

## **Appendix RF Test Data for WIFI 5G**

**Company:** : **Shenzhen Musheng Technology Co., Ltd.**

**EUT** : **Dash Cam**

**FCC ID:** : **2BEAX-X-PRO**

**Model Number** : **X-PRO**

**Report No.** : **HTT202606474F02**

**Reviewed By** : **Heber He**

## 1. Duty Cycle

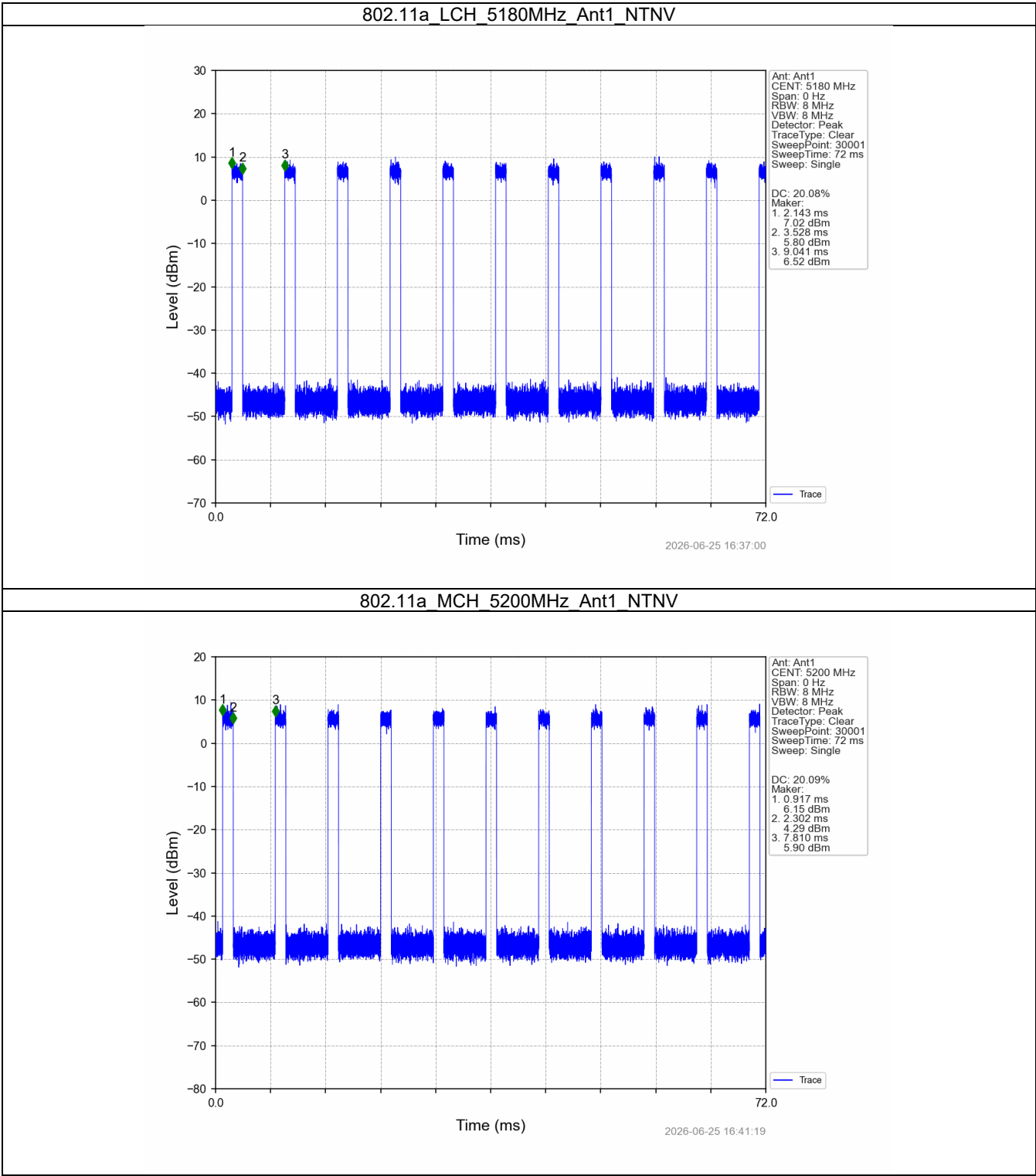
### 1.1 Test Result

#### 1.1.1 Ant1

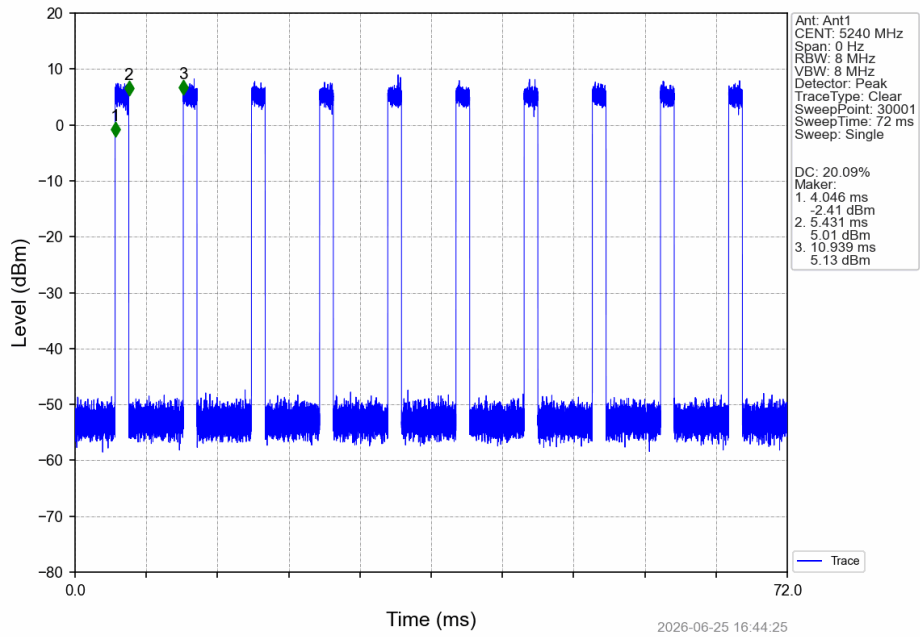
| Ant1           |         |                 |           |             |                |                                   |                       |
|----------------|---------|-----------------|-----------|-------------|----------------|-----------------------------------|-----------------------|
| Mode           | TX Type | Frequency (MHz) | T_on (ms) | Period (ms) | Duty Cycle (%) | Duty Cycle Correction Factor (dB) | Max. DC Variation (%) |
| 802.11a        | SISO    | 5180            | 1.385     | 6.898       | 20.08          | 6.97                              | 0.03                  |
|                |         | 5200            | 1.385     | 6.893       | 20.09          | 6.97                              | 0.03                  |
|                |         | 5240            | 1.385     | 6.893       | 20.09          | 6.97                              | 0.03                  |
| 802.11n (HT20) | SISO    | 5180            | 1.296     | 6.454       | 20.08          | 6.97                              | 0.04                  |
|                |         | 5200            | 1.296     | 6.458       | 20.07          | 6.97                              | 0.04                  |
|                |         | 5240            | 1.296     | 6.449       | 20.10          | 6.97                              | 0.04                  |
| 802.11n (HT40) | SISO    | 5190            | 2.467     | 5.135       | 48.04          | 3.18                              | 0.04                  |
|                |         | 5230            | 2.468     | 5.135       | 48.06          | 3.18                              | 0.04                  |

