



## Appendix Test Data for BLE (Conducted Measurement)

Product Name: Wanbo Projector

Trade Mark: wanbo

Test Model: Mozart 1S

FCC ID: 2A7PI-MOZART1S

### Environmental Conditions

|                    |           |
|--------------------|-----------|
| Temperature:       | 23.5°C    |
| Relative Humidity: | 58%       |
| ATM Pressure:      | 100.0 kPa |
| Test Engineer:     | Allen Lai |
| Supervised by:     | Max Zhang |
| NOTE               | N/A       |

## Appendix A: DTS Bandwidth

### Test Result

| Test Mode | Antenna | Frequency<br>[MHz] | DTS BW<br>[MHz] | FL<br>[MHz] | FH<br>[MHz] | Limit<br>[MHz] | Verdict |
|-----------|---------|--------------------|-----------------|-------------|-------------|----------------|---------|
| BLE_1M    | Ant1    | 2402               | 0.716           | 2401.640    | 2402.356    | 0.5            | PASS    |
| BLE_1M    | Ant1    | 2440               | 0.648           | 2439.672    | 2440.320    | 0.5            | PASS    |
| BLE_1M    | Ant1    | 2480               | 0.648           | 2479.668    | 2480.316    | 0.5            | PASS    |

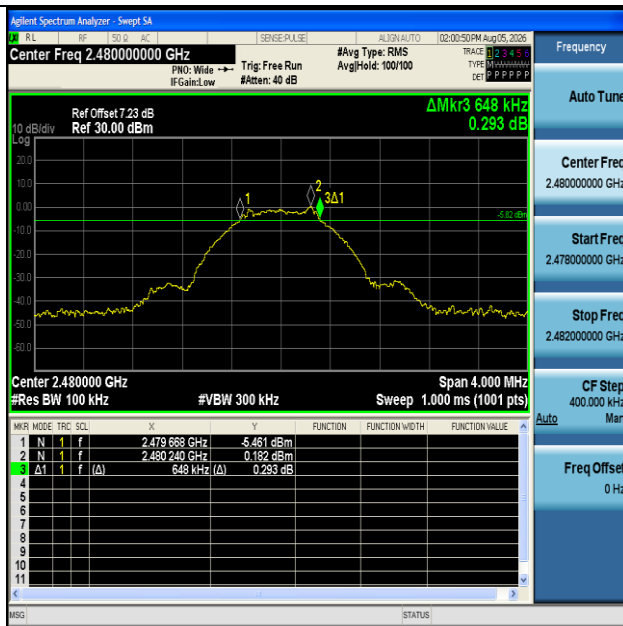
Note: offset(dB) = cable loss(dB) + attenuator factor(dB)





## Test Graphs





BLE\_1M-Ant1-2480-PASS





## Appendix B: Occupied Channel Bandwidth

### Test Result

| Test Mode | Antenna | Frequency<br>[MHz] | OCB<br>[MHz] | FL<br>[MHz] | FH<br>[MHz] | Limit<br>[MHz] | Verdict |
|-----------|---------|--------------------|--------------|-------------|-------------|----------------|---------|
| BLE_1M    | Ant1    | 2402               | 1.0236       | 2401.4871   | 2402.5107   | ---            | ---     |
| BLE_1M    | Ant1    | 2440               | 1.0316       | 2439.4809   | 2440.5125   | ---            | ---     |
| BLE_1M    | Ant1    | 2480               | 1.0247       | 2479.4844   | 2480.5091   | ---            | ---     |

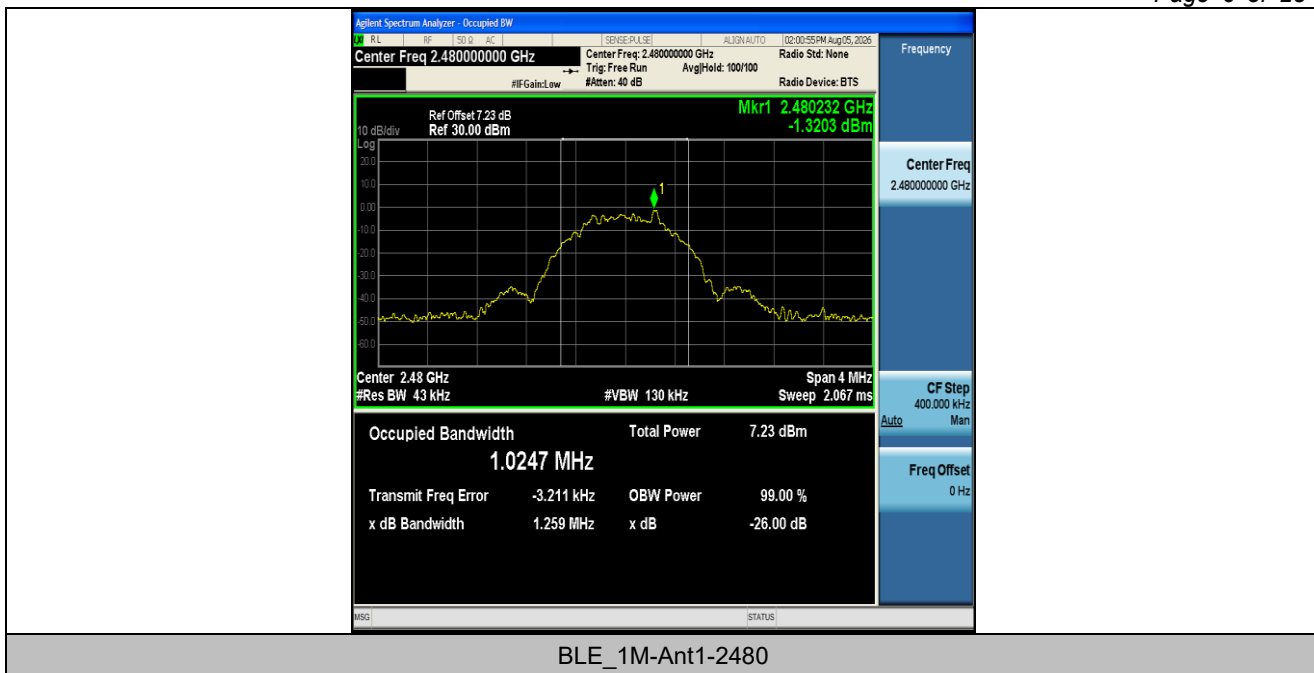
Note: offset(dB) = cable loss(dB) + attenuator factor(dB)





