

## **Appendix RF test data for BT**

## 1. Bandwidth

### 1.1 Test Result

#### 1.1.1 OBW

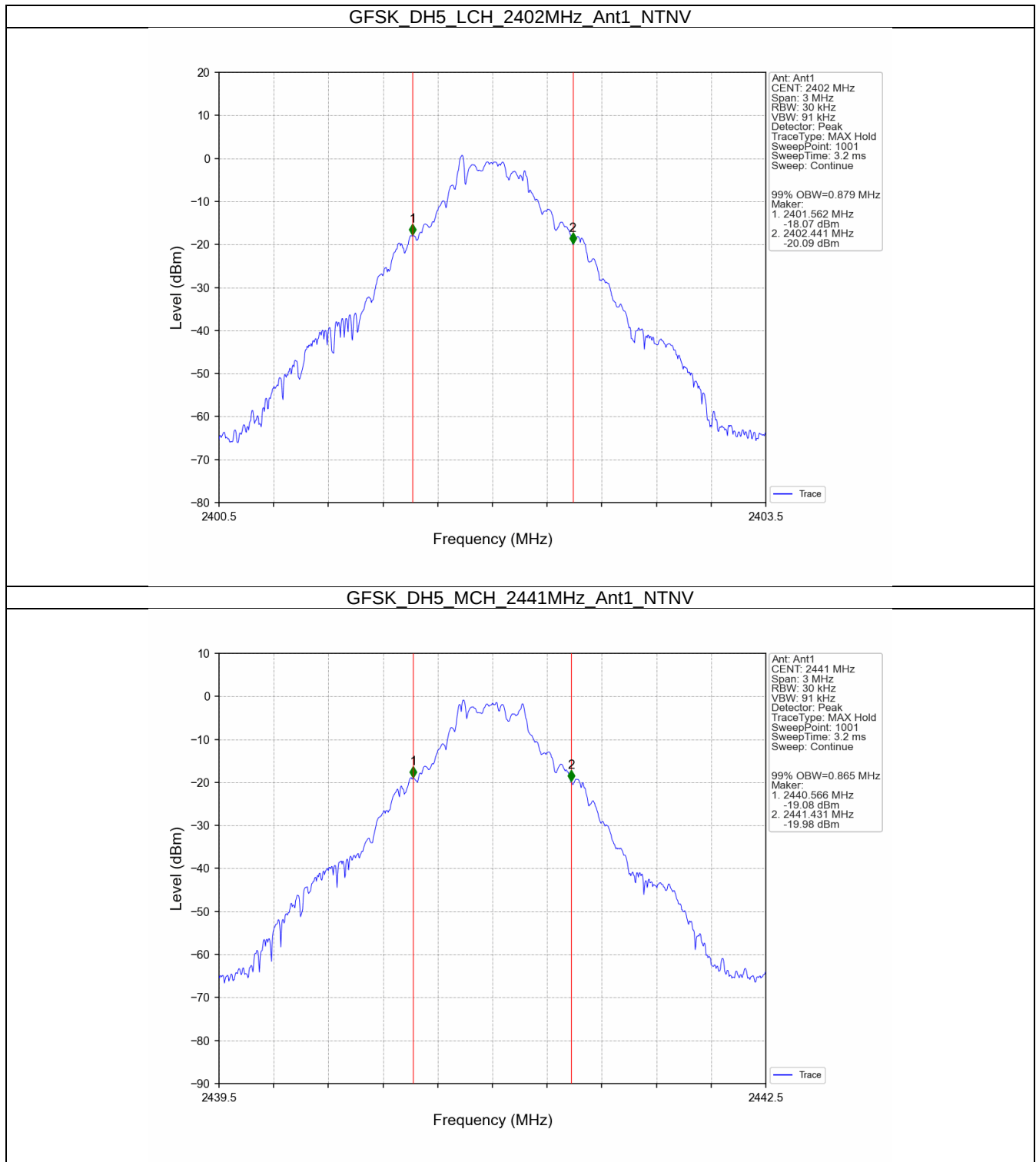
| Mode      | TX Type | Frequency (MHz) | Packet Type | ANT | 99% Occupied Bandwidth (MHz) |       | Verdict |
|-----------|---------|-----------------|-------------|-----|------------------------------|-------|---------|
|           |         |                 |             |     | Result                       | Limit |         |
| GFSK      | SISO    | 2402            | DH5         | 1   | 0.879                        | /     | Pass    |
|           |         | 2441            | DH5         | 1   | 0.865                        | /     | Pass    |
|           |         | 2480            | DH5         | 1   | 0.864                        | /     | Pass    |
| Pi/4DQPSK | SISO    | 2402            | 2DH5        | 1   | 1.179                        | /     | Pass    |
|           |         | 2441            | 2DH5        | 1   | 1.179                        | /     | Pass    |
|           |         | 2480            | 2DH5        | 1   | 1.181                        | /     | Pass    |
| 8DPSK     | SISO    | 2402            | 3DH5        | 1   | 1.192                        | /     | Pass    |
|           |         | 2441            | 3DH5        | 1   | 1.185                        | /     | Pass    |
|           |         | 2480            | 3DH5        | 1   | 1.188                        | /     | Pass    |

#### 1.1.2 20dB BW

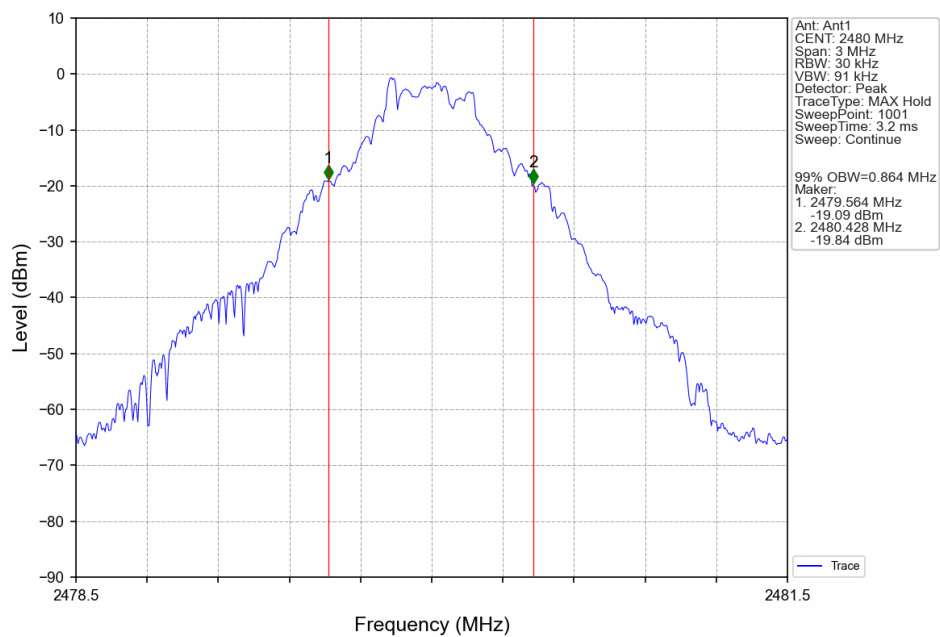
| Mode      | TX Type | Frequency (MHz) | Packet Type | ANT | 20dB Bandwidth (MHz) |       | Verdict |
|-----------|---------|-----------------|-------------|-----|----------------------|-------|---------|
|           |         |                 |             |     | Result               | Limit |         |
| GFSK      | SISO    | 2402            | DH5         | 1   | 0.959                | /     | Pass    |
|           |         | 2441            | DH5         | 1   | 0.963                | /     | Pass    |
|           |         | 2480            | DH5         | 1   | 1.023                | /     | Pass    |
| Pi/4DQPSK | SISO    | 2402            | 2DH5        | 1   | 1.292                | /     | Pass    |
|           |         | 2441            | 2DH5        | 1   | 1.294                | /     | Pass    |
|           |         | 2480            | 2DH5        | 1   | 1.293                | /     | Pass    |
| 8DPSK     | SISO    | 2402            | 3DH5        | 1   | 1.307                | /     | Pass    |
|           |         | 2441            | 3DH5        | 1   | 1.309                | /     | Pass    |
|           |         | 2480            | 3DH5        | 1   | 1.309                | /     | Pass    |

## 1.2 Test Graph

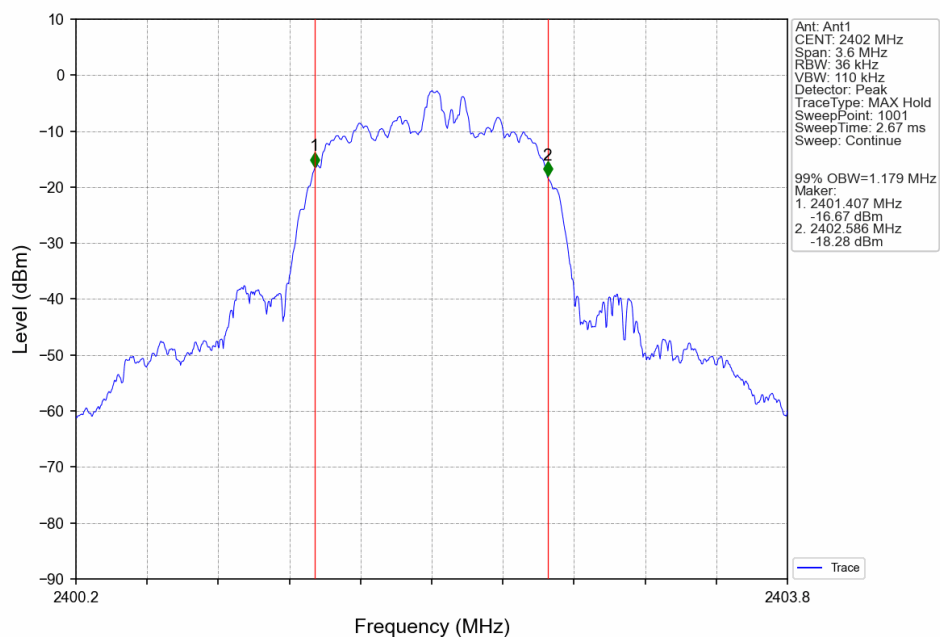
### 1.2.1 OBW



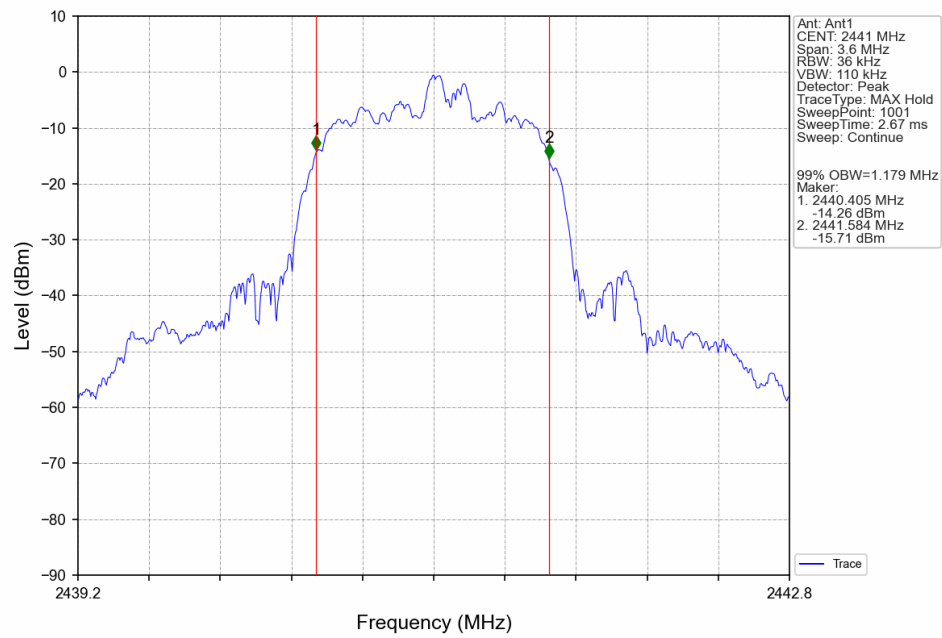
### GFSK\_DH5\_HCH\_2480MHz\_Ant1\_NTNV



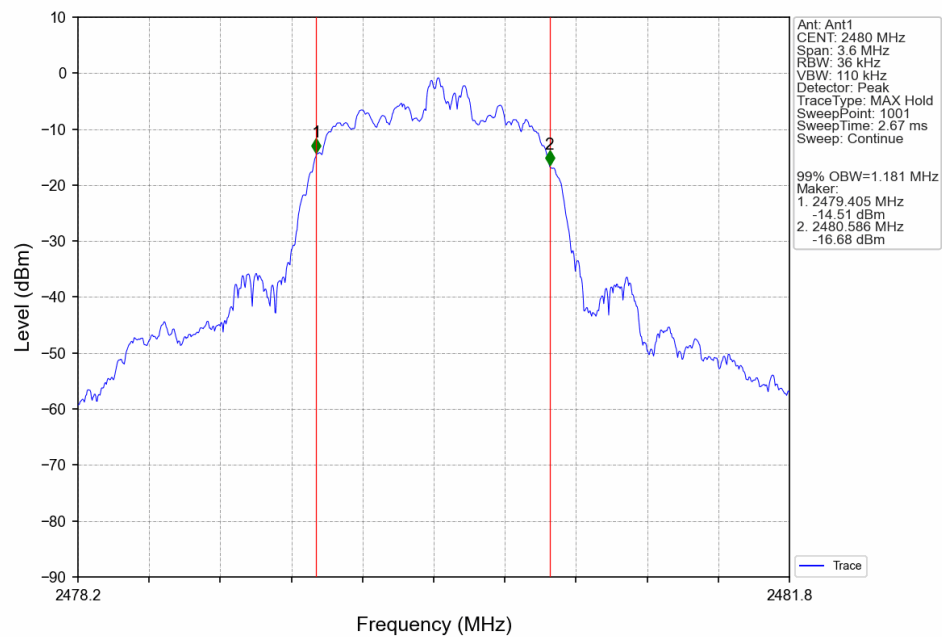
### PI/4DQPSK\_2DH5\_LCH\_2402MHz\_Ant1\_NTNV



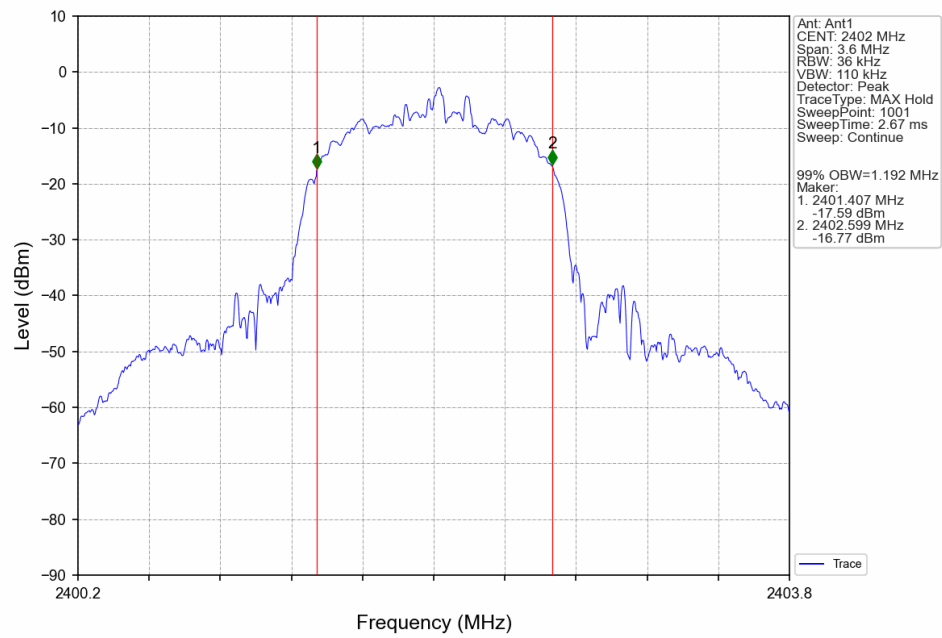
### Pi/4DQPSK\_2DH5\_MCH\_2441MHz\_Ant1\_NTNV



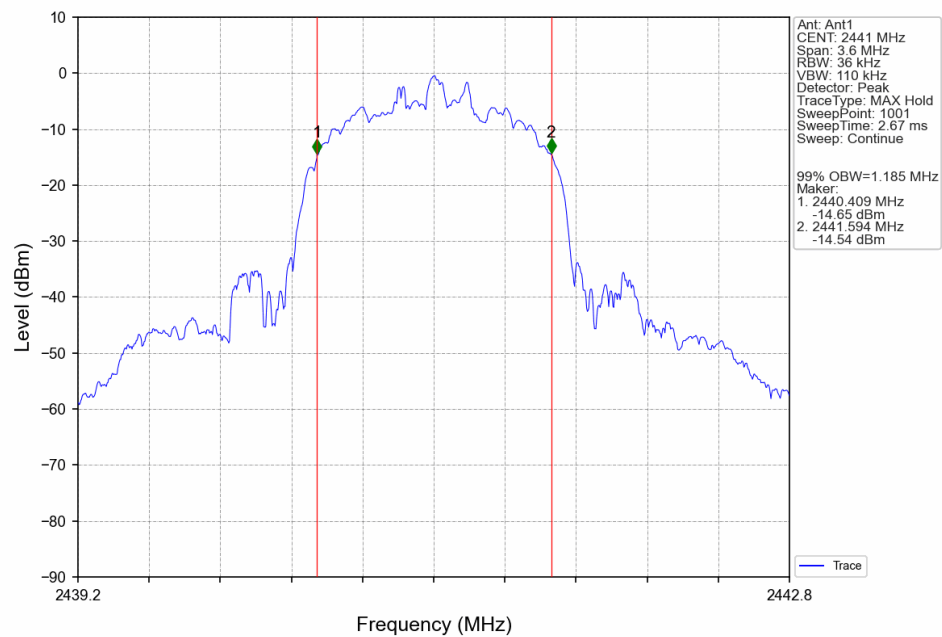
### Pi/4DQPSK\_2DH5\_HCH\_2480MHz\_Ant1\_NTNV



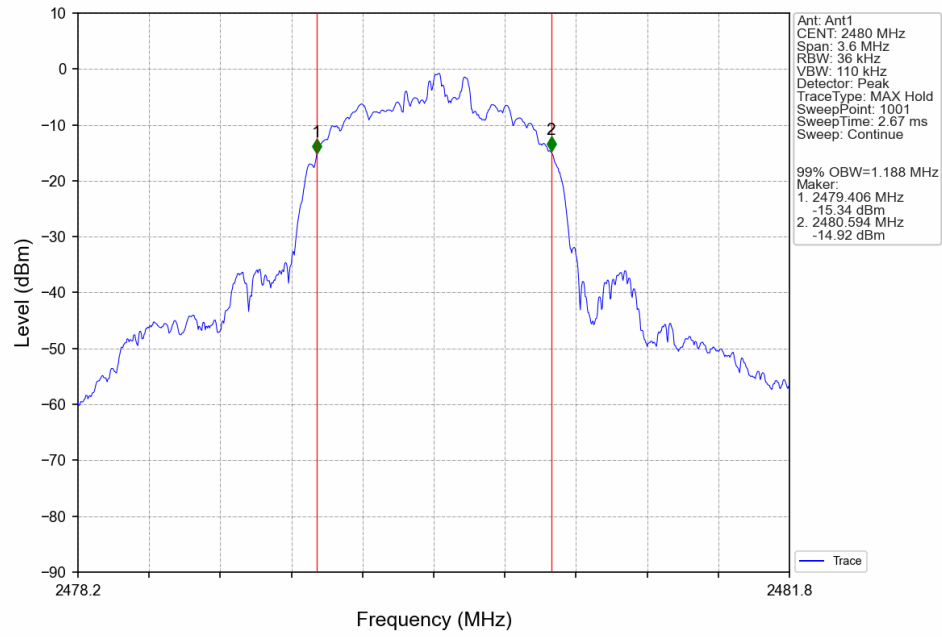
### 8DPSK\_3DH5\_LCH\_2402MHz\_Ant1\_NTNV



