



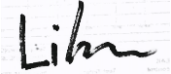
## Appendix A

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

Product Name: NVR

Test Model: NVR-BTN8-8

#### Environmental Conditions

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

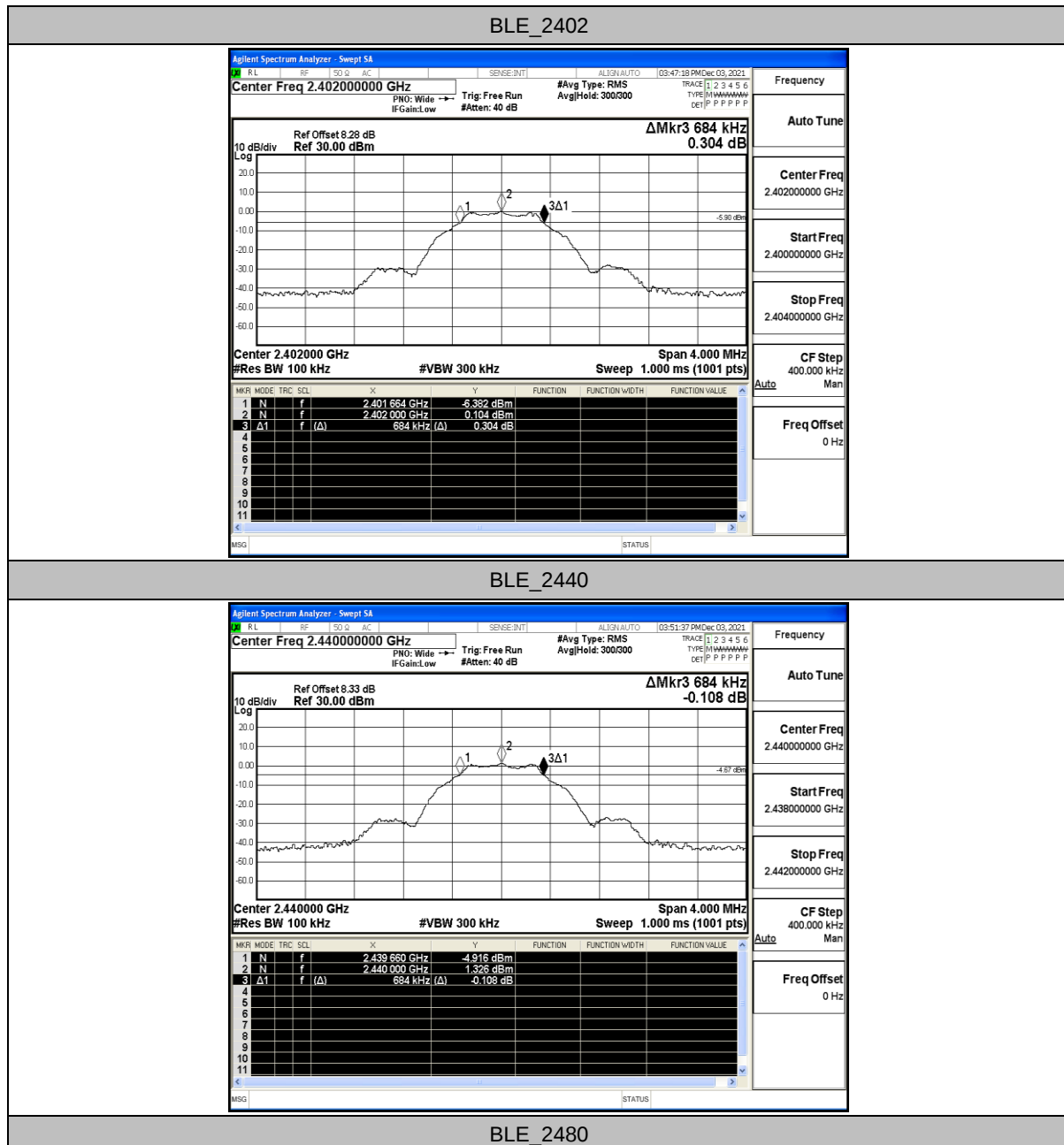


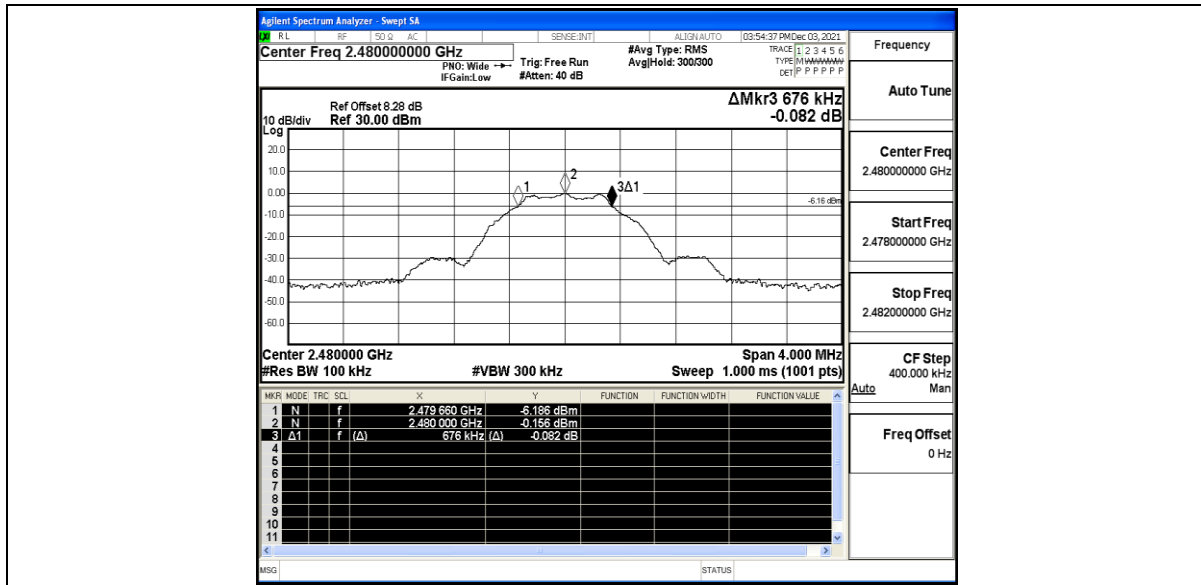
## A.1 DTS Bandwidth

### Test Result

| TestMode | Channel | DTS BW [MHz] | FL[MHz]  | FH[MHz]  | Limit[MHz] | Verdict |
|----------|---------|--------------|----------|----------|------------|---------|
| BLE      | 2402    | 0.684        | 2401.664 | 2402.348 | ≥0.5       | PASS    |
|          | 2440    | 0.684        | 2439.660 | 2440.344 | ≥0.5       | PASS    |
|          | 2480    | 0.676        | 2479.660 | 2480.336 | ≥0.5       | PASS    |

