

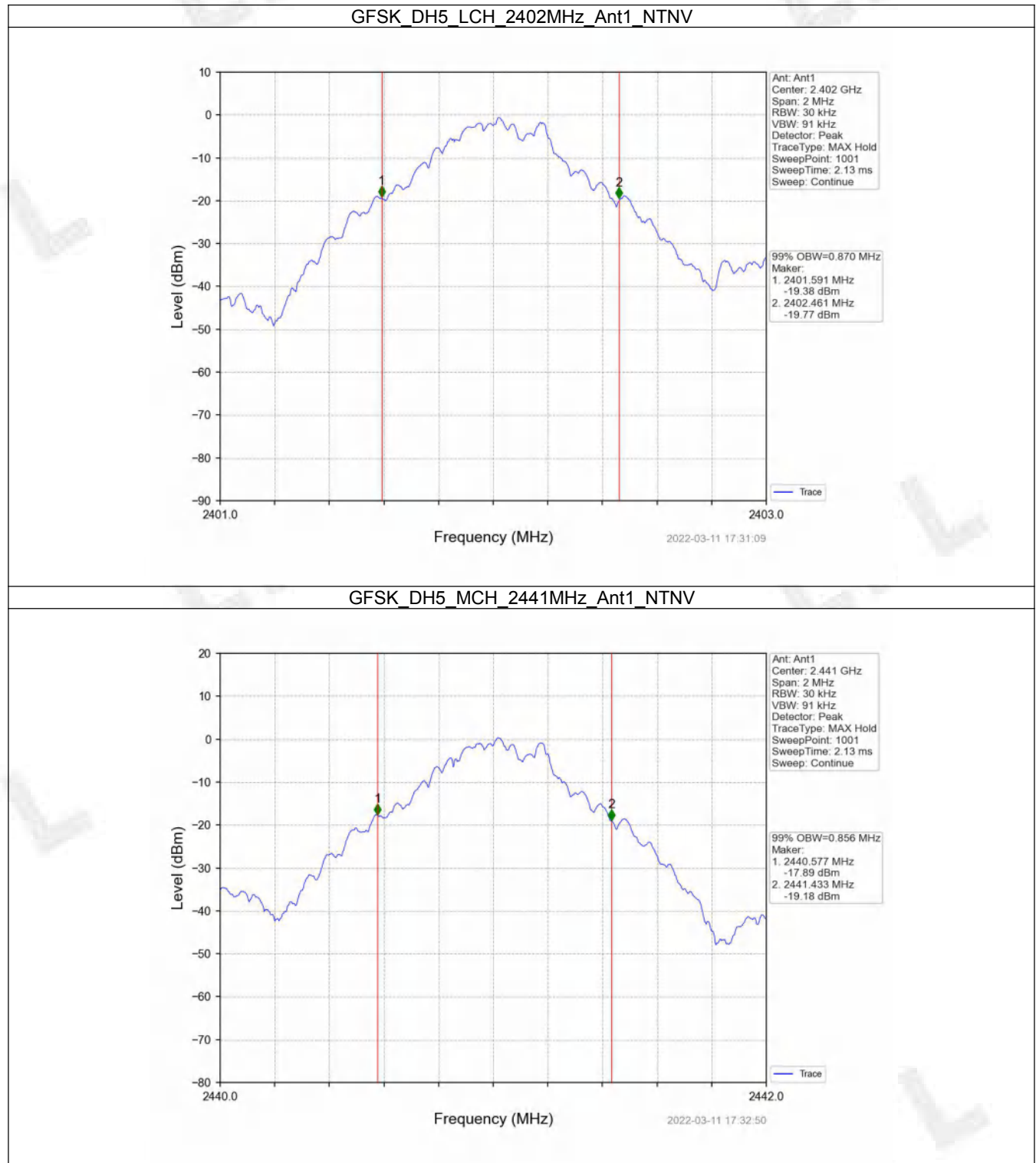
## 1. Bandwidth

### 1.1 OBW

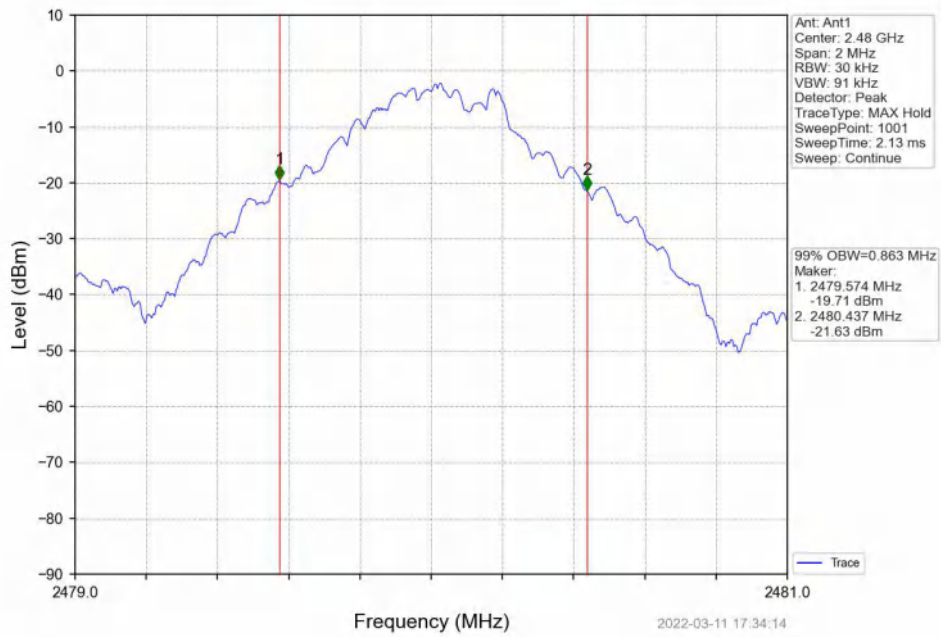
#### 1.1.1 Test Result

| Mode      | TX Type | Frequency (MHz) | Packet Type | Ant | 99% Occupied Bandwidth (MHz) | Verdict |
|-----------|---------|-----------------|-------------|-----|------------------------------|---------|
|           |         |                 |             |     | Result                       |         |
| GFSK      | SISO    | 2402            | DH5         | 1   | 0.870                        | Pass    |
|           |         | 2441            | DH5         | 1   | 0.856                        | Pass    |
|           |         | 2480            | DH5         | 1   | 0.863                        | Pass    |
| Pi/4DQPSK | SISO    | 2402            | 2DH5        | 1   | 1.168                        | Pass    |
|           |         | 2441            | 2DH5        | 1   | 1.168                        | Pass    |
|           |         | 2480            | 2DH5        | 1   | 1.167                        | Pass    |
| 8DPSK     | SISO    | 2402            | 3DH5        | 1   | 1.162                        | Pass    |
|           |         | 2441            | 3DH5        | 1   | 1.155                        | Pass    |
|           |         | 2480            | 3DH5        | 1   | 1.159                        | Pass    |

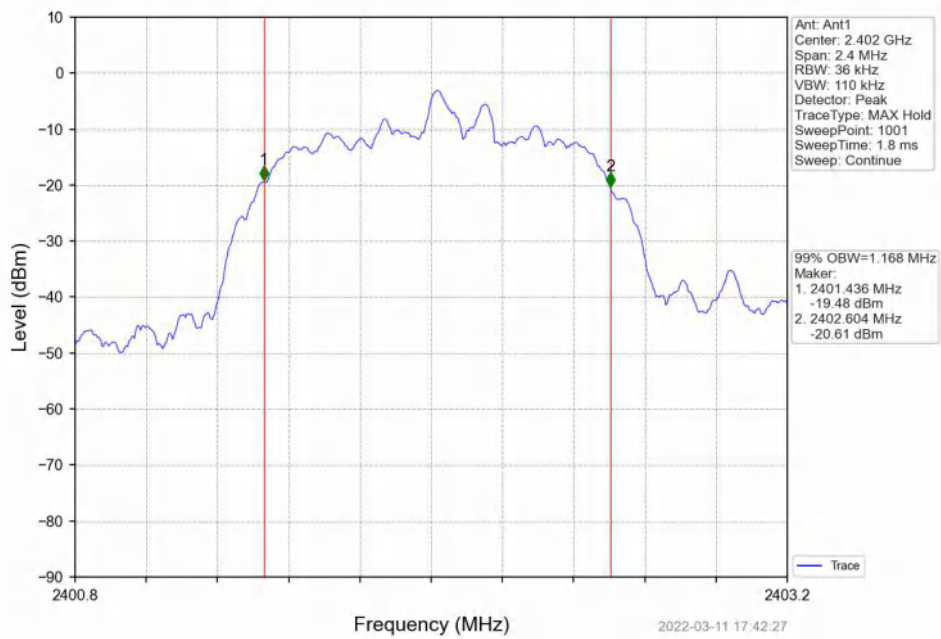
## 1.1.2 Test Graph



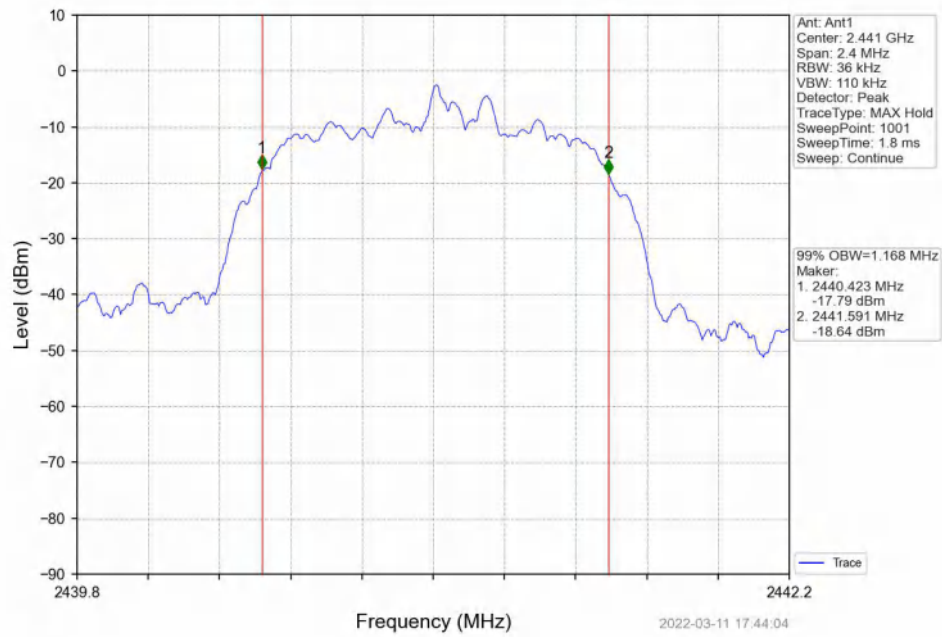
## GFSK\_DH5\_HCH\_2480MHz\_Ant1\_NTNV



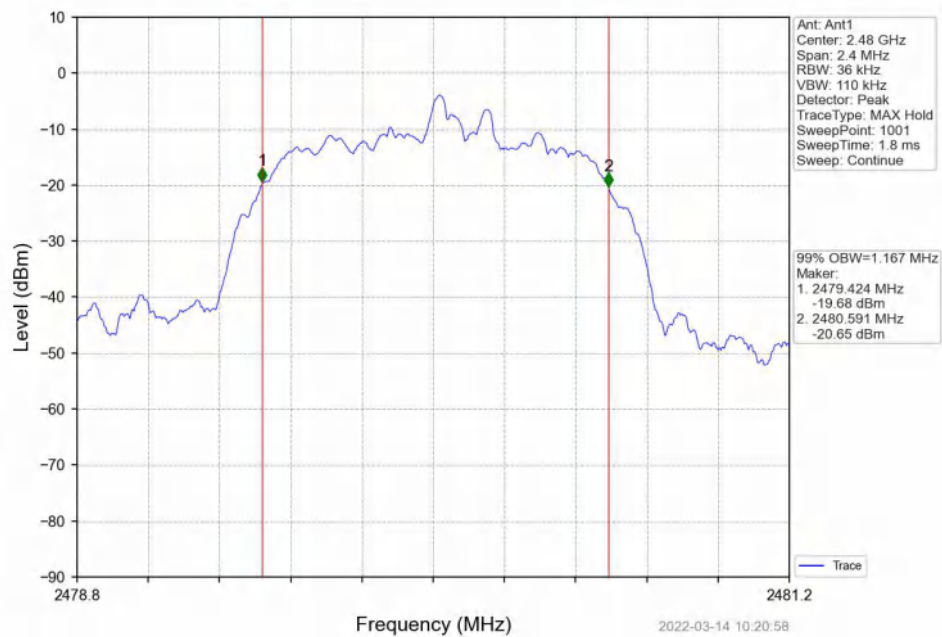
## Pi/4DQPSK\_2DH5\_LCH\_2402MHz\_Ant1\_NTNV



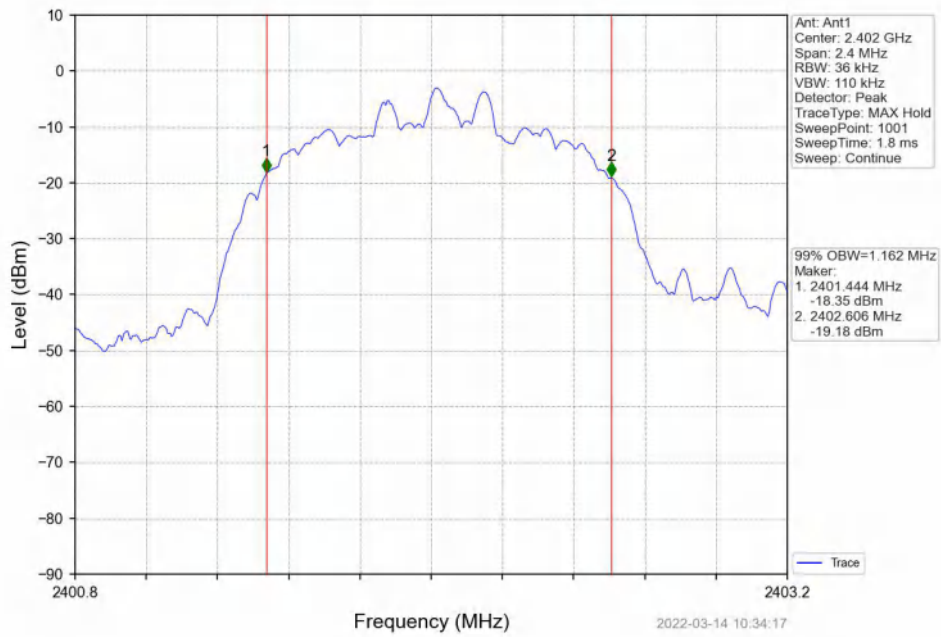
Pi/4DQPSK\_2DH5\_MCH\_2441MHz\_Ant1\_NTNV



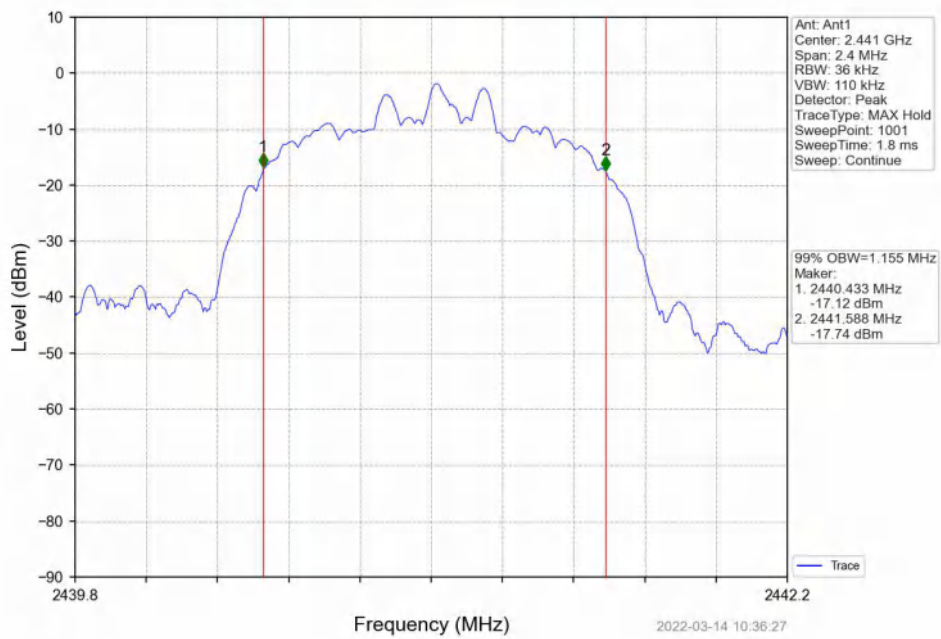
Pi/4DQPSK\_2DH5\_HCH\_2480MHz\_Ant1\_NTNV



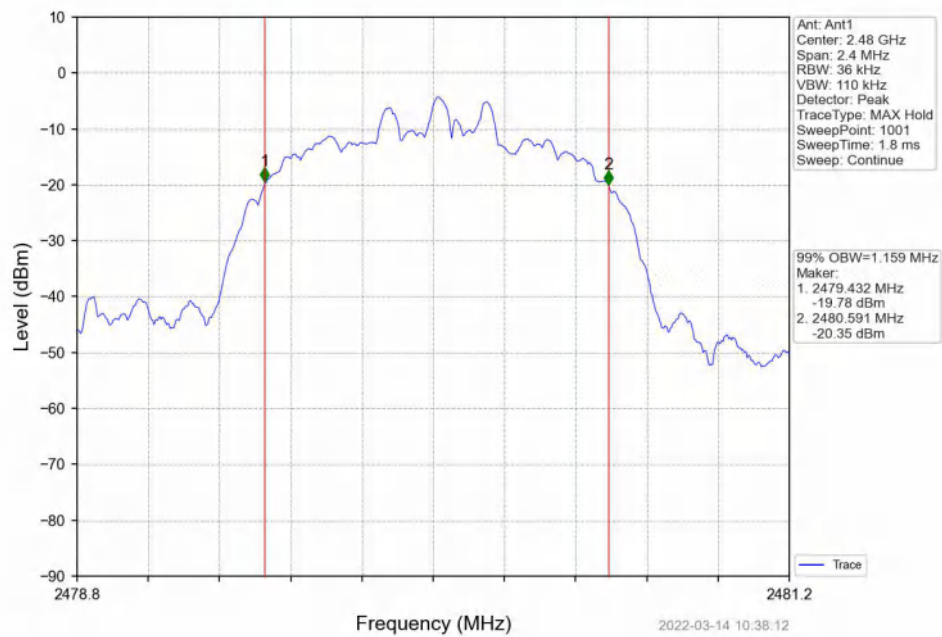
## 8DPSK\_3DH5\_LCH\_2402MHz\_Ant1\_NTNV



