

| |
|---|
| Case No. : <u>GTS20230914005-1-9</u> |
| Ambient Condition: <u>24</u> °C, <u>52</u> %RH, Atmos100.1Kpa, |
| Test Date: <u>2023.9.27</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 | 0.819 | 2401.565 | 2402.384 | --- | --- |
| | | 2441 | 0.861 | 2440.568 | 2441.429 | --- | --- |
| | | 2480 | 0.864 | 2479.559 | 2480.423 | --- | --- |
| 2DH1 | Ant1 | 2402 | 1.248 | 2401.376 | 2402.624 | --- | --- |
| | | 2441 | 1.215 | 2440.385 | 2441.600 | --- | --- |
| | | 2480 | 1.194 | 2479.379 | 2480.573 | --- | --- |
| 3DH1 | Ant1 | 2402 | 1.197 | 2401.421 | 2402.618 | --- | --- |
| | | 2441 | 1.203 | 2440.415 | 2441.618 | --- | --- |
| | | 2480 | 1.215 | 2479.409 | 2480.624 | --- | --- |

Test Graphs



DH1_Ant1_2402



DH1_Ant1_2441



DH1_Ant1_2480



2D401_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 | 0.76280 | 2401.620 | 2402.383 | --- | --- |
| | | 2441 | 0.78384 | 2440.610 | 2441.394 | --- | --- |
| | | 2480 | 0.80419 | 2479.597 | 2480.402 | --- | --- |
| 2DH1 | Ant1 | 2402 | 1.1547 | 2401.424 | 2402.578 | --- | --- |
| | | 2441 | 1.1463 | 2440.427 | 2441.573 | --- | --- |
| | | 2480 | 1.1578 | 2479.422 | 2480.580 | --- | --- |
| 3DH1 | Ant1 | 2402 | 1.1440 | 2401.439 | 2402.583 | --- | --- |
| | | 2441 | 1.1395 | 2440.442 | 2441.582 | --- | --- |
| | | 2480 | 1.1558 | 2479.435 | 2480.591 | --- | --- |

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 | 4.17 | ≤20.97 | PASS |
| | | 2441 | 4.63 | ≤20.97 | PASS |
| | | 2480 | 4.4 | ≤20.97 | PASS |
| 2DH1 | Ant1 | 2402 | 1.63 | ≤20.97 | PASS |
| | | 2441 | 2.07 | ≤20.97 | PASS |
| | | 2480 | 1.84 | ≤20.97 | PASS |
| 3DH1 | Ant1 | 2402 | 1.58 | ≤20.97 | PASS |
| | | 2441 | 2.07 | ≤20.97 | PASS |
| | | 2480 | 1.75 | ≤20.97 | PASS |

Appendix A.4: Carrier frequency separation

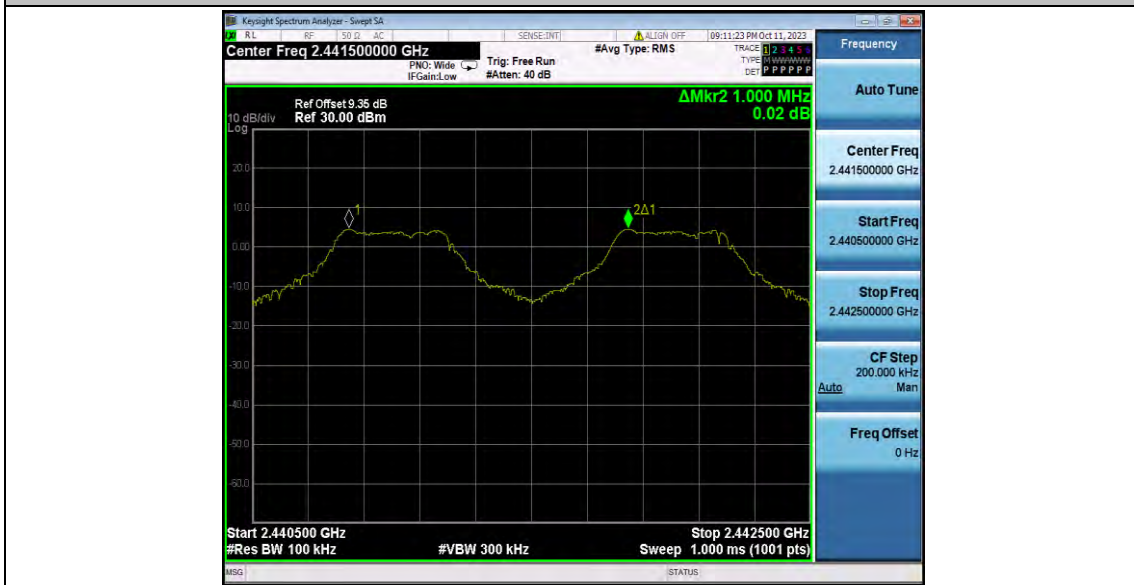
Test Result

| Test Mode | Antenna | Frequency[MHz] | Result[MHz] | Limit[MHz] | Verdict |
|-----------|---------|----------------|-------------|--------------|---------|
| DH1 | Ant1 | Hop_2402 | 1 | ≥ 0.864 | PASS |
| | | Hop_2441 | 1 | ≥ 0.864 | PASS |
| | | Hop_2480 | 0.998 | ≥ 0.864 | PASS |
| 2DH1 | Ant1 | Hop_2402 | 0.986 | ≥ 0.832 | PASS |
| | | Hop_2441 | 1 | ≥ 0.832 | PASS |
| | | Hop_2480 | 1.002 | ≥ 0.832 | PASS |
| 3DH1 | Ant1 | Hop_2402 | 1 | ≥ 0.810 | PASS |
| | | Hop_2441 | 0.998 | ≥ 0.810 | PASS |
| | | Hop_2480 | 0.998 | ≥ 0.810 | PASS |

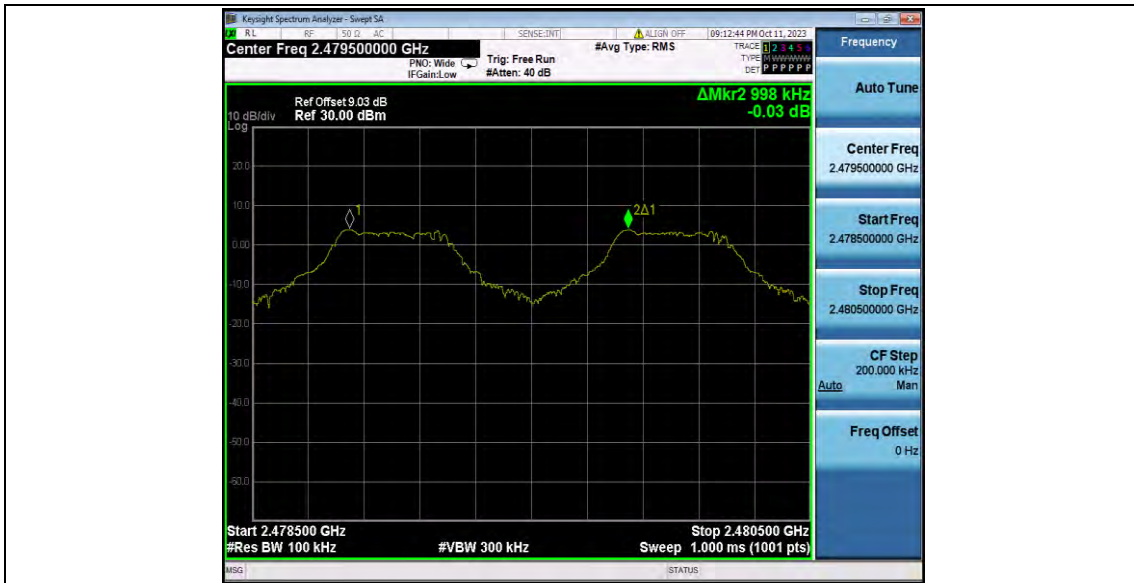
Test Graphs



DH1_Ant1_Hop_2402



DH1_Ant1_Hop_2441



DH1_Ant1_Hop_2480



2DH1_Ant1_Hop_2402



2DH1_Ant1_Hop_2441



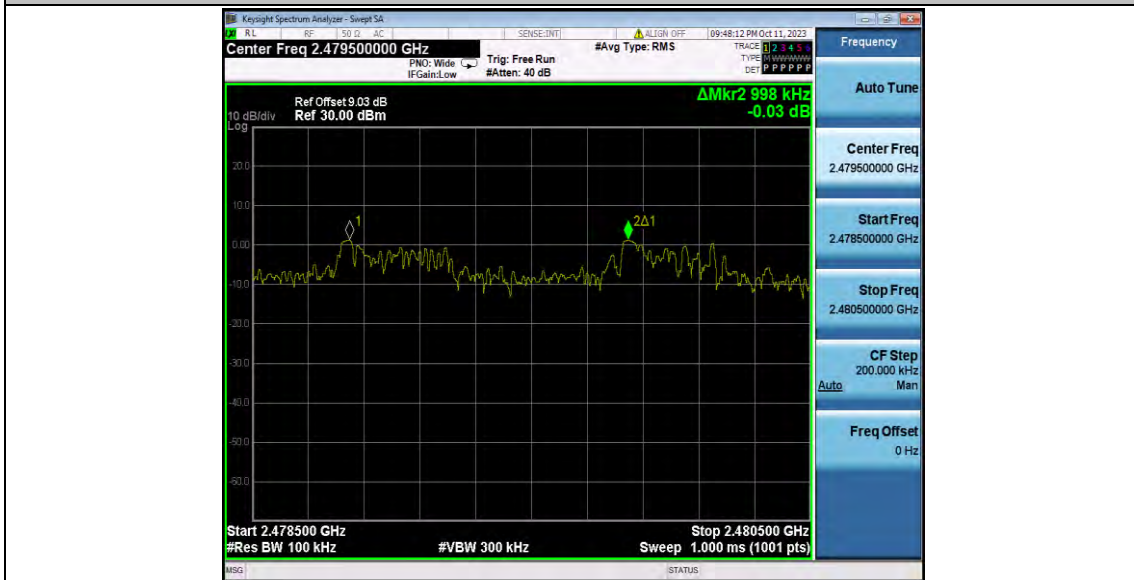
2DH1_Ant1_Hop_2480



3DH1_Ant1_Hop_2402



3DH1_Ant1_Hop_2441



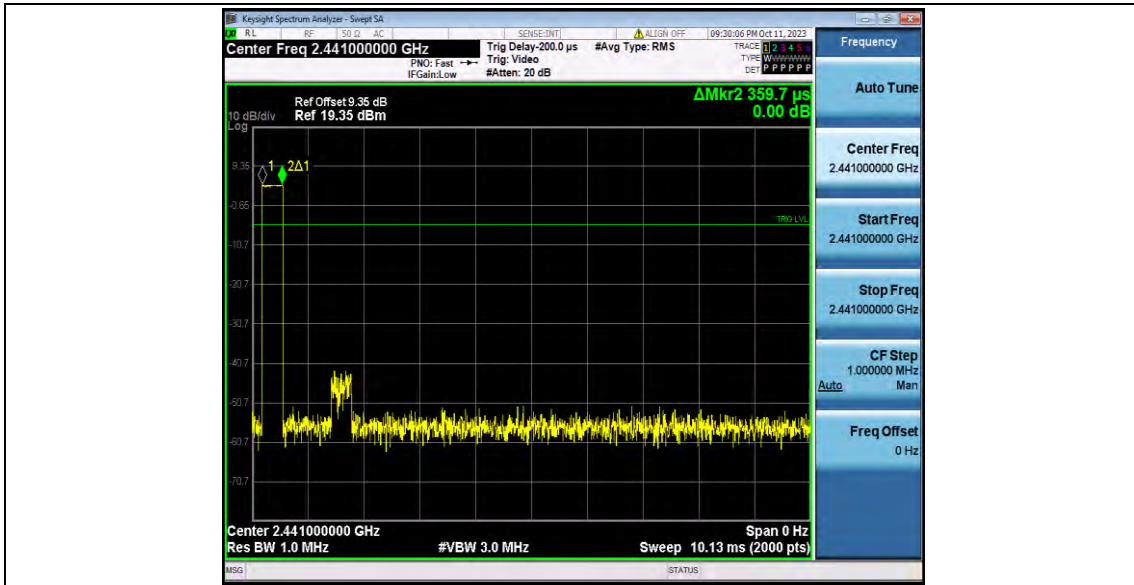
3DH1_Ant1_Hop_2480

Appendix A.5: Time of occupancy

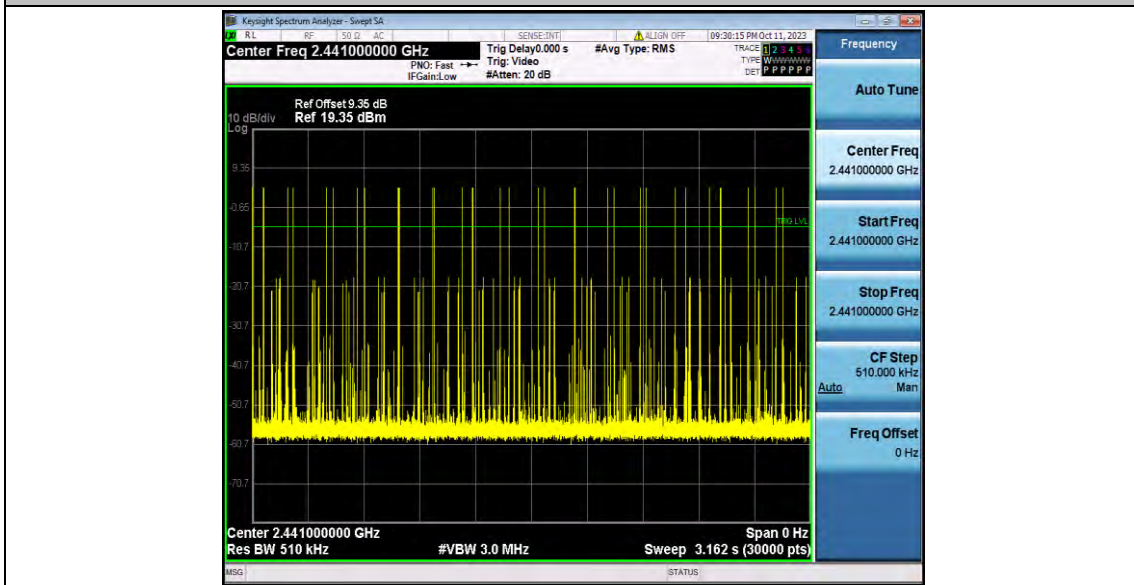
Test Result

| Test Mode | Antenna | Frequency[MHz] | BurstWidth [ms] | TotalHops [Num] | Result[s] | Limit[s] | Verdict |
|-----------|---------|----------------|-----------------|-----------------|-----------|----------|---------|
| DH1 | Ant1 | Hop | 0.36 | 320 | 0.115 | ≤0.4 | PASS |
| DH3 | Ant1 | Hop | 1.62 | 130 | 0.21 | ≤0.4 | PASS |
| DH5 | Ant1 | Hop | 2.86 | 130 | 0.372 | ≤0.4 | PASS |
| 2DH1 | Ant1 | Hop | 0.36 | 320 | 0.117 | ≤0.4 | PASS |
| 2DH3 | Ant1 | Hop | 1.62 | 180 | 0.292 | ≤0.4 | PASS |
| 2DH5 | Ant1 | Hop | 2.87 | 60 | 0.172 | ≤0.4 | PASS |
| 3DH1 | Ant1 | Hop | 0.37 | 330 | 0.122 | ≤0.4 | PASS |
| 3DH3 | Ant1 | Hop | 1.62 | 170 | 0.276 | ≤0.4 | PASS |
| 3DH5 | Ant1 | Hop | 2.87 | 90 | 0.259 | ≤0.4 | PASS |

