

## Appendix Test Data for BLE (Conducted Measurement)

Product Name: Wireless Mechanical Keyboard

Trade Mark: Keychron

Test Model: Q5 MAX

FCC ID: 2ASF4-Q5MAX

### Environmental Conditions

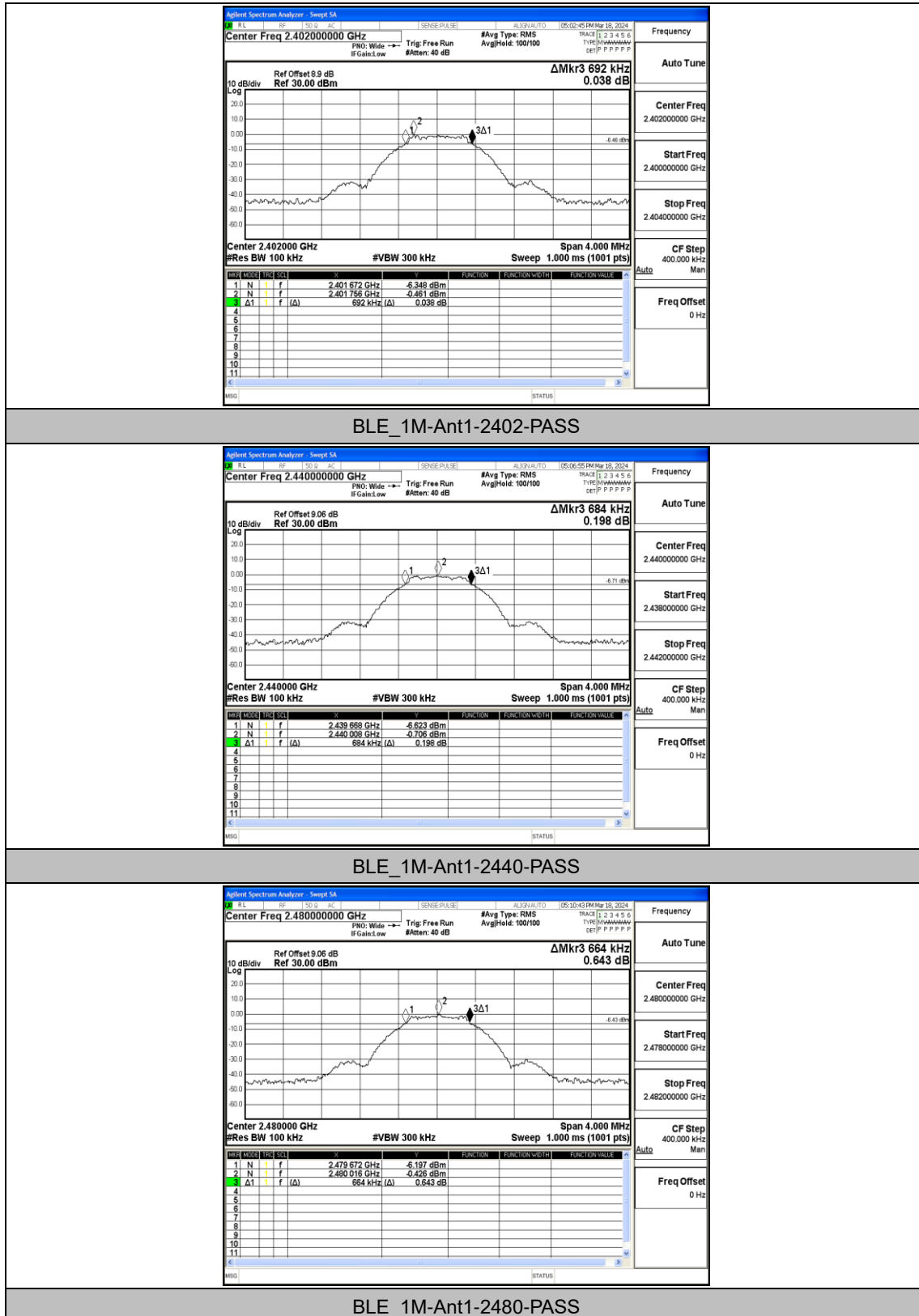
|                    |           |
|--------------------|-----------|
| Temperature:       | 22.8° C   |
| Relative Humidity: | 56%       |
| ATM Pressure:      | 100.0 kPa |
| Test Engineer:     | Anna Hu   |
| Supervised by:     | Hugo Chen |
| NOTE               | N/A       |

## Appendix A: DTS Bandwidth

### Test Result

| TestMode | Antenna | Frequency[MHz] | DTS BW [MHz] | FL[MHz]  | FH[MHz]  | Limit[MHz] | Verdict |
|----------|---------|----------------|--------------|----------|----------|------------|---------|
| BLE_1M   | Ant1    | 2402           | 0.692        | 2401.672 | 2402.364 | 0.5        | PASS    |
| BLE_1M   | Ant1    | 2440           | 0.684        | 2439.668 | 2440.352 | 0.5        | PASS    |
| BLE_1M   | Ant1    | 2480           | 0.664        | 2479.672 | 2480.336 | 0.5        | PASS    |