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



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

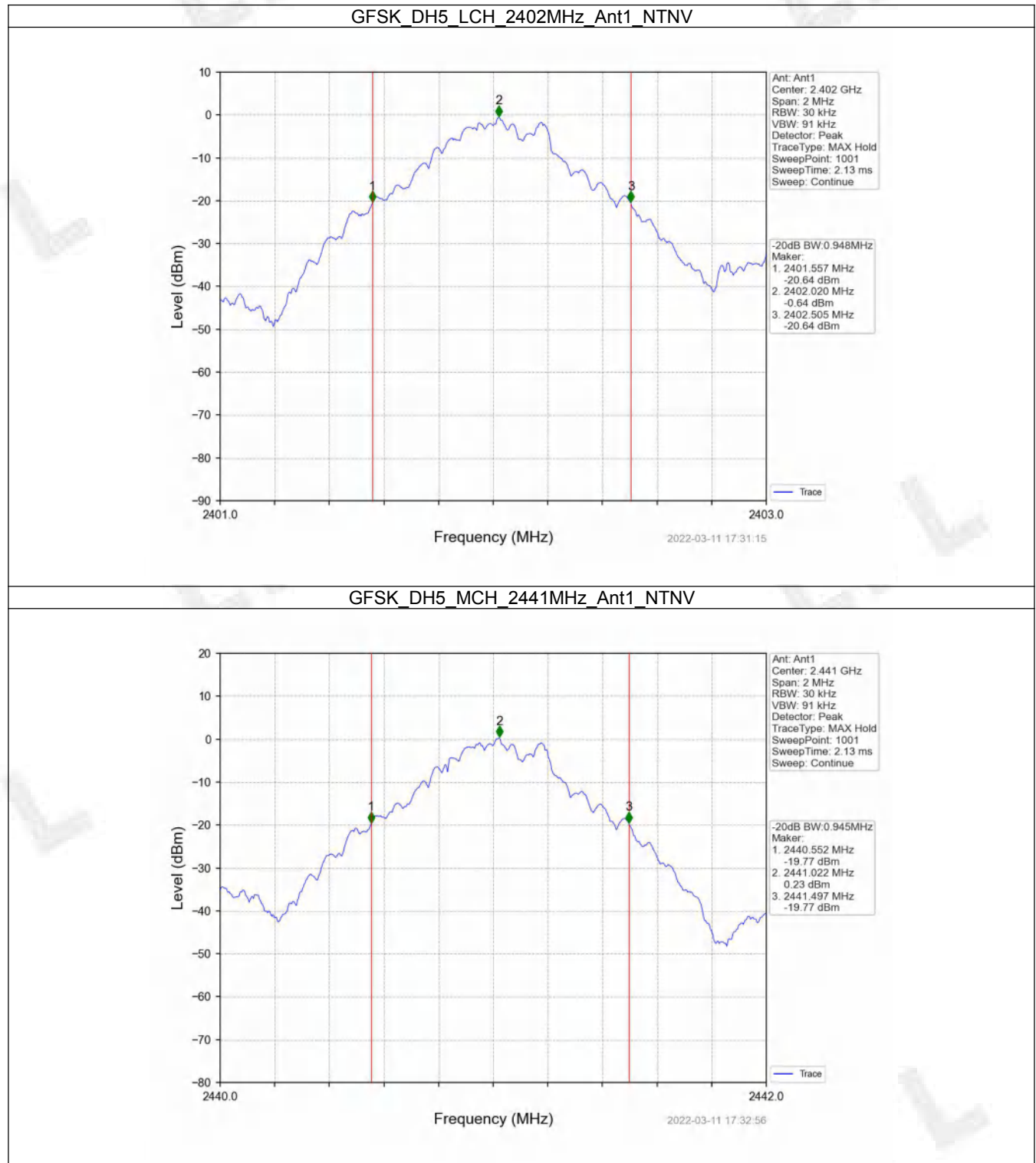


## 1.2 20dB BW

## 1.2.1 Test Result

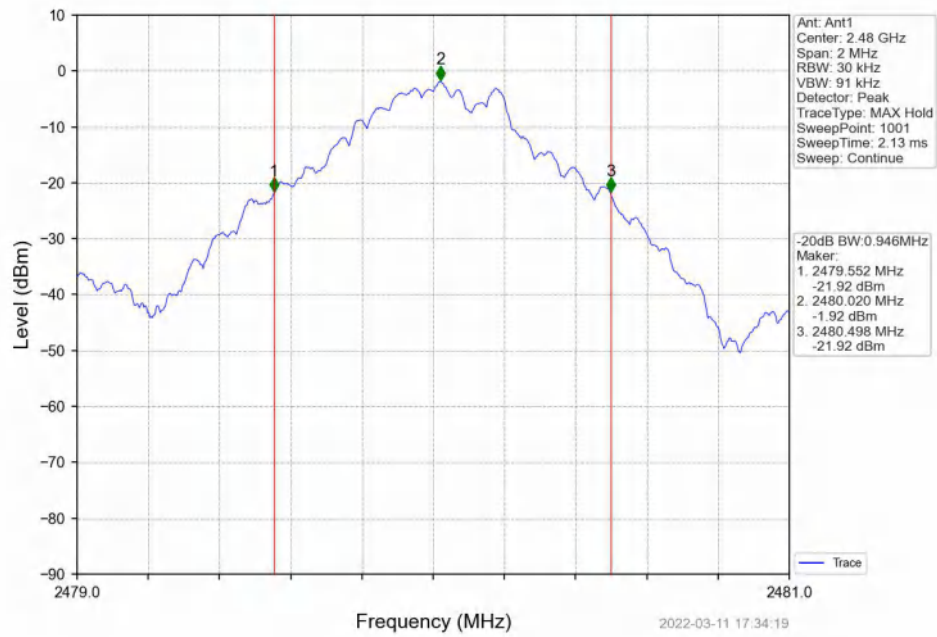
| Mode      | TX Type | Frequency (MHz) | Packet Type | Ant | 20dB Bandwidth (MHz) | Verdict |
|-----------|---------|-----------------|-------------|-----|----------------------|---------|
|           |         |                 |             |     | Result               |         |
| GFSK      | SISO    | 2402            | DH5         | 1   | 0.948                | Pass    |
|           |         | 2441            | DH5         | 1   | 0.945                | Pass    |
|           |         | 2480            | DH5         | 1   | 0.946                | Pass    |
| Pi/4DQPSK | SISO    | 2402            | 2DH5        | 1   | 1.266                | Pass    |
|           |         | 2441            | 2DH5        | 1   | 1.233                | Pass    |
|           |         | 2480            | 2DH5        | 1   | 1.236                | Pass    |
| 8DPSK     | SISO    | 2402            | 3DH5        | 1   | 1.288                | Pass    |
|           |         | 2441            | 3DH5        | 1   | 1.278                | Pass    |
|           |         | 2480            | 3DH5        | 1   | 1.282                | Pass    |

## 1.2.2 Test Graph

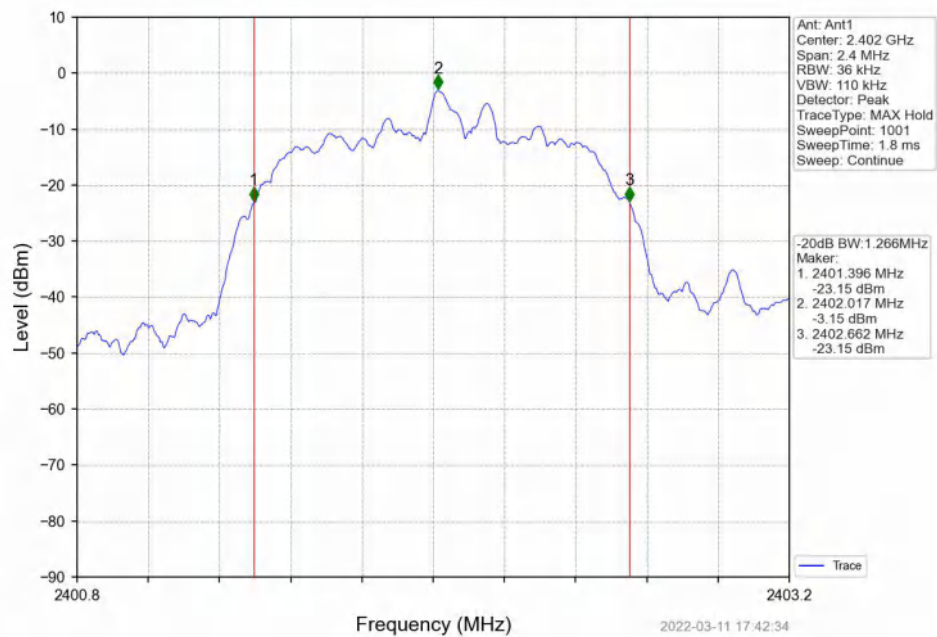




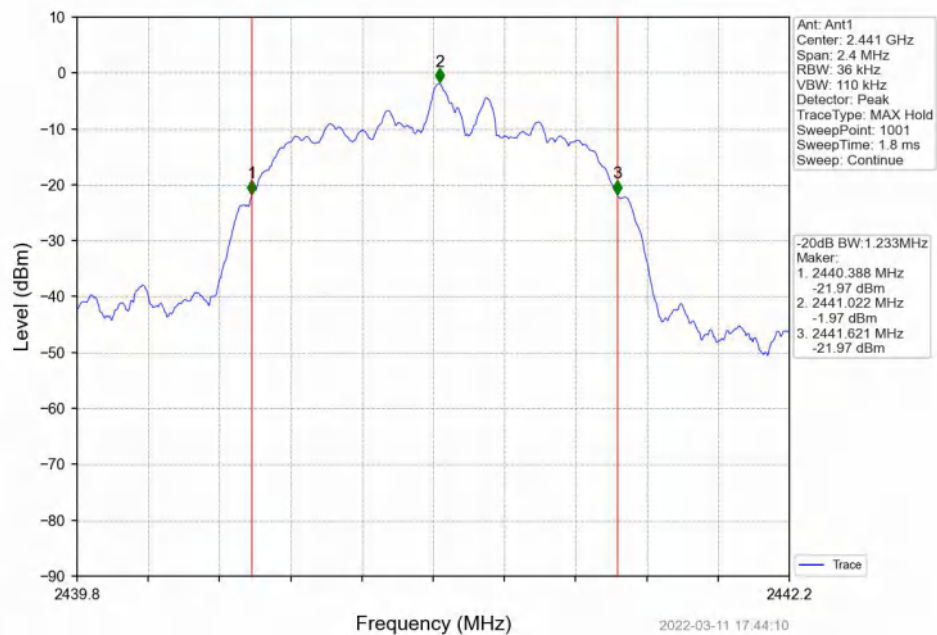
GFSK\_DH5\_HCH\_2480MHz\_Ant1\_NTNV



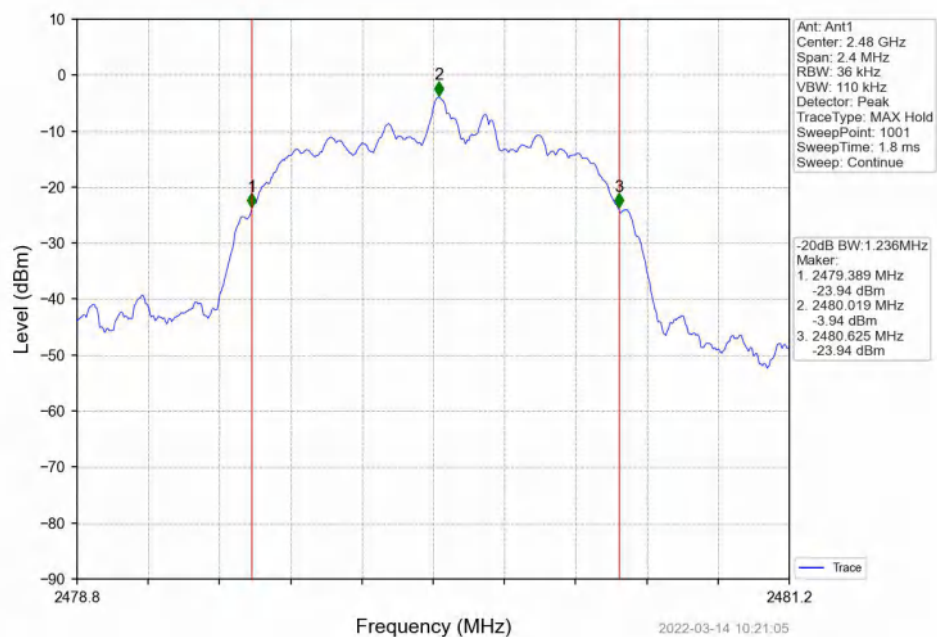
Pi/4DQPSK\_2DH5\_LCH\_2402MHz\_Ant1\_NTNV



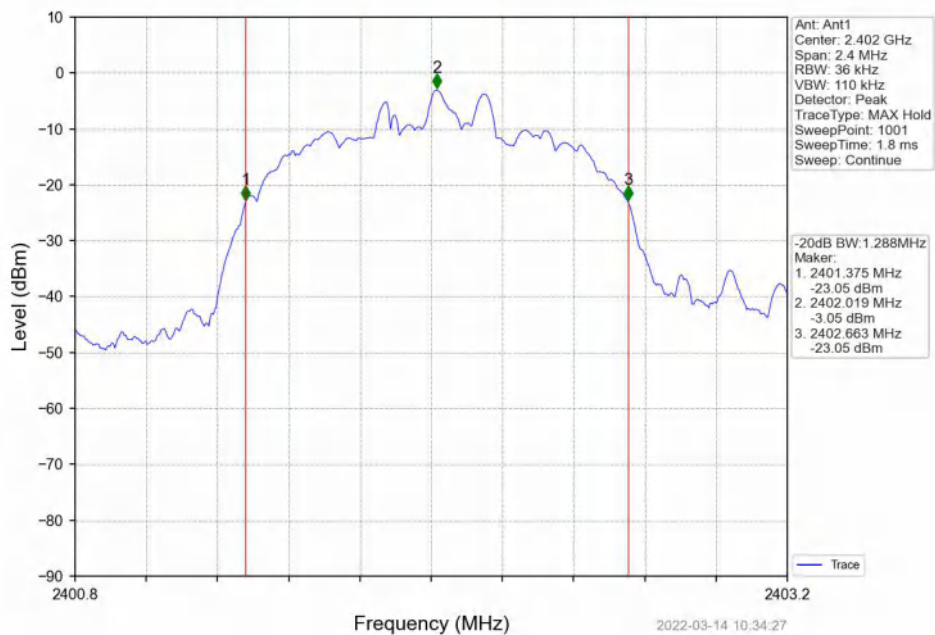
Pi/4DQPSK\_2DH5\_MCH\_2441MHz\_Ant1\_NTNV



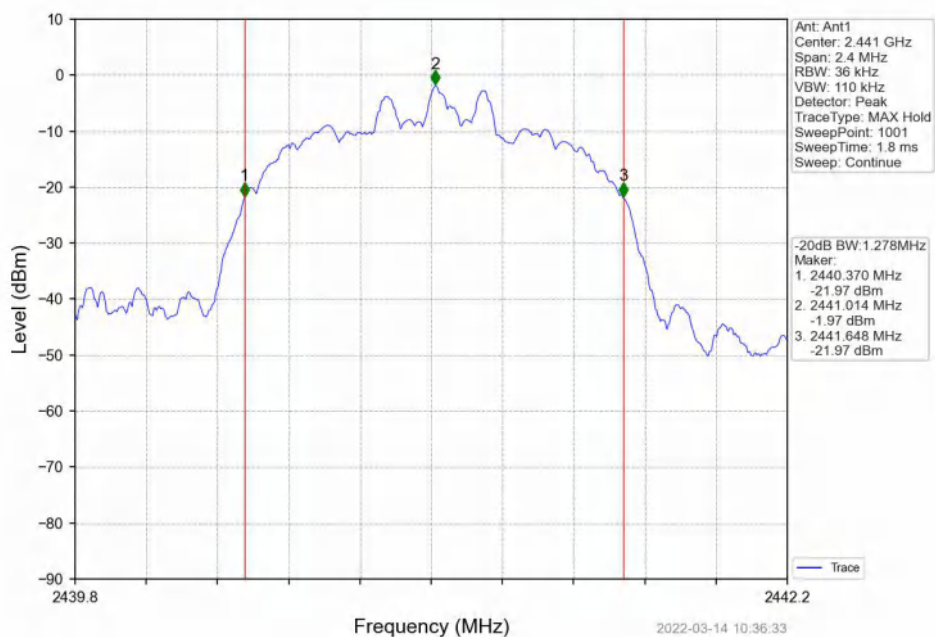
Pi/4DQPSK\_2DH5\_HCH\_2480MHz\_Ant1\_NTNV



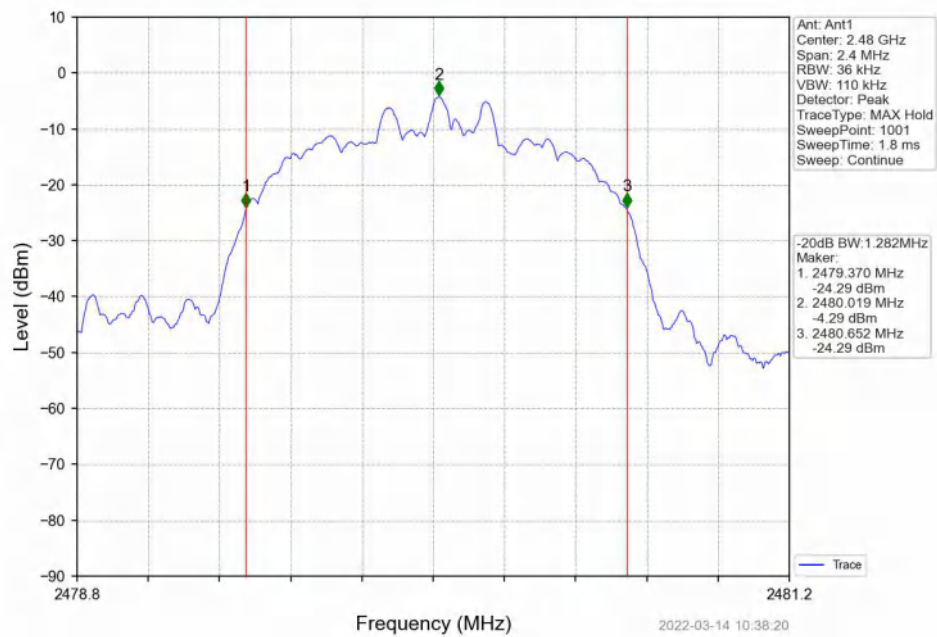
## 8DPSK\_3DH5\_LCH\_2402MHz\_Ant1\_NTNV



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



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



## 2. Maximum Conducted Output Power

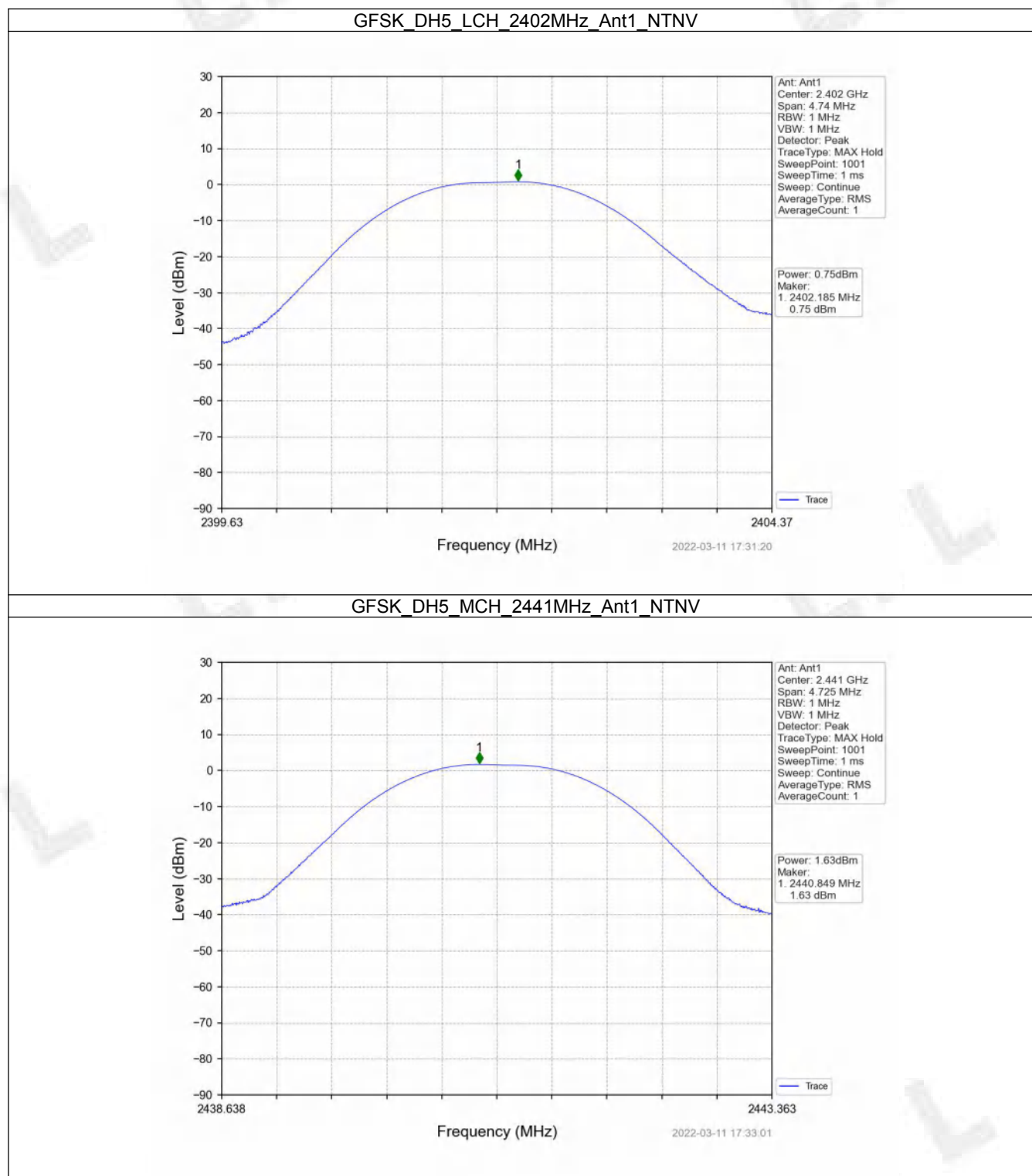
### 2.1 Power

#### 2.1.1 Test Result

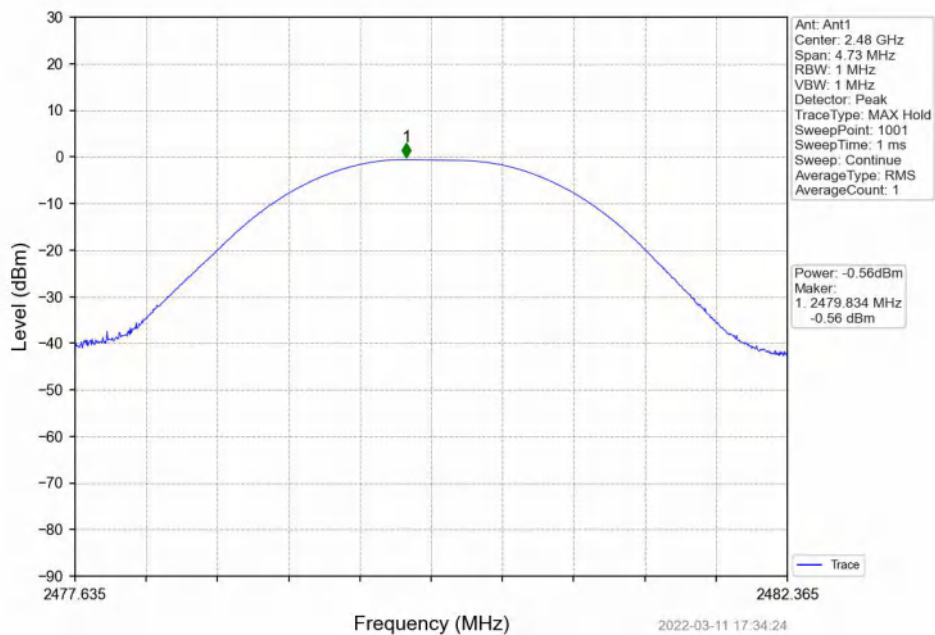
| Mode      | TX Type | Frequency (MHz) | Packet Type | Maximum Peak Conducted Output Power (dBm) |         | Verdict |
|-----------|---------|-----------------|-------------|-------------------------------------------|---------|---------|
|           |         |                 |             | Ant1                                      | Limit   |         |
| GFSK      | SISO    | 2402            | DH5         | 0.75                                      | <=30    | Pass    |
|           |         | 2441            | DH5         | 1.63                                      | <=30    | Pass    |
|           |         | 2480            | DH5         | -0.56                                     | <=30    | Pass    |
| Pi/4DQPSK | SISO    | 2402            | 2DH5        | -1.46                                     | <=20.97 | Pass    |
|           |         | 2441            | 2DH5        | -0.41                                     | <=20.97 | Pass    |
|           |         | 2480            | 2DH5        | -2.42                                     | <=20.97 | Pass    |
| 8DPSK     | SISO    | 2402            | 3DH5        | -1.10                                     | <=20.97 | Pass    |
|           |         | 2441            | 3DH5        | -0.02                                     | <=20.97 | Pass    |
|           |         | 2480            | 3DH5        | -2.33                                     | <=20.97 | Pass    |

