



## Appendix A

### RF Test Data for 2.4G BLE (Conducted Measurement)

Product Name: Massage chair

Test Model: N-0003H

#### Environmental Conditions

|                    |           |
|--------------------|-----------|
| Temperature:       | 21.1 ° C  |
| Relative Humidity: | 52.2%     |
| ATM Pressure:      | 100.0 kPa |
| Test Engineer:     | Jay Li    |
| Supervised by:     | Huan Li   |

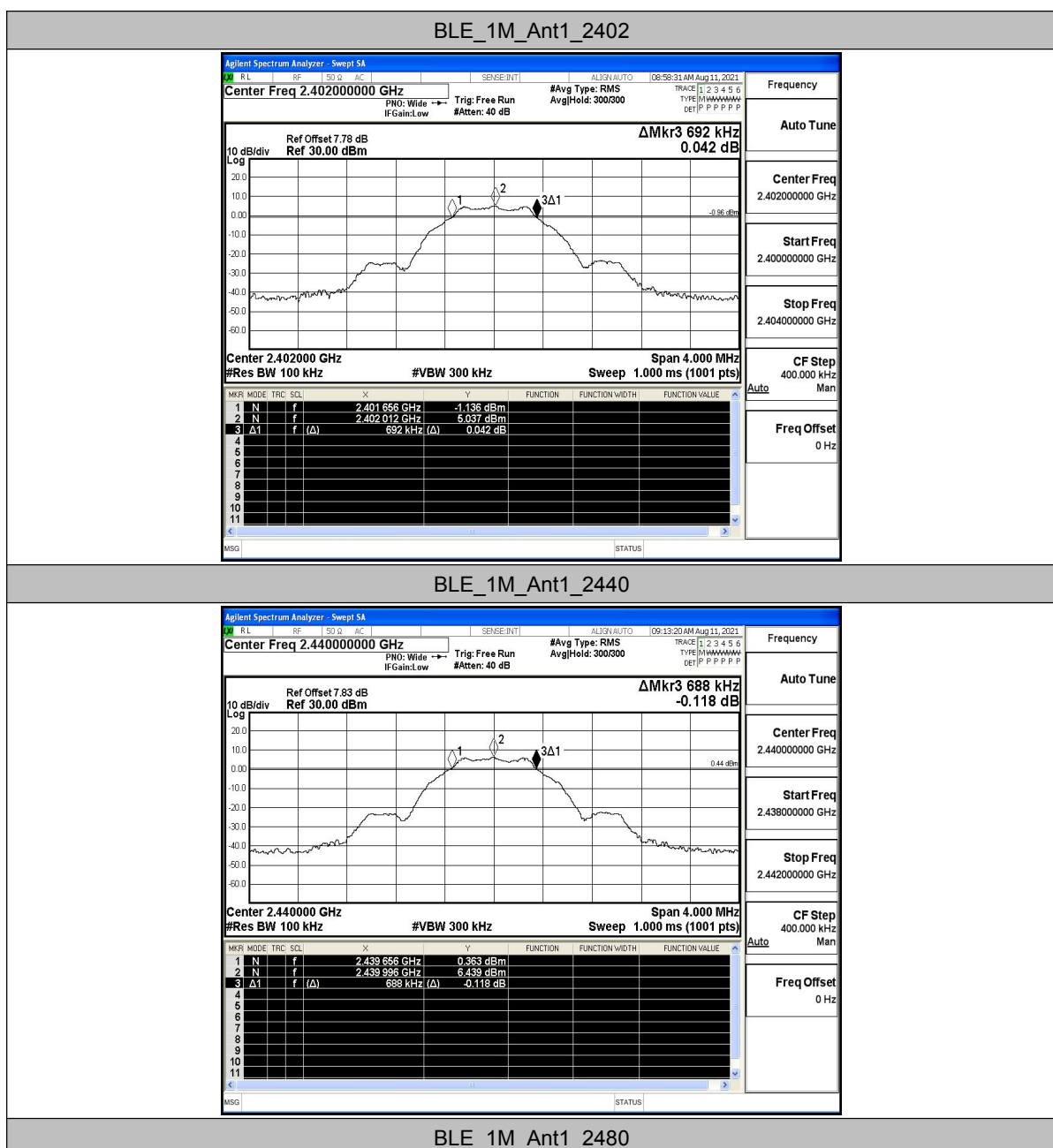


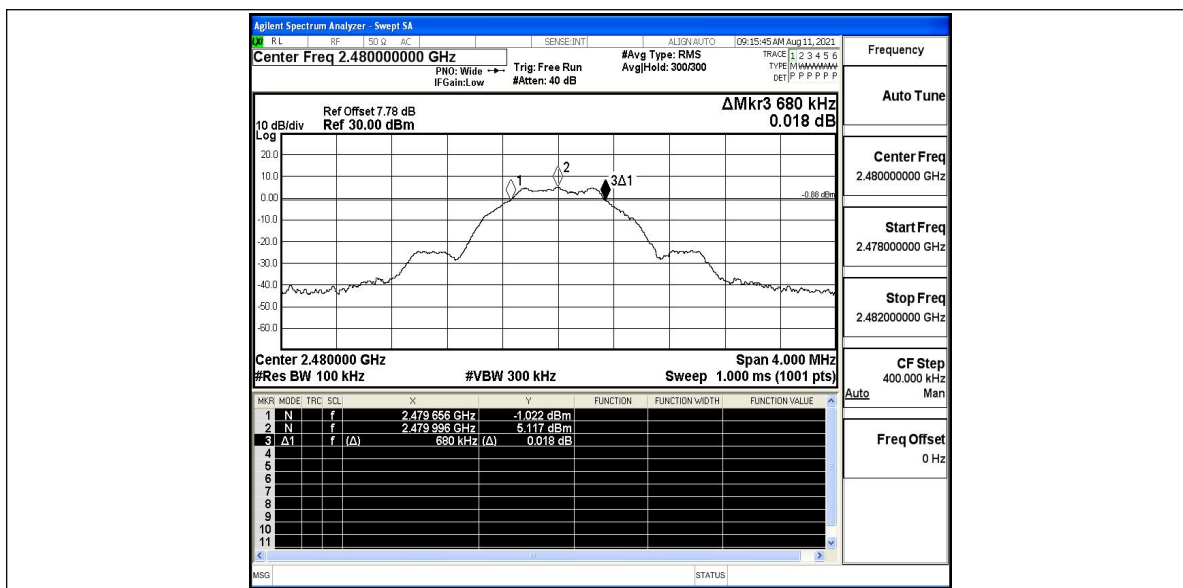
## A.1 DTS Bandwidth

### Test Result

| TestMode | Antenna | Channel | DTS BW [MHz] | FL[MHz]  | FH[MHz]  | Limit[MHz] | Verdict |
|----------|---------|---------|--------------|----------|----------|------------|---------|
| BLE_1M   | Ant1    | 2402    | 0.692        | 2401.656 | 2402.348 | ≥0.5       | PASS    |
|          |         | 2440    | 0.688        | 2439.656 | 2440.344 | ≥0.5       | PASS    |
|          |         | 2480    | 0.680        | 2479.656 | 2480.336 | ≥0.5       | PASS    |