## Test Graphs

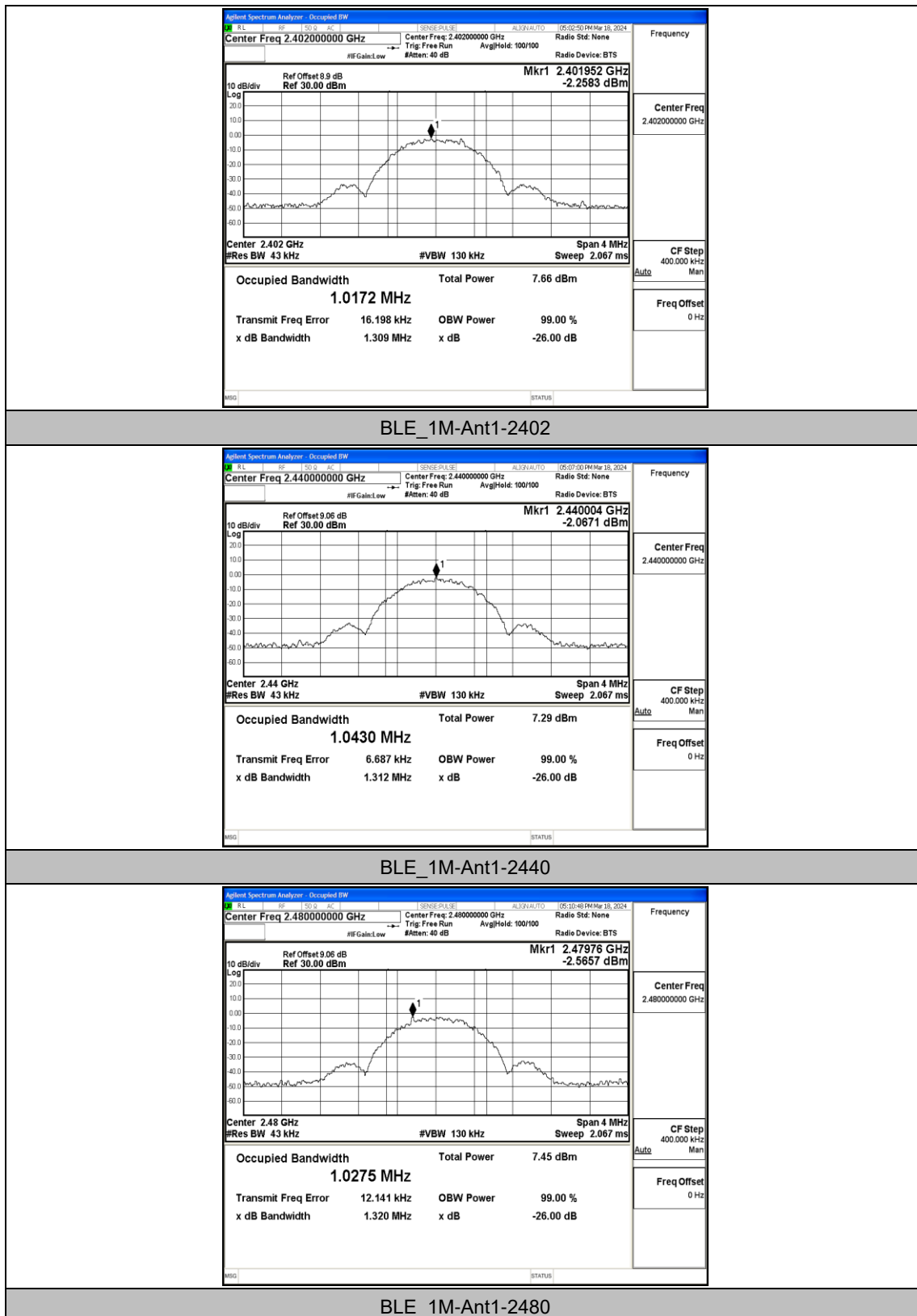


## Appendix B: Occupied Channel Bandwidth

### Test Result

| TestMode | Antenna | Frequency[MHz] | OCB<br>[MHz] | FL[MHz]   | FH[MHz]   | Limit[MHz] | Verdict |
|----------|---------|----------------|--------------|-----------|-----------|------------|---------|
| BLE_1M   | Ant1    | 2402           | 1.0172       | 2401.5076 | 2402.5248 | ---        | ---     |
| BLE_1M   | Ant1    | 2440           | 1.0430       | 2439.4852 | 2440.5282 | ---        | ---     |
| BLE_1M   | Ant1    | 2480           | 1.0275       | 2479.4984 | 2480.5259 | ---        | ---     |

