| 11AX40MIMO_Ant1_5190_242Tone_RU61 |
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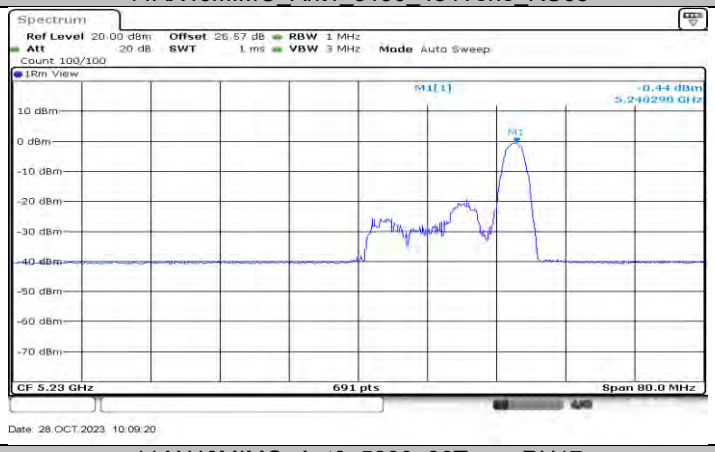
| 11AX40MIMO_Ant1_5190_484Tone_RU65 |
|  |
| 11AX40MIMO_Ant0_5230_26Tone_RU17 |
| |
| 11AX40MIMO_Ant0_5230_484Tone_RU65 |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11AX40MIMO_Ant1_5230_26Tone_RU17

11AX40MIMO_Ant1_5230_484Tone_RU65

11AX40MIMO_Ant0_5270_26Tone_RU8

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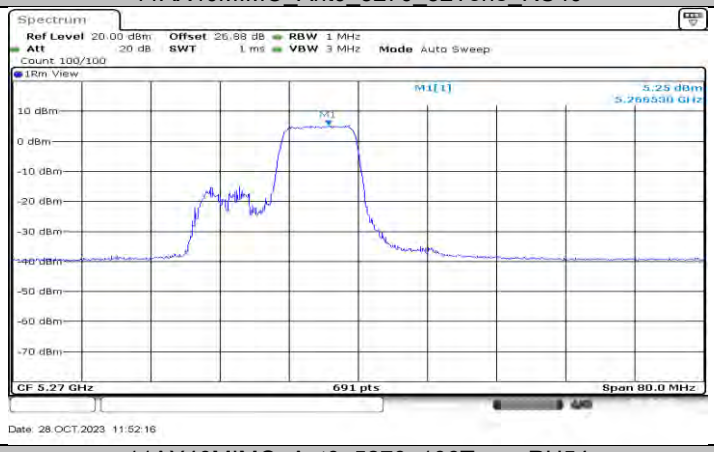
11AX40MIMO_Ant0_5270_52Tone_RU40




11AX40MIMO_Ant0_5270_106Tone_RU54

11AX40MIMO_Ant0_5270_242Tone_RU61

11AX40MIMO_Ant0_5270_484Tone_RU65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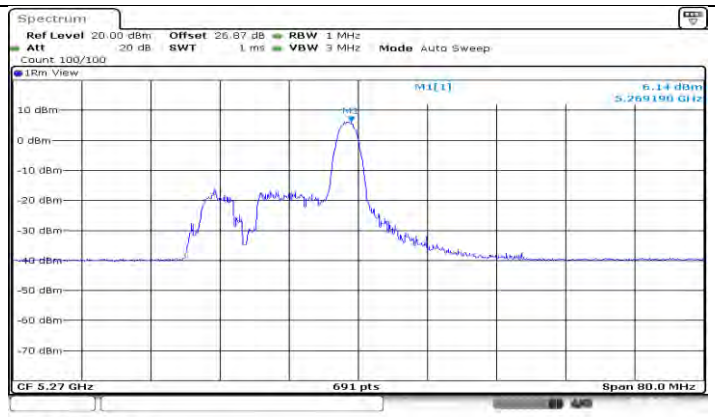
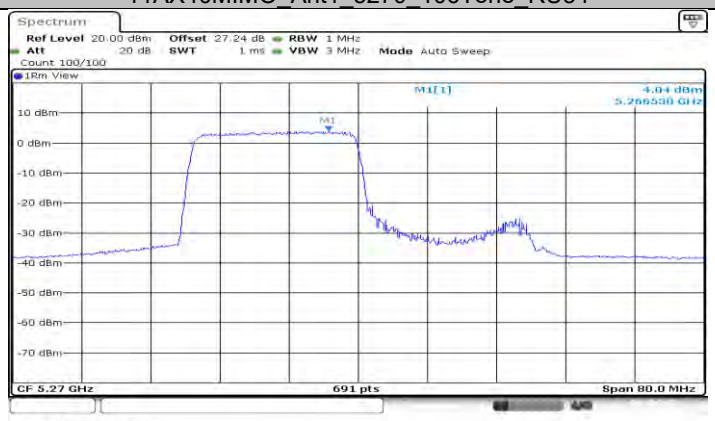



11AX40MIMO_Ant1_5270_26Tone_RU8

11AX40MIMO_Ant1_5270_52Tone_RU40

11AX40MIMO_Ant1_5270_106Tone_RU54





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11AX40MIMO_Ant1_5270_242Tone_RU61

11AX40MIMO_Ant1_5270_484Tone_RU65

11AX40MIMO_Ant0_5310_26Tone_RU17

11AX40MIMO_Ant0_5310_484Tone_RU65


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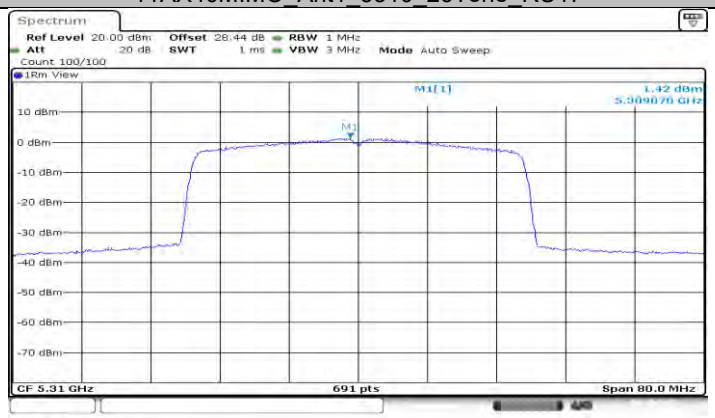
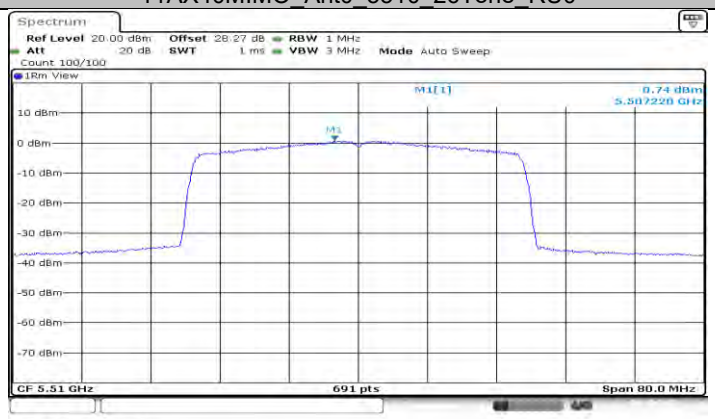
11AX40MIMO_Ant1_5310_26Tone_RU17




11AX40MIMO_Ant1_5310_484Tone_RU65

11AX40MIMO_Ant0_5510_26Tone_RU0





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11AX40MIMO_Ant0_5510_484Tone_RU65

11AX40MIMO_Ant1_5510_26Tone_RU0

11AX40MIMO_Ant1_5510_484Tone_RU65

11AX40MIMO_Ant0_5550_26Tone_RU8


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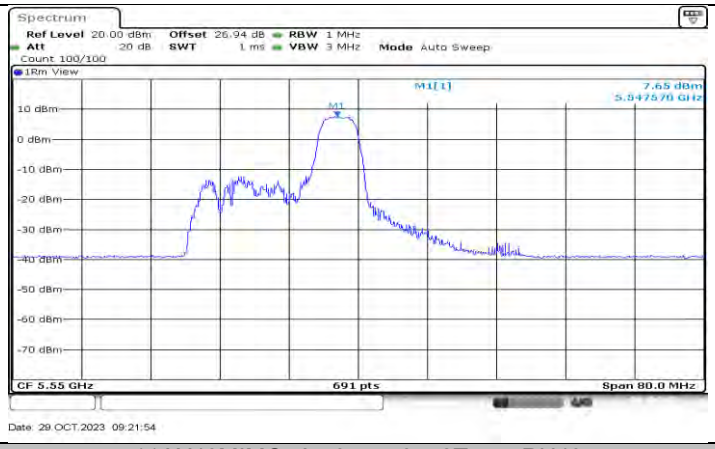


11AX40MIMO_Ant0_5550_52Tone_RU40

11AX40MIMO_Ant0_5550_106Tone_RU54

11AX40MIMO_Ant0_5550_242Tone_RU61

*This report shall not be reproduced except in full, without the written approval of UL Verification Services (Guangzhou) Co., Ltd, Song Shan Lake Branch.*

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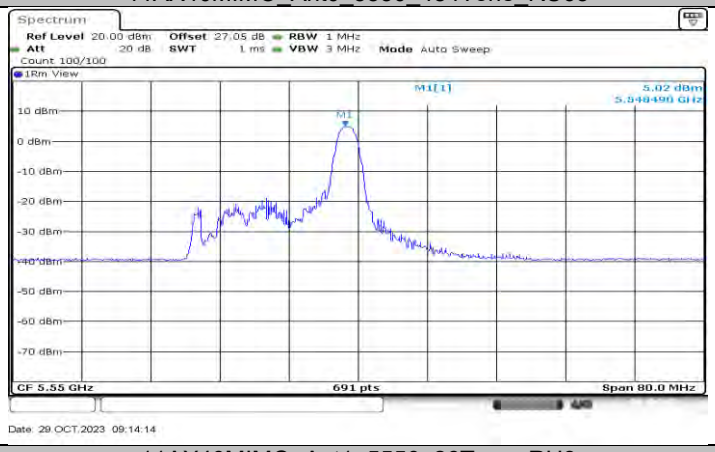
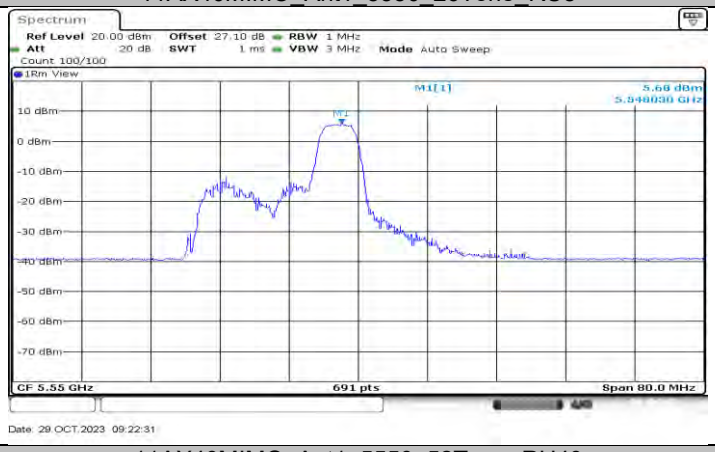
|  |
| 11AX40MIMO_Ant1_5550_26Tone_RU8 |
|  |
| 11AX40MIMO_Ant1_5550_52Tone_RU40 |
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| 11AX40MIMO_Ant1_5550_106Tone_RU54 |


