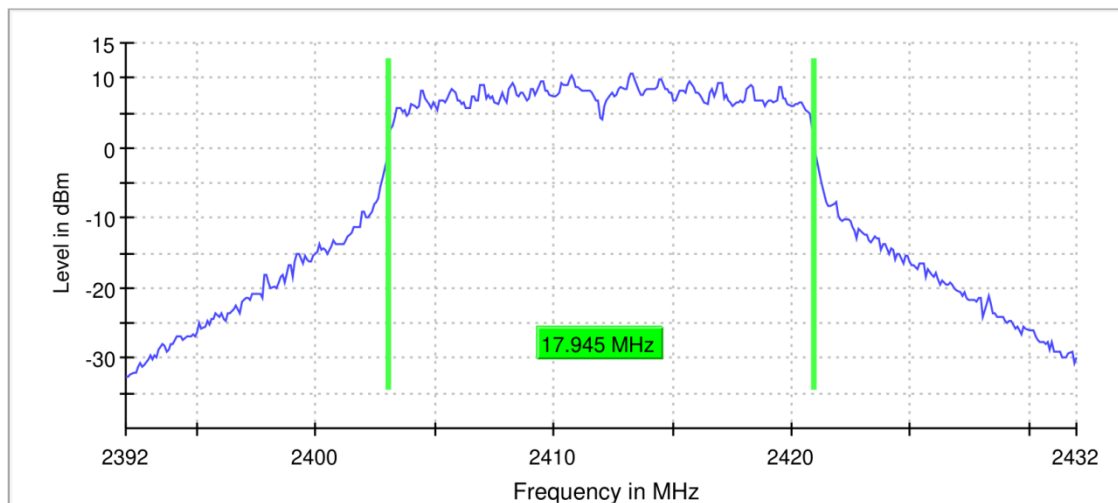


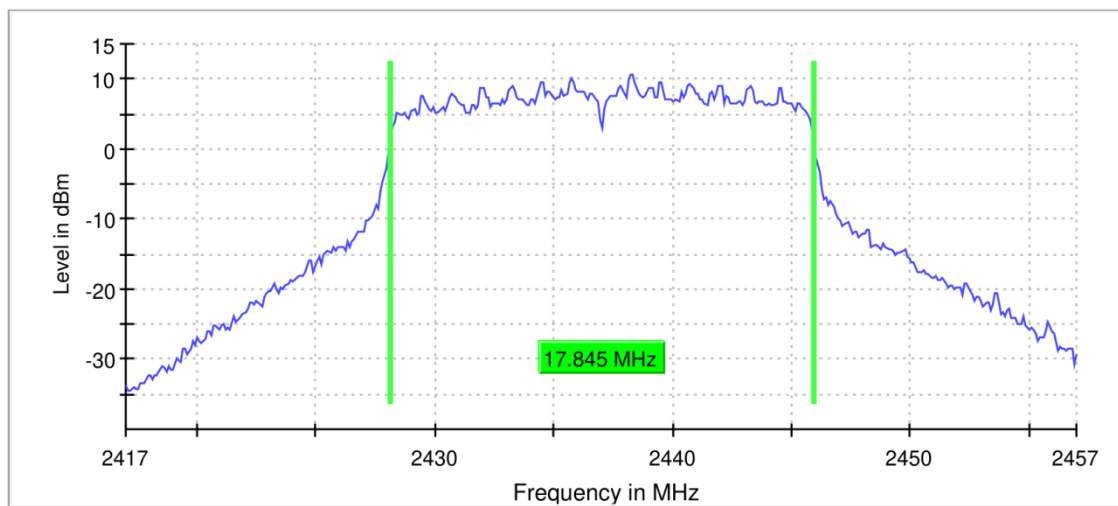


99 % Bandwidth



11N20\_ANT7\_2437

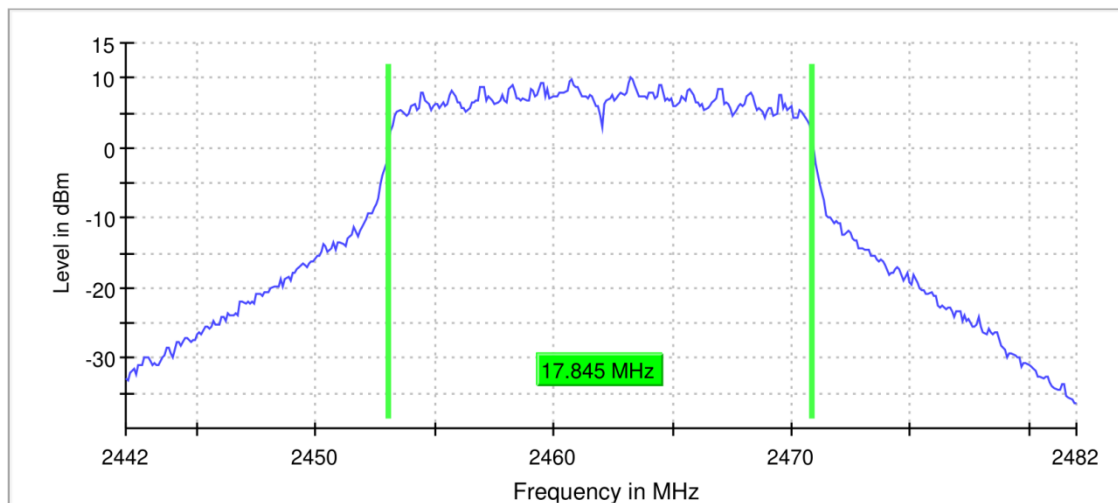
99 % Bandwidth



11N20\_ANT7\_2462

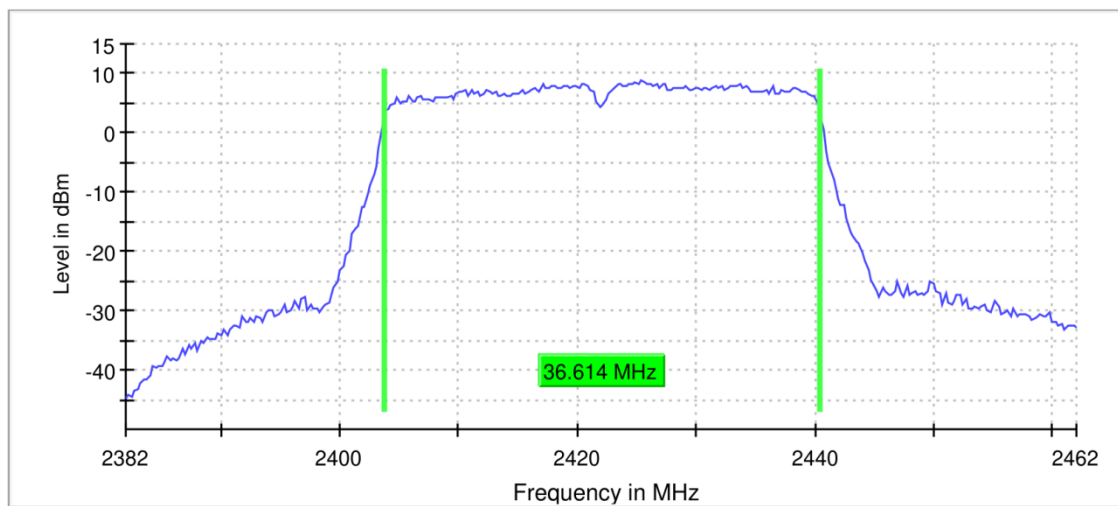


99 % Bandwidth



11N40\_ANT7\_2422

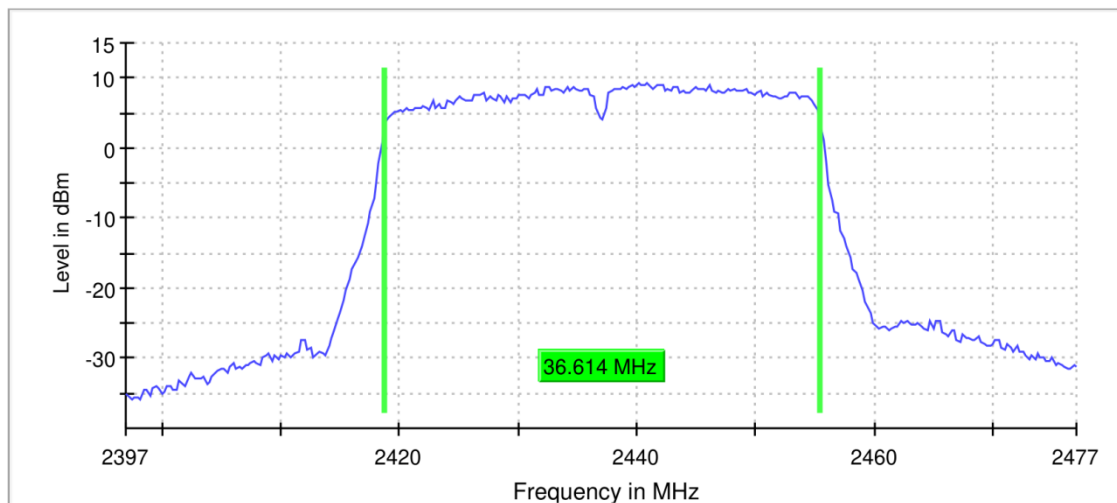
99 % Bandwidth



11N40\_ANT7\_2437

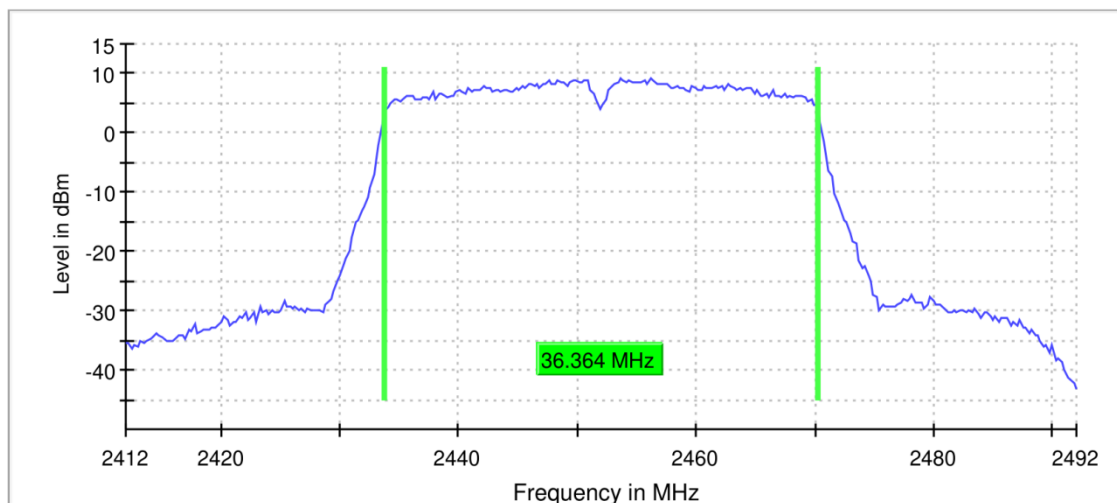


99 % Bandwidth



11N40\_ANT7\_2452

99 % Bandwidth



20M

RBW 200.000 kHz

VBW 1.000 MHz

40M

RBW 500.000 kHz

VBW 2.000 MHz

**MAXIMUM CONDUCTED OUTPUT POWER****TEST RESULT**

| TestMode | TX<br>Mod. | Frequency<br>[MHz] | Peak<br>power<br>[dBm] | MAX<br>Peak<br>power | Limit<br>[dBm] | Verdict | Power<br>Setting |
|----------|------------|--------------------|------------------------|----------------------|----------------|---------|------------------|
|          |            |                    | ANT7                   | [mw]                 |                |         |                  |
| 11B      | SISO       | 2412               | 21.26                  | 133.66               | ≤30.00         | PASS    | 18               |
|          |            | 2437               | 21.12                  | 129.42               | ≤30.00         | PASS    | 18               |
|          |            | 2462               | 20.81                  | 120.50               | ≤30.00         | PASS    | 18               |
| 11g      | SISO       | 2412               | 23.54                  | 225.94               | ≤30.00         | PASS    | 18.5             |
|          |            | 2437               | 23.22                  | 209.89               | ≤30.00         | PASS    | 18.5             |
|          |            | 2462               | 23.12                  | 205.12               | ≤30.00         | PASS    | 18.5             |
| 11N20    | SISO       | 2412               | 23.58                  | 228.03               | ≤30.00         | PASS    | 18.5             |
|          |            | 2437               | 23.15                  | 206.54               | ≤30.00         | PASS    | 18.5             |
|          |            | 2462               | 22.98                  | 198.61               | ≤30.00         | PASS    | 18.5             |
| 11N40    | SISO       | 2422               | 23.55                  | 226.46               | ≤30.00         | PASS    | 17               |
|          |            | 2437               | 23.88                  | 244.34               | ≤30.00         | PASS    | 17               |
|          |            | 2452               | 23.49                  | 223.36               | ≤30.00         | PASS    | 17               |

| TestMode | TX<br>Mod. | Freq.<br>[MHz] | Avg.power<br>[dBm] | Power<br>Setting |
|----------|------------|----------------|--------------------|------------------|
|          |            |                | ANT7               |                  |
| 11B      | SISO       | 2412           | 18.73              | 18               |
|          |            | 2437           | 18.58              | 18               |
|          |            | 2462           | 18.23              | 18               |
| 11g      | SISO       | 2412           | 18.79              | 18.5             |
|          |            | 2437           | 18.51              | 18.5             |
|          |            | 2462           | 18.16              | 18.5             |
| 11N20    | SISO       | 2412           | 18.59              | 18.5             |
|          |            | 2437           | 18.31              | 18.5             |
|          |            | 2462           | 18.06              | 18.5             |
| 11N40    | SISO       | 2422           | 16.96              | 17               |
|          |            | 2437           | 17.28              | 17               |



|  |  |      |       |    |
|--|--|------|-------|----|
|  |  | 2452 | 17.07 | 17 |
|--|--|------|-------|----|

