

## Appendix Test Data

|                |                 |                    |                   |
|----------------|-----------------|--------------------|-------------------|
| Report No.:    | 18220WC10103801 | Test Date:         | 2021.5.31         |
| Test Engineer: | <i>Jony He</i>  | Auditor:           | <i>Edward Pan</i> |
| Temperature:   | 24.3°C          | Relative Humidity: | 57 %              |
| Pressure:      | 1012 hPa        |                    |                   |

### 1. Bandwidth

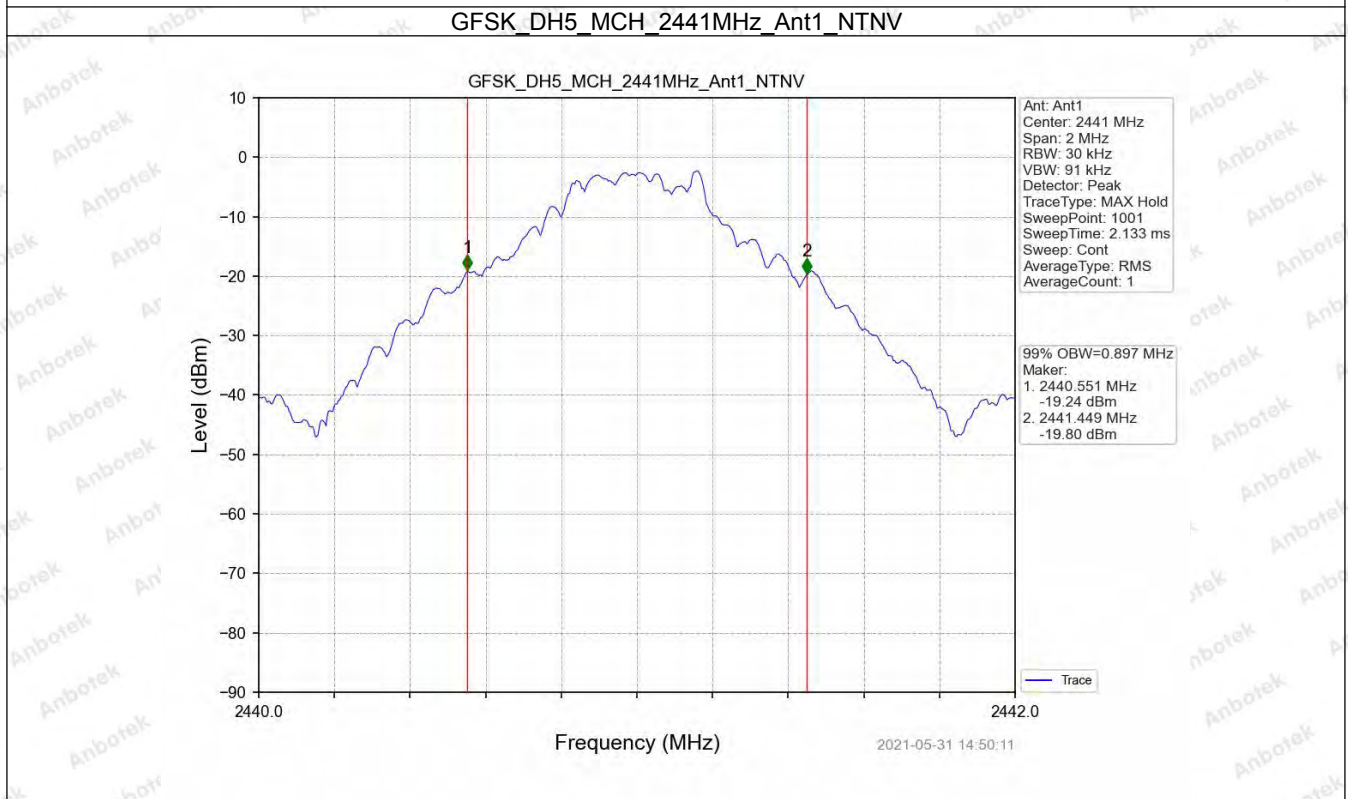
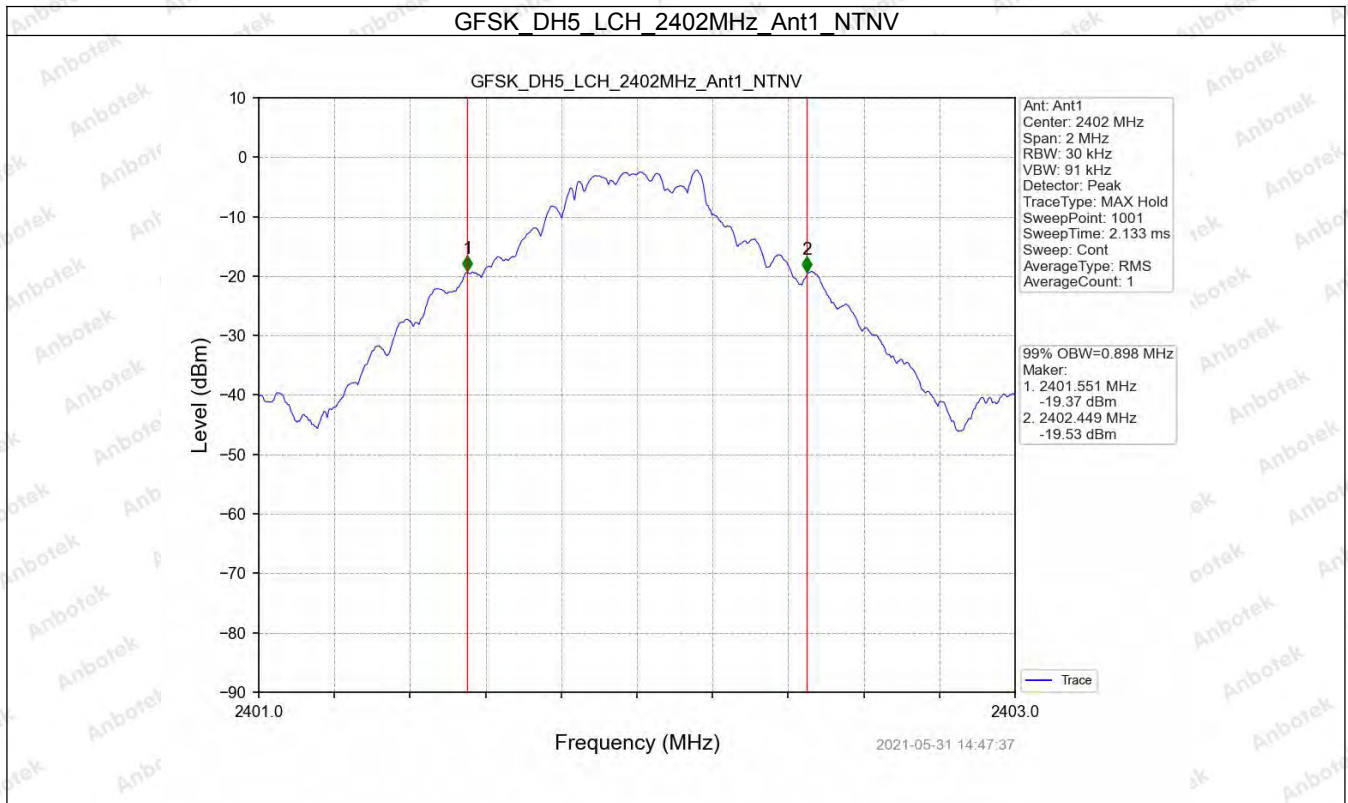
#### 1.1 OBW

##### 1.1.1 Test Result

| Mode      | TX Type | Frequency (MHz) | Packet Type | 99% Occupied Bandwidth (MHz) | Limit (MHz) | Verdict |
|-----------|---------|-----------------|-------------|------------------------------|-------------|---------|
|           |         |                 |             | Ant1                         |             |         |
| GFSK      | SISO    | 2402            | DH5         | 0.898                        | /           | Note1   |
|           |         | 2441            | DH5         | 0.897                        | /           | Note1   |
|           |         | 2480            | DH5         | 0.899                        | /           | Note1   |
| Pi/4DQPSK | SISO    | 2402            | 2DH5        | 1.179                        | /           | Note1   |
|           |         | 2441            | 2DH5        | 1.172                        | /           | Note1   |
|           |         | 2480            | 2DH5        | 1.168                        | /           | Note1   |
| 8DPSK     | SISO    | 2402            | 3DH5        | 1.189                        | /           | Note1   |
|           |         | 2441            | 3DH5        | 1.183                        | /           | Note1   |
|           |         | 2480            | 3DH5        | 1.180                        | /           | Note1   |

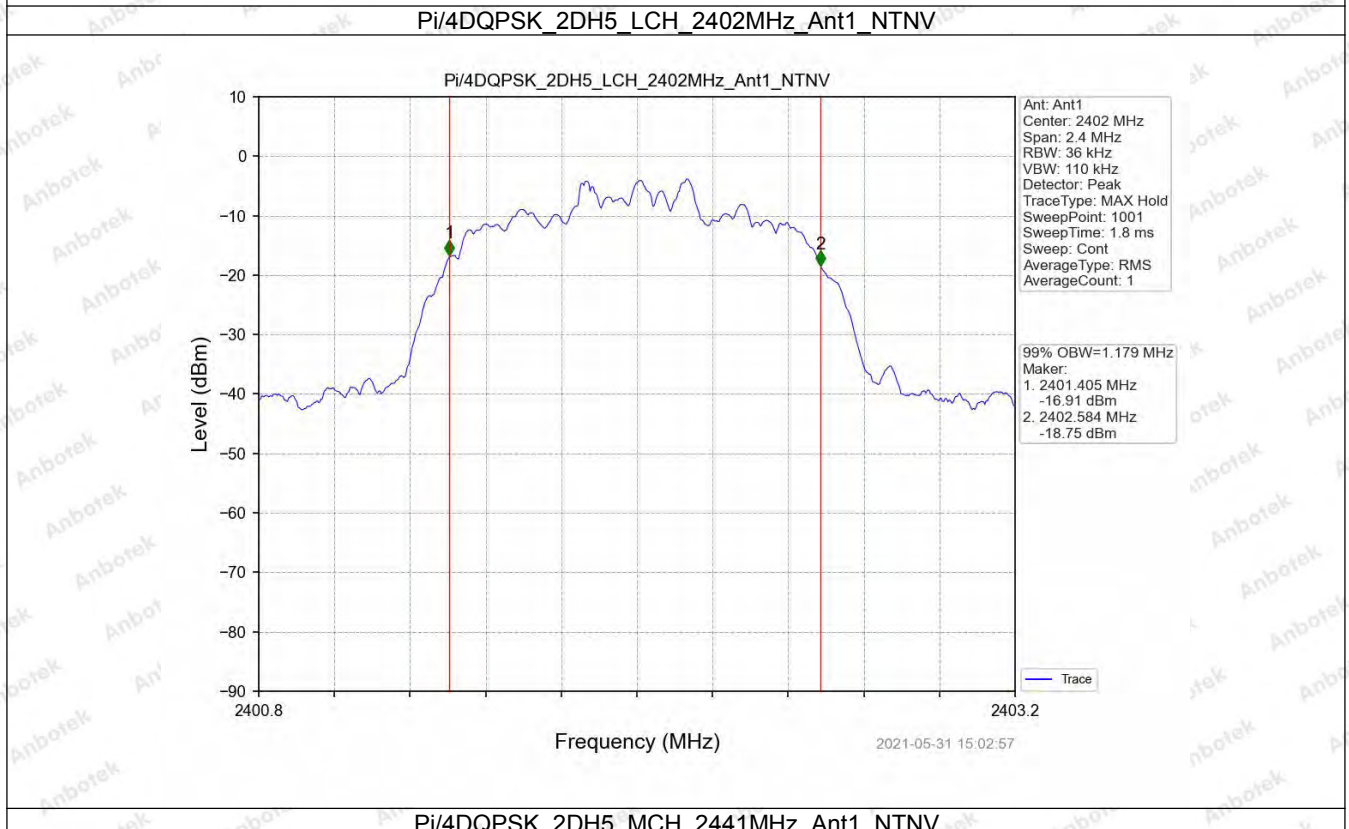
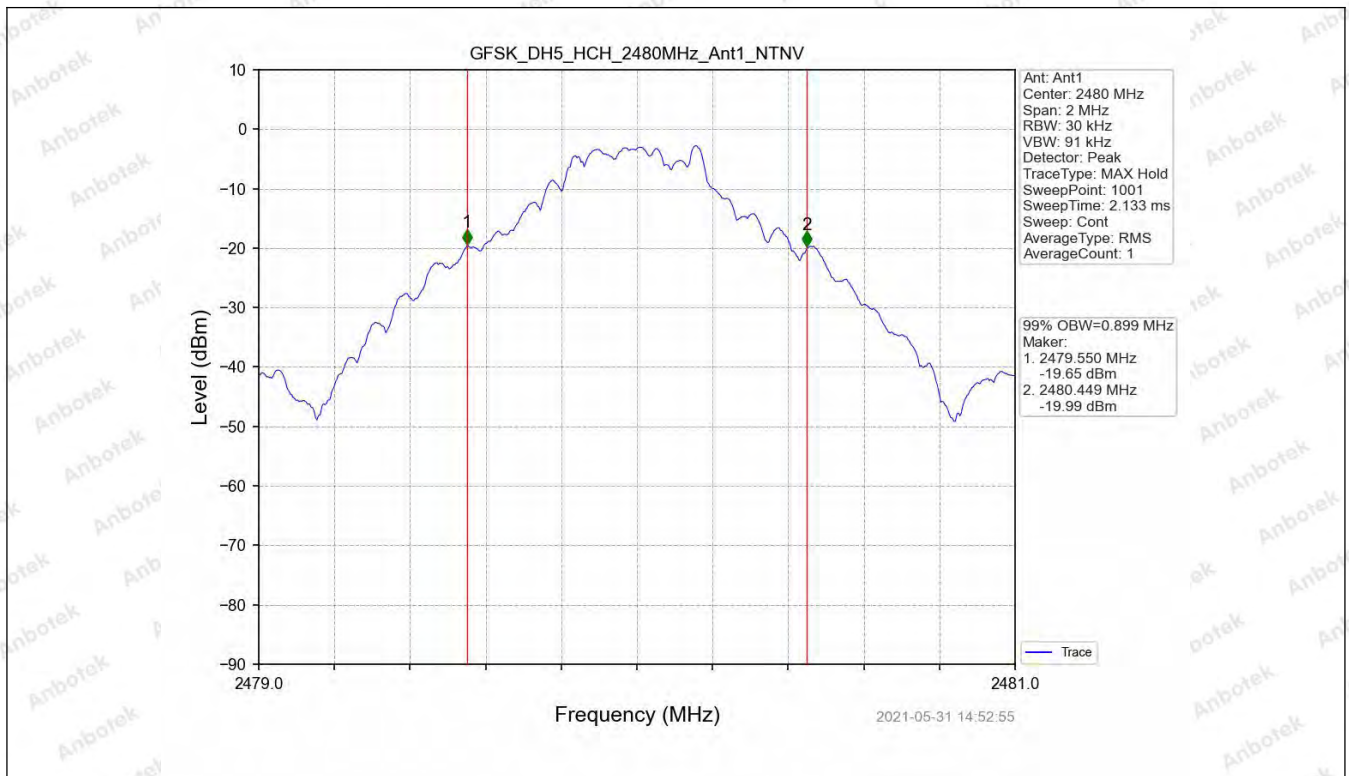
Note1: Only for Report Use

1.1.2 Test Graph

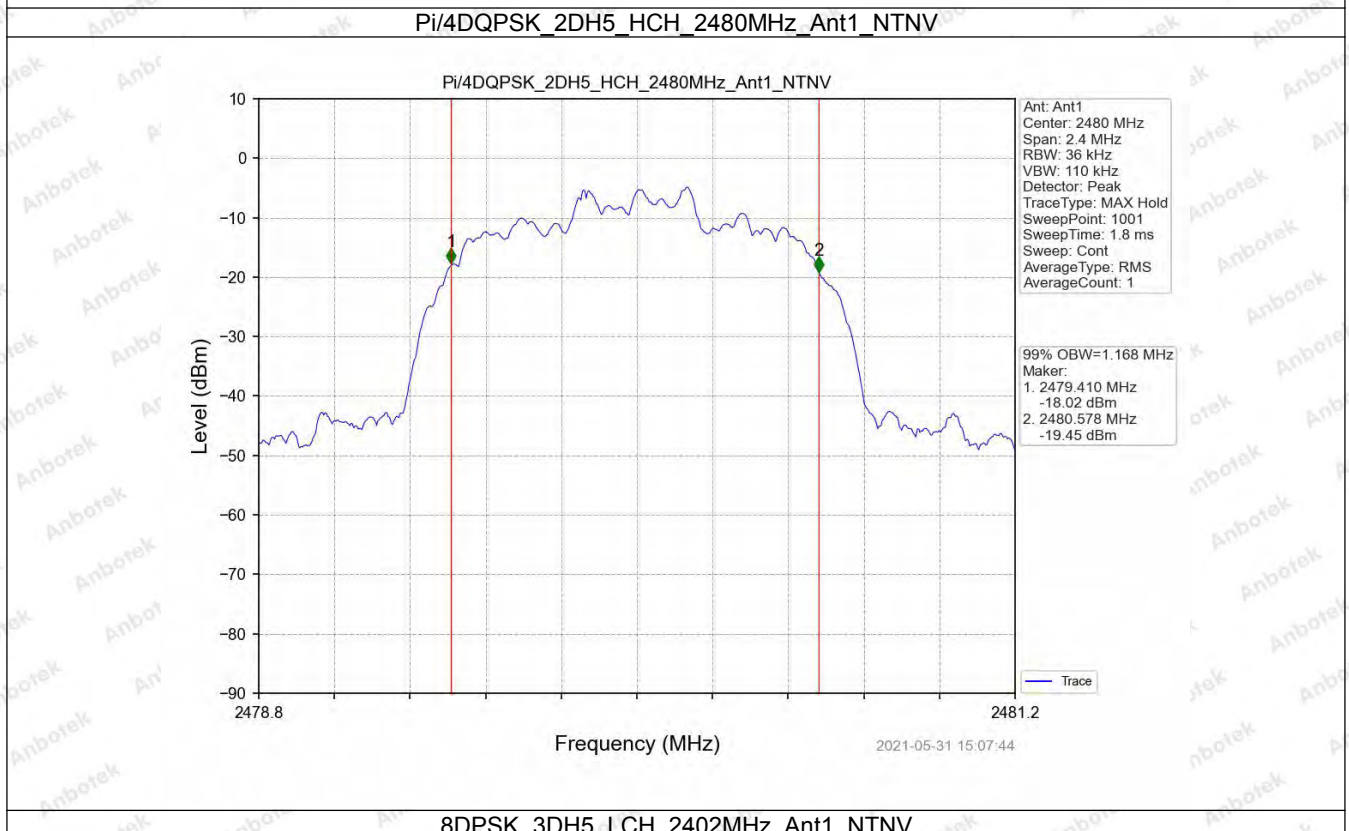
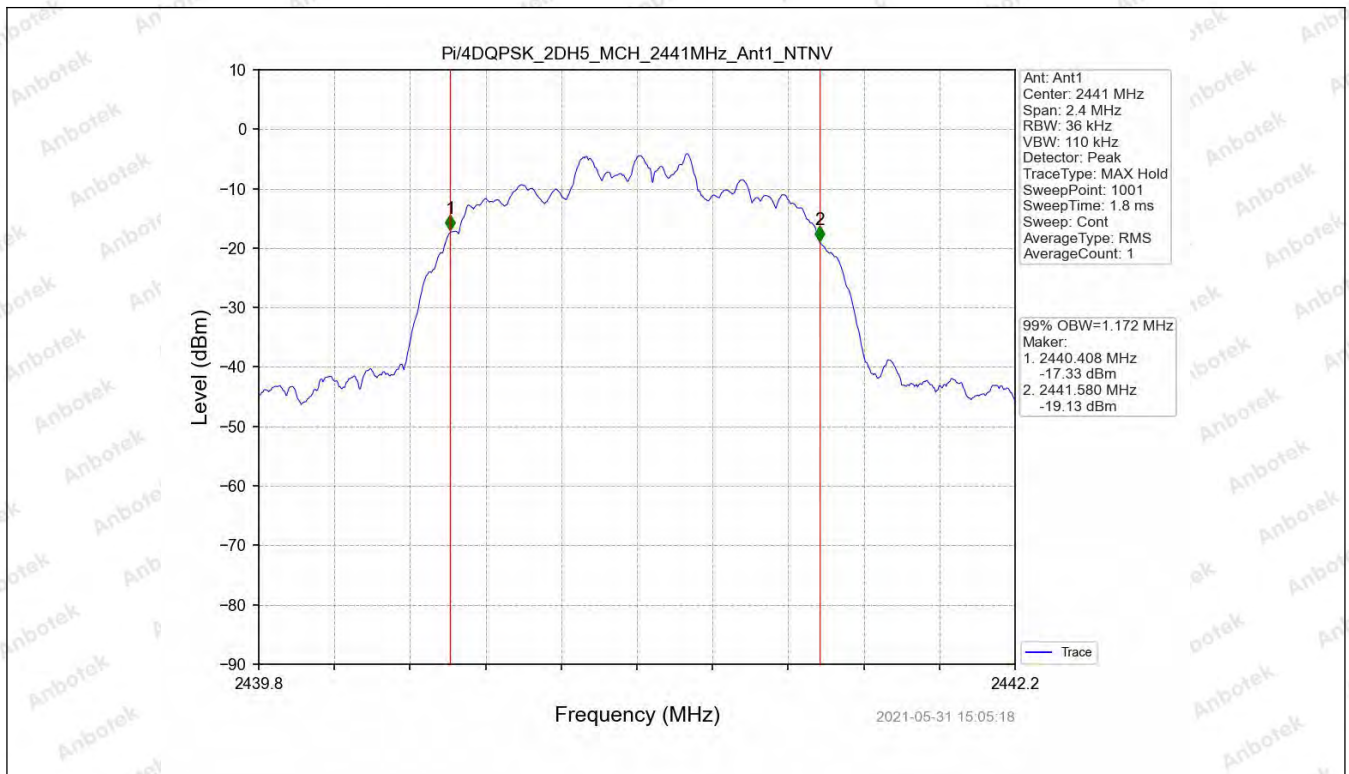


**GFSK\_DH5\_HCH\_2480MHz\_Ant1\_NTNV**



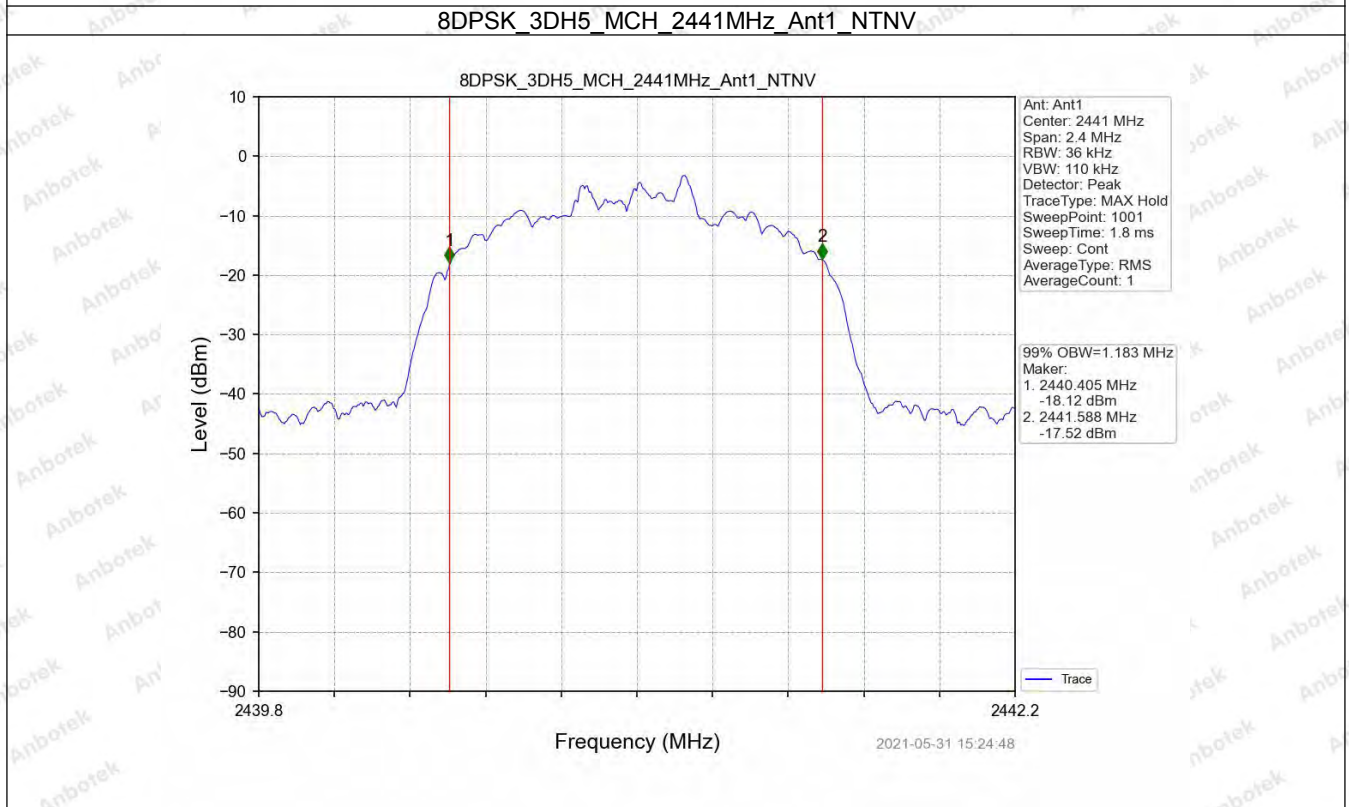
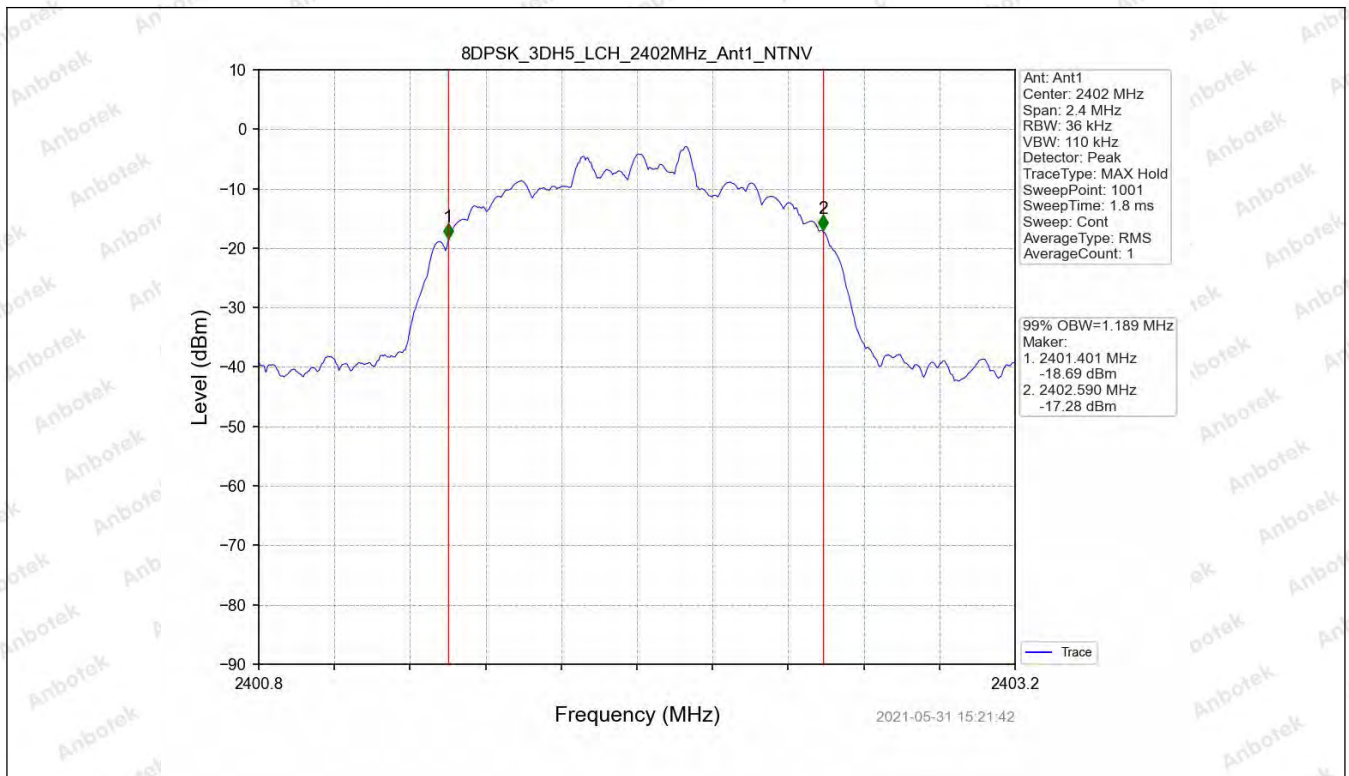


**Pi/4DQPSK\_2DH5\_MCH\_2441MHz\_Ant1\_NTNV**

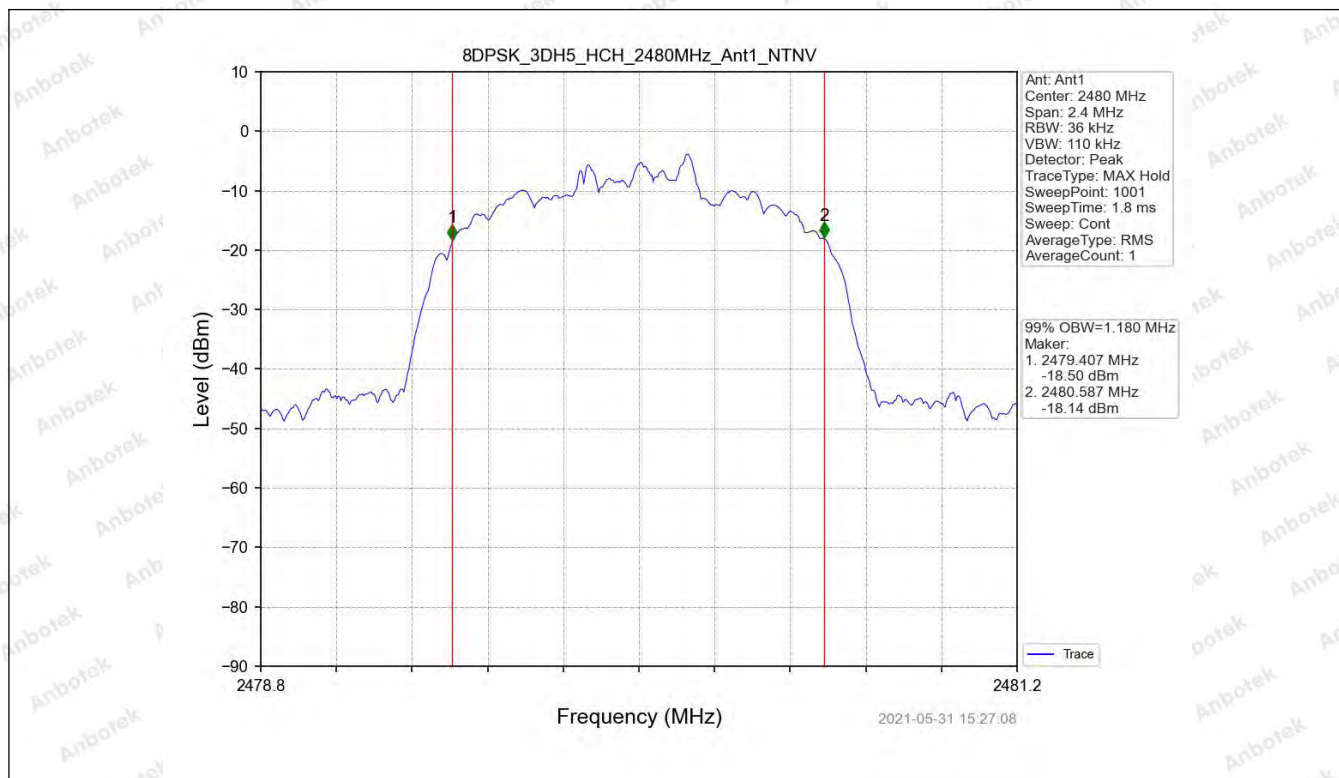


8DPSK\_3DH5\_LCH\_2402MHz\_Ant1\_NTNV






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



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400-003-0500  
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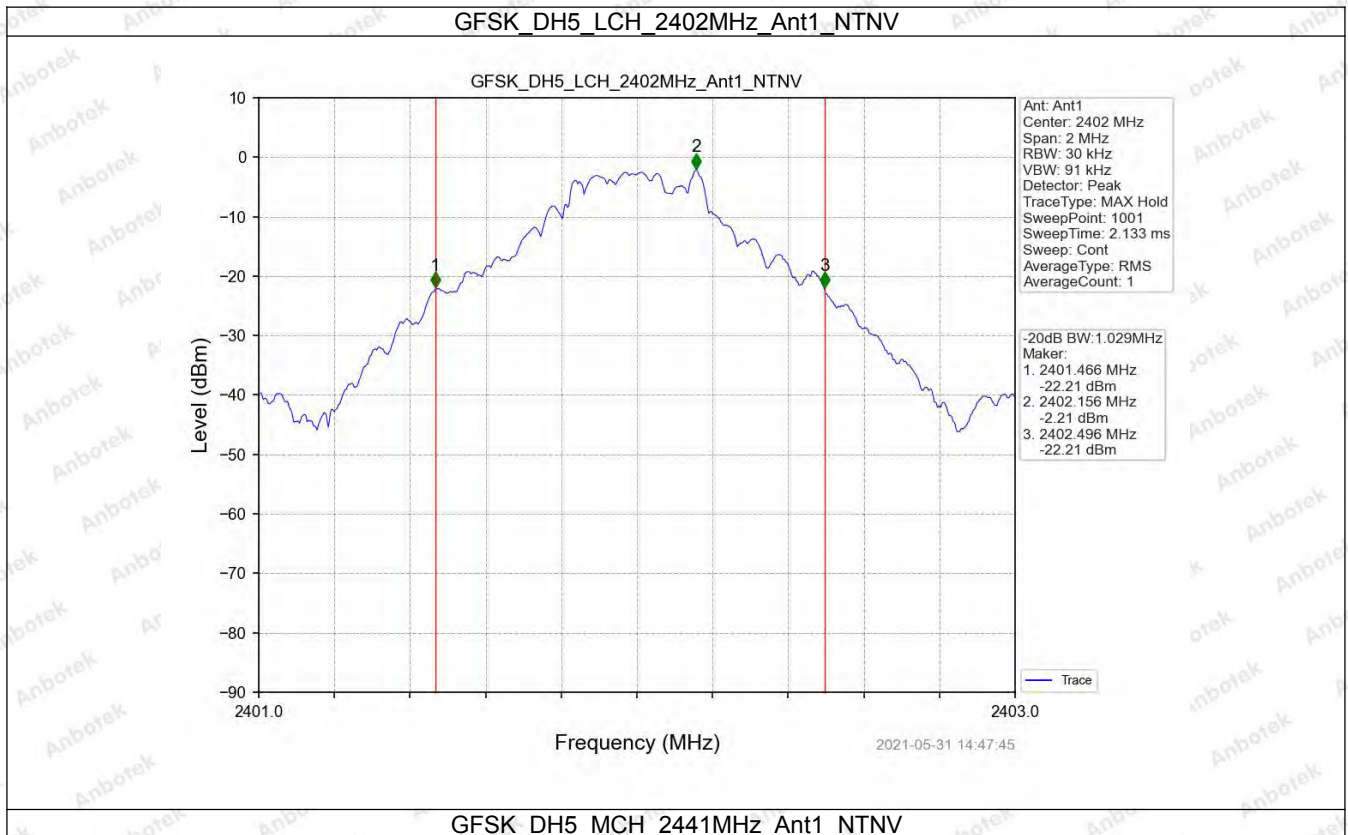
## 1.2 XDB

