

## **Appendix RF Test Data for WIFI 2.4G**

**Company:** : CHIGEE TECHNOLOGY CO., LTD.

**EUT** : Motorcycle Smart Riding System

**FCC ID:** : 2A95C-AIO5LITE

**Model Number** : AIO-5 Lite

**Report No.** : HTT202508200F02

**Reviewed By** : Heber He

## 1. Duty Cycle

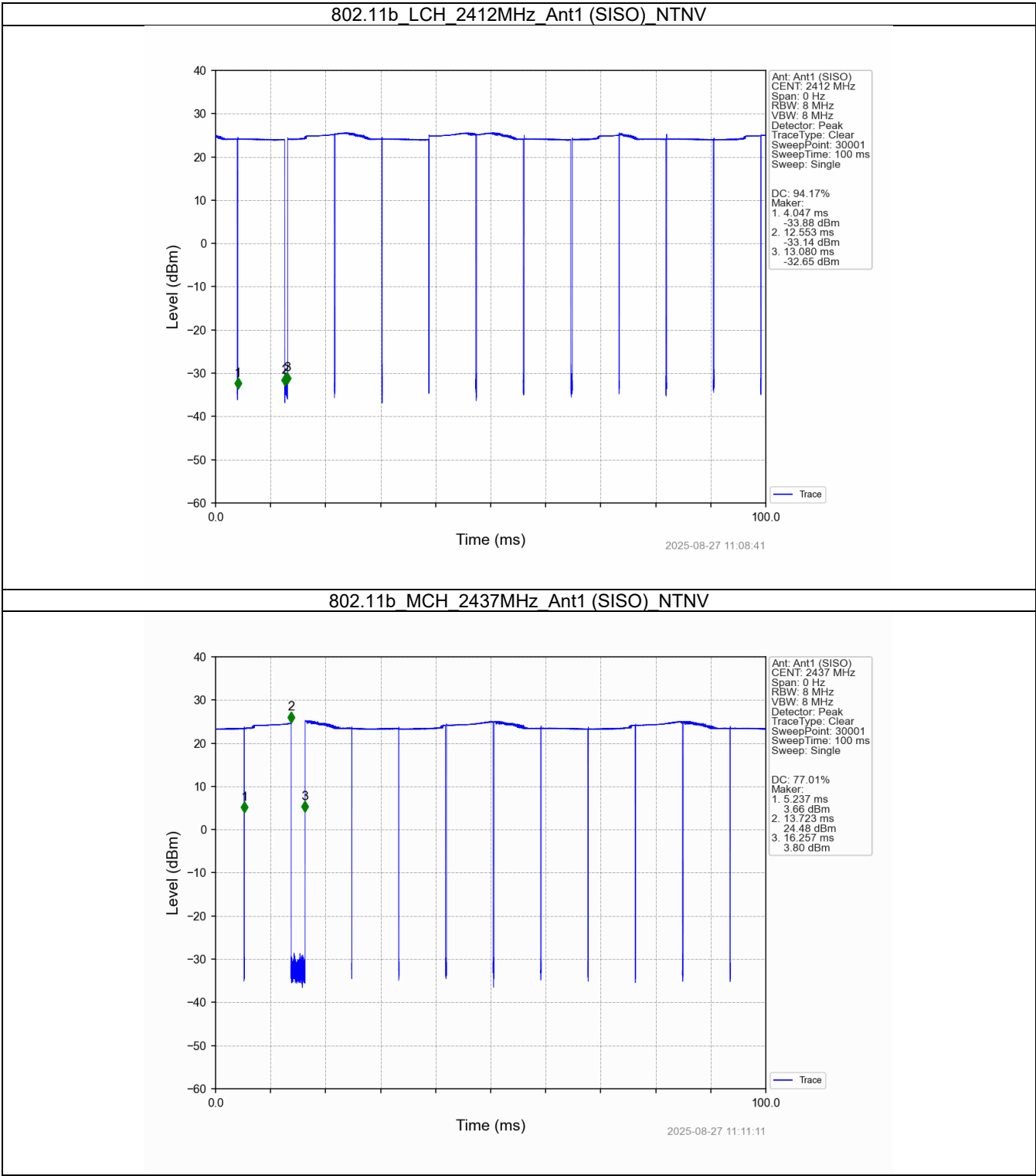
### 1.1 Test Result

#### 1.1.1 Ant1

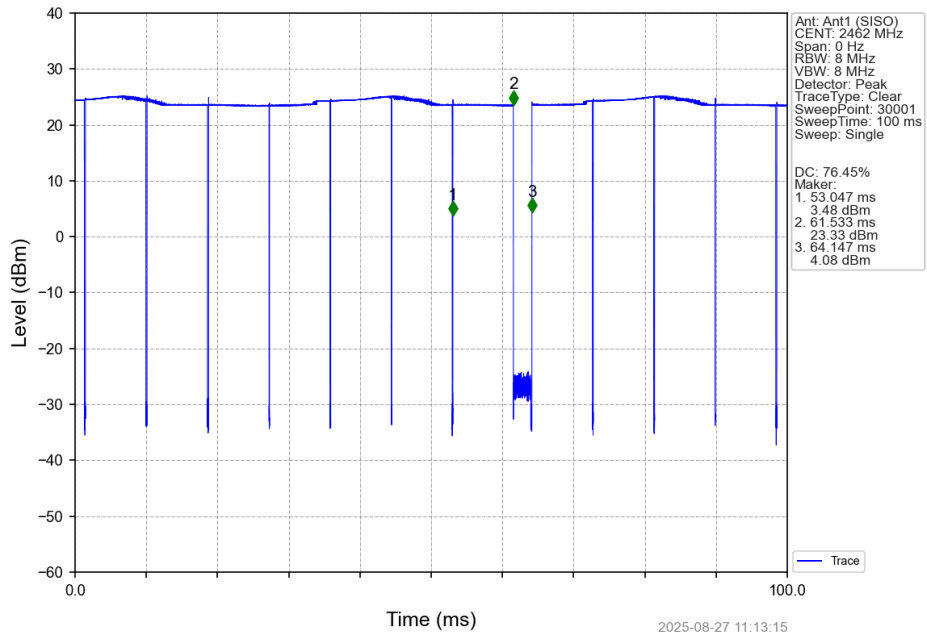
| Ant1           |         |                 |           |             |                |                                   |                       |
|----------------|---------|-----------------|-----------|-------------|----------------|-----------------------------------|-----------------------|
| Mode           | TX Type | Frequency (MHz) | T_on (ms) | Period (ms) | Duty Cycle (%) | Duty Cycle Correction Factor (dB) | Max. DC Variation (%) |
| 802.11b        | SISO    | 2412            | 8.506     | 9.033       | 94.17          | 0.26                              | 5.25                  |
|                |         | 2437            | 8.486     | 11.020      | 77.01          | 1.13                              | 22.57                 |
|                |         | 2462            | 8.486     | 11.100      | 76.45          | 1.17                              | 23.04                 |
| 802.11g        | SISO    | 2412            | 1.409     | 1.664       | 84.68          | 0.72                              | 2.55                  |
|                |         | 2437            | 1.409     | 1.898       | 74.24          | 1.29                              | 11.41                 |
|                |         | 2462            | 1.410     | 3.985       | 35.38          | 4.51                              | 50.19                 |
| 802.11n (HT20) | SISO    | 2412            | 1.318     | 3.502       | 37.64          | 4.24                              | 47.12                 |
|                |         | 2437            | 1.318     | 3.371       | 39.10          | 4.08                              | 44.96                 |
|                |         | 2462            | 1.322     | 9.709       | 13.62          | 8.66                              | 79.18                 |
| 802.11n (HT40) | SISO    | 2422            | 0.653     | 1.696       | 38.50          | 4.15                              | 5.87                  |
|                |         | 2437            | 0.653     | 1.856       | 35.18          | 4.54                              | 37.02                 |
|                |         | 2452            | 0.653     | 1.887       | 34.61          | 4.61                              | 38.36                 |

1.2 Test Graph

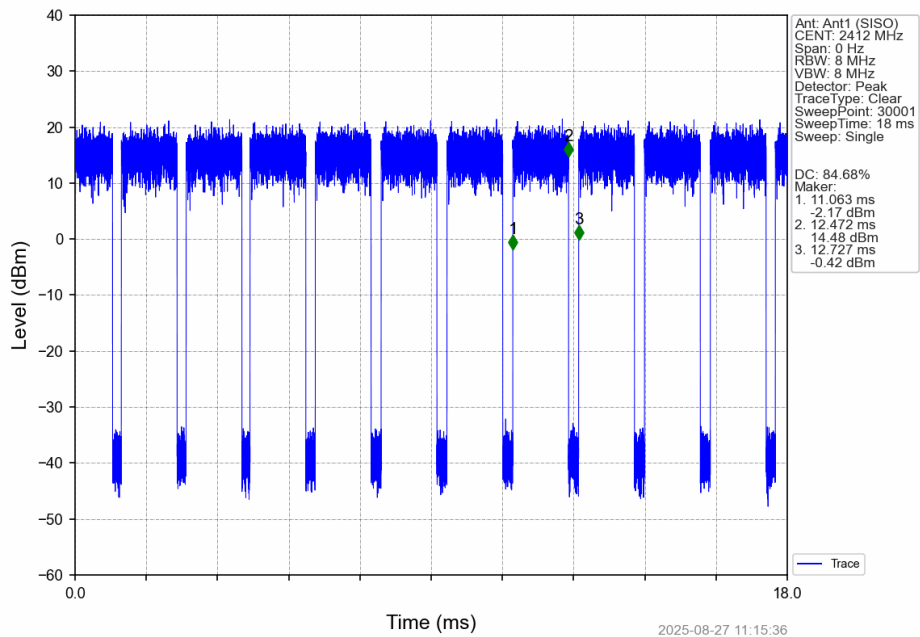
1.2.1 Ant1



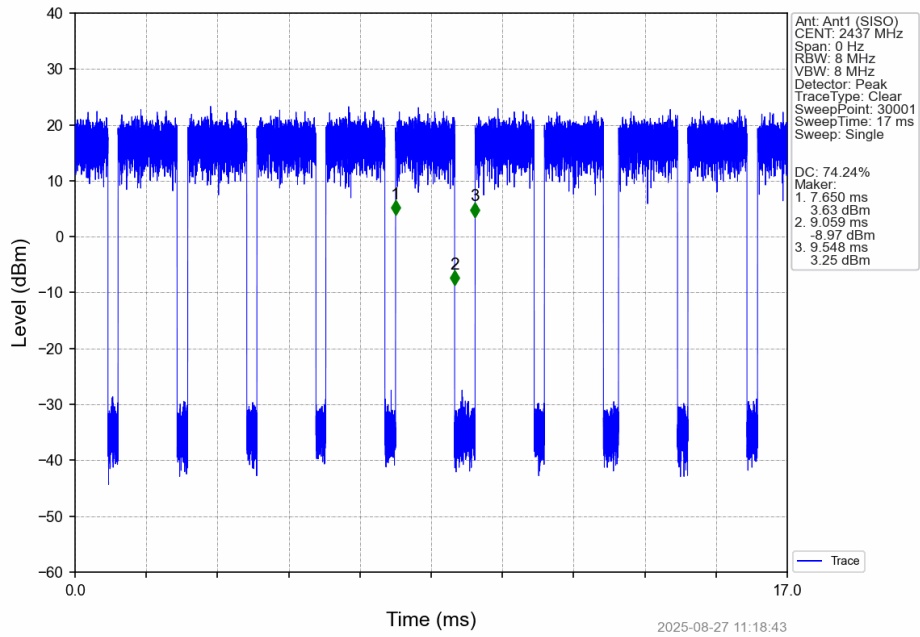
# 802.11b HCH 2462MHz Ant1 (SISO) NTN



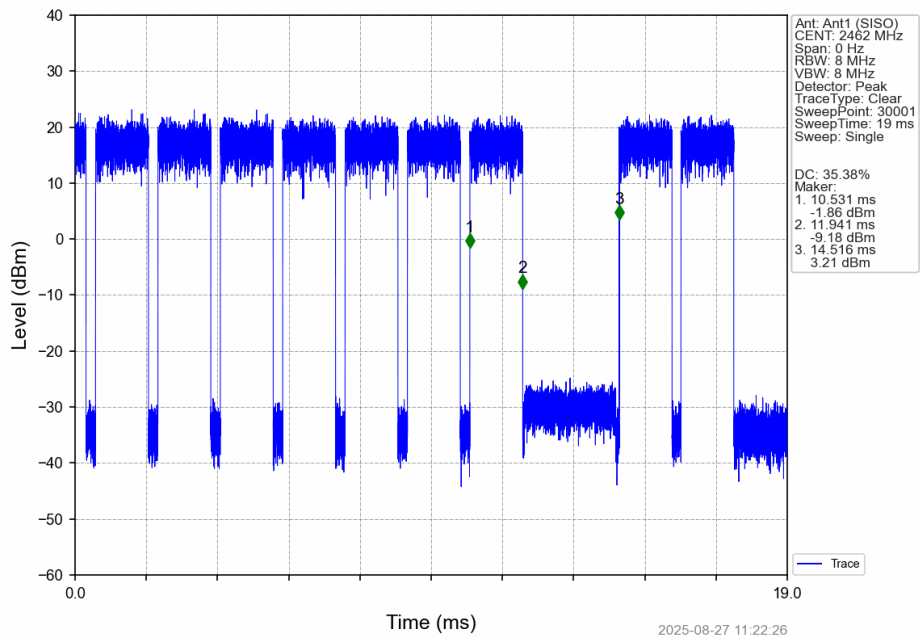
# 802.11g LCH 2412MHz Ant1 (SISO) NTN



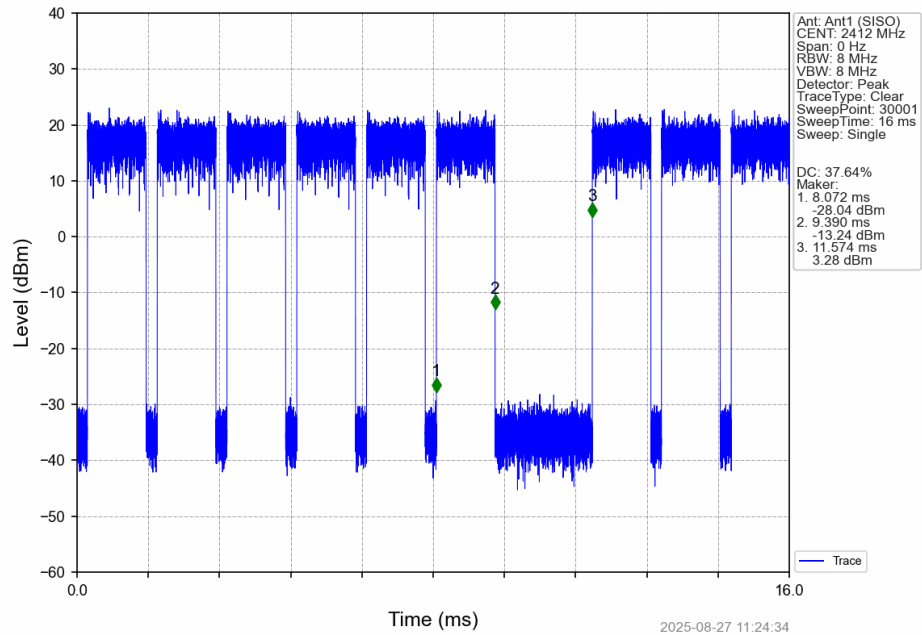
# 802.11g MCH 2437MHz Ant1 (SISO) NTN



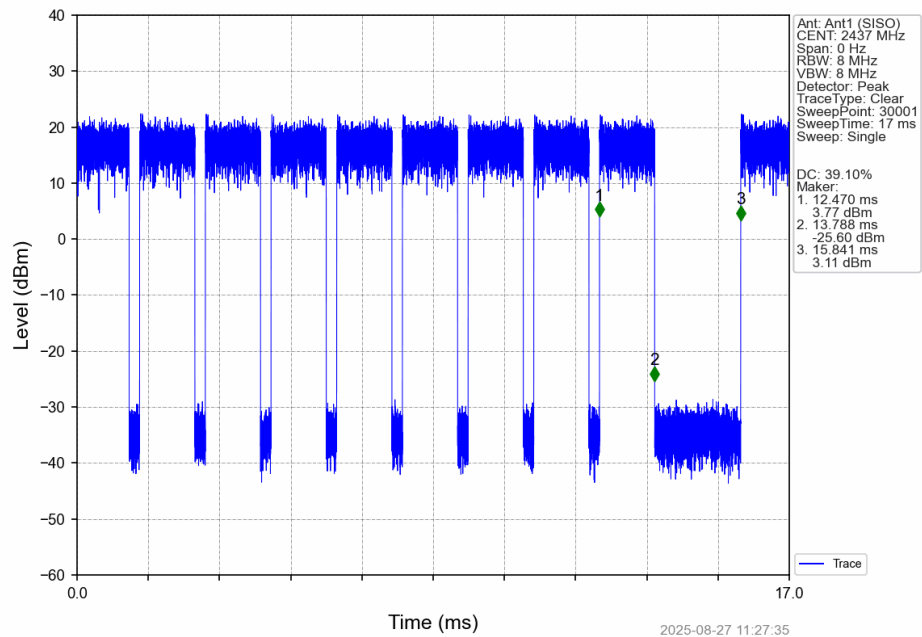
# 802.11g\_HCH\_2462MHz\_Ant1 (SISO)\_NTN



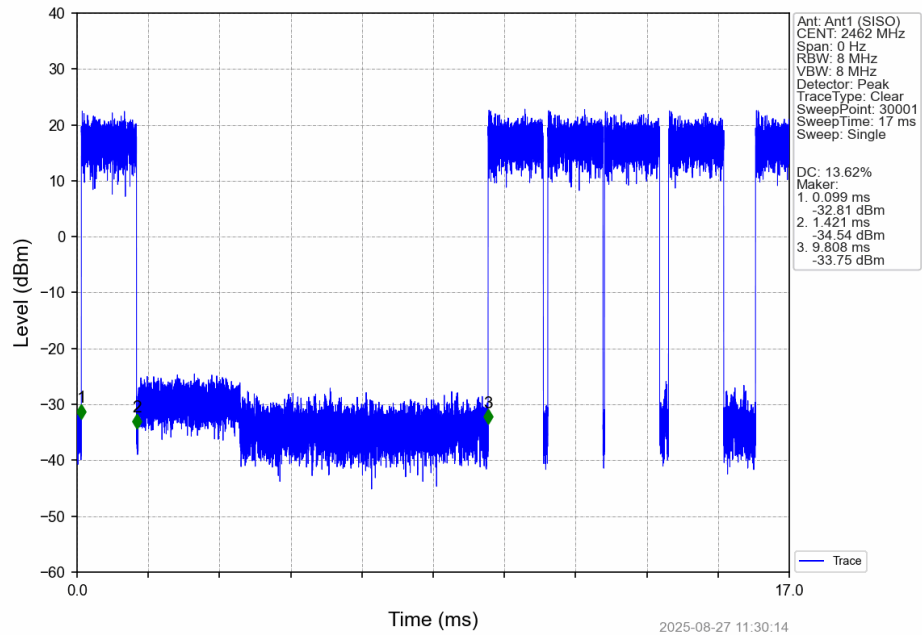
# 802.11n(HT20) LCH 2412MHz Ant1 (SISO) NTNV



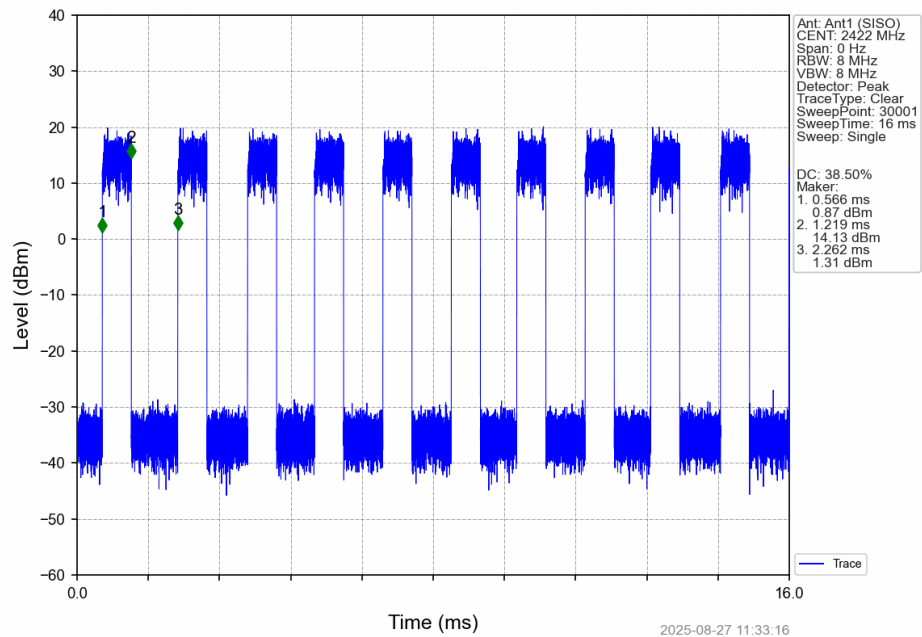
# 802.11n(HT20) MCH 2437MHz Ant1 (SISO) NTNV



