## 7.2. 6dB Bandwidth Measurement

### 7.2.1. Test Limit

The minimum permissible 6dB bandwidth is 500 kHz.

### 7.2.2. Test Procedure used

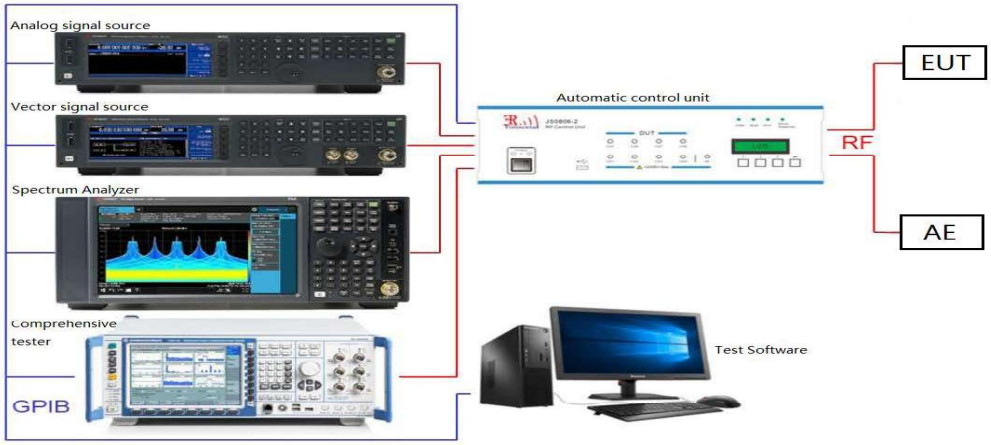
ANSI C63.10-2013 Section 11.8.2 Option 1

KDB 558074 D01 v05r02 – Section 8.2

### 7.2.3. Test Setting

1. Set RBW = 100 kHz
2. VBW ≥ 3 × RBW
3. Detector = peak
4. Trace mode = max hold
5. Sweep = auto couple
6. Allow the trace was allowed to stabilize
7. Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

### 7.2.4. Test Setup



### 7.2.5. Test Result

| | |
|---|---|
| Temperature: | 17.5 °C |
| Relative Humidity: | 34 % |
| ATM Pressure: | 102.1 kPa |
| Test Data: | 2025-04-01 |
| Test Engineer: | Stone Zhang |

| Test Mode | Antenna | Channel | DTS BW [MHz] | FL[MHz] | FH[MHz] | Limit [MHz] | 99% BW[MHz] | Verdict |
|---|---|---|---|---|---|---|---|---|
| Zigbee | Ant1 | 2405 | 1.520 | 2404.270 | 2405.790 | ≥0.5 | 2.3550 | PASS |
| | | 2440 | 1.490 | 2439.300 | 2440.790 | ≥0.5 | 2.3375 | PASS |
| | | 2475 | 1.480 | 2474.270 | 2475.750 | ≥0.5 | 2.3440 | PASS |
| | | 2480 | 1.550 | 2479.250 | 2480.800 | ≥0.5 | 2.4418 | PASS |