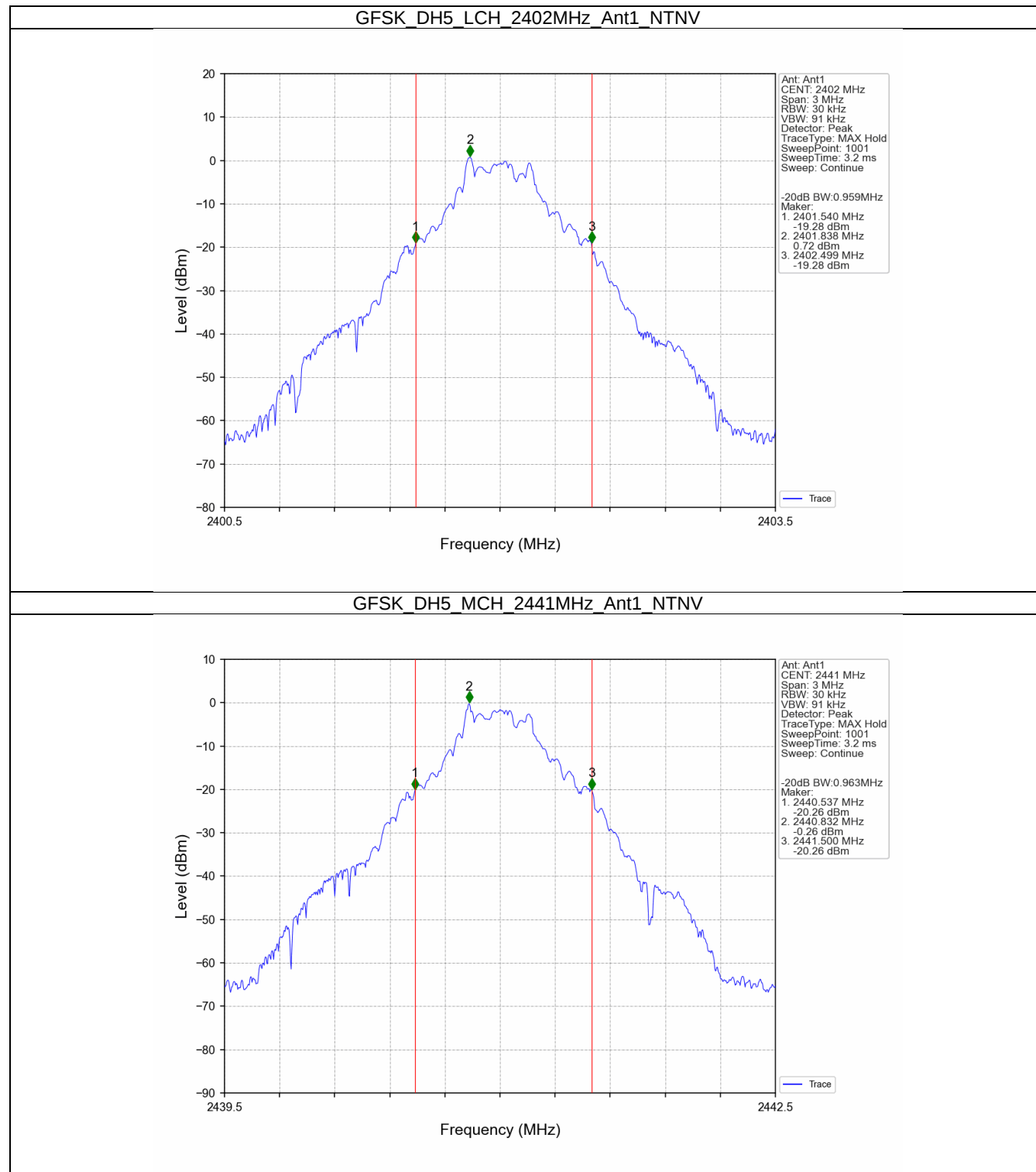
### 8DPSK\_3DH5\_MCH\_2441MHz\_Ant1\_NTNV



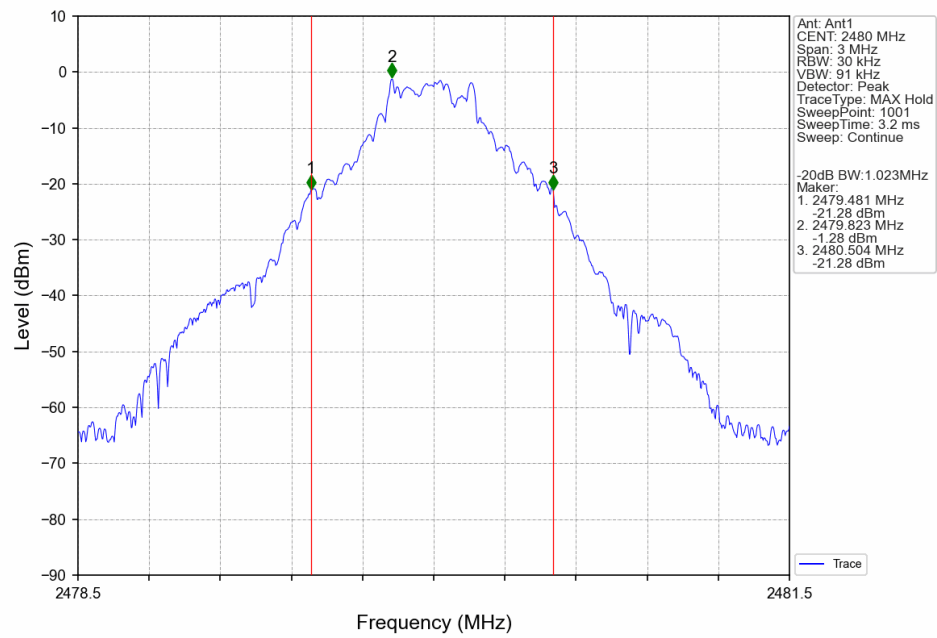
## 8DPSK\_3DH5\_HCH\_2480MHz\_Ant1\_NTNV



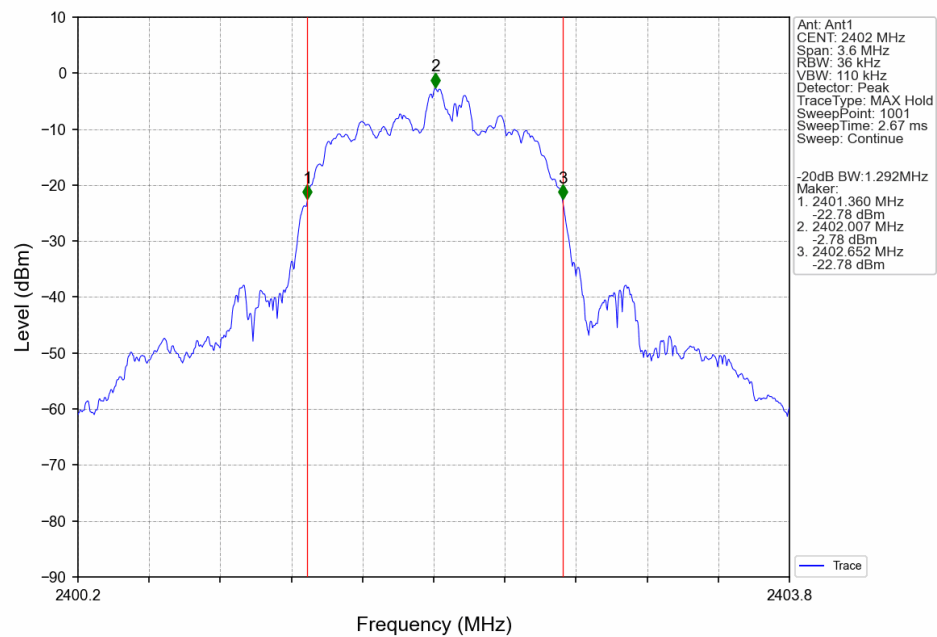
## 1.2.2 20dB BW



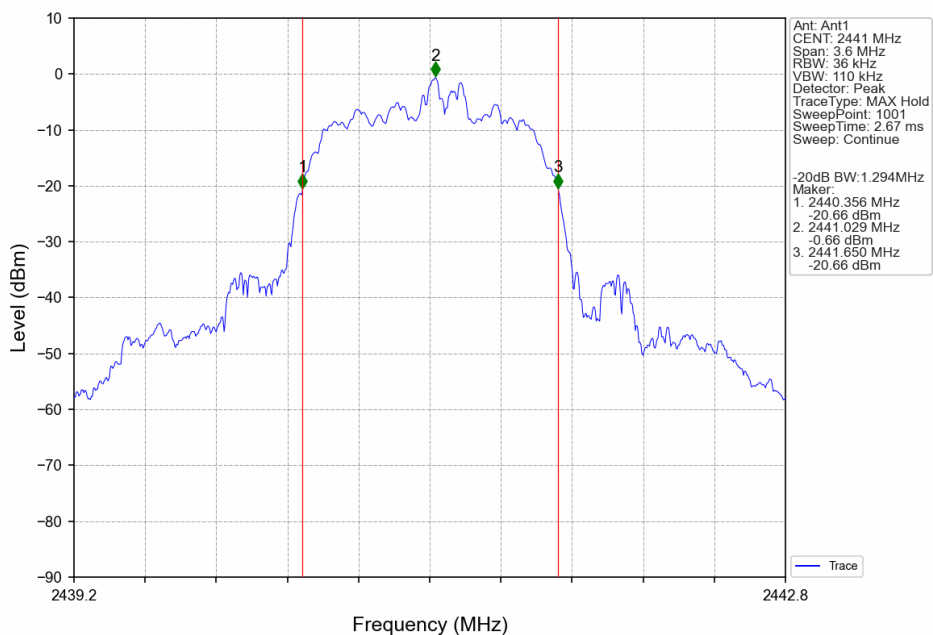
### GFSK\_DH5\_HCH\_2480MHz\_Ant1\_NTNV



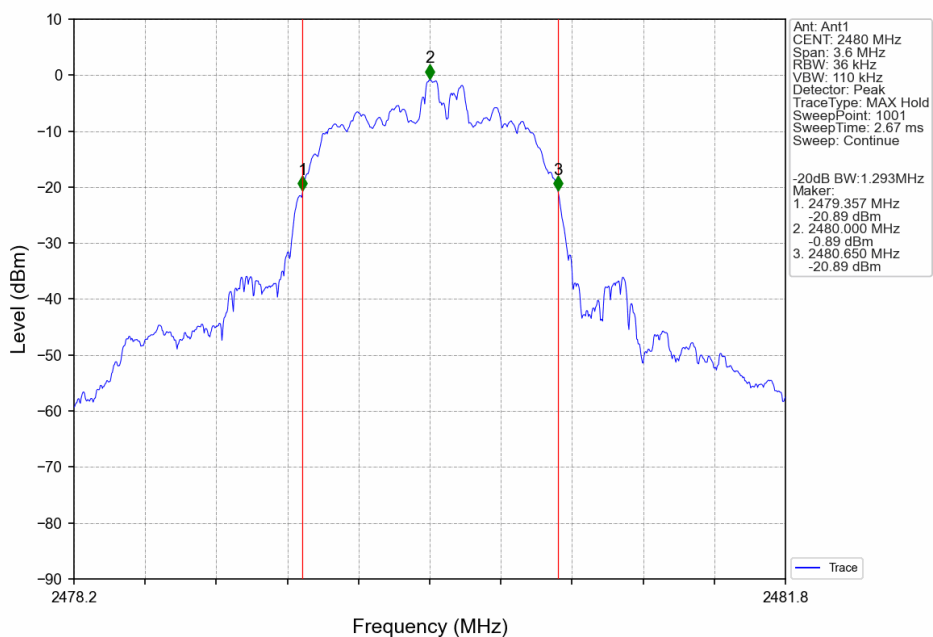
### PI/4DQPSK\_2DH5\_LCH\_2402MHz\_Ant1\_NTNV



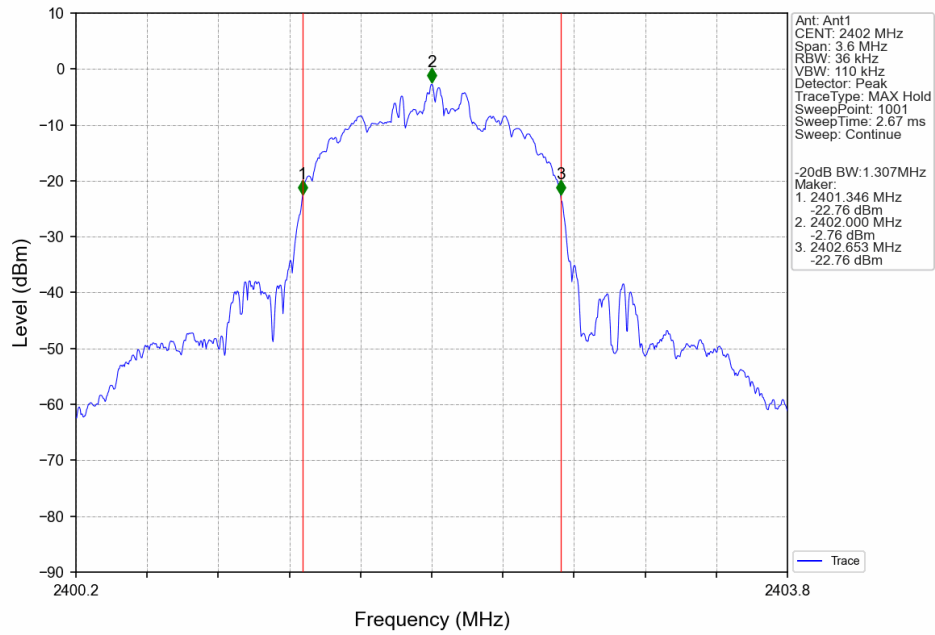
### Pi/4DQPSK\_2DH5\_MCH\_2441MHz\_Ant1\_NTNV



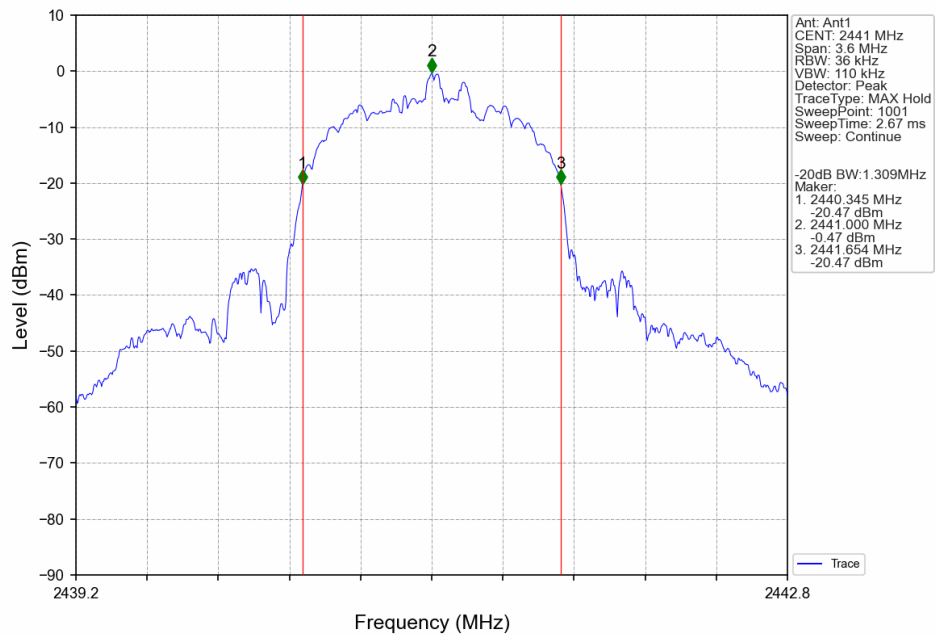
### Pi/4DQPSK\_2DH5\_HCH\_2480MHz\_Ant1\_NTNV



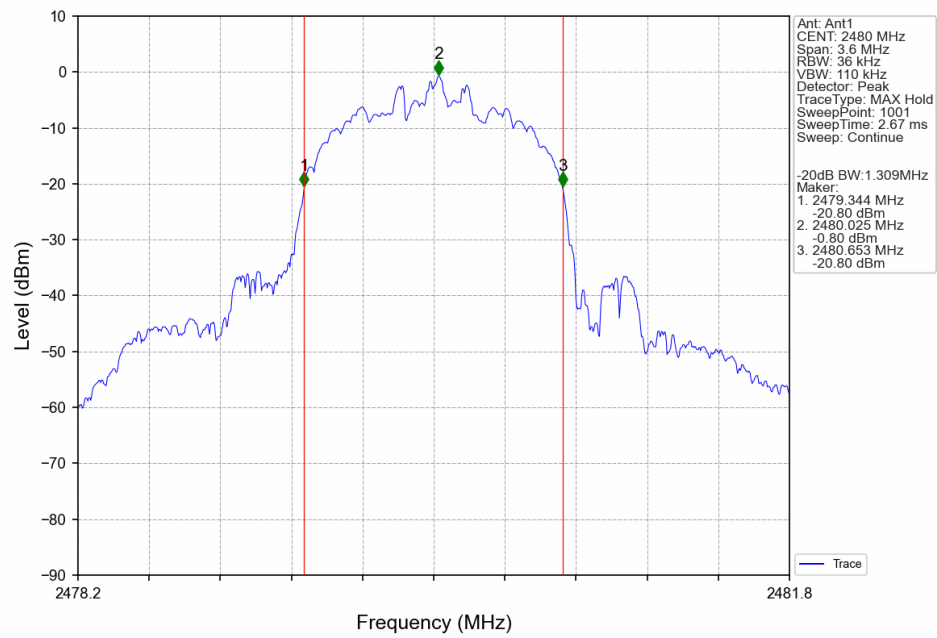
## 8DPSK\_3DH5\_LCH\_2402MHz\_Ant1\_NTNV



## 8DPSK\_3DH5\_MCH\_2441MHz\_Ant1\_NTNV



## 8DPSK\_3DH5\_HCH\_2480MHz\_Ant1\_NTNV





## 2. Maximum Conducted Output Power

## 2.1 Test Result

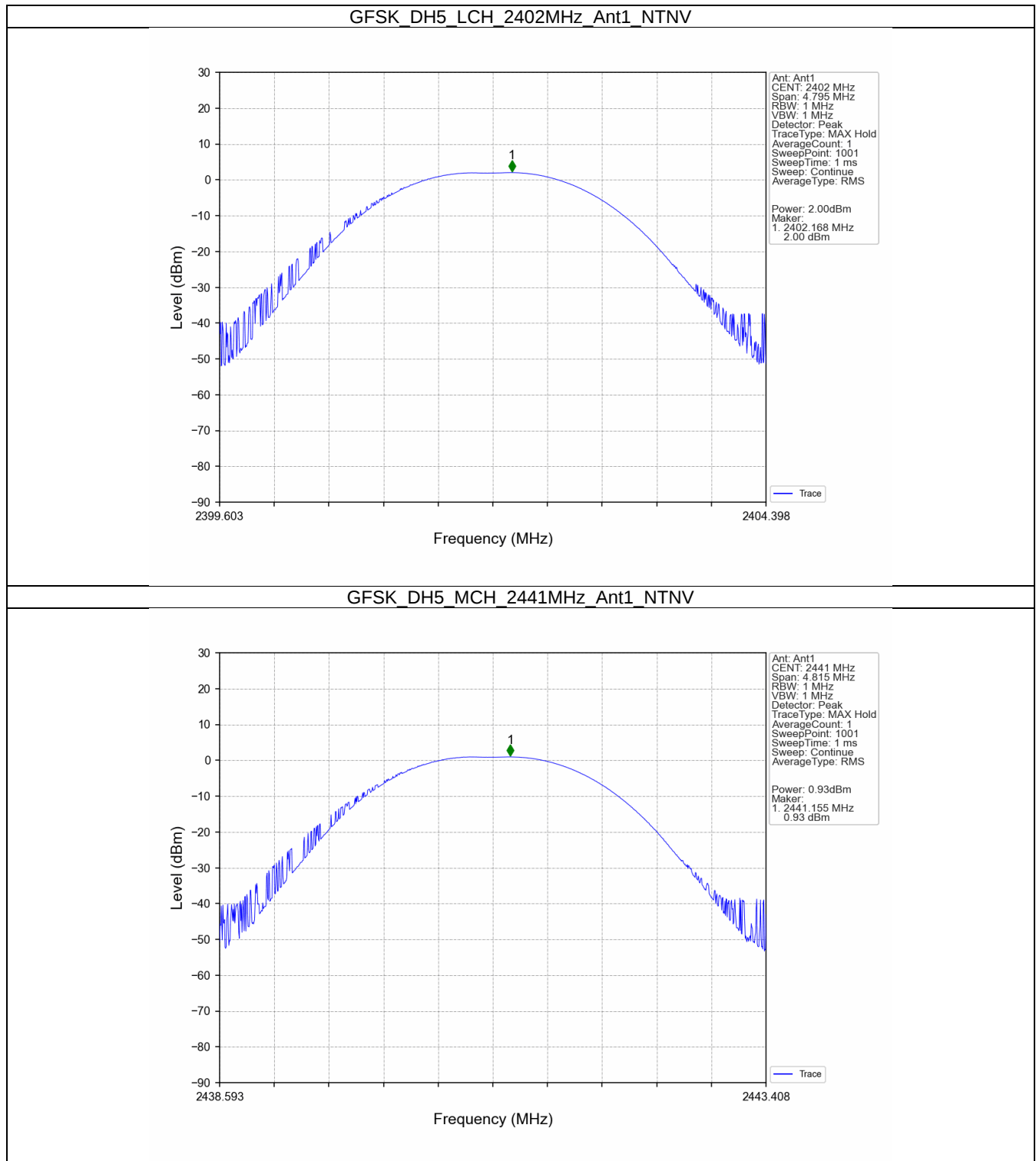
### 2.1.1 Power

| Mode      | TX Type | Frequency (MHz) | Packet Type | Maximum Peak Conducted Output Power (dBm) |         | Verdict |
|-----------|---------|-----------------|-------------|-------------------------------------------|---------|---------|
|           |         |                 |             | ANT1                                      | Limit   |         |
| GFSK      | SISO    | 2402            | DH5         | 2.00                                      | <=20.97 | Pass    |
|           |         | 2441            | DH5         | 0.93                                      | <=20.97 | Pass    |
|           |         | 2480            | DH5         | 0.98                                      | <=20.97 | Pass    |
| Pi/4DQPSK | SISO    | 2402            | 2DH5        | 0.73                                      | <=20.97 | Pass    |
|           |         | 2441            | 2DH5        | 2.90                                      | <=20.97 | Pass    |
|           |         | 2480            | 2DH5        | 2.54                                      | <=20.97 | Pass    |
| 8DPSK     | SISO    | 2402            | 3DH5        | 1.04                                      | <=20.97 | Pass    |
|           |         | 2441            | 3DH5        | 3.28                                      | <=20.97 | Pass    |
|           |         | 2480            | 3DH5        | 2.93                                      | <=20.97 | Pass    |

