

Appendix A

RF Test Data for BT LE (Conducted Measurement)

Product Name: Remote Control  
Test Model: WH-8233B\_BLE(Y03M)

Environmental Conditions

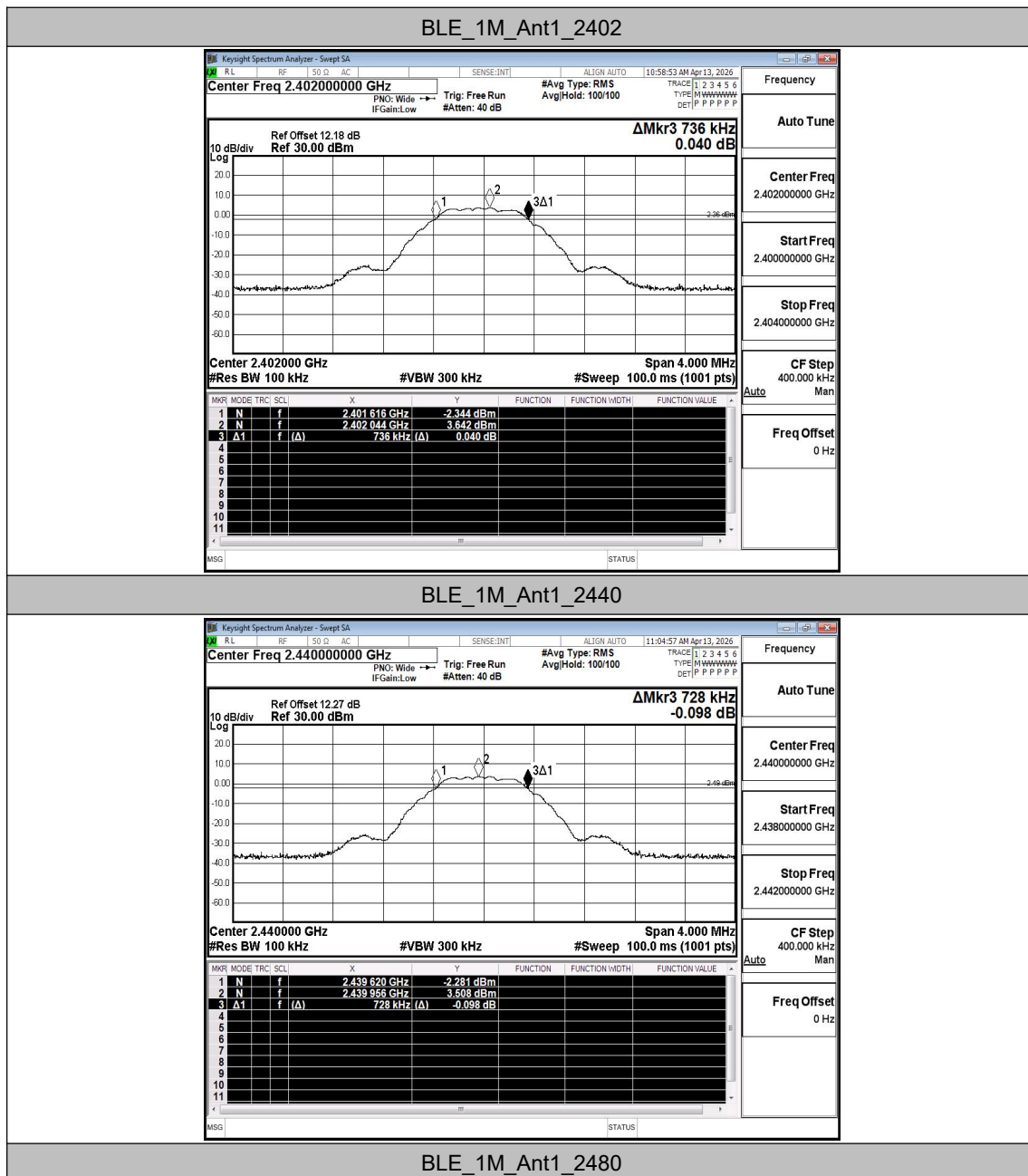
|                    |              |
|--------------------|--------------|
| Temperature:       | 24.3°C       |
| Relative Humidity: | 55.1%        |
| ATM Pressure:      | 100.0 kPa    |
| Test Engineer:     | Zhang Hai    |
| Supervised by:     | Fengliu Tang |

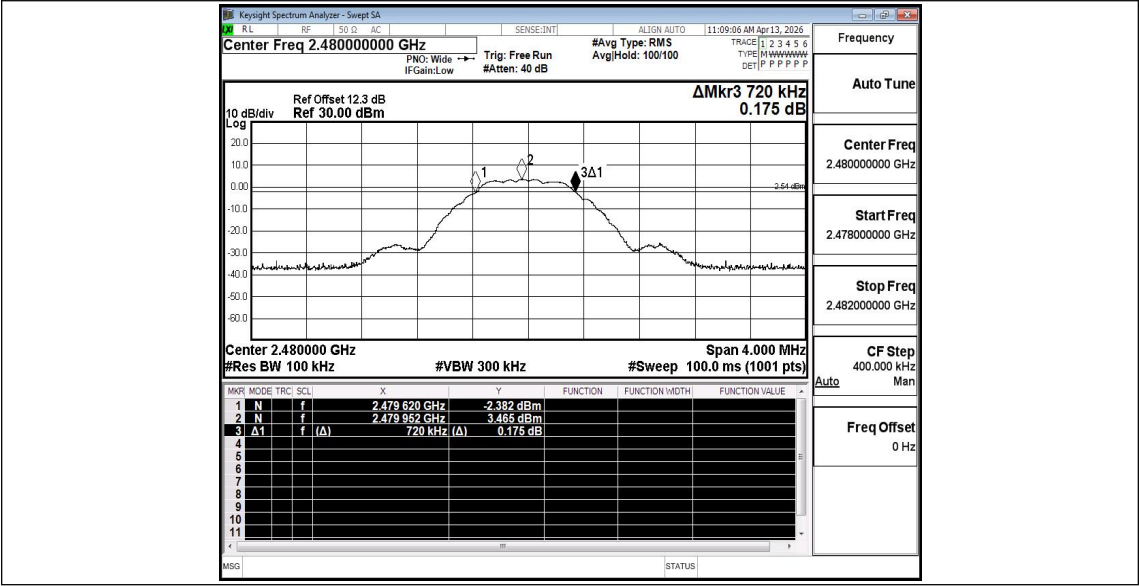
## A.1 DTS Bandwidth

### Test Result

| TestMode | Antenna | Freq(MHz) | DTS BW [MHz] | FL[MHz]  | FH[MHz]  | Limit[MHz] | Verdict |
|----------|---------|-----------|--------------|----------|----------|------------|---------|
| BLE_1M   | Ant1    | 2402      | 0.736        | 2401.616 | 2402.352 | 0.5        | PASS    |
|          |         | 2440      | 0.728        | 2439.620 | 2440.348 | 0.5        | PASS    |
|          |         | 2480      | 0.720        | 2479.620 | 2480.340 | 0.5        | PASS    |