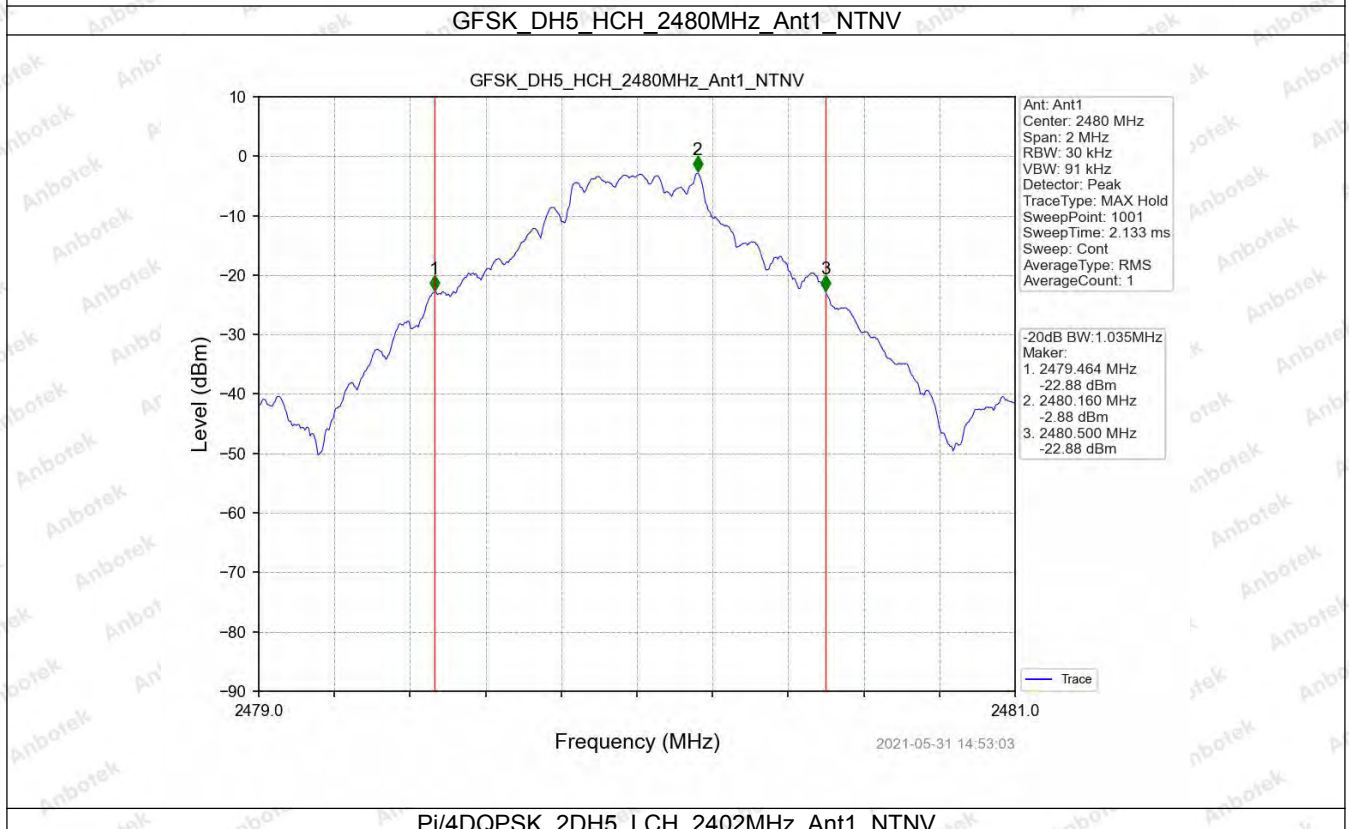
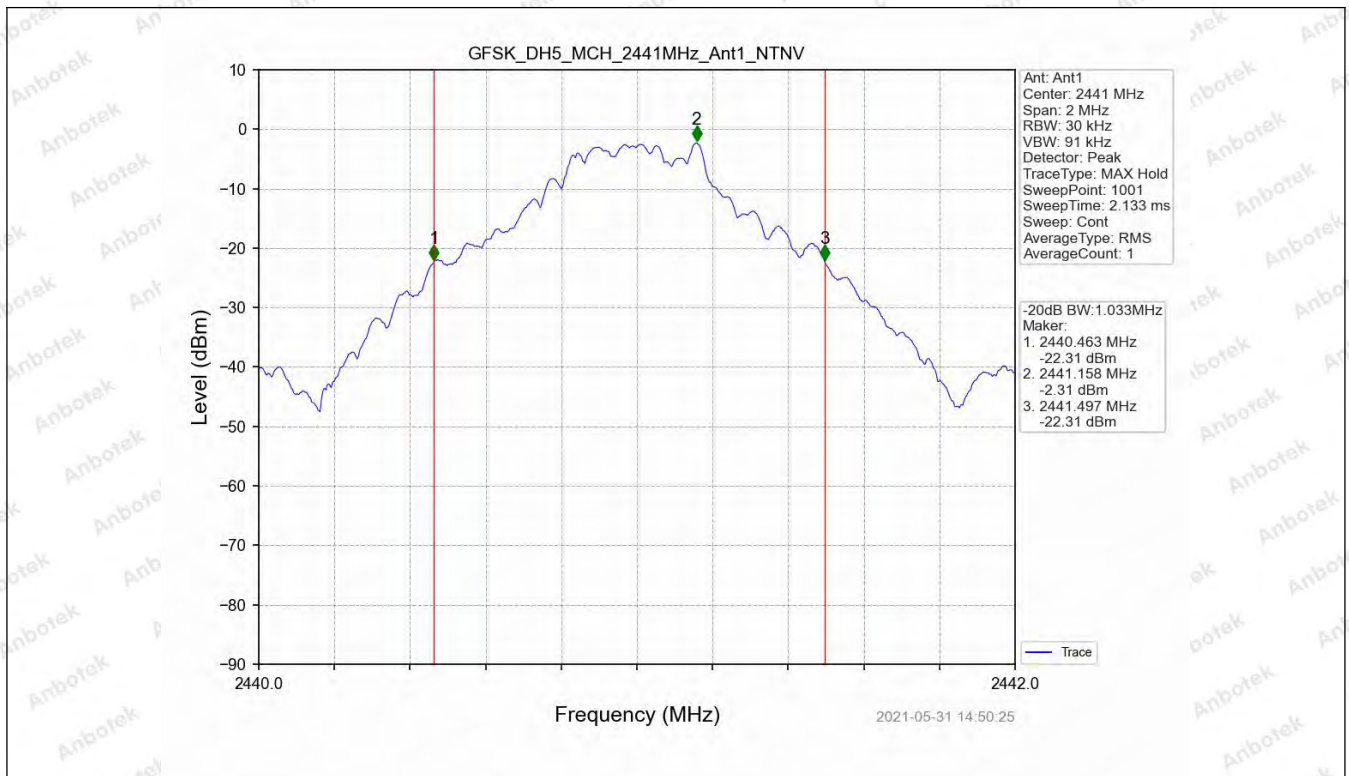
### 1.2.1 Test Result

| Mode      | TX Type | Frequency (MHz) | Packet Type | 20dB Bandwidth (MHz) | Limit (MHz) | Verdict |
|-----------|---------|-----------------|-------------|----------------------|-------------|---------|
|           |         |                 |             | Ant1                 |             |         |
| GFSK      | SISO    | 2402            | DH5         | 1.029                | /           | Note1   |
|           |         | 2441            | DH5         | 1.033                | /           | Note1   |
|           |         | 2480            | DH5         | 1.035                | /           | Note1   |
| Pi/4DQPSK | SISO    | 2402            | 2DH5        | 1.321                | /           | Note1   |
|           |         | 2441            | 2DH5        | 1.321                | /           | Note1   |
|           |         | 2480            | 2DH5        | 1.302                | /           | Note1   |
| 8DPSK     | SISO    | 2402            | 3DH5        | 1.314                | /           | Note1   |
|           |         | 2441            | 3DH5        | 1.305                | /           | Note1   |
|           |         | 2480            | 3DH5        | 1.303                | /           | Note1   |

Note1: Only for Report Use

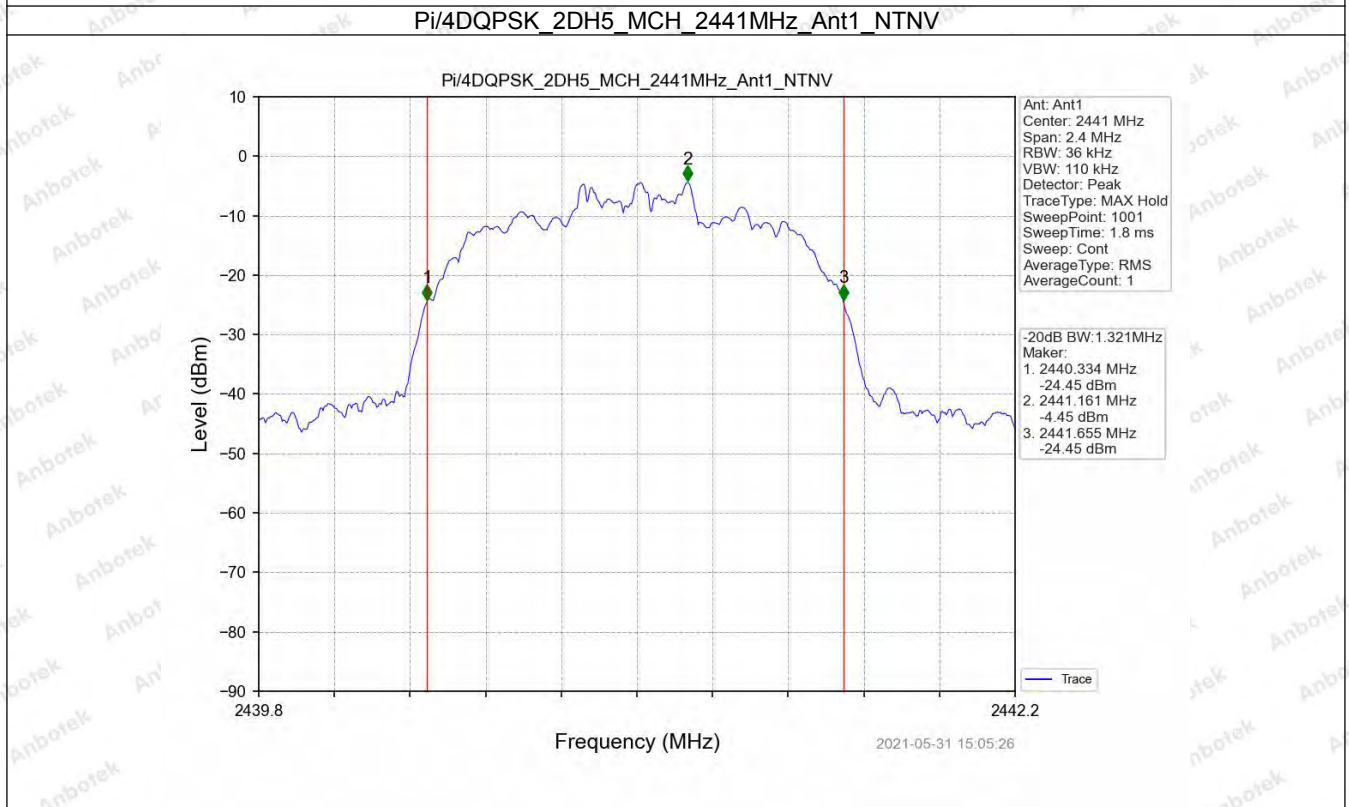
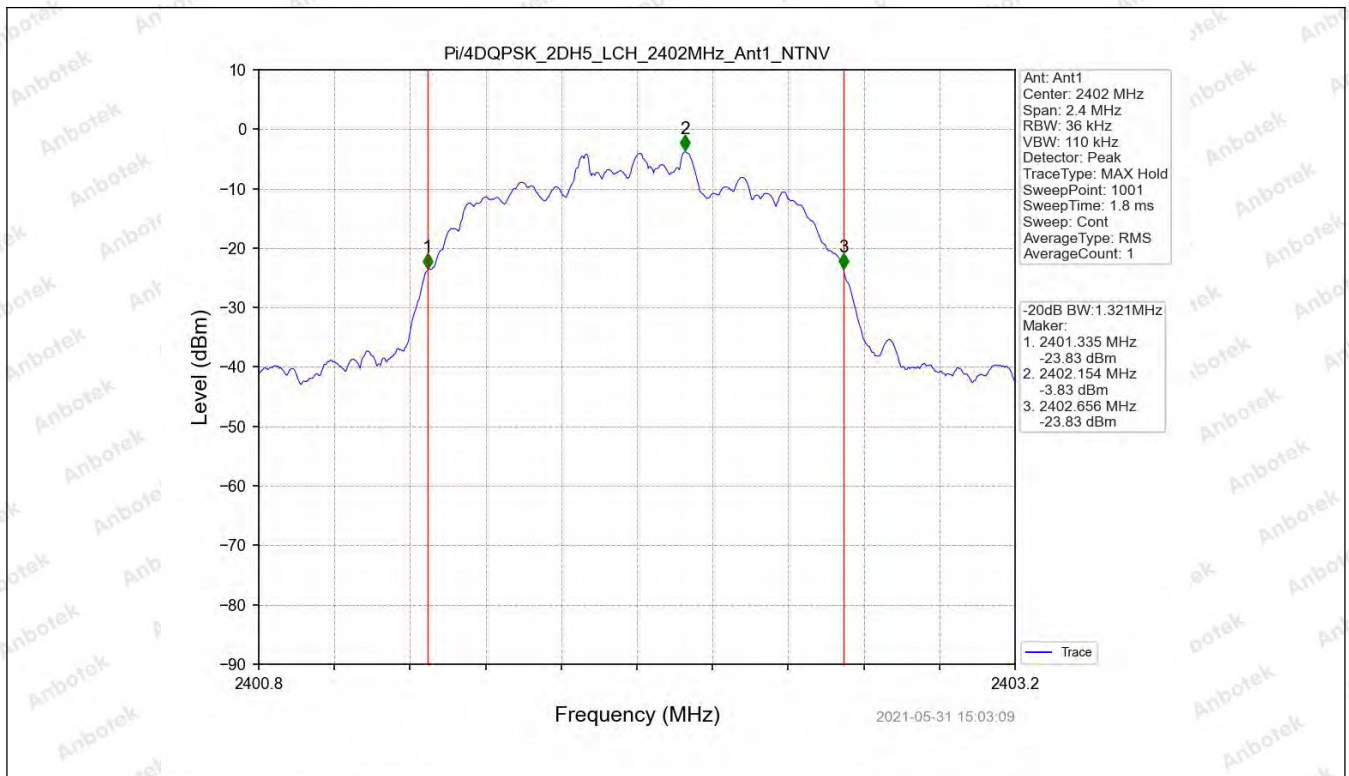
### 1.2.2 Test Graph



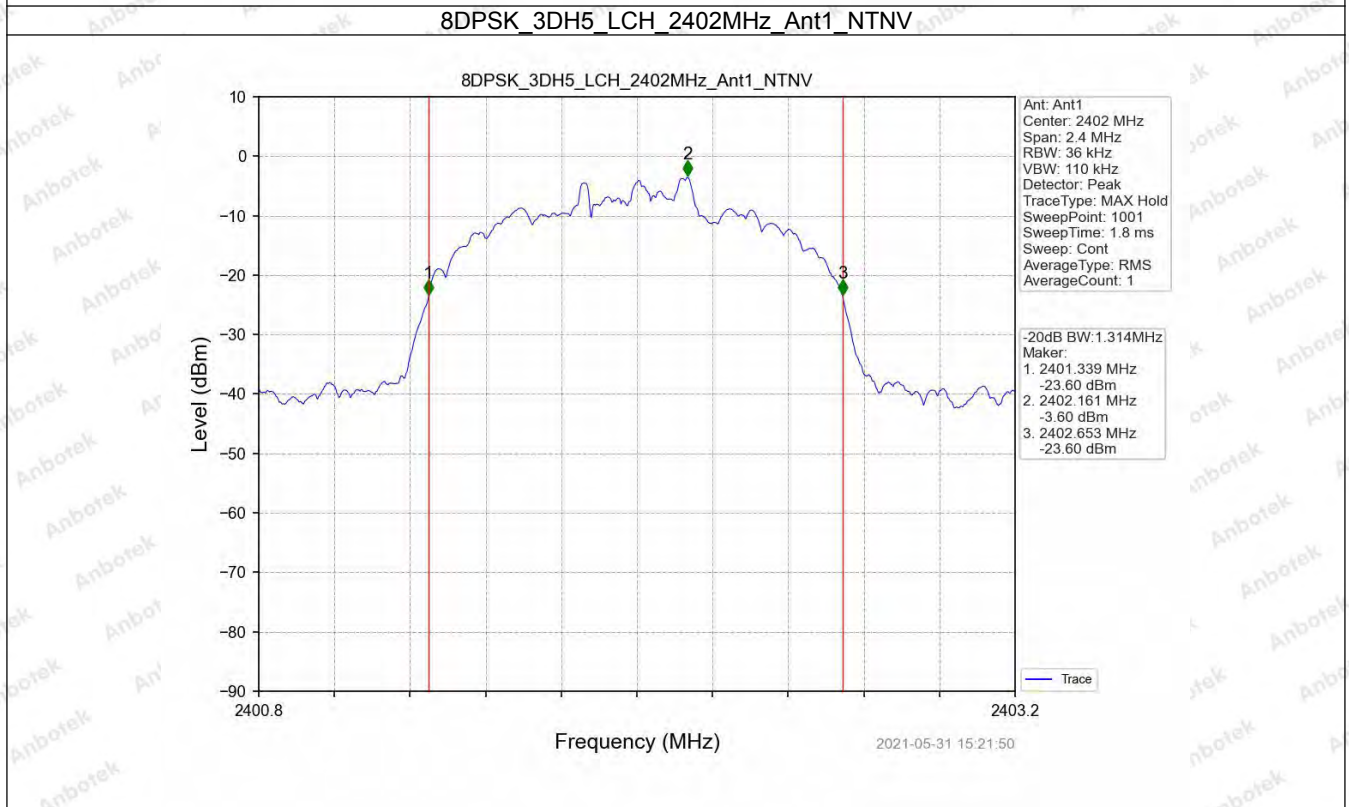
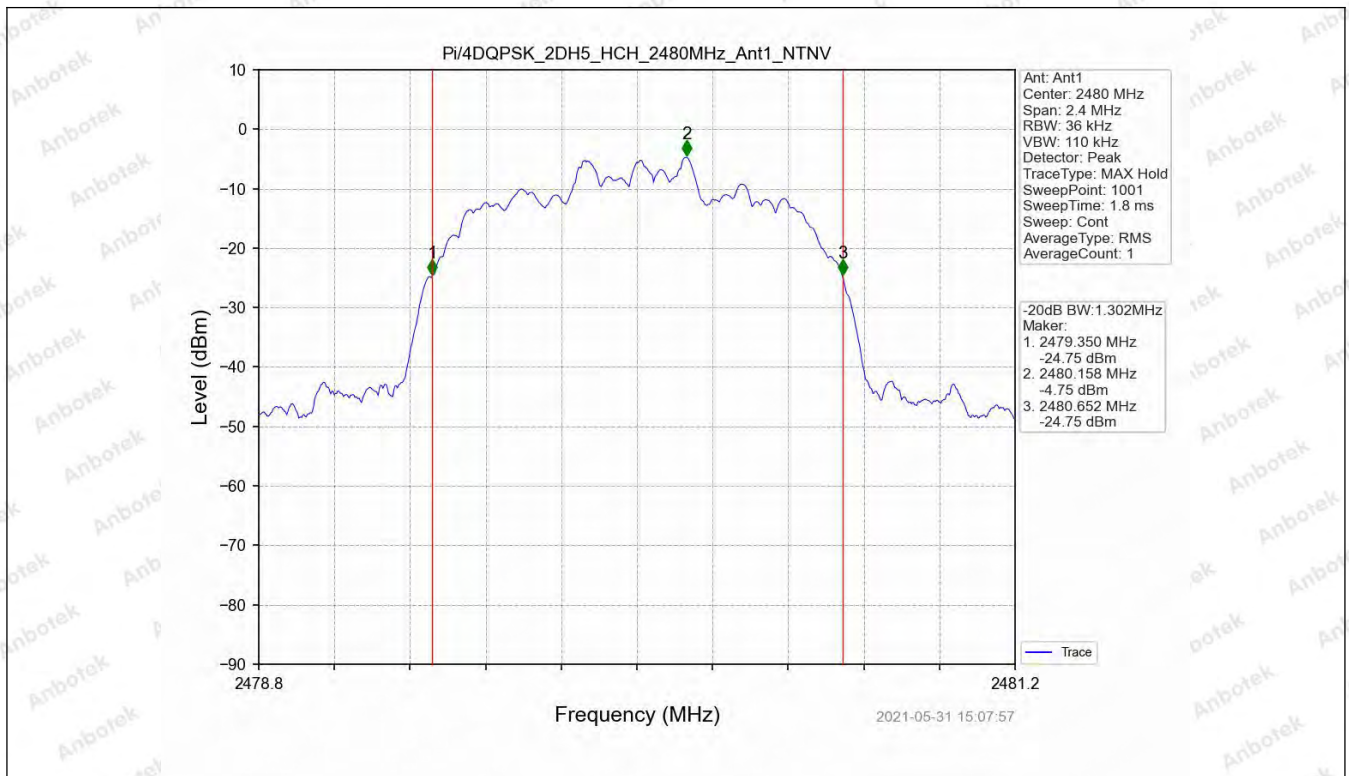


Pi/4DQPSK\_2DH5\_LCH\_2402MHz\_Ant1\_NTNV



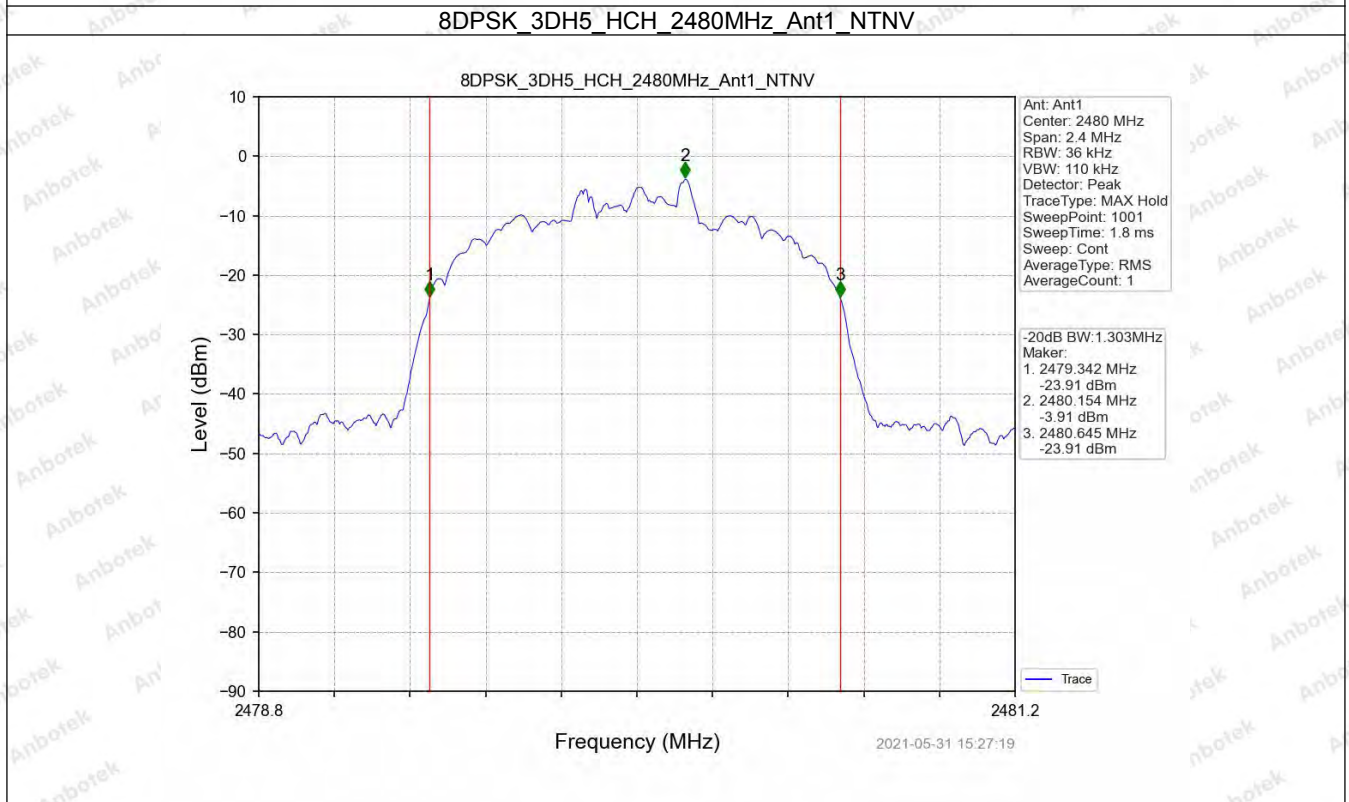
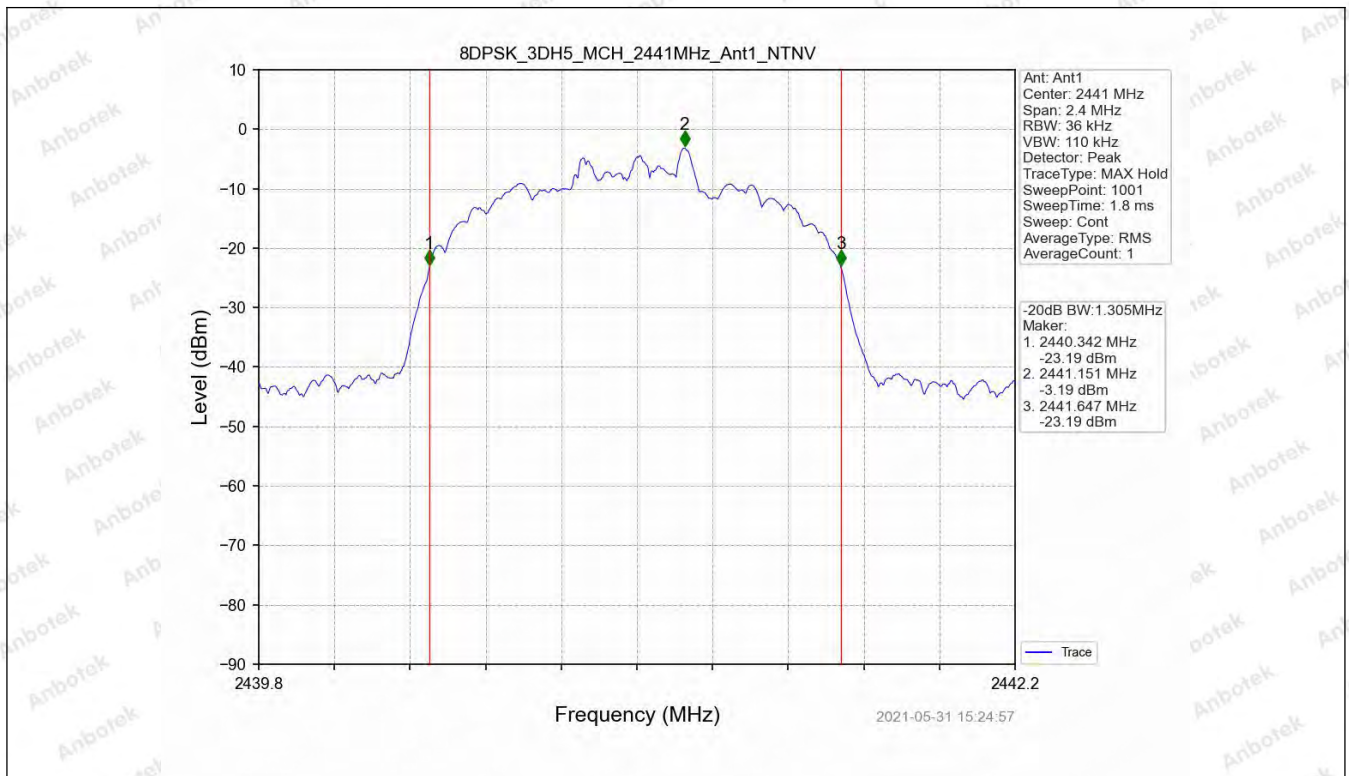


### Pi/4DQPSK\_2DH5\_HCH\_2480MHz\_Ant1\_NTNV



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





## 2. Maximum Conducted Output Power

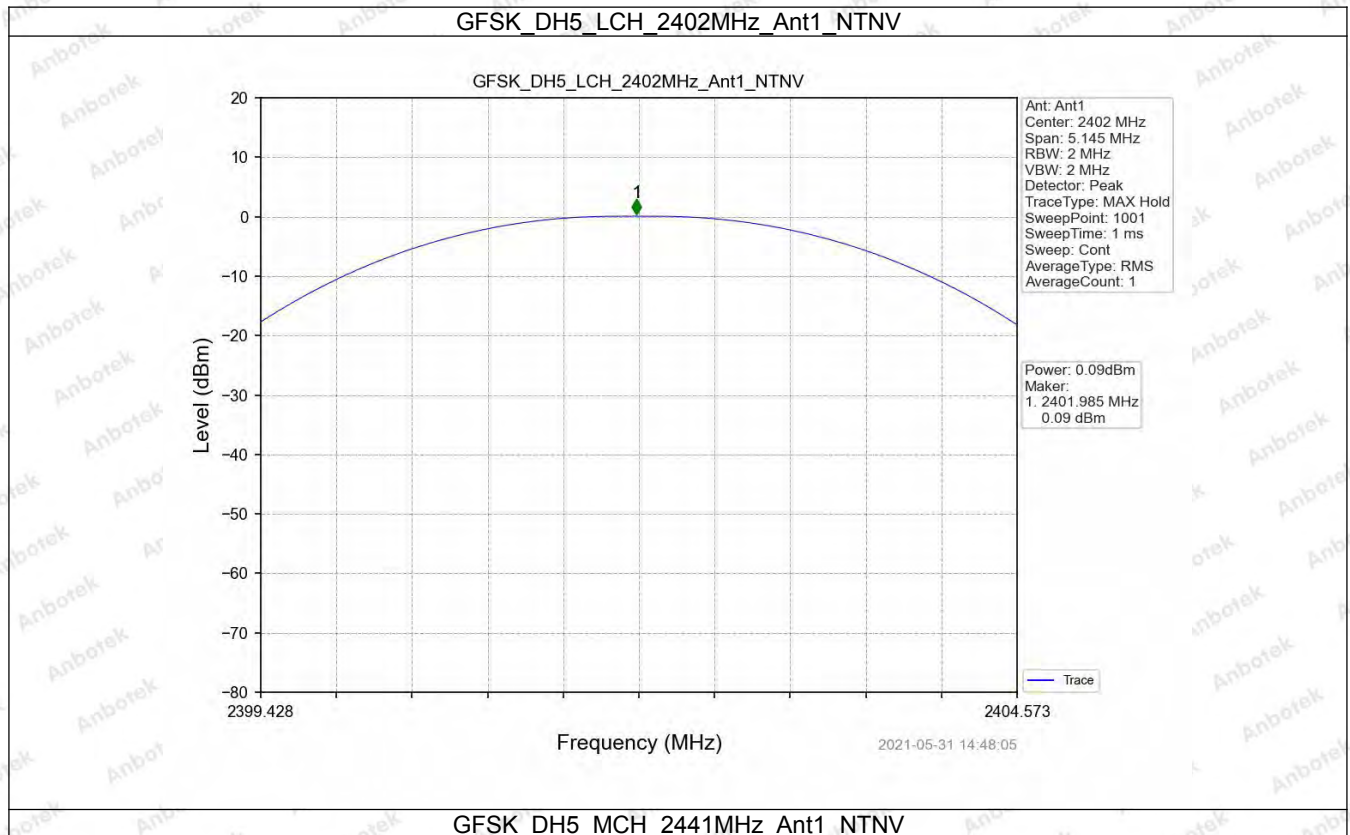
### 2.1 Power

#### 2.1.1 Test Result

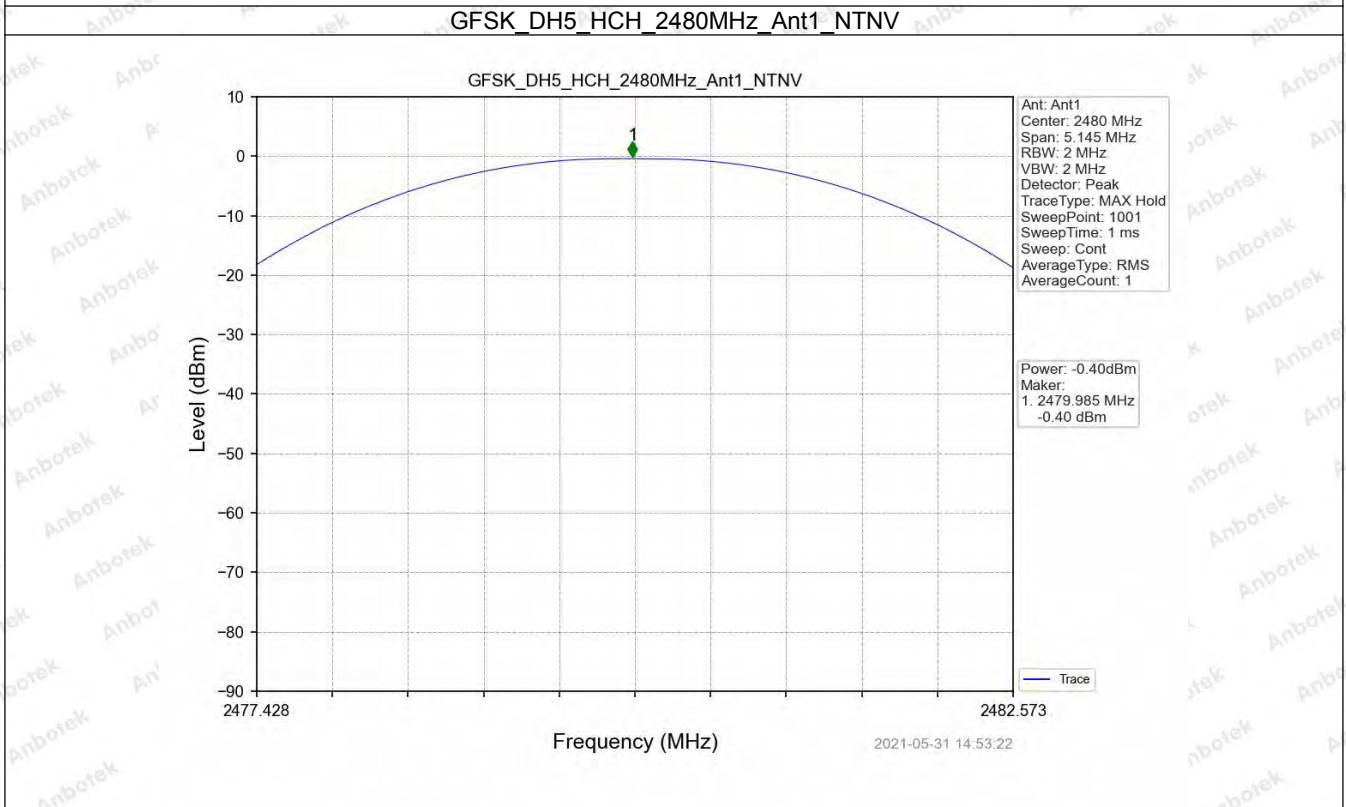
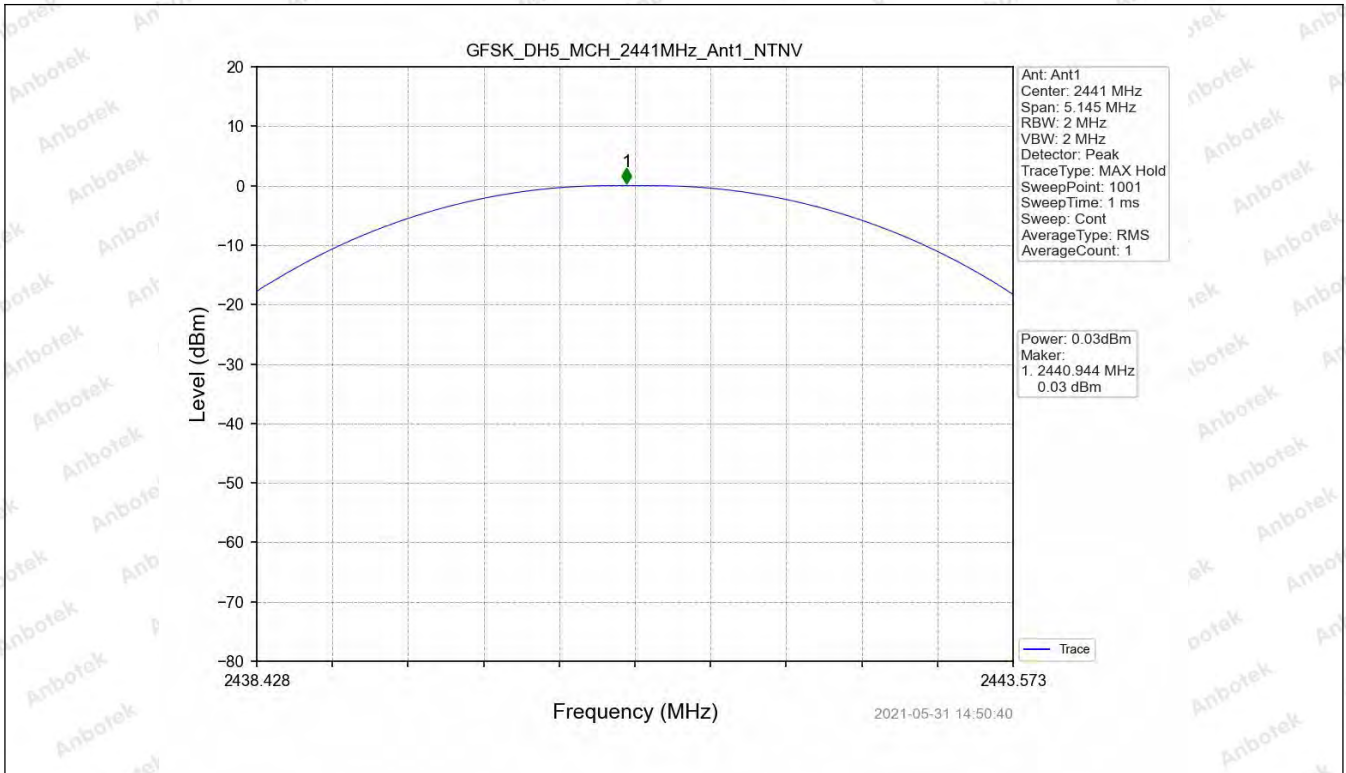
| Mode      | TX Type | Frequency (MHz) | Packet Type | Measured Peak Output Power (dBm) | Limit (dBm) | Verdict |
|-----------|---------|-----------------|-------------|----------------------------------|-------------|---------|
|           |         |                 |             | Ant1                             |             |         |
| GFSK      | SISO    | 2402            | DH5         | 0.09                             | <=20.97     | Pass    |
|           |         | 2441            | DH5         | 0.03                             | <=20.97     | Pass    |
|           |         | 2480            | DH5         | -0.40                            | <=20.97     | Pass    |
| Pi/4DQPSK | SISO    | 2402            | 2DH5        | -0.46                            | <=20.97     | Pass    |
|           |         | 2441            | 2DH5        | -0.69                            | <=20.97     | Pass    |
|           |         | 2480            | 2DH5        | -1.25                            | <=20.97     | Pass    |
| 8DPSK     | SISO    | 2402            | 3DH5        | -0.29                            | <=20.97     | Pass    |
|           |         | 2441            | 3DH5        | -0.46                            | <=20.97     | Pass    |
|           |         | 2480            | 3DH5        | -1.04                            | <=20.97     | Pass    |

