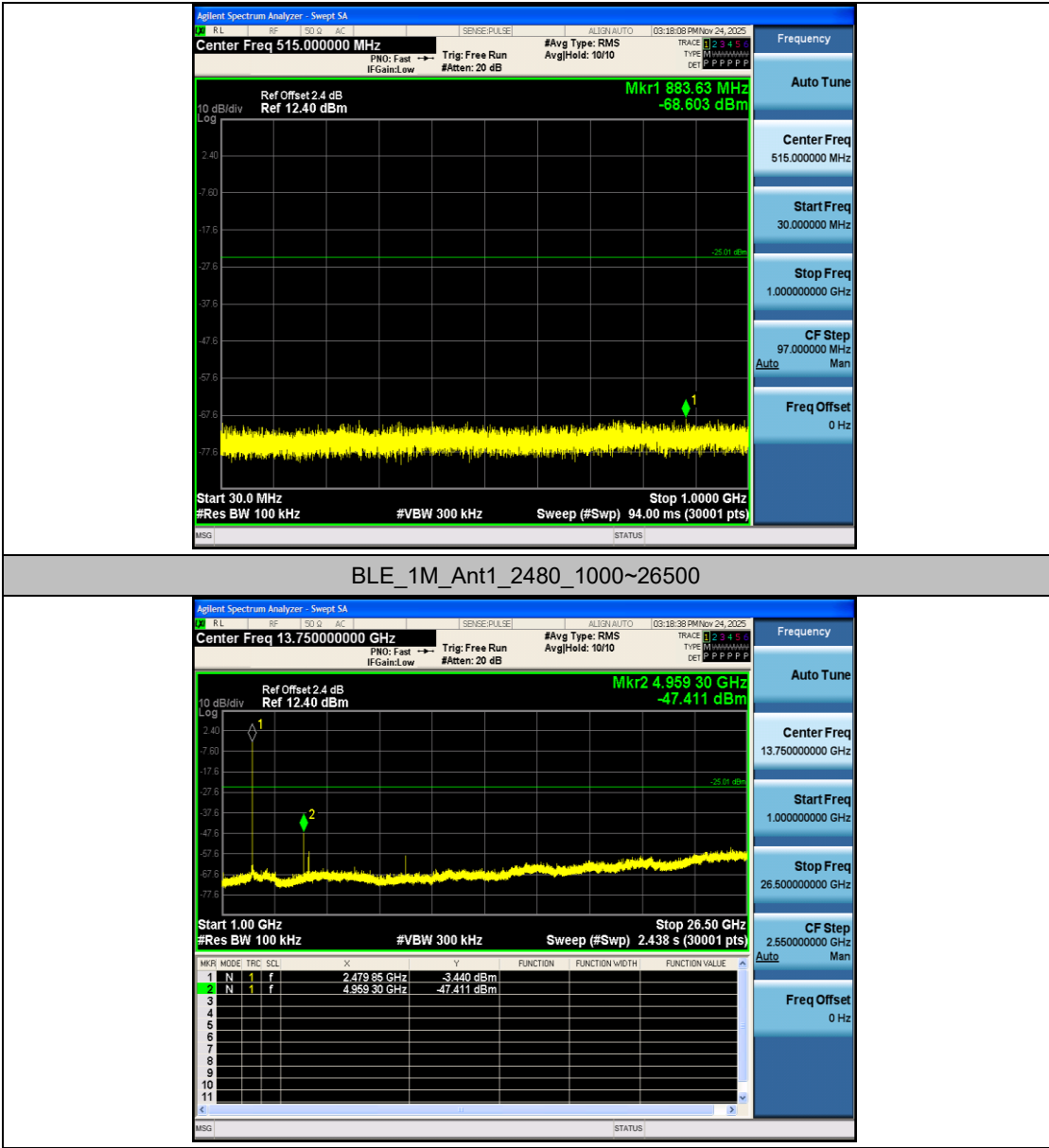
# BLE\_1M\_Ant1\_2440\_1000~26500



# BLE\_1M\_Ant1\_2480\_0~Reference



# BLE\_1M\_Ant1\_2480\_30~1000

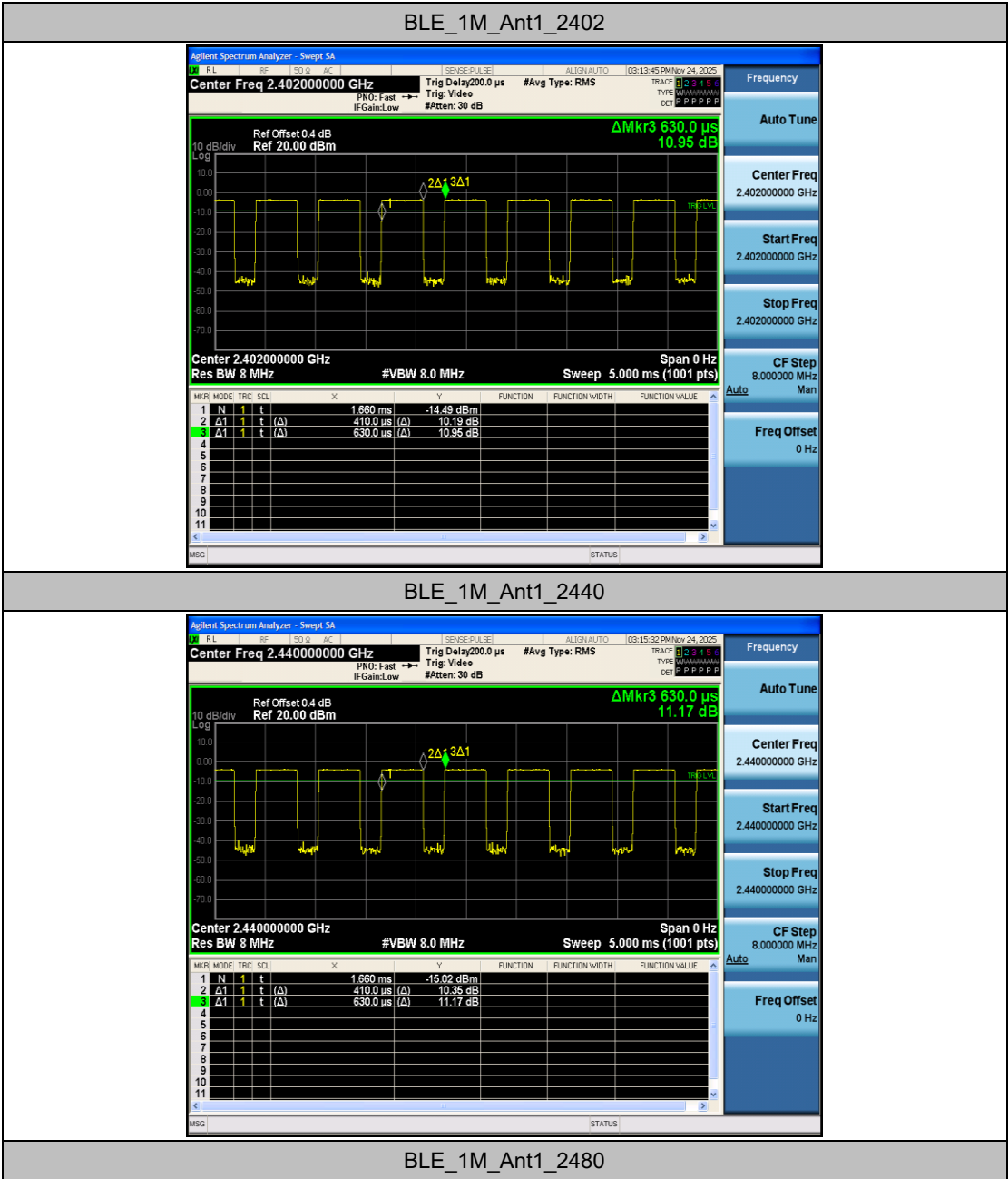


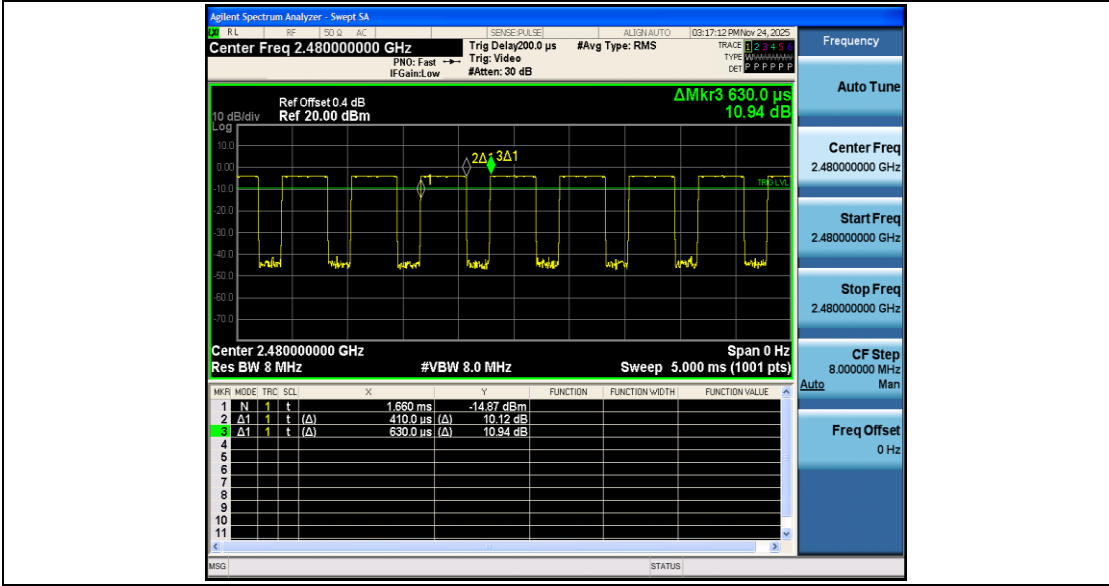
## Appendix G: Duty Cycle

### Test Result

| TestMode | Antenna | Freq(MHz) | ON Time<br>[ms] | Period<br>[ms] | X      | DC<br>[%] | xFactor | Limit | Verdict |
|----------|---------|-----------|-----------------|----------------|--------|-----------|---------|-------|---------|
| BLE_1M   | Ant1    | 2402      | 0.41            | 0.63           | 0.6508 | 65.08     | 1.87    | ---   | ---     |
|          |         | 2440      | 0.41            | 0.63           | 0.6508 | 65.08     | 1.87    | ---   | ---     |
|          |         | 2480      | 0.41            | 0.63           | 0.6508 | 65.08     | 1.87    | ---   | ---     |

