

## Appendix for 2.4G WIFI

Test Report No.:CTL2207053063-WF01

## Appendix A: DTS Bandwidth

## Test Result

| TestMode  | Antenna | Channel | DTS BW [MHz] | FL[MHz]  | FH[MHz]  | Limit[MHz] | Verdict |
|-----------|---------|---------|--------------|----------|----------|------------|---------|
| 11B       | Ant1    | 2412    | 10.080       | 2407.160 | 2417.240 | 0.5        | PASS    |
|           | Ant2    | 2412    | 10.160       | 2407.080 | 2417.240 | 0.5        | PASS    |
|           | Ant1    | 2437    | 10.080       | 2432.120 | 2442.200 | 0.5        | PASS    |
|           | Ant2    | 2437    | 10.200       | 2432.080 | 2442.280 | 0.5        | PASS    |
|           | Ant1    | 2462    | 10.120       | 2457.120 | 2467.240 | 0.5        | PASS    |
|           | Ant2    | 2462    | 9.920        | 2457.320 | 2467.240 | 0.5        | PASS    |
| 11G       | Ant1    | 2412    | 16.440       | 2403.960 | 2420.400 | 0.5        | PASS    |
|           | Ant2    | 2412    | 16.440       | 2403.960 | 2420.400 | 0.5        | PASS    |
|           | Ant1    | 2437    | 16.440       | 2428.960 | 2445.400 | 0.5        | PASS    |
|           | Ant2    | 2437    | 16.480       | 2428.920 | 2445.400 | 0.5        | PASS    |
|           | Ant1    | 2462    | 16.440       | 2453.960 | 2470.400 | 0.5        | PASS    |
|           | Ant2    | 2462    | 16.440       | 2453.960 | 2470.400 | 0.5        | PASS    |
| 11N20SISO | Ant1    | 2412    | 17.640       | 2403.360 | 2421.000 | 0.5        | PASS    |
|           | Ant2    | 2412    | 17.640       | 2403.360 | 2421.000 | 0.5        | PASS    |
|           | Ant1    | 2437    | 17.640       | 2428.360 | 2446.000 | 0.5        | PASS    |
|           | Ant2    | 2437    | 17.640       | 2428.360 | 2446.000 | 0.5        | PASS    |
|           | Ant1    | 2462    | 17.640       | 2453.360 | 2471.000 | 0.5        | PASS    |
|           | Ant2    | 2462    | 17.640       | 2453.360 | 2471.000 | 0.5        | PASS    |
| 11N40SISO | Ant1    | 2422    | 35.840       | 2404.160 | 2440.000 | 0.5        | PASS    |
|           | Ant2    | 2422    | 35.840       | 2404.320 | 2440.160 | 0.5        | PASS    |
|           | Ant1    | 2437    | 35.680       | 2419.480 | 2455.160 | 0.5        | PASS    |
|           | Ant2    | 2437    | 35.920       | 2419.080 | 2455.000 | 0.5        | PASS    |
|           | Ant1    | 2452    | 35.920       | 2434.240 | 2470.160 | 0.5        | PASS    |
|           | Ant2    | 2452    | 35.840       | 2434.320 | 2470.160 | 0.5        | PASS    |

