

## Appendix F for BT LE Test Data

**Product Name: Bluetooth Earphones**

**Test Model: TA1**

### Environmental Conditions

|                    |            |
|--------------------|------------|
| Temperature:       | 24.8 ° C   |
| Relative Humidity: | 53.3%      |
| ATM Pressure:      | 100.0 kPa  |
| Test Engineer:     | Diamond Lu |
| Supervised by:     | Li Huan    |

## F.1 RF Output Power

### Test Result

#### BT LE

| Test Condition | TestMode  | Antenna | Channel | EIRP[dBm] | Limit[dBm] | Verdict |
|----------------|-----------|---------|---------|-----------|------------|---------|
| NVNT           | BLE_BT5.0 | Ant1    | 2402    | 3.96      | 20         | PASS    |
|                |           |         | 2440    | 5.72      | 20         | PASS    |
|                |           |         | 2480    | 5.39      | 20         | PASS    |

| Test Condition | TestMode  | Antenna | Channel | EIRP[dBm] | Limit[dBm] | Verdict |
|----------------|-----------|---------|---------|-----------|------------|---------|
| NVLT           | BLE_BT5.0 | Ant1    | 2402    | 3.89      | 20         | PASS    |
|                |           |         | 2440    | 5.65      | 20         | PASS    |
|                |           |         | 2480    | 5.20      | 20         | PASS    |

| Test Condition | TestMode  | Antenna | Channel | EIRP[dBm] | Limit[dBm] | Verdict |
|----------------|-----------|---------|---------|-----------|------------|---------|
| NVHT           | BLE_BT5.0 | Ant1    | 2402    | 3.83      | 20         | PASS    |
|                |           |         | 2440    | 5.59      | 20         | PASS    |
|                |           |         | 2480    | 5.01      | 20         | PASS    |

\*\*\*Note: 20 bursts had been captured for power measurement.

#### BT 2LE

| Test Condition | TestMode  | Antenna | Channel | EIRP[dBm] | Limit[dBm] | Verdict |
|----------------|-----------|---------|---------|-----------|------------|---------|
| NVNT           | BLE_BT5.0 | Ant1    | 2402    | 3.90      | 20         | PASS    |
|                |           |         | 2440    | 5.62      | 20         | PASS    |
|                |           |         | 2480    | 5.27      | 20         | PASS    |

| Test Condition | TestMode  | Antenna | Channel | EIRP[dBm] | Limit[dBm] | Verdict |
|----------------|-----------|---------|---------|-----------|------------|---------|
| NVLT           | BLE_BT5.0 | Ant1    | 2402    | 3.74      | 20         | PASS    |
|                |           |         | 2440    | 5.56      | 20         | PASS    |
|                |           |         | 2480    | 5.22      | 20         | PASS    |

| Test Condition | TestMode  | Antenna | Channel | EIRP[dBm] | Limit[dBm] | Verdict |
|----------------|-----------|---------|---------|-----------|------------|---------|
| NVHT           | BLE_BT5.0 | Ant1    | 2402    | 3.71      | 20         | PASS    |
|                |           |         | 2440    | 5.43      | 20         | PASS    |
|                |           |         | 2480    | 5.08      | 20         | PASS    |

\*\*\*Note: 20 bursts had been captured for power measurement.

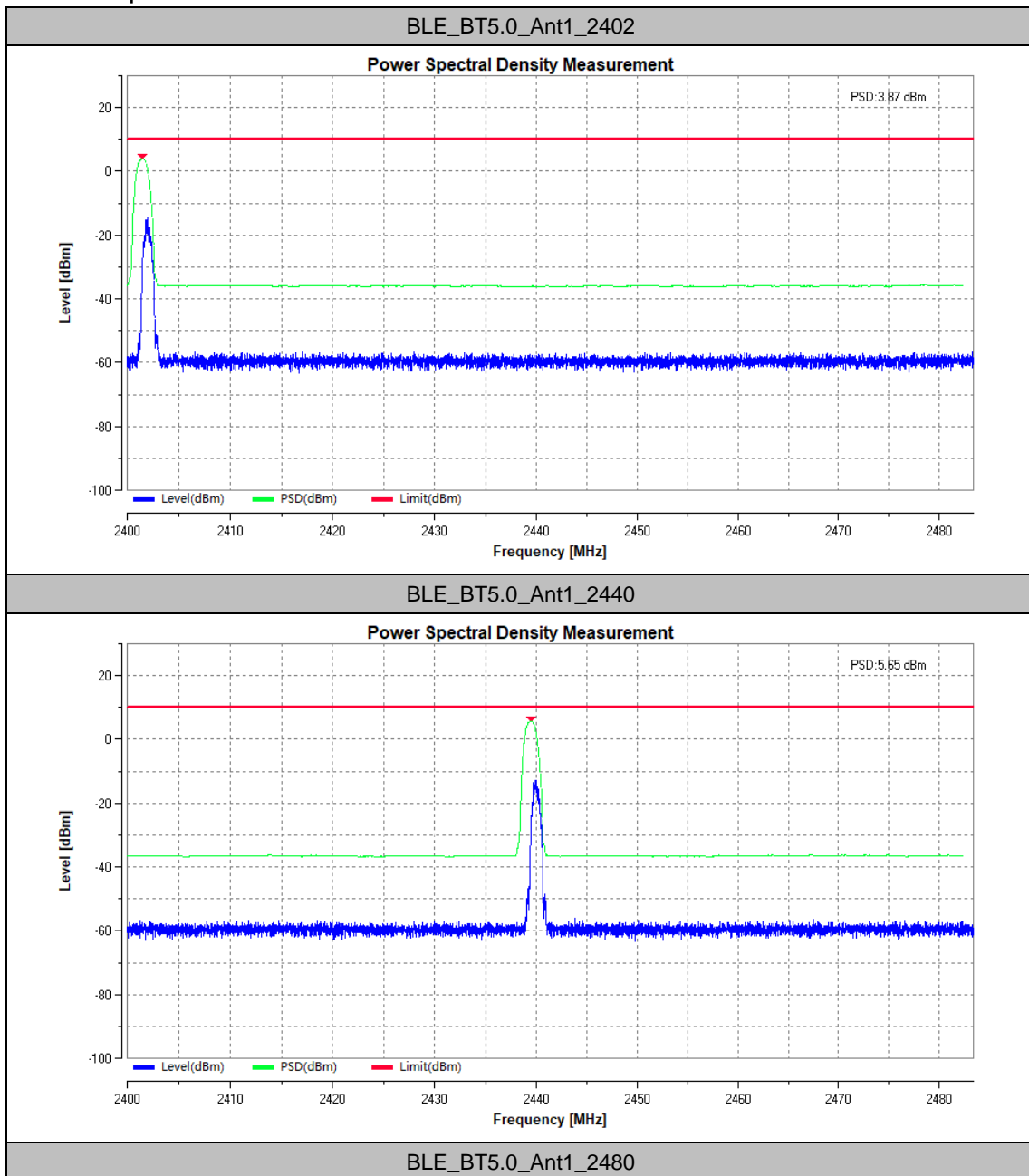
## F.2 Power Spectral Density

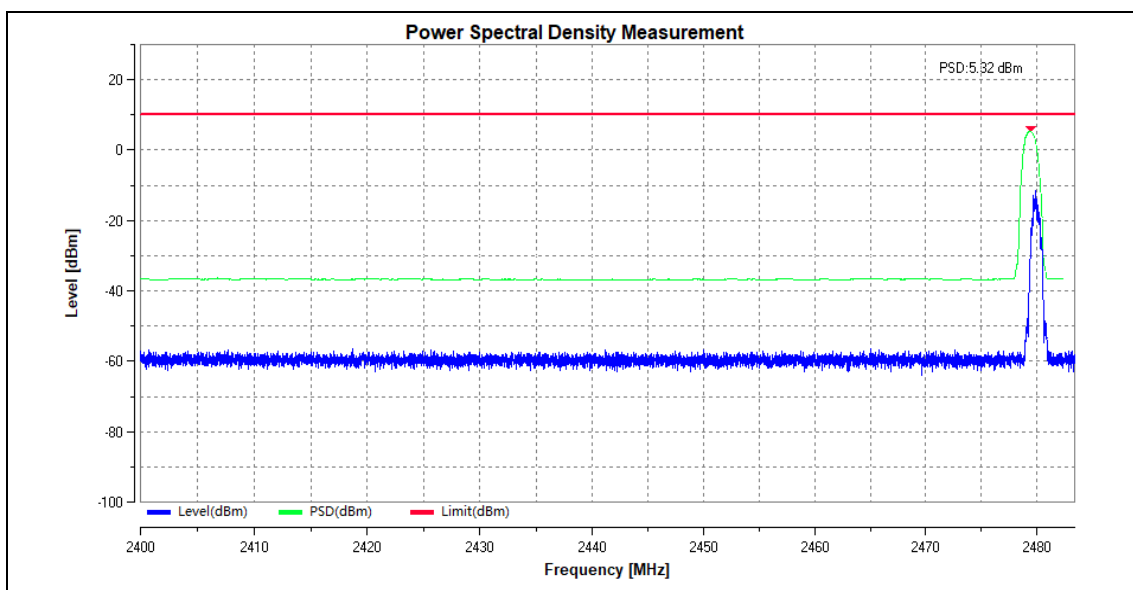
### Test Result

BT LE

| TestMode  | Antenna | Channel | PSD[dBm/MHz] | Limit[dBm/MHz] | Verdict |
|-----------|---------|---------|--------------|----------------|---------|
| BLE_BT5.0 | Ant1    | 2402    | 3.87         | 10             | PASS    |
|           |         | 2440    | 5.65         | 10             | PASS    |
|           |         | 2480    | 5.32         | 10             | PASS    |