### Test Graphs



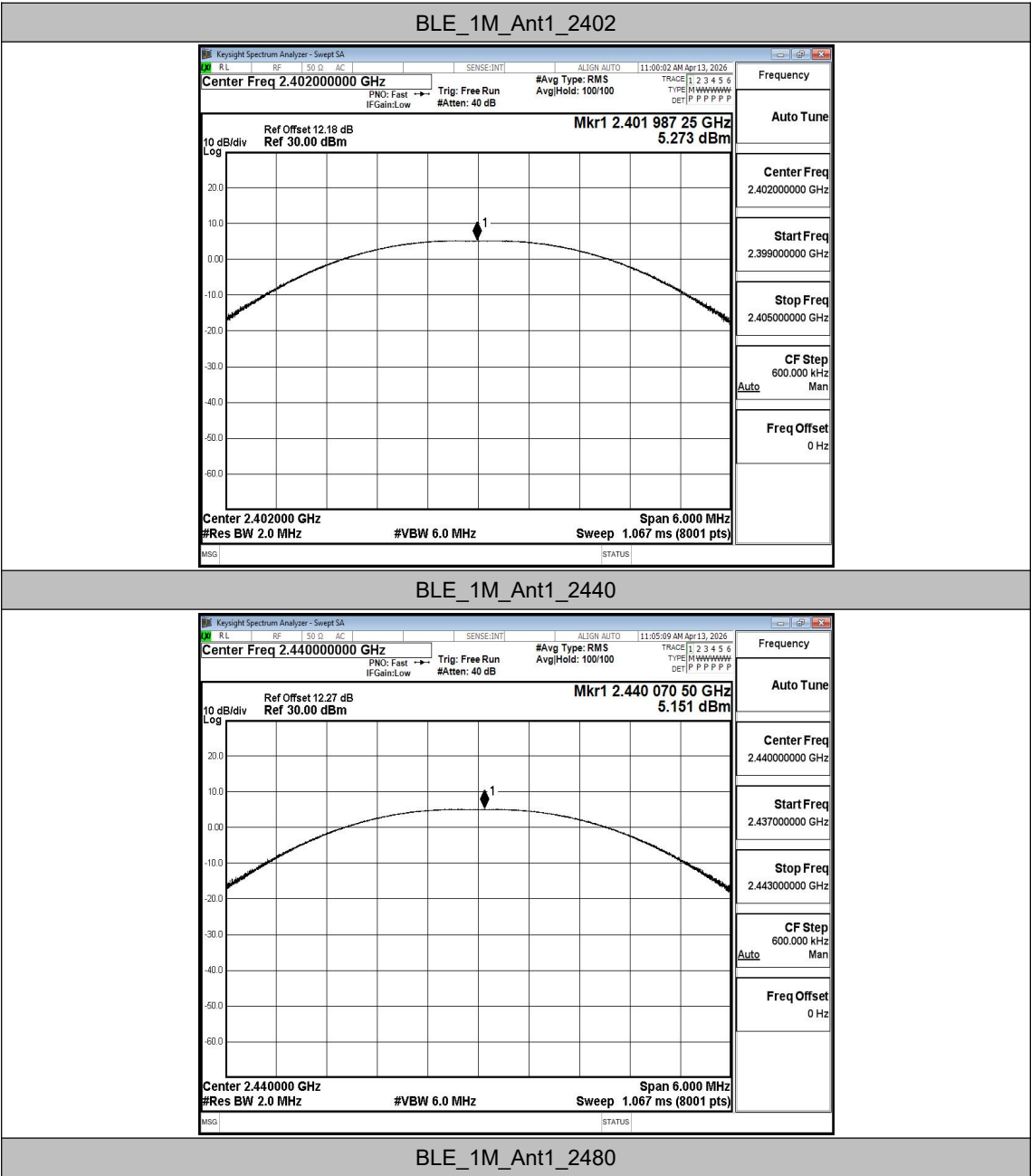


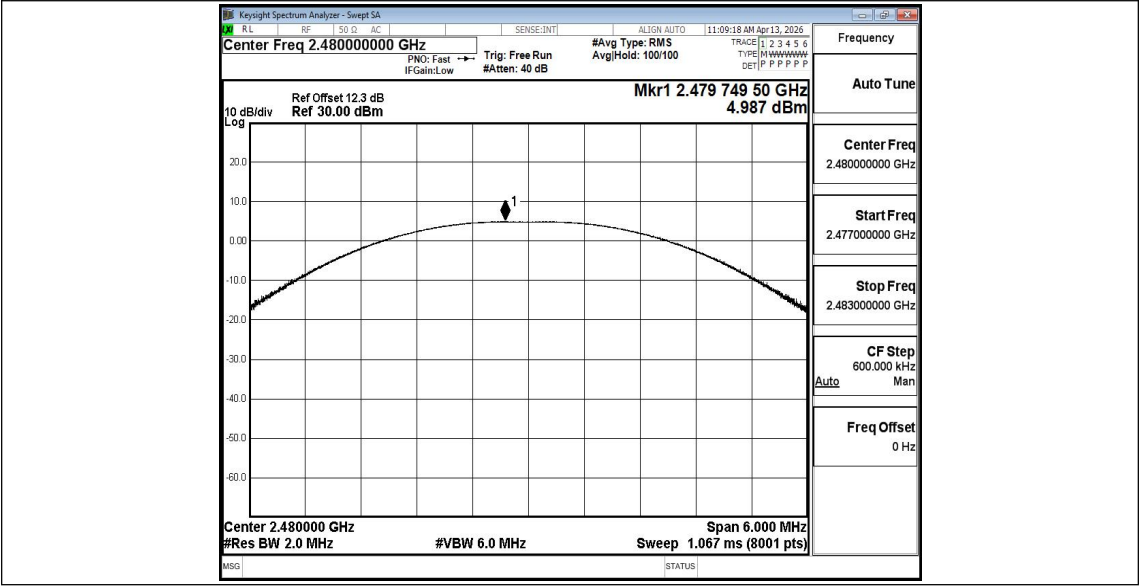
A.2 Maximum conducted output power

Test Result Peak

| TestMode | Antenna | Freq(MHz) | Conducted Peak Power[dBm] | Conducted Limit[dBm] | Verdict |
|----------|---------|-----------|---------------------------|----------------------|---------|
| BLE_1M   | Ant1    | 2402      | 5.27                      | ≤30                  | PASS    |
|          |         | 2440      | 5.15                      | ≤30                  | PASS    |
|          |         | 2480      | 4.99                      | ≤30                  | PASS    |

