

## **Appendix RF Test Data for BT**

**Company:** : Wuchao (Shenzhen) Technology Development Co., Ltd.

**EUT** : Pillow speaker

**FCC ID:** : 2BMKL-S-1

**Model Number** : S-1

**Report No.** : HTT202602325F01

**Reviewed By** : Heber He

## 1. Duty Cycle

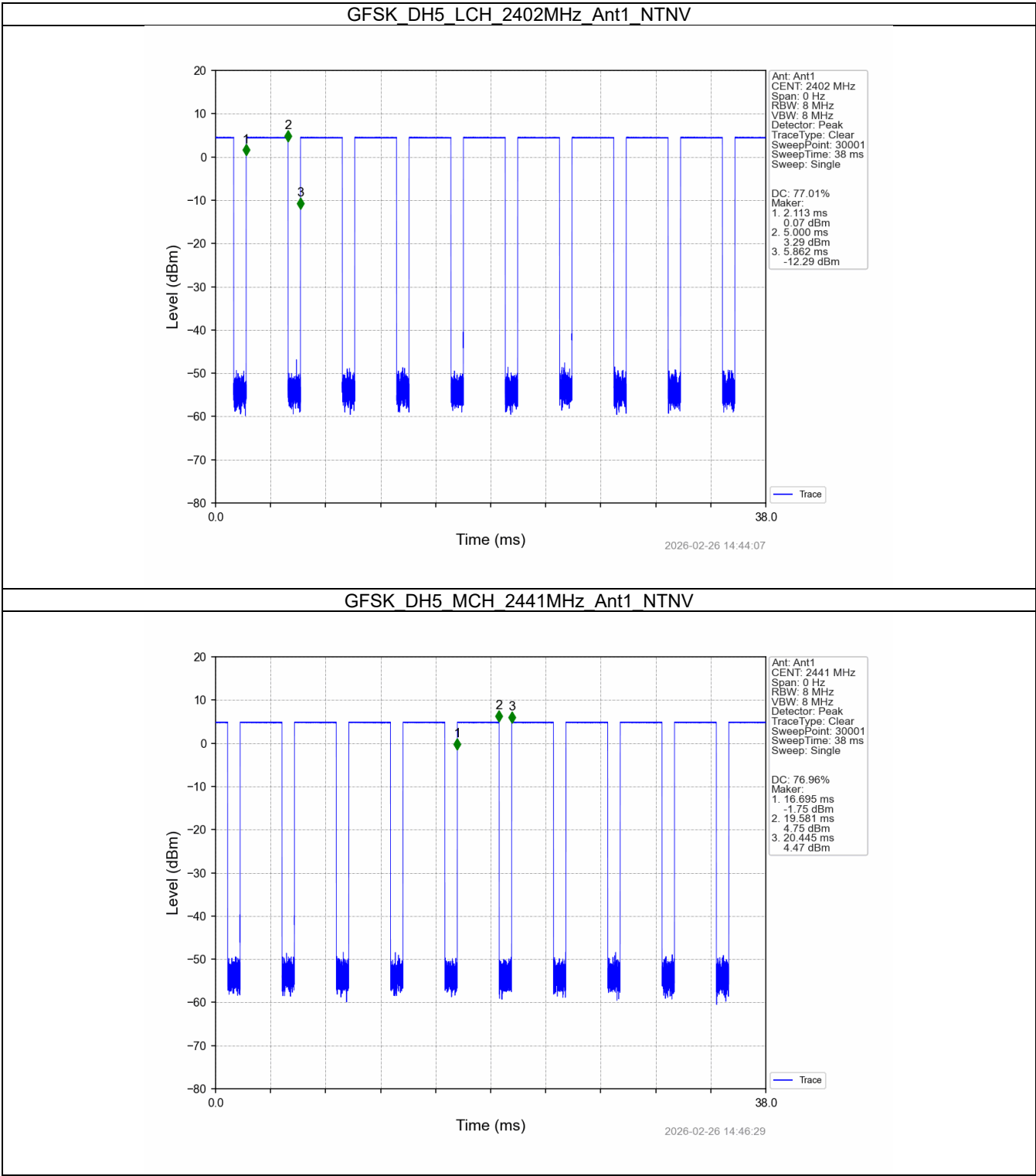
### 1.1 Test Result

#### 1.1.1 Ant1

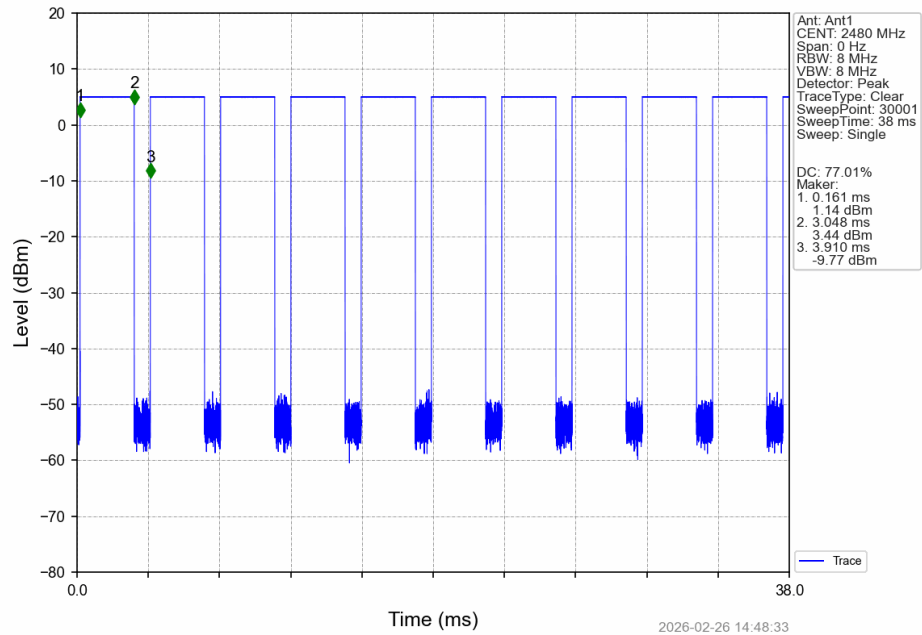
| Ant1      |         |                 |             |           |             |                |                                   |                       |
|-----------|---------|-----------------|-------------|-----------|-------------|----------------|-----------------------------------|-----------------------|
| Mode      | TX Type | Frequency (MHz) | Packet Type | T_on (ms) | Period (ms) | Duty Cycle (%) | Duty Cycle Correction Factor (dB) | Max. DC Variation (%) |
| GFSK      | SISO    | 2402            | DH5         | 2.887     | 3.749       | 77.01          | 1.13                              | 0.01                  |
|           |         | 2441            | DH5         | 2.886     | 3.750       | 76.96          | 1.14                              | 0.03                  |
|           |         | 2480            | DH5         | 2.887     | 3.749       | 77.01          | 1.13                              | 0.01                  |
| Pi/4DQPSK | SISO    | 2402            | 2DH5        | 2.893     | 3.750       | 77.15          | 1.13                              | 0.03                  |
|           |         | 2441            | 2DH5        | 2.892     | 3.750       | 77.12          | 1.13                              | 0.04                  |
|           |         | 2480            | 2DH5        | 2.900     | 3.750       | 77.33          | 1.12                              | 0.03                  |

# 1.2 Test Graph

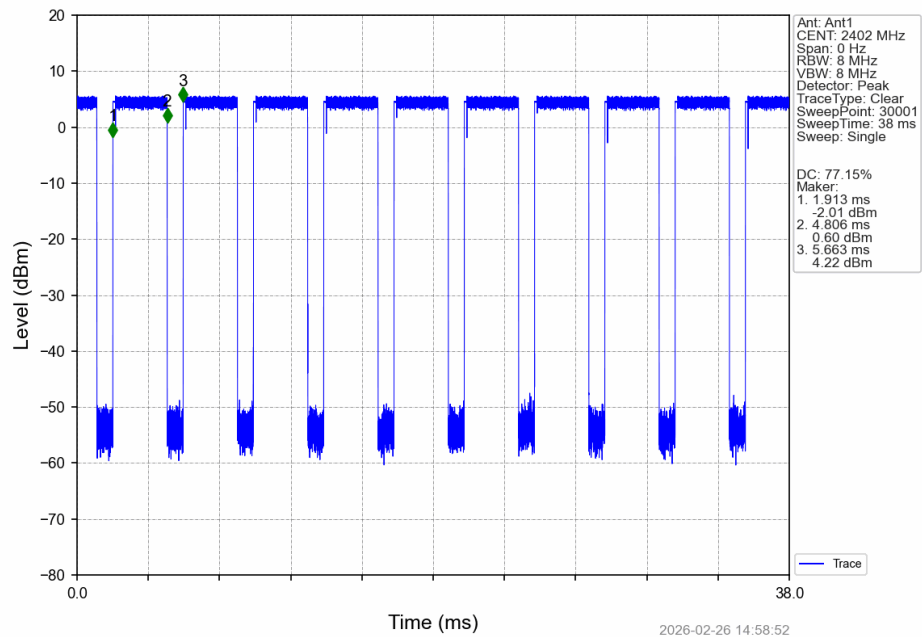
## 1.2.1 Ant1



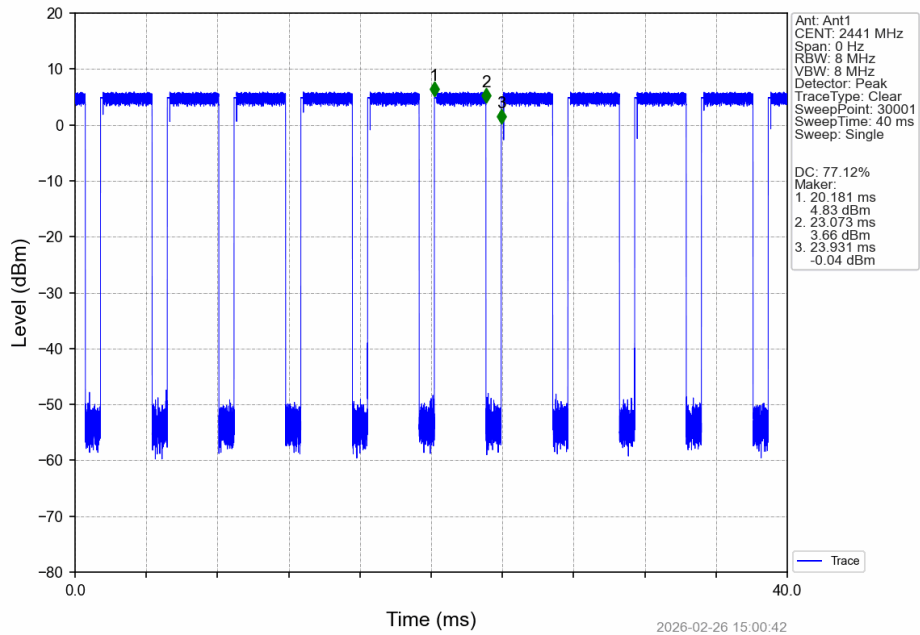
# GFSK DH5\_HCH\_2480MHz\_Ant1\_NTNV



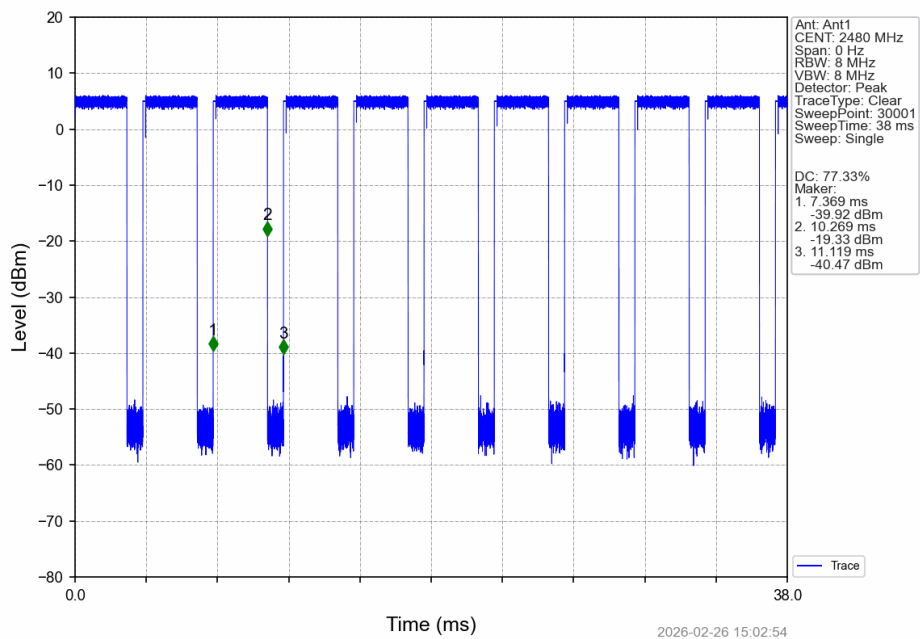
# Pi/4DQPSK\_2DH5\_LCH\_2402MHz\_Ant1\_NTNV