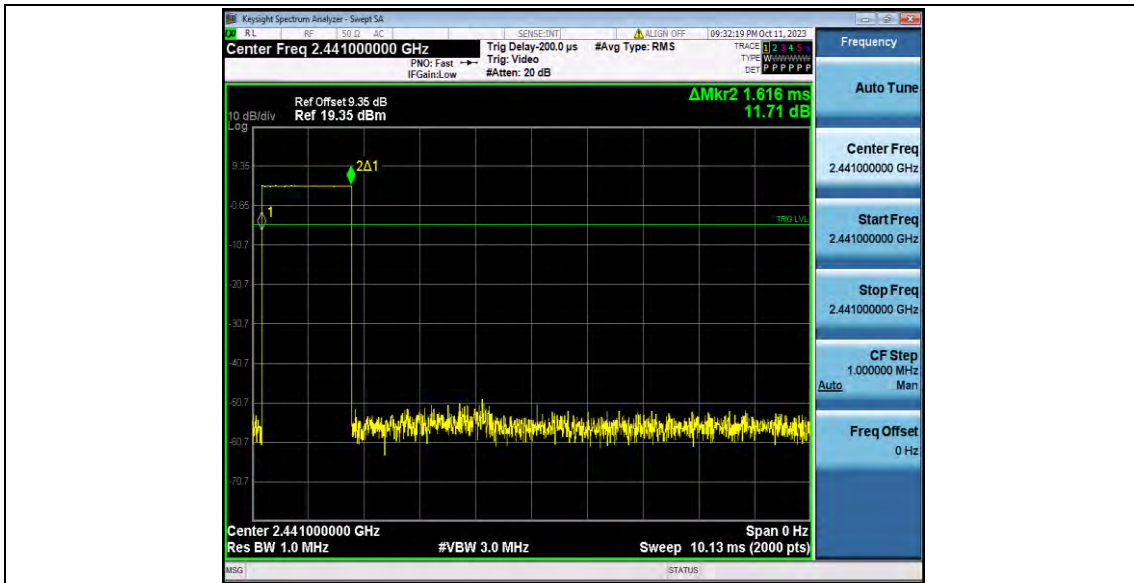
Test Graphs



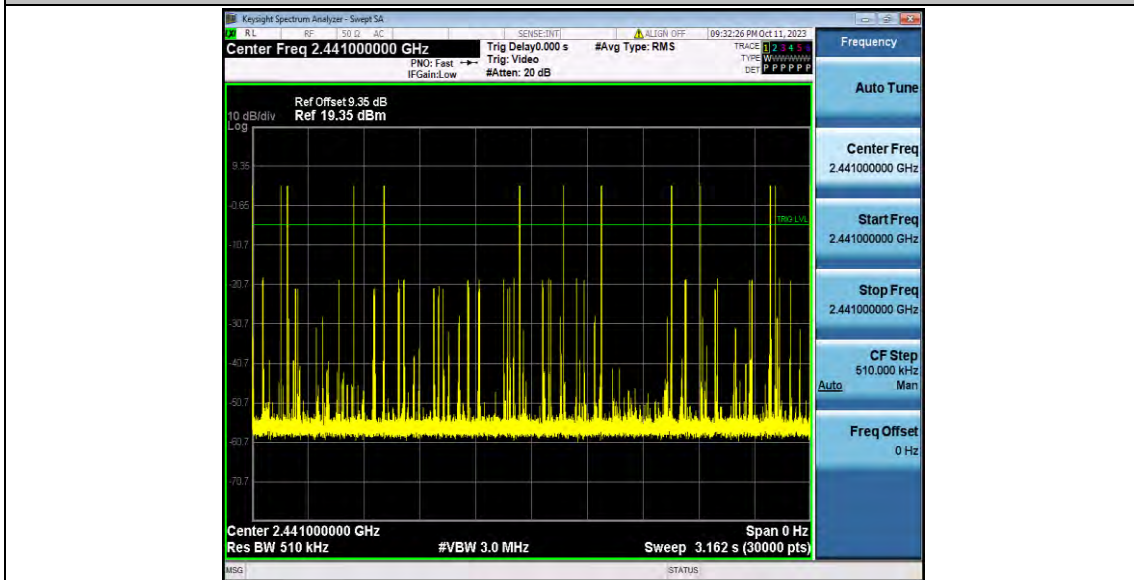
DH1_Ant1_Hop



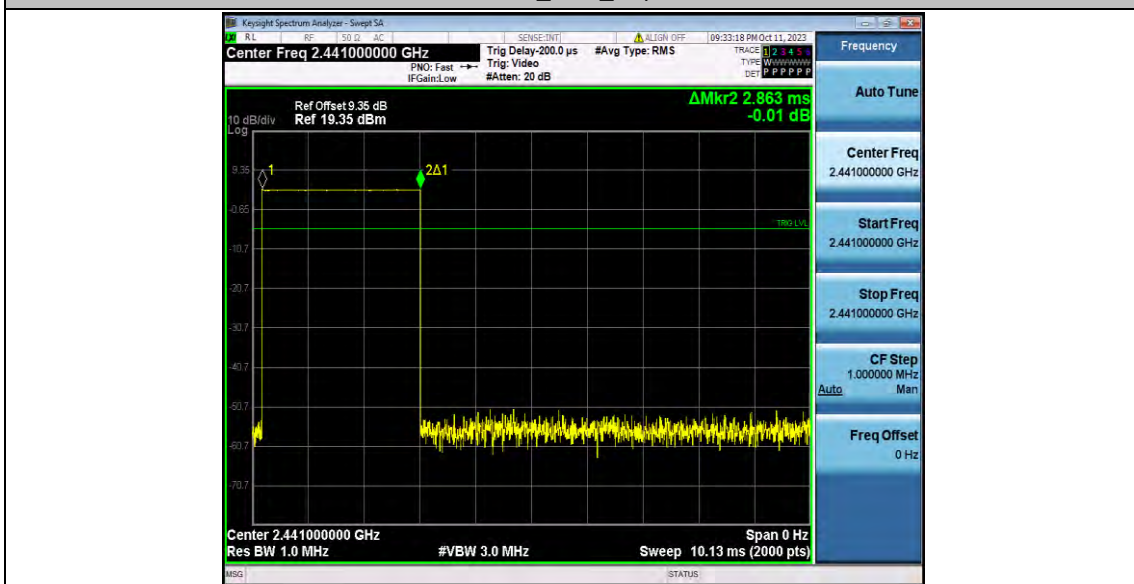
DH1_Ant1_Hop



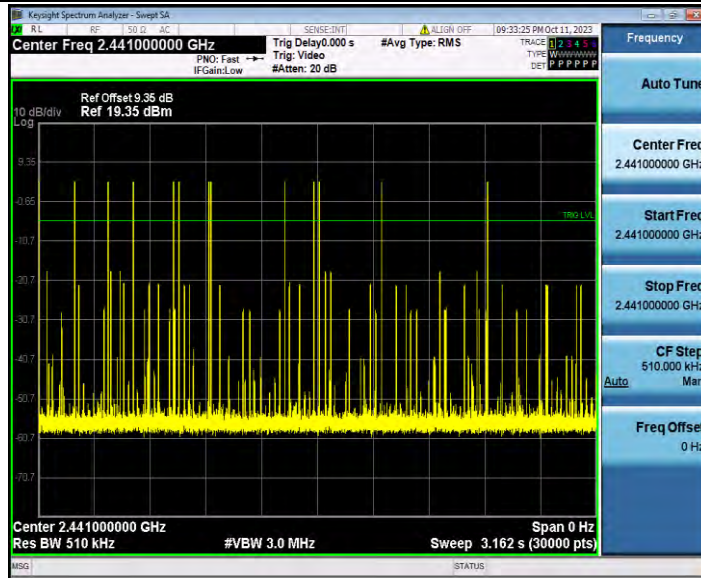
DH3_Ant1_Hop



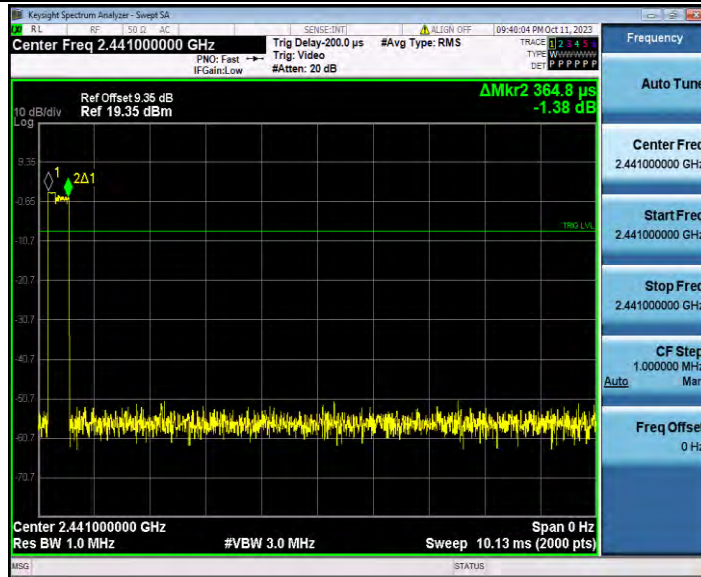
DH3_Ant1_Hop



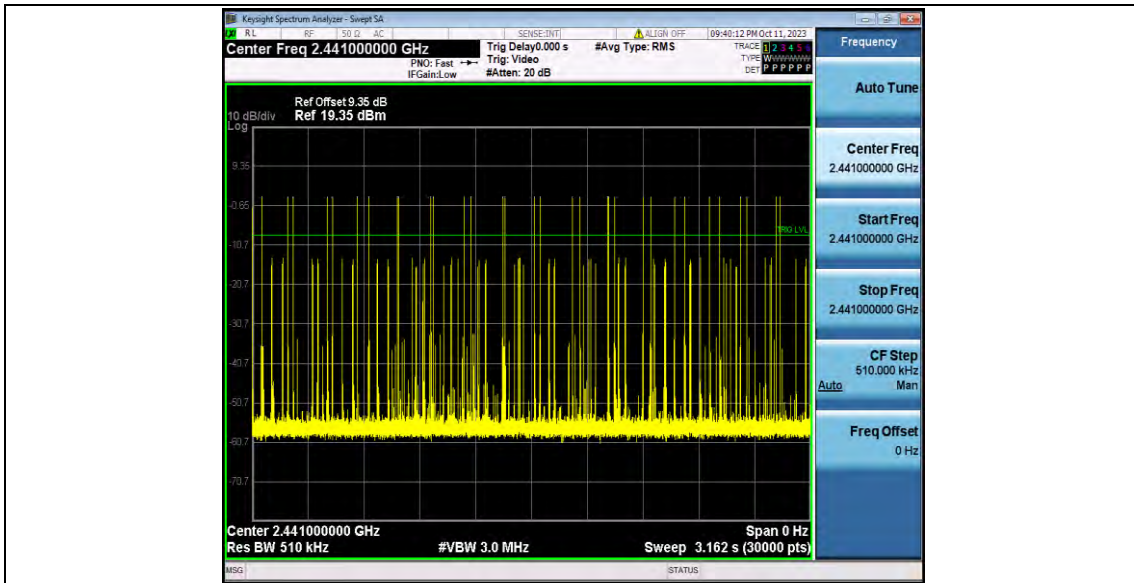
DH5_Ant1_Hop



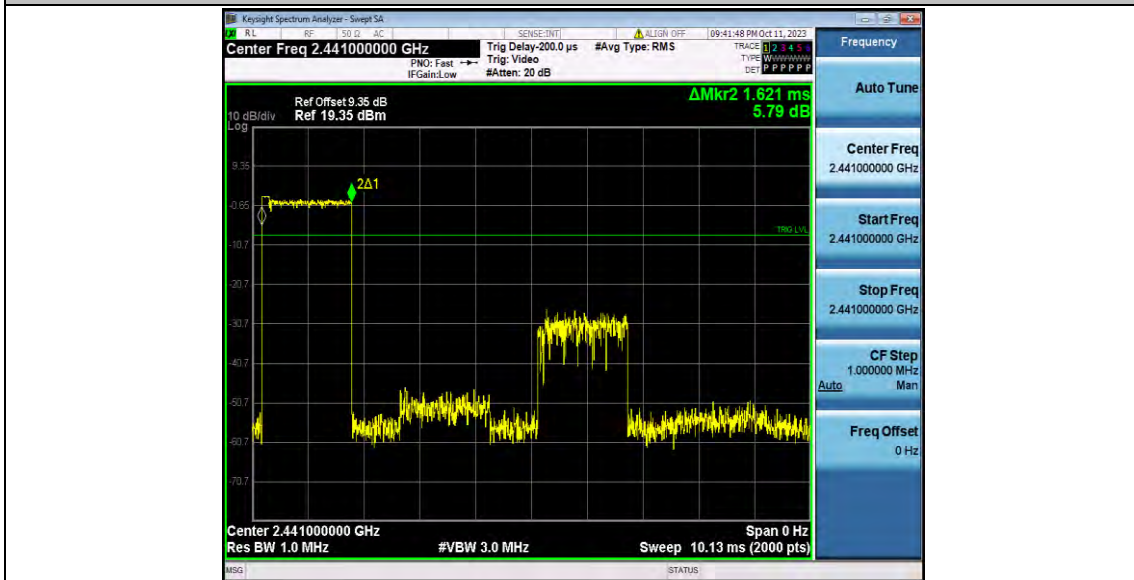
