

Appendix Test Data for WLAN(2.4G) (Conducted Measurement)

Product Name: Outdoor LoRa Gateway

Trade Mark: Dusun

Test Model: DSGW-014

FCC ID: 2AUXBDSGW-014

Environmental Conditions

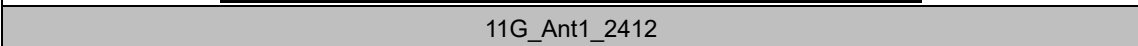
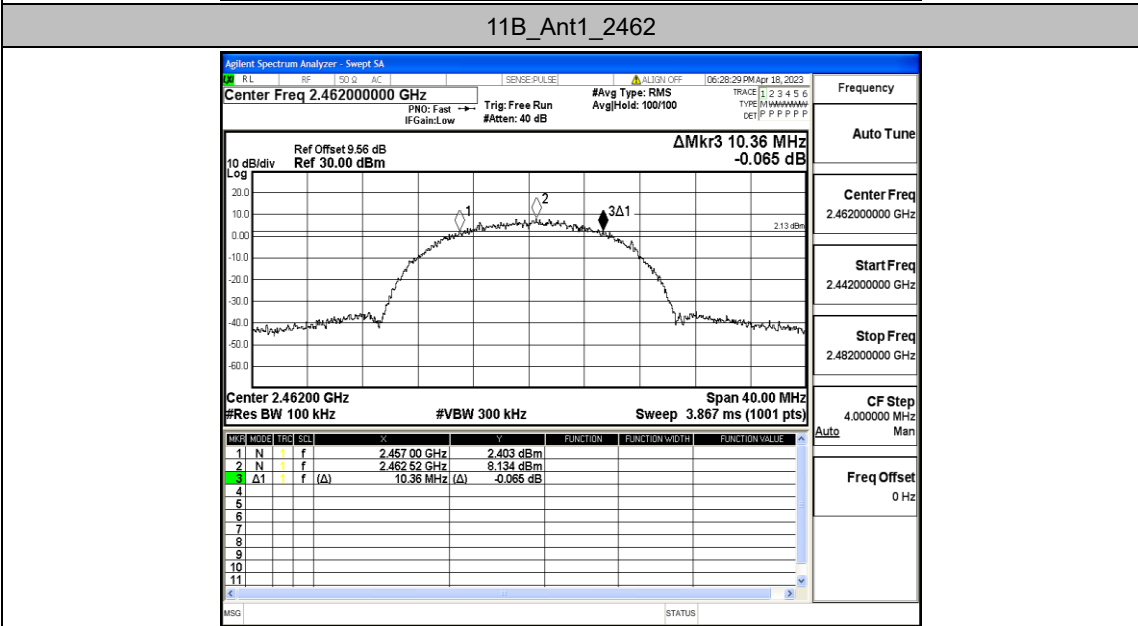
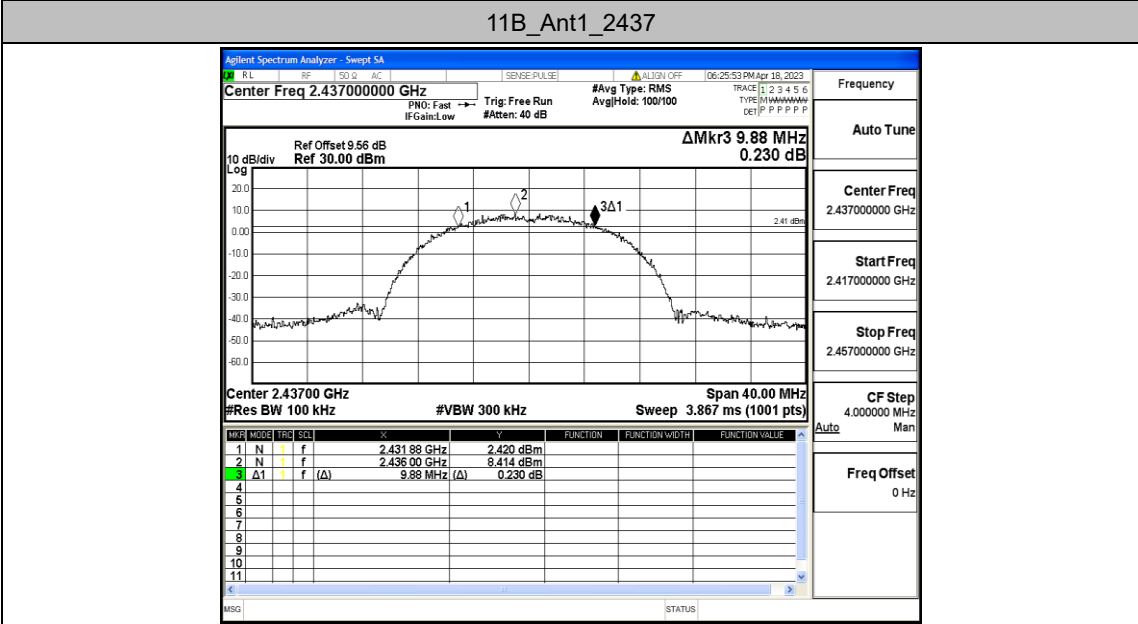
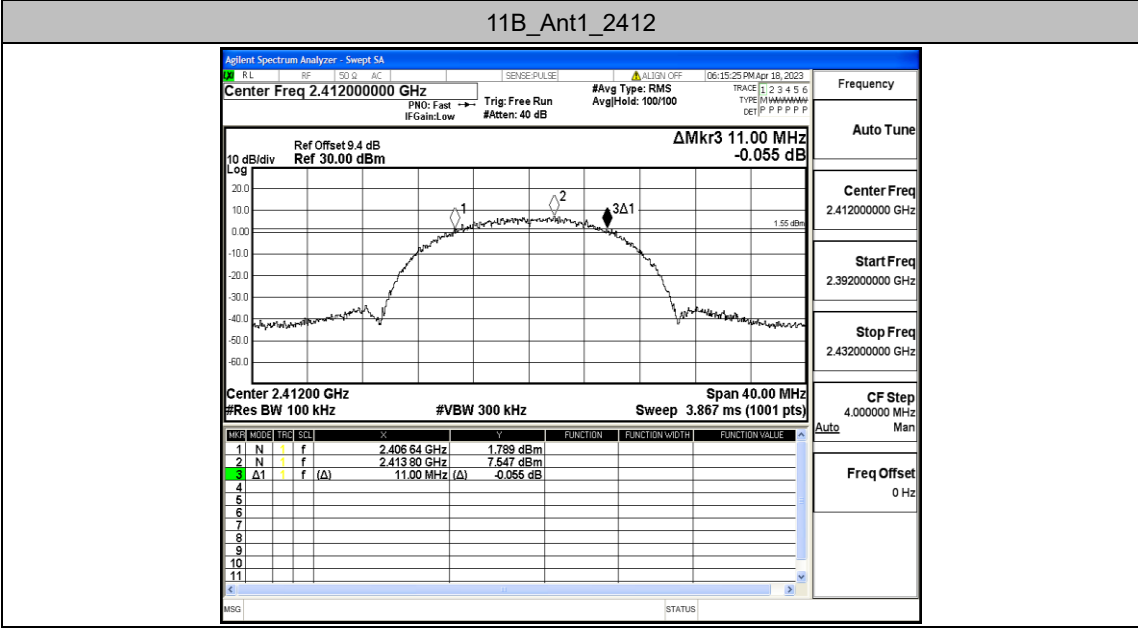
| | |
|--------------------|-----------|
| Temperature: | 22.7℃ |
| Relative Humidity: | 56% |
| ATM Pressure: | 100.0 kPa |
| Test Engineer: | Anna Hu |
| Supervised by: | Hugo Chen |
| NOTE | N/A |

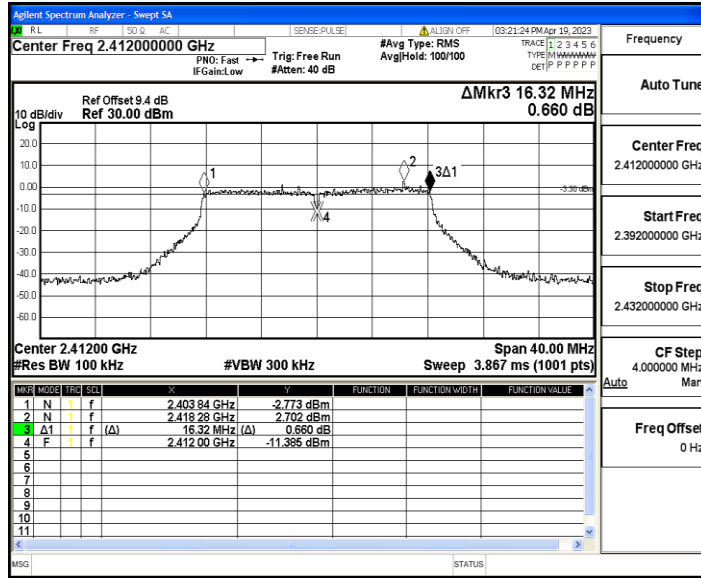
Appendix A: DTS Bandwidth

Test Result

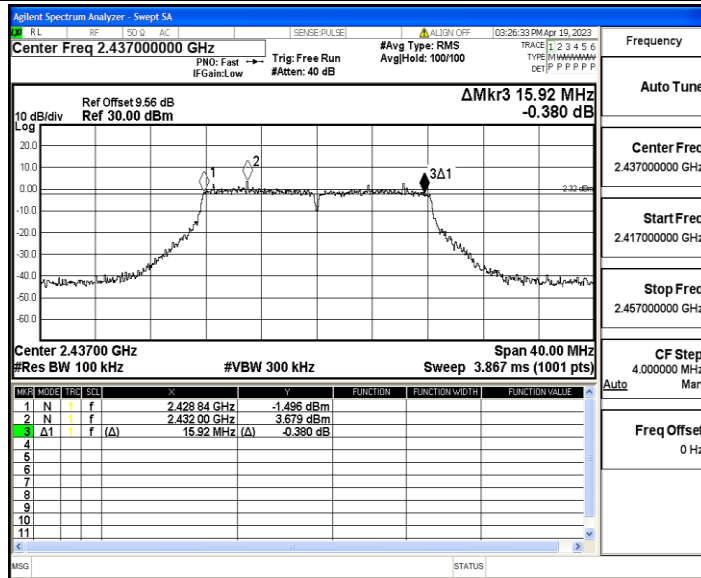
| TestMode | Antenna | Channel | DTS BW [MHz] | FL[MHz] | FH[MHz] | Limit[MHz] | Verdict |
|-----------|---------|---------|--------------|----------|----------|------------|---------|
| 11B | Ant1 | 2412 | 11.000 | 2406.640 | 2417.640 | 0.5 | PASS |
| | | 2437 | 9.880 | 2431.880 | 2441.760 | 0.5 | PASS |
| | | 2462 | 10.360 | 2457.000 | 2467.360 | 0.5 | PASS |
| 11G | Ant1 | 2412 | 16.320 | 2403.840 | 2420.160 | 0.5 | PASS |
| | | 2437 | 15.920 | 2428.840 | 2444.760 | 0.5 | PASS |
| | | 2462 | 16.280 | 2453.880 | 2470.160 | 0.5 | PASS |
| 11N20SISO | Ant1 | 2412 | 17.280 | 2403.480 | 2420.760 | 0.5 | PASS |
| | | 2437 | 16.640 | 2428.480 | 2445.120 | 0.5 | PASS |
| | | 2462 | 17.120 | 2453.640 | 2470.760 | 0.5 | PASS |
| 11N40SISO | Ant1 | 2422 | 16.640 | 2423.200 | 2439.840 | 0.5 | PASS |
| | | 2437 | 35.360 | 2419.240 | 2454.600 | 0.5 | PASS |
| | | 2452 | 35.520 | 2434.080 | 2469.600 | 0.5 | PASS |