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



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



## 2. Bandwidth

### 2.1 Test Result

#### 2.1.1 OBW

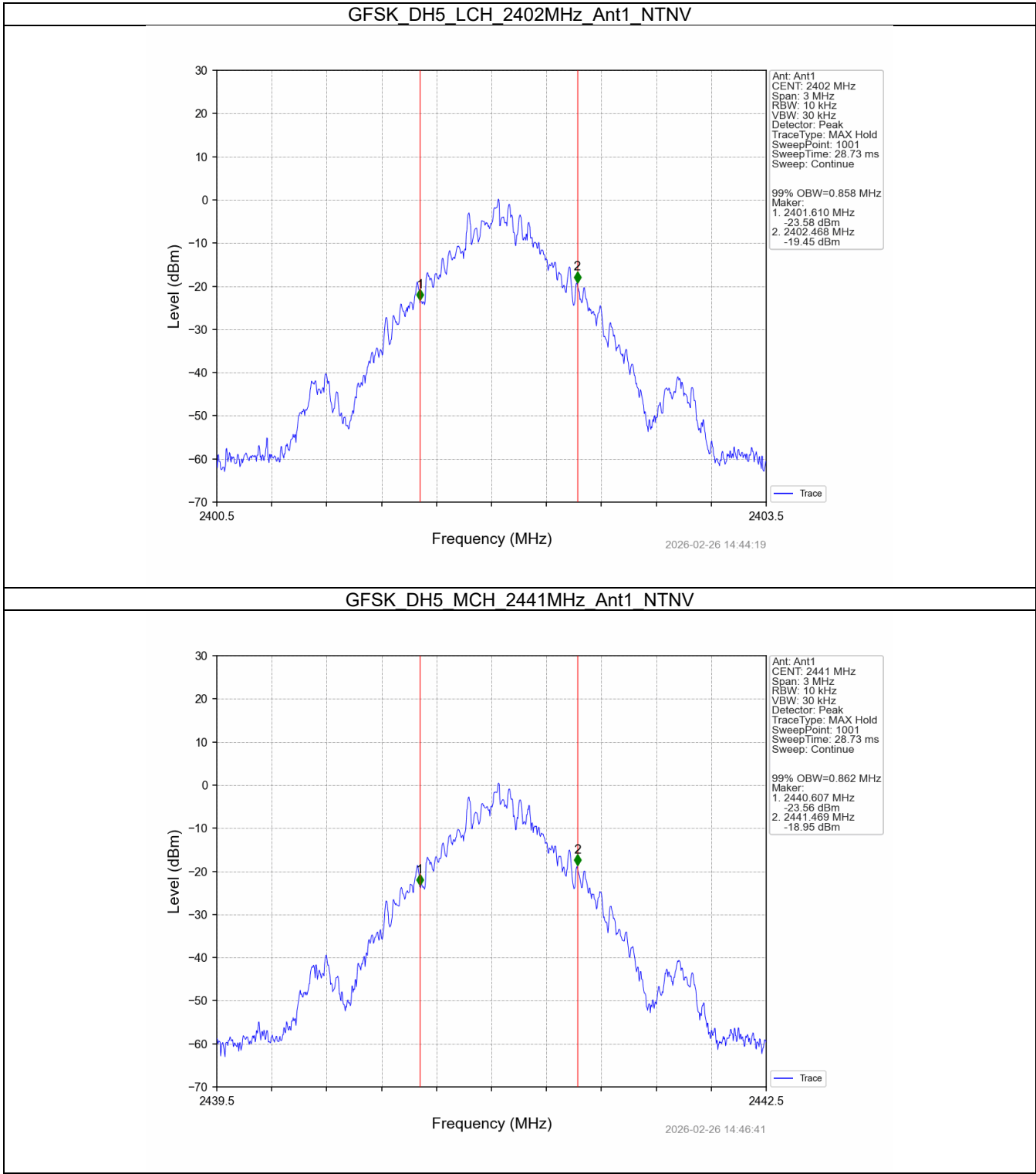
| Mode      | TX Type | Frequency (MHz) | Packet Type | ANT | 99% Occupied Bandwidth (MHz) |       | Verdict |
|-----------|---------|-----------------|-------------|-----|------------------------------|-------|---------|
|           |         |                 |             |     | Result                       | Limit |         |
| GFSK      | SISO    | 2402            | DH5         | 1   | 0.858                        | /     | Pass    |
|           |         | 2441            | DH5         | 1   | 0.862                        | /     | Pass    |
|           |         | 2480            | DH5         | 1   | 0.863                        | /     | Pass    |
| Pi/4DQPSK | SISO    | 2402            | 2DH5        | 1   | 1.184                        | /     | Pass    |
|           |         | 2441            | 2DH5        | 1   | 1.191                        | /     | Pass    |
|           |         | 2480            | 2DH5        | 1   | 1.184                        | /     | Pass    |

#### 2.1.2 20dB BW

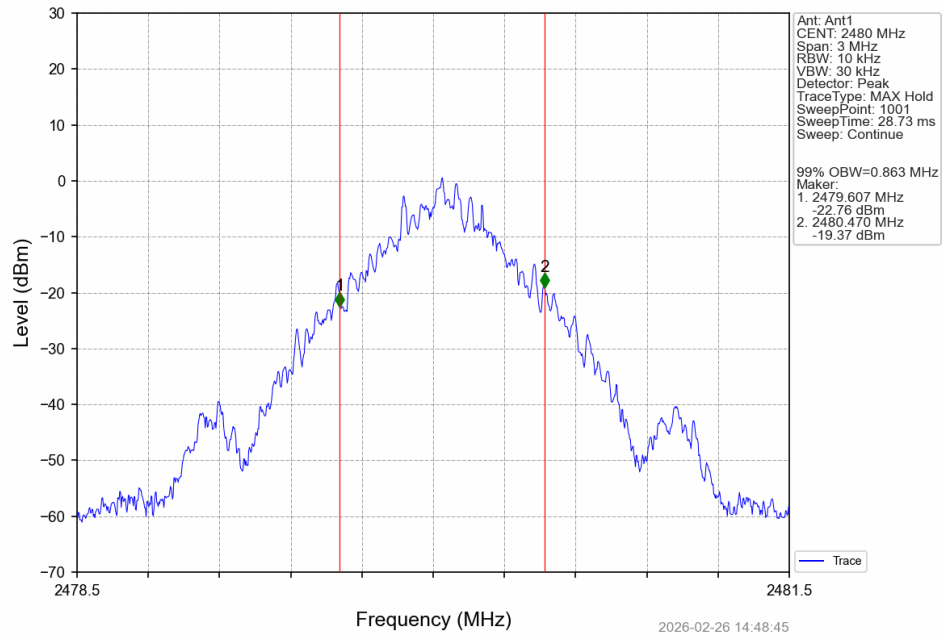
| Mode      | TX Type | Frequency (MHz) | Packet Type | ANT | 20dB Bandwidth (MHz) |       | Verdict |
|-----------|---------|-----------------|-------------|-----|----------------------|-------|---------|
|           |         |                 |             |     | Result               | Limit |         |
| GFSK      | SISO    | 2402            | DH5         | 1   | 0.923                | /     | Pass    |
|           |         | 2441            | DH5         | 1   | 0.880                | /     | Pass    |
|           |         | 2480            | DH5         | 1   | 0.882                | /     | Pass    |
| Pi/4DQPSK | SISO    | 2402            | 2DH5        | 1   | 1.260                | /     | Pass    |
|           |         | 2441            | 2DH5        | 1   | 1.258                | /     | Pass    |
|           |         | 2480            | 2DH5        | 1   | 1.299                | /     | Pass    |

2.2 Test Graph

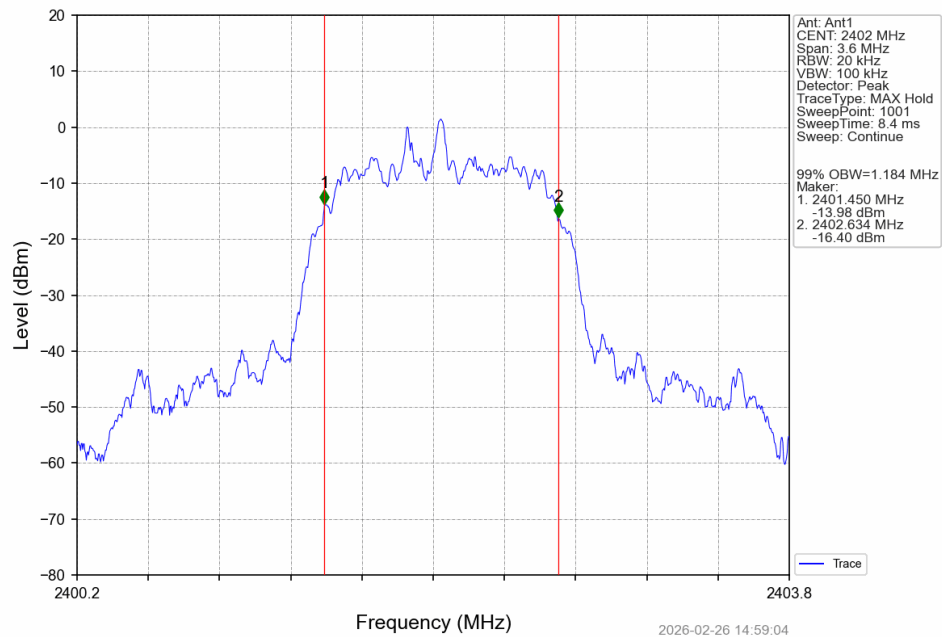
2.2.1 OBW



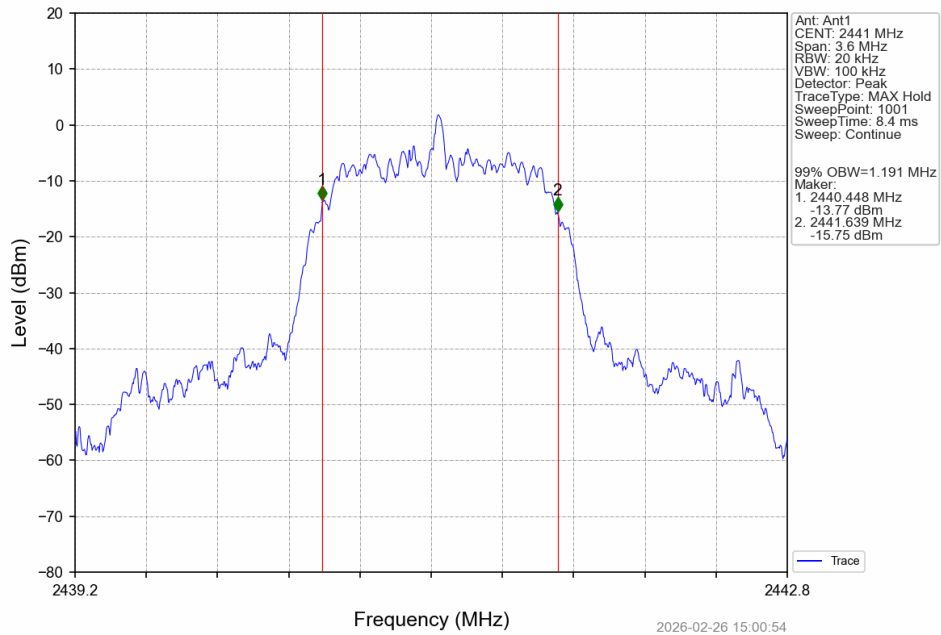
# GFSK DH5\_HCH\_2480MHz\_Ant1\_NTNV



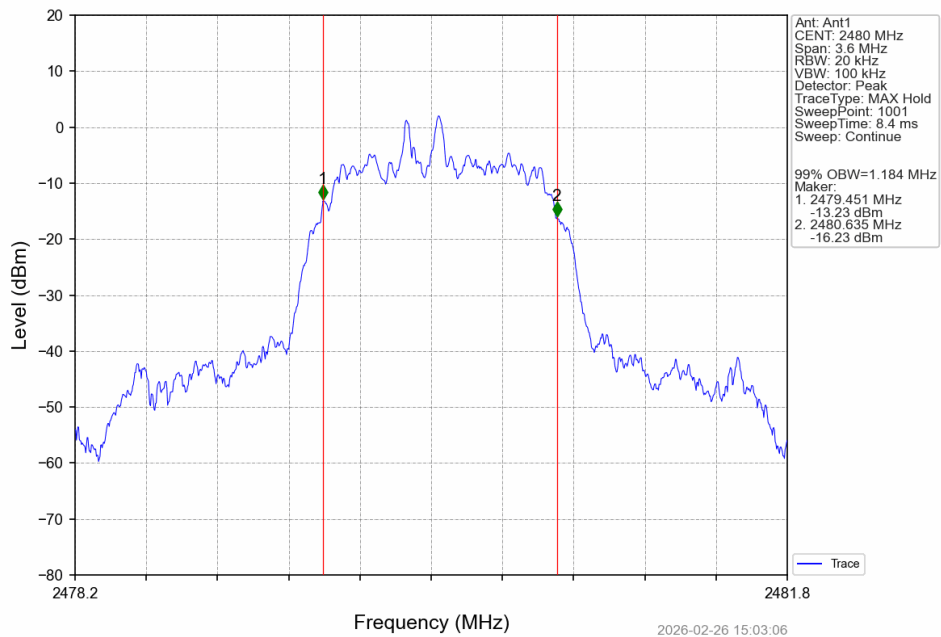
# Pi/4DQPSK\_2DH5\_LCH\_2402MHz\_Ant1\_NTNV



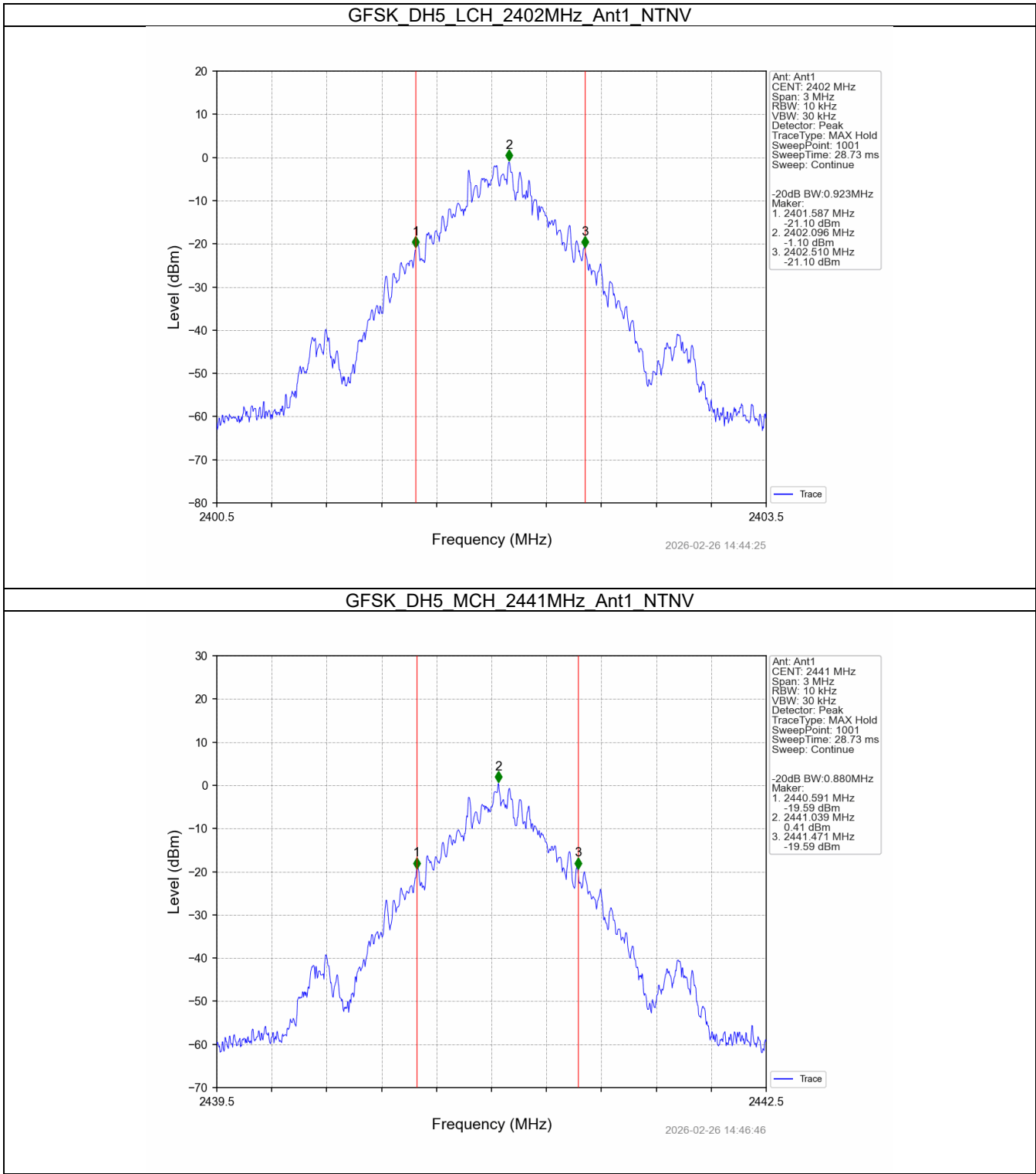
# Pi/4DQPSK\_2DH5\_MCH\_2441MHz\_Ant1\_NTNV



