



## Appendix B

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

Product Name: Power Station

Trade Mark: MARSTEK

Test Model: M2200

#### Environmental Conditions

|                    |             |
|--------------------|-------------|
| Temperature:       | 24.7° C     |
| Relative Humidity: | 52.4%       |
| ATM Pressure:      | 100.0 kPa   |
| Test Engineer:     | Emiya lin   |
| Supervised by:     | Simba Haung |



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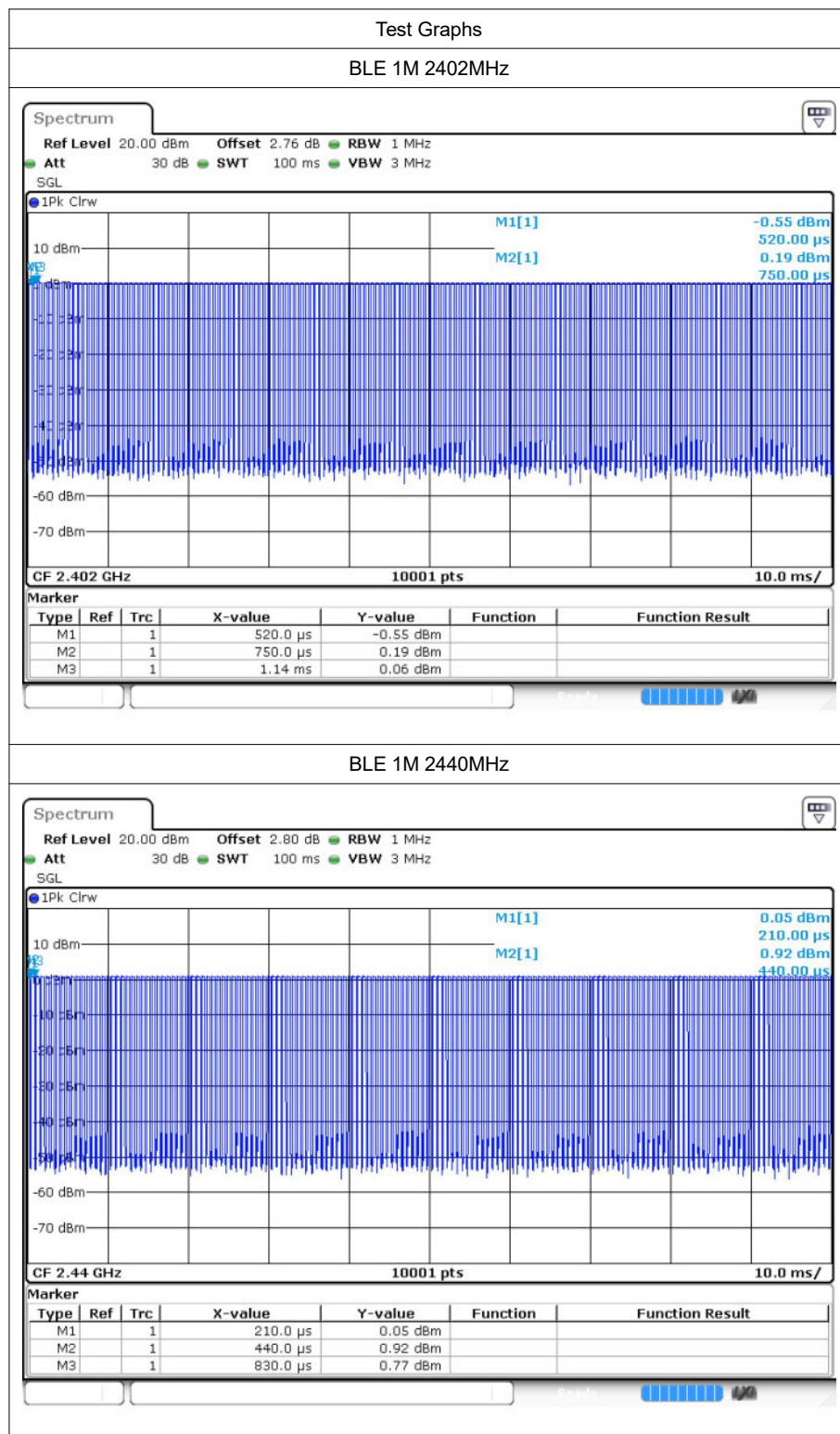


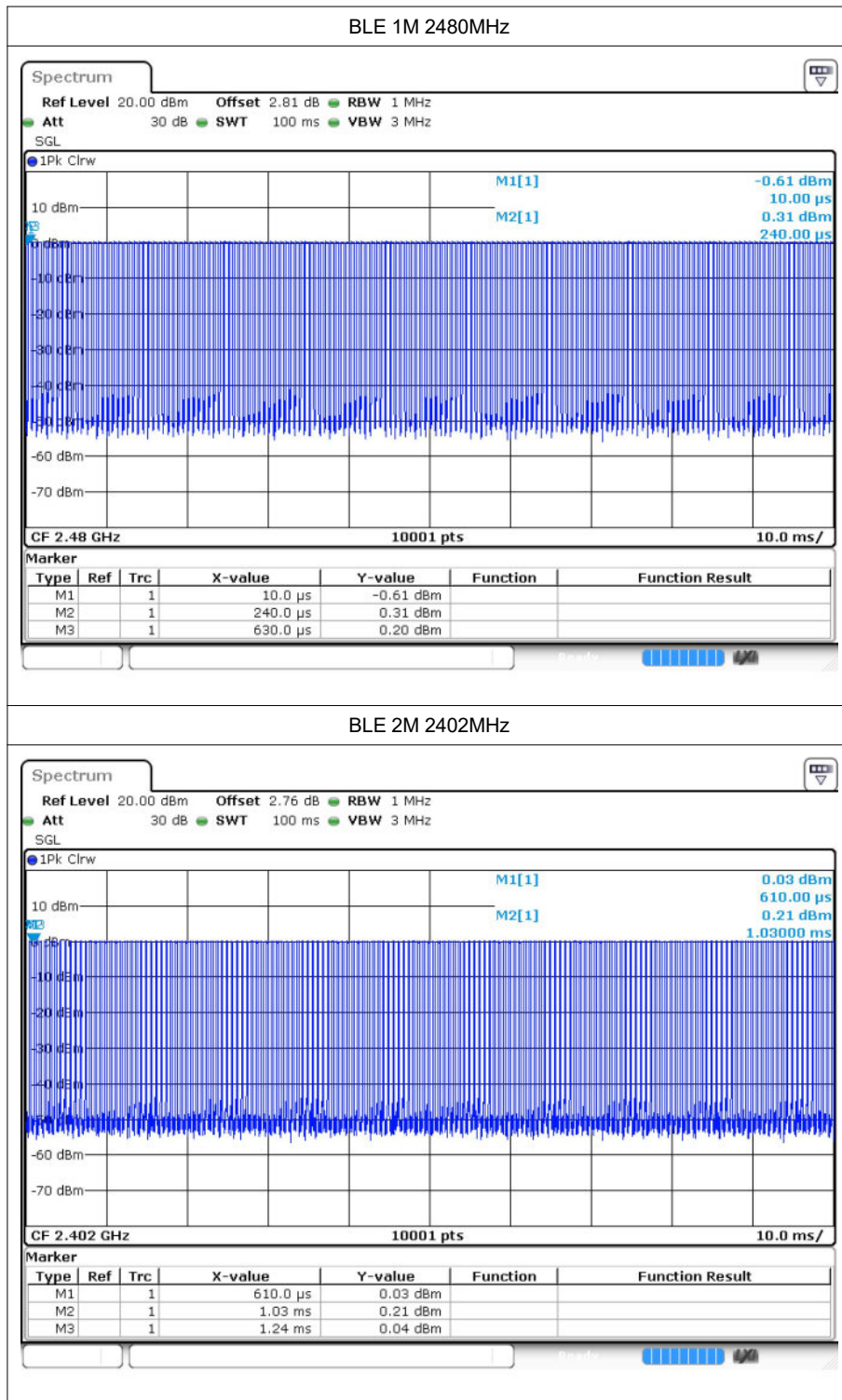
# 1 Duty Cycle

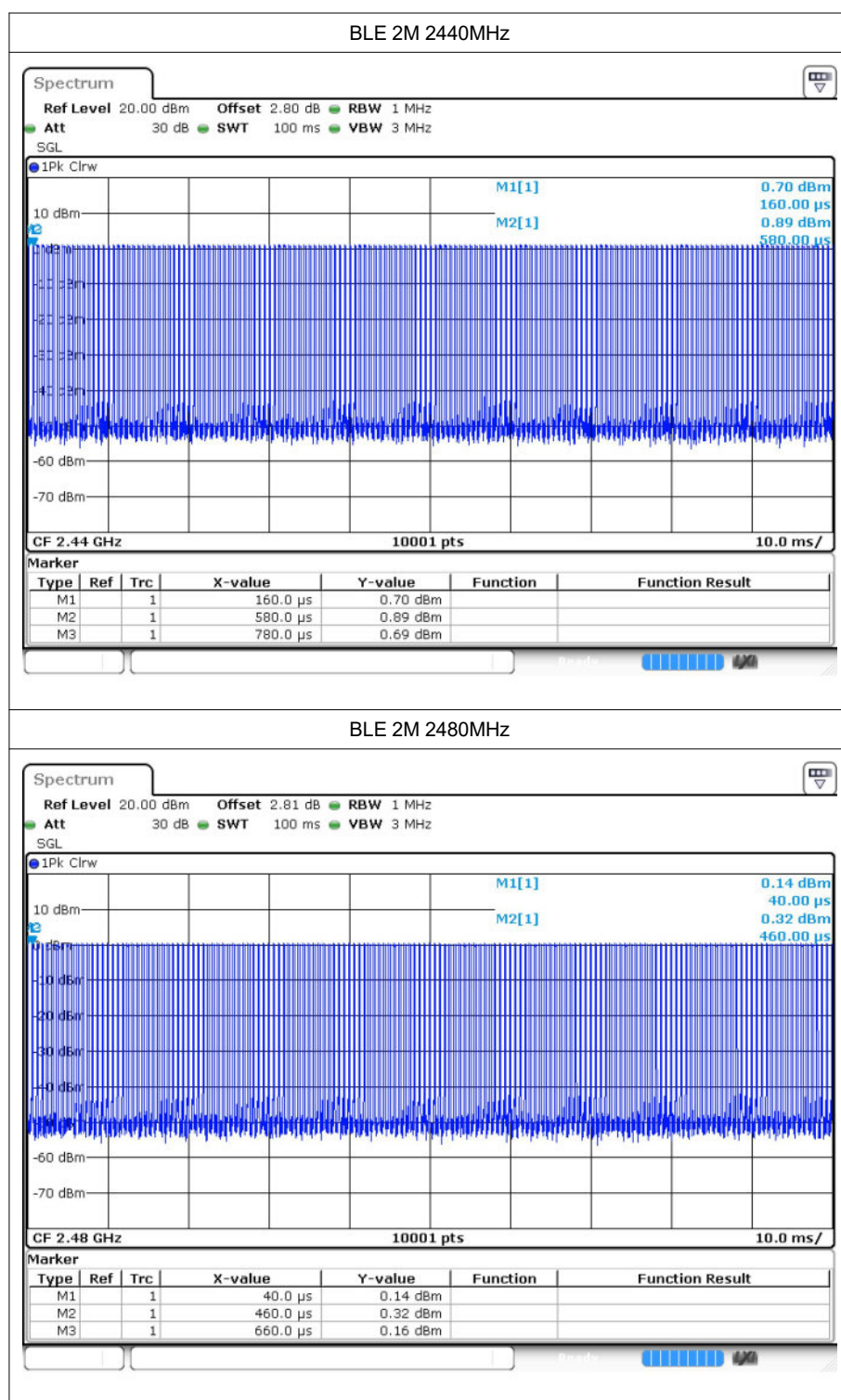
## 1.1 Test Result

| Mode   | Frequency (MHz) | Duty Cycle (%) | Correction Factor | 1/T (kHz) |
|--------|-----------------|----------------|-------------------|-----------|
| BLE 1M | 2402            | 63.99          | 1.94              | 2.56      |
| BLE 1M | 2440            | 64.43          | 1.91              | 2.56      |
| BLE 1M | 2480            | 64             | 1.94              | 2.56      |
| BLE 2M | 2402            | 34.48          | 4.62              | 4.76      |
| BLE 2M | 2440            | 34.41          | 4.63              | 5         |
| BLE 2M | 2480            | 34.45          | 4.63              | 5         |