DH5_Ant1_Hop



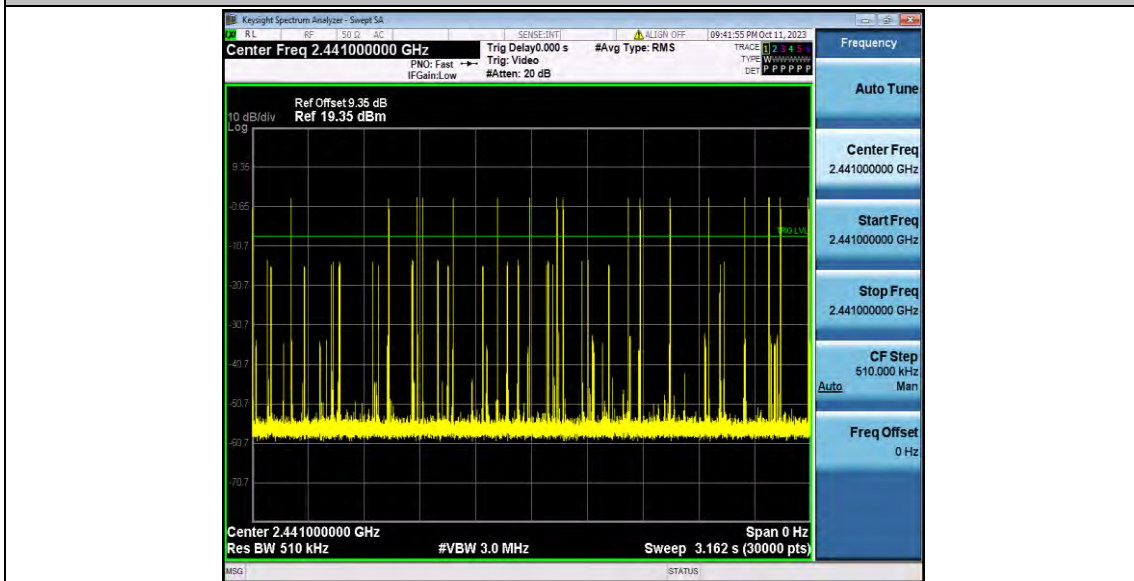
2DH1_Ant1_Hop



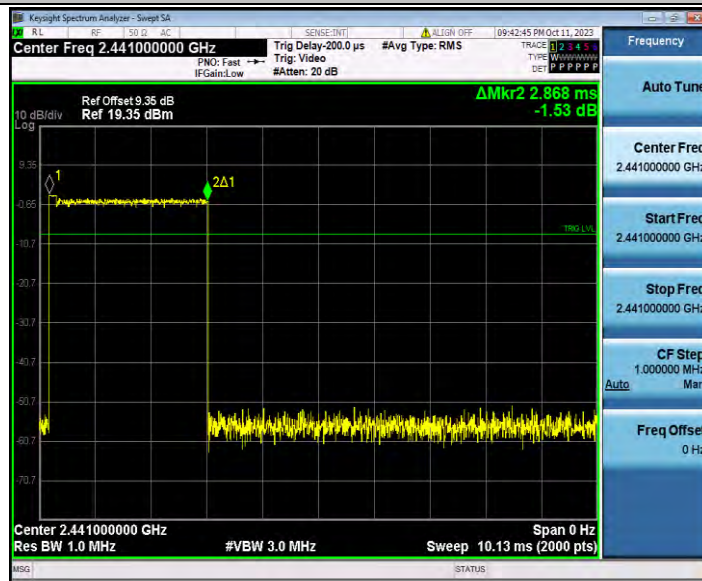
2DH1_Ant1_Hop



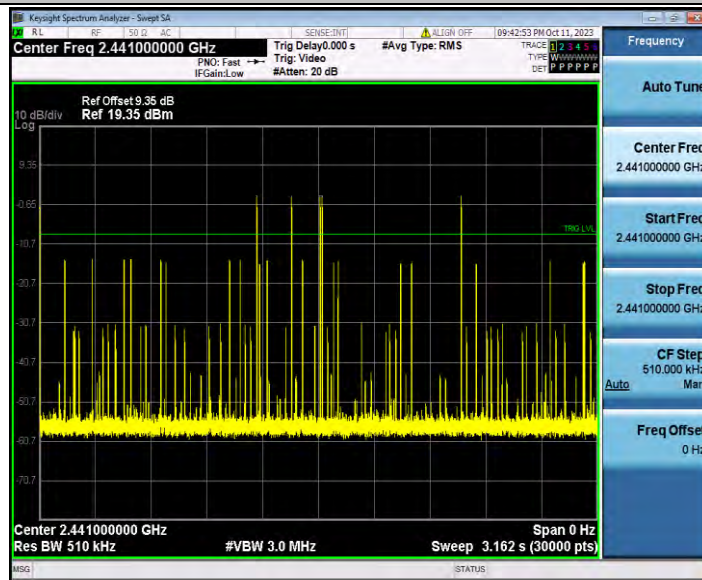
2DH3_Ant1_Hop



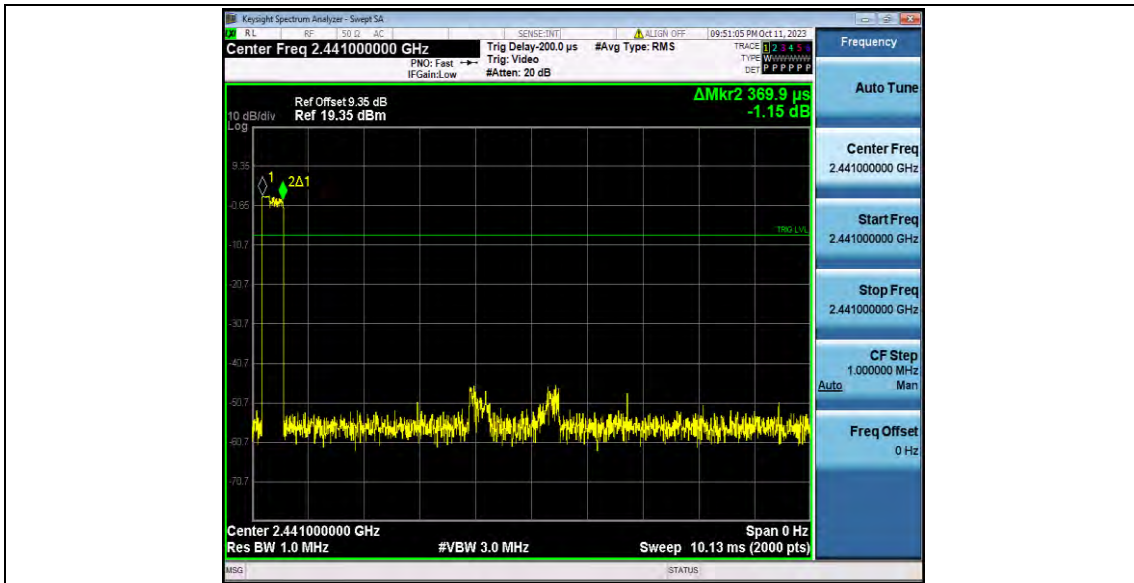
2DH3_Ant1_Hop



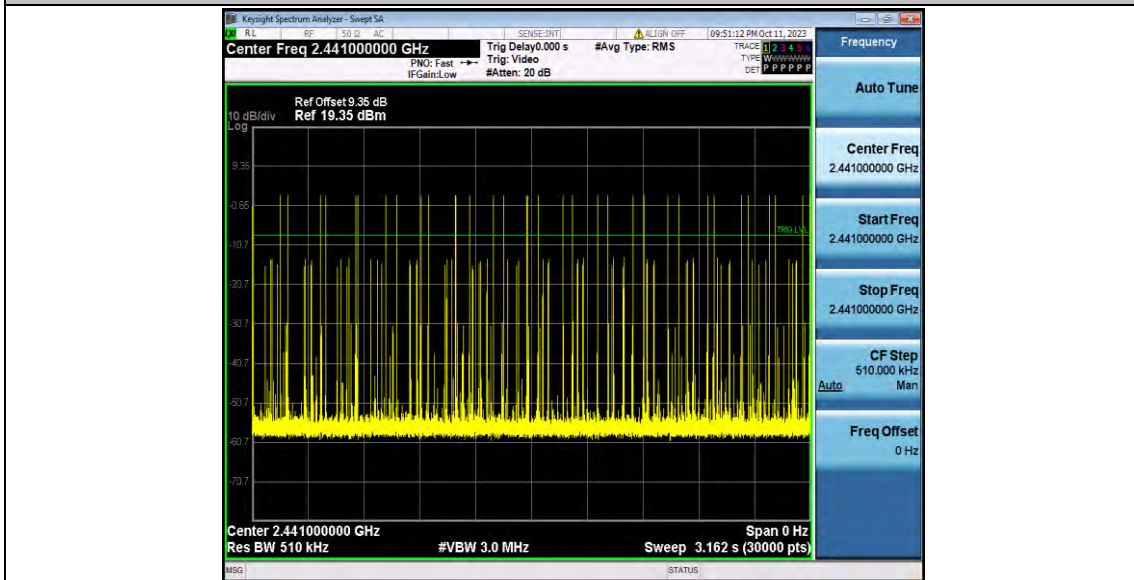
2DH5_Ant1_Hop



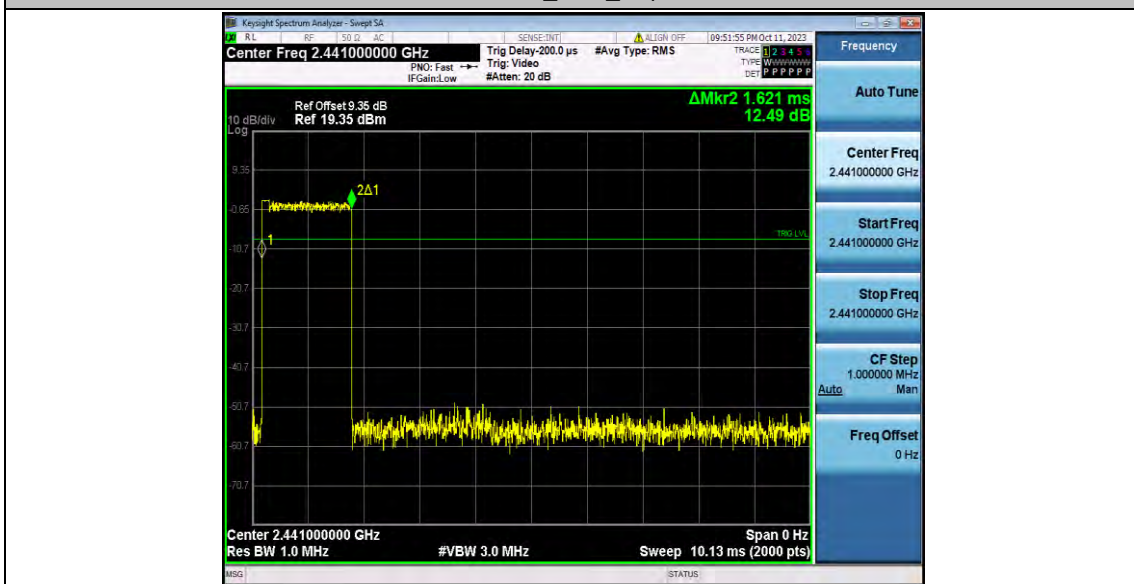
2DH5_Ant1_Hop