## Test Graphs

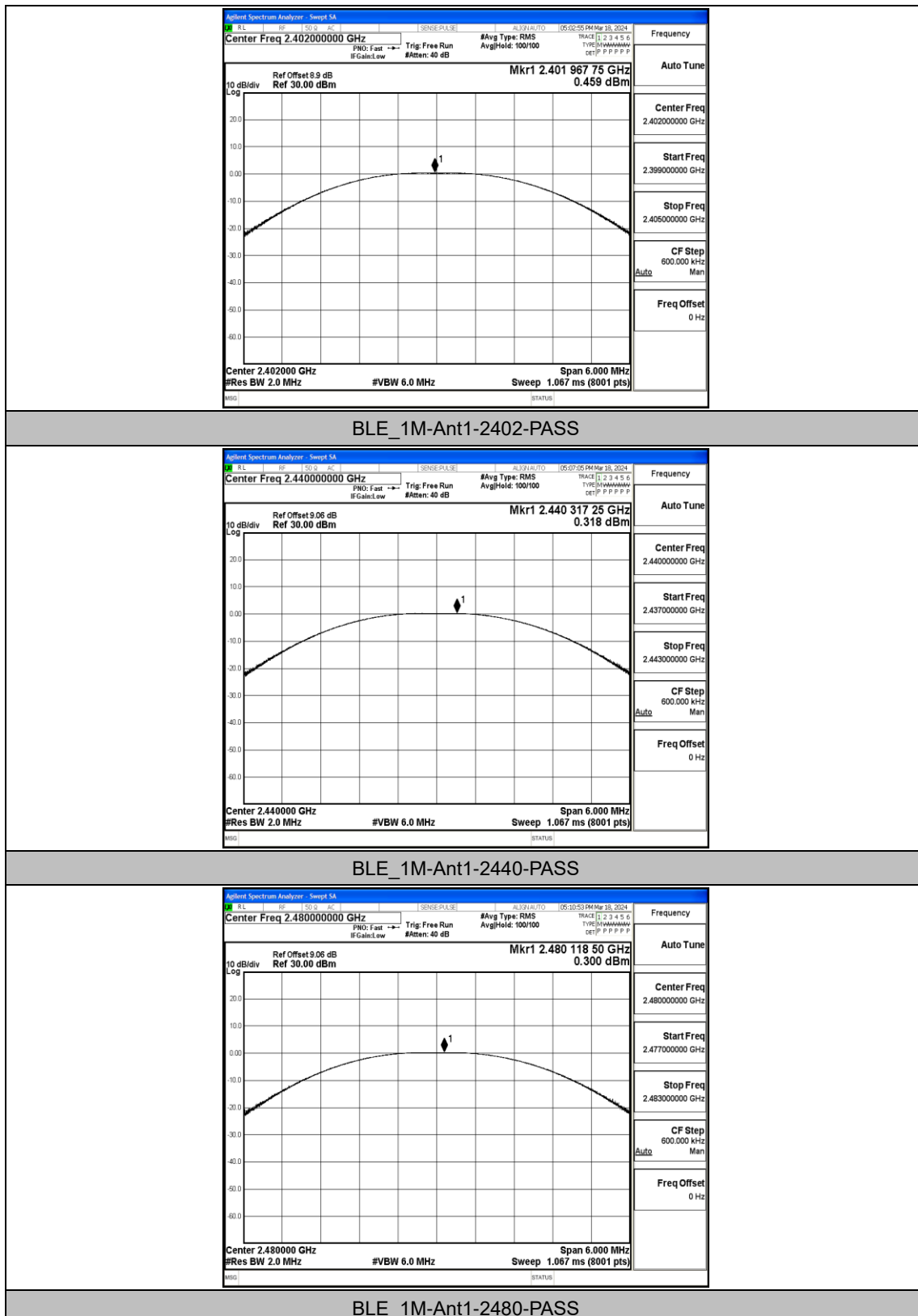


## Appendix C: Maximum peak conducted output power

### Test Result Peak

| TestMode | Antenna | Frequency[MHz] | Conducted Peak Power[dBm] | Conducted Limit[dBm] | Verdict |
|----------|---------|----------------|---------------------------|----------------------|---------|
| BLE_1M   | Ant1    | 2402           | 0.46                      | ≤30                  | PASS    |
| BLE_1M   | Ant1    | 2440           | 0.32                      | ≤30                  | PASS    |
| BLE_1M   | Ant1    | 2480           | 0.30                      | ≤30                  | PASS    |