## 1.2 Test Graphs







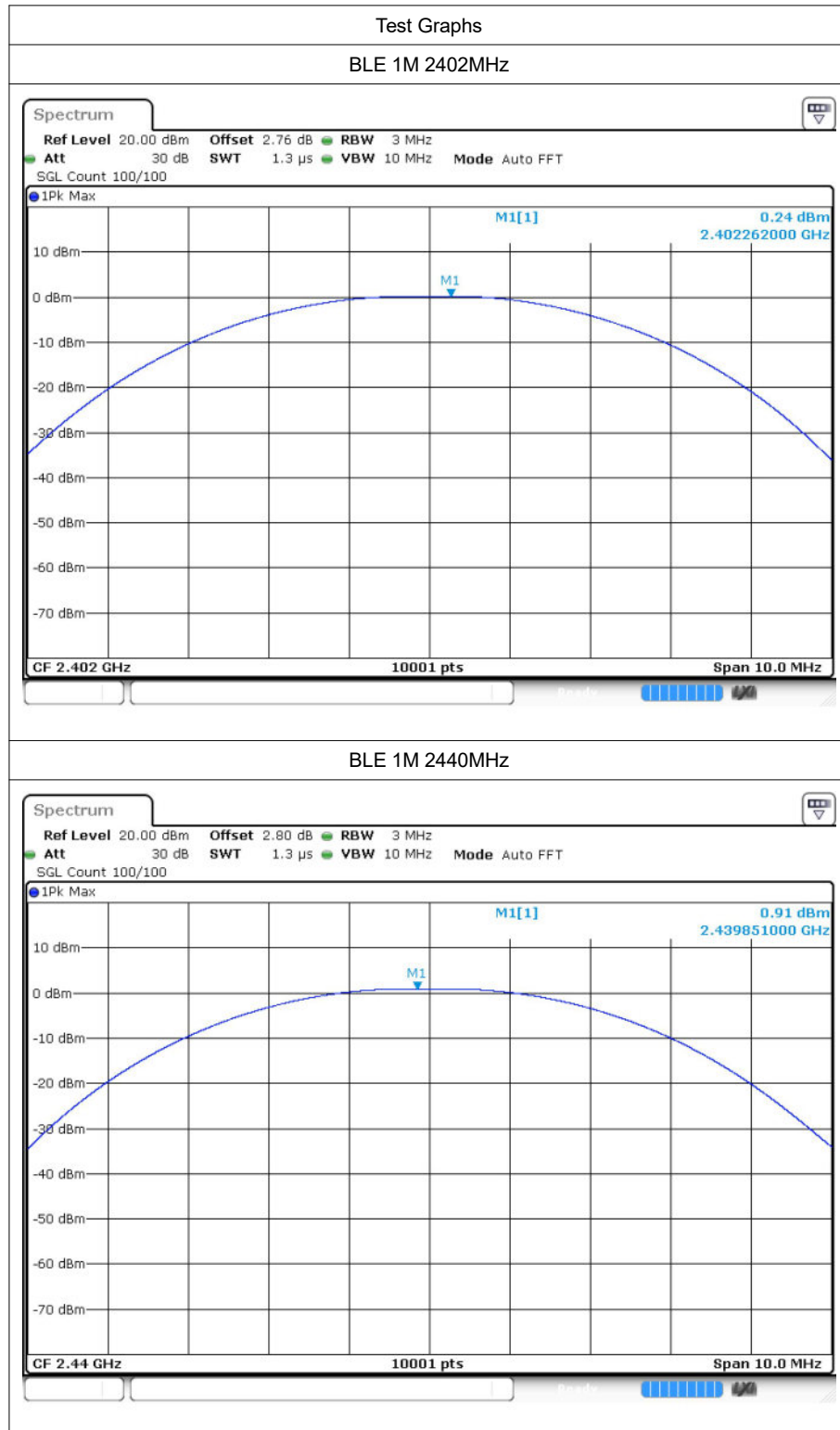


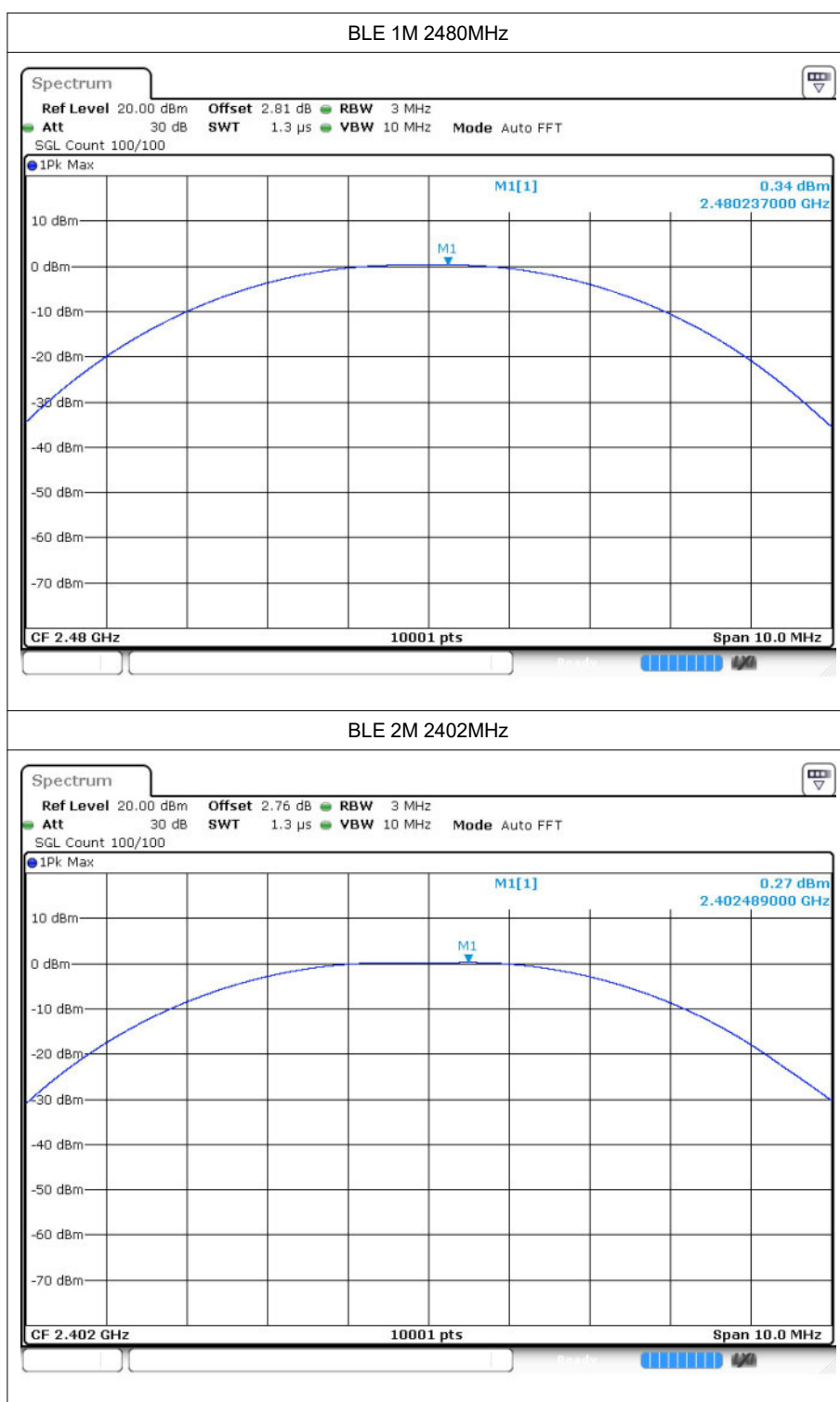
## 2 Maximum Conducted Output Power

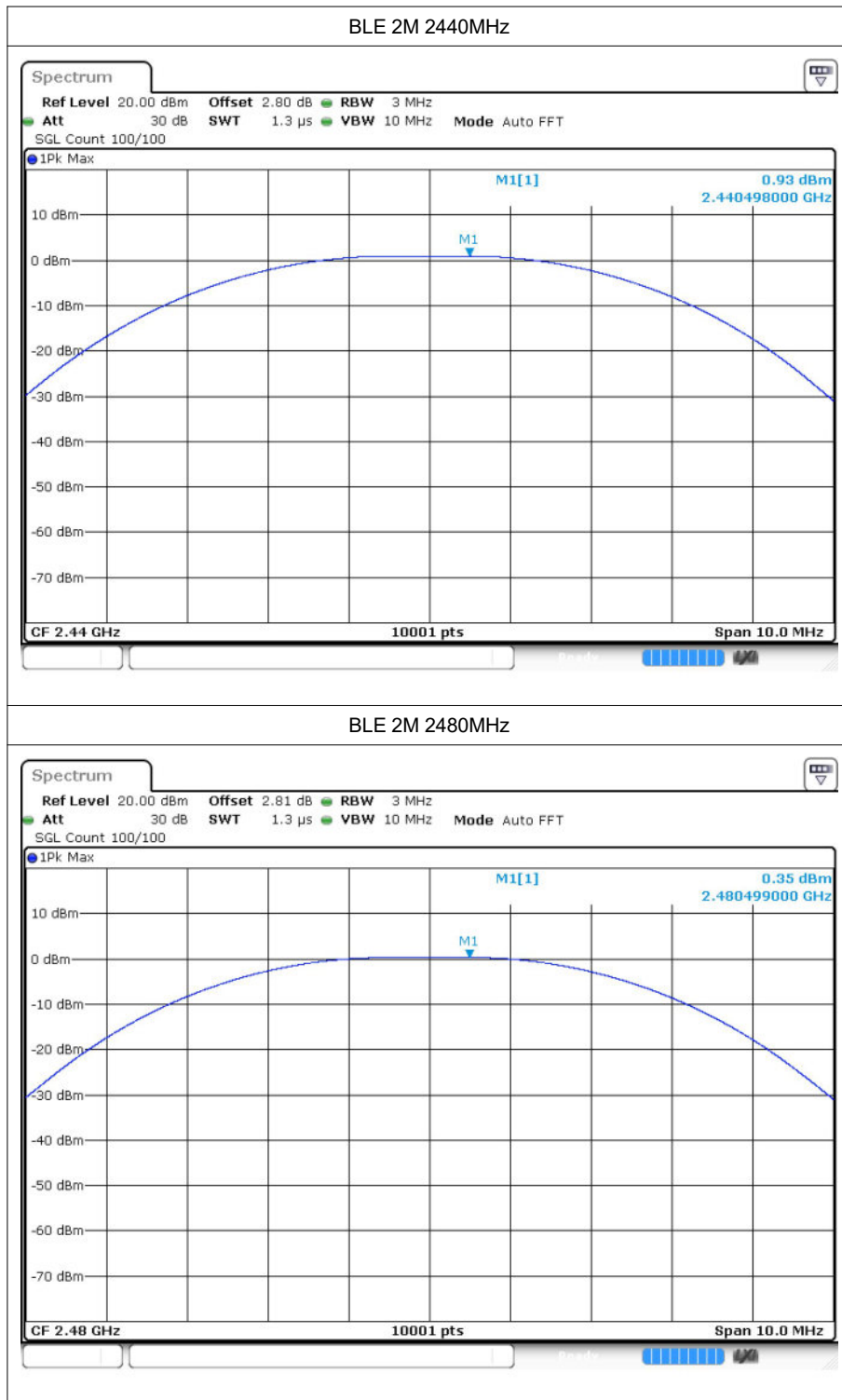
### 2.1 Test Result

| Mode   | Frequency (MHz) | Conducted Power<br>(dBm) | Limit (dBm) | Verdict |
|--------|-----------------|--------------------------|-------------|---------|
| BLE 1M | 2402            | 0.24                     | 30          | Pass    |
| BLE 1M | 2440            | 0.91                     | 30          | Pass    |
| BLE 1M | 2480            | 0.34                     | 30          | Pass    |
| BLE 2M | 2402            | 0.27                     | 30          | Pass    |
| BLE 2M | 2440            | 0.93                     | 30          | Pass    |
| BLE 2M | 2480            | 0.35                     | 30          | Pass    |

