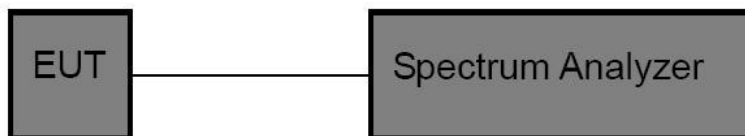


## 13 100kHz Bandwidth of Frequency Band Edge Requirement

### 13.1 Test Standard and Limit

|               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|---------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Test Standard | FCC Part15 C Section 15.247 (d)                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Test Limit    | in any 100 kHz bandwidth outside the frequency bands in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20dB below that in the 100kHz bandwidth within the band that contains the highest level of the desired power, In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in 15.209(a). |

### 13.2 Test Setup



### 13.3 Test Procedure

The EUT must have its hopping/Non-hopping function enabled. Using the following spectrum analyzer setting:

1. Set the RBW = 100kHz.
2. Set the VBW = 300kHz.
3. Sweep time = auto couple.
4. Detector function = peak.
5. Trace mode = max hold.
6. Allow trace to fully stabilize.



### 13.4 Test Data

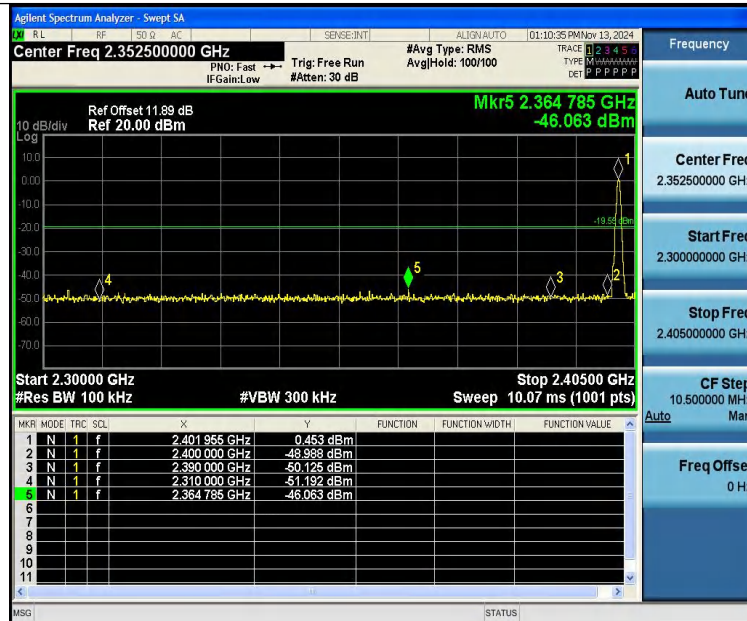
Test Item : Band edge  
Test Voltage : 3.7V  
Test Result : PASS

Test Mode : CH Low ~ CH High  
Temperature : 24.5°C  
Humidity : 55%RH

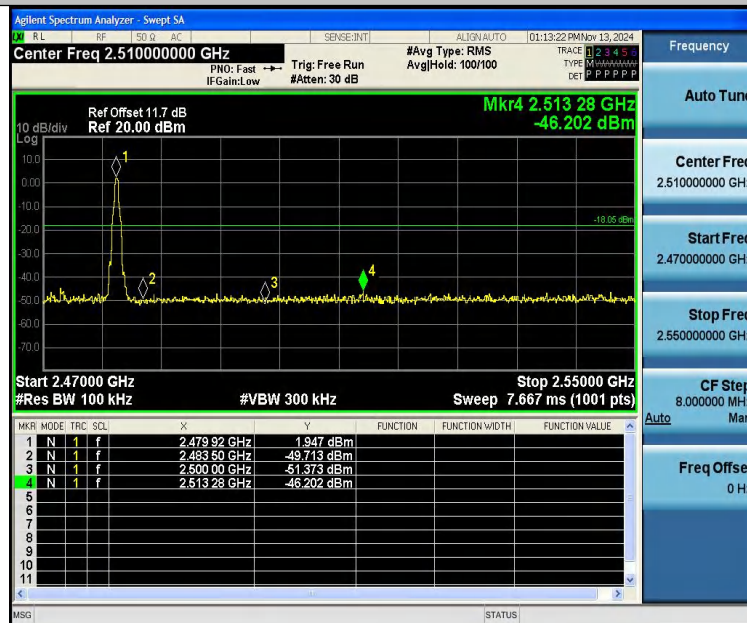
| TestMode | Antenna | ChName | Frequency[MHz] | RefLevel<br>[dBm] | Result<br>[dBm] | Limit<br>[dBm] | Verdict |
|----------|---------|--------|----------------|-------------------|-----------------|----------------|---------|
| DH5      | Ant1    | Low    | 2402           | 0.45              | -46.06          | ≤-19.55        | PASS    |
| DH5      | Ant1    | High   | 2480           | 1.95              | -46.2           | ≤-18.05        | PASS    |
| DH5      | Ant1    | Low    | Hop_2402       | -0.11             | -46.7           | ≤-20.11        | PASS    |
| DH5      | Ant1    | High   | Hop_2480       | 2.18              | -46.19          | ≤-17.82        | PASS    |
| 2DH5     | Ant1    | Low    | 2402           | 0.49              | -46.19          | ≤-19.51        | PASS    |
| 2DH5     | Ant1    | High   | 2480           | 1.61              | -46.78          | ≤-18.39        | PASS    |
| 2DH5     | Ant1    | Low    | Hop_2402       | -3.76             | -46.95          | ≤-23.76        | PASS    |
| 2DH5     | Ant1    | High   | Hop_2480       | 1.00              | -45.65          | ≤-19           | PASS    |
| 3DH5     | Ant1    | Low    | 2402           | 0.66              | -46.25          | ≤-19.34        | PASS    |
| 3DH5     | Ant1    | High   | 2480           | 0.16              | -46.57          | ≤-19.84        | PASS    |
| 3DH5     | Ant1    | Low    | Hop_2402       | 0.69              | -46.8           | ≤-19.31        | PASS    |
| 3DH5     | Ant1    | High   | Hop_2480       | 0.09              | -45.68          | ≤-19.91        | PASS    |



