

## **Appendix RF test data for WIFI2.4G**

## 1. Duty Cycle

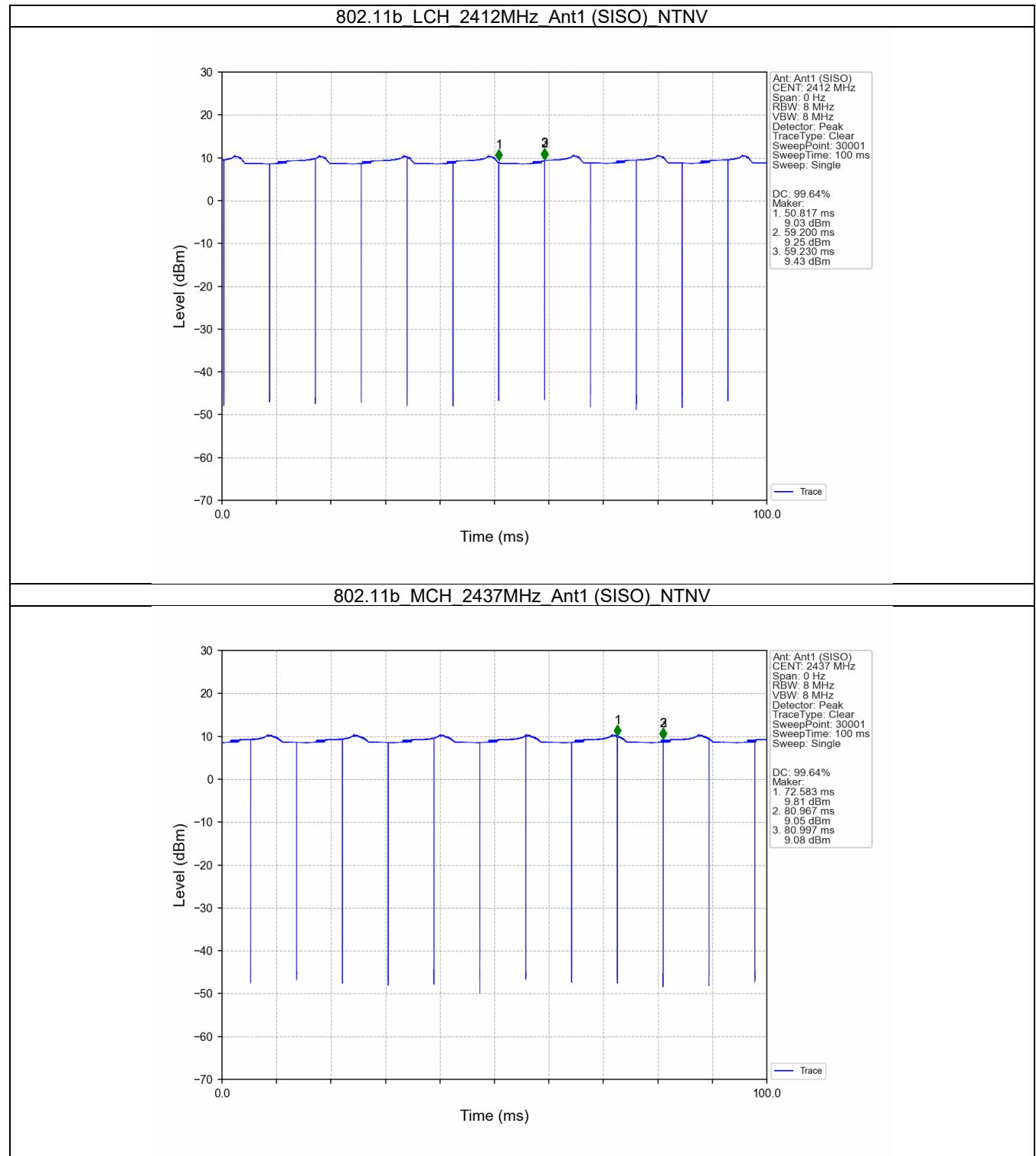
### 1.1 Test Result

#### 1.1.1 Ant1

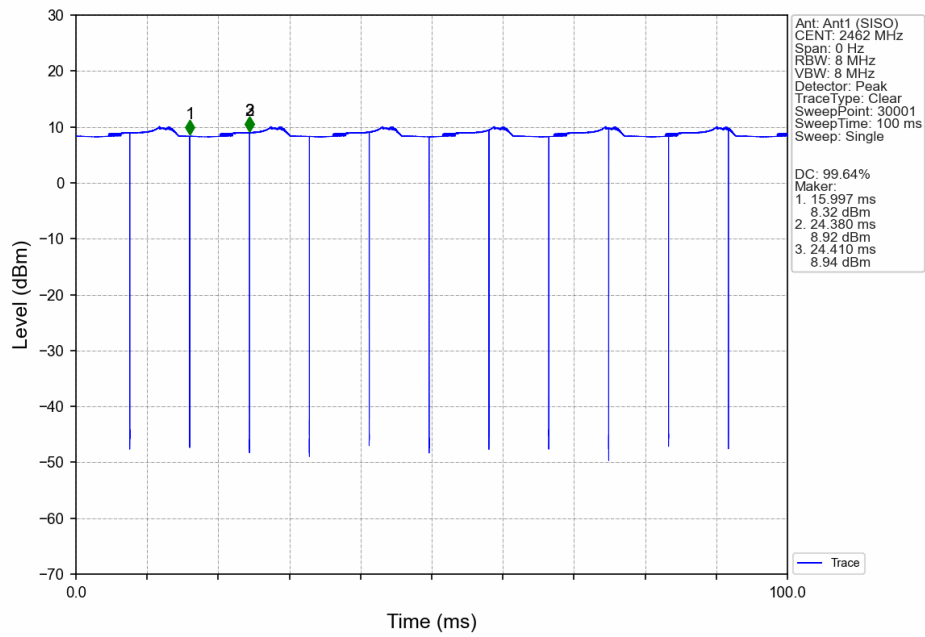
| Ant1           |         |                 |           |             |                |                                   |                       |
|----------------|---------|-----------------|-----------|-------------|----------------|-----------------------------------|-----------------------|
| Mode           | TX Type | Frequency (MHz) | T_on (ms) | Period (ms) | Duty Cycle (%) | Duty Cycle Correction Factor (dB) | Max. DC Variation (%) |
| 802.11b        | SISO    | 2412            | 8.383     | 8.413       | 99.64          | 0.02                              | 0.04                  |
|                |         | 2437            | 8.384     | 8.414       | 99.64          | 0.02                              | 0.04                  |
|                |         | 2462            | 8.383     | 8.413       | 99.64          | 0.02                              | 0.04                  |
| 802.11g        | SISO    | 2412            | 1.392     | 1.428       | 97.48          | 0.11                              | 0.03                  |
|                |         | 2437            | 1.394     | 1.428       | 97.62          | 0.10                              | 0.00                  |
|                |         | 2462            | 1.394     | 1.428       | 97.62          | 0.10                              | 0.03                  |
| 802.11n (HT20) | SISO    | 2412            | 1.302     | 1.336       | 97.46          | 0.11                              | 0.03                  |
|                |         | 2437            | 1.300     | 1.335       | 97.38          | 0.12                              | 0.03                  |
|                |         | 2462            | 1.301     | 1.336       | 97.38          | 0.12                              | 0.07                  |
| 802.11n (HT40) | SISO    | 2422            | 0.650     | 0.683       | 95.17          | 0.22                              | 0.03                  |
|                |         | 2437            | 0.648     | 0.683       | 94.88          | 0.23                              | 0.03                  |
|                |         | 2452            | 0.648     | 0.683       | 94.88          | 0.23                              | 0.04                  |

## 1.2 Test Graph

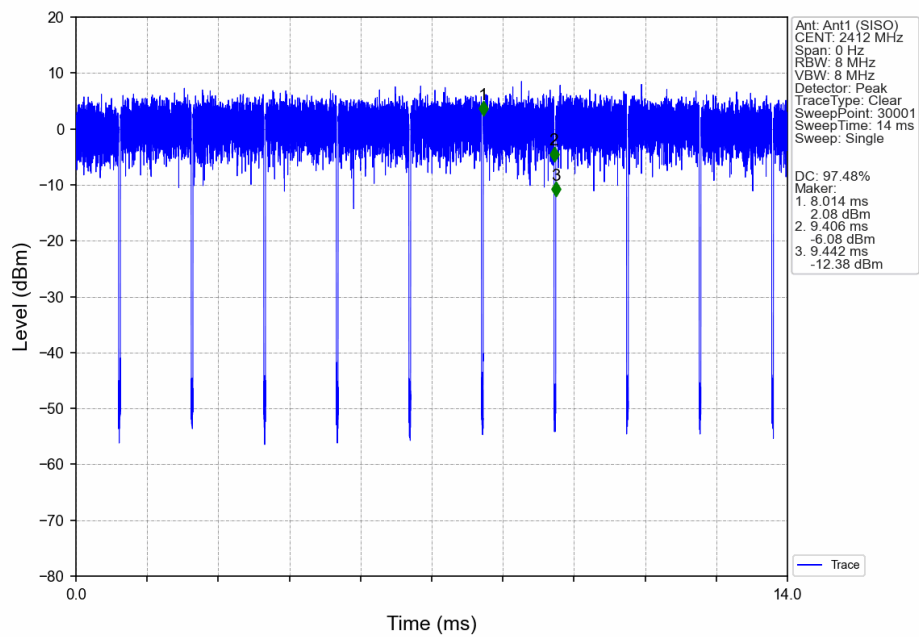
### 1.2.1 Ant1



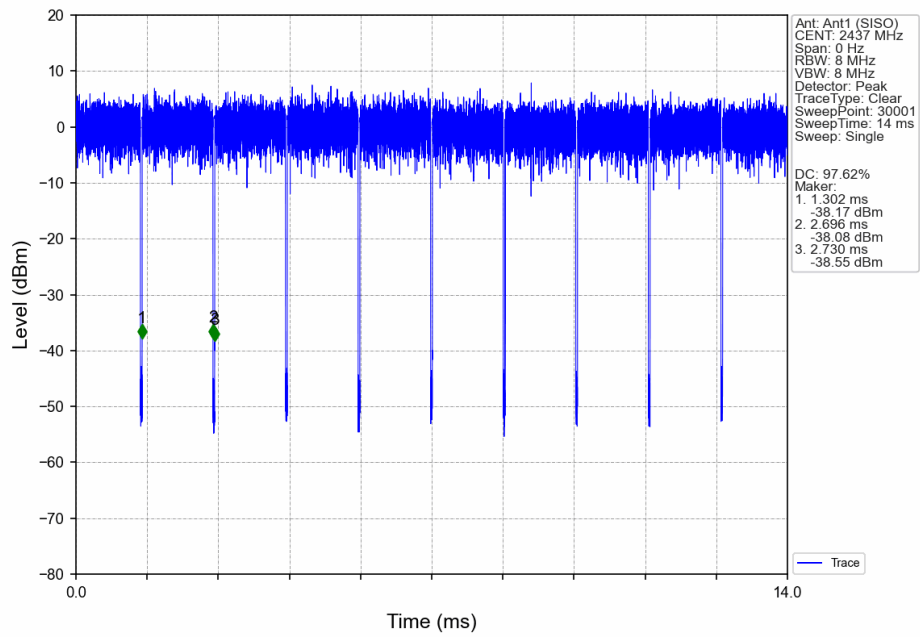
## 802.11b HCH 2462MHz Ant1 (SISO) NTNV



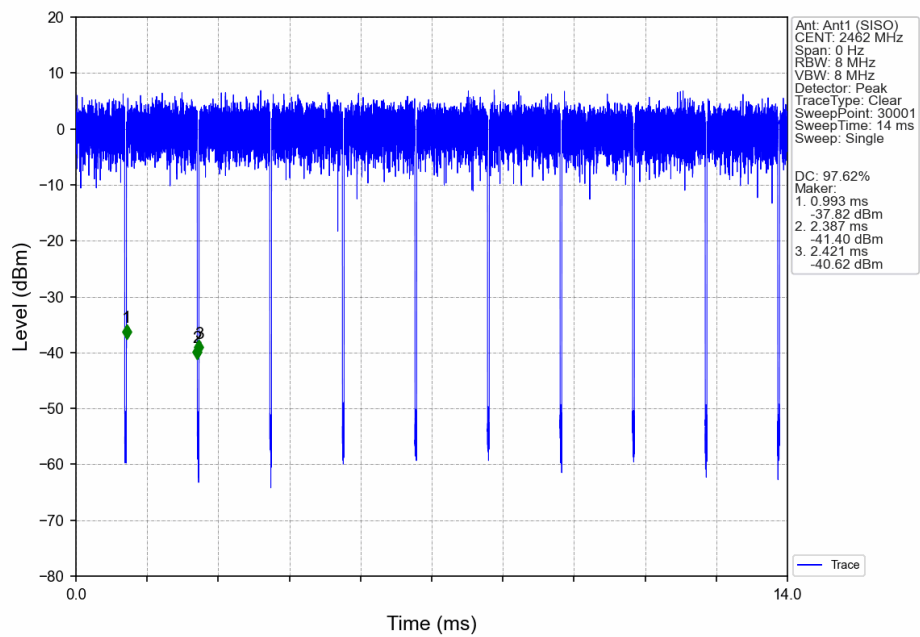
## 802.11g LCH 2412MHz Ant1 (SISO) NTNV



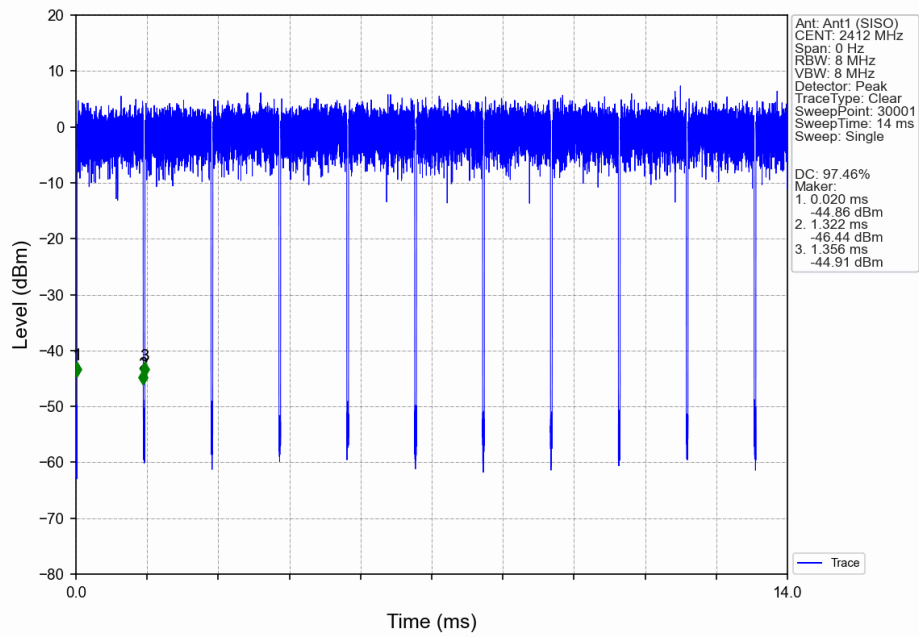
## 802.11g MCH 2437MHz Ant1 (SISO) NTNV



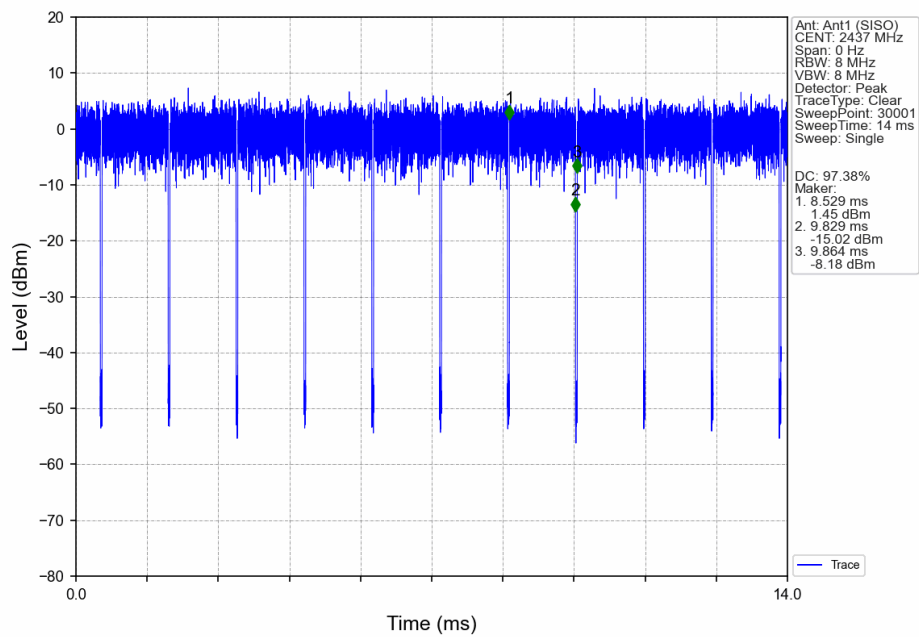
## 802.11g HCH 2462MHz Ant1 (SISO) NTNV



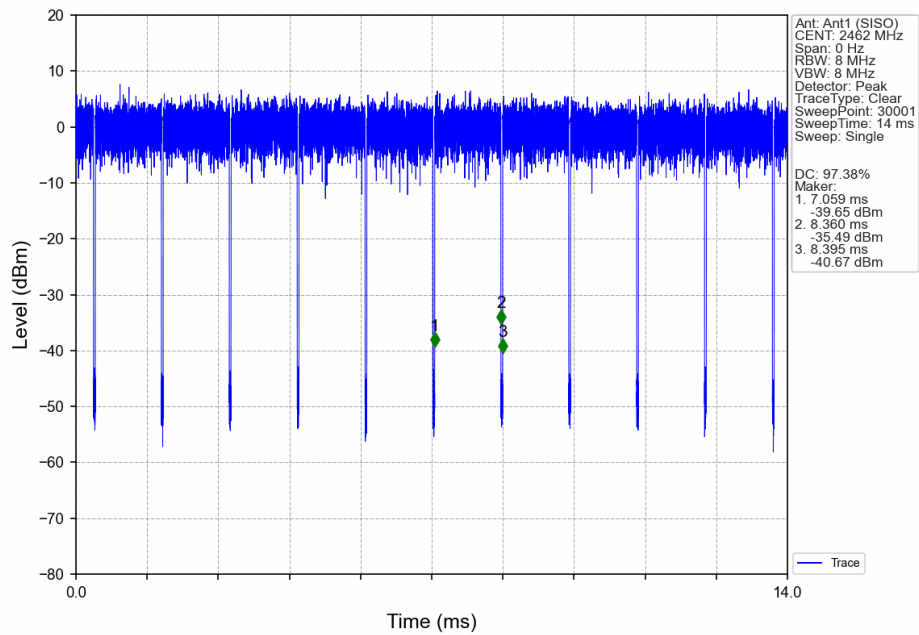
## 802.11n(HT20) LCH 2412MHz Ant1 (SISO) NTNV



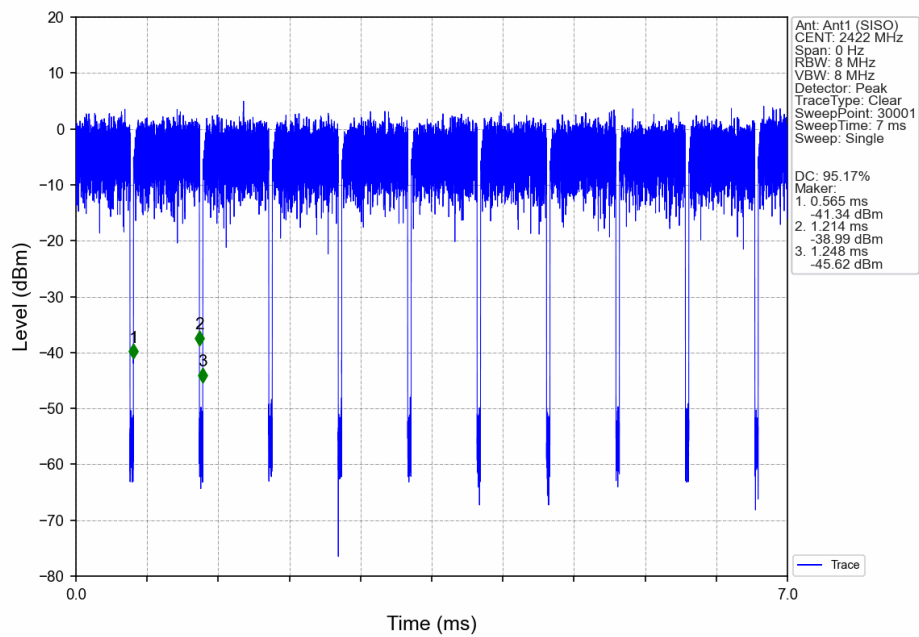
## 802.11n(HT20) MCH 2437MHz Ant1 (SISO) NTNV



