



11N40SISO\_Ant1\_2452



11AX20SISO\_Ant1\_2412



11AX20SISO\_Ant1\_2437



11AX20SISO\_Ant1\_2462



11AX40SISO\_Ant1\_2422



11AX40SISO\_Ant1\_2437

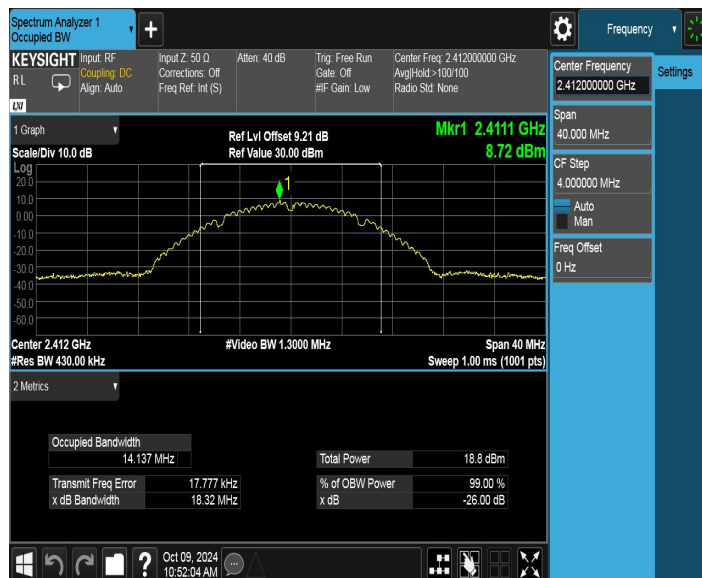


11AX40SISO\_Ant1\_2452



## Test Graphs of Occupied Channel Bandwidth

11B\_Ant1\_2412



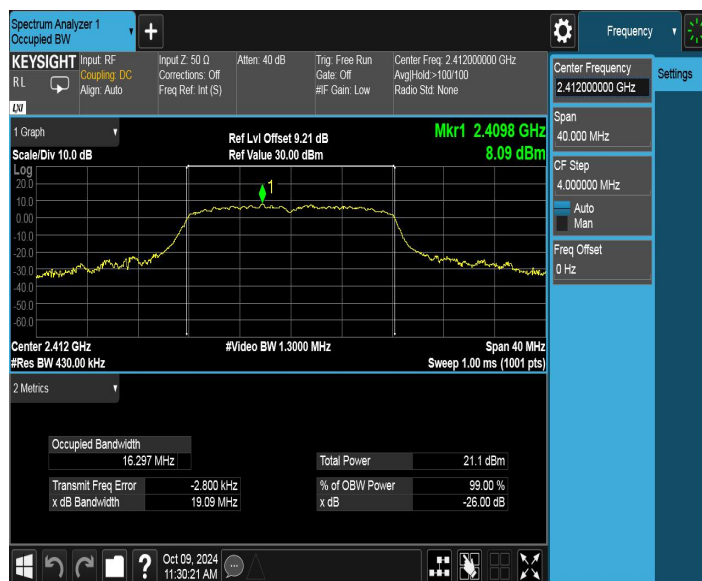
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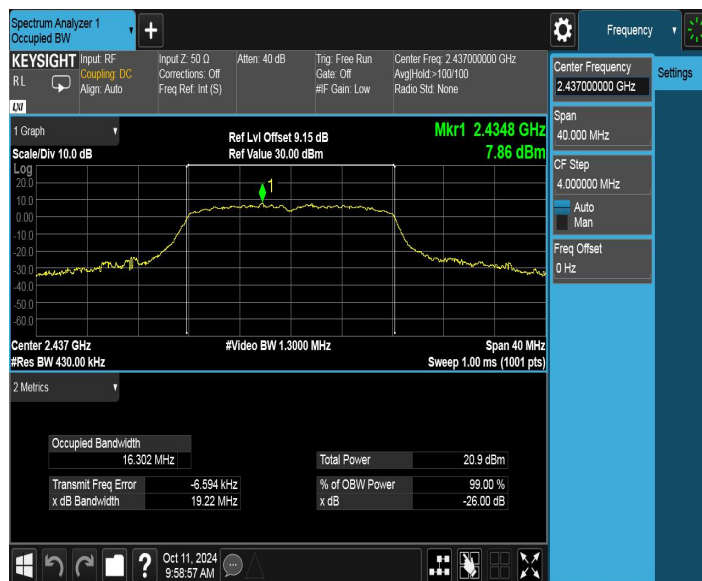
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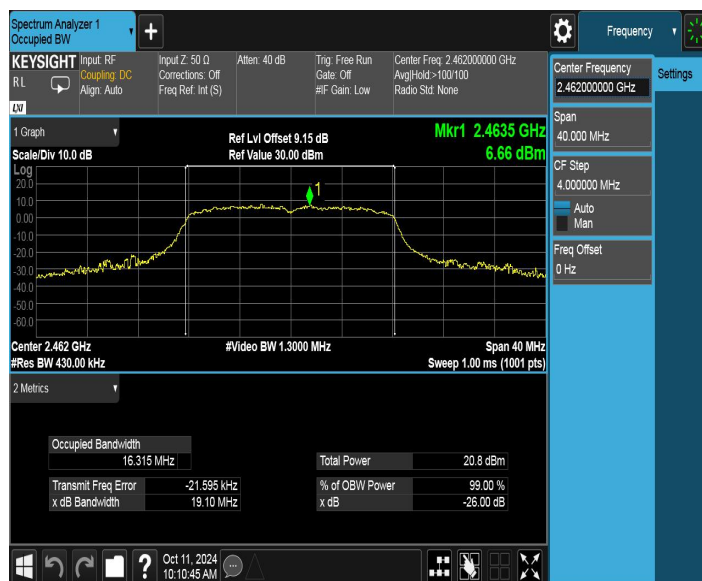
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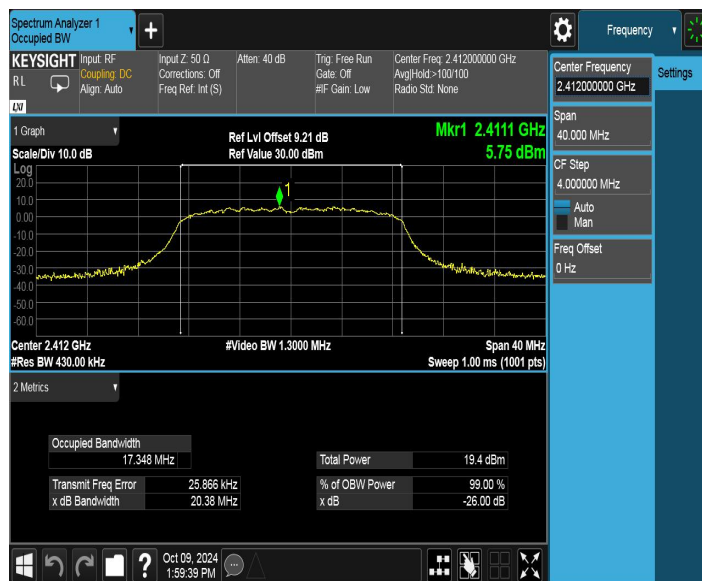
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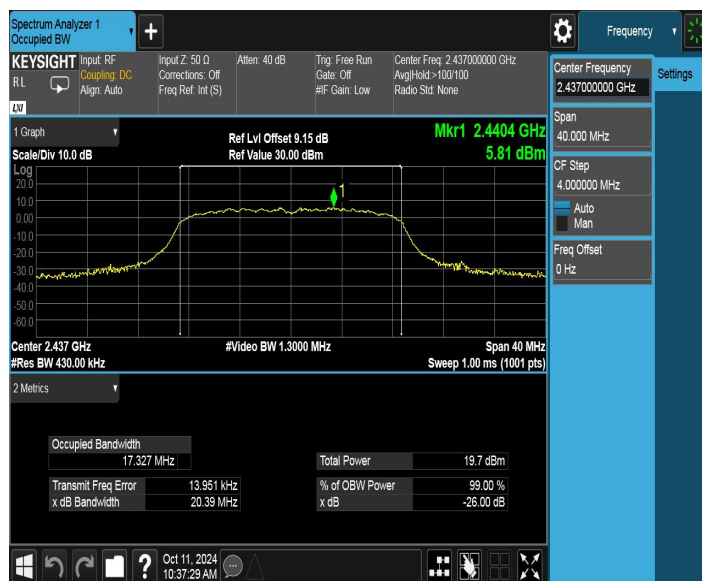
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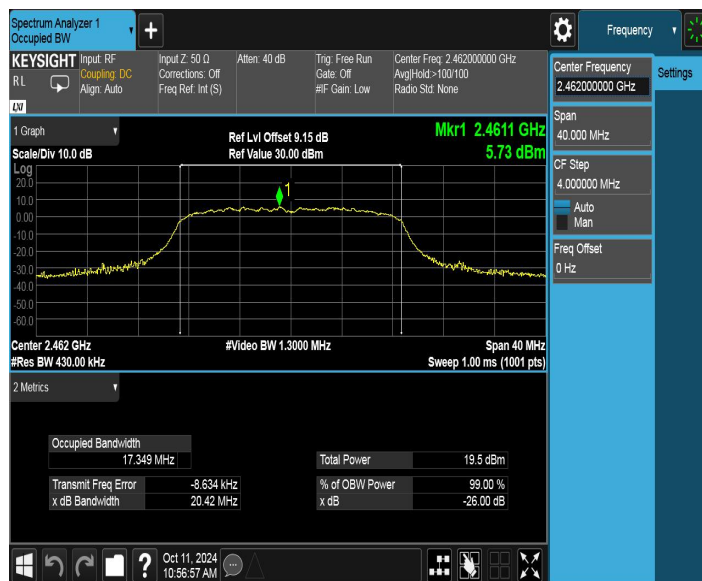
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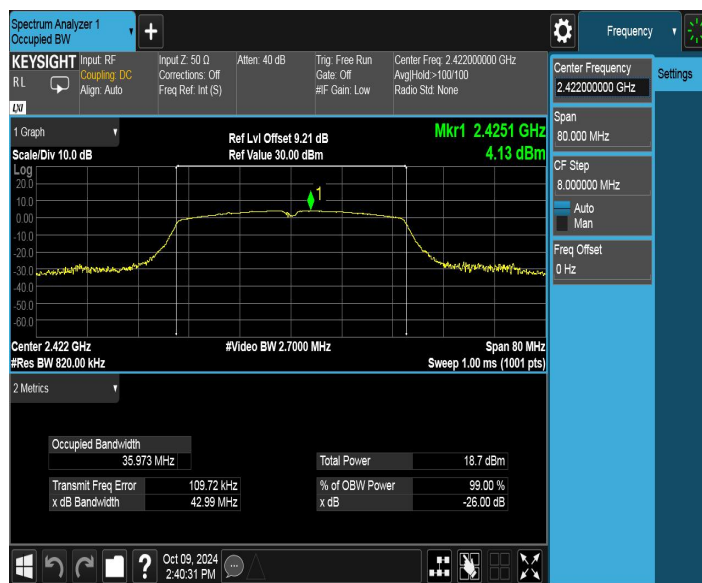