Test Graphs

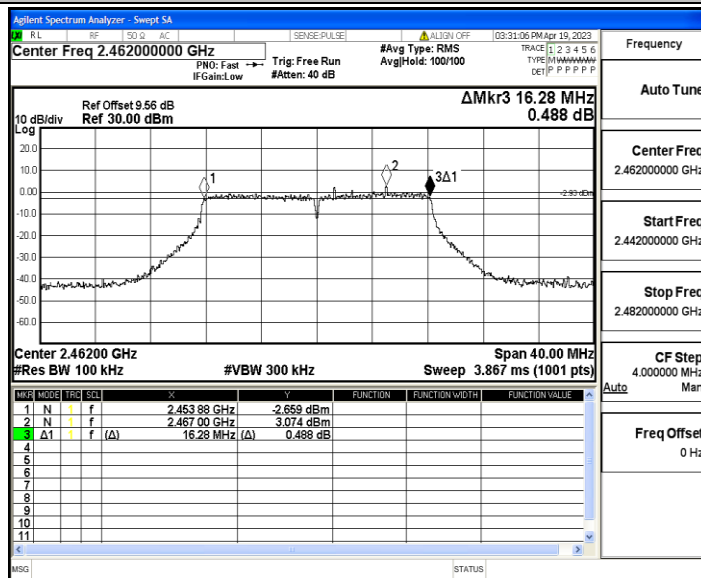




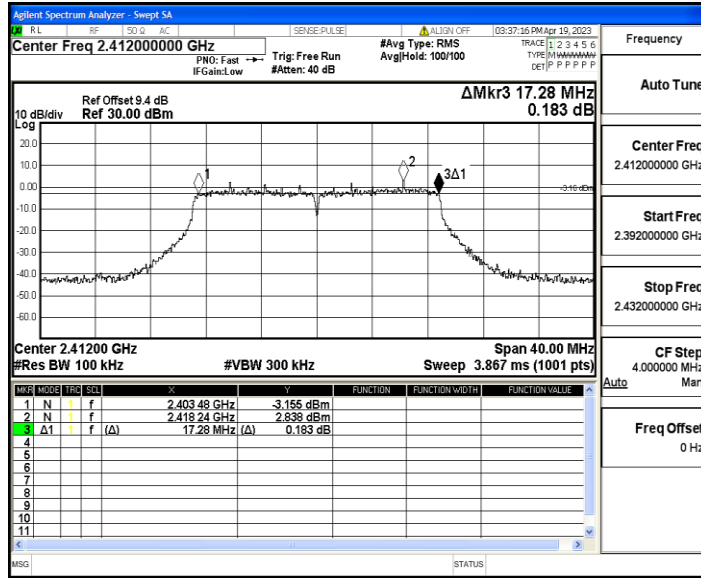
11G_Ant1_2437



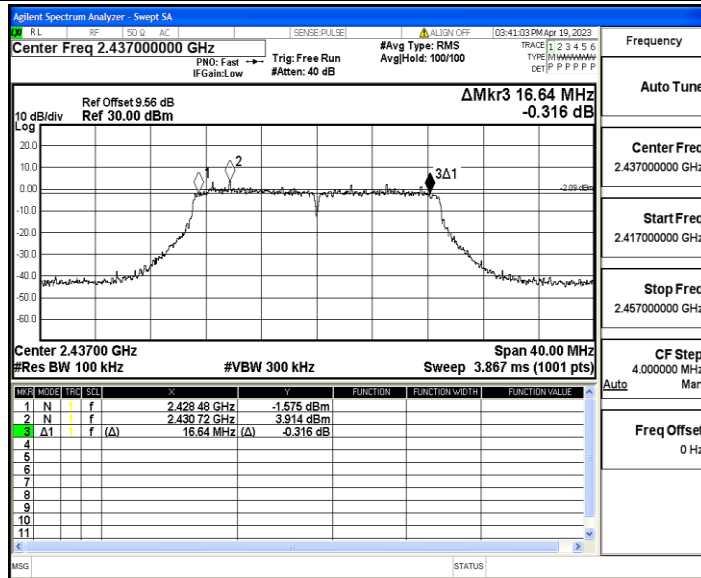
11G_Ant1_2462



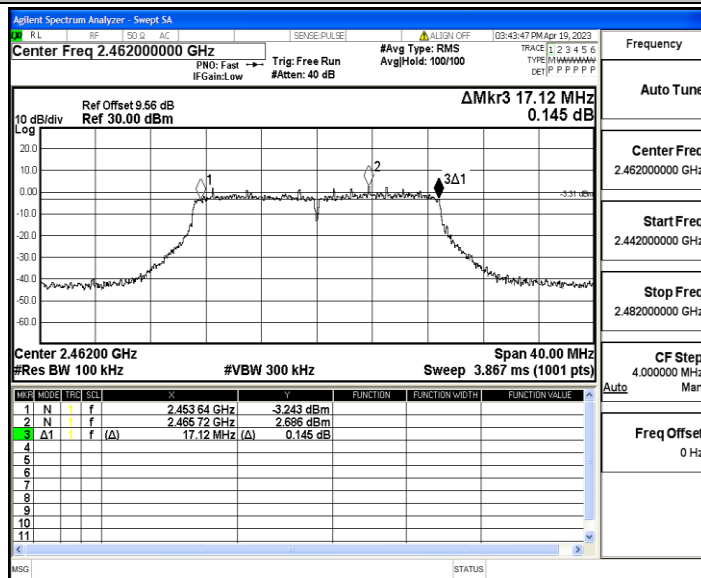
11N20SISO_Ant1_2412



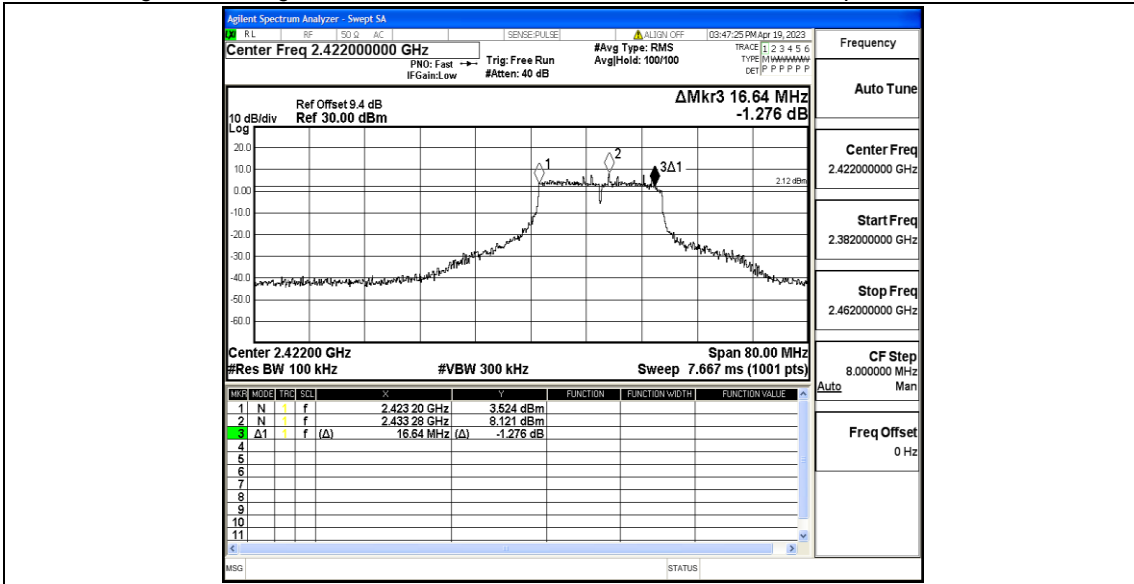
11N20SISO_Ant1_2437



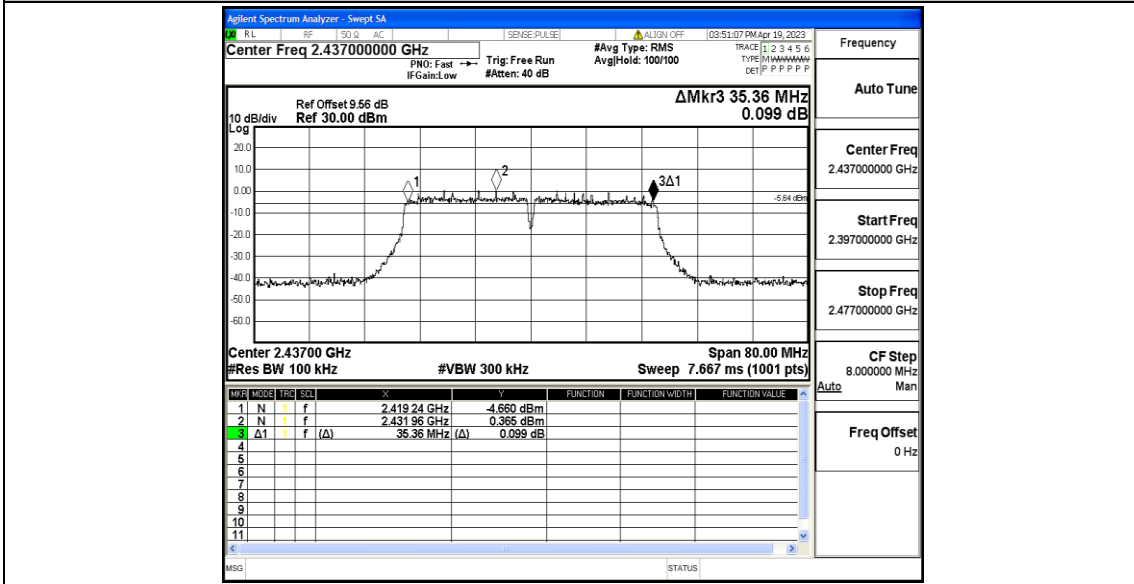
11N20SISO_Ant1_2462



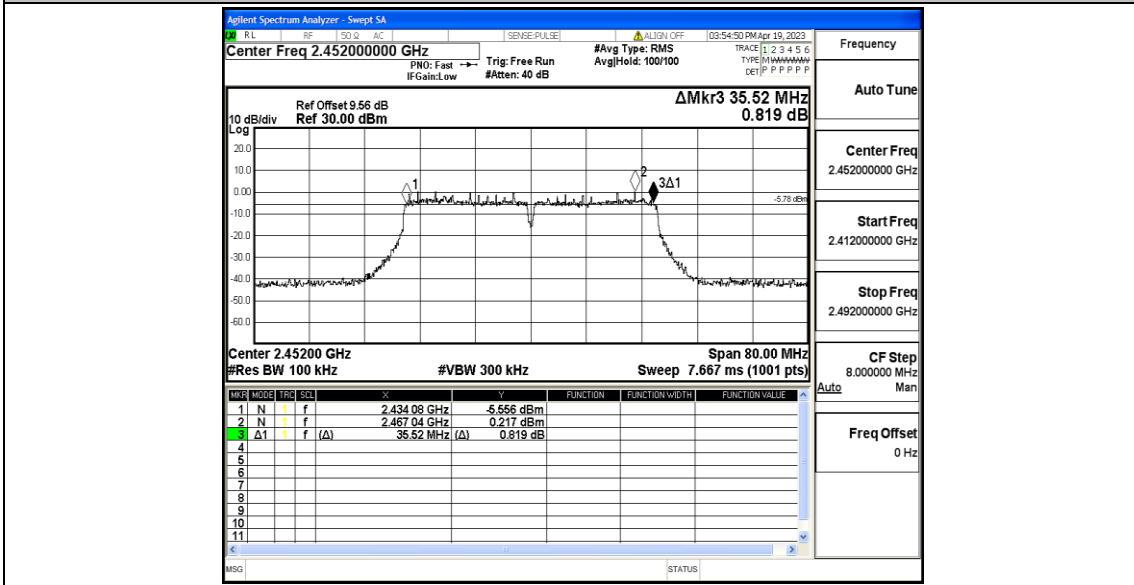
11N40SISO_Ant1_2422



11N40SISO_Ant1_2437



11N40SISO_Ant1_2452

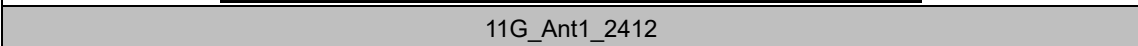
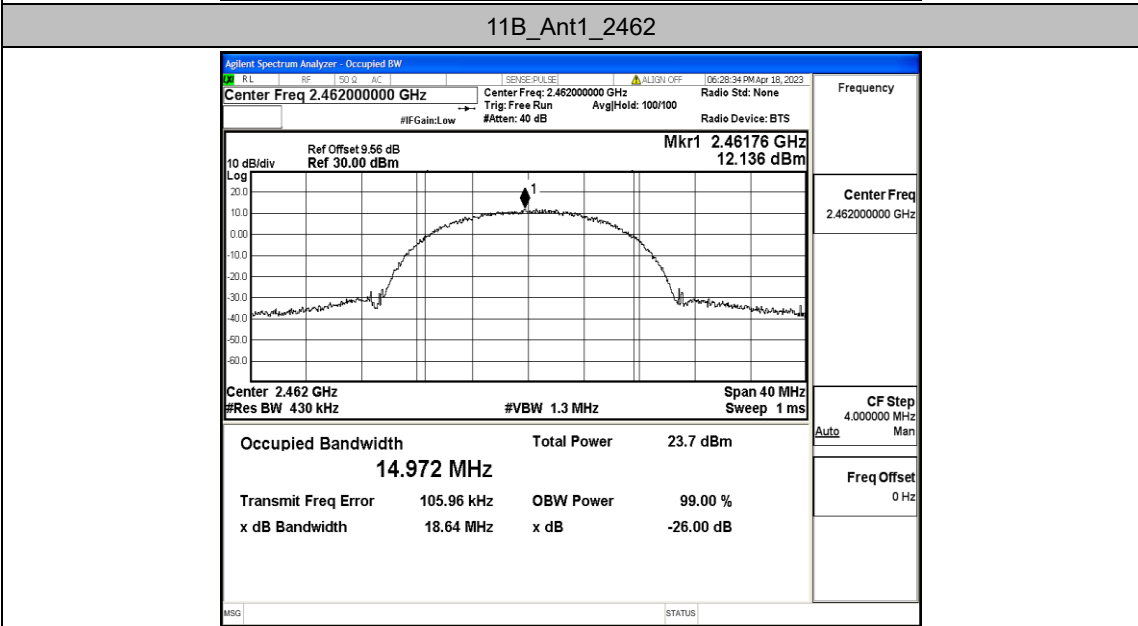
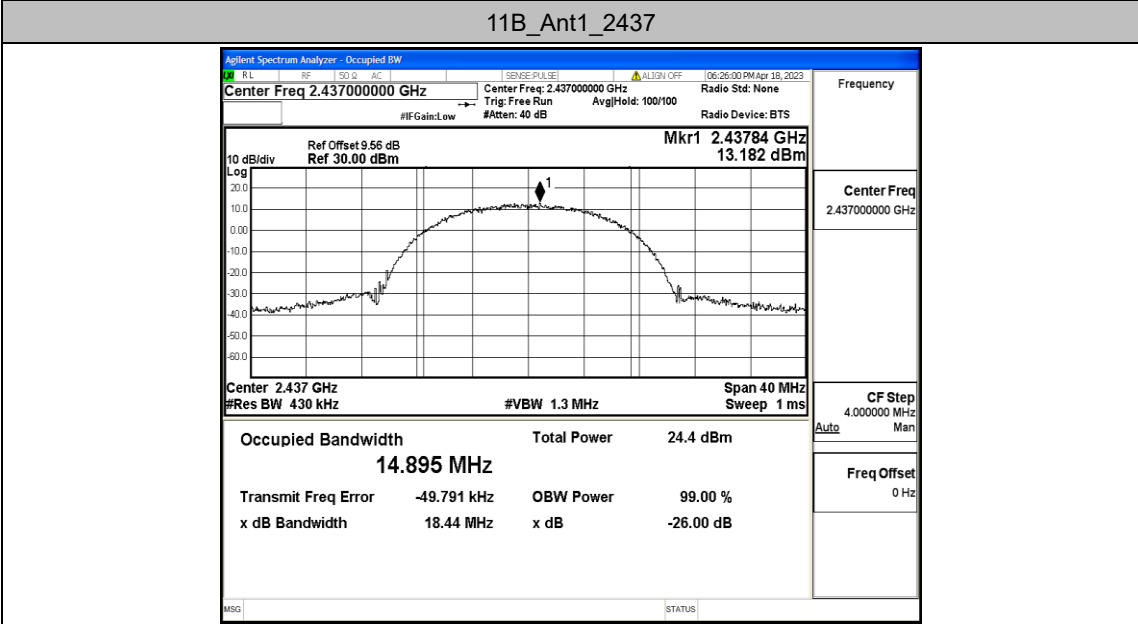
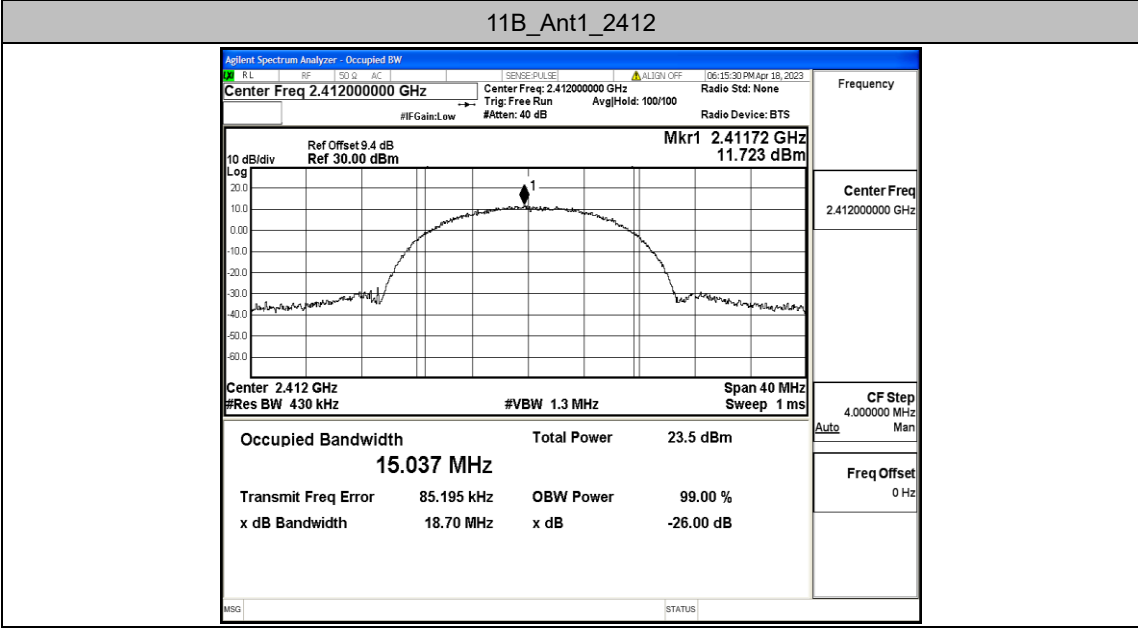


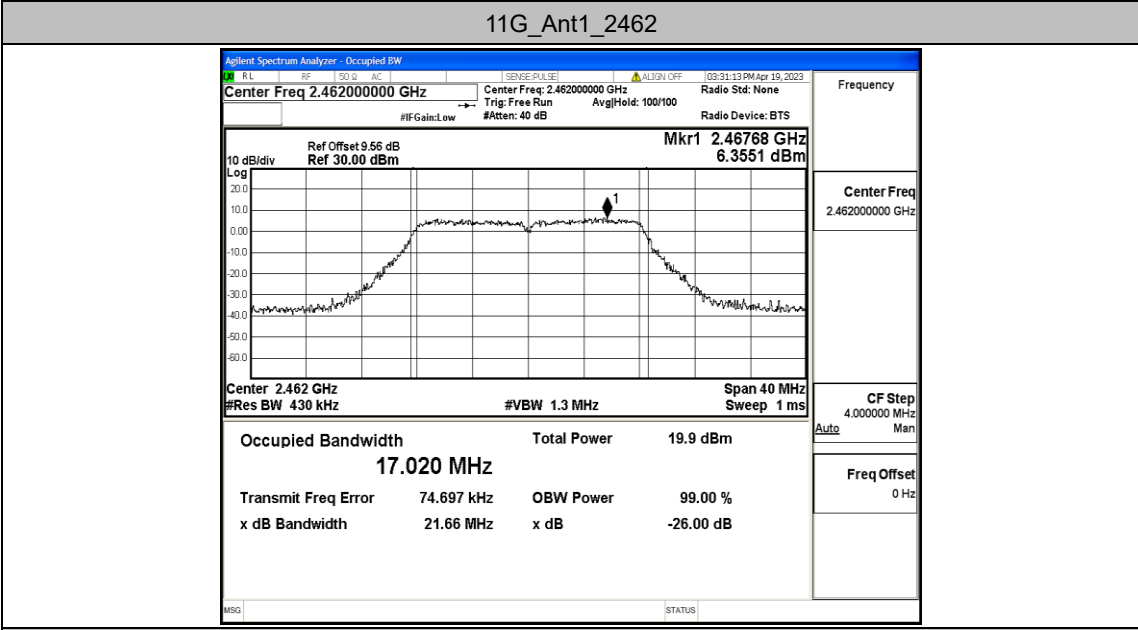
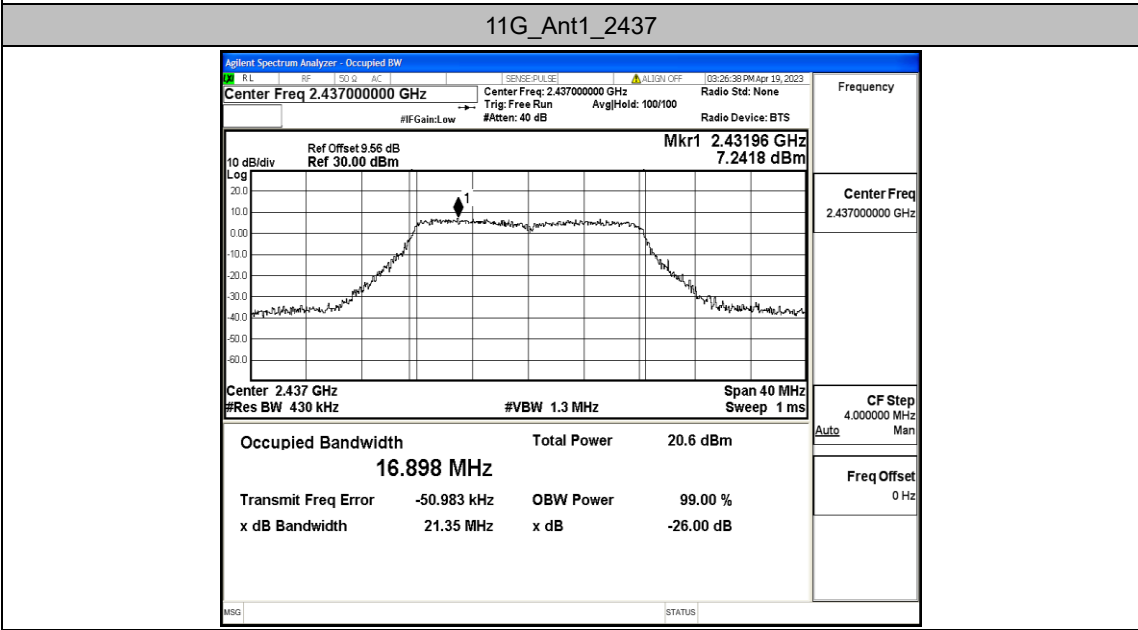
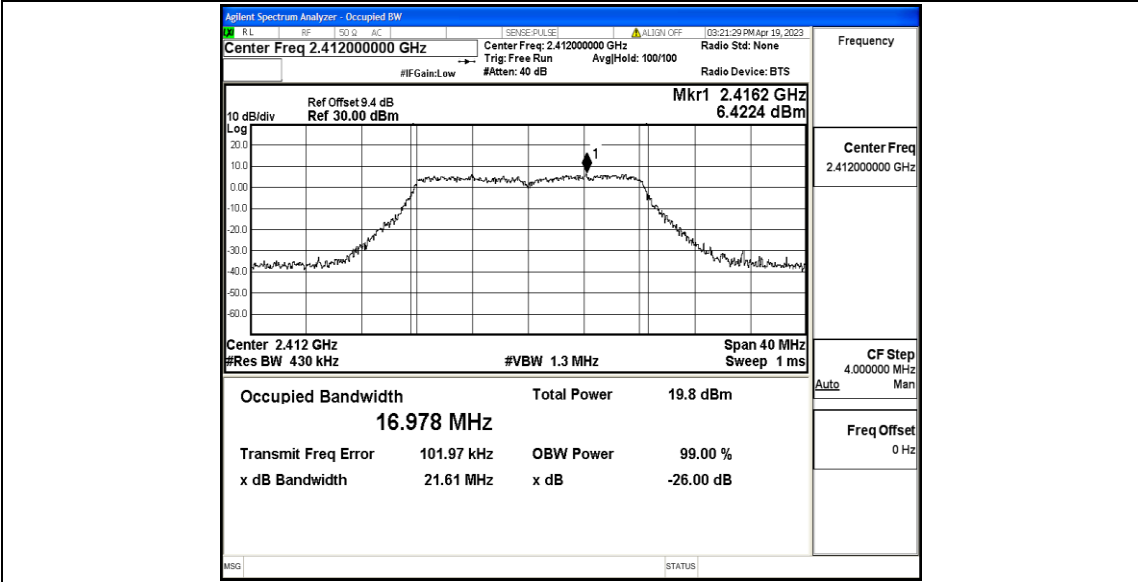
Appendix B: Occupied Channel Bandwidth

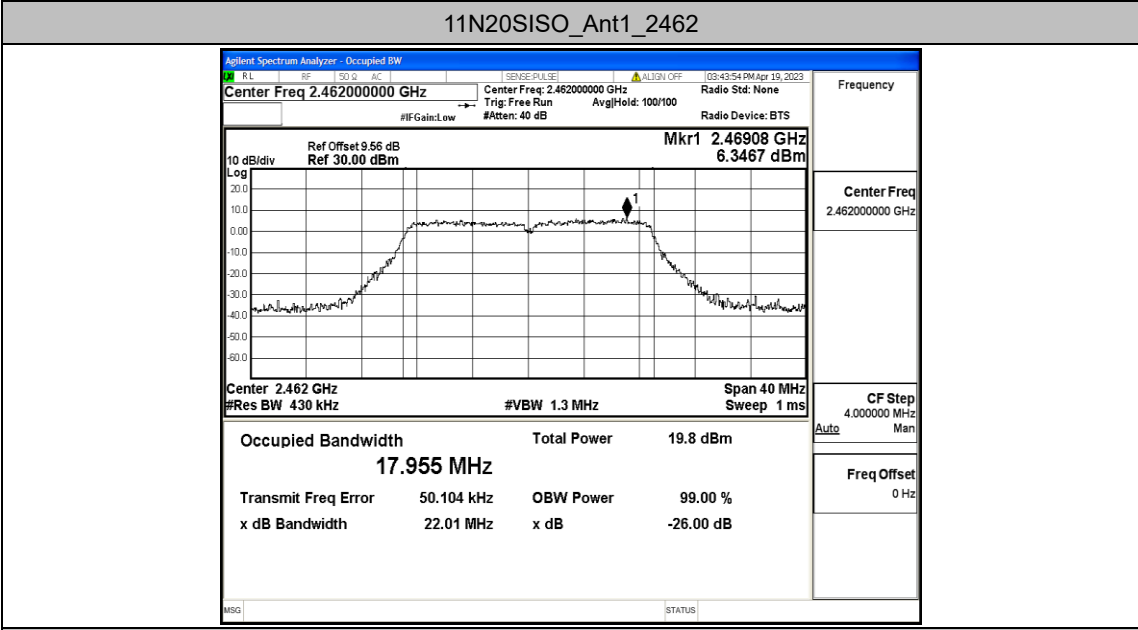
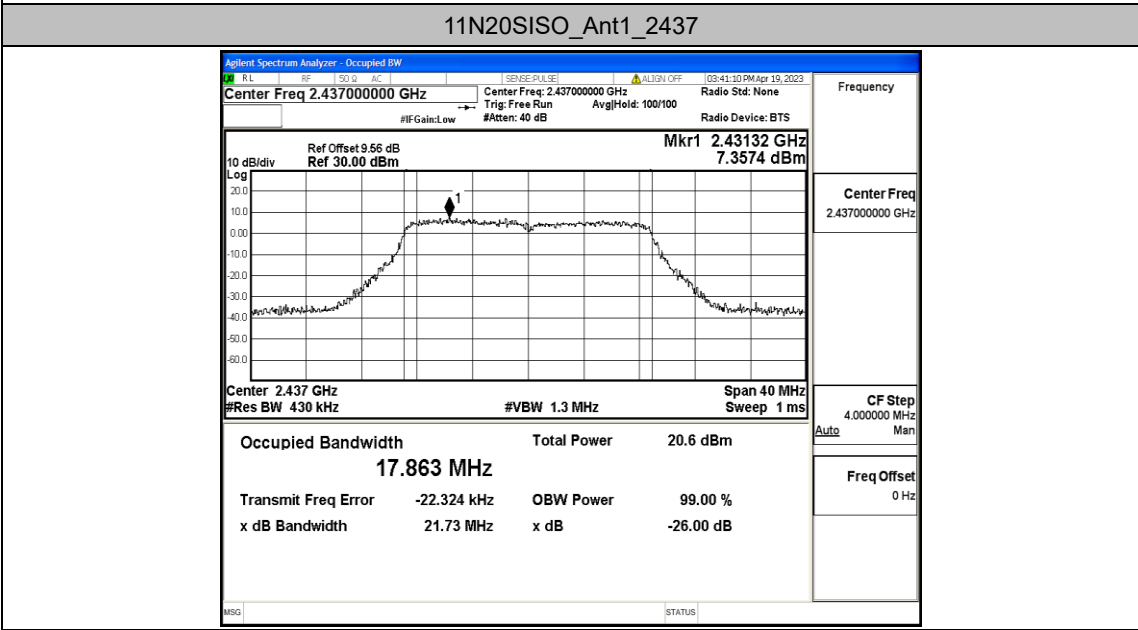
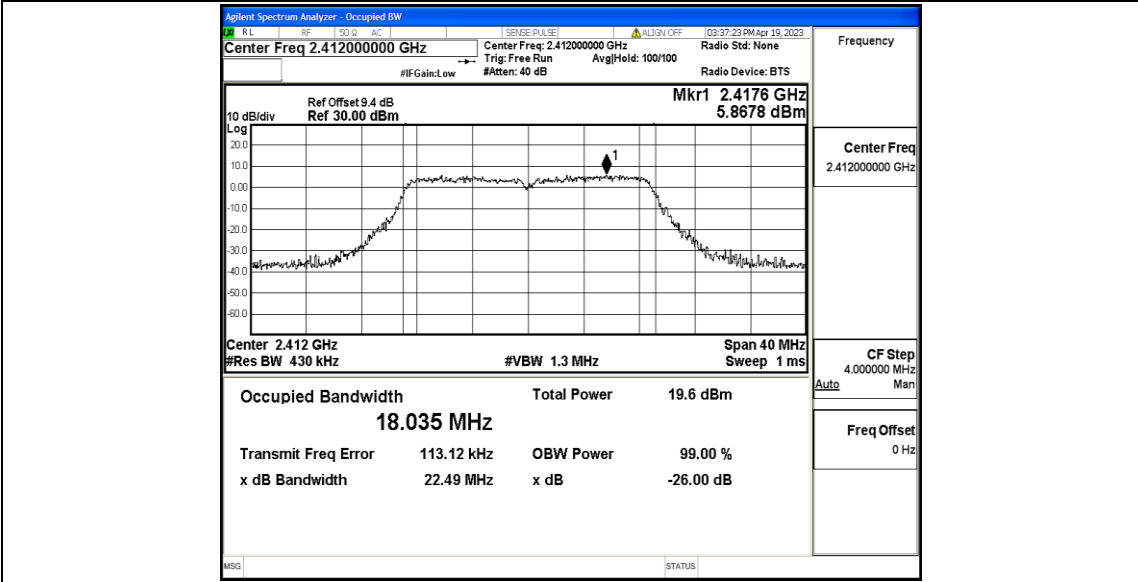
Test Result

