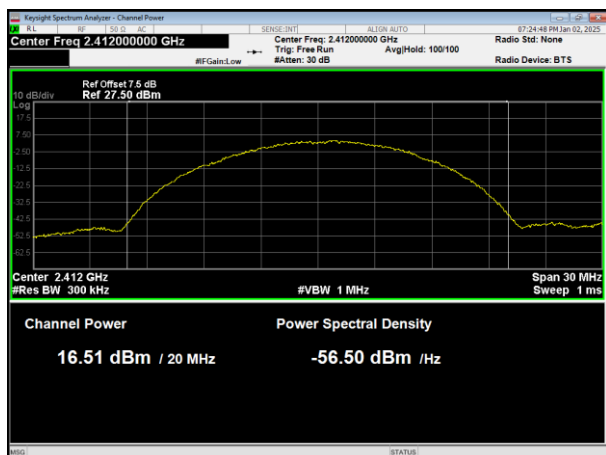


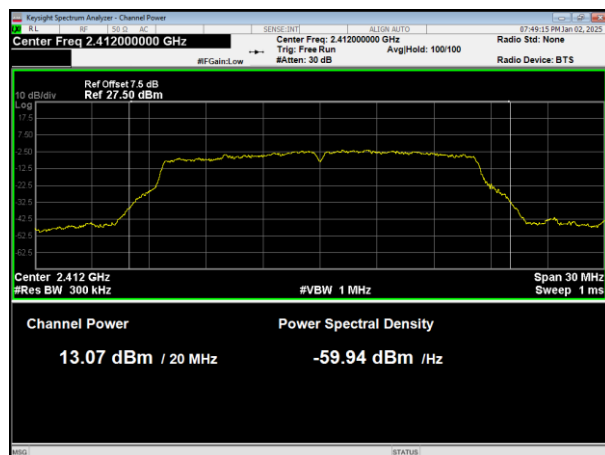


## Antenna1:

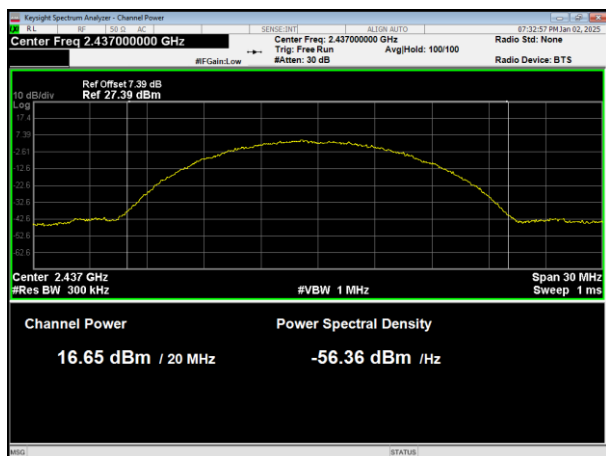
802.11b



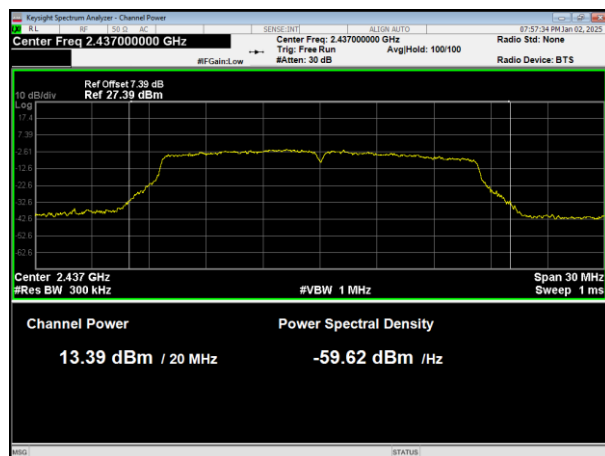
802.11g



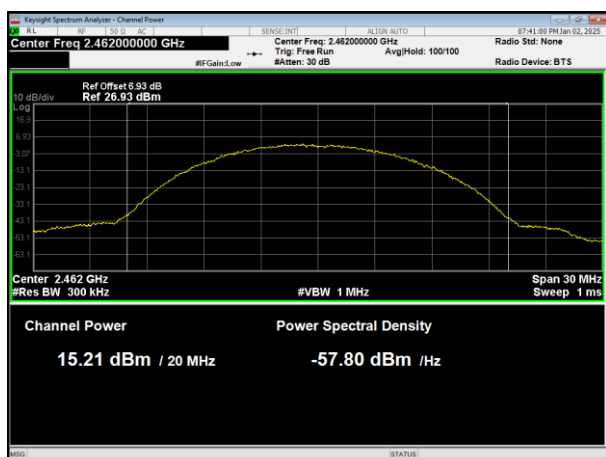
2412MHz



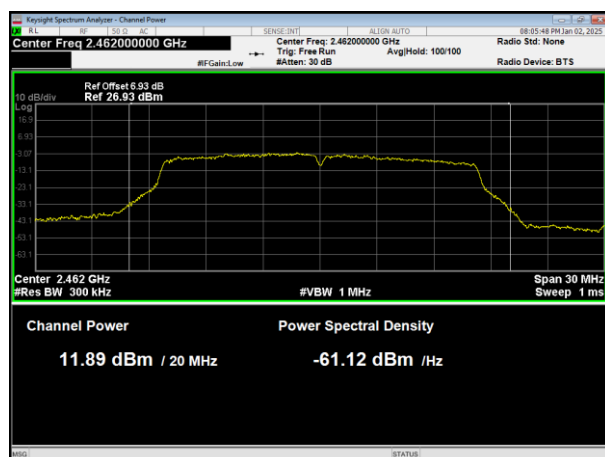
2412MHz



2437MHz



2437MHz

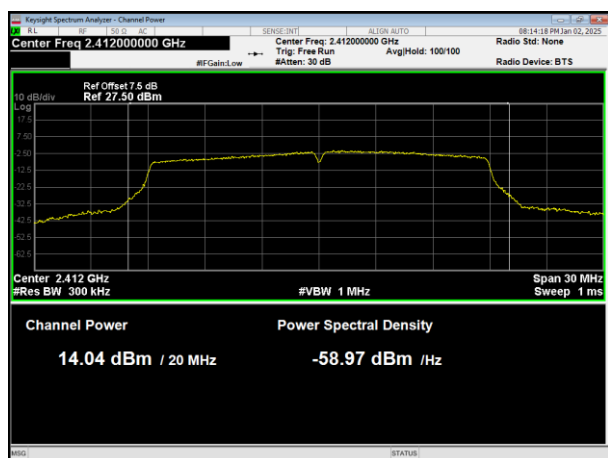


2462MHz

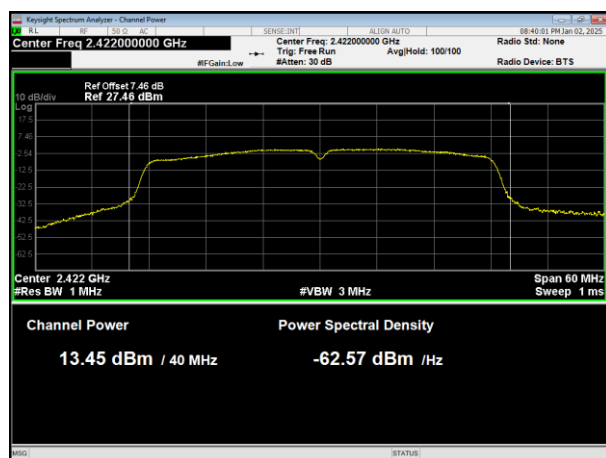
2462MHz



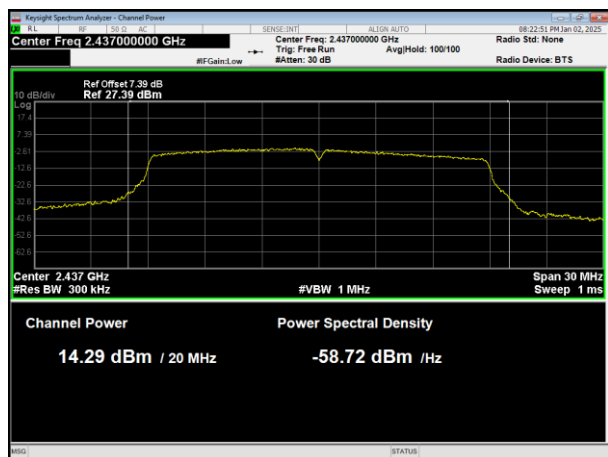
## 802.11n HT20



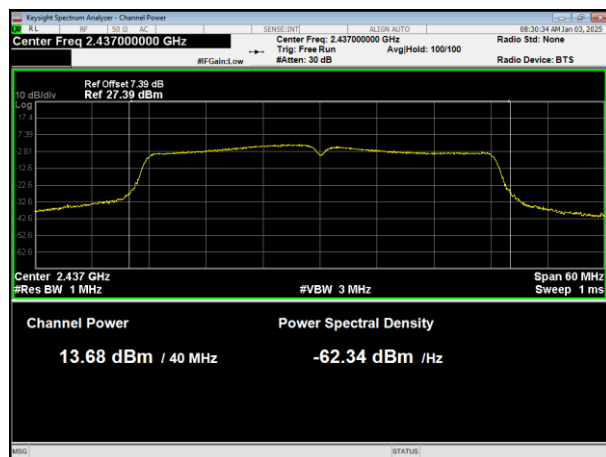
## 802.11n HT40



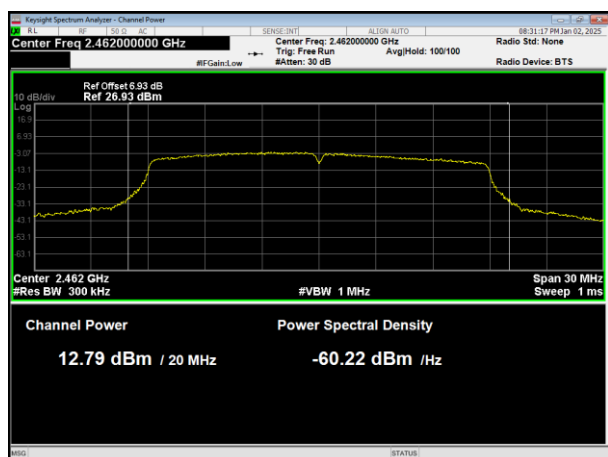
## 2412MHz



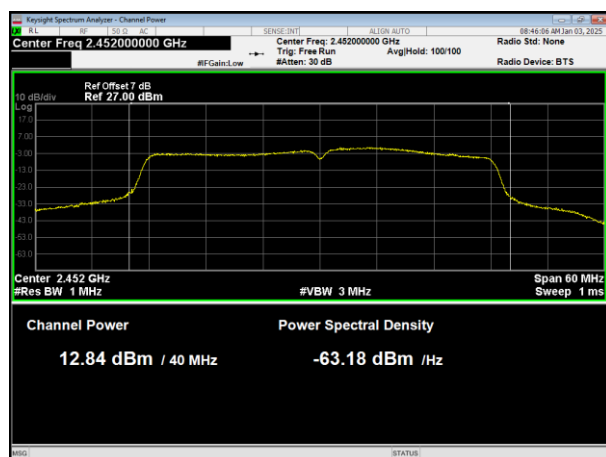
## 2422MHz



## 2437MHz



## 2437MHz

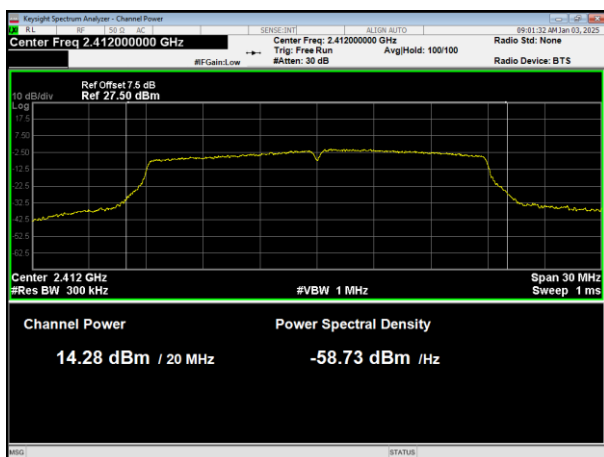


## 2462MHz

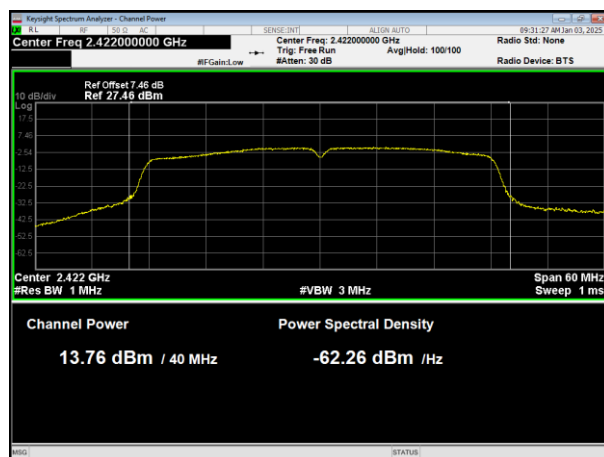
## 2452MHz



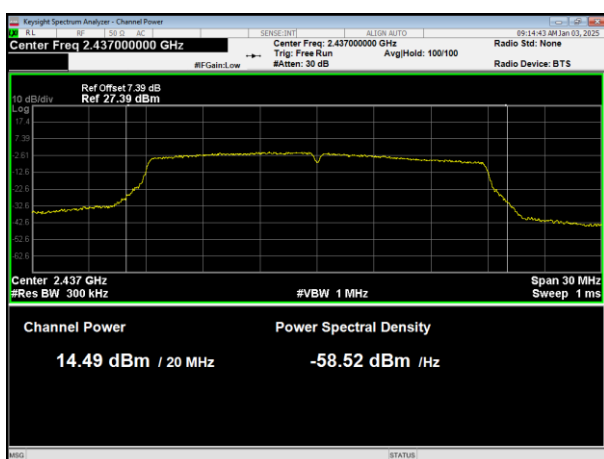
802.11ax HT20



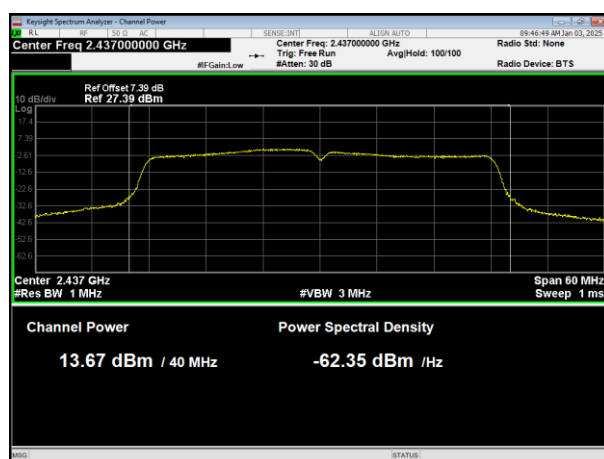
802.11ax HT40



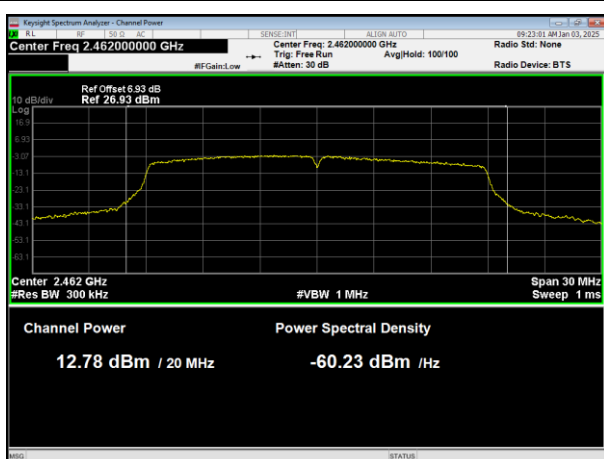
2412MHz



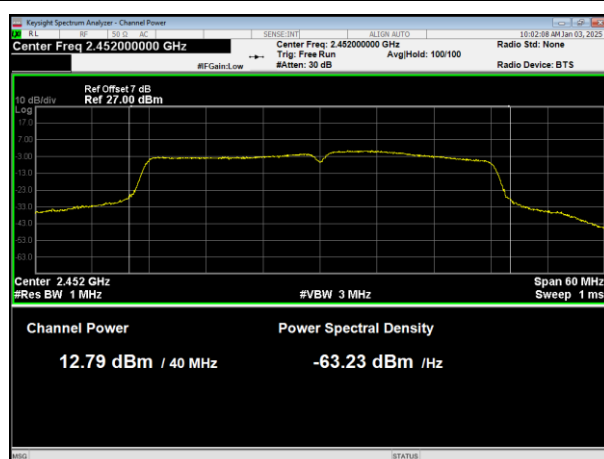
2422MHz



2437MHz



2437MHz



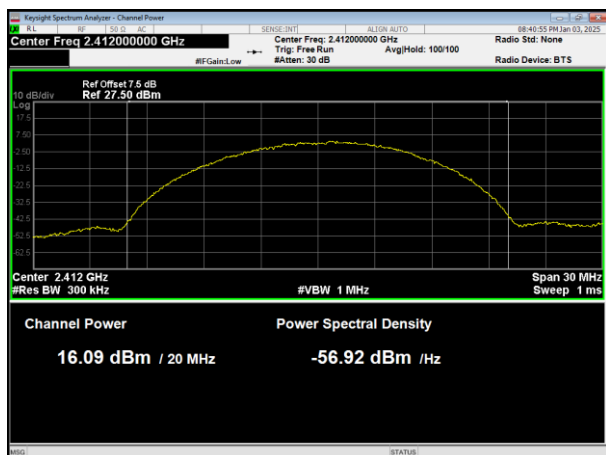
2462MHz

2452MHz

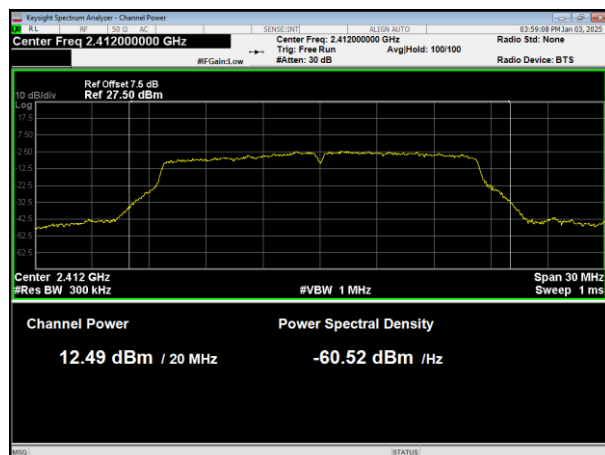


## Antenna2:

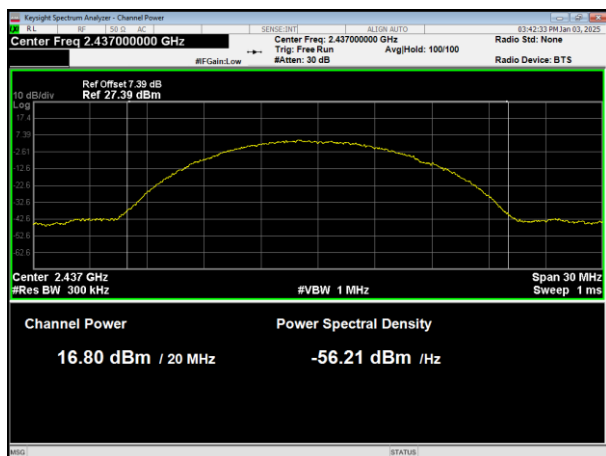
802.11b



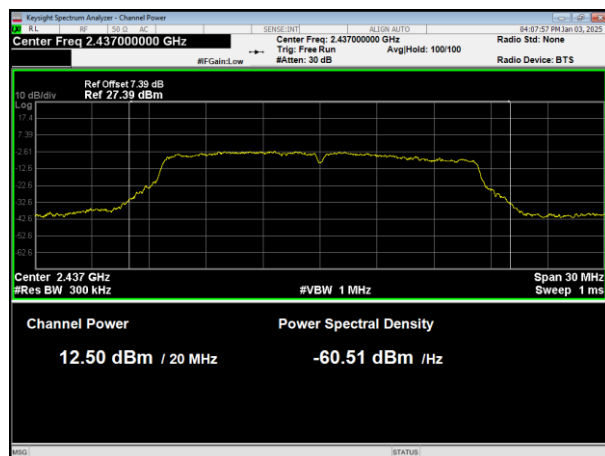
802.11g



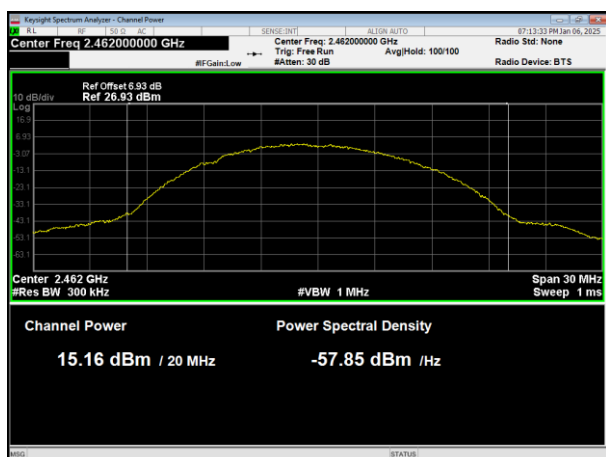
2412MHz



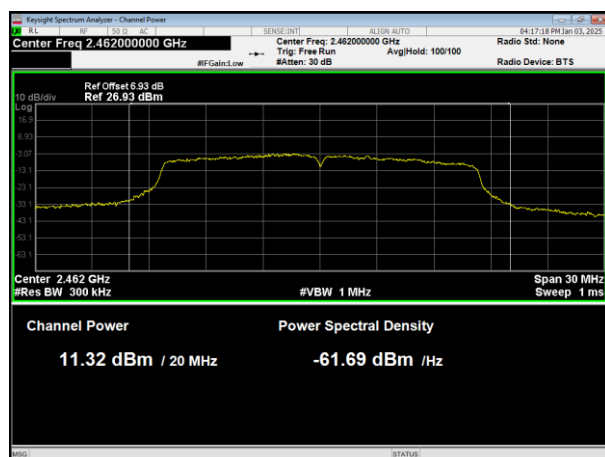
2412MHz



2437MHz



2437MHz

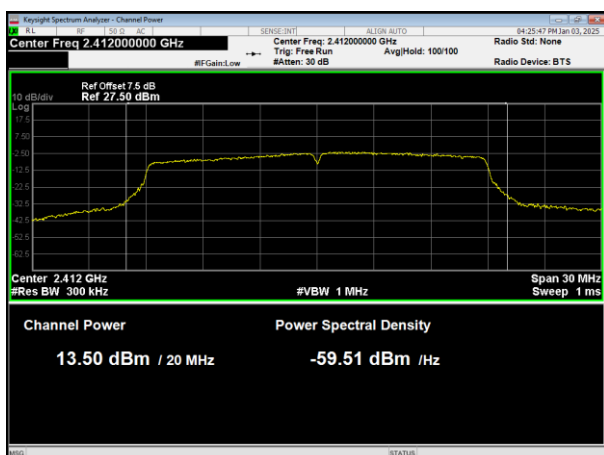


2462MHz

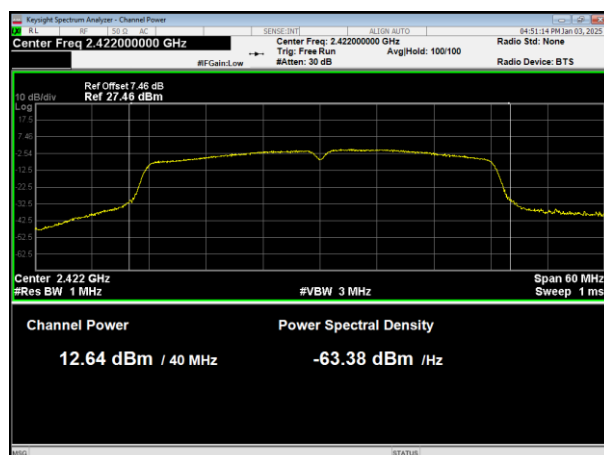
2462MHz



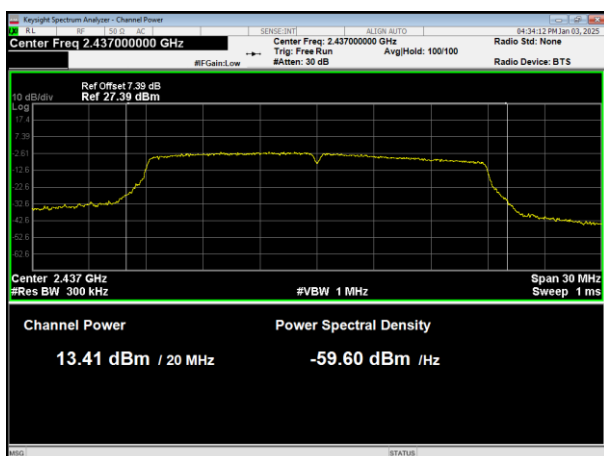
## 802.11n HT20



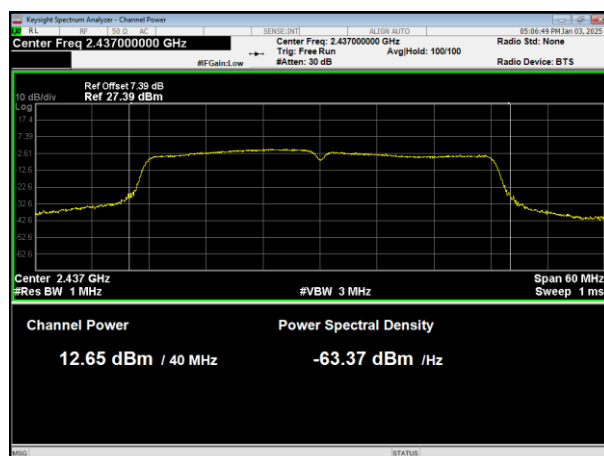
## 802.11n HT40



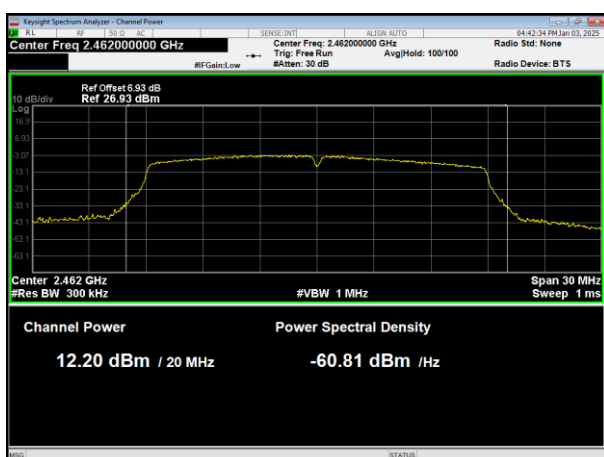
## 2412MHz



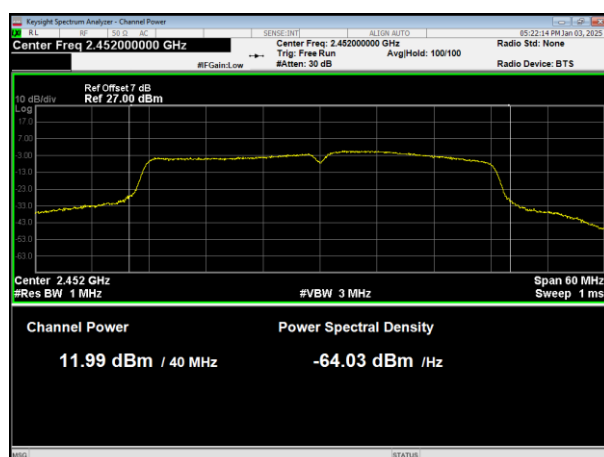
## 2422MHz



## 2437MHz



## 2437MHz

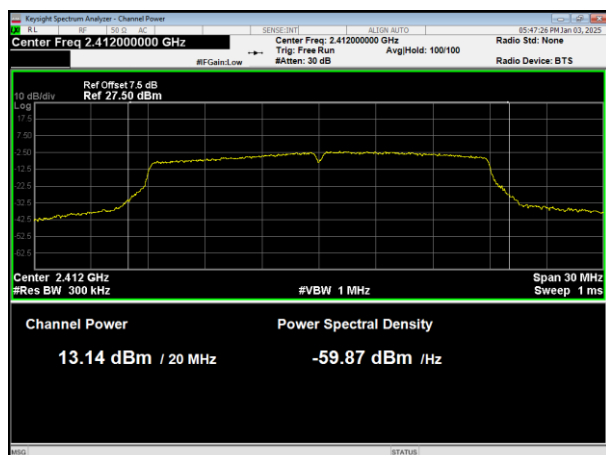


## 2462MHz

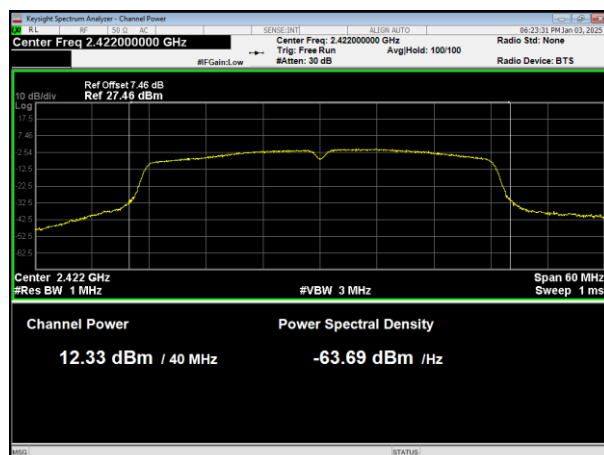
