

## Appendix: Bluetooth Classic

## Content

|                                         |    |
|-----------------------------------------|----|
| 1. Duty Cycle .....                     | 4  |
| 1.1 Test Result .....                   | 4  |
| 1.1.1 Ant1 .....                        | 4  |
| 1.2 Test Graph .....                    | 5  |
| 1.2.1 Ant1 .....                        | 5  |
| 2. Bandwidth .....                      | 7  |
| 2.1 Test Result .....                   | 7  |
| 2.1.1 OBW .....                         | 7  |
| 2.1.2 20dB BW .....                     | 7  |
| 2.2 Test Graph .....                    | 8  |
| 2.2.1 OBW .....                         | 8  |
| 2.2.2 20dB BW .....                     | 10 |
| 3. Maximum Conducted Output Power ..... | 12 |
| 3.1 Test Result .....                   | 12 |
| 3.1.1 Power .....                       | 12 |
| 3.2 Test Graph .....                    | 13 |
| 3.2.1 Power .....                       | 13 |
| 4. Carrier Frequency Separation .....   | 15 |
| 4.1 Test Result .....                   | 15 |
| 4.1.1 Ant1 .....                        | 15 |
| 4.2 Test Graph .....                    | 16 |
| 4.2.1 Ant1 .....                        | 16 |
| 5. Number of Hopping Frequencies .....  | 17 |
| 5.1 Test Result .....                   | 17 |

|                                                               |    |
|---------------------------------------------------------------|----|
| 5.1.1 HoppNum .....                                           | 17 |
| 5.2 Test Graph .....                                          | 18 |
| 5.2.1 HoppNum .....                                           | 18 |
| 6. Time of Occupancy (Dwell Time) .....                       | 19 |
| 6.1 Test Result .....                                         | 19 |
| 6.1.1 Ant1 .....                                              | 19 |
| 6.2 Test Graph .....                                          | 20 |
| 6.2.1 Ant1 .....                                              | 20 |
| 7. Unwanted Emissions In Non-restricted Frequency Bands ..... | 23 |
| 7.1 Test Result .....                                         | 23 |
| 7.1.1 Ref .....                                               | 23 |
| 7.1.2 CSE .....                                               | 23 |
| 7.2 Test Graph .....                                          | 24 |
| 7.2.1 Ref .....                                               | 24 |
| 7.2.2 CSE .....                                               | 26 |

## 1. Duty Cycle

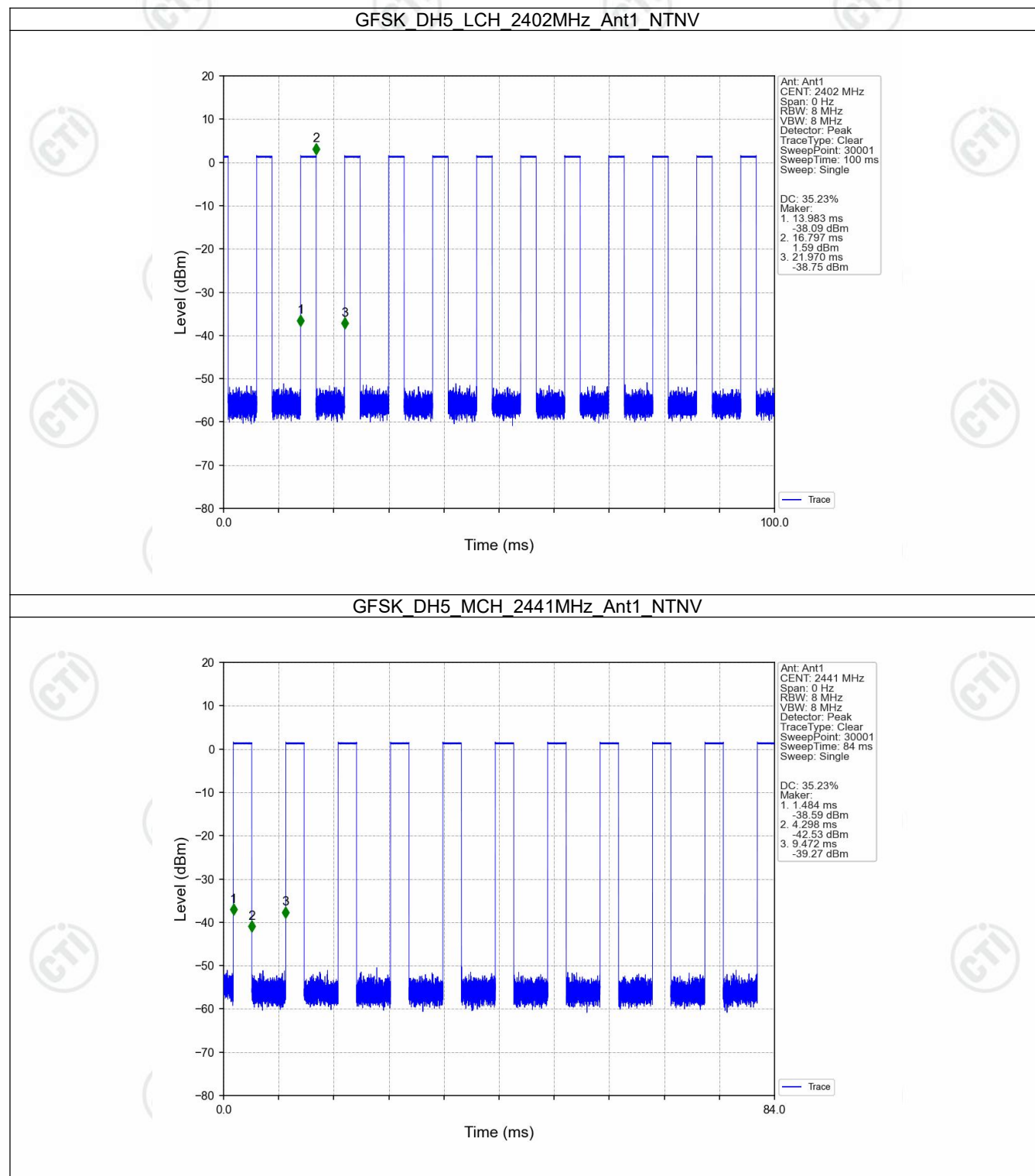
### 1.1 Test Result

#### 1.1.1 Ant1

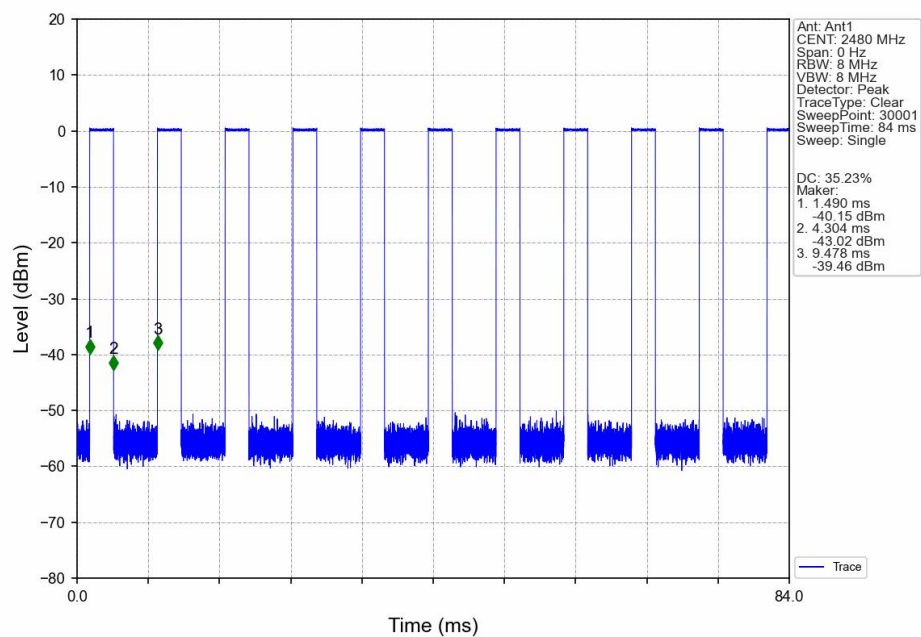
| Ant1 |         |                 |             |           |             |                |                                   |                       |
|------|---------|-----------------|-------------|-----------|-------------|----------------|-----------------------------------|-----------------------|
| 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         | 2.814     | 7.987       | 35.23          | 4.53                              | 0.03                  |
|      |         | 2441            | DH5         | 2.814     | 7.988       | 35.23          | 4.53                              | 0.04                  |
|      |         | 2480            | DH5         | 2.814     | 7.988       | 35.23          | 4.53                              | 0.04                  |