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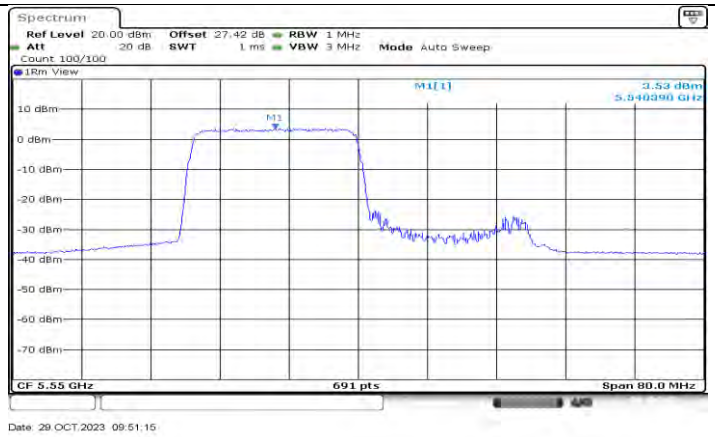


11AX40MIMO_Ant1_5550_242Tone_RU61

11AX40MIMO_Ant1_5550_484Tone_RU65

11AX40MIMO_Ant0_5670_26Tone_RU17

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11AX40MIMO_Ant0_5670_484Tone_RU65

11AX40MIMO_Ant1_5670_26Tone_RU17

11AX40MIMO_Ant1_5670_484Tone_RU65

11AX40MIMO_Ant0_5710_UNII-2C_484Tone_RU65


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11AX40MIMO_Ant1_5710_UNII-2C_484Tone_RU65

11AX40MIMO_Ant0_5710_UNII-3_484Tone_RU65

11AX40MIMO_Ant1_5710_UNII-3_484Tone_RU65

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| 11AX40MIMO_Ant0_5755_26Tone_RU8 |
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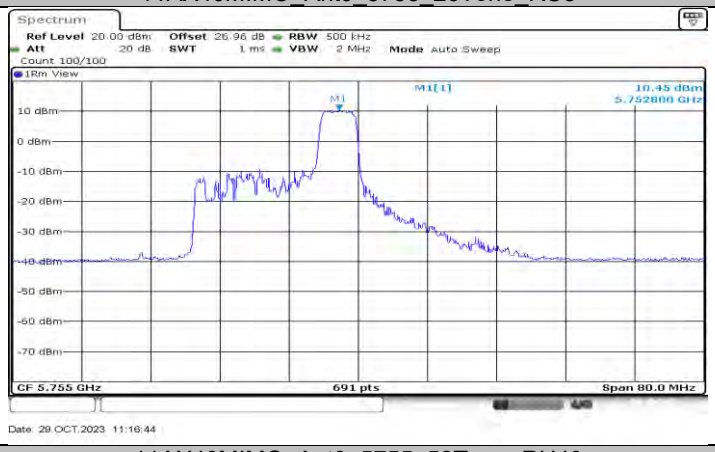
|  |
| 11AX40MIMO_Ant0_5755_52Tone_RU40 |
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| 11AX40MIMO_Ant0_5755_106Tone_RU54 |
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| 11AX40MIMO_Ant0_5755_242Tone_RU61 |




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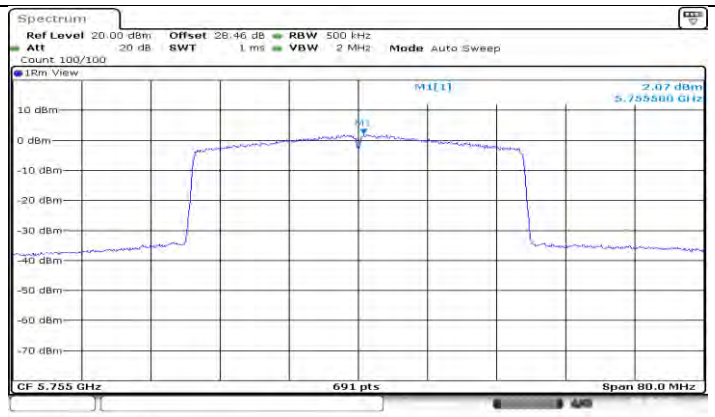
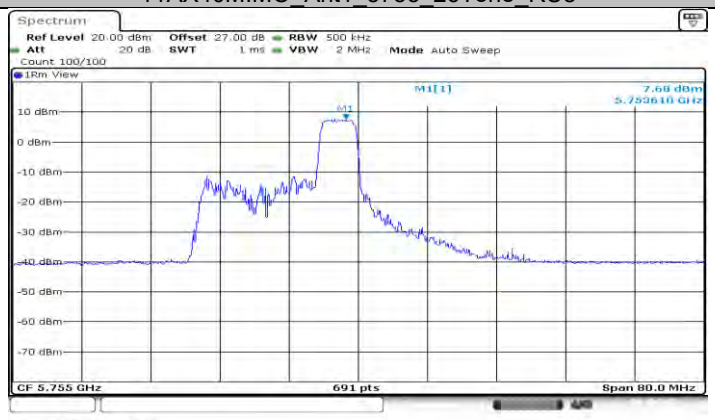



11AX40MIMO_Ant0_5755_484Tone_RU65

11AX40MIMO_Ant1_5755_26Tone_RU8

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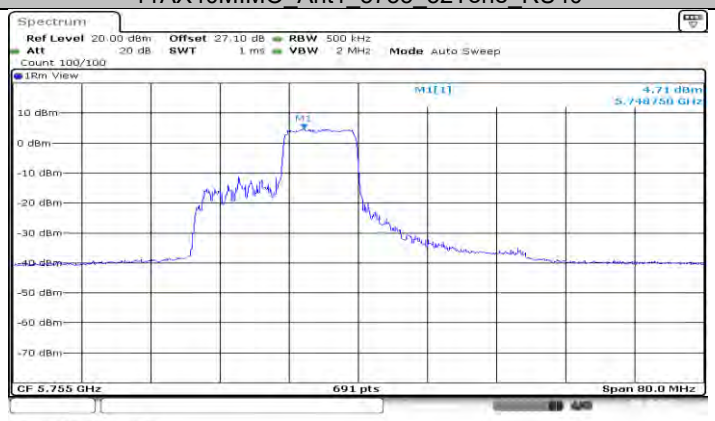



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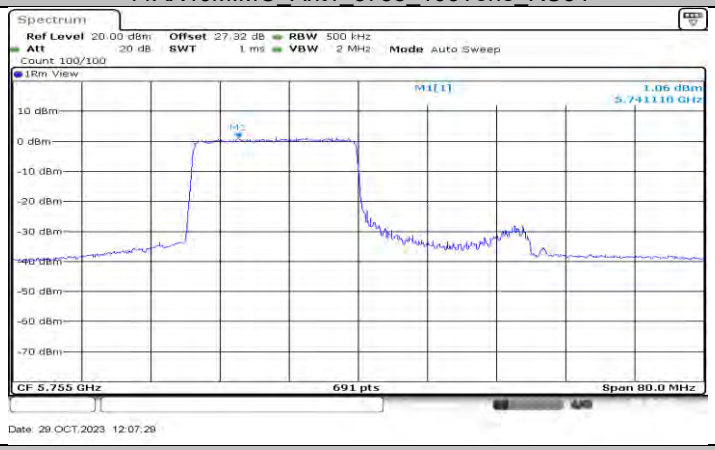
|  |
| 11AX40MIMO_Ant1_5755_242Tone_RU61 |
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| 11AX40MIMO_Ant1_5755_484Tone_RU65 |
| |
| 11AX40MIMO_Ant0_5795_26Tone_RU17 |








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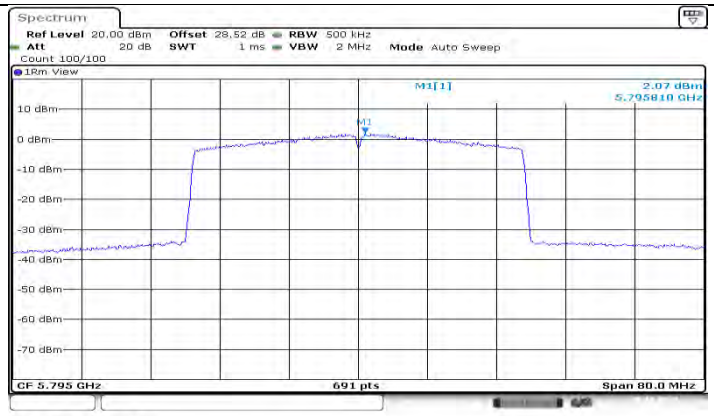


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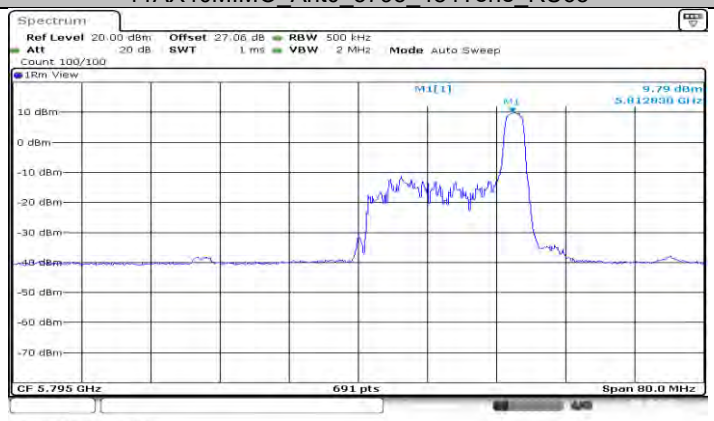