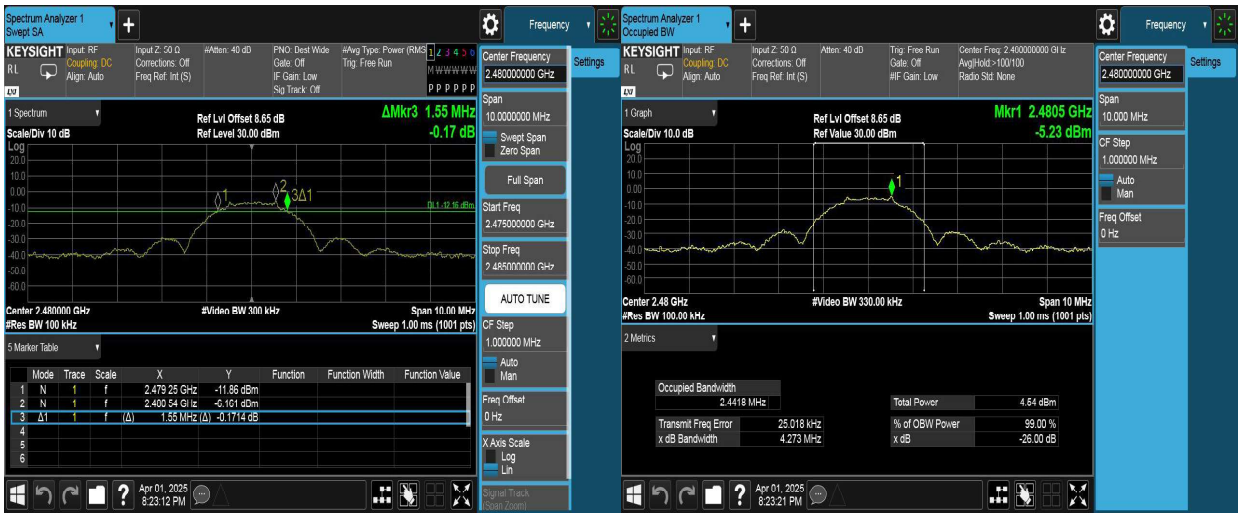
## Test Graphs

Zigbee_Ant1_2405

## Zigbee_Ant1_2440


## Zigbee_Ant1_2475


## Zigbee_Ant1_2480



## 7.3. Output Power Measurement

### 7.3.1. Test Limit

The maximum permissible conducted output power is 1 Watt (30dBm). And for antenna gain greater than 6dBi the limit shall reduce by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

### 7.3.2. Test Procedure Used

ANSI C63.10-2013 – Section 11.9.1.1

KDB 558074 D01 v05r02 – Section 8.3.1.2

### 7.3.3. Test Setting

1.Set the RBW ≥ DTS bandwidth.

2.Set the VBW ≥ [3 × RBW].

3.Set the span ≥ [3 × RBW].

4.Detector = peak.

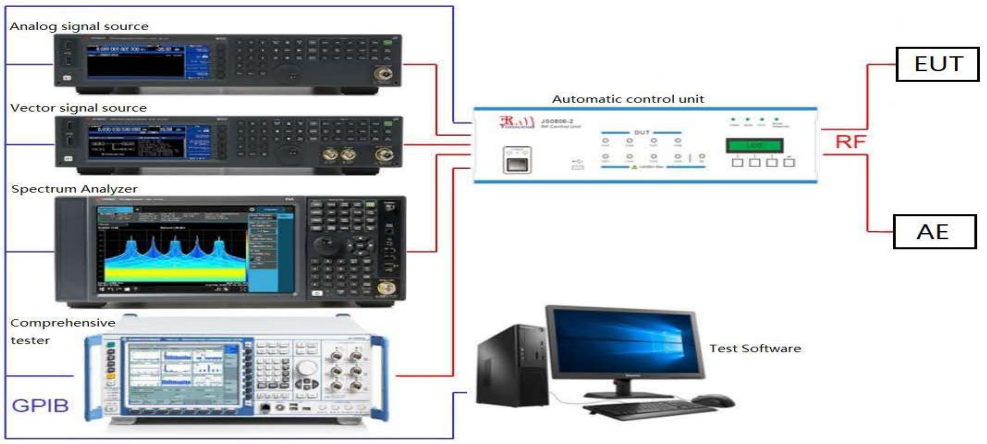
5.Sweep time = auto couple.

6.Trace mode = max hold.

7.Allow trace to fully stabilize.