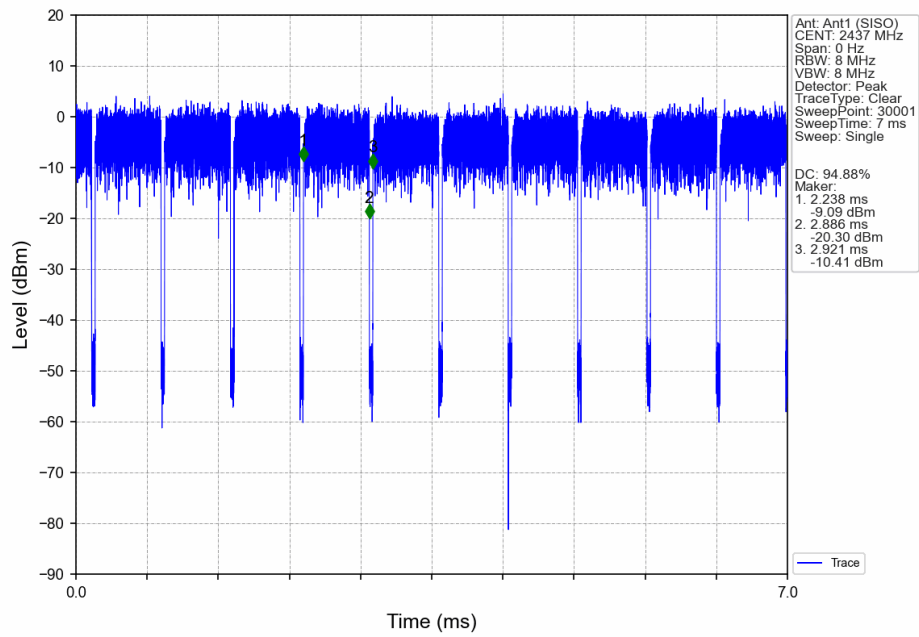
## 802.11n(HT20) HCH 2462MHz Ant1 (SISO) NTNV



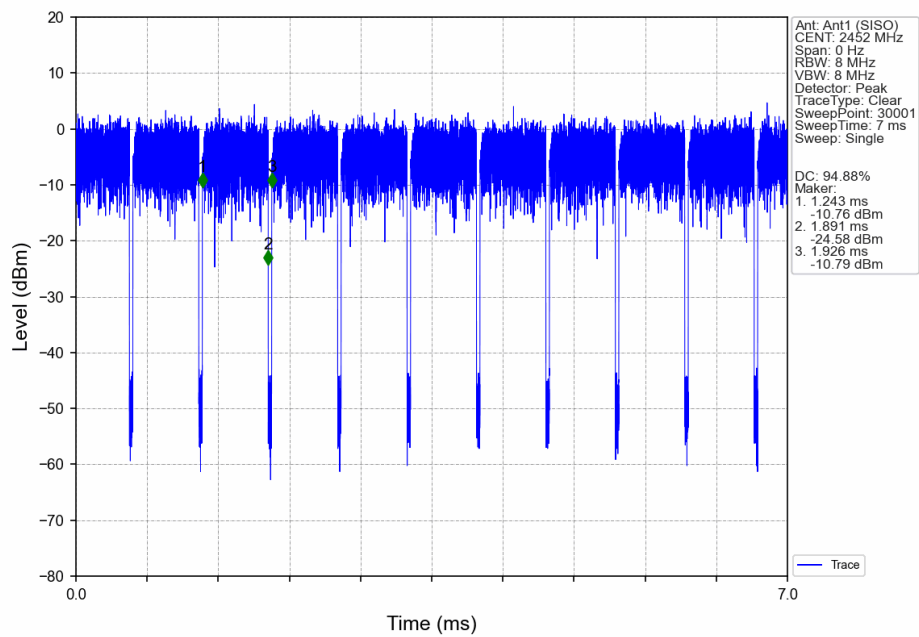
## 802.11n(HT40) LCH 2422MHz Ant1 (SISO) NTNV



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



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



## 2. Bandwidth

### 2.1 Test Result

#### 2.1.1 OBW

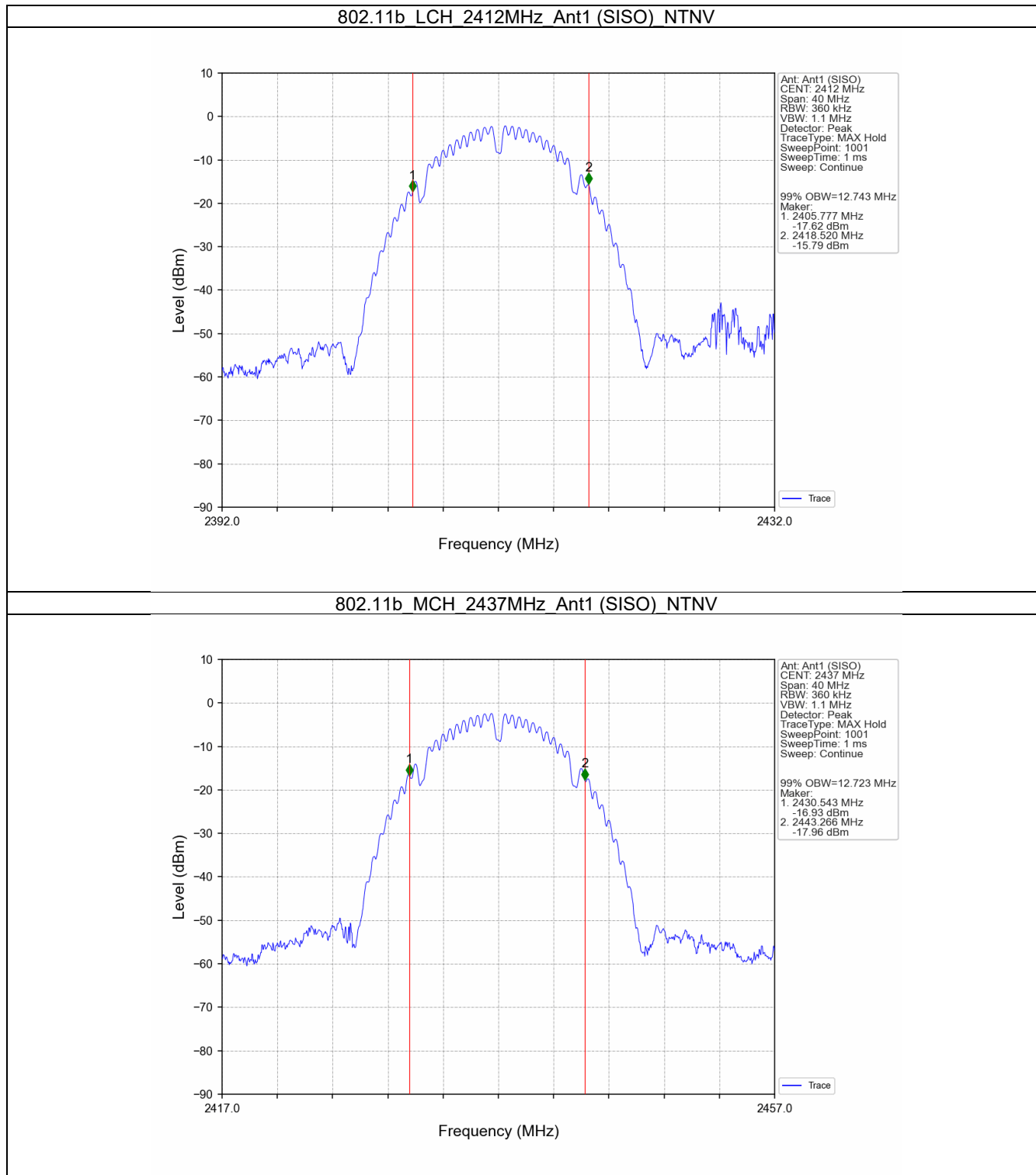
| Mode           | TX Type | Frequency (MHz) | ANT | 99% Occupied Bandwidth (MHz) |       | Verdict |
|----------------|---------|-----------------|-----|------------------------------|-------|---------|
|                |         |                 |     | Result                       | Limit |         |
| 802.11b        | SISO    | 2412            | 1   | 12.743                       | /     | Pass    |
|                |         | 2437            | 1   | 12.723                       | /     | Pass    |
|                |         | 2462            | 1   | 12.596                       | /     | Pass    |
| 802.11g        | SISO    | 2412            | 1   | 17.312                       | /     | Pass    |
|                |         | 2437            | 1   | 17.323                       | /     | Pass    |
|                |         | 2462            | 1   | 17.237                       | /     | Pass    |
| 802.11n (HT20) | SISO    | 2412            | 1   | 18.254                       | /     | Pass    |
|                |         | 2437            | 1   | 18.213                       | /     | Pass    |
|                |         | 2462            | 1   | 18.115                       | /     | Pass    |
| 802.11n (HT40) | SISO    | 2422            | 1   | 36.029                       | /     | Pass    |
|                |         | 2437            | 1   | 36.370                       | /     | Pass    |
|                |         | 2452            | 1   | 36.347                       | /     | Pass    |

#### 2.1.2 6dB BW

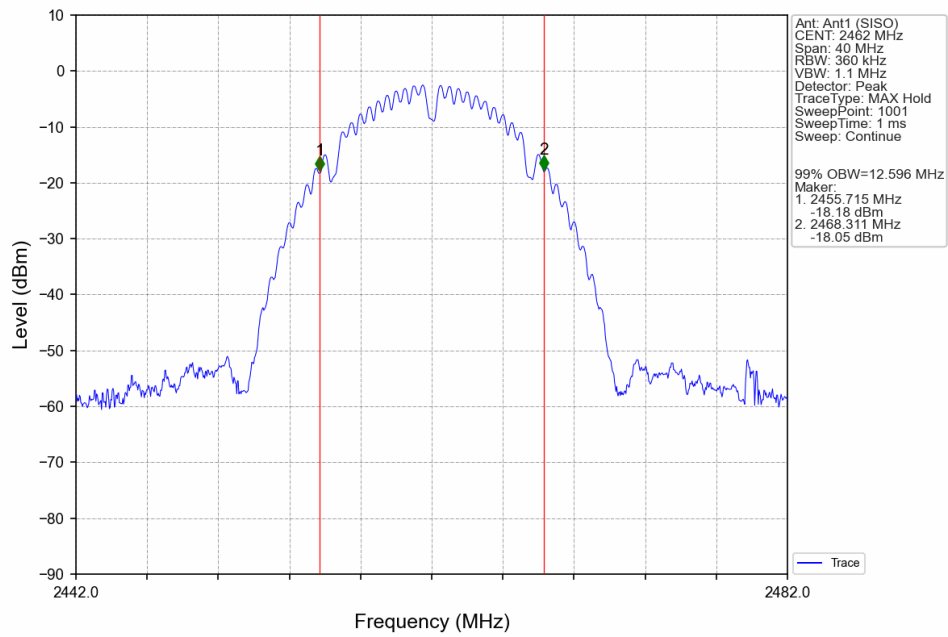
| Mode           | TX Type | Frequency (MHz) | ANT | 6dB Bandwidth (MHz) |            | Verdict |
|----------------|---------|-----------------|-----|---------------------|------------|---------|
|                |         |                 |     | Result              | Limit      |         |
| 802.11b        | SISO    | 2412            | 1   | 8.629               | $\geq 0.5$ | Pass    |
|                |         | 2437            | 1   | 8.215               | $\geq 0.5$ | Pass    |
|                |         | 2462            | 1   | 8.220               | $\geq 0.5$ | Pass    |
| 802.11g        | SISO    | 2412            | 1   | 16.039              | $\geq 0.5$ | Pass    |
|                |         | 2437            | 1   | 15.763              | $\geq 0.5$ | Pass    |
|                |         | 2462            | 1   | 16.132              | $\geq 0.5$ | Pass    |
| 802.11n (HT20) | SISO    | 2412            | 1   | 17.034              | $\geq 0.5$ | Pass    |
|                |         | 2437            | 1   | 17.265              | $\geq 0.5$ | Pass    |
|                |         | 2462            | 1   | 17.197              | $\geq 0.5$ | Pass    |
| 802.11n (HT40) | SISO    | 2422            | 1   | 33.480              | $\geq 0.5$ | Pass    |
|                |         | 2437            | 1   | 35.515              | $\geq 0.5$ | Pass    |
|                |         | 2452            | 1   | 35.471              | $\geq 0.5$ | Pass    |