## Test Graphs







## Appendix C: Maximum peak conducted output power

### Test Result Peak

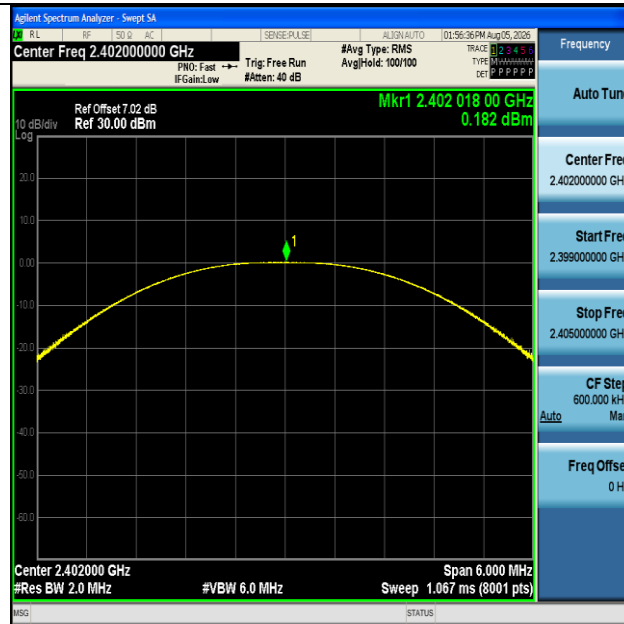
| Test Mode | Antenna | Frequency [MHz] | Conducted Peak Power [dBm] | Conducted Limit [dBm] | Verdict |
|-----------|---------|-----------------|----------------------------|-----------------------|---------|
| BLE_1M    | Ant1    | 2402            | 0.18                       | ≤30                   | PASS    |
| BLE_1M    | Ant1    | 2440            | 0.55                       | ≤30                   | PASS    |
| BLE_1M    | Ant1    | 2480            | 0.55                       | ≤30                   | PASS    |

Note: offset(dB) = cable loss(dB) + attenuator factor(dB)