## 1.2 Test Graph

### 1.2.1 Ant1



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



## 2. Bandwidth

### 2.1 Test Result

#### 2.1.1 OBW

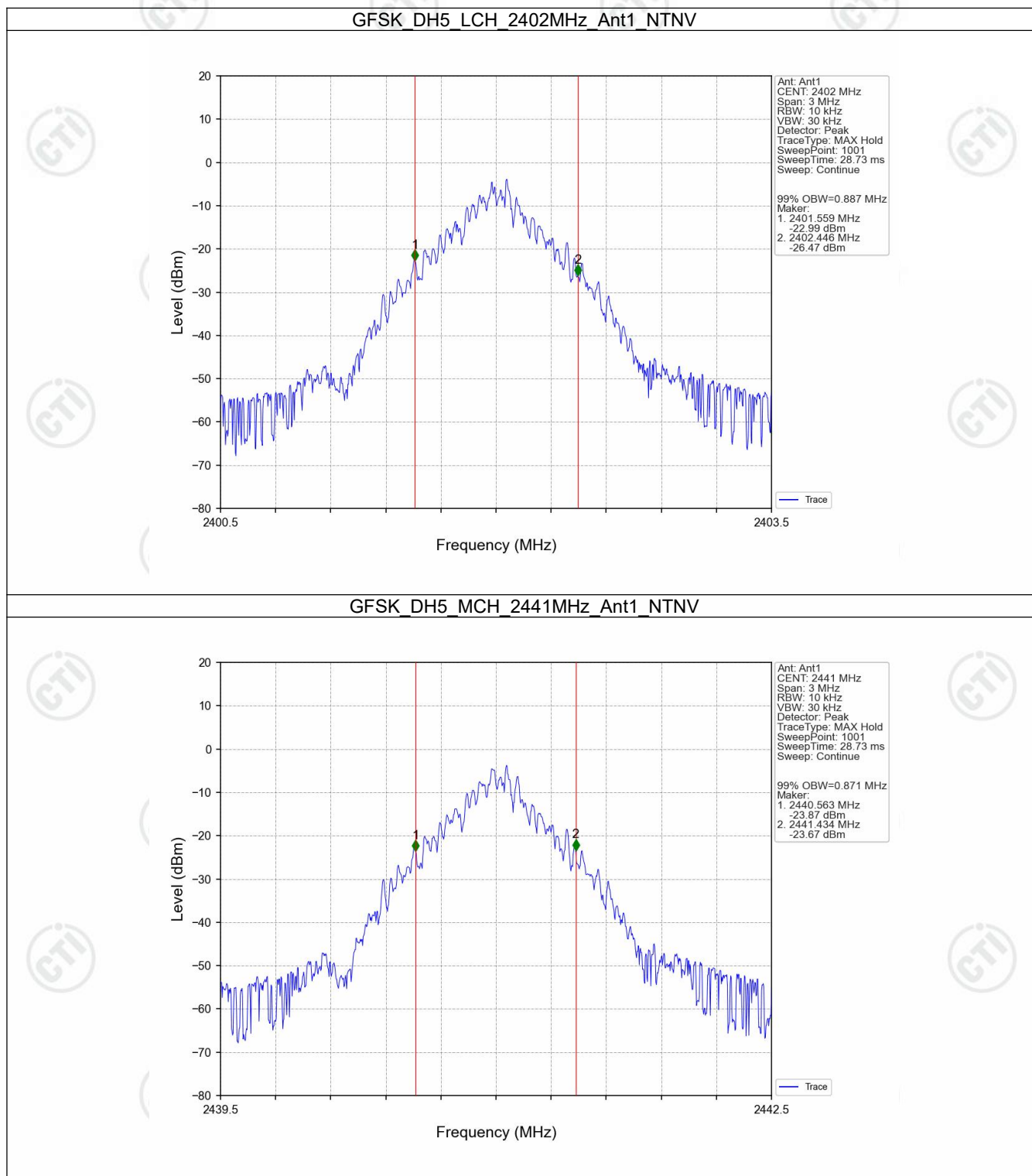
| Mode | TX Type | Frequency (MHz) | Packet Type | ANT | 99% Occupied Bandwidth (MHz) |       | Verdict |
|------|---------|-----------------|-------------|-----|------------------------------|-------|---------|
|      |         |                 |             |     | Result                       | Limit |         |
| GFSK | SISO    | 2402            | DH5         | 1   | 0.887                        | /     | Pass    |
|      |         | 2441            | DH5         | 1   | 0.871                        | /     | Pass    |
|      |         | 2480            | DH5         | 1   | 0.866                        | /     | Pass    |

#### 2.1.2 20dB BW

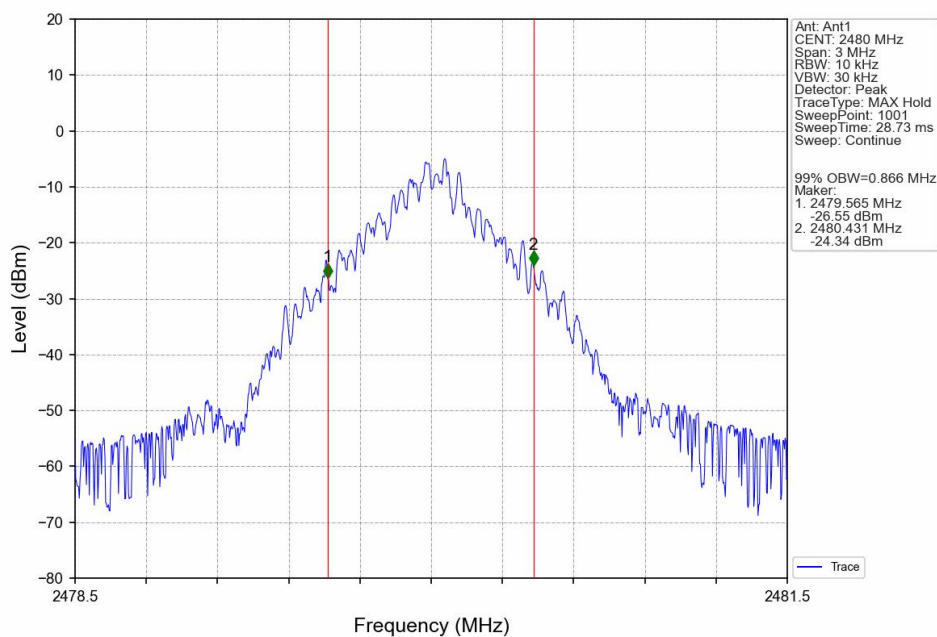
| Mode | TX Type | Frequency (MHz) | Packet Type | ANT | 20dB Bandwidth (MHz) |       | Verdict |
|------|---------|-----------------|-------------|-----|----------------------|-------|---------|
|      |         |                 |             |     | Result               | Limit |         |
| GFSK | SISO    | 2402            | DH5         | 1   | 0.922                | /     | Pass    |
|      |         | 2441            | DH5         | 1   | 0.921                | /     | Pass    |
|      |         | 2480            | DH5         | 1   | 0.921                | /     | Pass    |

