



## Appendix Test Data for BLE (Conducted Measurement)

Product Name: Wireless Mechanical Keyboard

Trade Mark: Keychron, Lemokey

Test Model: B31

FCC ID: 2BGKB-B31

### 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               | 0.652           | 2401.668    | 2402.320    | 0.5            | PASS    |
| BLE_1M    | Ant1    | 2440               | 0.680           | 2439.668    | 2440.348    | 0.5            | PASS    |
| BLE_1M    | Ant1    | 2480               | 0.696           | 2479.656    | 2480.352    | 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               | 1.0188       | 2401.4847   | 2402.5035   | ---            | ---     |
| BLE_1M    | Ant1    | 2440               | 1.0213       | 2439.4867   | 2440.5080   | ---            | ---     |
| BLE_1M    | Ant1    | 2480               | 1.0158       | 2479.4821   | 2480.4979   | ---            | ---     |

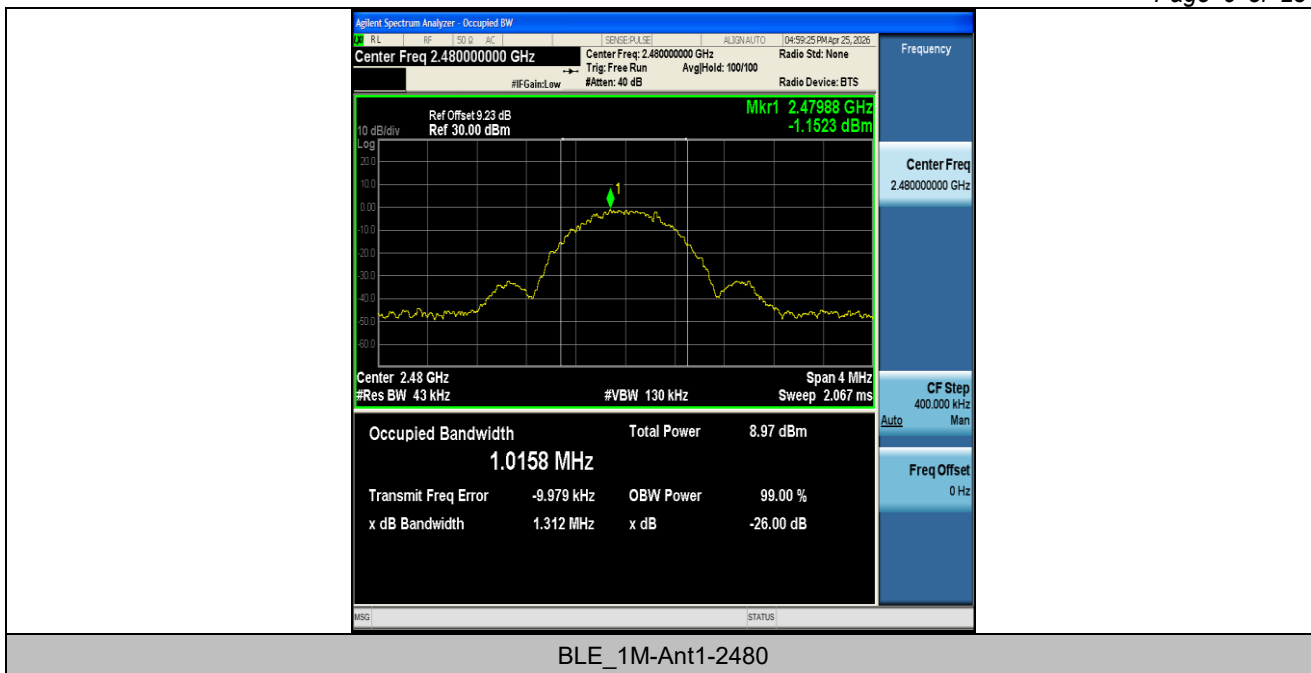
Note: offset(dB) = cable loss(dB) + attenuator factor(dB)





