



## Annex for Bluetooth

Test Report No.: CTL2509055011-WF01

### TABLE OF CONTENTS

|                                         |    |
|-----------------------------------------|----|
| 1. Bandwidth.....                       | 3  |
| 1.1 Test Result .....                   | 3  |
| 1.1.1 OBW .....                         | 3  |
| 1.1.2 20dB BW .....                     | 3  |
| 1.2 Test Graph.....                     | 4  |
| 1.2.1 OBW .....                         | 4  |
| 1.2.2 20dB BW .....                     | 9  |
| 2. Maximum Conducted Output Power ..... | 14 |
| 2.1 Test Result .....                   | 14 |
| 2.1.1 Power .....                       | 14 |
| 3. Carrier Frequency Separation.....    | 15 |
| 3.1 Test Result .....                   | 15 |
| 3.1.1 Ant1 .....                        | 15 |
| 3.2 Test Graph.....                     | 16 |
| 3.2.1 Ant1 .....                        | 16 |
| 4. Number of Hopping Frequencies .....  | 18 |
| 4.1 Test Result .....                   | 18 |
| 4.1.1 HoppNum .....                     | 18 |
| 4.2 Test Graph.....                     | 19 |
| 4.2.1 HoppNum .....                     | 19 |



|                                                              |    |
|--------------------------------------------------------------|----|
| 5. Time of Occupancy (Dwell Time) .....                      | 21 |
| 5.1 Test Result .....                                        | 21 |
| 5.1.1 Ant1 .....                                             | 21 |
| 5.2 Test Graph.....                                          | 22 |
| 5.2.1 Ant1 .....                                             | 22 |
| 6. Unwanted Emissions In Non-restricted Frequency Bands..... | 31 |
| 6.1 Test Result .....                                        | 31 |
| 6.1.1 Ref.....                                               | 31 |
| 6.1.2 CSE .....                                              | 31 |
| 6.2 Test Graph.....                                          | 32 |
| 6.2.1 Ref.....                                               | 32 |
| 6.2.2 CSE .....                                              | 37 |

FCCID: 2AOM3-A2

## 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   | 0.863                        | /     | Pass    |
|           |         | 2441            | DH5         | 1   | 0.861                        | /     | Pass    |
|           |         | 2480            | DH5         | 1   | 0.867                        | /     | Pass    |
| Pi/4DQPSK | SISO    | 2402            | 2DH5        | 1   | 1.167                        | /     | Pass    |
|           |         | 2441            | 2DH5        | 1   | 1.166                        | /     | Pass    |
|           |         | 2480            | 2DH5        | 1   | 1.168                        | /     | Pass    |
| 8DPSK     | SISO    | 2402            | 3DH5        | 1   | 1.179                        | /     | Pass    |
|           |         | 2441            | 3DH5        | 1   | 1.176                        | /     | Pass    |
|           |         | 2480            | 3DH5        | 1   | 1.175                        | /     | Pass    |

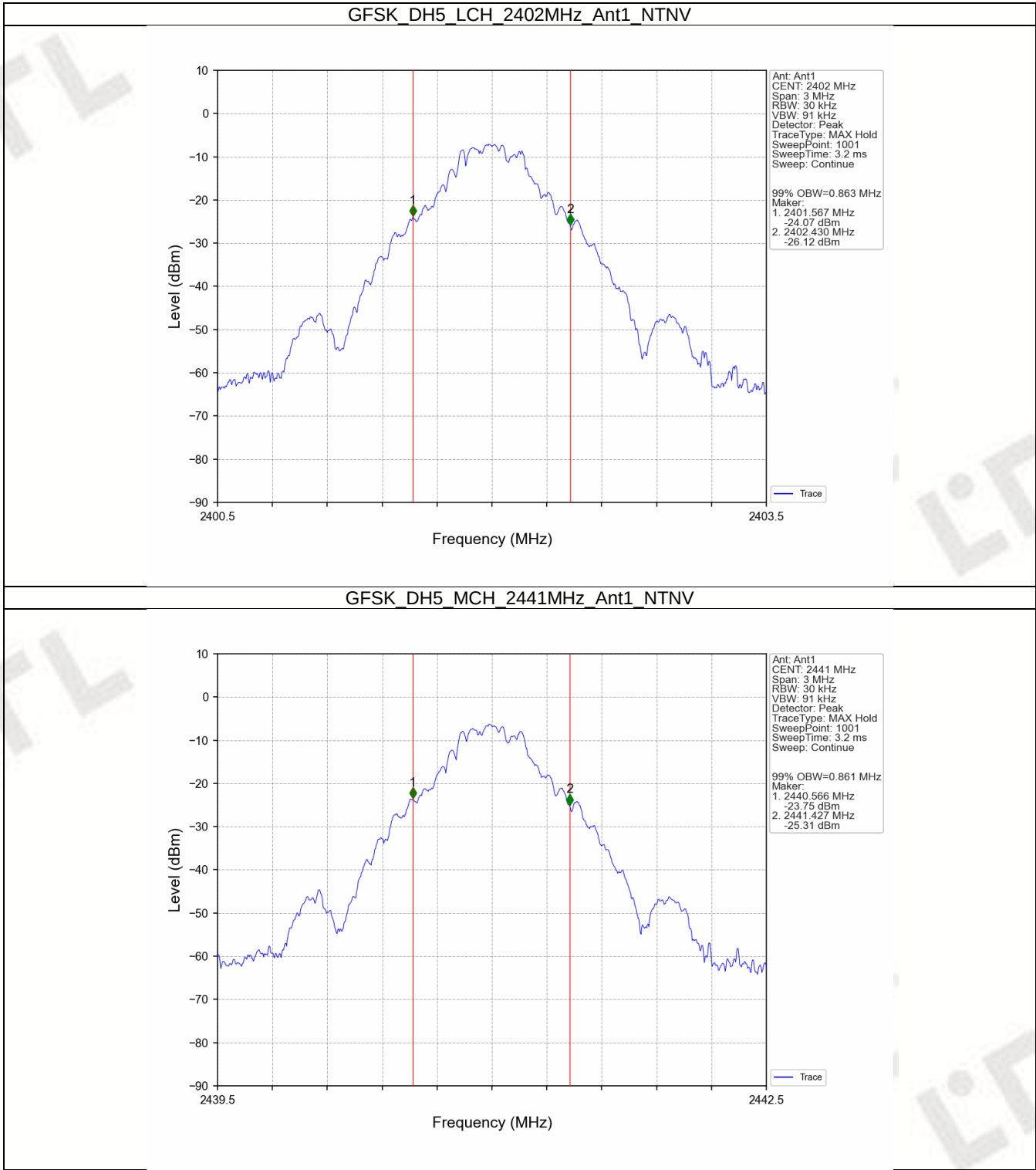
#### 1.1.2 20dB BW

| Mode      | TX Type | Frequency (MHz) | Packet Type | ANT | 20dB Bandwidth (MHz) |       | Verdict |
|-----------|---------|-----------------|-------------|-----|----------------------|-------|---------|
|           |         |                 |             |     | Result               | Limit |         |
| GFSK      | SISO    | 2402            | DH5         | 1   | 0.957                | /     | Pass    |
|           |         | 2441            | DH5         | 1   | 0.955                | /     | Pass    |
|           |         | 2480            | DH5         | 1   | 0.958                | /     | Pass    |
| Pi/4DQPSK | SISO    | 2402            | 2DH5        | 1   | 1.286                | /     | Pass    |
|           |         | 2441            | 2DH5        | 1   | 1.285                | /     | Pass    |
|           |         | 2480            | 2DH5        | 1   | 1.283                | /     | Pass    |
| 8DPSK     | SISO    | 2402            | 3DH5        | 1   | 1.301                | /     | Pass    |
|           |         | 2441            | 3DH5        | 1   | 1.300                | /     | Pass    |
|           |         | 2480            | 3DH5        | 1   | 1.308                | /     | Pass    |