## Test Graphs Peak

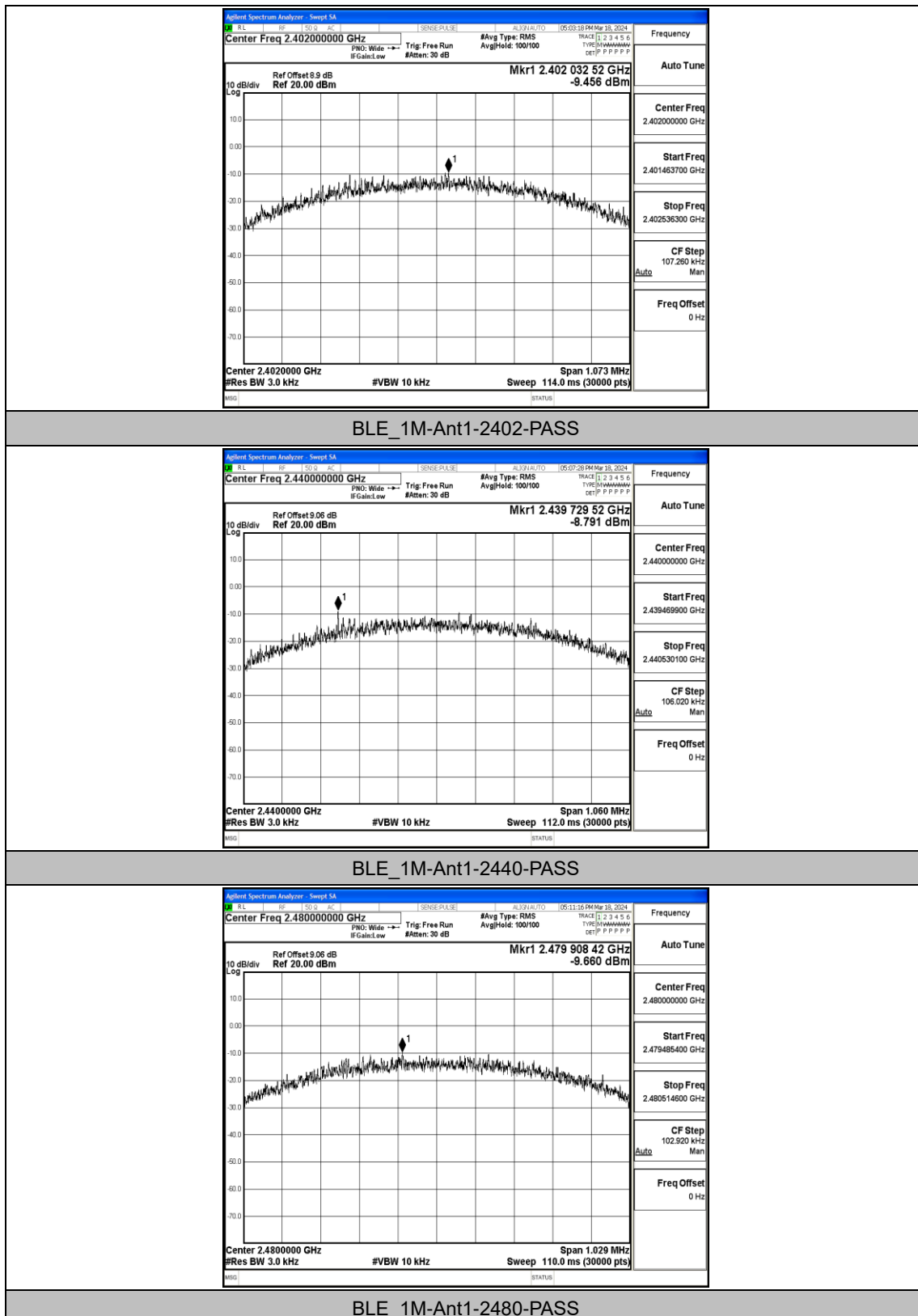


## Appendix D: Maximum peak power spectral density

### Test Result

| TestMode | Antenna | Frequency[MHz] | Result[dBm/3kHz] | Limit[dBm/3kHz] | Verdict |
|----------|---------|----------------|------------------|-----------------|---------|
| BLE_1M   | Ant1    | 2402           | -9.46            | ≤8.00           | PASS    |
| BLE_1M   | Ant1    | 2440           | -8.79            | ≤8.00           | PASS    |
| BLE_1M   | Ant1    | 2480           | -9.66            | ≤8.00           | PASS    |

