

## 9. 26dB Bandwidth, 6dB Bandwidth and 99% Bandwidth

### 9.1. Block Diagram of Test Setup

Same as section 8.1

### 9.2. Limits

| FCC Part15, Subpart E |                                |                       |
|-----------------------|--------------------------------|-----------------------|
| Test Item             | Limit                          | Frequency Range (MHz) |
| Bandwidth             | 26 dB Bandwidth                | 5150 - 5250           |
|                       | 26 dB Bandwidth                | 5250 - 5350           |
|                       | 26 dB Bandwidth                | 5470 - 5725           |
|                       | Minimum 500 kHz 6 dB Bandwidth | 5725 - 5850           |
|                       | For reporting purposes only.   | 5150 ~ 5825           |

### 9.3. Test Procedure

(1) Connect EUT's antenna output to spectrum analyzer by RF cable.

|                  |                                                                                                                                                                         |
|------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Center Frequency | The centre frequency of the channel under test                                                                                                                          |
| Detector         | Peak                                                                                                                                                                    |
| RBW              | For 6 dB Bandwidth: RBW=100 kHz<br>For 26 dB Bandwidth: approximately 1% of the emission bandwidth.<br>For 99 % Occupied Bandwidth: approximately 1 % ~ 5 % of the OBW. |
| VBW              | For 6 dB Bandwidth: VBW=300 kHz<br>For 26 dB Bandwidth: >3*RBW<br>For 99 % Bandwidth: >3*RBW                                                                            |
| Trace            | Max hold                                                                                                                                                                |
| Sweep            | Auto couple                                                                                                                                                             |

(2) Allow the trace to stabilize, 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 26 dB and 6 dB relative to the maximum level measured in the fundamental emission.

(3) Use the 99 % power bandwidth function of the instrument, allow the trace to stabilize and report the measured bandwidth.

### 9.4. Test Result

| Test Mode | Ant. | Freq. (MHz) | OCB (MHz) | FL (MHz)  | FH (MHz)  | Limit (MHz) | Verdict |
|-----------|------|-------------|-----------|-----------|-----------|-------------|---------|
| 11A       | Ant1 | 5180        | 17.069    | 5171.4226 | 5188.4916 | ---         | ---     |
|           | Ant2 | 5180        | 17.078    | 5171.4093 | 5188.4873 | ---         | ---     |
|           | Ant1 | 5200        | 16.929    | 5191.5306 | 5208.4596 | ---         | ---     |
|           | Ant2 | 5200        | 17.155    | 5191.3407 | 5208.4957 | ---         | ---     |
|           | Ant1 | 5240        | 16.905    | 5231.5540 | 5248.4590 | ---         | ---     |
|           | Ant2 | 5240        | 17.000    | 5231.4714 | 5248.4714 | ---         | ---     |
|           | Ant1 | 5745        | 16.935    | 5736.3570 | 5753.2920 | ---         | ---     |
|           | Ant2 | 5745        | 16.902    | 5736.4587 | 5753.3607 | ---         | ---     |
|           | Ant1 | 5785        | 17.053    | 5776.3877 | 5793.4407 | ---         | ---     |
|           | Ant2 | 5785        | 16.956    | 5776.4428 | 5793.3988 | ---         | ---     |
|           | Ant1 | 5825        | 17.015    | 5816.4240 | 5833.4390 | ---         | ---     |
|           | Ant2 | 5825        | 16.998    | 5816.4076 | 5833.4056 | ---         | ---     |
| 11N20MIMO | Ant1 | 5180        | 18.128    | 5170.9725 | 5189.1005 | ---         | ---     |
|           | Ant2 | 5180        | 18.081    | 5170.8778 | 5188.9588 | ---         | ---     |
|           | Ant1 | 5200        | 17.906    | 5190.9593 | 5208.8653 | ---         | ---     |
|           | Ant2 | 5200        | 18.044    | 5190.9205 | 5208.9645 | ---         | ---     |
|           | Ant1 | 5240        | 18.094    | 5230.9141 | 5249.0081 | ---         | ---     |
|           | Ant2 | 5240        | 18.031    | 5230.9436 | 5248.9746 | ---         | ---     |
|           | Ant1 | 5745        | 16.987    | 5736.3795 | 5753.3665 | ---         | ---     |
|           | Ant2 | 5745        | 16.748    | 5736.5760 | 5753.3240 | ---         | ---     |