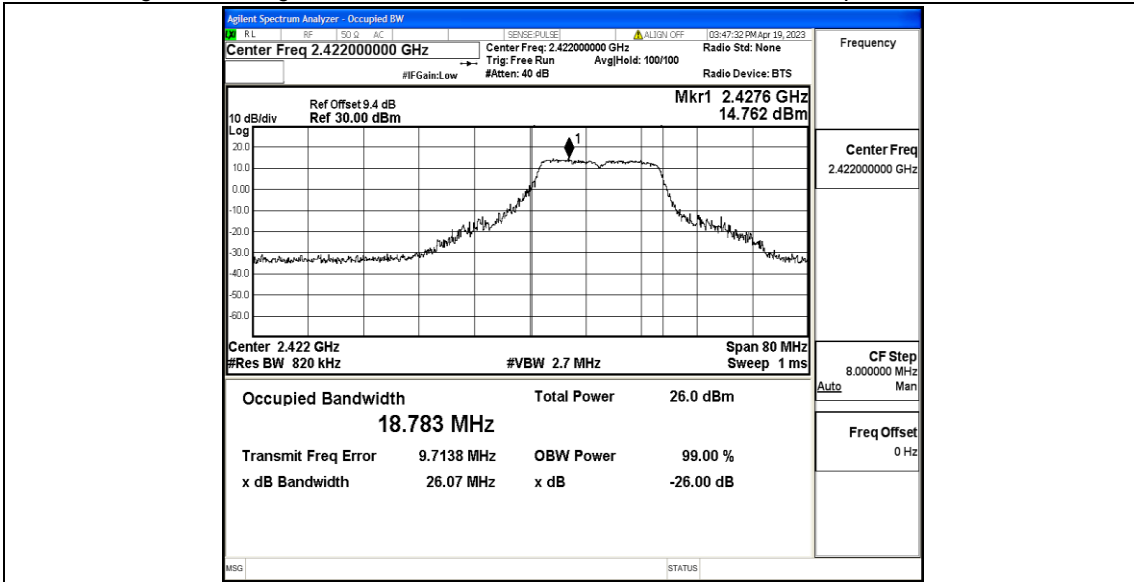
| TestMode | Antenna | Channel | OCB [MHz] | FL[MHz] | FH[MHz] | Limit[MHz] | Verdict |
|-----------|---------|---------|-----------|-----------|-----------|------------|---------|
| 11B | Ant1 | 2412 | 15.037 | 2404.5667 | 2419.6037 | --- | --- |
| | | 2437 | 14.895 | 2429.5027 | 2444.3977 | --- | --- |
| | | 2462 | 14.972 | 2454.6200 | 2469.5920 | --- | --- |
| 11G | Ant1 | 2412 | 16.978 | 2403.6130 | 2420.5910 | --- | --- |
| | | 2437 | 16.898 | 2428.5000 | 2445.3980 | --- | --- |
| | | 2462 | 17.020 | 2453.5647 | 2470.5847 | --- | --- |
| 11N20SISO | Ant1 | 2412 | 18.035 | 2403.0956 | 2421.1306 | --- | --- |
| | | 2437 | 17.863 | 2428.0462 | 2445.9092 | --- | --- |
| | | 2462 | 17.955 | 2453.0726 | 2471.0276 | --- | --- |
| 11N40SISO | Ant1 | 2422 | 18.783 | 2422.3223 | 2441.1053 | --- | --- |
| | | 2437 | 36.278 | 2418.8788 | 2455.1568 | --- | --- |
| | | 2452 | 36.608 | 2433.7711 | 2470.3791 | --- | --- |

Test Graphs

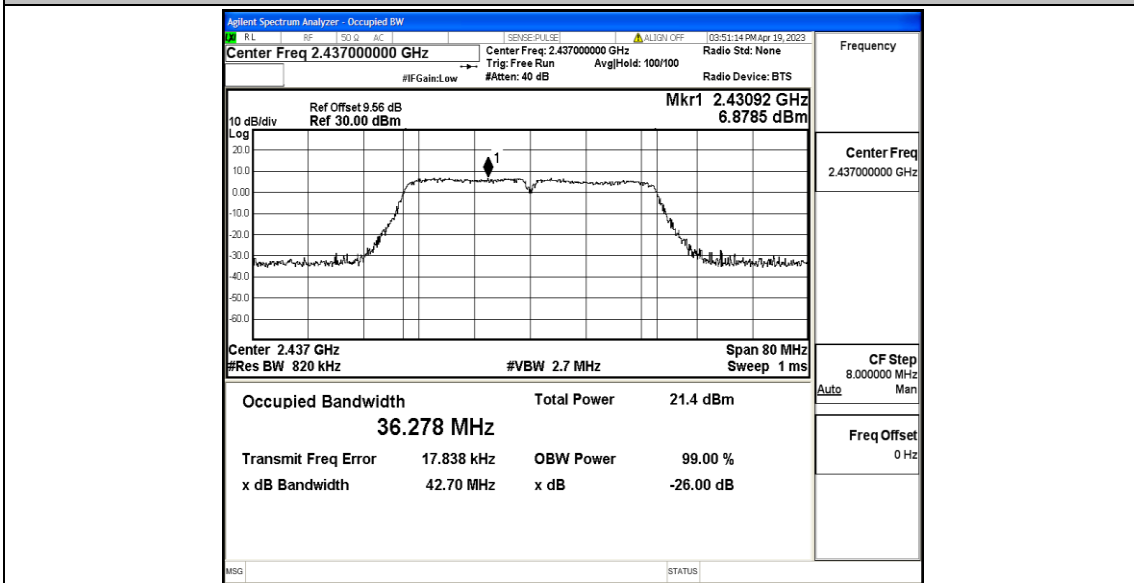




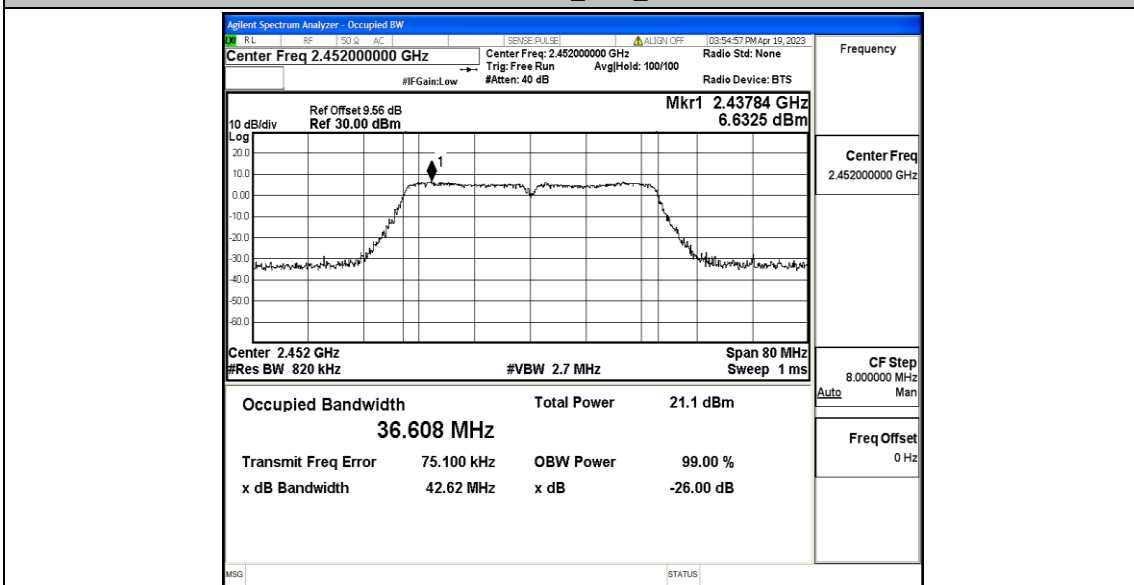




11N40SISO_Ant1_2437



11N40SISO_Ant1_2452



Appendix C: Maximum conducted output power

Test Result

| TestMode | Antenna | Channel | Result[dBm] | Limit[dBm] | Verdict |
|-----------|---------|---------|-------------|------------|---------|
| 11B | Ant1 | 2412 | 17.33 | ≤30.00 | PASS |
| | | 2437 | 18.23 | ≤30.00 | PASS |
| | | 2462 | 17.48 | ≤30.00 | PASS |
| 11G | Ant1 | 2412 | 13.75 | ≤30.00 | PASS |
| | | 2437 | 14.73 | ≤30.00 | PASS |
| | | 2462 | 14.01 | ≤30.00 | PASS |
| 11N20SISO | Ant1 | 2412 | 14.08 | ≤30.00 | PASS |
| | | 2437 | 14.65 | ≤30.00 | PASS |
| | | 2462 | 13.84 | ≤30.00 | PASS |
| 11N40SISO | Ant1 | 2422 | 19.22 | ≤30.00 | PASS |
| | | 2437 | 14.85 | ≤30.00 | PASS |
| | | 2452 | 14.35 | ≤30.00 | PASS |

Note: The Duty Cycle Factor is compensated in the test result.

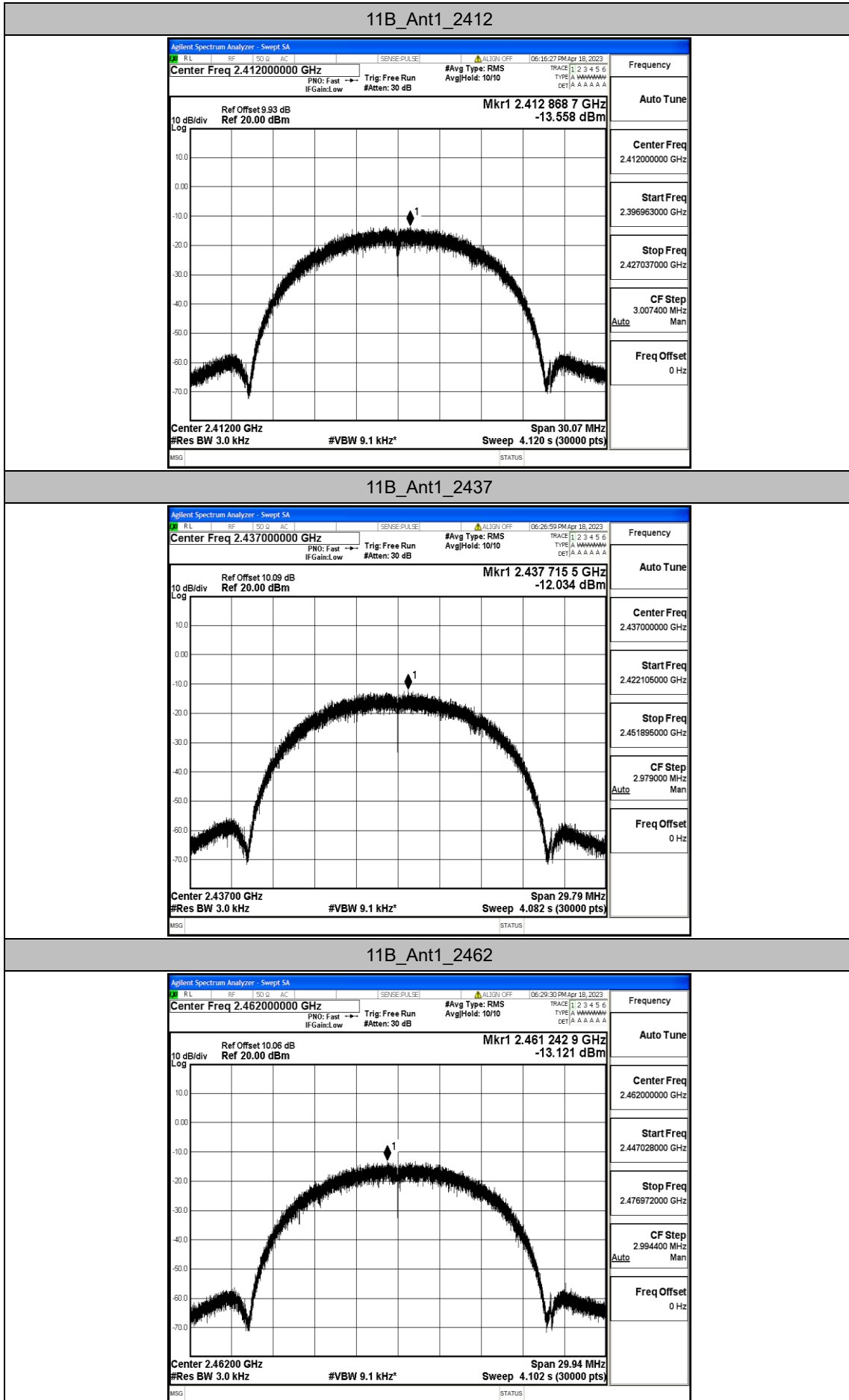
Appendix D: Maximum power spectral density

Test Result

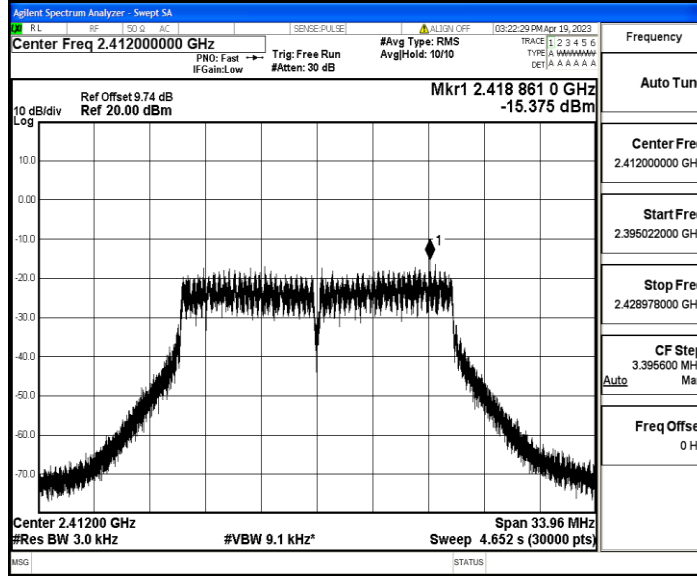
| TestMode | Antenna | Channel | Result[dBm/3-100kHz] | Limit[dBm/3kHz] | Verdict |
|-----------|---------|---------|----------------------|-----------------|---------|
| 11B | Ant1 | 2412 | -13.56 | ≤8.00 | PASS |
| | | 2437 | -12.03 | ≤8.00 | PASS |
| | | 2462 | -13.12 | ≤8.00 | PASS |
| 11G | Ant1 | 2412 | -15.38 | ≤8.00 | PASS |
| | | 2437 | -15.76 | ≤8.00 | PASS |
| | | 2462 | -16.37 | ≤8.00 | PASS |
| 11N20SISO | Ant1 | 2412 | -15.89 | ≤8.00 | PASS |
| | | 2437 | -16.04 | ≤8.00 | PASS |
| | | 2462 | -16.94 | ≤8.00 | PASS |
| 11N40SISO | Ant1 | 2422 | -11.54 | ≤8.00 | PASS |
| | | 2437 | -18.5 | ≤8.00 | PASS |
| | | 2452 | -18.61 | ≤8.00 | PASS |

Note: The Duty Cycle Factor is compensated in the test result.