## Test Graphs



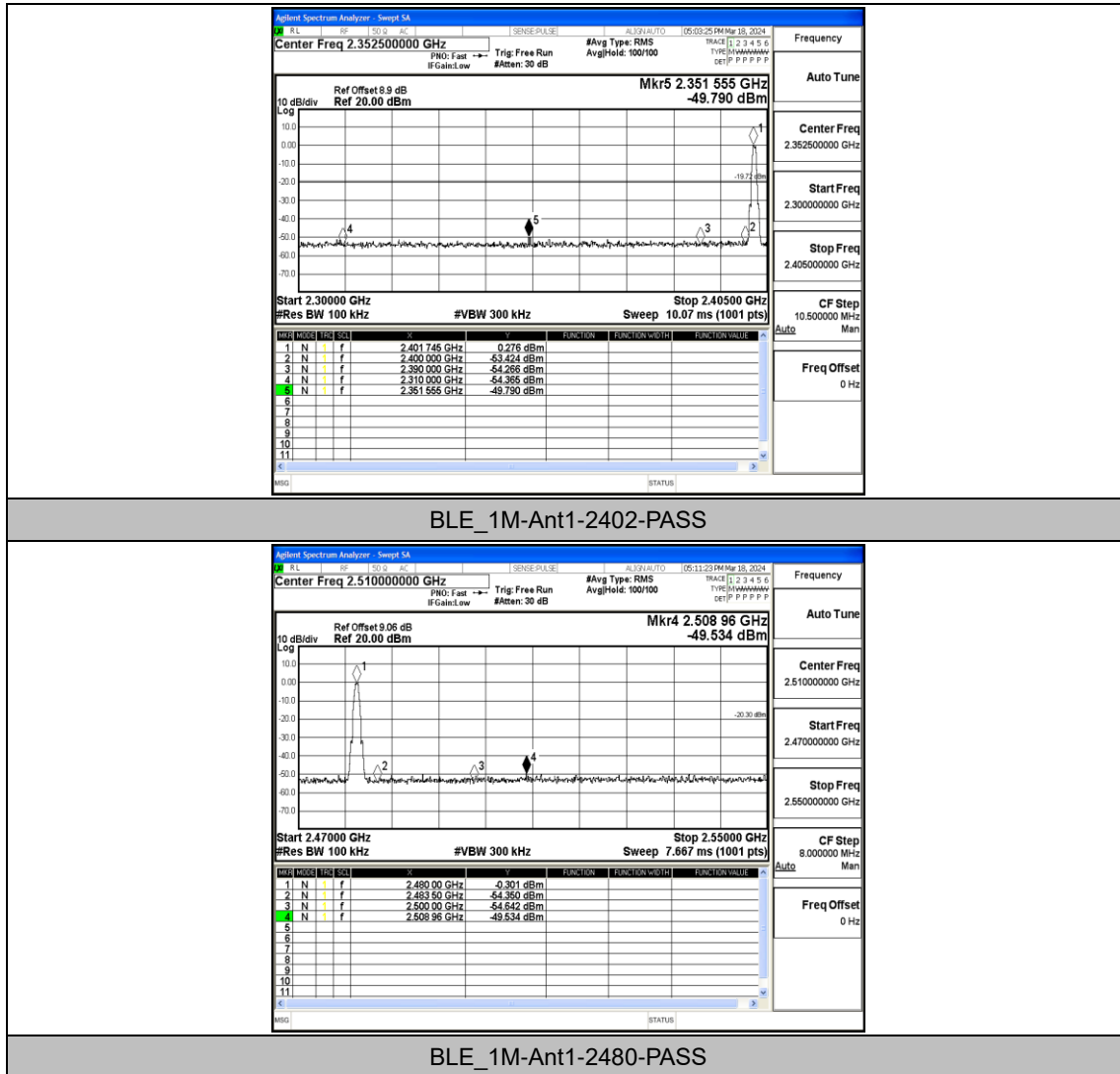


## Appendix E: Band edge measurements

### Test Result

| TestMode | Antenna | Channel | Frequency[MHz] | RefLevel[dBm] | Result[dBm] | Limit[dBm] | Verdict |
|----------|---------|---------|----------------|---------------|-------------|------------|---------|
| BLE_1M   | Ant1    | Low     | 2402           | 0.28          | -49.79      | ≤-19.72    | PASS    |
| BLE_1M   | Ant1    | High    | 2480           | -0.30         | -49.53      | ≤-20.3     | PASS    |