|           |      |      |        |           |           |     |     |
|-----------|------|------|--------|-----------|-----------|-----|-----|
|           | Ant1 | 5785 | 16.978 | 5776.4156 | 5793.3936 | --- | --- |
|           | Ant2 | 5785 | 16.741 | 5776.5458 | 5793.2868 | --- | --- |
|           | Ant1 | 5825 | 16.860 | 5816.4742 | 5833.3342 | --- | --- |
|           | Ant2 | 5825 | 16.958 | 5816.3974 | 5833.3554 | --- | --- |
| 11N40MIMO | Ant1 | 5190 | 36.825 | 5171.5372 | 5208.3622 | --- | --- |
|           | Ant2 | 5190 | 36.955 | 5171.4121 | 5208.3671 | --- | --- |
|           | Ant1 | 5230 | 36.790 | 5211.6664 | 5248.4564 | --- | --- |
|           | Ant2 | 5230 | 36.907 | 5211.4779 | 5248.3849 | --- | --- |
|           | Ant1 | 5755 | 36.631 | 5736.3699 | 5773.0009 | --- | --- |
|           | Ant2 | 5755 | 36.978 | 5736.3343 | 5773.3123 | --- | --- |
|           | Ant1 | 5795 | 36.961 | 5776.3808 | 5813.3418 | --- | --- |
|           | Ant2 | 5795 | 36.573 | 5776.5327 | 5813.1057 | --- | --- |

Note: Offset=cable loss + Test system insertion loss

| Test Mode | Ant. | Freq.<br>(MHz) | 26dB<br>EBW (MHz) | FL<br>(MHz) | FH<br>(MHz) | Limit<br>(MHz) | Verdict |
|-----------|------|----------------|-------------------|-------------|-------------|----------------|---------|
| 11A       | Ant1 | 5180           | 21.960            | 5168.680    | 5190.640    | ---            | ---     |
|           | Ant2 | 5180           | 21.040            | 5169.440    | 5190.480    | ---            | ---     |
|           | Ant1 | 5200           | 20.960            | 5189.760    | 5210.720    | ---            | ---     |
|           | Ant2 | 5200           | 22.280            | 5188.560    | 5210.840    | ---            | ---     |
|           | Ant1 | 5240           | 21.480            | 5229.320    | 5250.800    | ---            | ---     |
|           | Ant2 | 5240           | 21.200            | 5228.880    | 5250.080    | ---            | ---     |
|           | Ant1 | 5745           | 21.680            | 5733.920    | 5755.600    | ---            | ---     |
|           | Ant2 | 5745           | 22.560            | 5733.280    | 5755.840    | ---            | ---     |
|           | Ant1 | 5785           | 22.240            | 5773.560    | 5795.800    | ---            | ---     |
|           | Ant2 | 5785           | 22.760            | 5773.720    | 5796.480    | ---            | ---     |
|           | Ant1 | 5825           | 21.200            | 5814.200    | 5835.400    | ---            | ---     |
|           | Ant2 | 5825           | 21.360            | 5813.880    | 5835.240    | ---            | ---     |
| 11N20MIMO | Ant1 | 5180           | 22.760            | 5168.840    | 5191.600    | ---            | ---     |
|           | Ant2 | 5180           | 21.720            | 5168.920    | 5190.640    | ---            | ---     |
|           | Ant1 | 5200           | 22.520            | 5188.840    | 5211.360    | ---            | ---     |
|           | Ant2 | 5200           | 21.400            | 5189.320    | 5210.720    | ---            | ---     |
|           | Ant1 | 5240           | 22.360            | 5228.760    | 5251.120    | ---            | ---     |
|           | Ant2 | 5240           | 22.520            | 5229.080    | 5251.600    | ---            | ---     |
|           | Ant1 | 5745           | 21.400            | 5734.320    | 5755.720    | ---            | ---     |
|           | Ant2 | 5745           | 20.400            | 5734.840    | 5755.240    | ---            | ---     |
|           | Ant1 | 5785           | 21.120            | 5774.040    | 5795.160    | ---            | ---     |
|           | Ant2 | 5785           | 21.600            | 5774.040    | 5795.640    | ---            | ---     |
|           | Ant1 | 5825           | 22.000            | 5814.320    | 5836.320    | ---            | ---     |
|           | Ant2 | 5825           | 21.600            | 5814.240    | 5835.840    | ---            | ---     |
| 11N40MIMO | Ant1 | 5190           | 45.200            | 5167.520    | 5212.720    | ---            | ---     |
|           | Ant2 | 5190           | 45.520            | 5166.480    | 5212.000    | ---            | ---     |
|           | Ant1 | 5230           | 44.880            | 5207.840    | 5252.720    | ---            | ---     |
|           | Ant2 | 5230           | 44.800            | 5208.160    | 5252.960    | ---            | ---     |
|           | Ant1 | 5755           | 44.720            | 5731.960    | 5776.680    | ---            | ---     |
|           | Ant2 | 5755           | 45.920            | 5730.440    | 5776.360    | ---            | ---     |
|           | Ant1 | 5795           | 45.680            | 5771.960    | 5817.640    | ---            | ---     |
|           | Ant2 | 5795           | 47.200            | 5771.080    | 5818.280    | ---            | ---     |