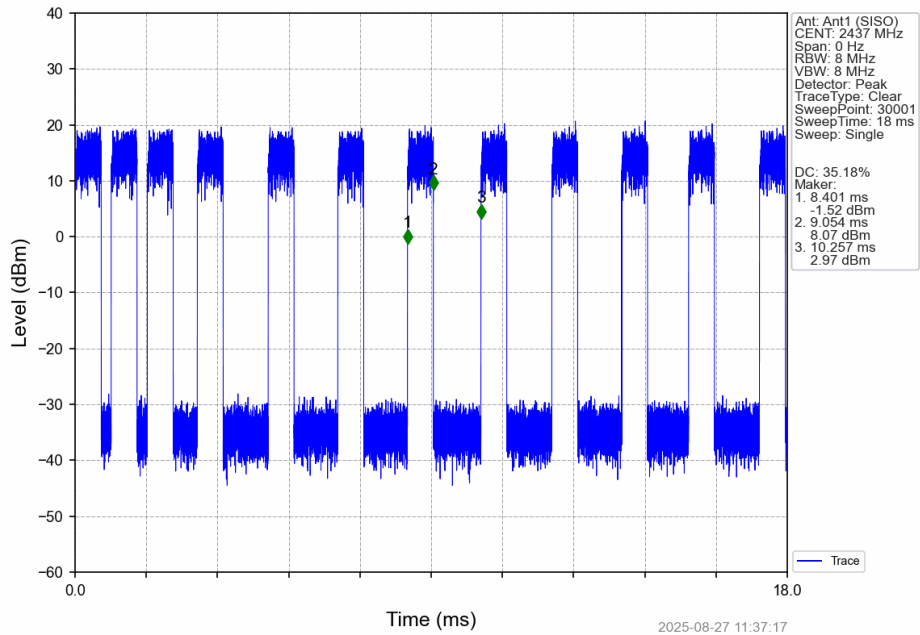
# 802.11n(HT20) HCH 2462MHz Ant1 (SISO) NTN



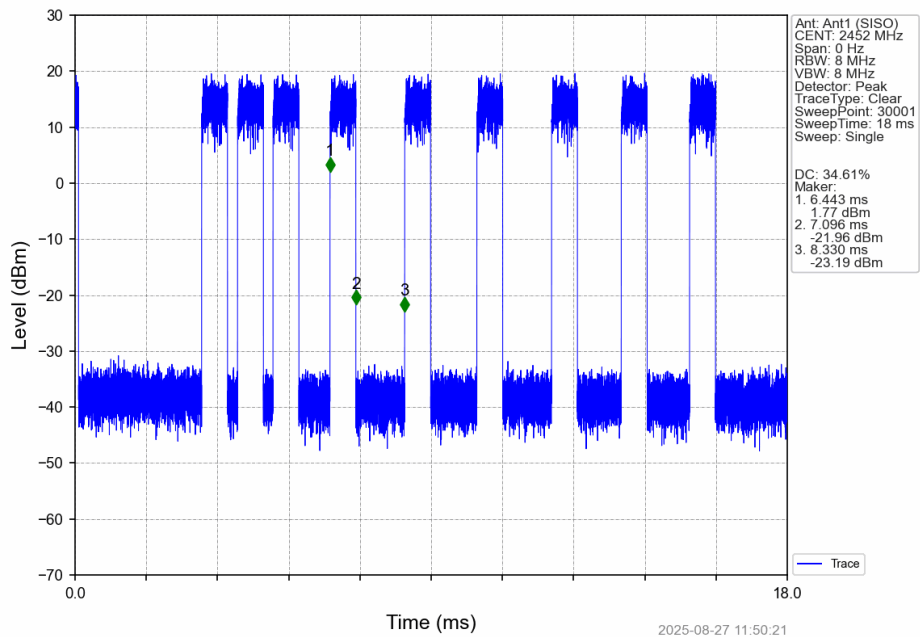
# 802.11n(HT40) LCH 2422MHz Ant1 (SISO) NTN



# 802.11n(HT40) MCH 2437MHz Ant1 (SISO) NTN



# 802.11n(HT40) HCH 2452MHz Ant1 (SISO) NTN



## 2. Bandwidth

### 2.1 Test Result

#### 2.1.1 OBW

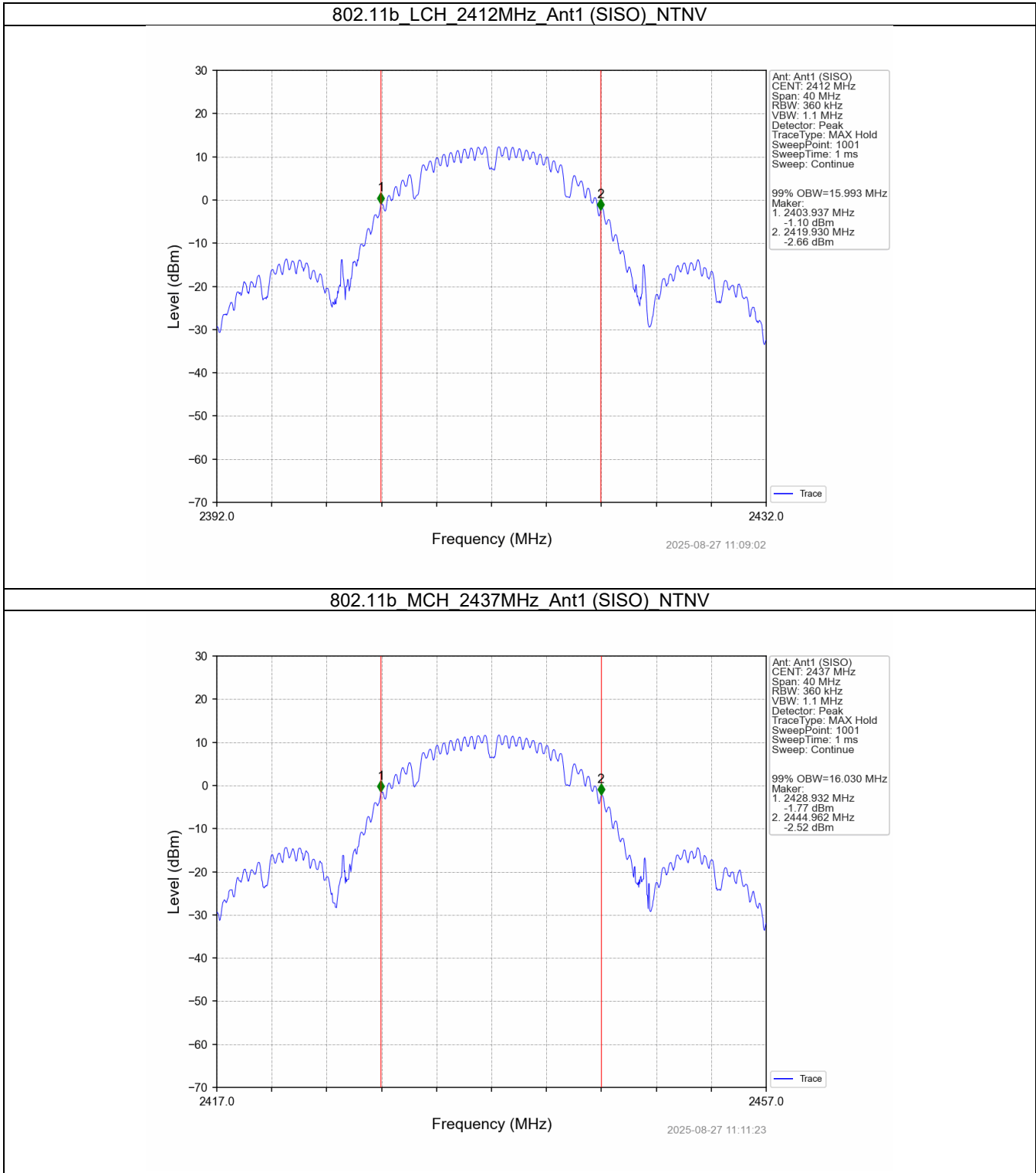
| Mode           | TX Type | Frequency (MHz) | ANT | 99% Occupied Bandwidth (MHz) |       | Verdict |
|----------------|---------|-----------------|-----|------------------------------|-------|---------|
|                |         |                 |     | Result                       | Limit |         |
| 802.11b        | SISO    | 2412            | 1   | 15.993                       | /     | Pass    |
|                |         | 2437            | 1   | 16.030                       | /     | Pass    |
|                |         | 2462            | 1   | 15.857                       | /     | Pass    |
| 802.11g        | SISO    | 2412            | 1   | 17.635                       | /     | Pass    |
|                |         | 2437            | 1   | 17.998                       | /     | Pass    |
|                |         | 2462            | 1   | 17.941                       | /     | Pass    |
| 802.11n (HT20) | SISO    | 2412            | 1   | 18.831                       | /     | Pass    |
|                |         | 2437            | 1   | 18.803                       | /     | Pass    |
|                |         | 2462            | 1   | 18.715                       | /     | Pass    |
| 802.11n (HT40) | SISO    | 2422            | 1   | 37.287                       | /     | Pass    |
|                |         | 2437            | 1   | 37.296                       | /     | Pass    |
|                |         | 2452            | 1   | 37.288                       | /     | Pass    |

#### 2.1.2 6dB BW

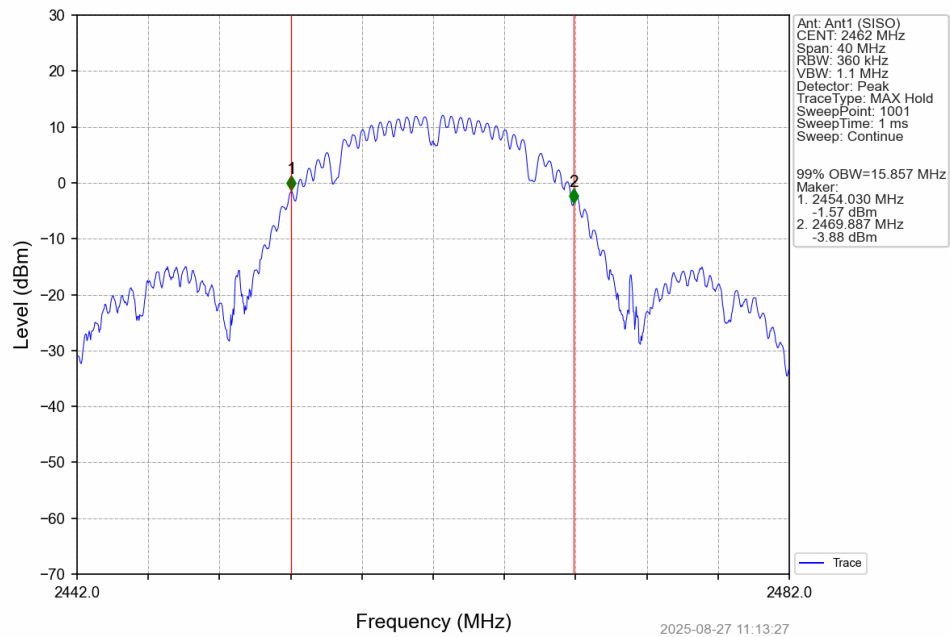
| Mode           | TX Type | Frequency (MHz) | ANT | 6dB Bandwidth (MHz) |            | Verdict |
|----------------|---------|-----------------|-----|---------------------|------------|---------|
|                |         |                 |     | Result              | Limit      |         |
| 802.11b        | SISO    | 2412            | 1   | 10.138              | $\geq 0.5$ | Pass    |
|                |         | 2437            | 1   | 10.130              | $\geq 0.5$ | Pass    |
|                |         | 2462            | 1   | 10.136              | $\geq 0.5$ | Pass    |
| 802.11g        | SISO    | 2412            | 1   | 16.357              | $\geq 0.5$ | Pass    |
|                |         | 2437            | 1   | 16.344              | $\geq 0.5$ | Pass    |
|                |         | 2462            | 1   | 16.351              | $\geq 0.5$ | Pass    |
| 802.11n (HT20) | SISO    | 2412            | 1   | 17.075              | $\geq 0.5$ | Pass    |
|                |         | 2437            | 1   | 17.077              | $\geq 0.5$ | Pass    |
|                |         | 2462            | 1   | 17.035              | $\geq 0.5$ | Pass    |
| 802.11n (HT40) | SISO    | 2422            | 1   | 35.729              | $\geq 0.5$ | Pass    |
|                |         | 2437            | 1   | 35.520              | $\geq 0.5$ | Pass    |
|                |         | 2452            | 1   | 35.794              | $\geq 0.5$ | Pass    |

2.2 Test Graph

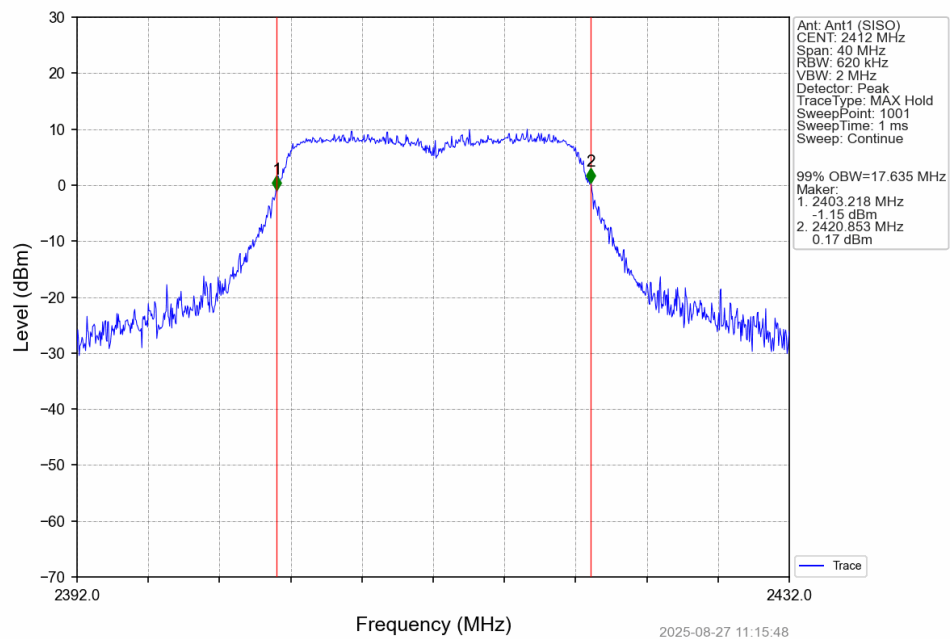
2.2.1 OBW



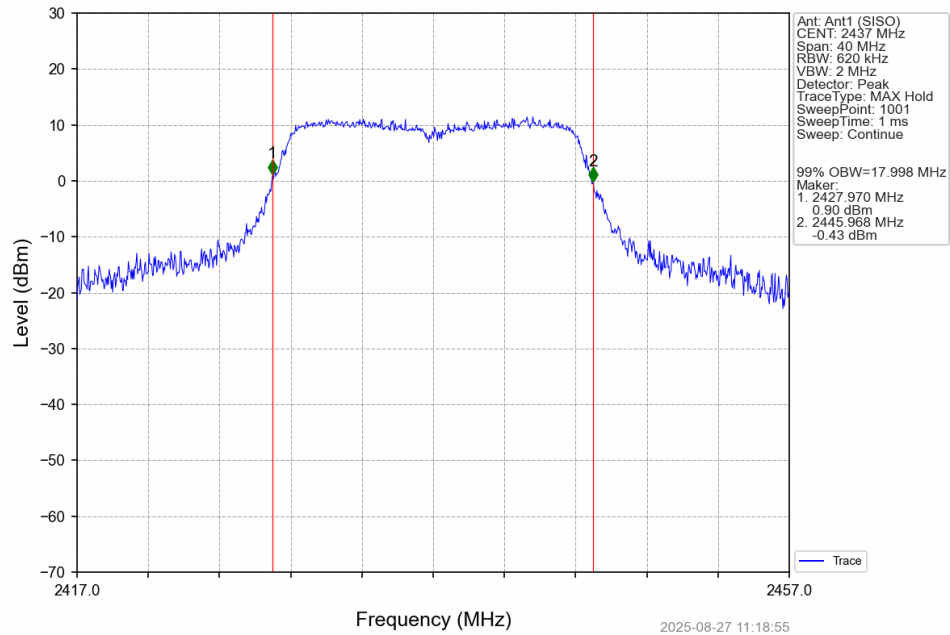
### 802.11b HCH 2462MHz Ant1 (SISO) NTN



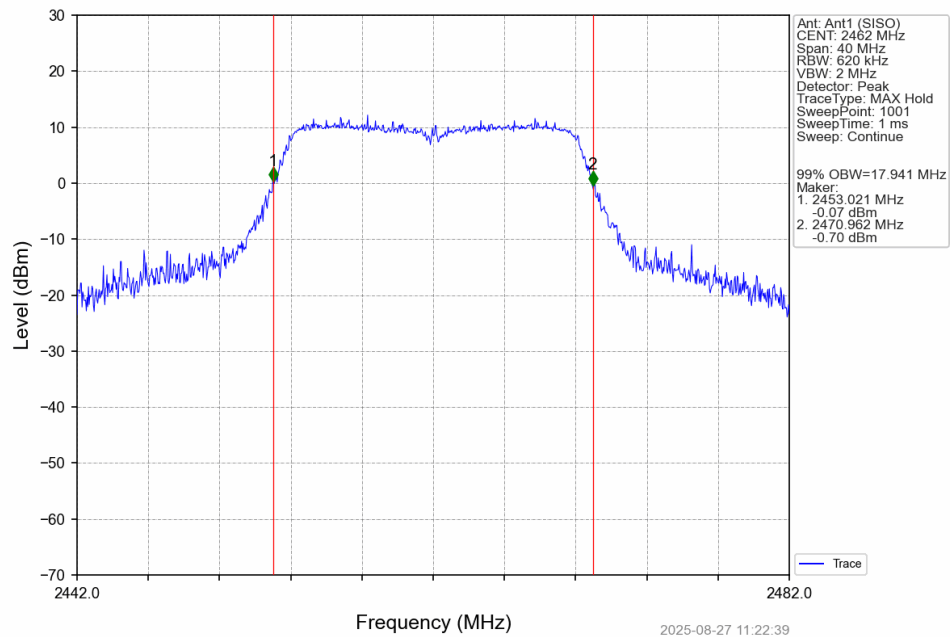
### 802.11g LCH 2412MHz Ant1 (SISO) NTN



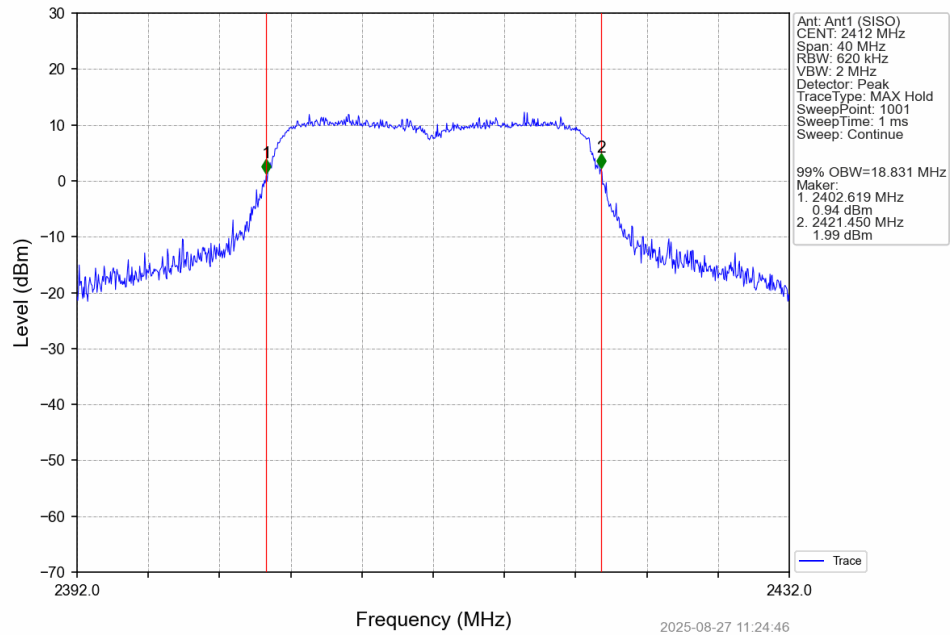
# 802.11g MCH 2437MHz Ant1 (SISO) NTN



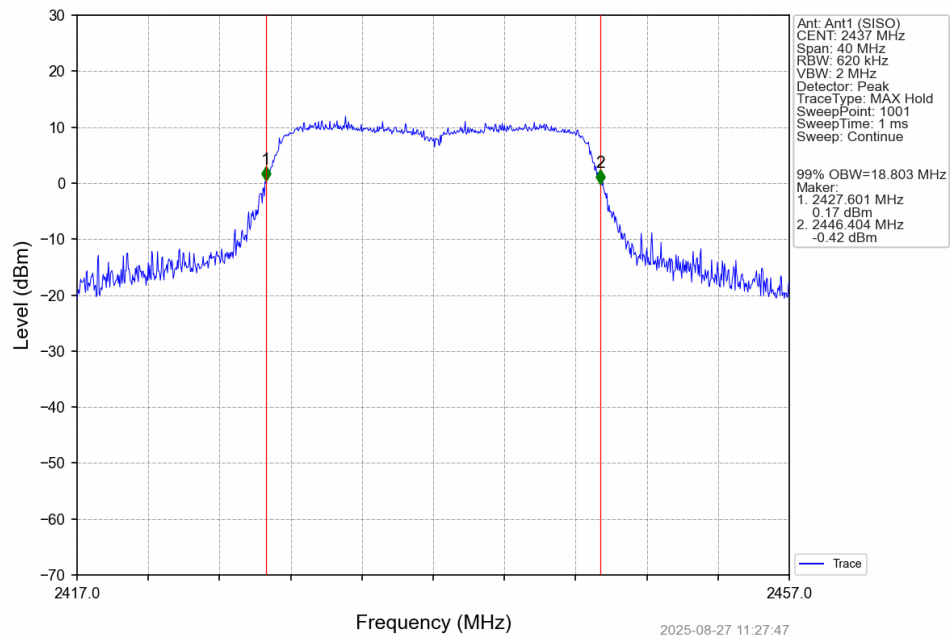
# 802.11g\_HCH\_2462MHz\_Ant1 (SISO)\_NTN