### Test Graphs

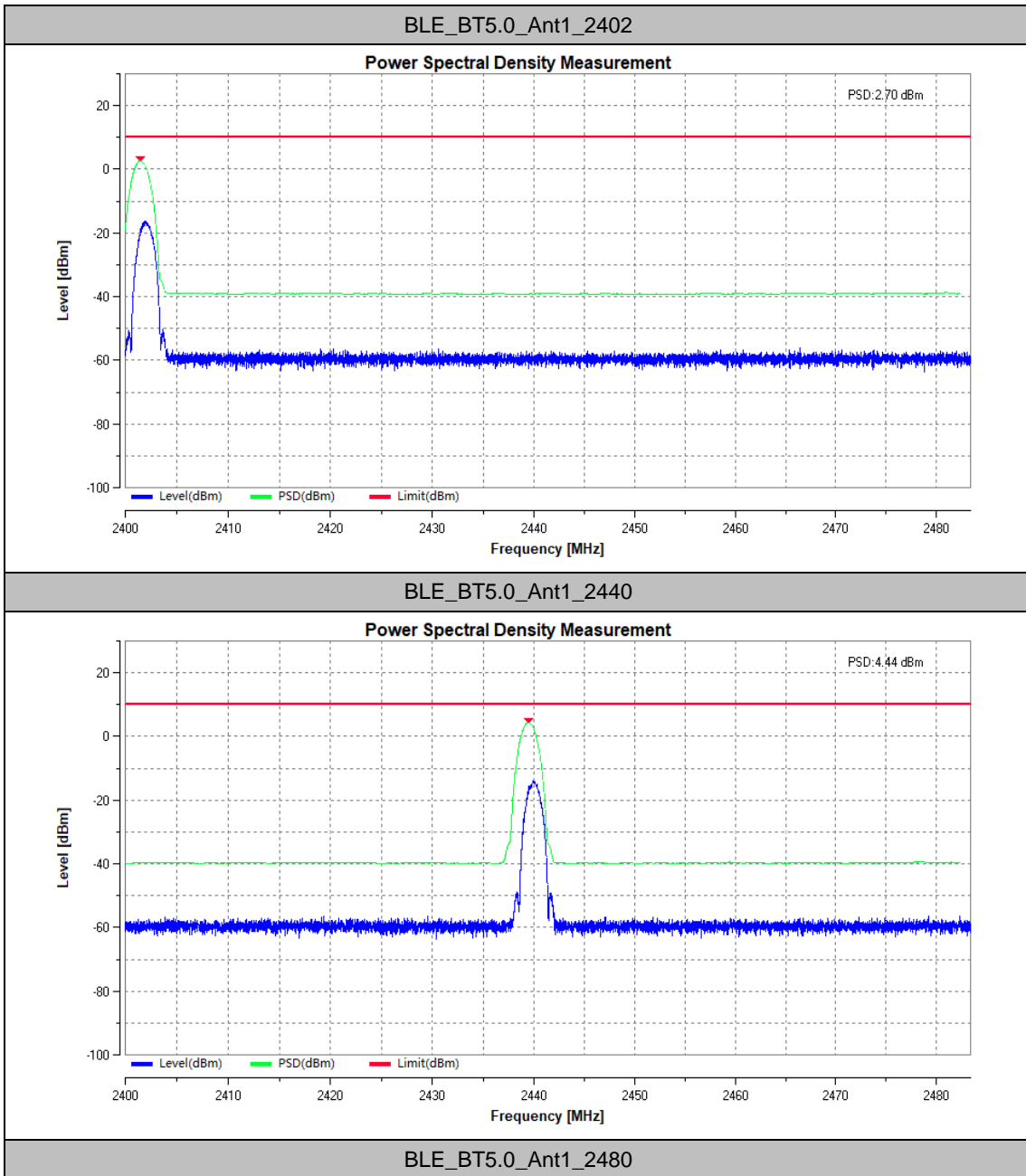


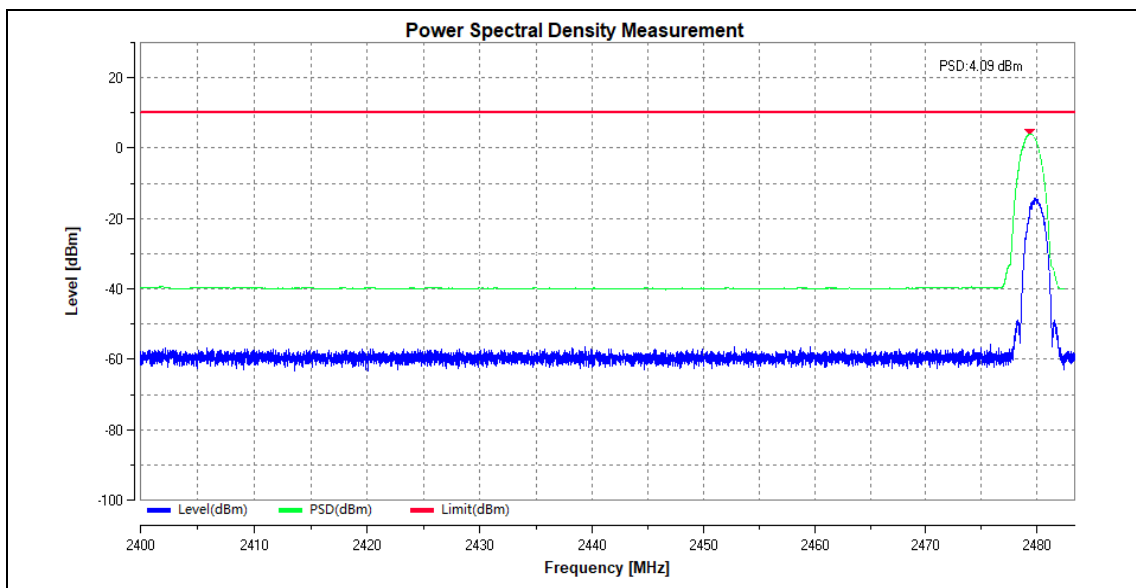


BT 2LE

| TestMode  | Antenna | Channel | PSD[dBm/MHz] | Limit[dBm/MHz] | Verdict |
|-----------|---------|---------|--------------|----------------|---------|
| BLE_BT5.0 | Ant1    | 2402    | 2.70         | 10             | PASS    |
|           |         | 2440    | 4.44         | 10             | PASS    |
|           |         | 2480    | 4.09         | 10             | PASS    |