## 2.2 Test Graph

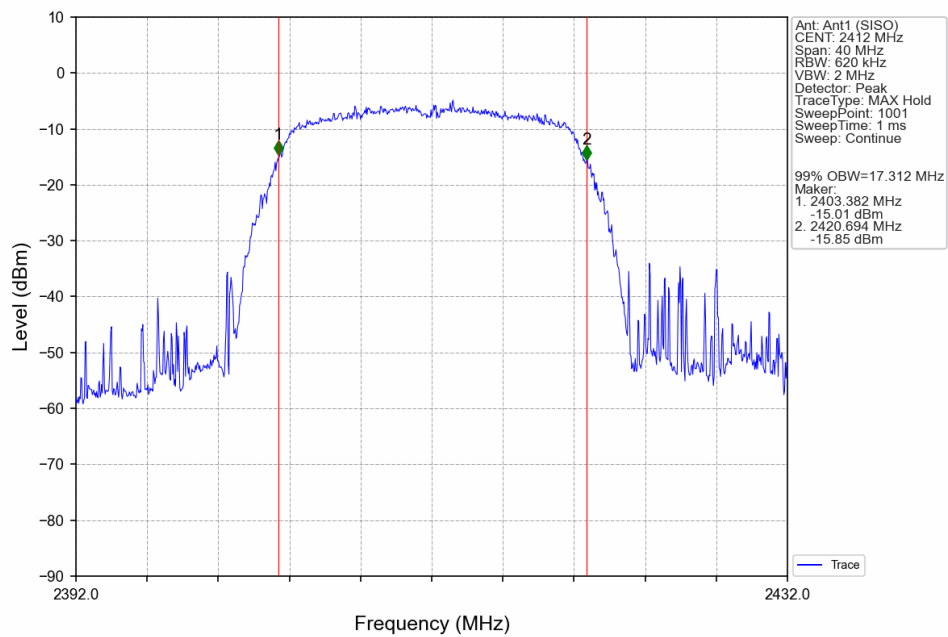
### 2.2.1 OBW



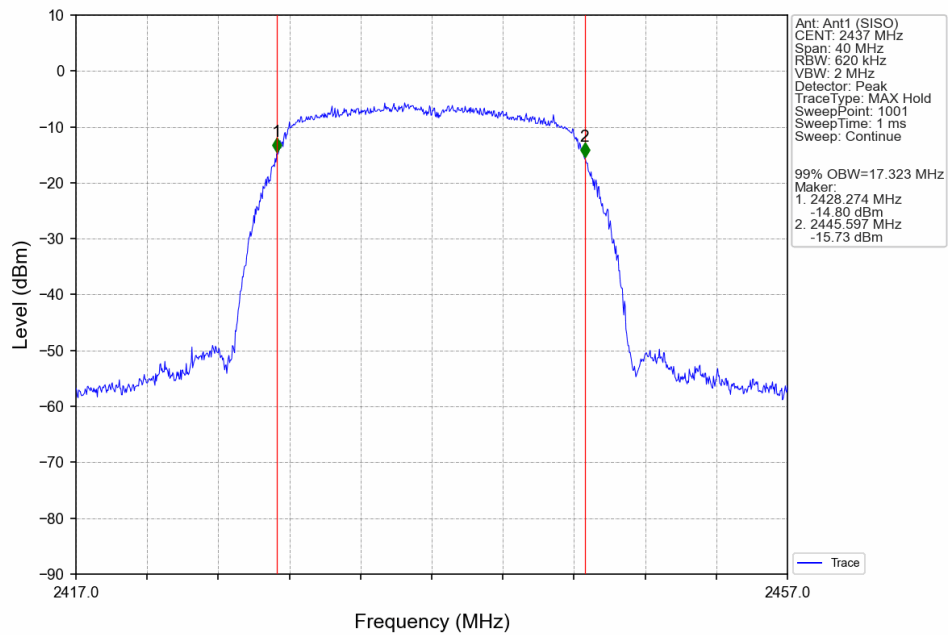
## 802.11b HCH 2462MHz Ant1 (SISO) NTNV



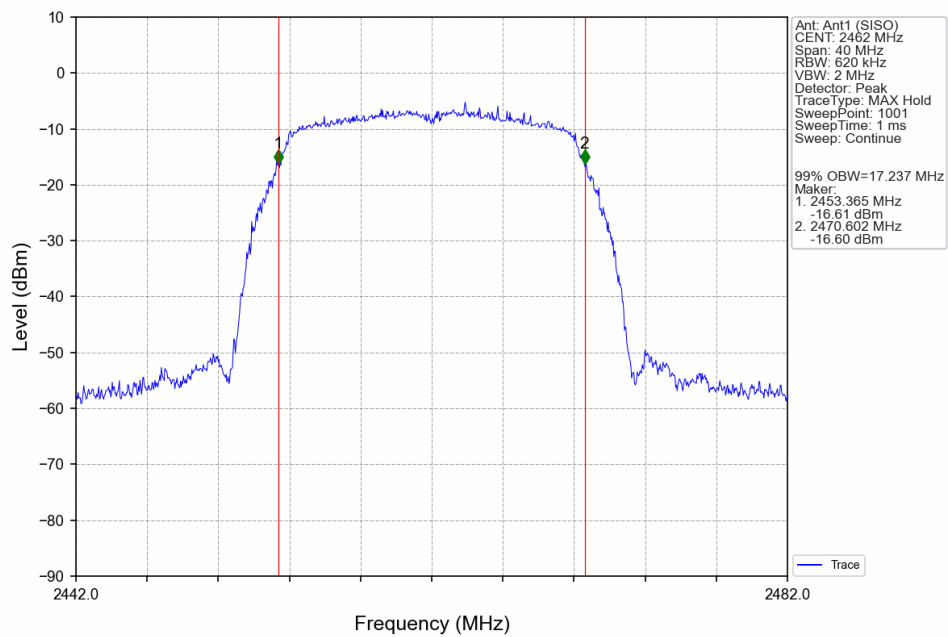
## 802.11g LCH 2412MHz Ant1 (SISO) NTNV



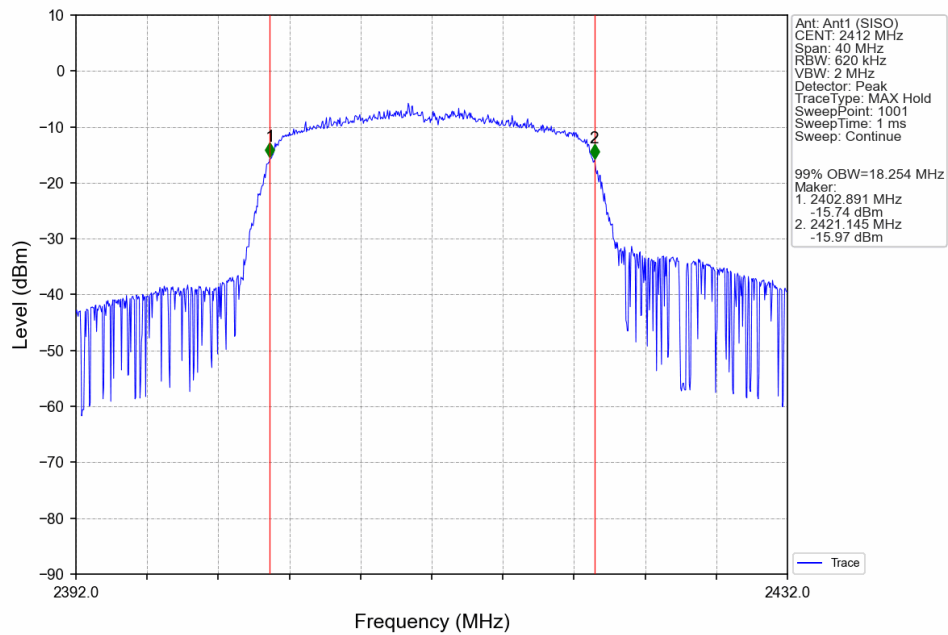
## 802.11g MCH 2437MHz Ant1 (SISO) NTN



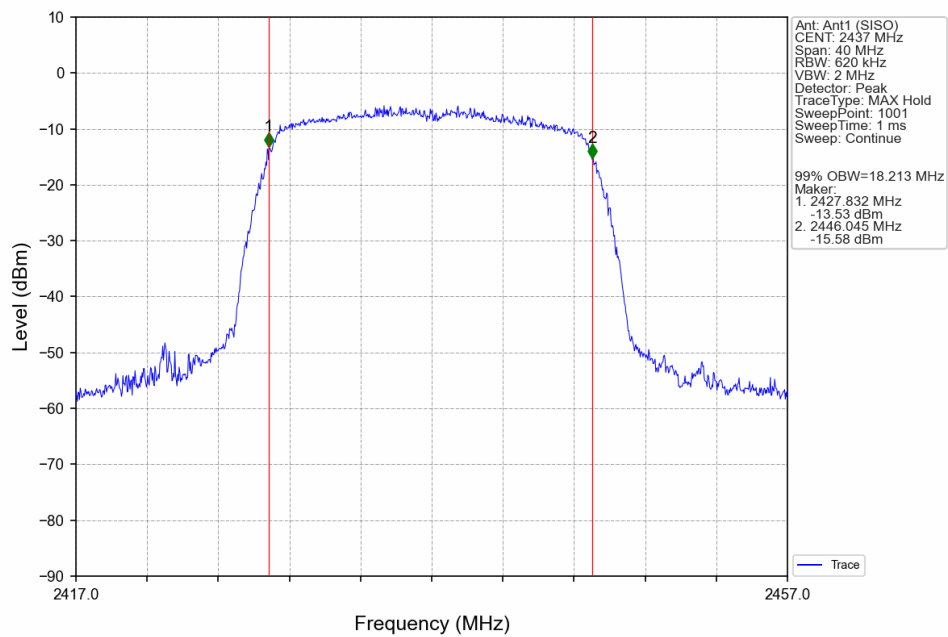
## 802.11g HCH 2462MHz Ant1 (SISO) NTN



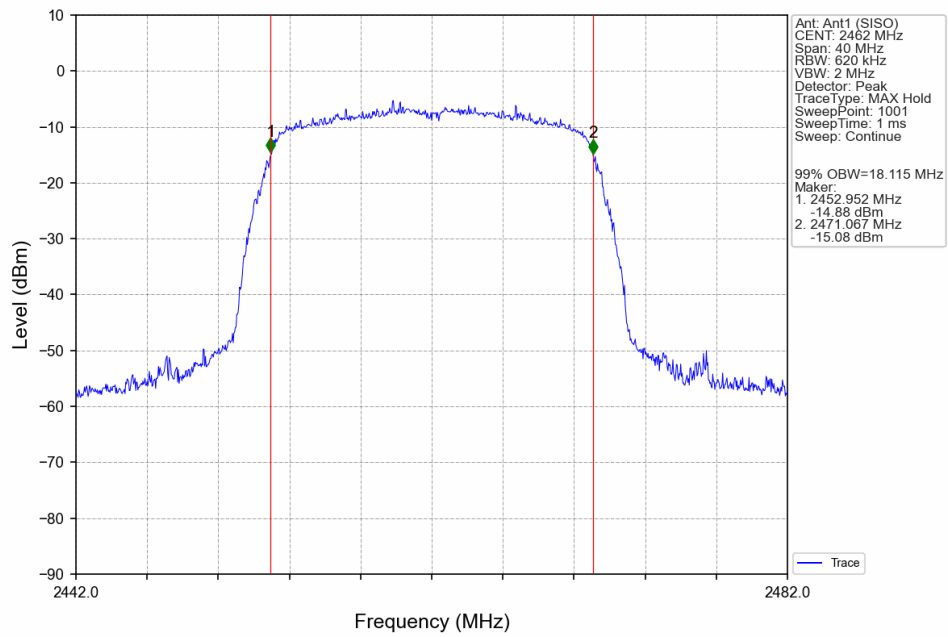
## 802.11n(HT20) LCH 2412MHz Ant1 (SISO) NTV



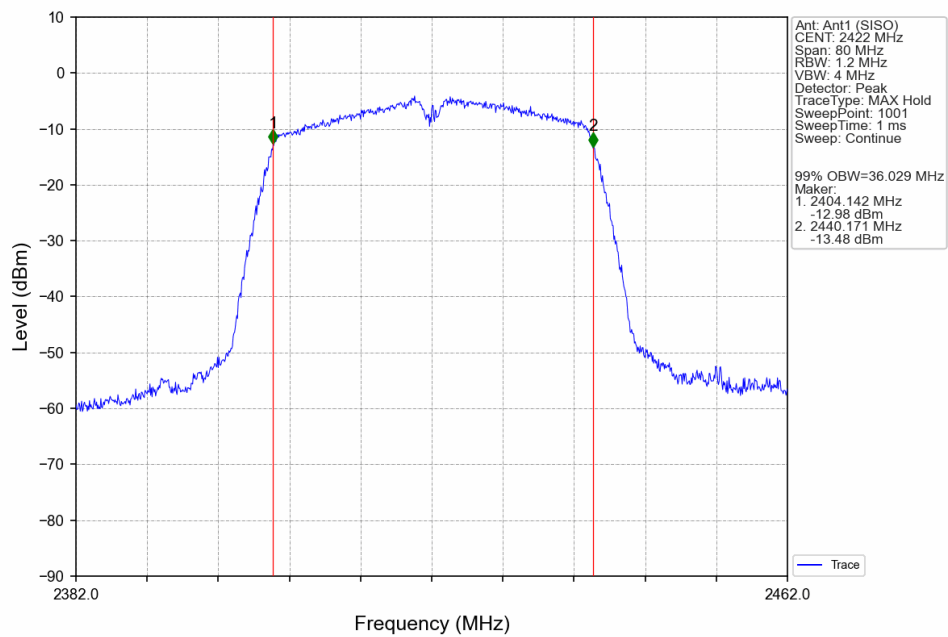
## 802.11n(HT20) MCH 2437MHz Ant1 (SISO) NTV



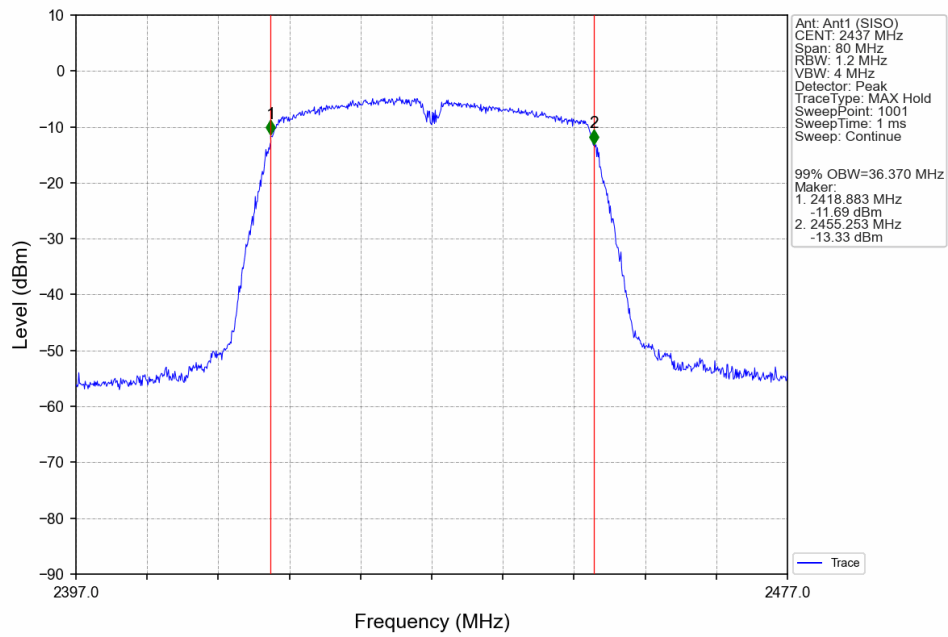
## 802.11n(HT20) HCH 2462MHz Ant1 (SISO) NTV



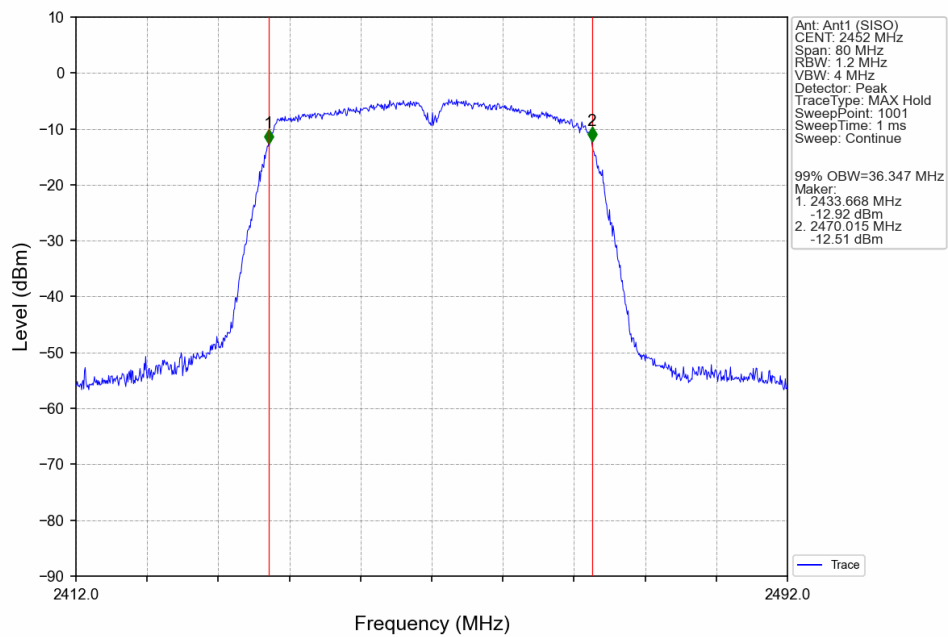
## 802.11n(HT40) LCH 2422MHz Ant1 (SISO) NTV