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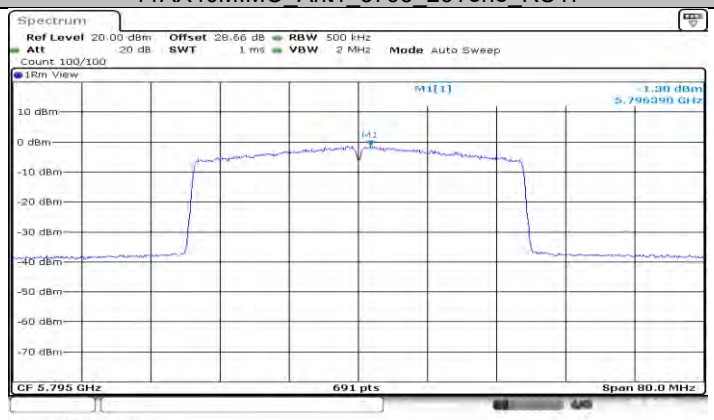
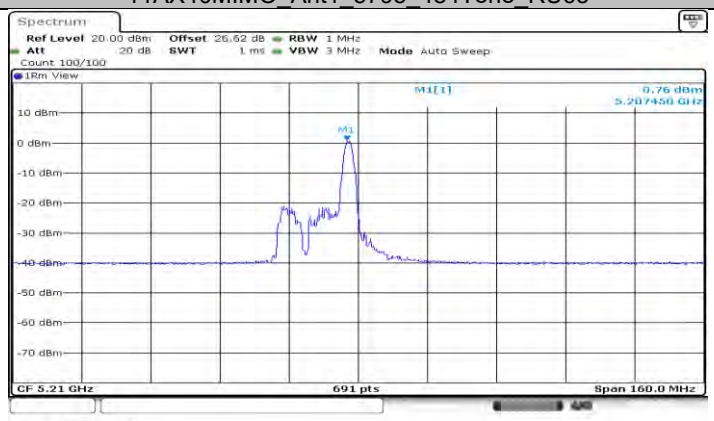



11AX40MIMO_Ant1_5795_484Tone_RU65





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| 11AX80MIMO_Ant0_5210_26Tone_RU17 |
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| |
| 11AX80MIMO_Ant0_5210_52Tone_RU44 |
| |
| 11AX80MIMO_Ant0_5210_106Tone_RU56 |
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| 11AX80MIMO_Ant0_5210_242Tone_RU62 |








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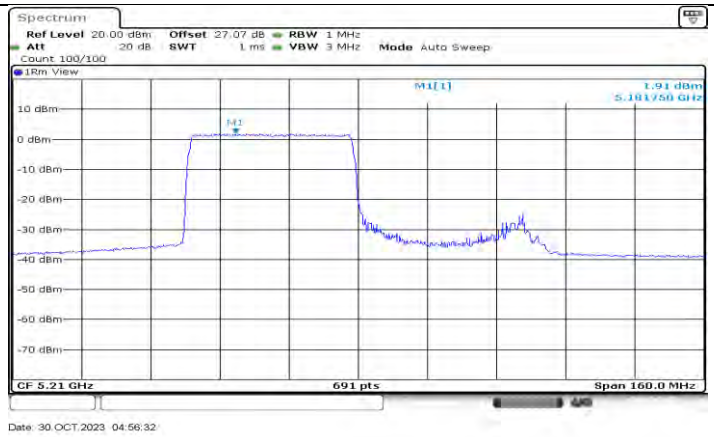
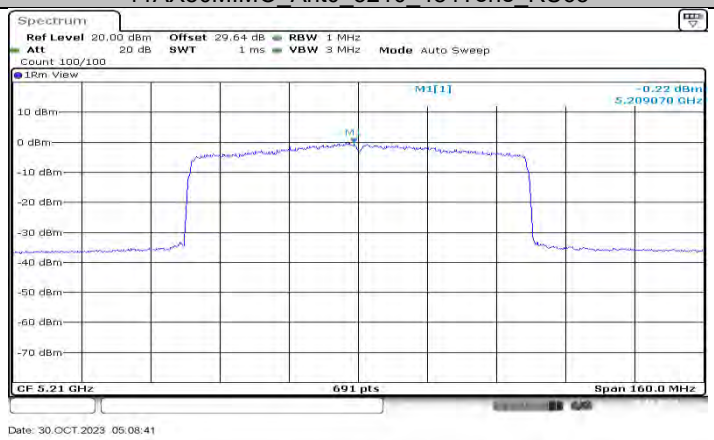



11AX80MIMO_Ant0_5210_484Tone_RU65




11AX80MIMO_Ant0_5210_996Tone_RU67

11AX80MIMO_Ant1_5210_26Tone_RU17

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| 11AX80MIMO_Ant1_5210_52Tone_RU44 |
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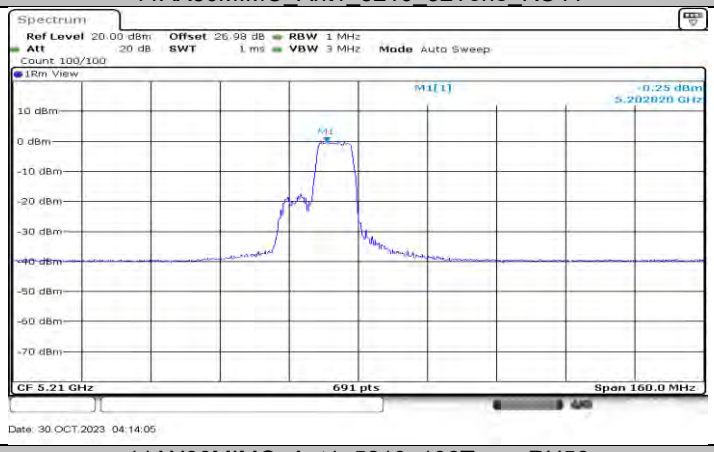
|  |
| 11AX80MIMO_Ant1_5210_106Tone_RU56 |
| |
| 11AX80MIMO_Ant1_5210_242Tone_RU62 |
| |
| 11AX80MIMO_Ant1_5210_484Tone_RU65 |





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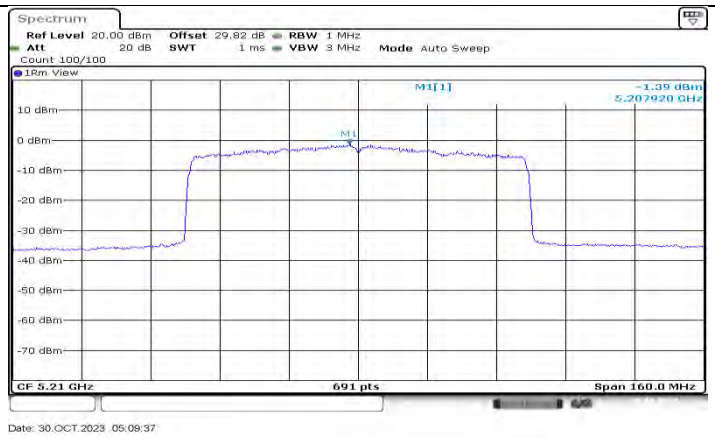


11AX80MIMO_Ant1_5210_996Tone_RU67

11AX80MIMO_Ant0_5290_26Tone_RU17

11AX80MIMO_Ant0_5290_52Tone_RU44

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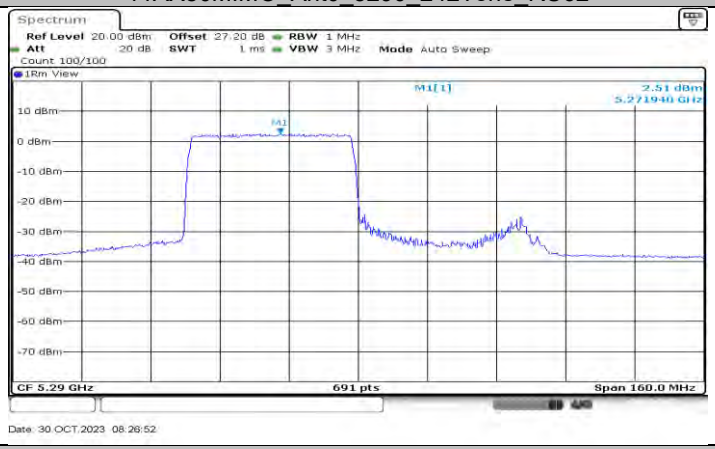
| |
| 11AX80MIMO_Ant0_5290_242Tone_RU62 |
|  |
| 11AX80MIMO_Ant0_5290_484Tone_RU65 |
| |
| 11AX80MIMO_Ant0_5290_996Tone_RU67 |