### Test Graphs





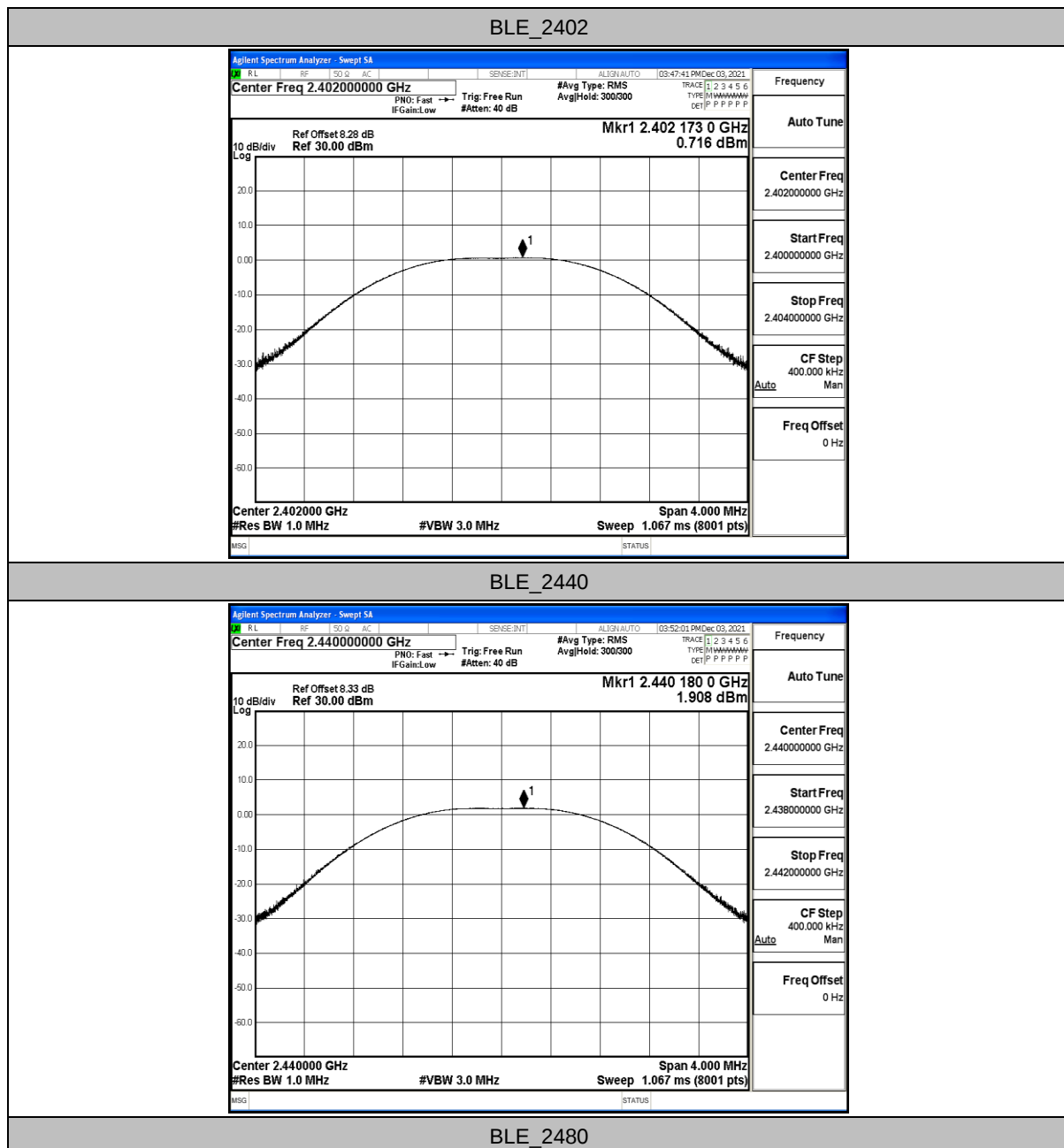


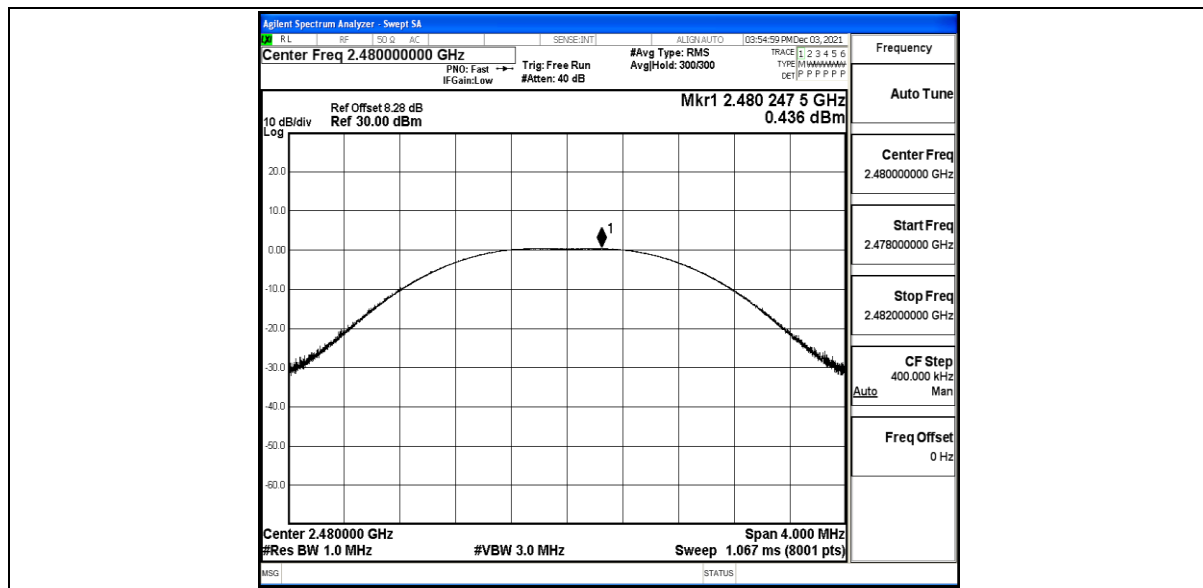
## A.2 Maximum conducted output power

### Test Result

| TestMode | Channel | Result[dBm] | Limit[dBm] | Verdict |
|----------|---------|-------------|------------|---------|
| BLE      | 2402    | 0.72        | ≤30        | PASS    |
|          | 2440    | 1.91        | ≤30        | PASS    |
|          | 2480    | 0.44        | ≤30        | PASS    |