Note: Offset=cable loss + Test system insertion loss

| Test Mode | Ant. | Freq.<br>(MHz) | 6dB<br>EBW (MHz) | FL<br>(MHz) | FH<br>(MHz) | Limit<br>(MHz) | Verdict |
|-----------|------|----------------|------------------|-------------|-------------|----------------|---------|
| 11A       | Ant1 | 5745           | 16.360           | 5736.760    | 5753.120    | 0.5            | PASS    |
|           | Ant2 | 5745           | 16.280           | 5736.800    | 5753.080    | 0.5            | PASS    |
|           | Ant1 | 5785           | 16.320           | 5776.800    | 5793.120    | 0.5            | PASS    |
|           | Ant2 | 5785           | 16.440           | 5776.680    | 5793.120    | 0.5            | PASS    |
|           | Ant1 | 5825           | 16.440           | 5816.720    | 5833.160    | 0.5            | PASS    |
|           | Ant2 | 5825           | 16.400           | 5816.720    | 5833.120    | 0.5            | PASS    |
| 11N20MIMO | Ant1 | 5745           | 16.320           | 5736.800    | 5753.120    | 0.5            | PASS    |
|           | Ant2 | 5745           | 16.320           | 5736.800    | 5753.120    | 0.5            | PASS    |
|           | Ant1 | 5785           | 16.520           | 5776.640    | 5793.160    | 0.5            | PASS    |
|           | Ant2 | 5785           | 16.320           | 5776.800    | 5793.120    | 0.5            | PASS    |
|           | Ant1 | 5825           | 16.360           | 5816.760    | 5833.120    | 0.5            | PASS    |
|           | Ant2 | 5825           | 15.720           | 5816.760    | 5832.480    | 0.5            | PASS    |
| 11N40MIMO | Ant1 | 5755           | 35.760           | 5736.760    | 5772.520    | 0.5            | PASS    |
|           | Ant2 | 5755           | 35.920           | 5736.760    | 5772.680    | 0.5            | PASS    |