## 2.2 Test Graph

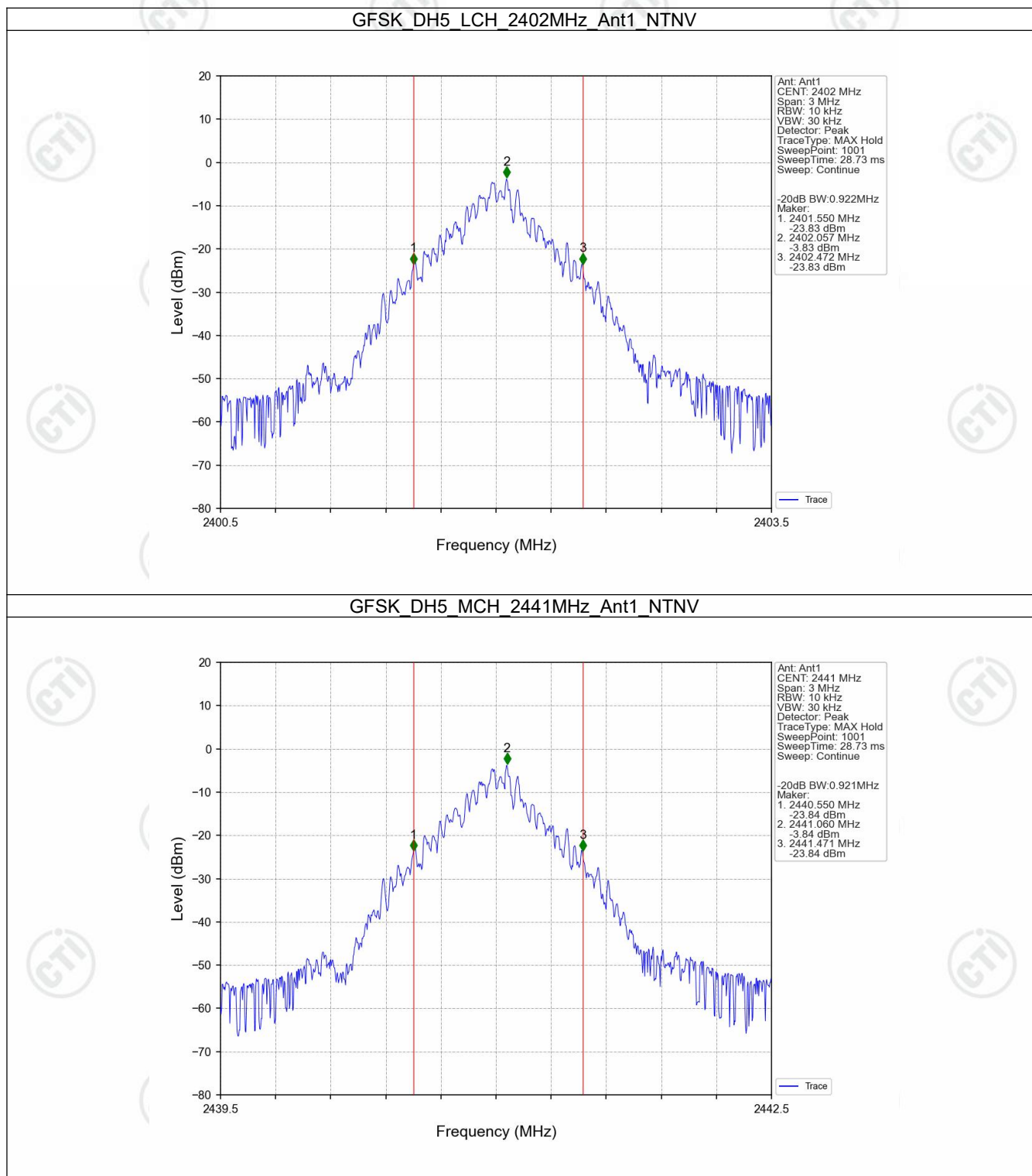
### 2.2.1 OBW



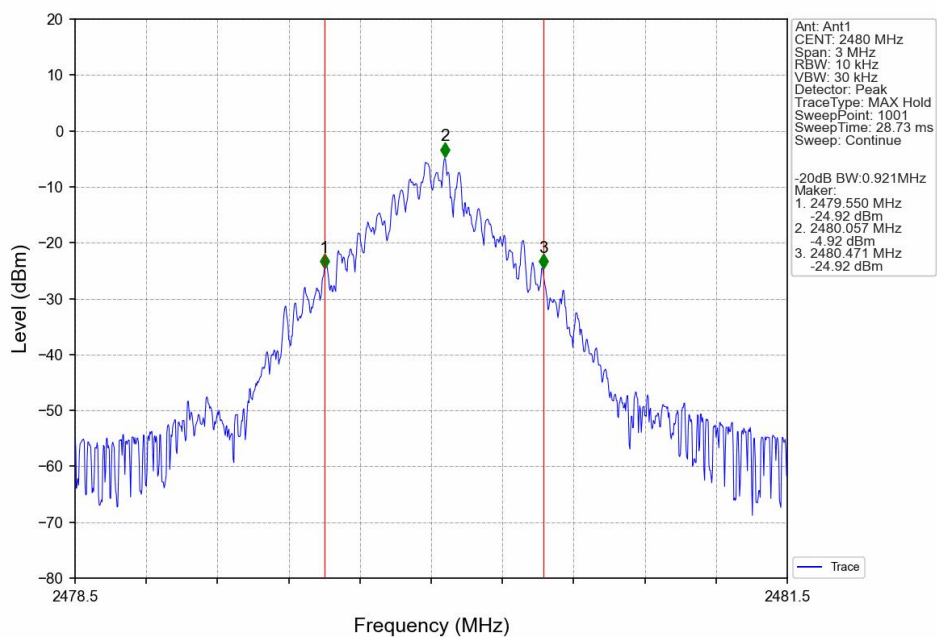
## GFSK\_DH5\_HCH\_2480MHz\_Ant1\_NTNV



## 2.2.2 20dB BW



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



### 3. Maximum Conducted Output Power

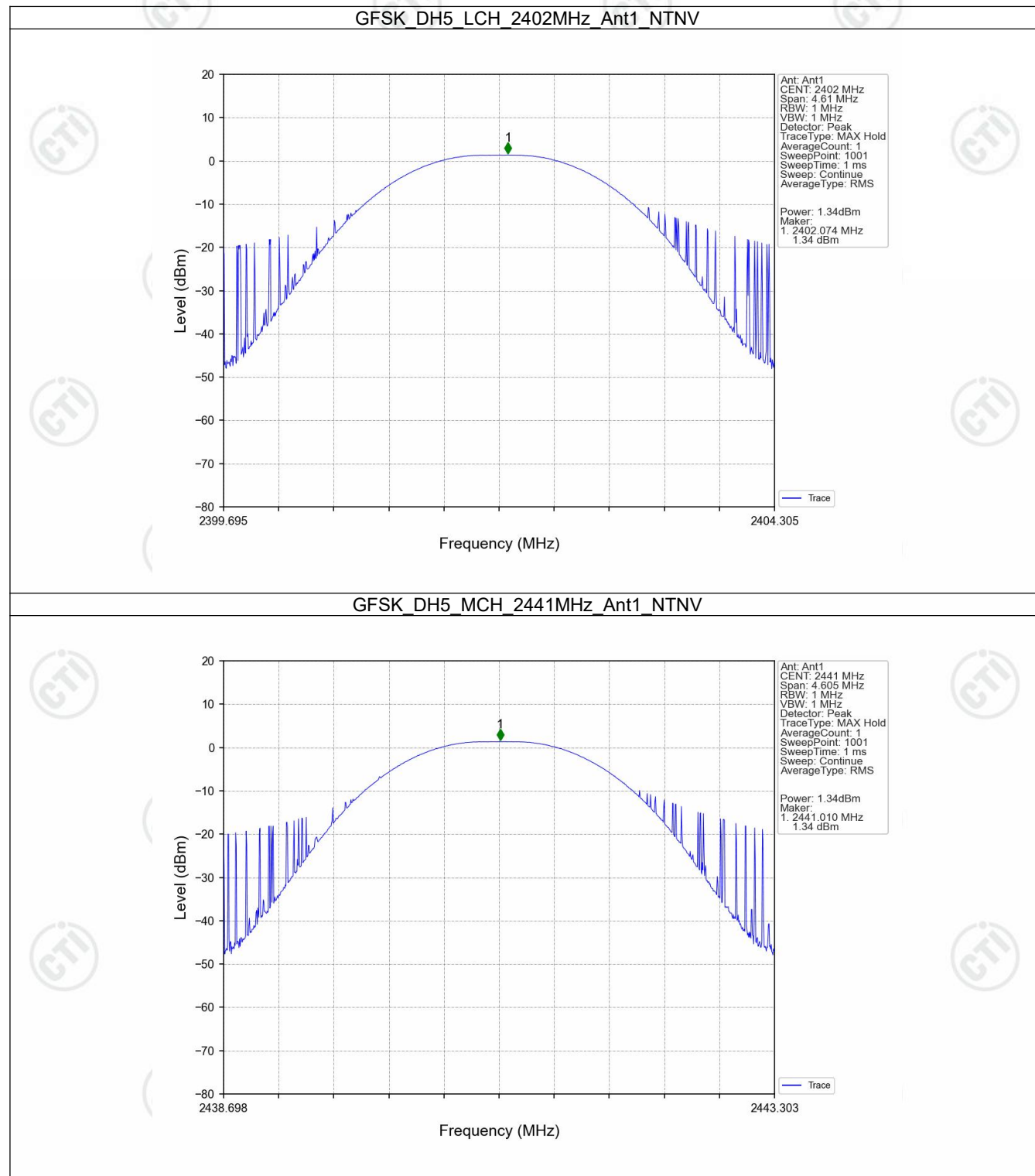
#### 3.1 Test Result

##### 3.1.1 Power

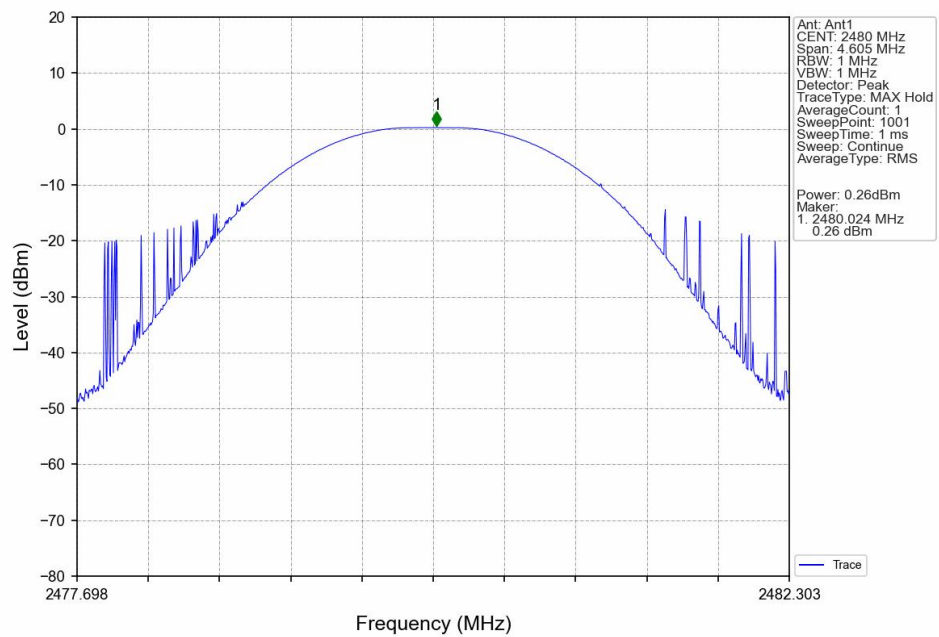
| Mode                                | TX Type | Frequency (MHz) | Packet Type | Maximum Peak Conducted Output Power (dBm) |       | Verdict |
|-------------------------------------|---------|-----------------|-------------|-------------------------------------------|-------|---------|
|                                     |         |                 |             | ANT1                                      | Limit |         |
| GFSK                                | SISO    | 2402            | DH5         | 1.34                                      | <=30  | Pass    |
|                                     |         | 2441            | DH5         | 1.34                                      | <=30  | Pass    |