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

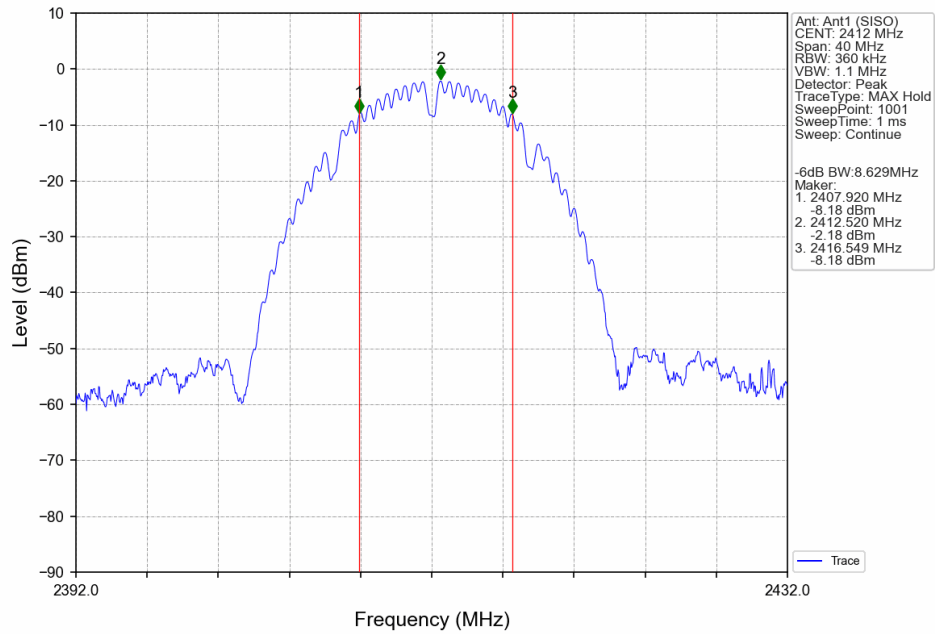


## 802.11n(HT40) HCH 2452MHz Ant1 (SISO) NTNV

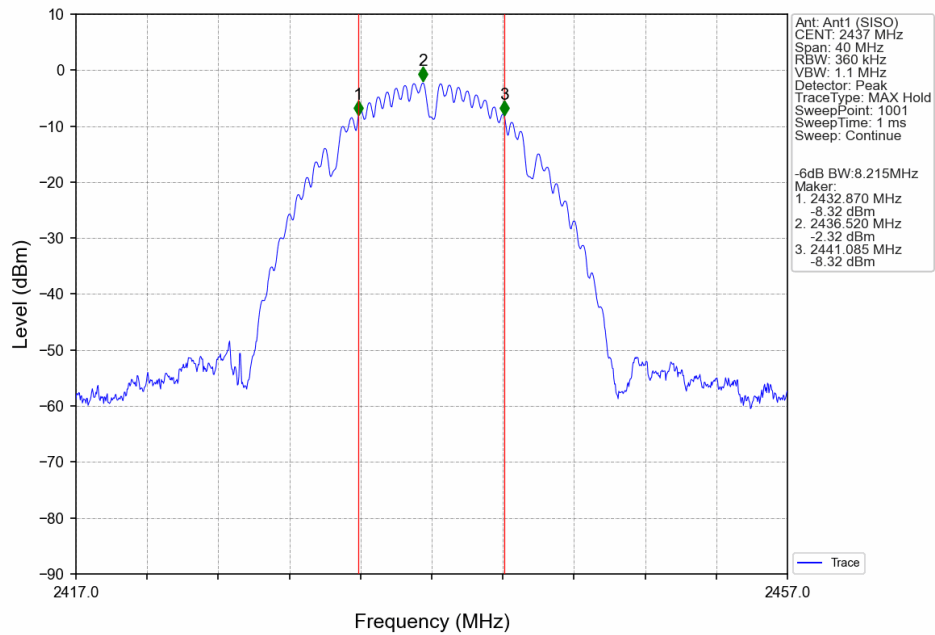


## 2.2.2 6dB BW

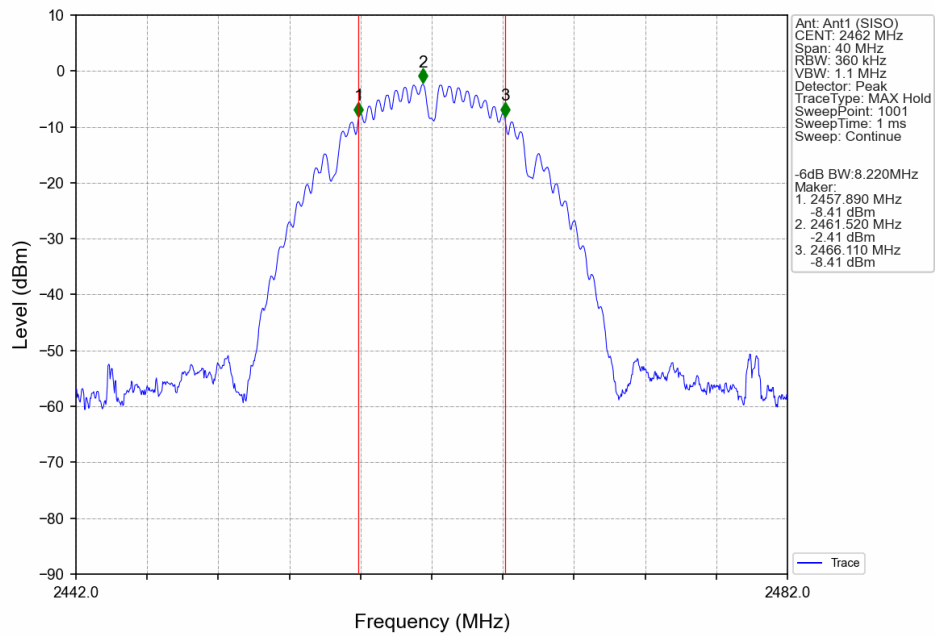
802.11b LCH 2412MHz Ant1 (SISO) NTN



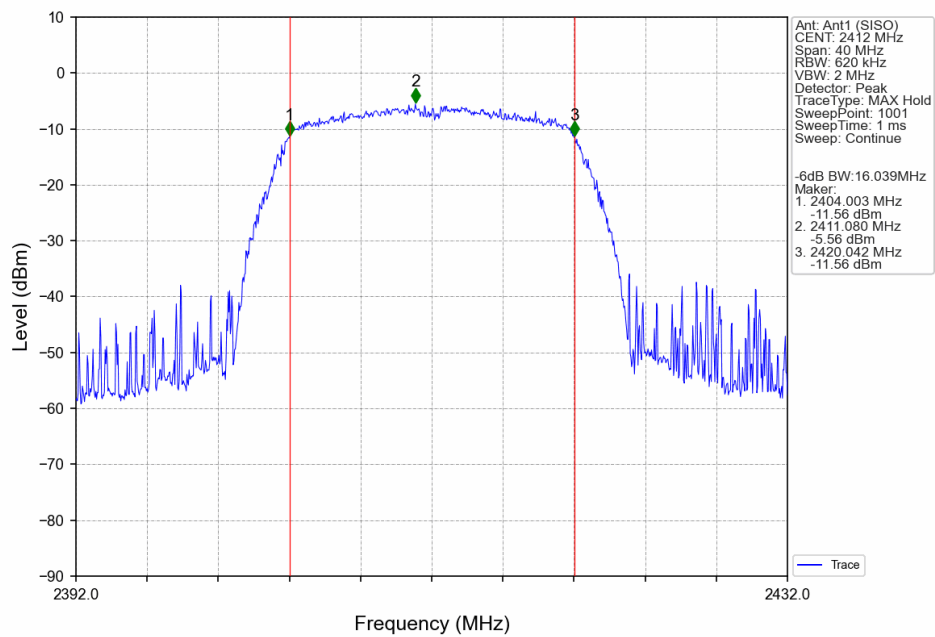
802.11b MCH 2437MHz Ant1 (SISO) NTN



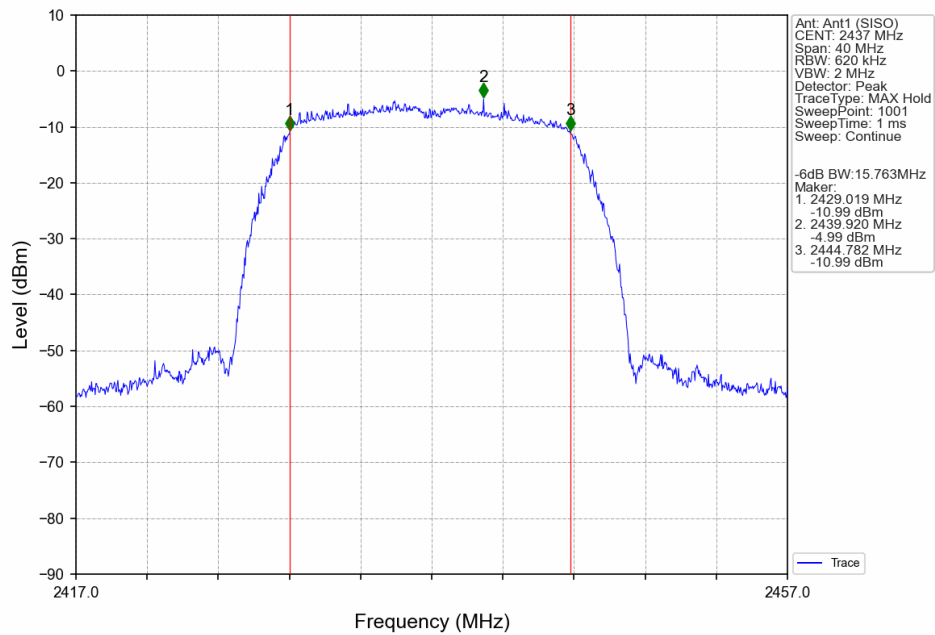
## 802.11b HCH 2462MHz Ant1 (SISO) NTNV



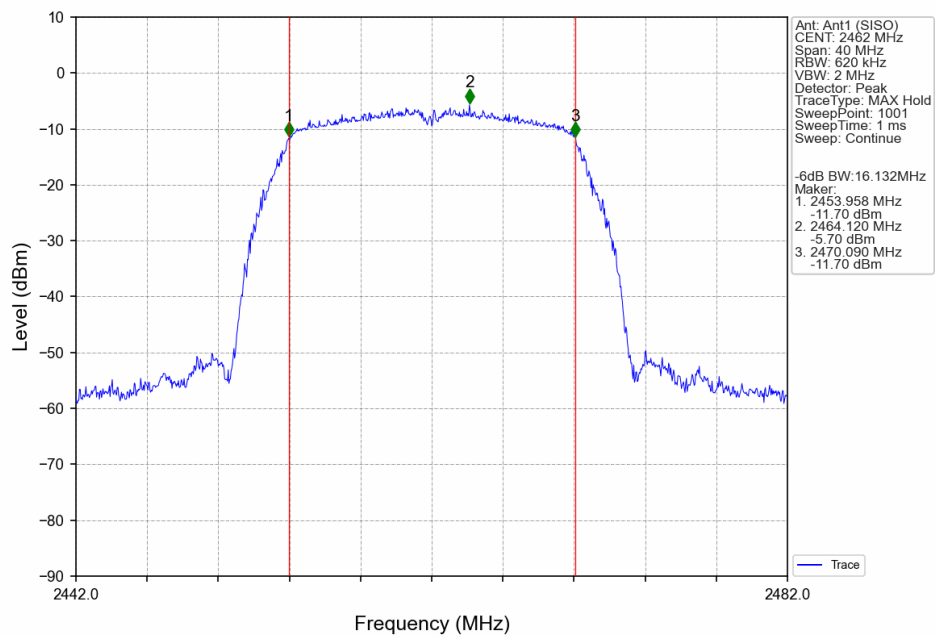
## 802.11g LCH 2412MHz Ant1 (SISO) NTNV



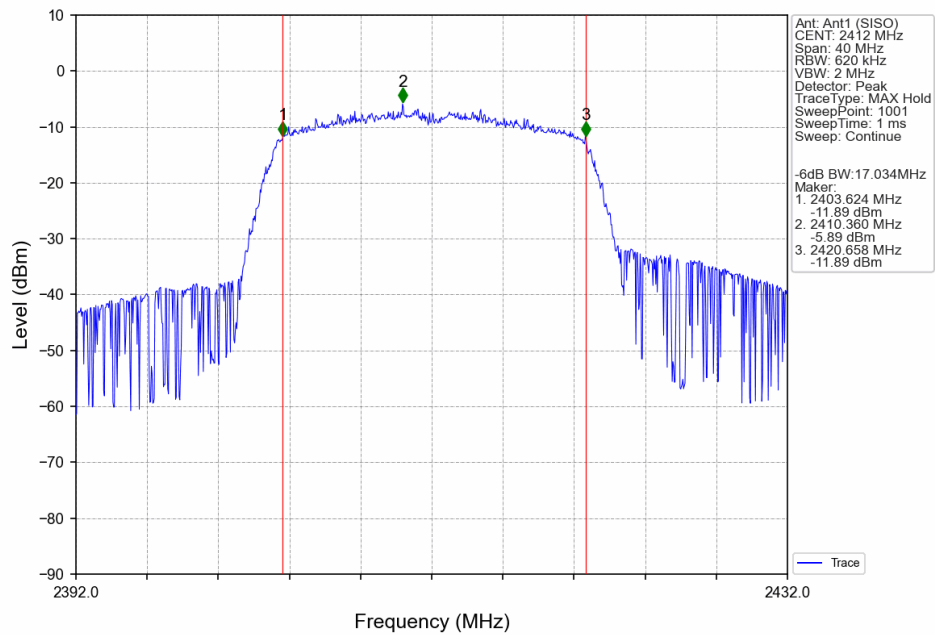
## 802.11g MCH 2437MHz Ant1 (SISO) NTN



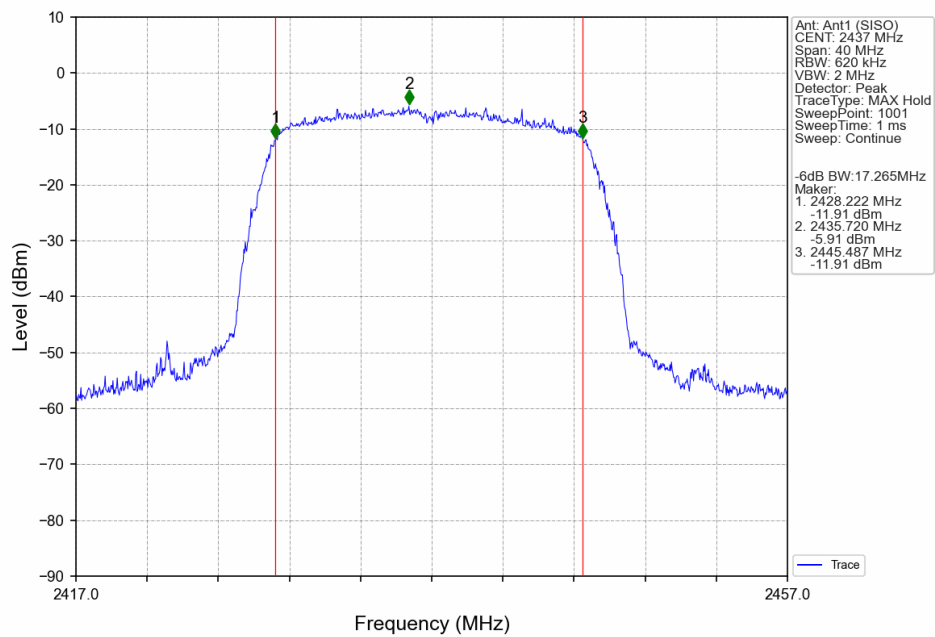
## 802.11g HCH 2462MHz Ant1 (SISO) NTN



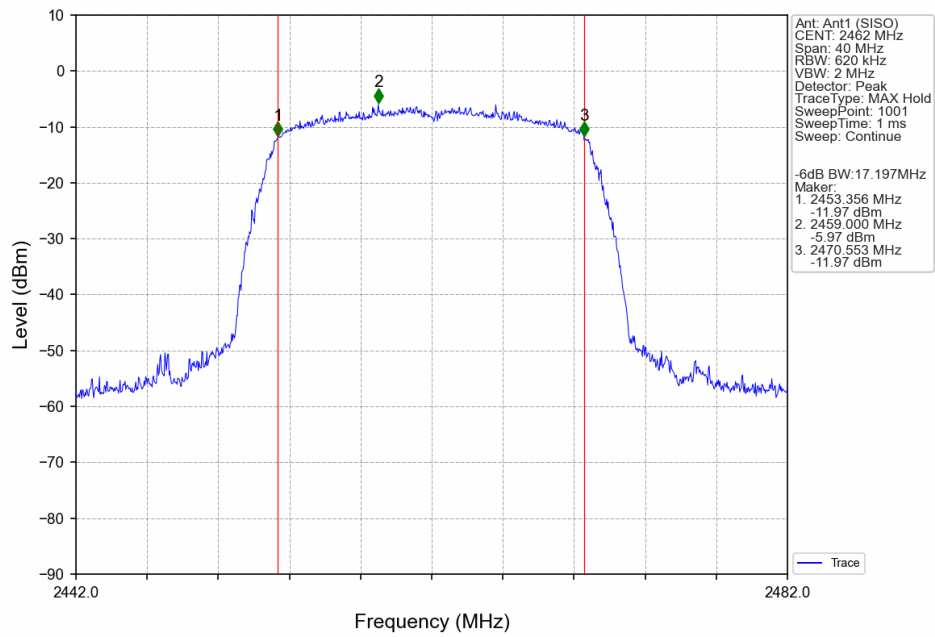
## 802.11n(HT20) LCH 2412MHz Ant1 (SISO) NTVN



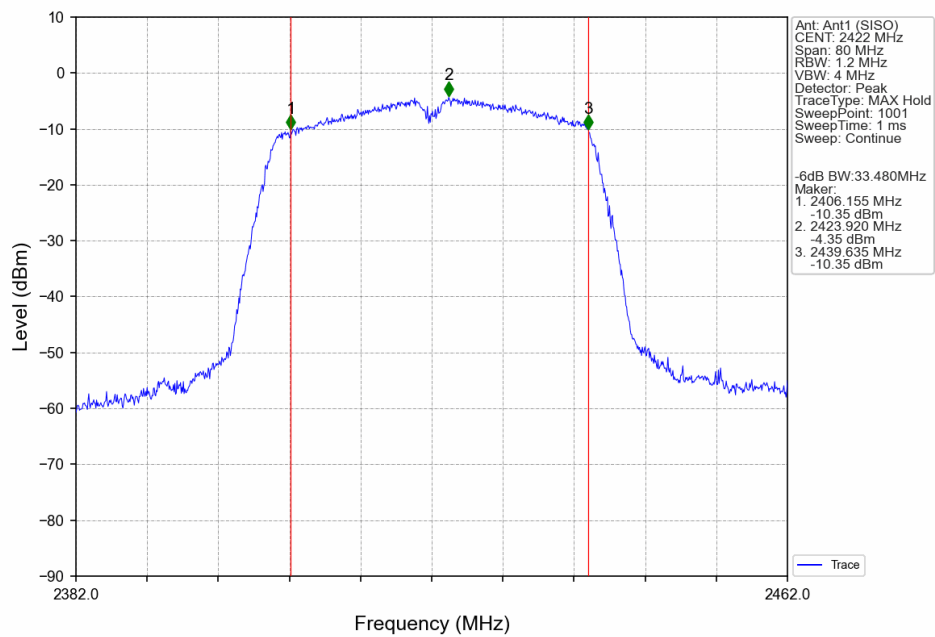
## 802.11n(HT20) MCH 2437MHz Ant1 (SISO) NTVN



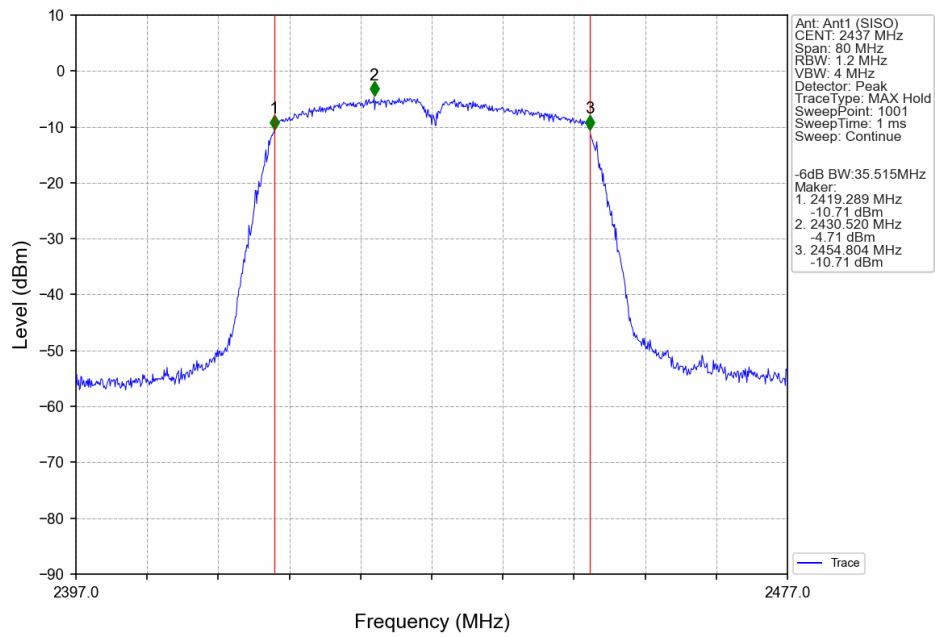
## 802.11n(HT20) HCH 2462MHz Ant1 (SISO) NTNV



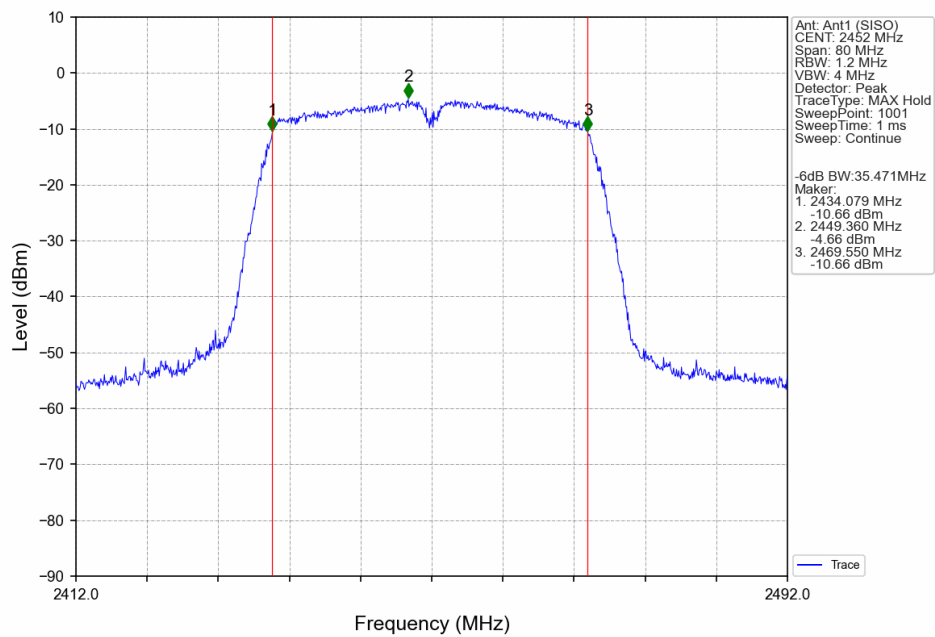
## 802.11n(HT40) LCH 2422MHz Ant1 (SISO) NTNV



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



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



### 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            | 7.98                                      | <=30  | Pass    |
|                |         | 2437            | 7.73                                      | <=30  | Pass    |
|                |         | 2462            | 7.55                                      | <=30  | Pass    |
| 802.11g        | SISO    | 2412            | 6.94                                      | <=30  | Pass    |
|                |         | 2437            | 6.93                                      | <=30  | Pass    |
|                |         | 2462            | 6.79                                      | <=30  | Pass    |
| 802.11n (HT20) | SISO    | 2412            | 5.86                                      | <=30  | Pass    |
|                |         | 2437            | 6.96                                      | <=30  | Pass    |
|                |         | 2462            | 6.74                                      | <=30  | Pass    |
| 802.11n (HT40) | SISO    | 2422            | 6.75                                      | <=30  | Pass    |
|                |         | 2437            | 7.08                                      | <=30  | Pass    |
|                |         | 2452            | 7.11                                      | <=30  | Pass    |

Note1: Antenna Gain: Ant1: 0.17dBi;

## 4. Maximum Power Spectral Density

### 4.1 Test Result

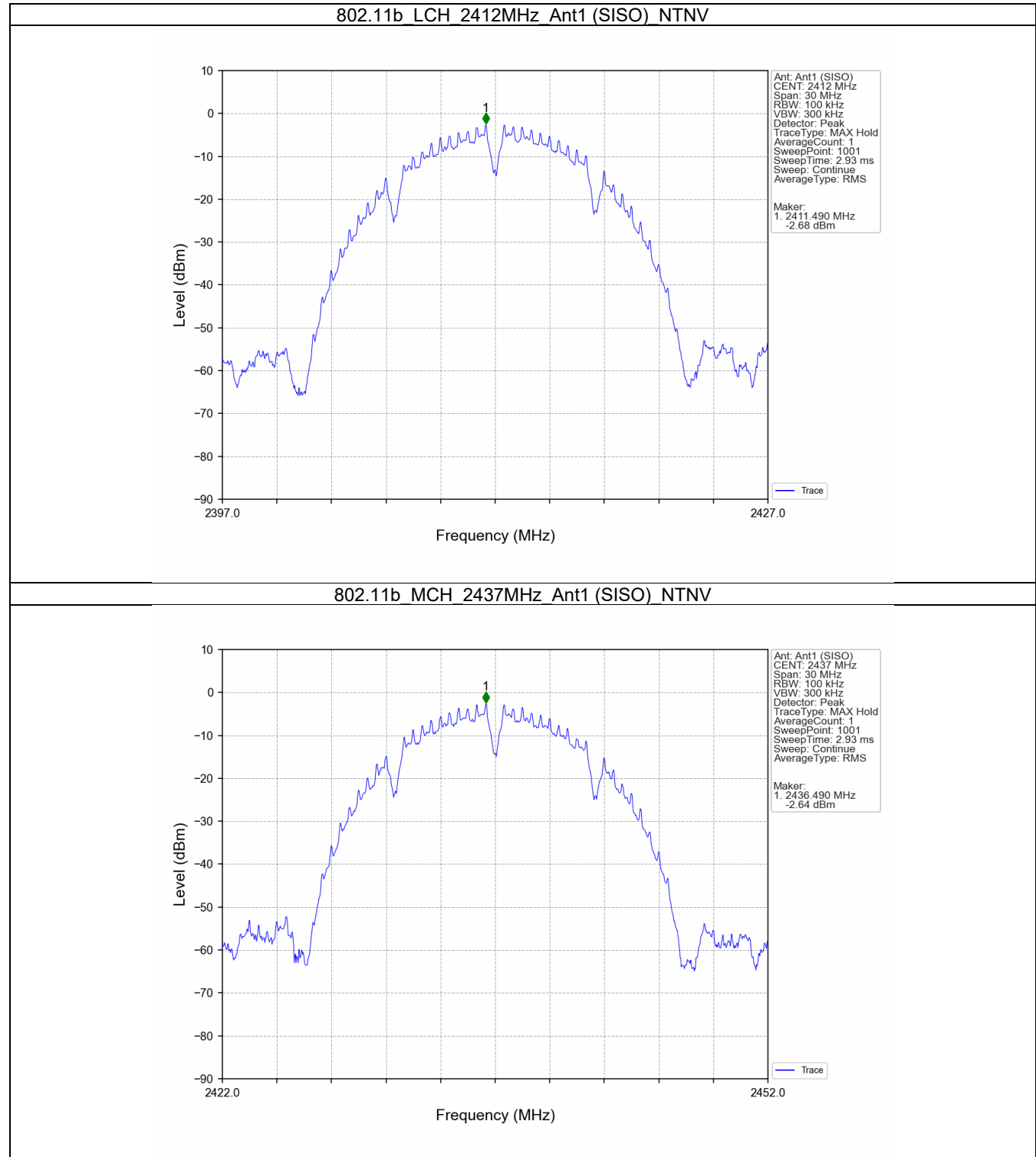
#### 4.1.1 PSD

| Mode           | TX Type | Frequency (MHz) | Maximum PSD (dBm) |          | Verdict |
|----------------|---------|-----------------|-------------------|----------|---------|
|                |         |                 | ANT1              | Limit    |         |
| 802.11b        | SISO    | 2412            | -2.68             | $\leq 8$ | Pass    |
|                |         | 2437            | -2.64             | $\leq 8$ | Pass    |
|                |         | 2462            | -2.98             | $\leq 8$ | Pass    |
| 802.11g        | SISO    | 2412            | -11.36            | $\leq 8$ | Pass    |
|                |         | 2437            | -11.19            | $\leq 8$ | Pass    |
|                |         | 2462            | -11.13            | $\leq 8$ | Pass    |
| 802.11n (HT20) | SISO    | 2412            | -12.32            | $\leq 8$ | Pass    |
|                |         | 2437            | -11.09            | $\leq 8$ | Pass    |
|                |         | 2462            | -11.07            | $\leq 8$ | Pass    |
| 802.11n (HT40) | SISO    | 2422            | -12.94            | $\leq 8$ | Pass    |
|                |         | 2437            | -13.90            | $\leq 8$ | Pass    |
|                |         | 2452            | -13.63            | $\leq 8$ | Pass    |

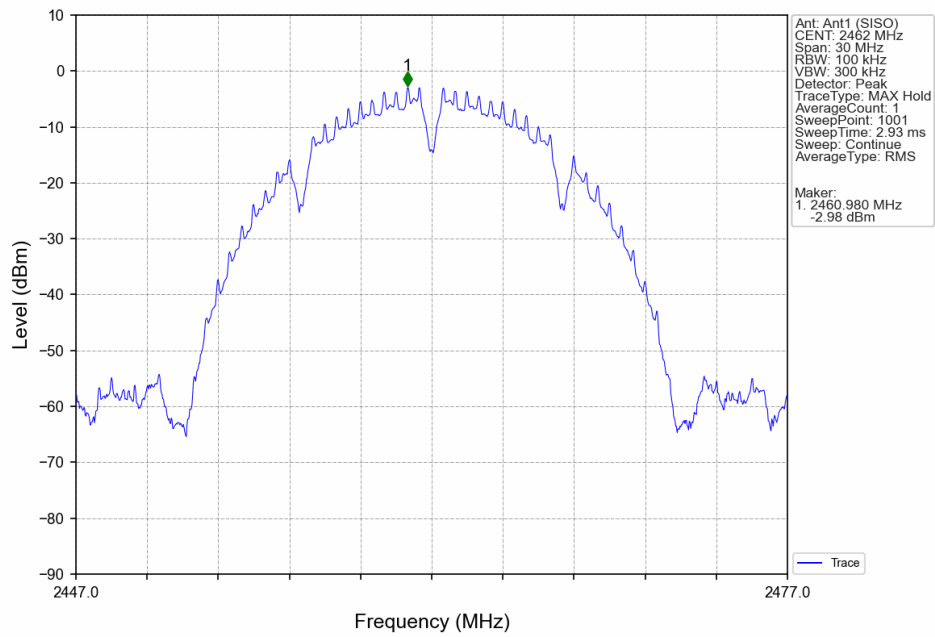
Note1: Antenna Gain: Ant1: 0.17dBi;