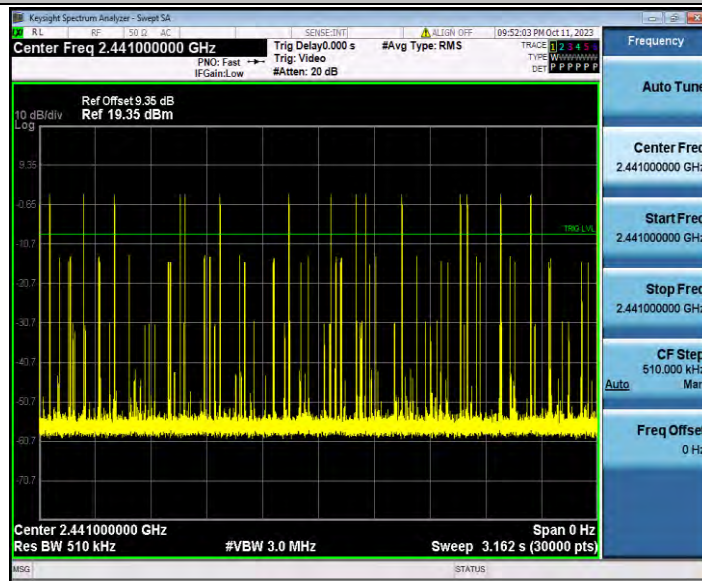
3DH1_Ant1_Hop



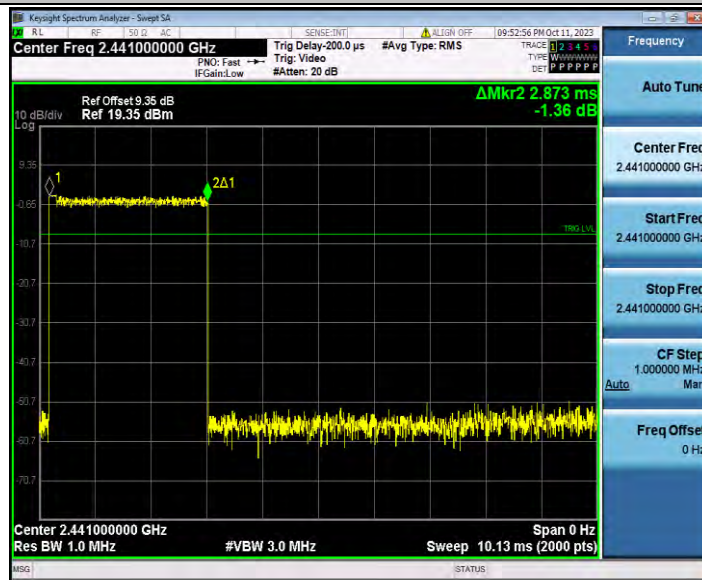
3DH1_Ant1_Hop



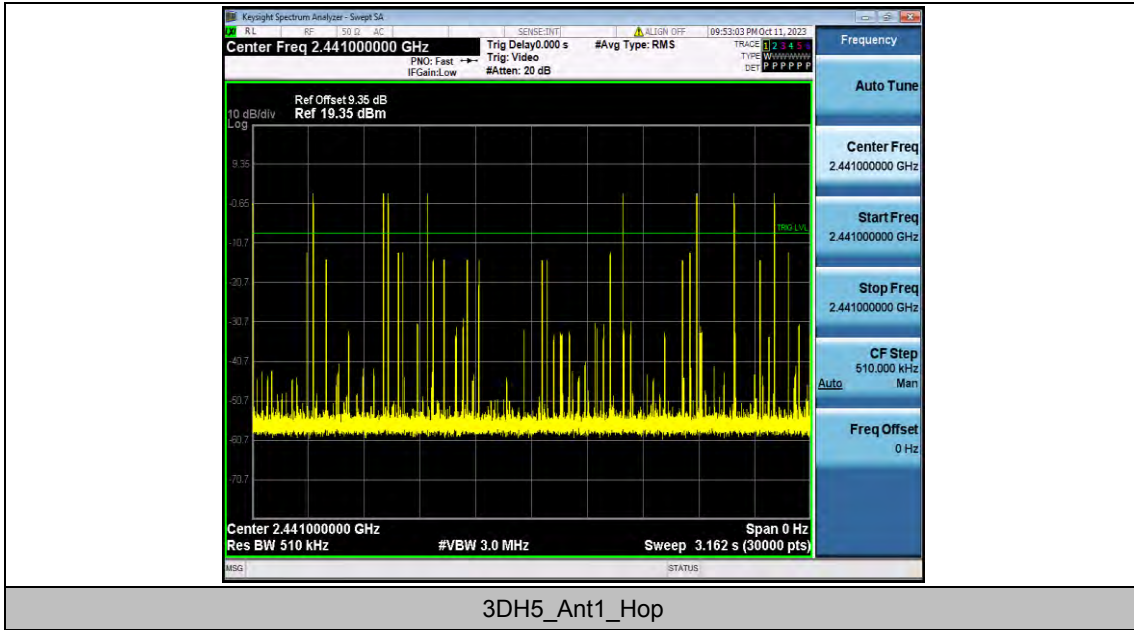
3DH3_Ant1_Hop



3DH3_Ant1_Hop



3DH5_Ant1_Hop

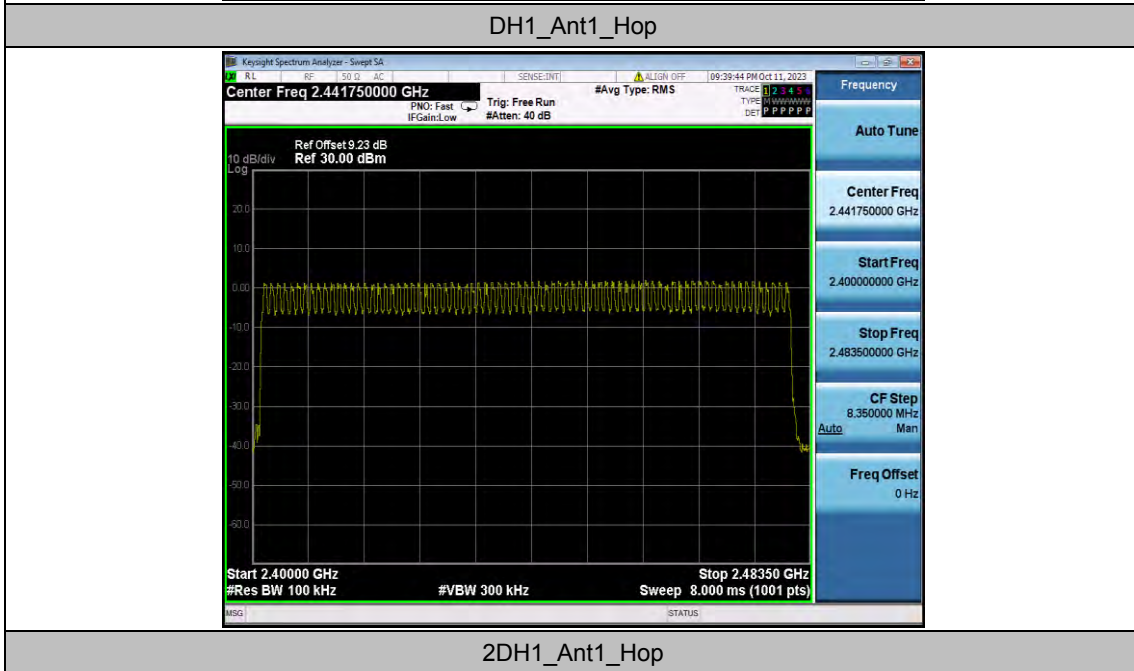
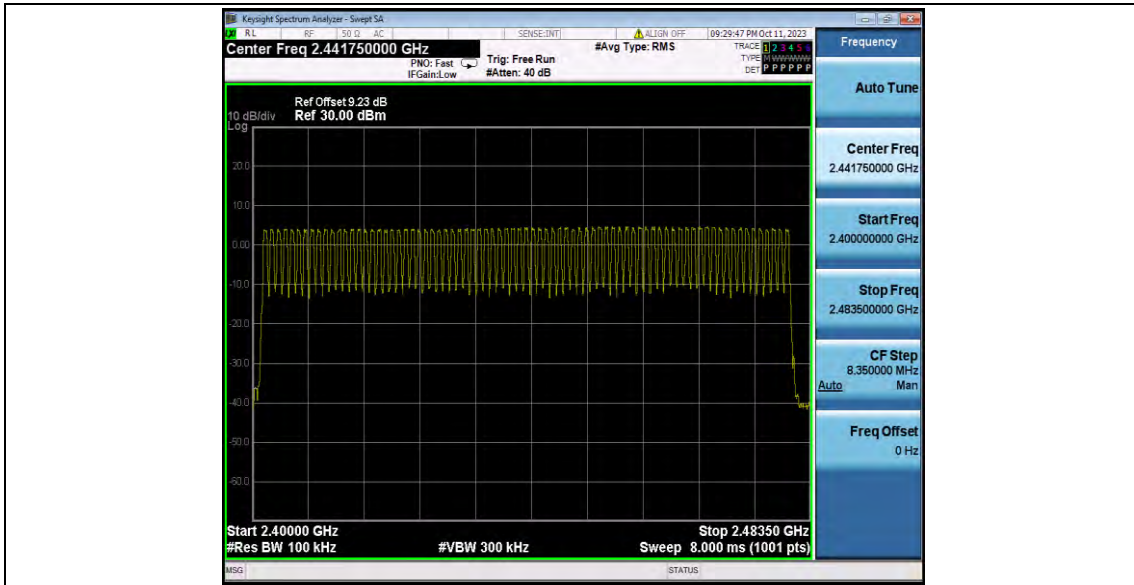


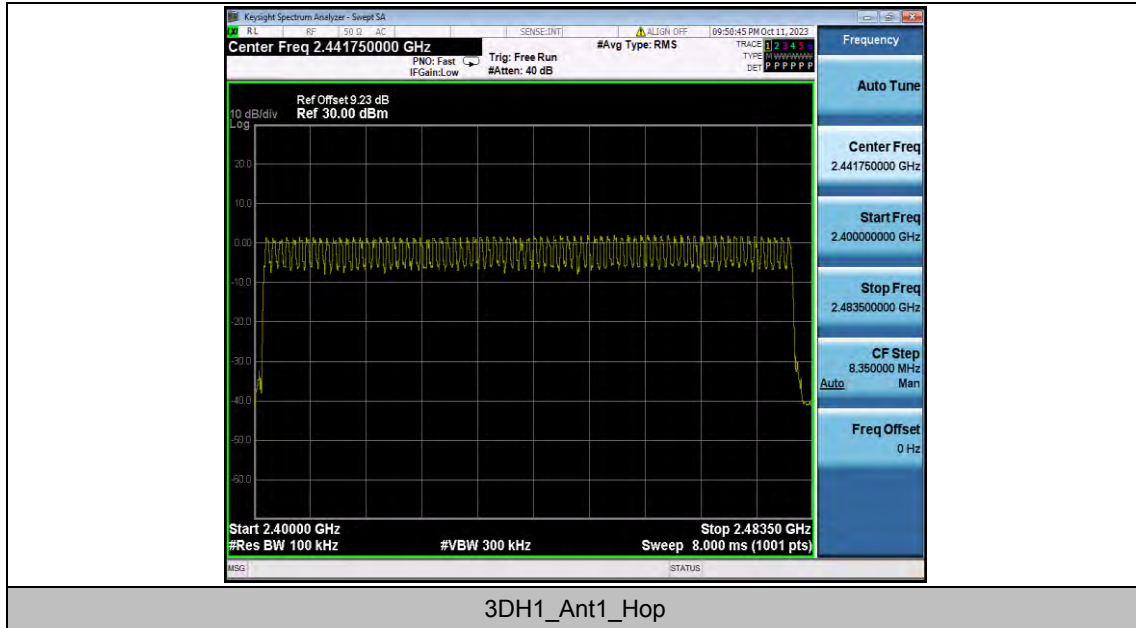
Appendix A.6: Number of hopping channels