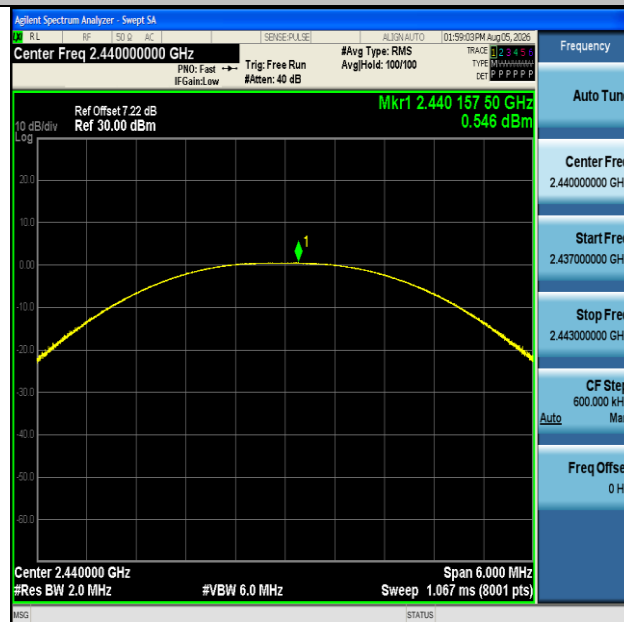




## Test Graphs Peak

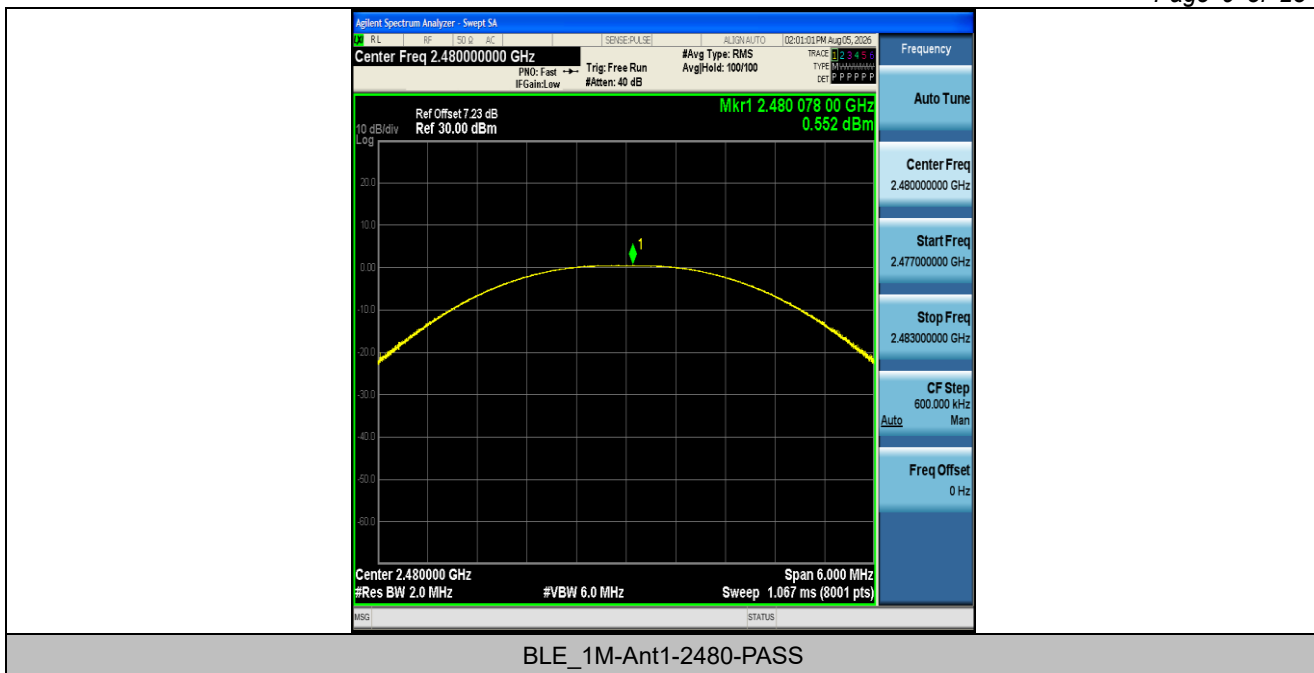


BLE\_1M-Ant1-2402-PASS



BLE\_1M-Ant1-2440-PASS







## Appendix D: Maximum peak power spectral density

### Test Result

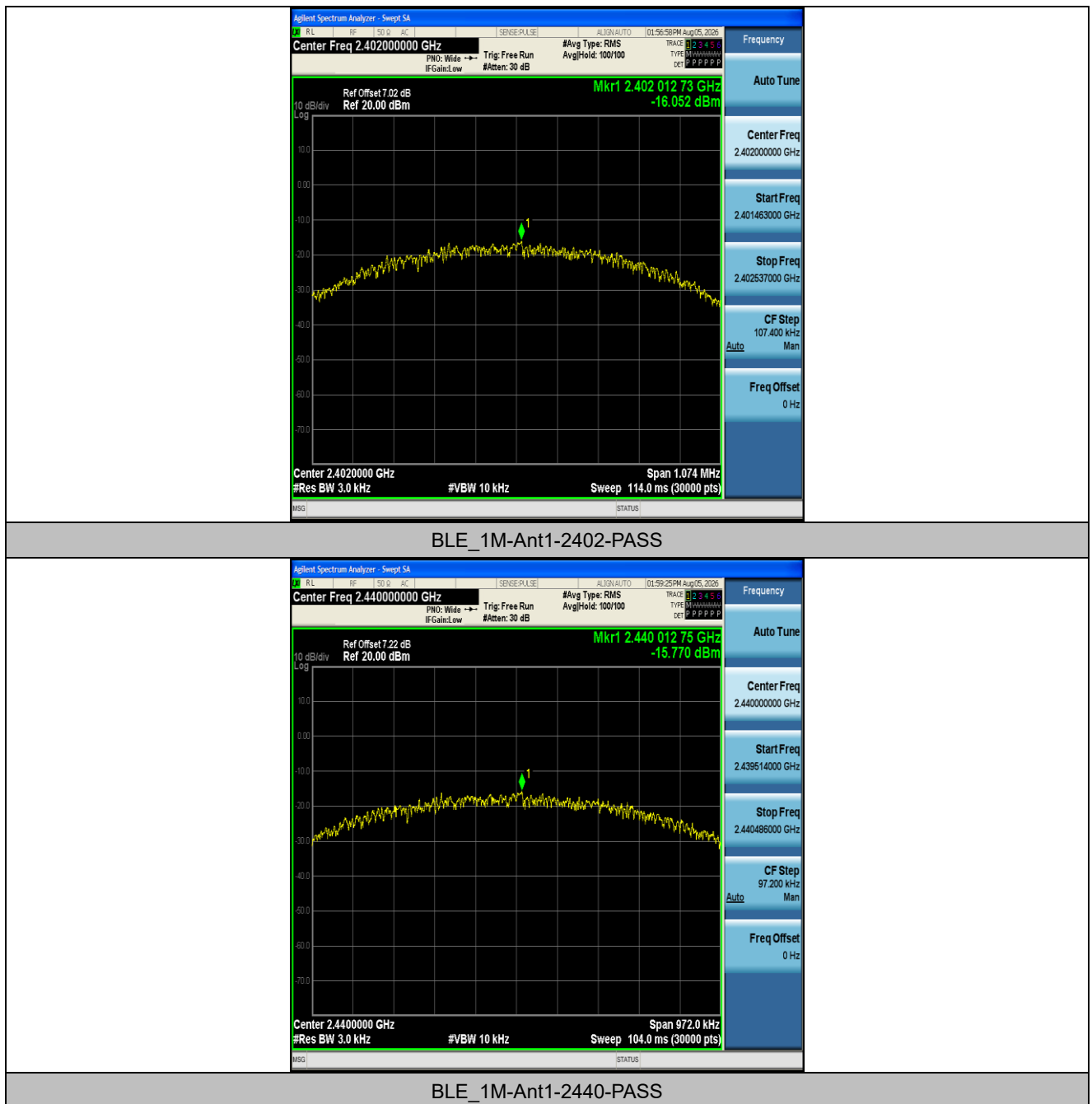
| Test Mode | Antenna | Frequency<br>[MHz] | Result<br>[dBm/3kHz] | Limit<br>[dBm/3kHz] | Verdict |
|-----------|---------|--------------------|----------------------|---------------------|---------|
| BLE_1M    | Ant1    | 2402               | -16.05               | ≤8.00               | PASS    |
| BLE_1M    | Ant1    | 2440               | -15.77               | ≤8.00               | PASS    |
| BLE_1M    | Ant1    | 2480               | -15.65               | ≤8.00               | PASS    |