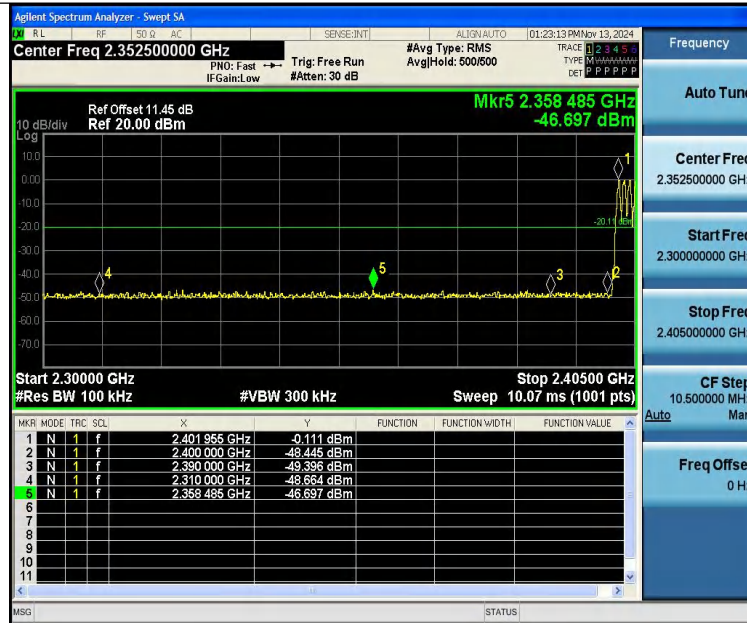
## Test Graphs:



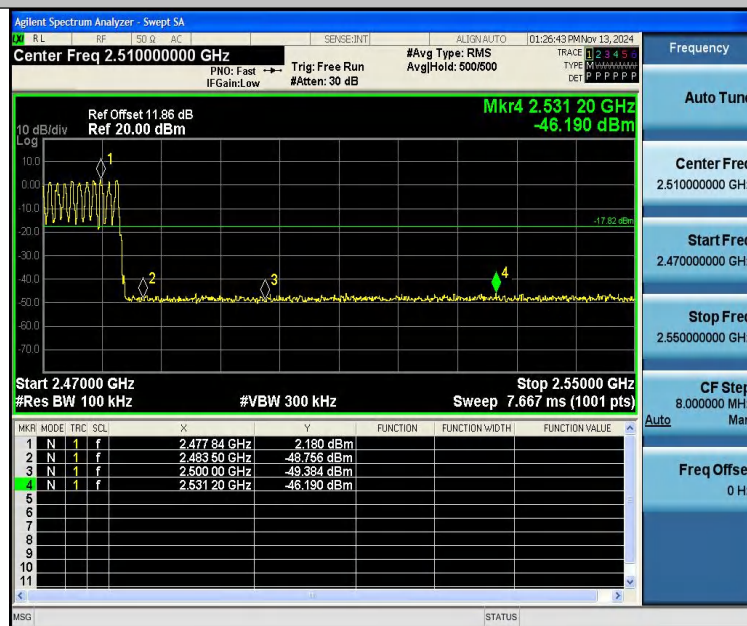
DH5-Ant1-2402-PASS



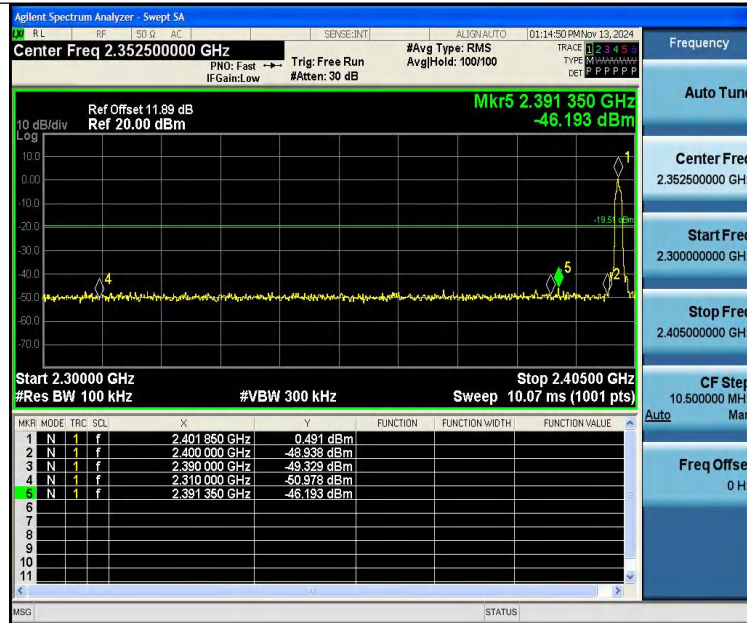
DH5-Ant1-2480-PASS



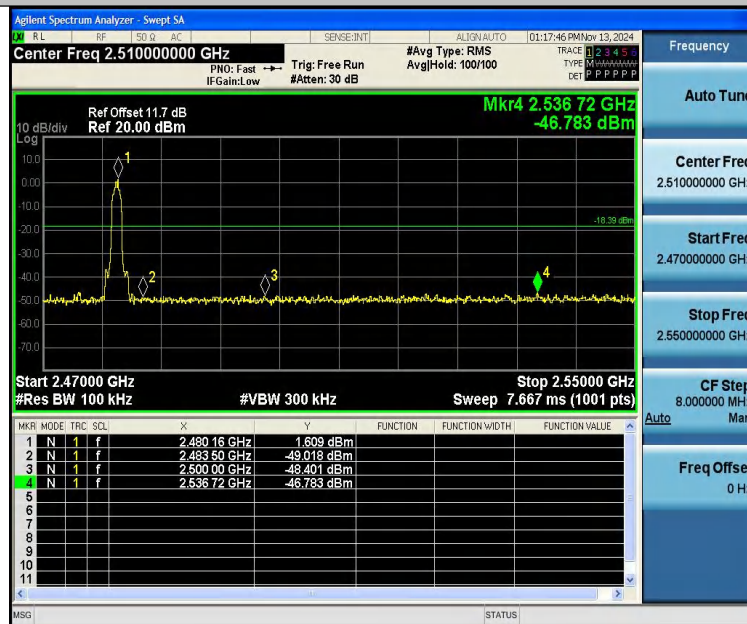
DH5-Ant1-Hop\_2402-PASS



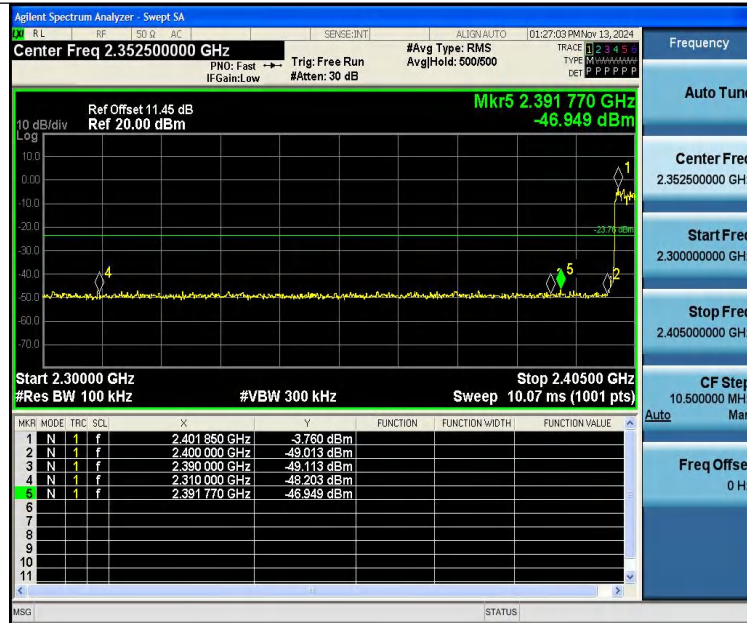
DH5-Ant1-Hop\_2480-PASS



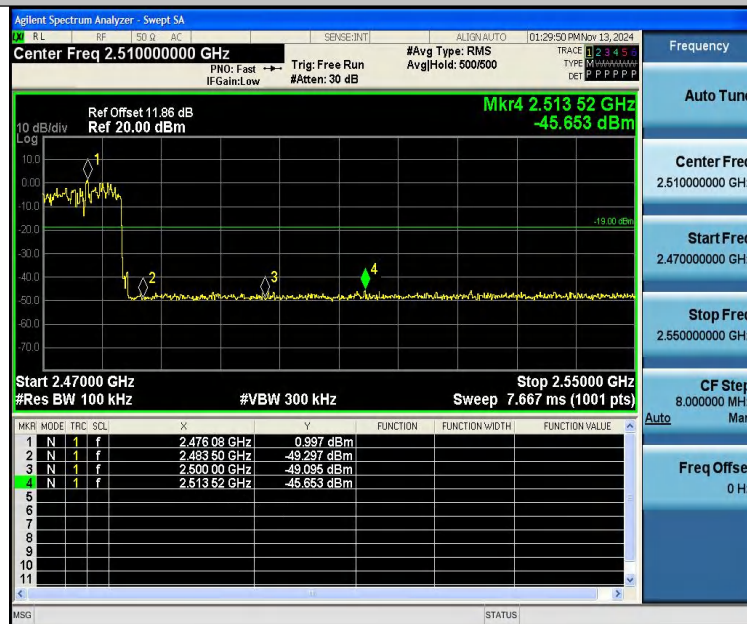
## 2DH5-Ant1-2402-PASS



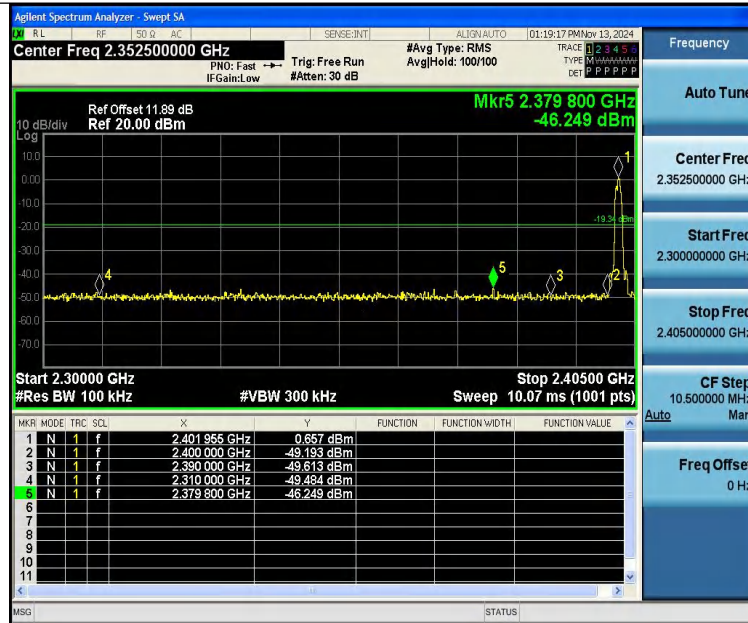
## 2DH5-Ant1-2480-PASS



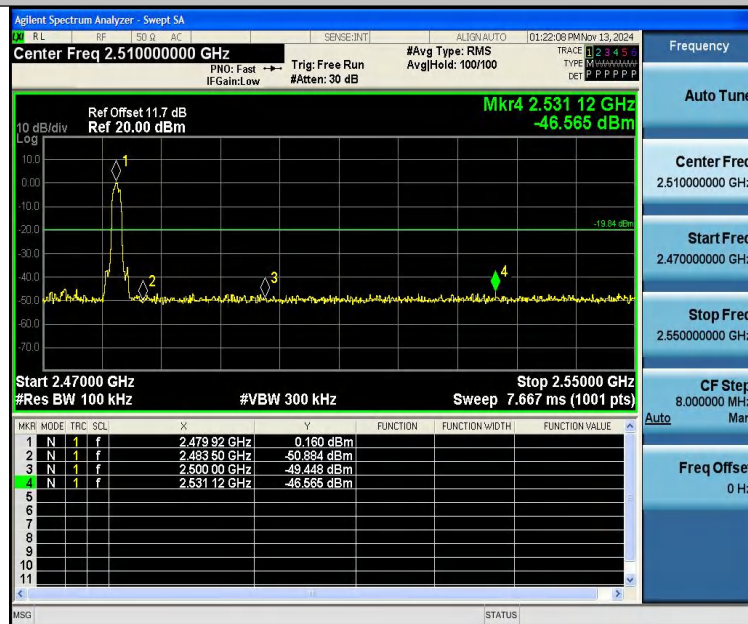
## 2DH5-Ant1-Hop\_2402-PASS



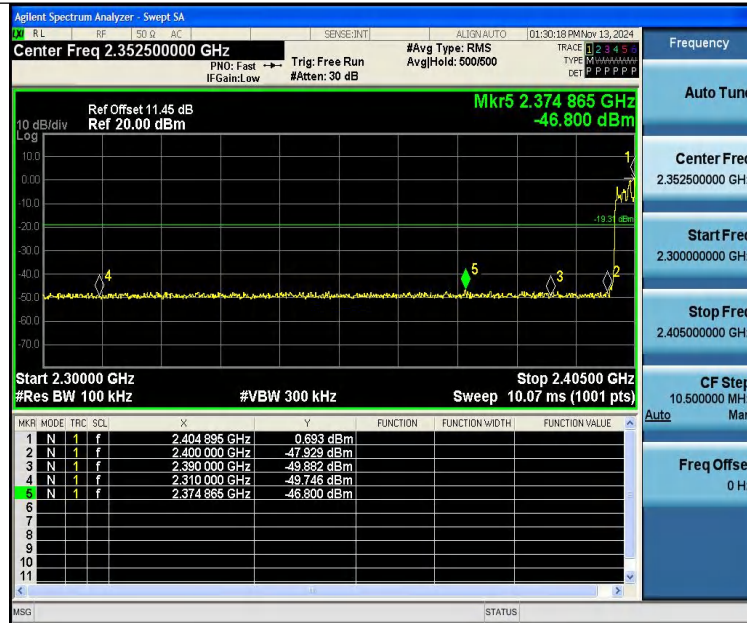
## 2DH5-Ant1-Hop\_2480-PASS



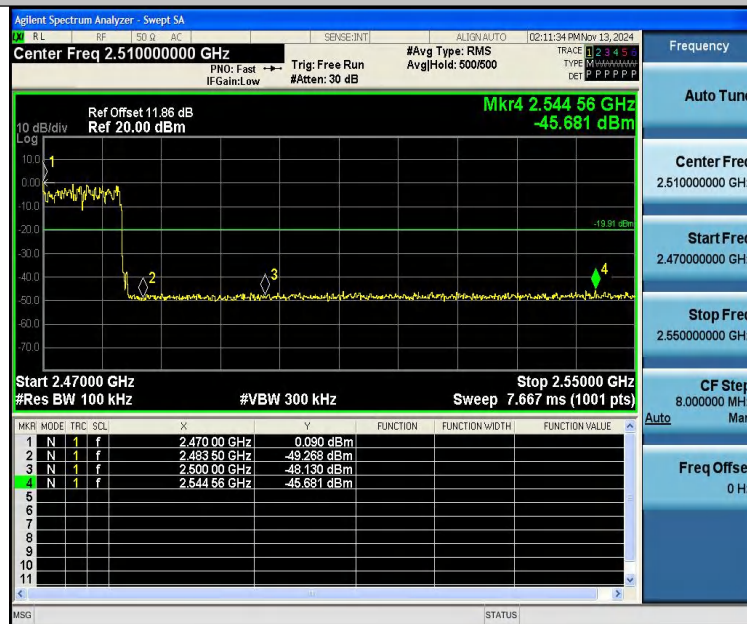
## 3DH5-Ant1-2402-PASS



## 3DH5-Ant1-2480-PASS



## 3DH5-Ant1-Hop\_2402-PASS



## 3DH5-Ant1-Hop\_2480-PASS



## Conducted Emission Method

## Test Result

| TestMode | Antenna | Frequency[MHz] | FreqRange [MHz] | RefLevel [dBm] | Result [dBm] | Limit [dBm] | Verdict |
|----------|---------|----------------|-----------------|----------------|--------------|-------------|---------|
| DH5      | Ant1    | 2402           | 0~Reference     | 0.01           | 0.01         | ---         | PASS    |
| DH5      | Ant1    | 2402           | 30~1000         | 0.01           | -57.73       | ≤-19.99     | PASS    |
| DH5      | Ant1    | 2402           | 1000~26500      | 0.01           | -42.63       | ≤-19.99     | PASS    |