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





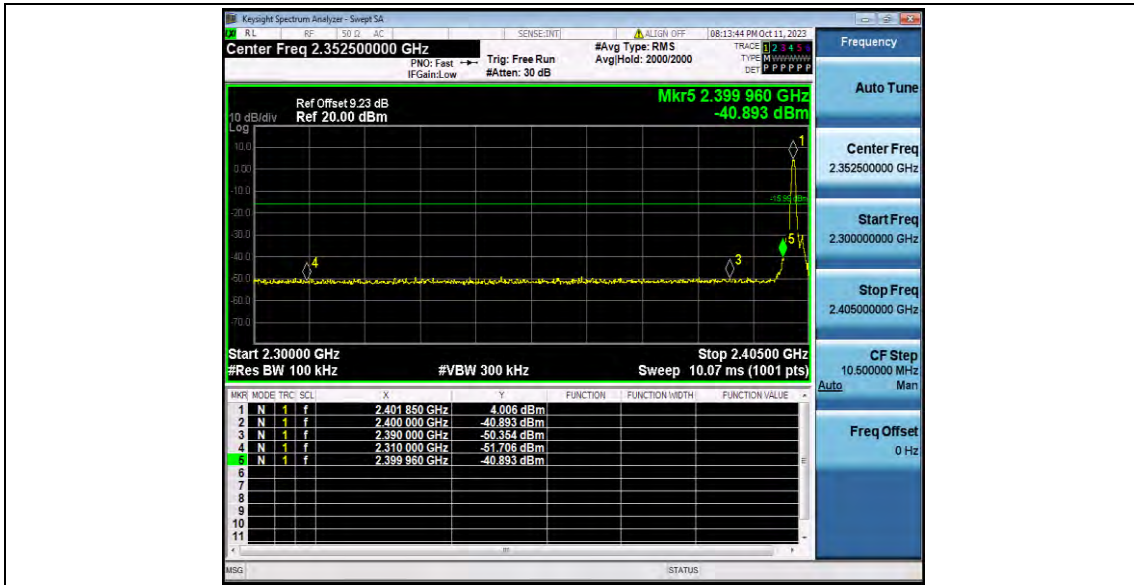
3DH1_Ant1_Hop

Appendix A.7: Band edge measurements

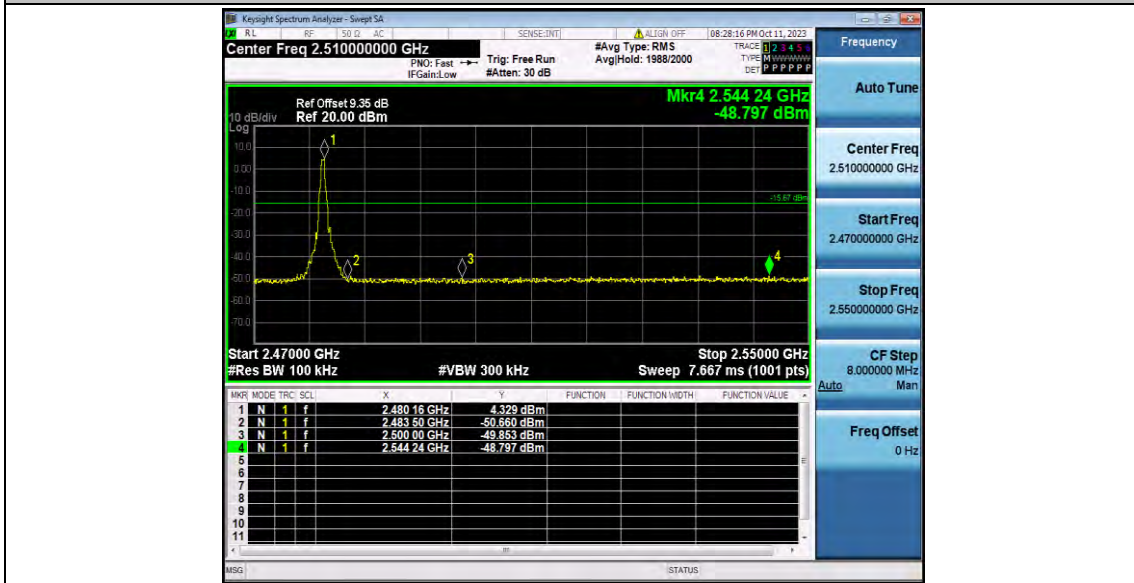
Test Result

| Test Mode | Antenna | ChName | Frequency[MHz] | RefLevel [dBm] | Result [dBm] | Limit [dBm] | Verdict |
|-----------|---------|--------|----------------|----------------|--------------|-------------|---------|
| DH1 | Ant1 | Low | 2402 | 4.01 | -40.89 | ≤-15.99 | PASS |
| | | High | 2480 | 4.33 | -48.8 | ≤-15.67 | PASS |
| | | Low | Hop_2402 | 3.98 | -49.02 | ≤-16.02 | PASS |
| | | High | Hop_2480 | 4.24 | -48.23 | ≤-15.77 | PASS |
| 2DH1 | Ant1 | Low | 2402 | 1.36 | -41.75 | ≤-18.64 | PASS |
| | | High | 2480 | 1.62 | -48.75 | ≤-18.38 | PASS |
| | | Low | Hop_2402 | 1.17 | -49.63 | ≤-18.83 | PASS |
| | | High | Hop_2480 | 1.57 | -48.24 | ≤-18.43 | PASS |
| 3DH1 | Ant1 | Low | 2402 | 1.39 | -43.22 | ≤-18.61 | PASS |
| | | High | 2480 | 1.60 | -48.7 | ≤-18.4 | PASS |
| | | Low | Hop_2402 | 1.23 | -49.28 | ≤-18.77 | PASS |
| | | High | Hop_2480 | 1.52 | -48.68 | ≤-18.48 | PASS |