## Test Graphs







## Appendix C: Maximum peak conducted output power

### Test Result Peak

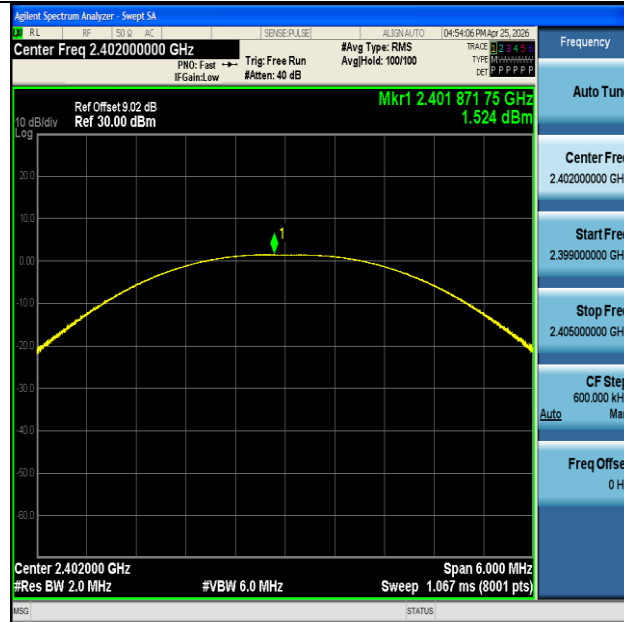
| Test Mode | Antenna | Frequency [MHz] | Conducted Peak Power [dBm] | Conducted Limit [dBm] | Verdict |
|-----------|---------|-----------------|----------------------------|-----------------------|---------|
| BLE_1M    | Ant1    | 2402            | 1.52                       | ≤30                   | PASS    |
| BLE_1M    | Ant1    | 2440            | 2.03                       | ≤30                   | PASS    |
| BLE_1M    | Ant1    | 2480            | 1.90                       | ≤30                   | PASS    |

