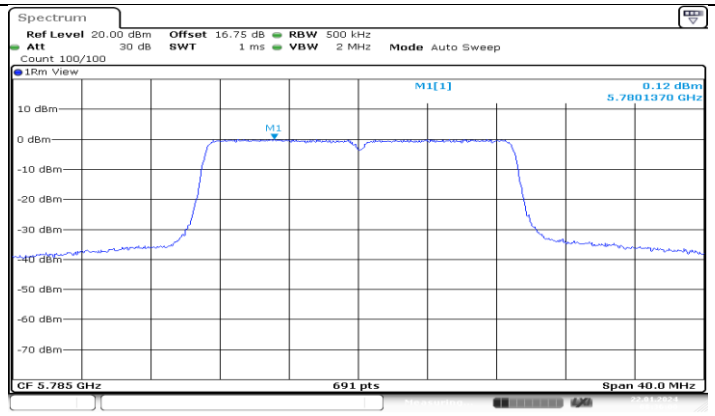
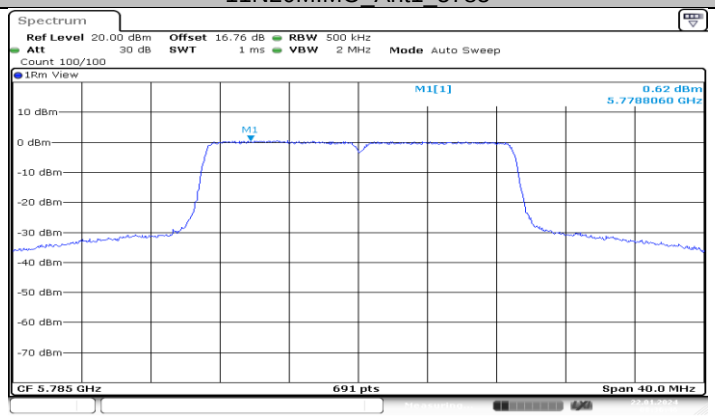
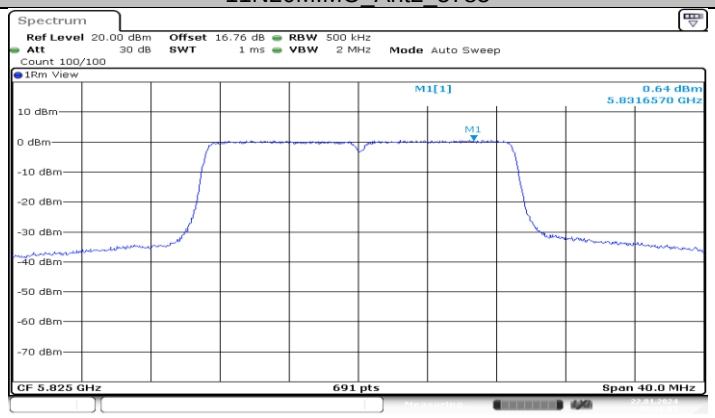


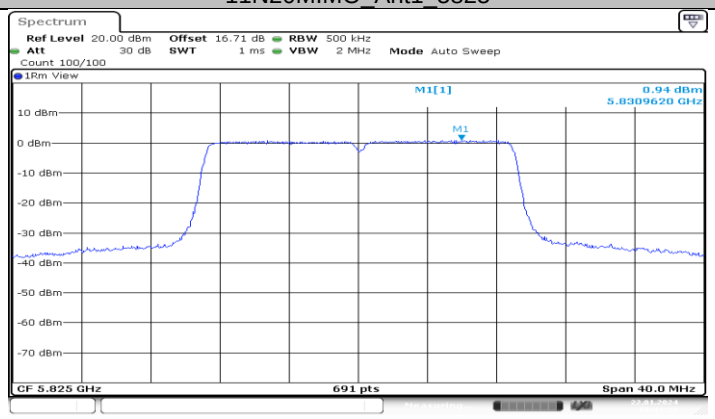

11N20MIMO_Ant1_5785




11N20MIMO_Ant2_5785



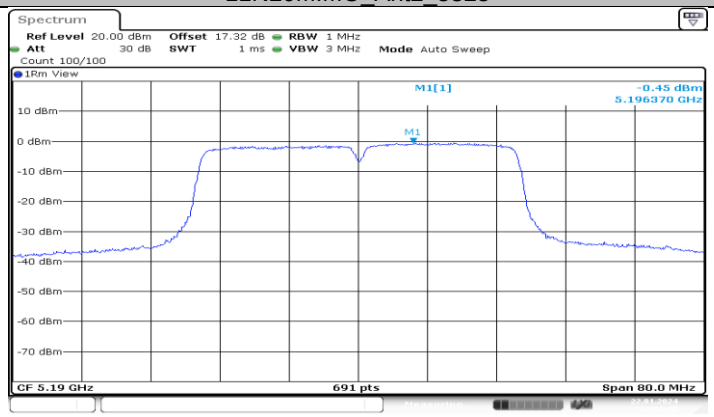

11N20MIMO_Ant1_5825



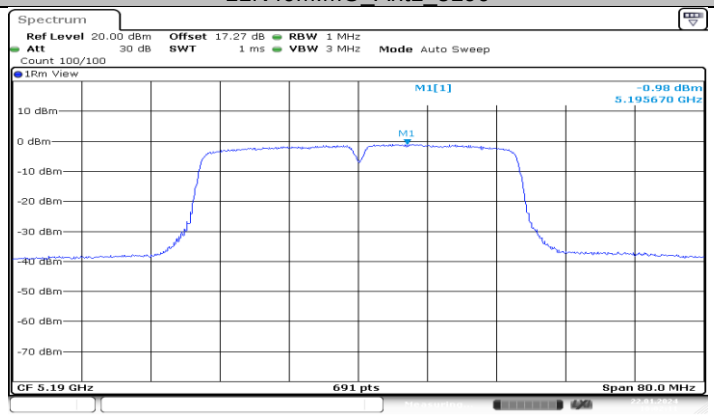


*This report shall not be reproduced except in full, without the written approval of UL Verification Services (Guangzhou) Co., Ltd, Song Shan Lake Branch.*