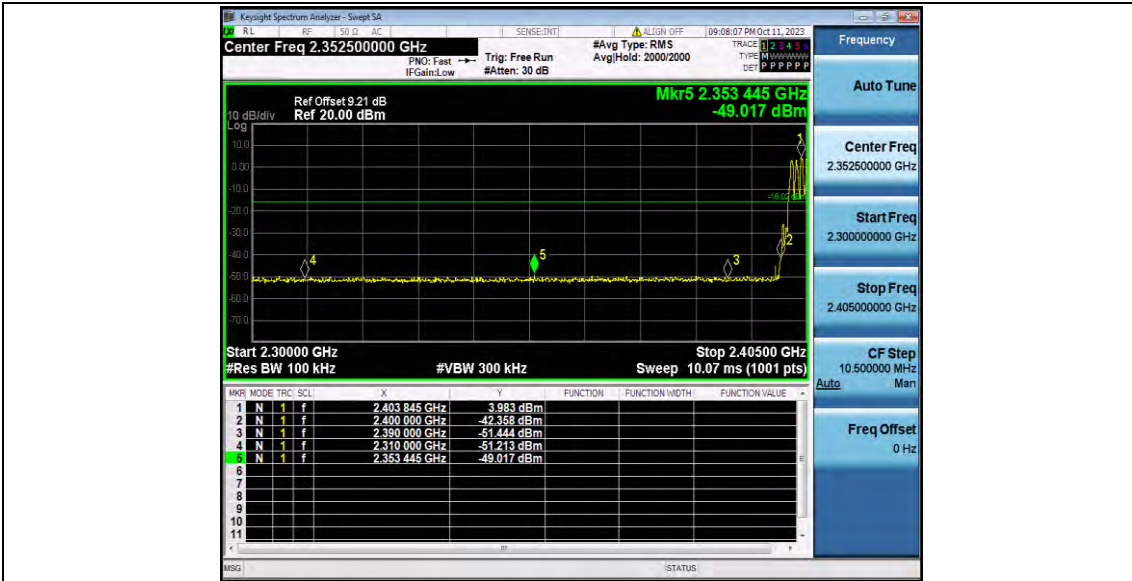
Test Graphs



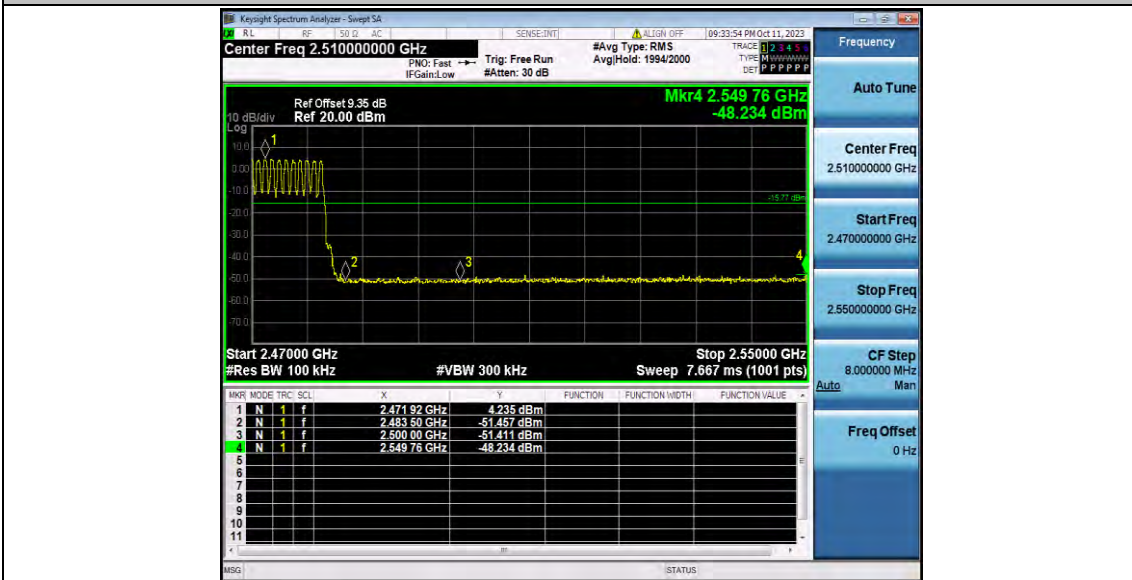
DH1_Ant1_Low_2402



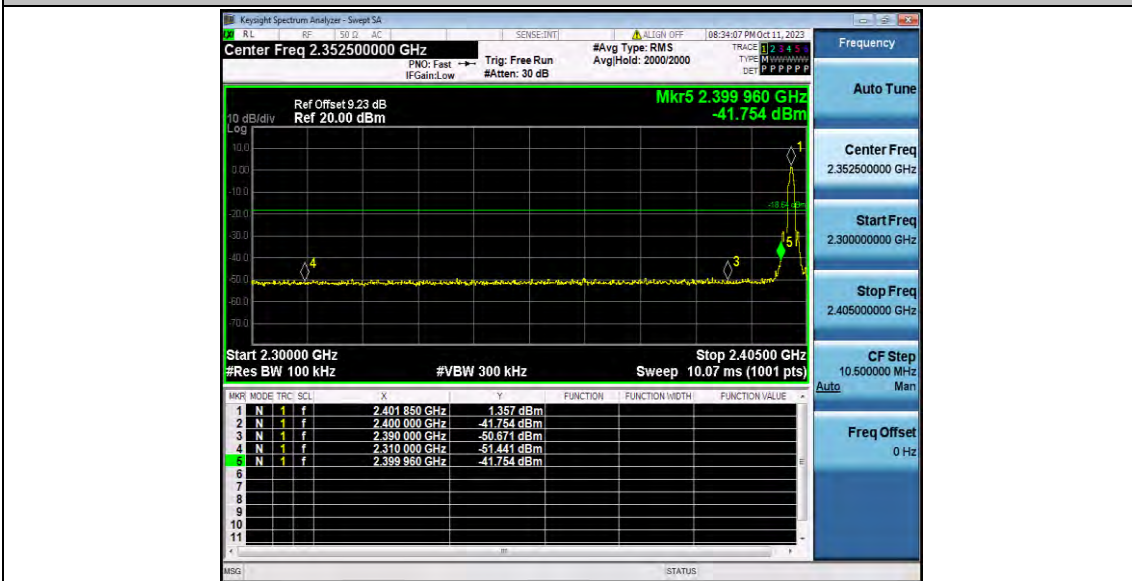
DH1_Ant1_High_2480



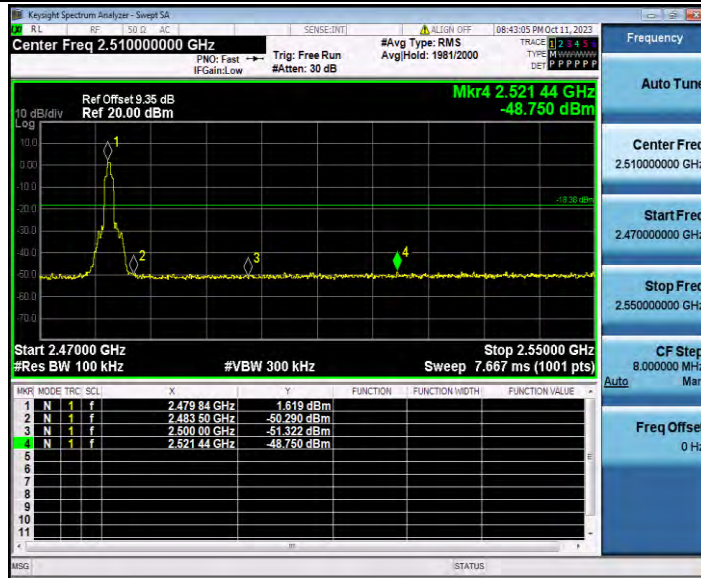
DH1_Ant1_Low_Hop_2402



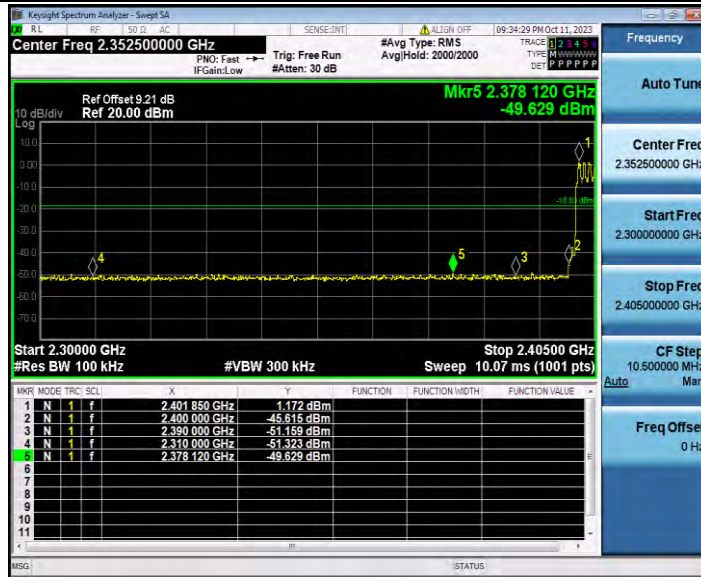
DH1_Ant1_High_Hop_2480



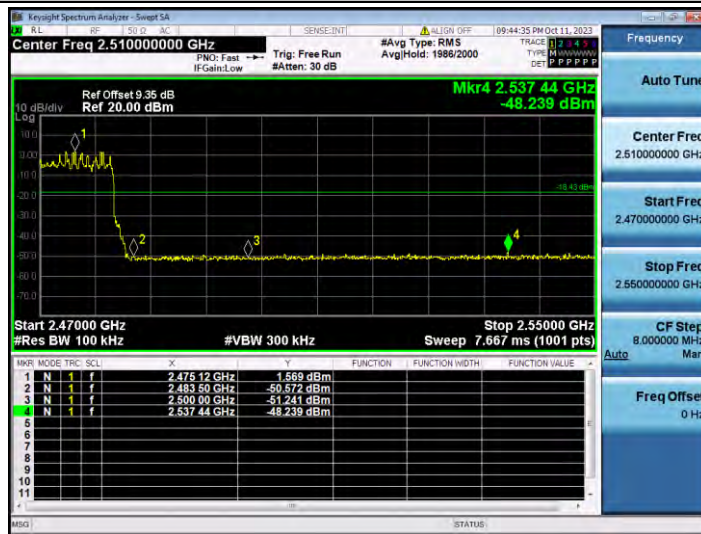
2DH1_Ant1_Low_2402



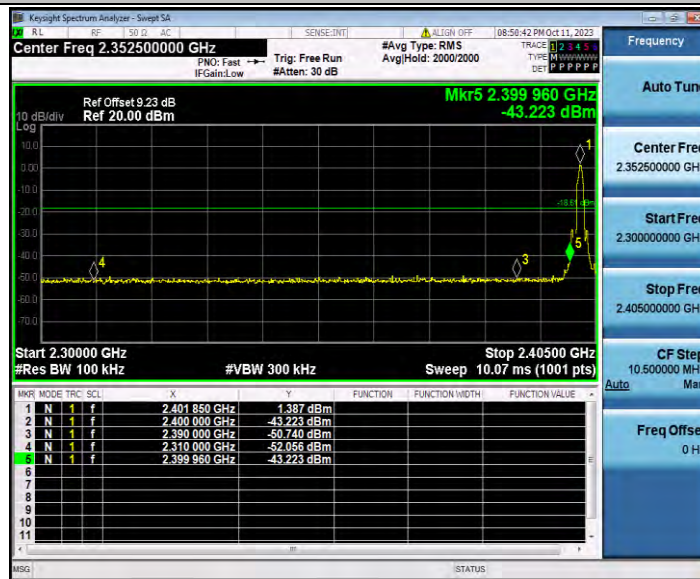
2DH1_Ant1_High_2480



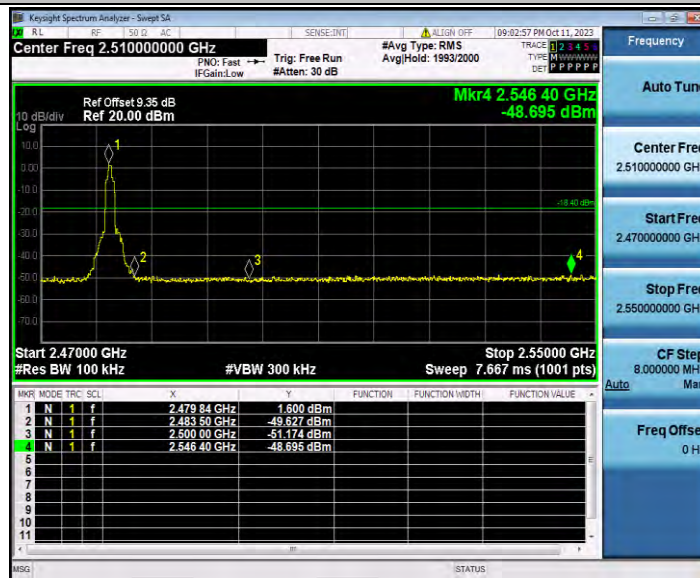
2DH1_Ant1_Low_Hop_2402



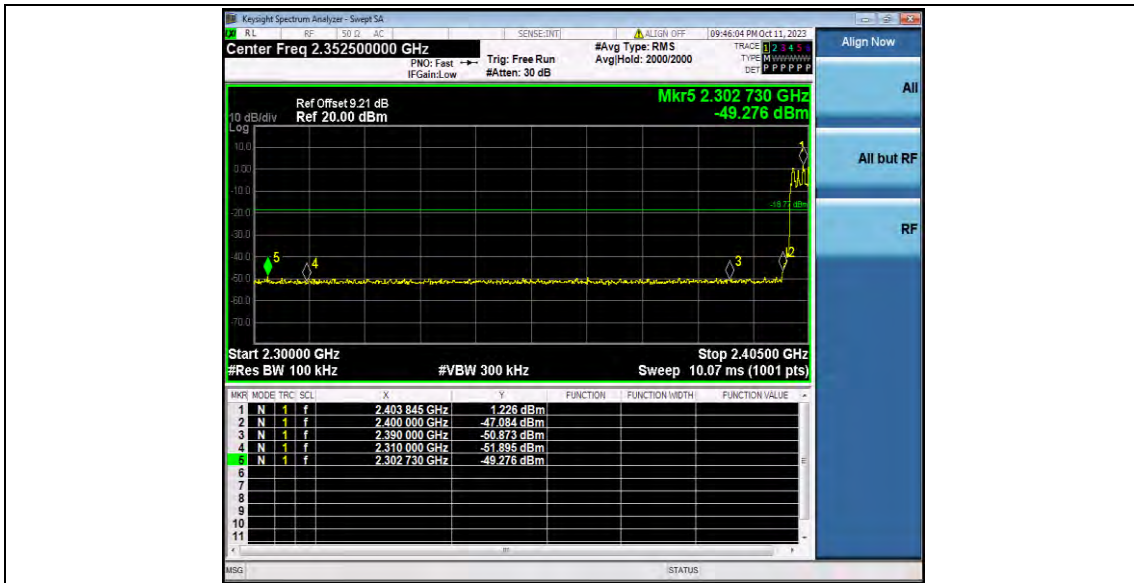
2DH1_Ant1_High_Hop_2480



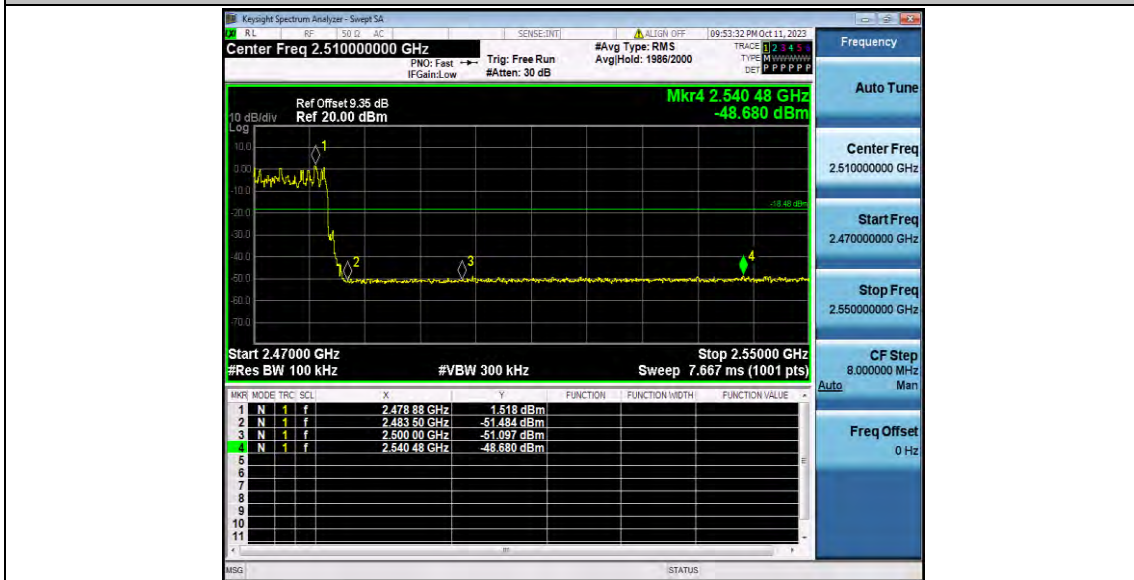
3DH1_Ant1_Low_2402



3DH1_Ant1_High_2480



3DH1_Ant1_Low_Hop_2402



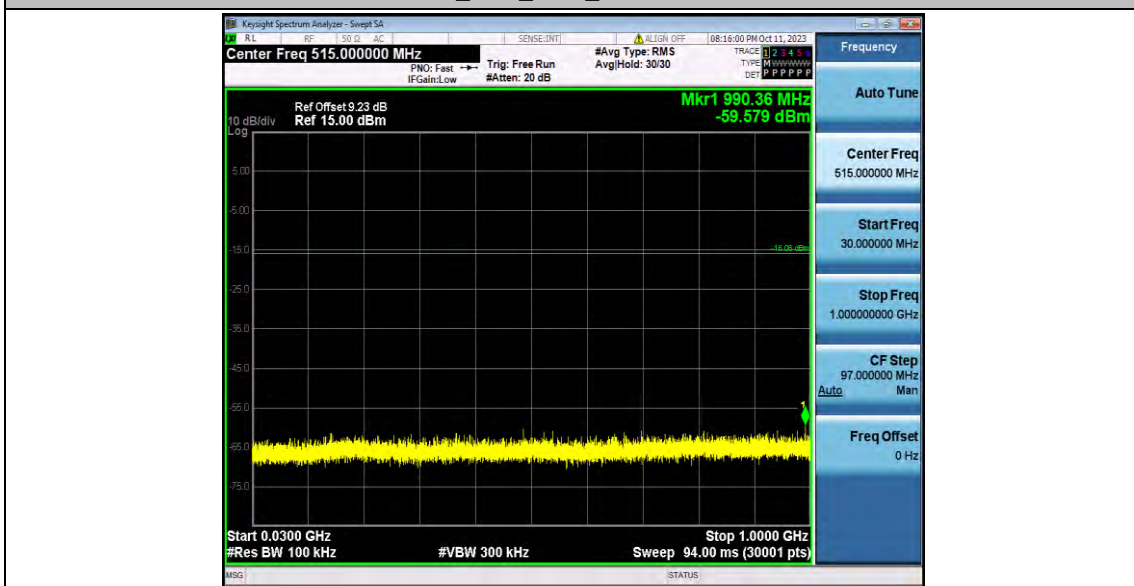
3DH1_Ant1_High_Hop_2480

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 | 3.94 | 3.94 | --- | PASS |
| | | | 30~1000 | 3.94 | -59.58 | ≤-16.06 | PASS |
| | | | 1000~26500 | 3.94 | -47.62 | ≤-16.06 | PASS |
| | | 2441 | Reference | 4.18 | 4.18 | --- | PASS |
| | | | 30~1000 | 4.18 | -60.1 | ≤-15.82 | PASS |
| | | | 1000~26500 | 4.18 | -47.7 | ≤-15.82 | PASS |
| | | 2480 | Reference | 3.46 | 3.46 | --- | PASS |
| | | | 30~1000 | 3.46 | -60.26 | ≤-16.54 | PASS |
| | | | 1000~26500 | 3.46 | -47.74 | ≤-16.54 | PASS |
| 2DH1 | Ant1 | 2402 | Reference | 1.14 | 1.14 | --- | PASS |
| | | | 30~1000 | 1.14 | -60.09 | ≤-18.86 | PASS |
| | | | 1000~26500 | 1.14 | -44.54 | ≤-18.86 | PASS |
| | | 2441 | Reference | 1.61 | 1.61 | --- | PASS |
| | | | 30~1000 | 1.61 | -60.23 | ≤-18.39 | PASS |
| | | | 1000~26500 | 1.61 | -44.85 | ≤-18.39 | PASS |
| | | 2480 | Reference | 1.43 | 1.43 | --- | PASS |
| | | | 30~1000 | 1.43 | -60.22 | ≤-18.57 | PASS |
| | | | 1000~26500 | 1.43 | -43.86 | ≤-18.57 | PASS |
| 3DH1 | Ant1 | 2402 | Reference | 1.21 | 1.21 | --- | PASS |
| | | | 30~1000 | 1.21 | -60.37 | ≤-18.79 | PASS |
| | | | 1000~26500 | 1.21 | -44.75 | ≤-18.79 | PASS |
| | | 2441 | Reference | 1.74 | 1.74 | --- | PASS |
| | | | 30~1000 | 1.74 | -60.13 | ≤-18.26 | PASS |
| | | | 1000~26500 | 1.74 | -44.18 | ≤-18.26 | PASS |
| | | 2480 | Reference | 1.18 | 1.18 | --- | PASS |
| | | | 30~1000 | 1.18 | -59.58 | ≤-18.82 | PASS |
| | | | 1000~26500 | 1.18 | -43.57 | ≤-18.82 | PASS |