Test Graphs





## Appendix H: Emissions in Restricted Bands

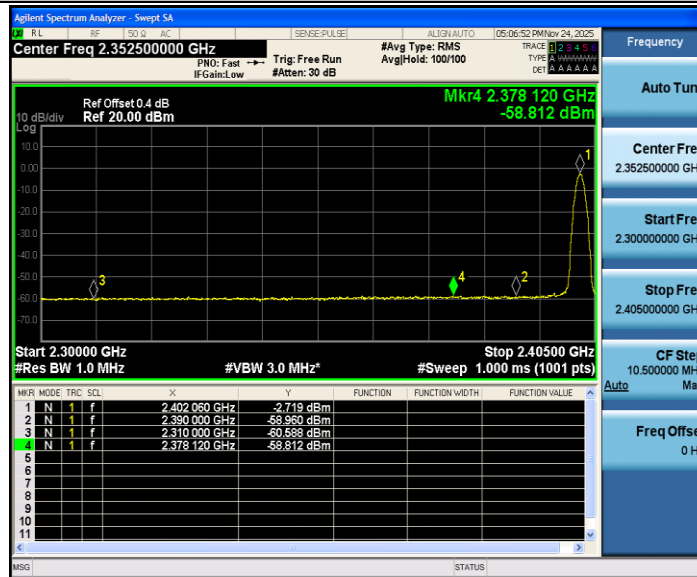
### Test Result

| TestMode | Antenna | Channel | Freq(MHz) | Detector | Freq [MHz] | Result [dBm] | Gain [dB] | DC Factor [dB] | Result [dBuV/m] | Limit [dBuV/m] | Verdict |
|----------|---------|---------|-----------|----------|------------|--------------|-----------|----------------|-----------------|----------------|---------|
| BLE_1M   | Ant1    | Low     | 2402      | AV       | 2310.000   | -60.59       | 2.00      | 1.87           | 38.48           | ≤54            | PASS    |
|          |         |         |           | AV       | 2378.120   | -58.81       | 2.00      | 1.87           | 40.26           | ≤54            | PASS    |
|          |         |         |           | AV       | 2390.000   | -58.96       | 2.00      | 1.87           | 40.11           | ≤54            | PASS    |
|          |         |         |           | Peak     | 2310.000   | -51.33       | 2.00      | 0.00           | 45.87           | ≤74            | PASS    |
|          |         |         |           | Peak     | 2349.875   | -48.25       | 2.00      | 0.00           | 48.95           | ≤74            | PASS    |
|          |         |         |           | Peak     | 2390.000   | -50.76       | 2.00      | 0.00           | 46.44           | ≤74            | PASS    |