|                                     |         | 2480            | DH5         | 0.26                                      | <=30  | Pass    |
| Note1: Antenna Gain: Ant1: 2.58dBi; |         |                 |             |                                           |       |         |

## 3.2 Test Graph

### 3.2.1 Power



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



## 4. Carrier Frequency Separation

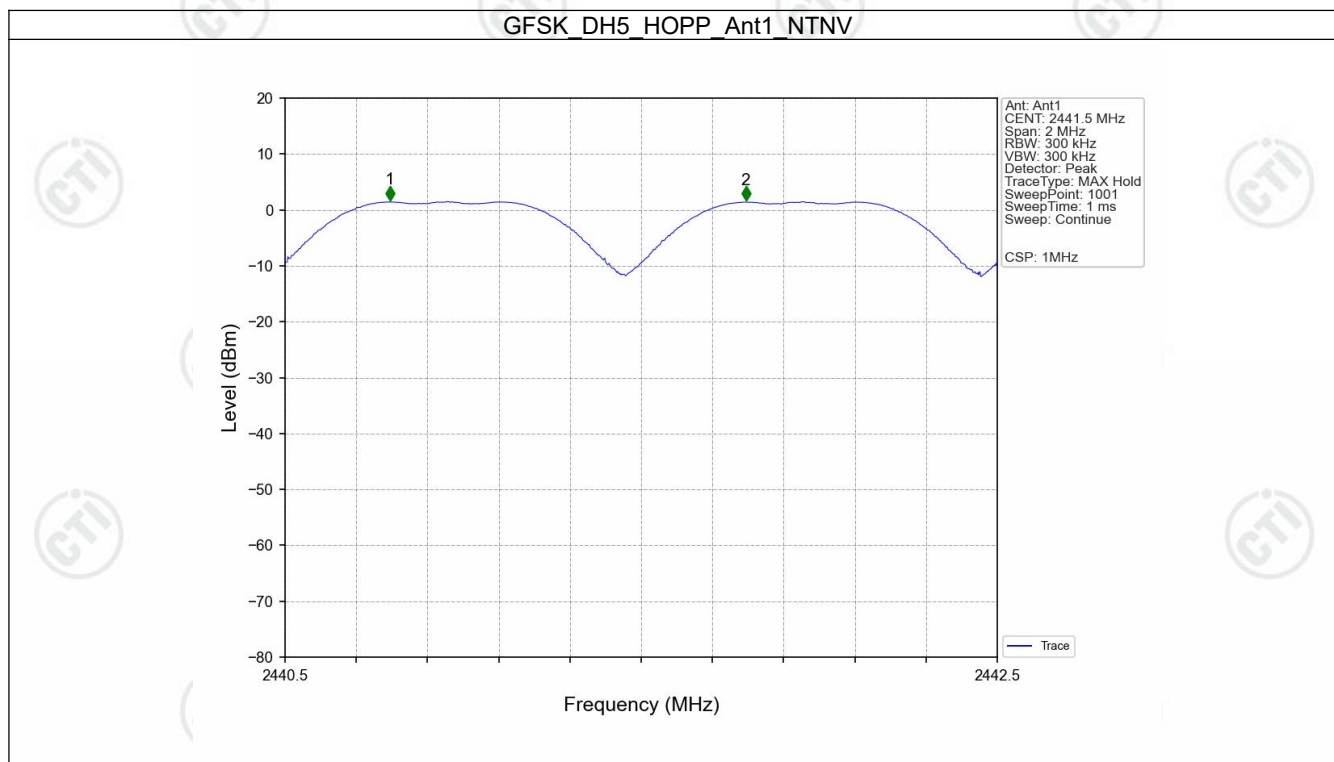
### 4.1 Test Result

#### 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         | 1.000                    | 0.922                | $\geq 0.922$ | Pass    |

## 4.2 Test Graph

### 4.2.1 Ant1



## 5. Number of Hopping Frequencies

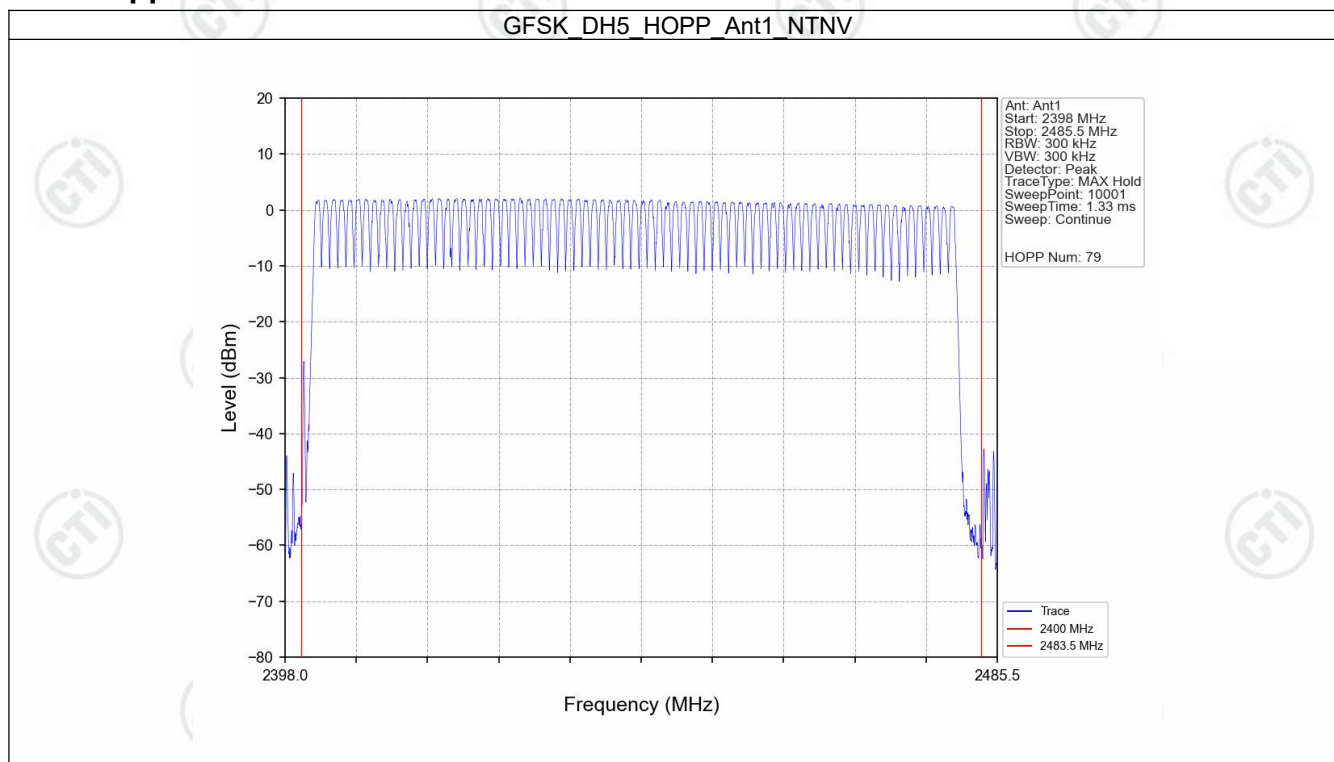
### 5.1 Test Result

#### 5.1.1 HoppNum

| Mode | TX<br>Type | Frequency<br>(MHz) | Packet<br>Type | Num of Hopping Frequencies |           | Verdict |
|------|------------|--------------------|----------------|----------------------------|-----------|---------|
|      |            |                    |                | ANT1                       | Limit     |         |
| GFSK | SISO       | HOPP               | DH5            | 79                         | $\geq 15$ | Pass    |

