

## **Appendix RF test data for BLE**

## 1. Duty Cycle

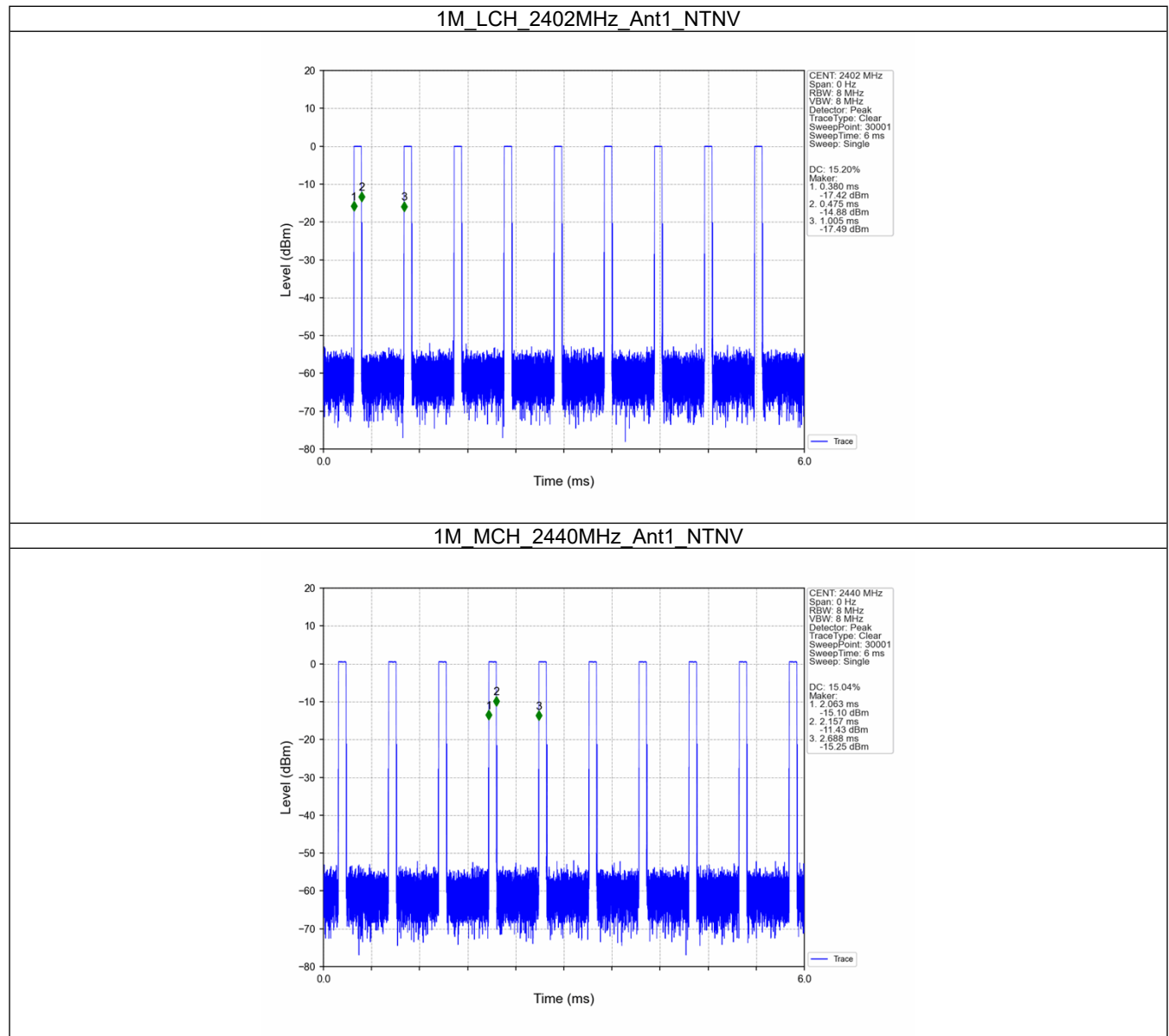
### 1.1 Test Result

#### 1.1.1 Ant1

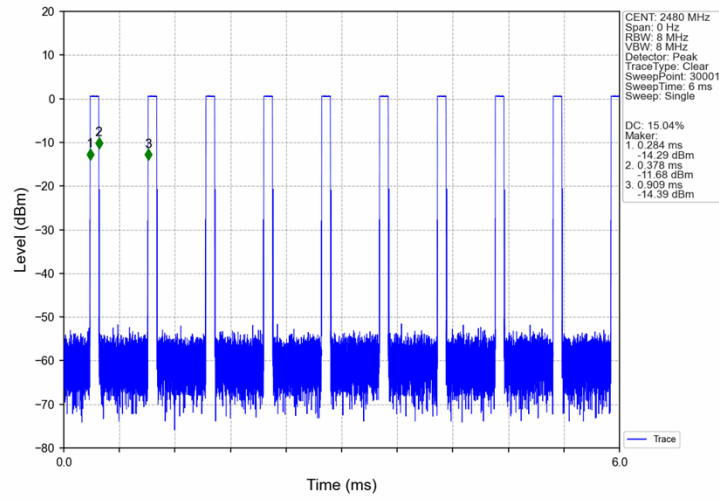
| Ant1 |         |                 |           |             |                |                                   |                       |
|------|---------|-----------------|-----------|-------------|----------------|-----------------------------------|-----------------------|
| Mode | TX Type | Frequency (MHz) | T_on (ms) | Period (ms) | Duty Cycle (%) | Duty Cycle Correction Factor (dB) | Max. DC Variation (%) |
| 1M   | SISO    | 2402            | 0.095     | 0.625       | 15.20          | 8.18                              | 0.00                  |
|      |         | 2440            | 0.094     | 0.625       | 15.04          | 8.23                              | 0.03                  |
|      |         | 2480            | 0.094     | 0.625       | 15.04          | 8.23                              | 0.00                  |
| 2M   | SISO    | 2402            | 0.063     | 0.625       | 10.08          | 9.97                              | 0.00                  |
|      |         | 2440            | 0.063     | 0.625       | 10.08          | 9.97                              | 0.00                  |
|      |         | 2480            | 0.063     | 0.625       | 10.08          | 9.97                              | 0.00                  |

