

| |
|---|
| Case No. : <u>GTS20230822007-1-1</u> |
| Ambient Condition: <u>24</u> °C, <u>49</u> %RH, Atmos100.1Kpa, |
| Test Date: <u>2023.9.13</u> Test Engineer: <u>Evan ouyang</u> |

Appendix A.1: 20dB Emission Bandwidth

Test Result

| Test Mode | Antenna | Frequency[MHz] | 20db EBW[MHz] | FL[MHz] | FH[MHz] | Limit[MHz] | Verdict |
|-----------|---------|----------------|---------------|----------|----------|------------|---------|
| DH1 | Ant1 | 2402 | 0.972 | 2401.541 | 2402.513 | --- | --- |
| | | 2441 | 0.882 | 2440.547 | 2441.429 | --- | --- |
| | | 2480 | 0.867 | 2479.562 | 2480.429 | --- | --- |
| 2DH1 | Ant1 | 2402 | 1.236 | 2401.376 | 2402.612 | --- | --- |
| | | 2441 | 1.251 | 2440.358 | 2441.609 | --- | --- |
| | | 2480 | 1.278 | 2479.355 | 2480.633 | --- | --- |
| 3DH1 | Ant1 | 2402 | 1.266 | 2401.358 | 2402.624 | --- | --- |
| | | 2441 | 1.257 | 2440.367 | 2441.624 | --- | --- |
| | | 2480 | 1.251 | 2479.382 | 2480.633 | --- | --- |

Test Graphs



DH1_Ant1_2402



DH1_Ant1_2441



DH1_Ant1_2480



2DH1_Ant1_2402



2DH1_Ant1_2441



2DH1_Ant1_2480



3DH1_Ant1_2402



3DH1_Ant1_2441



3DH1_Ant1_2480

Appendix A.2: Occupied Channel Bandwidth

Test Result

| Test Mode | Antenna | Frequency[MHz] | OCB [MHz] | FL[MHz] | FH[MHz] | Limit[MHz] | Verdict |
|-----------|---------|----------------|-----------|----------|----------|------------|---------|
| DH1 | Ant1 | 2402 | 0.84677 | 2401.572 | 2402.419 | --- | --- |
| | | 2441 | 0.84263 | 2440.577 | 2441.419 | --- | --- |
| | | 2480 | 0.85423 | 2479.569 | 2480.423 | --- | --- |
| 2DH1 | Ant1 | 2402 | 1.1642 | 2401.403 | 2402.567 | --- | --- |
| | | 2441 | 1.1684 | 2440.405 | 2441.573 | --- | --- |
| | | 2480 | 1.1638 | 2479.408 | 2480.572 | --- | --- |
| 3DH1 | Ant1 | 2402 | 1.1584 | 2401.428 | 2402.586 | --- | --- |
| | | 2441 | 1.1637 | 2440.425 | 2441.589 | --- | --- |
| | | 2480 | 1.1635 | 2479.430 | 2480.594 | --- | --- |

Test Graphs



DH1_Ant1_2402



DH1_Ant1_2441



DH1_Ant1_2480



2DH1_Ant1_2402



2DH1_Ant1_2441



2DH1_Ant1_2480



3DH1_Ant1_2402



3DH1_Ant1_2441



3DH1_Ant1_2480

Appendix A.3: Maximum conducted output power

Test Result Peak

| Test Mode | Antenna | Frequency[MHz] | Conducted Peak Power[dBm] | Conducted Limit[dBm] | Verdict |
|-----------|---------|----------------|---------------------------|----------------------|---------|
| DH1 | Ant1 | 2402 | 5.83 | ≤20.97 | PASS |
| | | 2441 | 7.04 | ≤20.97 | PASS |
| | | 2480 | 5.93 | ≤20.97 | PASS |
| 2DH1 | Ant1 | 2402 | 7.12 | ≤20.97 | PASS |
| | | 2441 | 8.04 | ≤20.97 | PASS |
| | | 2480 | 6.9 | ≤20.97 | PASS |
| 3DH1 | Ant1 | 2402 | 7.29 | ≤20.97 | PASS |
| | | 2441 | 8.22 | ≤20.97 | PASS |
| | | 2480 | 7.26 | ≤20.97 | PASS |

Appendix A.4: Carrier frequency separation

Test Result

| Test Mode | Antenna | Frequency[MHz] | Result[MHz] | Limit[MHz] | Verdict |
|-----------|---------|----------------|-------------|--------------|---------|
| DH1 | Ant1 | Hop_2402 | 1.002 | ≥ 0.972 | PASS |
| | | Hop_2441 | 1.326 | ≥ 0.972 | PASS |
| | | Hop_2480 | 1.002 | ≥ 0.972 | PASS |
| 2DH1 | Ant1 | Hop_2402 | 1.322 | ≥ 0.852 | PASS |
| | | Hop_2441 | 1.17 | ≥ 0.852 | PASS |
| | | Hop_2480 | 1.326 | ≥ 0.852 | PASS |
| 3DH1 | Ant1 | Hop_2402 | 0.998 | ≥ 0.844 | PASS |
| | | Hop_2441 | 1.004 | ≥ 0.844 | PASS |
| | | Hop_2480 | 1 | ≥ 0.844 | PASS |

Test Graphs



DH1_Ant1_Hop_2402



DH1_Ant1_Hop_2441



DH1_Ant1_Hop_2480



2DH1_Ant1_Hop_2402



2DH1_Ant1_Hop_2441



2DH1_Ant1_Hop_2480



3DH1_Ant1_Hop_2402



3DH1_Ant1_Hop_2441



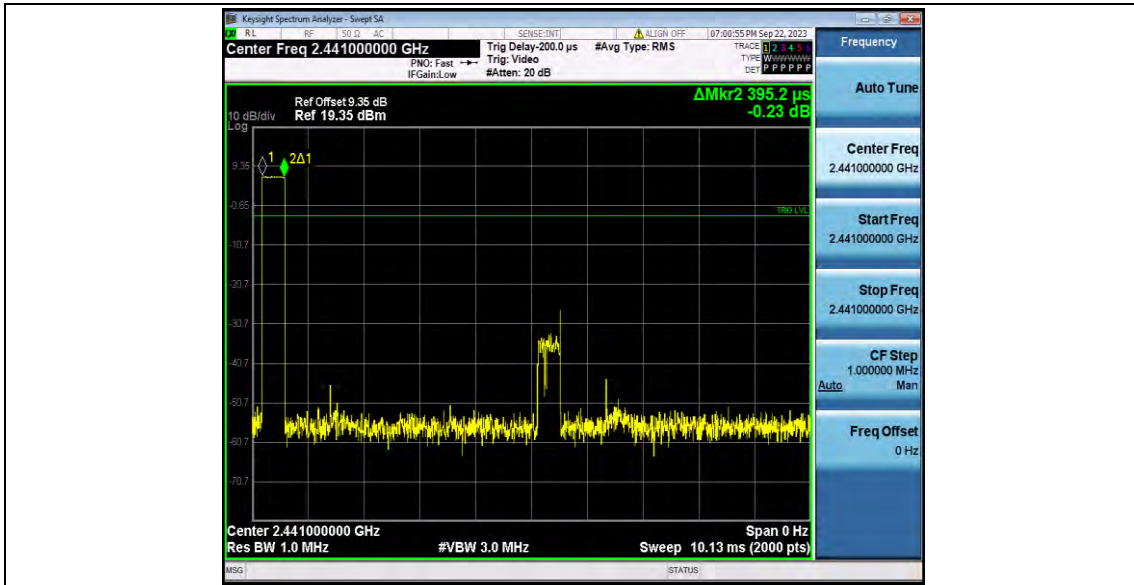
3DH1_Ant1_Hop_2480

Appendix A.5: Time of occupancy

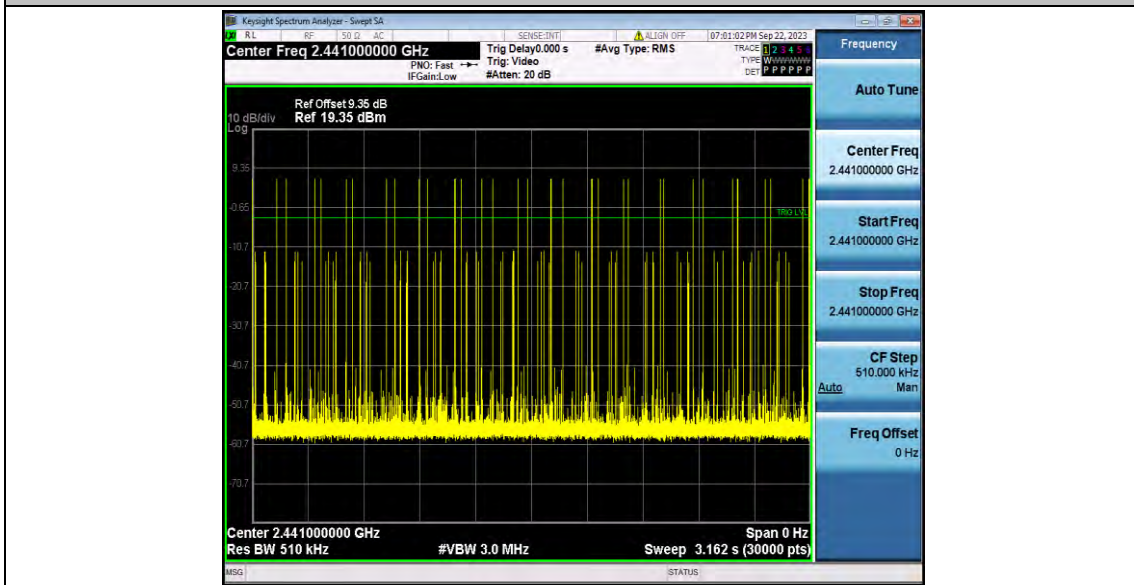
Test Result

| Test Mode | Antenna | Frequency[MHz] | BurstWidth [ms] | TotalHops [Num] | Result[s] | Limit[s] | Verdict |
|-----------|---------|----------------|-----------------|-----------------|-----------|----------|---------|
| DH1 | Ant1 | Hop | 0.40 | 330 | 0.13 | ≤0.4 | PASS |
| DH3 | Ant1 | Hop | 1.65 | 200 | 0.33 | ≤0.4 | PASS |
| DH5 | Ant1 | Hop | 2.90 | 100 | 0.29 | ≤0.4 | PASS |
| 2DH1 | Ant1 | Hop | 0.39 | 330 | 0.129 | ≤0.4 | PASS |
| 2DH3 | Ant1 | Hop | 1.64 | 150 | 0.246 | ≤0.4 | PASS |
| 2DH5 | Ant1 | Hop | 2.89 | 110 | 0.318 | ≤0.4 | PASS |
| 3DH1 | Ant1 | Hop | 0.39 | 320 | 0.125 | ≤0.4 | PASS |
| 3DH3 | Ant1 | Hop | 1.61 | 170 | 0.274 | ≤0.4 | PASS |
| 3DH5 | Ant1 | Hop | 2.89 | 130 | 0.375 | ≤0.4 | PASS |

