

### 3.4 6dB Bandwidth

#### 3.4.1 Limit

For direct sequence systems, the minimum 6dB bandwidth shall be at least 500kHz

#### 3.4.2 Test Procedure

| Test Method                         |                              |
|-------------------------------------|------------------------------|
| ●Conducted Measurement              | ○Radiated Measurement        |
| Test Channels                       |                              |
| ●Lowest, Middle and Highest Channel | ○ Lowest and Highest Channel |
| Environmental conditions            |                              |
| ●Normal                             | ○Normal and Extreme          |
| Note: ●:Test    ○:No Test           |                              |

a) The EUT was connected to the tonscend test system, and the spectrum analyser is set as follow:

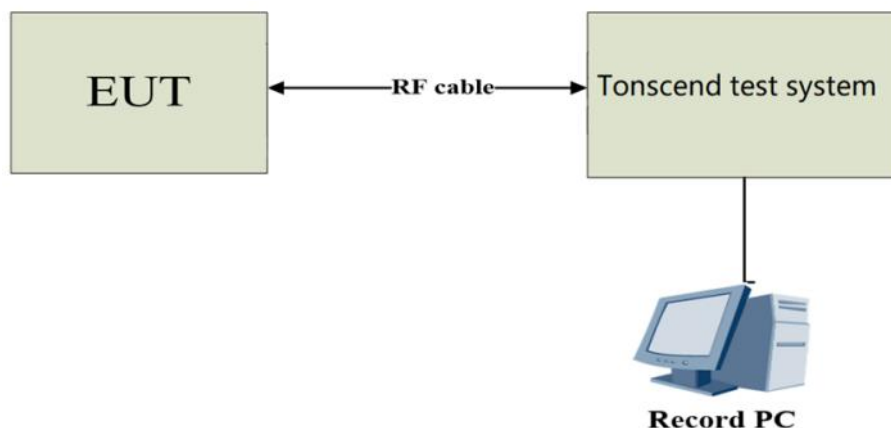
|                  |  |
|------------------|--|
| Centre Frequency | The centre frequency of the channel under test |
| RBW              | 100kHz   |
| VBW              | 300kHz   |
| Frequency span   | 2x Nominal Channel Bandwidth                   |
| Detector Mode    | Peak   |
| Trace Mode       | Max Hold                                       |
| Sweep Time       | Auto Couple                                    |

b) Wait for the trace to stabilize then find the peak value of the trace and place the analyser marker on this peak.

c) Use the -6dB bandwidth function of the spectrum analyser to measure the 6dB Bandwidth of the EUT. This value shall be recorded.

d) Make sure that the power envelope is sufficiently above the noise floor of the analyser to avoid the noise signals left and right from the power envelope being taken into account by this measurement.

#### 3.4.3 Test Setup



### 3.4.4 Test Result

#### DTS Bandwidth

| Test Mode  | Antenna | Frequency[MHz] | DTS BW [MHz] | FL[MHz]  | FH[MHz]  | Limit[MHz] | Verdict |
|------------|---------|----------------|--------------|----------|----------|------------|---------|
| 11B-CDD    | Ant1    | 2412           | 6.280        | 2409.200 | 2415.480 | 0.5        | PASS    |
|            | Ant2    | 2412           | 5.680        | 2409.320 | 2415.000 | 0.5        | PASS    |
|            | Ant1    | 2437           | 6.560        | 2433.440 | 2440.000 | 0.5        | PASS    |
|            | Ant2    | 2437           | 7.040        | 2433.440 | 2440.480 | 0.5        | PASS    |
|            | Ant1    | 2462           | 6.560        | 2458.440 | 2465.000 | 0.5        | PASS    |
|            | Ant2    | 2462           | 7.560        | 2457.960 | 2465.520 | 0.5        | PASS    |
| 11G-CDD    | Ant1    | 2412           | 16.280       | 2403.840 | 2420.120 | 0.5        | PASS    |
|            | Ant2    | 2412           | 16.280       | 2403.840 | 2420.120 | 0.5        | PASS    |
|            | Ant1    | 2437           | 16.040       | 2428.840 | 2444.880 | 0.5        | PASS    |
|            | Ant2    | 2437           | 16.280       | 2428.840 | 2445.120 | 0.5        | PASS    |
|            | Ant1    | 2462           | 16.280       | 2453.840 | 2470.120 | 0.5        | PASS    |
|            | Ant2    | 2462           | 16.280       | 2453.840 | 2470.120 | 0.5        | PASS    |
| 11N20MIMO  | Ant1    | 2412           | 17.520       | 2403.240 | 2420.760 | 0.5        | PASS    |
|            | Ant2    | 2412           | 17.560       | 2403.200 | 2420.760 | 0.5        | PASS    |
|            | Ant1    | 2437           | 17.560       | 2428.200 | 2445.760 | 0.5        | PASS    |
|            | Ant2    | 2437           | 17.320       | 2428.440 | 2445.760 | 0.5        | PASS    |
|            | Ant1    | 2462           | 17.560       | 2453.200 | 2470.760 | 0.5        | PASS    |
|            | Ant2    | 2462           | 17.560       | 2453.200 | 2470.760 | 0.5        | PASS    |
| 11N40MIMO  | Ant1    | 2422           | 36.000       | 2403.840 | 2439.840 | 0.5        | PASS    |
|            | Ant2    | 2422           | 35.920       | 2403.840 | 2439.760 | 0.5        | PASS    |
|            | Ant1    | 2437           | 36.000       | 2418.840 | 2454.840 | 0.5        | PASS    |
|            | Ant2    | 2437           | 36.320       | 2418.840 | 2455.160 | 0.5        | PASS    |
|            | Ant1    | 2452           | 35.920       | 2433.840 | 2469.760 | 0.5        | PASS    |
|            | Ant2    | 2452           | 36.000       | 2433.840 | 2469.840 | 0.5        | PASS    |
| 11AX20MIMO | Ant1    | 2412           | 18.840       | 2402.560 | 2421.400 | 0.5        | PASS    |
|            | Ant2    | 2412           | 18.880       | 2402.520 | 2421.400 | 0.5        | PASS    |
|            | Ant1    | 2437           | 18.560       | 2427.600 | 2446.160 | 0.5        | PASS    |
|            | Ant2    | 2437           | 18.680       | 2427.640 | 2446.320 | 0.5        | PASS    |
|            | Ant1    | 2462           | 18.480       | 2452.880 | 2471.360 | 0.5        | PASS    |
|            | Ant2    | 2462           | 18.720       | 2452.640 | 2471.360 | 0.5        | PASS    |
| 11AX40MIMO | Ant1    | 2422           | 37.280       | 2403.200 | 2440.480 | 0.5        | PASS    |
|            | Ant2    | 2422           | 37.200       | 2403.200 | 2440.400 | 0.5        | PASS    |
|            | Ant1    | 2437           | 37.280       | 2418.200 | 2455.480 | 0.5        | PASS    |
|            | Ant2    | 2437           | 37.200       | 2418.200 | 2455.400 | 0.5        | PASS    |
|            | Ant1    | 2452           | 37.280       | 2433.120 | 2470.400 | 0.5        | PASS    |
|            | Ant2    | 2452           | 35.120       | 2434.400 | 2469.520 | 0.5        | PASS    |

11B-CDD\_Ant1\_2412



11B-CDD\_Ant2\_2412



11B-CDD\_Ant1\_2437



11B-CDD\_Ant2\_2437



11B-CDD\_Ant1\_2462



11B-CDD\_Ant2\_2462





11G-CDD\_Ant1\_2412



11G-CDD\_Ant2\_2412



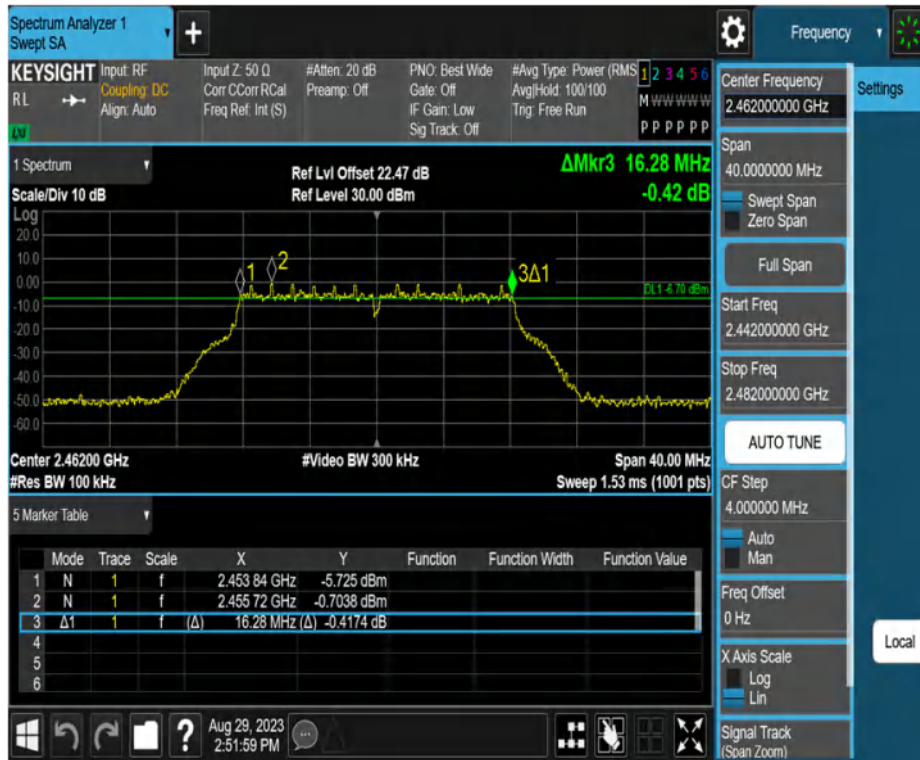
11G-CDD\_Ant1\_2437



11G-CDD\_Ant2\_2437



11G-CDD\_Ant1\_2462



11G-CDD\_Ant2\_2462





11N20MIMO\_Ant1\_2412



11N20MIMO\_Ant2\_2412



11N20MIMO\_Ant1\_2437



11N20MIMO\_Ant2\_2437



11N20MIMO\_Ant1\_2462

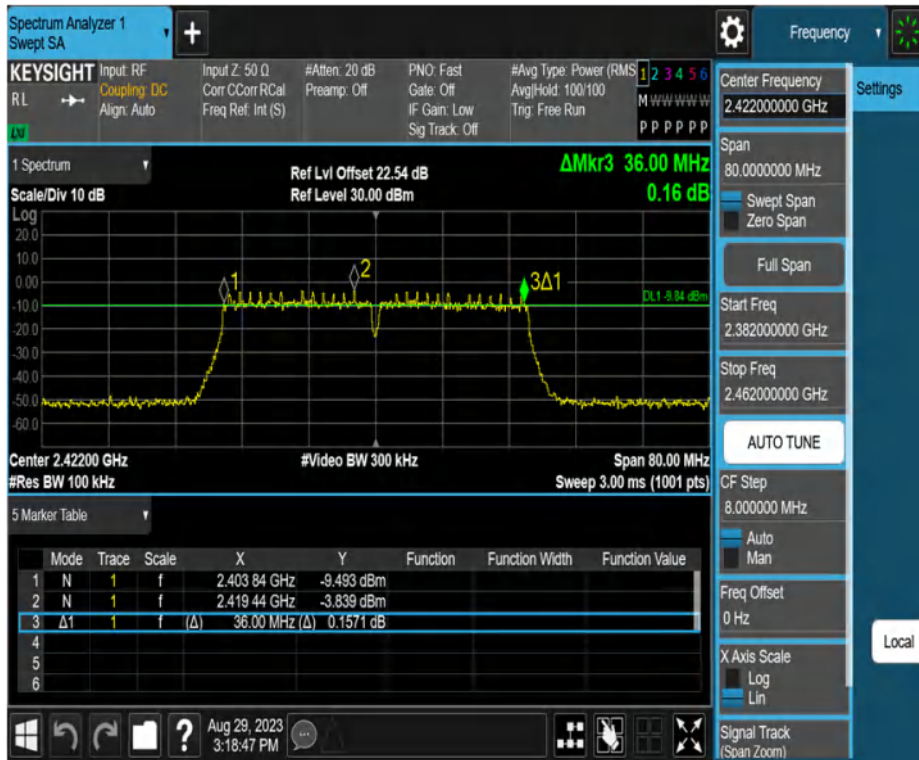


11N20MIMO\_Ant2\_2462





11N40MIMO\_Ant1\_2422

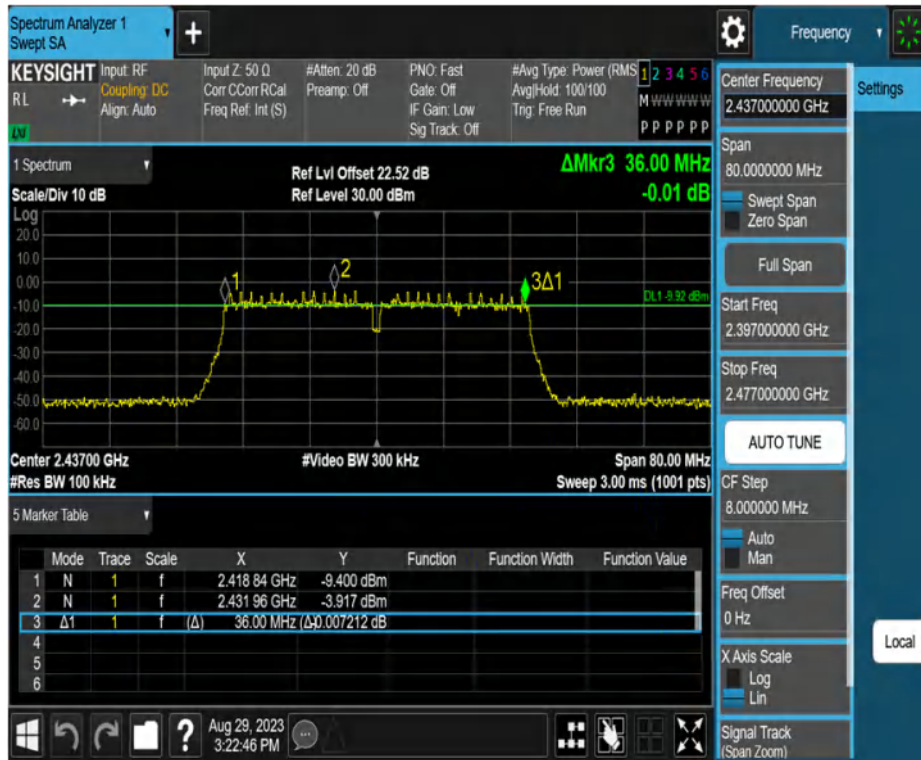


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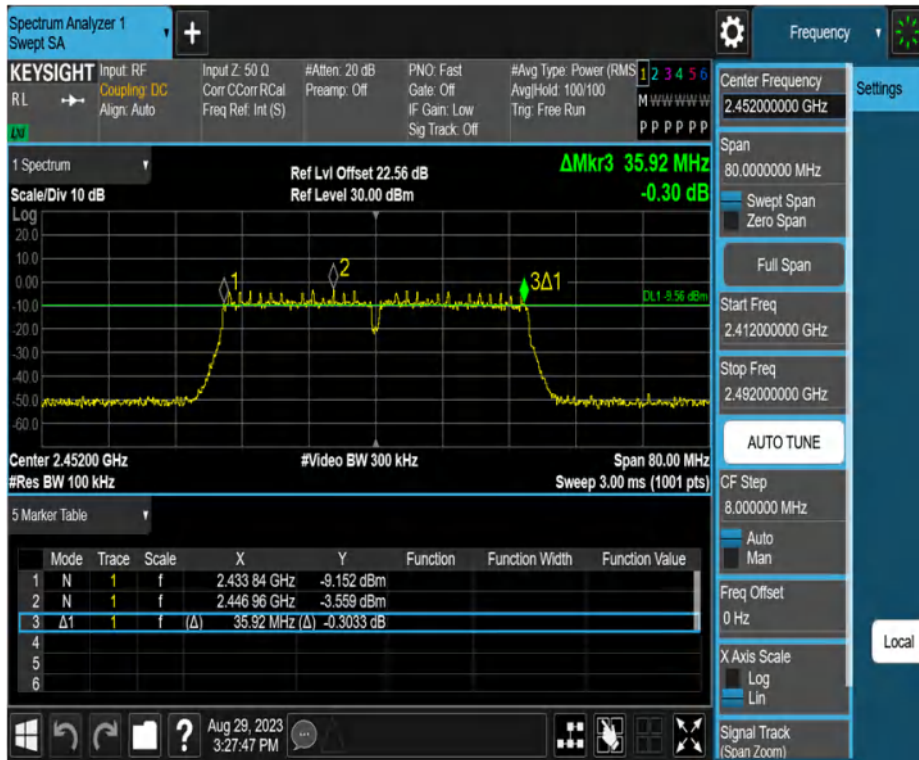
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11N40MIMO\_Ant2\_2437



11N40MIMO\_Ant1\_2452



11N40MIMO\_Ant2\_2452



11AX20MIMO\_Ant1\_2412



11AX20MIMO\_Ant2\_2412





11AX20MIMO\_Ant1\_2437



11AX20MIMO\_Ant2\_2437





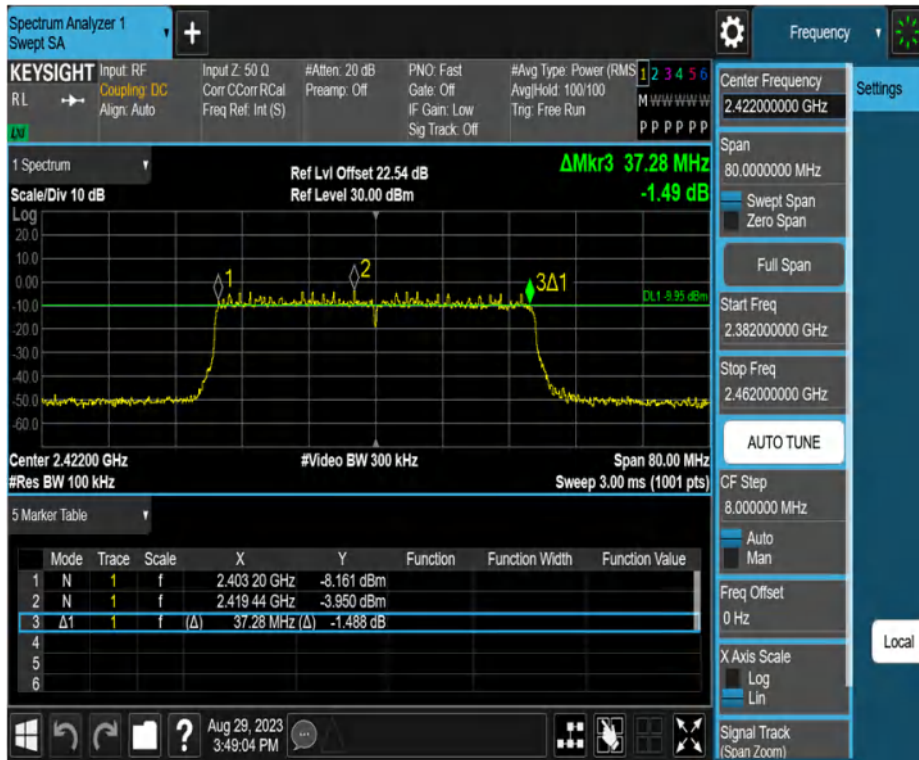
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11AX20MIMO\_Ant2\_2462



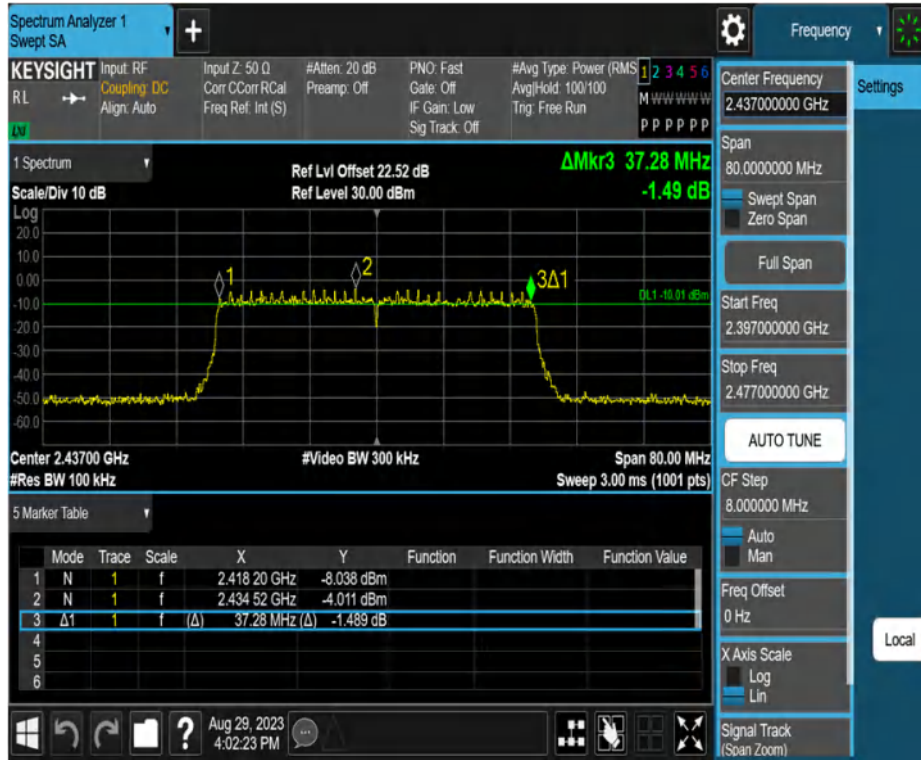
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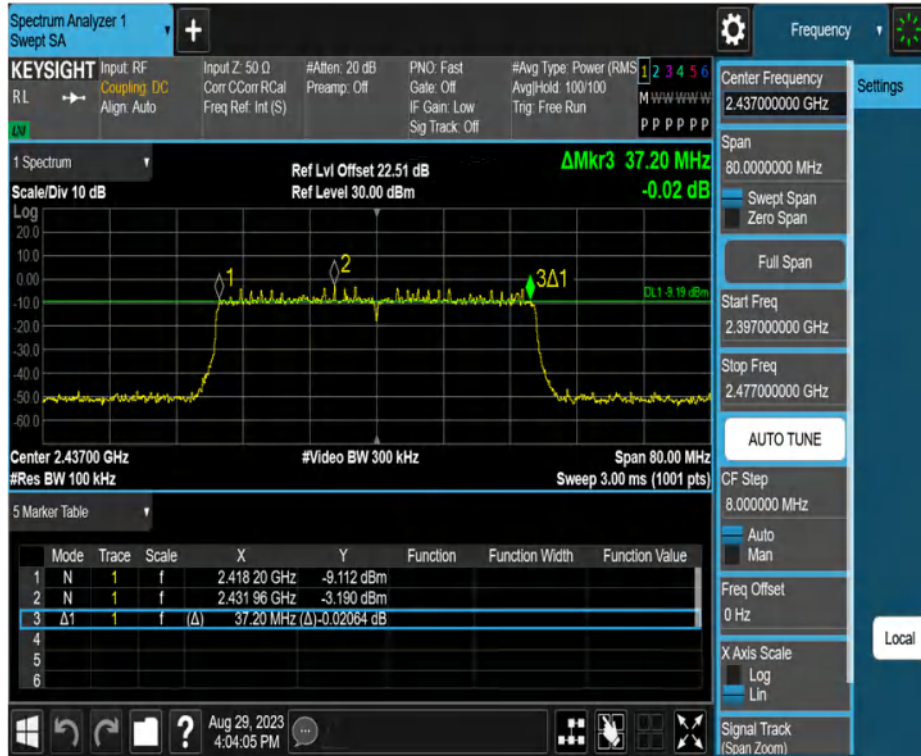
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11AX40MIMO\_Ant1\_2437