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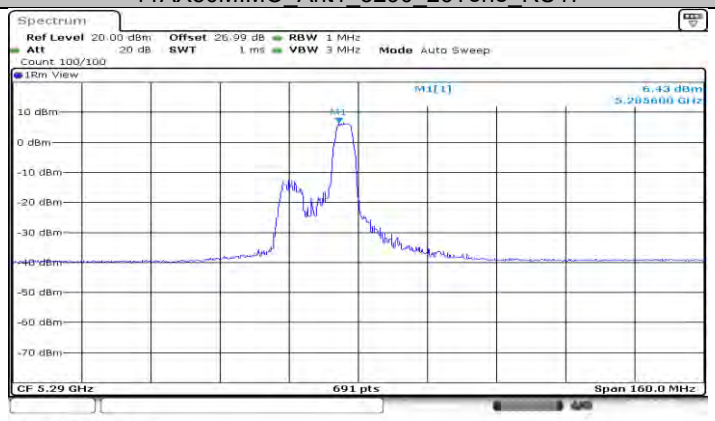
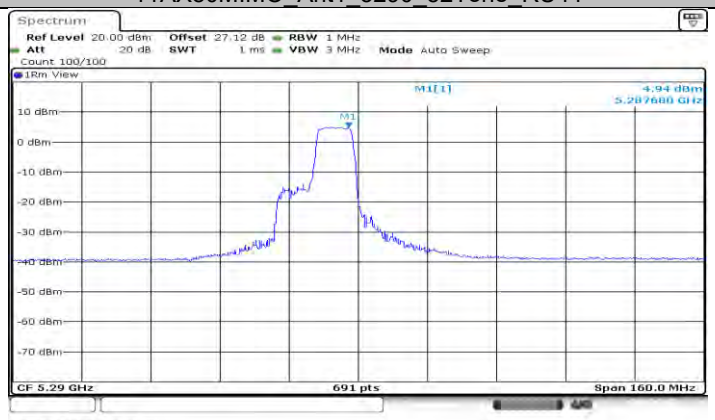
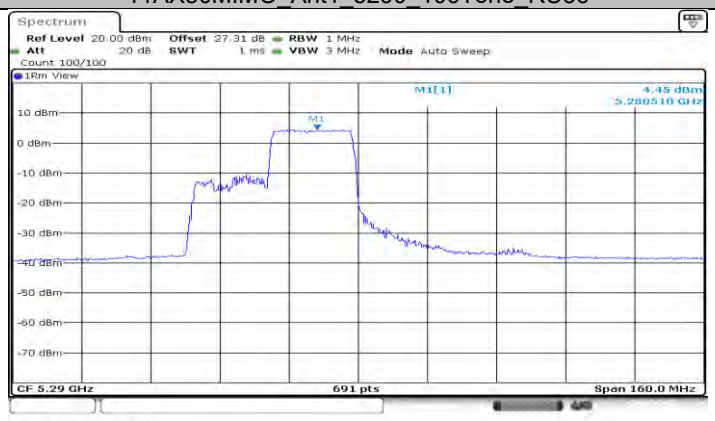
11AX80MIMO_Ant1_5290_26Tone_RU17




11AX80MIMO_Ant1_5290_52Tone_RU44




11AX80MIMO_Ant1_5290_106Tone_RU56





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| 11AX80MIMO_Ant1_5290_242Tone_RU62 |
|---|
| |
| 11AX80MIMO_Ant1_5290_484Tone_RU65 |
| |
| 11AX80MIMO_Ant1_5290_996Tone_RU67 |
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| 11AX80MIMO_Ant0_5530_26Tone_RU17 |








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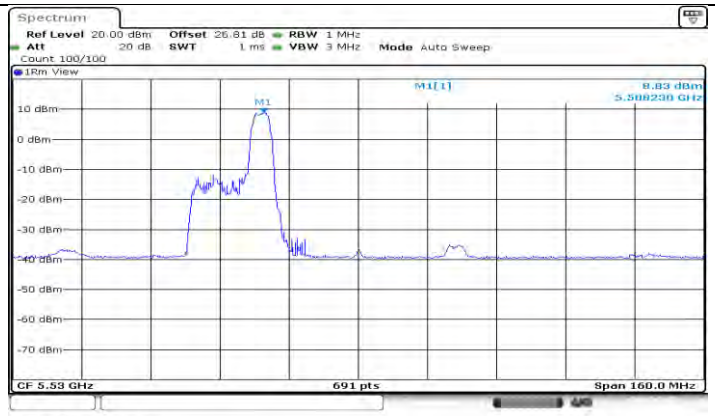


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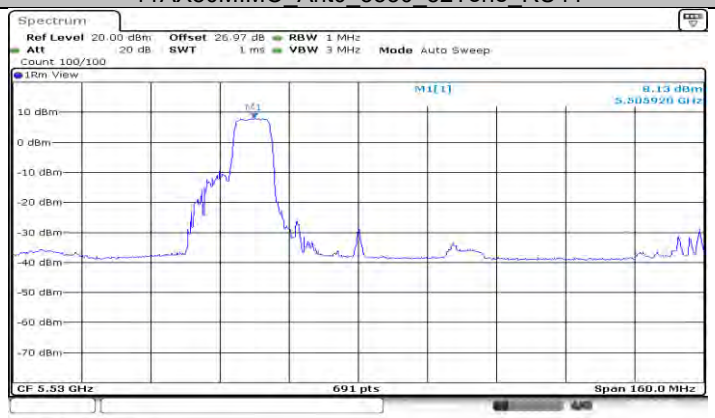
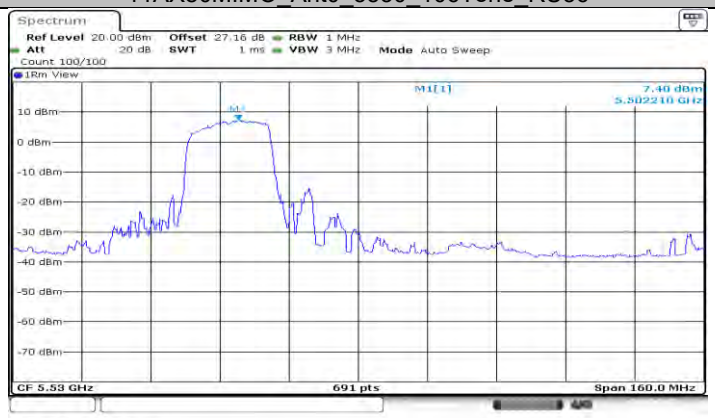
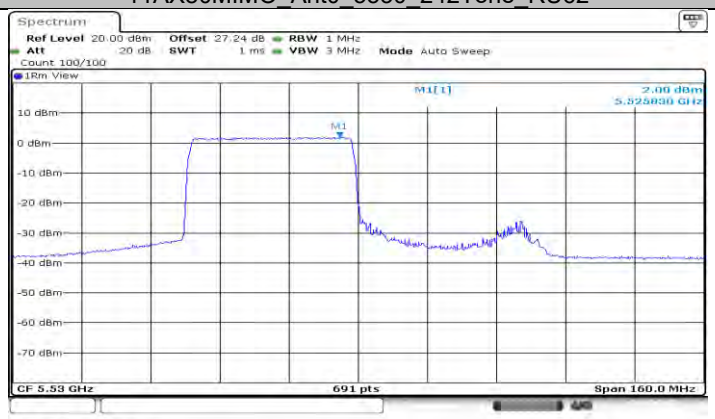



11AX80MIMO_Ant0_5530_106Tone_RU56




11AX80MIMO_Ant0_5530_242Tone_RU62





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| 11AX80MIMO_Ant0_5530_484Tone_RU65 |
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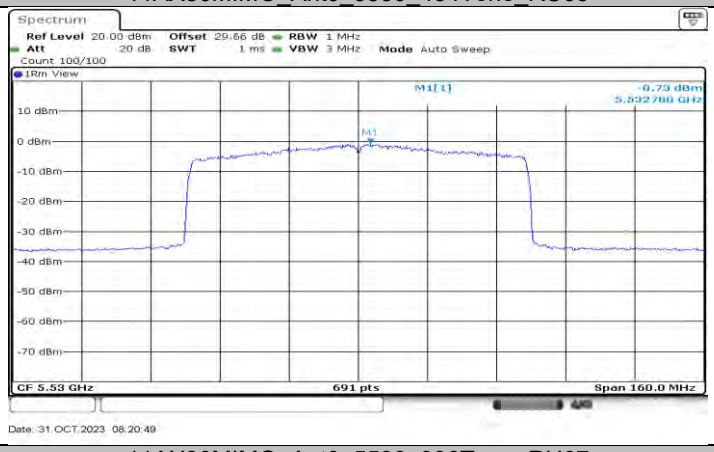
|  |
| 11AX80MIMO_Ant0_5530_996Tone_RU67 |
| |
| 11AX80MIMO_Ant1_5530_26Tone_RU17 |
| |
| 11AX80MIMO_Ant1_5530_52Tone_RU44 |





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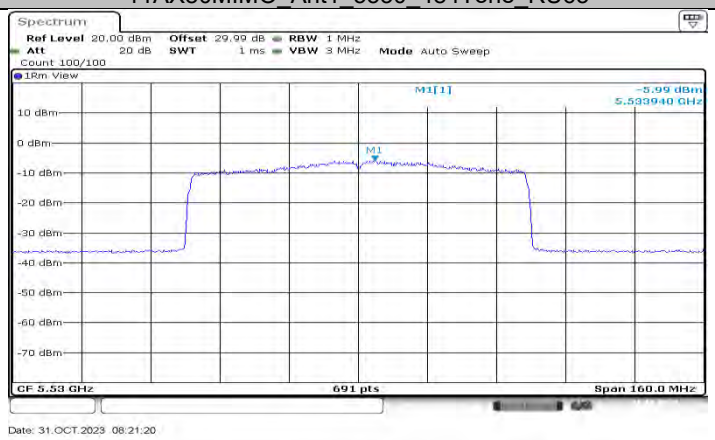
11AX80MIMO_Ant1_5530_106Tone_RU56

11AX80MIMO_Ant1_5530_242Tone_RU62

11AX80MIMO_Ant1_5530_484Tone_RU65





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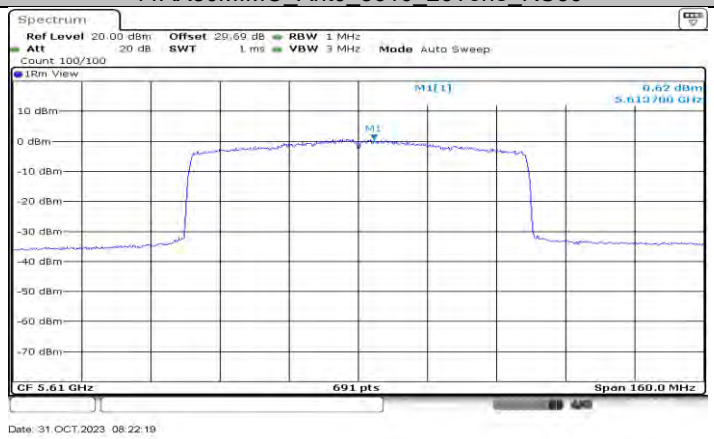
11AX80MIMO_Ant1_5530_996Tone_RU67