## 4.2 Test Graph

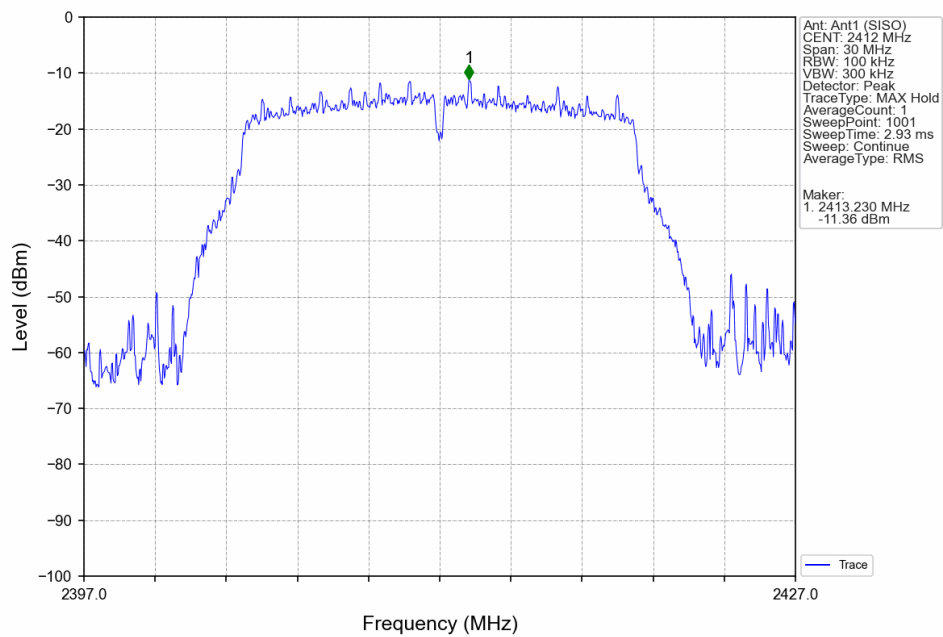
### 4.2.1 PSD



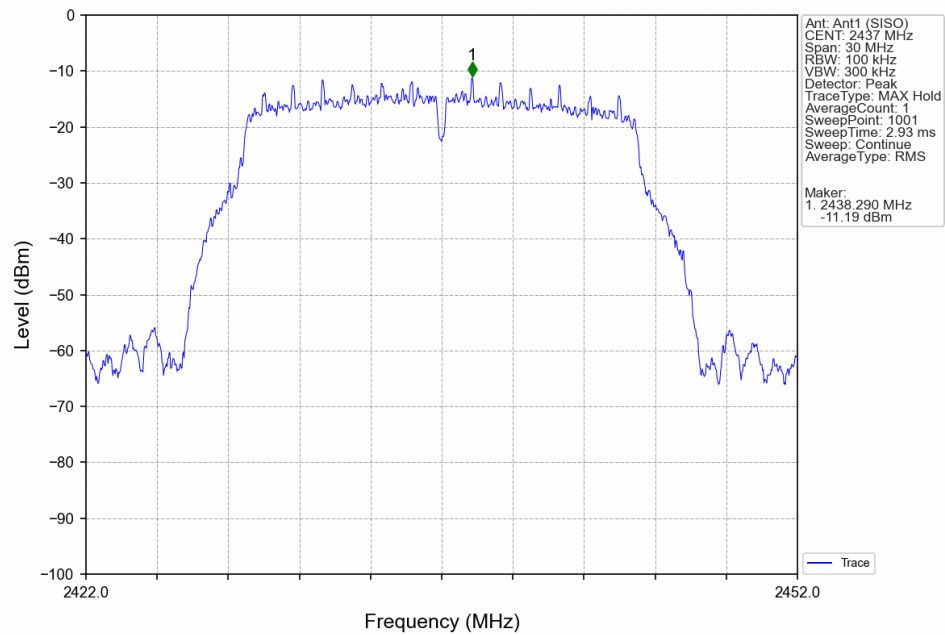
## 802.11b HCH 2462MHz Ant1 (SISO) NTN



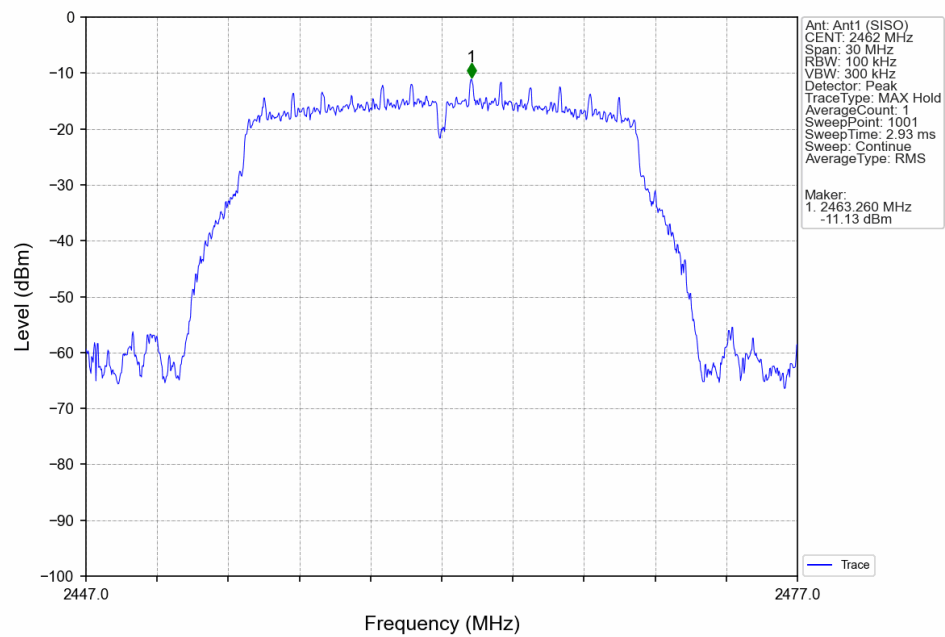
## 802.11g LCH 2412MHz Ant1 (SISO) NTN



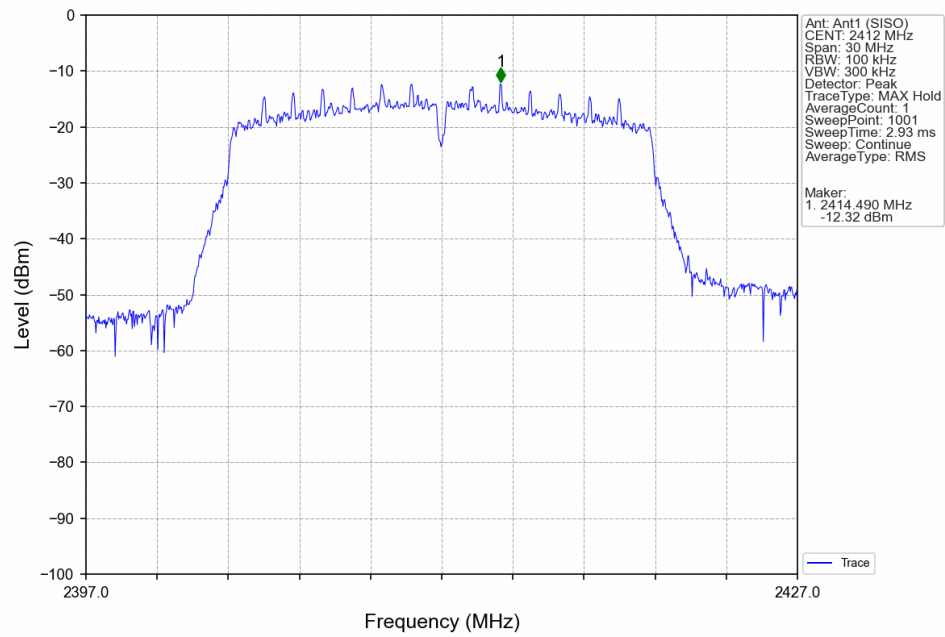
## 802.11g MCH 2437MHz Ant1 (SISO) NTN



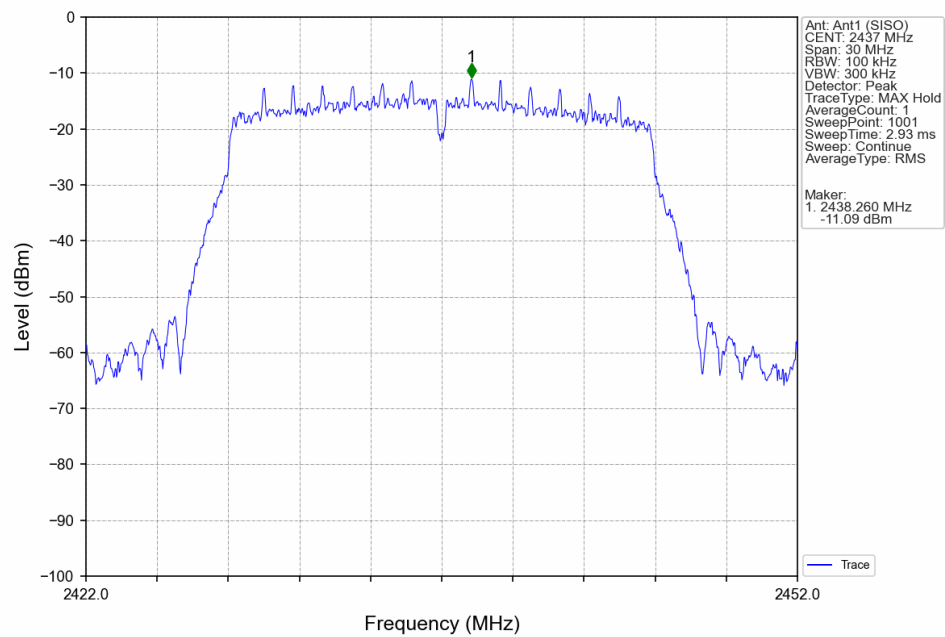
## 802.11g HCH 2462MHz Ant1 (SISO) NTN



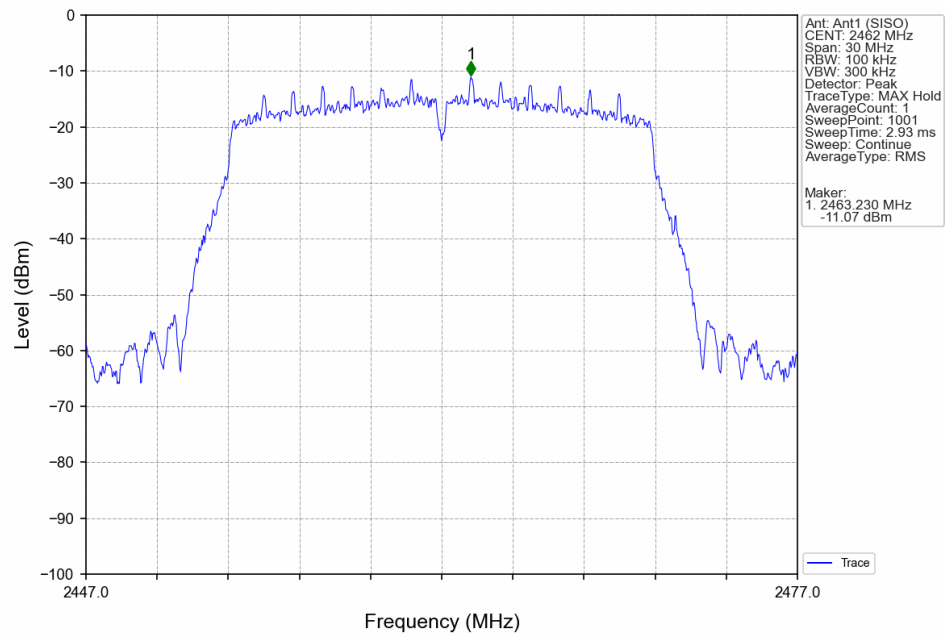
## 802.11n(HT20) LCH 2412MHz Ant1 (SISO) NTV



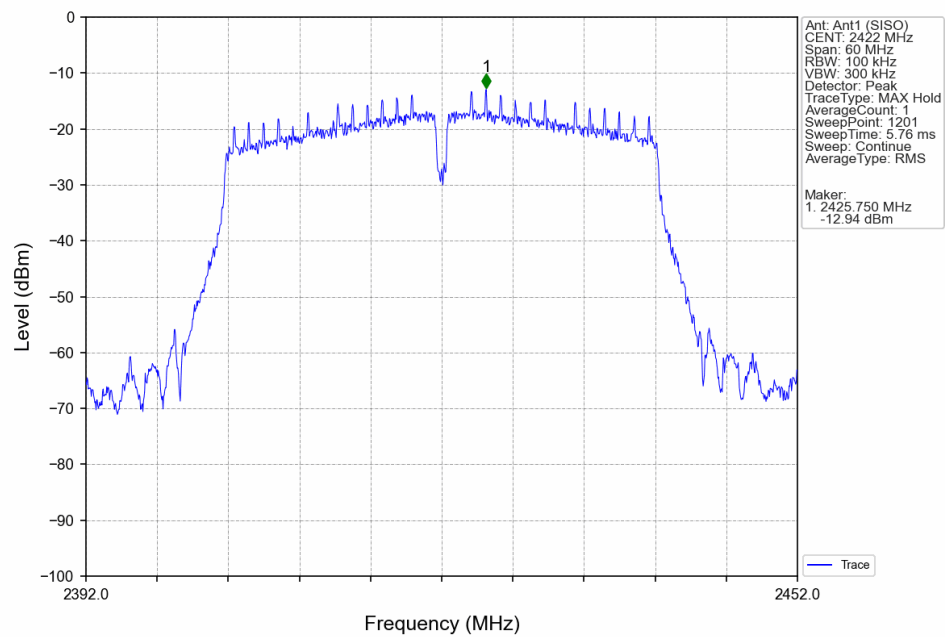
## 802.11n(HT20) MCH 2437MHz Ant1 (SISO) NTV



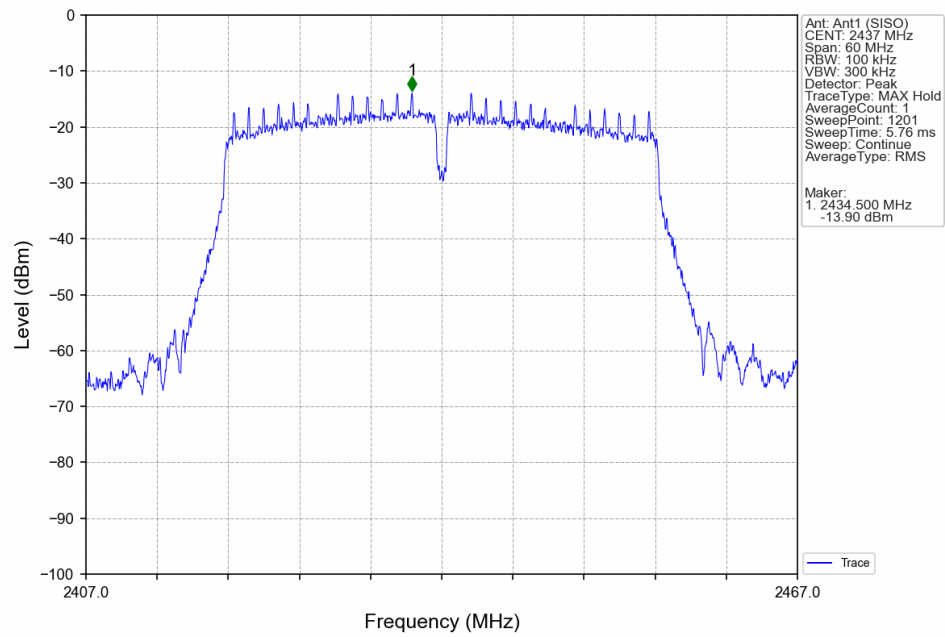
## 802.11n(HT20) HCH 2462MHz Ant1 (SISO) NTNV



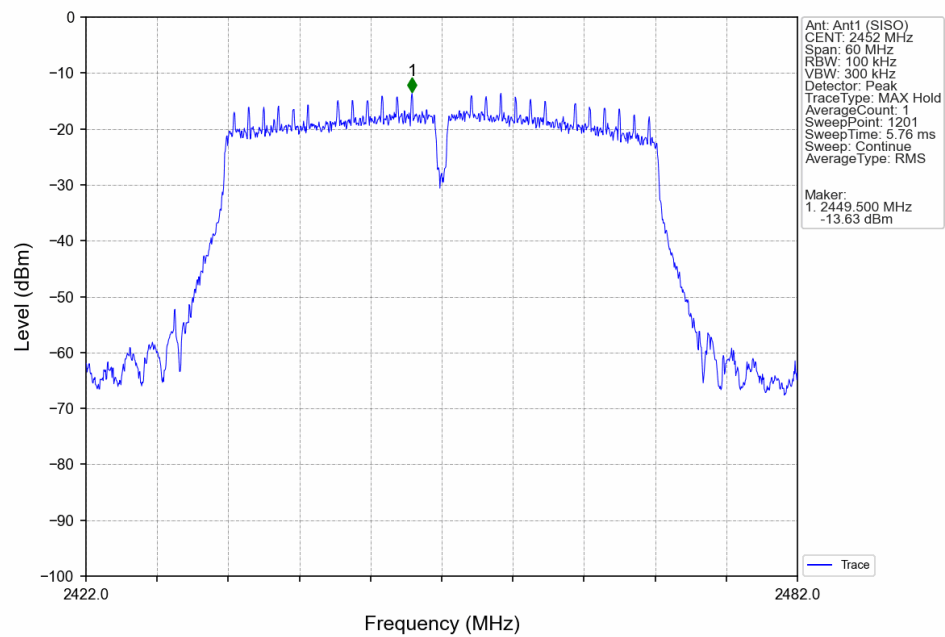
## 802.11n(HT40) LCH 2422MHz Ant1 (SISO) NTNV



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



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



## 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   | -2.60                    |
|                |         | 2437            | 1   | -2.80                    |
|                |         | 2462            | 1   | -2.83                    |
| 802.11g        | SISO    | 2412            | 1   | -10.85                   |
|                |         | 2437            | 1   | -11.66                   |
|                |         | 2462            | 1   | -11.91                   |
| 802.11n (HT20) | SISO    | 2412            | 1   | -11.42                   |
|                |         | 2437            | 1   | -11.18                   |
|                |         | 2462            | 1   | -11.08                   |
| 802.11n (HT40) | SISO    | 2422            | 1   | -13.55                   |
|                |         | 2437            | 1   | -13.85                   |
|                |         | 2452            | 1   | -13.34                   |

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.