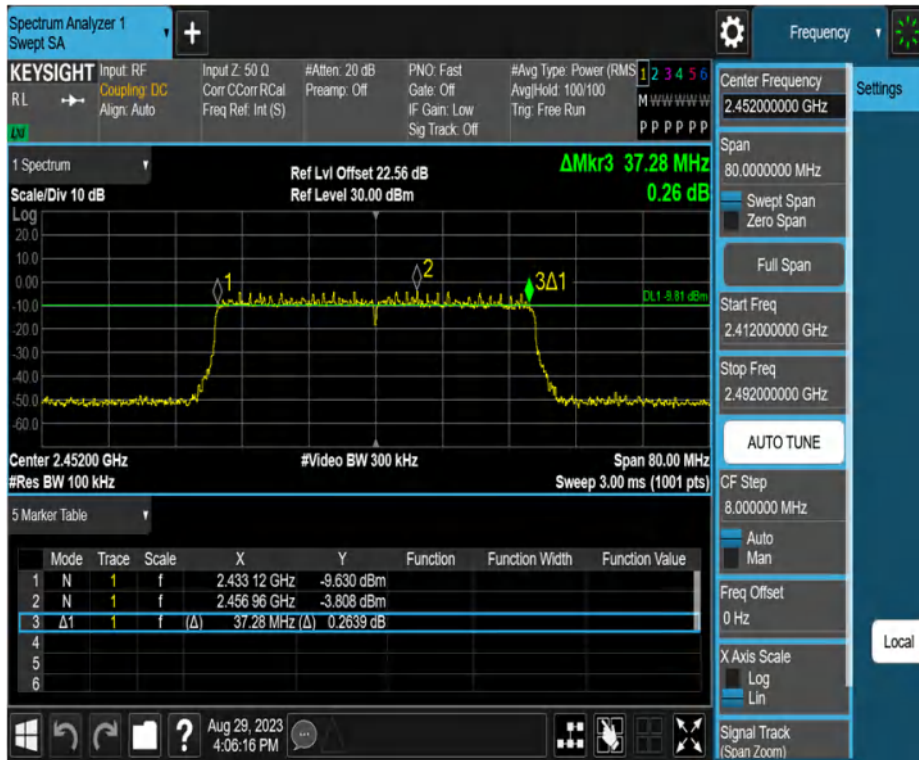


11AX40MIMO\_Ant2\_2437





11AX40MIMO\_Ant1\_2452



11AX40MIMO\_Ant2\_2452

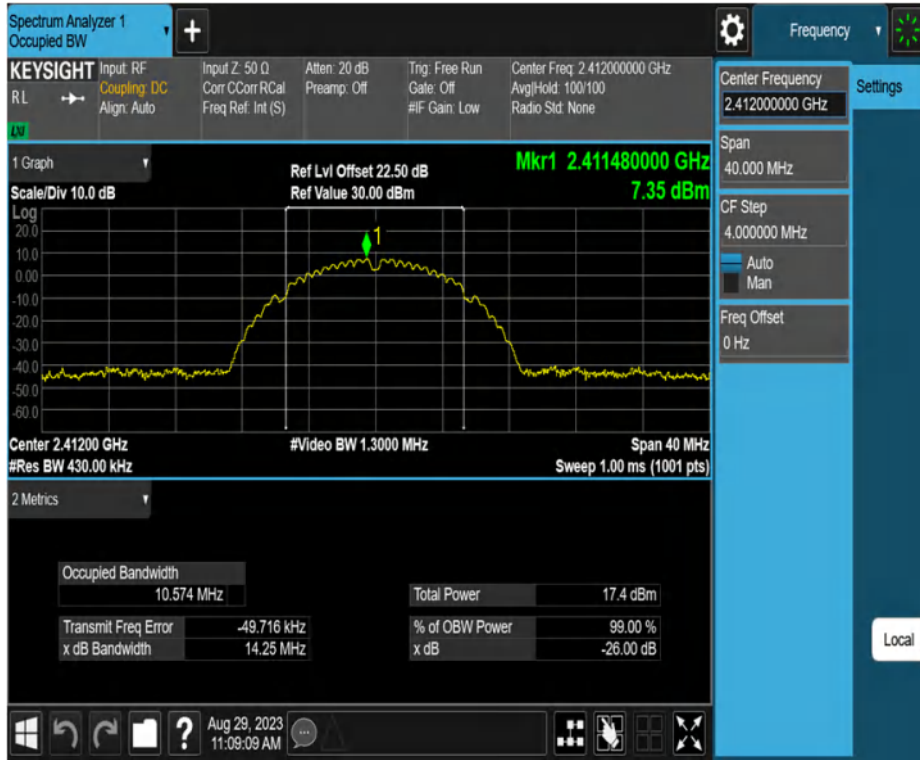




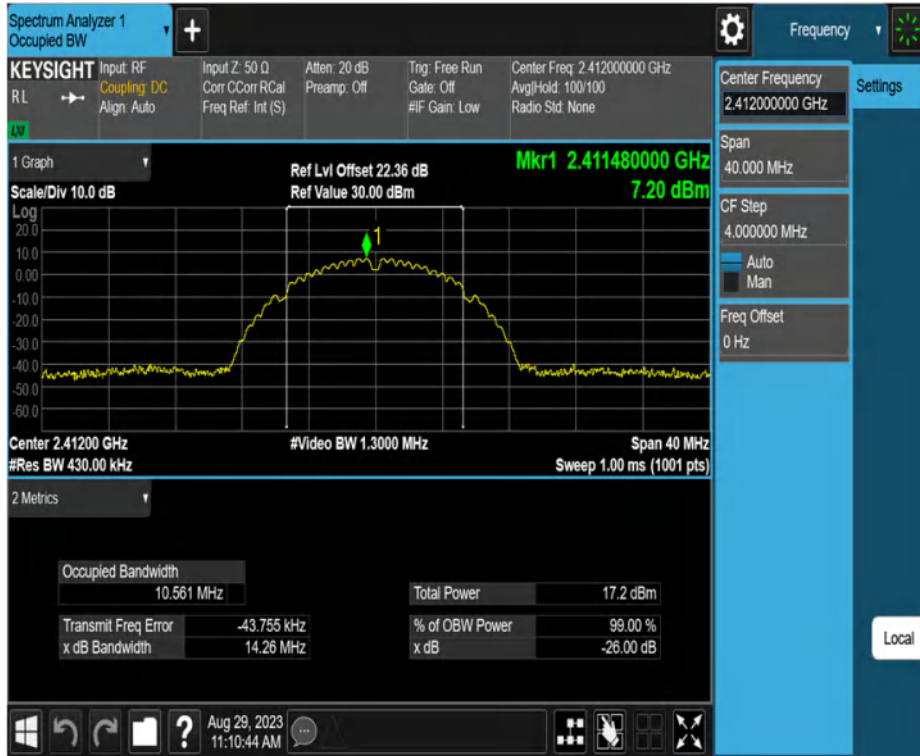
**Occupied Channel Bandwidth**

| Test Mode  | Antenna | Channel Frequency[MHz] | OCB [MHz] | FL[MHz]   | FH[MHz]   | Limit[MHz] | Verdict |
|------------|---------|------------------------|-----------|-----------|-----------|------------|---------|
| 11B-CDD    | Ant1    | 2412                   | 10.574    | 2406.6633 | 2417.2373 | ---        | ---     |
|            | Ant2    | 2412                   | 10.561    | 2406.6758 | 2417.2368 | ---        | ---     |
|            | Ant1    | 2437                   | 10.556    | 2431.6760 | 2442.2320 | ---        | ---     |
|            | Ant2    | 2437                   | 10.633    | 2431.6402 | 2442.2732 | ---        | ---     |
|            | Ant1    | 2462                   | 10.523    | 2456.6793 | 2467.2023 | ---        | ---     |
|            | Ant2    | 2462                   | 10.539    | 2456.6803 | 2467.2193 | ---        | ---     |
| 11G-CDD    | Ant1    | 2412                   | 17.227    | 2403.5123 | 2420.7393 | ---        | ---     |
|            | Ant2    | 2412                   | 17.102    | 2403.3777 | 2420.4797 | ---        | ---     |
|            | Ant1    | 2437                   | 17.278    | 2428.4527 | 2445.7307 | ---        | ---     |
|            | Ant2    | 2437                   | 17.037    | 2428.4146 | 2445.4516 | ---        | ---     |
|            | Ant1    | 2462                   | 17.168    | 2453.4925 | 2470.6605 | ---        | ---     |
|            | Ant2    | 2462                   | 17.150    | 2453.3492 | 2470.4992 | ---        | ---     |
| 11N20MIMO  | Ant1    | 2412                   | 18.254    | 2402.8669 | 2421.1209 | ---        | ---     |
|            | Ant2    | 2412                   | 18.046    | 2402.9606 | 2421.0066 | ---        | ---     |
|            | Ant1    | 2437                   | 18.271    | 2427.9031 | 2446.1741 | ---        | ---     |
|            | Ant2    | 2437                   | 18.153    | 2427.9007 | 2446.0537 | ---        | ---     |
|            | Ant1    | 2462                   | 18.232    | 2452.8666 | 2471.0986 | ---        | ---     |
|            | Ant2    | 2462                   | 18.042    | 2452.9667 | 2471.0087 | ---        | ---     |
| 11N40MIMO  | Ant1    | 2422                   | 36.285    | 2403.8027 | 2440.0877 | ---        | ---     |
|            | Ant2    | 2422                   | 36.473    | 2403.6616 | 2440.1346 | ---        | ---     |
|            | Ant1    | 2437                   | 36.307    | 2418.7706 | 2455.0776 | ---        | ---     |
|            | Ant2    | 2437                   | 36.427    | 2418.6953 | 2455.1223 | ---        | ---     |
|            | Ant1    | 2452                   | 36.277    | 2433.7600 | 2470.0370 | ---        | ---     |
|            | Ant2    | 2452                   | 36.376    | 2433.7092 | 2470.0852 | ---        | ---     |
| 11AX20MIMO | Ant1    | 2412                   | 19.118    | 2402.4531 | 2421.5711 | ---        | ---     |
|            | Ant2    | 2412                   | 19.241    | 2402.3382 | 2421.5792 | ---        | ---     |
|            | Ant1    | 2437                   | 19.064    | 2427.4446 | 2446.5086 | ---        | ---     |
|            | Ant2    | 2437                   | 19.155    | 2427.4540 | 2446.6090 | ---        | ---     |
|            | Ant1    | 2462                   | 19.109    | 2452.4174 | 2471.5264 | ---        | ---     |
|            | Ant2    | 2462                   | 19.113    | 2452.4175 | 2471.5305 | ---        | ---     |
| 11AX40MIMO | Ant1    | 2422                   | 37.560    | 2403.1412 | 2440.7012 | ---        | ---     |
|            | Ant2    | 2422                   | 37.557    | 2403.1788 | 2440.7358 | ---        | ---     |
|            | Ant1    | 2437                   | 37.584    | 2418.1625 | 2455.7465 | ---        | ---     |
|            | Ant2    | 2437                   | 37.604    | 2418.1774 | 2455.7814 | ---        | ---     |
|            | Ant1    | 2452                   | 37.613    | 2433.1326 | 2470.7456 | ---        | ---     |
|            | Ant2    | 2452                   | 37.541    | 2433.2043 | 2470.7453 | ---        | ---     |

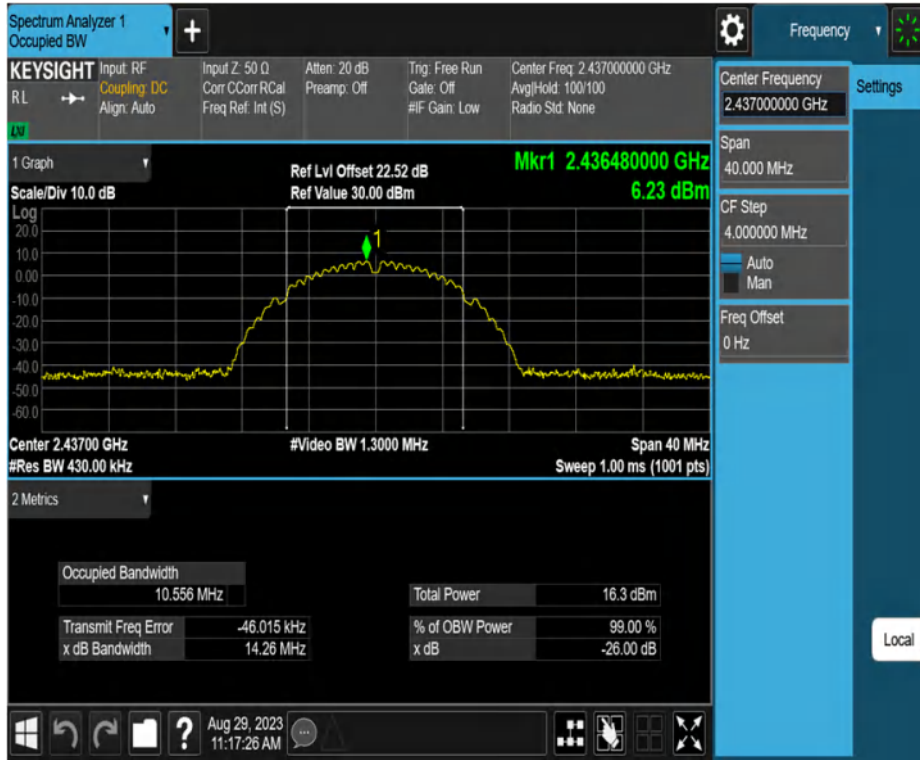
11B-CDD\_Ant1\_2412



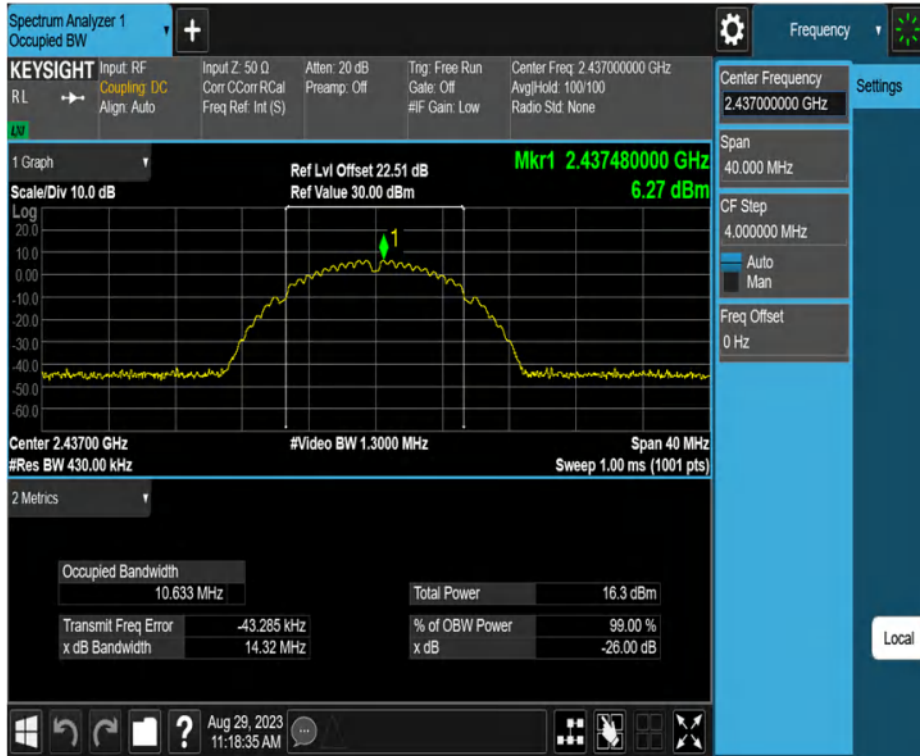
11B-CDD\_Ant2\_2412



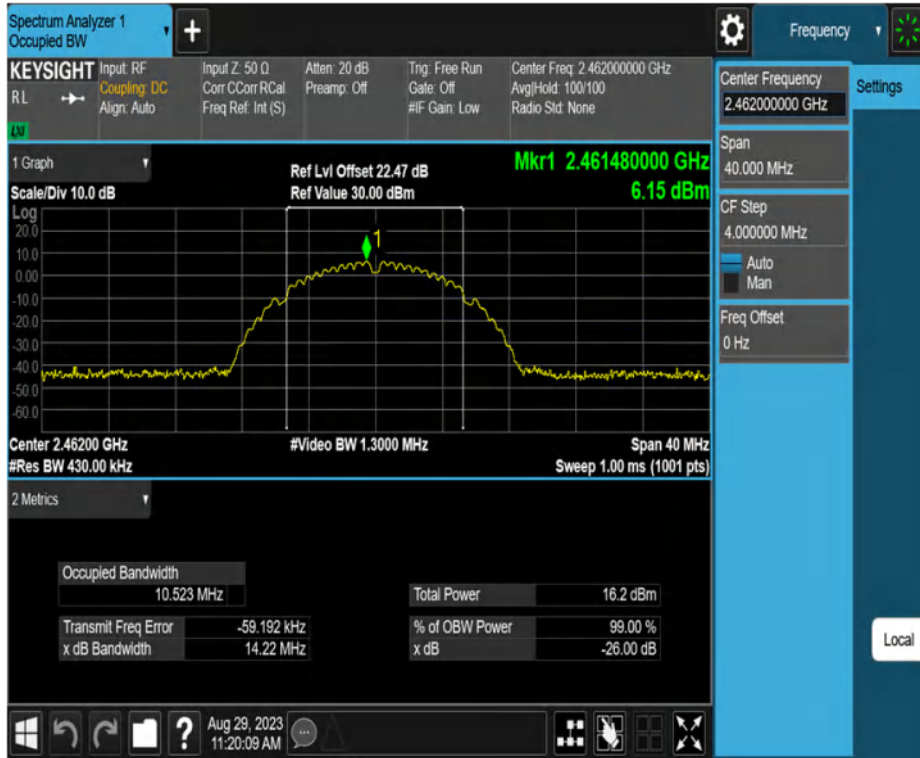
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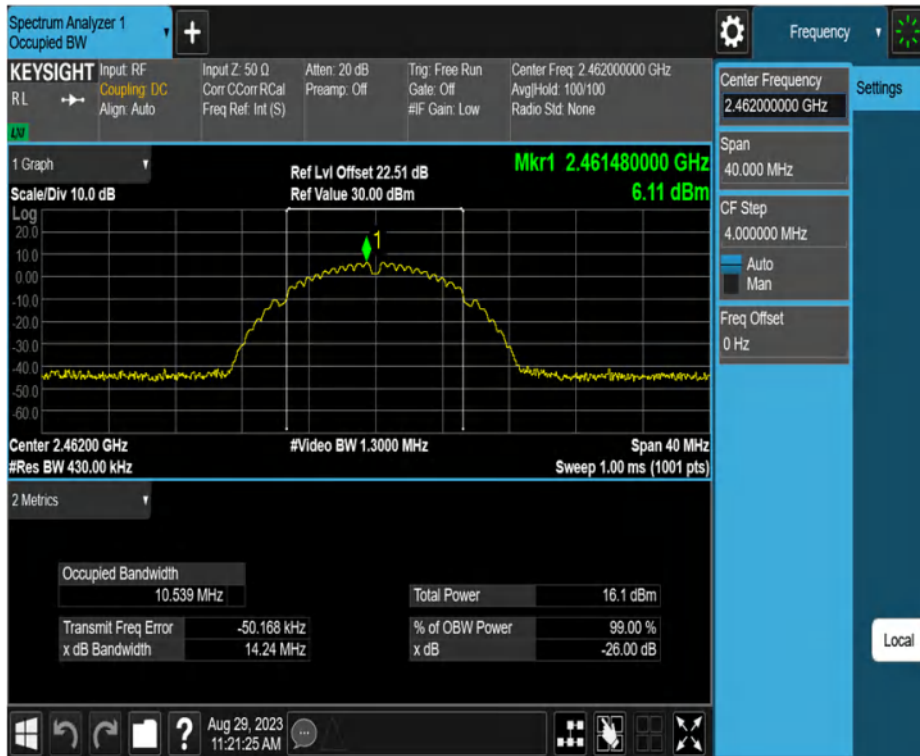
11B-CDD\_Ant2\_2437