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

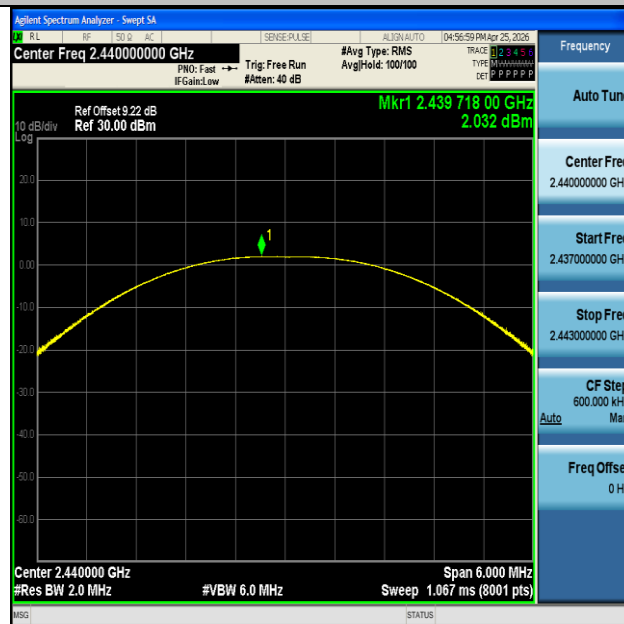




## Test Graphs Peak

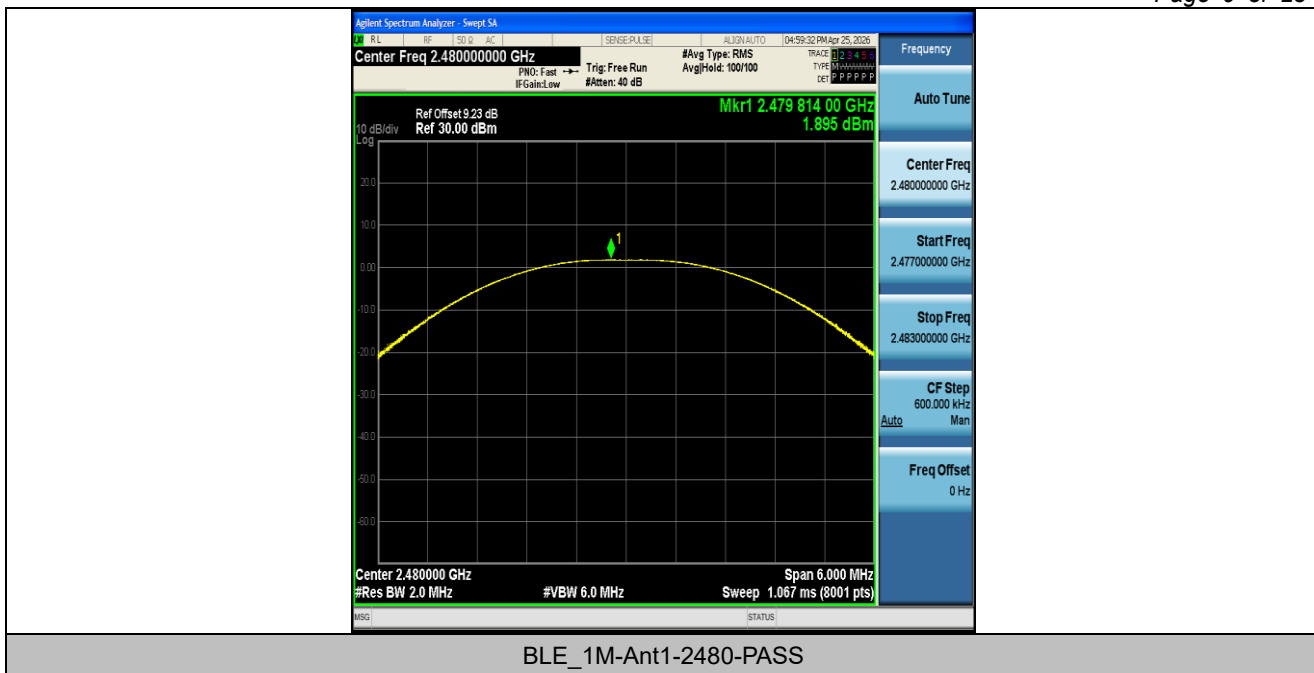


BLE\_1M-Ant1-2402-PASS



BLE\_1M-Ant1-2440-PASS







## Appendix D: Maximum peak power spectral density

### Test Result

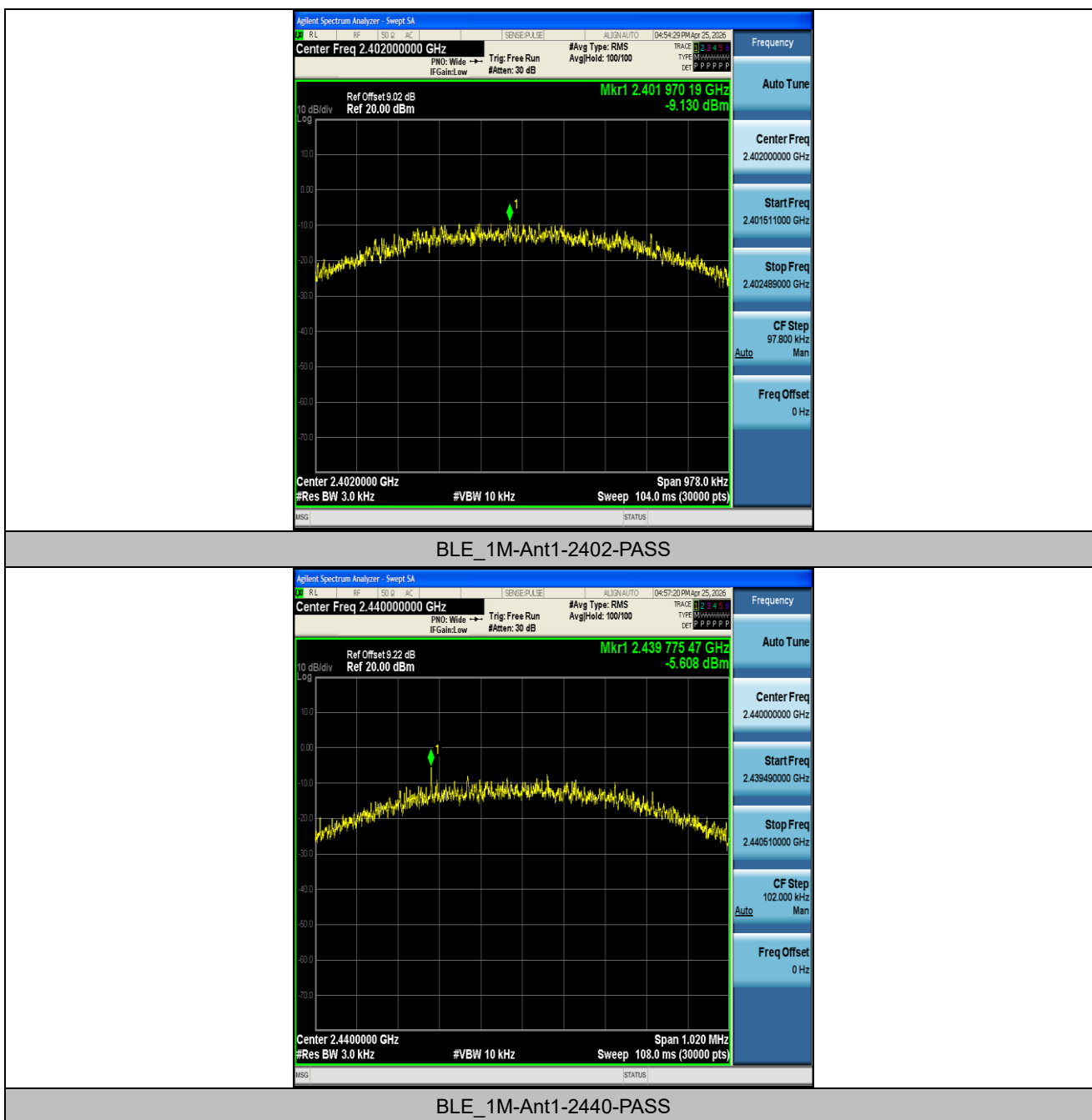
| Test Mode | Antenna | Frequency<br>[MHz] | Result<br>[dBm/3kHz] | Limit<br>[dBm/3kHz] | Verdict |
|-----------|---------|--------------------|----------------------|---------------------|---------|
| BLE_1M    | Ant1    | 2402               | -9.13                | ≤8.00               | PASS    |
| BLE_1M    | Ant1    | 2440               | -5.61                | ≤8.00               | PASS    |
| BLE_1M    | Ant1    | 2480               | -7.77                | ≤8.00               | PASS    |