|          |         | High    | 2480      | AV       | 2483.500   | -57.97       | 2.00      | 1.87           | 41.1            | ≤54            | PASS    |
|          |         |         |           | AV       | 2485.120   | -57.73       | 2.00      | 1.87           | 41.34           | ≤54            | PASS    |
|          |         |         |           | AV       | 2500.000   | -59.53       | 2.00      | 1.87           | 39.54           | ≤54            | PASS    |
|          |         |         |           | Peak     | 2483.500   | -49.09       | 2.00      | 0.00           | 48.11           | ≤74            | PASS    |
|          |         |         |           | Peak     | 2484.720   | -42.41       | 2.00      | 0.00           | 54.79           | ≤74            | PASS    |
|          |         |         |           | Peak     | 2500.000   | -52.1        | 2.00      | 0.00           | 45.1            | ≤74            | PASS    |

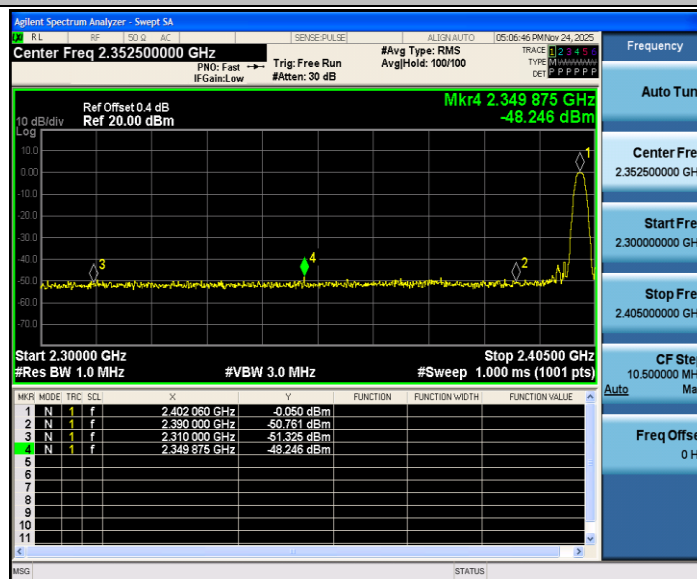
Note: The limit in dBm for average detector is conversion from 54dBuV/m, according to 15.209(a). The limit in dBm for peak detector is 20dB above the limit of average detector in dBm.

## Test Graphs

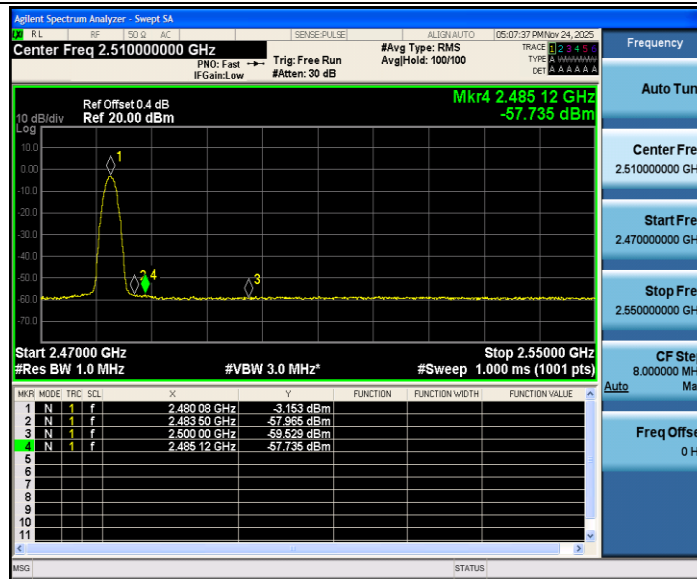
BLE\_1M\_Ant1\_Low\_2402\_AV



BLE\_1M\_Ant1\_Low\_2402\_Peak



BLE\_1M\_Ant1\_High\_2480\_AV



BLE\_1M\_Ant1\_High\_2480\_Peak