8. Use peak marker function to determine the peak amplitude level.

### 7.3.4. Test Setup

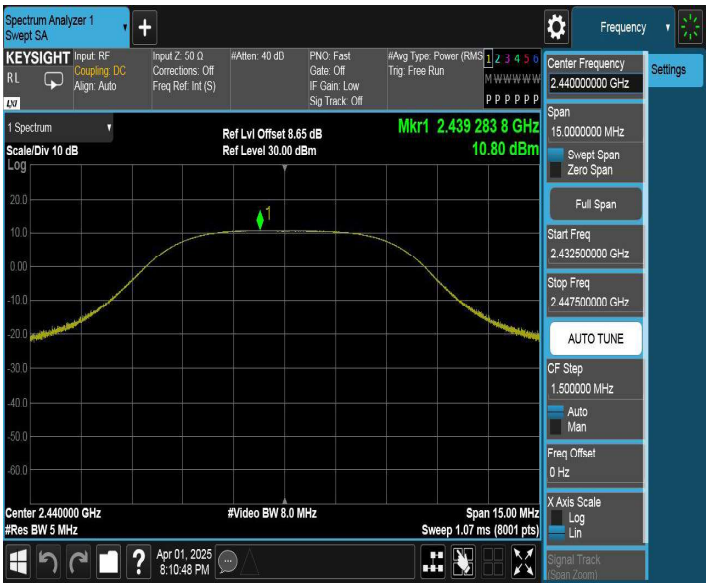


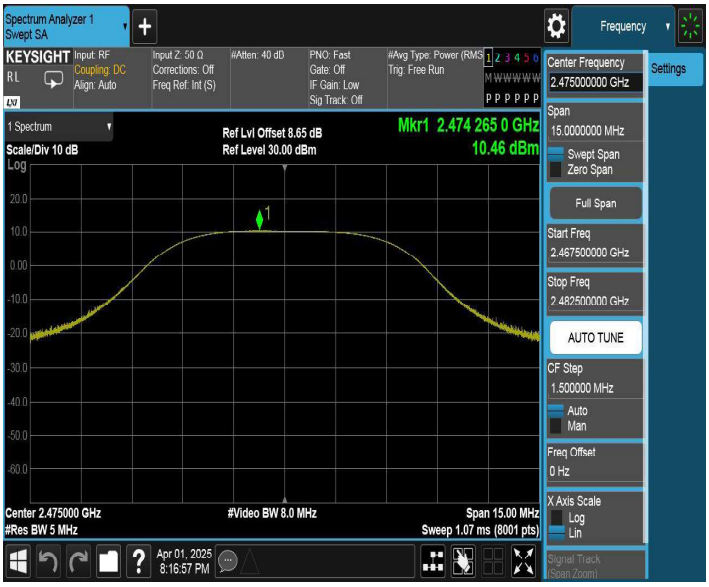

### 7.3.5. Test Result

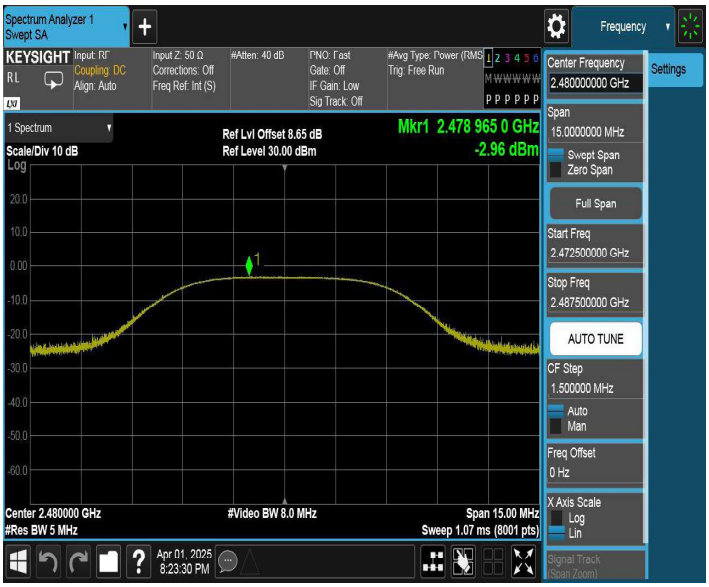
| | |
|---|---|
| Temperature: | 17.5 °C |
| Relative Humidity: | 34 % |
| ATM Pressure: | 102.1 kPa |
| Test Data: | 2025-04-01 |
| Test Engineer: | Stone Zhang |

| Test Mode | Antenna | Frequency (MHz) | Result [dBm] | Limit [dBm] | Verdict |
|---|---|---|---|---|---|
| Zigbee | Ant1 | 2405 | 11.94 | ≤30 | PASS |
| | | 2440 | 10.80 | ≤30 | PASS |
| | | 2475 | 10.46 | ≤30 | PASS |
| | | 2480 | -2.96 | ≤30 | PASS |