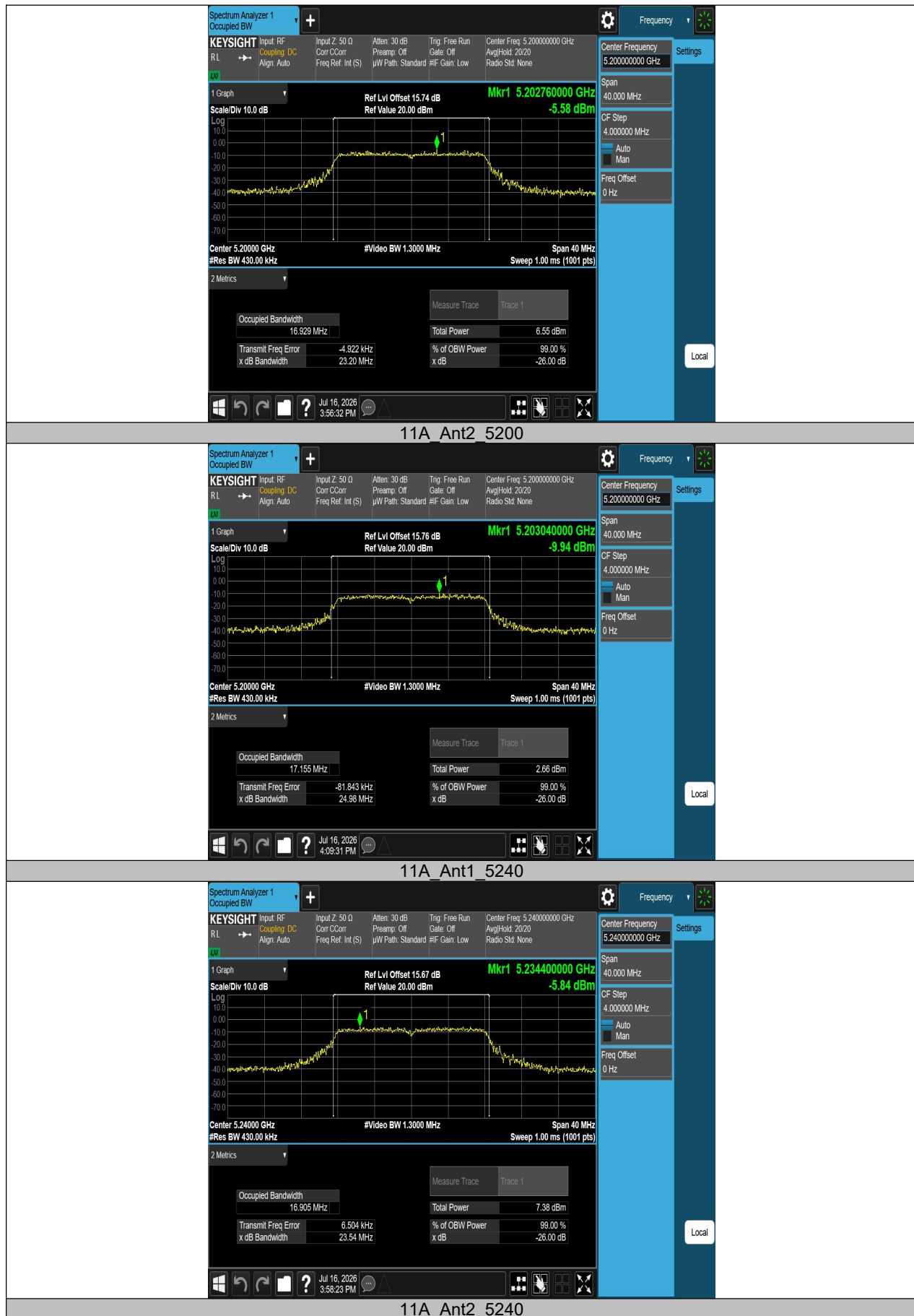
|  |      |      |        |          |          |     |      |
|--|------|------|--------|----------|----------|-----|------|
|  | Ant1 | 5795 | 35.360 | 5777.160 | 5812.520 | 0.5 | PASS |
|  | Ant2 | 5795 | 34.400 | 5776.840 | 5811.240 | 0.5 | PASS |