## 5.2 Test Graph

### 5.2.1 HoppNum



## 6. Time of Occupancy (Dwell Time)

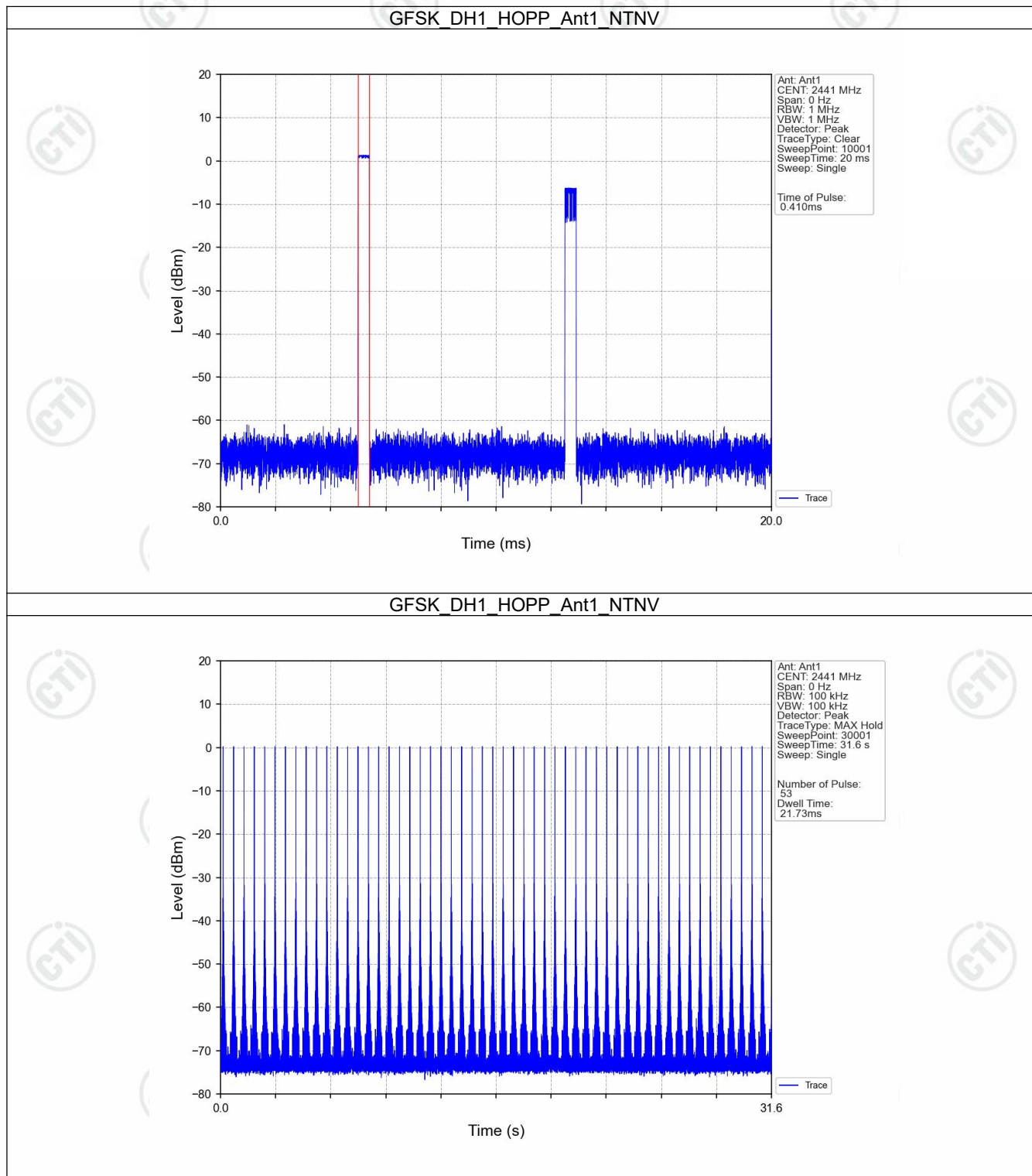
### 6.1 Test Result

#### 6.1.1 Ant1

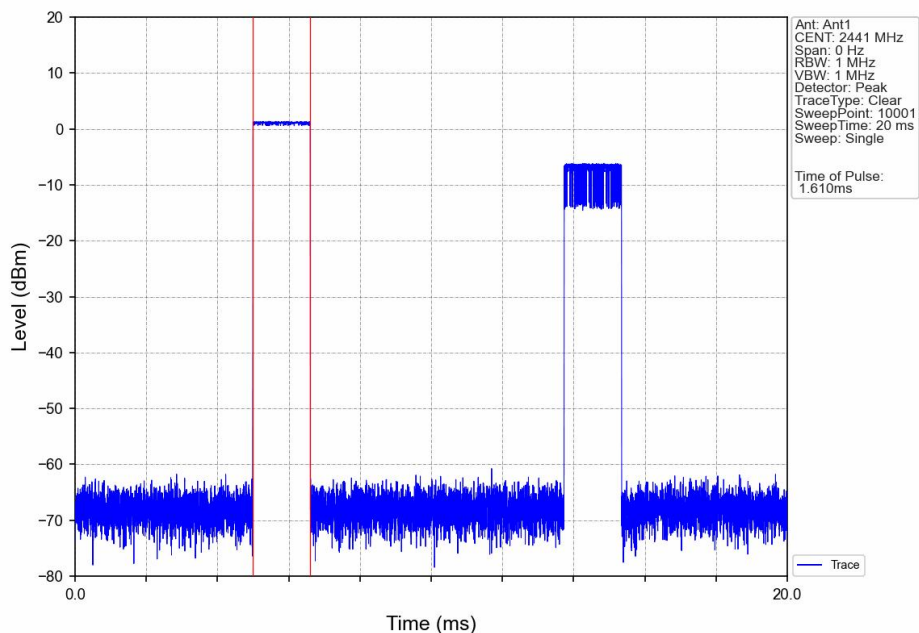
| Ant1 |         |                 |             |                               |                        |                                    |                 |            |         |
|------|---------|-----------------|-------------|-------------------------------|------------------------|------------------------------------|-----------------|------------|---------|
| 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         | 0.410                         | 31.600                 | 53                                 | 21.730          | <=400      | Pass    |
|      |         |                 | DH3         | 1.610                         | 31.600                 | 46                                 | 74.060          | <=400      | Pass    |
|      |         |                 | DH5         | 2.810                         | 31.600                 | 40                                 | 112.400         | <=400      | Pass    |