### Test Graphs







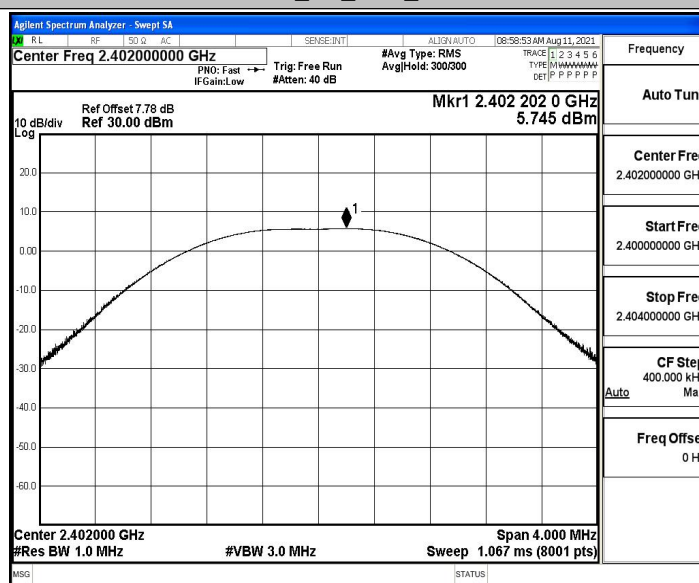
## A.2 Maximum conducted output power

### Test Result

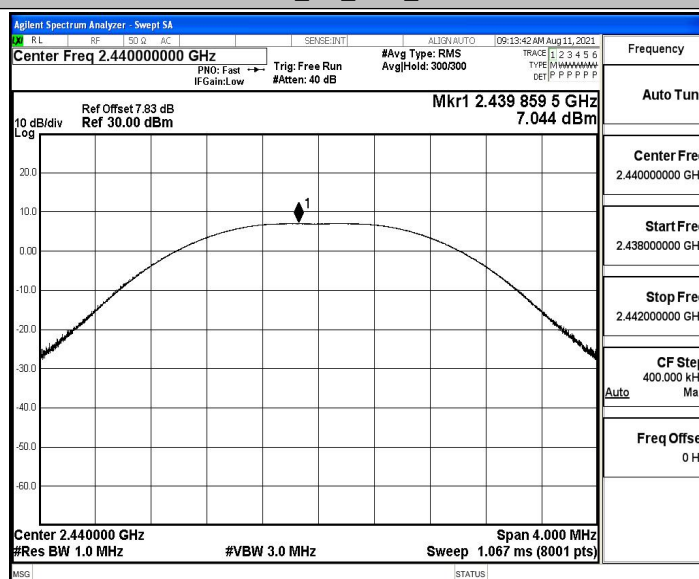
| TestMode | Antenna | Channel | Result[dBm] | Limit[dBm] | Verdict |
|----------|---------|---------|-------------|------------|---------|
| BLE_1M   | Ant1    | 2402    | 5.75        | ≤30        | PASS    |
|          |         | 2440    | 7.04        | ≤30        | PASS    |
|          |         | 2480    | 5.65        | ≤30        | PASS    |