## 2452MHz



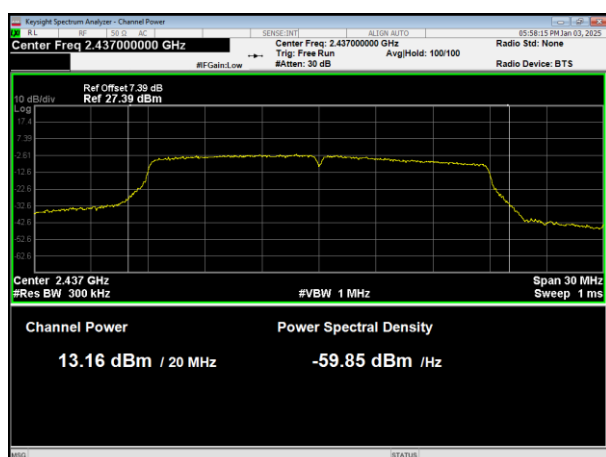
802.11ax HT20



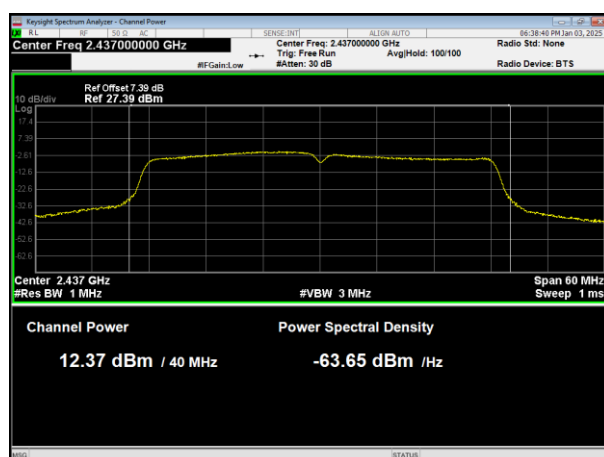
802.11ax HT40



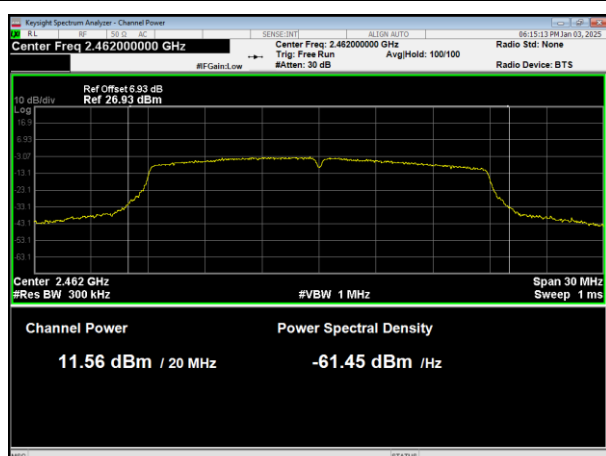
2412MHz



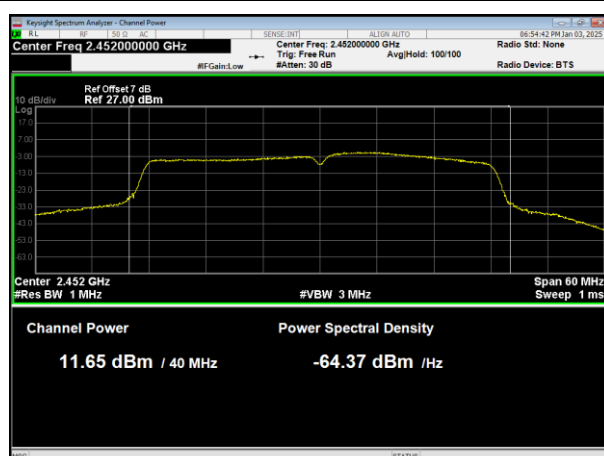
2422MHz



2437MHz



2437MHz



2462MHz

2452MHz



## 5.. POWER SPECTRAL DENSITY TEST

### 5.1. APPLIED PROCEDURES / LIMIT

| FCC Part15 (15.247) , Subpart C |                        |                        |                       |        |
|---------------------------------|------------------------|------------------------|-----------------------|--------|
| Section                         | Test Item              | Limit                  | Frequency Range (MHz) | Result |
| 15.247                          | Power Spectral Density | 8 dBm<br>(in any 3KHz) | 2400-2483.5           | PASS   |

| Spectrum Parameters | Setting                                                            |
|---------------------|--------------------------------------------------------------------|
| Attenuation         | Auto                                                               |
| Span Frequency      | = the frequency band of operation                                  |
| RB                  | $RBW \geq 3kHz$                                                    |
| VB                  | $VBW \geq 3RBW$                                                    |
| Detector            | power averaging (rms) or sample detector (when rms not available). |
| Trace               | rms/average                                                        |
| Sweep Time          | Auto                                                               |

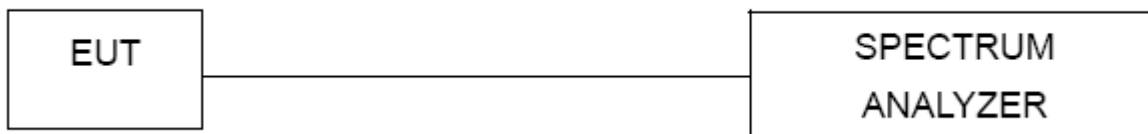
#### 5.1.1. TEST PROCEDURE

- a. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below,

#### 5.1.2. DEVIATION FROM STANDARD

No deviation.