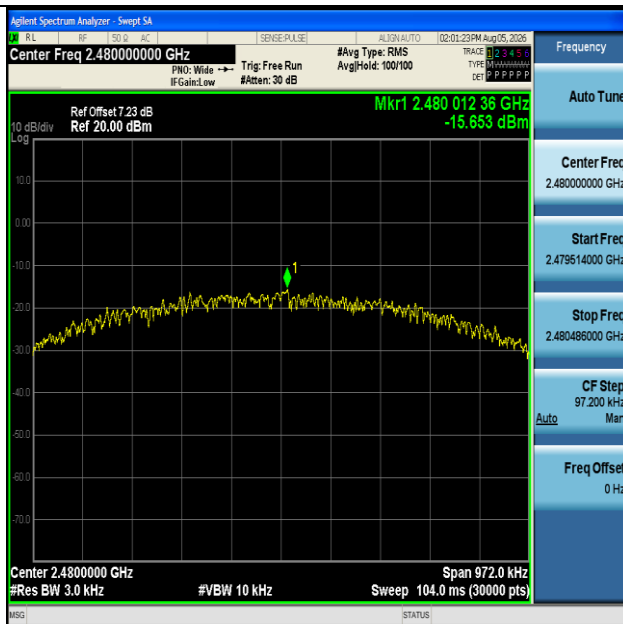
Note: offset(dB) = cable loss(dB) + attenuator factor(dB)