### Test Graphs





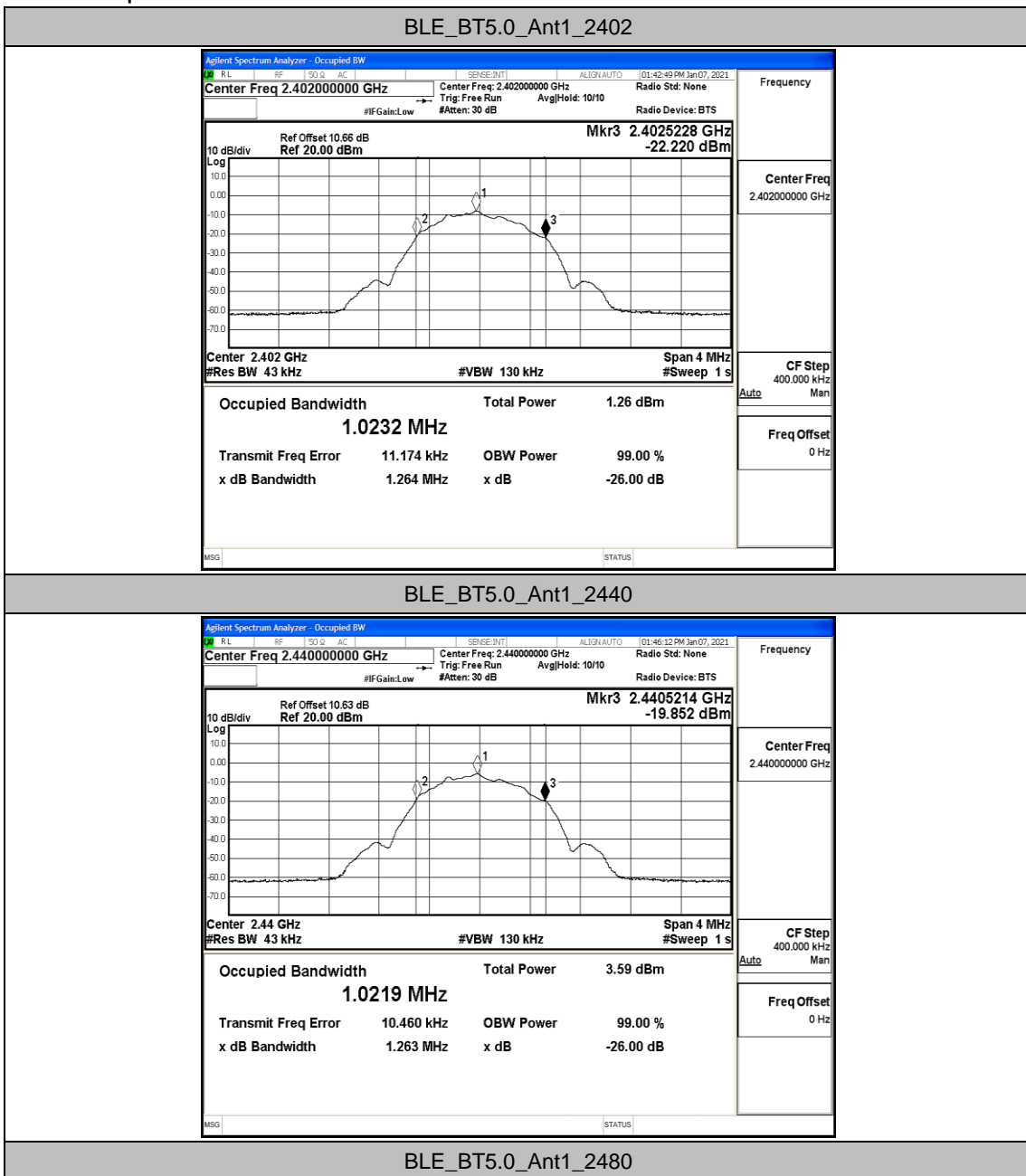
### F.3 Occupied Channel Bandwidth

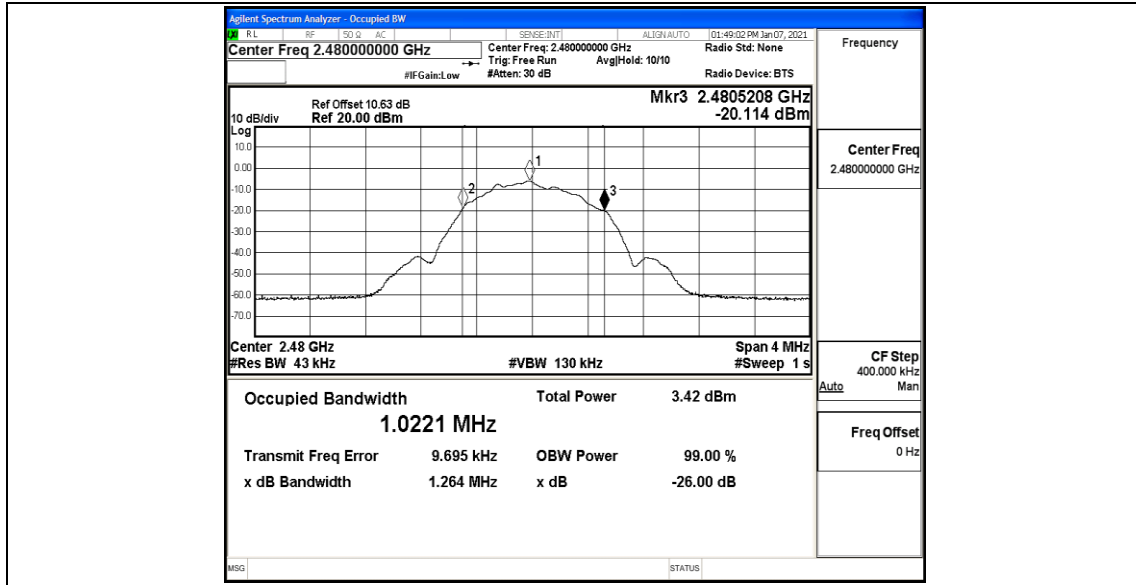
#### Test Result

BT LE

| TestMode  | Antenna | Channel | OCB[MHz] | FL[MHz] | FH[MHz] | Limit[MHz]     | Verdict |
|-----------|---------|---------|----------|---------|---------|----------------|---------|
| BLE_BT5.0 | Ant1    | 2402    | 1.0232   | 2401.50 | 2402.52 | 2400 to 2483.5 | PASS    |
|           |         | 2440    | 1.0219   | 2439.50 | 2440.52 | 2400 to 2483.5 | PASS    |
|           |         | 2480    | 1.0221   | 2479.50 | 2480.52 | 2400 to 2483.5 | PASS    |