#### 5.1.3. TEST SETUP



#### 5.1.4. EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 2.4 Unless otherwise a special operating condition is specified in the follows during the testing.

**5.1.5. TEST RESULTS**

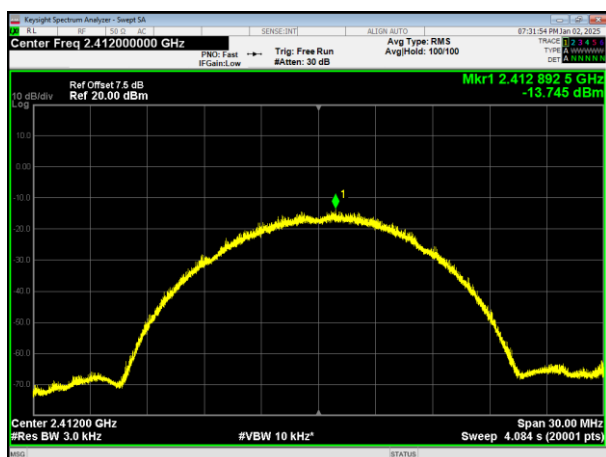
| Mode             | Test Channel | Reading Level<br>(dBm/3kHz) |          | ANT1&ANT2 MIMO Power<br>Spectral Density<br>(dBm/3kHz) | Limit<br>(dBm/3kHz) | Result |
|------------------|--------------|-----------------------------|----------|--------------------------------------------------------|---------------------|--------|
|                  |              | Antenna1                    | Antenna2 |                                                        |                     |        |
| 802.11b          | Low          | -13.745                     | -13.554  | /                                                      | 8                   | PASS   |
|                  | Middle       | -13.341                     | -13.377  | /                                                      | 8                   | PASS   |
|                  | High         | -15.005                     | -14.535  | /                                                      | 8                   | PASS   |
| 802.11g          | Low          | -16.053                     | -16.617  | -13.32                                                 | 8                   | PASS   |
|                  | Middle       | -15.898                     | -16.859  | -13.34                                                 | 8                   | PASS   |
|                  | High         | -17.586                     | -18.316  | -14.93                                                 | 8                   | PASS   |
| 802.11n20        | Low          | -18.269                     | -19.154  | -15.68                                                 | 8                   | PASS   |
|                  | Middle       | -18.178                     | -19.578  | -15.81                                                 | 8                   | PASS   |
|                  | High         | -20.033                     | -20.693  | -17.34                                                 | 8                   | PASS   |
| 802.11n40        | Low          | -20.7                       | -21.223  | -17.94                                                 | 8                   | PASS   |
|                  | Middle       | -20.214                     | -20.45   | -17.32                                                 | 8                   | PASS   |
|                  | High         | -20.818                     | -21.366  | -18.07                                                 | 8                   | PASS   |
| 802.11ax<br>HT20 | Low          | -18.442                     | -19.524  | /                                                      | 8                   | PASS   |
|                  | Middle       | -17.996                     | -19.623  | /                                                      | 8                   | PASS   |
|                  | High         | -19.817                     | -20.729  | /                                                      | 8                   | PASS   |
| 802.11ax<br>HT40 | Low          | -20.94                      | -21.95   | /                                                      | 8                   | PASS   |
|                  | Middle       | -19.843                     | -21.23   | /                                                      | 8                   | PASS   |
|                  | High         | -20.778                     | -22.535  | /                                                      | 8                   | PASS   |