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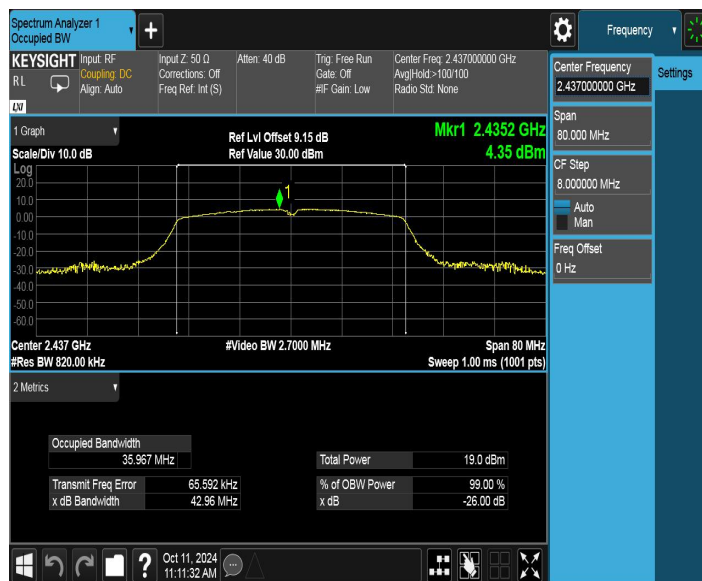
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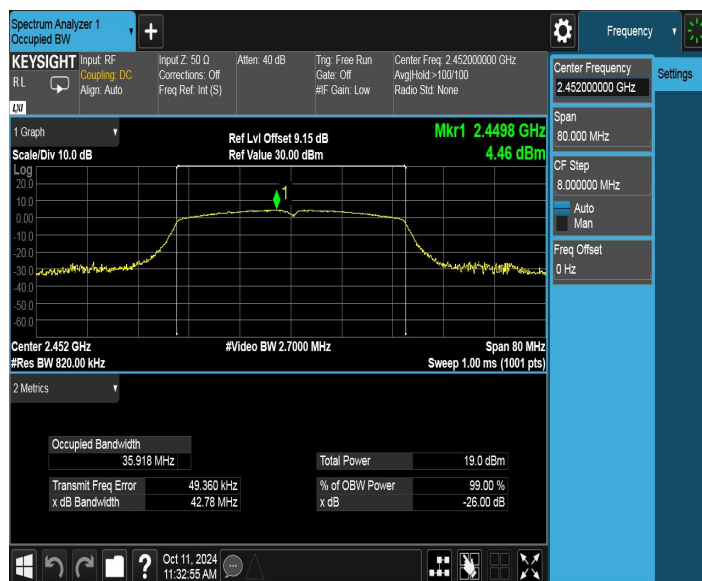
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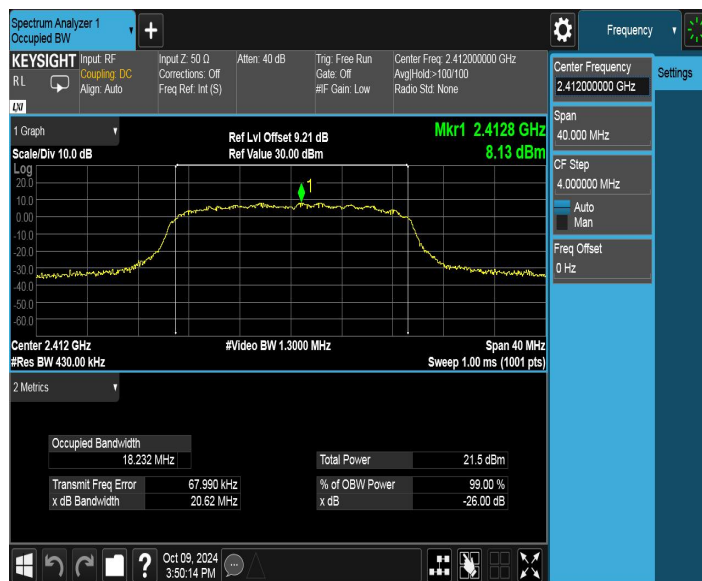
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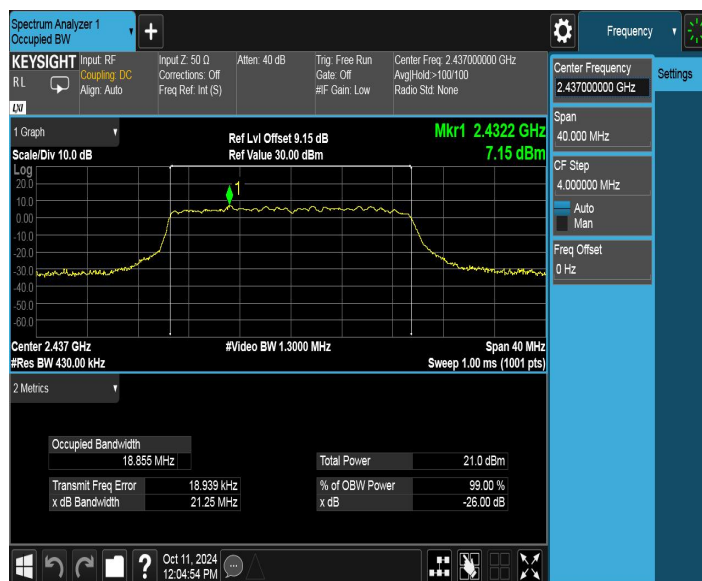
11N40SISO\_Ant1\_2452