Test Graphs Peak



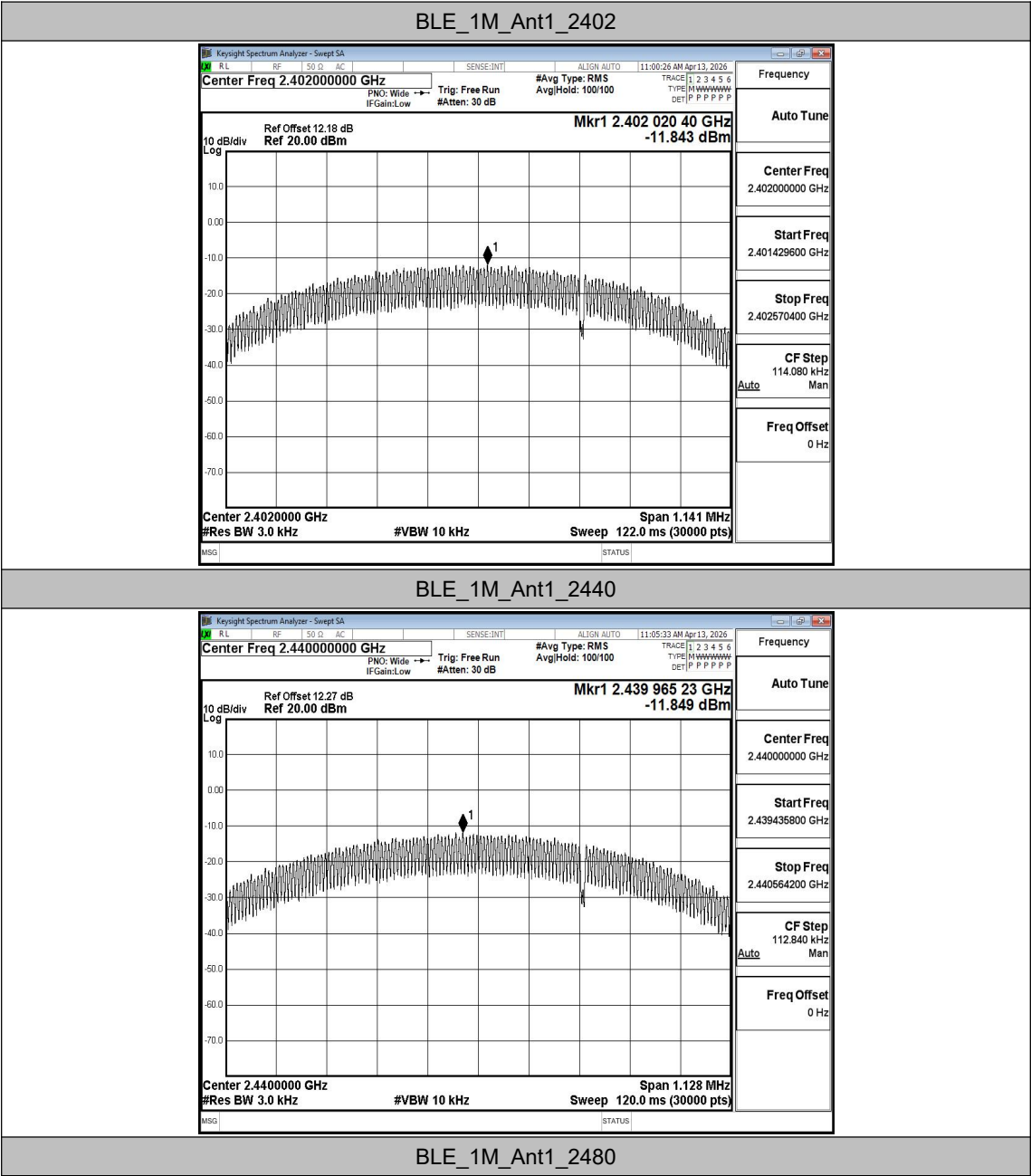


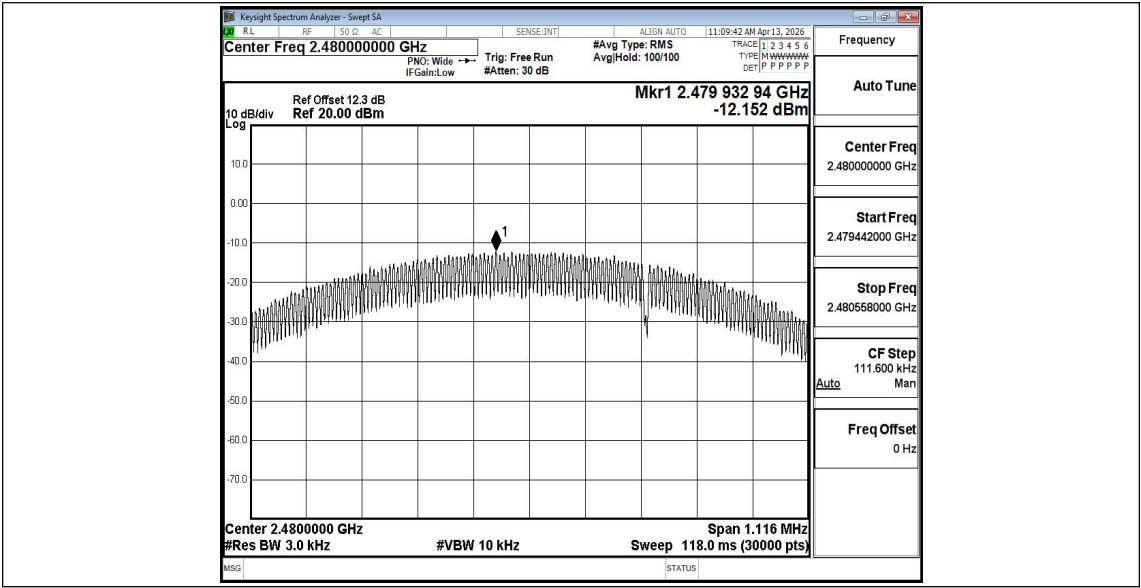
A.3 Maximum power spectral density

Test Result

| TestMode | Antenna | Freq(MHz) | Result[dBm/3kHz] | Limit[dBm/3kHz] | Verdict |
|----------|---------|-----------|------------------|-----------------|---------|
| BLE_1M   | Ant1    | 2402      | -11.84           | ≤8.00           | PASS    |
|          |         | 2440      | -11.85           | ≤8.00           | PASS    |
|          |         | 2480      | -12.15           | ≤8.00           | PASS    |