11B-CDD\_Ant1\_2462

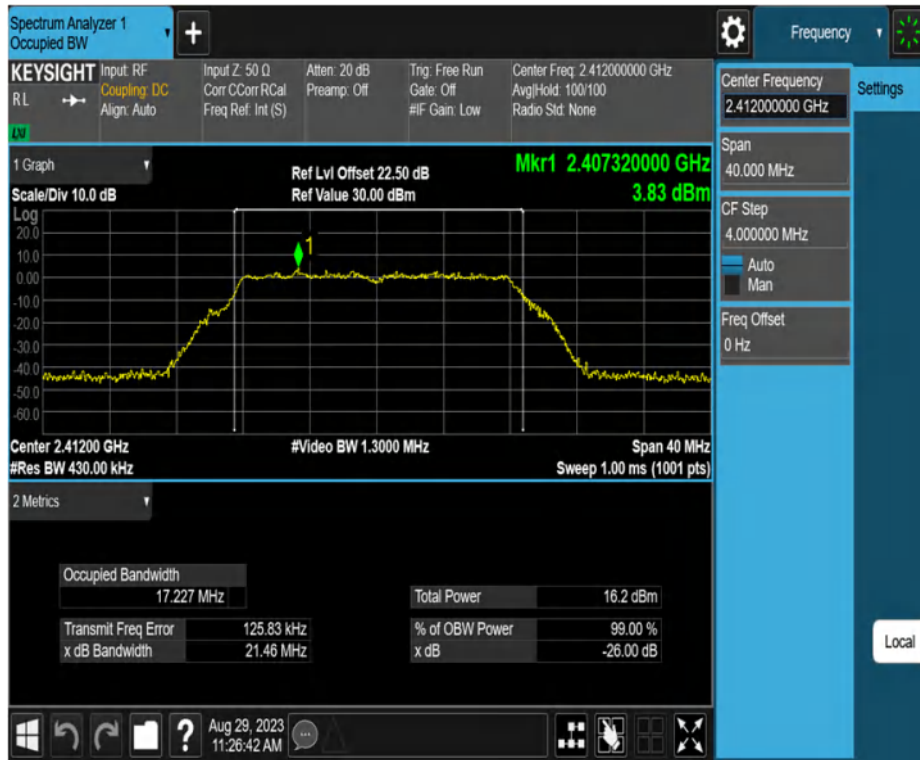


11B-CDD\_Ant2\_2462

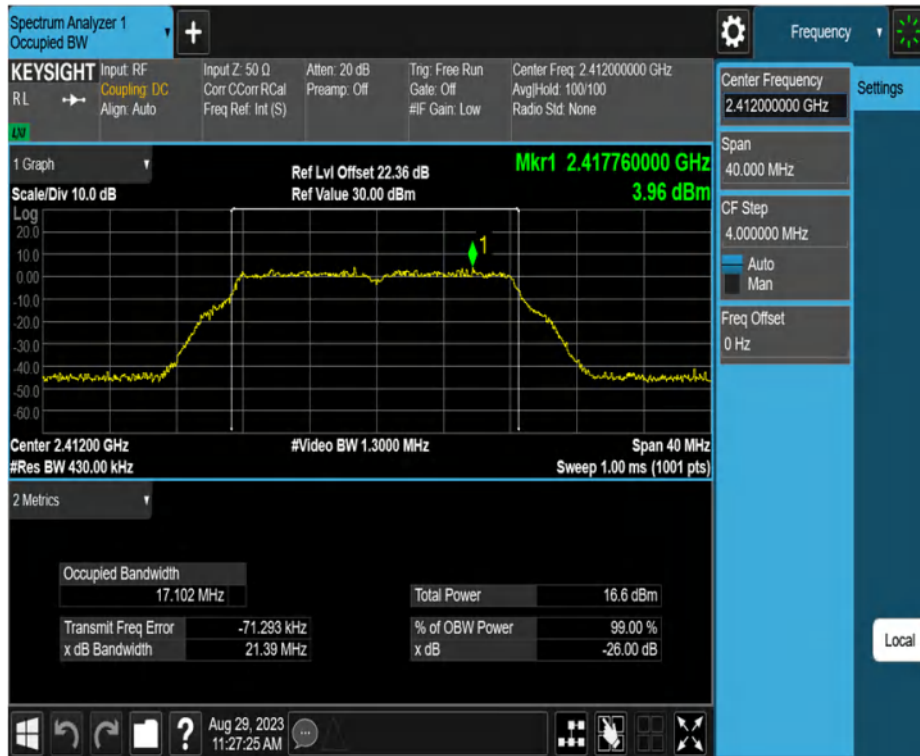




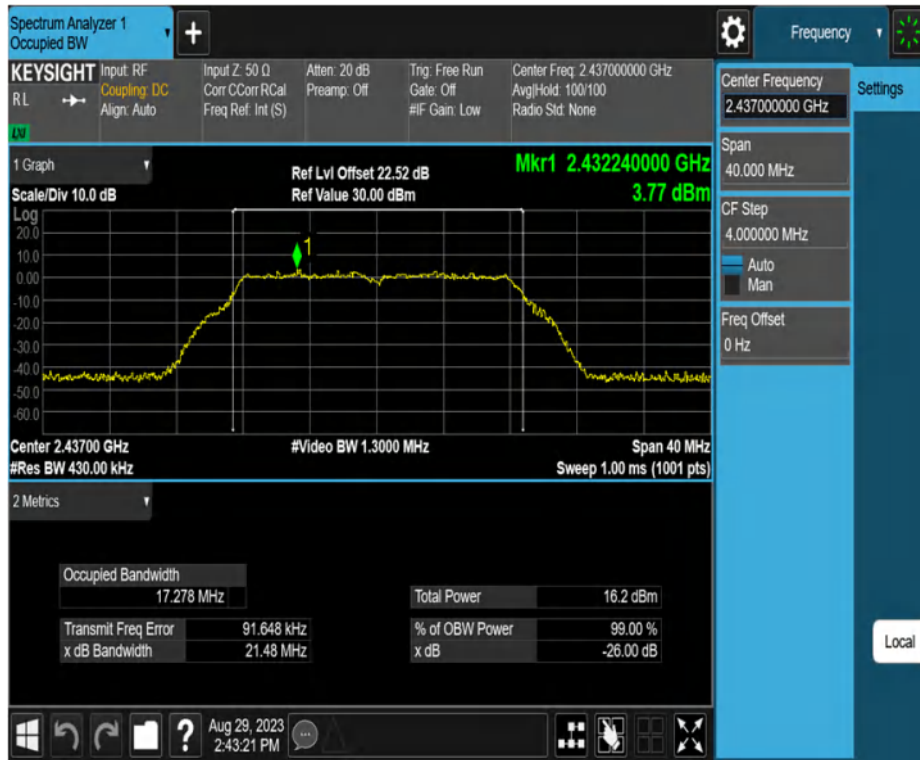
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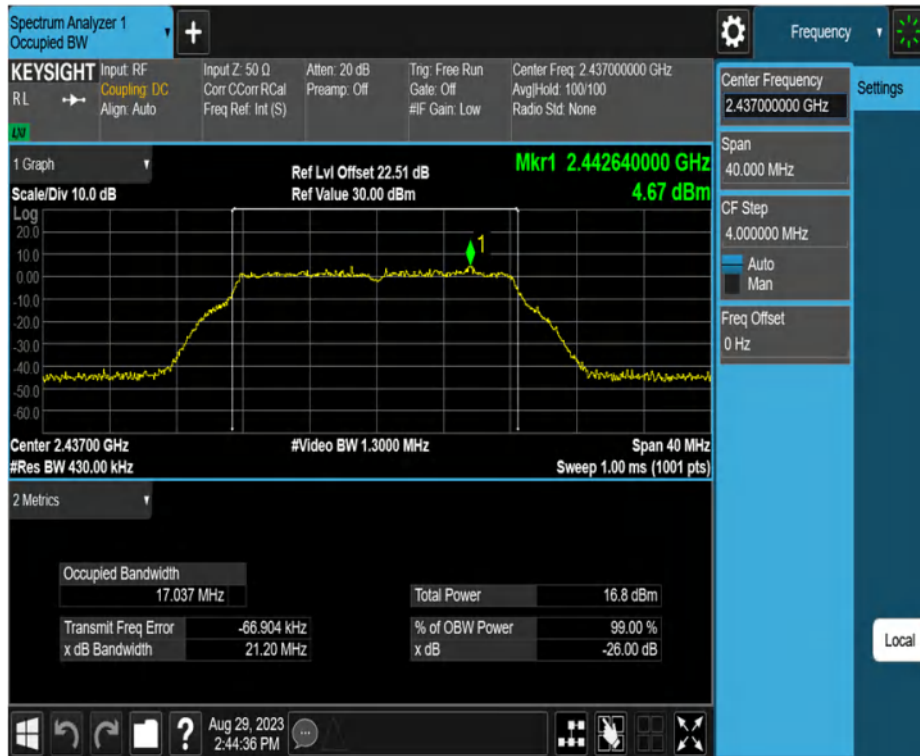
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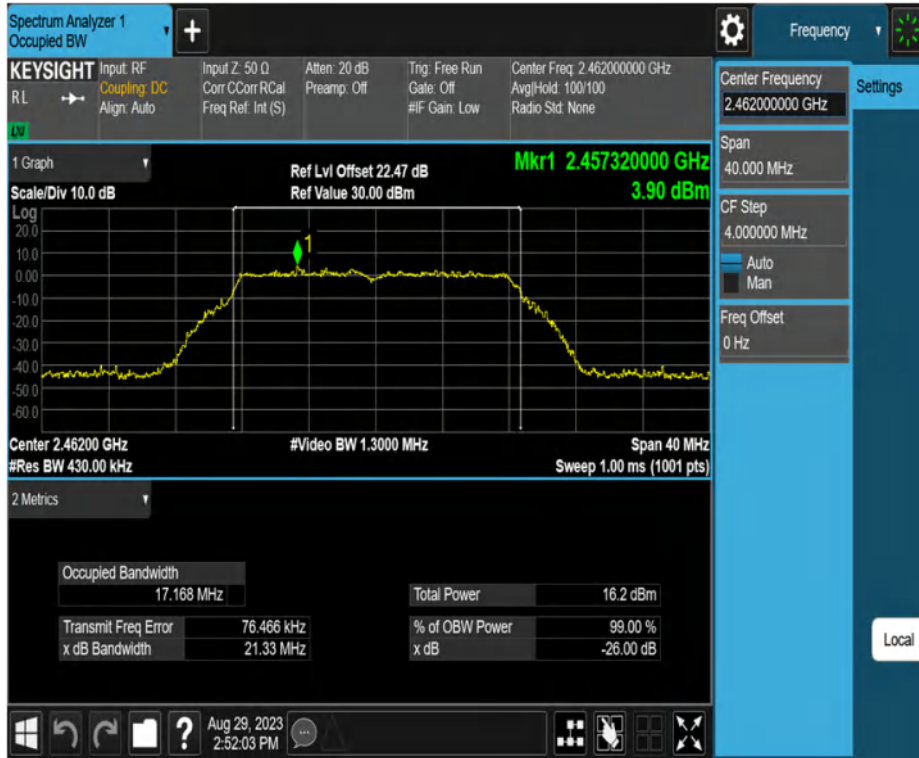
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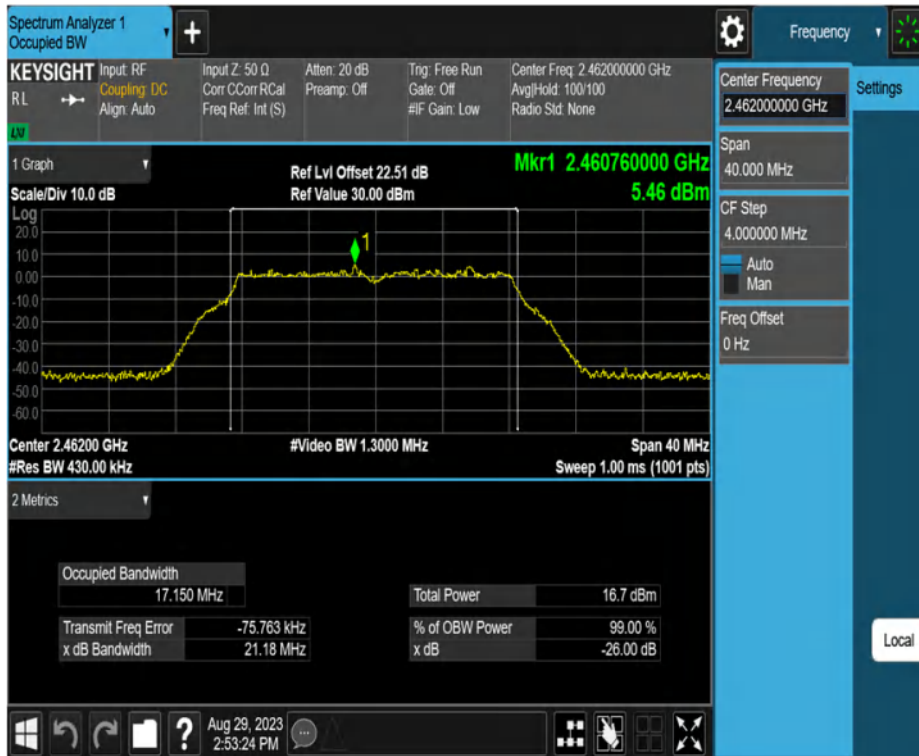
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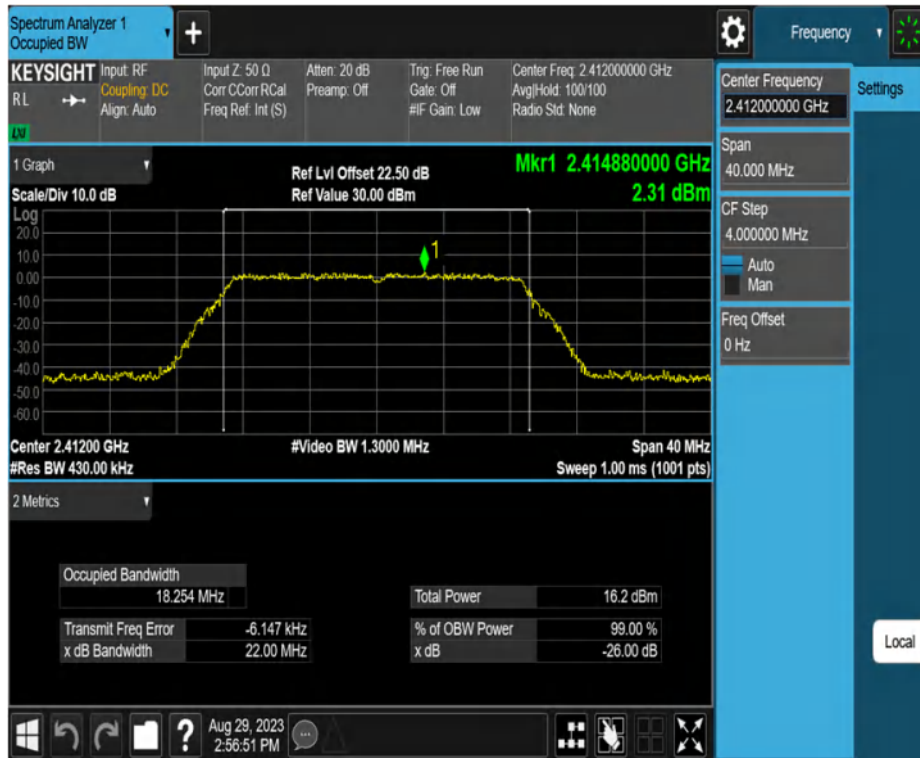
11G-CDD\_Ant1\_2462



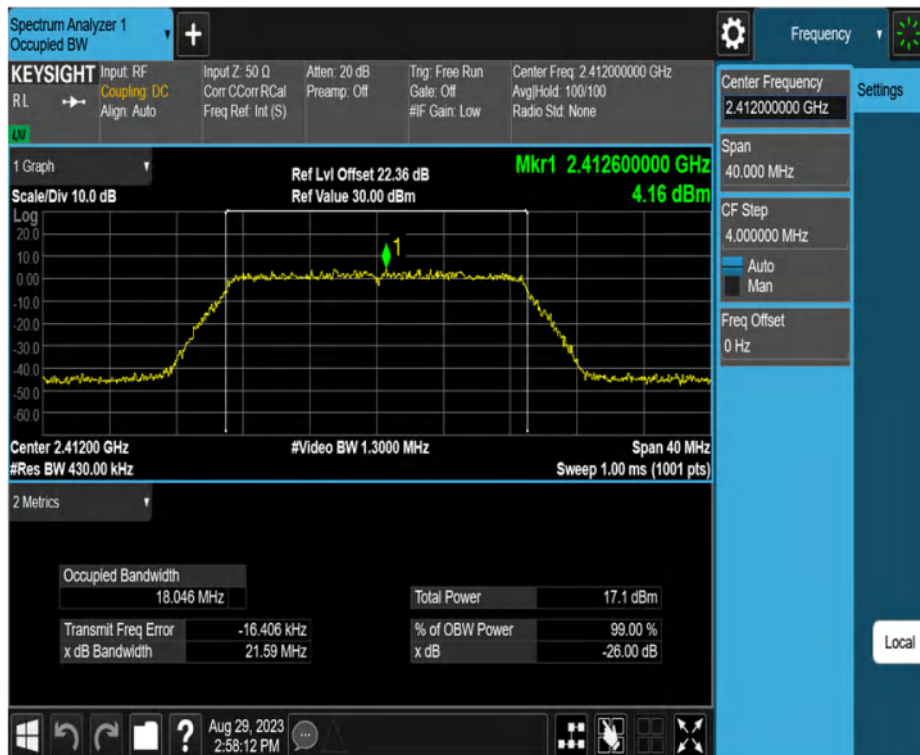
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11N20MIMO\_Ant1\_2412

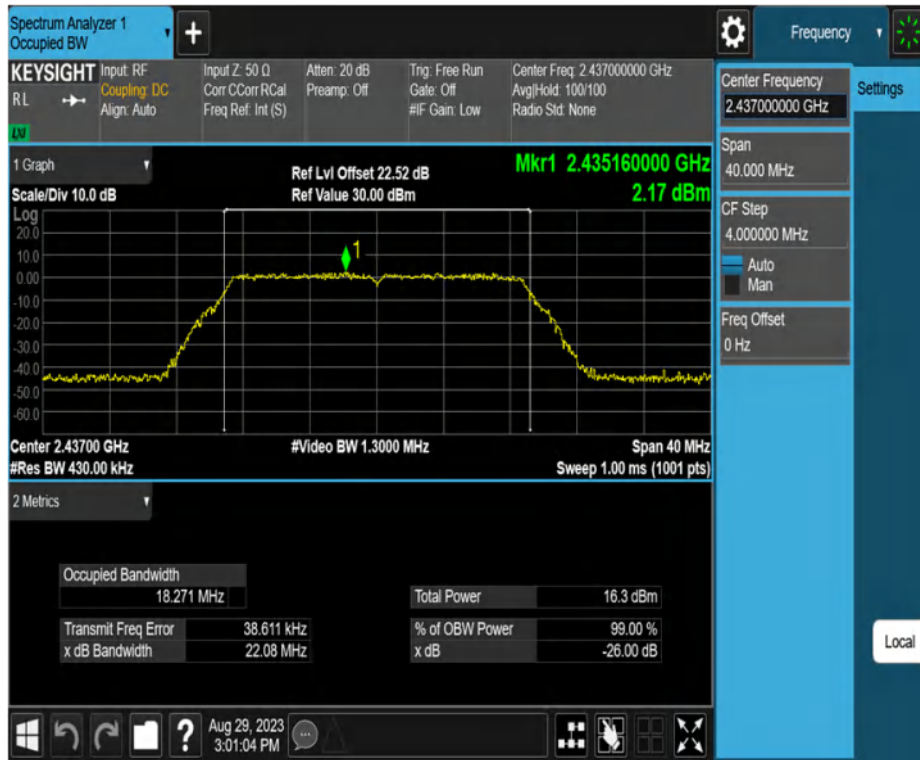


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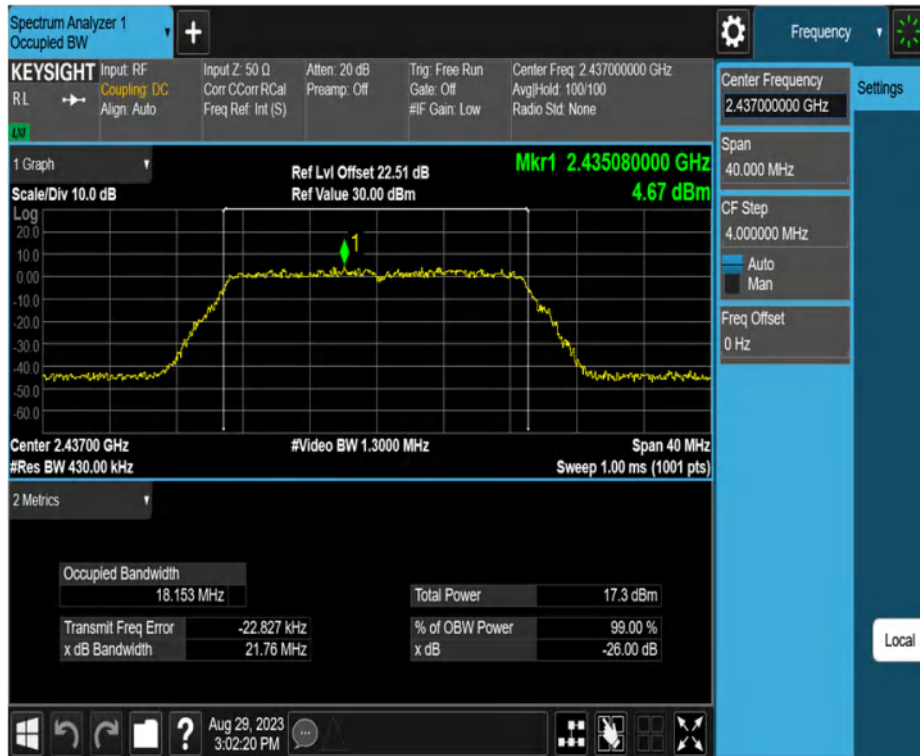




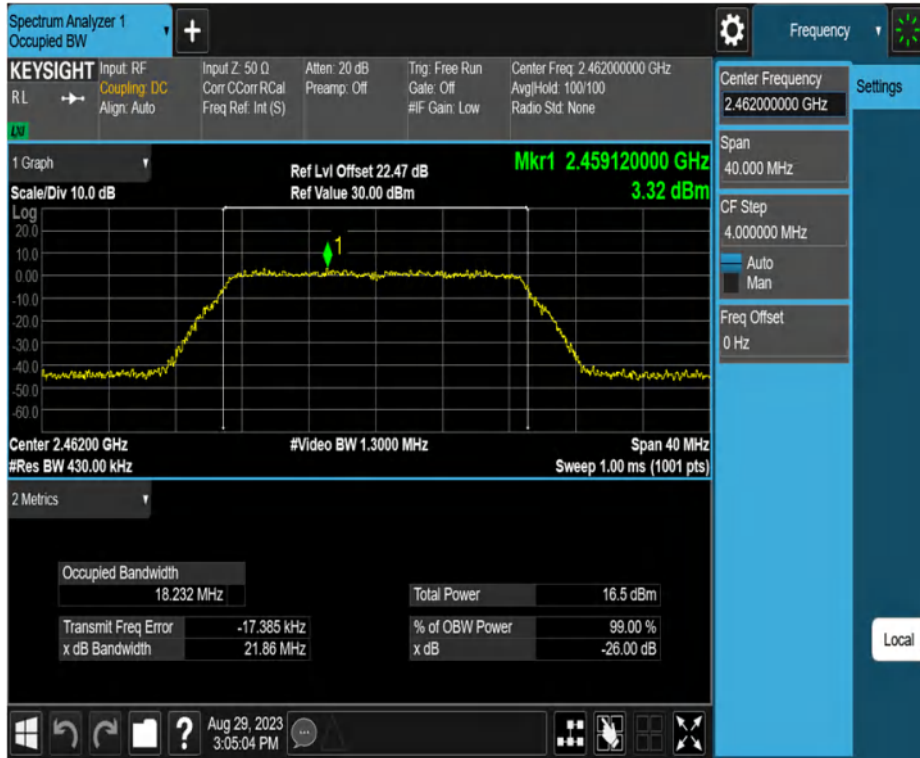
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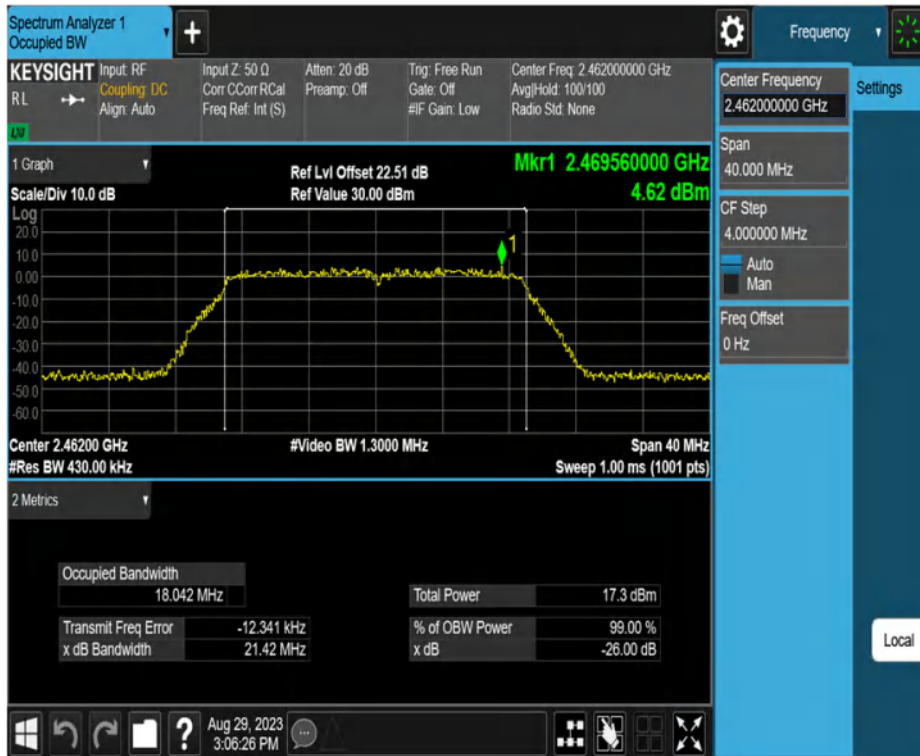
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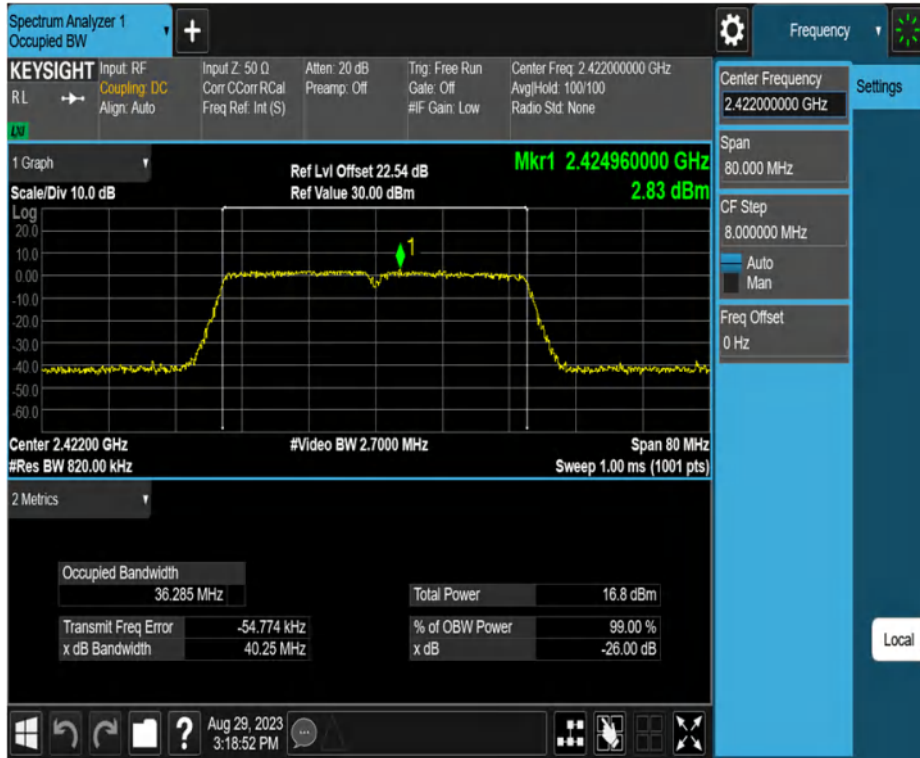
11N20MIMO\_Ant1\_2462



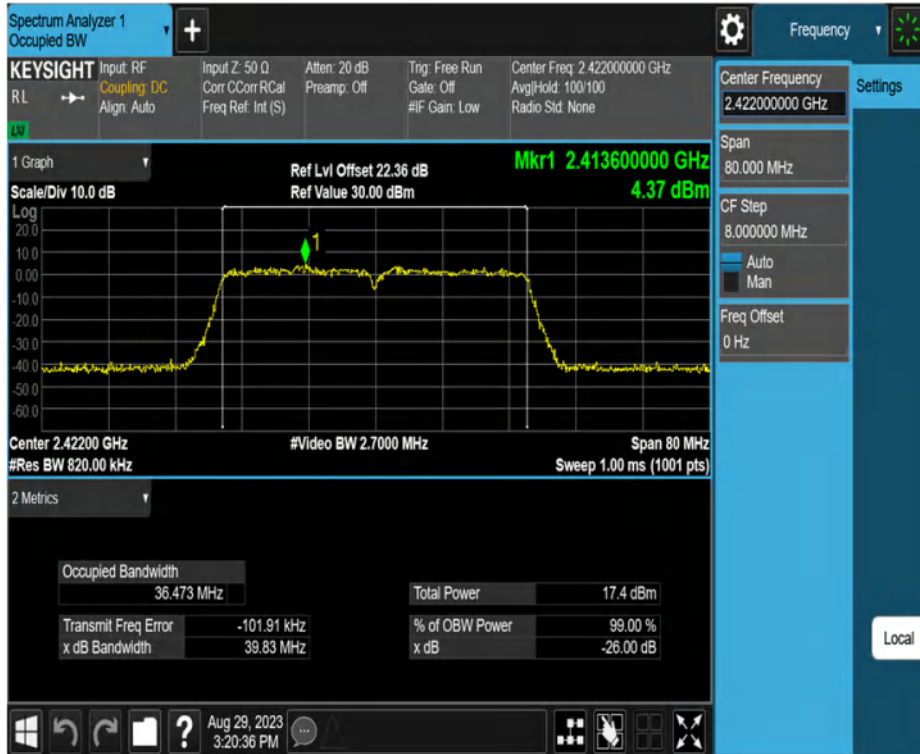
11N20MIMO\_Ant2\_2462



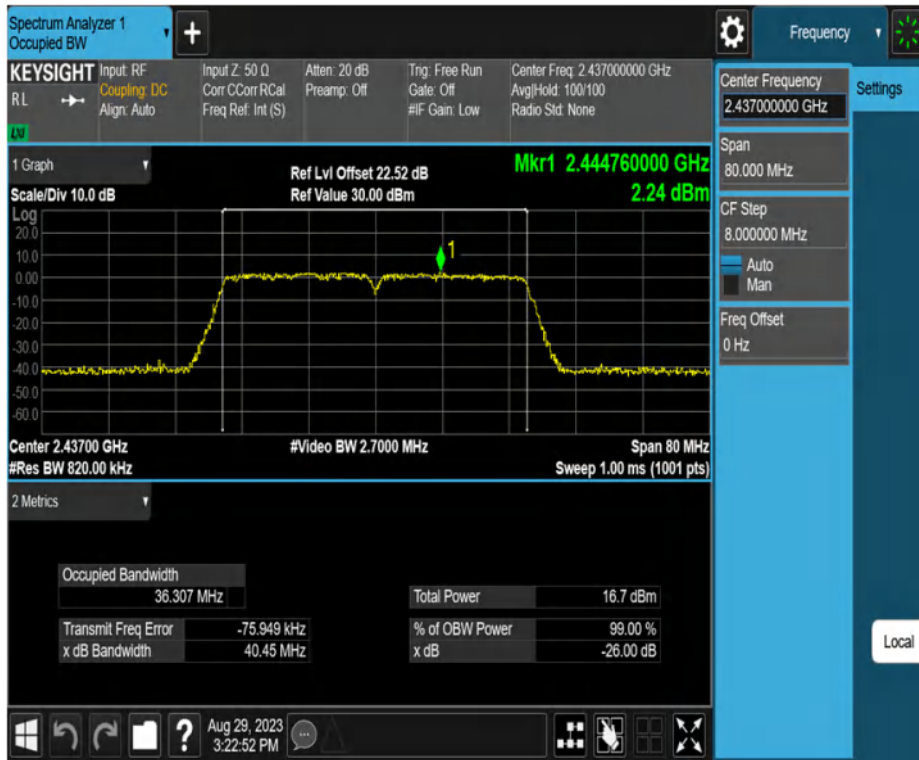
11N40MIMO\_Ant1\_2422



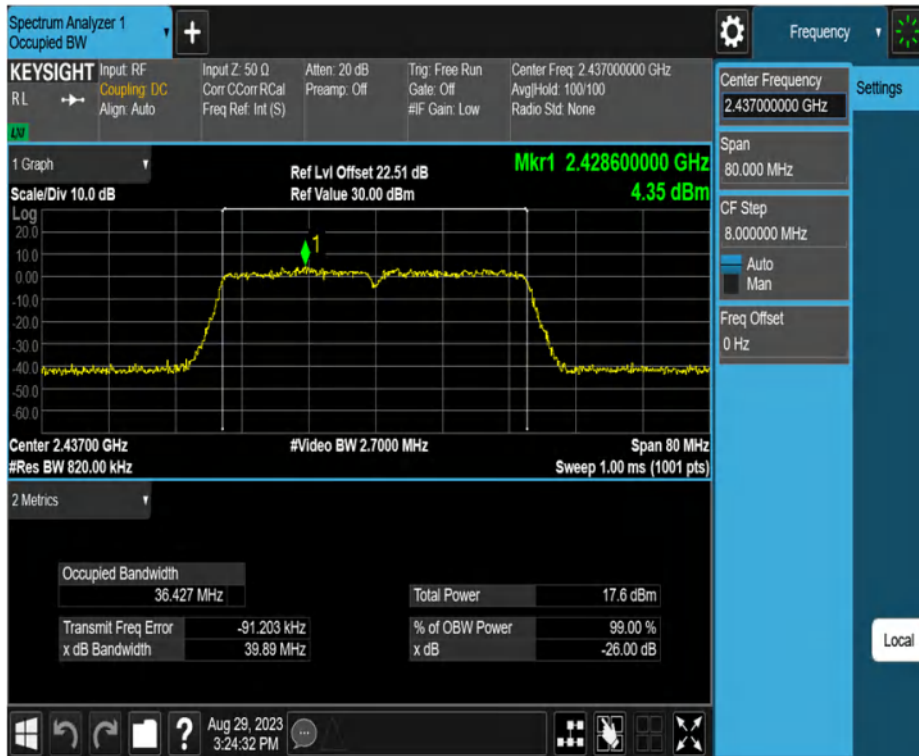
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11N40MIMO\_Ant1\_2437