Test Graphs

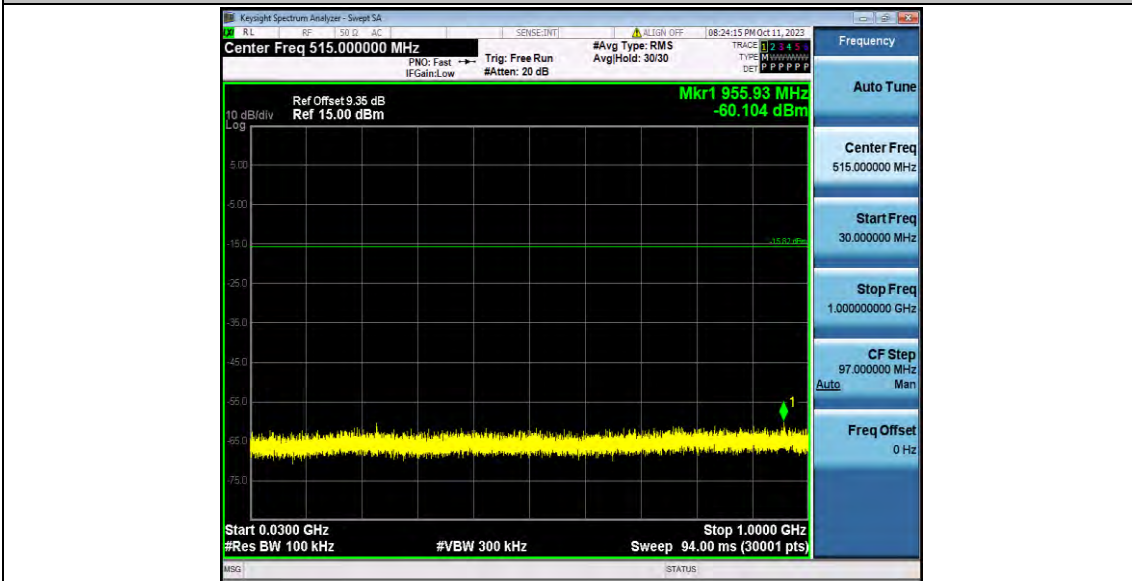




DH1_Ant1_2402_1000~26500



DH1_Ant1_2441_0~Reference



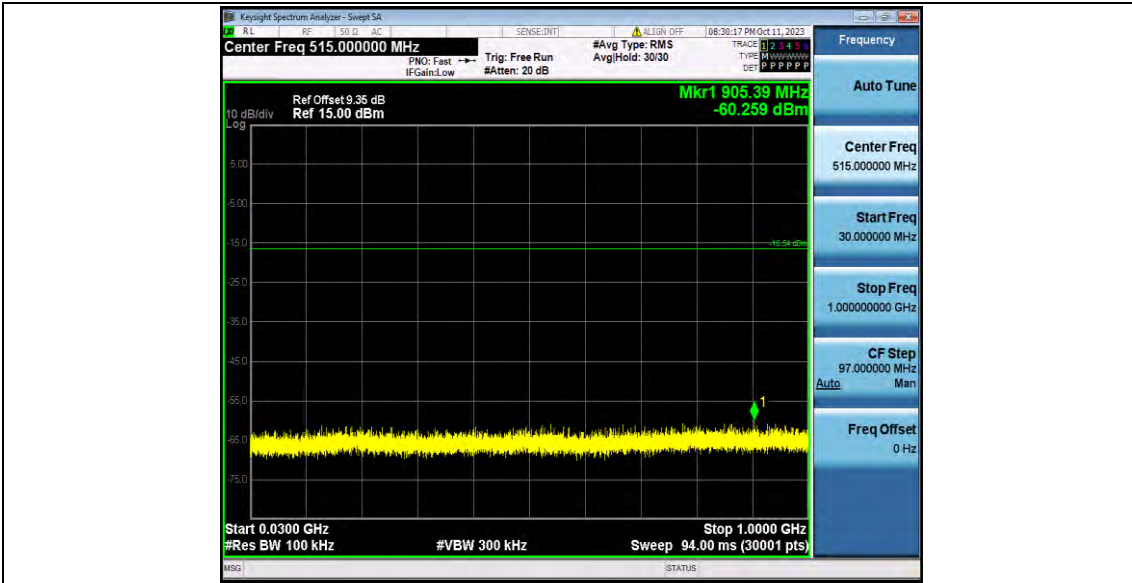
DH1_Ant1_2441_30~1000



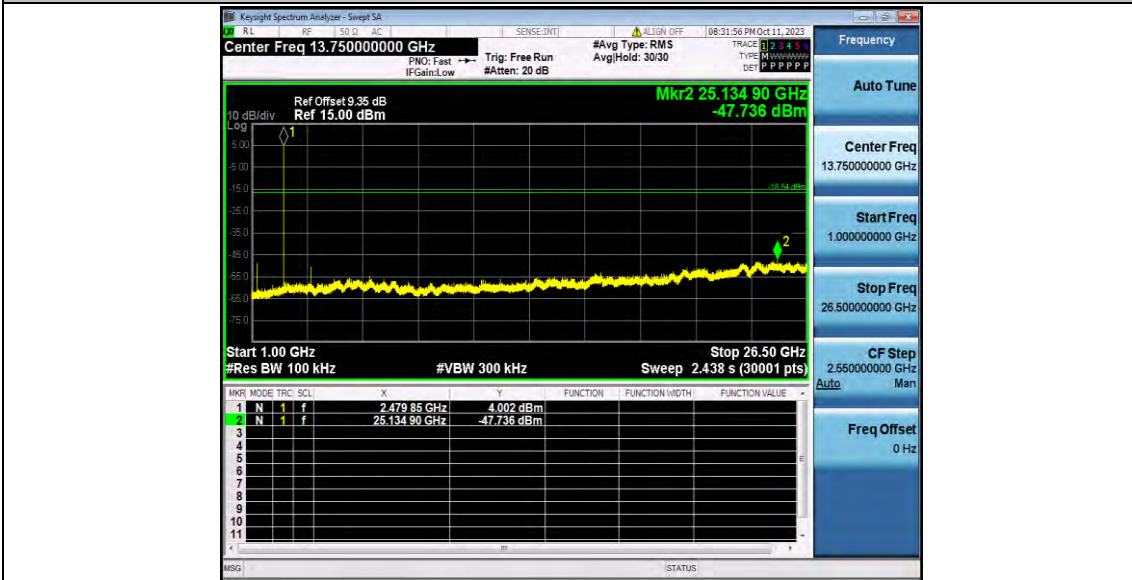
DH1_Ant1_2441_1000~26500



DH1_Ant1_2480_0~Reference



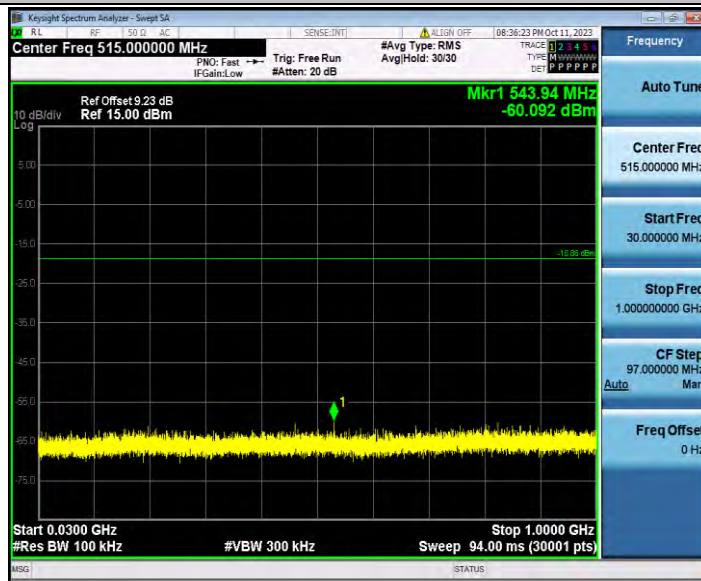
DH1_Ant1_2480_30~1000



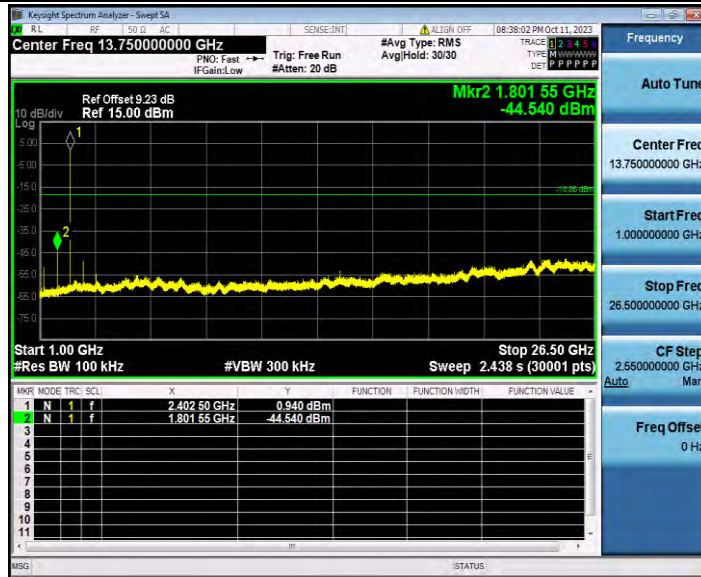
DH1_Ant1_2480_1000~26500



2DH1_Ant1_2402_0~Reference



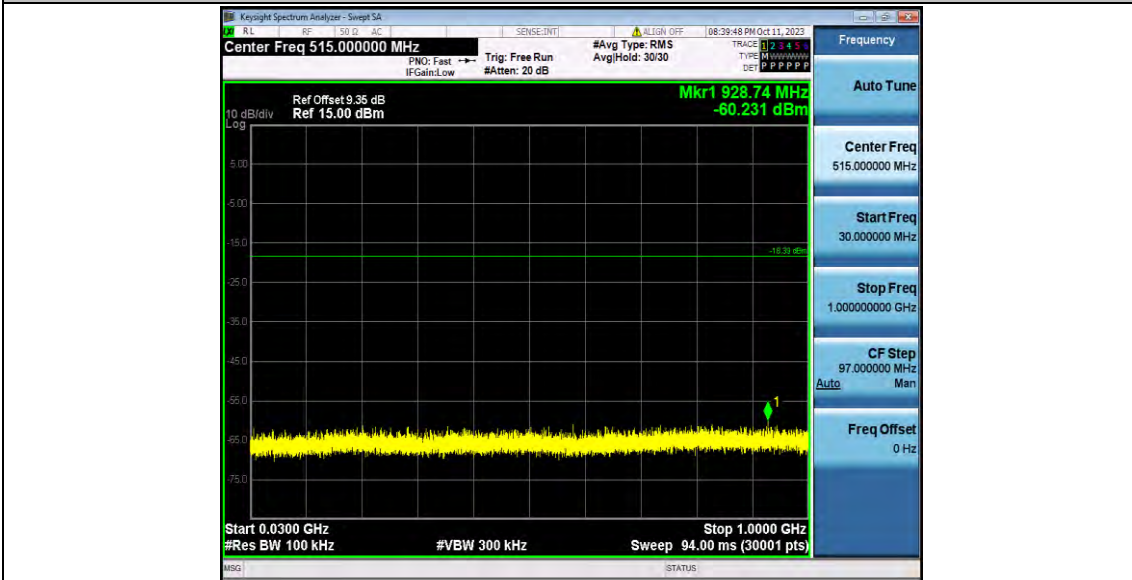
2DH1_Ant1_2402_30~1000



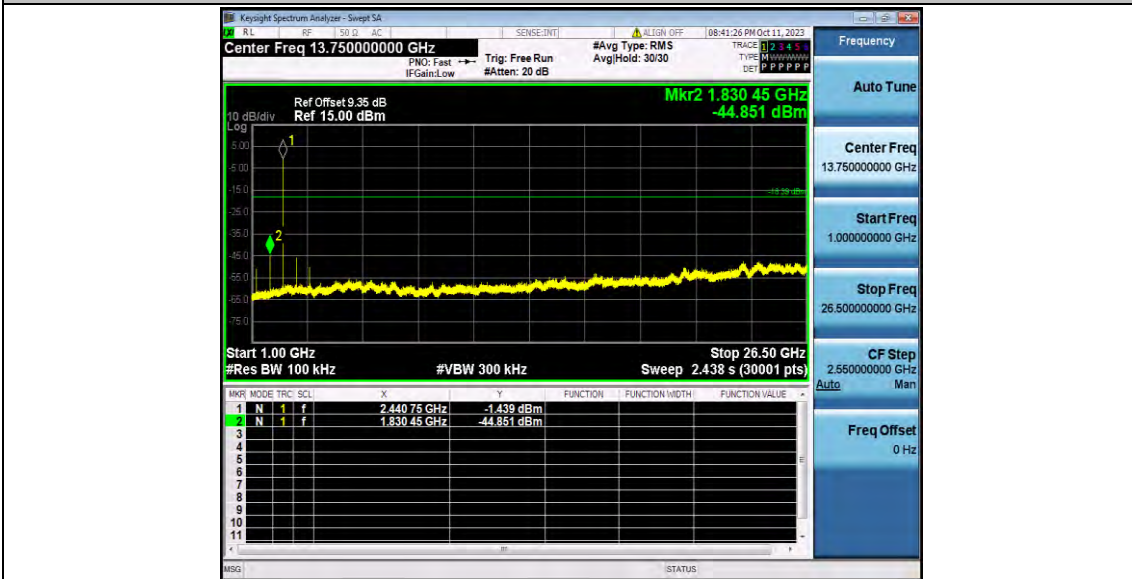
2DH1_Ant1_2402_1000~26500



2DH1_Ant1_2441_0~Reference



2DH1_Ant1_2441_30~1000



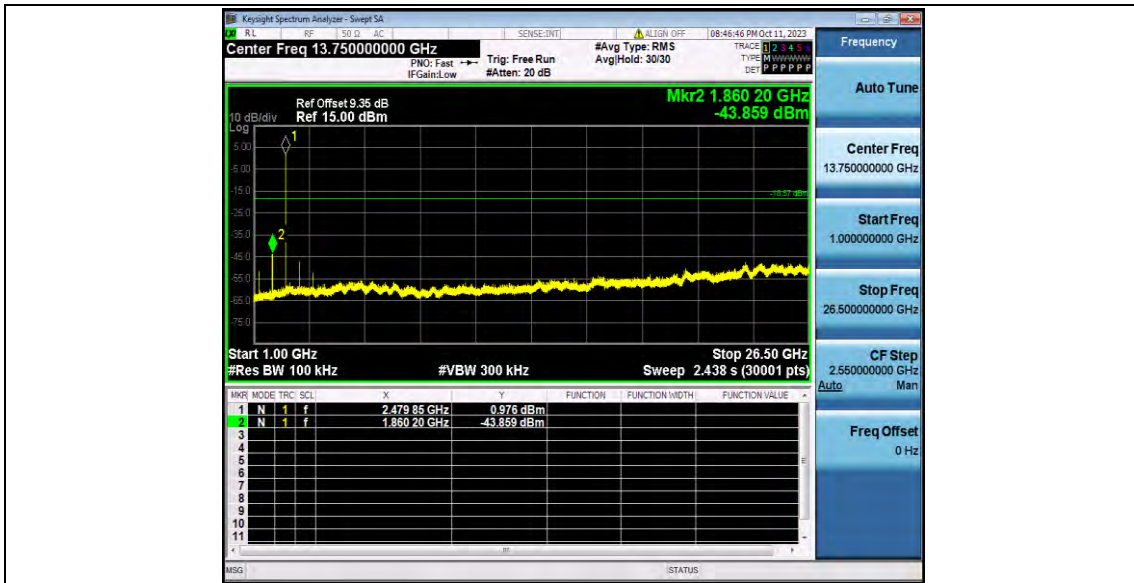
2DH1_Ant1_2441_1000~26500



2DH1_Ant1_2480_0~Reference



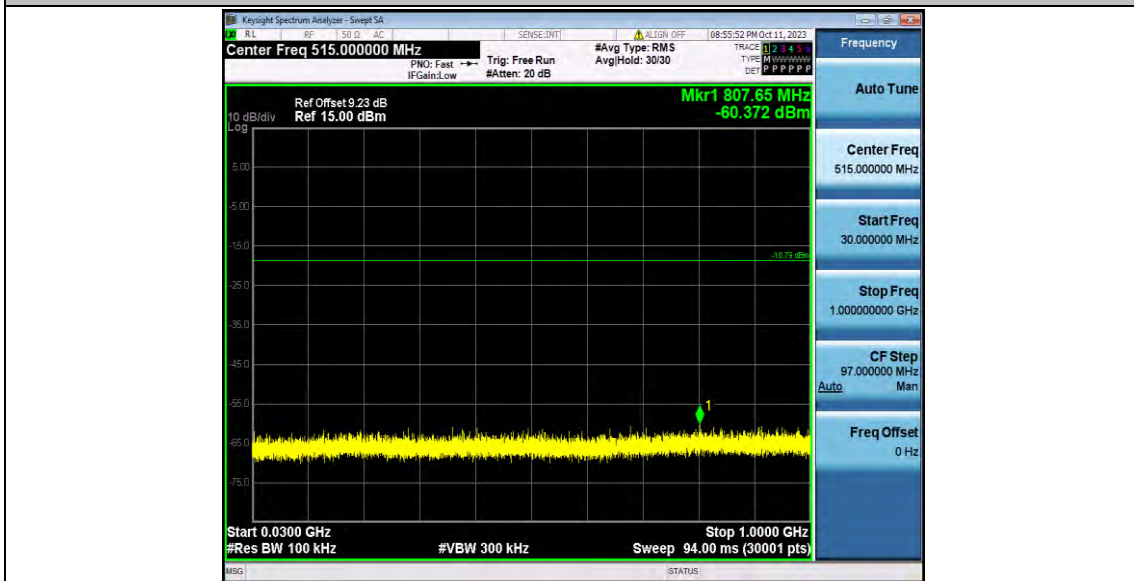
2DH1_Ant1_2480_30~1000



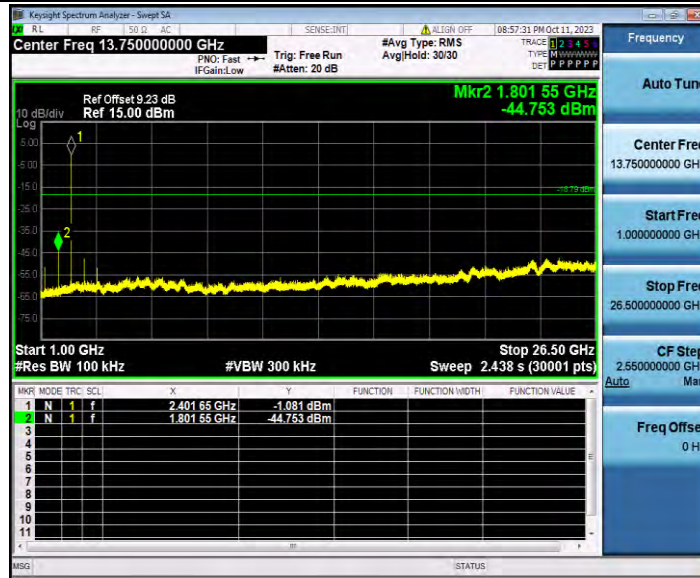
2DH1_Ant1_2480_1000~26500



3DH1_Ant1_2402_0~Reference



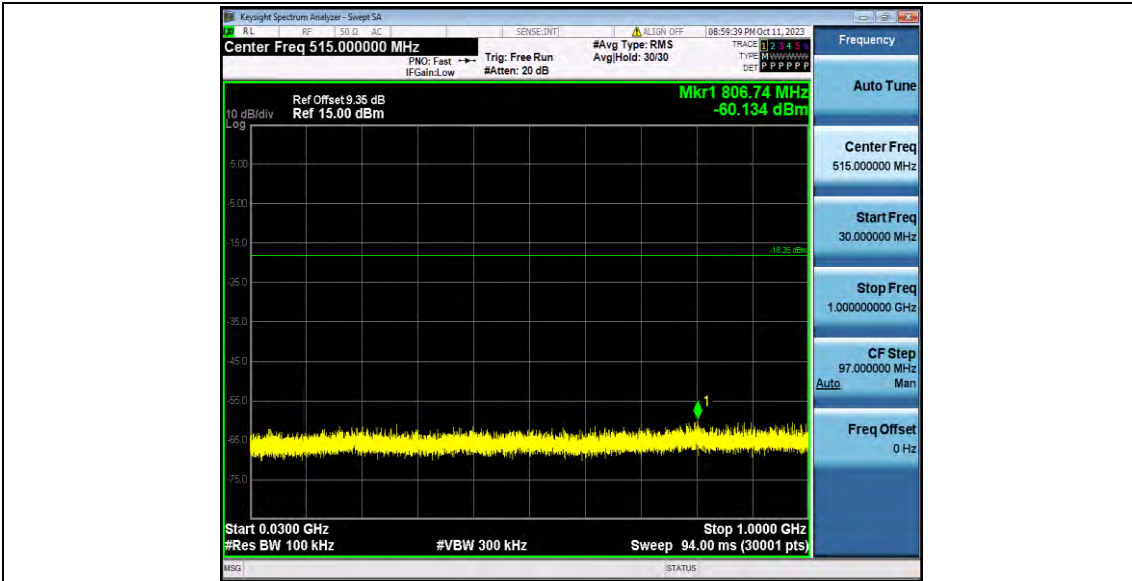
3DH1_Ant1_2402_30~1000



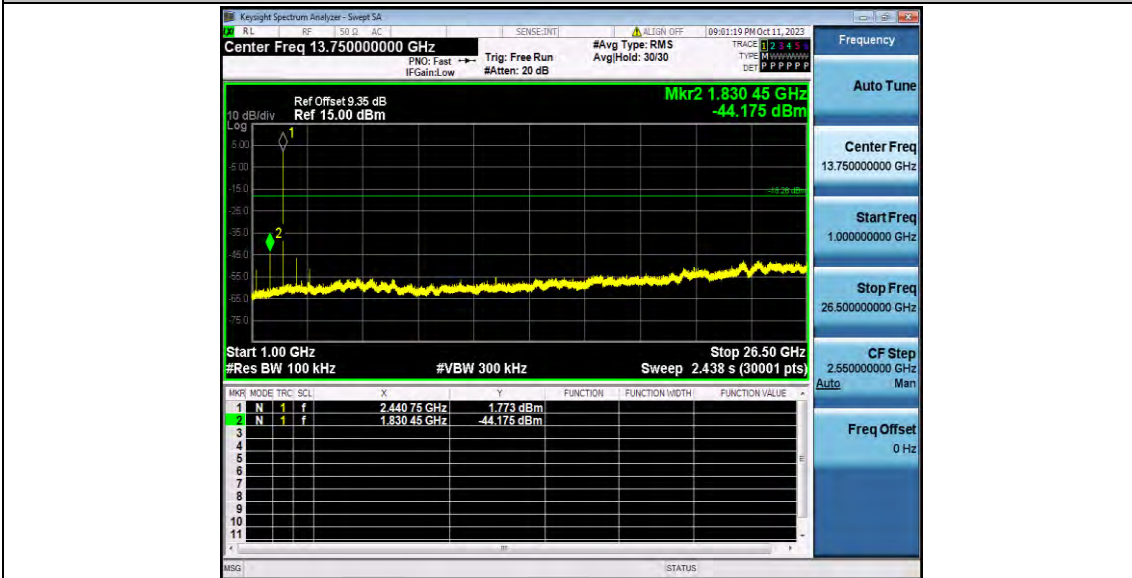
3DH1_Ant1_2402_1000~26500



3DH1_Ant1_2441_0~Reference



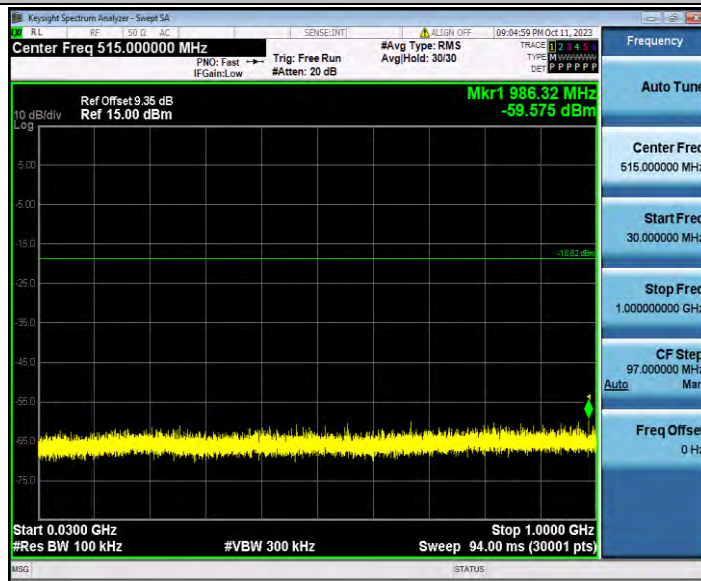
3DH1_Ant1_2441_30~100



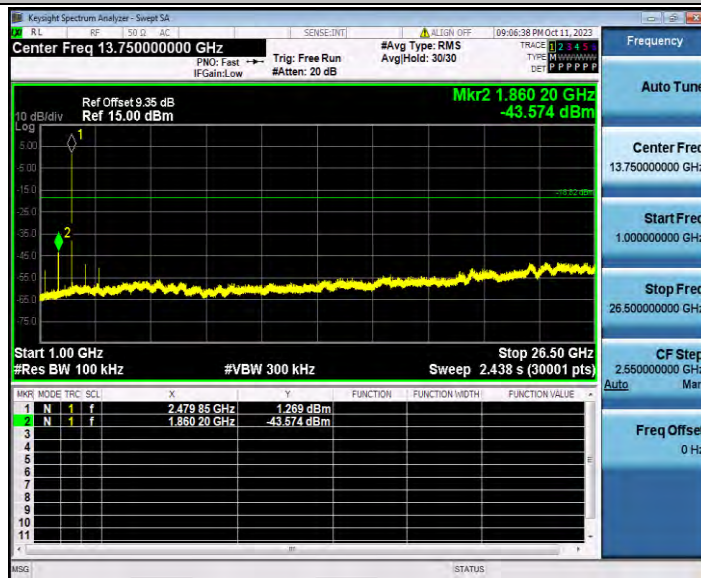
3DH1_Ant1_2441_1000~26500



3DH1_Ant1_2480_0~Reference



3DH1_Ant1_2480_30~1000



3DH1_Ant1_2480_1000~26500

Appendix A.9: Emissions in Restricted Bands

Test Result

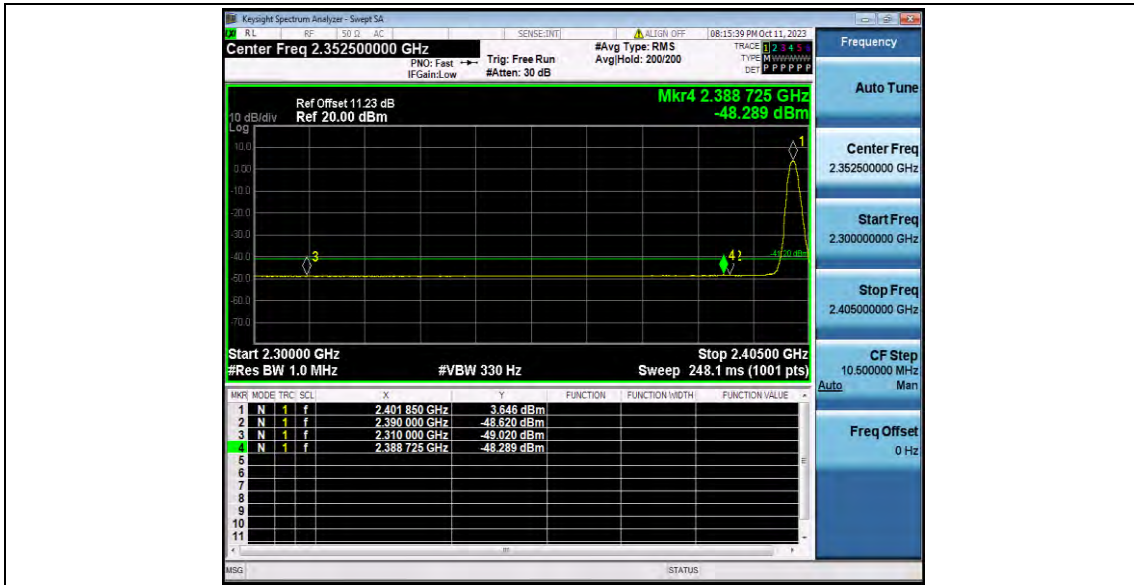
| TestMode | Antenna | ChName | Frequency [MHz] | Detector | Freq [MHz] | Result [dBm] | Limit [dBm] | Result [dBuV/m] | Limit [dBuV/m] | Verdict |