Test Graphs



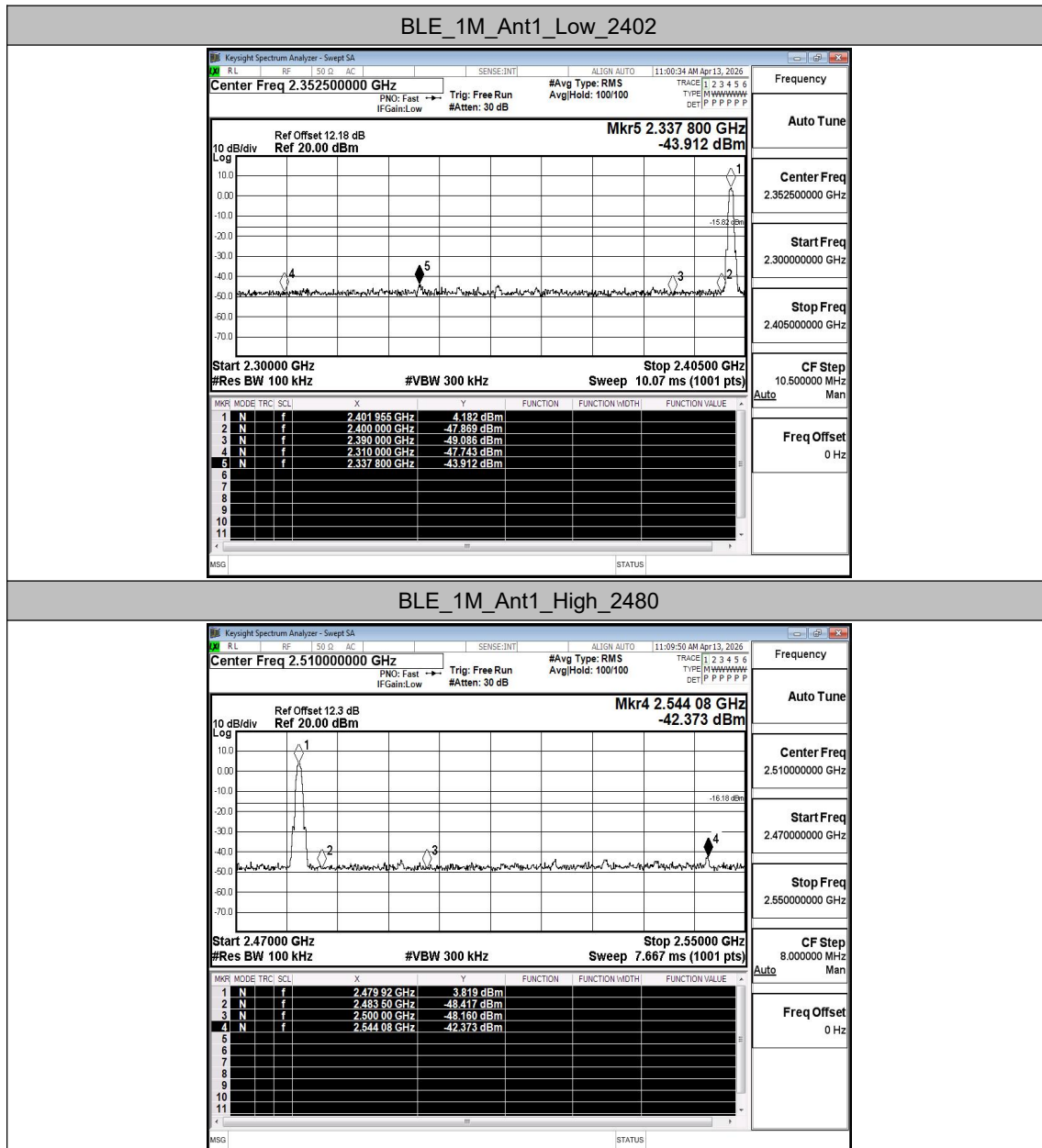


## A.4 Band edge measurements

### Test Result

| TestMode | Antenna | ChName | Freq(MHz) | RefLevel[dBm] | Result[dBm] | Limit[dBm] | Verdict |
|----------|---------|--------|-----------|---------------|-------------|------------|---------|
| BLE_1M   | Ant1    | Low    | 2402      | 4.18          | -43.91      | ≤-15.82    | PASS    |
|          |         | High   | 2480      | 3.82          | -42.37      | ≤-16.18    | PASS    |