1.2 Test Graph

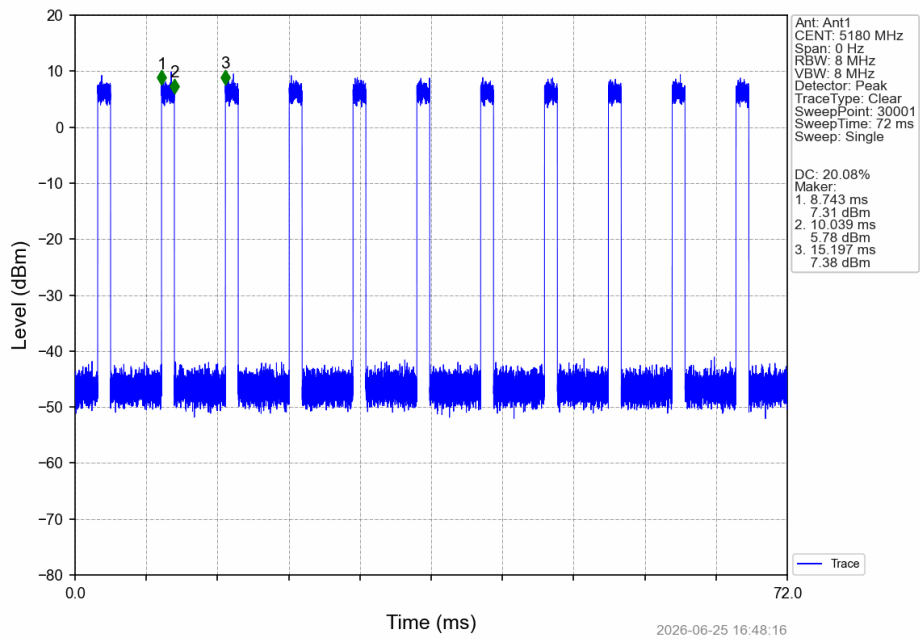
1.2.1 Ant1



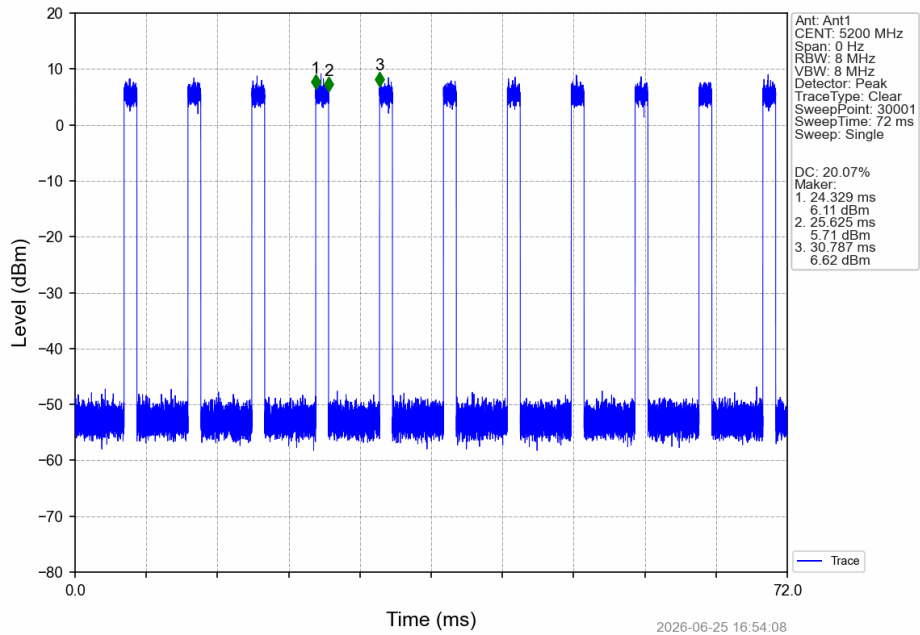
# 802.11a\_HCH\_5240MHz\_Ant1\_NTNV



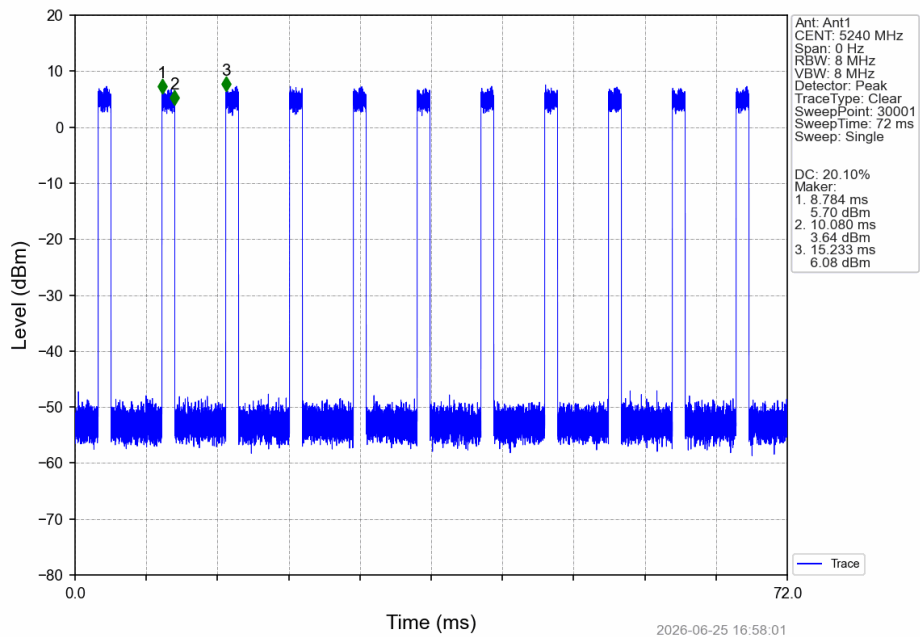
# 802.11n(HT20)\_LCH\_5180MHz\_Ant1\_NTNV



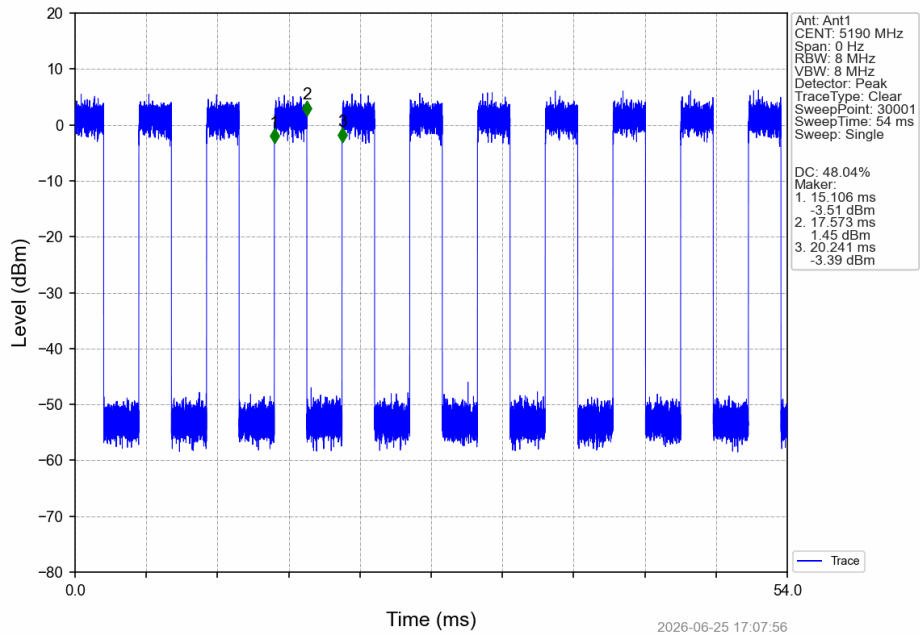
# 802.11n(HT20)\_MCH\_5200MHz\_Ant1\_NTNV



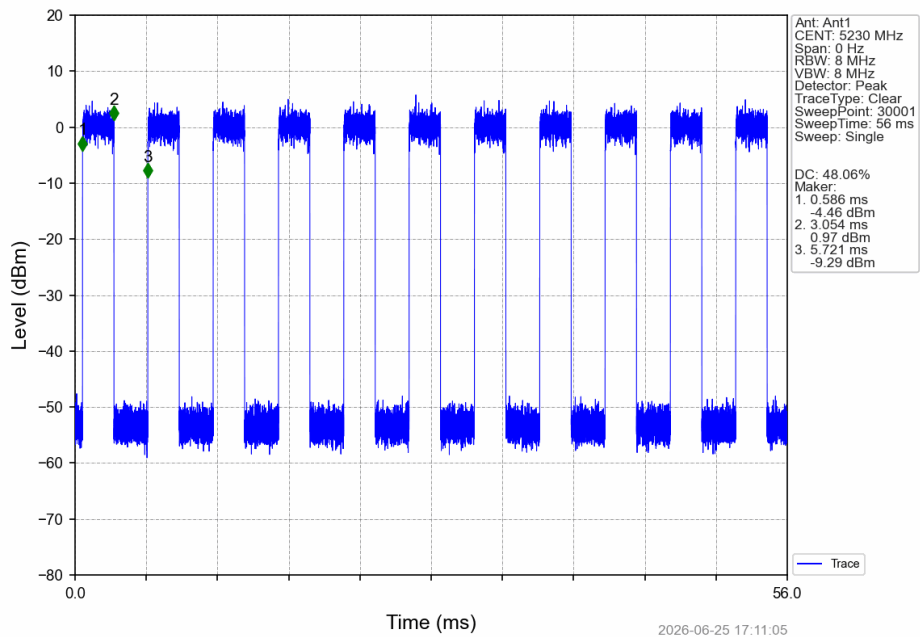
# 802.11n(HT20)\_HCH\_5240MHz\_Ant1\_NTNV