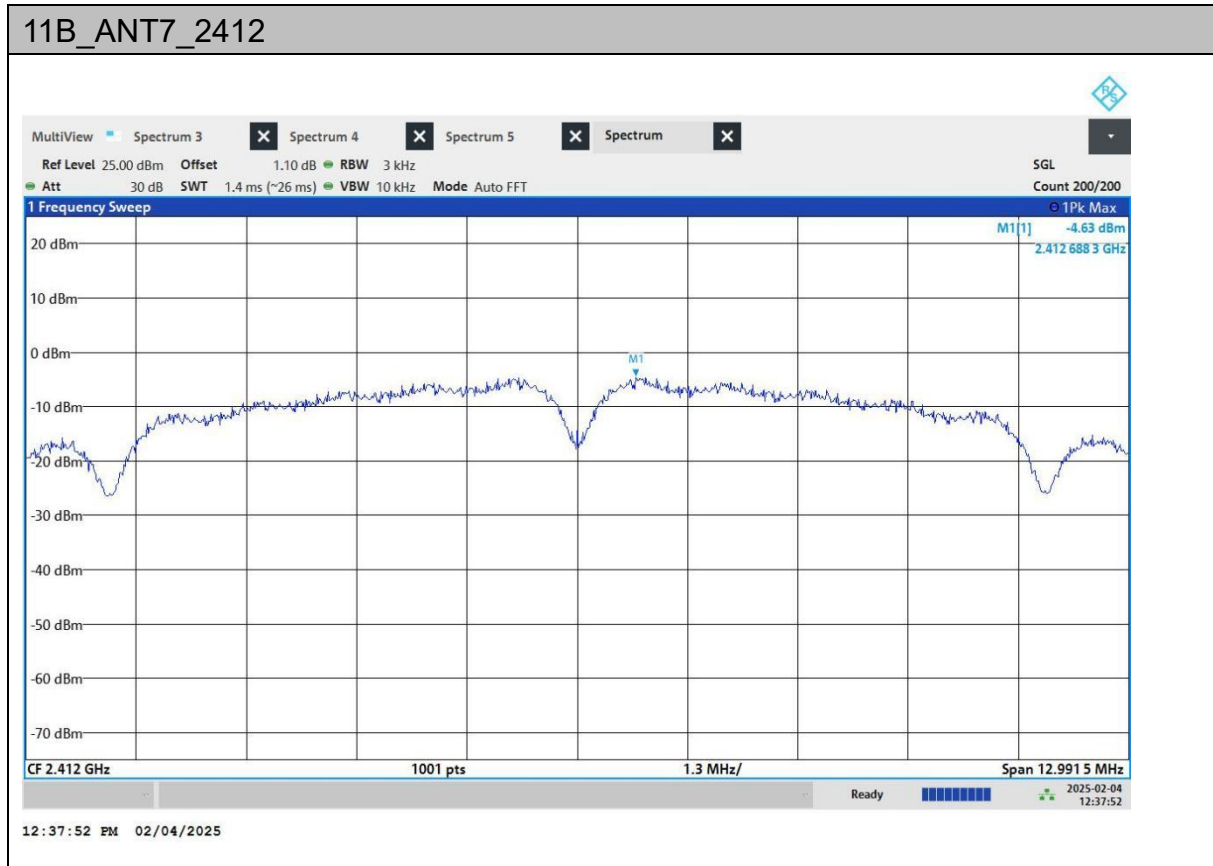


## MAXIMUM POWER SPECTRAL DENSITY

### TEST RESULT

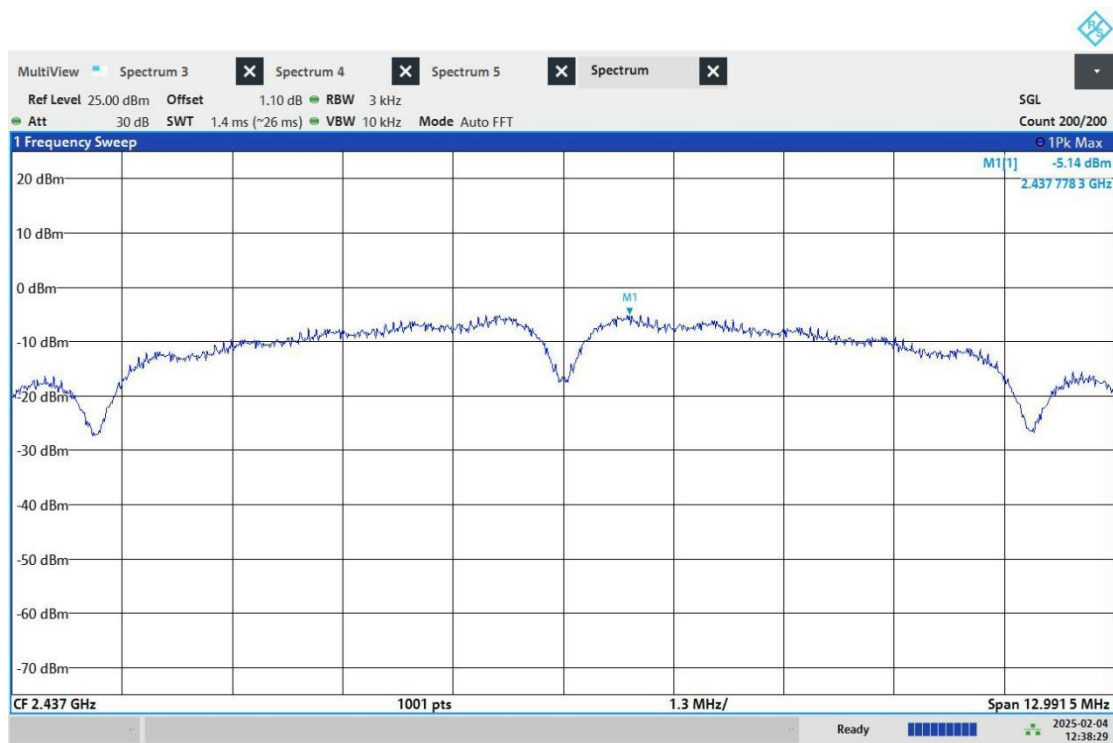
| TestMode | Antenna | Frequency [MHz] | Result [dBm/3kHz] | Limit [dBm/3kHz] | Verdict |
|----------|---------|-----------------|-------------------|------------------|---------|
| 11B      | ANT7    | 2412            | -4.63             | ≤8.00            | PASS    |
|          | ANT7    | 2437            | -5.14             | ≤8.00            | PASS    |
|          | ANT7    | 2462            | -5.79             | ≤8.00            | PASS    |
| 11G      | ANT7    | 2412            | -6.72             | ≤8.00            | PASS    |
|          | ANT7    | 2437            | -6.87             | ≤8.00            | PASS    |
|          | ANT7    | 2462            | -6.82             | ≤8.00            | PASS    |
| 11N20    | ANT7    | 2412            | -7.24             | ≤8.00            | PASS    |
|          | ANT7    | 2437            | -7.50             | ≤8.00            | PASS    |
|          | ANT7    | 2462            | -7.43             | ≤8.00            | PASS    |
| 11N40    | ANT7    | 2422            | -11.34            | ≤8.00            | PASS    |
|          | ANT7    | 2437            | -10.46            | ≤8.00            | PASS    |
|          | ANT7    | 2452            | -10.76            | ≤8.00            | PASS    |