### Test Graphs



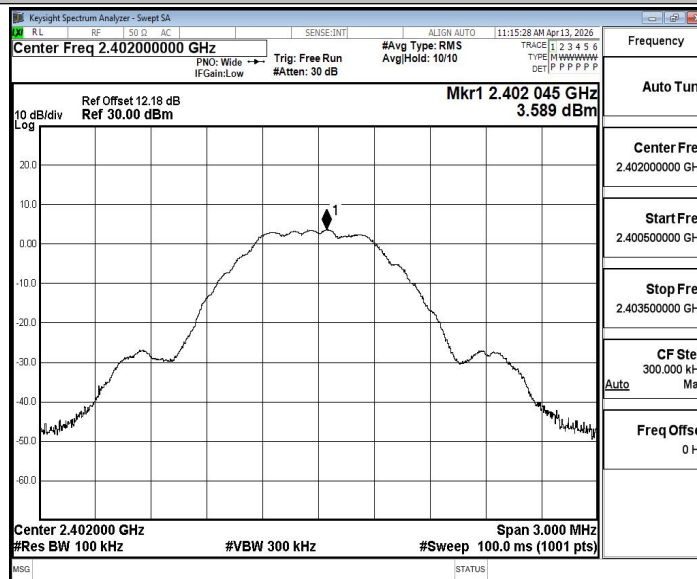
## A.5 Conducted Spurious Emission

### Test Result

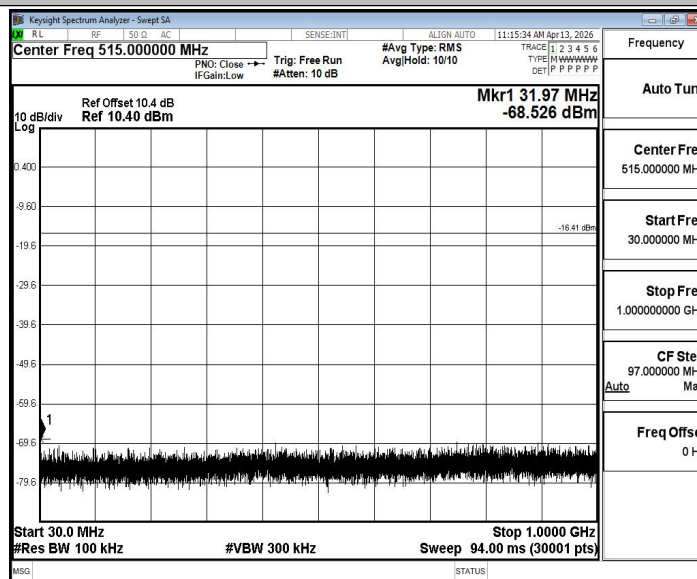
| TestMode | Antenna | Freq(MHz) | FreqRange [MHz] | RefLevel [dBm] | Result[dBm] | Limit[dBm] | Verdict |
|----------|---------|-----------|-----------------|----------------|-------------|------------|---------|
| BLE_1M   | Ant1    | 2402      | Reference       | 3.59           | 3.59        | ---        | PASS    |
|          |         |           | 30~1000         | 3.59           | -68.53      | ≤-16.41    | PASS    |
|          |         |           | 1000~26500      | 3.59           | -42.16      | ≤-16.41    | PASS    |
|          |         | 2440      | Reference       | 3.37           | 3.37        | ---        | PASS    |
|          |         |           | 30~1000         | 3.37           | -68.19      | ≤-16.63    | PASS    |
|          |         |           | 1000~26500      | 3.37           | -42.58      | ≤-16.63    | PASS    |
|          |         | 2480      | Reference       | 3.35           | 3.35        | ---        | PASS    |
|          |         |           | 30~1000         | 3.35           | -68.49      | ≤-16.65    | PASS    |
|          |         |           | 1000~26500      | 3.35           | -42.53      | ≤-16.65    | PASS    |