# 802.11n(HT40)\_LCH\_5190MHz\_Ant1\_NTNV



# 802.11n(HT40)\_HCH\_5230MHz\_Ant1\_NTNV



## 2. Bandwidth

### 2.1 Test Result

#### 2.1.1 OBW

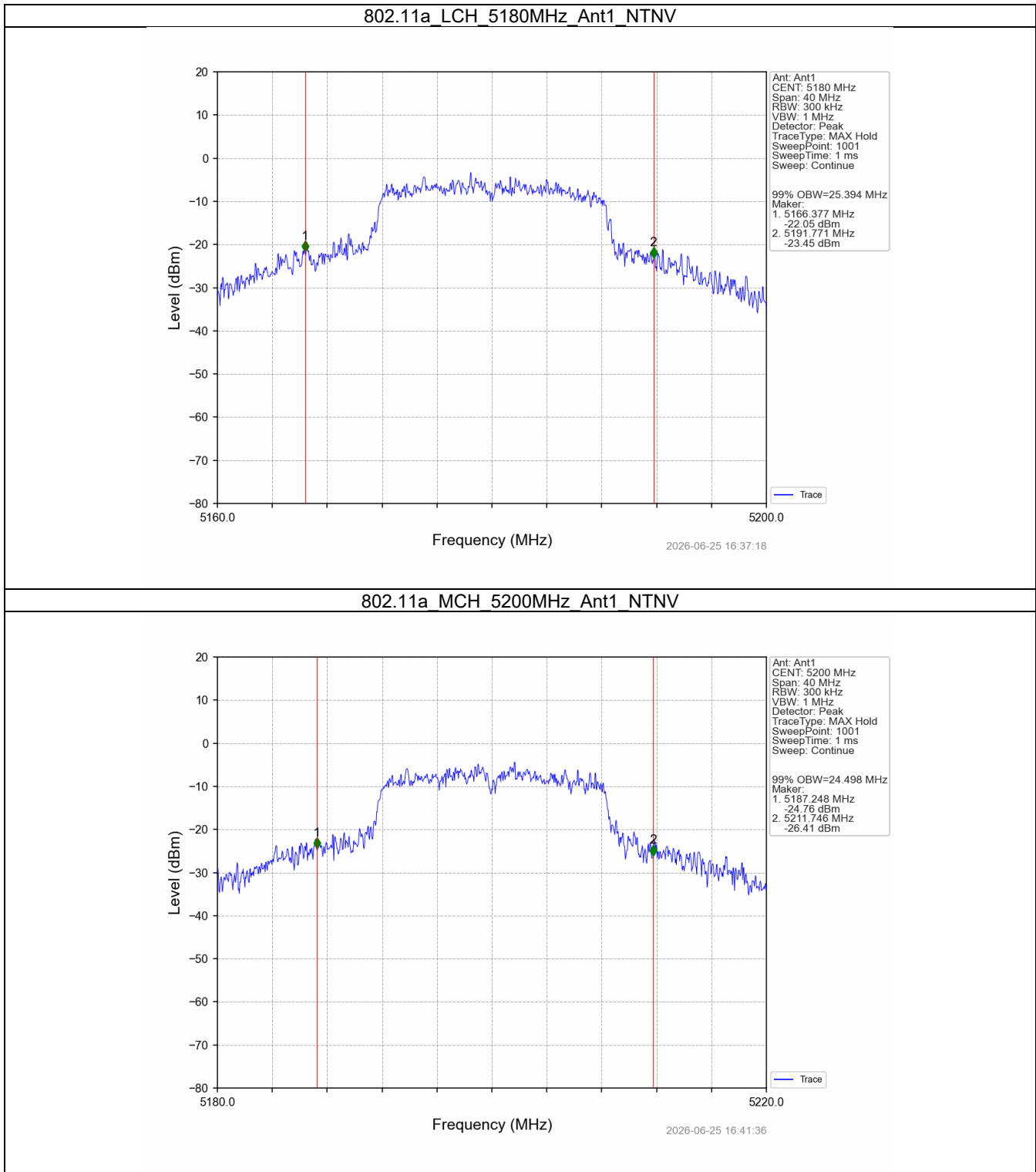
| Mode           | TX Type | Frequency (MHz) | ANT | 99% Occupied Bandwidth (MHz) |       | Verdict |
|----------------|---------|-----------------|-----|------------------------------|-------|---------|
|                |         |                 |     | Result                       | Limit |         |
| 802.11a        | SISO    | 5180            | 1   | 25.394                       | /     | Pass    |
|                |         | 5200            | 1   | 24.498                       | /     | Pass    |
|                |         | 5240            | 1   | 26.045                       | /     | Pass    |
| 802.11n (HT20) | SISO    | 5180            | 1   | 25.594                       | /     | Pass    |
|                |         | 5200            | 1   | 24.620                       | /     | Pass    |
|                |         | 5240            | 1   | 26.279                       | /     | Pass    |
| 802.11n (HT40) | SISO    | 5190            | 1   | 51.395                       | /     | Pass    |
|                |         | 5230            | 1   | 54.948                       | /     | Pass    |

#### 2.1.2 26dB BW

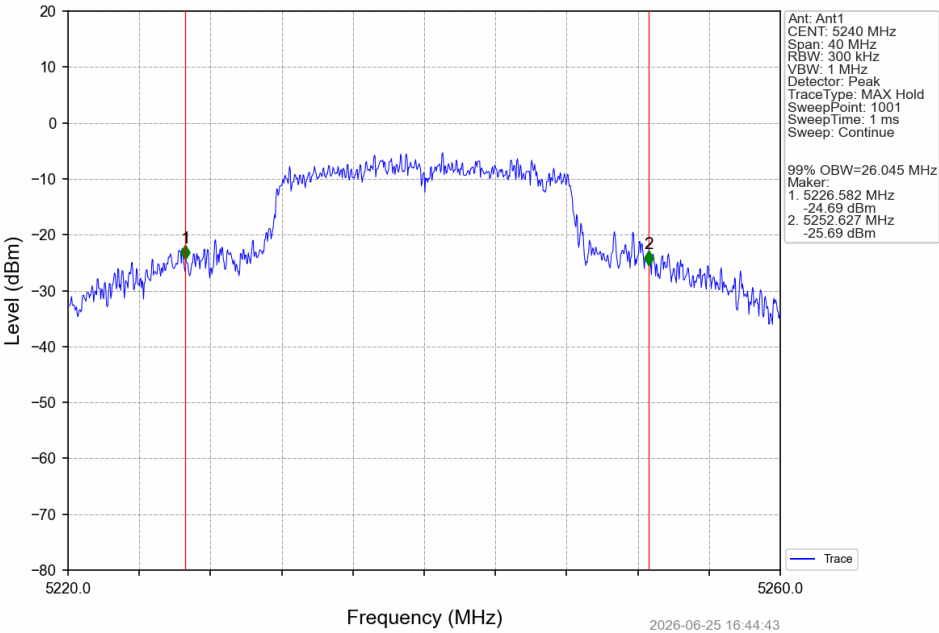
| Mode           | TX Type | Frequency (MHz) | ANT | 26dB Bandwidth (MHz) |       | Verdict |
|----------------|---------|-----------------|-----|----------------------|-------|---------|
|                |         |                 |     | Result               | Limit |         |
| 802.11a        | SISO    | 5180            | 1   | 42.906               | /     | Pass    |
|                |         | 5200            | 1   | 41.038               | /     | Pass    |
|                |         | 5240            | 1   | 44.470               | /     | Pass    |
| 802.11n (HT20) | SISO    | 5180            | 1   | 46.267               | /     | Pass    |
|                |         | 5200            | 1   | 48.216               | /     | Pass    |
|                |         | 5240            | 1   | 47.767               | /     | Pass    |
| 802.11n (HT40) | SISO    | 5190            | 1   | 98.448               | /     | Pass    |
|                |         | 5230            | 1   | 100.237              | /     | Pass    |