Note1: Antenna Gain: 1:1dBi;

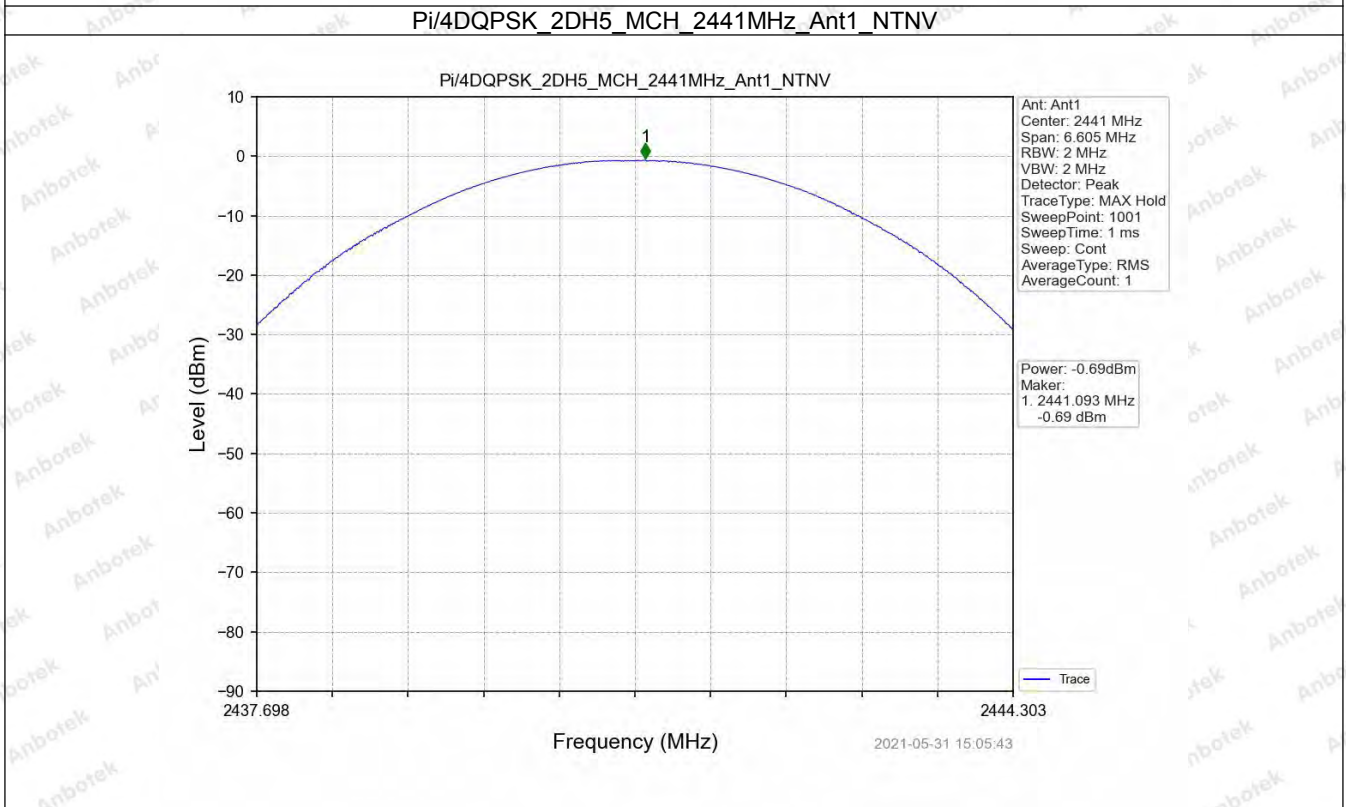
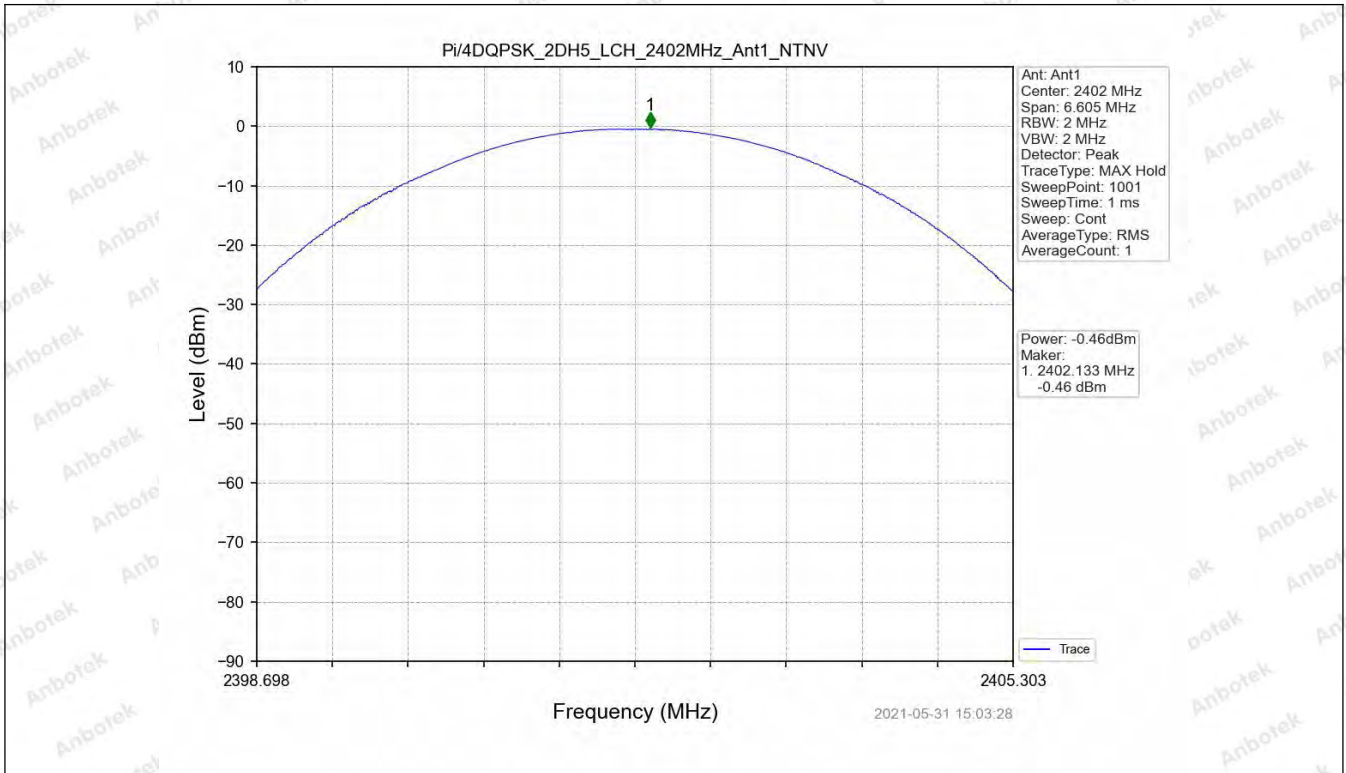
#### 2.1.2 Test Graph





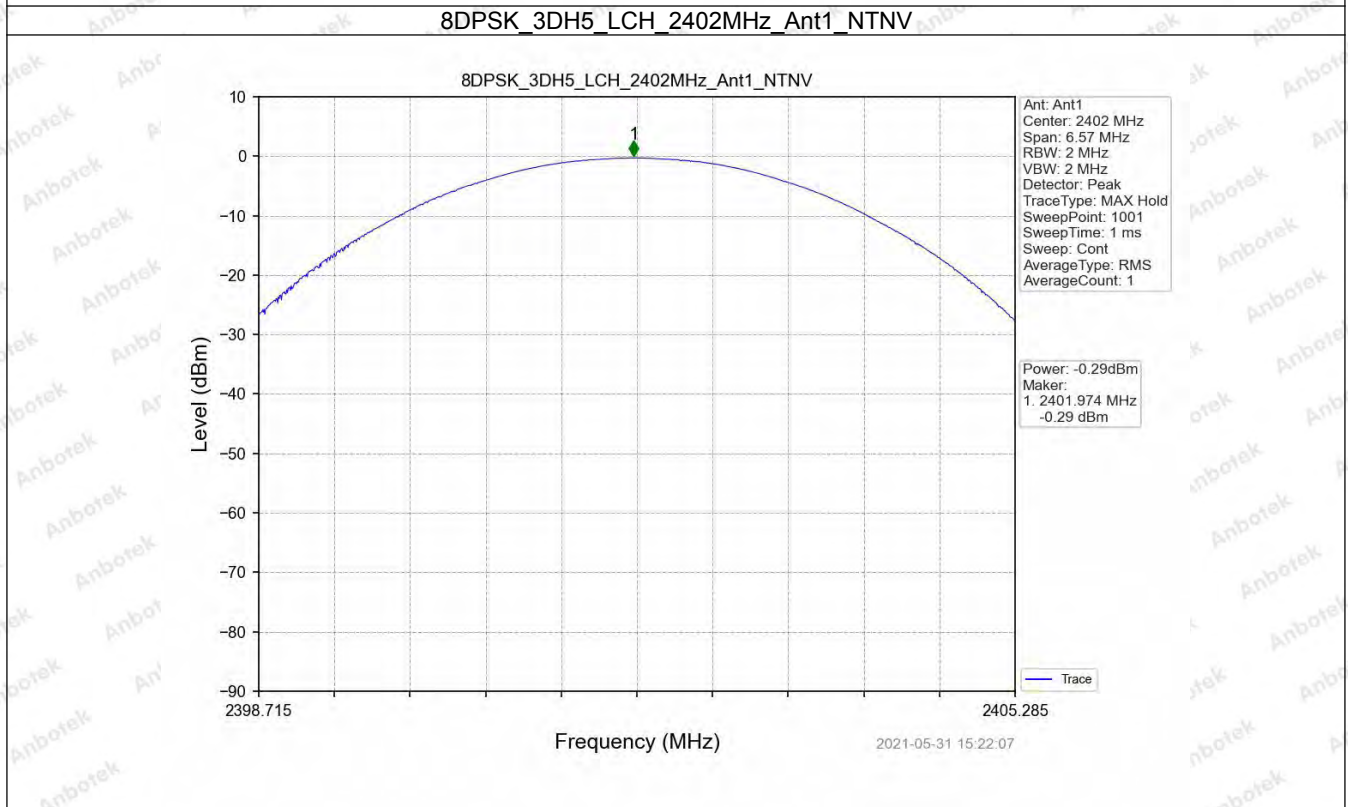
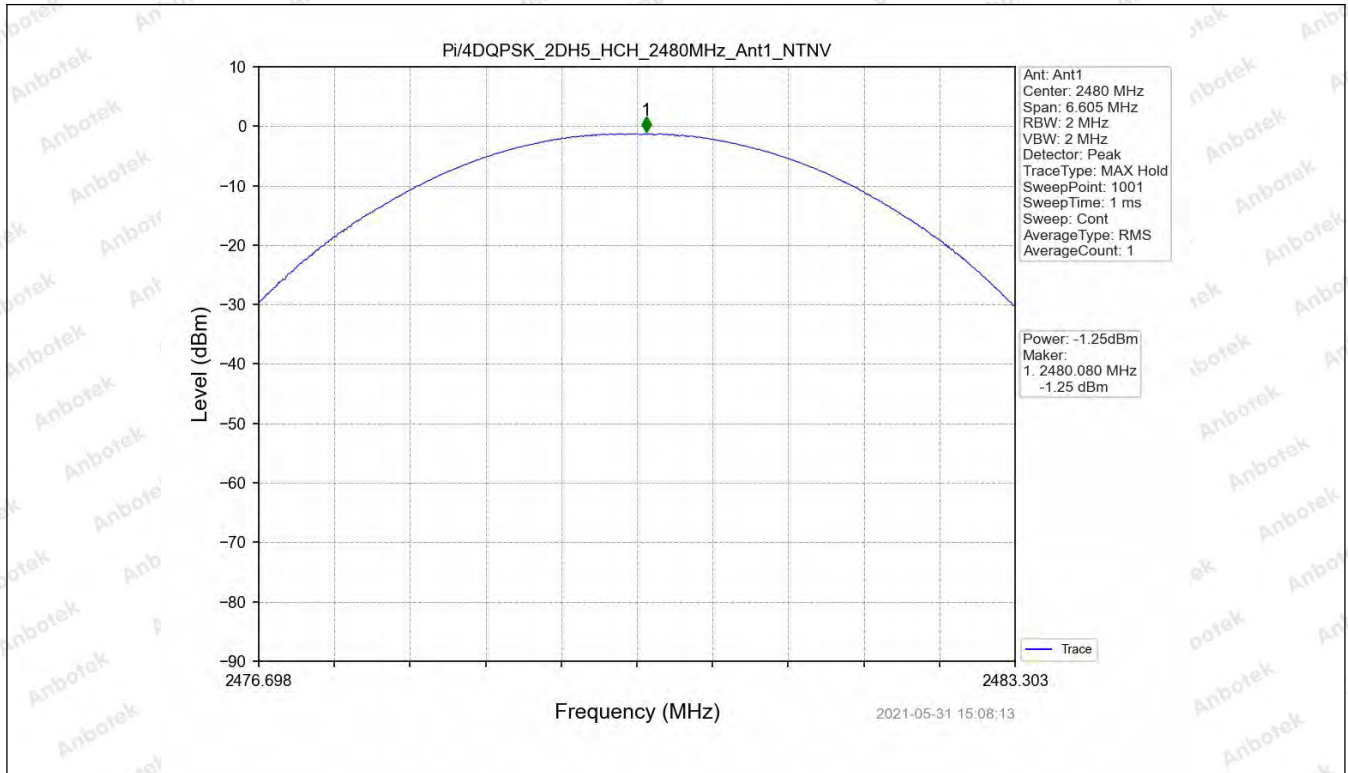


**Pi/4DQPSK\_2DH5\_LCH\_2402MHz\_Ant1\_NTNV**

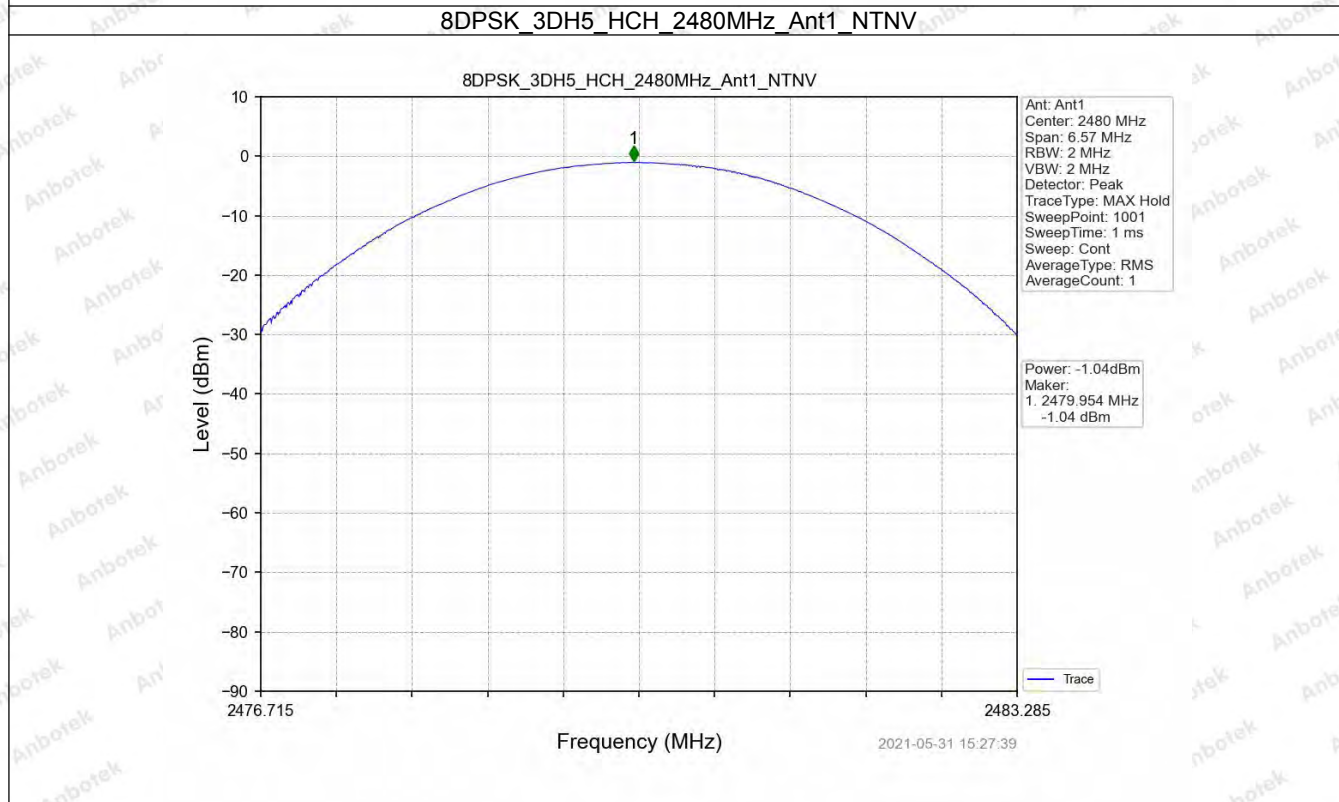
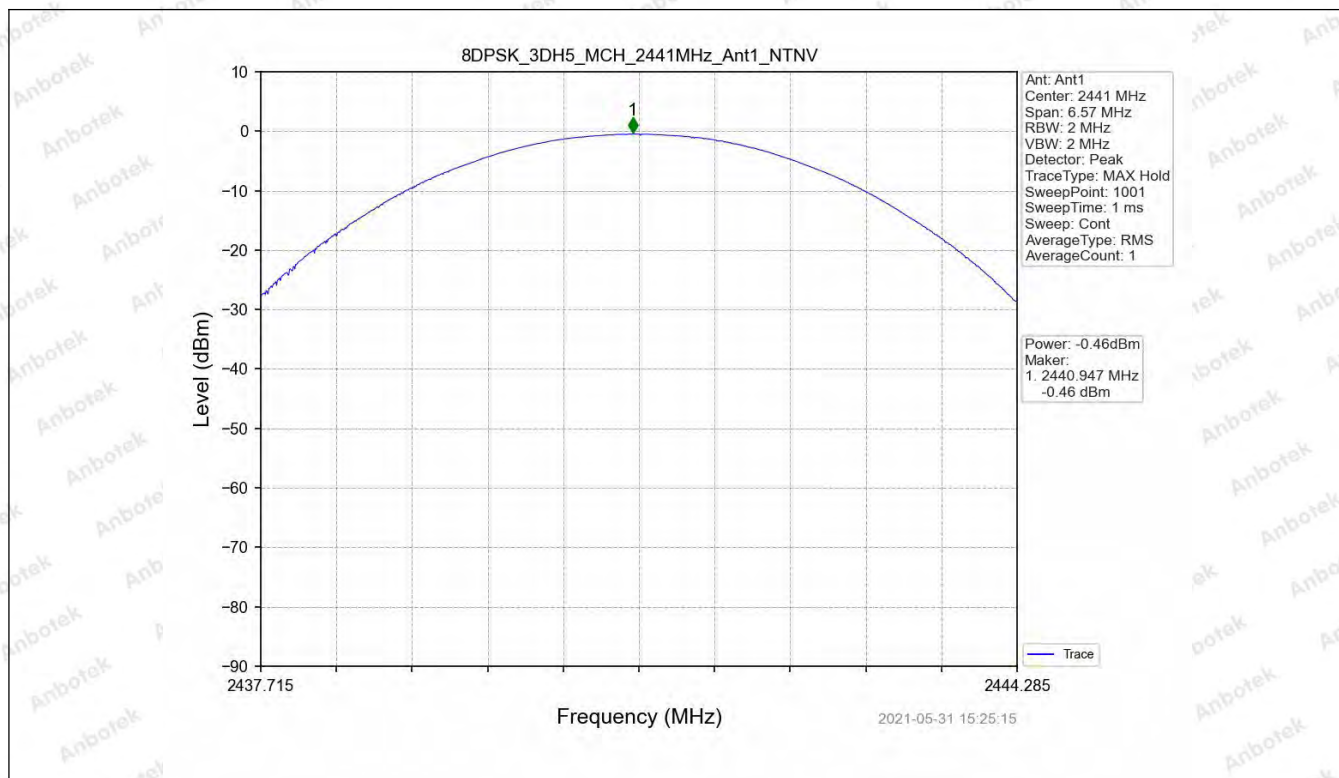


Pi/4DQPSK\_2DH5\_HCH\_2480MHz\_Ant1\_NTNV





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





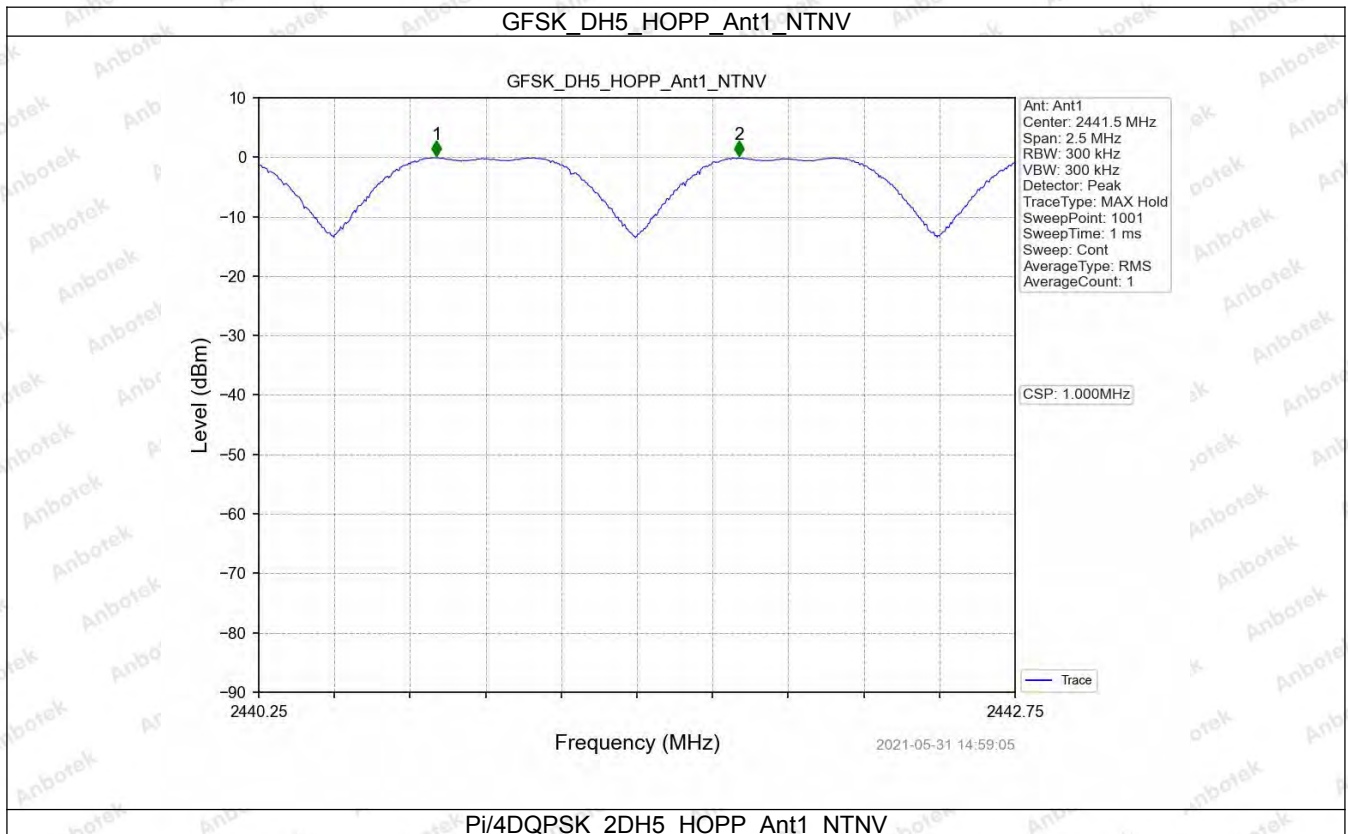
### 3. Carrier Frequency Separation

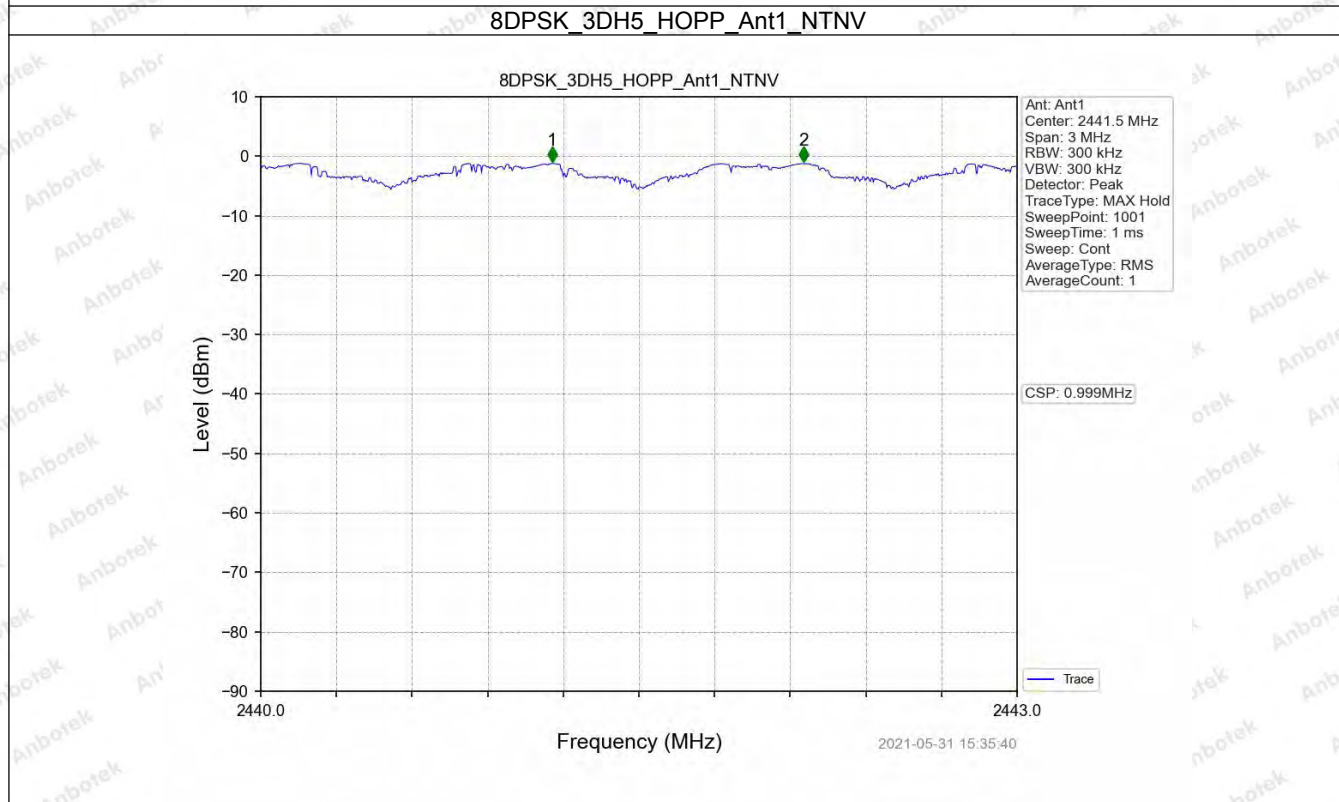
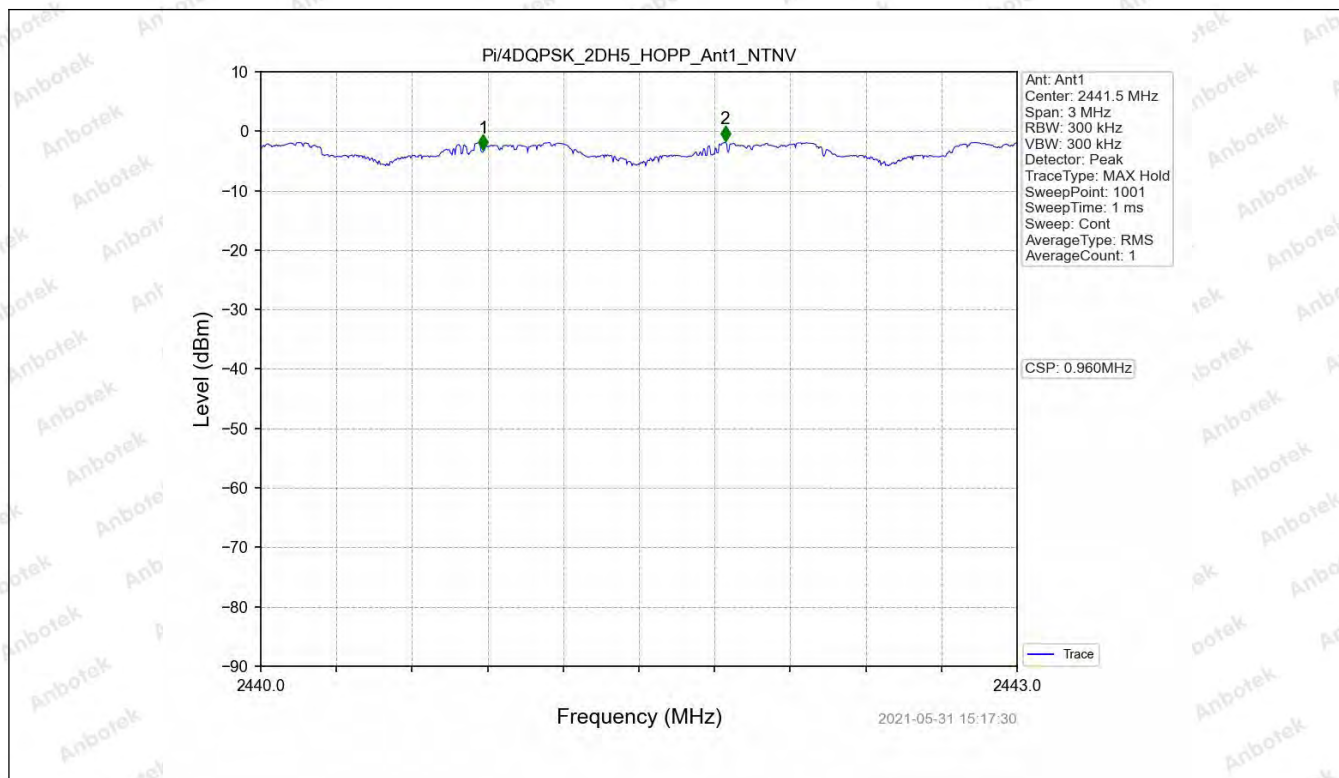
#### 3.1 Ant1

##### 3.1.1 Test Result

| Ant1      |         |                 |             |                          |                      |              |         |
|-----------|---------|-----------------|-------------|--------------------------|----------------------|--------------|---------|
| Mode      | TX Type | Frequency (MHz) | Packet Type | Channel Separation (MHz) | 20dB Bandwidth (MHz) | Limit (MHz)  | Verdict |
| GFSK      | SISO    | 2441            | DH5         | 1.00                     | 1.03                 | $\geq 0.686$ | Pass    |
| Pi/4DQPSK | SISO    | 2441            | 2DH5        | 0.96                     | 1.32                 | $\geq 0.881$ | Pass    |
| 8DPSK     | SISO    | 2441            | 3DH5        | 1.00                     | 1.31                 | $\geq 0.876$ | Pass    |