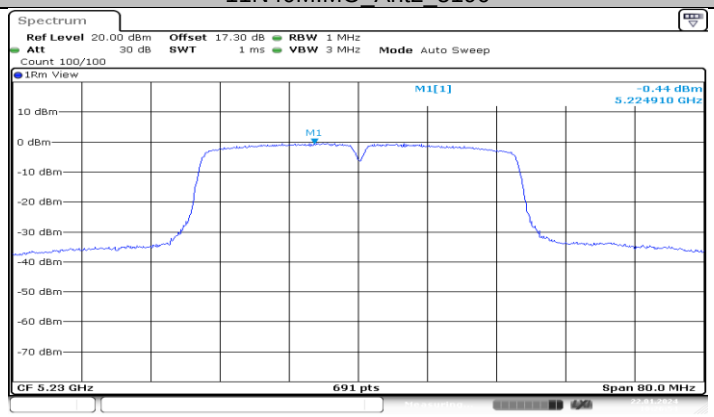
11N20MIMO_Ant2_5825




11N40MIMO_Ant1_5190

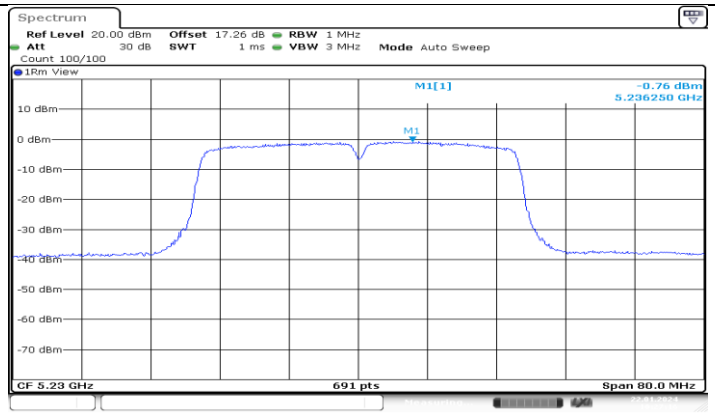



11N40MIMO_Ant2_5190

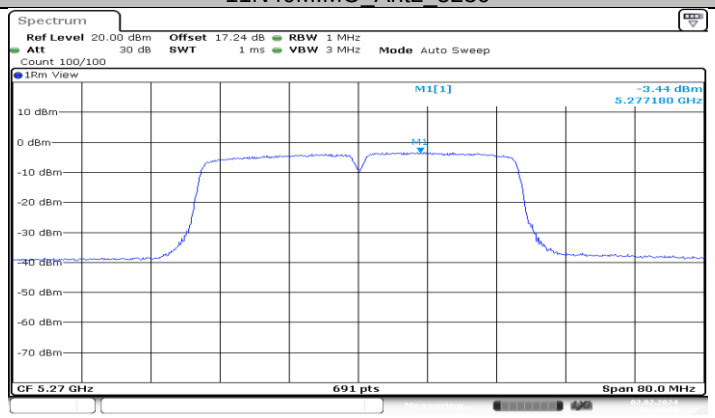



11N40MIMO_Ant1_5230

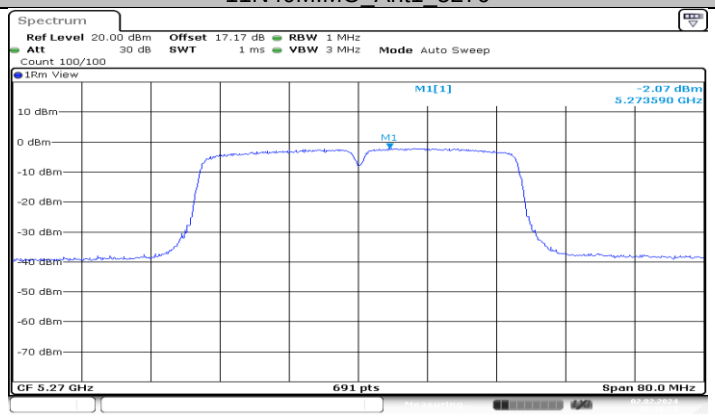

*This report shall not be reproduced except in full, without the written approval of UL Verification Services (Guangzhou) Co., Ltd, Song Shan Lake Branch.*



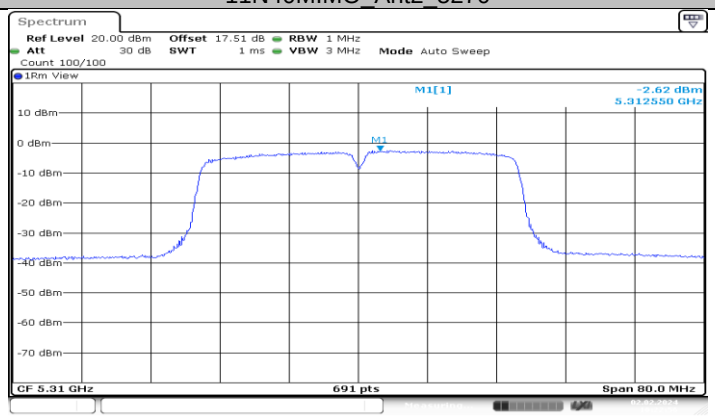

11N40MIMO_Ant2_5230




11N40MIMO_Ant1_5270



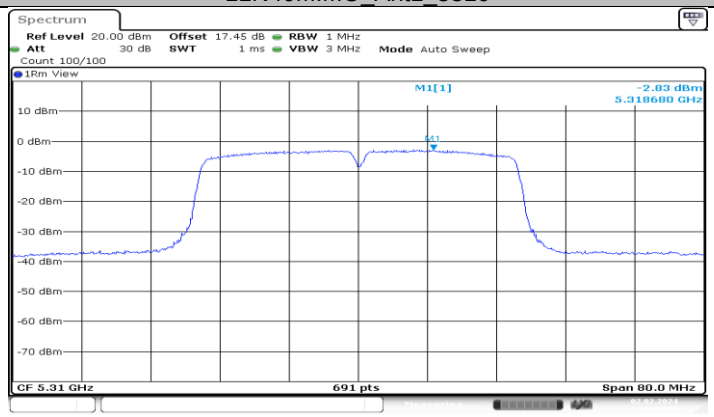

11N40MIMO_Ant2_5270



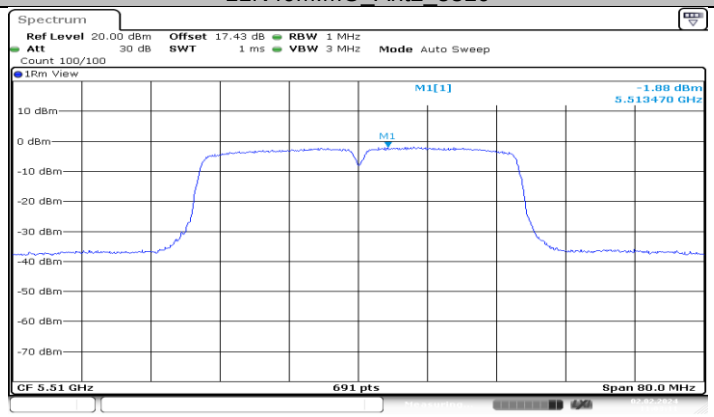


*This report shall not be reproduced except in full, without the written approval of UL Verification Services (Guangzhou) Co., Ltd, Song Shan Lake Branch.*