### Test Graphs





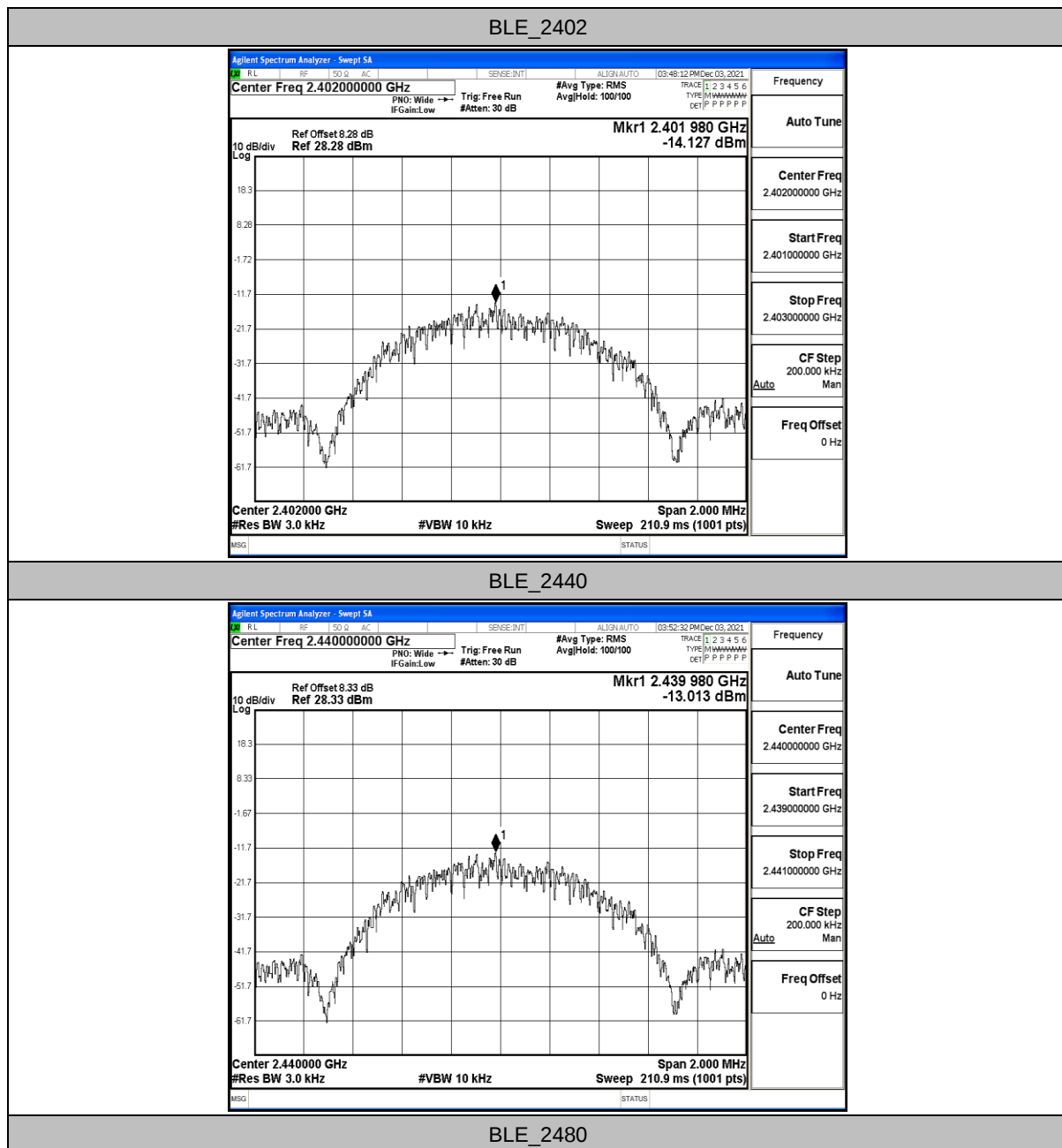


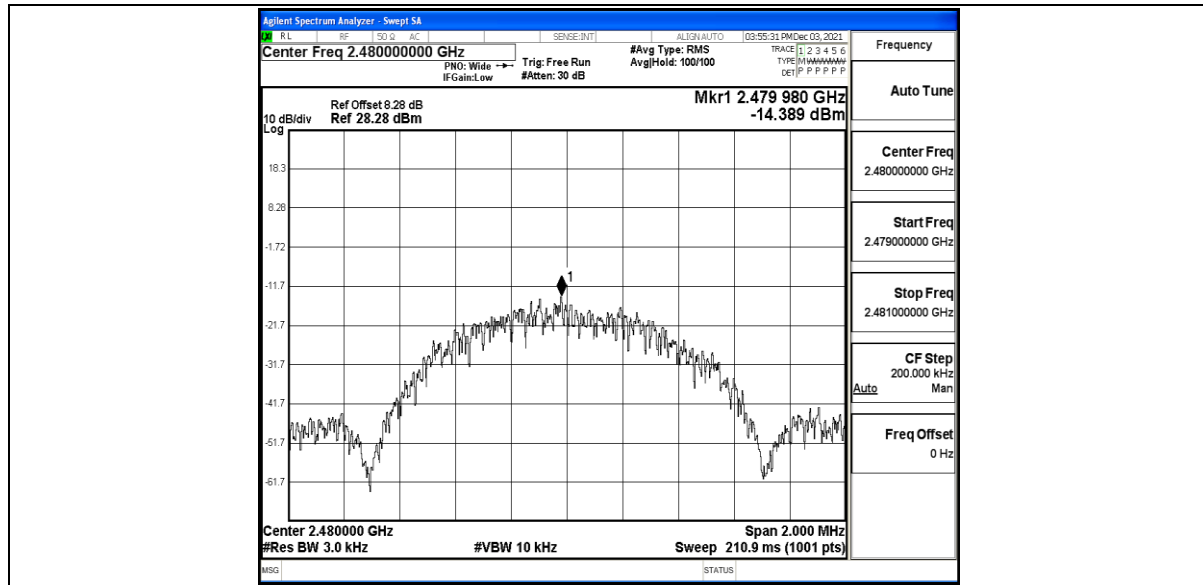
## A.3 Maximum power spectral density

### Test Result

| TestMode | Channel | Result[dBm/3kHz] | Limit[dBm/3kHz] | Verdict |
|----------|---------|------------------|-----------------|---------|
| BLE      | 2402    | -14.13           | ≤8              | PASS    |
|          | 2440    | -13.01           | ≤8              | PASS    |
|          | 2480    | -14.39           | ≤8              | PASS    |