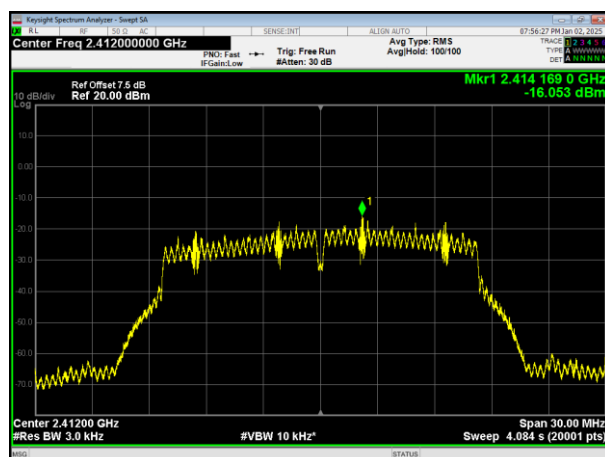


## Antenna1:

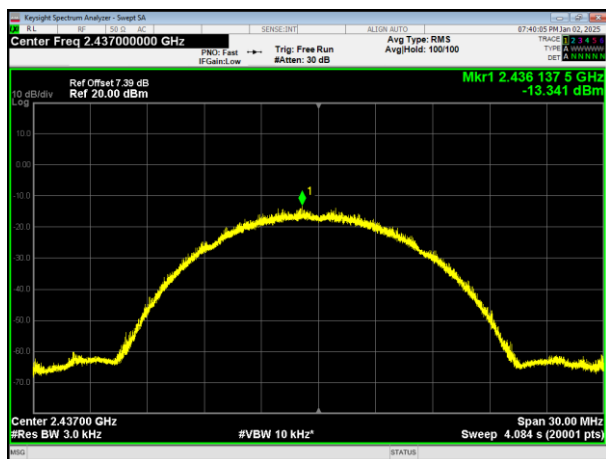
802.11b



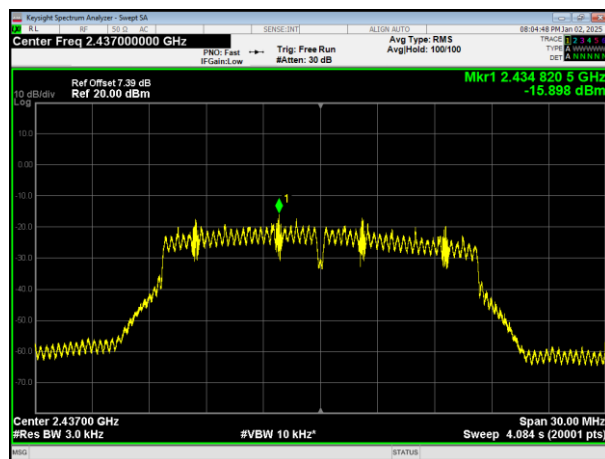
802.11g



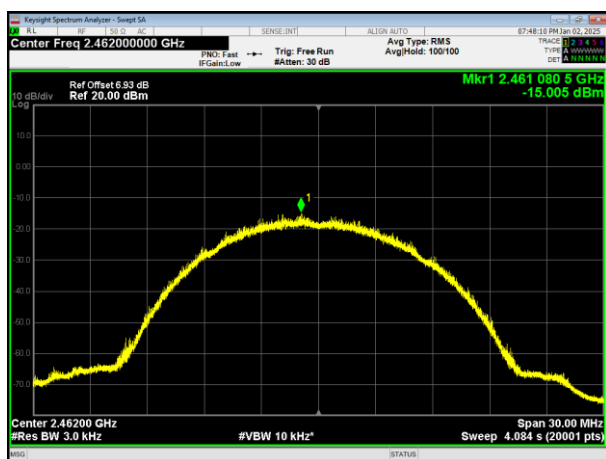
2412MHz



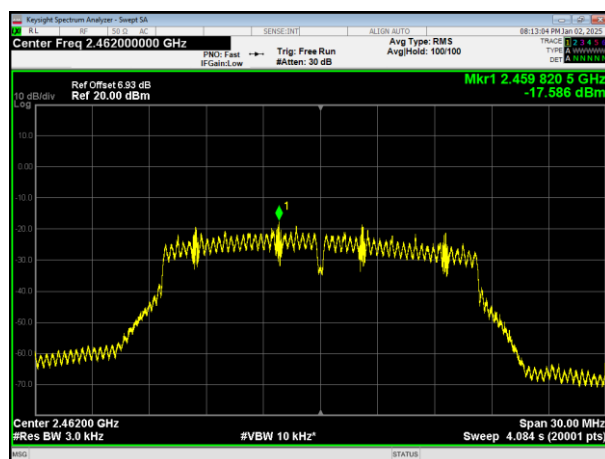
2412MHz



2437MHz



2437MHz



2462MHz

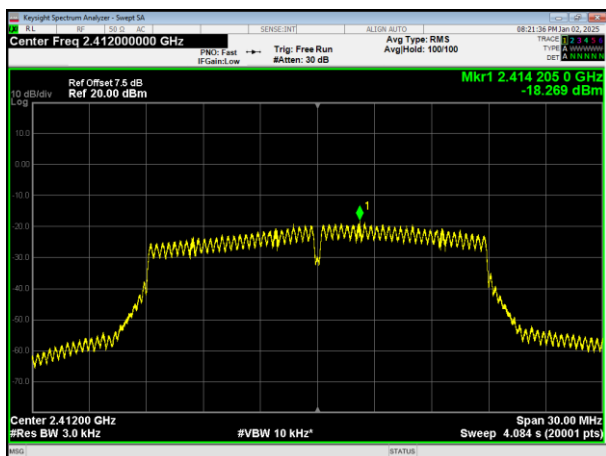


2462MHz

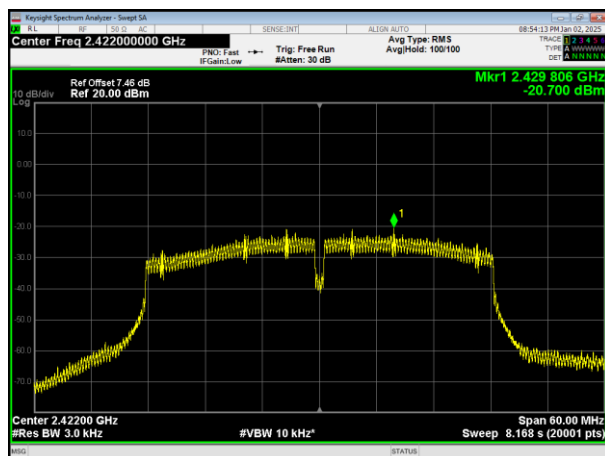




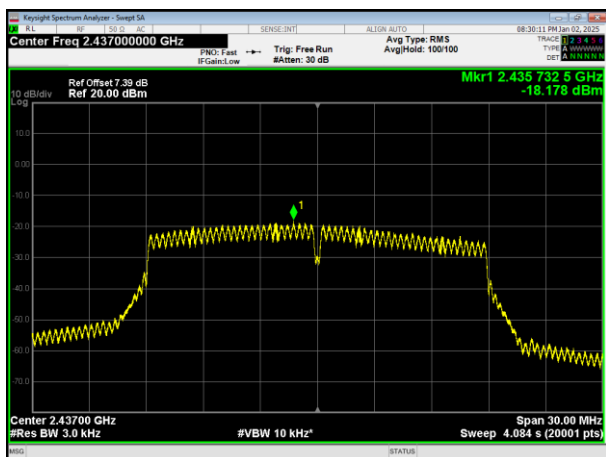
802.11n HT20



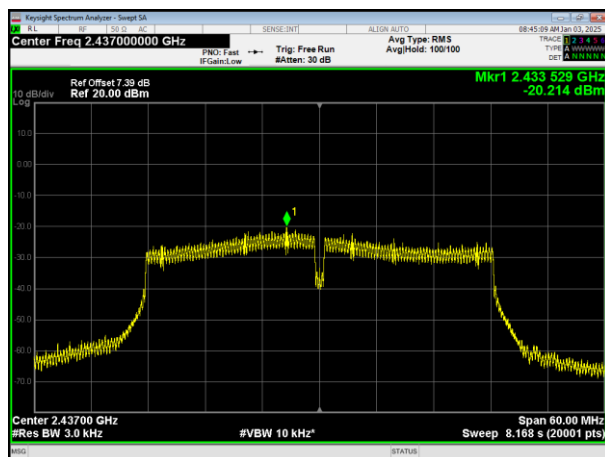
802.11n HT40



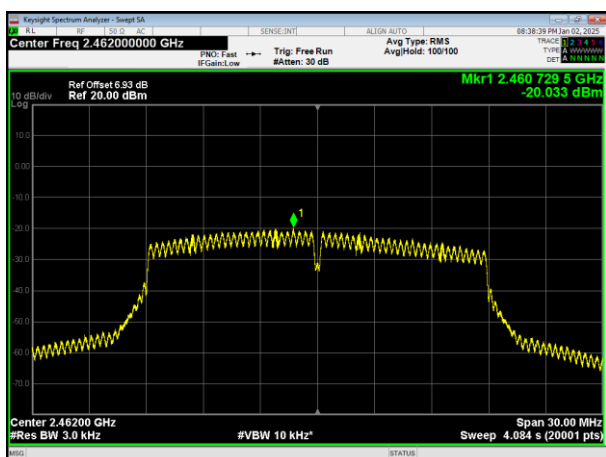
2412MHz



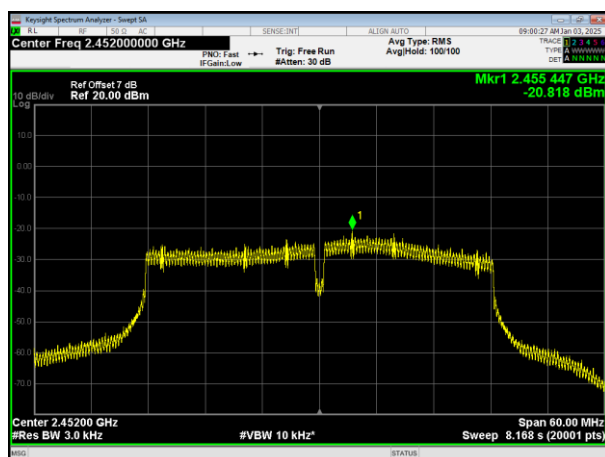
2422MHz



2437MHz



2437MHz

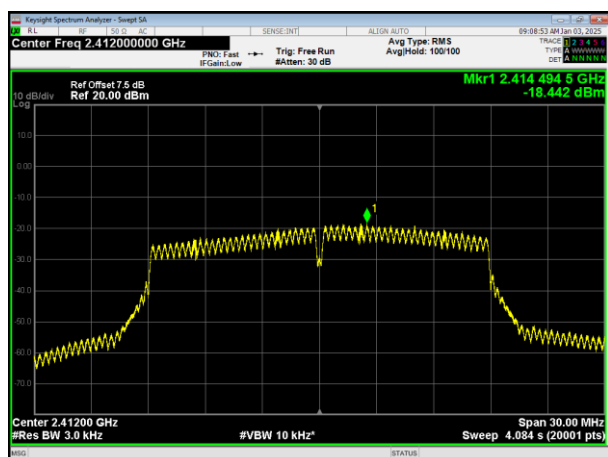


2462MHz

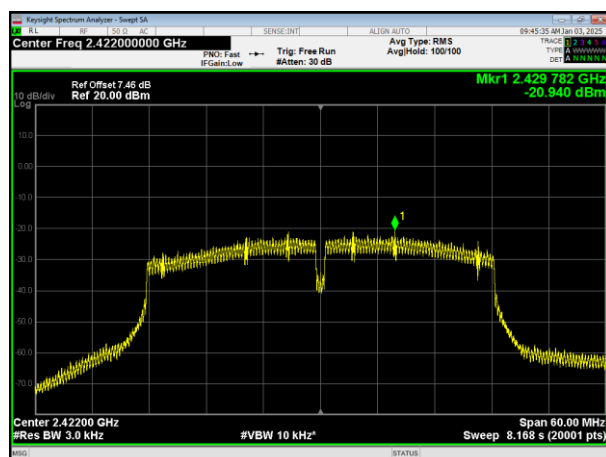
2452MHz



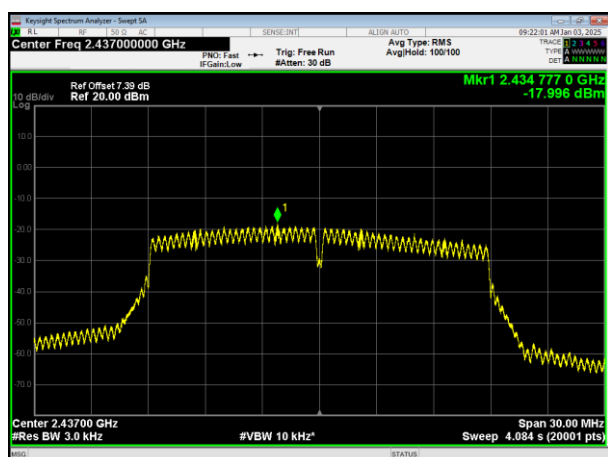
802.11ax HT20



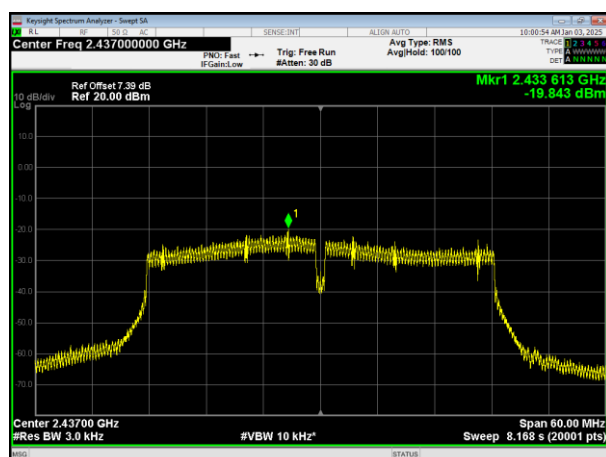
802.11ax HT40



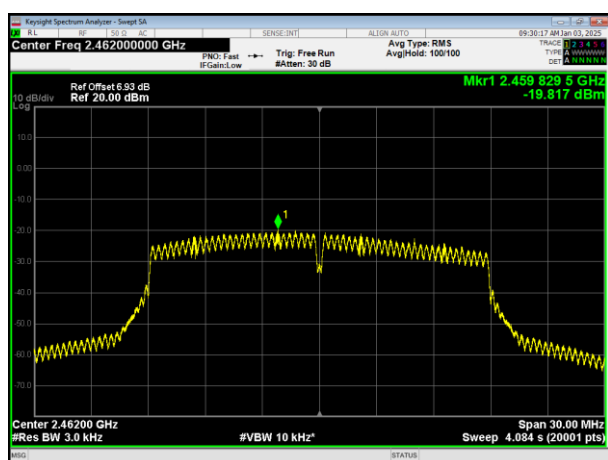
2412MHz



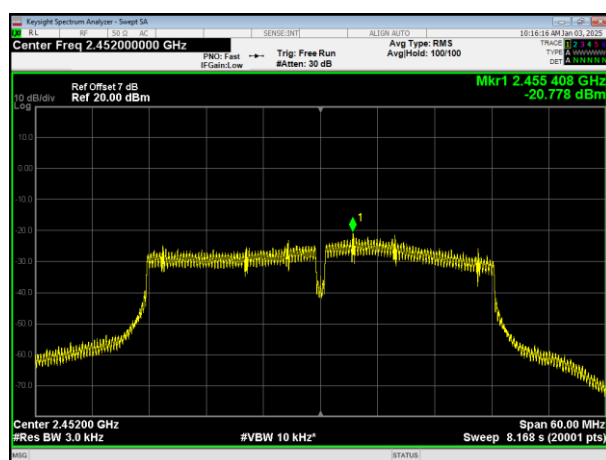
2422MHz



2437MHz



2437MHz



2462MHz



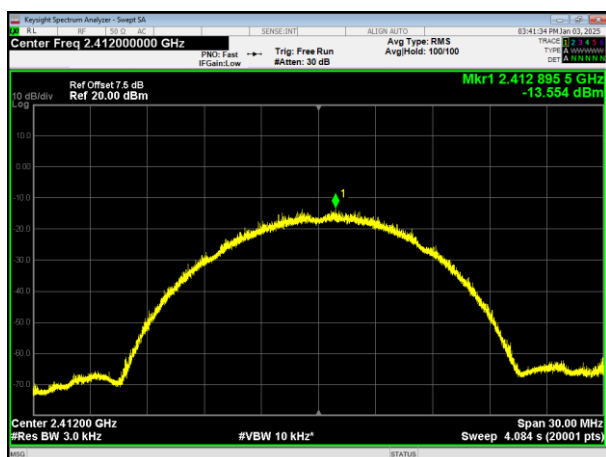
2452MHz



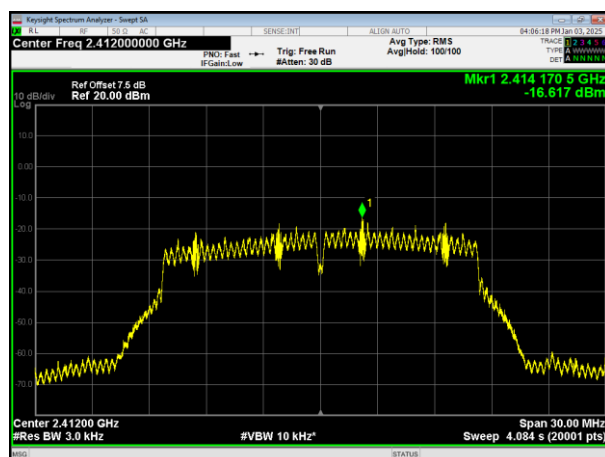


## Antenna2:

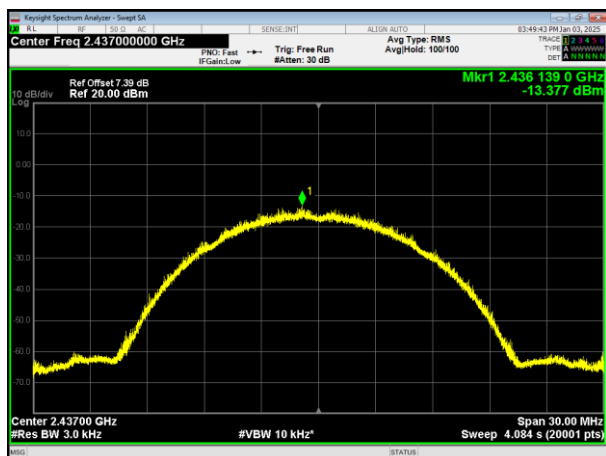
802.11b



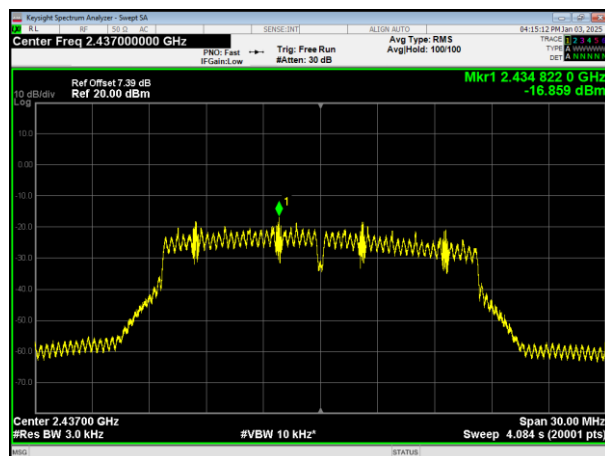
802.11g



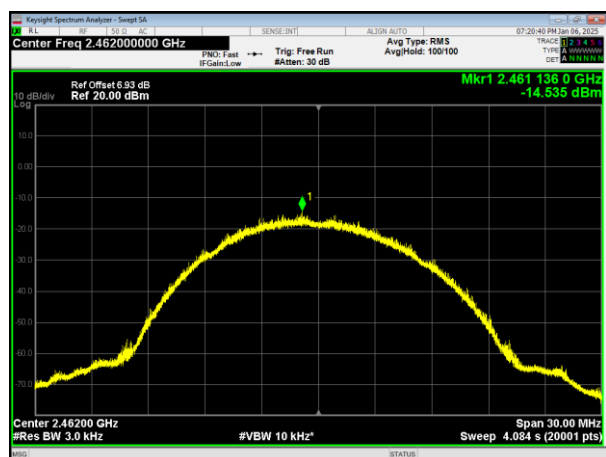
2412MHz



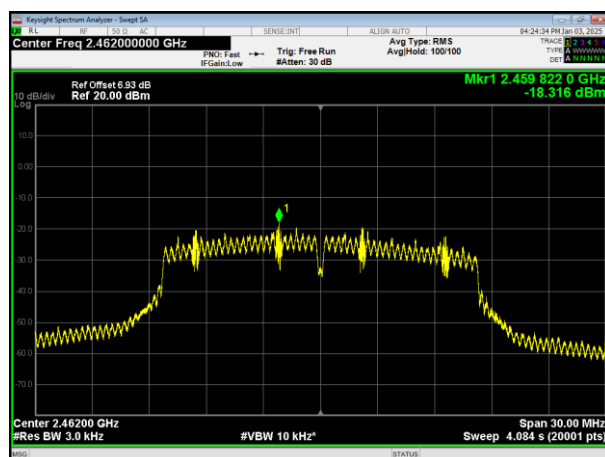
2412MHz



2437MHz



2437MHz



2462MHz

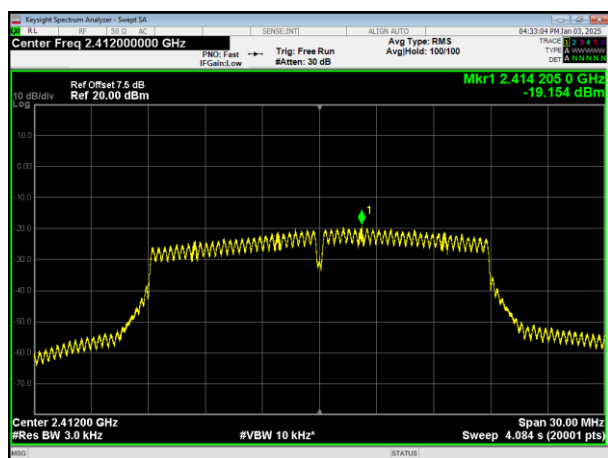


2462MHz

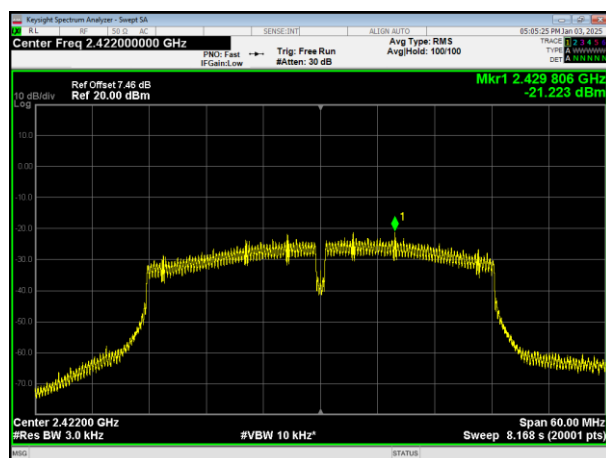




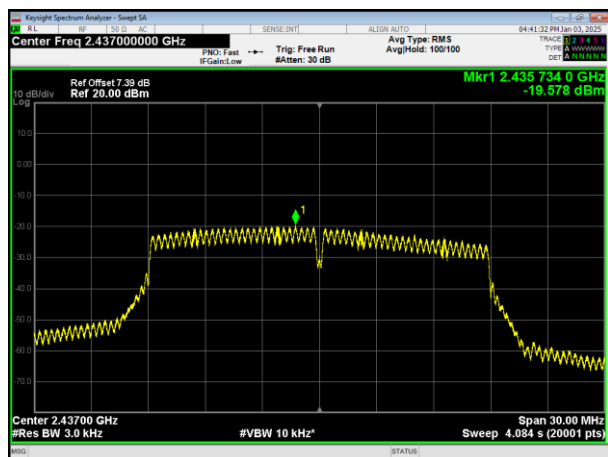
802.11n HT20



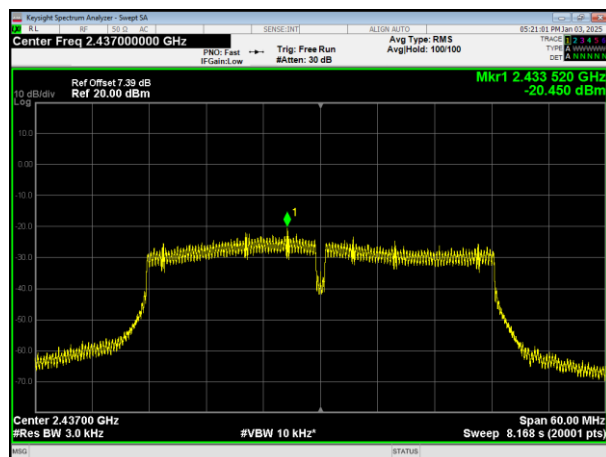
802.11n HT40



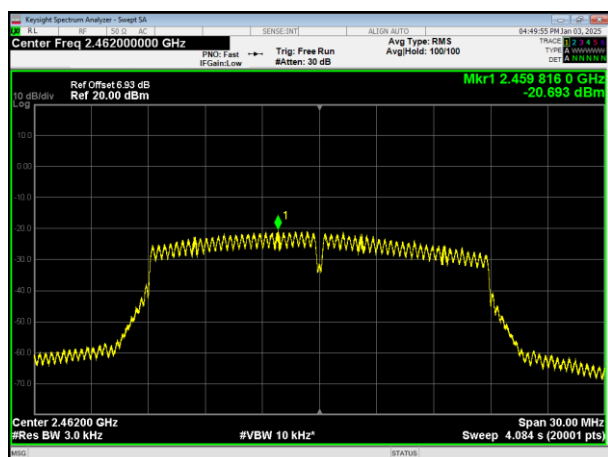
2412MHz



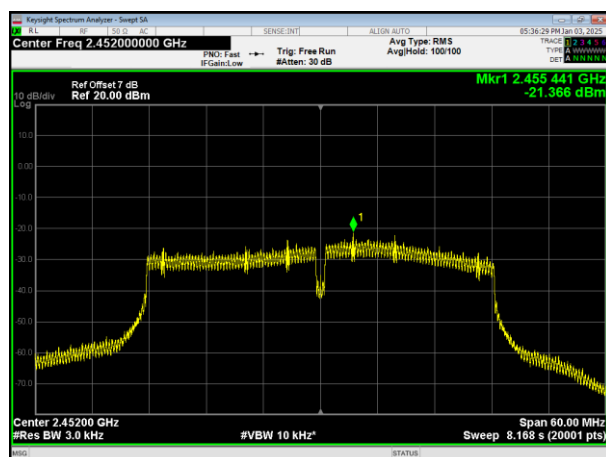
2422MHz



2437MHz



2437MHz

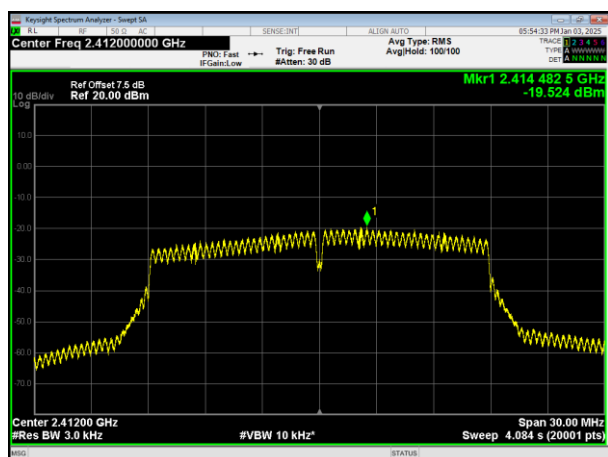


2462MHz

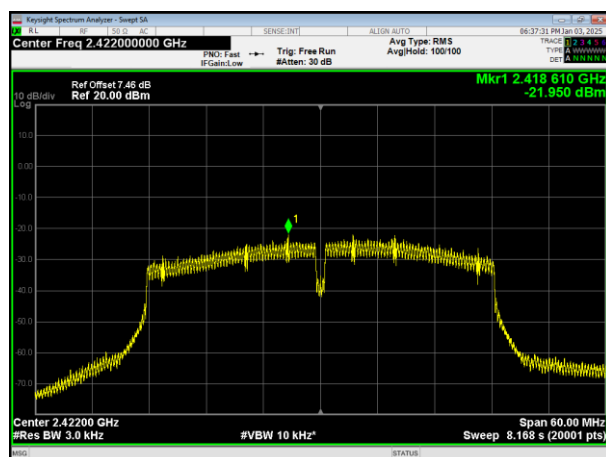
2452MHz



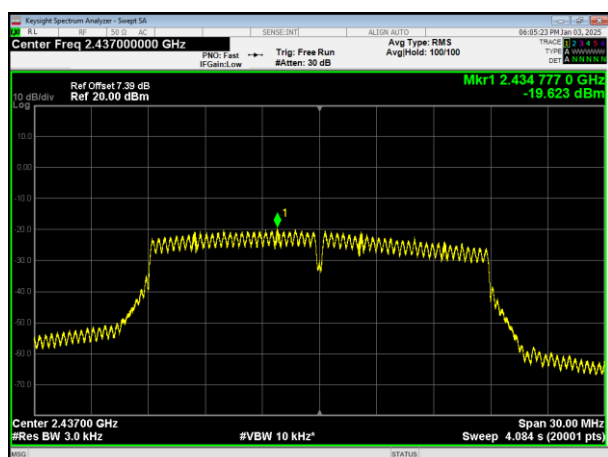
802.11ax HT20



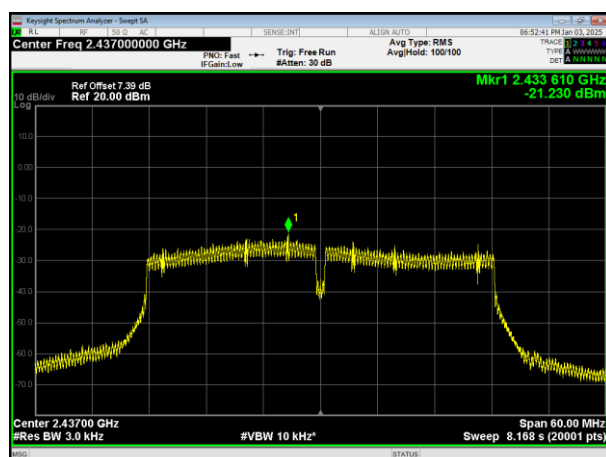
802.11ax HT40



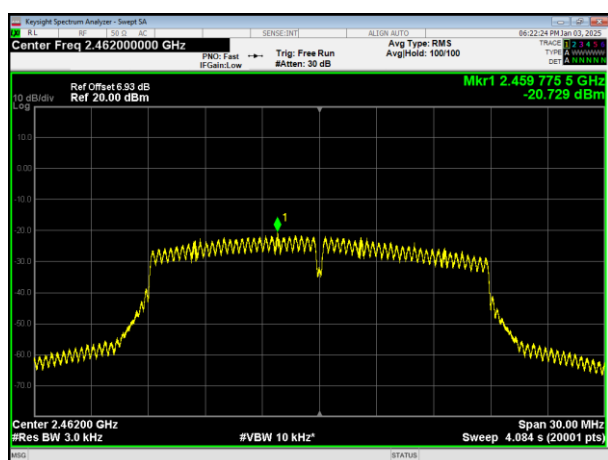
2412MHz



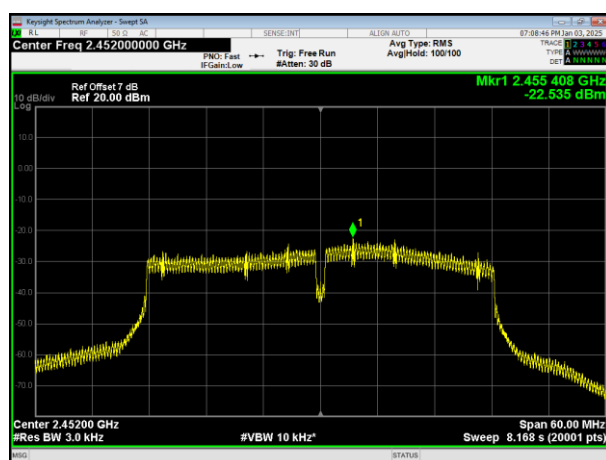
2422MHz



2437MHz



2437MHz



2462MHz

2452MHz



## 6.. 6DB BANDWIDTH TEST

### 6.1. APPLIED PROCEDURES / LIMIT

| FCC Part15 (15.247) , Subpart C |           |                                         |                      |        |