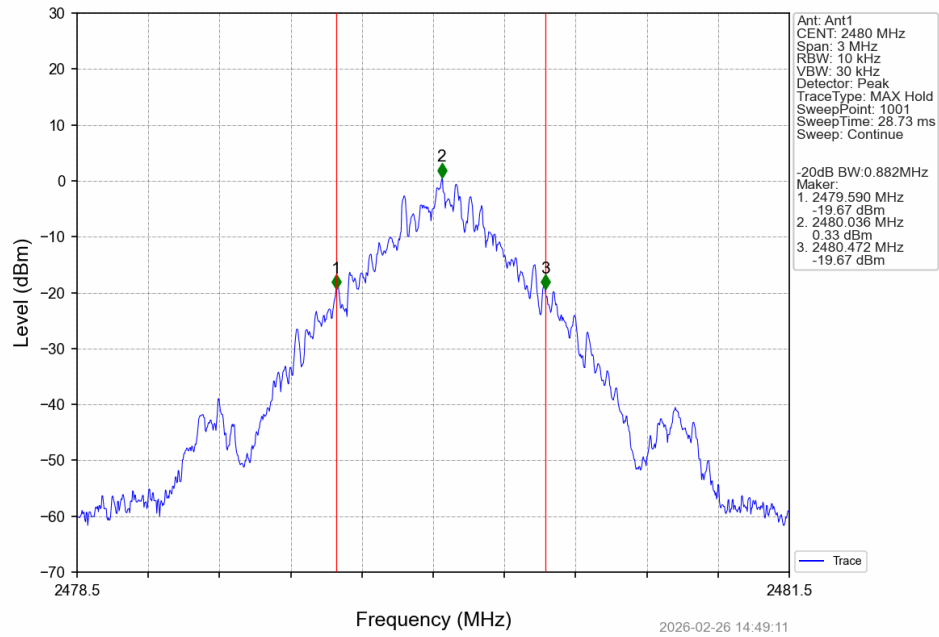
# Pi/4DQPSK\_2DH5\_HCH\_2480MHz\_Ant1\_NTNV



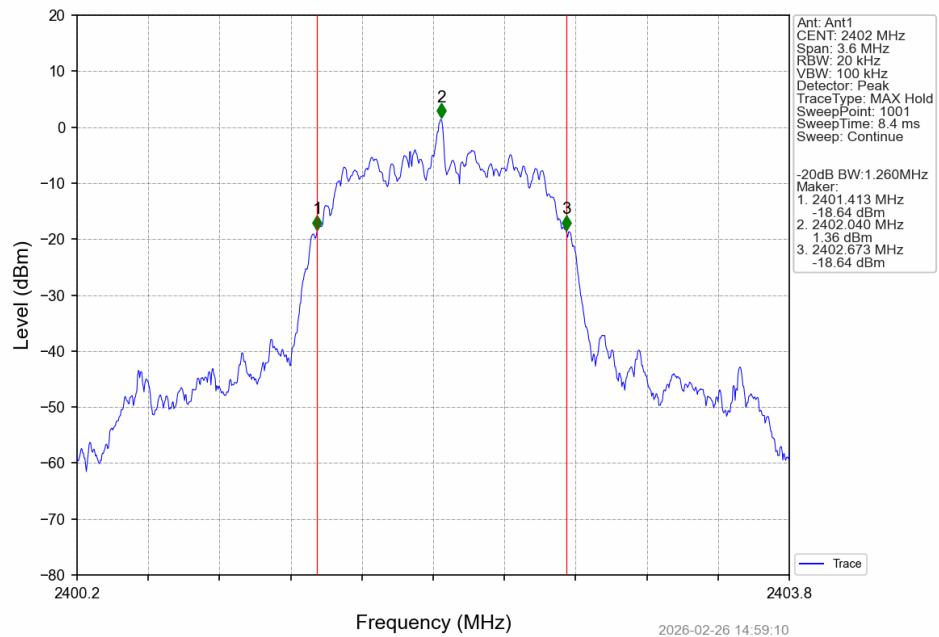
2.2.2 20dB BW



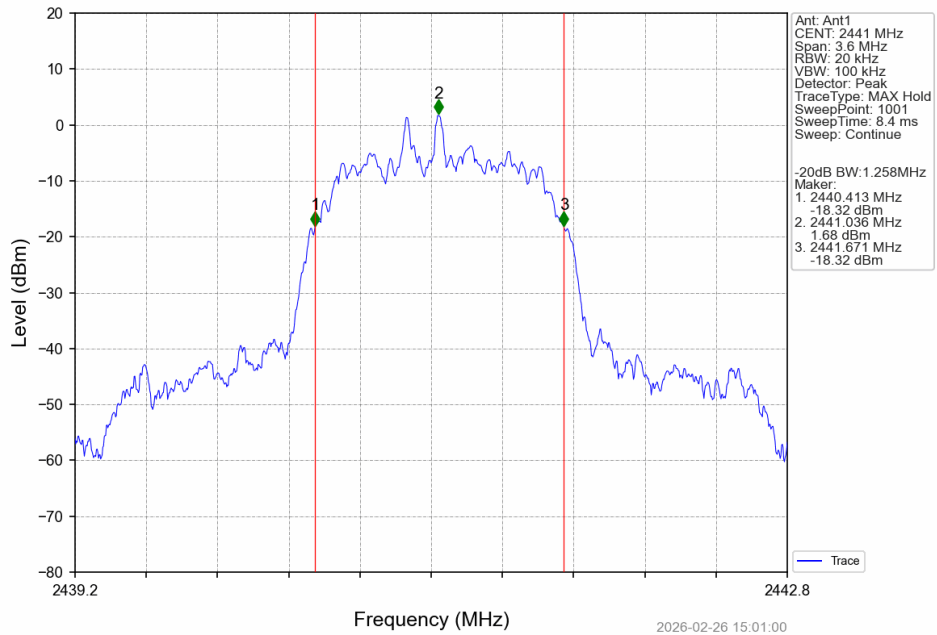
# GFSK DH5\_HCH\_2480MHz\_Ant1\_NTNV



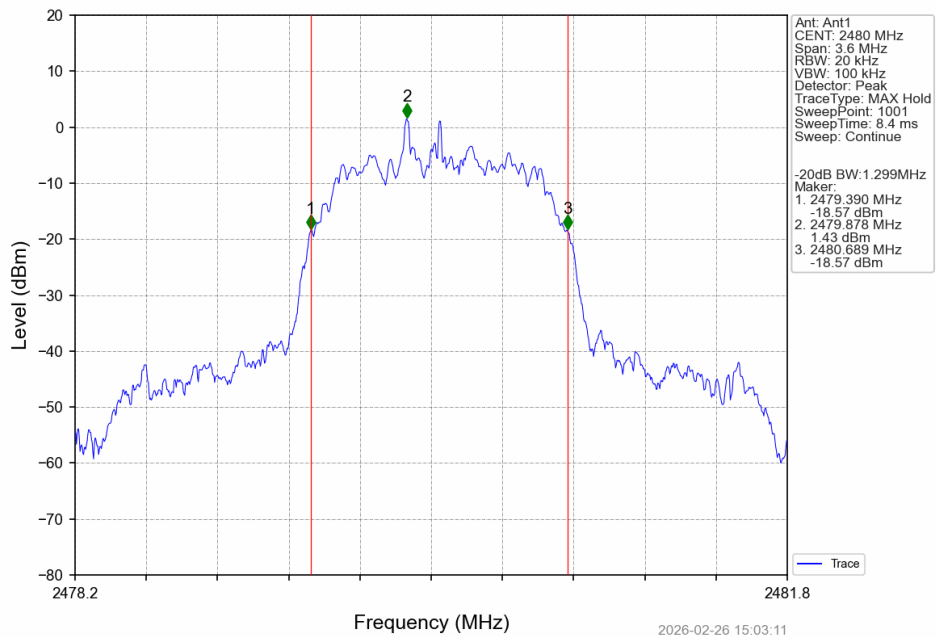
# Pi/4DQPSK\_2DH5\_LCH\_2402MHz\_Ant1\_NTNV



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



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



### 3. Maximum Conducted Output Power

#### 3.1 Test Result

##### 3.1.1 Power

| Mode      | TX Type | Frequency (MHz) | Packet Type | Maximum Peak Conducted Output Power (dBm) |         | Verdict |
|-----------|---------|-----------------|-------------|-------------------------------------------|---------|---------|
|           |         |                 |             | ANT1                                      | Limit   |         |
| GFSK      | SISO    | 2402            | DH5         | 4.52                                      | <=30    | Pass    |
|           |         | 2441            | DH5         | 4.86                                      | <=30    | Pass    |
|           |         | 2480            | DH5         | 5.03                                      | <=30    | Pass    |
| PI/4DQPSK | SISO    | 2402            | 2DH5        | 5.36                                      | <=20.97 | Pass    |
|           |         | 2441            | 2DH5        | 5.68                                      | <=20.97 | Pass    |
|           |         | 2480            | 2DH5        | 5.85                                      | <=20.97 | Pass    |

## 4. Carrier Frequency Separation

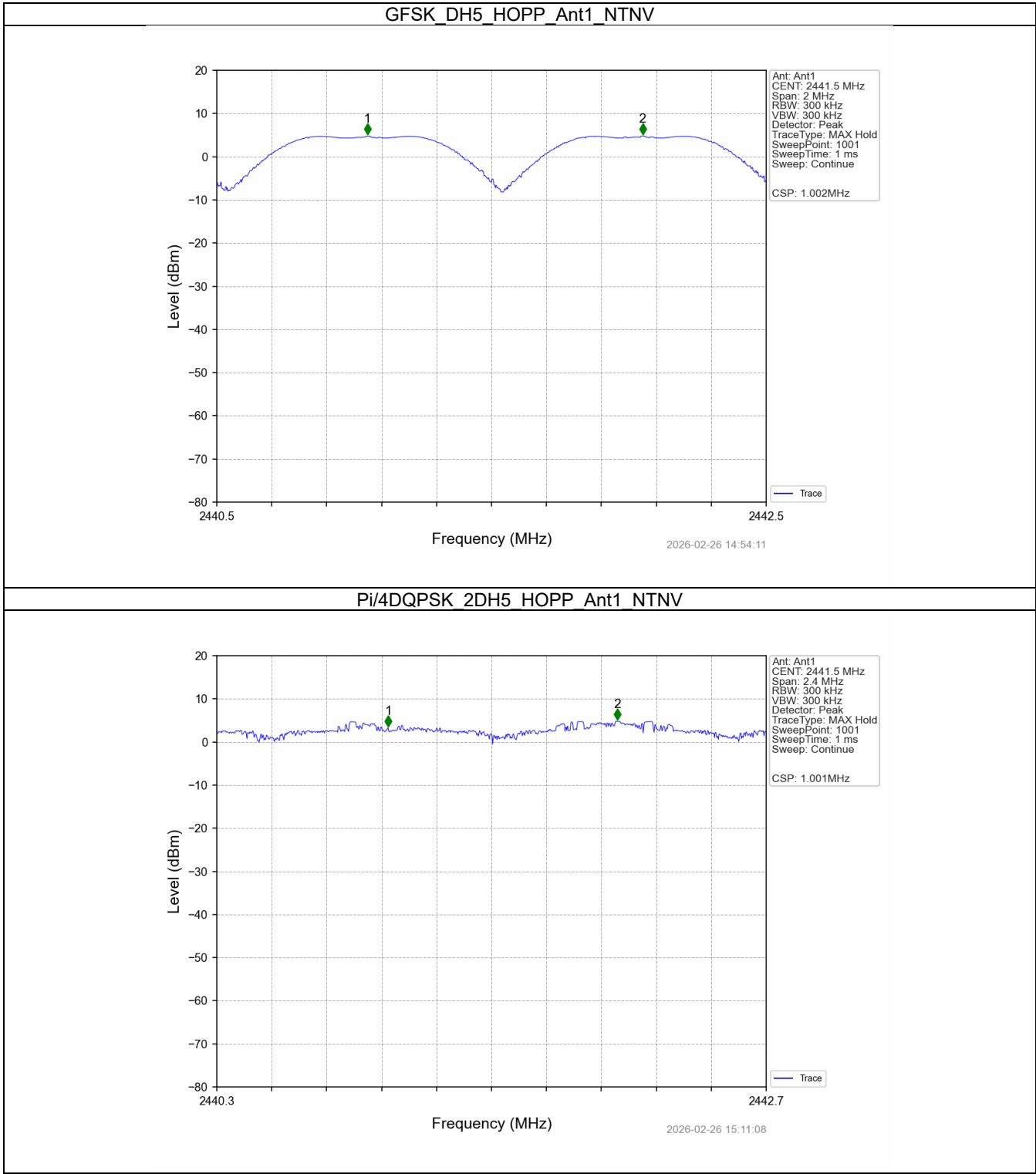
### 4.1 Test Result

#### 4.1.1 Ant1

| Ant1      |         |                 |             |                          |                      |              |         |
|-----------|---------|-----------------|-------------|--------------------------|----------------------|--------------|---------|
| Mode      | TX Type | Frequency (MHz) | Packet Type | Channel Separation (MHz) | 20dB Bandwidth (MHz) | Limit (MHz)  | Verdict |
| GFSK      | SISO    | HOPP            | DH5         | 1.002                    | 0.923                | $\geq 0.923$ | Pass    |
| Pi/4DQPSK | SISO    | HOPP            | 2DH5        | 1.001                    | 1.299                | $\geq 0.866$ | Pass    |