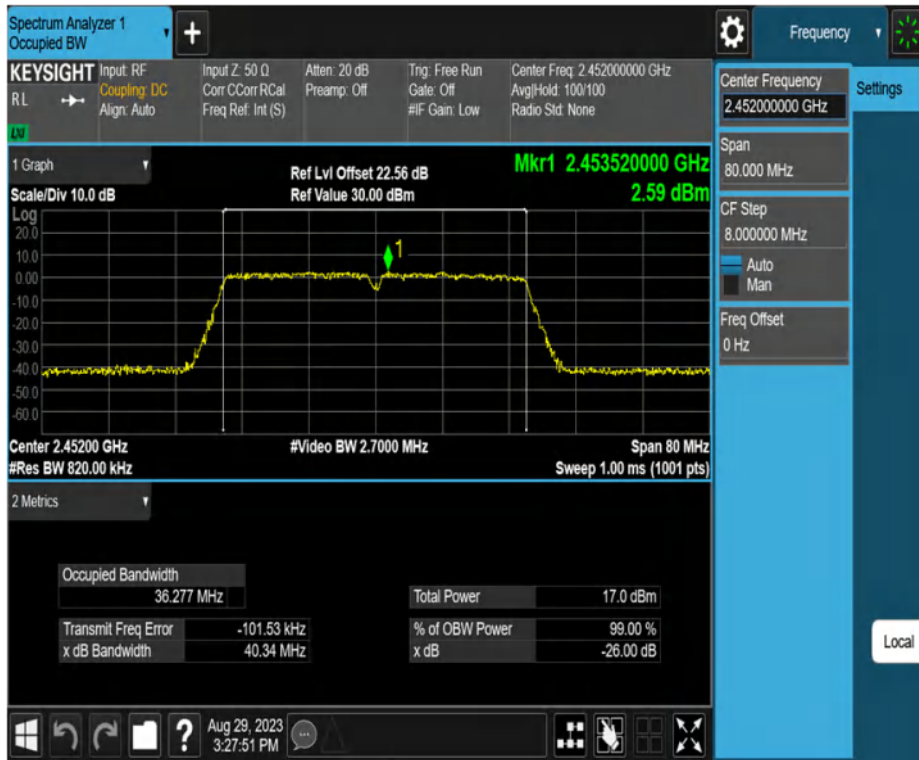


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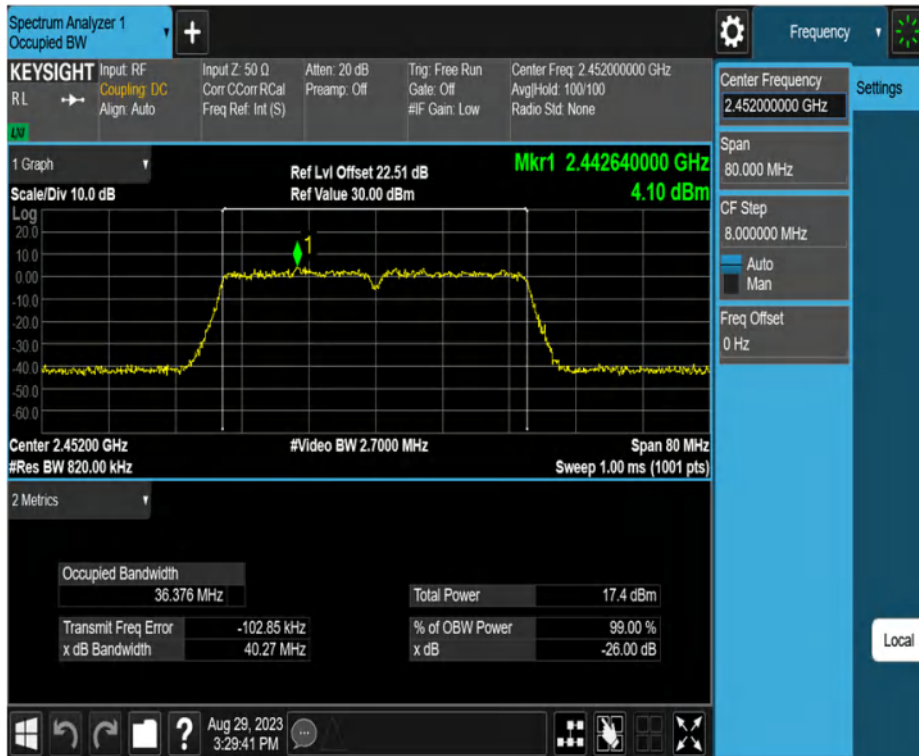




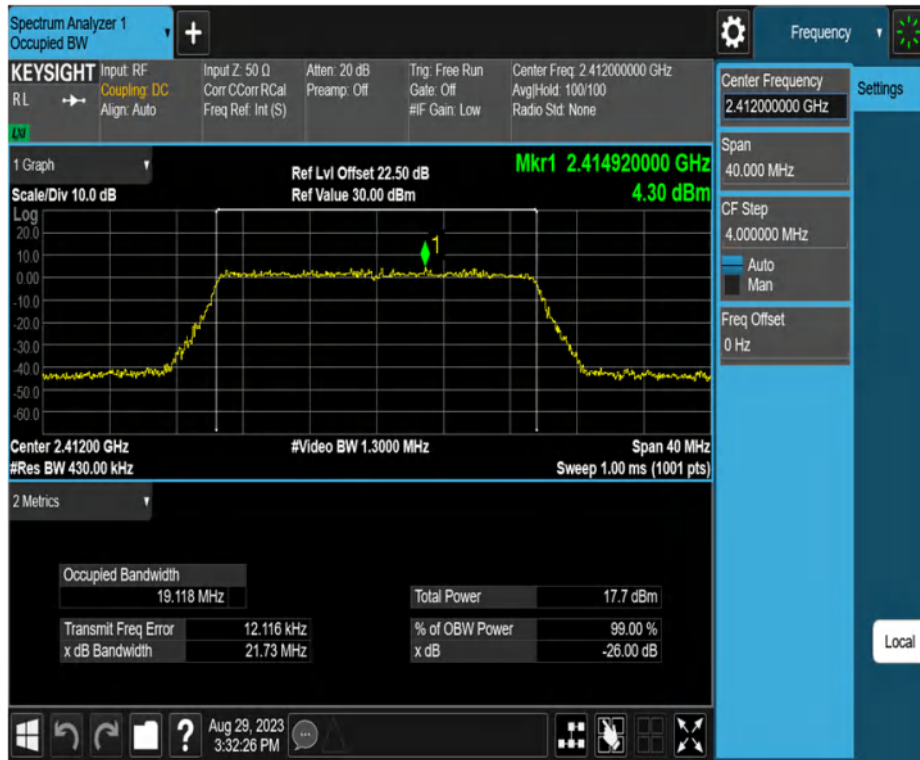
11N40MIMO\_Ant1\_2452



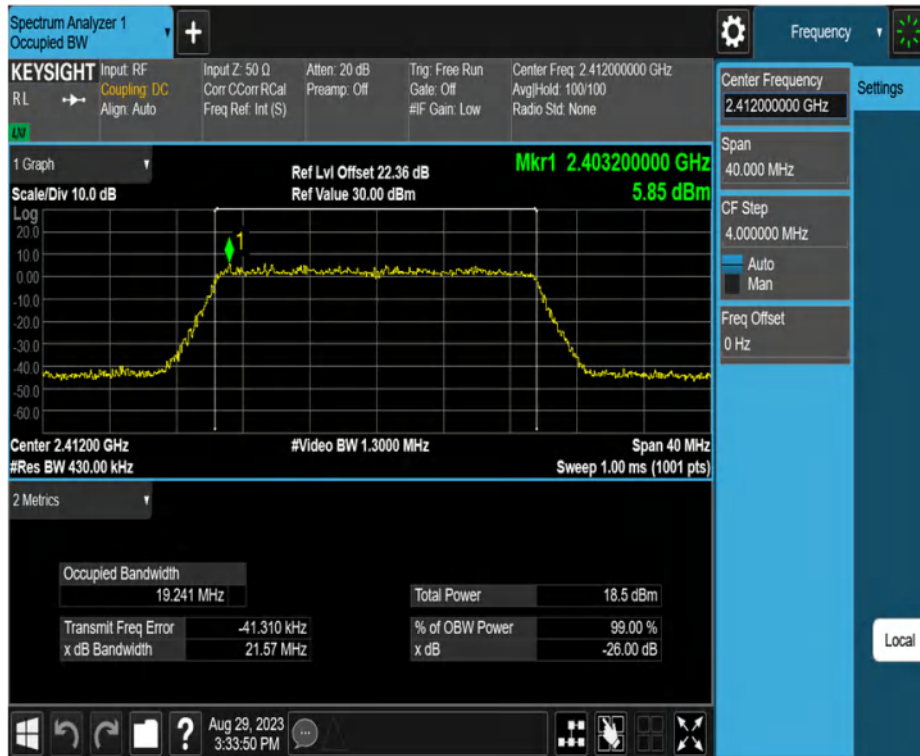
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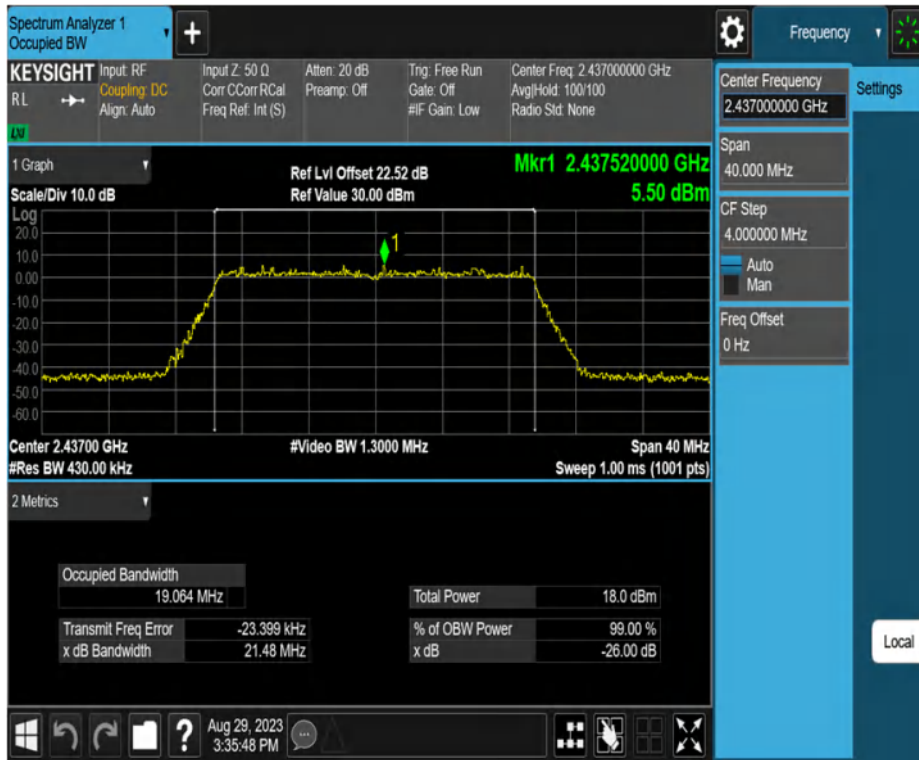
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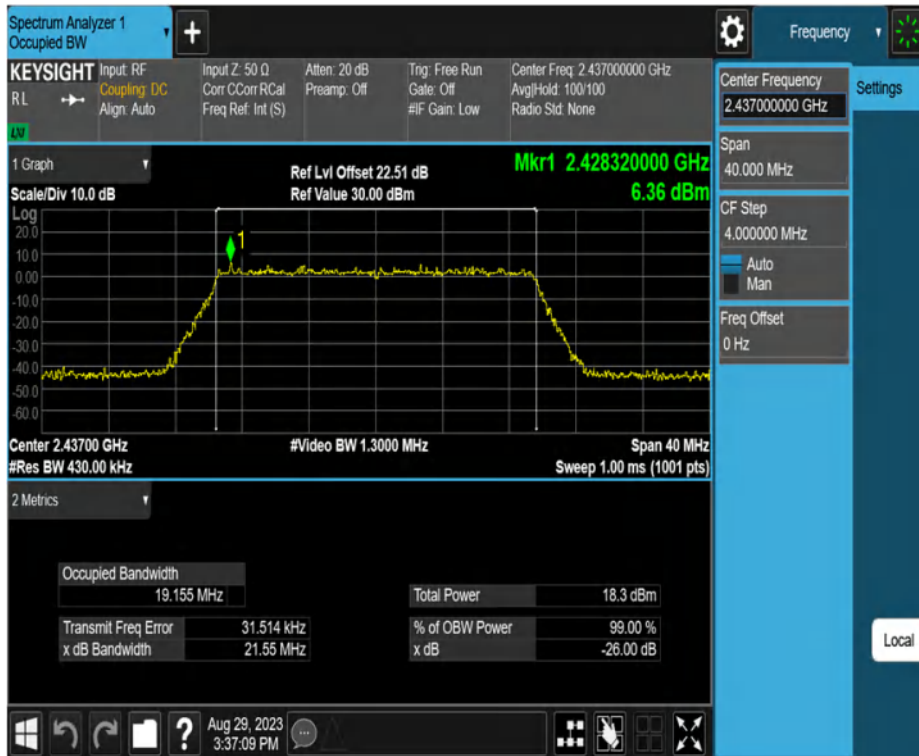
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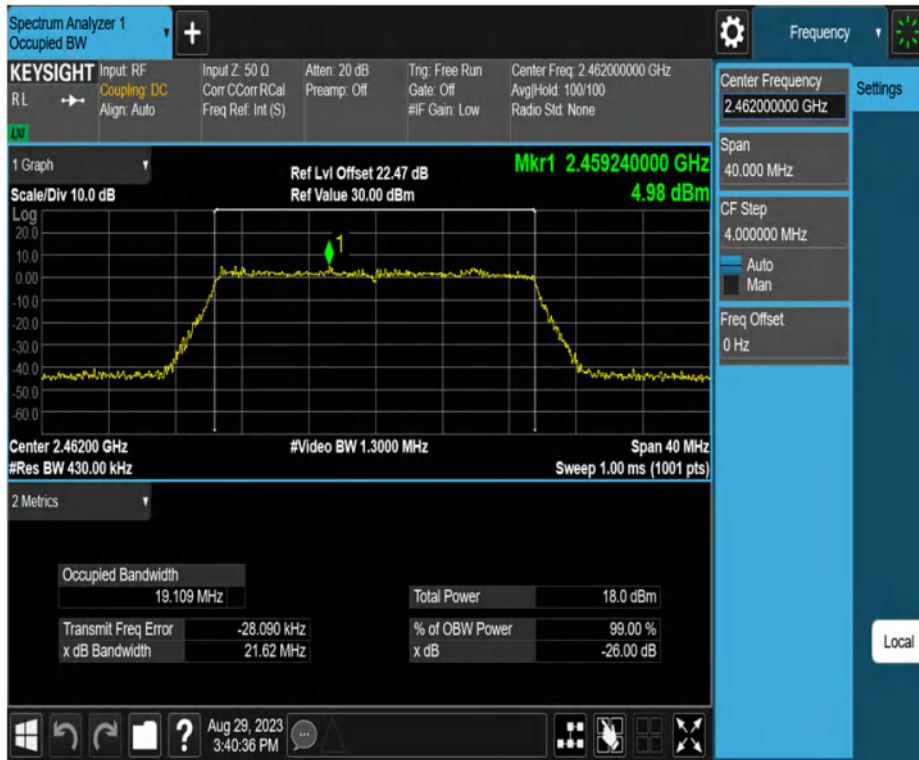
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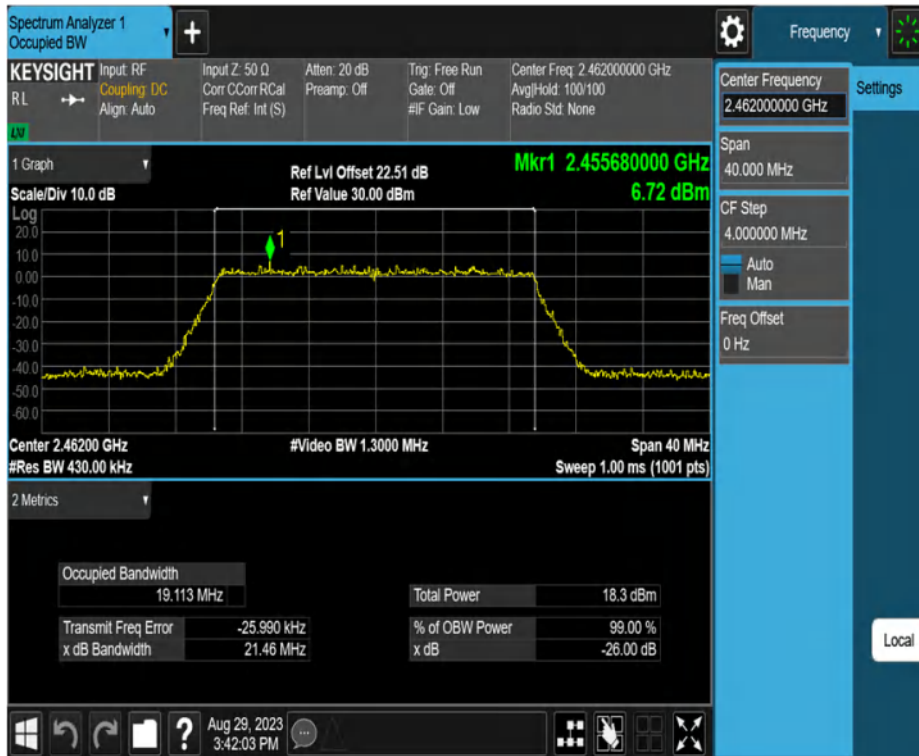
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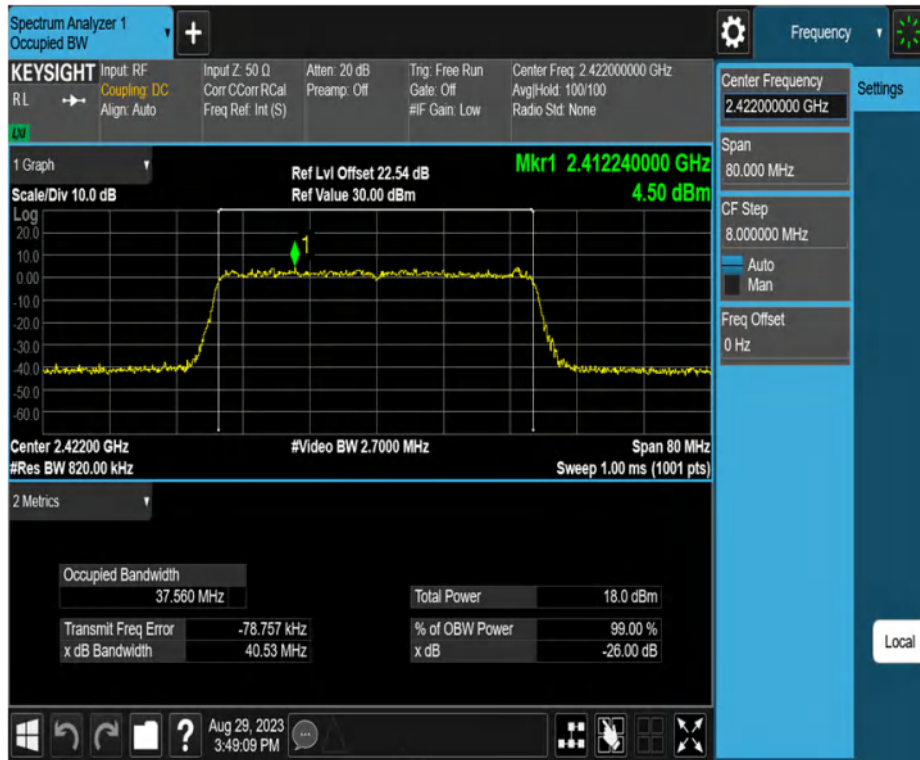


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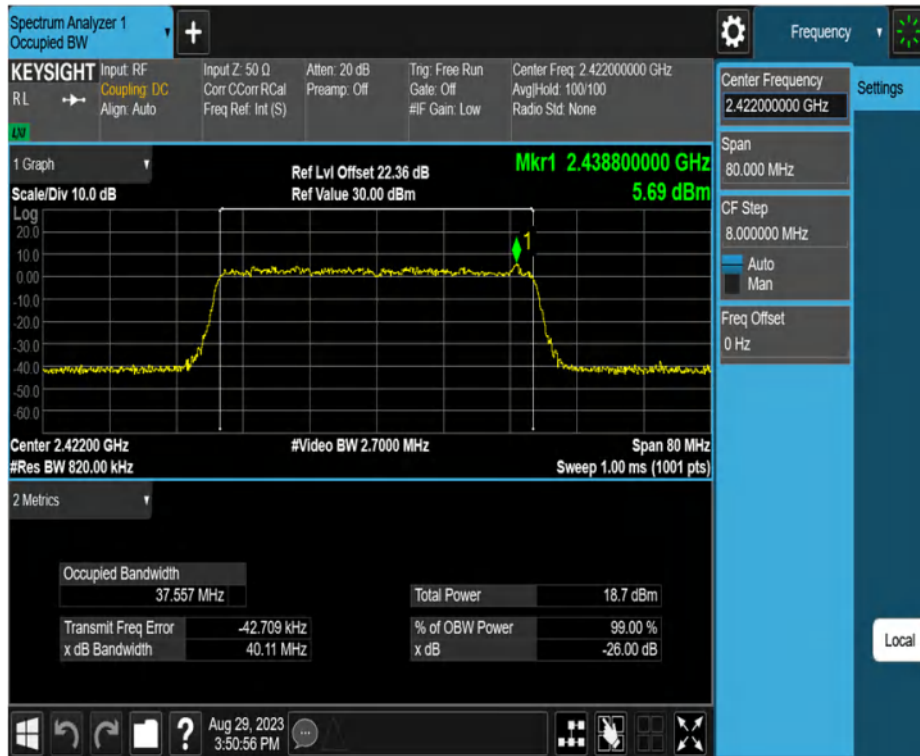




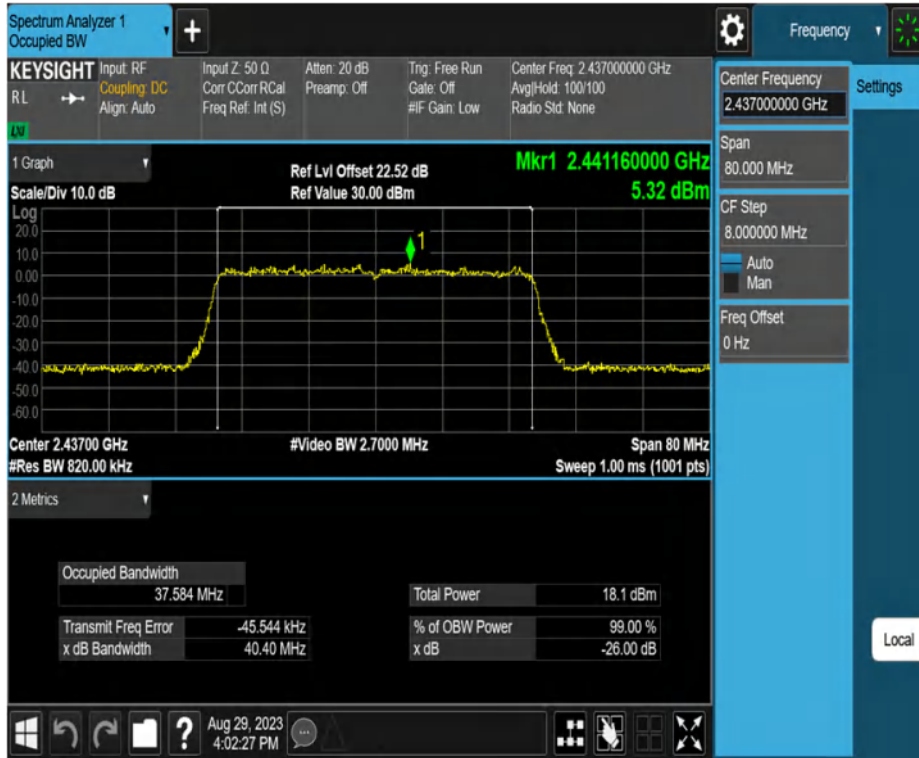
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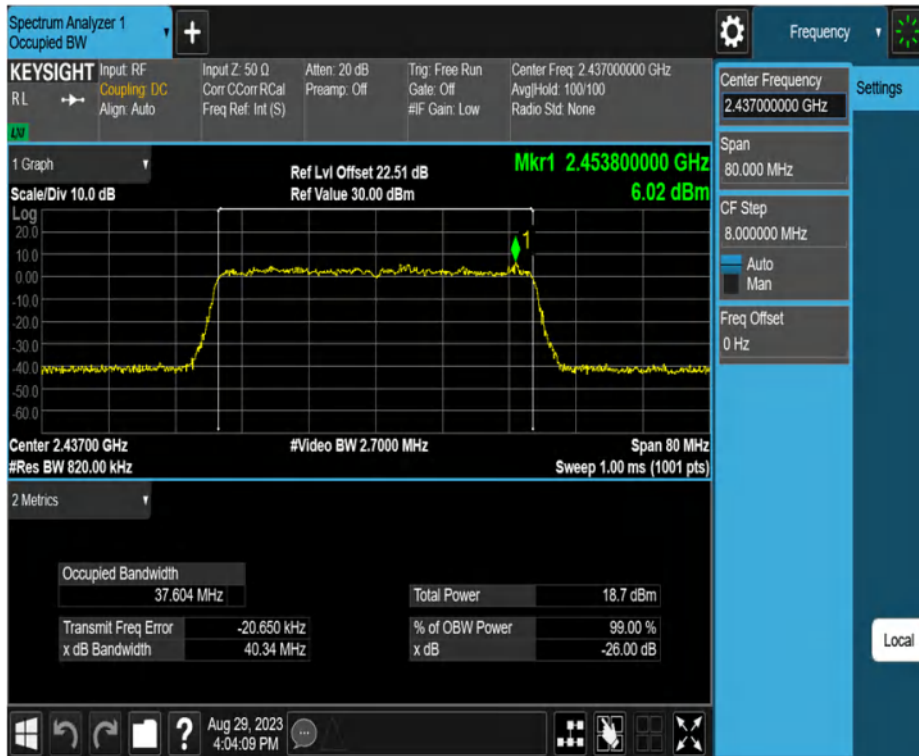
11AX40MIMO\_Ant2\_2422