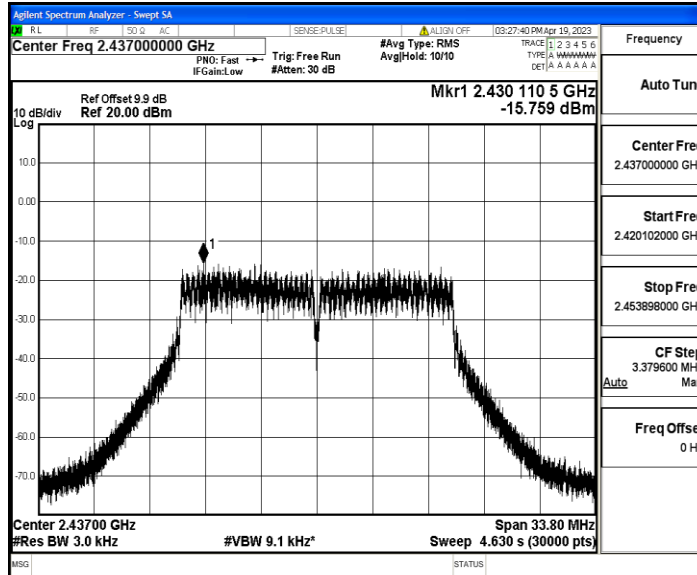
Test Graphs



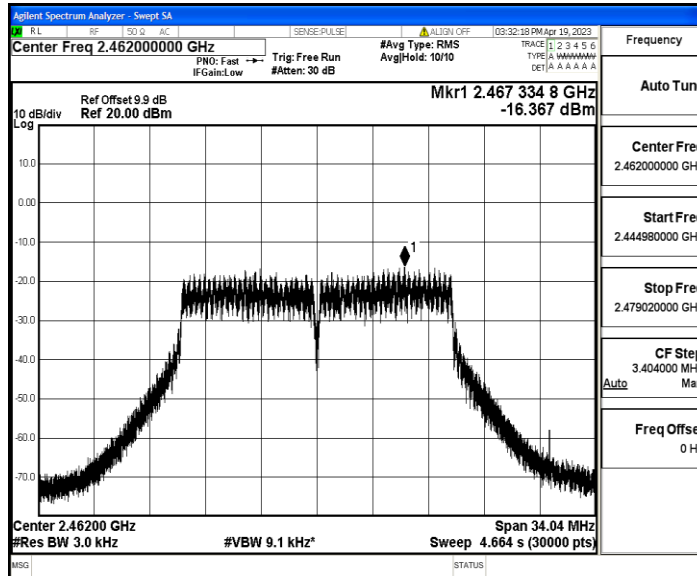
11G_Ant1_2412



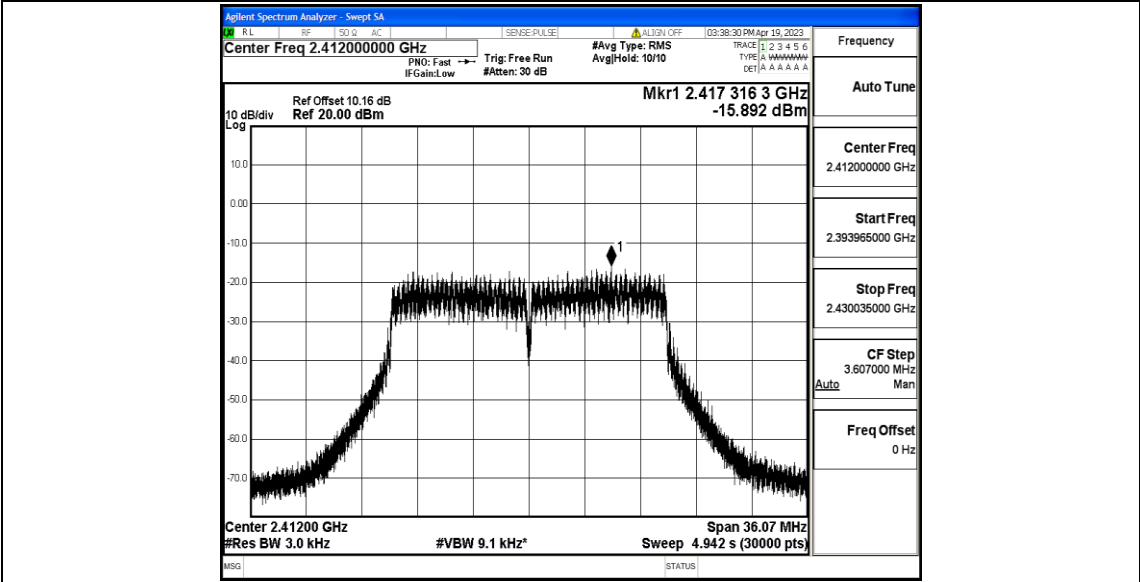
11G_Ant1_2437



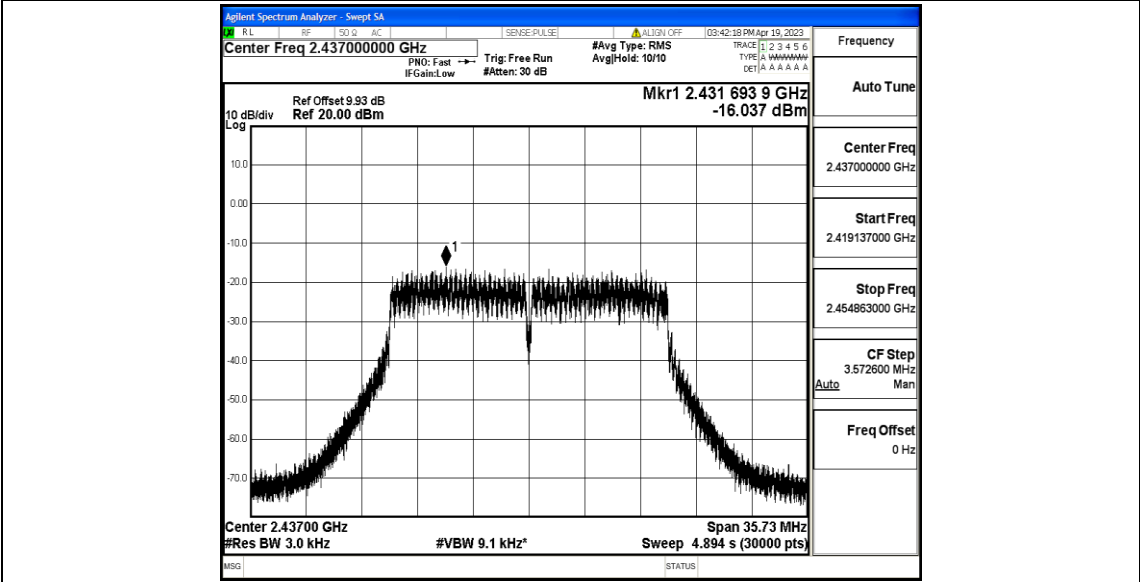
11G_Ant1_2462



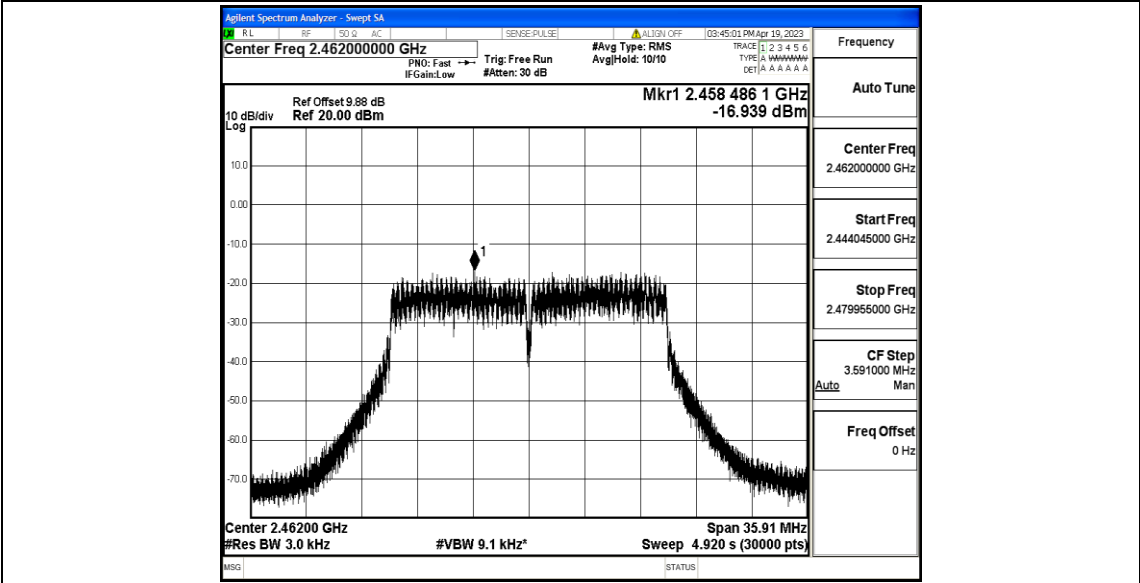
11N20SISO_Ant1_2412



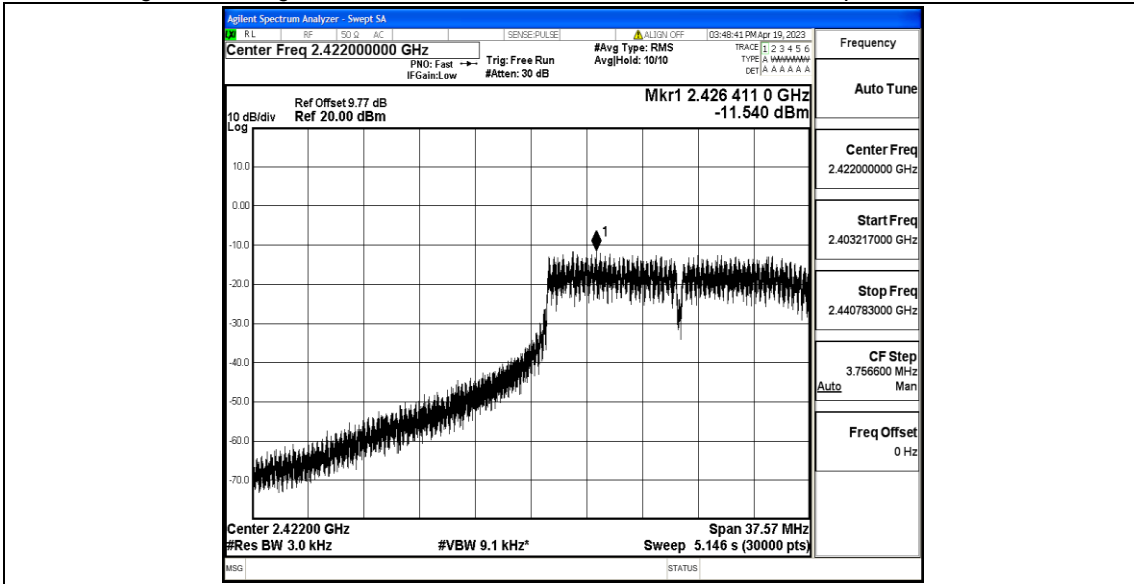
11N20SISO_Ant1_2437



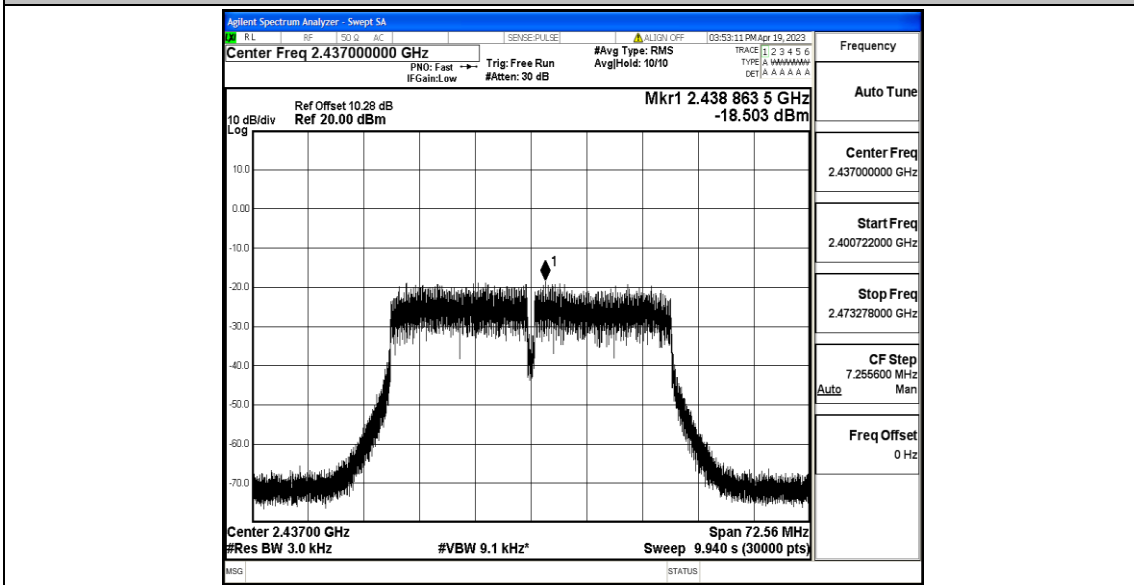
11N20SISO_Ant1_2462



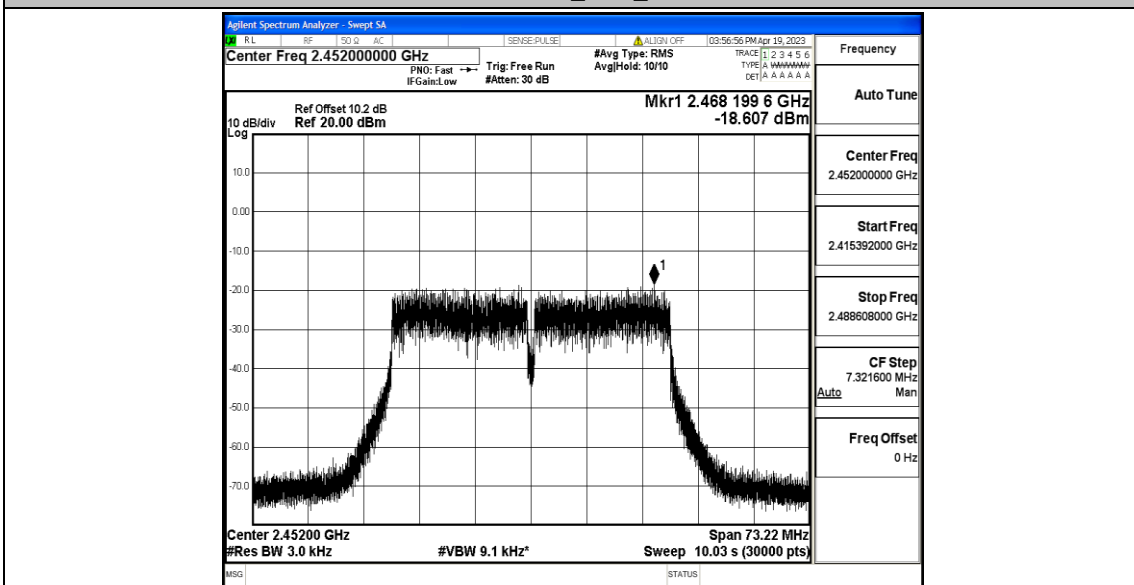
11N40SISO_Ant1_2422



11N40SISO_Ant1_2437



11N40SISO_Ant1_2452

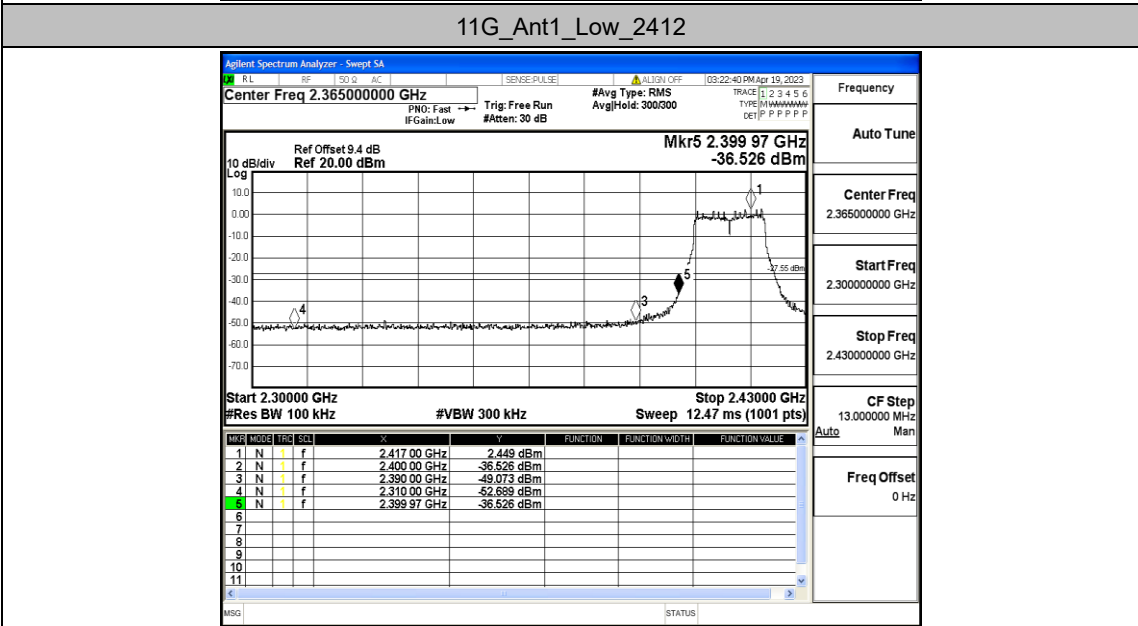
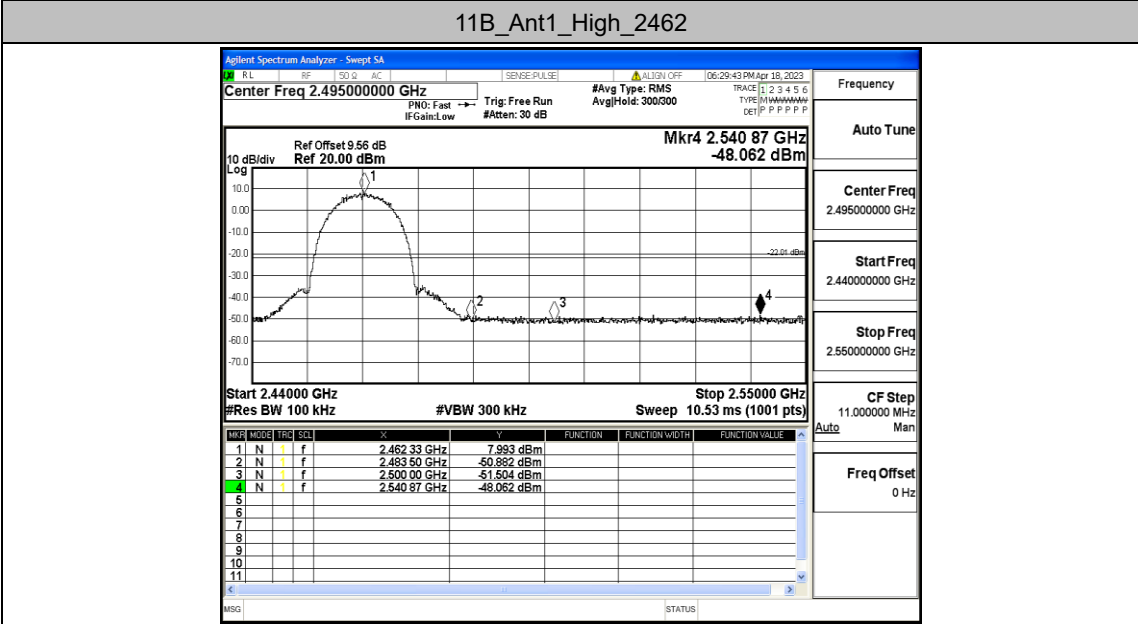
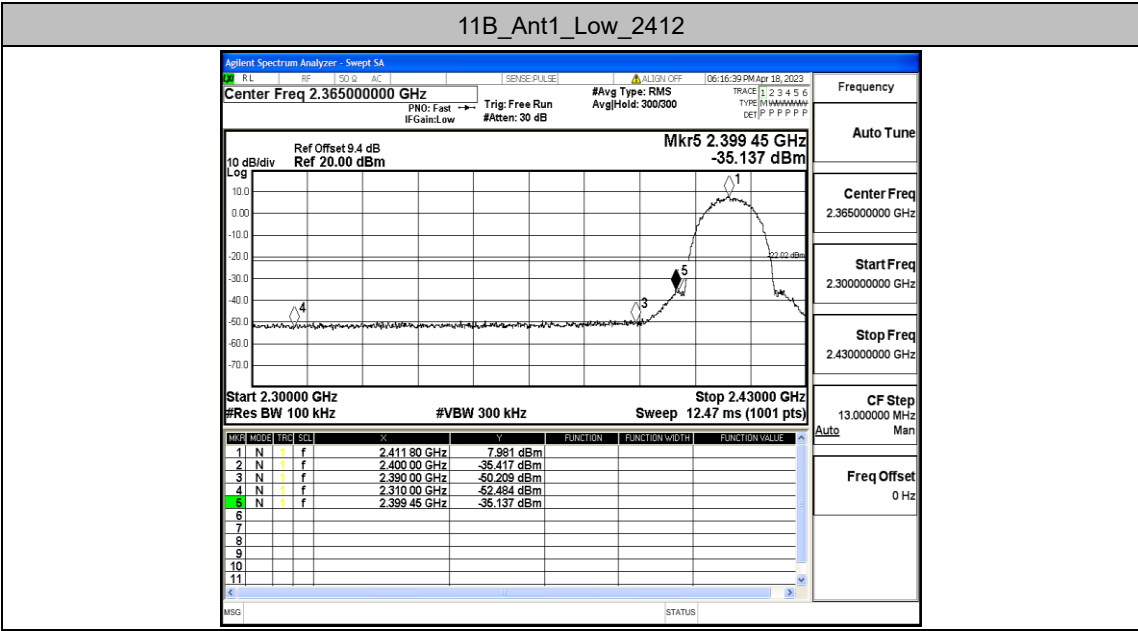


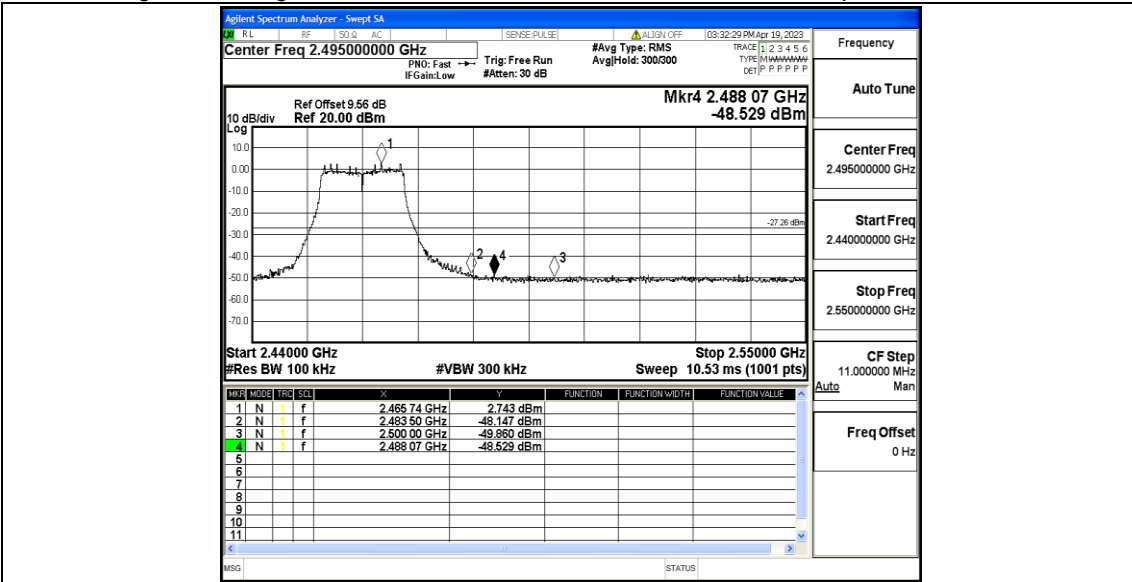
Appendix E: Band edge measurements

Test Result

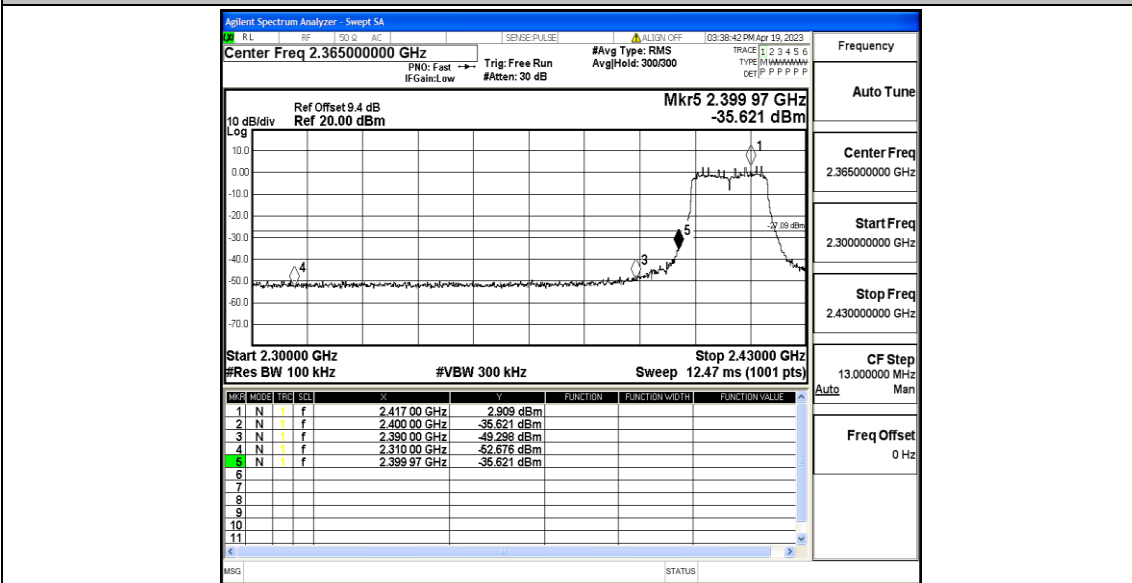
| TestMode | Antenna | ChName | Channel | RefLevel[dBm] | Result[dBm] | Limit[dBm] | Verdict |
|-----------|---------|--------|---------|---------------|-------------|------------|---------|
| 11B | Ant1 | Low | 2412 | 7.98 | -35.14 | ≤-22.02 | PASS |
| | | High | 2462 | 7.99 | -48.06 | ≤-22.01 | PASS |
| 11G | Ant1 | Low | 2412 | 2.45 | -36.53 | ≤-27.55 | PASS |
| | | High | 2462 | 2.74 | -48.53 | ≤-27.26 | PASS |
| 11N20SISO | Ant1 | Low | 2412 | 2.91 | -35.62 | ≤-27.09 | PASS |
| | | High | 2462 | 3.21 | -45.65 | ≤-26.79 | PASS |
| 11N40SISO | Ant1 | Low | 2422 | 8.30 | -43.46 | ≤-21.7 | PASS |
| | | High | 2452 | 0.18 | -43.18 | ≤-29.83 | PASS |