## 2.2 Test Graphs







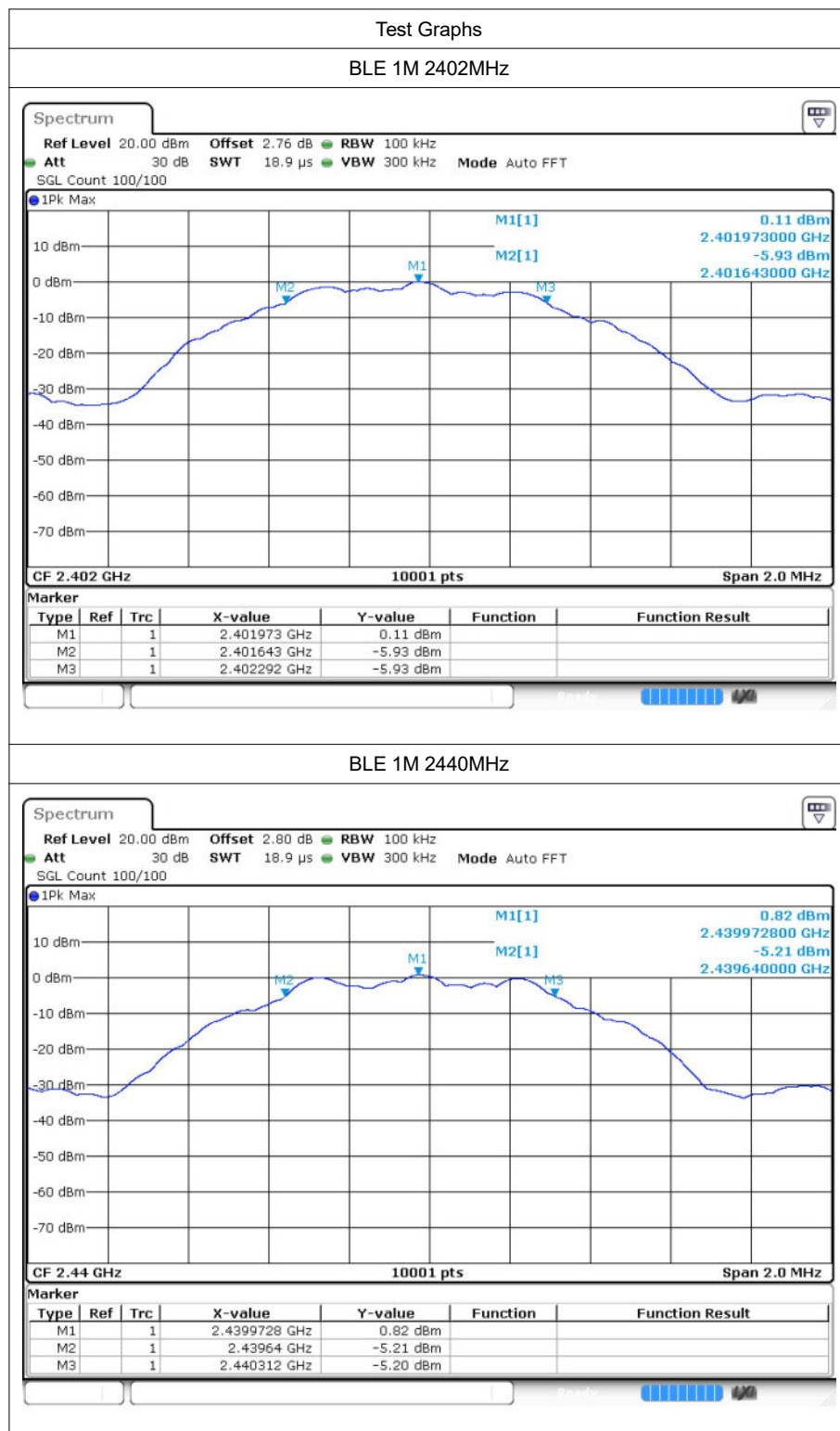


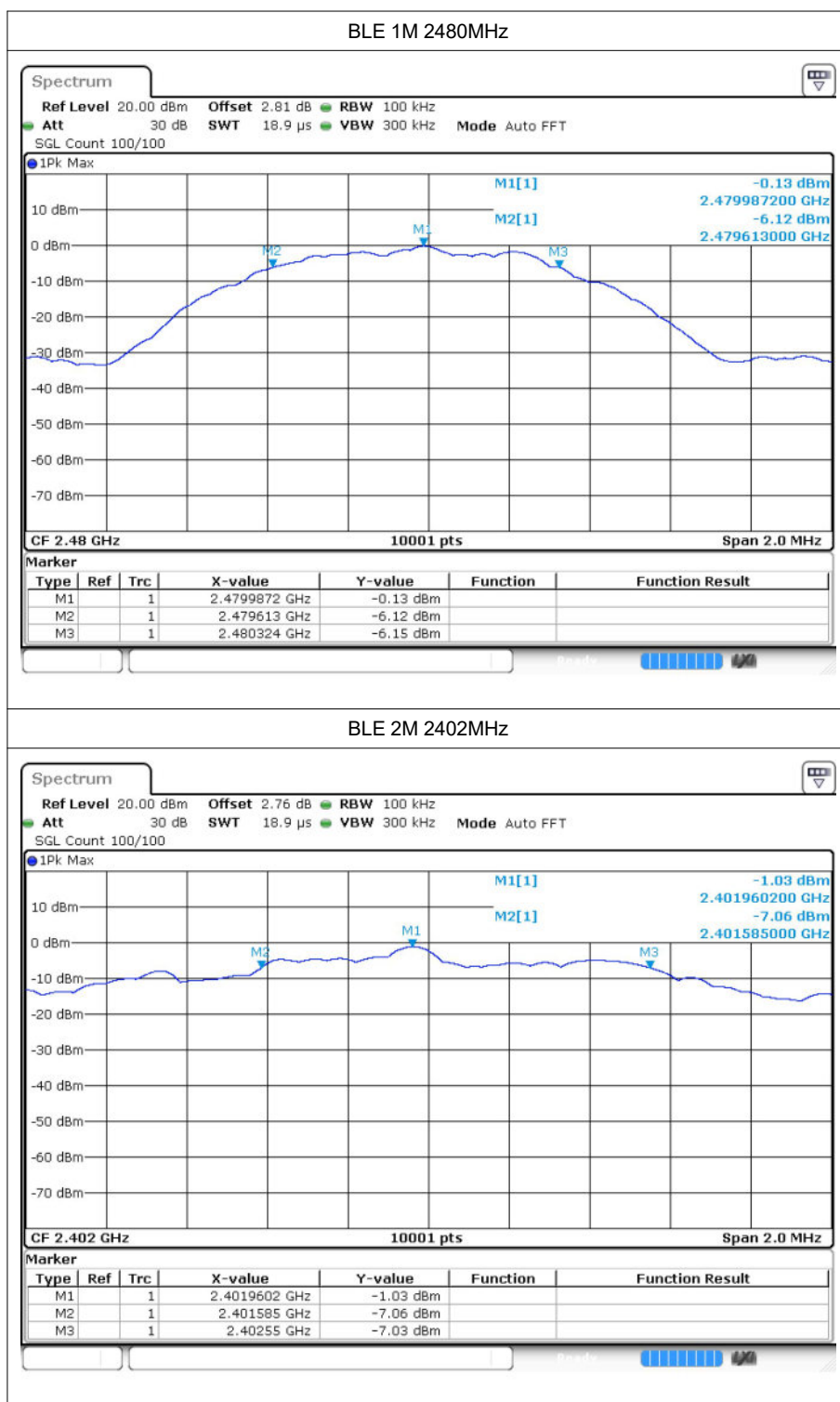
### 3 -6dB Bandwidth

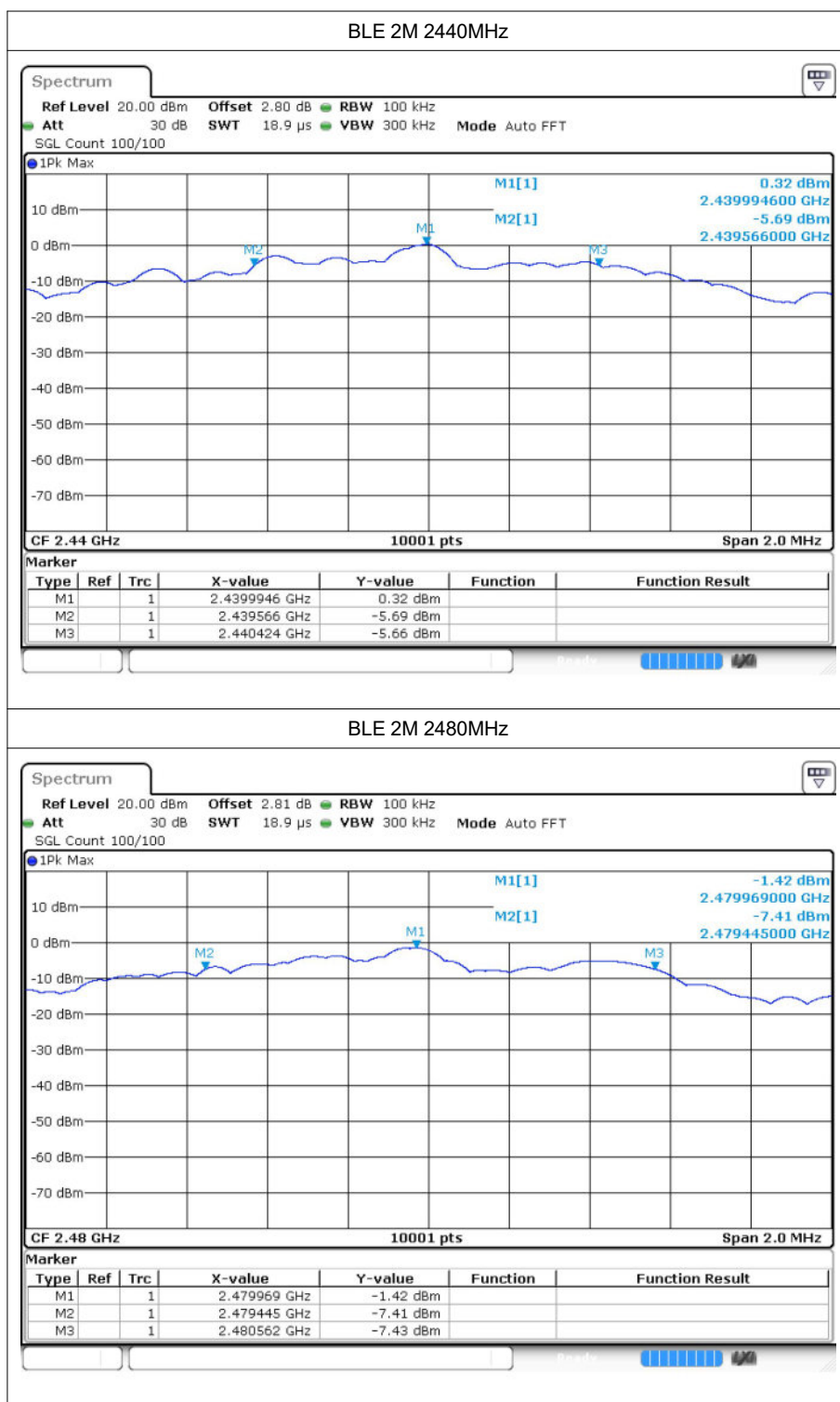
#### 3.1 Test Result

| Mode   | Frequency (MHz) | -6 dB Bandwidth (MHz) | Limit -6 dB Bandwidth (MHz) | Verdict |
|--------|-----------------|-----------------------|-----------------------------|---------|
| BLE 1M | 2402            | 0.648                 | 0.5                         | Pass    |
| BLE 1M | 2440            | 0.672                 | 0.5                         | Pass    |
| BLE 1M | 2480            | 0.711                 | 0.5                         | Pass    |
| BLE 2M | 2402            | 0.965                 | 0.5                         | Pass    |
| BLE 2M | 2440            | 0.858                 | 0.5                         | Pass    |
| BLE 2M | 2480            | 1.117                 | 0.5                         | Pass    |