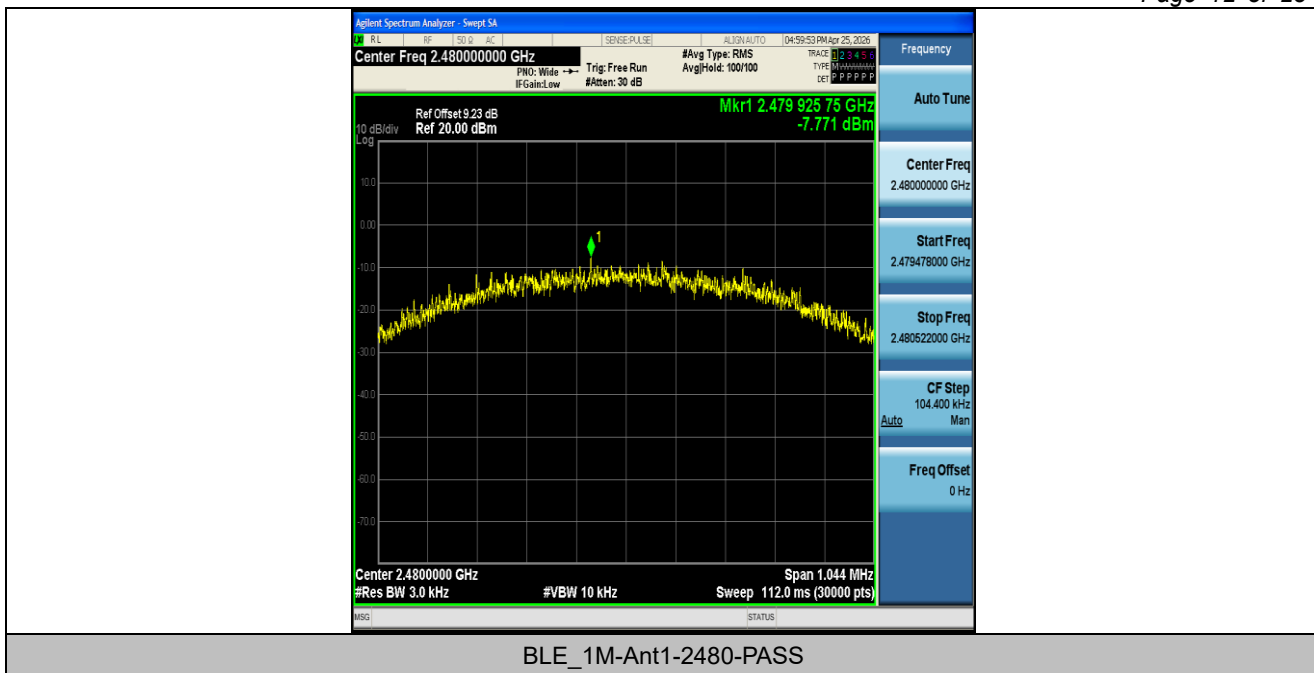
Note: offset(dB) = cable loss(dB) + attenuator factor(dB)