##### 3.1.2 Test Graph







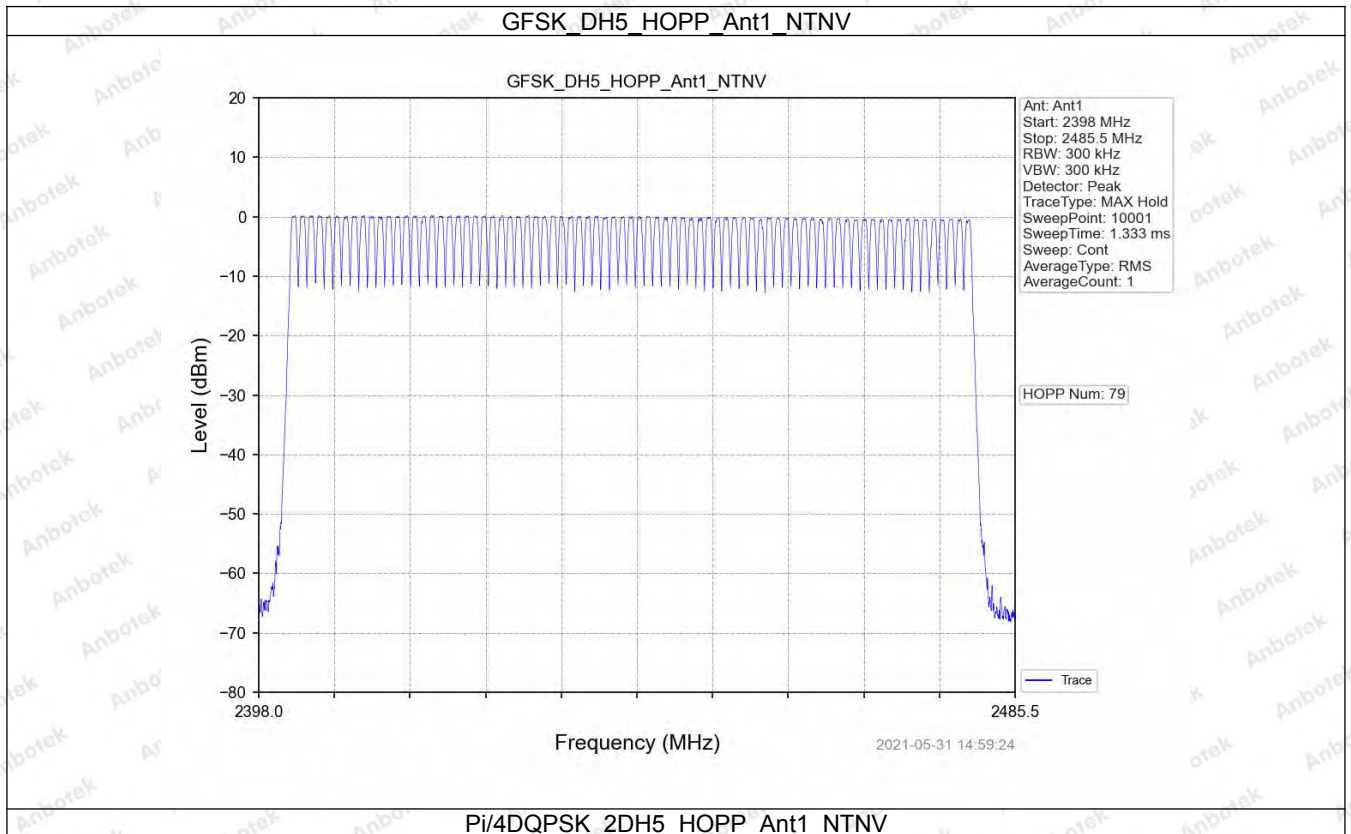
## 4. Number of Hopping Frequencies

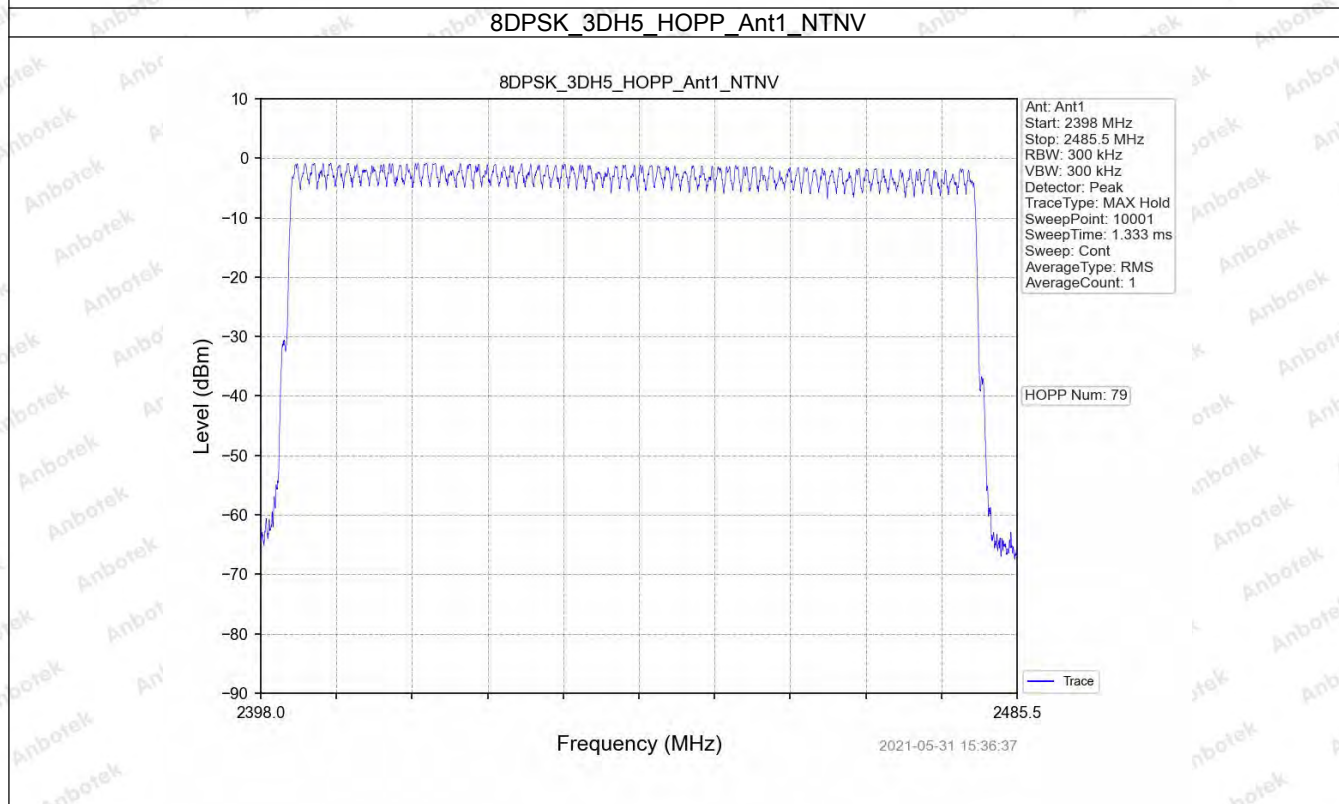
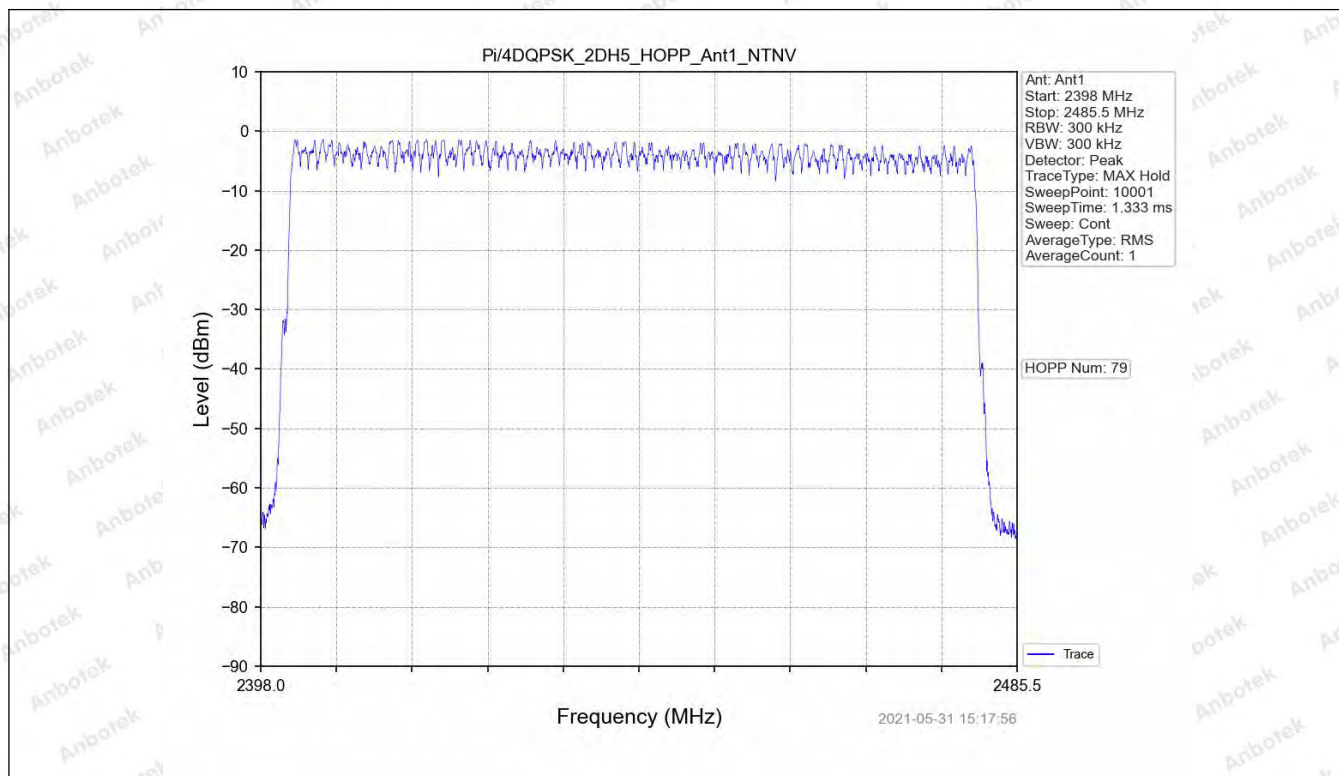
### 4.1 HoppNum

#### 4.1.1 Test Result

| Mode      | TX Type | Frequency (MHz) | Packet Type | Num of Hopping Frequencies |  | Limit | Verdict |
|-----------|---------|-----------------|-------------|----------------------------|--|-------|---------|
|           |         |                 |             | Ant1                       |  |       |         |
| GFSK      | SISO    | 2441            | DH5         | 79                         |  | >=15  | Pass    |
| Pi/4DQPSK | SISO    | 2441            | 2DH5        | 79                         |  | >=15  | Pass    |
| 8DPSK     | SISO    | 2441            | 3DH5        | 79                         |  | >=15  | Pass    |

#### 4.1.2 Test Graph







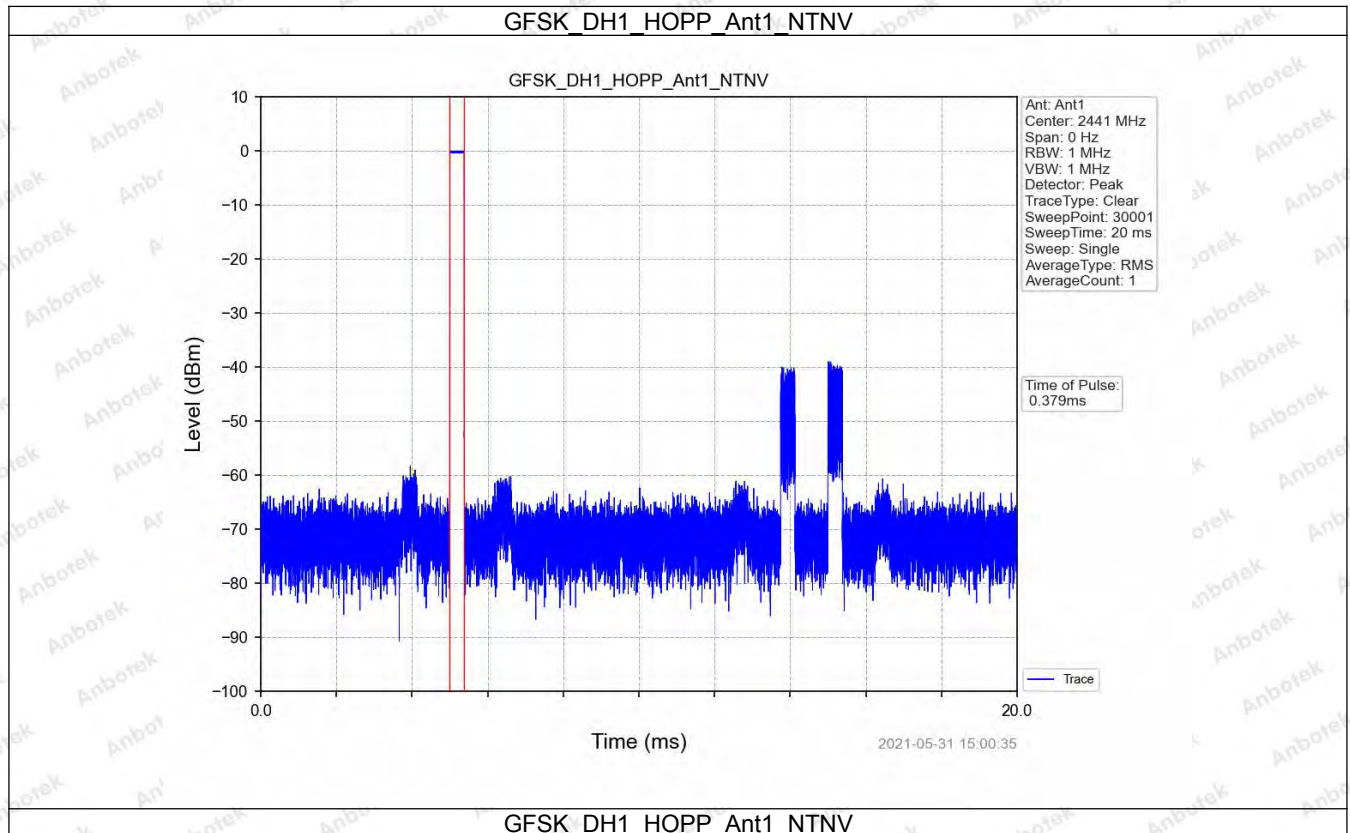
## 5. Time of Occupancy (Dwell Time)

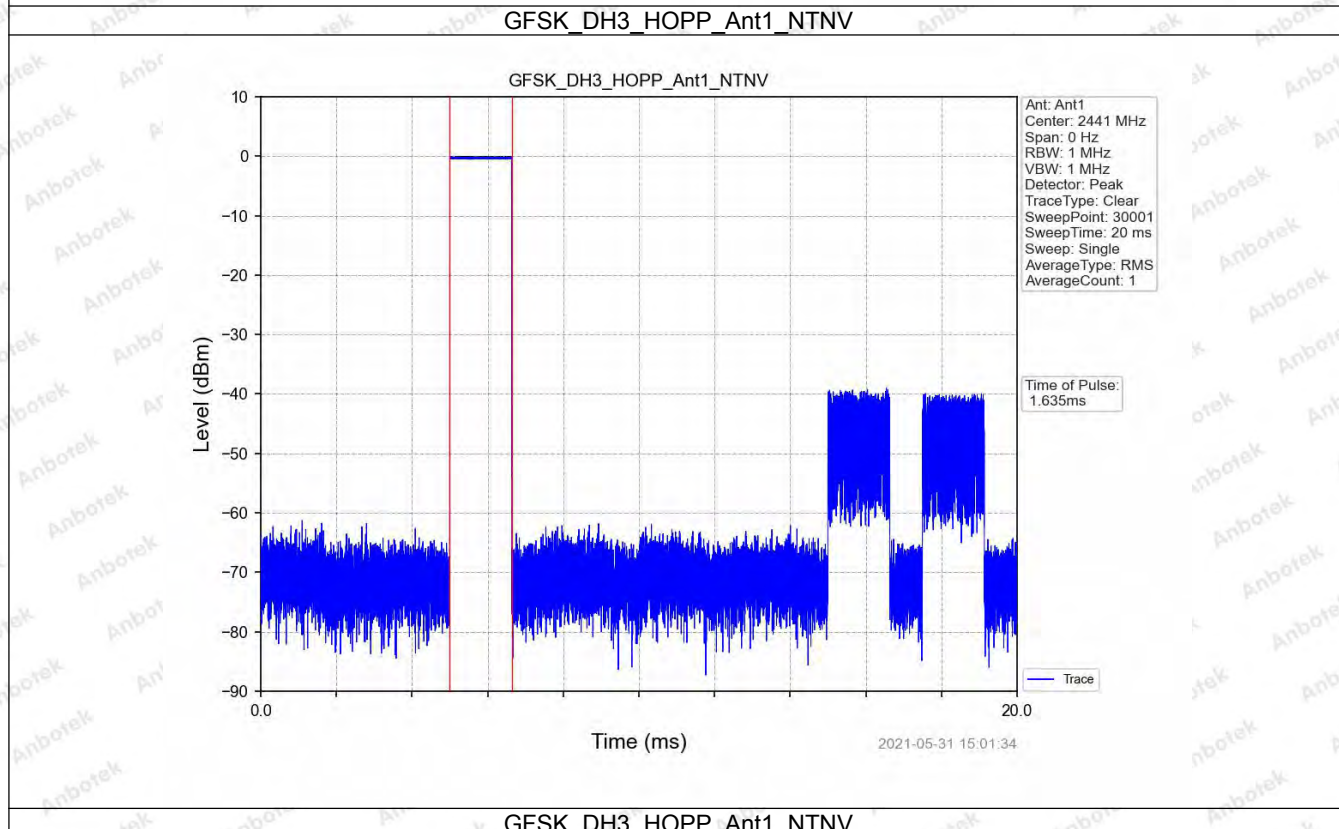
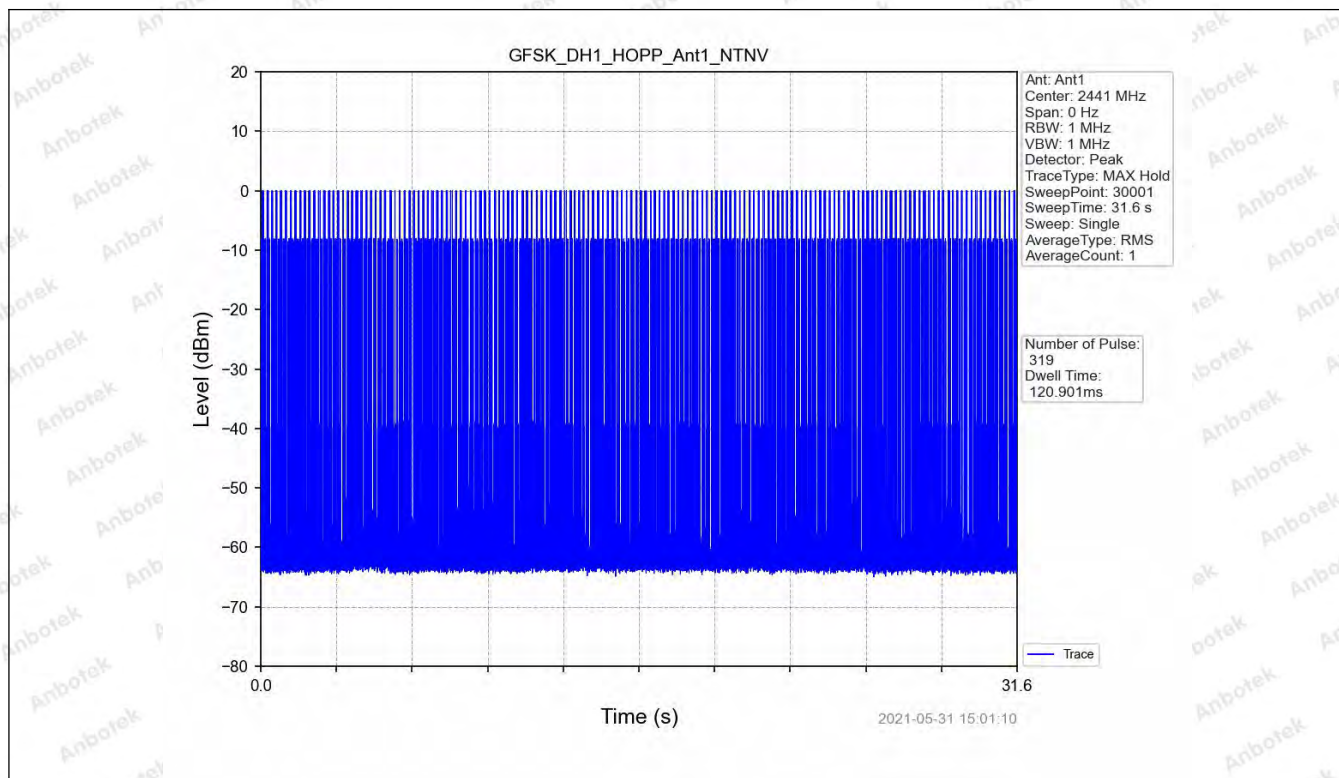
### 5.1 Ant1

#### 5.1.1 Test Result

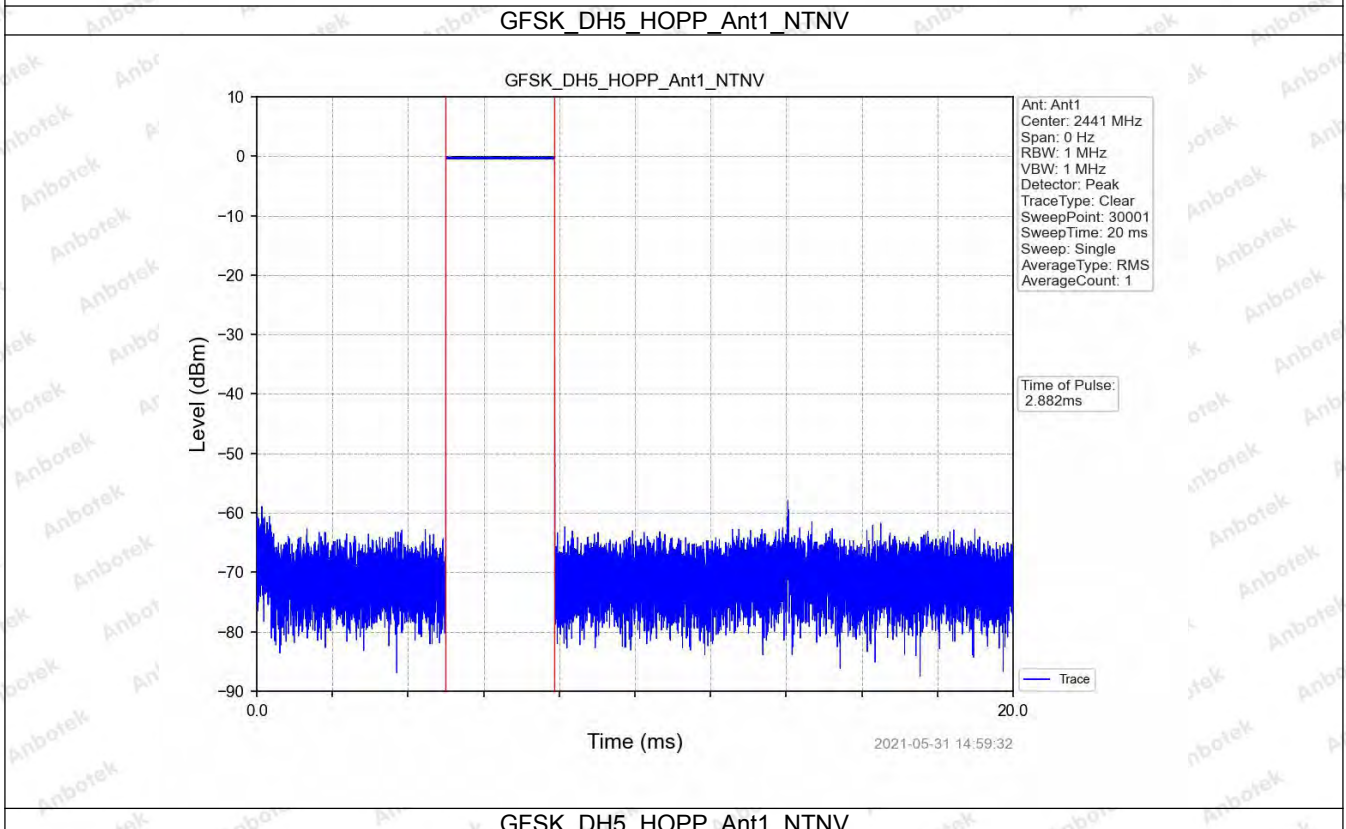
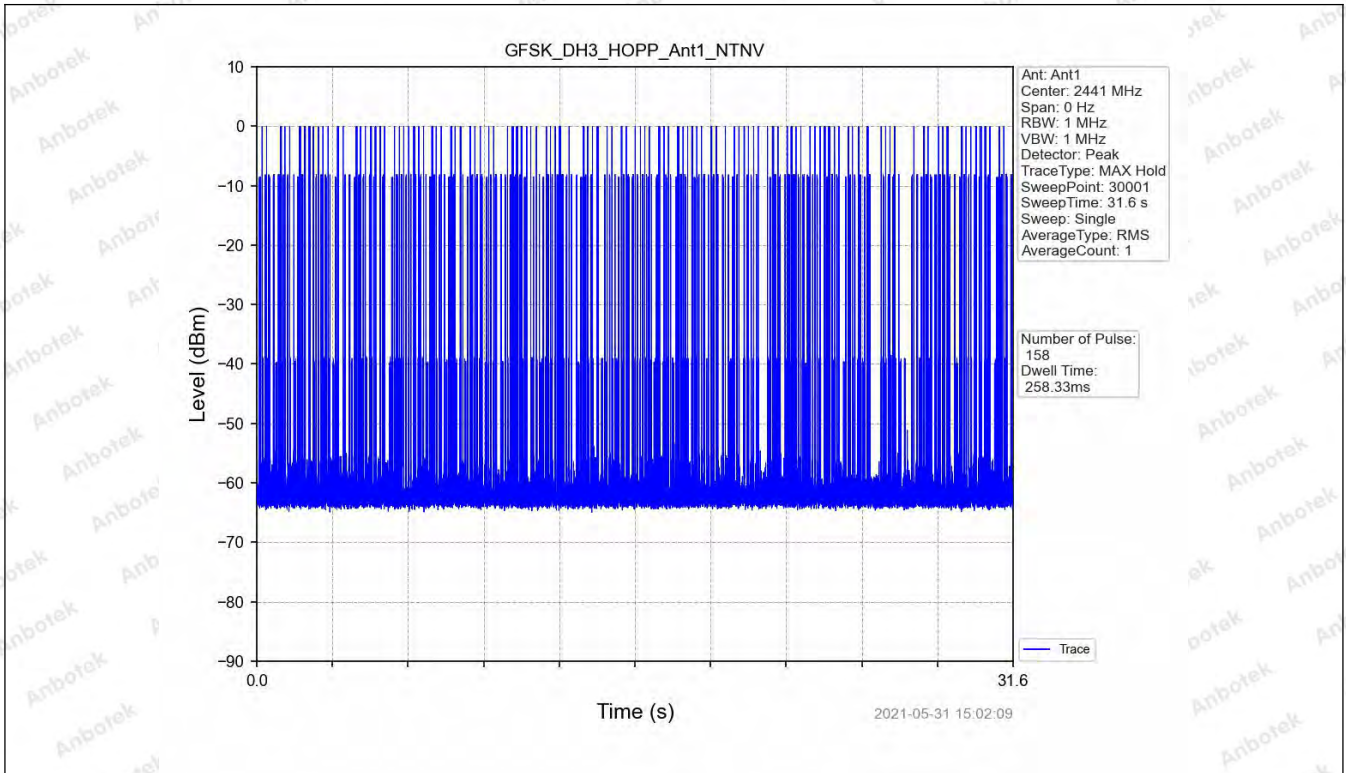
| Ant1      |         |                 |             |                               |                        |                                    |                 |            |         |
|-----------|---------|-----------------|-------------|-------------------------------|------------------------|------------------------------------|-----------------|------------|---------|
| 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    | 2441            | DH1         | 0.38                          | 31.60                  | 319                                | 120.90          | <=400      | Pass    |
|           |         |                 | DH3         | 1.64                          | 31.60                  | 158                                | 258.33          | <=400      | Pass    |
|           |         |                 | DH5         | 2.88                          | 31.60                  | 107                                | 308.37          | <=400      | Pass    |
| Pi/4DQPSK | SISO    | 2441            | 2DH1        | 0.39                          | 31.60                  | 319                                | 123.45          | <=400      | Pass    |
|           |         |                 | 2DH3        | 1.64                          | 31.60                  | 158                                | 258.80          | <=400      | Pass    |
|           |         |                 | 2DH5        | 2.89                          | 31.60                  | 110                                | 317.57          | <=400      | Pass    |
| 8DPSK     | SISO    | 2441            | 3DH1        | 0.39                          | 31.60                  | 318                                | 123.38          | <=400      | Pass    |
|           |         |                 | 3DH3        | 1.64                          | 31.60                  | 160                                | 261.92          | <=400      | Pass    |
|           |         |                 | 3DH5        | 2.89                          | 31.60                  | 107                                | 308.91          | <=400      | Pass    |

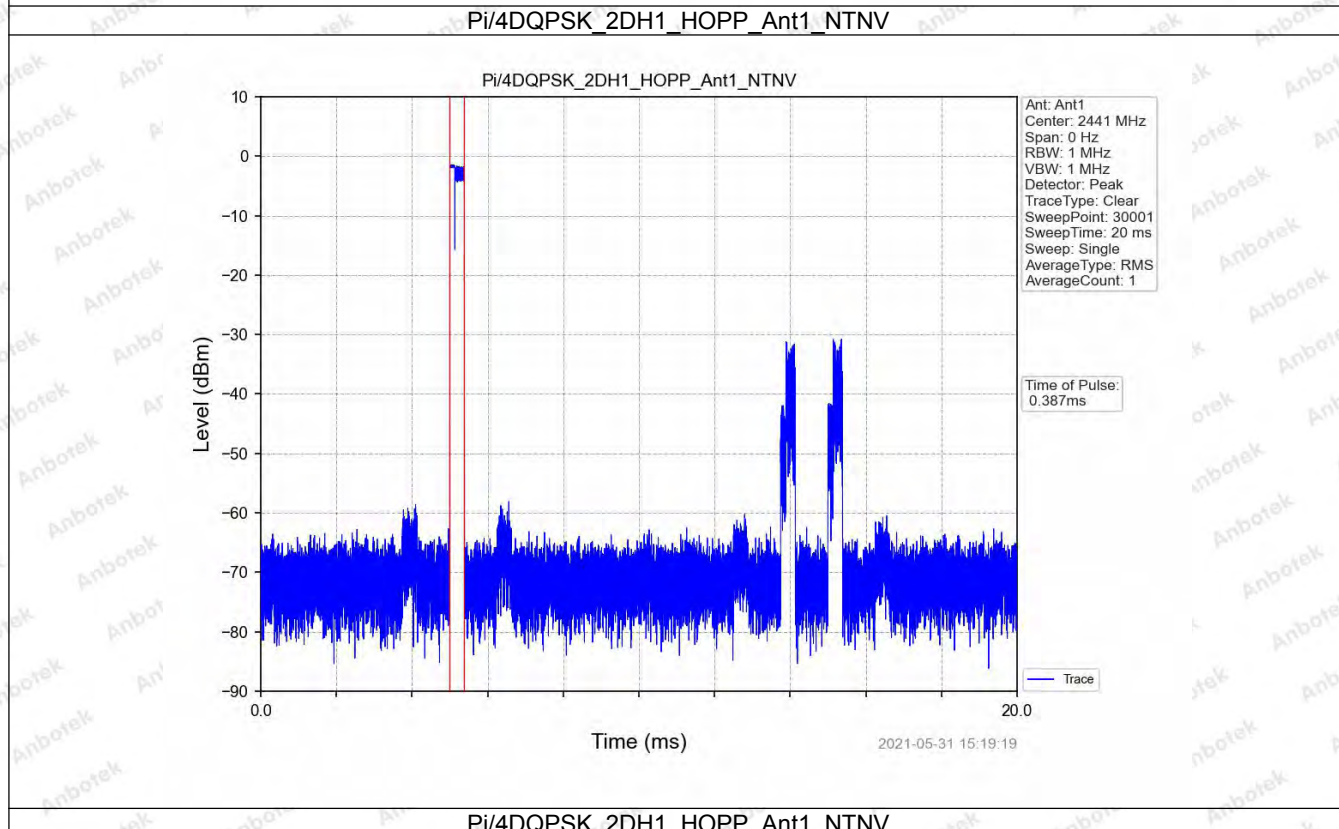
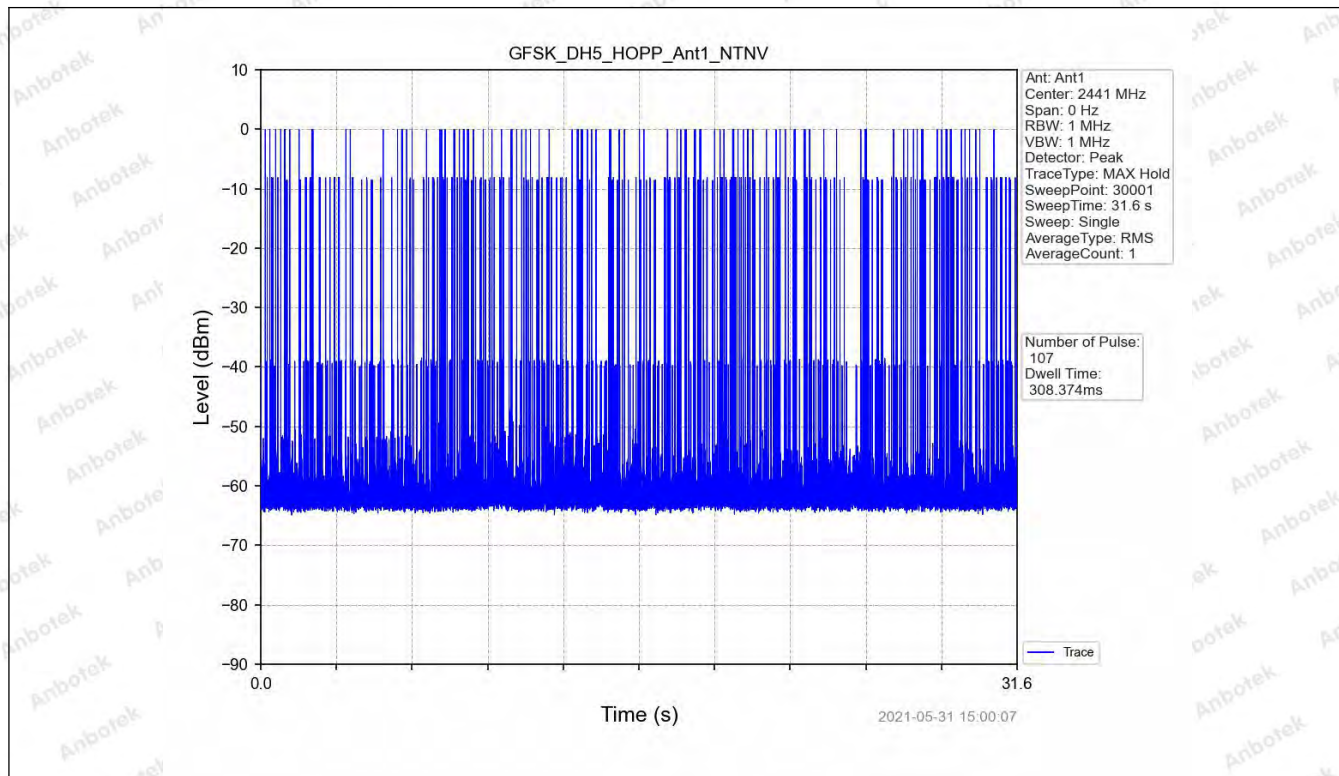
#### 5.1.2 Test Graph