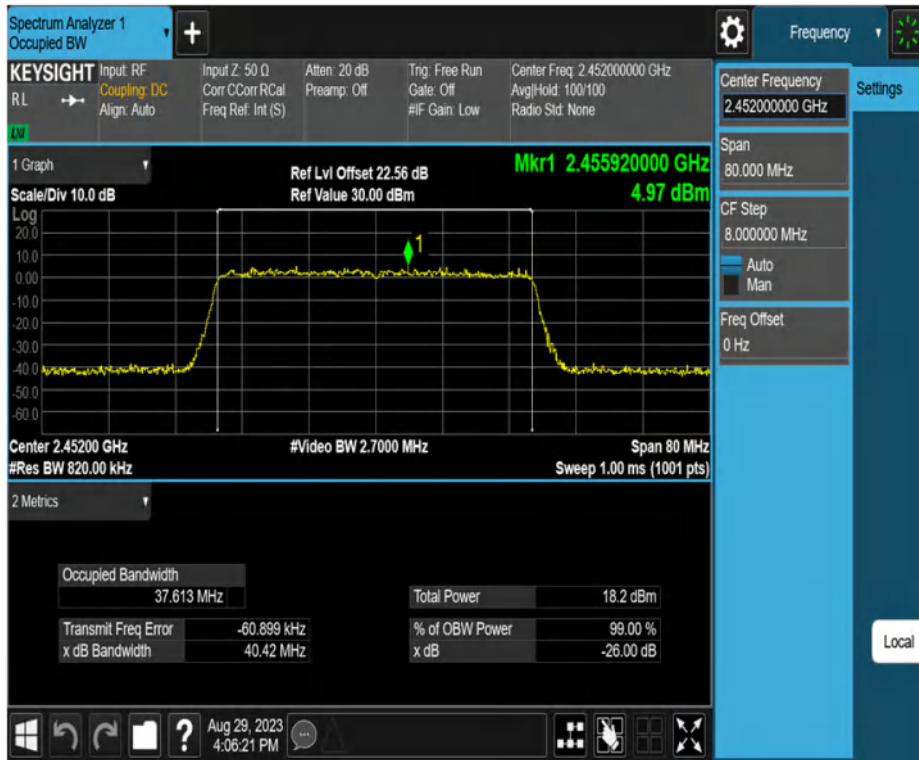
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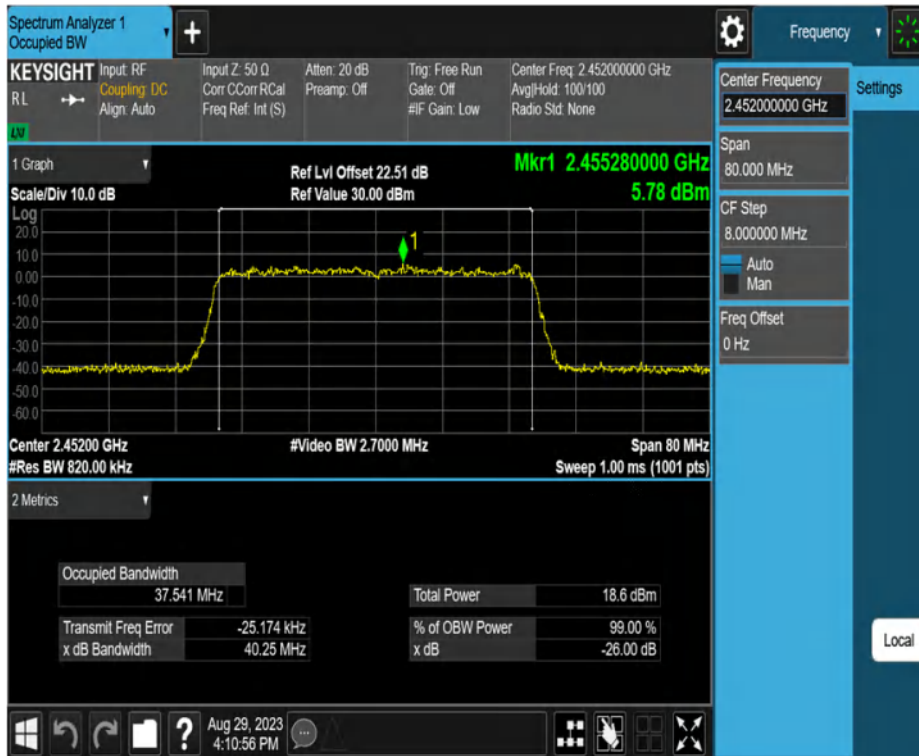
11AX40MIMO\_Ant2\_2437



11AX40MIMO\_Ant1\_2452



11AX40MIMO\_Ant2\_2452



### 3.5 Maximum conducted output power

#### 3.5.1 Limit

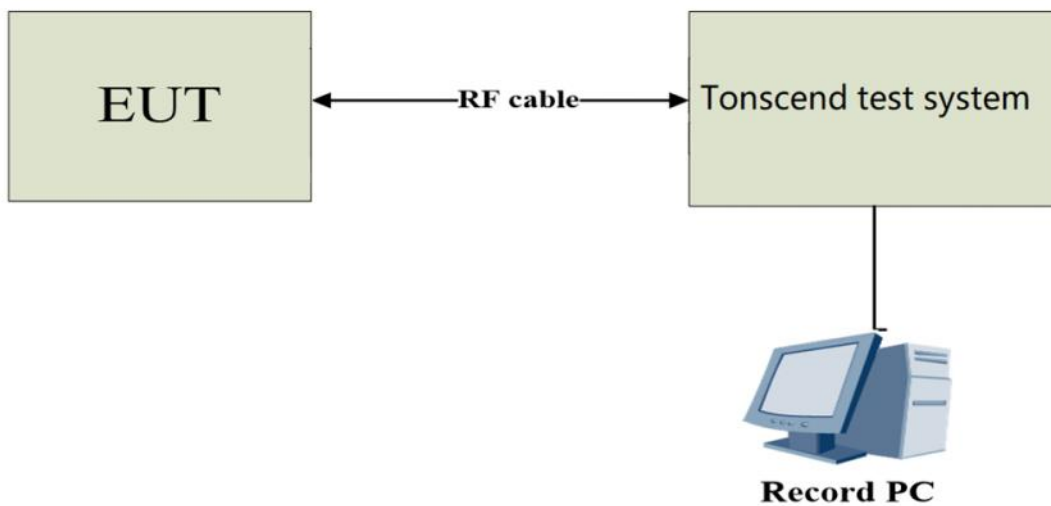
For systems using digital modulation in the 2400~2483.5MHz, The Maximum output Power shall not exceed 1W(30dBm)

#### 3.5.2 Test Procedure

| Test Method                         |                              |
|-------------------------------------|------------------------------|
| ●Conducted Measurement              | ○Radiated Measurement        |
| Test Channels                       |                              |
| ●Lowest, Middle and Highest Channel | ○ Lowest and Highest Channel |
| Environmental conditions            |                              |
| ●Normal                             | ○Normal and Extreme          |
| Note:●:Test    ○:No Test            |                              |

- The EUT was directly connected to the tonscend test system and antenna output port as show in the block diagram below.
- The maximum conducted output power was performed in accordance with method 11.9.1.3 (for peak power) of ANSI C63.10-2013 and FCC KDB 662911 D01 v02r01 Multiple Transmitter Output.

#### 3.5.3 Test Setup





### 3.5.4 Table of Parameters of Text Software Setting

During testing channel & power controlling software provided by the customer was used to control the operating channel as well as the output power level. The RF output power selection is for the setting of RF output power expected by the customer and is going to be fixed on the firmware of the final end product.

#### No beamforming

| Test Software         | accessMTool_REL_3_3_0_2 |      |      |
|-----------------------|-------------------------|------|------|
| Frequency (MHz)       | 2412                    | 2437 | 2462 |
| IEEE 802.11b          | 50                      | 50   | 50   |
| IEEE 802.11g          | 40                      | 40   | 40   |
| IEEE 802.11n (20MHz)  | 30                      | 30   | 30   |
| IEEE 802.11ax (20MHz) | 30                      | 30   | 30   |
| Frequency (MHz)       | 2422                    | 2437 | 2452 |
| IEEE 802.11n (40MHz)  | 30                      | 30   | 30   |
| IEEE 802.11ax (40MHz) | 30                      | 30   | 30   |

#### Beamforming

| Test Software         | accessMTool_REL_3_3_0_2 |      |      |
|-----------------------|-------------------------|------|------|
| Frequency (MHz)       | 2412                    | 2437 | 2462 |
| IEEE 802.11b          | 40                      | 40   | 40   |
| IEEE 802.11g          | 30                      | 30   | 30   |
| IEEE 802.11n (20MHz)  | 20                      | 20   | 20   |
| IEEE 802.11ax (20MHz) | 20                      | 20   | 20   |
| Frequency (MHz)       | 2422                    | 2437 | 2452 |
| IEEE 802.11n (40MHz)  | 20                      | 20   | 20   |
| IEEE 802.11ax (40MHz) | 20                      | 20   | 20   |

### 3.5.5 The Result

No beamforming

| Test Mode  | Antenna | Frequency[MHz] | Maximum conducted output Power [dBm] | Limit [dBm] | Verdict |
|------------|---------|----------------|--------------------------------------|-------------|---------|
| 11B-CDD    | Ant1    | 2412           | 15.25                                | ≤29.12      | PASS    |
|            | Ant2    | 2412           | 15.02                                | ≤29.12      | PASS    |
|            | total   | 2412           | 18.15                                | ≤29.12      | PASS    |
|            | Ant1    | 2437           | 15.60                                | ≤29.12      | PASS    |
|            | Ant2    | 2437           | 15.85                                | ≤29.12      | PASS    |
|            | total   | 2437           | 18.74                                | ≤29.12      | PASS    |
|            | Ant1    | 2462           | 15.57                                | ≤29.12      | PASS    |
|            | Ant2    | 2462           | 15.81                                | ≤29.12      | PASS    |
|            | total   | 2462           | 18.70                                | ≤29.12      | PASS    |
| 11G-CDD    | Ant1    | 2412           | 15.57                                | ≤29.12      | PASS    |
|            | Ant2    | 2412           | 16.22                                | ≤29.12      | PASS    |
|            | total   | 2412           | <b>18.92</b>                         | ≤29.12      | PASS    |
|            | Ant1    | 2437           | 15.54                                | ≤29.12      | PASS    |
|            | Ant2    | 2437           | 16.13                                | ≤29.12      | PASS    |
|            | total   | 2437           | 18.86                                | ≤29.12      | PASS    |
|            | Ant1    | 2462           | 15.59                                | ≤29.12      | PASS    |
|            | Ant2    | 2462           | 16.11                                | ≤29.12      | PASS    |
|            | total   | 2462           | 18.87                                | ≤29.12      | PASS    |
| 11N20MIMO  | Ant1    | 2412           | 13.80                                | ≤29.12      | PASS    |
|            | Ant2    | 2412           | 14.56                                | ≤29.12      | PASS    |
|            | total   | 2412           | 17.21                                | ≤29.12      | PASS    |
|            | Ant1    | 2437           | 13.92                                | ≤29.12      | PASS    |
|            | Ant2    | 2437           | 14.71                                | ≤29.12      | PASS    |
|            | total   | 2437           | 17.34                                | ≤29.12      | PASS    |
|            | Ant1    | 2462           | 13.99                                | ≤29.12      | PASS    |
|            | Ant2    | 2462           | 14.59                                | ≤29.12      | PASS    |
|            | total   | 2462           | 17.31                                | ≤29.12      | PASS    |
| 11N40MIMO  | Ant1    | 2422           | 13.37                                | ≤29.12      | PASS    |
|            | Ant2    | 2422           | 13.99                                | ≤29.12      | PASS    |
|            | total   | 2422           | 16.70                                | ≤29.12      | PASS    |
|            | Ant1    | 2437           | 13.48                                | ≤29.12      | PASS    |
|            | Ant2    | 2437           | 14.15                                | ≤29.12      | PASS    |
|            | total   | 2437           | 16.84                                | ≤29.12      | PASS    |
|            | Ant1    | 2452           | 13.66                                | ≤29.12      | PASS    |
|            | Ant2    | 2452           | 13.99                                | ≤29.12      | PASS    |
|            | total   | 2452           | 16.84                                | ≤29.12      | PASS    |
| 11AX20MIMO | Ant1    | 2412           | 13.77                                | ≤29.12      | PASS    |
|            | Ant2    | 2412           | 14.21                                | ≤29.12      | PASS    |

|            |       |      |       |        |      |
|------------|-------|------|-------|--------|------|
|            | total | 2412 | 17.01 | ≤29.12 | PASS |
|            | Ant1  | 2437 | 13.73 | ≤29.12 | PASS |
|            | Ant2  | 2437 | 14.18 | ≤29.12 | PASS |
|            | total | 2437 | 16.97 | ≤29.12 | PASS |
|            | Ant1  | 2462 | 13.78 | ≤29.12 | PASS |
|            | Ant2  | 2462 | 14.07 | ≤29.12 | PASS |
|            | total | 2462 | 16.94 | ≤29.12 | PASS |
| 11AX40MIMO | Ant1  | 2422 | 13.18 | ≤29.12 | PASS |
|            | Ant2  | 2422 | 13.73 | ≤29.12 | PASS |
|            | total | 2422 | 16.47 | ≤29.12 | PASS |
|            | Ant1  | 2437 | 13.27 | ≤29.12 | PASS |
|            | Ant2  | 2437 | 13.71 | ≤29.12 | PASS |
|            | total | 2437 | 16.51 | ≤29.12 | PASS |
|            | Ant1  | 2452 | 13.40 | ≤29.12 | PASS |
|            | Ant2  | 2452 | 13.53 | ≤29.12 | PASS |
|            | total | 2452 | 16.48 | ≤29.12 | PASS |

For MIMO mode

| Frequency[MHz]  | ANT 1 Antenna Gain (dBi) | ANT 2 Antenna Gain (dBi) | Correlated chains directional gain (dBi) | Conducted Power Limit (dBm) |
|---|--------------------------|--------------------------|--|-----------------------------|
| 2412-2462   | 3.76                     | 3.98                     | 6.88                                     | 29.12                       |
| <p>Unequal antenna gains, with equal transmit powers. For antenna gains given by <math>G_1, G_2, \dots, G_N</math> dBi<br/>           If transmit signals are correlated, then Directional gain = <math>10 \log[(10^{G_1/20} + 10^{G_2/20} + \dots + 10^{G_N/20})^2 / N_{ANT}]</math> dBi<br/>           [Note the "20"s in the denominator of each exponent and the square of the sum of terms; the object is to combine the signal levels coherently.]<br/>           Directional gain = <math>10 \log[(10^{3.76/20} + 10^{3.98/20})^2 / N_{ANT}]</math> dBi=6.88</p> |                          |                          |  |                             |

Beamforming

| Test Mode  | Antenna | Frequency[MHz] | Maximum conducted output Power [dBm] | Limit [dBm] | Verdict |
|------------|---------|----------------|--------------------------------------|-------------|---------|
| 11B-CDD    | Ant1    | 2412           | 12.72                                | ≤26.62      | PASS    |
|            | Ant2    | 2412           | 12.49                                | ≤26.62      | PASS    |
|            | total   | 2412           | 15.62                                | ≤26.62      | PASS    |
|            | Ant1    | 2437           | 13.05                                | ≤26.62      | PASS    |
|            | Ant2    | 2437           | 13.30                                | ≤26.62      | PASS    |
|            | total   | 2437           | 16.19                                | ≤26.62      | PASS    |
|            | Ant1    | 2462           | 12.96                                | ≤26.62      | PASS    |
|            | Ant2    | 2462           | 13.20                                | ≤26.62      | PASS    |
|            | total   | 2462           | 16.09                                | ≤26.62      | PASS    |
| 11G-CDD    | Ant1    | 2412           | 12.84                                | ≤26.62      | PASS    |
|            | Ant2    | 2412           | 13.49                                | ≤26.62      | PASS    |
|            | total   | 2412           | 16.19                                | ≤26.62      | PASS    |
|            | Ant1    | 2437           | 12.90                                | ≤26.62      | PASS    |
|            | Ant2    | 2437           | 13.49                                | ≤26.62      | PASS    |
|            | total   | 2437           | 16.22                                | ≤26.62      | PASS    |
|            | Ant1    | 2462           | 13.02                                | ≤26.62      | PASS    |
|            | Ant2    | 2462           | 13.54                                | ≤26.62      | PASS    |
|            | total   | 2462           | 16.30                                | ≤26.62      | PASS    |
| 11N20MIMO  | Ant1    | 2412           | 11.24                                | ≤26.62      | PASS    |
|            | Ant2    | 2412           | 12.00                                | ≤26.62      | PASS    |
|            | total   | 2412           | 14.65                                | ≤26.62      | PASS    |
|            | Ant1    | 2437           | 11.18                                | ≤26.62      | PASS    |
|            | Ant2    | 2437           | 11.97                                | ≤26.62      | PASS    |
|            | total   | 2437           | 14.60                                | ≤26.62      | PASS    |
|            | Ant1    | 2462           | 11.33                                | ≤26.62      | PASS    |
|            | Ant2    | 2462           | 11.93                                | ≤26.62      | PASS    |
|            | total   | 2462           | 14.65                                | ≤26.62      | PASS    |
| 11N40MIMO  | Ant1    | 2422           | 10.76                                | ≤26.62      | PASS    |
|            | Ant2    | 2422           | 11.38                                | ≤26.62      | PASS    |
|            | total   | 2422           | 14.09                                | ≤26.62      | PASS    |
|            | Ant1    | 2437           | 10.94                                | ≤26.62      | PASS    |
|            | Ant2    | 2437           | 11.61                                | ≤26.62      | PASS    |
|            | total   | 2437           | 14.30                                | ≤26.62      | PASS    |
|            | Ant1    | 2452           | 10.93                                | ≤26.62      | PASS    |
|            | Ant2    | 2452           | 11.26                                | ≤26.62      | PASS    |
|            | total   | 2452           | 14.11                                | ≤26.62      | PASS    |
| 11AX20MIMO | Ant1    | 2412           | 11.19                                | ≤26.62      | PASS    |
|            | Ant2    | 2412           | 11.63                                | ≤26.62      | PASS    |
|            | total   | 2412           | 14.43                                | ≤26.62      | PASS    |



|            |       |      |       |        |      |
|------------|-------|------|-------|--------|------|
|            | Ant1  | 2437 | 10.90 | ≤26.62 | PASS |
|            | Ant2  | 2437 | 11.35 | ≤26.62 | PASS |
|            | total | 2437 | 14.14 | ≤26.62 | PASS |
|            | Ant1  | 2462 | 11.26 | ≤26.62 | PASS |
|            | Ant2  | 2462 | 11.55 | ≤26.62 | PASS |
|            | total | 2462 | 14.42 | ≤26.62 | PASS |
| 11AX40MIMO | Ant1  | 2422 | 10.53 | ≤26.62 | PASS |
|            | Ant2  | 2422 | 11.08 | ≤26.62 | PASS |
|            | total | 2422 | 13.82 | ≤26.62 | PASS |
|            | Ant1  | 2437 | 10.70 | ≤26.62 | PASS |
|            | Ant2  | 2437 | 11.14 | ≤26.62 | PASS |
|            | total | 2437 | 13.94 | ≤26.62 | PASS |
|            | Ant1  | 2452 | 10.74 | ≤26.62 | PASS |
|            | Ant2  | 2452 | 10.87 | ≤26.62 | PASS |
|            | total | 2452 | 13.82 | ≤26.62 | PASS |

For MIMO mode

| Frequency[MHz]  | ANT 1 Antenna Gain (dBi) | ANT 2 Antenna Gain (dBi) | Beamforming Gain (dB) | Correlated chains directional gain (dBi) | Conducted Power Limit (dBm) |
|---|--------------------------|--------------------------|-----------------------|--|-----------------------------|
| 2412-2462   | 3.76                     | 3.98                     | 2.5                   | 9.38                                     | 26.62                       |
| Unequal antenna gains, with equal transmit powers. For antenna gains given by $G_1, G_2, \dots, G_N$ dBi<br>If transmit signals are correlated, then Directional gain = $10 \log[(10^{G_1/20} + 10^{G_2/20} + \dots + 10^{G_N/20})^2 / N_{ANT}]$ dBi<br>[Note the "20"s in the denominator of each exponent and the square of the sum of terms; the object is to combine the signal levels coherently.] |                          |                          |                       |  |                             |
| Directional gain = $10 \log[(10^{3.76/20} + 10^{3.98/20})^2 / N_{ANT}]$ dBi=6.88  |                          |                          |                       |  |                             |

### 3.6 Power Spectral Density

#### 3.6.1 Limit

For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8dBm in any 3kHz band during any time interval of continuous transmitting.

#### 3.6.2 Test Procedure

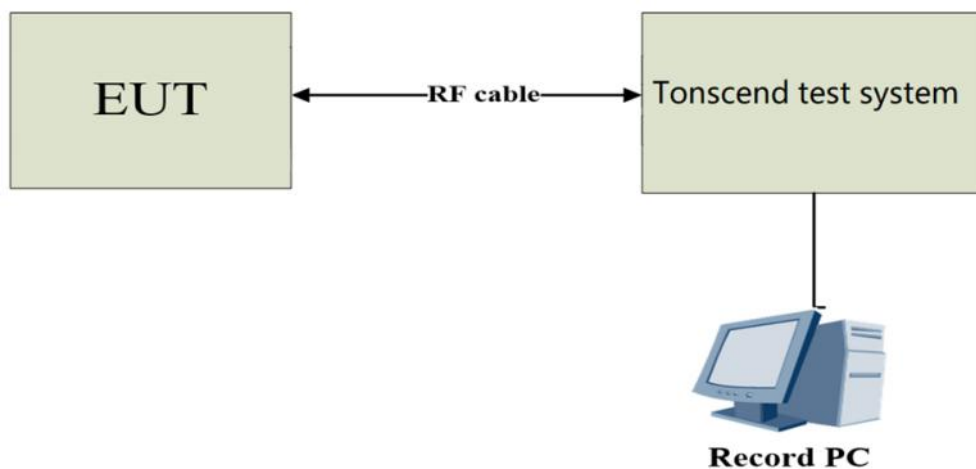
| Test Method                         |                              |
|-------------------------------------|------------------------------|
| ●Conducted Measurement              | ○Radiated Measurement        |
| Test Channels                       |                              |
| ●Lowest, Middle and Highest Channel | ○ Lowest and Highest Channel |
| Environmental conditions            |                              |
| ●Normal                             | ○Normal and Extreme          |
| Note:●:Test ○:No Test               |                              |

a) The EUT was directly connected to the tonscend test system and antenna output port as show in the block diagram below.

b) Spectrum analyser settings as following:

| Spectrum Parameters | Setting                     |
|---------------------|-----------------------------|
| Span Frequency      | 1.5 times the DTS bandwidth |
| RBW                 | 3 kHz                       |
| VBW                 | 10 kHz                      |
| Detector            | Peak                        |
| Trace               | Max Hold                    |
| Sweep Time          | Auto                        |

#### 3.6.3 Test Setup



### 3.6.4 The Result

| Test Mode  | Antenna | Frequency[MHz] | Result[dBm/3kHz] | Limit[dBm/3kHz] | Verdict |
|------------|---------|----------------|------------------|-----------------|---------|
| 11B-CDD    | Ant1    | 2412           | -8.15            | ≤7.12           | PASS    |
|            | Ant2    | 2412           | -7.93            | ≤7.12           | PASS    |
|            | total   | 2412           | -5.03            | ≤7.12           | PASS    |
|            | Ant1    | 2437           | -6.07            | ≤7.12           | PASS    |
|            | Ant2    | 2437           | -6.46            | ≤7.12           | PASS    |
|            | total   | 2437           | -3.25            | ≤7.12           | PASS    |
|            | Ant1    | 2462           | -8.1             | ≤7.12           | PASS    |
|            | Ant2    | 2462           | -7.88            | ≤7.12           | PASS    |
|            | total   | 2462           | -4.98            | ≤7.12           | PASS    |
| 11G-CDD    | Ant1    | 2412           | -15.44           | ≤7.12           | PASS    |
|            | Ant2    | 2412           | -15.89           | ≤7.12           | PASS    |
|            | total   | 2412           | -12.65           | ≤7.12           | PASS    |
|            | Ant1    | 2437           | -15.98           | ≤7.12           | PASS    |
|            | Ant2    | 2437           | -15.37           | ≤7.12           | PASS    |
|            | total   | 2437           | -12.65           | ≤7.12           | PASS    |
|            | Ant1    | 2462           | -15.39           | ≤7.12           | PASS    |
|            | Ant2    | 2462           | -15.95           | ≤7.12           | PASS    |
|            | total   | 2462           | -12.65           | ≤7.12           | PASS    |
| 11N20MIMO  | Ant1    | 2412           | -15.73           | ≤7.12           | PASS    |
|            | Ant2    | 2412           | -15.7            | ≤7.12           | PASS    |
|            | total   | 2412           | -12.70           | ≤7.12           | PASS    |
|            | Ant1    | 2437           | -16.27           | ≤7.12           | PASS    |
|            | Ant2    | 2437           | -15.19           | ≤7.12           | PASS    |
|            | total   | 2437           | -12.69           | ≤7.12           | PASS    |
|            | Ant1    | 2462           | -15.71           | ≤7.12           | PASS    |
|            | Ant2    | 2462           | -15.29           | ≤7.12           | PASS    |
|            | total   | 2462           | -12.48           | ≤7.12           | PASS    |
| 11N40MIMO  | Ant1    | 2422           | -18.66           | ≤7.12           | PASS    |
|            | Ant2    | 2422           | -18.42           | ≤7.12           | PASS    |
|            | total   | 2422           | -15.53           | ≤7.12           | PASS    |
|            | Ant1    | 2437           | -19.06           | ≤7.12           | PASS    |
|            | Ant2    | 2437           | -18.87           | ≤7.12           | PASS    |
|            | total   | 2437           | -15.95           | ≤7.12           | PASS    |
|            | Ant1    | 2452           | -18.39           | ≤7.12           | PASS    |
|            | Ant2    | 2452           | -18.92           | ≤7.12           | PASS    |
|            | total   | 2452           | -15.64           | ≤7.12           | PASS    |
| 11AX20MIMO | Ant1    | 2412           | -15.86           | ≤7.12           | PASS    |
|            | Ant2    | 2412           | -15.47           | ≤7.12           | PASS    |
|            | total   | 2412           | -12.65           | ≤7.12           | PASS    |

|            |       |      |        |       |      |
|------------|-------|------|--------|-------|------|
|            | Ant1  | 2437 | -15.83 | ≤7.12 | PASS |
|            | Ant2  | 2437 | -15.41 | ≤7.12 | PASS |
|            | total | 2437 | -12.60 | ≤7.12 | PASS |
|            | Ant1  | 2462 | -16.2  | ≤7.12 | PASS |
|            | Ant2  | 2462 | -15.4  | ≤7.12 | PASS |
|            | total | 2462 | -12.77 | ≤7.12 | PASS |
| 11AX40MIMO | Ant1  | 2422 | -18.64 | ≤7.12 | PASS |
|            | Ant2  | 2422 | -17.83 | ≤7.12 | PASS |
|            | total | 2422 | -15.21 | ≤7.12 | PASS |
|            | Ant1  | 2437 | -19.11 | ≤7.12 | PASS |
|            | Ant2  | 2437 | -18.16 | ≤7.12 | PASS |
|            | total | 2437 | -15.60 | ≤7.12 | PASS |
|            | Ant1  | 2452 | -18.35 | ≤7.12 | PASS |
|            | Ant2  | 2452 | -17.83 | ≤7.12 | PASS |
|            | total | 2452 | -15.07 | ≤7.12 | PASS |