### Test Graphs





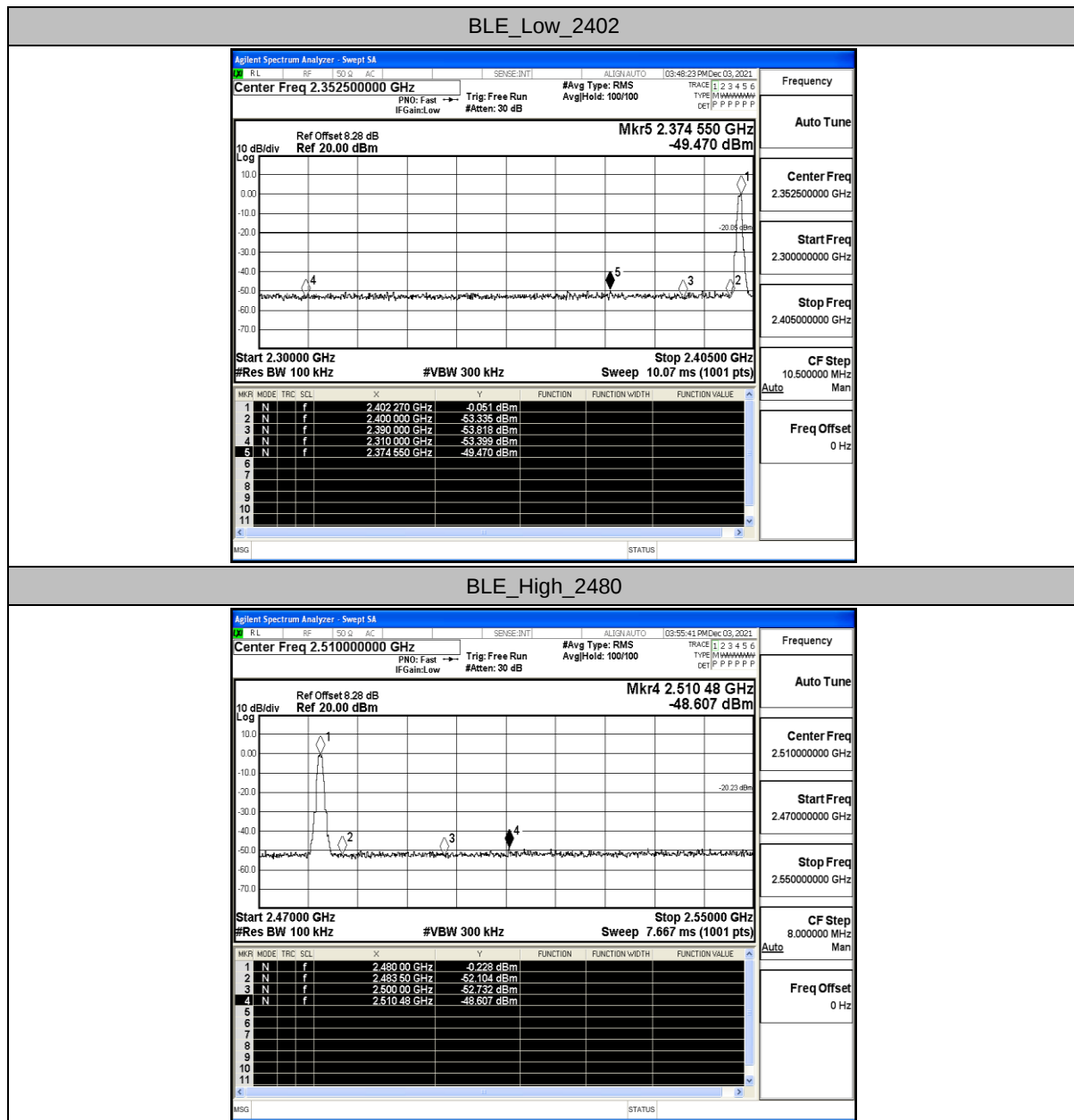


## A.4 Band edge measurements

### Test Result

| TestMode | ChName | Channel | RefLevel[dBm] | Result[dBm] | Limit[dBm] | Verdict |
|----------|--------|---------|---------------|-------------|------------|---------|
| BLE      | Low    | 2402    | -0.05         | -49.47      | ≤-20.05    | PASS    |
|          | High   | 2480    | -0.23         | -48.61      | ≤-20.23    | PASS    |