## Test Graphs

| Zigbee_Ant1_2405 |
| --- |
|  |
| Zigbee_Ant1_2440 |
|  |

| Zigbee_Ant1_2475 |
| --- |
|  |

| Zigbee_Ant1_2480 |
| --- |
|  |

## 7.4. Power Spectral Density Measurement

### 7.4.1. Test Limit

The maximum permissible power spectral density is 8dBm in any 3 kHz band. And for antenna gain greater than 6dBi the limit shall reduce by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

### 7.4.2. Test Procedure Used

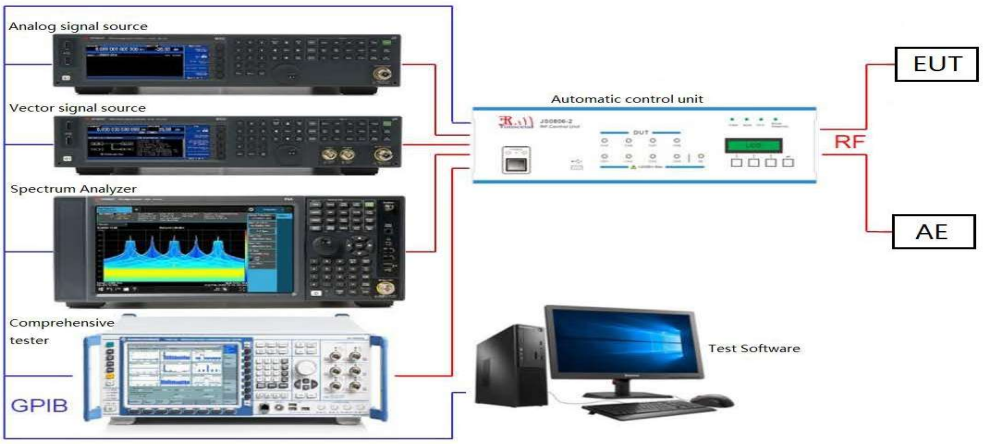
KDB 558074 D01 v05r02 - Section 8.4

ANSI C63.10 – Section 11.10.2

### 7.4.3. Test Setting

1. Set analyzer center frequency to DTS channel center frequency.
2. Set the span to 1.5 times the DTS bandwidth.
3. Set the RBW to 3 kHz ≤ RBW ≤ 100 kHz.
4. Set the VBW ≥ [3 × RBW].
5. Detector = peak.
6. Sweep time = auto couple.
7. Trace mode = max hold.
8. Allow trace to fully stabilize.

### 7.4.4. Test Setup

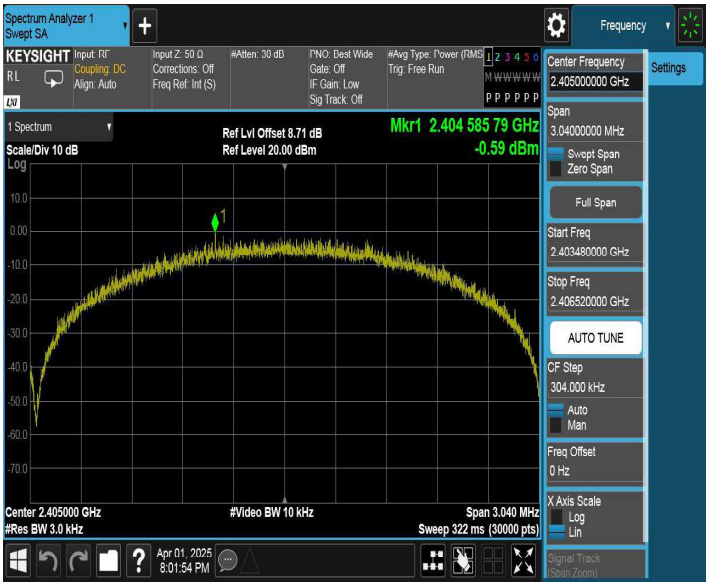
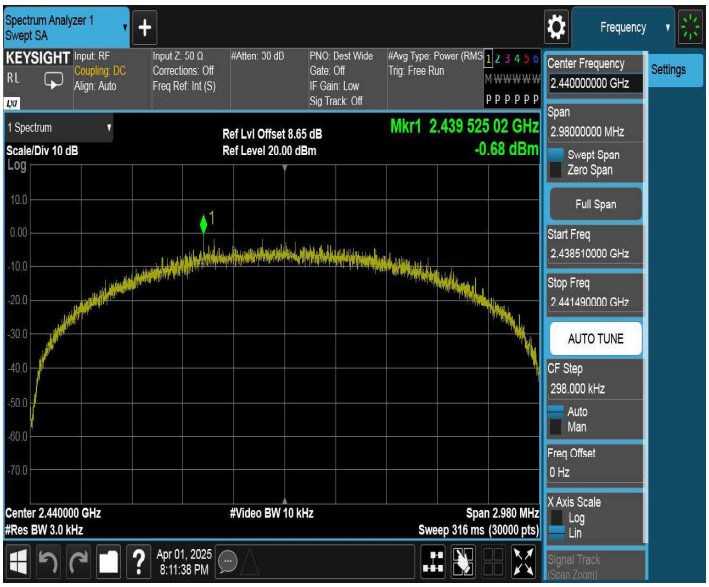