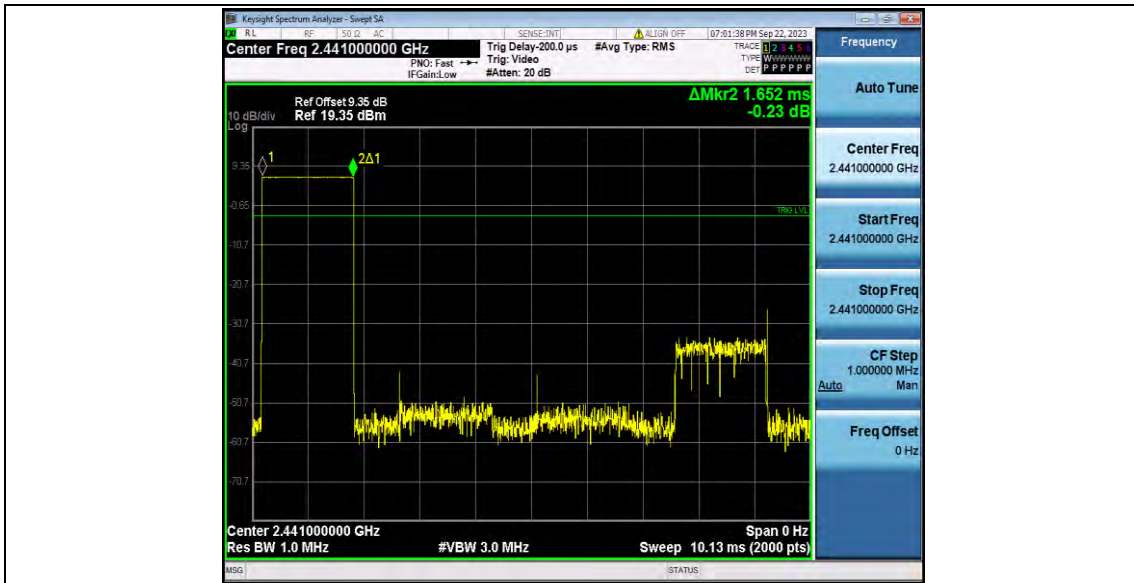
Test Graphs



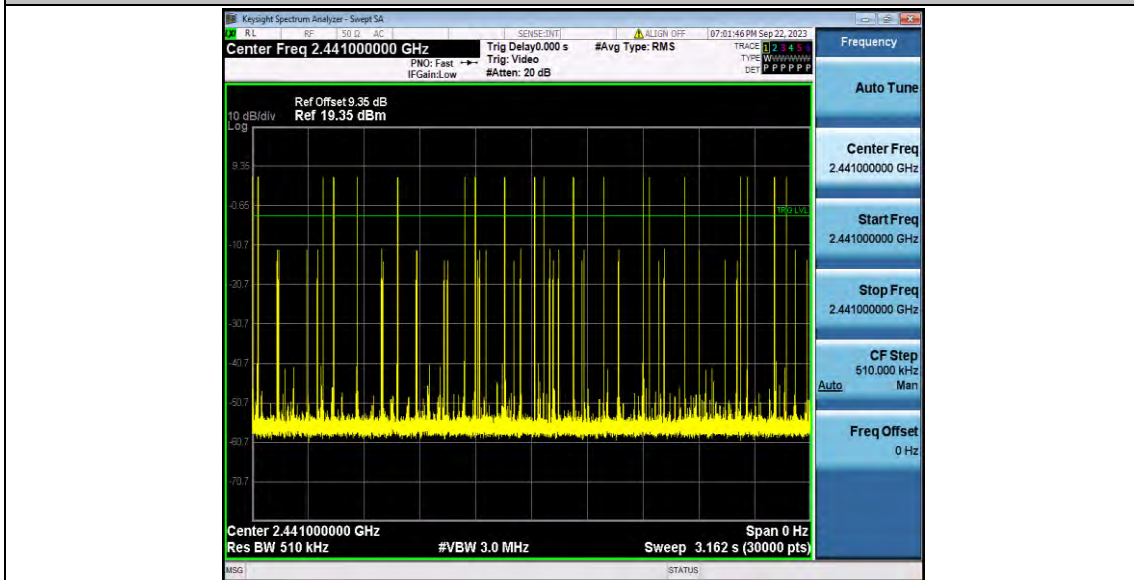
DH1_Ant1_Hop



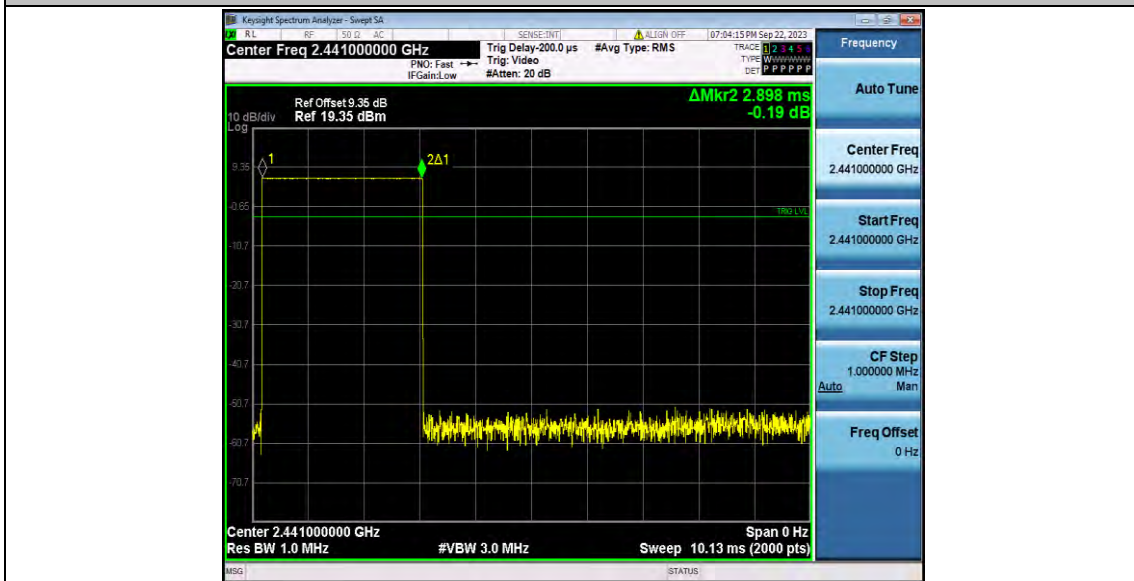
DH1_Ant1_Hop



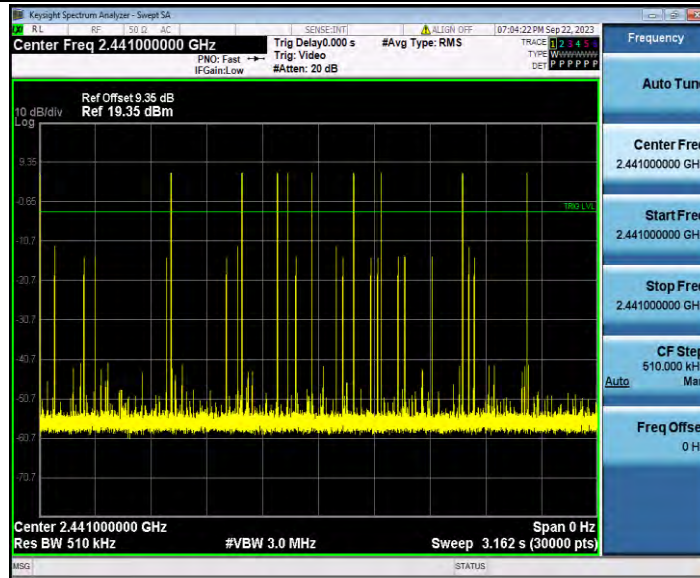
DH3_Ant1_Hop



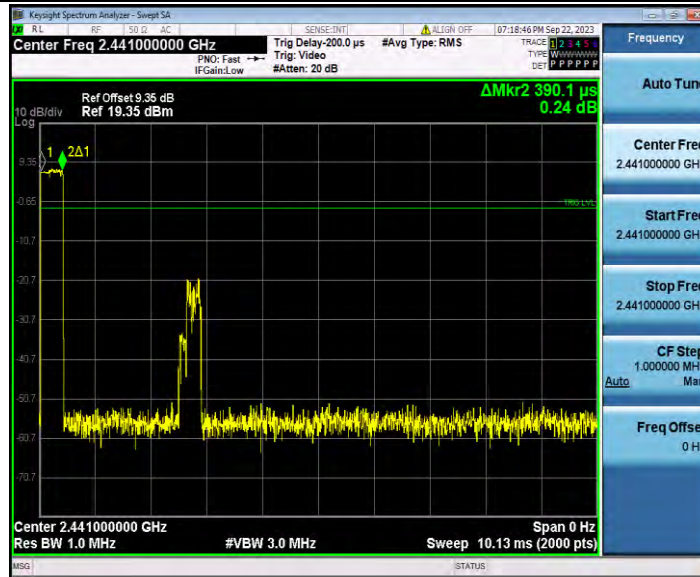
DH3_Ant1_Hop



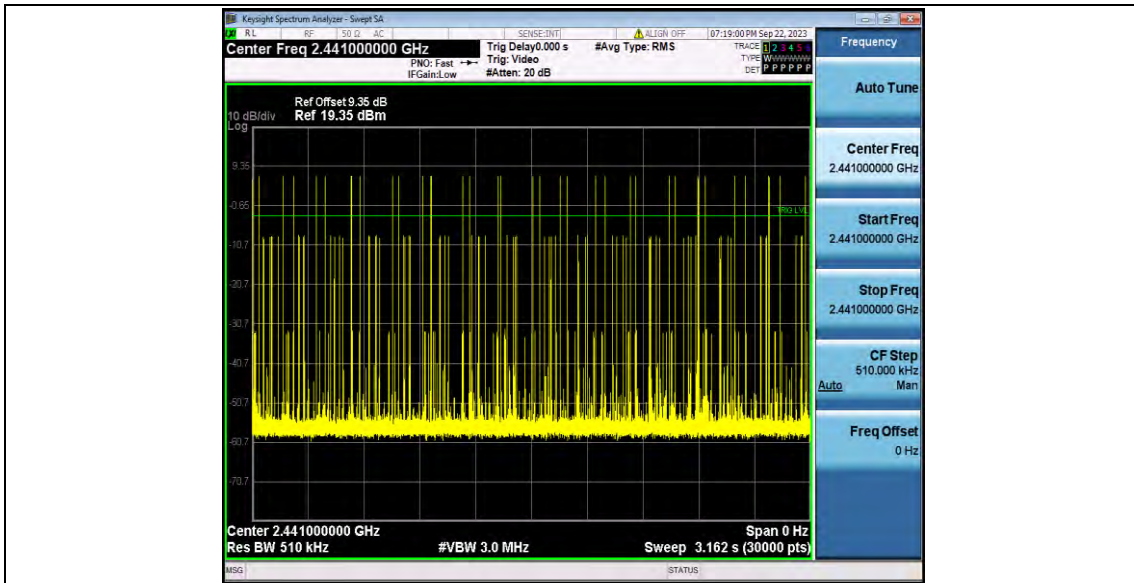
DH5_Ant1_Hop



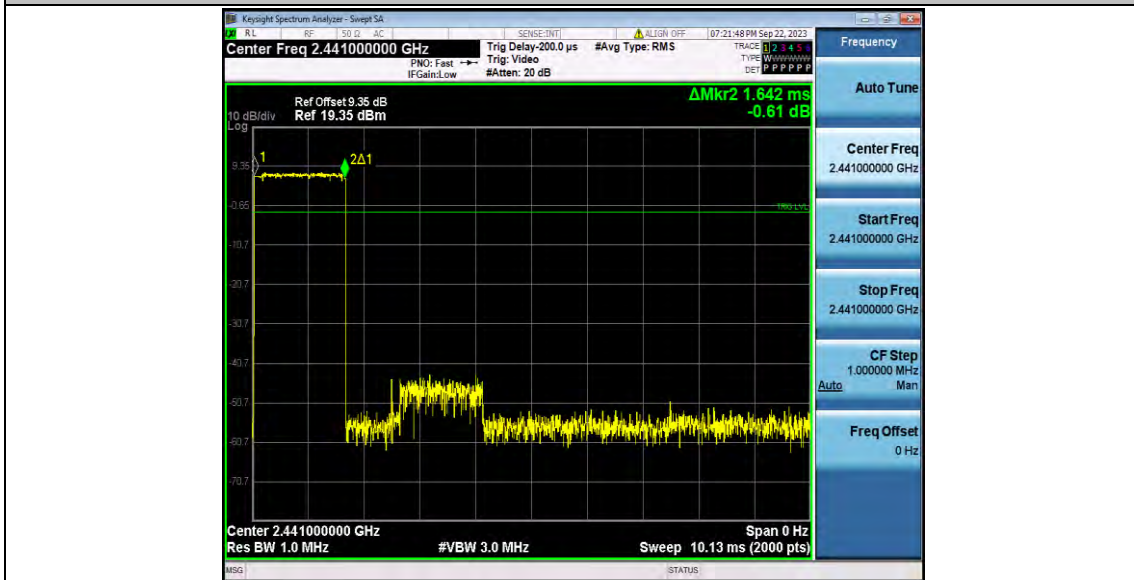
DH5_Ant1_Hop



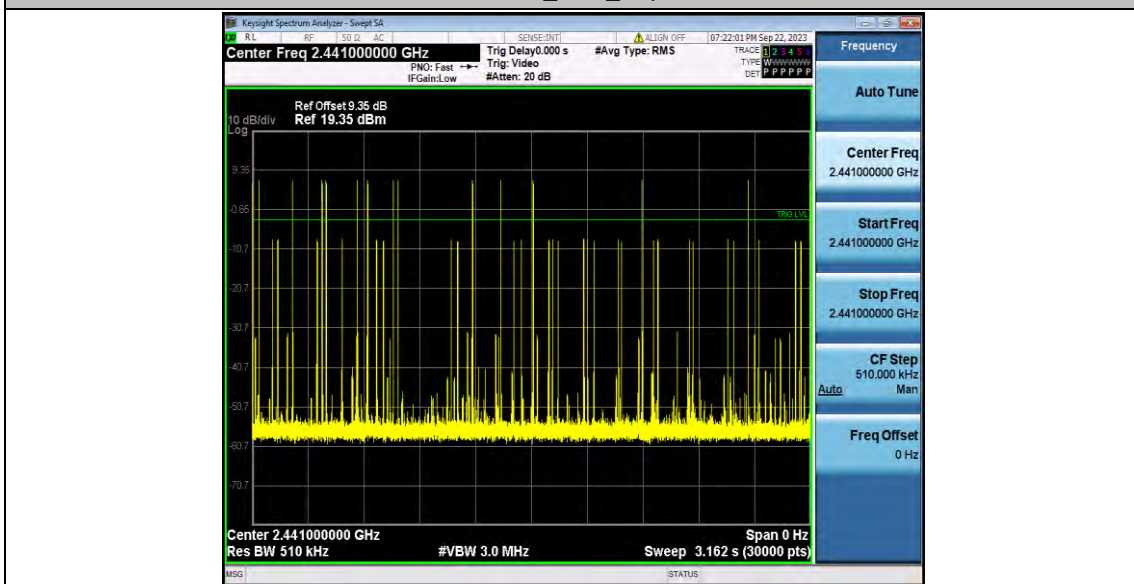
2DH1_Ant1_Hop



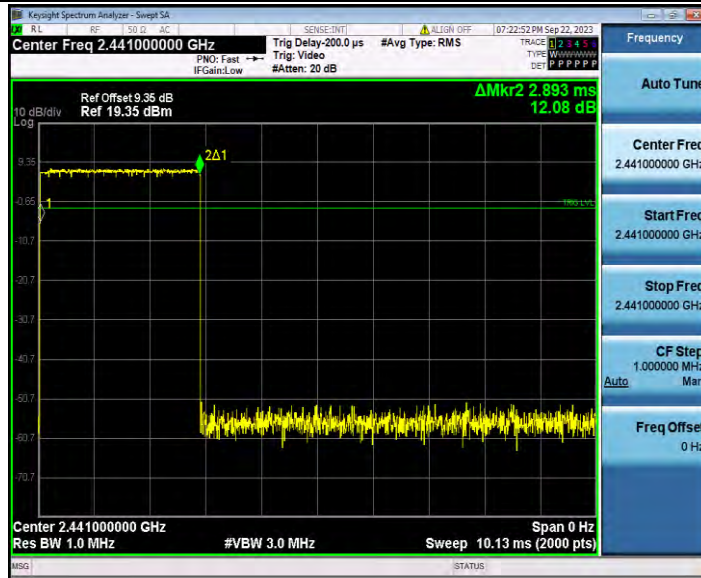
2DH1_Ant1_Hop



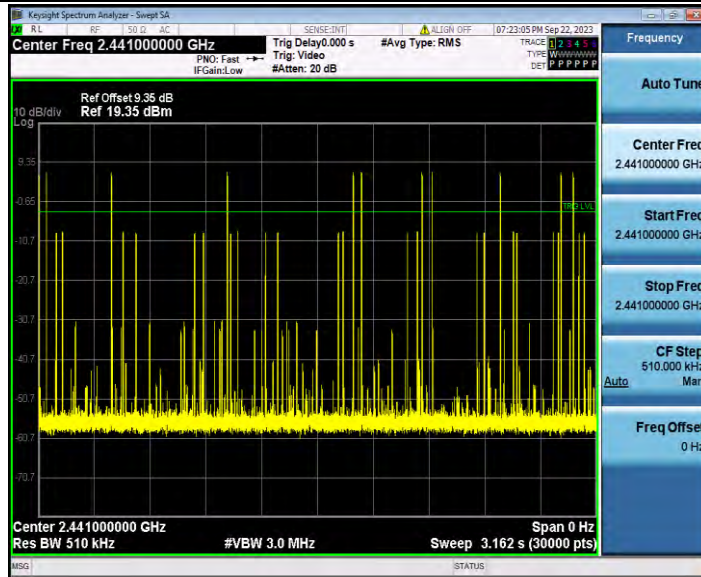
2DH3_Ant1_Hop



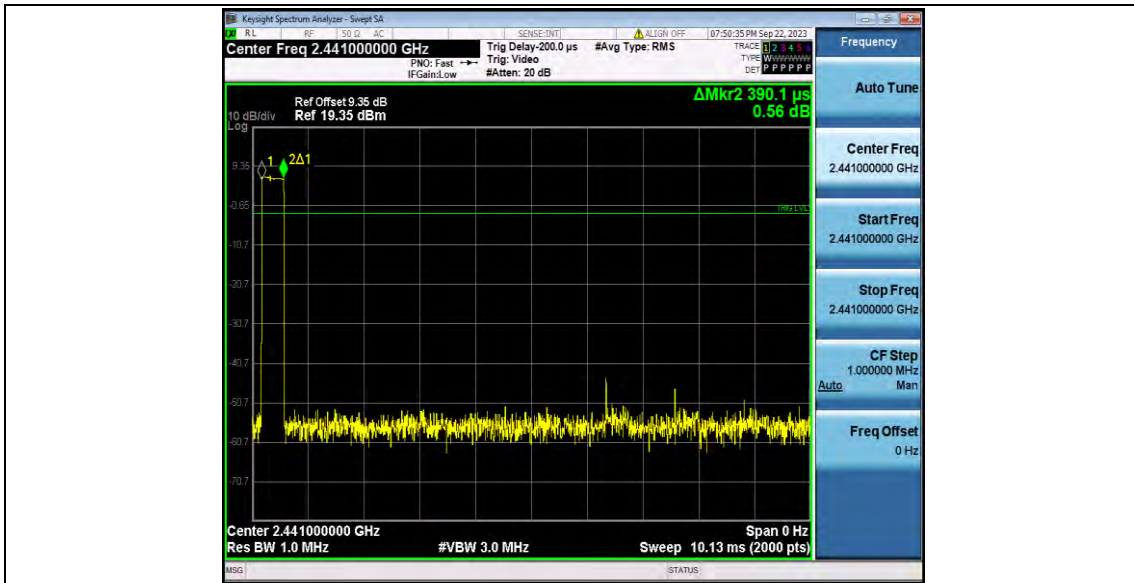
2DH3_Ant1_Hop



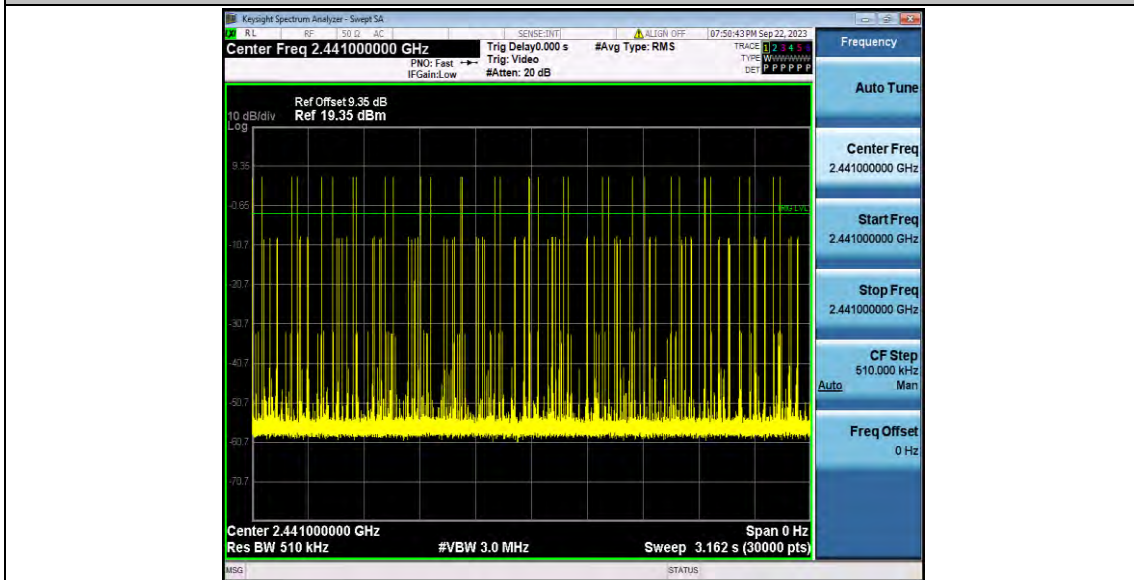
2DH5_Ant1_Hop



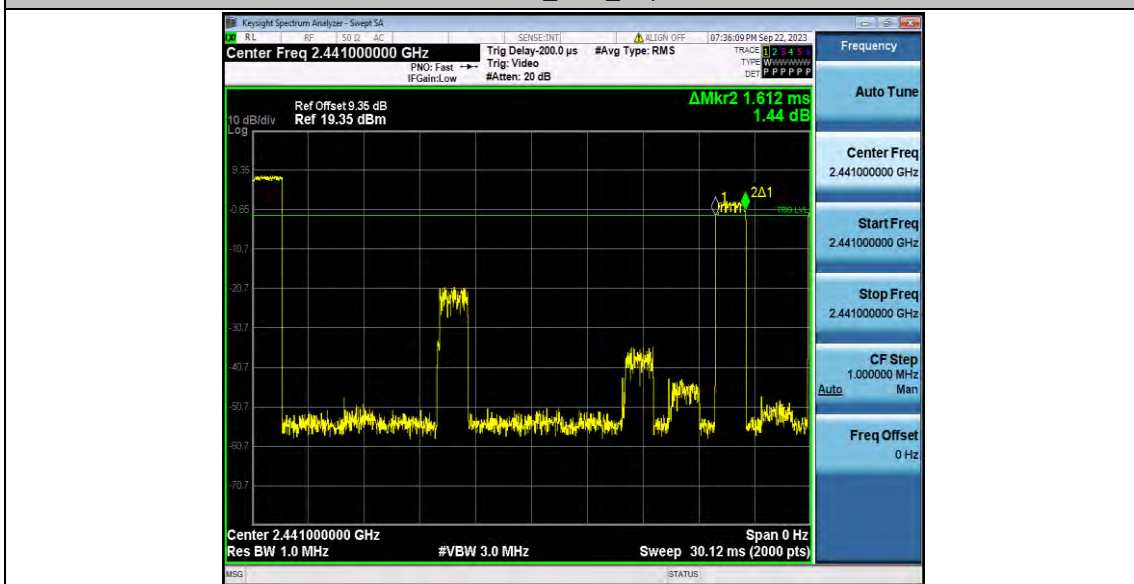