## Test Graphs



11B\_Ant1\_2412



11B\_Ant2\_2412



11B\_Ant1\_2437



11B\_Ant2\_2437



11B\_Ant1\_2462



11B\_Ant2\_2462



11G\_Ant1\_2412



11G\_Ant2\_2412



11G\_Ant1\_2437



11G\_Ant2\_2437



11G\_Ant1\_2462



11G\_Ant2\_2462





11N20SISO\_Ant1\_2412



11N20SISO\_Ant2\_2412



11N20SISO\_Ant1\_2437



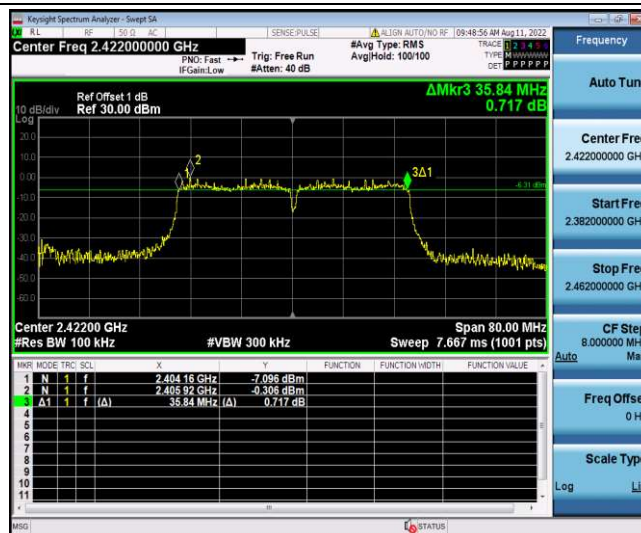
11N20SISO\_Ant2\_2437



11N20SISO\_Ant1\_2462



11N20SISO\_Ant2\_2462



11N40SISO\_Ant1\_2422



11N40SISO\_Ant2\_2422



11N40SISO\_Ant1\_2437





11N40SISO\_Ant2\_2437



11N40SISO\_Ant1\_2452



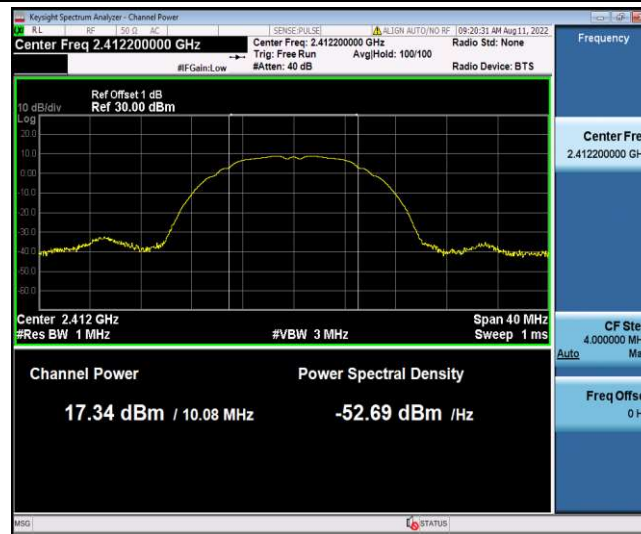
11N40SISO\_Ant2\_2452

## Appendix B: Maximum conducted output power

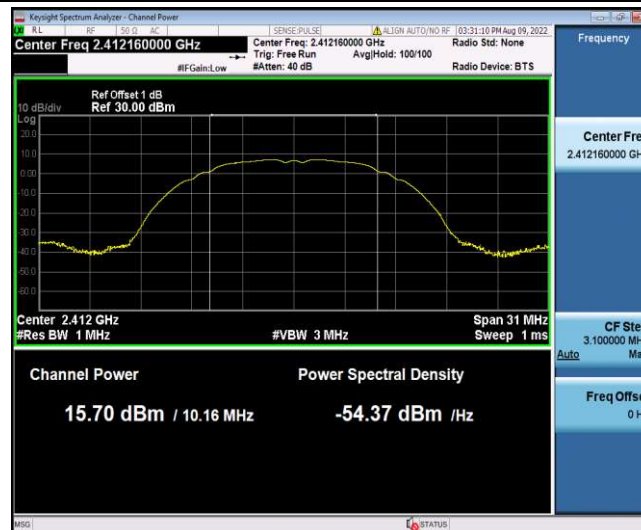
### Test Result

| TestMode  | Antenna | Channel | Result[dBm] | Limit[dBm] | Verdict |
|-----------|---------|---------|-------------|------------|---------|
| 11B       | Ant1    | 2412    | 17.34       | ≤30        | PASS    |
|           | Ant2    | 2412    | 15.70       | ≤30        | PASS    |
|           | Ant1    | 2437    | 17.48       | ≤30        | PASS    |
|           | Ant2    | 2437    | 15.83       | ≤30        | PASS    |
|           | Ant1    | 2462    | 17.48       | ≤30        | PASS    |
|           | Ant2    | 2462    | 15.73       | ≤30        | PASS    |
| 11G       | Ant1    | 2412    | 20.72       | ≤30        | PASS    |
|           | Ant2    | 2412    | 19.18       | ≤30        | PASS    |
|           | Ant1    | 2437    | 20.90       | ≤30        | PASS    |
|           | Ant2    | 2437    | 19.30       | ≤30        | PASS    |
|           | Ant1    | 2462    | 20.99       | ≤30        | PASS    |
|           | Ant2    | 2462    | 19.25       | ≤30        | PASS    |
| 11N20SISO | Ant1    | 2412    | 20.94       | ≤30        | PASS    |
|           | Ant2    | 2412    | 19.40       | ≤30        | PASS    |
|           | Ant1    | 2437    | 21.07       | ≤30        | PASS    |
|           | Ant2    | 2437    | 19.56       | ≤30        | PASS    |
|           | Ant1    | 2462    | 21.16       | ≤30        | PASS    |
|           | Ant2    | 2462    | 19.54       | ≤30        | PASS    |
| 11N40SISO | Ant1    | 2422    | 21.08       | ≤30        | PASS    |
|           | Ant2    | 2422    | 19.50       | ≤30        | PASS    |
|           | Ant1    | 2437    | 21.14       | ≤30        | PASS    |
|           | Ant2    | 2437    | 19.52       | ≤30        | PASS    |
|           | Ant1    | 2452    | 21.15       | ≤30        | PASS    |
|           | Ant2    | 2452    | 17.66       | ≤30        | PASS    |