Note1: Antenna Gain: Ant1: 0.50dBi;

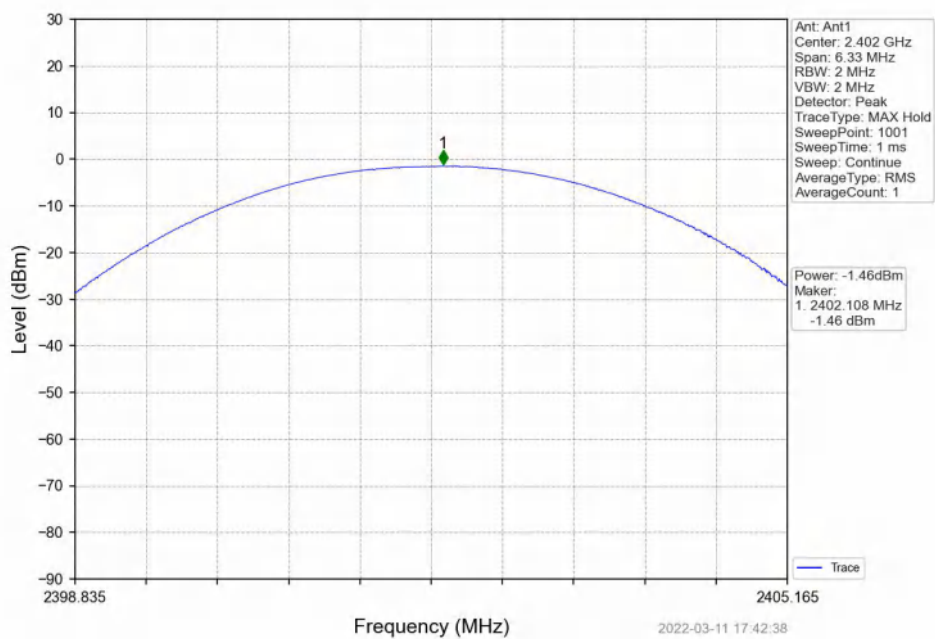
## 2.1.2 Test Graph



## GFSK DH5\_HCH\_2480MHz\_Ant1\_NTNV

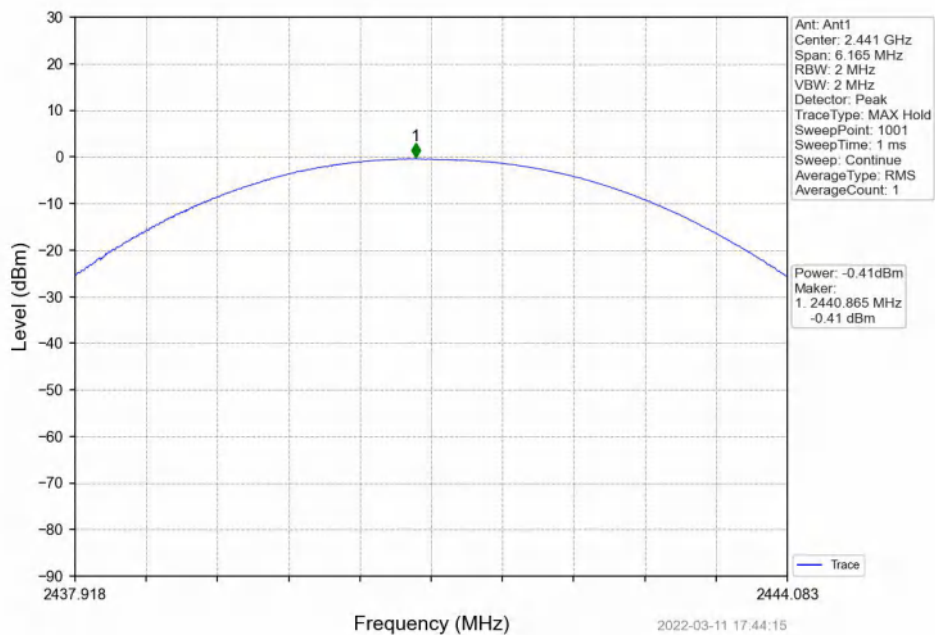


## Pi/4DQPSK\_2DH5\_LCH\_2402MHz\_Ant1\_NTNV

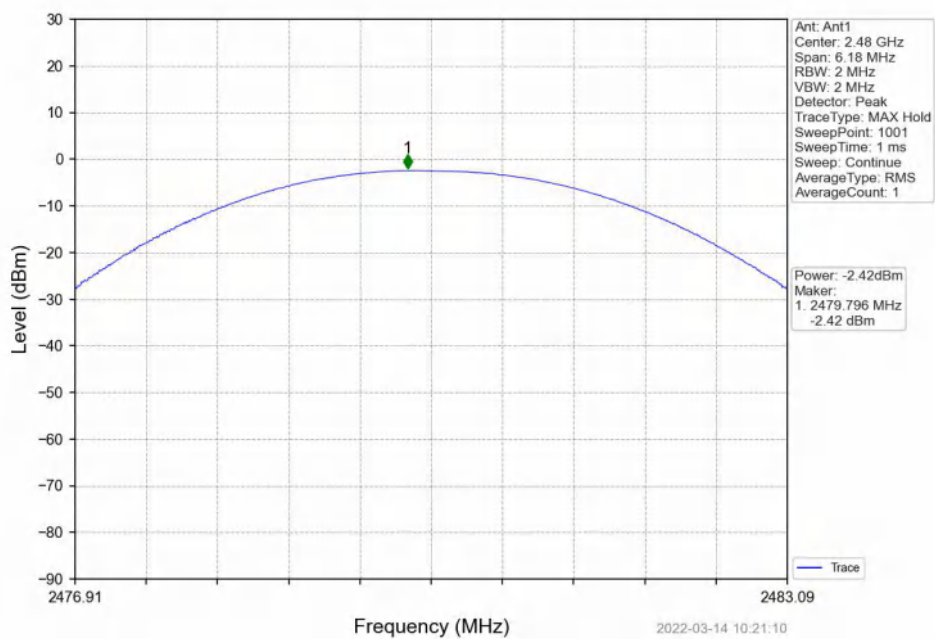




Pi/4DQPSK\_2DH5\_MCH\_2441MHz\_Ant1\_NTNV

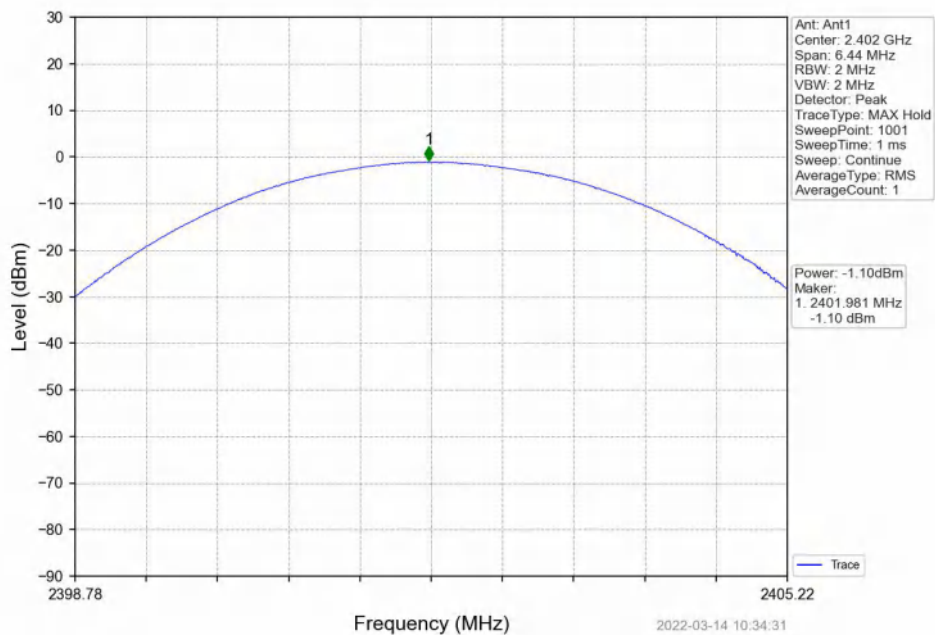


Pi/4DQPSK\_2DH5\_HCH\_2480MHz\_Ant1\_NTNV

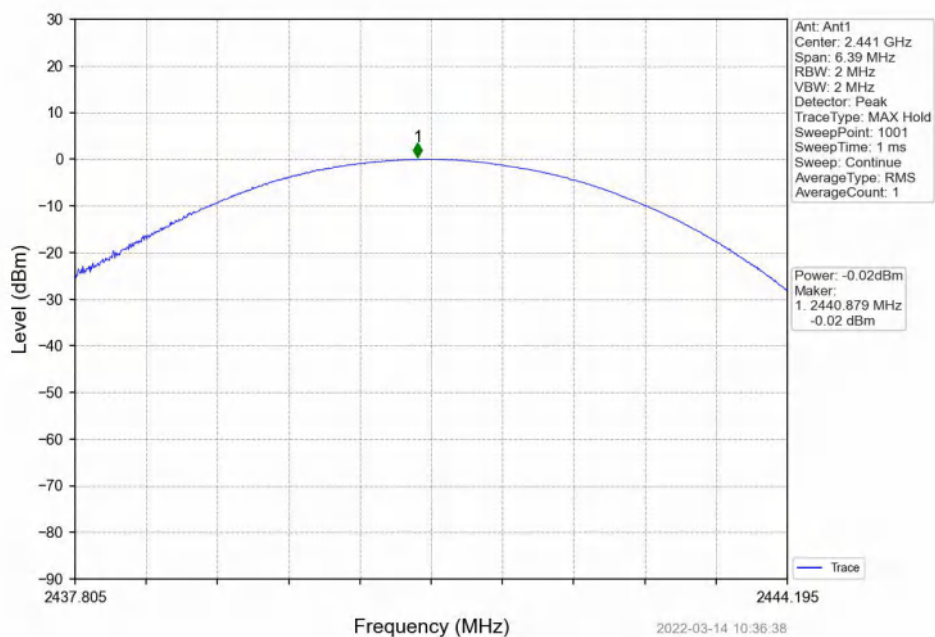




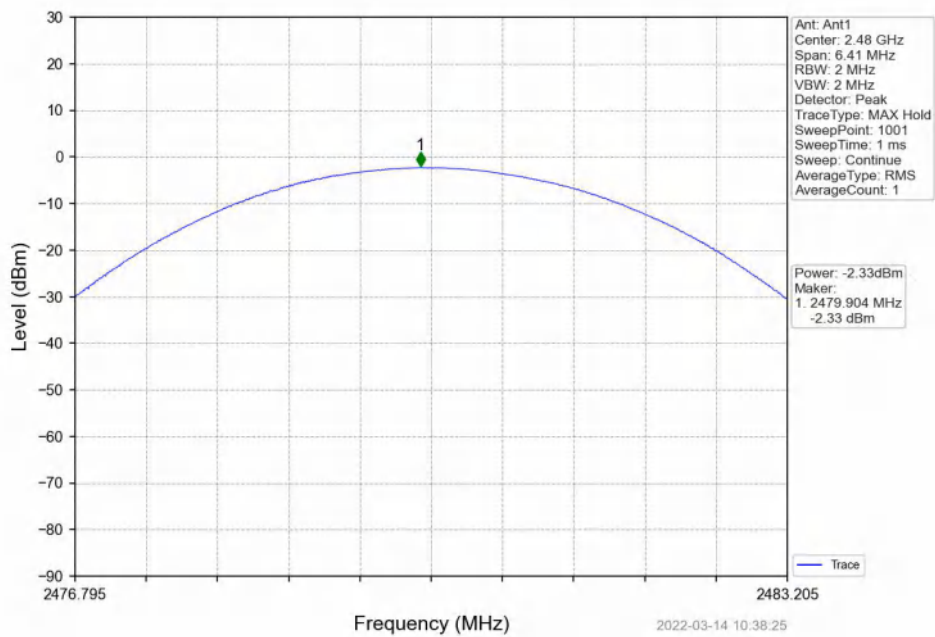
8DPSK\_3DH5\_LCH\_2402MHz\_Ant1\_NTNV



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



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



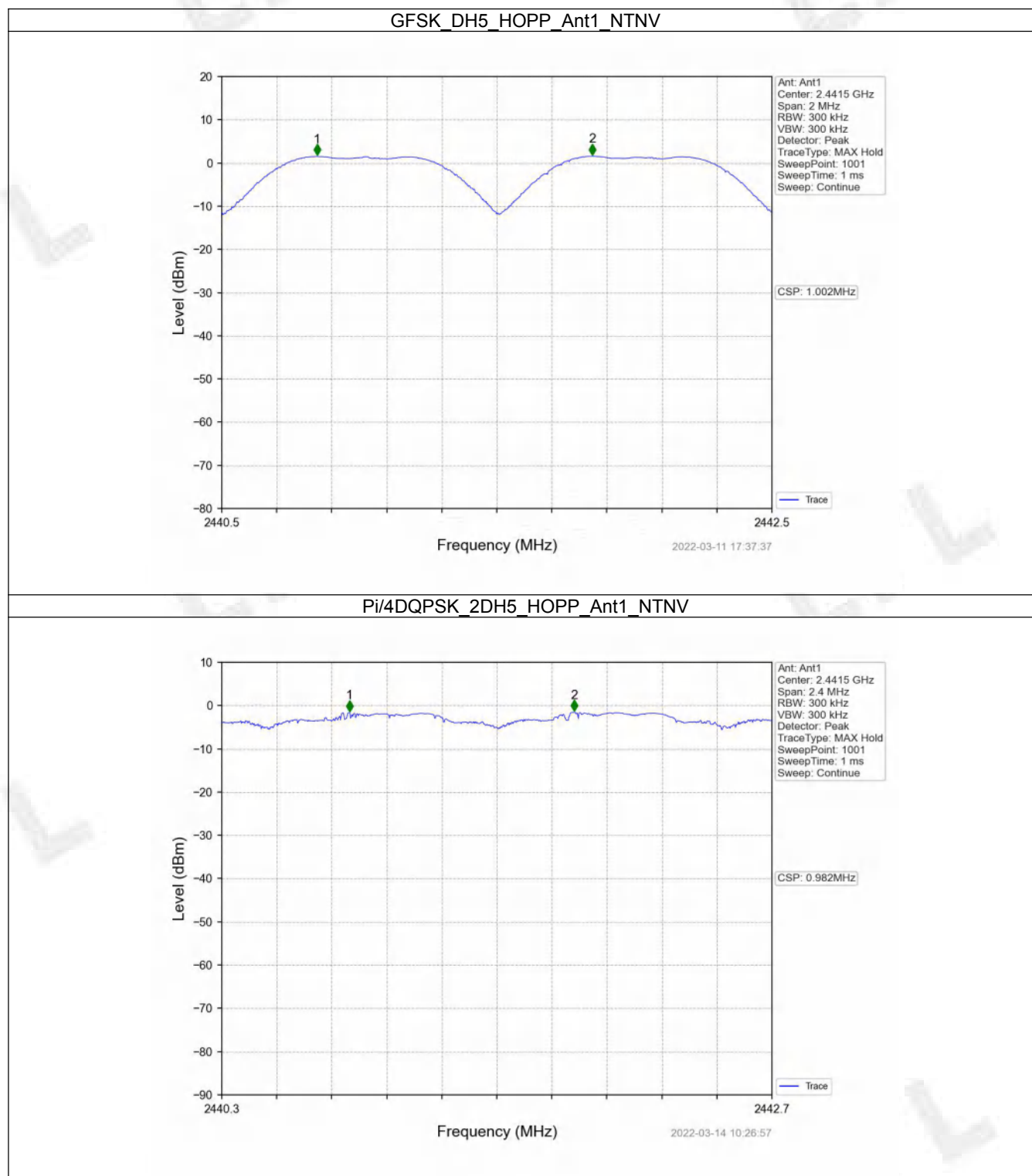
### 3. Carrier Frequency Separation

#### 3.1 Ant1

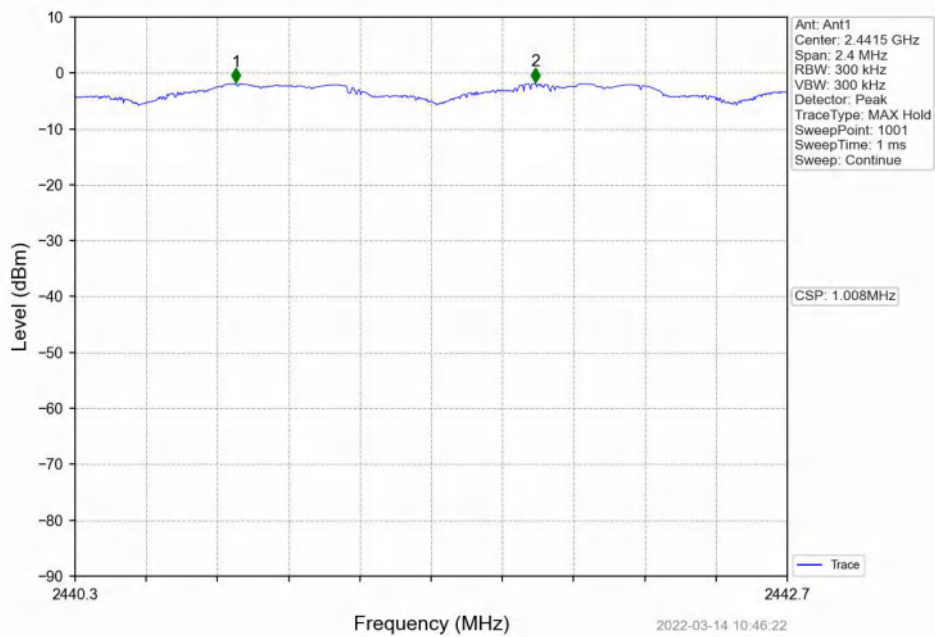
##### 3.1.1 Test Result

| Ant1      |         |                 |             |                          |                      |              |         |
|-----------|---------|-----------------|-------------|--------------------------|----------------------|--------------|---------|
| Mode      | TX Type | Frequency (MHz) | Packet Type | Channel Separation (MHz) | 20dB Bandwidth (MHz) | Limit (MHz)  | Verdict |
| GFSK      | SISO    | HOPP            | DH5         | 1.002                    | 0.948                | $\geq 0.948$ | Pass    |
| Pi/4DQPSK | SISO    | HOPP            | 2DH5        | 0.982                    | 1.266                | $\geq 0.844$ | Pass    |
| 8DPSK     | SISO    | HOPP            | 3DH5        | 1.008                    | 1.288                | $\geq 0.859$ | Pass    |