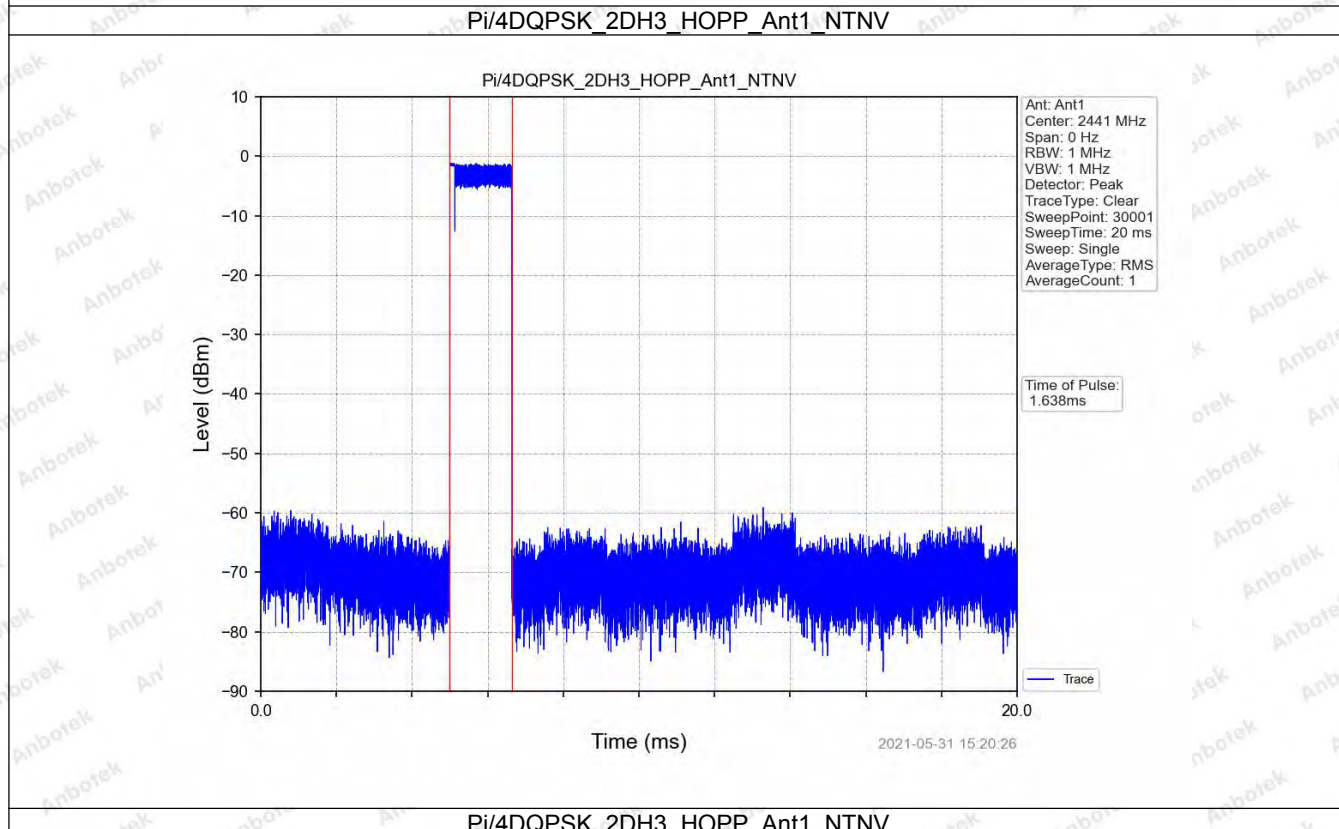
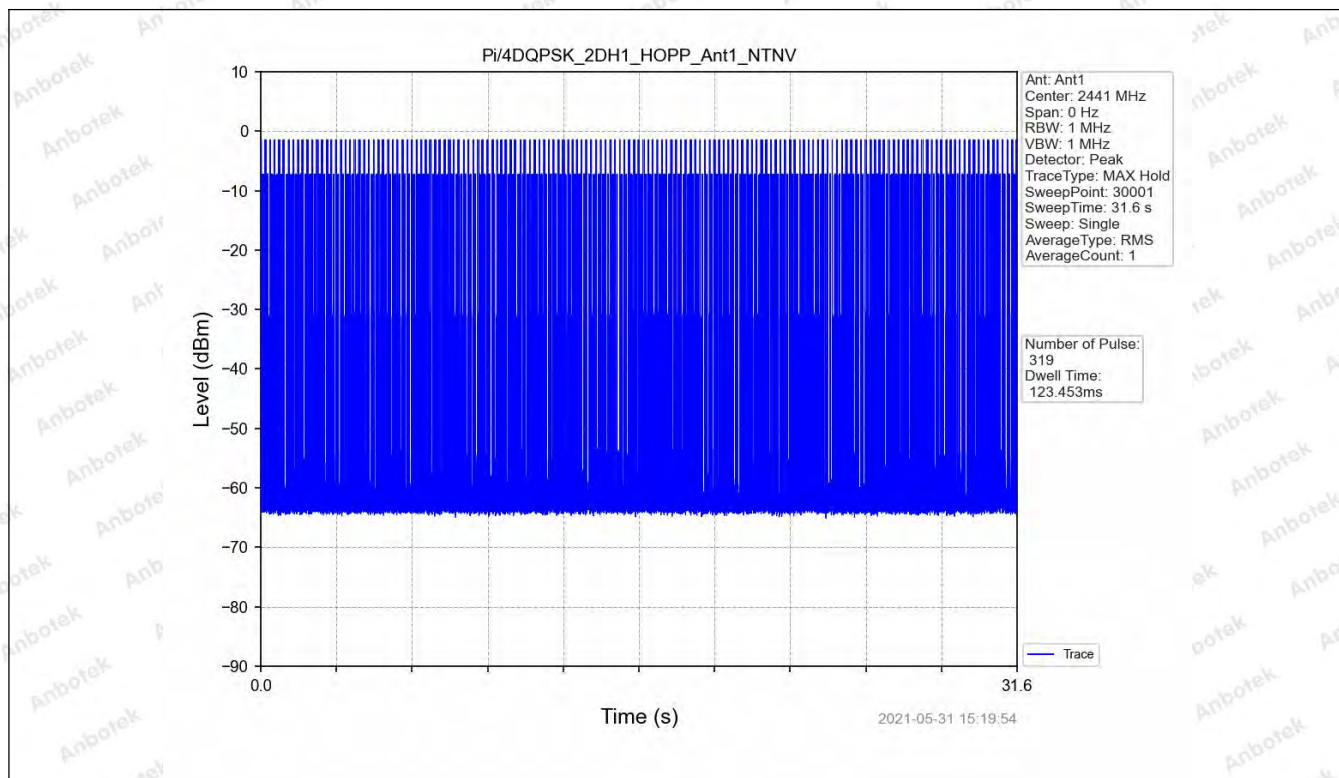


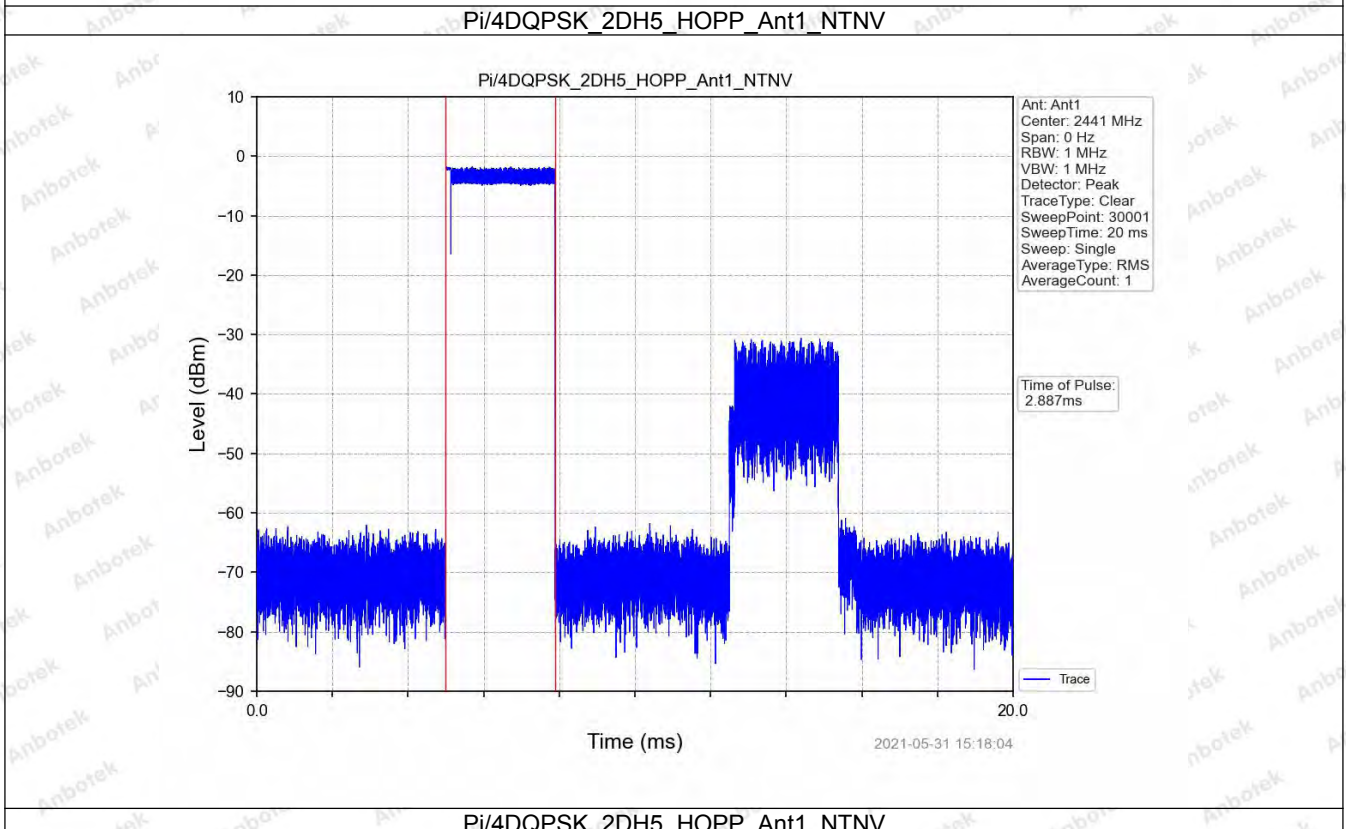
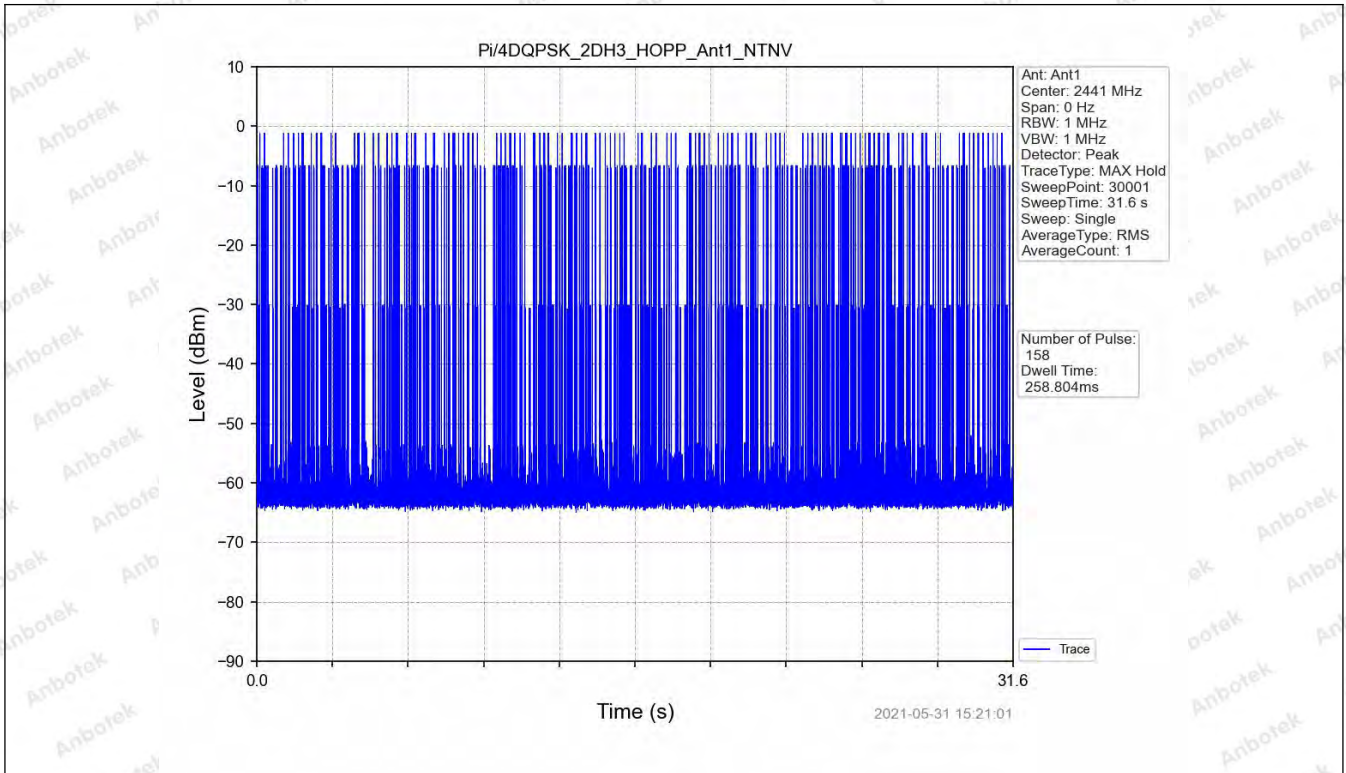




Pi/4DQPSK\_2DH1\_HOPP\_Ant1\_NTNV

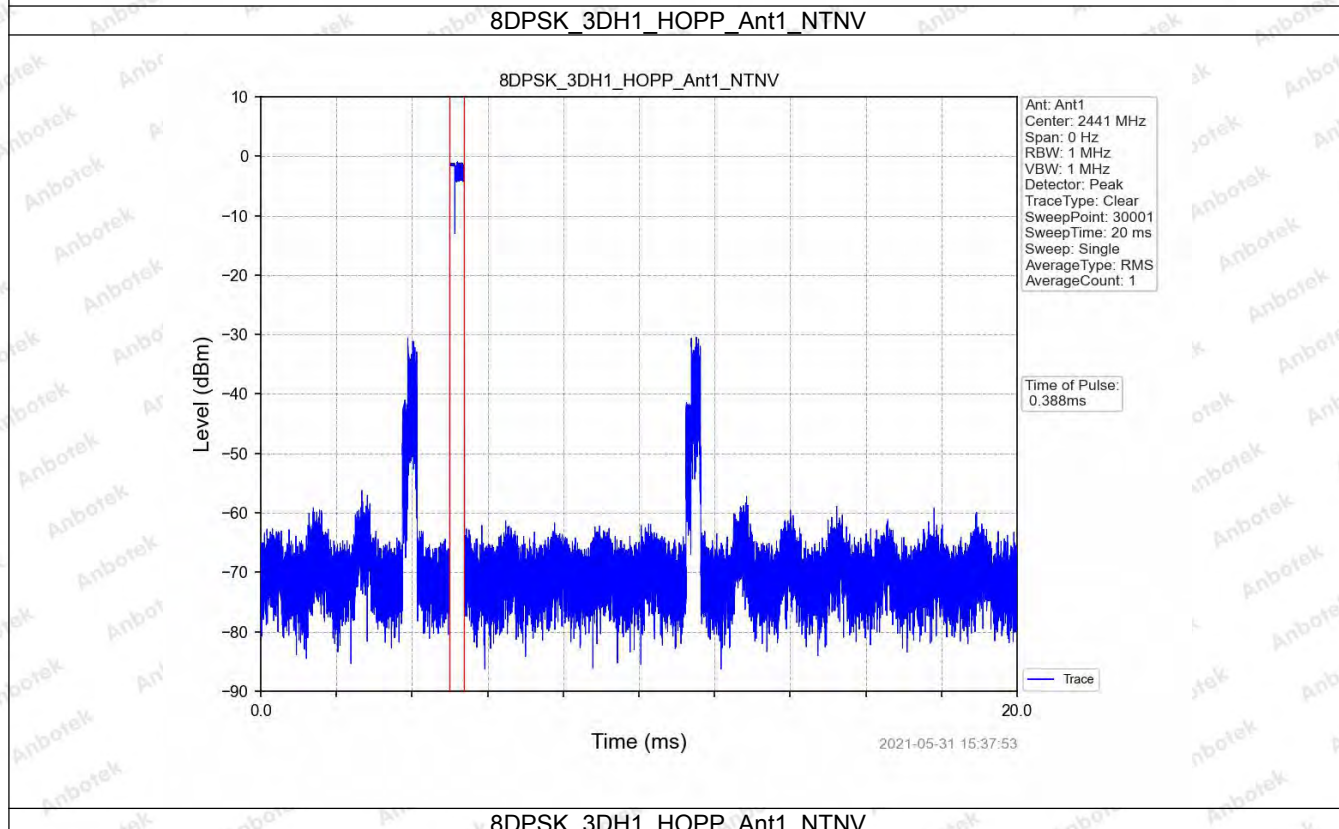
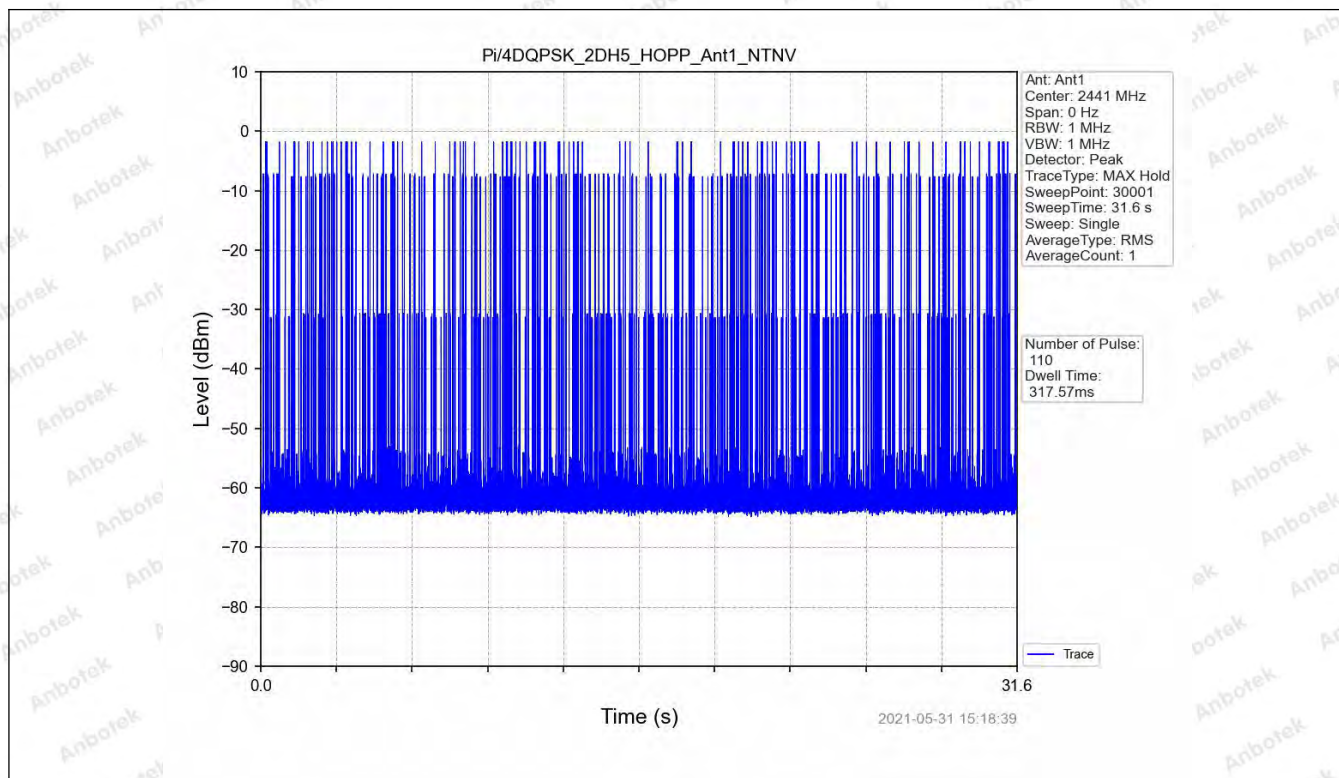


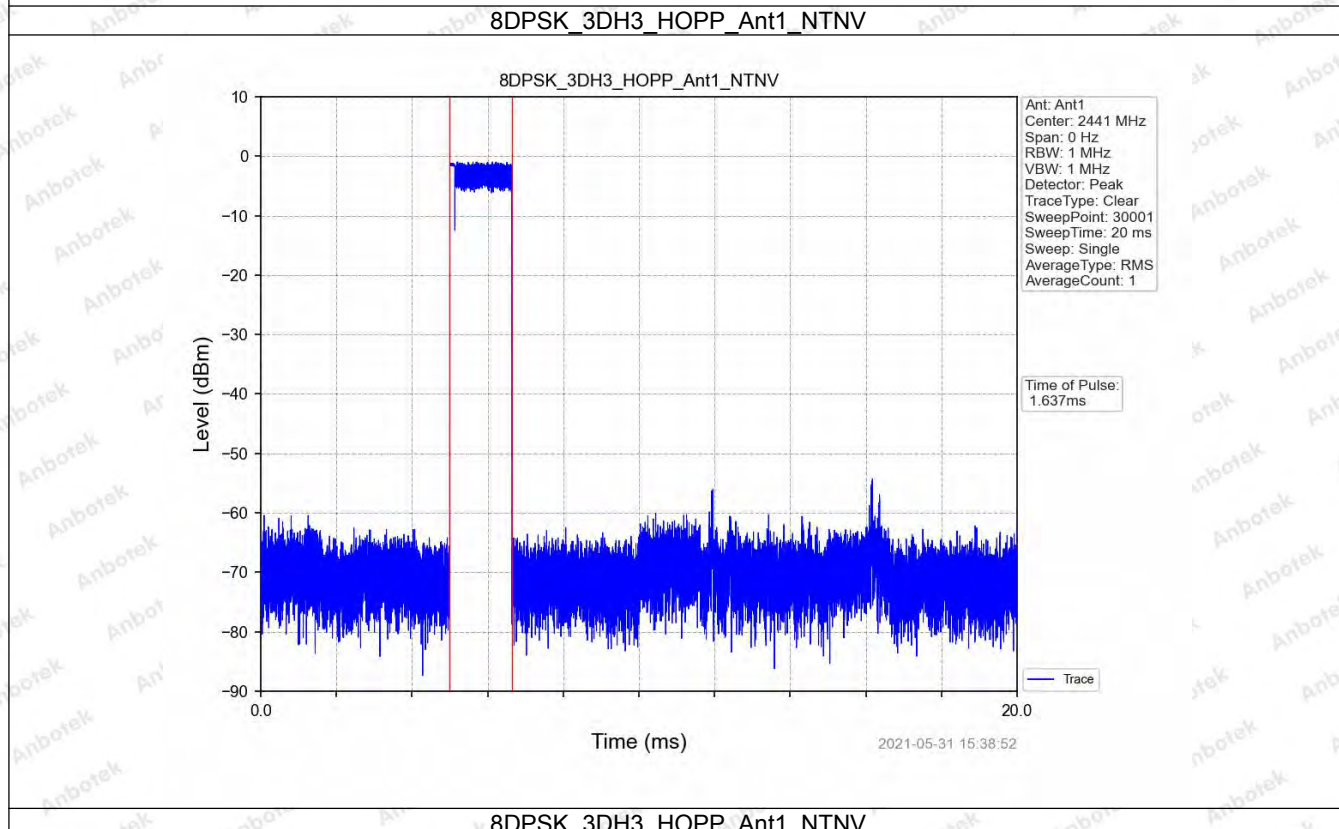
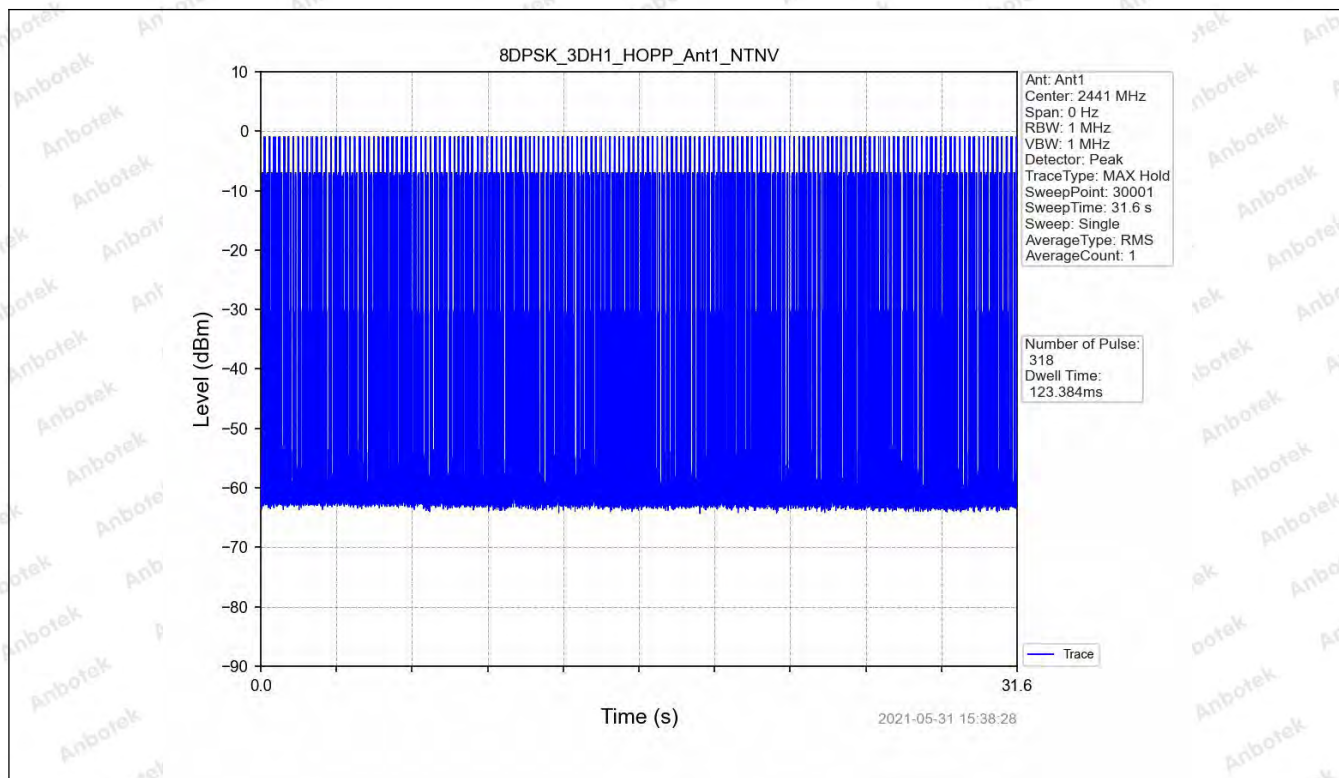




Pi/4DQPSK\_2DH5\_HOPP\_Ant1\_NTNV

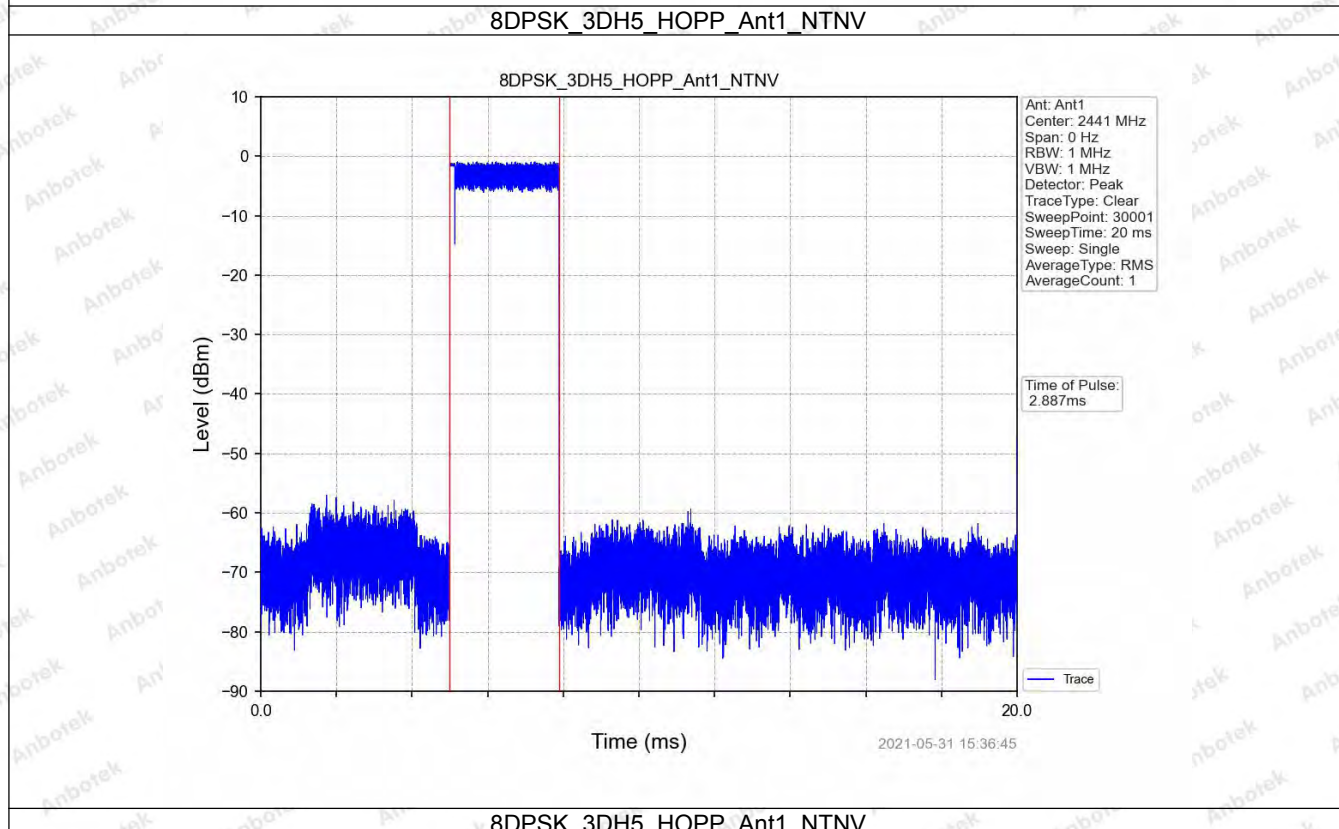
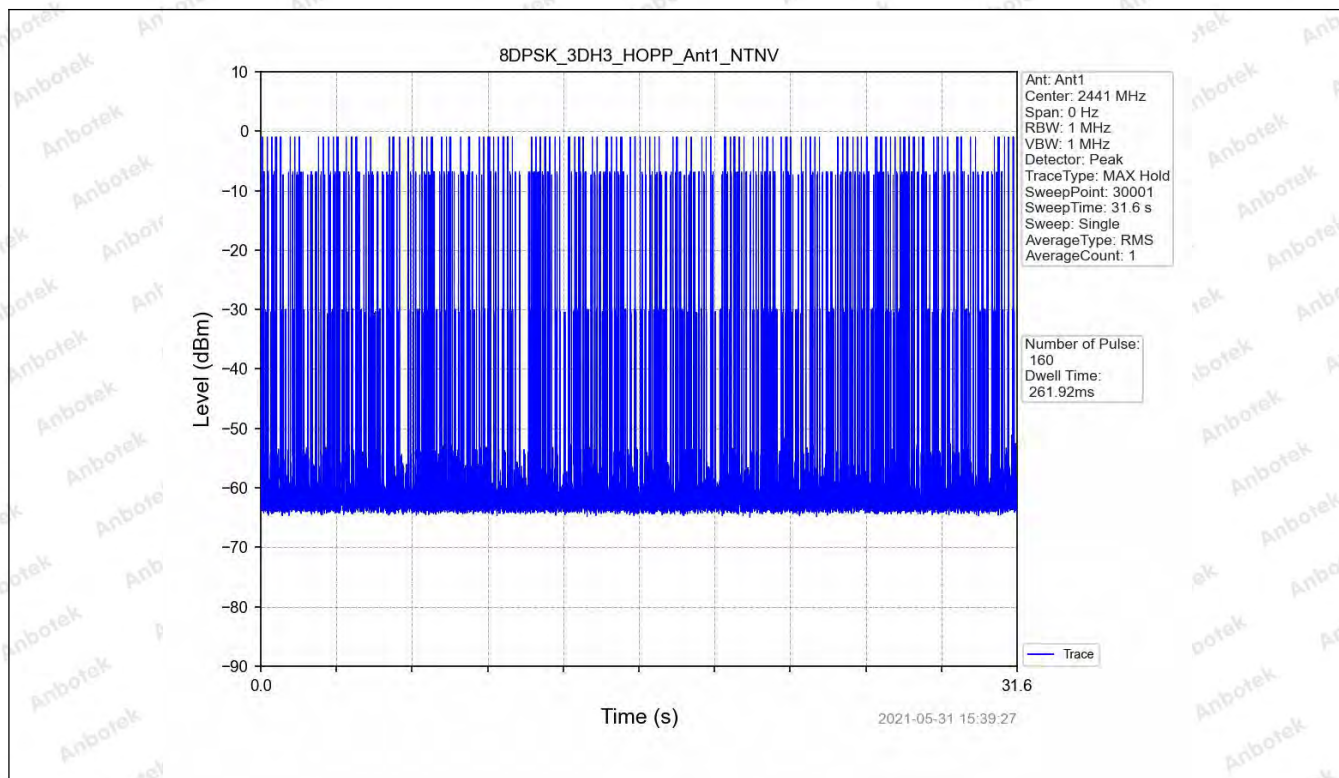