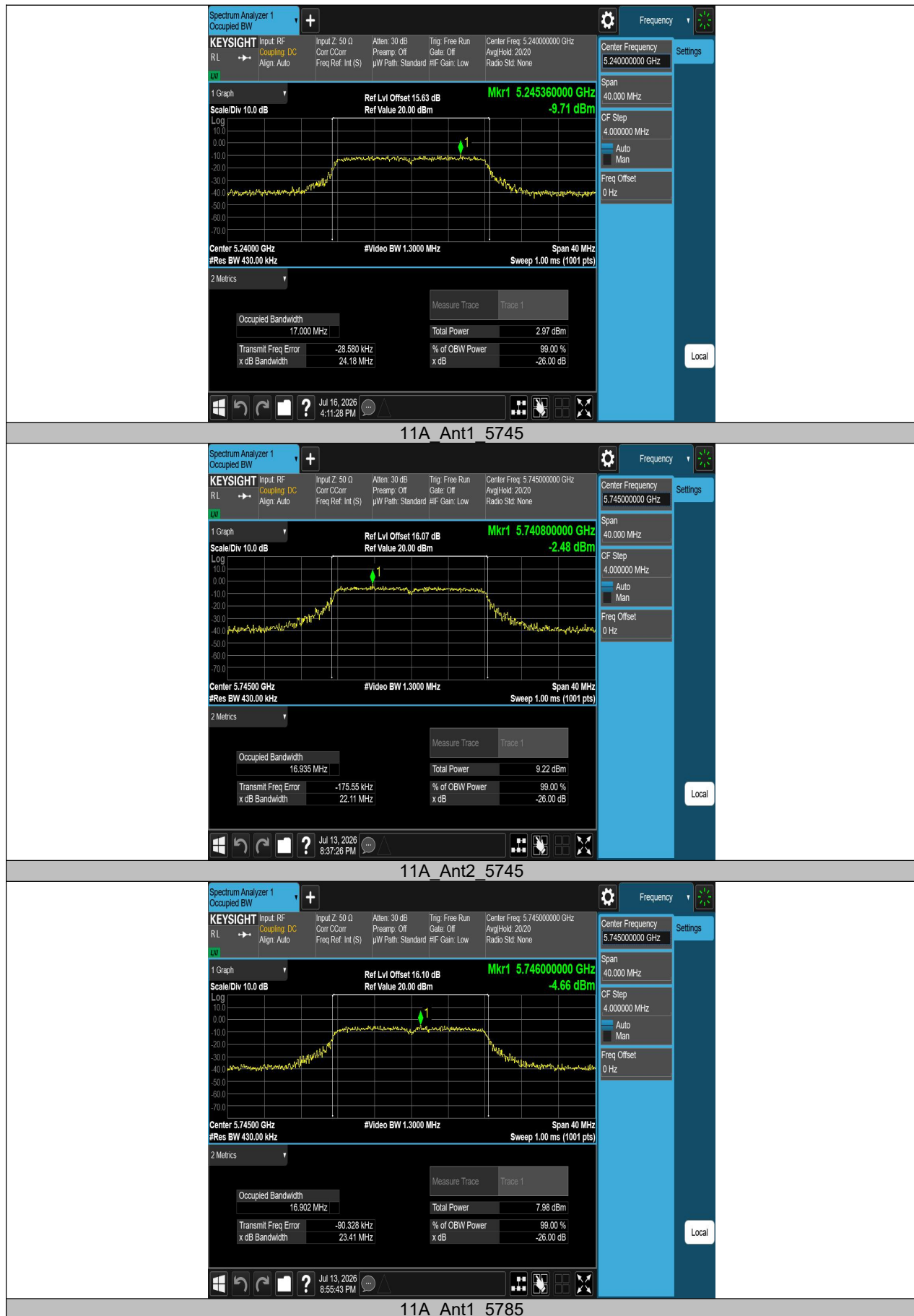
Note: Offset=cable loss + Test system insertion loss