## 3.1.2 Test Graph



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



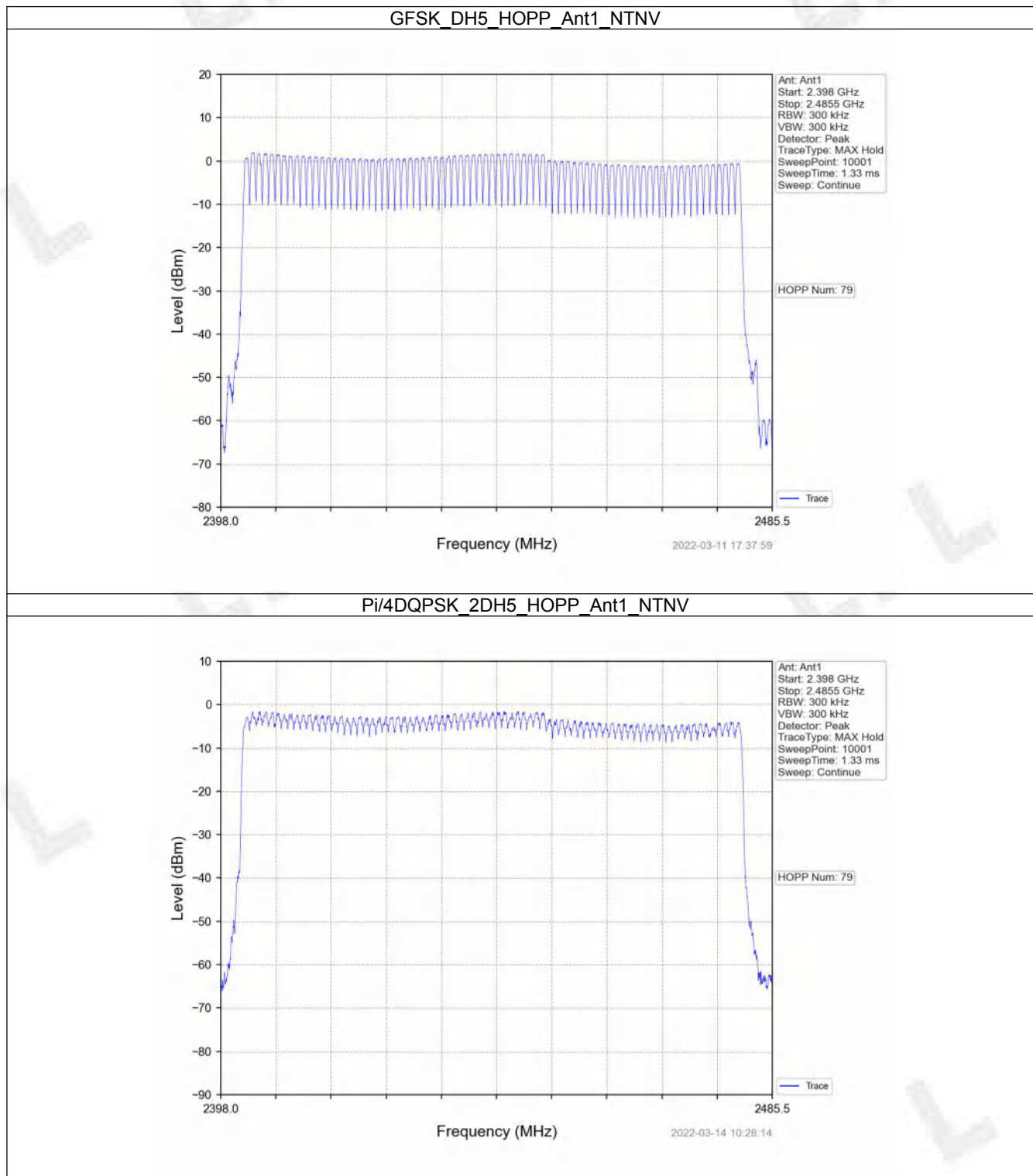
## 4. Number of Hopping Frequencies

### 4.1 HoppNum

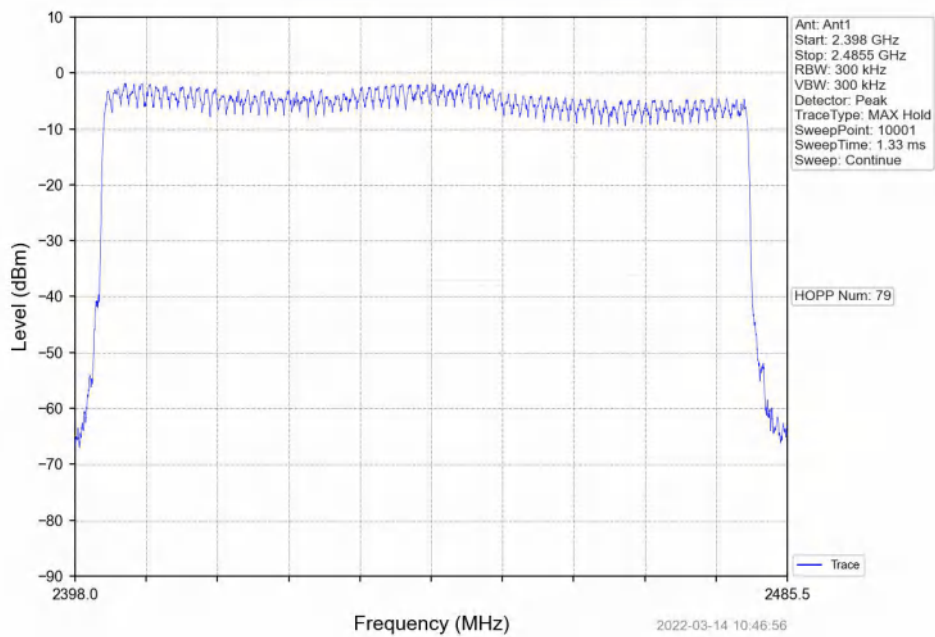
#### 4.1.1 Test Result

| Mode      | TX<br>Type | Frequency<br>(MHz) | Packet<br>Type | Num of Hopping Frequencies |       | Verdict |
|-----------|------------|--------------------|----------------|----------------------------|-------|---------|
|           |            |                    |                | Ant1                       | Limit |         |
| GFSK      | SISO       | HOPP               | DH5            | 79                         | >=15  | Pass    |
| Pi/4DQPSK | SISO       | HOPP               | 2DH5           | 79                         | >=15  | Pass    |
| 8DPSK     | SISO       | HOPP               | 3DH5           | 79                         | >=15  | Pass    |

## 4.1.2 Test Graph



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





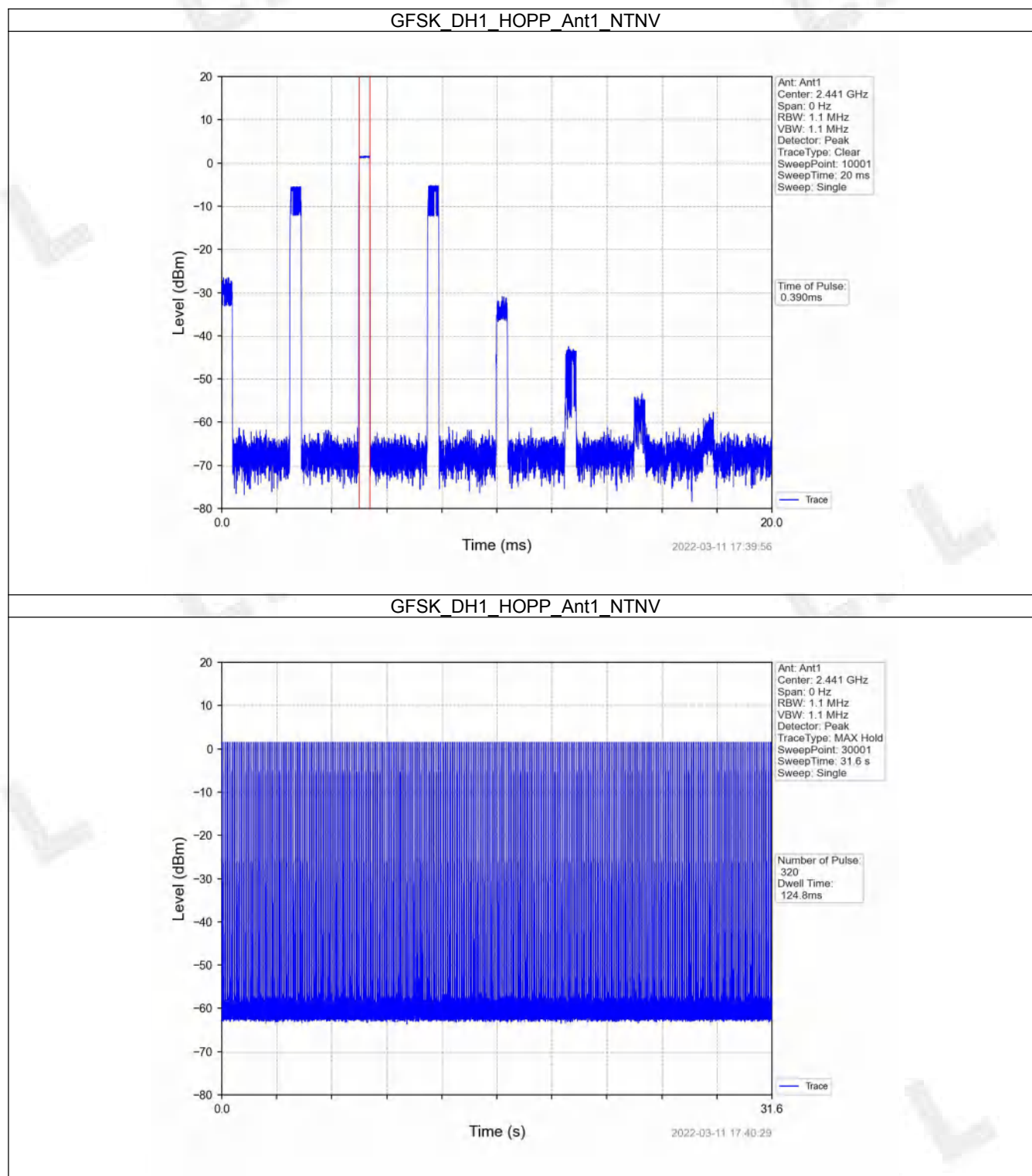
## 5. Time of Occupancy (Dwell Time)

### 5.1 Ant1

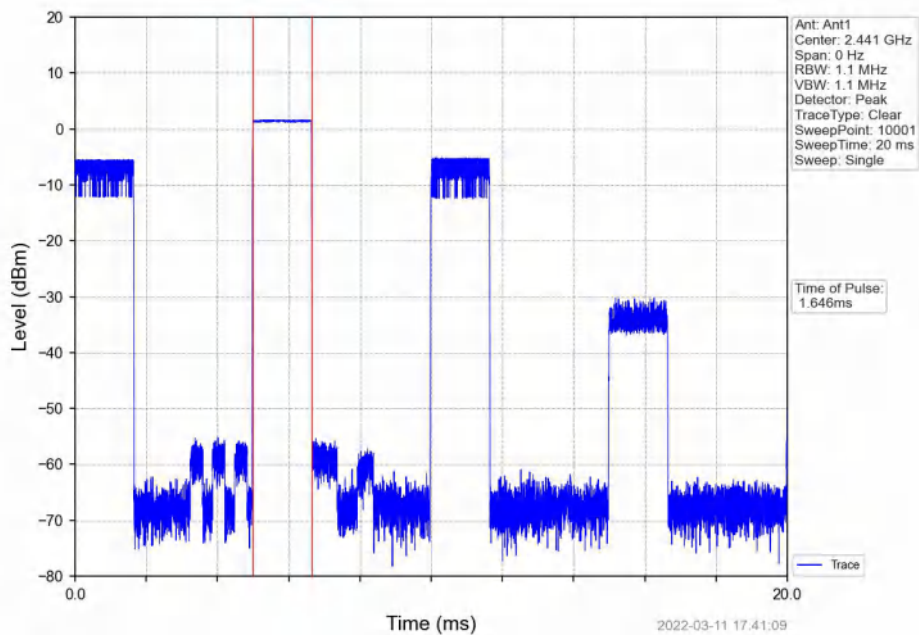
#### 5.1.1 Test Result

| 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         | 0.390                         | 31.600                 | 320                                | 124.800         | <=400      | Pass    |
|           |         |                 | DH3         | 1.646                         | 31.600                 | 160                                | 263.360         | <=400      | Pass    |
|           |         |                 | DH5         | 2.894                         | 31.600                 | 107                                | 309.658         | <=400      | Pass    |
| Pi/4DQPSK | SISO    | HOPP            | 2DH1        | 0.410                         | 31.600                 | 320                                | 131.200         | <=400      | Pass    |
|           |         |                 | 2DH3        | 1.664                         | 31.600                 | 160                                | 266.240         | <=400      | Pass    |
|           |         |                 | 2DH5        | 2.908                         | 31.600                 | 106                                | 308.248         | <=400      | Pass    |
| 8DPSK     | SISO    | HOPP            | 3DH1        | 0.410                         | 31.600                 | 320                                | 131.200         | <=400      | Pass    |
|           |         |                 | 3DH3        | 1.660                         | 31.600                 | 160                                | 265.600         | <=400      | Pass    |
|           |         |                 | 3DH5        | 2.910                         | 31.600                 | 107                                | 311.370         | <=400      | Pass    |