4.2 Test Graph

4.2.1 Ant1



## 5. Number of Hopping Frequencies

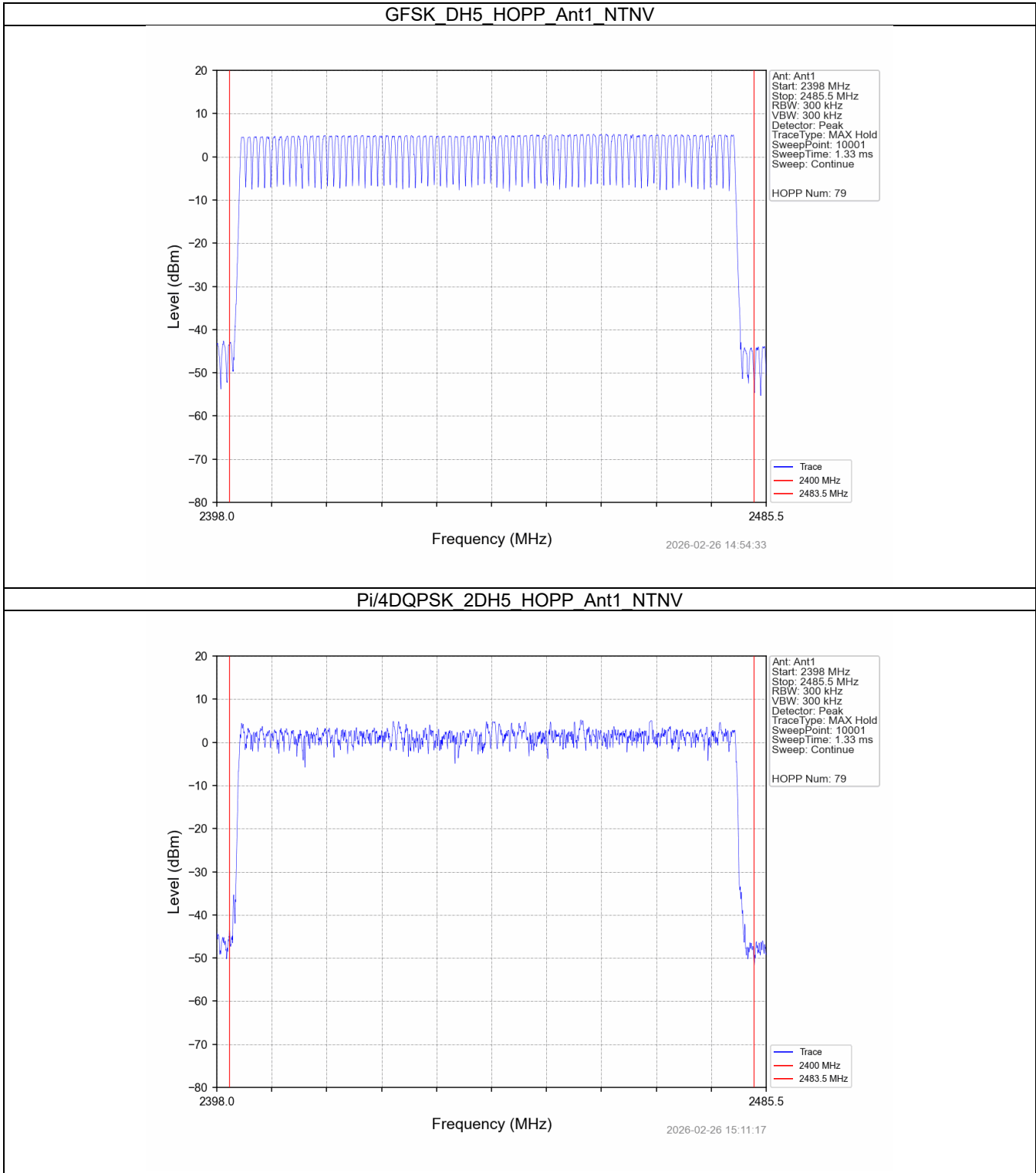
### 5.1 Test Result

#### 5.1.1 HoppNum

| Mode      | TX Type | Frequency (MHz) | Packet Type | Num of Hopping Frequencies |       | Verdict |
|-----------|---------|-----------------|-------------|----------------------------|-------|---------|
|           |         |                 |             | ANT1                       | Limit |         |
| GFSK      | SISO    | HOPP            | DH5         | 79                         | >=15  | Pass    |
| Pi/4DQPSK | SISO    | HOPP            | 2DH5        | 79                         | >=15  | Pass    |

5.2 Test Graph

5.2.1 HoppNum



## 6. Time of Occupancy (Dwell Time)

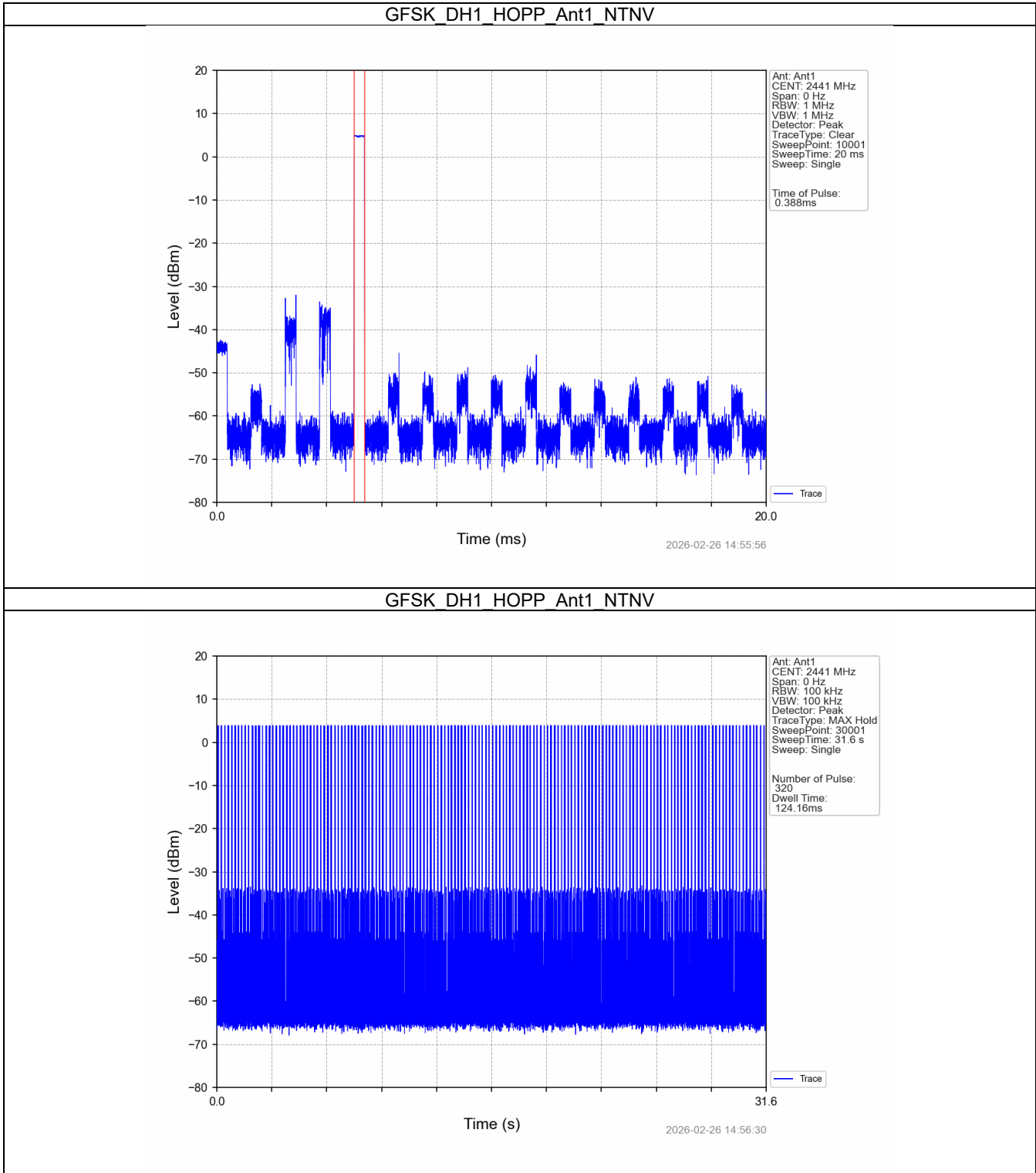
### 6.1 Test Result

#### 6.1.1 Ant1

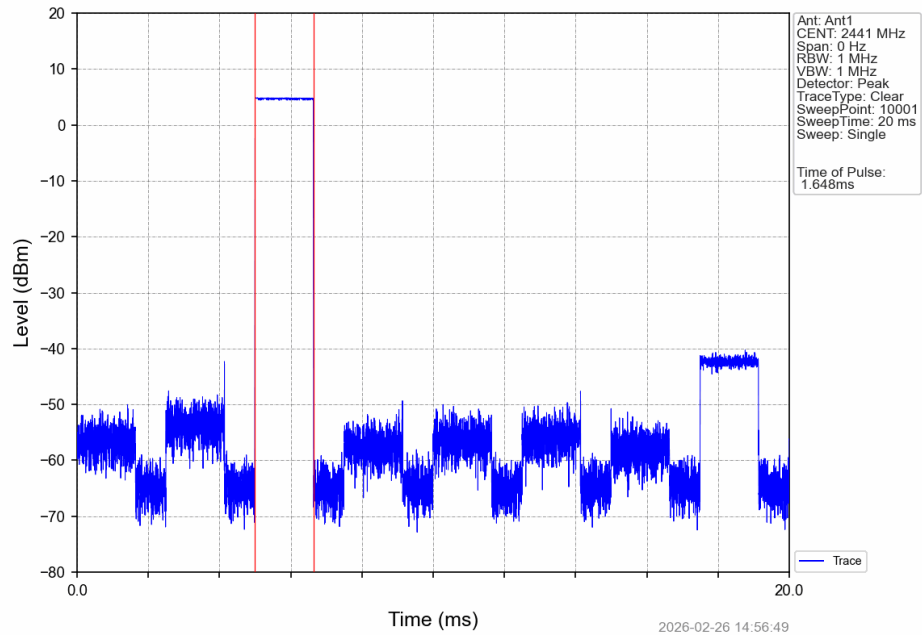
| Ant1      |         |                 |             |                               |                        |                                    |                 |            |         |
|-----------|---------|-----------------|-------------|-------------------------------|------------------------|------------------------------------|-----------------|------------|---------|
| 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         | 0.388                         | 31.600                 | 320                                | 124.160         | <=400      | Pass    |
|           |         |                 | DH3         | 1.648                         | 31.600                 | 159                                | 262.032         | <=400      | Pass    |
|           |         |                 | DH5         | 2.894                         | 31.600                 | 90                                 | 260.460         | <=400      | Pass    |
| Pi/4DQPSK | SISO    | HOPP            | 2DH1        | 0.396                         | 31.600                 | 320                                | 126.720         | <=400      | Pass    |
|           |         |                 | 2DH3        | 1.654                         | 31.600                 | 155                                | 256.370         | <=400      | Pass    |
|           |         |                 | 2DH5        | 2.896                         | 31.600                 | 98                                 | 283.808         | <=400      | Pass    |