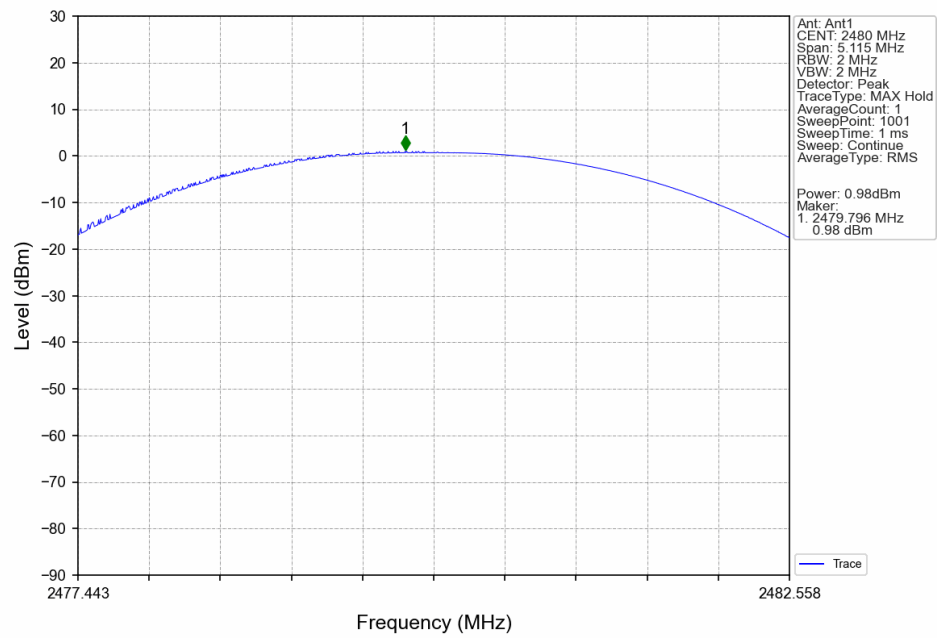
Note1: Antenna Gain: Ant1: 6.60dBi;

## 2.2 Test Graph

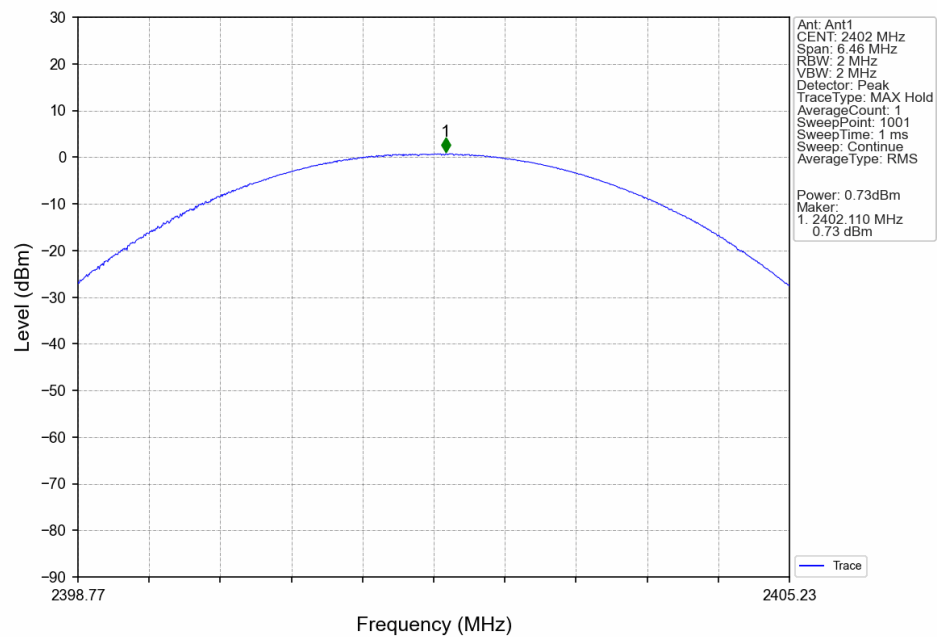
### 2.2.1 Power



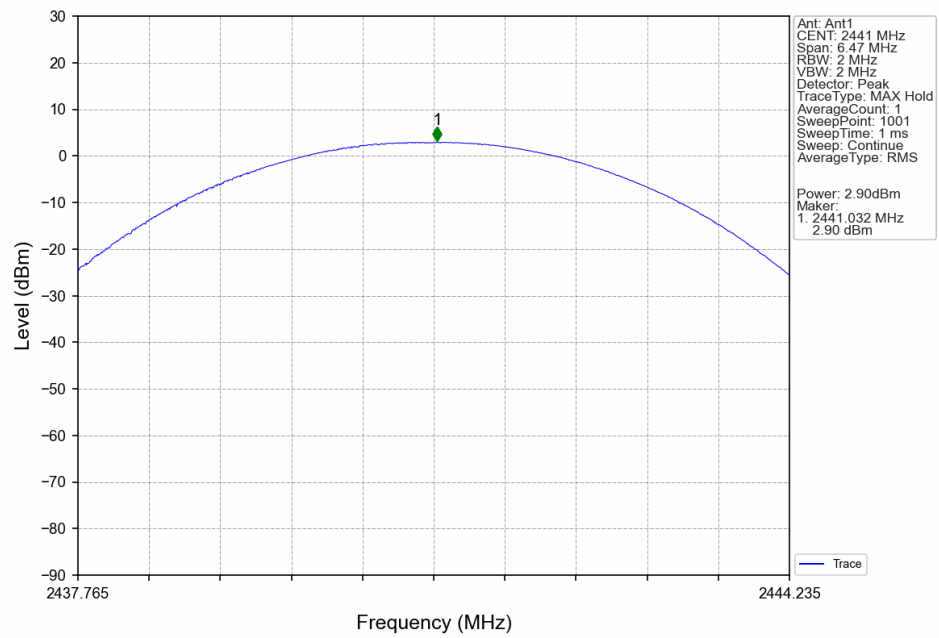
### GFSK\_DH5\_HCH\_2480MHz\_Ant1\_NTNV



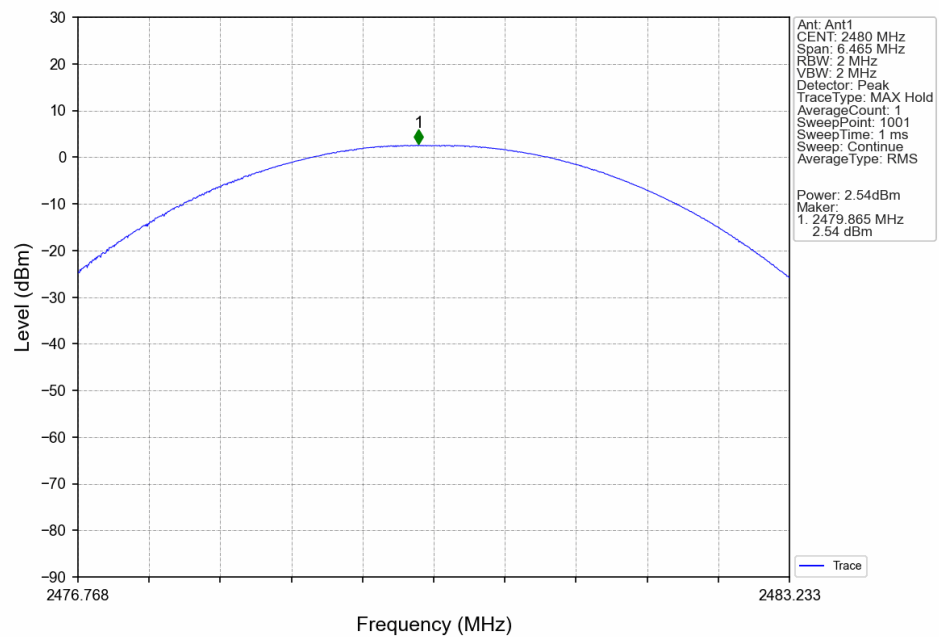
### PI/4DQPSK\_2DH5\_LCH\_2402MHz\_Ant1\_NTNV



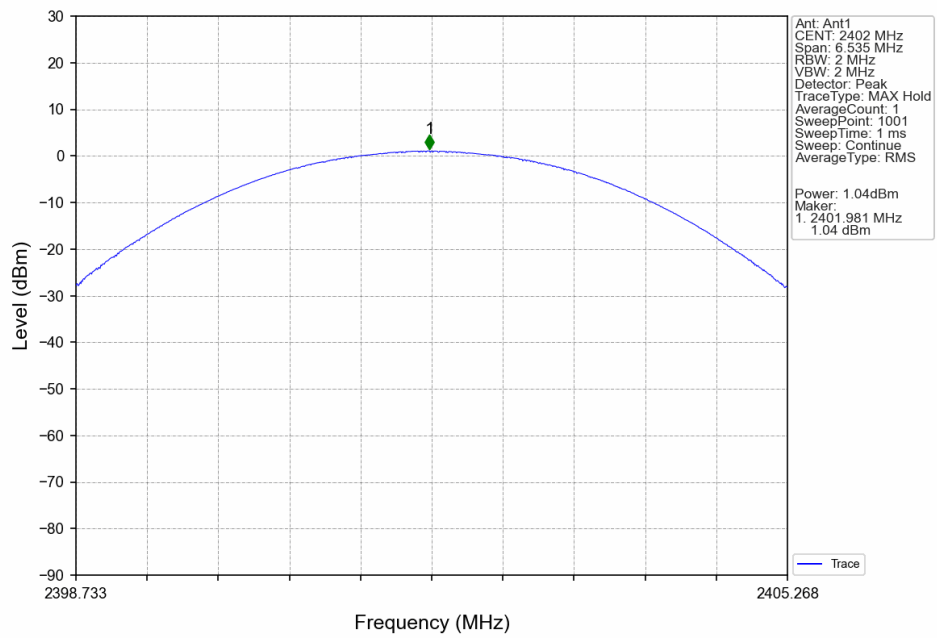
Pi/4DQPSK\_2DH5\_MCH\_2441MHz\_Ant1\_NTNV



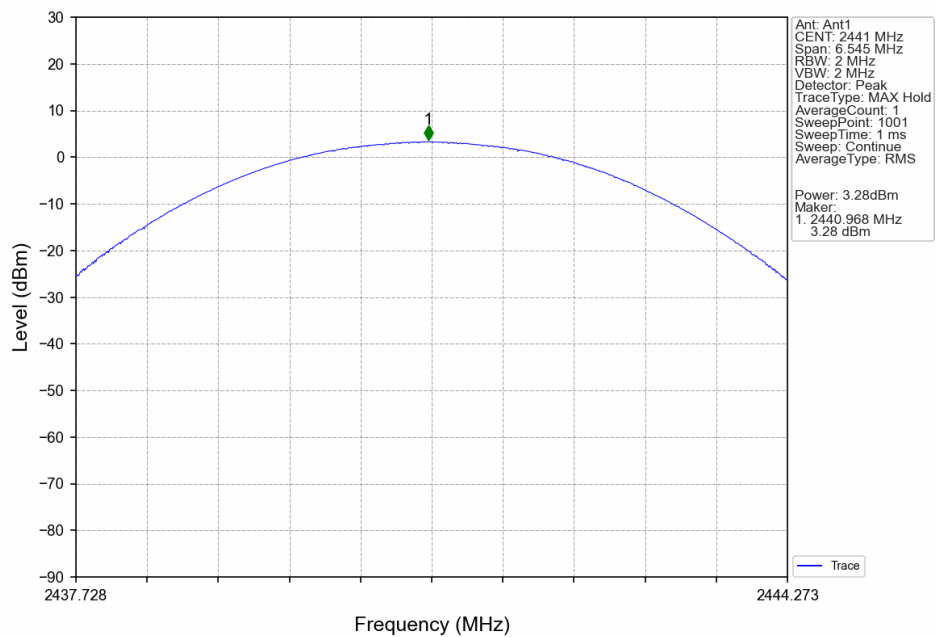
Pi/4DQPSK\_2DH5\_HCH\_2480MHz\_Ant1\_NTNV



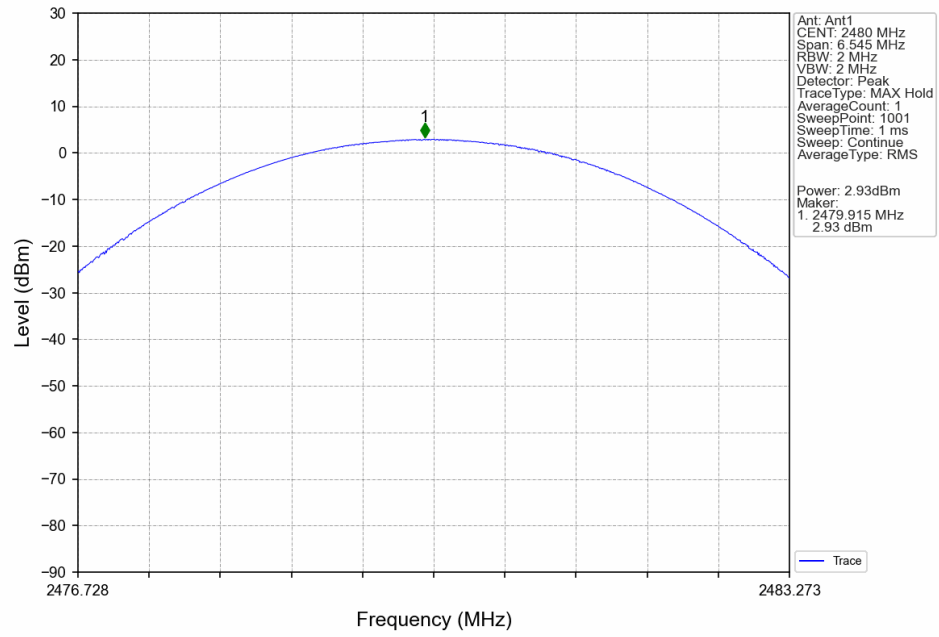
## 8DPSK\_3DH5\_LCH\_2402MHz\_Ant1\_NTNV



## 8DPSK\_3DH5\_MCH\_2441MHz\_Ant1\_NTNV



## 8DPSK\_3DH5\_HCH\_2480MHz\_Ant1\_NTNV



### 3. Carrier Frequency Separation

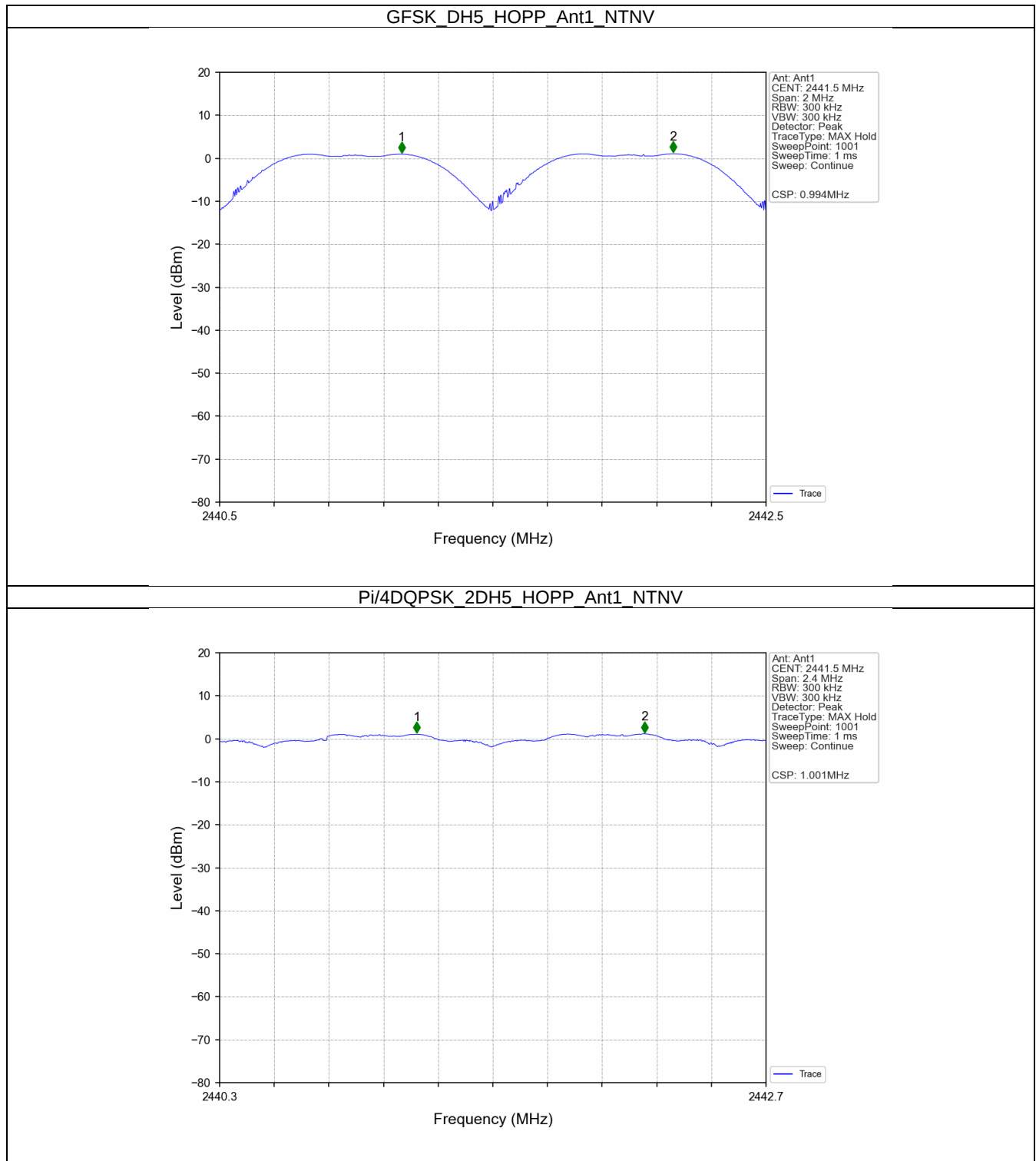
#### 3.1 Test Result

##### 3.1.1 Ant1

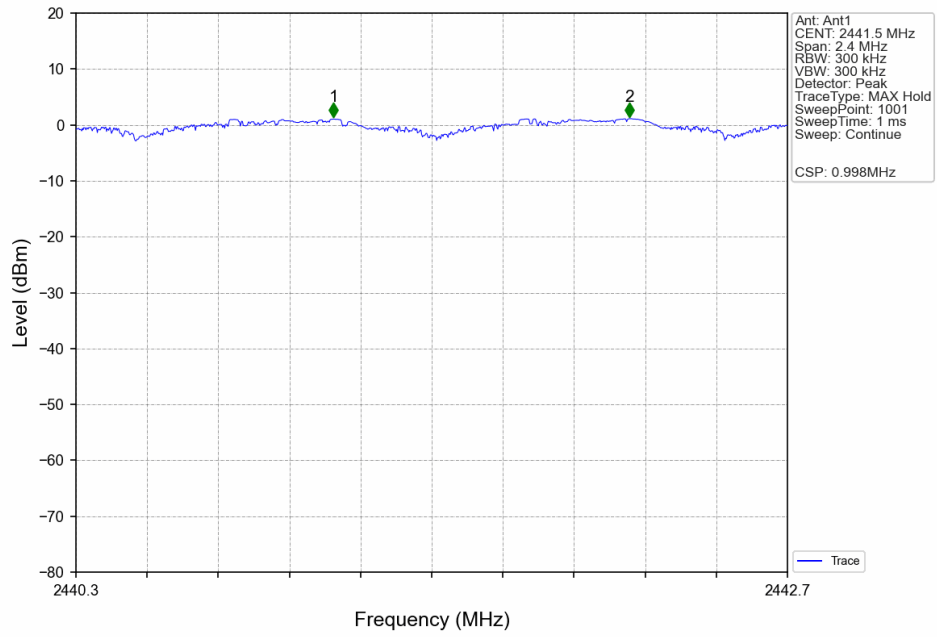
| Ant1      |         |                 |             |                          |                      |              |         |
|-----------|---------|-----------------|-------------|--------------------------|----------------------|--------------|---------|
| Mode      | TX Type | Frequency (MHz) | Packet Type | Channel Separation (MHz) | 20dB Bandwidth (MHz) | Limit (MHz)  | Verdict |
| GFSK      | SISO    | HOPP            | DH5         | 0.994                    | 1.023                | $\geq 0.682$ | Pass    |
| Pi/4DQPSK | SISO    | HOPP            | 2DH5        | 1.001                    | 1.294                | $\geq 0.863$ | Pass    |
| 8DPSK     | SISO    | HOPP            | 3DH5        | 0.998                    | 1.309                | $\geq 0.873$ | Pass    |