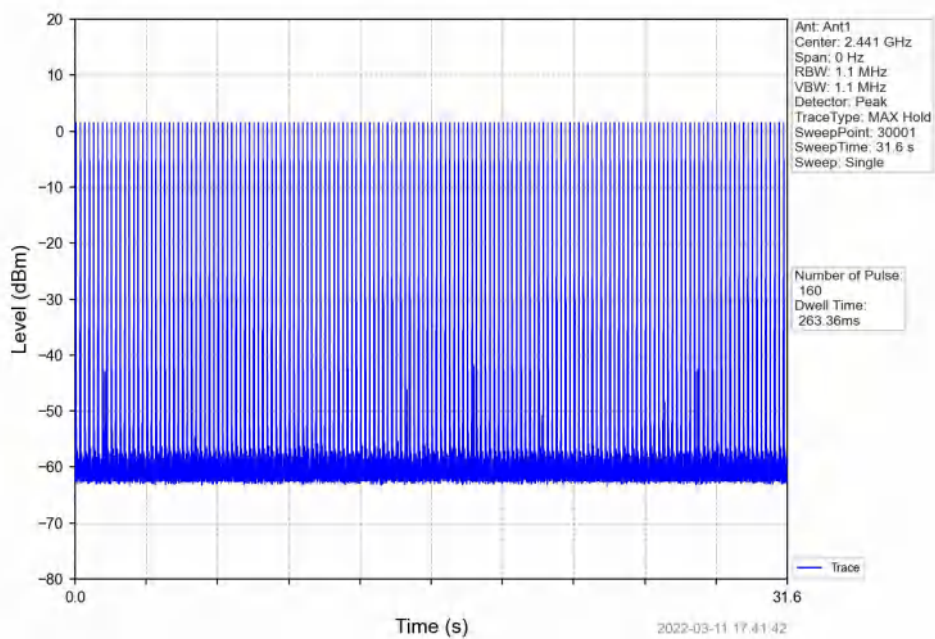
## 5.1.2 Test Graph



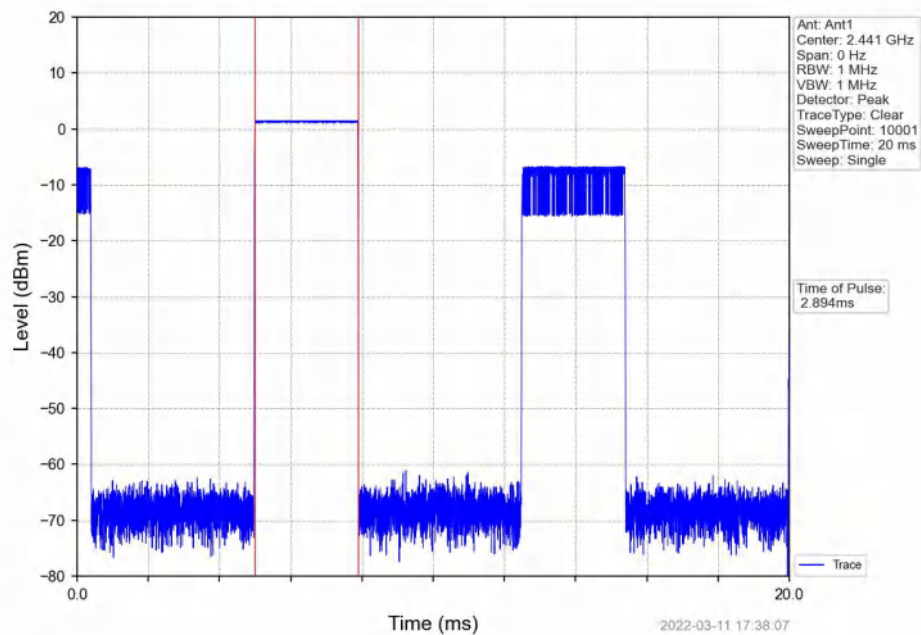
GFSK\_DH3\_HOPP\_Ant1\_NTNV



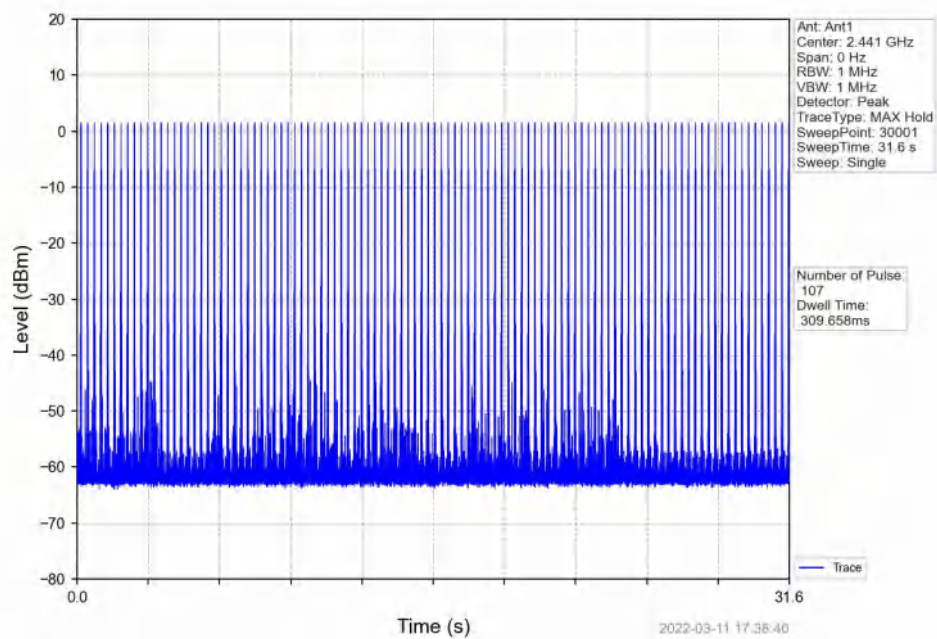
GFSK\_DH3\_HOPP\_Ant1\_NTNV



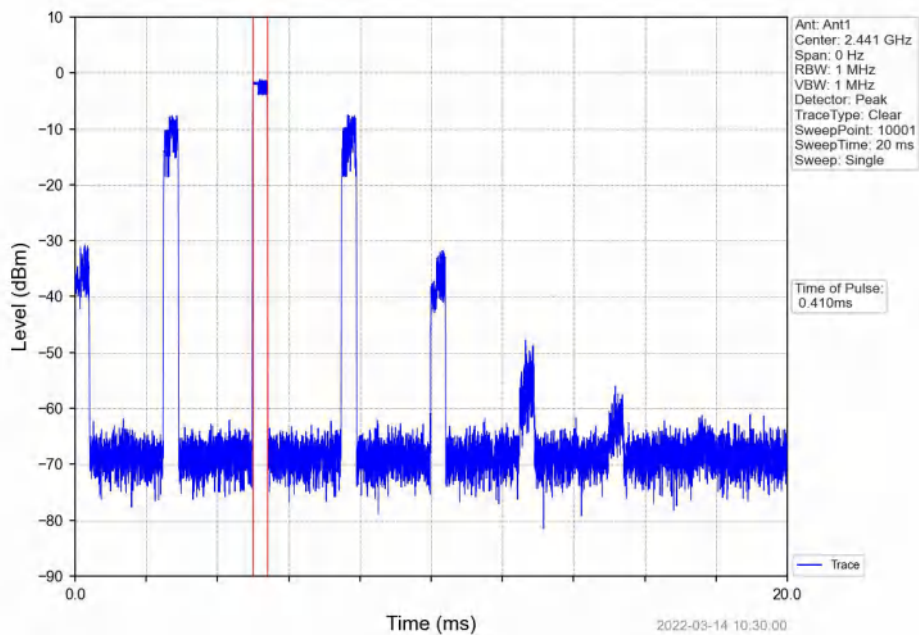
GFSK\_DH5\_HOPP\_Ant1\_NTNV



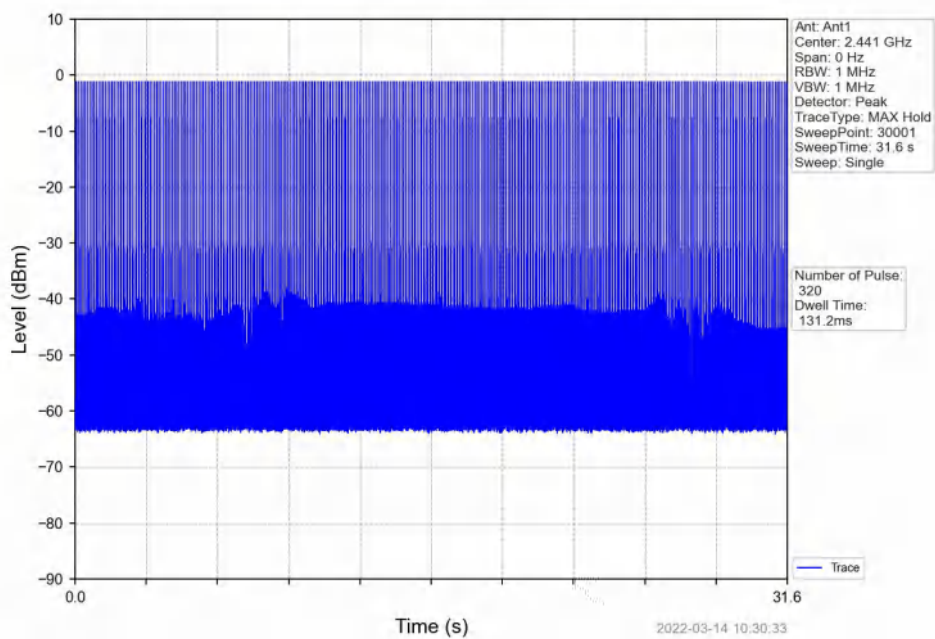
GFSK\_DH5\_HOPP\_Ant1\_NTNV



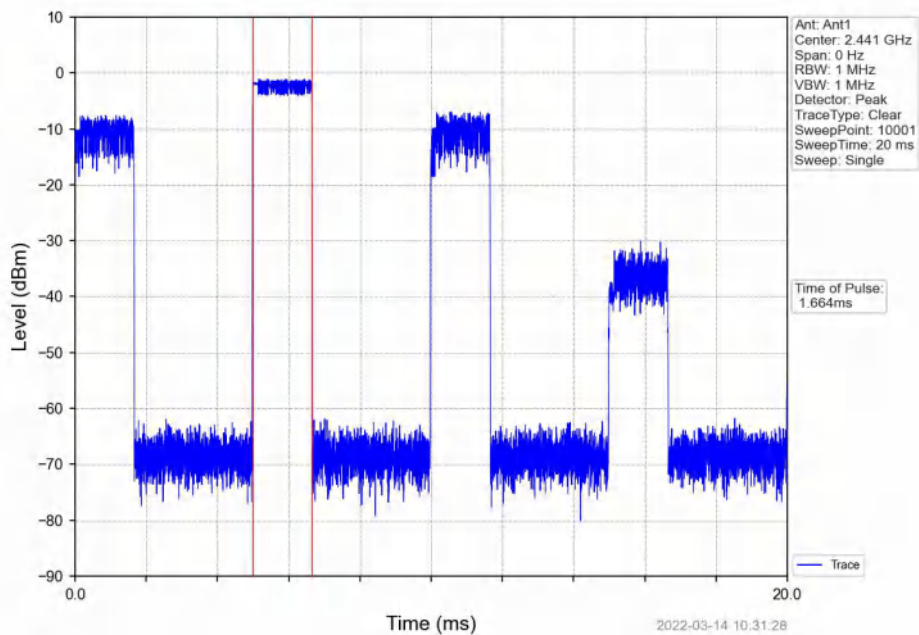
Pi/4DQPSK\_2DH1\_HOPP\_Ant1\_NTNV



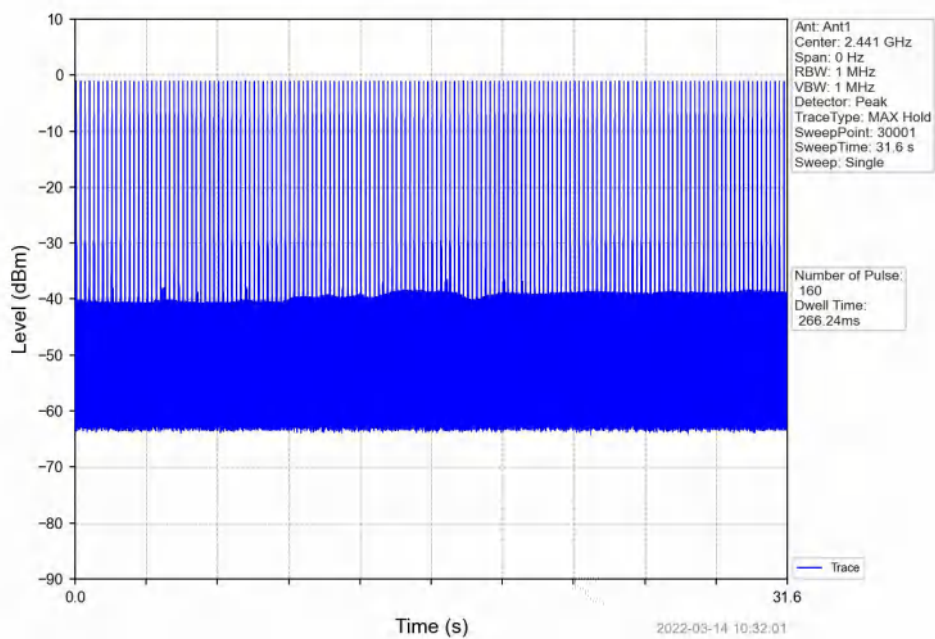
Pi/4DQPSK\_2DH1\_HOPP\_Ant1\_NTNV



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

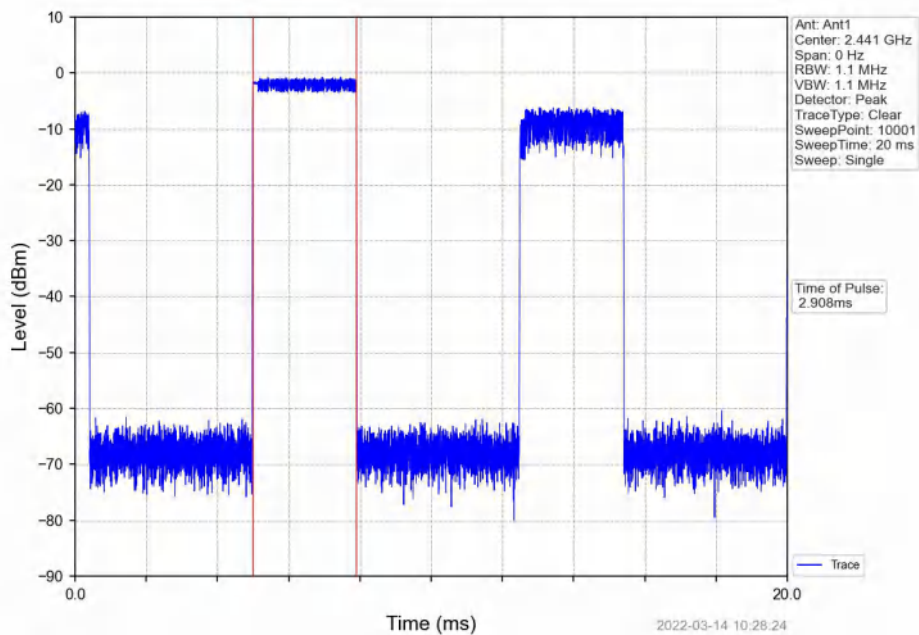


Pi/4DQPSK\_2DH3\_HOPP\_Ant1\_NTNV

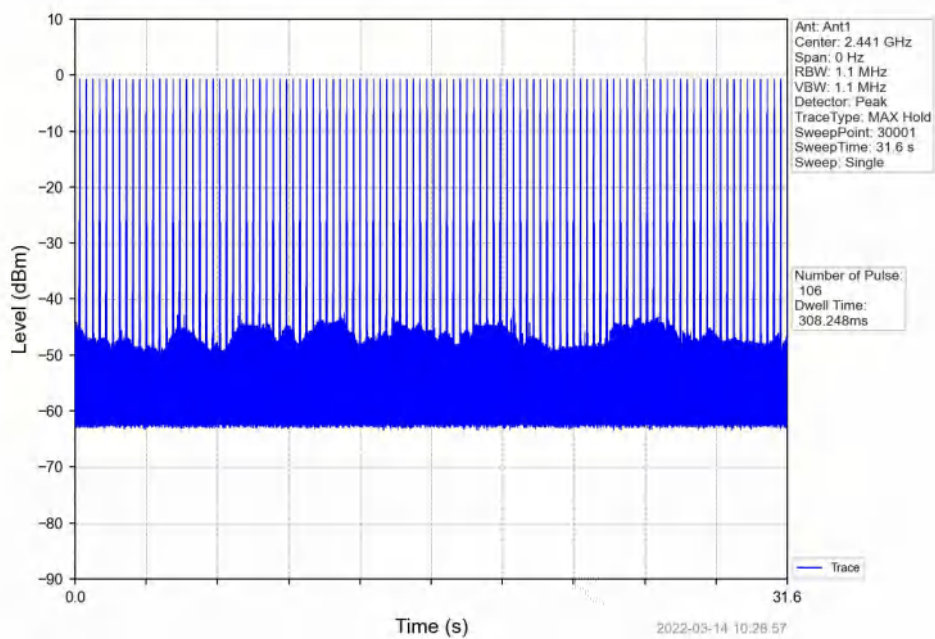




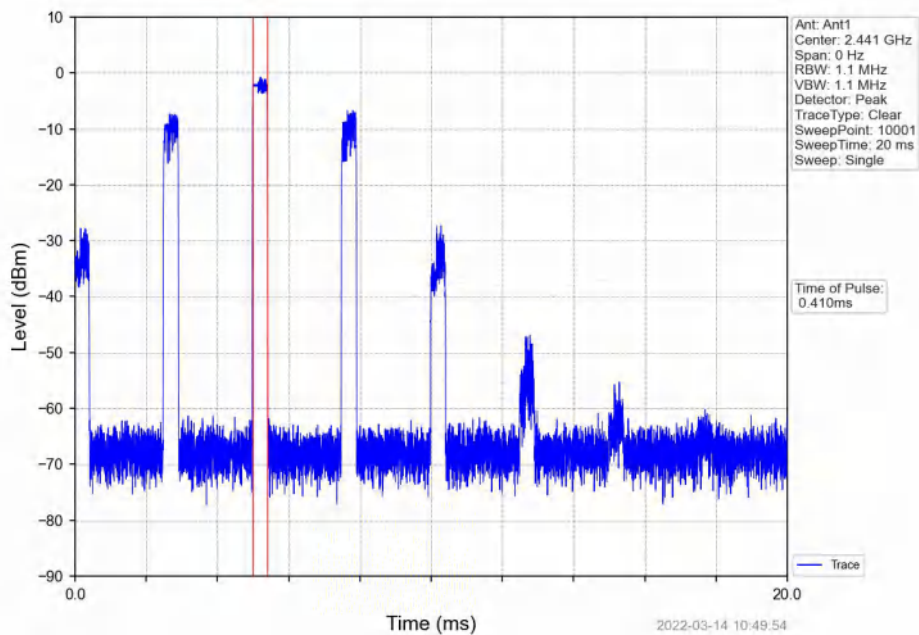
Pi/4DQPSK\_2DH5\_HOPP\_Ant1\_NTNV



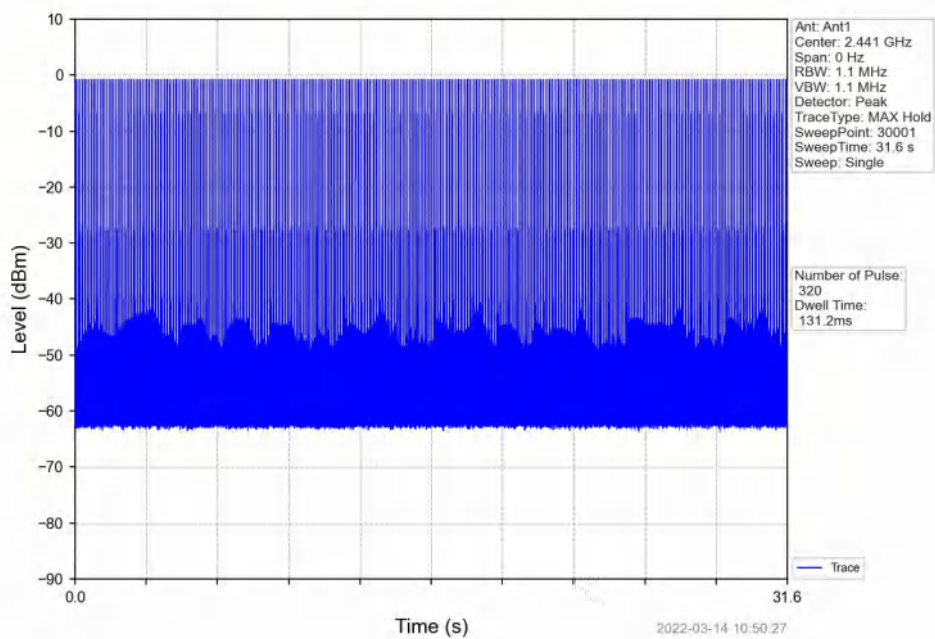
Pi/4DQPSK\_2DH5\_HOPP\_Ant1\_NTNV



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

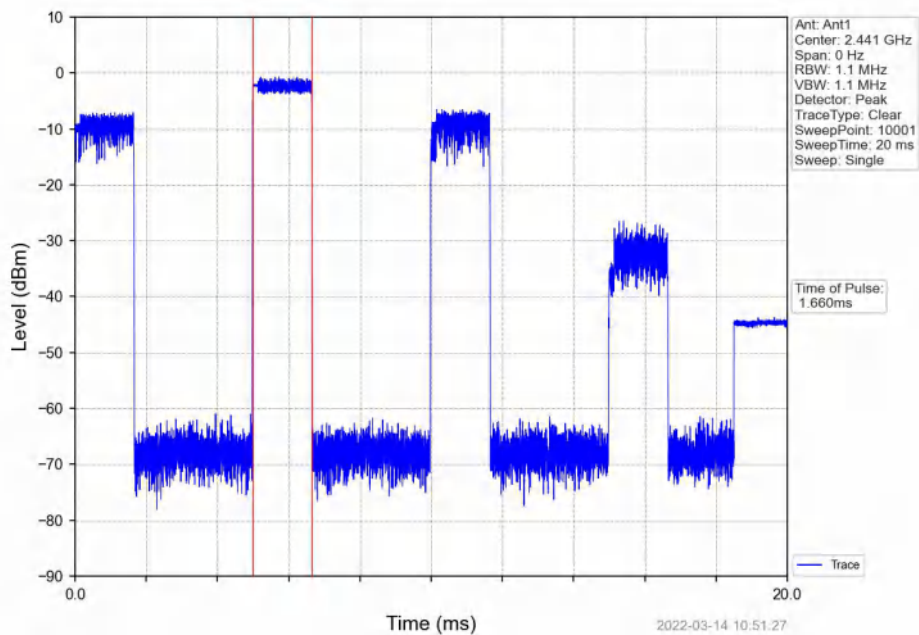


## 8DPSK\_3DH1\_HOPP\_Ant1\_NTNV

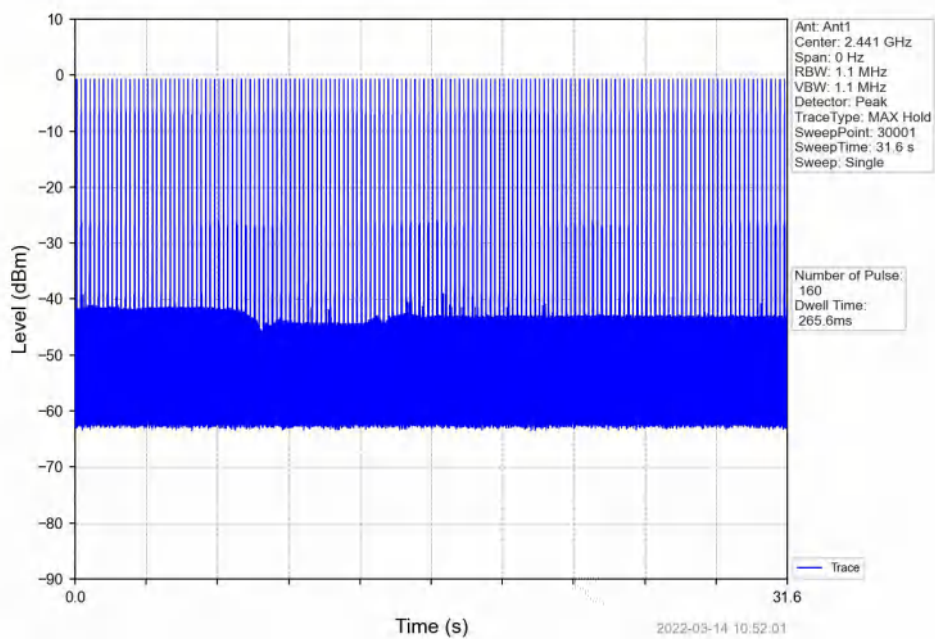




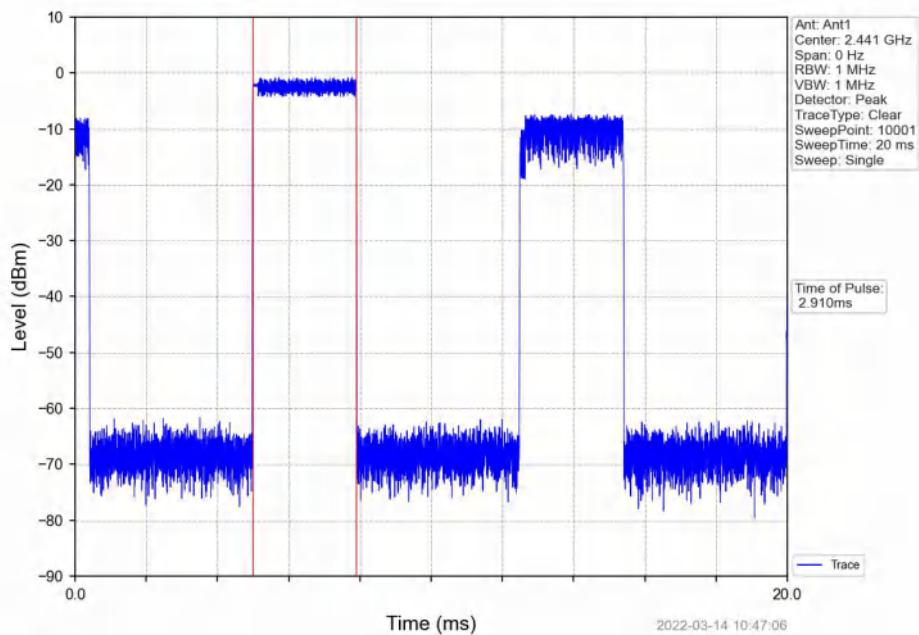
## 8DPSK\_3DH3\_HOPP\_Ant1\_NTNV



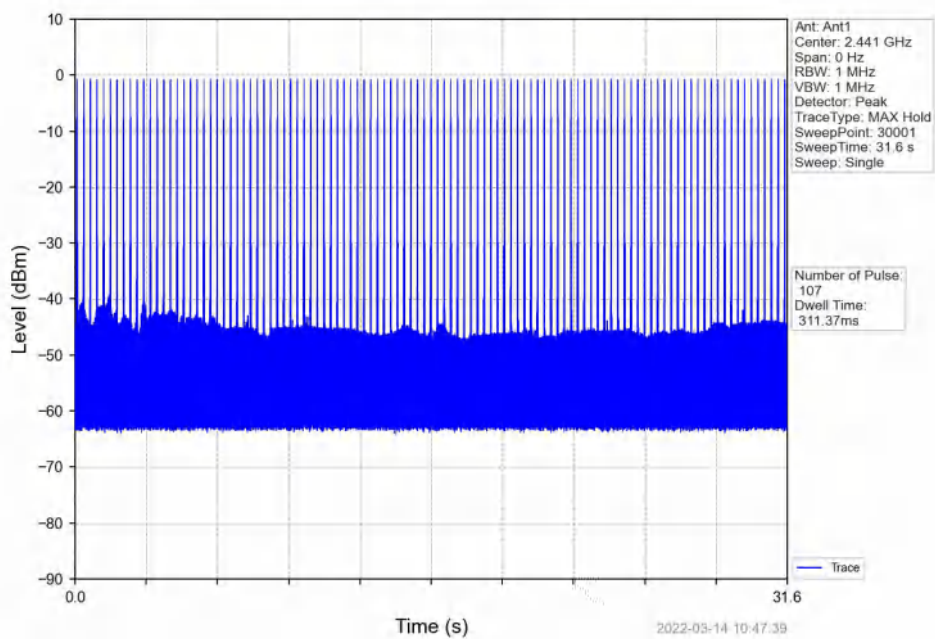
## 8DPSK\_3DH3\_HOPP\_Ant1\_NTNV



8DPSK\_3DH5\_HOPP\_Ant1\_NTNV



8DPSK\_3DH5\_HOPP\_Ant1\_NTNV



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

### 6.1 Ref

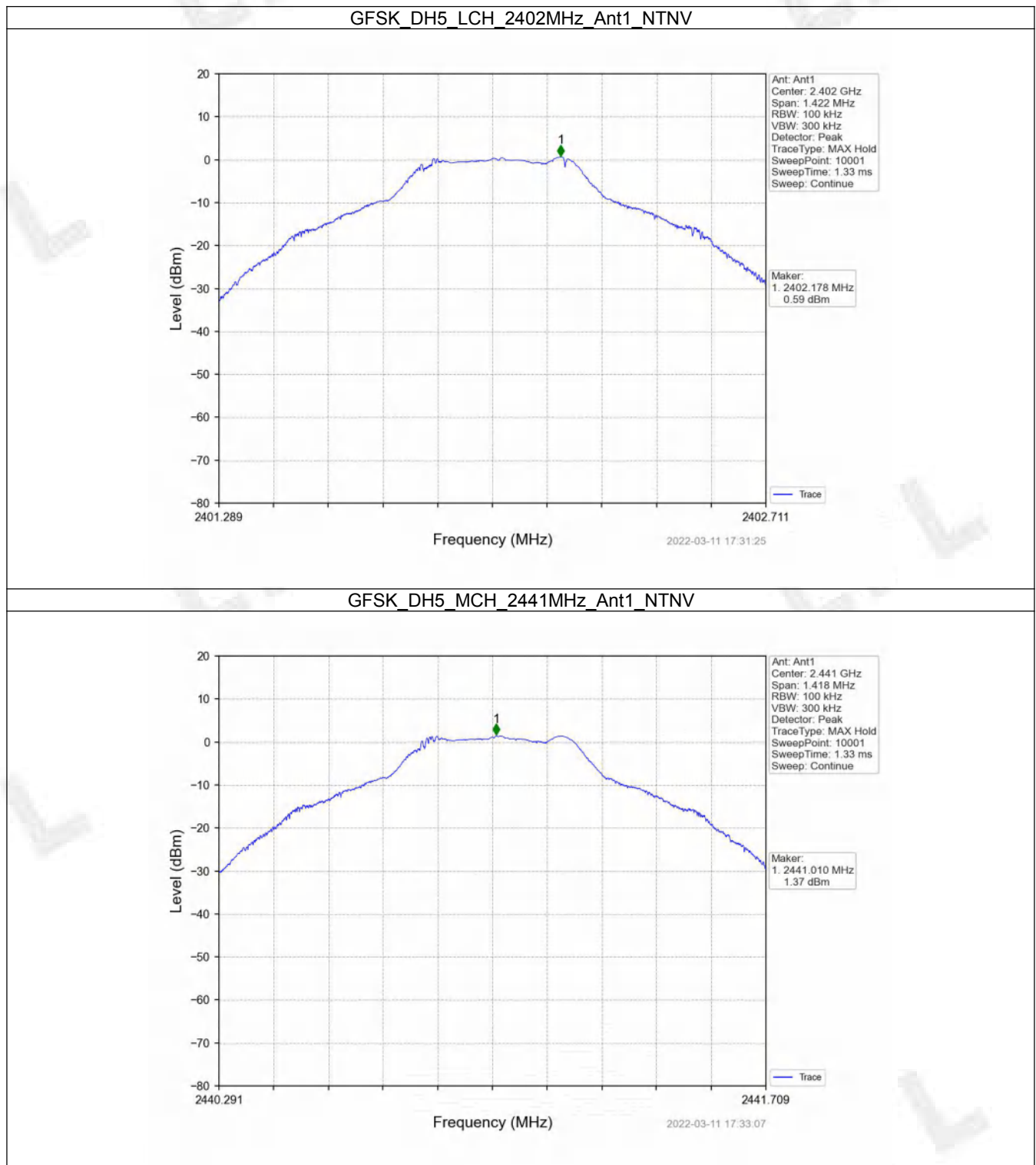
#### 6.1.1 Test Result

| Mode      | TX Type | Frequency (MHz) | Packet Type | Ant | Level of Reference (dBm) |
|-----------|---------|-----------------|-------------|-----|--------------------------|