### Test Graphs

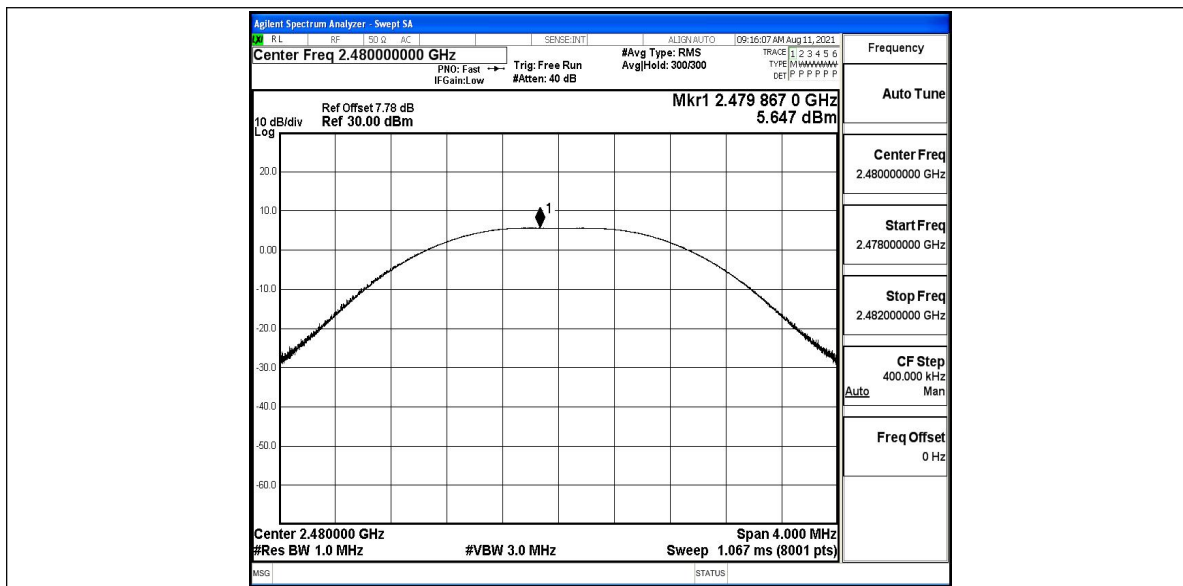
BLE\_1M\_Ant1\_2402



BLE\_1M\_Ant1\_2440



BLE\_1M\_Ant1\_2480



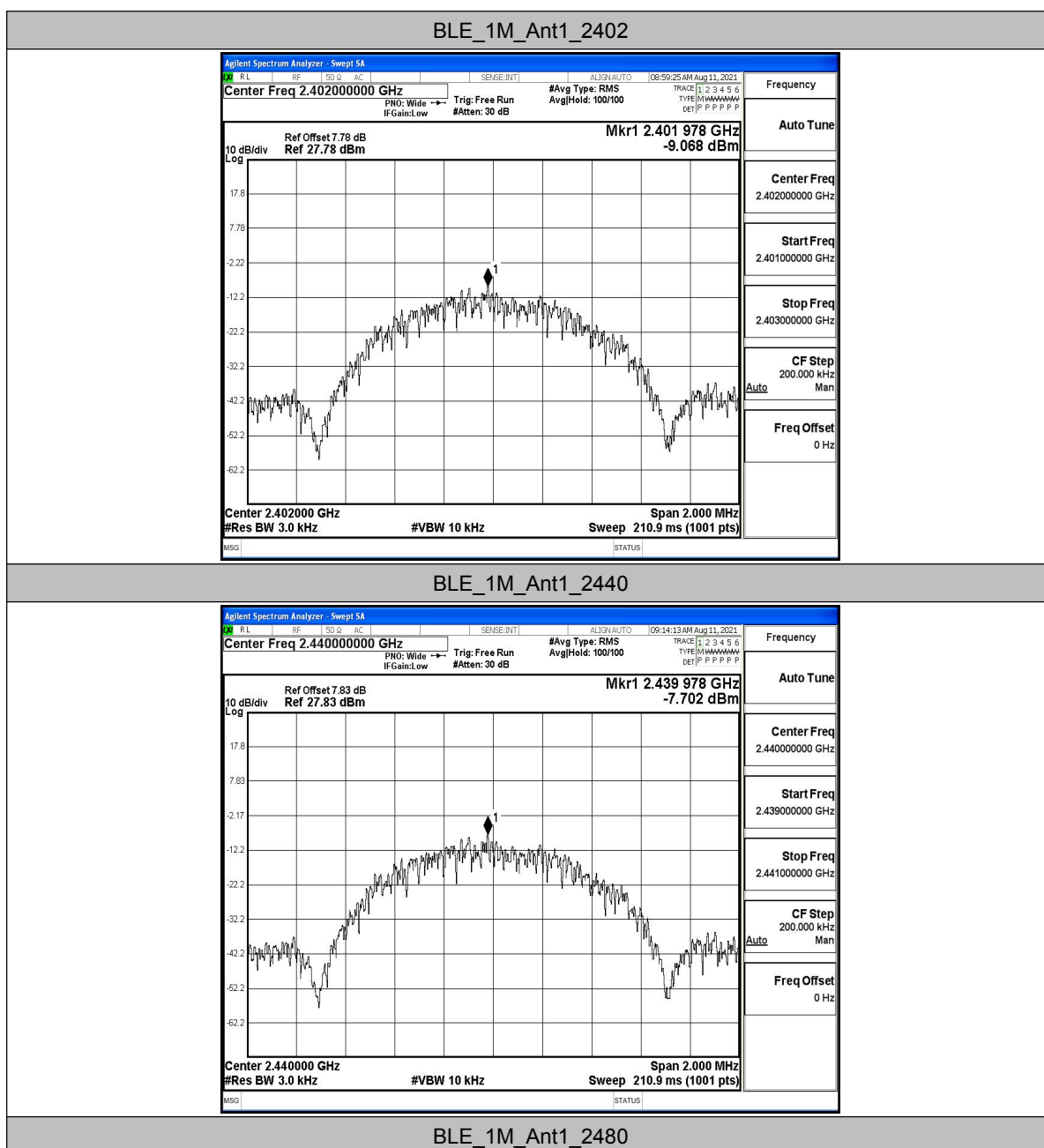


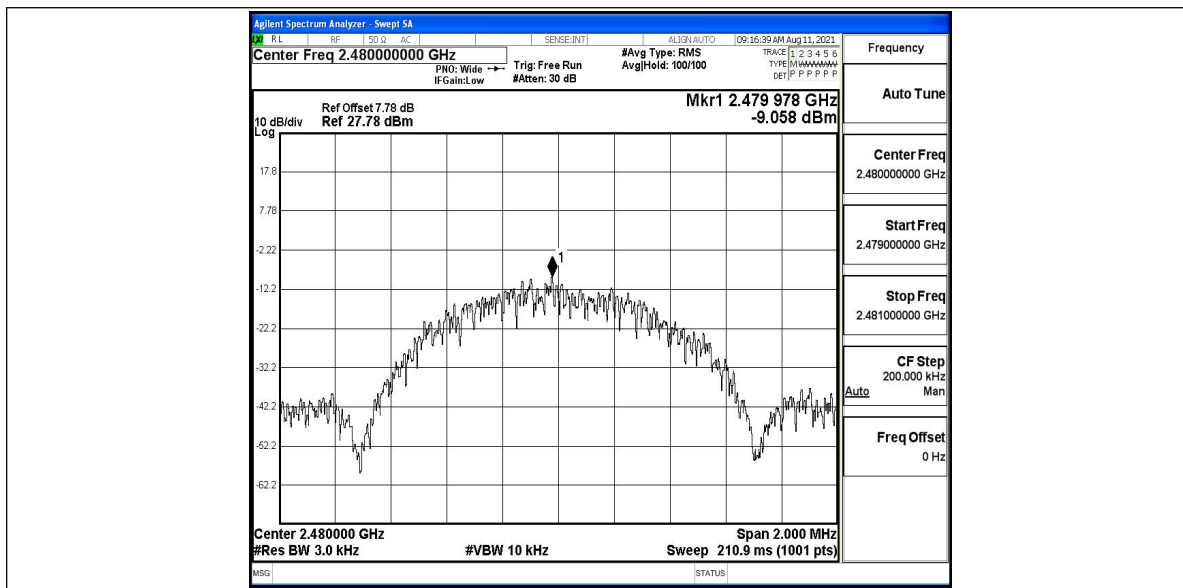
## A.3 Maximum power spectral density

### Test Result

| TestMode | Antenna | Channel | Result[dBm/3-100kHz] | Limit[dBm/3kHz] | Verdict |
|----------|---------|---------|----------------------|-----------------|---------|
| BLE_1M   | Ant1    | 2402    | -9.07                | ≤8              | PASS    |
|          |         | 2440    | -7.7                 | ≤8              | PASS    |
|          |         | 2480    | -9.06                | ≤8              | PASS    |