Test Graphs

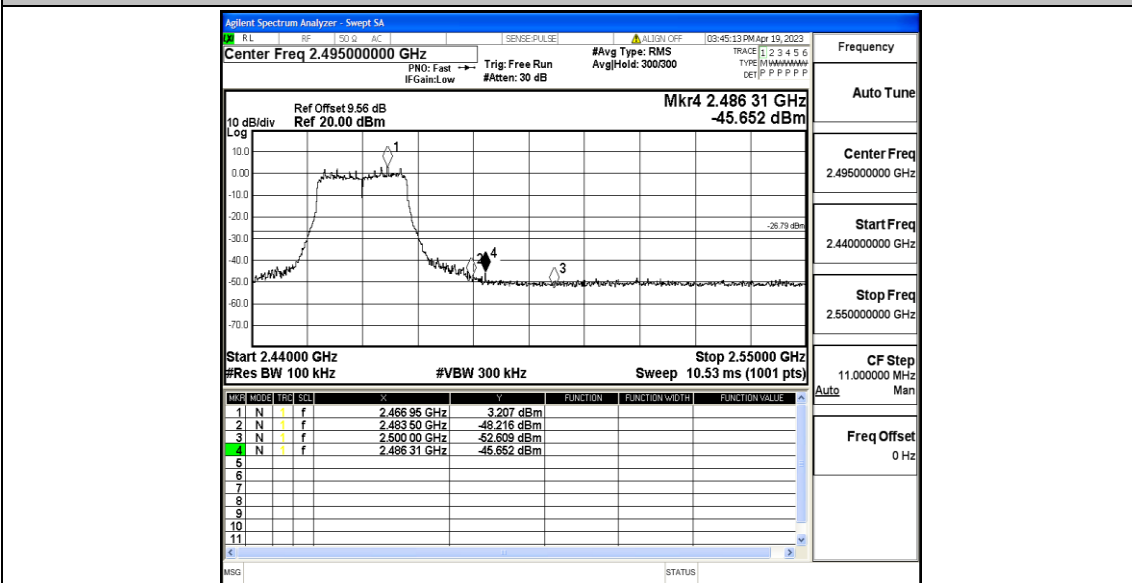




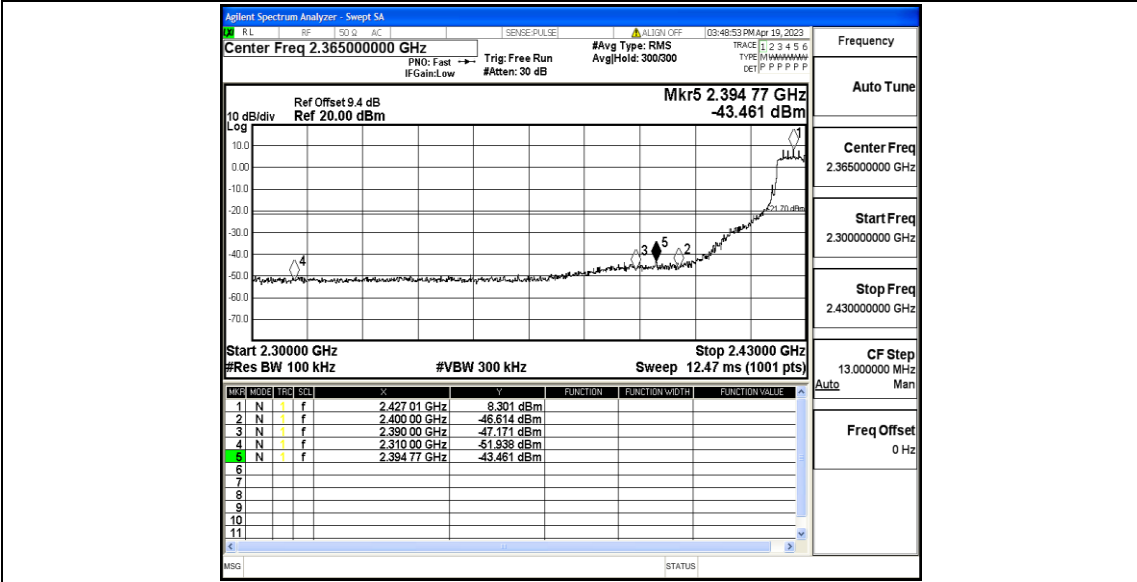
11N20SISO_Ant1_Low_2412



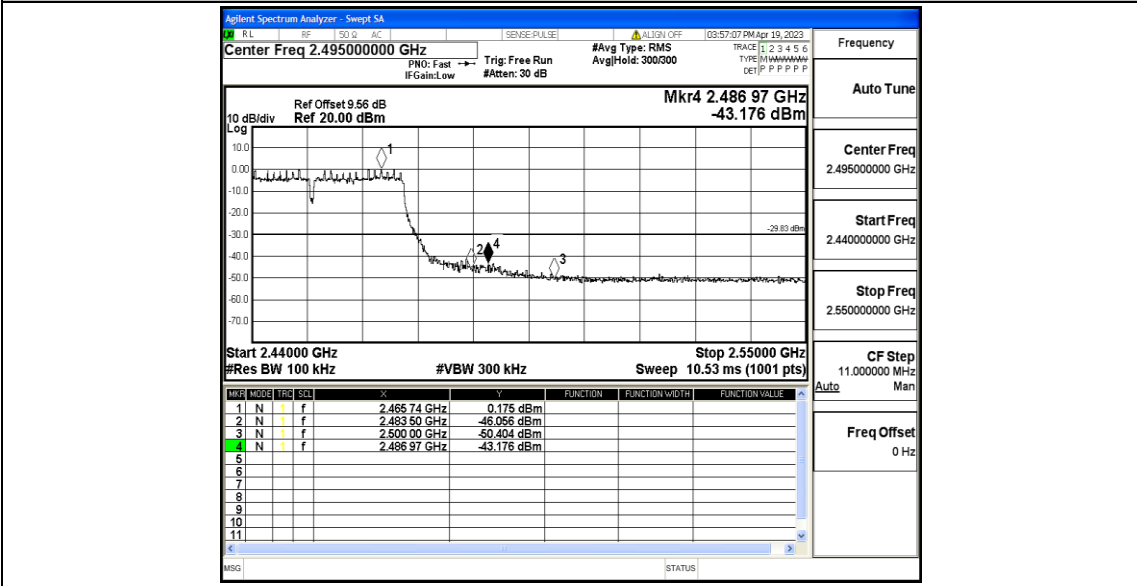
11N20SISO_Ant1_High_2462



11N40SISO_Ant1_Low_2422



11N40SISO_Ant1_High_2452

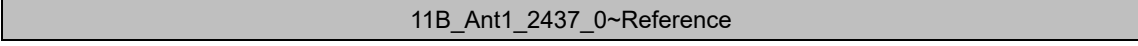
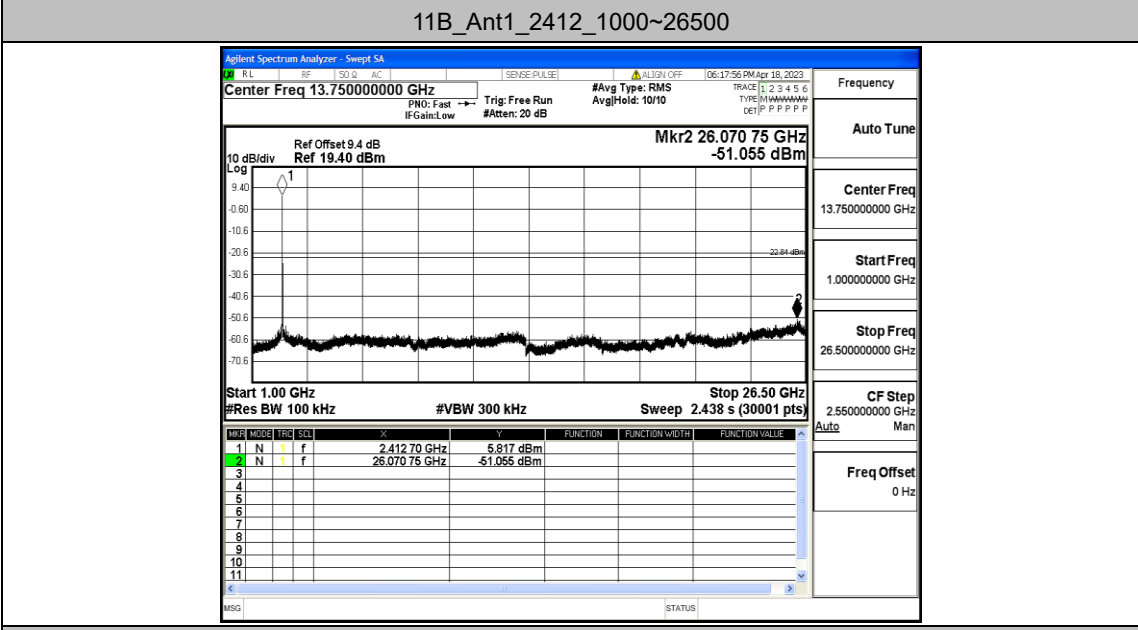
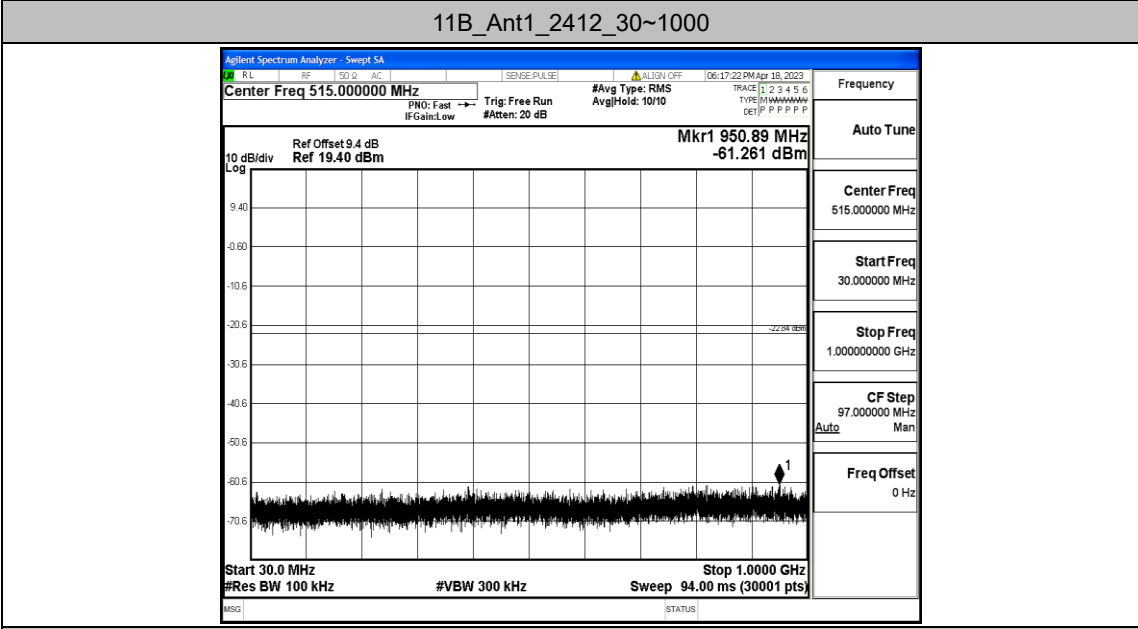
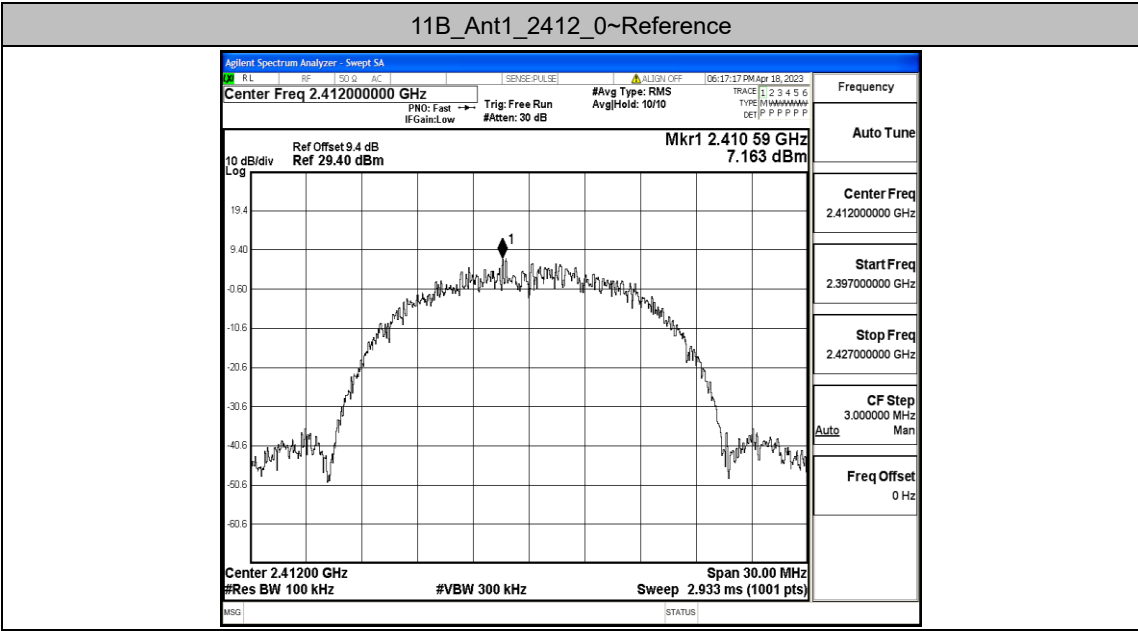


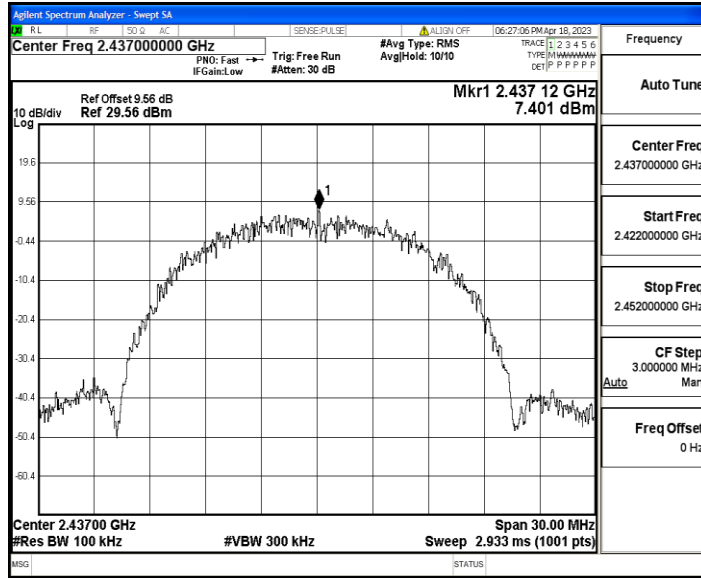
Appendix F: Conducted Spurious Emission

Test Result

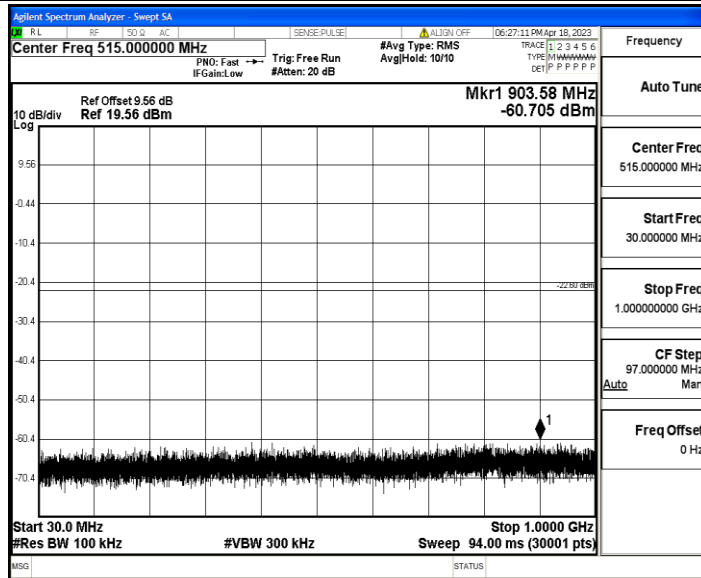
| TestMode | Antenna | Channel | FreqRange [Mhz] | RefLevel [dBm] | Result [dBm] | Limit [dBm] | Verdict |
|-----------|---------|---------|-----------------|----------------|--------------|-------------|---------|
| 11B | Ant1 | 2412 | Reference | 7.16 | 7.16 | --- | PASS |
| | | | 30~1000 | 7.16 | -61.26 | ≤-22.84 | PASS |
| | | | 1000~26500 | 7.16 | -51.06 | ≤-22.84 | PASS |
| | | 2437 | Reference | 7.40 | 7.40 | --- | PASS |
| | | | 30~1000 | 7.40 | -60.71 | ≤-22.6 | PASS |
| | | | 1000~26500 | 7.40 | -51.16 | ≤-22.6 | PASS |
| | | 2462 | Reference | 6.87 | 6.87 | --- | PASS |
| | | | 30~1000 | 6.87 | -60.45 | ≤-23.13 | PASS |
| | | | 1000~26500 | 6.87 | -51.62 | ≤-23.13 | PASS |
| 11G | Ant1 | 2412 | Reference | -0.23 | -0.23 | --- | PASS |
| | | | 30~1000 | -0.23 | -61.13 | ≤-30.23 | PASS |
| | | | 1000~26500 | -0.23 | -47.62 | ≤-30.23 | PASS |
| | | 2437 | Reference | 2.68 | 2.68 | --- | PASS |
| | | | 30~1000 | 2.68 | -59.71 | ≤-27.32 | PASS |
| | | | 1000~26500 | 2.68 | -51.73 | ≤-27.32 | PASS |
| | | 2462 | Reference | -0.51 | -0.51 | --- | PASS |
| | | | 30~1000 | -0.51 | -60.49 | ≤-30.51 | PASS |
| | | | 1000~26500 | -0.51 | -52.08 | ≤-30.51 | PASS |
| 11N20SISO | Ant1 | 2412 | Reference | -0.23 | -0.23 | --- | PASS |
| | | | 30~1000 | -0.23 | -61.02 | ≤-30.23 | PASS |
| | | | 1000~26500 | -0.23 | -52.25 | ≤-30.23 | PASS |
| | | 2437 | Reference | -0.04 | -0.04 | --- | PASS |
| | | | 30~1000 | -0.04 | -59.89 | ≤-30.04 | PASS |
| | | | 1000~26500 | -0.04 | -52.34 | ≤-30.04 | PASS |
| | | 2462 | Reference | 1.90 | 1.90 | --- | PASS |
| | | | 30~1000 | 1.90 | -59.84 | ≤-28.1 | PASS |
| | | | 1000~26500 | 1.90 | -50.96 | ≤-28.1 | PASS |
| 11N40SISO | Ant1 | 2422 | Reference | 7.16 | 7.16 | --- | PASS |
| | | | 30~1000 | 7.16 | -60.01 | ≤-22.84 | PASS |
| | | | 1000~26500 | 7.16 | -52.52 | ≤-22.84 | PASS |
| | | 2437 | Reference | 0.14 | 0.14 | --- | PASS |
| | | | 30~1000 | 0.14 | -60.6 | ≤-29.86 | PASS |
| | | | 1000~26500 | 0.14 | -52.24 | ≤-29.86 | PASS |
| | | 2452 | Reference | 0.10 | 0.10 | --- | PASS |
| | | | 30~1000 | 0.10 | -60.38 | ≤-29.9 | PASS |
| | | | 1000~26500 | 0.10 | -51.96 | ≤-29.9 | PASS |