## Test Graphs



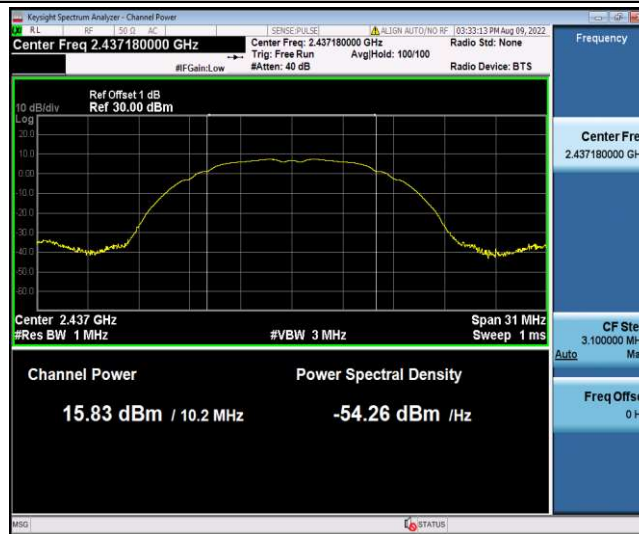
11B\_Ant1\_2412



11B\_Ant2\_2412



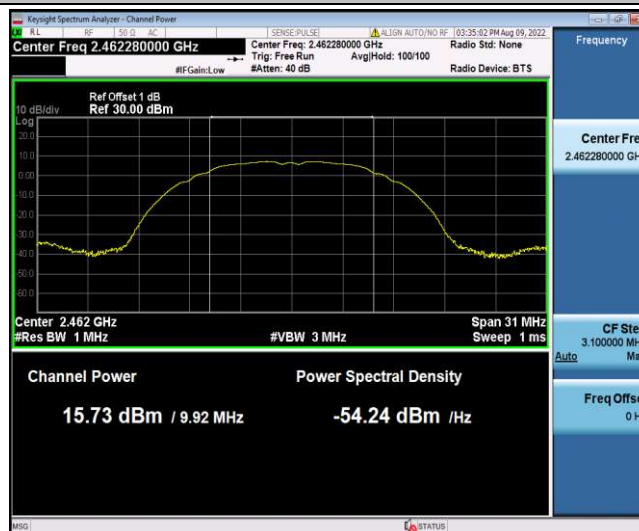
11B\_Ant1\_2437



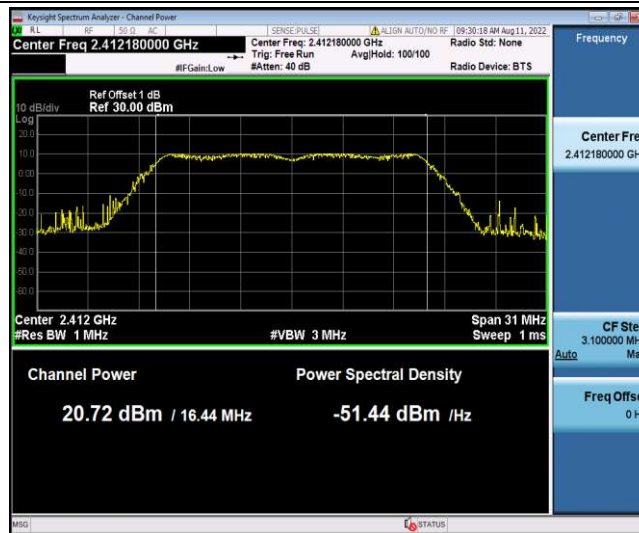
11B\_Ant2\_2437



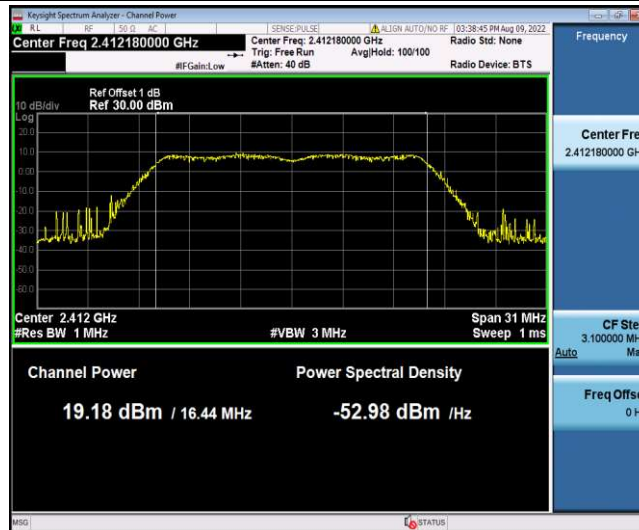
11B\_Ant1\_2462



11B\_Ant2\_2462



11G\_Ant1\_2412

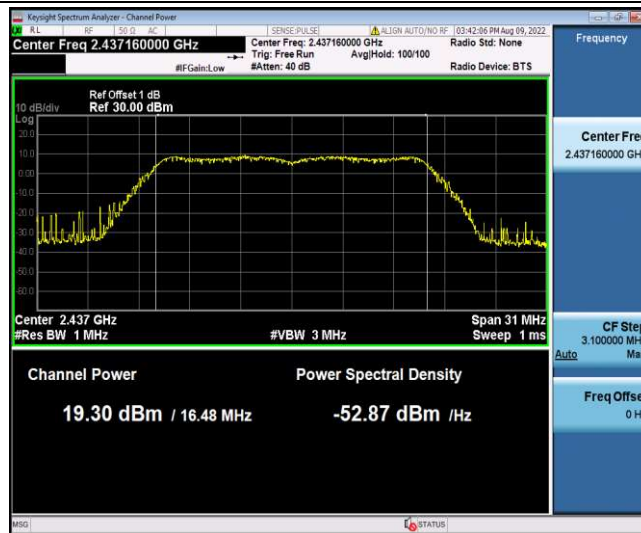


11G\_Ant2\_2412



11G\_Ant1\_2437





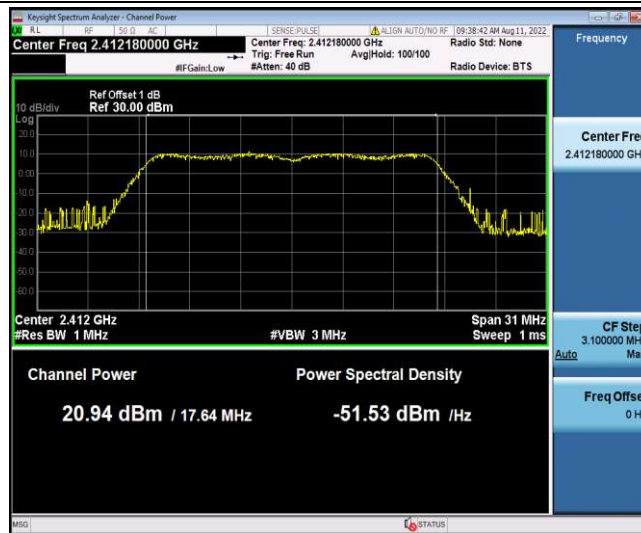
11G\_Ant2\_2437



11G\_Ant1\_2462



11G\_Ant2\_2462



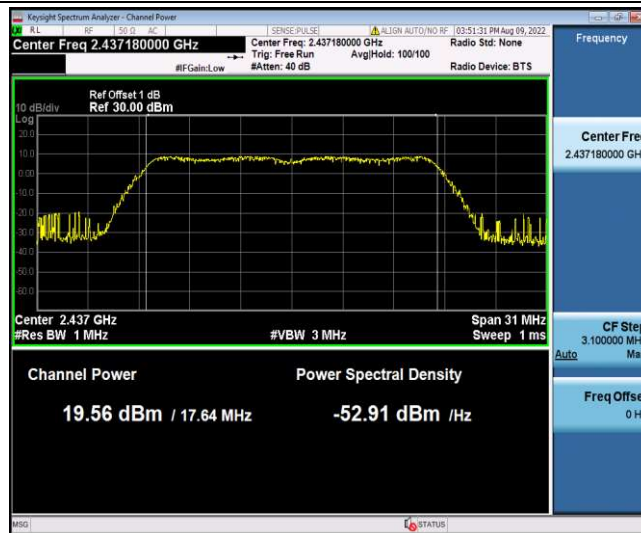
11N20SISO\_Ant1\_2412



11N20SISO\_Ant2\_2412



11N20SISO\_Ant1\_2437



11N20SISO\_Ant2\_2437



11N20SISO\_Ant1\_2462



11N20SISO\_Ant2\_2462



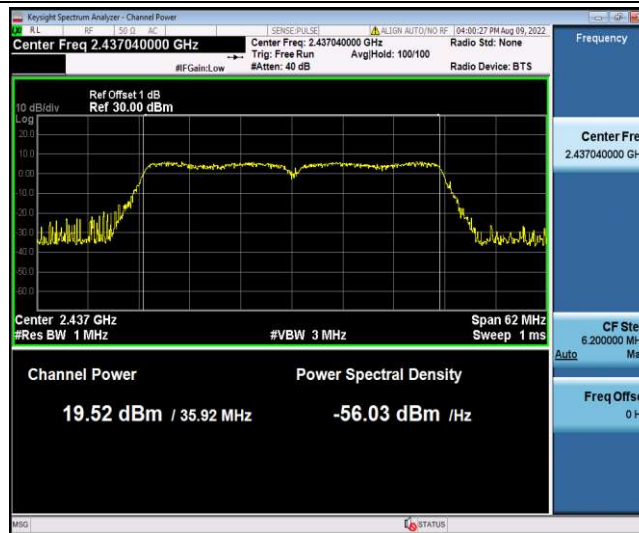
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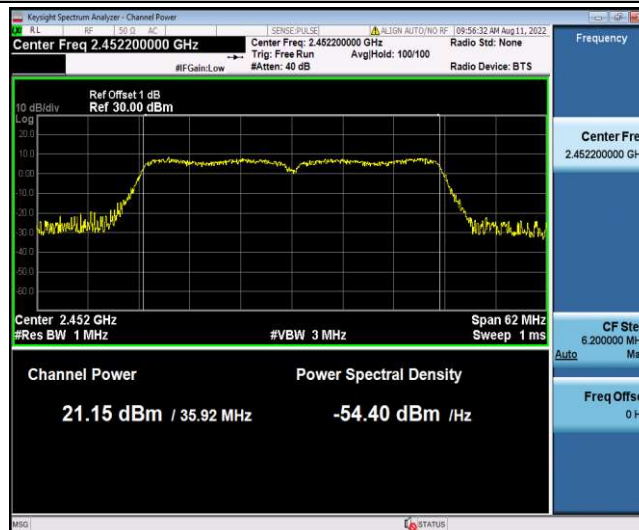
11N40SISO\_Ant2\_2422



11N40SISO\_Ant1\_2437



11N40SISO\_Ant2\_2437



11N40SISO\_Ant1\_2452



11N40SISO\_Ant2\_2452



## Appendix C: Maximum power spectral density

### Test Result

| TestMode  | Antenna | Channel | Result[dBm/3-100kHz] | Limit[dBm/3kHz] | Verdict |
|-----------|---------|---------|----------------------|-----------------|---------|
| 11B       | Ant1    | 2412    | -5.26                | ≤8              | PASS    |
|           | Ant2    | 2412    | -6.16                | ≤8              | PASS    |
|           | Ant1    | 2437    | -3.88                | ≤8              | PASS    |
|           | Ant2    | 2437    | -6.02                | ≤8              | PASS    |
|           | Ant1    | 2462    | -5.27                | ≤8              | PASS    |