#### Test Graphs



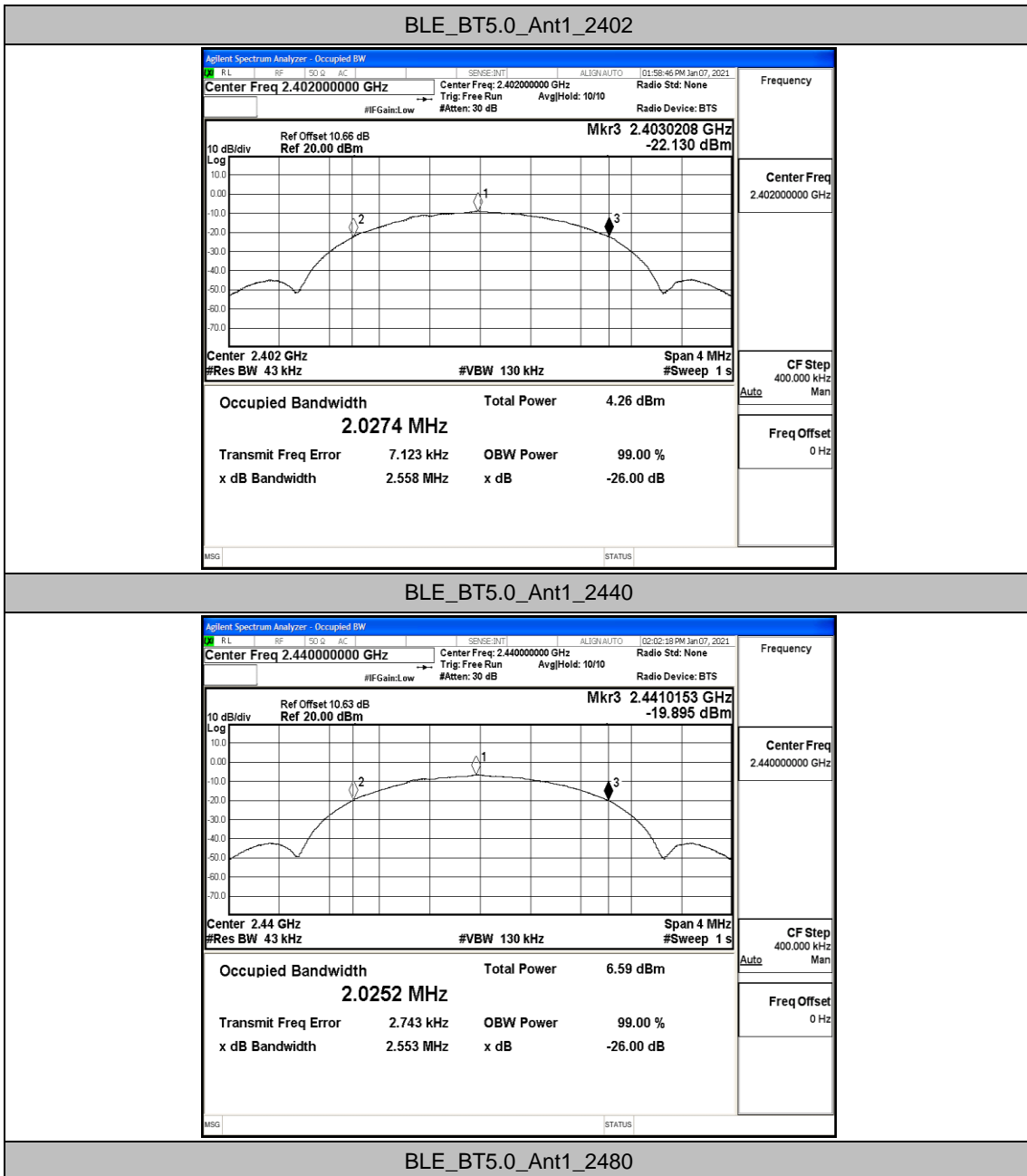


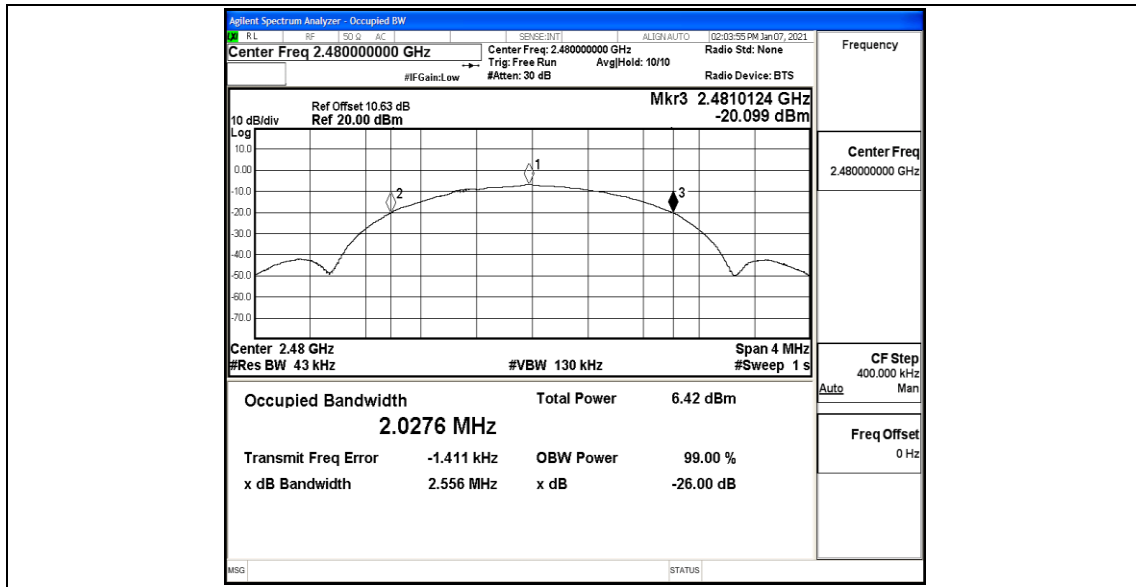
BT 2LE

| TestMode  | Antenna | Channel | OCB[MHz] | FL[MHz] | FH[MHz] | Limit[MHz]     | Verdict |
|-----------|---------|---------|----------|---------|---------|----------------|---------|
| BLE_BT5.0 | Ant1    | 2402    | 2.0274   | 2400.99 | 2403.02 | 2400 to 2483.5 | PASS    |
|           |         | 2440    | 2.0252   | 2438.99 | 2441.02 | 2400 to 2483.5 | PASS    |
|           |         | 2480    | 2.0276   | 2478.98 | 2481.01 | 2400 to 2483.5 | PASS    |



Test Graphs





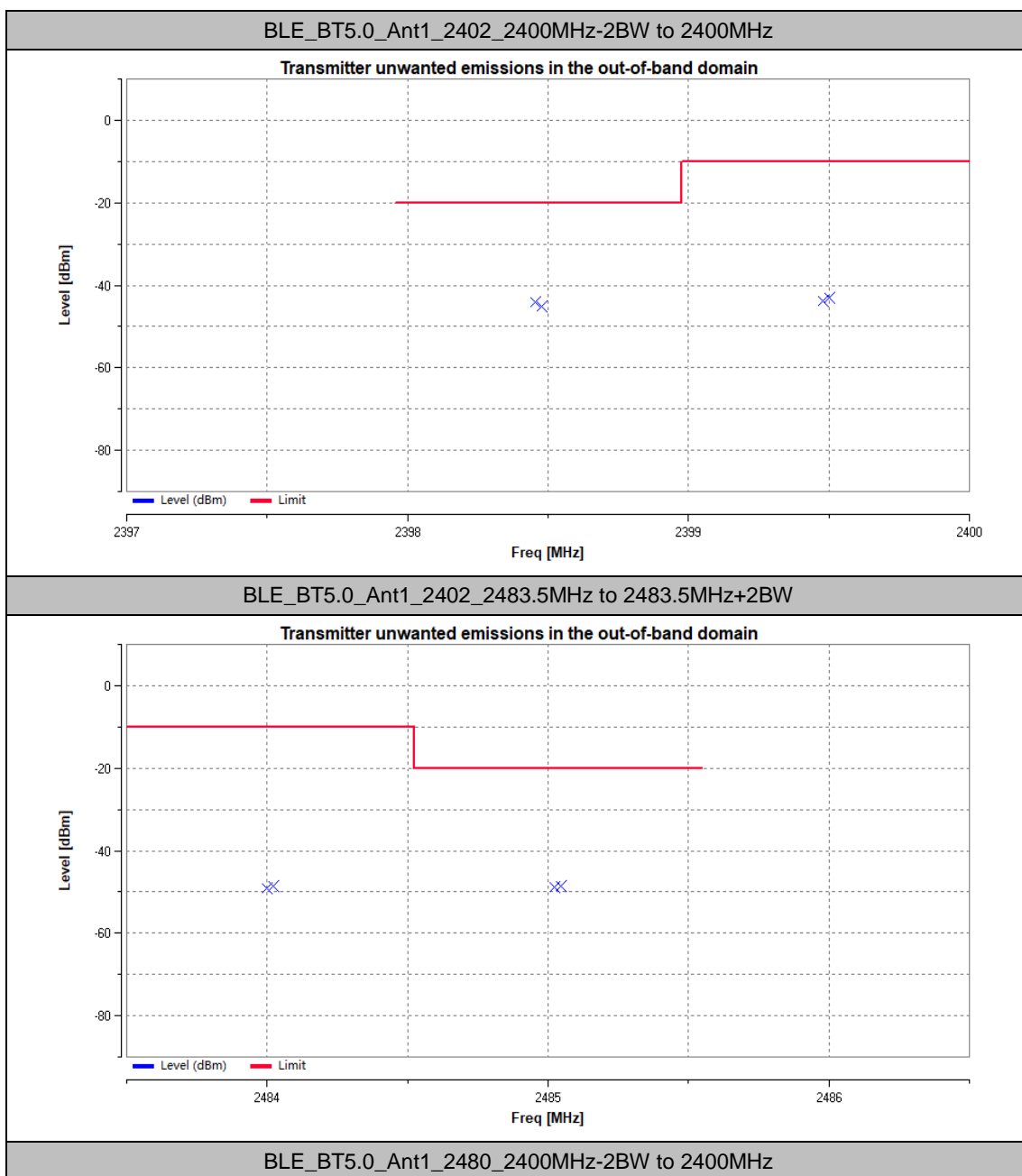
## F.4 Transmitter Unwanted Emissions In The Out-Of-BandDomain

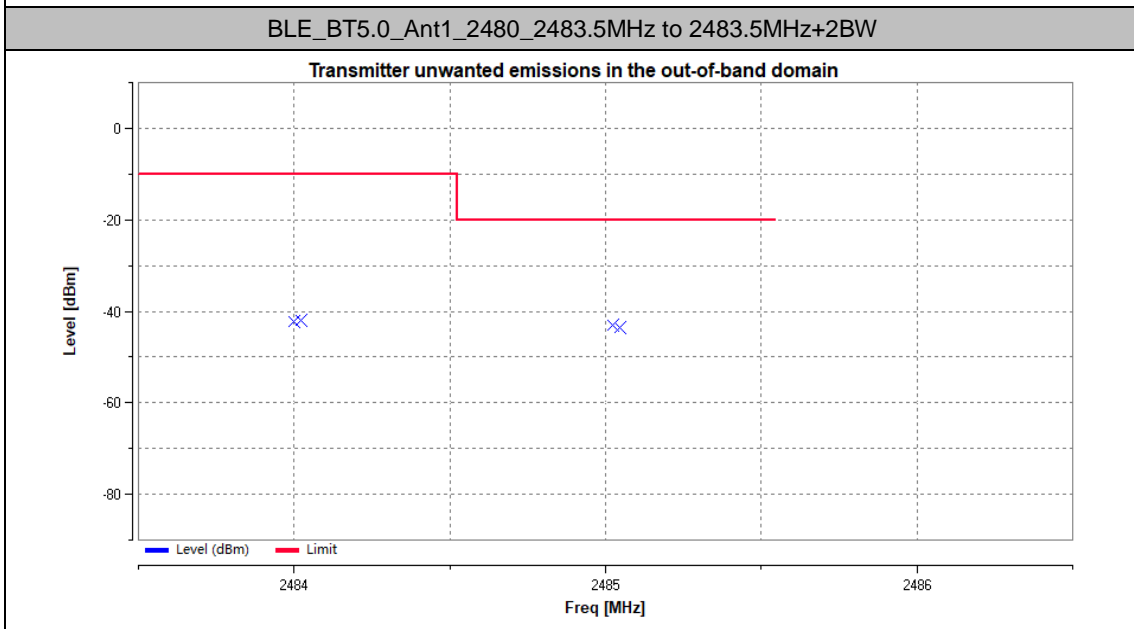
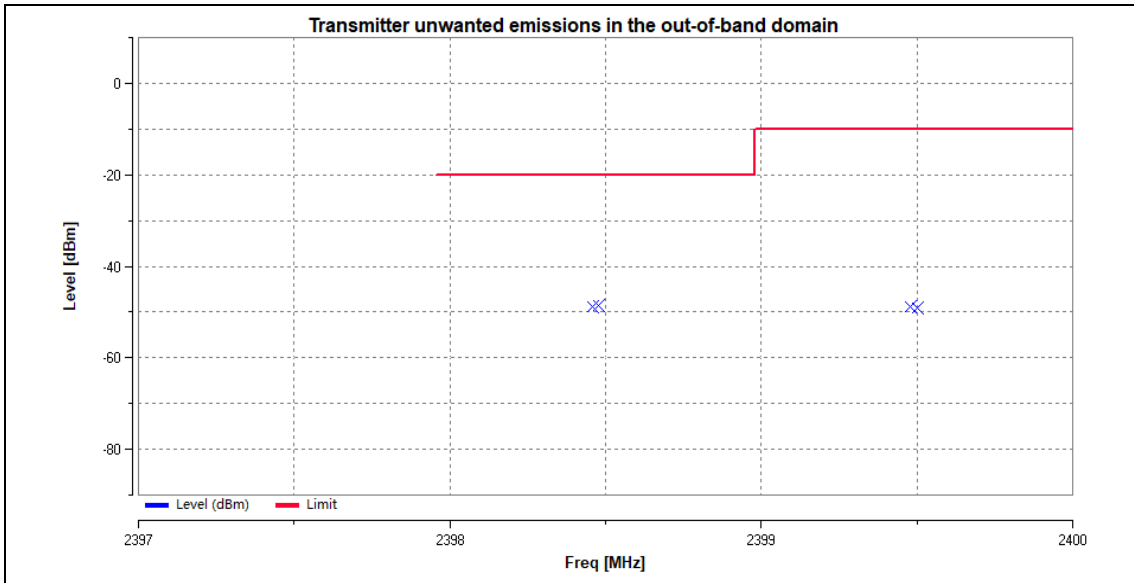
### Test Result