## Test Graphs







## Appendix E: Band edge measurements

### Test Result

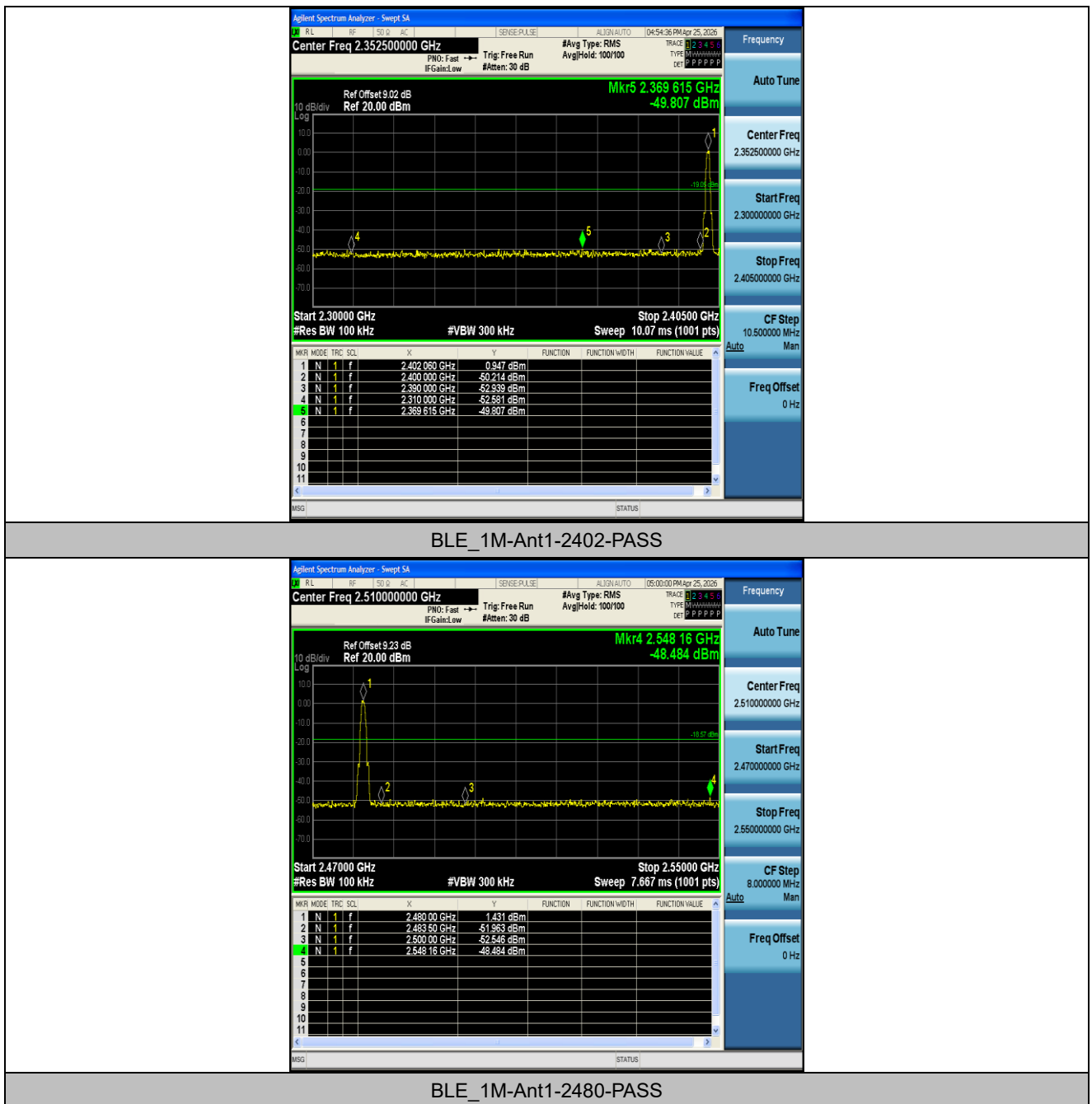
| Test Mode | Antenna | Ch. Name | Frequency [MHz] | Ref. Level [dBm] | Result [dBm] | Limit [dBm] | Verdict |
|-----------|---------|----------|-----------------|------------------|--------------|-------------|---------|
| BLE_1M    | Ant1    | Low      | 2402            | 0.95             | -49.81       | ≤-19.05     | PASS    |
| BLE_1M    | Ant1    | High     | 2480            | 1.43             | -48.48       | ≤-18.57     | PASS    |