## 6.2 Test Graph

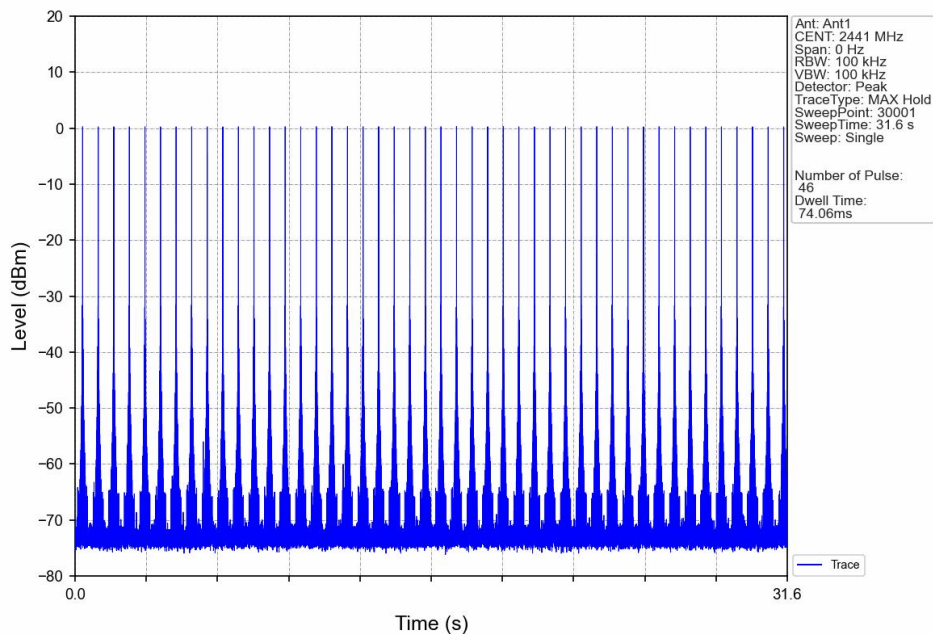
### 6.2.1 Ant1



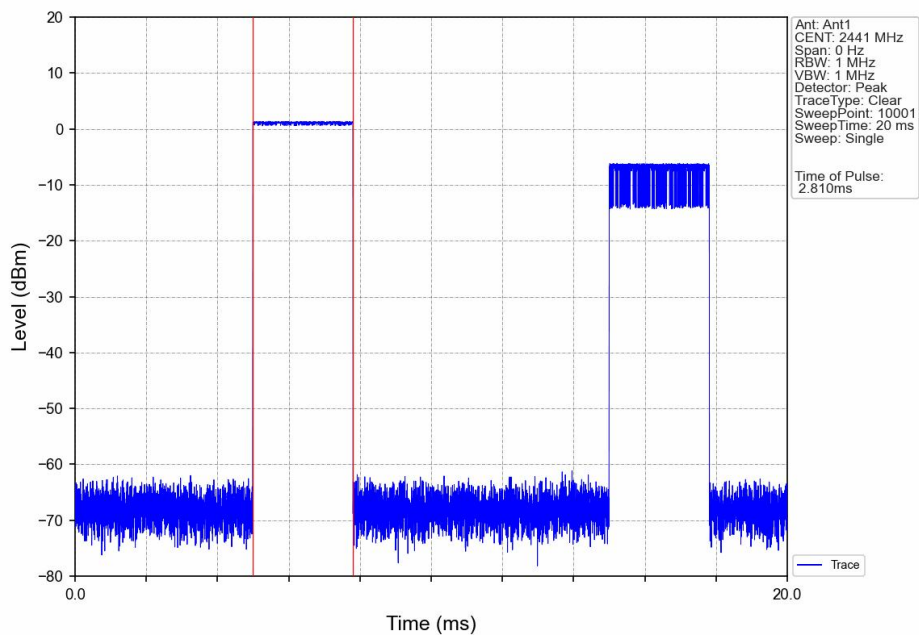
## GFSK\_DH3\_HOPP\_Ant1\_NTNV



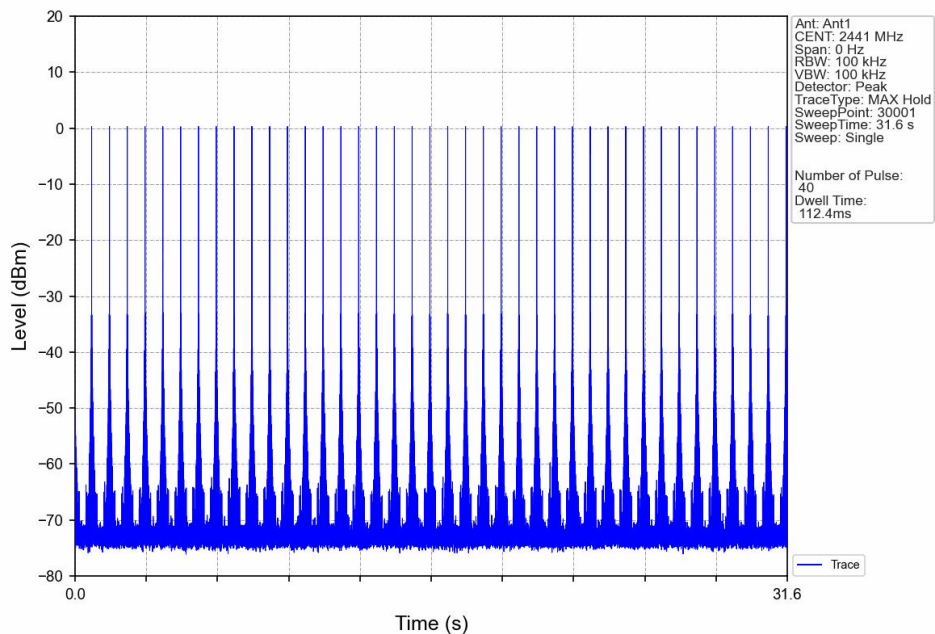
## GFSK\_DH3\_HOPP\_Ant1\_NTNV



## GFSK\_DH5\_HOPP\_Ant1\_NTNV



## GFSK\_DH5\_HOPP\_Ant1\_NTNV



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

### 7.1 Test Result

#### 7.1.1 Ref

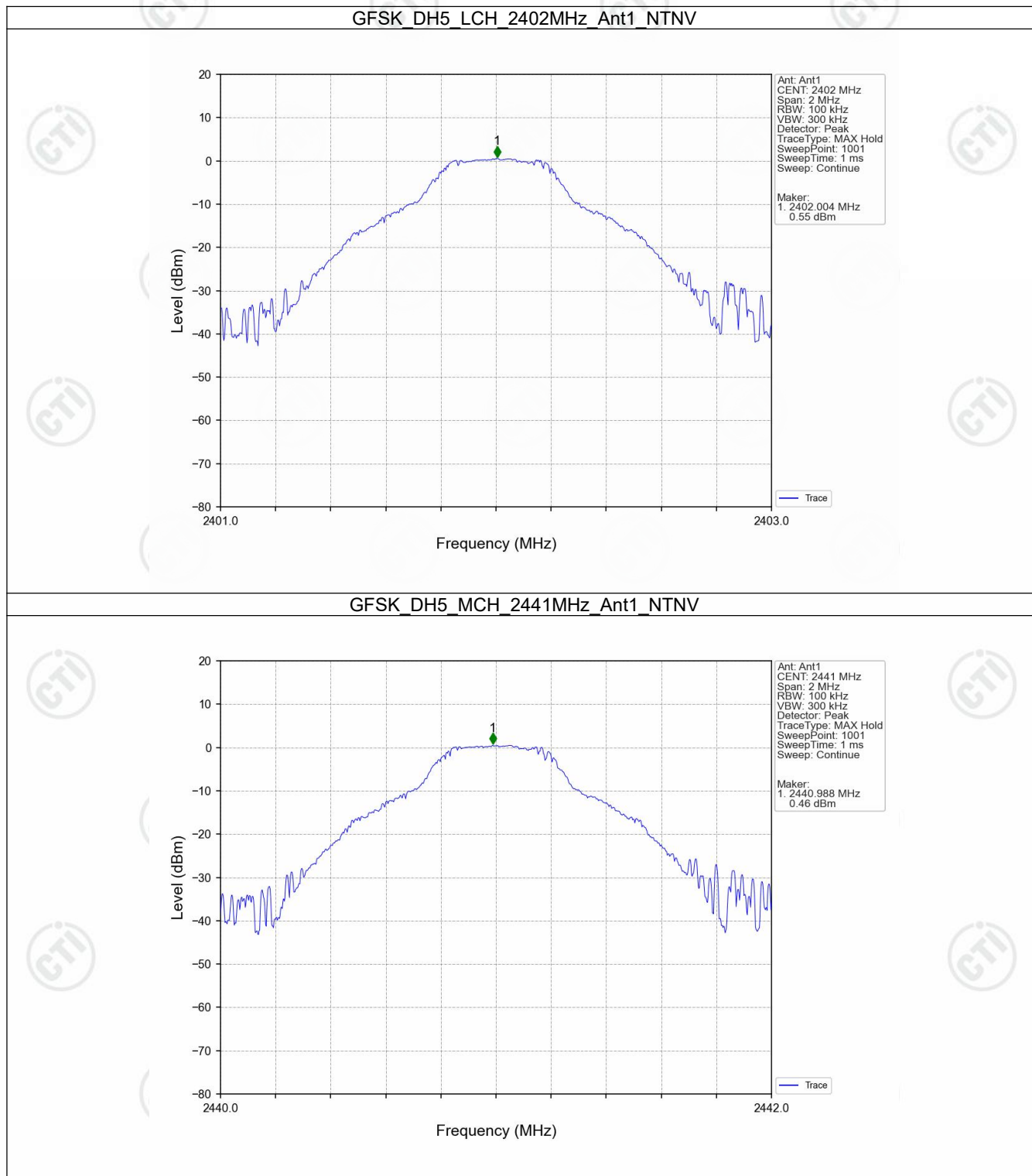
| Mode | TX Type | Frequency (MHz) | Packet Type | ANT | Level of Reference (dBm) |
|------|---------|-----------------|-------------|-----|--------------------------|
| GFSK | SISO    | 2402            | DH5         | 1   | 0.55                     |
|      |         | 2441            | DH5         | 1   | 0.46                     |
|      |         | 2480            | DH5         | 1   | -0.53                    |