11AX80MIMO_Ant0_5610_26Tone_RU36




11AX80MIMO_Ant0_5610_996Tone_RU67

11AX80MIMO_Ant1_5610_26Tone_RU36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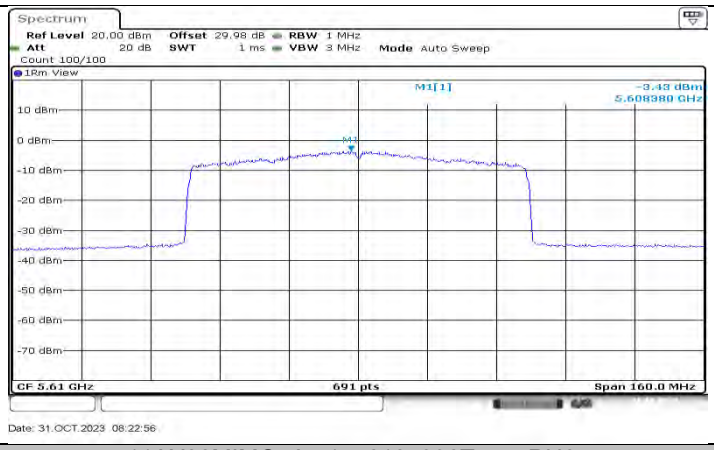
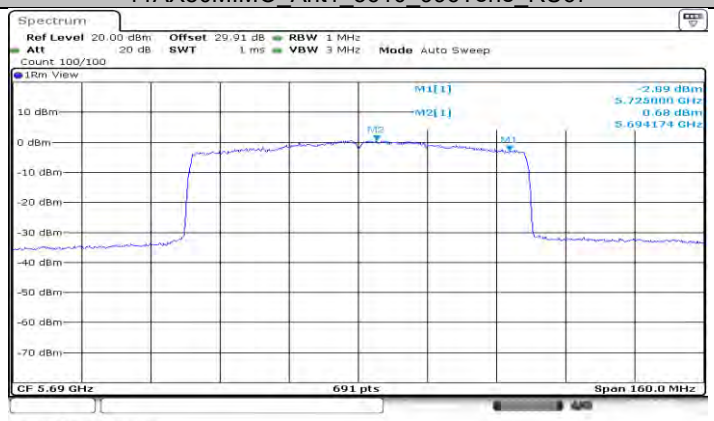
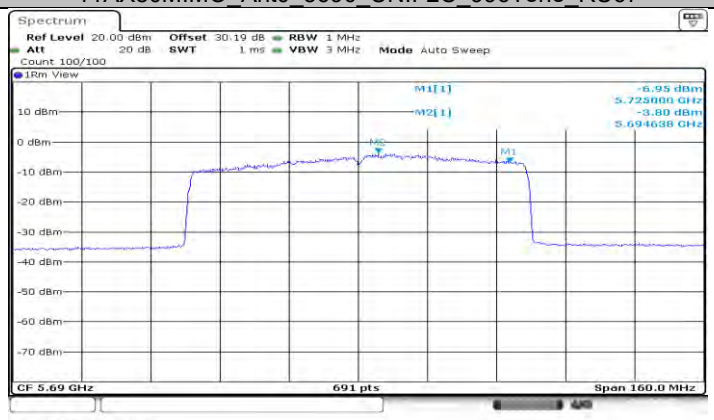


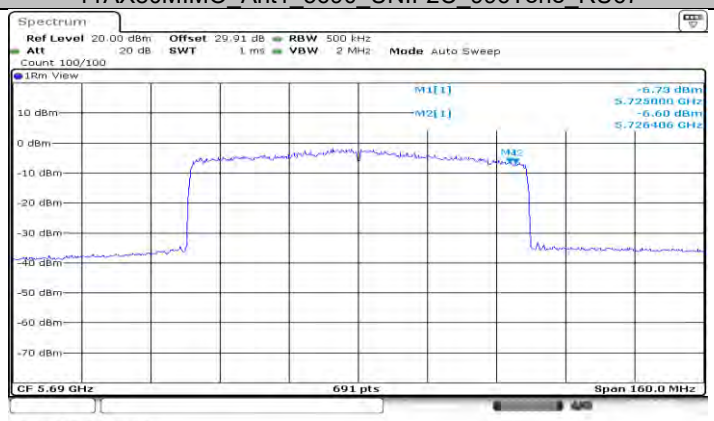

11AX80MIMO_Ant1_5610_996Tone_RU67




11AX80MIMO_Ant0_5690_UNII-2C_996Tone_RU67




11AX80MIMO_Ant1_5690_UNII-2C_996Tone_RU67





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11AX80MIMO_Ant0_5690_UNII-3_996Tone_RU67

11AX80MIMO_Ant1_5690_UNII-3_996Tone_RU67

11AX80MIMO_Ant0_5775_26Tone_RU17

11AX80MIMO_Ant0_5775_52Tone_RU44


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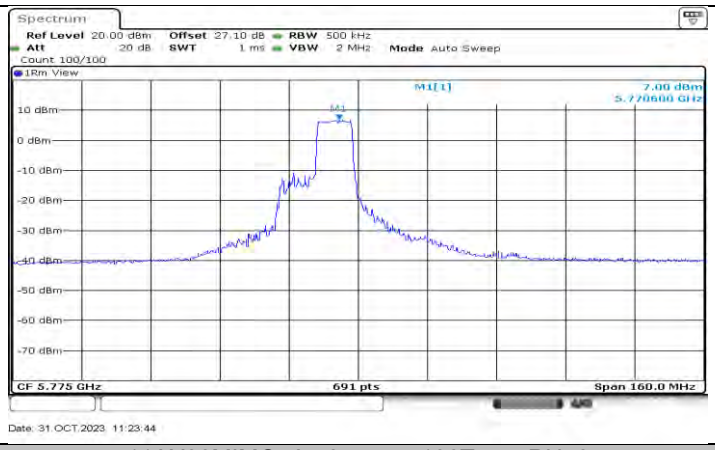


11AX80MIMO_Ant0_5775_106Tone_RU56

11AX80MIMO_Ant0_5775_242Tone_RU62

11AX80MIMO_Ant0_5775_484Tone_RU65

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| 11AX80MIMO_Ant0_5775_996Tone_RU67 |
| --- |
| |
| 11AX80MIMO_Ant1_5775_26Tone_RU17 |
| |
| 11AX80MIMO_Ant1_5775_52Tone_RU44 |
| |
| 11AX80MIMO_Ant1_5775_106Tone_RU56 |








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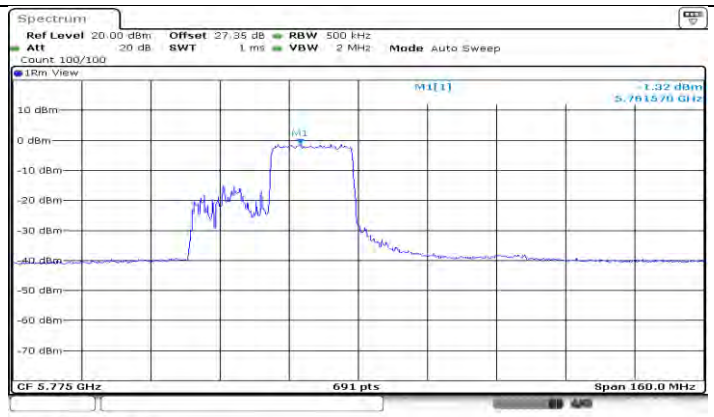
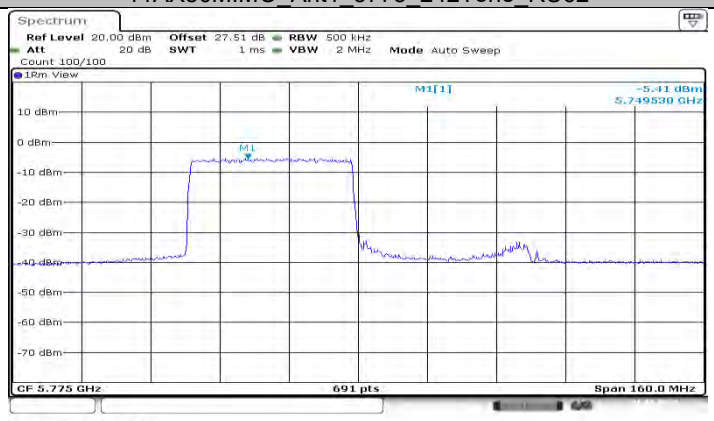
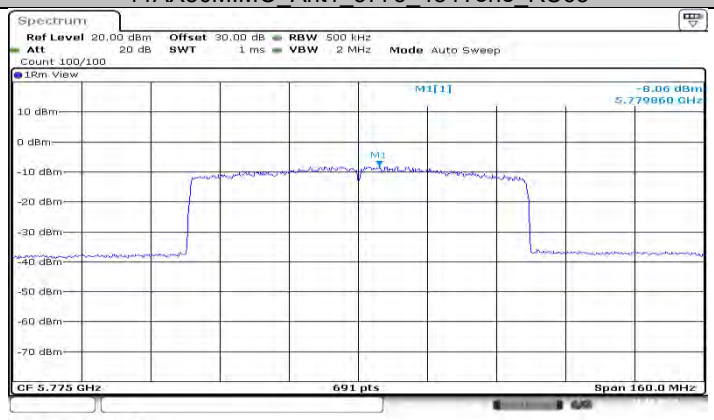



11AX80MIMO_Ant1_5775_242Tone_RU62




11AX80MIMO_Ant1_5775_484Tone_RU65




11AX80MIMO_Ant1_5775_996Tone_RU67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# 11.11. APPENDIX F: FREQUENCY STABILITY

## 11.11.1. Test Result

| Frequency Error vs. Voltage | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 802.11a:5200MHz | | | | | | | | | |
| Temp. | Volt. | 0 Minute | | 2 Minute | | 5 Minute | | 10 Minute | |
| | | Freq.Error (MHz) | Tolerance (ppm) | Freq.Error (MHz) | Tolerance (ppm) | Freq.Error (MHz) | Tolerance (ppm) | Freq.Error (MHz) | Tolerance (ppm) |
| TN | VL | 5199.9935 | -1.25 | 5199.9969 | -0.59 | 5200.0133 | 2.57 | 5199.9949 | -0.98 |
| TN | VN | 5199.9795 | -3.94 | 5200.0007 | 0.14 | 5199.9888 | -2.16 | 5200.0137 | 2.64 |
| TN | VH | 5199.9898 | -1.96 | 5199.9812 | -3.62 | 5199.9827 | -3.33 | 5200.0230 | 4.43 |
| Frequency Error vs. Temperature | | | | | | | | | |
| 802.11a:5200MHz | | | | | | | | | |
| Temp. | Volt. | 0 Minute | | 2 Minute | | 5 Minute | | 10 Minute | |
| | | Freq.Error (MHz) | Tolerance (ppm) | Freq.Error (MHz) | Tolerance (ppm) | Freq.Error (MHz) | Tolerance (ppm) | Freq.Error (MHz) | Tolerance (ppm) |
| 50 | VN | 5199.9758 | -4.65 | 5200.0063 | 1.20 | 5200.0074 | 1.42 | 5199.9994 | -0.12 |
| 40 | VN | 5199.9778 | -4.27 | 5199.9825 | -3.36 | 5199.9837 | -3.14 | 5199.9896 | -2.00 |
| 30 | VN | 5200.0167 | 3.22 | 5200.0224 | 4.30 | 5200.0215 | 4.13 | 5199.9872 | -2.47 |
| 20 | VN | 5200.0094 | 1.82 | 5200.0085 | 1.64 | 5199.9993 | -0.13 | 5200.0215 | 4.13 |
| 10 | VN | 5199.9763 | -4.55 | 5199.9824 | -3.39 | 5199.9941 | -1.13 | 5200.0170 | 3.27 |
| 0 | VN | 5200.0070 | 1.35 | 5199.9957 | -0.83 | 5199.9844 | -3.00 | 5200.0109 | 2.09 |
| -10 | VN | 5200.0093 | 1.79 | 5200.0161 | 3.11 | 5200.0035 | 0.67 | 5199.9903 | -1.86 |
| -20 | VN | 5199.9996 | -0.08 | 5199.9965 | -0.68 | 5200.0044 | 0.85 | 5199.9811 | -3.64 |

Note:
1. All antennas, test modes and test channels have been tested, only the worst data record in the report.
2. For the detail Test Conditions, please refer to section 7.5 TEST ENVIRONMENT.