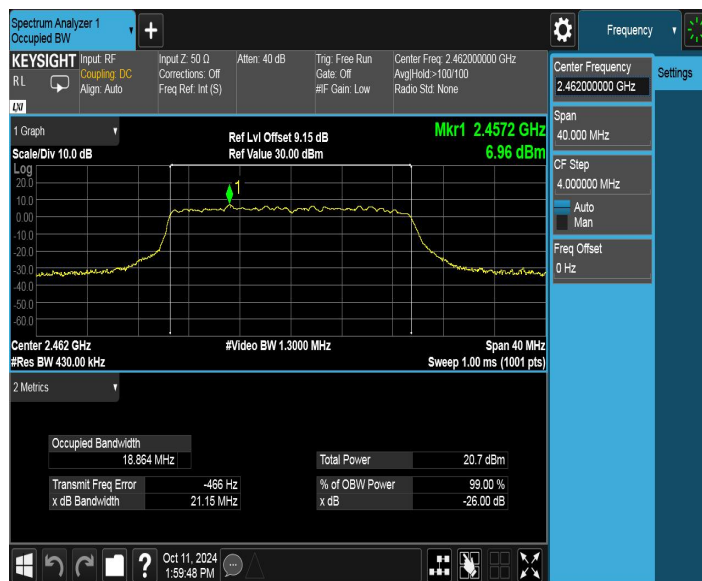
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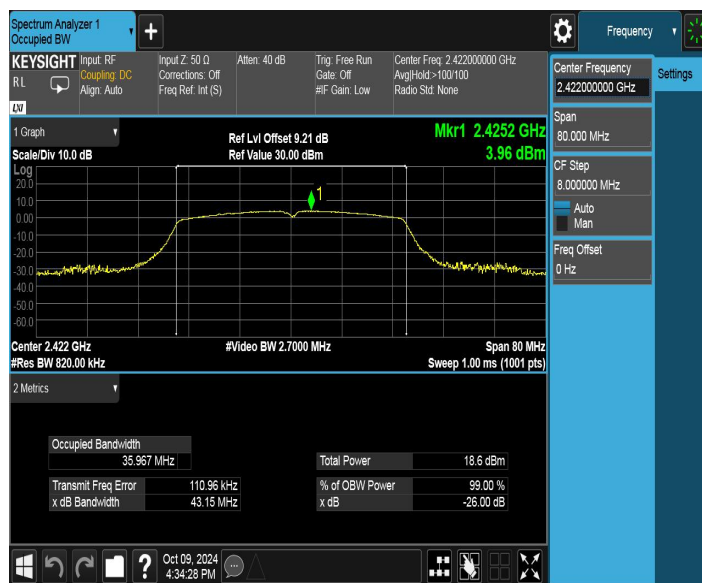
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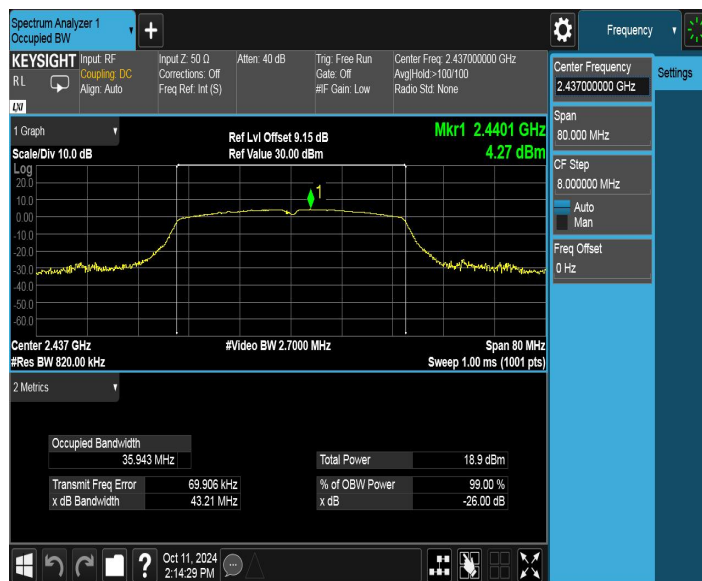
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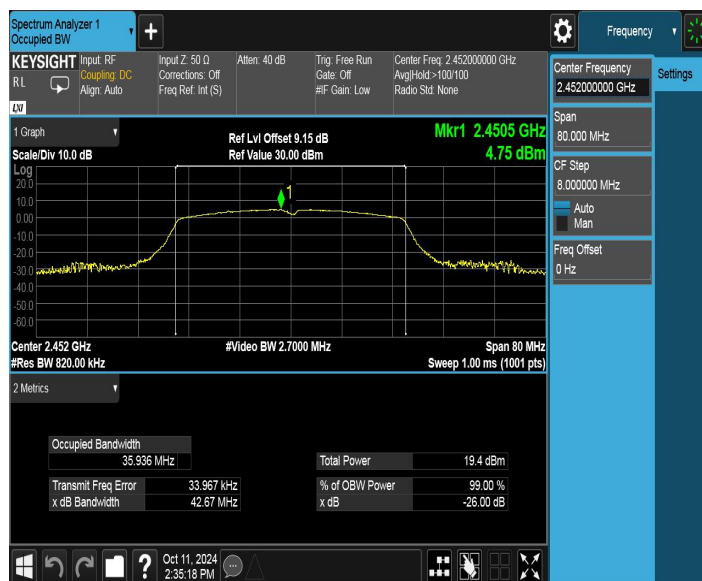
11AX40SISO\_Ant1\_2422