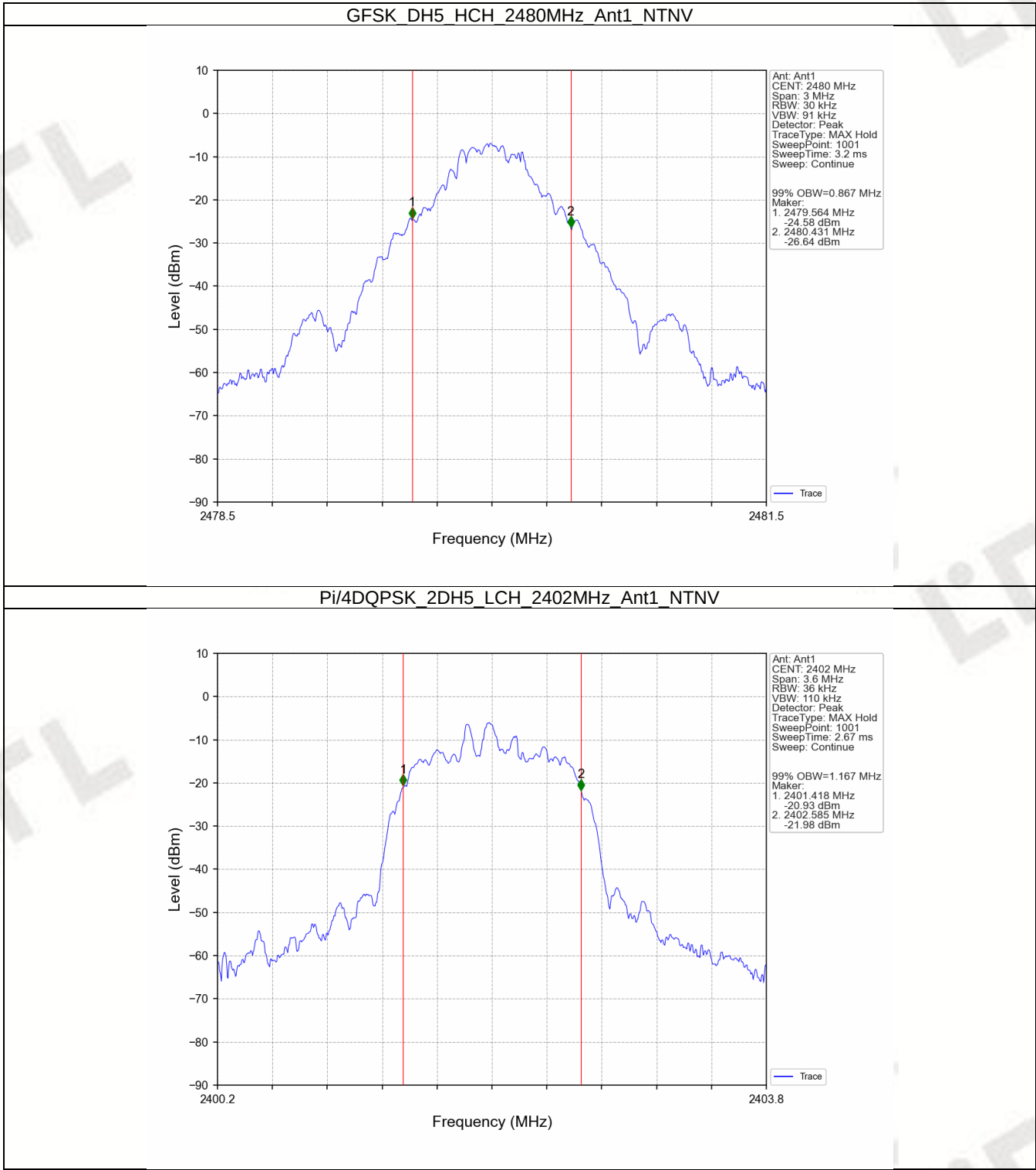
FCCID: 2AOM3-A2

1.2 Test Graph

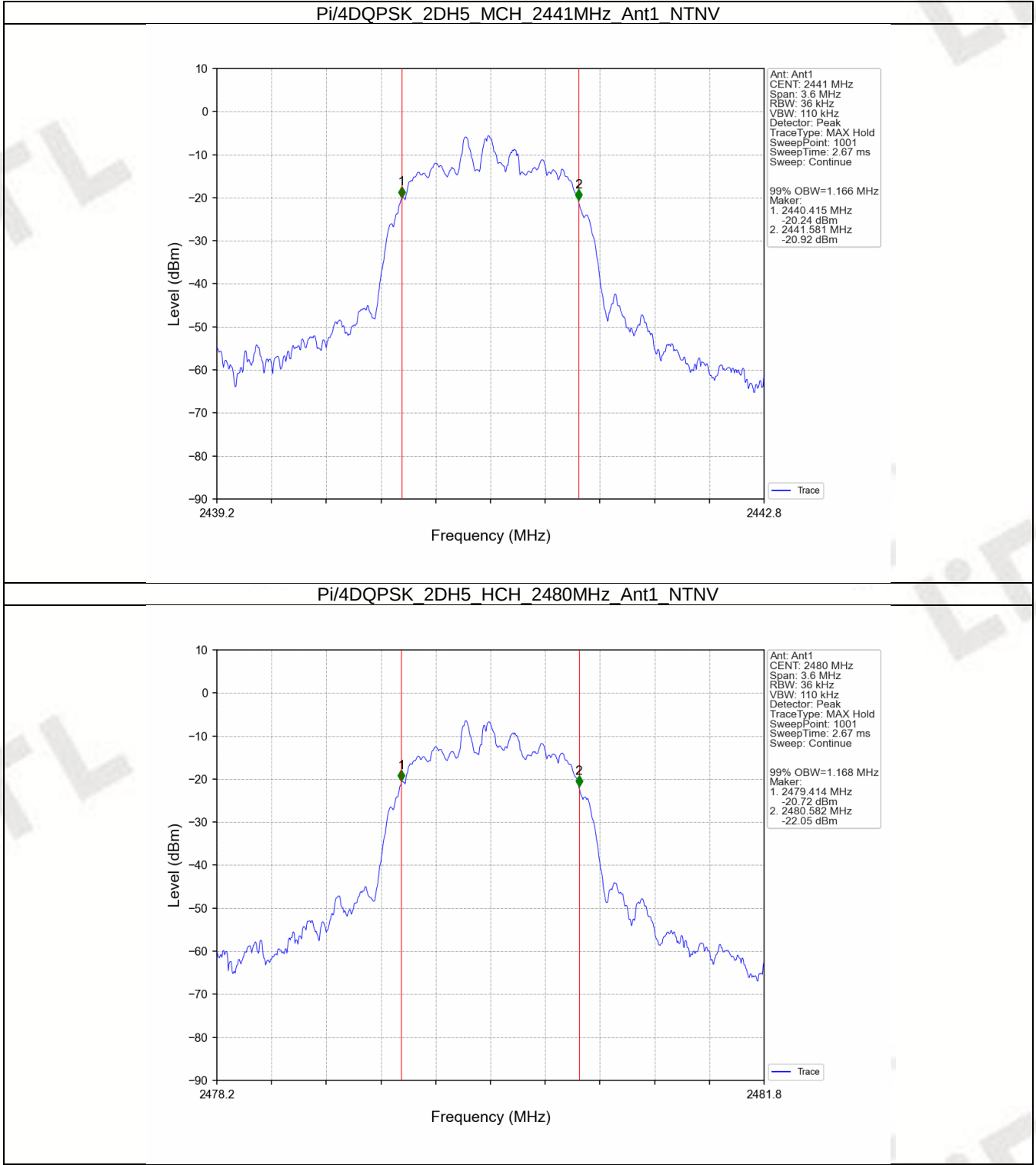
1.2.1 OBW



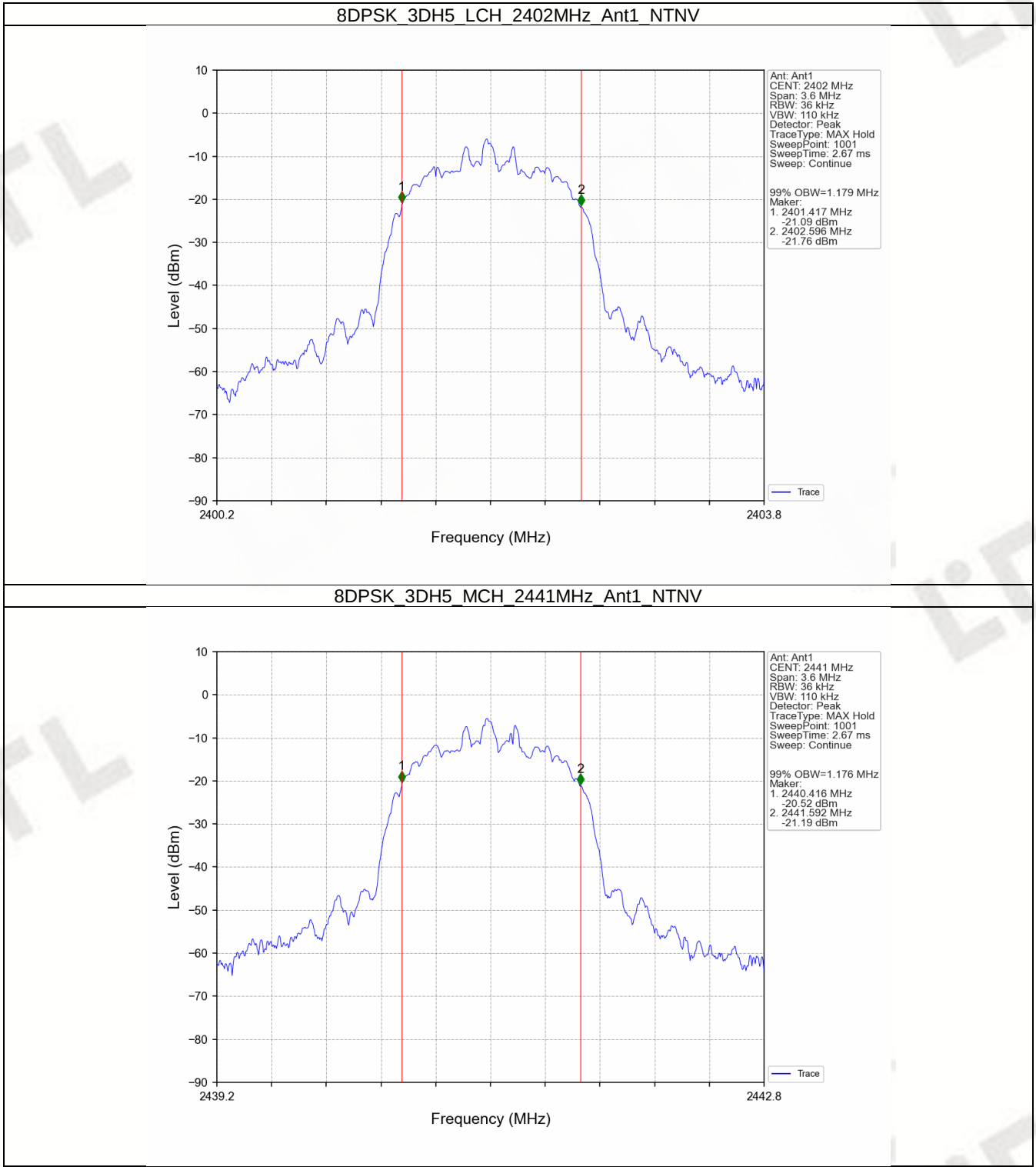
FCCID: 2AOM3-A2



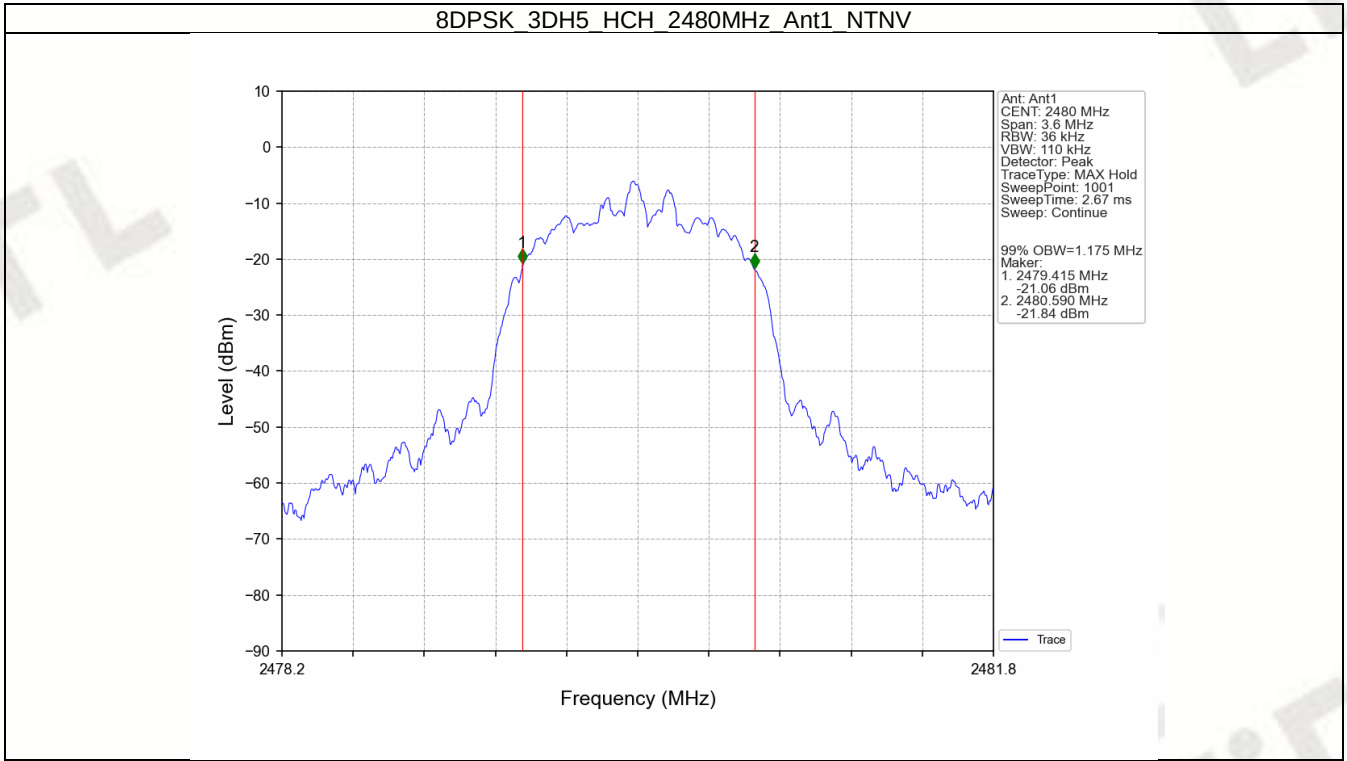
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FCCID: 2AOM3-A2

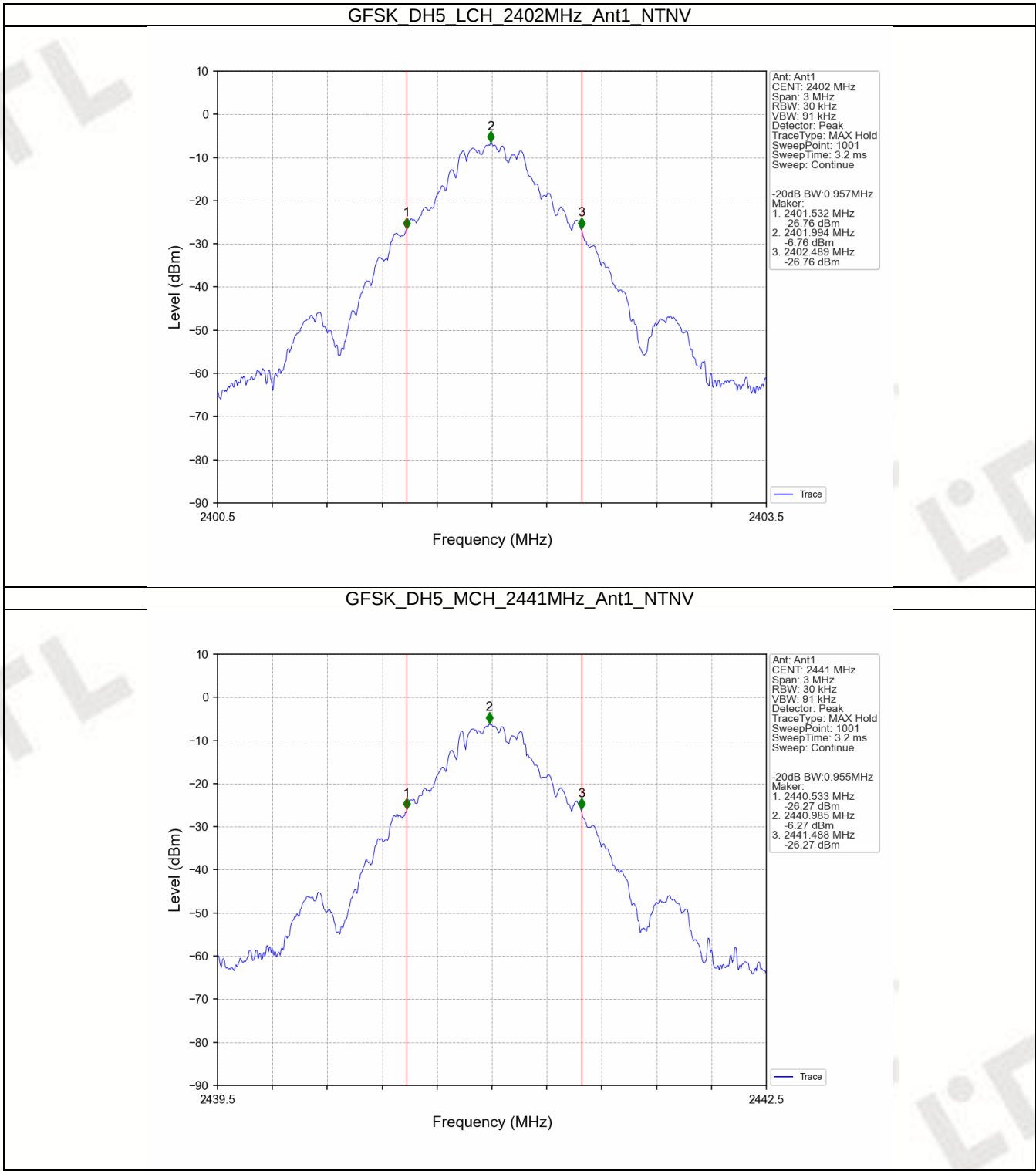


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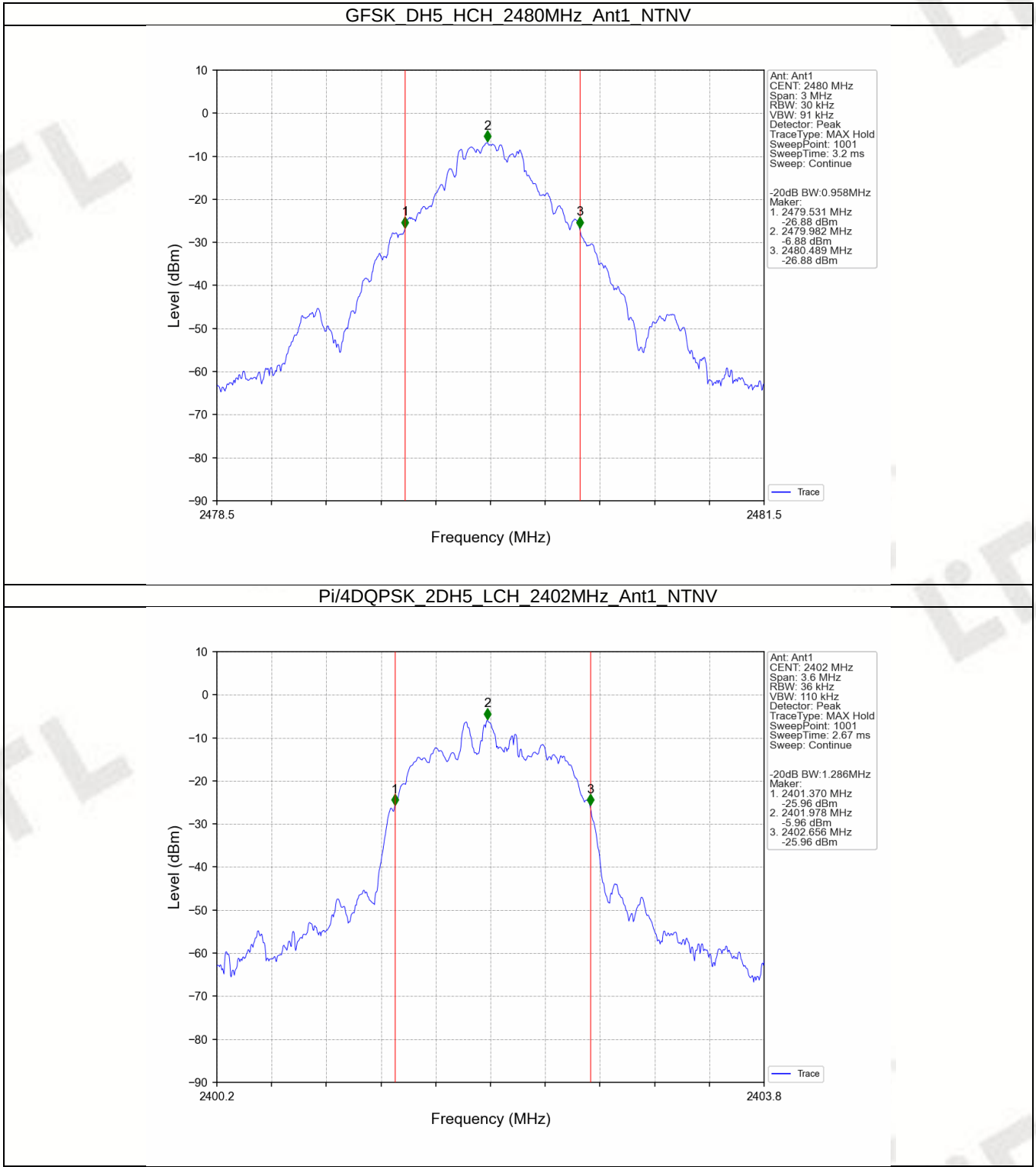


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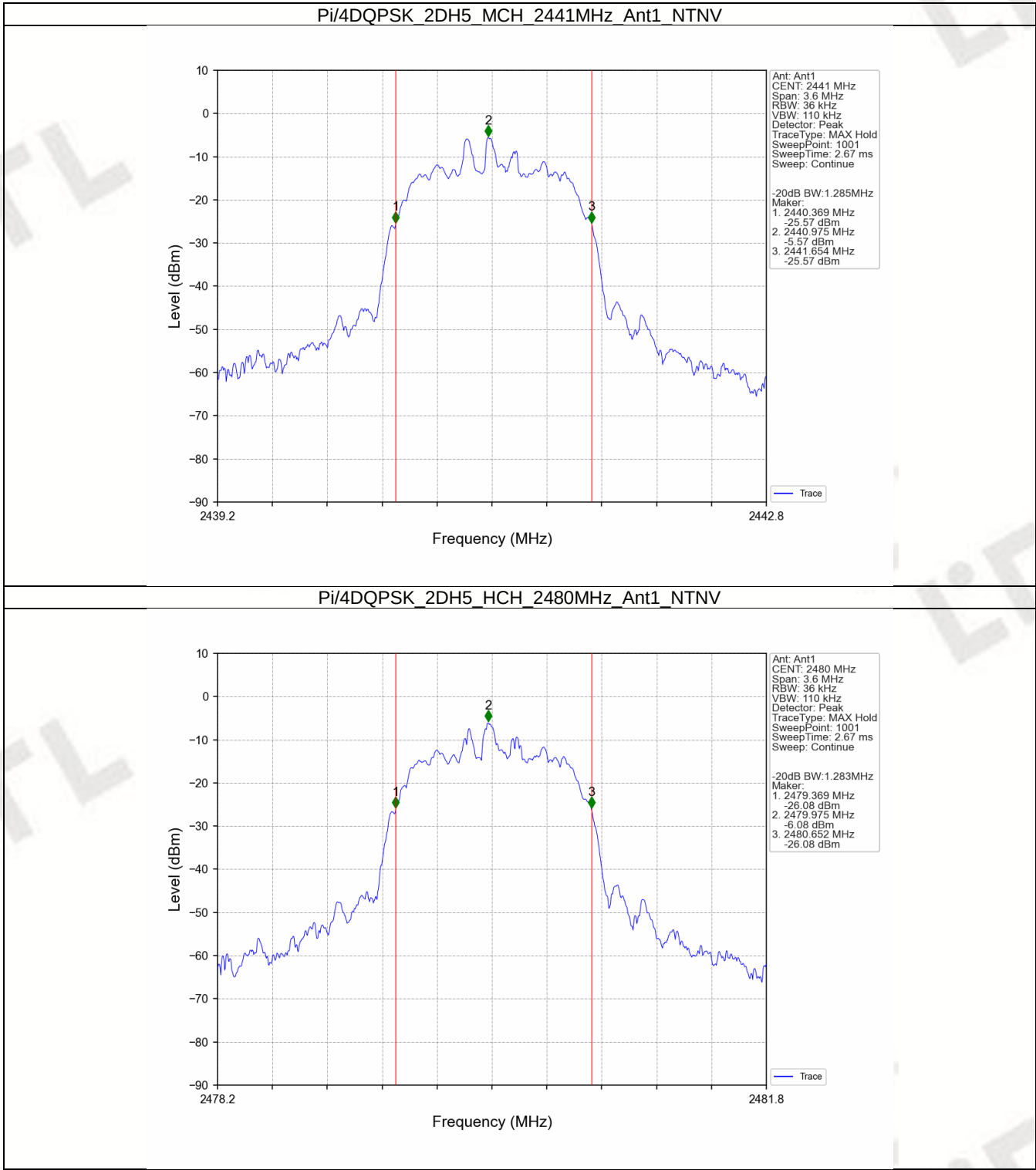
1.2.2 20dB BW



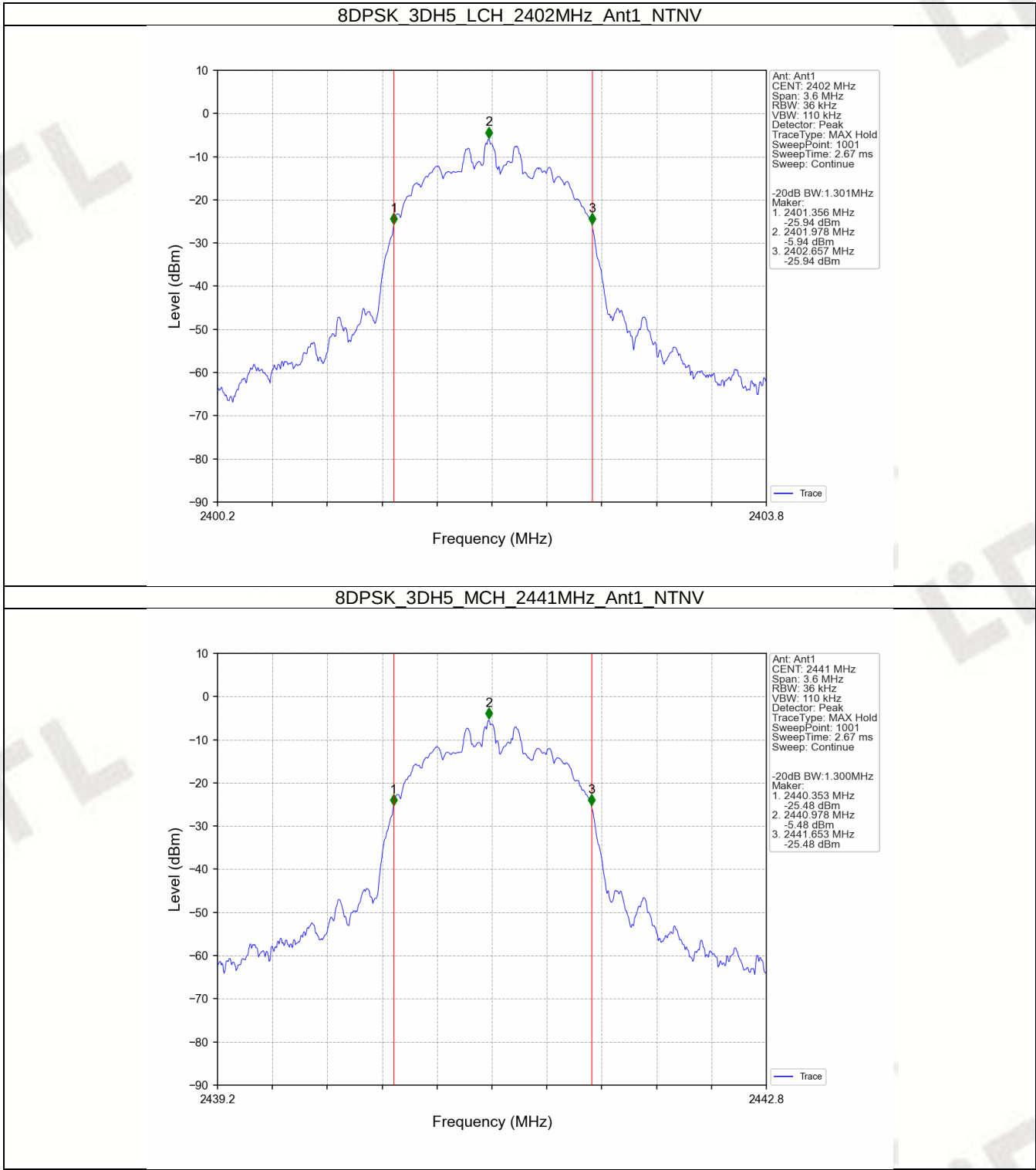
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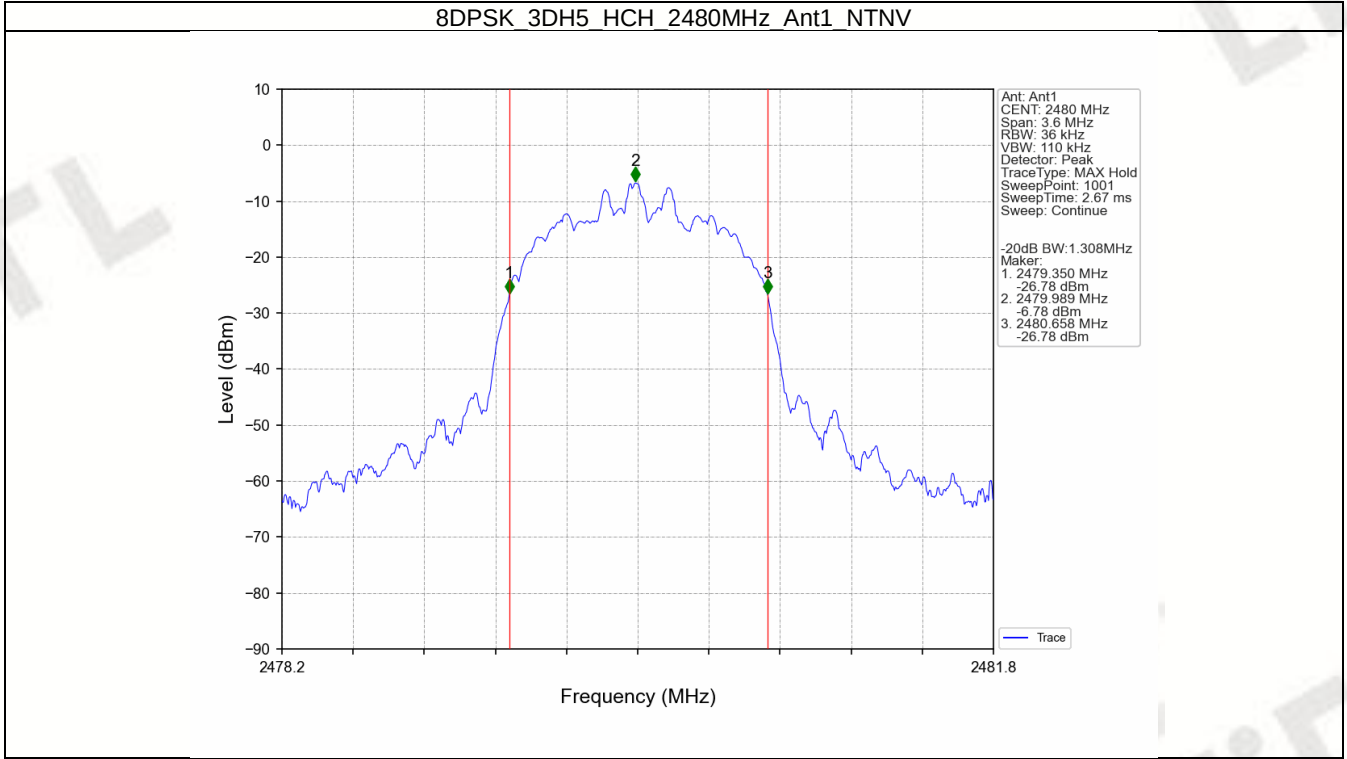
FCCID: 2AOM3-A2