| GFSK      | SISO    | 2402            | DH5         | 1   | 0.59                     |
|           |         | 2441            | DH5         | 1   | 1.37                     |
|           |         | 2480            | DH5         | 1   | -0.82                    |
| Pi/4DQPSK | SISO    | 2402            | 2DH5        | 1   | -3.04                    |
|           |         | 2441            | 2DH5        | 1   | -1.95                    |
|           |         | 2480            | 2DH5        | 1   | -4.01                    |
| 8DPSK     | SISO    | 2402            | 3DH5        | 1   | -2.94                    |
|           |         | 2441            | 3DH5        | 1   | -1.78                    |
|           |         | 2480            | 3DH5        | 1   | -4.15                    |

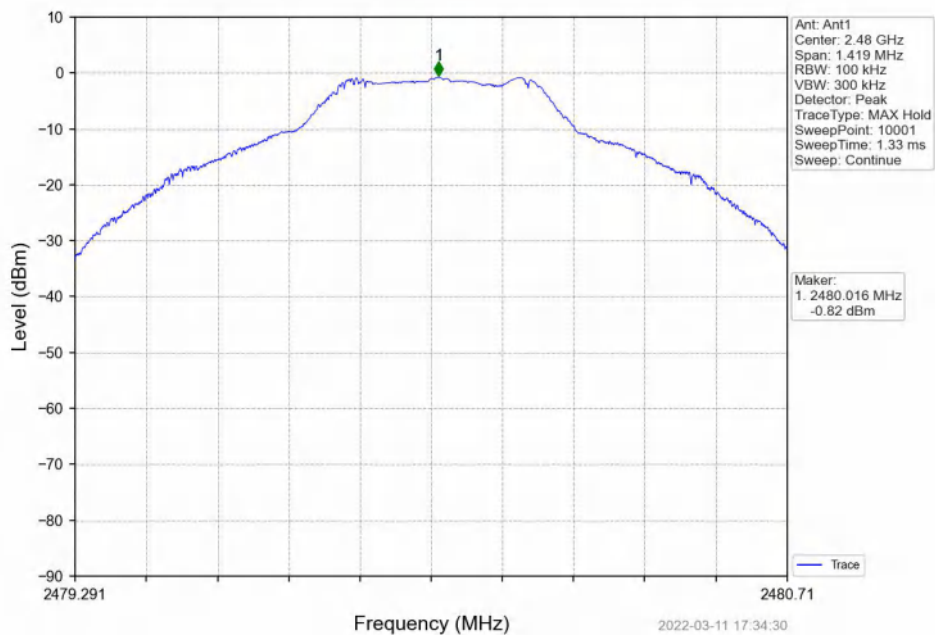
Note1: Refer to FCC Part 15.247 (d) and ANSI C63.10-2013, the channel contains the maximum PSD level was used to establish the reference level.

Note2: RBW = 1MHz was used during the pre-test. The final test will be performed at RBW=100kHz while the margin is less than 3dB.

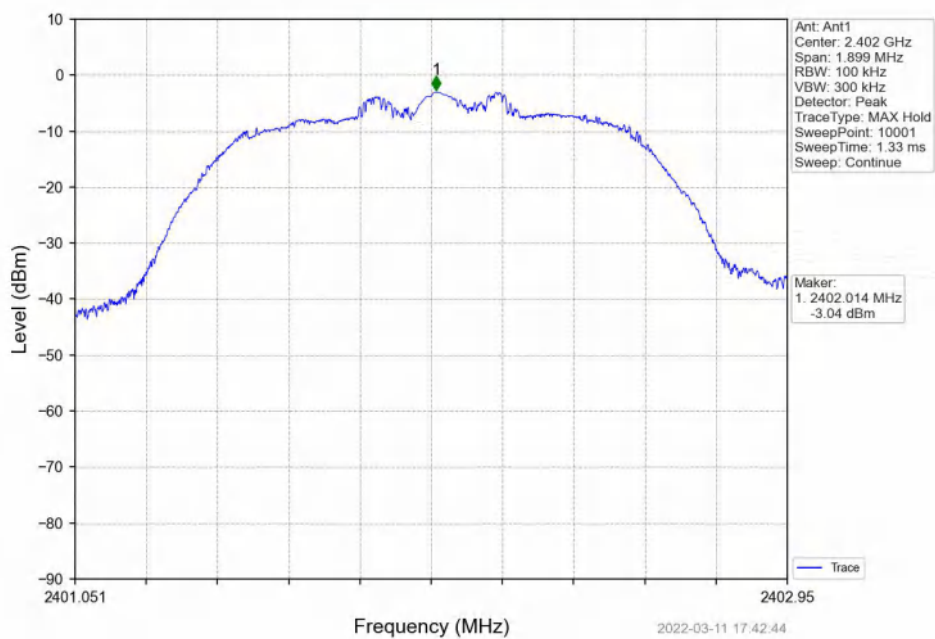
## 6.1.2 Test Graph



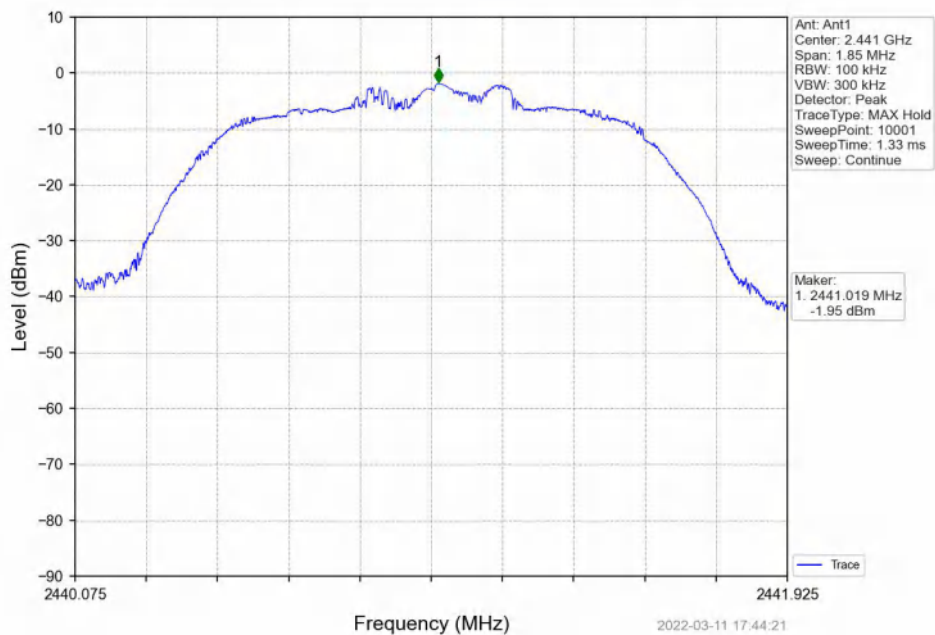
GFSK DH5\_HCH\_2480MHz\_Ant1\_NTNV



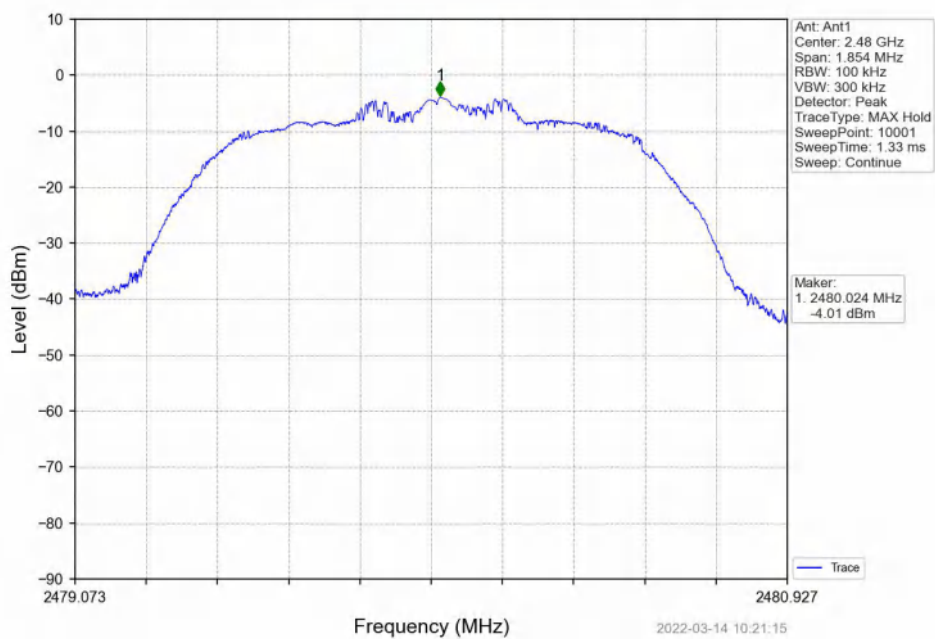
Pi/4DQPSK\_2DH5\_LCH\_2402MHz\_Ant1\_NTNV



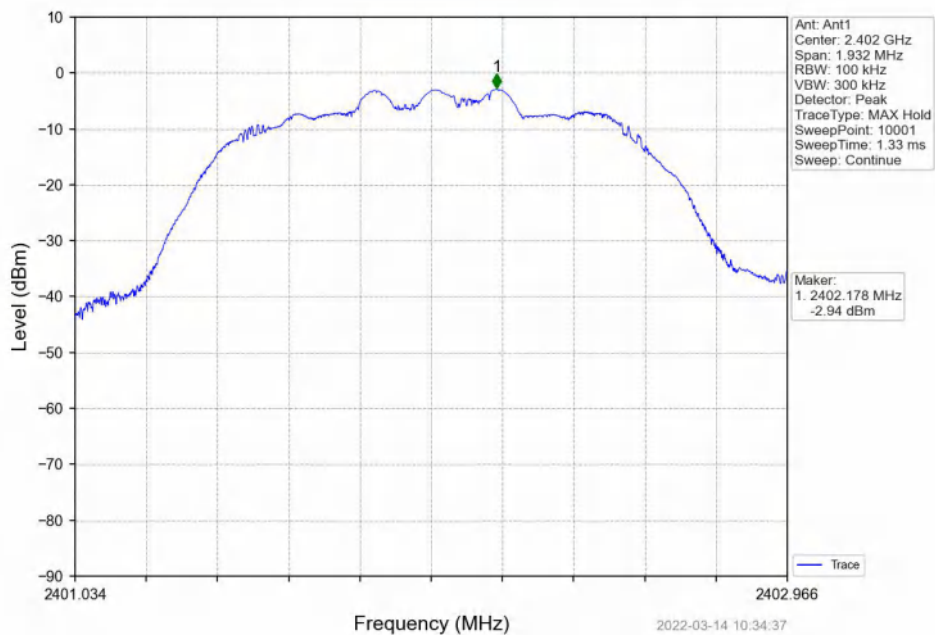
Pi/4DQPSK\_2DH5\_MCH\_2441MHz\_Ant1\_NTNV



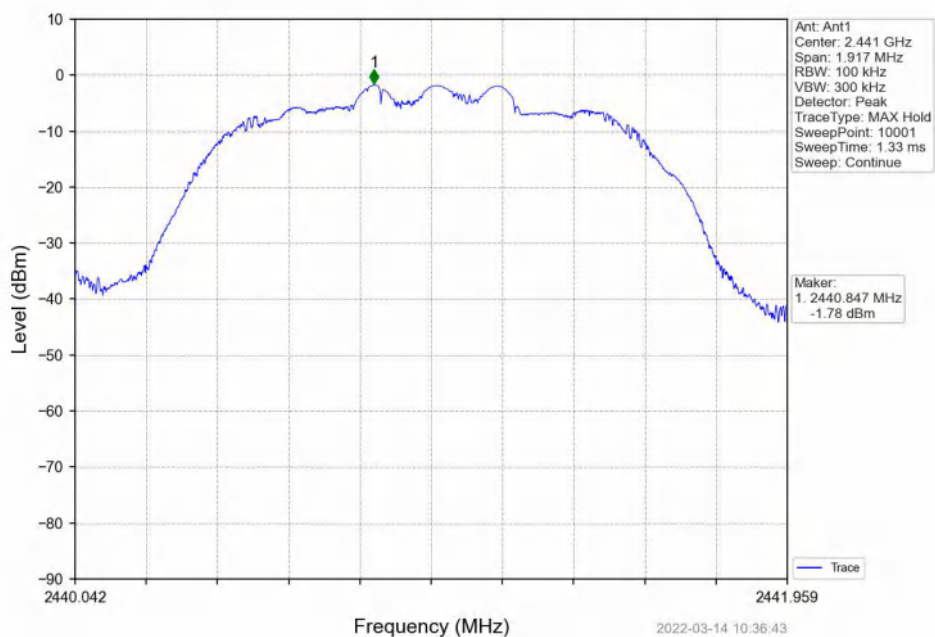
Pi/4DQPSK\_2DH5\_HCH\_2480MHz\_Ant1\_NTNV