# 2.2 Test Graph

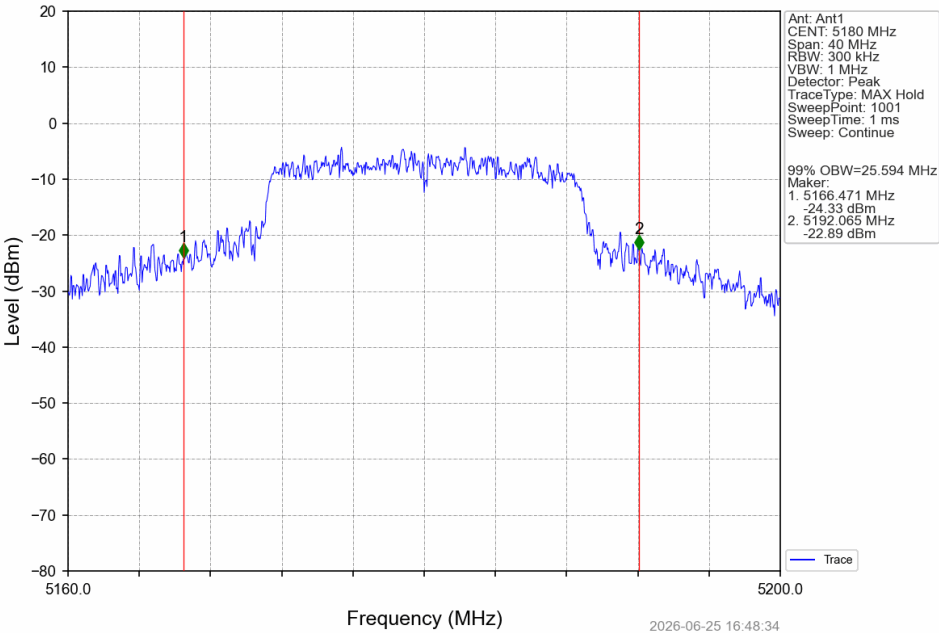
## 2.2.1 OBW



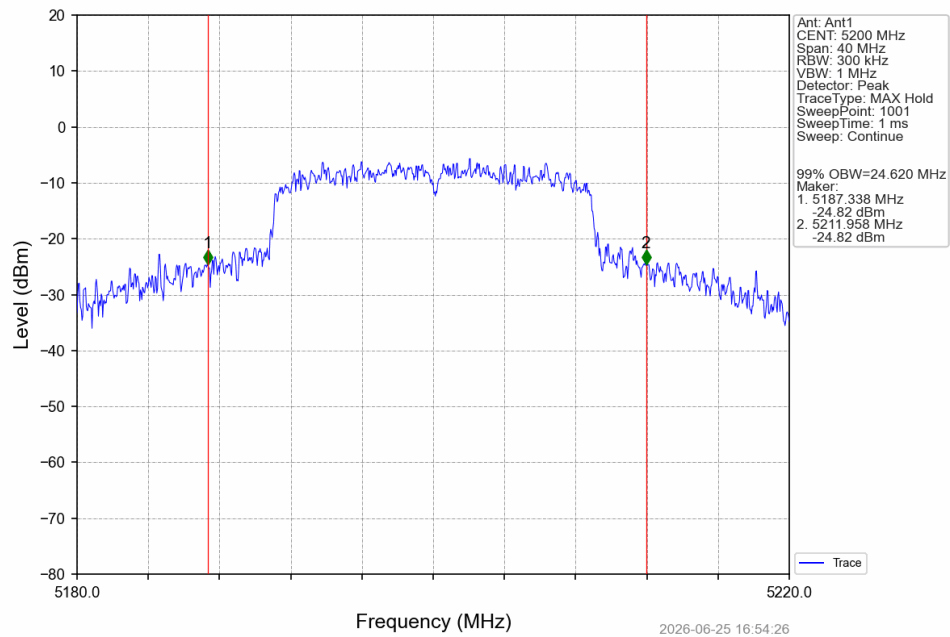
802.11a\_HCH\_5240MHz\_Ant1\_NTNV



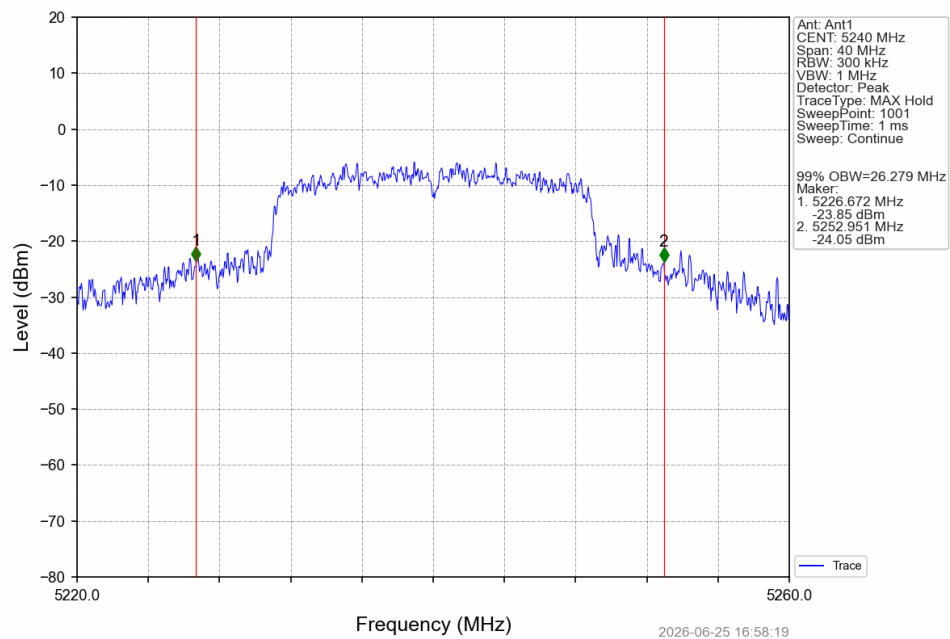
802.11n(HT20)\_LCH\_5180MHz\_Ant1\_NTNV



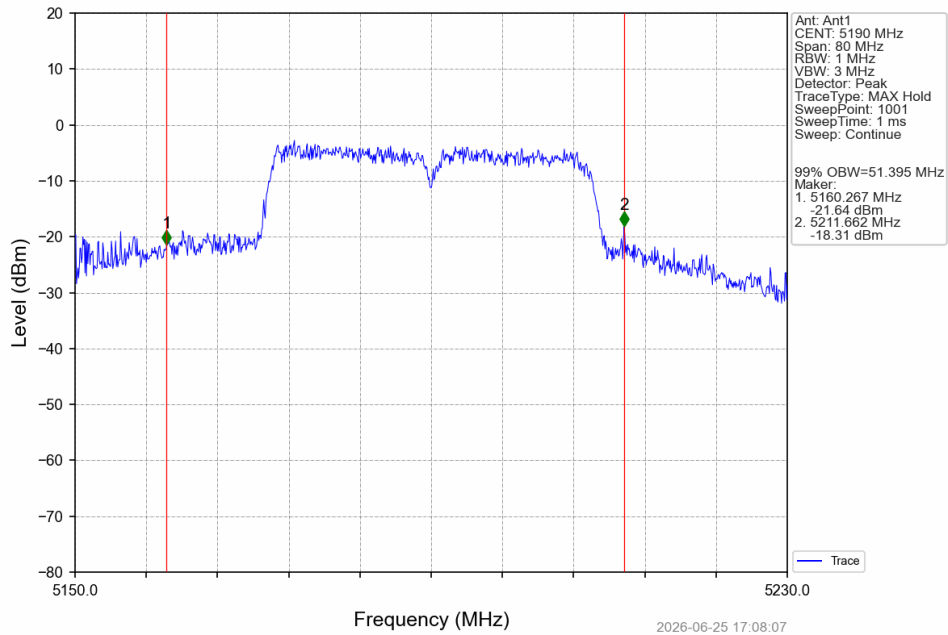
### 802.11n(HT20)\_MCH\_5200MHz\_Ant1\_NTNV



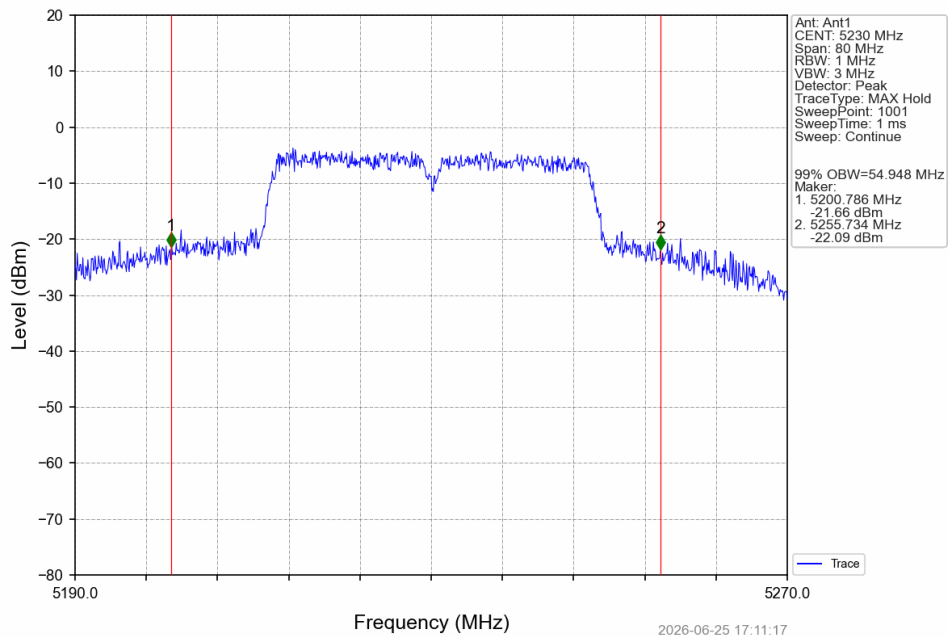
### 802.11n(HT20)\_HCH\_5240MHz\_Ant1\_NTNV



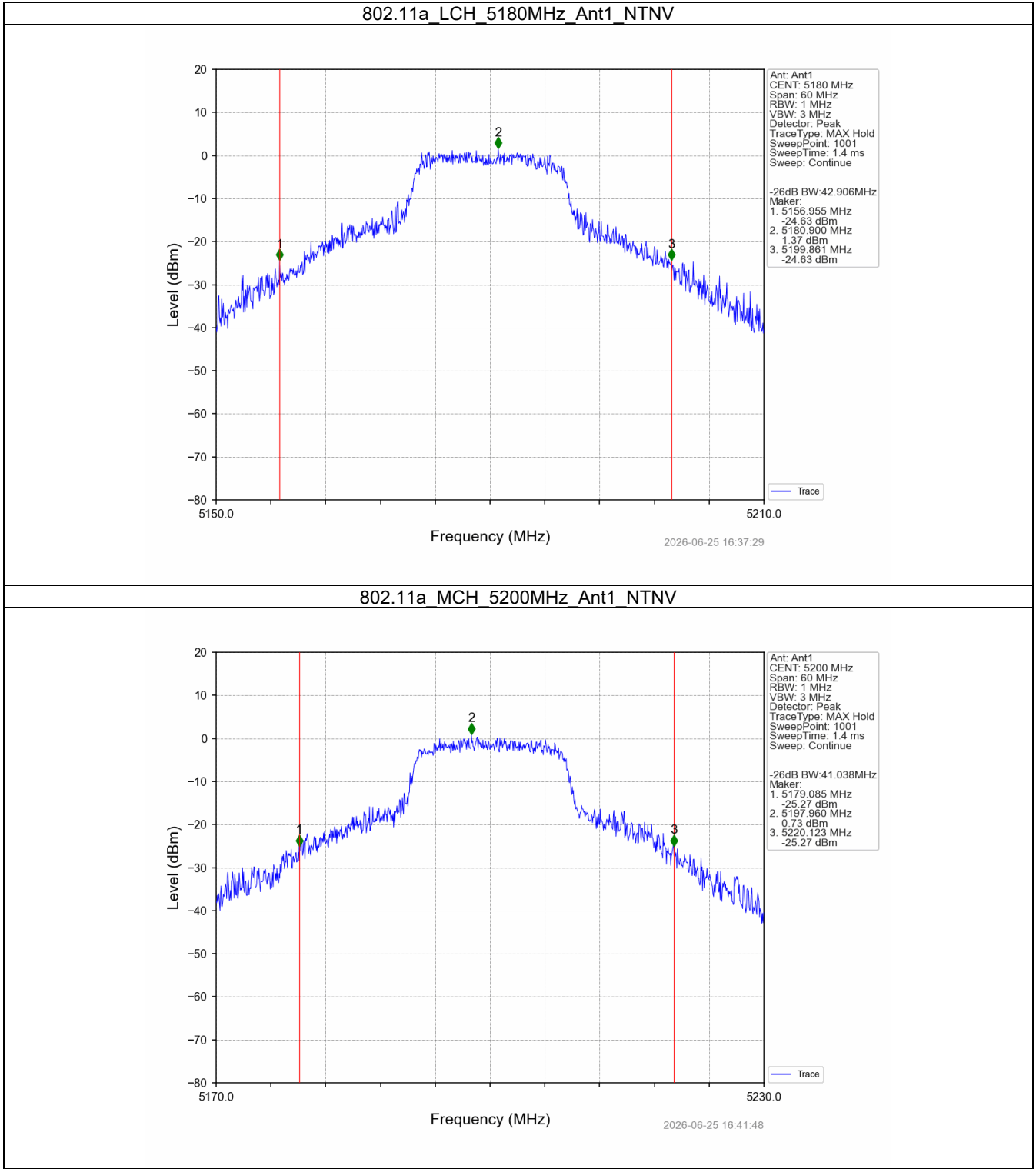
### 802.11n(HT40)\_LCH\_5190MHz\_Ant1\_NTNV