For MIMO mode

| Frequency[MHz]  | ANT 1 Antenna Gain (dBi) | ANT 2 Antenna Gain (dBi) | Correlated chains directional gain (dBi) | PSD Limit (dBm) |
|---|--------------------------|--------------------------|--|-----------------|
| 2412-2462   | 3.76                     | 3.98                     | 6.88                                     | 7.12            |
| Unequal antenna gains, with equal transmit powers. For antenna gains given by $G_1, G_2, \dots, G_N$ dBi<br>If transmit signals are correlated, then Directional gain = $10 \log\left[\frac{(10^{G_1/20} + 10^{G_2/20} + \dots + 10^{G_N/20})^2}{N_{ANT}}\right]$ dBi<br>[Note the “20”s in the denominator of each exponent and the square of the sum of terms; the object is to combine the signal levels coherently.]<br>Directional gain = $10 \log\left[\frac{(10^{3.76/20} + 10^{3.98/20})^2}{N_{ANT}}\right]$ dBi=6.88 |                          |                          |  |                 |

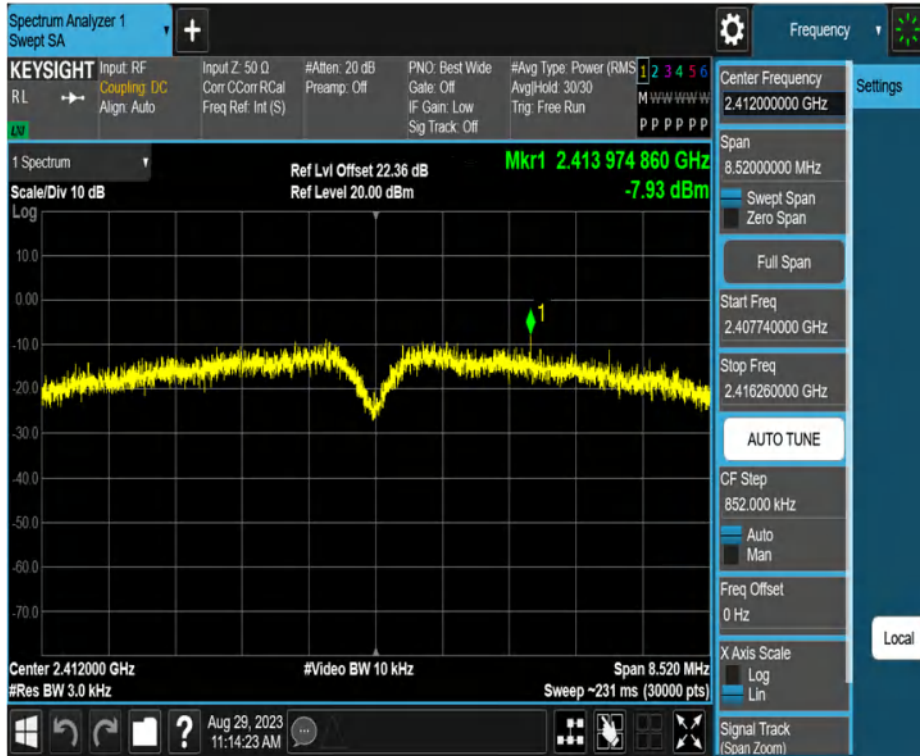
Note: Beamforming conducted power less than no beamforming conducted power, so only no beamforming conducted power spectral density was recored.