## Test Graphs

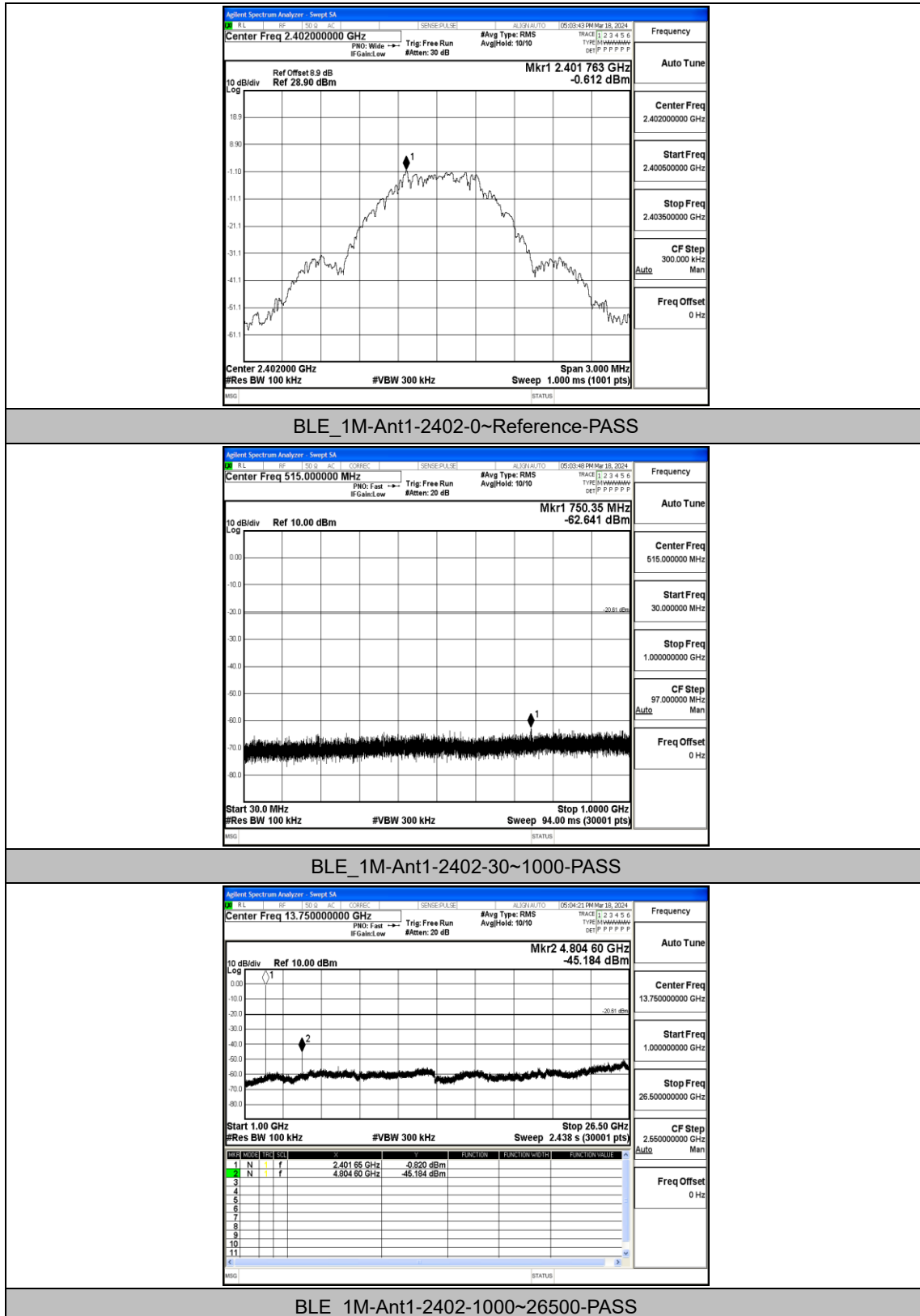


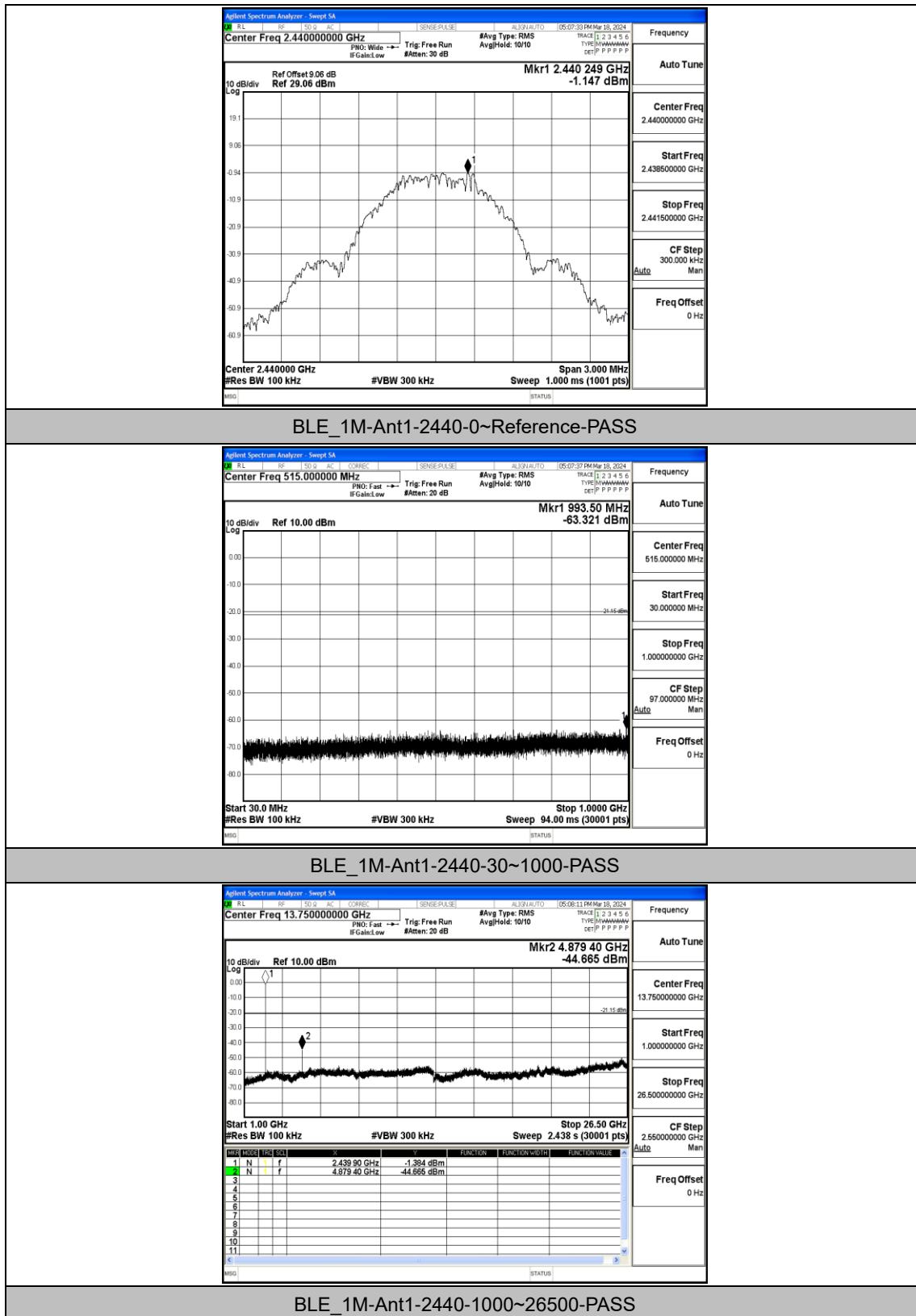
## Appendix F: Conducted Spurious Emission