6.2 Test Graph

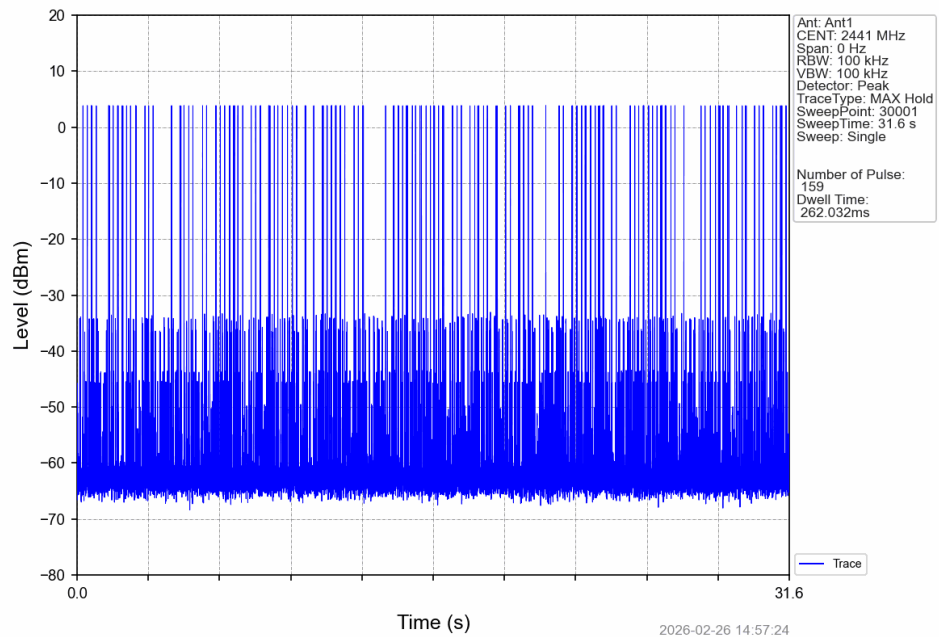
6.2.1 Ant1



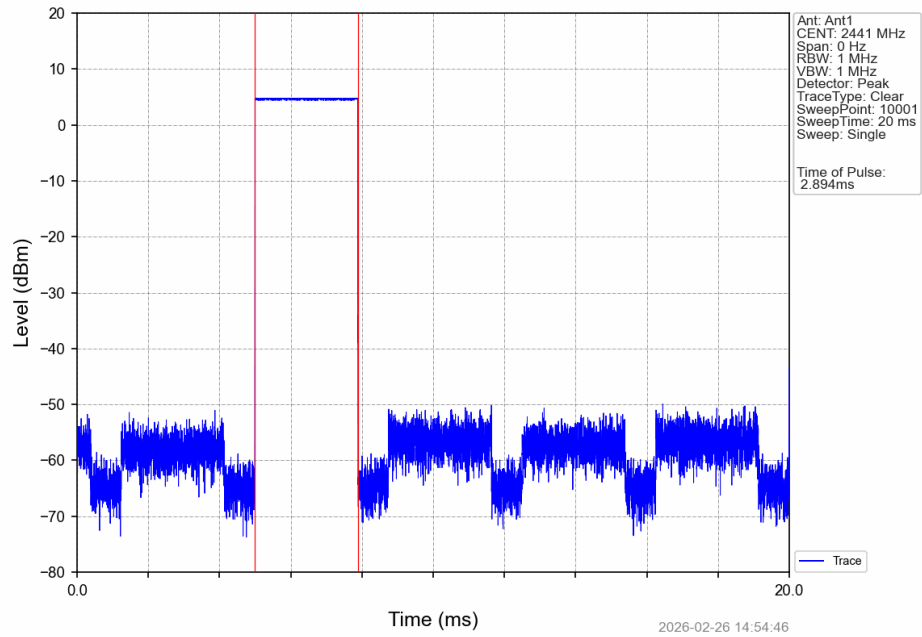
# GFSK\_DH3\_HOPP\_Ant1\_NTNV



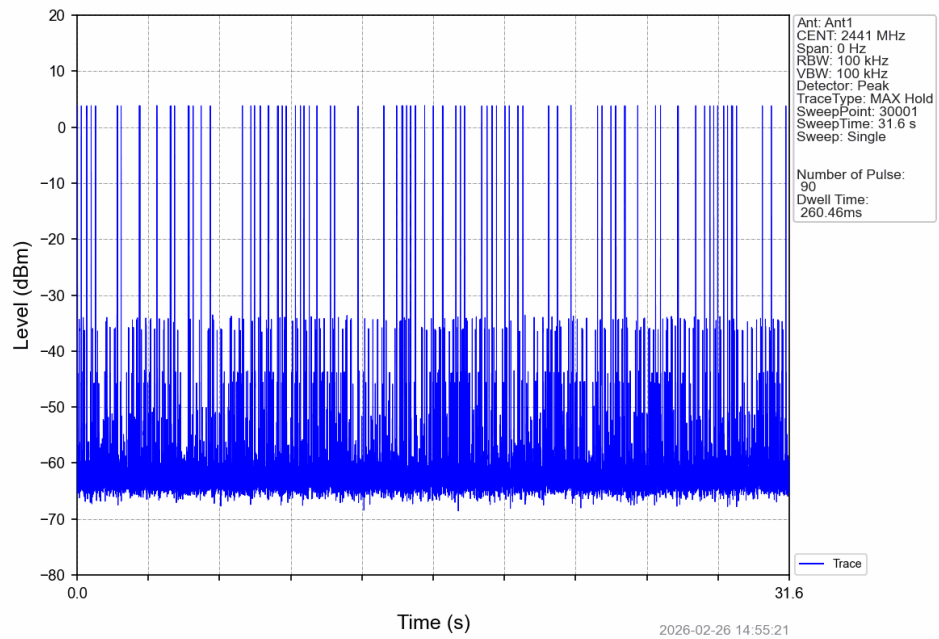
# GFSK\_DH3\_HOPP\_Ant1\_NTNV



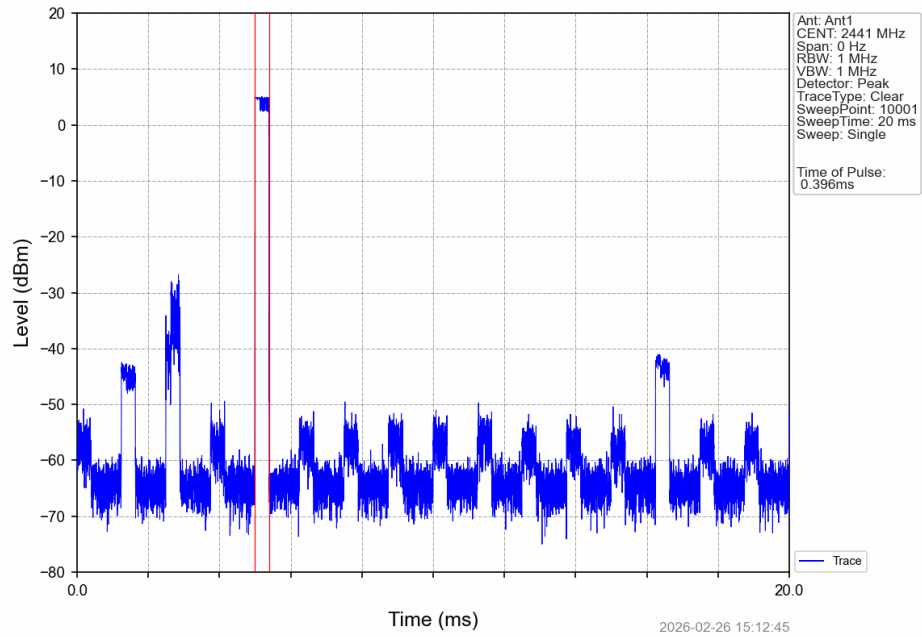
# GFSK\_DH5\_HOPP\_Ant1\_NTNV



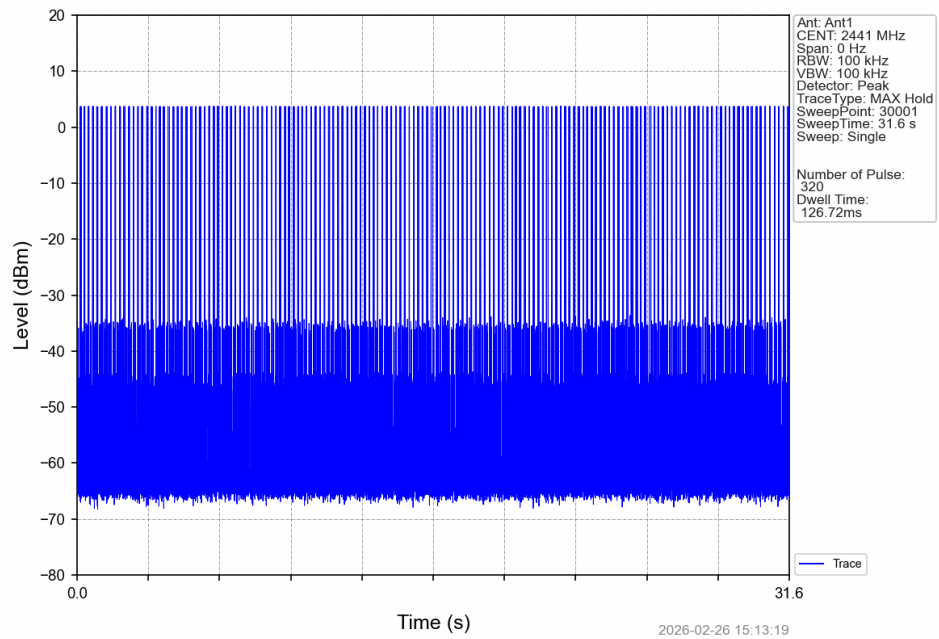
# GFSK\_DH5\_HOPP\_Ant1\_NTNV



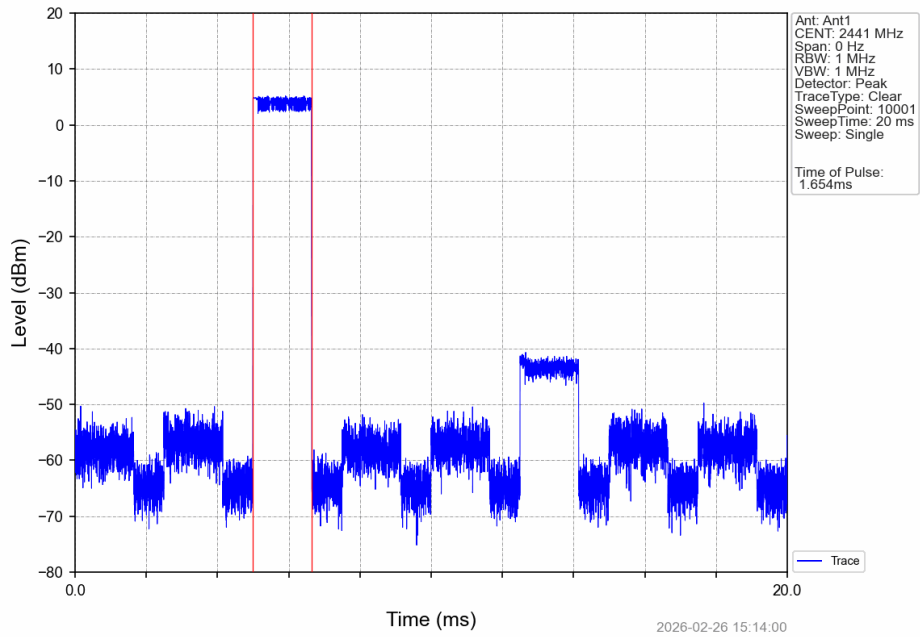
# Pi/4DQPSK\_2DH1\_HOPP\_Ant1\_NTNV



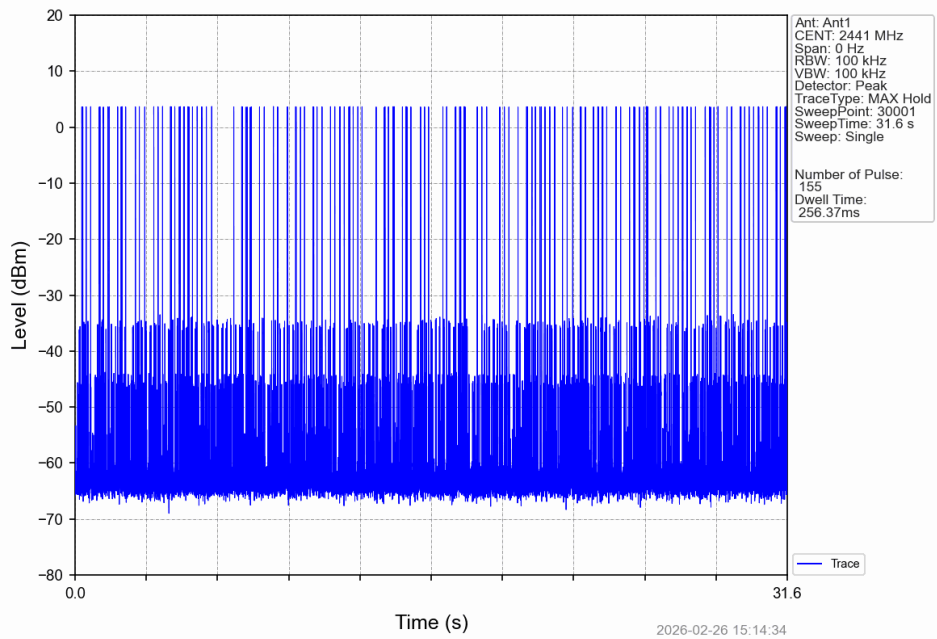
# Pi/4DQPSK\_2DH1\_HOPP\_Ant1\_NTNV



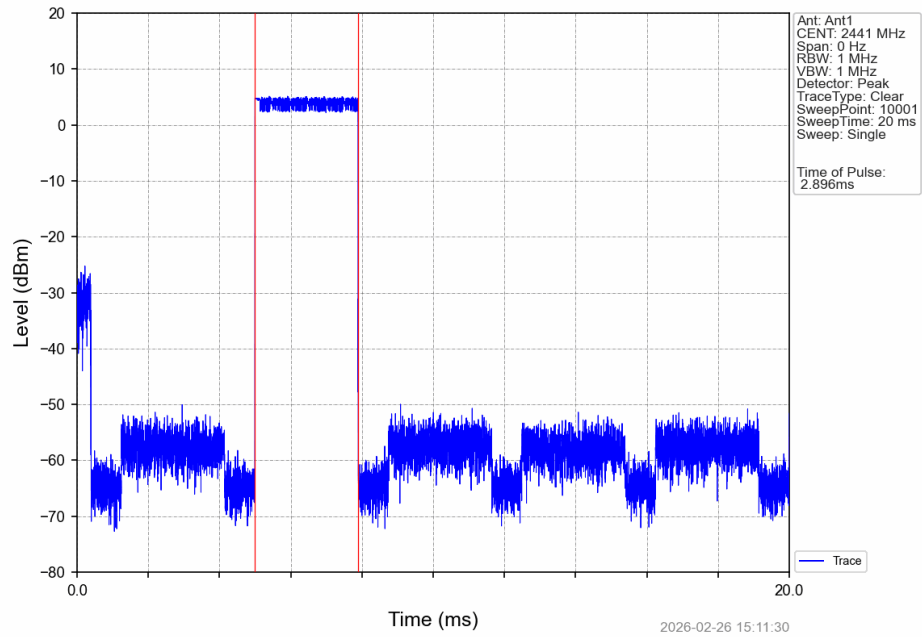
# Pi/4DQPSK\_2DH3\_HOPP\_Ant1\_NTNV



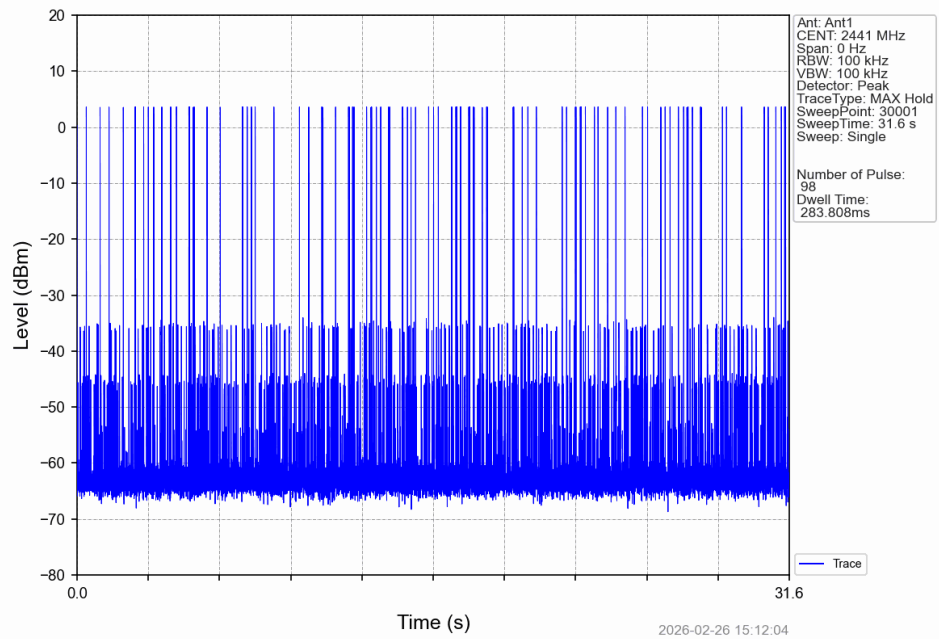
# Pi/4DQPSK\_2DH3\_HOPP\_Ant1\_NTNV



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



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



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

### 7.1 Test Result

#### 7.1.1 Ref

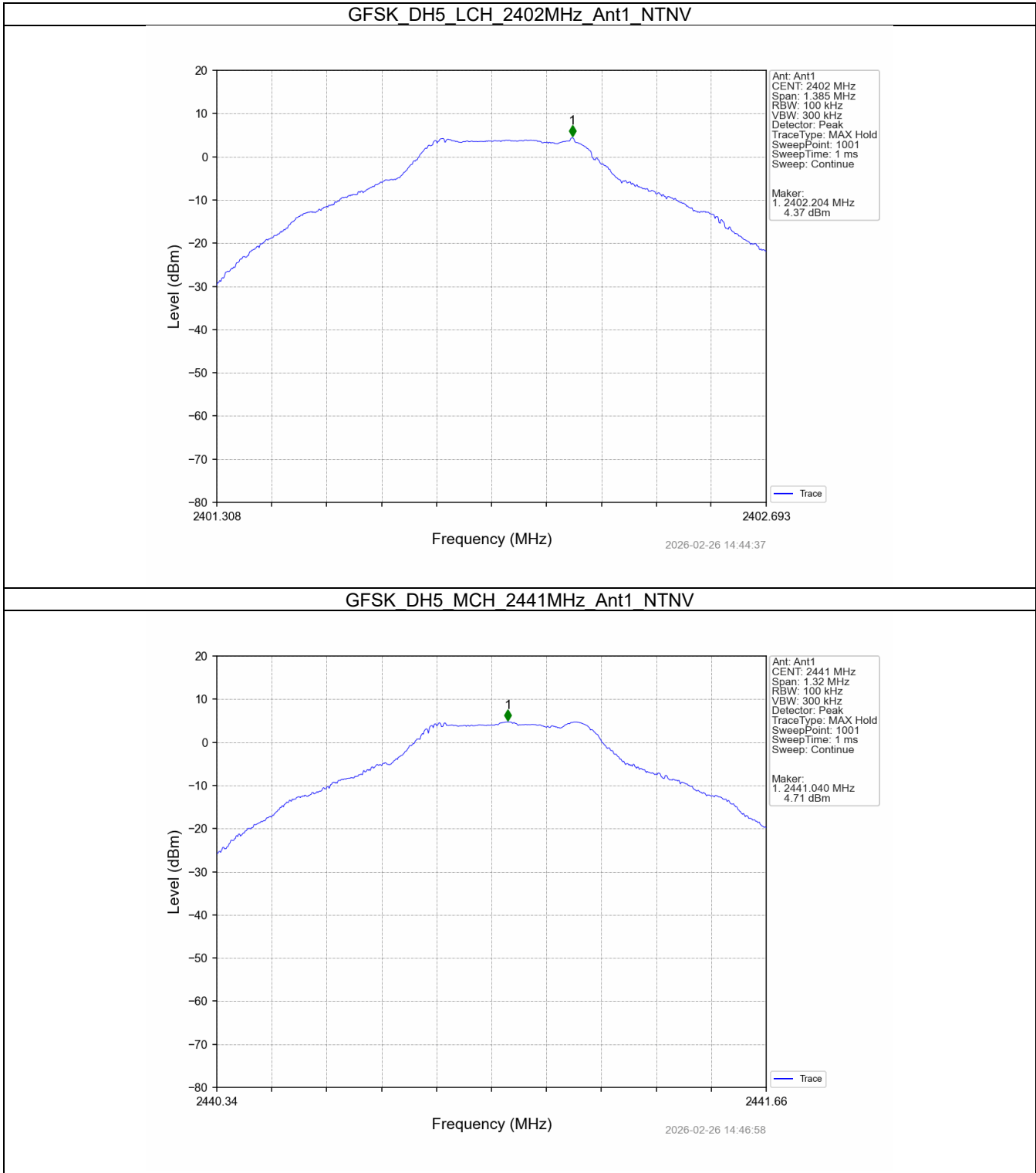
| Mode      | TX Type | Frequency (MHz) | Packet Type | ANT | Level of Reference (dBm) |
|-----------|---------|-----------------|-------------|-----|--------------------------|
| GFSK      | SISO    | 2402            | DH5         | 1   | 4.37                     |
|           |         | 2441            | DH5         | 1   | 4.71                     |
|           |         | 2480            | DH5         | 1   | 4.92                     |
|           |         | HOPP            | DH5         | 1   | 4.86                     |
|           |         |                 |             |     | 4.86                     |
| Pi/4DQPSK | SISO    | 2402            | 2DH5        | 1   | 4.39                     |
|           |         | 2441            | 2DH5        | 1   | 4.70                     |
|           |         | 2480            | 2DH5        | 1   | 4.91                     |
|           |         | HOPP            | 2DH5        | 1   | 5.07                     |
|           |         |                 |             |     | 5.07                     |