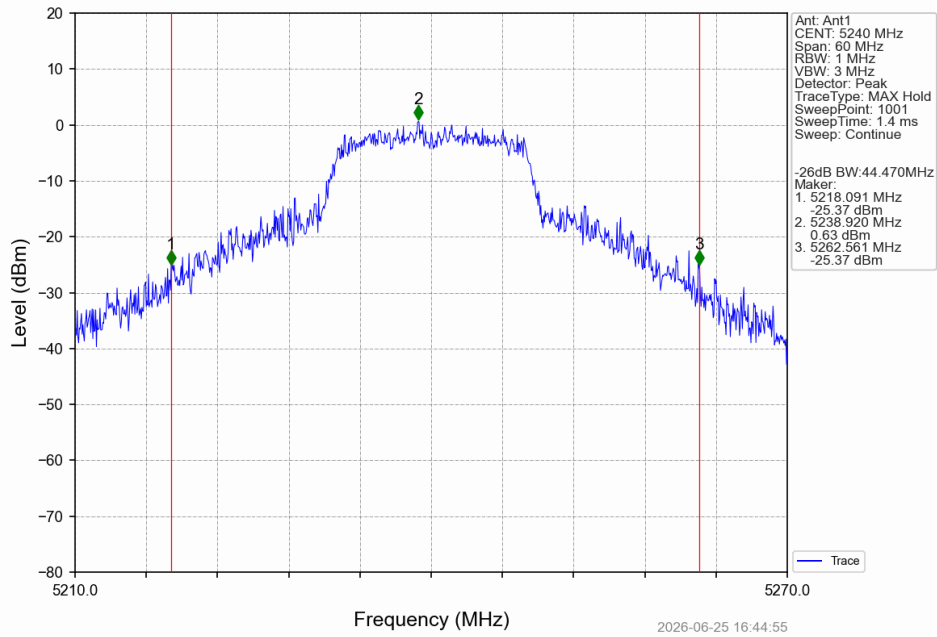
### 802.11n(HT40)\_HCH\_5230MHz\_Ant1\_NTNV



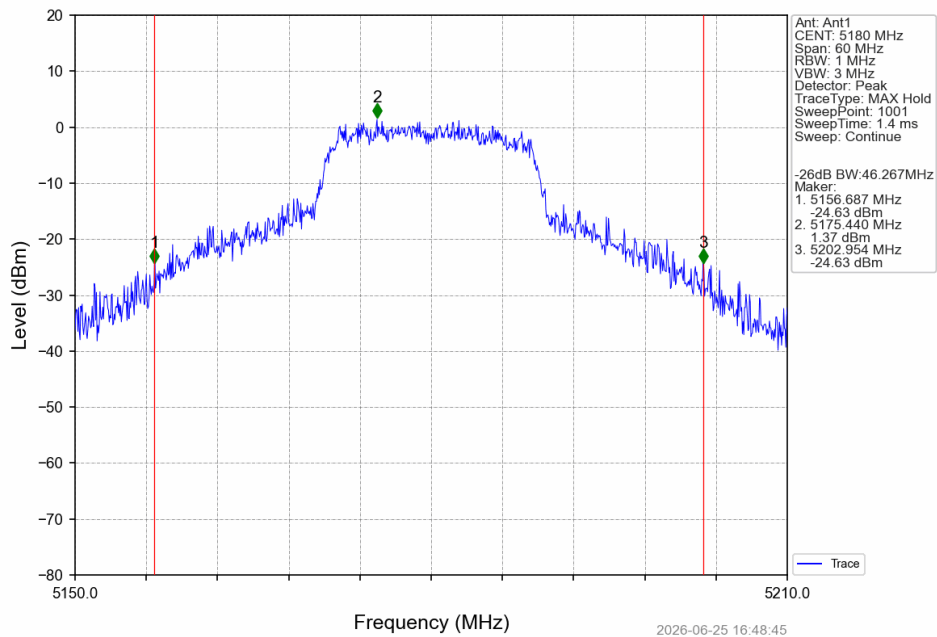
2.2.2 26dB BW



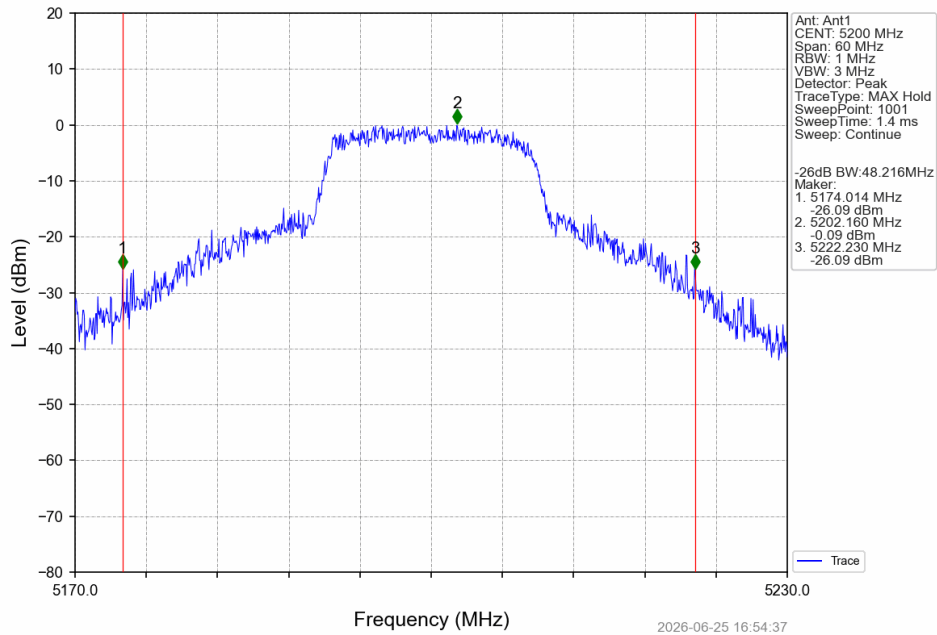
### 802.11a\_HCH\_5240MHz\_Ant1\_NTNV



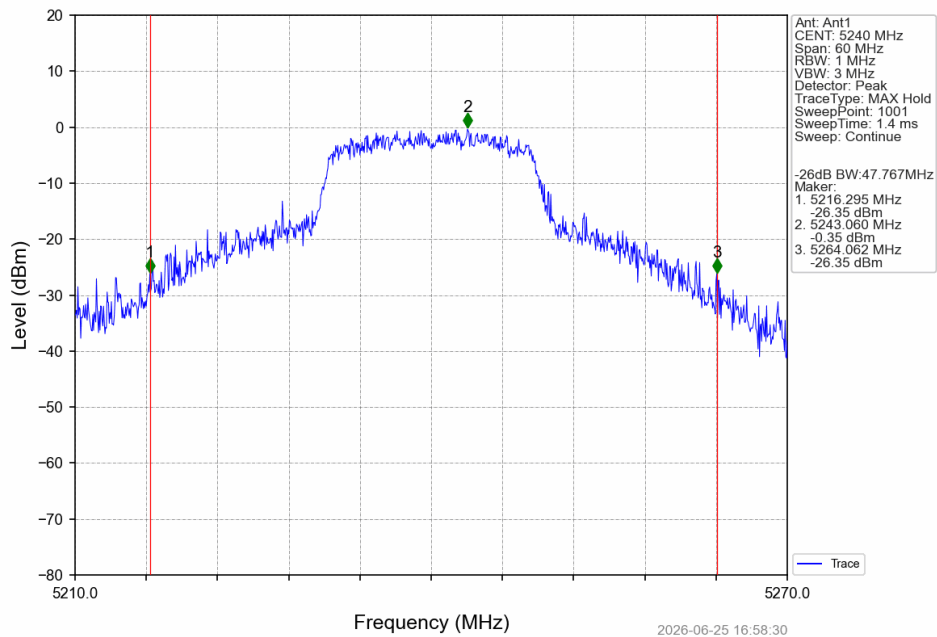
### 802.11n(HT20)\_LCH\_5180MHz\_Ant1\_NTNV



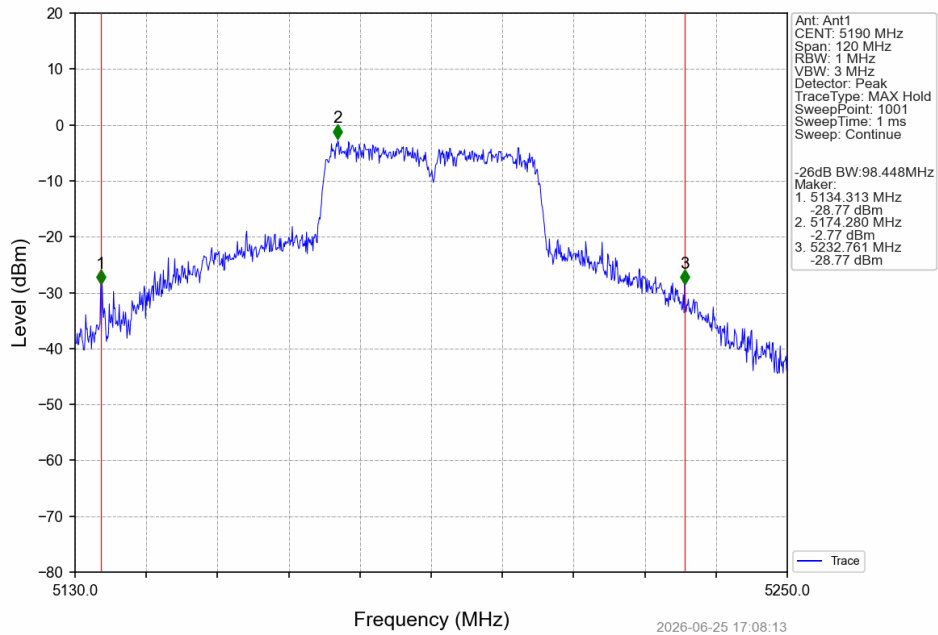
# 802.11n(HT20)\_MCH\_5200MHz\_Ant1\_NTNV