BT LE

| TestMode  | Antenna | Channel | Freq. [MHz] | Level[dBm] | Limit[dBm] | Verdict |
|-----------|---------|---------|-------------|------------|------------|---------|
| BLE_BT5.0 | Ant1    | 2402    | 2398.4536   | -44.22     | -20.00     | PASS    |
|           |         |         | 2398.4768   | -45.14     | -20.00     | PASS    |
|           |         |         | 2399.4768   | -43.71     | -10.00     | PASS    |
|           |         |         | 2399.5      | -43.02     | -10.00     | PASS    |
|           |         |         | 2484        | -49.01     | -10.00     | PASS    |
|           |         |         | 2484.0232   | -48.68     | -10.00     | PASS    |
|           |         |         | 2485.0232   | -48.93     | -20.00     | PASS    |
|           |         |         | 2485.0464   | -48.51     | -20.00     | PASS    |
|           |         | 2480    | 2398.4558   | -48.80     | -20.00     | PASS    |
|           |         |         | 2398.4779   | -48.66     | -20.00     | PASS    |
|           |         |         | 2399.4779   | -48.80     | -10.00     | PASS    |
|           |         |         | 2399.5      | -49.08     | -10.00     | PASS    |
|           |         |         | 2484        | -42.37     | -10.00     | PASS    |
|           |         |         | 2484.0221   | -42.08     | -10.00     | PASS    |
|           |         |         | 2485.0221   | -43.13     | -20.00     | PASS    |
|           |         |         | 2485.0442   | -43.49     | -20.00     | PASS    |