#### 7.1.2 CSE

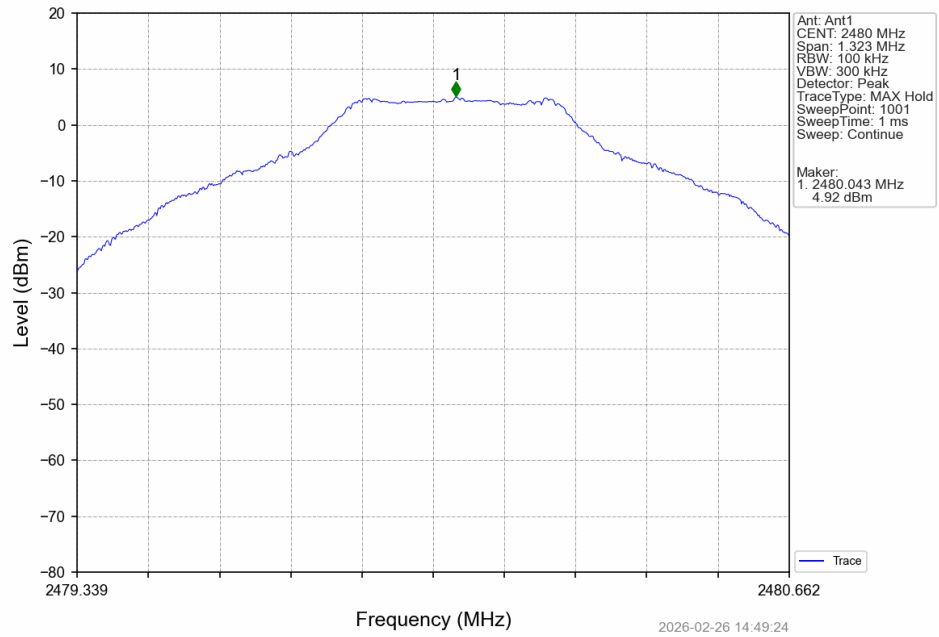
| Mode      | TX Type | Frequency (MHz) | Packet Type | ANT | Level of Reference (dBm) | Limit (dBm) | Verdict |
|-----------|---------|-----------------|-------------|-----|--------------------------|-------------|---------|
| GFSK      | SISO    | 2402            | DH5         | 1   | 4.37                     | -15.63      | Pass    |
|           |         | 2441            | DH5         | 1   | 4.71                     | -15.29      | Pass    |
|           |         | 2480            | DH5         | 1   | 4.92                     | -15.08      | Pass    |
|           |         | HOPP            | DH5         | 1   | 4.86                     | -15.14      | Pass    |
|           |         |                 |             |     | 4.86                     | -15.14      | Pass    |
| Pi/4DQPSK | SISO    | 2402            | 2DH5        | 1   | 4.39                     | -15.61      | Pass    |
|           |         | 2441            | 2DH5        | 1   | 4.70                     | -15.30      | Pass    |
|           |         | 2480            | 2DH5        | 1   | 4.91                     | -15.09      | Pass    |
|           |         | HOPP            | 2DH5        | 1   | 5.07                     | -14.93      | Pass    |
|           |         |                 |             |     | 5.07                     | -14.93      | Pass    |

7.2 Test Graph

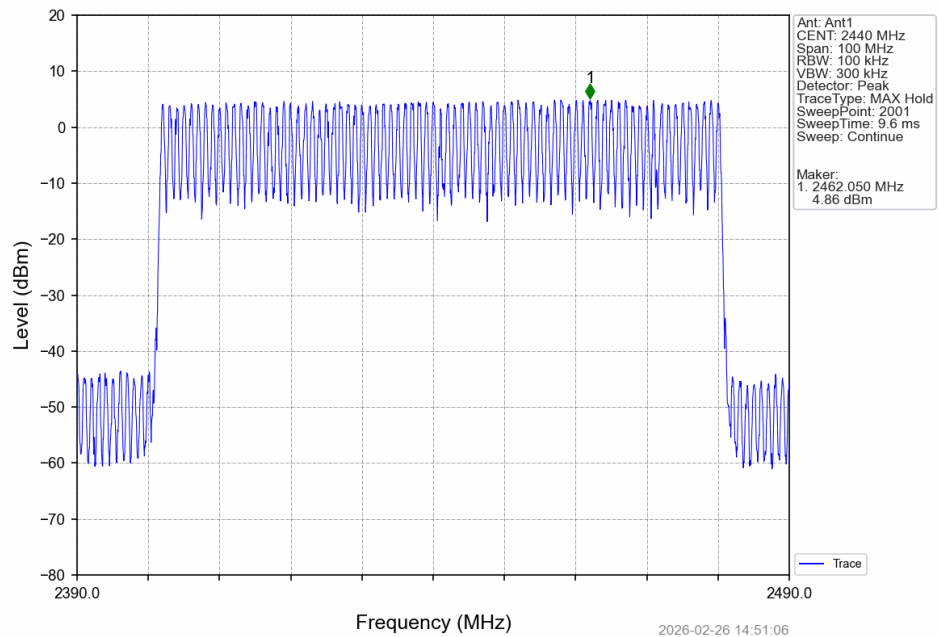
7.2.1 Ref



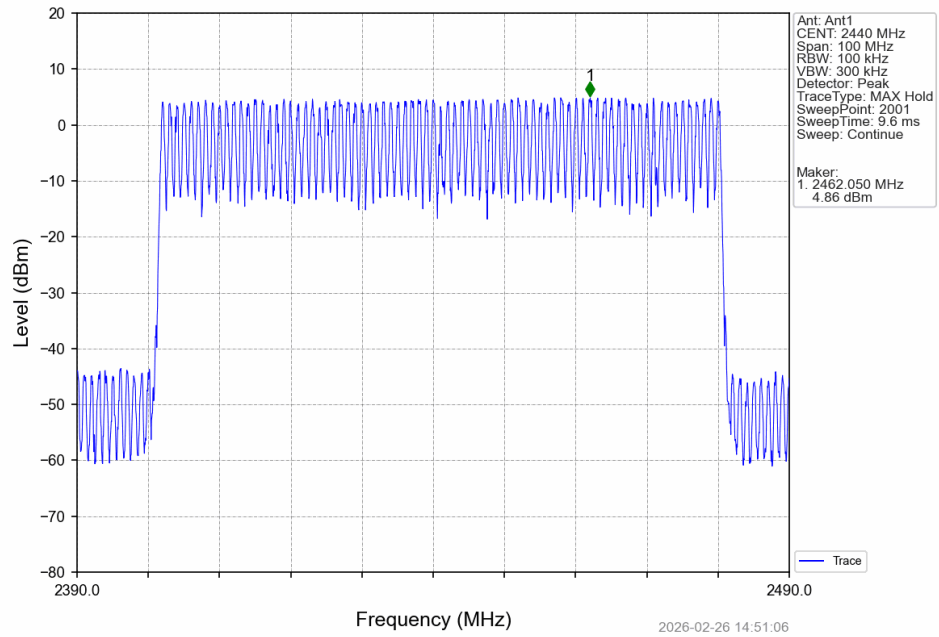
# GFSK DH5\_HCH\_2480MHz\_Ant1\_NTNV



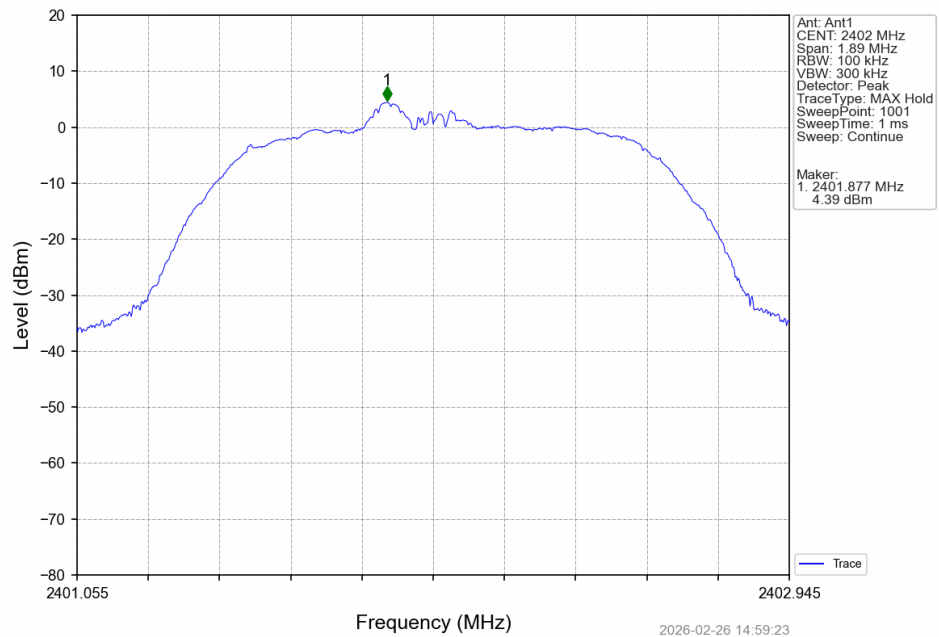
# GFSK\_DH5\_HOPP\_Ant1\_NTNV



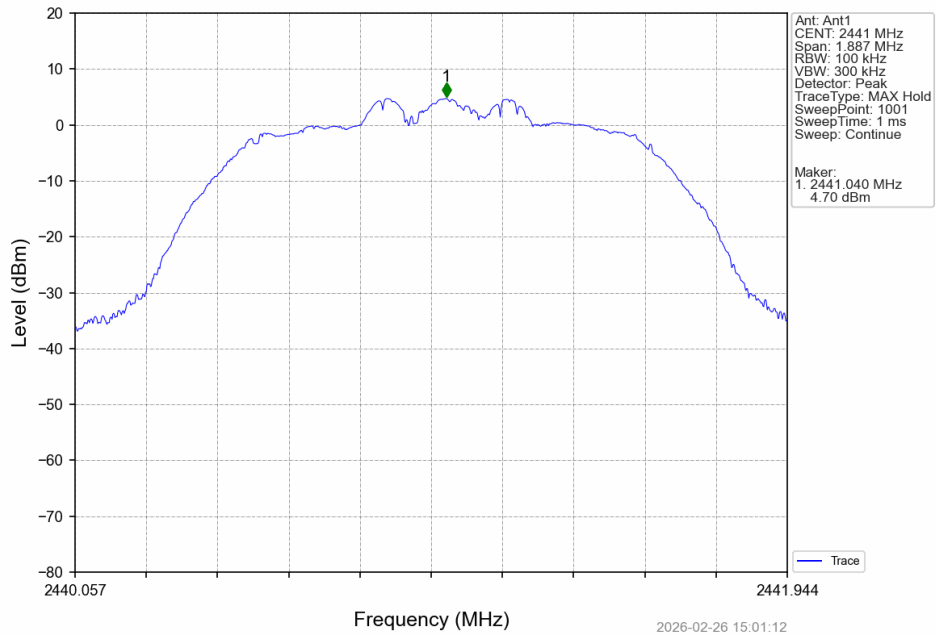
# GFSK\_DH5\_HOPP\_Ant1\_NTNV



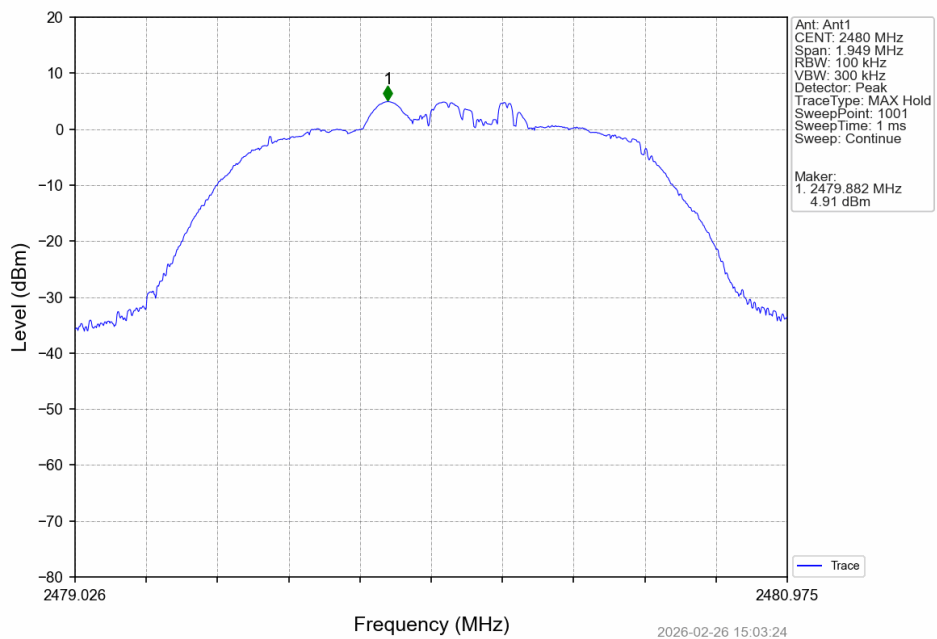
# Pi/4DQPSK\_2DH5\_LCH\_2402MHz\_Ant1\_NTNV