11AX40SISO\_Ant1\_2437



11AX40SISO\_Ant1\_2452



### 7.3. Output Power Measurement

#### 7.3.1. Test Limit

The maximum conducted output power is 1 Watt. And for antenna gain greater than 6dBi the limit shall reduce by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

#### 7.3.2. Test Procedure Used

ANSI C63.10-2013 – Section 11.9.2.2.4

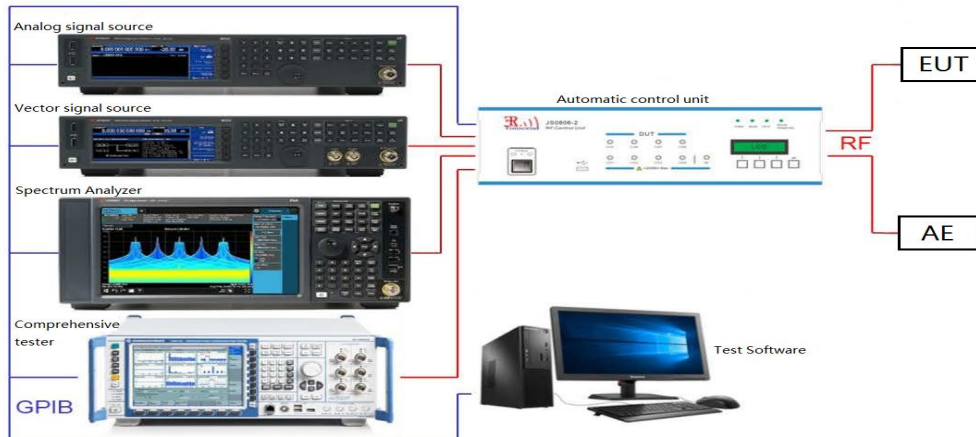
KDB 558074 D01 v05r02 – Section 8.3.2.2

#### 7.3.3. Test Setting

1. Set span to at least 1.5 times the OBW..
2. Set RBW = 1% to 5% of the OBW, not to exceed 1 MHz.
3. Set VBW  $\geq [3 \times \text{RBW}]$ .
4. Number of points in sweep  $\geq [2 \times \text{span} / \text{RBW}]$ . (This gives bin-to-bin spacing  $\text{RBW} / 2$ , so that narrowband signals are not lost between frequency bins.)
5. Sweep time = auto.
6. Detector = RMS (i.e., power averaging), if available. Otherwise, use sample detector mode.
7. Do not use sweep triggering. Allow the sweep to “free run.”
8. Trace average at least 100 traces in power averaging (rms) mode; however, the number of traces to be averaged shall be increased above 100 as needed such that the average accurately represents the true average over the ON and OFF periods of the transmitter.
9. Compute power by integrating the spectrum across the OBW of the signal using the instrument's band power measurement function with band limits set equal to the OBW band edges. If the instrument does not have a band power function, then sum the spectrum levels (in power units) at intervals equal to the RBW extending across the entire OBW of the spectrum. 10. Add  $[10 \log (1 / D)]$ , where D is the duty cycle, to the measured power to compute the average power during the actual transmission times (because the measurement represents an average over both

the ON and OFF times of the transmission). For example, add  $[10 \log (1/0.25)] = 6 \text{ dB}$  if the duty cycle is 25%.

#### 7.3.4. Test Setup



### 7.3.5. Test Result

Power output test was verified over all data rates of each mode shown as below, and then choose the maximum power output (yellow marker) for final test of each channel.

| N <sub>TX</sub> | Data Rate (Mbps) |         |
|-----------------|------------------|---------|
|                 | 802.11b          | 802.11g |
| 1               | 1                | 6       |
| 1               | 2                | 9       |
| 1               | 5.5              | 12      |
| 1               | 11               | 18      |
| 1               | --               | 24      |
| 1               | --               | 36      |
| 1               | --               | 48      |
| 1               | --               | 54      |

| N <sub>TX</sub> | MCS Index for 802.11n | Data Rate (Mbps) |          |                 |          |
|-----------------|-----------------------|------------------|----------|-----------------|----------|
|                 |                       | 20MHz Bandwidth  |          | 40MHz Bandwidth |          |
|                 |                       | 800ns GI         | 400ns GI | 800ns GI        | 400ns GI |
| 1               | 0                     | 6.5              | 7.2      | 13.5            | 15.0     |
| 1               | 1                     | 13.0             | 14.4     | 27.0            | 30.0     |
| 1               | 2                     | 19.5             | 21.7     | 40.5            | 45.0     |
| 1               | 3                     | 26.0             | 28.9     | 54.0            | 60.0     |
| 1               | 4                     | 39.0             | 43.3     | 81.0            | 90.0     |
| 1               | 5                     | 52.0             | 57.8     | 108.0           | 120.0    |
| 1               | 6                     | 58.5             | 65.0     | 121.5           | 135.0    |
| 1               | 7                     | 65.0             | 72.2     | 135.0           | 150.0    |

| N <sub>TX</sub> | MCS Index for 802.11ax | Data Rate (Mbps) |           |           |                 |           |           |
|-----------------|------------------------|------------------|-----------|-----------|-----------------|-----------|-----------|
|                 |                        | 20MHz Bandwidth  |           |           | 40MHz Bandwidth |           |           |
|                 |                        | 800ns GI         | 1600ns GI | 3200ns GI | 800ns GI        | 1600ns GI | 3200ns GI |
| 1               | 0                      | 8.603            | 8.125     | 7.313     | 17.206          | 16.250    | 14.625    |
| 1               | 1                      | 17.206           | 16.250    | 14.625    | 34.412          | 32.500    | 29.250    |
| 1               | 2                      | 25.809           | 24.375    | 21.938    | 51.618          | 48.750    | 43.875    |
| 1               | 3                      | 34.412           | 32.500    | 29.250    | 68.824          | 65.000    | 58.500    |
| 1               | 4                      | 51.618           | 48.750    | 43.875    | 103.235         | 97.500    | 87.750    |
| 1               | 5                      | 68.824           | 65.000    | 58.500    | 137.647         | 130.000   | 117.000   |

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|   |   |        |        |        |         |         |         |
|---|---|--------|--------|--------|---------|---------|---------|
| 1 | 6 | 77.426 | 73.125 | 65.813 | 154.853 | 146.250 | 131.625 |
| 1 | 7 | 86.029 | 81.250 | 73.125 | 172.059 | 162.500 | 146.250 |

Note: Power output test was verified over all data rates of each mode shown as above, and then choose the maximum power output (yellow marker) for final test of each channel.

### Test Result of Maximum conducted output power

| Test Mode  | Antenna | Frequency[MHz] | Average power [dBm] | Result [dBm] | Limit [dBm] | Verdict |
|------------|---------|----------------|---------------------|--------------|-------------|---------|
| 11B        | Ant1    | 2412           | 15.58               | 15.63        | ≤30.00      | PASS    |
|            |         | 2437           | 16.29               | 16.34        | ≤30.00      | PASS    |
|            |         | 2462           | 15.60               | 15.65        | ≤30.00      | PASS    |
| 11G        | Ant1    | 2412           | 14.23               | 14.29        | ≤30.00      | PASS    |
|            |         | 2437           | 13.99               | 14.05        | ≤30.00      | PASS    |
|            |         | 2462           | 14.16               | 14.22        | ≤30.00      | PASS    |
| 11N20SISO  | Ant1    | 2412           | 12.44               | 12.51        | ≤30.00      | PASS    |
|            |         | 2437           | 12.63               | 12.70        | ≤30.00      | PASS    |
|            |         | 2462           | 12.48               | 12.55        | ≤30.00      | PASS    |
| 11N40SISO  | Ant1    | 2422           | 11.37               | 11.37        | ≤30.00      | PASS    |
|            |         | 2437           | 11.60               | 11.67        | ≤30.00      | PASS    |
|            |         | 2452           | 11.65               | 11.72        | ≤30.00      | PASS    |
| 11AX20SISO | Ant1    | 2422           | 12.51               | 12.71        | ≤30.00      | PASS    |
|            |         | 2437           | 13.15               | 13.30        | ≤30.00      | PASS    |
|            |         | 2452           | 12.70               | 13.01        | ≤30.00      | PASS    |
| 11AX40SISO | Ant1    | 2422           | 11.26               | 11.39        | ≤30.00      | PASS    |
|            |         | 2437           | 11.47               | 11.54        | ≤30.00      | PASS    |
|            |         | 2452           | 12.00               | 12.13        | ≤30.00      | PASS    |