2DH5_Ant1_Hop



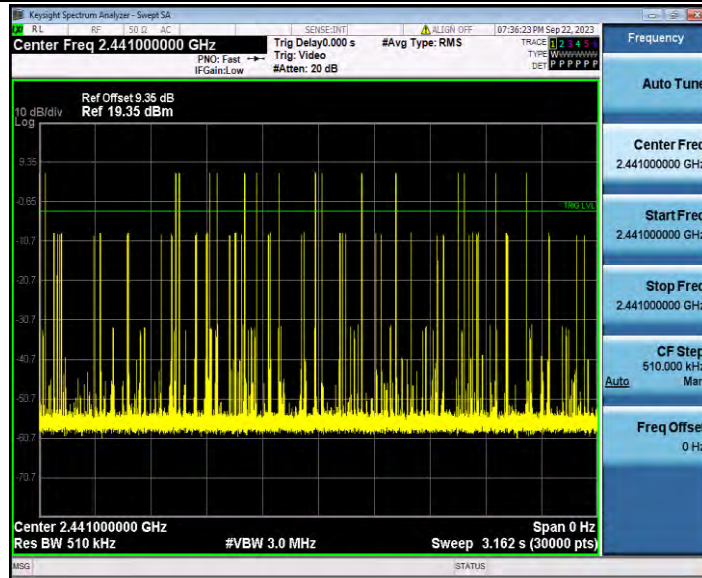
3DH1_Ant1_Hop



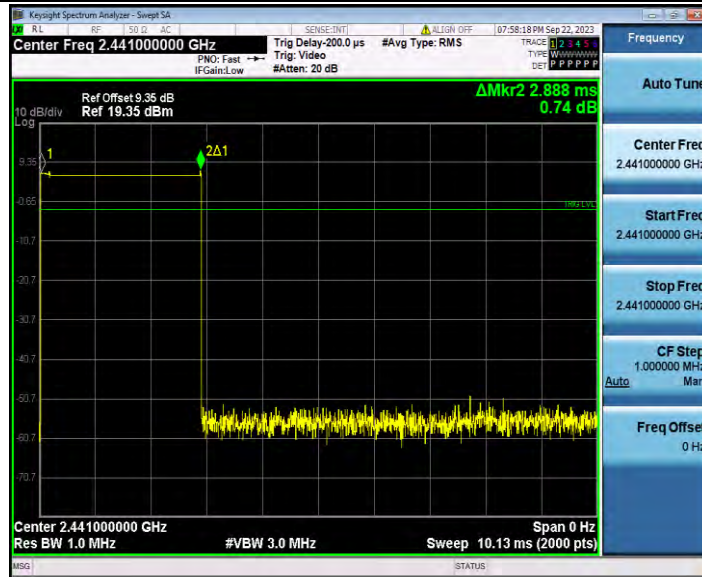
3DH1_Ant1_Hop



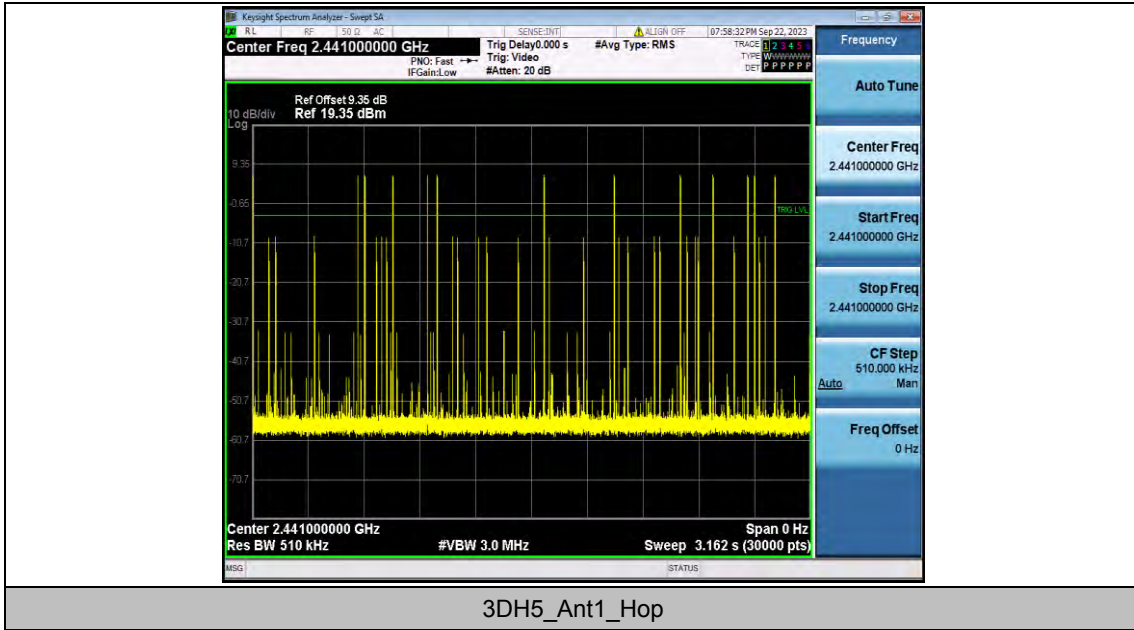
3DH3_Ant1_Hop



3DH3_Ant1_Hop



3DH5_Ant1_Hop



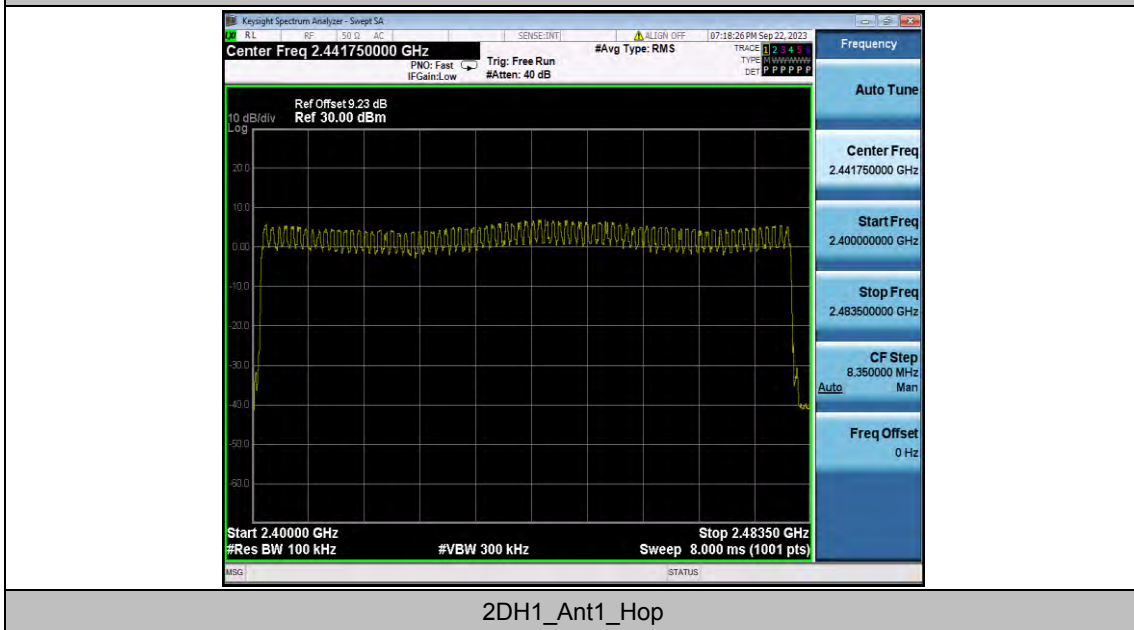
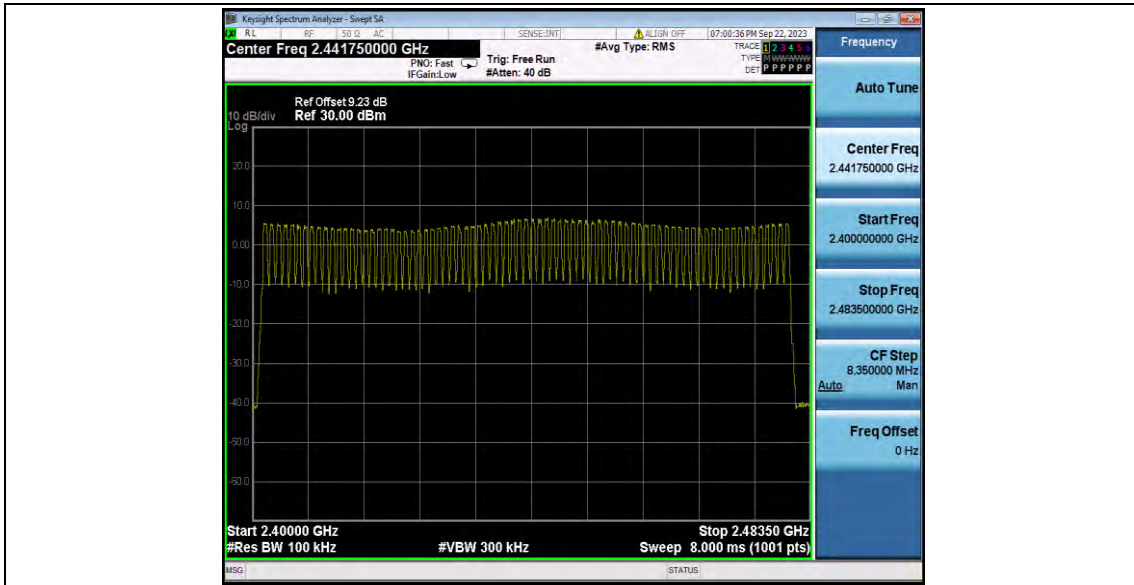
3DH5_Ant1_Hop

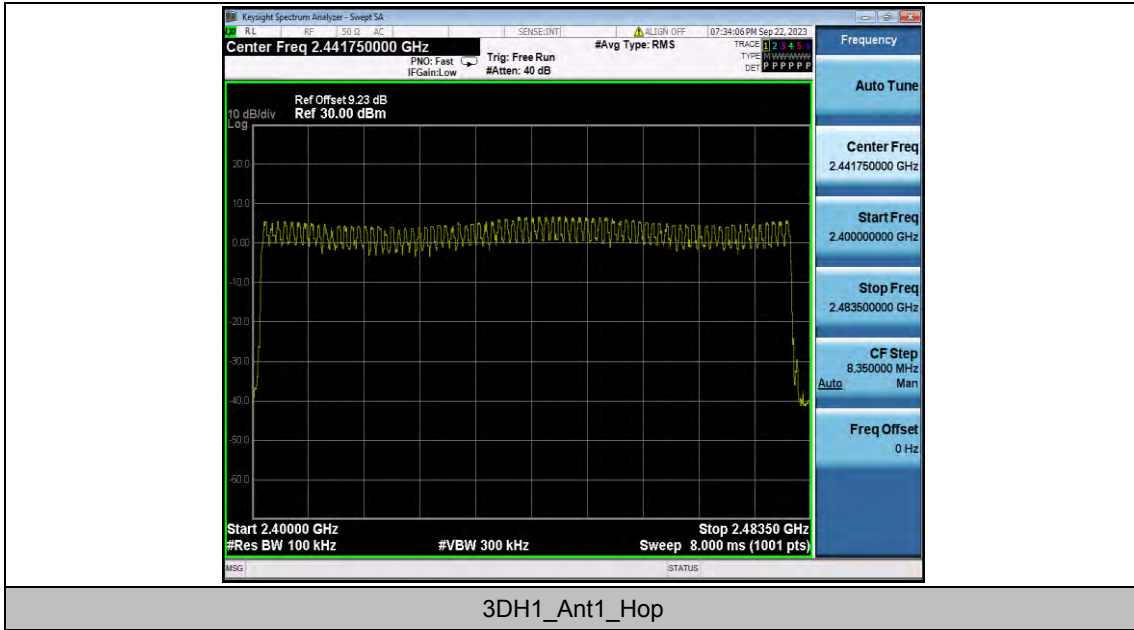
Appendix A.6: Number of hopping channels

Test Result

| Test Mode | Antenna | Frequency[MHz] | Result[Num] | Limit[Num] | Verdict |
|-----------|---------|----------------|-------------|------------|---------|
| DH1 | Ant1 | Hop | 79 | ≥15 | PASS |
| 2DH1 | Ant1 | Hop | 79 | ≥15 | PASS |
| 3DH1 | Ant1 | Hop | 79 | ≥15 | PASS |