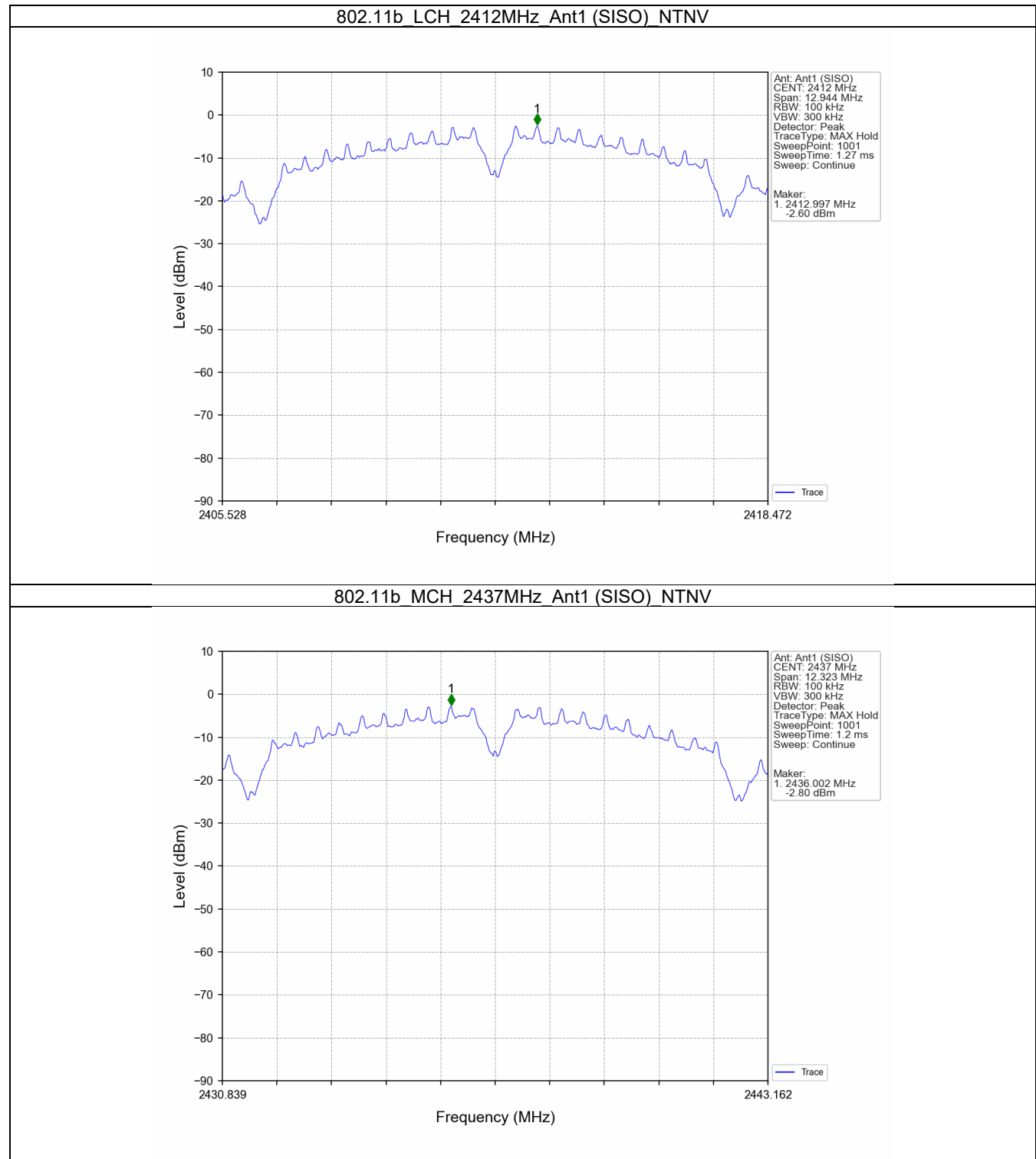
#### 5.1.2 CSE

| Mode           | TX Type | Frequency (MHz) | ANT | Level of Reference (dBm) | Limit (dBm) | Verdict |
|----------------|---------|-----------------|-----|--------------------------|-------------|---------|
| 802.11b        | SISO    | 2412            | 1   | -2.60                    | -22.60      | Pass    |
|                |         | 2437            | 1   | -2.60                    | -22.60      | Pass    |
|                |         | 2462            | 1   | -2.60                    | -22.60      | Pass    |
| 802.11g        | SISO    | 2412            | 1   | -10.85                   | -30.85      | Pass    |
|                |         | 2437            | 1   | -10.85                   | -30.85      | Pass    |
|                |         | 2462            | 1   | -10.85                   | -30.85      | Pass    |
| 802.11n (HT20) | SISO    | 2412            | 1   | -11.08                   | -31.08      | Pass    |
|                |         | 2437            | 1   | -11.08                   | -31.08      | Pass    |
|                |         | 2462            | 1   | -11.08                   | -31.08      | Pass    |
| 802.11n (HT40) | SISO    | 2422            | 1   | -13.34                   | -33.34      | Pass    |
|                |         | 2437            | 1   | -13.34                   | -33.34      | Pass    |
|                |         | 2452            | 1   | -13.34                   | -33.34      | Pass    |

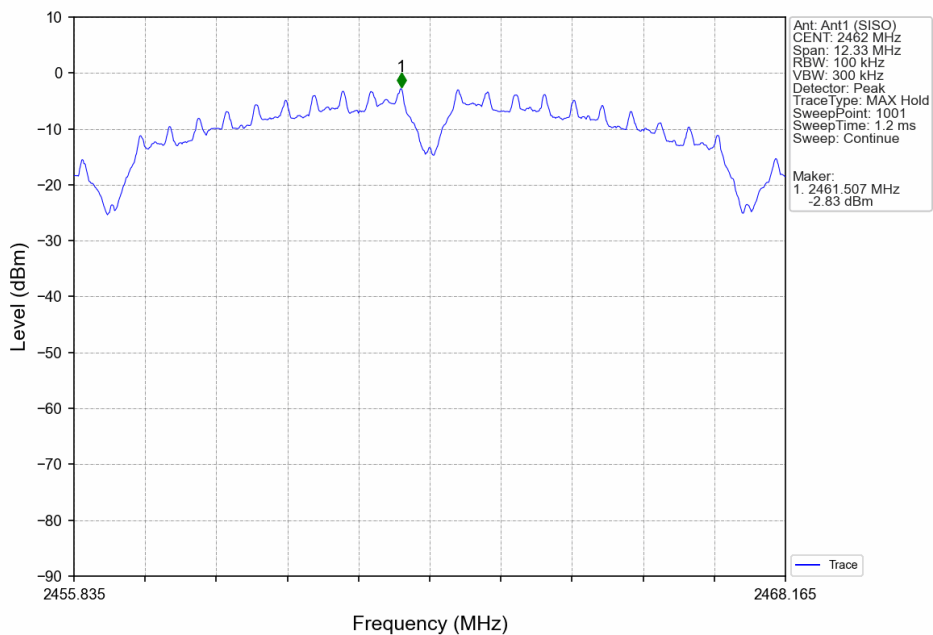
Note1: Refer to FCC Part 15.247 (d) and ANSI C63.10-2020, the channel contains the maximum PSD level was used to establish the reference level.

## 5.2 Test Graph

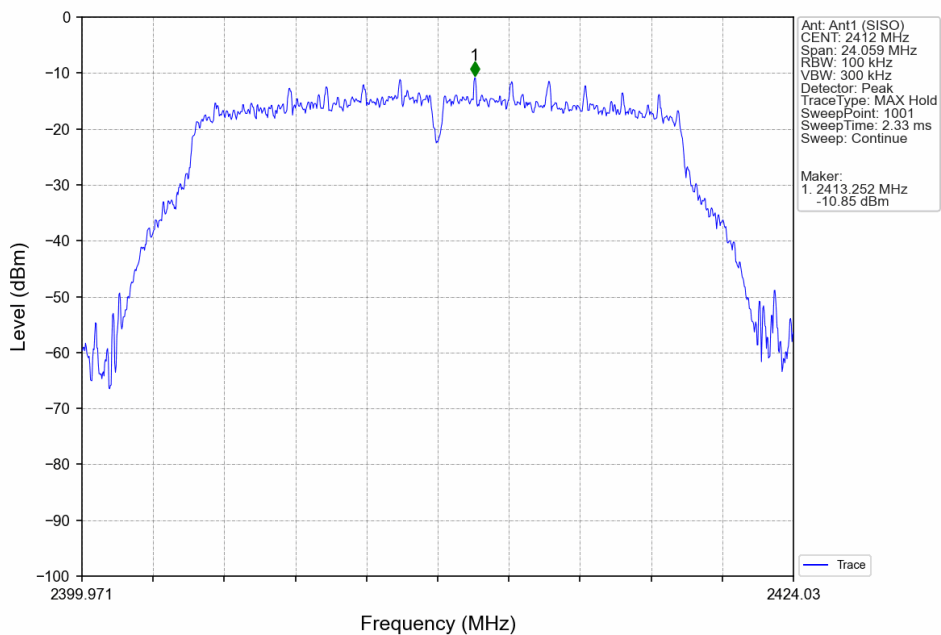
### 5.2.1 Ref



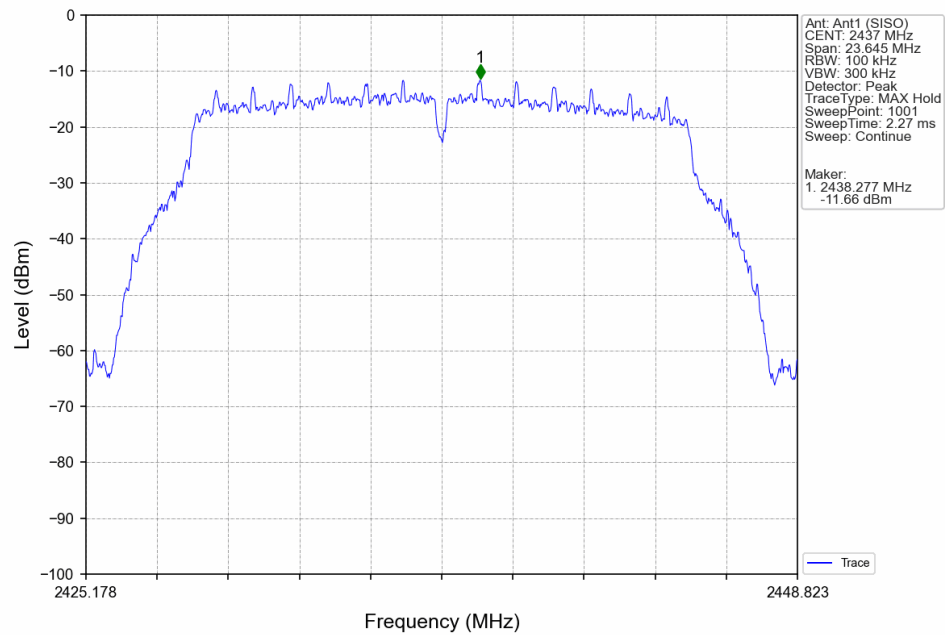
## 802.11b HCH 2462MHz Ant1 (SISO) NTNV



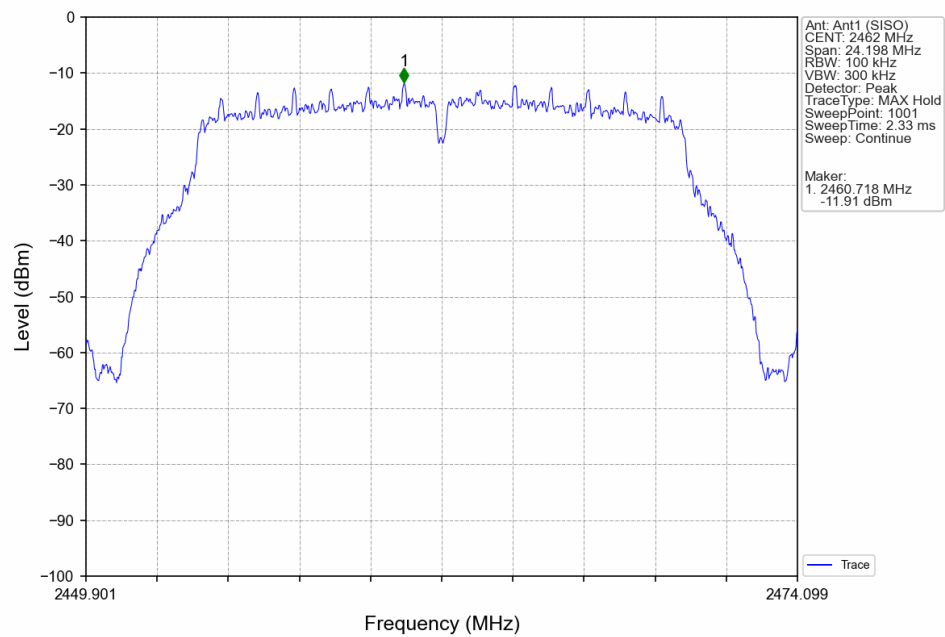
## 802.11g LCH 2412MHz Ant1 (SISO) NTNV



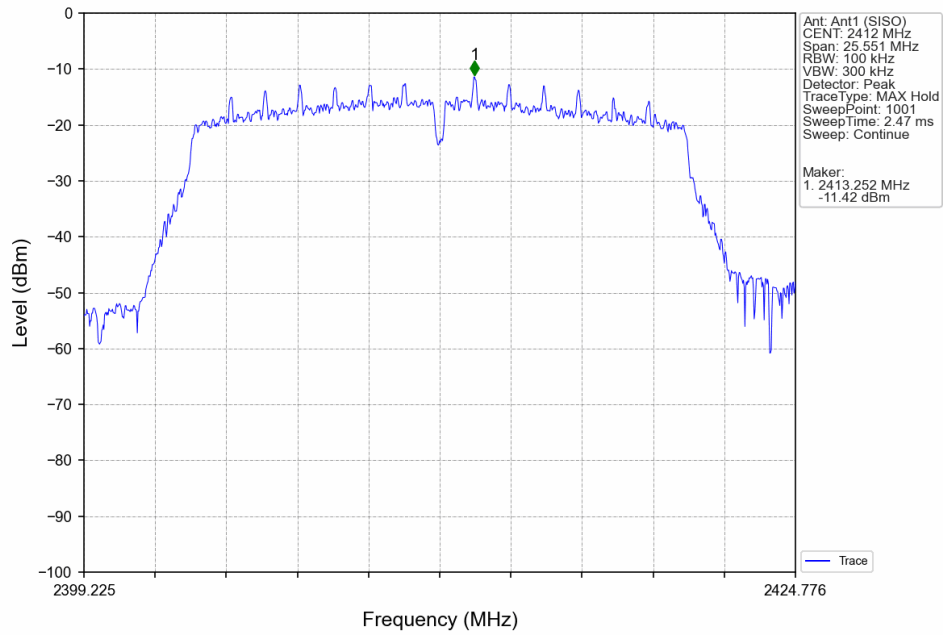
## 802.11g MCH 2437MHz Ant1 (SISO) NTN



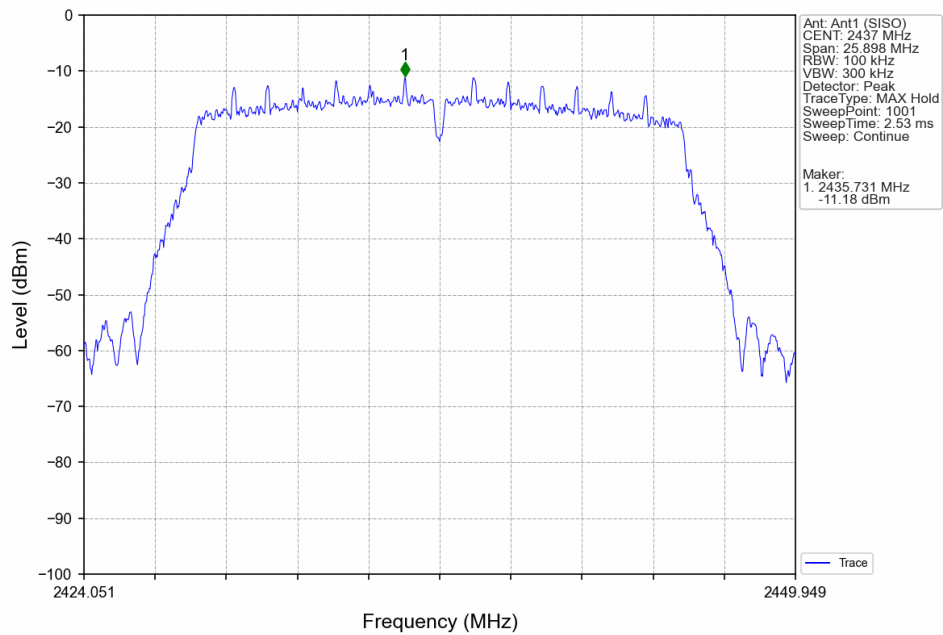
## 802.11g HCH 2462MHz Ant1 (SISO) NTN



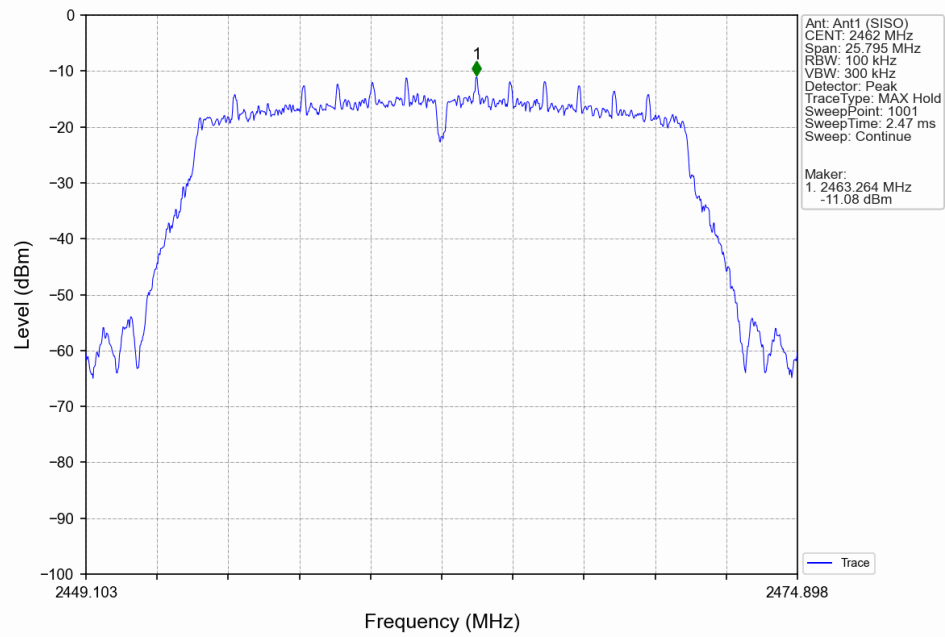
## 802.11n(HT20) LCH 2412MHz Ant1 (SISO) NTNV



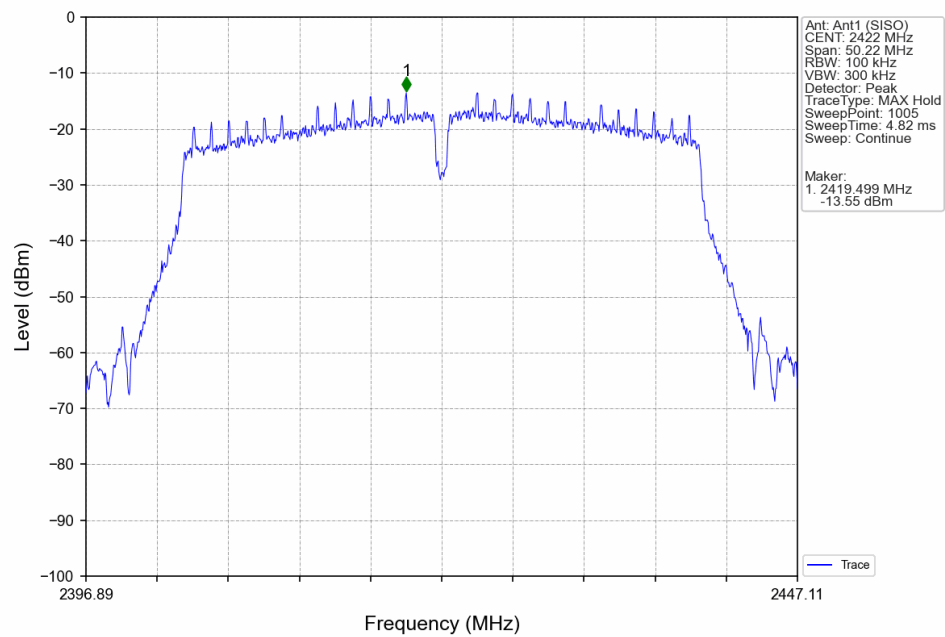
## 802.11n(HT20) MCH 2437MHz Ant1 (SISO) NTNV



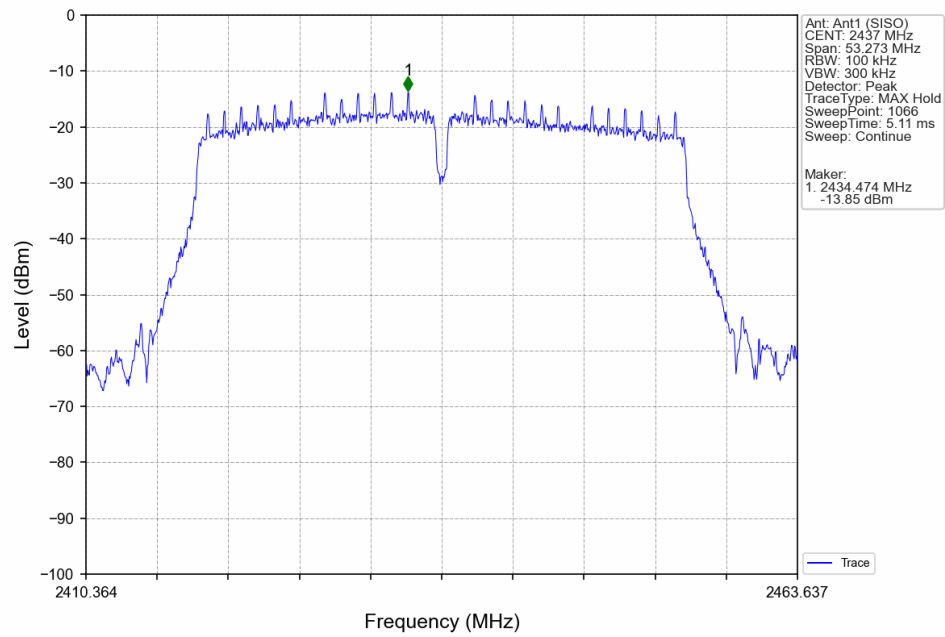
## 802.11n(HT20) HCH 2462MHz Ant1 (SISO) NTVN