### Test Graphs



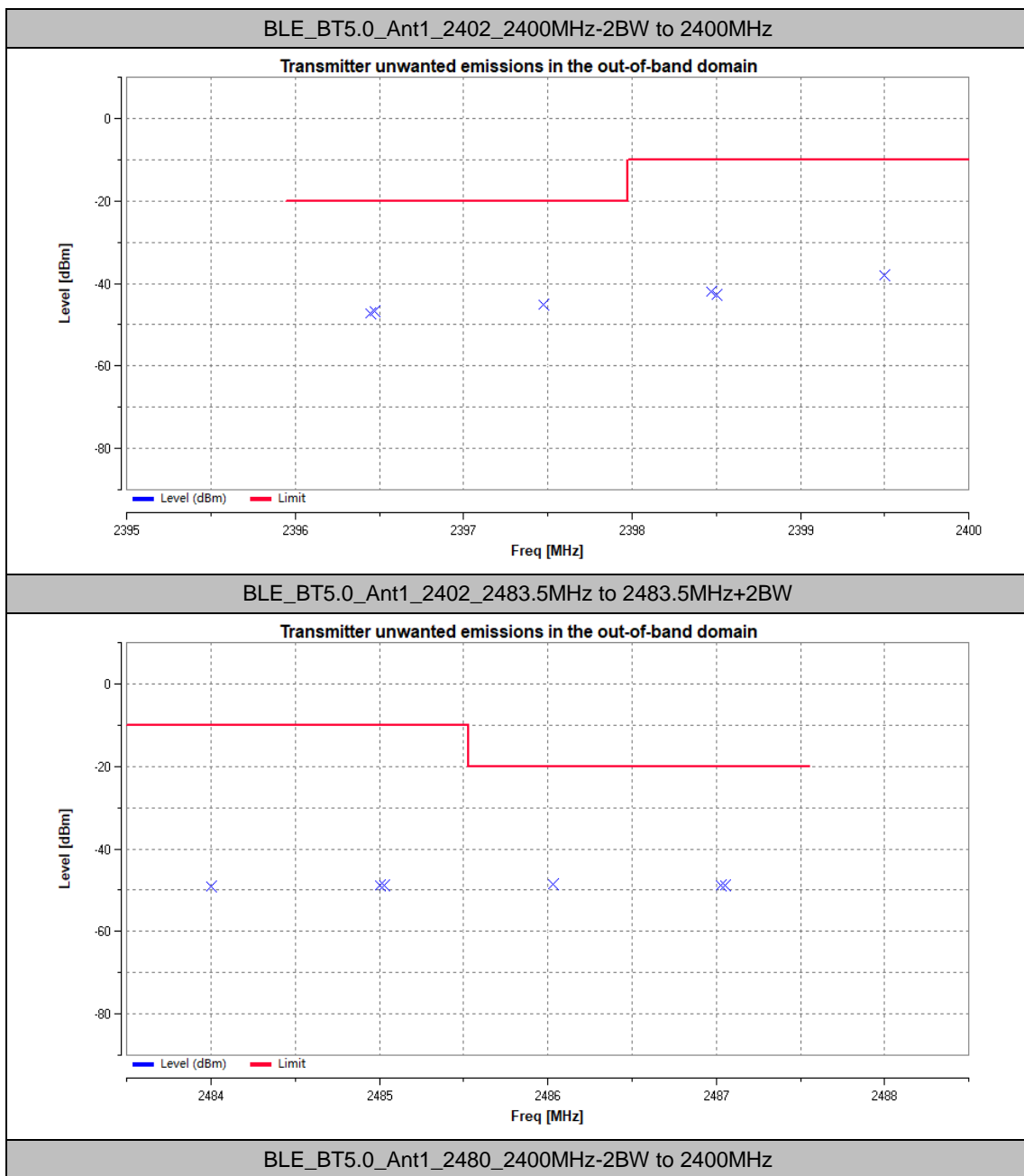


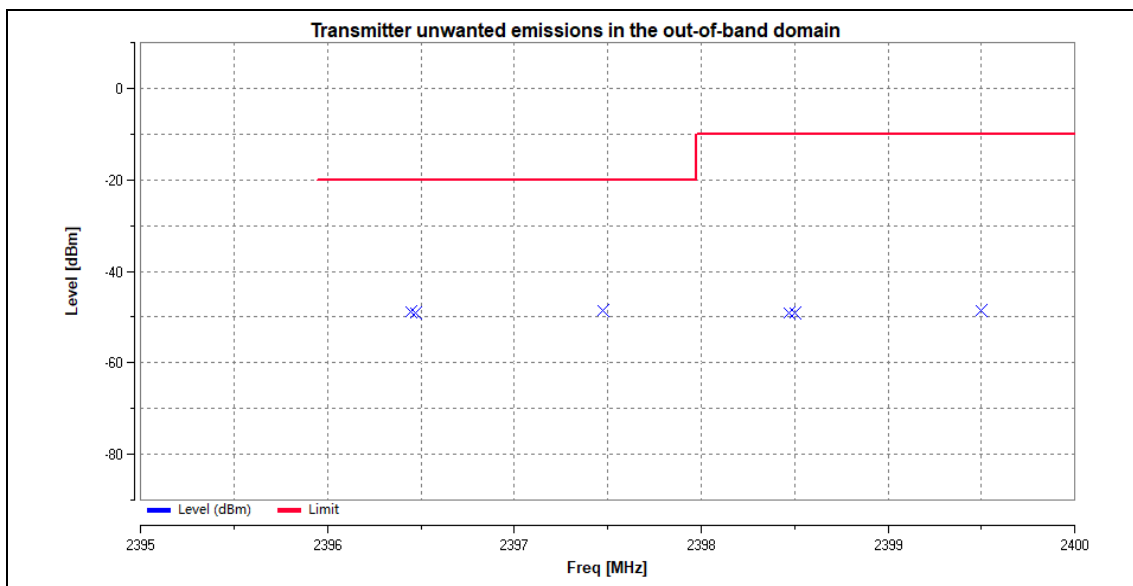
BT 2LE

| TestMode  | Antenna | Channel | Freq. [MHz] | Level[dBm] | Limit[dBm] | Verdict |
|-----------|---------|---------|-------------|------------|------------|---------|
| BLE_BT5.0 | Ant1    | 2402    | 2396.4452   | -47.23     | -20.00     | PASS    |
|           |         |         | 2396.4726   | -46.84     | -20.00     | PASS    |
|           |         |         | 2397.4726   | -45.22     | -20.00     | PASS    |
|           |         |         | 2398.4726   | -41.87     | -10.00     | PASS    |
|           |         |         | 2398.5      | -42.71     | -10.00     | PASS    |
|           |         |         | 2399.5      | -37.92     | -10.00     | PASS    |
|           |         |         | 2484        | -49.04     | -10.00     | PASS    |
|           |         |         | 2485        | -48.91     | -10.00     | PASS    |
|           |         |         | 2485.0274   | -48.82     | -10.00     | PASS    |
|           |         |         | 2486.0274   | -48.58     | -20.00     | PASS    |

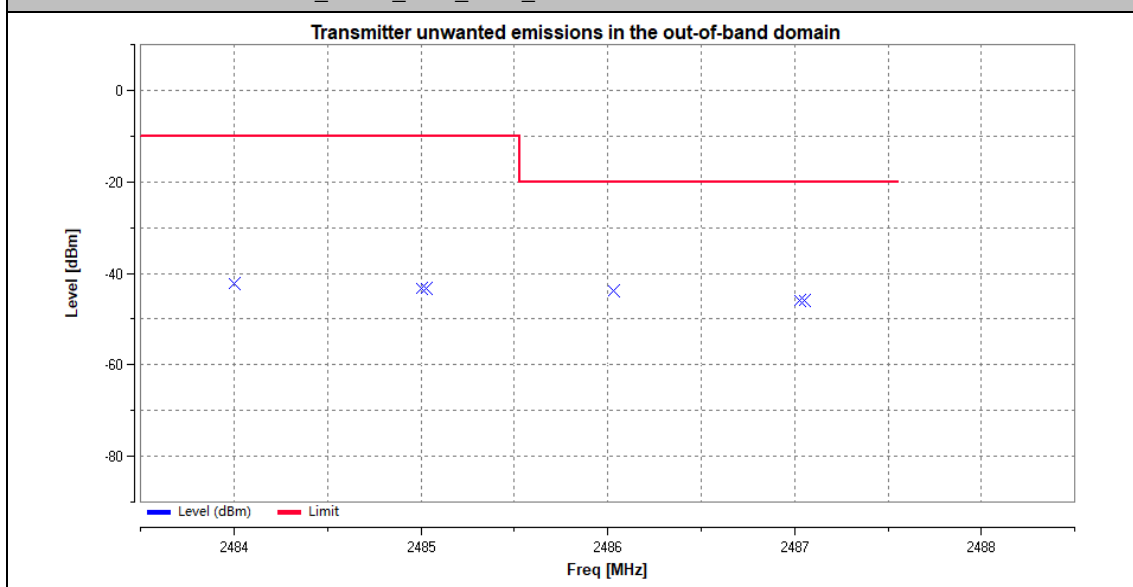
|  |  |      |           |        |        |      |
|--|--|------|-----------|--------|--------|------|
|  |  |      | 2487.0274 | -48.74 | -20.00 | PASS |
|  |  |      | 2487.0548 | -48.83 | -20.00 | PASS |
|  |  | 2480 | 2396.4448 | -48.83 | -20.00 | PASS |
|  |  |      | 2396.4724 | -49.02 | -20.00 | PASS |
|  |  |      | 2397.4724 | -48.69 | -20.00 | PASS |
|  |  |      | 2398.4724 | -49.10 | -10.00 | PASS |
|  |  |      | 2398.5    | -49.14 | -10.00 | PASS |
|  |  |      | 2399.5    | -48.68 | -10.00 | PASS |
|  |  |      | 2484      | -42.14 | -10.00 | PASS |
|  |  |      | 2485      | -43.29 | -10.00 | PASS |
|  |  |      | 2485.0276 | -43.23 | -10.00 | PASS |
|  |  |      | 2486.0276 | -43.92 | -20.00 | PASS |
|  |  |      | 2487.0276 | -46.03 | -20.00 | PASS |
|  |  |      | 2487.0552 | -45.95 | -20.00 | PASS |

### Test Graphs





BLE\_BT5.0\_Ant1\_2480\_2483.5MHz to 2483.5MHz+2BW





## F.5 Transmitter unwanted emissions in the spurious domain

### Test Result-Pre-scan

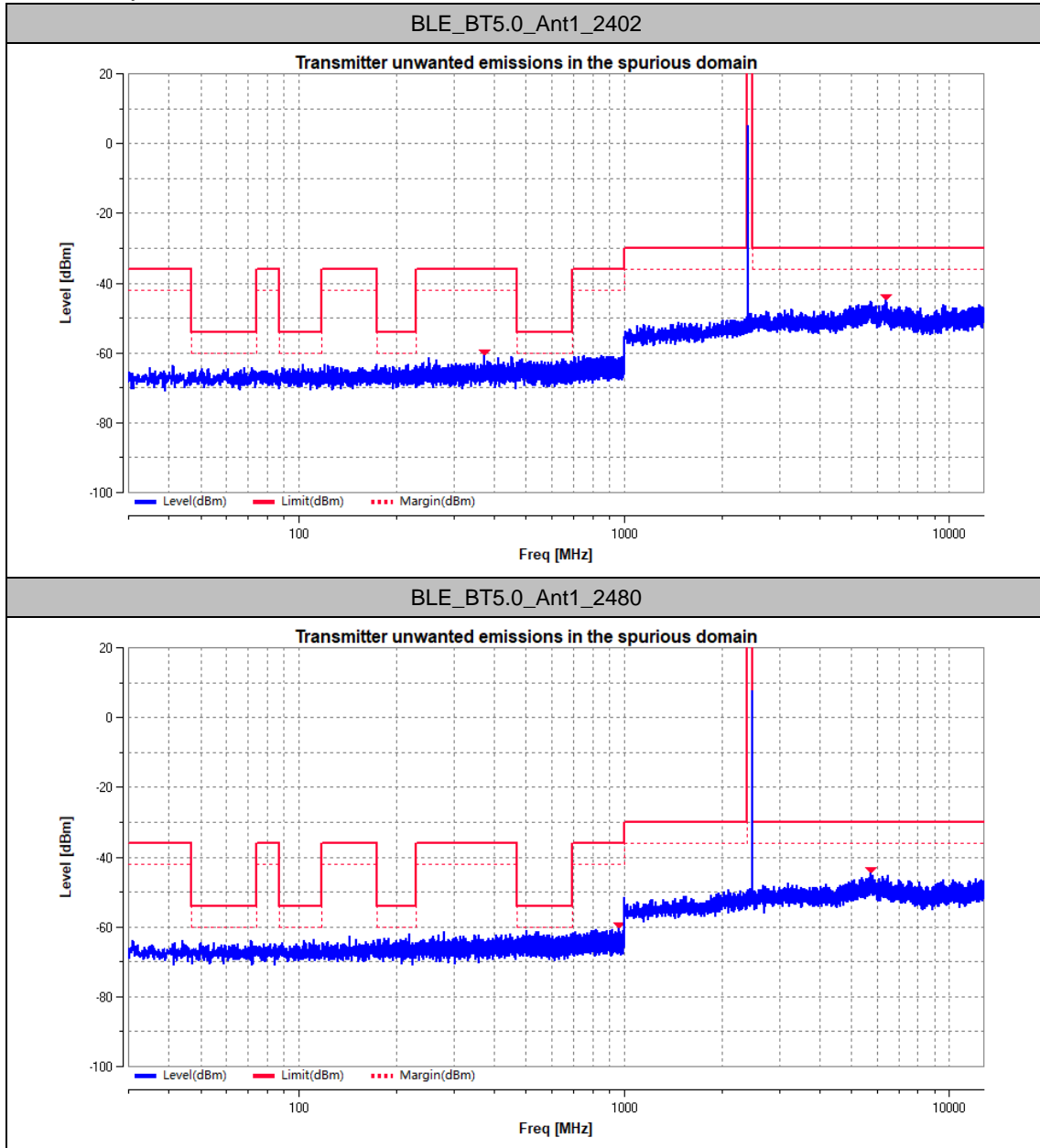
BT LE

| TestMode  | Antenna | Channel | Freq. [MHz] | Level[dBm] | Limit[dBm] | Verdict |
|-----------|---------|---------|-------------|------------|------------|---------|
| BLE_BT5.0 | Ant1    | 2402    | 372.77      | -60.61     | -36        | PASS    |
|           |         |         | 6397.66     | -44.8      | -30        | PASS    |
|           |         | 2480    | 962.05      | -60.37     | -36        | PASS    |
|           |         |         | 5741.13     | -44.44     | -30        | PASS    |