FCCID: 2AOM3-A2



FCCID: 2AOM3-A2



FCCID: 2AOM3-A2

## 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         | -4.60                                     | <=30    | Pass    |
|           |         | 2441            | DH5         | -4.07                                     | <=30    | Pass    |
|           |         | 2480            | DH5         | -4.66                                     | <=30    | Pass    |
| Pi/4DQPSK | SISO    | 2402            | 2DH5        | -3.55                                     | <=20.97 | Pass    |
|           |         | 2441            | 2DH5        | -3.14                                     | <=20.97 | Pass    |
|           |         | 2480            | 2DH5        | -3.70                                     | <=20.97 | Pass    |
| 8DPSK     | SISO    | 2402            | 3DH5        | -3.20                                     | <=20.97 | Pass    |
|           |         | 2441            | 3DH5        | -2.74                                     | <=20.97 | Pass    |
|           |         | 2480            | 3DH5        | -3.35                                     | <=20.97 | Pass    |

Note1: Antenna Gain: Ant1: 2.13dBi;

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### 3. Carrier Frequency Separation

#### 3.1 Test Result

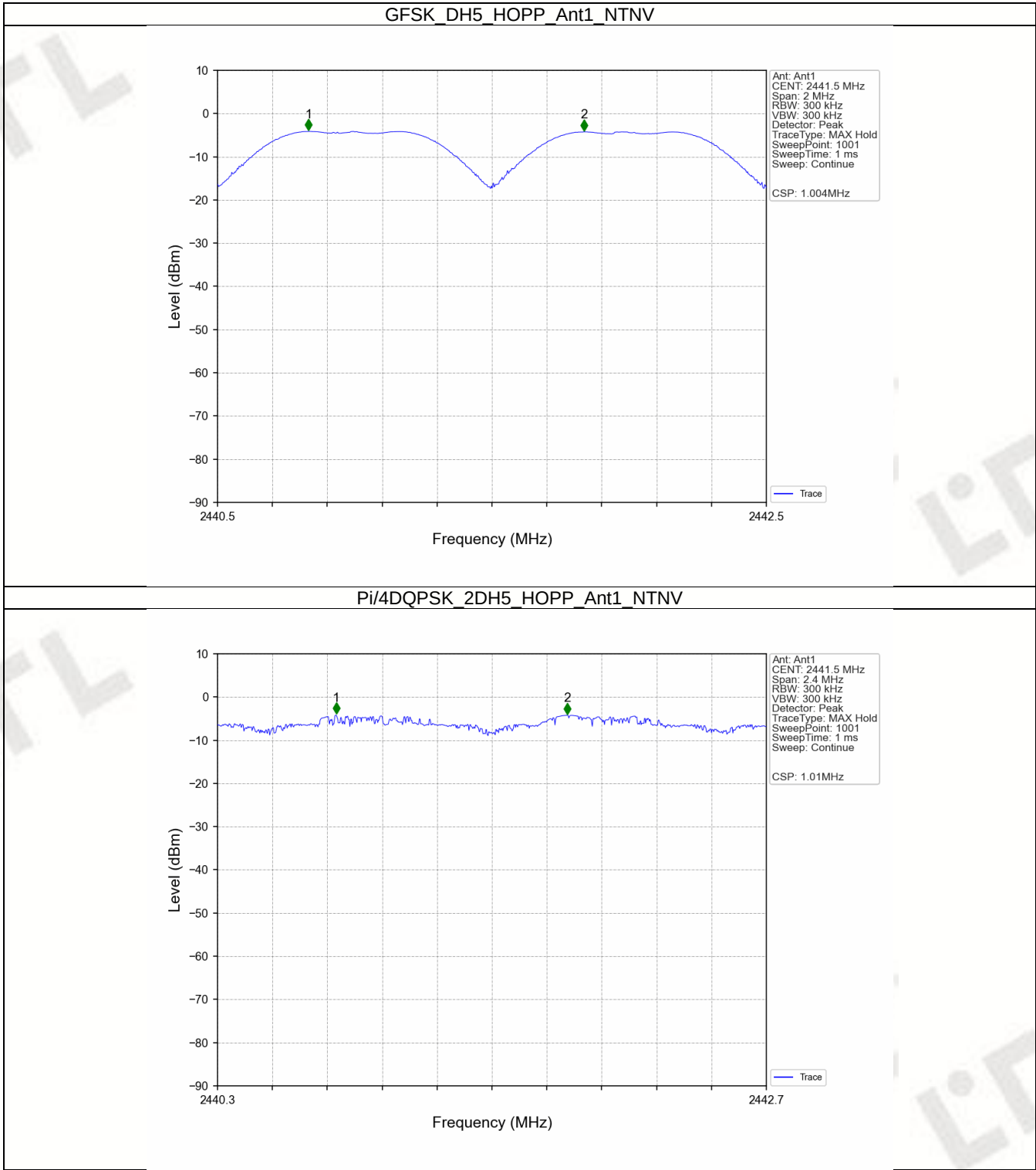
##### 3.1.1 Ant1

| Ant1      |         |                 |             |                          |                      |              |         |
|-----------|---------|-----------------|-------------|--------------------------|----------------------|--------------|---------|
| Mode      | TX Type | Frequency (MHz) | Packet Type | Channel Separation (MHz) | 20dB Bandwidth (MHz) | Limit (MHz)  | Verdict |
| GFSK      | SISO    | HOPP            | DH5         | 1.004                    | 0.958                | $\geq 0.958$ | Pass    |
| Pi/4DQPSK | SISO    | HOPP            | 2DH5        | 1.010                    | 1.286                | $\geq 0.857$ | Pass    |
| 8DPSK     | SISO    | HOPP            | 3DH5        | 0.991                    | 1.308                | $\geq 0.872$ | Pass    |