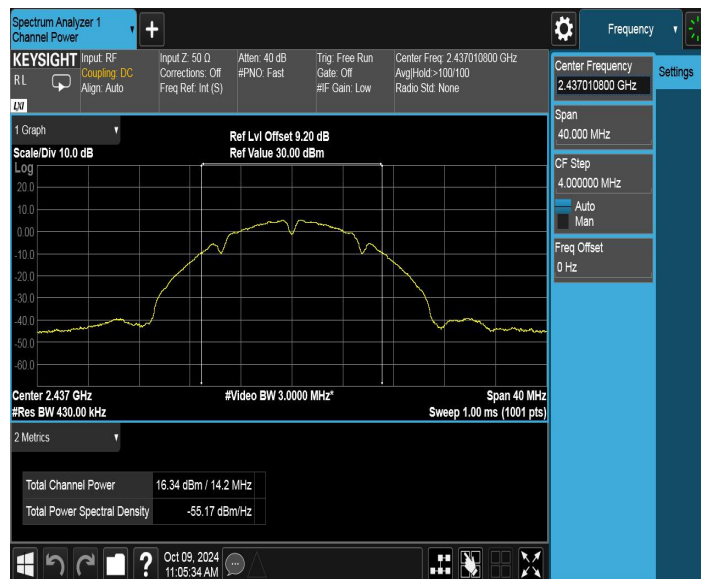
The Duty Cycle Factor is compensated in the Offset of graph.