### Test Graphs

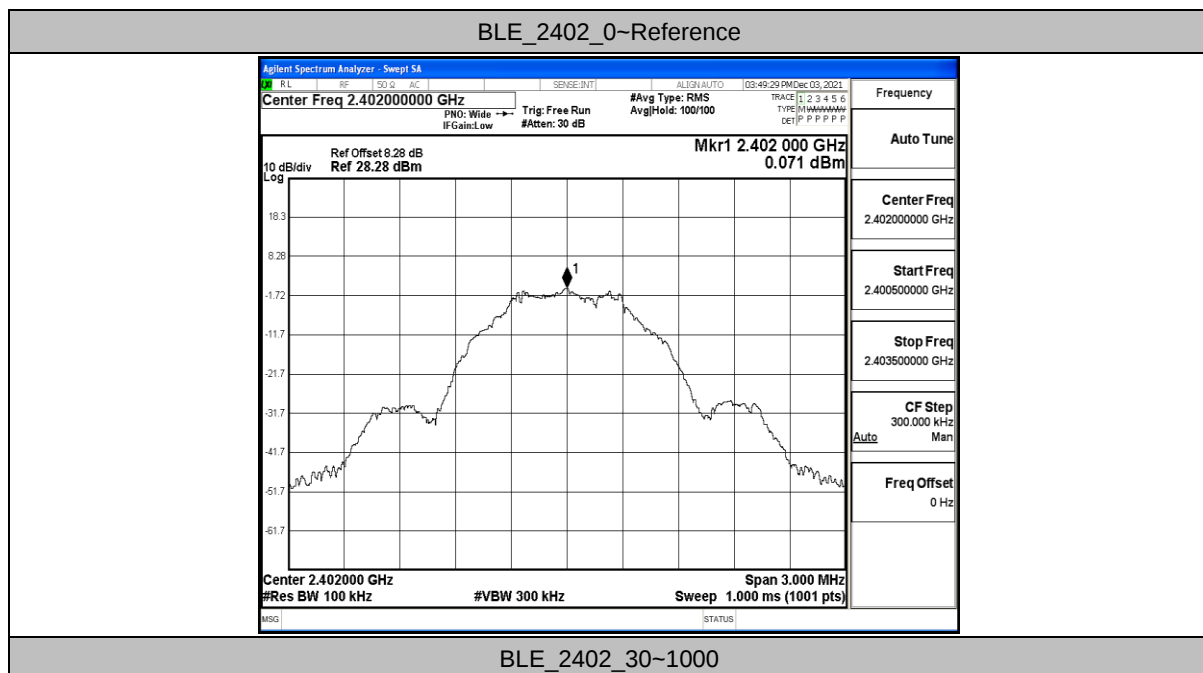


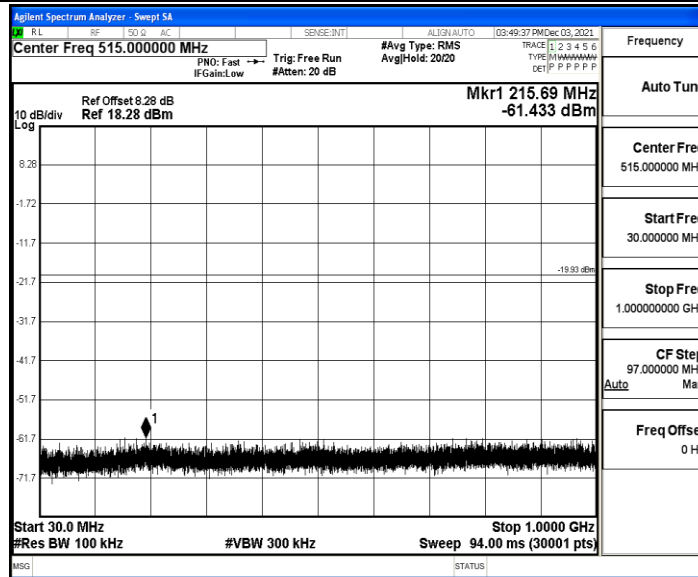
## A.5 Conducted Spurious Emission

## Test Result

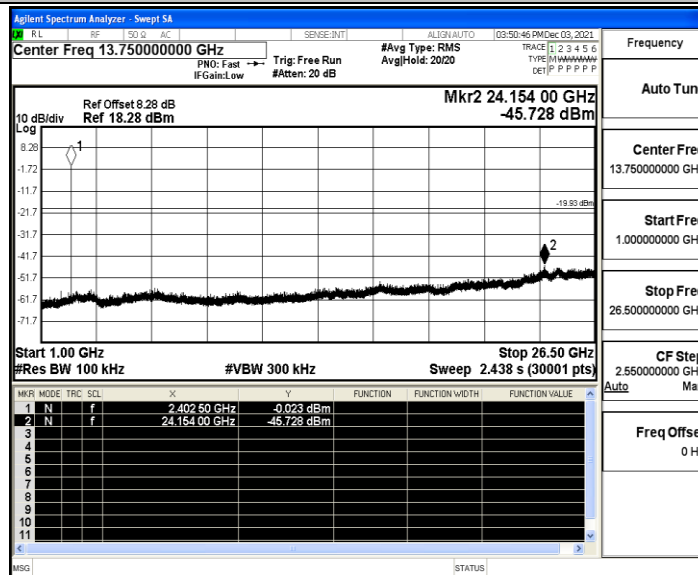
| TestMode | Channel | FreqRange<br>[MHz] | RefLevel<br>[dBm] | Result[dBm] | Limit[dBm] | Verdict |
|----------|---------|--------------------|-------------------|-------------|------------|---------|
| BLE      | 2402    | Reference          | 0.07              | 0.07        | ---        | PASS    |
|          |         | 30~1000            | 0.07              | -61.43      | ≤-19.93    | PASS    |
|          |         | 1000~26500         | 0.07              | -45.73      | ≤-19.93    | PASS    |
|          | 2440    | Reference          | 1.28              | 1.28        | ---        | PASS    |
|          |         | 30~1000            | 1.28              | -61.12      | ≤-18.73    | PASS    |
|          |         | 1000~26500         | 1.28              | -46.77      | ≤-18.73    | PASS    |
|          | 2480    | Reference          | -0.47             | -0.47       | ---        | PASS    |
|          |         | 30~1000            | -0.47             | -61.33      | ≤-20.47    | PASS    |
|          |         | 1000~26500         | -0.47             | -45.95      | ≤-20.47    | PASS    |