|           | Ant2    | 2462    | -5.59                | ≤8              | PASS    |
| 11G       | Ant1    | 2412    | -11.82               | ≤8              | PASS    |
|           | Ant2    | 2412    | -12.59               | ≤8              | PASS    |
|           | Ant1    | 2437    | -12.05               | ≤8              | PASS    |
|           | Ant2    | 2437    | -13.55               | ≤8              | PASS    |
|           | Ant1    | 2462    | -11.96               | ≤8              | PASS    |
|           | Ant2    | 2462    | -14.12               | ≤8              | PASS    |
| 11N20SISO | Ant1    | 2412    | -10.68               | ≤8              | PASS    |
|           | Ant2    | 2412    | -12.33               | ≤8              | PASS    |
|           | Ant1    | 2437    | -10.43               | ≤8              | PASS    |
|           | Ant2    | 2437    | -12.23               | ≤8              | PASS    |
|           | Ant1    | 2462    | -10.33               | ≤8              | PASS    |
|           | Ant2    | 2462    | -13.13               | ≤8              | PASS    |
| 11N40SISO | Ant1    | 2422    | -14                  | ≤8              | PASS    |
|           | Ant2    | 2422    | -15.34               | ≤8              | PASS    |
|           | Ant1    | 2437    | -13.53               | ≤8              | PASS    |
|           | Ant2    | 2437    | -14.13               | ≤8              | PASS    |
|           | Ant1    | 2452    | -13.62               | ≤8              | PASS    |
|           | Ant2    | 2452    | -15.98               | ≤8              | PASS    |

## Test Graphs



11B\_Ant1\_2412



11B\_Ant2\_2412



11B\_Ant1\_2437



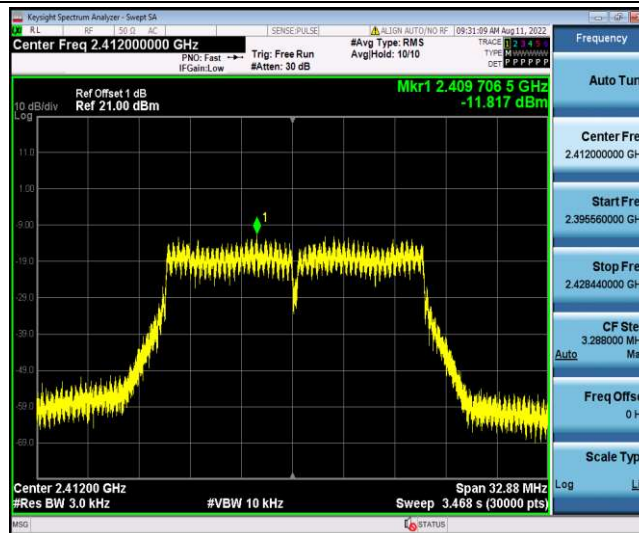
11B\_Ant2\_2437



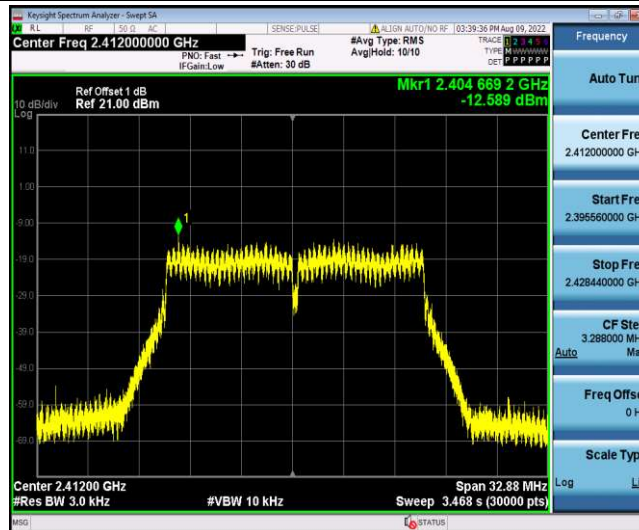
11B\_Ant1\_2462



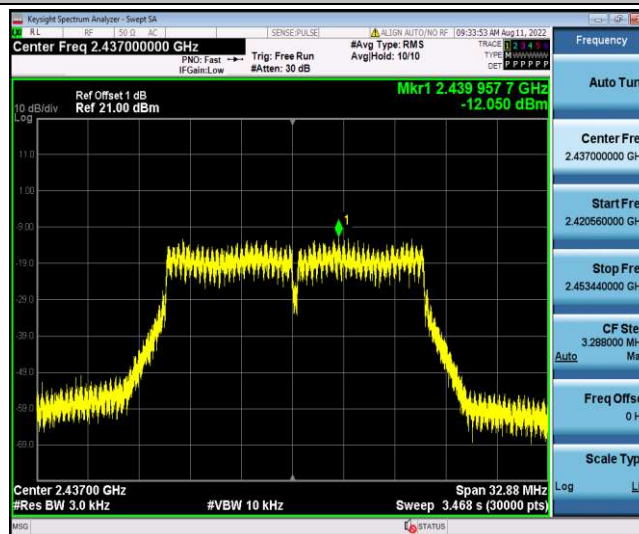
11B\_Ant2\_2462



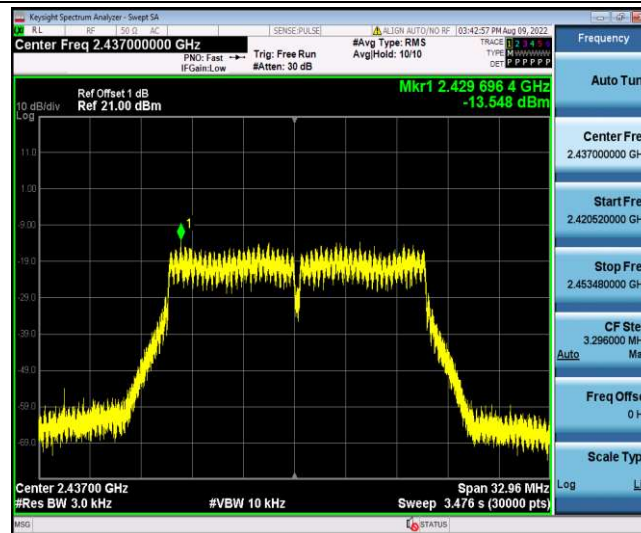
11G\_Ant1\_2412



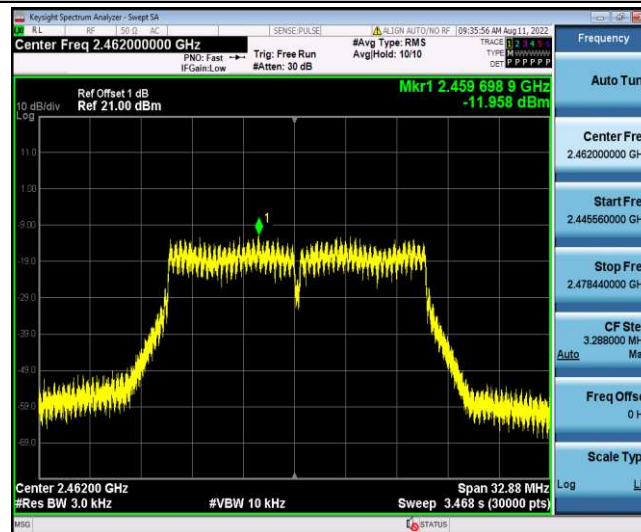
11G\_Ant2\_2412



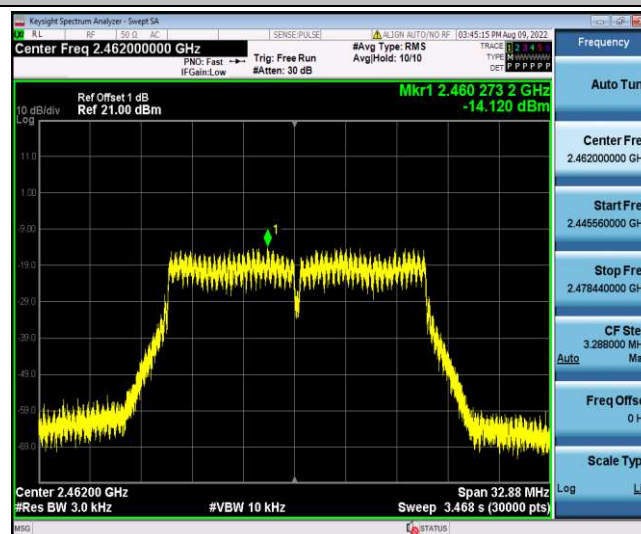
11G\_Ant1\_2437



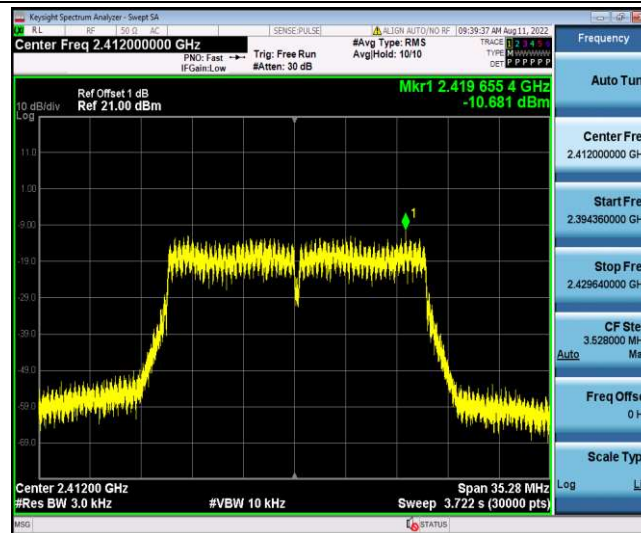
11G\_Ant2\_2437



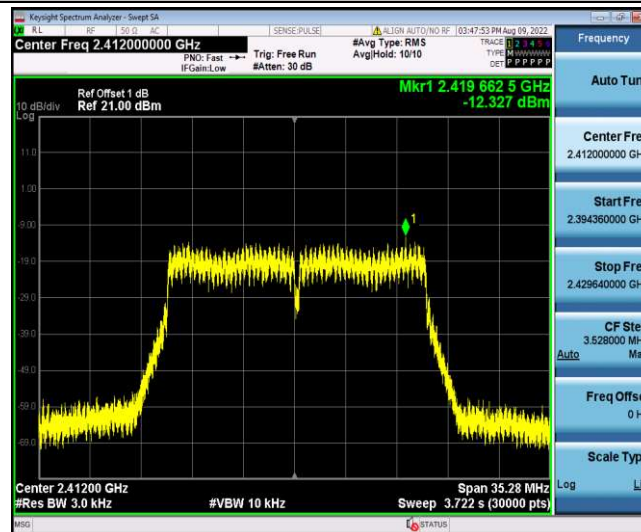
11G\_Ant1\_2462



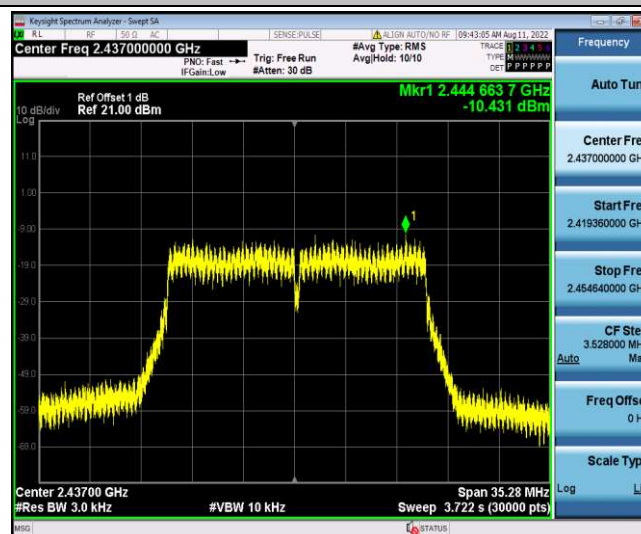
11G\_Ant2\_2462



11N20SISO\_Ant1\_2412



11N20SISO\_Ant2\_2412



11N20SISO\_Ant1\_2437

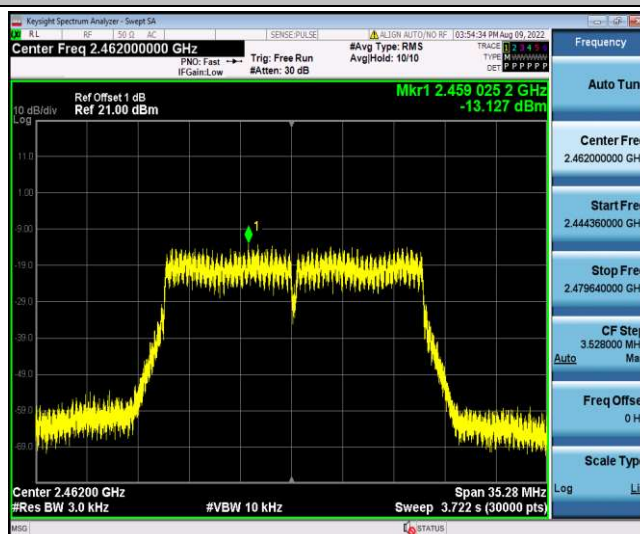




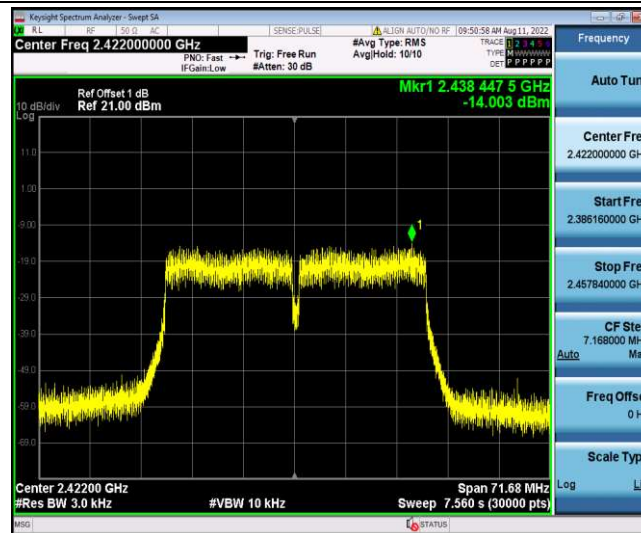
11N20SISO\_Ant2\_2437



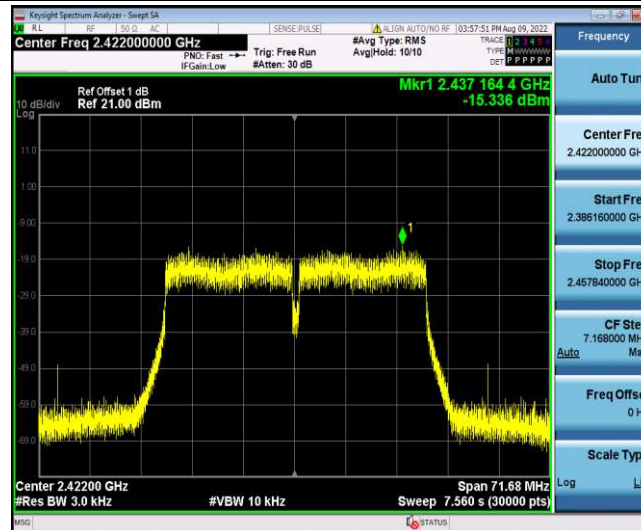
11N20SISO\_Ant1\_2462



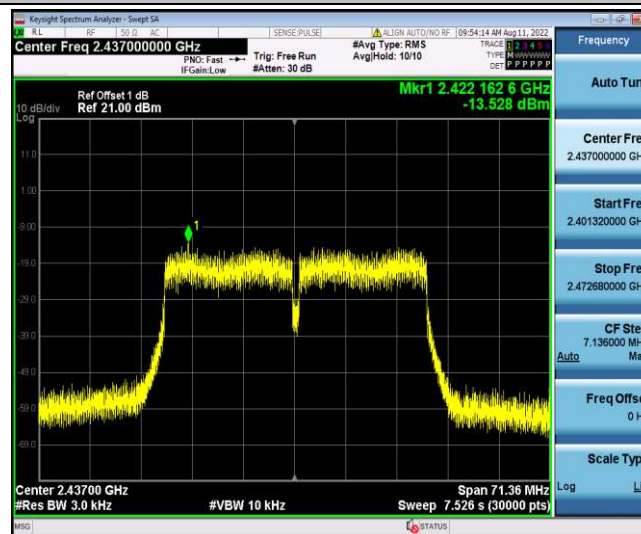
11N20SISO\_Ant2\_2462



11N40SISO\_Ant1\_2422



11N40SISO\_Ant2\_2422