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

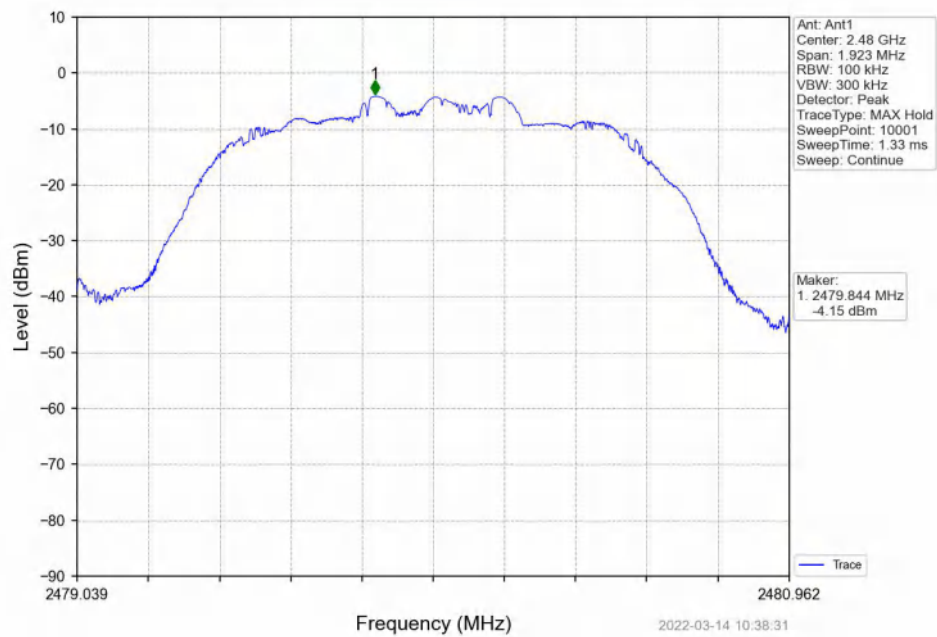


8DPSK\_3DH5\_MCH\_2441MHz\_Ant1\_NTNV





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





## 6.2 CSE

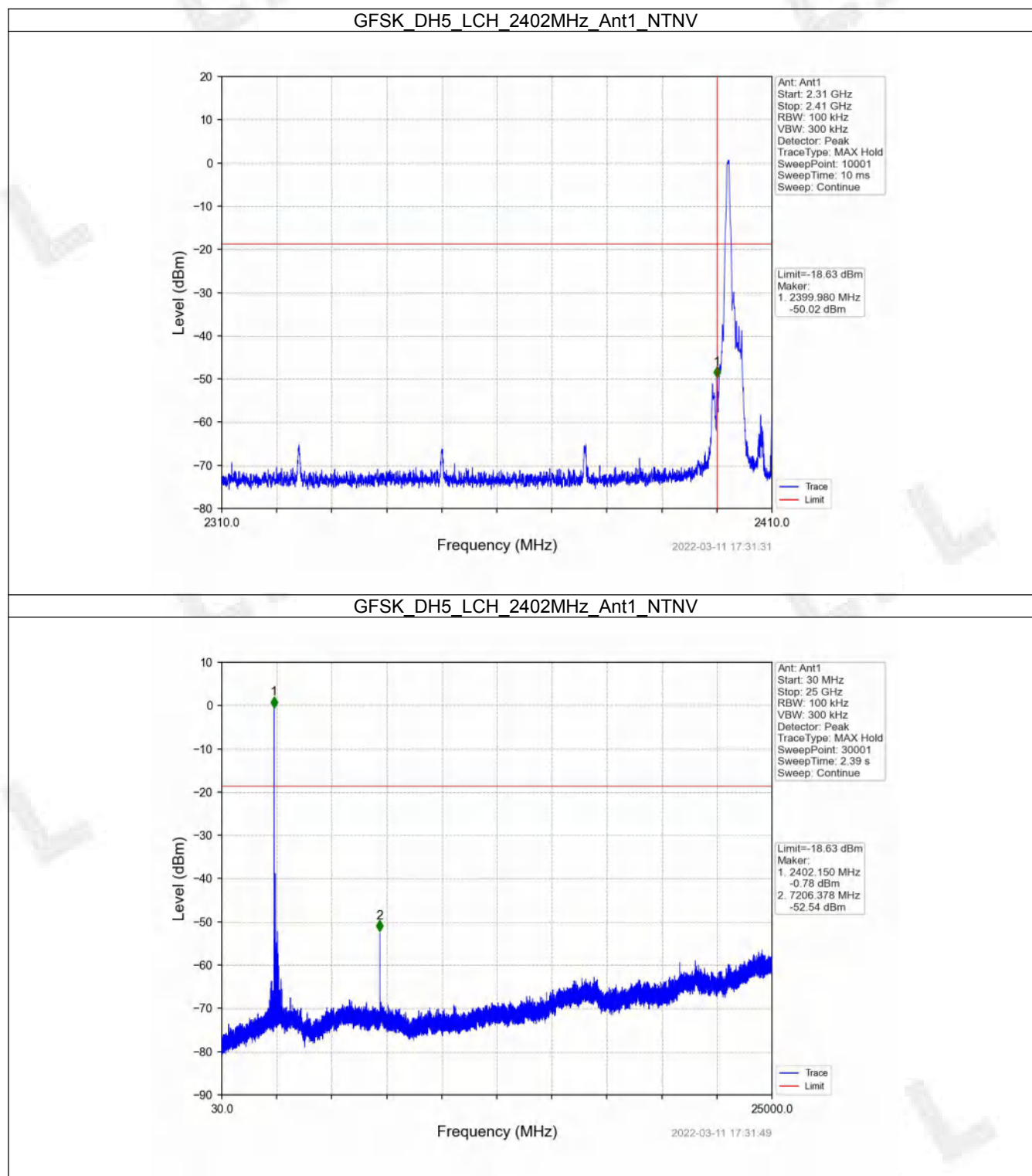
## 6.2.1 Test Result

| Mode      | TX Type | Frequency (MHz) | Packet Type | Ant | Level of Reference (dBm) | Limit (dBm) | Verdict |
|-----------|---------|-----------------|-------------|-----|--------------------------|-------------|---------|
| GFSK      | SISO    | 2402            | DH5         | 1   | 1.37                     | -18.63      | Pass    |
|           |         | 2441            | DH5         | 1   | 1.37                     | -18.63      | Pass    |
|           |         | 2480            | DH5         | 1   | 1.37                     | -18.63      | Pass    |
|           |         | HOPP            | DH5         | 1   | 1.37                     | -18.63      | Pass    |
| Pi/4DQPSK | SISO    | 2402            | 2DH5        | 1   | -1.95                    | -21.95      | Pass    |
|           |         | 2441            | 2DH5        | 1   | -1.95                    | -21.95      | Pass    |
|           |         | 2480            | 2DH5        | 1   | -1.95                    | -21.95      | Pass    |
|           |         | HOPP            | 2DH5        | 1   | -1.95                    | -21.95      | Pass    |
| 8DPSK     | SISO    | 2402            | 3DH5        | 1   | -1.78                    | -21.78      | Pass    |
|           |         | 2441            | 3DH5        | 1   | -1.78                    | -21.78      | Pass    |
|           |         | 2480            | 3DH5        | 1   | -1.78                    | -21.78      | Pass    |
|           |         | HOPP            | 3DH5        | 1   | -1.78                    | -21.78      | Pass    |

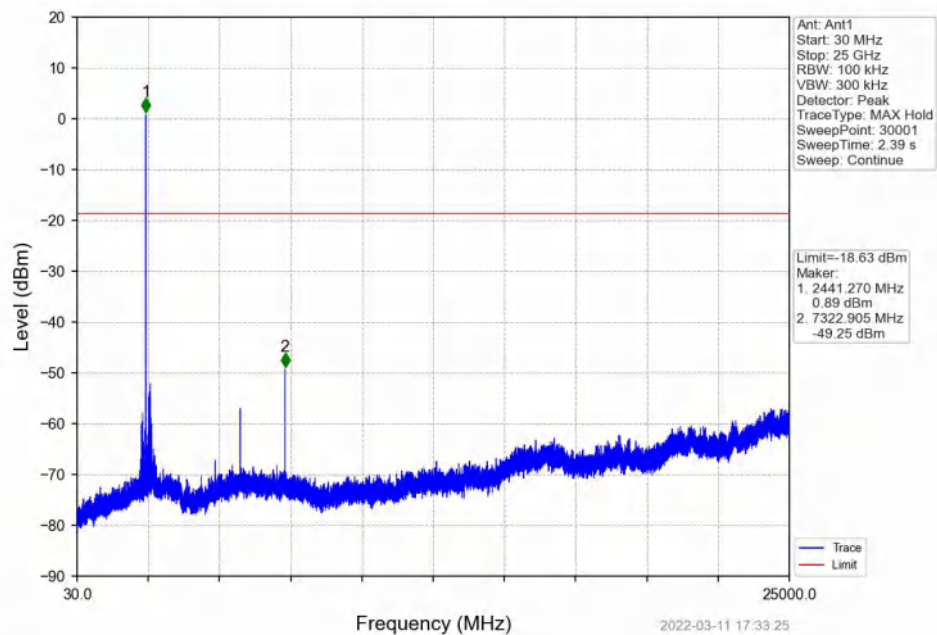
Note1: Refer to FCC Part 15.247 (d) and ANSI C63.10-2013, the channel contains the maximum PSD level was used to establish the reference level.

Note2: RBW = 1MHz was used during the pre-test. The final test will be performed at RBW=100kHz while the margin is less than 3dB.

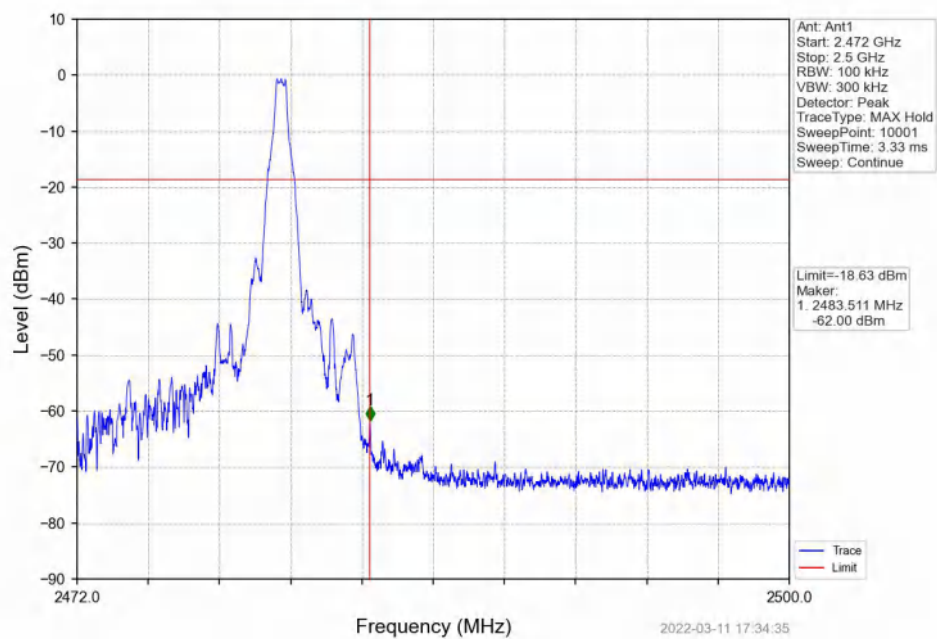
## 6.2.2 Test Graph



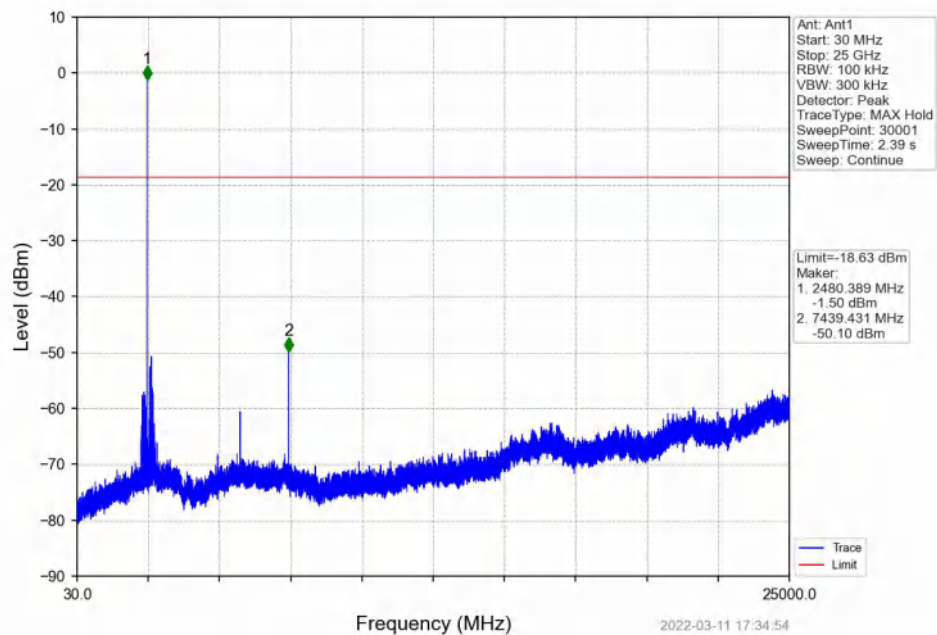
## GFSK\_DH5\_MCH\_2441MHz\_Ant1\_NTNV



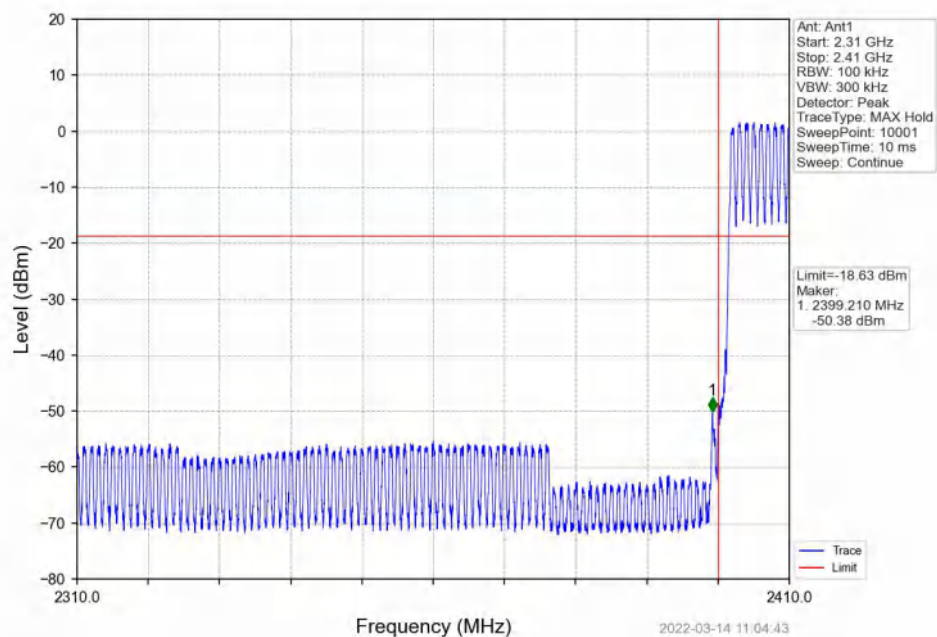
## GFSK\_DH5\_HCH\_2480MHz\_Ant1\_NTNV



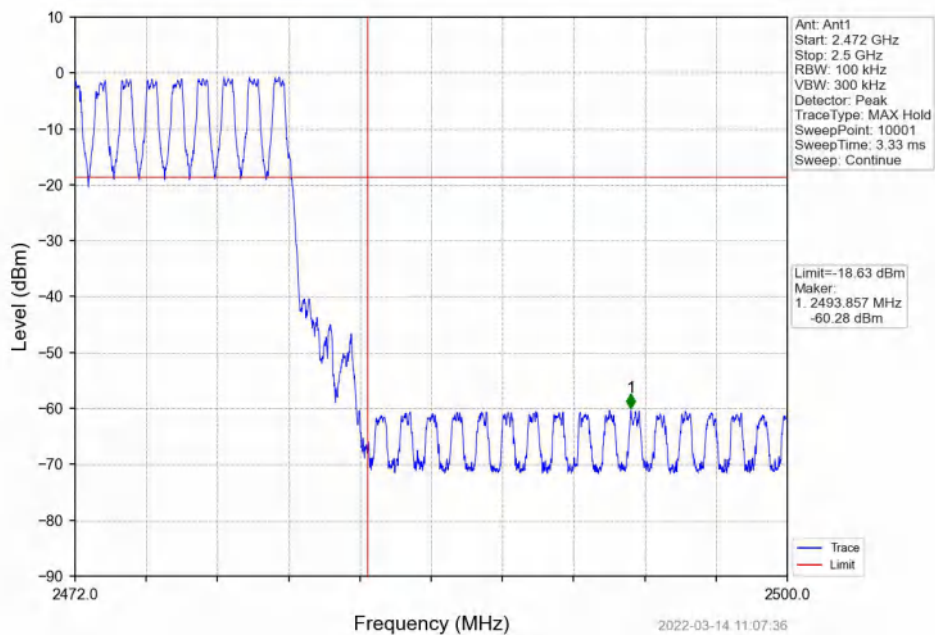
## GFSK\_DH5\_HCH\_2480MHz\_Ant1\_NTNV



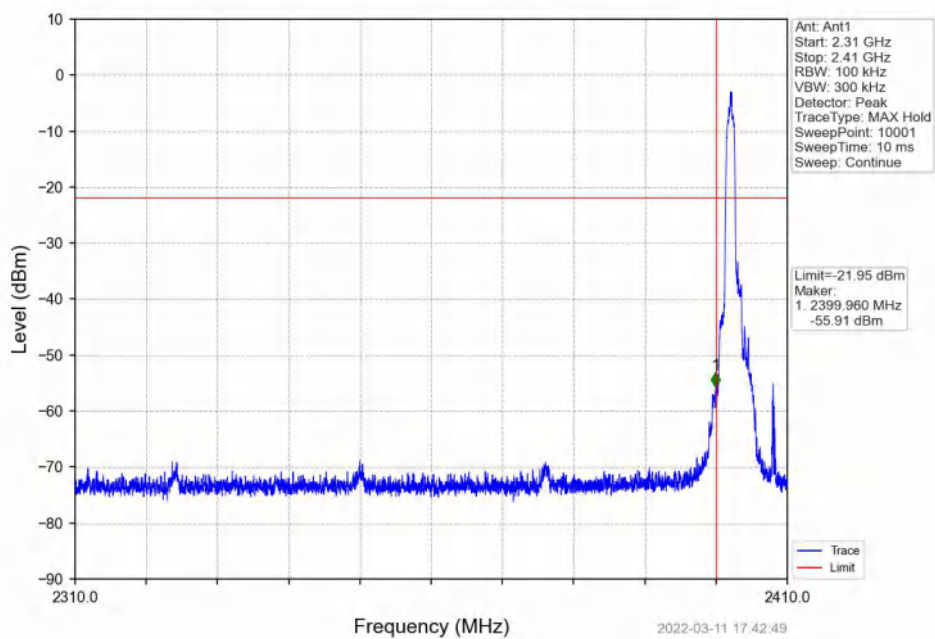
## GFSK\_DH5\_HOPP\_Ant1\_NTNV



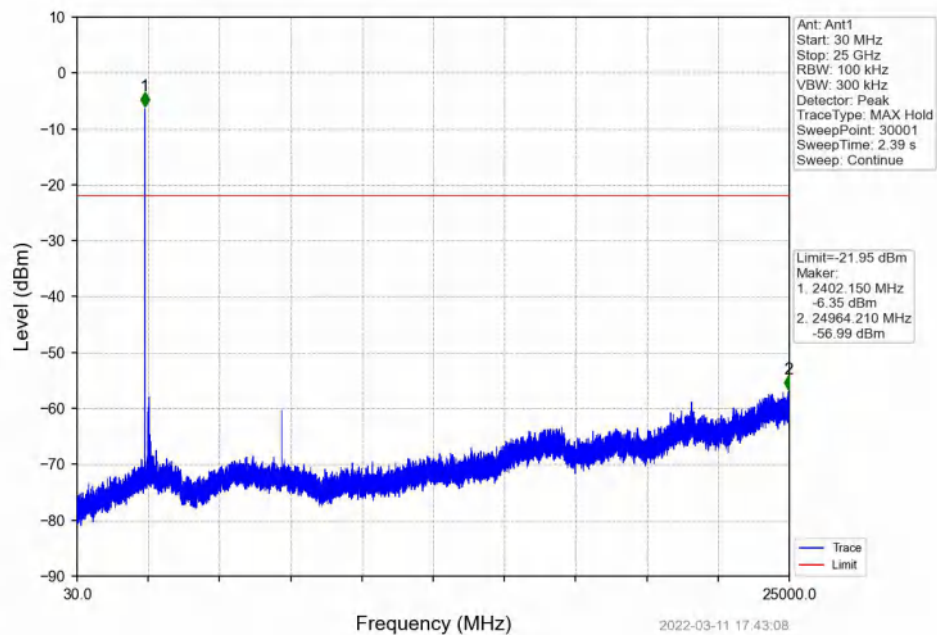
GFSK\_DH5\_HOPP\_Ant1\_NTNV



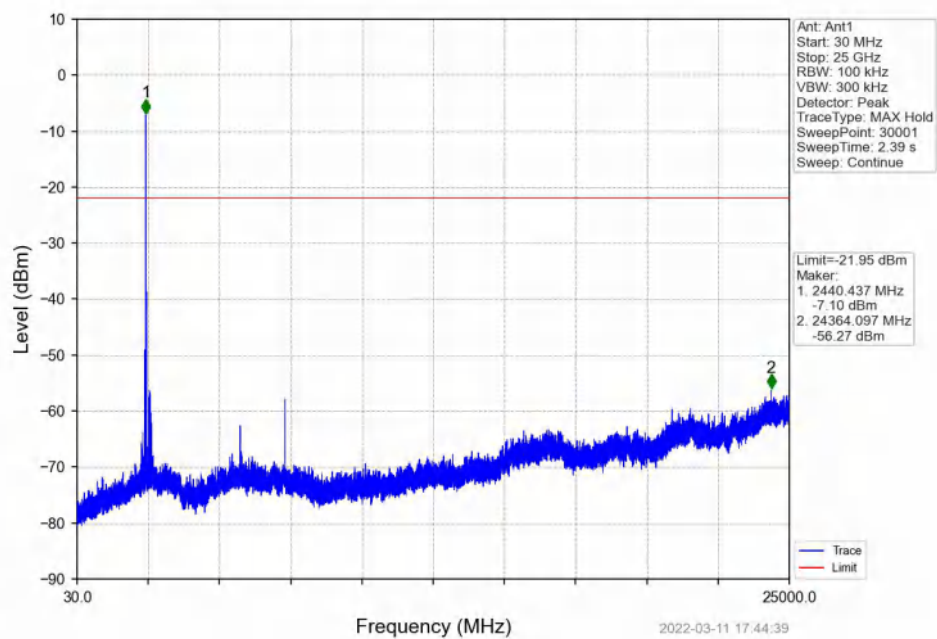
Pi/4DQPSK\_2DH5\_LCH\_2402MHz\_Ant1\_NTNV



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

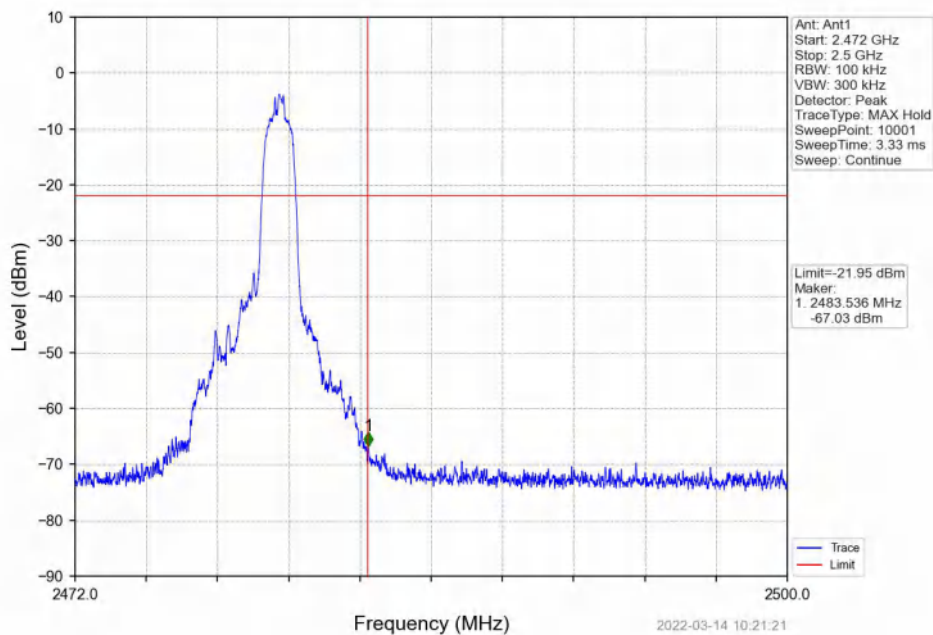


Pi/4DQPSK\_2DH5\_MCH\_2441MHz\_Ant1\_NTNV

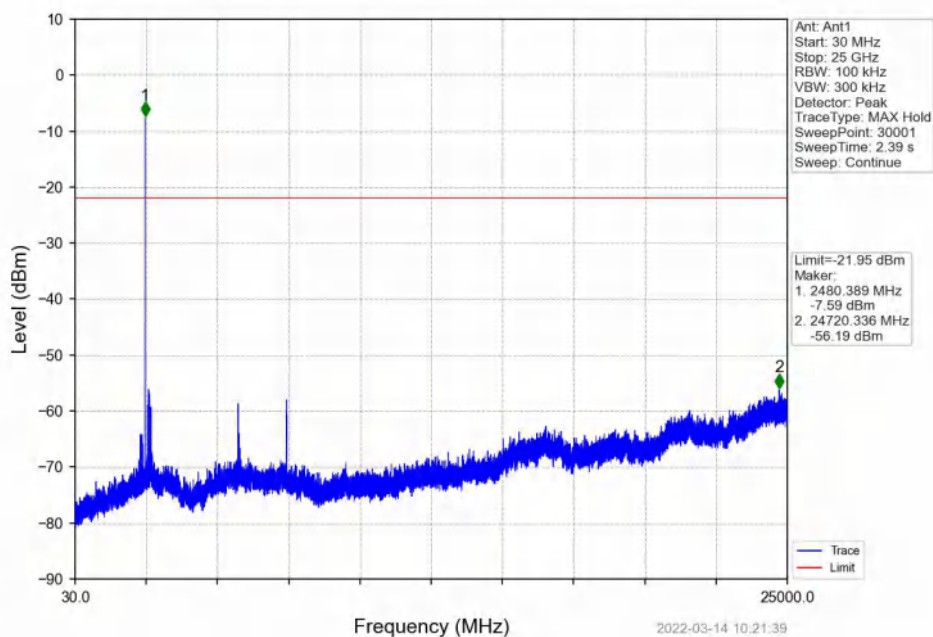




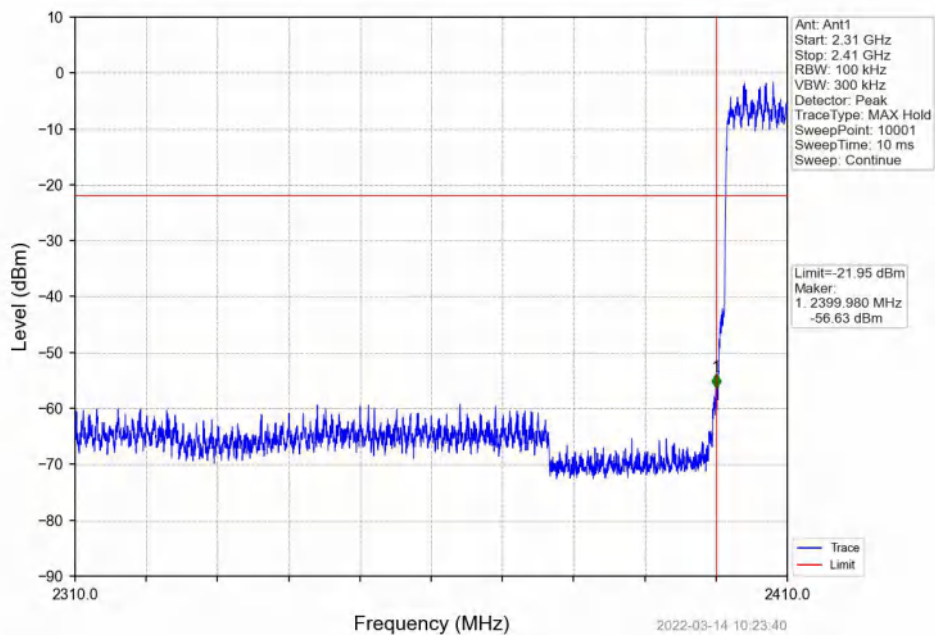
Pi/4DQPSK\_2DH5\_HCH\_2480MHz\_Ant1\_NTNV



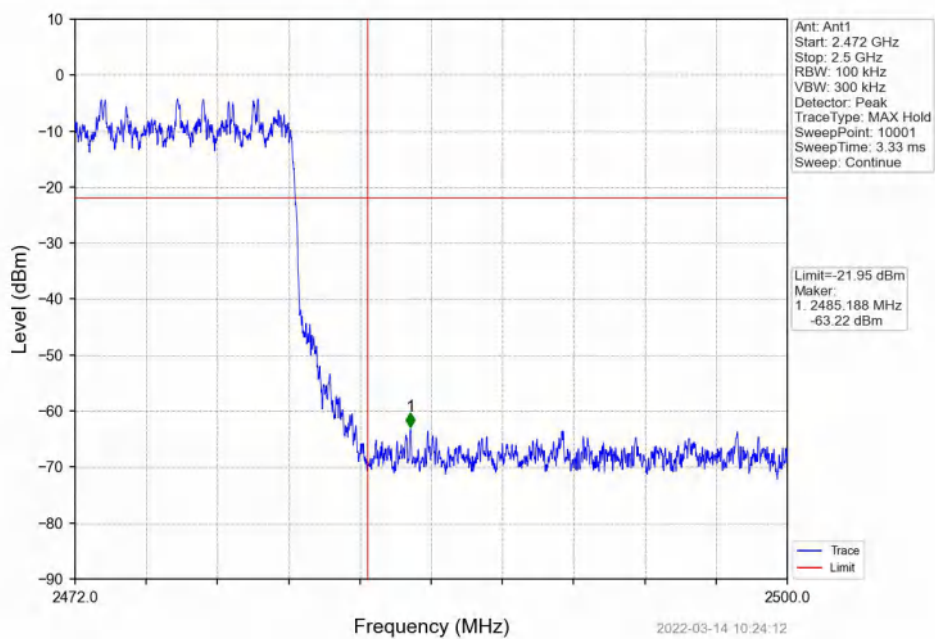
Pi/4DQPSK\_2DH5\_HCH\_2480MHz\_Ant1\_NTNV



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

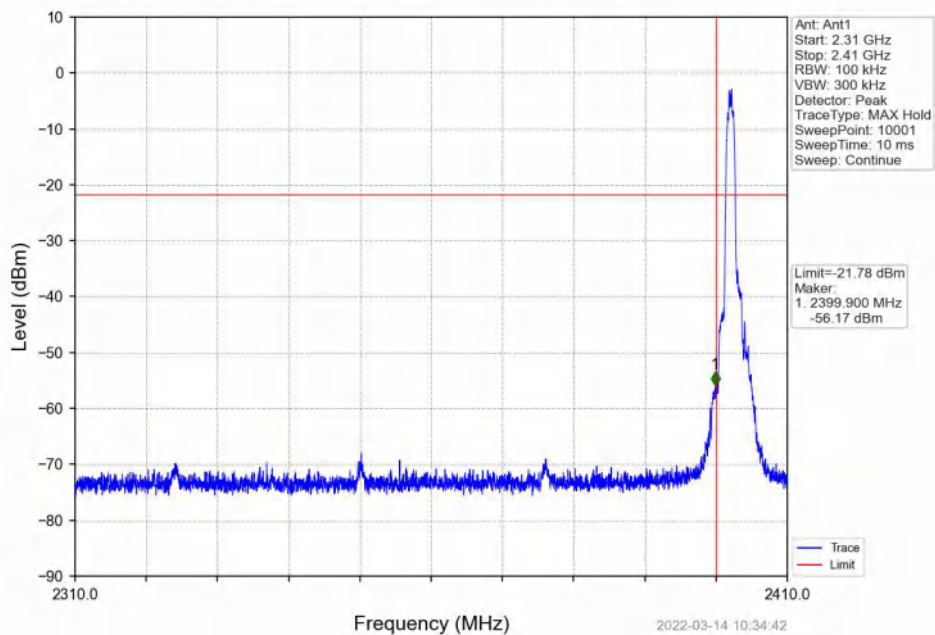


Pi/4DQPSK\_2DH5\_HOPP\_Ant1\_NTNV

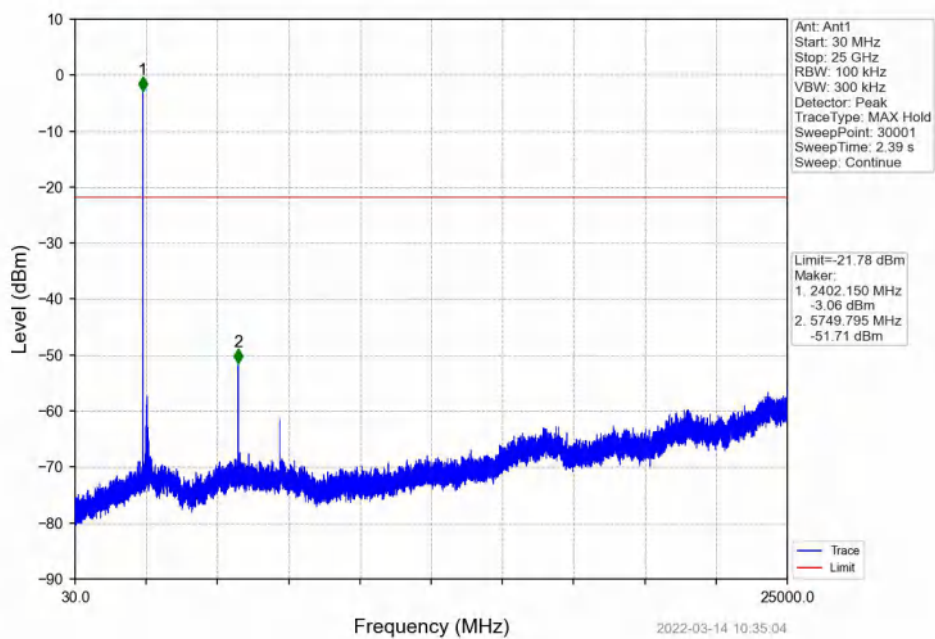




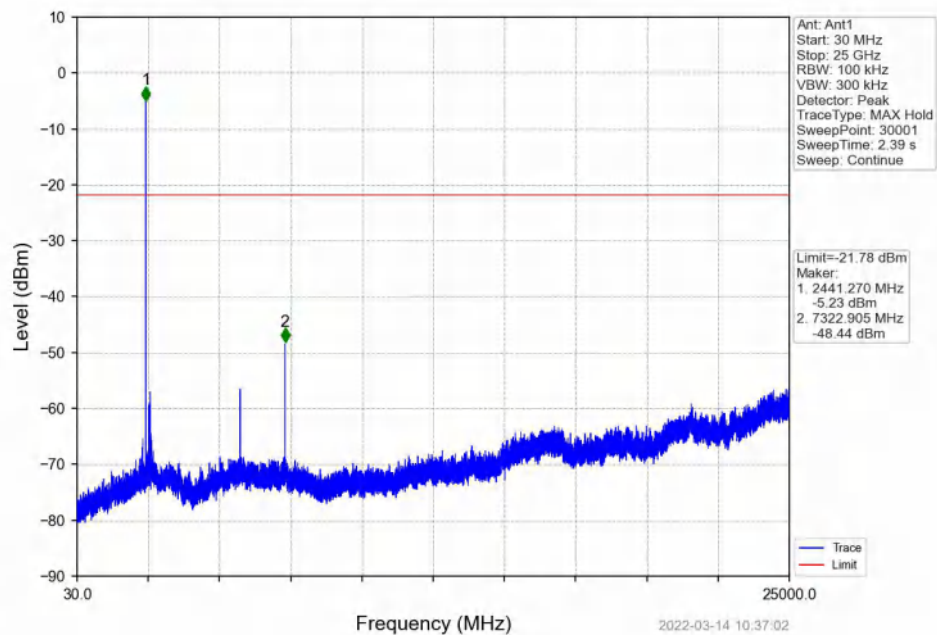
## 8DPSK\_3DH5\_LCH\_2402MHz\_Ant1\_NTNV



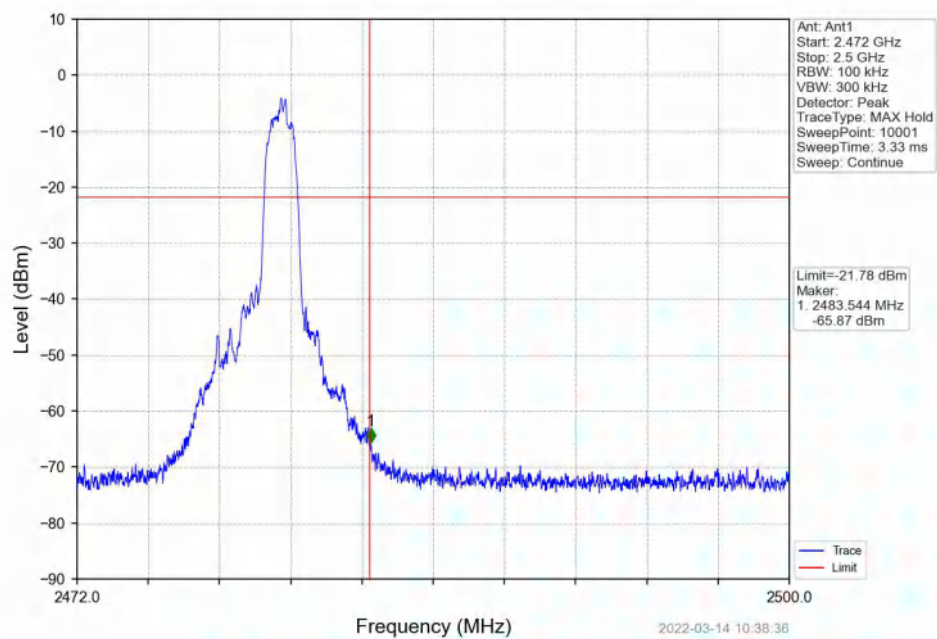
## 8DPSK\_3DH5\_LCH\_2402MHz\_Ant1\_NTNV



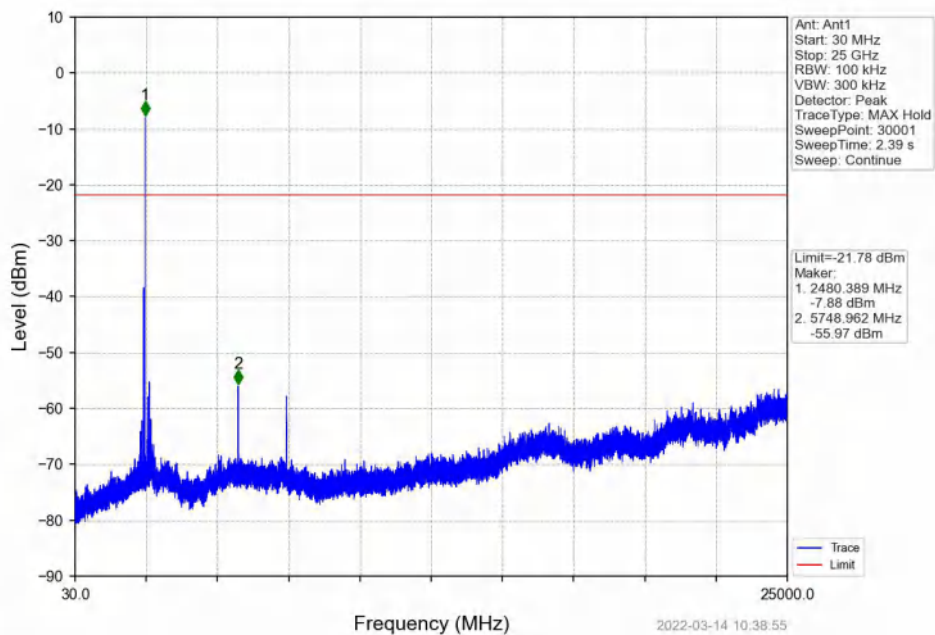
## 8DPSK\_3DH5\_MCH\_2441MHz\_Ant1\_NTNV



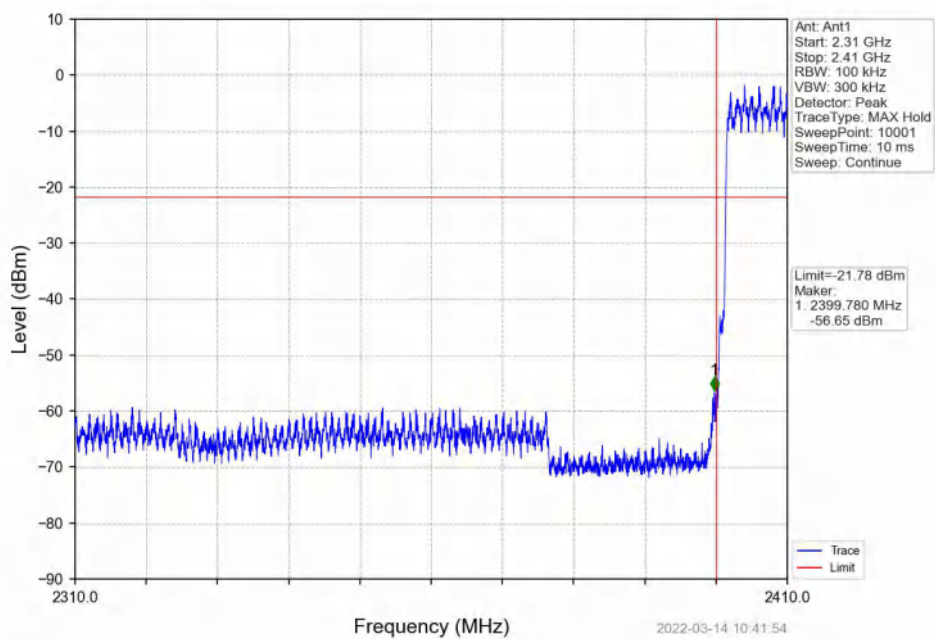
## 8DPSK\_3DH5\_HCH\_2480MHz\_Ant1\_NTNV



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



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



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