Test Graphs



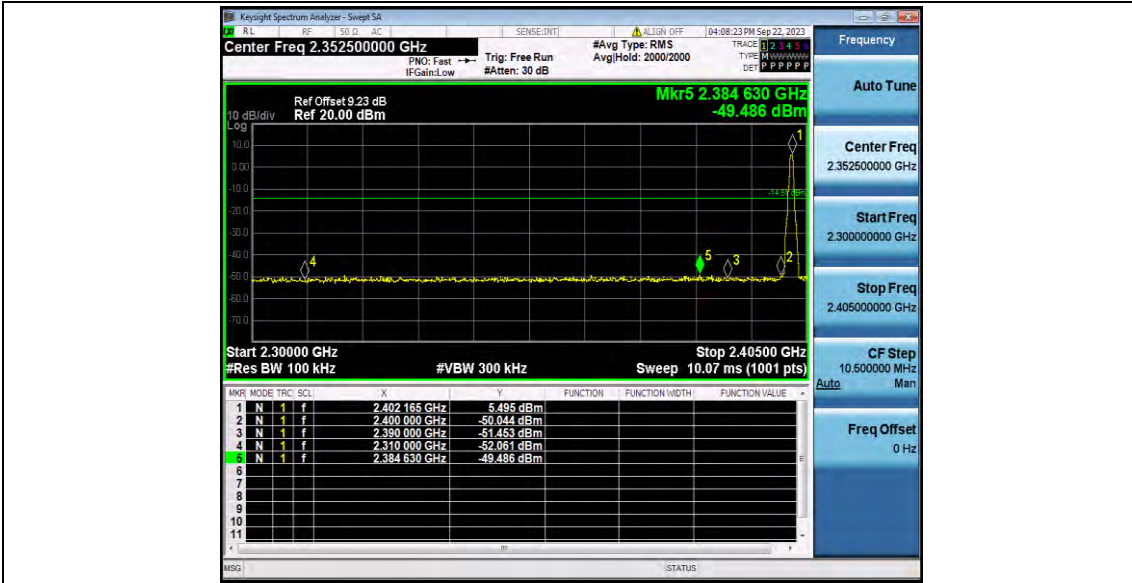


Appendix A.7: Band edge measurements

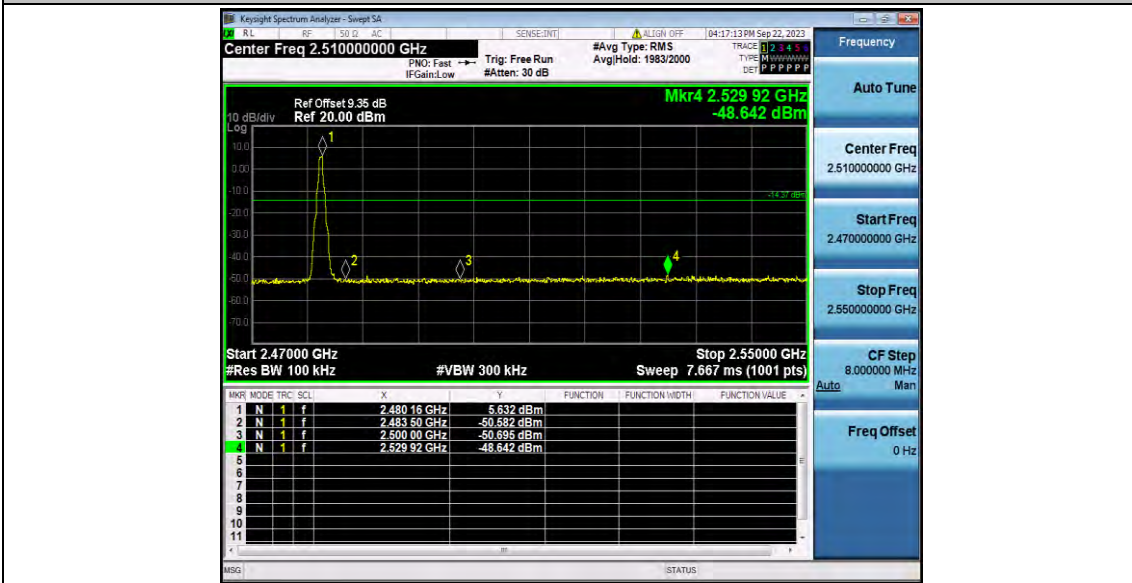
Test Result

| Test Mode | Antenna | ChName | Frequency[MHz] | RefLevel [dBm] | Result [dBm] | Limit [dBm] | Verdict |
|-----------|---------|--------|----------------|----------------|--------------|---------------|---------|
| DH1 | Ant1 | Low | 2402 | 5.50 | -49.49 | ≤ -14.51 | PASS |
| | | High | 2480 | 5.63 | -48.64 | ≤ -14.37 | PASS |
| | | Low | Hop_2402 | 5.30 | -49.22 | ≤ -14.7 | PASS |
| | | High | Hop_2480 | 5.31 | -42.94 | ≤ -14.69 | PASS |
| 2DH1 | Ant1 | Low | 2402 | 5.47 | -46.38 | ≤ -14.53 | PASS |
| | | High | 2480 | 5.63 | -29.5 | ≤ -14.37 | PASS |
| | | Low | Hop_2402 | 5.23 | -42.99 | ≤ -14.77 | PASS |
| | | High | Hop_2480 | 4.50 | -36.99 | ≤ -15.5 | PASS |
| 3DH1 | Ant1 | Low | 2402 | 5.44 | -47.37 | ≤ -14.56 | PASS |
| | | High | 2480 | 5.80 | -43.96 | ≤ -14.2 | PASS |
| | | Low | Hop_2402 | 5.26 | -49.55 | ≤ -14.74 | PASS |
| | | High | Hop_2480 | 4.98 | -37.62 | ≤ -15.02 | PASS |