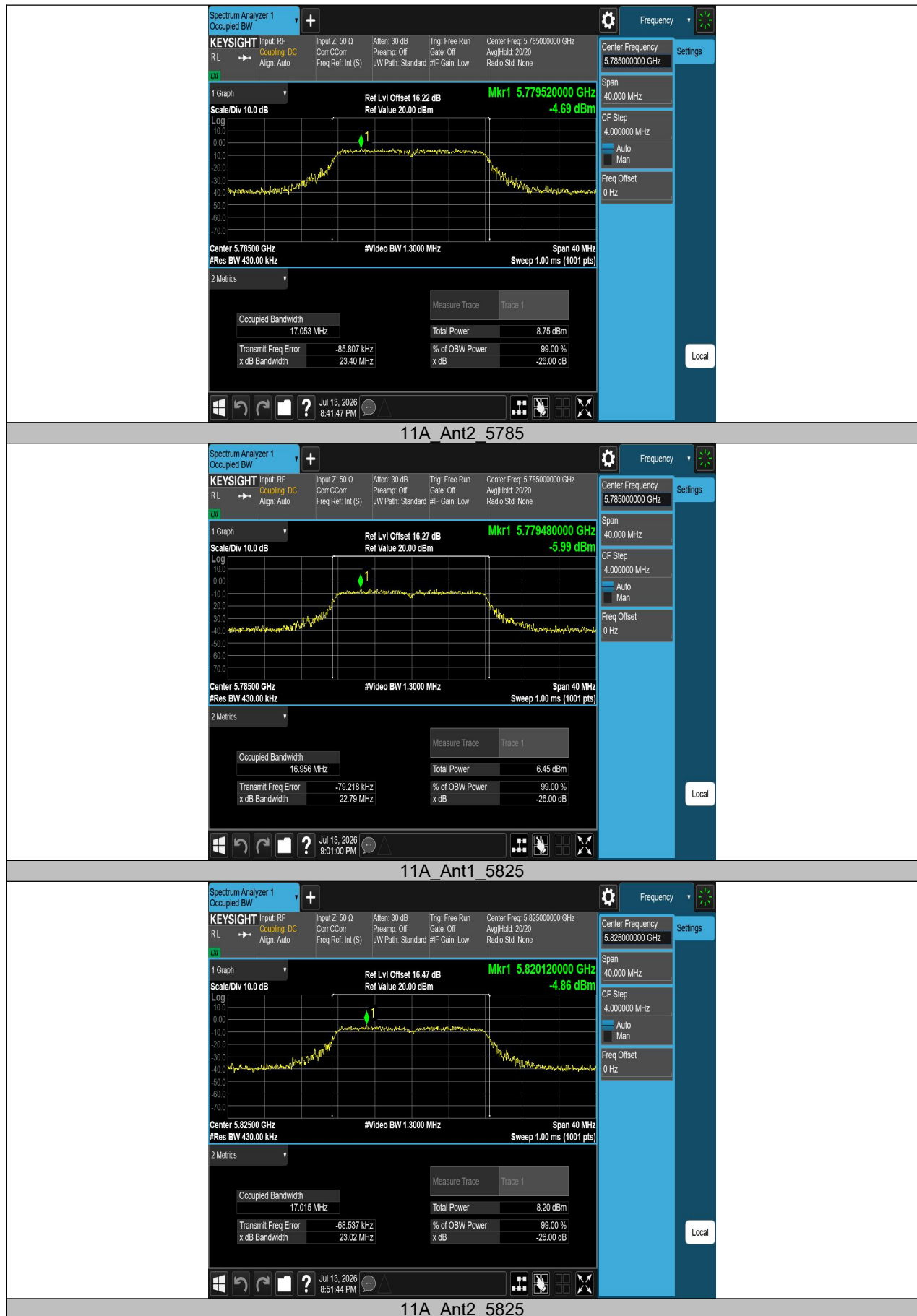
## 9.5. Original Test Data

99% Bandwidth:



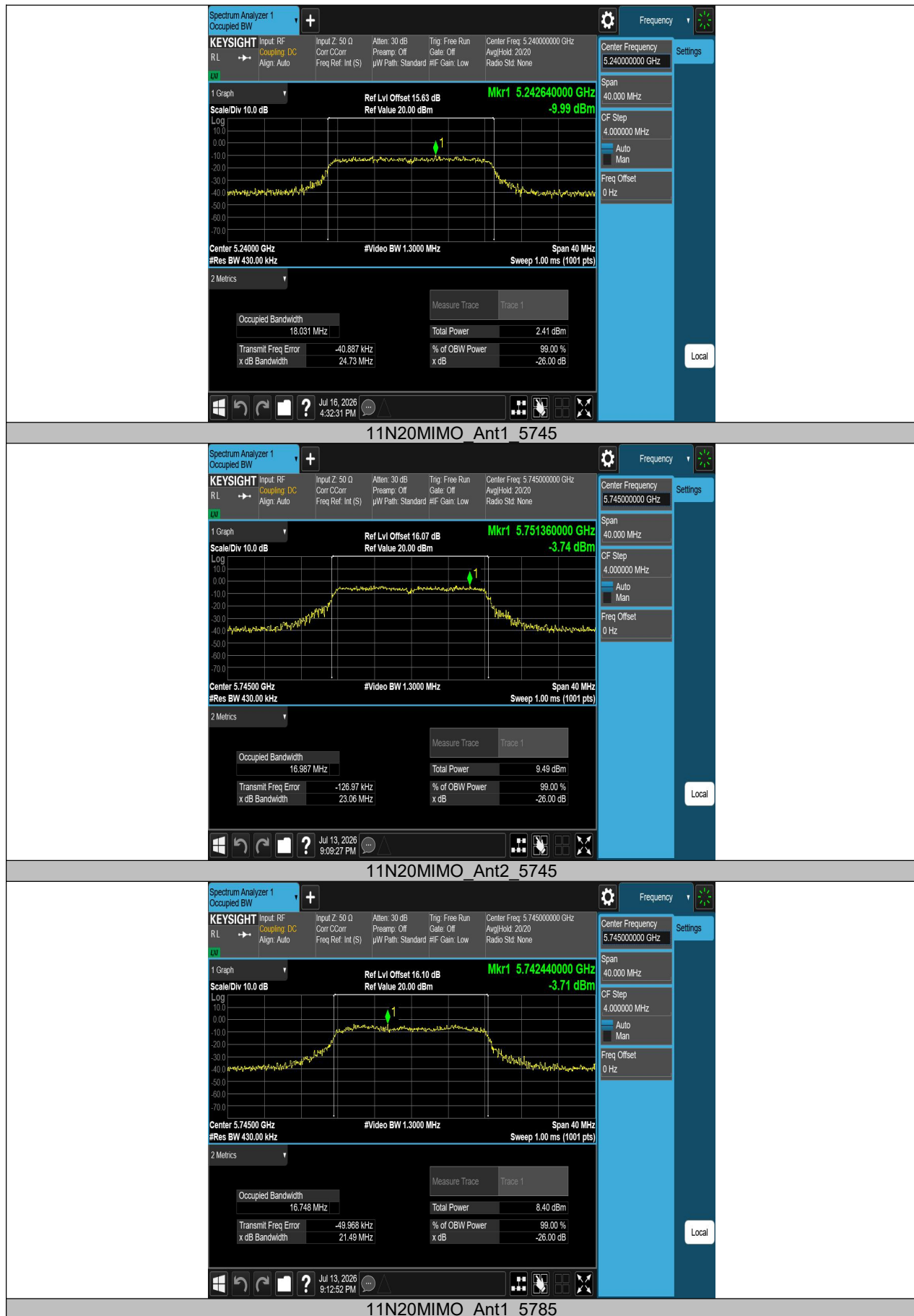