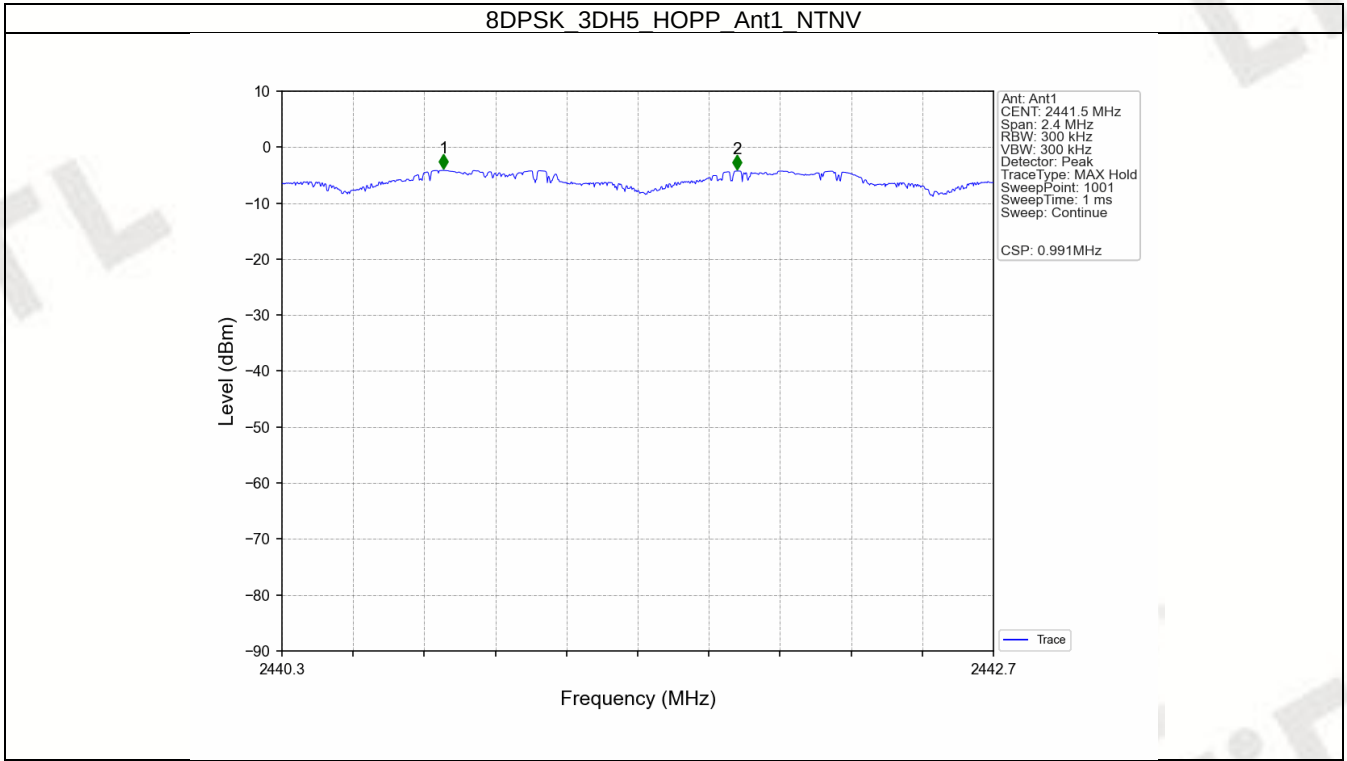
FCCID: 2AOM3-A2

3.2 Test Graph

3.2.1 Ant1



FCCID: 2AOM3-A2



FCCID: 2AOM3-A2

## 4. Number of Hopping Frequencies

### 4.1 Test Result

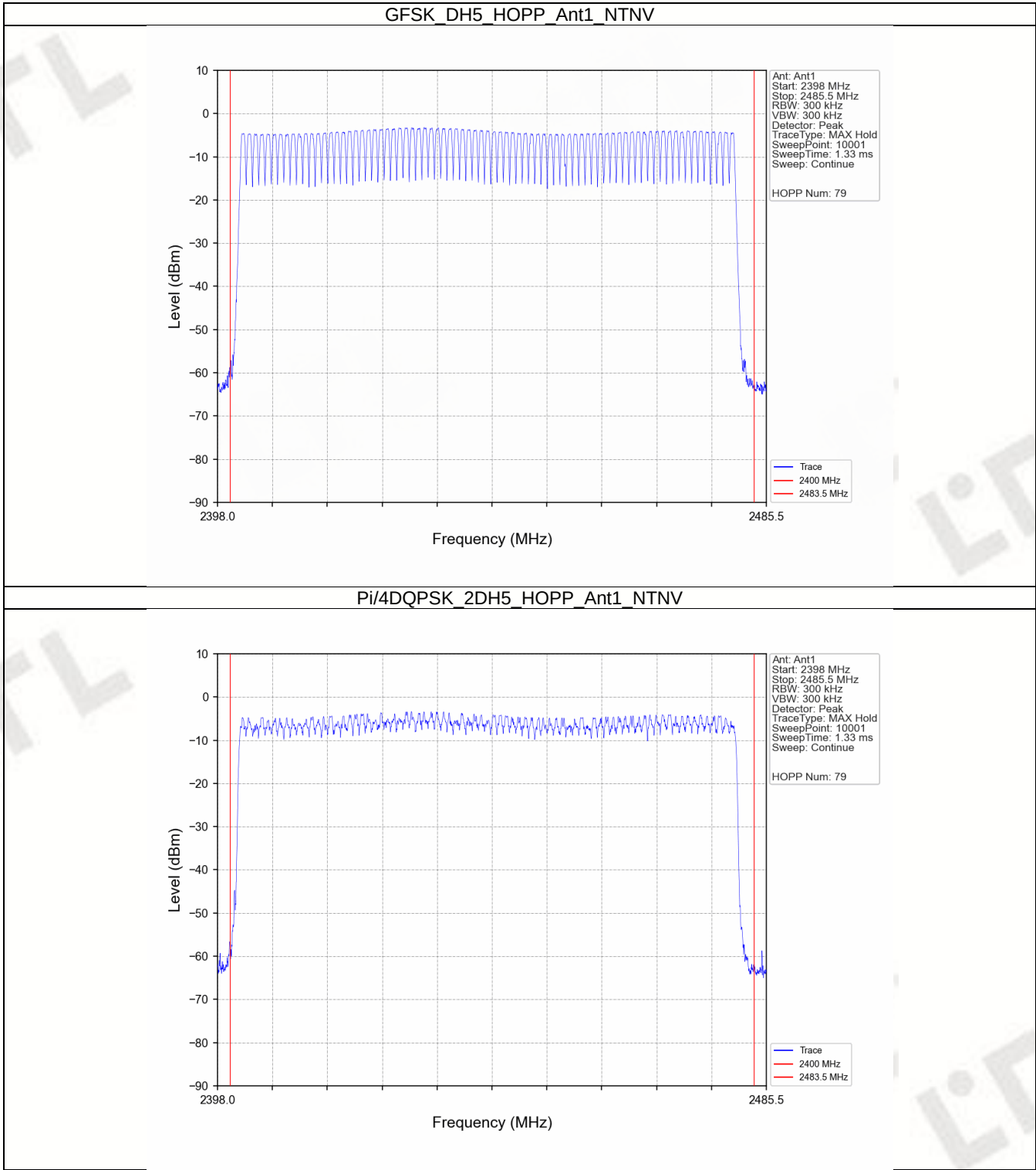
#### 4.1.1 HoppNum

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

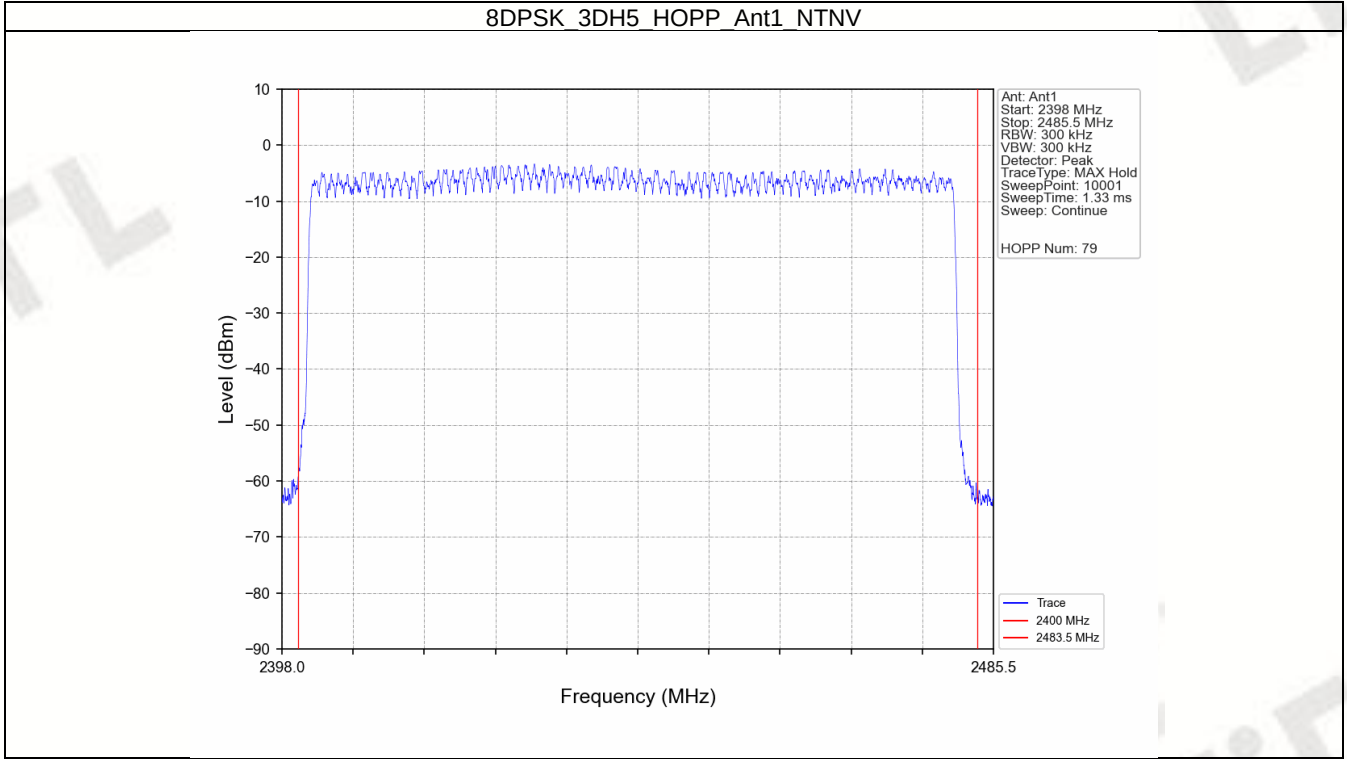
FCCID: 2AOM3-A2

4.2 Test Graph

4.2.1 HoppNum



FCCID: 2AOM3-A2



FCCID: 2AOM3-A2

## 5. Time of Occupancy (Dwell Time)

### 5.1 Test Result

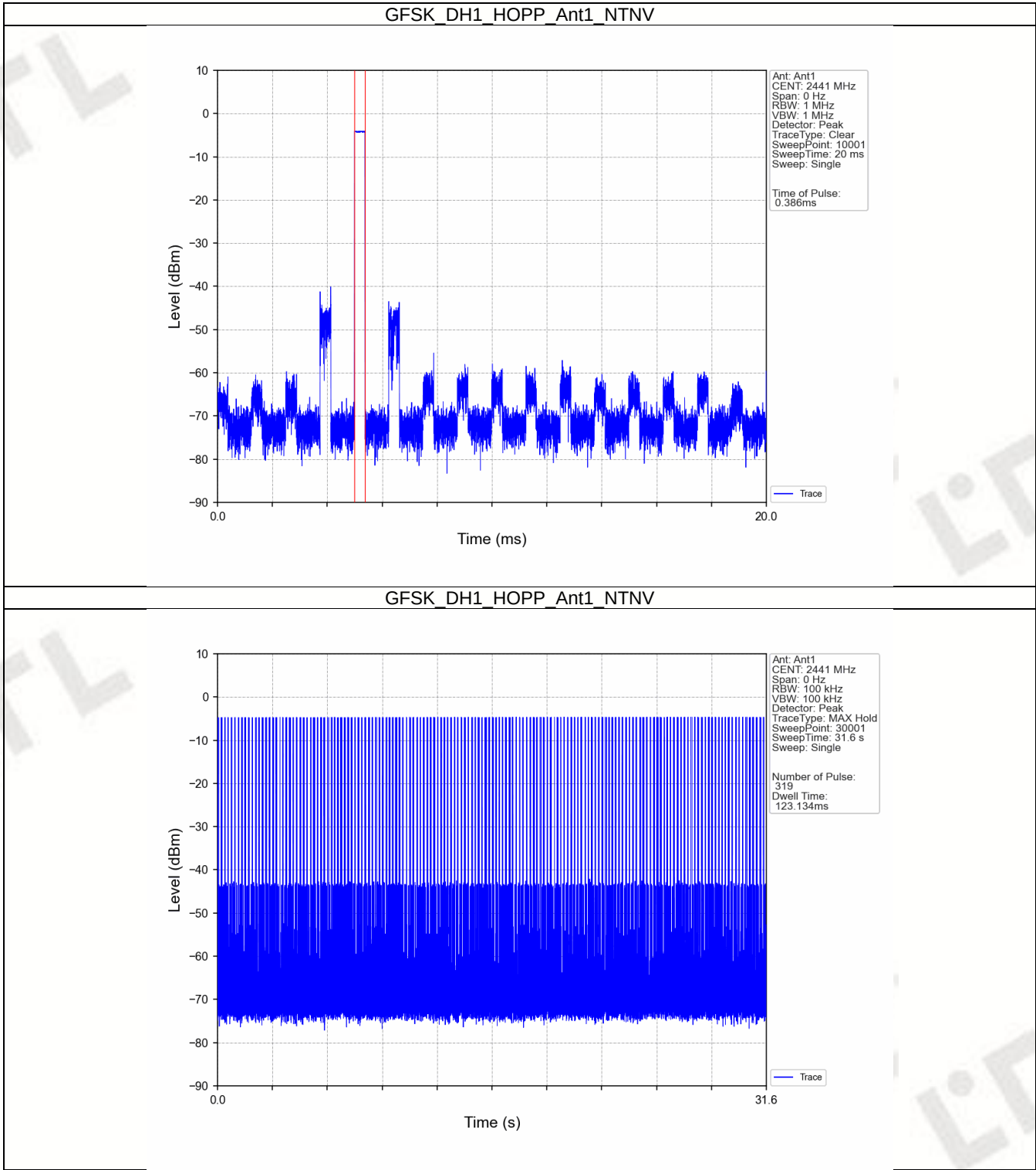
#### 5.1.1 Ant1

| 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         | 0.386                         | 31.600                 | 319                                | 123.134         | <=400      | Pass    |
|           |         |                 | DH3         | 1.648                         | 31.600                 | 158                                | 260.384         | <=400      | Pass    |
|           |         |                 | DH5         | 2.896                         | 31.600                 | 101                                | 292.496         | <=400      | Pass    |
| Pi/4DQPSK | SISO    | HOPP            | 2DH1        | 0.394                         | 31.600                 | 319                                | 125.686         | <=400      | Pass    |
|           |         |                 | 2DH3        | 1.646                         | 31.600                 | 154                                | 253.484         | <=400      | Pass    |
|           |         |                 | 2DH5        | 2.900                         | 31.600                 | 118                                | 342.200         | <=400      | Pass    |
| 8DPSK     | SISO    | HOPP            | 3DH1        | 0.394                         | 31.600                 | 320                                | 126.080         | <=400      | Pass    |
|           |         |                 | 3DH3        | 1.650                         | 31.600                 | 151                                | 249.150         | <=400      | Pass    |
|           |         |                 | 3DH5        | 2.904                         | 31.600                 | 116                                | 336.864         | <=400      | Pass    |