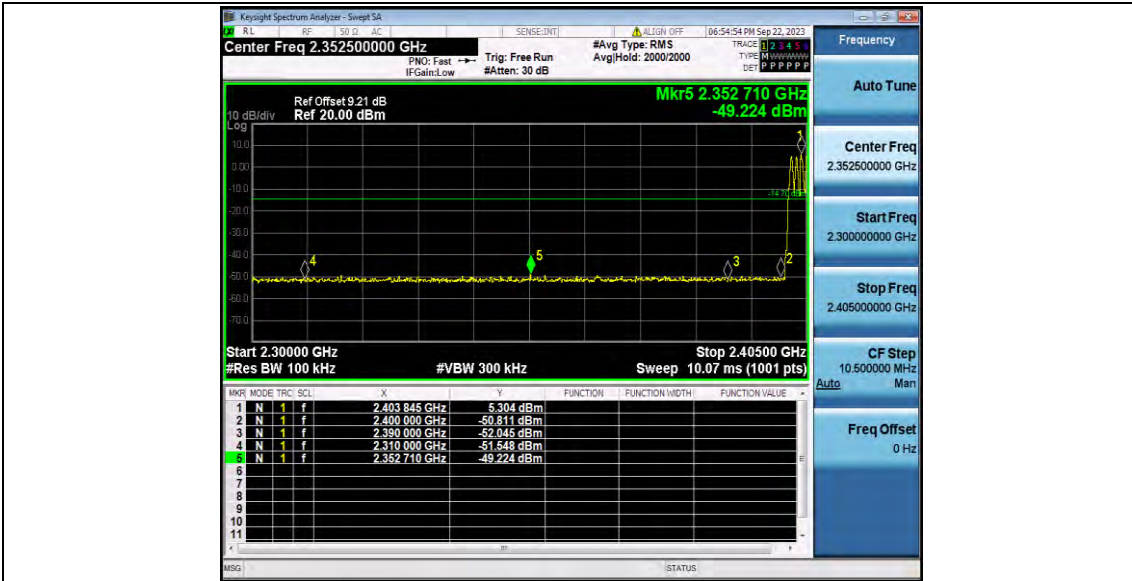
Test Graphs



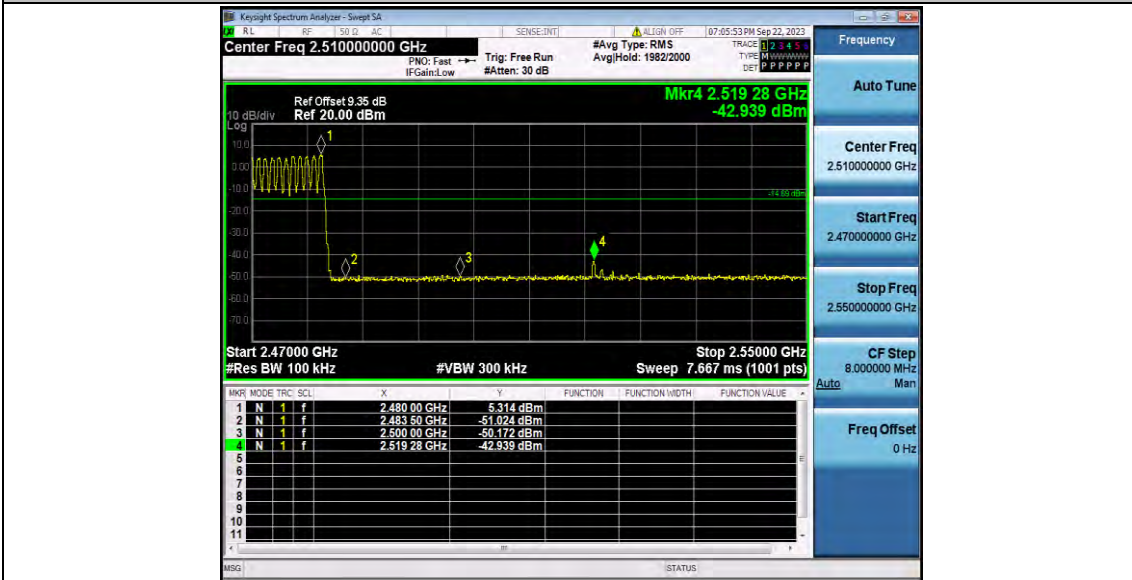
DH1_Ant1_Low_2402



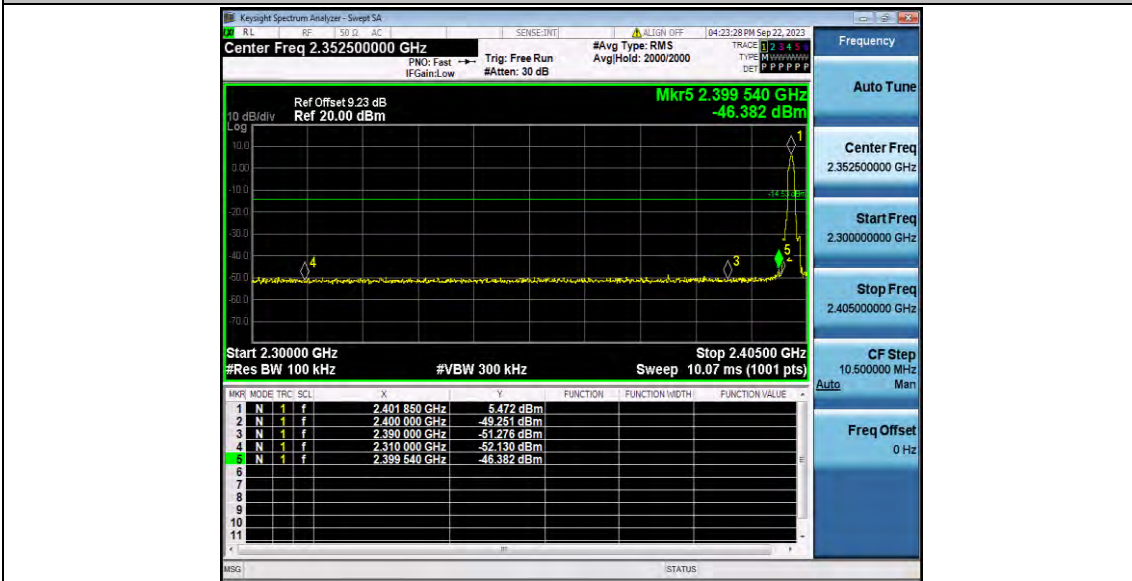
DH1_Ant1_High_2480



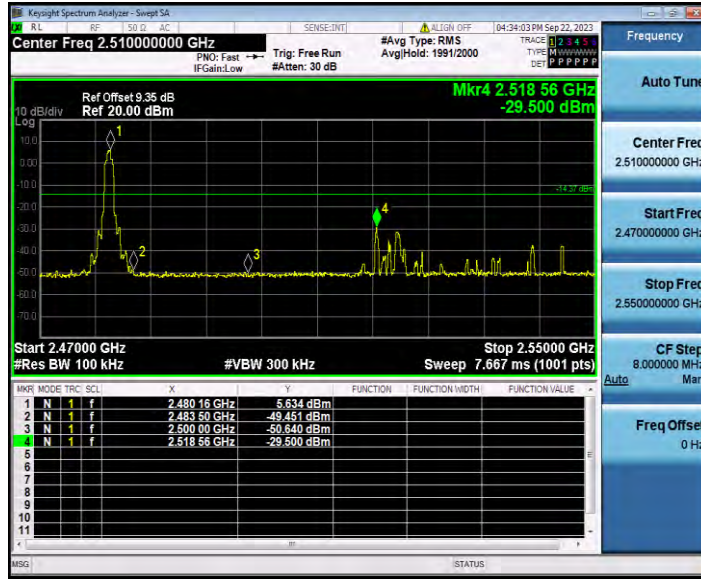
DH1_Ant1_Low_Hop_2402



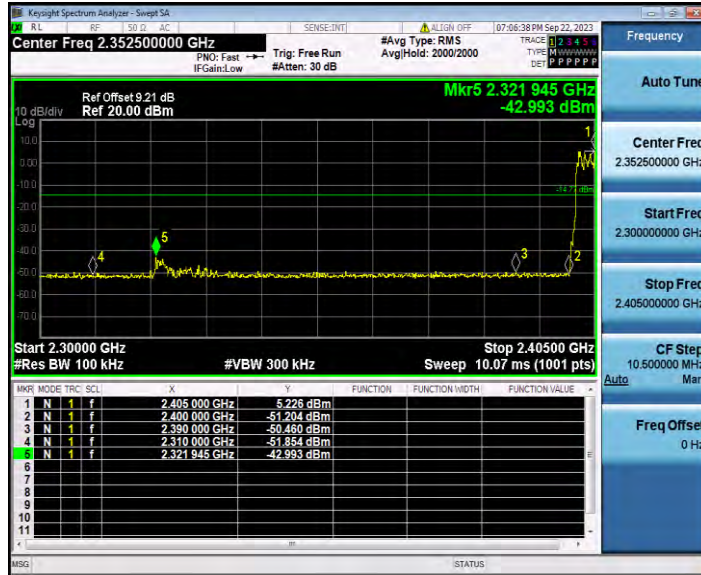
DH1_Ant1_High_Hop_2480



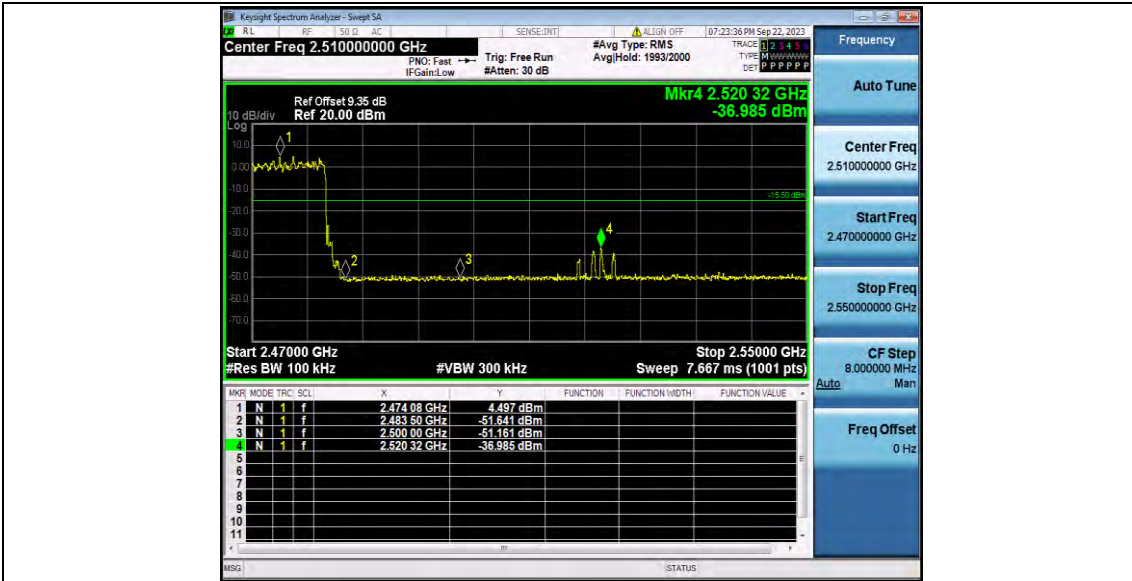
2DH1_Ant1_Low_2402



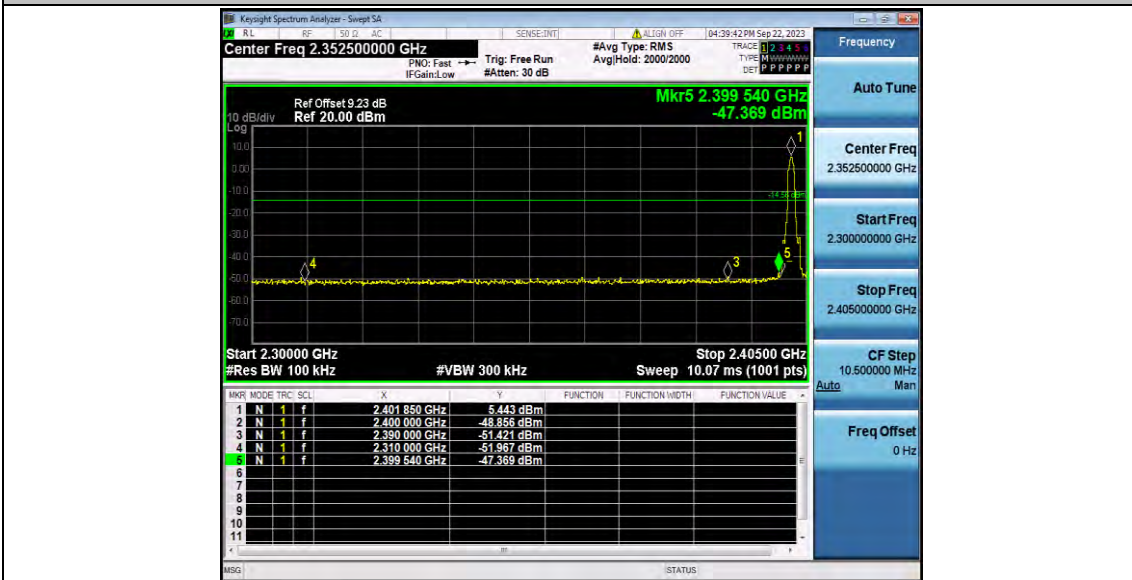
2DH1_Ant1_High_2480



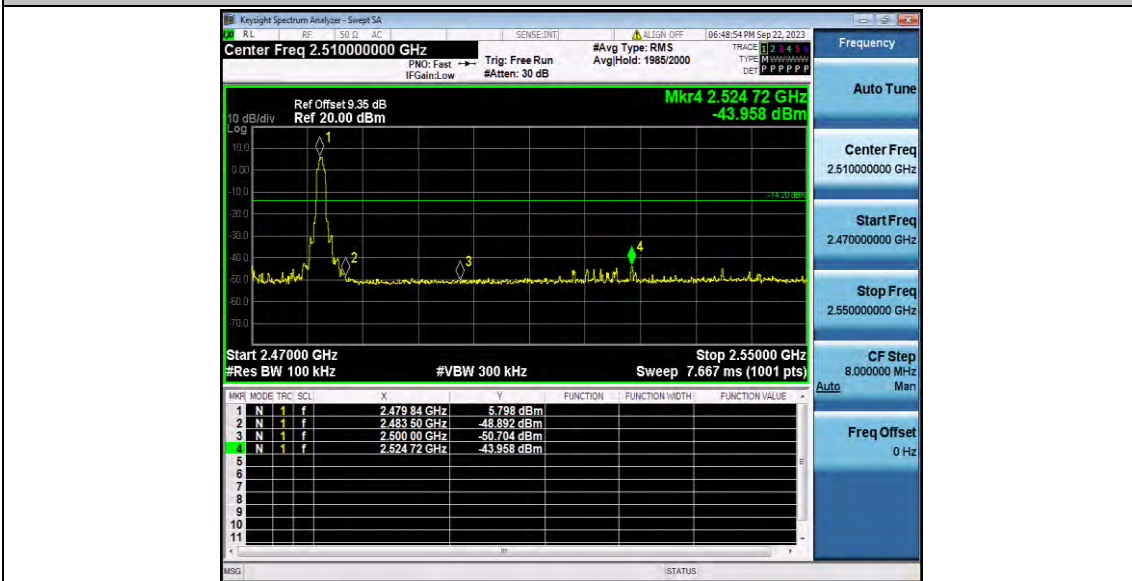
2DH1_Ant1_Low_Hop_2402



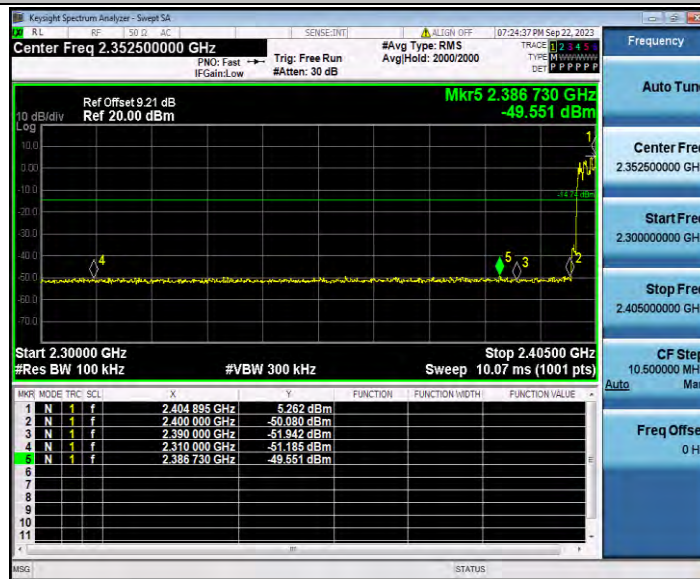
2D11_Ant1_High_Hop_2480



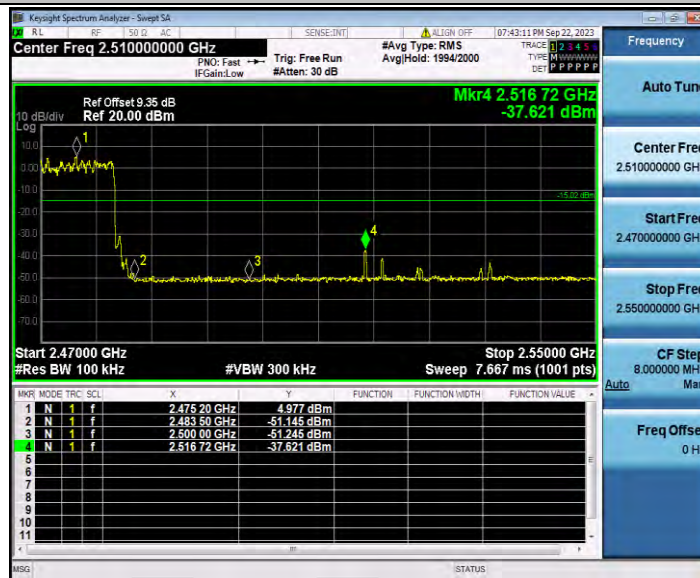
3D11_Ant1_Low_2402



3DH1_Ant1_High_2480



3DH1_Ant1_Low_Hop_2402



3DH1_Ant1_High_Hop_2480

Appendix A.8: Conducted Spurious Emission

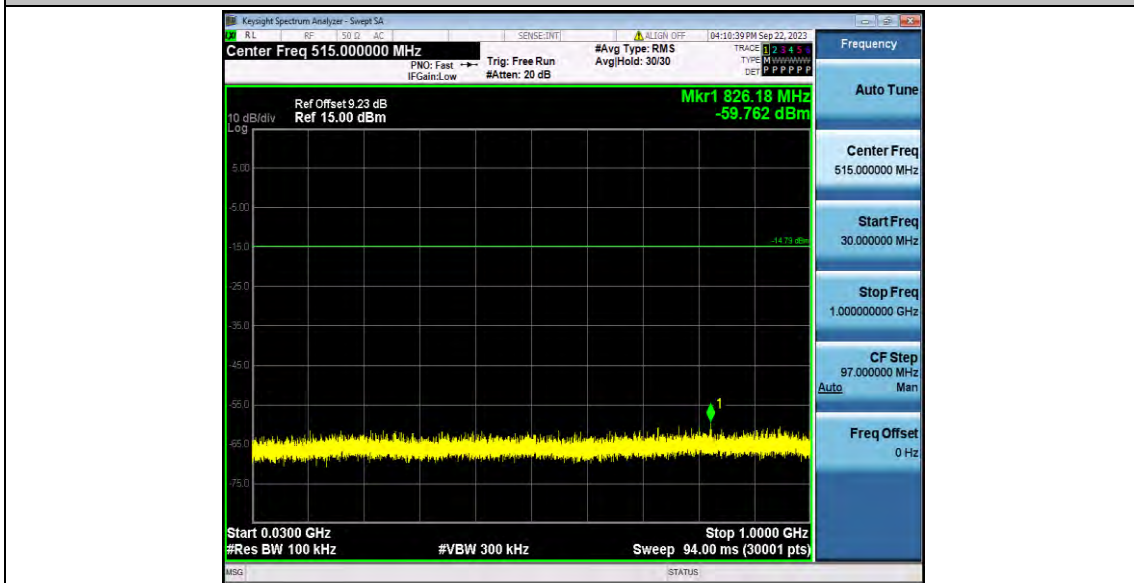
Test Result

| Test Mode | Antenna | Frequency[MHz] | FreqRange [MHz] | RefLevel [dBm] | Result [dBm] | Limit [dBm] | Verdict |
|-----------|---------|----------------|-----------------|----------------|--------------|-------------|---------|
| DH1 | Ant1 | 2402 | Reference | 5.21 | 5.21 | --- | PASS |
| | | | 30~1000 | 5.21 | -59.76 | ≤-14.79 | PASS |
| | | | 1000~26500 | 5.21 | -34.54 | ≤-14.79 | PASS |
| | | 2441 | Reference | 6.30 | 6.30 | --- | PASS |
| | | | 30~1000 | 6.30 | -59.85 | ≤-13.7 | PASS |
| | | | 1000~26500 | 6.30 | -34.29 | ≤-13.7 | PASS |
| | | 2480 | Reference | 5.35 | 5.35 | --- | PASS |
| | | | 30~1000 | 5.35 | -60.21 | ≤-14.65 | PASS |
| | | | 1000~26500 | 5.35 | -36.47 | ≤-14.65 | PASS |
| 2DH1 | Ant1 | 2402 | Reference | 5.18 | 5.18 | --- | PASS |
| | | | 30~1000 | 5.18 | -29.92 | ≤-14.82 | PASS |
| | | | 1000~26500 | 5.18 | -34.03 | ≤-14.82 | PASS |
| | | 2441 | Reference | 6.22 | 6.22 | --- | PASS |
| | | | 30~1000 | 6.22 | -60.13 | ≤-13.78 | PASS |
| | | | 1000~26500 | 6.22 | -46.96 | ≤-13.78 | PASS |
| | | 2480 | Reference | 5.32 | 5.32 | --- | PASS |
| | | | 30~1000 | 5.32 | -59.24 | ≤-14.68 | PASS |
| | | | 1000~26500 | 5.32 | -47.66 | ≤-14.68 | PASS |
| 3DH1 | Ant1 | 2402 | Reference | 5.15 | 5.15 | --- | PASS |
| | | | 30~1000 | 5.15 | -60.05 | ≤-14.85 | PASS |
| | | | 1000~26500 | 5.15 | -35.65 | ≤-14.85 | PASS |
| | | 2441 | Reference | 6.49 | 6.49 | --- | PASS |
| | | | 30~1000 | 6.49 | -60.39 | ≤-13.51 | PASS |
| | | | 1000~26500 | 6.49 | -38.1 | ≤-13.51 | PASS |
| | | 2480 | Reference | 5.38 | 5.38 | --- | PASS |
| | | | 30~1000 | 5.38 | -60.5 | ≤-14.62 | PASS |
| | | | 1000~26500 | 5.38 | -38.23 | ≤-14.62 | PASS |