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# 11.12. APPENDIX G: DUTY CYCLE

## 11.12.1. Test Result

| Test Mode | On Time (msec) | Period (msec) | Duty Cycle x (Linear) | Duty Cycle (%) | Duty Cycle Correction Factor (dB) | 1/T Minimum VBW (kHz) | Final setting For VBW (kHz) |
|---|---|---|---|---|---|---|---|
| 11A | 1.39 | 1.83 | 0.7596 | 75.96 | 1.19 | 0.72 | 1 |
| 11N20MIMO | 1.30 | 1.74 | 0.7471 | 74.71 | 1.27 | 0.77 | 1 |
| 11N40MIMO | 0.65 | 1.07 | 0.6075 | 60.75 | 2.16 | 1.54 | 2 |
| 11AC80MIMO | 0.32 | 0.76 | 0.4211 | 42.11 | 3.76 | 3.13 | 4 |

| Test Mode | Ru Size | Ru Index | On Time (msec) | Period (msec) | Duty Cycle x (Linear) | Duty Cycle (%) | Duty Cycle Correction Factor (dB) | 1/T Minimum VBW (kHz) | Final setting For VBW (kHz) |
|---|---|---|---|---|---|---|---|---|---|
| 11AX20MIMO | 26Tone | RU4 | 1.6 | 2.01 | 0.7960 | 79.6 | 0.99 | 0.63 | 1 |
| | 52Tone | RU38 | 1.52 | 1.92 | 0.7917 | 79.17 | 1.01 | 0.66 | 1 |
| | 106Tone | RU53 | 1.39 | 1.82 | 0.7637 | 76.37 | 1.17 | 0.72 | 1 |
| | 242Tone | RU61 | 1.02 | 1.46 | 0.6986 | 69.86 | 1.56 | 0.98 | 1 |
| 11AX40MIMO | 26Tone | RU0 | 1.6 | 2.01 | 0.7960 | 79.6 | 0.99 | 0.63 | 1 |
| | 52Tone | RU37 | 1.6 | 2.01 | 0.7960 | 79.6 | 0.99 | 0.63 | 1 |
| | 106Tone | RU53 | 1.51 | 1.92 | 0.7865 | 78.65 | 1.04 | 0.66 | 1 |
| | 242Tone | RU61 | 1.39 | 1.82 | 0.7637 | 76.37 | 1.17 | 0.72 | 1 |
| | 484Tone | RU65 | 0.65 | 1.12 | 0.5804 | 58.04 | 2.36 | 1.54 | 2 |
| 11AX80MIMO | 26Tone | RU0 | 1.59 | 2 | 0.7950 | 79.5 | 1.00 | 0.63 | 1 |
| | 52Tone | RU37 | 1.6 | 2.01 | 0.7960 | 79.06 | 0.99 | 0.63 | 1 |
| | 106Tone | RU53 | 1.52 | 1.92 | 0.7917 | 76.17 | 1.01 | 0.66 | 1 |
| | 242Tone | RU61 | 1.39 | 1.82 | 0.7637 | 76.37 | 1.17 | 0.72 | 1 |
| | 484Tone | RU65 | 1.2 | 1.67 | 0.7186 | 71.86 | 1.44 | 0.83 | 1 |
| | 996Tone | RU67 | 0.29 | 0.73 | 0.3973 | 39.73 | 4.01 | 3.45 | 4 |

Note:
Duty Cycle Correction Factor=10log (1/x).
Where: x is Duty Cycle (Linear)
Where: T is On Time
If that calculated VBW is not available on the analyzer then the next higher value should be used.


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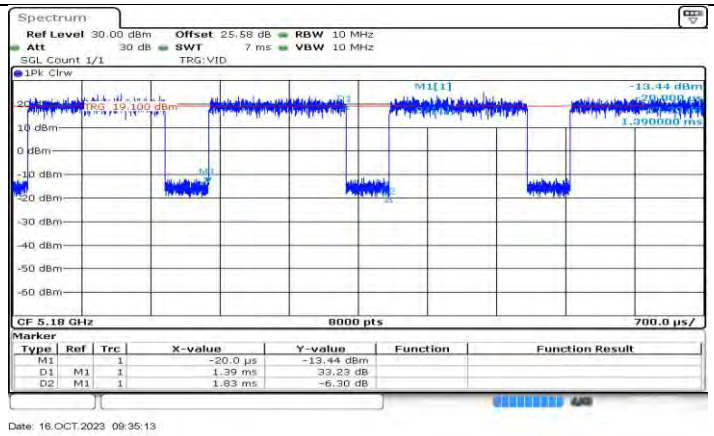
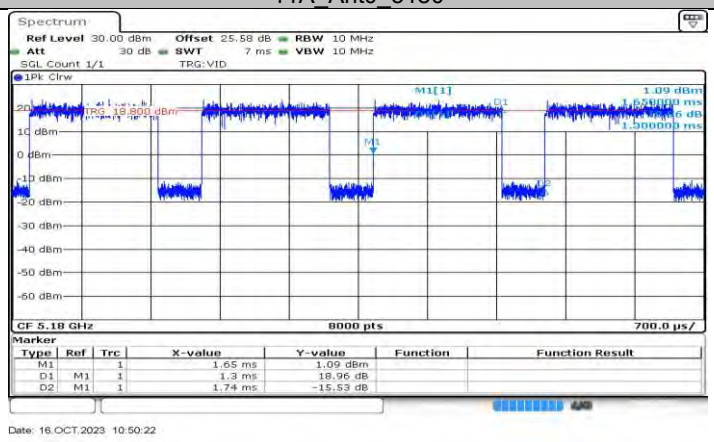
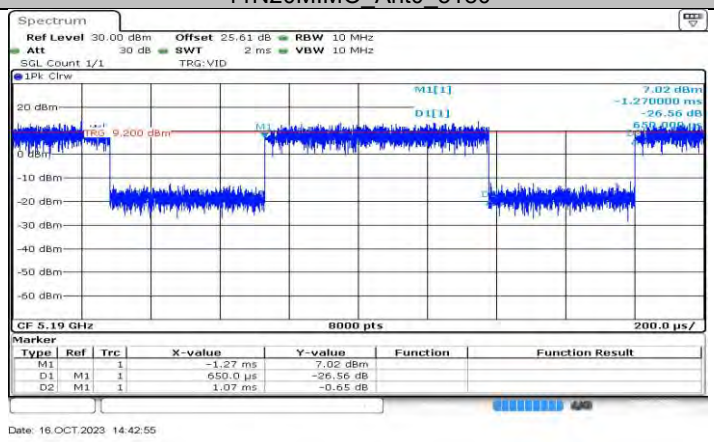
## 11.12.2. Test Graphs




11A_Ant0_5180




11N20MIMO_Ant0_5180




11N40MIMO_Ant0_5190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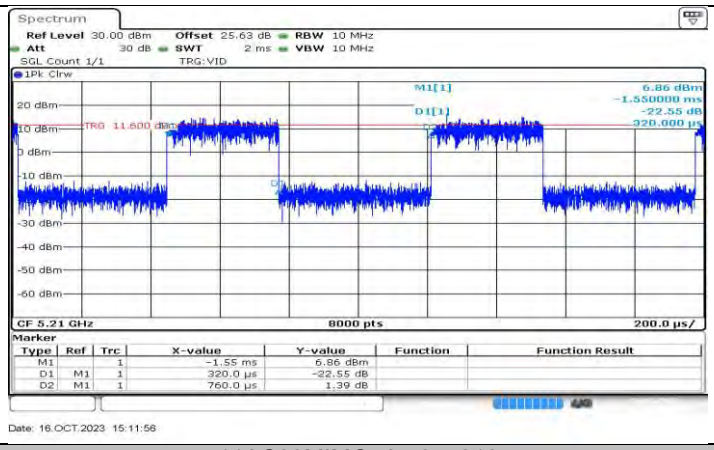
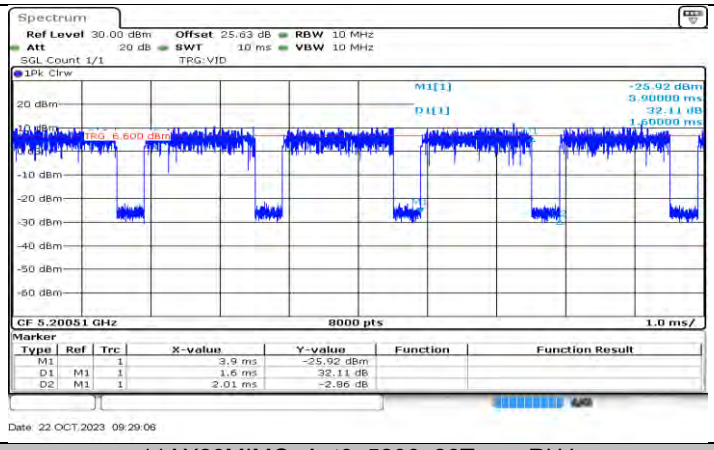
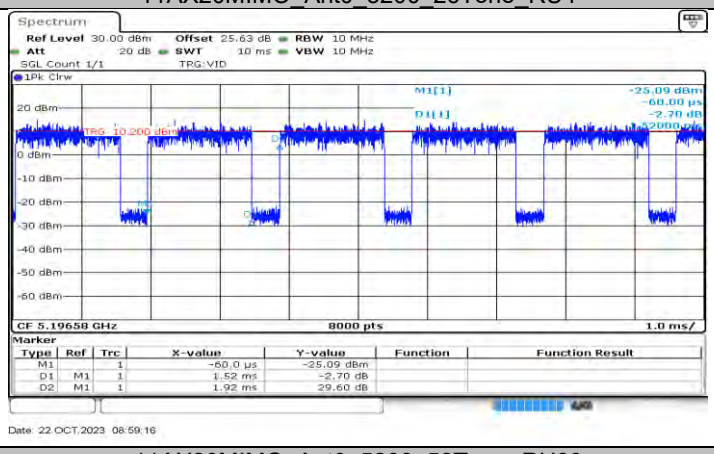