## 3.2 Test Graph

### 3.2.1 Ant1



## 8DPSK 3DH5 HOPP\_Ant1\_NTNV



## 4. Number of Hopping Frequencies

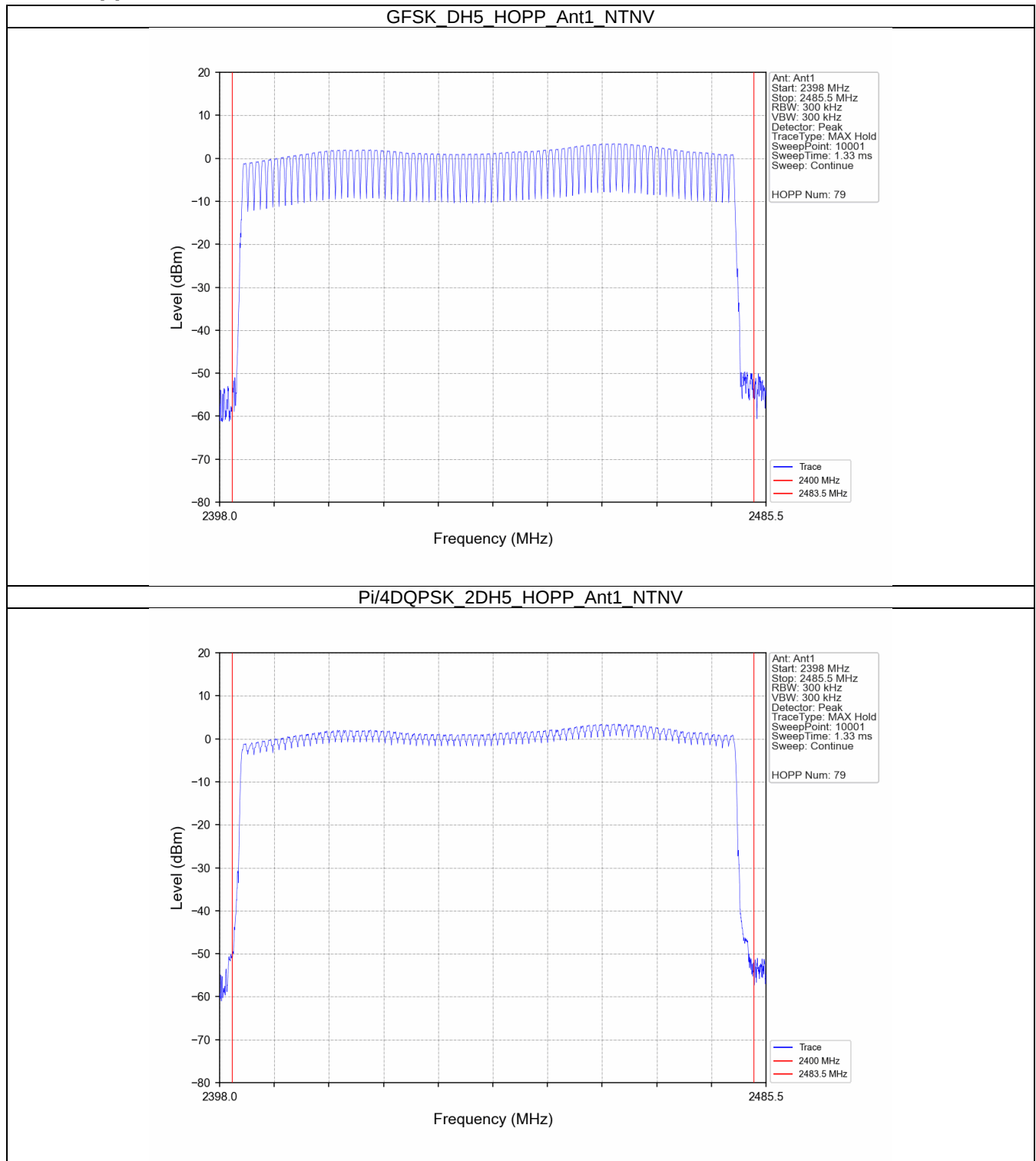
### 4.1 Test Result

#### 4.1.1 HoppNum

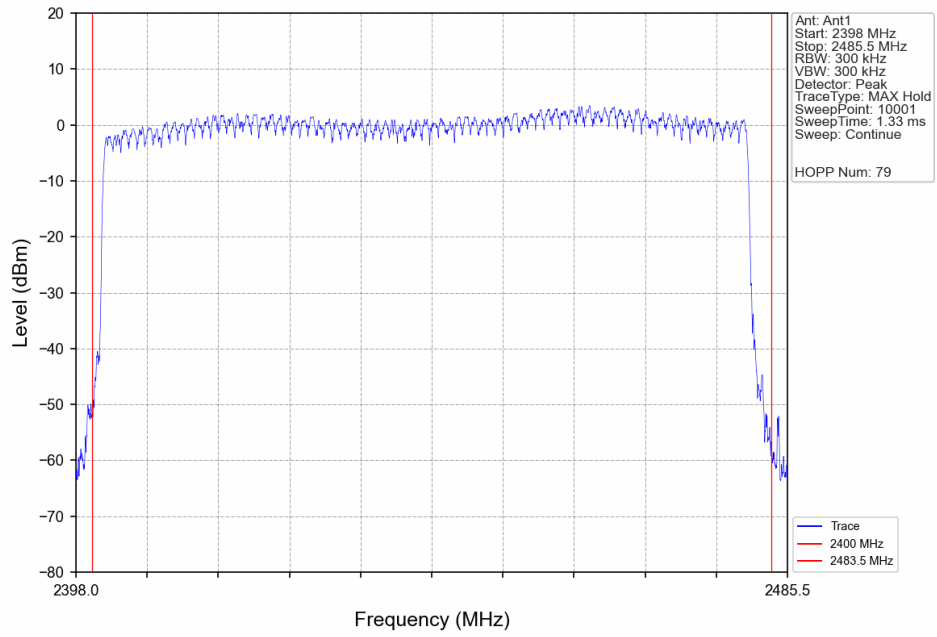
| Mode      | TX Type | Frequency (MHz) | Packet Type | Num of Hopping Frequencies |           | Verdict |
|-----------|---------|-----------------|-------------|----------------------------|-----------|---------|
|           |         |                 |             | ANT1                       | Limit     |         |
| GFSK      | SISO    | HOPP            | DH5         | 79                         | $\geq 15$ | Pass    |
| Pi/4DQPSK | SISO    | HOPP            | 2DH5        | 79                         | $\geq 15$ | Pass    |
| 8DPSK     | SISO    | HOPP            | 3DH5        | 79                         | $\geq 15$ | Pass    |

## 4.2 Test Graph

### 4.2.1 HoppNum



## 8DPSK\_3DH5\_HOPP\_Ant1\_NTNV



## 5. Time of Occupancy (Dwell Time)

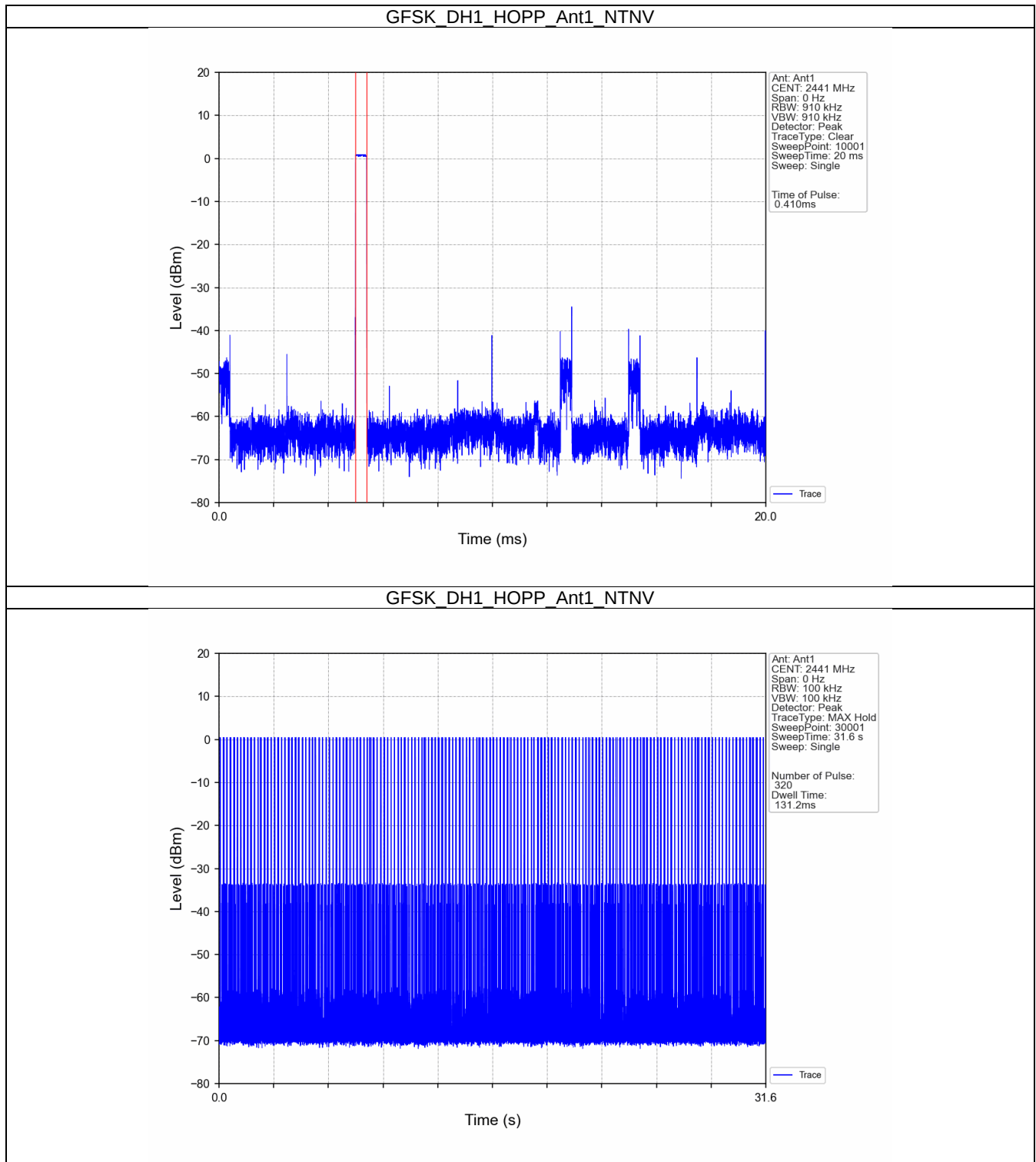
### 5.1 Test Result

#### 5.1.1 Ant1

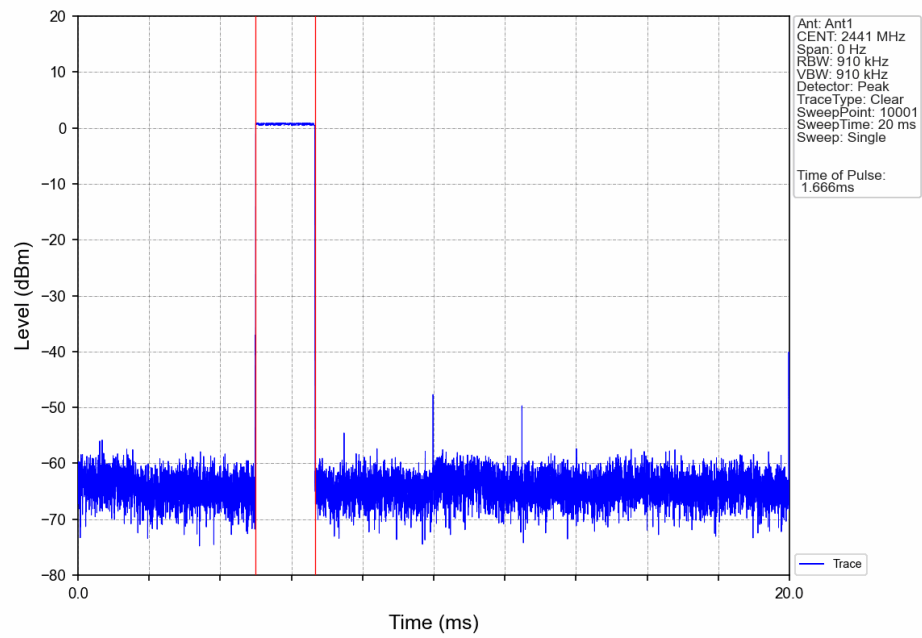
| Ant1      |         |                 |             |                               |                        |                                    |                 |            |         |
|-----------|---------|-----------------|-------------|-------------------------------|------------------------|------------------------------------|-----------------|------------|---------|
| Mode      | TX Type | Frequency (MHz) | Packet Type | Duration of Single Pulse (ms) | Observation Period (s) | Num of Pulse in Observation Period | Dwell Time (ms) | Limit (ms) | Verdict |
| GFSK      | SISO    | HOPP            | DH1         | 0.410                         | 31.600                 | 320                                | 131.200         | <=400      | Pass    |
|           |         |                 | DH3         | 1.666                         | 31.600                 | 148                                | 246.568         | <=400      | Pass    |
|           |         |                 | DH5         | 2.914                         | 31.600                 | 115                                | 335.110         | <=400      | Pass    |
| Pi/4DQPSK | SISO    | HOPP            | 2DH1        | 0.402                         | 31.600                 | 319                                | 128.238         | <=400      | Pass    |
|           |         |                 | 2DH3        | 1.654                         | 31.600                 | 156                                | 258.024         | <=400      | Pass    |
|           |         |                 | 2DH5        | 2.916                         | 31.600                 | 110                                | 320.760         | <=400      | Pass    |
| 8DPSK     | SISO    | HOPP            | 3DH1        | 0.400                         | 31.600                 | 319                                | 127.600         | <=400      | Pass    |
|           |         |                 | 3DH3        | 1.650                         | 31.600                 | 156                                | 257.400         | <=400      | Pass    |
|           |         |                 | 3DH5        | 2.916                         | 31.600                 | 106                                | 309.096         | <=400      | Pass    |