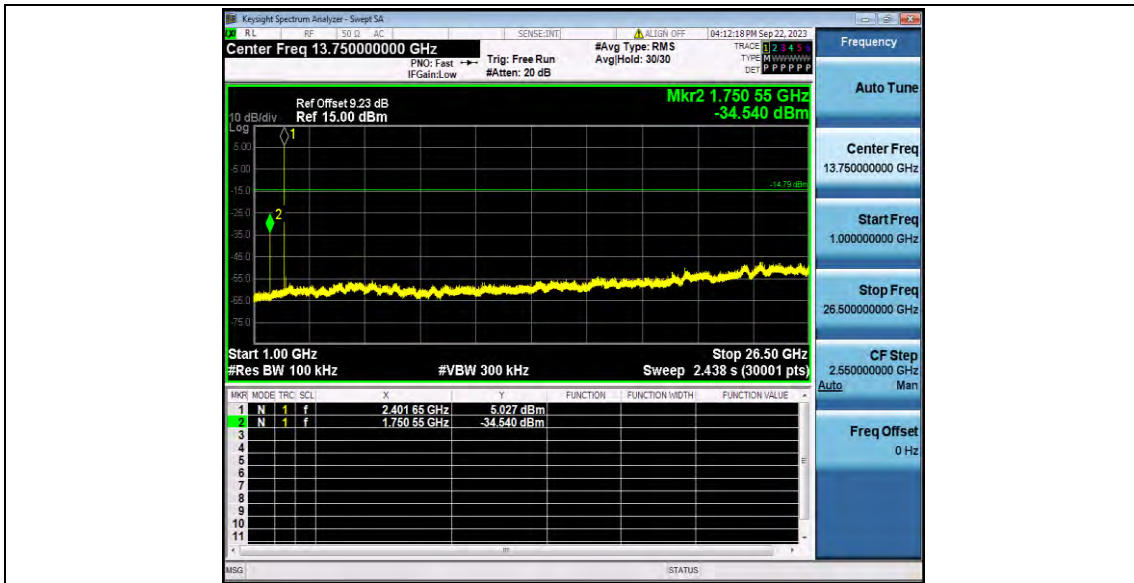
Test Graphs



DH1_Ant1_2402_0~Reference



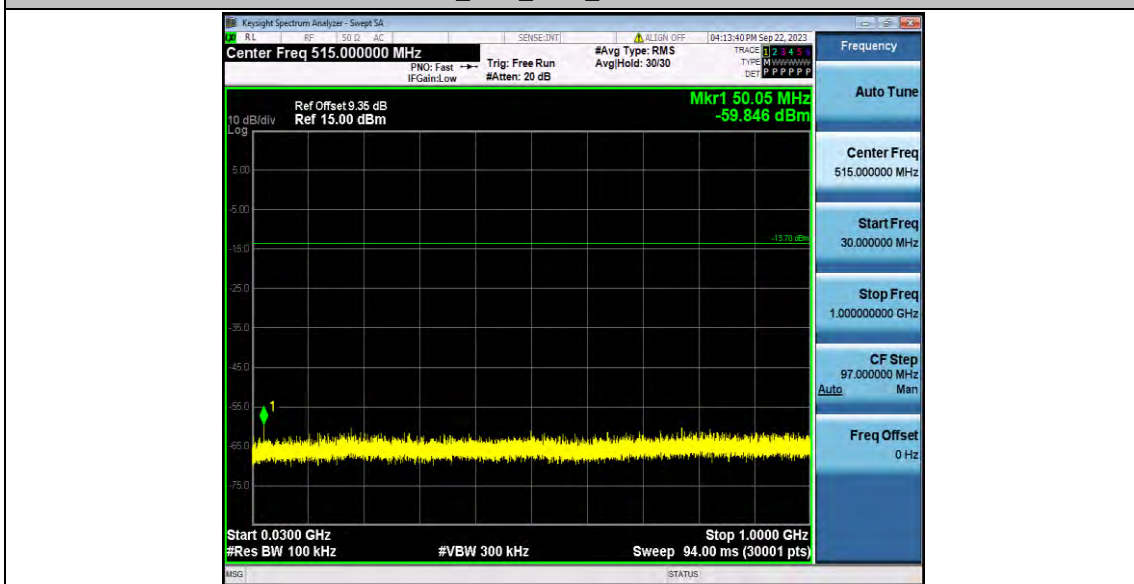
DH1_Ant1_2402_30~1000



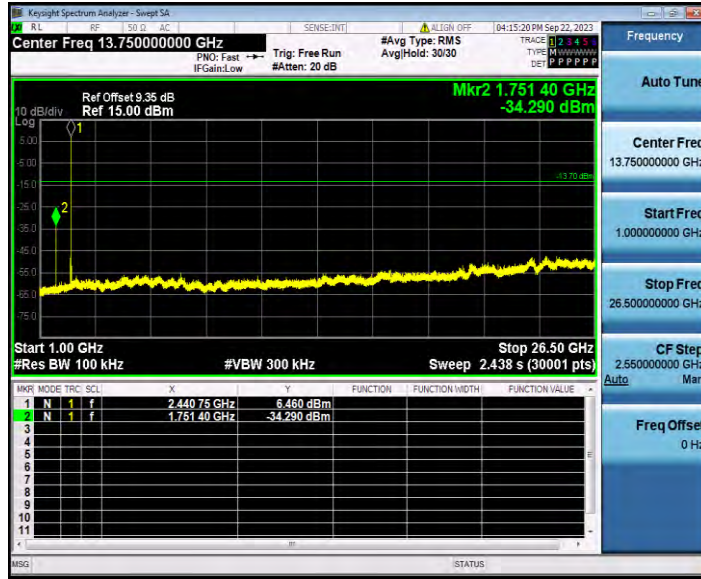
DH1_Ant1_2402_1000~26500



DH1_Ant1_2441_0~Reference



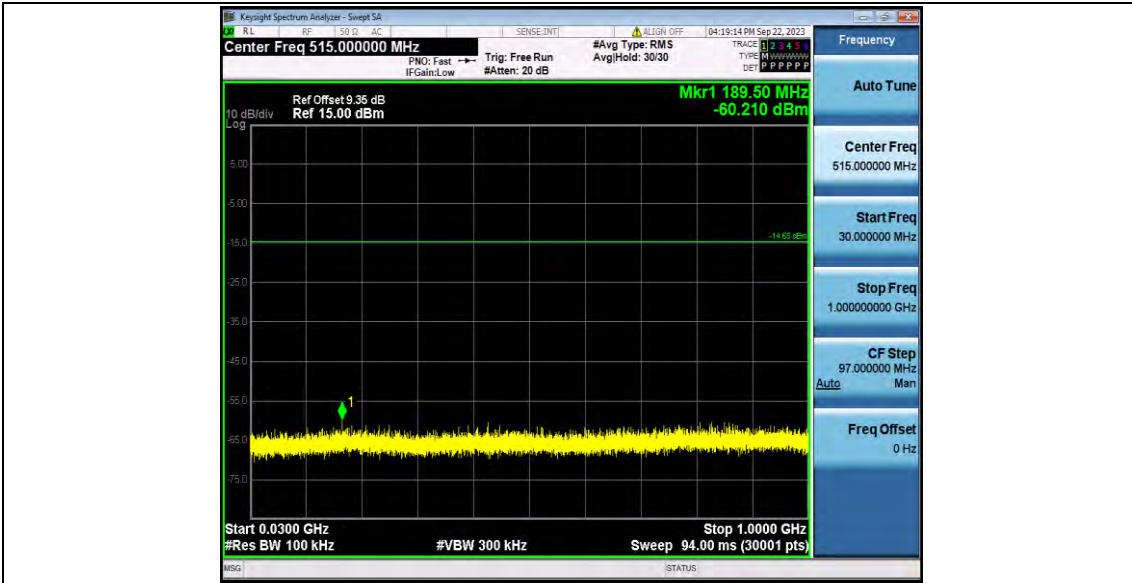
DH1_Ant1_2441_30~1000



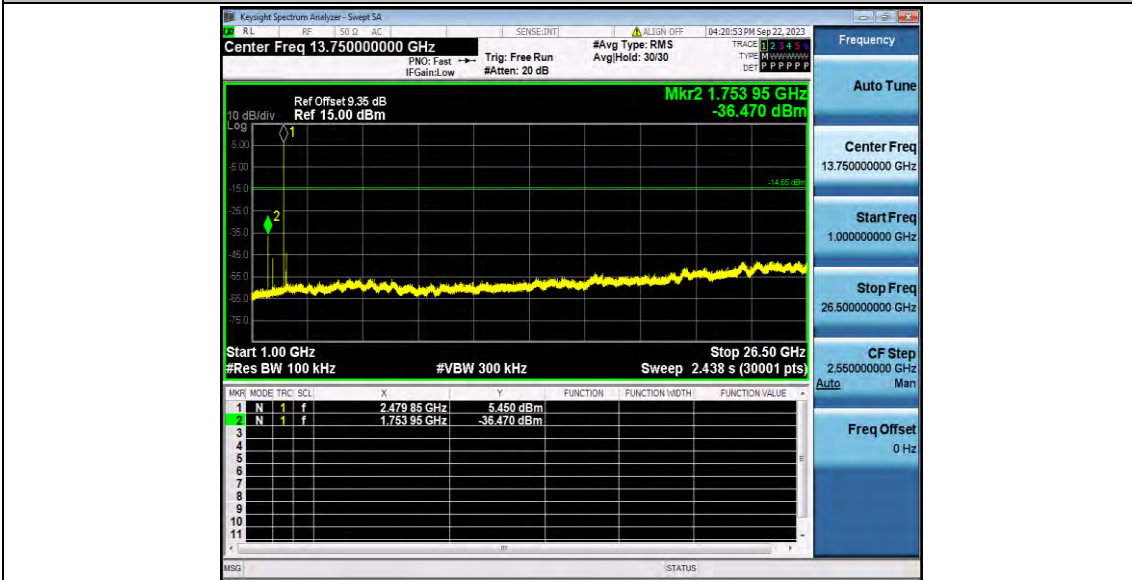
DH1_Ant1_2441_1000~26500



DH1_Ant1_2480_0~Reference



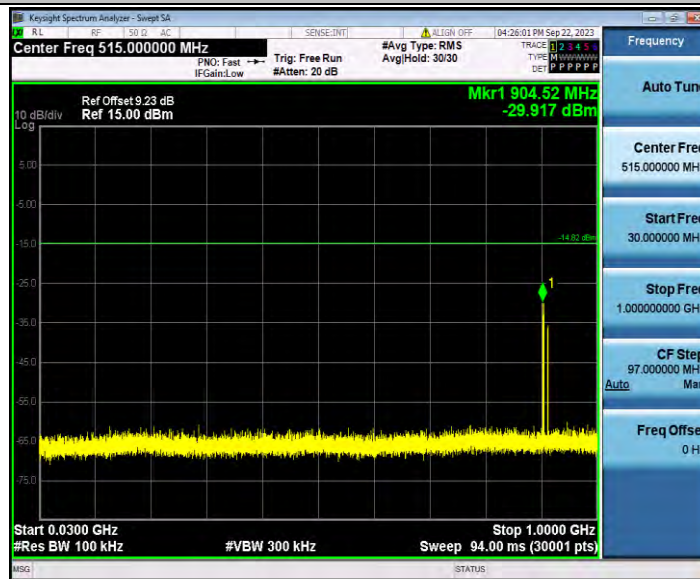
DH1_Ant1_2480_30~1000



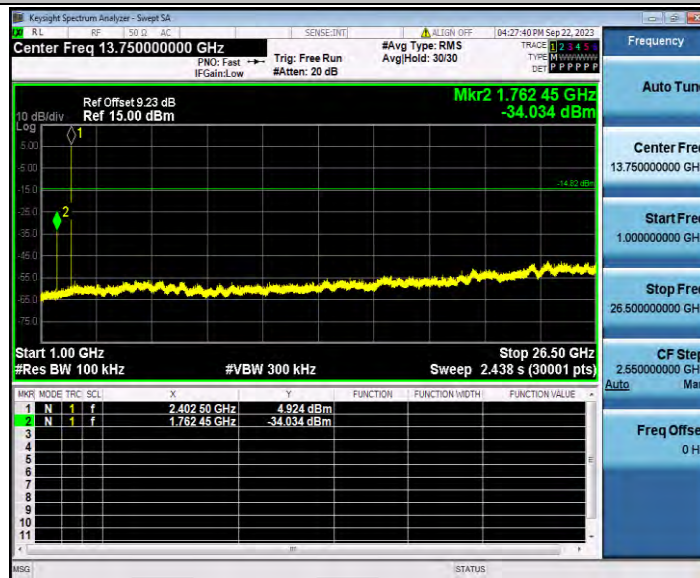
DH1_Ant1_2480_1000~26500



2DH1_Ant1_2402_0~Reference



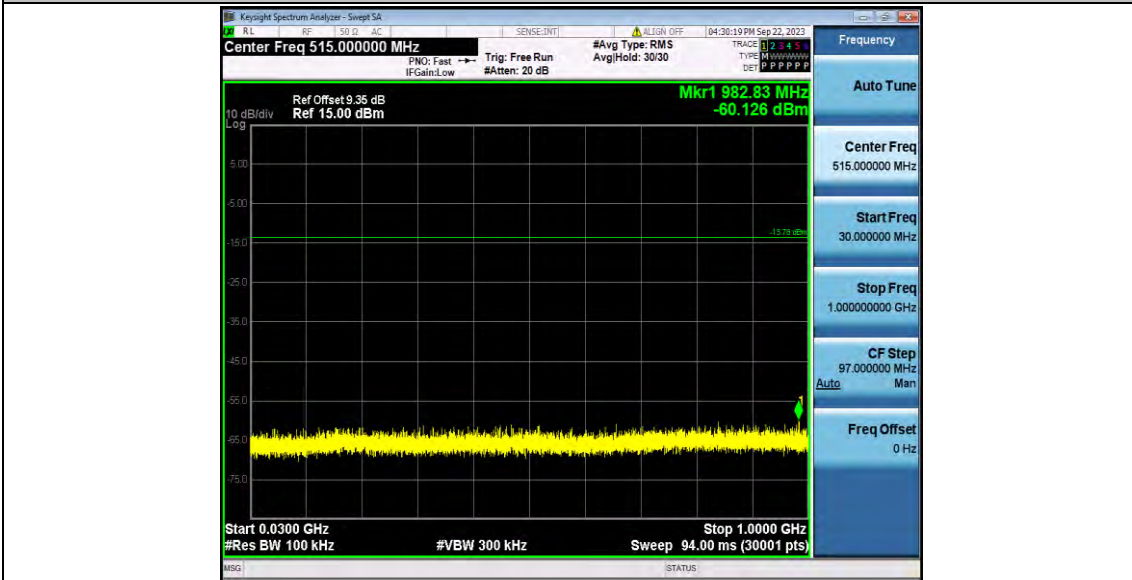
2DH1_Ant1_2402_30~1000



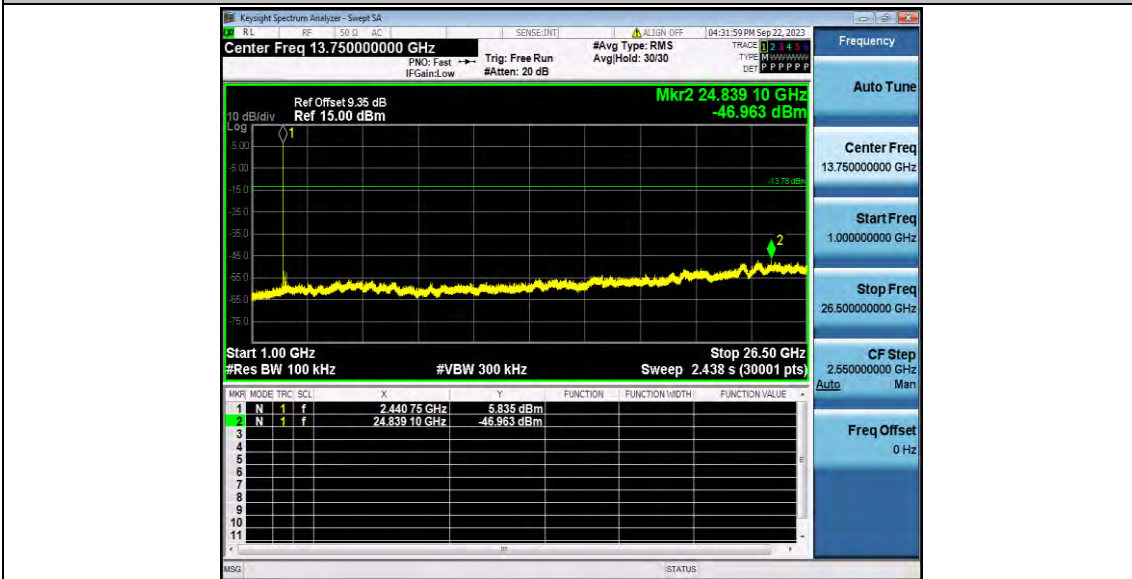
2DH1_Ant1_2402_1000~26500



2DH1_Ant1_2441_0~Reference



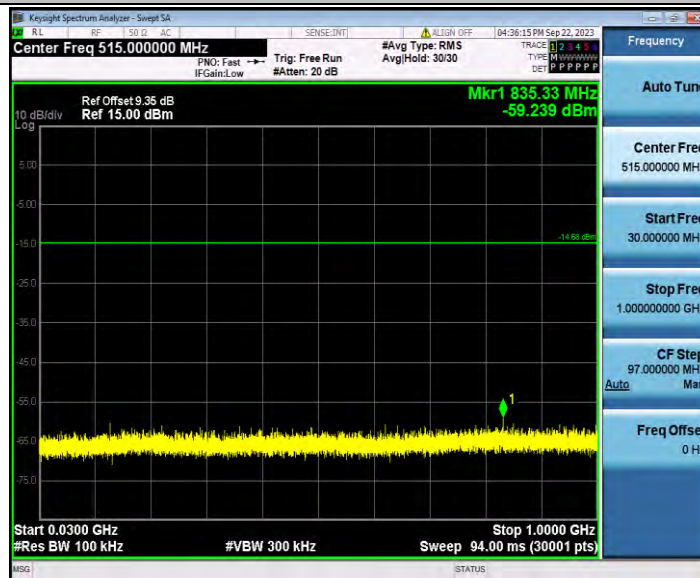
2DH1_Ant1_2441_30~1000



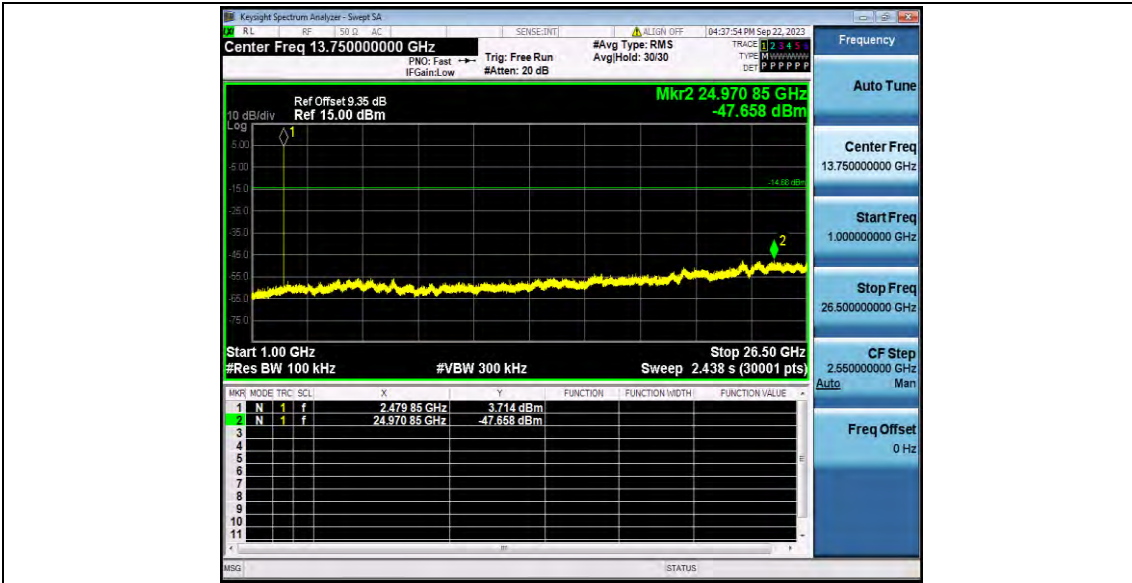
2DH1_Ant1_2441_1000~26500



2DH1_Ant1_2480_0~Reference



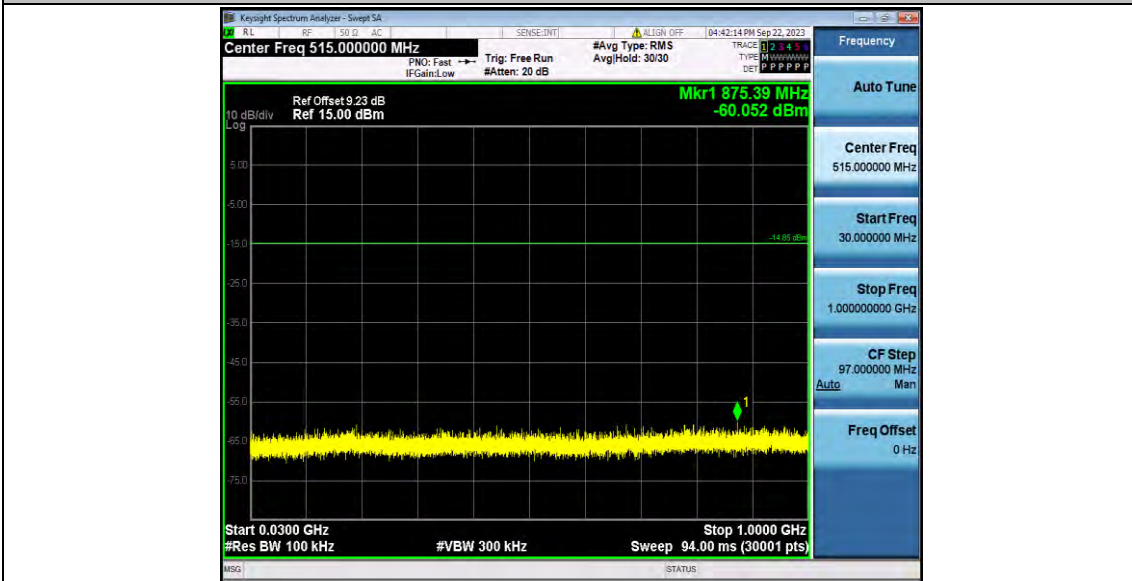
2DH1_Ant1_2480_30~1000



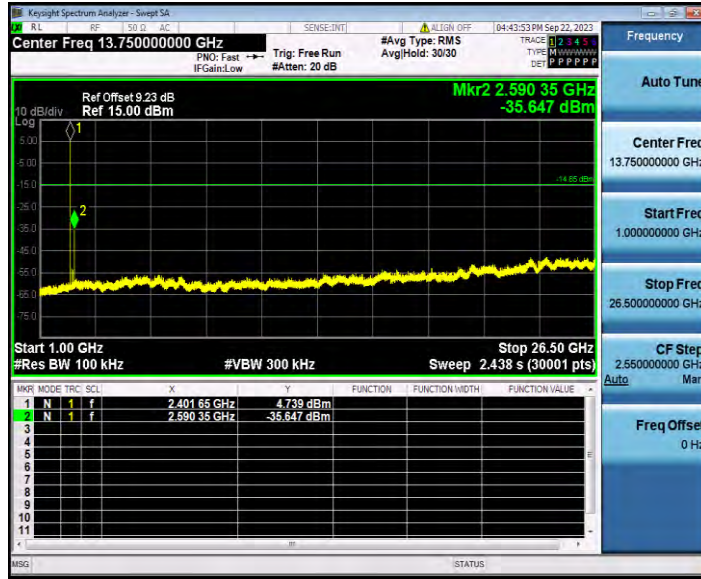
2DH1_Ant1_2480_1000~26500



3DH1_Ant1_2402_0~Reference



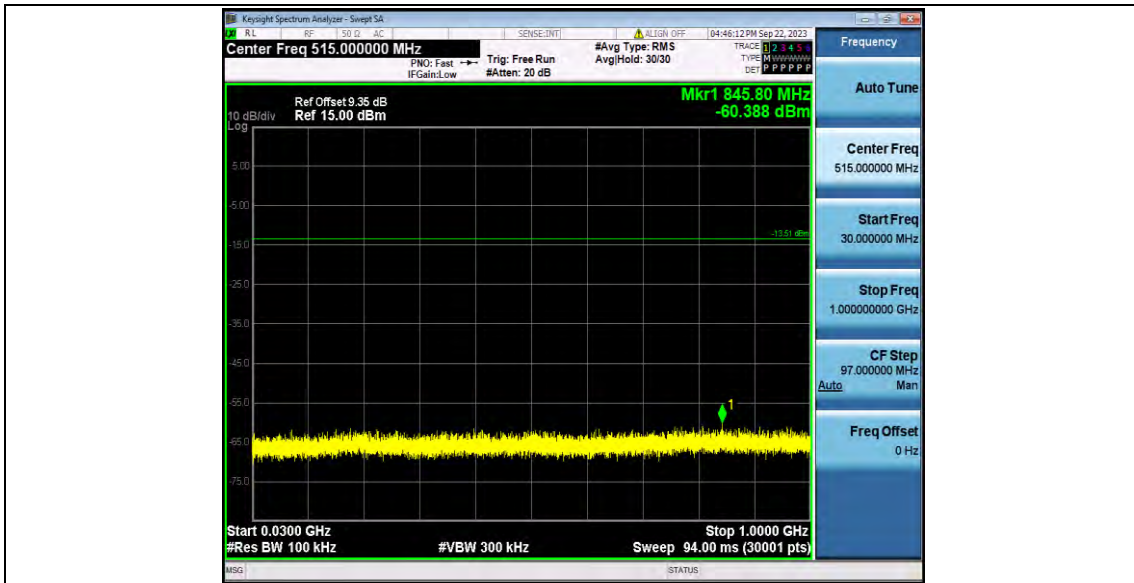
3DH1_Ant1_2402_30~1000



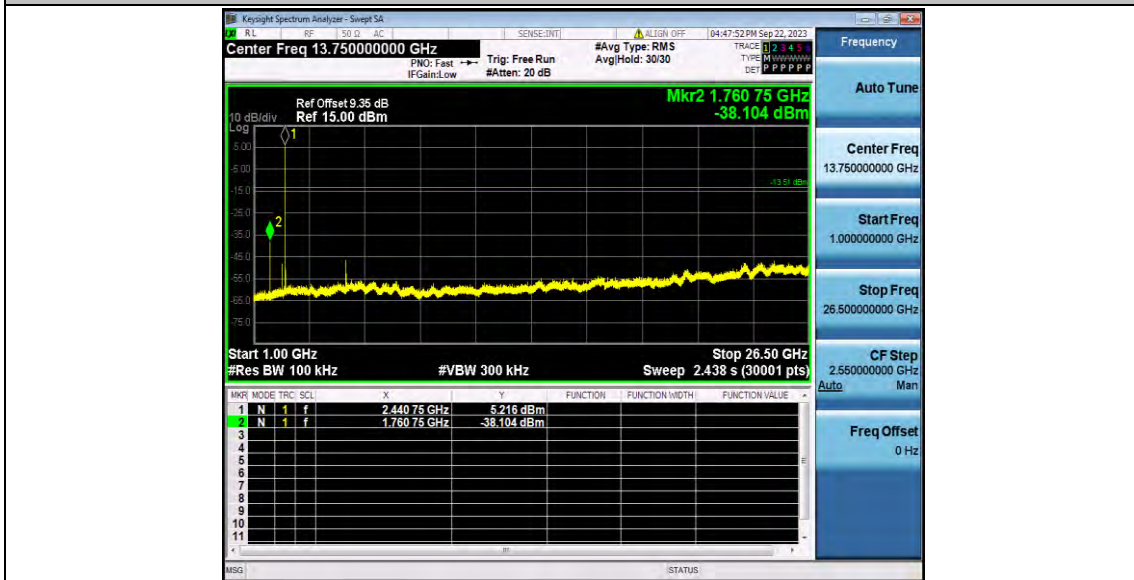
3DH1_Ant1_2402_1000~26500



3DH1_Ant1_2441_0~Reference



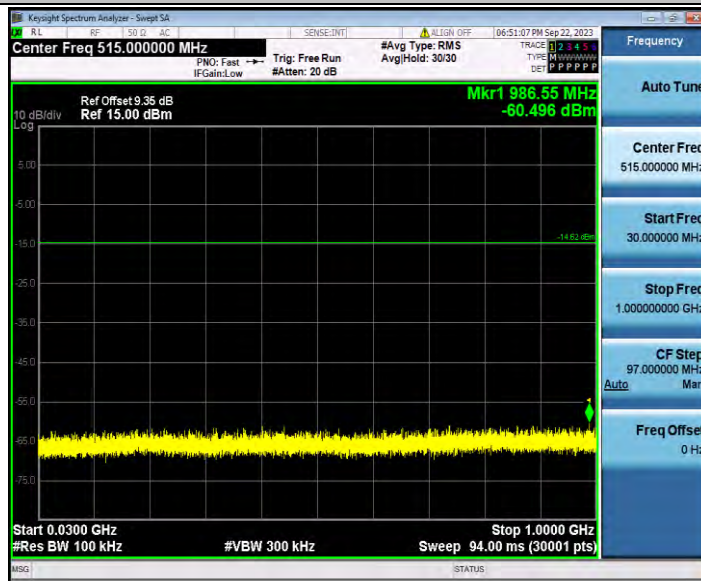
3DH1_Ant1_2441_30~100



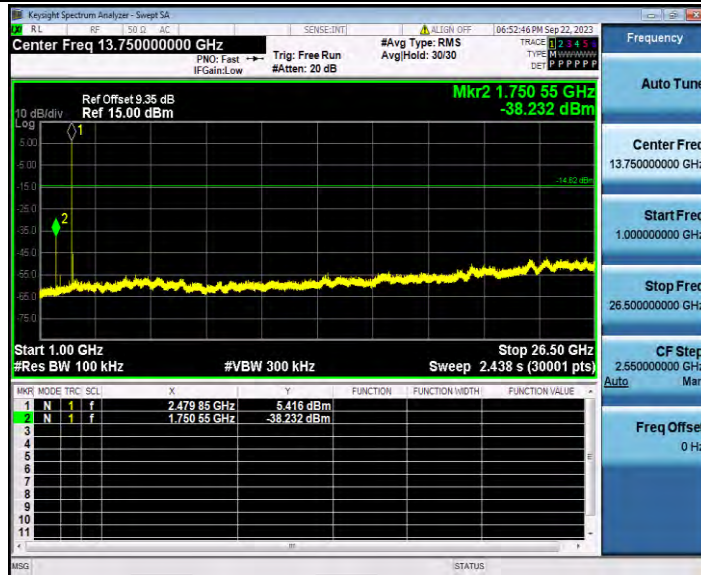
3DH1_Ant1_2441_1000~26500



3DH1_Ant1_2480_0~Reference



3DH1_Ant1_2480_30~1000



3DH1_Ant1_2480_1000~26500

Appendix A.9: Emissions in Restricted Bands

Test Result

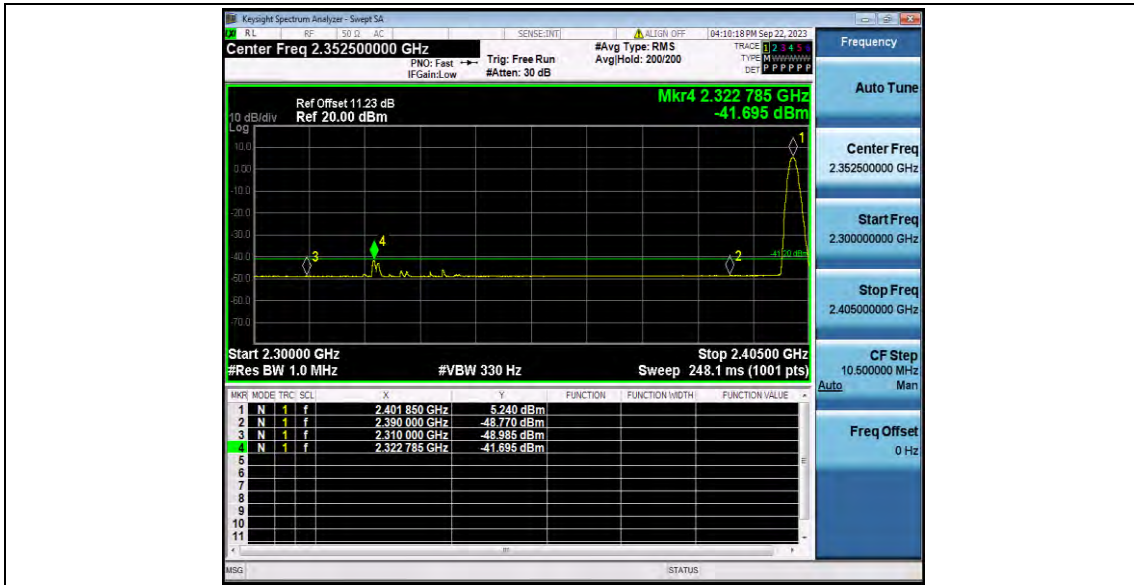
| TestMode | Antenna | ChName | Frequency [MHz] | Detector | Freq [MHz] | Result [dBm] | Limit [dBm] | Result [dBuV/m] | Limit [dBuV/m] | Verdict |
|----------|----------|--------|-----------------|----------|------------|--------------|-------------|-----------------|----------------|---------|
| DH1 | Ant1 | Low | 2402 | AV | 2310.000 | -48.99 | ≤-41.20 | 46.21 | ≤54 | PASS |
| | | | | AV | 2322.785 | -41.7 | ≤-41.20 | 53.50 | ≤54 | PASS |
| | | | | AV | 2390.000 | -48.77 | ≤-41.20 | 46.43 | ≤54 | PASS |
| | | | | Peak | 2310.000 | -42.83 | ≤-21.20 | 52.37 | ≤74 | PASS |
| | | | | Peak | 2335.805 | -38.4 | ≤-21.20 | 56.80 | ≤74 | PASS |
| | | | | Peak | 2390.000 | -41.25 | ≤-21.20 | 53.95 | ≤74 | PASS |
| | | High | 2480 | AV | 2483.500 | -47.9 | ≤-41.20 | 47.30 | ≤54 | PASS |
| | | | | AV | 2483.520 | -47.9 | ≤-41.20 | 47.30 | ≤54 | PASS |
| | | | | AV | 2500.000 | -48.41 | ≤-41.20 | 46.79 | ≤54 | PASS |
| | | | | Peak | 2483.500 | -40.3 | ≤-21.20 | 54.90 | ≤74 | PASS |
| | | | | Peak | 2493.360 | -38.68 | ≤-21.20 | 56.52 | ≤74 | PASS |
| | | | | Peak | 2500.000 | -40.85 | ≤-21.20 | 54.35 | ≤74 | PASS |
| 2DH1 | Ant1 | Low | 2402 | AV | 2310.000 | -48.98 | ≤-41.20 | 46.22 | ≤54 | PASS |
| | | | | AV | 2386.940 | -48.57 | ≤-41.20 | 46.63 | ≤54 | PASS |
| | | | | AV | 2390.000 | -48.64 | ≤-41.20 | 46.56 | ≤54 | PASS |
| | | | | Peak | 2310.000 | -40.99 | ≤-21.20 | 54.21 | ≤74 | PASS |
| | | | | Peak | 2369.825 | -38.21 | ≤-21.20 | 56.99 | ≤74 | PASS |
| | | | | Peak | 2390.000 | -40.3 | ≤-21.20 | 54.90 | ≤74 | PASS |
| | | High | 2480 | AV | 2483.500 | -46.71 | ≤-41.20 | 48.49 | ≤54 | PASS |
| | | | | AV | 2483.520 | -46.71 | ≤-41.20 | 48.49 | ≤54 | PASS |
| | | | | AV | 2500.000 | -48.38 | ≤-41.20 | 46.82 | ≤54 | PASS |
| | | | | Peak | 2483.500 | -38.21 | ≤-21.20 | 56.99 | ≤74 | PASS |
| | | | | Peak | 2483.680 | -36.96 | ≤-21.20 | 58.24 | ≤74 | PASS |
| | | | | Peak | 2500.000 | -39.76 | ≤-21.20 | 55.44 | ≤74 | PASS |
| 3DH1 | Ant1 | Low | 2402 | AV | 2310.000 | -48.95 | ≤-41.20 | 46.25 | ≤54 | PASS |
| | | | | AV | 2381.795 | -48.54 | ≤-41.20 | 46.66 | ≤54 | PASS |
| | | | | AV | 2390.000 | -48.72 | ≤-41.20 | 46.48 | ≤54 | PASS |
| | | | | Peak | 2310.000 | -41.21 | ≤-21.20 | 53.99 | ≤74 | PASS |
| | | | | Peak | 2374.760 | -38.32 | ≤-21.20 | 56.88 | ≤74 | PASS |
| | | | | Peak | 2390.000 | -41.29 | ≤-21.20 | 53.91 | ≤74 | PASS |
| | | High | 2480 | AV | 2483.500 | -46.26 | ≤-41.20 | 48.94 | ≤54 | PASS |
| | | | | AV | 2483.520 | -46.26 | ≤-41.20 | 48.94 | ≤54 | PASS |
| | | | | AV | 2500.000 | -48.35 | ≤-41.20 | 46.85 | ≤54 | PASS |
| | | | | Peak | 2483.500 | -34.67 | ≤-21.20 | 60.53 | ≤74 | PASS |
| Peak | 2483.520 | -34.67 | ≤-21.20 | 60.53 | ≤74 | PASS | | | | |

| | | | | | | | | | | |
|--|--|--|--|------|----------|--------|---------|-------|-----|------|
| | | | | Peak | 2500.000 | -41.48 | ≤-21.20 | 53.72 | ≤74 | PASS |
|--|--|--|--|------|----------|--------|---------|-------|-----|------|

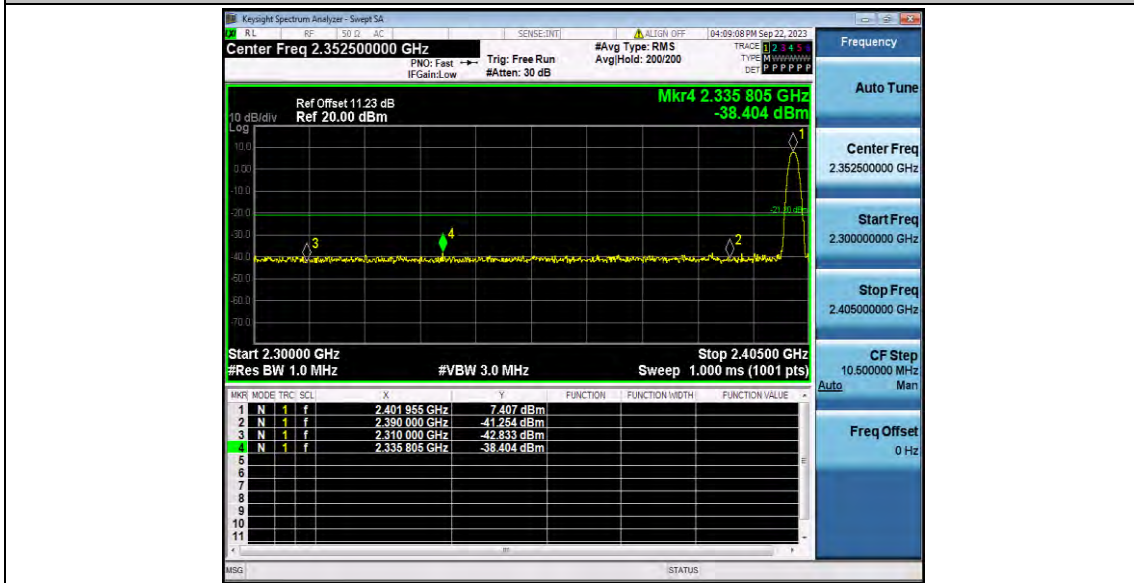
Note:

1. The Antenna Gain is compensated in the graph.
2. The limit in dBm for average detector is conversion from 54dBuV/m, according to 15.209(a). The limit in dBm for peak detector is 20dB above the limit of average detector in dBm.