|---------------------------------|-----------|-----------------------------------------|----------------------|--------|
| Section                         | Test Item | Limit                                   | Frequency Range(MHz) | Result |
| 15.247(a)(2)                    | Bandwidth | $\geq 500\text{KHz}$<br>(6dB bandwidth) | 2400-2483.5          | PASS   |

#### 6.1.1. TEST PROCEDURE

1. Set RBW = 100 kHz.
2. Set the video bandwidth (VBW)  $\geq$  RBW.
3. Detector = Peak.
4. Trace mode = max hold.
5. Sweep = auto couple.
6. Allow the trace to stabilize.
7. Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 20 dB relative to the maximum level measured in the fundamental emission.

#### 6.1.2. DEVIATION FROM STANDARD

No deviation.

#### 6.1.3. TEST SETUP



#### 6.1.4. EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 2.3 Unless otherwise a special operating condition is specified in the follows during the testing.

**6.1.5. TEST RESULTS**

|               | Test Channel | 6dB Bandwidth (MHz) |          | Limit (MHz) | Result |
|---------------|--------------|---------------------|----------|-------------|--------|
|               |              | Antenna1            | Antenna2 |             |        |
| 802.11b       | Low          | 7.998               | 7.925    | 0.5         | Pass   |
|               | Middle       | 7.754               | 6.861    | 0.5         | Pass   |
|               | High         | 7.432               | 7.824    | 0.5         | Pass   |
| 802.11g       | Low          | 15.661              | 15.669   | 0.5         | Pass   |
|               | Middle       | 15.731              | 15.696   | 0.5         | Pass   |
|               | High         | 15.349              | 15.713   | 0.5         | Pass   |
| 802.11n HT20  | Low          | 15.83               | 13.439   | 0.5         | Pass   |
|               | Middle       | 16.034              | 16.265   | 0.5         | Pass   |
|               | High         | 15.274              | 15.65    | 0.5         | Pass   |
| 802.11n HT40  | Low          | 32.56               | 32.518   | 0.5         | Pass   |
|               | Middle       | 32.563              | 34.98    | 0.5         | Pass   |