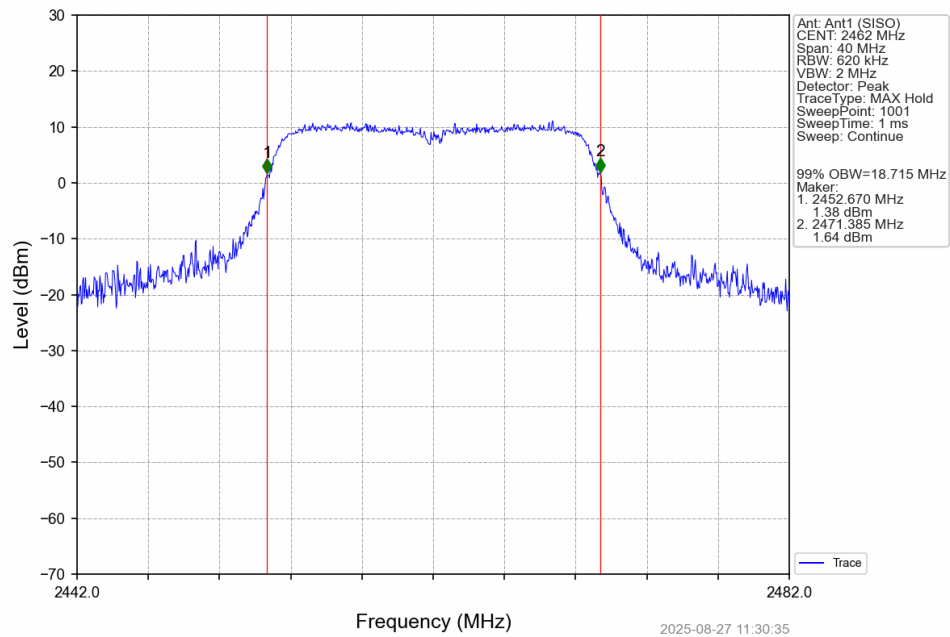
# 802.11n(HT20) LCH 2412MHz Ant1 (SISO) NTN



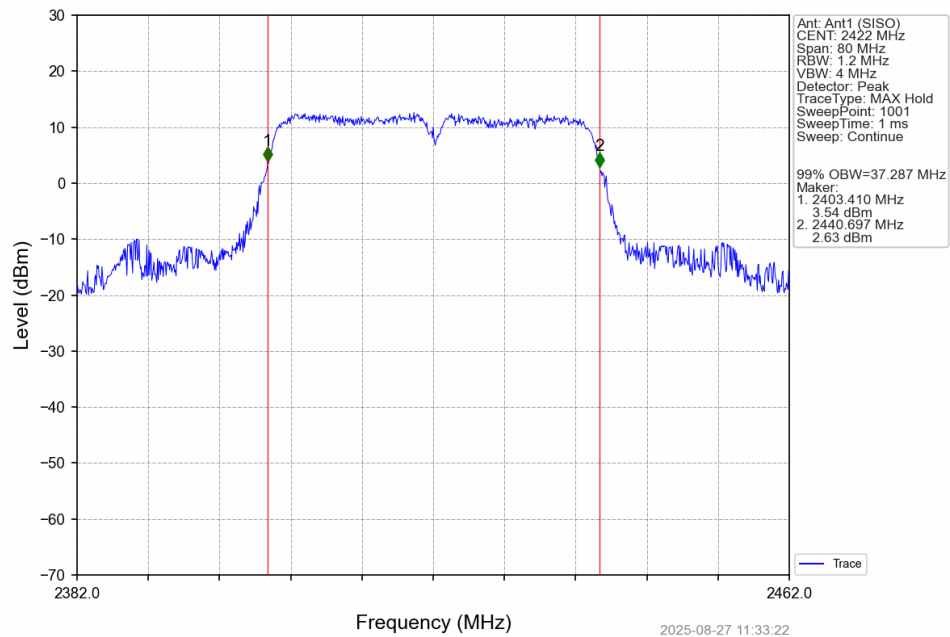
# 802.11n(HT20) MCH 2437MHz Ant1 (SISO) NTN



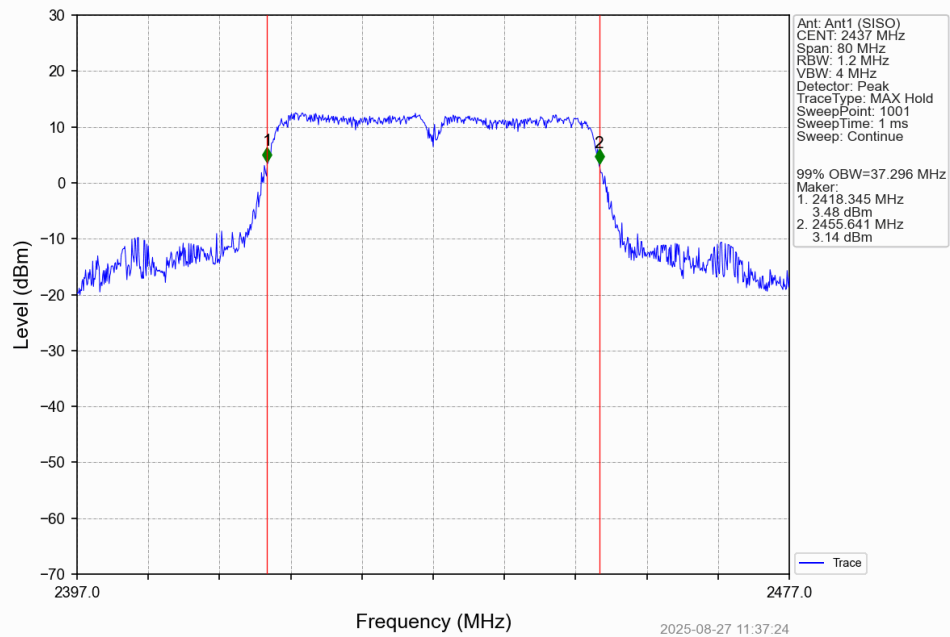
# 802.11n(HT20) HCH 2462MHz Ant1 (SISO) NTNV



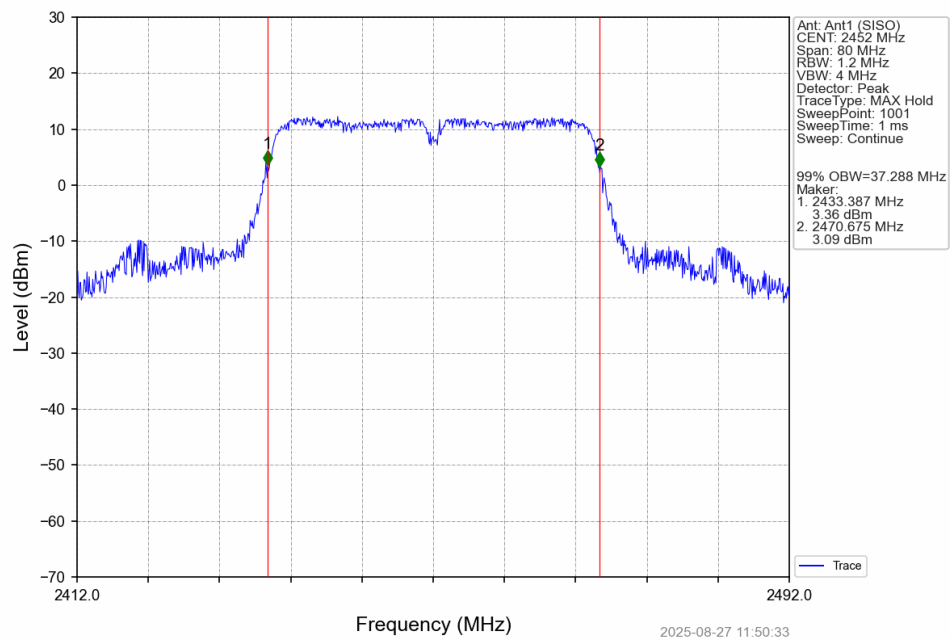
# 802.11n(HT40) LCH 2422MHz Ant1 (SISO) NTNV



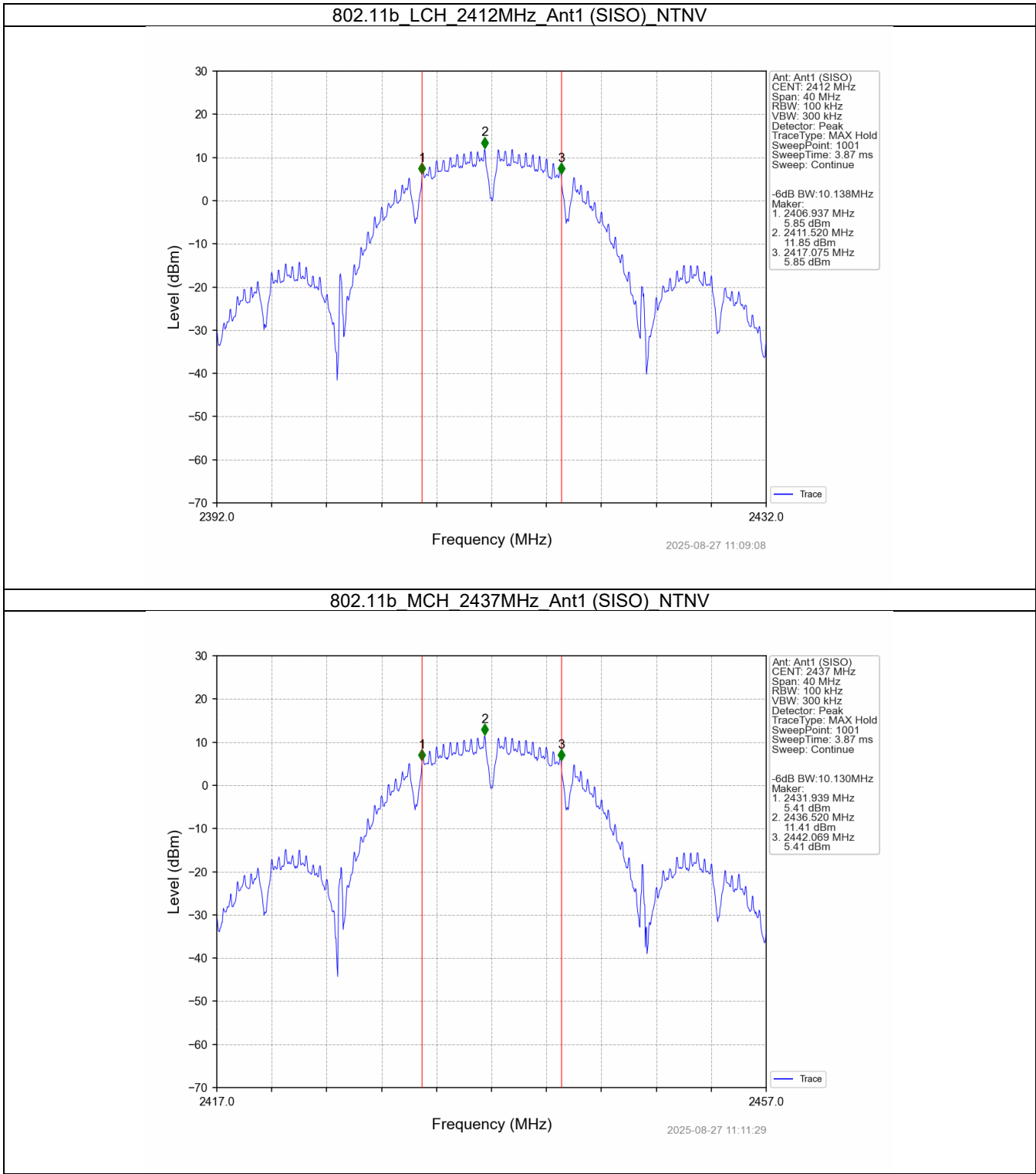
# 802.11n(HT40) MCH\_2437MHz\_Ant1 (SISO) NTN



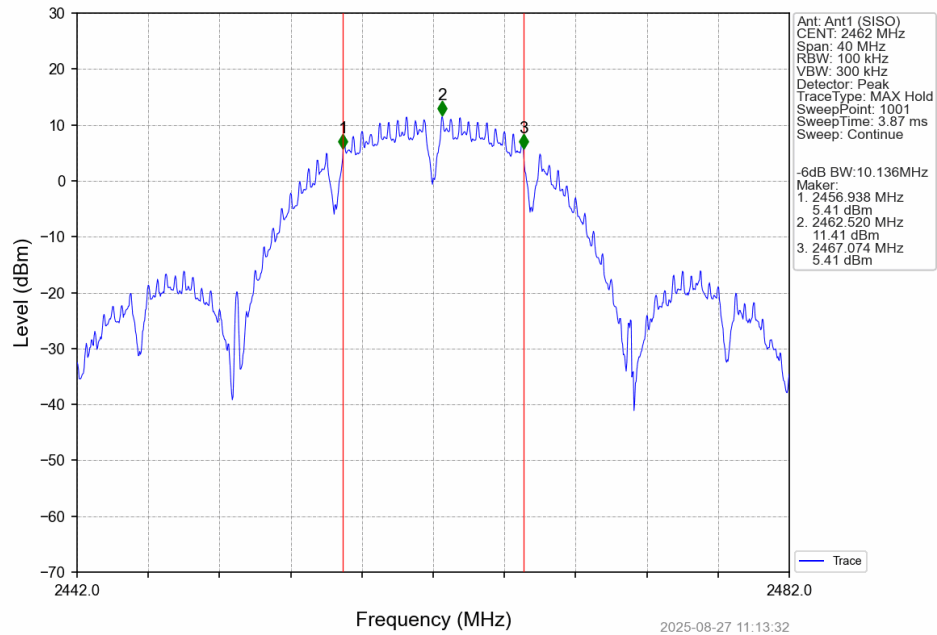
# 802.11n(HT40) HCH\_2452MHz\_Ant1 (SISO) NTN



