



## Annex for Bluetooth Low Energy

### Test Report No.: CTL2412168031-WF02

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## 1. Duty Cycle

### 1.1 Test Result

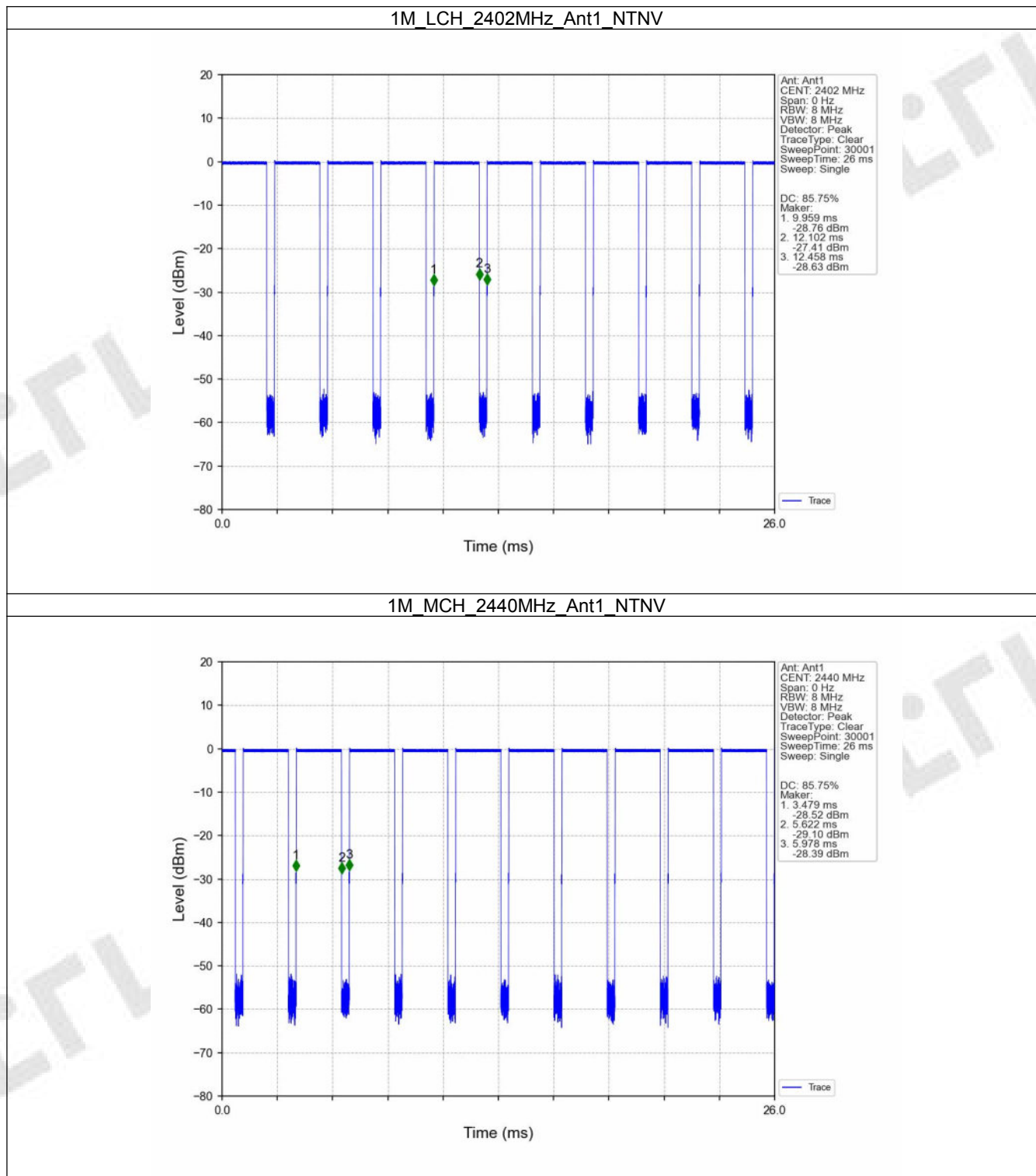
#### 1.1.1 Ant1

| Ant1 |         |                 |           |             |                |                                   |                       |
|------|---------|-----------------|-----------|-------------|----------------|-----------------------------------|-----------------------|
| Mode | TX Type | Frequency (MHz) | T_on (ms) | Period (ms) | Duty Cycle (%) | Duty Cycle Correction Factor (dB) | Max. DC Variation (%) |
| 1M   | SISO    | 2402            | 2.143     | 2.499       | 85.75          | 0.67                              | 0.03                  |
|      |         | 2440            | 2.143     | 2.499       | 85.75          | 0.67                              | 0.03                  |
|      |         | 2480            | 2.143     | 2.499       | 85.75          | 0.67                              | 0.03                  |
| 2M   | SISO    | 2402            | 1.090     | 1.250       | 87.20          | 0.59                              | 0.03                  |
|      |         | 2440            | 1.090     | 1.250       | 87.20          | 0.59                              | 0.03                  |
|      |         | 2480            | 1.090     | 1.251       | 87.13          | 0.60                              | 0.03                  |

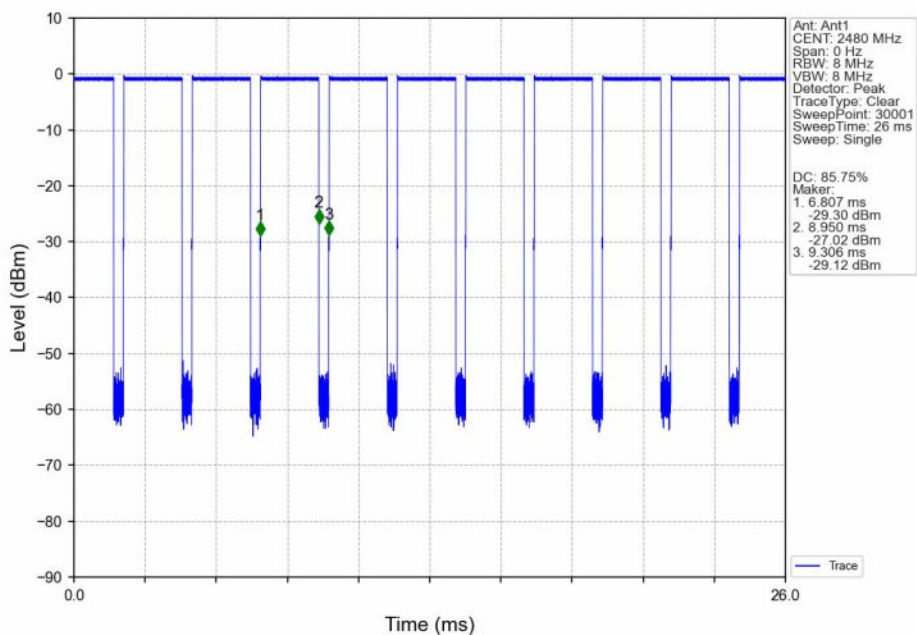
FCC ID: 2BNCJ-PLYR-P2

## 1.2 Test Graph

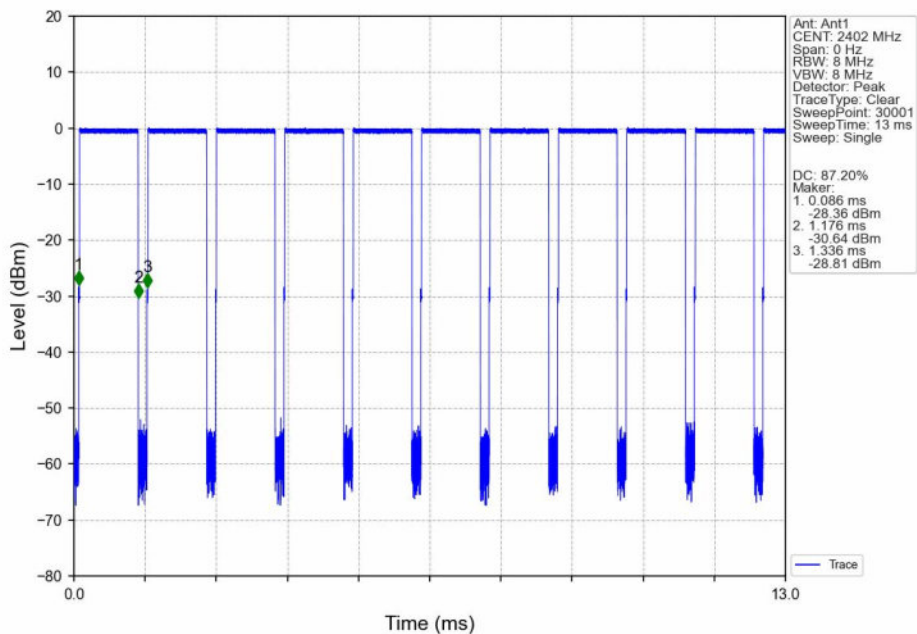
### 1.2.1 Ant1



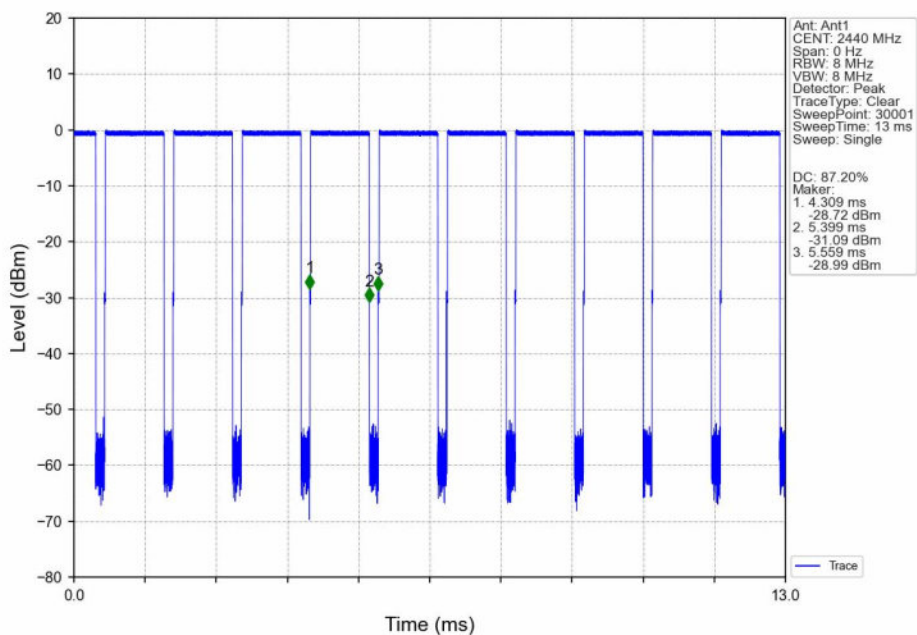
1M\_HCH\_2480MHz\_Ant1\_NTNV



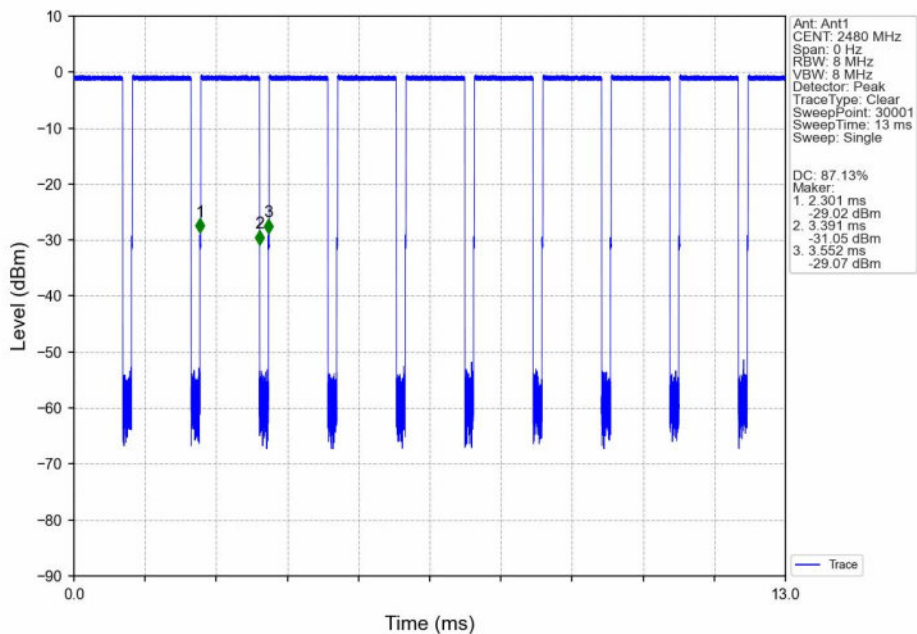
2M\_LCH\_2402MHz\_Ant1\_NTNV



2M\_MCH\_2440MHz\_Ant1\_NTNV



2M\_HCH\_2480MHz\_Ant1\_NTNV



## 2. Bandwidth

### 2.1 Test Result

#### 2.1.1 OBW

| Mode | TX Type | Frequency (MHz) | ANT | 99% Occupied Bandwidth (MHz) |       | Verdict |
|------|---------|-----------------|-----|------------------------------|-------|---------|
|      |         |                 |     | Result                       | Limit |         |
| 1M   | SISO    | 2402            | 1   | 1.060                        | /     | Pass    |
|      |         | 2440            | 1   | 1.059                        | /     | Pass    |
|      |         | 2480            | 1   | 1.062                        | /     | Pass    |
| 2M   | SISO    | 2402            | 1   | 2.059                        | /     | Pass    |
|      |         | 2440            | 1   | 2.059                        | /     | Pass    |
|      |         | 2480            | 1   | 2.057                        | /     | Pass    |