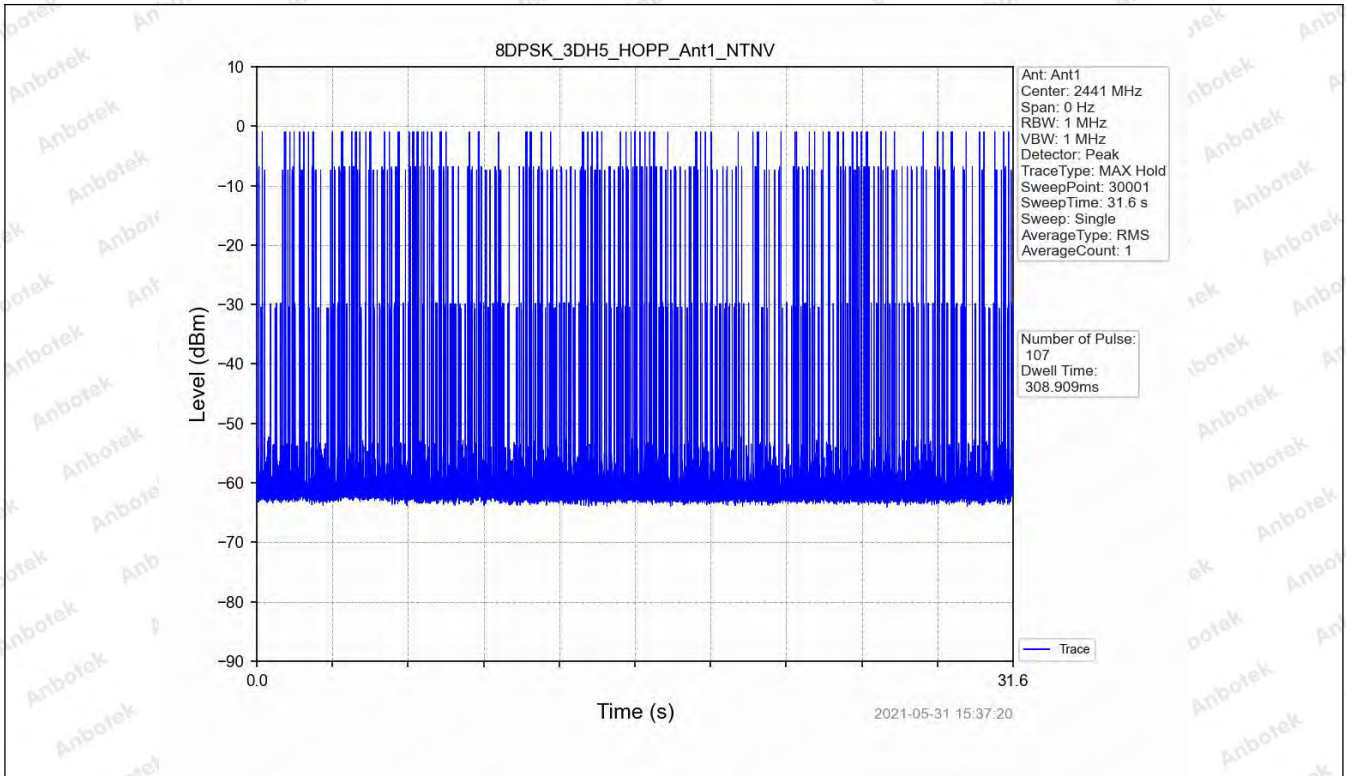


8DPSK\_3DH3\_HOPP\_Ant1\_NTNV





8DPSK\_3DH5\_HOPP\_Ant1\_NTNV





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

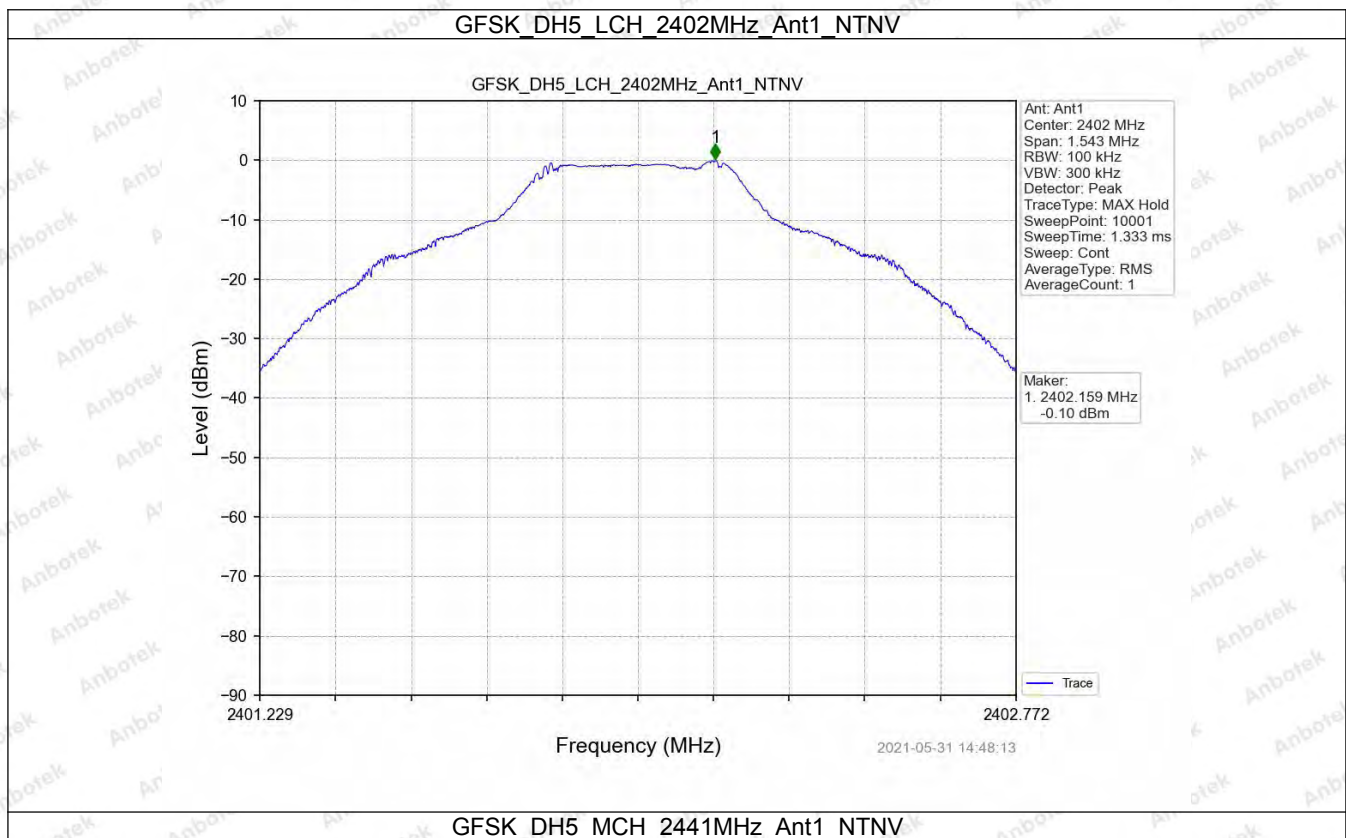
### 6.1 Ref

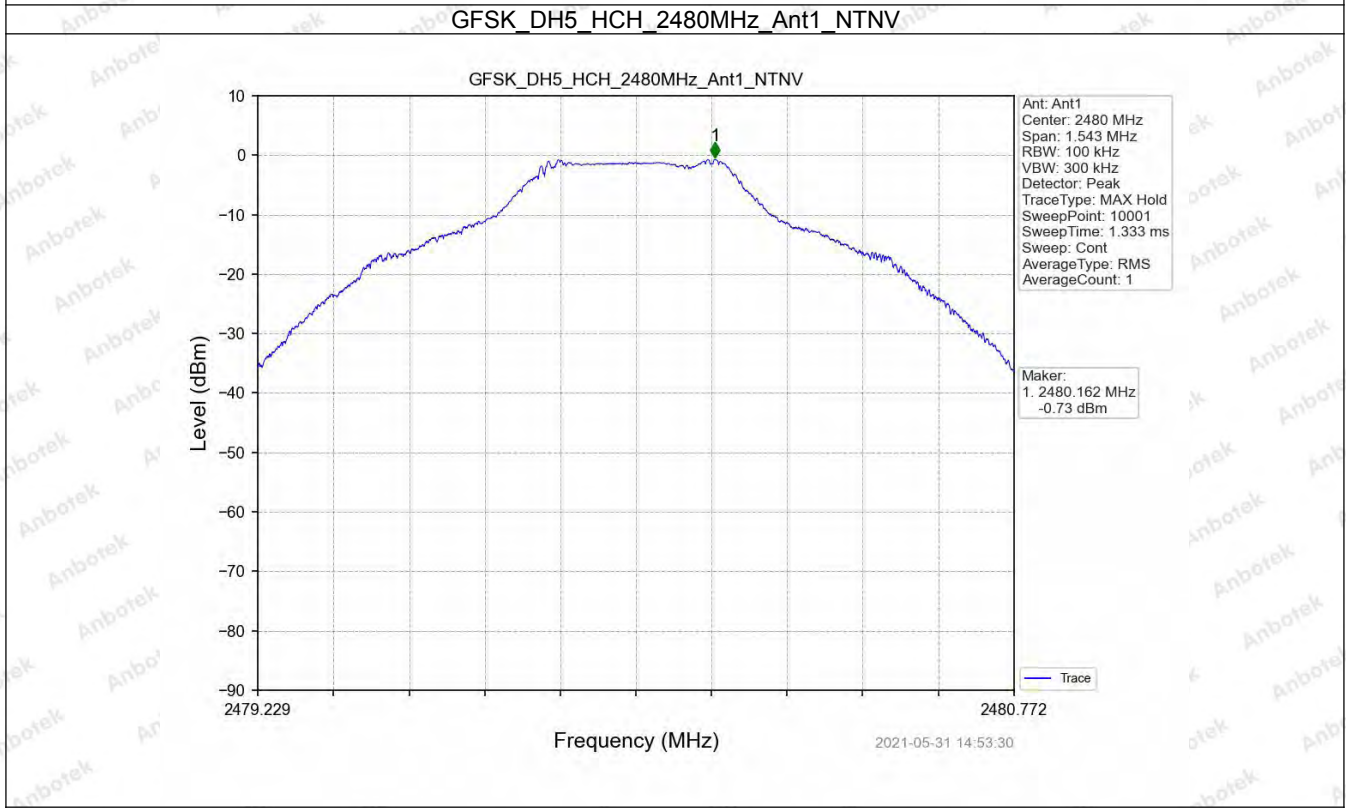
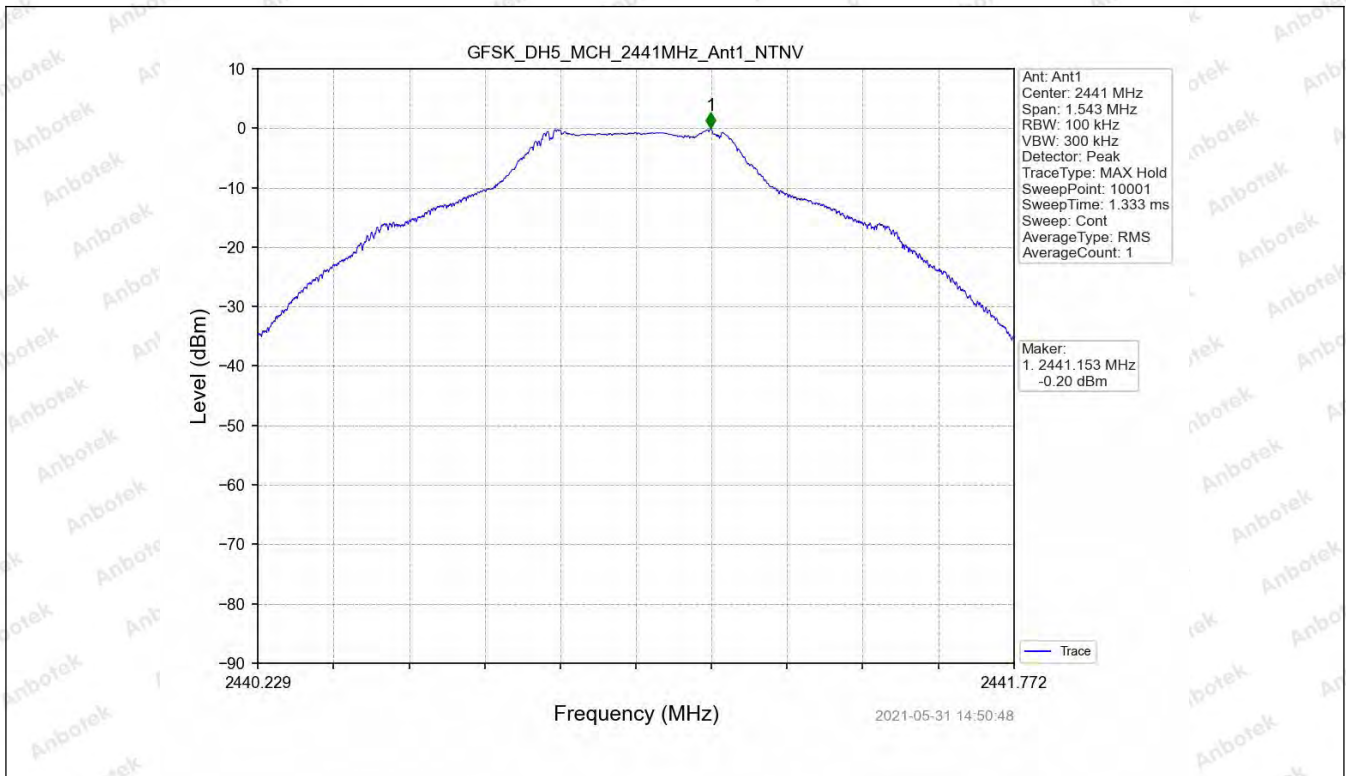
#### 6.1.1 Test Result

| Mode      | TX Type | Frequency (MHz) | Packet Type | Level of Reference (dBm) | Limit (dBm) | Verdict |
|-----------|---------|-----------------|-------------|--------------------------|-------------|---------|
| GFSK      | SISO    | 2402            | DH5         | -0.10                    | /           | /       |
|           |         | 2441            | DH5         | -0.20                    | /           | /       |
|           |         | 2480            | DH5         | -0.73                    | /           | /       |
| Pi/4DQPSK | SISO    | 2402            | 2DH5        | -1.13                    | /           | /       |
|           |         | 2441            | 2DH5        | -1.49                    | /           | /       |
|           |         | 2480            | 2DH5        | -2.38                    | /           | /       |
| 8DPSK     | SISO    | 2402            | 3DH5        | -1.07                    | /           | /       |
|           |         | 2441            | 3DH5        | -1.39                    | /           | /       |
|           |         | 2480            | 3DH5        | -2.10                    | /           | /       |

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.

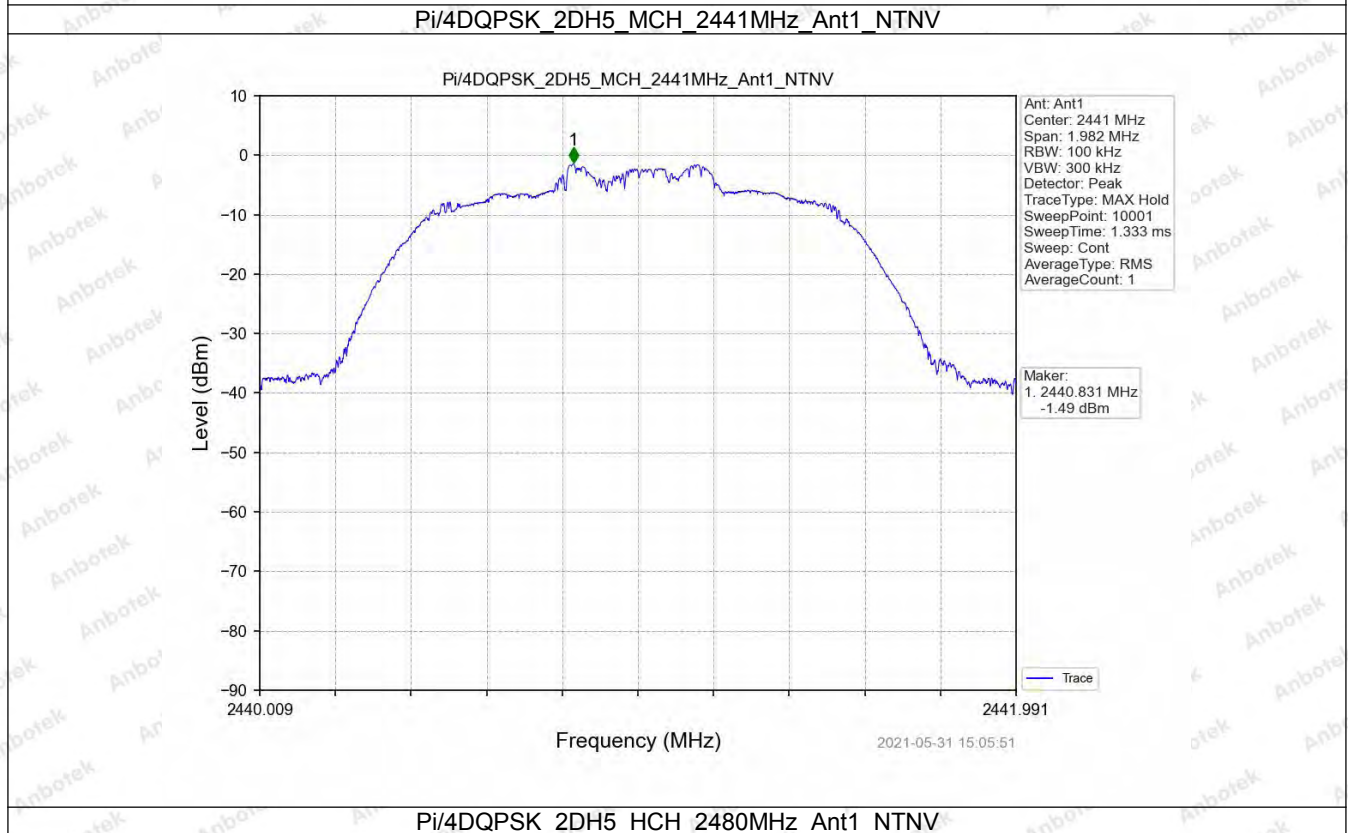
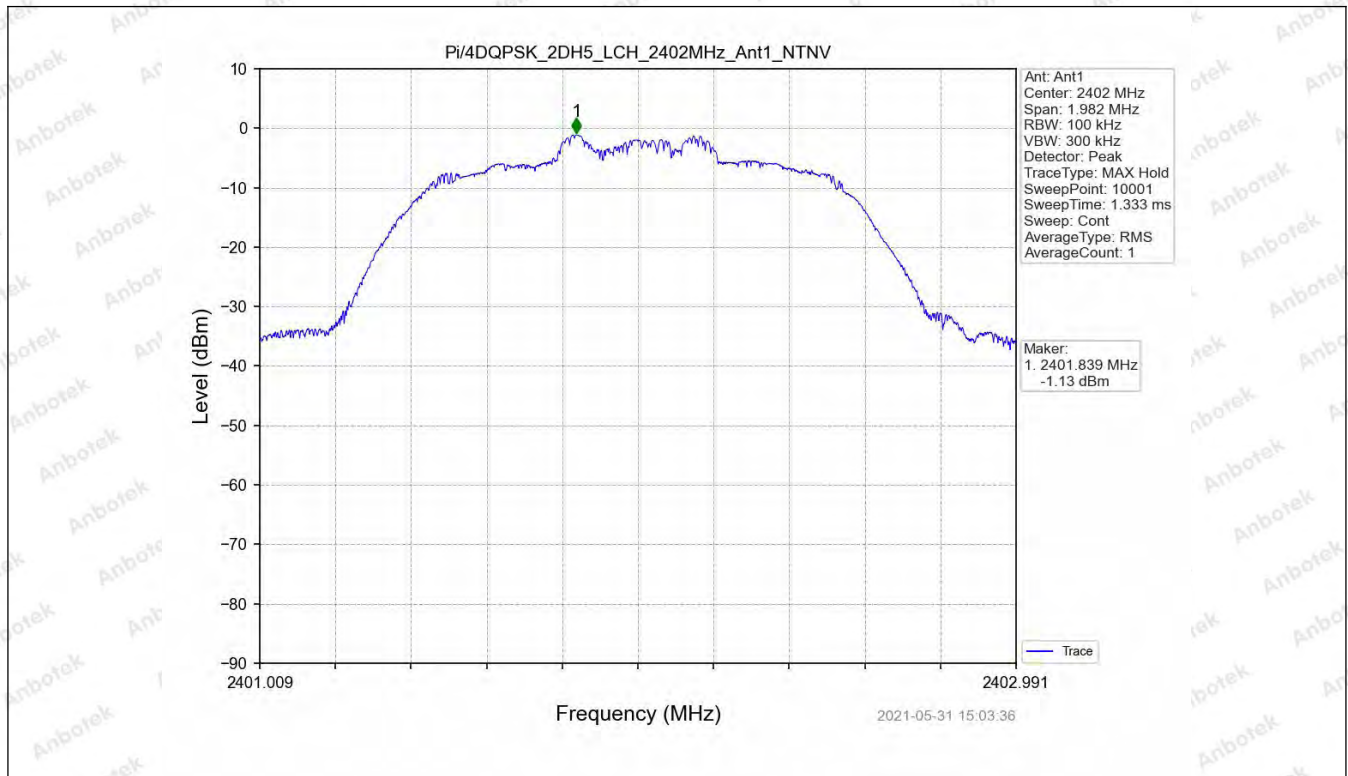
#### 6.1.2 Test Graph

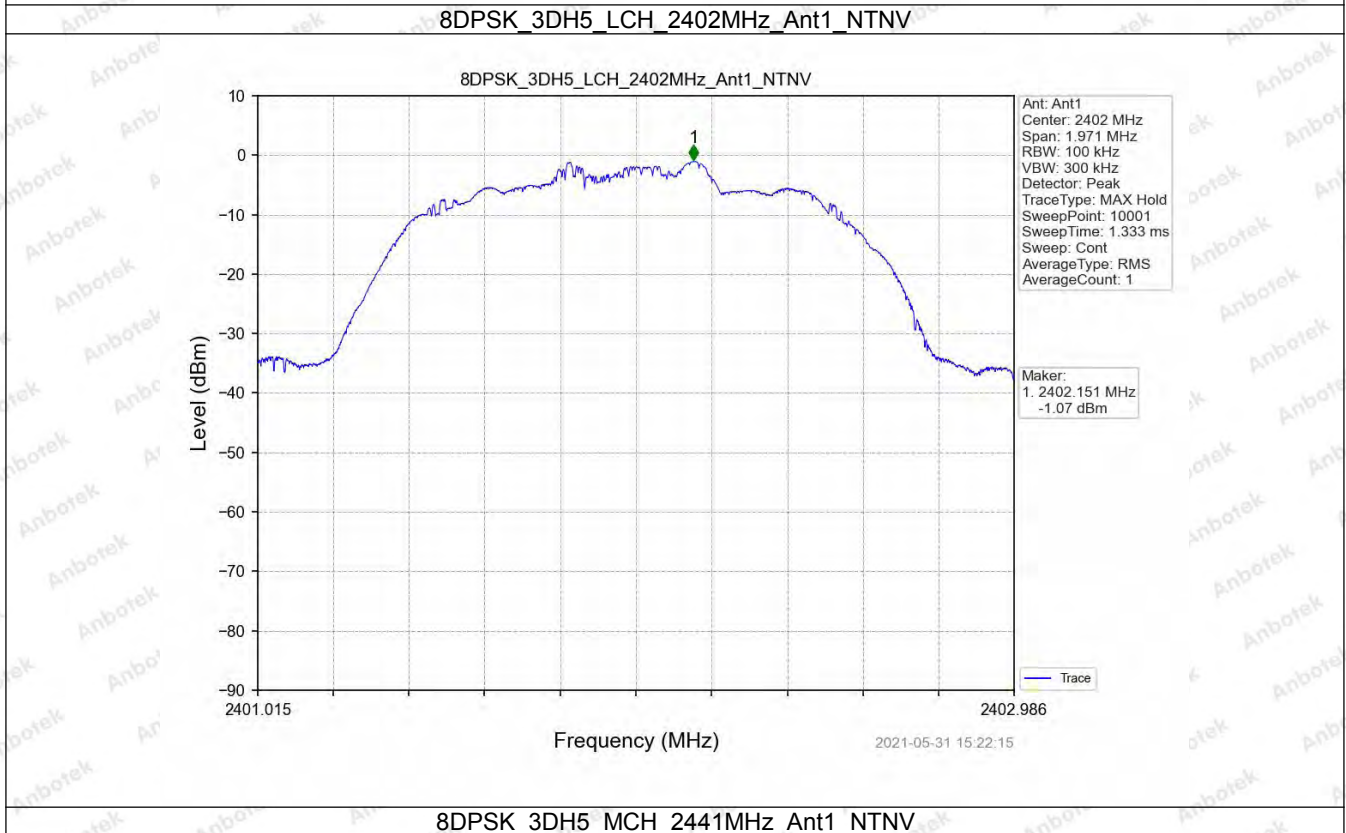
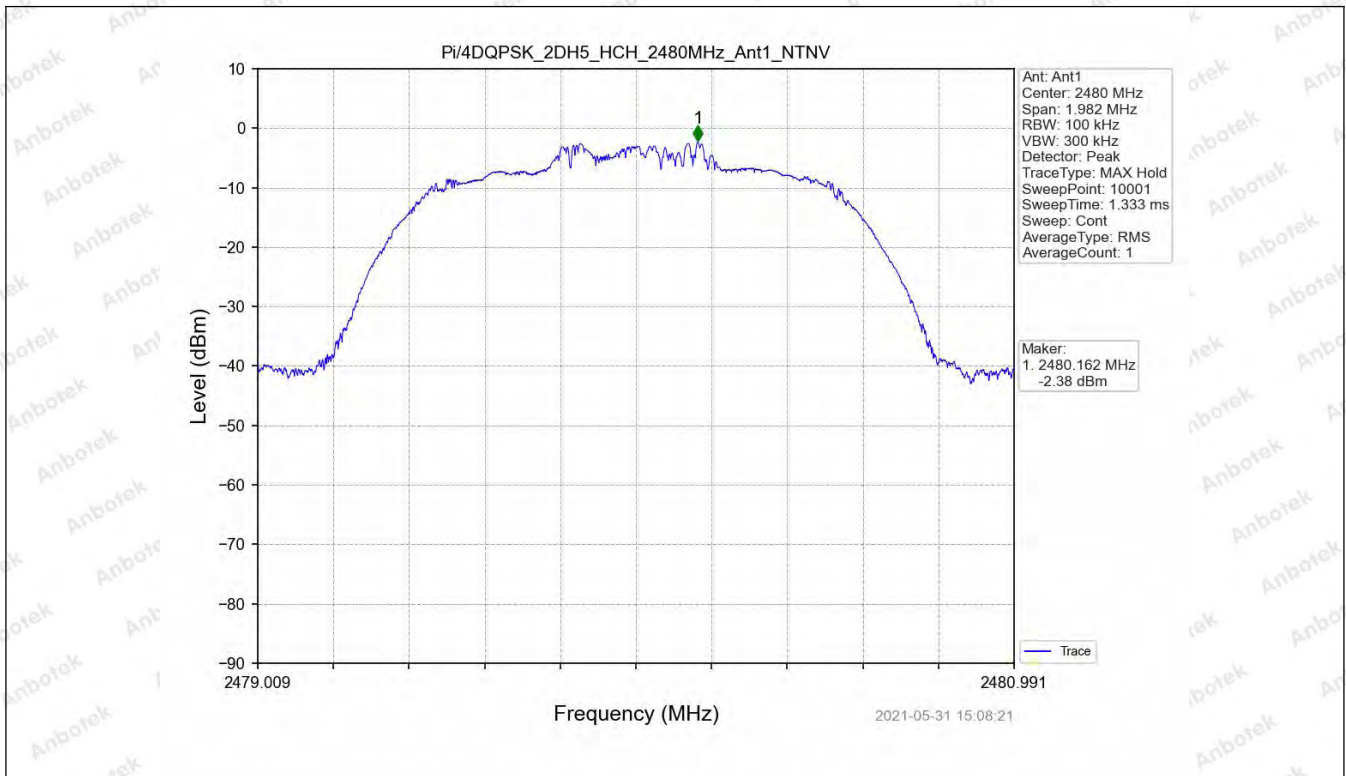




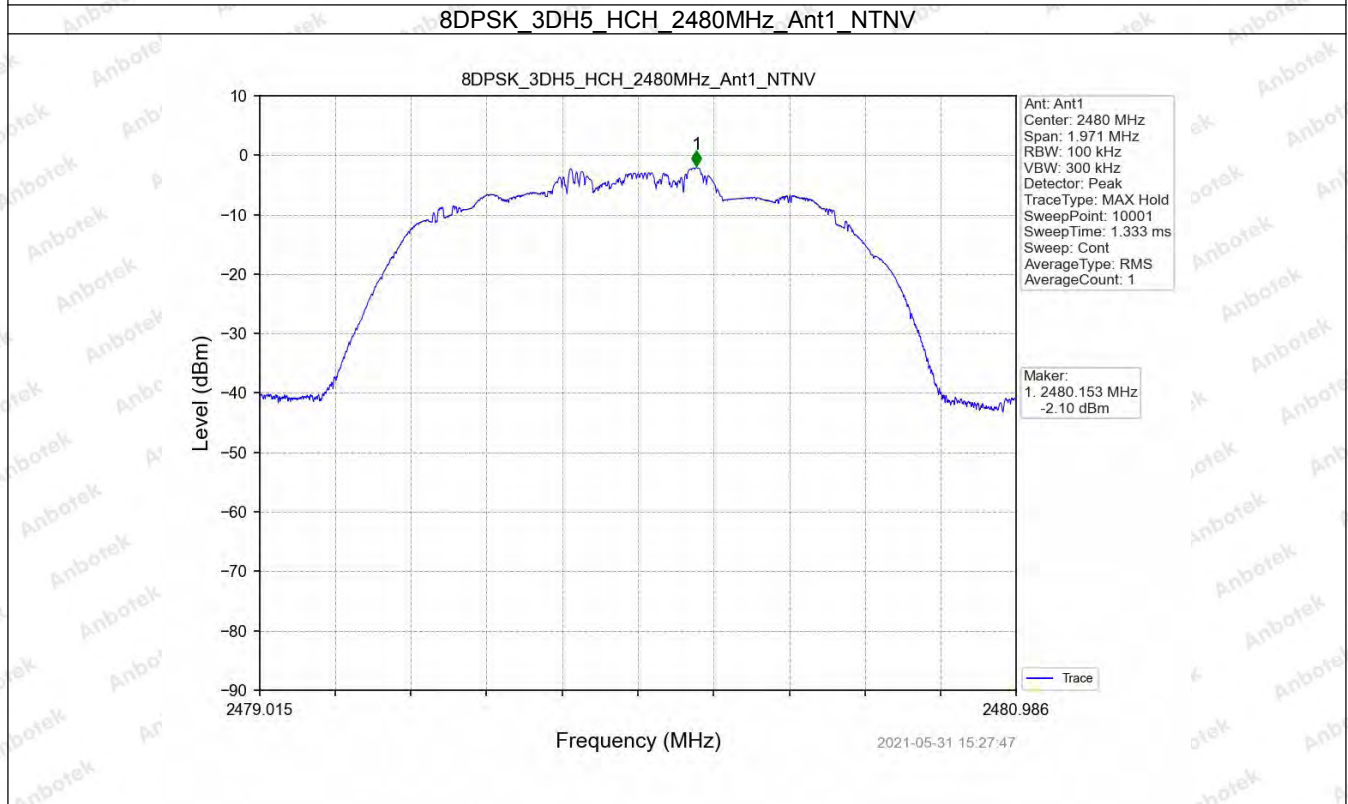
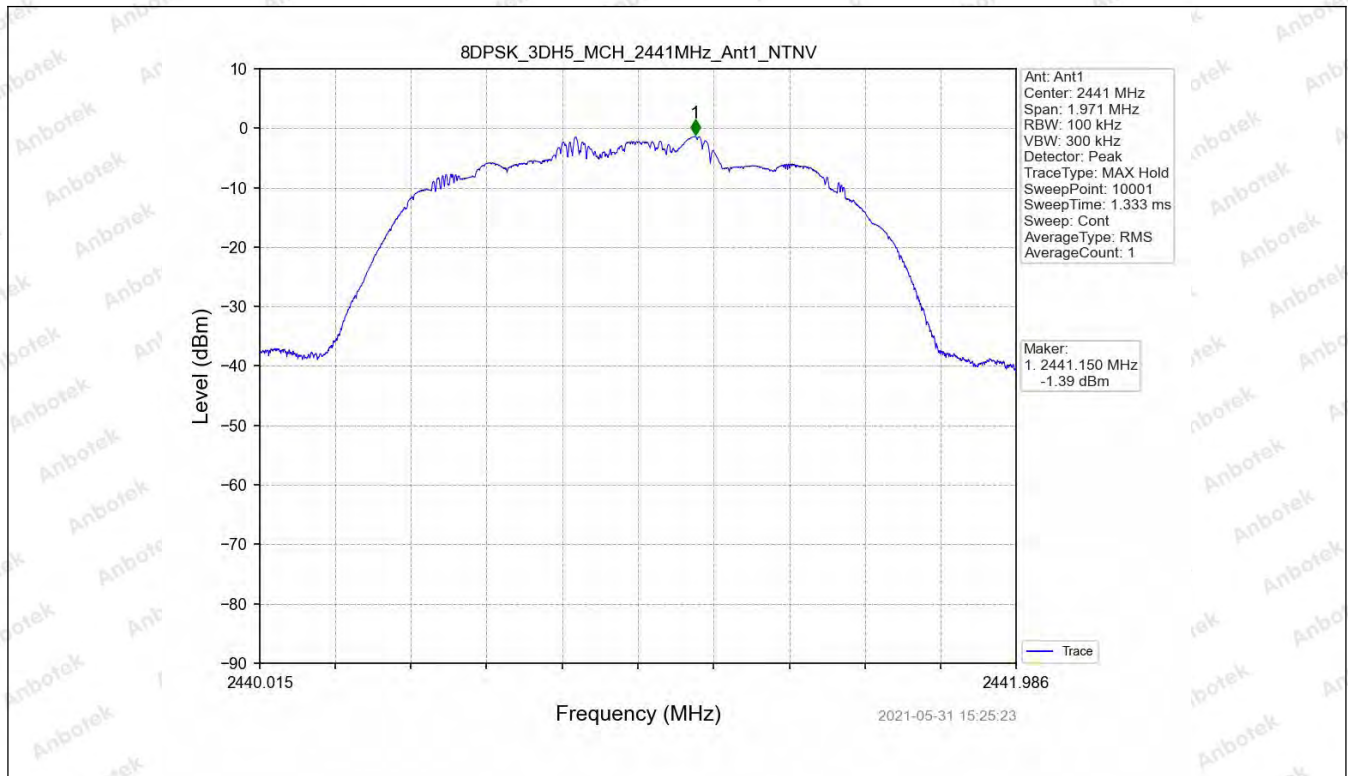
Pi/4DQPSK\_2DH5\_LCH\_2402MHz\_Ant1\_NTNV