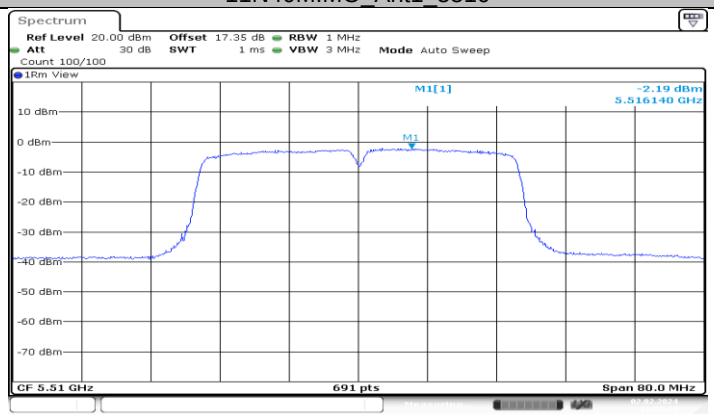
11N40MIMO_Ant1_5310




11N40MIMO_Ant2_5310

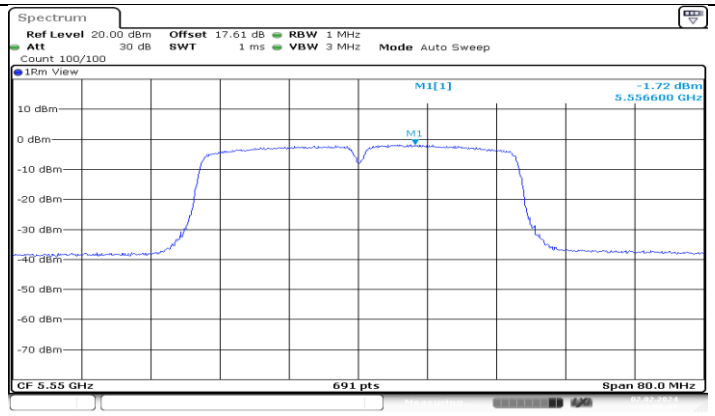



11N40MIMO_Ant1_5510

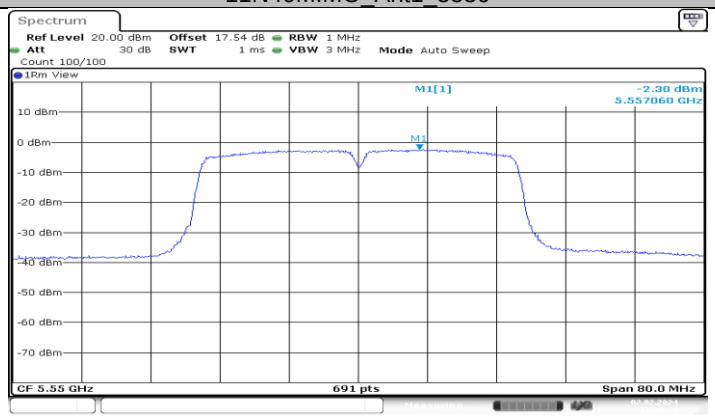



11N40MIMO_Ant2_5510

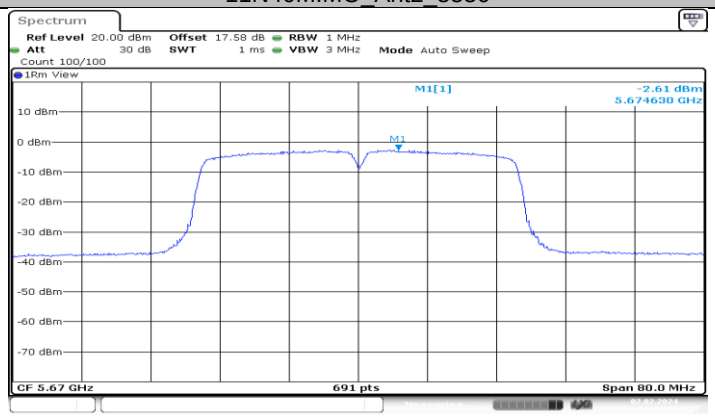

*This report shall not be reproduced except in full, without the written approval of UL Verification Services (Guangzhou) Co., Ltd, Song Shan Lake Branch.*



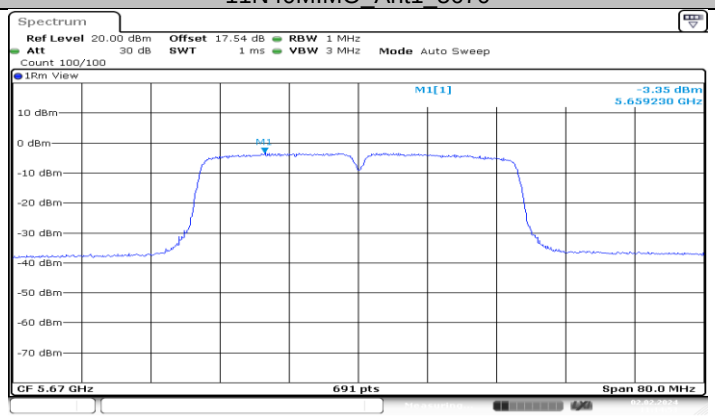

11N40MIMO_Ant1_5550




11N40MIMO_Ant2_5550

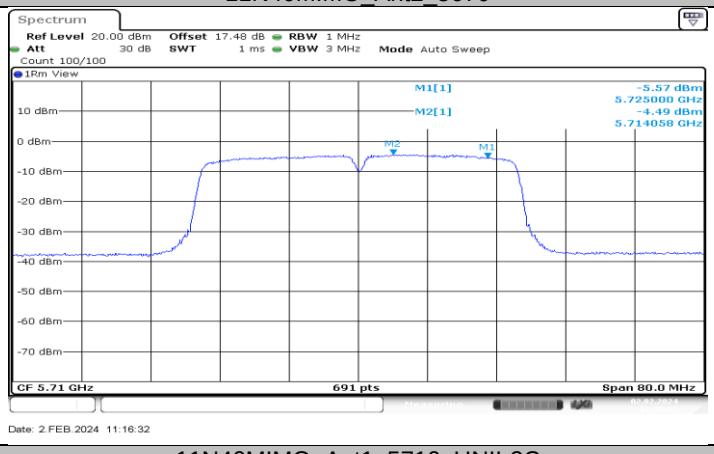
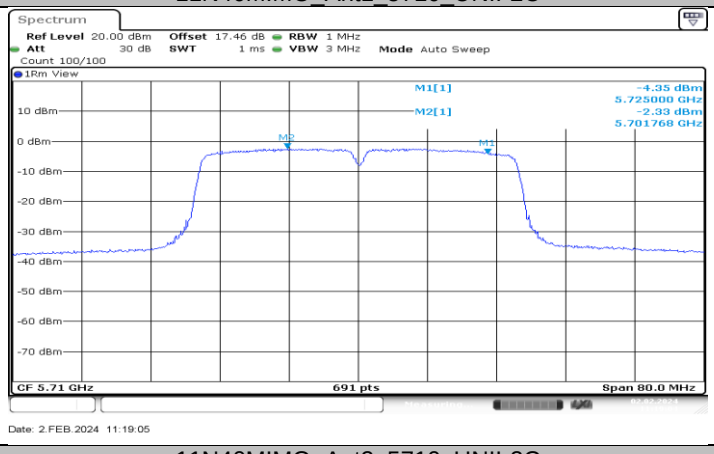
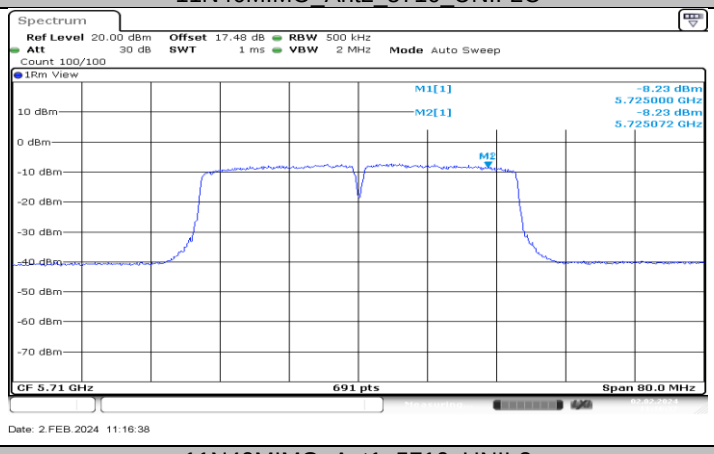