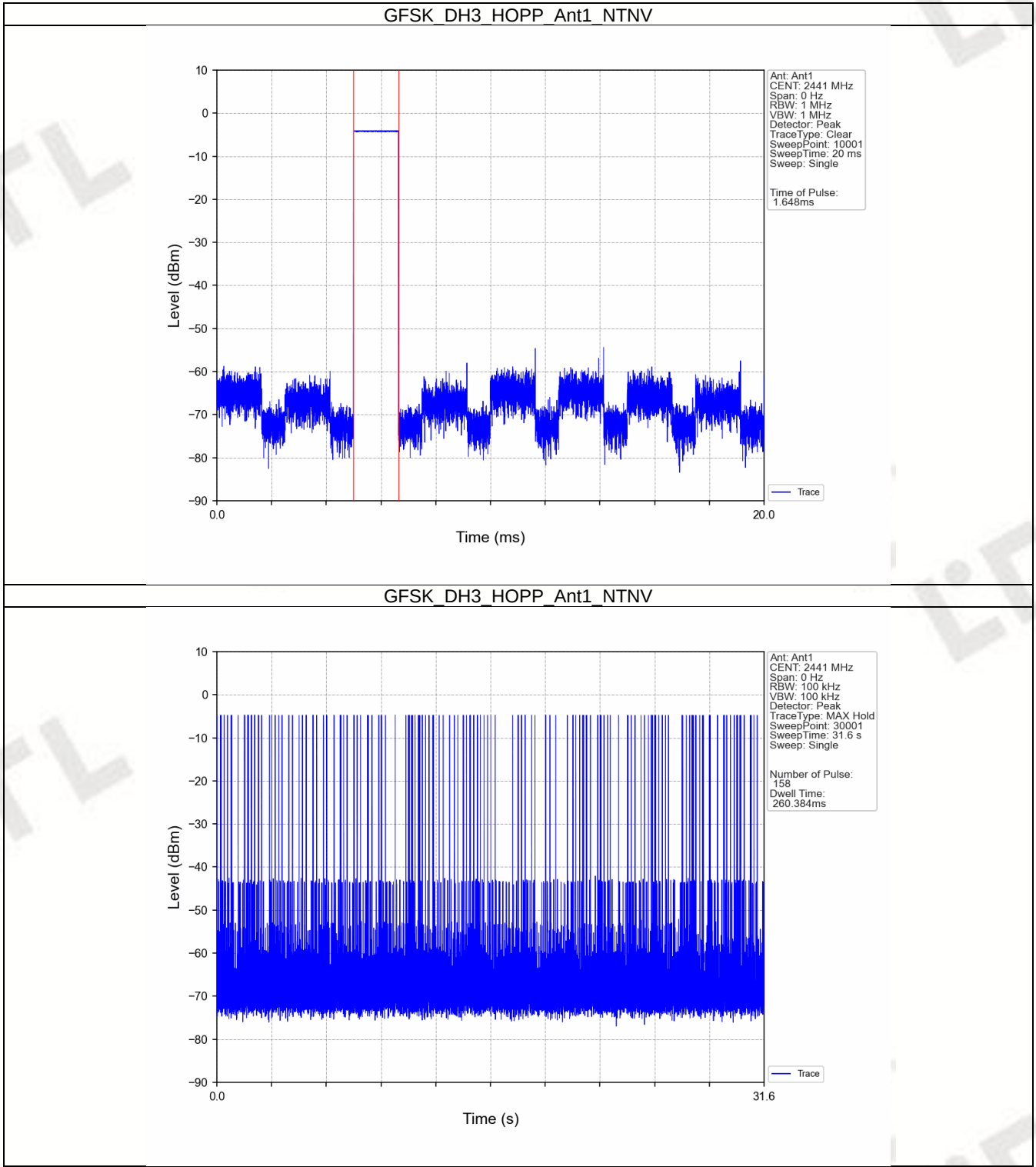
FCCID: 2AOM3-A2

5.2 Test Graph

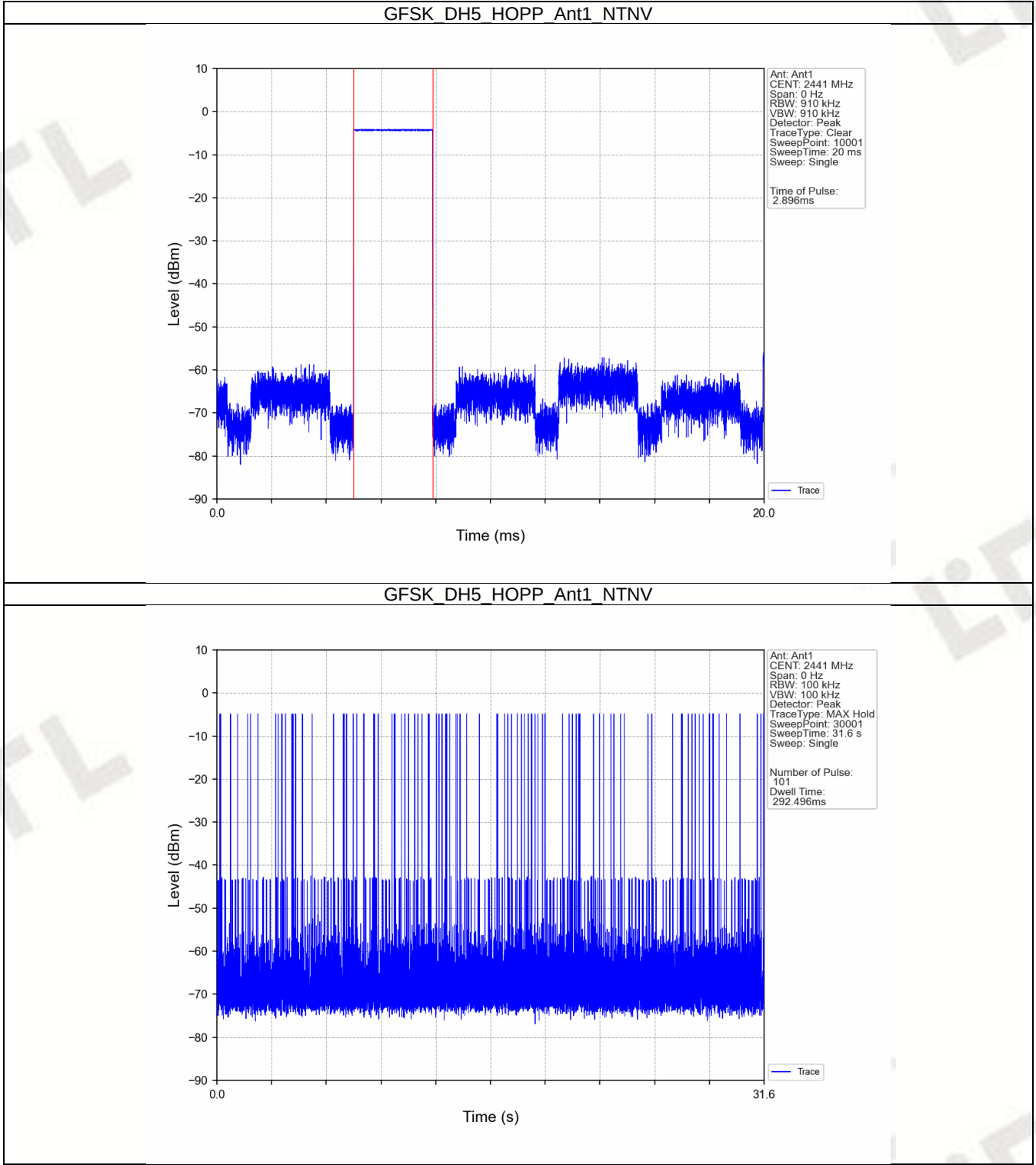
5.2.1 Ant1



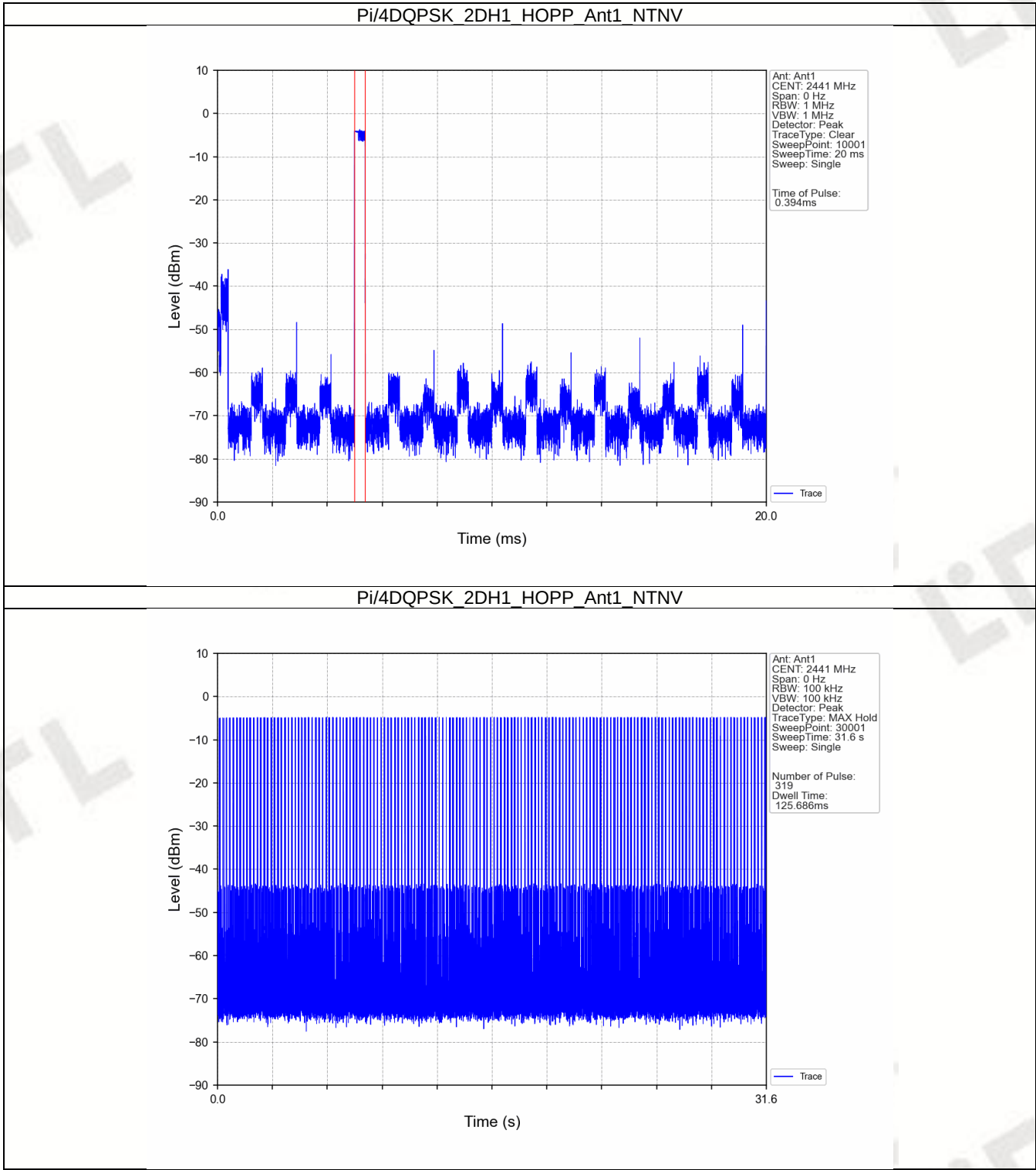
FCCID: 2AOM3-A2



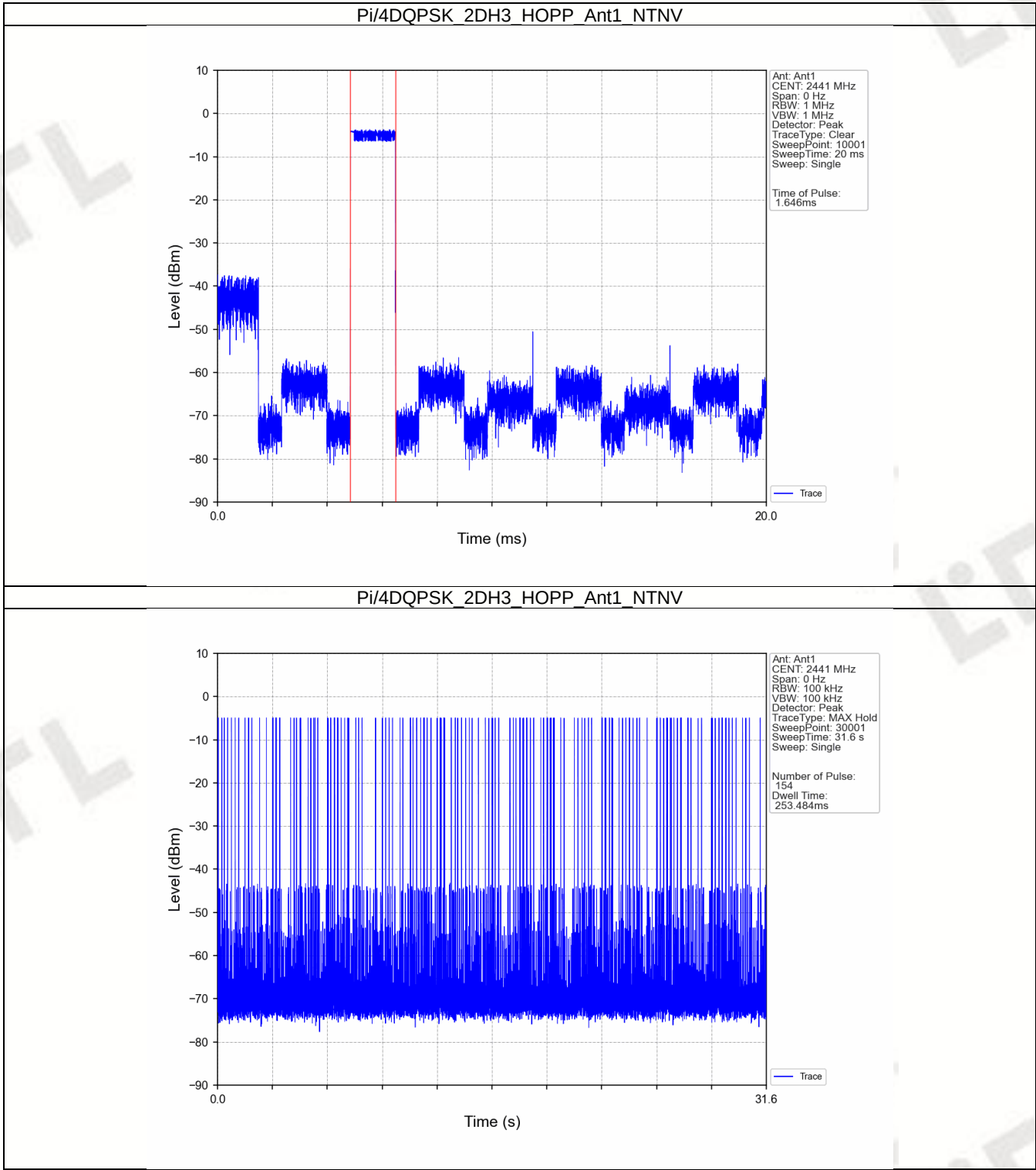
FCCID: 2AOM3-A2



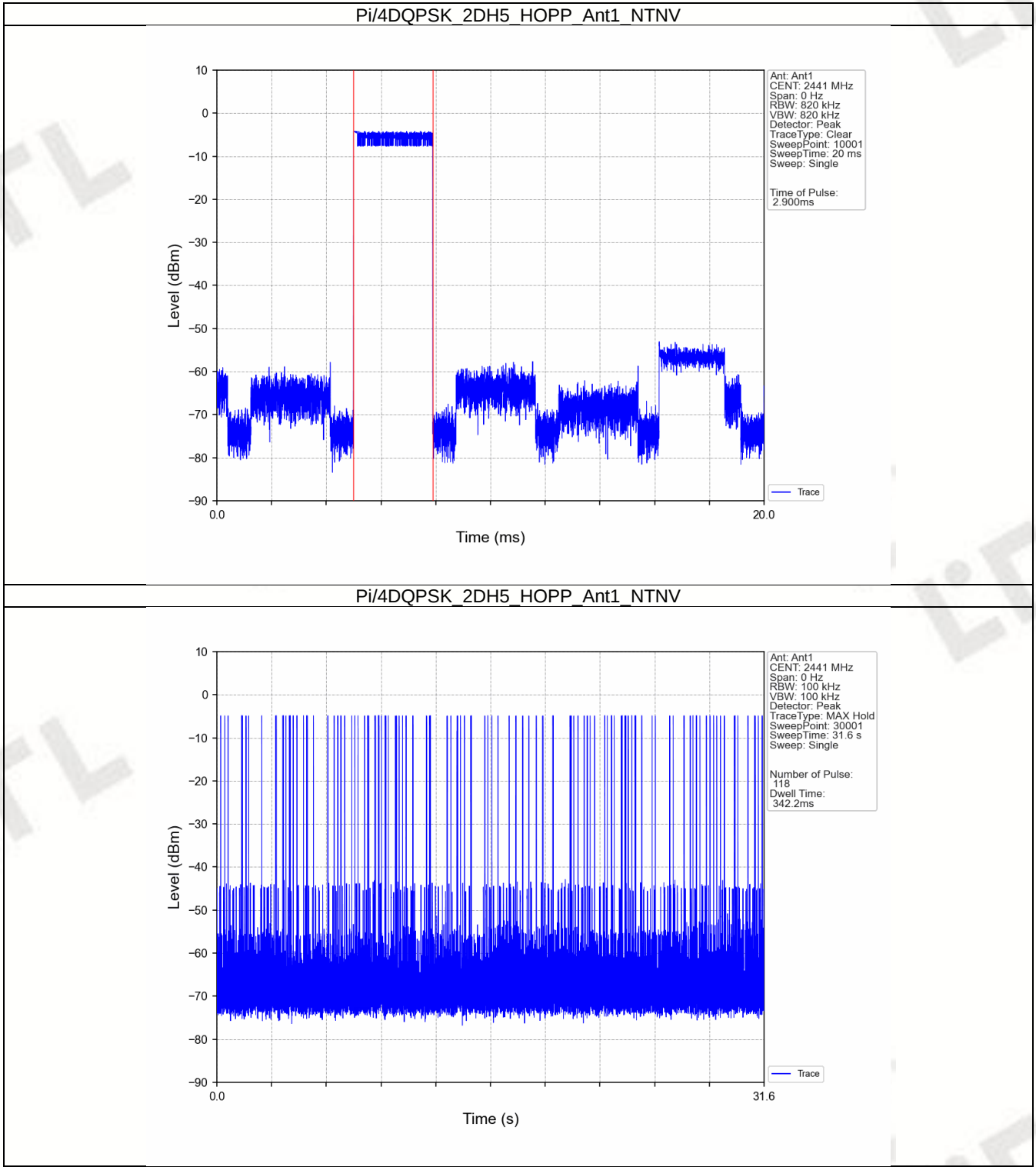
FCCID: 2AOM3-A2



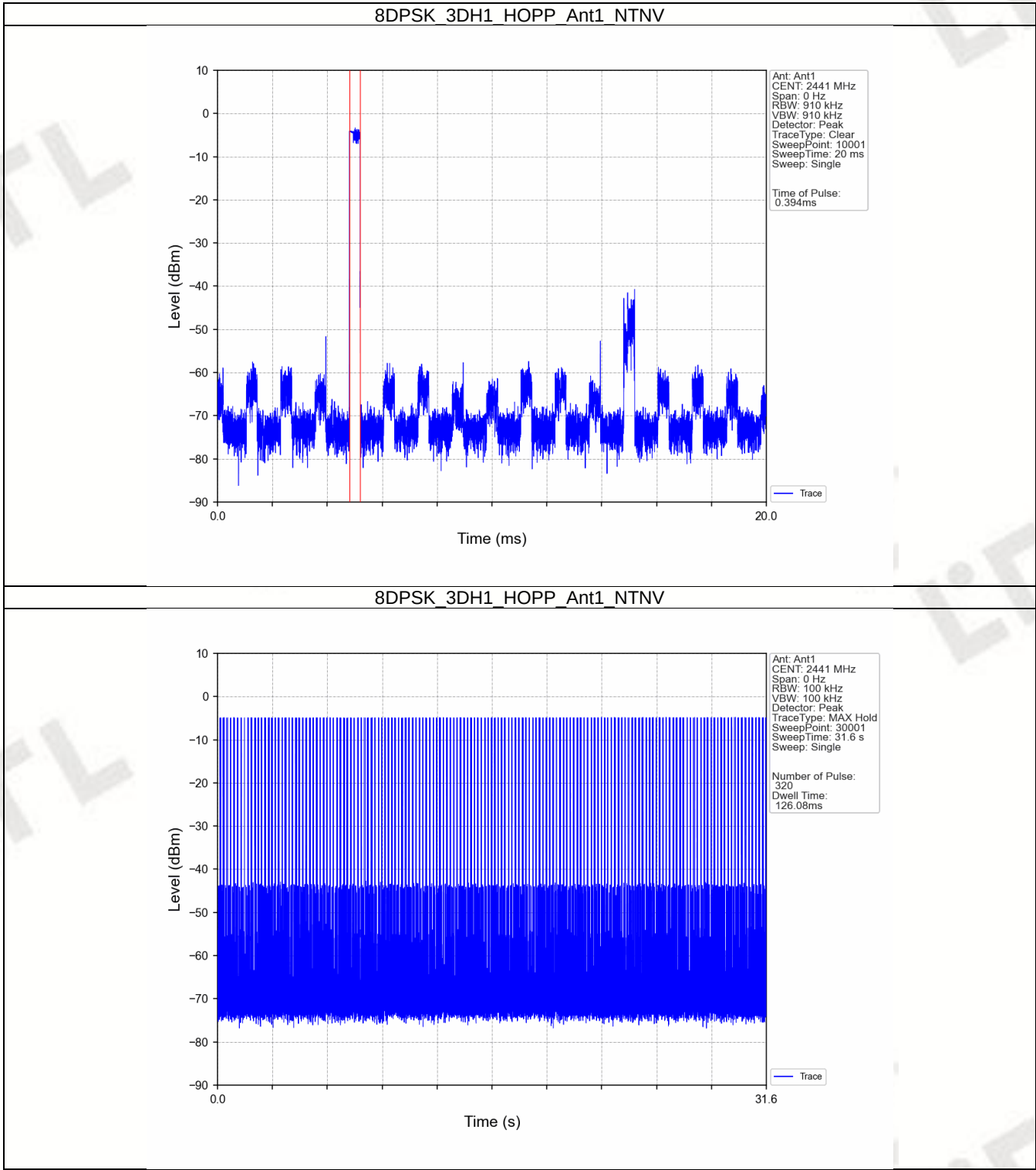
FCCID: 2AOM3-A2



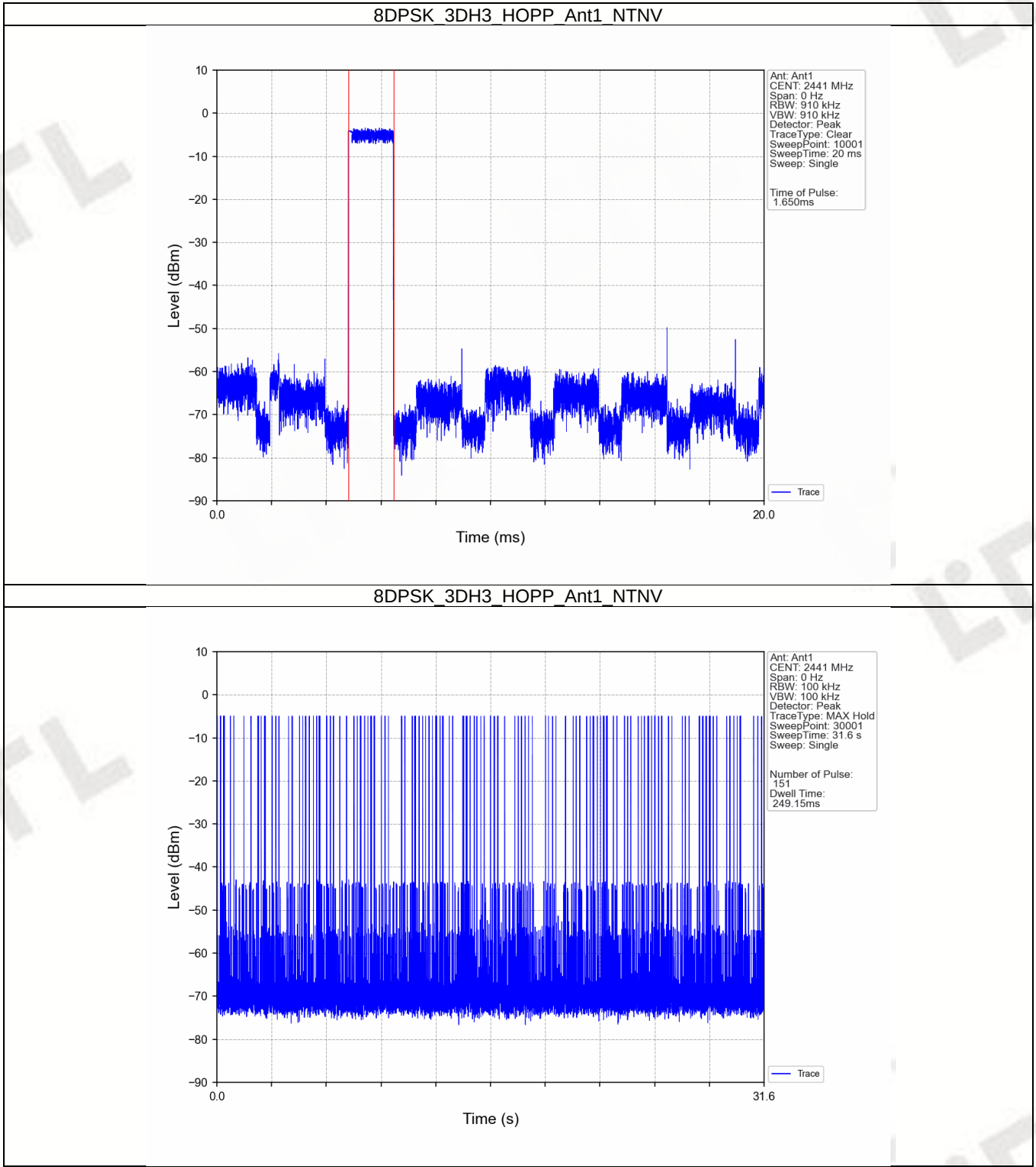
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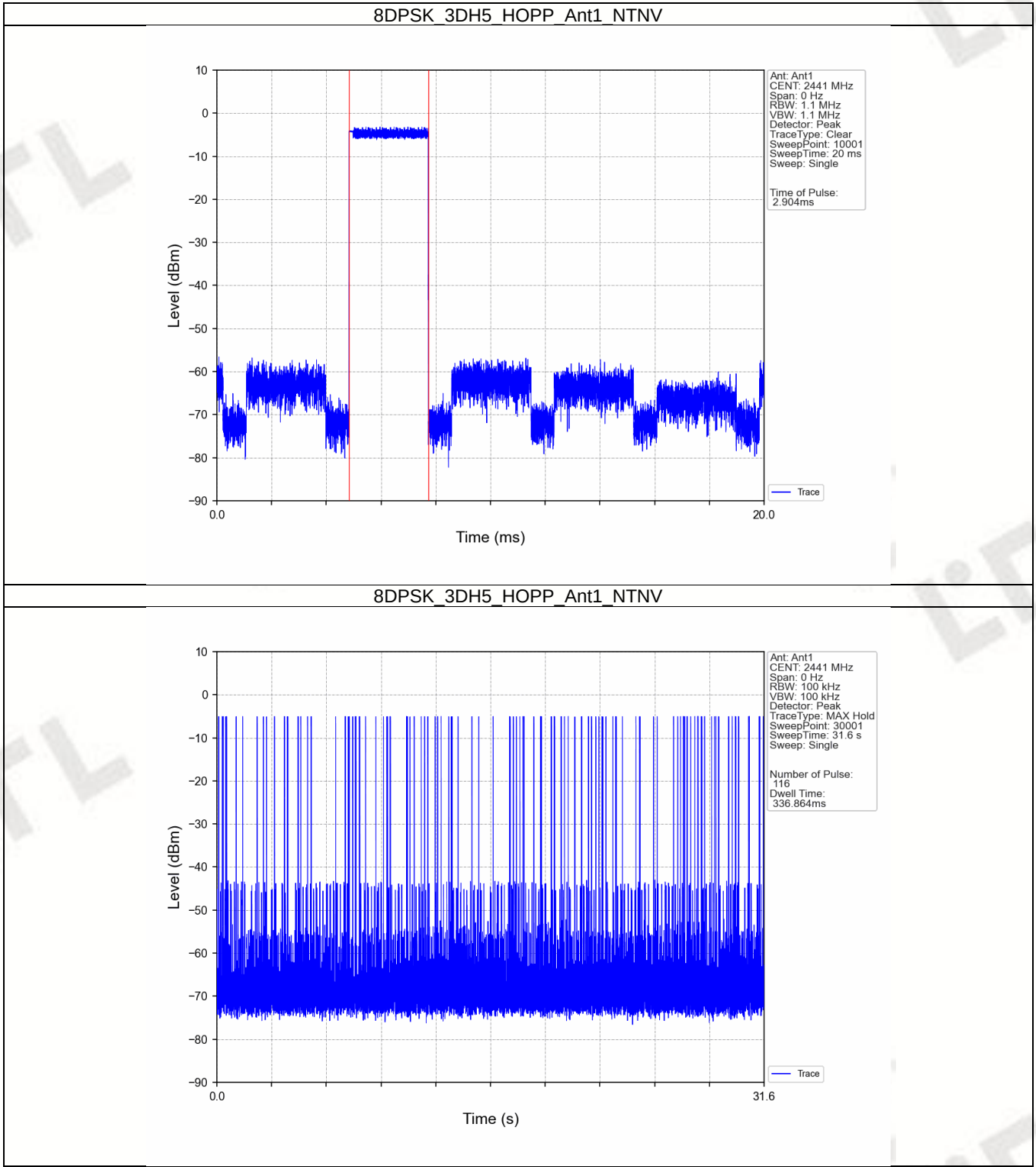
FCCID: 2AOM3-A2



FCCID: 2AOM3-A2



FCCID: 2AOM3-A2



FCCID: 2AOM3-A2

## 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   | -4.71                    |
|           |         | 2441            | DH5         | 1   | -4.22                    |
|           |         | 2480            | DH5         | 1   | -4.76                    |
| Pi/4DQPSK | SISO    | 2402            | 2DH5        | 1   | -4.55                    |
|           |         | 2441            | 2DH5        | 1   | -4.15                    |
|           |         | 2480            | 2DH5        | 1   | -4.70                    |
| 8DPSK     | SISO    | 2402            | 3DH5        | 1   | -4.64                    |
|           |         | 2441            | 3DH5        | 1   | -4.18                    |
|           |         | 2480            | 3DH5        | 1   | -4.78                    |