### Test Result- Emissions identified during the pre-scan

| TestMode | Antenna | Channel | Freq. [MHz] | Level[dBm] | Limit[dBm] | Verdict |
|----------|---------|---------|-------------|------------|------------|---------|
| TestMode | Antenna | Channel | Freq        | Result     | Limit      | Verdict |

Test Graphs-Pre-scan



BT 2LE

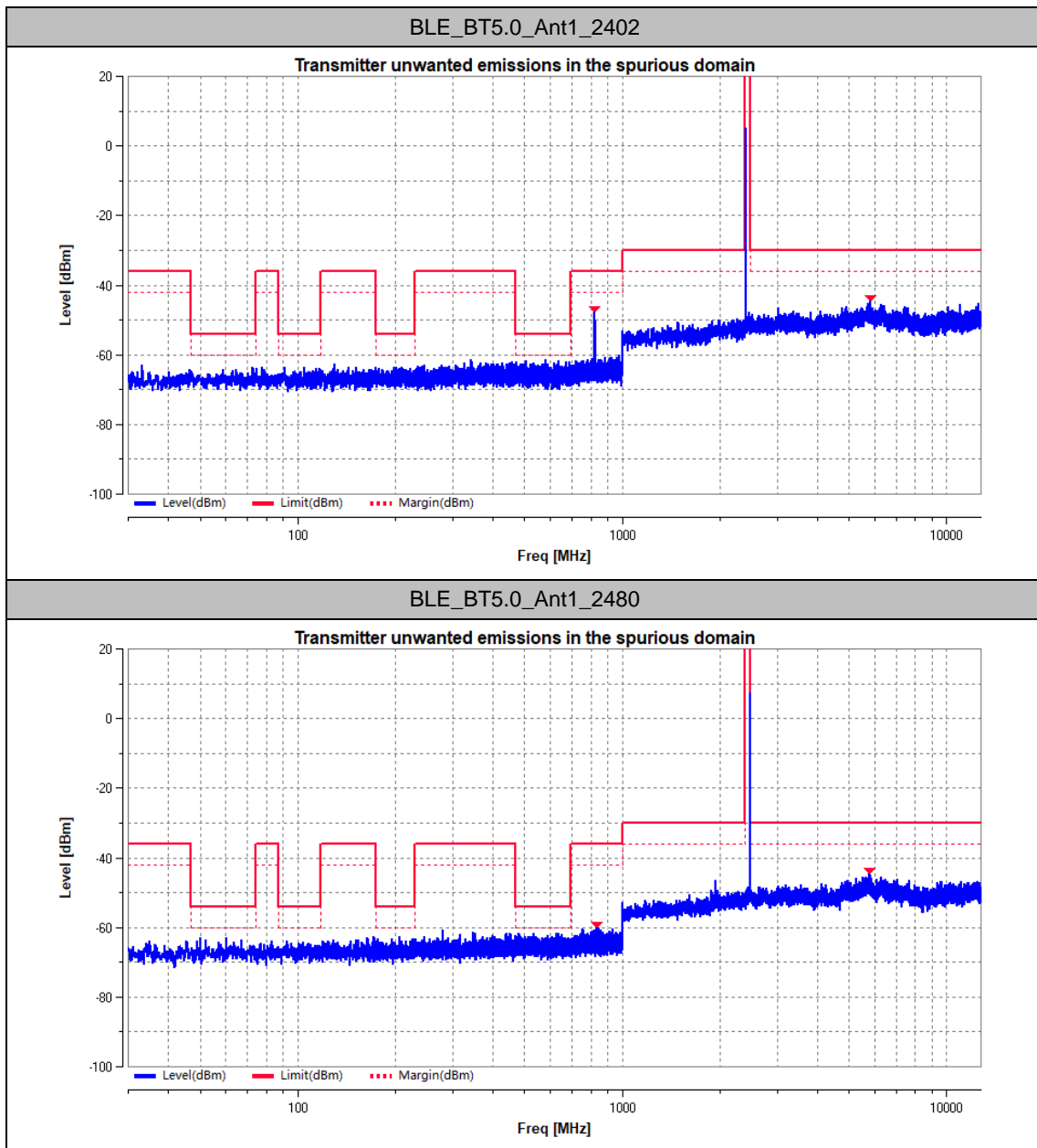
| TestMode  | Antenna | Channel | Freq. [MHz] | Level[dBm] | Limit[dBm] | Verdict |
|-----------|---------|---------|-------------|------------|------------|---------|
| BLE_BT5.0 | Ant1    | 2402    | 824.55      | -47.62     | -36        | PASS    |
|           |         |         | 5807.22     | -44.58     | -30        | PASS    |
|           |         | 2480    | 833.89      | -59.97     | -36        | PASS    |
|           |         |         | 5771.97     | -44.74     | -30        | PASS    |

Test Result- Emissions identified during the pre-scan

| TestMode | Antenna | Channel | Freq. [MHz] | Level[dBm] | Limit[dBm] | Verdict |
|----------|---------|---------|-------------|------------|------------|---------|
|----------|---------|---------|-------------|------------|------------|---------|

| TestMode | Antenna | Channel | Freq | Result | Limit | Verdict |
|----------|---------|---------|------|--------|-------|---------|
|----------|---------|---------|------|--------|-------|---------|

### Test Graphs-Pre-scan



## F.6 Receiver spurious emissions

BT LE

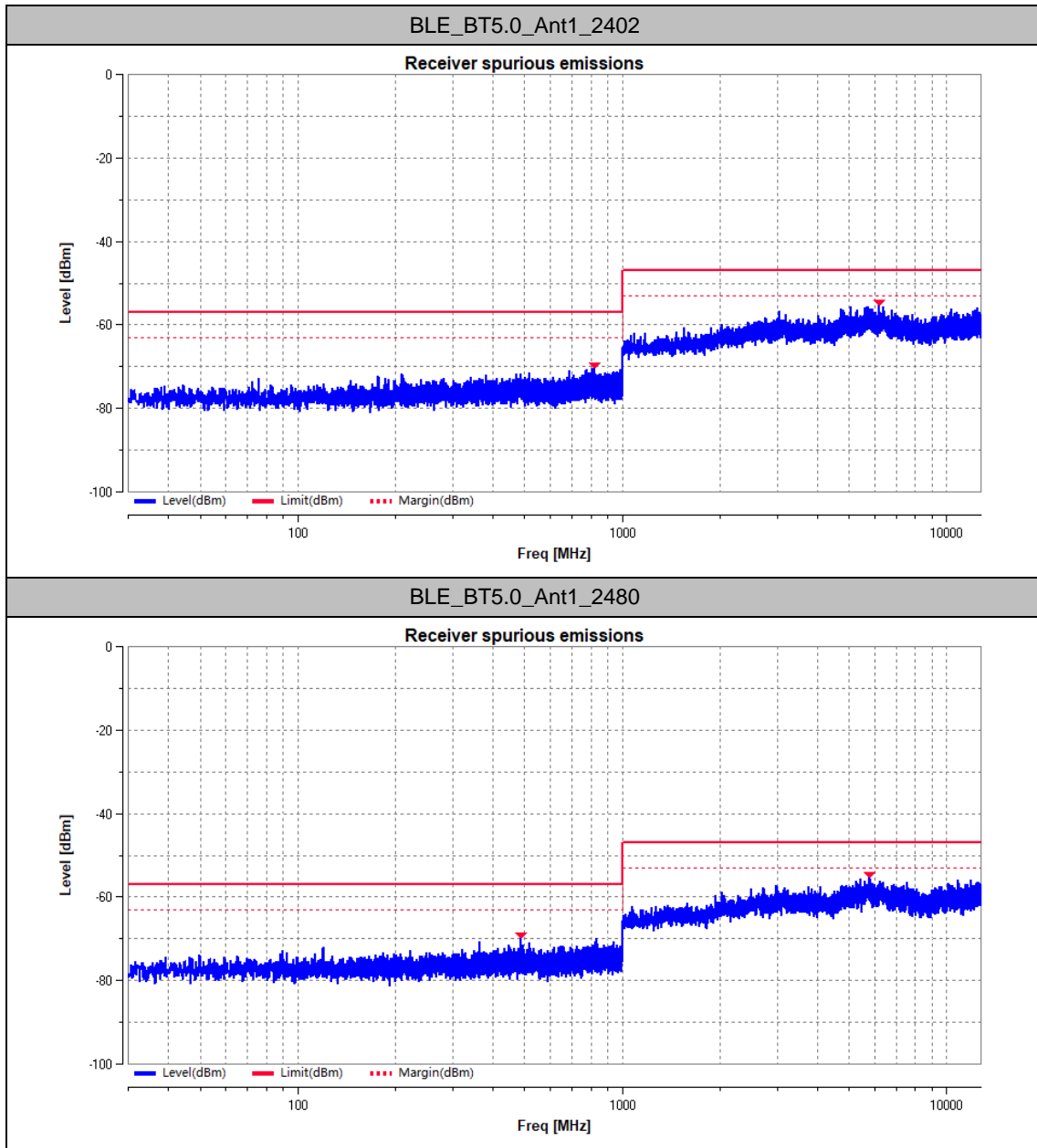
### Test Result-Pre-scan

| TestMode  | Antenna | Channel | Freq. [MHz] | Level[dBm] | Limit[dBm] | Verdict |
|-----------|---------|---------|-------------|------------|------------|---------|
| BLE_BT5.0 | Ant1    | 2402    | 821.88      | -70.47     | -57.00     | PASS    |
|           |         |         | 6194.97     | -55.45     | -47.00     | PASS    |
|           |         | 2480    | 488.08      | -69.96     | -57.00     | PASS    |
|           |         |         | 5798.41     | -55.54     | -47.00     | PASS    |