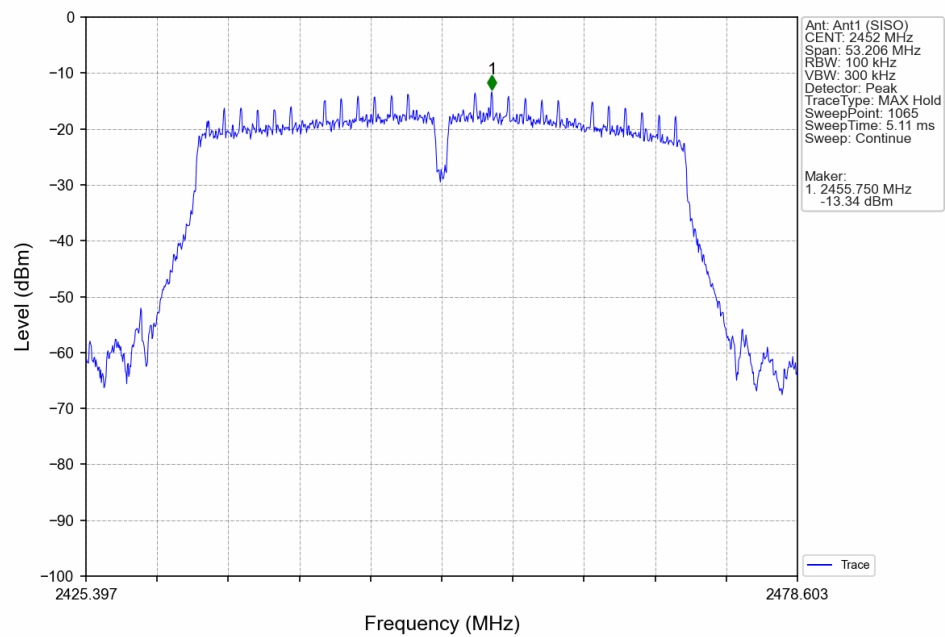
## 802.11n(HT40) LCH 2422MHz Ant1 (SISO) NTVN



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

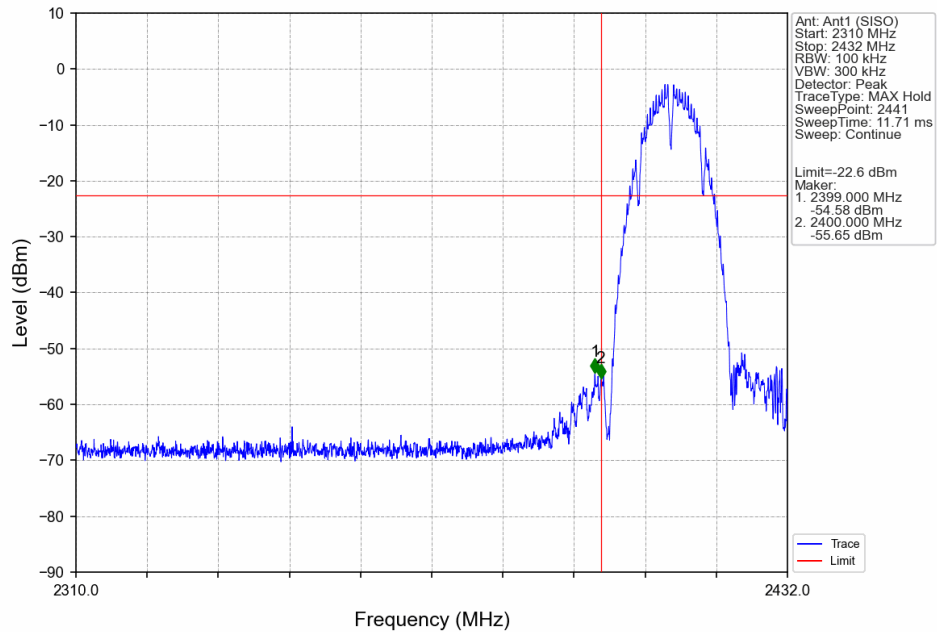


## 802.11n(HT40) HCH 2452MHz Ant1 (SISO) NTNV

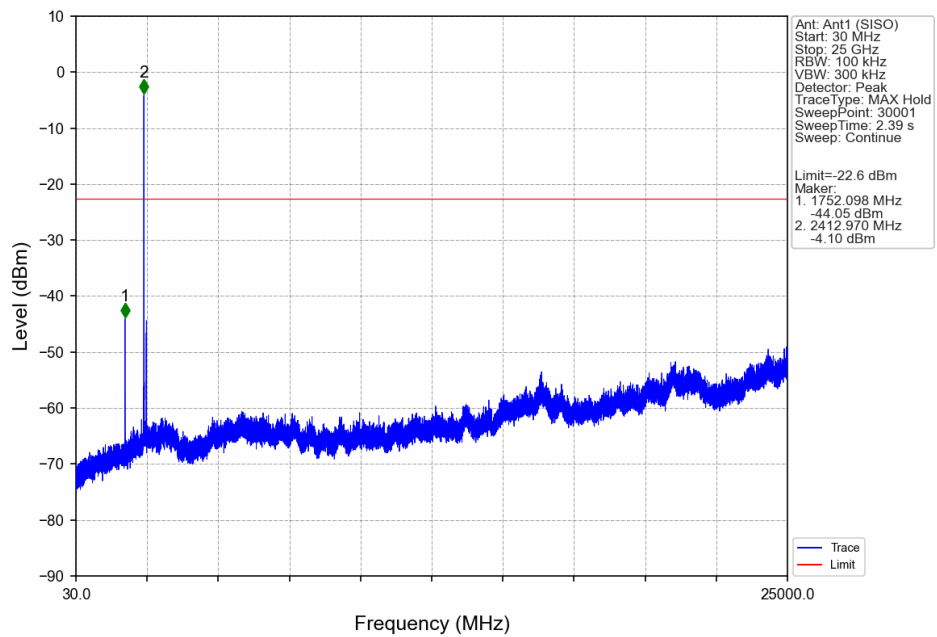


## 5.2.2 CSE

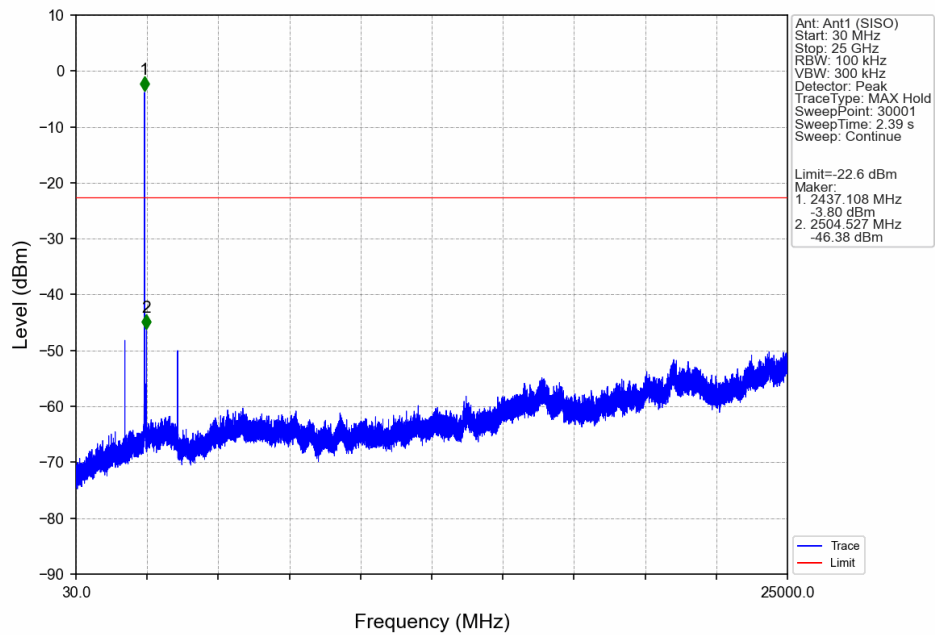
802.11b\_LCH\_2412MHz\_Ant1 (SISO)\_NTNV



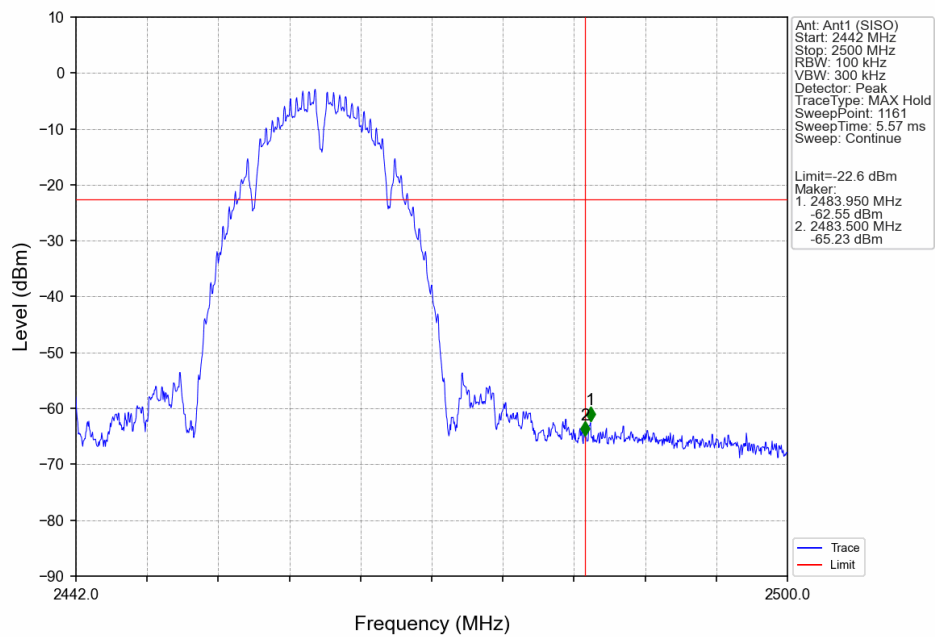
802.11b\_LCH\_2412MHz\_Ant1 (SISO)\_NTNV



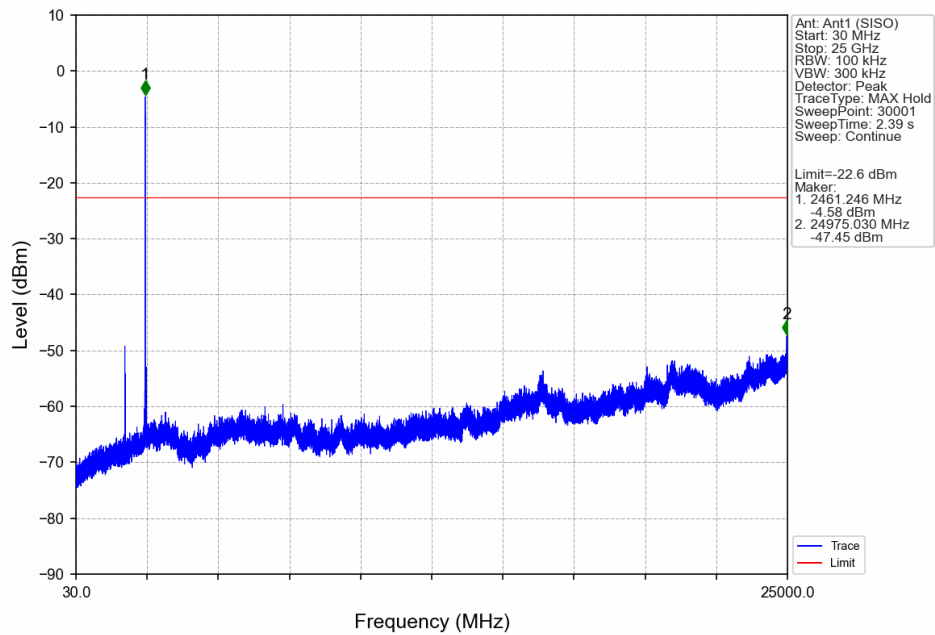
## 802.11b MCH 2437MHz Ant1 (SISO) NTNV



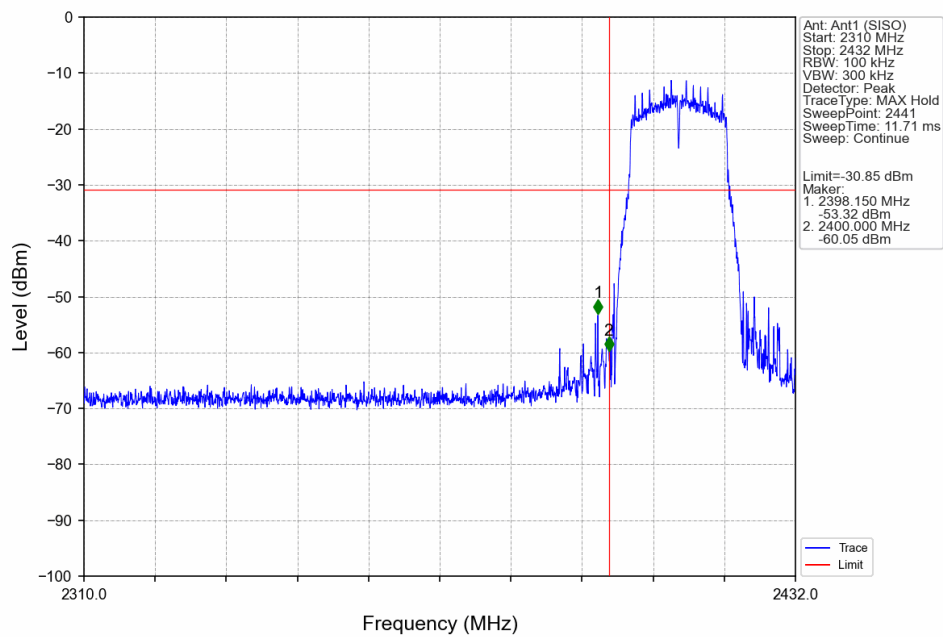
## 802.11b HCH 2462MHz Ant1 (SISO) NTNV



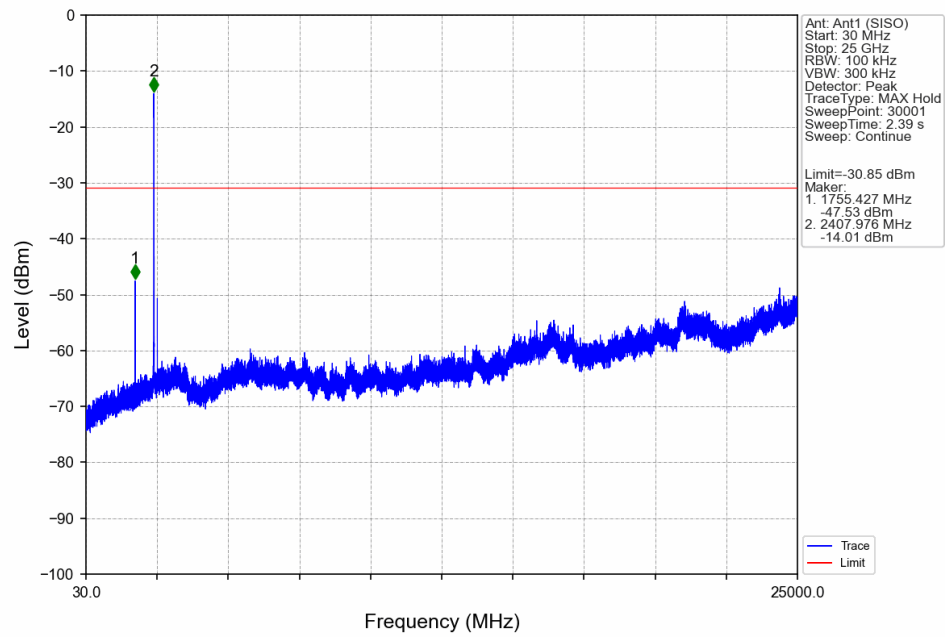
## 802.11b HCH 2462MHz Ant1 (SISO) NTN



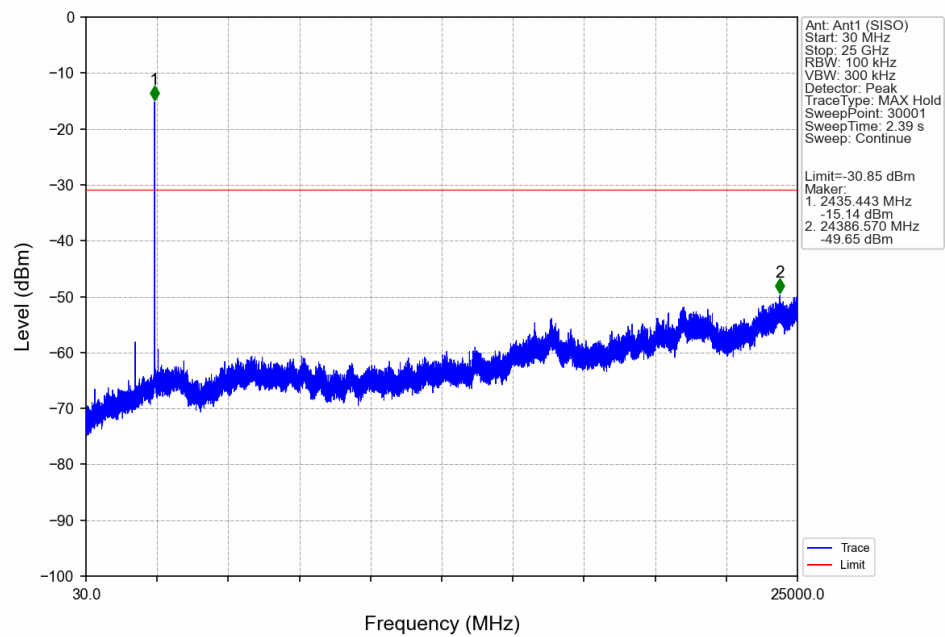
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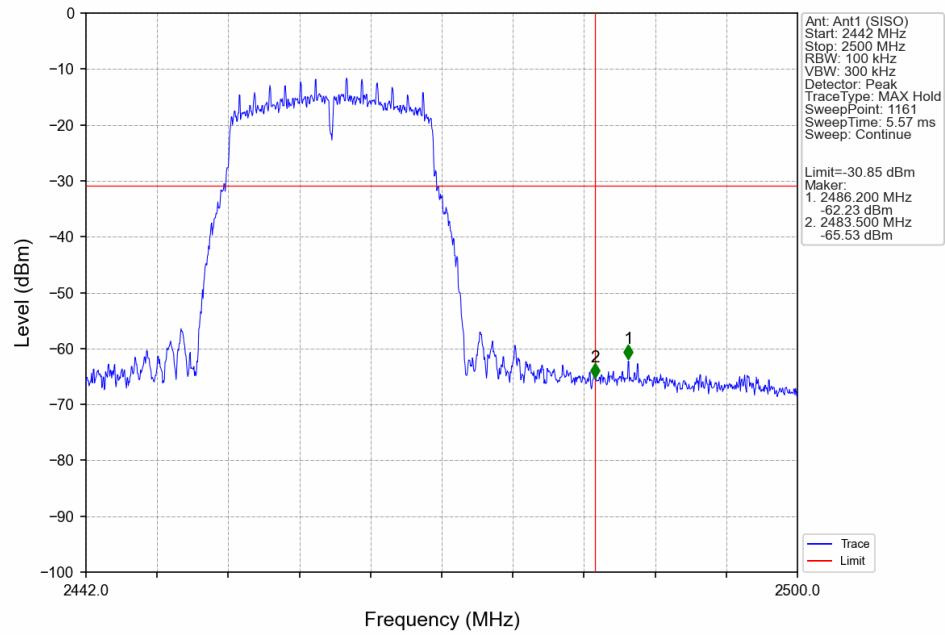
## 802.11g LCH 2412MHz Ant1 (SISO) NTNV