## Test Graphs

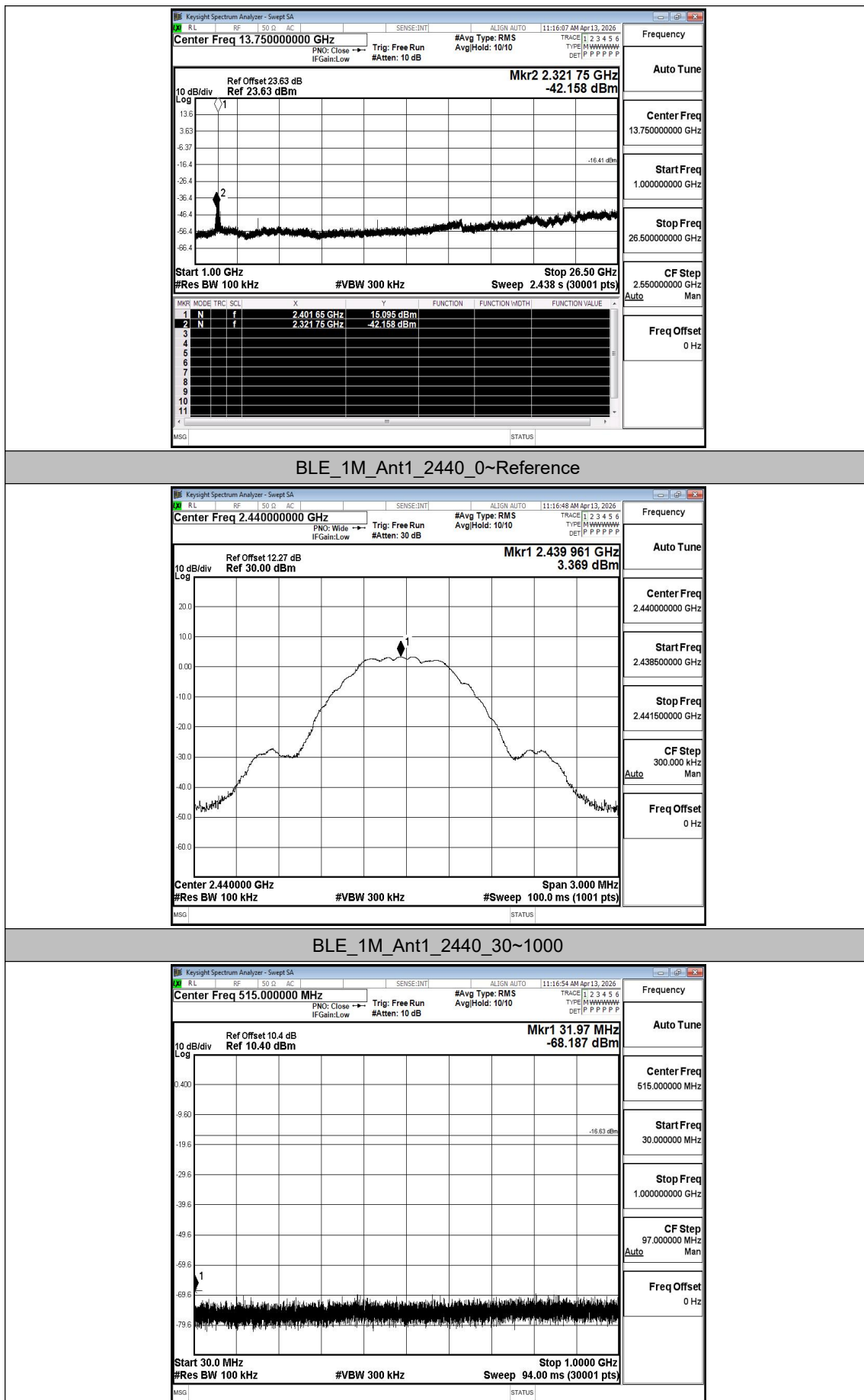
BLE\_1M\_Ant1\_2402\_0~Reference



BLE\_1M\_Ant1\_2402\_30~1000



BLE\_1M\_Ant1\_2402\_1000~26500

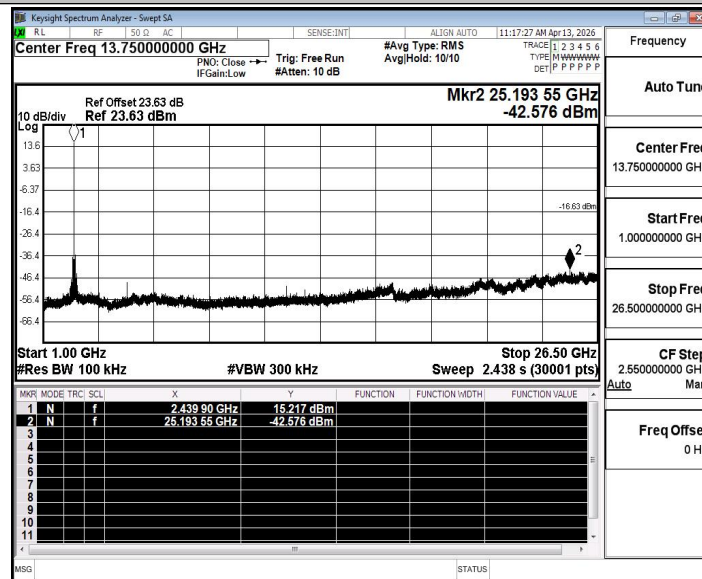


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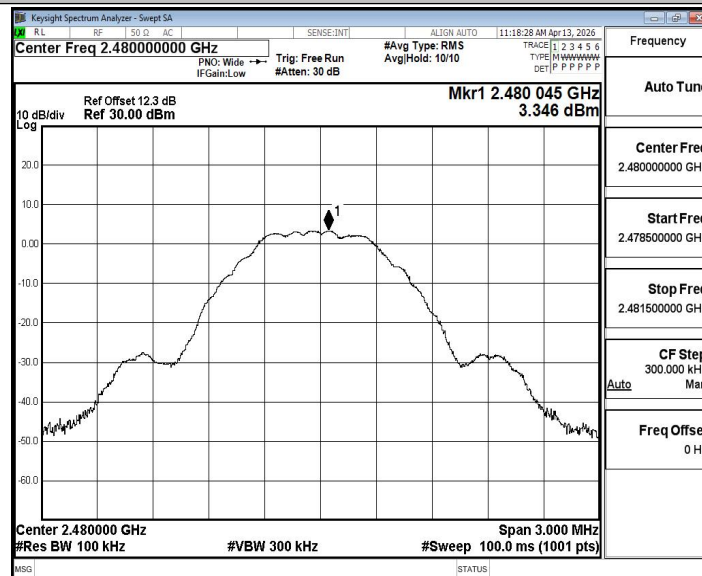
Add: No.44-1, Qianfeng North Road, Shiqi, Panyu District, Guangzhou, Guangdong, China