## 3.2 Test Graphs





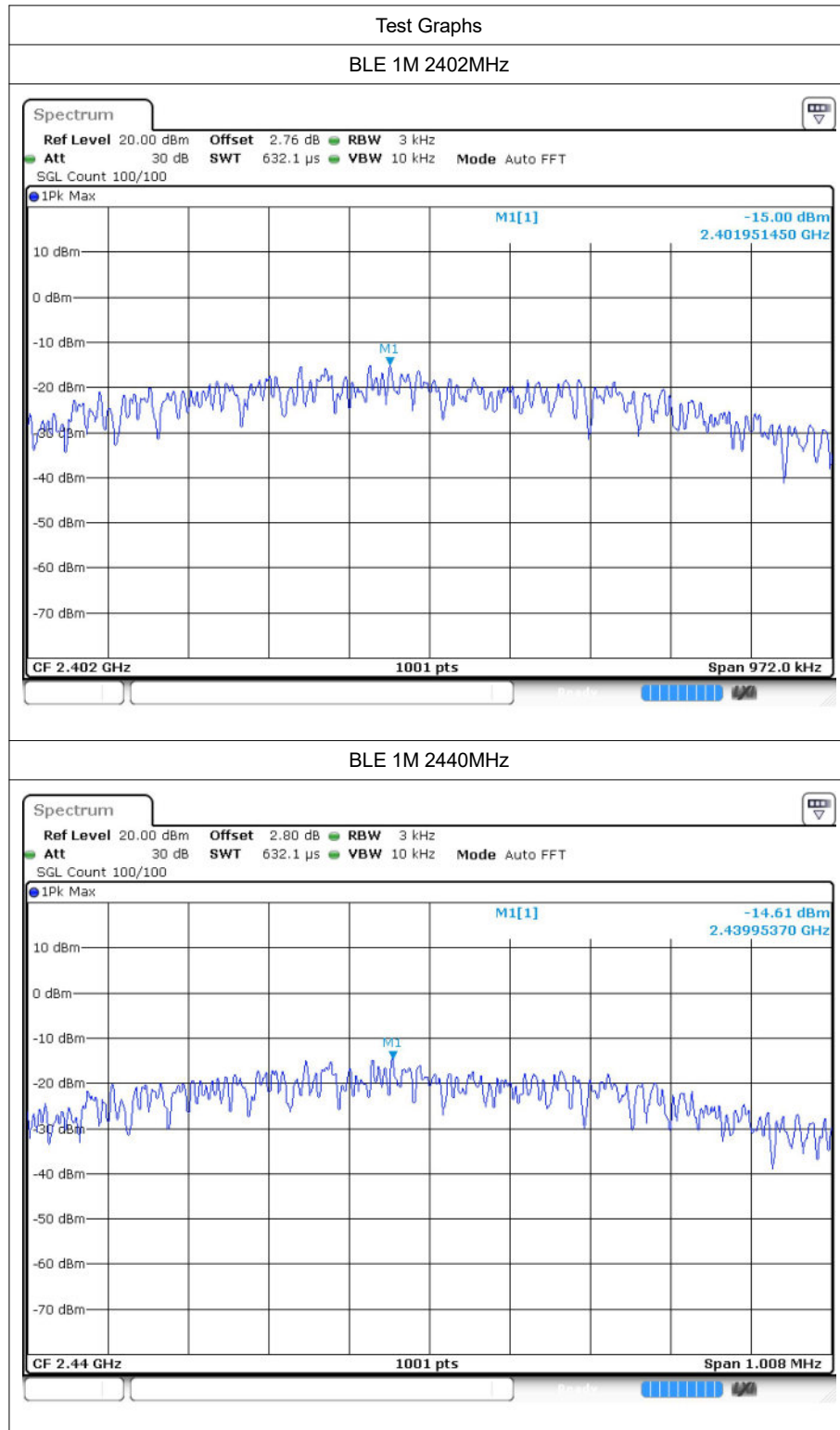


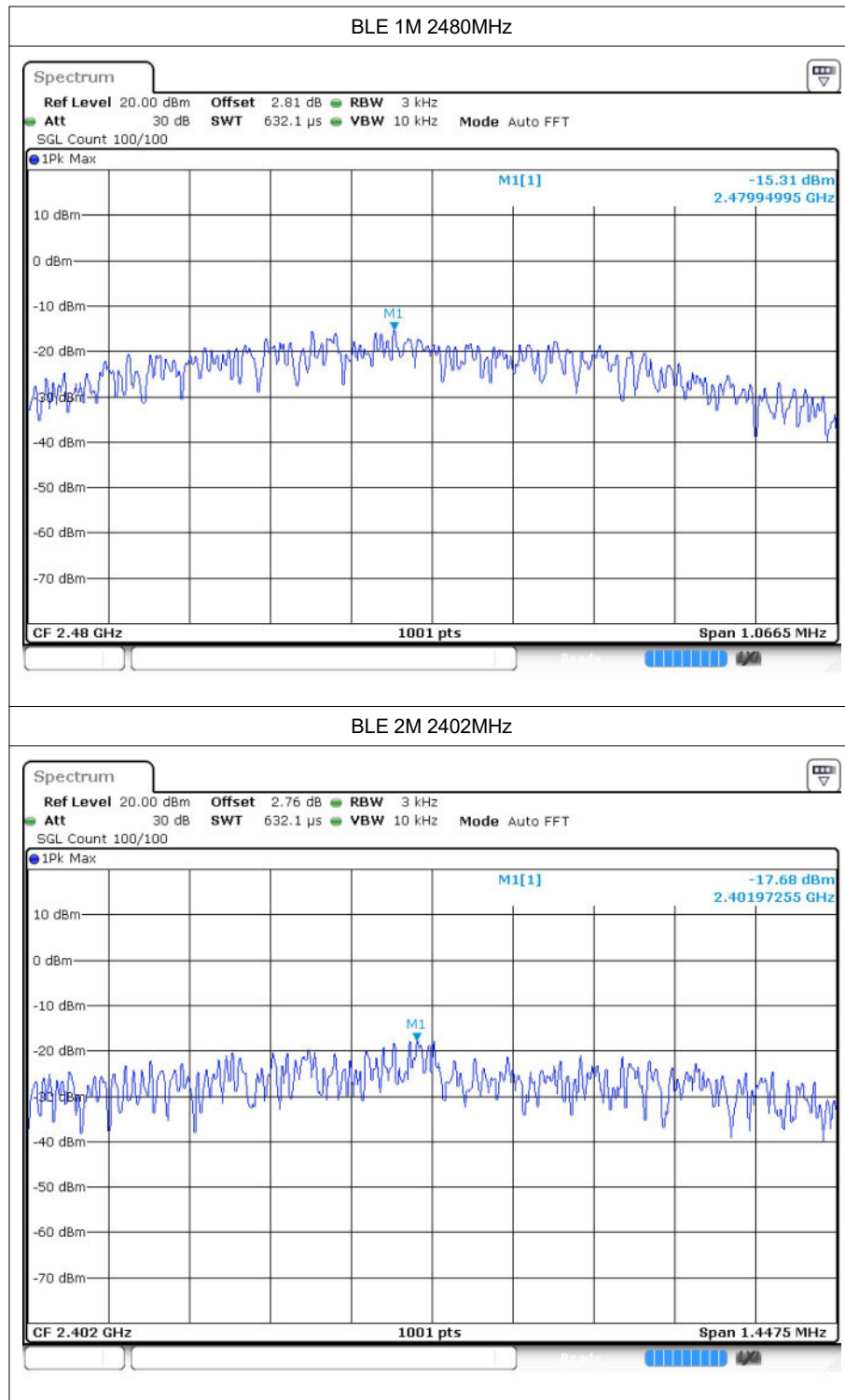
## 4 Maximum Power Spectral Density Level

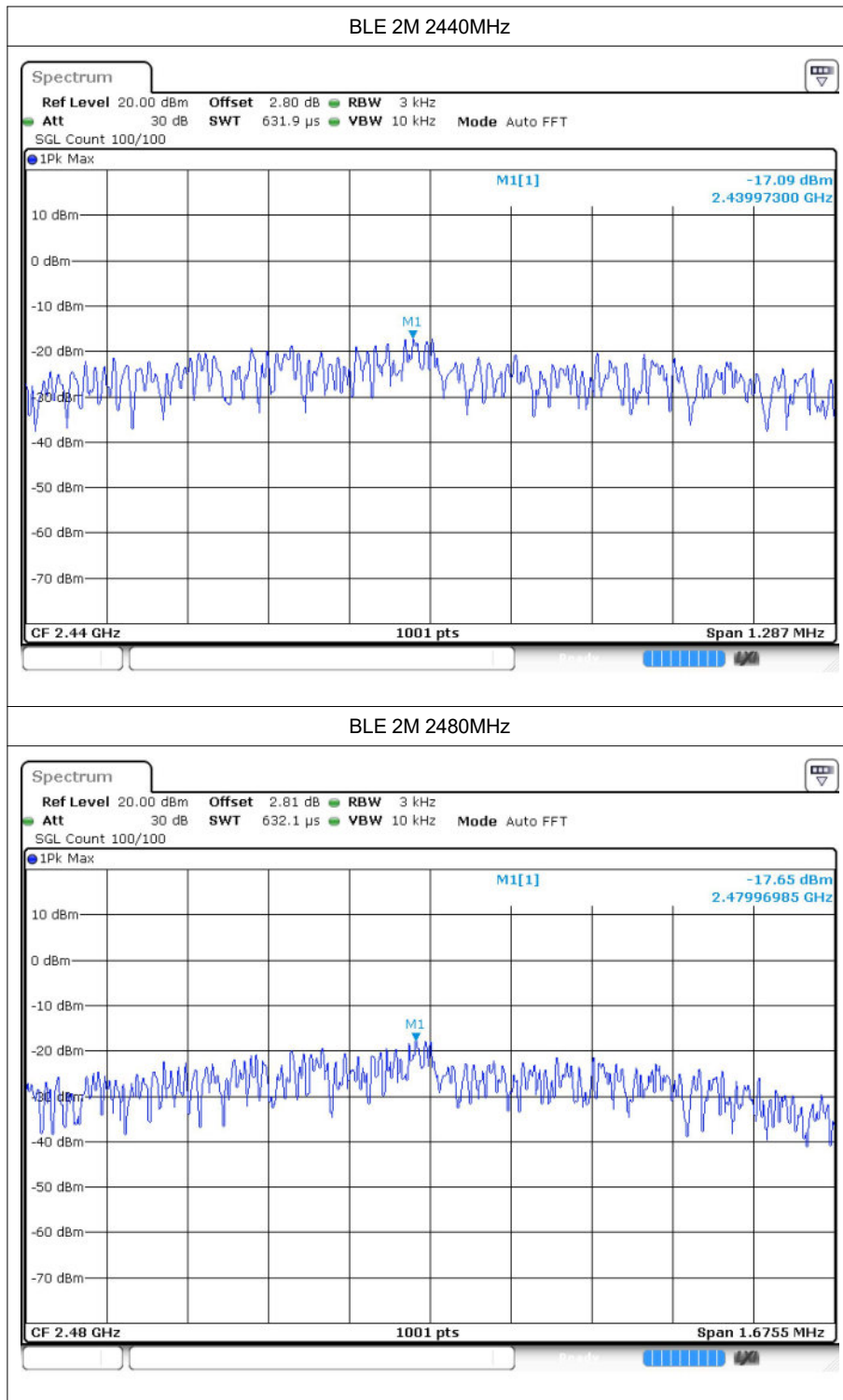
### 4.1 Test Result

| Mode   | Frequency (MHz) | Conducted PSD<br>(dBm/3-100kHz) | Limit<br>(dBm/3kHz) | Verdict |
|--------|-----------------|---------------------------------|---------------------|---------|
| BLE 1M | 2402            | -15                             | $\leq 8$            | Pass    |
| BLE 1M | 2440            | -14.61                          | $\leq 8$            | Pass    |
| BLE 1M | 2480            | -15.31                          | $\leq 8$            | Pass    |
| BLE 2M | 2402            | -17.68                          | $\leq 8$            | Pass    |
| BLE 2M | 2440            | -17.09                          | $\leq 8$            | Pass    |
| BLE 2M | 2480            | -17.65                          | $\leq 8$            | Pass    |