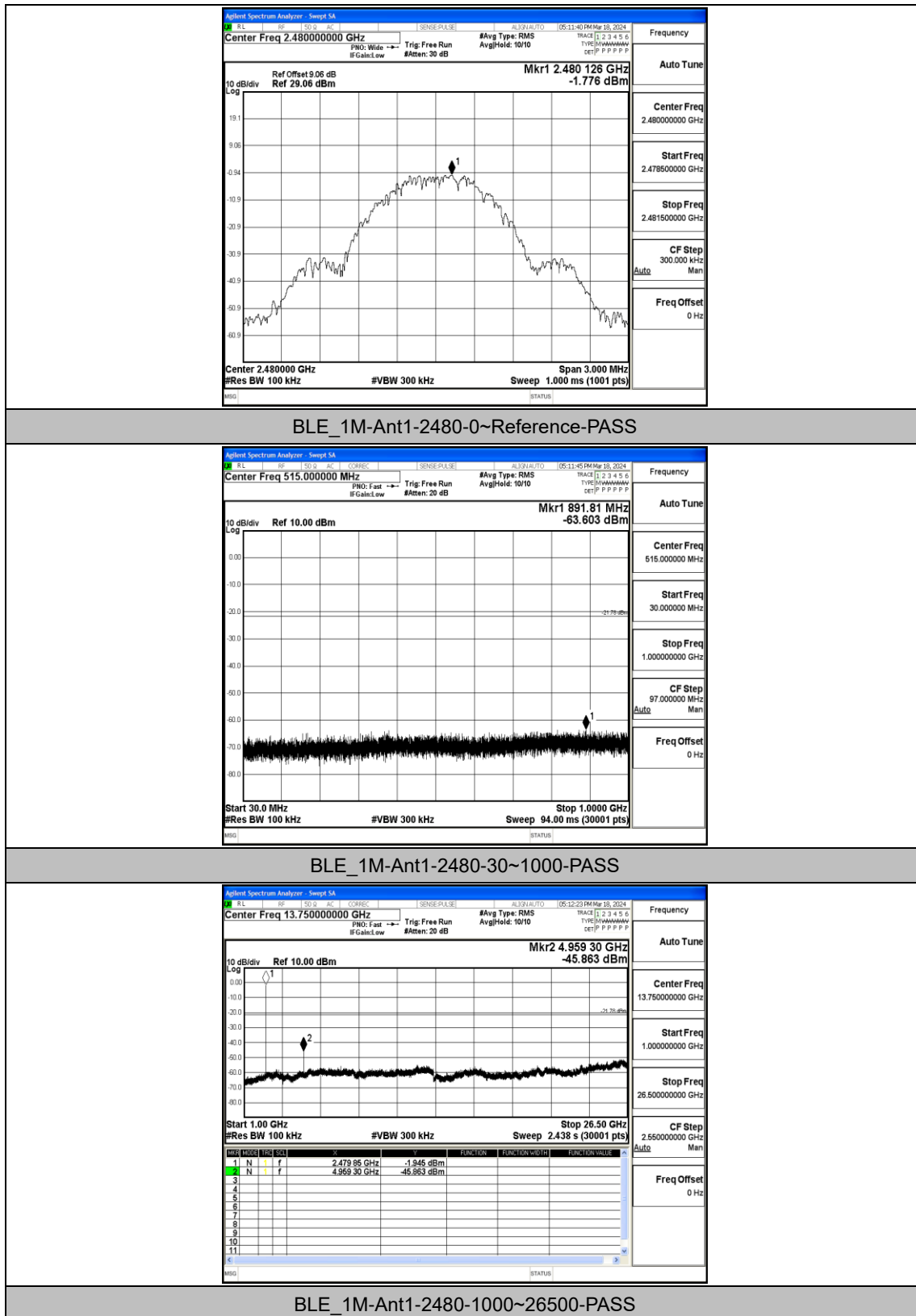
### Test Result

| TestMode | Antenna | Frequency[MHz] | FreqRange [MHz] | RefLevel [dBm] | Result[dBm] | Limit[dBm] | Verdict |
|----------|---------|----------------|-----------------|----------------|-------------|------------|---------|
| BLE_1M   | Ant1    | 2402           | 0~Reference     | -0.61          | -0.61       | ---        | PASS    |
| BLE_1M   | Ant1    | 2402           | 30~1000         | -0.61          | -62.64      | ≤-20.61    | PASS    |
| BLE_1M   | Ant1    | 2402           | 1000~26500      | -0.61          | -45.18      | ≤-20.61    | PASS    |
| BLE_1M   | Ant1    | 2440           | 0~Reference     | -1.15          | -1.15       | ---        | PASS    |
| BLE_1M   | Ant1    | 2440           | 30~1000         | -1.15          | -63.32      | ≤-21.15    | PASS    |
| BLE_1M   | Ant1    | 2440           | 1000~26500      | -1.15          | -44.67      | ≤-21.15    | PASS    |
| BLE_1M   | Ant1    | 2480           | 0~Reference     | -1.78          | -1.78       | ---        | PASS    |
| BLE_1M   | Ant1    | 2480           | 30~1000         | -1.78          | -63.6       | ≤-21.78    | PASS    |
| BLE_1M   | Ant1    | 2480           | 1000~26500      | -1.78          | -45.86      | ≤-21.78    | PASS    |