#### 7.1.2 CSE

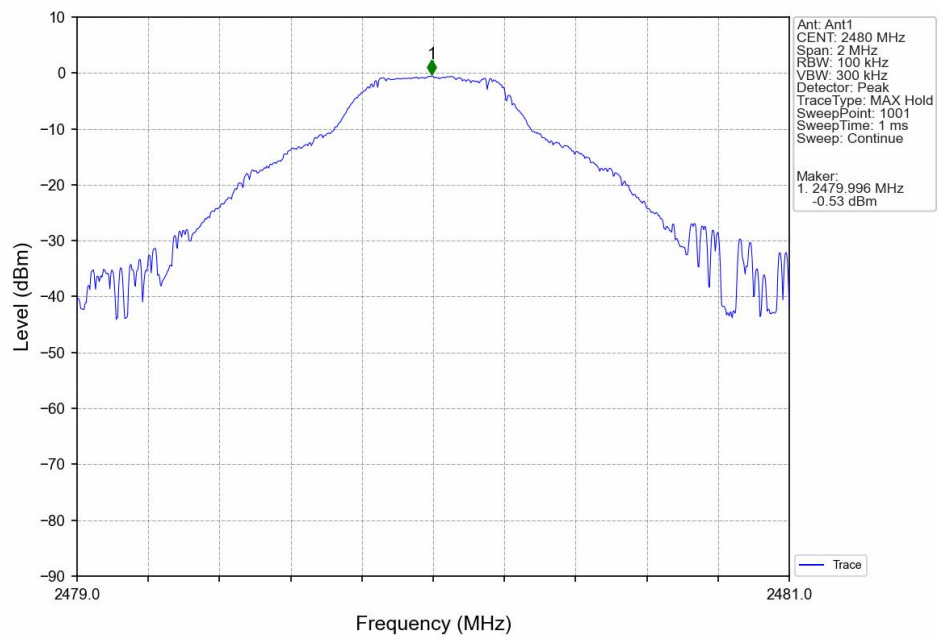
| Mode | TX Type | Frequency (MHz) | Packet Type | ANT | Level of Reference (dBm) | Limit (dBm) | Verdict |
|------|---------|-----------------|-------------|-----|--------------------------|-------------|---------|
| GFSK | SISO    | 2402            | DH5         | 1   | 0.55                     | -19.45      | Pass    |
|      |         | 2441            | DH5         | 1   | 0.55                     | -19.45      | Pass    |
|      |         | 2480            | DH5         | 1   | 0.55                     | -19.45      | Pass    |
|      |         | HOPP            | DH5         | 1   | 0.55                     | -19.45      | Pass    |
|      |         |                 |             |     | 0.55                     | -19.45      | Pass    |