## 4.2 Test Graphs







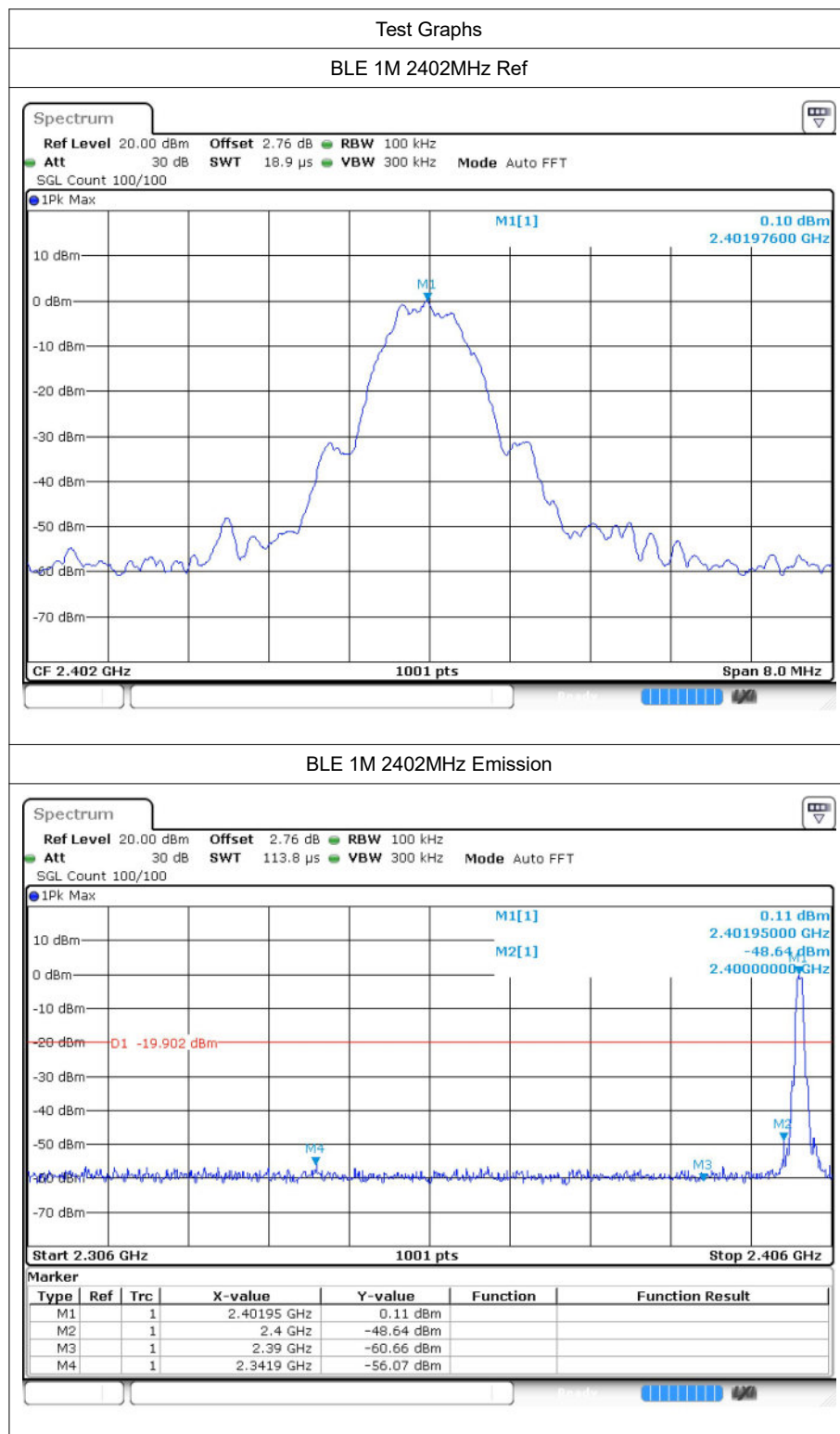


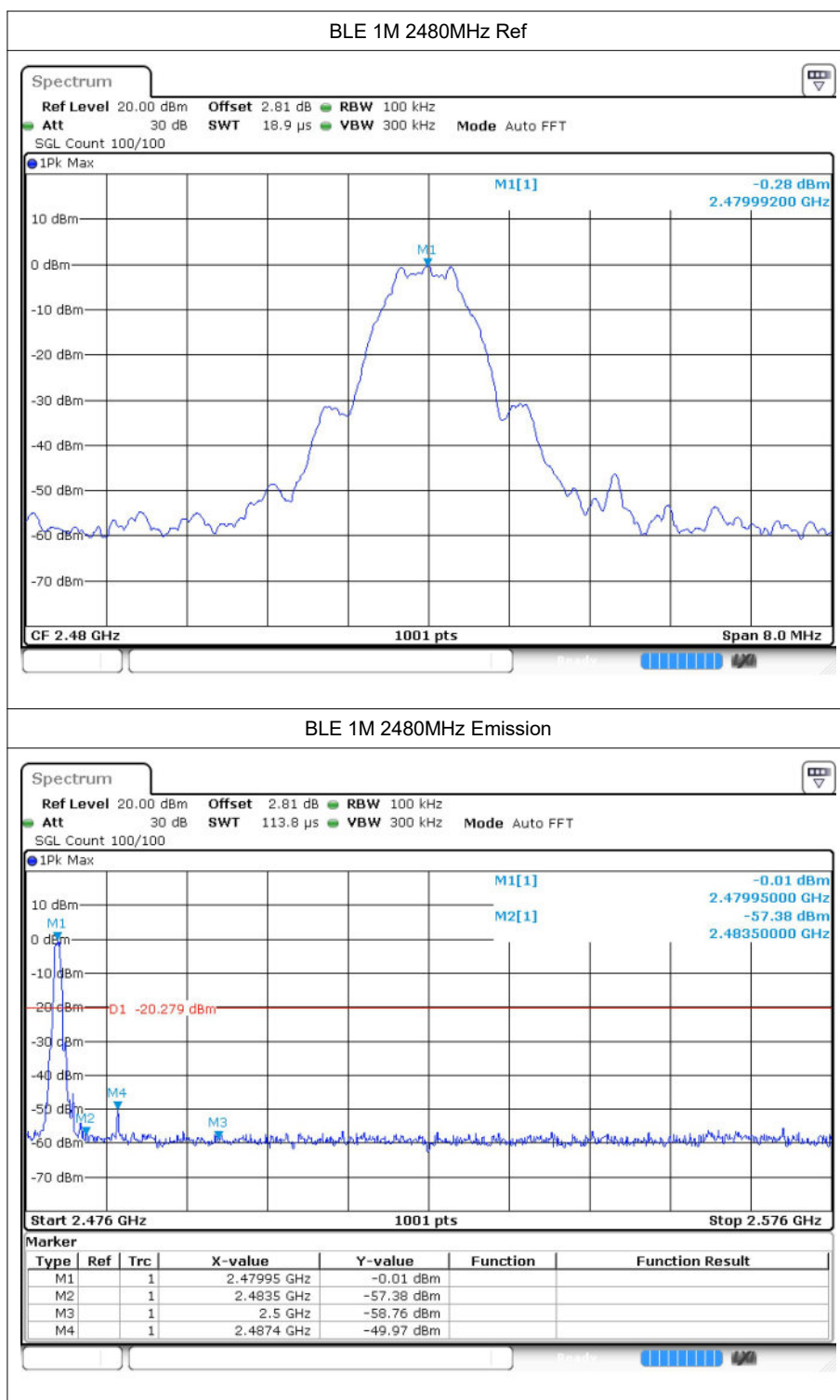
## 5 Band Edge

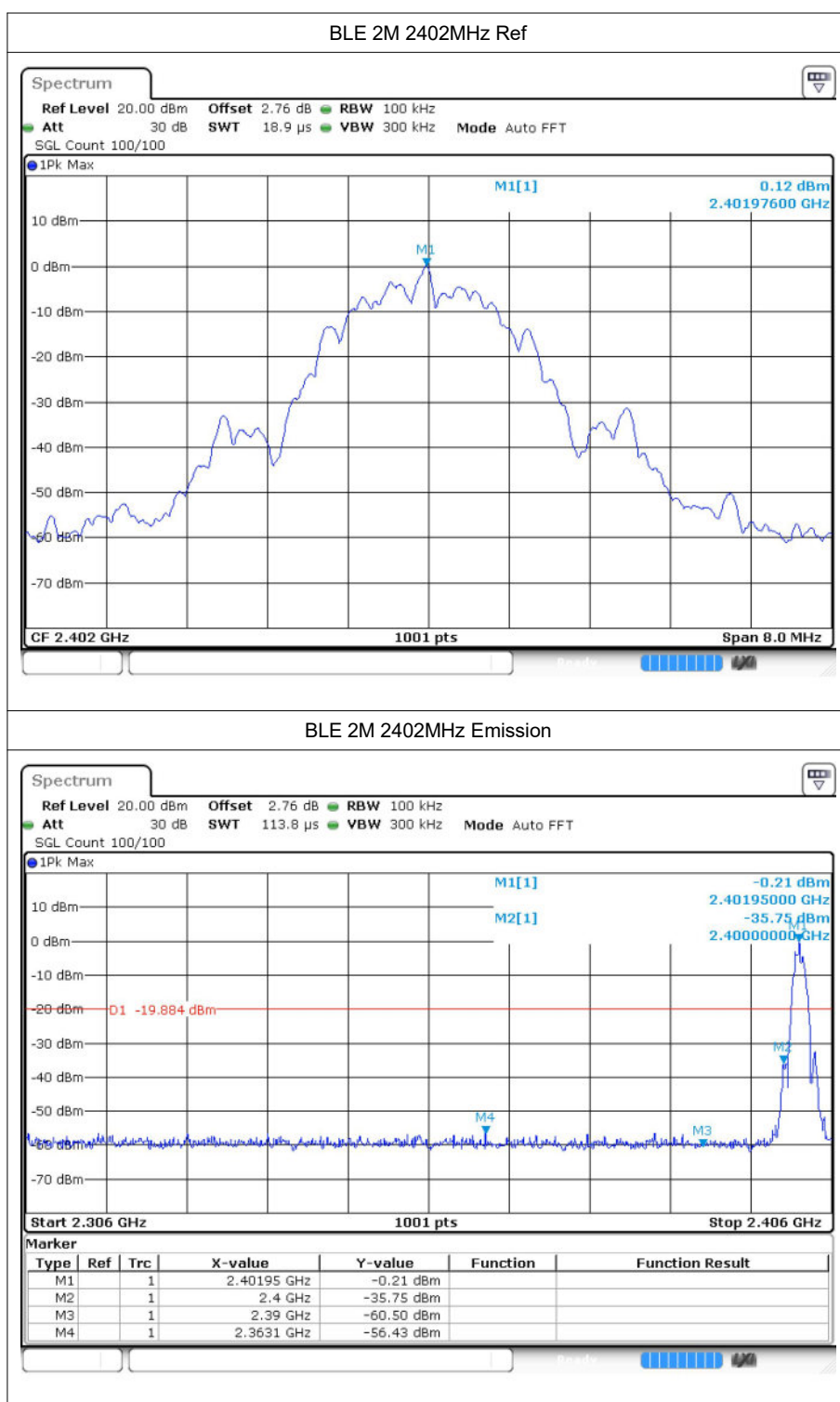
### 5.1 Test Result

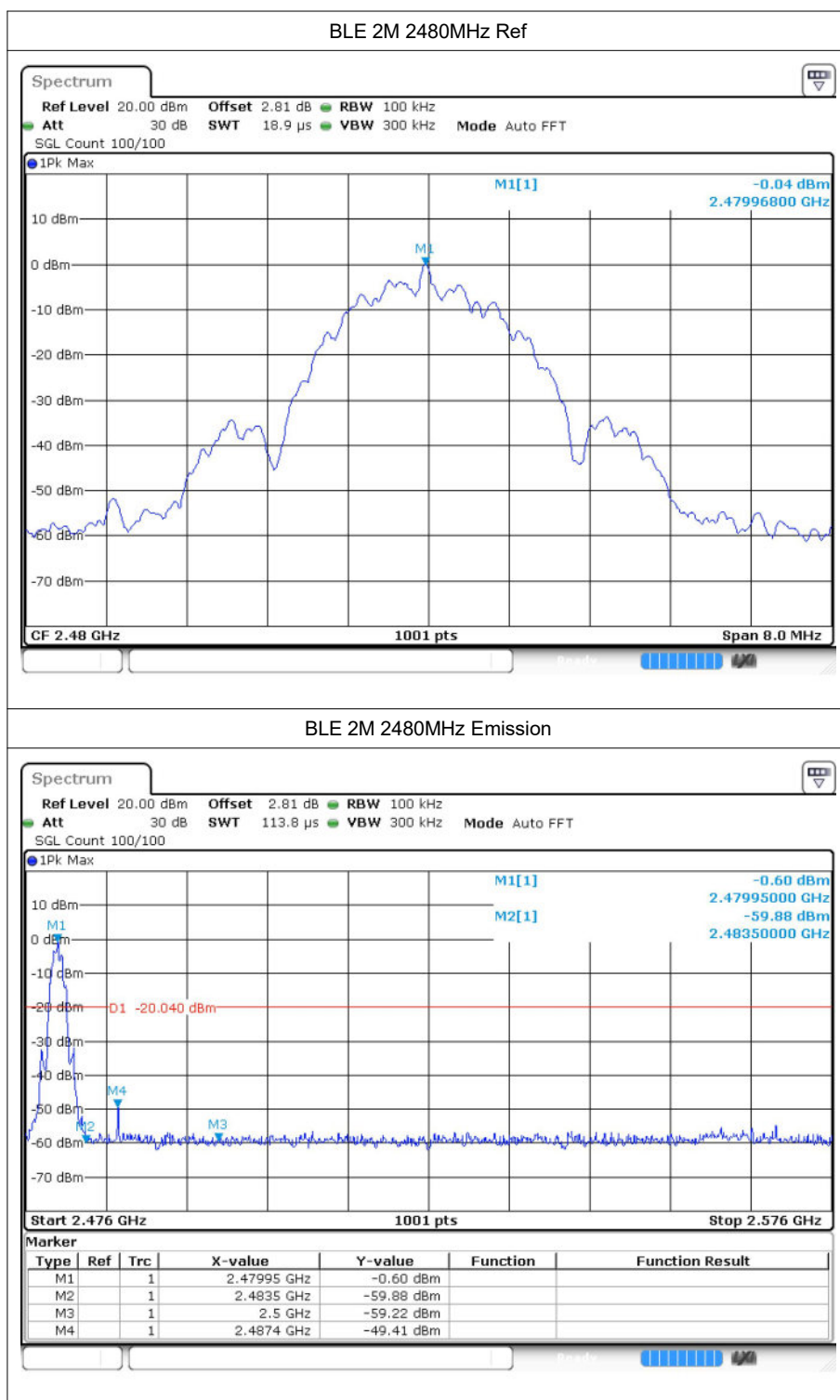
| Mode   | Frequency (MHz) | Max Value (dBc) | Limit (dBc) | Verdict |
|--------|-----------------|-----------------|-------------|---------|
| BLE 1M | 2402            | -56.17          | -20         | Pass    |
| BLE 1M | 2480            | -49.68          | -20         | Pass    |
| BLE 2M | 2402            | -56.55          | -20         | Pass    |
| BLE 2M | 2480            | -49.37          | -20         | Pass    |