## Test Graphs





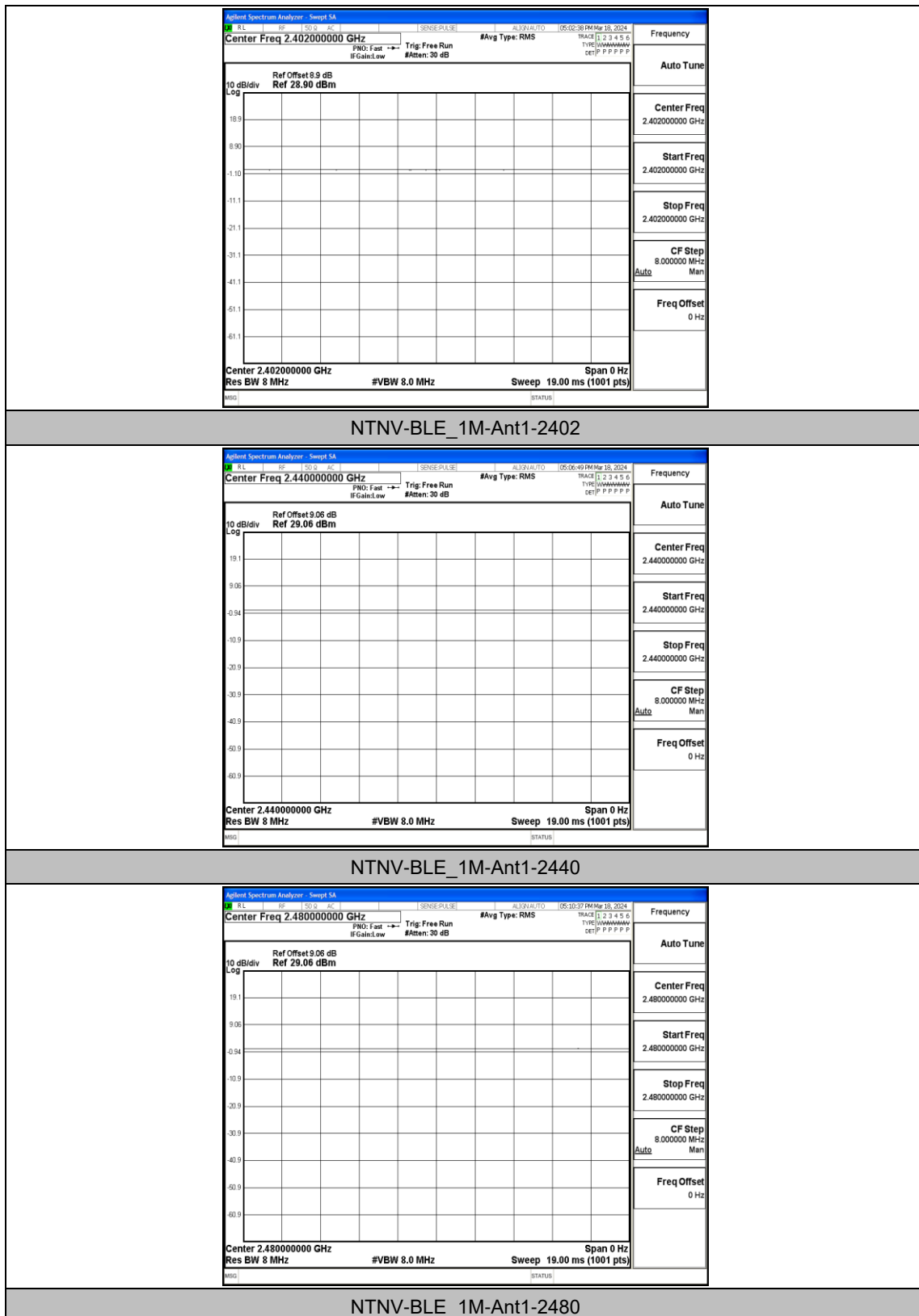


## Appendix G: Duty Cycle

### Test Result

| TestMode | Antenna | Frequency[MHz] | ON Time<br>[ms] | Period<br>[ms] | Duty Cycle<br>[%] | Duty Cycle<br>Factor[dB] |
|----------|---------|----------------|-----------------|----------------|-------------------|--------------------------|
| BLE_1M   | Ant1    | 2402           | 19.00           | 19.00          | 100.00            | 0                        |
| BLE_1M   | Ant1    | 2440           | 19.00           | 19.00          | 100.00            | 0                        |
| BLE_1M   | Ant1    | 2480           | 19.00           | 19.00          | 100.00            | 0                        |

## Test Graphs





## Appendix H: Emissions in Restricted Bands

### Test Result

| TestMode | Antenna | ChName | Frequency [MHz] | Detector | Freq [MHz] | Result [dBm] | Limit [dBm] | Result [dBuV/m] | Limit [dBuV/m] | Verdict |
|----------|---------|--------|-----------------|----------|------------|--------------|-------------|-----------------|----------------|---------|
| BLE_1M   | Ant1    | Low    | 2402            | Peak     | 2390.000   | -45.67       | ≤-21.20     | 49.53           | ≤74            | PASS    |
| BLE_1M   | Ant1    | Low    | 2402            | Peak     | 2310.000   | -44.8        | ≤-21.20     | 50.40           | ≤74            | PASS    |
| BLE_1M   | Ant1    | Low    | 2402            | Peak     | 2366.780   | -39.52       | ≤-21.20     | 55.68           | ≤74            | PASS    |
| BLE_1M   | Ant1    | Low    | 2402            | AV       | 2390.000   | -50.27       | ≤-41.20     | 44.93           | ≤54            | PASS    |
| BLE_1M   | Ant1    | Low    | 2402            | AV       | 2310.000   | -50.9        | ≤-41.20     | 44.30           | ≤54            | PASS    |
| BLE_1M   | Ant1    | Low    | 2402            | AV       | 2364.575   | -49.58       | ≤-41.20     | 45.62           | ≤54            | PASS    |
| BLE_1M   | Ant1    | High   | 2480            | Peak     | 2483.500   | -42.48       | ≤-21.20     | 52.72           | ≤74            | PASS    |
| BLE_1M   | Ant1    | High   | 2480            | Peak     | 2500.000   | -44.69       | ≤-21.20     | 50.51           | ≤74            | PASS    |
| BLE_1M   | Ant1    | High   | 2480            | Peak     | 2499.840   | -40.08       | ≤-21.20     | 55.12           | ≤74            | PASS    |
| BLE_1M   | Ant1    | High   | 2480            | AV       | 2483.500   | -50.19       | ≤-41.20     | 45.01           | ≤54            | PASS    |
| BLE_1M   | Ant1    | High   | 2480            | AV       | 2500.000   | -49.42       | ≤-41.20     | 45.78           | ≤54            | PASS    |
| BLE_1M   | Ant1    | High   | 2480            | AV       | 2488.160   | -48.85       | ≤-41.20     | 46.35           | ≤54            | 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