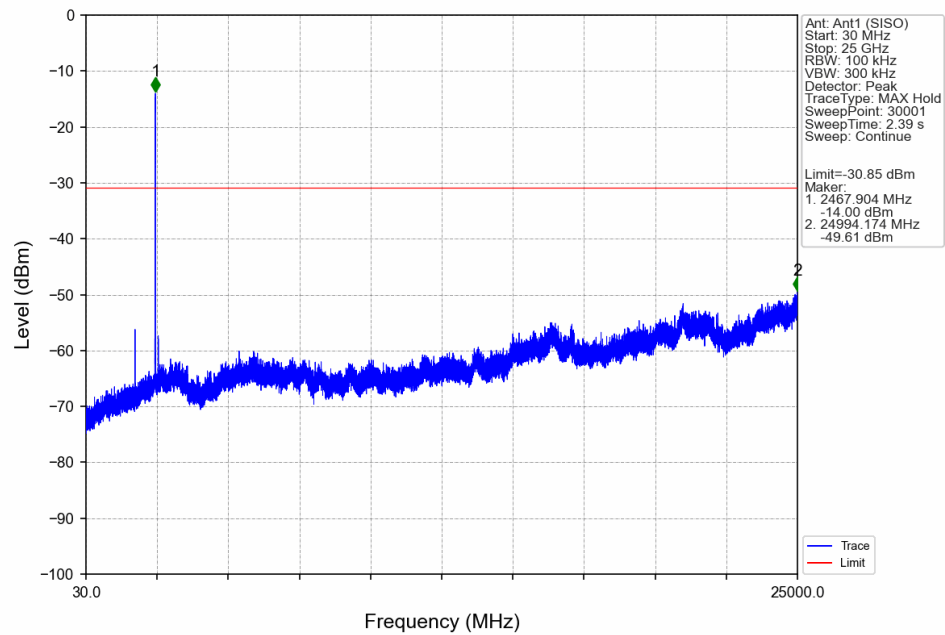
## 802.11g MCH 2437MHz Ant1 (SISO) NTNV



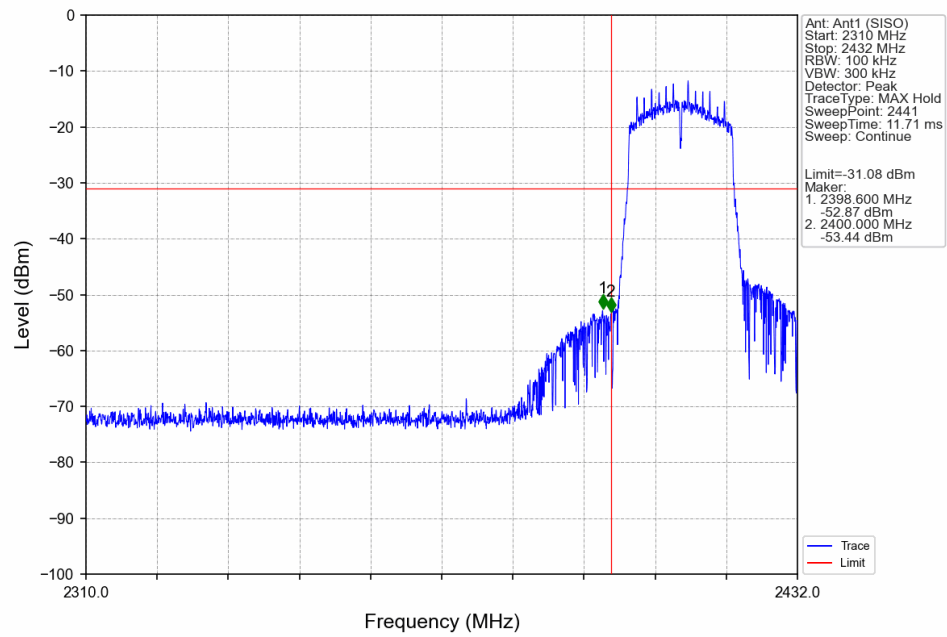
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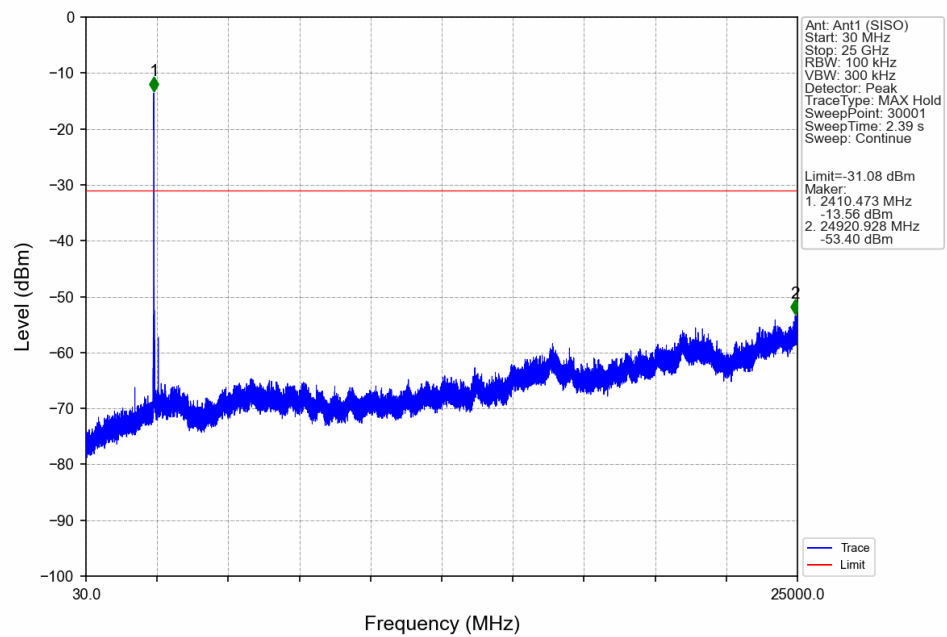
## 802.11g HCH 2462MHz Ant1 (SISO) NTN



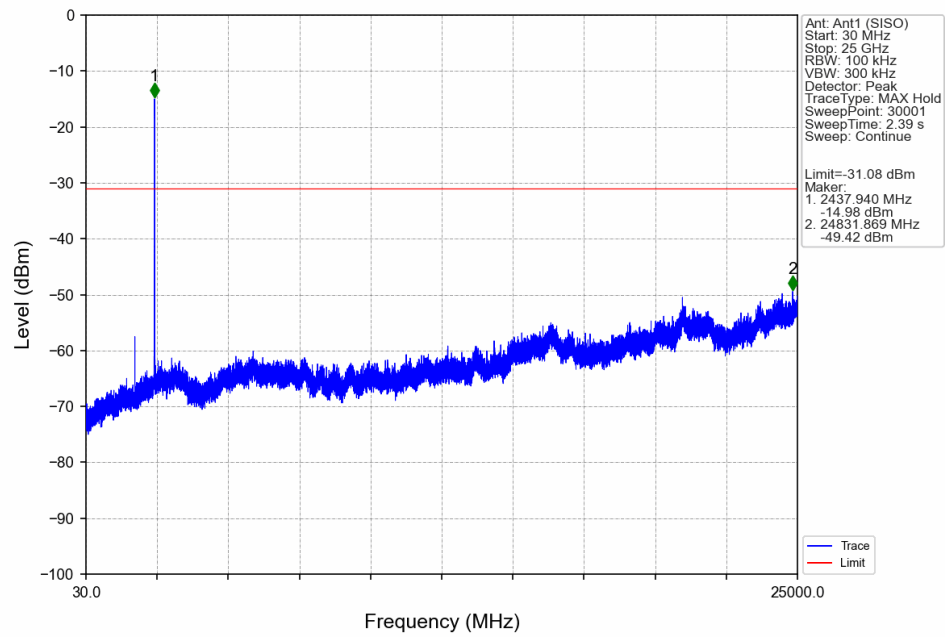
## 802.11n(HT20) LCH 2412MHz Ant1 (SISO) NTV



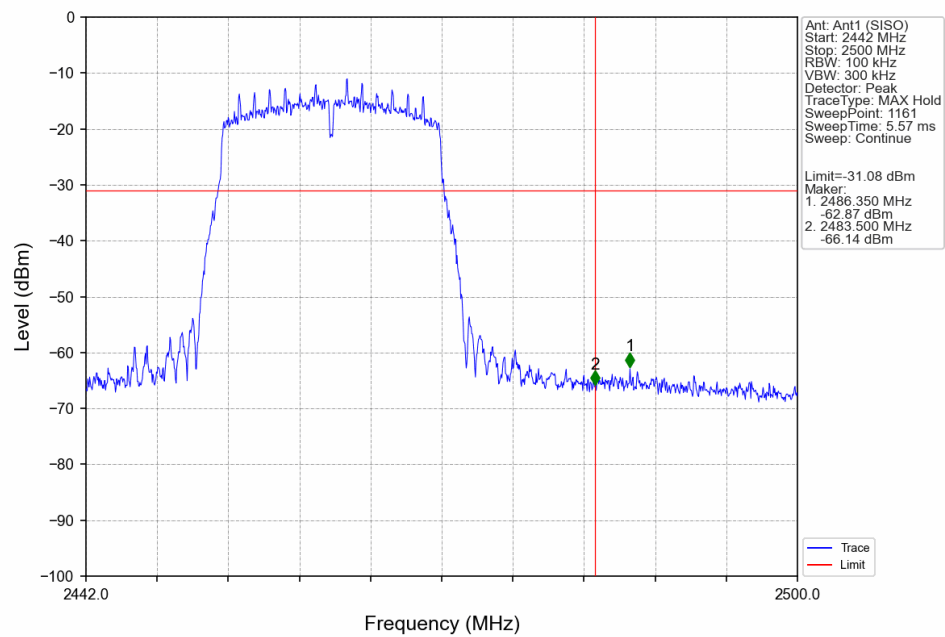
## 802.11n(HT20) LCH 2412MHz Ant1 (SISO) NTV



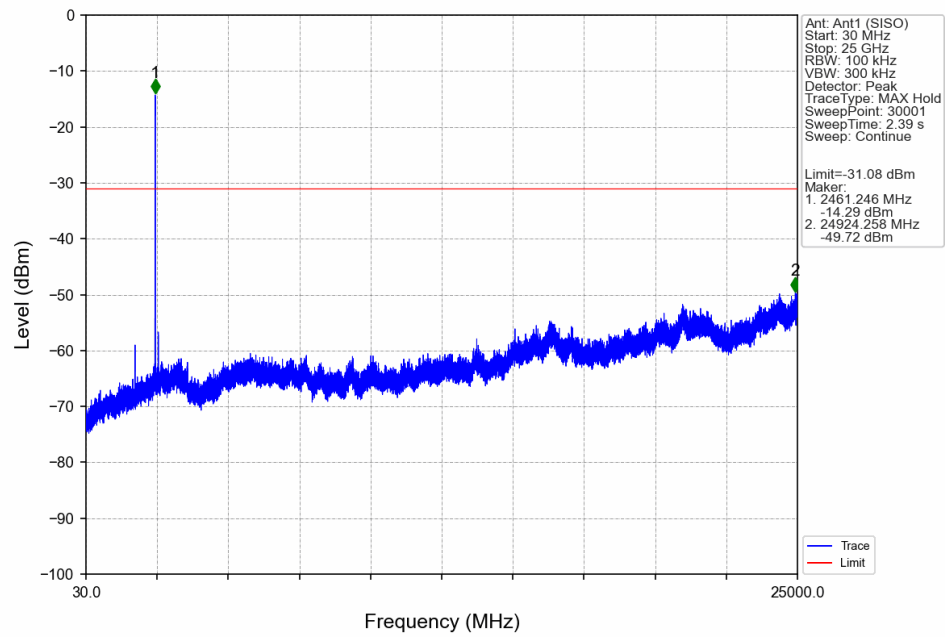
## 802.11n(HT20) MCH 2437MHz Ant1 (SISO) NTNV



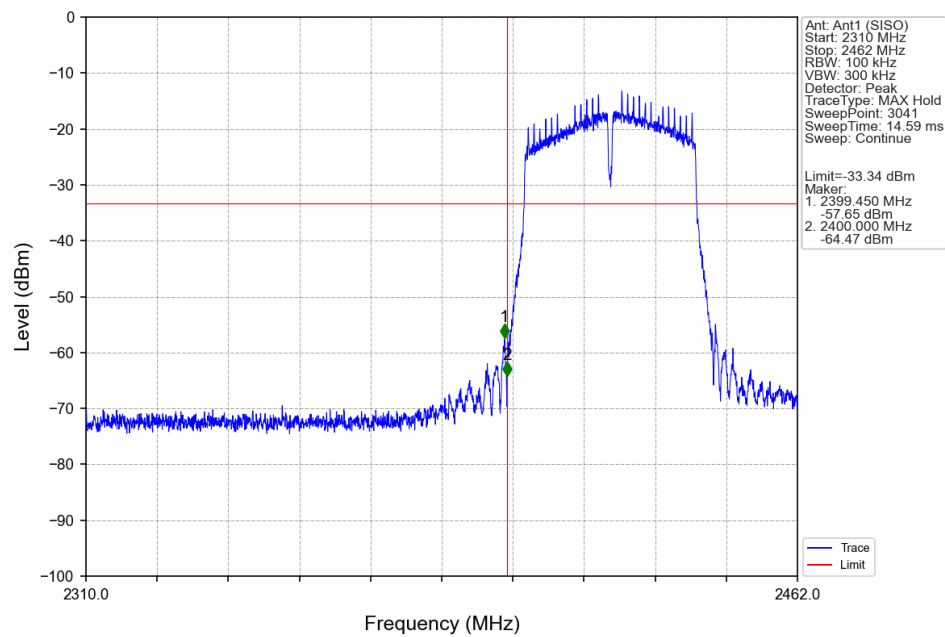
## 802.11n(HT20) HCH 2462MHz Ant1 (SISO) NTNV



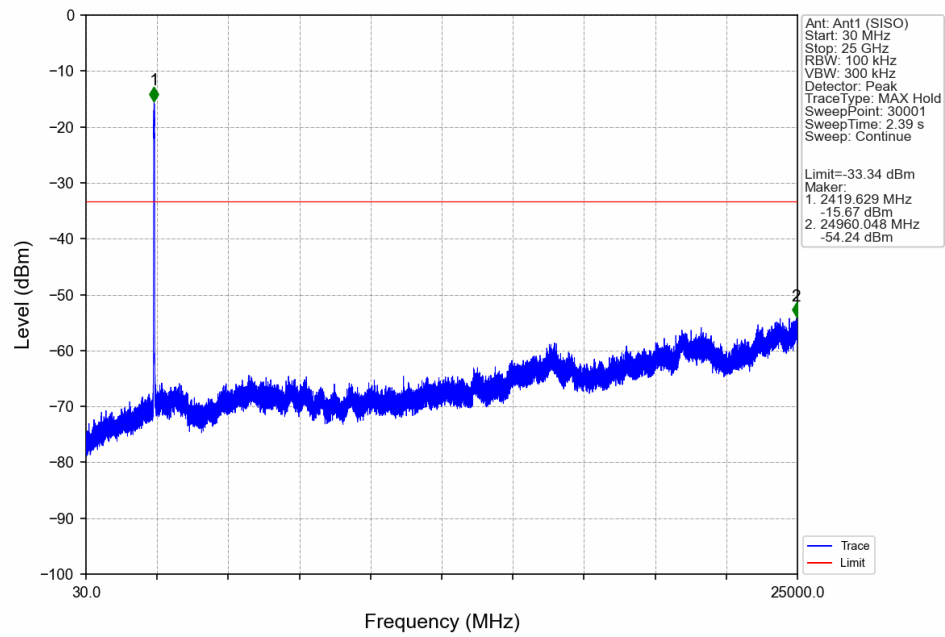
## 802.11n(HT20) HCH 2462MHz Ant1 (SISO) NTNV



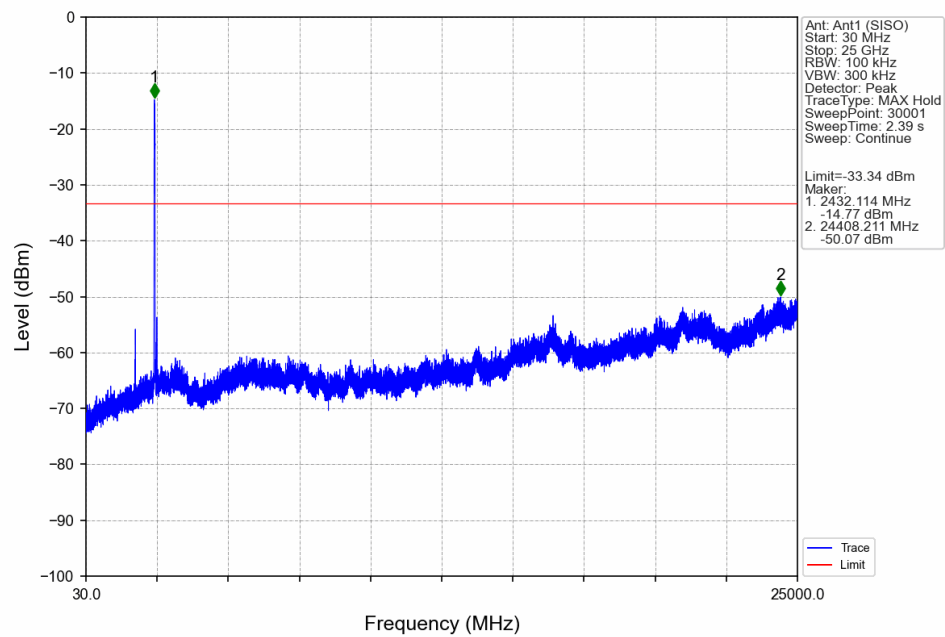
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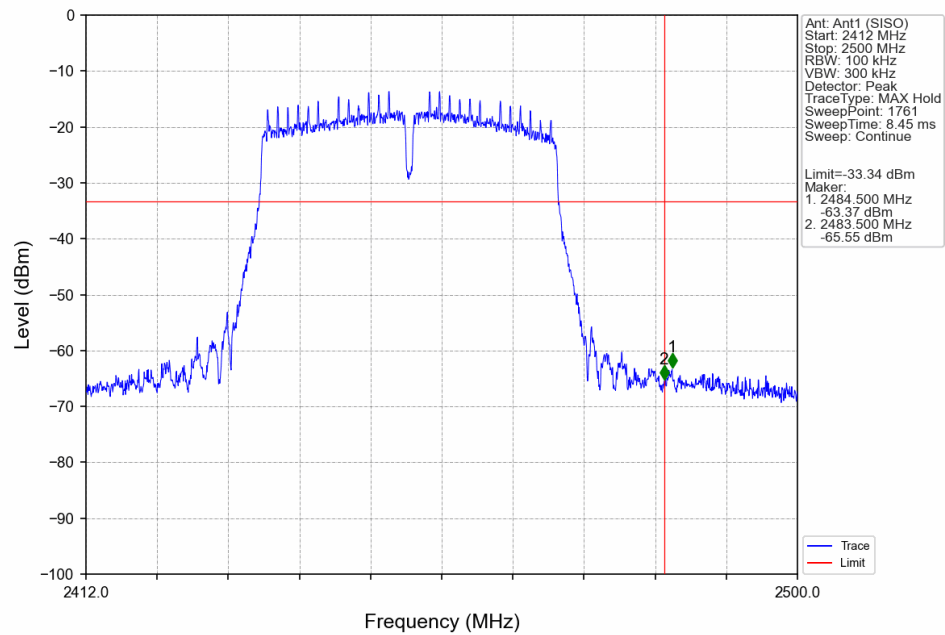
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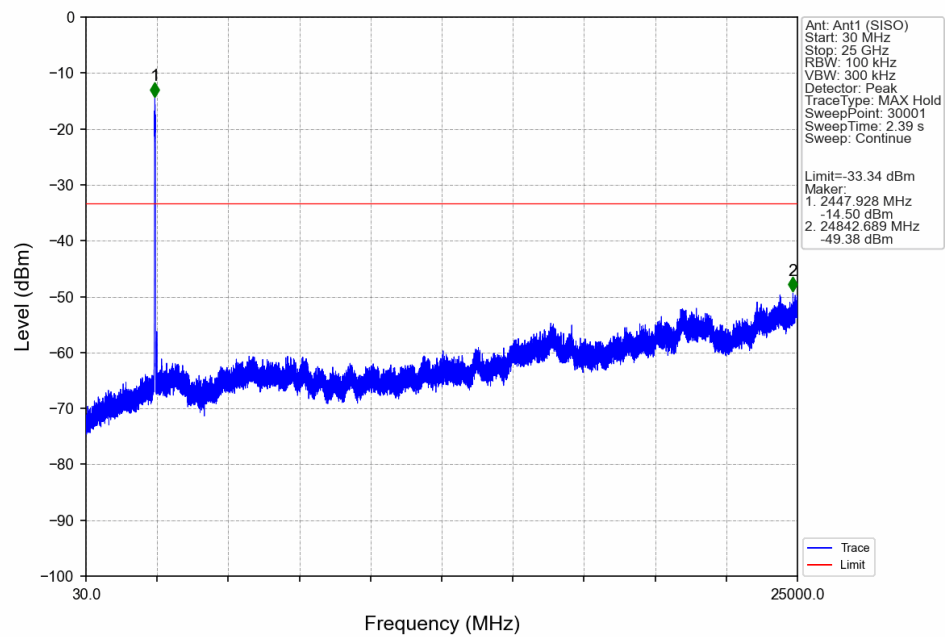
## 802.11n(HT40) MCH 2437MHz Ant1 (SISO) NTNV



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



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



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