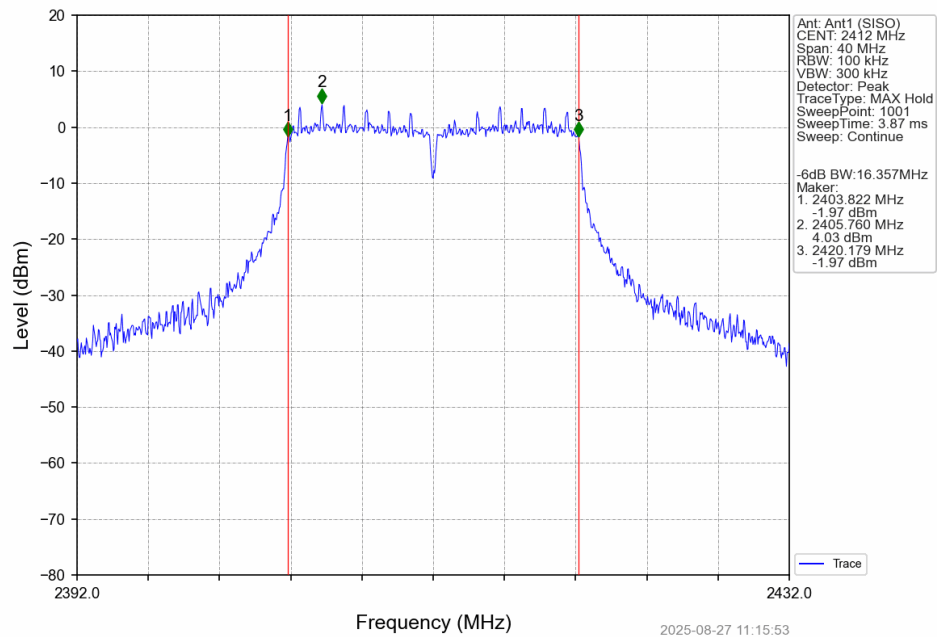
2.2.2 6dB BW



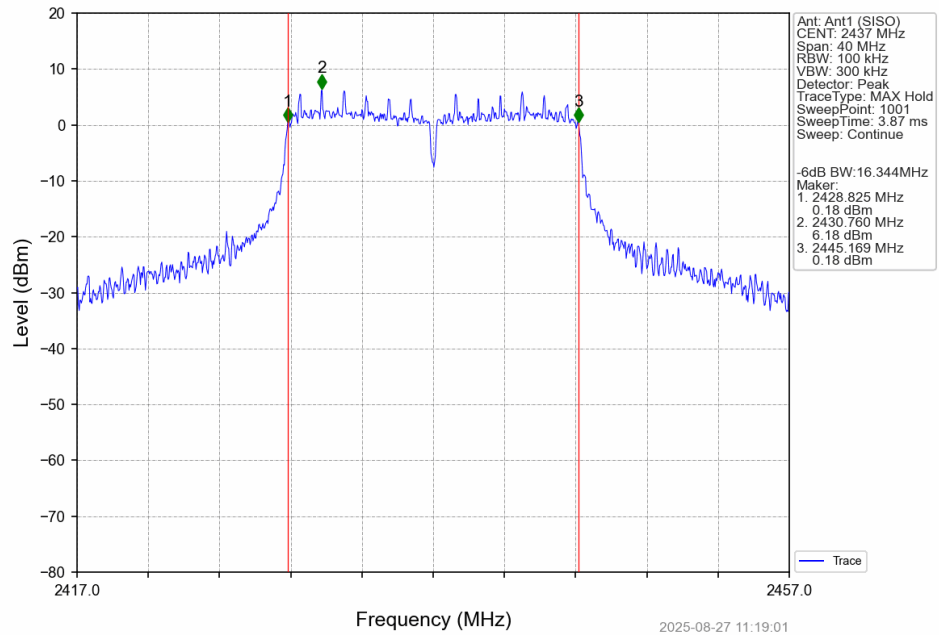
### 802.11b HCH 2462MHz Ant1 (SISO) NTN



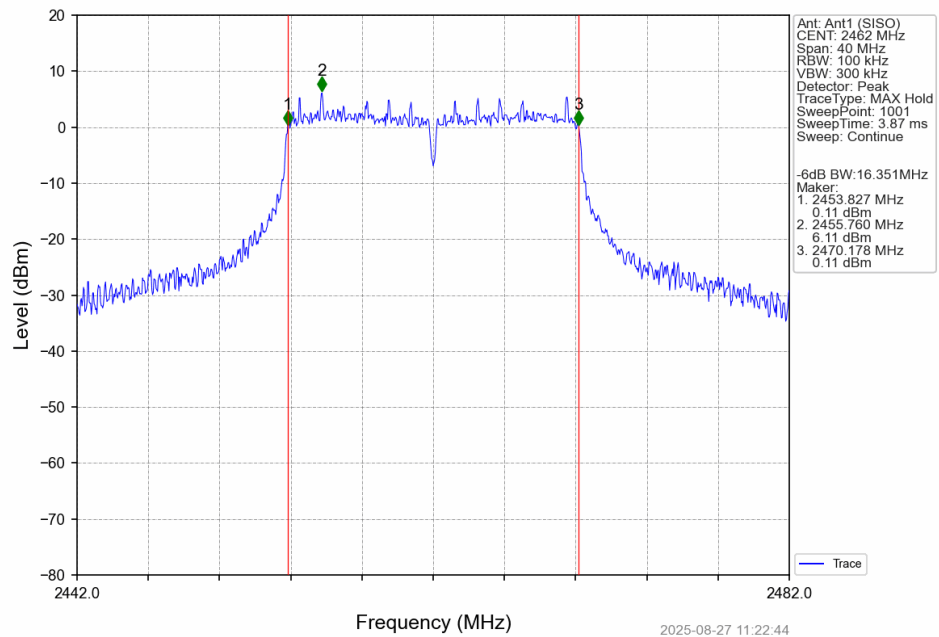
### 802.11g LCH 2412MHz Ant1 (SISO) NTN



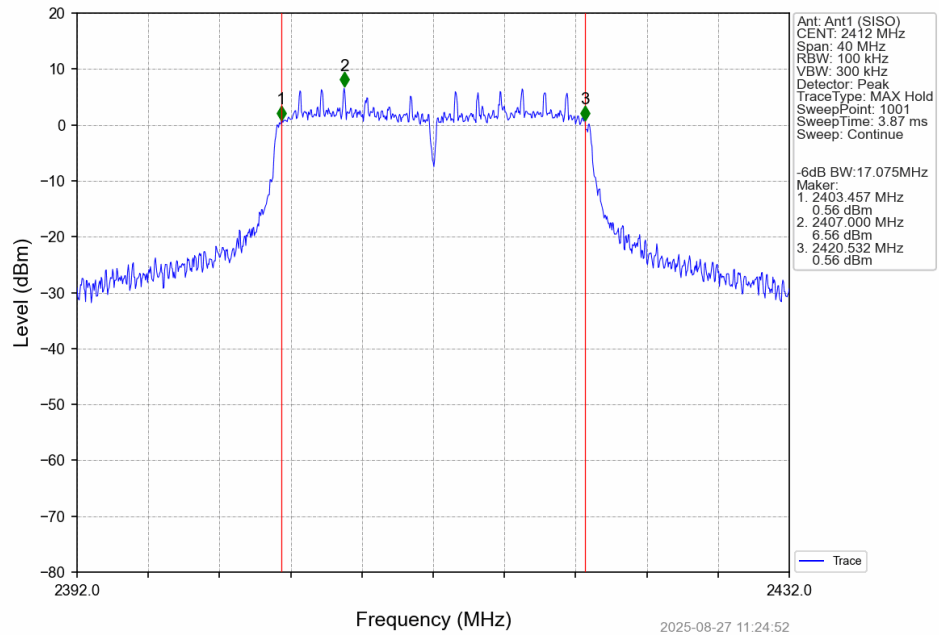
### 802.11g\_MCH\_2437MHz\_Ant1 (SISO)\_NTNV



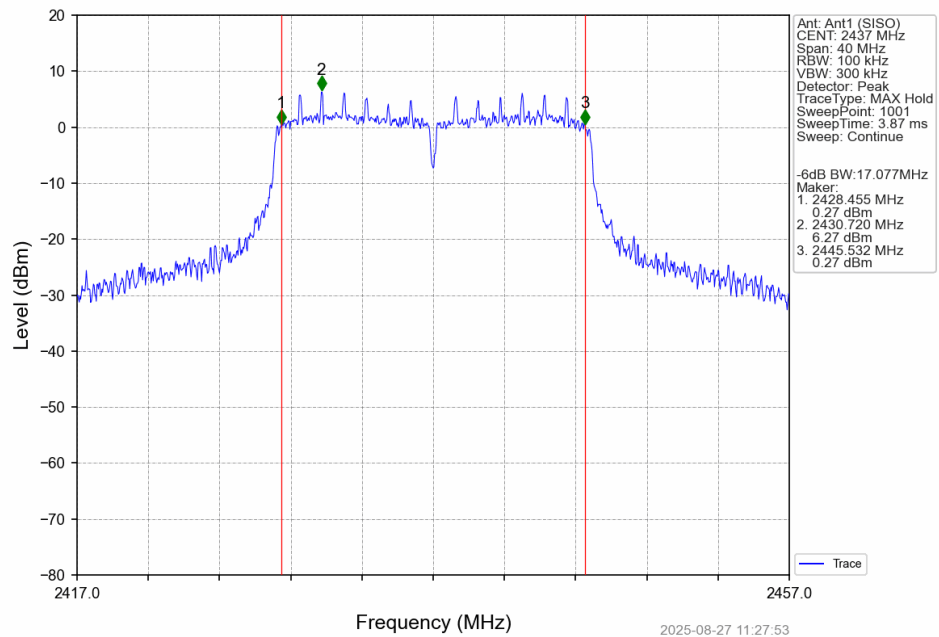
### 802.11g\_HCH\_2462MHz\_Ant1 (SISO)\_NTNV



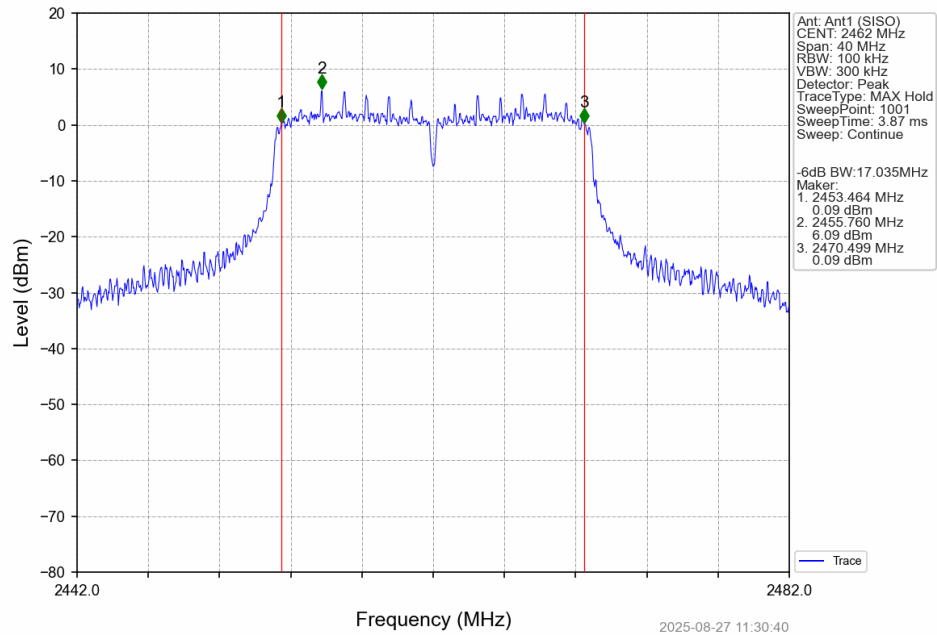
# 802.11n(HT20) LCH 2412MHz Ant1 (SISO) NTNV



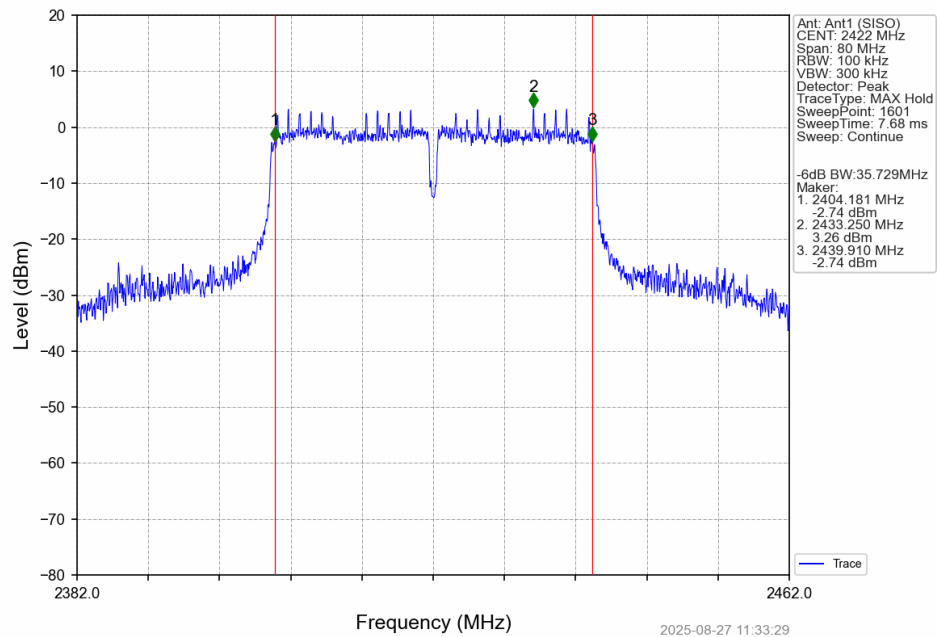
# 802.11n(HT20) MCH 2437MHz Ant1 (SISO) NTNV



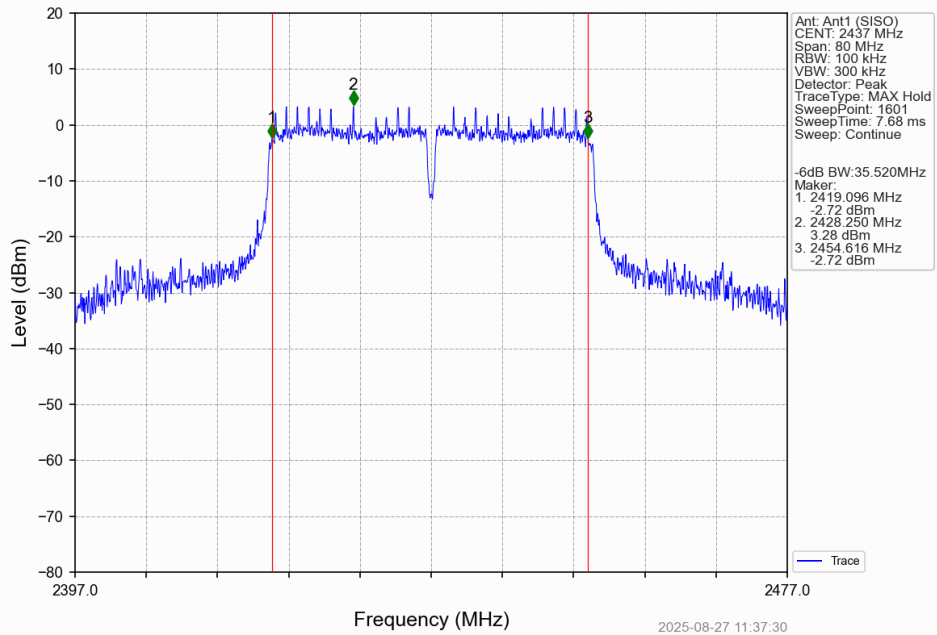
# 802.11n(HT20) HCH 2462MHz Ant1 (SISO) NTN



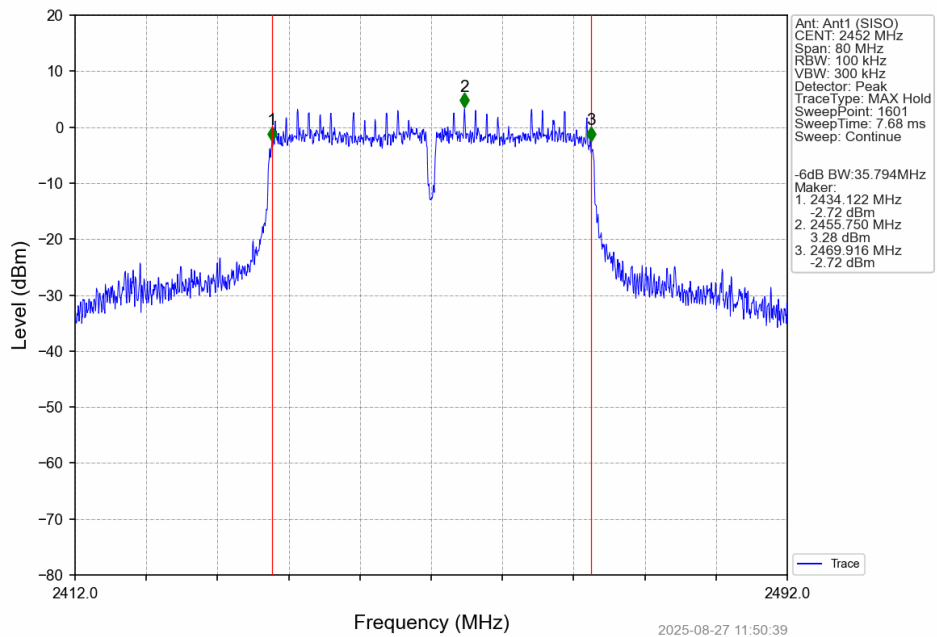
# 802.11n(HT40) LCH 2422MHz Ant1 (SISO) NTN



# 802.11n(HT40) MCH\_2437MHz Ant1 (SISO) NTNV



# 802.11n(HT40) HCH\_2452MHz Ant1 (SISO) NTNV



### 3. Maximum Conducted Output Power

#### 3.1 Test Result

##### 3.1.1 Power

| Mode           | TX Type | Frequency (MHz) | Maximum Peak Conducted Output Power (dBm) |       | Verdict |
|----------------|---------|-----------------|-------------------------------------------|-------|---------|
|                |         |                 | ANT1                                      | Limit |         |
| 802.11b        | SISO    | 2412            | 23.82                                     | <=30  | Pass    |
|                |         | 2437            | 23.25                                     | <=30  | Pass    |
|                |         | 2462            | 23.43                                     | <=30  | Pass    |
| 802.11g        | SISO    | 2412            | 22.63                                     | <=30  | Pass    |
|                |         | 2437            | 24.45                                     | <=30  | Pass    |
|                |         | 2462            | 24.48                                     | <=30  | Pass    |
| 802.11n (HT20) | SISO    | 2412            | 24.89                                     | <=30  | Pass    |
|                |         | 2437            | 24.48                                     | <=30  | Pass    |
|                |         | 2462            | 24.45                                     | <=30  | Pass    |
| 802.11n (HT40) | SISO    | 2422            | 25.18                                     | <=30  | Pass    |
|                |         | 2437            | 25.07                                     | <=30  | Pass    |
|                |         | 2452            | 24.92                                     | <=30  | Pass    |

## 4. Maximum Power Spectral Density

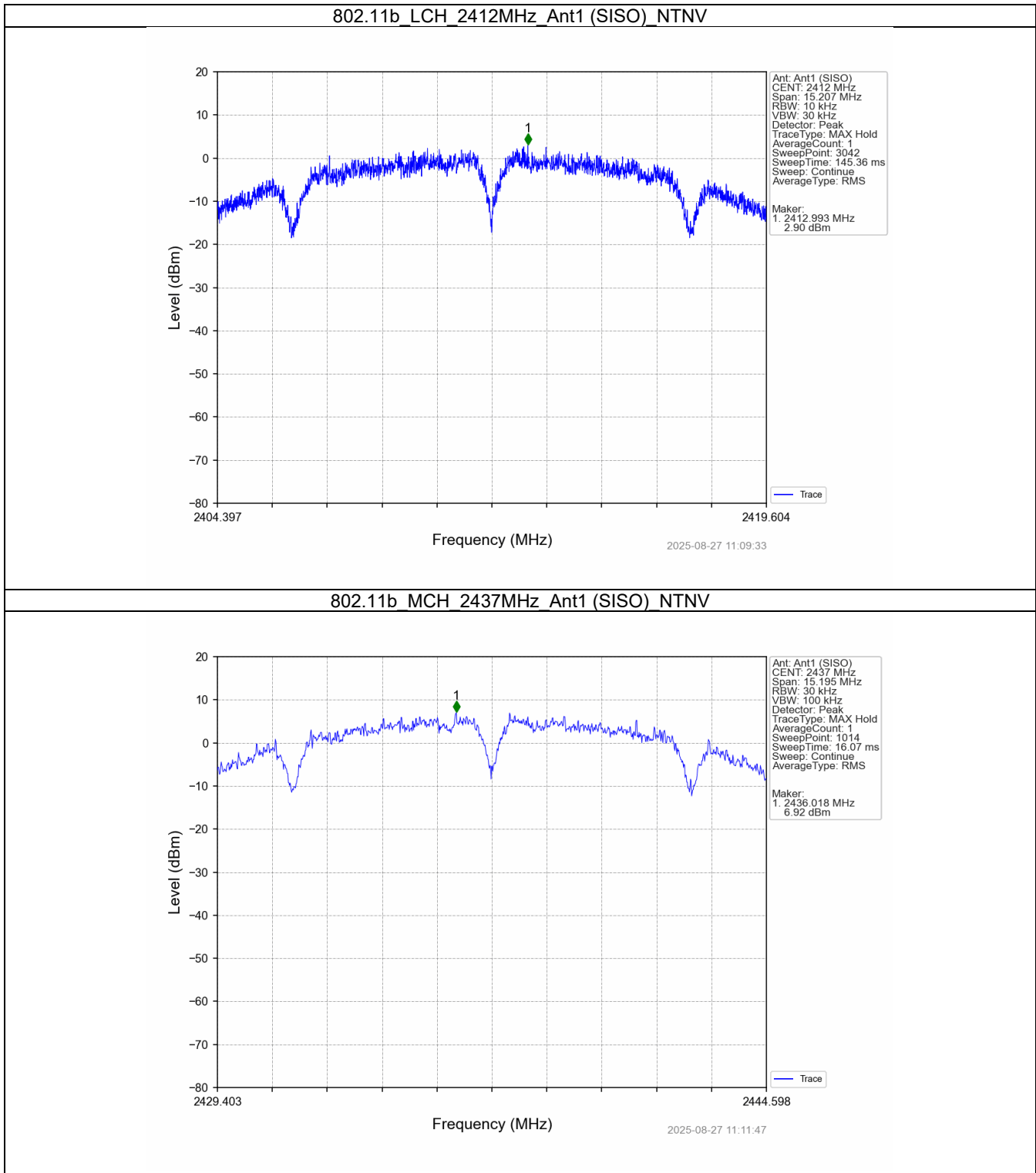
### 4.1 Test Result

#### 4.1.1 PSD

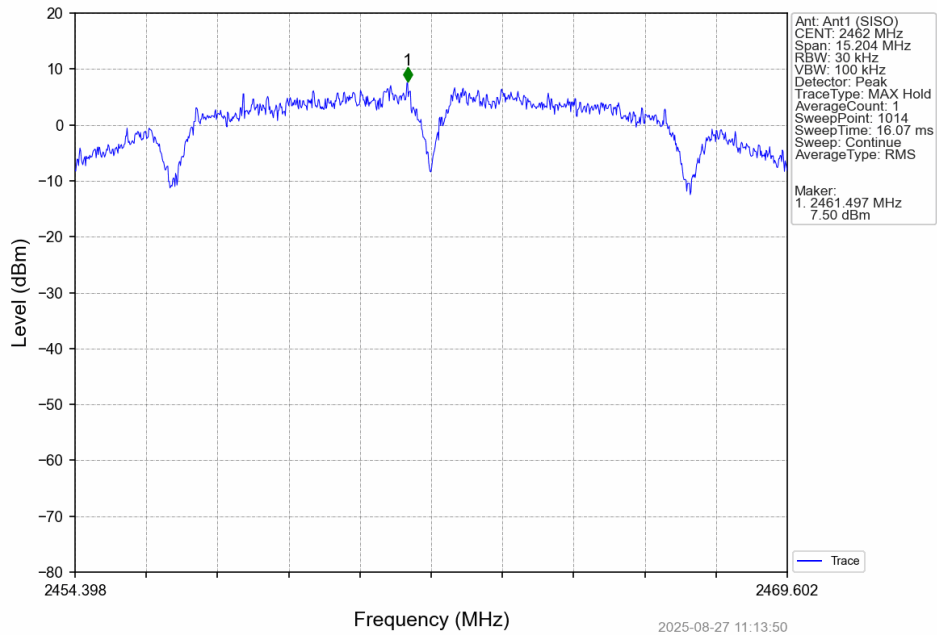
| Mode           | TX Type | Frequency (MHz) | Maximum PSD (dBm) |       | Verdict |
|----------------|---------|-----------------|-------------------|-------|---------|
|                |         |                 | ANT1              | Limit |         |
| 802.11b        | SISO    | 2412            | 2.90              | <=8   | Pass    |
|                |         | 2437            | 6.92              | <=8   | Pass    |
|                |         | 2462            | 7.50              | <=8   | Pass    |
| 802.11g        | SISO    | 2412            | 4.14              | <=8   | Pass    |
|                |         | 2437            | 6.07              | <=8   | Pass    |
|                |         | 2462            | 5.85              | <=8   | Pass    |
| 802.11n (HT20) | SISO    | 2412            | 6.44              | <=8   | Pass    |
|                |         | 2437            | 6.21              | <=8   | Pass    |
|                |         | 2462            | 6.22              | <=8   | Pass    |
| 802.11n (HT40) | SISO    | 2422            | 3.55              | <=8   | Pass    |
|                |         | 2437            | 3.49              | <=8   | Pass    |
|                |         | 2452            | 3.23              | <=8   | Pass    |

# 4.2 Test Graph

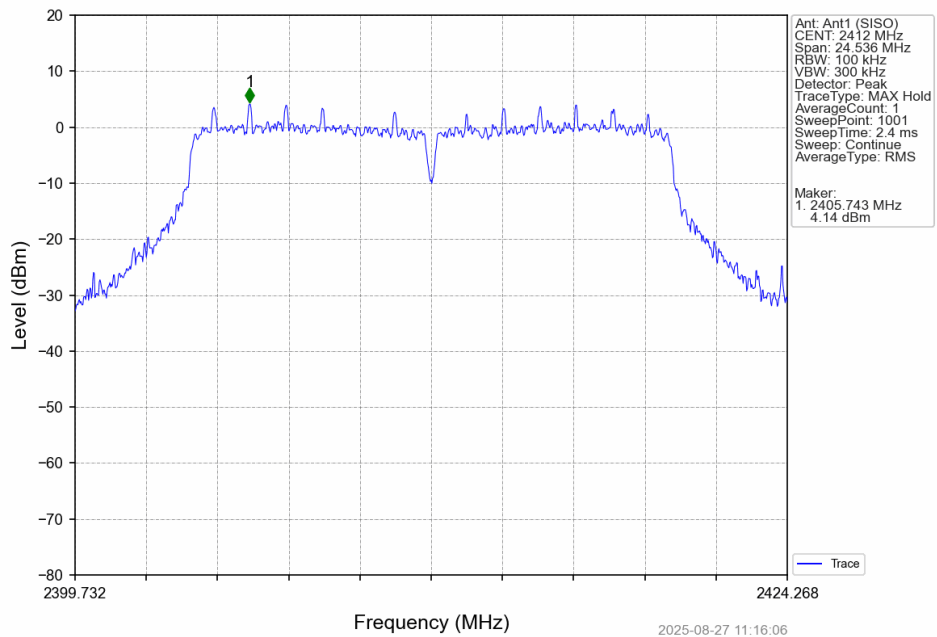
## 4.2.1 PSD



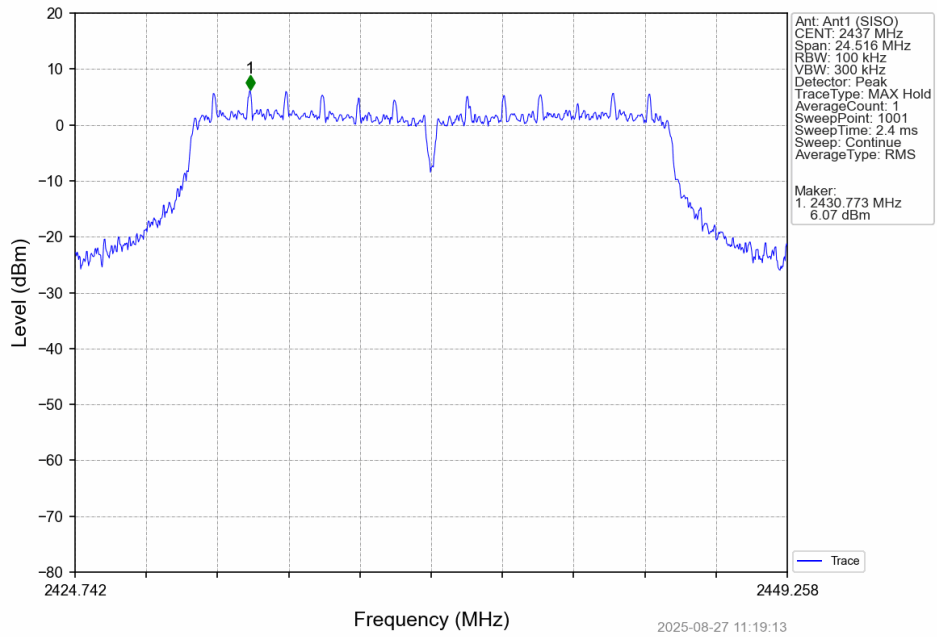
### 802.11b HCH 2462MHz Ant1 (SISO) NTN



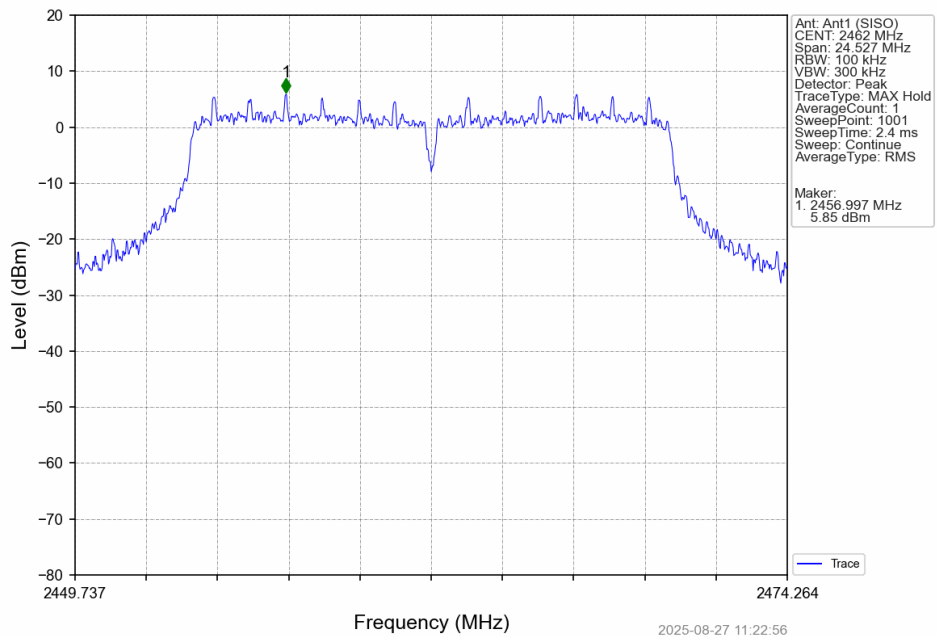
### 802.11g LCH 2412MHz Ant1 (SISO) NTN



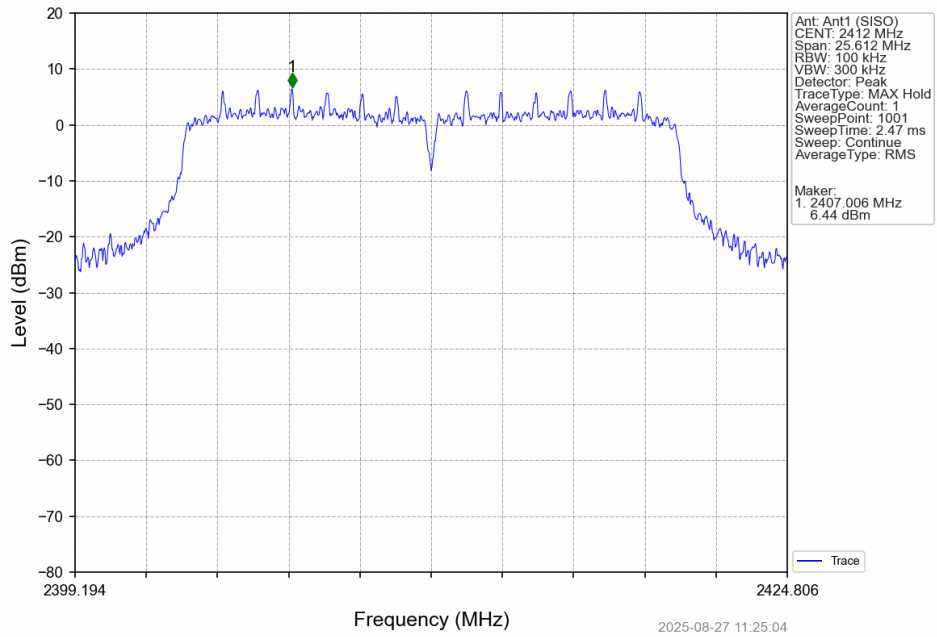
### 802.11g MCH 2437MHz Ant1 (SISO) NTN



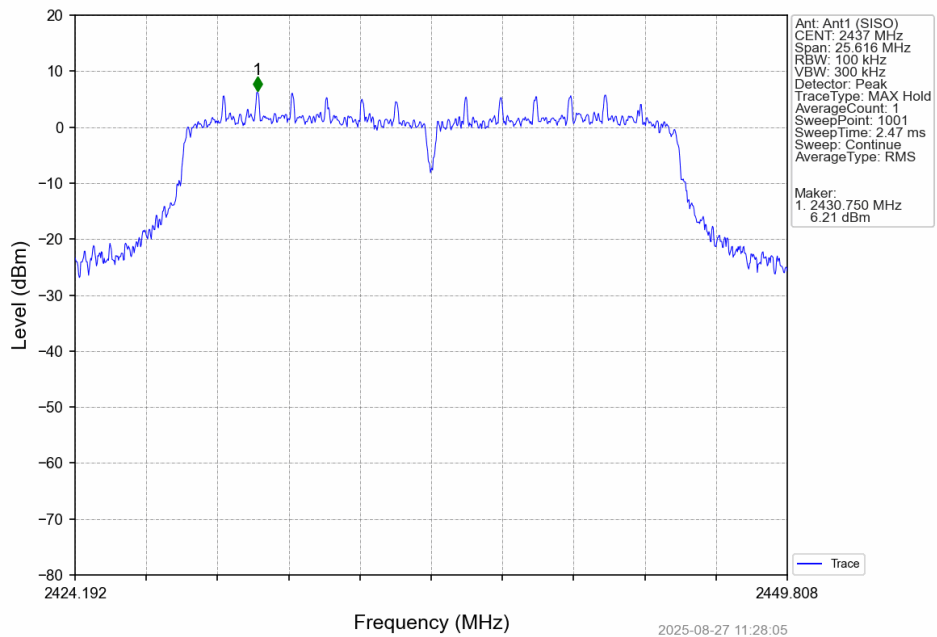
### 802.11g\_HCH\_2462MHz\_Ant1 (SISO)\_NTNV



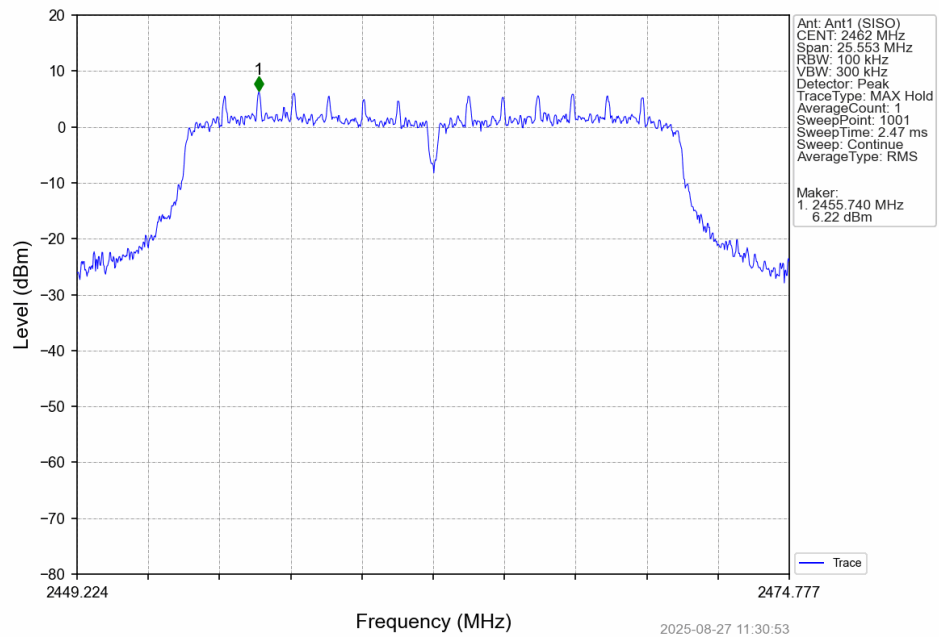
### 802.11n(HT20) LCH 2412MHz Ant1 (SISO) NTNV



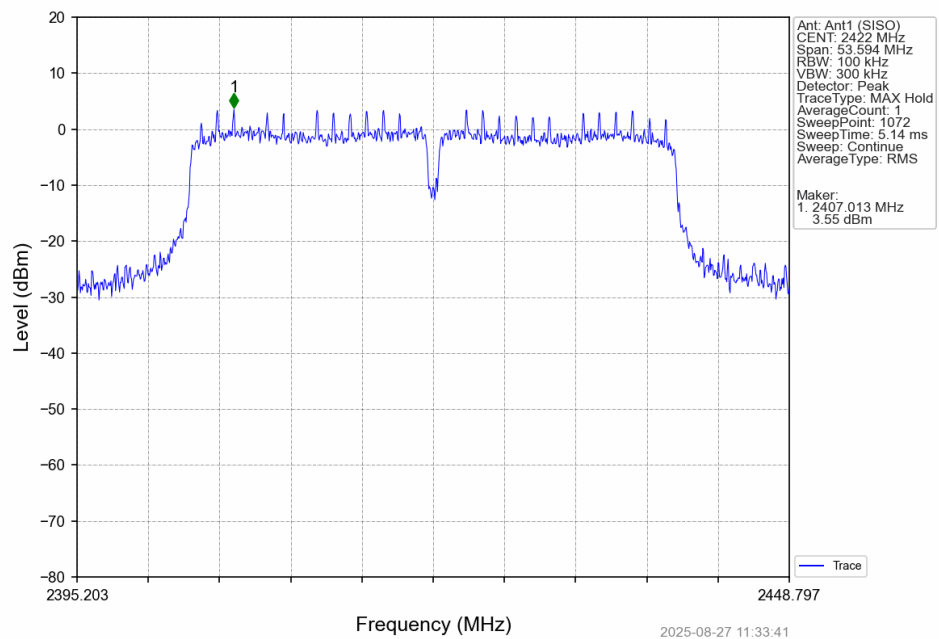
### 802.11n(HT20) MCH 2437MHz Ant1 (SISO) NTNV



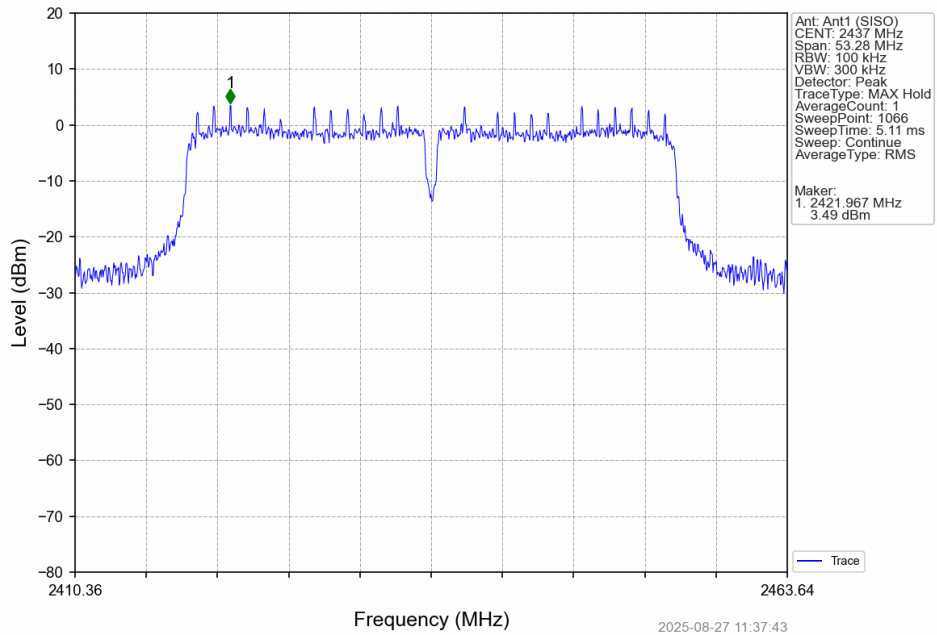
# 802.11n(HT20) HCH 2462MHz Ant1 (SISO) NTN



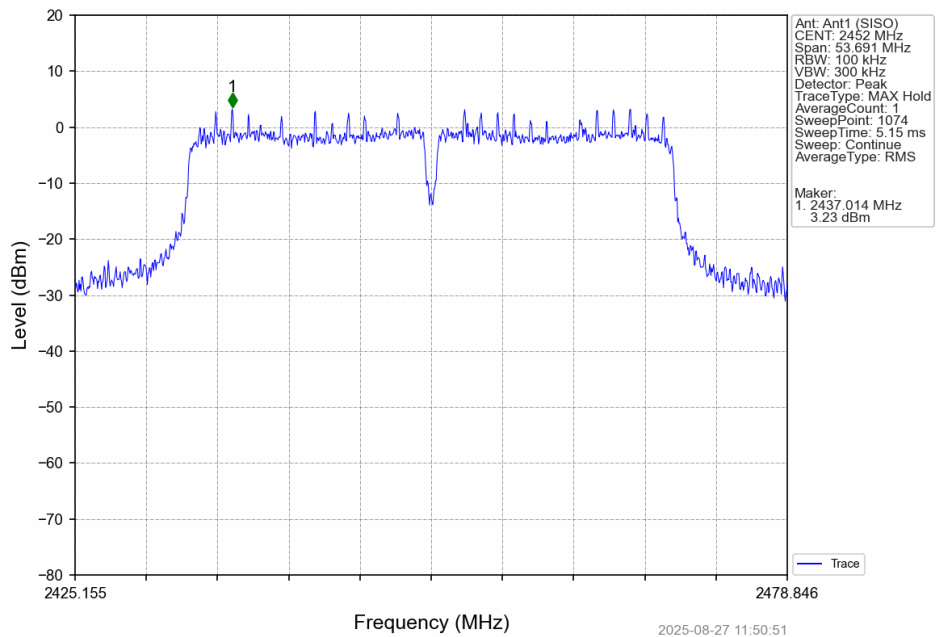
# 802.11n(HT40) LCH 2422MHz Ant1 (SISO) NTN



# 802.11n(HT40) MCH\_2437MHz\_Ant1 (SISO) NTN



# 802.11n(HT40) HCH\_2452MHz\_Ant1 (SISO) NTN



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

### 5.1 Test Result

#### 5.1.1 Ref

| Mode           | TX Type | Frequency (MHz) | ANT | Level of Reference (dBm) |
|----------------|---------|-----------------|-----|--------------------------|
| 802.11b        | SISO    | 2412            | 1   | 11.93                    |
|                |         | 2437            | 1   | 11.27                    |
|                |         | 2462            | 1   | 11.48                    |
| 802.11g        | SISO    | 2412            | 1   | 4.03                     |
|                |         | 2437            | 1   | 6.16                     |
|                |         | 2462            | 1   | 6.02                     |
| 802.11n (HT20) | SISO    | 2412            | 1   | 6.63                     |
|                |         | 2437            | 1   | 6.26                     |
|                |         | 2462            | 1   | 5.88                     |
| 802.11n (HT40) | SISO    | 2422            | 1   | 3.66                     |
|                |         | 2437            | 1   | 3.55                     |
|                |         | 2452            | 1   | 3.29                     |

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.