## 1.2 Test Graph

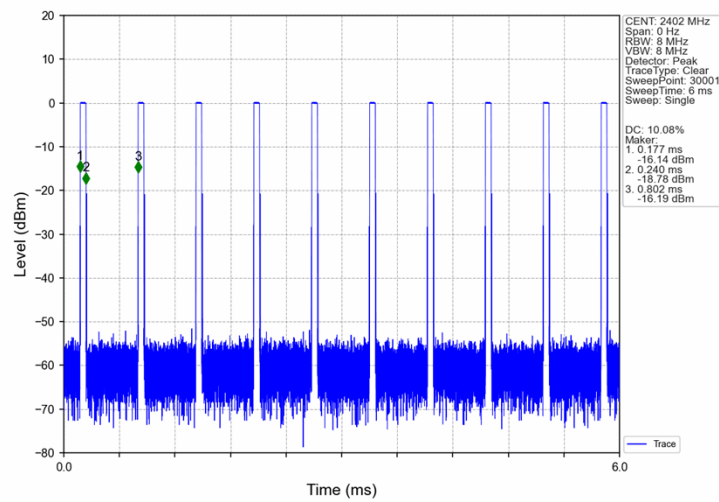
### 1.2.1 Ant1



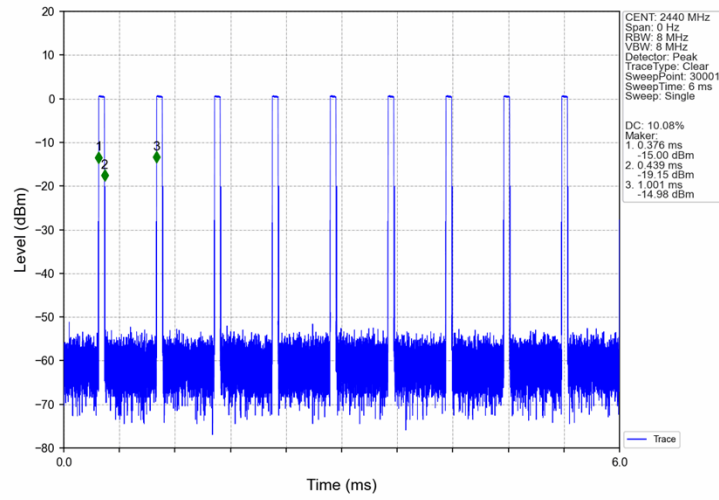
### 1M\_HCH\_2480MHz\_Ant1\_NTNV



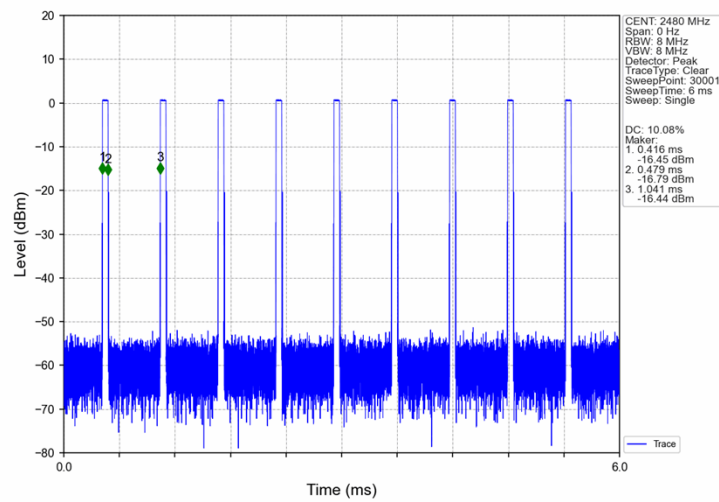
### 2M\_LCH\_2402MHz\_Ant1\_NTNV



### 2M\_MCH\_2440MHz\_Ant1\_NTNV



### 2M\_HCH\_2480MHz\_Ant1\_NTNV



## 2. Bandwidth

### 2.1 Test Result

#### 2.1.1 OBW

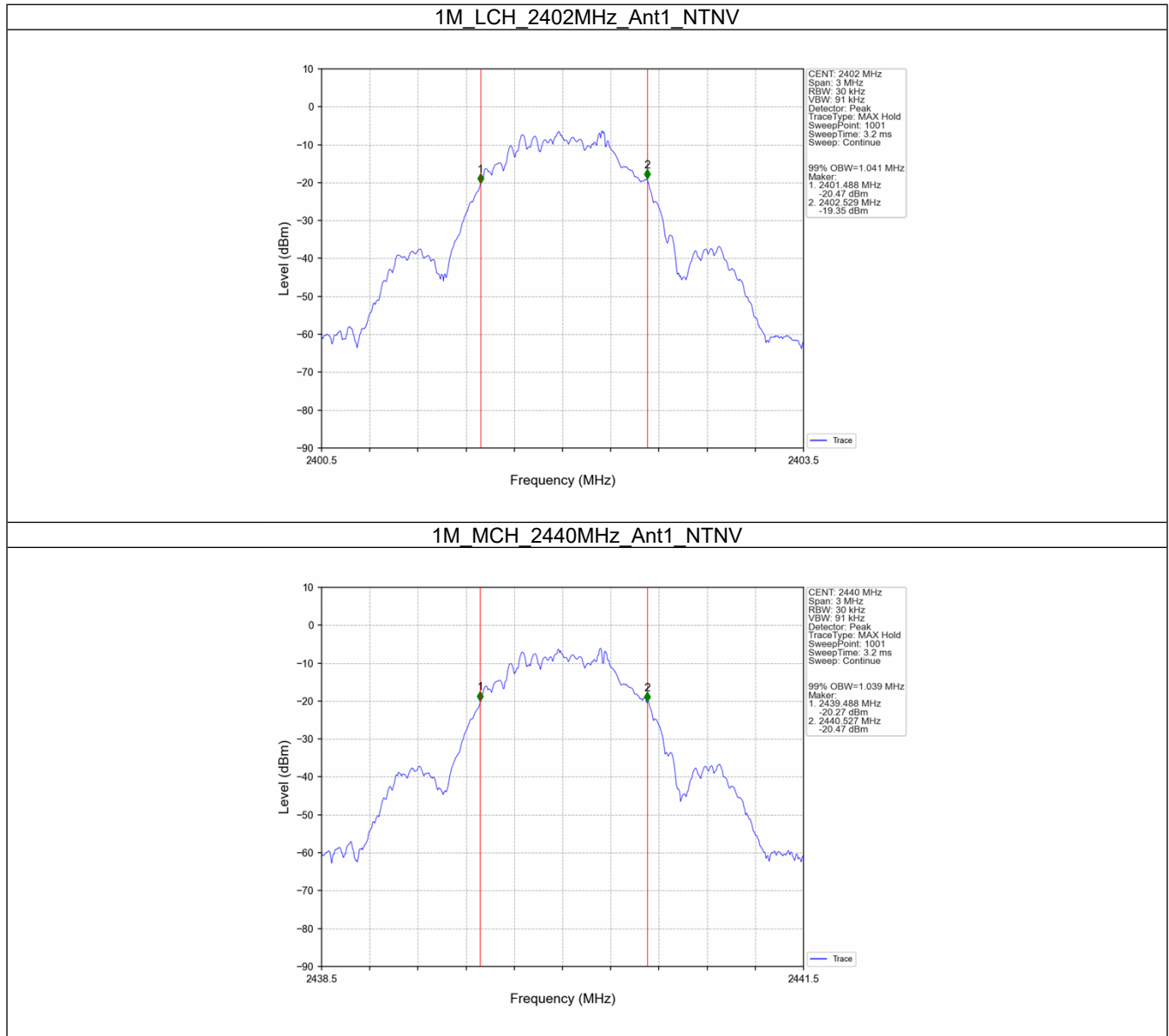
| Mode | TX Type | Frequency (MHz) | ANT | 99% Occupied Bandwidth (MHz) |       | Verdict |
|------|---------|-----------------|-----|------------------------------|-------|---------|
|      |         |                 |     | Result                       | Limit |         |
| 1M   | SISO    | 2402            | 1   | 1.041                        | /     | Pass    |
|      |         | 2440            | 1   | 1.039                        | /     | Pass    |
|      |         | 2480            | 1   | 1.036                        | /     | Pass    |
| 2M   | SISO    | 2402            | 1   | 2.078                        | /     | Pass    |
|      |         | 2440            | 1   | 2.077                        | /     | Pass    |
|      |         | 2480            | 1   | 2.078                        | /     | Pass    |

#### 2.1.2 6dB BW

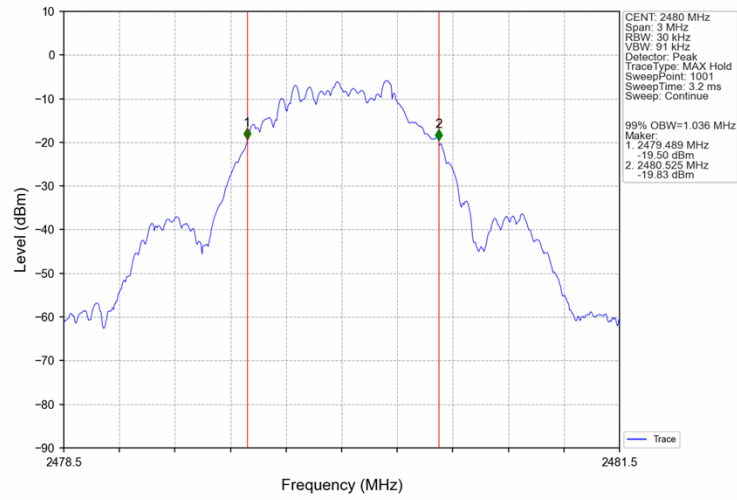
| Mode | TX Type | Frequency (MHz) | ANT | 6dB Bandwidth (MHz) |            | Verdict |
|------|---------|-----------------|-----|---------------------|------------|---------|
|      |         |                 |     | Result              | Limit      |         |
| 1M   | SISO    | 2402            | 1   | 0.669               | $\geq 0.5$ | Pass    |
|      |         | 2440            | 1   | 0.672               | $\geq 0.5$ | Pass    |
|      |         | 2480            | 1   | 0.672               | $\geq 0.5$ | Pass    |
| 2M   | SISO    | 2402            | 1   | 1.192               | $\geq 0.5$ | Pass    |
|      |         | 2440            | 1   | 1.180               | $\geq 0.5$ | Pass    |
|      |         | 2480            | 1   | 1.188               | $\geq 0.5$ | Pass    |