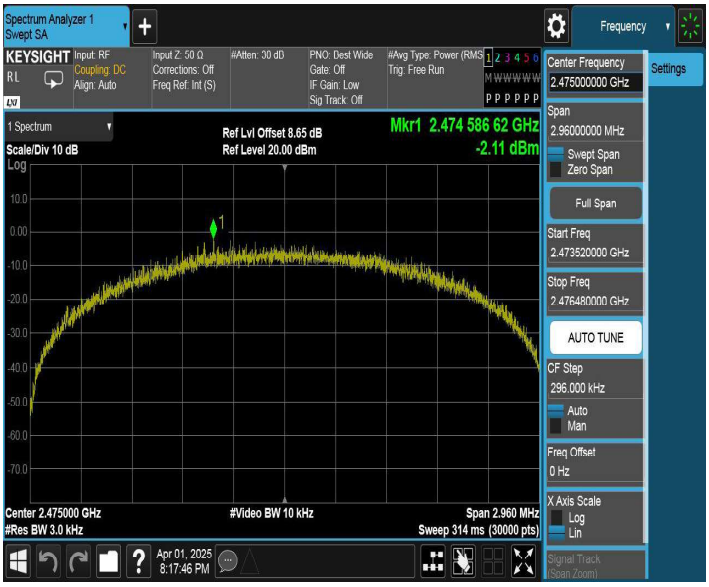
### 7.4.5. Test Result

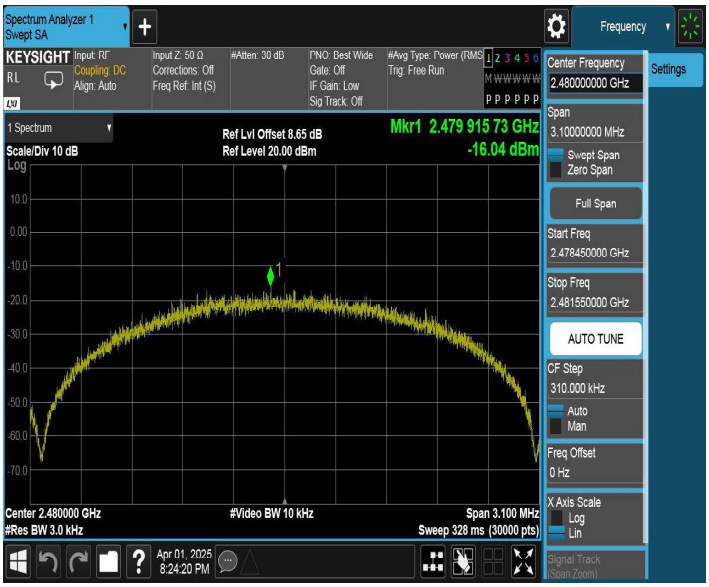
| | |
|---|---|
| Temperature: | 17.5 °C |
| Relative Humidity: | 34 % |
| ATM Pressure: | 102.1 kPa |
| Test Data: | 2025-04-01 |
| Test Engineer: | Stone Zhang |

| Test Mode | Antenna | Frequency (MHz) | Result [dBm/3kHz] | Limit [dBm/3kHz] | Verdict |
|---|---|---|---|---|---|
| Zigbee | Ant1 | 2405 | -0.59 | ≤8.00 | PASS |
| | | 2440 | -0.68 | ≤8.00 | PASS |
| | | 2475 | -2.11 | ≤8.00 | PASS |
| | | 2480 | -16.04 | ≤8.00 | PASS |