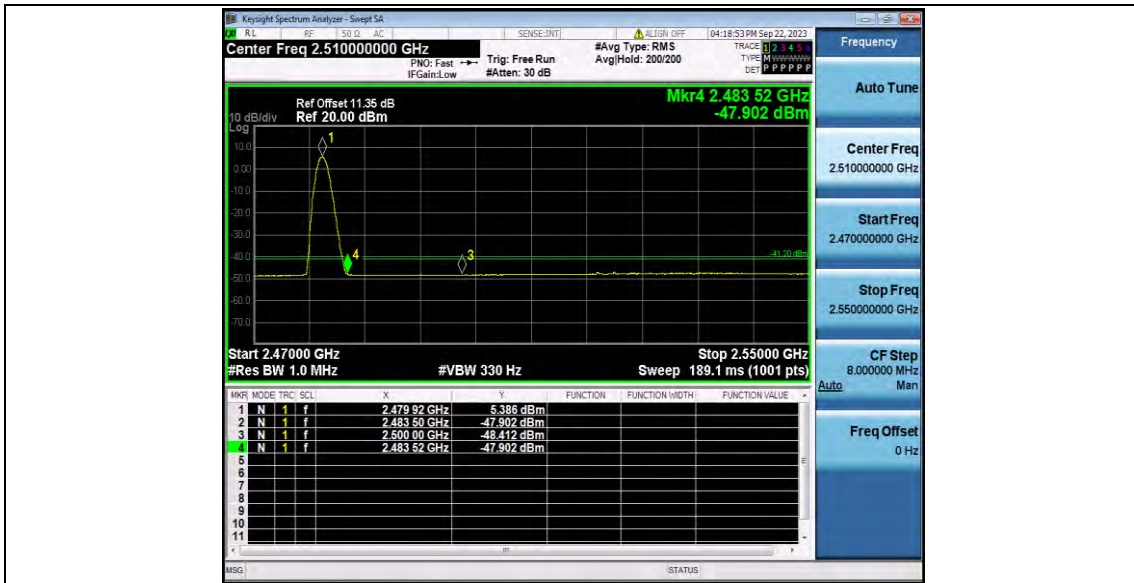
Test Graphs



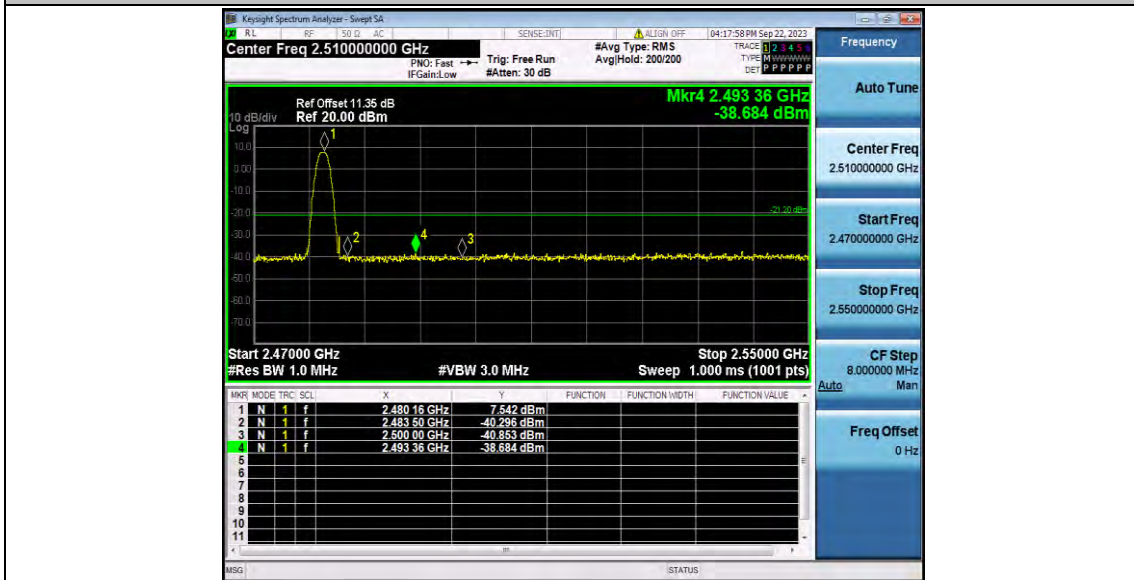
DH1_Ant1_Low_2402_AV



DH1_Ant1_Low_2402_Peak



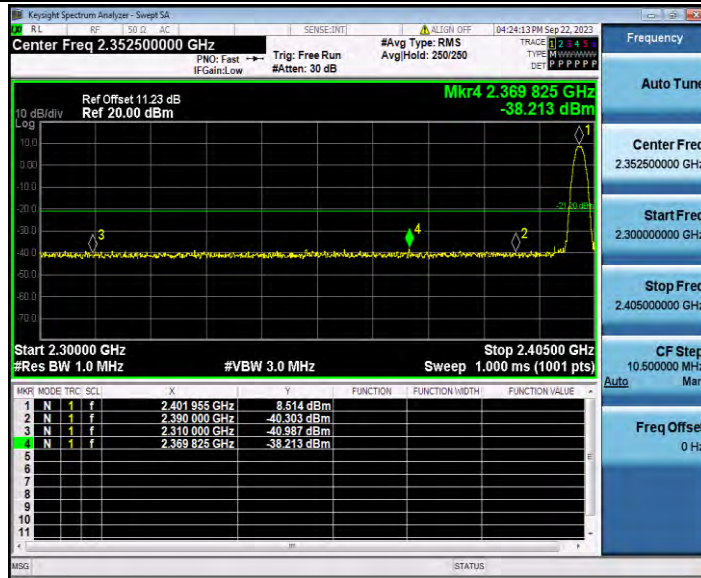
DH1_Ant1_High_2480_AV



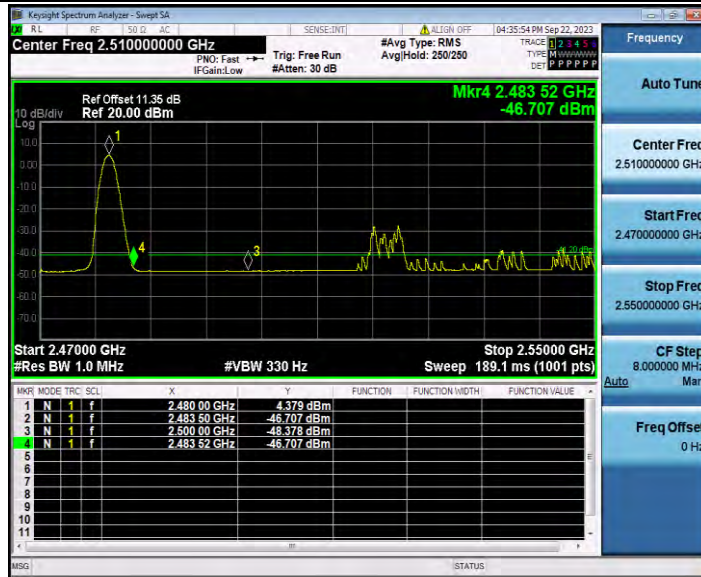
DH1_Ant1_High_2480_Peak



2DH1_Ant1_Low_2402_AV



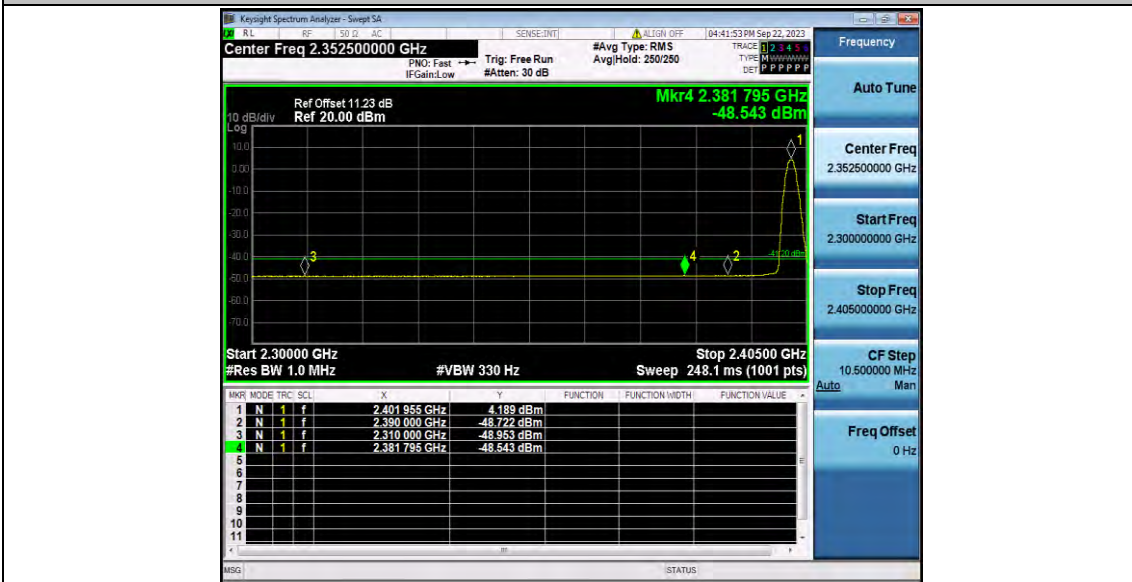
2DH1_Ant1_Low_2402_Peak



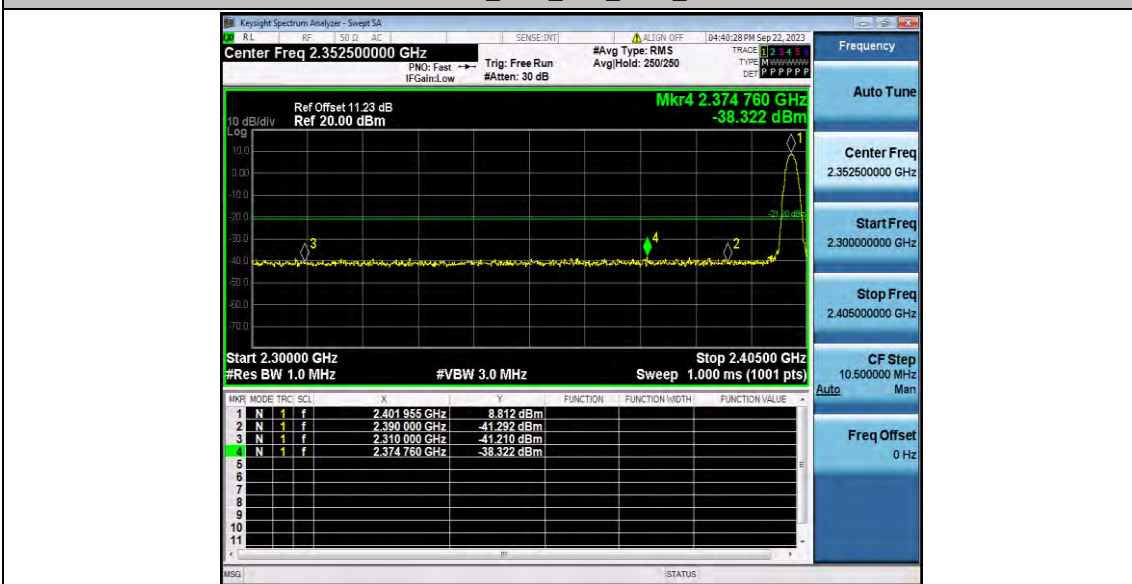
2DH1_Ant1_High_2480_AV



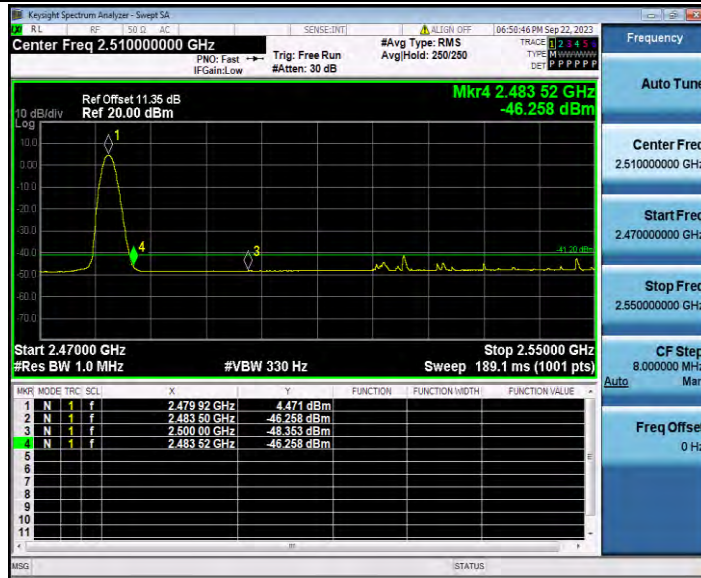
2DH1_Ant1_High_2480_Peak



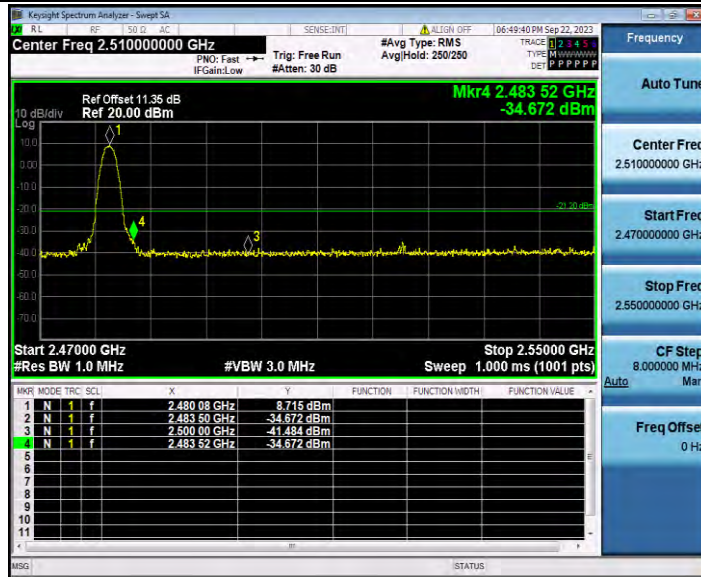
3DH1_Ant1_Low_2402_AV



3DH1_Ant1_Low_2402_Peak



3DH1_Ant1_High_2480_AV



3DH1_Ant1_High_2480_Peak