### Test Graphs





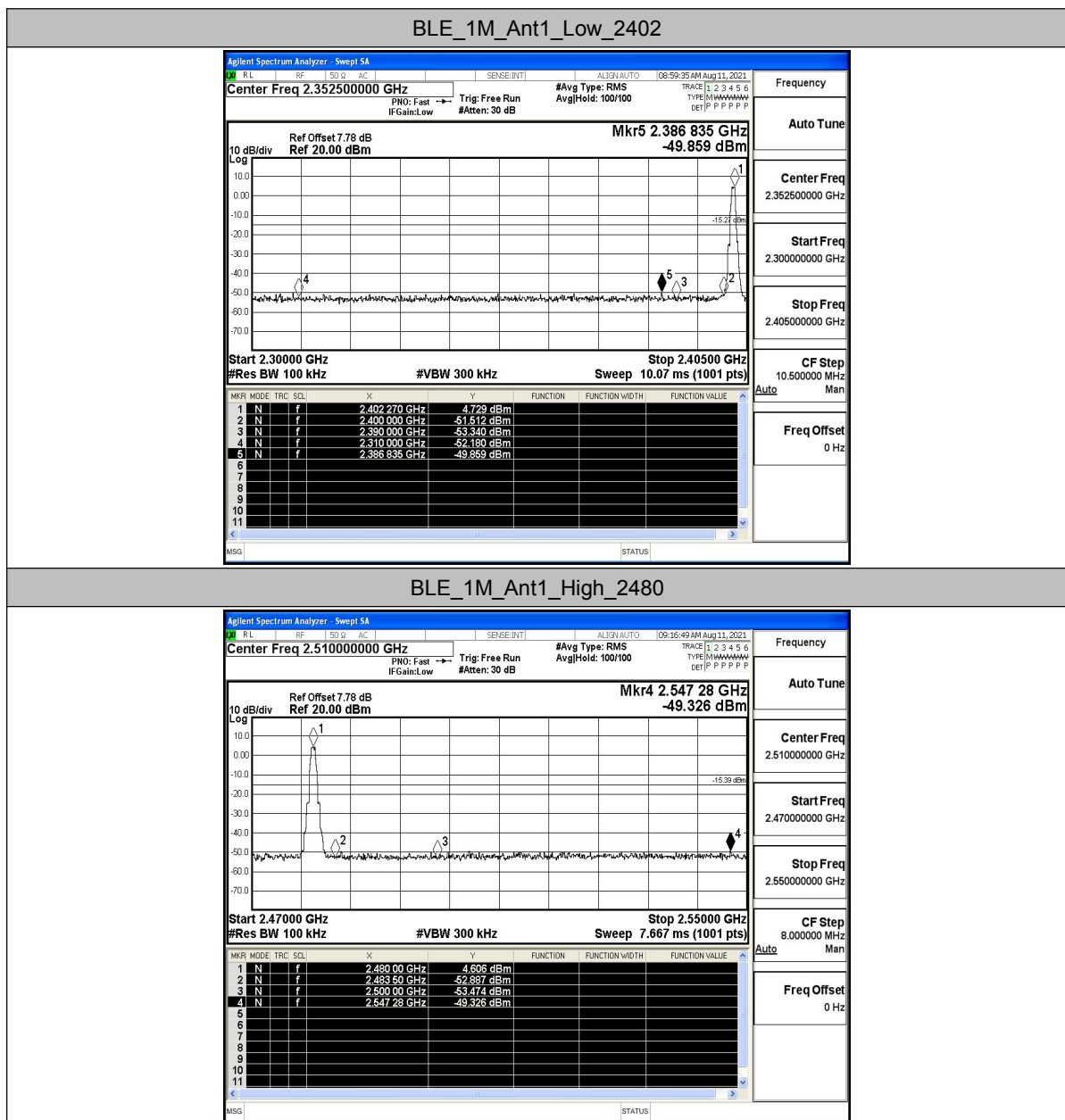


## A.4 Band edge measurements

### Test Result

| TestMode | Antenna | ChName | Channel | RefLevel[dBm] | Result[dBm] | Limit[dBm] | Verdict |
|----------|---------|--------|---------|---------------|-------------|------------|---------|
| BLE_1M   | Ant1    | Low    | 2402    | 4.73          | -49.86      | ≤-15.27    | PASS    |
|          |         | High   | 2480    | 4.61          | -49.33      | ≤-15.39    | PASS    |