## Test Graphs

| Zigbee_Ant1_2405 |
| --- |
|  |
| Zigbee_Ant1_2440 |
|  |

| Zigbee_Ant1_2475 |
| --- |
|  |

| Zigbee_Ant1_2480 |
| --- |
|  |

## 7.5. Conducted Band Edge and Out-of-Band Emissions

### 7.5.1. Test Limit

The limit for out-of-band spurious emissions at the band edge is 20dB below the fundamental emission level, as determined from the in-band power measurement of the DTS channel performed in a 100 kHz bandwidth per the PSD procedure.

### 7.5.2. Test Procedure Used

KDB 558074 D01 v05r02 - Section 8.5 & Section 8.6

ANSI C63.10 – Section 11.11&11.12

### 7.5.3. Test Setting

(a) Set the center frequency and span to encompass frequency range to be measured

(b) RBW = 100kHz

(c) VBW = 300kHz

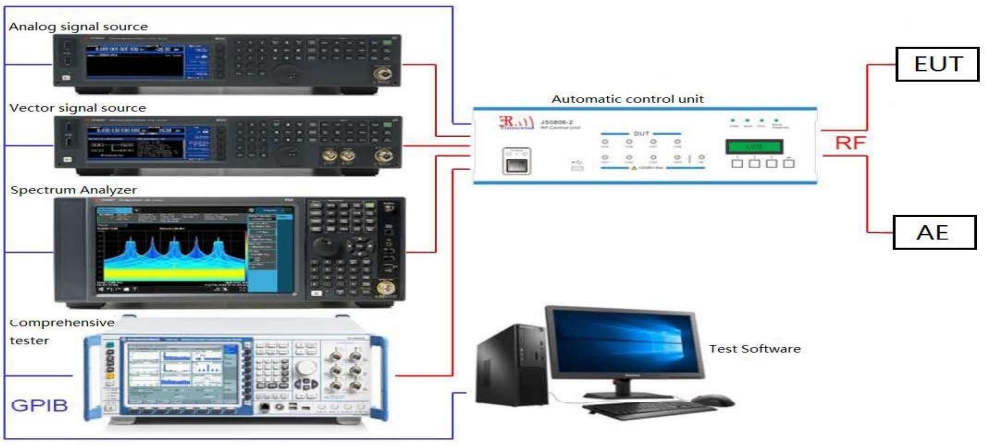
(d) Detector = Peak

(e) Trace mode = max hold

(f) Sweep time = auto couple

(g) The trace was allowed to stabilize

### 7.5.4. Test Setup



### 7.5.5. Test Result

| | |
|---|---|
| Temperature: | 17.5 °C |
| Relative Humidity: | 34 % |
| ATM Pressure: | 102.1 kPa |
| Test Data: | 2025-04-01 |
| Test Engineer: | Stone Zhang |

**Band edge**

| Test Mode | Antenna | ChName | Frequency (MHz) | RefLevel [dBm] | Result [dBm] | Limit [dBm] | Verdict |
|---|---|---|---|---|---|---|---|
| Zigbee | Ant1 | Low | 2405 | 9.91 | -33.20 | ≤-10.09 | PASS |
| | | High | 2475 | 8.45 | -45.49 | ≤-11.55 | PASS |
| | | | 2480 | -5.86 | -42.41 | ≤-25.86 | PASS |