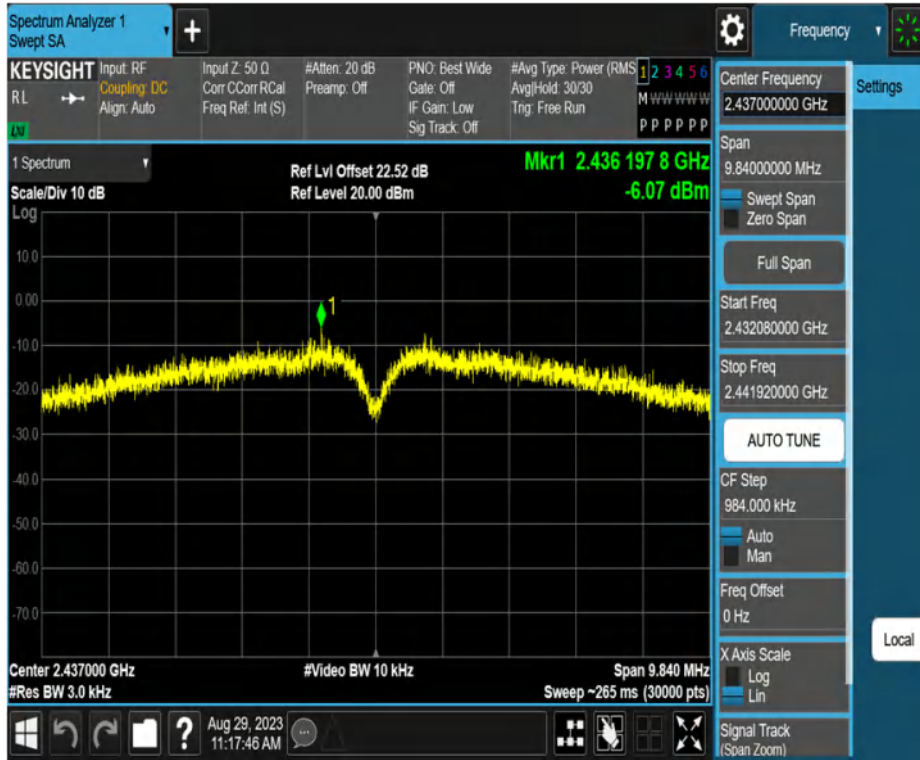
11B-CDD\_Ant1\_2412



11B-CDD\_Ant2\_2412



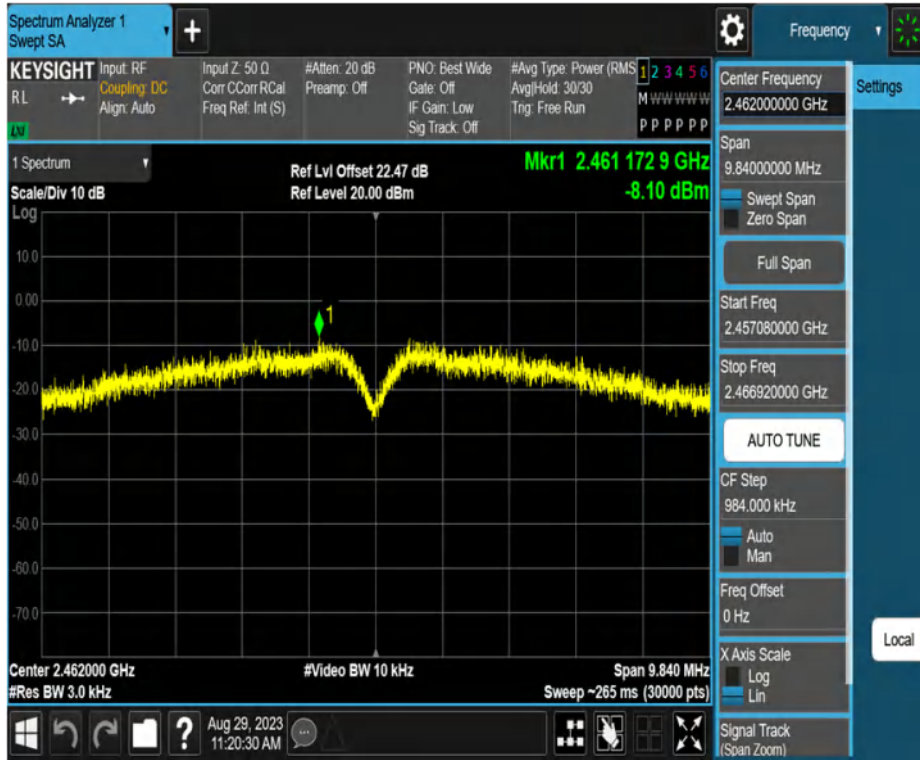
11B-CDD\_Ant1\_2437



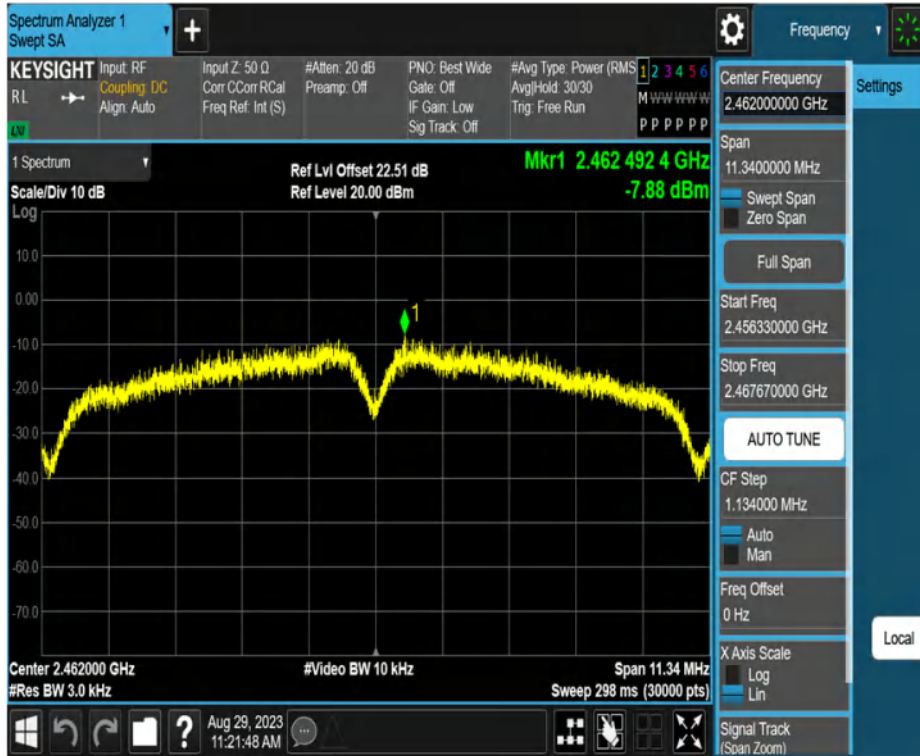
11B-CDD\_Ant2\_2437



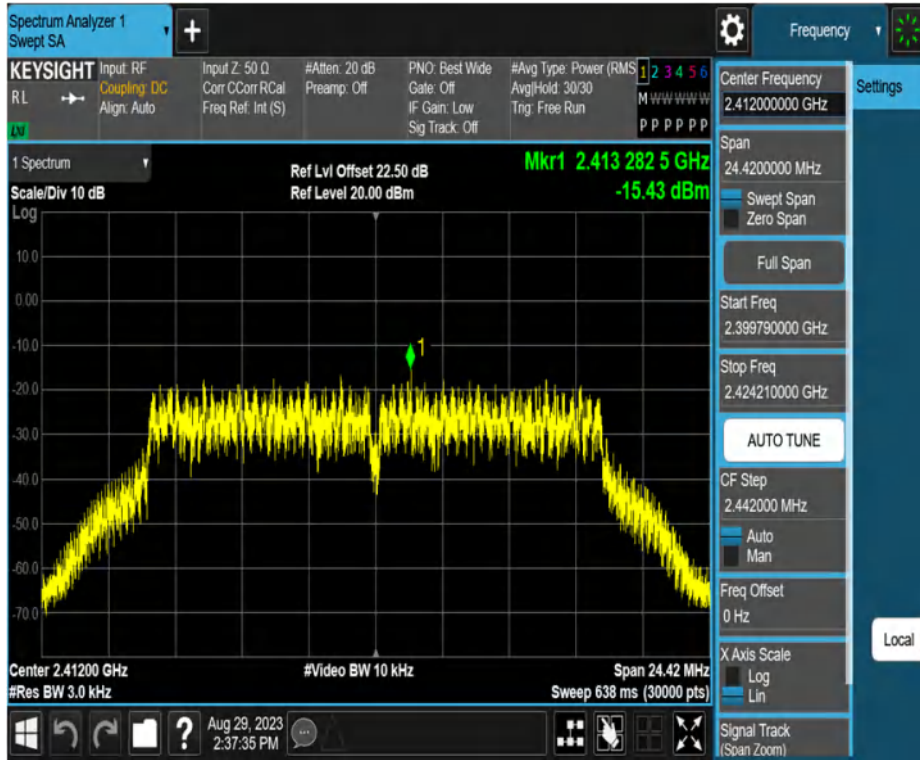
11B-CDD\_Ant1\_2462



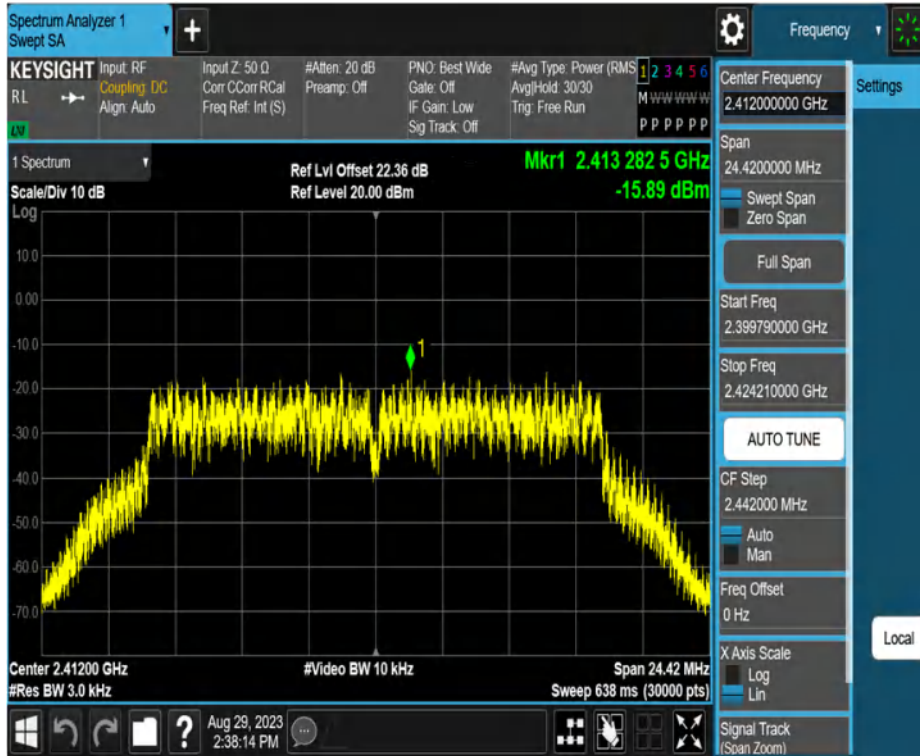
11B-CDD\_Ant2\_2462



11G-CDD\_Ant1\_2412

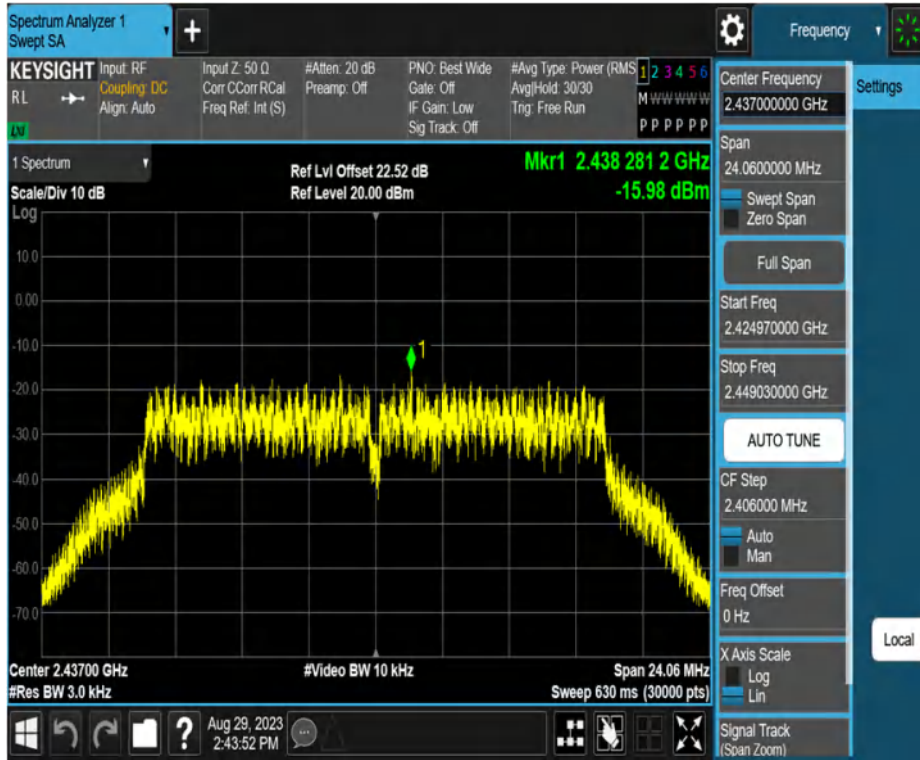


11G-CDD\_Ant2\_2412

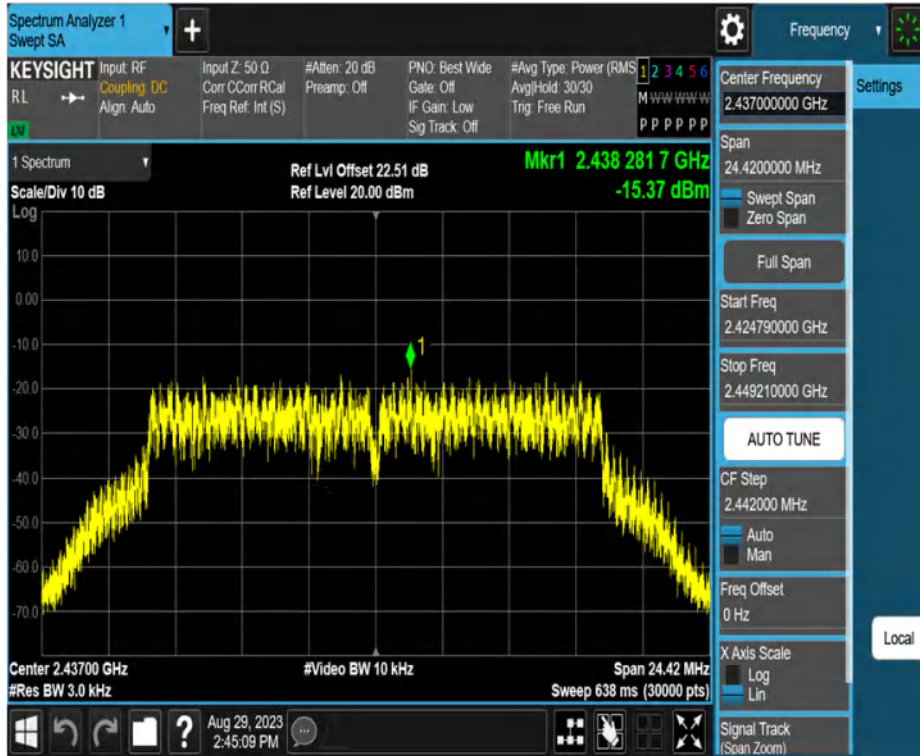




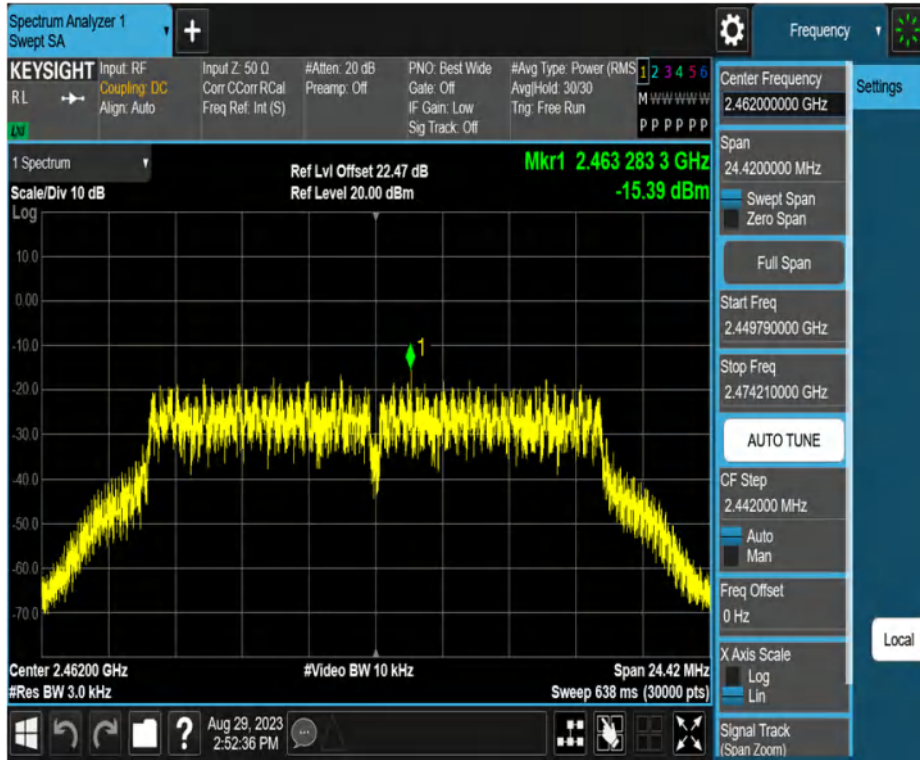
11G-CDD\_Ant1\_2437



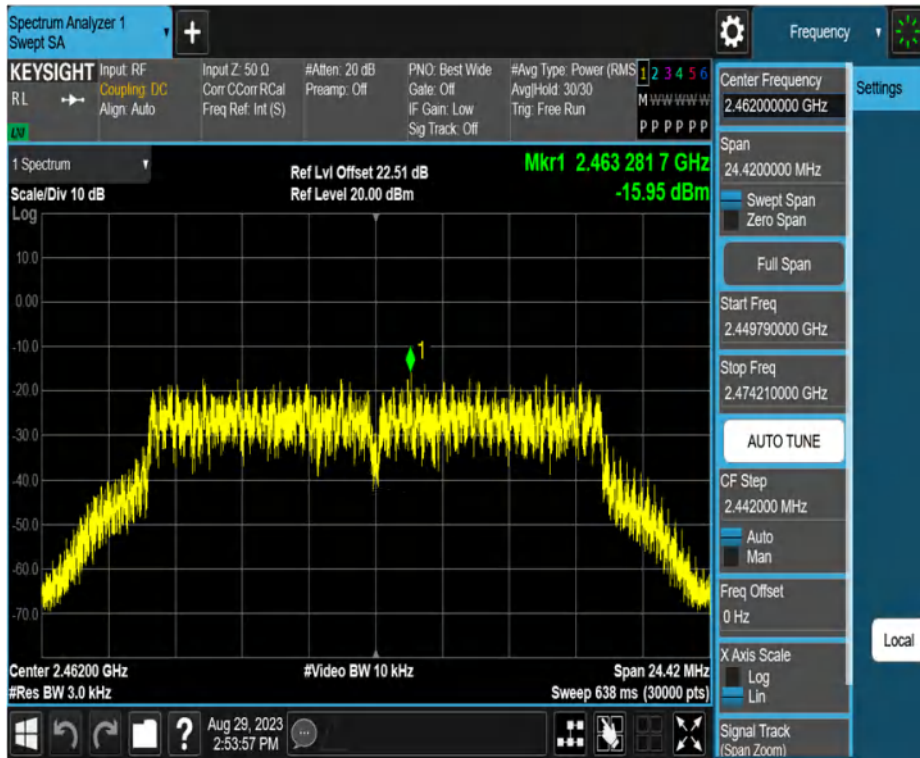
11G-CDD\_Ant2\_2437



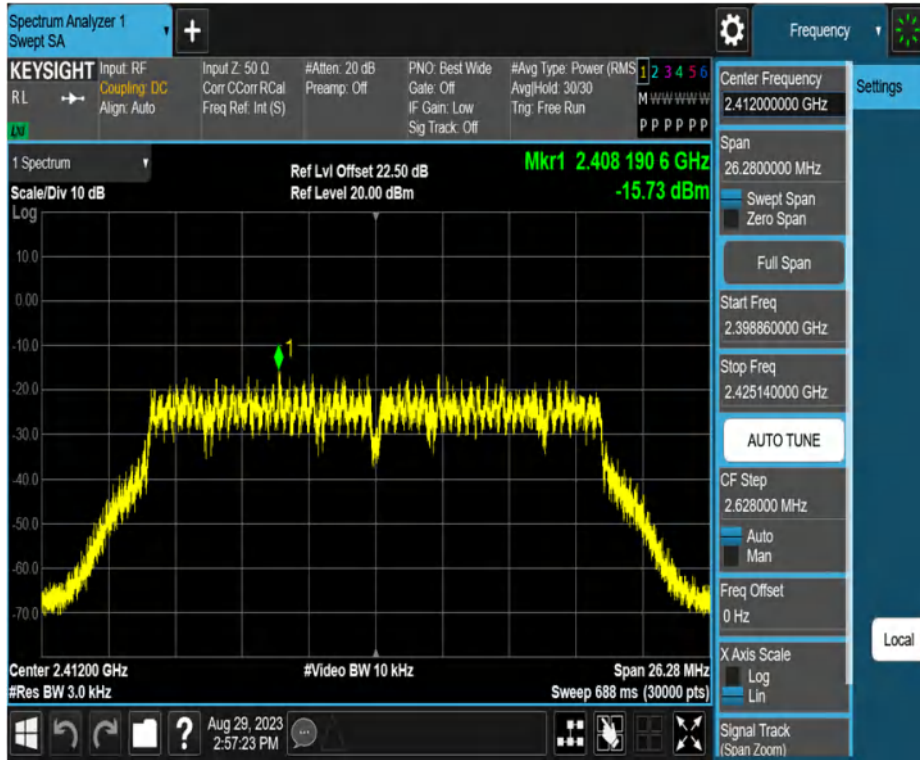
11G-CDD\_Ant1\_2462



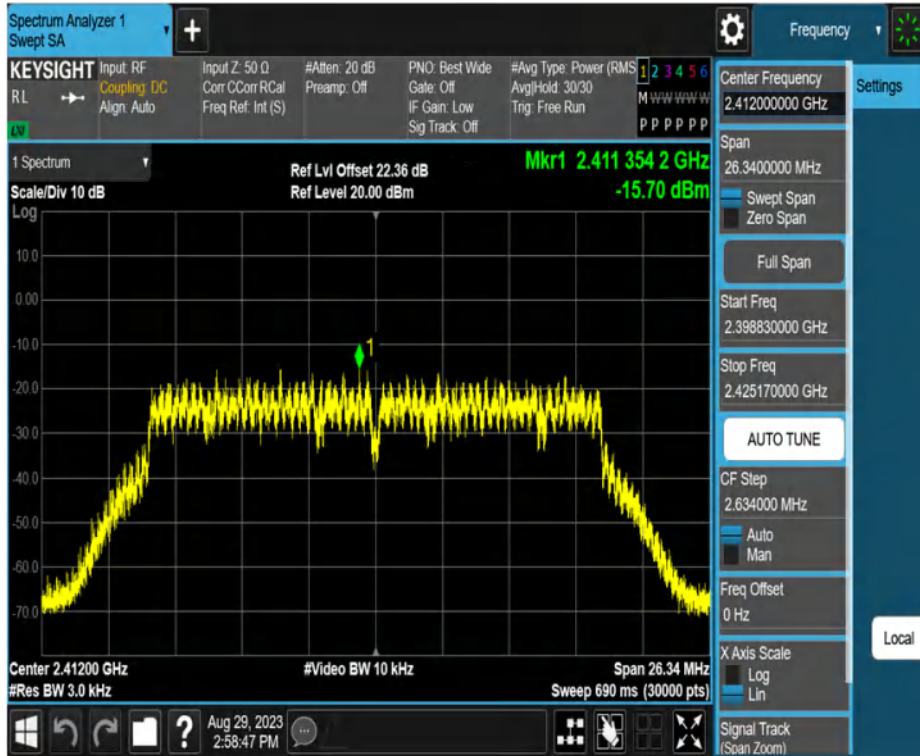
11G-CDD\_Ant2\_2462



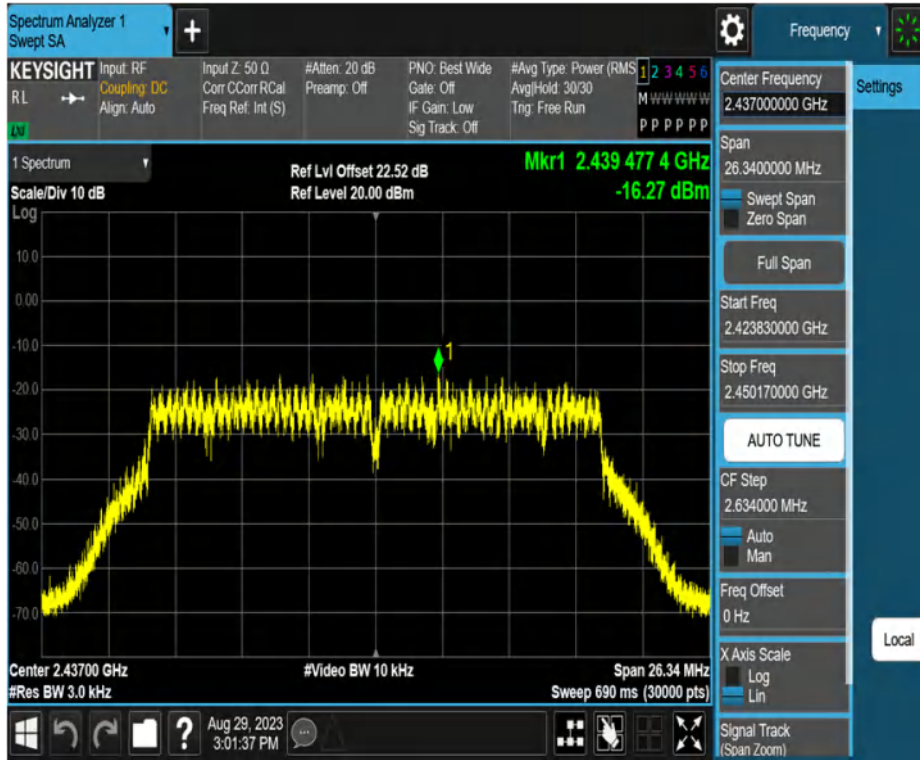
11N20MIMO\_Ant1\_2412



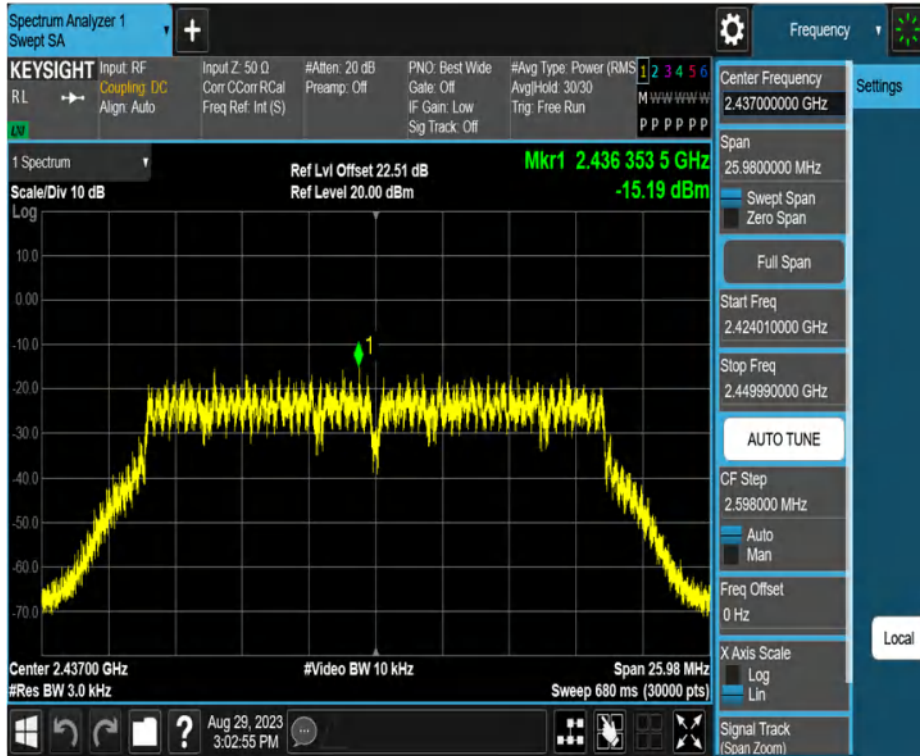
11N20MIMO\_Ant2\_2412



11N20MIMO\_Ant1\_2437

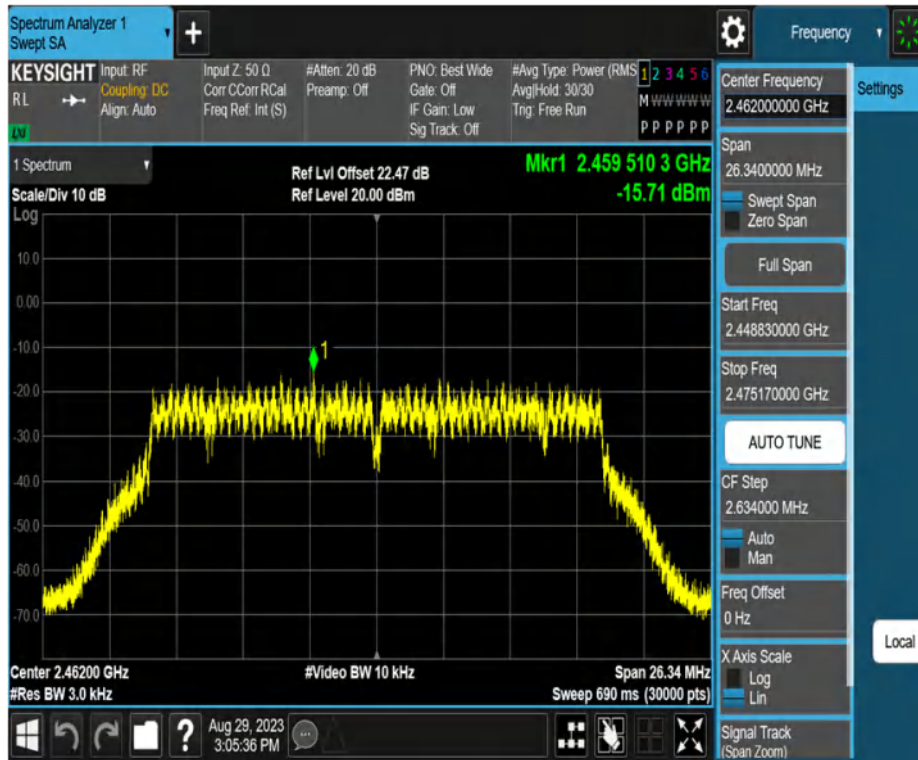


11N20MIMO\_Ant2\_2437

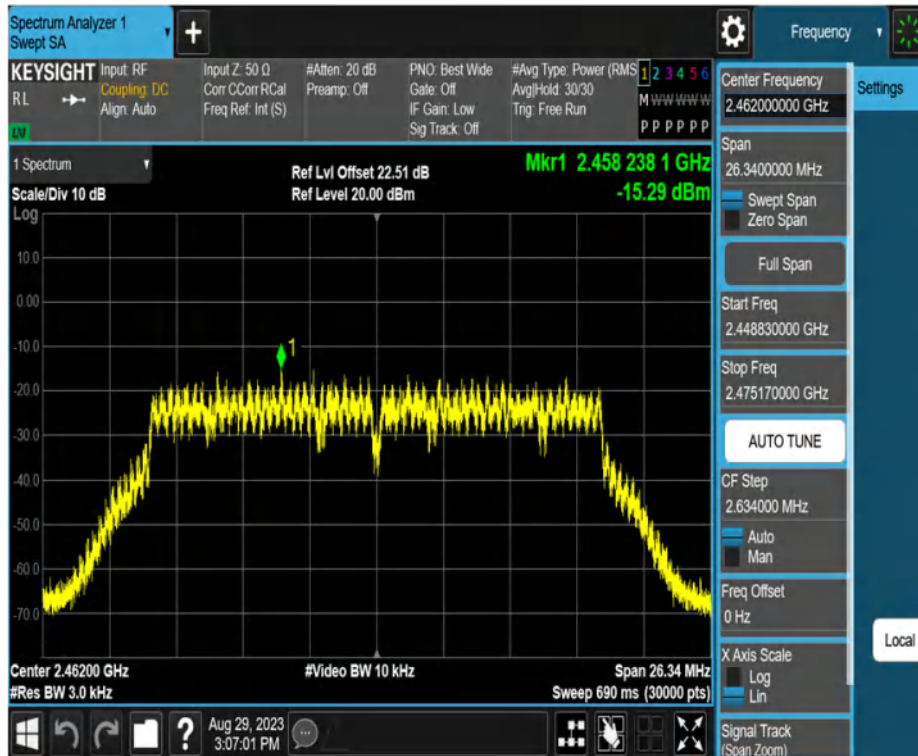




11N20MIMO\_Ant1\_2462

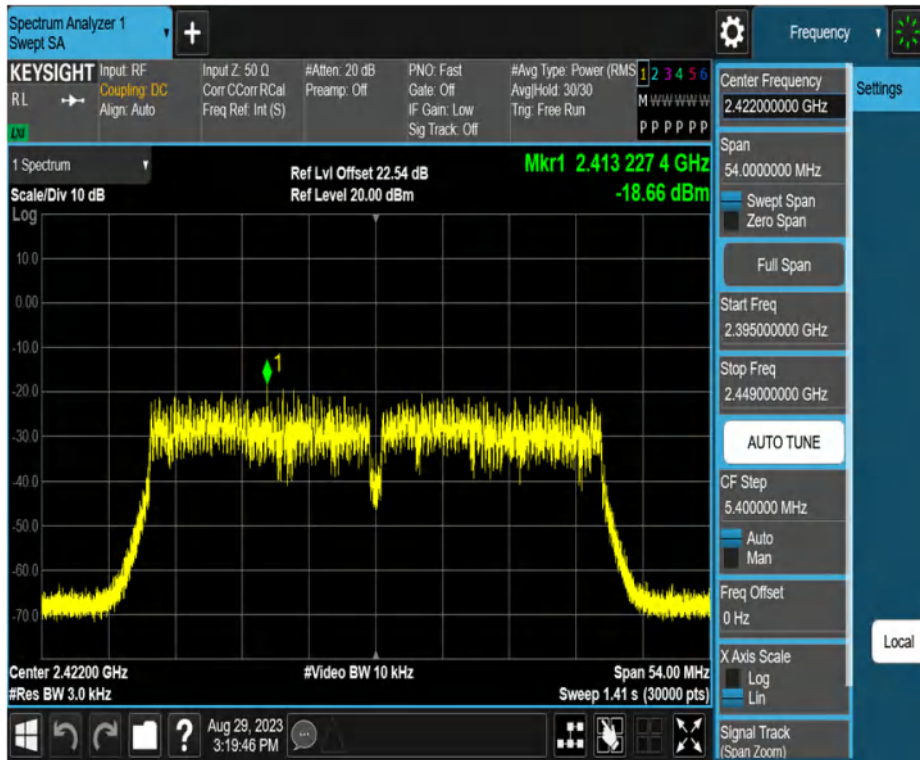


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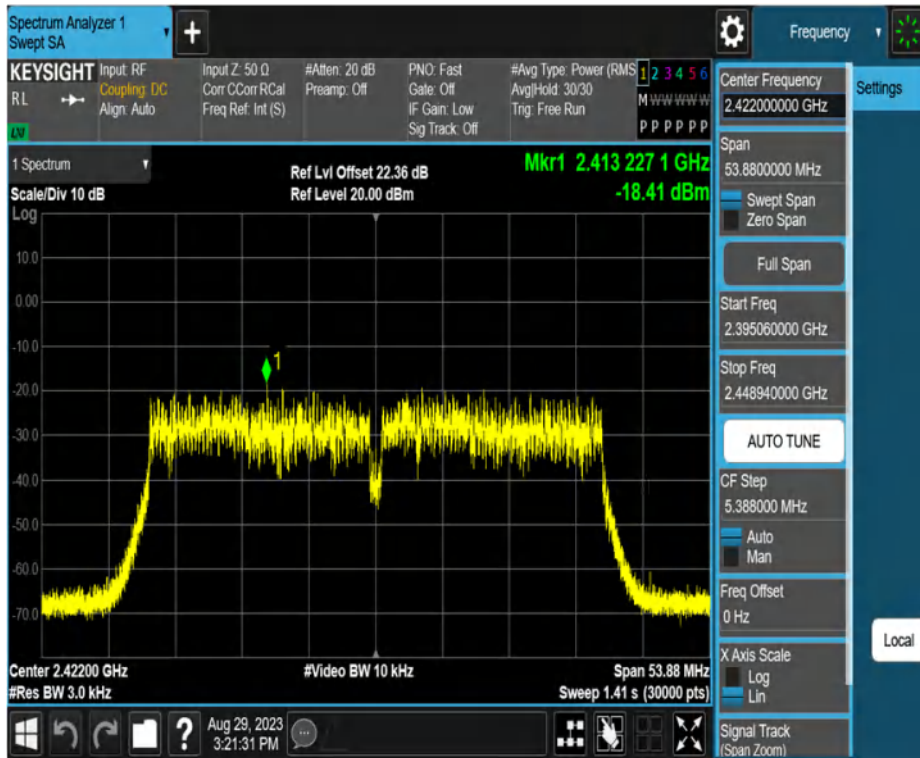




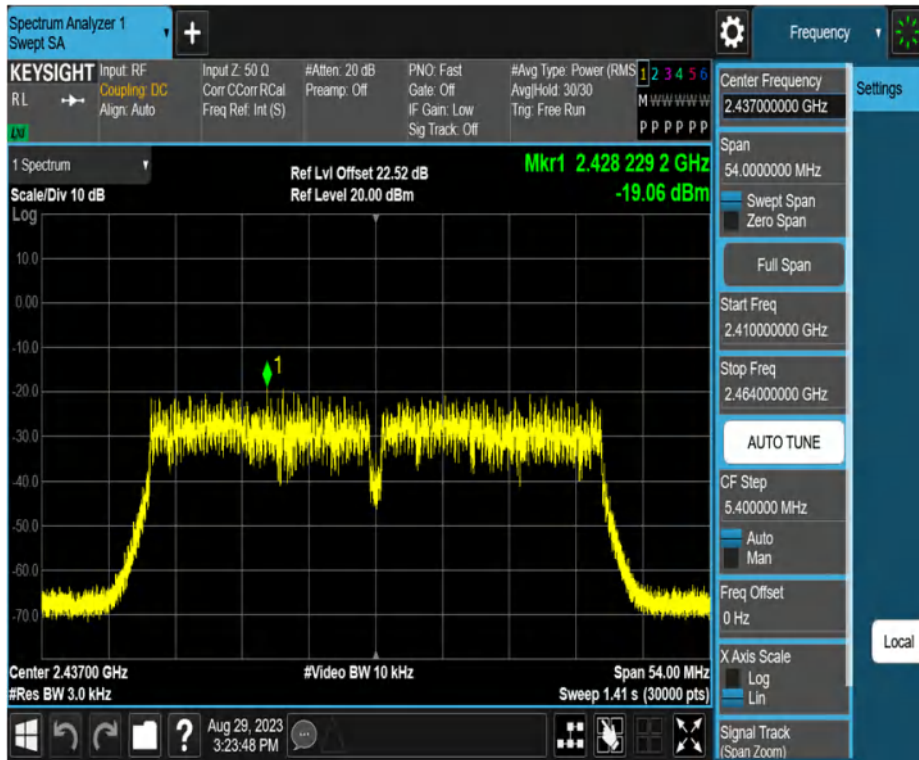
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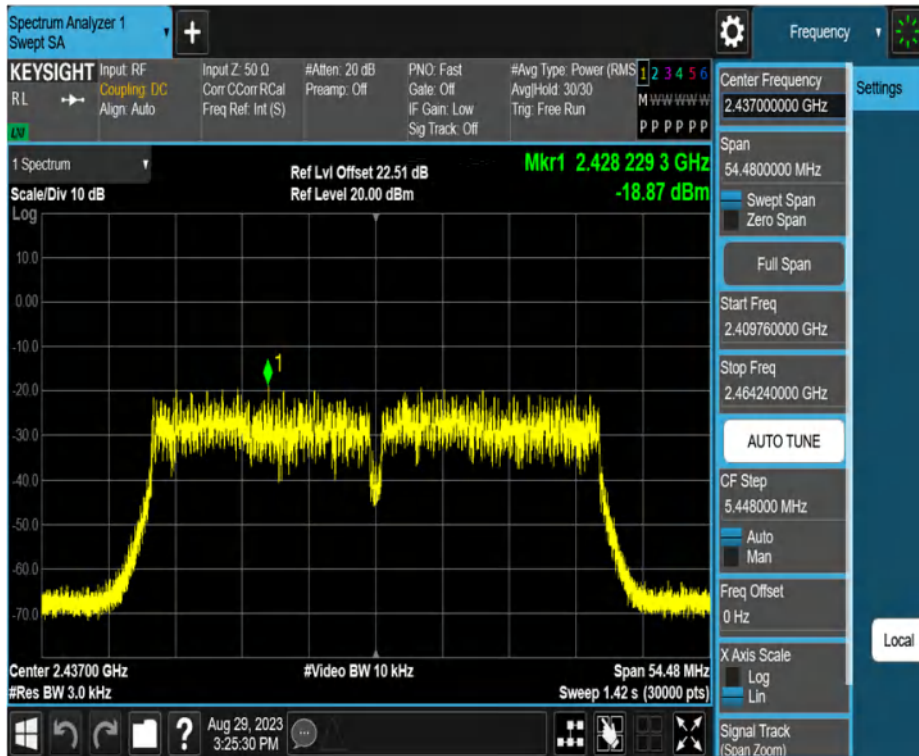
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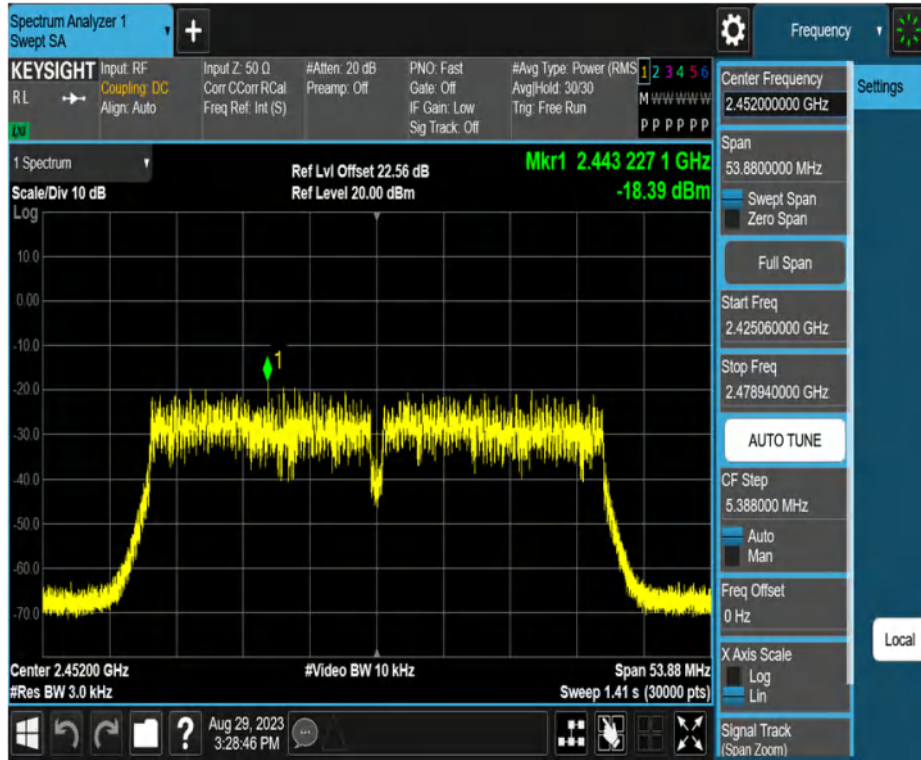
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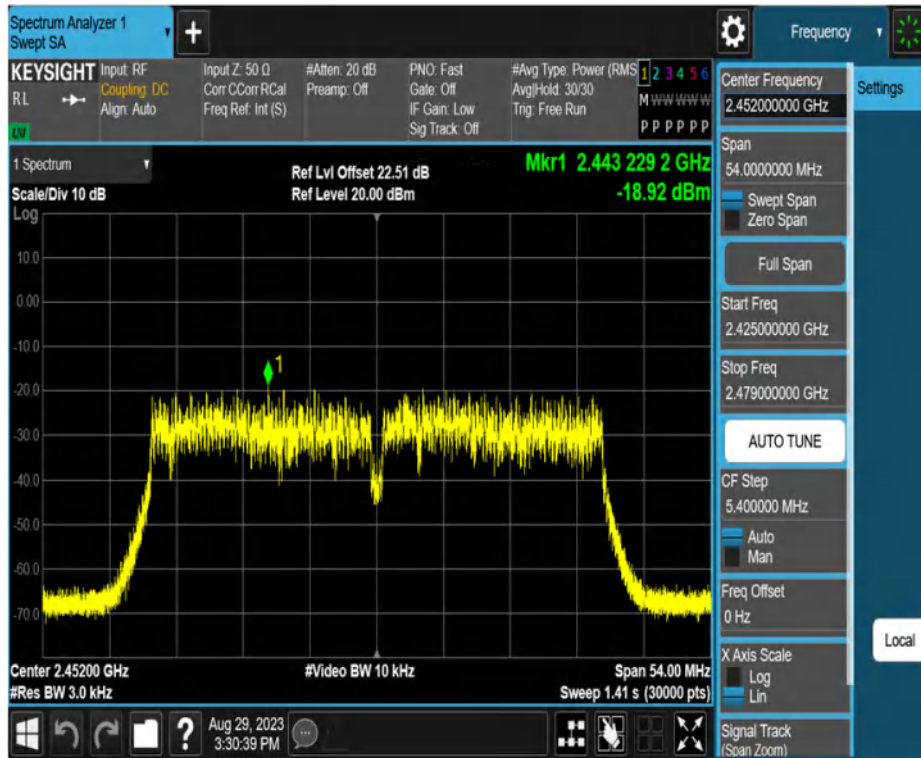
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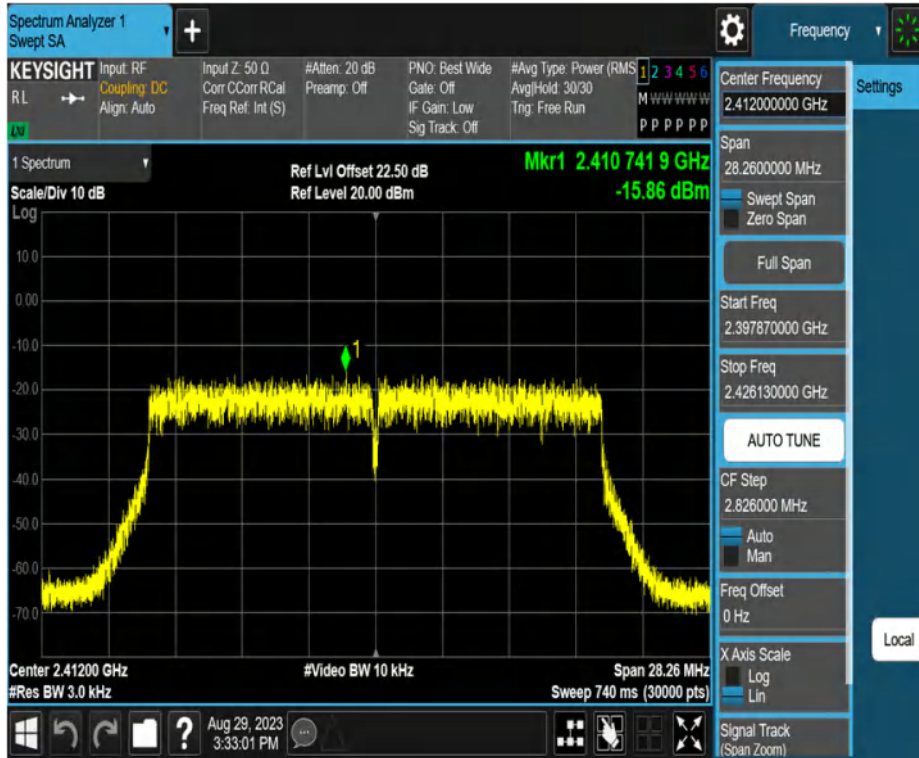
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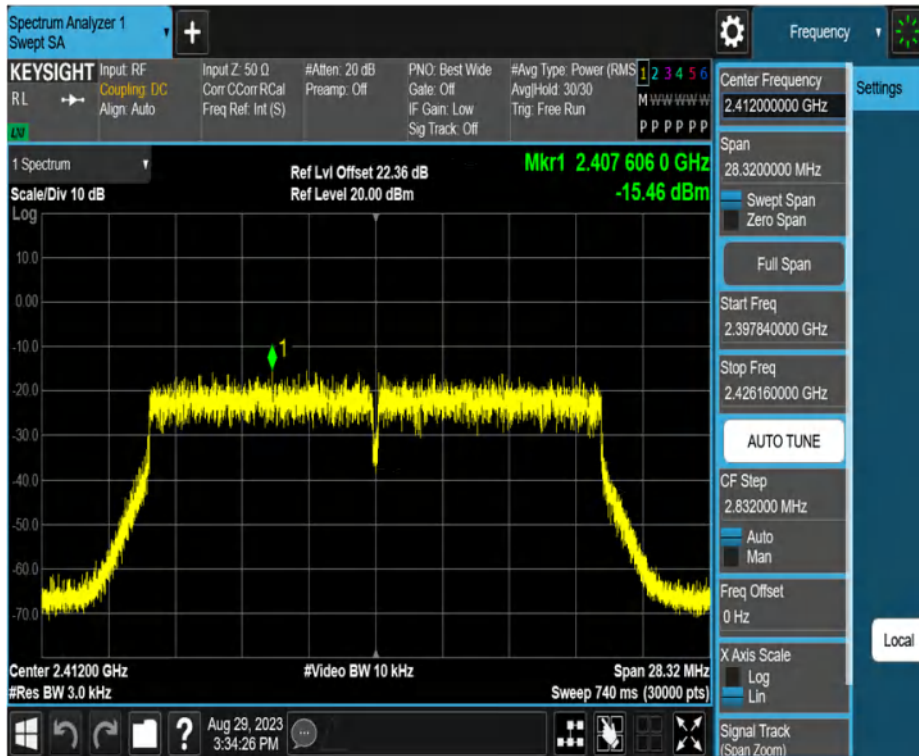
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11AX20MIMO\_Ant1\_2412