Test Graphs

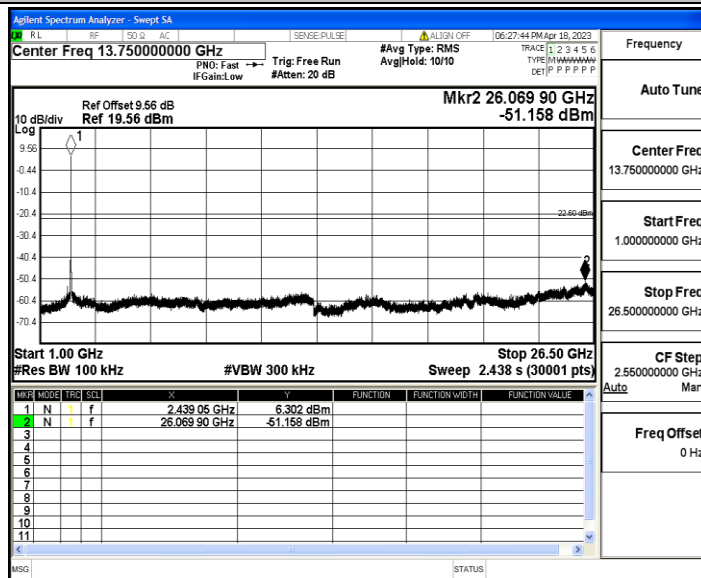




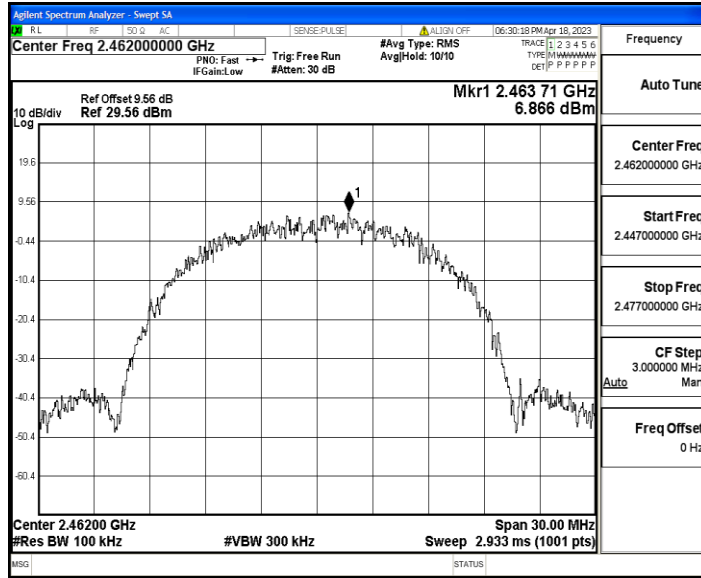
11B_Ant1_2437_30~1000



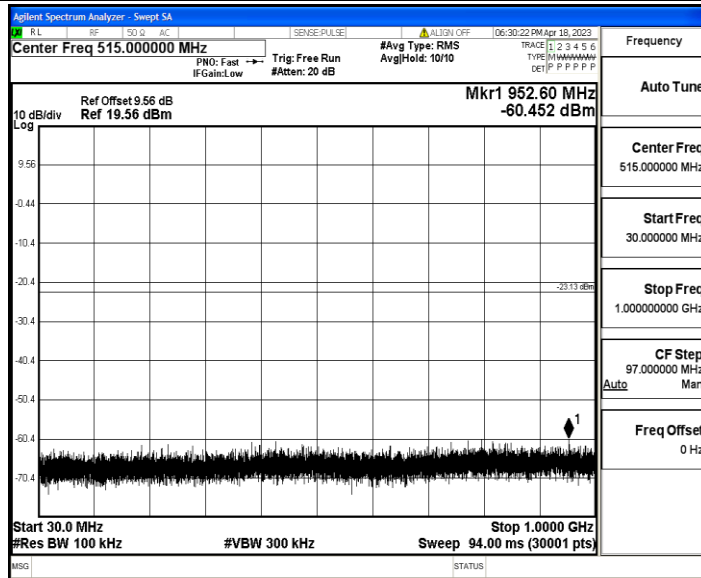
11B_Ant1_2437_1000~26500



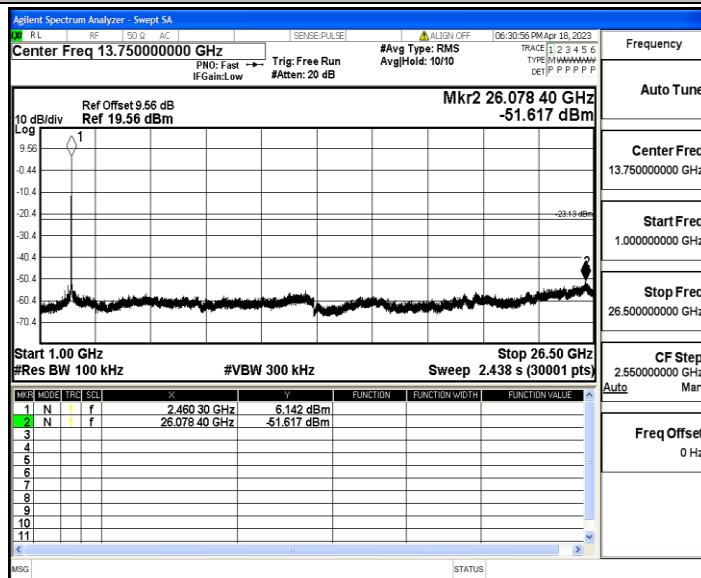
11B_Ant1_2462_0~Reference



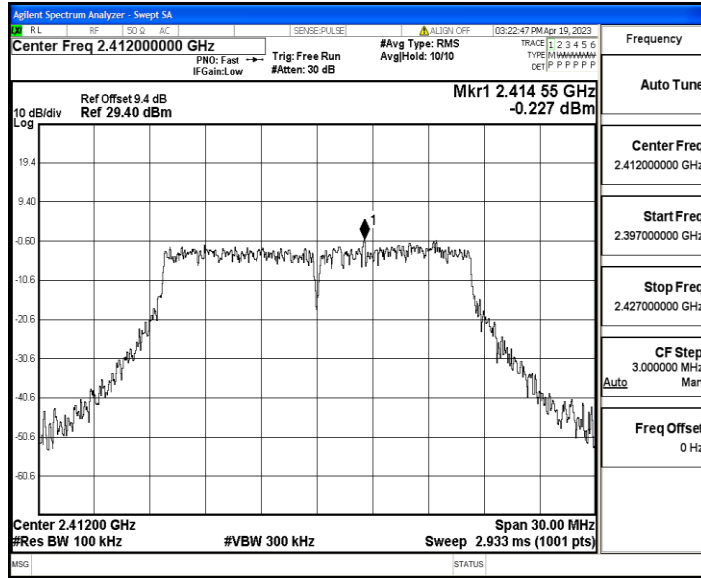
11B_Ant1_2462_30~1000



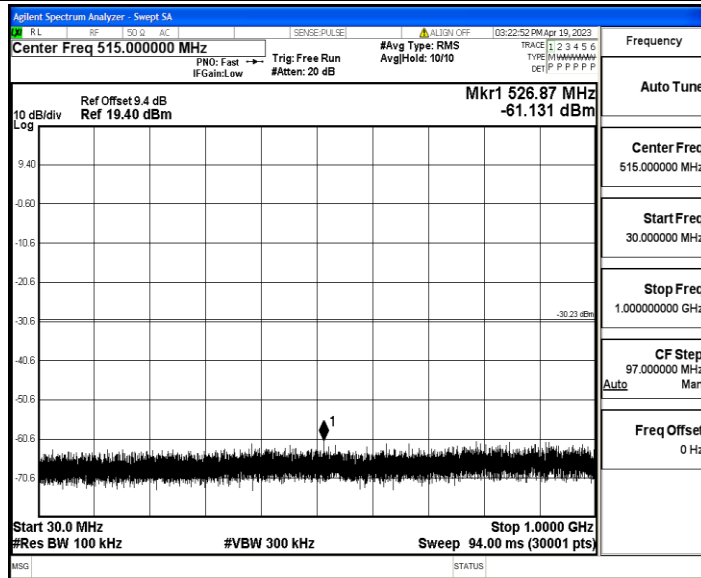
11B_Ant1_2462_1000~26500



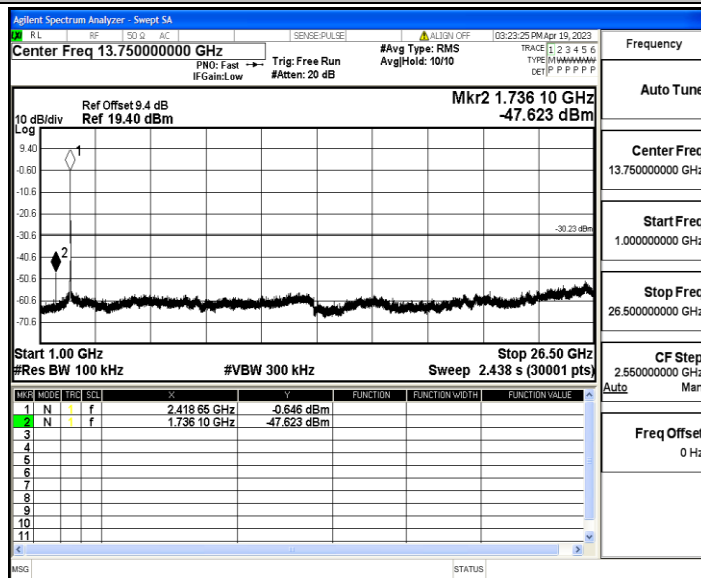
11G_Ant1_2412_0~Reference



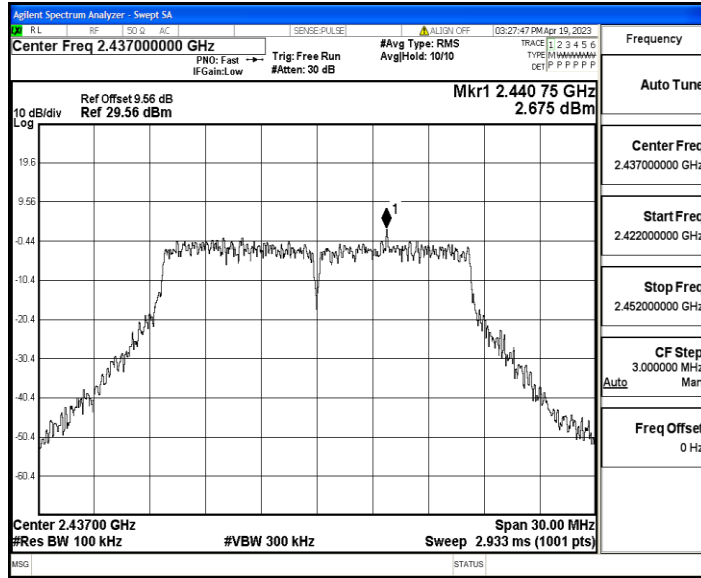
11G_Ant1_2412_30~1000



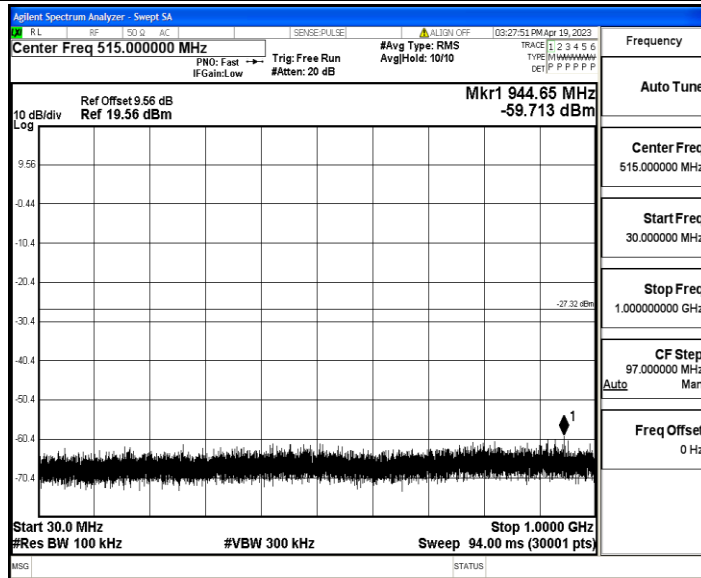
11G_Ant1_2412_1000~26500



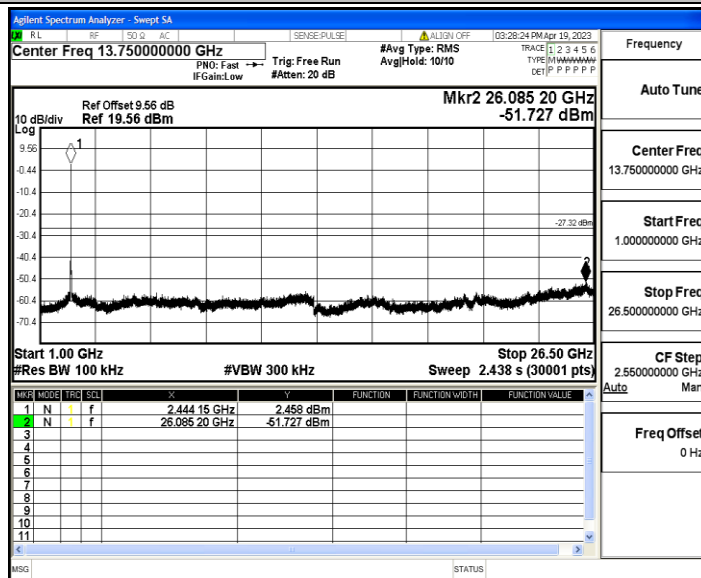
11G_Ant1_2437_0~Reference



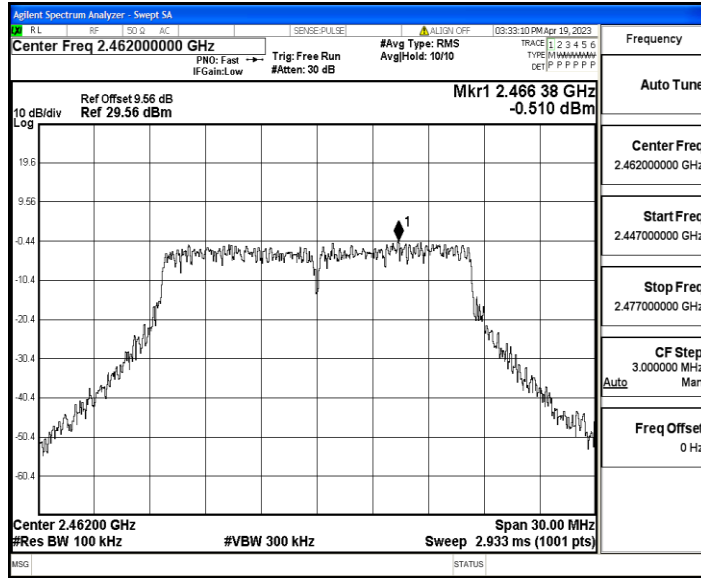
11G_Ant1_2437_30~1000



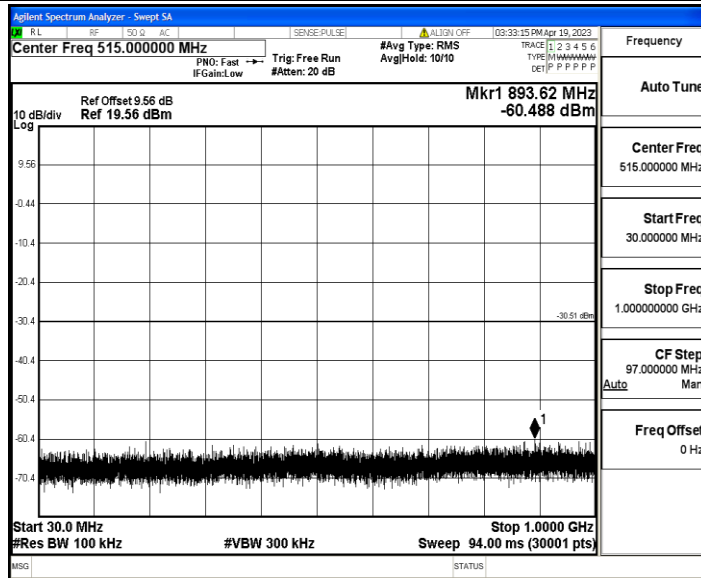
11G_Ant1_2437_1000~26500



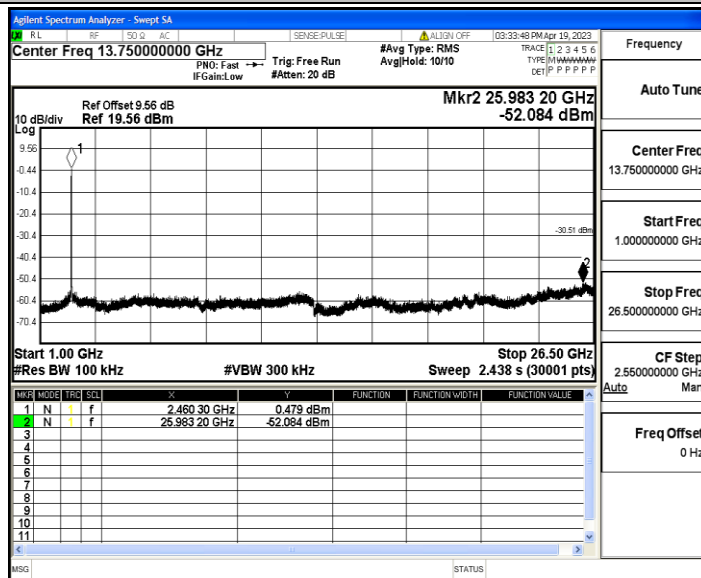
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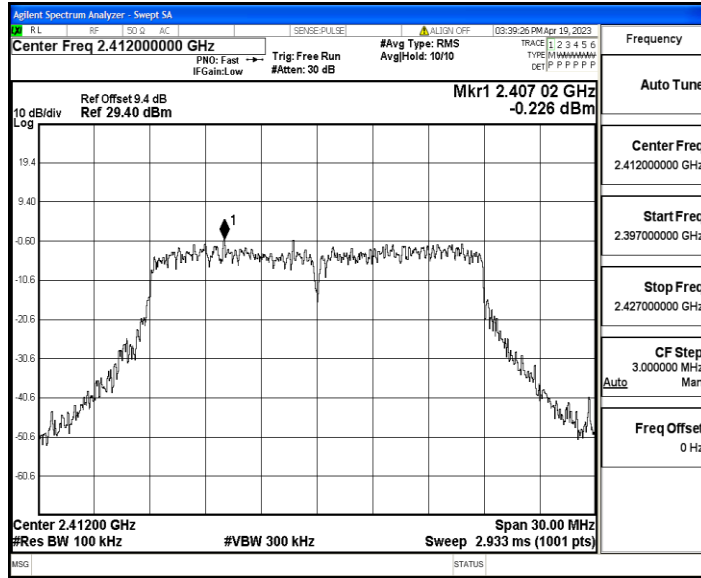
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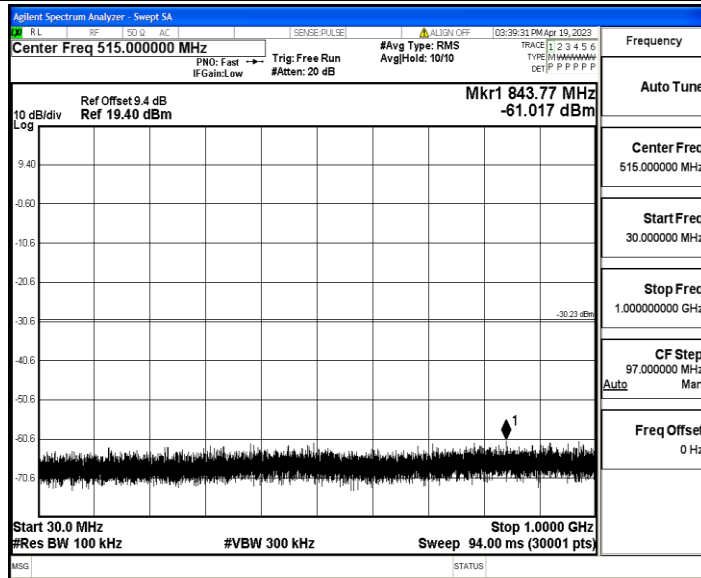
11G_Ant1_2462_1000~26500



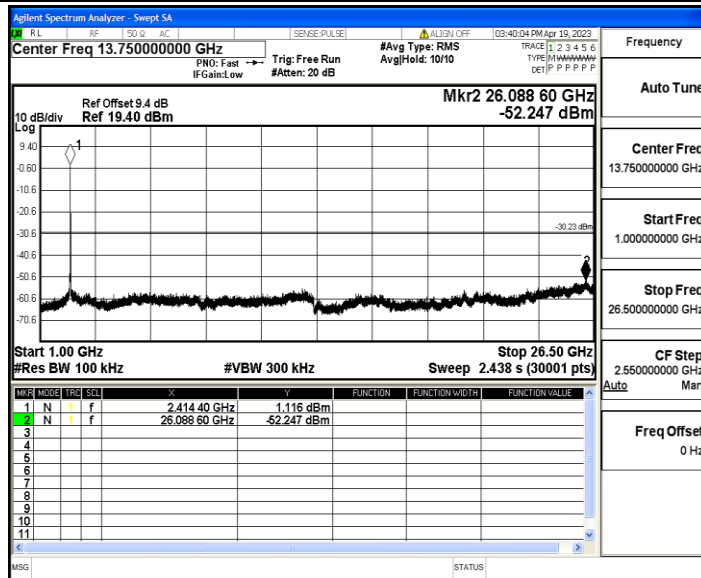
11N20SISO_Ant1_2412_0~Reference



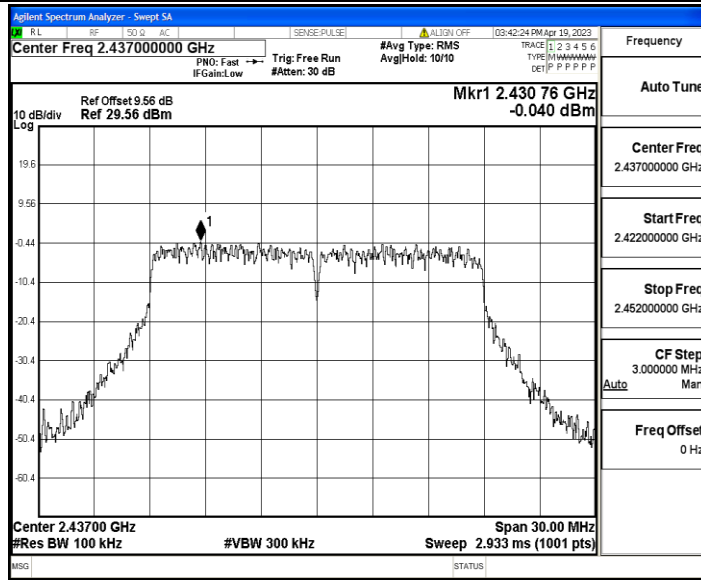
11N20SISO_Ant1_2412_30~1000



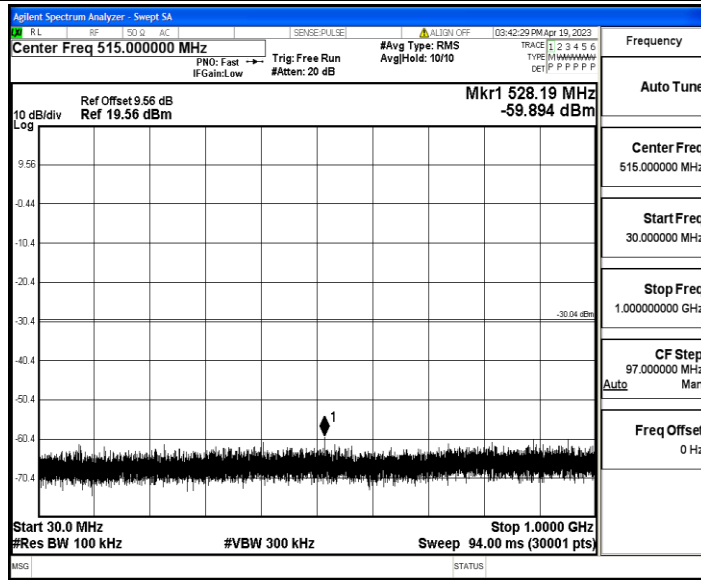
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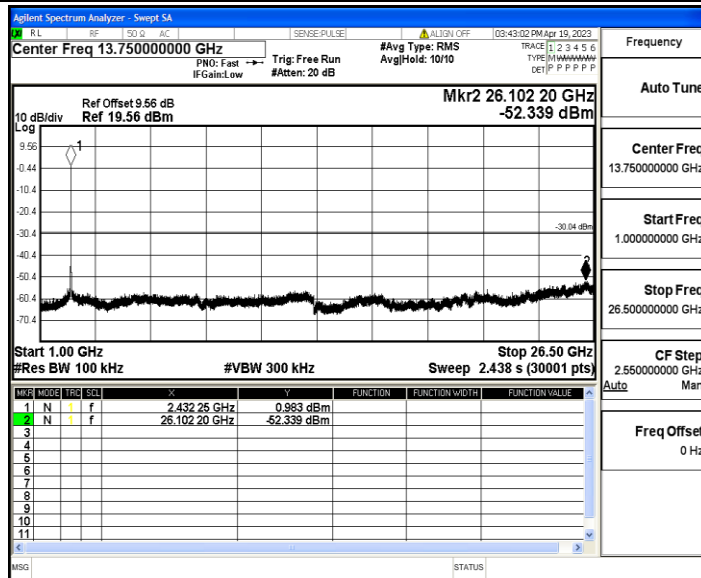
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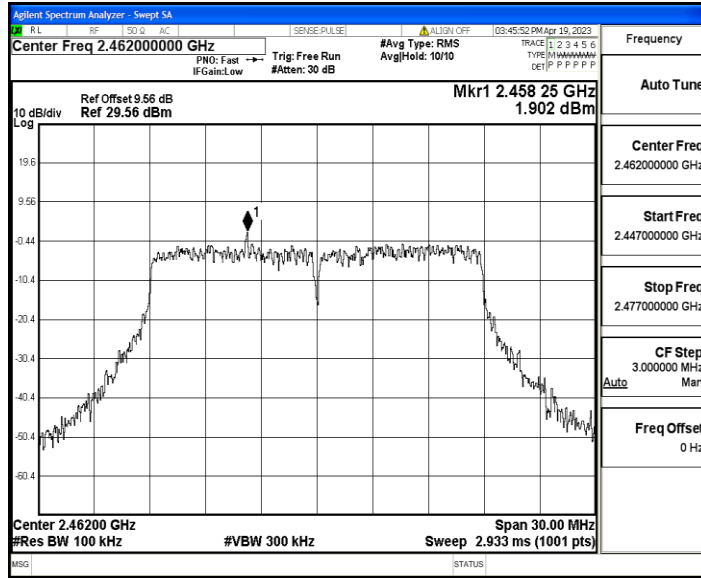
11N20SISO_Ant1_2437_30~1000