## 5.2 Test Graphs









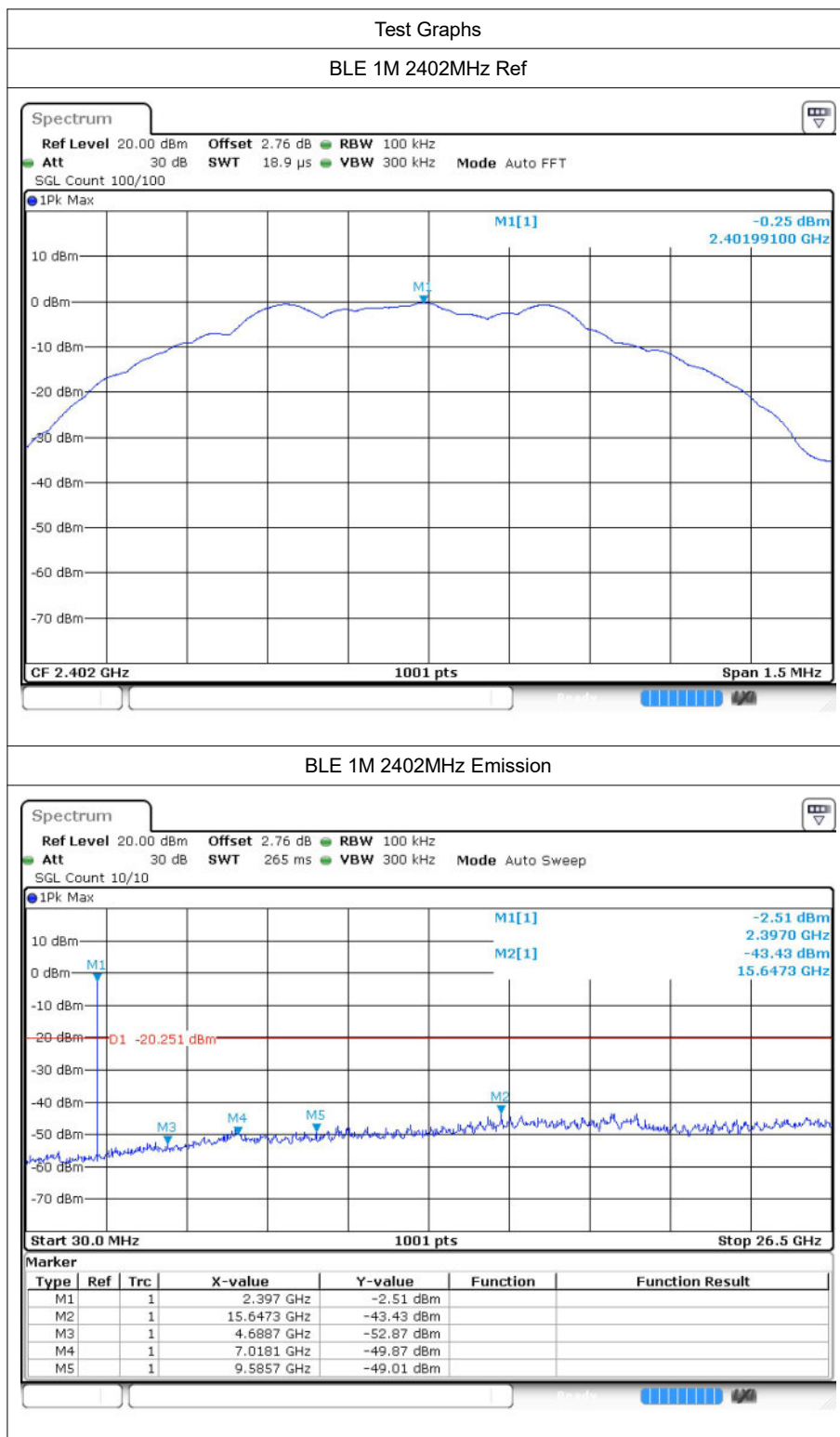


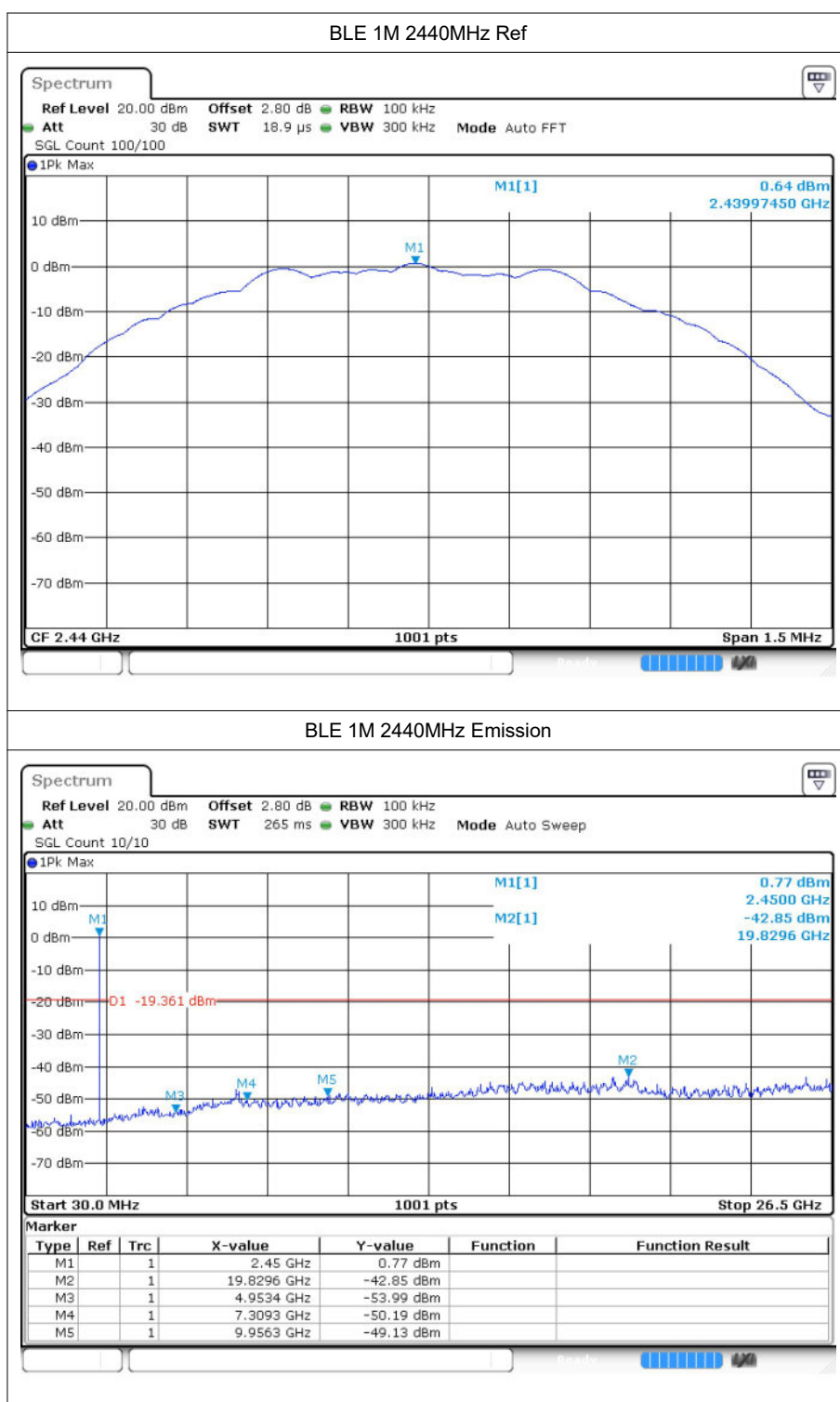
## 6 Conducted RF Spurious Emission

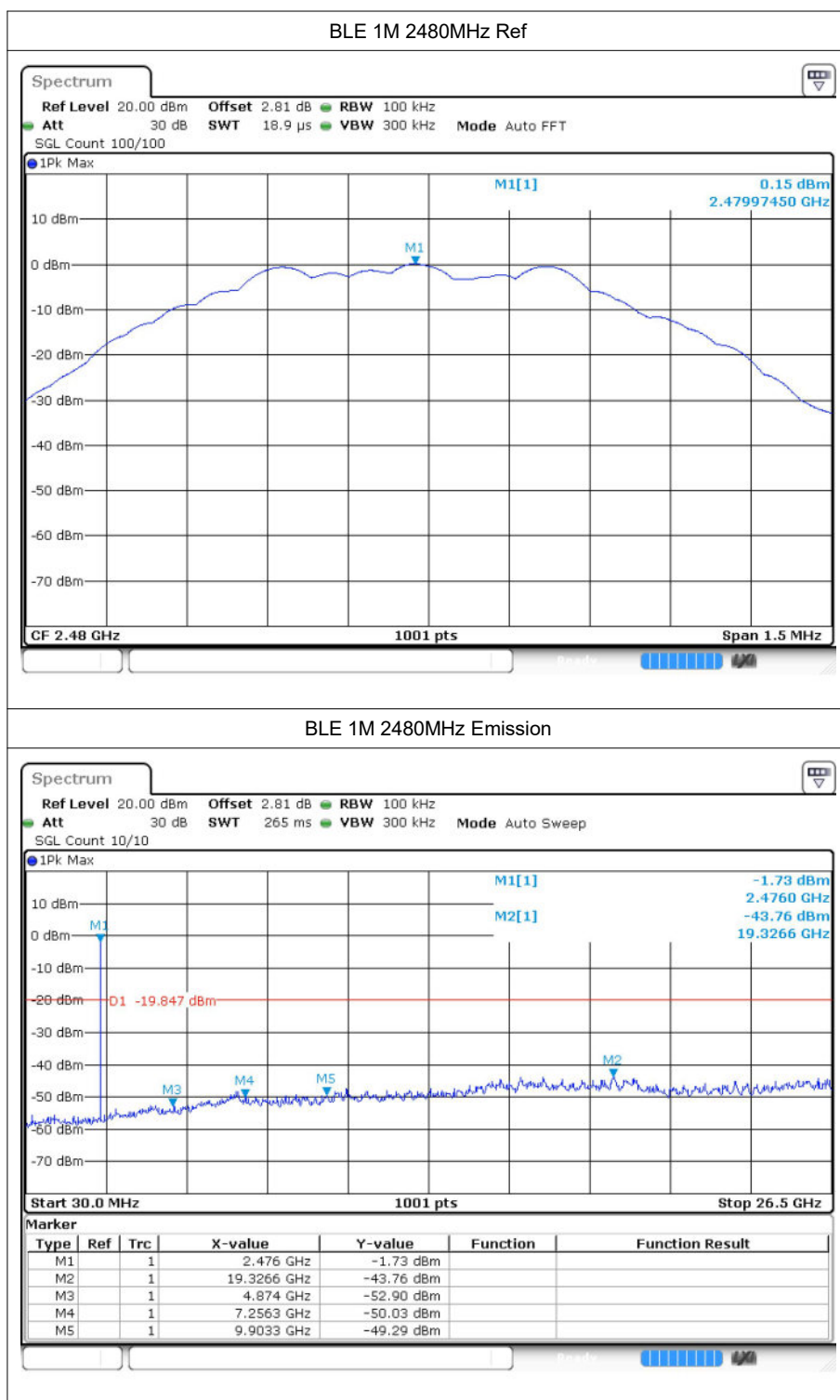
### 6.1 Test Result

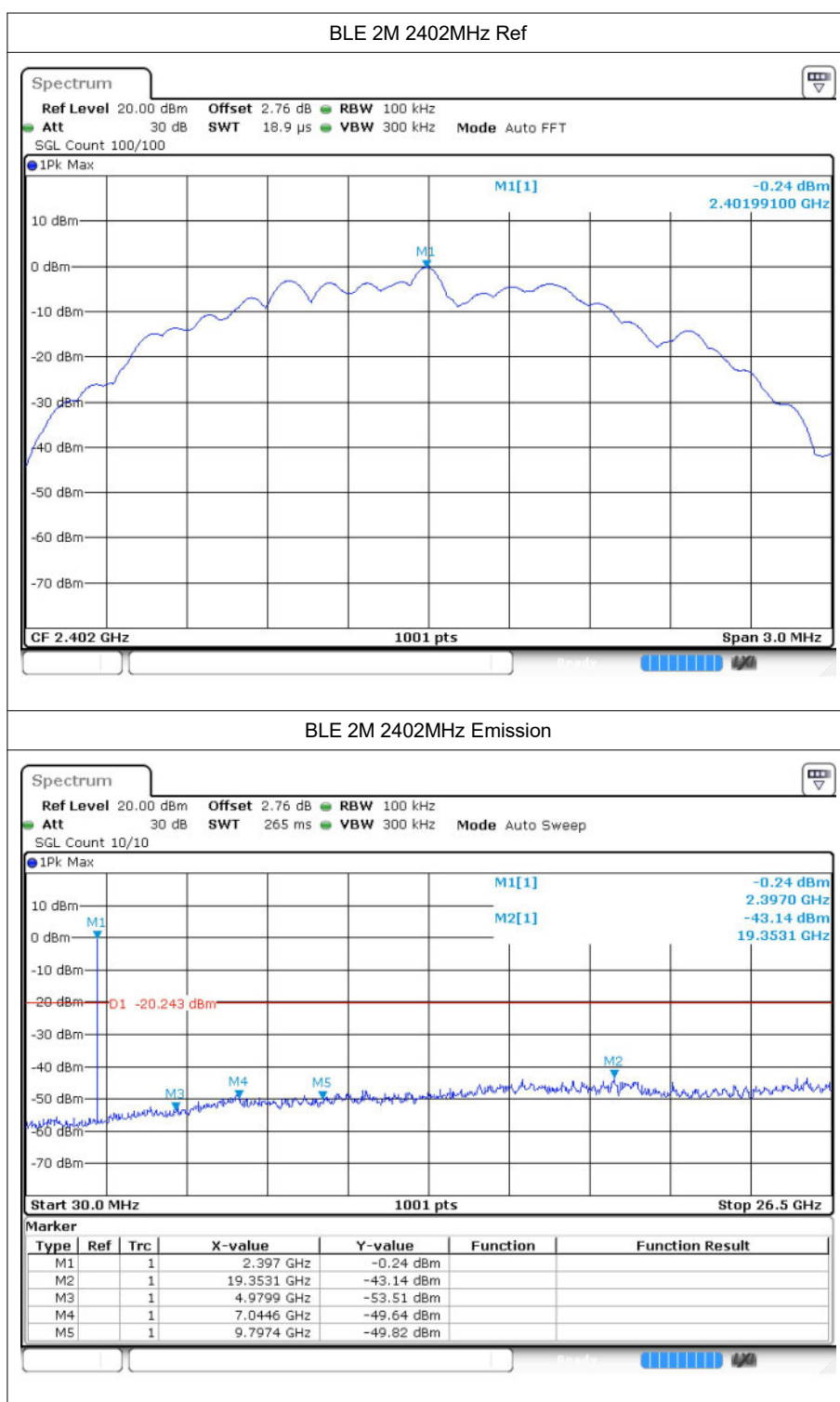
| Mode   | Frequency (MHz) | Max Value (dBc) | Limit (dBc) | Verdict |
|--------|-----------------|-----------------|-------------|---------|
| BLE 1M | 2402            | -43.17          | -20         | Pass    |
| BLE 1M | 2440            | -43.48          | -20         | Pass    |
| BLE 1M | 2480            | -43.91          | -20         | Pass    |
| BLE 2M | 2402            | -42.9           | -20         | Pass    |
| BLE 2M | 2440            | -43.65          | -20         | Pass    |
| BLE 2M | 2480            | -42.89          | -20         | Pass    |