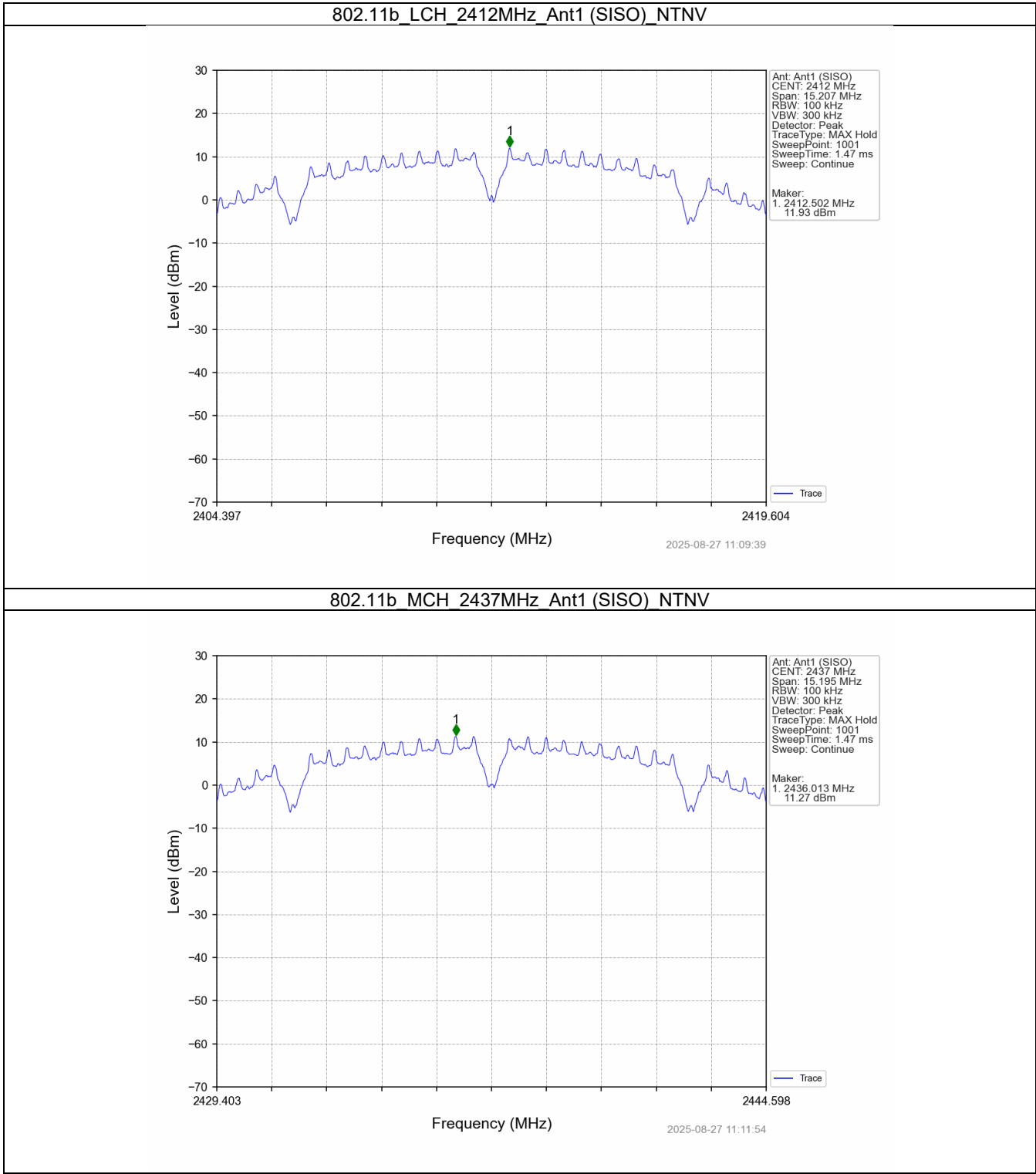
#### 5.1.2 CSE

| Mode           | TX Type | Frequency (MHz) | ANT | Level of Reference (dBm) | Limit (dBm) | Verdict |
|----------------|---------|-----------------|-----|--------------------------|-------------|---------|
| 802.11b        | SISO    | 2412            | 1   | 11.93                    | -8.07       | Pass    |
|                |         | 2437            | 1   | 11.93                    | -8.07       | Pass    |
|                |         | 2462            | 1   | 11.93                    | -8.07       | Pass    |
| 802.11g        | SISO    | 2412            | 1   | 6.16                     | -13.84      | Pass    |
|                |         | 2437            | 1   | 6.16                     | -13.84      | Pass    |
|                |         | 2462            | 1   | 6.16                     | -13.84      | Pass    |
| 802.11n (HT20) | SISO    | 2412            | 1   | 6.63                     | -13.37      | Pass    |
|                |         | 2437            | 1   | 6.63                     | -13.37      | Pass    |
|                |         | 2462            | 1   | 6.63                     | -13.37      | Pass    |
| 802.11n (HT40) | SISO    | 2422            | 1   | 3.66                     | -16.34      | Pass    |
|                |         | 2437            | 1   | 3.66                     | -16.34      | Pass    |
|                |         | 2452            | 1   | 3.66                     | -16.34      | Pass    |

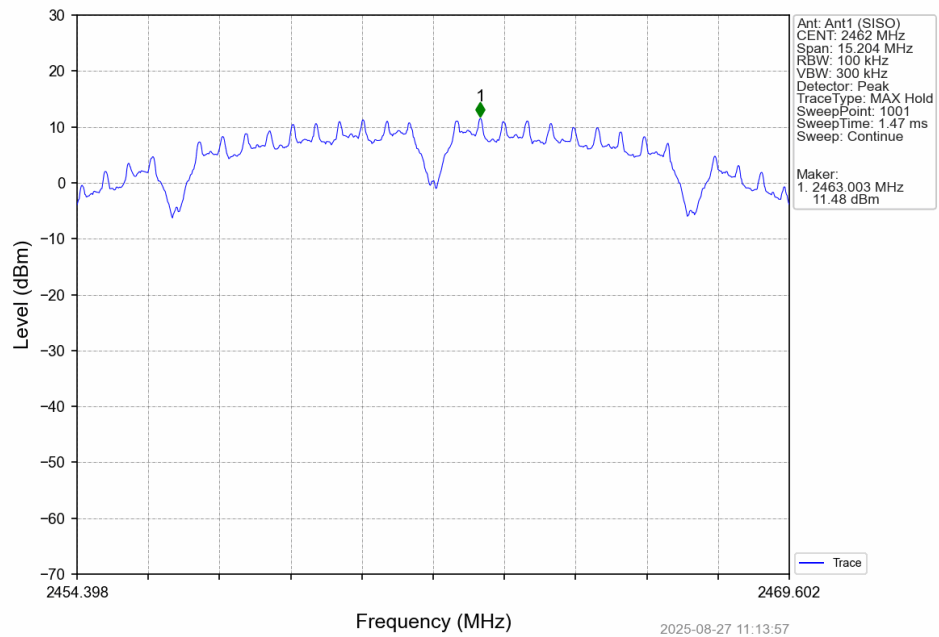
Note1: Refer to FCC Part 15.247 (d) and ANSI C63.10-2013, the channel contains the maximum PSD level was used to establish the reference level.

5.2 Test Graph

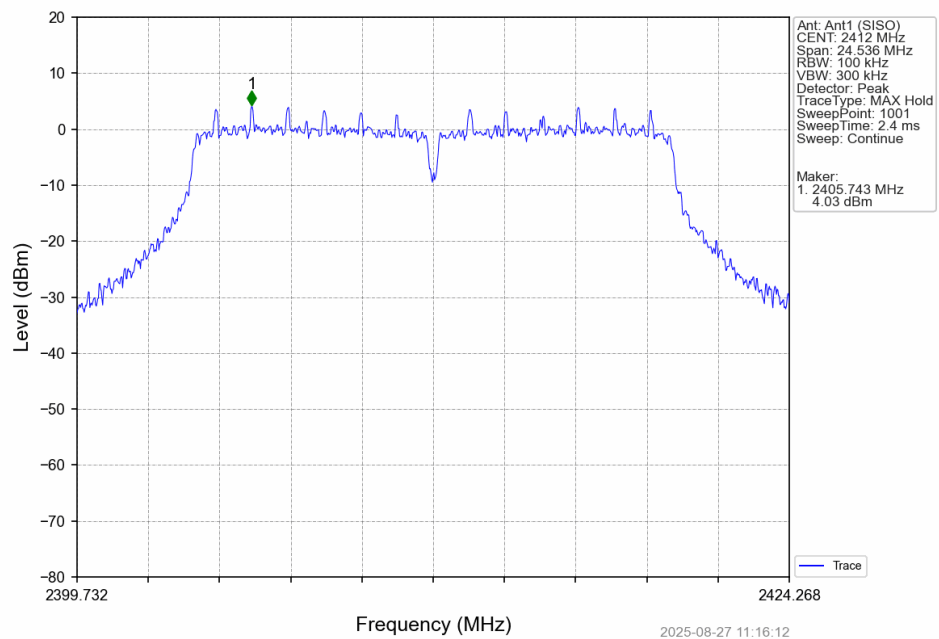
5.2.1 Ref



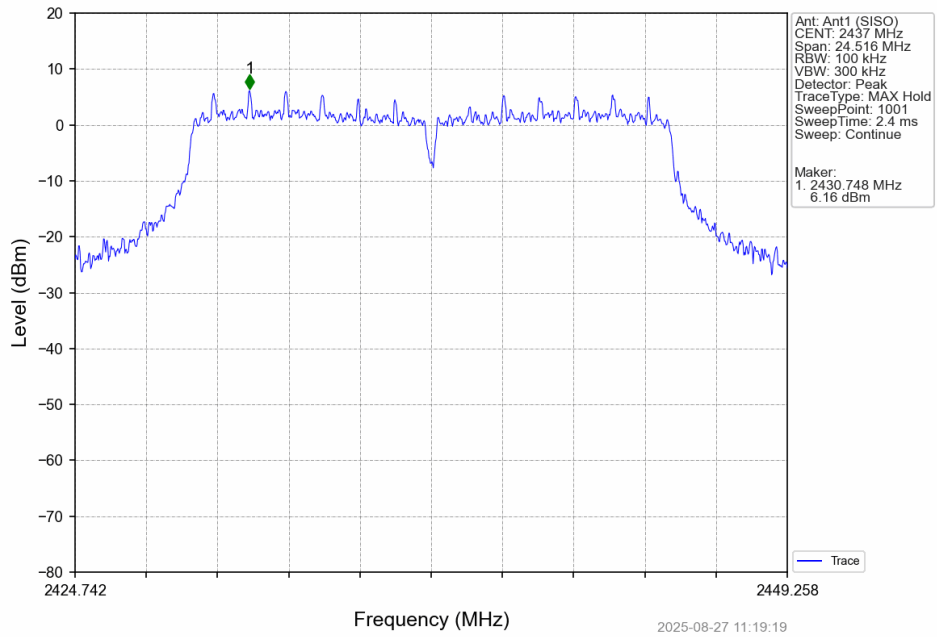
### 802.11b HCH 2462MHz Ant1 (SISO) NTN



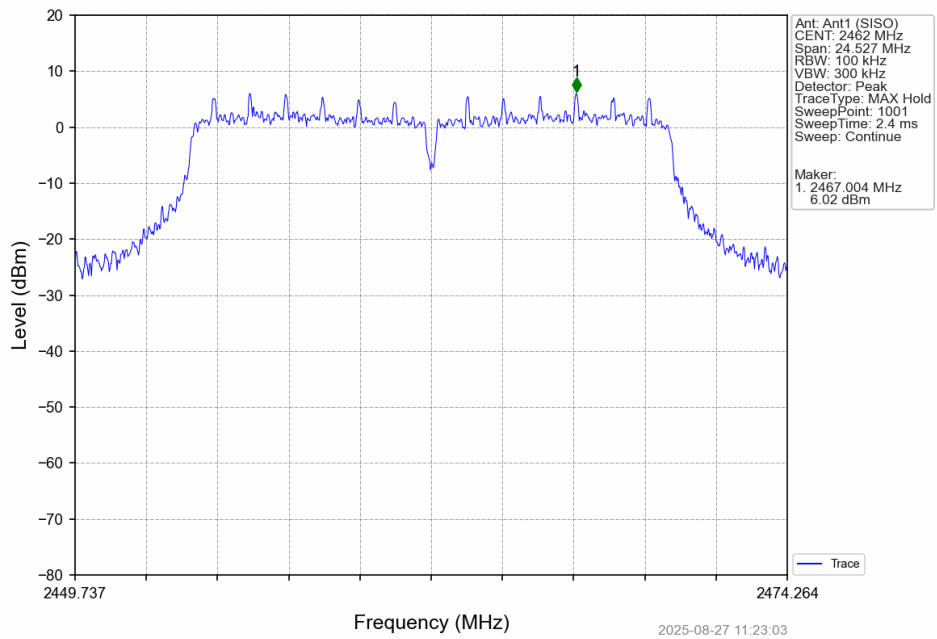
### 802.11g\_LCH\_2412MHz\_Ant1 (SISO) NTN



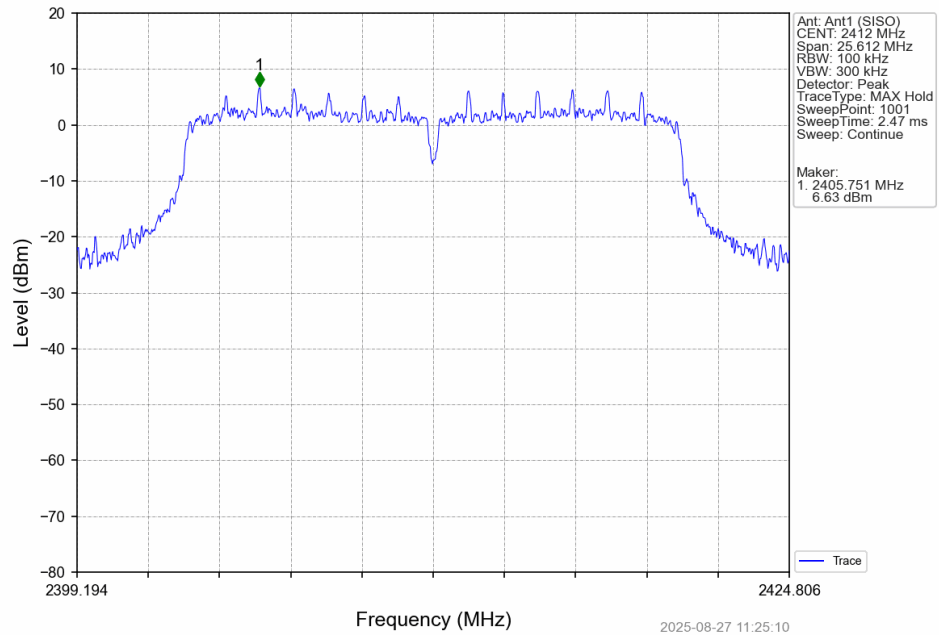
### 802.11g MCH 2437MHz Ant1 (SISO) NTN



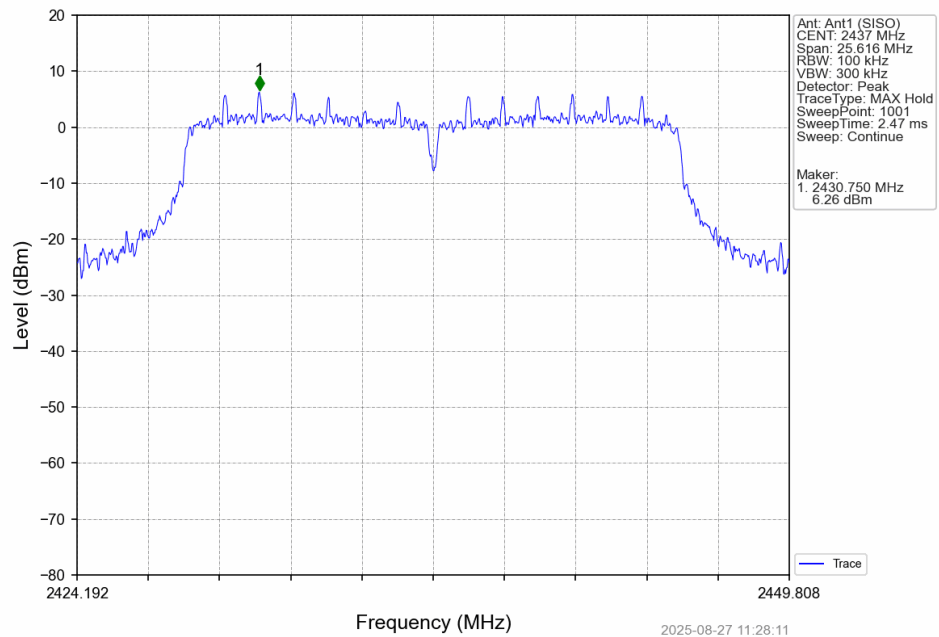
### 802.11g\_HCH\_2462MHz\_Ant1 (SISO)\_NTNV



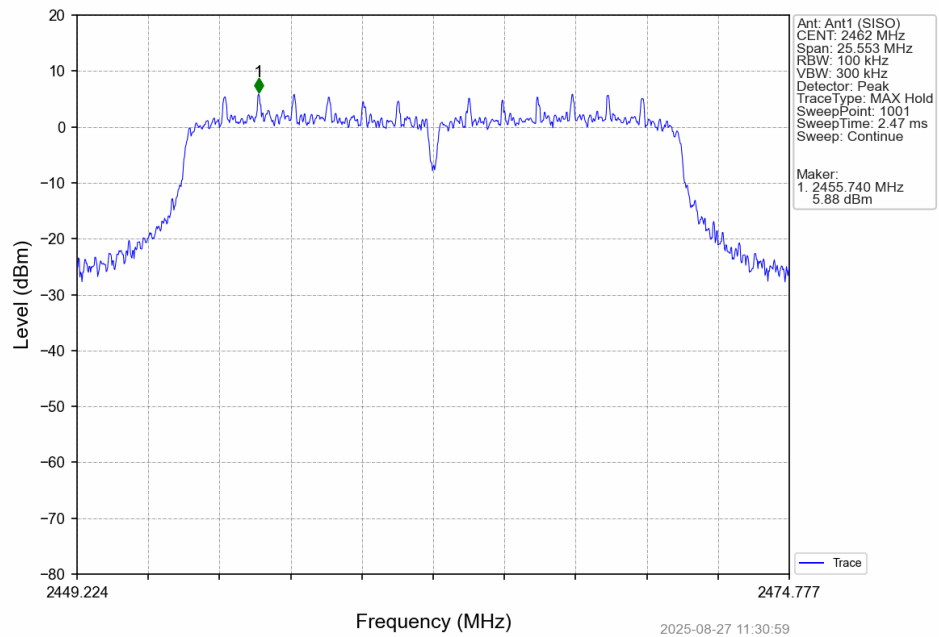
# 802.11n(HT20) LCH 2412MHz Ant1 (SISO) NTN



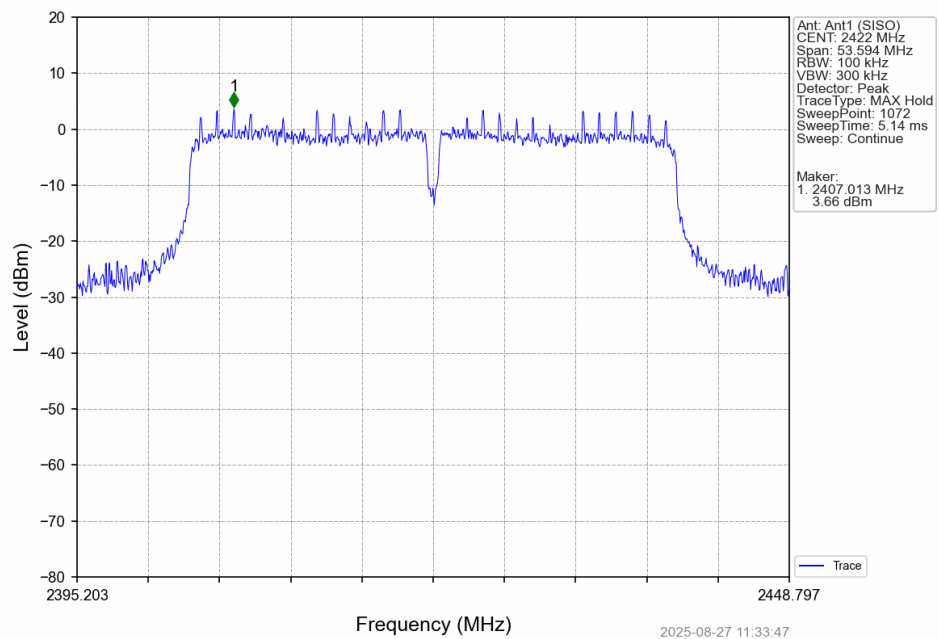
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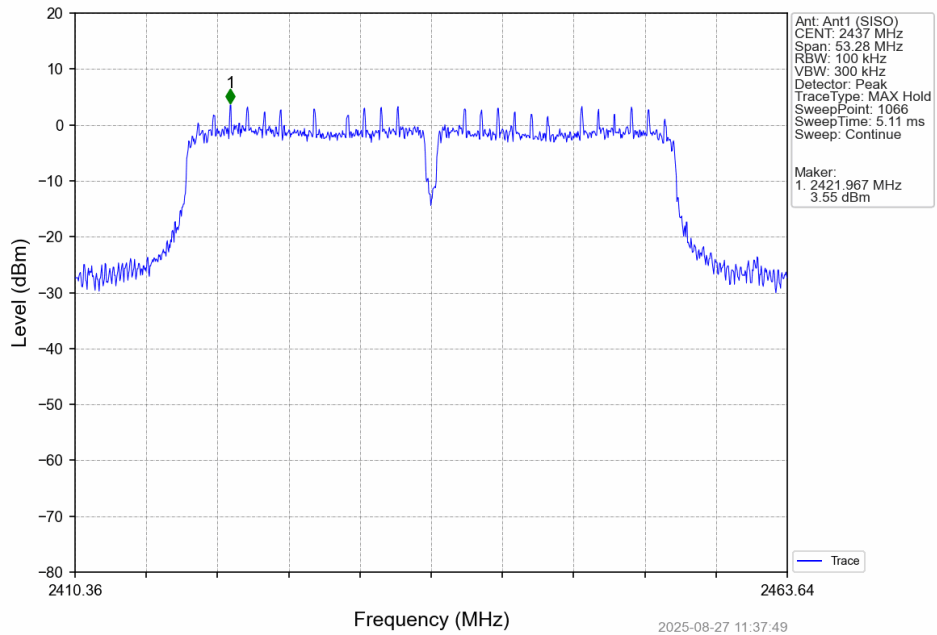
# 802.11n(HT20) HCH 2462MHz Ant1 (SISO) NTNV