11N40MIMO_Ant1_5670

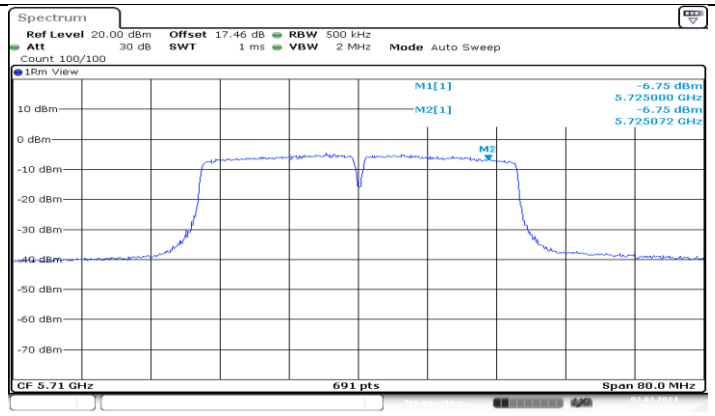




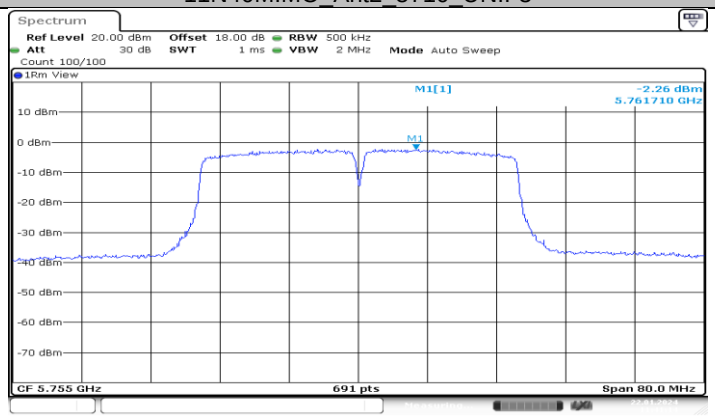
*This report shall not be reproduced except in full, without the written approval of UL Verification Services (Guangzhou) Co., Ltd, Song Shan Lake Branch.*

| 11N40MIMO_Ant2_5670 |
|---|
|  |
| 11N40MIMO_Ant1_5710_UNII-2C |
|  |
| 11N40MIMO_Ant2_5710_UNII-2C |
|  |
| 11N40MIMO_Ant1_5710_UNII-3 |

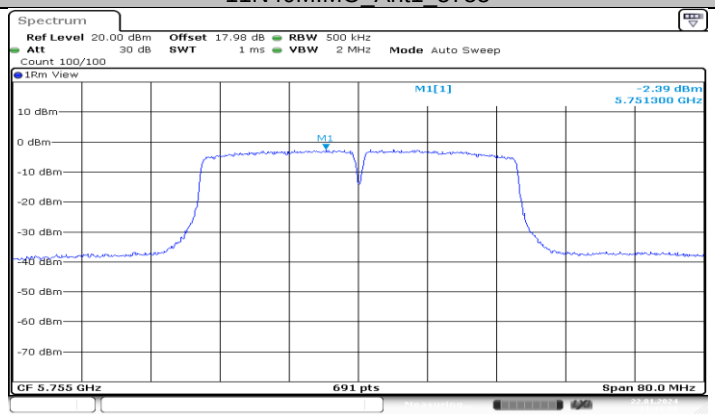

*This report shall not be reproduced except in full, without the written approval of UL Verification Services (Guangzhou) Co., Ltd, Song Shan Lake Branch.*



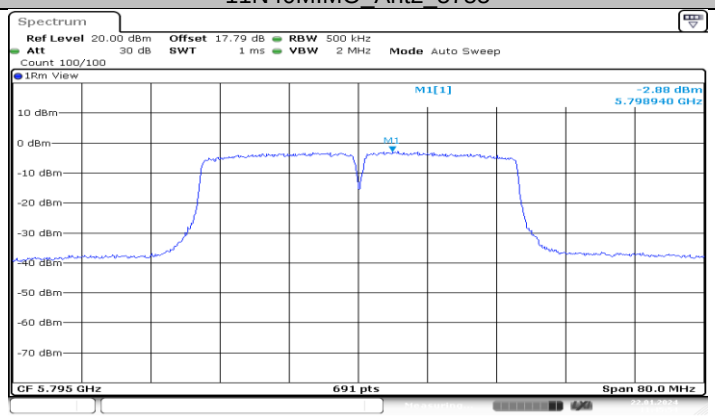

11N40MIMO_Ant2_5710_UNII-3




11N40MIMO_Ant1_5755



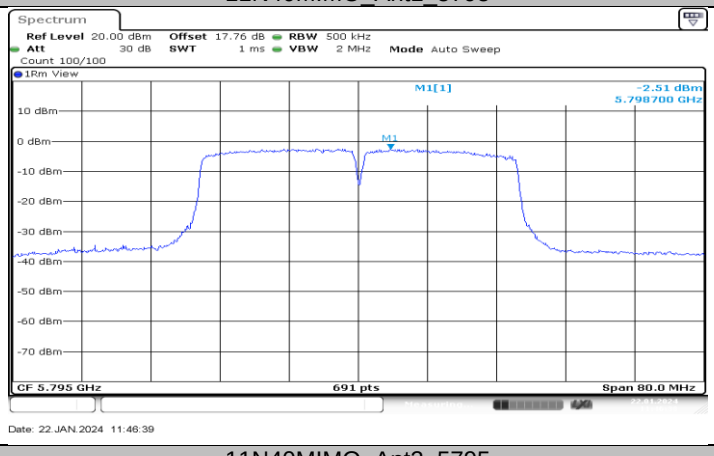

11N40MIMO_Ant2_5755



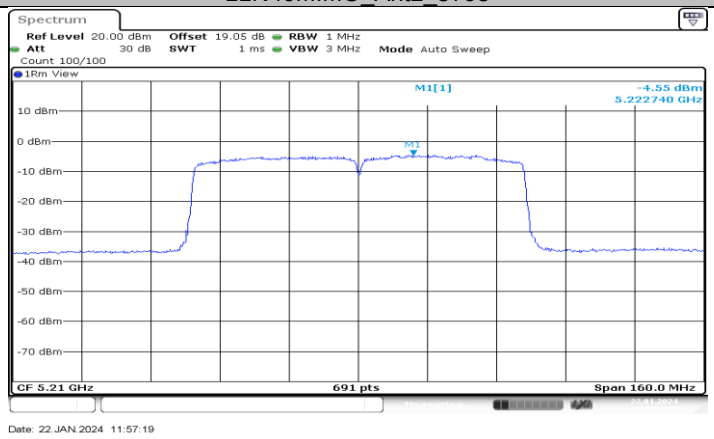


*This report shall not be reproduced except in full, without the written approval of UL Verification Services (Guangzhou) Co., Ltd, Song Shan Lake Branch.*

