

## 1. Bandwidth

## 1.1 Test Result

## 1.1.1 OBW

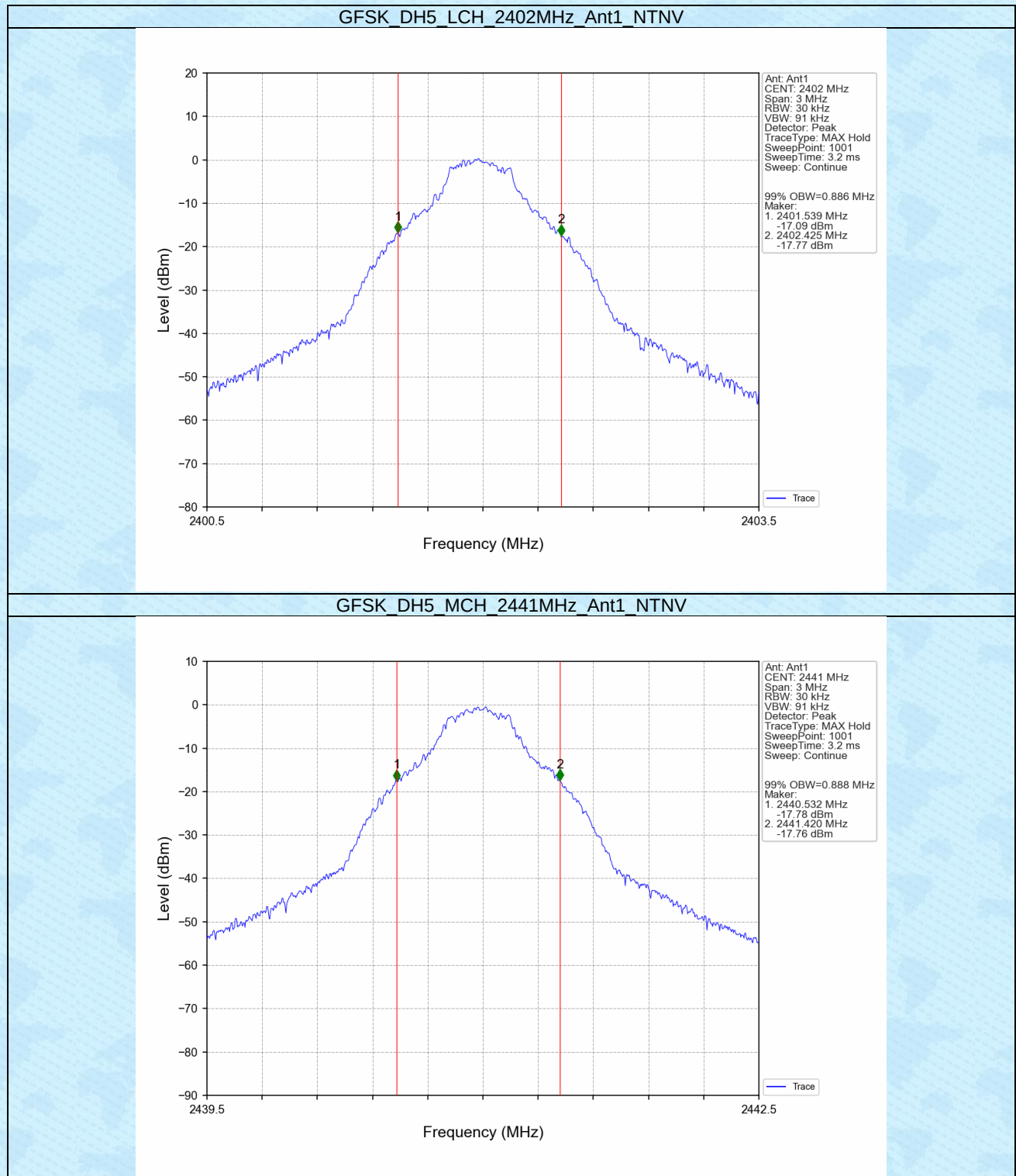
| Mode           | TX Type | Frequency (MHz) | Packet Type | ANT | 99% Occupied Bandwidth (MHz) |       | Verdict |
|----------------|---------|-----------------|-------------|-----|------------------------------|-------|---------|
|                |         |                 |             |     | Result                       | Limit |         |
| GFSK           | SISO    | 2402            | DH5         | 1   | 0.886                        | /     | Pass    |
|                |         | 2441            | DH5         | 1   | 0.888                        | /     | Pass    |
|                |         | 2480            | DH5         | 1   | 0.881                        | /     | Pass    |
| $\pi/4$ -DQPSK | SISO    | 2402            | 2DH5        | 1   | 1.188                        | /     | Pass    |
|                |         | 2441            | 2DH5        | 1   | 1.198                        | /     | Pass    |
|                |         | 2480            | 2DH5        | 1   | 1.195                        | /     | Pass    |
| 8-DPSK         | SISO    | 2402            | 3DH5        | 1   | 1.184                        | /     | Pass    |
|                |         | 2441            | 3DH5        | 1   | 1.180                        | /     | Pass    |
|                |         | 2480            | 3DH5        | 1   | 1.204                        | /     | Pass    |

## 1.1.2 20dB BW

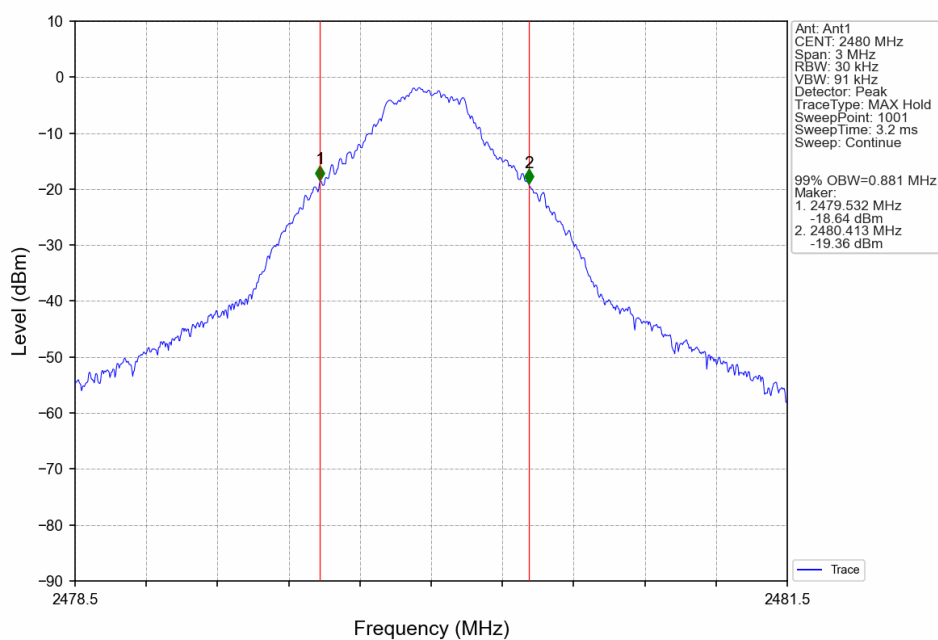
| Mode           | TX Type | Frequency (MHz) | Packet Type | ANT | 20dB Bandwidth (MHz) |       | Verdict |
|----------------|---------|-----------------|-------------|-----|----------------------|-------|---------|
|                |         |                 |             |     | Result               | Limit |         |
| GFSK           | SISO    | 2402            | DH5         | 1   | 1.011                | /     | Pass    |
|                |         | 2441            | DH5         | 1   | 0.989                | /     | Pass    |
|                |         | 2480            | DH5         | 1   | 1.025                | /     | Pass    |
| $\pi/4$ -DQPSK | SISO    | 2402            | 2DH5        | 1   | 1.312                | /     | Pass    |
|                |         | 2441            | 2DH5        | 1   | 1.312                | /     | Pass    |
|                |         | 2480            | 2DH5        | 1   | 1.319                | /     | Pass    |
| 8-DPSK         | SISO    | 2402            | 3DH5        | 1   | 1.327                | /     | Pass    |
|                |         | 2441            | 3DH5        | 1   | 1.316                | /     | Pass    |
|                |         | 2480            | 3DH5        | 1   | 1.315                | /     | Pass    |

## 1.2 Test Graph

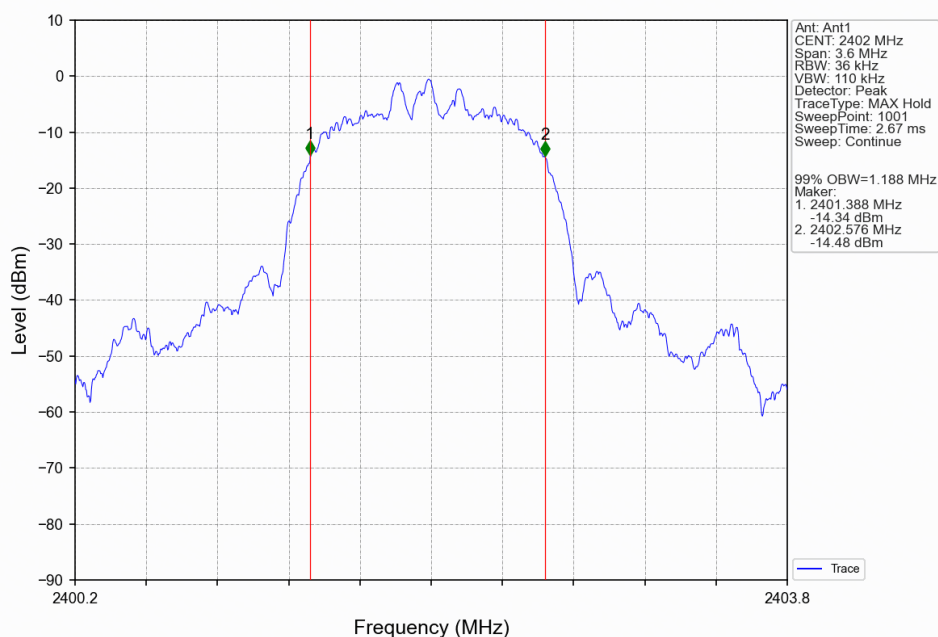
## 1.2.1 OBW



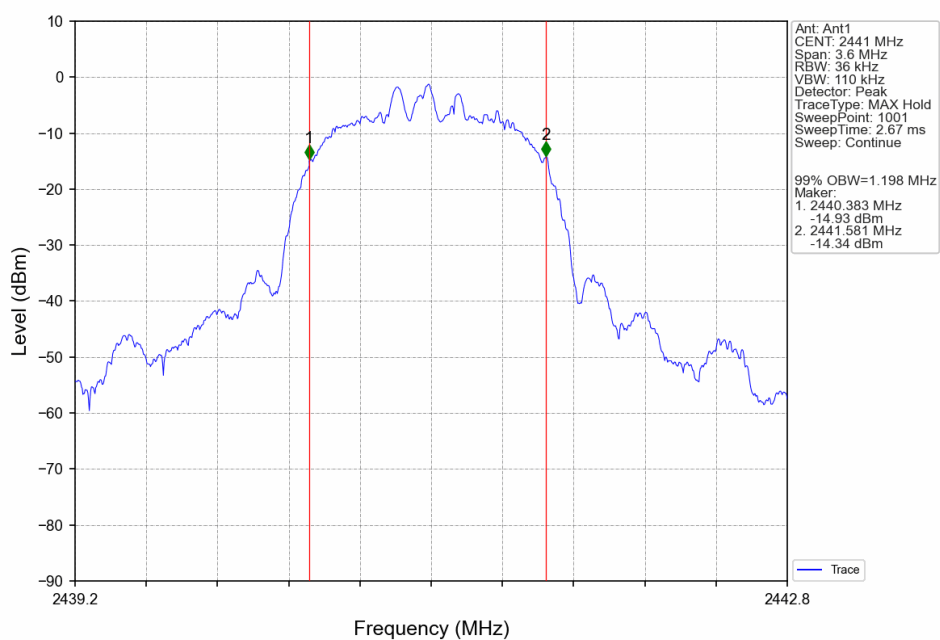
GFSK\_DH5\_HCH\_2480MHz\_Ant1\_NTNV



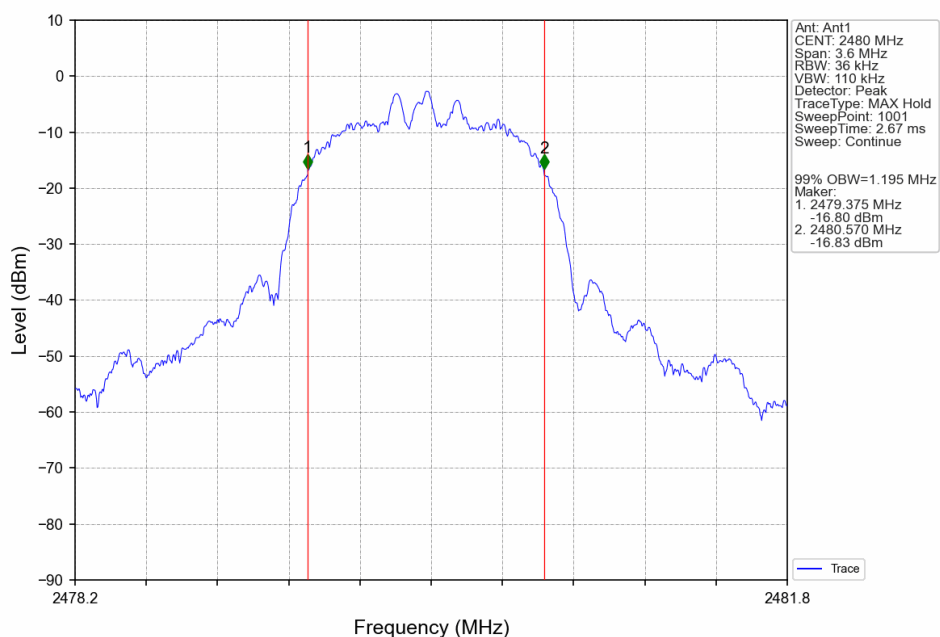
$\pi/4$ -DQPSK\_2DH5\_LCH\_2402MHz\_Ant1\_NTNV



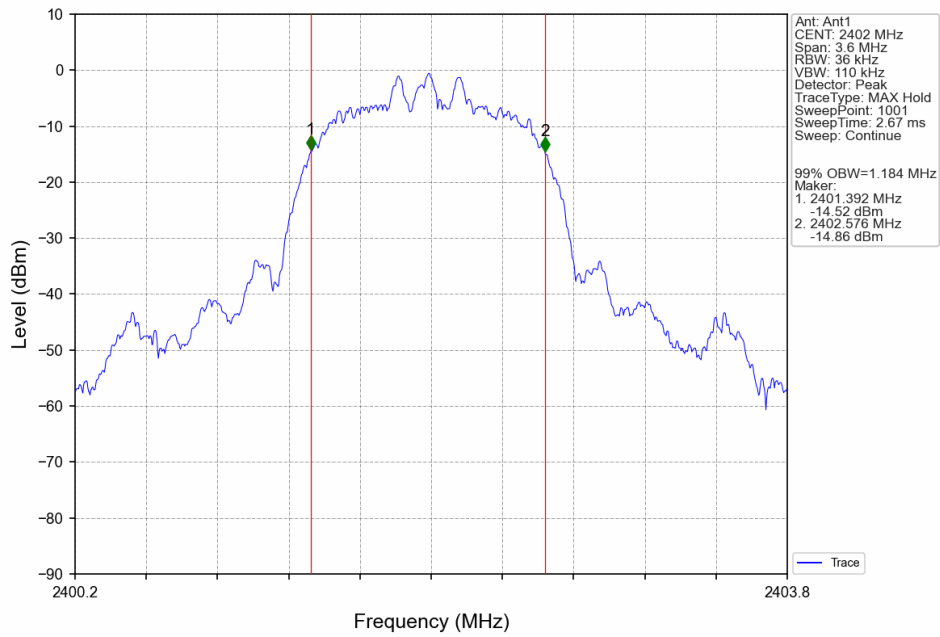
$\pi/4$ -DQPSK\_2DH5\_MCH\_2441MHz\_Ant1\_NTNV



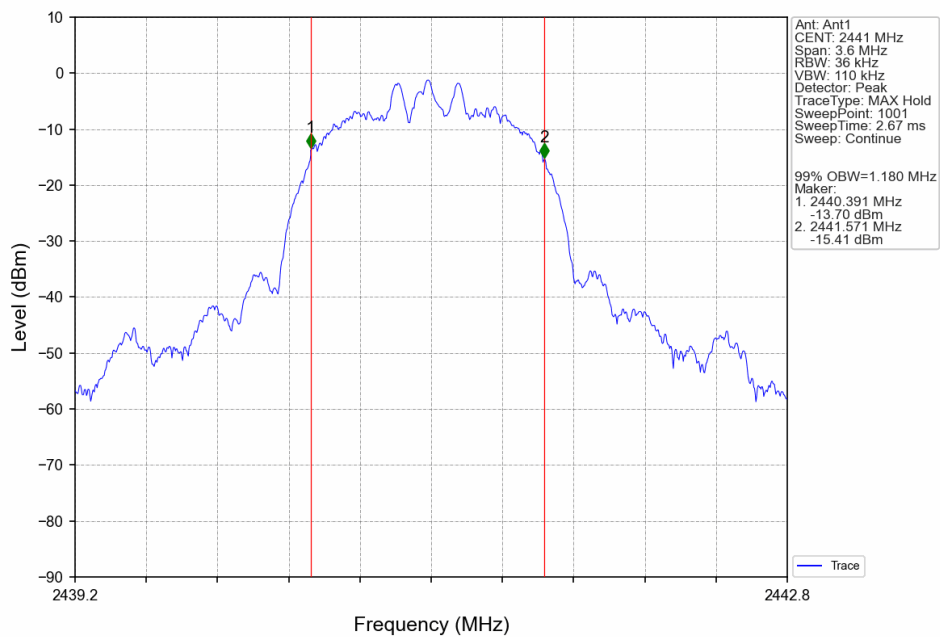
$\pi/4$ -DQPSK\_2DH5\_HCH\_2480MHz\_Ant1\_NTNV

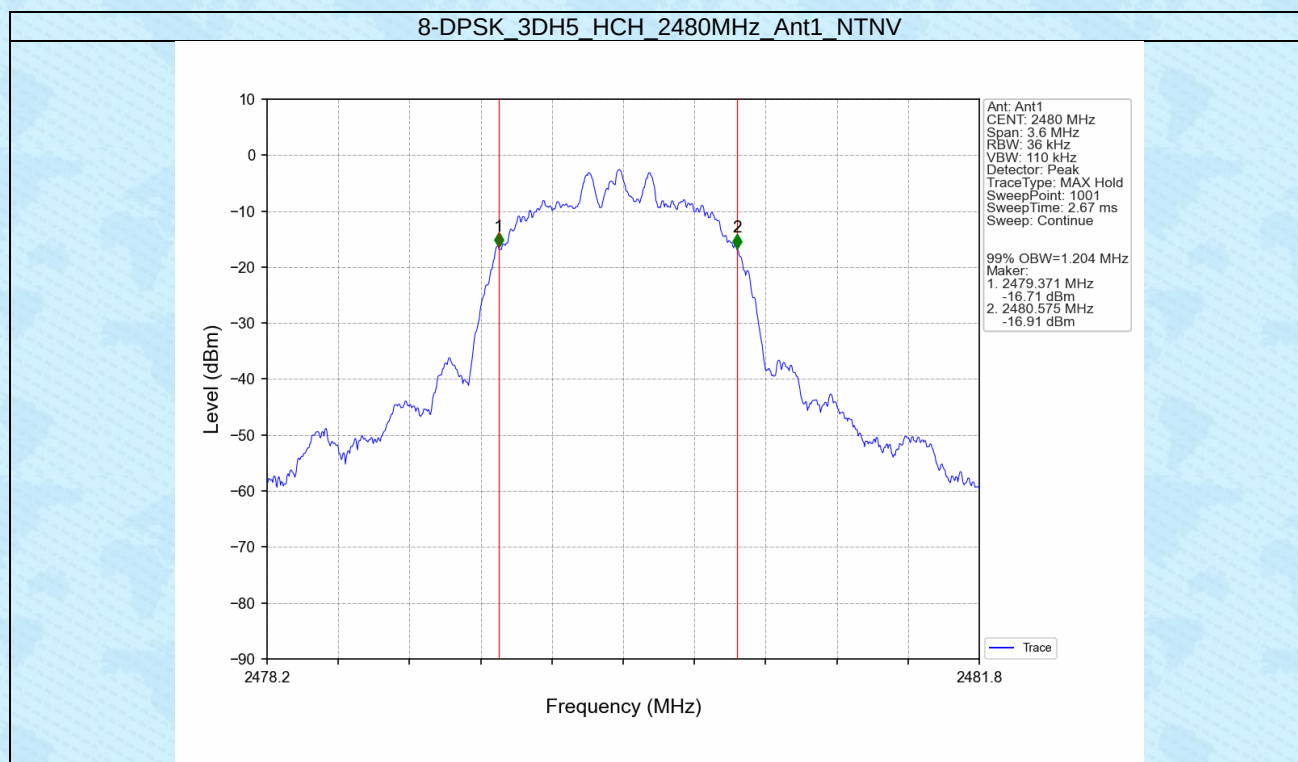


8-DPSK\_3DH5\_LCH\_2402MHz\_Ant1\_NTNV

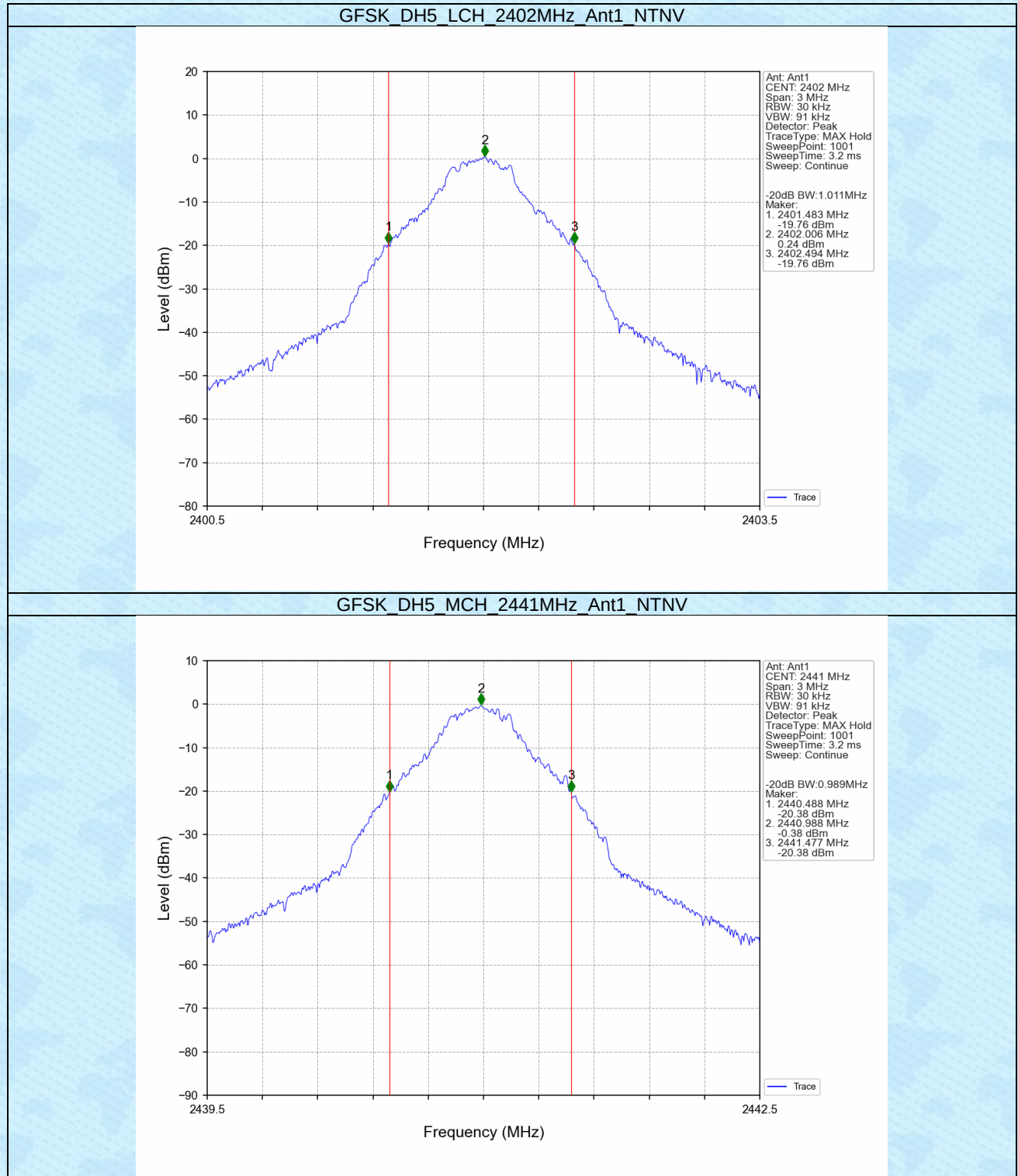


8-DPSK\_3DH5\_MCH\_2441MHz\_Ant1\_NTNV

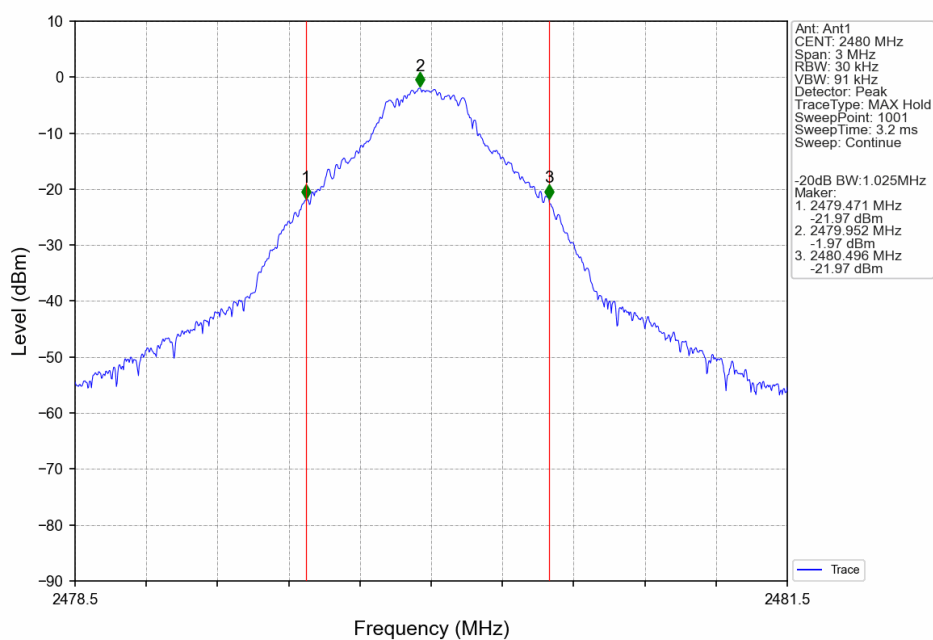




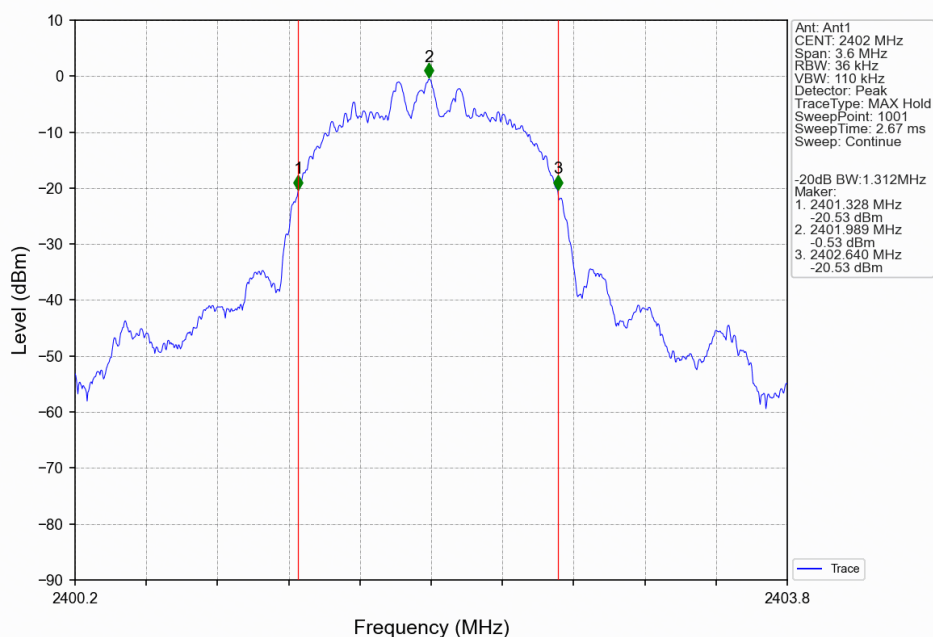
## 1.2.2 20dB BW



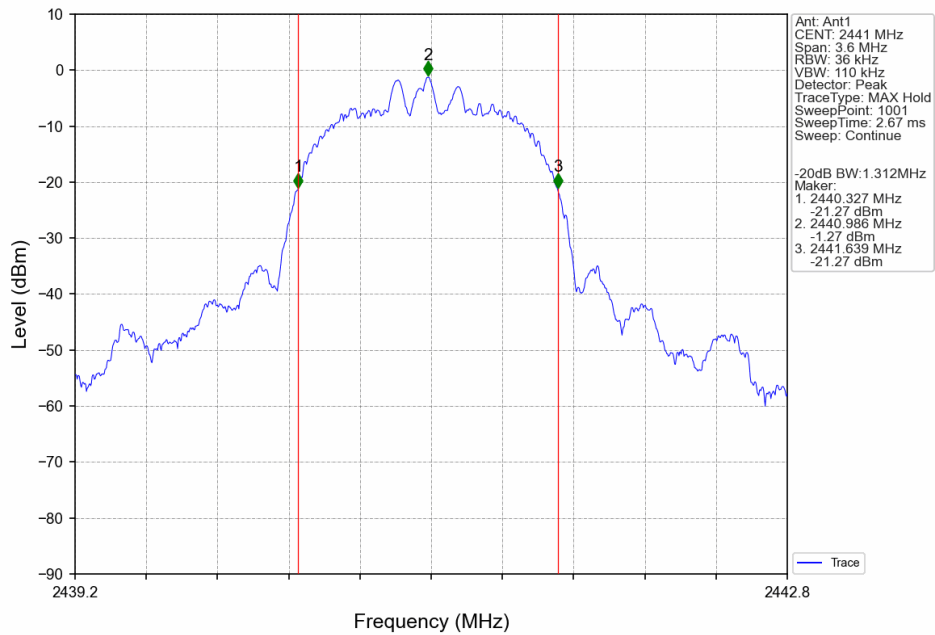
GFSK\_DH5\_HCH\_2480MHz\_Ant1\_NTNV



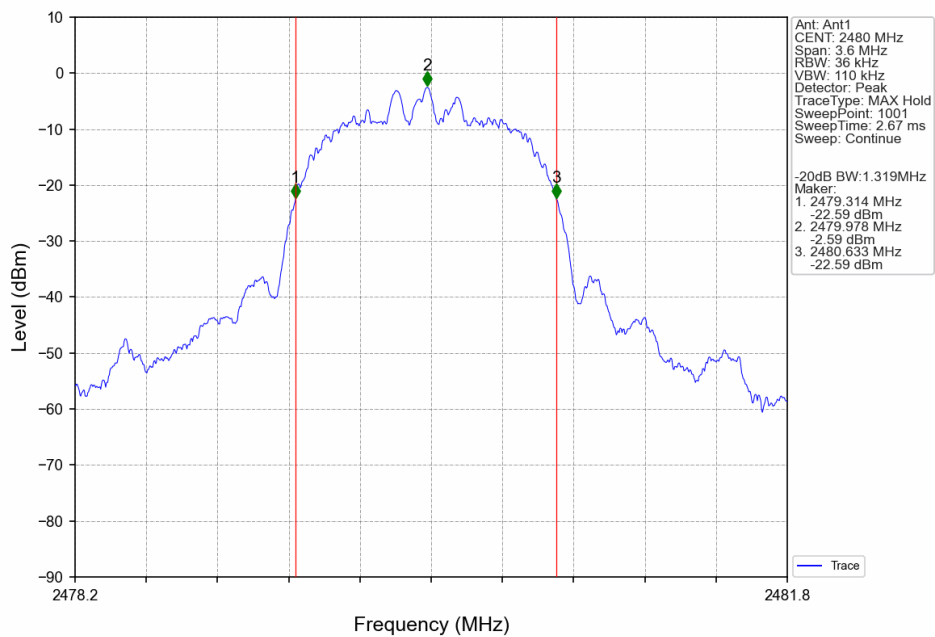
$\pi/4$ -DQPSK\_2DH5\_LCH\_2402MHz\_Ant1\_NTNV



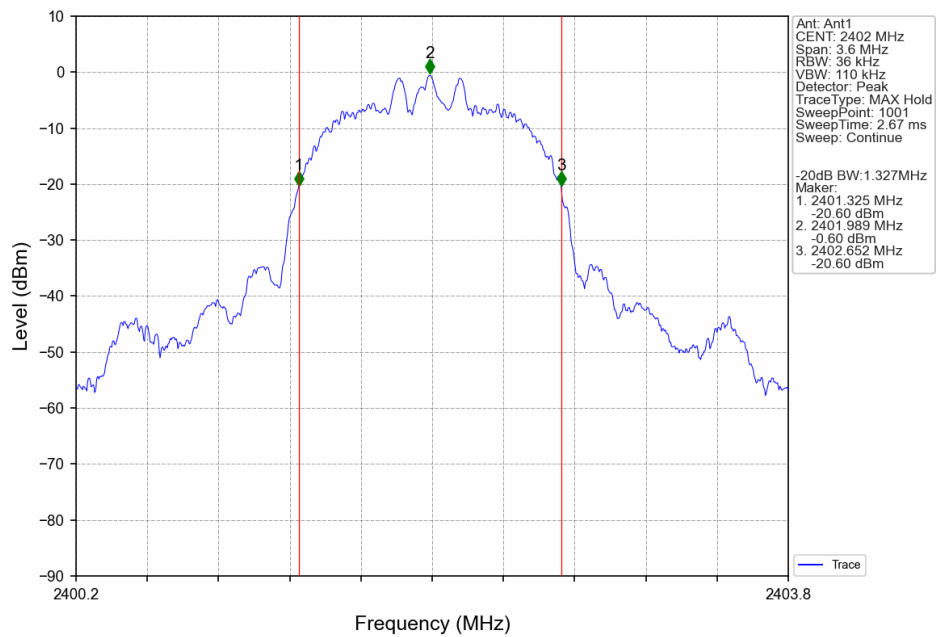
$\pi/4$ -DQPSK\_2DH5\_MCH\_2441MHz\_Ant1\_NTNV



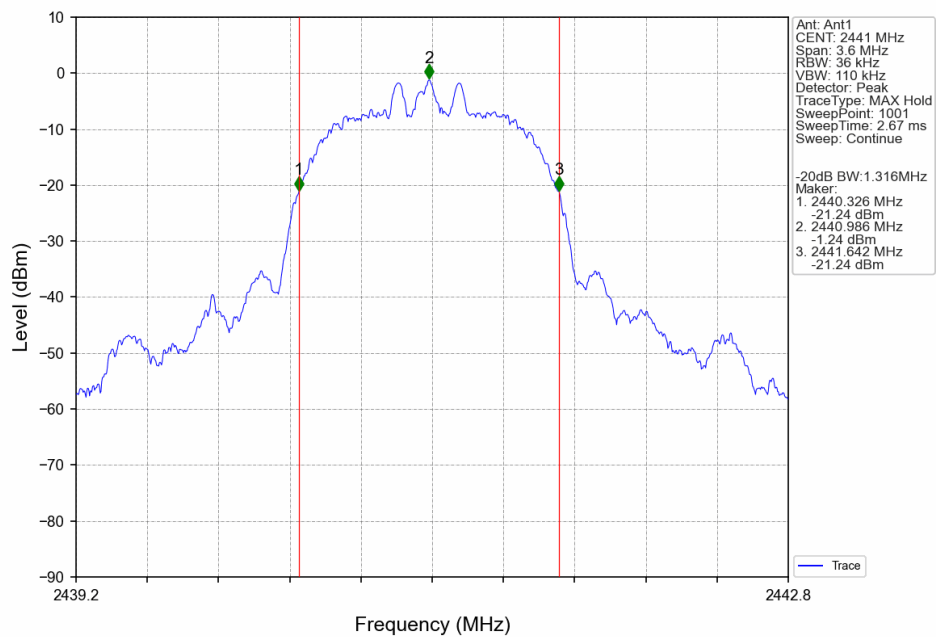
$\pi/4$ -DQPSK\_2DH5\_HCH\_2480MHz\_Ant1\_NTNV

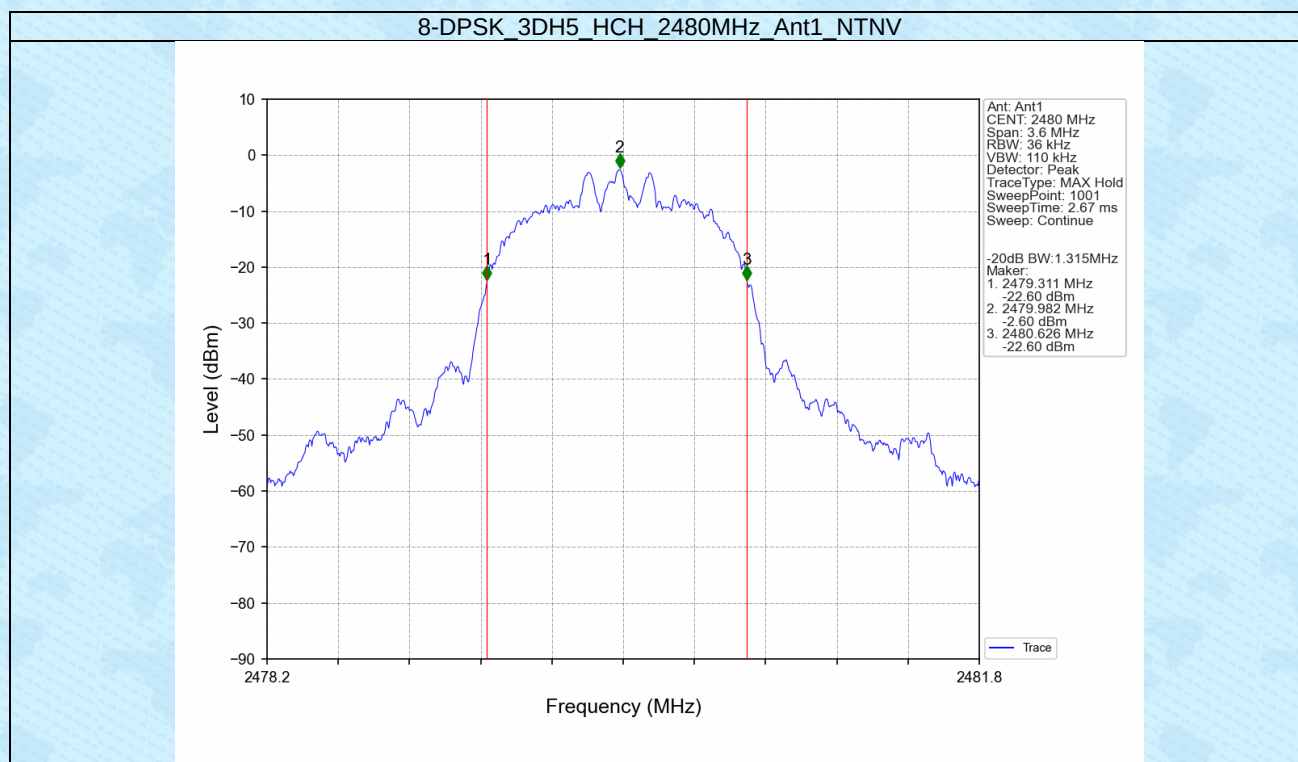


8-DPSK\_3DH5\_LCH\_2402MHz\_Ant1\_NTNV



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



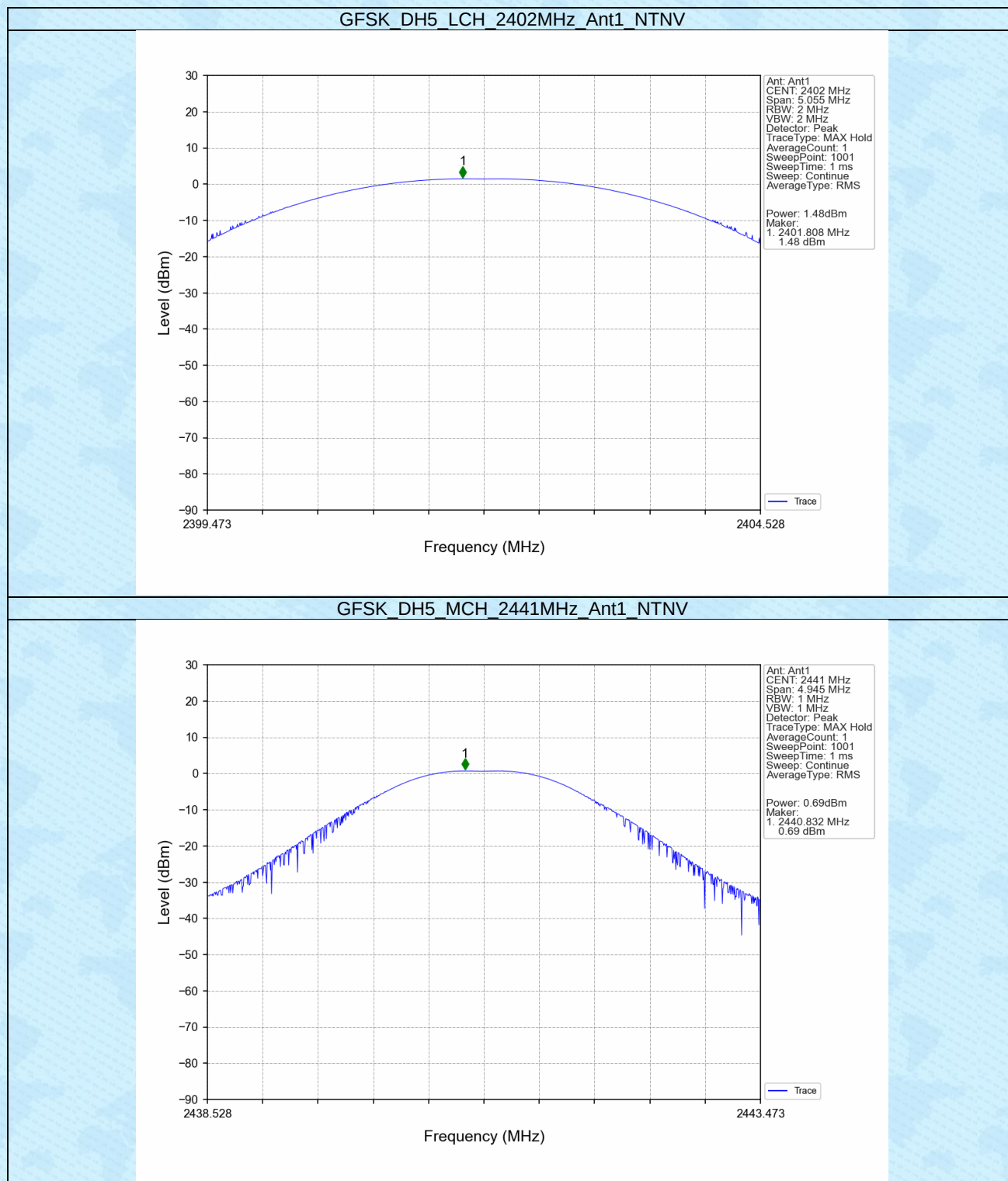


## 2. Maximum Conducted Output Power

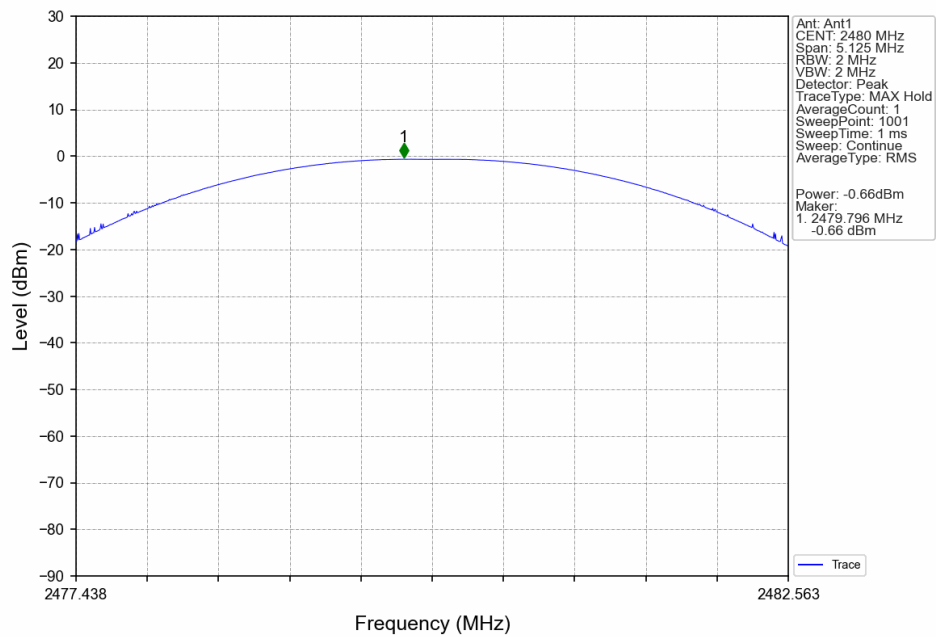
### 2.1 Test Result

| Mode           | TX Type | Frequency (MHz) | Packet Type | Maximum Peak Conducted Output Power (dBm) |              | Verdict |
|----------------|---------|-----------------|-------------|-------------------------------------------|--------------|---------|
|                |         |                 |             | ANT1                                      | Limit        |         |
| GFSK           | SISO    | 2402            | DH5         | 1.48                                      | $\leq 20.97$ | Pass    |
|                |         | 2441            | DH5         | 0.69                                      | $\leq 20.97$ | Pass    |
|                |         | 2480            | DH5         | -0.66                                     | $\leq 20.97$ | Pass    |
| $\pi/4$ -DQPSK | SISO    | 2402            | 2DH5        | 1.39                                      | $\leq 20.97$ | Pass    |
|                |         | 2441            | 2DH5        | 0.66                                      | $\leq 20.97$ | Pass    |
|                |         | 2480            | 2DH5        | -0.71                                     | $\leq 20.97$ | Pass    |
| 8-DPSK         | SISO    | 2402            | 3DH5        | 1.64                                      | $\leq 20.97$ | Pass    |
|                |         | 2441            | 3DH5        | 0.95                                      | $\leq 20.97$ | Pass    |
|                |         | 2480            | 3DH5        | -0.44                                     | $\leq 20.97$ | Pass    |

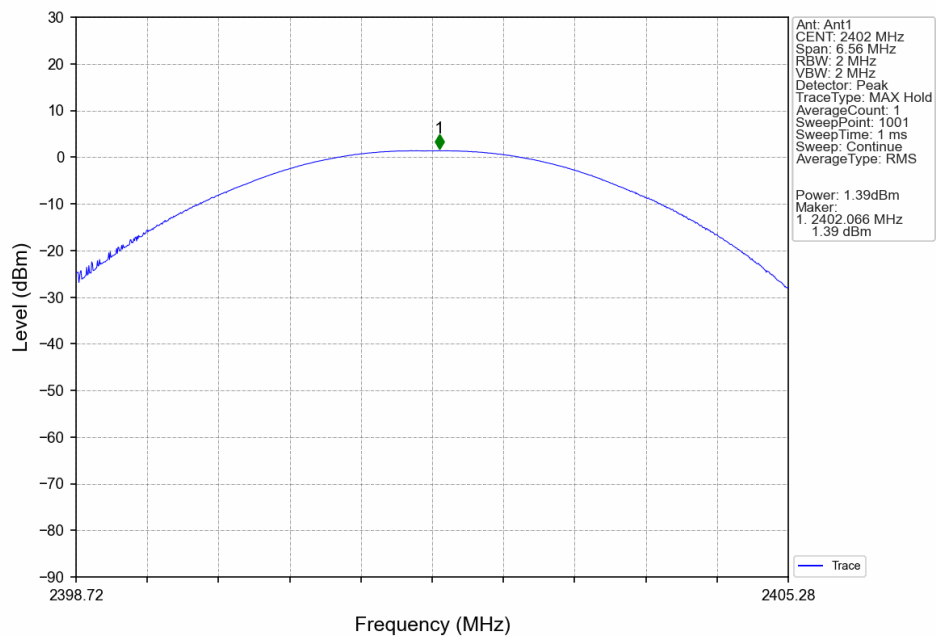
## 2.2 Test Graph



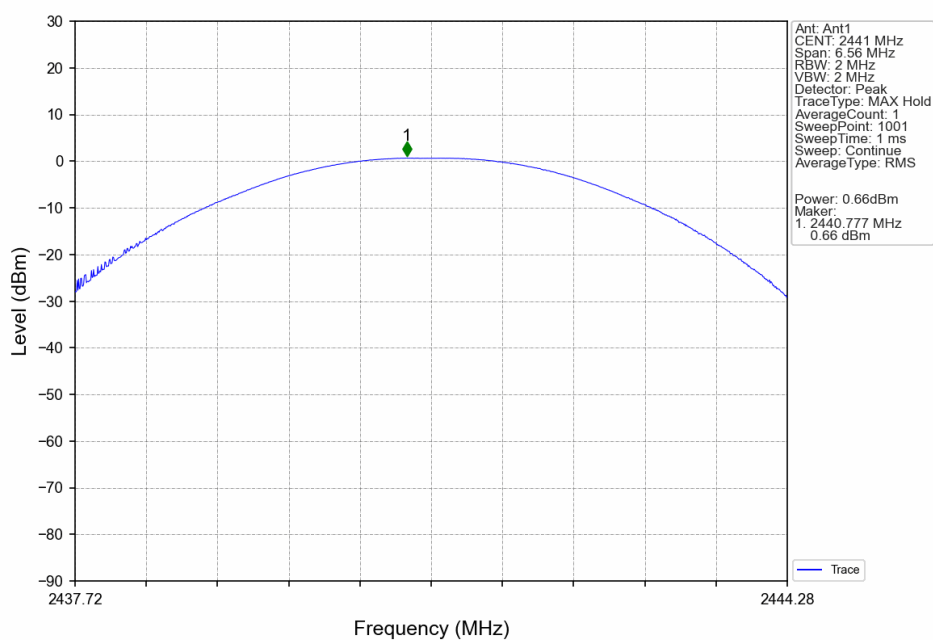
GFSK\_DH5\_HCH\_2480MHz\_Ant1\_NTNV



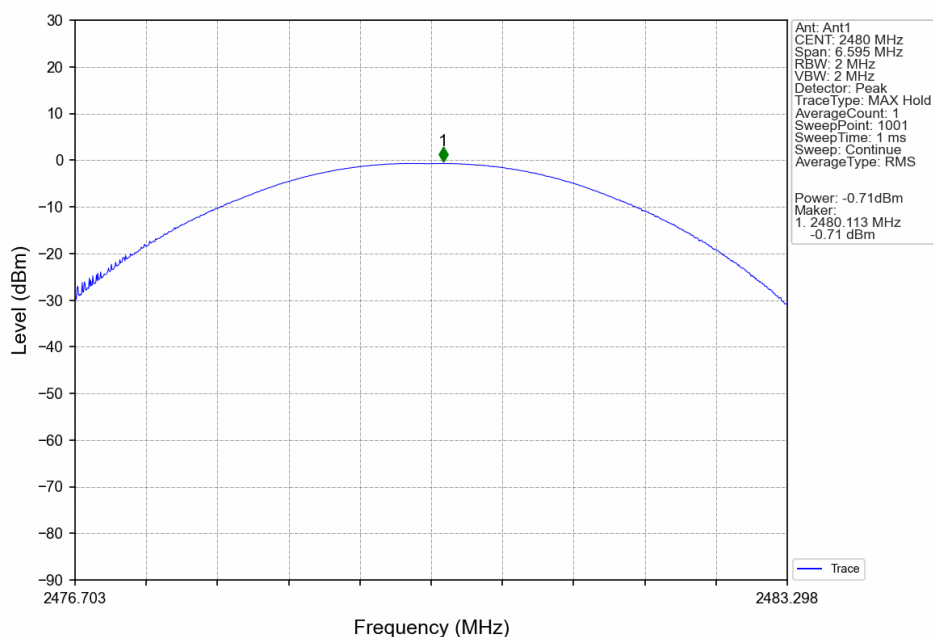
$\pi/4$ -DQPSK\_2DH5\_LCH\_2402MHz\_Ant1\_NTNV



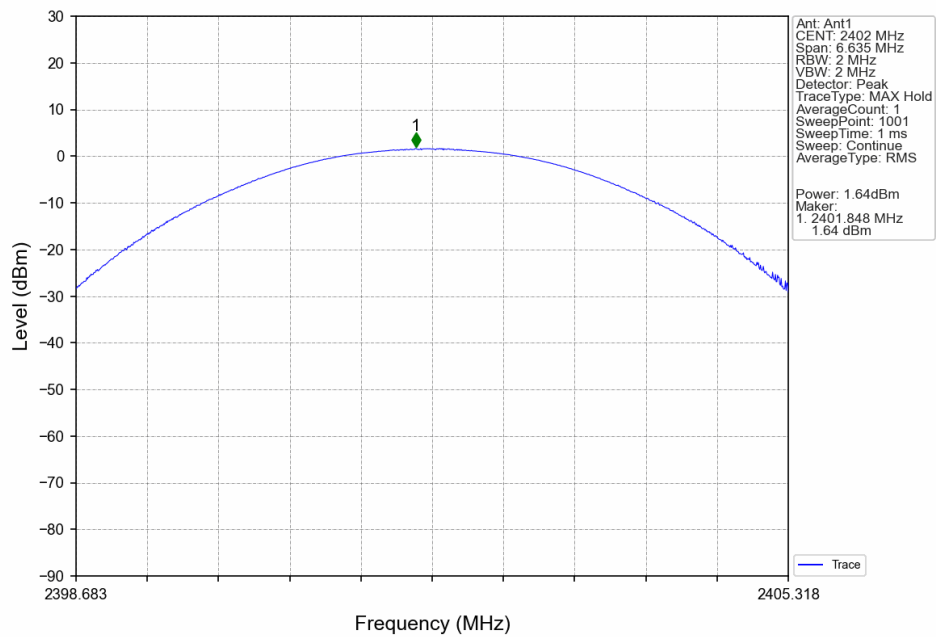
$\pi/4$ -DQPSK\_2DH5\_MCH\_2441MHz\_Ant1\_NTNV



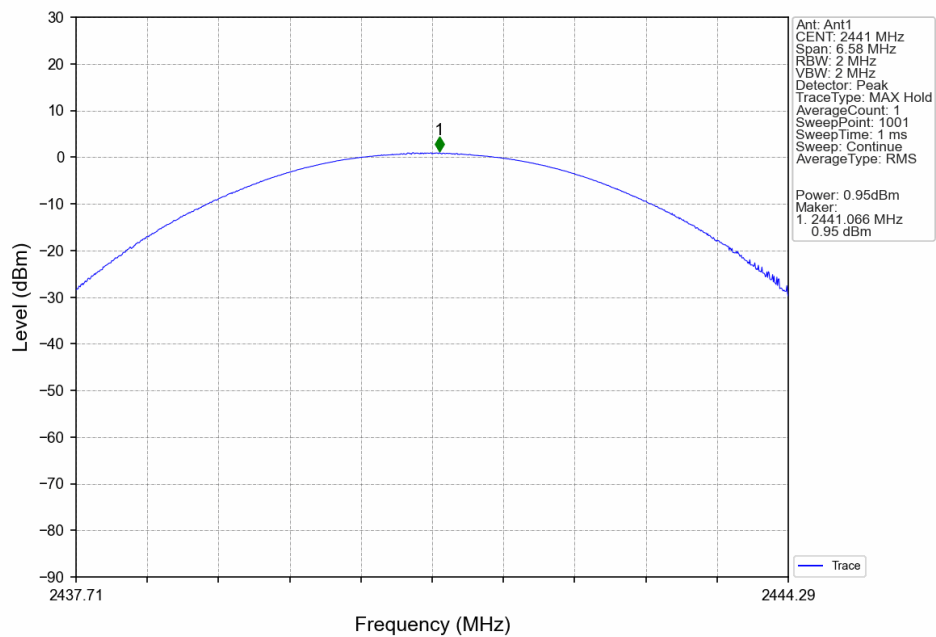
$\pi/4$ -DQPSK\_2DH5\_HCH\_2480MHz\_Ant1\_NTNV



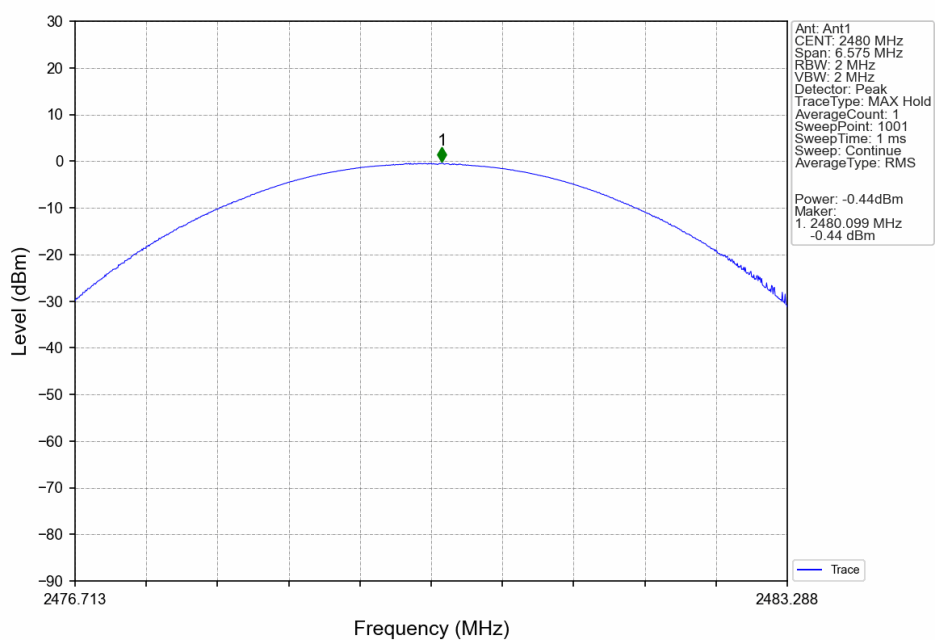
8-DPSK\_3DH5\_LCH\_2402MHz\_Ant1\_NTNV



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



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

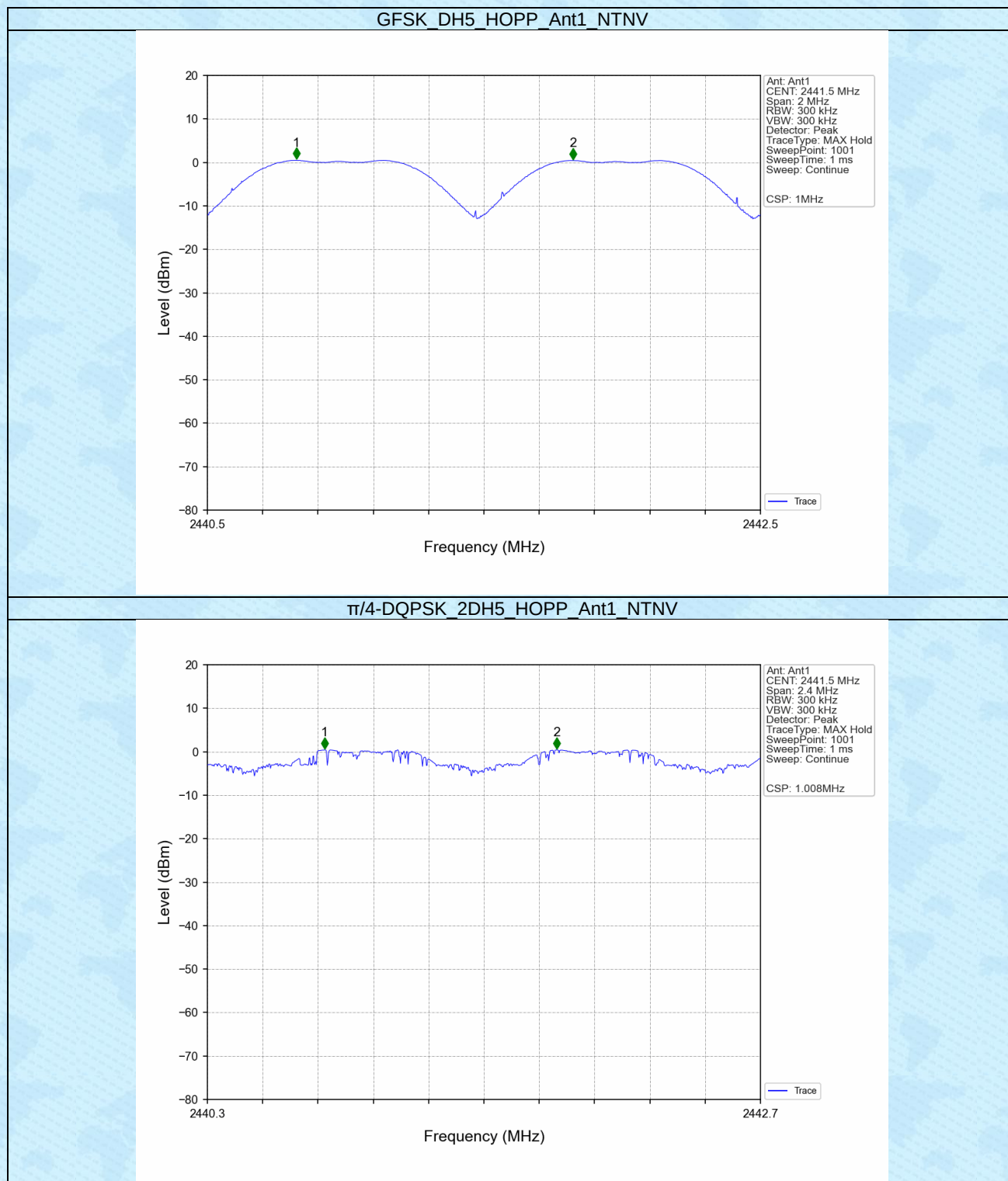


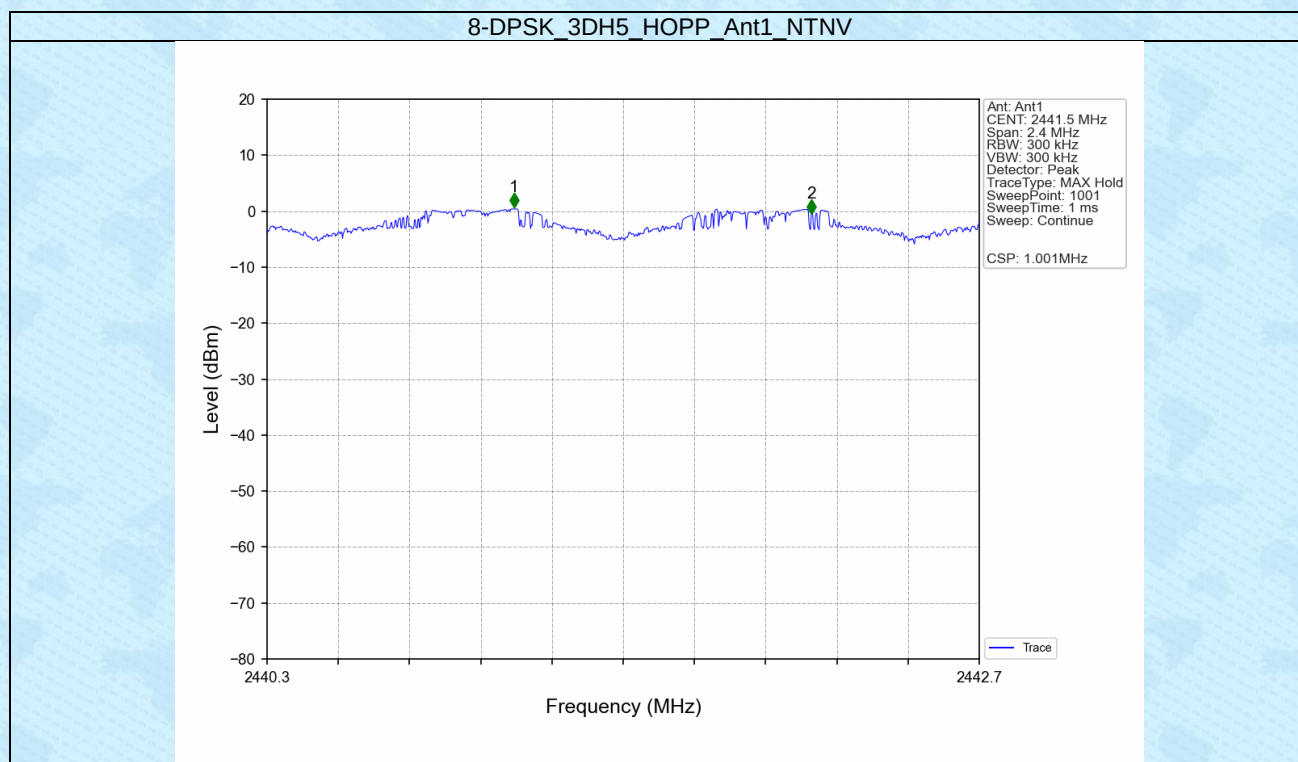
### 3. Carrier Frequency Separation

#### 3.1 Test Result

| Ant1           |         |                 |             |                          |                      |              |         |
|----------------|---------|-----------------|-------------|--------------------------|----------------------|--------------|---------|
| Mode           | TX Type | Frequency (MHz) | Packet Type | Channel Separation (MHz) | 20dB Bandwidth (MHz) | Limit (MHz)  | Verdict |
| GFSK           | SISO    | HOPP            | DH5         | 1.000                    | 1.025                | $\geq 0.683$ | Pass    |
| $\pi/4$ -DQPSK | SISO    | HOPP            | 2DH5        | 1.008                    | 1.319                | $\geq 0.879$ | Pass    |
| 8-DPSK         | SISO    | HOPP            | 3DH5        | 1.001                    | 1.327                | $\geq 0.885$ | Pass    |

## 3.2 Test Graph



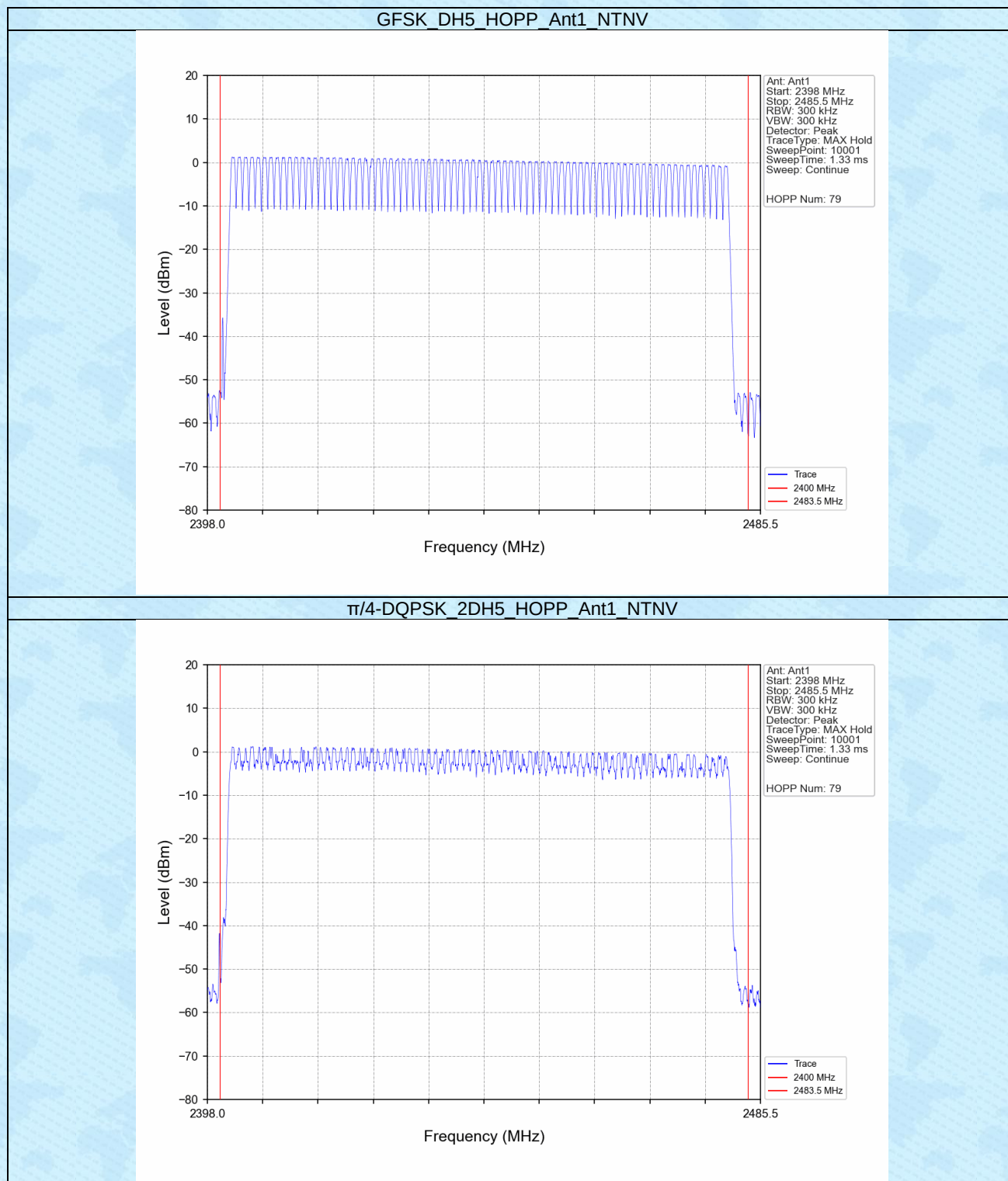


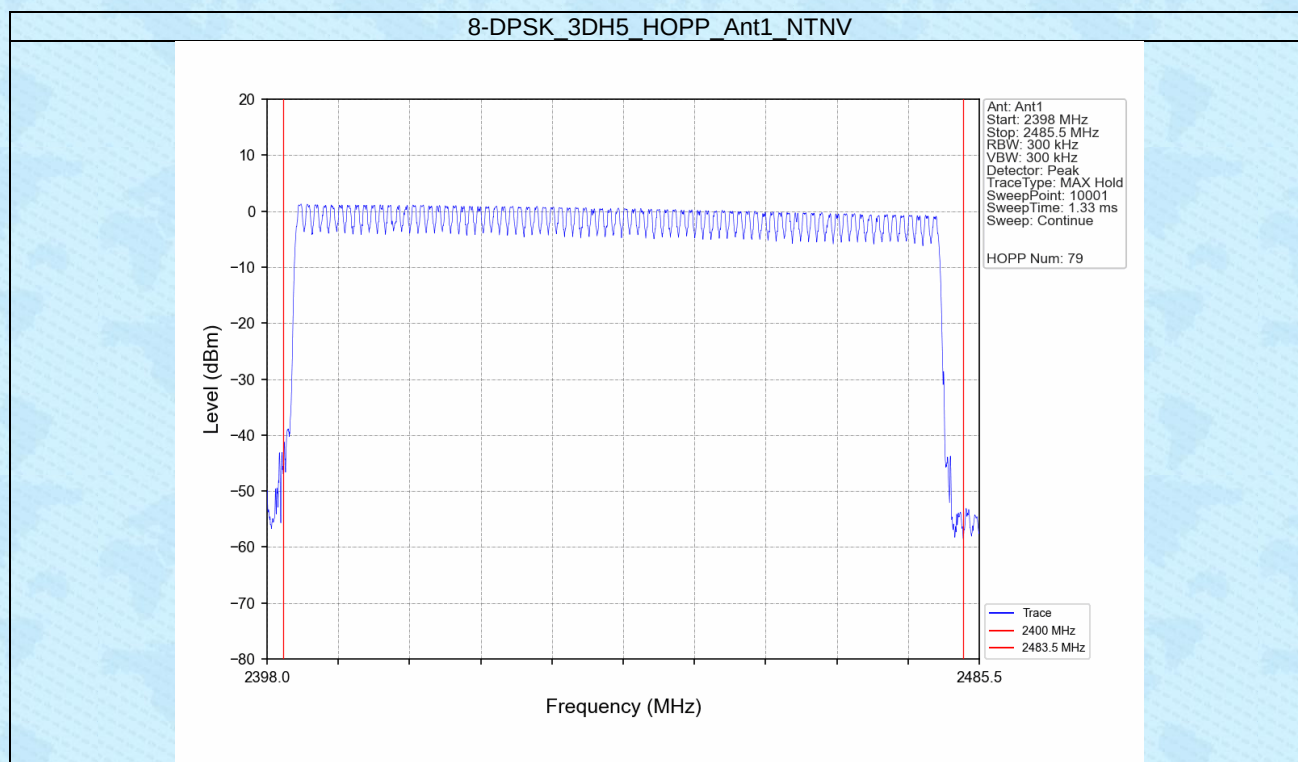
## 4. Number of Hopping Frequencies

### 4.1 Test Result

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

## 4.2 Test Graph



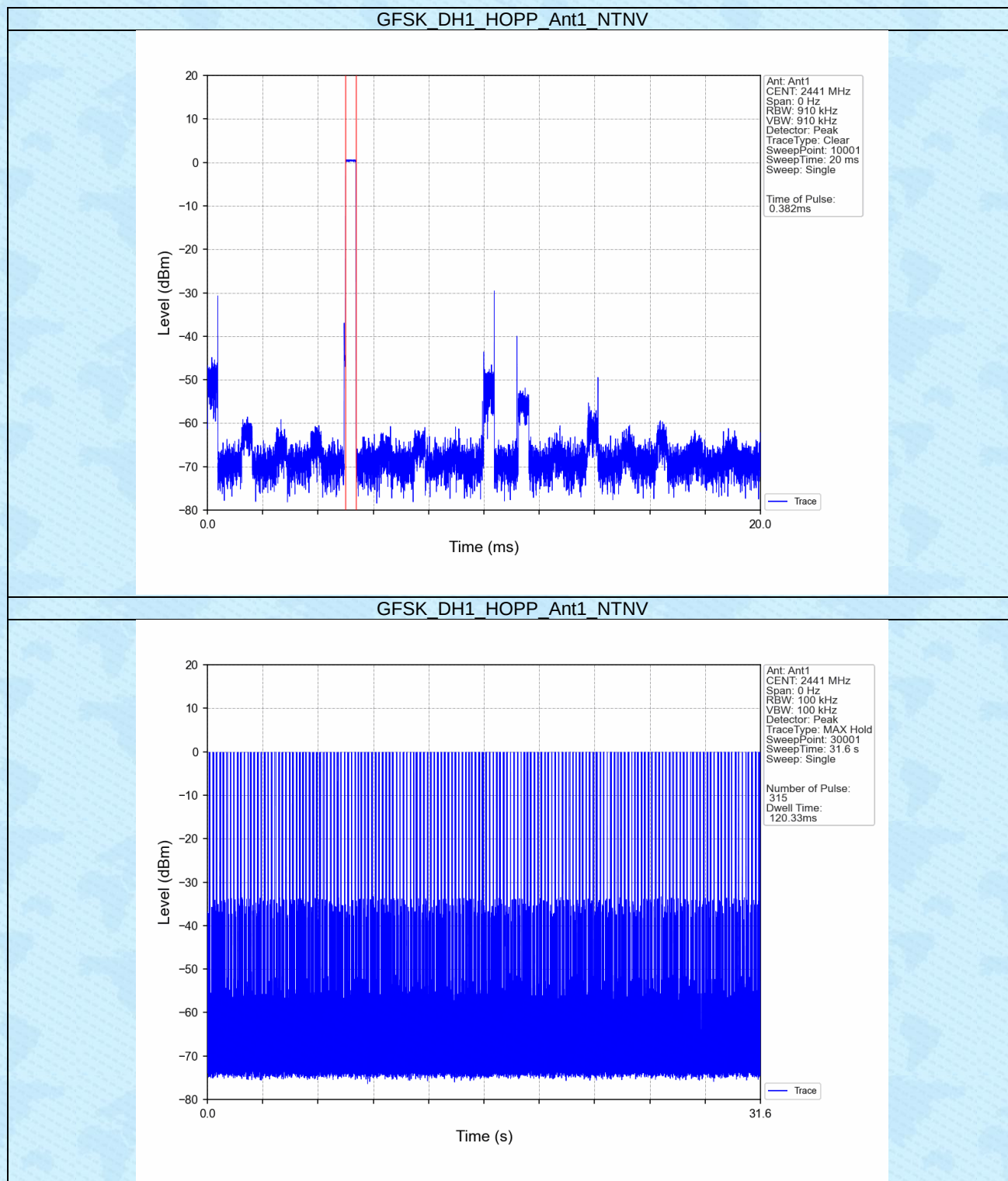


## 5. Time of Occupancy (Dwell Time)

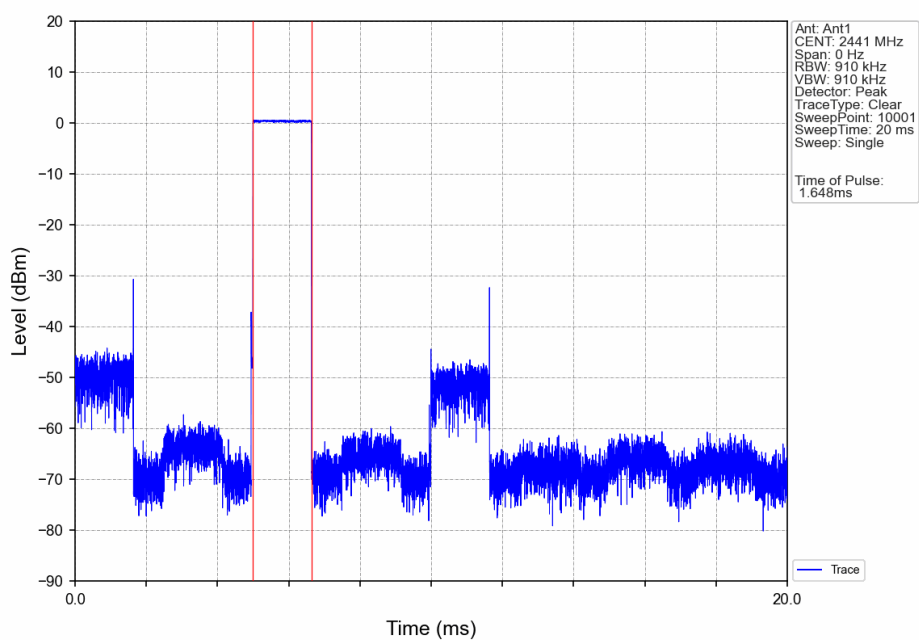
### 5.1 Test Result

| 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         | 0.382                         | 31.600                 | 315                                | 120.330         | <=400      | Pass    |
|                |         |                 | DH3         | 1.648                         | 31.600                 | 169                                | 278.512         | <=400      | Pass    |
|                |         |                 | DH5         | 2.946                         | 31.600                 | 107                                | 315.222         | <=400      | Pass    |
| $\pi/4$ -DQPSK | SISO    | HOPP            | 2DH1        | 0.392                         | 31.600                 | 315                                | 123.480         | <=400      | Pass    |
|                |         |                 | 2DH3        | 1.642                         | 31.600                 | 170                                | 279.140         | <=400      | Pass    |
|                |         |                 | 2DH5        | 2.890                         | 31.600                 | 103                                | 297.670         | <=400      | Pass    |
| 8-DPSK         | SISO    | HOPP            | 3DH1        | 0.390                         | 31.600                 | 315                                | 122.850         | <=400      | Pass    |
|                |         |                 | 3DH3        | 1.642                         | 31.600                 | 170                                | 279.140         | <=400      | Pass    |
|                |         |                 | 3DH5        | 2.952                         | 31.600                 | 107                                | 315.864         | <=400      | Pass    |

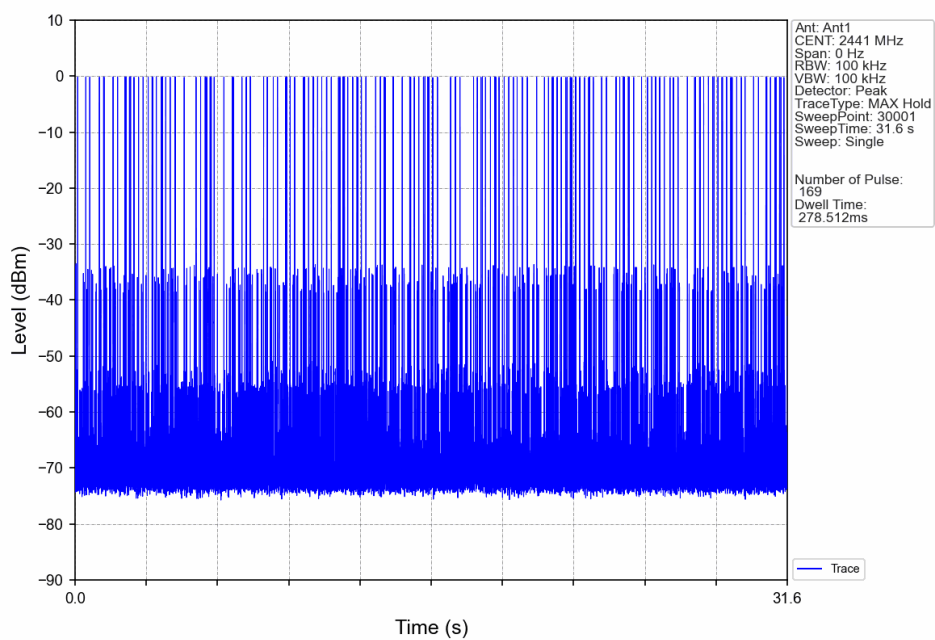
## 5.2 Test Graph



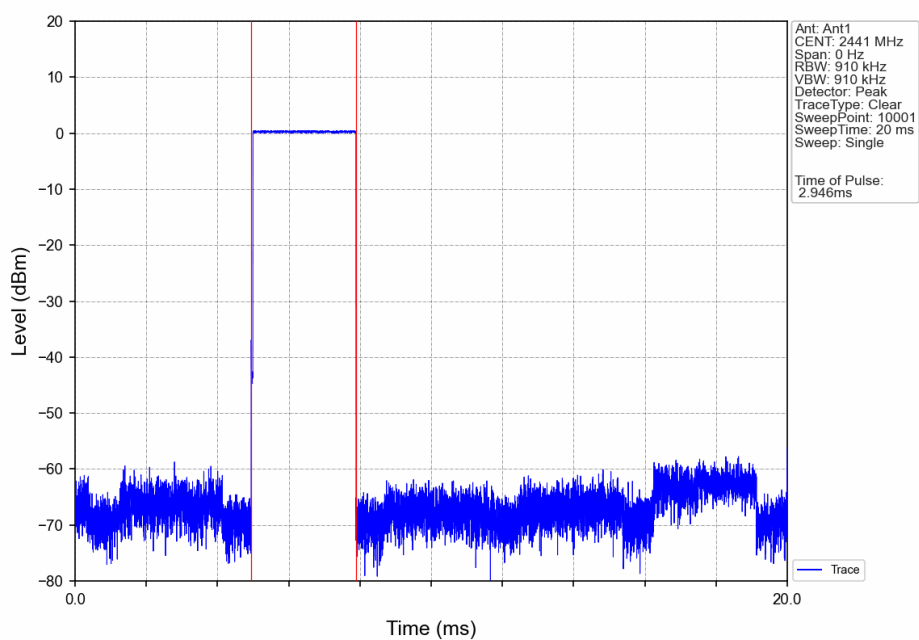
GFSK DH3\_HOPP\_Ant1\_NTNV



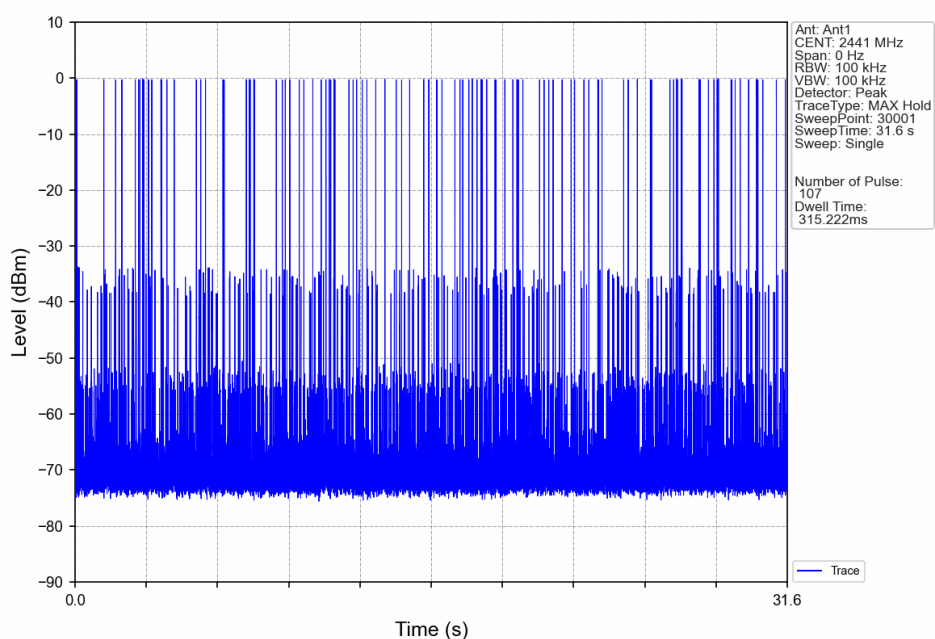
GFSK DH3\_HOPP\_Ant1\_NTNV



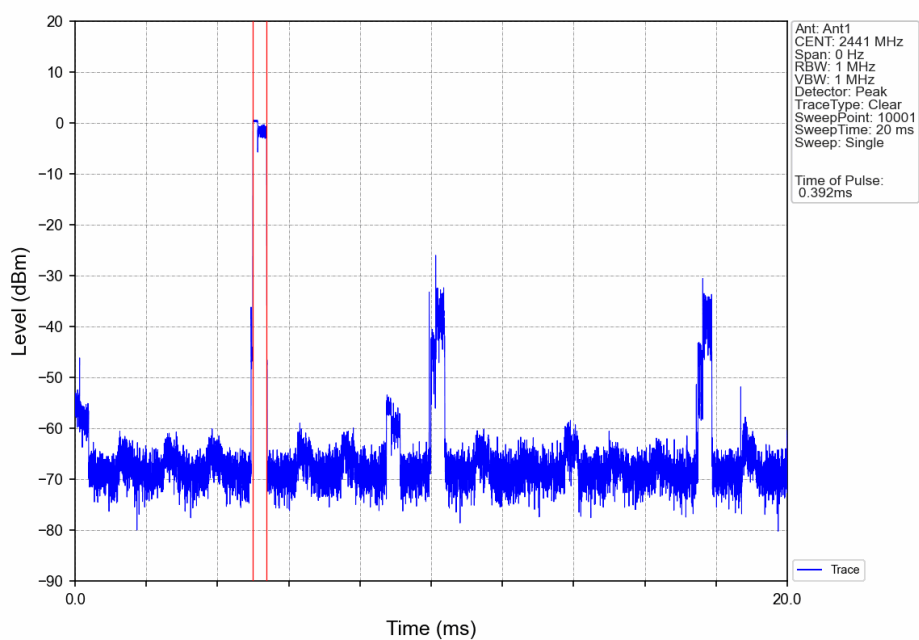
## GFSK\_DH5\_HOPP\_Ant1\_NTNV



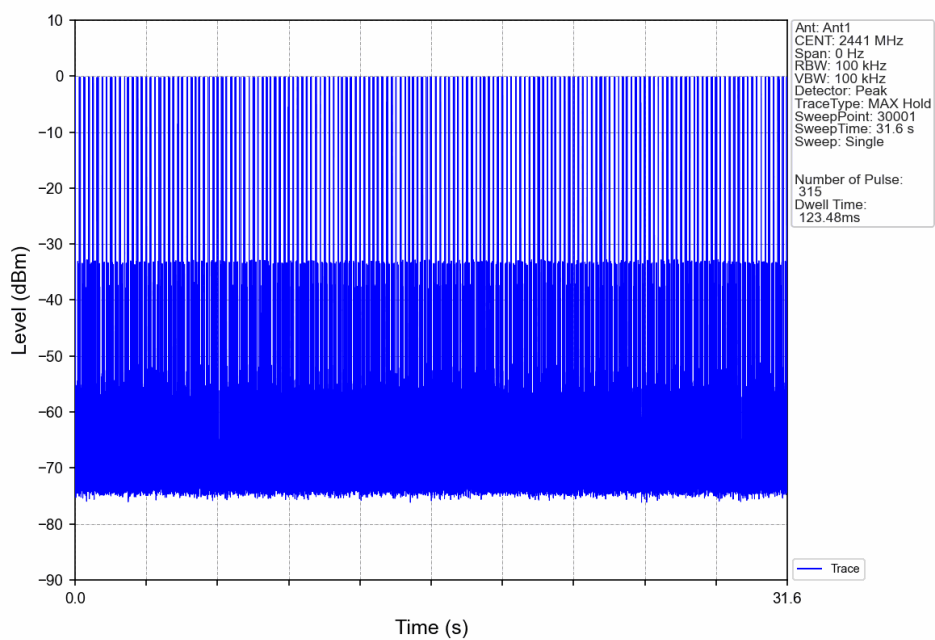
## GFSK\_DH5\_HOPP\_Ant1\_NTNV



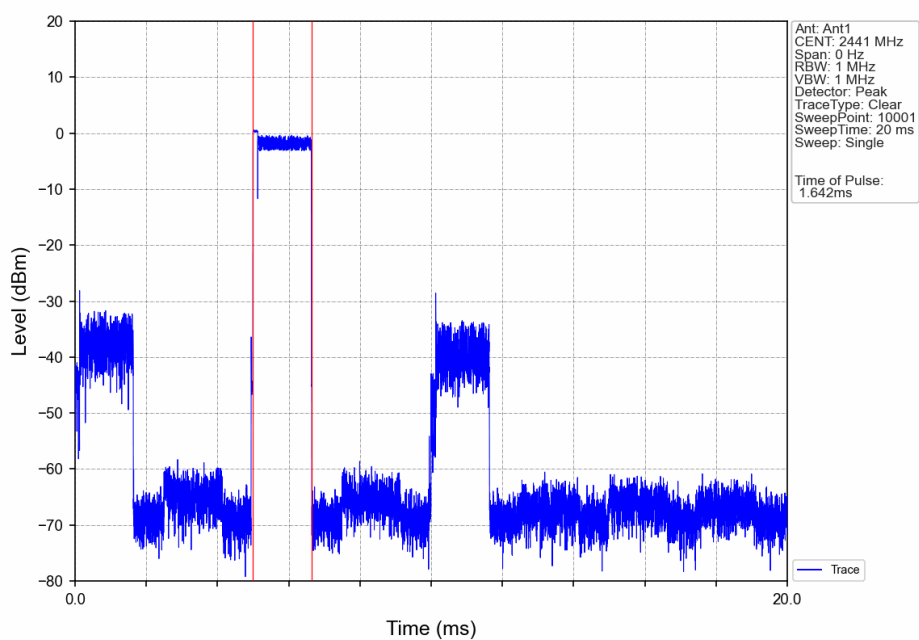
## $\pi/4$ -DQPSK\_2DH1\_HOPP\_Ant1\_NTNV



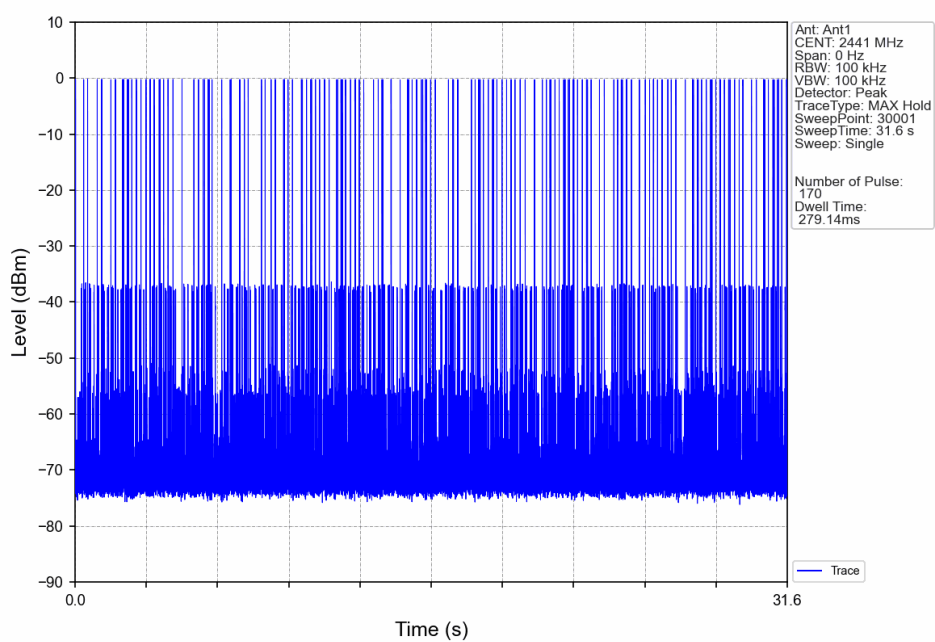
## $\pi/4$ -DQPSK\_2DH1\_HOPP\_Ant1\_NTNV

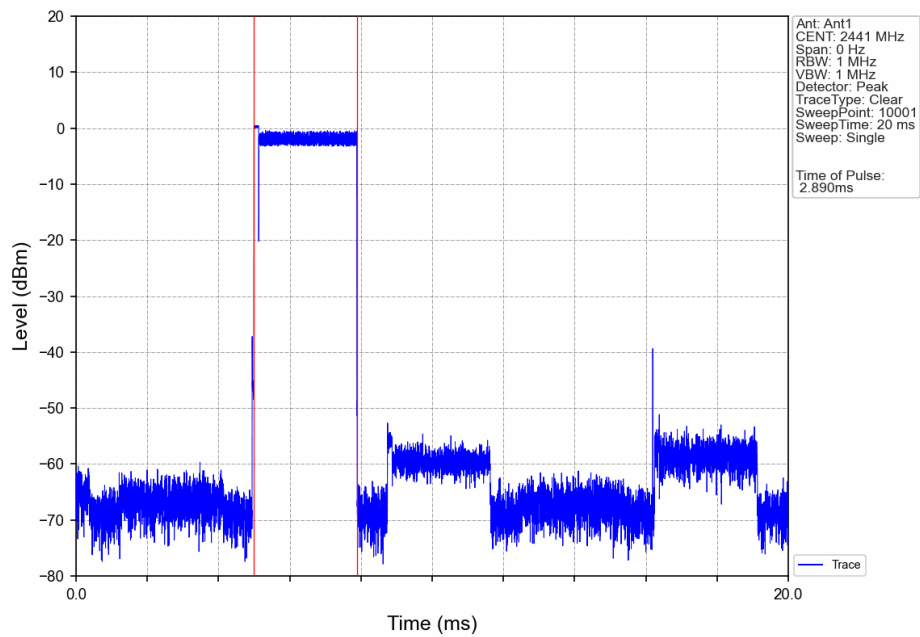
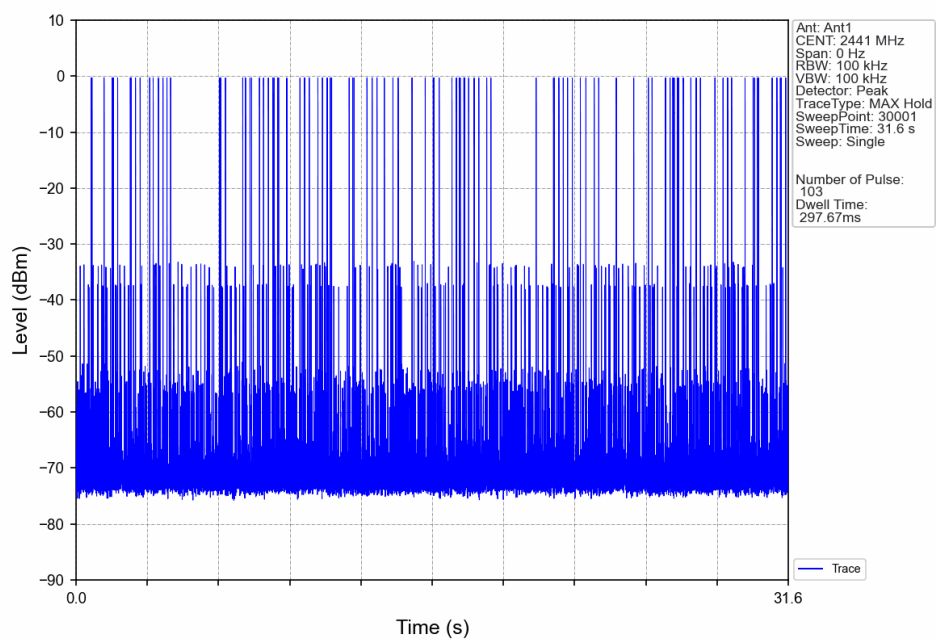


$\pi/4$ -DQPSK\_2DH3\_HOPP\_Ant1\_NTNV

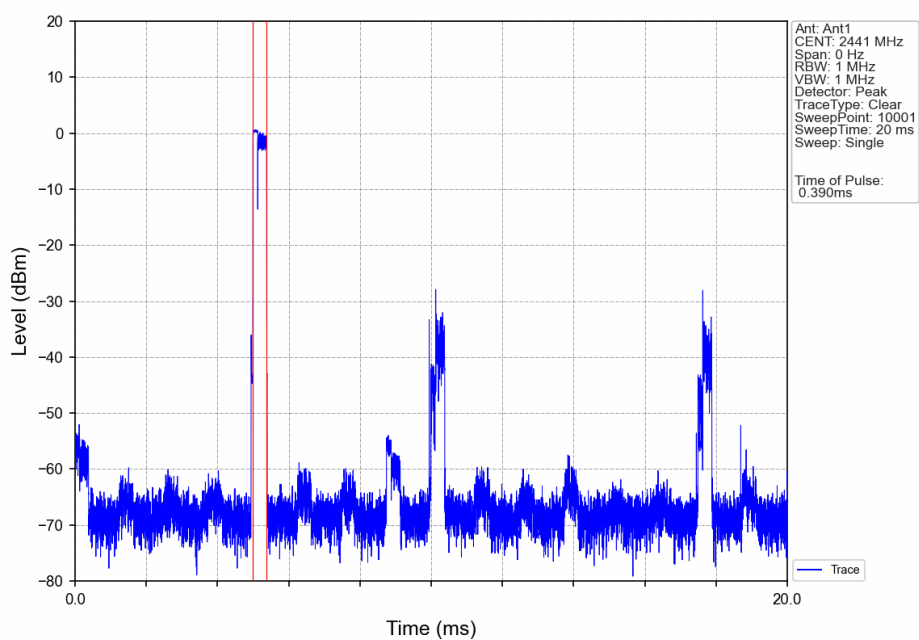


$\pi/4$ -DQPSK\_2DH3\_HOPP\_Ant1\_NTNV

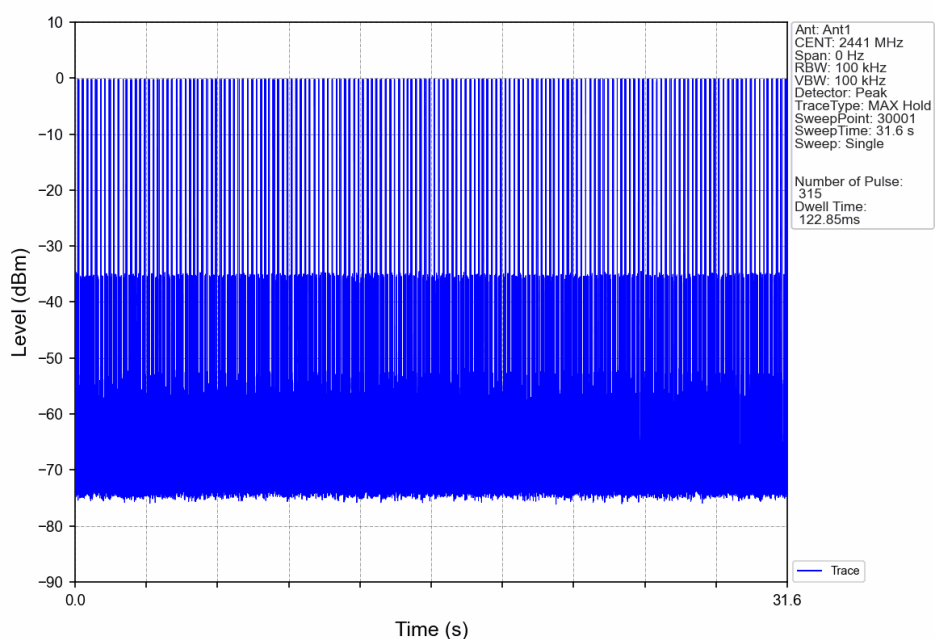


$\pi/4$ -DQPSK\_2DH5\_HOPP\_Ant1\_NTNV $\pi/4$ -DQPSK\_2DH5\_HOPP\_Ant1\_NTNV

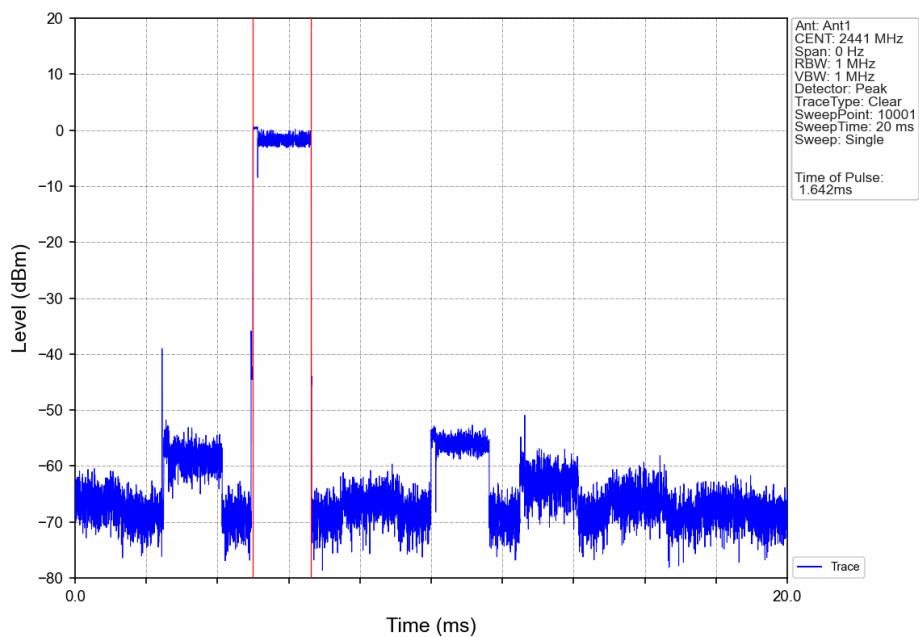
8-DPSK\_3DH1\_HOPP\_Ant1\_NTNV



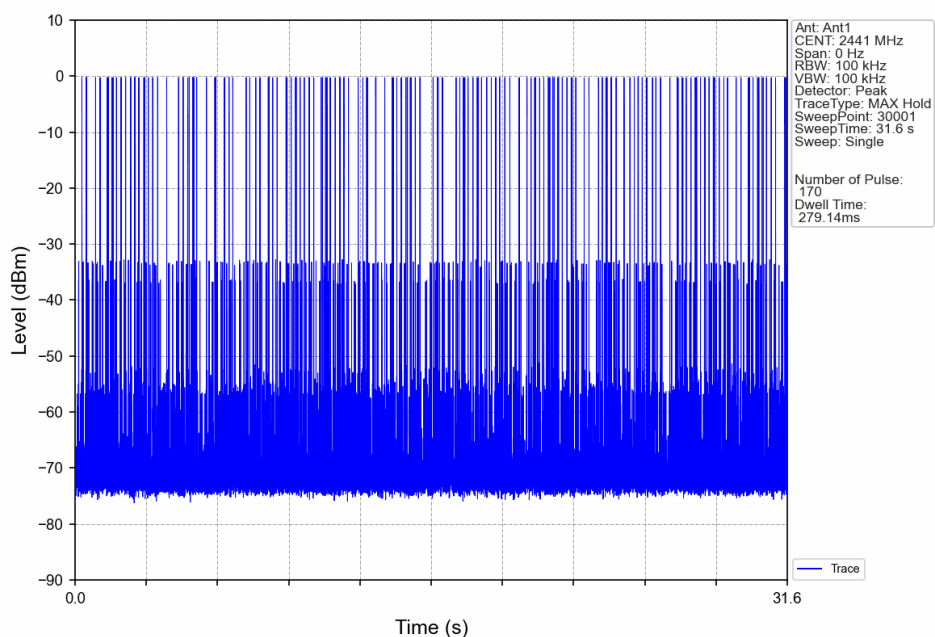
8-DPSK\_3DH1\_HOPP\_Ant1\_NTNV



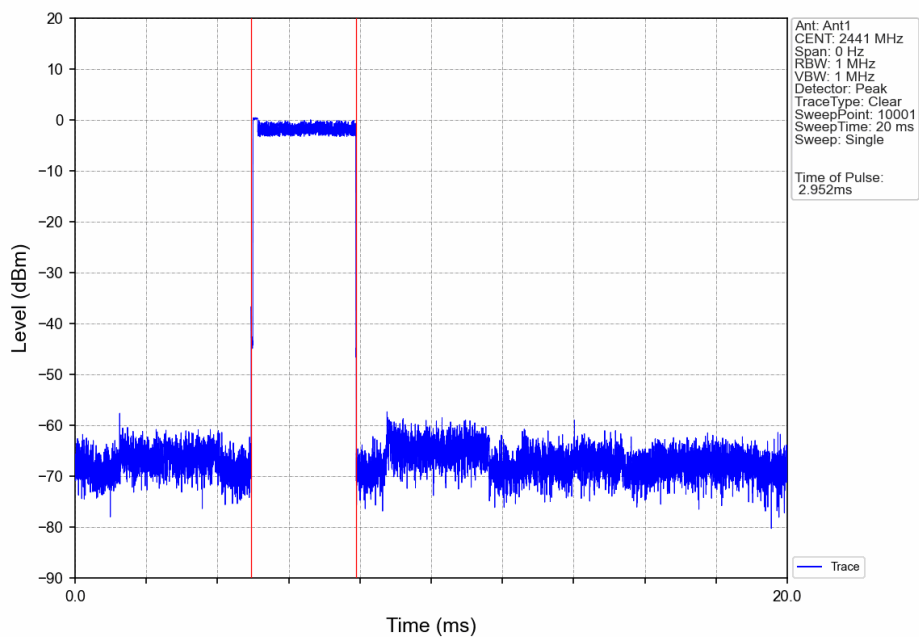
8-DPSK\_3DH3\_HOPP\_Ant1\_NTNV



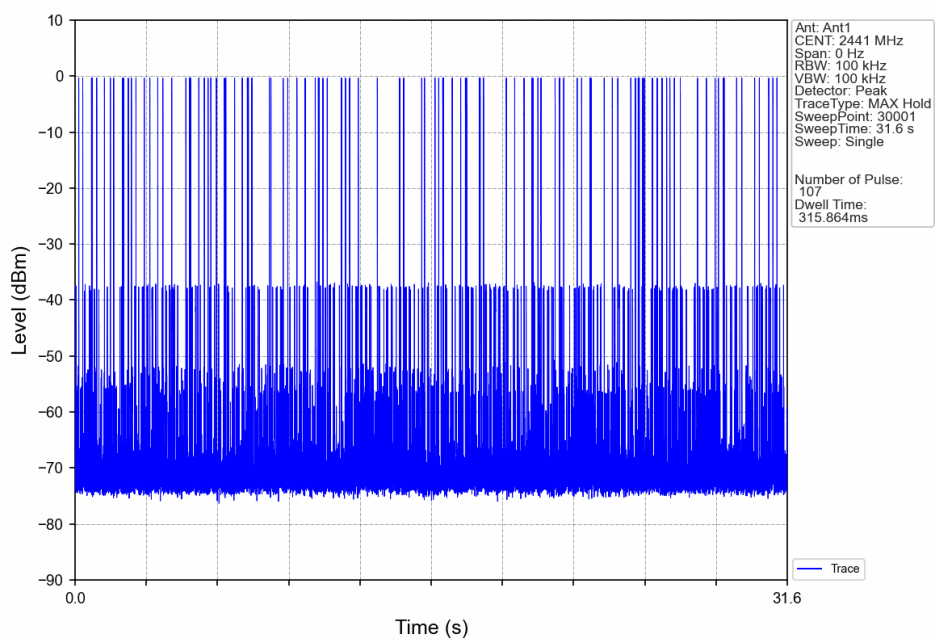
8-DPSK\_3DH3\_HOPP\_Ant1\_NTNV



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



## 8-DPSK\_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   | 1.30                     |
|                |         | 2441            | DH5         | 1   | 0.56                     |
|                |         | 2480            | DH5         | 1   | -0.83                    |
| $\pi/4$ -DQPSK | SISO    | 2402            | 2DH5        | 1   | 1.24                     |
|                |         | 2441            | 2DH5        | 1   | 0.51                     |
|                |         | 2480            | 2DH5        | 1   | -0.85                    |
| 8-DPSK         | SISO    | 2402            | 3DH5        | 1   | 1.16                     |
|                |         | 2441            | 3DH5        | 1   | 0.50                     |
|                |         | 2480            | 3DH5        | 1   | -0.88                    |

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.

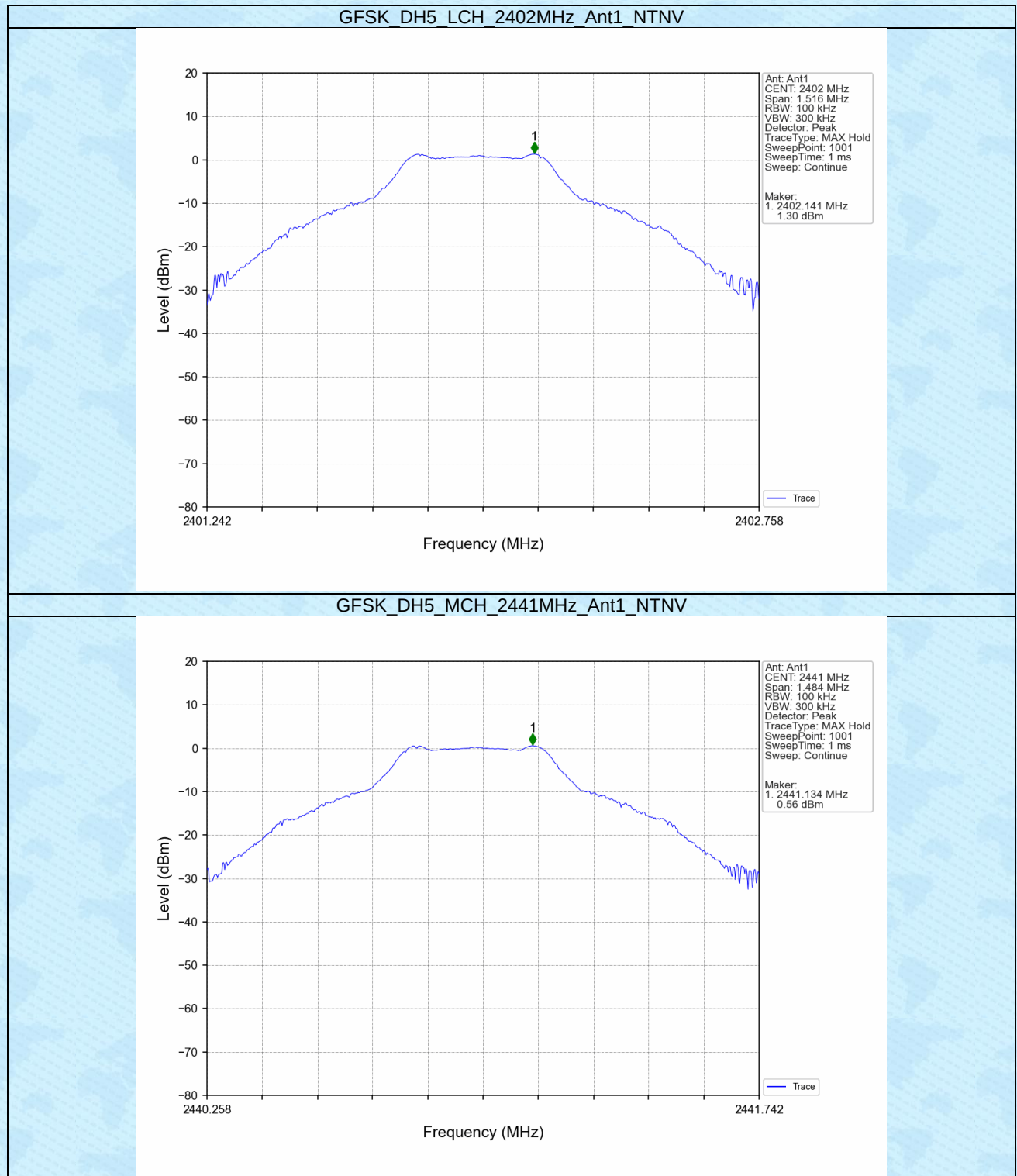
#### 6.1.2 CSE

| Mode           | TX Type | Frequency (MHz) | Packet Type | ANT | Level of Reference (dBm) | Limit (dBm) | Verdict |
|----------------|---------|-----------------|-------------|-----|--------------------------|-------------|---------|
| GFSK           | SISO    | 2402            | DH5         | 1   | 1.30                     | -18.70      | Pass    |
|                |         | 2441            | DH5         | 1   | 1.30                     | -18.70      | Pass    |
|                |         | 2480            | DH5         | 1   | 1.30                     | -18.70      | Pass    |
|                |         | HOPP            | DH5         | 1   | 1.30                     | -18.70      | Pass    |
|                |         |                 |             |     | 1.30                     | -18.70      | Pass    |
| $\pi/4$ -DQPSK | SISO    | 2402            | 2DH5        | 1   | 1.24                     | -18.76      | Pass    |
|                |         | 2441            | 2DH5        | 1   | 1.24                     | -18.76      | Pass    |
|                |         | 2480            | 2DH5        | 1   | 1.24                     | -18.76      | Pass    |
|                |         | HOPP            | 2DH5        | 1   | 1.24                     | -18.76      | Pass    |
|                |         |                 |             |     | 1.24                     | -18.76      | Pass    |
| 8-DPSK         | SISO    | 2402            | 3DH5        | 1   | 1.16                     | -18.84      | Pass    |
|                |         | 2441            | 3DH5        | 1   | 1.16                     | -18.84      | Pass    |
|                |         | 2480            | 3DH5        | 1   | 1.16                     | -18.84      | Pass    |
|                |         | HOPP            | 3DH5        | 1   | 1.16                     | -18.84      | Pass    |
|                |         |                 |             |     | 1.16                     | -18.84      | Pass    |

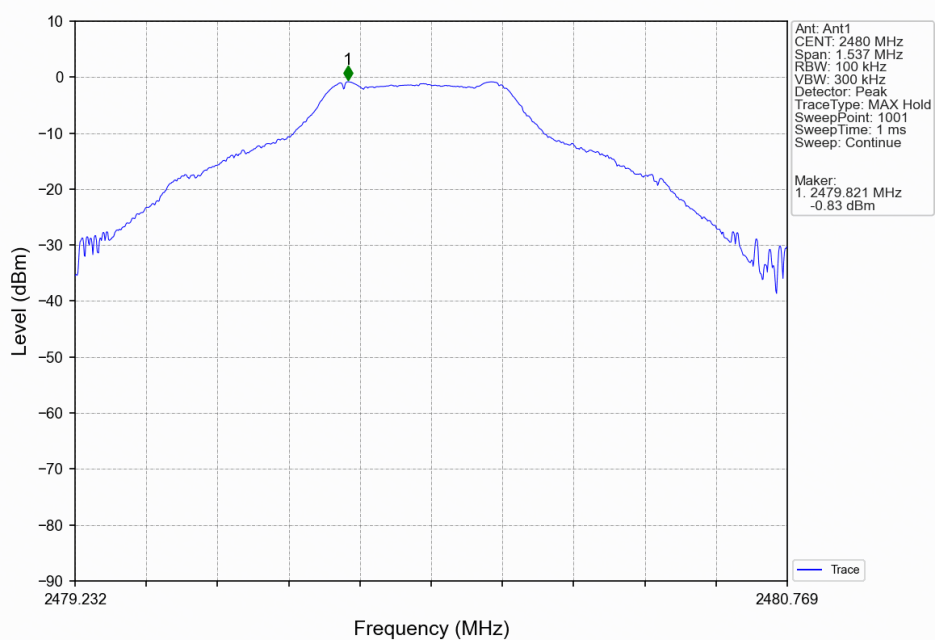
Note1: Refer to FCC Part 15.247 (d) and ANSI C63.10-2013, the channel contains the maximum PSD level was used to establish the reference level.

## 6.2 Test Graph

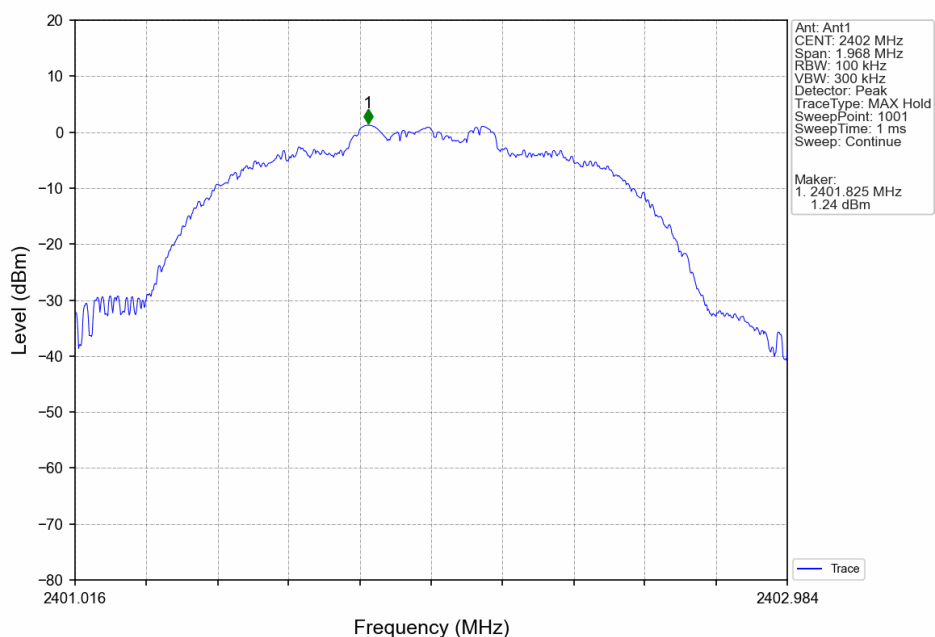
### 6.2.1 Ref



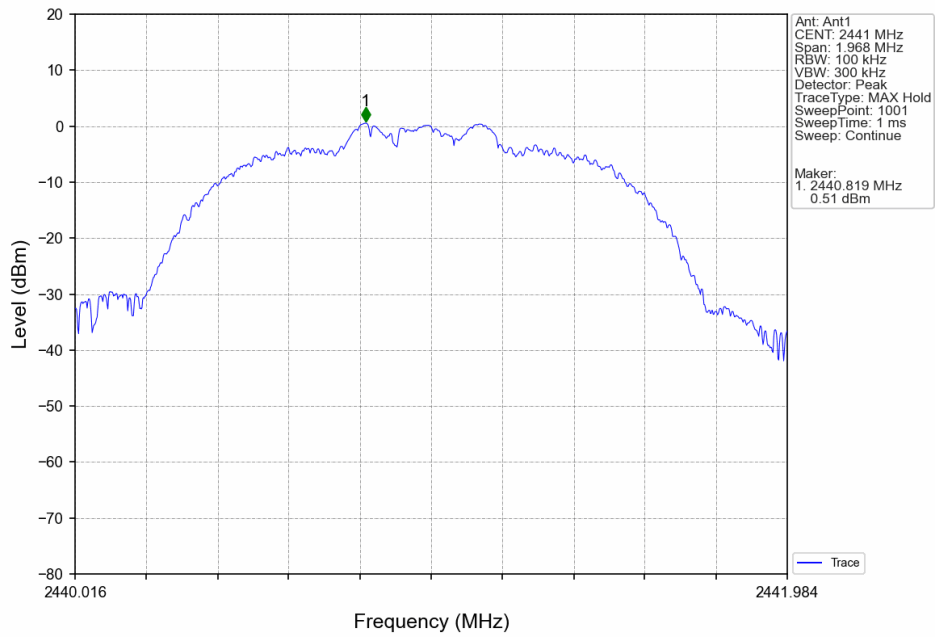
GFSK\_DH5\_HCH\_2480MHz\_Ant1\_NTNV



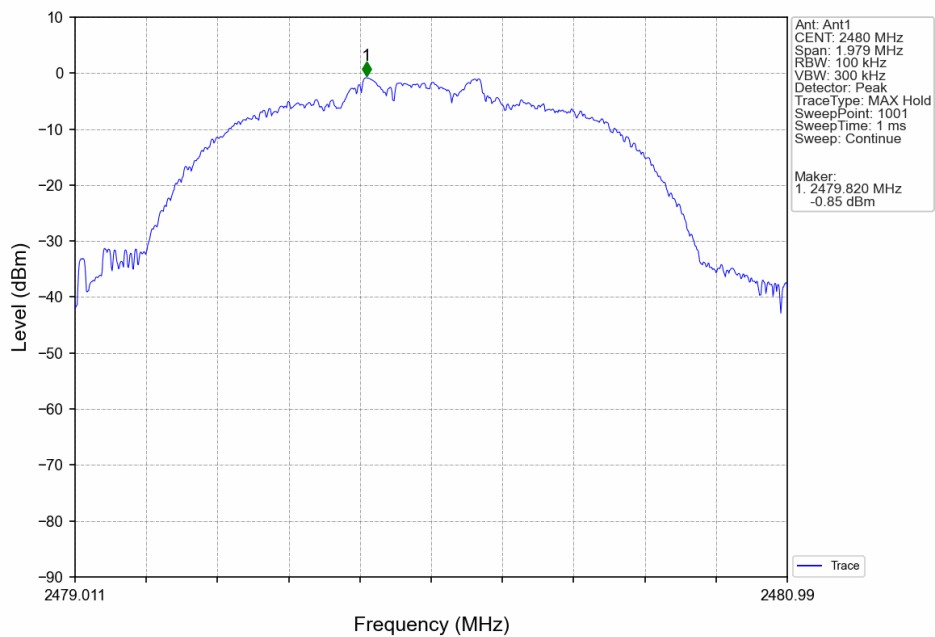
$\pi/4$ -DQPSK\_2DH5\_LCH\_2402MHz\_Ant1\_NTNV



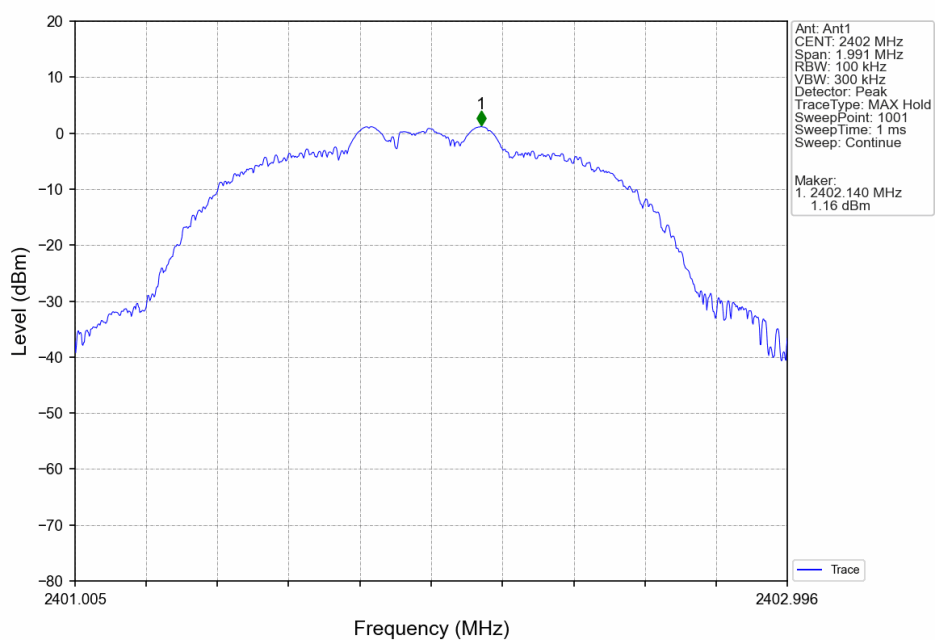
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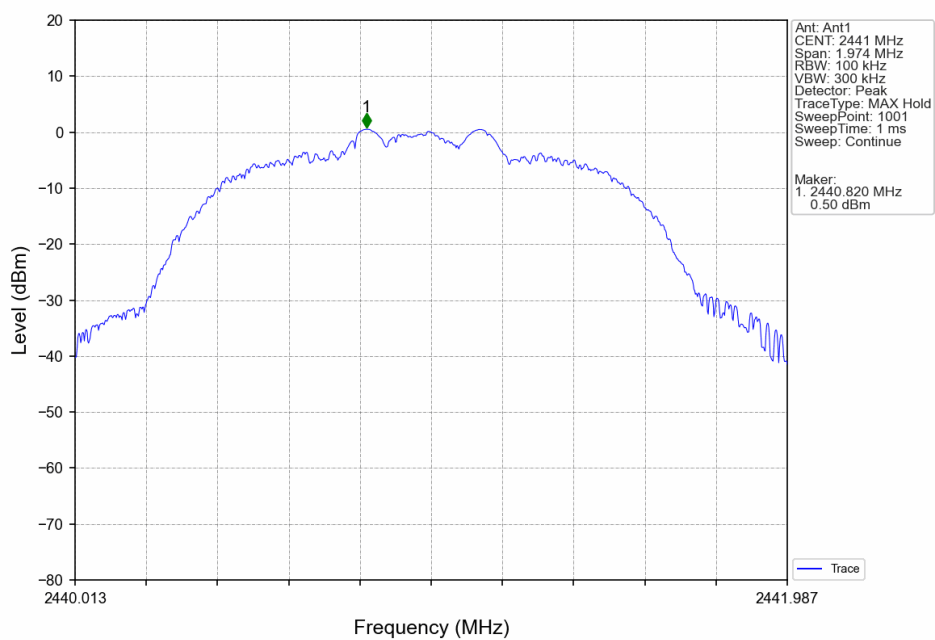
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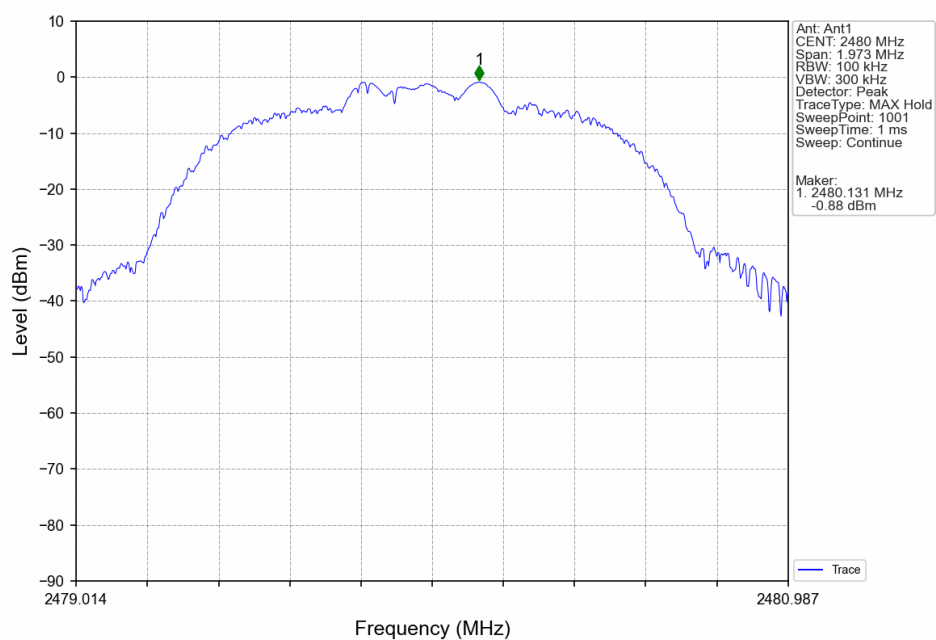
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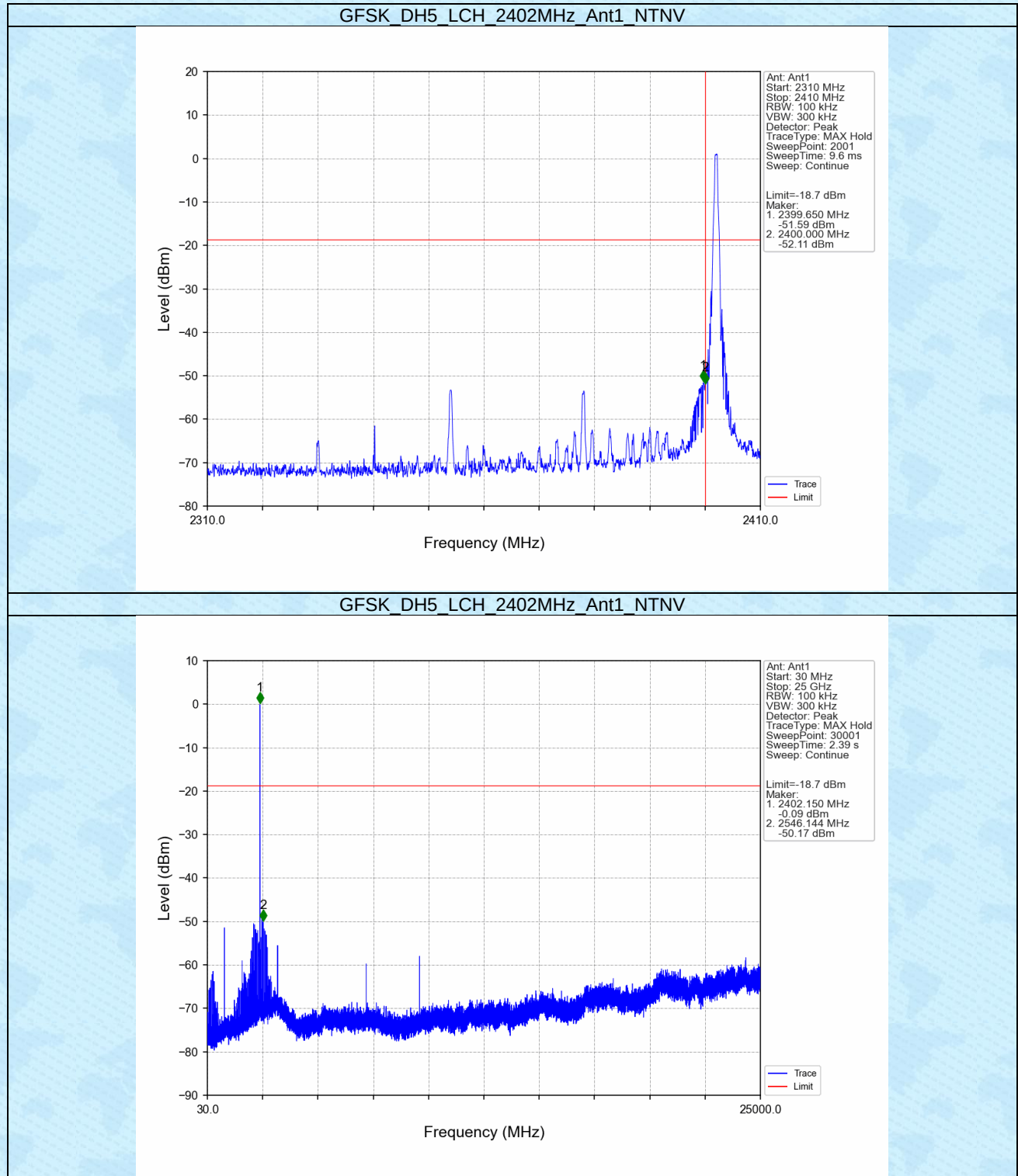
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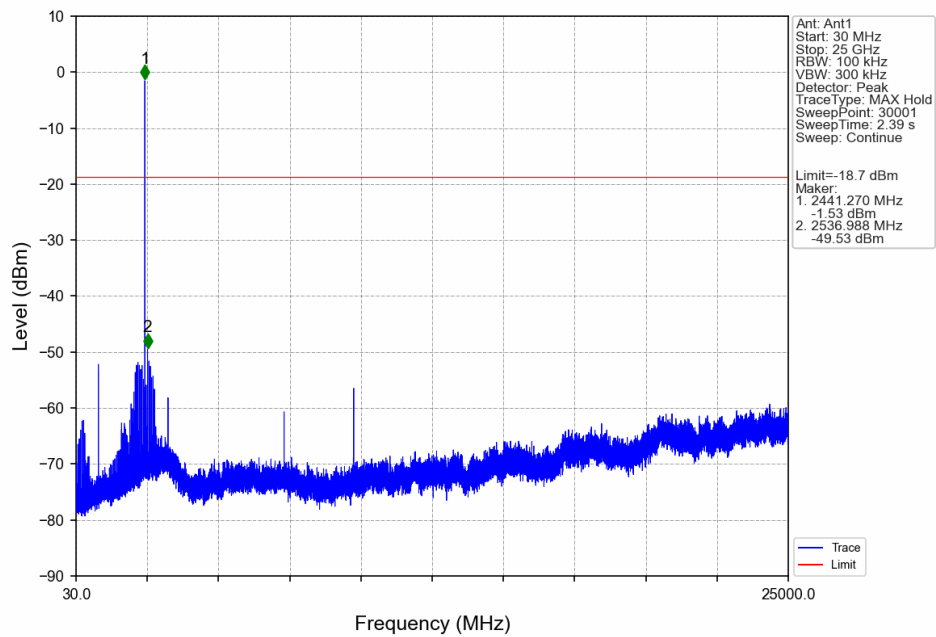
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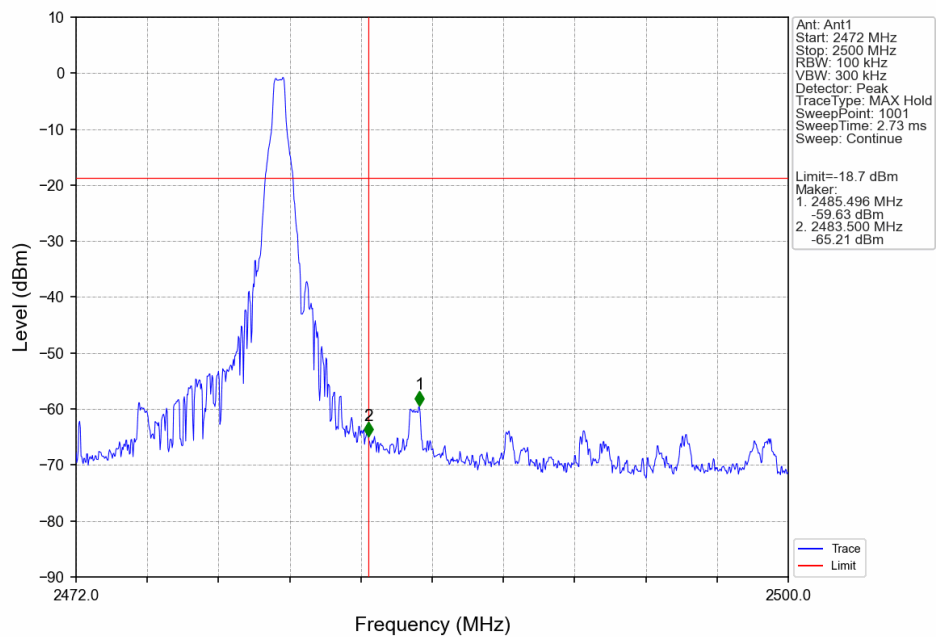
## 6.2.2 CSE



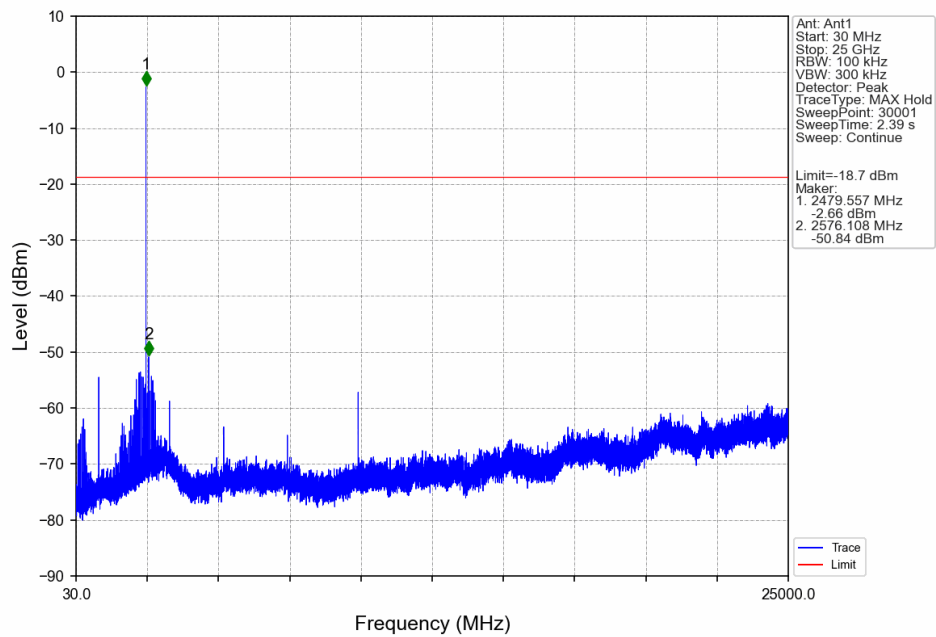
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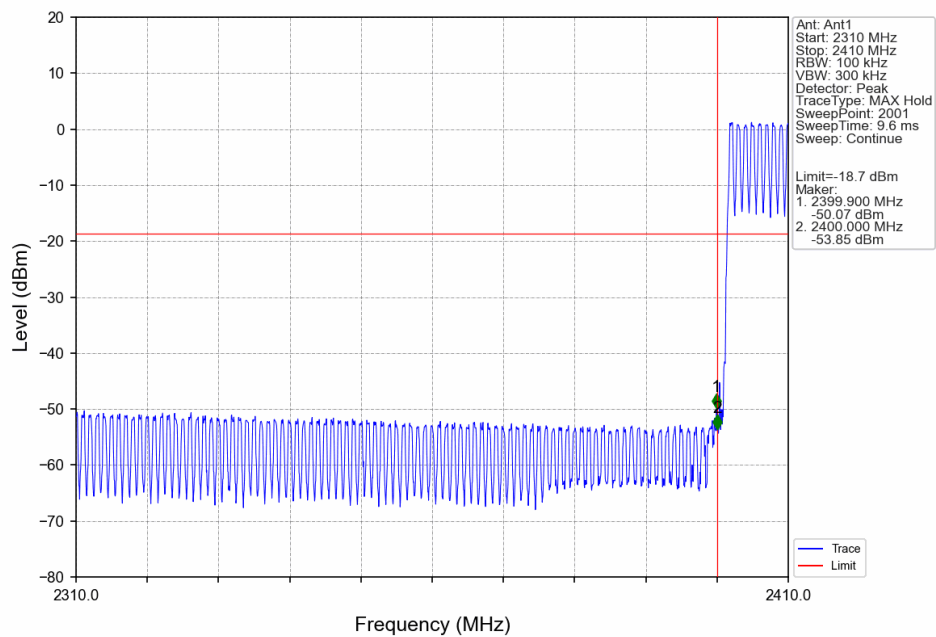
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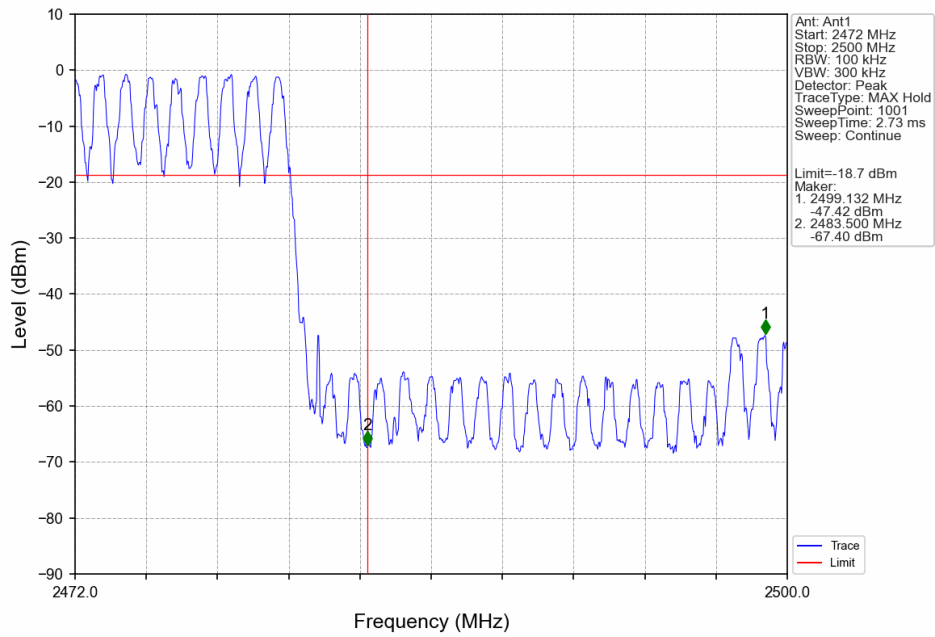
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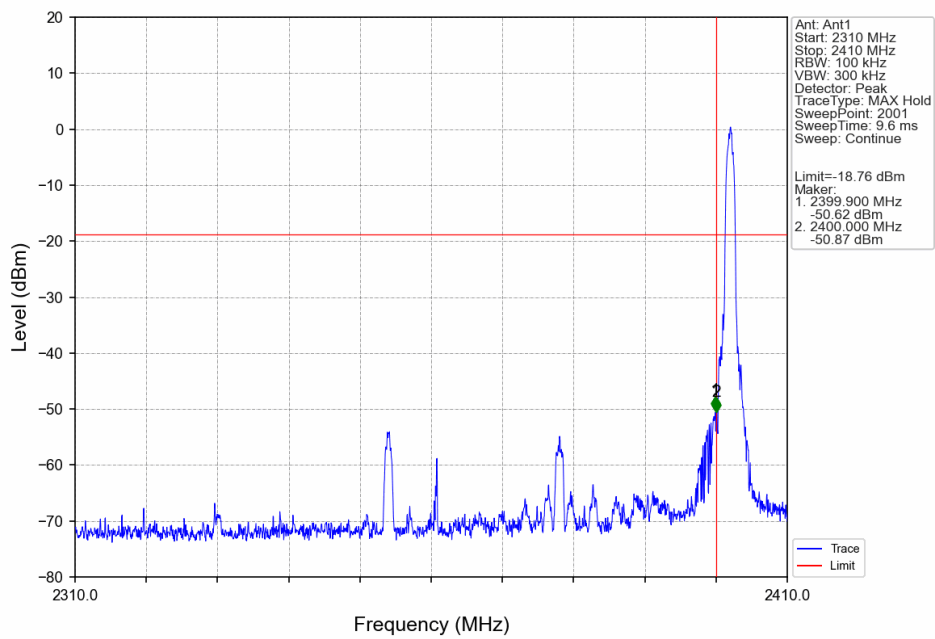
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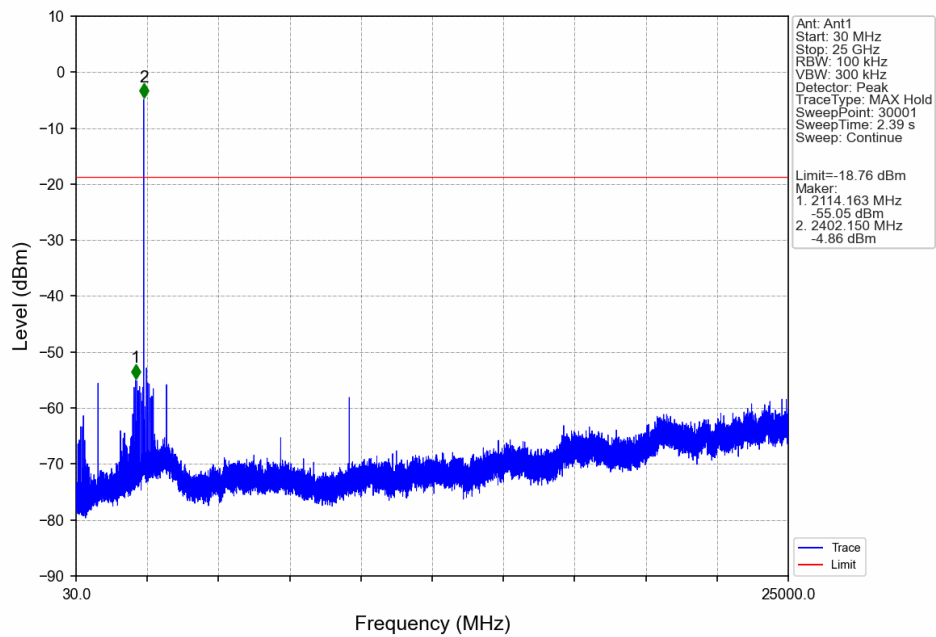
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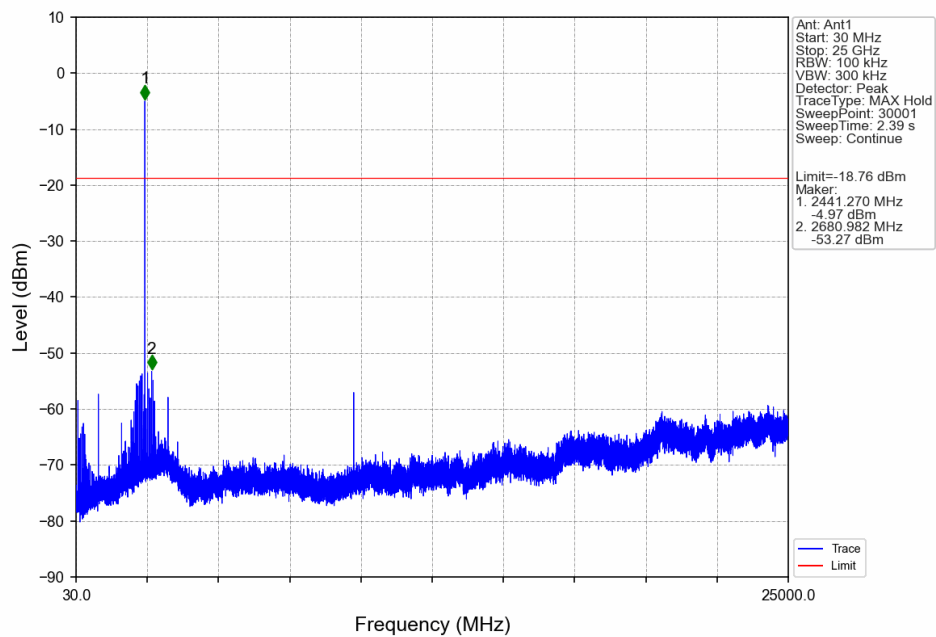
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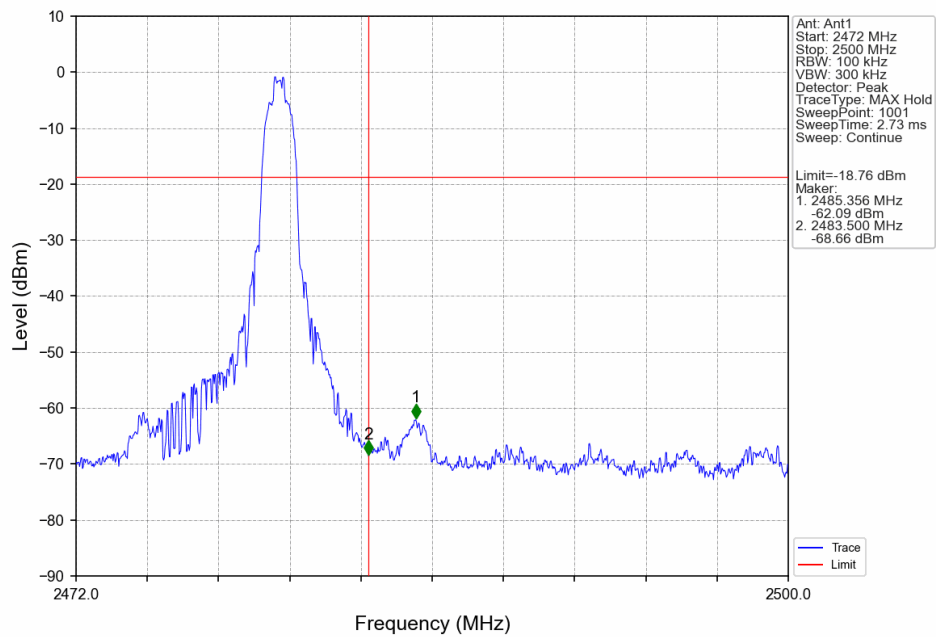
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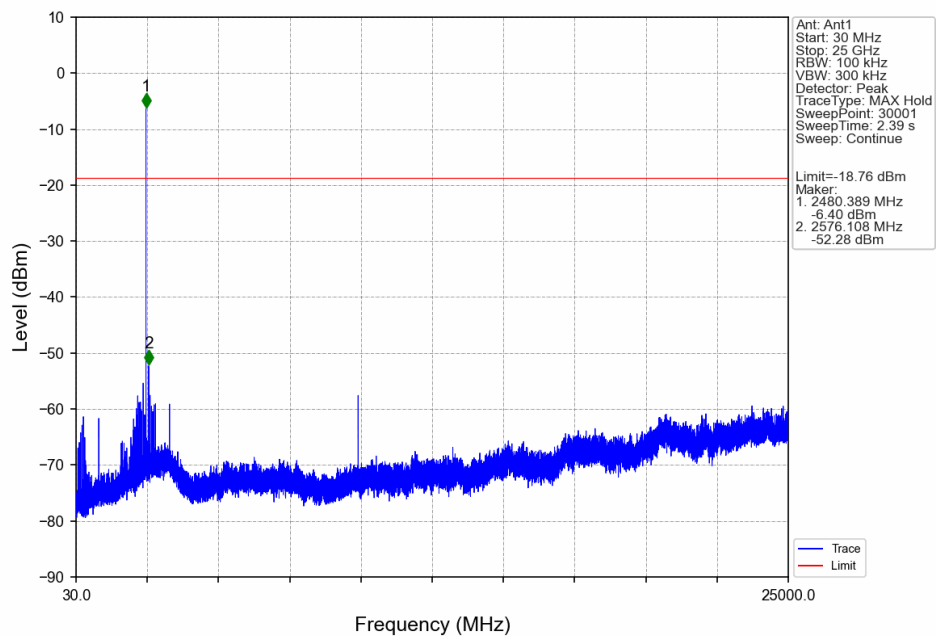
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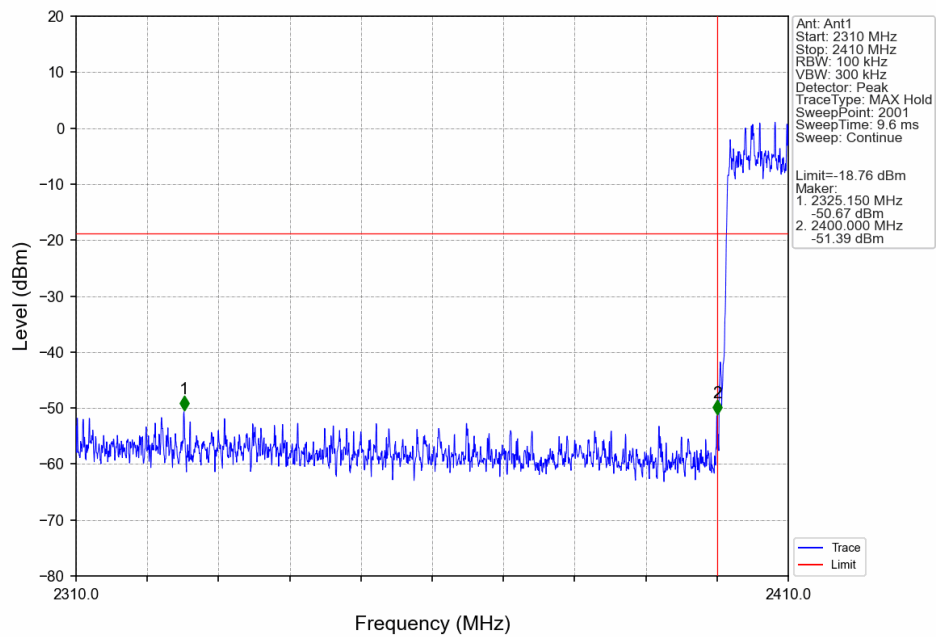
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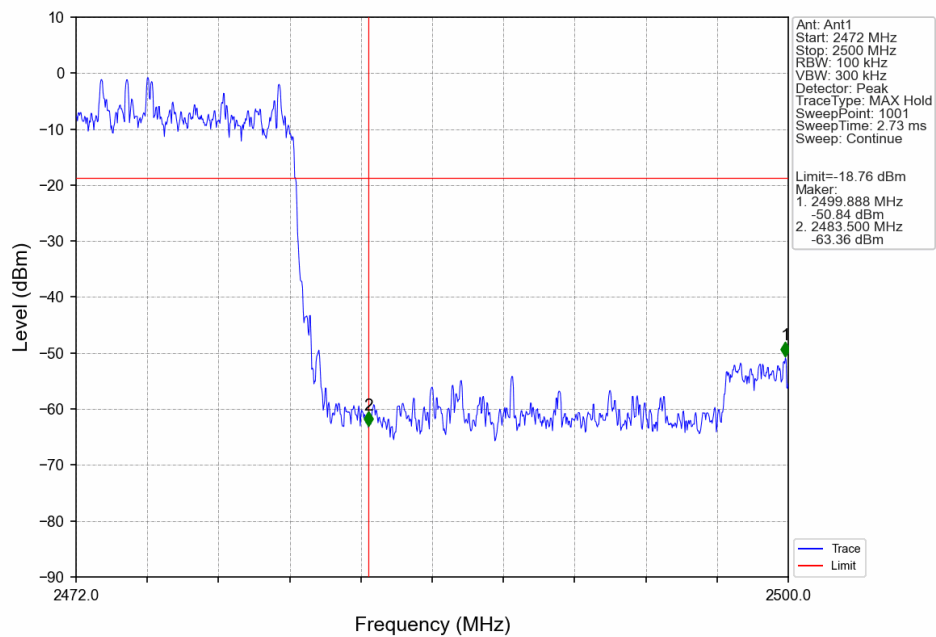
$\pi/4$ -DQPSK\_2DH5\_HCH\_2480MHz\_Ant1\_NTNV



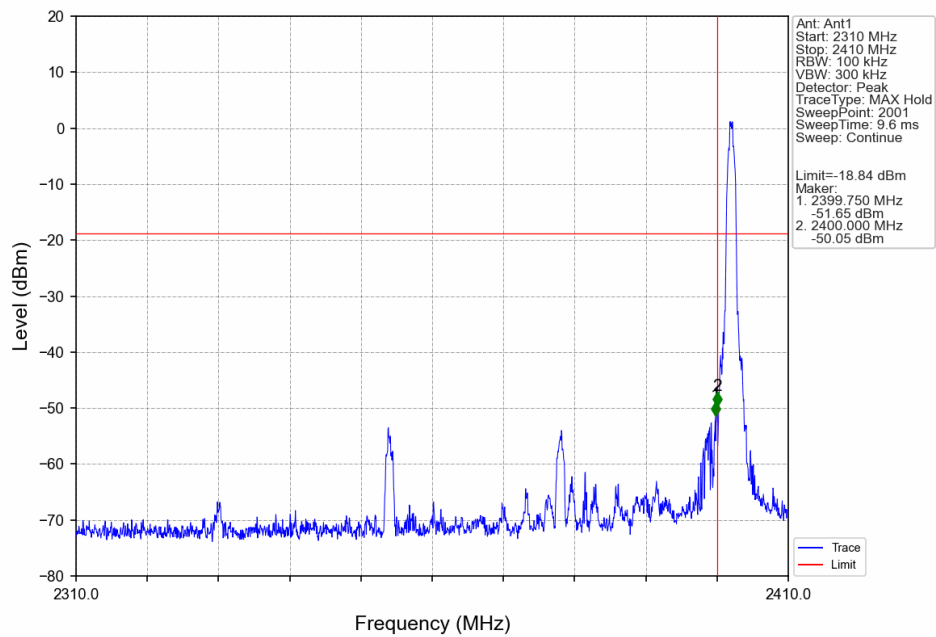
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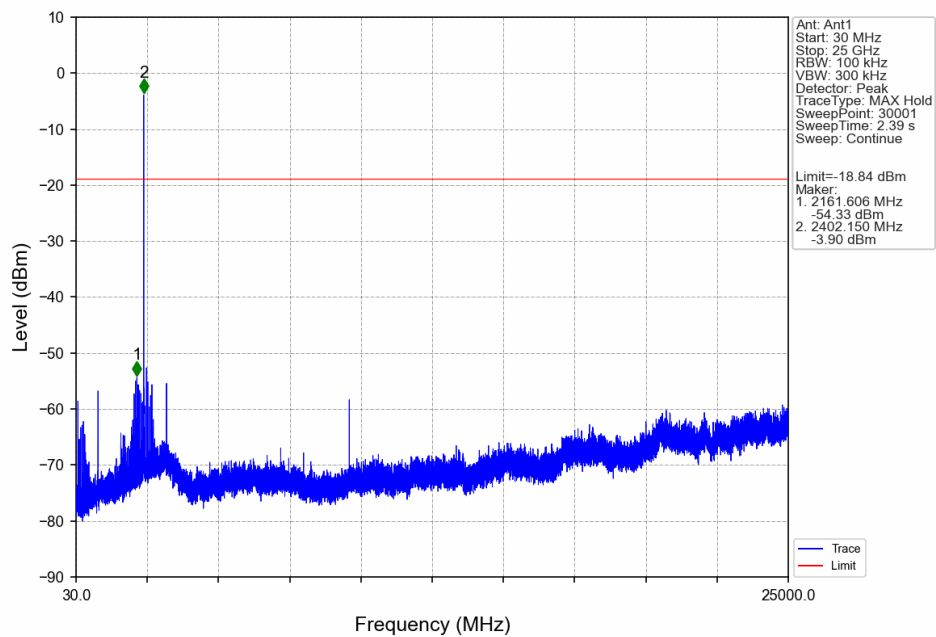
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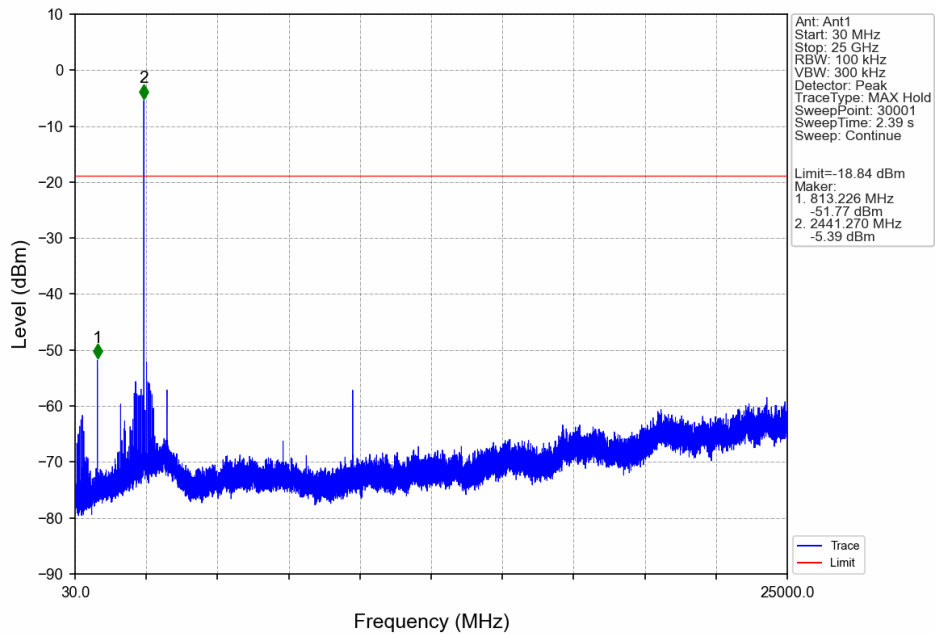
8-DPSK\_3DH5\_LCH\_2402MHz\_Ant1\_NTNV



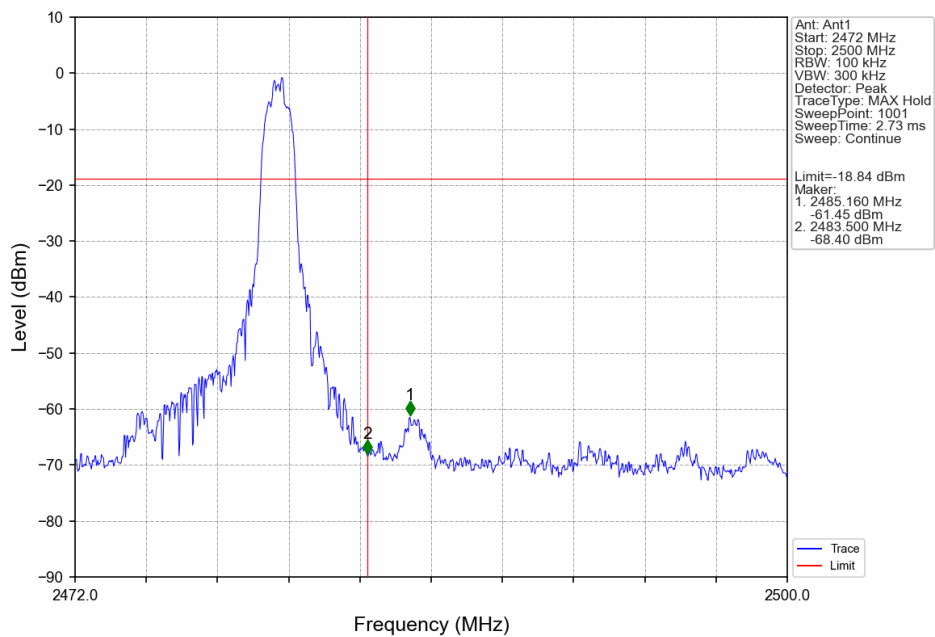
8-DPSK\_3DH5\_LCH\_2402MHz\_Ant1\_NTNV



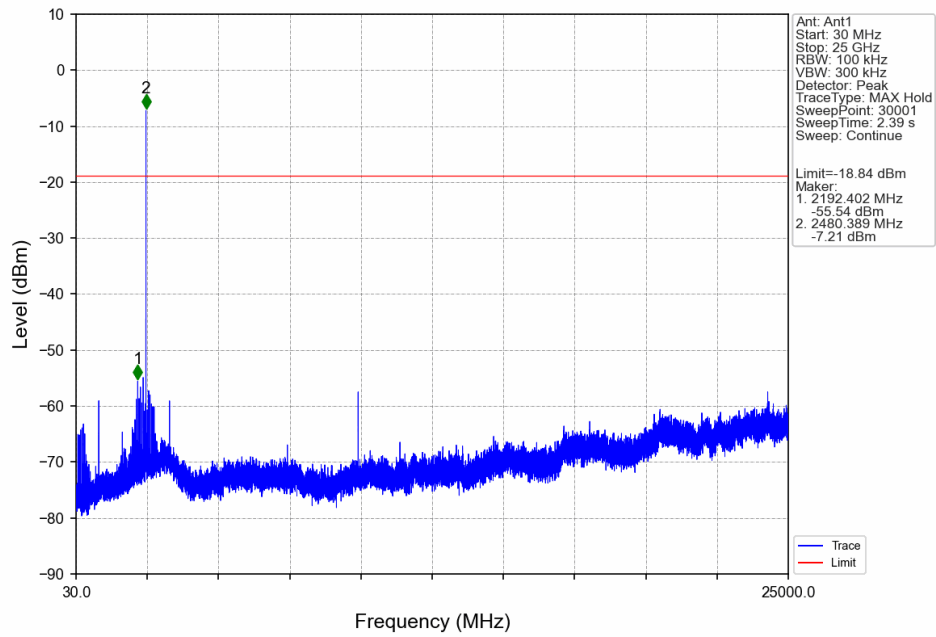
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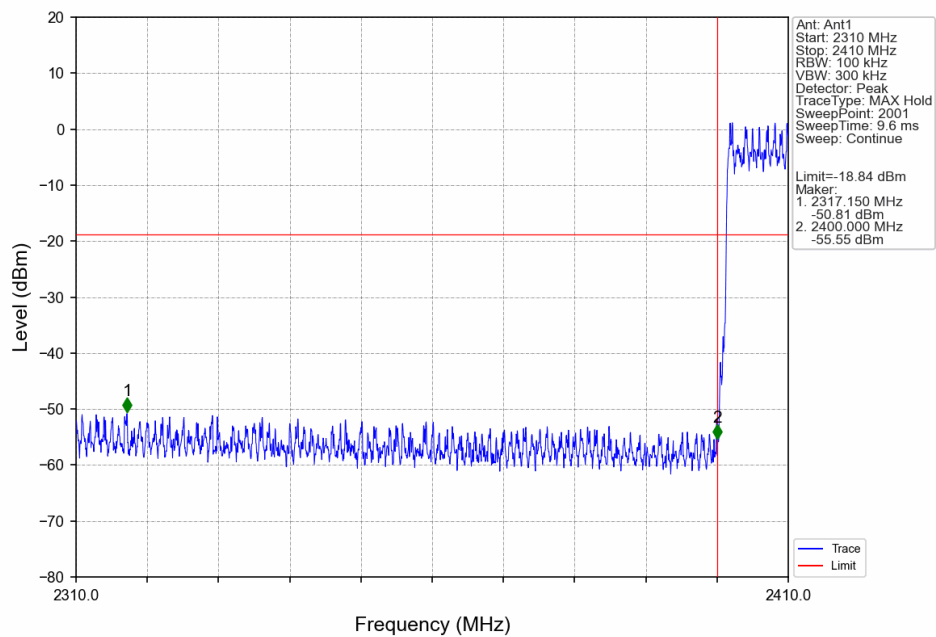
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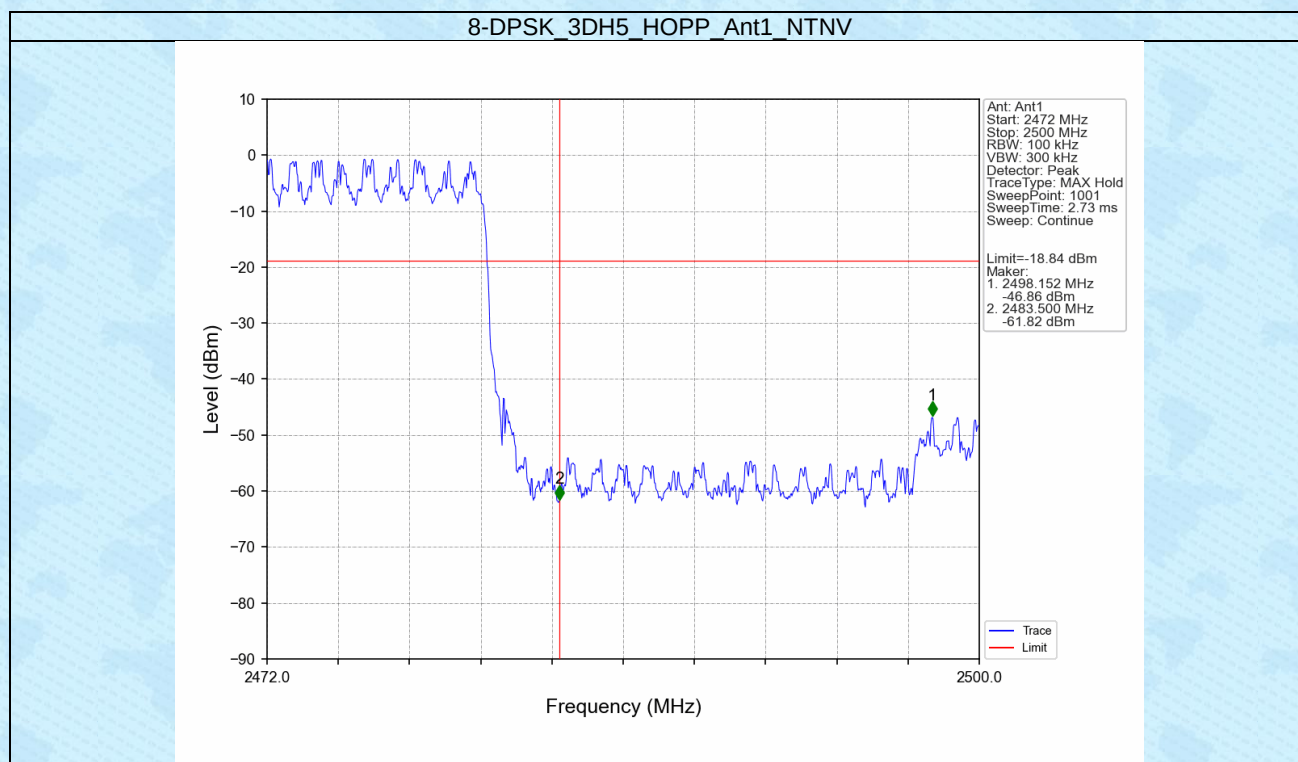


## 8-DPSK\_3DH5\_HCH\_2480MHz\_Ant1\_NTNV



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





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