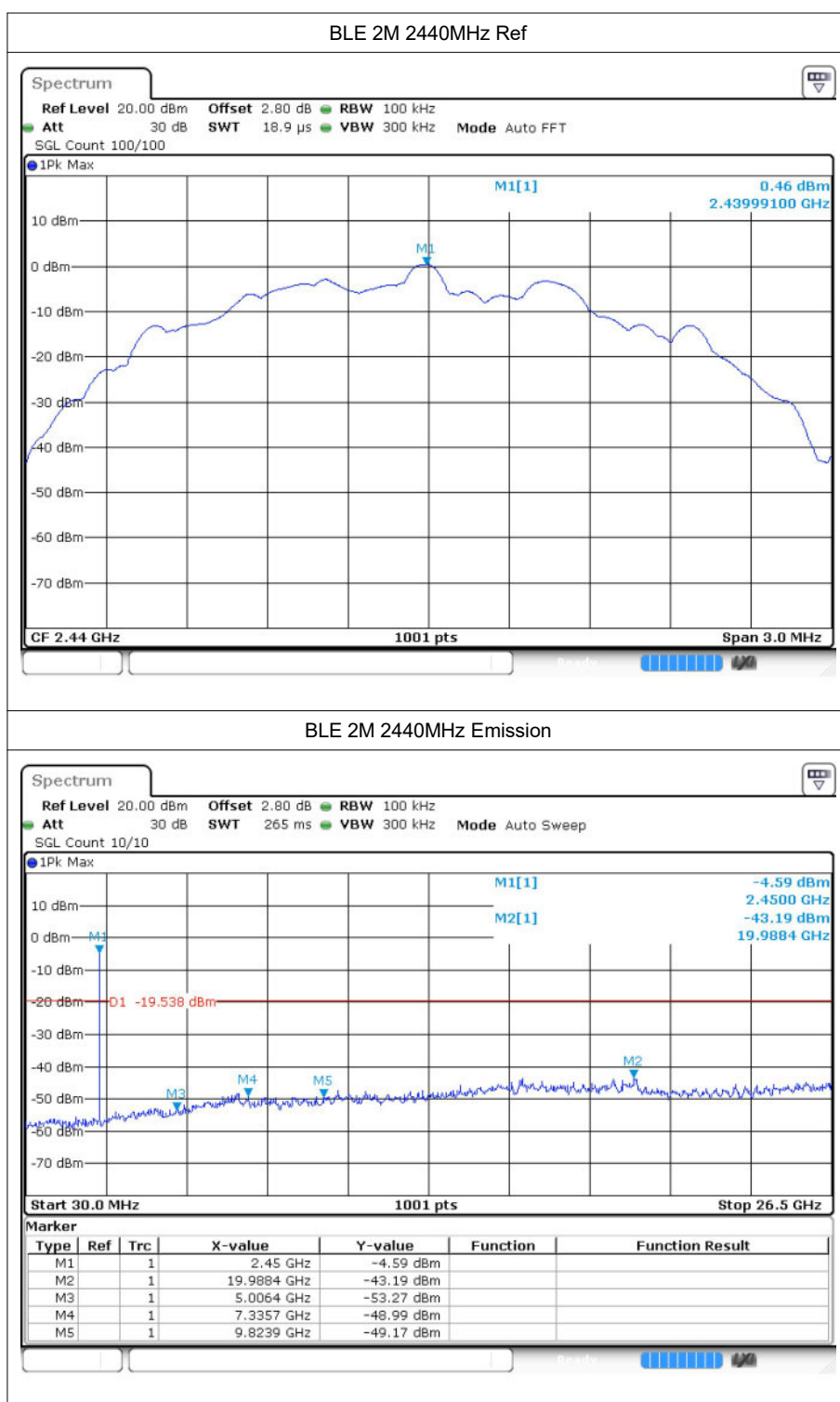
## 6.2 Test Graphs

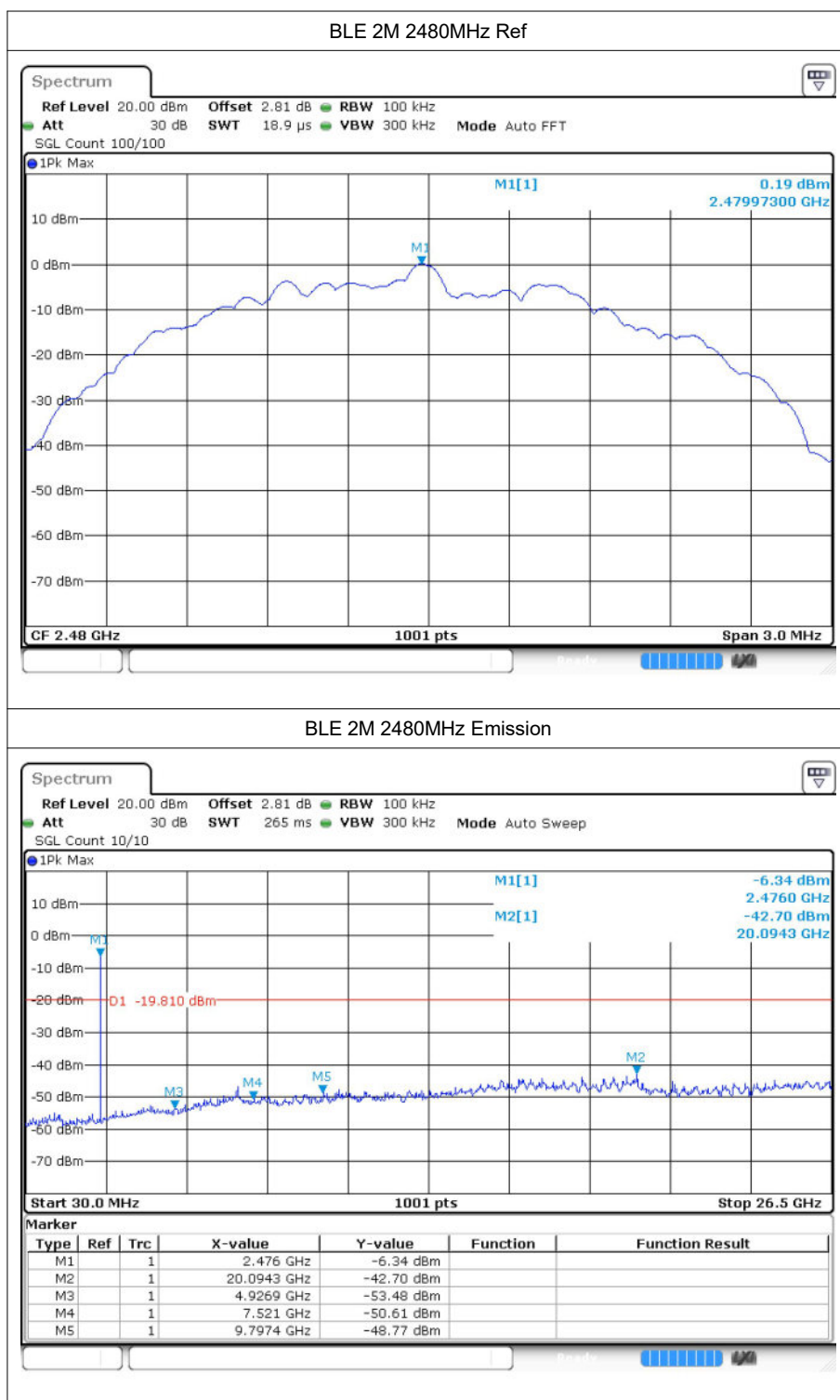












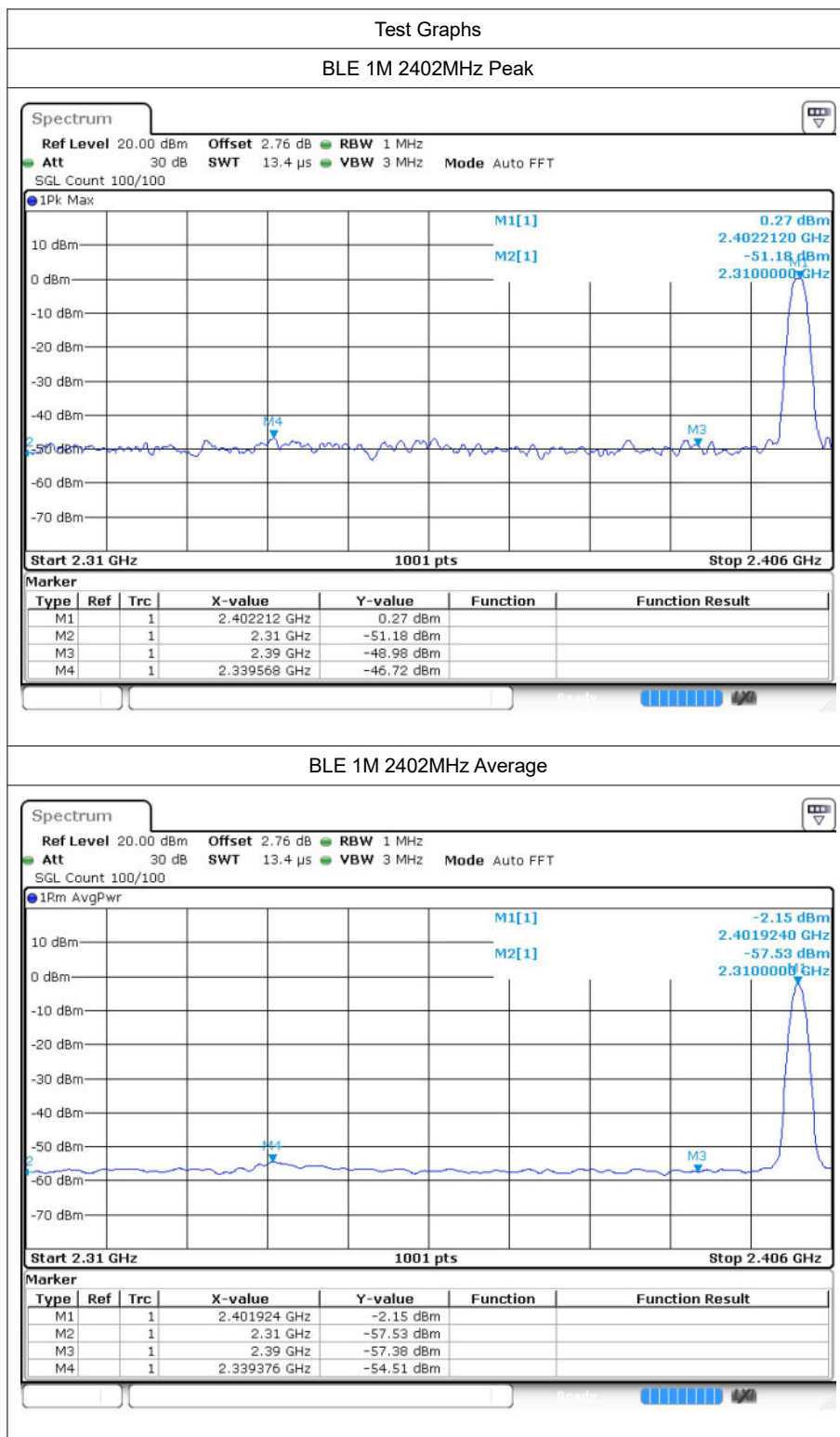


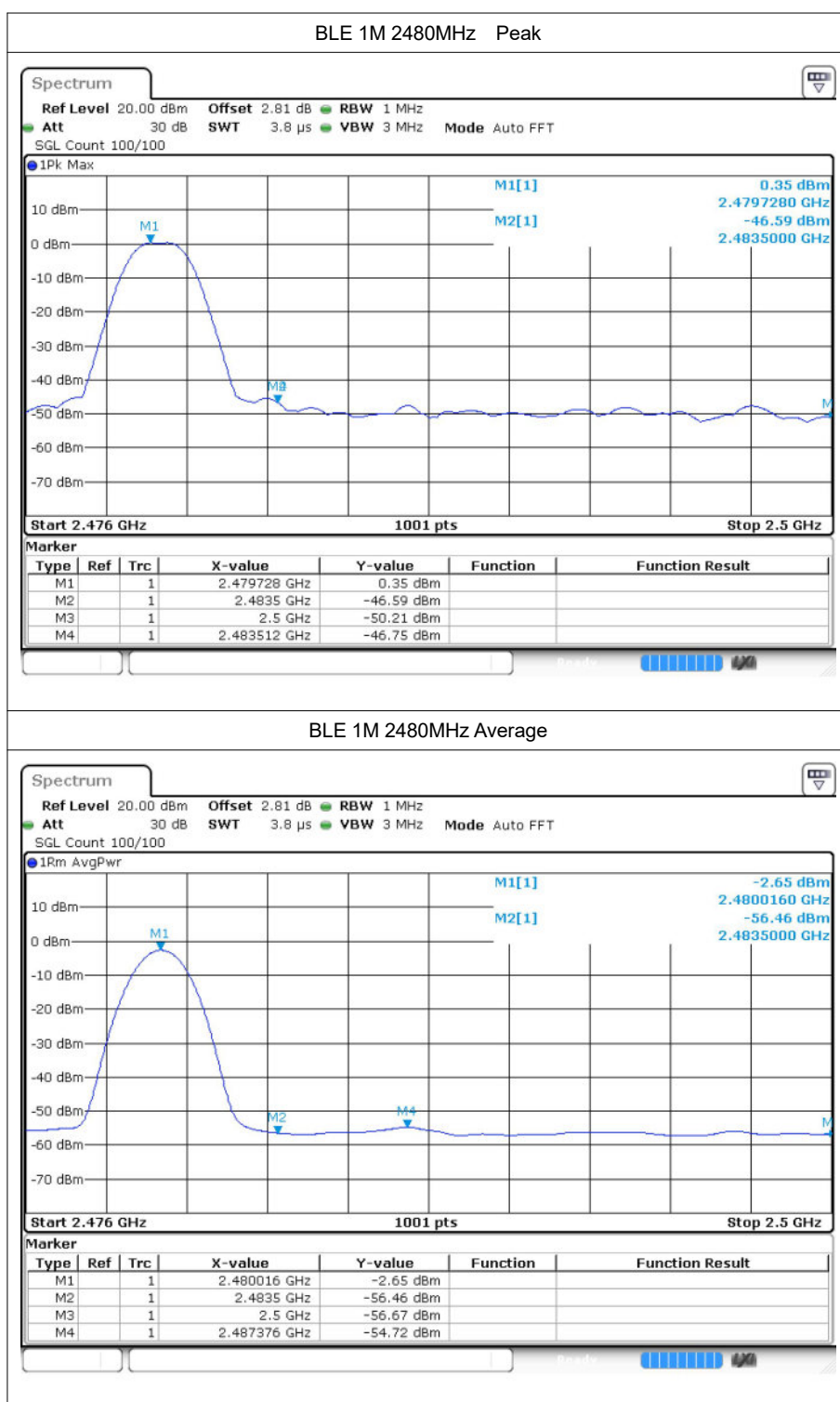
## 7 Restrict Band

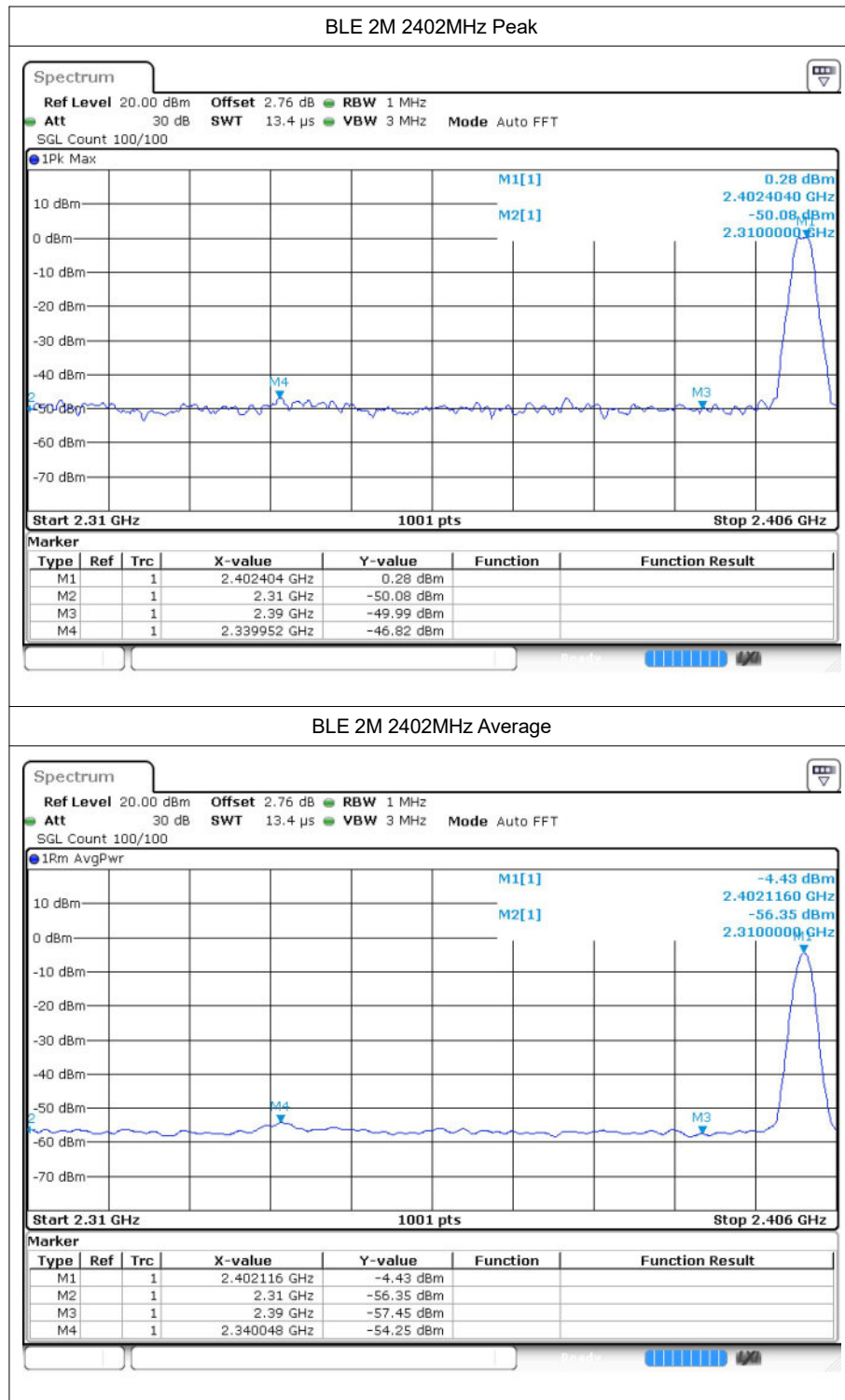
### 7.1 Test Result

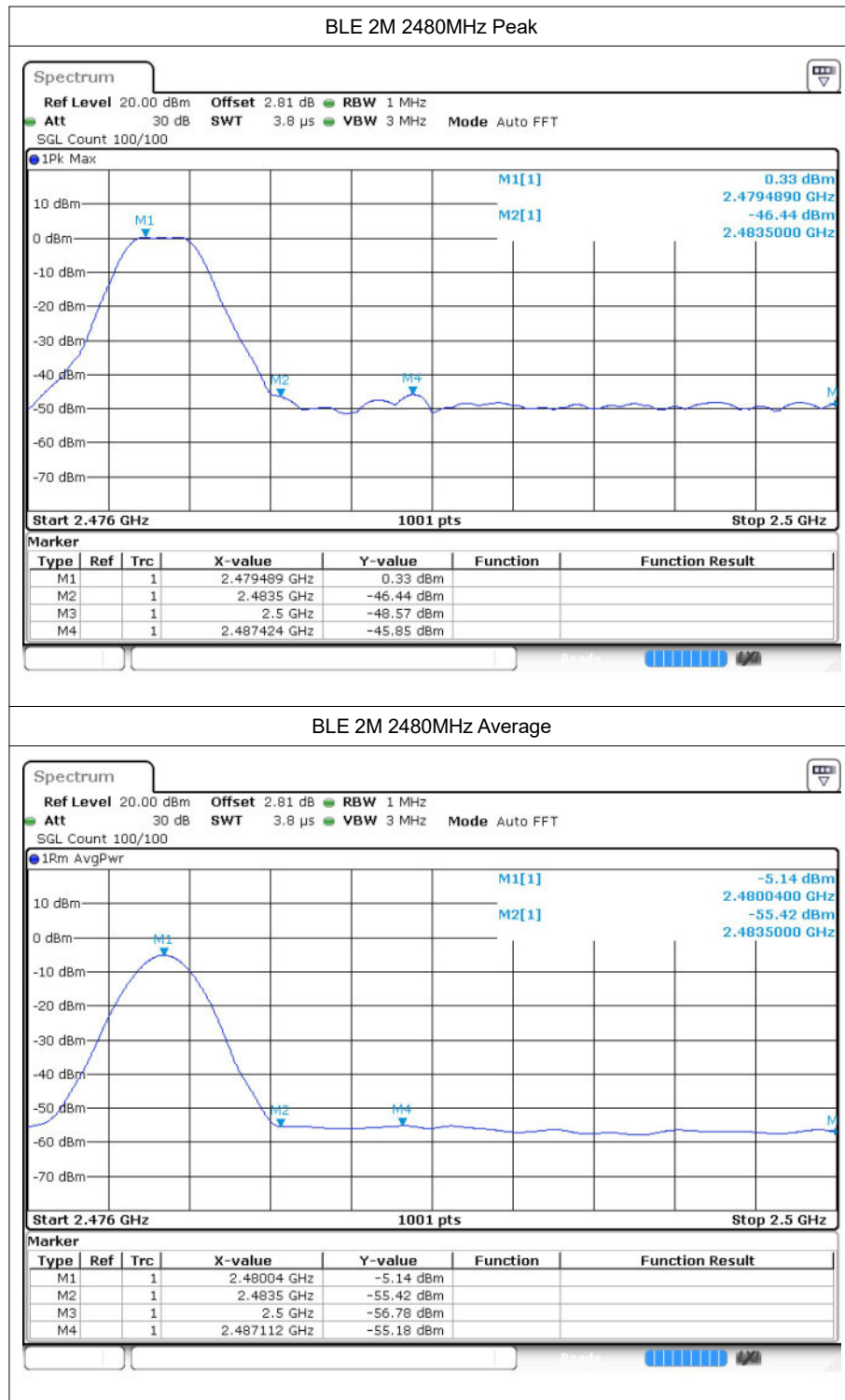
| Mode   | Frequency (MHz) | Spur Freq (MHz) | Power (dBm) | Gain (dBi) | Duty Factor | E (dBuV/m) | Detector | Limit (dBuV/m) | Verdict |
|--------|-----------------|-----------------|-------------|------------|-------------|------------|----------|----------------|---------|
| BLE 1M | 2402            | 2310            | -51.18      | 2          | -           | 46.08      | Peak     | 74             | Pass    |
| BLE 1M | 2402            | 2310            | -57.53      | 2          | 1.94        | 41.67      | Average  | 54             | Pass    |
| BLE 1M | 2402            | 2339.568        | -46.71      | 2          | -           | 50.55      | Peak     | 74             | Pass    |
| BLE 1M | 2402            | 2339.376        | -54.5       | 2          | 1.94        | 44.7       | Average  | 54             | Pass    |
| BLE 1M | 2402            | 2390            | -48.98      | 2          | -           | 48.28      | Peak     | 74             | Pass    |
| BLE 1M | 2402            | 2390            | -57.38      | 2          | 1.94        | 41.82      | Average  | 54             | Pass    |
| BLE 1M | 2480            | 2483.5          | -46.59      | 2          | -           | 50.67      | Peak     | 74             | Pass    |
| BLE 1M | 2480            | 2483.5          | -56.46      | 2          | 1.94        | 42.74      | Average  | 54             | Pass    |
| BLE 1M | 2480            | 2483.512        | -46.74      | 2          | -           | 50.52      | Peak     | 74             | Pass    |
| BLE 1M | 2480            | 2487.376        | -54.71      | 2          | 1.94        | 44.49      | Average  | 54             | Pass    |