## Test Graphs

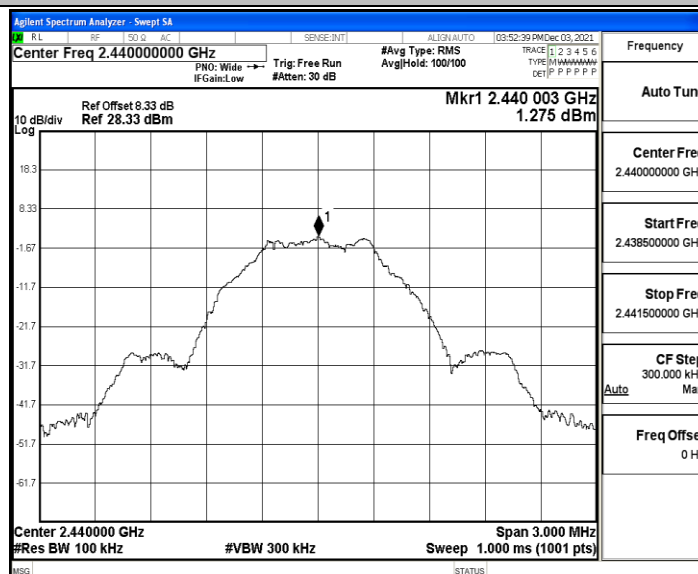




BLE\_2402\_1000~26500

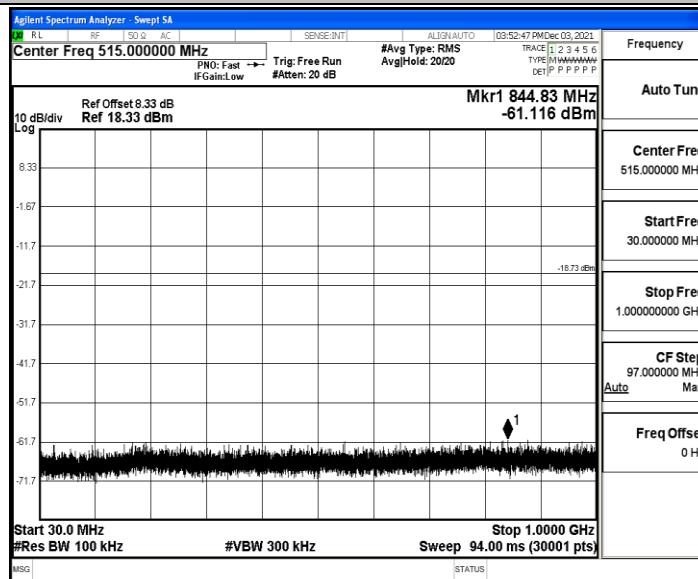


BLE\_2440\_0~Reference

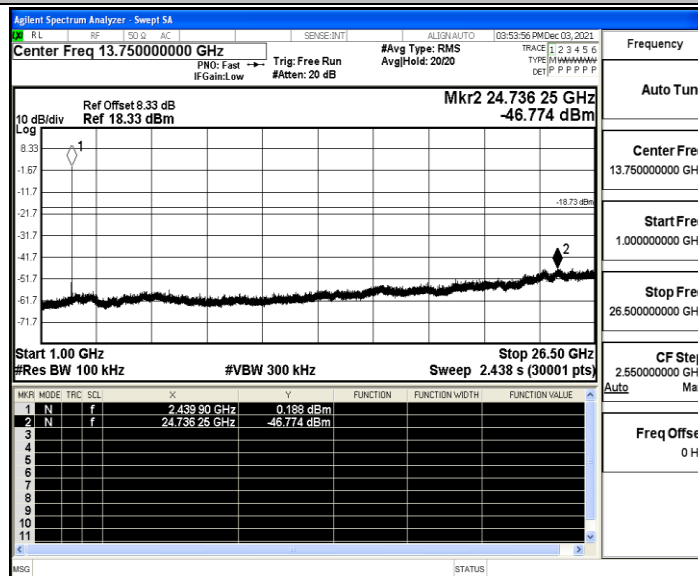




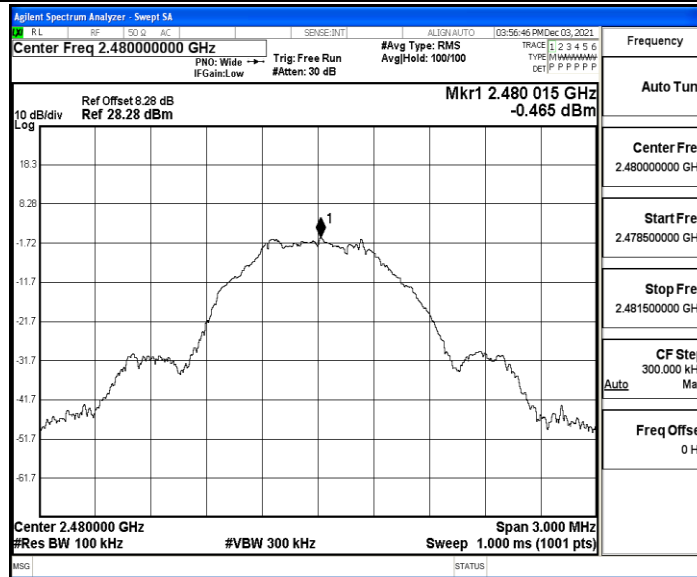
BLE\_2440\_30~1000



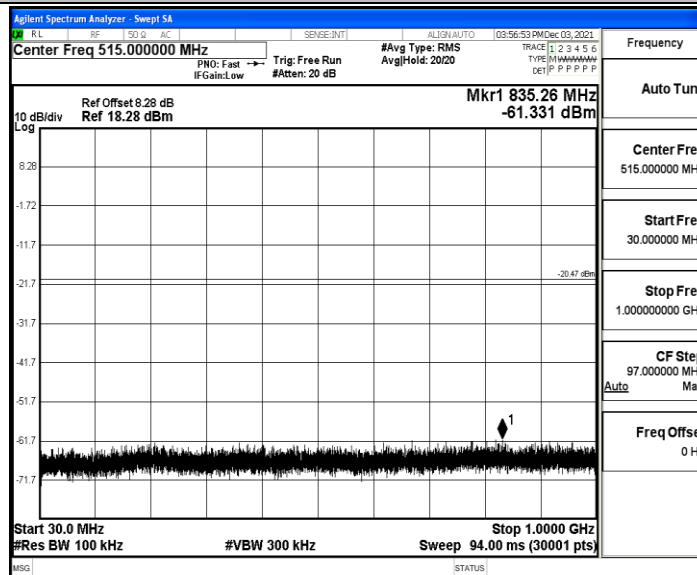
BLE\_2440\_1000~26500



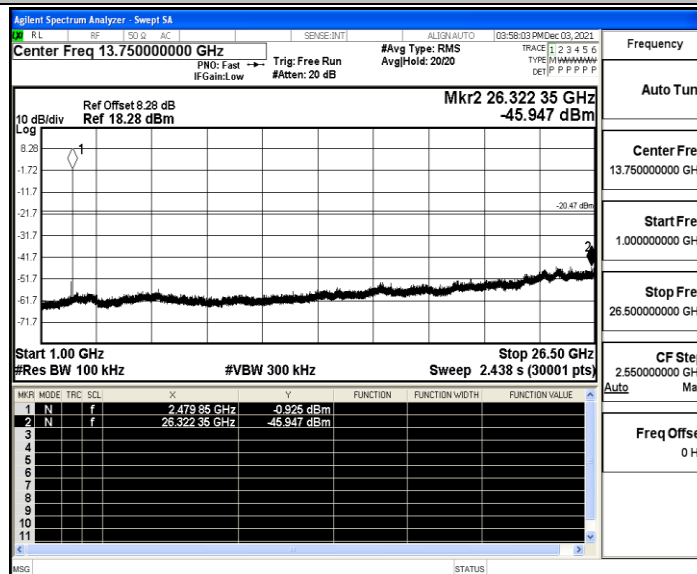
BLE\_2480\_0~Reference



BLE\_2480\_30~1000



BLE\_2480\_1000~26500



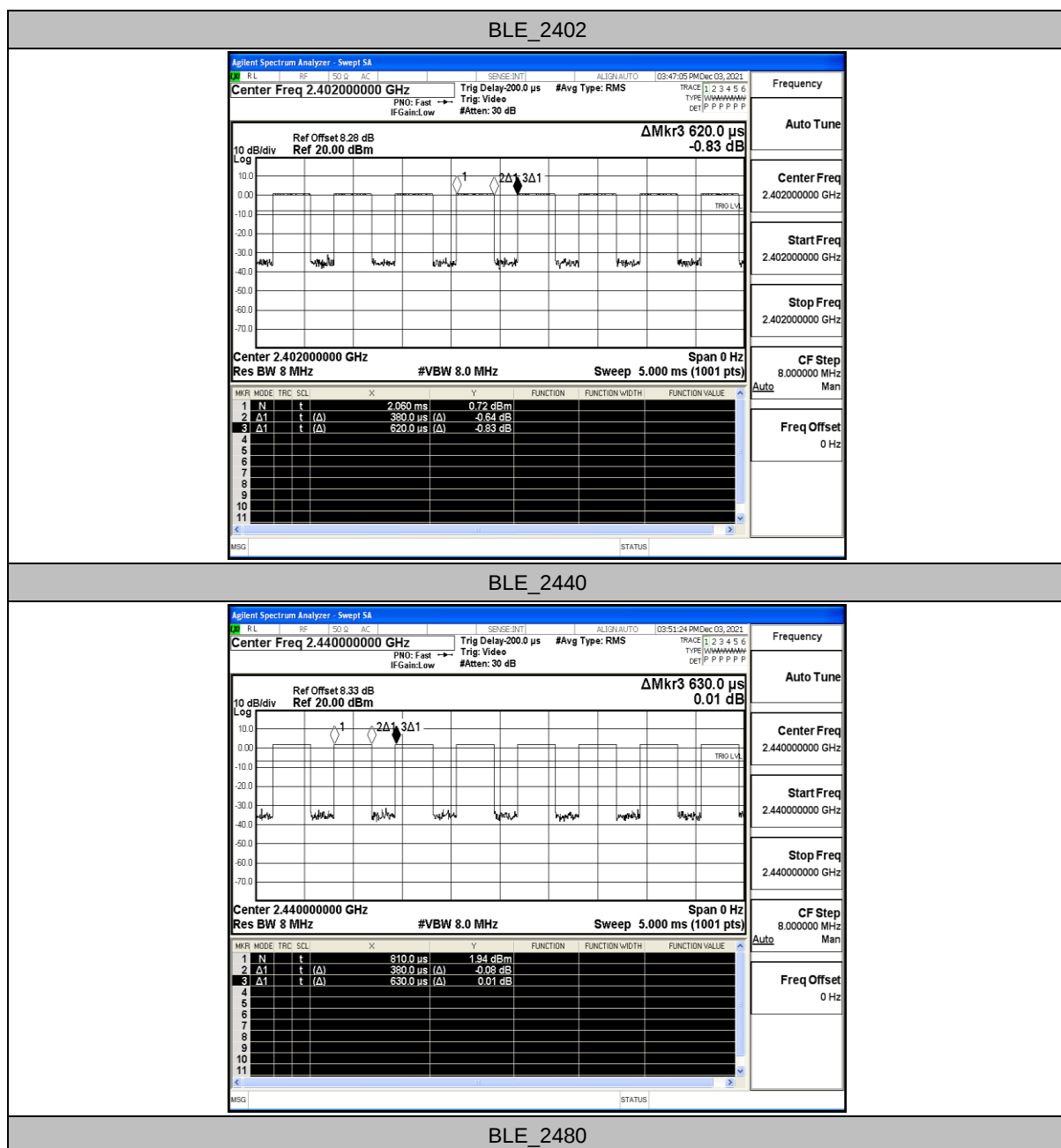


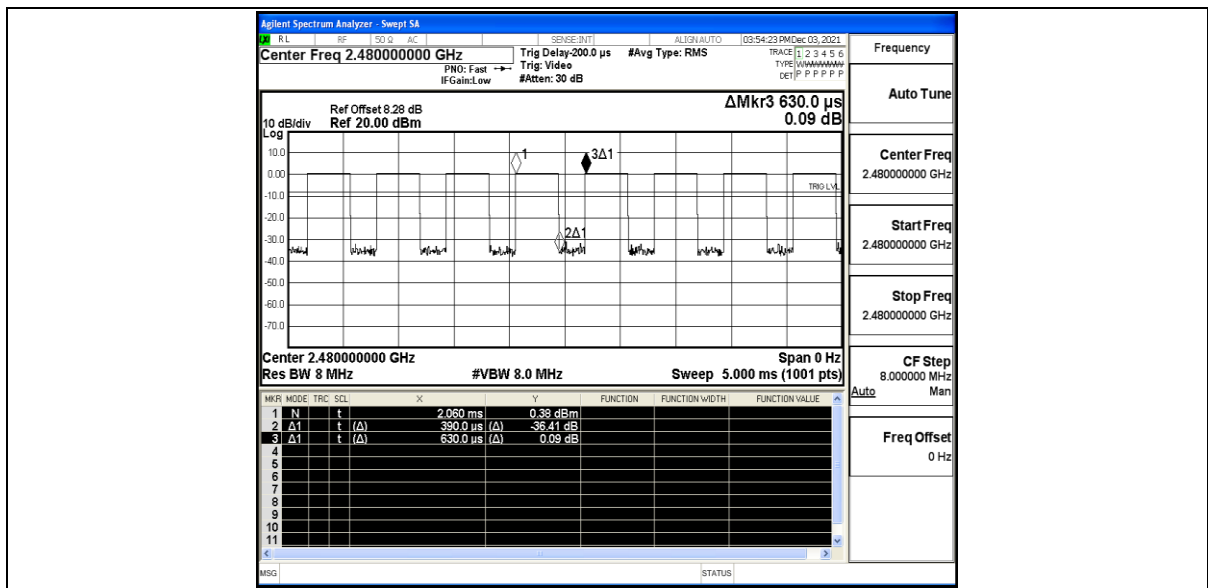
## A.6 Duty Cycle

### Test Result

| TestMode | Channel | ON Time<br>[ms] | Period<br>[ms] | X      | DC<br>[%] | xFactor | Limit | Verdict |
|----------|---------|-----------------|----------------|--------|-----------|---------|-------|---------|
| BLE      | 2402    | 0.38            | 0.62           | 0.6129 | 61.29     | 2.13    | ---   | PASS    |
|          | 2440    | 0.38            | 0.63           | 0.6032 | 60.32     | 2.20    | ---   | PASS    |
|          | 2480    | 0.39            | 0.63           | 0.6190 | 61.90     | 2.08    | ---   | PASS    |