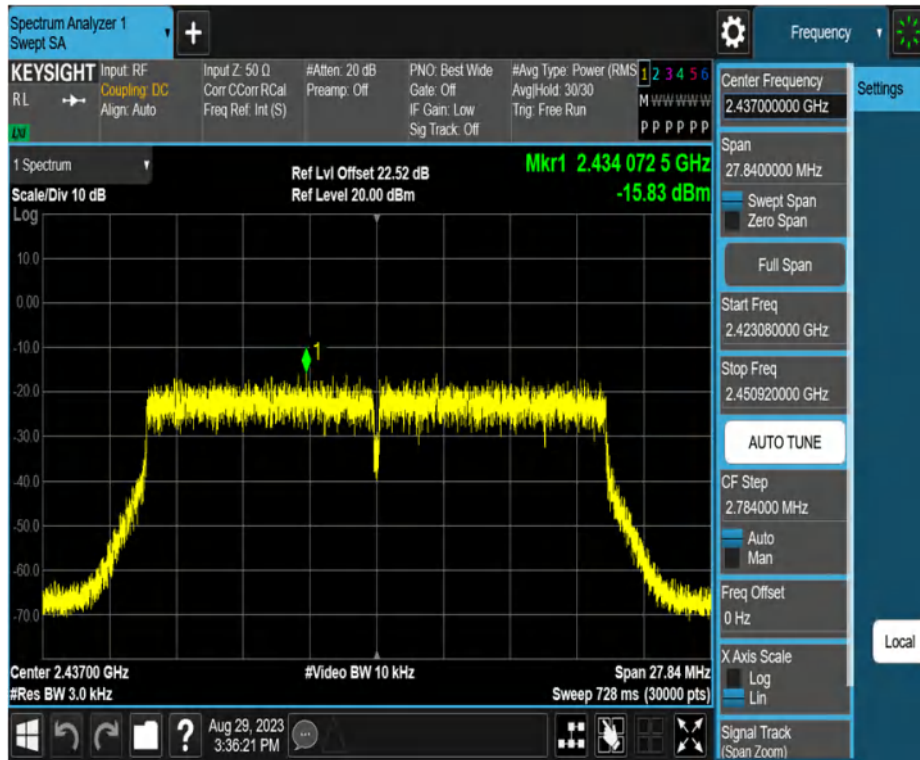


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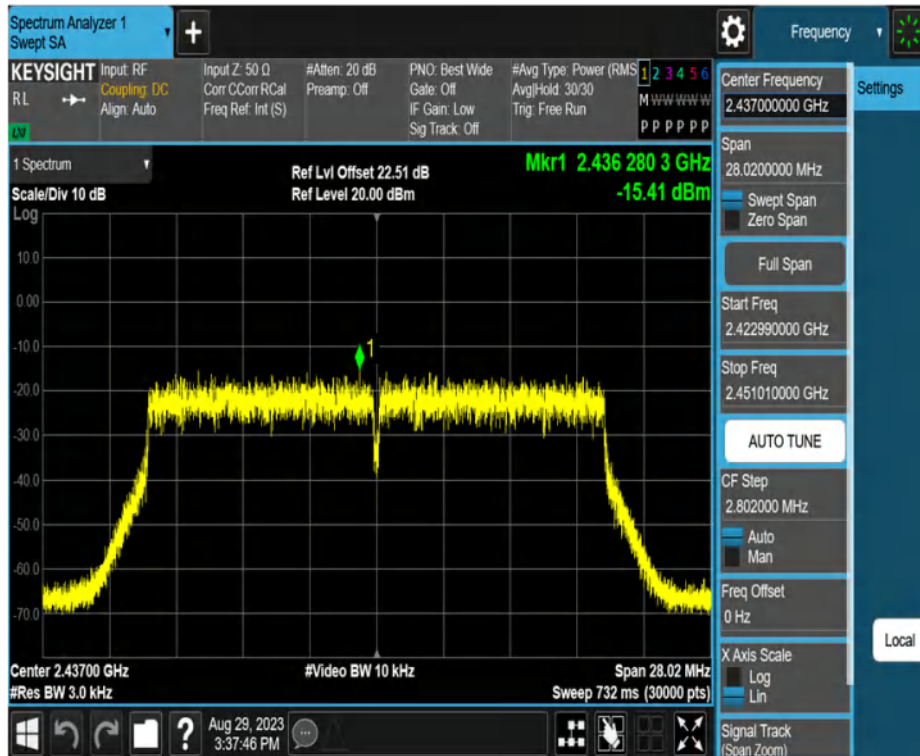




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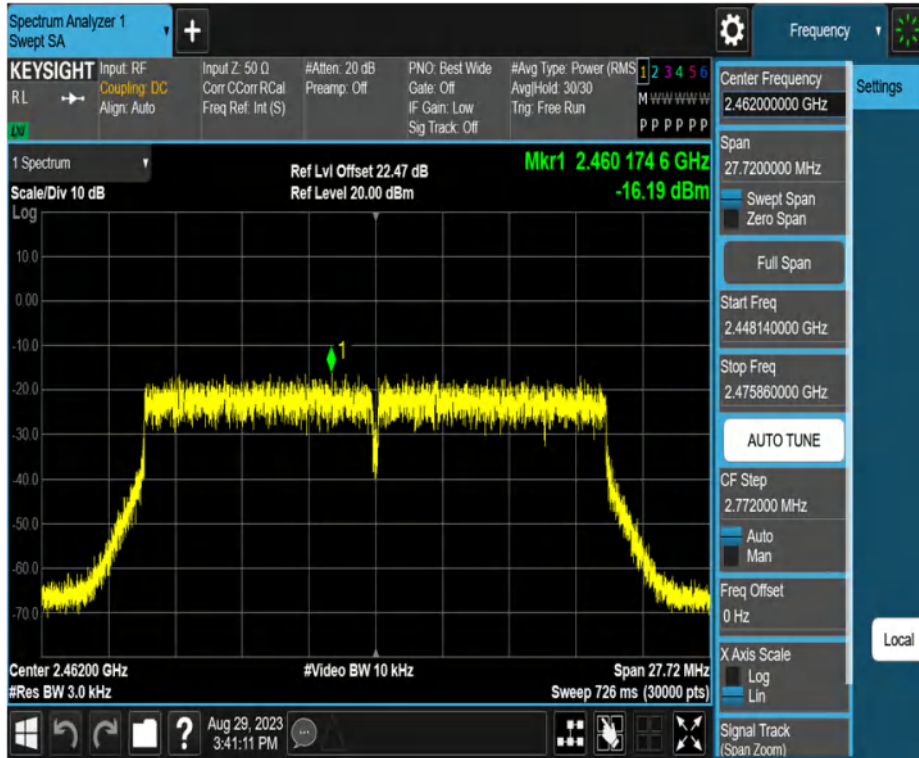


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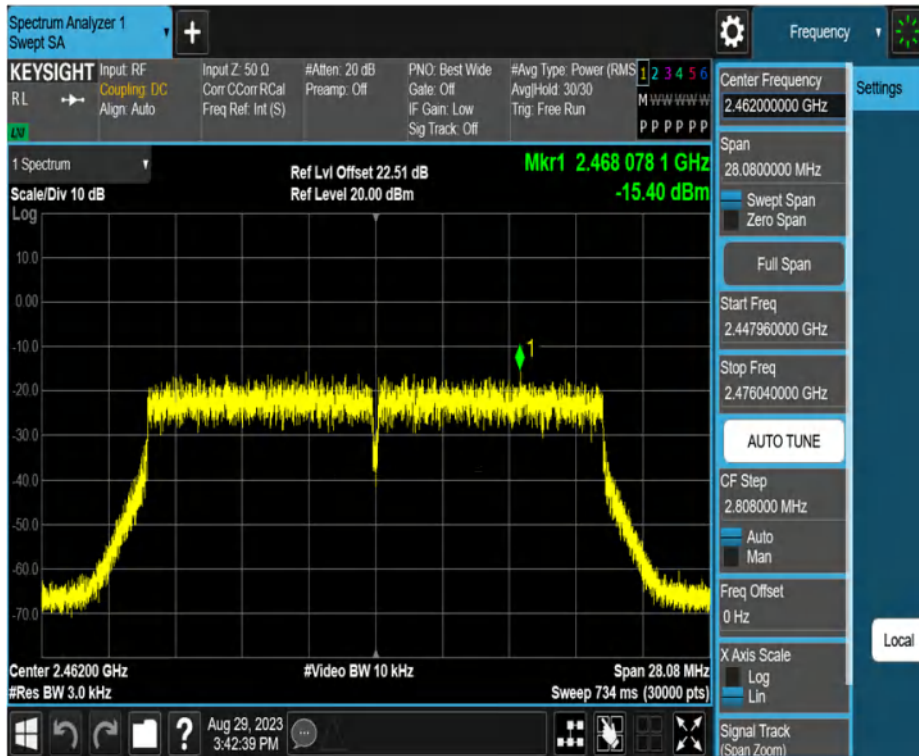




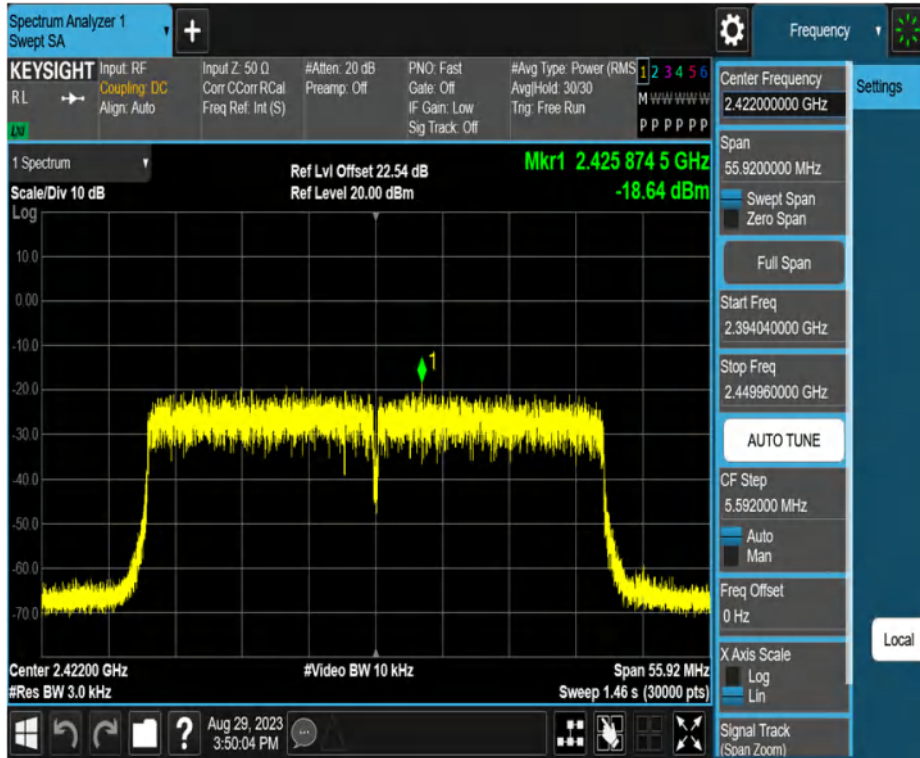
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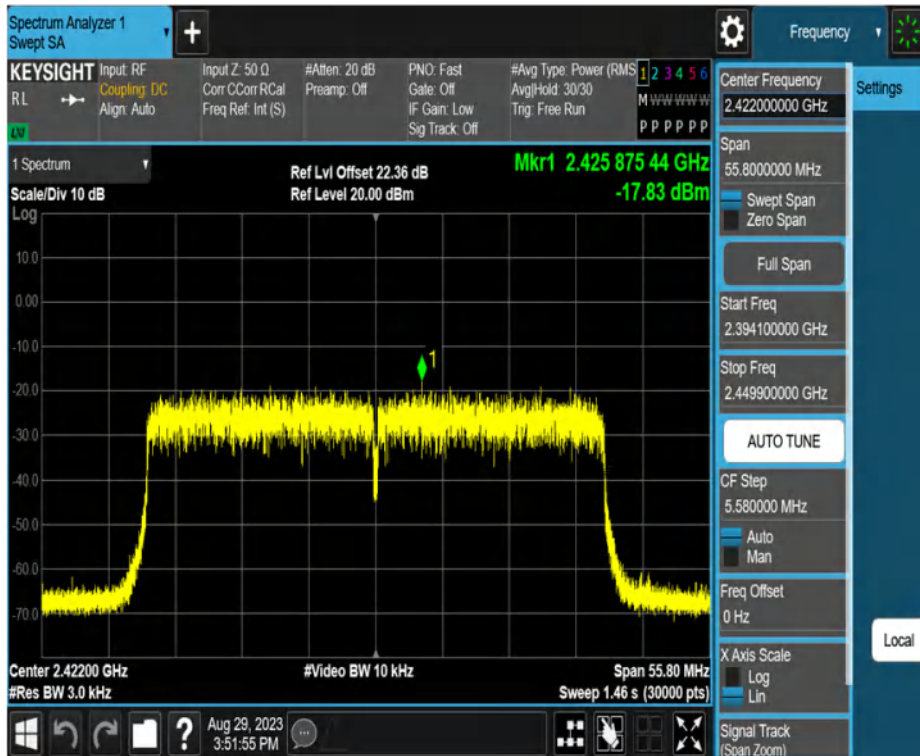
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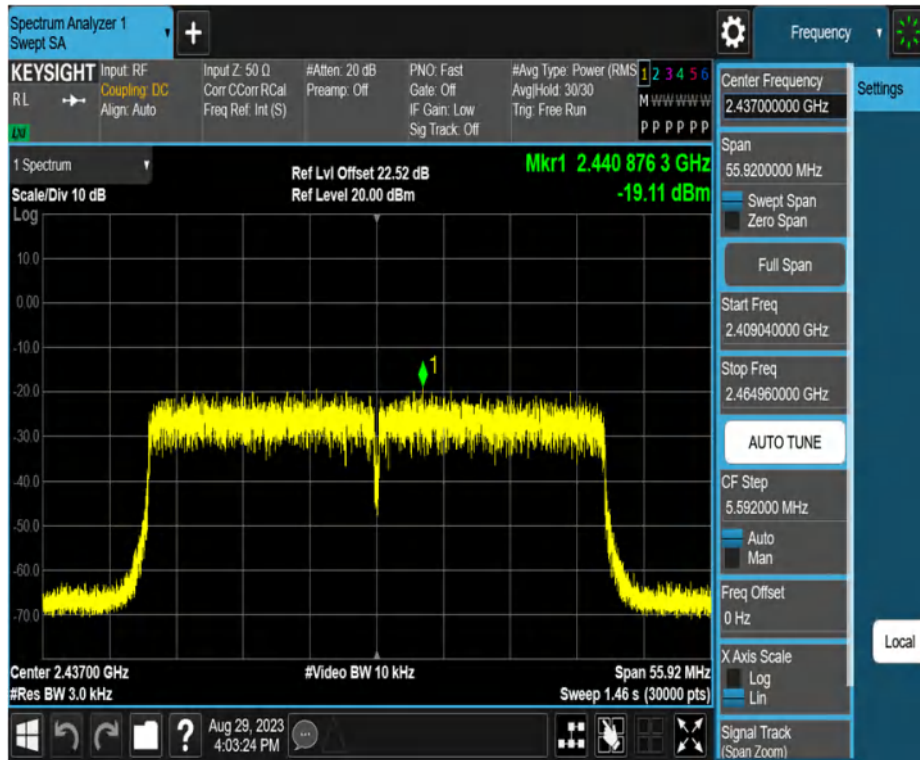
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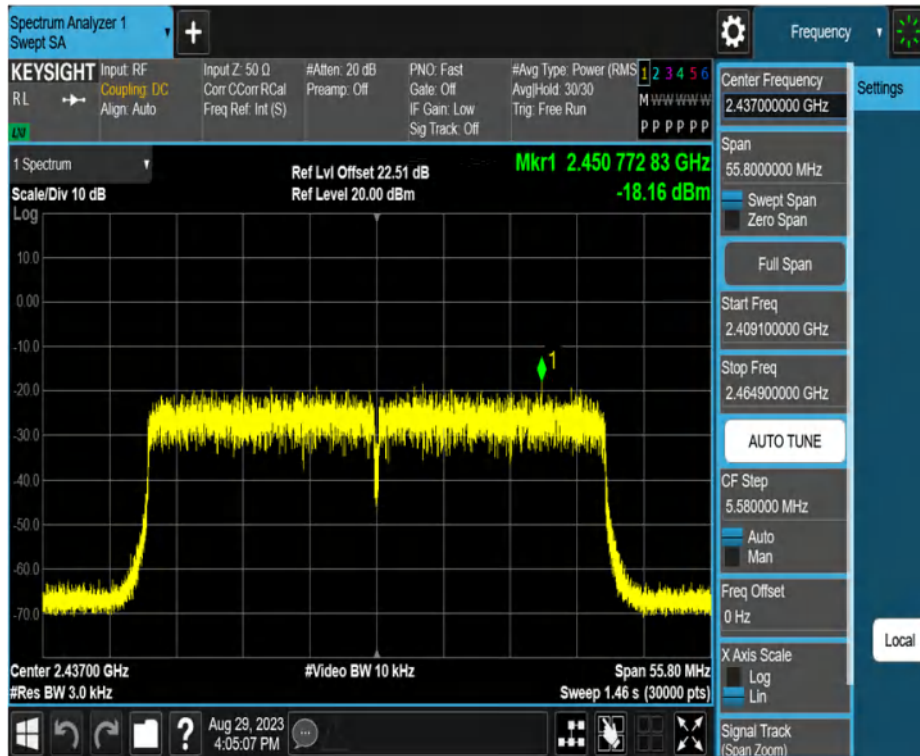
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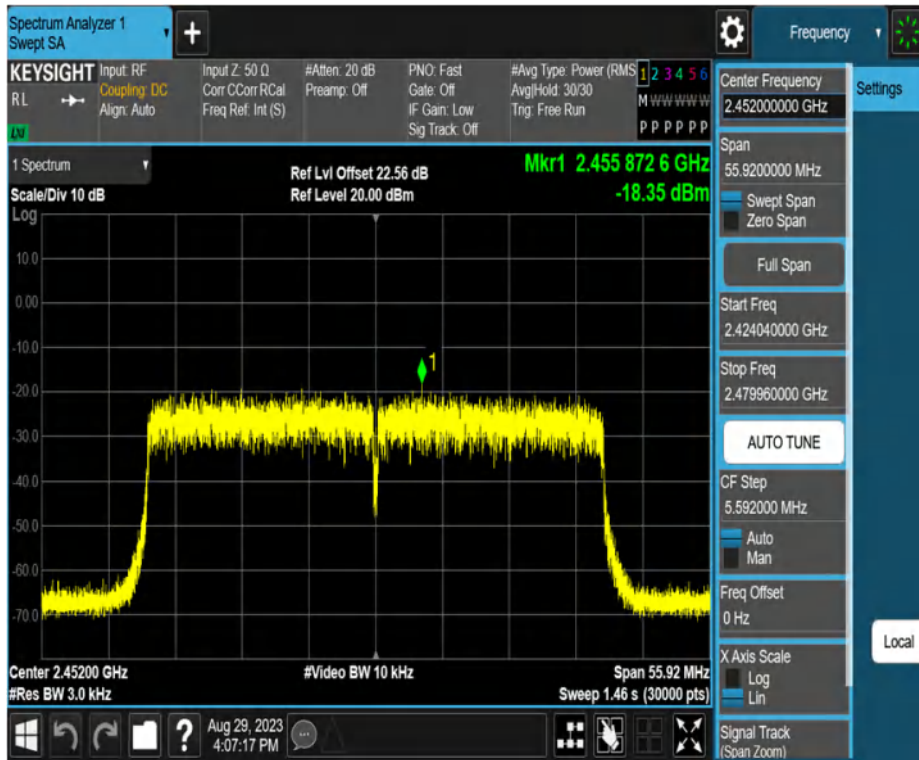
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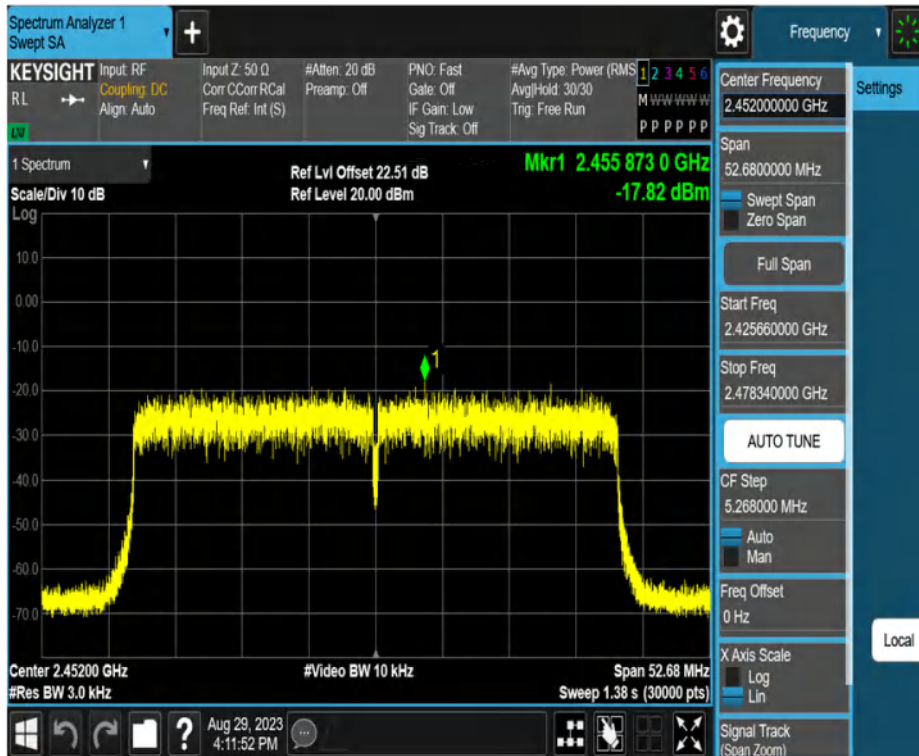
11AX40MIMO\_Ant2\_2437



11AX40MIMO\_Ant1\_2452



11AX40MIMO\_Ant2\_2452



End of Test Report