



## Appendix Test Data for BLE (Conducted Measurement)

Product Name: Wireless Car Adapter

Trade Mark: *acer*

Test Model: TC03A

FCC ID: 2A2P5-TC03A

### Environmental Conditions

|                    |           |
|--------------------|-----------|
| Temperature:       | 23.5℃     |
| 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

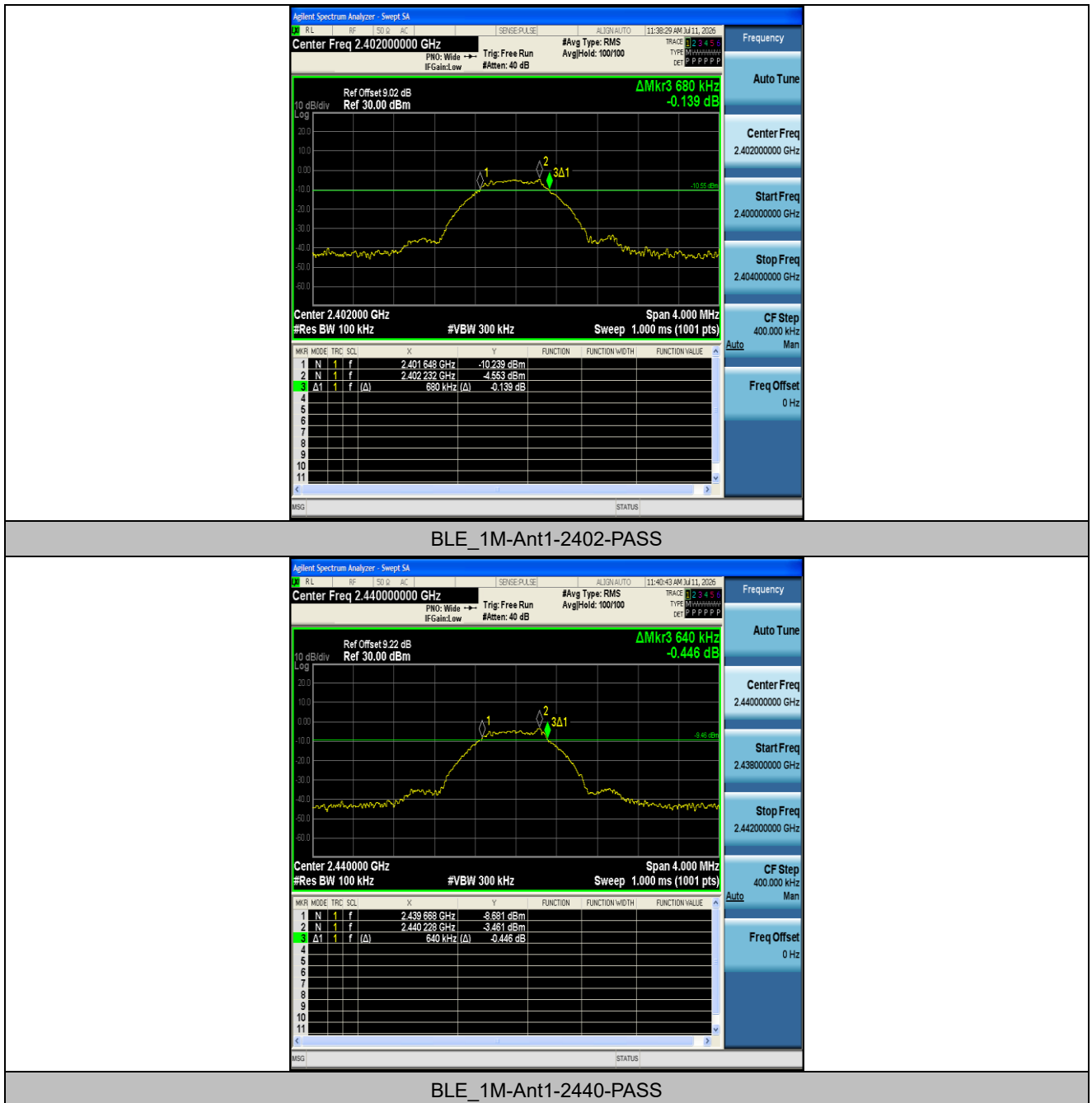
| Test Mode | Antenna | Frequency<br>[MHz] | DTS BW<br>[MHz] | FL<br>[MHz] | FH<br>[MHz] | Limit<br>[MHz] | Verdict |
|-----------|---------|--------------------|-----------------|-------------|-------------|----------------|---------|
| BLE_1M    | Ant1    | 2402               | 0.680           | 2401.648    | 2402.328    | 0.5            | PASS    |
| BLE_1M    | Ant1    | 2440               | 0.640           | 2439.668    | 2440.308    | 0.5            | PASS    |
| BLE_1M    | Ant1    | 2480               | 0.692           | 2479.636    | 2480.328    | 0.5            | PASS    |
| BLE_2M    | Ant1    | 2402               | 1.228           | 2401.352    | 2402.580    | 0.5            | PASS    |
| BLE_2M    | Ant1    | 2440               | 1.176           | 2439.412    | 2440.588    | 0.5            | PASS    |
| BLE_2M    | Ant1    | 2480               | 1.260           | 2479.312    | 2480.572    | 0.5            | PASS    |

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





## Test Graphs





BLE\_1M-Ant1-2480-PASS



BLE\_2M-Ant1-2402-PASS





BLE\_2M-Ant1-2440-PASS



BLE\_2M-Ant1-2480-PASS





## Appendix B: Occupied Channel Bandwidth

### Test Result

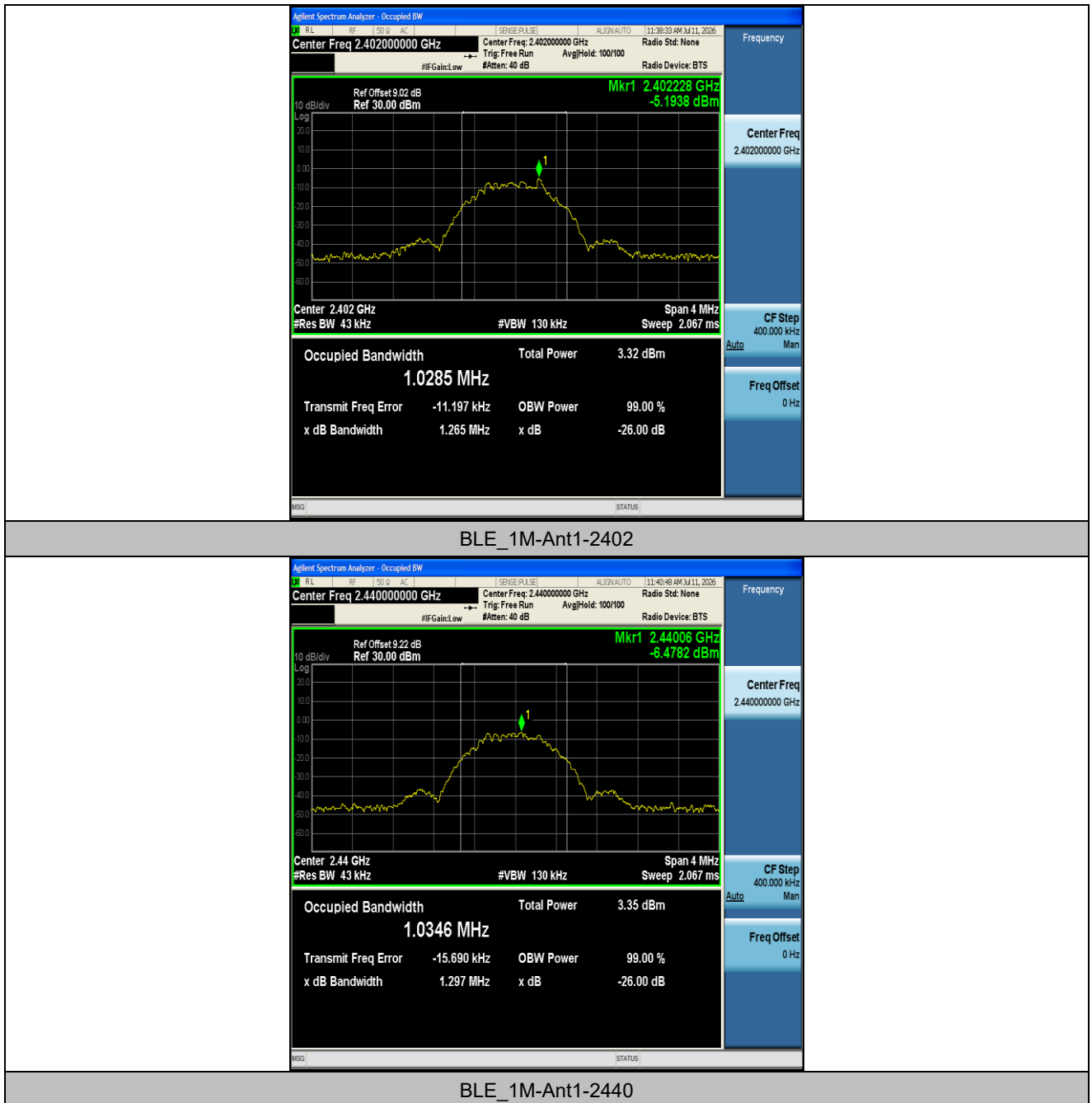
| Test Mode | Antenna | Frequency<br>[MHz] | OCB<br>[MHz] | FL<br>[MHz] | FH<br>[MHz] | Limit<br>[MHz] | Verdict |
|-----------|---------|--------------------|--------------|-------------|-------------|----------------|---------|
| BLE_1M    | Ant1    | 2402               | 1.0285       | 2401.4746   | 2402.5031   | ---            | ---     |
| BLE_1M    | Ant1    | 2440               | 1.0346       | 2439.4670   | 2440.5016   | ---            | ---     |
| BLE_1M    | Ant1    | 2480               | 1.0265       | 2479.4713   | 2480.4978   | ---            | ---     |
| BLE_2M    | Ant1    | 2402               | 2.0677       | 2400.9664   | 2403.0341   | ---            | ---     |
| BLE_2M    | Ant1    | 2440               | 2.0788       | 2438.9609   | 2441.0397   | ---            | ---     |
| BLE_2M    | Ant1    | 2480               | 2.0783       | 2478.9641   | 2481.0424   | ---            | ---     |