11AC80MIMO_Ant0_5210




11AX20MIMO_Ant0_5200_26Tone_RU4




11AX20MIMO_Ant0_5200_52Tone_RU38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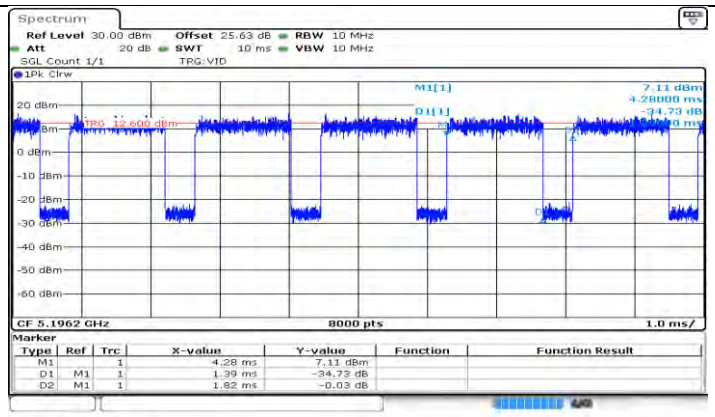
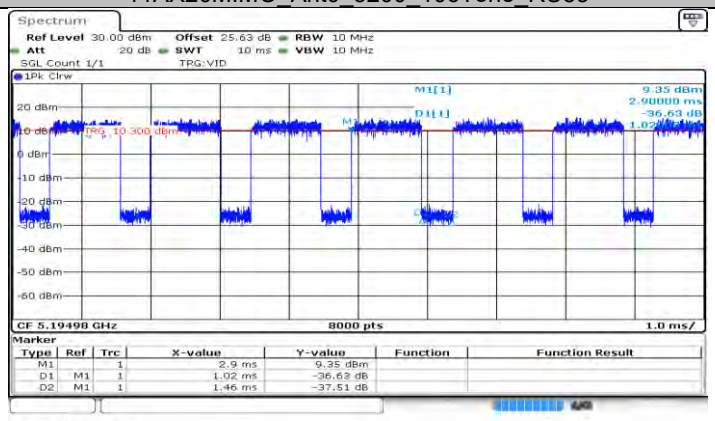
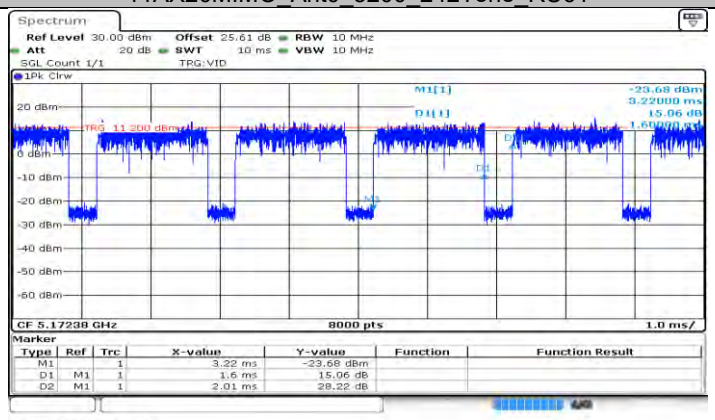


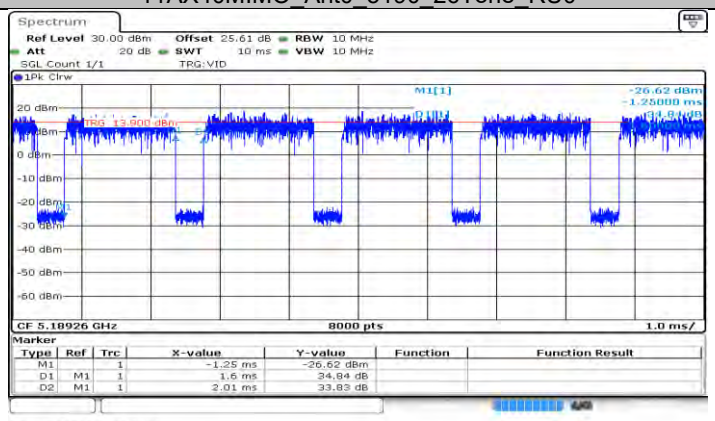

11AX20MIMO_Ant0_5200_106Tone_RU53




11AX20MIMO_Ant0_5200_242Tone_RU61




11AX40MIMO_Ant0_5190_26Tone_RU0





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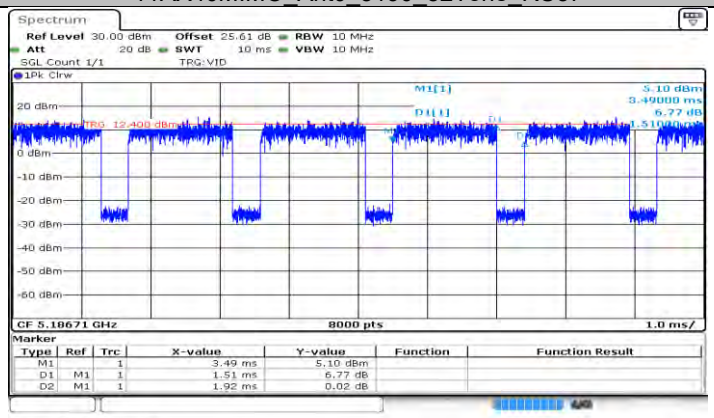
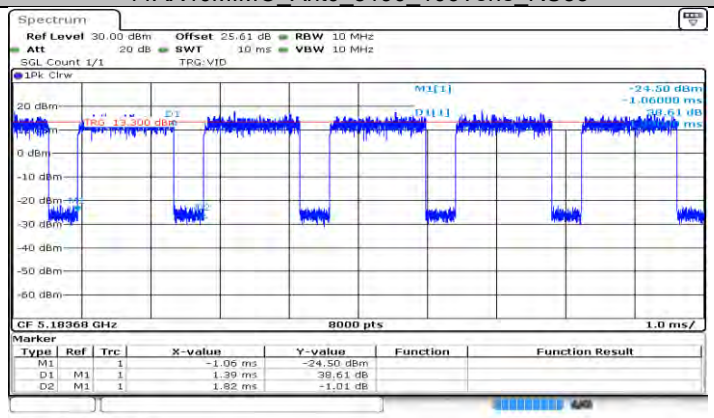
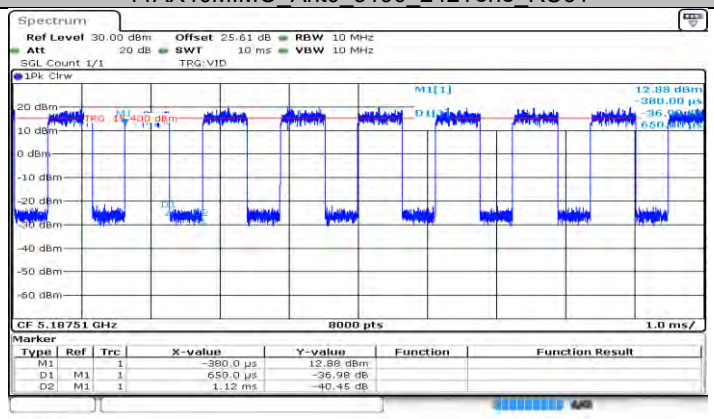
11AX40MIMO_Ant0_5190_52Tone_RU37




11AX40MIMO_Ant0_5190_106Tone_RU53




11AX40MIMO_Ant0_5190_242Tone_RU61




11AX40MIMO_Ant0_5190_484Tone_RU65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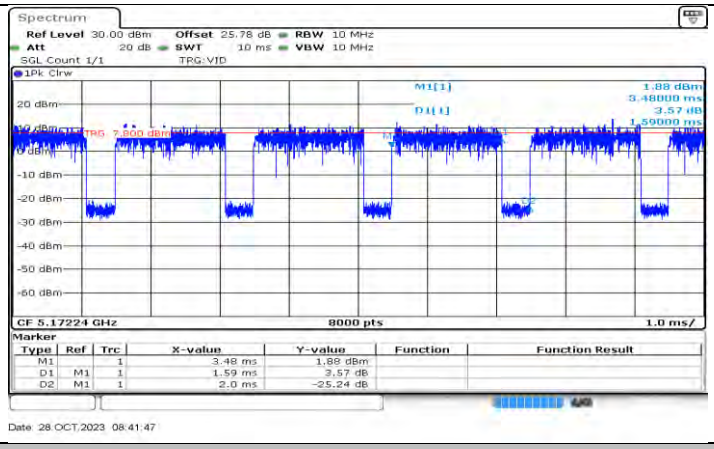
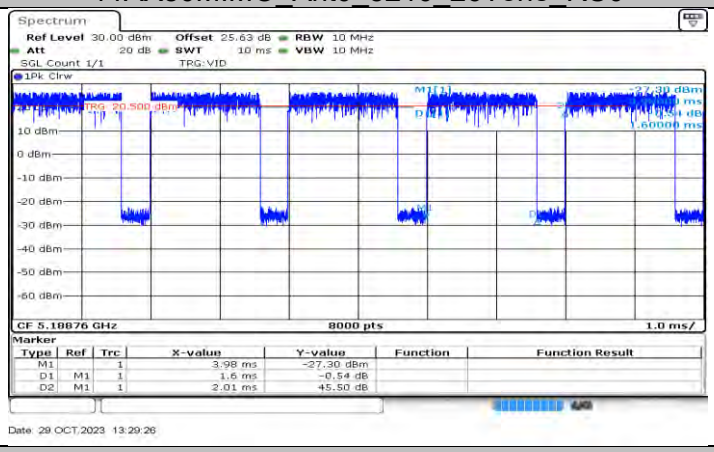
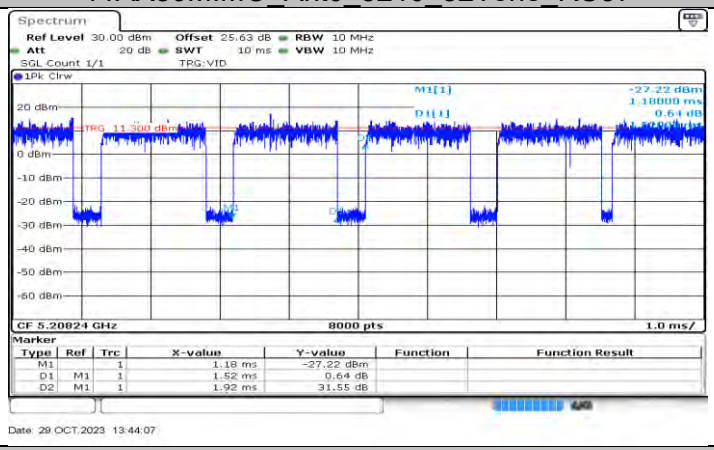