| BLE 1M | 2480            | 2500            | -50.21      | 2          | -           | 47.05      | Peak     | 74             | Pass    |
| BLE 1M | 2480            | 2500            | -56.67      | 2          | 1.94        | 42.53      | Average  | 54             | Pass    |
| BLE 2M | 2402            | 2310            | -50.08      | 2          | -           | 47.18      | Peak     | 74             | Pass    |
| BLE 2M | 2402            | 2310            | -56.35      | 2          | 4.62        | 45.53      | Average  | 54             | Pass    |
| BLE 2M | 2402            | 2339.952        | -46.81      | 2          | -           | 50.45      | Peak     | 74             | Pass    |
| BLE 2M | 2402            | 2340.048        | -54.24      | 2          | 4.62        | 47.64      | Average  | 54             | Pass    |
| BLE 2M | 2402            | 2390            | -49.99      | 2          | -           | 47.27      | Peak     | 74             | Pass    |
| BLE 2M | 2402            | 2390            | -57.45      | 2          | 4.62        | 44.43      | Average  | 54             | Pass    |
| BLE 2M | 2480            | 2483.5          | -46.44      | 2          | -           | 50.82      | Peak     | 74             | Pass    |
| BLE 2M | 2480            | 2483.5          | -55.42      | 2          | 4.63        | 46.47      | Average  | 54             | Pass    |
| BLE 2M | 2480            | 2487.424        | -45.85      | 2          | -           | 51.41      | Peak     | 74             | Pass    |
| BLE 2M | 2480            | 2487.112        | -55.17      | 2          | 4.63        | 46.72      | Average  | 54             | Pass    |
| BLE 2M | 2480            | 2500            | -48.57      | 2          | -           | 48.69      | Peak     | 74             | Pass    |
| BLE 2M | 2480            | 2500            | -56.78      | 2          | 4.63        | 45.11      | Average  | 54             | Pass    |

## 7.2 Test Graphs









---The End---