## 7.2 Test Graph

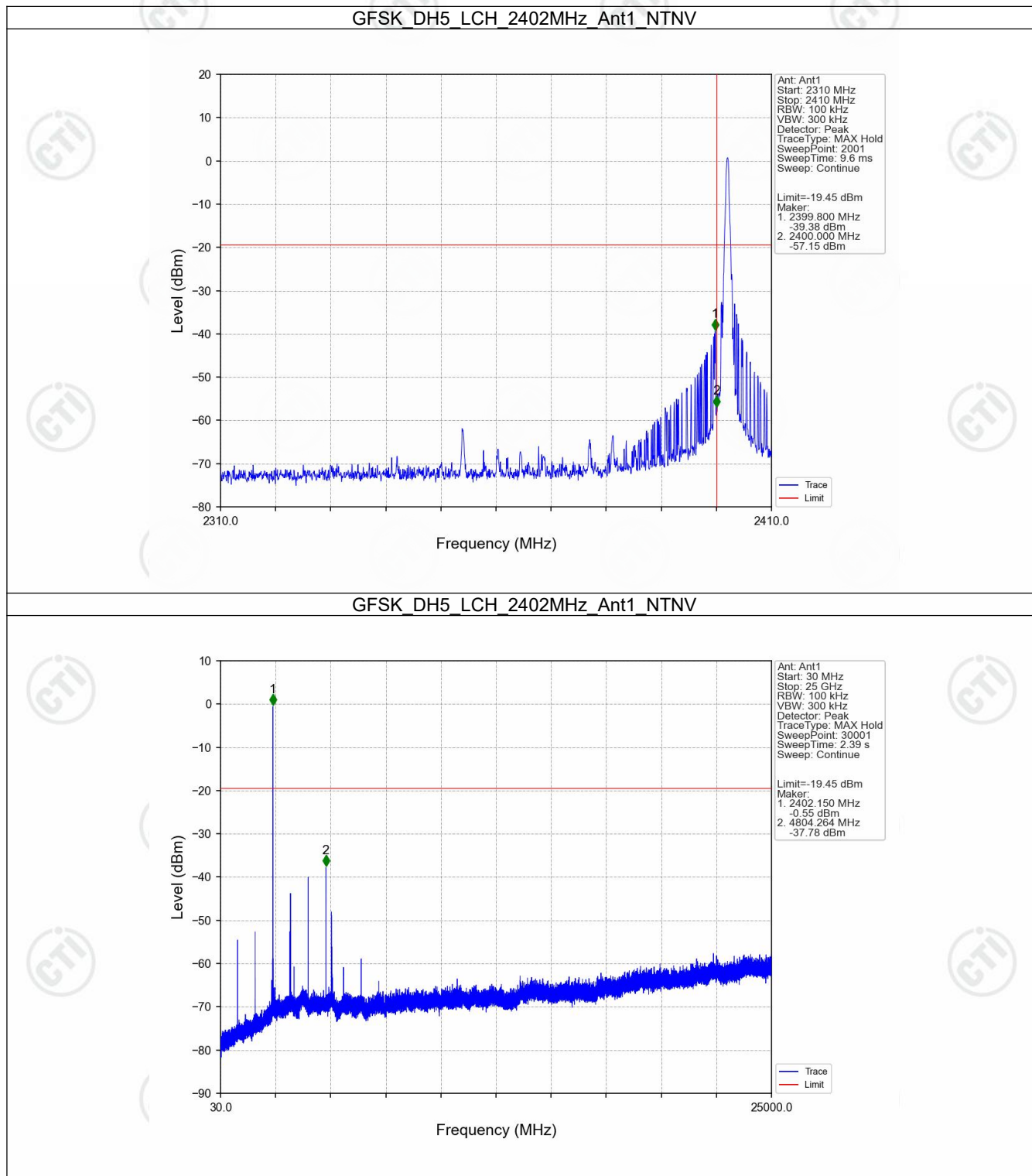
### 7.2.1 Ref



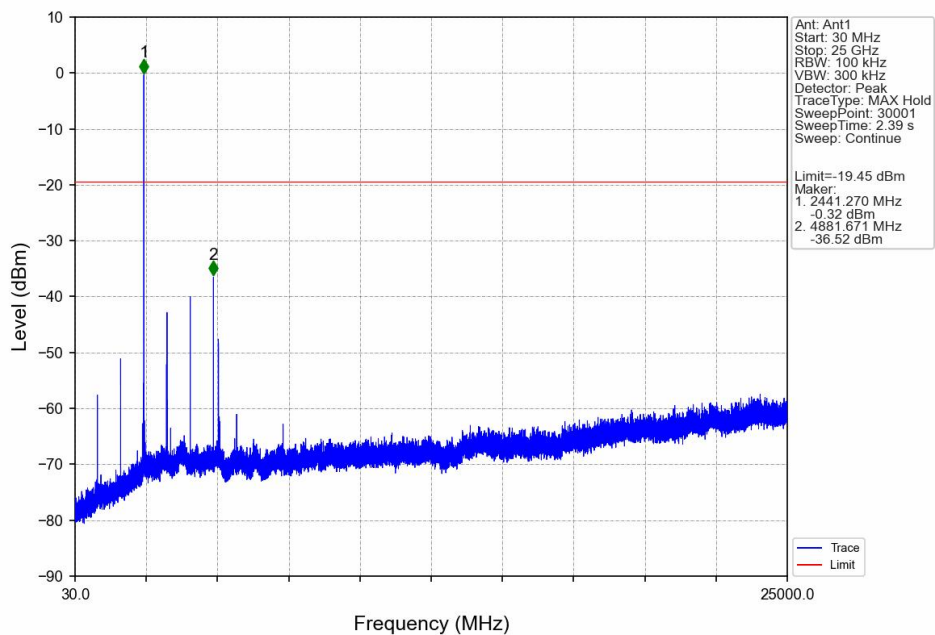
## GFSK\_DH5\_HCH\_2480MHz\_Ant1\_NTNV



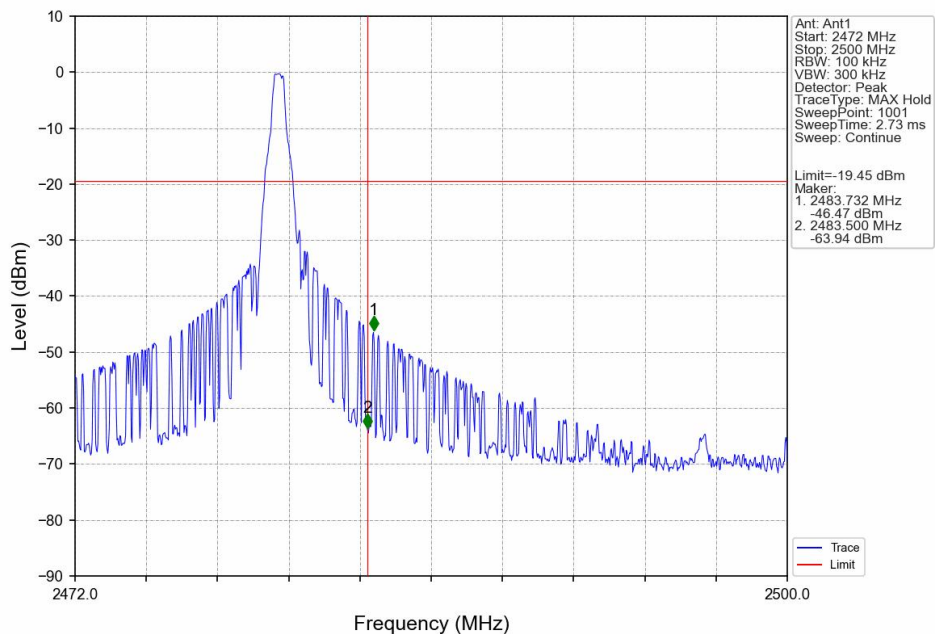
## 7.2.2 CSE



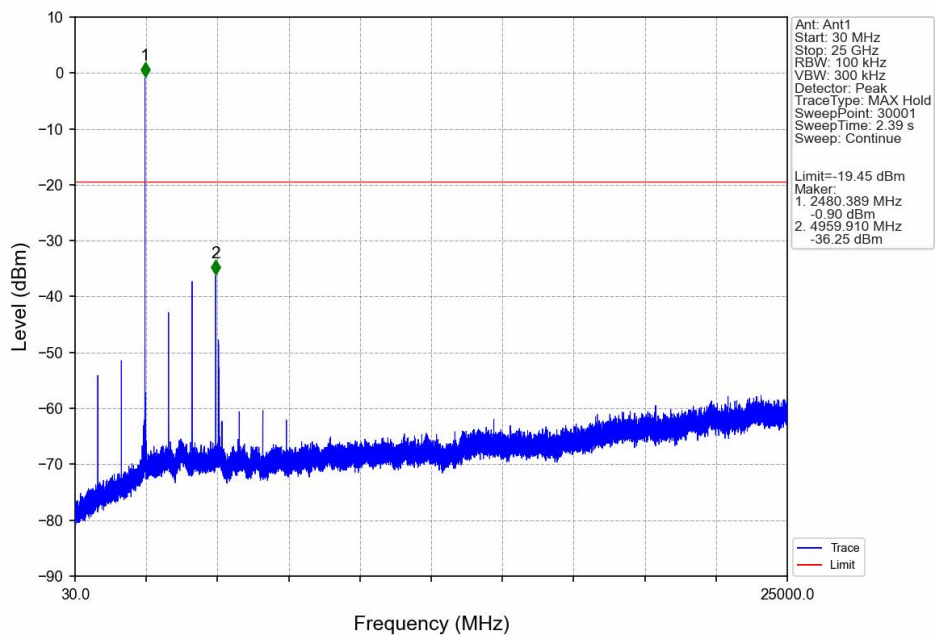
## GFSK\_DH5\_MCH\_2441MHz\_Ant1\_NTNV



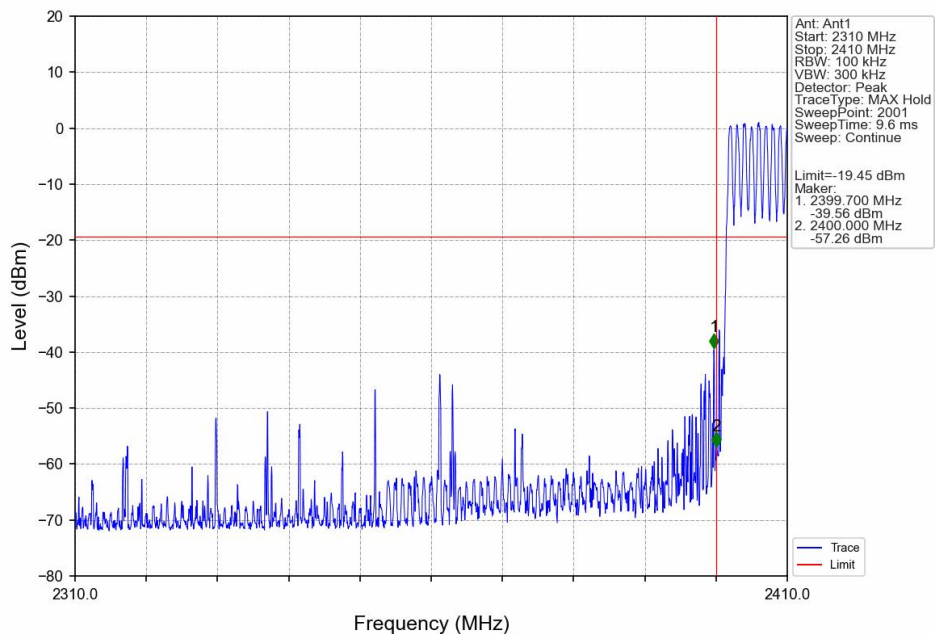
## GFSK\_DH5\_HCH\_2480MHz\_Ant1\_NTNV



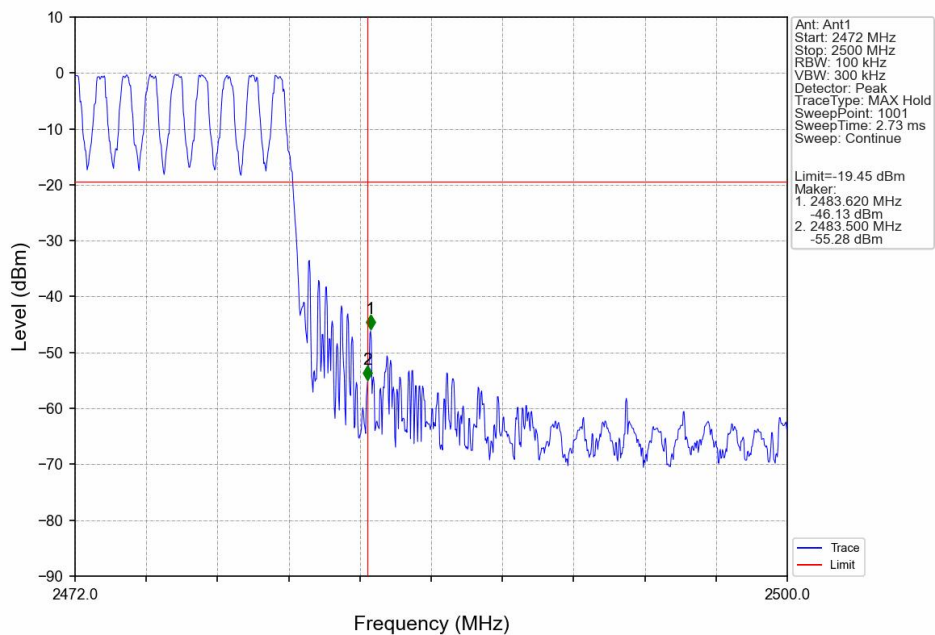
## GFSK\_DH5\_HCH\_2480MHz\_Ant1\_NTNV



## GFSK\_DH5\_HOPP\_2410MHz\_Ant1\_NTNV



## GFSK\_DH5\_HOPP\_Ant1\_NTNV



\*\*\* End of Report \*\*\*