### Test Graphs



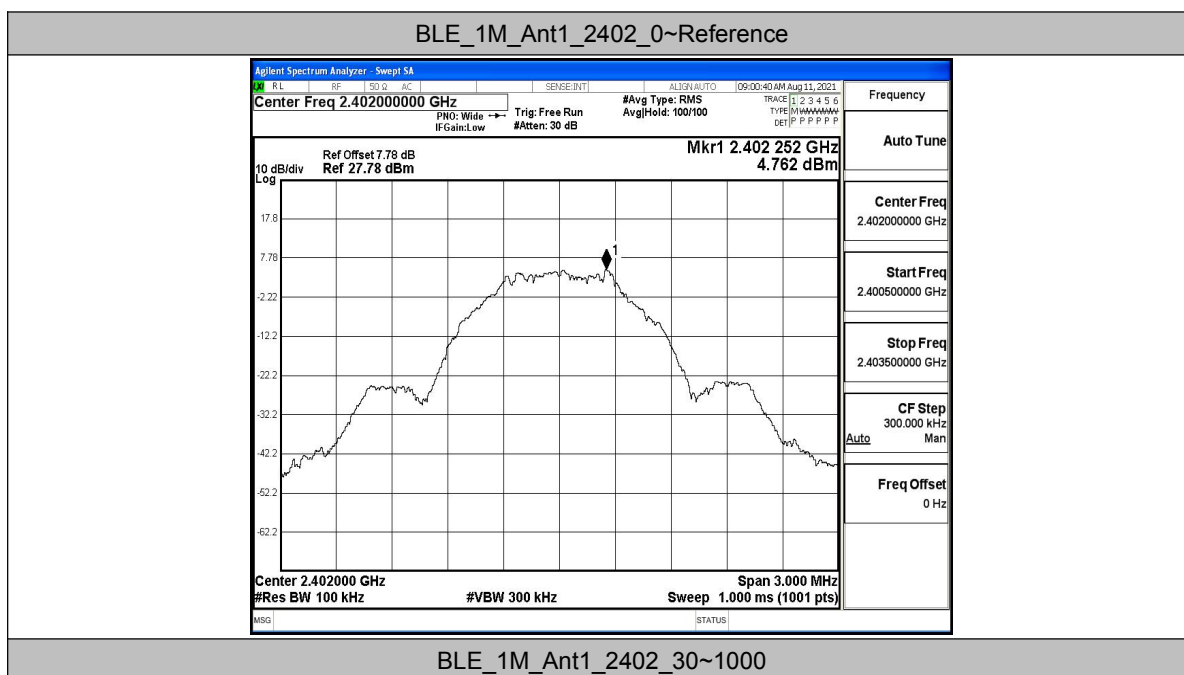


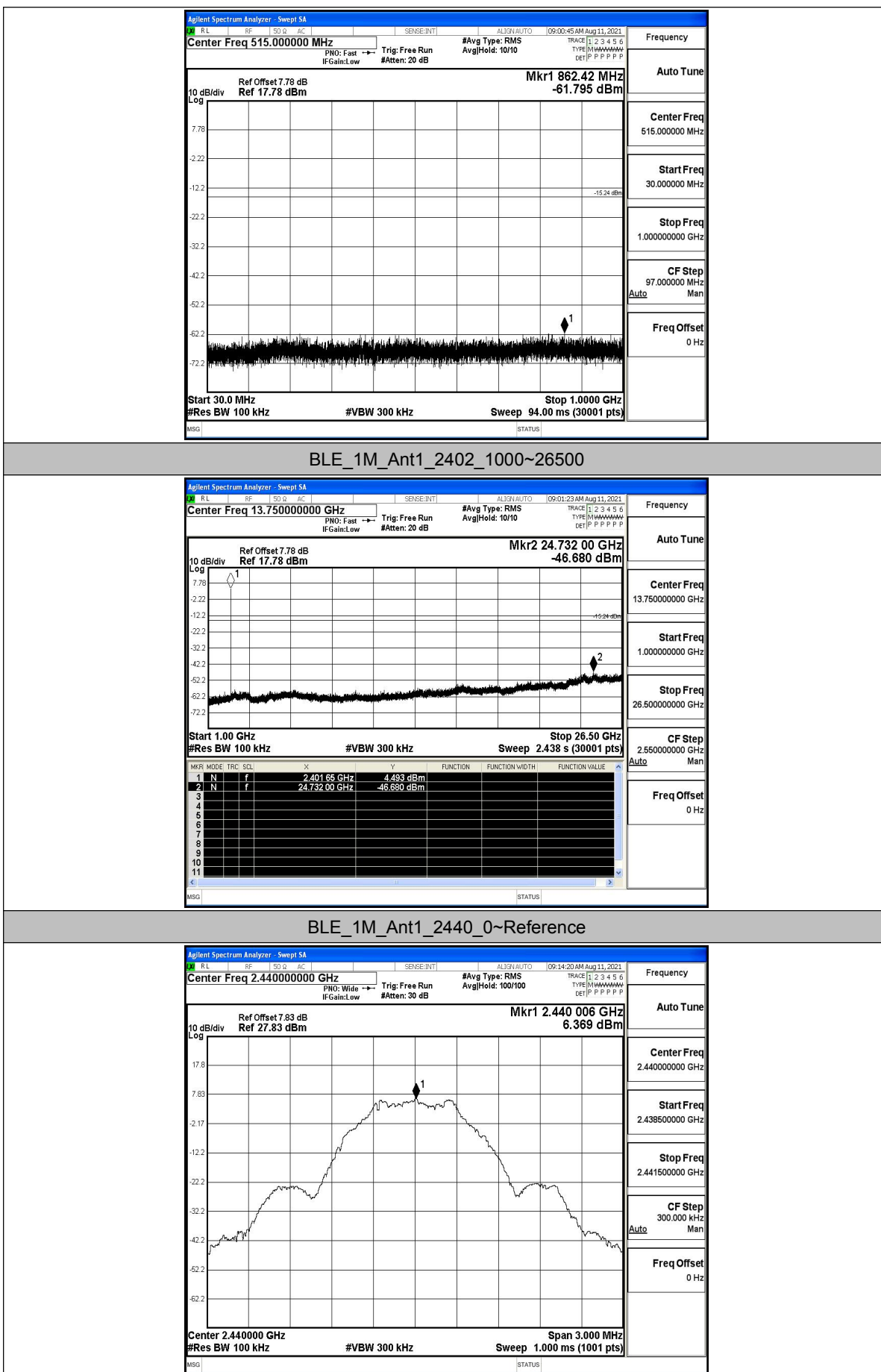
## A.5 Conducted Spurious Emission

### Test Result

| TestMode | Antenna | Channel | FreqRange [MHz] | RefLevel [dBm] | Result[dBm] | Limit[dBm]    | Verdict |
|----------|---------|---------|-----------------|----------------|-------------|---------------|---------|
| BLE_1M   | Ant1    | 2402    | Reference       | 4.76           | 4.76        | ---           | PASS    |
|          |         |         | 30~1000         | 4.76           | -61.8       | $\leq -15.24$ | PASS    |
|          |         |         | 1000~26500      | 4.76           | -46.68      | $\leq -15.24$ | PASS    |
|          |         | 2440    | Reference       | 6.37           | 6.37        | ---           | PASS    |
|          |         |         | 30~1000         | 6.37           | -61.98      | $\leq -13.63$ | PASS    |
|          |         |         | 1000~26500      | 6.37           | -47.21      | $\leq -13.63$ | PASS    |
|          |         | 2480    | Reference       | 5.05           | 5.05        | ---           | PASS    |
|          |         |         | 30~1000         | 5.05           | -62.29      | $\leq -14.96$ | PASS    |
|          |         |         | 1000~26500      | 5.05           | -46.79      | $\leq -14.96$ | PASS    |