### Test Result- Emissions identified during the pre-scan

| TestMode | Antenna | Channel | Freq. [MHz] | Level[dBm] | Limit[dBm] | Verdict |
|----------|---------|---------|-------------|------------|------------|---------|
| TestMode | Antenna | Channel | Freq        | Result     | Limit      | Verdict |

### Test Graphs-Pre-scan

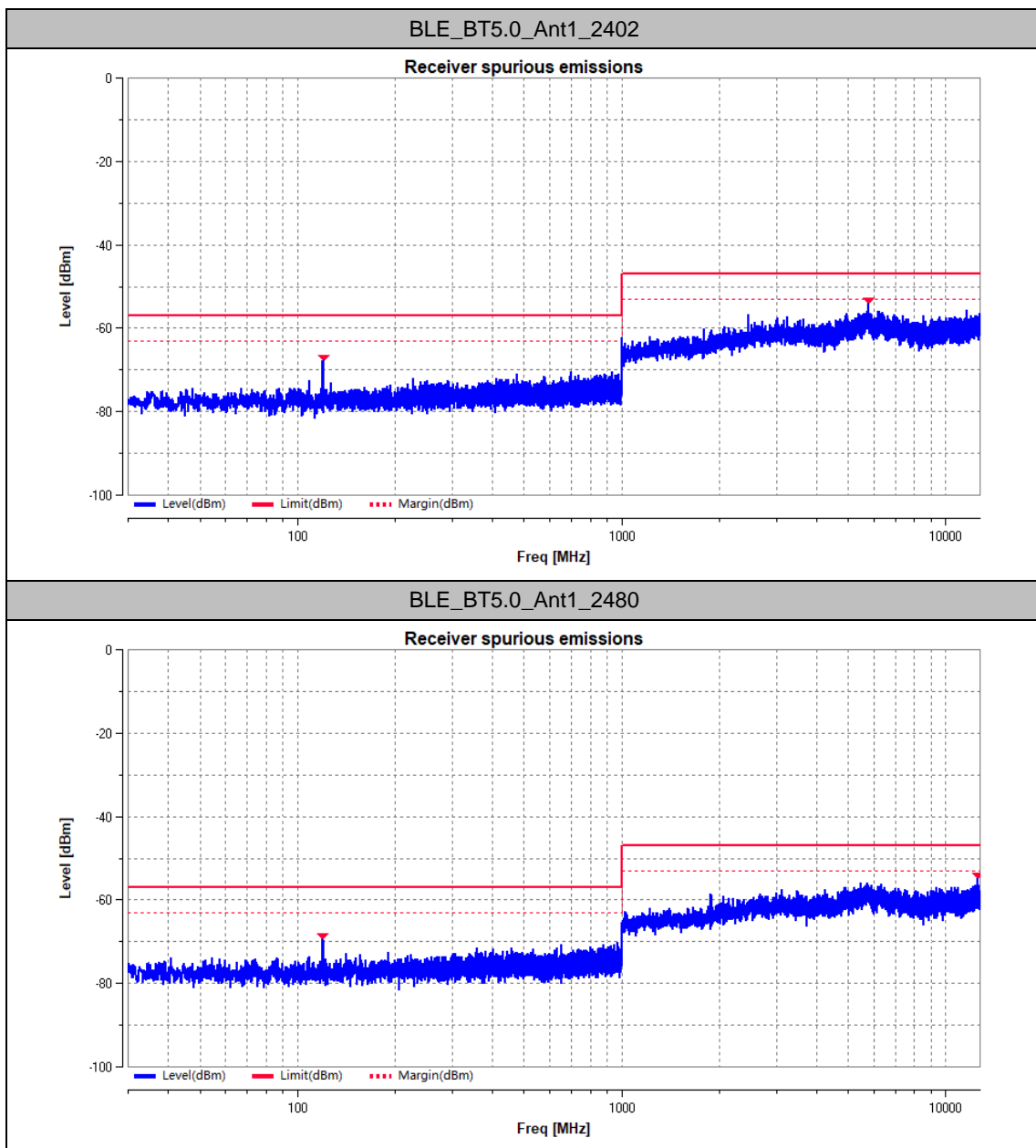


BT 2LE

### Test Result-Pre-scan

| TestMode  | Antenna | Channel | Freq. [MHz] | Level[dBm] | Limit[dBm] | Verdict |
|-----------|---------|---------|-------------|------------|------------|---------|
| BLE_BT5.0 | Ant1    | 2402    | 120.09      | -67.79     | -57.00     | PASS    |
|           |         |         | 5777.84     | -54.12     | -47.00     | PASS    |
|           |         | 2480    | 119.97      | -69.43     | -57.00     | PASS    |
|           |         |         | 12541.44    | -55        | -47.00     | PASS    |

### Test Graphs-Pre-scan



## F.7 Receiver Blocking

### Test Result

BT LE

| Test Mode | Test Channel (MHz) | Wanted Signal Mean Power from Companion Device (dBm) | Blocking Signal Frequency (MHz) | Blocking Signal Power (dBm) |            | Type of Blocking Signal | PER(%)     |       | Test Result |
|-----------|--------------------|--|---------------------------------|-----------------------------|------------|-------------------------|------------|-------|-------------|
|           |                    |  |                                 | Test Value                  | Limit      |                         | Test Value | Limit |             |
| BLE       | 2402               | -69  | 2380                            | -29                         | $\geq -34$ | CW                      | 8.41       | 10    | Pass        |
|           |                    |  | 2504                            | -27                         | $\geq -34$ | CW                      | 6.37       | 10    | Pass        |
|           |                    |  | 2300                            | -23                         | $\geq -34$ | CW                      | 8.34       | 10    | Pass        |
|           |                    |  | 2584                            | -27                         | $\geq -34$ | CW                      | 7.90       | 10    | Pass        |
|           | 2480               | -69  | 2380                            | -28                         | $\geq -34$ | CW                      | 10.89      | 10    | Pass        |
|           |                    |  | 2504                            | -26                         | $\geq -34$ | CW                      | 7.61       | 10    | Pass        |
|           |                    |  | 2300                            | -26                         | $\geq -34$ | CW                      | 6.45       | 10    | Pass        |
|           |                    |  | 2584                            | -23                         | $\geq -34$ | CW                      | 5.84       | 10    | Pass        |

BT2 LE

| Test Mode | Test Channel (MHz) | Wanted Signal Mean Power from Companion Device (dBm) | Blocking Signal Frequency (MHz) | Blocking Signal Power (dBm) |            | Type of Blocking Signal | PER(%)     |       | Test Result |
|-----------|--------------------|--|---------------------------------|-----------------------------|------------|-------------------------|------------|-------|-------------|
|           |                    |  |                                 | Test Value                  | Limit      |                         | Test Value | Limit |             |
| BLE       | 2402               | -69  | 2380                            | -30                         | $\geq -34$ | CW                      | 7.06       | 10    | Pass        |
|           |                    |  | 2504                            | -26                         | $\geq -34$ | CW                      | 5.85       | 10    | Pass        |
|           |                    |  | 2300                            | -22                         | $\geq -34$ | CW                      | 8.54       | 10    | Pass        |
|           |                    |  | 2584                            | -27                         | $\geq -34$ | CW                      | 8.70       | 10    | Pass        |
|           | 2480               | -69  | 2380                            | -28                         | $\geq -34$ | CW                      | 6.98       | 10    | Pass        |
|           |                    |  | 2504                            | -26                         | $\geq -34$ | CW                      | 8.17       | 10    | Pass        |
|           |                    |  | 2300                            | -26                         | $\geq -34$ | CW                      | 9.49       | 10    | Pass        |
|           |                    |  | 2584                            | -24                         | $\geq -34$ | CW                      | 9.53       | 10    | Pass        |