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





## Test Graphs





## Appendix F: Conducted Spurious Emission

### Test Result

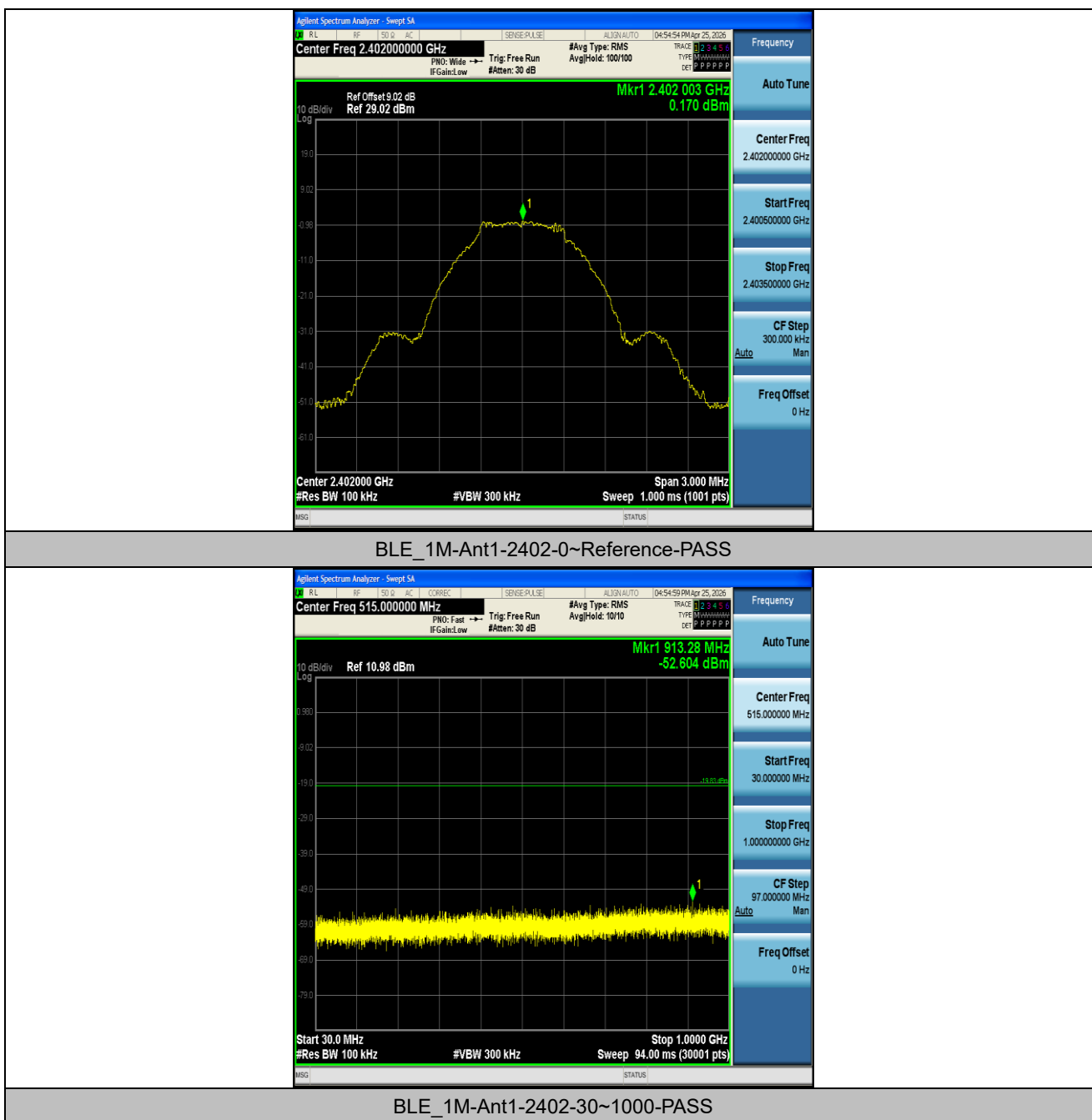
| Test Mode | Antenna | Frequency [MHz] | Freq. Range [MHz] | Ref. Level [dBm] | Result [dBm] | Limit [dBm] | Verdict |
|-----------|---------|-----------------|-------------------|------------------|--------------|-------------|---------|
| BLE_1M    | Ant1    | 2402            | 0~Reference       | 0.17             | 0.17         | ---         | PASS    |
| BLE_1M    | Ant1    | 2402            | 30~1000           | 0.17             | -52.6        | ≤-19.83     | PASS    |
| BLE_1M    | Ant1    | 2402            | 1000~26500        | 0.17             | -27.65       | ≤-19.83     | PASS    |
| BLE_1M    | Ant1    | 2440            | 0~Reference       | 1.12             | 1.12         | ---         | PASS    |
| BLE_1M    | Ant1    | 2440            | 30~1000           | 1.12             | -52.5        | ≤-18.88     | PASS    |
| BLE_1M    | Ant1    | 2440            | 1000~26500        | 1.12             | -26.82       | ≤-18.88     | PASS    |
| BLE_1M    | Ant1    | 2480            | 0~Reference       | 1.56             | 1.56         | ---         | PASS    |
| BLE_1M    | Ant1    | 2480            | 30~1000           | 1.56             | -52.77       | ≤-18.44     | PASS    |
| BLE_1M    | Ant1    | 2480            | 1000~26500        | 1.56             | -26.89       | ≤-18.44     | PASS    |