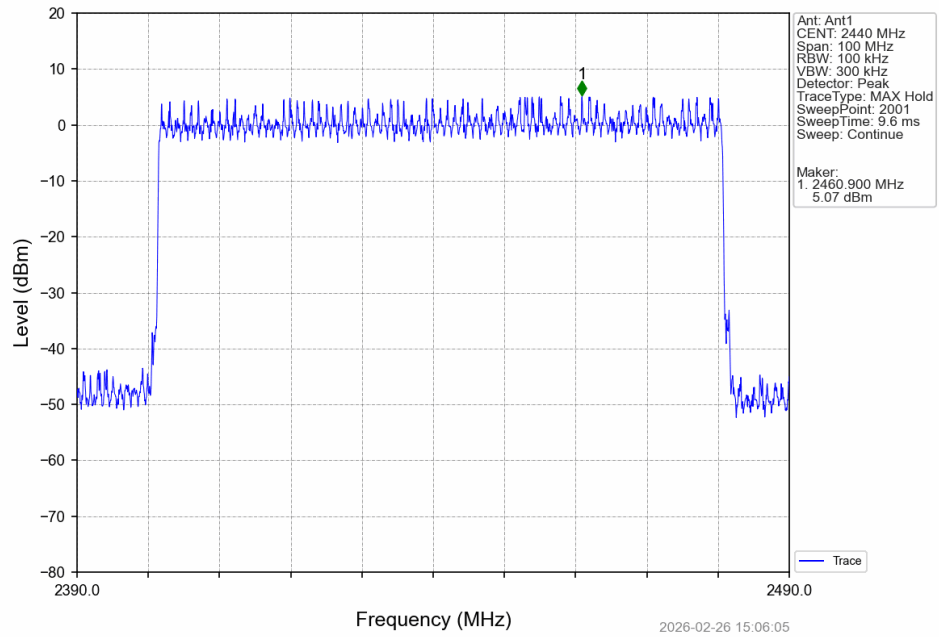
Pi/4DQPSK\_2DH5\_MCH\_2441MHz\_Ant1\_NTNV



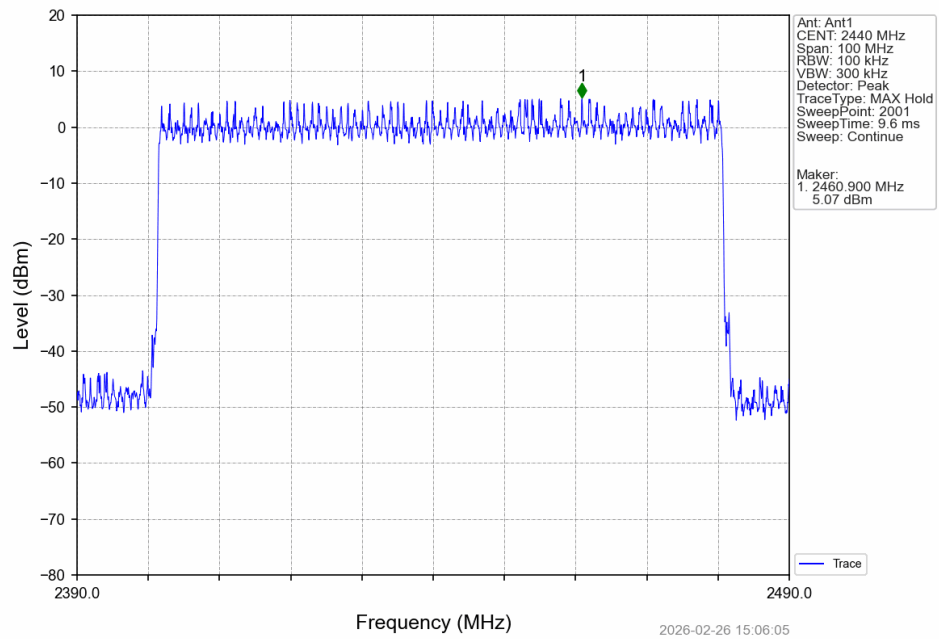
Pi/4DQPSK\_2DH5\_HCH\_2480MHz\_Ant1\_NTNV