**Conducted Spurious Emission**

| Test Mode | Antenna | Frequency (MHz) | Frequency Range [MHz] | RefLevel [dBm] | Result [dBm] | Limit [dBm] | Verdict |
|---|---|---|---|---|---|---|---|
| Zigbee | Ant1 | 2405 | Reference | 10.27 | 10.27 | --- | PASS |
| | | | 30~1000 | 10.27 | -48.41 | ≤-9.73 | PASS |
| | | | 1000~26500 | 10.27 | -52.22 | ≤-9.73 | PASS |
| | | 2440 | Reference | 9.02 | 9.02 | --- | PASS |
| | | | 30~1000 | 9.02 | -60.32 | ≤-10.98 | PASS |
| | | | 1000~26500 | 9.02 | -52.29 | ≤-10.98 | PASS |
| | | 2475 | Reference | 9.32 | 9.32 | --- | PASS |
| | | | 30~1000 | 9.32 | -43.87 | ≤-10.68 | PASS |
| | | | 1000~26500 | 9.32 | -52.53 | ≤-10.68 | PASS |
| | | 2480 | Reference | -4.90 | -4.90 | --- | PASS |
| | | | 30~1000 | -4.90 | -60.5 | ≤-24.9 | PASS |
| | | | 1000~26500 | -4.90 | -52.38 | ≤-24.9 | PASS |

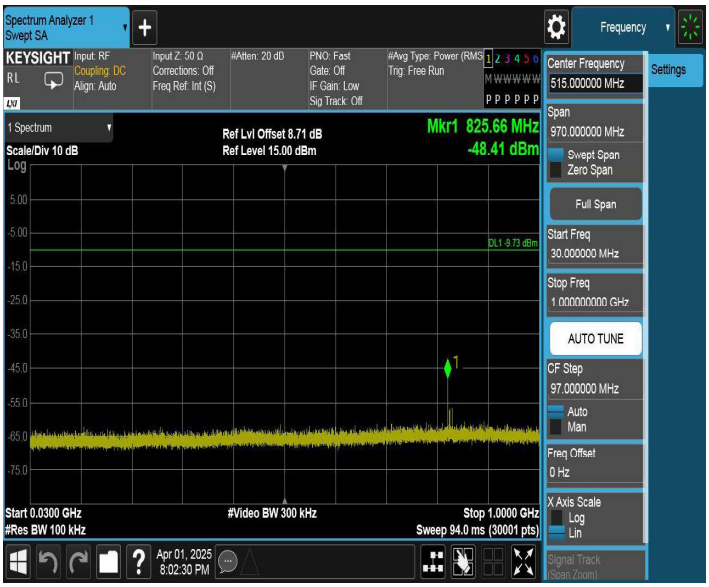
## Test Graphs of Band Edge

Zigbee_Ant1_Low_2405

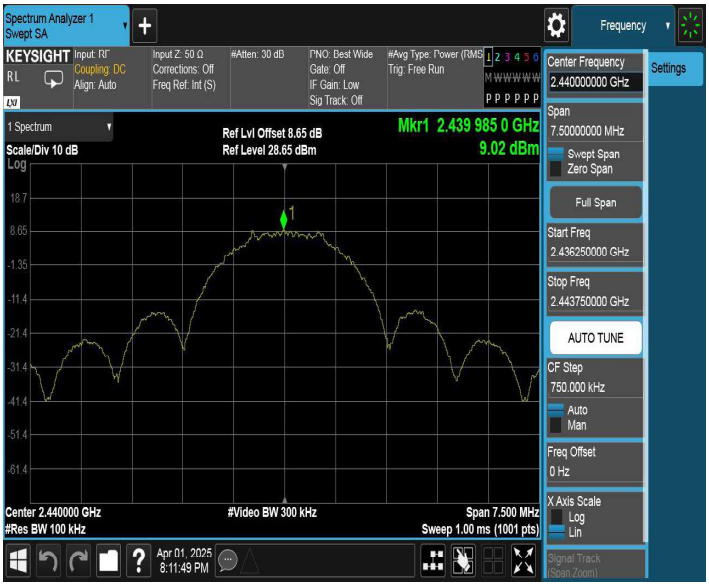

Zigbee_Ant1_High_2475

Zigbee_Ant1_High_2480

## Test Graphs of Out-of-Band Emissions

| Zigbee_Ant1_2405_0~Reference |
| --- |
|  |
| Zigbee_Ant1_2405_30~1000 |
|  |

| Zigbee_Ant1_2405_1000~26500 |
| --- |
|  |

| Zigbee_Ant1_2440_0~Reference |
| --- |
|  |