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





## Test Graphs



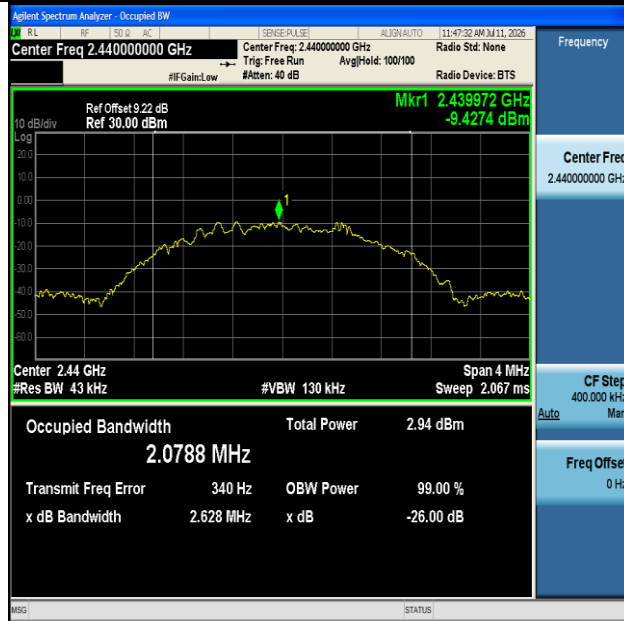


BLE\_1M-Ant1-2480

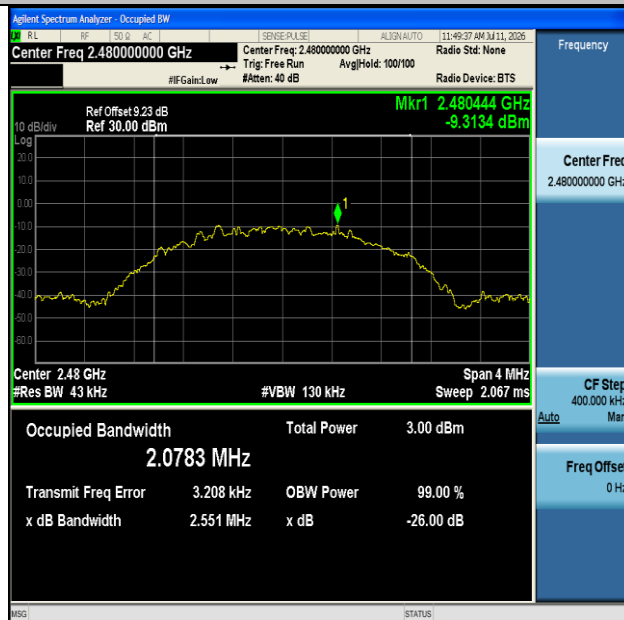


BLE\_2M-Ant1-2402





BLE\_2M-Ant1-2440



BLE\_2M-Ant1-2480





## Appendix C: Maximum peak conducted output power

### Test Result Peak

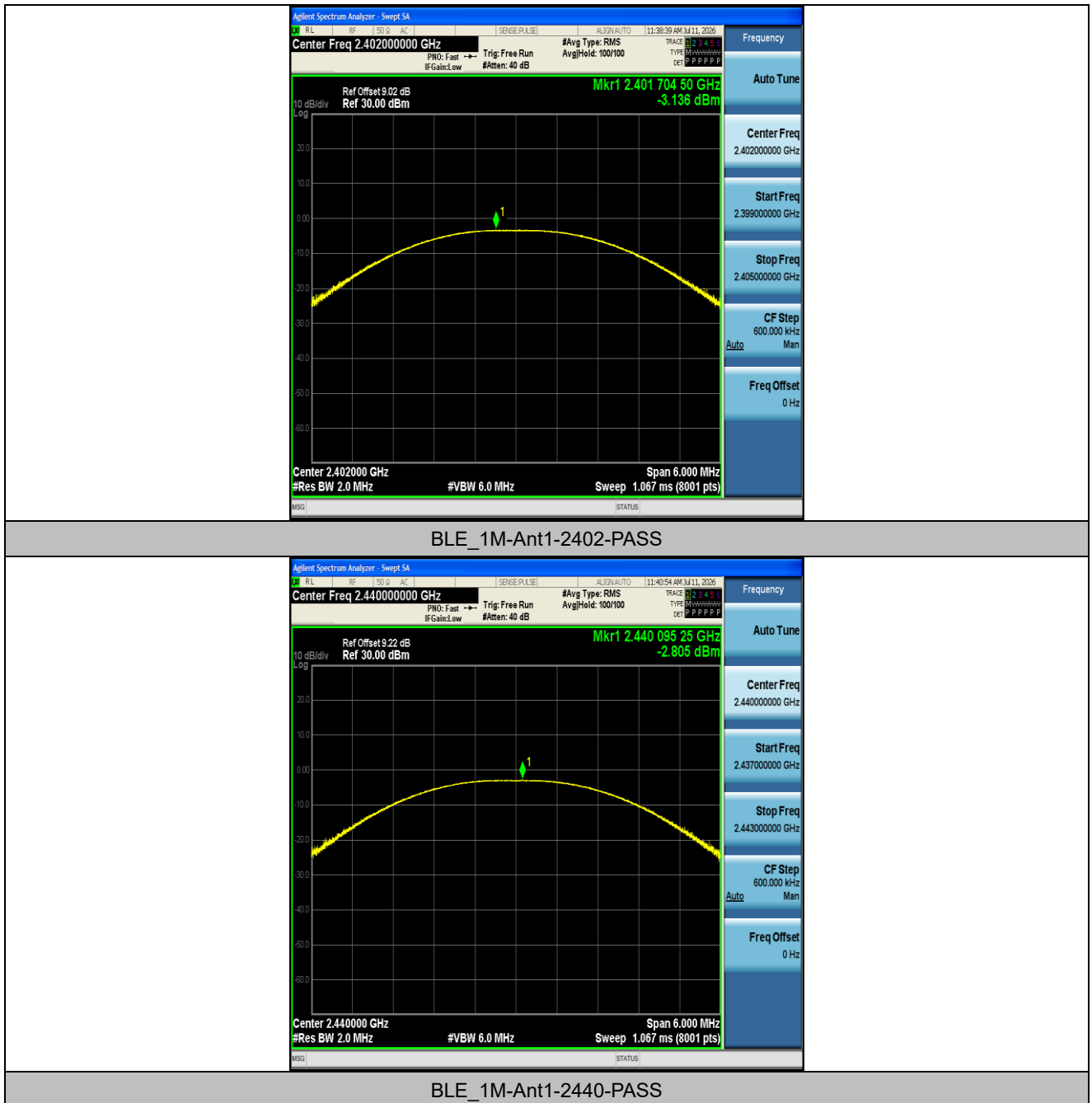
| Test Mode | Antenna | Frequency [MHz] | Conducted Peak Power [dBm] | Conducted Limit [dBm] | Verdict |
|-----------|---------|-----------------|----------------------------|-----------------------|---------|
| BLE_1M    | Ant1    | 2402            | -3.14                      | ≤30                   | PASS    |
| BLE_1M    | Ant1    | 2440            | -2.81                      | ≤30                   | PASS    |
| BLE_1M    | Ant1    | 2480            | -2.58                      | ≤30                   | PASS    |
| BLE_2M    | Ant1    | 2402            | -3.20                      | ≤30                   | PASS    |
| BLE_2M    | Ant1    | 2440            | -2.91                      | ≤30                   | PASS    |
| BLE_2M    | Ant1    | 2480            | -2.66                      | ≤30                   | PASS    |

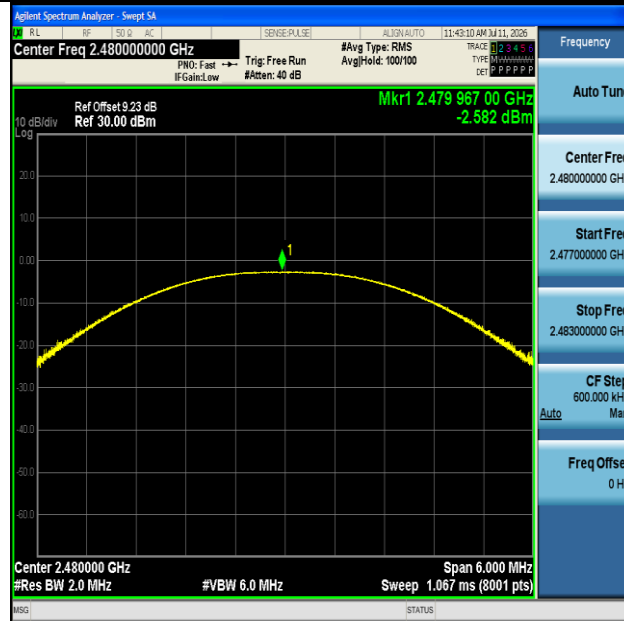
Note: offset(dB) = cable loss(dB) + attenuator factor(dB)



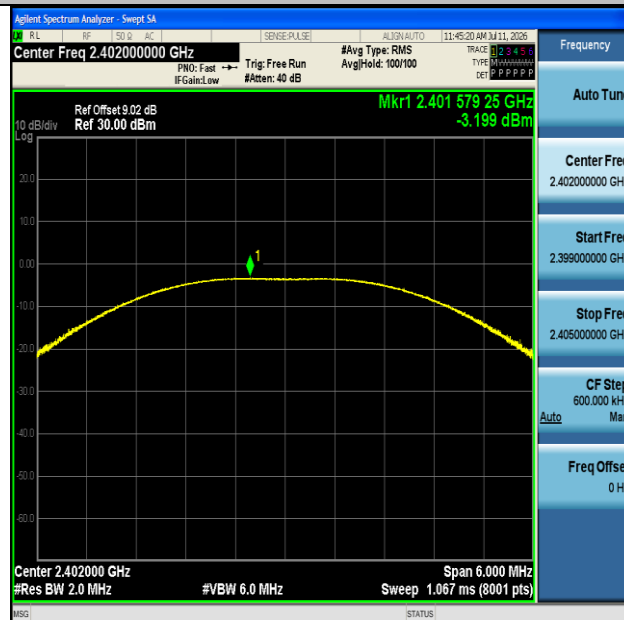


## Test Graphs Peak



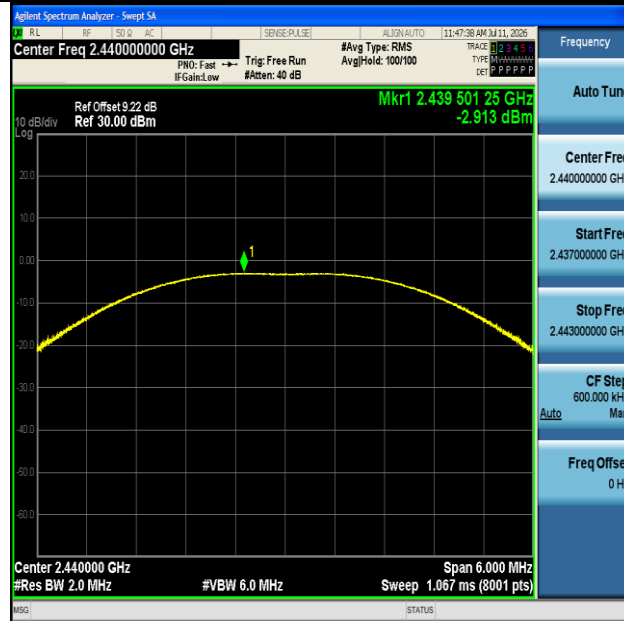


BLE\_1M-Ant1-2480-PASS

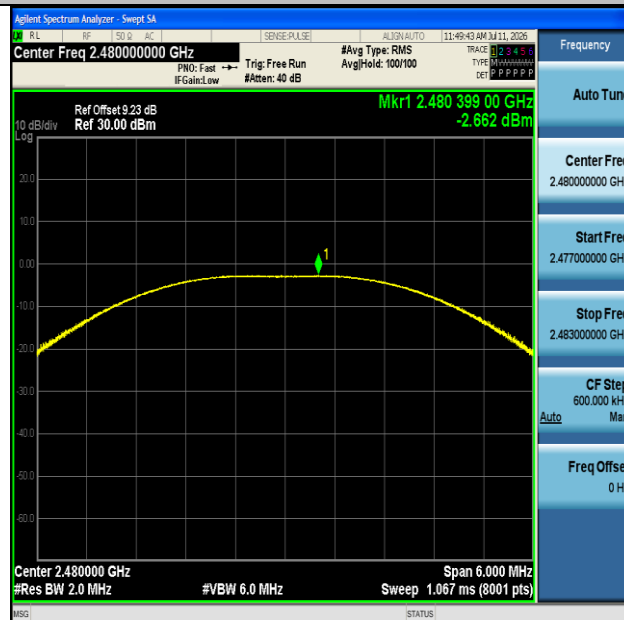


BLE\_2M-Ant1-2402-PASS





BLE\_2M-Ant1-2440-PASS



BLE\_2M-Ant1-2480-PASS





## Appendix D: Maximum peak power spectral density

### Test Result

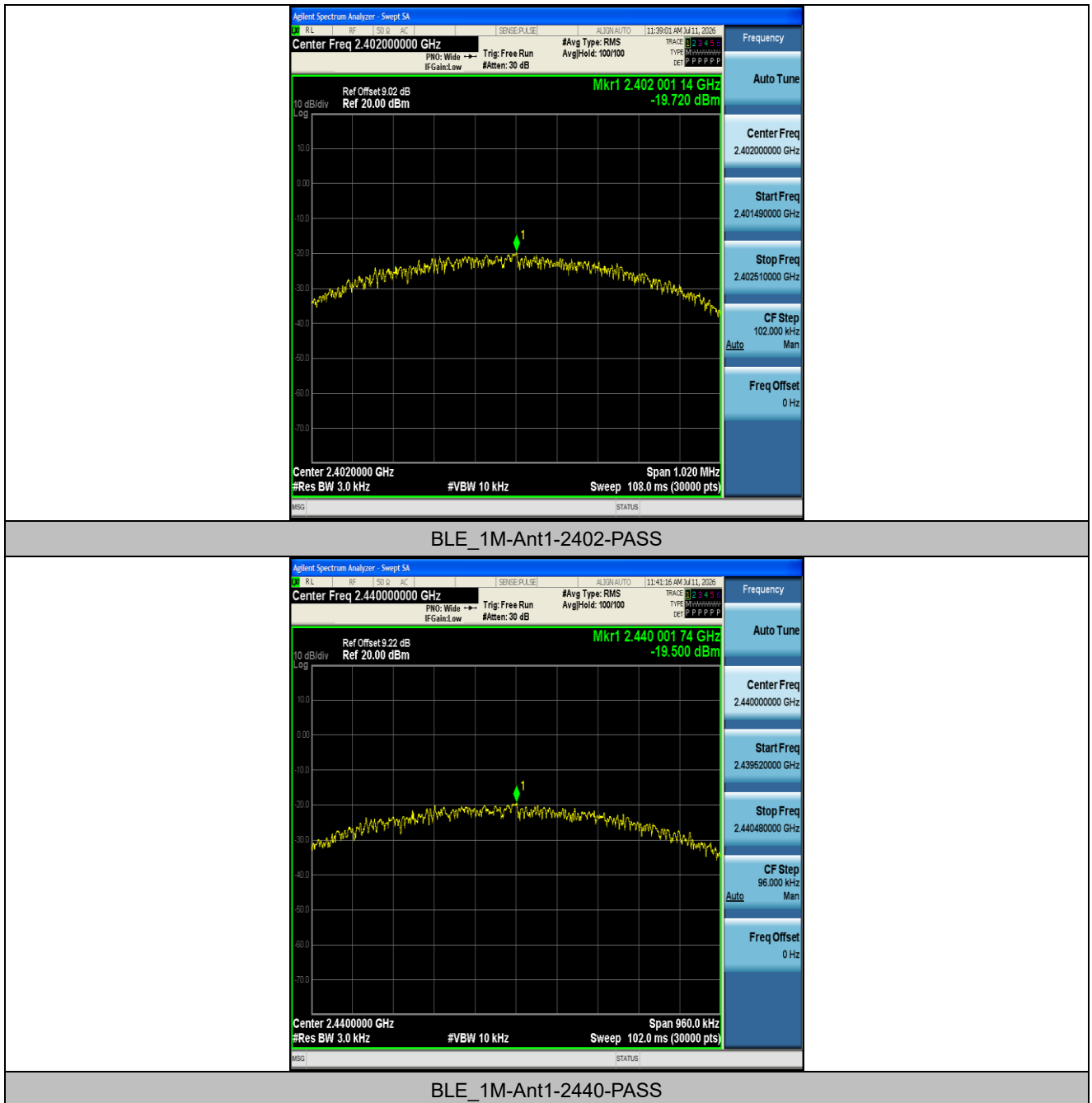
| Test Mode | Antenna | Frequency<br>[MHz] | Result<br>[dBm/3kHz] | Limit<br>[dBm/3kHz] | Verdict |
|-----------|---------|--------------------|----------------------|---------------------|---------|
| BLE_1M    | Ant1    | 2402               | -19.72               | ≤8.00               | PASS    |
| BLE_1M    | Ant1    | 2440               | -19.50               | ≤8.00               | PASS    |
| BLE_1M    | Ant1    | 2480               | -19.00               | ≤8.00               | PASS    |
| BLE_2M    | Ant1    | 2402               | -22.96               | ≤8.00               | PASS    |
| BLE_2M    | Ant1    | 2440               | -22.62               | ≤8.00               | PASS    |
| BLE_2M    | Ant1    | 2480               | -22.36               | ≤8.00               | PASS    |

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



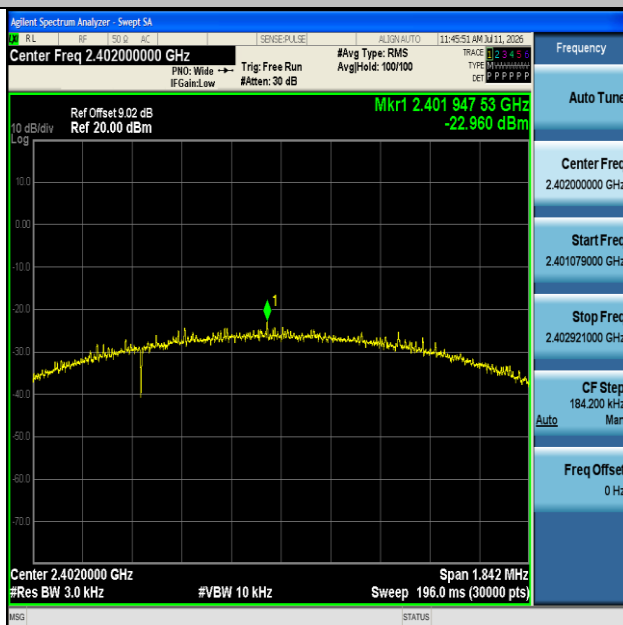


## Test Graphs





BLE\_1M-Ant1-2480-PASS

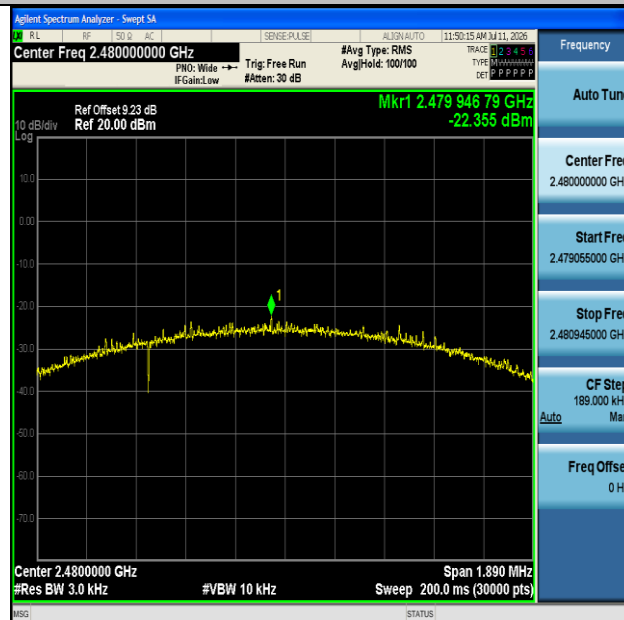


BLE\_2M-Ant1-2402-PASS





BLE\_2M-Ant1-2440-PASS



BLE\_2M-Ant1-2480-PASS





## Appendix E: Band edge measurements

### Test Result

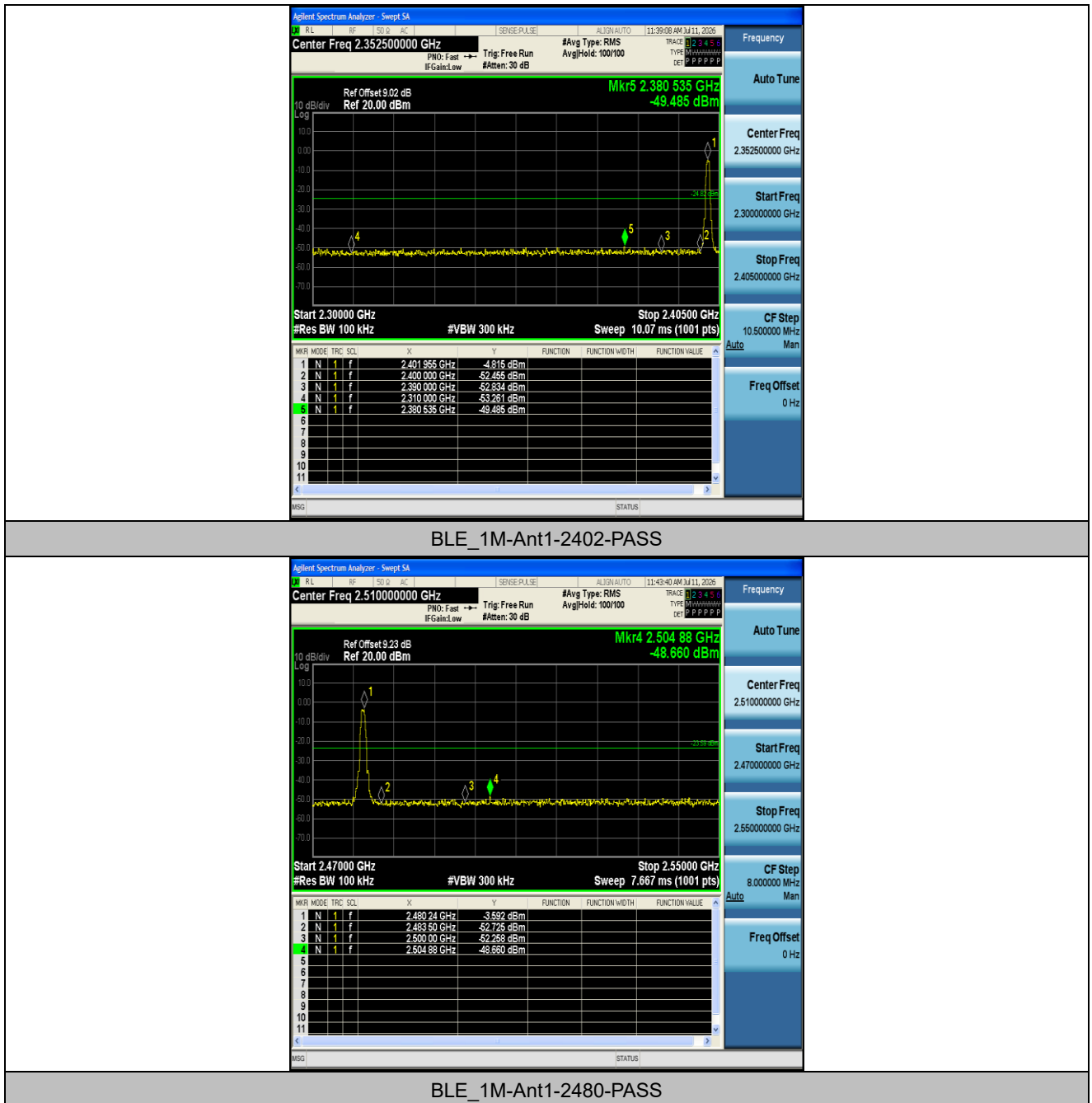
| Test Mode | Antenna | Ch. Name | Frequency [MHz] | Ref. Level [dBm] | Result [dBm] | Limit [dBm]   | Verdict |
|-----------|---------|----------|-----------------|------------------|--------------|---------------|---------|
| BLE_1M    | Ant1    | Low      | 2402            | -4.82            | -49.49       | $\leq -24.82$ | PASS    |
| BLE_1M    | Ant1    | High     | 2480            | -3.59            | -48.66       | $\leq -23.59$ | PASS    |
| BLE_2M    | Ant1    | Low      | 2402            | -4.80            | -37.06       | $\leq -24.8$  | PASS    |
| BLE_2M    | Ant1    | High     | 2480            | -5.34            | -48.91       | $\leq -25.34$ | PASS    |

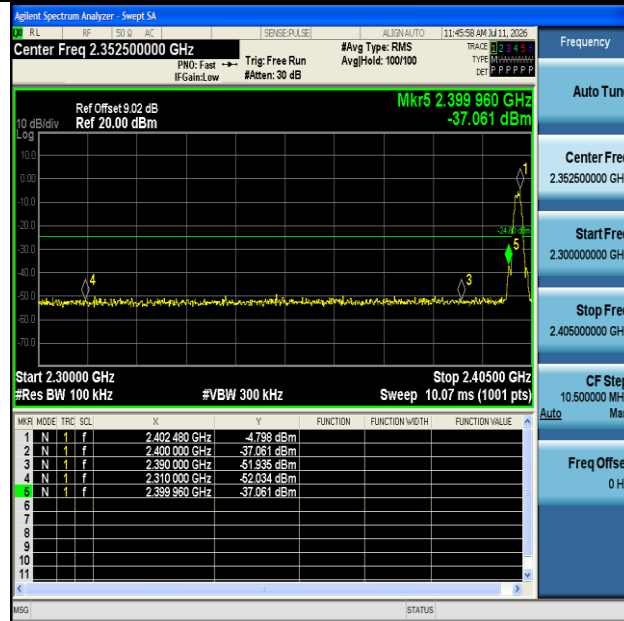
Note: offset(dB) = cable loss(dB) + attenuator factor(dB)



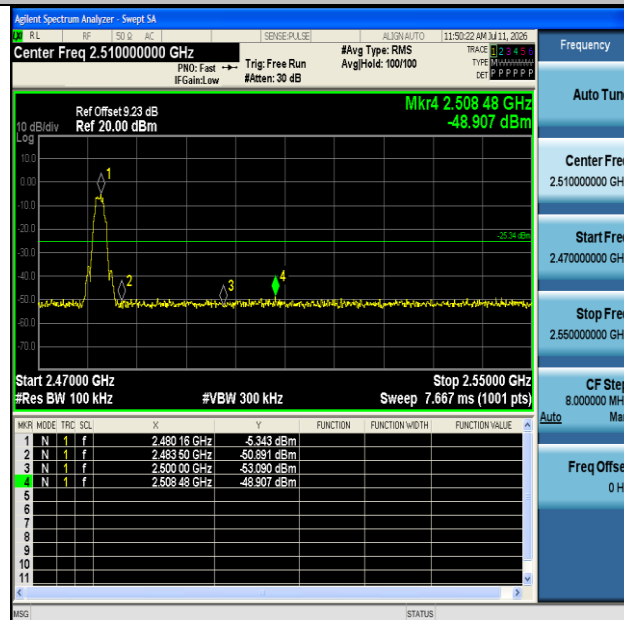


## Test Graphs





BLE\_2M-Ant1-2402-PASS



BLE\_2M-Ant1-2480-PASS





## Appendix F: Conducted Spurious Emission

### Test Result

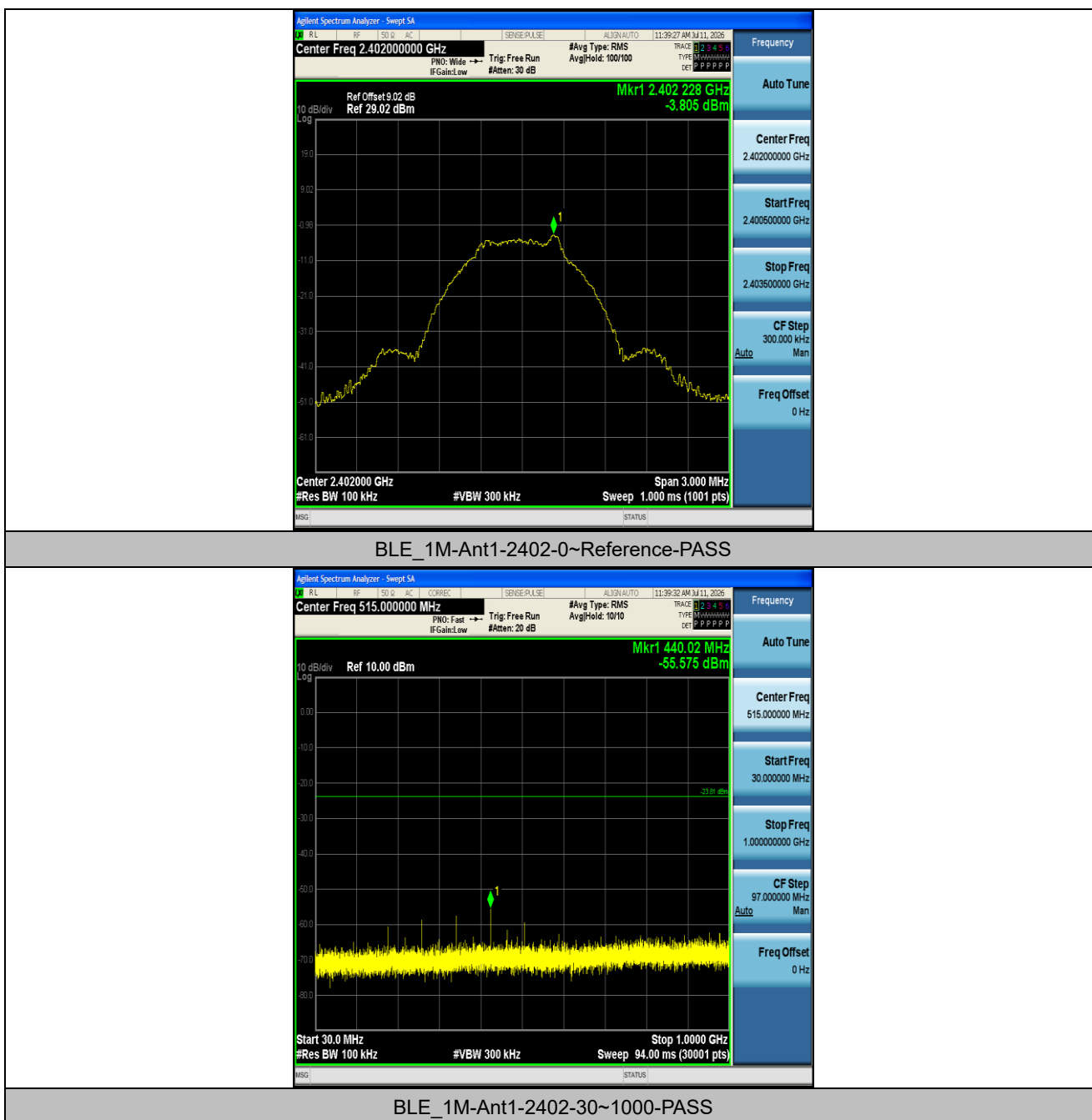
| Test Mode | Antenna | Frequency [MHz] | Freq. Range [MHz] | Ref. Level [dBm] | Result [dBm] | Limit [dBm]   | Verdict |
|-----------|---------|-----------------|-------------------|------------------|--------------|---------------|---------|
| BLE_1M    | Ant1    | 2402            | 0~Reference       | -3.81            | -3.81        | ---           | PASS    |
| BLE_1M    | Ant1    | 2402            | 30~1000           | -3.81            | -55.58       | $\leq -23.81$ | PASS    |
| BLE_1M    | Ant1    | 2402            | 1000~26500        | -3.81            | -37.37       | $\leq -23.81$ | PASS    |
| BLE_1M    | Ant1    | 2440            | 0~Reference       | -3.41            | -3.41        | ---           | PASS    |
| BLE_1M    | Ant1    | 2440            | 30~1000           | -3.41            | -55.75       | $\leq -23.41$ | PASS    |
| BLE_1M    | Ant1    | 2440            | 1000~26500        | -3.41            | -36.9        | $\leq -23.41$ | PASS    |
| BLE_1M    | Ant1    | 2480            | 0~Reference       | -3.95            | -3.95        | ---           | PASS    |
| BLE_1M    | Ant1    | 2480            | 30~1000           | -3.95            | -56.49       | $\leq -23.95$ | PASS    |
| BLE_1M    | Ant1    | 2480            | 1000~26500        | -3.95            | -37.5        | $\leq -23.95$ | PASS    |
| BLE_2M    | Ant1    | 2402            | 0~Reference       | -5.01            | -5.01        | ---           | PASS    |
| BLE_2M    | Ant1    | 2402            | 30~1000           | -5.01            | -55.8        | $\leq -25.01$ | PASS    |
| BLE_2M    | Ant1    | 2402            | 1000~26500        | -5.01            | -37.38       | $\leq -25.01$ | PASS    |
| BLE_2M    | Ant1    | 2440            | 0~Reference       | -4.52            | -4.52        | ---           | PASS    |
| BLE_2M    | Ant1    | 2440            | 30~1000           | -4.52            | -55.6        | $\leq -24.52$ | PASS    |
| BLE_2M    | Ant1    | 2440            | 1000~26500        | -4.52            | -38.22       | $\leq -24.52$ | PASS    |
| BLE_2M    | Ant1    | 2480            | 0~Reference       | -5.76            | -5.76        | ---           | PASS    |
| BLE_2M    | Ant1    | 2480            | 30~1000           | -5.76            | -56          | $\leq -25.76$ | PASS    |
| BLE_2M    | Ant1    | 2480            | 1000~26500        | -5.76            | -36.92       | $\leq -25.76$ | PASS    |

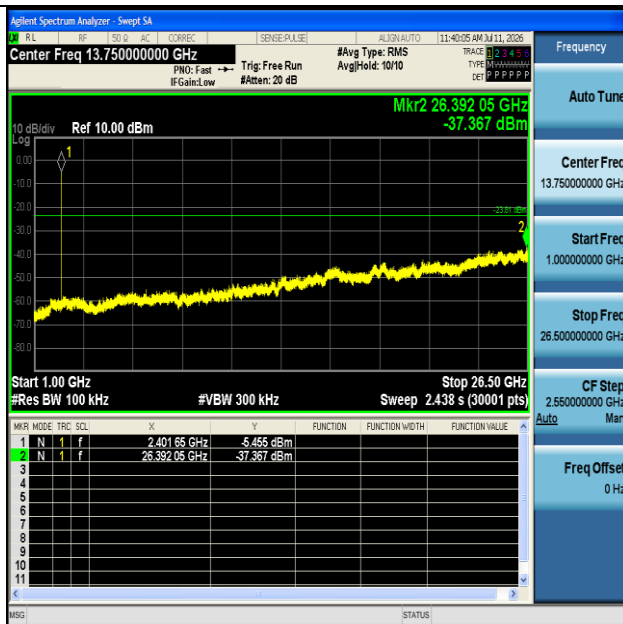
Note: offset(dB) in Reference test plots = cable loss(dB) + attenuator factor(dB); For spurious emissions plots from 30MHz to 26.5GHz, the cable loss and attenuator factors have been set in the 'Input Correction' of the Spectrum Analyzer during the test.



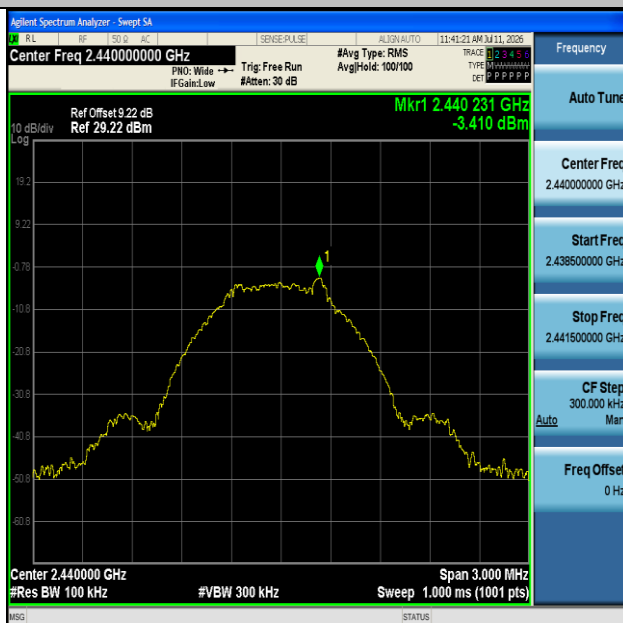


## Test Graphs



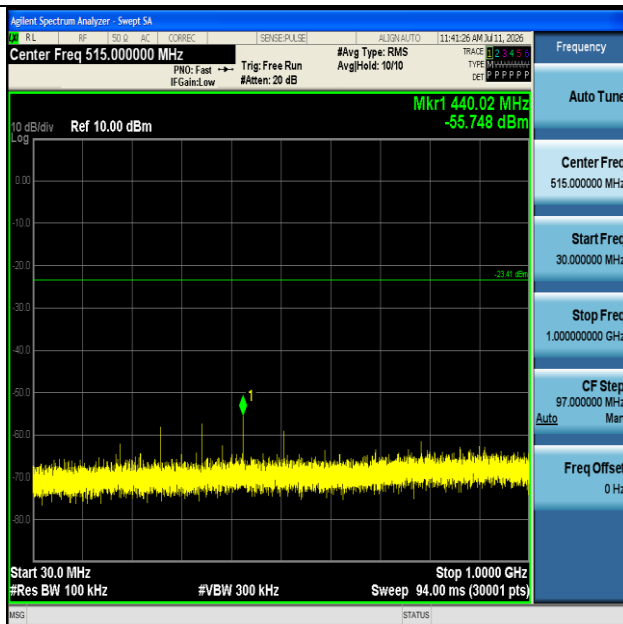


BLE\_1M-Ant1-2402-1000~26500-PASS

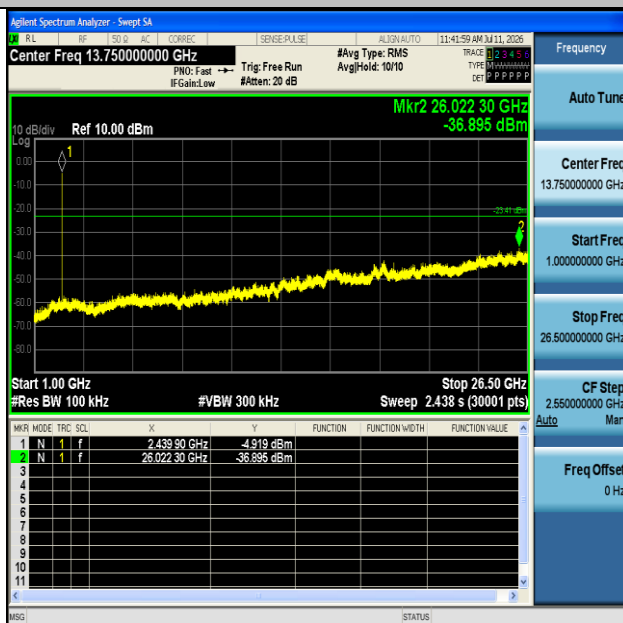


BLE\_1M-Ant1-2440-0~Reference-PASS





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

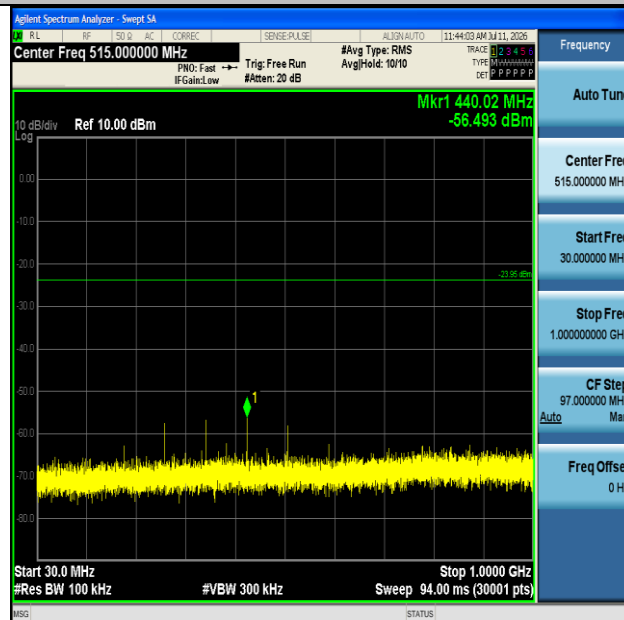


BLE\_1M-Ant1-2440-1000~26500-PASS



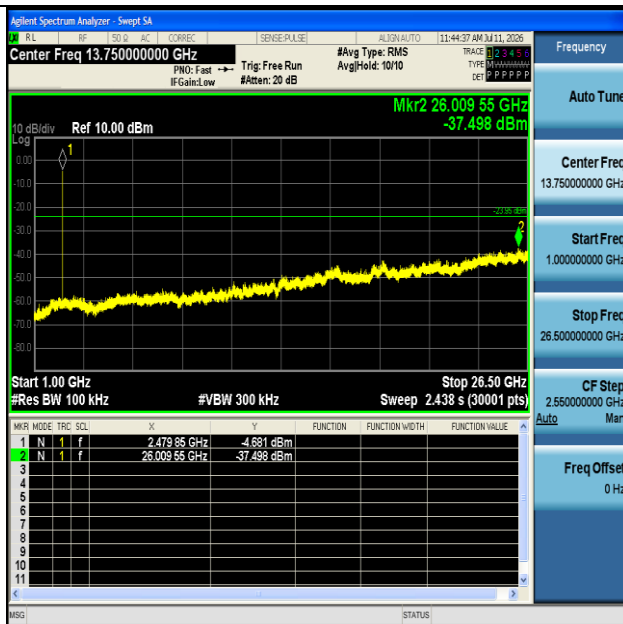


BLE\_1M-Ant1-2480-0~Reference-PASS

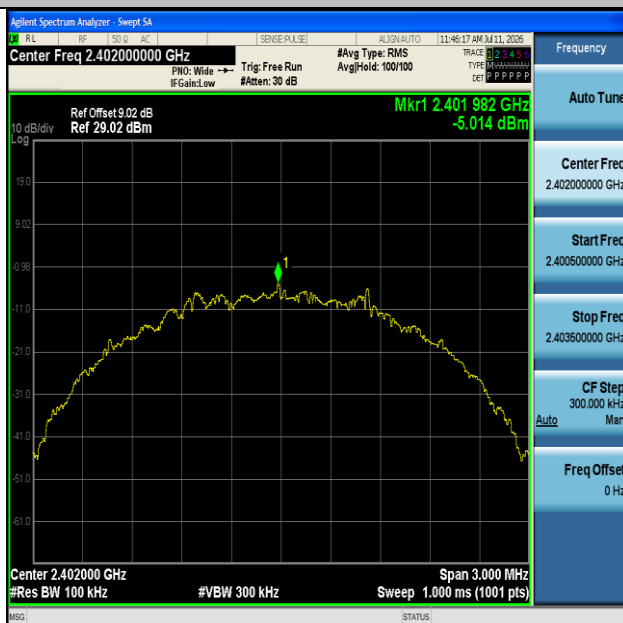


BLE\_1M-Ant1-2480-30~1000-PASS



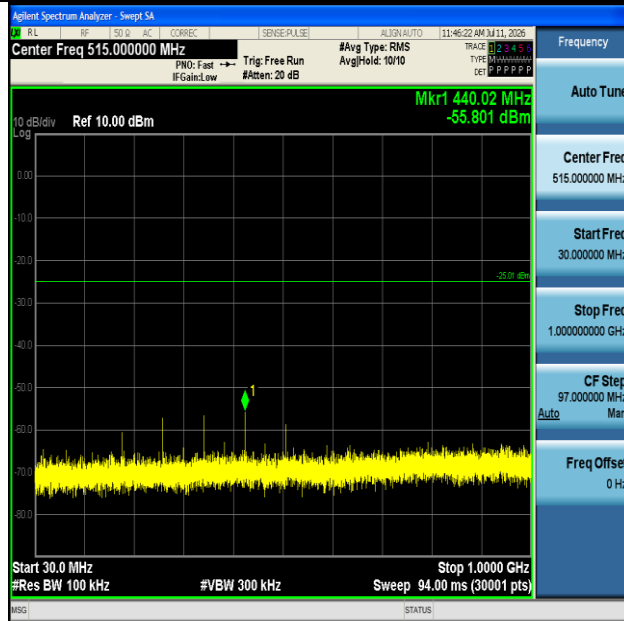


BLE\_1M-Ant1-2480-1000~26500-PASS

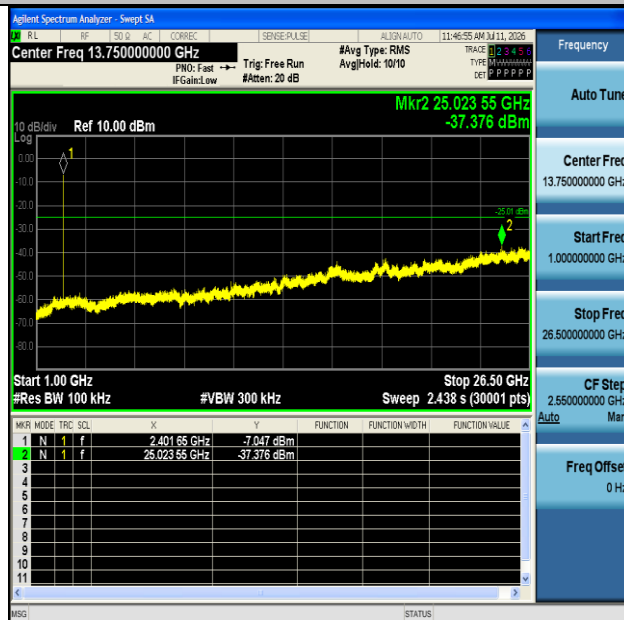


BLE\_2M-Ant1-2402-0~Reference-PASS





BLE\_2M-Ant1-2402-30~1000-PASS

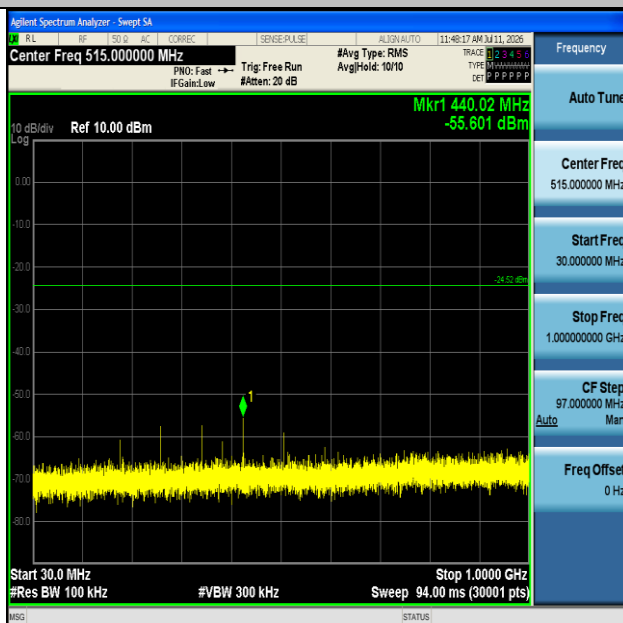


BLE\_2M-Ant1-2402-1000~26500-PASS



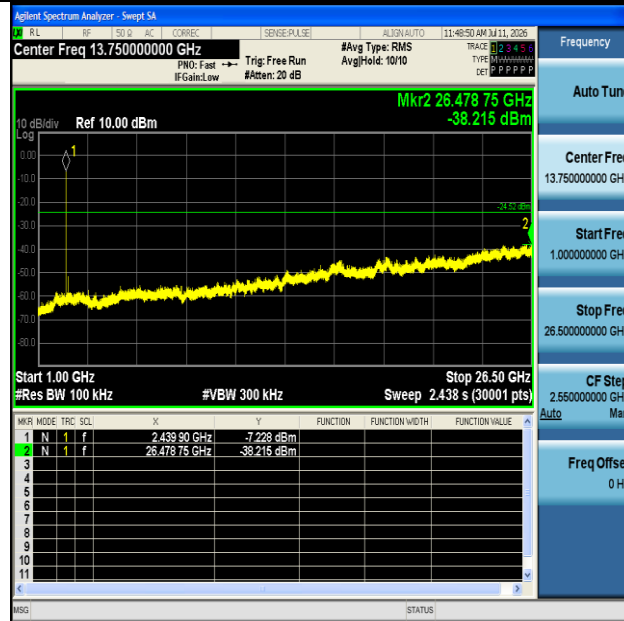


BLE\_2M-Ant1-2440-0~Reference-PASS



BLE\_2M-Ant1-2440-30~1000-PASS



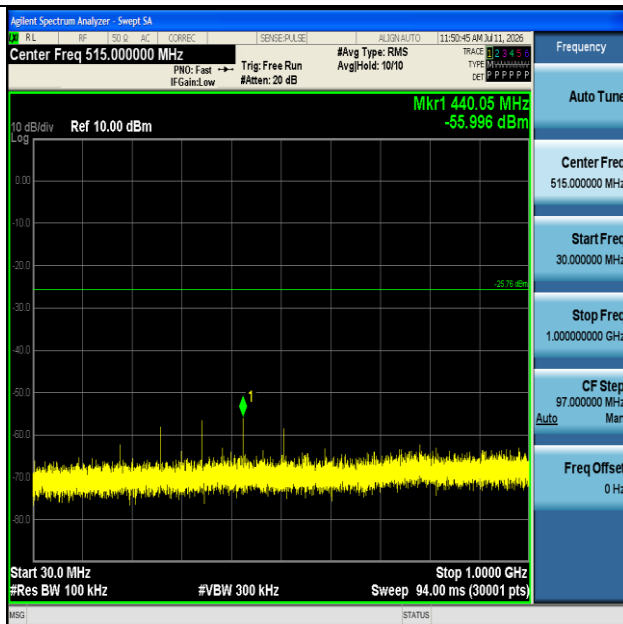


BLE\_2M-Ant1-2440-1000~26500-PASS

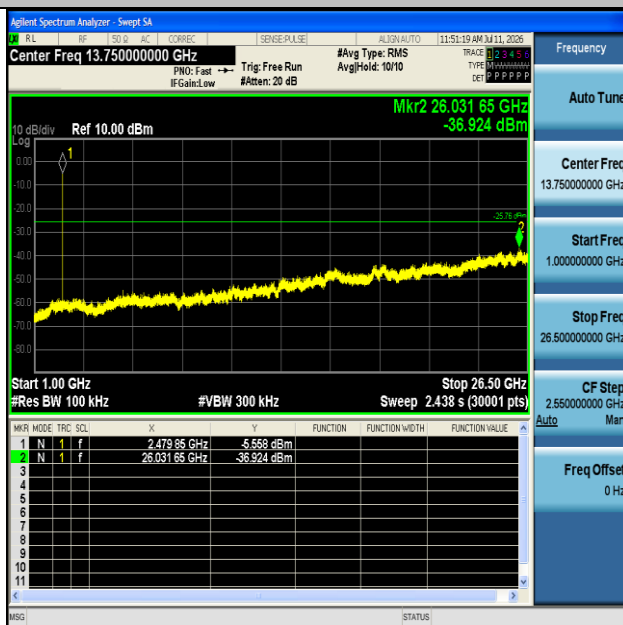


BLE\_2M-Ant1-2480-0~Reference-PASS





BLE\_2M-Ant1-2480-30~1000-PASS



BLE\_2M-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                         |
| BLE_2M    | Ant1    | 2402               | 1.06            | 1.87           | 56.68             | 2.47                         |
| BLE_2M    | Ant1    | 2440               | 1.07            | 1.88           | 56.91             | 2.45                         |
| BLE_2M    | Ant1    | 2480               | 1.06            | 1.87           | 56.68             | 2.47                         |

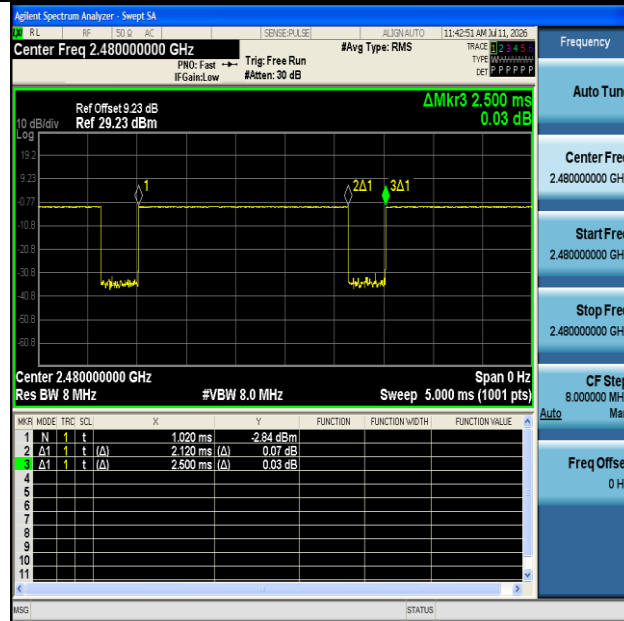
Note: offset(dB) = cable loss(dB) + attenuator factor(dB)



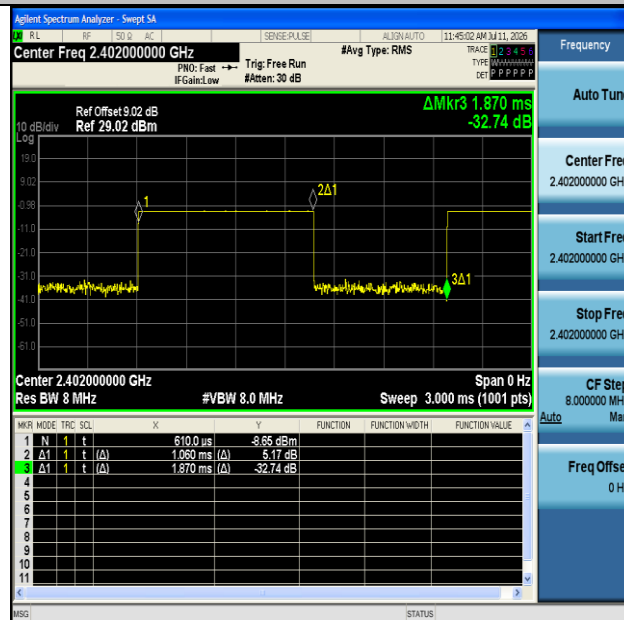


## Test Graphs



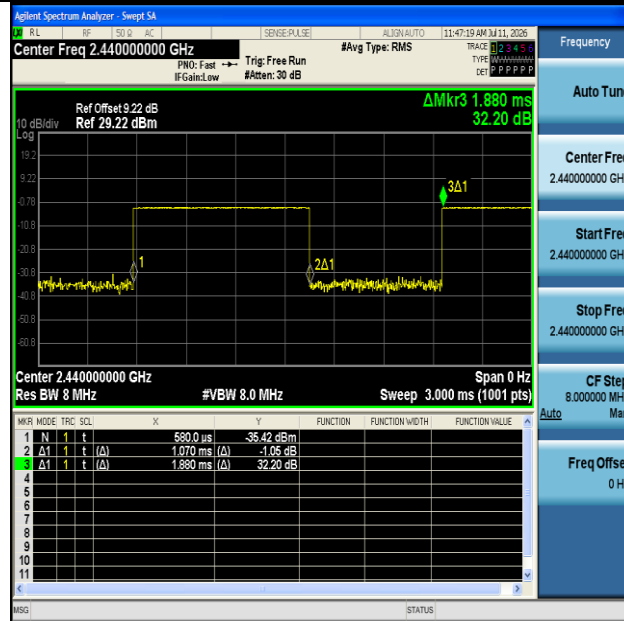


NTNV-BLE\_1M-Ant1-2480

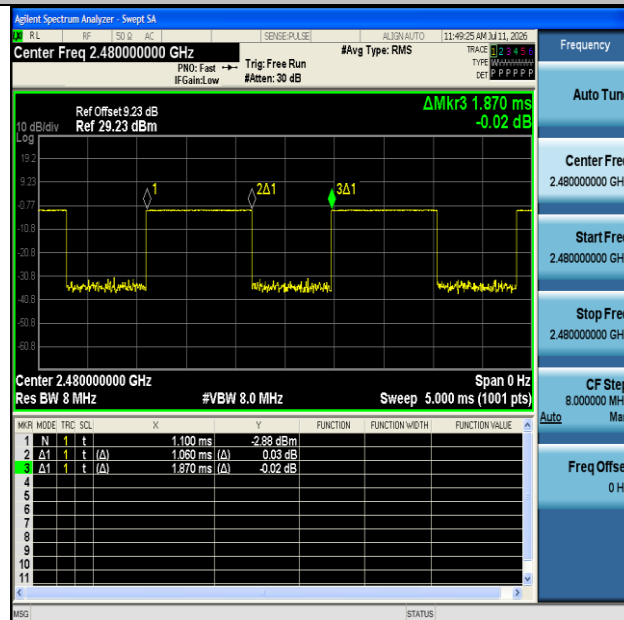


NTNV-BLE\_2M-Ant1-2402





NTNV-BLE\_2M-Ant1-2440



NTNV-BLE\_2M-Ant1-2480