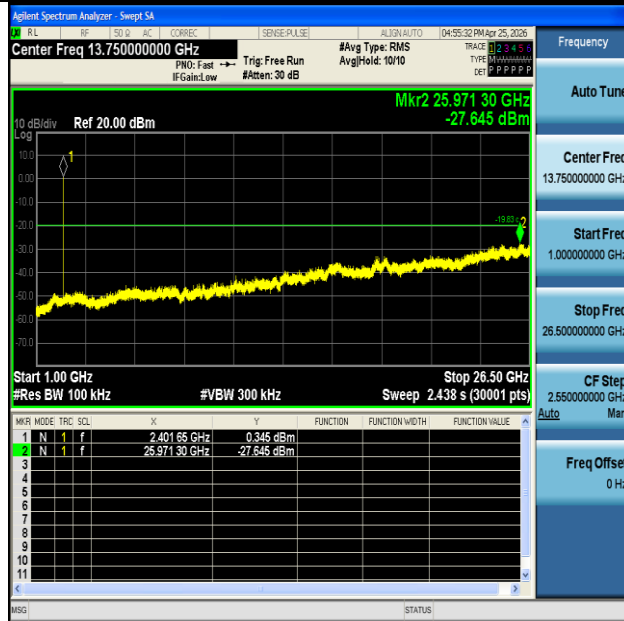
Note: offset(dB) in Reference test plots = cable loss(dB) + attenuator factor(dB); For spurious emissions plots from 30MHz to 26.5GHz, the cable loss and attenuator factors have been set in the 'Input Correction' of the Spectrum Analyzer during the test.