## 6.2 CSE

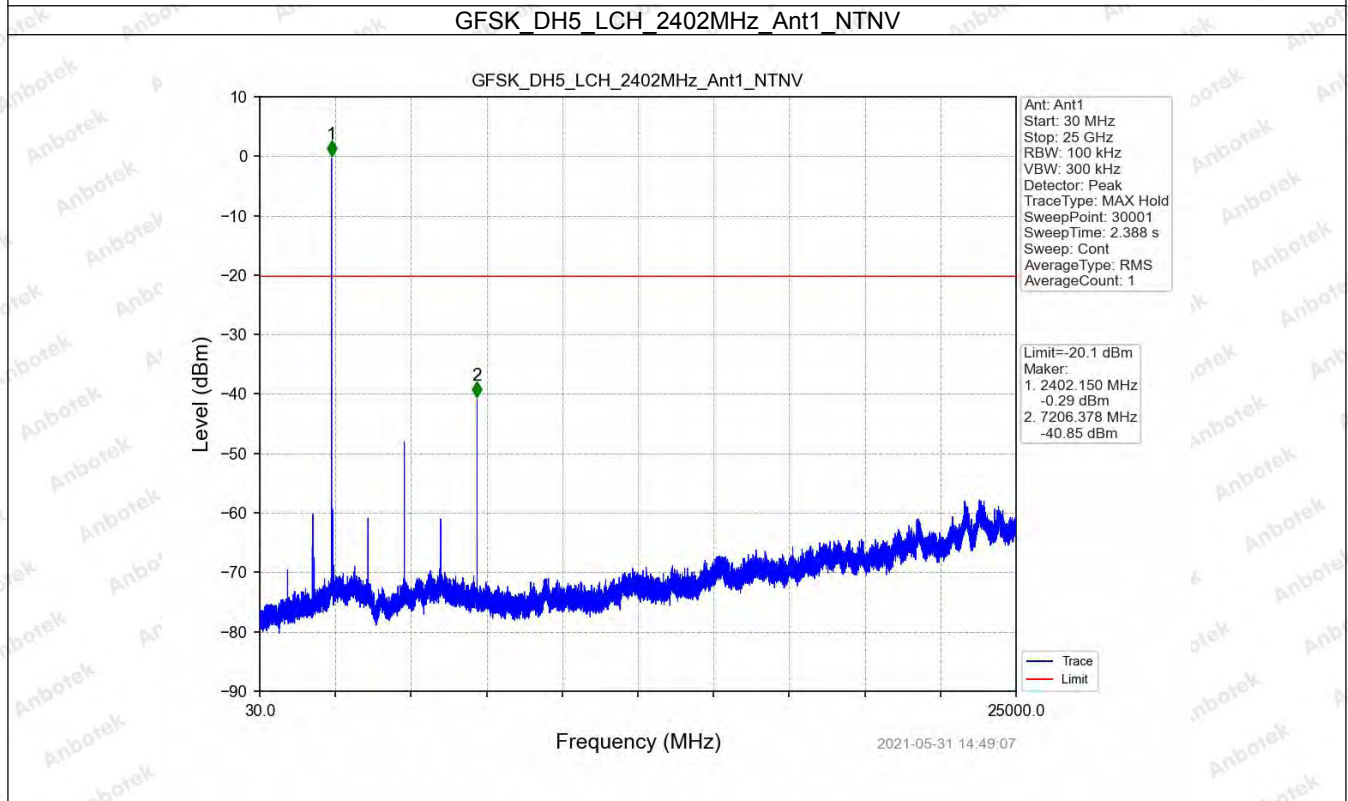
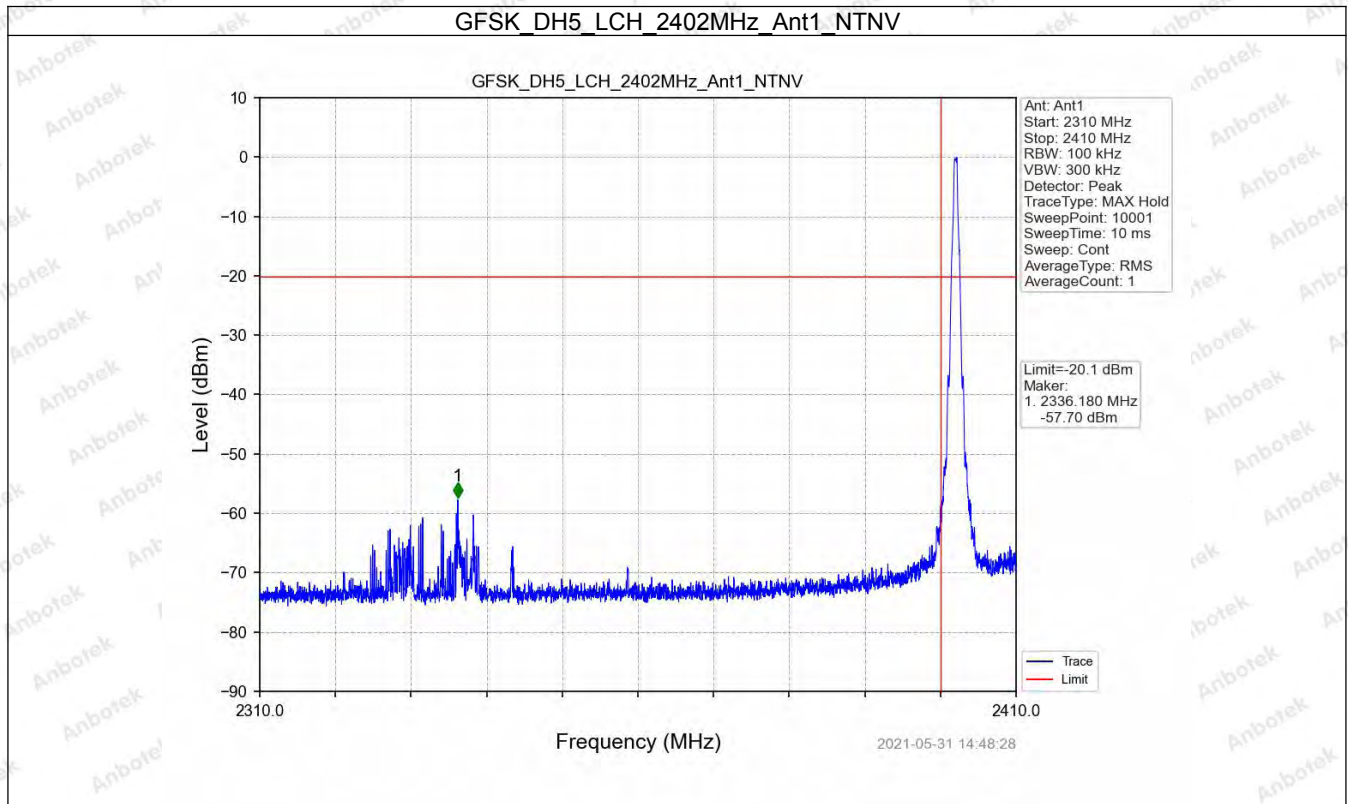
### 6.2.1 Test Result

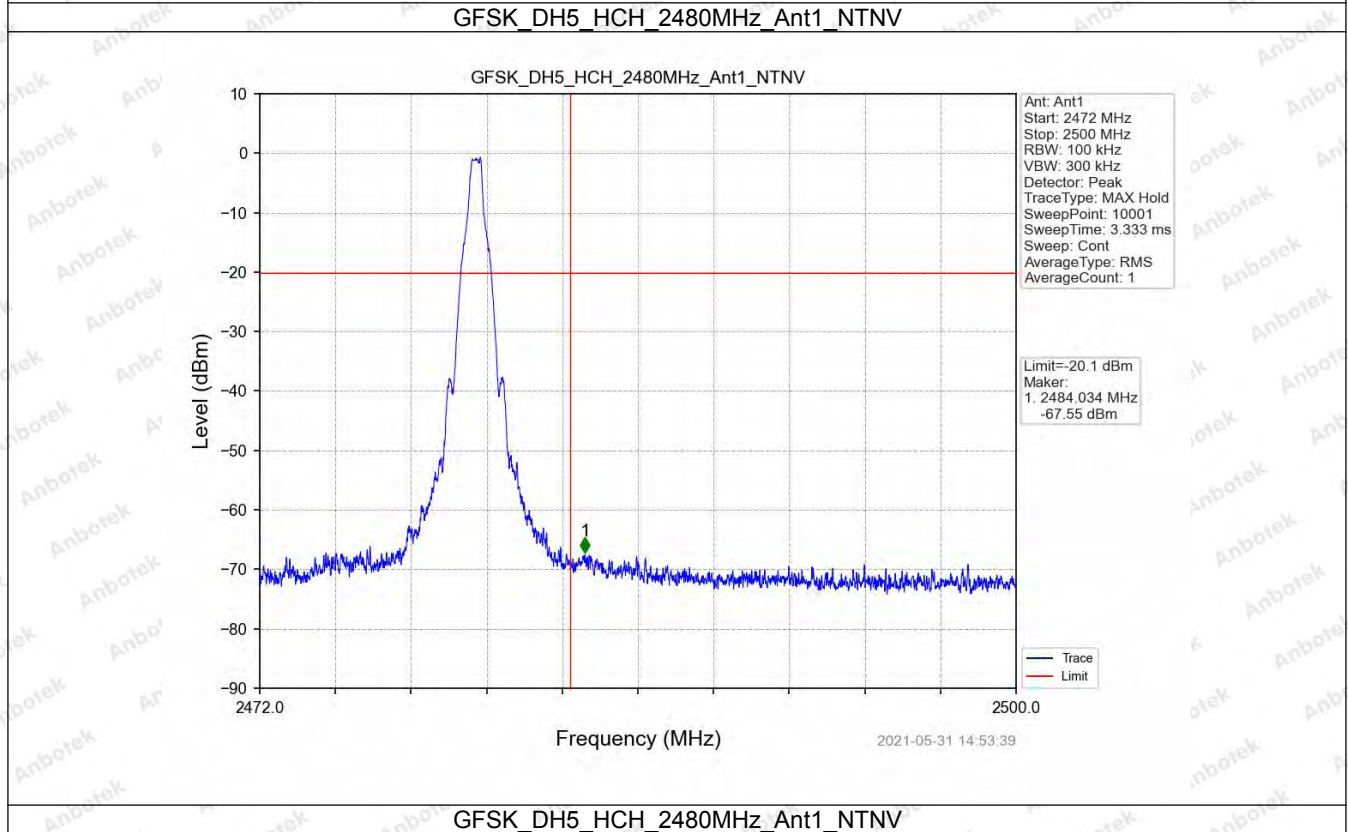
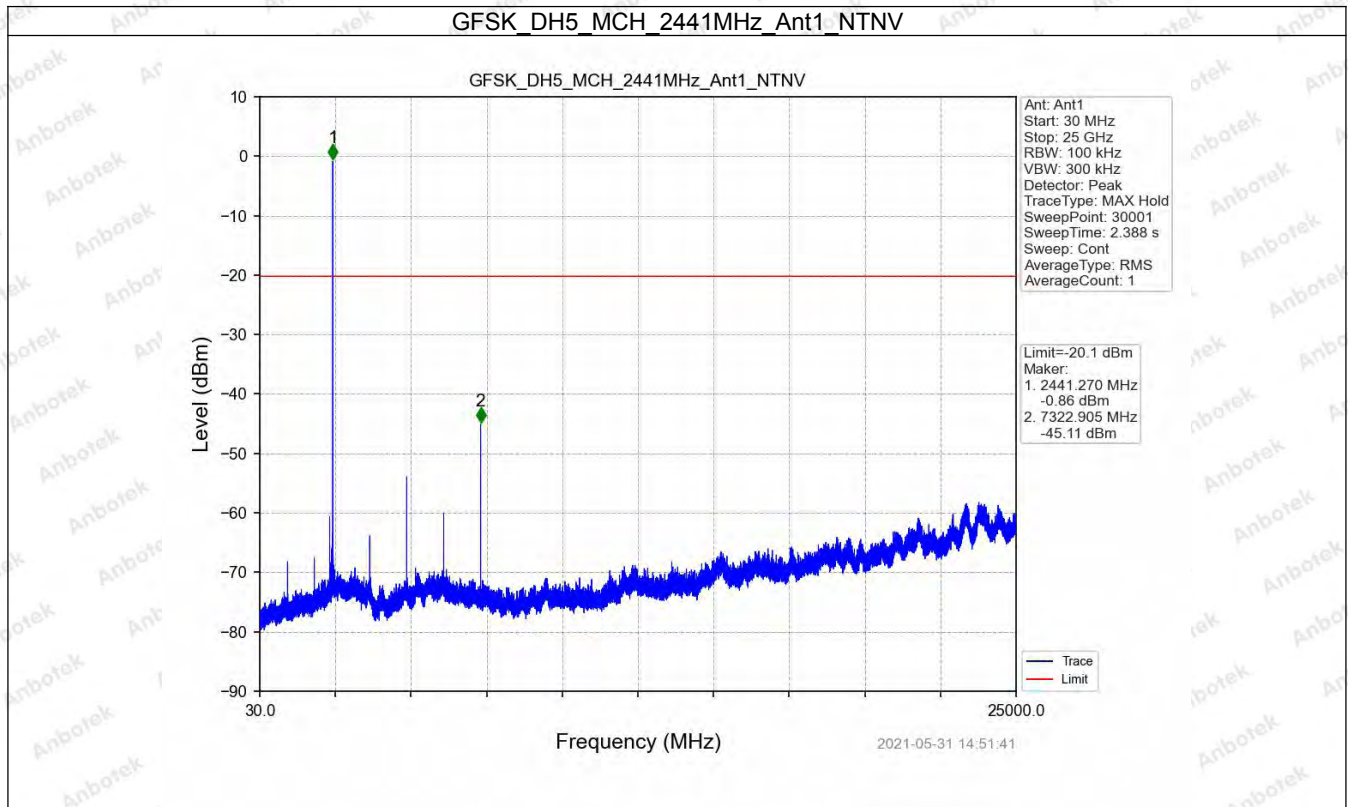
| Mode      | TX Type | Frequency (MHz) | Packet Type | Level of Reference (dBm) | Limit (dBm) | Verdict |
|-----------|---------|-----------------|-------------|--------------------------|-------------|---------|
| GFSK      | SISO    | 2402            | DH5         | Refer To Test Graph      | <=-20.1     | Pass    |
|           |         | 2441            | DH5         | Refer To Test Graph      | <=-20.1     | Pass    |
|           |         | 2480            | DH5         | Refer To Test Graph      | <=-20.1     | Pass    |
|           |         | 2441            | DH5         | Refer To Test Graph      | <=-20.1     | Pass    |
| Pi/4DQPSK | SISO    | 2402            | 2DH5        | Refer To Test Graph      | <=-21.13    | Pass    |
|           |         | 2441            | 2DH5        | Refer To Test Graph      | <=-21.13    | Pass    |
|           |         | 2480            | 2DH5        | Refer To Test Graph      | <=-21.13    | Pass    |
|           |         | 2441            | 2DH5        | Refer To Test Graph      | <=-21.13    | Pass    |
| 8DPSK     | SISO    | 2402            | 3DH5        | Refer To Test Graph      | <=-21.07    | Pass    |
|           |         | 2441            | 3DH5        | Refer To Test Graph      | <=-21.07    | Pass    |
|           |         | 2480            | 3DH5        | Refer To Test Graph      | <=-21.07    | Pass    |
|           |         | 2441            | 3DH5        | Refer To Test Graph      | <=-21.07    | Pass    |

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

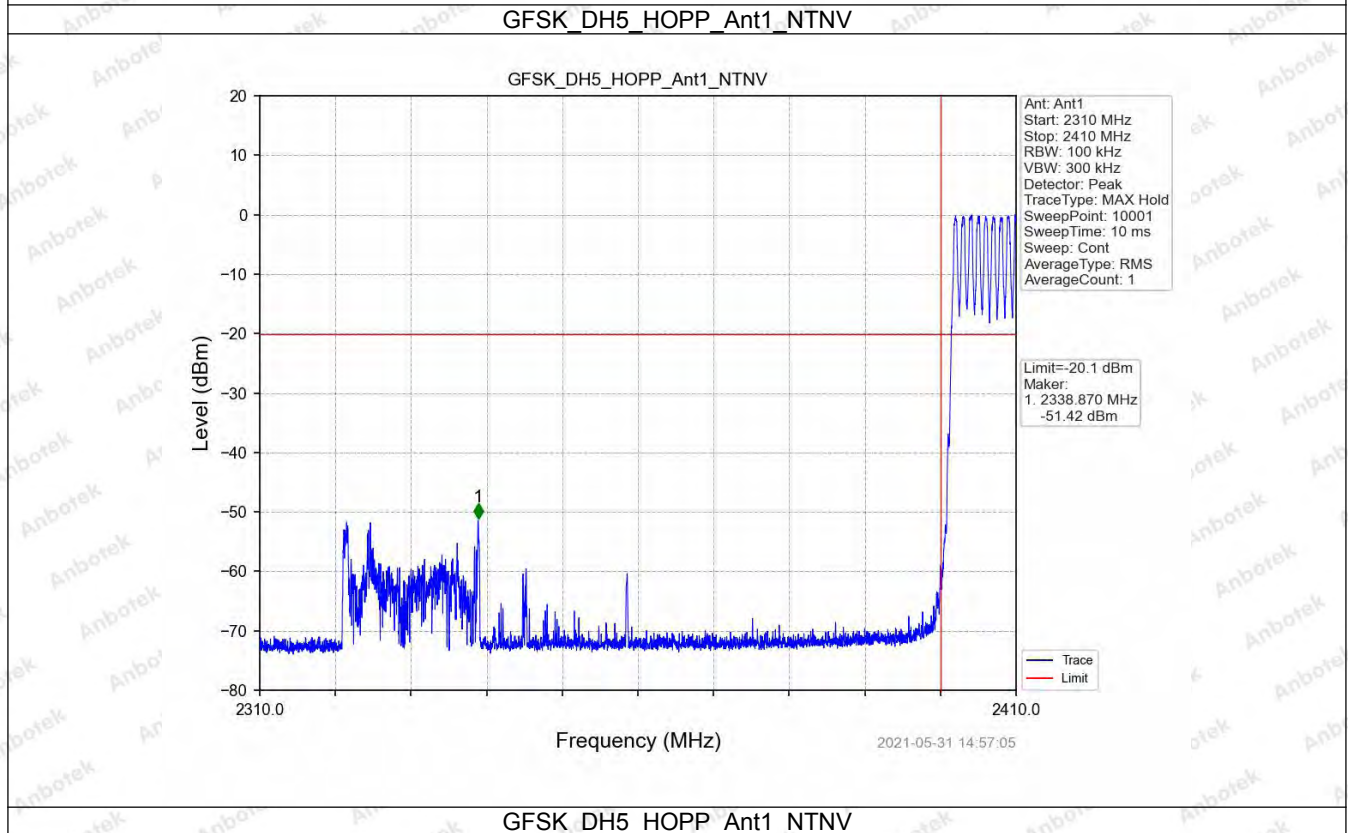
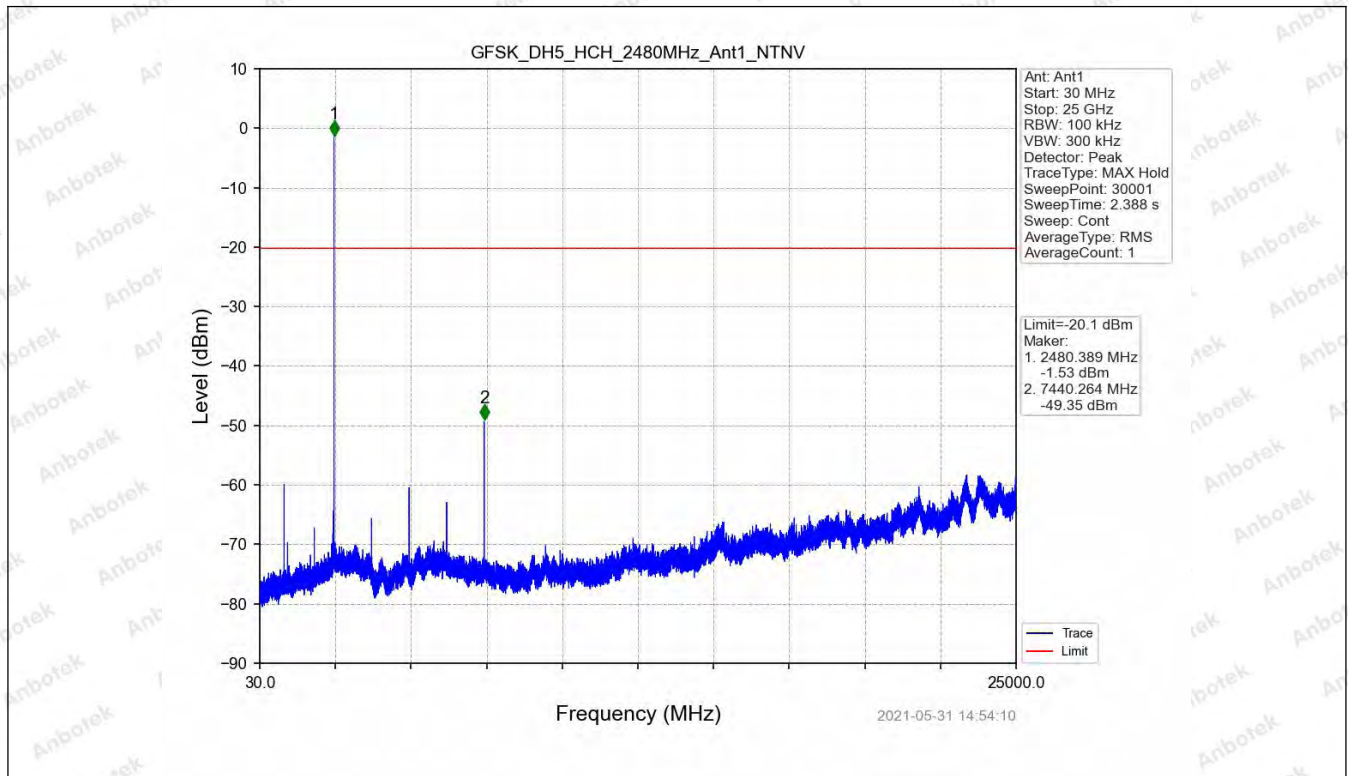


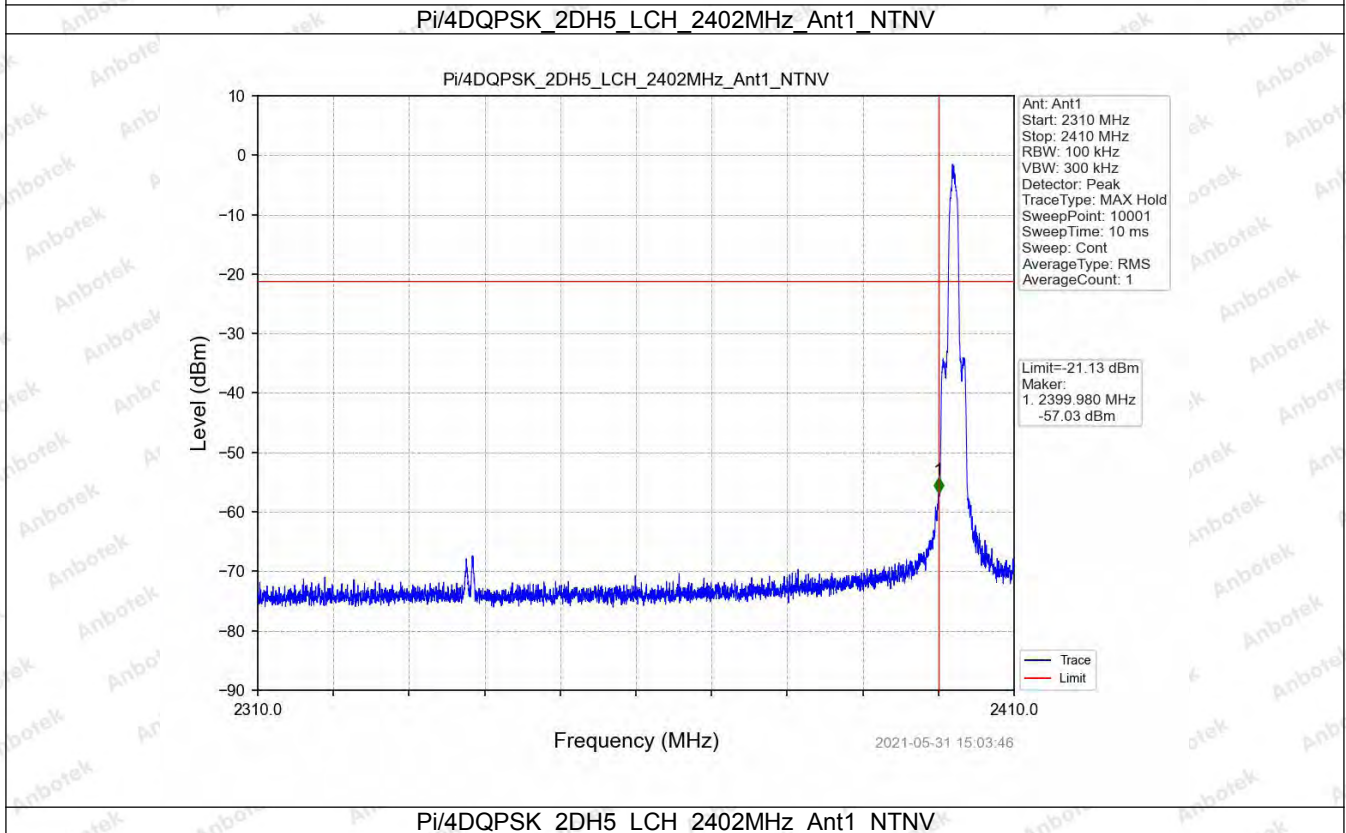
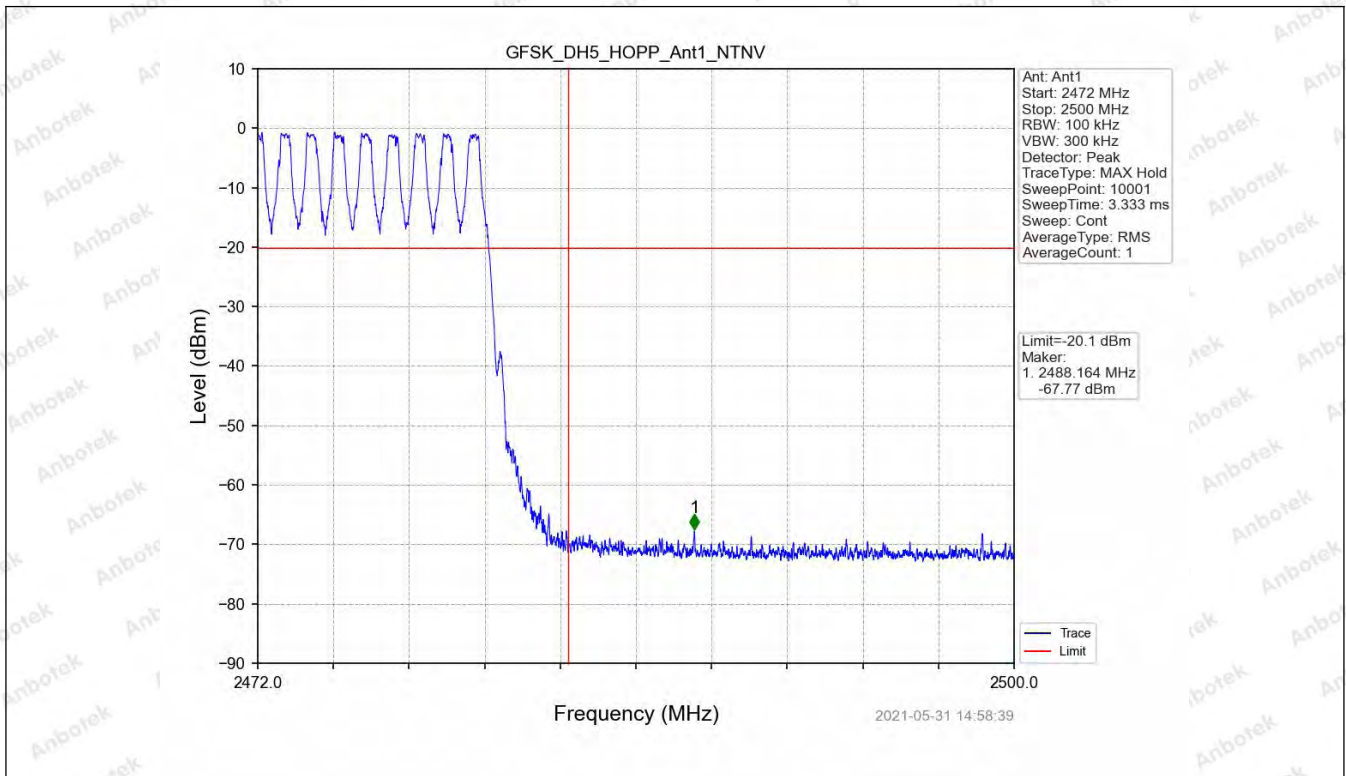
## 6.2.2 Test Graph



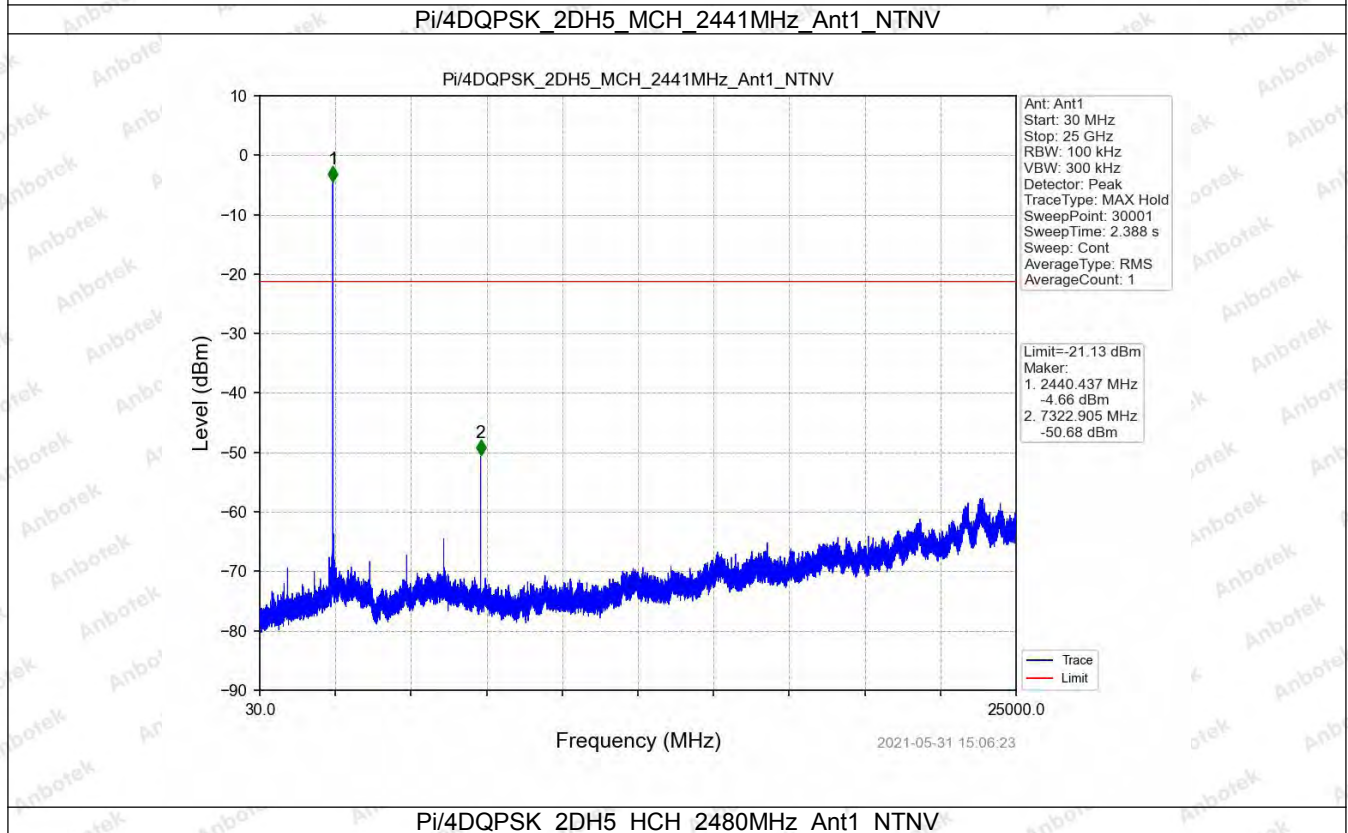
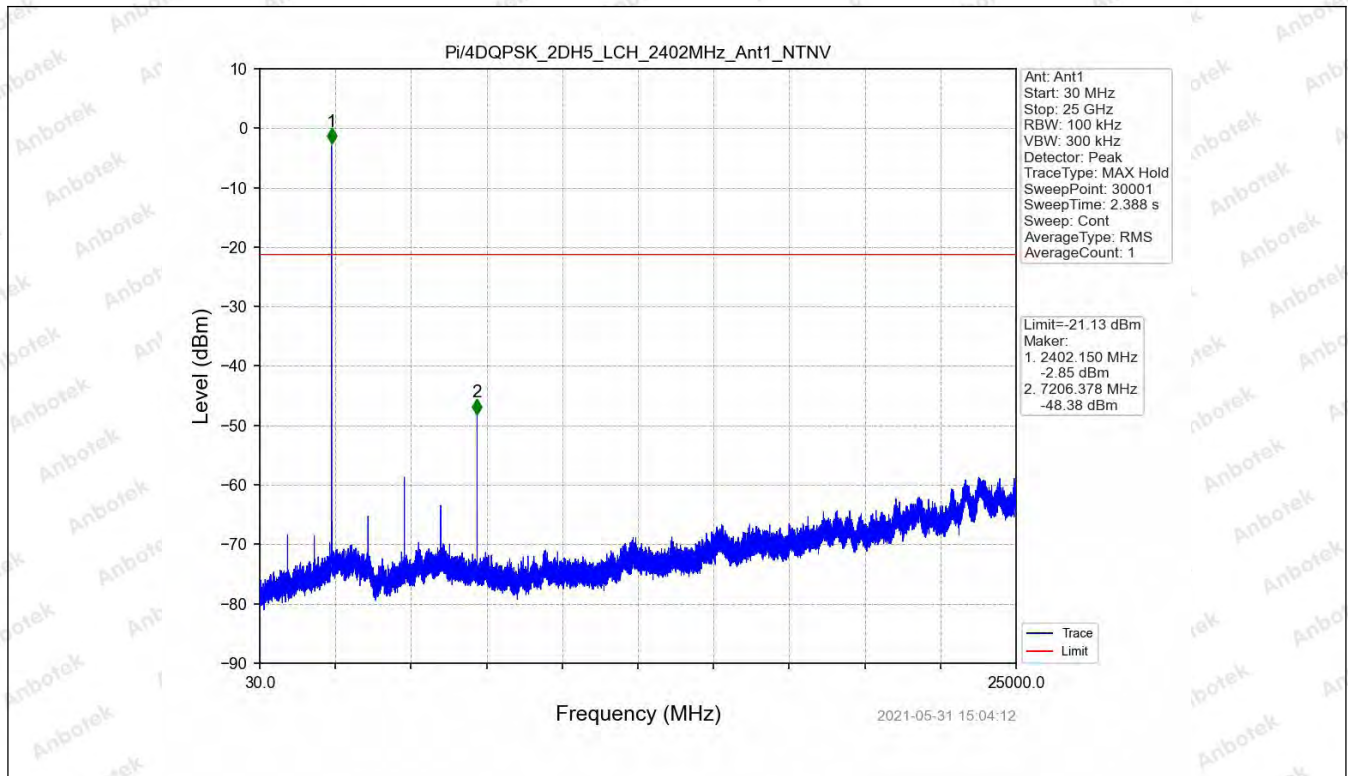