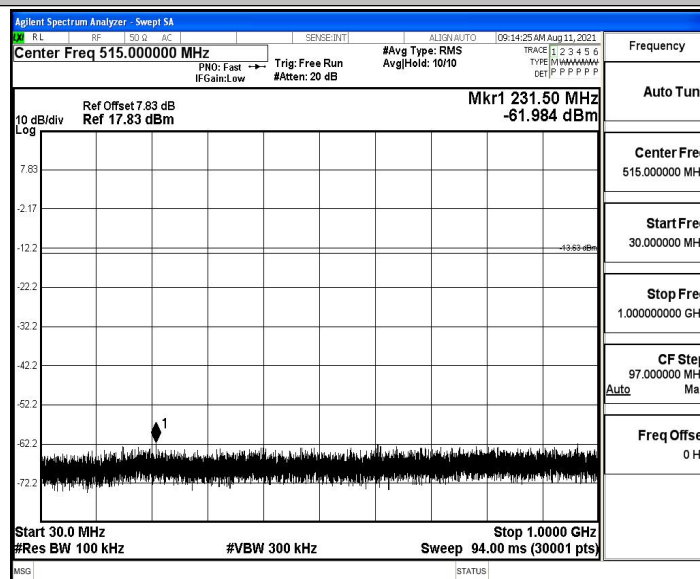
### Test Graphs



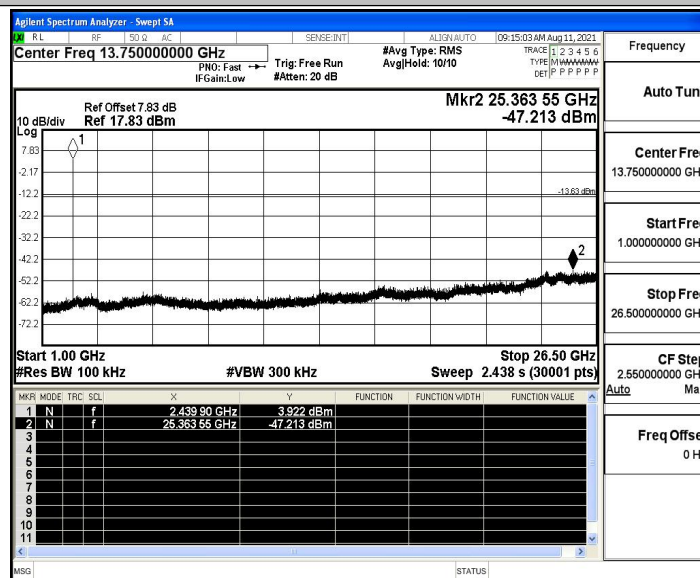




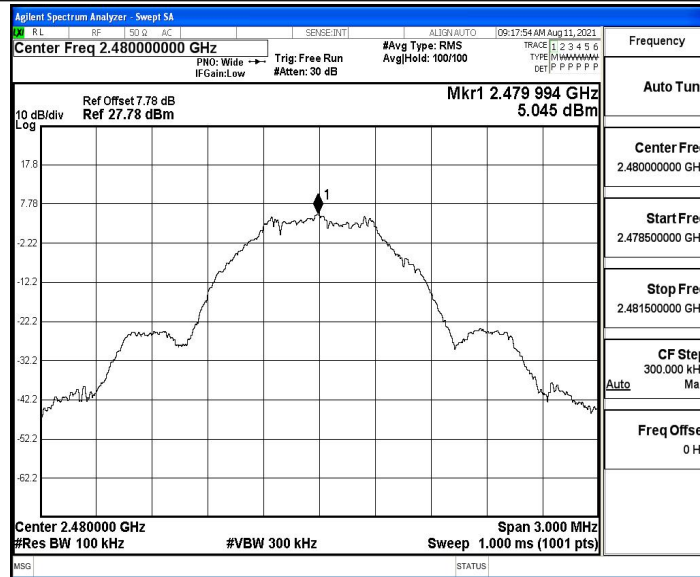
## BLE\_1M\_Ant1\_2440\_30~1000



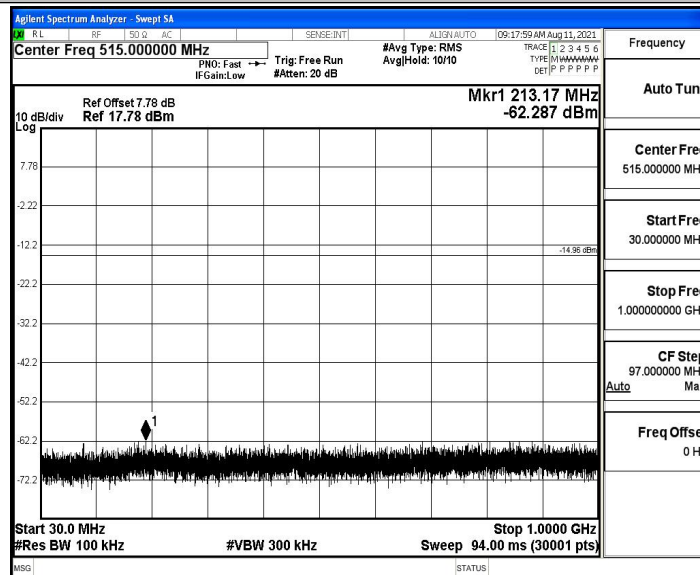
## BLE\_1M\_Ant1\_2440\_1000~26500



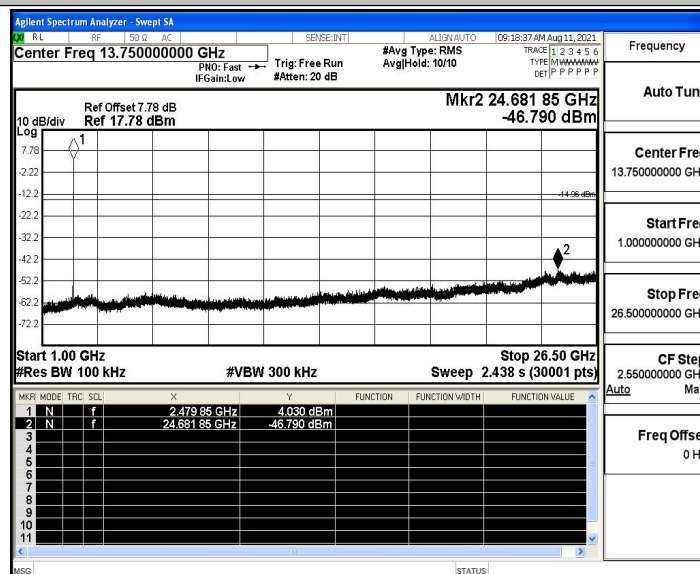
## BLE\_1M\_Ant1\_2480\_0~Reference



BLE\_1M\_Ant1\_2480\_30~1000



BLE\_1M\_Ant1\_2480\_1000~26500



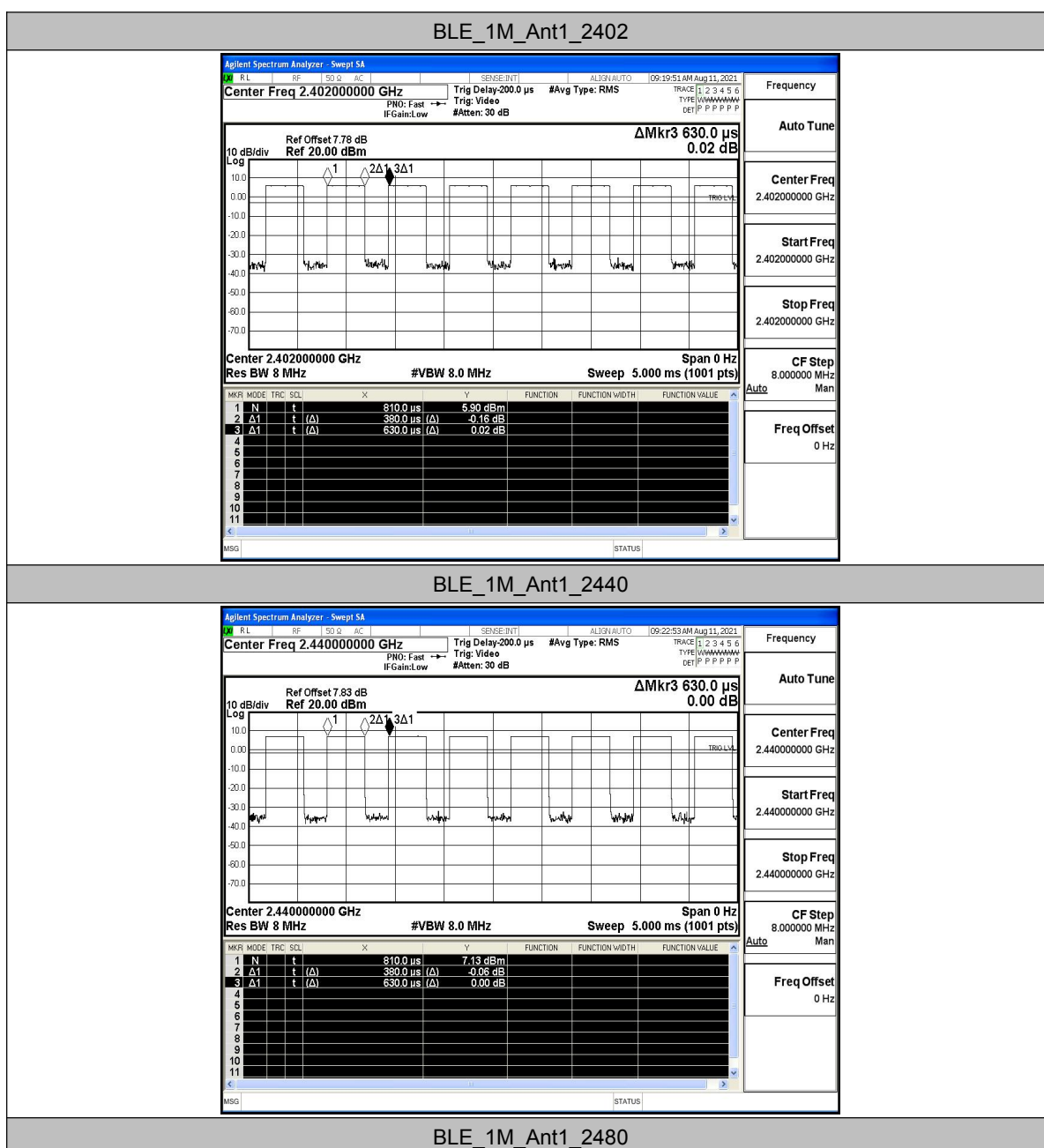


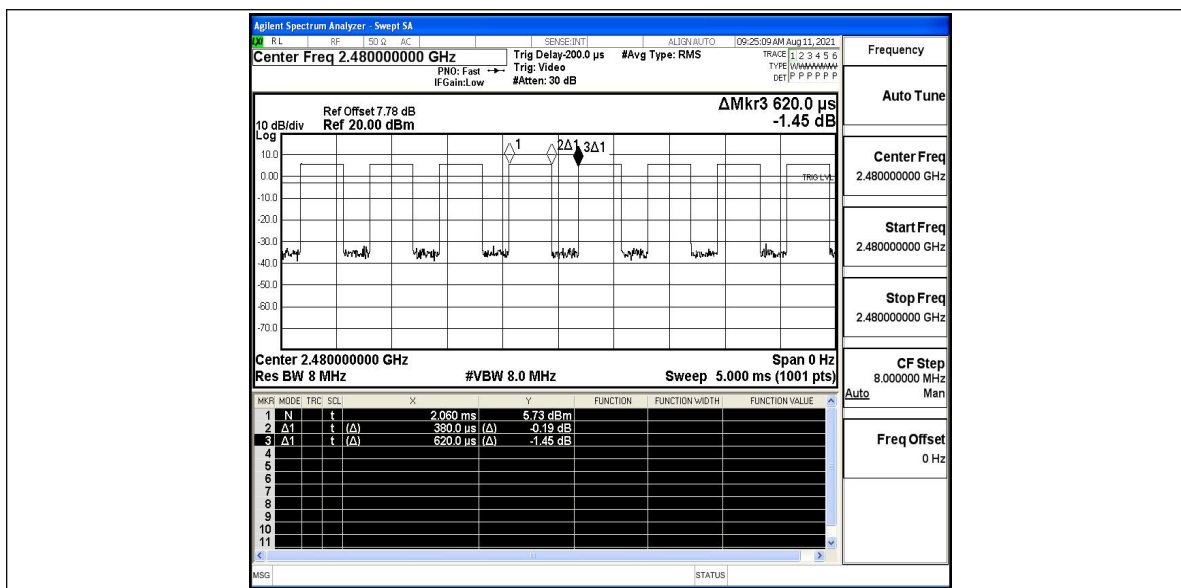
## A.6 Duty Cycle

### Test Result

| TestMode | Antenna | Channel | ON Time<br>[ms] | Period<br>[ms] | X      | DC<br>[%] | xFactor | Minimum<br>VBW(KHz) | Limit | Verdict |
|----------|---------|---------|-----------------|----------------|--------|-----------|---------|---------------------|-------|---------|
| BLE_1M   | Ant1    | 2402    | 0.38            | 0.63           | 0.6032 | 60.32     | 2.20    | 2.63                | ---   | PASS    |
|          |         | 2440    | 0.38            | 0.63           | 0.6032 | 60.32     | 2.20    | 2.63                | ---   | PASS    |
|          |         | 2480    | 0.38            | 0.62           | 0.6129 | 61.29     | 2.13    | 2.63                | ---   | PASS    |