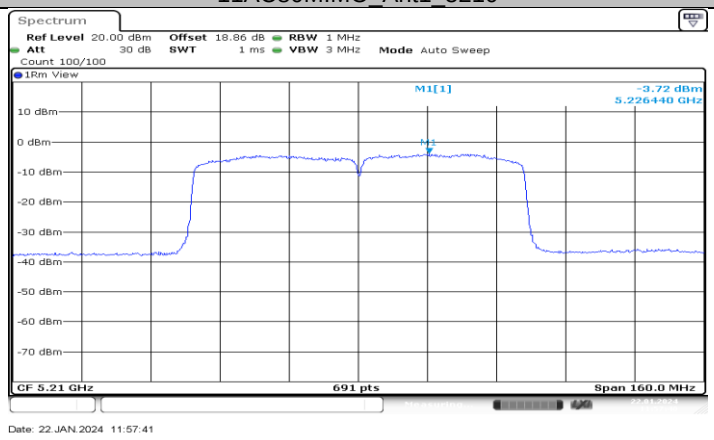
11N40MIMO_Ant1_5795




11N40MIMO_Ant2_5795

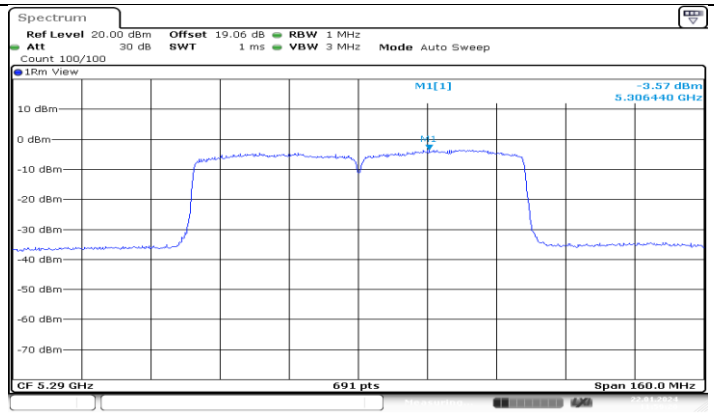



11AC80MIMO_Ant1_5210

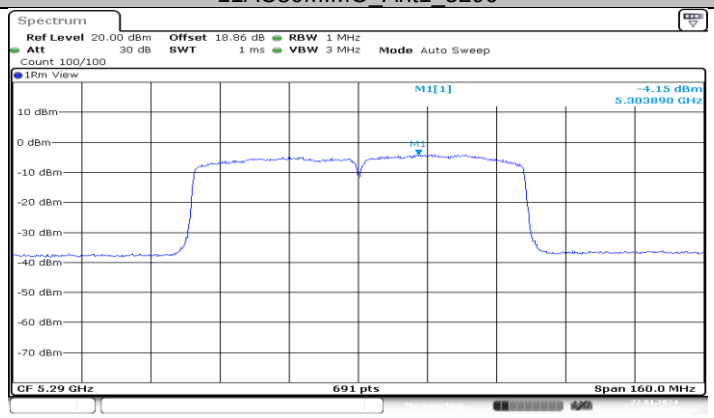



11AC80MIMO_Ant2_5210

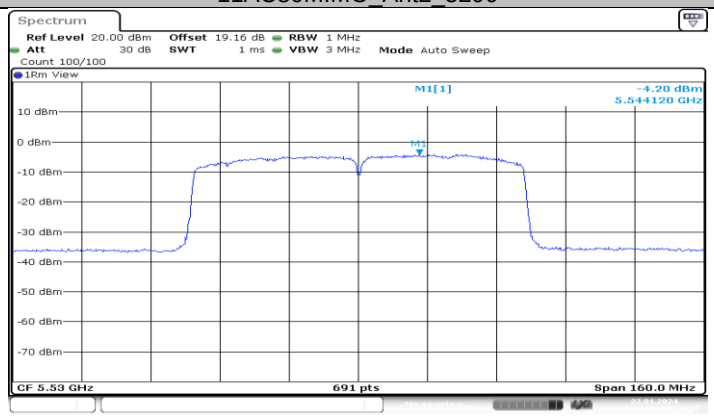

*This report shall not be reproduced except in full, without the written approval of UL Verification Services (Guangzhou) Co., Ltd, Song Shan Lake Branch.*