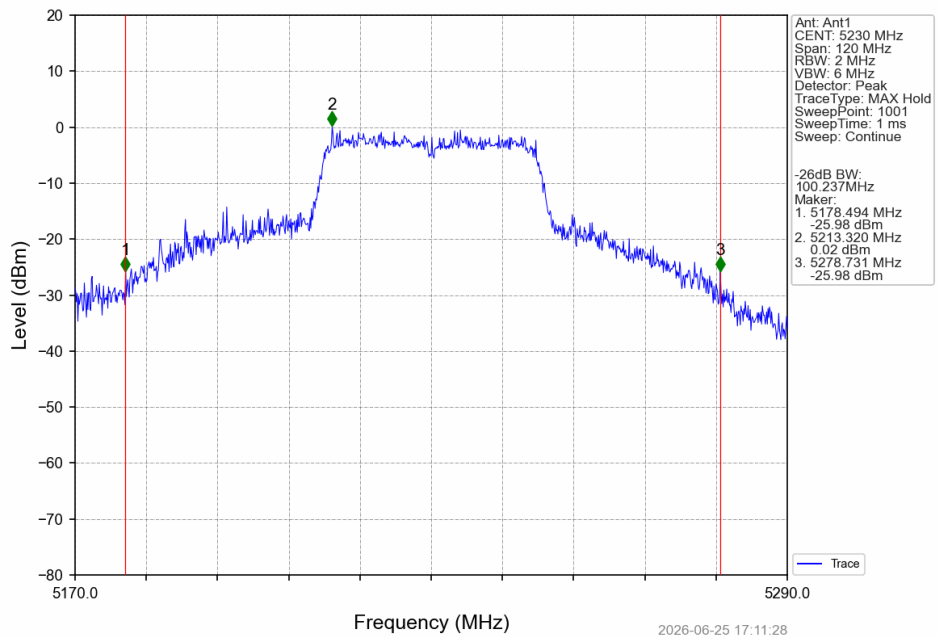
# 802.11n(HT20)\_HCH\_5240MHz\_Ant1\_NTNV



# 802.11n(HT40)\_LCH\_5190MHz\_Ant1\_NTNV



# 802.11n(HT40)\_HCH\_5230MHz\_Ant1\_NTNV



### 3. Maximum Conducted Output Power

#### 3.1 Test Result

##### 3.1.1 Power

| Mode           | TX Type | Frequency (MHz) | Maximum Average Conducted Output Power (dBm) |              | Verdict |
|----------------|---------|-----------------|----------------------------------------------|--------------|---------|
|                |         |                 | ANT1                                         | Limit        |         |
| 802.11a        | SISO    | 5180            | 4.58                                         | $\leq 23.98$ | Pass    |
|                |         | 5200            | 3.66                                         | $\leq 23.98$ | Pass    |
|                |         | 5240            | 2.96                                         | $\leq 23.98$ | Pass    |
| 802.11n (HT20) | SISO    | 5180            | 4.51                                         | $\leq 23.98$ | Pass    |
|                |         | 5200            | 3.59                                         | $\leq 23.98$ | Pass    |
|                |         | 5240            | 2.98                                         | $\leq 23.98$ | Pass    |
| 802.11n (HT40) | SISO    | 5190            | 2.88                                         | $\leq 23.98$ | Pass    |
|                |         | 5230            | 2.27                                         | $\leq 23.98$ | Pass    |

## 4. Maximum Power Spectral Density

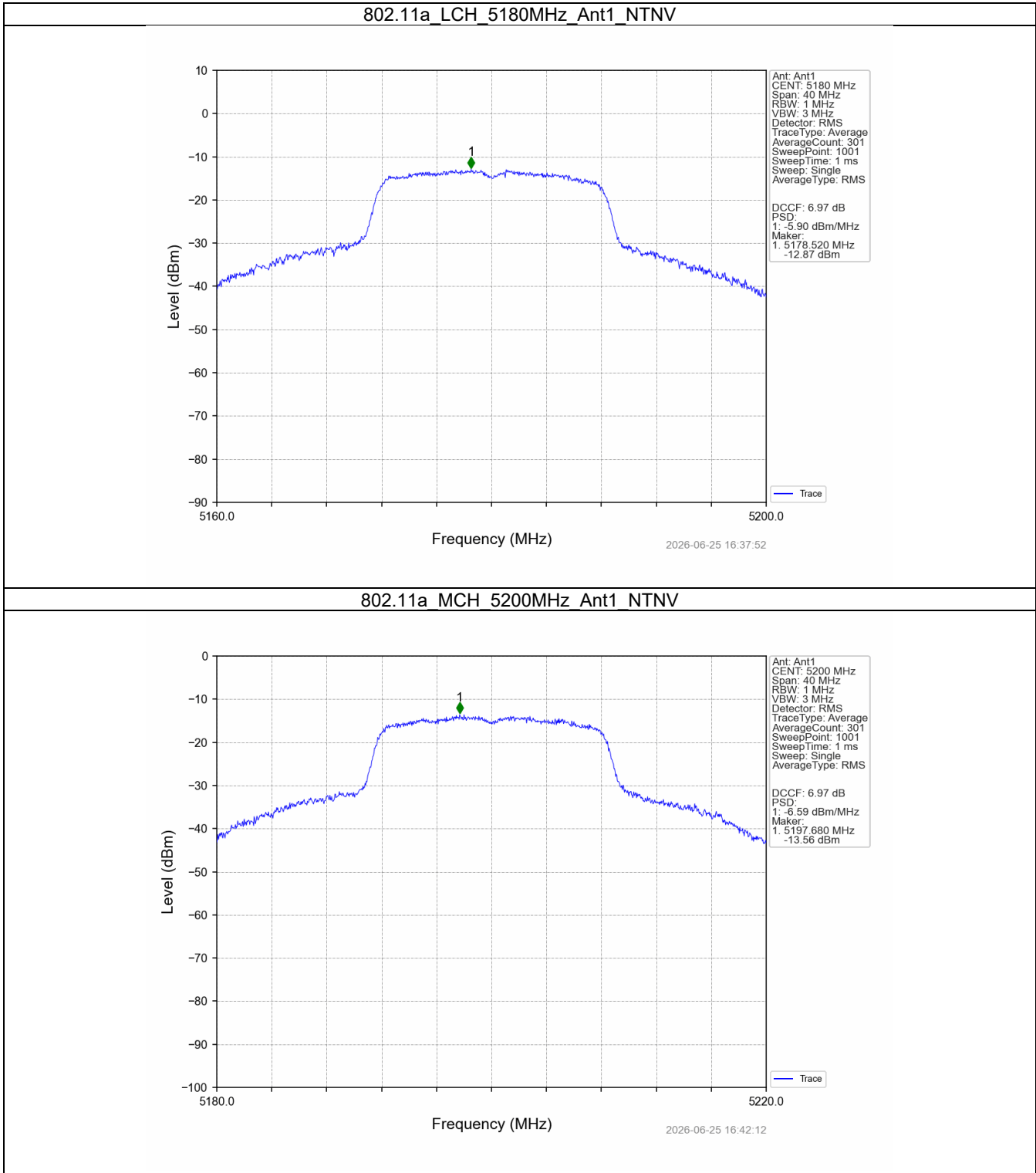
### 4.1 Test Result

#### 4.1.1 PSD

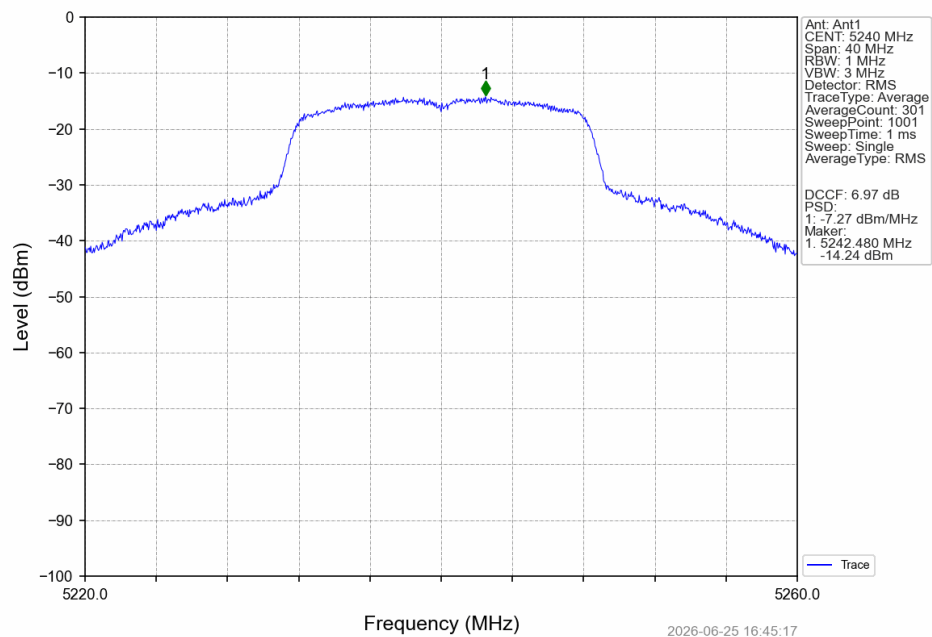
| Mode           | TX Type | Frequency (MHz) | Maximum PSD (dBm/MHz) |       | Verdict |
|----------------|---------|-----------------|-----------------------|-------|---------|
|                |         |                 | ANT1                  | Limit |         |
| 802.11a        | SISO    | 5180            | -5.90                 | <=11  | Pass    |
|                |         | 5200            | -6.59                 | <=11  | Pass    |
|                |         | 5240            | -7.27                 | <=11  | Pass    |
| 802.11n (HT20) | SISO    | 5180            | -6.69                 | <=11  | Pass    |
|                |         | 5200            | -7.01                 | <=11  | Pass    |
|                |         | 5240            | -7.80                 | <=11  | Pass    |
| 802.11n (HT40) | SISO    | 5190            | -11.60                | <=11  | Pass    |
|                |         | 5230            | -12.18                | <=11  | Pass    |