| DH5      | Ant1    | 2441           | 0~Reference     | 0.94           | 0.94         | ---         | PASS    |
| DH5      | Ant1    | 2441           | 30~1000         | 0.94           | -57.2        | ≤-19.06     | PASS    |
| DH5      | Ant1    | 2441           | 1000~26500      | 0.94           | -42.24       | ≤-19.06     | PASS    |
| DH5      | Ant1    | 2480           | 0~Reference     | 1.53           | 1.53         | ---         | PASS    |
| DH5      | Ant1    | 2480           | 30~1000         | 1.53           | -57.9        | ≤-18.47     | PASS    |
| DH5      | Ant1    | 2480           | 1000~26500      | 1.53           | -41.78       | ≤-18.47     | PASS    |
| 2DH5     | Ant1    | 2402           | 0~Reference     | 0.59           | 0.59         | ---         | PASS    |
| 2DH5     | Ant1    | 2402           | 30~1000         | 0.59           | -57.45       | ≤-19.41     | PASS    |
| 2DH5     | Ant1    | 2402           | 1000~26500      | 0.59           | -41.75       | ≤-19.41     | PASS    |
| 2DH5     | Ant1    | 2441           | 0~Reference     | 0.86           | 0.86         | ---         | PASS    |
| 2DH5     | Ant1    | 2441           | 30~1000         | 0.86           | -56.96       | ≤-19.14     | PASS    |
| 2DH5     | Ant1    | 2441           | 1000~26500      | 0.86           | -42.66       | ≤-19.14     | PASS    |