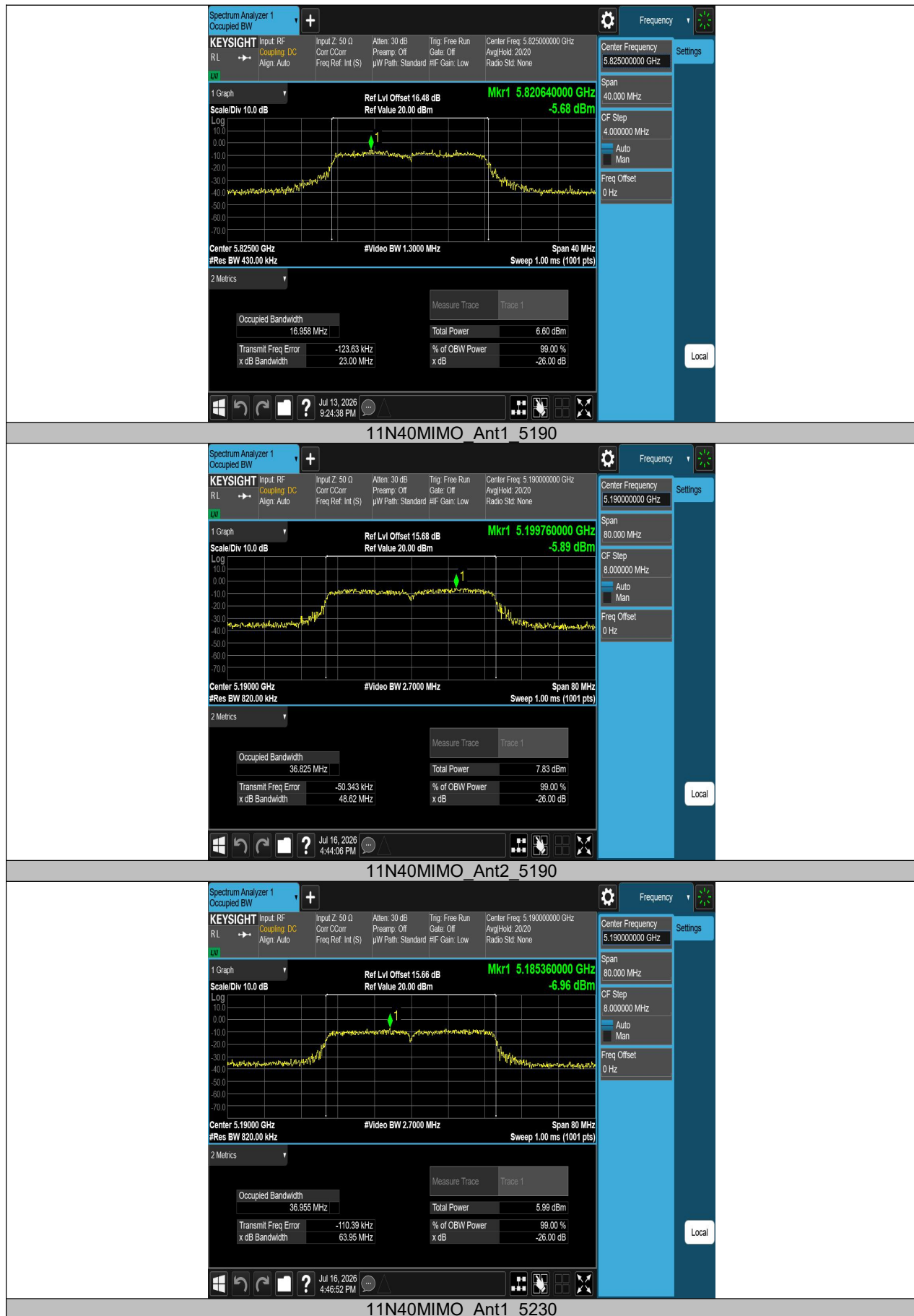
















26dB Bandwidth:



