

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



## 1. Duty Cycle

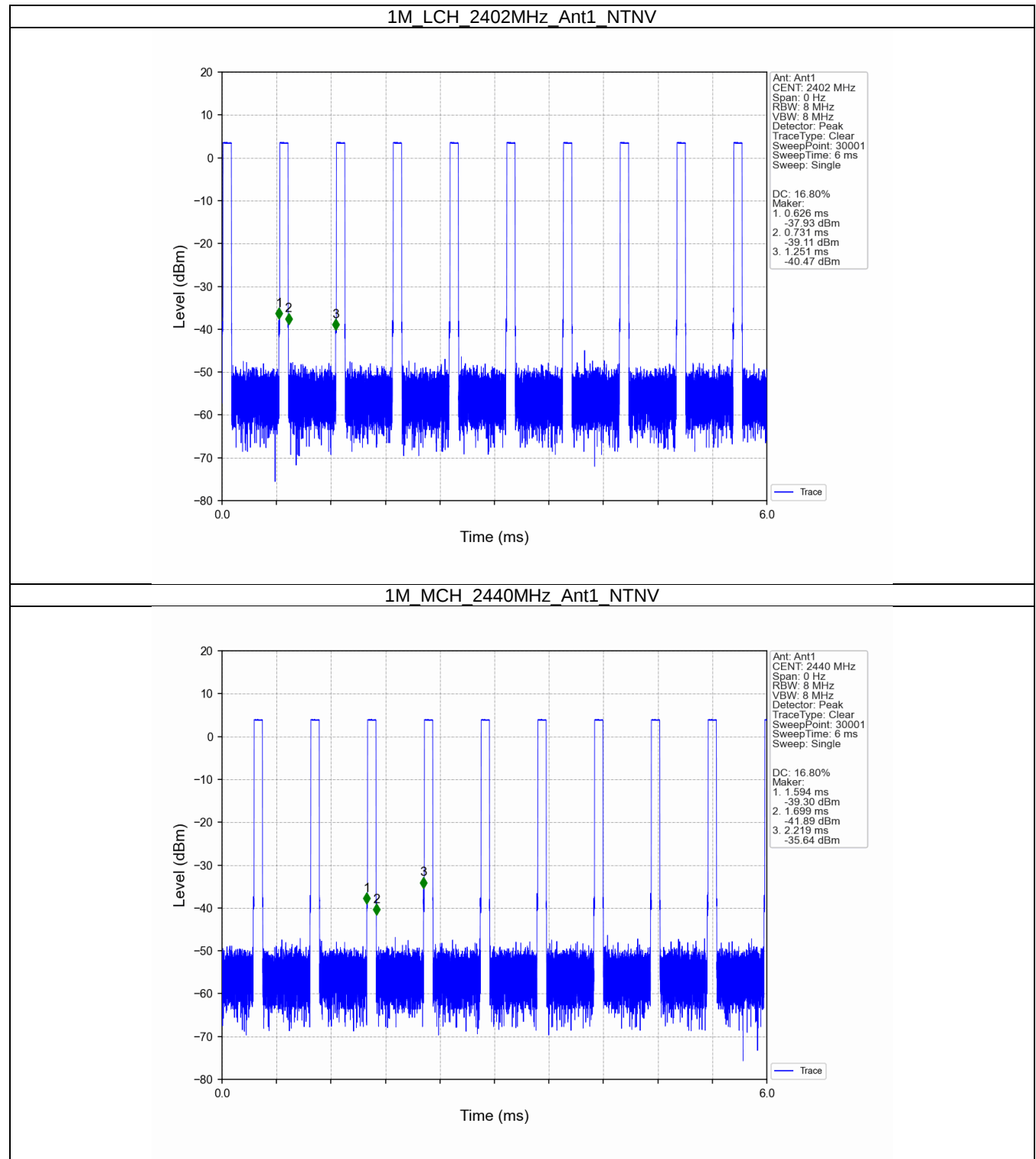
### 1.1 Test Result

#### 1.1.1 Ant1

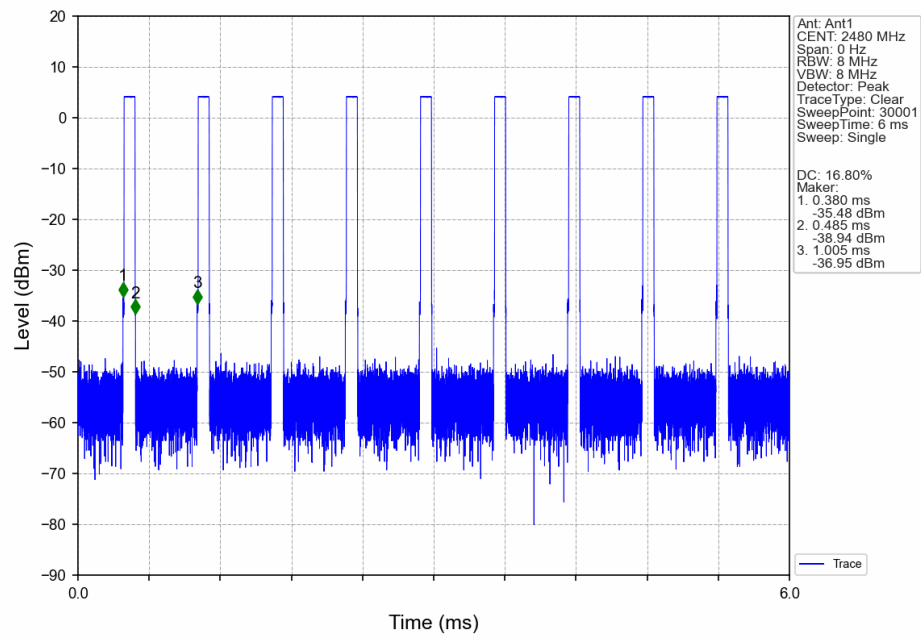
| Ant1 |         |                 |           |             |                |                                   |                       |
|------|---------|-----------------|-----------|-------------|----------------|-----------------------------------|-----------------------|
| Mode | TX Type | Frequency (MHz) | T_on (ms) | Period (ms) | Duty Cycle (%) | Duty Cycle Correction Factor (dB) | Max. DC Variation (%) |
| 1M   | SISO    | 2402            | 0.105     | 0.625       | 16.80          | 7.75                              | 0.05                  |
|      |         | 2440            | 0.105     | 0.625       | 16.80          | 7.75                              | 0.03                  |
|      |         | 2480            | 0.105     | 0.625       | 16.80          | 7.75                              | 0.00                  |
| 2M   | SISO    | 2402            | 0.058     | 0.625       | 9.28           | 10.32                             | 0.00                  |
|      |         | 2440            | 0.069     | 0.625       | 11.04          | 9.57                              | 0.03                  |
|      |         | 2480            | 0.069     | 0.625       | 11.04          | 9.57                              | 0.00                  |

## 1.2 Test Graph

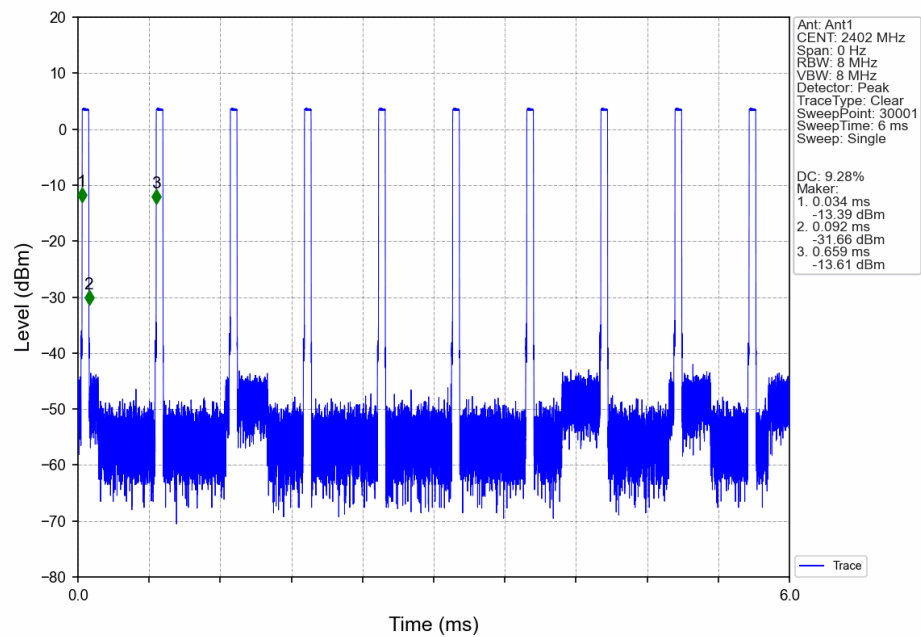
### 1.2.1 Ant1



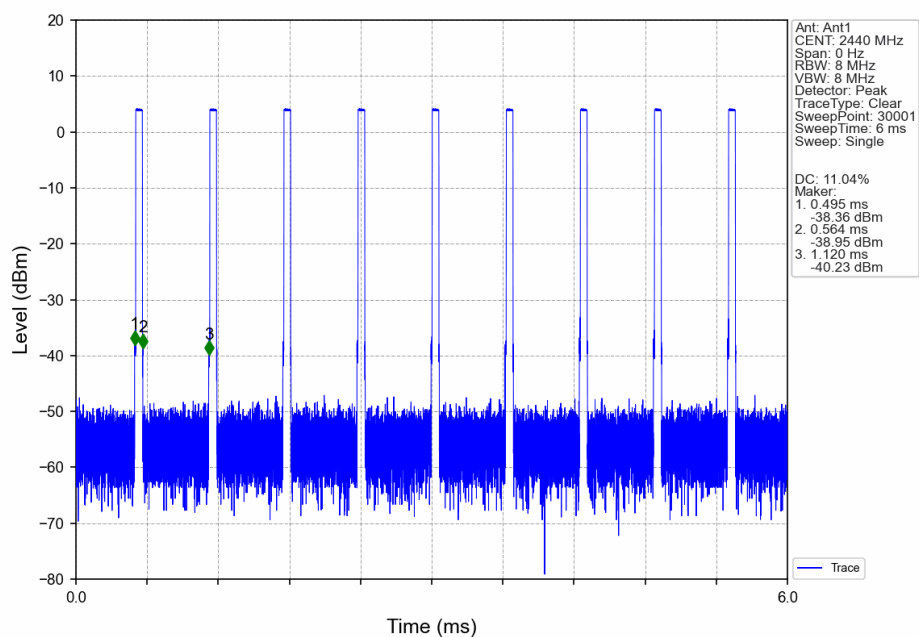
1M\_HCH\_2480MHz\_Ant1\_NTNV



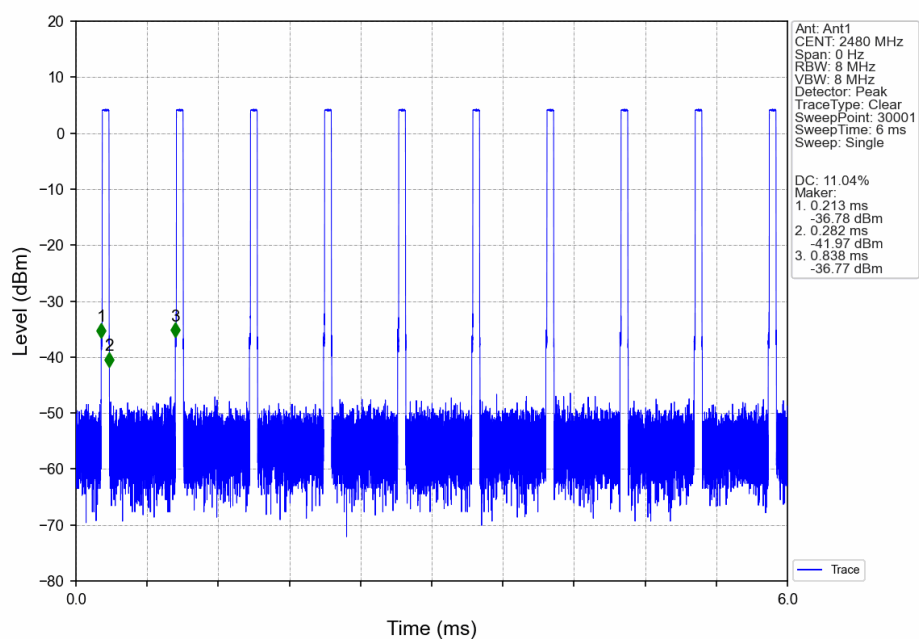
2M\_LCH\_2402MHz\_Ant1\_NTNV



2M\_MCH\_2440MHz\_Ant1\_NTNV



2M\_HCH\_2480MHz\_Ant1\_NTNV



## 2. Bandwidth

### 2.1 Test Result

#### 2.1.1 OBW

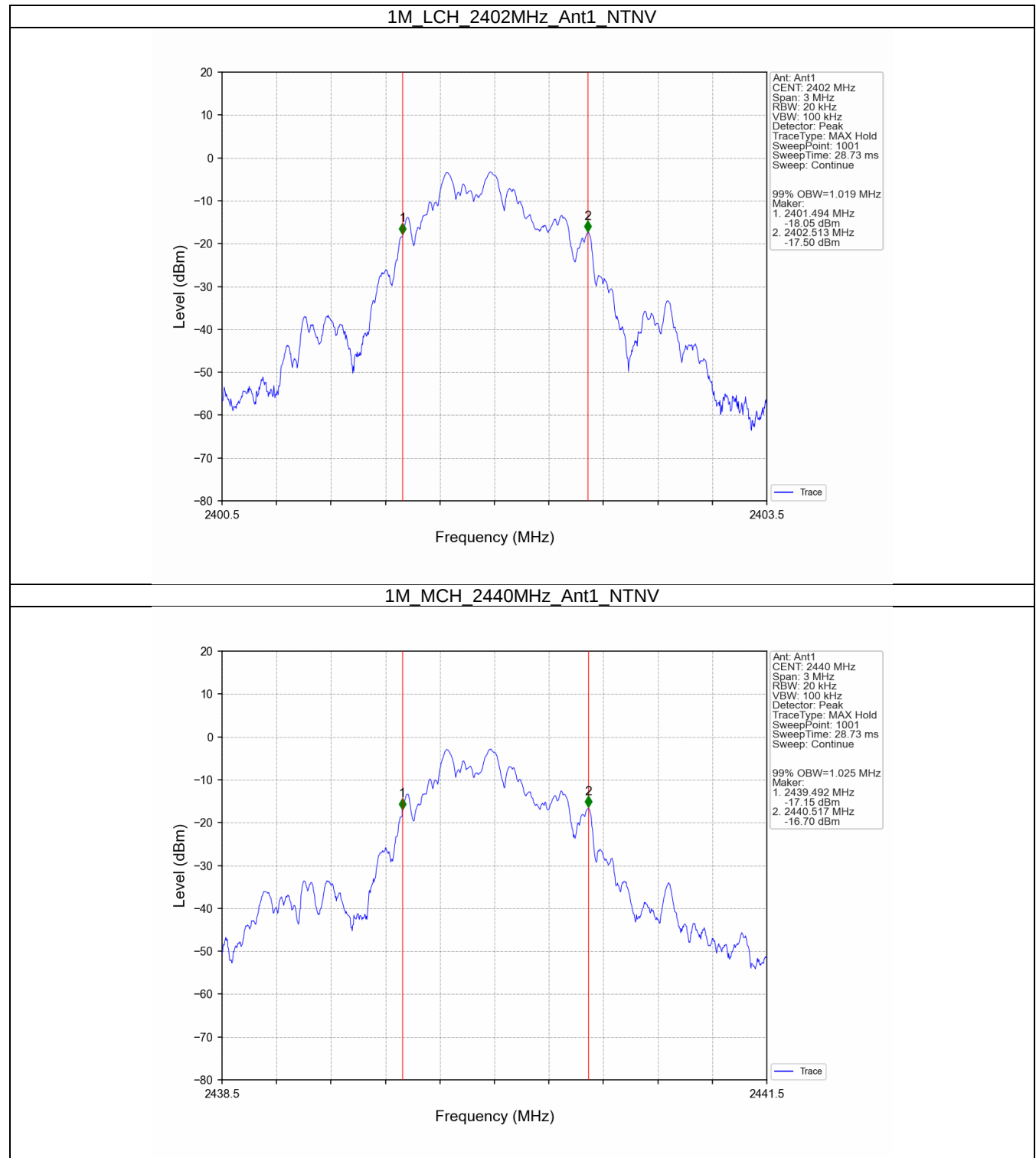
| Mode | TX Type | Frequency (MHz) | ANT | 99% Occupied Bandwidth (MHz) |       | Verdict |
|------|---------|-----------------|-----|------------------------------|-------|---------|
|      |         |                 |     | Result                       | Limit |         |
| 1M   | SISO    | 2402            | 1   | 1.019                        | /     | Pass    |
|      |         | 2440            | 1   | 1.025                        | /     | Pass    |
|      |         | 2480            | 1   | 1.080                        | /     | Pass    |
| 2M   | SISO    | 2402            | 1   | 2.034                        | /     | Pass    |
|      |         | 2440            | 1   | 2.037                        | /     | Pass    |
|      |         | 2480            | 1   | 2.054                        | /     | Pass    |

#### 2.1.2 6dB BW

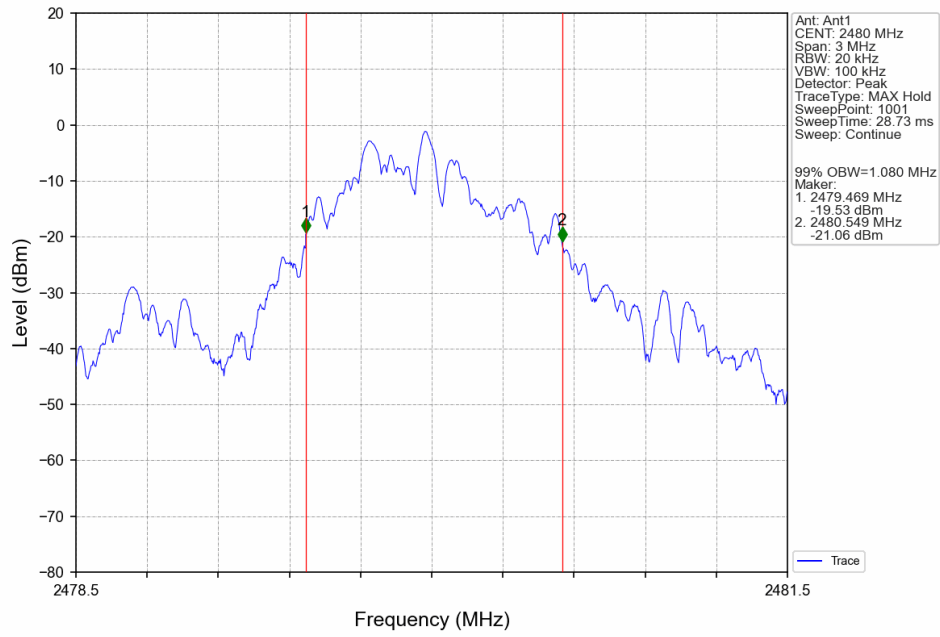
| Mode | TX Type | Frequency (MHz) | ANT | 6dB Bandwidth (MHz) |            | Verdict |
|------|---------|-----------------|-----|---------------------|------------|---------|
|      |         |                 |     | Result              | Limit      |         |
| 1M   | SISO    | 2402            | 1   | 0.510               | $\geq 0.5$ | Pass    |
|      |         | 2440            | 1   | 0.506               | $\geq 0.5$ | Pass    |
|      |         | 2480            | 1   | 0.515               | $\geq 0.5$ | Pass    |
| 2M   | SISO    | 2402            | 1   | 0.871               | $\geq 0.5$ | Pass    |
|      |         | 2440            | 1   | 0.865               | $\geq 0.5$ | Pass    |
|      |         | 2480            | 1   | 0.878               | $\geq 0.5$ | Pass    |

## 2.2 Test Graph

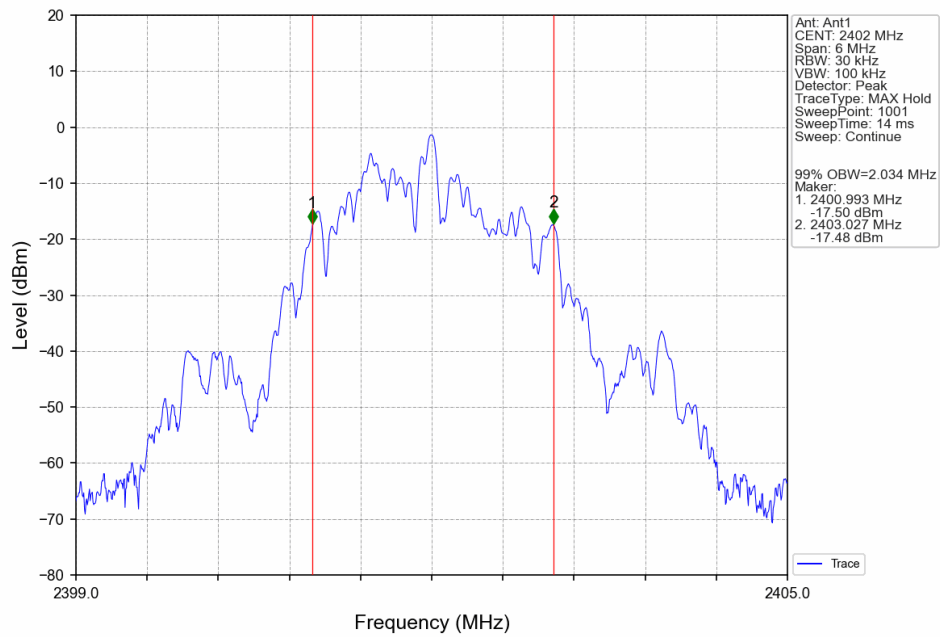
### 2.2.1 OBW



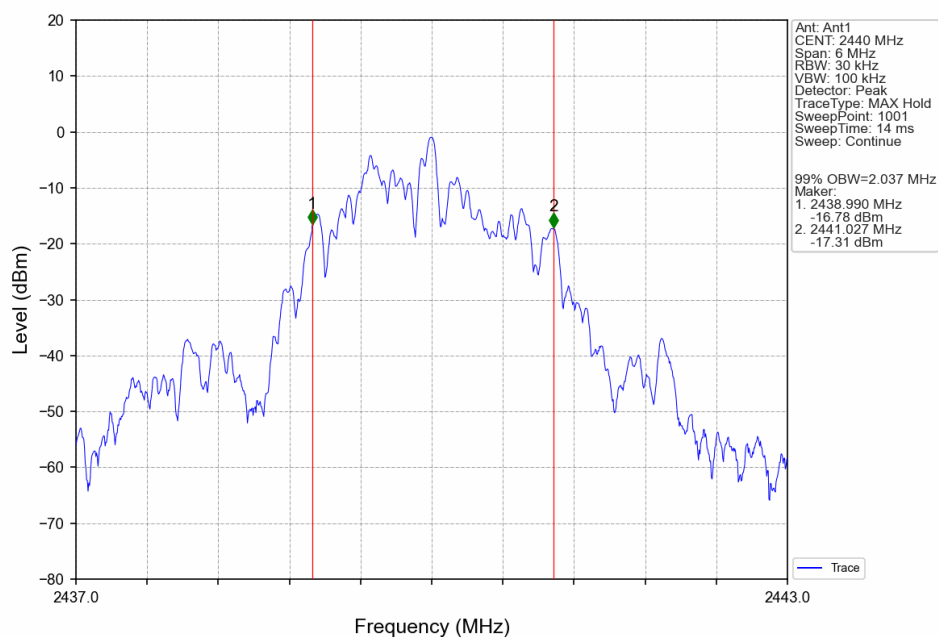
1M\_HCH\_2480MHz\_Ant1\_NTNV



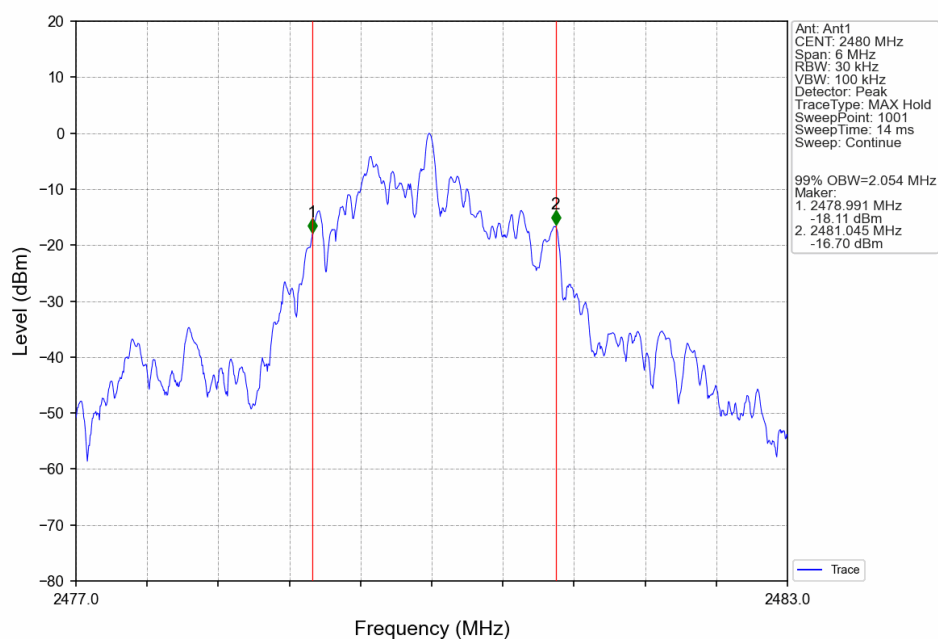
2M\_LCH\_2402MHz\_Ant1\_NTNV



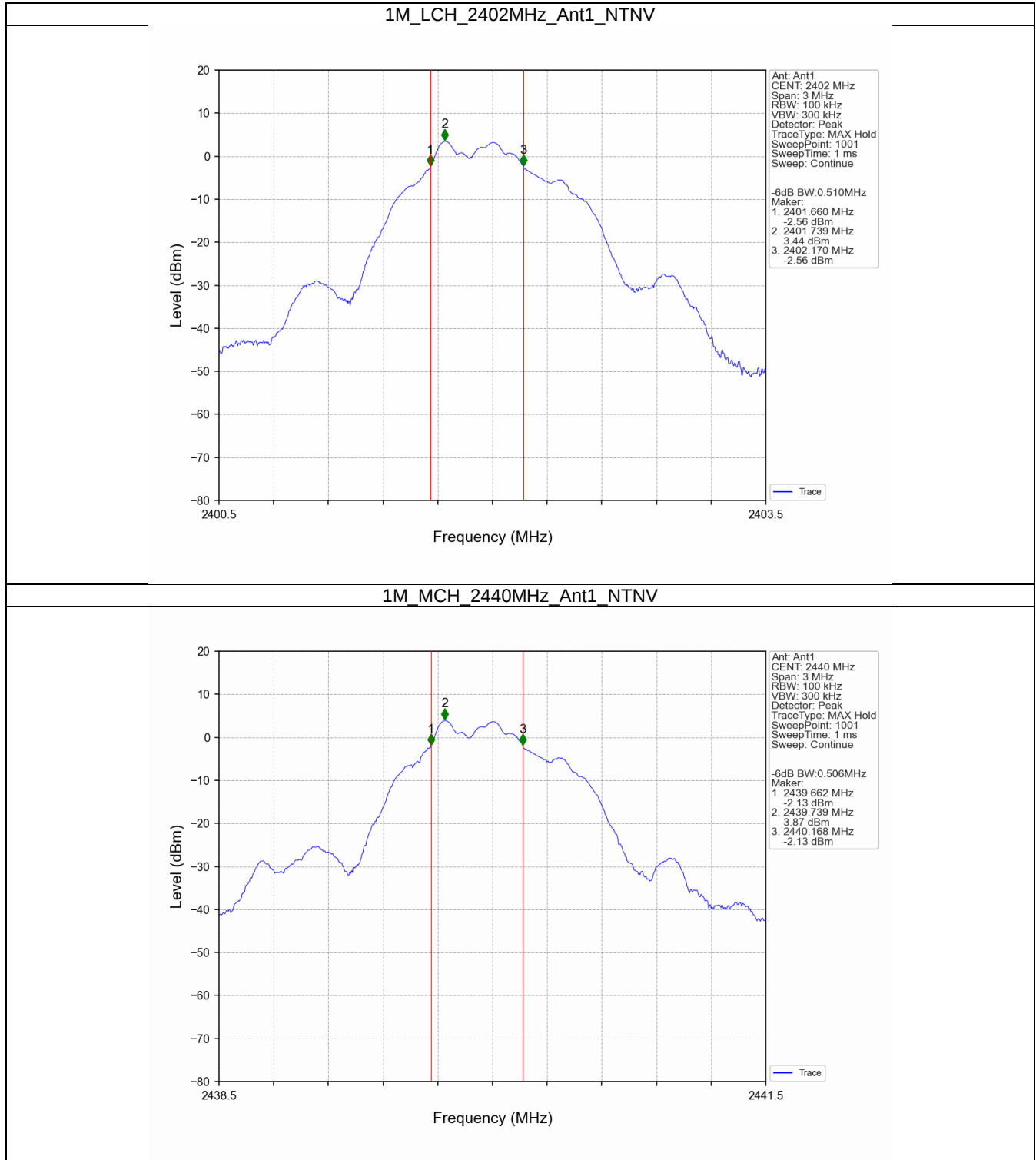
2M\_MCH\_2440MHz\_Ant1\_NTNV



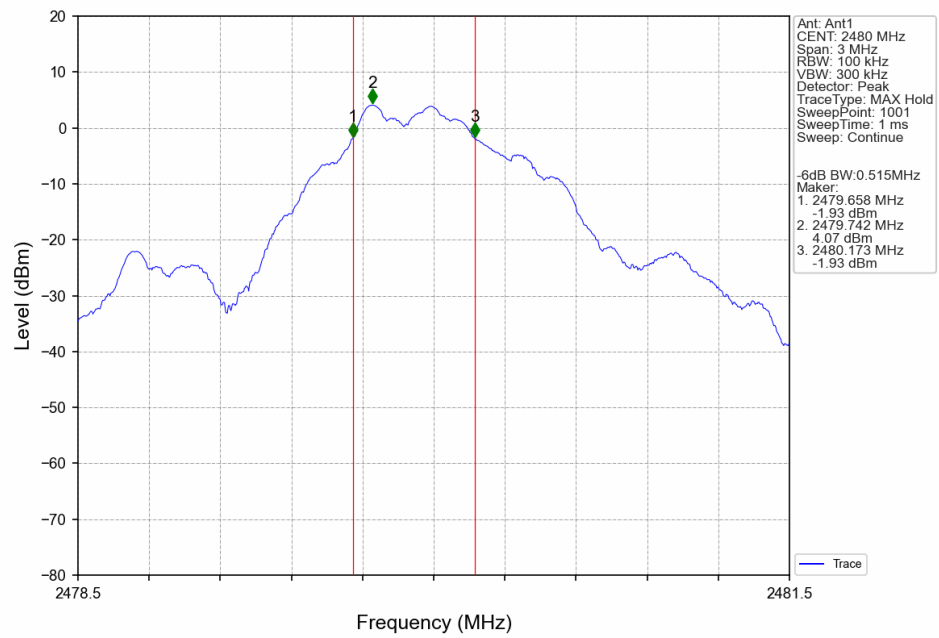
2M\_HCH\_2480MHz\_Ant1\_NTNV



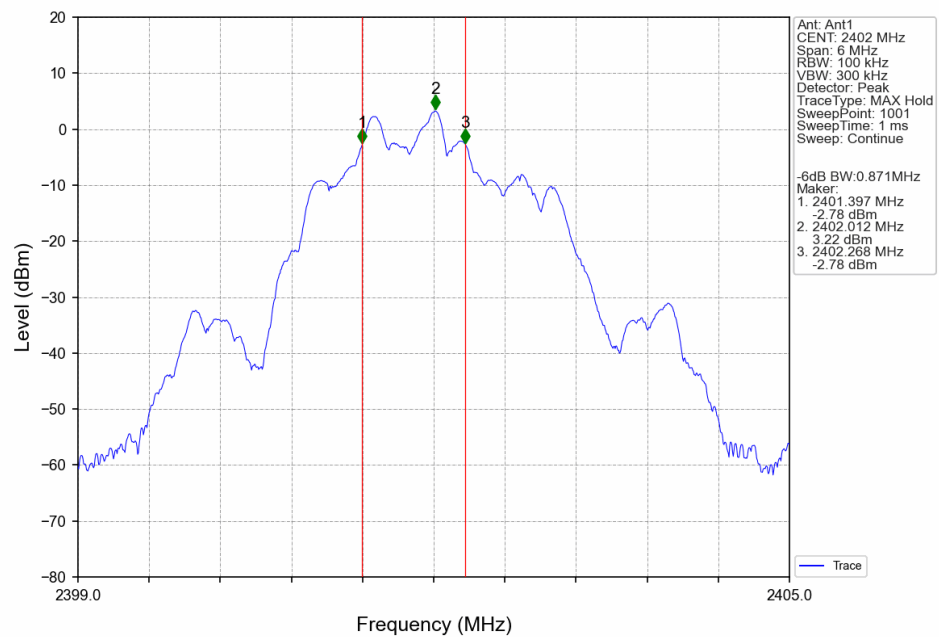
## 2.2.2 6dB BW



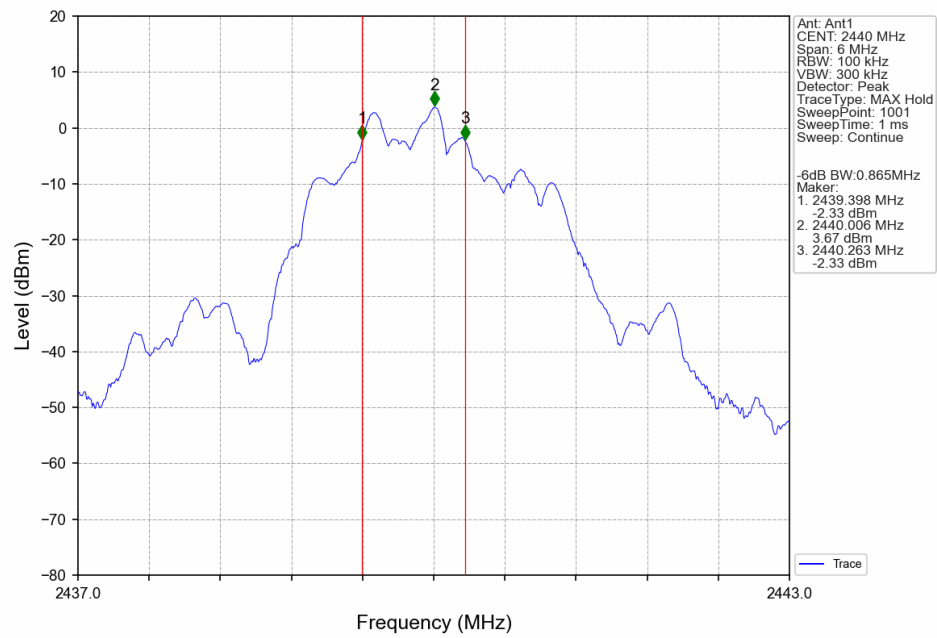
1M\_HCH\_2480MHz\_Ant1\_NTNV



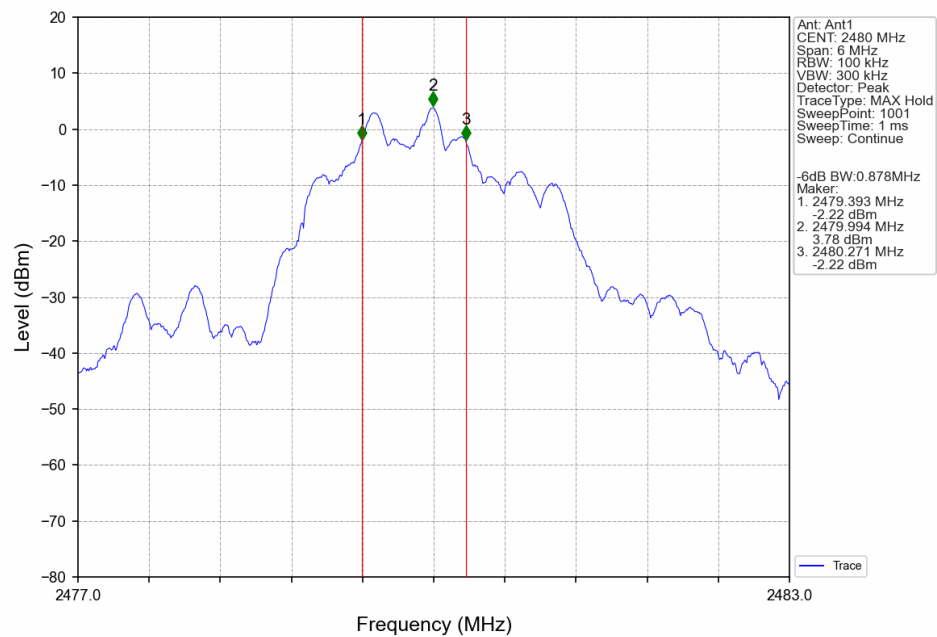
2M\_LCH\_2402MHz\_Ant1\_NTNV



2M\_MCH\_2440MHz\_Ant1\_NTNV



2M\_HCH\_2480MHz\_Ant1\_NTNV



### 3. Maximum Conducted Output Power

#### 3.1 Test Result

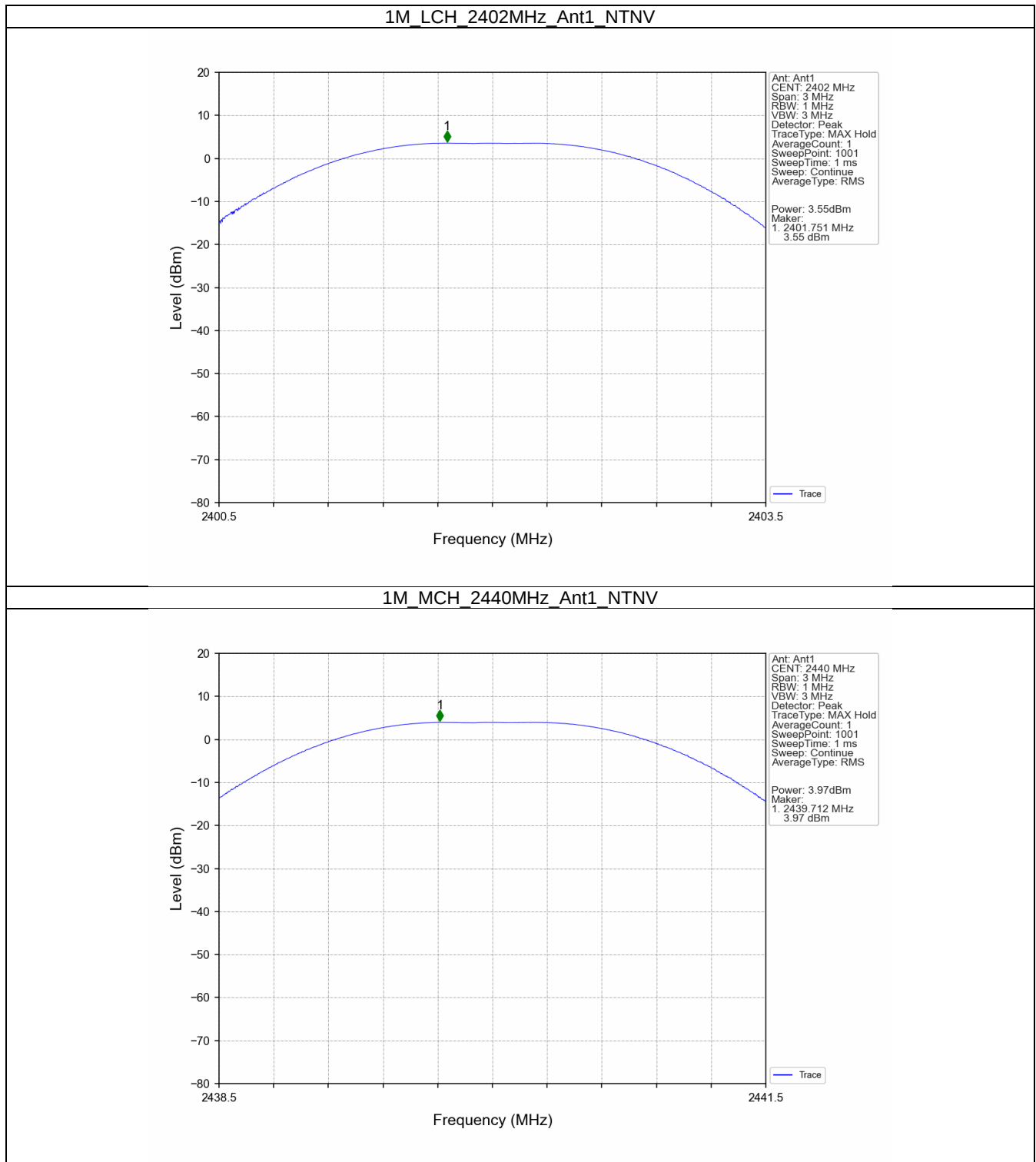
##### 3.1.1 Power

| Mode | TX Type | Frequency (MHz) | Maximum Peak Conducted Output Power (dBm) |       | Verdict |
|------|---------|-----------------|-------------------------------------------|-------|---------|
|      |         |                 | ANT1                                      | Limit |         |
| 1M   | SISO    | 2402            | 3.55                                      | <=30  | Pass    |
|      |         | 2440            | 3.97                                      | <=30  | Pass    |
|      |         | 2480            | 4.14                                      | <=30  | Pass    |
| 2M   | SISO    | 2402            | 3.55                                      | <=30  | Pass    |
|      |         | 2440            | 3.97                                      | <=30  | Pass    |
|      |         | 2480            | 4.15                                      | <=30  | Pass    |

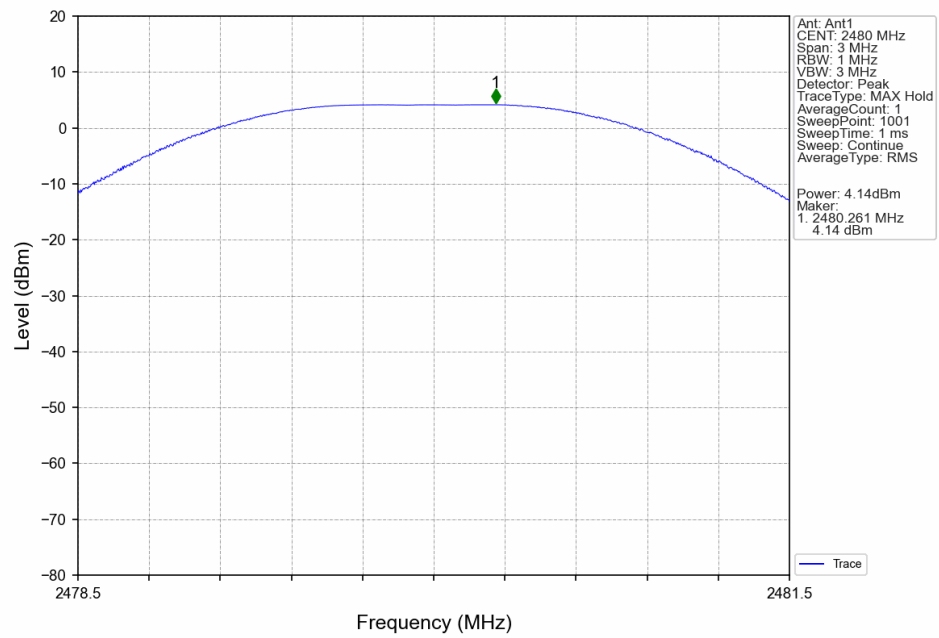
Note1: Antenna Gain: Ant1: 2.7dBi;

## 3.2 Test Graph

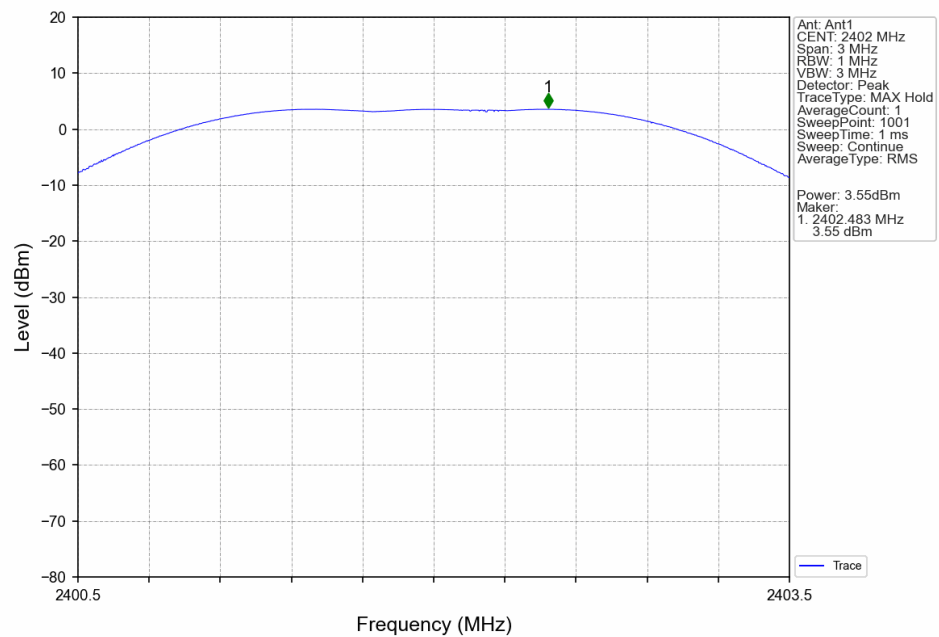
### 3.2.1 Power



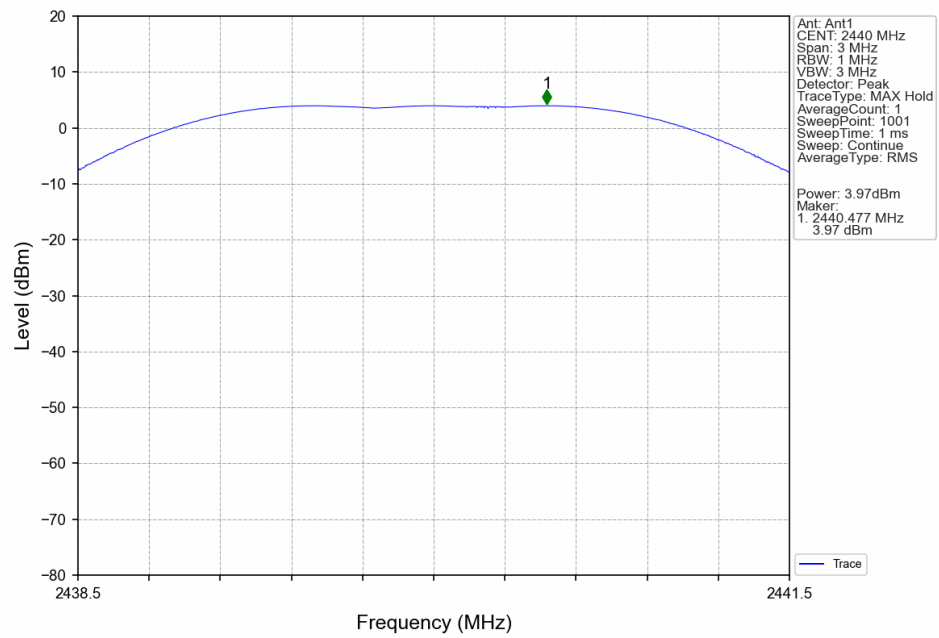
1M\_HCH\_2480MHz\_Ant1\_NTNV



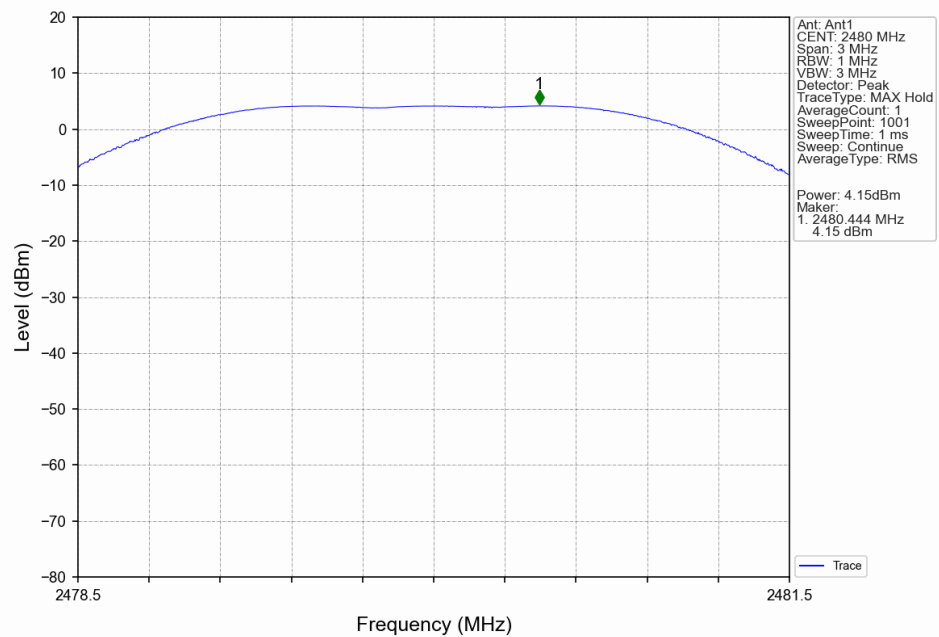
2M\_LCH\_2402MHz\_Ant1\_NTNV



2M\_MCH\_2440MHz\_Ant1\_NTNV



2M\_HCH\_2480MHz\_Ant1\_NTNV



## 4. Maximum Power Spectral Density

### 4.1 Test Result

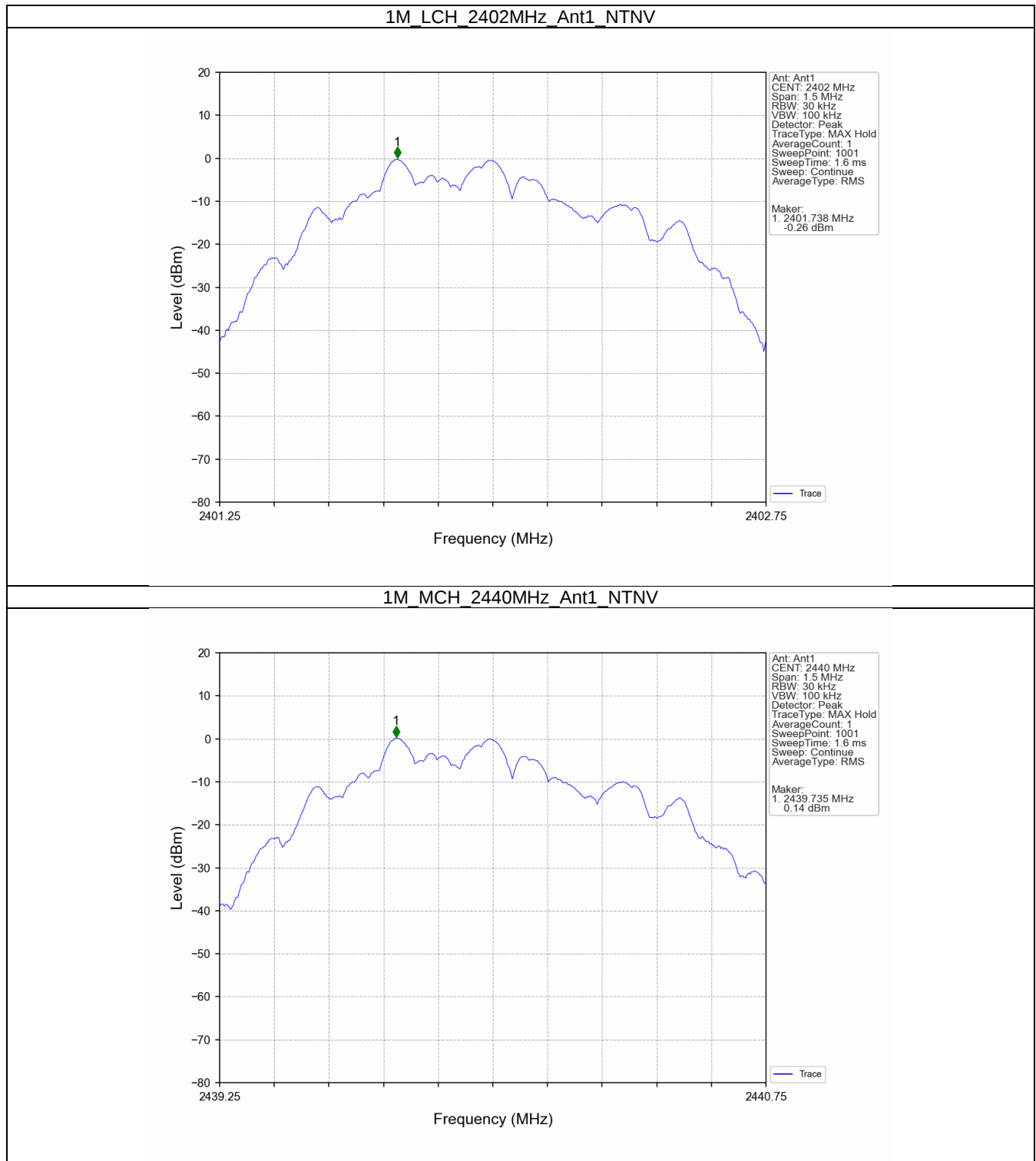
#### 4.1.1 PSD

| Mode | TX Type | Frequency (MHz) | Maximum PSD (dBm) |                 | Verdict |
|------|---------|-----------------|-------------------|-----------------|---------|
|      |         |                 | ANT1              | Limit(dBm/3kHz) |         |
| 1M   | SISO    | 2402            | -0.26dBm/30kHz    | <=8             | Pass    |
|      |         | 2440            | 0.14dBm/30kHz     | <=8             | Pass    |
|      |         | 2480            | 1.05dBm/30kHz     | <=8             | Pass    |
| 2M   | SISO    | 2402            | -1.04dBm/30kHz    | <=8             | Pass    |
|      |         | 2440            | -0.65dBm/30kHz    | <=8             | Pass    |
|      |         | 2480            | 0.03dBm/30kHz     | <=8             | Pass    |

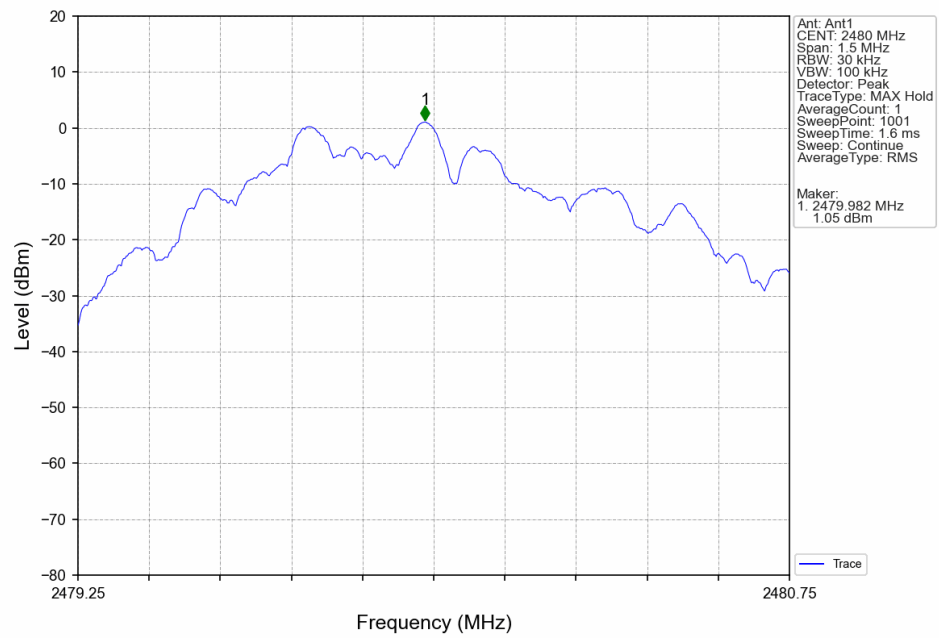
Note1: Antenna Gain: Ant1: 2.7dBi;

## 4.2 Test Graph

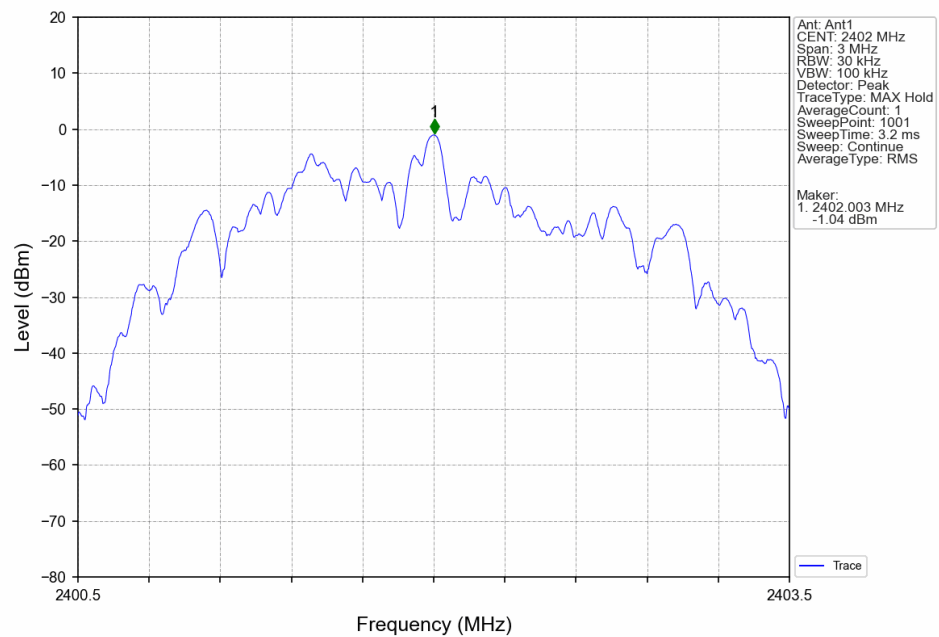
### 4.2.1 PSD



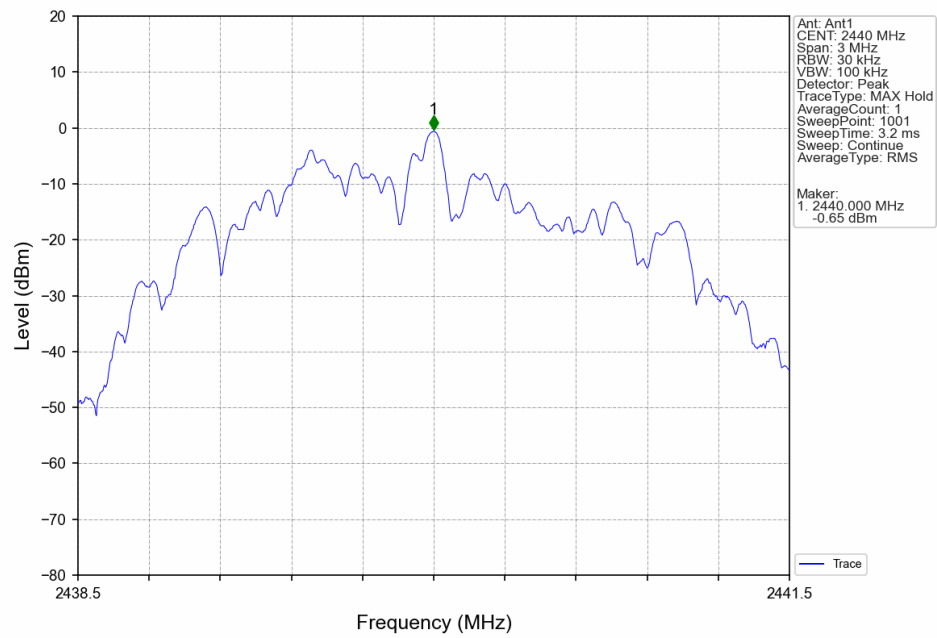
1M\_HCH\_2480MHz\_Ant1\_NTNV



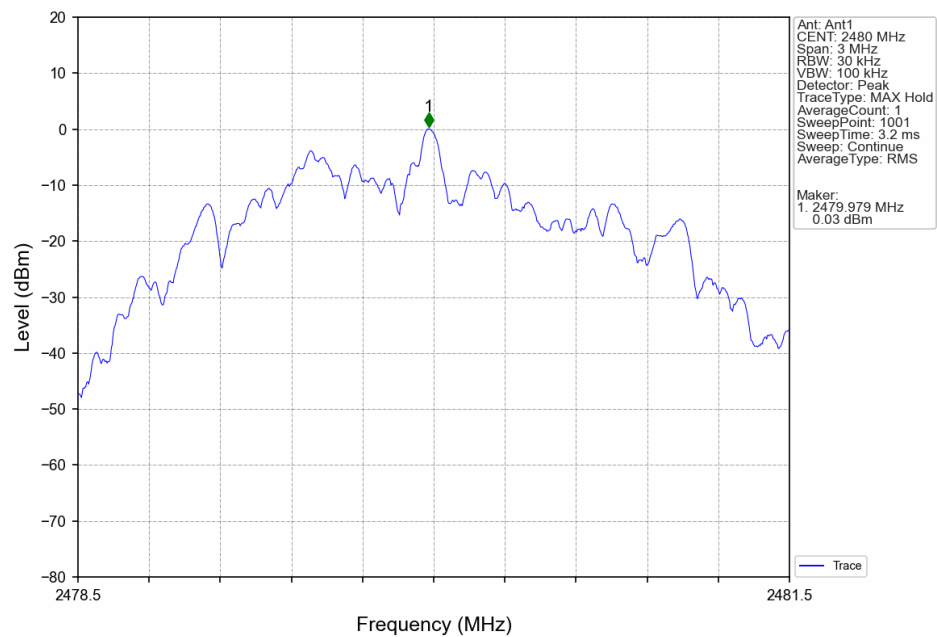
2M\_LCH\_2402MHz\_Ant1\_NTNV



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

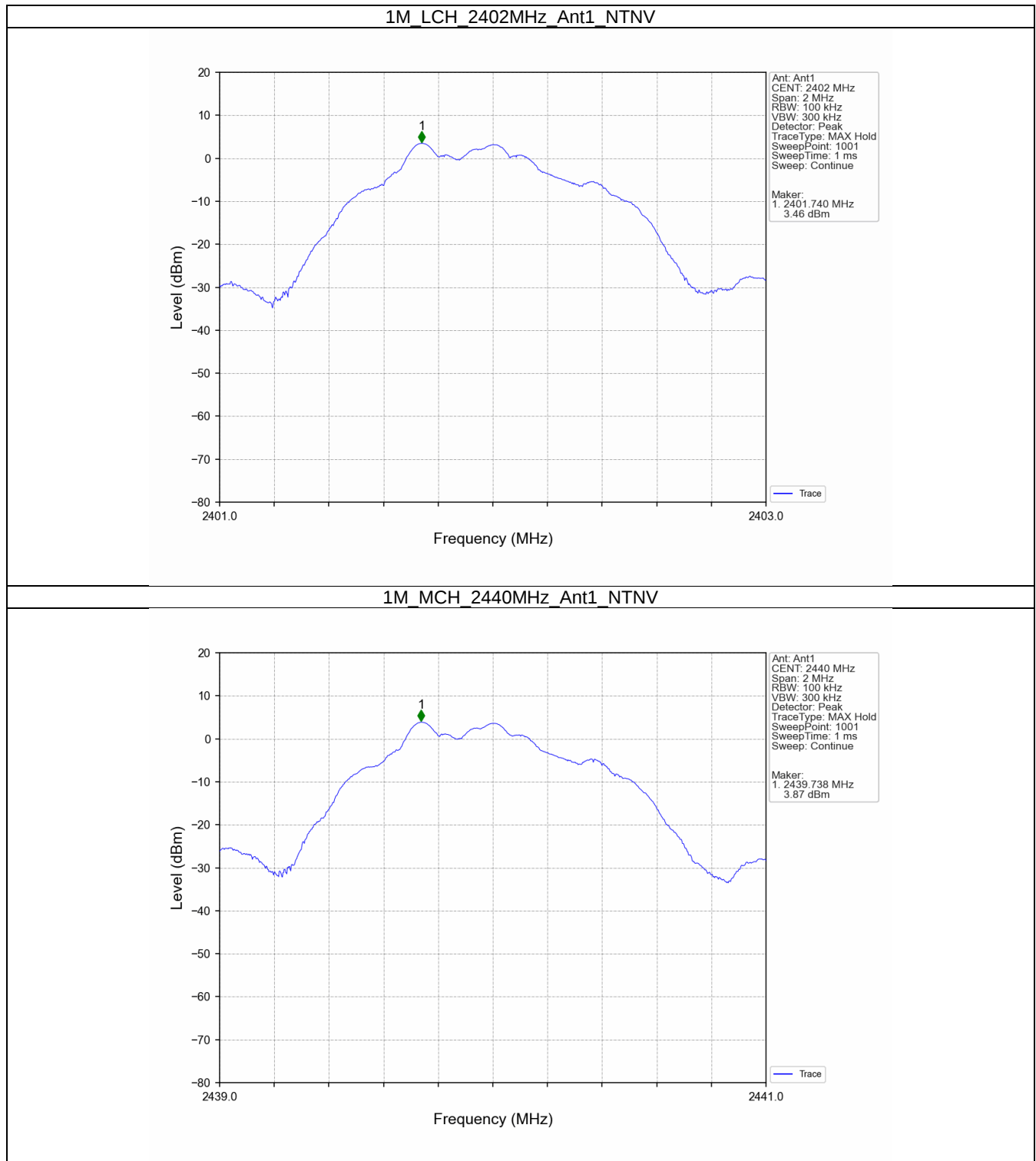
| Mode | TX Type | Frequency (MHz) | ANT | Level of Reference (dBm) |
|------|---------|-----------------|-----|--------------------------|
| 1M   | SISO    | 2402            | 1   | 3.46                     |
|      |         | 2440            | 1   | 3.87                     |
|      |         | 2480            | 1   | 4.07                     |
| 2M   | SISO    | 2402            | 1   | 3.17                     |
|      |         | 2440            | 1   | 3.58                     |
|      |         | 2480            | 1   | 3.78                     |

#### 5.1.2 CSE

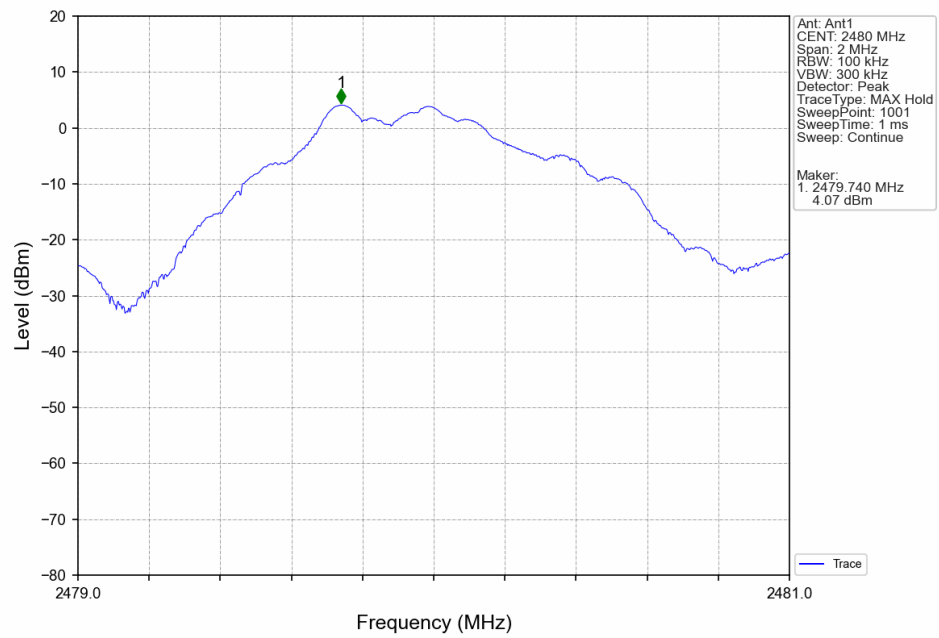
| Mode | TX Type | Frequency (MHz) | ANT | Level of Reference (dBm) | Limit (dBm) | Verdict |
|------|---------|-----------------|-----|--------------------------|-------------|---------|
| 1M   | SISO    | 2402            | 1   | 3.46                     | -16.54      | Pass    |
|      |         | 2440            | 1   | 3.87                     | -16.13      | Pass    |
|      |         | 2480            | 1   | 4.07                     | -15.93      | Pass    |
| 2M   | SISO    | 2402            | 1   | 3.17                     | -16.83      | Pass    |
|      |         | 2440            | 1   | 3.58                     | -16.42      | Pass    |
|      |         | 2480            | 1   | 3.78                     | -16.22      | Pass    |

## 5.2 Test Graph

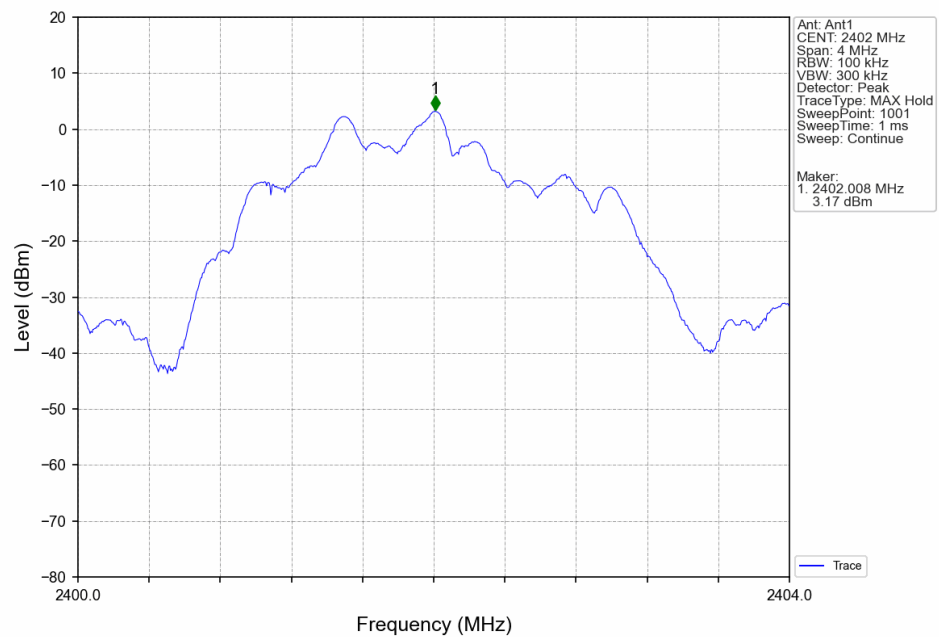
### 5.2.1 Ref



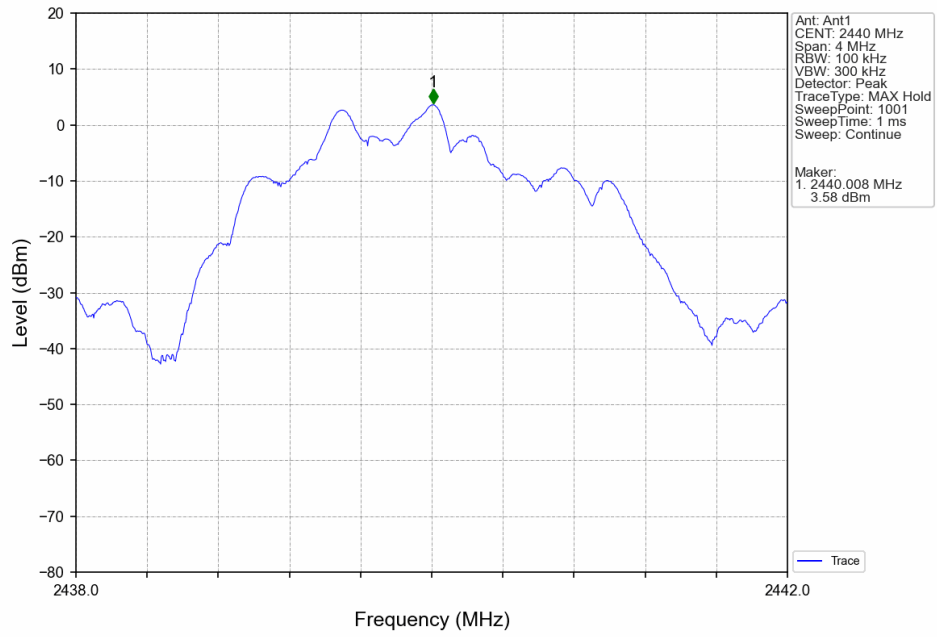
1M\_HCH\_2480MHz\_Ant1\_NTNV



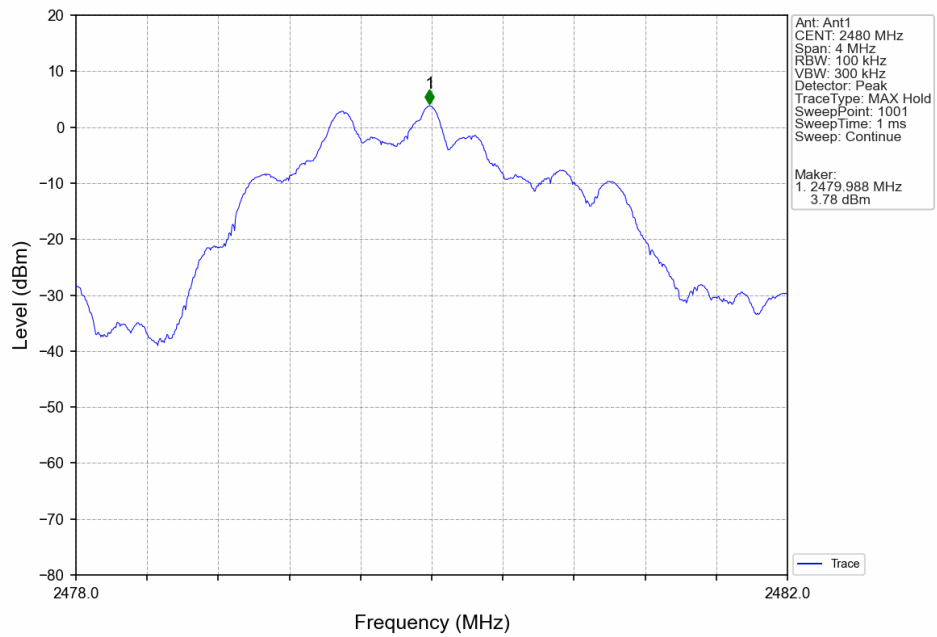
2M\_LCH\_2402MHz\_Ant1\_NTNV



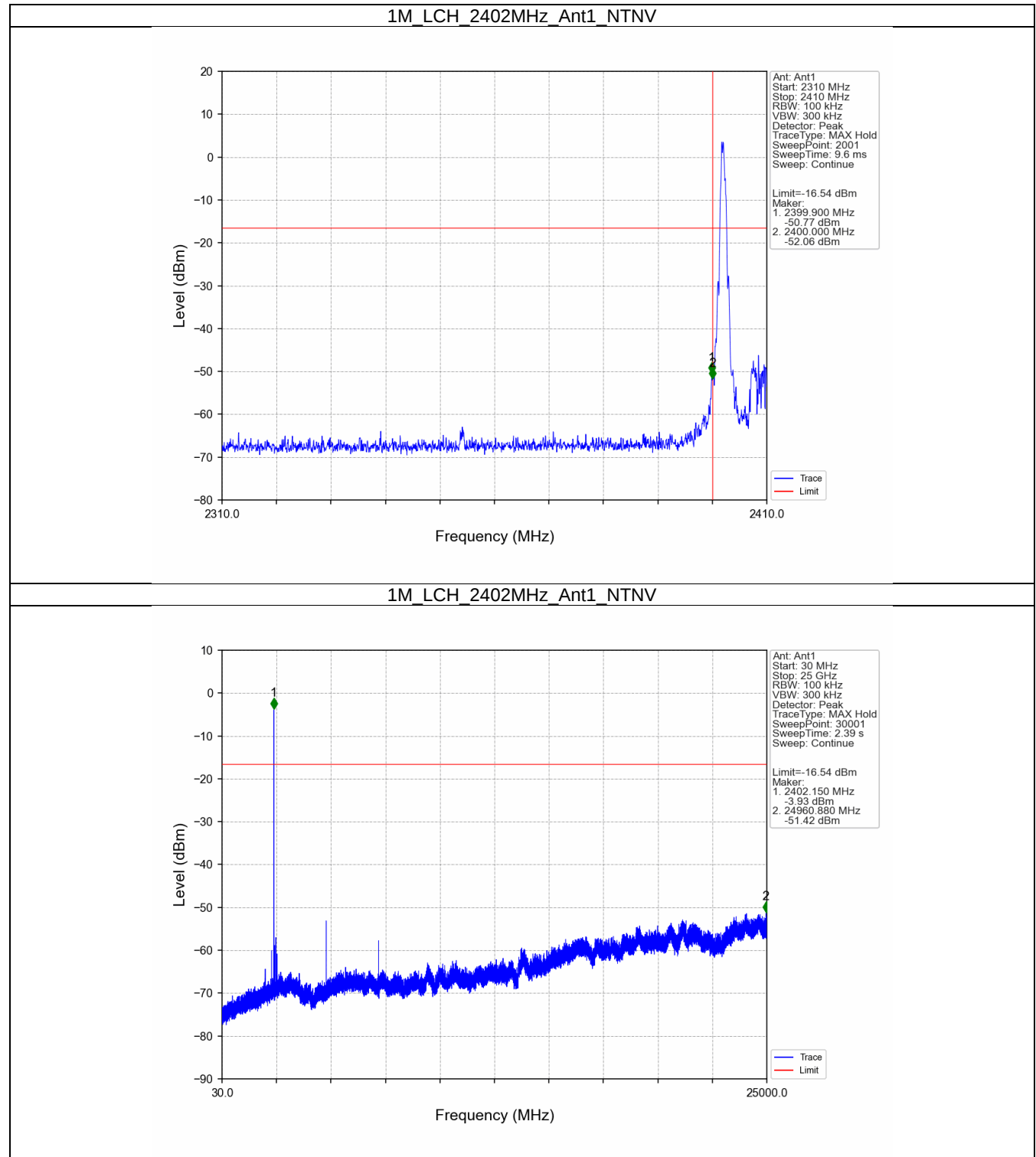
2M\_MCH\_2440MHz\_Ant1\_NTNV



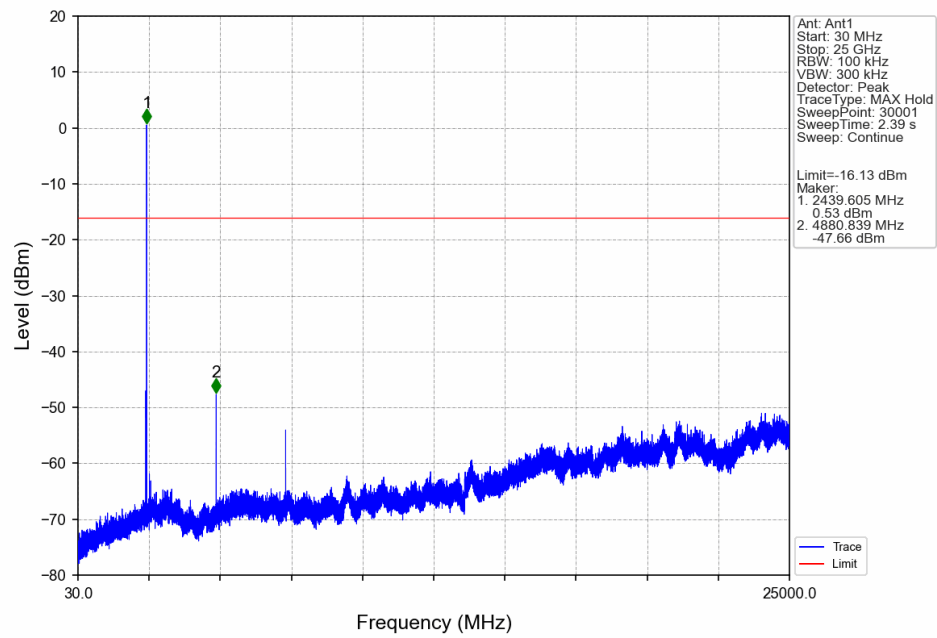
2M\_HCH\_2480MHz\_Ant1\_NTNV



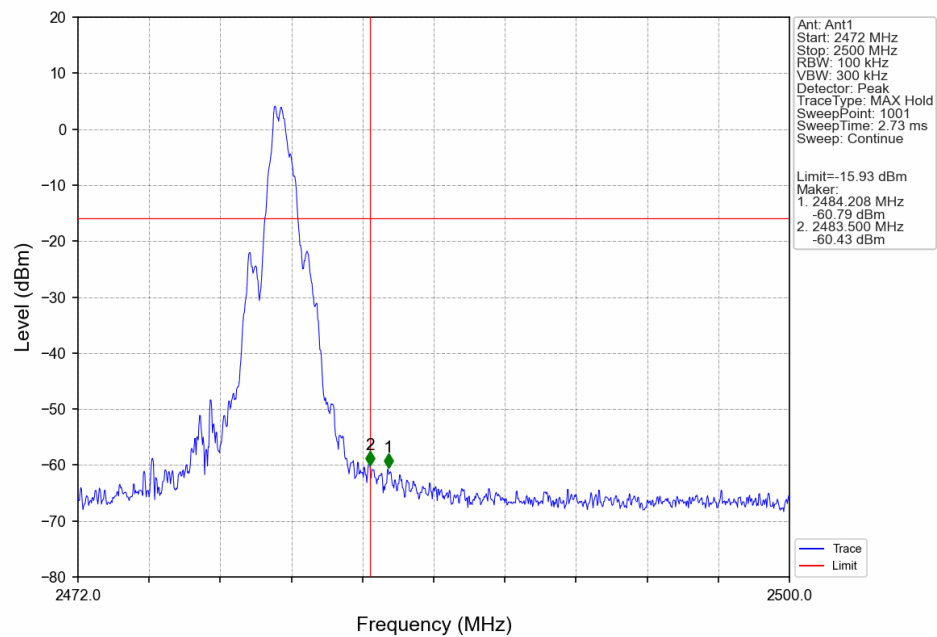
## 5.2.2 CSE



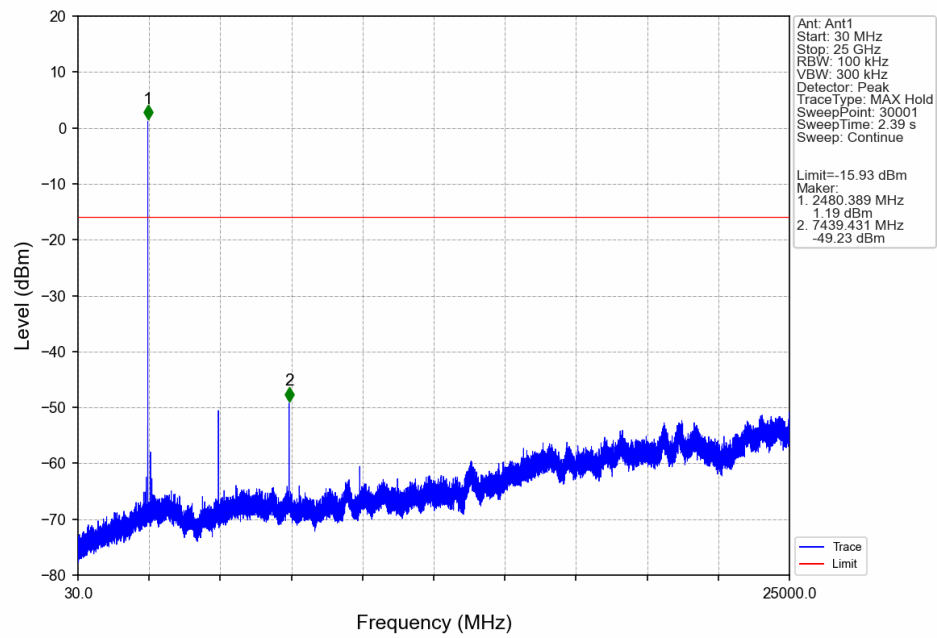
## 1M\_MCH\_2440MHz\_Ant1\_NTNV



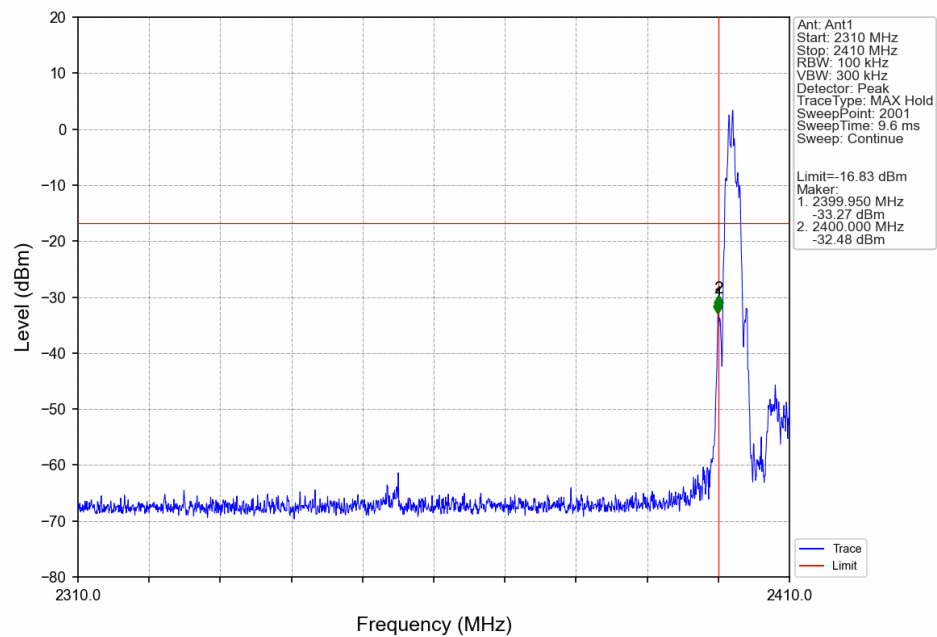
## 1M\_HCH\_2480MHz\_Ant1\_NTNV



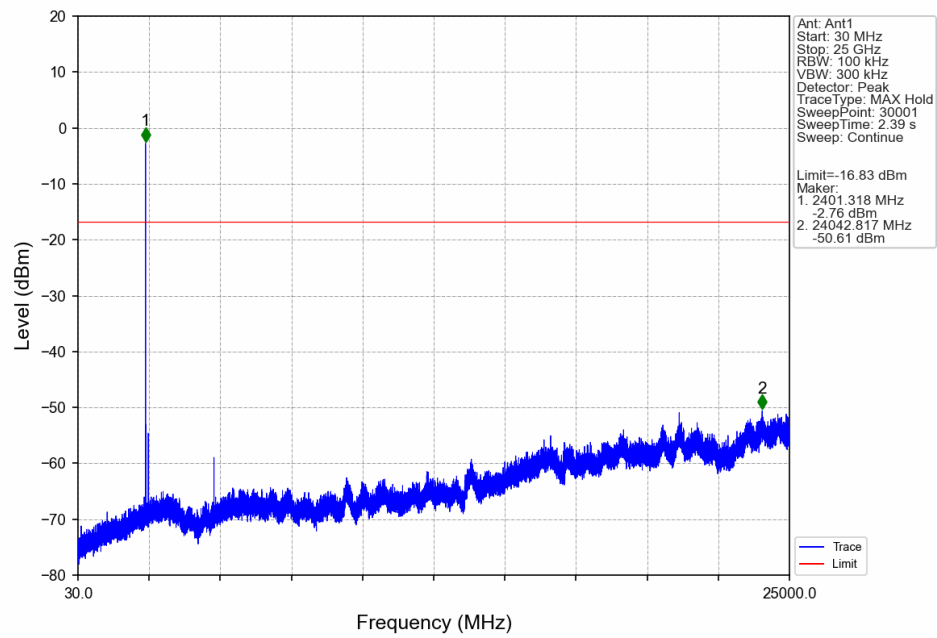
## 1M\_HCH\_2480MHz\_Ant1\_NTNV



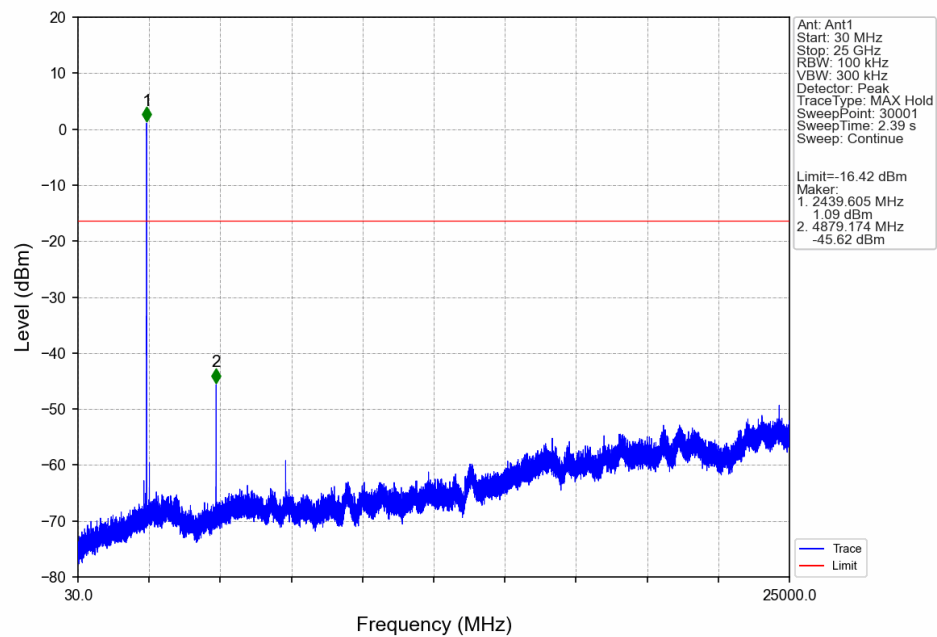
## 2M\_LCH\_2402MHz\_Ant1\_NTNV



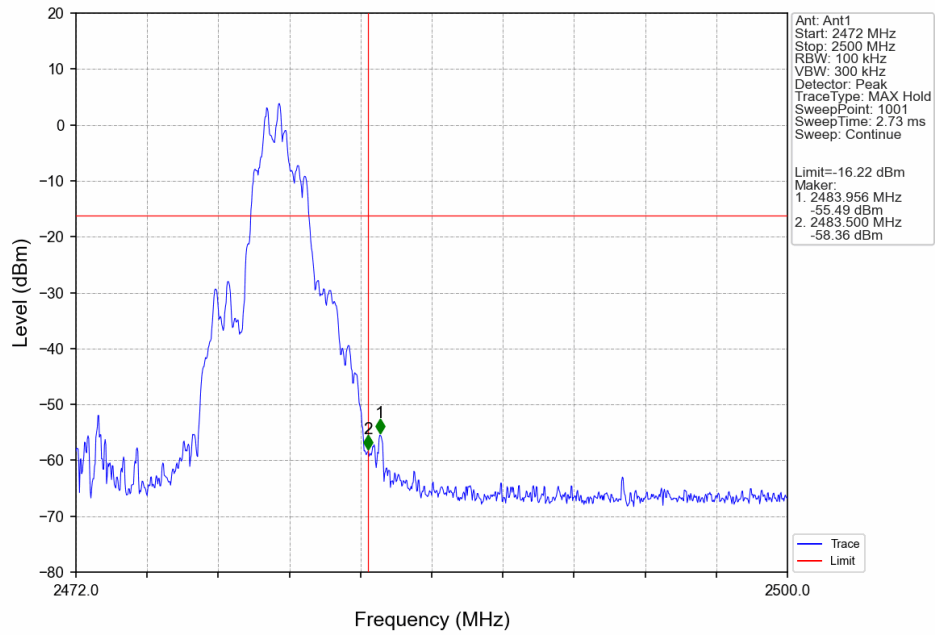
## 2M\_LCH\_2402MHz\_Ant1\_NTNV



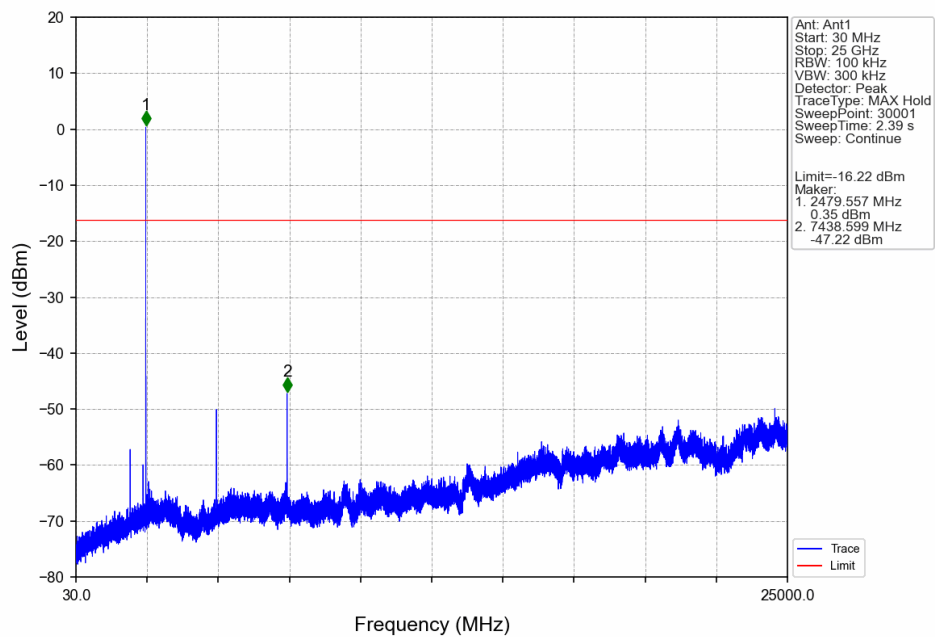
## 2M\_MCH\_2440MHz\_Ant1\_NTNV



2M\_HCH\_2480MHz\_Ant1\_NTNV



2M\_HCH\_2480MHz\_Ant1\_NTNV



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