|               | High         | 35.066              | 35.047   | 0.5         | Pass   |
| 802.11ax HT20 | Low          | 14.013              | 15.043   | 0.5         | Pass   |
|               | Middle       | 13.432              | 15.924   | 0.5         | Pass   |
|               | High         | 15.03               | 11.966   | 0.5         | Pass   |
| 802.11ax HT40 | Low          | 32.524              | 31.275   | 0.5         | Pass   |
|               | Middle       | 35.013              | 35.076   | 0.5         | Pass   |
|               | High         | 32.596              | 32.533   | 0.5         | Pass   |

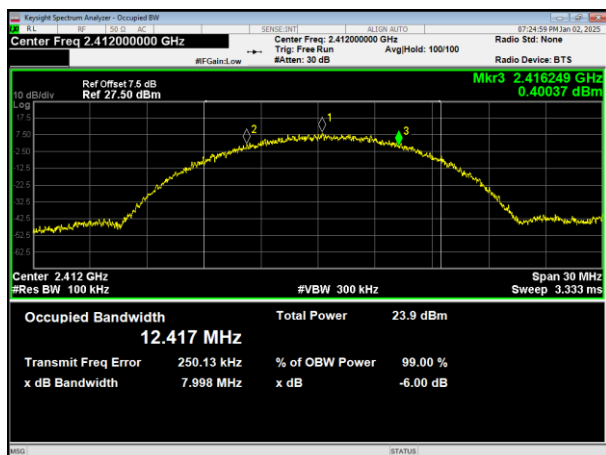
|               | Test Channel | 99%Bandwidth (MHz) |          | Result |
|---------------|--------------|--------------------|----------|--------|
|               |              | Antenna1           | Antenna2 |        |
| 802.11b       | Low          | 12.387             | 12.495   | Pass   |
|               | Middle       | 12.630             | 12.679   | Pass   |
|               | High         | 12.638             | 12.505   | Pass   |
| 802.11g       | Low          | 16.314             | 16.364   | Pass   |
|               | Middle       | 16.365             | 16.391   | Pass   |
|               | High         | 16.262             | 16.319   | Pass   |
| 802.11n HT20  | Low          | 17.501             | 17.593   | Pass   |
|               | Middle       | 17.560             | 17.583   | Pass   |
|               | High         | 17.464             | 17.390   | Pass   |
| 802.11n HT40  | Low          | 35.658             | 35.574   | Pass   |
|               | Middle       | 36.058             | 36.150   | Pass   |
|               | High         | 36.028             | 35.927   | Pass   |
| 802.11ax HT20 | Low          | 17.525             | 17.542   | Pass   |
|               | Middle       | 17.529             | 17.571   | Pass   |
|               | High         | 17.488             | 17.400   | Pass   |
| 802.11ax HT40 | Low          | 35.586             | 35.453   | Pass   |
|               | Middle       | 36.140             | 36.109   | Pass   |
|               | High         | 36.001             | 35.957   | Pass   |