4.2 Test Graph

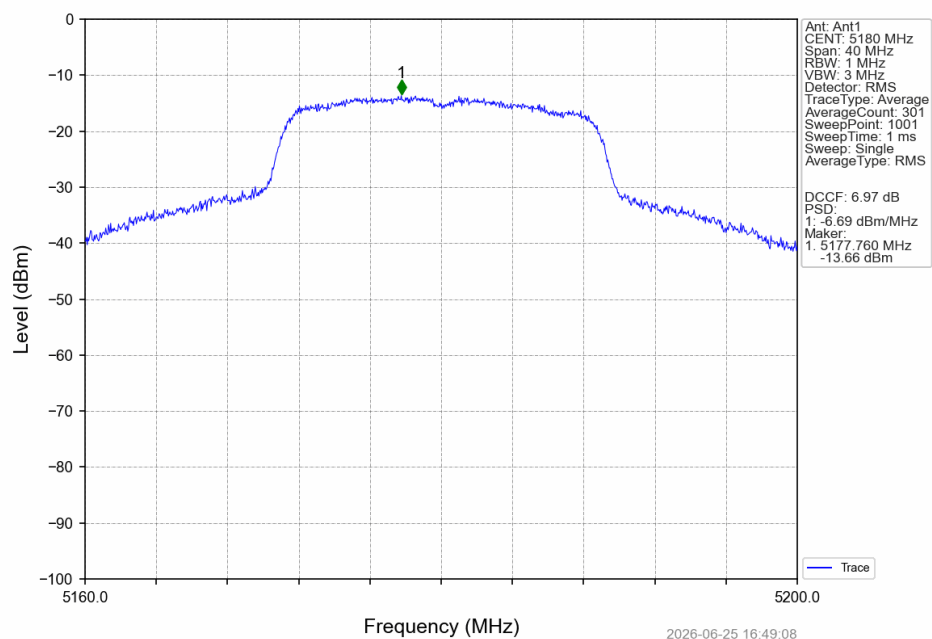
4.2.1 PSD



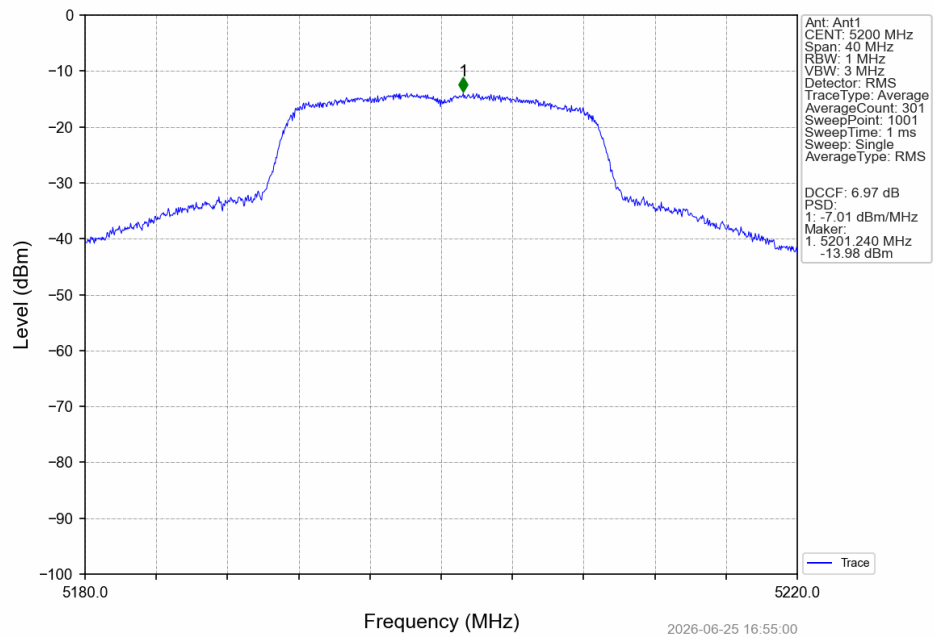
802.11a\_HCH\_5240MHz\_Ant1\_NTNV



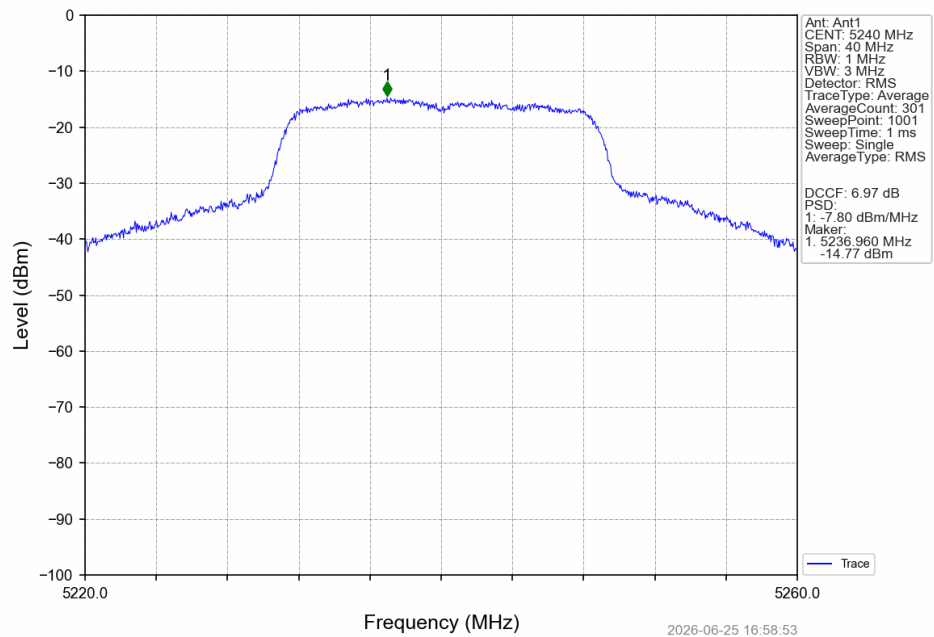
802.11n(HT20)\_LCH\_5180MHz\_Ant1\_NTNV



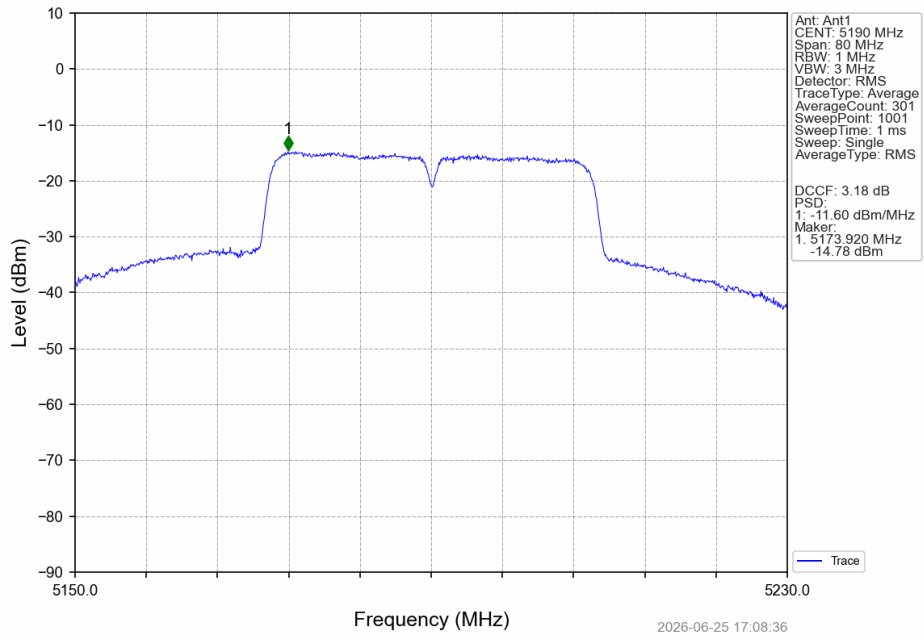
# 802.11n(HT20)\_MCH\_5200MHz\_Ant1\_NTNV



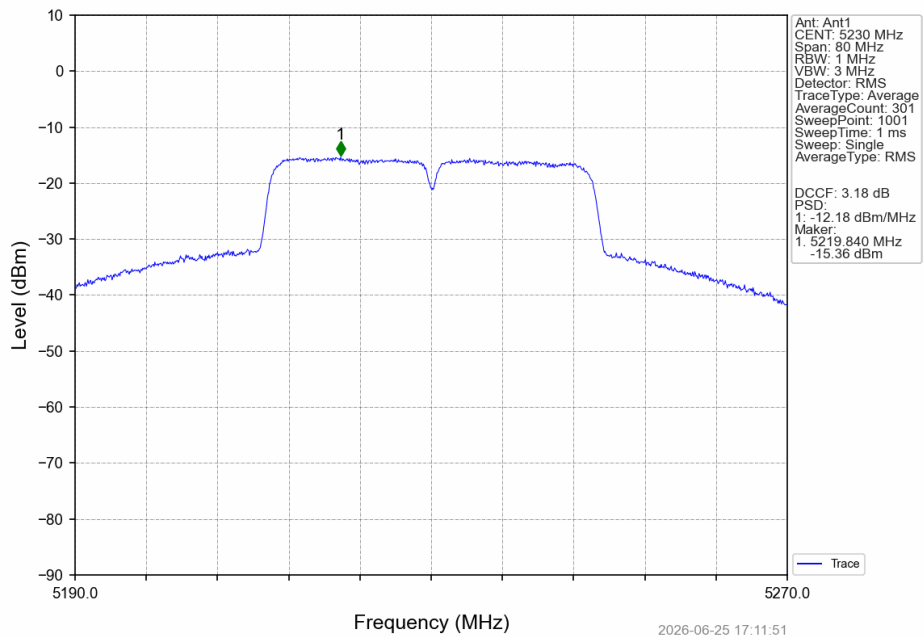
# 802.11n(HT20)\_HCH\_5240MHz\_Ant1\_NTNV