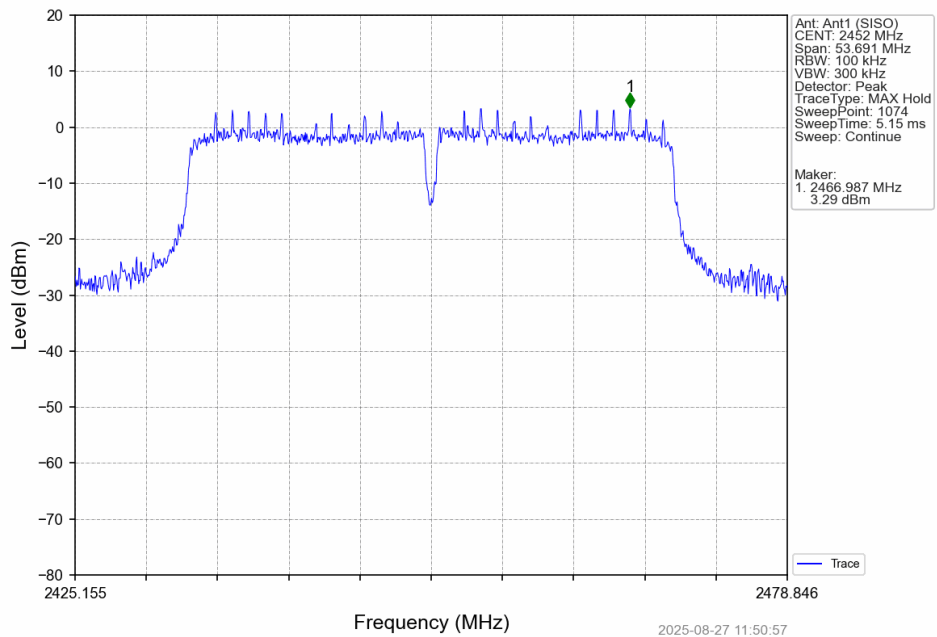
# 802.11n(HT40) LCH 2422MHz Ant1 (SISO) NTNV



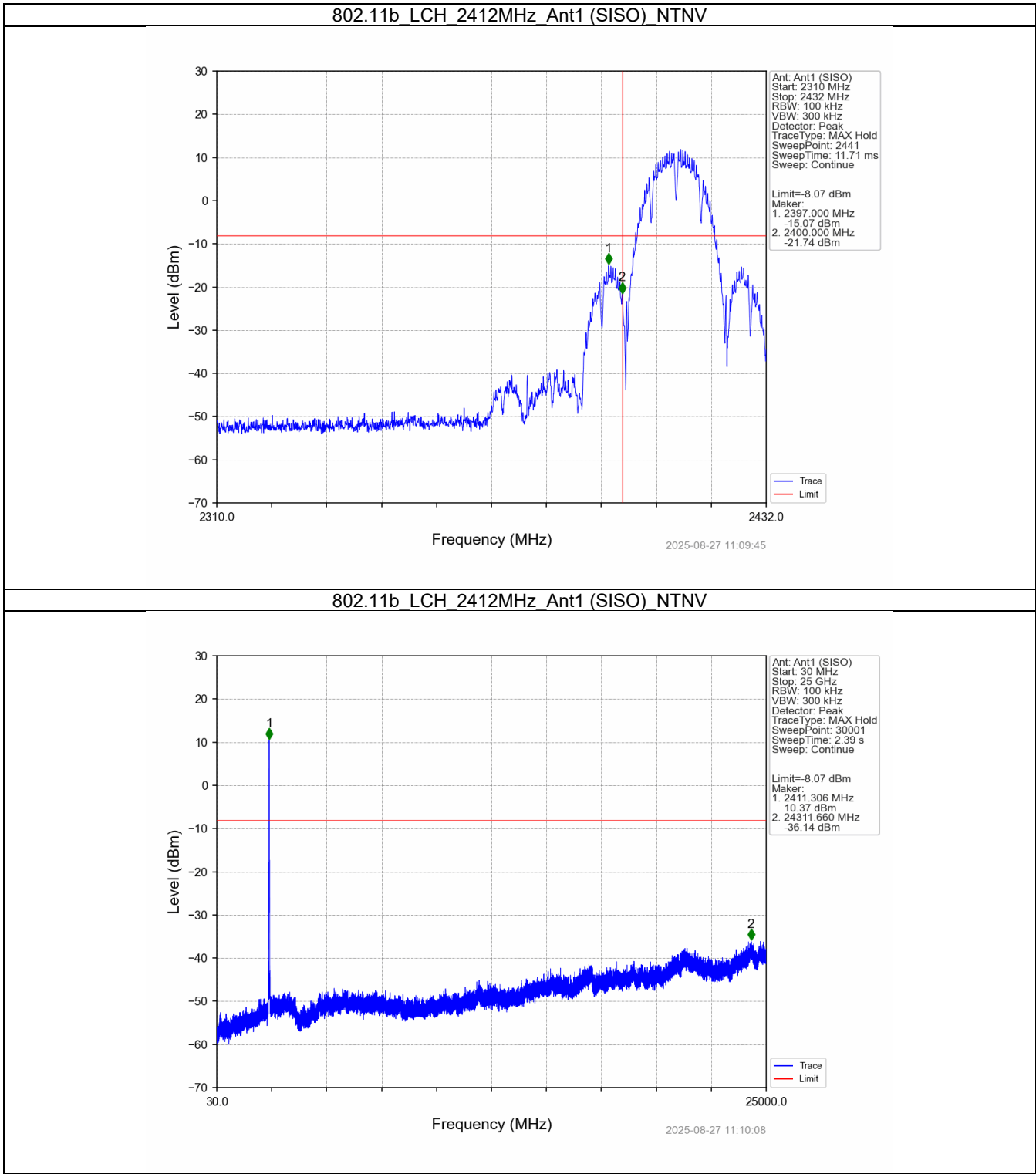
# 802.11n(HT40) MCH\_2437MHz\_Ant1 (SISO) NTN



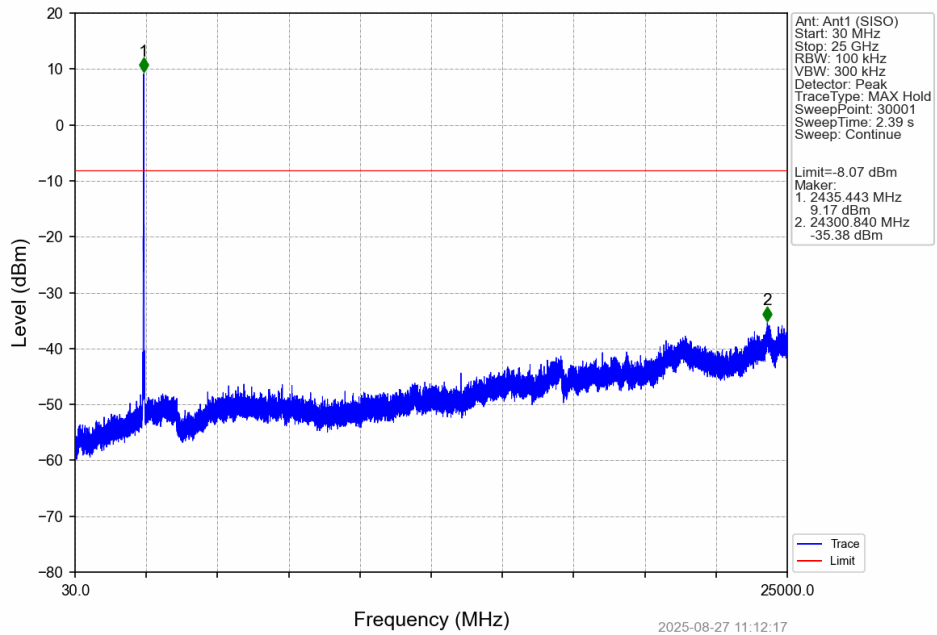
# 802.11n(HT40) HCH\_2452MHz\_Ant1 (SISO) NTN



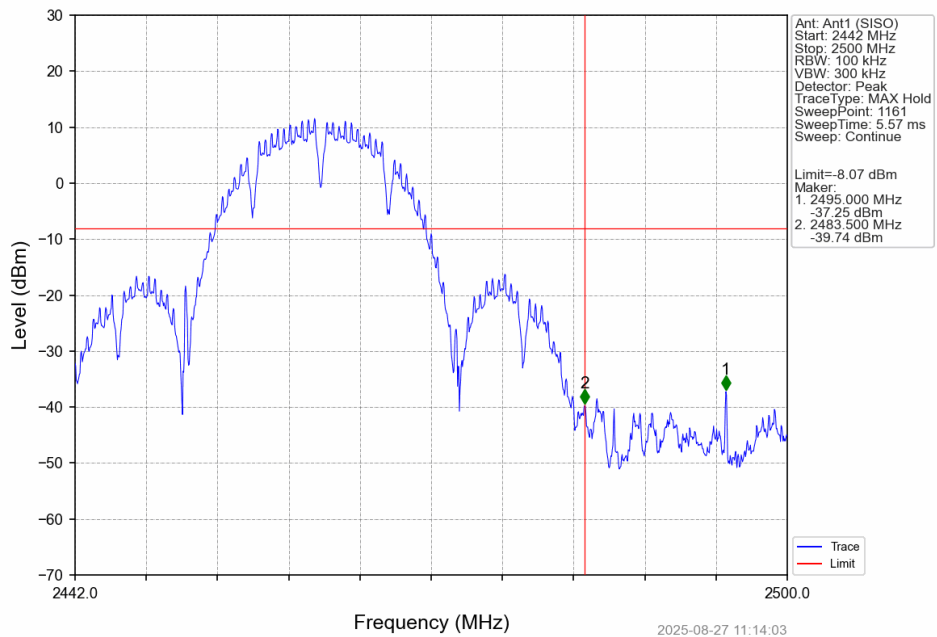
5.2.2 CSE



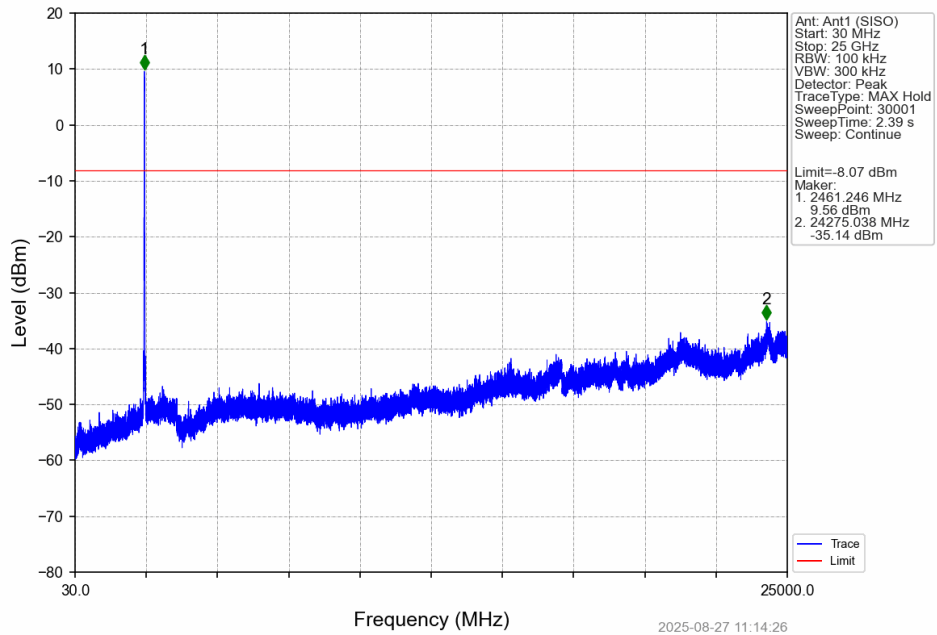
# 802.11b MCH 2437MHz Ant1 (SISO) NTN



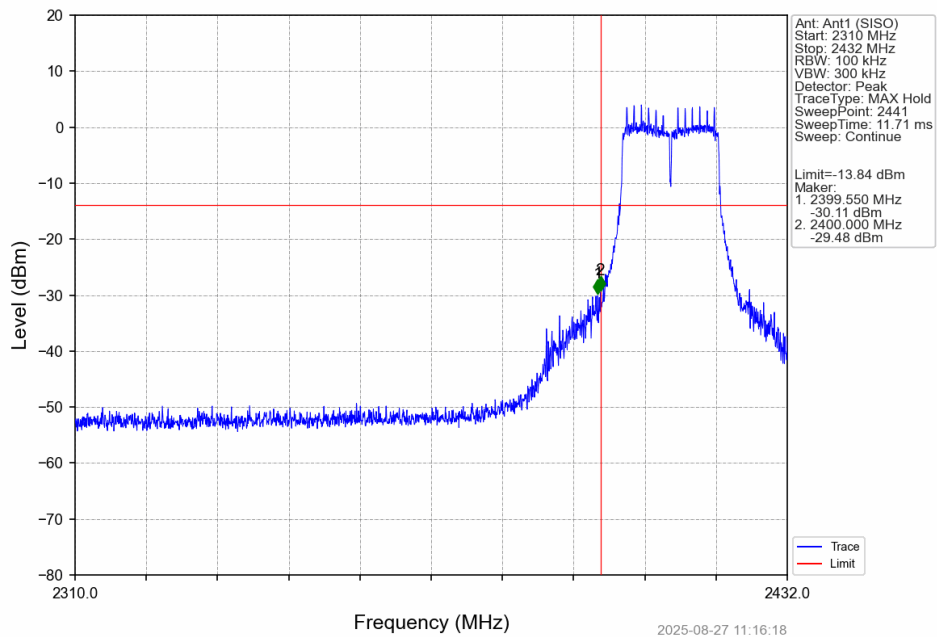
# 802.11b\_HCH\_2462MHz\_Ant1 (SISO) NTN



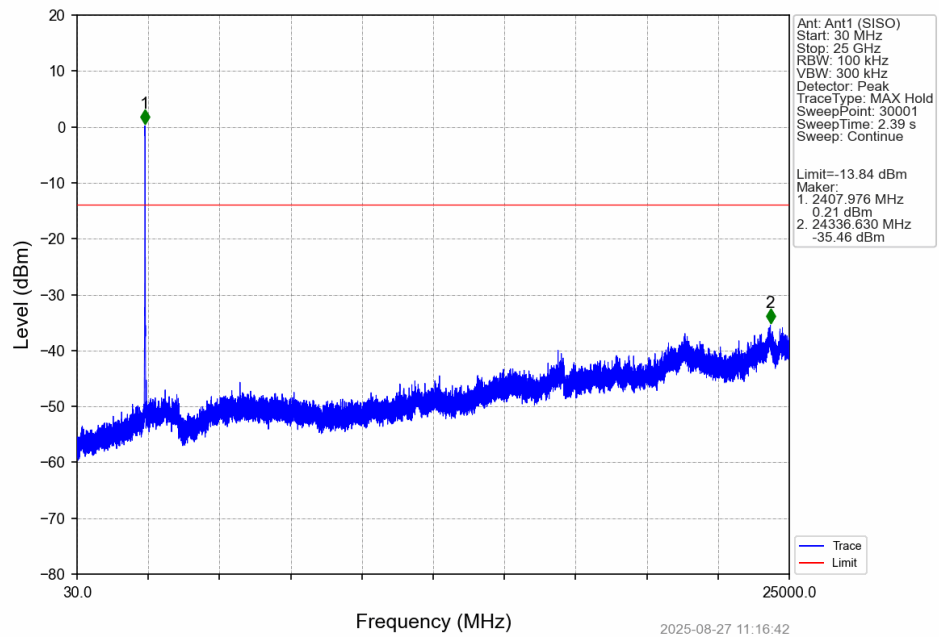
### 802.11b HCH 2462MHz Ant1 (SISO) NTN



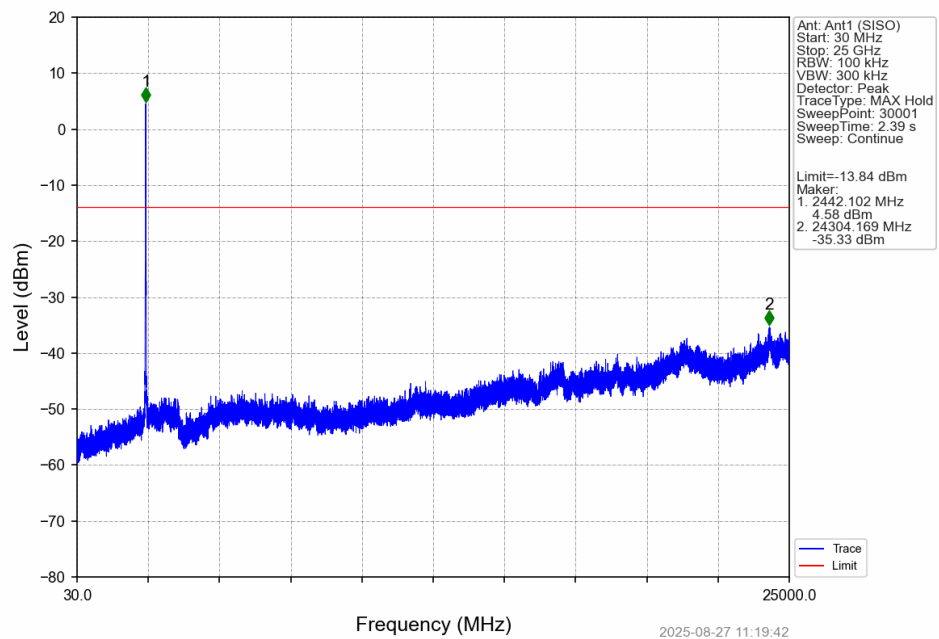
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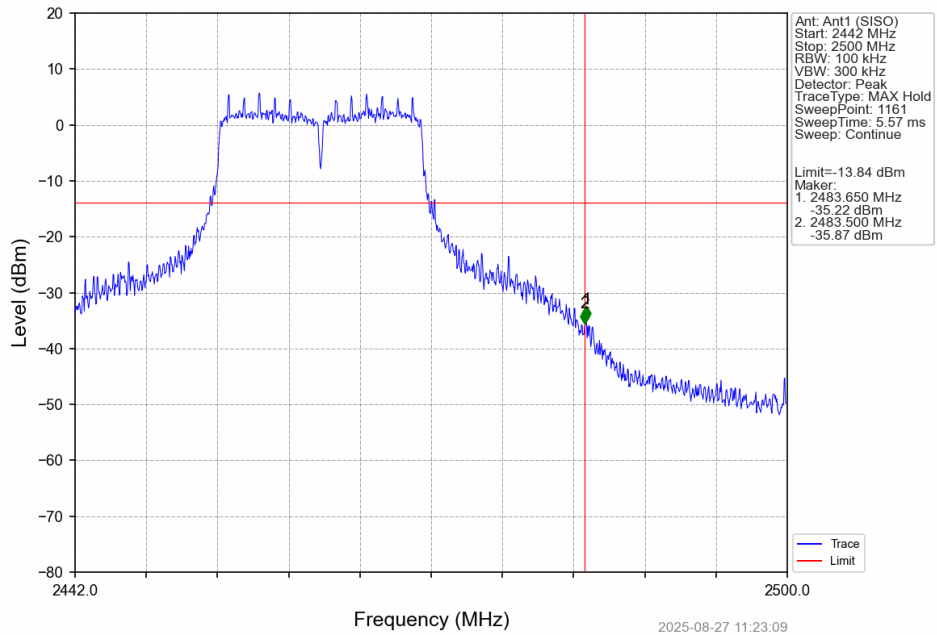
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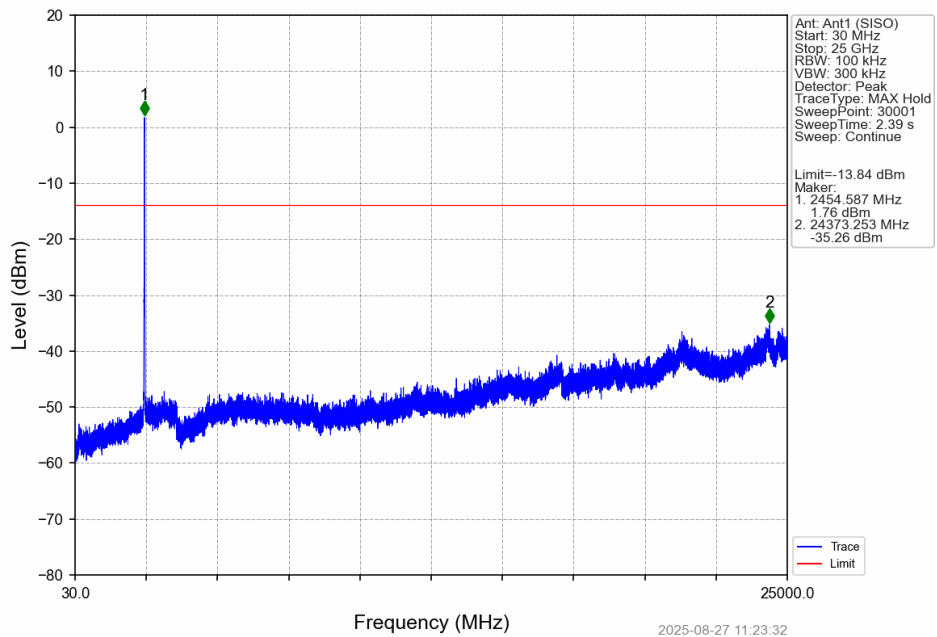
# 802.11g\_MCH\_2437MHz\_Ant1 (SISO)\_NTN



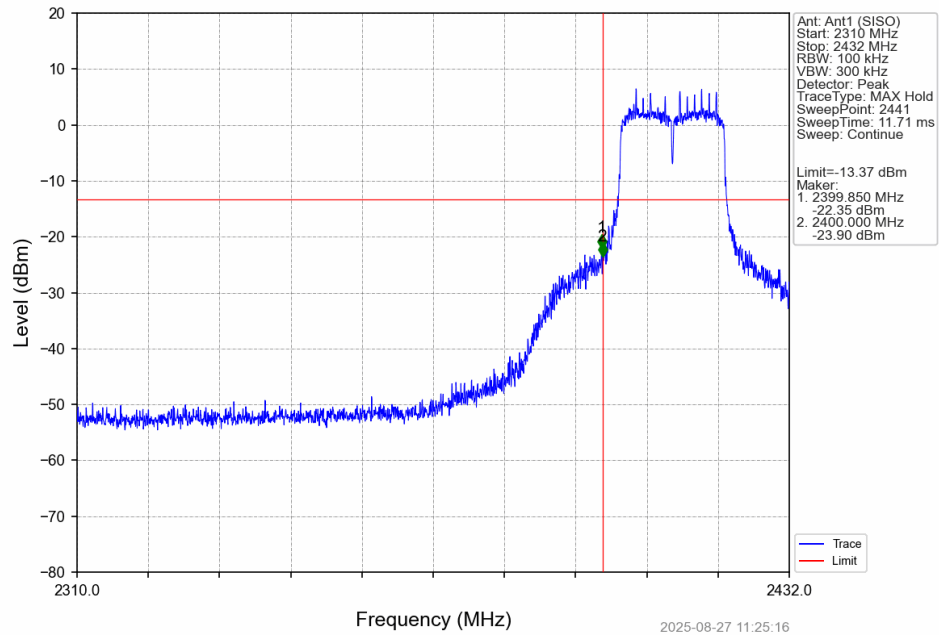
# 802.11g\_HCH\_2462MHz\_Ant1 (SISO)\_NTNV



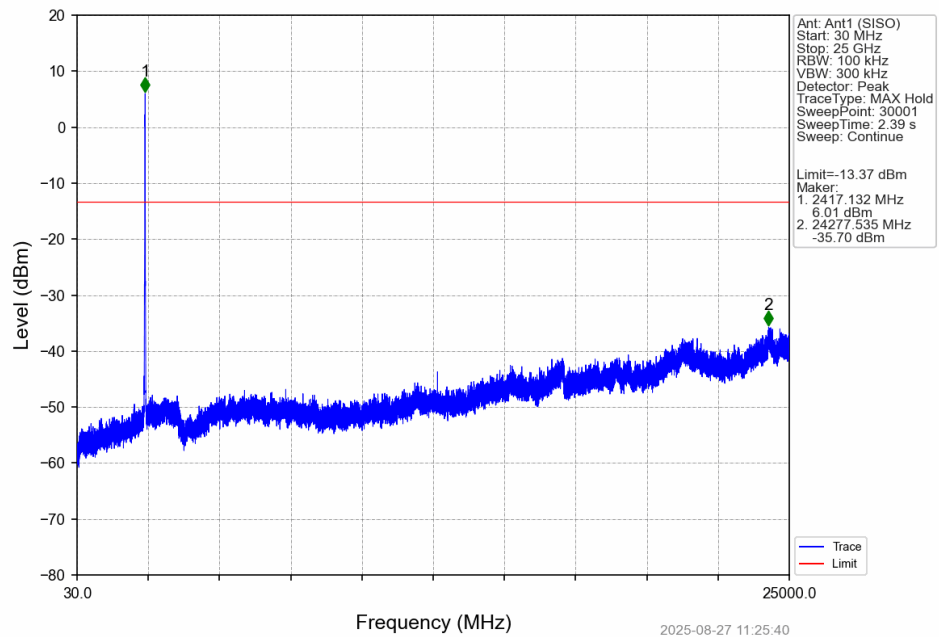
# 802.11g\_HCH\_2462MHz\_Ant1 (SISO)\_NTNV



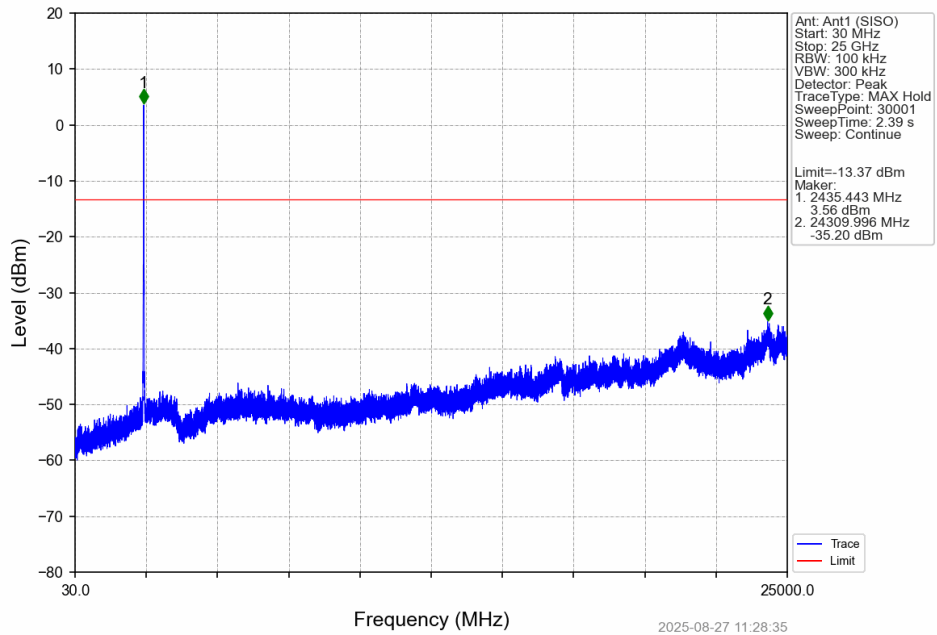
# 802.11n(HT20) LCH\_2412MHz\_Ant1 (SISO) NTN



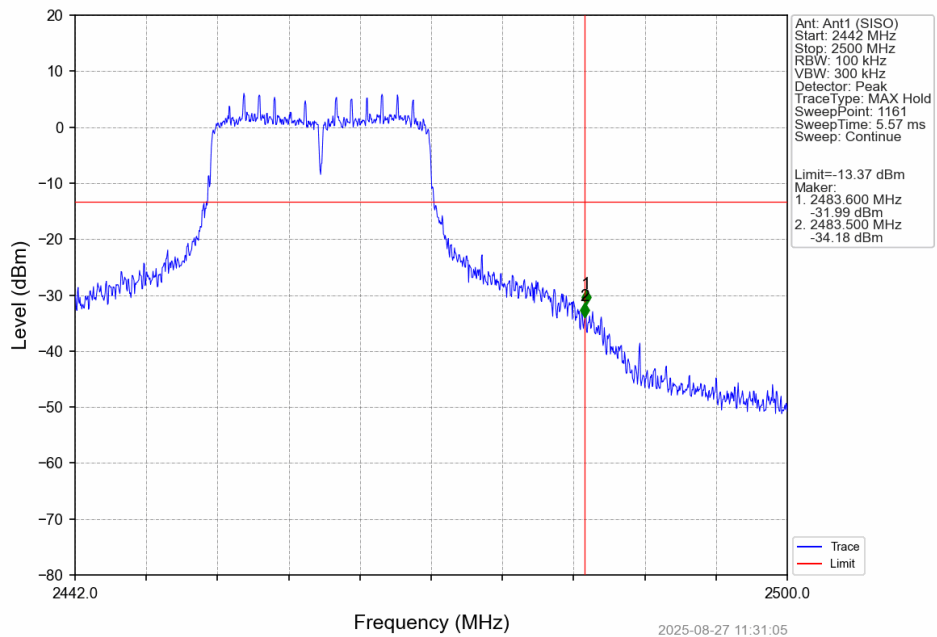
# 802.11n(HT20) LCH\_2412MHz\_Ant1 (SISO) NTN



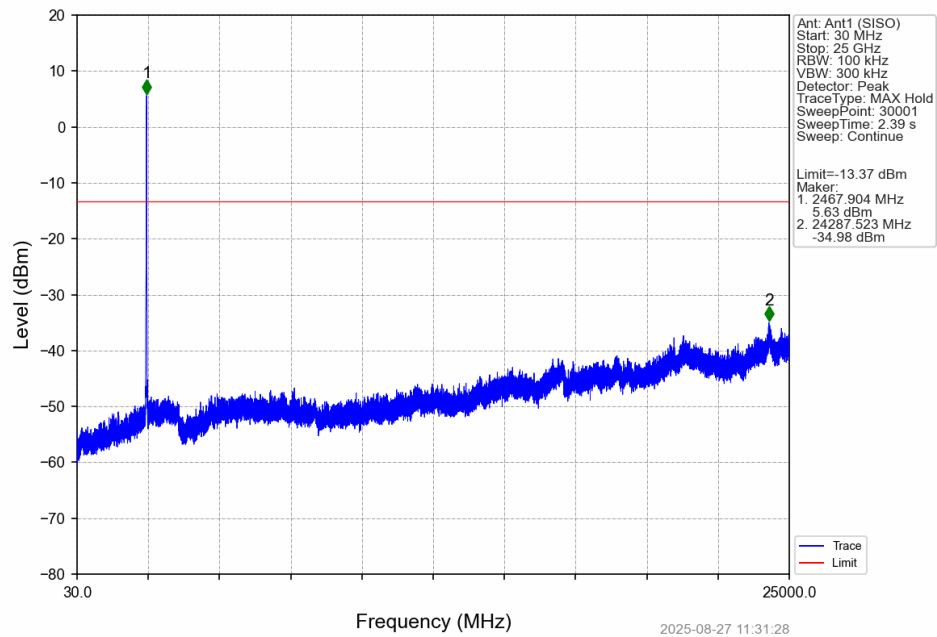
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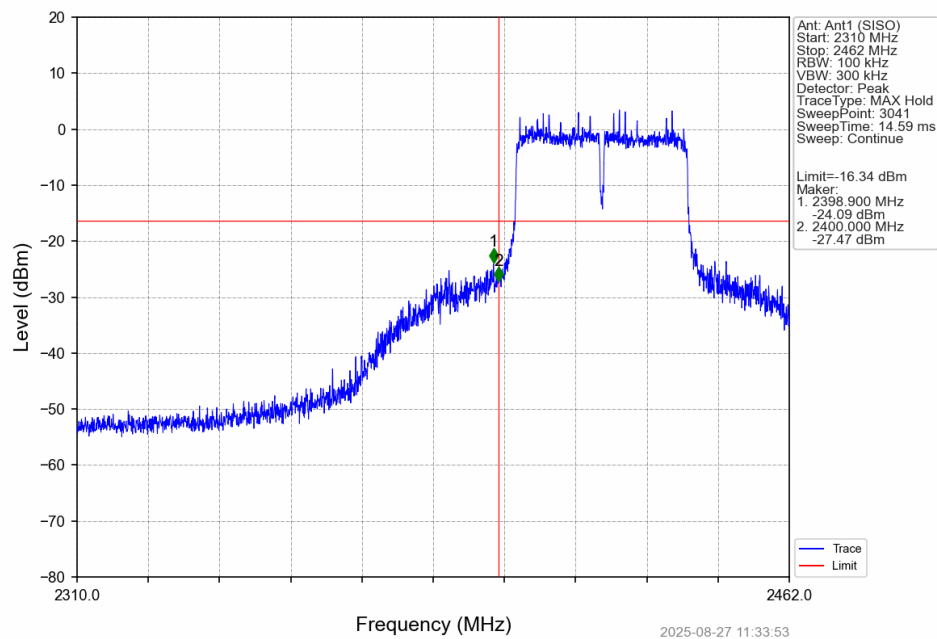
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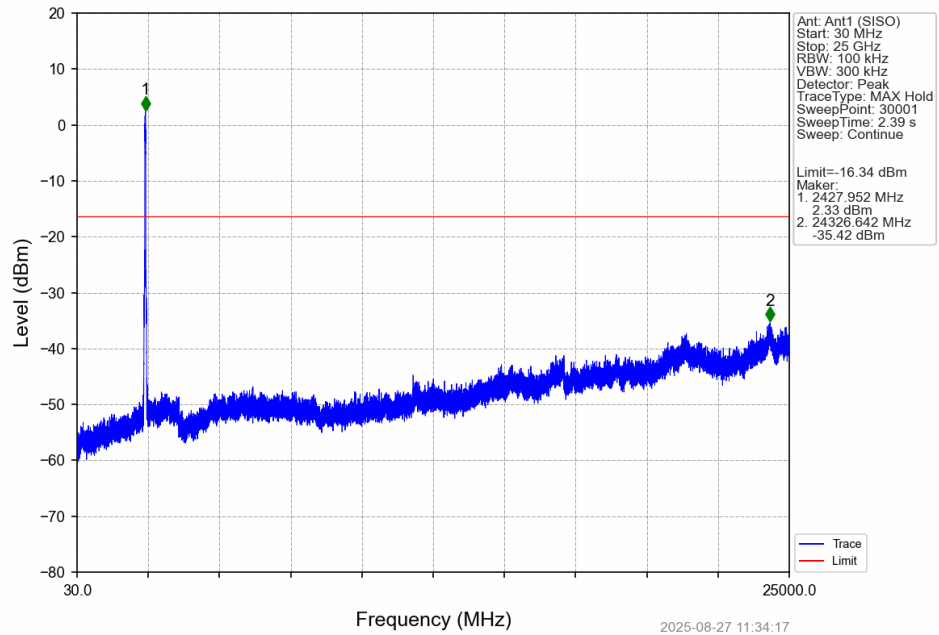
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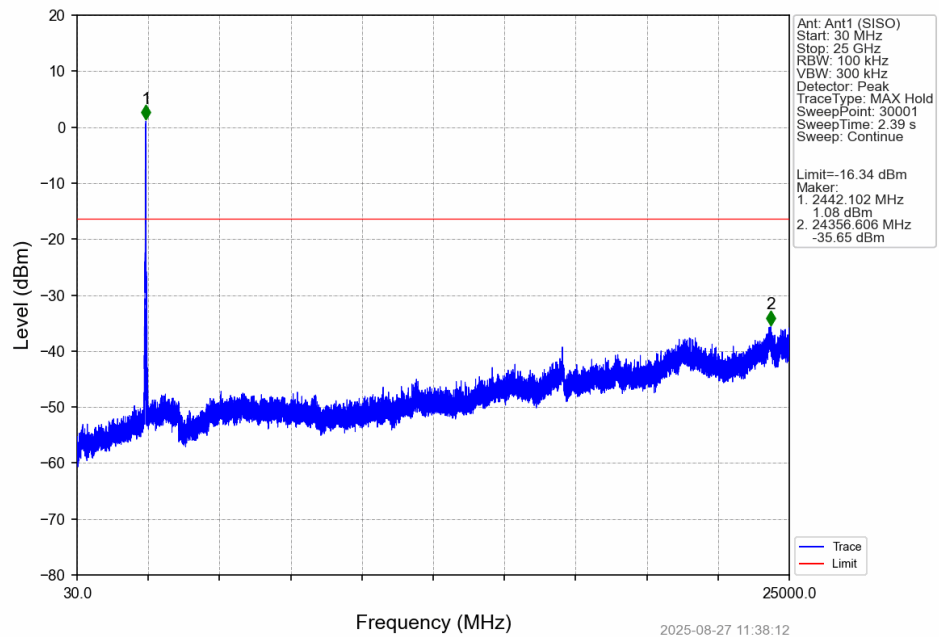
# 802.11n(HT40) LCH 2422MHz Ant1 (SISO) NTNV



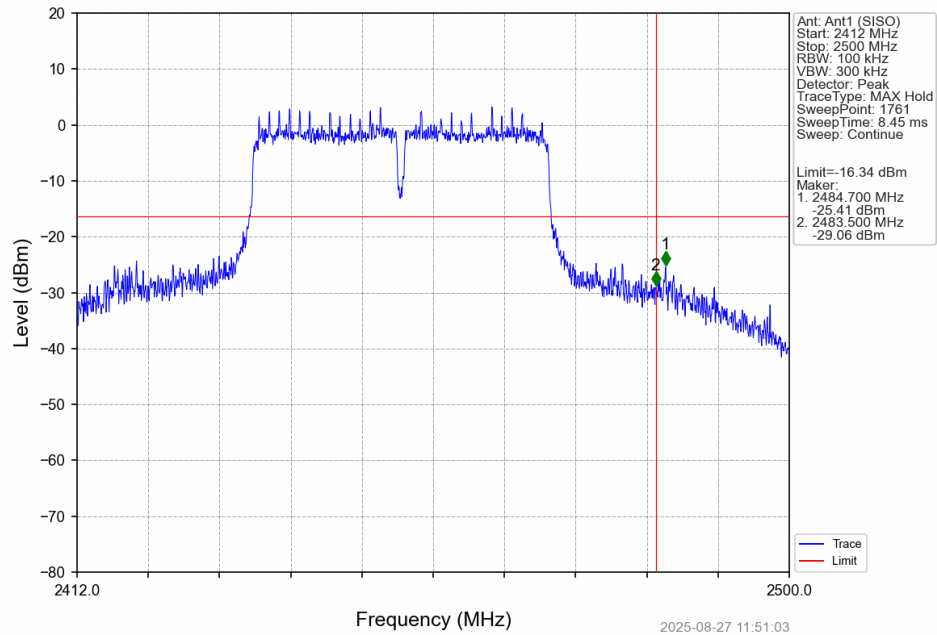
# 802.11n(HT40) LCH 2422MHz Ant1 (SISO) NTNV



# 802.11n(HT40) MCH 2437MHz Ant1 (SISO) NTNV



# 802.11n(HT40) HCH 2452MHz Ant1 (SISO) NTNV



# 802.11n(HT40) HCH 2452MHz Ant1 (SISO) NTNV