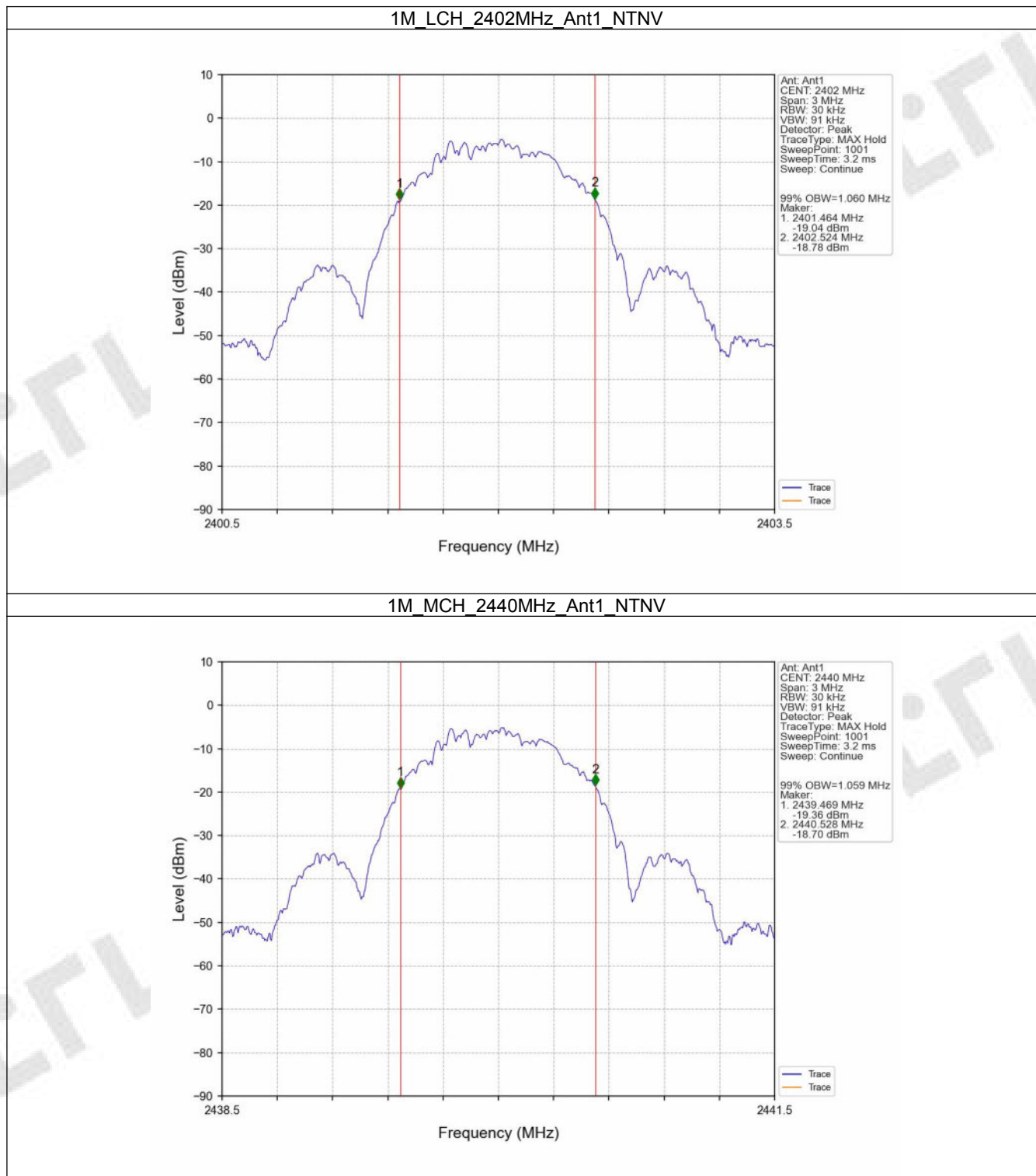
#### 2.1.2 6dB BW

| Mode | TX Type | Frequency (MHz) | ANT | 6dB Bandwidth (MHz) |            | Verdict |
|------|---------|-----------------|-----|---------------------|------------|---------|
|      |         |                 |     | Result              | Limit      |         |
| 1M   | SISO    | 2402            | 1   | 0.694               | $\geq 0.5$ | Pass    |
|      |         | 2440            | 1   | 0.694               | $\geq 0.5$ | Pass    |
|      |         | 2480            | 1   | 0.695               | $\geq 0.5$ | Pass    |
| 2M   | SISO    | 2402            | 1   | 1.187               | $\geq 0.5$ | Pass    |
|      |         | 2440            | 1   | 1.191               | $\geq 0.5$ | Pass    |
|      |         | 2480            | 1   | 1.188               | $\geq 0.5$ | Pass    |

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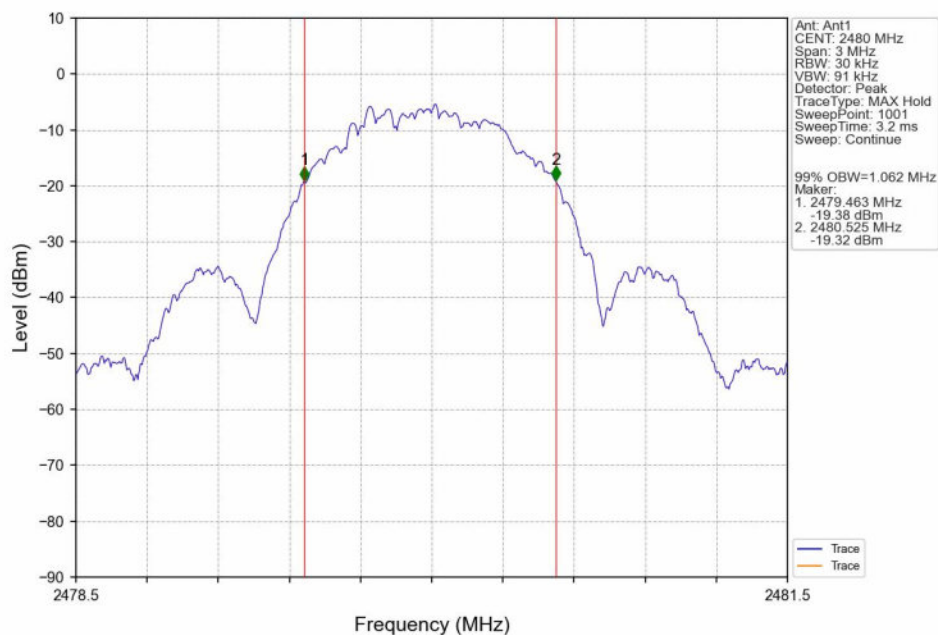
## 2.2 Test Graph

### 2.2.1 OBW

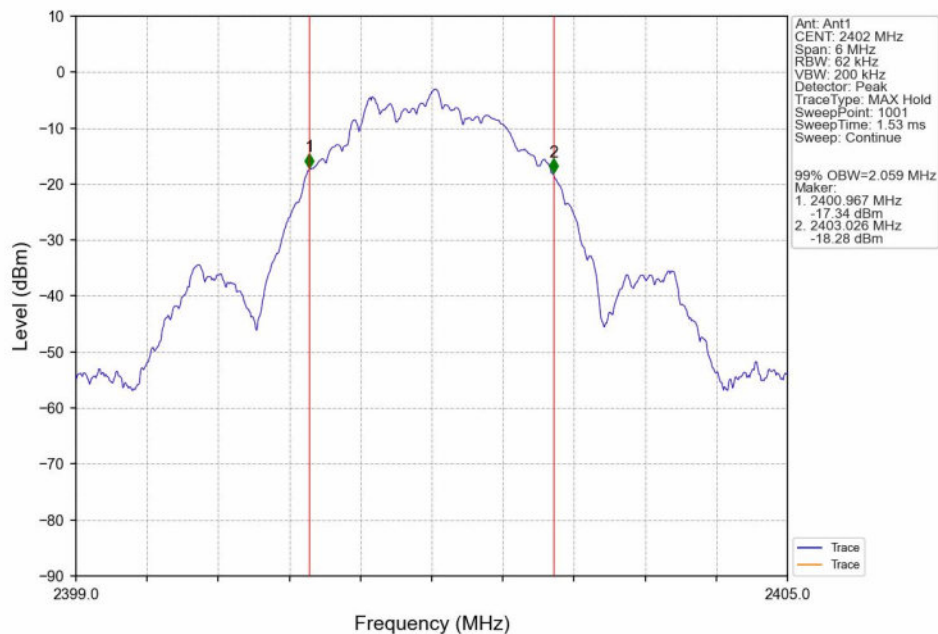


FCC ID: 2BNCJ-PLYR-P2

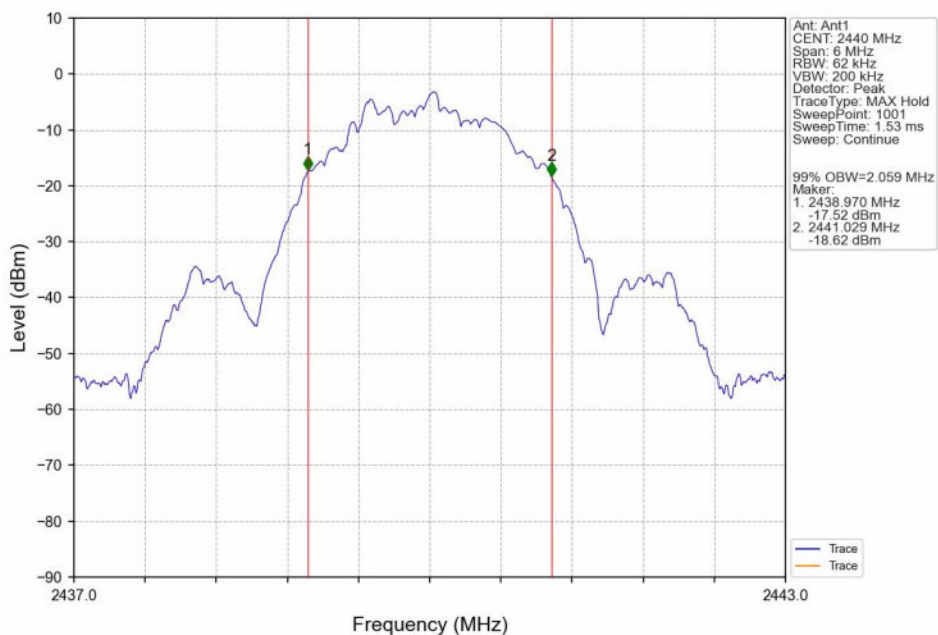
1M\_HCH\_2480MHz\_Ant1\_NTNV



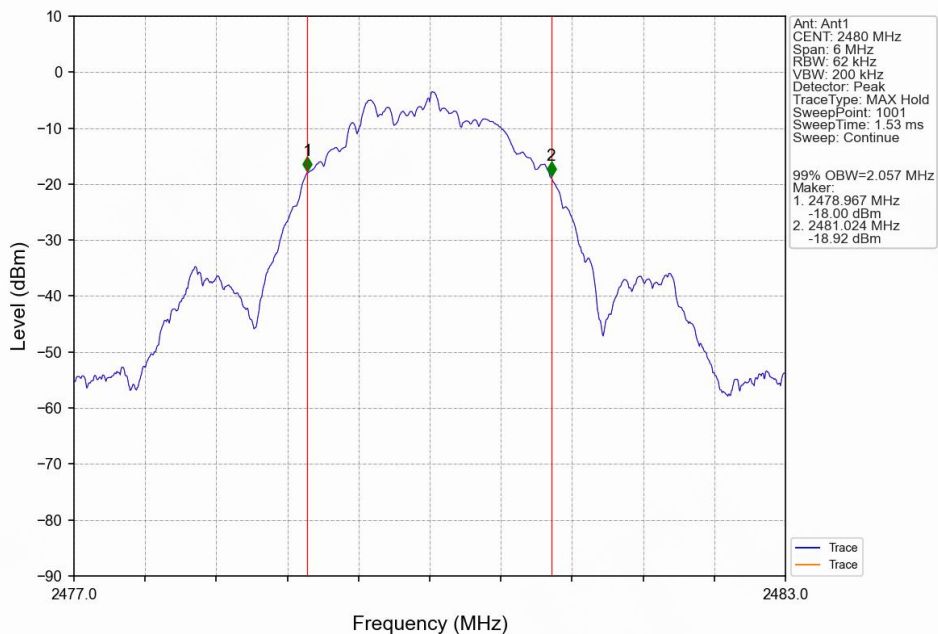
2M\_LCH\_2402MHz\_Ant1\_NTNV



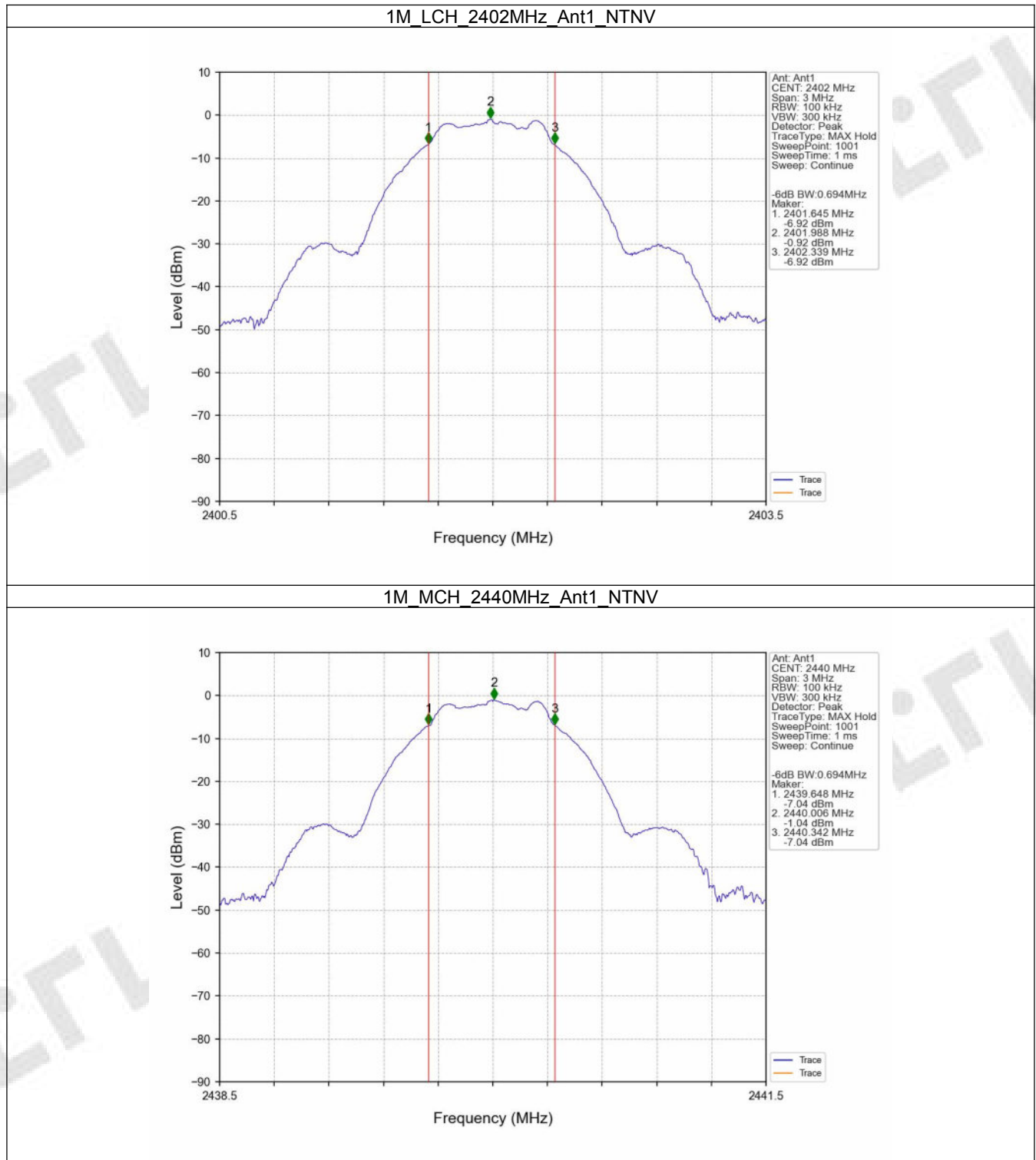
2M\_MCH\_2440MHz\_Ant1\_NTNV



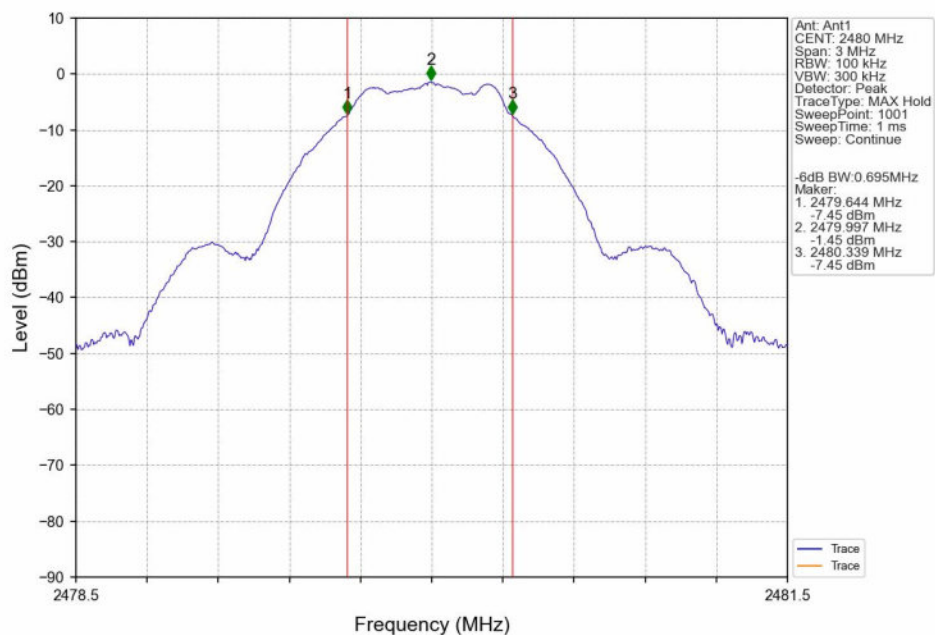
2M\_HCH\_2480MHz\_Ant1\_NTNV



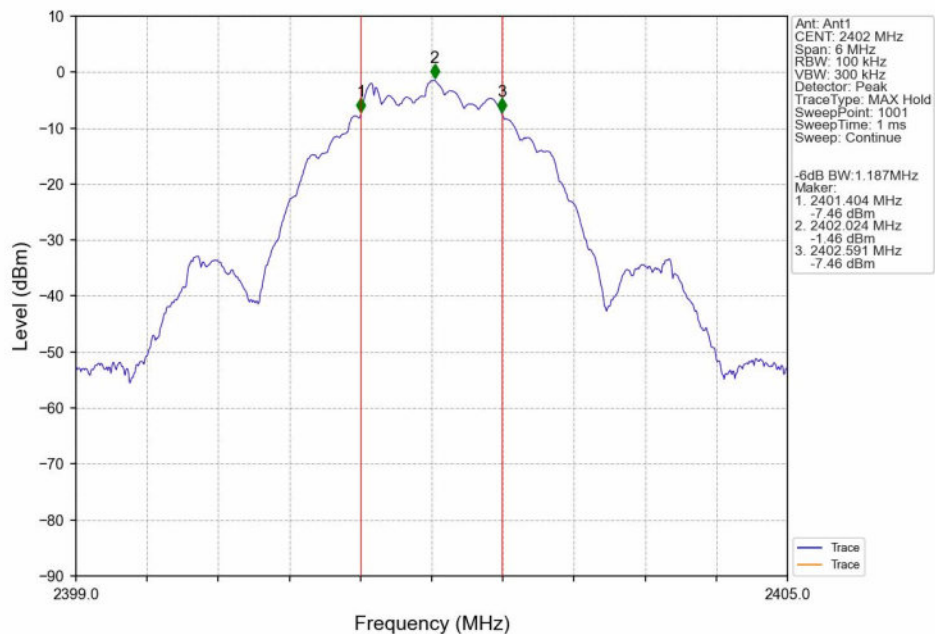
### 2.2.2 6dB BW



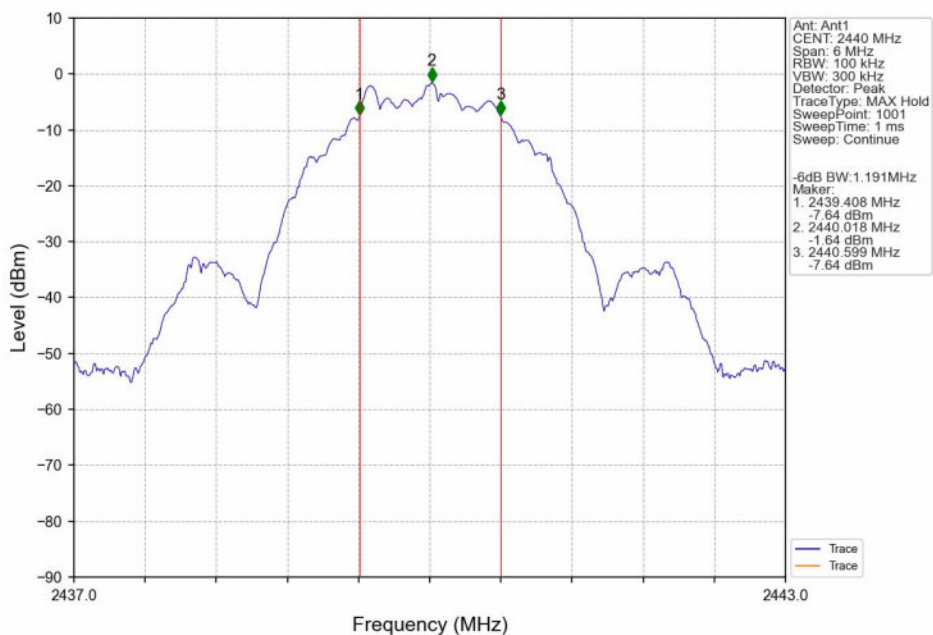
1M\_HCH\_2480MHz\_Ant1\_NTNV



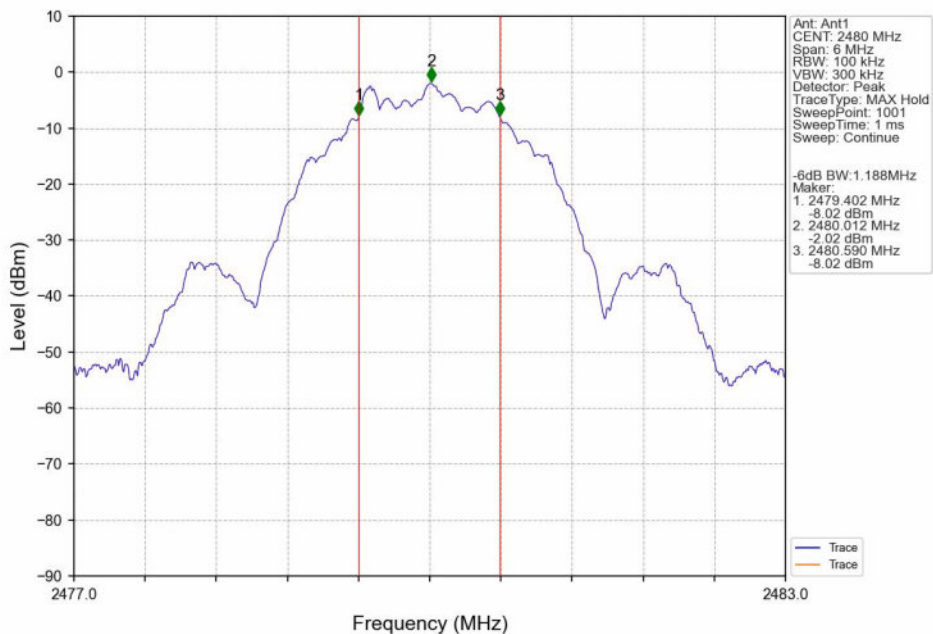
2M\_LCH\_2402MHz\_Ant1\_NTNV



2M\_MCH\_2440MHz\_Ant1\_NTNV



2M\_HCH\_2480MHz\_Ant1\_NTNV



### 3. Maximum Conducted Output Power

#### 3.1 Test Result

##### 3.1.1 Power

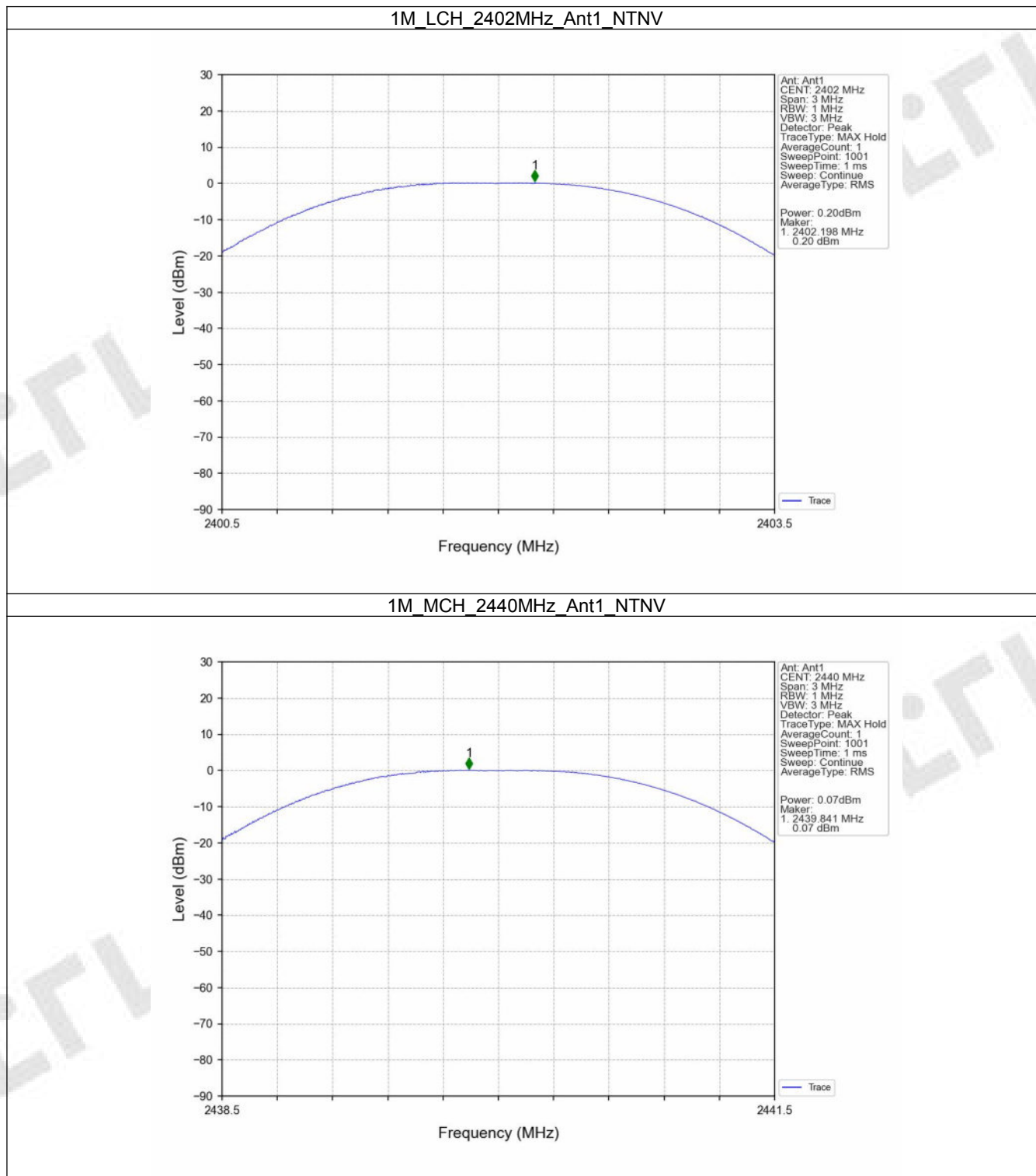
| Mode | TX Type | Frequency (MHz) | Maximum Peak Conducted Output Power (dBm) |       | Verdict |
|------|---------|-----------------|-------------------------------------------|-------|---------|
|      |         |                 | ANT1                                      | Limit |         |
| 1M   | SISO    | 2402            | 0.20                                      | <=30  | Pass    |
|      |         | 2440            | 0.07                                      | <=30  | Pass    |
|      |         | 2480            | -0.39                                     | <=30  | Pass    |
| 2M   | SISO    | 2402            | -0.02                                     | <=30  | Pass    |
|      |         | 2440            | -0.06                                     | <=30  | Pass    |
|      |         | 2480            | -0.49                                     | <=30  | Pass    |

Note1: Antenna Gain: Ant1: 2.39dBi;

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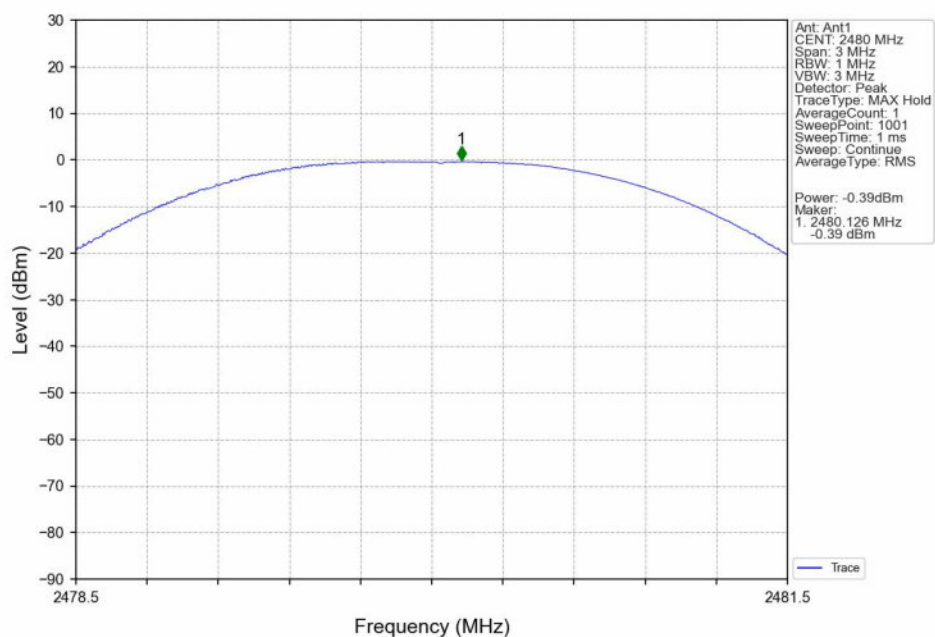
## 3.2 Test Graph

### 3.2.1 Power

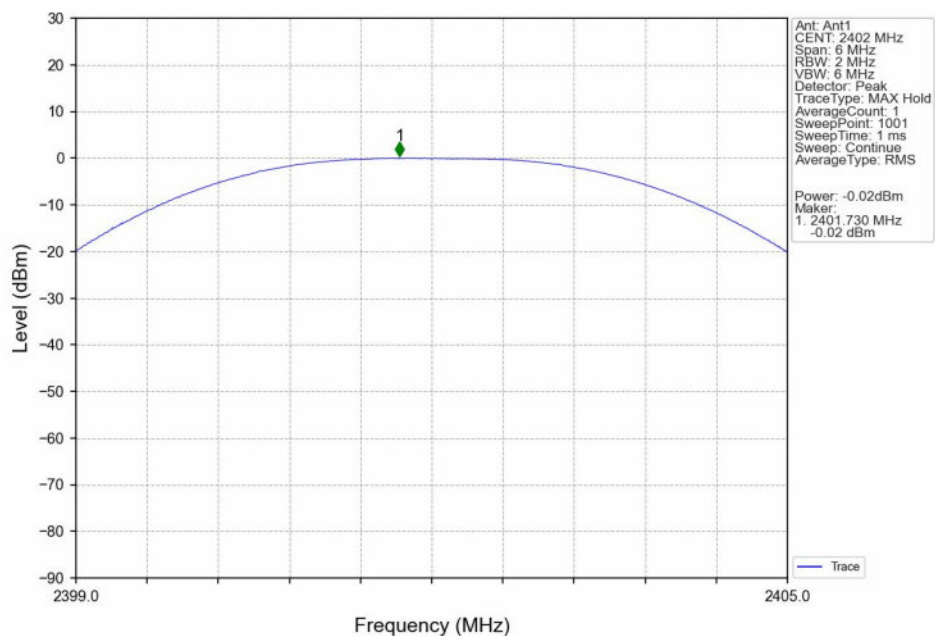


FCC ID: 2BNCJ-PLYR-P2

1M\_HCH\_2480MHz\_Ant1\_NTNV

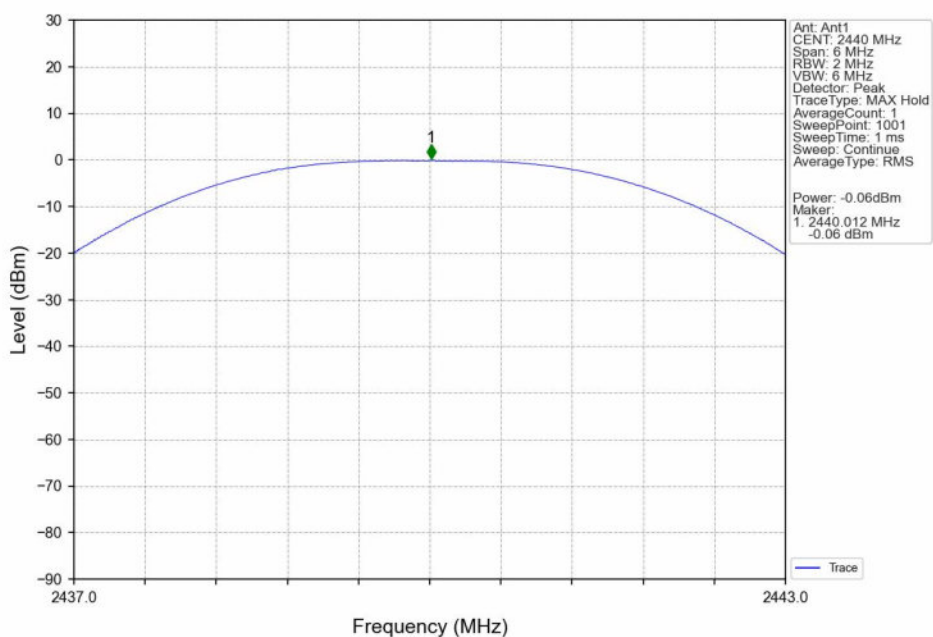


2M\_LCH\_2402MHz\_Ant1\_NTNV

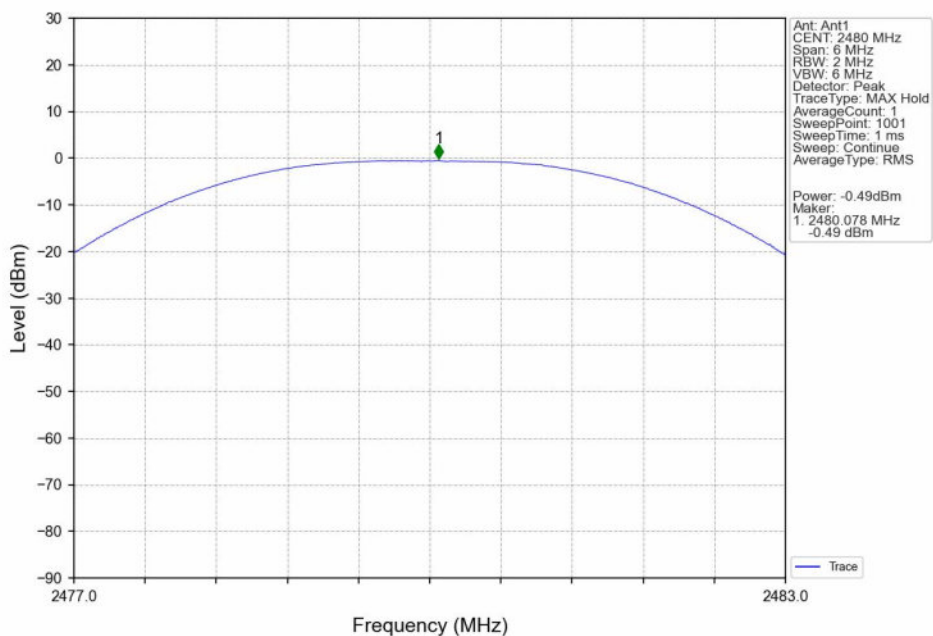


FCC ID: 2BNCJ-PLYR-P2

2M\_MCH\_2440MHz\_Ant1\_NTNV



2M\_HCH\_2480MHz\_Ant1\_NTNV



## 4. Maximum Power Spectral Density

### 4.1 Test Result

#### 4.1.1 PSD

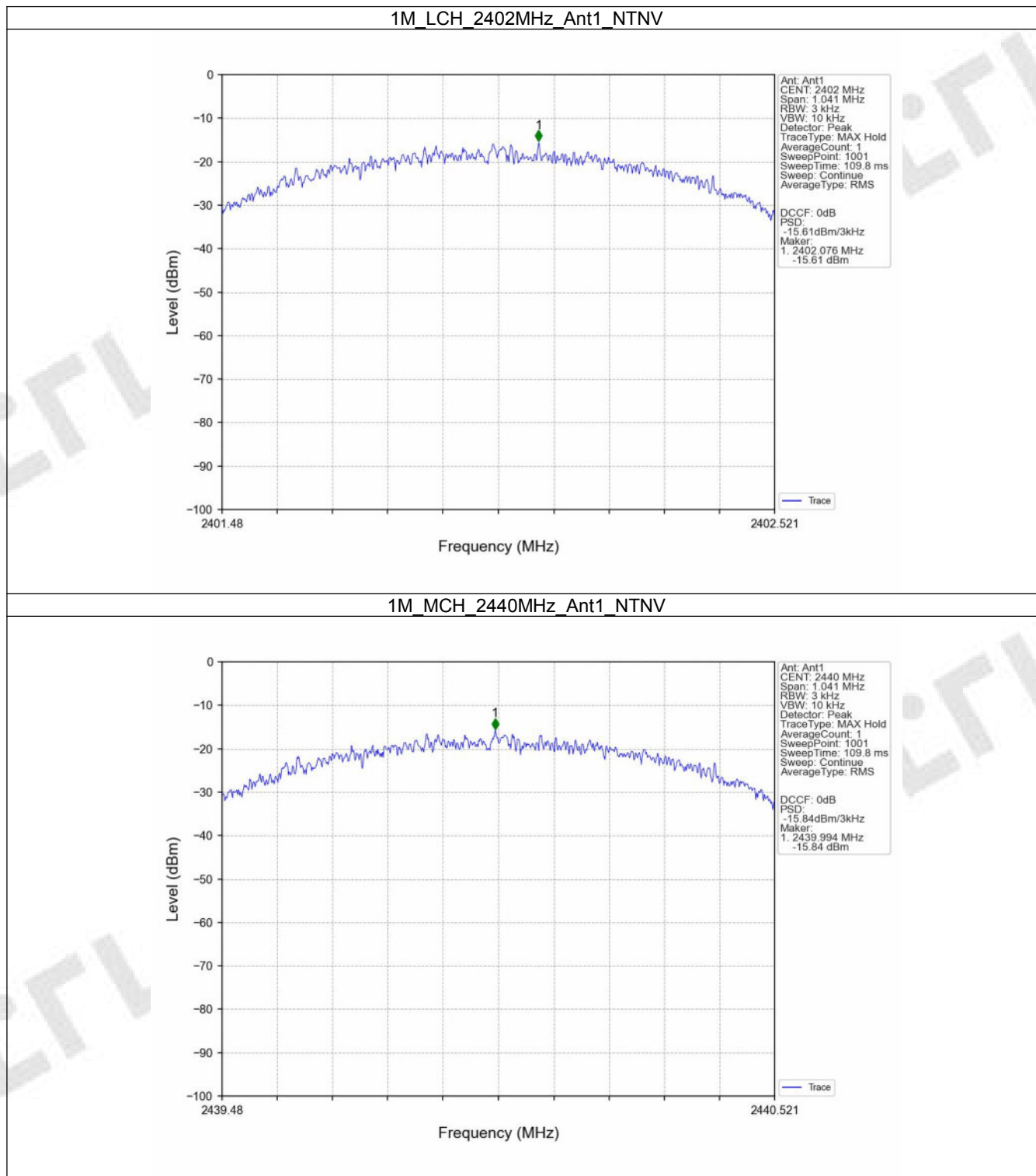
| Mode | TX Type | Frequency (MHz) | Maximum PSD (dBm/3kHz) |       | Verdict |
|------|---------|-----------------|------------------------|-------|---------|
|      |         |                 | ANT1                   | Limit |         |
| 1M   | SISO    | 2402            | -15.61                 | <=8   | Pass    |
|      |         | 2440            | -15.84                 | <=8   | Pass    |
|      |         | 2480            | -16.40                 | <=8   | Pass    |
| 2M   | SISO    | 2402            | -19.35                 | <=8   | Pass    |
|      |         | 2440            | -19.44                 | <=8   | Pass    |
|      |         | 2480            | -19.71                 | <=8   | Pass    |

Note1: Antenna Gain: Ant1: 2.39dBi;

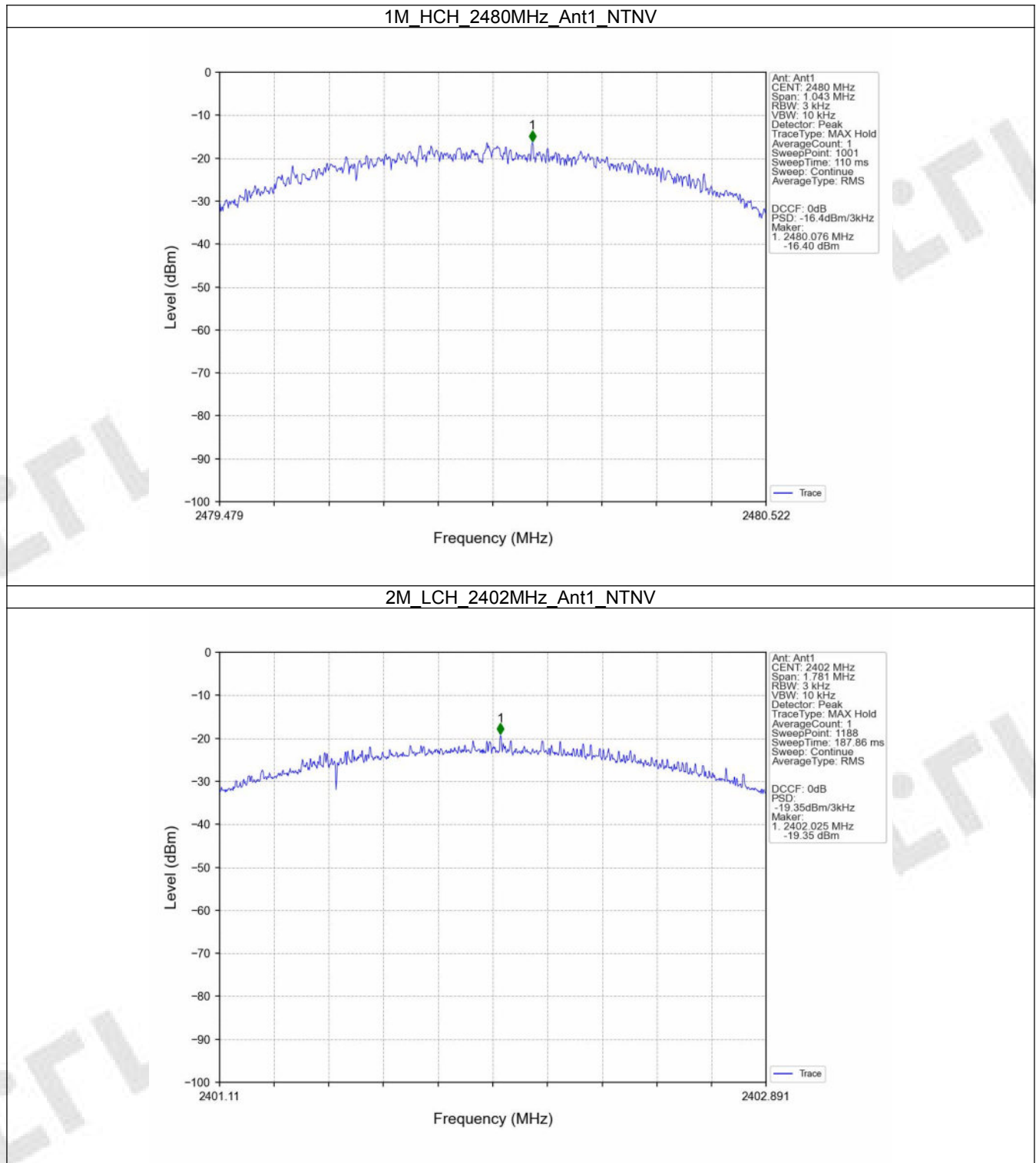
FCC ID: 2BNCJ-PLYR-P2

## 4.2 Test Graph

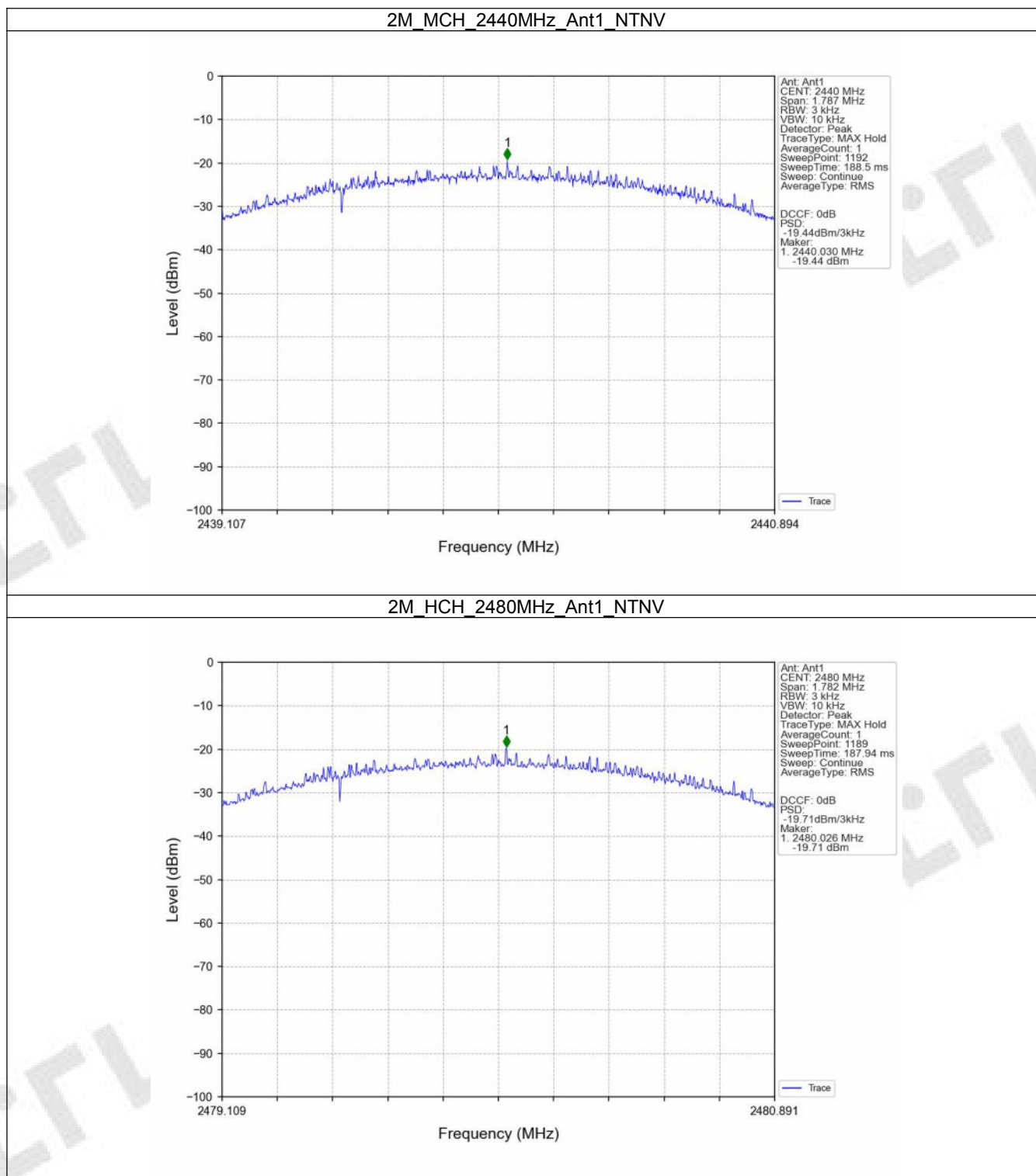
### 4.2.1 PSD



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FCC ID: 2BNCJ-PLYR-P2



## 5. Unwanted Emissions In Non-restricted Frequency Bands

### 5.1 Test Result

#### 5.1.1 Ref

| Mode | TX Type | Frequency (MHz) | ANT | Level of Reference (dBm) |
|------|---------|-----------------|-----|--------------------------|
| 1M   | SISO    | 2402            | 1   | -1.02                    |
|      |         | 2440            | 1   | -1.11                    |
|      |         | 2480            | 1   | -1.62                    |
| 2M   | SISO    | 2402            | 1   | -1.75                    |
|      |         | 2440            | 1   | -1.93                    |
|      |         | 2480            | 1   | -2.32                    |

Note1: Refer to FCC Part 15.247 (d) and ANSI C63.10-2013, the channel contains the maximum PSD level was used to establish the reference level.

#### 5.1.2 CSE

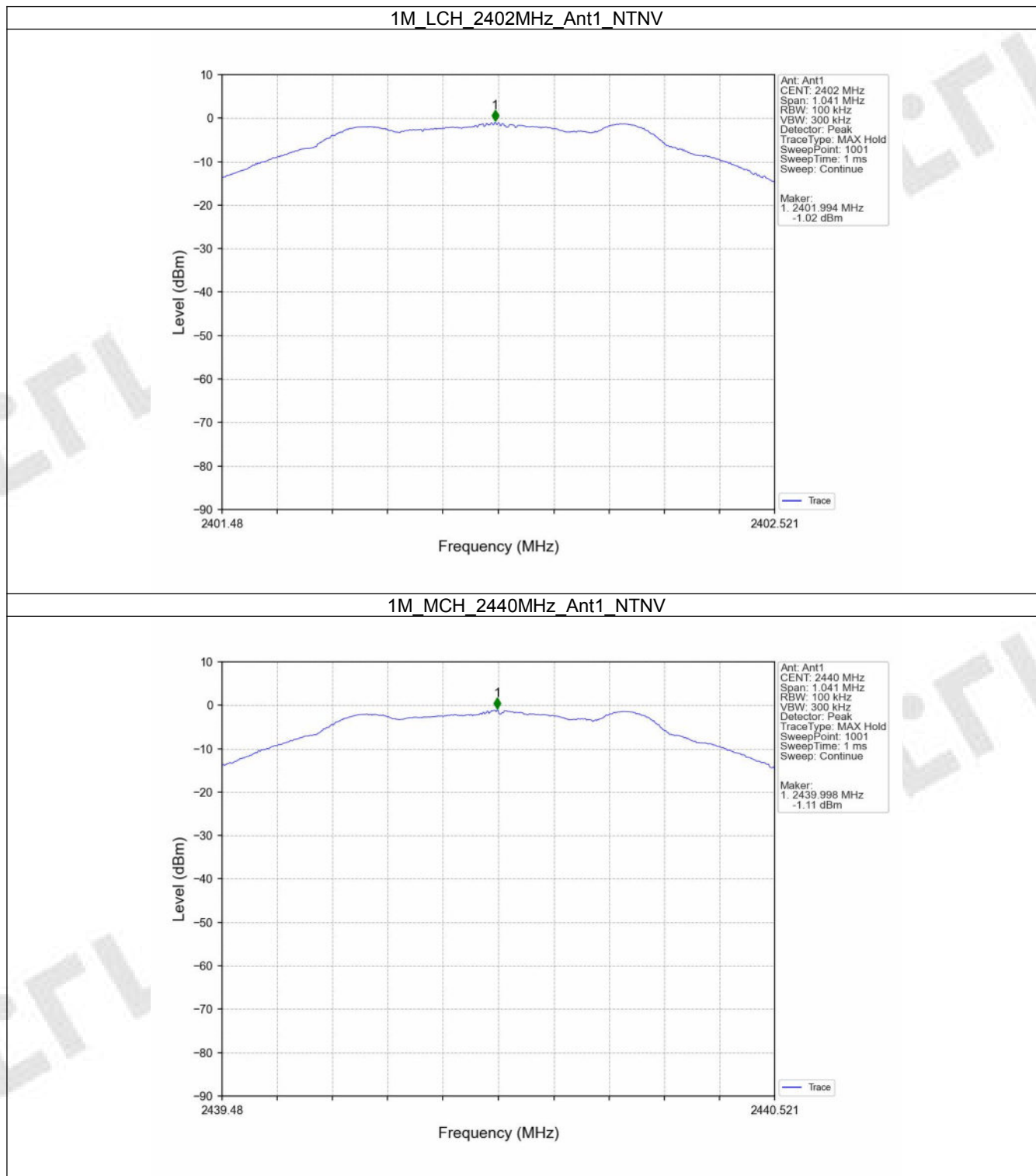
| Mode | TX Type | Frequency (MHz) | ANT | Level of Reference (dBm) | Limit (dBm) | Verdict |
|------|---------|-----------------|-----|--------------------------|-------------|---------|
| 1M   | SISO    | 2402            | 1   | -1.02                    | -21.02      | Pass    |
|      |         | 2440            | 1   | -1.02                    | -21.02      | Pass    |
|      |         | 2480            | 1   | -1.02                    | -21.02      | Pass    |
| 2M   | SISO    | 2402            | 1   | -1.75                    | -21.75      | Pass    |
|      |         | 2440            | 1   | -1.75                    | -21.75      | Pass    |
|      |         | 2480            | 1   | -1.75                    | -21.75      | Pass    |

Note1: Refer to FCC Part 15.247 (d) and ANSI C63.10-2013, the channel contains the maximum PSD level was used to establish the reference level.

FCC ID: 2BNCJ-PLYR-P2

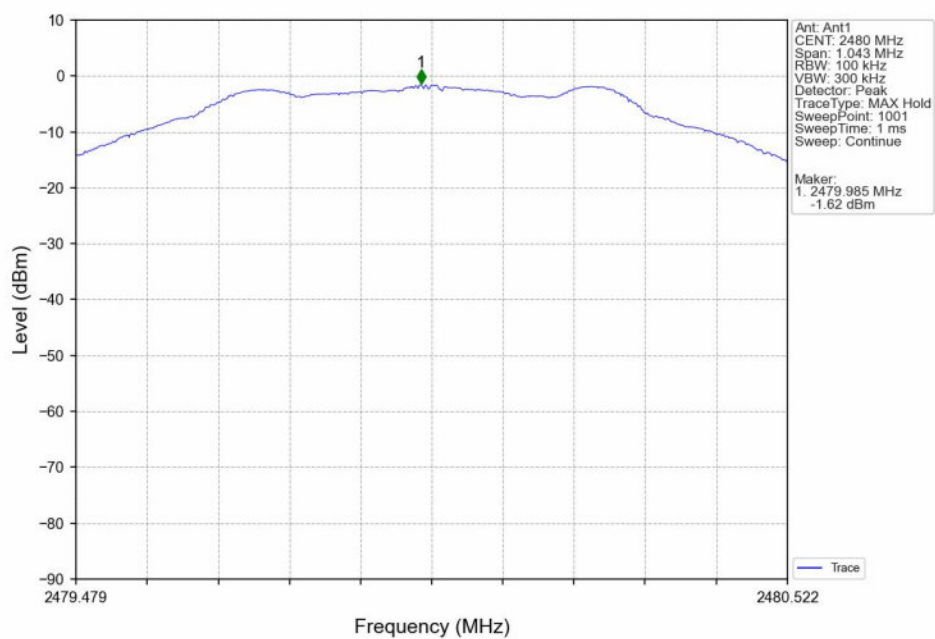
## 5.2 Test Graph

### 5.2.1 Ref

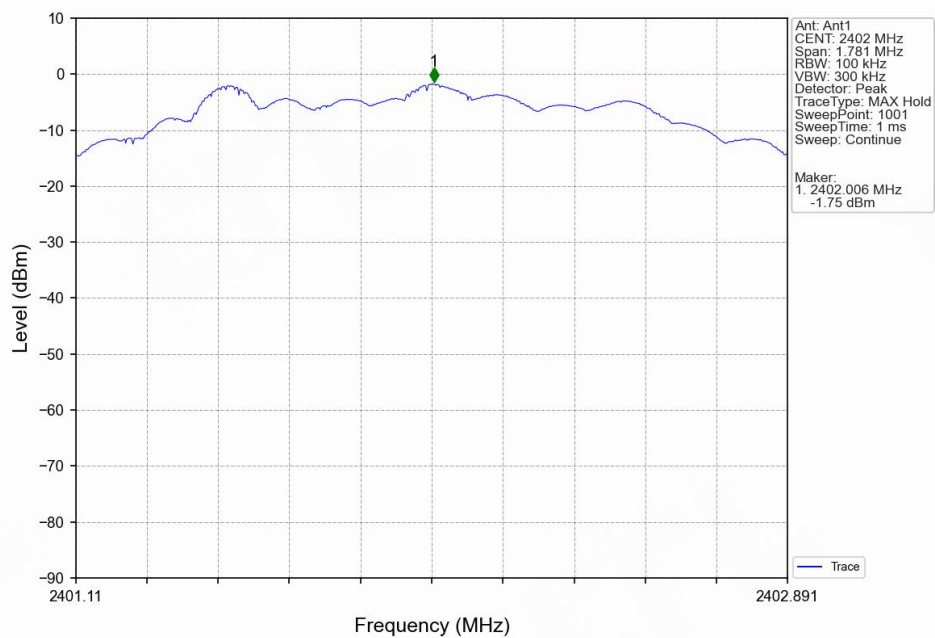


FCC ID: 2BNCJ-PLYR-P2

1M\_HCH\_2480MHz\_Ant1\_NTNV

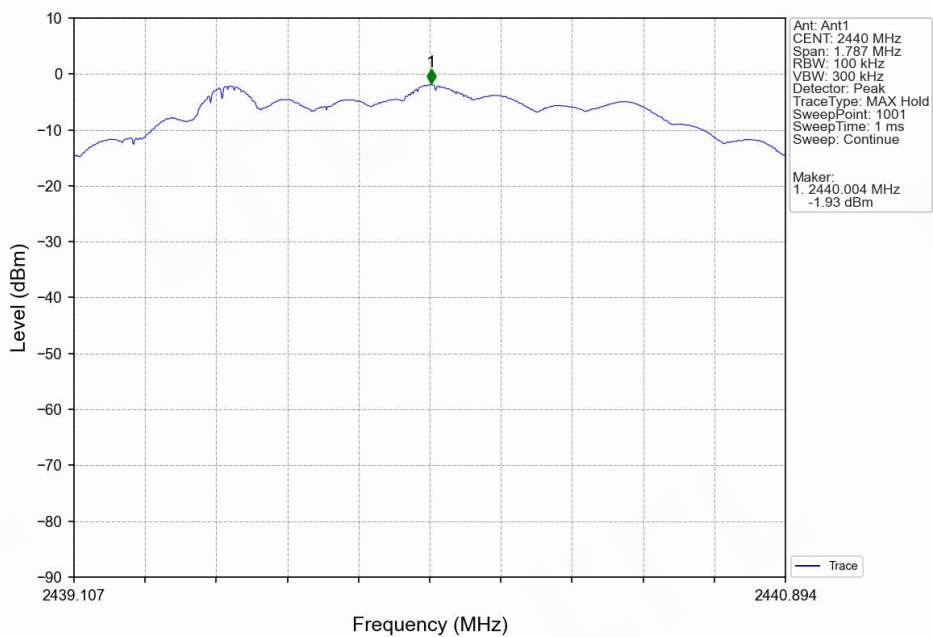


2M\_LCH\_2402MHz\_Ant1\_NTNV

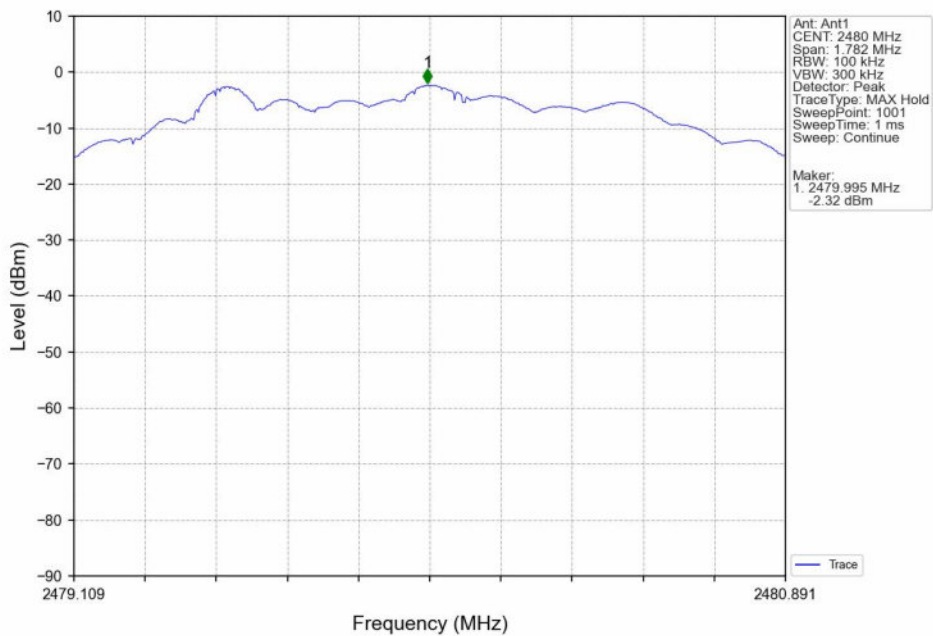


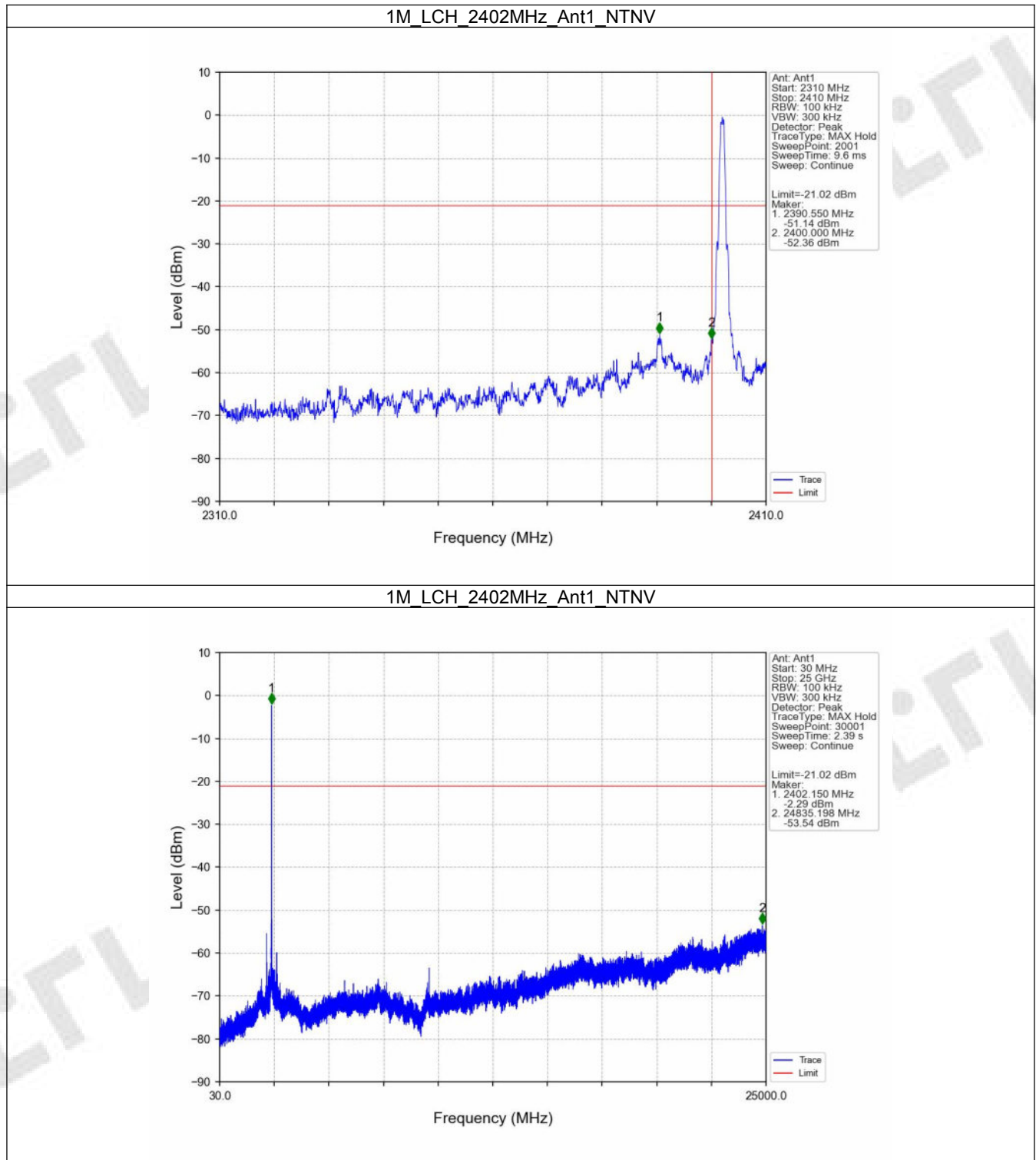
FCC ID: 2BNCJ-PLYR-P2

2M\_MCH\_2440MHz\_Ant1\_NTNV



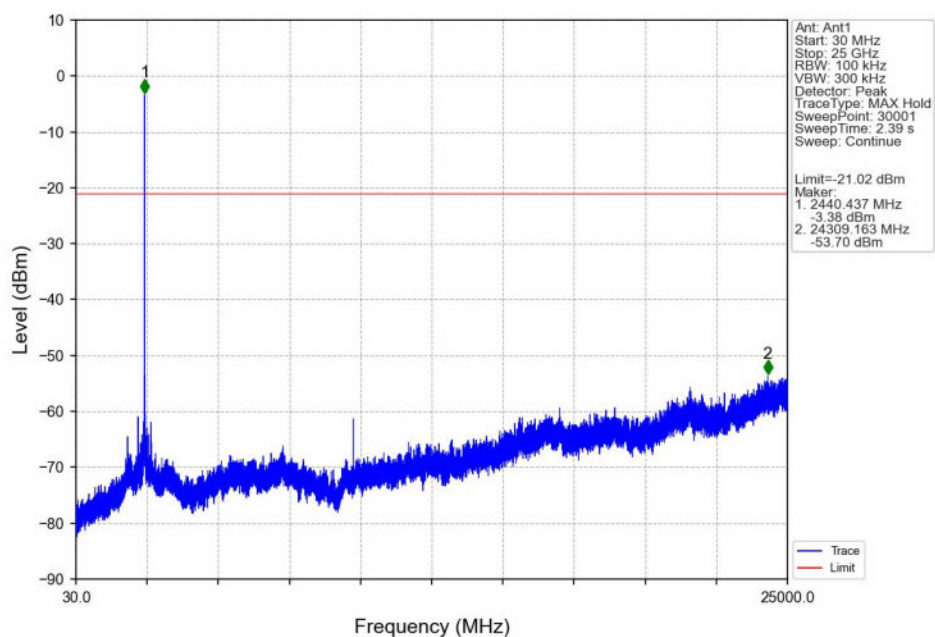
2M\_HCH\_2480MHz\_Ant1\_NTNV



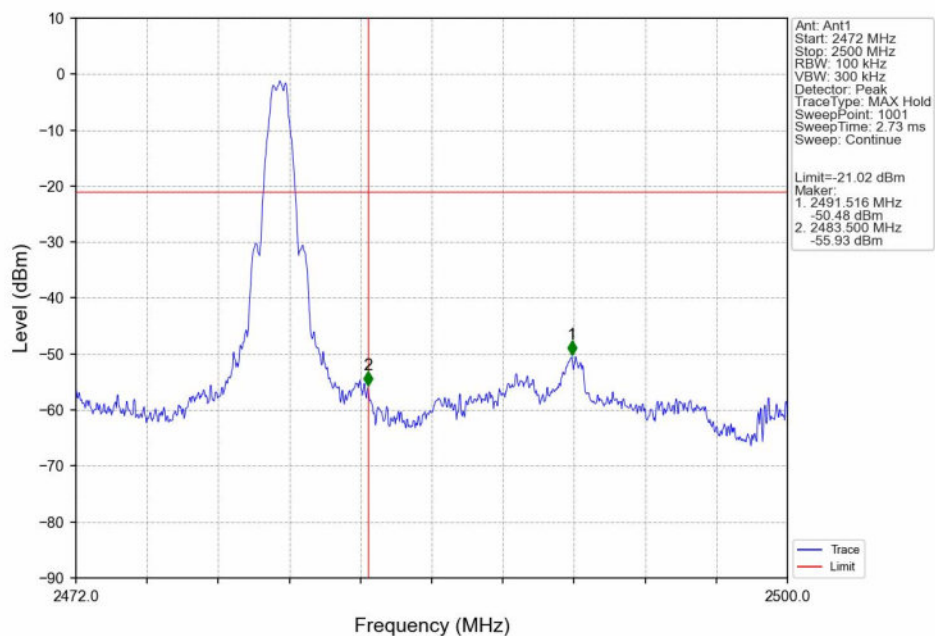
**5.2.2 CSE**

FCC ID: 2BNCJ-PLYR-P2

1M\_MCH\_2440MHz\_Ant1\_NTNV

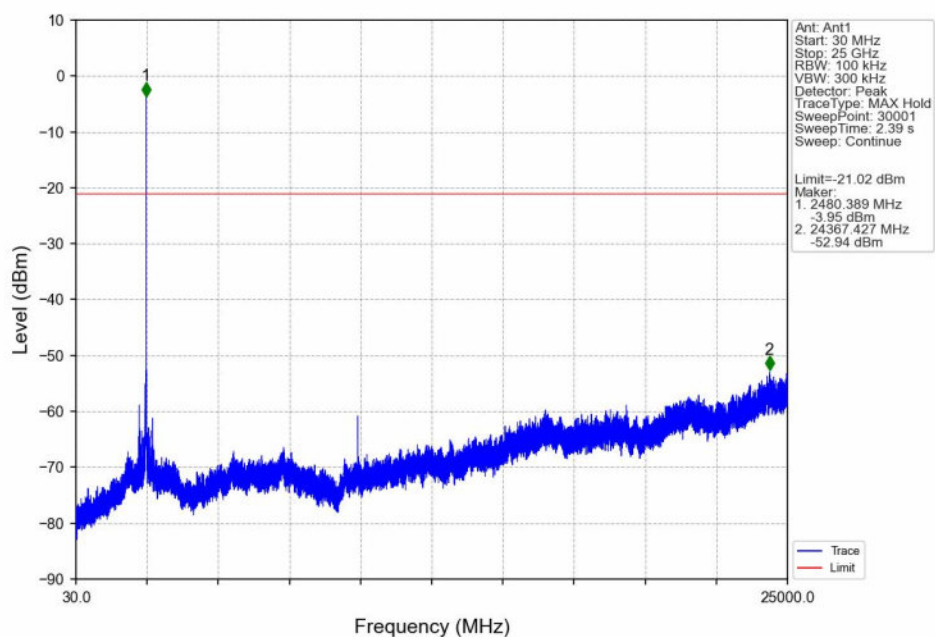


1M\_HCH\_2480MHz\_Ant1\_NTNV

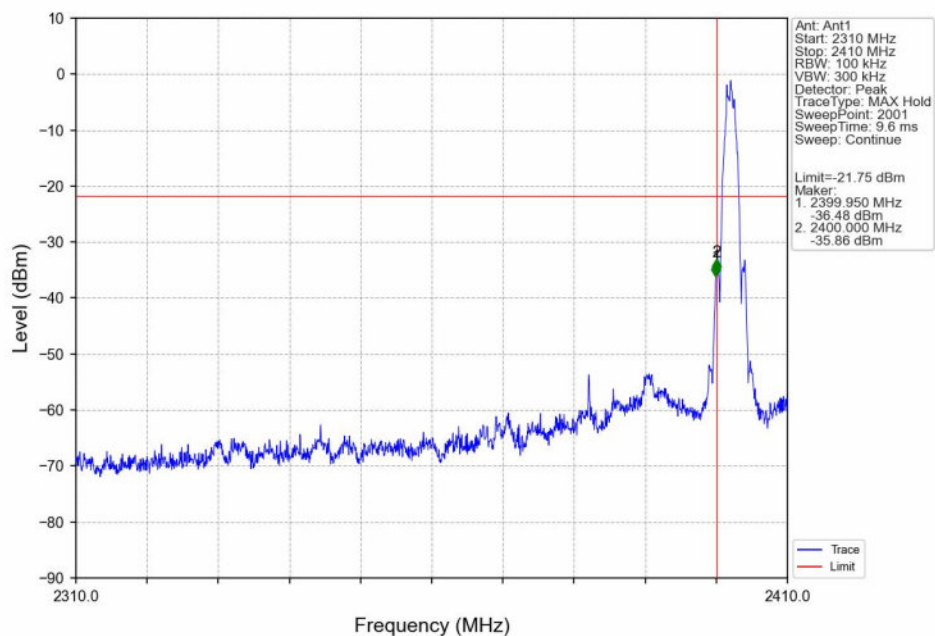


FCC ID: 2BNCJ-PLYR-P2

1M\_HCH\_2480MHz\_Ant1\_NTNV

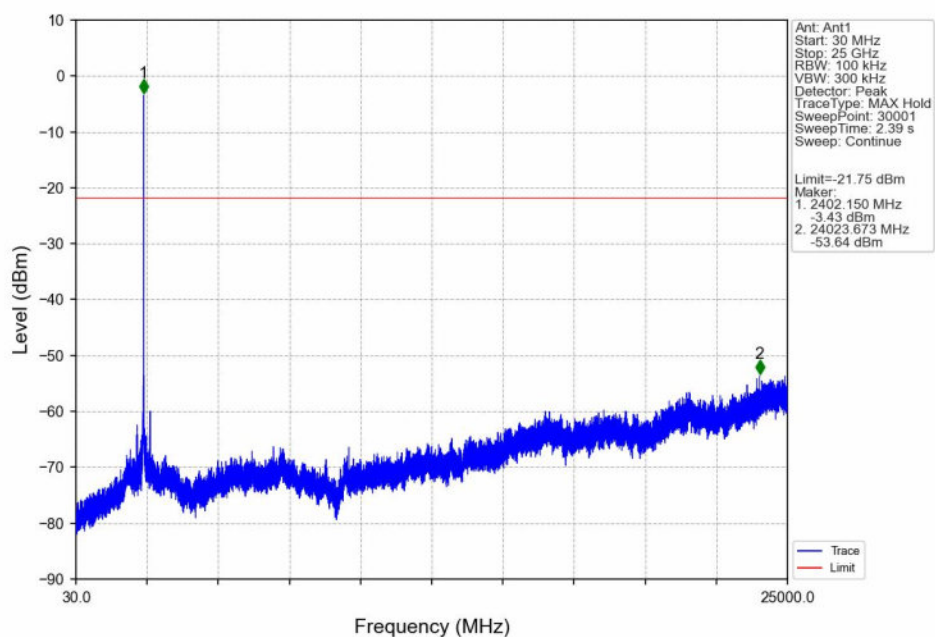


2M\_LCH\_2402MHz\_Ant1\_NTNV

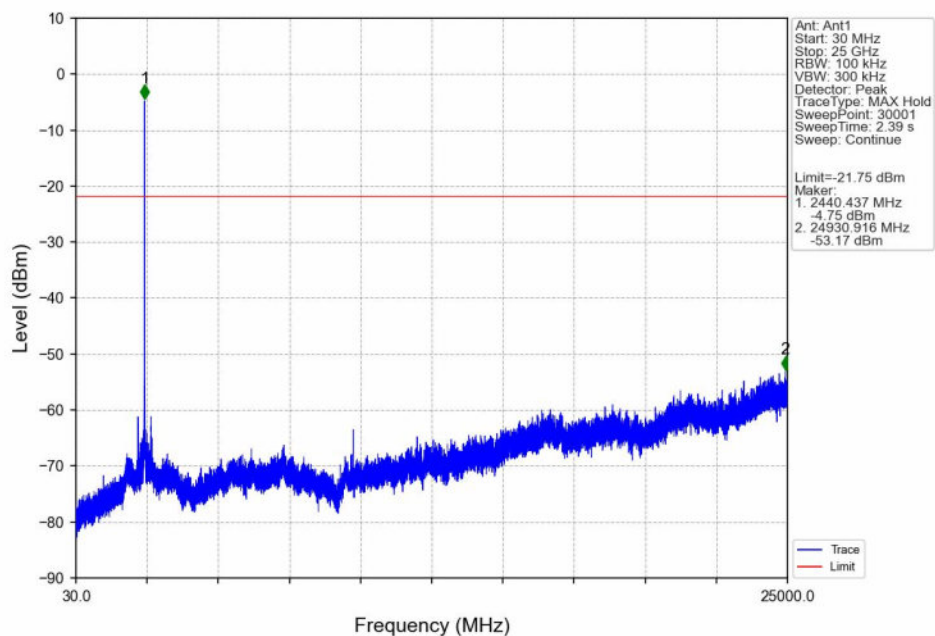


FCC ID: 2BNCJ-PLYR-P2

2M\_LCH\_2402MHz\_Ant1\_NTNV

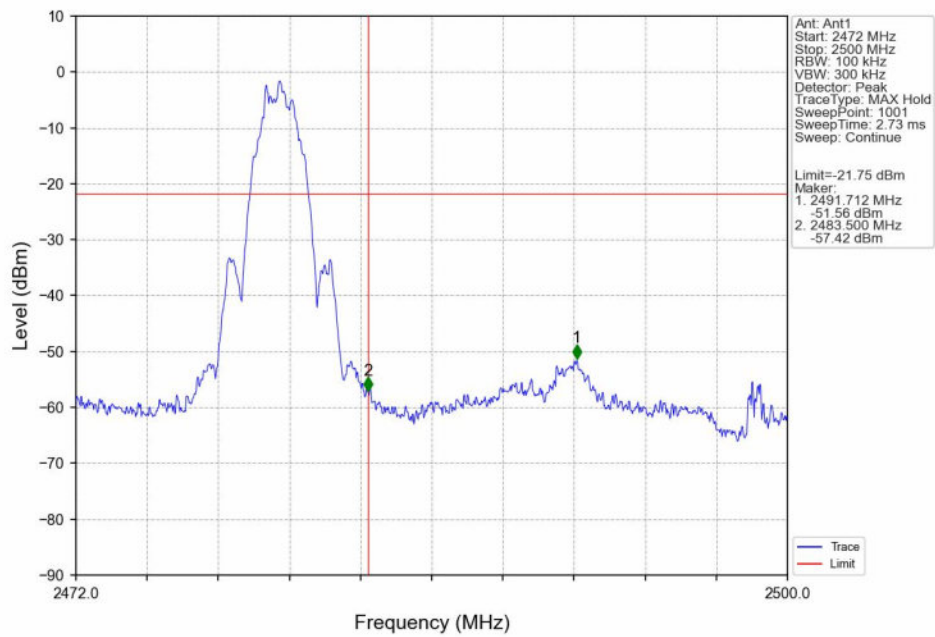


2M\_MCH\_2440MHz\_Ant1\_NTNV



FCC ID: 2BNCJ-PLYR-P2

2M\_HCH\_2480MHz\_Ant1\_NTNV



2M\_HCH\_2480MHz\_Ant1\_NTNV