## Test Graphs

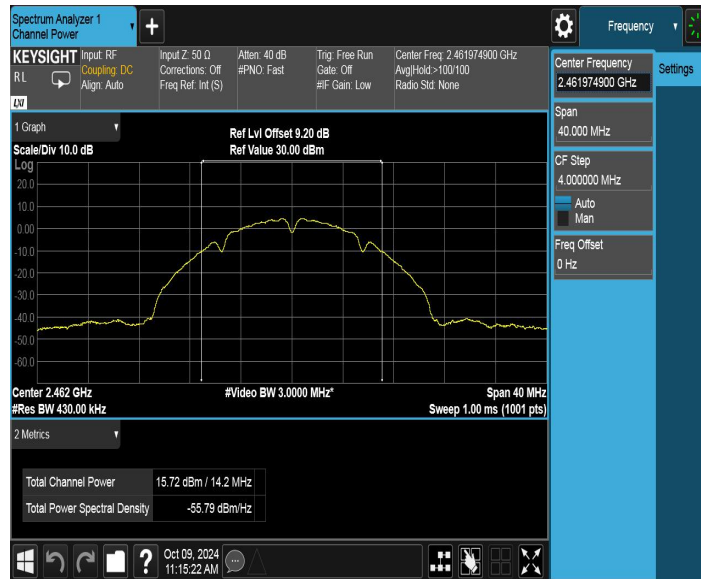
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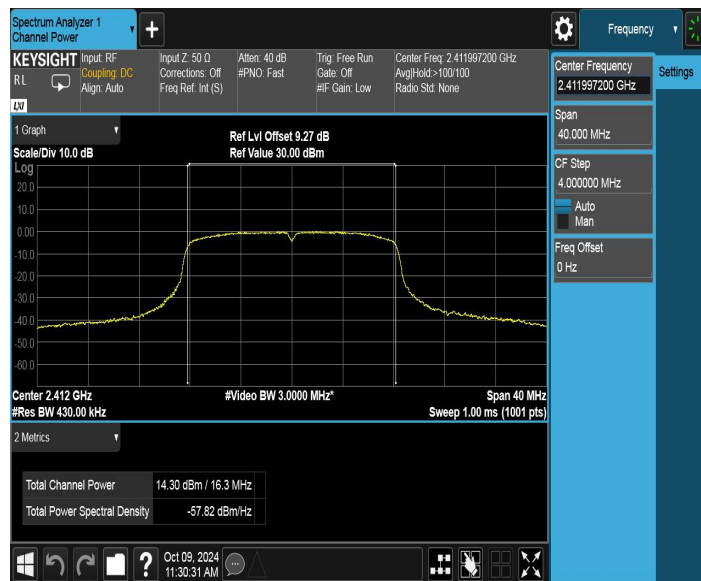
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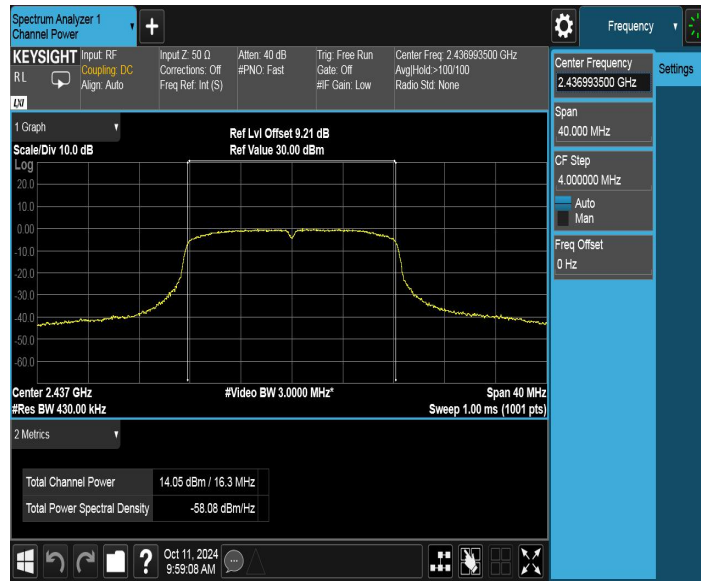
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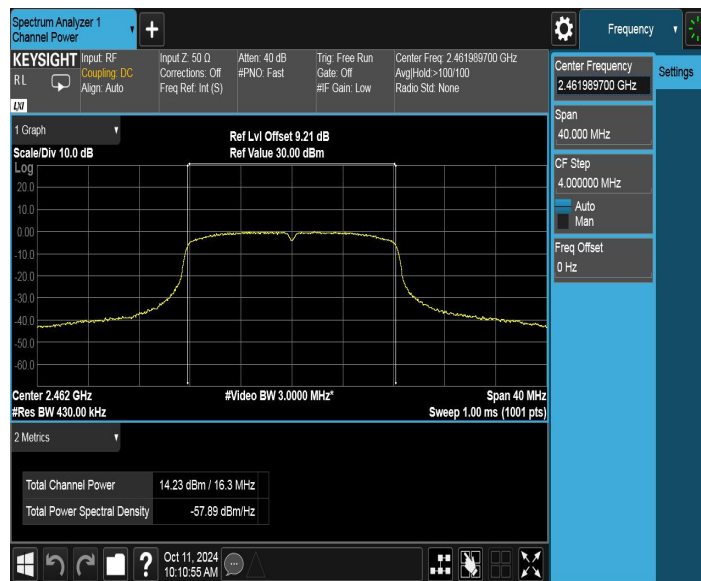
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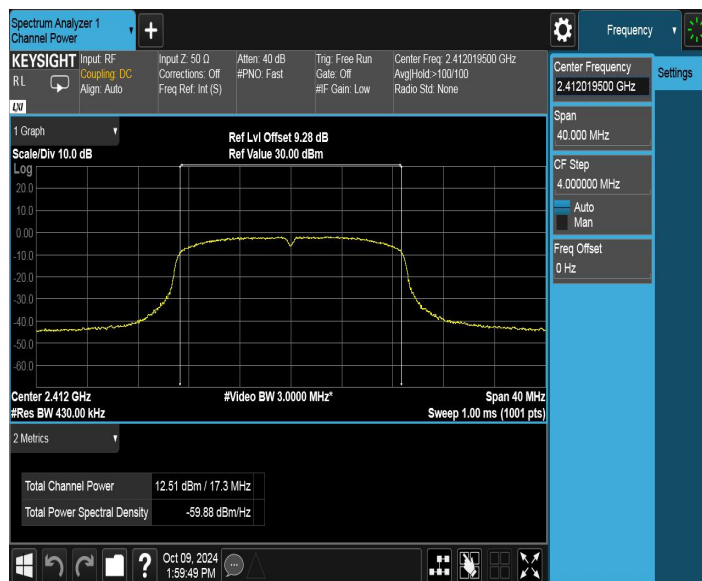
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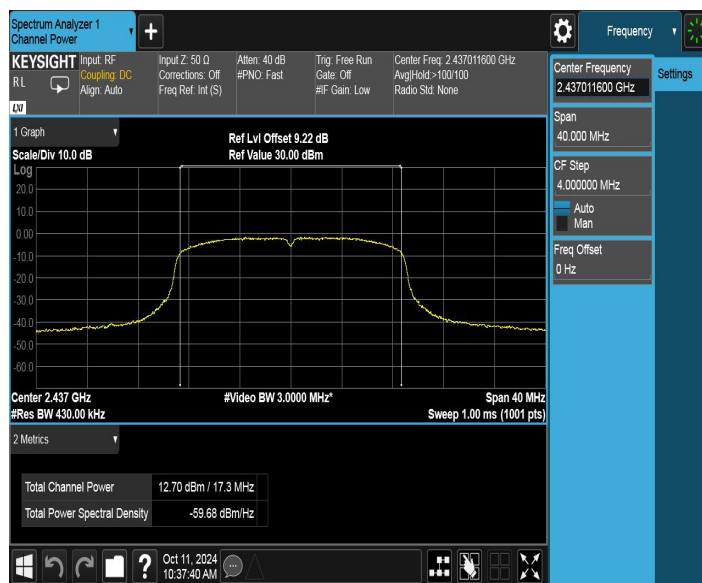
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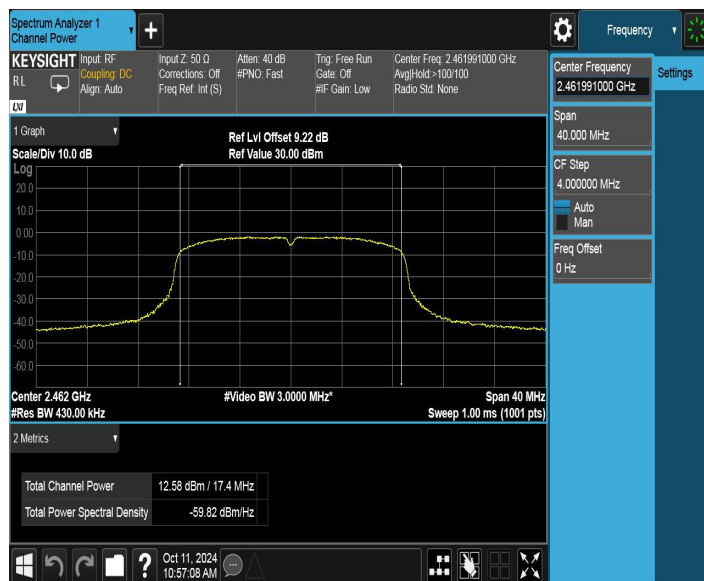