| 2DH5     | Ant1    | 2480           | 0~Reference     | -2.36          | -2.36        | ---         | PASS    |
| 2DH5     | Ant1    | 2480           | 30~1000         | -2.36          | -57.69       | ≤-22.36     | PASS    |
| 2DH5     | Ant1    | 2480           | 1000~26500      | -2.36          | -41.58       | ≤-22.36     | PASS    |
| 3DH5     | Ant1    | 2402           | 0~Reference     | 0.12           | 0.12         | ---         | PASS    |
| 3DH5     | Ant1    | 2402           | 30~1000         | 0.12           | -57.4        | ≤-19.88     | PASS    |
| 3DH5     | Ant1    | 2402           | 1000~26500      | 0.12           | -42.24       | ≤-19.88     | PASS    |
| 3DH5     | Ant1    | 2441           | 0~Reference     | 0.84           | 0.84         | ---         | PASS    |
| 3DH5     | Ant1    | 2441           | 30~1000         | 0.84           | -57.78       | ≤-19.16     | PASS    |
| 3DH5     | Ant1    | 2441           | 1000~26500      | 0.84           | -41.8        | ≤-19.16     | PASS    |
| 3DH5     | Ant1    | 2480           | 0~Reference     | 2.07           | 2.07         | ---         | PASS    |
| 3DH5     | Ant1    | 2480           | 30~1000         | 2.07           | -58.83       | ≤-17.93     | PASS    |
| 3DH5     | Ant1    | 2480           | 1000~26500      | 2.07           | -41.57       | ≤-17.93     | PASS    |