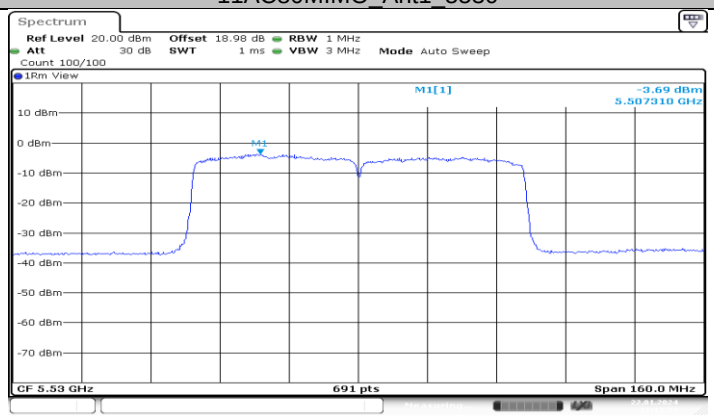

11AC80MIMO_Ant1_5290




11AC80MIMO_Ant2_5290

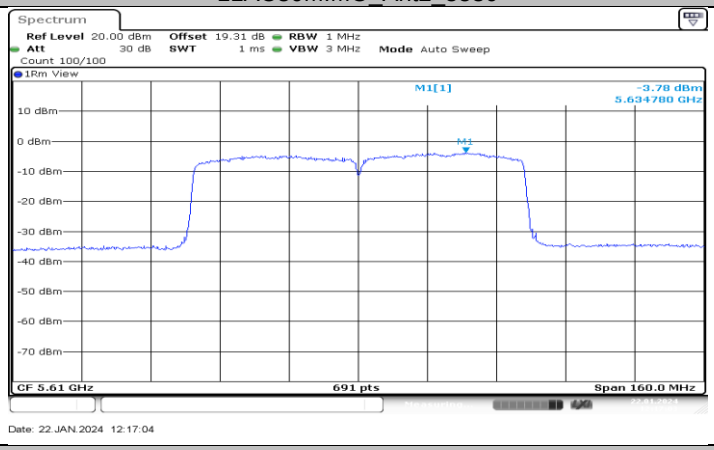
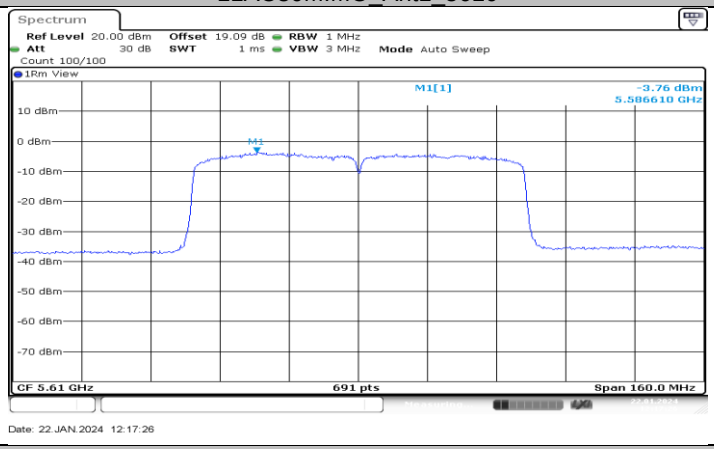
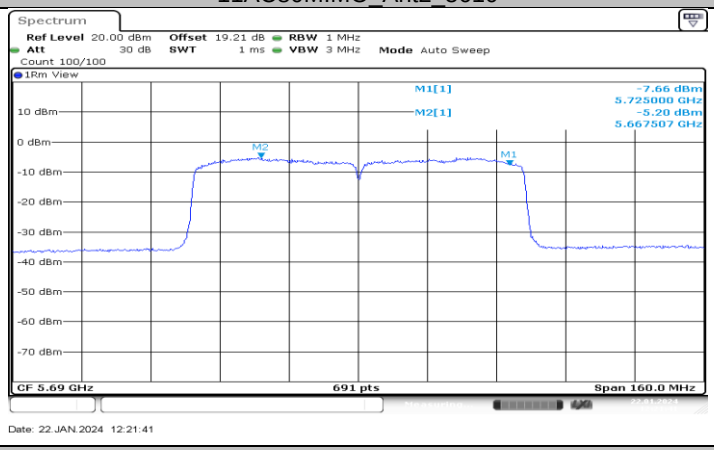



11AC80MIMO_Ant1_5530





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

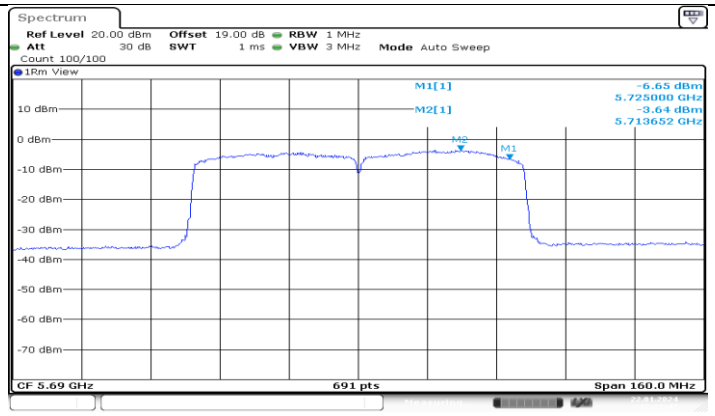
| 11AC80MIMO_Ant2_5530 |
|---|
|  |
| 11AC80MIMO_Ant1_5610 |
|  |
| 11AC80MIMO_Ant2_5610 |
|  |
| 11AC80MIMO_Ant1_5690_UNII-2C |



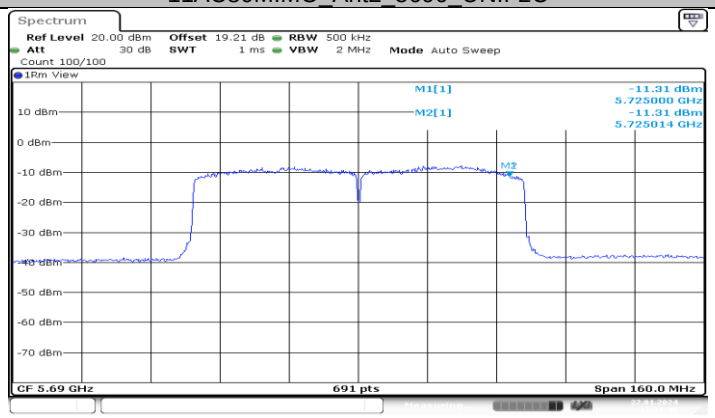




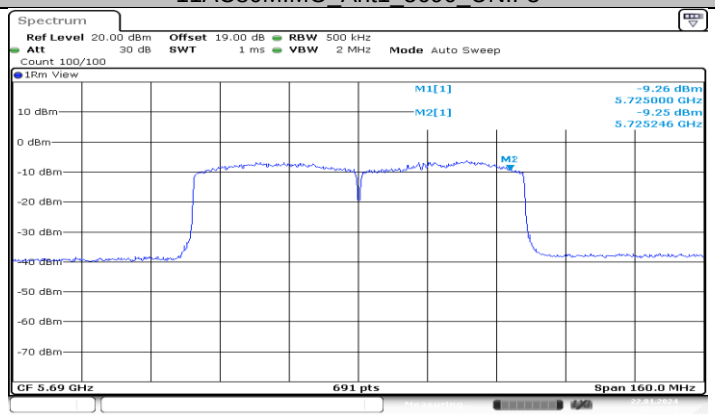

*This report shall not be reproduced except in full, without the written approval of UL Verification Services (Guangzhou) Co., Ltd, Song Shan Lake Branch.*