## Test Graphs



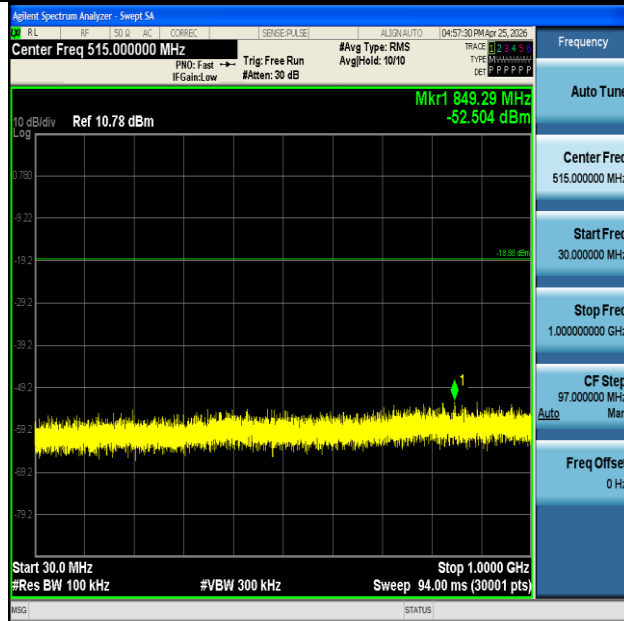


BLE\_1M-Ant1-2402-1000~26500-PASS

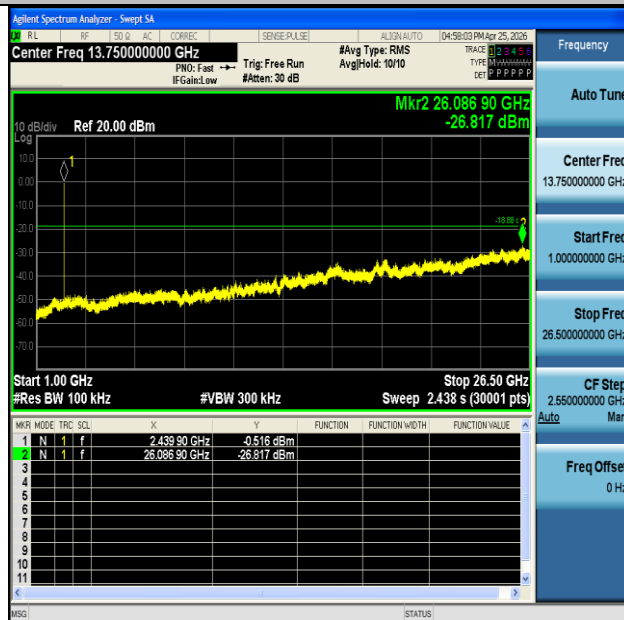


BLE\_1M-Ant1-2440-0~Reference-PASS





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

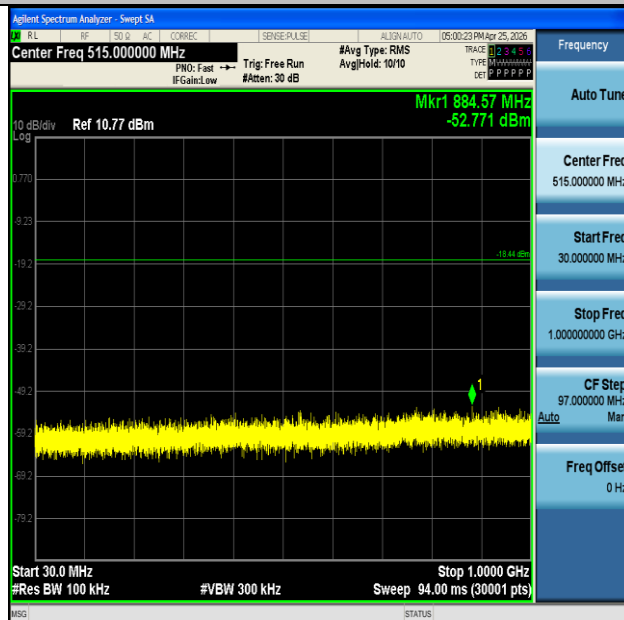


BLE\_1M-Ant1-2440-1000~26500-PASS



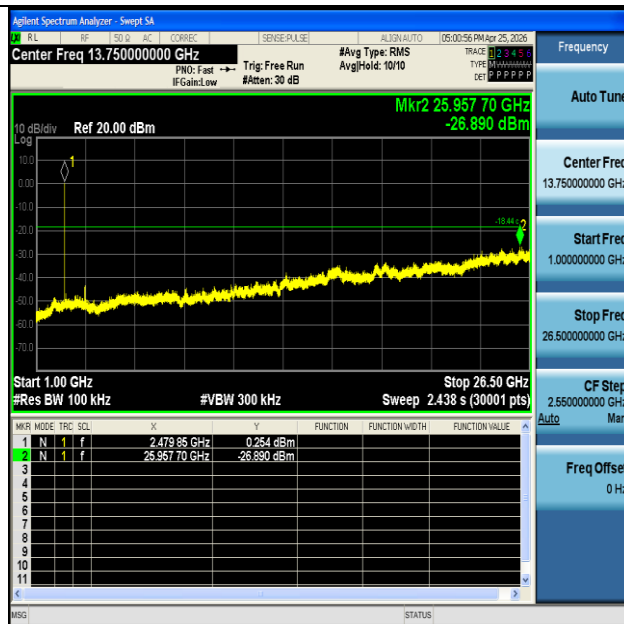


BLE\_1M-Ant1-2480-0~Reference-PASS



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               | 19.00           | 19.00          | 100.00            | 0.00                         |
| BLE_1M    | Ant1    | 2440               | 19.00           | 19.00          | 100.00            | 0.00                         |
| BLE_1M    | Ant1    | 2480               | 19.00           | 19.00          | 100.00            | 0.00                         |

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





## Test Graphs