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

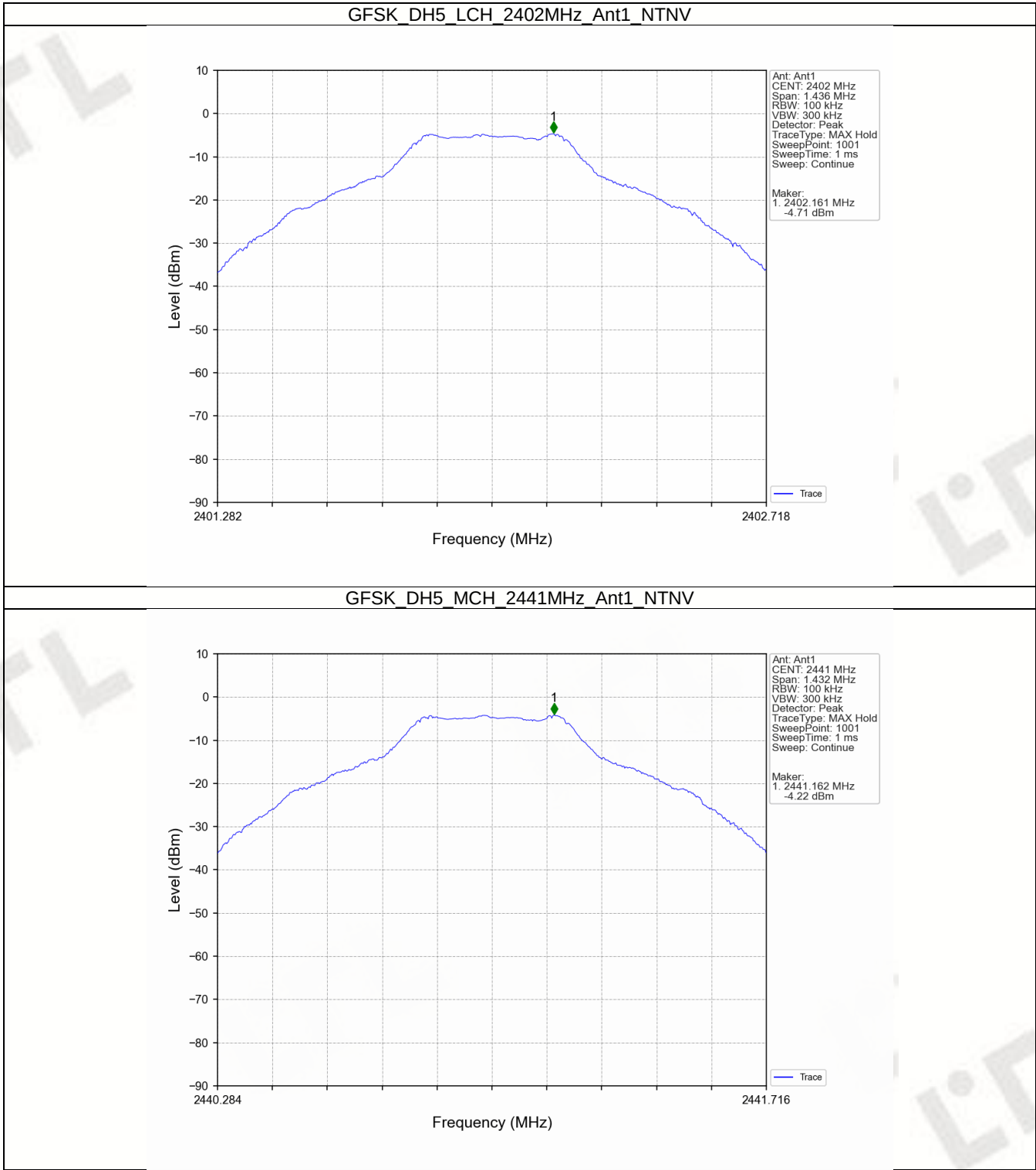
| Mode      | TX Type | Frequency (MHz) | Packet Type | ANT | Level of Reference (dBm) | Limit (dBm) | Verdict |
|-----------|---------|-----------------|-------------|-----|--------------------------|-------------|---------|
| GFSK      | SISO    | 2402            | DH5         | 1   | -4.22                    | -24.22      | Pass    |
|           |         | 2441            | DH5         | 1   | -4.22                    | -24.22      | Pass    |
|           |         | 2480            | DH5         | 1   | -4.22                    | -24.22      | Pass    |
|           |         | HOPP            | DH5         | 1   | -4.22                    | -24.22      | Pass    |
|           |         |                 |             |     | -4.22                    | -24.22      | Pass    |
| Pi/4DQPSK | SISO    | 2402            | 2DH5        | 1   | -4.15                    | -24.15      | Pass    |
|           |         | 2441            | 2DH5        | 1   | -4.15                    | -24.15      | Pass    |
|           |         | 2480            | 2DH5        | 1   | -4.15                    | -24.15      | Pass    |
|           |         | HOPP            | 2DH5        | 1   | -4.15                    | -24.15      | Pass    |
|           |         |                 |             |     | -4.15                    | -24.15      | Pass    |
| 8DPSK     | SISO    | 2402            | 3DH5        | 1   | -4.18                    | -24.18      | Pass    |
|           |         | 2441            | 3DH5        | 1   | -4.18                    | -24.18      | Pass    |
|           |         | 2480            | 3DH5        | 1   | -4.18                    | -24.18      | Pass    |
|           |         | HOPP            | 3DH5        | 1   | -4.18                    | -24.18      | Pass    |
|           |         |                 |             |     | -4.18                    | -24.18      | 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.

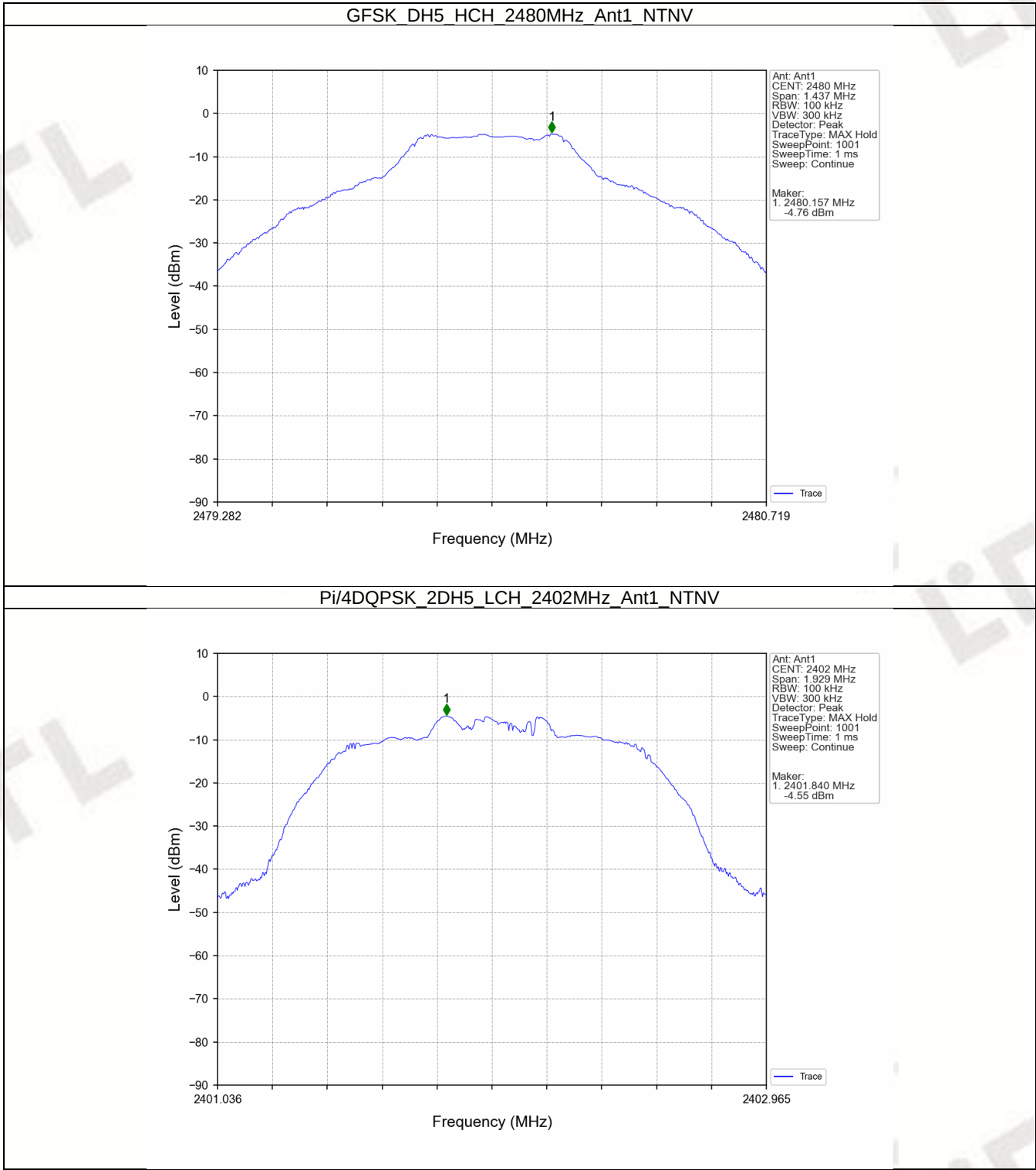
FCCID: 2AOM3-A2

6.2 Test Graph

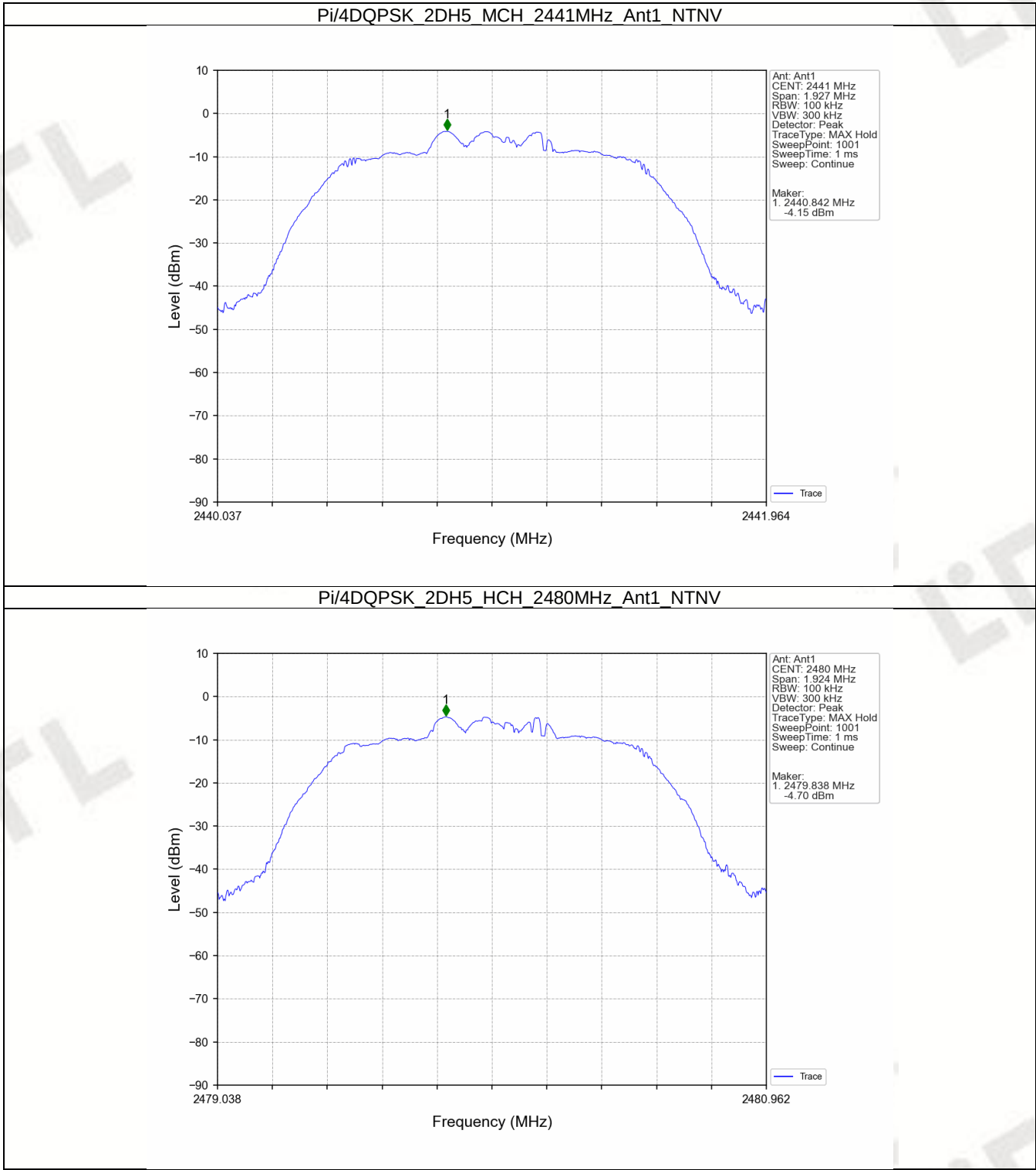
6.2.1 Ref



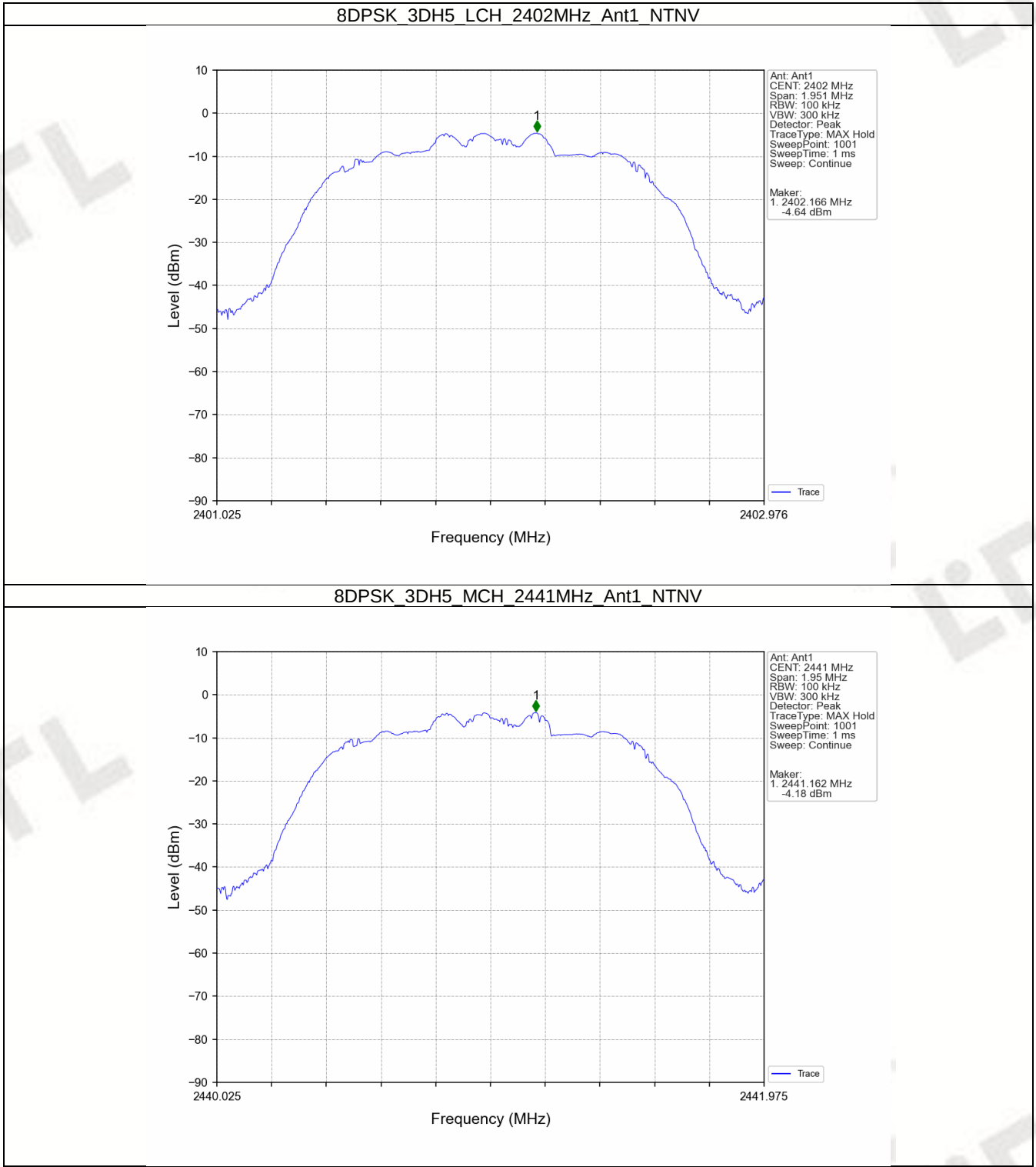
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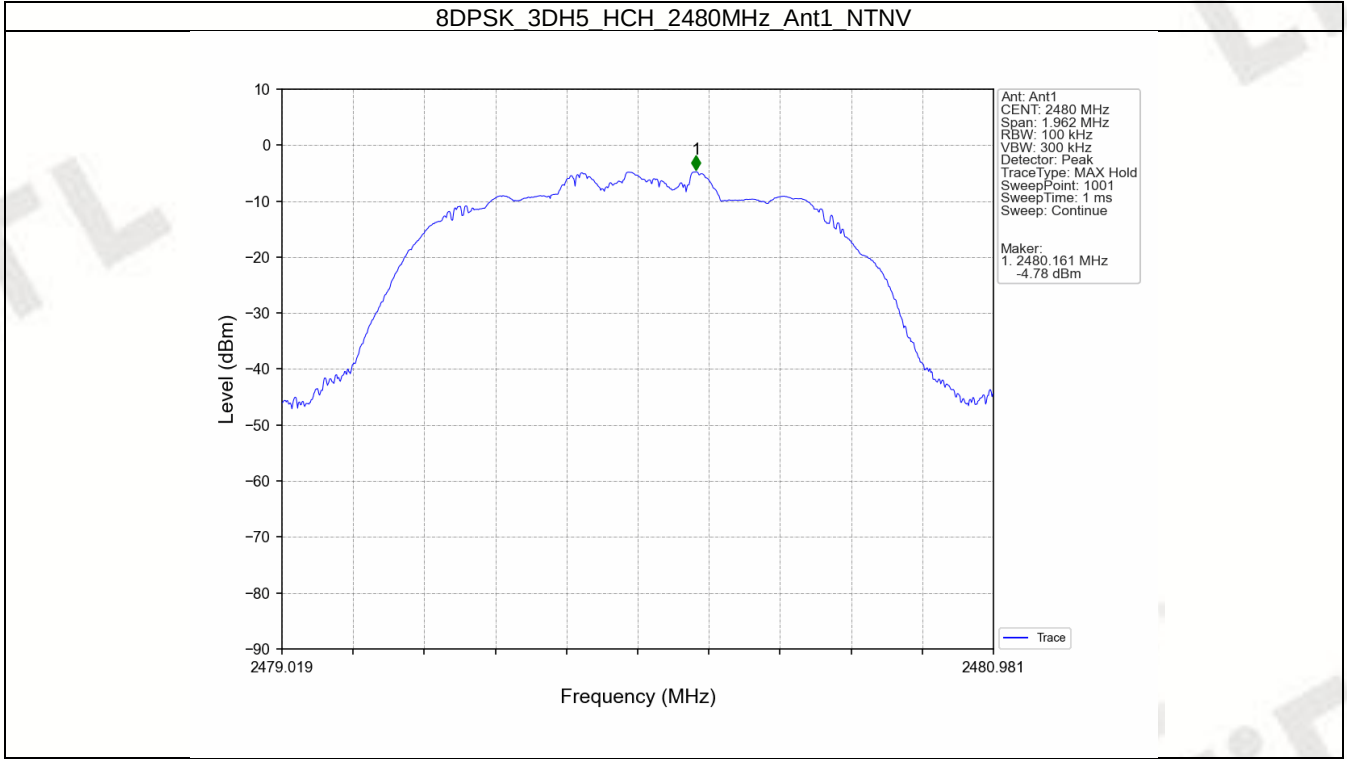
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FCCID: 2AOM3-A2

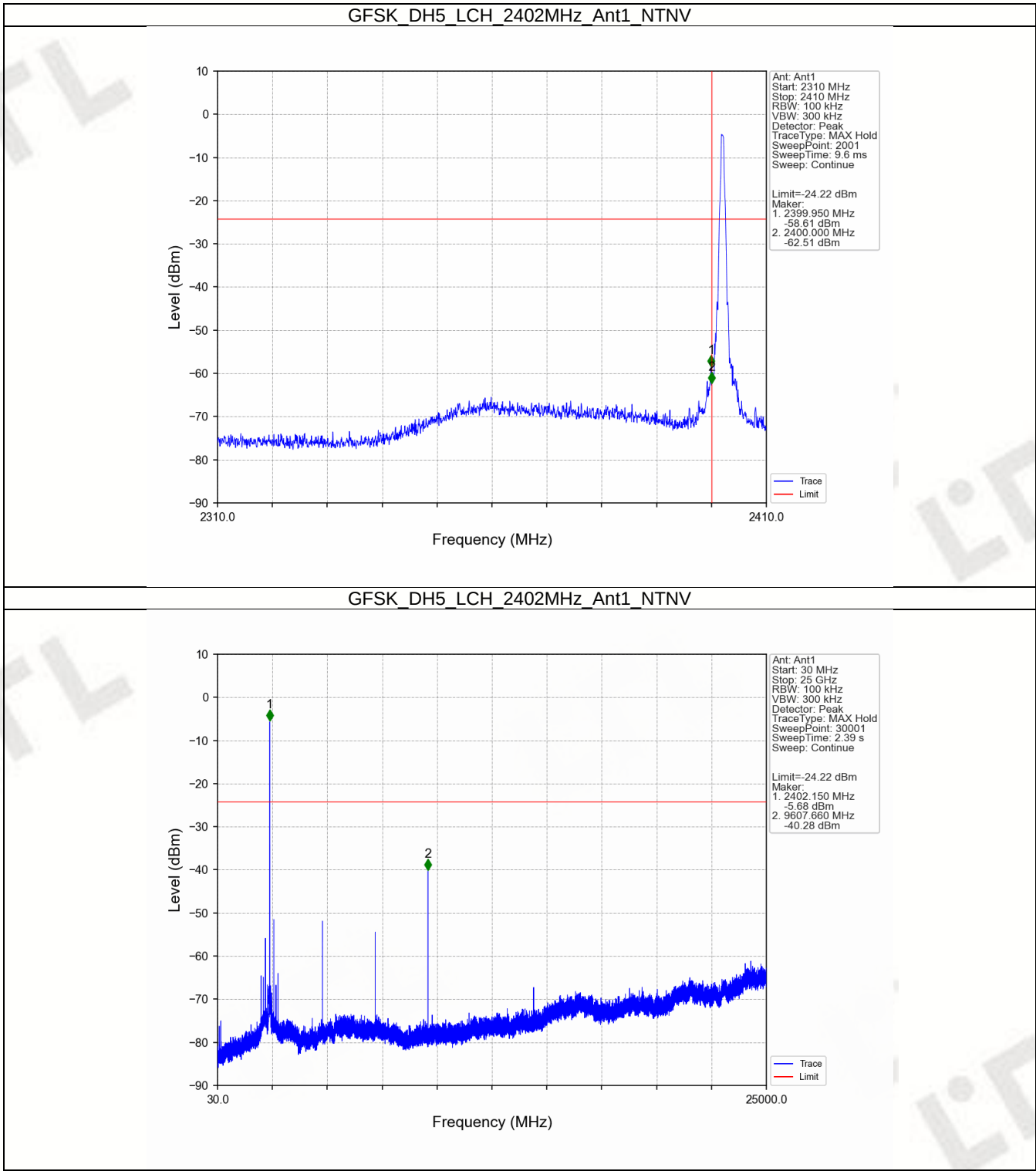


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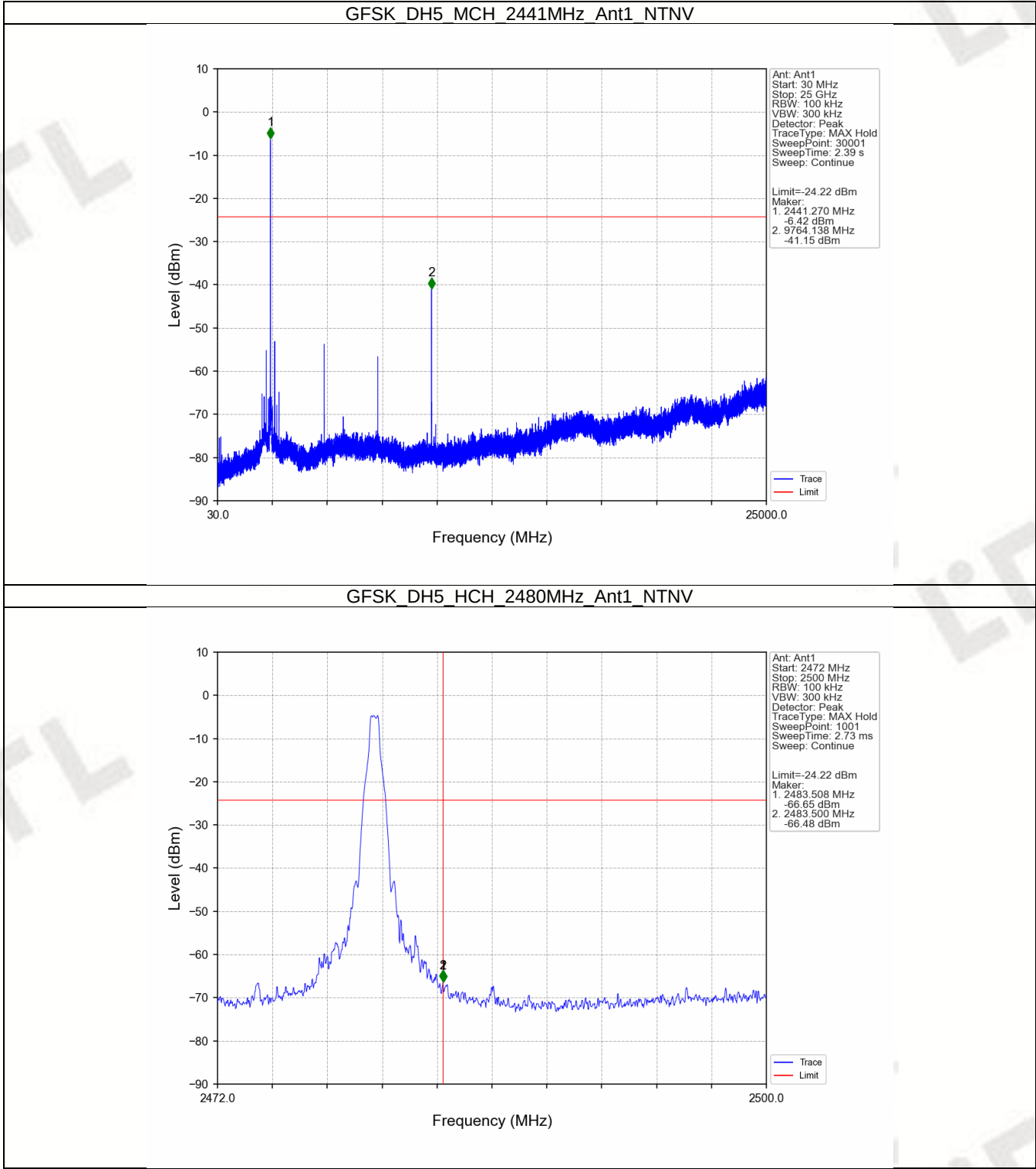


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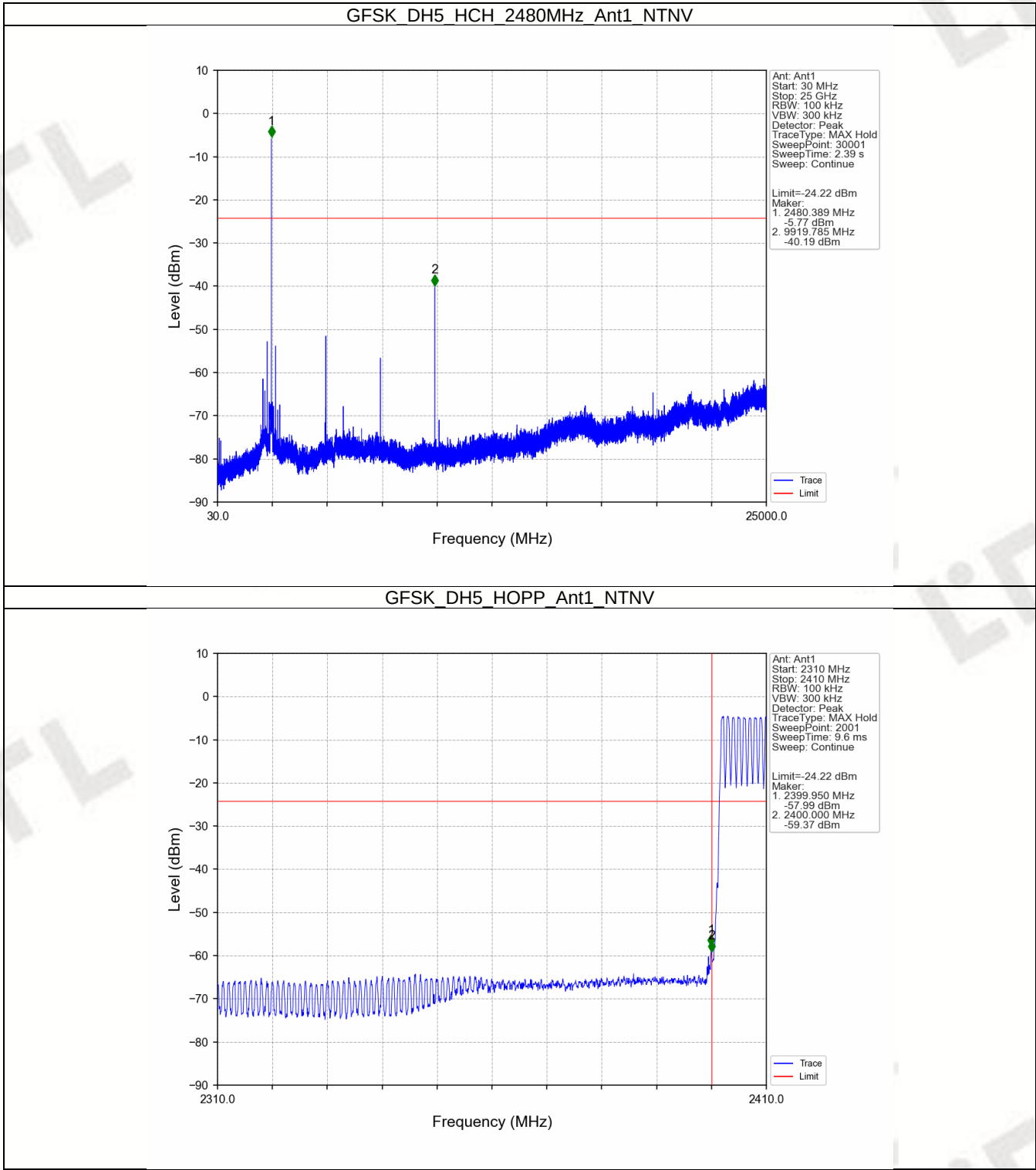
6.2.2 CSE



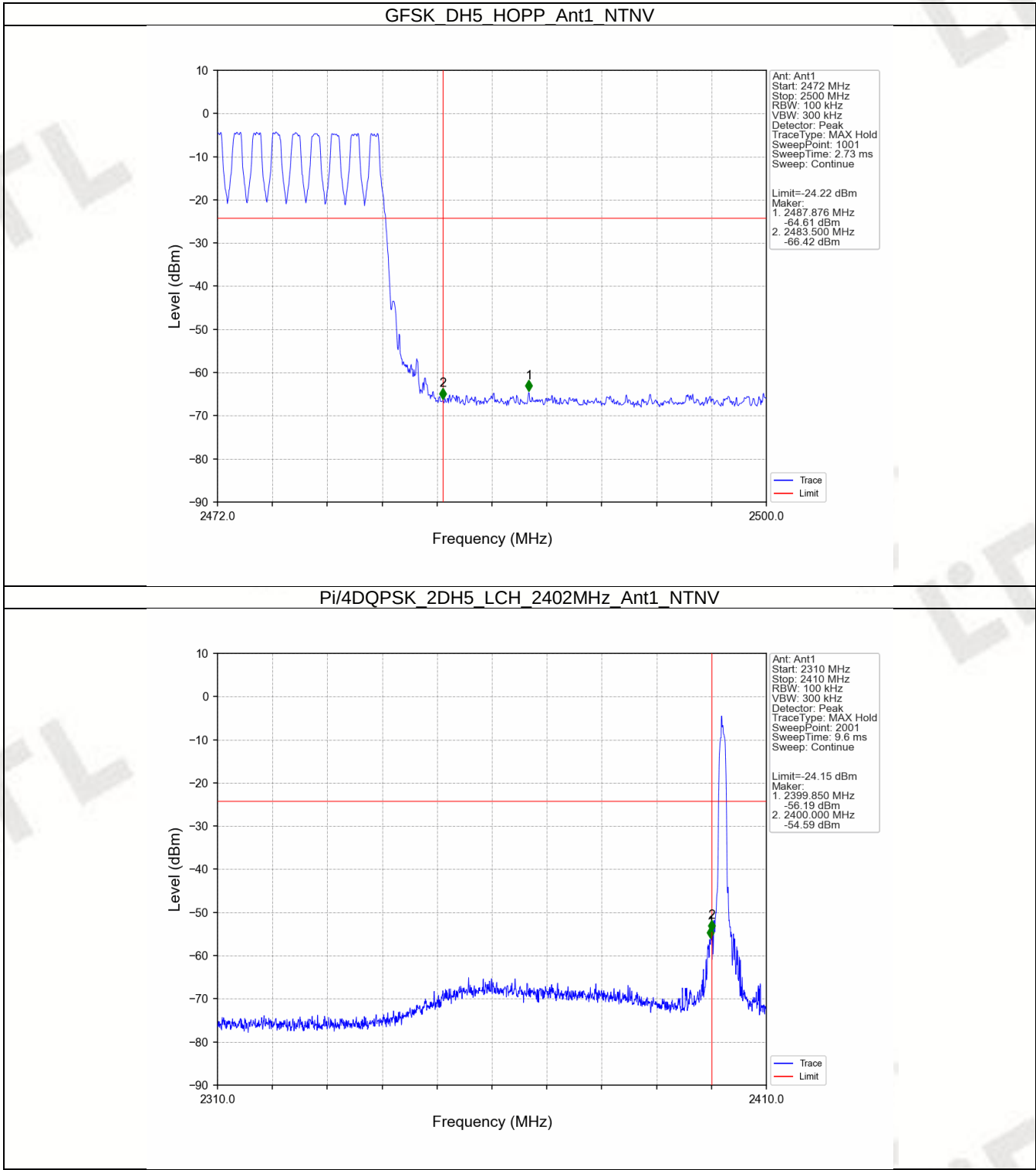
FCCID: 2AOM3-A2



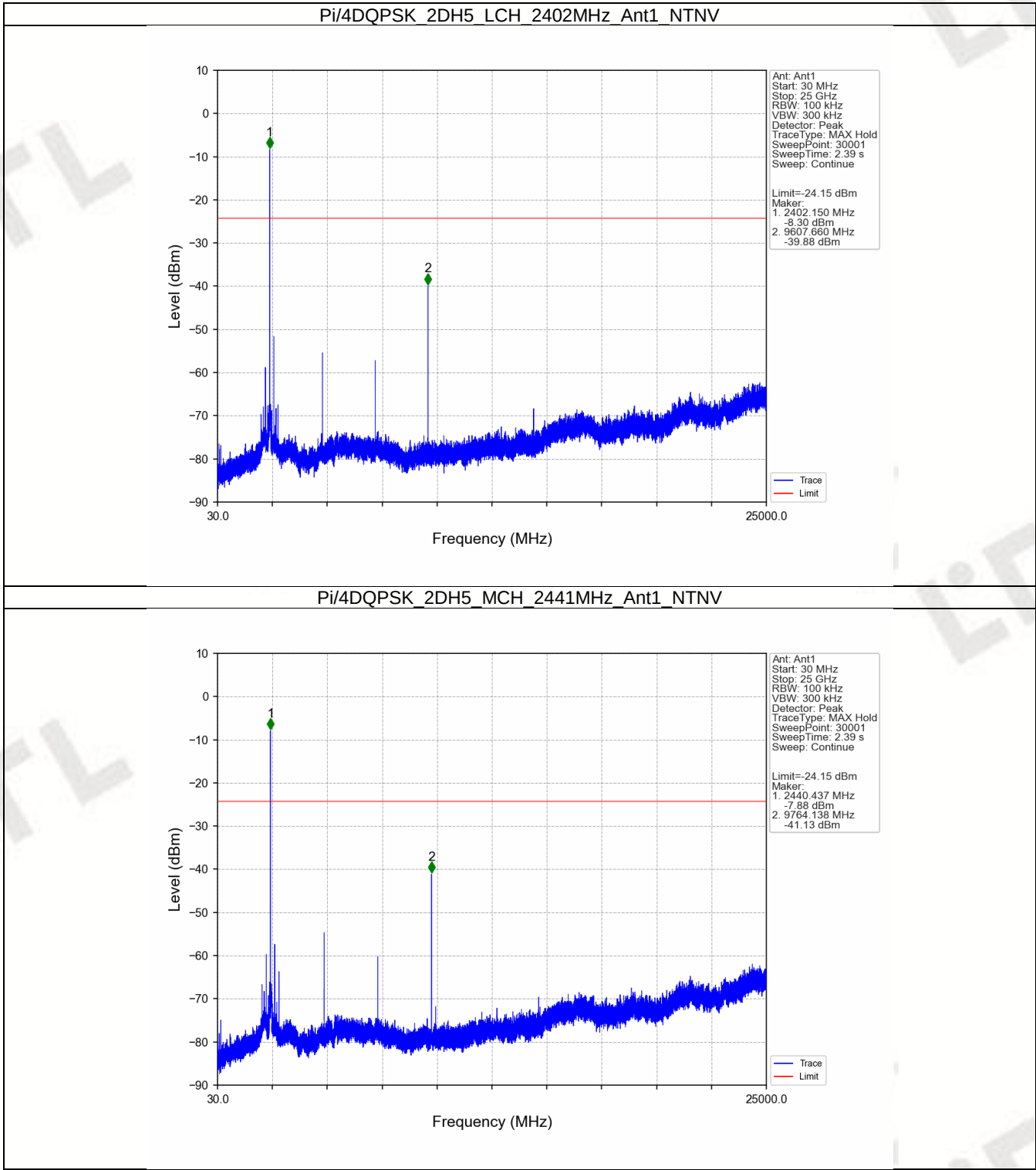
FCCID: 2AOM3-A2



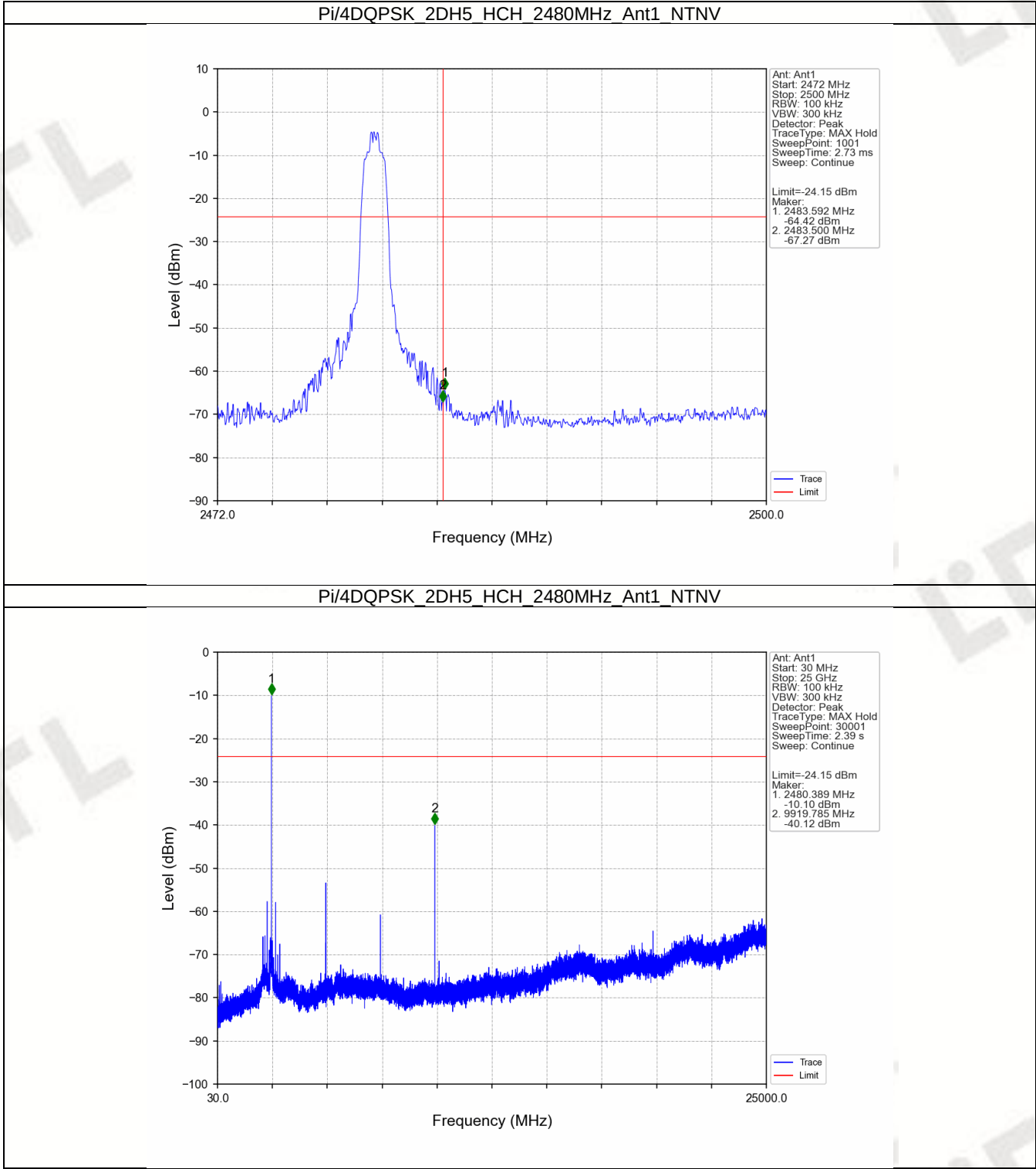
FCCID: 2AOM3-A2



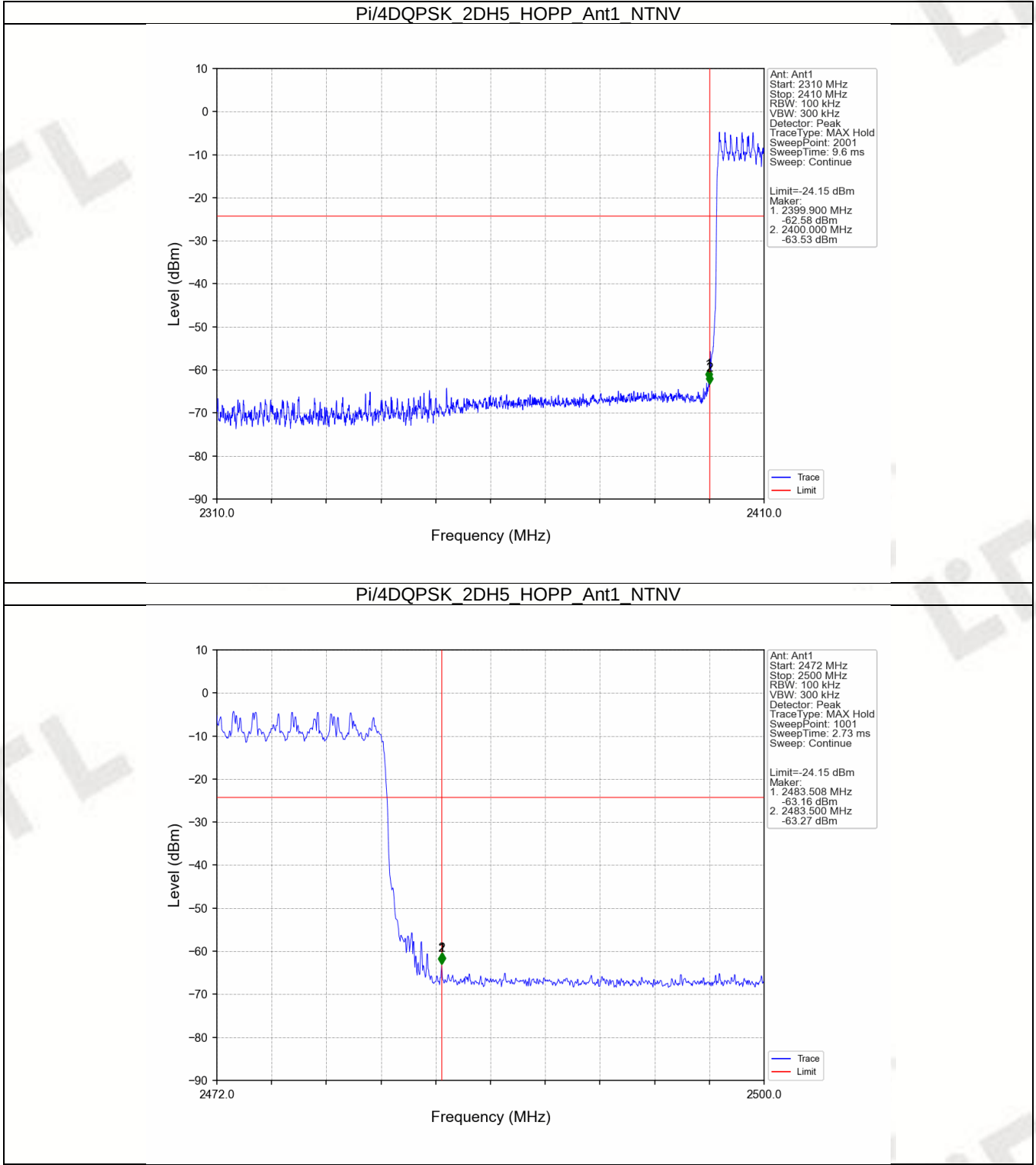
FCCID: 2AOM3-A2



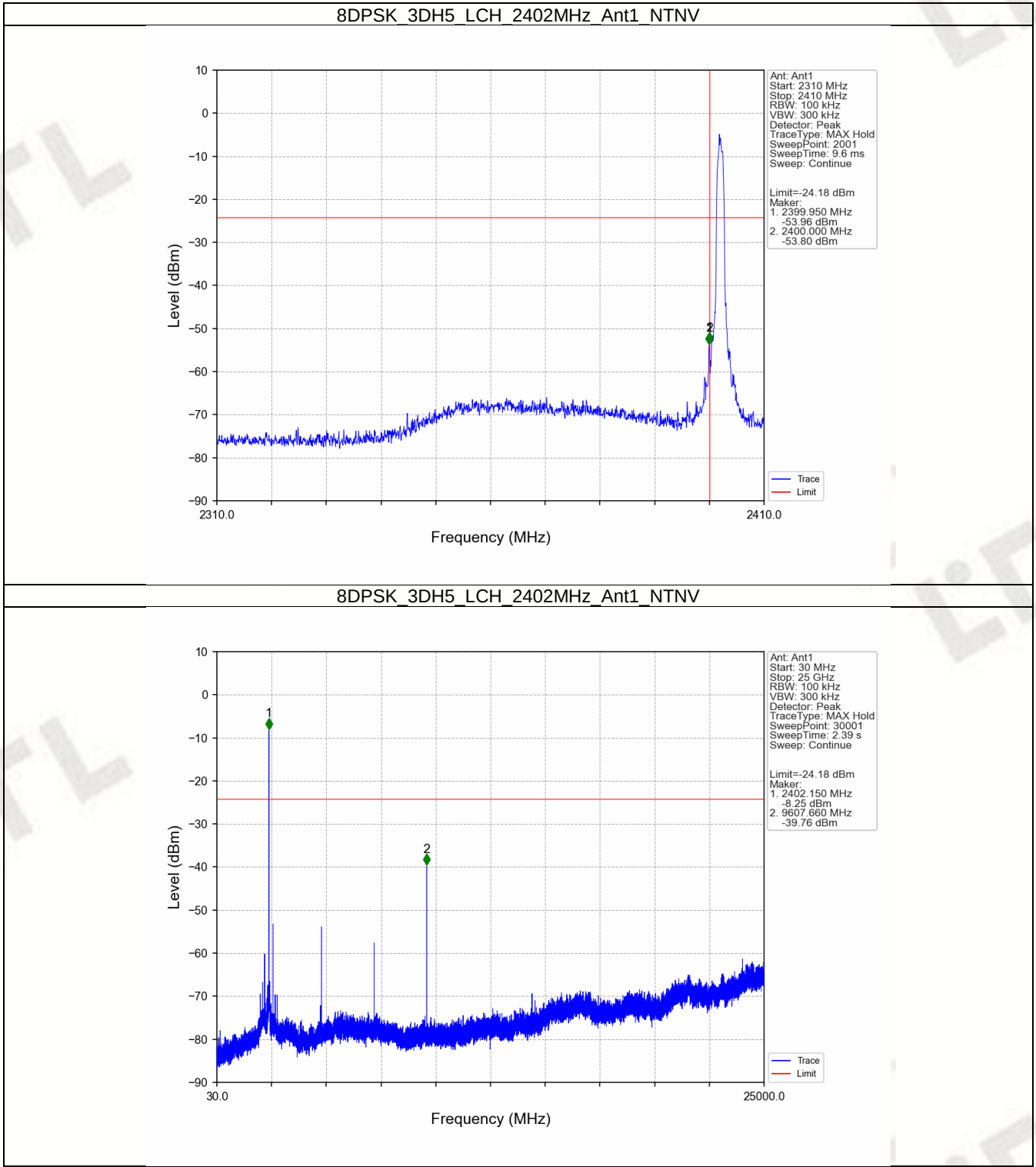
FCCID: 2AOM3-A2



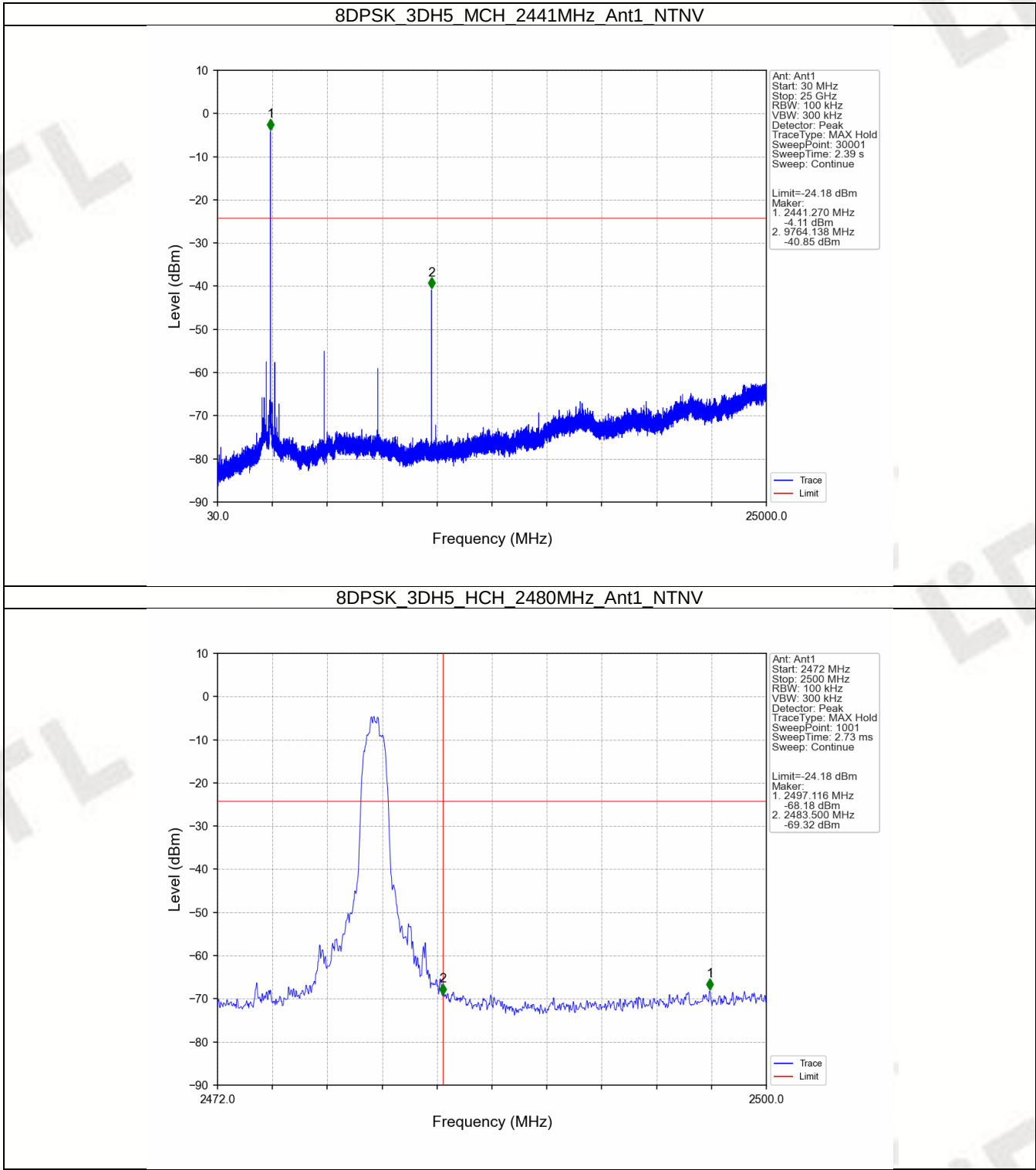
FCCID: 2AOM3-A2



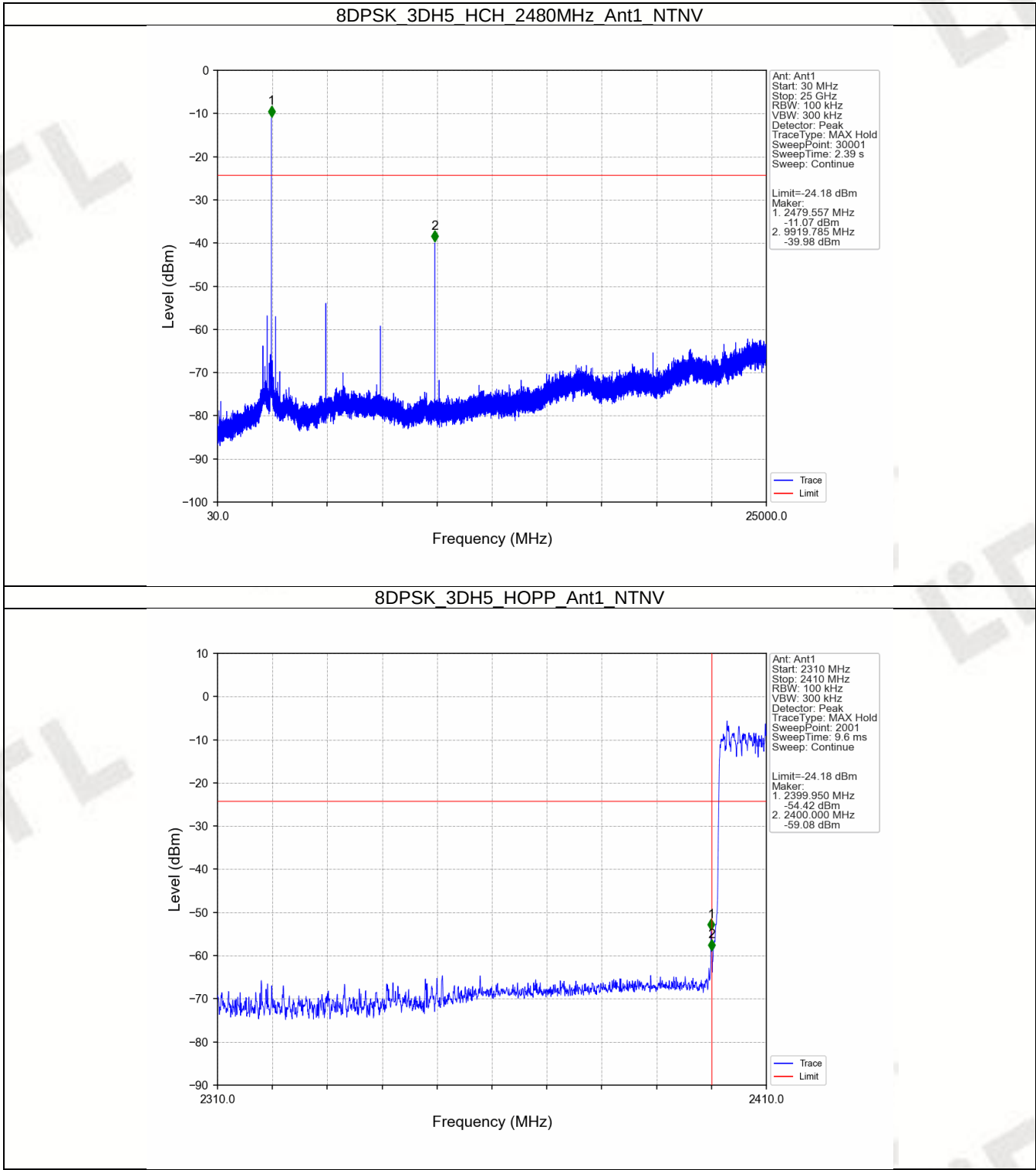
FCCID: 2AOM3-A2



FCCID: 2AOM3-A2



FCCID: 2AOM3-A2



FCCID: 2AOM3-A2