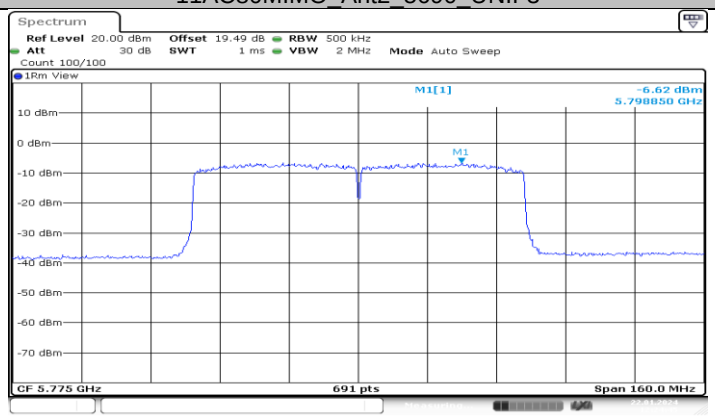

11AC80MIMO_Ant2_5690_UNII-2C




11AC80MIMO_Ant1_5690_UNII-3

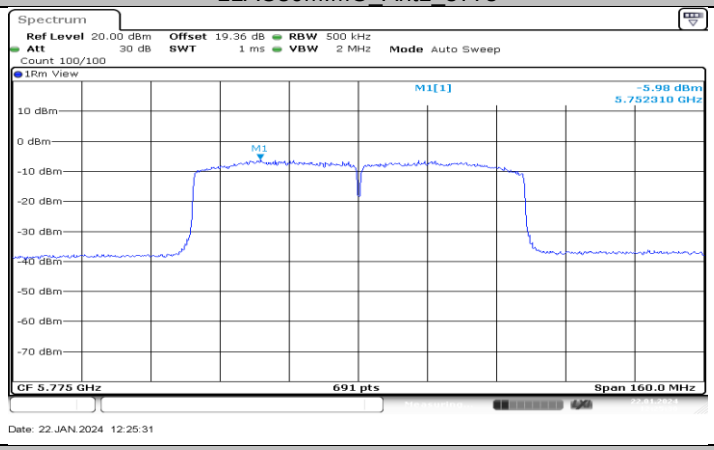



11AC80MIMO_Ant2_5690_UNII-3





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

| 11AC80MIMO_Ant1_5775 |
| --- |
|  |
| 11AC80MIMO_Ant2_5775 |




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

## 11.6. APPENDIX F: FREQUENCY STABILITY

### 11.6.1. 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 | 5199.9872 | -2.46 | 5200.0097 | 1.87 | 5199.9881 | -2.28 | 5200.0124 | 2.39 |
| TN | VN | 5199.9801 | -3.82 | 5200.0238 | 4.57 | 5200.0153 | 2.94 | 5200.0094 | 1.81 |
| TN | VH | 5199.9947 | -1.02 | 5200.0031 | 0.60 | 5200.0088 | 1.69 | 5200.0189 | 3.63 |
| 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) |
| 70 | VN | 5200.0115 | 2.20 | 5199.9751 | -4.79 | 5199.9784 | -4.15 | 5199.9764 | -4.53 |
| 60 | VN | 5200.0136 | 2.61 | 5200.0206 | 3.95 | 5199.9828 | -3.30 | 5200.0202 | 3.88 |
| 50 | VN | 5199.9812 | -3.61 | 5199.9840 | -3.07 | 5199.9909 | -1.75 | 5200.0201 | 3.87 |
| 40 | VN | 5200.0019 | 0.36 | 5199.9805 | -3.76 | 5199.9898 | -1.96 | 5199.9802 | -3.81 |
| 30 | VN | 5200.0189 | 3.63 | 5200.0218 | 4.20 | 5199.9787 | -4.09 | 5199.9946 | -1.04 |
| 20 | VN | 5199.9944 | -1.07 | 5200.0181 | 3.48 | 5200.0083 | 1.59 | 5200.0037 | 0.72 |
| 10 | VN | 5200.0096 | 1.85 | 5200.0114 | 2.19 | 5200.0216 | 4.16 | 5199.9930 | -1.34 |
| 0 | VN | 5199.9847 | -2.94 | 5200.0069 | 1.33 | 5199.9823 | -3.41 | 5200.0094 | 1.81 |

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.


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

## 11.7. APPENDIX G: DUTY CYCLE

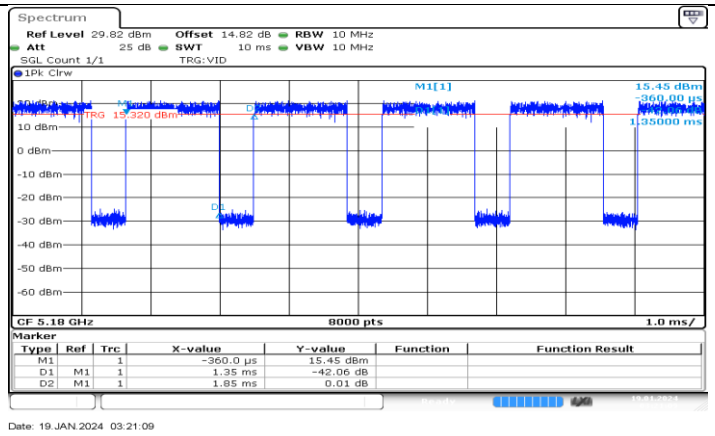
### 11.7.1. Test Result

| 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 | 1.35 | 1.85 | 0.7297 | 72.97 | 1.37 | 0.74 | 1 |
| 11N20MIMO | 1.26 | 1.75 | 0.7200 | 72.00 | 1.43 | 0.79 | 1 |
| 11N40MIMO | 0.63 | 1.12 | 0.5625 | 56.25 | 2.50 | 1.59 | 2 |
| 11AC80MIMO | 0.31 | 0.81 | 0.3827 | 38.27 | 4.17 | 3.23 | 4 |

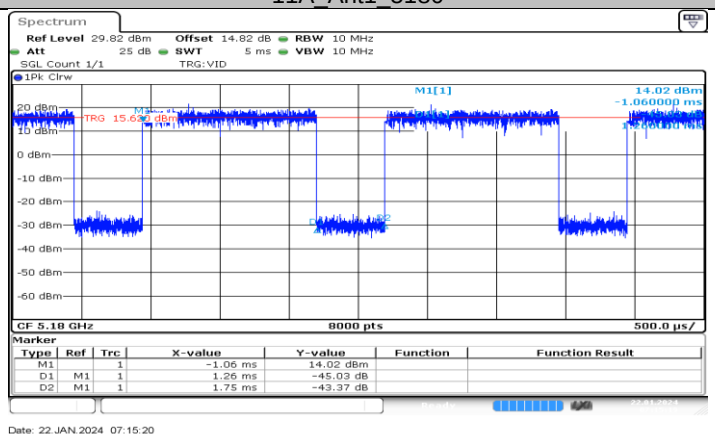
Note:
Duty Cycle Correction Factor=10log (1/x).
Where: x is Duty Cycle (Linear)
Where: T is On Time
If that calculated VBW is not available on the analyzer then the next higher value should be used.