Tel: +(86) 020-39166689 | E-mail: webmaster@lcs-cert.com | Web: www.lcs-cert.com

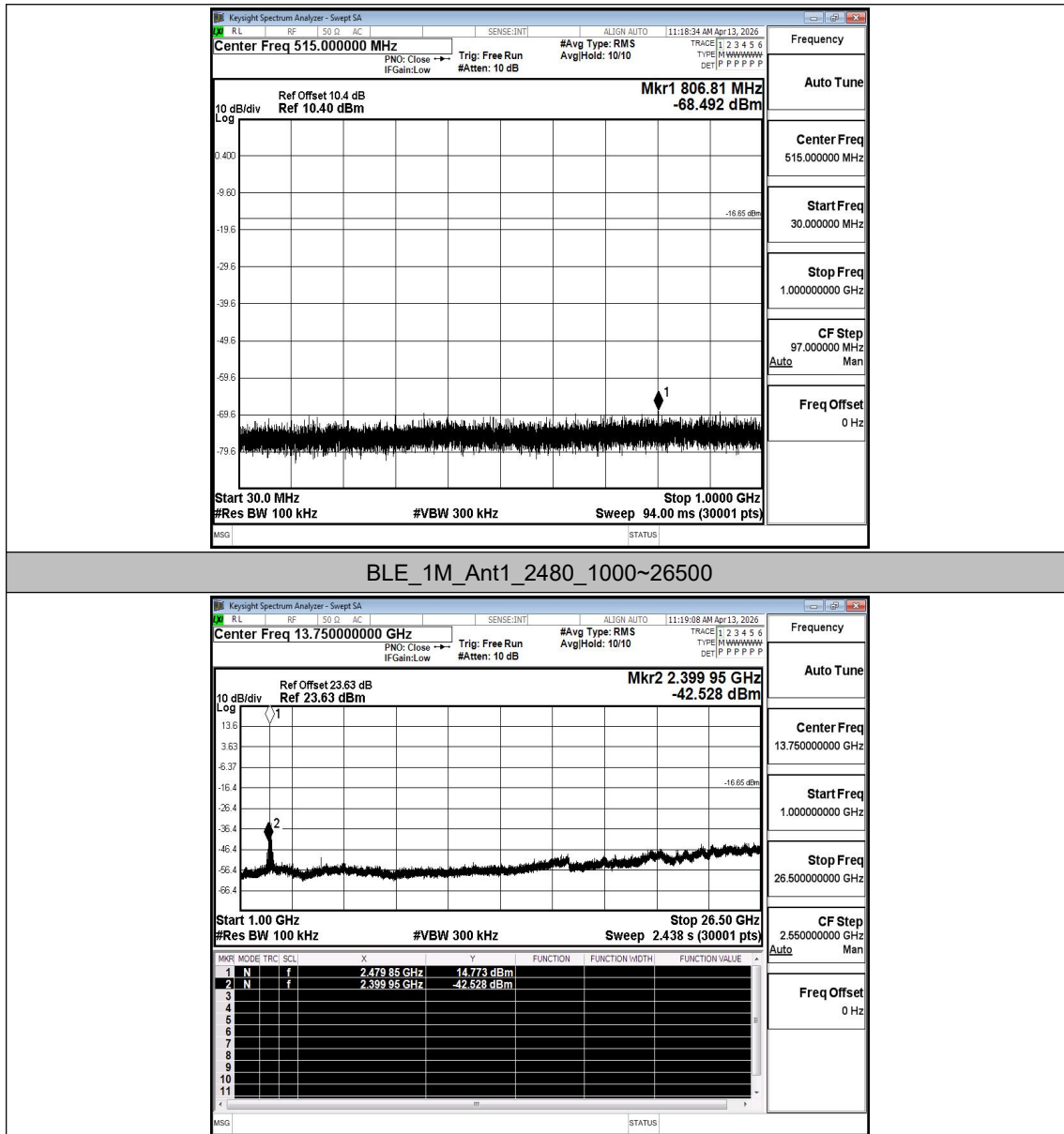
## BLE\_1M\_Ant1\_2440\_1000~26500



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



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

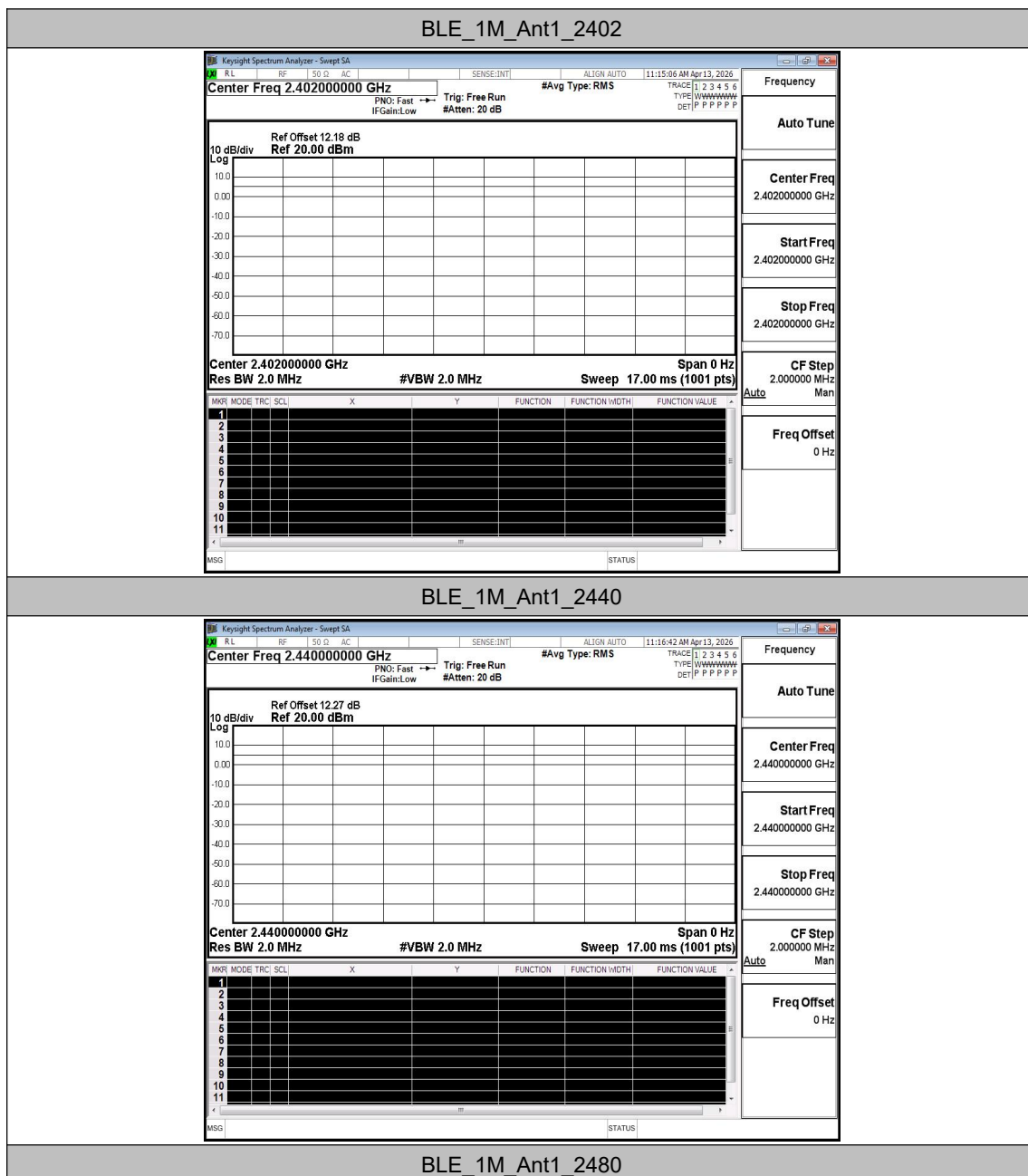


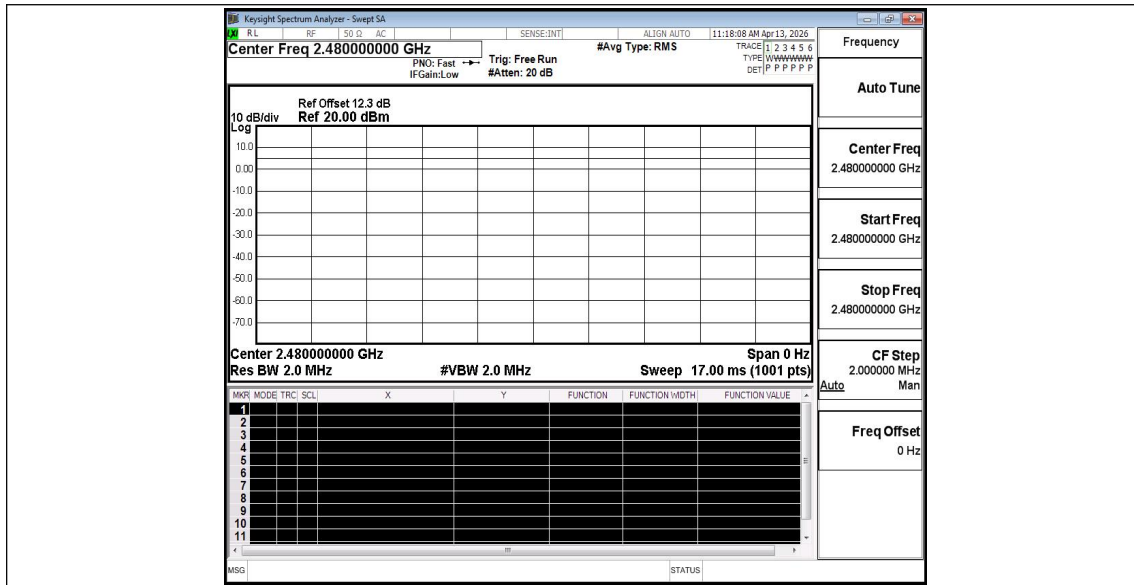
## A.6 Duty Cycle

### Test Result

| TestMode | Antenna | Freq(MHz) | ON Time [ms] | Period [ms] | X      | DC [%] | xFactor | Limit | Verdict |
|----------|---------|-----------|--------------|-------------|--------|--------|---------|-------|---------|
| BLE_1M   | Ant1    | 2402      | 17.00        | 17.00       | 1.0000 | 100.00 | 0.00    | ---   | ---     |
|          |         | 2440      | 17.00        | 17.00       | 1.0000 | 100.00 | 0.00    | ---   | ---     |
|          |         | 2480      | 17.00        | 17.00       | 1.0000 | 100.00 | 0.00    | ---   | ---     |