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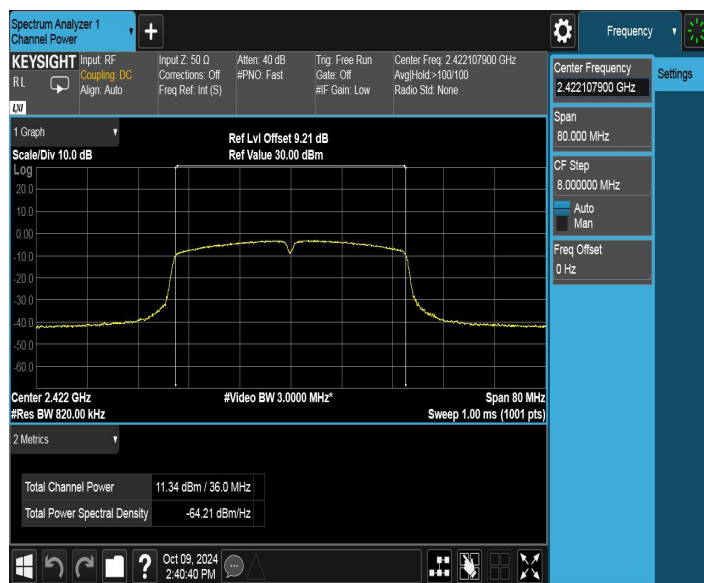
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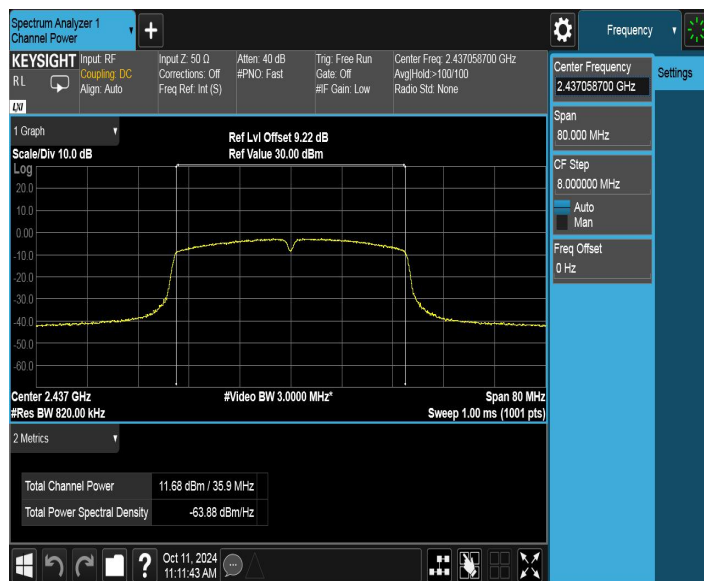
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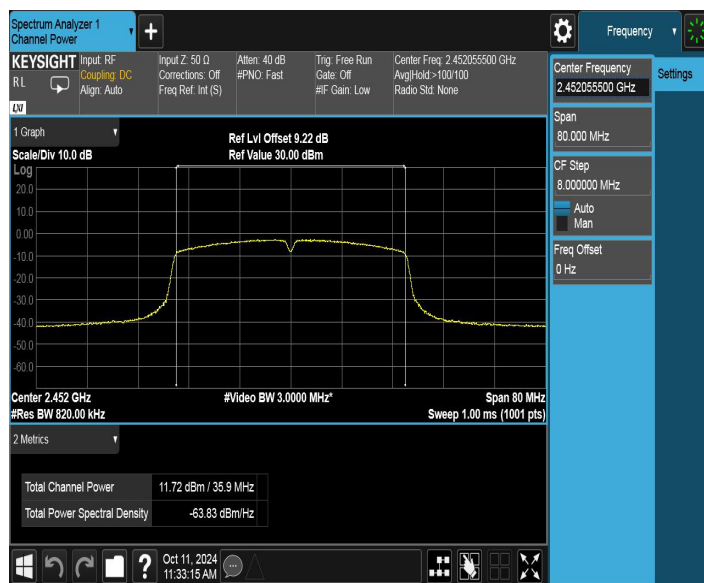
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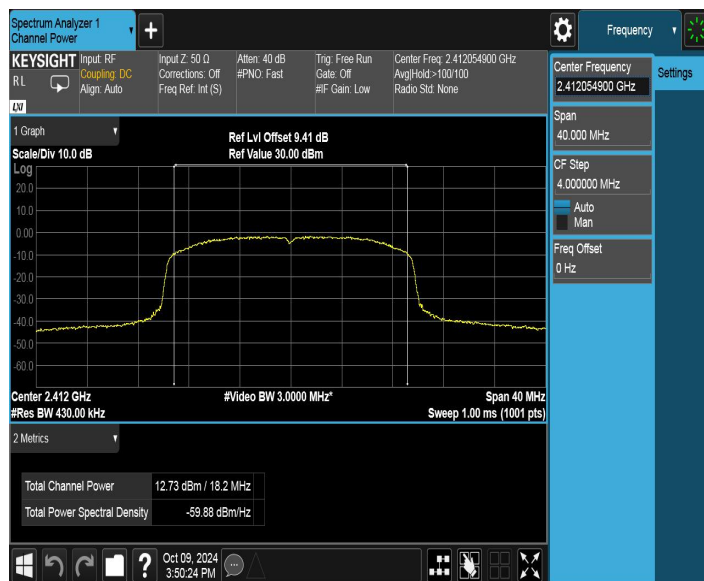
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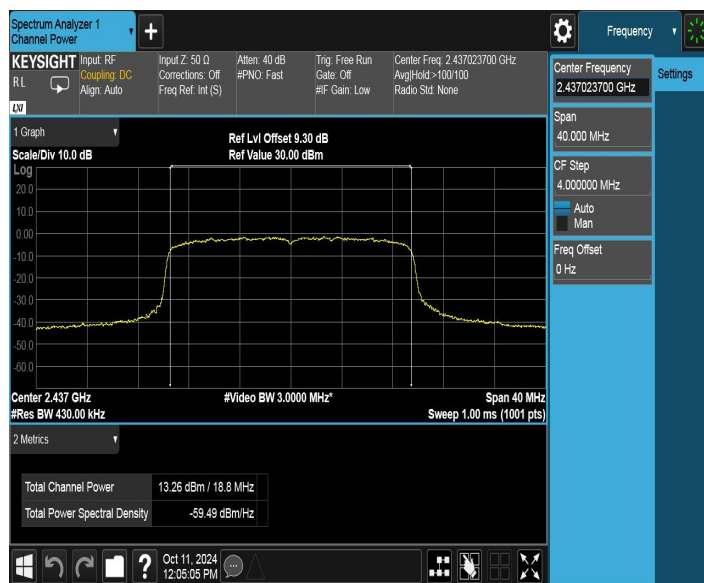
11N40SISO\_Ant1\_2452



11AX20SISO\_Ant1\_2412



11AX20SISO\_Ant1\_2437



11AX20SISO\_Ant1\_2462