# 802.11n(HT40)\_LCH\_5190MHz\_Ant1\_NTNV



# 802.11n(HT40)\_HCH\_5230MHz\_Ant1\_NTNV



## 5. Frequency Stability

### 5.1 Test Result

#### 5.1.1 Ant1

| Ant1           |         |                 |                  |         |                          |              |         |
|----------------|---------|-----------------|------------------|---------|--------------------------|--------------|---------|
| Mode           | Tx Type | Frequency (MHz) | Temperature (°C) | Voltage | Measured Frequency (MHz) | Limit (MHz)  | Verdict |
| 802.11a        | SISO    | 5180            | 20               | LV      | 5180.060                 | 5150 to 5250 | Pass    |
|                |         |                 |                  | NV      | 5180.100                 | 5150 to 5250 | Pass    |
|                |         |                 |                  | HV      | 5180.060                 | 5150 to 5250 | Pass    |
|                |         |                 | -30              | NV      | 5180.020                 | 5150 to 5250 | Pass    |
|                |         |                 | -20              | NV      | 5180.000                 | 5150 to 5250 | Pass    |
|                |         |                 | -10              | NV      | 5180.020                 | 5150 to 5250 | Pass    |
|                |         |                 | 0                | NV      | 5179.980                 | 5150 to 5250 | Pass    |
|                |         |                 | 10               | NV      | 5180.080                 | 5150 to 5250 | Pass    |
|                |         |                 | 30               | NV      | 5179.980                 | 5150 to 5250 | Pass    |
|                |         |                 | 40               | NV      | 5179.920                 | 5150 to 5250 | Pass    |
|                |         |                 | 50               | NV      | 5180.040                 | 5150 to 5250 | Pass    |
|                |         | 5200            | 20               | LV      | 5200.120                 | 5150 to 5250 | Pass    |
|                |         |                 |                  | NV      | 5200.040                 | 5150 to 5250 | Pass    |
|                |         |                 |                  | HV      | 5200.040                 | 5150 to 5250 | Pass    |
|                |         |                 | -30              | NV      | 5200.080                 | 5150 to 5250 | Pass    |
|                |         |                 | -20              | NV      | 5200.100                 | 5150 to 5250 | Pass    |
|                |         |                 | -10              | NV      | 5200.100                 | 5150 to 5250 | Pass    |
|                |         |                 | 0                | NV      | 5200.080                 | 5150 to 5250 | Pass    |
|                |         |                 | 10               | NV      | 5200.140                 | 5150 to 5250 | Pass    |
|                |         |                 | 30               | NV      | 5200.080                 | 5150 to 5250 | Pass    |
|                |         |                 | 40               | NV      | 5200.060                 | 5150 to 5250 | Pass    |
|                |         |                 | 50               | NV      | 5200.100                 | 5150 to 5250 | Pass    |
|                |         | 5240            | 20               | LV      | 5240.020                 | 5150 to 5250 | Pass    |
|                |         |                 |                  | NV      | 5240.000                 | 5150 to 5250 | Pass    |
|                |         |                 |                  | HV      | 5240.160                 | 5150 to 5250 | Pass    |
|                |         |                 | -30              | NV      | 5240.080                 | 5150 to 5250 | Pass    |
|                |         |                 | -20              | NV      | 5240.040                 | 5150 to 5250 | Pass    |
|                |         |                 | -10              | NV      | 5240.020                 | 5150 to 5250 | Pass    |
|                |         |                 | 0                | NV      | 5240.120                 | 5150 to 5250 | Pass    |
|                |         |                 | 10               | NV      | 5240.000                 | 5150 to 5250 | Pass    |
|                |         |                 | 30               | NV      | 5240.060                 | 5150 to 5250 | Pass    |
|                |         |                 | 40               | NV      | 5240.080                 | 5150 to 5250 | Pass    |
|                |         |                 | 50               | NV      | 5240.120                 | 5150 to 5250 | Pass    |
| 802.11n (HT20) | SISO    | 5180            | 20               | LV      | 5180.060                 | 5150 to 5250 | Pass    |
|                |         |                 |                  | NV      | 5179.980                 | 5150 to 5250 | Pass    |
|                |         |                 |                  | HV      | 5180.040                 | 5150 to 5250 | Pass    |
|                |         |                 | -30              | NV      | 5180.100                 | 5150 to 5250 | Pass    |
|                |         |                 | -20              | NV      | 5180.020                 | 5150 to 5250 | Pass    |
|                |         |                 | -10              | NV      | 5180.020                 | 5150 to 5250 | Pass    |
|                |         |                 | 0                | NV      | 5180.040                 | 5150 to 5250 | Pass    |
|                |         |                 | 10               | NV      | 5180.080                 | 5150 to 5250 | Pass    |
|                |         |                 | 30               | NV      | 5180.080                 | 5150 to 5250 | Pass    |
|                |         |                 | 40               | NV      | 5180.020                 | 5150 to 5250 | Pass    |
|                |         |                 | 50               | NV      | 5180.000                 | 5150 to 5250 | Pass    |
|                |         | 5200            | 20               | LV      | 5200.020                 | 5150 to 5250 | Pass    |
|                |         |                 |                  | NV      | 5200.080                 | 5150 to 5250 | Pass    |
|                |         |                 |                  | HV      | 5200.080                 | 5150 to 5250 | Pass    |
|                |         |                 | -30              | NV      | 5200.020                 | 5150 to 5250 | Pass    |
|                |         |                 | -20              | NV      | 5200.060                 | 5150 to 5250 | Pass    |

|                   |      |      |     |    |          |              |      |
|-------------------|------|------|-----|----|----------|--------------|------|
|                   |      |      | -10 | NV | 5200.020 | 5150 to 5250 | Pass |
|                   |      |      | 0   | NV | 5200.100 | 5150 to 5250 | Pass |
|                   |      |      | 10  | NV | 5200.040 | 5150 to 5250 | Pass |
|                   |      |      | 30  | NV | 5200.040 | 5150 to 5250 | Pass |
|                   |      |      | 40  | NV | 5200.060 | 5150 to 5250 | Pass |
|                   |      |      | 50  | NV | 5199.940 | 5150 to 5250 | Pass |
|                   |      | 5240 | 20  | LV | 5240.060 | 5150 to 5250 | Pass |
|                   |      |      |     | NV | 5240.060 | 5150 to 5250 | Pass |
|                   |      |      |     | HV | 5240.080 | 5150 to 5250 | Pass |
|                   |      |      | -30 | NV | 5240.040 | 5150 to 5250 | Pass |
|                   |      |      | -20 | NV | 5240.080 | 5150 to 5250 | Pass |
|                   |      |      | -10 | NV | 5240.080 | 5150 to 5250 | Pass |
|                   |      |      | 0   | NV | 5240.040 | 5150 to 5250 | Pass |
|                   |      |      | 10  | NV | 5239.980 | 5150 to 5250 | Pass |
|                   |      |      | 30  | NV | 5240.080 | 5150 to 5250 | Pass |
|                   |      |      | 40  | NV | 5240.140 | 5150 to 5250 | Pass |
|                   |      |      | 50  | NV | 5240.040 | 5150 to 5250 | Pass |
| 802.11n<br>(HT40) | SISO | 5190 | 20  | LV | 5190.040 | 5150 to 5250 | Pass |
|                   |      |      |     | NV | 5190.000 | 5150 to 5250 | Pass |
|                   |      |      |     | HV | 5190.120 | 5150 to 5250 | Pass |
|                   |      |      | -30 | NV | 5190.040 | 5150 to 5250 | Pass |
|                   |      |      | -20 | NV | 5190.040 | 5150 to 5250 | Pass |
|                   |      |      | -10 | NV | 5190.040 | 5150 to 5250 | Pass |
|                   |      |      | 0   | NV | 5190.080 | 5150 to 5250 | Pass |
|                   |      |      | 10  | NV | 5190.040 | 5150 to 5250 | Pass |
|                   |      |      | 30  | NV | 5190.040 | 5150 to 5250 | Pass |
|                   |      |      | 40  | NV | 5190.040 | 5150 to 5250 | Pass |
|                   |      |      | 50  | NV | 5190.120 | 5150 to 5250 | Pass |
|                   |      | 5230 | 20  | LV | 5230.120 | 5150 to 5250 | Pass |
|                   |      |      |     | NV | 5230.080 | 5150 to 5250 | Pass |
|                   |      |      |     | HV | 5230.080 | 5150 to 5250 | Pass |
|                   |      |      | -30 | NV | 5230.080 | 5150 to 5250 | Pass |
|                   |      |      | -20 | NV | 5230.120 | 5150 to 5250 | Pass |
|                   |      |      | -10 | NV | 5230.120 | 5150 to 5250 | Pass |
|                   |      |      | 0   | NV | 5230.080 | 5150 to 5250 | Pass |
|                   |      |      | 10  | NV | 5230.120 | 5150 to 5250 | Pass |
|                   |      |      | 30  | NV | 5230.080 | 5150 to 5250 | Pass |
|                   |      |      | 40  | NV | 5230.120 | 5150 to 5250 | Pass |
|                   |      |      | 50  | NV | 5230.120 | 5150 to 5250 | Pass |