### Test Graphs







## A.7 Emissions in Restricted Bands

### Test Result

| TestMode | Antenna | ChName | Channel | Detector | Freq.<br>[MHz] | Result<br>[dBm] | Limit<br>[dBm] | Result<br>[dBuV/m] | Limit<br>[dBuV/m] | Verdict |
|----------|---------|--------|---------|----------|----------------|-----------------|----------------|--------------------|-------------------|---------|
| BLE_1M   | Ant1    | Low    | 2402    | AV       | 2310.000       | -48.41          | ≤-41.20        | 46.79              | ≤54               | PASS    |
|          |         |        |         | AV       | 2389.040       | -47.67          | ≤-41.20        | 47.53              | ≤54               | PASS    |
|          |         |        |         | AV       | 2390.000       | -47.98          | ≤-41.20        | 47.22              | ≤54               | PASS    |
|          |         |        |         | Peak     | 2310.000       | -40.99          | ≤-21.20        | 54.21              | ≤74               | PASS    |
|          |         |        |         | Peak     | 2373.920       | -38.75          | ≤-21.20        | 56.45              | ≤74               | PASS    |
|          |         |        |         | Peak     | 2390.000       | -39.28          | ≤-21.20        | 55.92              | ≤74               | PASS    |
|          |         | High   | 2480    | AV       | 2483.500       | -45.77          | ≤-41.20        | 49.43              | ≤54               | PASS    |
|          |         |        |         | AV       | 2483.520       | -45.77          | ≤-41.20        | 49.43              | ≤54               | PASS    |
|          |         |        |         | AV       | 2500.000       | -47.24          | ≤-41.20        | 47.96              | ≤54               | PASS    |
|          |         |        |         | Peak     | 2483.500       | -41.56          | ≤-21.20        | 53.64              | ≤74               | PASS    |
|          |         |        |         | Peak     | 2499.840       | -38.78          | ≤-21.20        | 56.42              | ≤74               | PASS    |
|          |         |        |         | Peak     | 2500.000       | -40.06          | ≤-21.20        | 55.14              | ≤74               | PASS    |

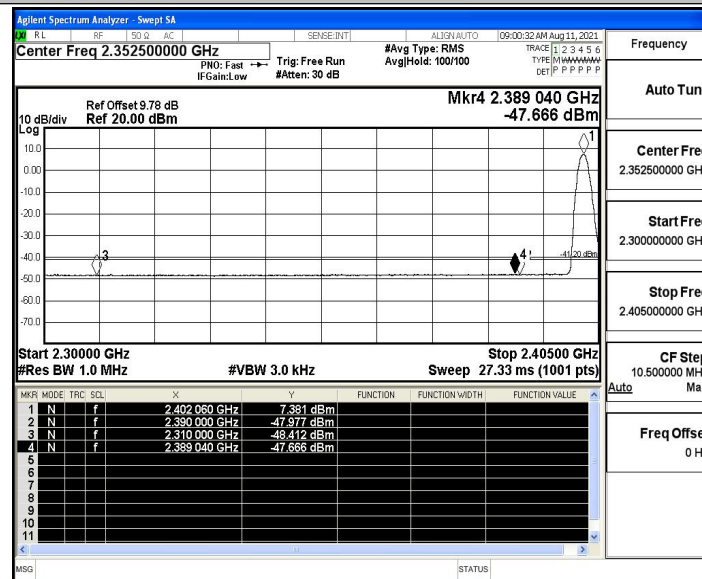
Note:

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.

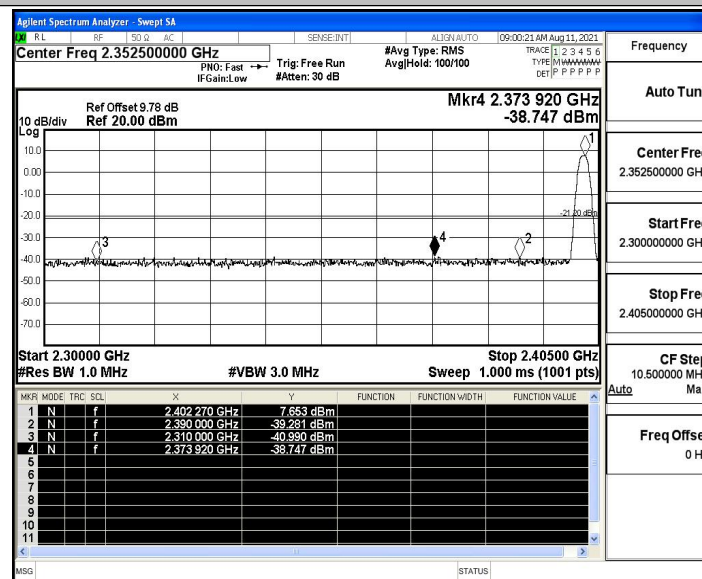


## Test Graphs

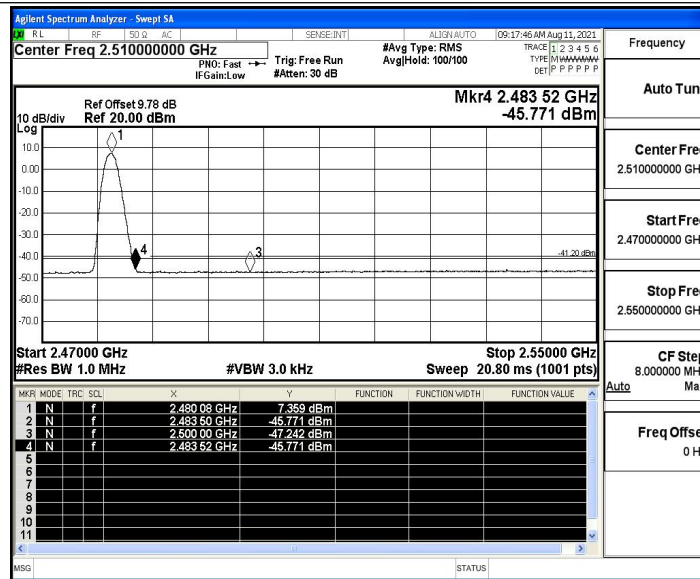
BLE\_1M\_Ant1\_Low\_2402\_AV



BLE\_1M\_Ant1\_Low\_2402\_Peak



BLE\_1M\_Ant1\_High\_2480\_AV



BLE\_1M\_Ant1\_High\_2480\_Peak