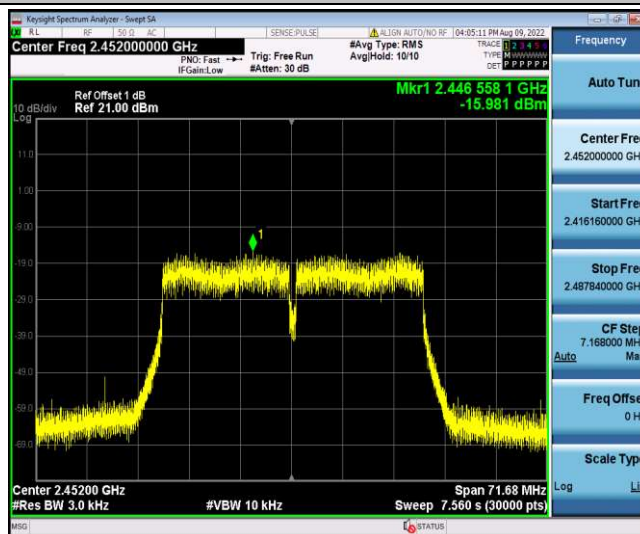
11N40SISO\_Ant1\_2437



11N40SISO\_Ant2\_2437



11N40SISO\_Ant1\_2452



11N40SISO\_Ant2\_2452

## Appendix D: Band edge measurements

### Test Result

| TestMode  | Antenna | ChName | Channel | RefLevel[dBm] | Result[dBm] | Limit[dBm]    | Verdict |
|-----------|---------|--------|---------|---------------|-------------|---------------|---------|
| 11B       | Ant1    | Low    | 2412    | 5.13          | -38.15      | $\leq -14.87$ | PASS    |
|           | Ant2    | Low    | 2412    | 3.85          | -41.31      | $\leq -16.15$ | PASS    |
|           | Ant1    | High   | 2462    | 5.59          | -50.72      | $\leq -14.41$ | PASS    |
|           | Ant2    | High   | 2462    | 3.77          | -51.41      | $\leq -16.23$ | PASS    |
| 11G       | Ant1    | Low    | 2412    | 3.00          | -34.52      | $\leq -17$    | PASS    |
|           | Ant2    | Low    | 2412    | 1.31          | -35.75      | $\leq -18.7$  | PASS    |
|           | Ant1    | High   | 2462    | 2.98          | -43.11      | $\leq -17.03$ | PASS    |
|           | Ant2    | High   | 2462    | 1.39          | -40.19      | $\leq -18.61$ | PASS    |
| 11N20SISO | Ant1    | Low    | 2412    | 2.98          | -33.52      | $\leq -17.02$ | PASS    |
|           | Ant2    | Low    | 2412    | 1.30          | -35.96      | $\leq -18.7$  | PASS    |
|           | Ant1    | High   | 2462    | 3.09          | -42.33      | $\leq -16.91$ | PASS    |
|           | Ant2    | High   | 2462    | 1.22          | -45.01      | $\leq -18.79$ | PASS    |
| 11N40SISO | Ant1    | Low    | 2422    | 0.03          | -33.58      | $\leq -19.97$ | PASS    |
|           | Ant2    | Low    | 2422    | -1.48         | -37.37      | $\leq -21.48$ | PASS    |
|           | Ant1    | High   | 2452    | 0.34          | -30.66      | $\leq -19.66$ | PASS    |
|           | Ant2    | High   | 2452    | -1.63         | -39.69      | $\leq -21.63$ | PASS    |