## 5.2 Test Graph

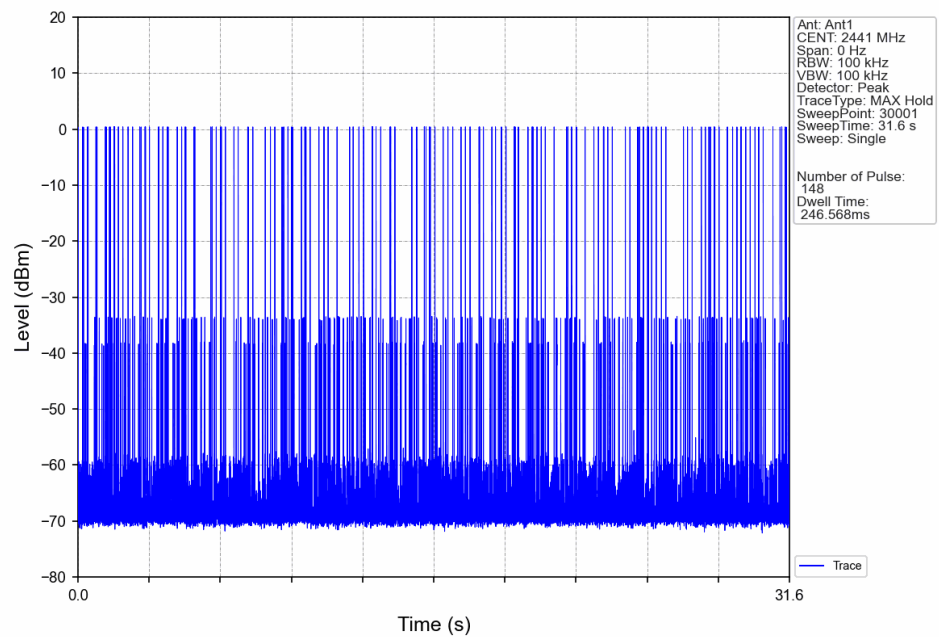
### 5.2.1 Ant1



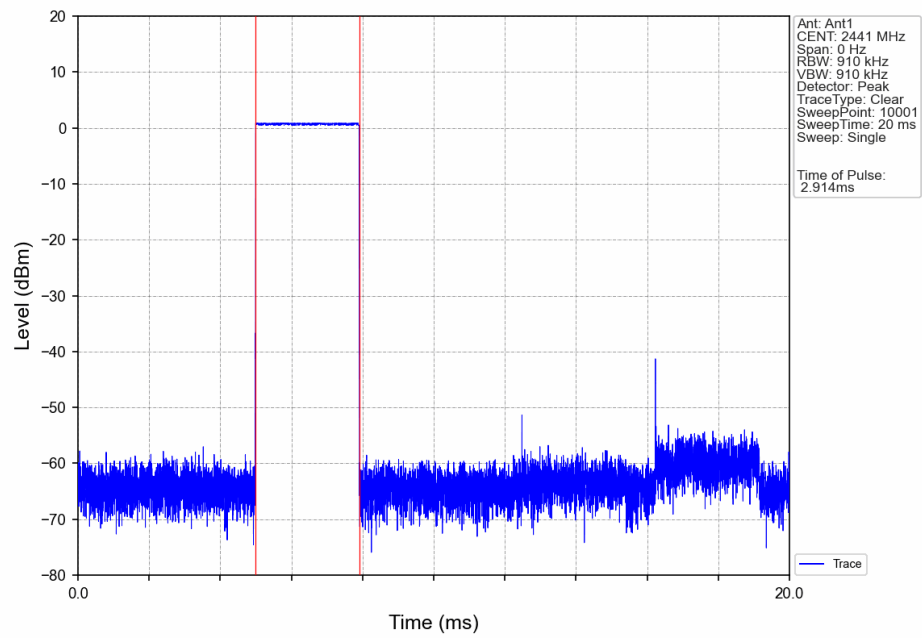
## GFSK\_DH3\_HOPP\_Ant1\_NTNV



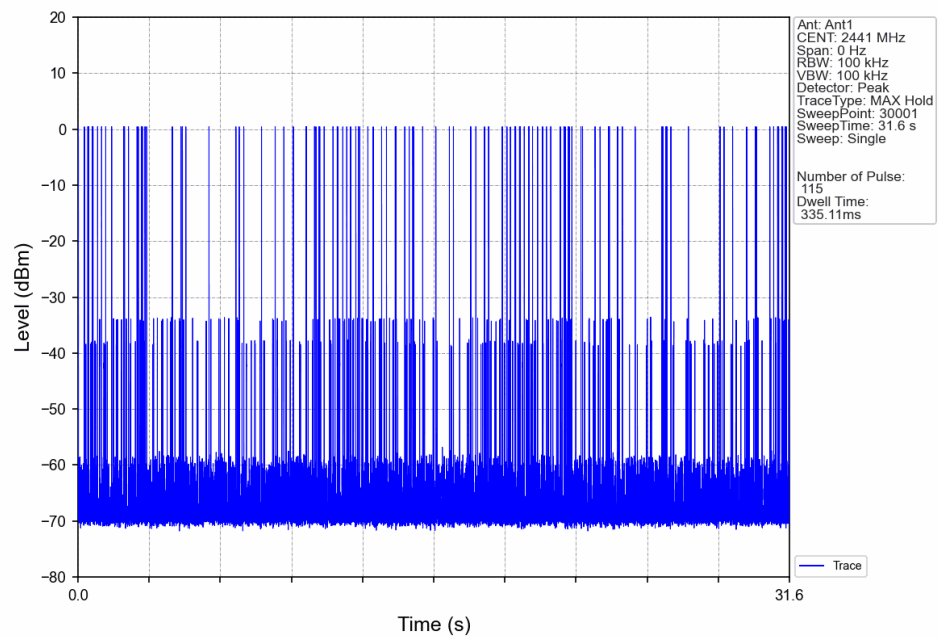
## GFSK\_DH3\_HOPP\_Ant1\_NTNV



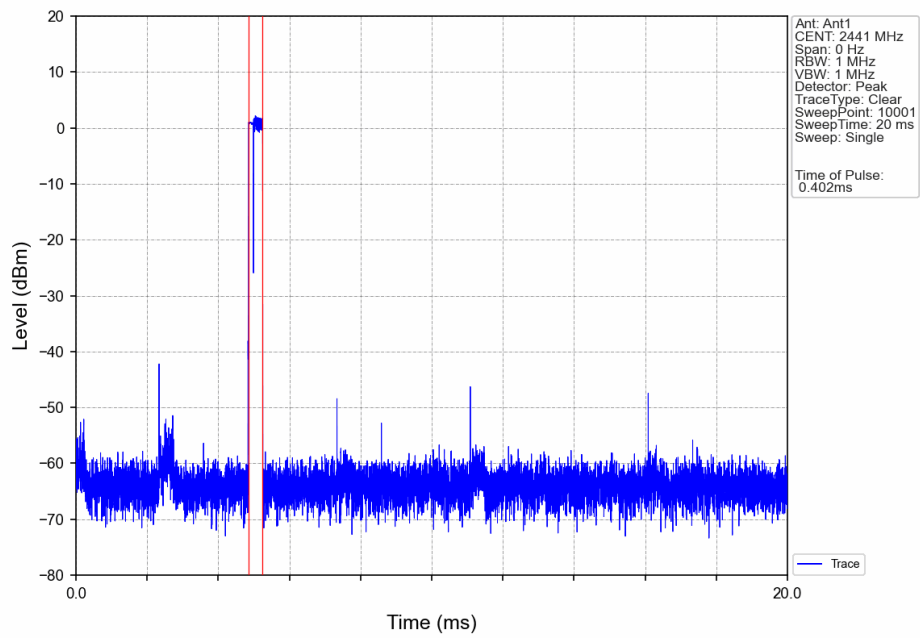
## GFSK\_DH5\_HOPP\_Ant1\_NTNV



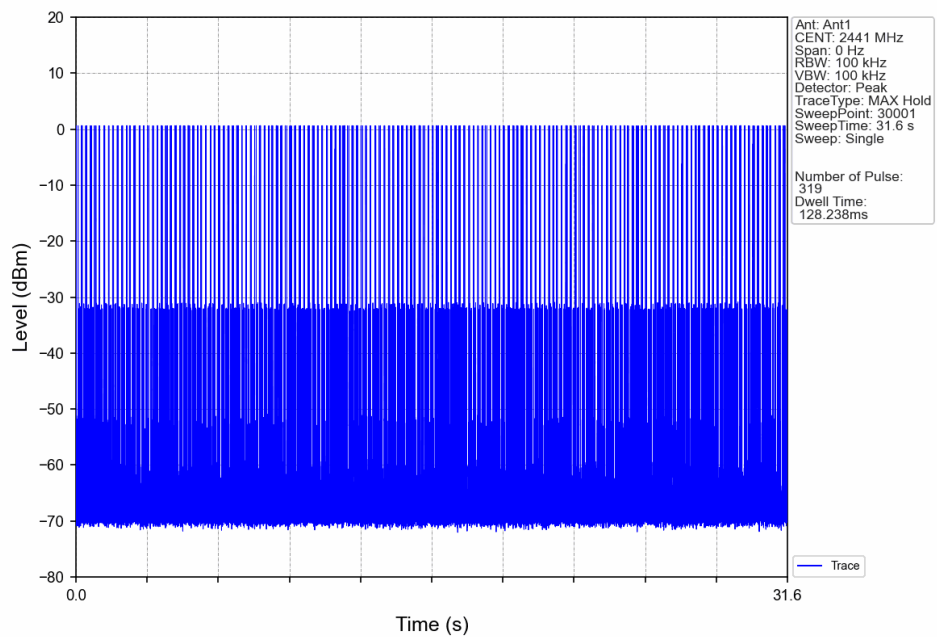
## GFSK\_DH5\_HOPP\_Ant1\_NTNV



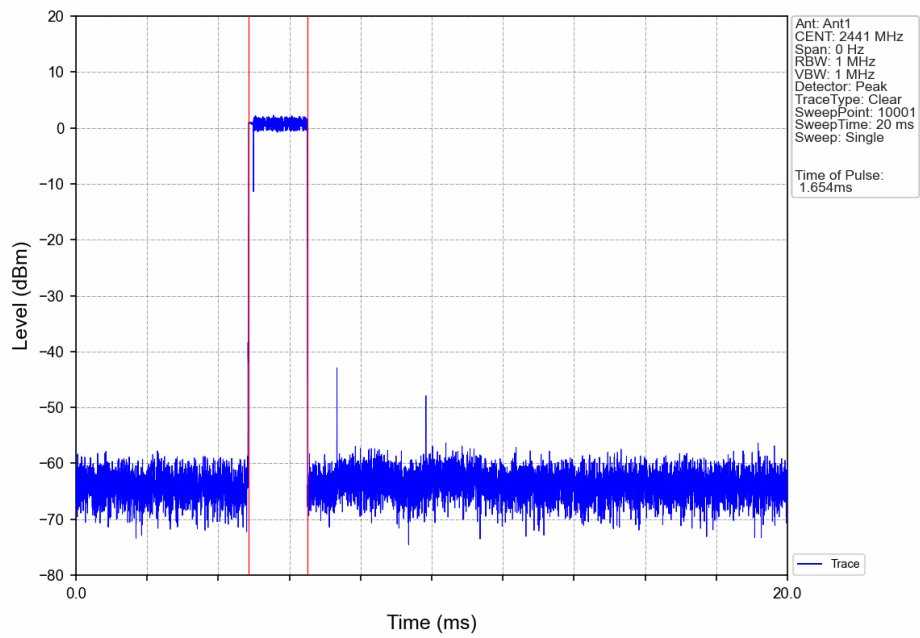
## Pi/4DQPSK\_2DH1\_HOPP\_Ant1\_NTNV



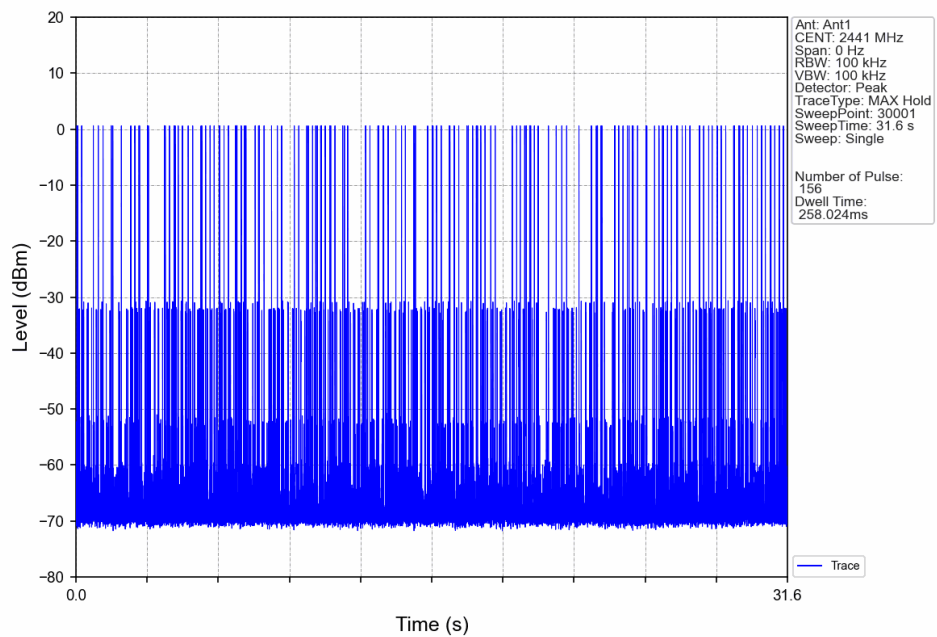
## Pi/4DQPSK\_2DH1\_HOPP\_Ant1\_NTNV



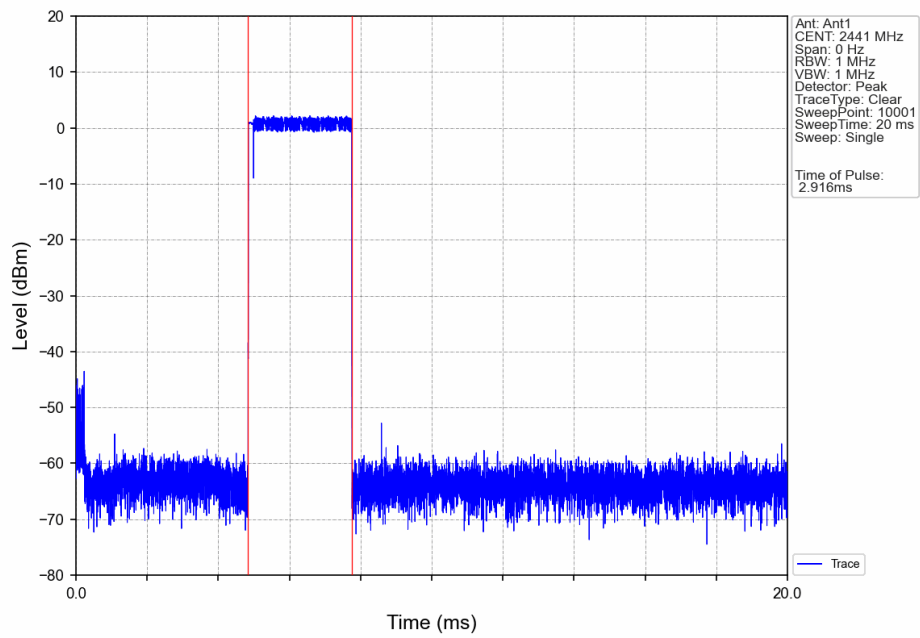
## Pi/4DQPSK\_2DH3\_HOPP\_Ant1\_NTNV



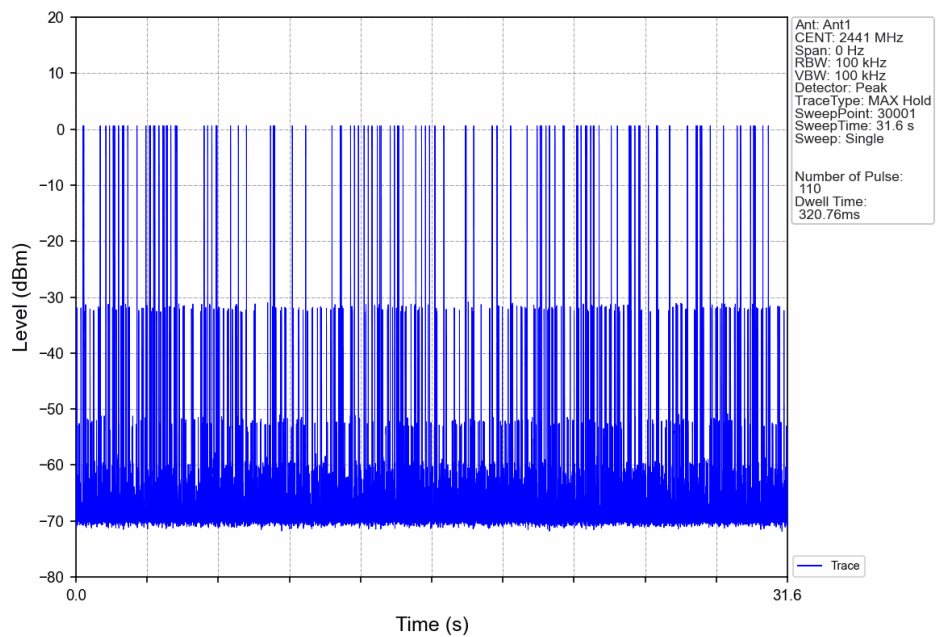
## Pi/4DQPSK\_2DH3\_HOPP\_Ant1\_NTNV



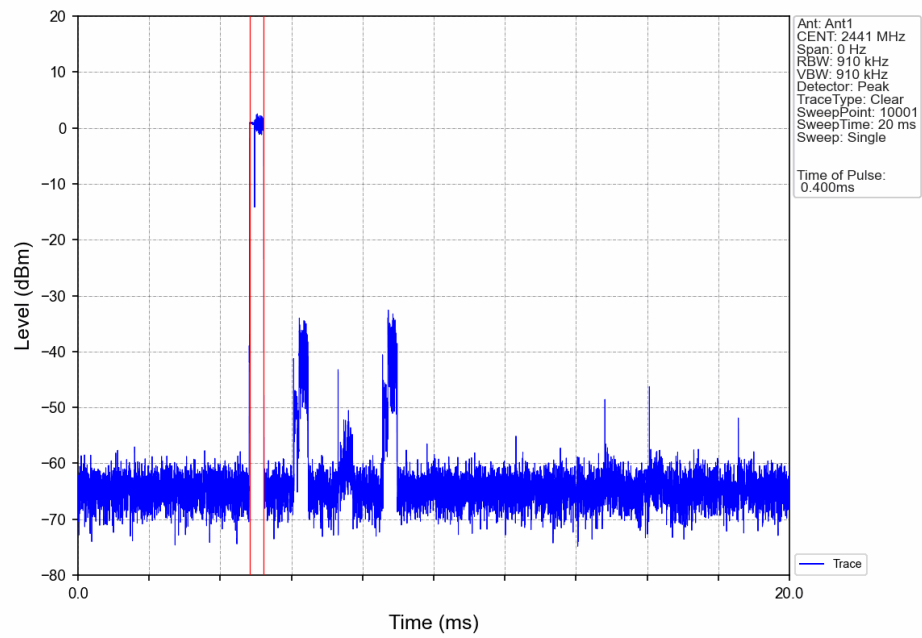
## Pi/4DQPSK\_2DH5\_HOPP\_Ant1\_NTNV



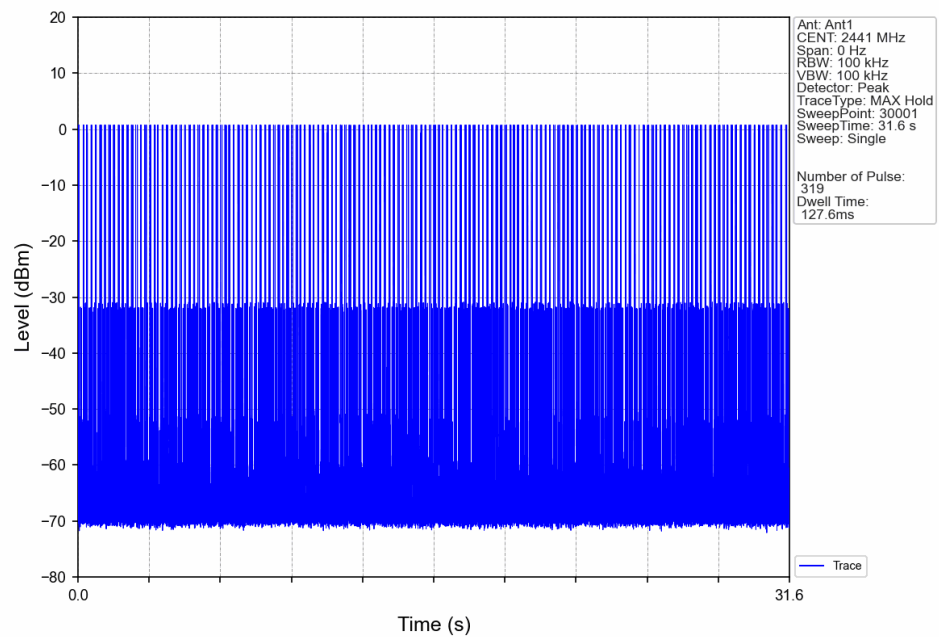
## Pi/4DQPSK\_2DH5\_HOPP\_Ant1\_NTNV



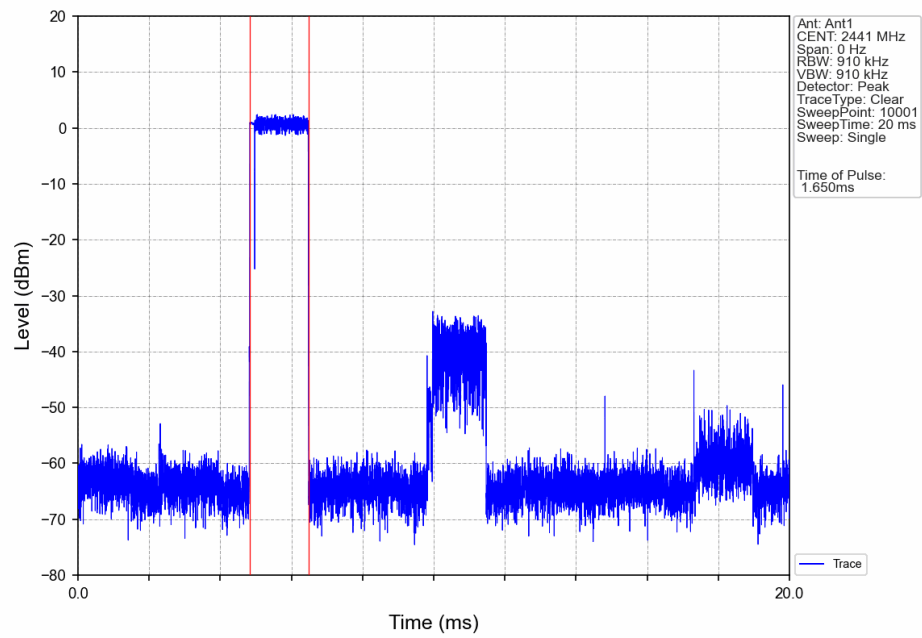
## 8DPSK\_3DH1\_HOPP\_Ant1\_NTNV



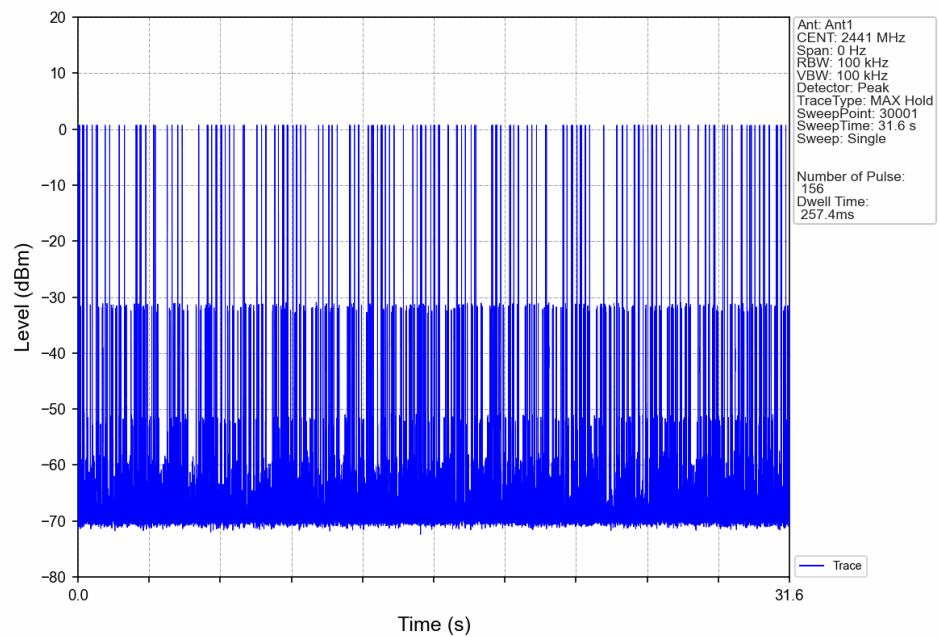
## 8DPSK\_3DH1\_HOPP\_Ant1\_NTNV



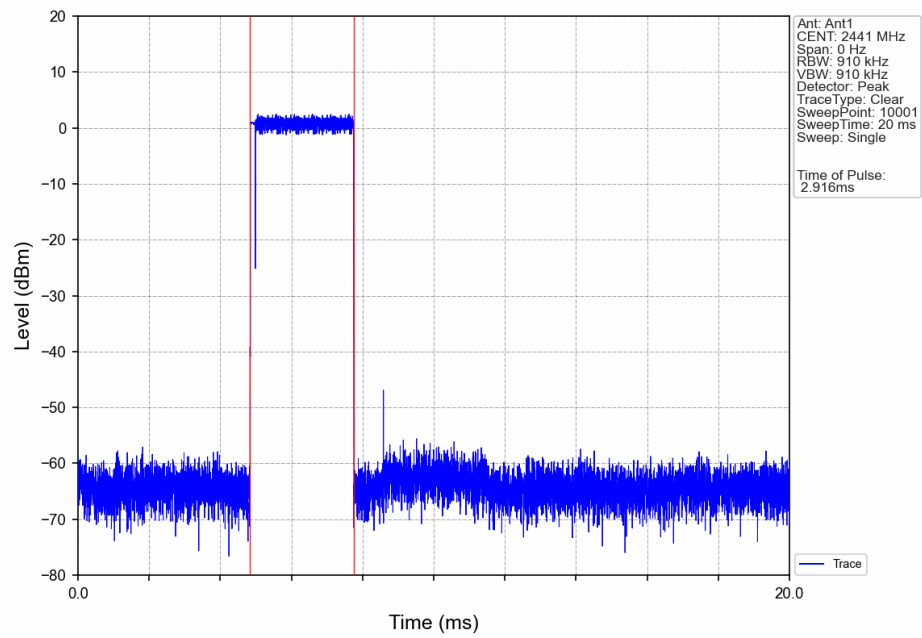
## 8DPSK\_3DH3\_HOPP\_Ant1\_NTNV



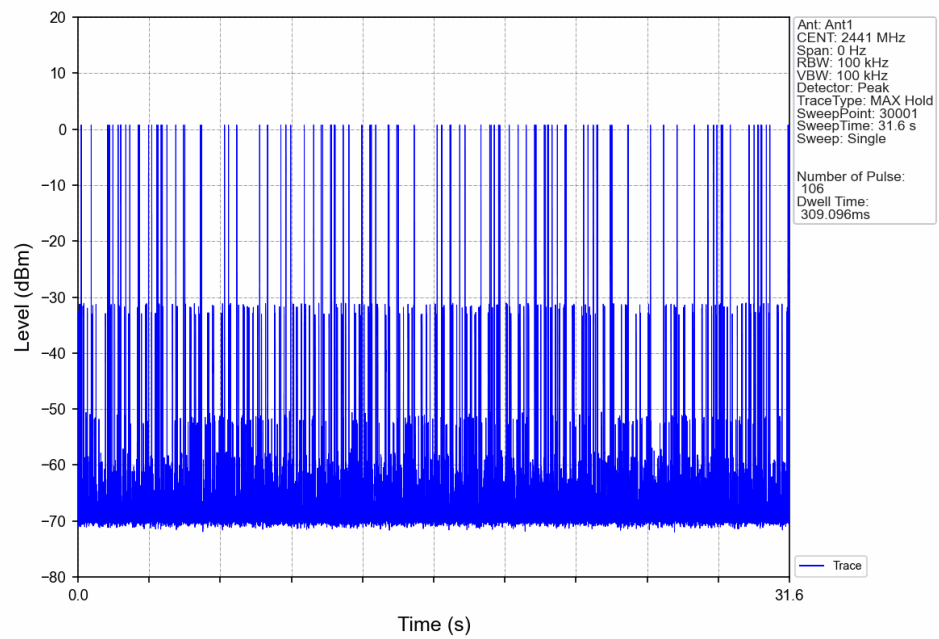
## 8DPSK\_3DH3\_HOPP\_Ant1\_NTNV



## 8DPSK\_3DH5\_HOPP\_Ant1\_NTNV



## 8DPSK\_3DH5\_HOPP\_Ant1\_NTNV



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

### 6.1 Test Result

#### 6.1.1 Ref

| Mode      | TX Type | Frequency (MHz) | Packet Type | ANT | Level of Reference (dBm) |
|-----------|---------|-----------------|-------------|-----|--------------------------|
| GFSK      | SISO    | 2402            | DH5         | 1   | 1.82                     |
|           |         | 2441            | DH5         | 1   | 0.80                     |
|           |         | 2480            | DH5         | 1   | 0.54                     |
| Pi/4DQPSK | SISO    | 2402            | 2DH5        | 1   | -1.56                    |
|           |         | 2441            | 2DH5        | 1   | 0.71                     |
|           |         | 2480            | 2DH5        | 1   | 0.31                     |
| 8DPSK     | SISO    | 2402            | 3DH5        | 1   | -1.36                    |
|           |         | 2441            | 3DH5        | 1   | 0.73                     |
|           |         | 2480            | 3DH5        | 1   | 0.58                     |

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.

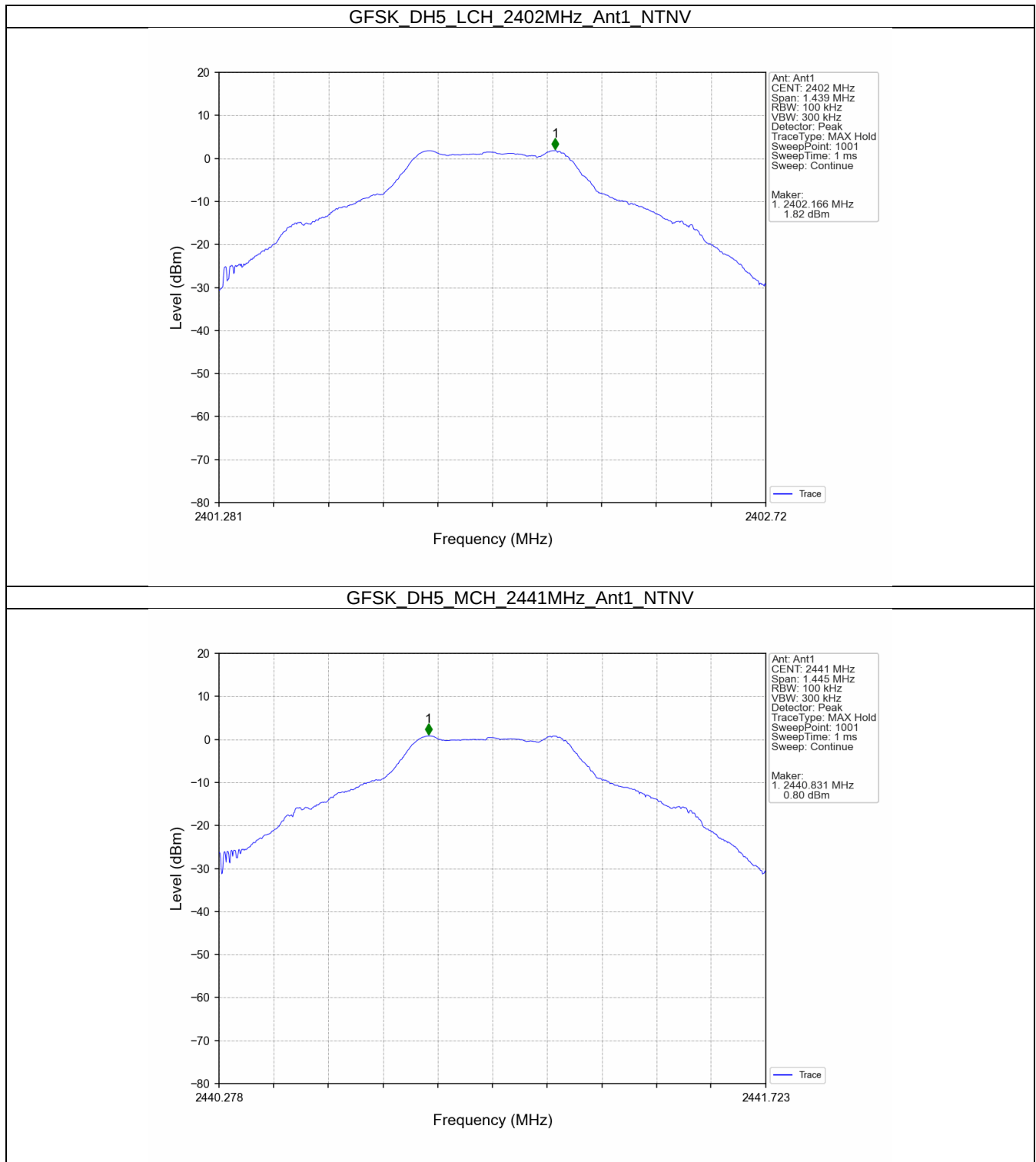
#### 6.1.2 CSE

| Mode      | TX Type | Frequency (MHz) | Packet Type | ANT | Level of Reference (dBm) | Limit (dBm) | Verdict |
|-----------|---------|-----------------|-------------|-----|--------------------------|-------------|---------|
| GFSK      | SISO    | 2402            | DH5         | 1   | 1.82                     | -18.18      | Pass    |
|           |         | 2441            | DH5         | 1   | 1.82                     | -18.18      | Pass    |
|           |         | 2480            | DH5         | 1   | 1.82                     | -18.18      | Pass    |
|           |         | HOPP            | DH5         | 1   | 1.82                     | -18.18      | Pass    |
|           |         |                 |             |     | 1.82                     | -18.18      | Pass    |
| Pi/4DQPSK | SISO    | 2402            | 2DH5        | 1   | 0.71                     | -19.29      | Pass    |
|           |         | 2441            | 2DH5        | 1   | 0.71                     | -19.29      | Pass    |
|           |         | 2480            | 2DH5        | 1   | 0.71                     | -19.29      | Pass    |
|           |         | HOPP            | 2DH5        | 1   | 0.71                     | -19.29      | Pass    |
|           |         |                 |             |     | 0.71                     | -19.29      | Pass    |
| 8DPSK     | SISO    | 2402            | 3DH5        | 1   | 0.73                     | -19.27      | Pass    |
|           |         | 2441            | 3DH5        | 1   | 0.73                     | -19.27      | Pass    |
|           |         | 2480            | 3DH5        | 1   | 0.73                     | -19.27      | Pass    |
|           |         | HOPP            | 3DH5        | 1   | 0.73                     | -19.27      | Pass    |
|           |         |                 |             |     | 0.73                     | -19.27      | Pass    |

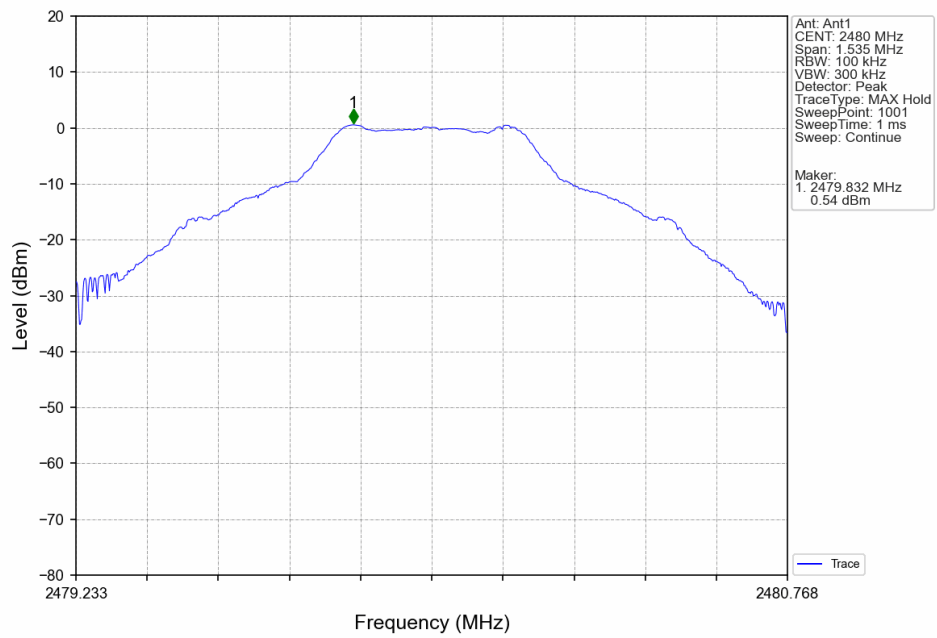
Note1: Refer to FCC Part 15.247 (d) and ANSI C63.10-2020, the channel contains the maximum PSD level was used to establish the reference level.

## 6.2 Test Graph

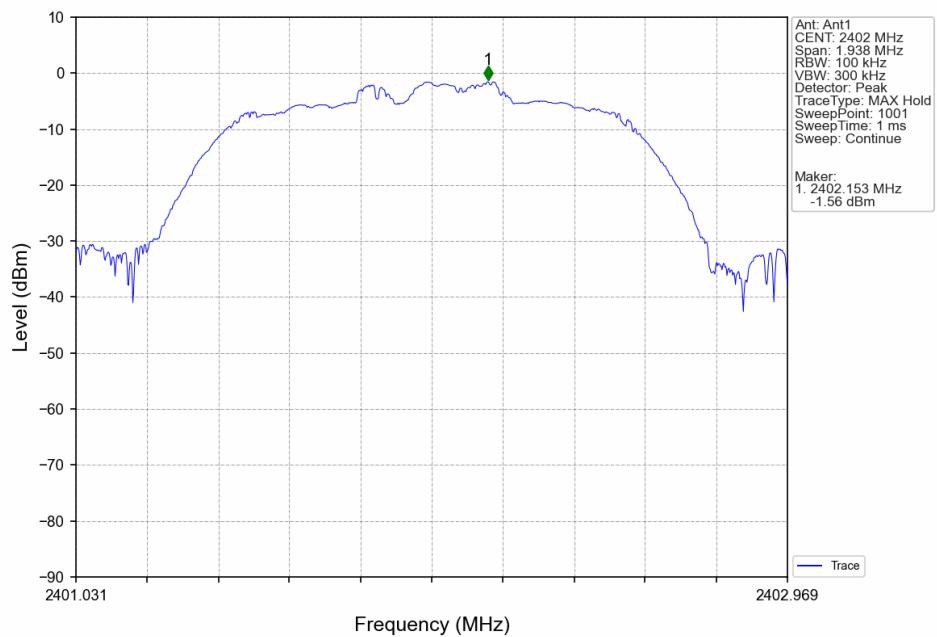
### 6.2.1 Ref



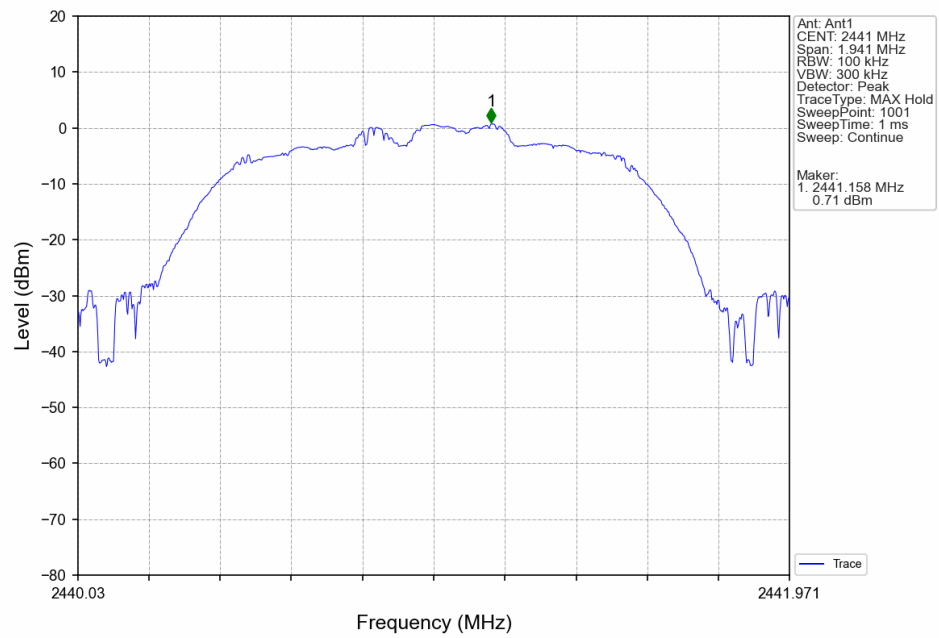
## GFSK\_DH5\_HCH\_2480MHz\_Ant1\_NTNV



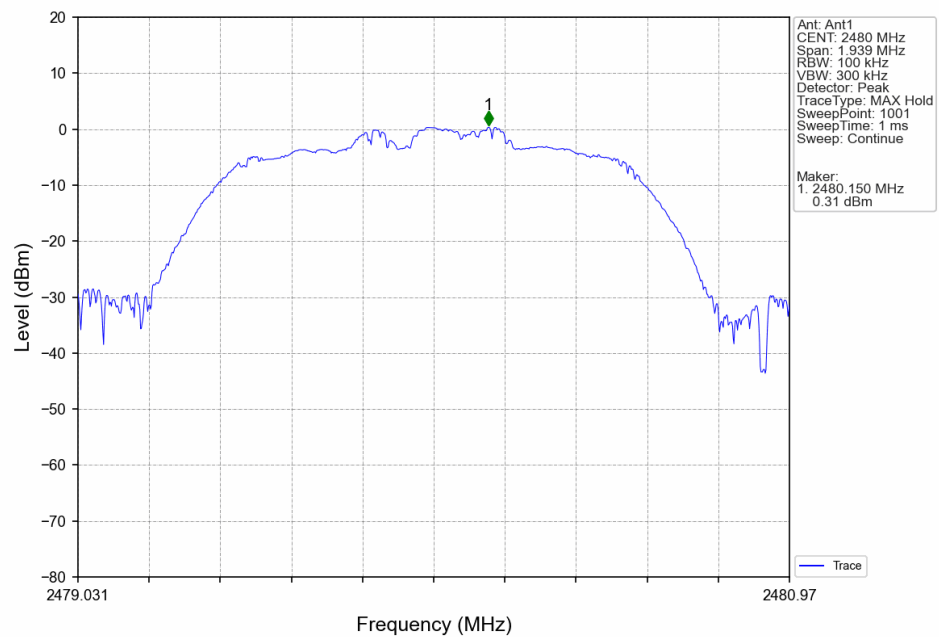
## Pi/4DQPSK\_2DH5\_LCH\_2402MHz\_Ant1\_NTNV



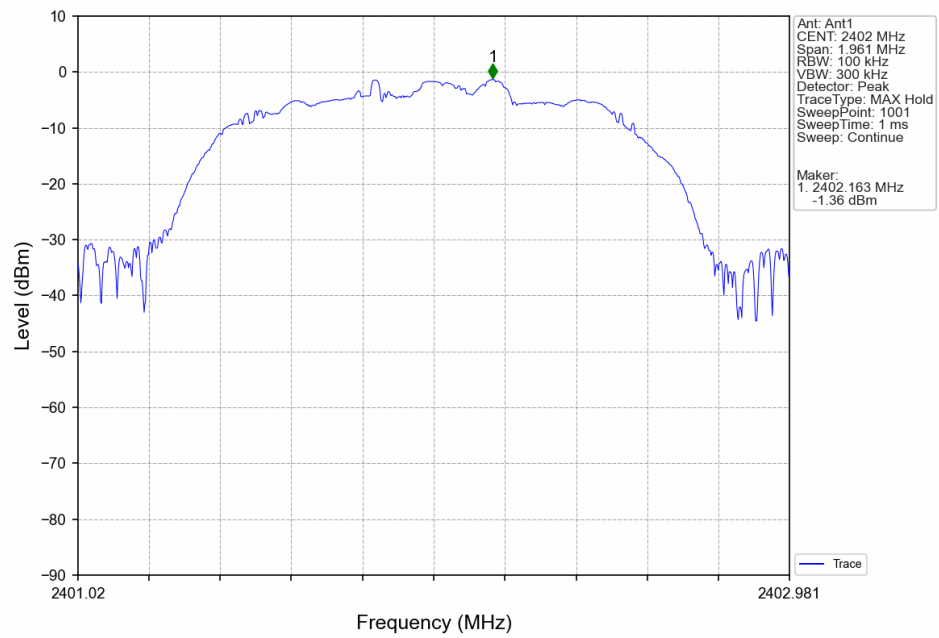
### Pi/4DQPSK\_2DH5\_MCH\_2441MHz\_Ant1\_NTNV



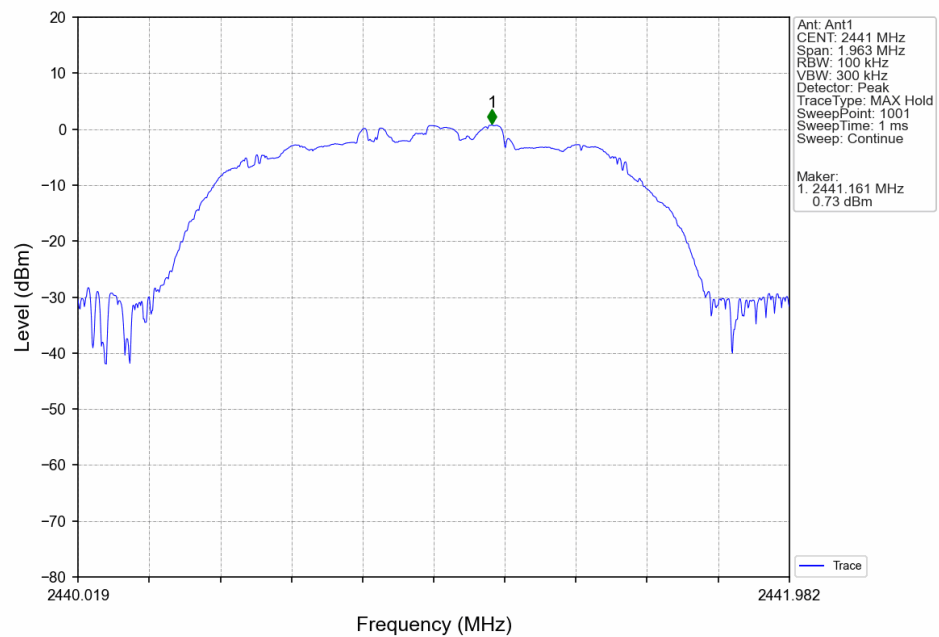
### Pi/4DQPSK\_2DH5\_HCH\_2480MHz\_Ant1\_NTNV



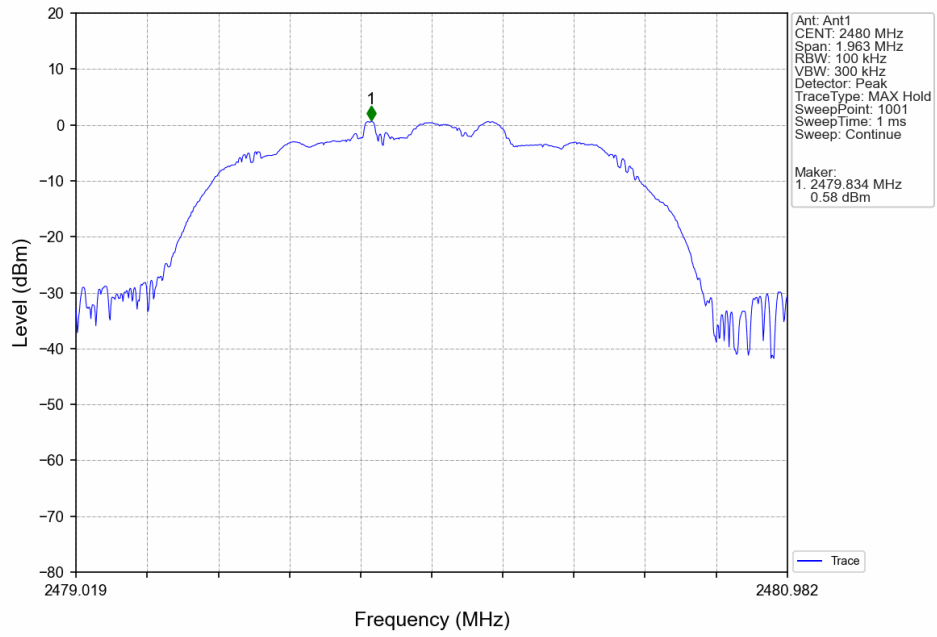
## 8DPSK\_3DH5\_LCH\_2402MHz\_Ant1\_NTNV