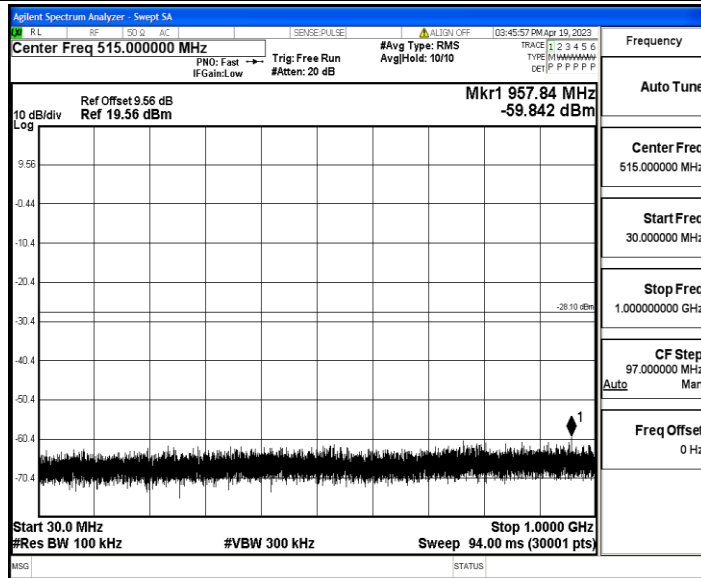
11N20SISO_Ant1_2437_1000~26500



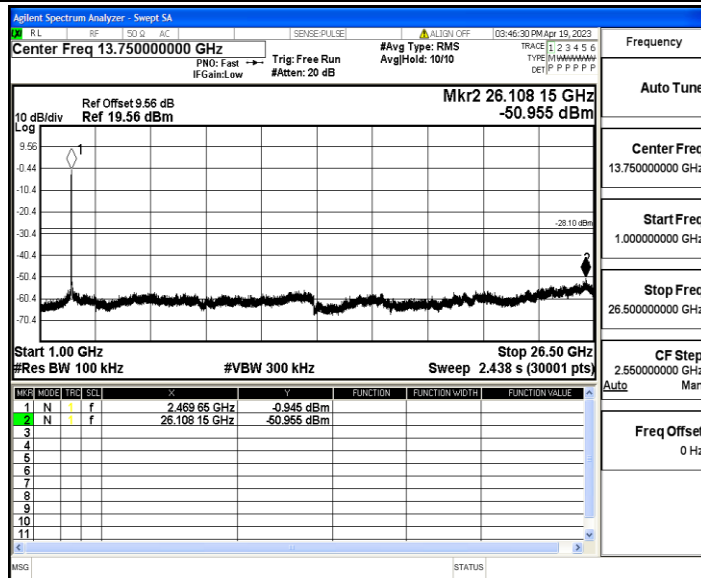
11N20SISO_Ant1_2462_0~Reference



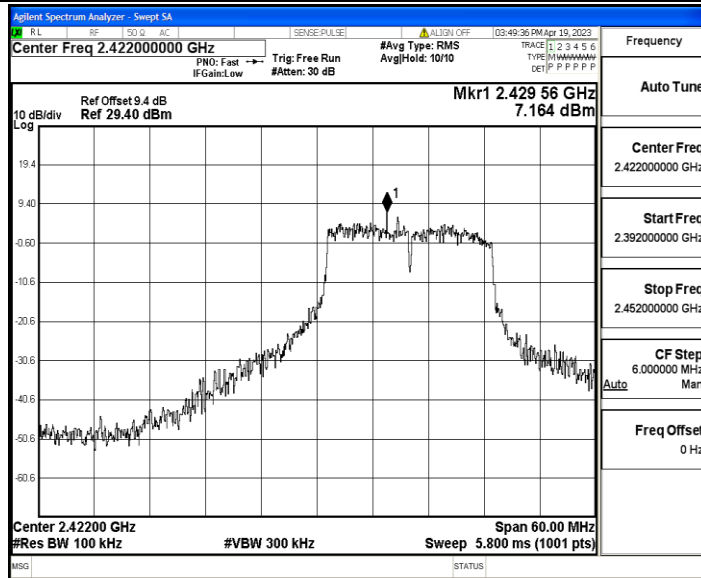
11N20SISO_Ant1_2462_30~1000



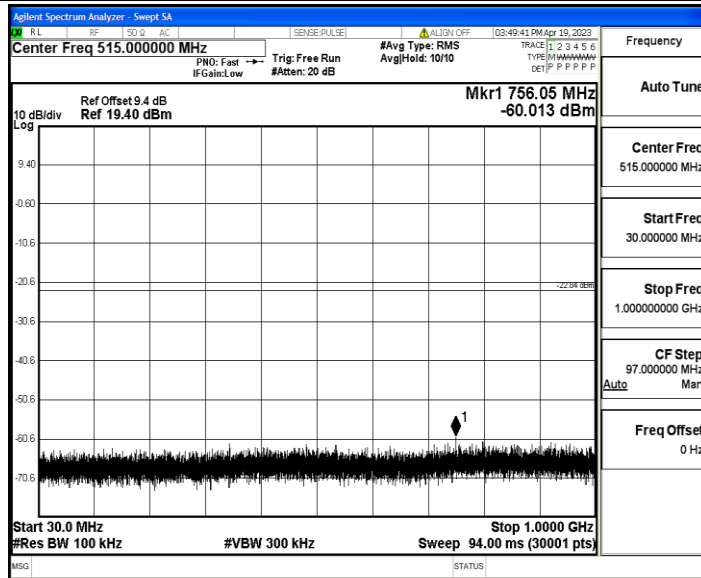
11N20SISO_Ant1_2462_1000~26500



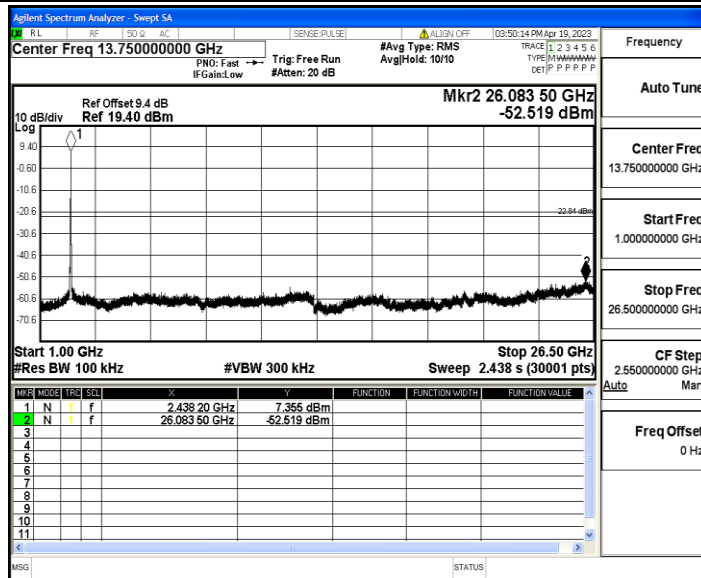
11N40SISO_Ant1_2422_0~Reference



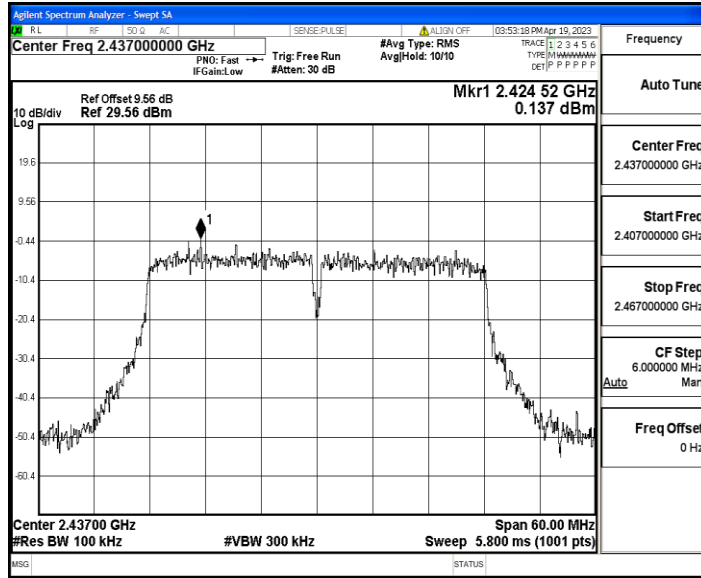
11N40SISO_Ant1_2422_30~1000



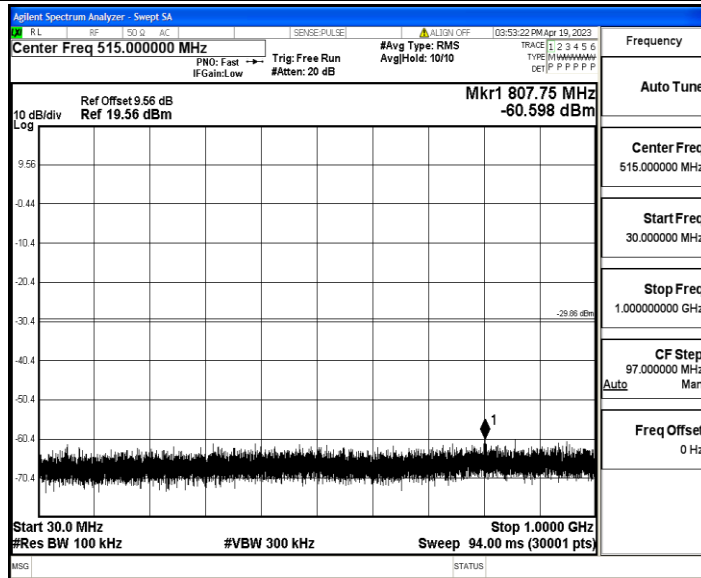
11N40SISO_Ant1_2422_1000~26500



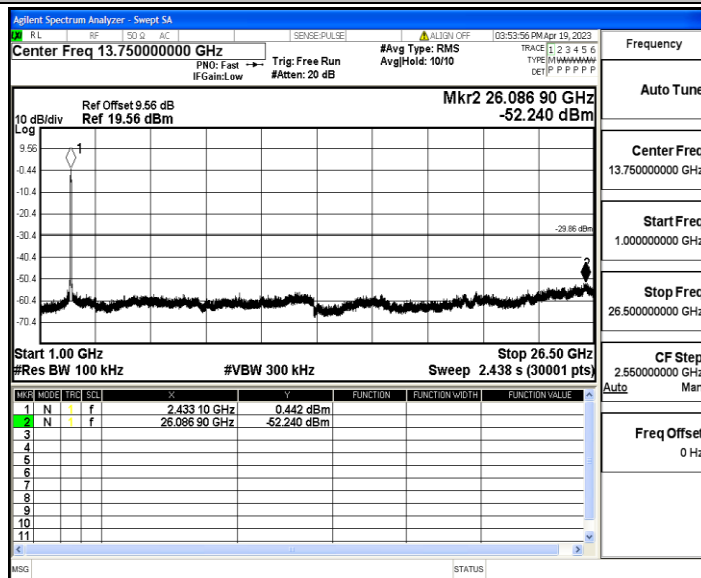
11N40SISO_Ant1_2437_0~Reference



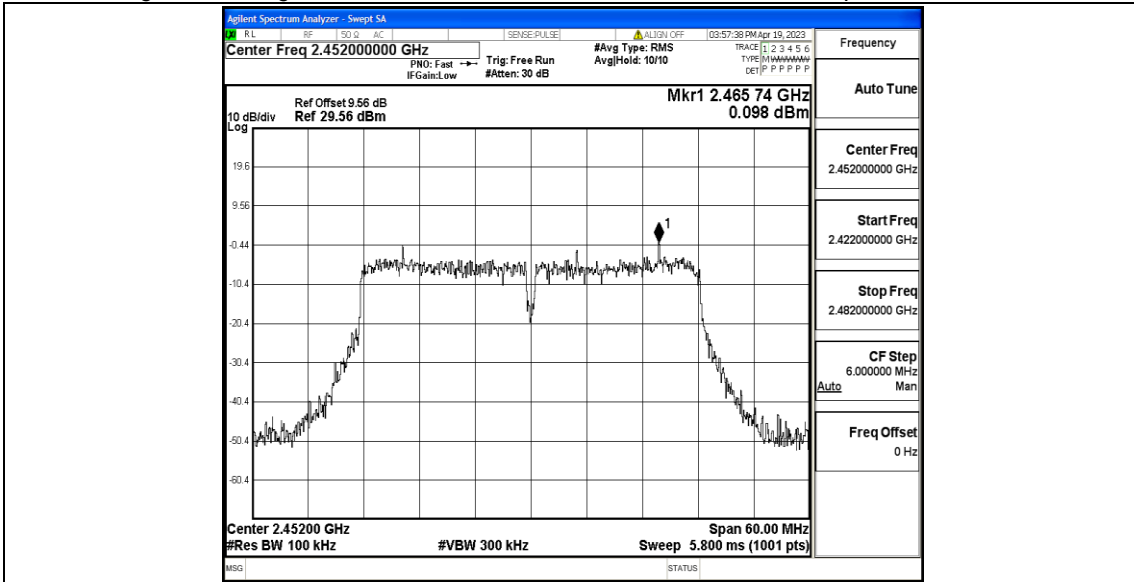
11N40SISO_Ant1_2437_30~1000



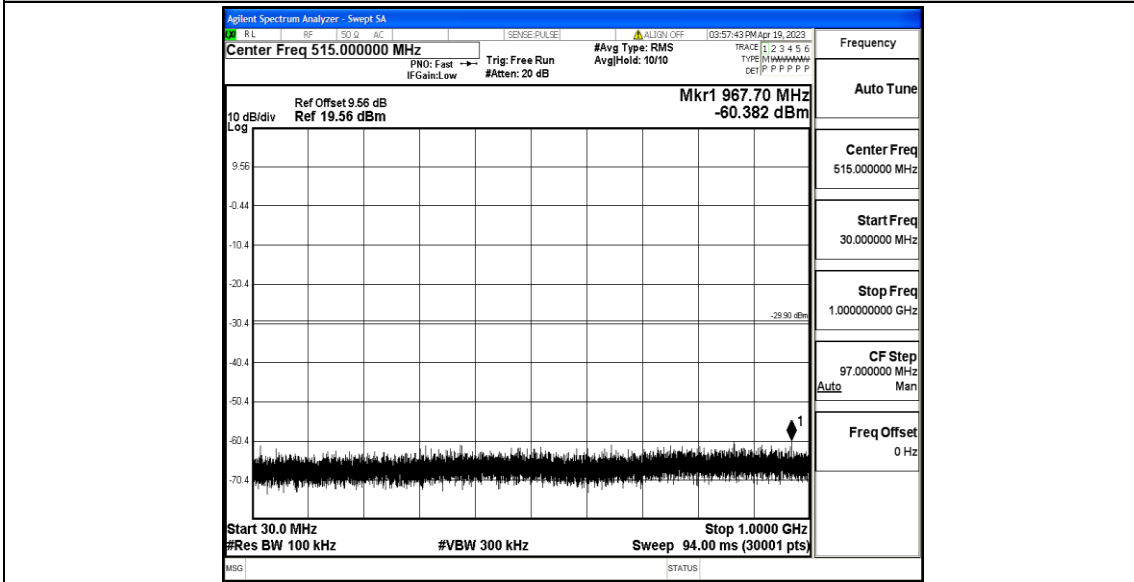
11N40SISO_Ant1_2437_1000~26500



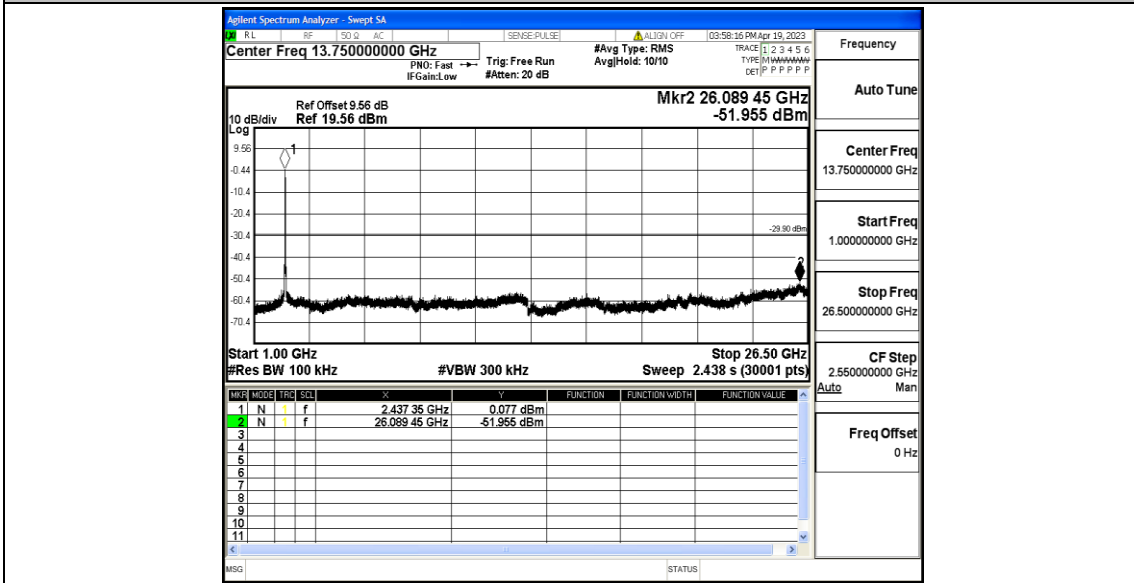
11N40SISO_Ant1_2452_0~Reference



11N40SISO_Ant1_2452_30~1000



11N40SISO_Ant1_2452_1000~26500

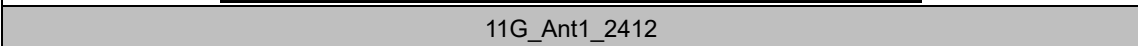
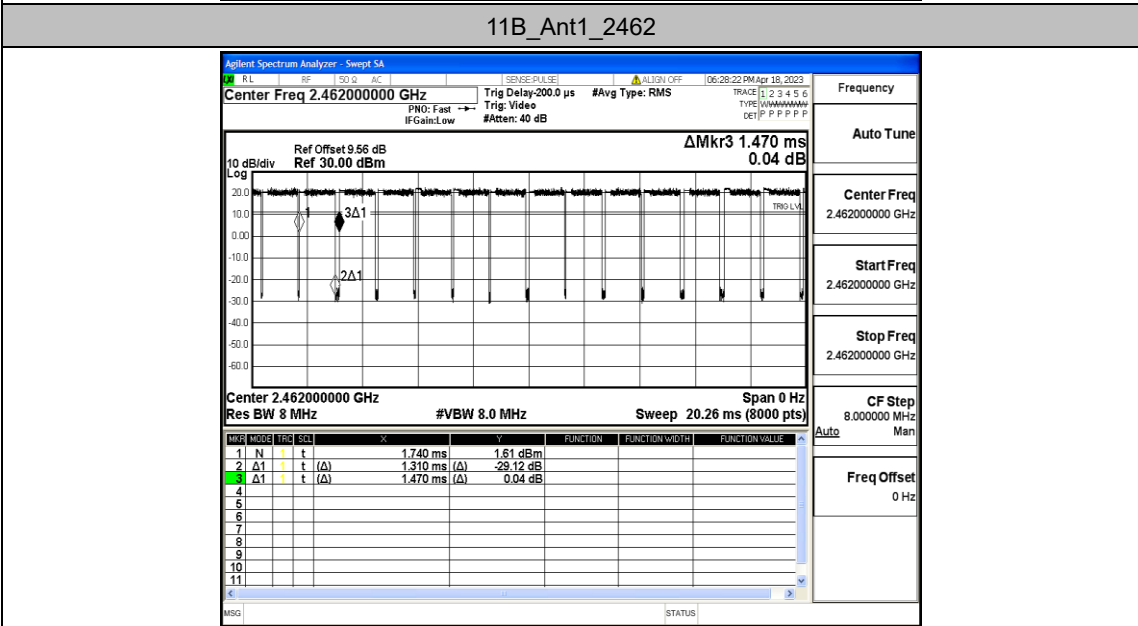
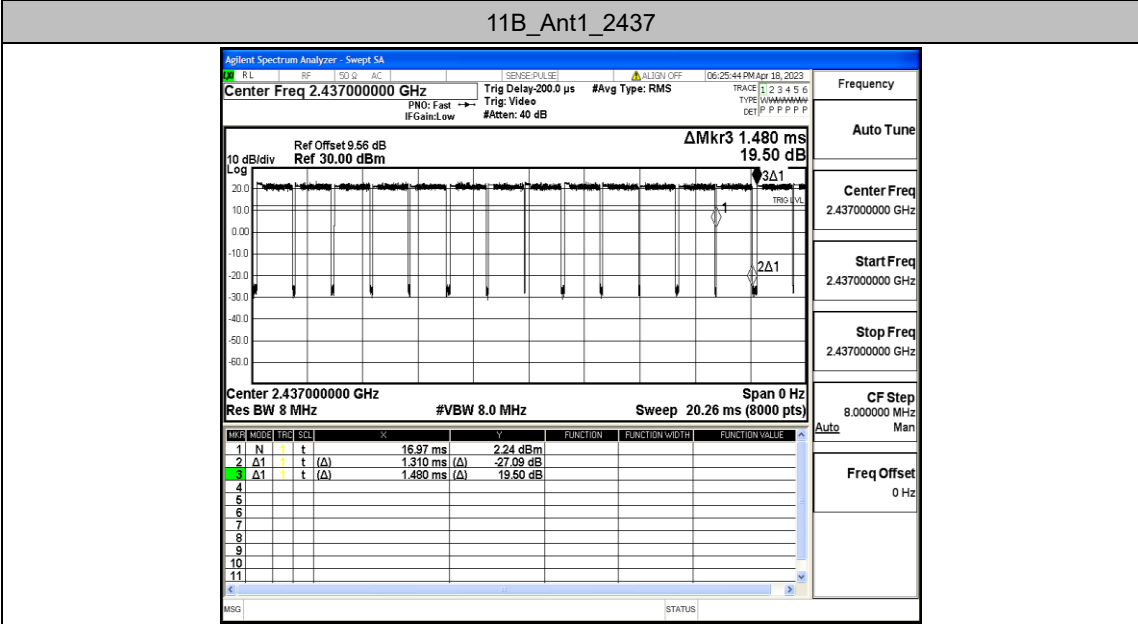
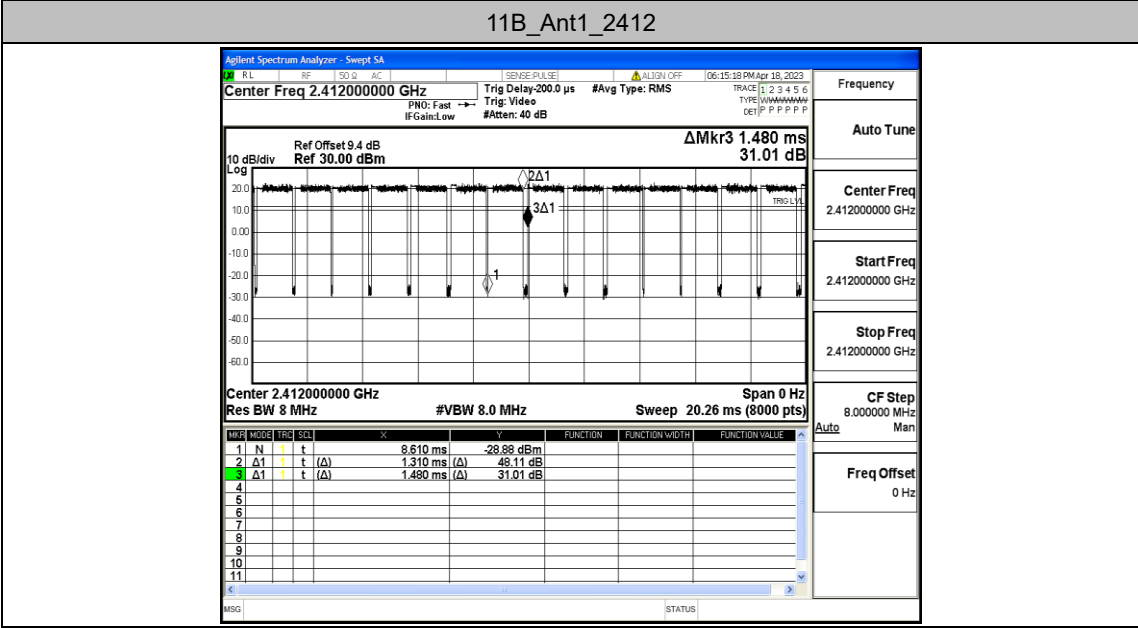


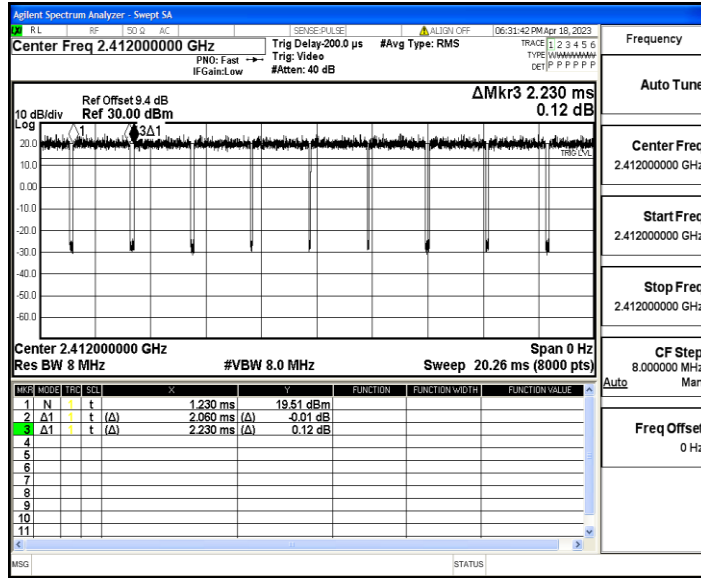
Appendix G: Duty Cycle

Test Result

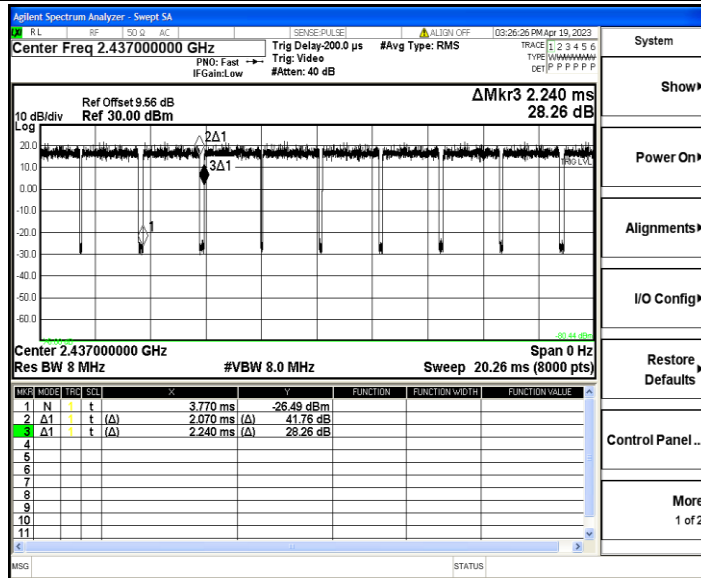
| TestMode | Antenna | Channel | Transmission Duration [ms] | Transmission Period [ms] | Duty Cycle [%] | 1/T[kHz] |
|-----------|---------|---------|----------------------------|--------------------------|----------------|----------|
| 11B | Ant1 | 2412 | 1.31 | 1.48 | 88.51 | 0.76 |
| | | 2437 | 1.31 | 1.48 | 88.51 | 0.76 |
| | | 2462 | 1.31 | 1.47 | 89.12 | 0.76 |
| 11G | Ant1 | 2412 | 2.06 | 2.23 | 92.38 | 0.49 |
| | | 2437 | 2.07 | 2.24 | 92.41 | 0.48 |
| | | 2462 | 2.07 | 2.24 | 92.41 | 0.48 |
| 11N20SISO | Ant1 | 2412 | 1.93 | 2.30 | 83.91 | 0.52 |
| | | 2437 | 1.92 | 2.09 | 91.87 | 0.52 |
| | | 2462 | 1.93 | 2.08 | 92.79 | 0.52 |
| 11N40SISO | Ant1 | 2422 | 1.92 | 2.09 | 91.87 | 0.52 |
| | | 2437 | 0.94 | 1.11 | 84.68 | 1.06 |
| | | 2452 | 0.95 | 1.10 | 86.36 | 1.05 |

Test Graphs

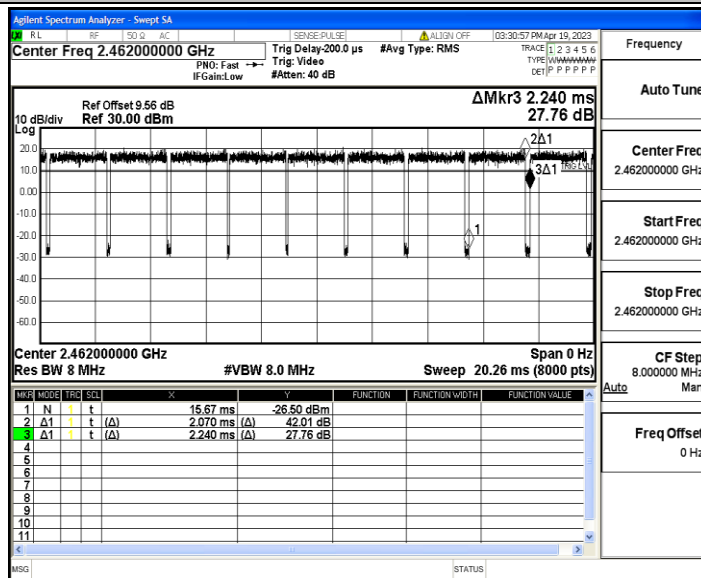




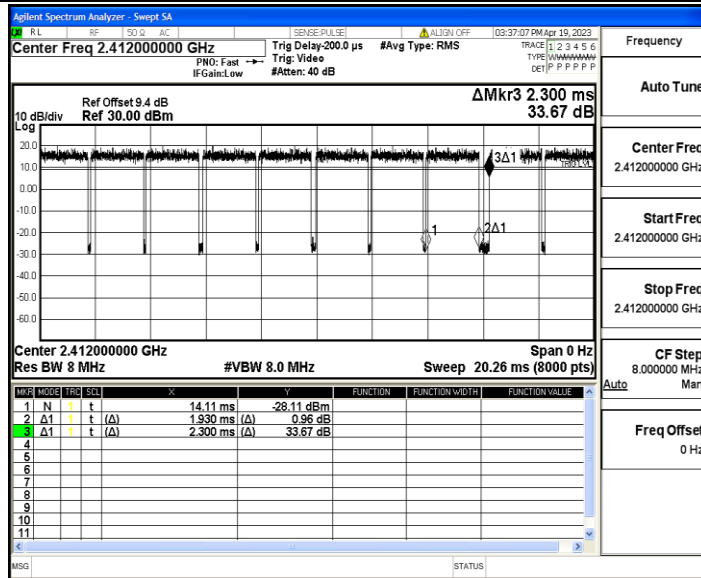
11G_Ant1_2437



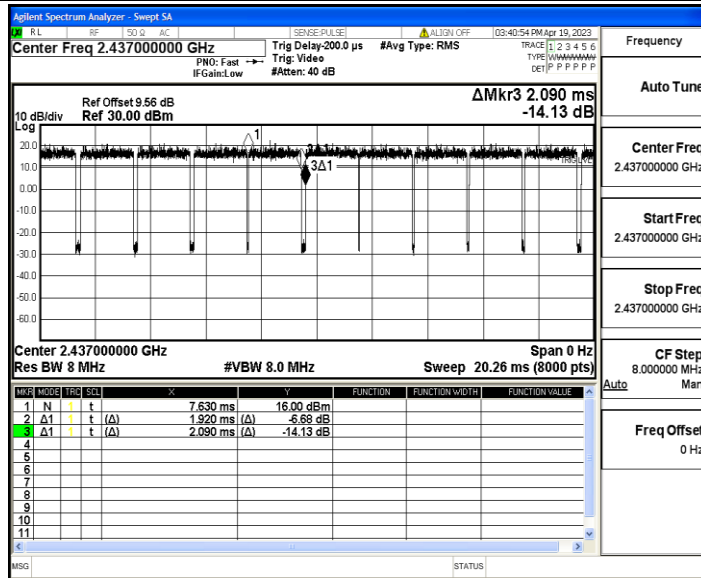
11G_Ant1_2462



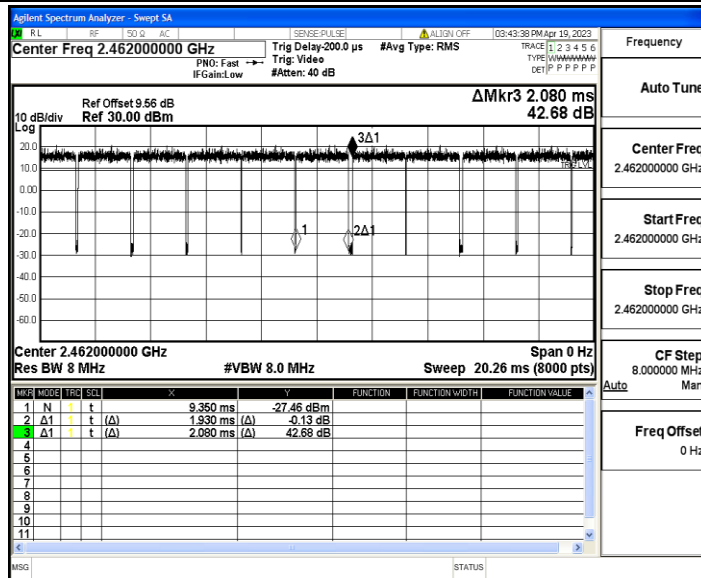
11N20SISO_Ant1_2412



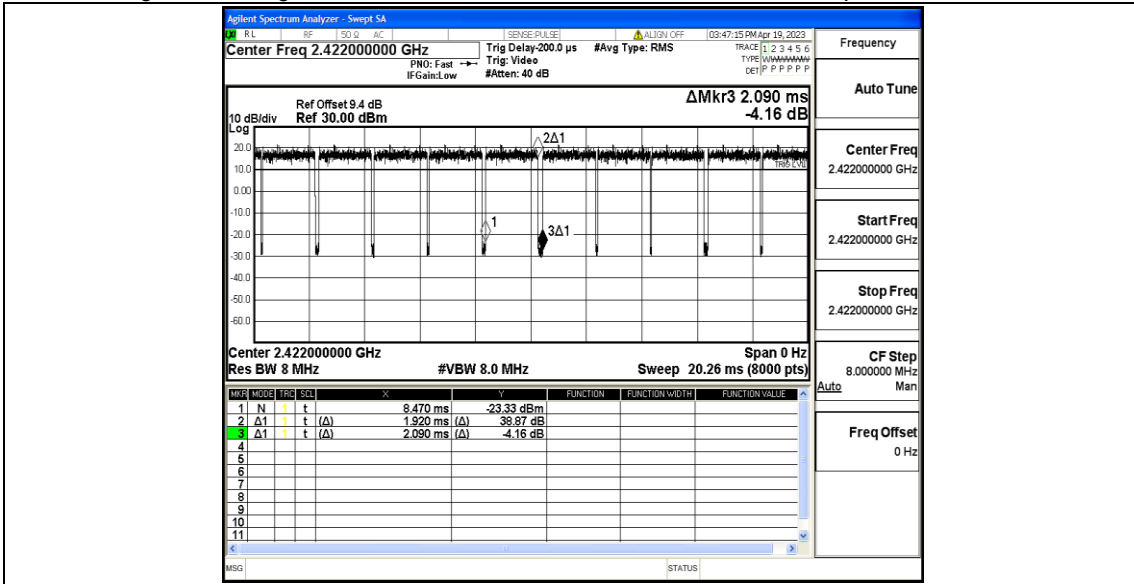
11N20SISO_Ant1_2437



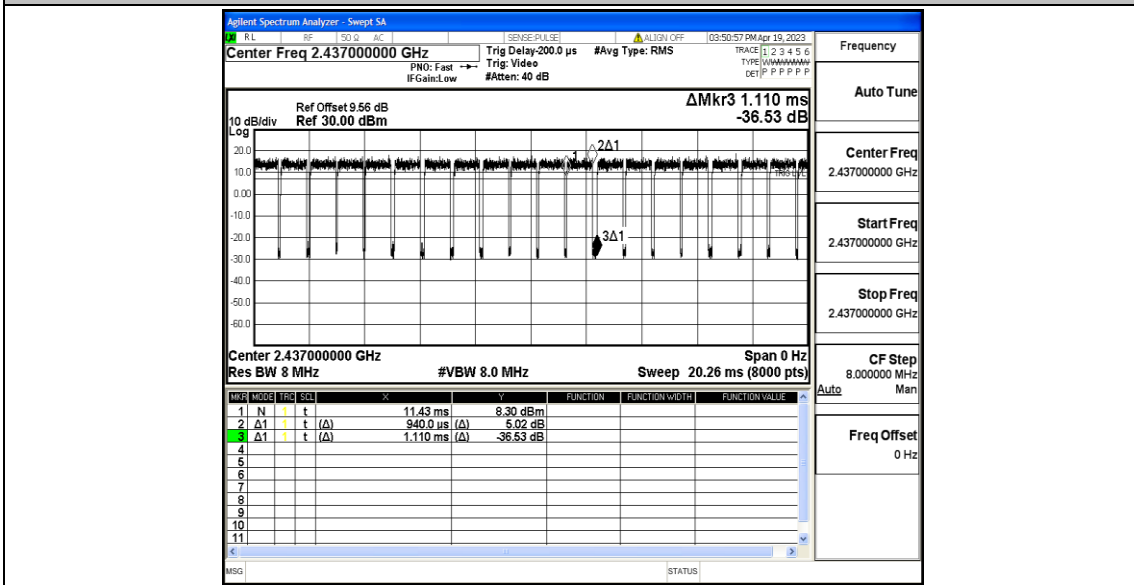
11N20SISO_Ant1_2462



11N40SISO_Ant1_2422



11N40SISO_Ant1_2437



11N40SISO_Ant1_2452