## Test Graphs







## Appendix E: Band edge measurements

### Test Result

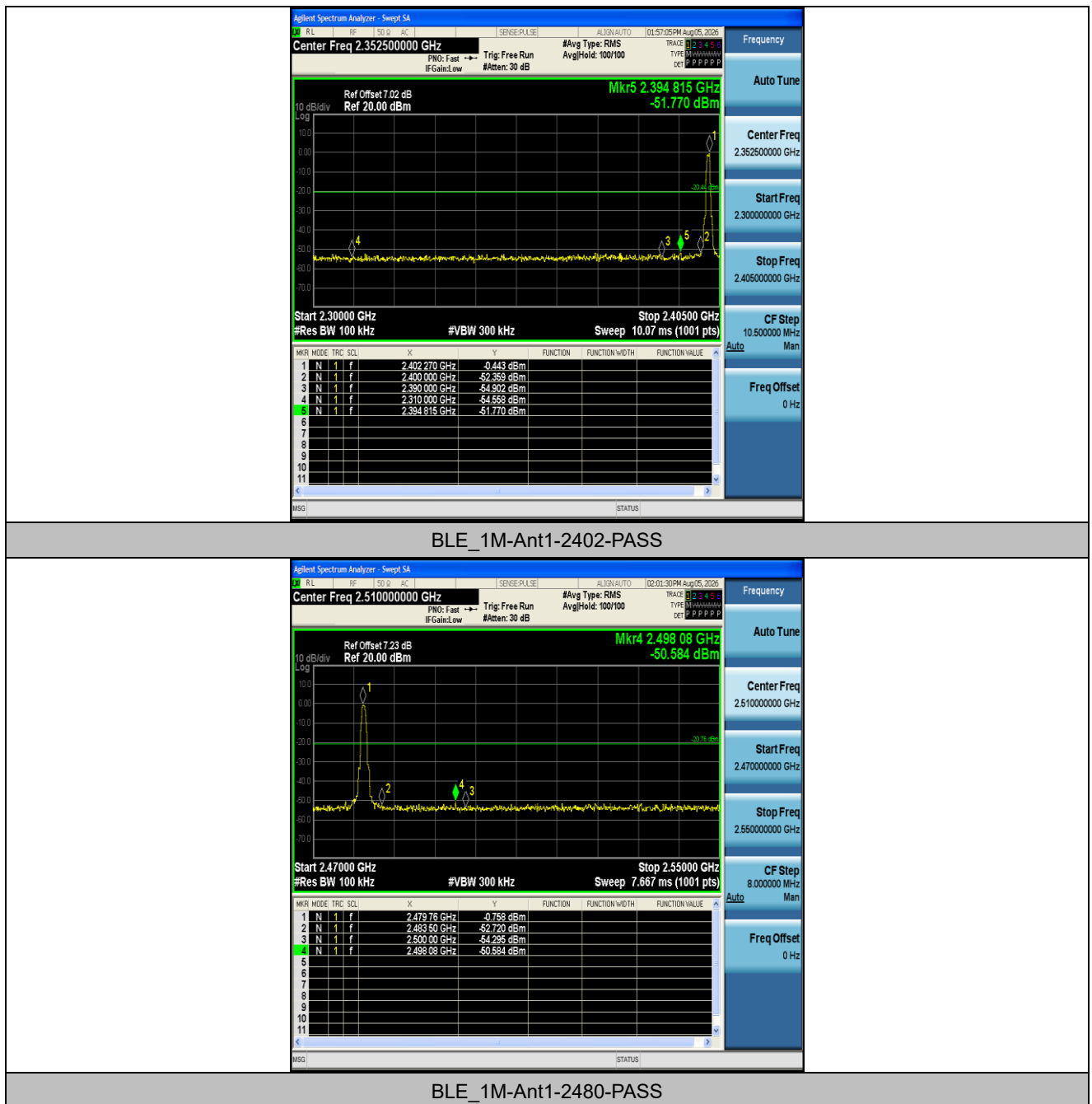
| Test Mode | Antenna | Ch. Name | Frequency [MHz] | Ref. Level [dBm] | Result [dBm] | Limit [dBm]   | Verdict |
|-----------|---------|----------|-----------------|------------------|--------------|---------------|---------|
| BLE_1M    | Ant1    | Low      | 2402            | -0.44            | -51.77       | $\leq -20.44$ | PASS    |
| BLE_1M    | Ant1    | High     | 2480            | -0.76            | -50.58       | $\leq -20.76$ | PASS    |

Note: offset(dB) = cable loss(dB) + attenuator factor(dB)





## Test Graphs





## Appendix F: Conducted Spurious Emission

### Test Result

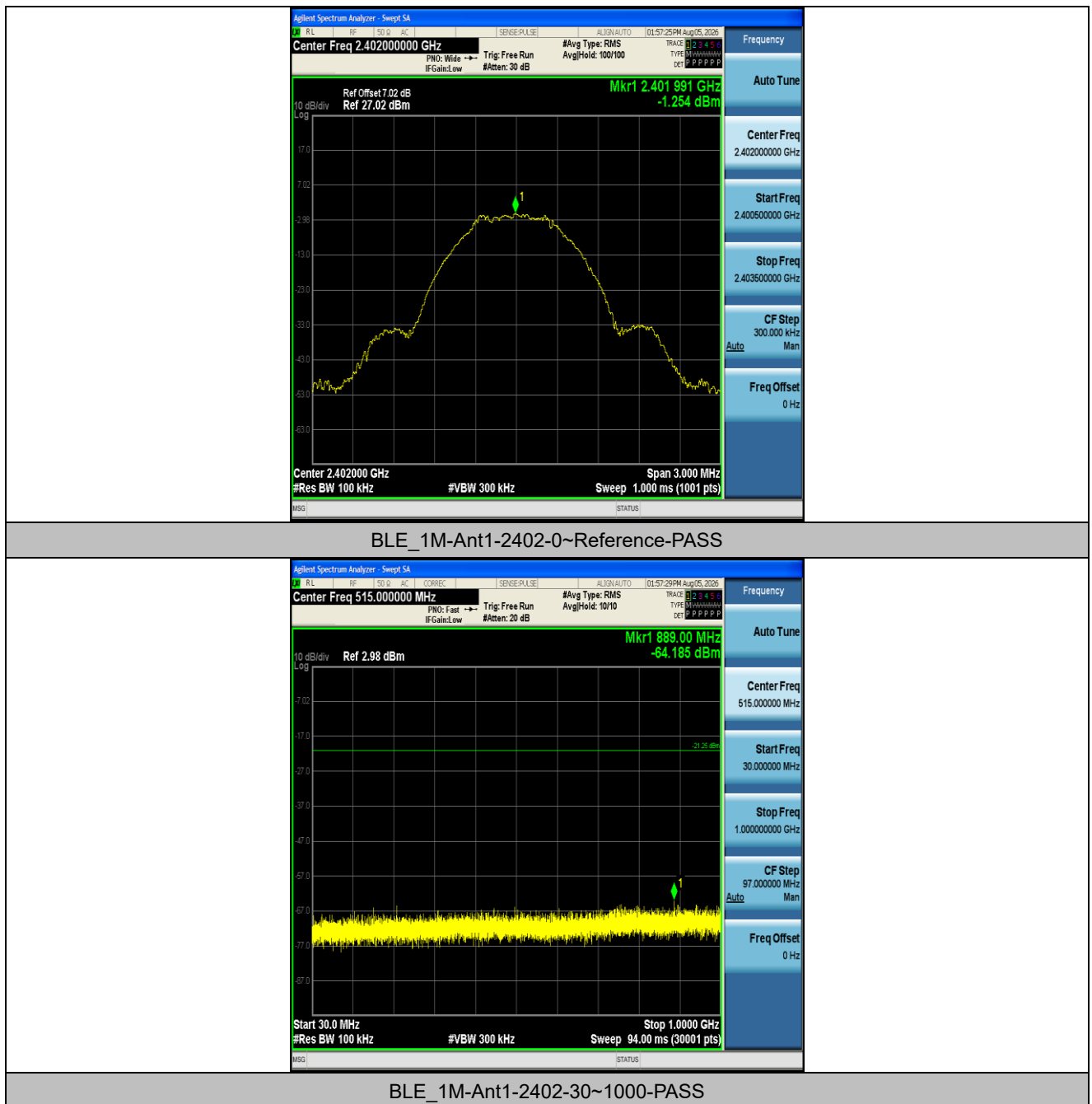
| Test Mode | Antenna | Frequency [MHz] | Freq. Range [MHz] | Ref. Level [dBm] | Result [dBm] | Limit [dBm] | Verdict |
|-----------|---------|-----------------|-------------------|------------------|--------------|-------------|---------|
| BLE_1M    | Ant1    | 2402            | 0~Reference       | -1.25            | -1.25        | ---         | PASS    |
| BLE_1M    | Ant1    | 2402            | 30~1000           | -1.25            | -64.19       | ≤-21.25     | PASS    |
| BLE_1M    | Ant1    | 2402            | 1000~26500        | -1.25            | -39.44       | ≤-21.25     | PASS    |
| BLE_1M    | Ant1    | 2440            | 0~Reference       | -0.37            | -0.37        | ---         | PASS    |
| BLE_1M    | Ant1    | 2440            | 30~1000           | -0.37            | -64.91       | ≤-20.37     | PASS    |
| BLE_1M    | Ant1    | 2440            | 1000~26500        | -0.37            | -39.13       | ≤-20.37     | PASS    |
| BLE_1M    | Ant1    | 2480            | 0~Reference       | 0.17             | 0.17         | ---         | PASS    |
| BLE_1M    | Ant1    | 2480            | 30~1000           | 0.17             | -64.48       | ≤-19.83     | PASS    |
| BLE_1M    | Ant1    | 2480            | 1000~26500        | 0.17             | -40.1        | ≤-19.83     | PASS    |

Note: offset(dB) in Reference test plots = cable loss(dB) + attenuator factor(dB); For spurious emissions plots from 30MHz to 26.5GHz, the cable loss and attenuator factors have been set in the 'Input Correction' of the Spectrum Analyzer during the test.





## Test Graphs



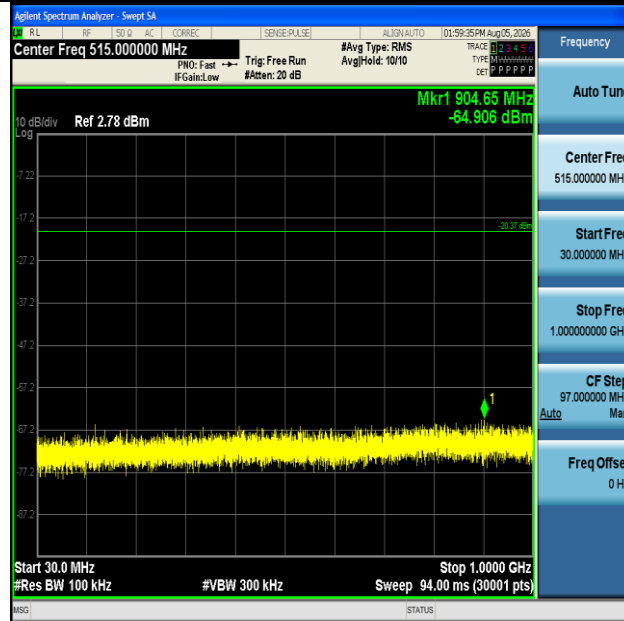


BLE\_1M-Ant1-2402-1000~26500-PASS

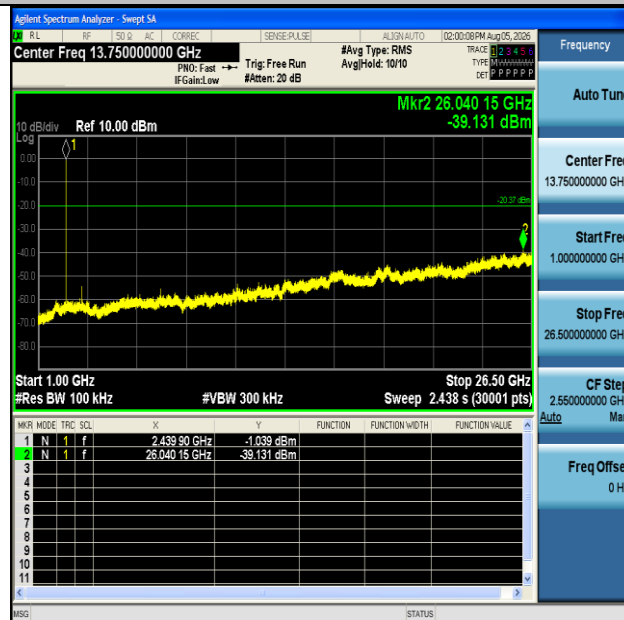


BLE\_1M-Ant1-2440-0~Reference-PASS





BLE\_1M-Ant1-2440-30~1000-PASS

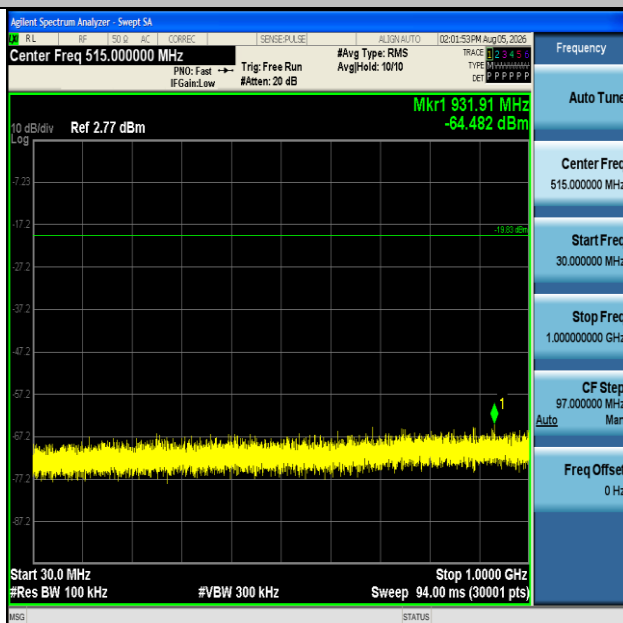


BLE\_1M-Ant1-2440-1000~26500-PASS



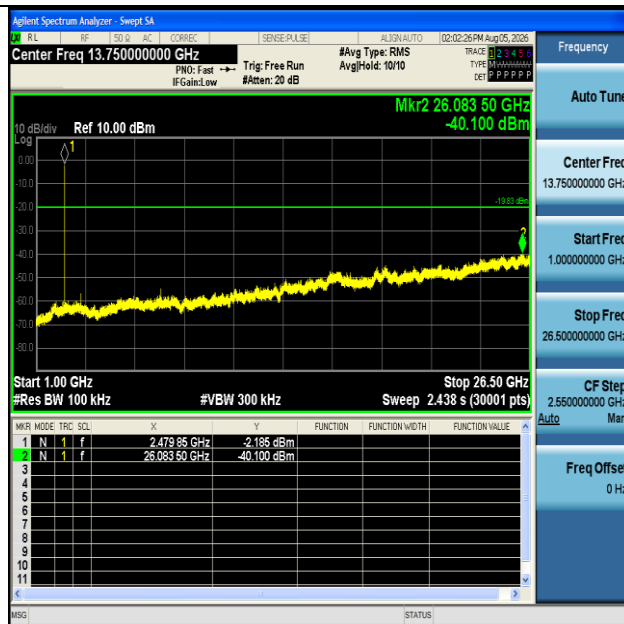


BLE\_1M-Ant1-2480-0~Reference-PASS



BLE\_1M-Ant1-2480-30~1000-PASS





BLE\_1M-Ant1-2480-1000~26500-PASS





## Appendix G: Duty Cycle

### Test Result

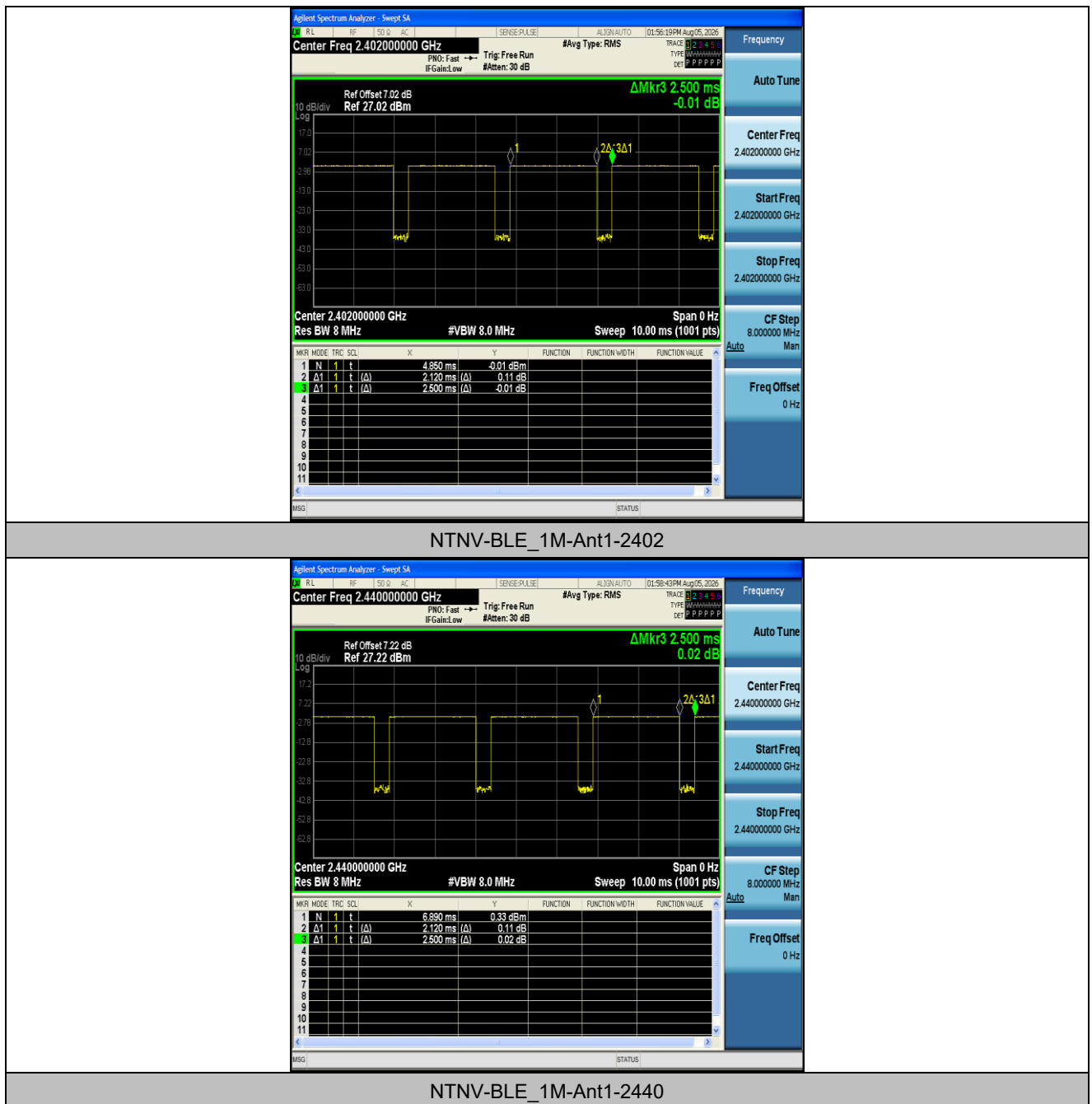
| Test Mode | Antenna | Frequency<br>[MHz] | ON Time<br>[ms] | Period<br>[ms] | Duty Cycle<br>[%] | Duty Cycle<br>Factor<br>[dB] |
|-----------|---------|--------------------|-----------------|----------------|-------------------|------------------------------|
| BLE_1M    | Ant1    | 2402               | 2.12            | 2.50           | 84.80             | 0.72                         |
| BLE_1M    | Ant1    | 2440               | 2.12            | 2.50           | 84.80             | 0.72                         |
| BLE_1M    | Ant1    | 2480               | 2.12            | 2.50           | 84.80             | 0.72                         |

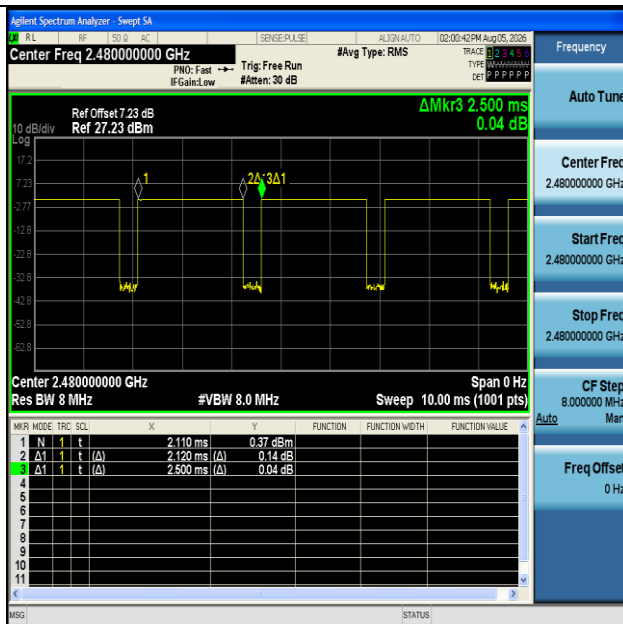
Note: offset(dB) = cable loss(dB) + attenuator factor(dB)





## Test Graphs





NTNV-BLE\_1M-Ant1-2480