### 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      | 2402    | AV       | 2310.000       | -47.95          | ≤-41.20        | 47.25              | ≤54               | PASS    |
|          |         | AV       | 2371.400       | -47.29          | ≤-41.20        | 47.91              | ≤54               | PASS    |
|          |         | AV       | 2390.000       | -47.59          | ≤-41.20        | 47.61              | ≤54               | PASS    |
|          |         | Peak     | 2310.000       | -41.94          | ≤-21.20        | 53.26              | ≤74               | PASS    |
|          |         | Peak     | 2365.835       | -38.67          | ≤-21.20        | 56.53              | ≤74               | PASS    |
|          |         | Peak     | 2390.000       | -41.8           | ≤-21.20        | 53.40              | ≤74               | PASS    |
|          | 2480    | AV       | 2483.500       | -46.8           | ≤-41.20        | 48.40              | ≤54               | PASS    |
|          |         | AV       | 2488.960       | -46.78          | ≤-41.20        | 48.42              | ≤54               | PASS    |
|          |         | AV       | 2500.000       | -47.24          | ≤-41.20        | 47.96              | ≤54               | PASS    |
|          |         | Peak     | 2483.500       | -40.97          | ≤-21.20        | 54.23              | ≤74               | PASS    |
|          |         | Peak     | 2498.720       | -37.87          | ≤-21.20        | 57.33              | ≤74               | PASS    |
|          |         | Peak     | 2500.000       | -41.82          | ≤-21.20        | 53.38              | ≤74               | PASS    |

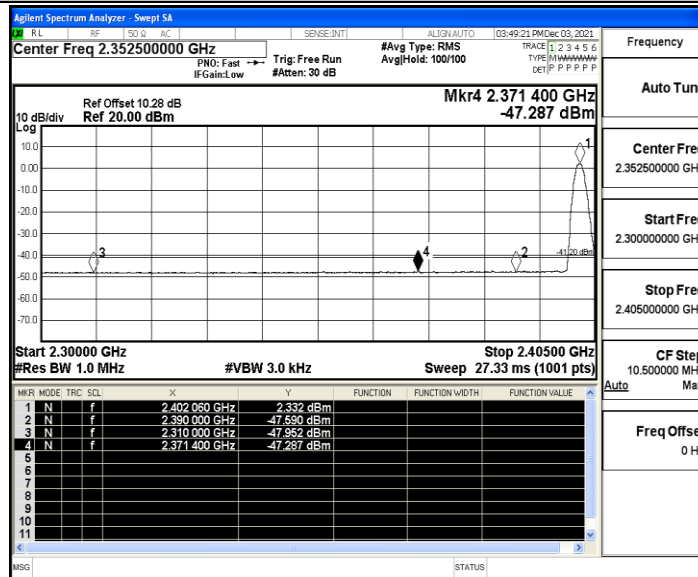
Note:

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.

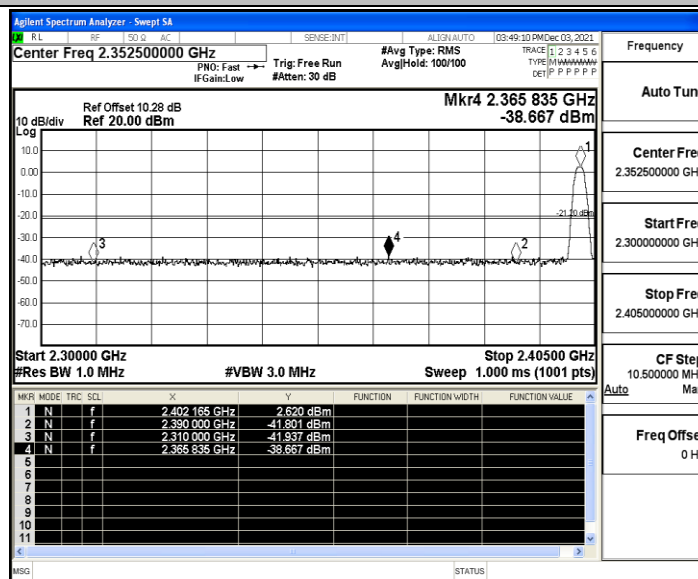


## Test Graphs

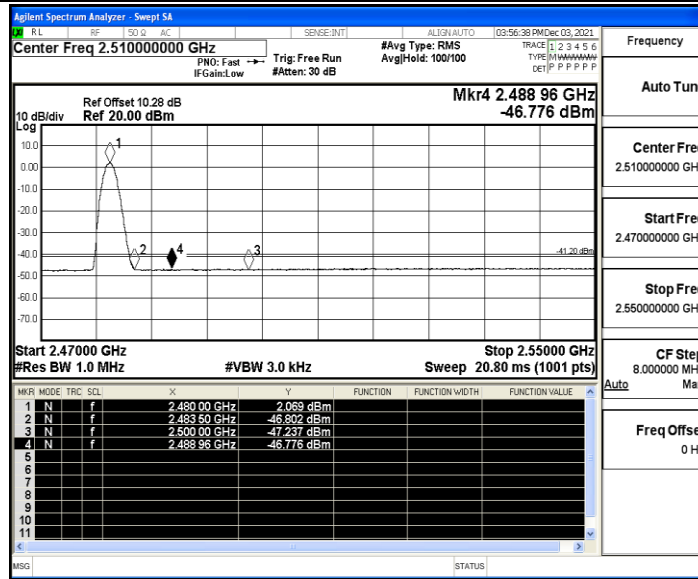
BLE\_Low\_2402\_AV



BLE\_Low\_2402\_Peak



BLE\_High\_2480\_AV



### BLE\_High\_2480\_Peak