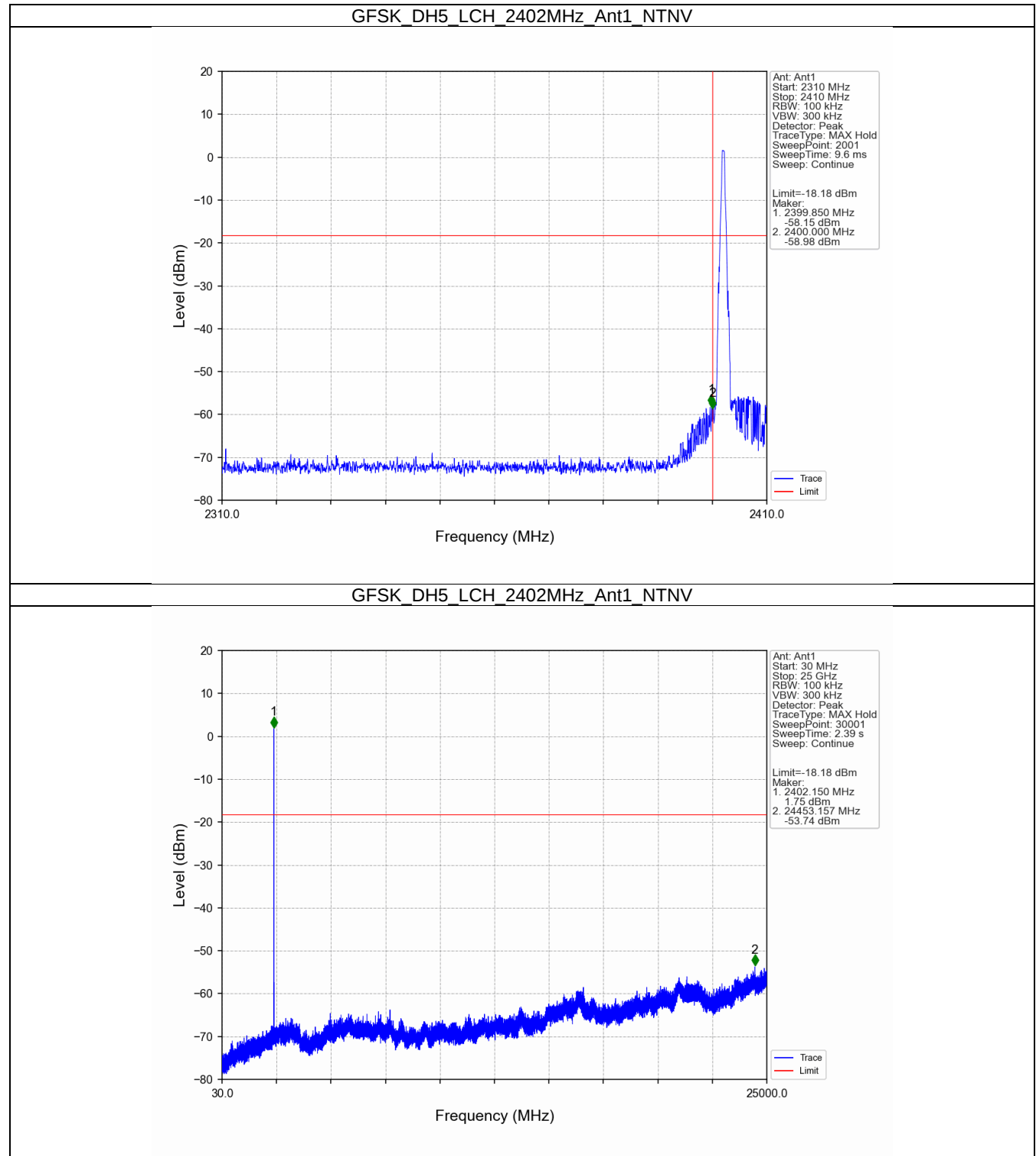
## 8DPSK\_3DH5\_MCH\_2441MHz\_Ant1\_NTNV



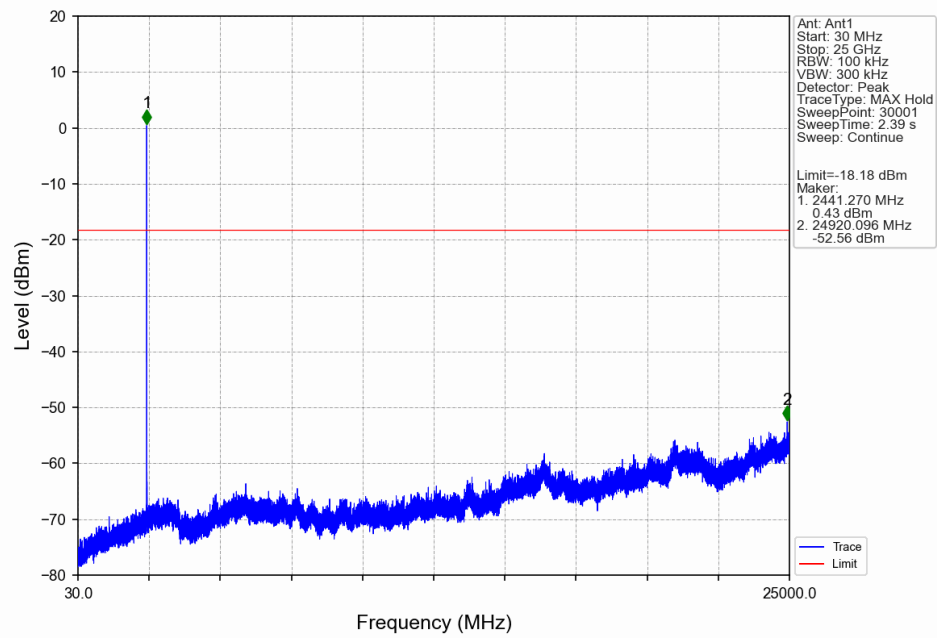
## 8DPSK\_3DH5\_HCH\_2480MHz\_Ant1\_NTNV



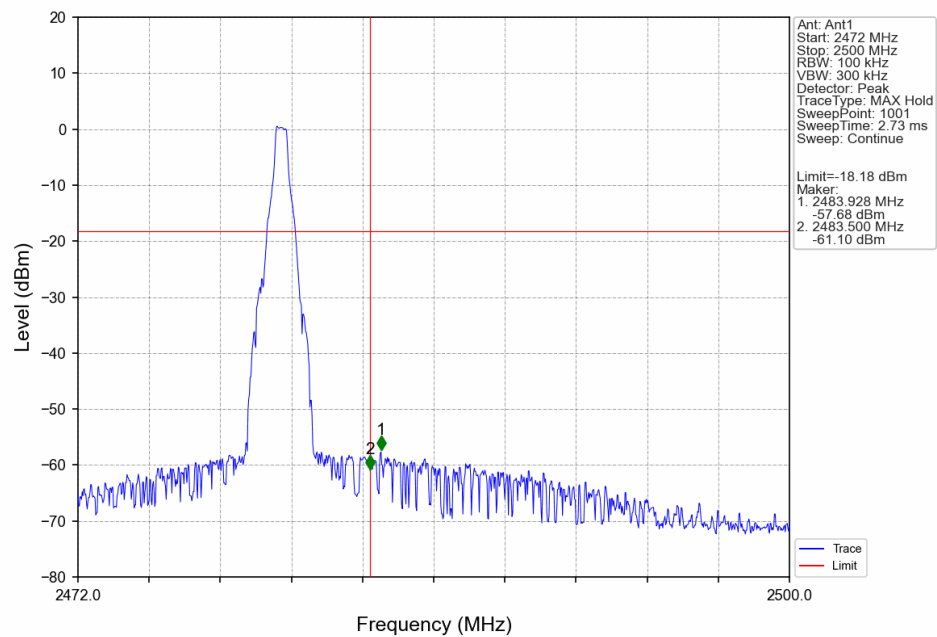
## 6.2.2 CSE



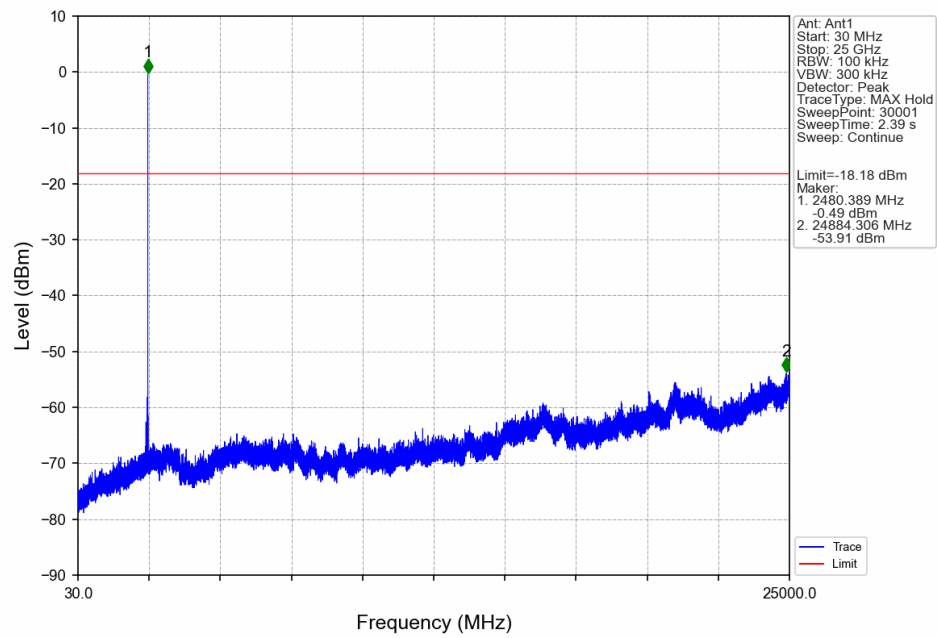
### GFSK\_DH5\_MCH\_2441MHz\_Ant1\_NTNV



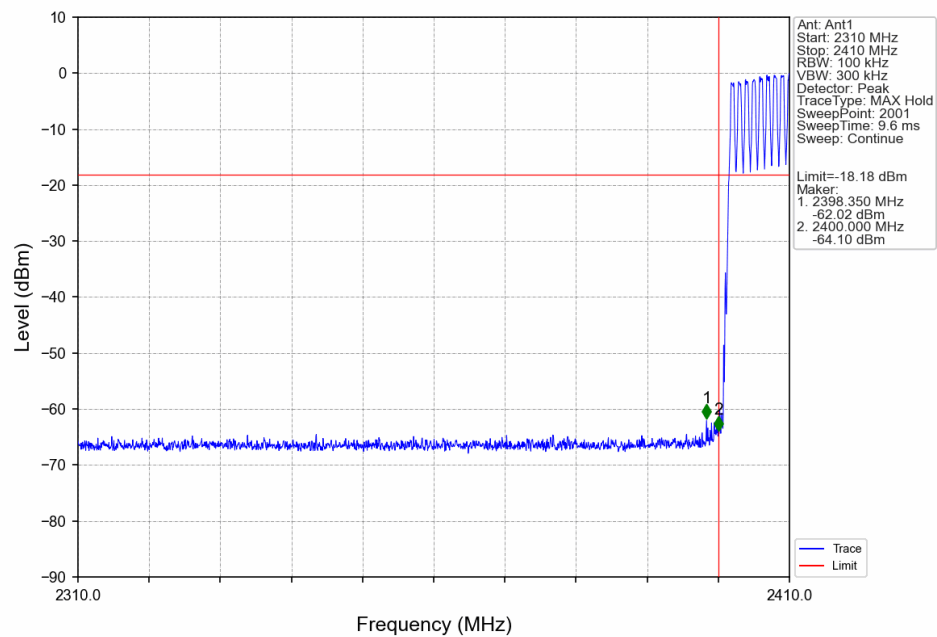
### GFSK\_DH5\_HCH\_2480MHz\_Ant1\_NTNV



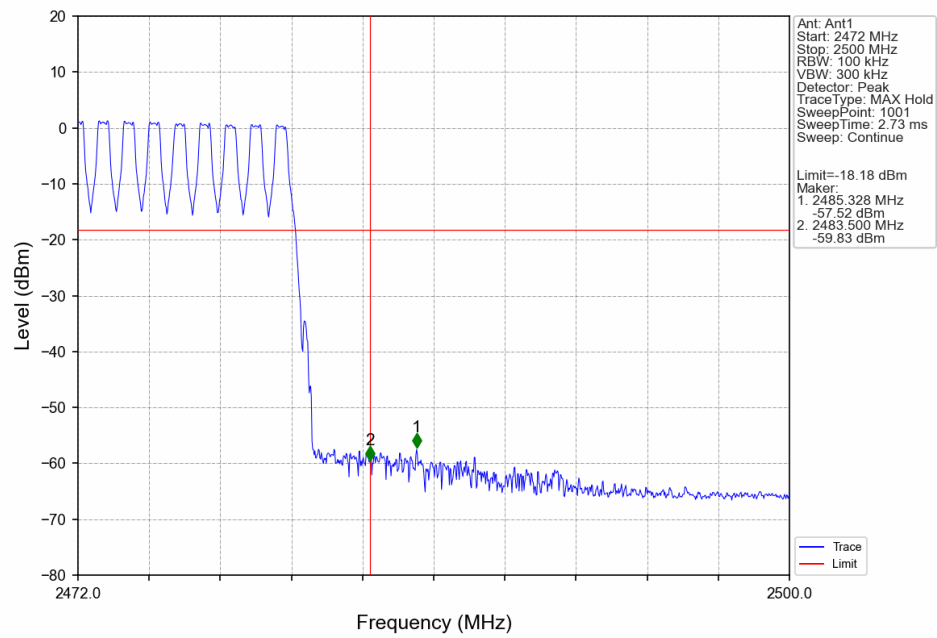
## GFSK\_DH5\_HCH\_2480MHz\_Ant1\_NTNV



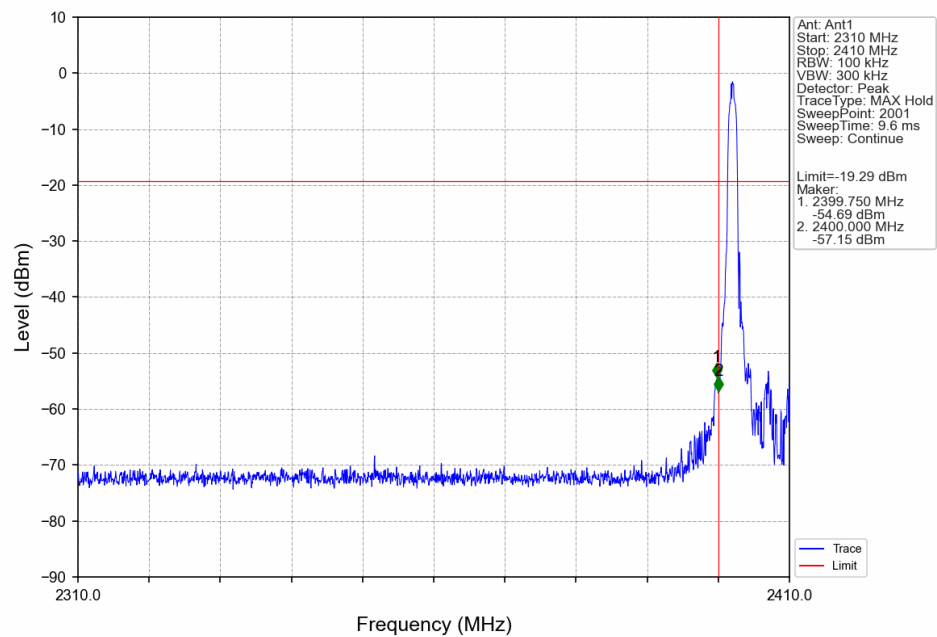
## GFSK\_DH5\_HOPP\_Ant1\_NTNV



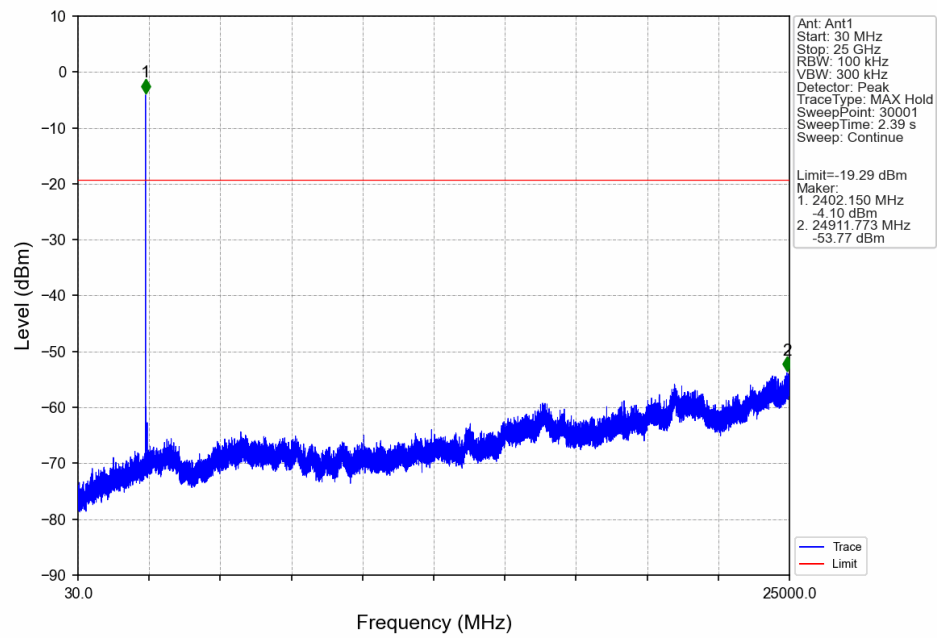
### GFSK\_DH5\_HOPP\_Ant1\_NTNV



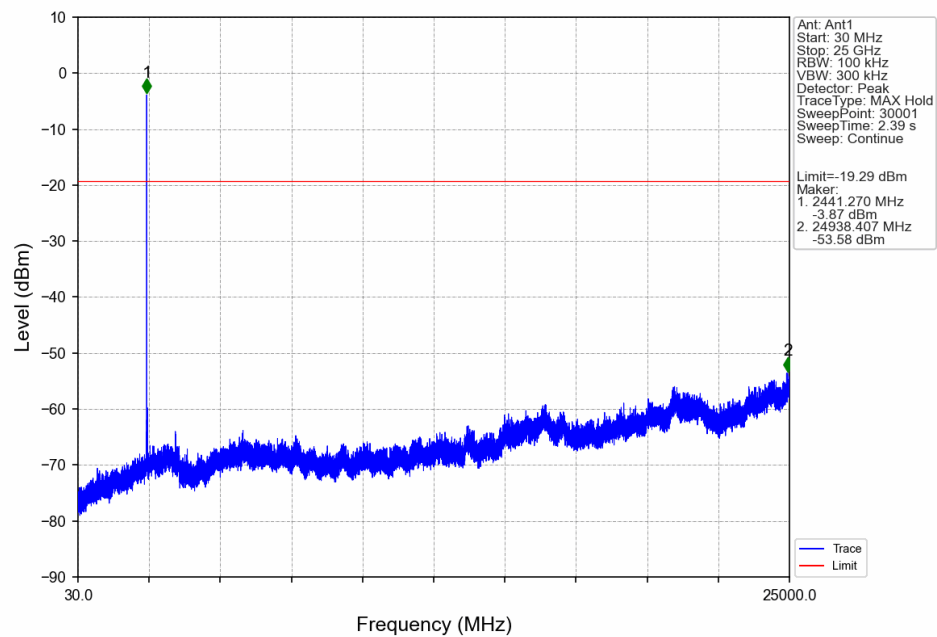
### PI/4DQPSK\_2DH5\_LCH\_2402MHz\_Ant1\_NTNV



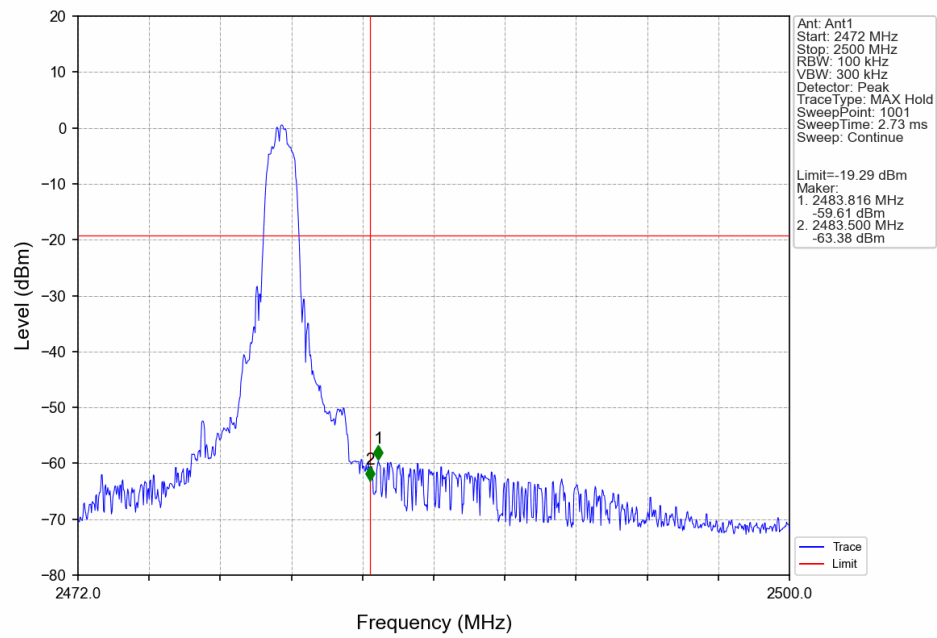
### Pi/4DQPSK\_2DH5\_LCH\_2402MHz\_Ant1\_NTNV