### TEST GRAPHS



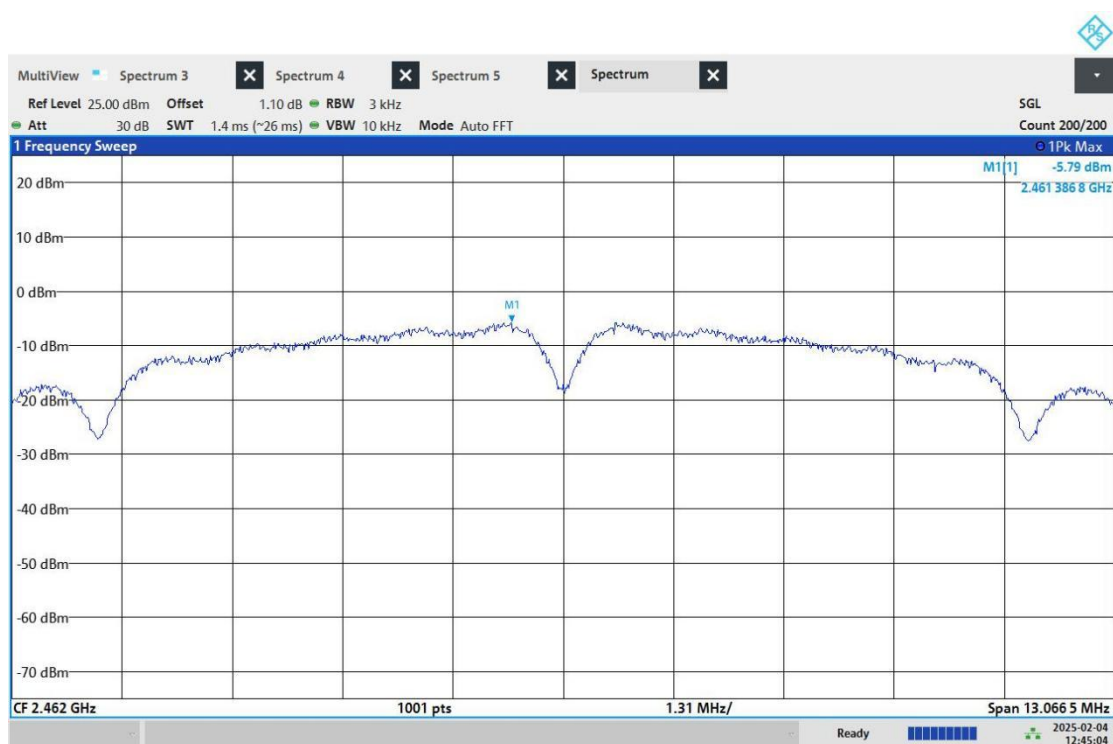


## 11B\_ANT7\_2437



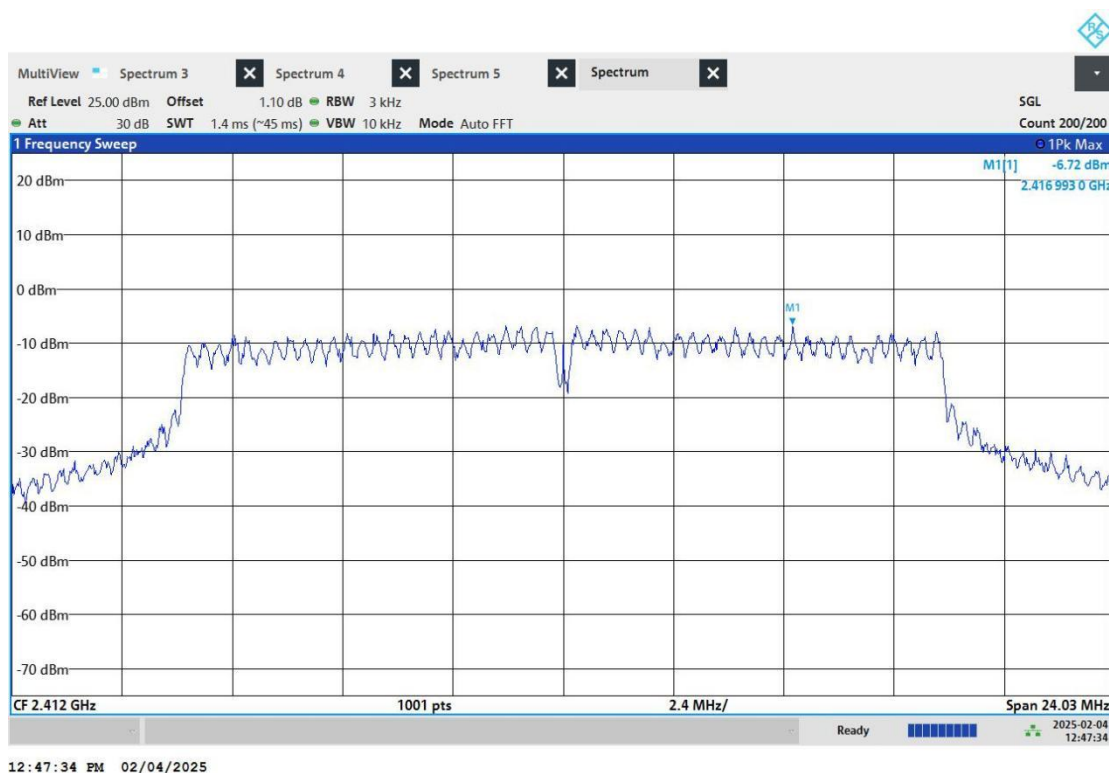
12:38:29 PM 02/04/2025

## 11B\_ANT7\_2462

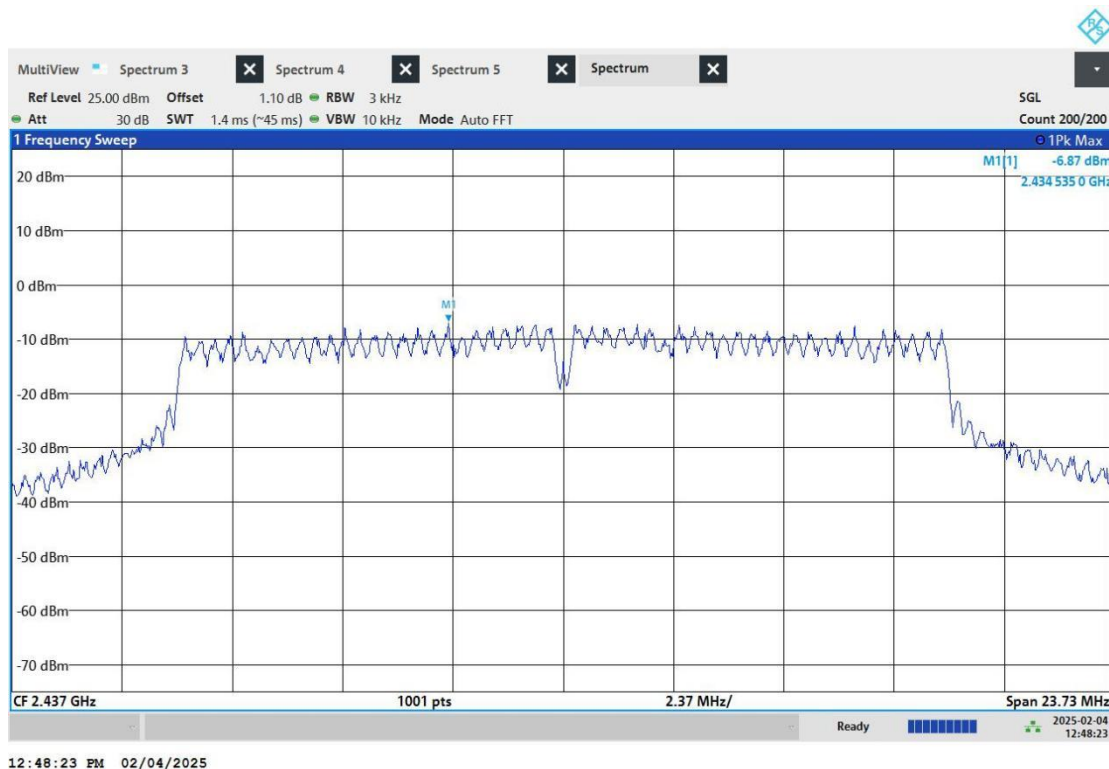


12:45:05 PM 02/04/2025

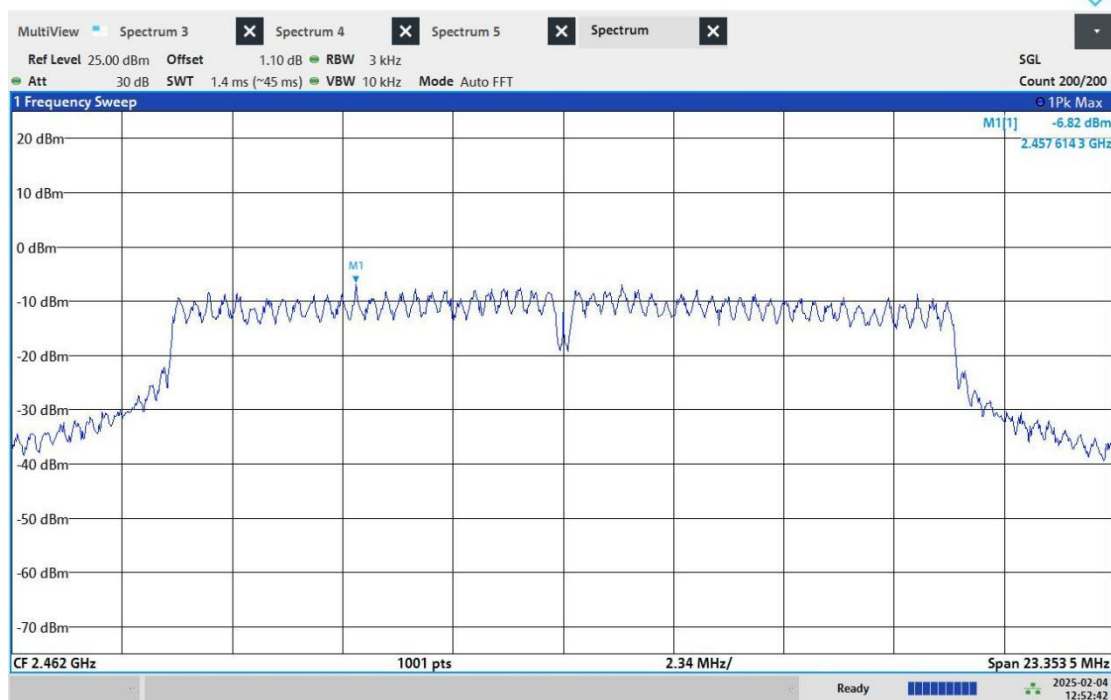
## 11G\_ANT7\_2412



### 11G\_ANT7\_2437

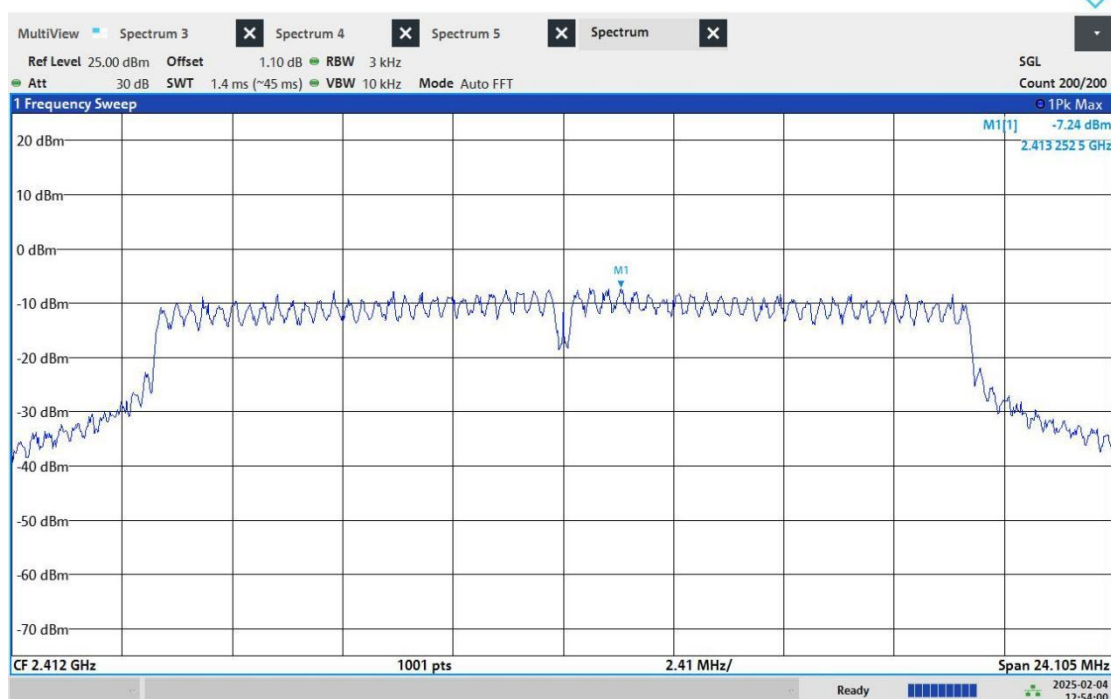


### 11G\_ANT7\_2462



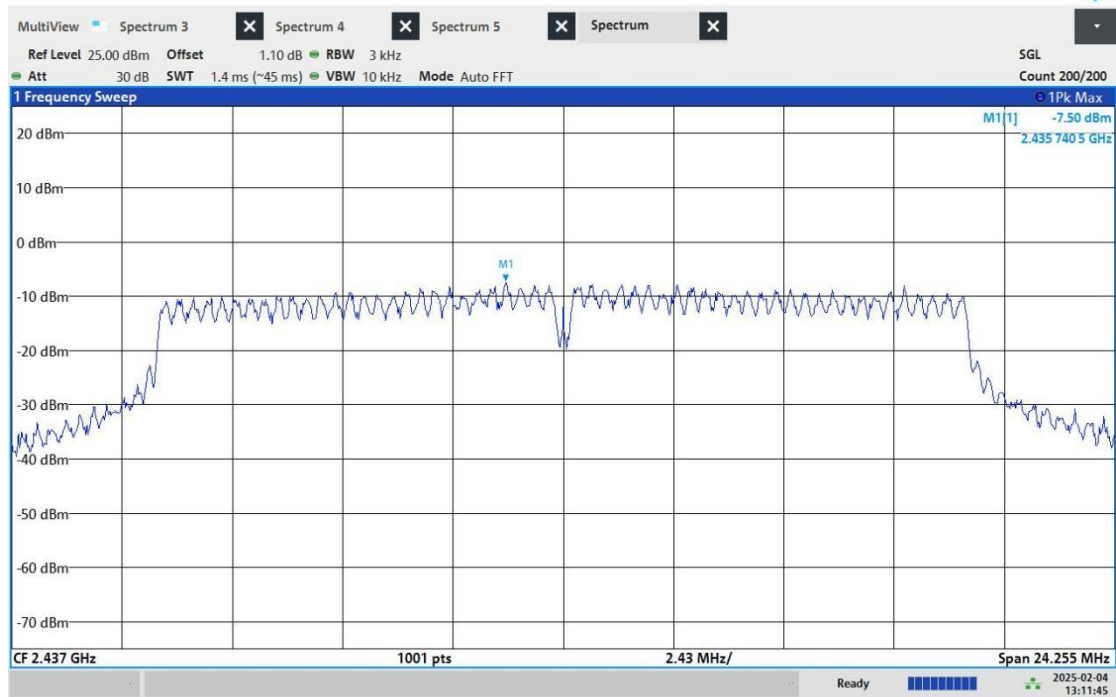
12:52:42 PM 02/04/2025

## 11N20\_ANT7\_2412



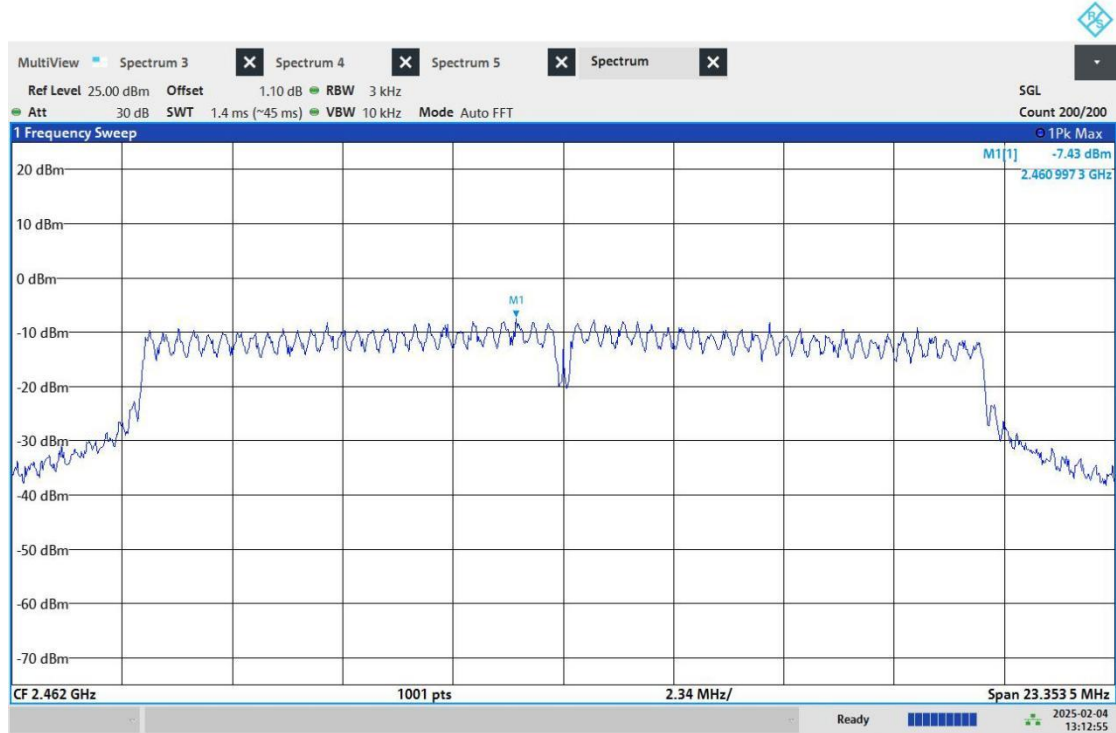
12:54:00 PM 02/04/2025

## 11N20\_ANT7\_2437



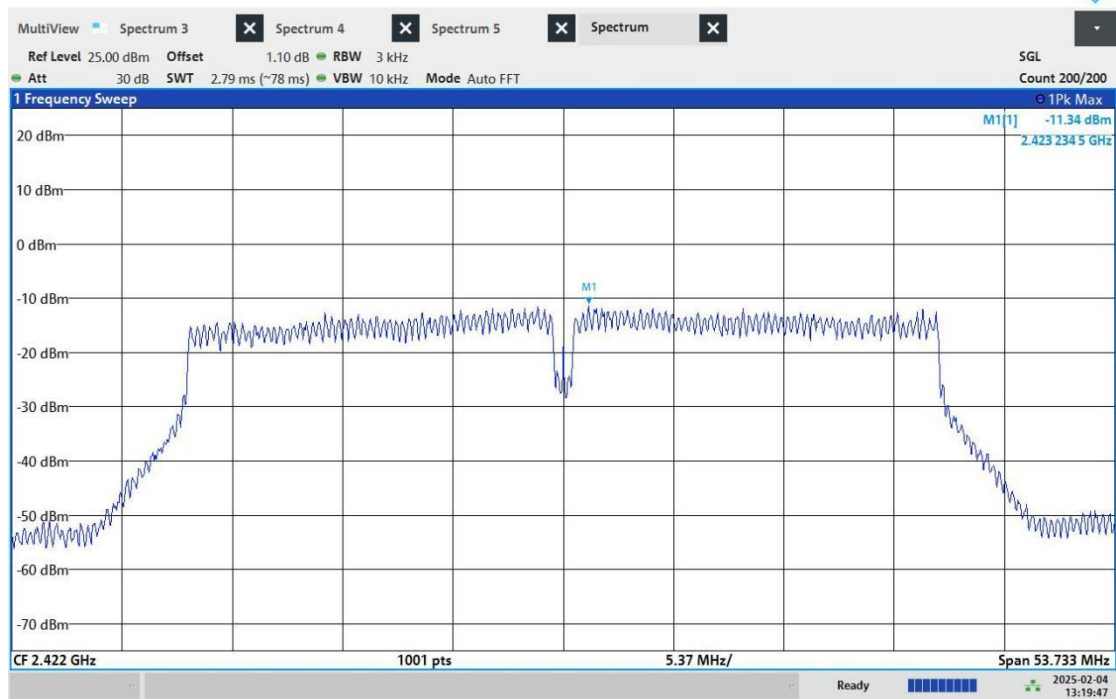
01:11:46 PM 02/04/2025

### 11N20\_ANT7\_2462



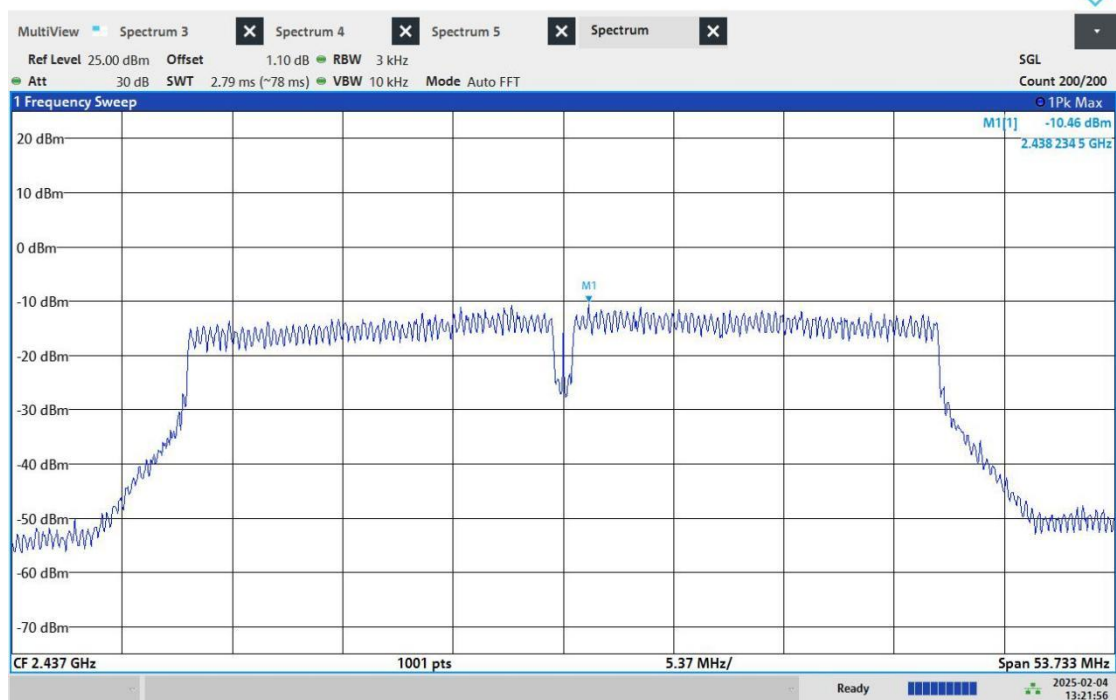
01:12:56 PM 02/04/2025

### 11N40\_ANT7\_2422



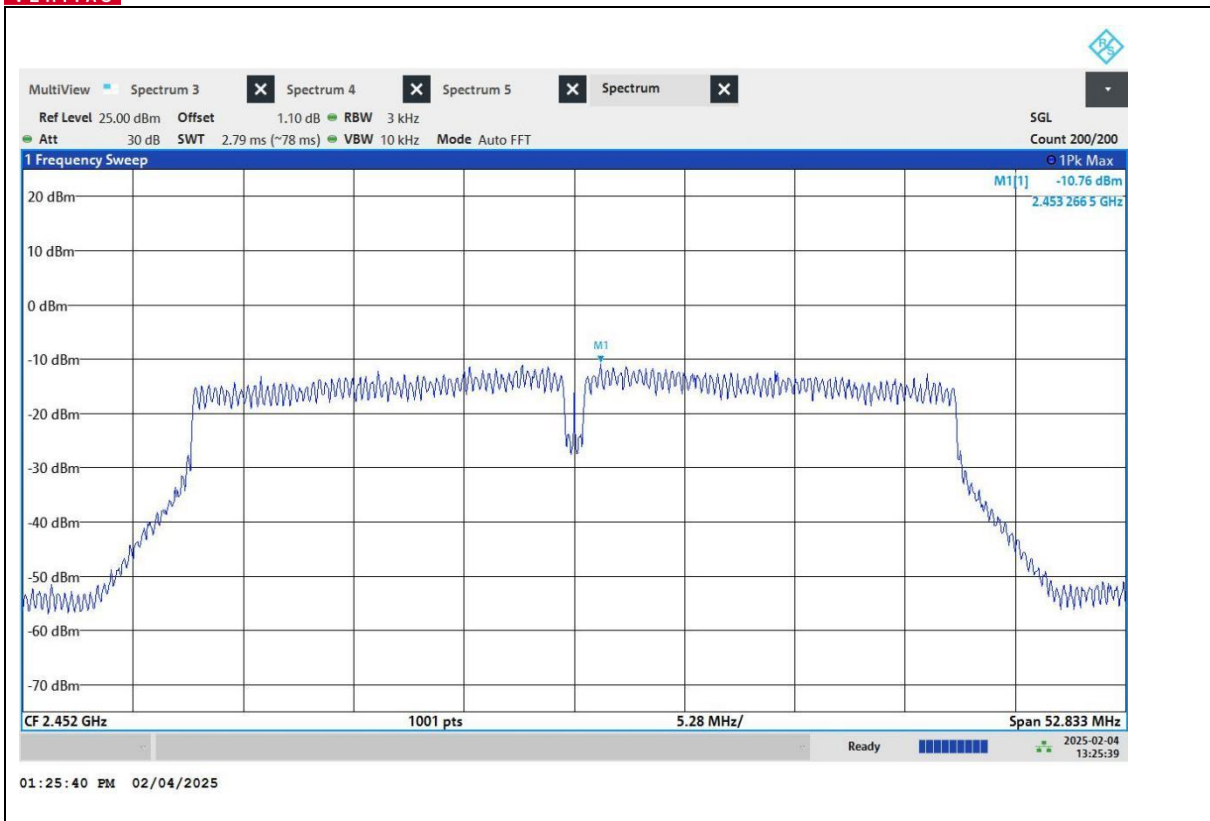
01:19:48 PM 02/04/2025

### 11N40\_ANT7\_2437



01:21:56 PM 02/04/2025

### 11N40\_ANT7\_2452



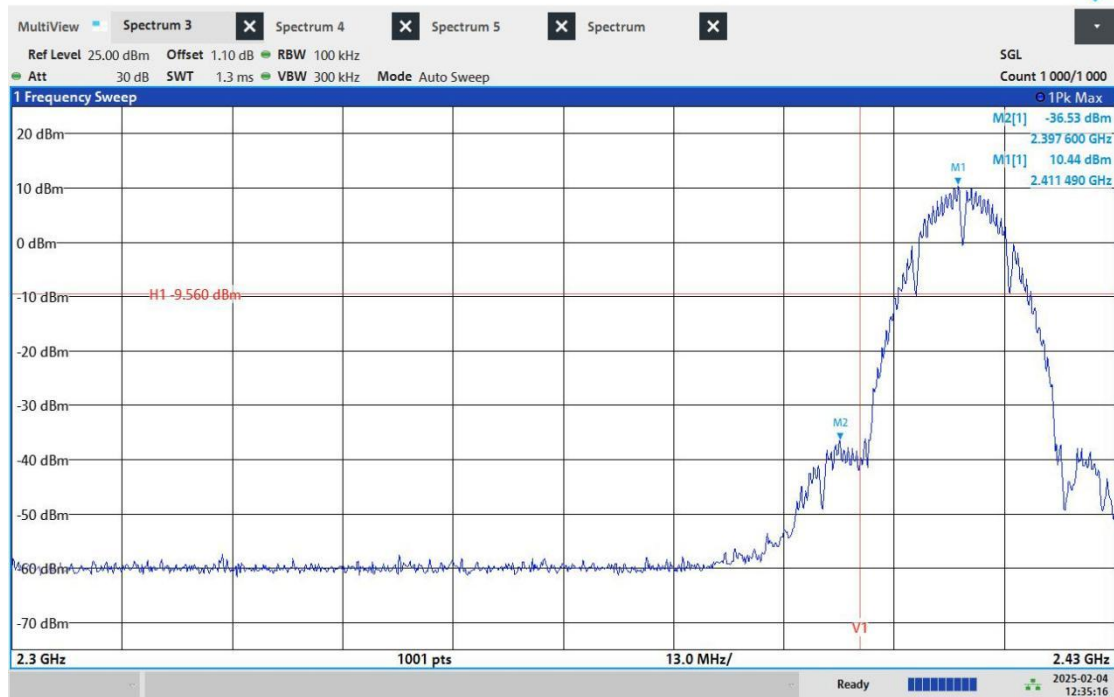
**BAND EDGE MEASUREMENTS****TEST RESULT**

| TestMode | Antenna | ChName | Frequency<br>[MHz] | Result<br>[dBm]   | Limit<br>[dBm]       | Verdict |
|----------|---------|--------|--------------------|-------------------|----------------------|---------|
| 11B      | ANT7    | Low    | 2412               | See test<br>graph | See<br>test<br>graph | PASS    |
|          | ANT7    | High   | 2462               | See test<br>graph | See<br>test<br>graph | PASS    |
| 11G      | ANT7    | Low    | 2412               | See test<br>graph | See<br>test<br>graph | PASS    |
|          | ANT7    | High   | 2462               | See test<br>graph | See<br>test<br>graph | PASS    |
| 11N20    | ANT7    | Low    | 2412               | See test<br>graph | See<br>test<br>graph | PASS    |
|          | ANT7    | High   | 2462               | See test<br>graph | See<br>test<br>graph | PASS    |
| 11N40    | ANT7    | Low    | 2422               | See test<br>graph | See<br>test<br>graph | PASS    |
|          | ANT7    | High   | 2452               | See test<br>graph | See<br>test<br>graph | PASS    |



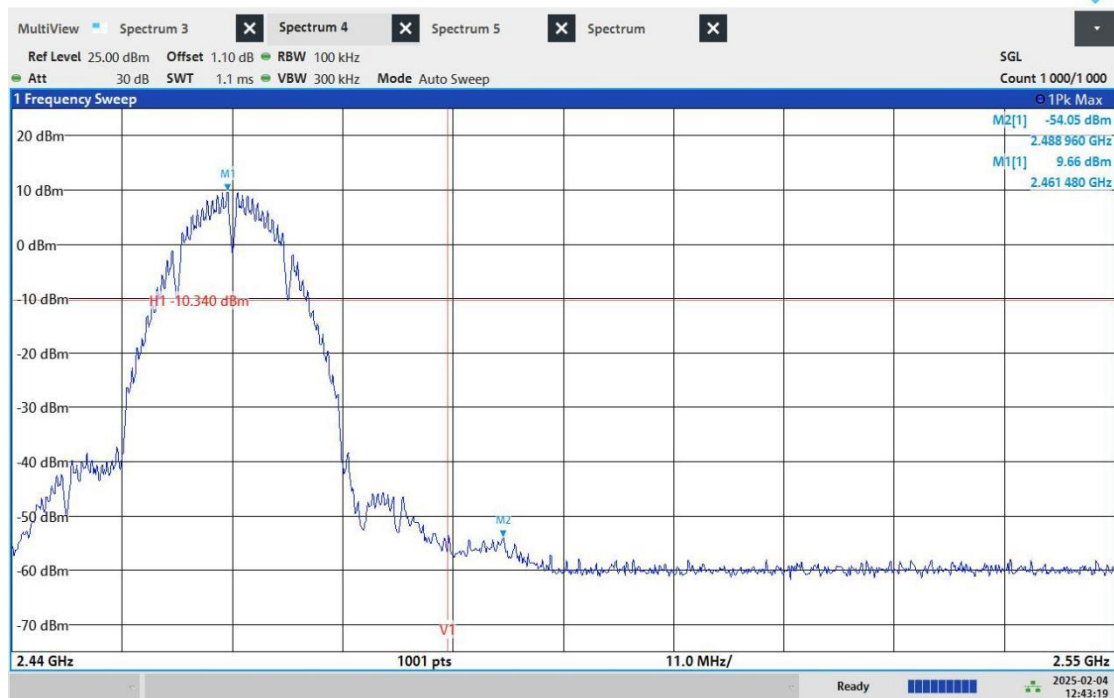
## TEST GRAPHS

### 11B-CDD\_ANT7\_Low\_2412



12:35:16 PM 02/04/2025

### 11B-CDD\_ANT7\_High\_2462



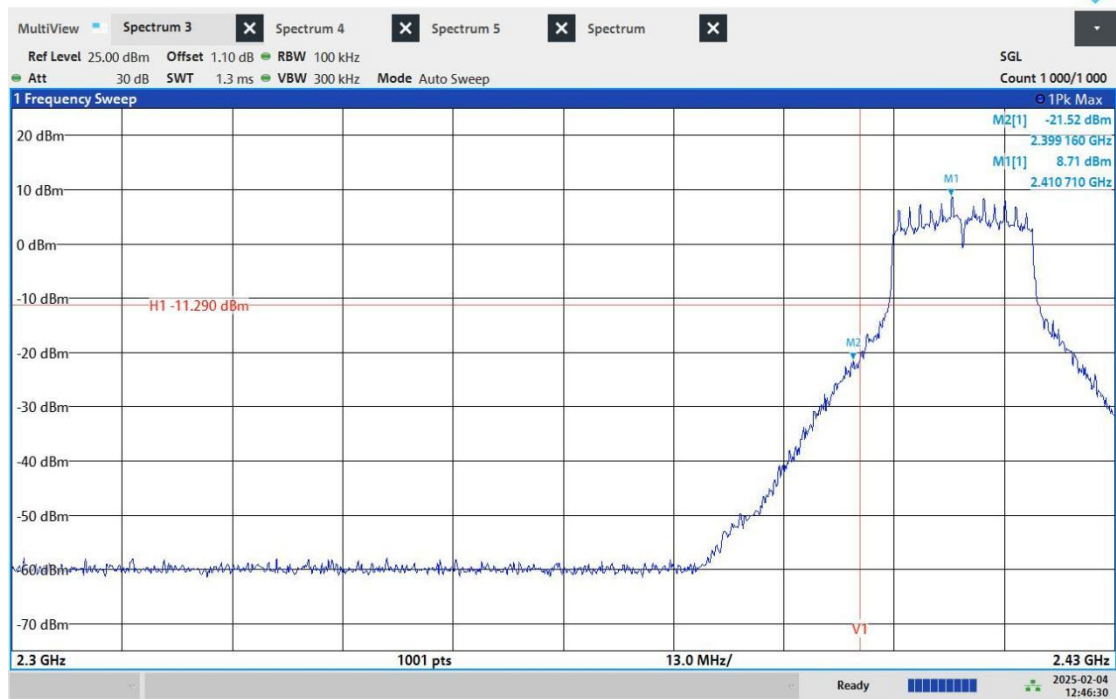
12:43:20 PM 02/04/2025

### 11G-CDD\_ANT7\_Low\_2412

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(Suzhou) Co., Ltd.

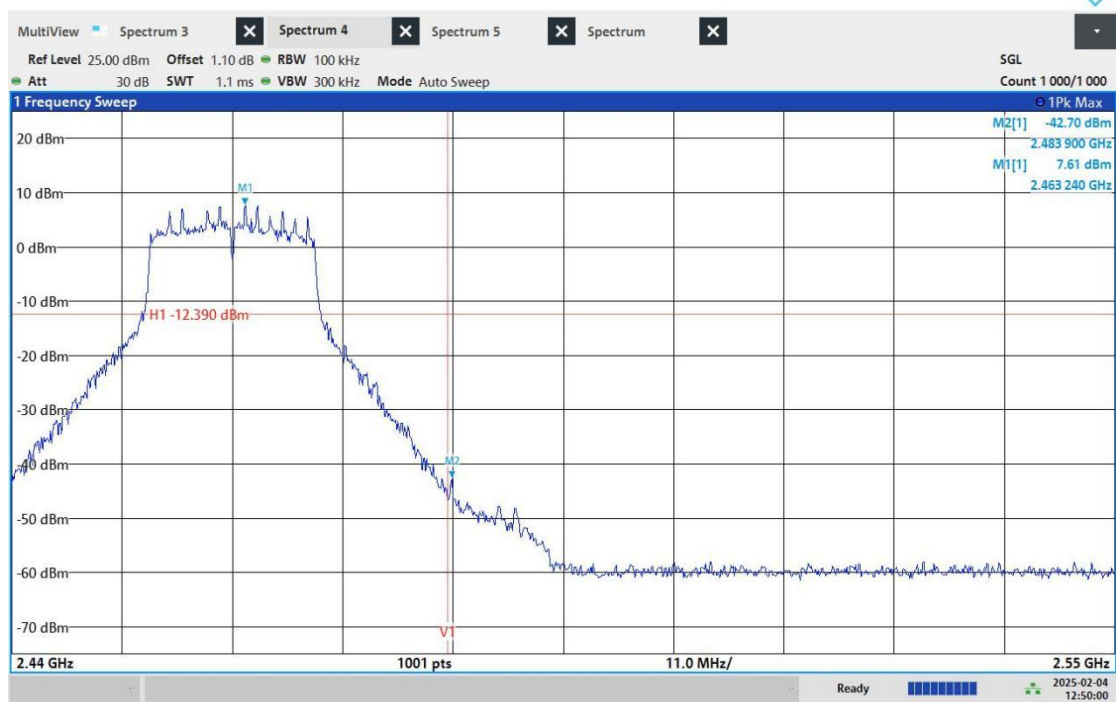
Tower N, Innovation Center, 88 Zuyi Road, High-teCH District,  
Suzhou City, Anhui Province

Tel: +86 (0557)  
368 1008



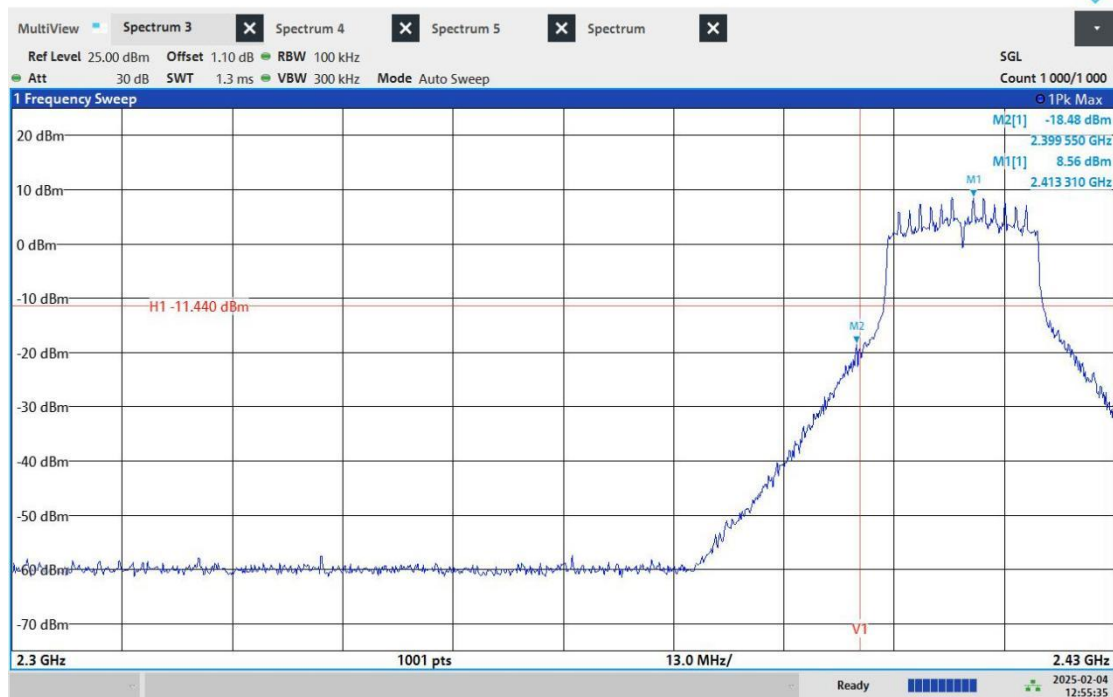
12:46:30 PM 02/04/2025

### 11G-CDD\_ANT7\_High\_2462



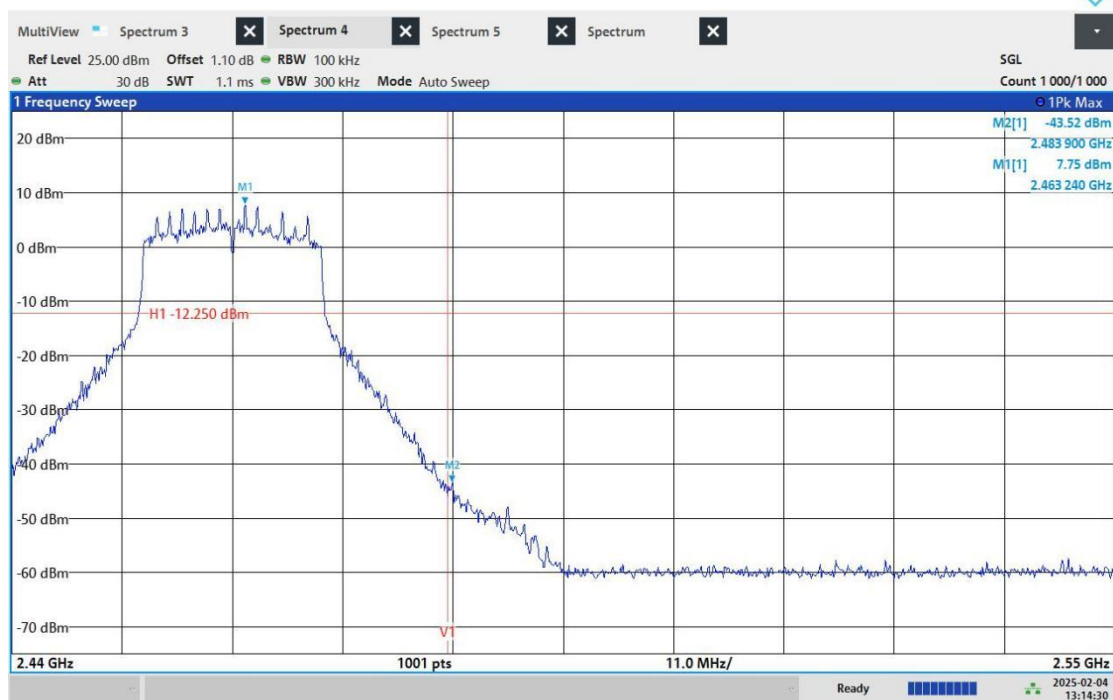
12:50:00 PM 02/04/2025

### 11N20SISO\_ANT7\_Low\_2412



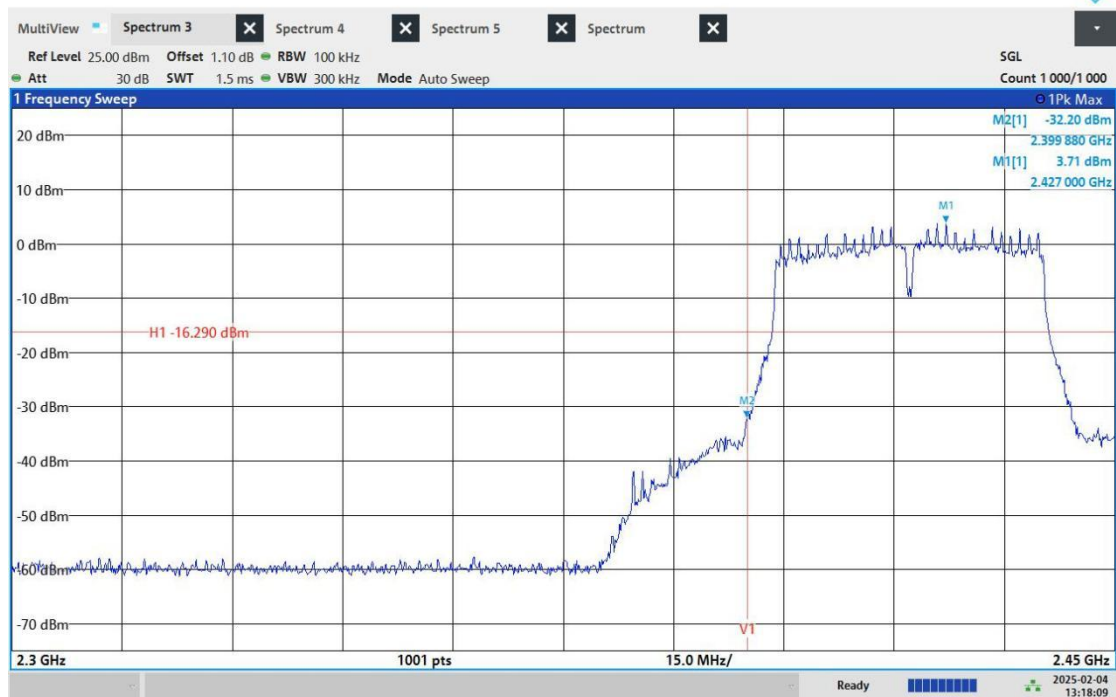
12:55:35 PM 02/04/2025

### 11N20SISO\_ANT7\_High\_2462



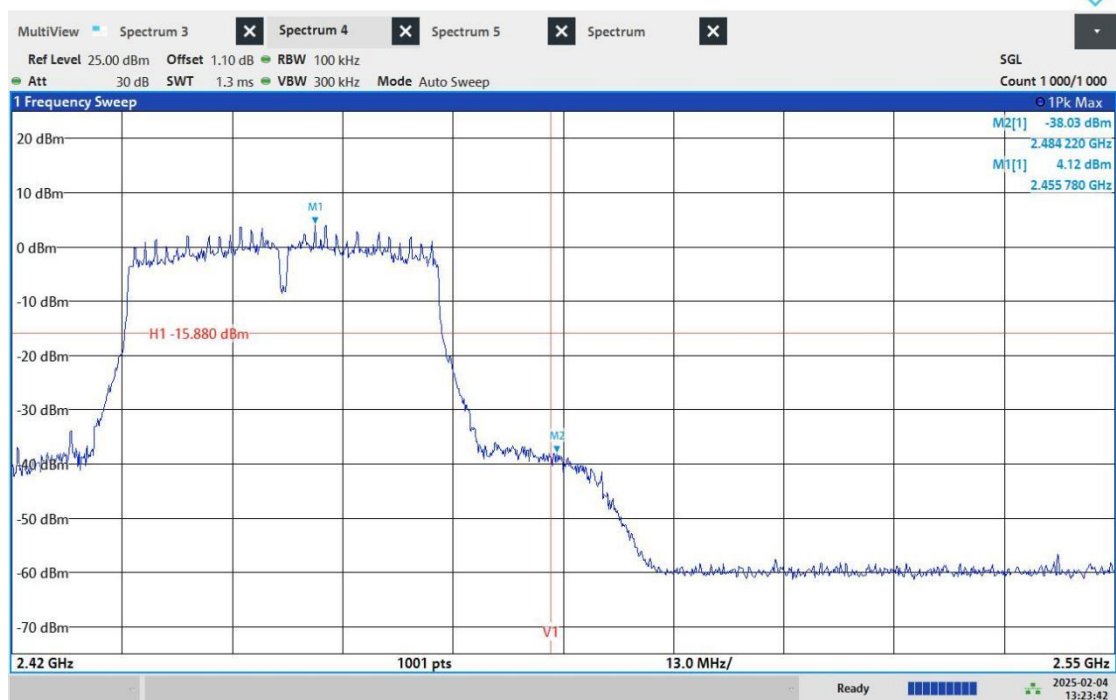
01:14:31 PM 02/04/2025

### 11N40SISO\_ANT7\_Low\_2422



01:18:10 PM 02/04/2025

### 11N40SISO\_ANT7\_High\_2452



01:23:42 PM 02/04/2025

## CONDUCTED SPURIOUS EMISSION

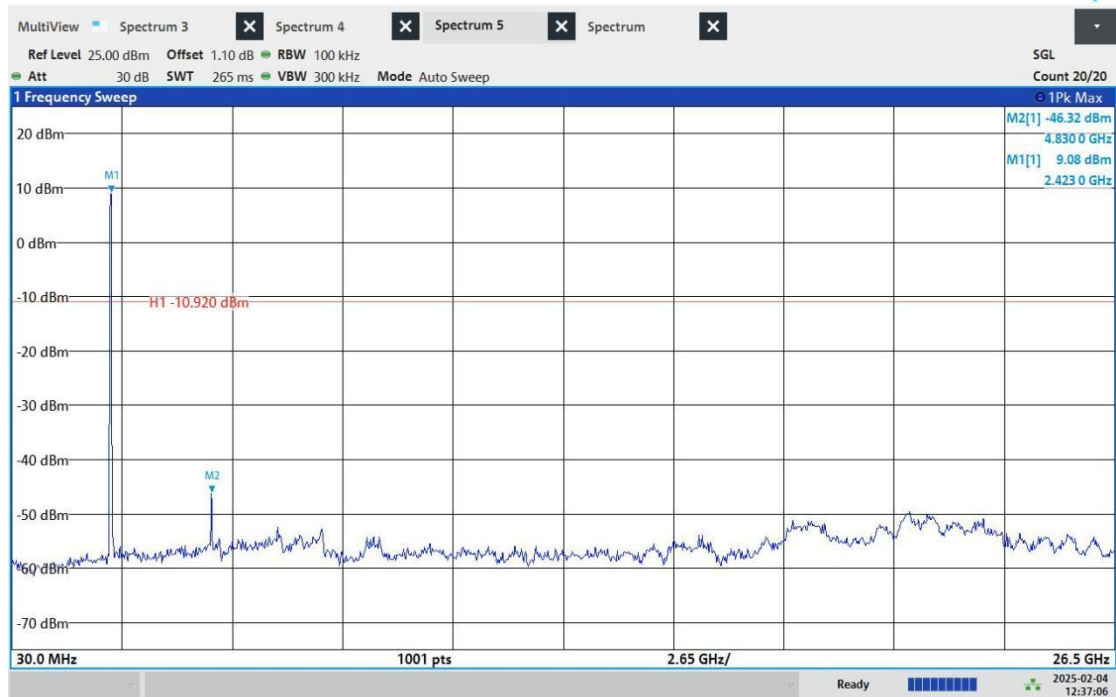
### TEST RESULT

| TestMode | Antenna | Frequency[MHz] | FreqRange [Mhz] | Result [dBm]   | Limit [dBm]    | Verdict |
|----------|---------|----------------|-----------------|----------------|----------------|---------|
| 11B      | ANT7    | 2412           | 30~265000       | See test graph | See test graph | PASS    |
|          | ANT7    | 2437           | 30~265000       | See test graph | See test graph | PASS    |
|          | ANT7    | 2462           | 30~265000       | See test graph | See test graph | PASS    |
| 11G      | ANT7    | 2412           | 30~265000       | See test graph | See test graph | PASS    |
|          | ANT7    | 2437           | 30~265000       | See test graph | See test graph | PASS    |
|          | ANT7    | 2462           | 30~265000       | See test graph | See test graph | PASS    |
| 11N20    | ANT7    | 2412           | 30~265000       | See test graph | See test graph | PASS    |
|          | ANT7    | 2437           | 30~265000       | See test graph | See test graph | PASS    |
|          | ANT7    | 2462           | 30~265000       | See test graph | See test graph | PASS    |
| 11N40    | ANT7    | 2422           | 30~265000       | See test graph | See test graph | PASS    |
|          | ANT7    | 2437           | 30~265000       | See test graph | See test graph | PASS    |
|          | ANT7    | 2452           | 30~265000       | See test graph | See test graph | PASS    |



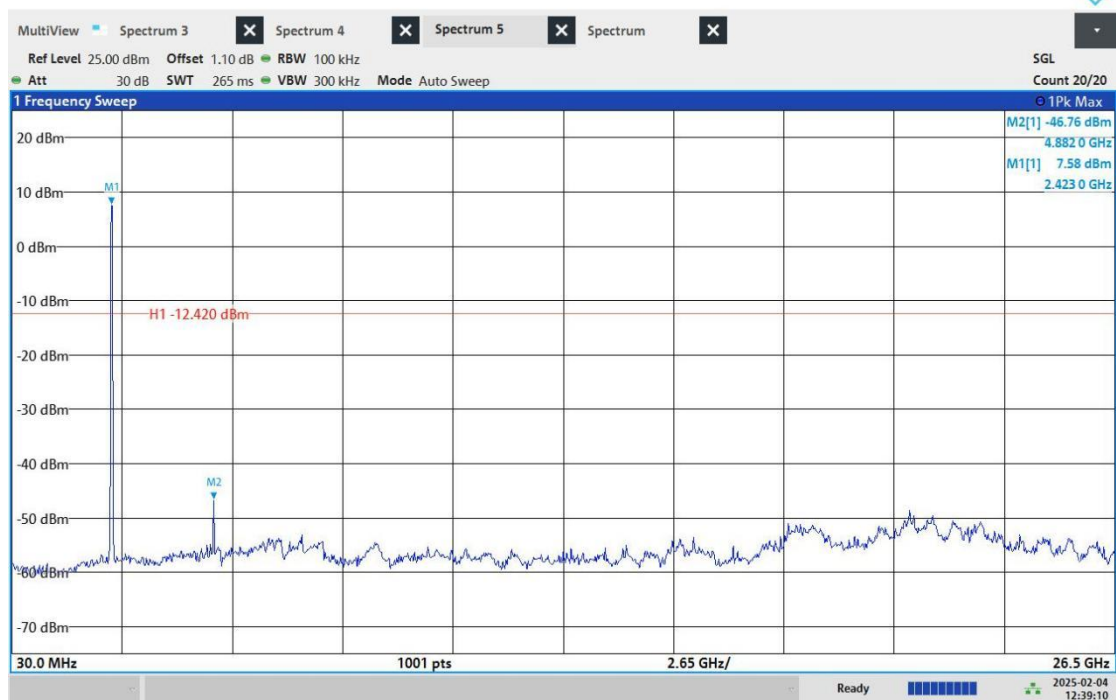
## TEST GRAPHS

### 11B\_ANT7\_2412\_30~265000



12:37:07 PM 02/04/2025

### 11B\_ANT7\_2437\_30~265000



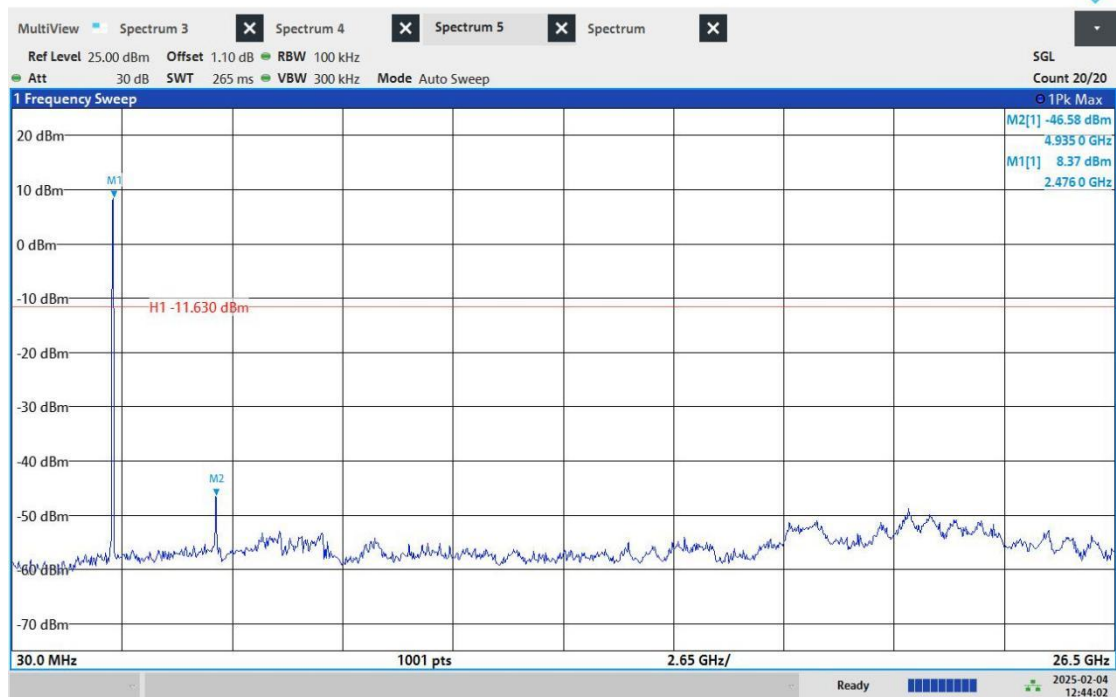
12:39:11 PM 02/04/2025

### 11B\_ANT7\_2462\_30~260000

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(Suzhou) Co., Ltd.

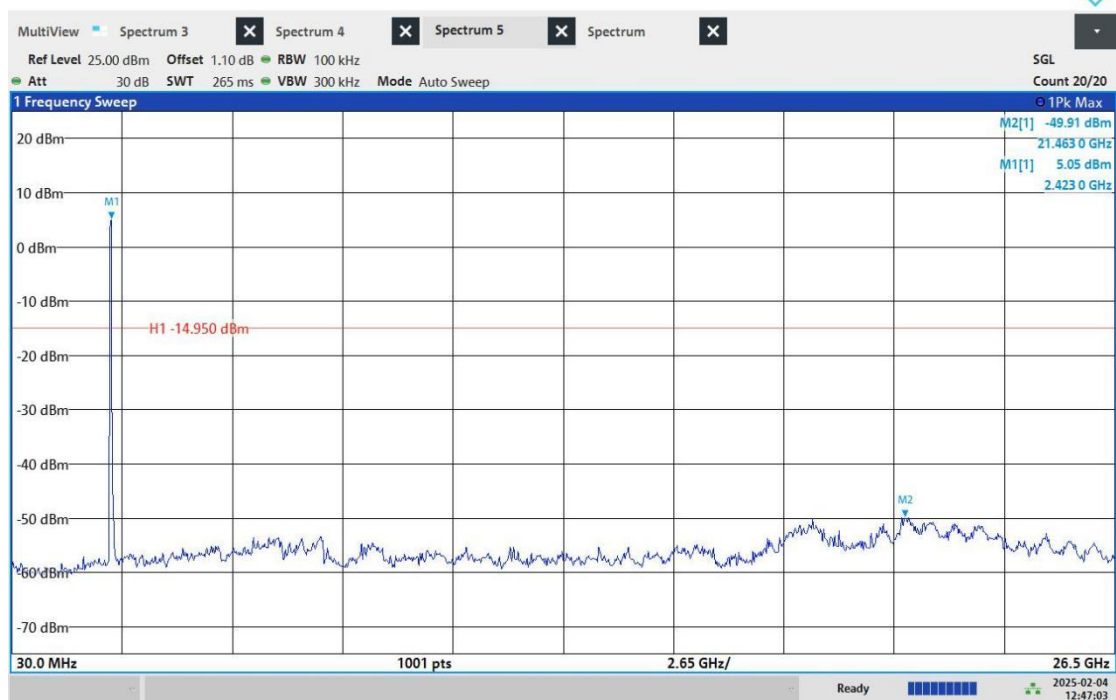
Tower N, Innovation Center, 88 Zuyi Road, High-teCH District,  
Suzhou City, Anhui Province

Tel: +86 (0557)  
368 1008



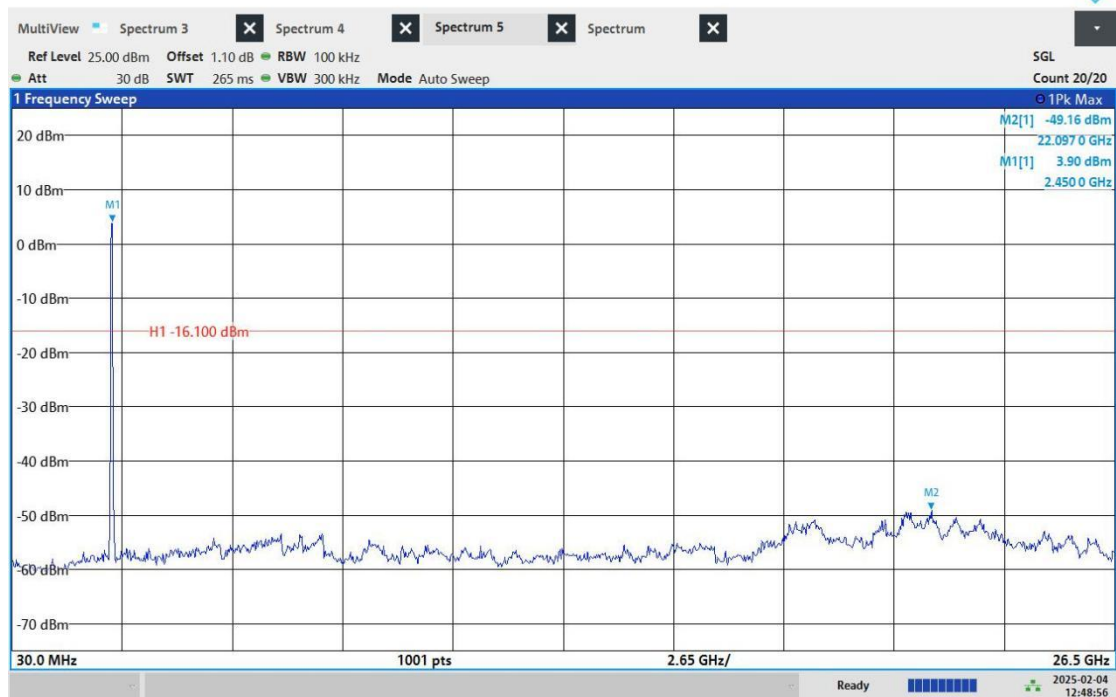
12:44:02 PM 02/04/2025

### 11G\_ANT7\_2412\_30~265000



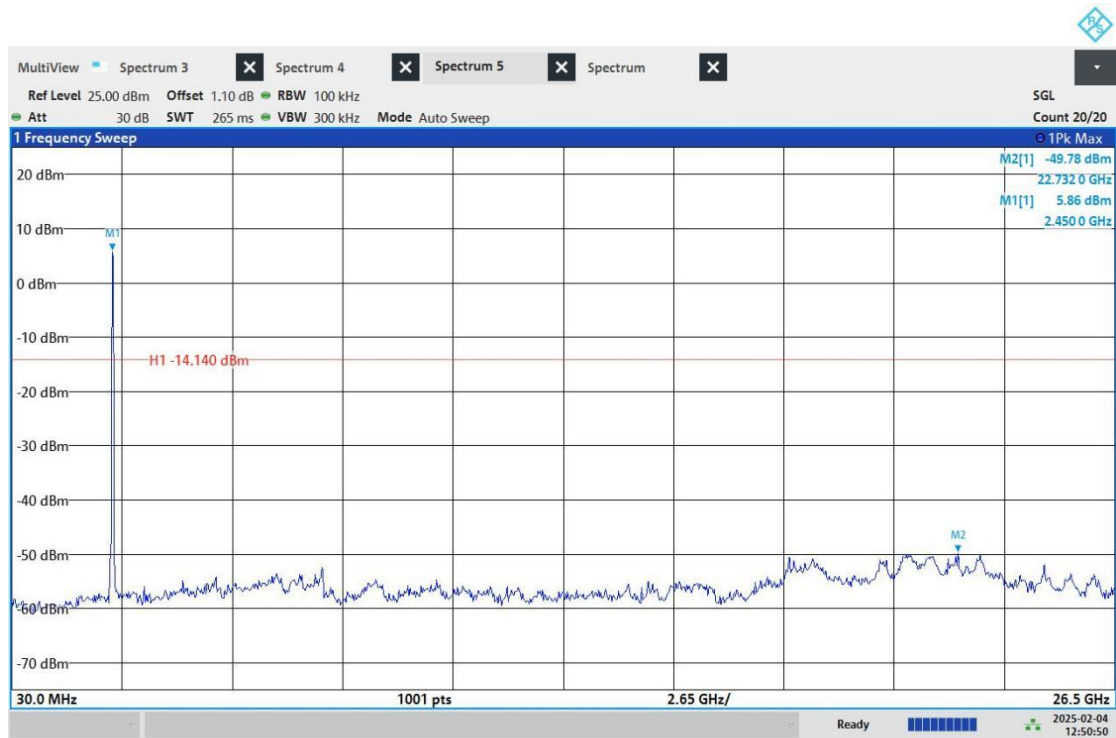
12:47:03 PM 02/04/2025

### 11G\_ANT7\_2437\_30~265000



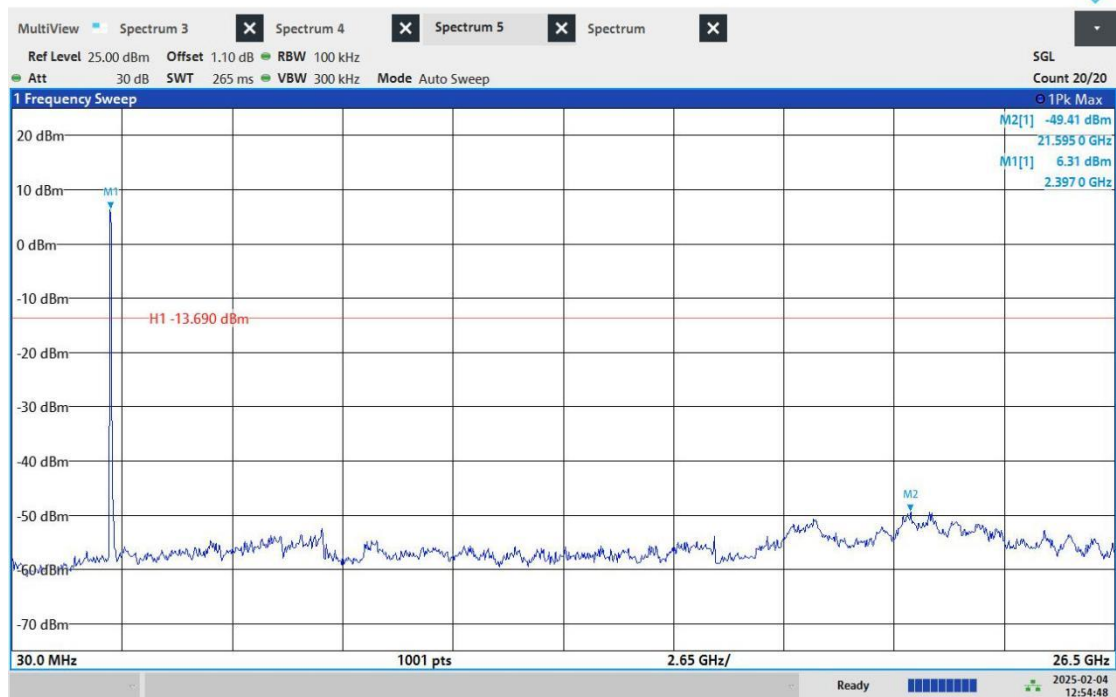
12:48:56 PM 02/04/2025

### 11G\_ANT7\_2462\_30~265000



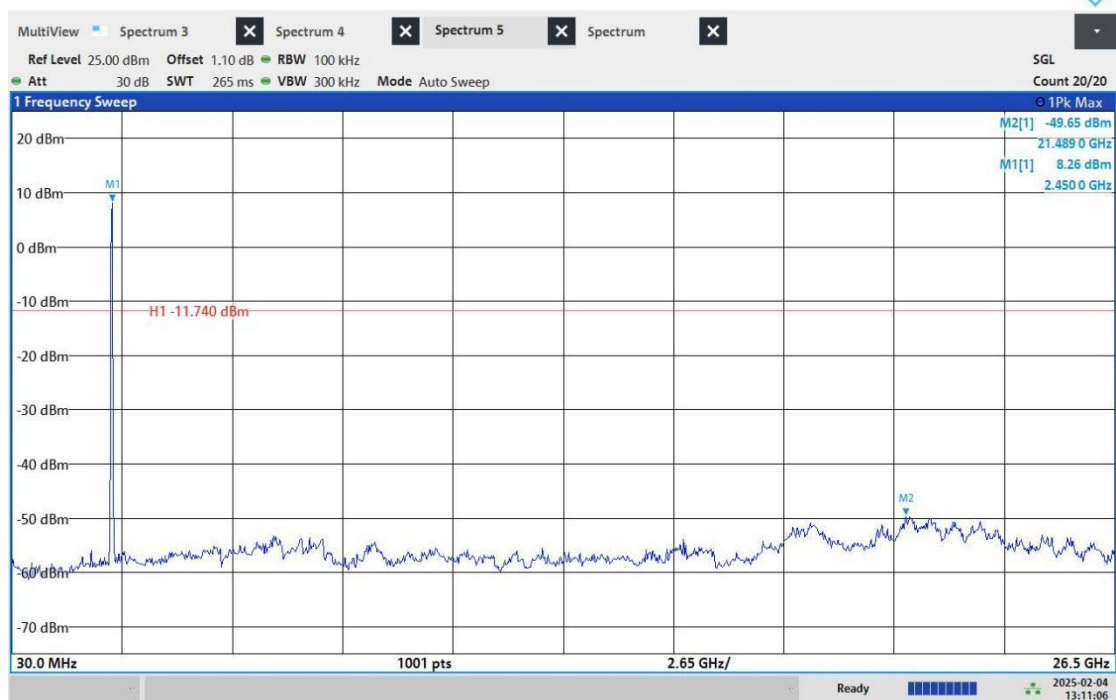
12:50:51 PM 02/04/2025

### 11N20\_ANT7\_2412\_30~265000



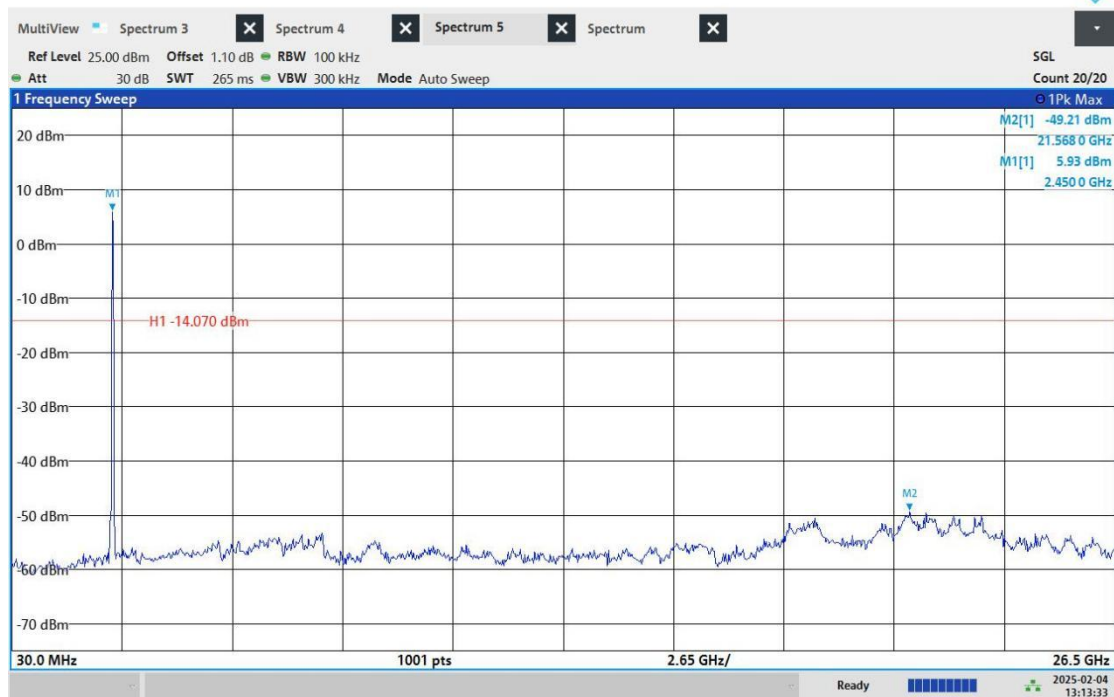
12:54:48 PM 02/04/2025

11N20\_ANT7\_2437\_30~265000



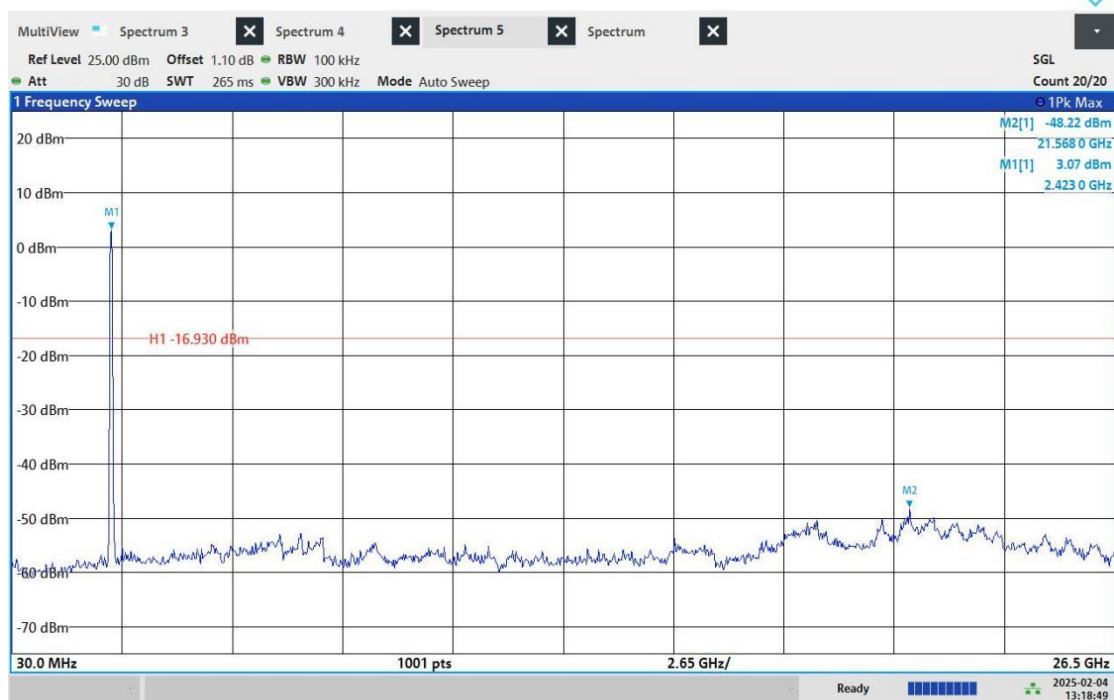
01:11:07 PM 02/04/2025

11N20\_ANT7\_2462\_30~265000



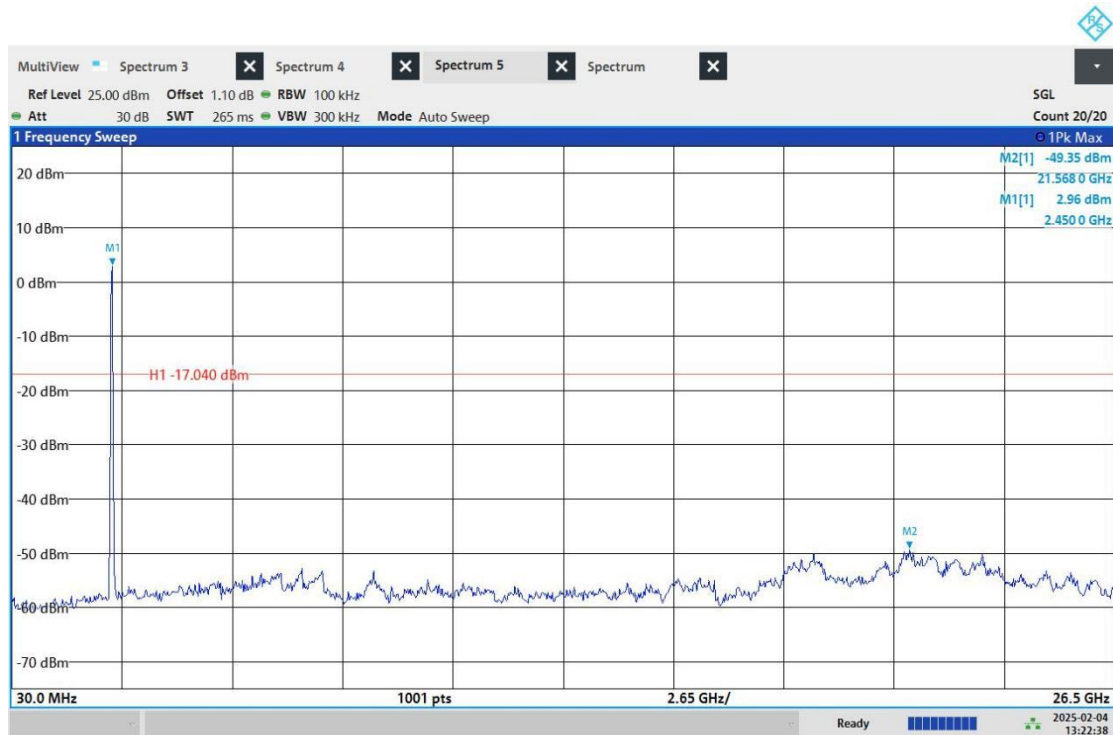
01:13:34 PM 02/04/2025

11N40\_ANT7\_2422\_30~265000



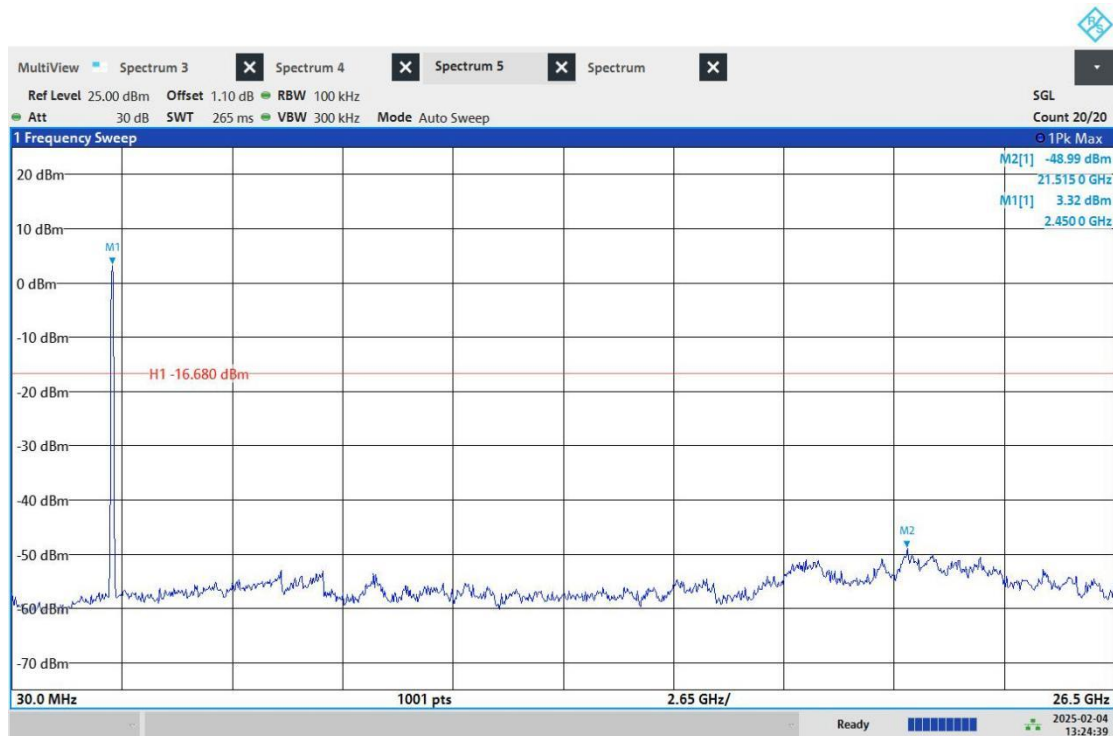
01:18:50 PM 02/04/2025

11N40\_ANT7\_2437\_30~265000



01:22:39 PM 02/04/2025

### 11N40\_ANT7\_2452\_30~265000



01:24:39 PM 02/04/2025

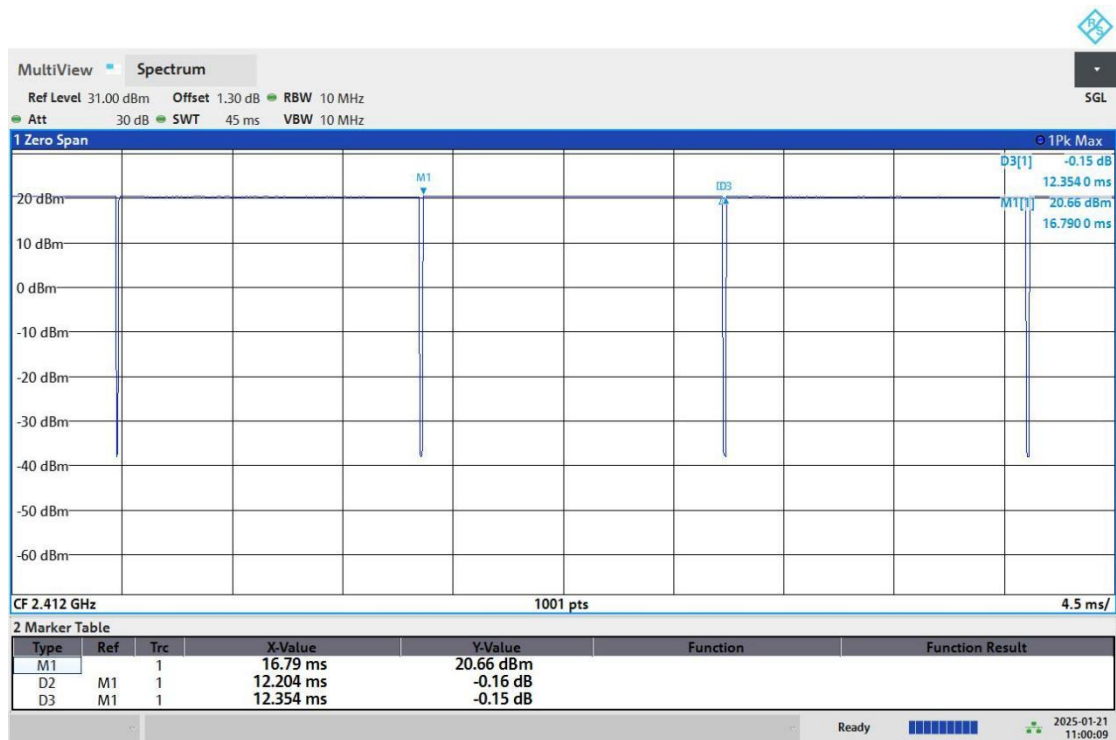
**DUTY CYCLE****TEST RESULT**

| TestMode | Antenna | Frequency[MHz] | Transmission Duration [ms] | Transmission Period [ms] | Duty Cycle [%] | duty cycle factor |
|----------|---------|----------------|----------------------------|--------------------------|----------------|-------------------|
| 11B      | ANT7    | 2412           | 12.204                     | 12.354                   | 98.79          | 0.05              |
| 11G      | ANT7    | 2412           | 2.0325                     | 2.07                     | 98.19          | 0.08              |
| 11N20    | ANT7    | 2412           | 1.89                       | 1.9275                   | 98.05          | 0.09              |
| 11N40    | ANT7    | 2422           | 0.926                      | 0.978                    | 94.63          | 0.24              |



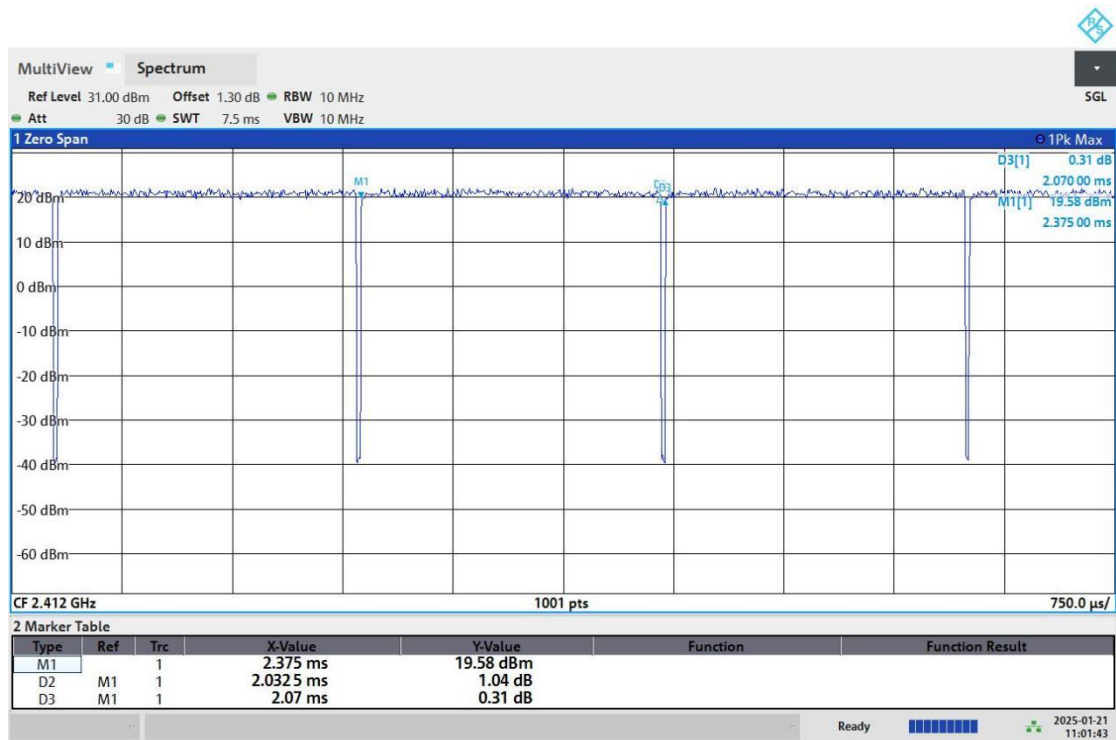
## TEST GRAPHS

### 11B\_ANT7\_2412



11:00:10 AM 01/21/2025

### 11G\_ANT7\_2412



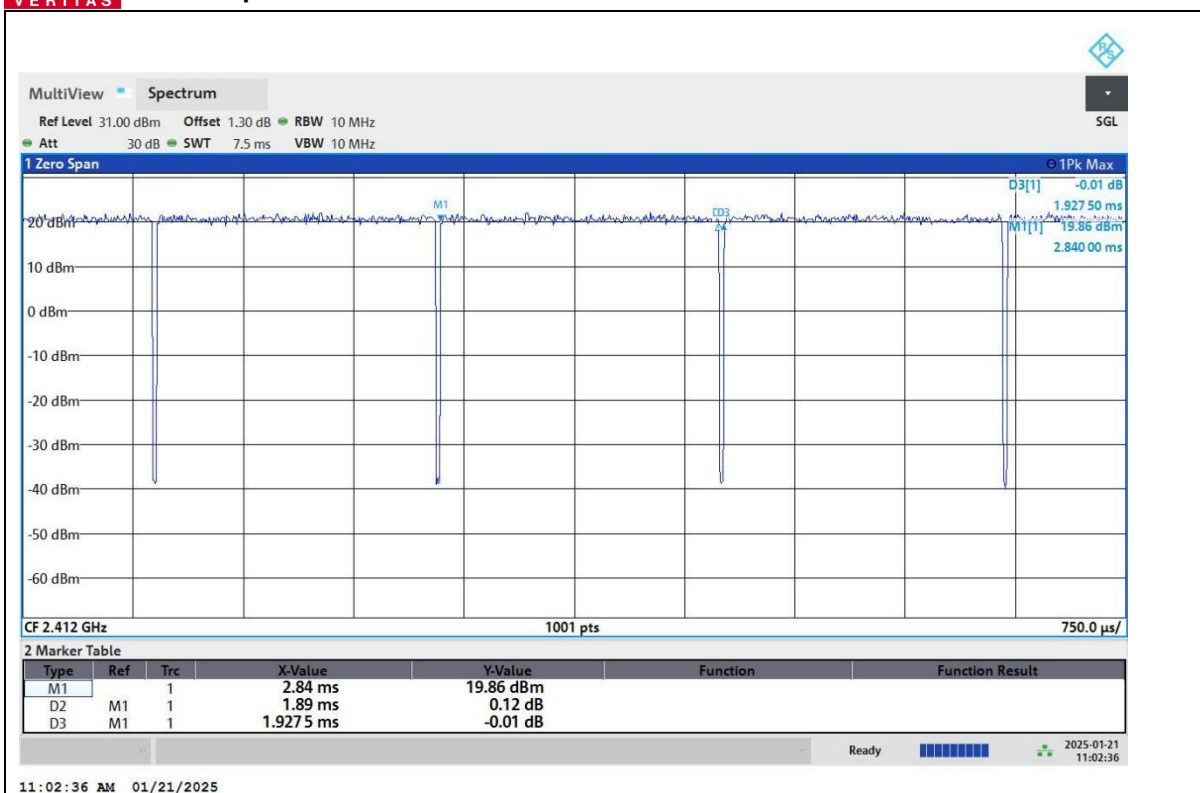
11:01:43 AM 01/21/2025

### 11N20\_ANT7\_2412

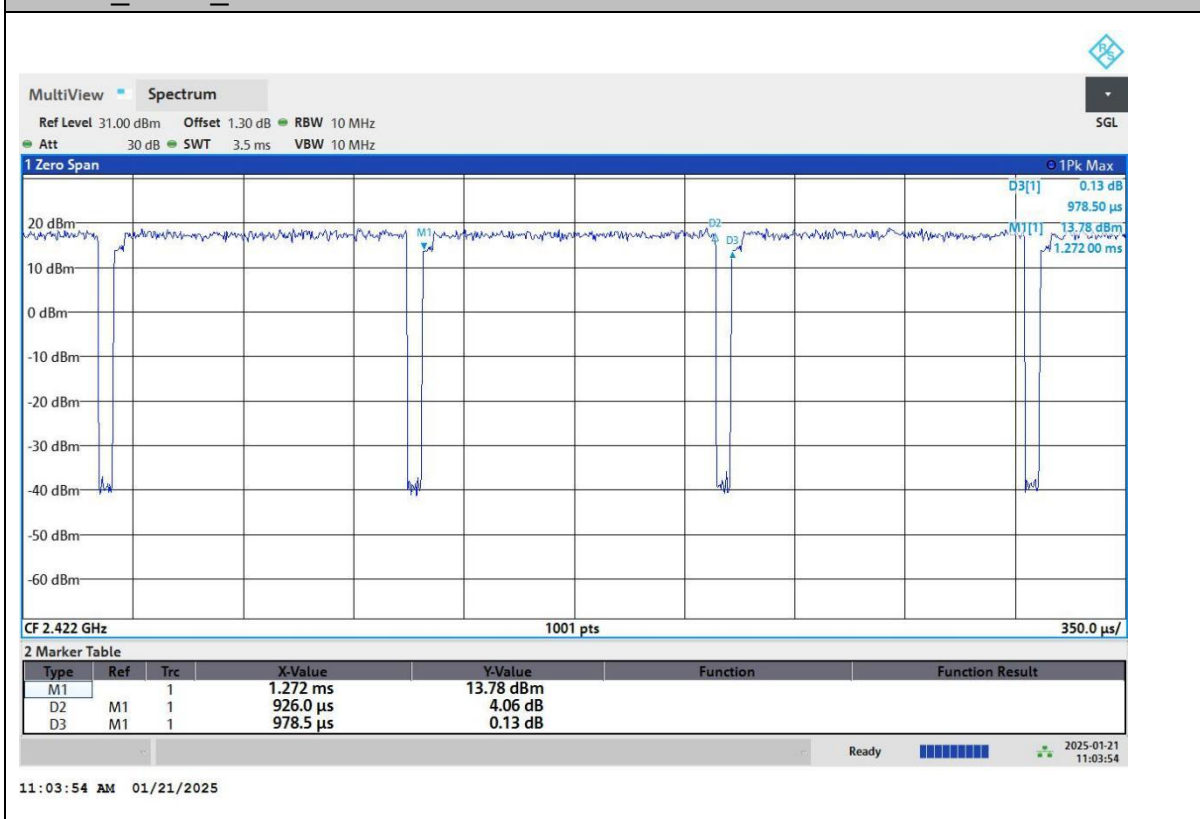
Huarui 7layers High TeCHnology  
(Suzhou) Co., Ltd.

Tower N, Innovation Center, 88 Zuyi Road, High-teCH District,  
Suzhou City, Anhui Province

Tel: +86 (0557)  
368 1008



## 11N40\_ANT7\_2422

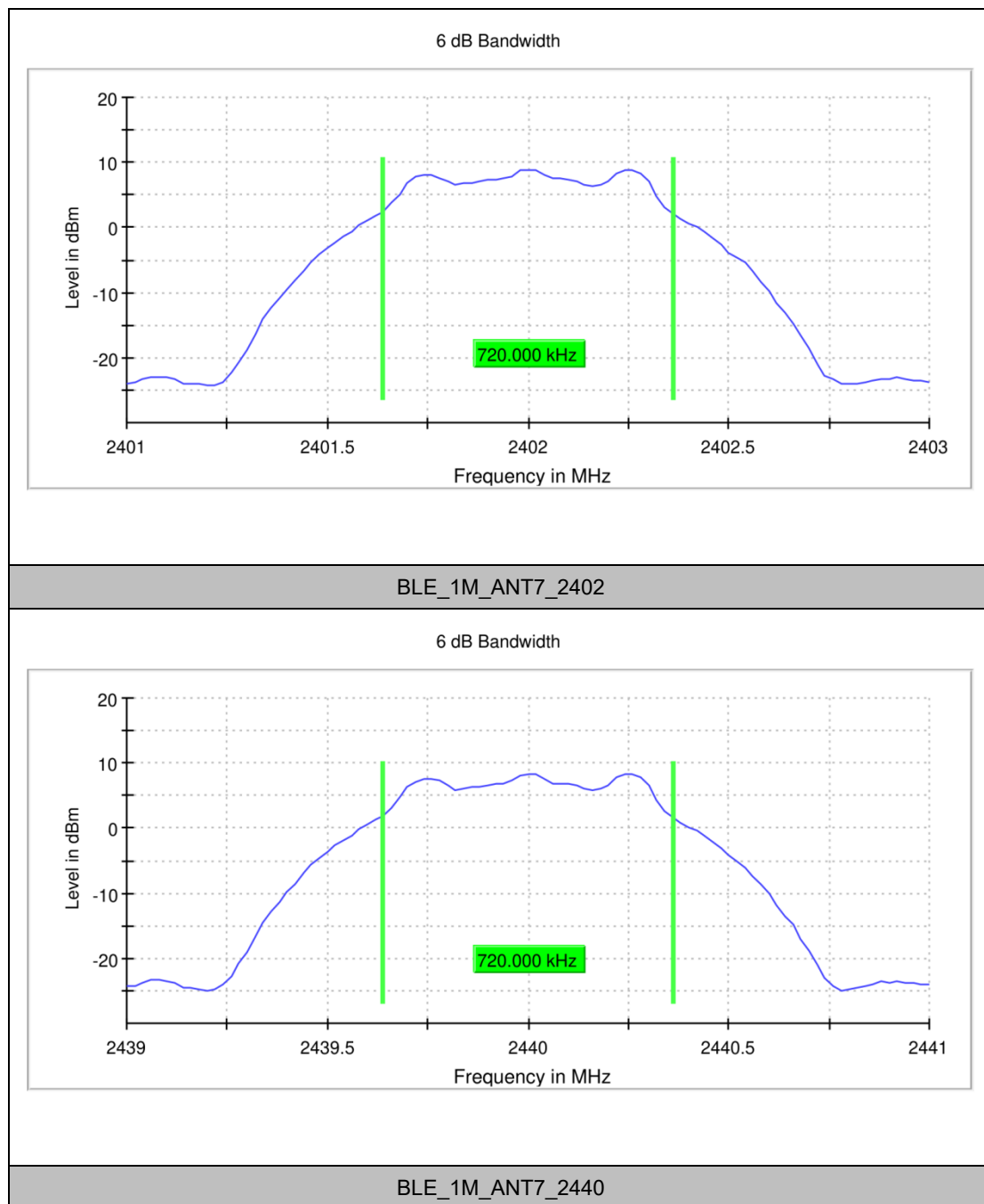




## 7 APPENDIX B:BLE DTS BANDWIDTH

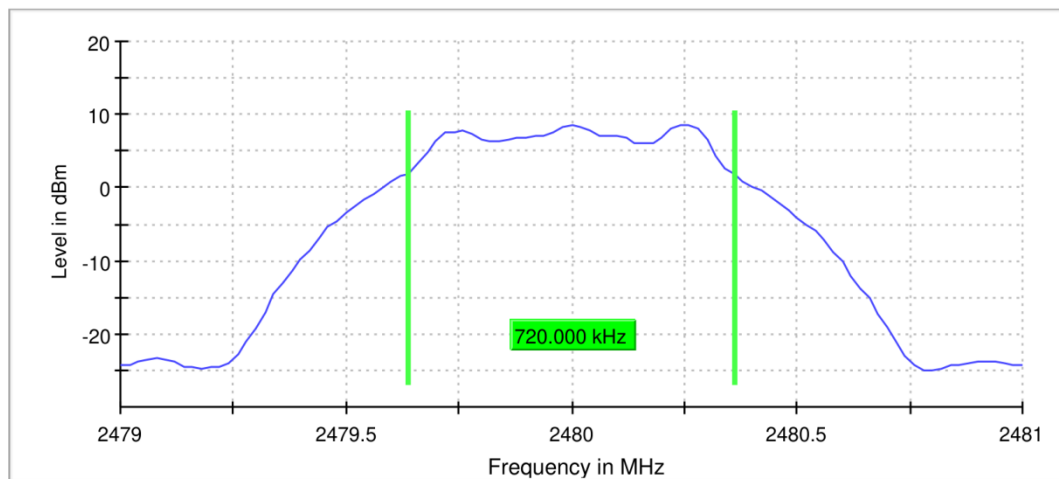
### TEST RESULT

| TestMode | Antenna | Channel | DTS BW<br>[MHz] | FL[MHz]  | FH[MHz]  | Limit[MHz] | Verdict |
|----------|---------|---------|-----------------|----------|----------|------------|---------|
| BLE_1M   | ANT7    | 2402    | 0.720           | 2401.640 | 2402.360 | 0.5        | PASS    |
|          |         | 2440    | 0.720           | 2439.640 | 2440.360 | 0.5        | PASS    |
|          |         | 2480    | 0.720           | 2479.640 | 2480.360 | 0.5        | PASS    |
| BLE_2M   | ANT7    | 2404    | 1.240           | 2403.400 | 2404.640 | 0.5        | PASS    |
|          |         | 2440    | 1.280           | 2439.360 | 2440.640 | 0.5        | PASS    |
|          |         | 2478    | 1.240           | 2477.400 | 2478.640 | 0.5        | PASS    |
| BLE-S2   | ANT7    | 2402    | 0.720           | 2401.640 | 2402.360 | 0.5        | PASS    |
|          |         | 2440    | 0.720           | 2439.640 | 2440.360 | 0.5        | PASS    |
|          |         | 2480    | 0.720           | 2479.640 | 2480.360 | 0.5        | PASS    |
| BLE_S8   | ANT7    | 2402    | 0.660           | 2401.660 | 2402.320 | 0.5        | PASS    |
|          |         | 2440    | 0.660           | 2439.660 | 2440.320 | 0.5        | PASS    |
|          |         | 2480    | 0.660           | 2479.660 | 2480.320 | 0.5        | PASS    |



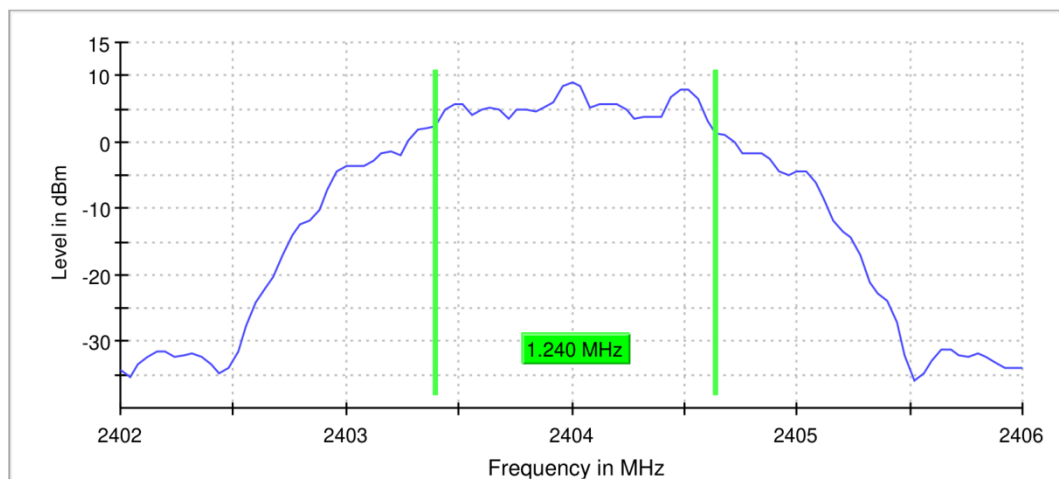


6 dB Bandwidth

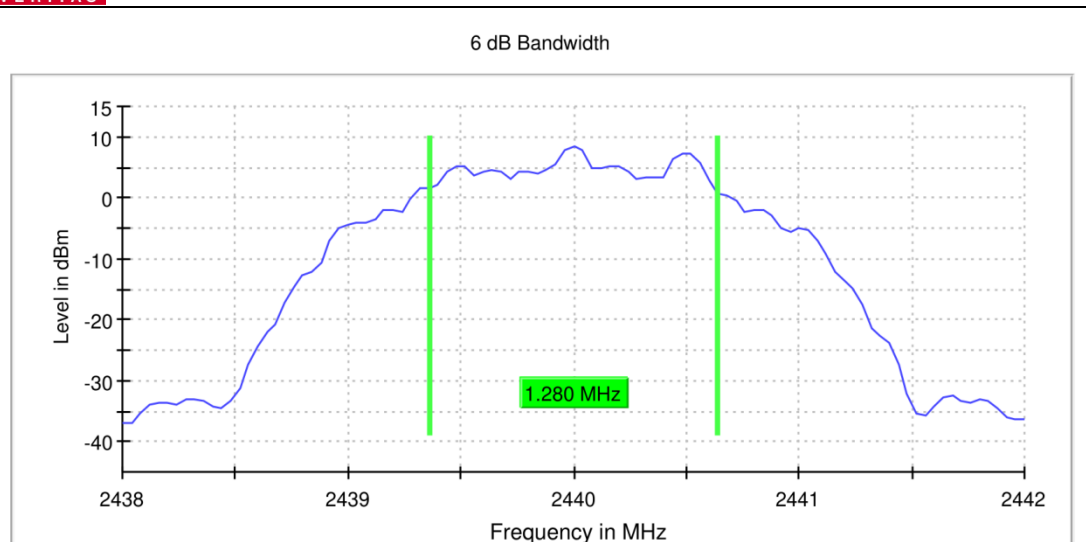


BLE\_1M\_ANT7\_2480

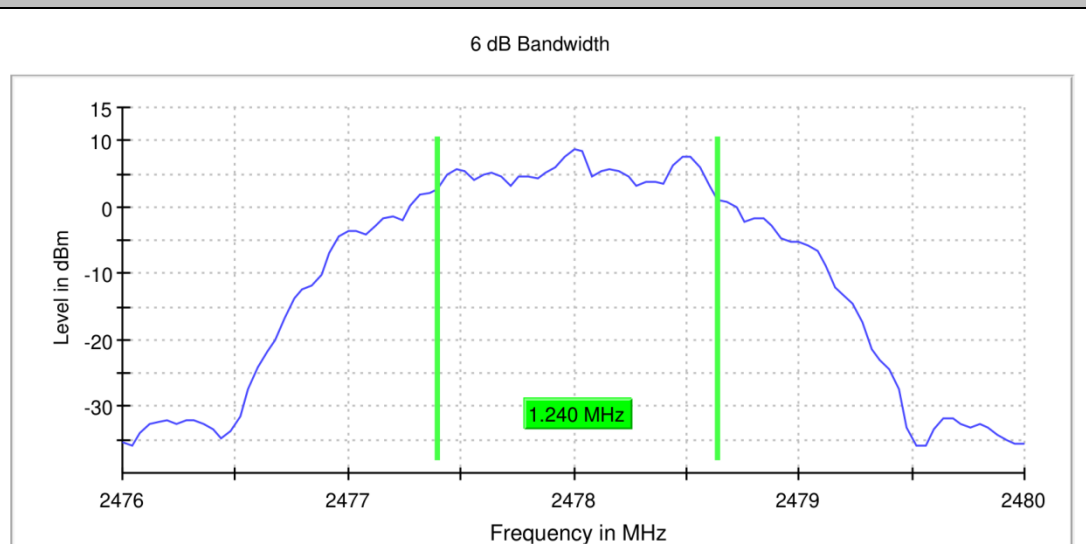
6 dB Bandwidth



BLE\_2M\_ANT7\_2404



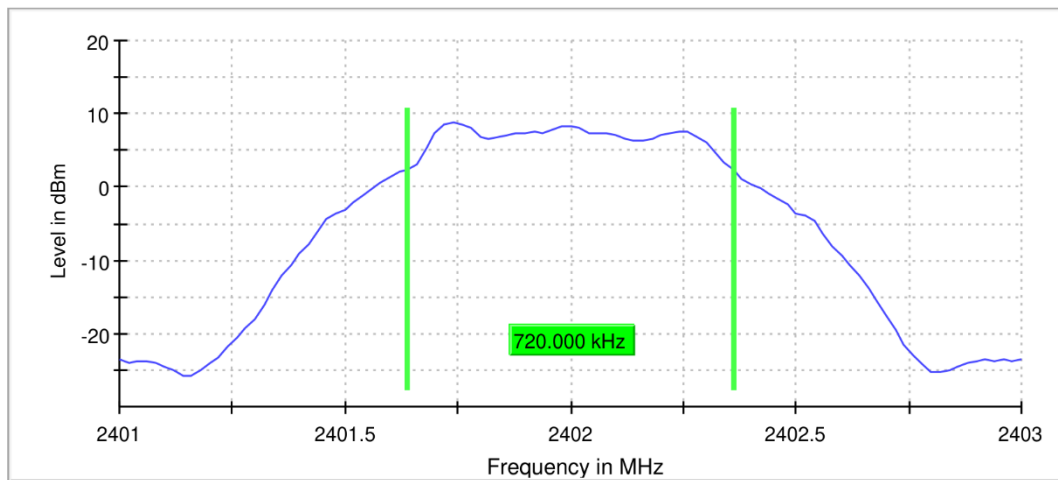
BLE\_2M\_ANT7\_2440



BLE\_2M\_ANT7\_2478

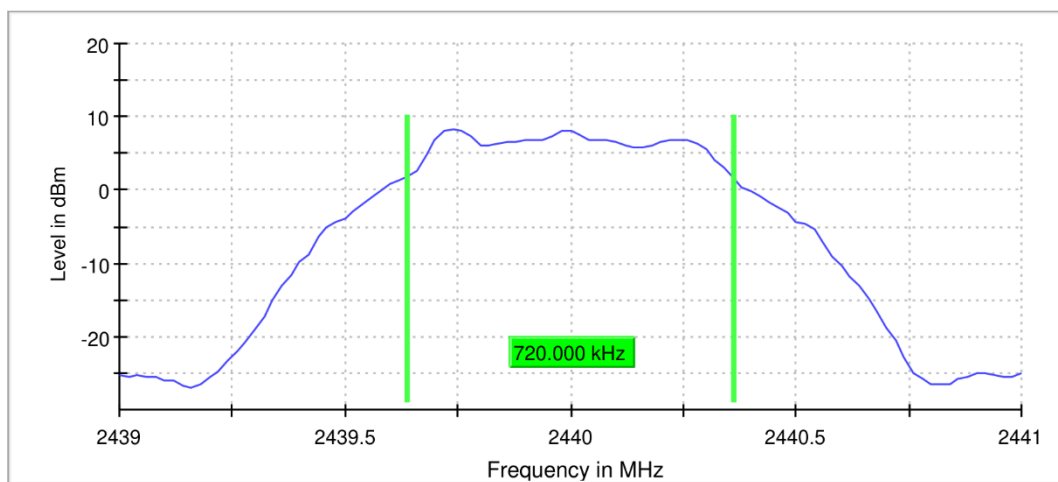


6 dB Bandwidth



BLE\_S2\_ANT7\_2402

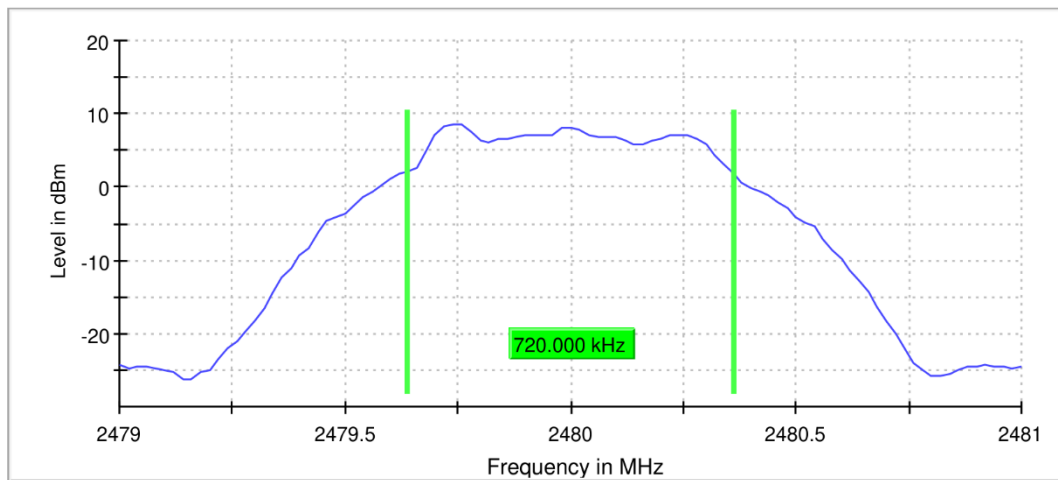
6 dB Bandwidth



BLE\_S2\_ANT7\_2440

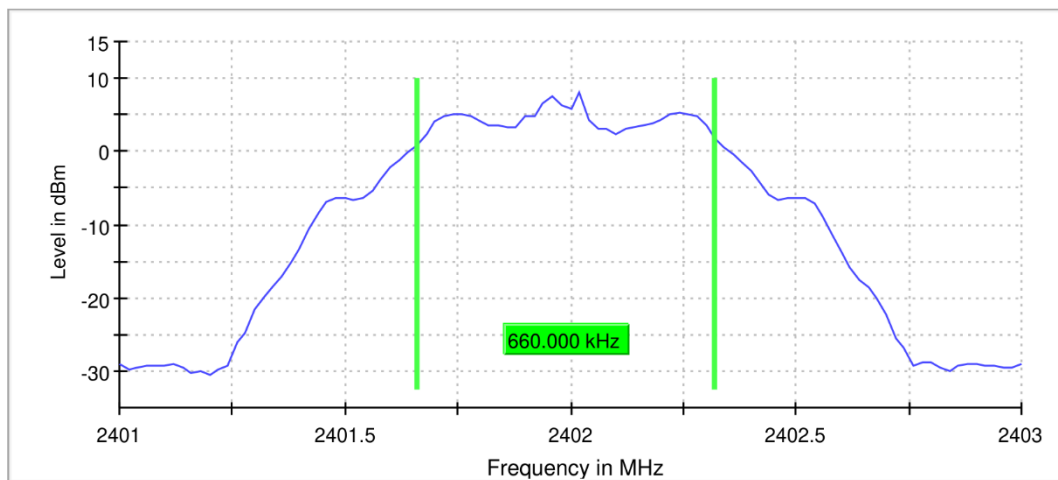


6 dB Bandwidth



BLE\_S2\_ANT7\_2480

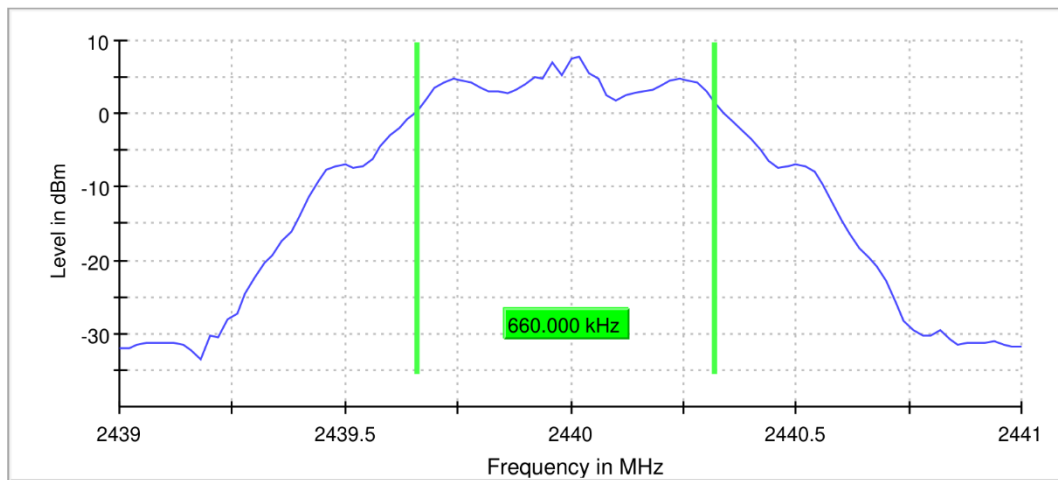
6 dB Bandwidth



BLE\_S8\_ANT7\_2402

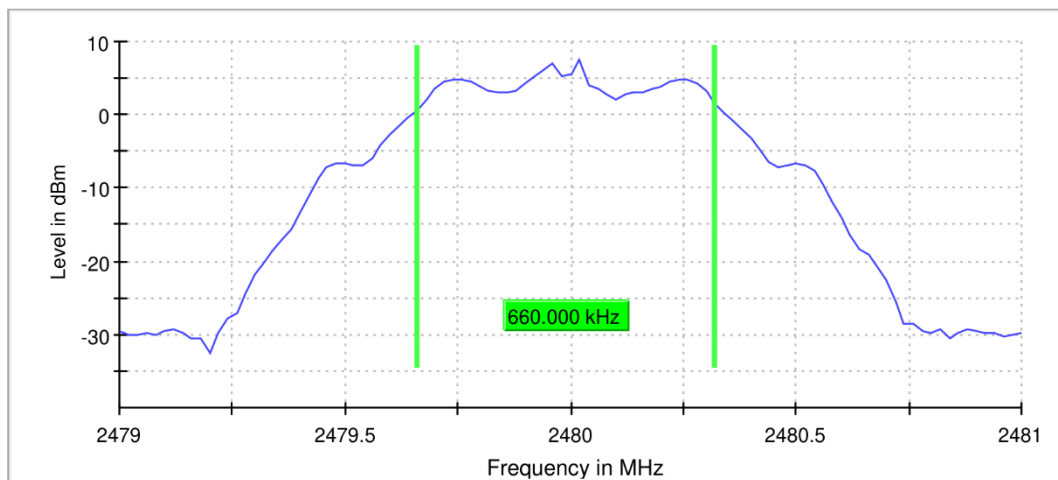


6 dB Bandwidth



BLE\_S8\_ANT7\_2440

6 dB Bandwidth



BLE\_S8\_ANT7\_2480

RBW 100.000 kHz

VBW 300.000 kHz

**OCCUPIED CHANNEL BANDWIDTH****TEST RESULT**

| TestMode | Antenna | Channel | OCB [MHz] | FL[MHz]  | FH[MHz]  | Limit[MHz] | Verdict |
|----------|---------|---------|-----------|----------|----------|------------|---------|
| BLE_1M   | ANT7    | 2402    | 1.023     | 2401.491 | 2402.514 | 2400-24835 | PASS    |
|          |         | 2440    | 1.033     | 2439.486 | 2440.519 | 2400-24835 | PASS    |
|          |         | 2480    | 1.018     | 2479.491 | 2480.509 | 2400-24835 | PASS    |
| BLE_2M   | ANT7    | 2404    | 2.025     | 2402.992 | 2405.018 | 2400-24835 | PASS    |
|          |         | 2440    | 2.025     | 2438.992 | 2441.018 | 2400-24835 | PASS    |
|          |         | 2478    | 2.025     | 2476.992 | 2479.018 | 2400-24835 | PASS    |
| BLE-S2   | ANT7    | 2402    | 1.033     | 2401.481 | 2402.514 | 2400-24835 | PASS    |
|          |         | 2440    | 1.023     | 2439.486 | 2440.509 | 2400-24835 | PASS    |
|          |         | 2480    | 1.033     | 2479.481 | 2480.514 | 2400-24835 | PASS    |
| BLE_S8   | ANT7    | 2402    | 1.053     | 2401.471 | 2402.524 | 2400-24835 | PASS    |
|          |         | 2440    | 1.053     | 2439.471 | 2440.524 | 2400-24835 | PASS    |
|          |         | 2480    | 1.053     | 2479.471 | 2480.524 | 2400-24835 | PASS    |