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

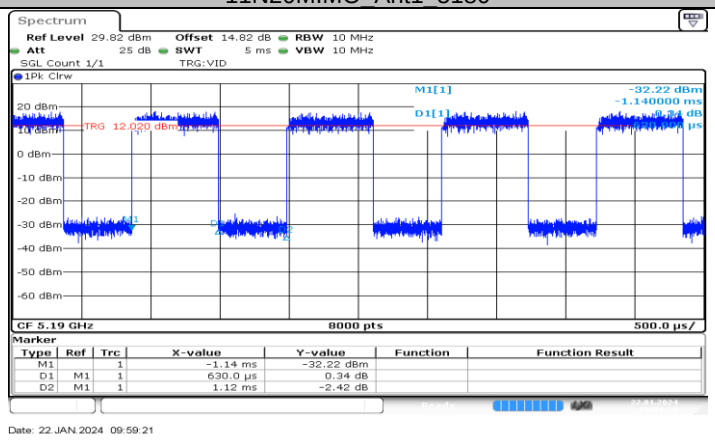
## 11.7.2. Test Graphs




11A_Ant1_5180

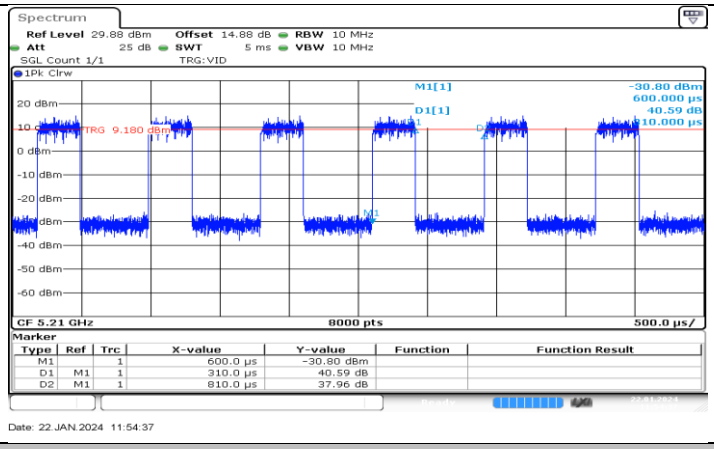



11N20MIMO_Ant1_5180




11N40MIMO_Ant1_5190


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




11AC80MIMO_Ant1_5210


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

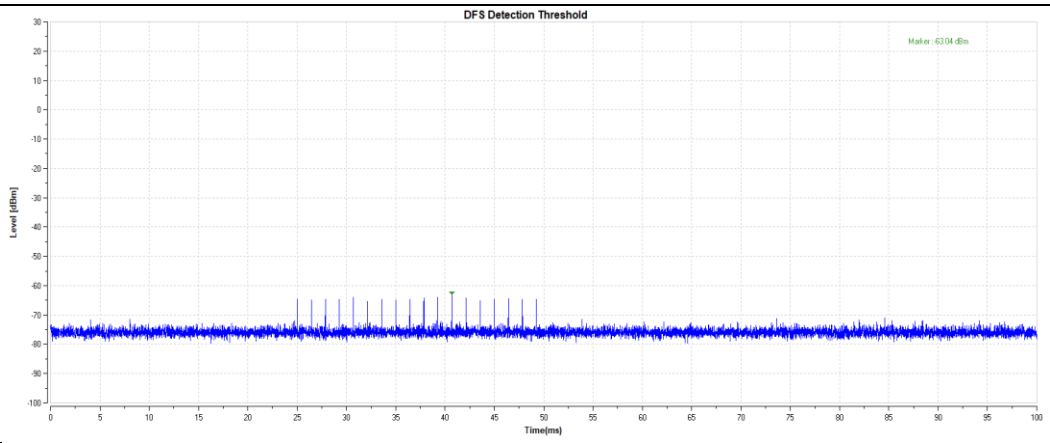
## 11.8. APPENDIX H: DFS DETECTION THRESHOLDS

### 11.8.1. Test Result

| Test Mode | Frequency[MHz] | Radar Type | Result | Limit[dbm] | Verdict |
|---|---|---|---|---|---|
| 11AC80MIMO | 5530 | Type0 | -63.04 | -62.00 | PASS |


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

### 11.8.2. Test Graphs




11AC80MIMO_5530_Type0


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

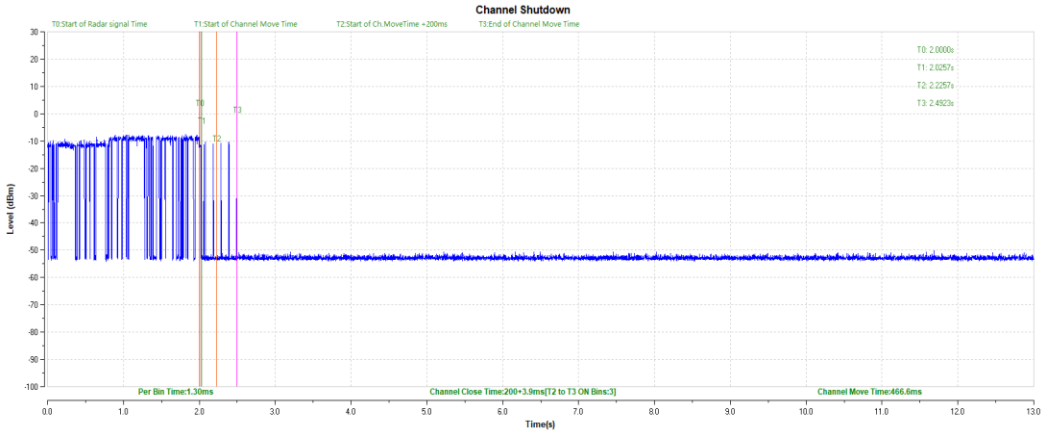
## 11.9. APPENDIX I: CHANNEL MOVE TIME AND CHANNEL CLOSING TRANSMISSION TIME

### 11.9.1. Test Result

| Test Mode | Frequency[MHz] | CCT[ms] | Limit[ms] | CMT[ms] | Limit[ms] | Verdict |
|---|---|---|---|---|---|---|
| 11AC80MIMO | 5530 | 200+3.9 | 200+60 | 466.6 | 10000 | PASS |


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

## 11.9.2. Test Graphs




11AC80MIMO_5530


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

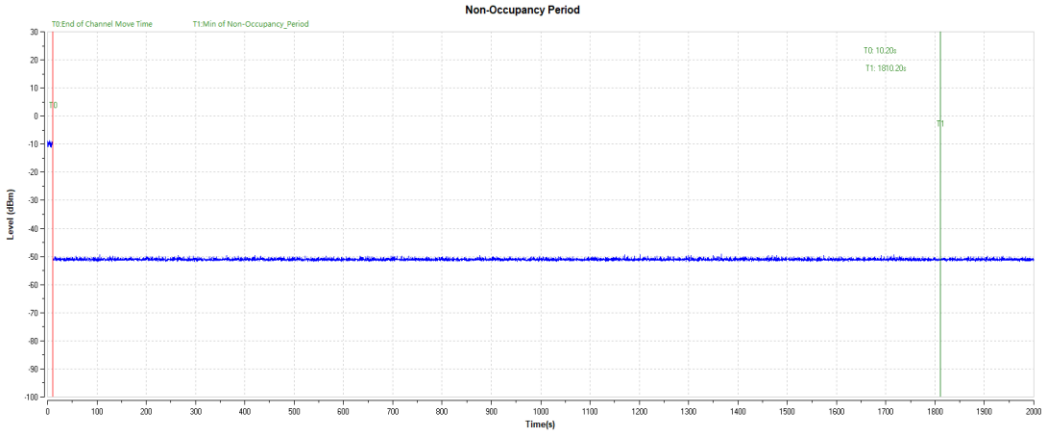
## 11.10. APPENDIX J: NON-OCCUPANCY PERIOD

Test Result

| Test Mode | Channel | Result | Limit[s] | Verdict |
|---|---|---|---|---|
| 11AC80MIMO | 5530 | see test graph | ≥1800 | PASS |


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

### 11.10.1. Test Graphs




11AC80MIMO_5530

**END OF REPORT**


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