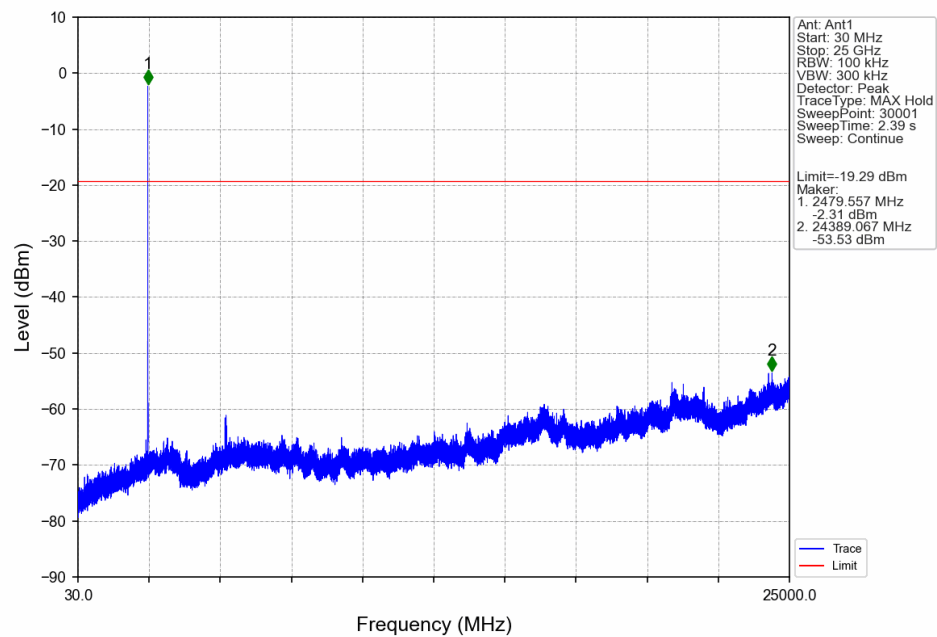
### Pi/4DQPSK\_2DH5\_MCH\_2441MHz\_Ant1\_NTNV



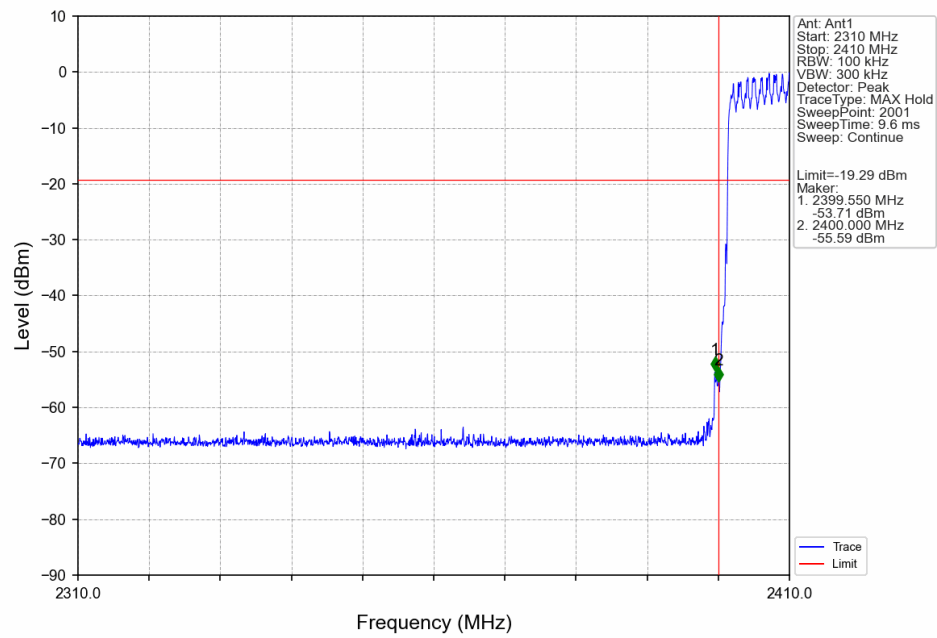
### Pi/4DQPSK\_2DH5\_HCH\_2480MHz\_Ant1\_NTNV



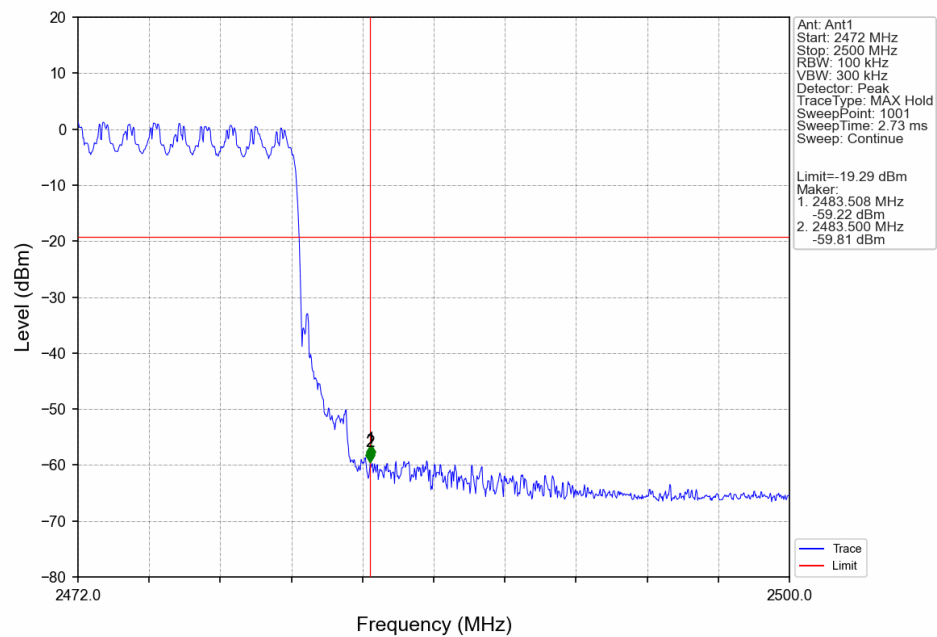
### Pi/4DQPSK\_2DH5\_HCH\_2480MHz\_Ant1\_NTNV



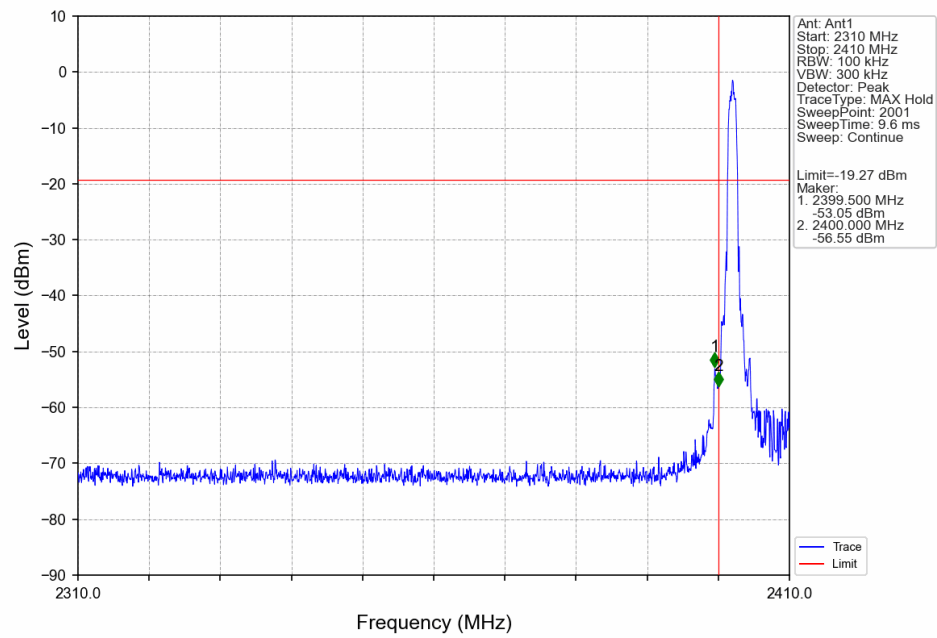
## Pi/4DQPSK\_2DH5\_HOPP\_Ant1\_NTNV



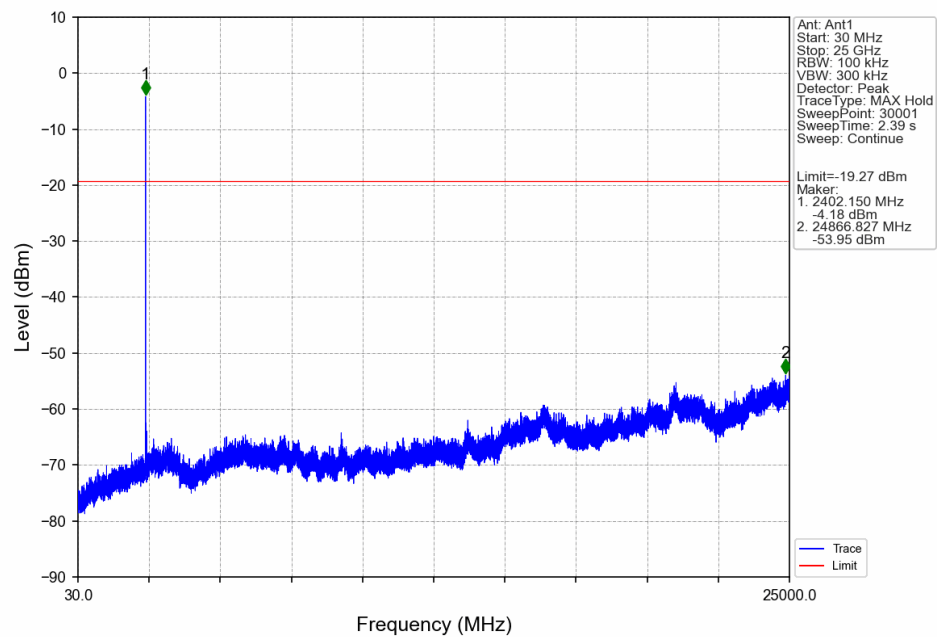
## Pi/4DQPSK\_2DH5\_HOPP\_Ant1\_NTNV



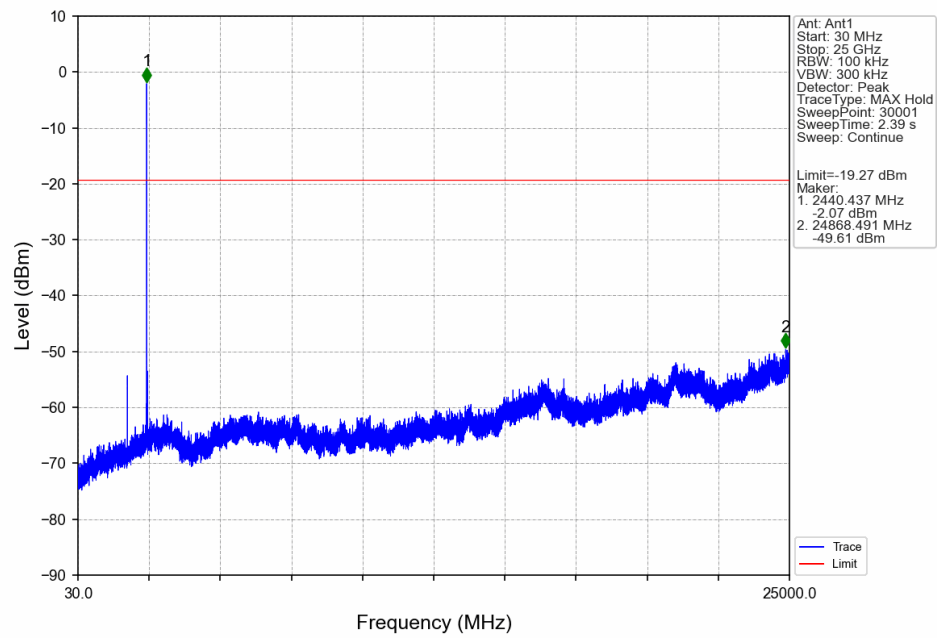
## 8DPSK\_3DH5\_LCH\_2402MHz\_Ant1\_NTNV



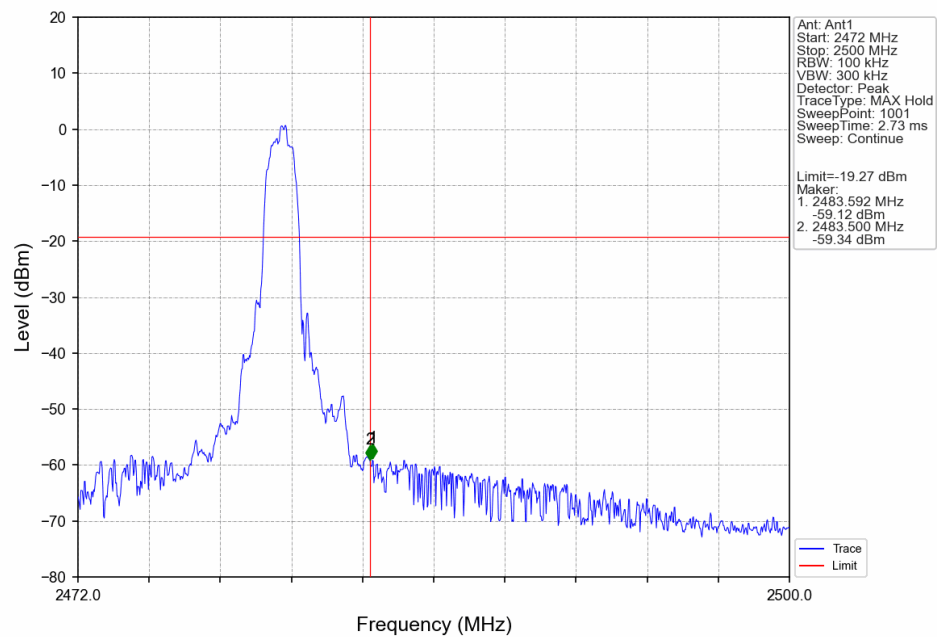
## 8DPSK\_3DH5\_LCH\_2402MHz\_Ant1\_NTNV



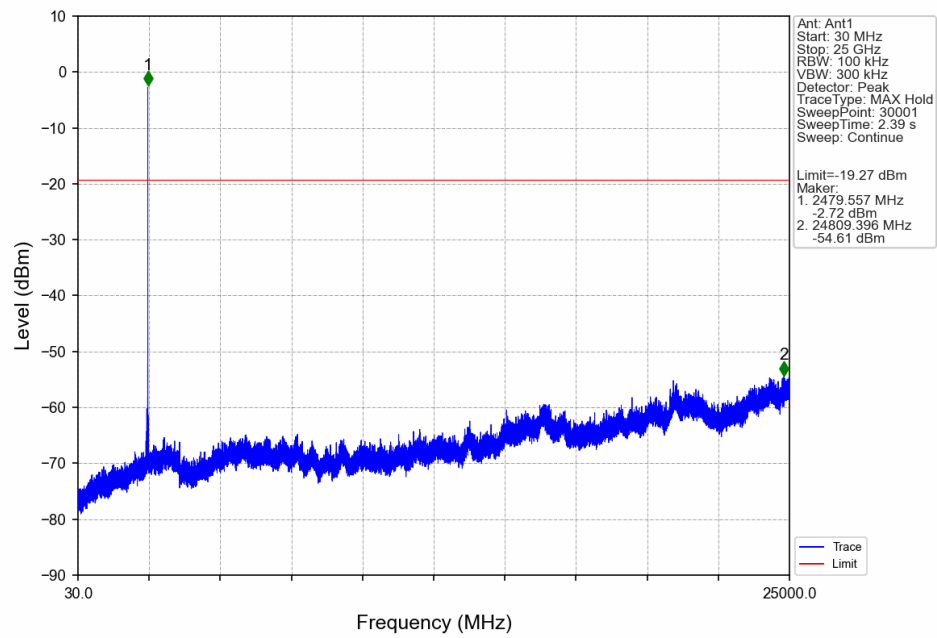
## 8DPSK\_3DH5\_MCH\_2441MHz\_Ant1\_NTNV



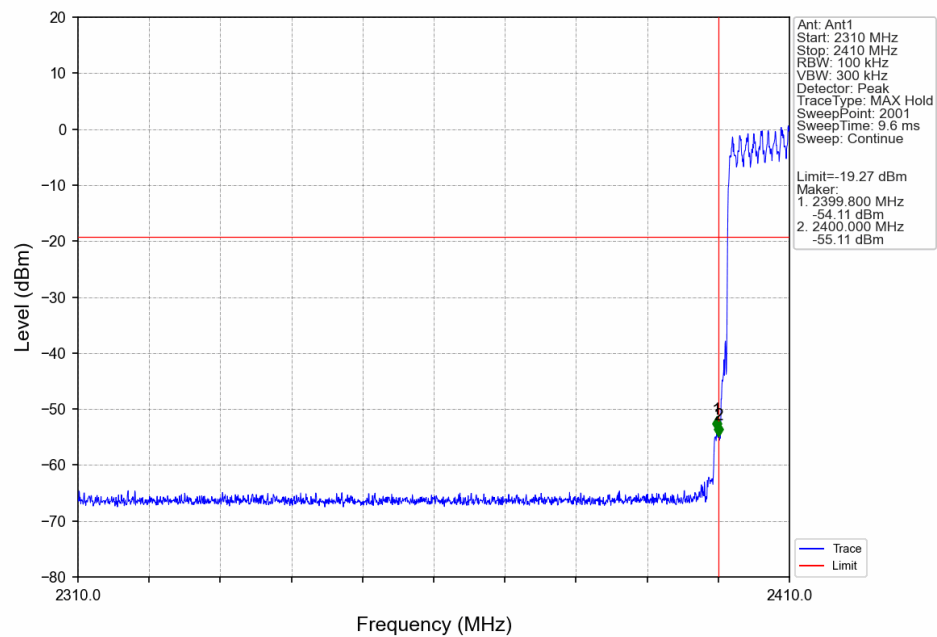
## 8DPSK\_3DH5\_HCH\_2480MHz\_Ant1\_NTNV

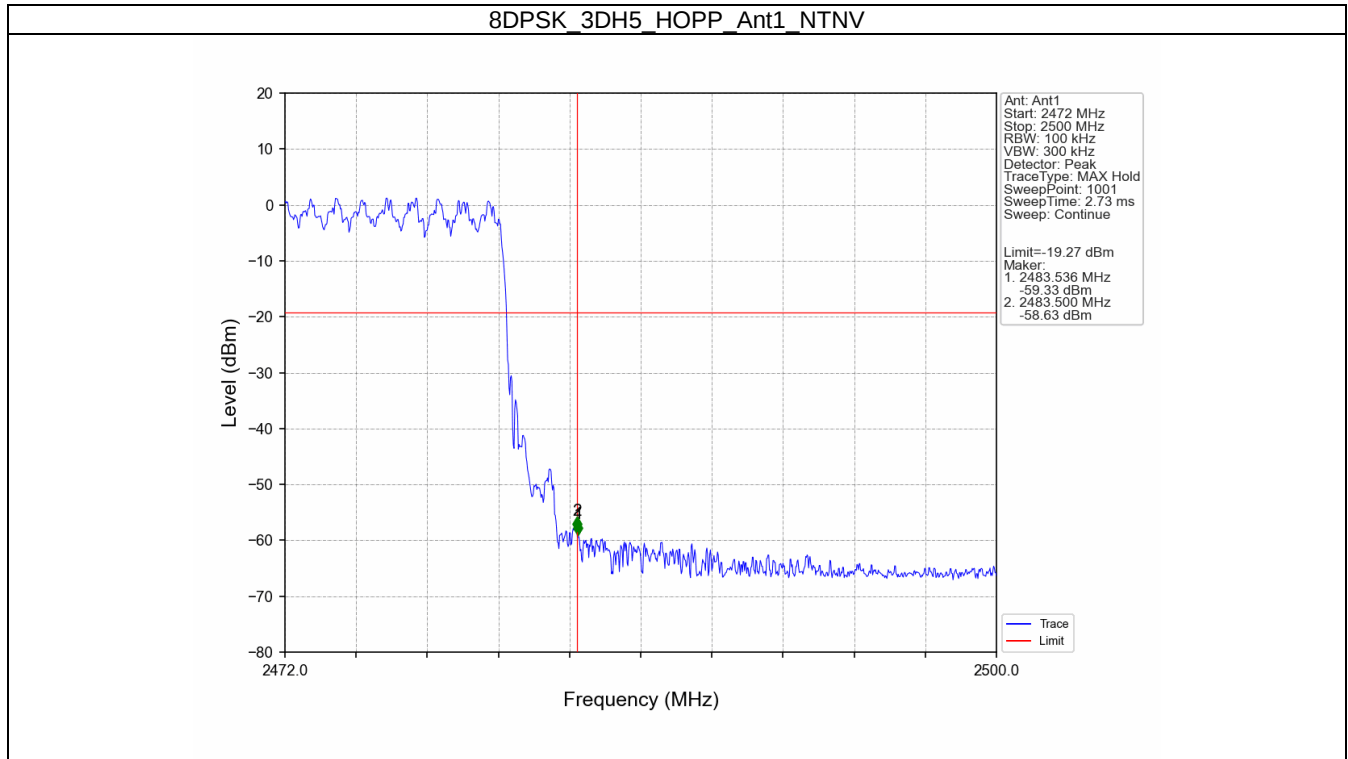


## 8DPSK\_3DH5\_HCH\_2480MHz\_Ant1\_NTNV



## 8DPSK\_3DH5\_HOPP\_Ant1\_NTNV





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