## Test Graphs:



DH5-Ant1-2402-0~Reference-PASS



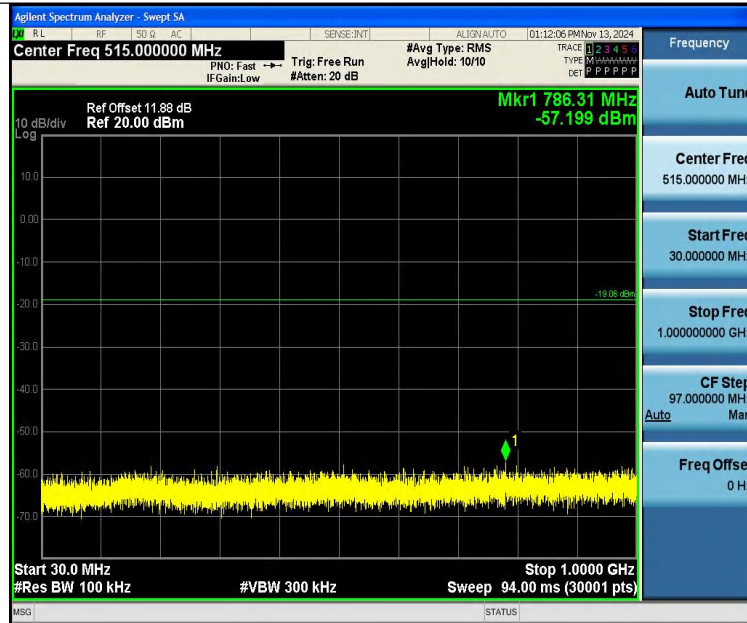
DH5-Ant1-2402-30~1000-PASS



DH5-Ant1-2402-1000~26500-PASS



DH5-Ant1-2441-0~Reference-PASS



DH5-Ant1-2441-30~1000-PASS



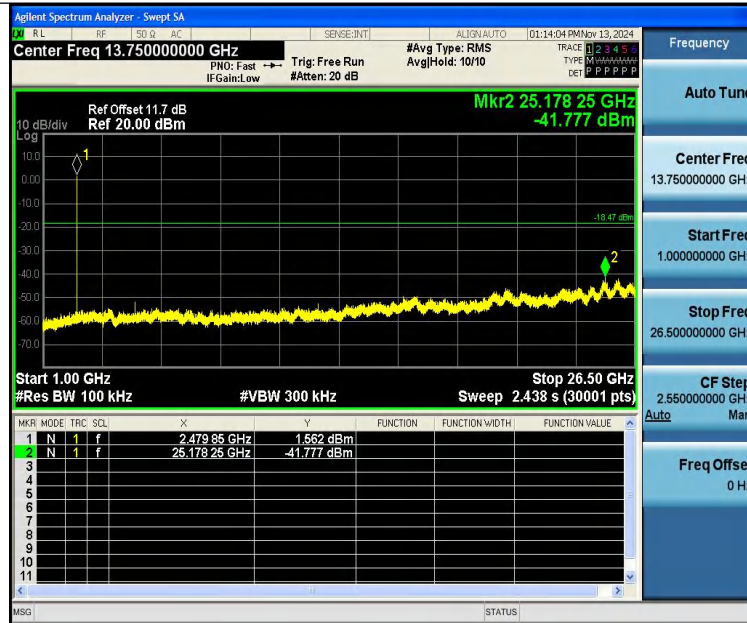
DH5-Ant1-2441-1000~26500-PASS



DH5-Ant1-2480-0~Reference-PASS



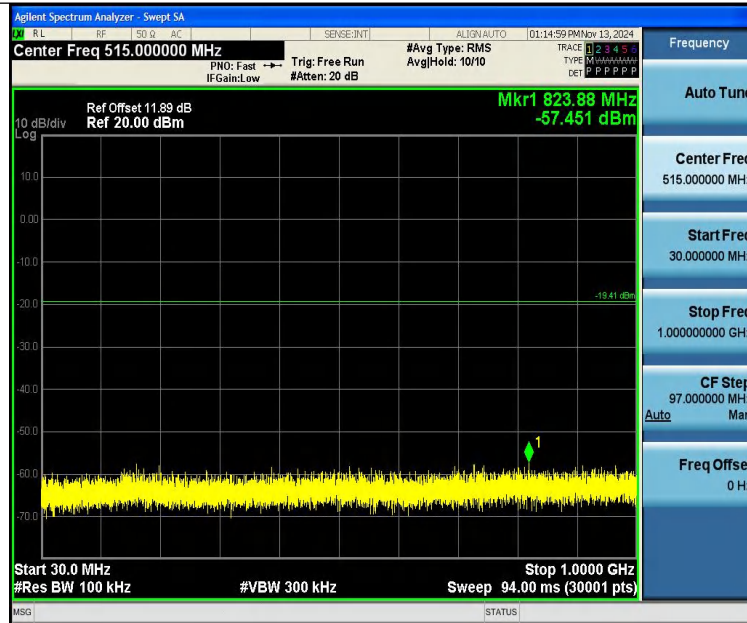
DH5-Ant1-2480-30~1000-PASS



DH5-Ant1-2480-1000~26500-PASS



2DH5-Ant1-2402-0~Reference-PASS



2DH5-Ant1-2402-30~1000-PASS



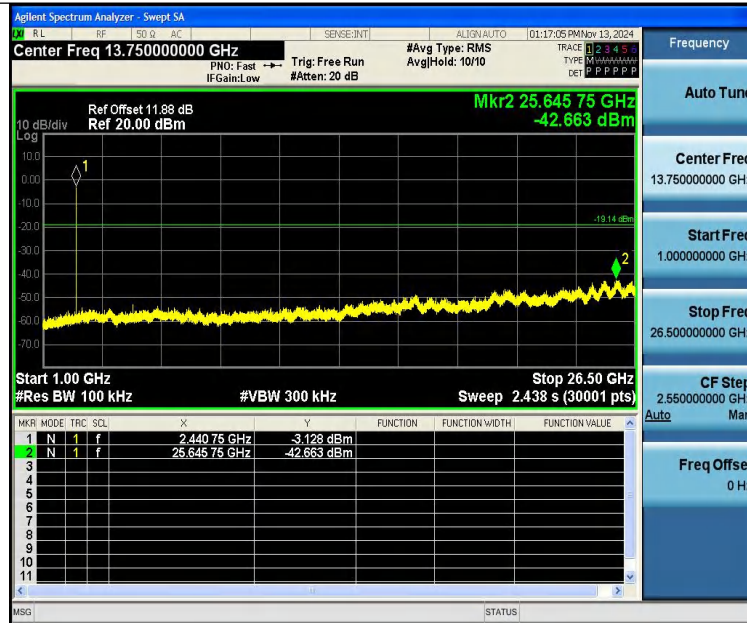
2DH5-Ant1-2402-1000~26500-PASS



2DH5-Ant1-2441-0~Reference-PASS



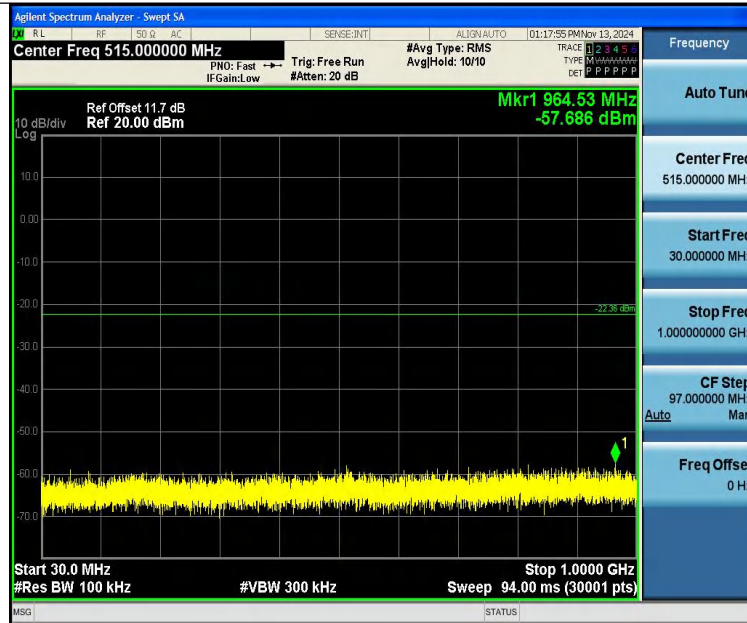
2DH5-Ant1-2441-30~1000-PASS



2DH5-Ant1-2441-1000~26500-PASS



2DH5-Ant1-2480-0~Reference-PASS



## 2DH5-Ant1-2480-30~1000-PASS



## 2DH5-Ant1-2480-1000~26500-PASS



3DH5-Ant1-2402-0~Reference-PASS



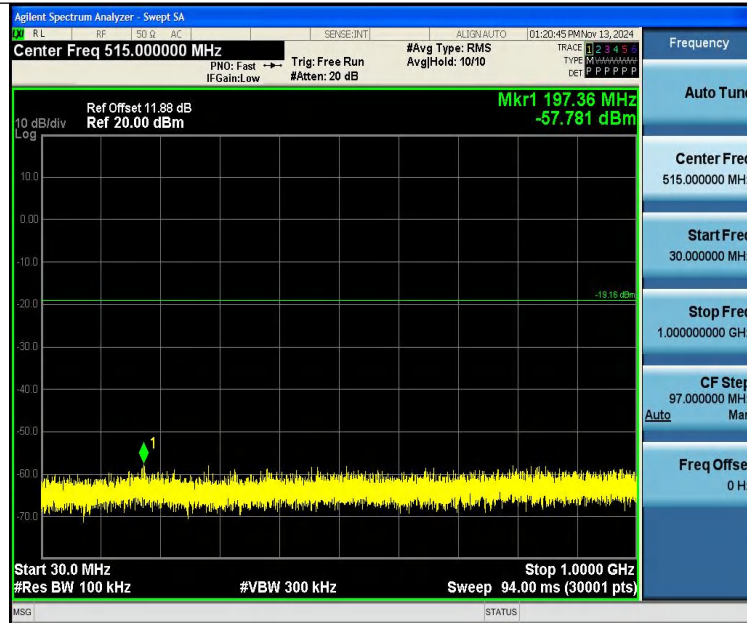
3DH5-Ant1-2402-30~1000-PASS



3DH5-Ant1-2402-1000~26500-PASS



3DH5-Ant1-2441-0~Reference-PASS



3DH5-Ant1-2441-30~1000-PASS



3DH5-Ant1-2441-1000~26500-PASS