11AX80MIMO_Ant0_5210_26Tone_RU0




11AX80MIMO_Ant0_5210_52Tone_RU37




11AX80MIMO_Ant0_5210_106Tone_RU53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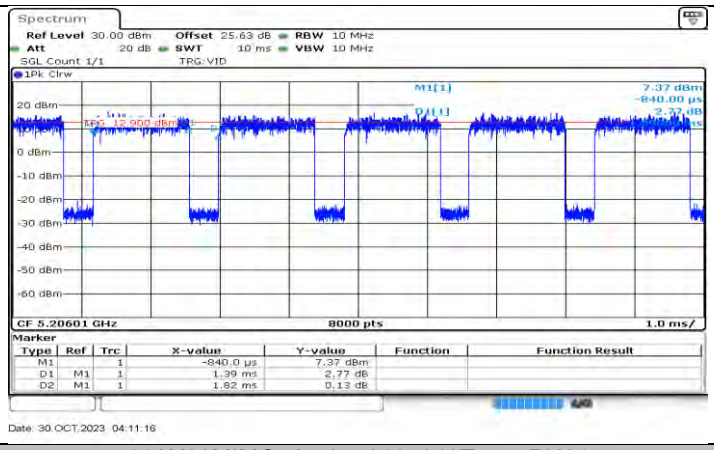
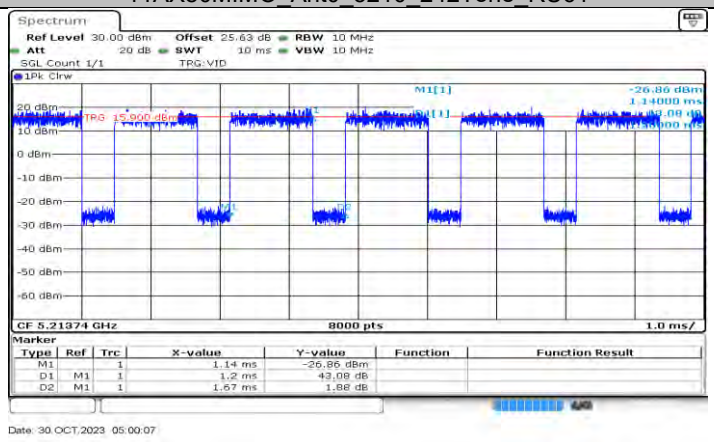
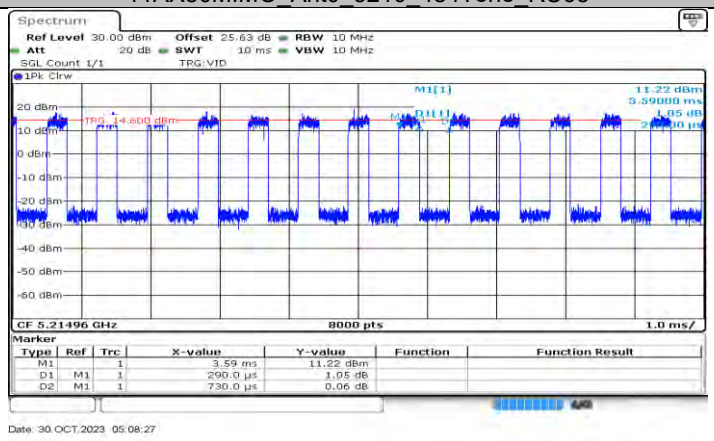



11AX80MIMO_Ant0_5210_242Tone_RU61




11AX80MIMO_Ant0_5210_484Tone_RU65




11AX80MIMO_Ant0_5210_996Tone_RU67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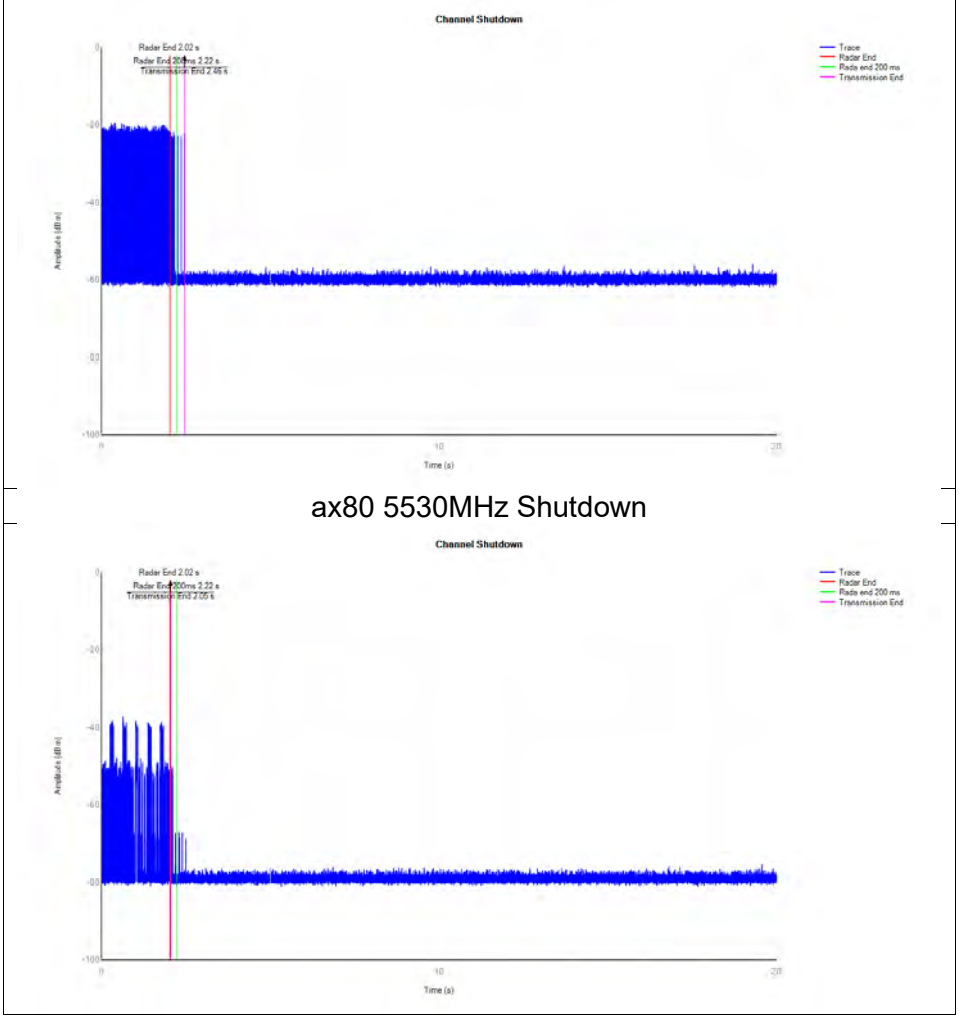
## 11.13. APPENDIX H: SHUTDOWN TIME

| Mode | Frequency (MHz) | Channel Move Time (s) | Limit Channel Move Time (s) | Channel Close Transmission Time (s) | Limit Close Transmission Time (s) | Close Transmission Time after 200ms(s) | Limit Close Transmission Time after 200ms (s) | Verdict |
|---|---|---|---|---|---|---|---|---|
| ax80 | 5530 | 0.022 | 10 | 0.001 | 0.26 | 0 | 0.06 | Pass |

Note: refer to KDB 905462 D02 table 2, this report only records the widest BW mode test data.

Test Graphs

ax20 5320MHz Shutdown




ax80 5530MHz Shutdown





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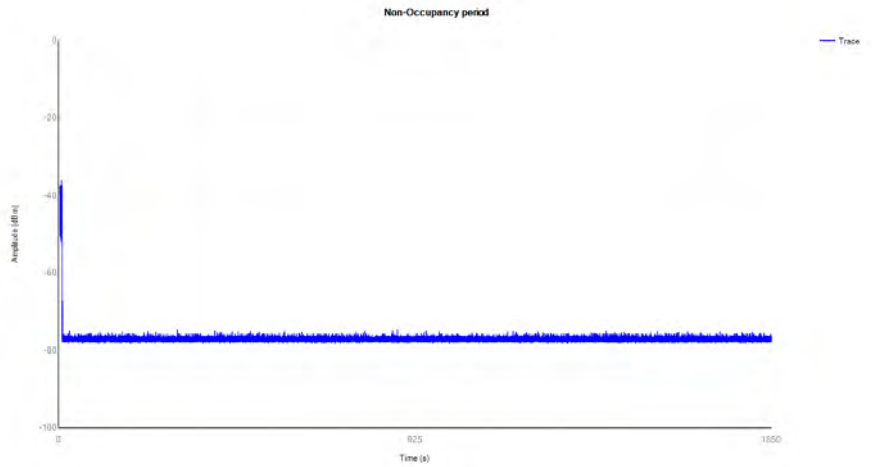
## 11.14. APPENDIX I: NON-OCCUPANCY

| Mode | Frequency (MHz) | Result | Verdict |
|---|---|---|---|
| ax80 | 5530 | See test Graph | Pass |

Note: refer to KDB 905462 D02 table 2, this report only records the widest BW mode test data.

| Test Graphs |
|---|
| ax80 5530MHz Non-Occupancy |

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