## 2.2 Test Graph

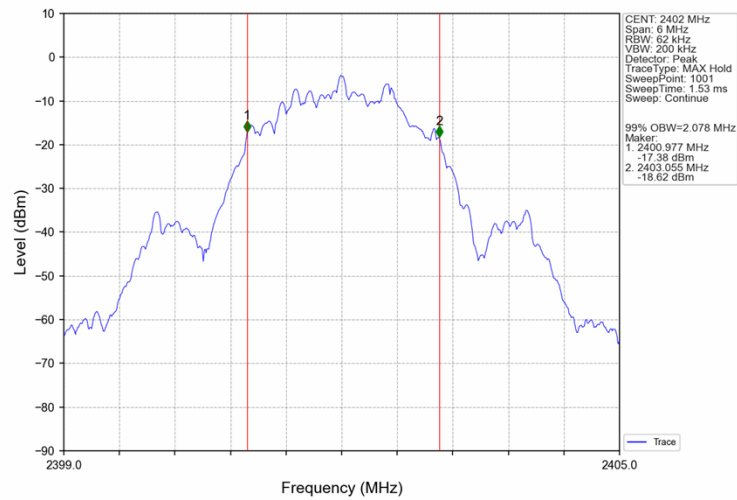
### 2.2.1 OBW



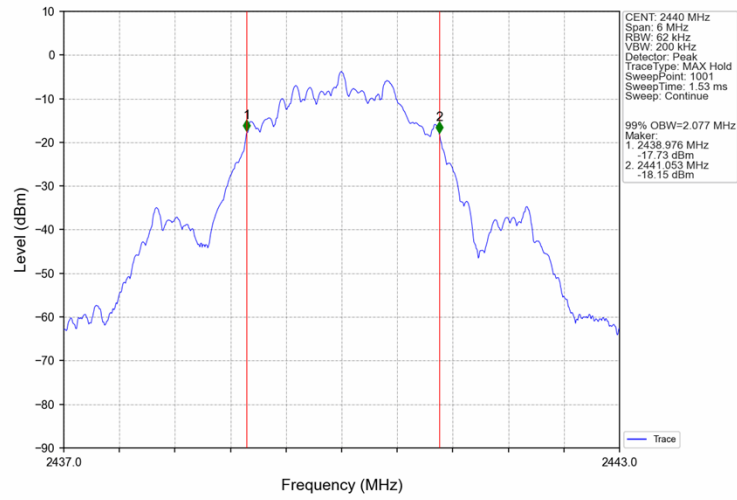
### 1M\_HCH\_2480MHz\_Ant1\_NTNV



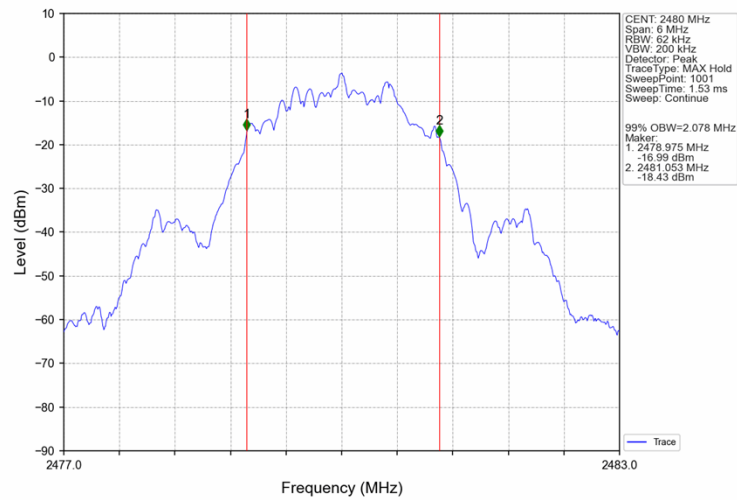
### 2M\_LCH\_2402MHz\_Ant1\_NTNV



### 2M\_MCH\_2440MHz\_Ant1\_NTNV

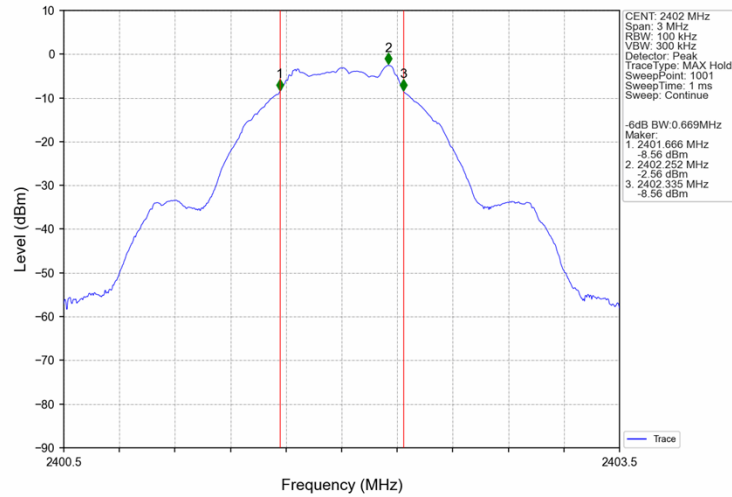


### 2M\_HCH\_2480MHz\_Ant1\_NTNV

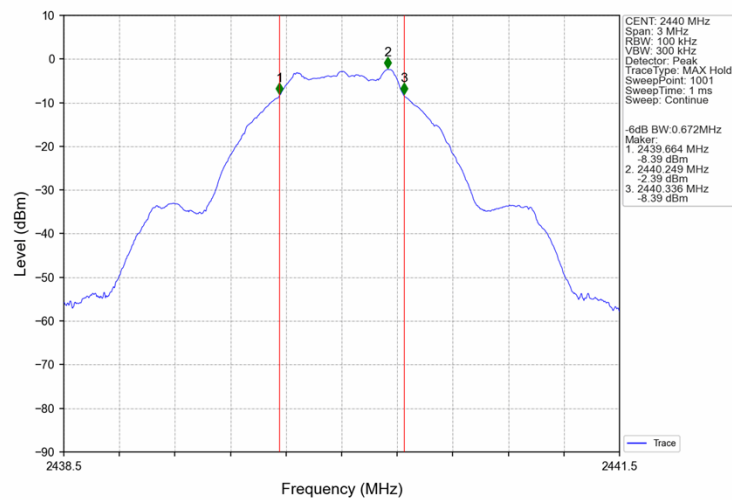


## 2.2.2 6dB BW

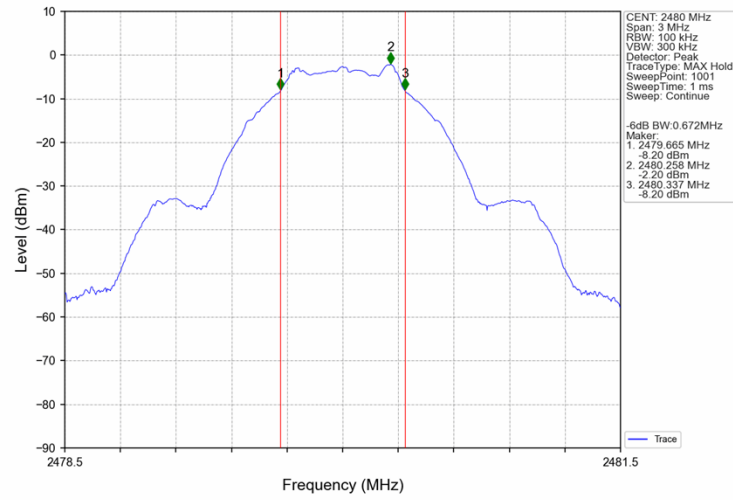
1M\_LCH\_2402MHz\_Ant1\_NTNV



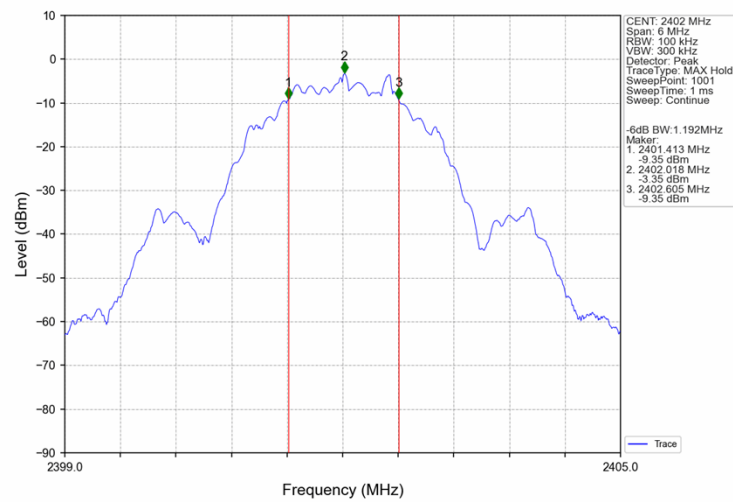
1M\_MCH\_2440MHz\_Ant1\_NTNV



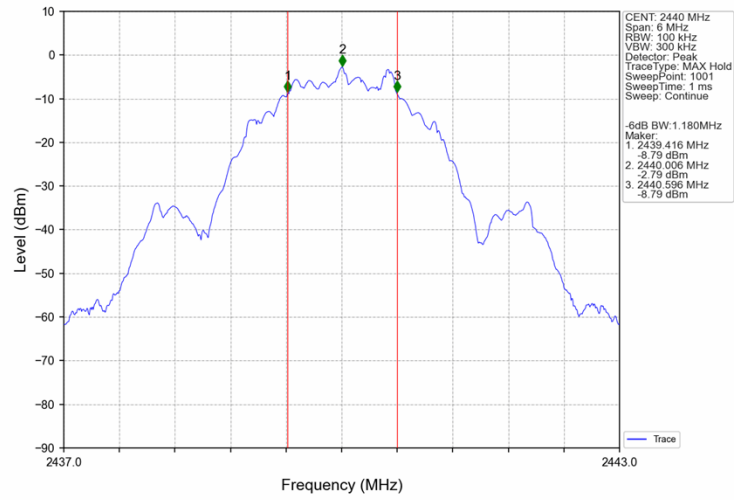
### 1M\_HCH\_2480MHz\_Ant1\_NTNV



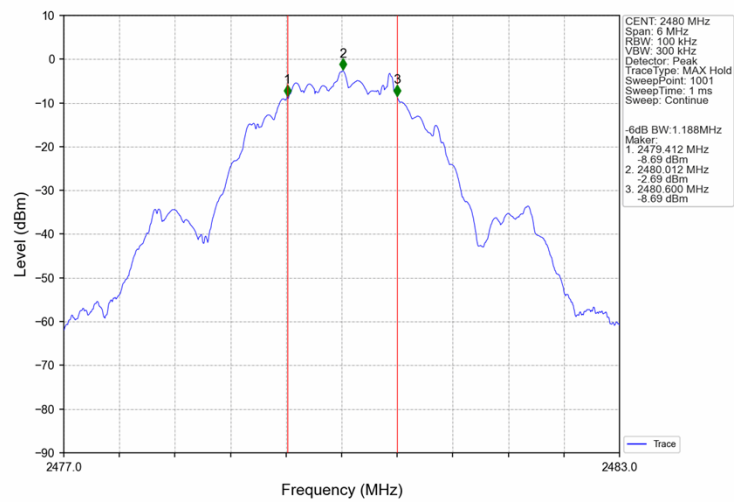
### 2M\_LCH\_2402MHz\_Ant1\_NTNV



### 2M\_MCH\_2440MHz\_Ant1\_NTNV



### 2M\_HCH\_2480MHz\_Ant1\_NTNV



### 3. Maximum Conducted Output Power

#### 3.1 Test Result

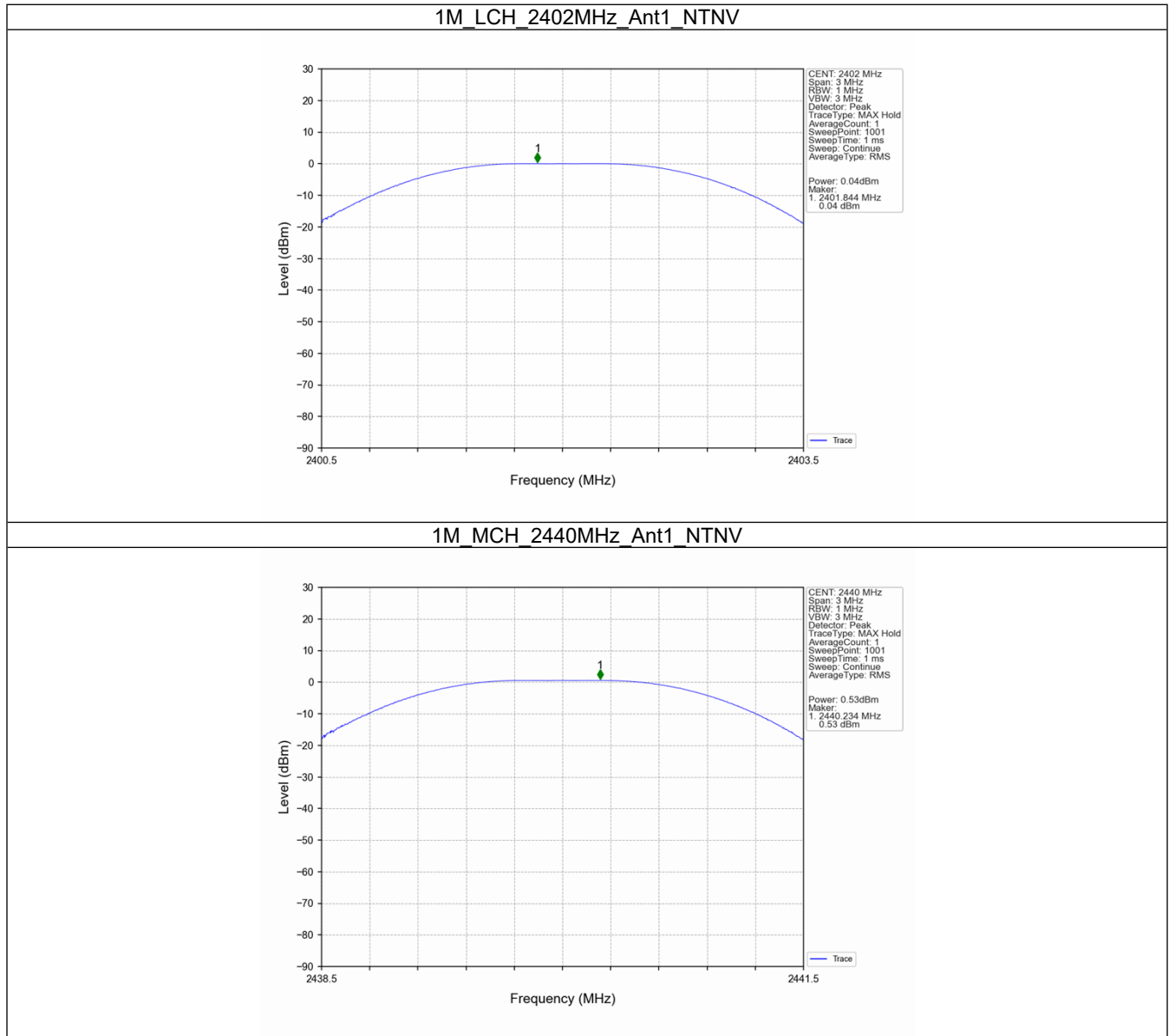
##### 3.1.1 Power

| Mode | TX Type | Frequency (MHz) | Maximum Peak Conducted Output Power (dBm) |       | Verdict |
|------|---------|-----------------|-------------------------------------------|-------|---------|
|      |         |                 | ANT1                                      | Limit |         |
| 1M   | SISO    | 2402            | 0.04                                      | <=30  | Pass    |
|      |         | 2440            | 0.53                                      | <=30  | Pass    |
|      |         | 2480            | 0.61                                      | <=30  | Pass    |
| 2M   | SISO    | 2402            | 0.06                                      | <=30  | Pass    |
|      |         | 2440            | 0.58                                      | <=30  | Pass    |
|      |         | 2480            | 0.65                                      | <=30  | Pass    |

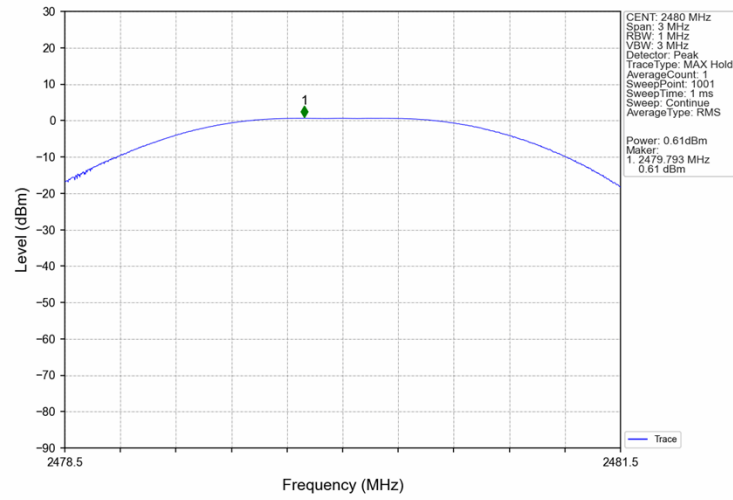
Note1: Antenna Gain: Ant1: -0.58dBi;