3DH5-Ant1-2480-0~Reference-PASS



3DH5-Ant1-2480-30~1000-PASS



3DH5-Ant1-2480-1000~26500-PASS



## 14 Antenna Requirement

### 14.1 Test Standard and Requirement

| Test Standard | FCC Part15 Section 15.203 /247(c)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|---------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Requirement   | <p>1) 15.203 requirement:</p> <p>An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.</p> <p>2) 15.247(c) (1)(i) requirement:</p> <p>Systems operating in the 2400-2483.5 MHz band that is used exclusively for fixed. Point-to-point operations may employ transmitting antennas with directional gain greater than 6dBi provided the maximum conducted output power of the intentional radiator is reduced by 1 dB for every 3 dB that the directional gain of the antenna exceeds 6 dBi.</p> |

### 14.2 Antenna Connected Construction

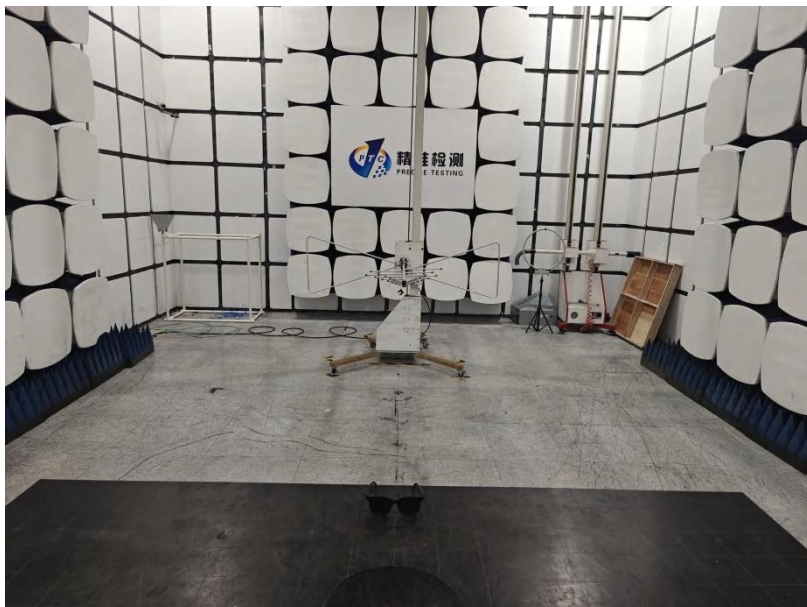
The antenna is Ceramic Antenna which permanently attached, and the best case gain of the antenna is 2.0 dBi. It complies with the standard requirement.

## 15 APPENDIX I -- TEST SETUP PHOTOGRAPH

Conducted Emissions



Radiated Emissions  
From 30M-1GHz



Above 1GHz



## 16 APPENDIX II -- EUT PHOTOGRAPH

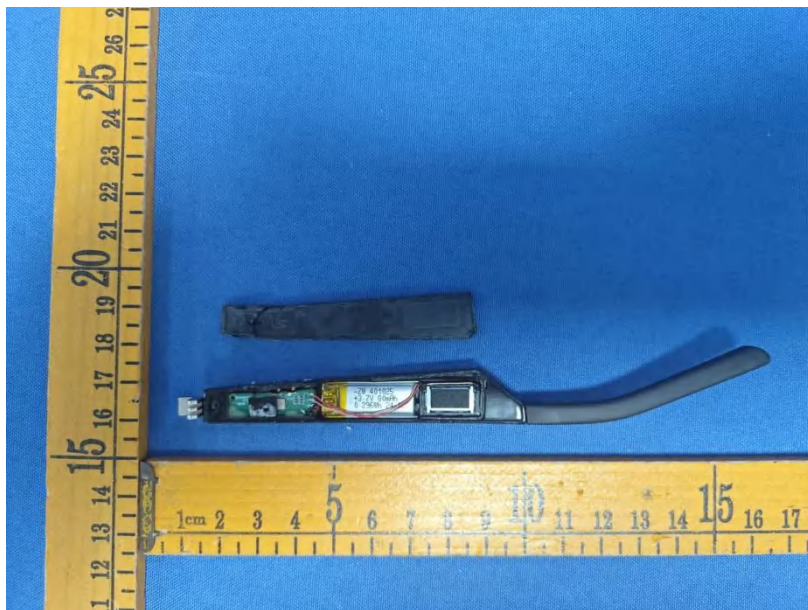


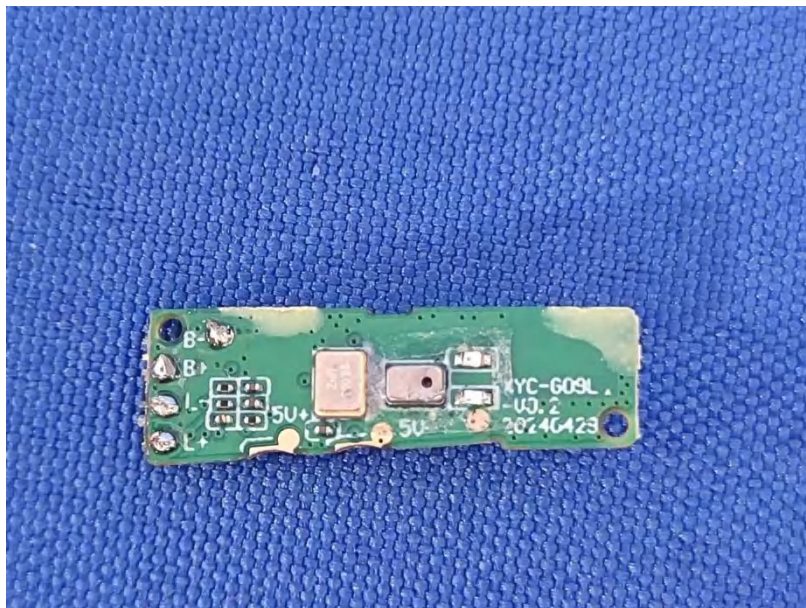
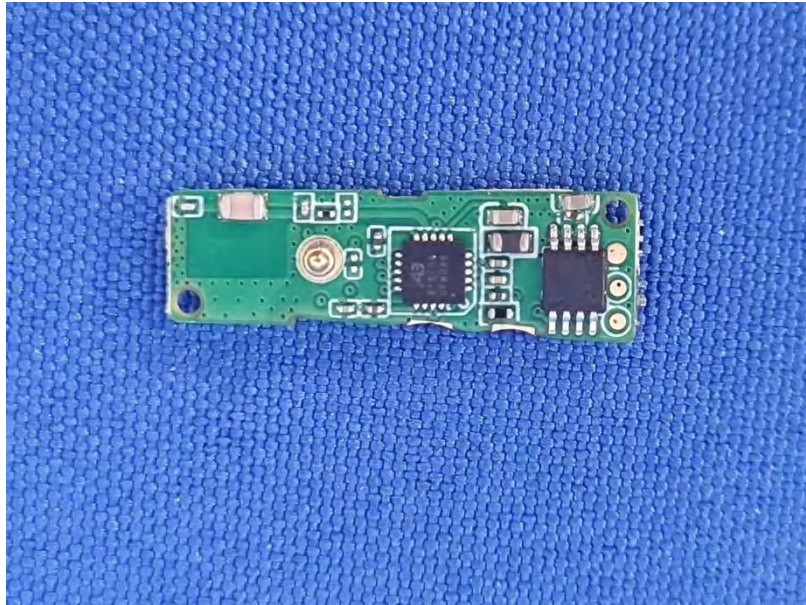


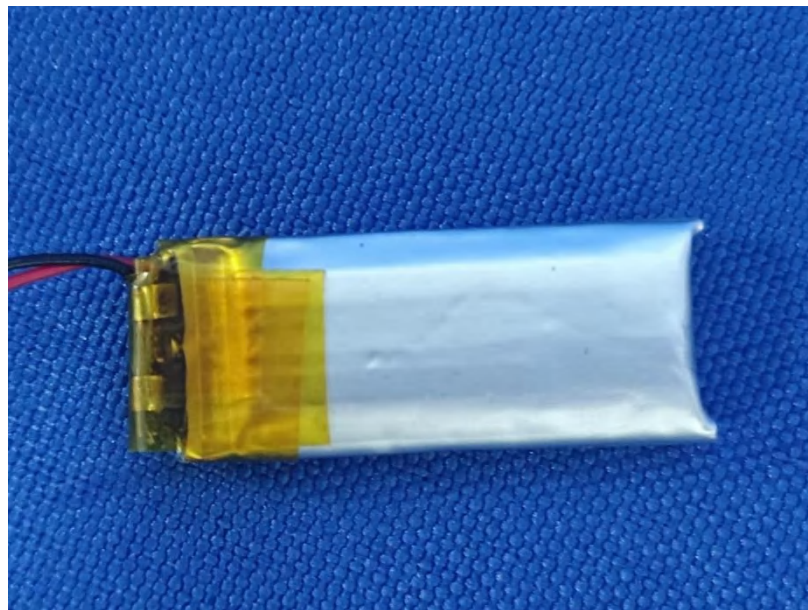




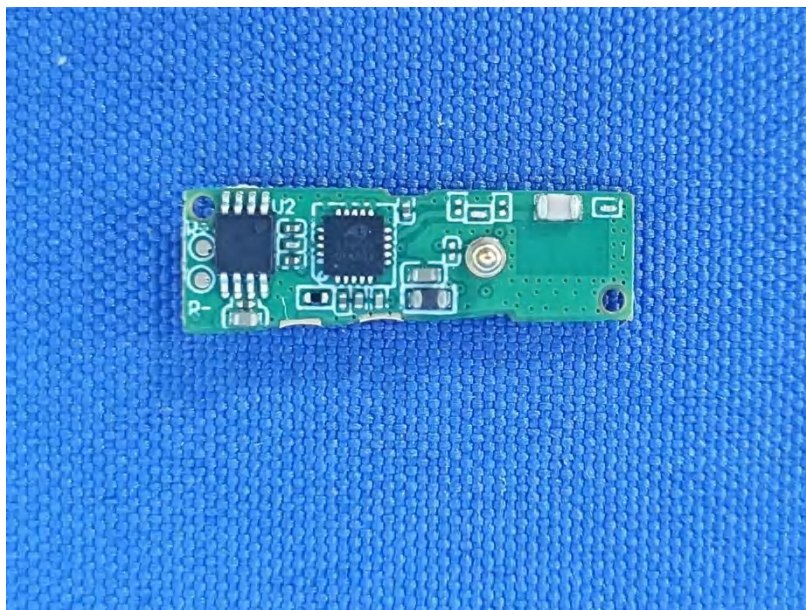
L:







R:







**\*\*\*\*\*THE END REPORT\*\*\*\*\***