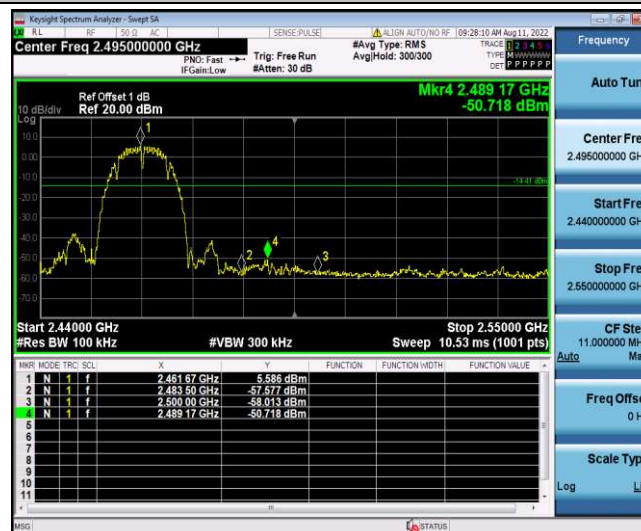
## Test Graphs



11B\_Ant1\_Low\_2412

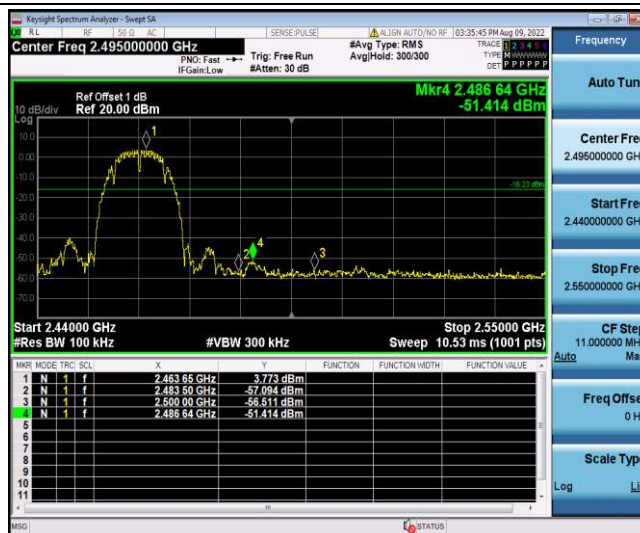


11B\_Ant2\_Low\_2412



11B\_Ant1\_High\_2462





11B\_Ant2\_High\_2462



11G\_Ant1\_Low\_2412



11G\_Ant2\_Low\_2412





11G\_Ant1\_High\_2462



11G\_Ant2\_High\_2462



11N20SISO\_Ant1\_Low\_2412



11N20SISO\_Ant2\_Low\_2412



11N20SISO\_Ant1\_High\_2462



11N20SISO\_Ant2\_High\_2462



11N40SISO\_Ant1\_Low\_2422



11N40SISO\_Ant2\_Low\_2422



11N40SISO\_Ant1\_High\_2452



11N40SISO\_Ant2\_High\_2452

## Appendix E: Conducted Spurious Emission

### Test Result

| TestMode  | Antenna | Channel | FreqRange<br>[Mhz] | RefLevel<br>[dBm] | Result<br>[dBm] | Limit<br>[dBm] | Verdict |
|-----------|---------|---------|--------------------|-------------------|-----------------|----------------|---------|
| 11B       | Ant1    | 2412    | Reference          | 4.93              | 4.93            | ---            | PASS    |
|           |         |         | 30~3000            | 4.93              | -43.04          | ≤-15.07        | PASS    |
|           |         |         | 3000~26500         | 4.93              | -38.84          | ≤-15.07        | PASS    |
|           | Ant2    | 2412    | Reference          | 3.87              | 3.87            | ---            | PASS    |
|           |         |         | 30~3000            | 3.87              | -48.43          | ≤-16.13        | PASS    |
|           |         |         | 3000~26500         | 3.87              | -40.38          | ≤-16.13        | PASS    |
|           | Ant1    | 2437    | Reference          | 4.95              | 4.95            | ---            | PASS    |
|           |         |         | 30~3000            | 4.95              | -48.8           | ≤-15.06        | PASS    |
|           |         |         | 3000~26500         | 4.95              | -40.21          | ≤-15.06        | PASS    |
|           | Ant2    | 2437    | Reference          | 3.82              | 3.82            | ---            | PASS    |
|           |         |         | 30~3000            | 3.82              | -48.36          | ≤-16.18        | PASS    |
|           |         |         | 3000~26500         | 3.82              | -42.47          | ≤-16.18        | PASS    |
|           | Ant1    | 2462    | Reference          | 5.11              | 5.11            | ---            | PASS    |
|           |         |         | 30~3000            | 5.11              | -43.94          | ≤-14.9         | PASS    |
|           |         |         | 3000~26500         | 5.11              | -42.51          | ≤-14.9         | PASS    |
|           | Ant2    | 2462    | Reference          | 3.68              | 3.68            | ---            | PASS    |
|           |         |         | 30~3000            | 3.68              | -47.05          | ≤-16.32        | PASS    |
|           |         |         | 3000~26500         | 3.68              | -44.33          | ≤-16.32        | PASS    |
| 11G       | Ant1    | 2412    | Reference          | 2.88              | 2.88            | ---            | PASS    |
|           |         |         | 30~3000            | 2.88              | -49.48          | ≤-17.13        | PASS    |
|           |         |         | 3000~26500         | 2.88              | -44.83          | ≤-17.13        | PASS    |
|           | Ant2    | 2412    | Reference          | 1.29              | 1.29            | ---            | PASS    |
|           |         |         | 30~3000            | 1.29              | -50.79          | ≤-18.71        | PASS    |
|           |         |         | 3000~26500         | 1.29              | -45.2           | ≤-18.71        | PASS    |
|           | Ant1    | 2437    | Reference          | 3.01              | 3.01            | ---            | PASS    |
|           |         |         | 30~3000            | 3.01              | -49.75          | ≤-17           | PASS    |
|           |         |         | 3000~26500         | 3.01              | -44.55          | ≤-17           | PASS    |
|           | Ant2    | 2437    | Reference          | 1.31              | 1.31            | ---            | PASS    |
|           |         |         | 30~3000            | 1.31              | -51.59          | ≤-18.69        | PASS    |
|           |         |         | 3000~26500         | 1.31              | -44.05          | ≤-18.69        | PASS    |
|           | Ant1    | 2462    | Reference          | 3.08              | 3.08            | ---            | PASS    |
|           |         |         | 30~3000            | 3.08              | -50.3           | ≤-16.93        | PASS    |
|           |         |         | 3000~26500         | 3.08              | -44.77          | ≤-16.93        | PASS    |
|           | Ant2    | 2462    | Reference          | 1.36              | 1.36            | ---            | PASS    |
|           |         |         | 30~3000            | 1.36              | -51.39          | ≤-18.64        | PASS    |
|           |         |         | 3000~26500         | 1.36              | -44.85          | ≤-18.64        | PASS    |
| 11N20SISO | Ant1    | 2412    | Reference          | 1.14              | 1.14            | ---            | PASS    |