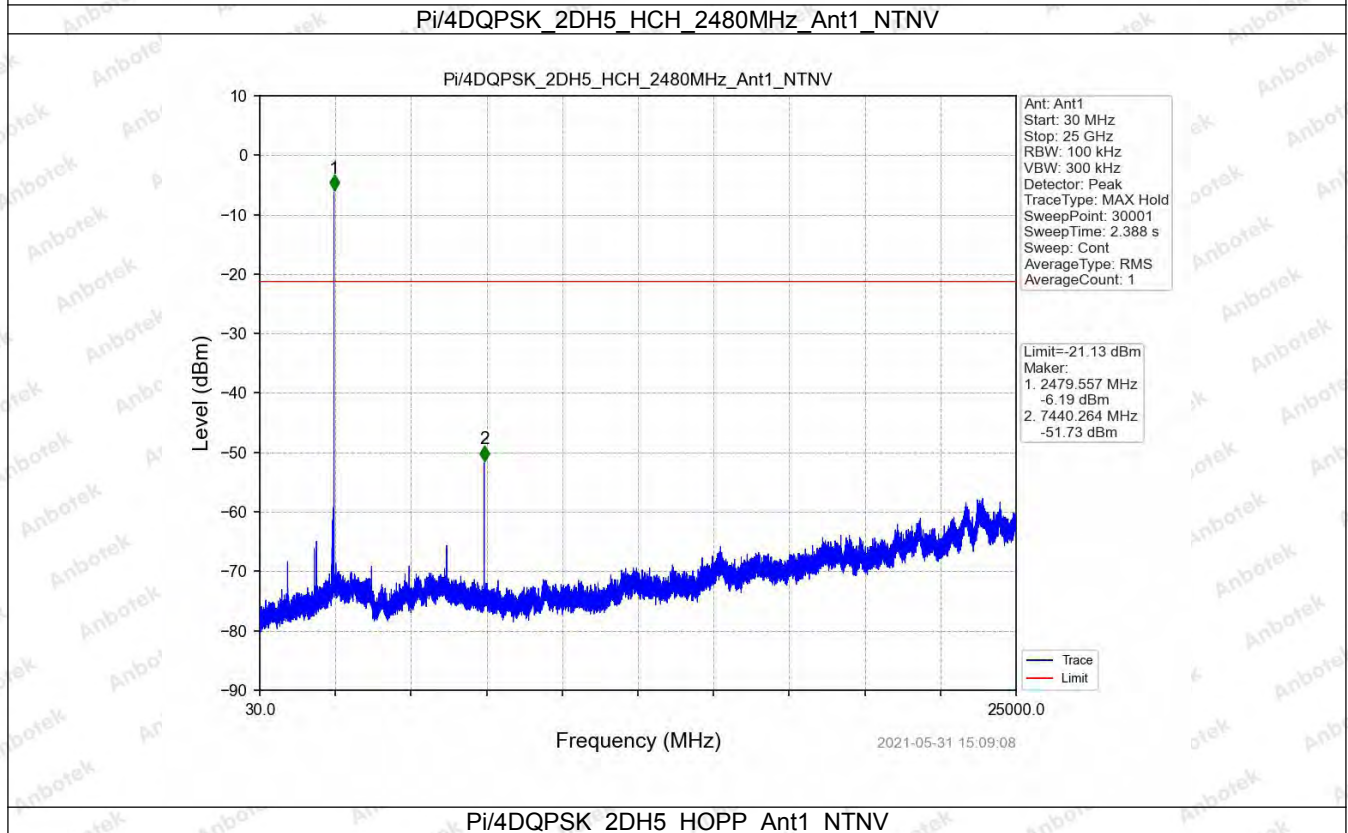
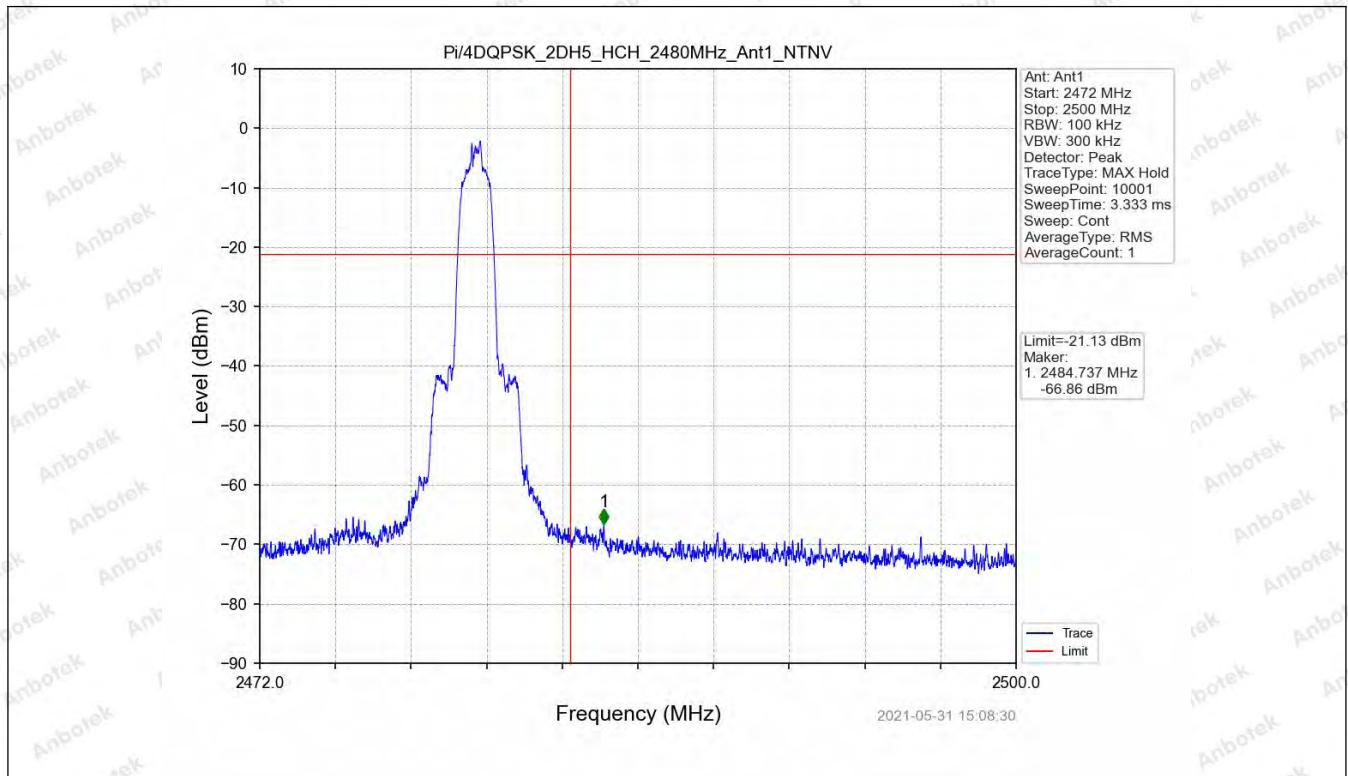




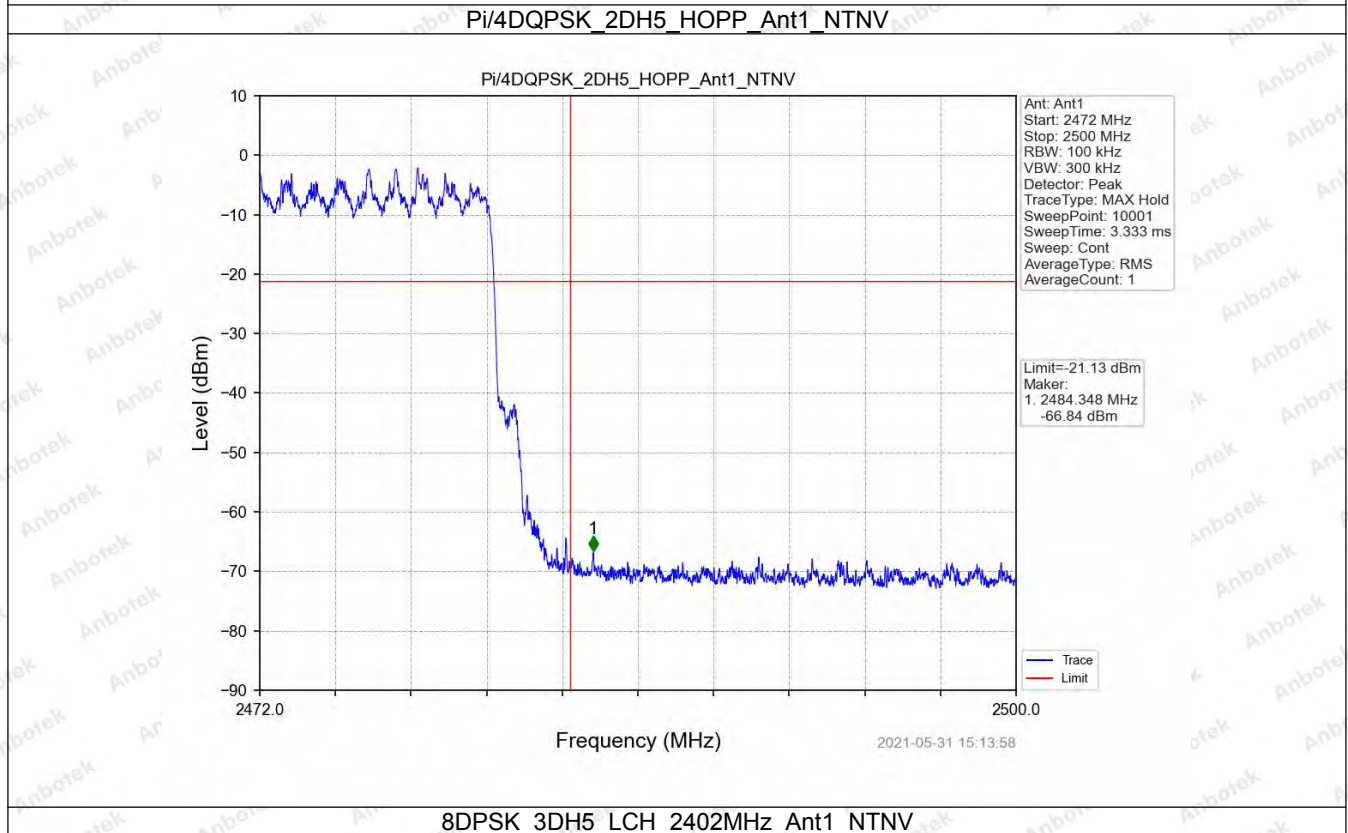
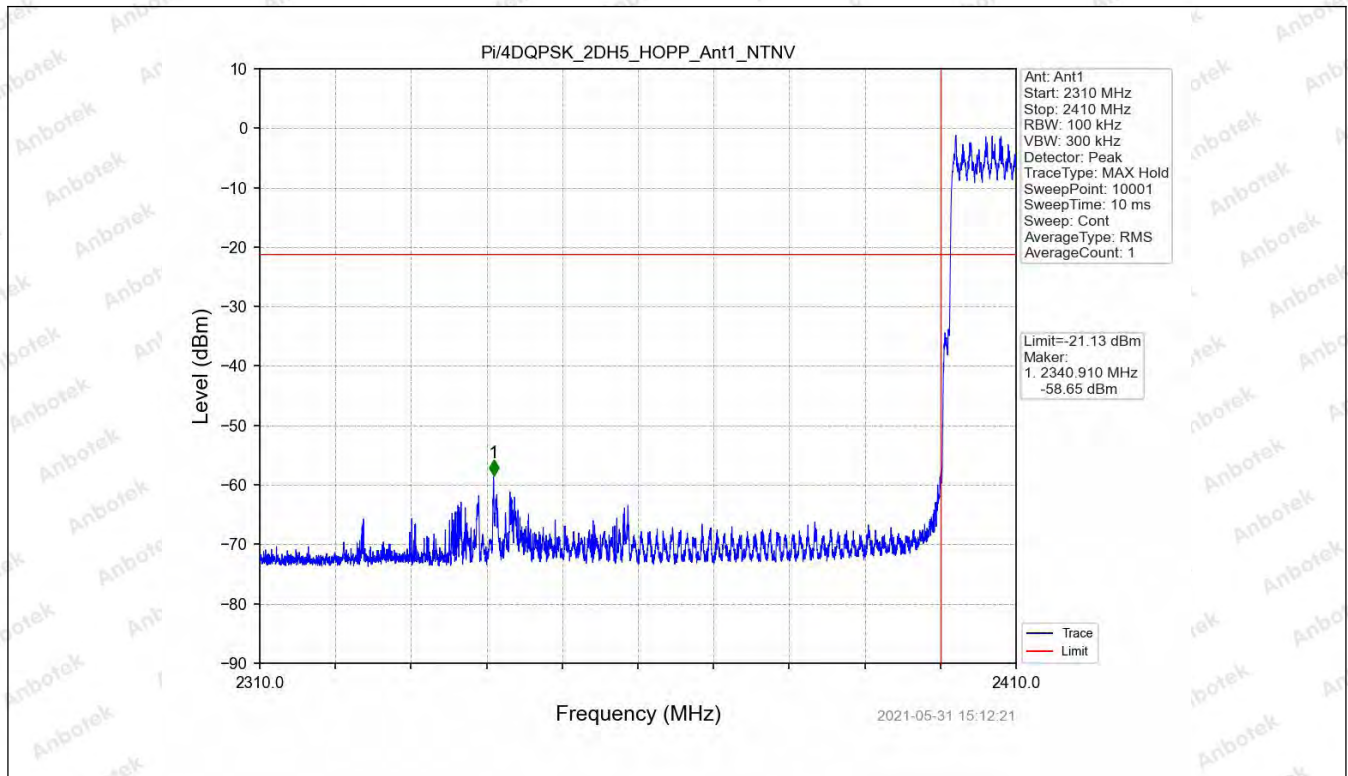




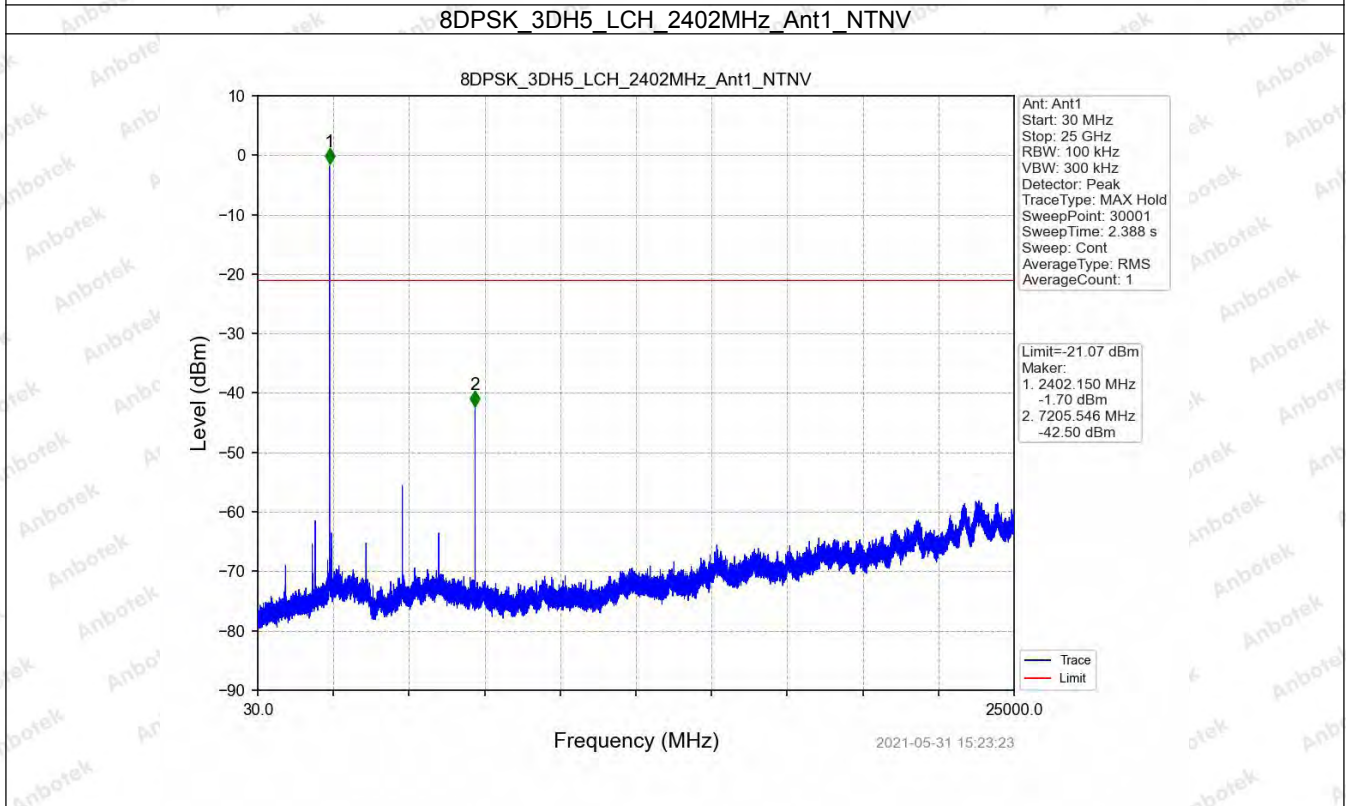
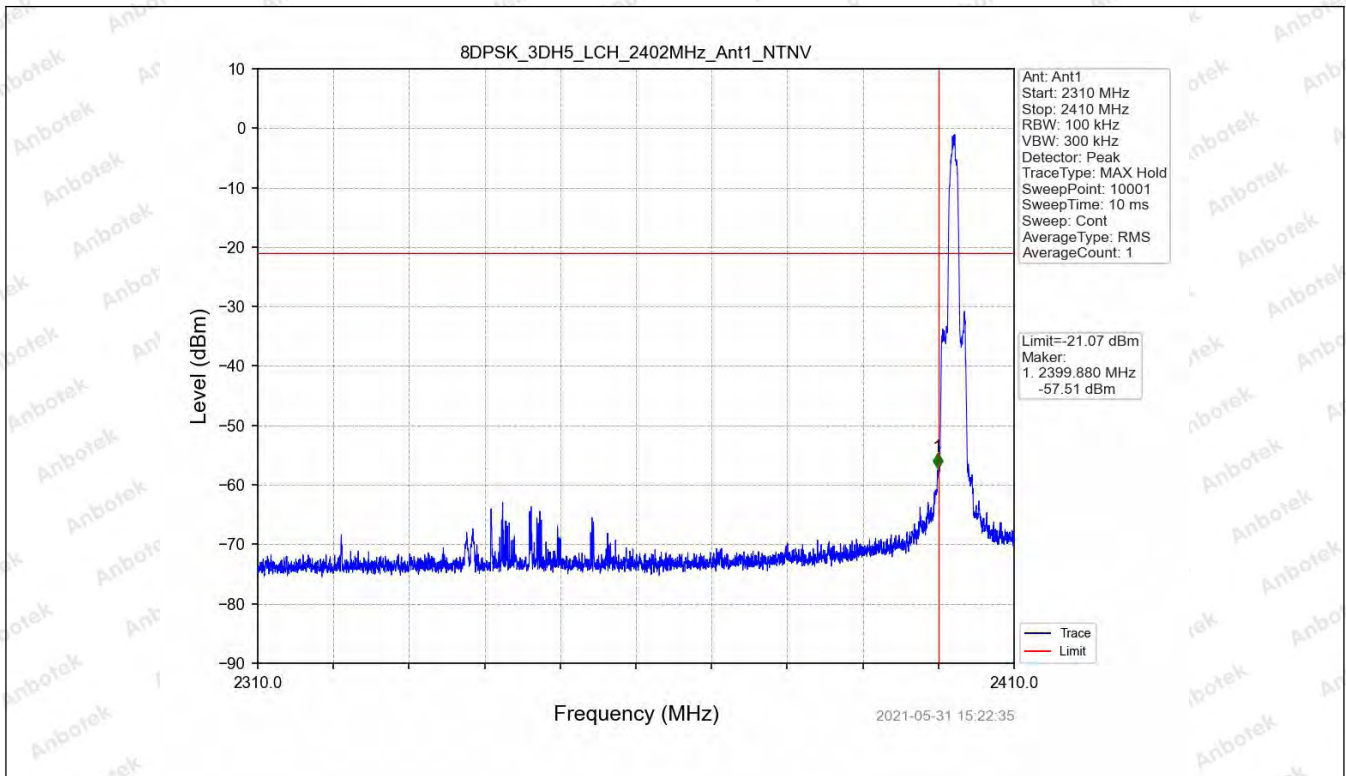






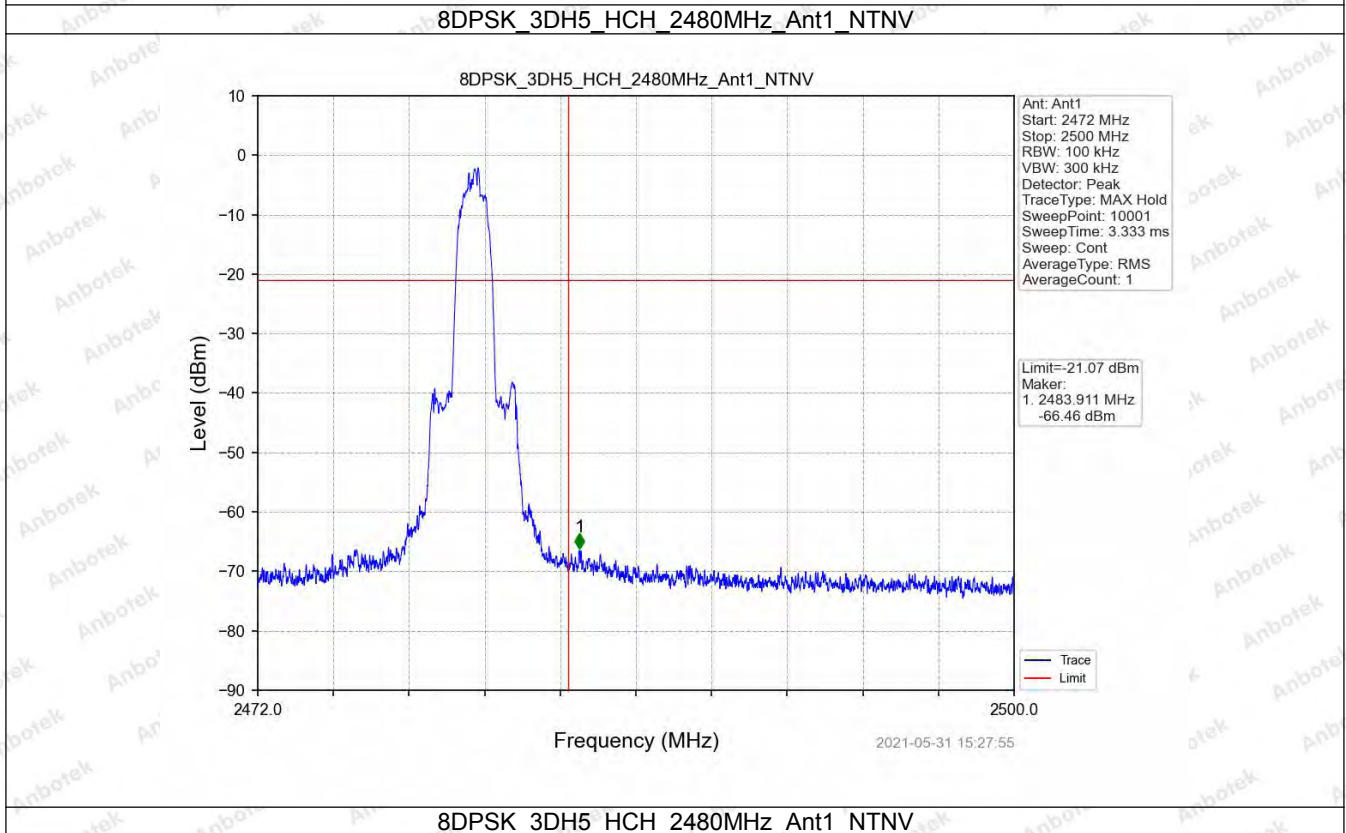
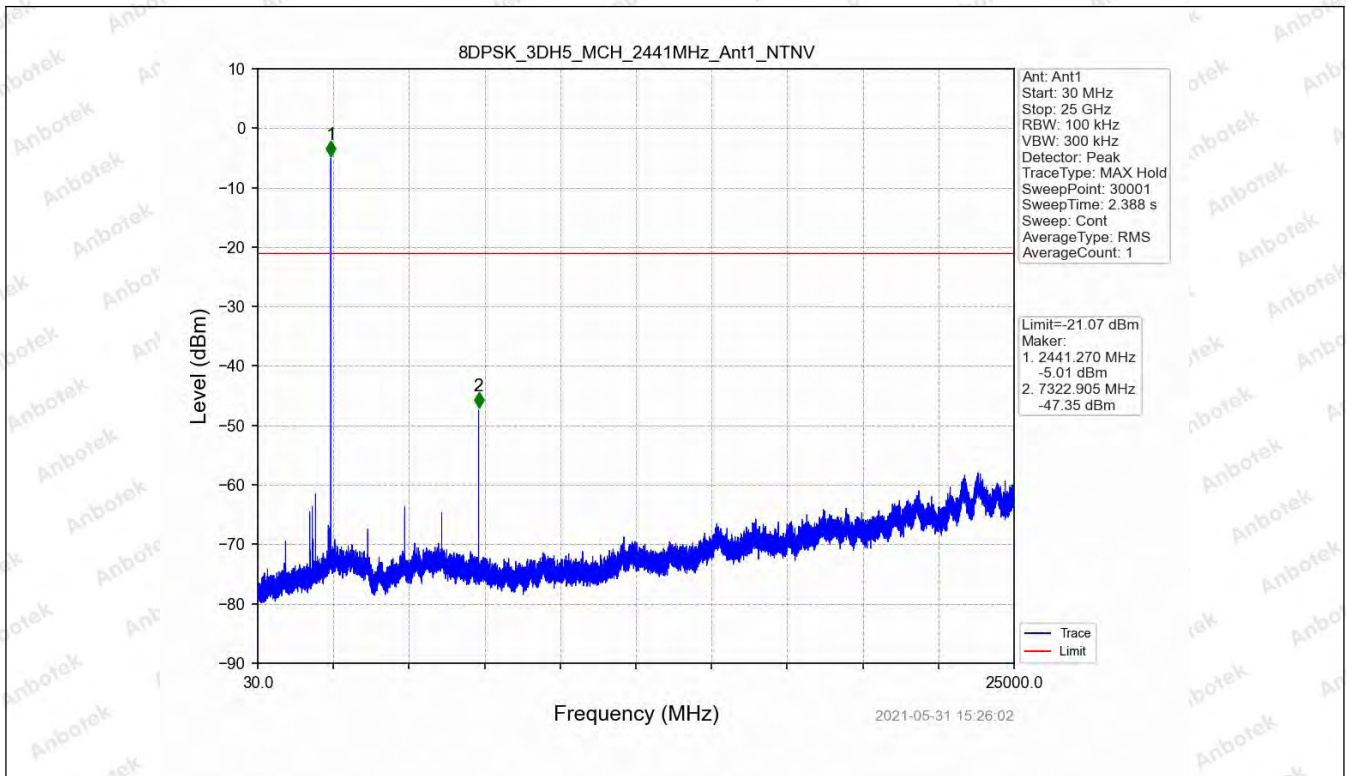


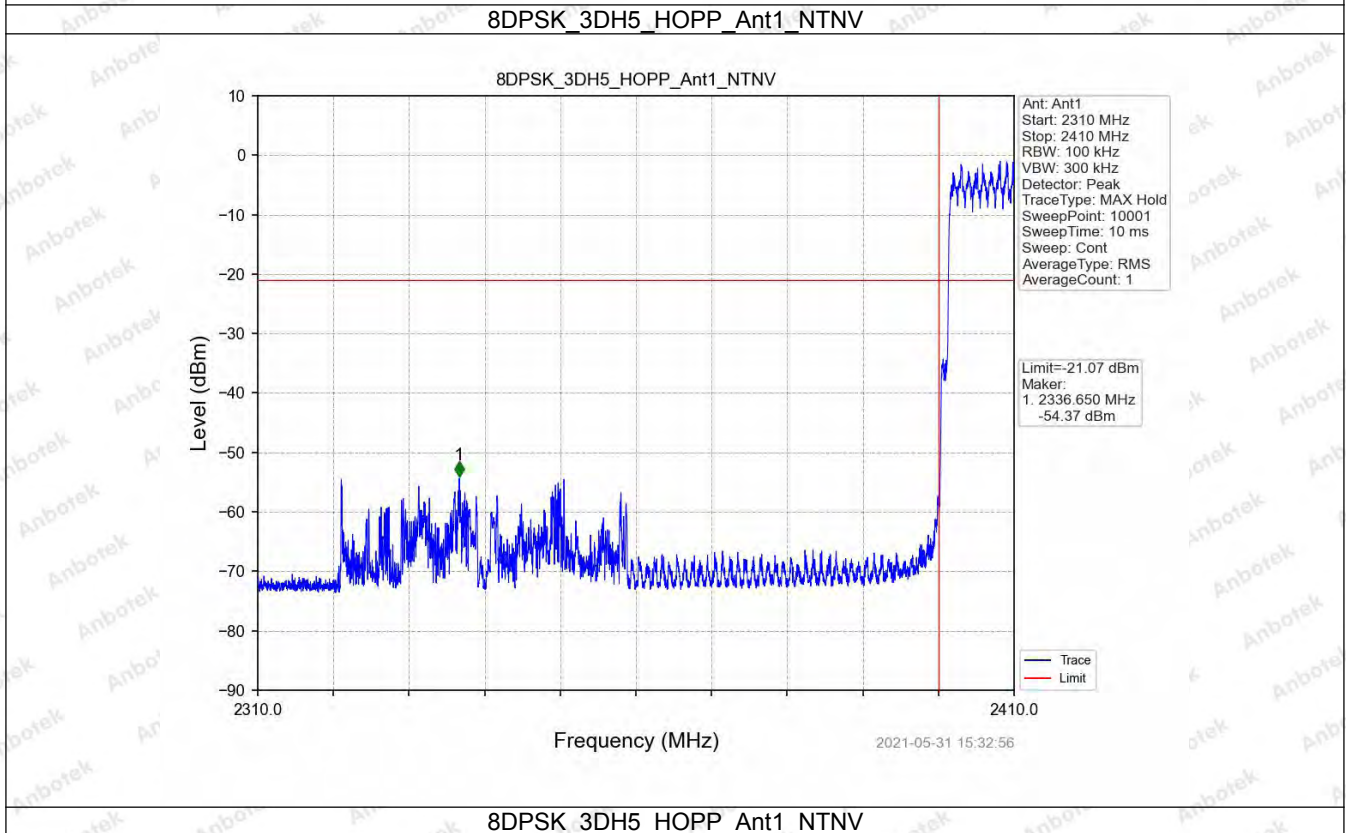
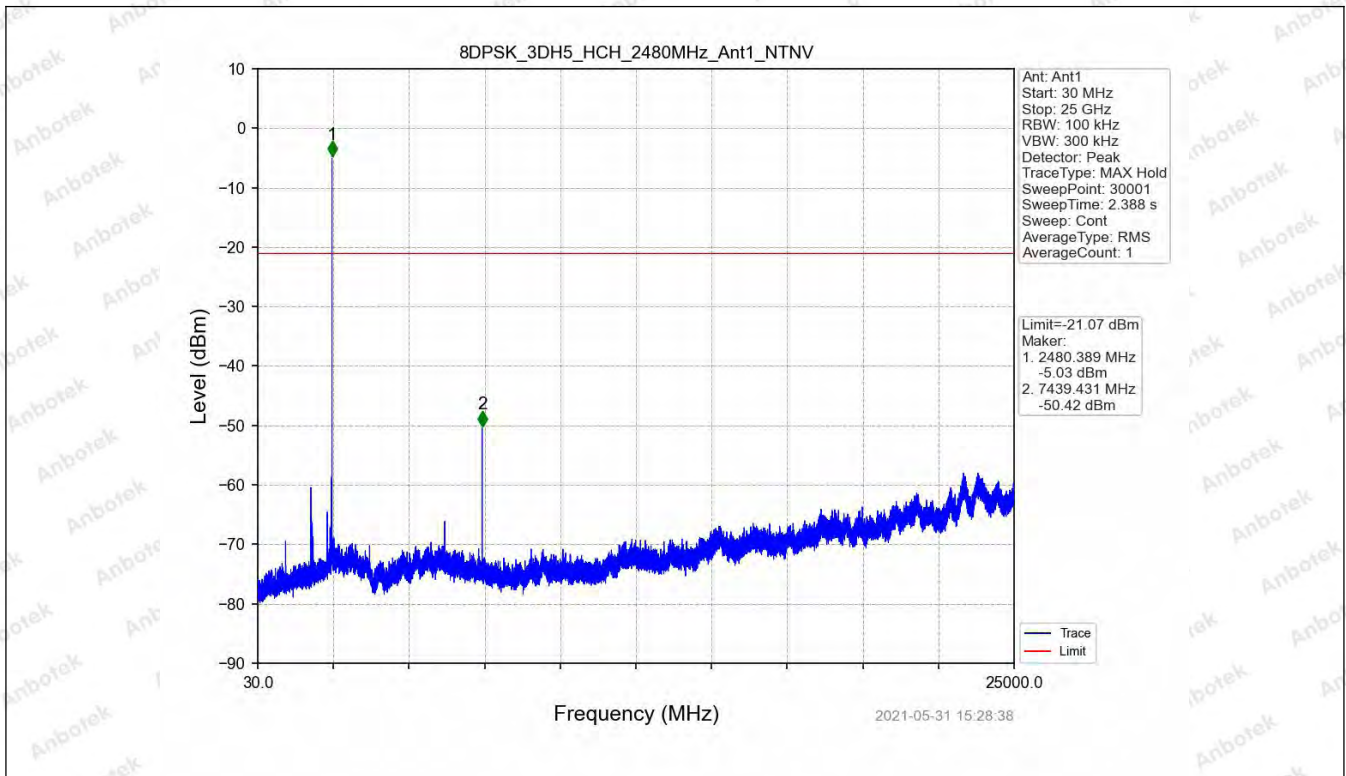
8DPSK\_3DH5\_LCH\_2402MHz\_Ant1\_NTNV



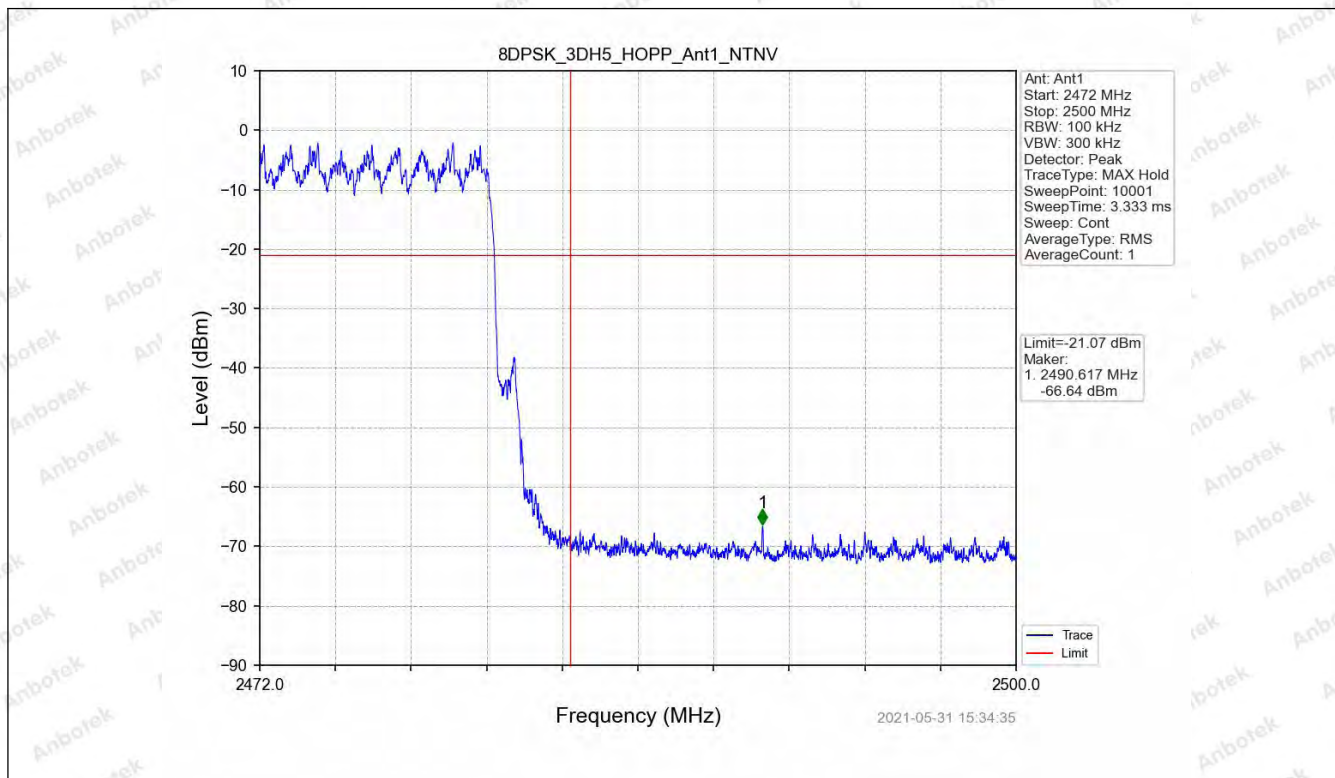
**8DPSK\_3DH5\_MCH\_2441MHz\_Ant1\_NTNV**











---End---