## 3.2 Test Graph

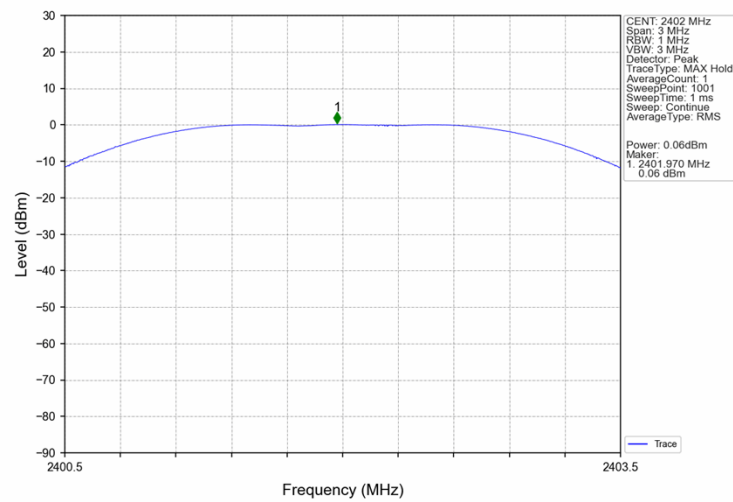
### 3.2.1 Power



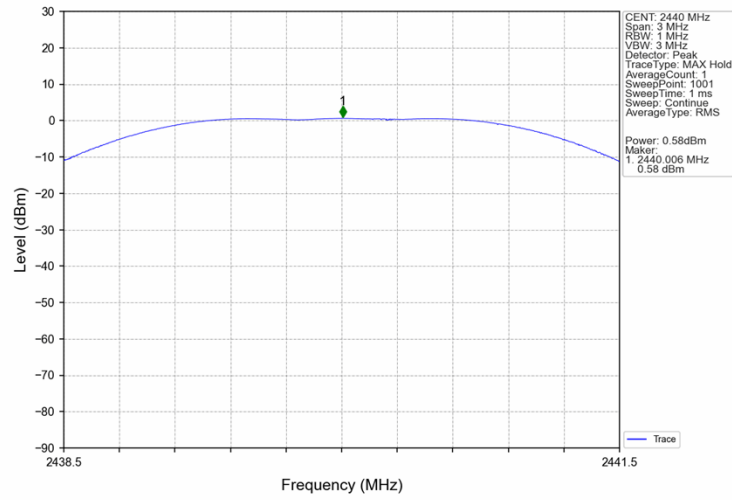
### 1M\_HCH\_2480MHz\_Ant1\_NTNV



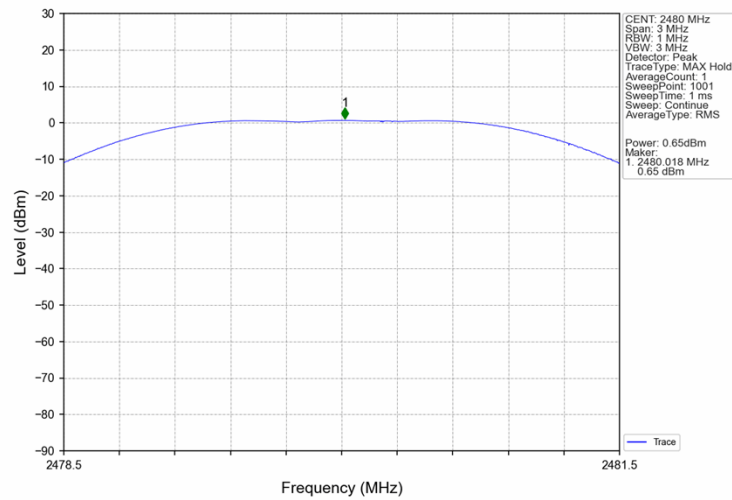
### 2M\_LCH\_2402MHz\_Ant1\_NTNV



### 2M\_MCH\_2440MHz\_Ant1\_NTNV



### 2M\_HCH\_2480MHz\_Ant1\_NTNV



## 4. Maximum Power Spectral Density

### 4.1 Test Result

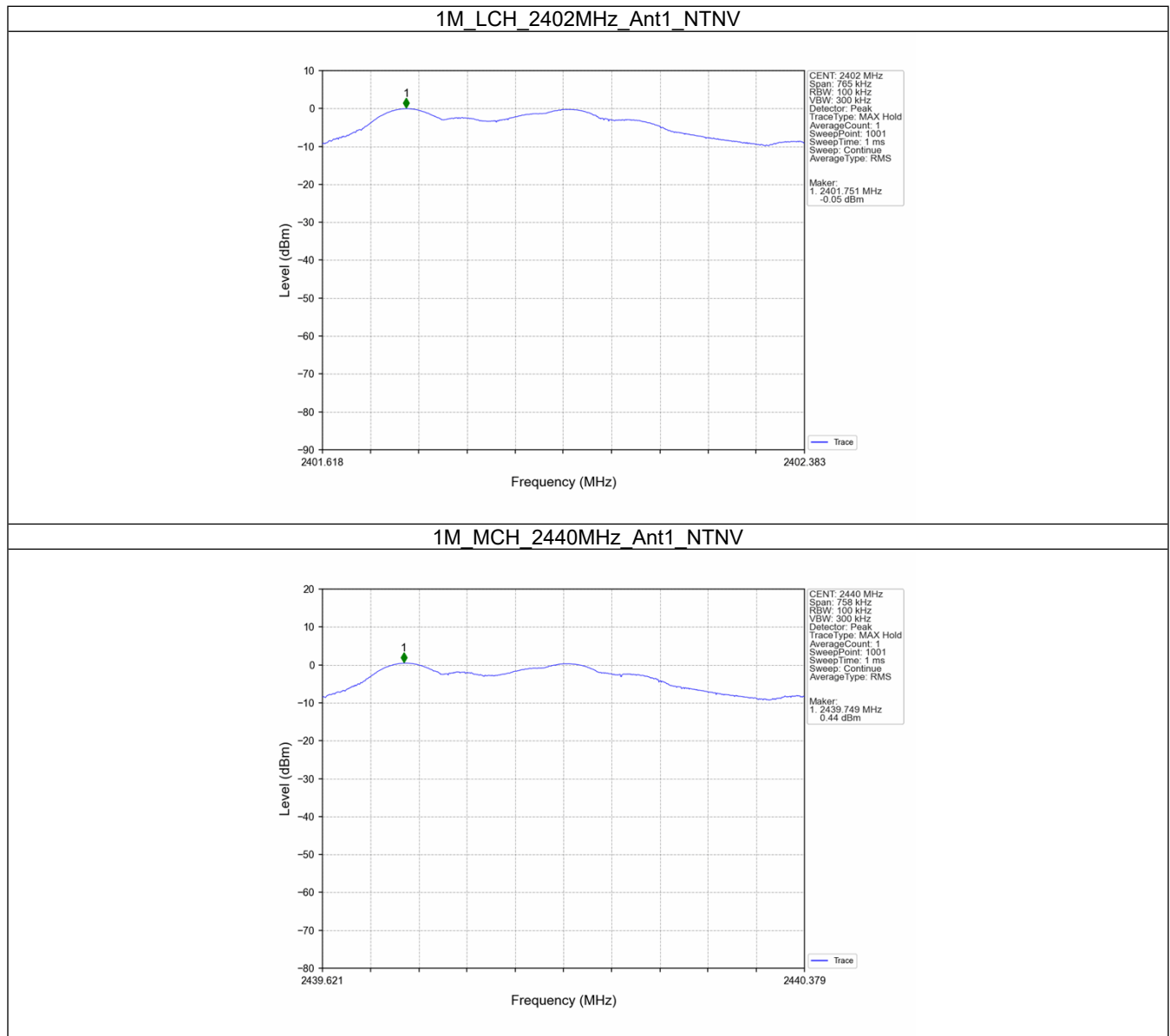
#### 4.1.1 PSD

| Mode | TX Type | Frequency (MHz) | Maximum PSD (dBm/3KHz) |       | Verdict |
|------|---------|-----------------|------------------------|-------|---------|
|      |         |                 | ANT1                   | Limit |         |
| 1M   | SISO    | 2402            | -0.05                  | <=8   | Pass    |
|      |         | 2440            | 0.44                   | <=8   | Pass    |
|      |         | 2480            | 0.53                   | <=8   | Pass    |
| 2M   | SISO    | 2402            | -0.22                  | <=8   | Pass    |
|      |         | 2440            | 0.28                   | <=8   | Pass    |
|      |         | 2480            | 0.37                   | <=8   | Pass    |

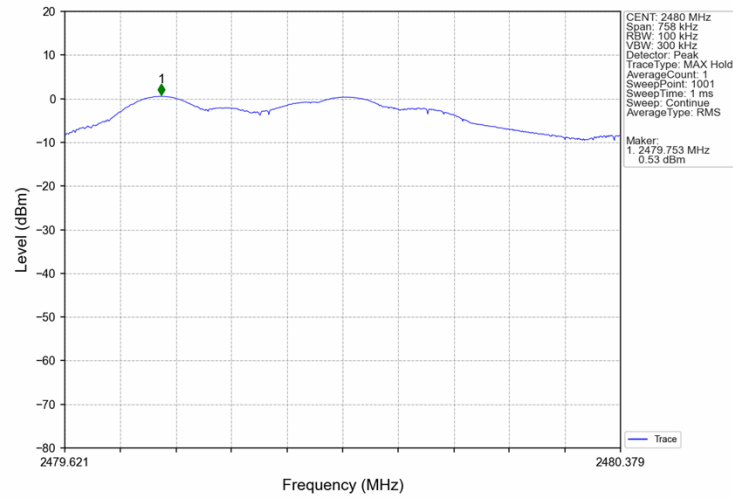
Note1: Antenna Gain: Ant1: -0.58dBi;

## 4.2 Test Graph

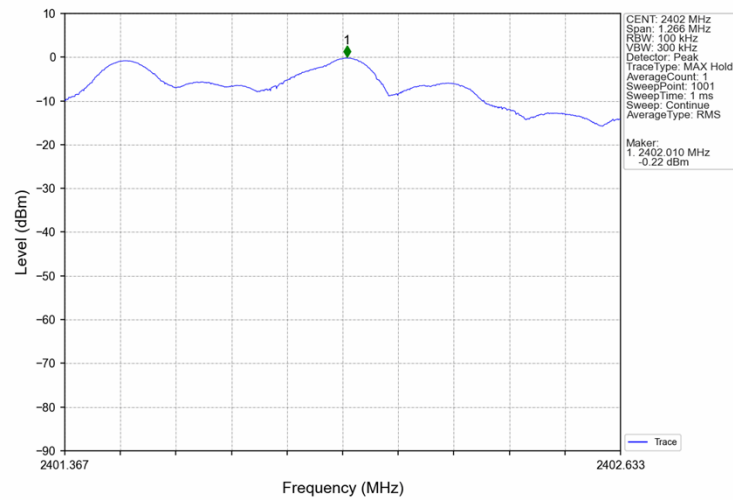
#### 4.2.1 PSD



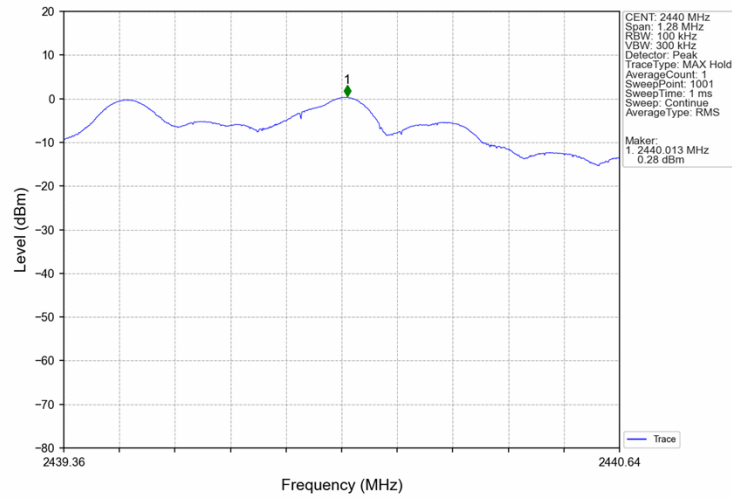
### 1M\_HCH\_2480MHz\_Ant1\_NTNV



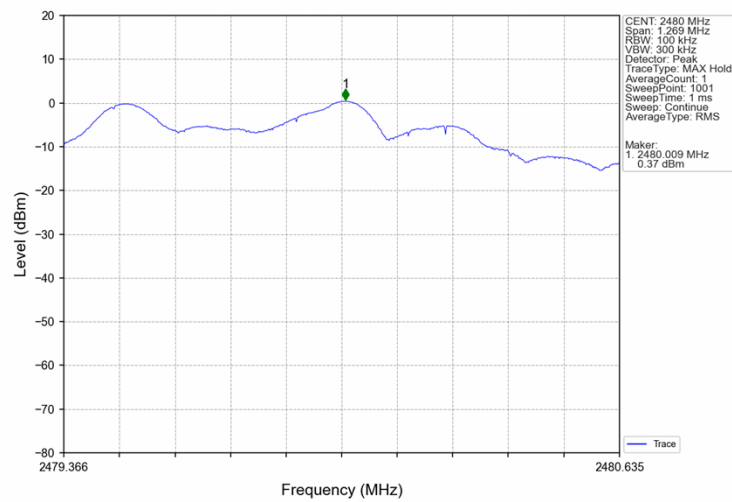
### 2M\_LCH\_2402MHz\_Ant1\_NTNV



### 2M\_MCH\_2440MHz\_Ant1\_NTNV



### 2M\_HCH\_2480MHz\_Ant1\_NTNV



## 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   | -0.06                    |
|      |         | 2440            | 1   | 0.43                     |
|      |         | 2480            | 1   | 0.51                     |
| 2M   | SISO    | 2402            | 1   | -0.21                    |
|      |         | 2440            | 1   | 0.29                     |
|      |         | 2480            | 1   | 0.37                     |

Note1: Refer to FCC Part 15.247 (d) and ANSI C63.10-2020, the channel contains the maximum PSD level was used to establish the reference level.

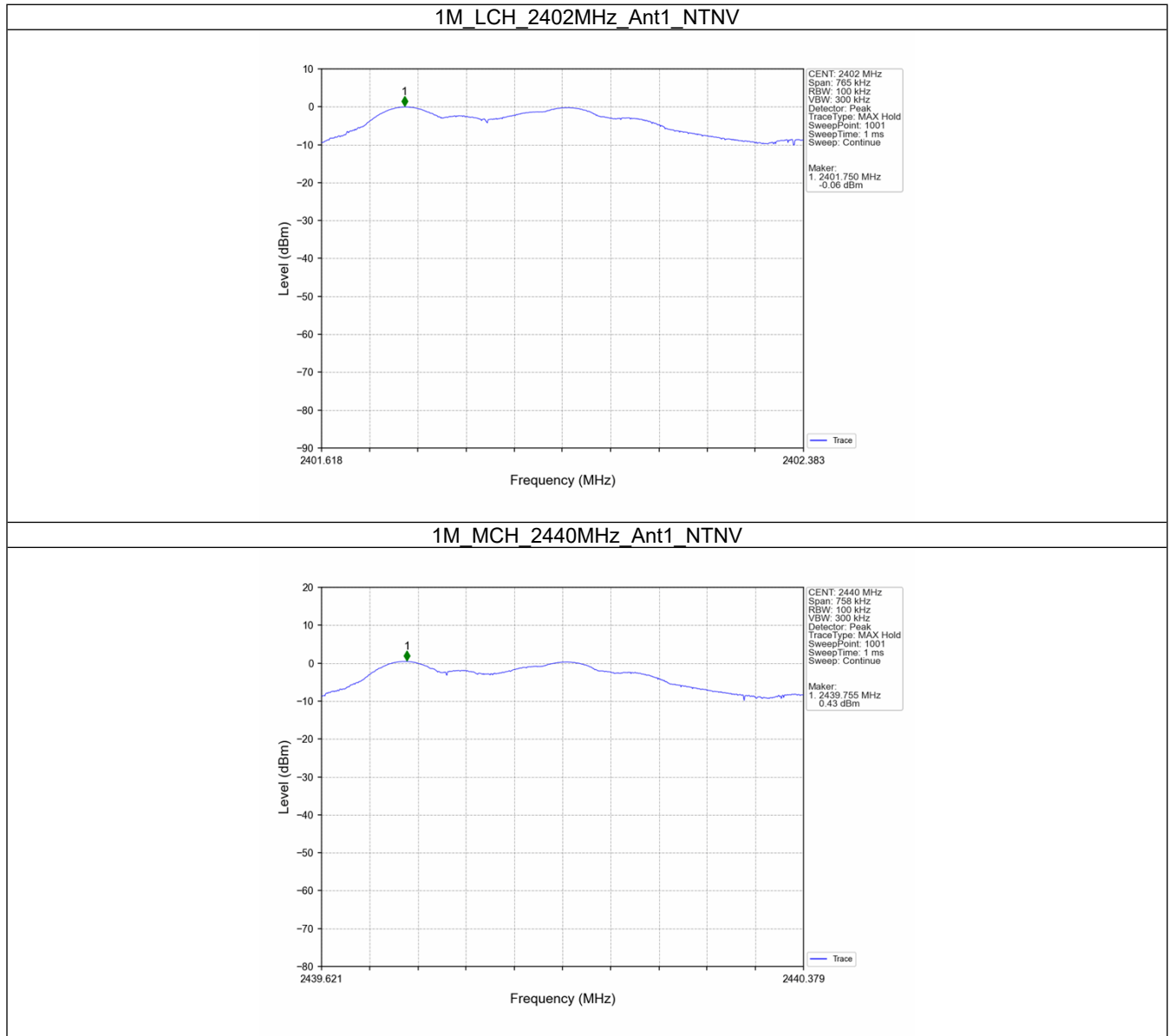
#### 5.1.2 CSE

| Mode | TX Type | Frequency (MHz) | ANT | Level of Reference (dBm) | Limit (dBm) | Verdict |
|------|---------|-----------------|-----|--------------------------|-------------|---------|
| 1M   | SISO    | 2402            | 1   | -0.06                    | -20.06      | Pass    |
|      |         | 2440            | 1   | 0.43                     | -19.57      | Pass    |
|      |         | 2480            | 1   | 0.51                     | -19.49      | Pass    |
| 2M   | SISO    | 2402            | 1   | -0.21                    | -20.21      | Pass    |
|      |         | 2440            | 1   | 0.29                     | -19.71      | Pass    |
|      |         | 2480            | 1   | 0.37                     | -19.63      | Pass    |

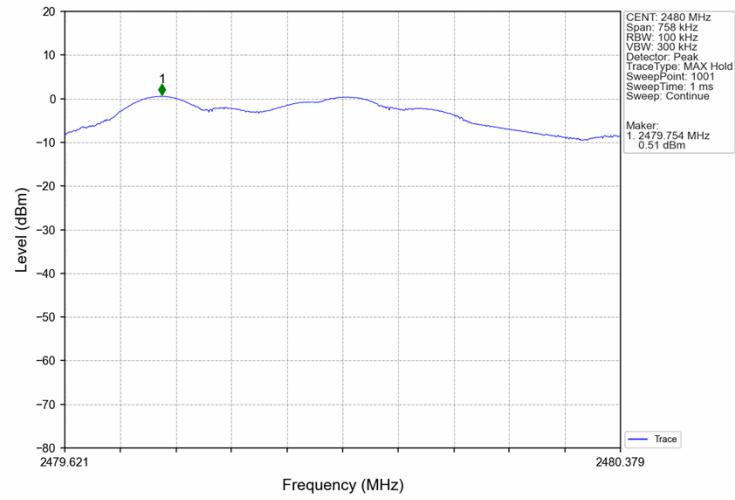
Note1: Refer to FCC Part 15.247 (d) and ANSI C63.10-2020, the channel contains the maximum PSD level was used to establish the reference level.

## 5.2 Test Graph

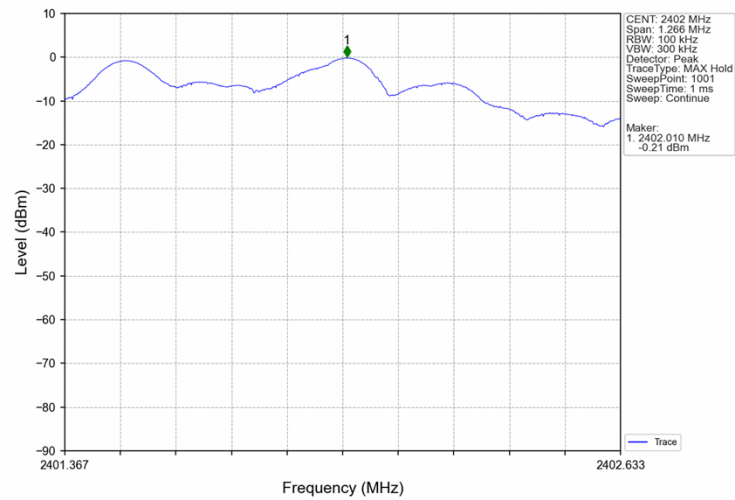
### 5.2.1 Ref



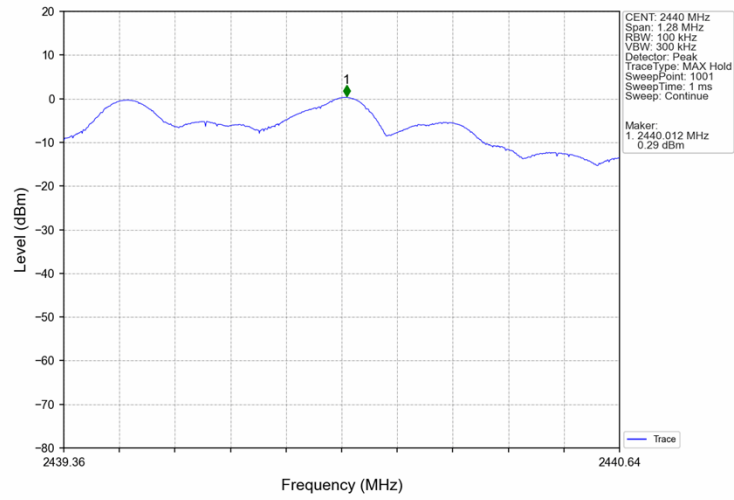
### 1M\_HCH\_2480MHz\_Ant1\_NTNV



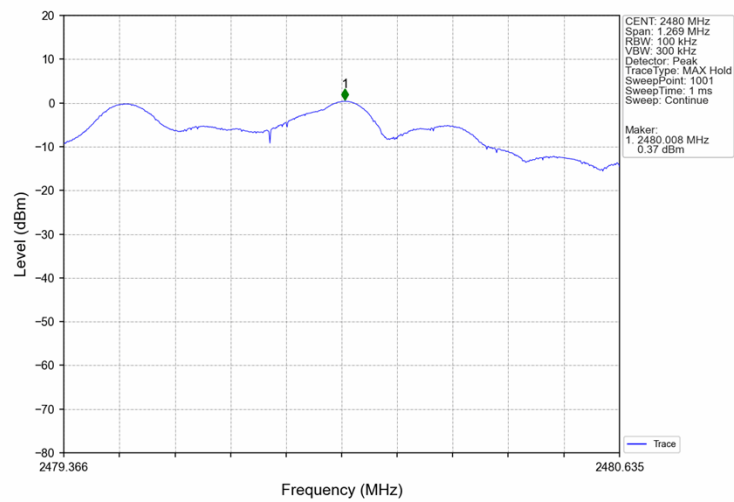
### 2M\_LCH\_2402MHz\_Ant1\_NTNV



### 2M\_MCH\_2440MHz\_Ant1\_NTNV

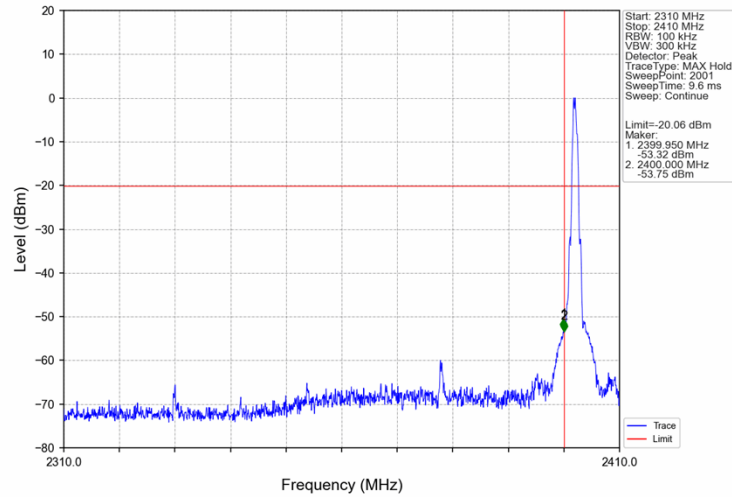


### 2M\_HCH\_2480MHz\_Ant1\_NTNV

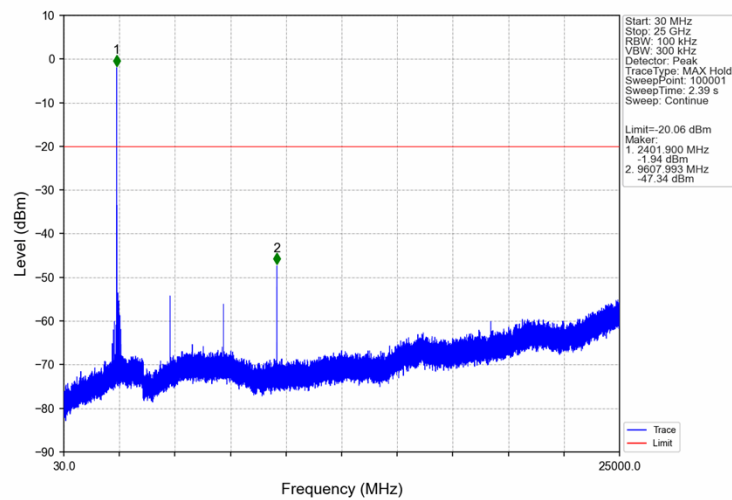


### 5.2.2 CSE

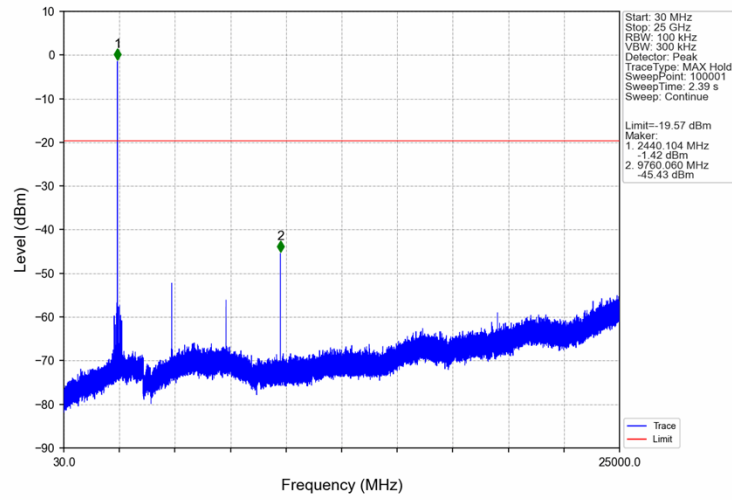
1M\_LCH\_2402MHz\_Ant1\_NTNV



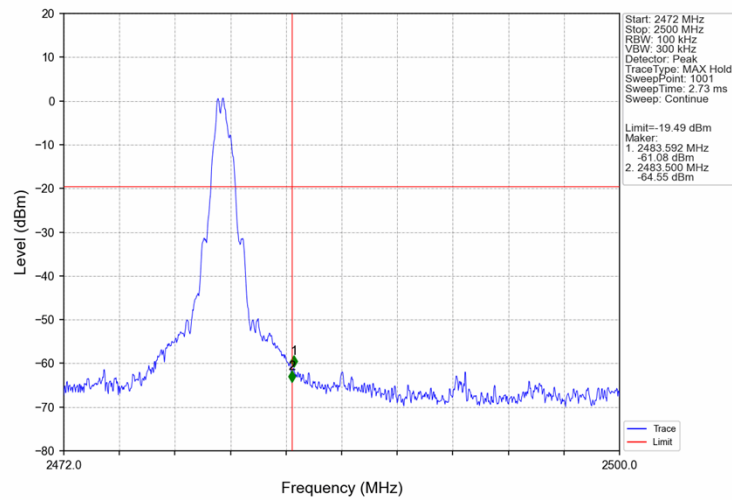
1M\_LCH\_2402MHz\_Ant1\_NTNV



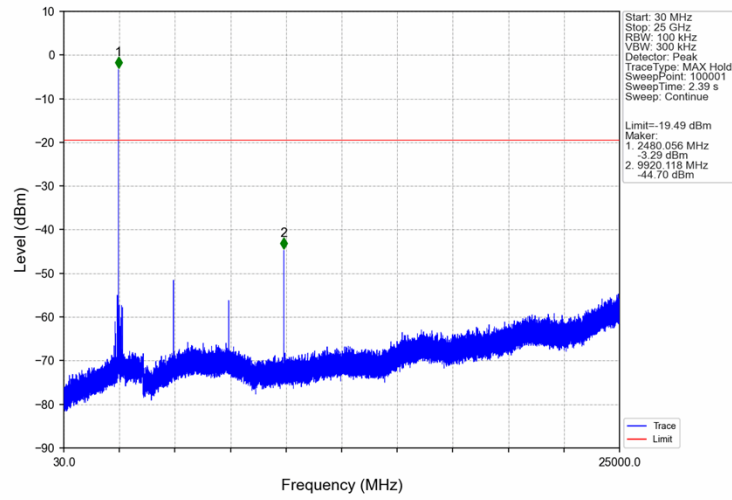
## 1M\_MCH\_2440MHz\_Ant1\_NTNV



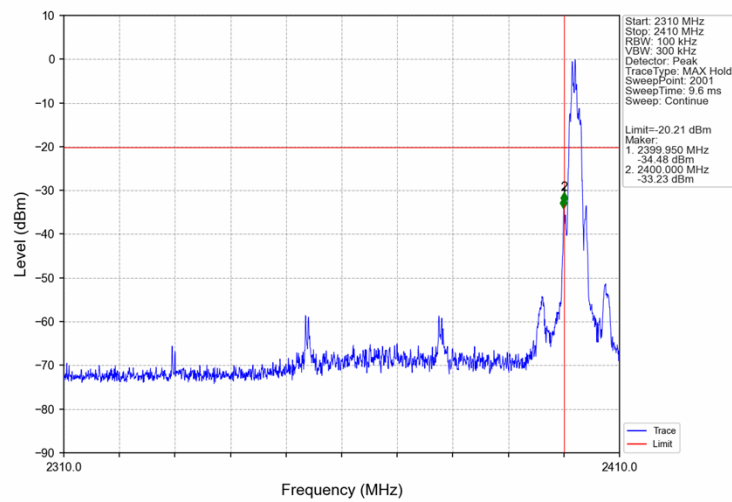
## 1M\_HCH\_2480MHz\_Ant1\_NTNV



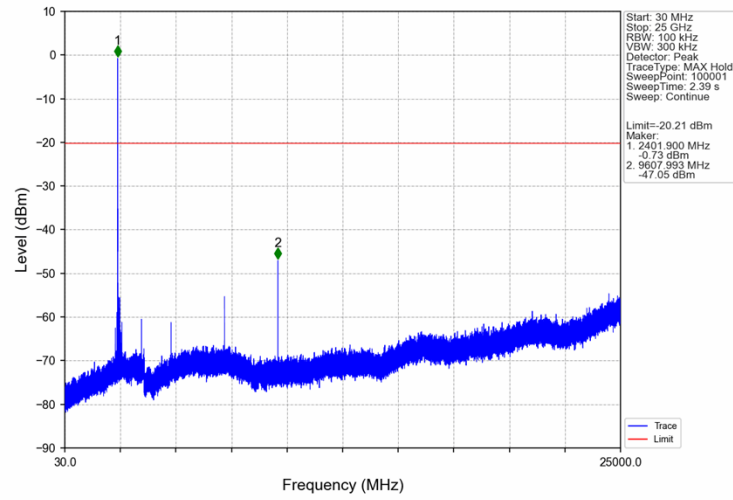
### 1M\_HCH\_2480MHz\_Ant1\_NTNV



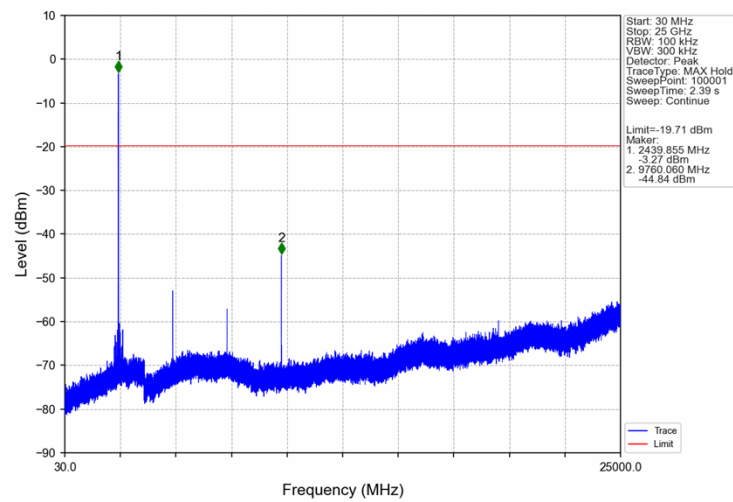
### 2M\_LCH\_2402MHz\_Ant1\_NTNV



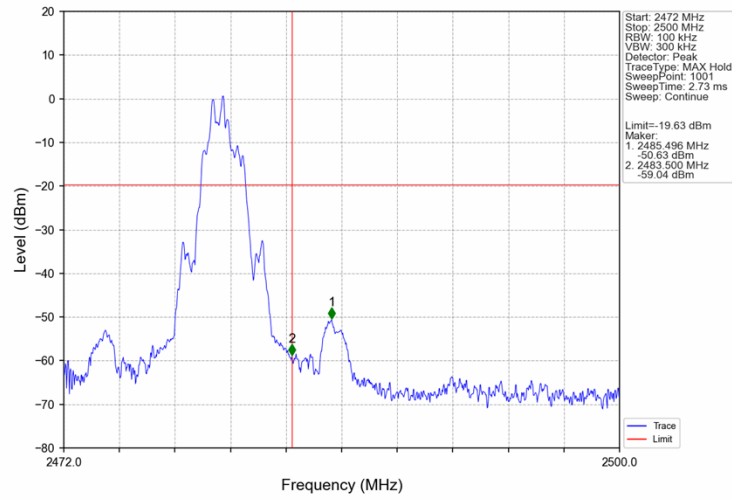
### 2M\_LCH\_2402MHz\_Ant1\_NTNV



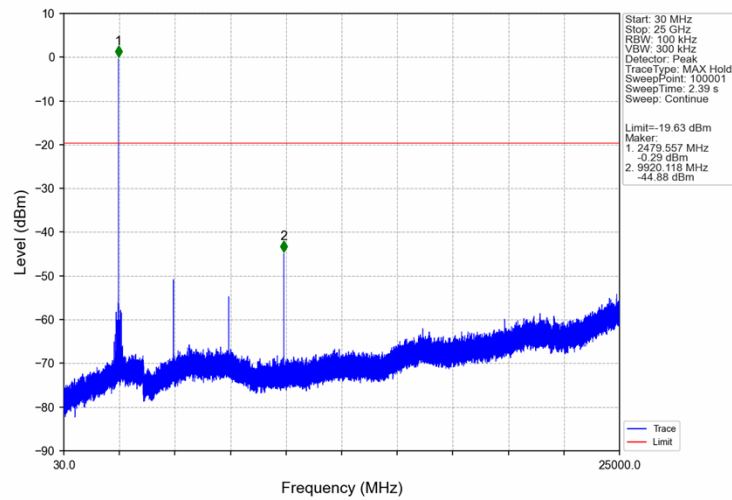
### 2M\_MCH\_2440MHz\_Ant1\_NTNV



## 2M\_HCH\_2480MHz\_Ant1\_NTNV



## 2M\_HCH\_2480MHz\_Ant1\_NTNV



\*\*\*\*\* End of Report \*\*\*\*\*