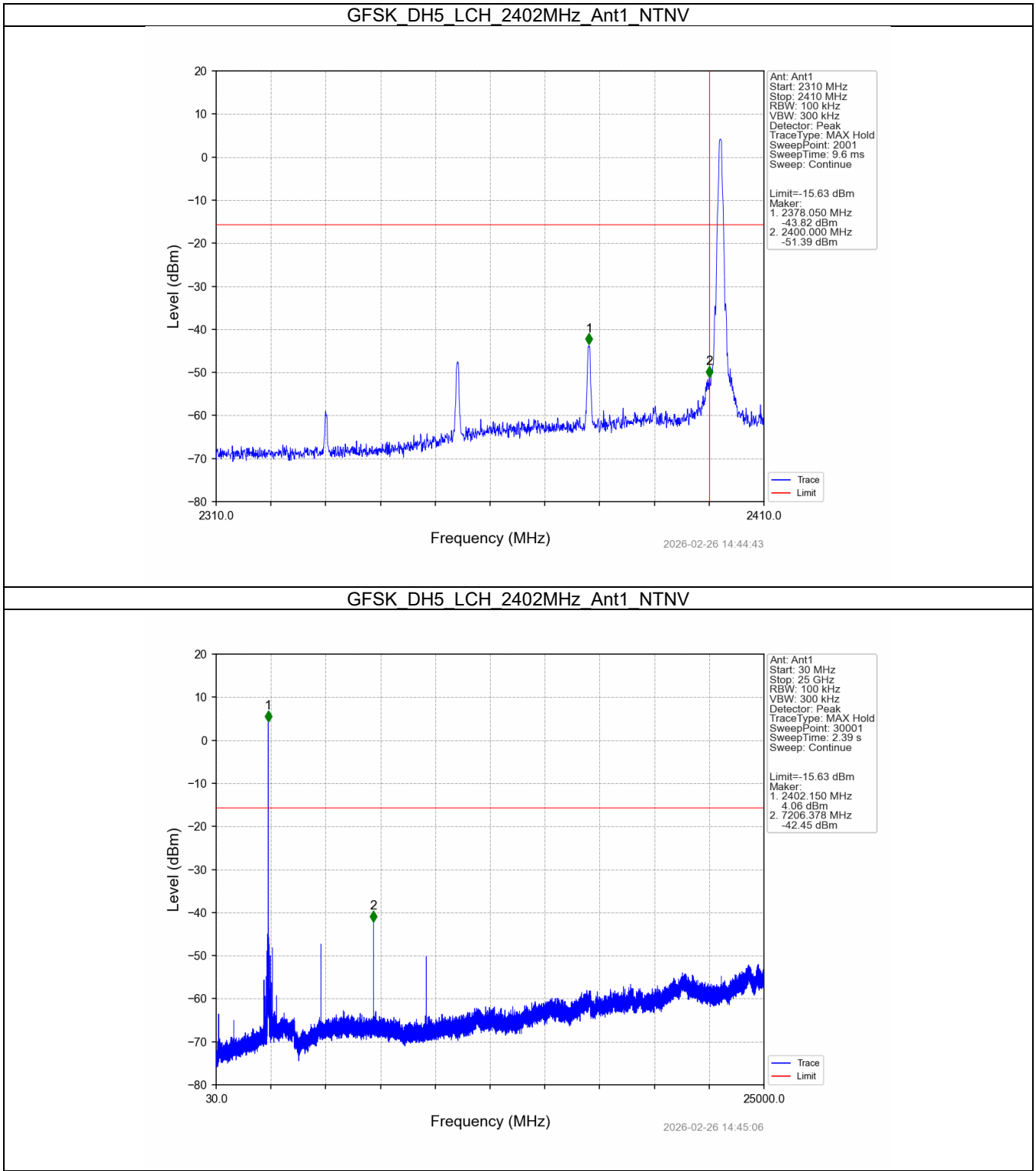
# Pi/4DQPSK\_2DH5\_HOPP\_Ant1\_NTNV



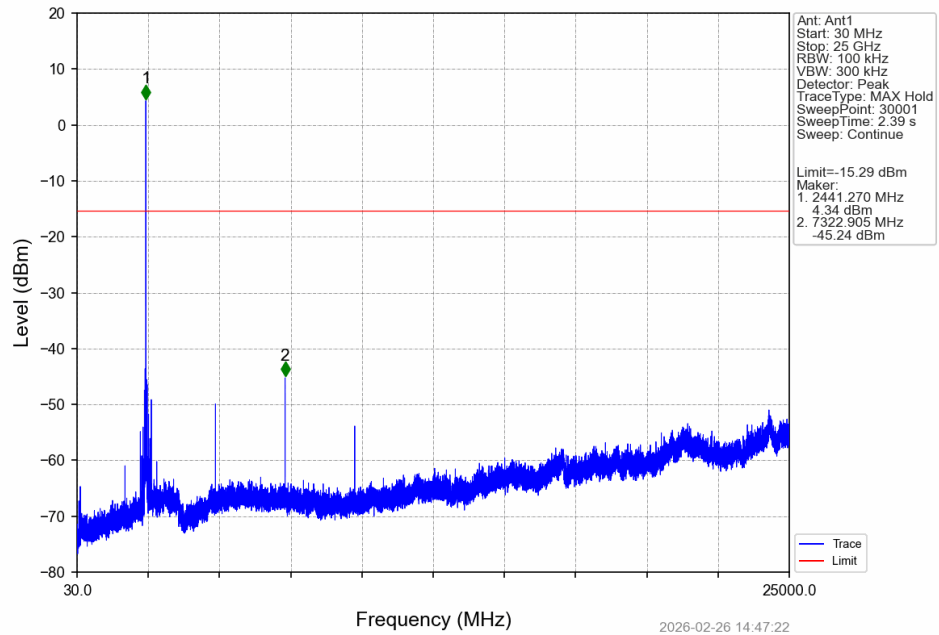
# Pi/4DQPSK\_2DH5\_HOPP\_Ant1\_NTNV



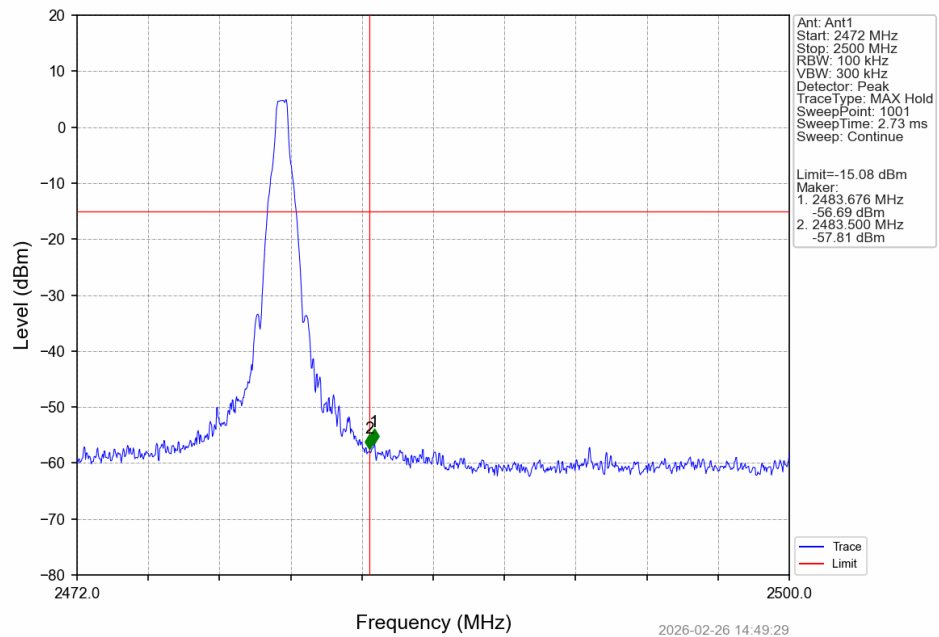
7.2.2 CSE



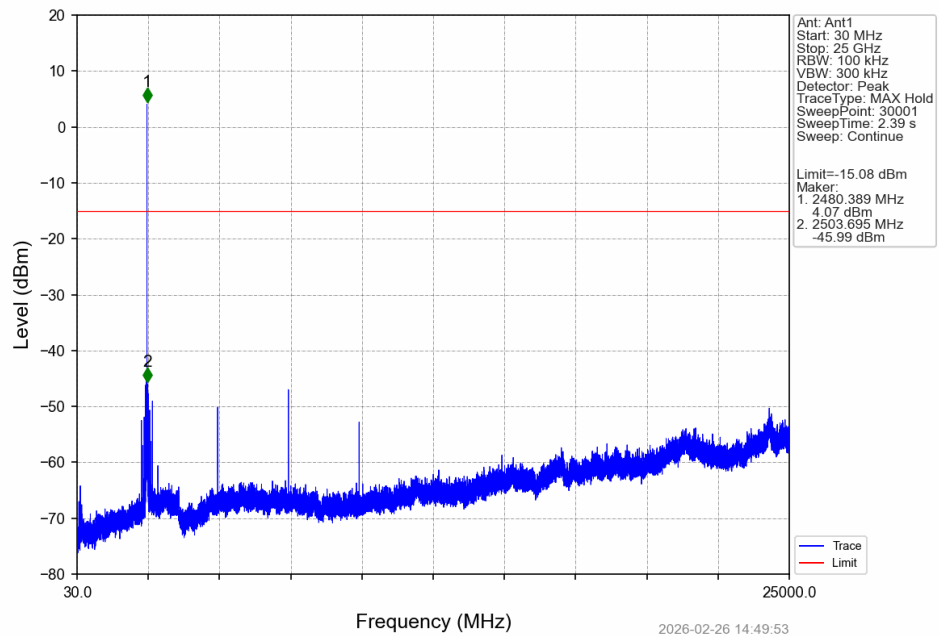
### GFSK\_DH5\_MCH\_2441MHz\_Ant1\_NTNV



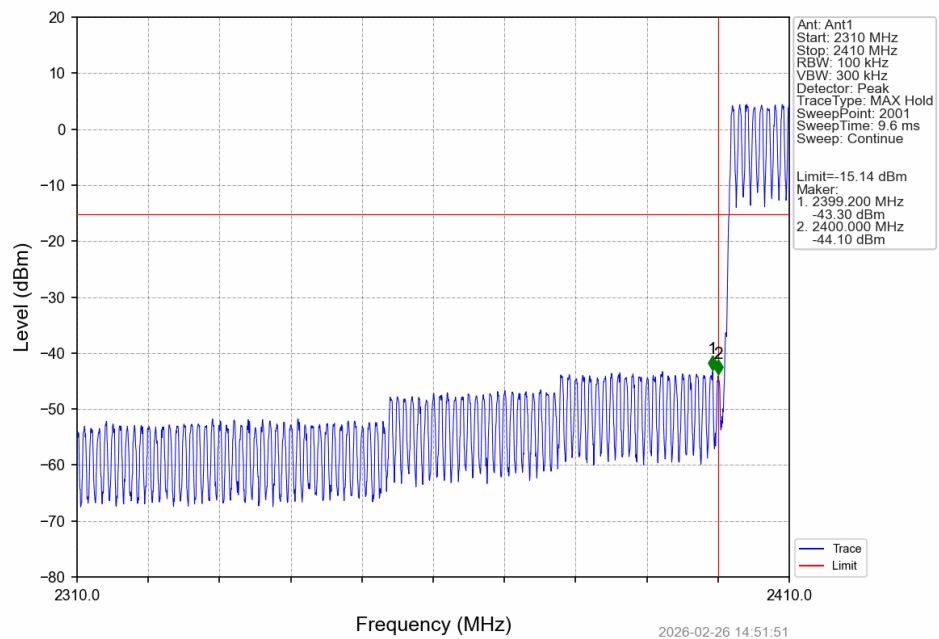
### GFSK\_DH5\_HCH\_2480MHz\_Ant1\_NTNV



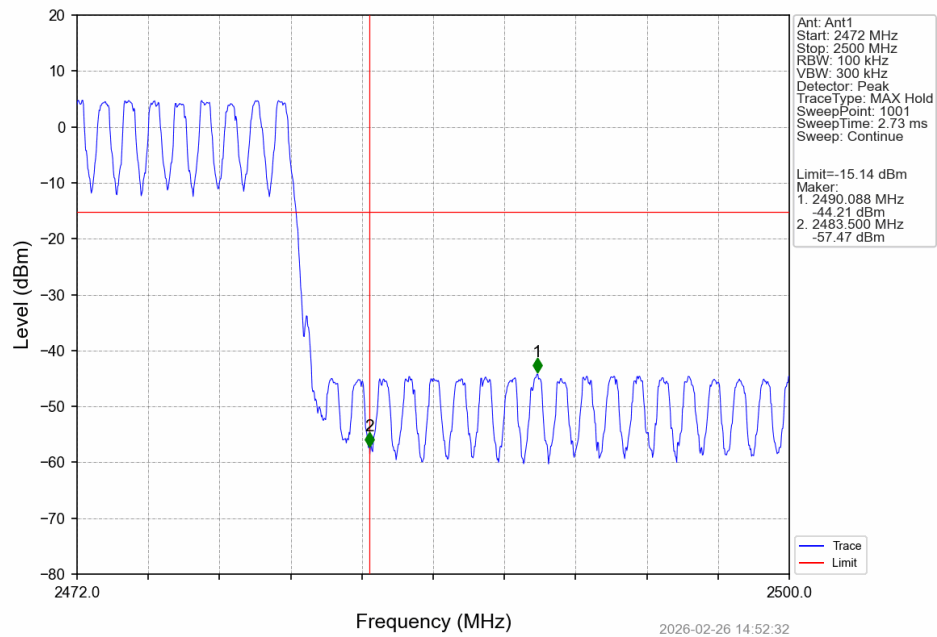
# GFSK\_DH5\_HCH\_2480MHz\_Ant1\_NTNV



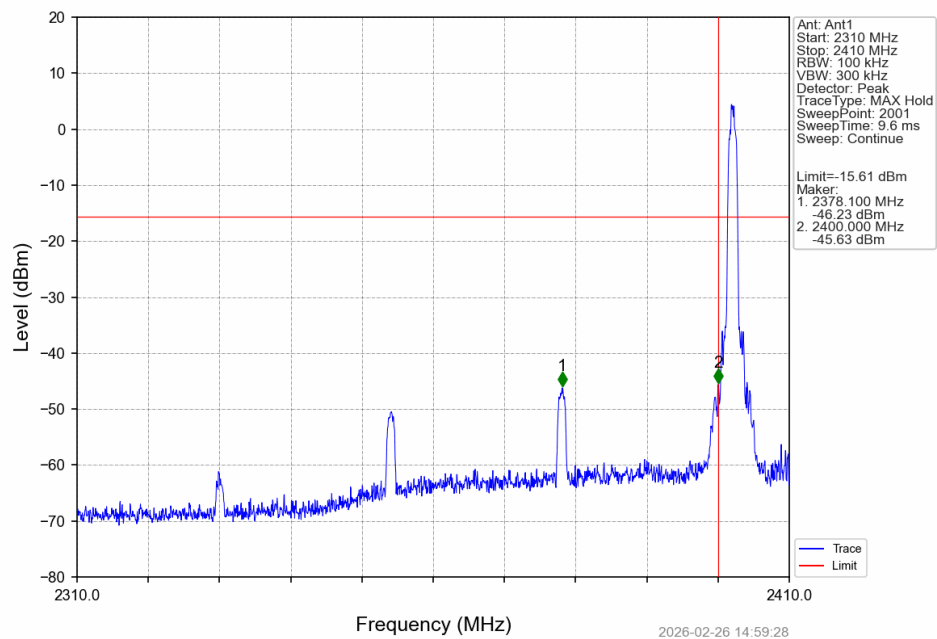
# GFSK\_DH5\_HOPP\_Ant1\_NTNV



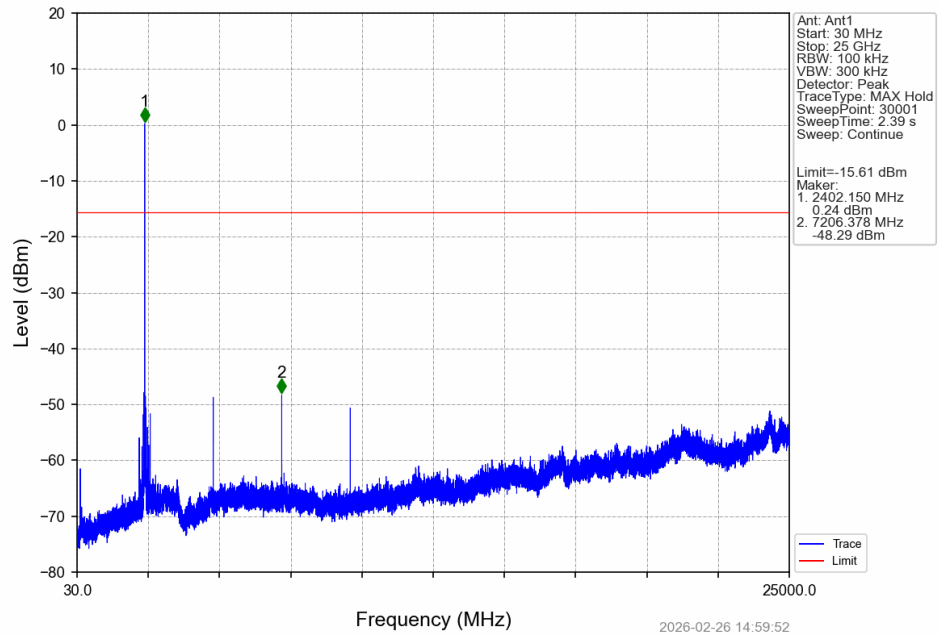
# GFSK\_DH5\_HOPP\_Ant1\_NTNV



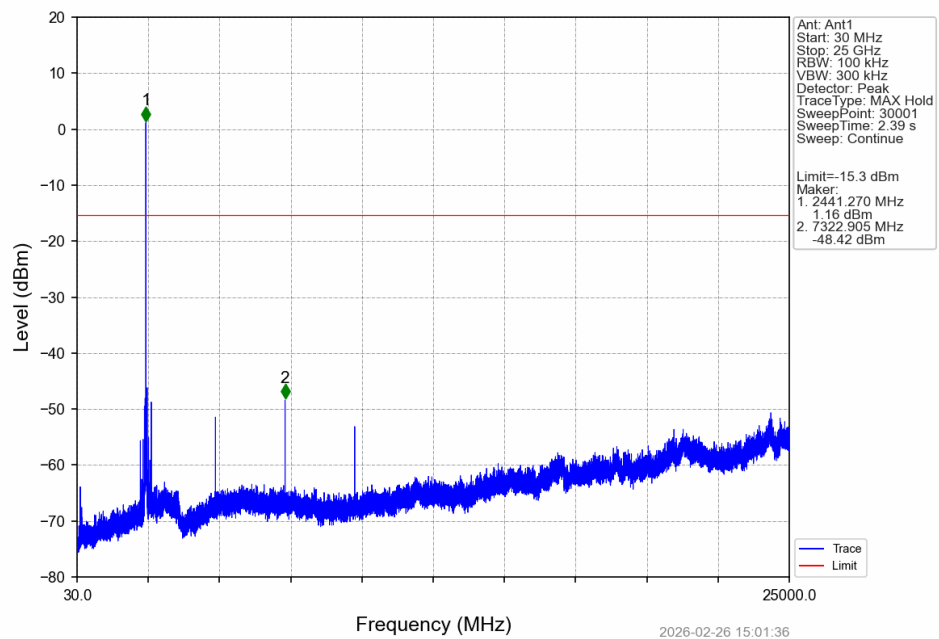
# Pi/4DQPSK\_2DH5\_LCH\_2402MHz\_Ant1\_NTNV



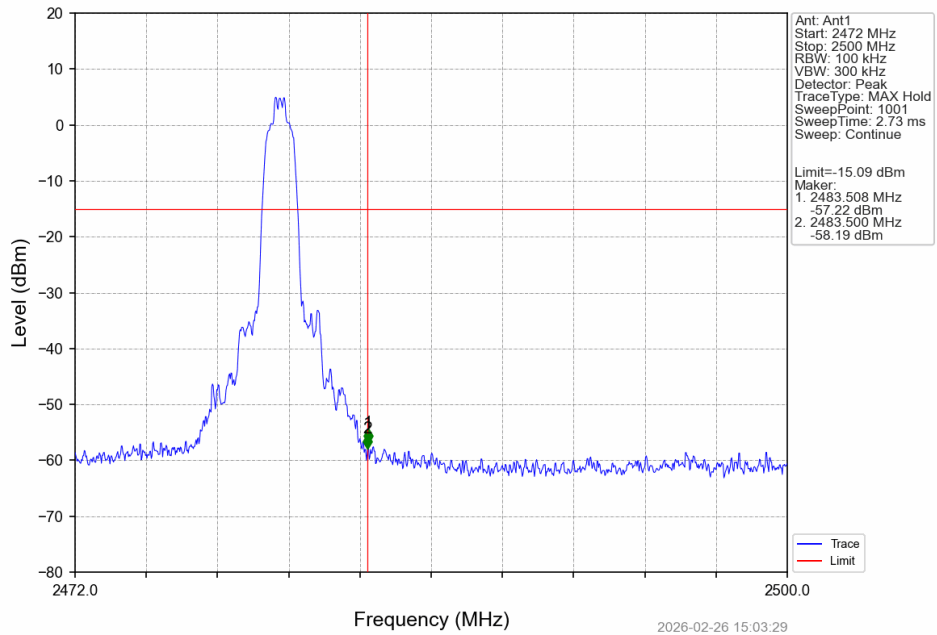
# Pi/4DQPSK\_2DH5\_LCH\_2402MHz\_Ant1\_NTNV



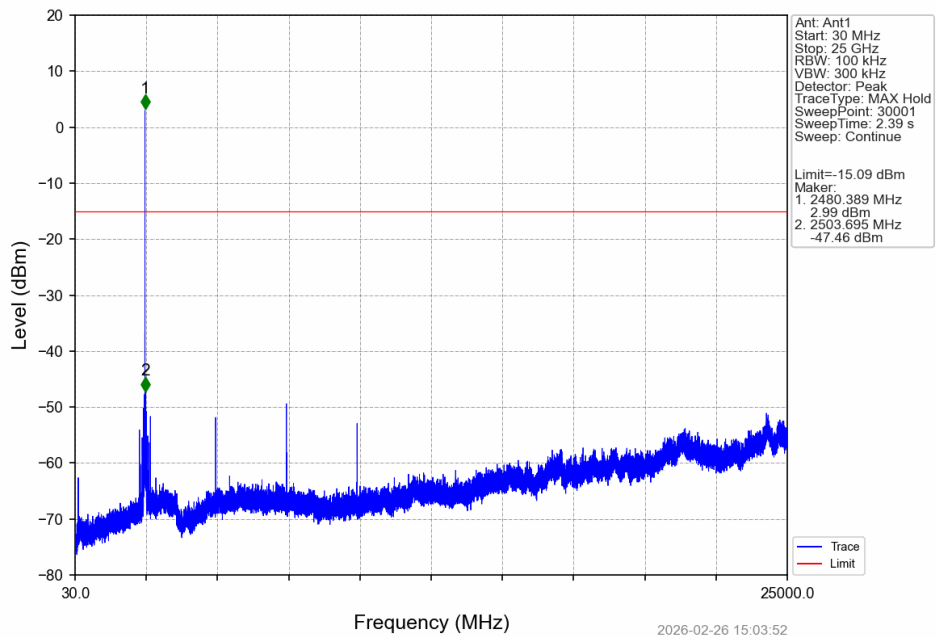
# Pi/4DQPSK\_2DH5\_MCH\_2441MHz\_Ant1\_NTNV



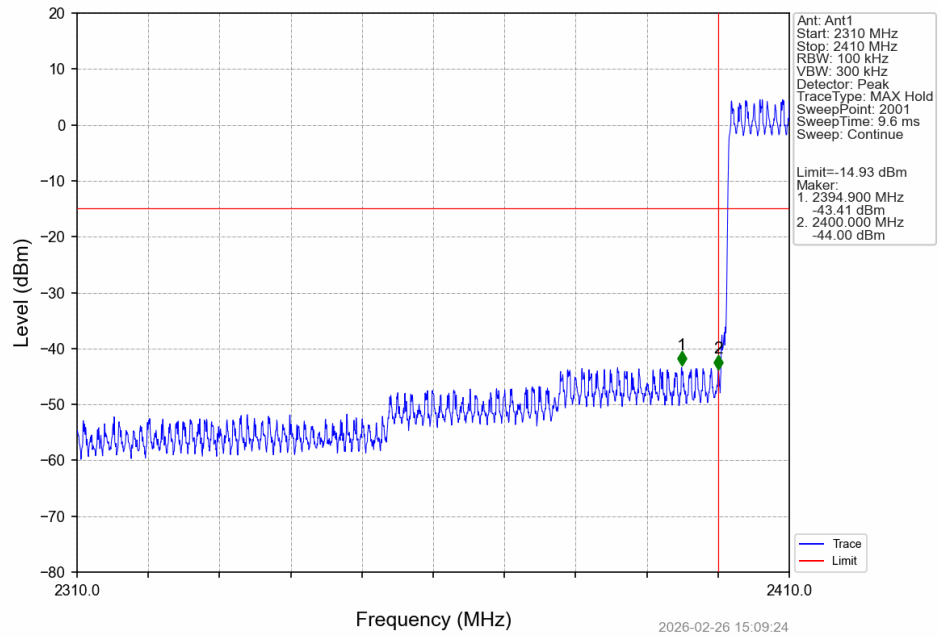
# Pi/4DQPSK\_2DH5\_HCH\_2480MHz\_Ant1\_NTNV



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



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



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