### Test Graphs





**A.7 Emissions in Restricted Bands****Test Result**

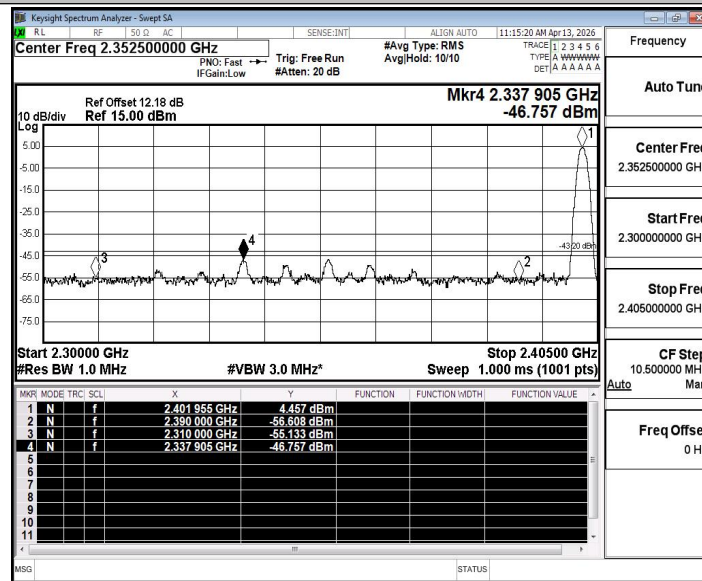
| TestMode | Antenna | ChName | Freq(MHz) | Detector | Freq [MHz] | Result [dBm] | Limit [dBm] | Gain [dBi] | DC Factor [dB] | Result [dBuV/m] | Limit [dBuV/m] | Verdict |
|----------|---------|--------|-----------|----------|------------|--------------|-------------|------------|----------------|-----------------|----------------|---------|
| BLE_1M   | Ant1    | Low    | 2402      | AV       | 2310.000   | -55.13       | ≤-43.20     | 2.00       | 0.00           | 42.07           | ≤54            | PASS    |
|          |         |        |           | AV       | 2337.905   | -46.76       | ≤-43.20     | 2.00       | 0.00           | 50.44           | ≤54            | PASS    |
|          |         |        |           | AV       | 2390.000   | -56.61       | ≤-43.20     | 2.00       | 0.00           | 40.59           | ≤54            | PASS    |
|          |         |        |           | Peak     | 2310.000   | -49.54       | ≤-23.20     | 2.00       | 0.00           | 47.66           | ≤74            | PASS    |
|          |         |        |           | Peak     | 2337.905   | -42.85       | ≤-23.20     | 2.00       | 0.00           | 54.35           | ≤74            | PASS    |
|          |         |        |           | Peak     | 2390.000   | -50.09       | ≤-23.20     | 2.00       | 0.00           | 47.11           | ≤74            | PASS    |
|          |         | High   | 2480      | AV       | 2483.500   | -54.96       | ≤-43.20     | 2.00       | 0.00           | 42.24           | ≤54            | PASS    |
|          |         |        |           | AV       | 2495.920   | -52.31       | ≤-43.20     | 2.00       | 0.00           | 44.89           | ≤54            | PASS    |
|          |         |        |           | AV       | 2500.000   | -57.73       | ≤-43.20     | 2.00       | 0.00           | 39.47           | ≤54            | PASS    |
|          |         |        |           | Peak     | 2483.500   | -50.87       | ≤-23.20     | 2.00       | 0.00           | 46.33           | ≤74            | PASS    |
|          |         |        |           | Peak     | 2494.880   | -46          | ≤-23.20     | 2.00       | 0.00           | 51.20           | ≤74            | PASS    |
|          |         |        |           | Peak     | 2500.000   | -49.66       | ≤-23.20     | 2.00       | 0.00           | 47.54           | ≤74            | PASS    |

Note:

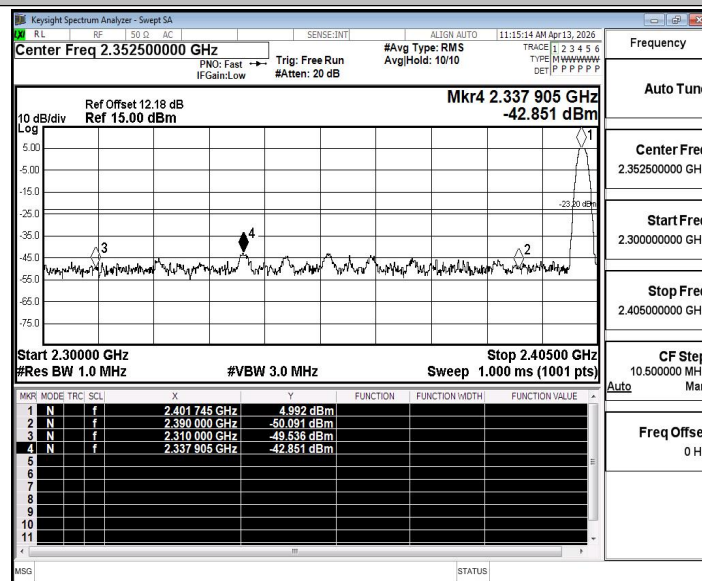
1. The Antenna Gain is compensated in the graph.
2. The limit in dBm for average detector is conversion from 54dBuV/m, according to 15.209(a). The limit in dBm for peak detector is 20dB above the limit of average detector in dBm.

## Test Graphs

BLE\_1M\_Ant1\_Low\_2402\_AV



BLE\_1M\_Ant1\_Low\_2402\_Peak



BLE\_1M\_Ant1\_High\_2480\_AV