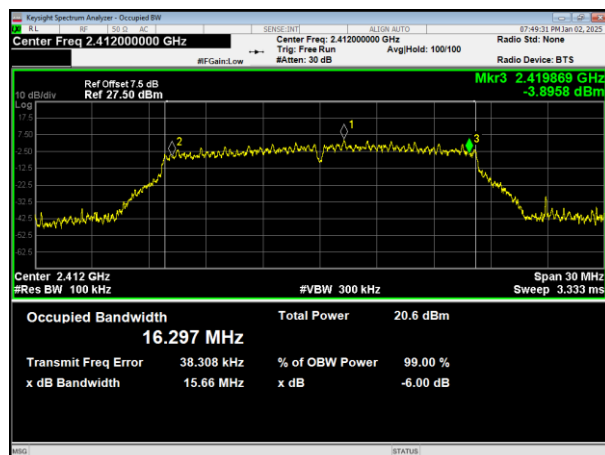


## Antenna1: 6dB Bandwidth

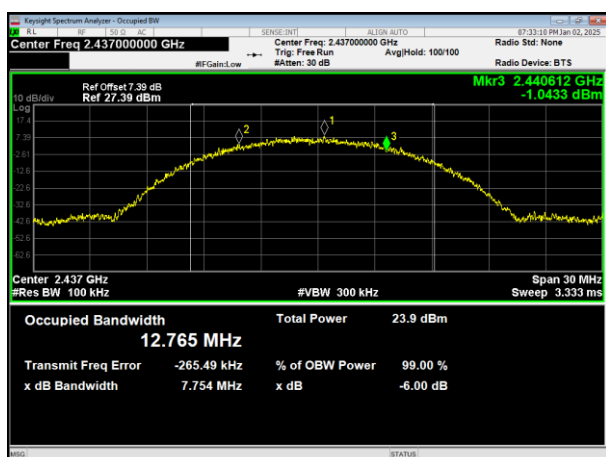
802.11b



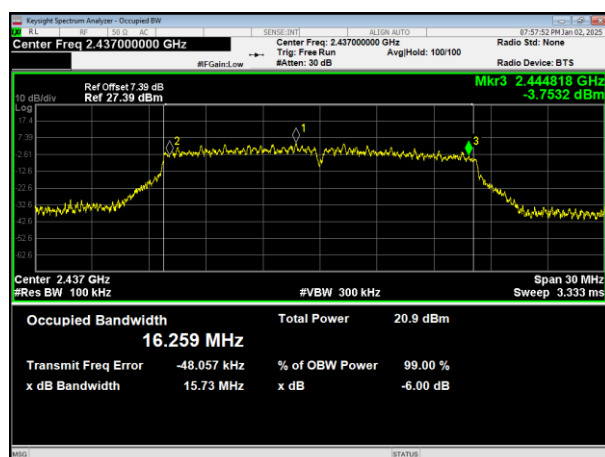
802.11g



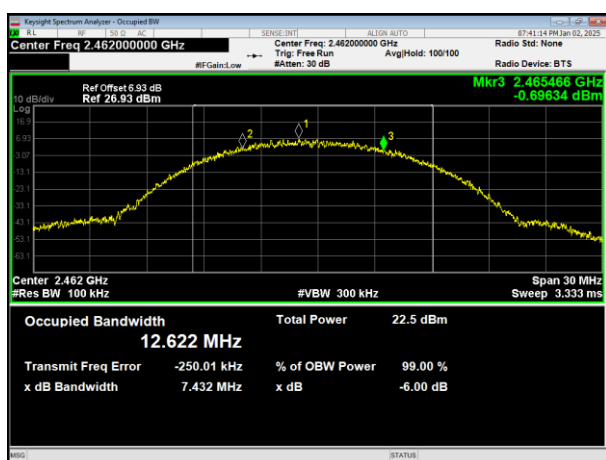
2412MHz



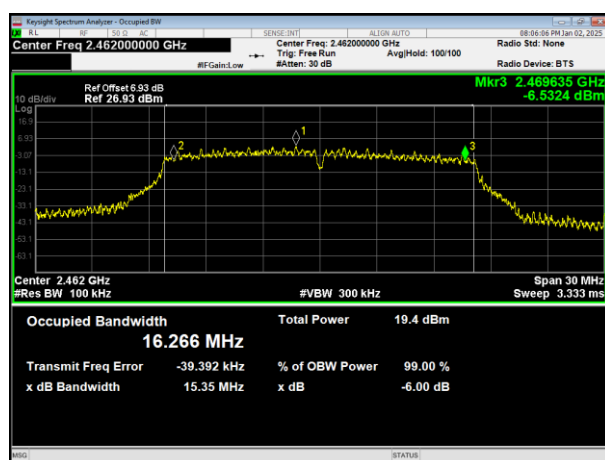
2412MHz



2437MHz



2437MHz

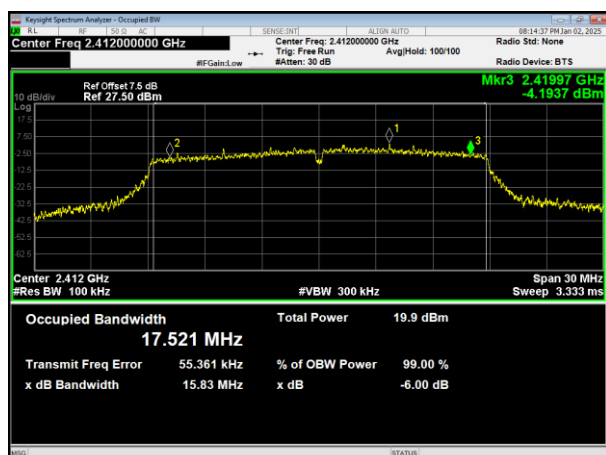


2462MHz

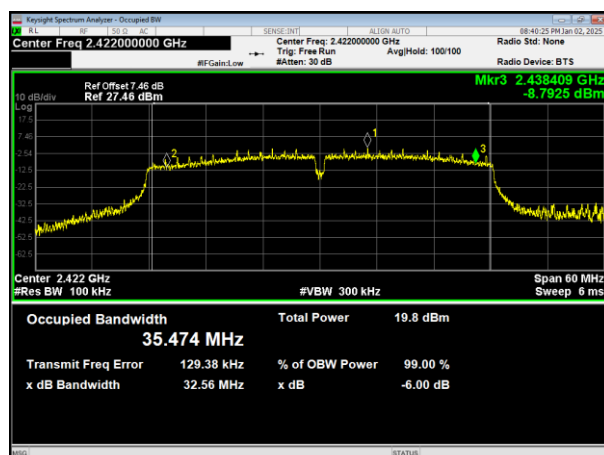
2462MHz



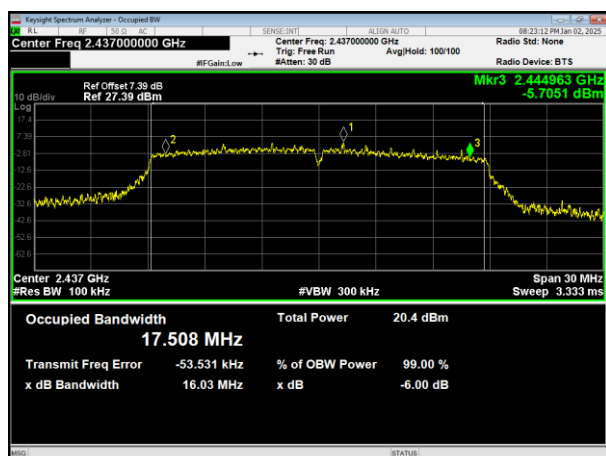
## 802.11n HT20



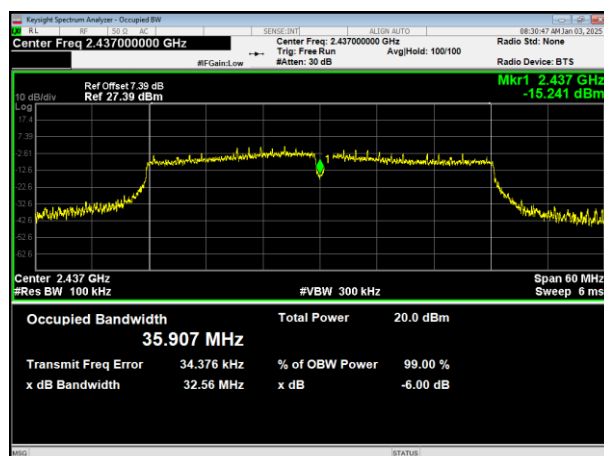
## 802.11n HT40



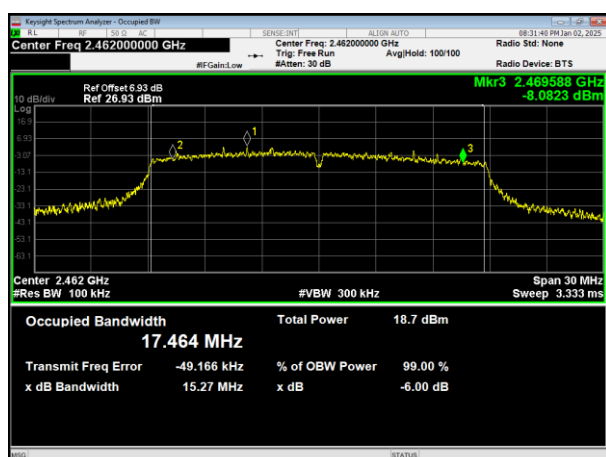
## 2412MHz



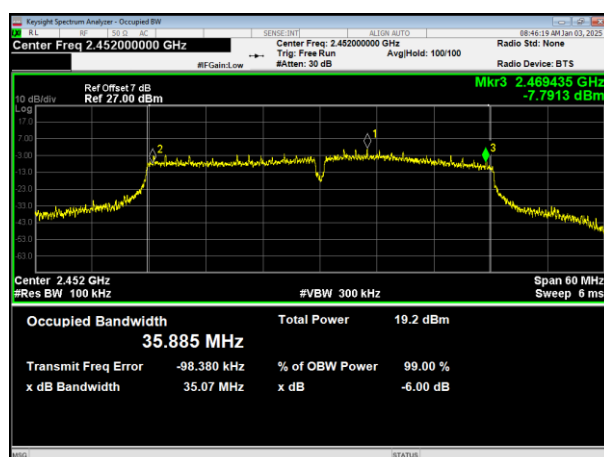
## 2422MHz



## 2437MHz



## 2437MHz



## 2462MHz

## 2452MHz