|----------|---------|--------|-----------------|----------|------------|--------------|-------------|-----------------|----------------|---------|
| DH1 | Ant1 | Low | 2402 | AV | 2310.000 | -49.02 | ≤-41.20 | 46.18 | ≤54 | PASS |
| | | | | AV | 2388.725 | -48.29 | ≤-41.20 | 46.91 | ≤54 | PASS |
| | | | | AV | 2390.000 | -48.62 | ≤-41.20 | 46.58 | ≤54 | PASS |
| | | | | Peak | 2310.000 | -41.49 | ≤-21.20 | 53.71 | ≤74 | PASS |
| | | | | Peak | 2370.770 | -38.22 | ≤-21.20 | 56.98 | ≤74 | PASS |
| | | | | Peak | 2390.000 | -41.17 | ≤-21.20 | 54.03 | ≤74 | PASS |
| | | High | 2480 | AV | 2483.500 | -46.4 | ≤-41.20 | 48.80 | ≤54 | PASS |
| | | | | AV | 2483.520 | -46.4 | ≤-41.20 | 48.80 | ≤54 | PASS |
| | | | | AV | 2500.000 | -48.29 | ≤-41.20 | 46.91 | ≤54 | PASS |
| | | | | Peak | 2483.500 | -38.74 | ≤-21.20 | 56.46 | ≤74 | PASS |
| | | | | Peak | 2483.760 | -38.39 | ≤-21.20 | 56.81 | ≤74 | PASS |
| | | | | Peak | 2500.000 | -40.4 | ≤-21.20 | 54.80 | ≤74 | PASS |
| 2DH1 | Ant1 | Low | 2402 | AV | 2310.000 | -48.94 | ≤-41.20 | 46.26 | ≤54 | PASS |
| | | | | AV | 2389.355 | -48.49 | ≤-41.20 | 46.71 | ≤54 | PASS |
| | | | | AV | 2390.000 | -48.65 | ≤-41.20 | 46.55 | ≤54 | PASS |
| | | | | Peak | 2310.000 | -40.89 | ≤-21.20 | 54.31 | ≤74 | PASS |
| | | | | Peak | 2362.580 | -38.38 | ≤-21.20 | 56.82 | ≤74 | PASS |
| | | | | Peak | 2390.000 | -41.45 | ≤-21.20 | 53.75 | ≤74 | PASS |
| | | High | 2480 | AV | 2483.500 | -47.08 | ≤-41.20 | 48.12 | ≤54 | PASS |
| | | | | AV | 2483.520 | -47.08 | ≤-41.20 | 48.12 | ≤54 | PASS |
| | | | | AV | 2500.000 | -48.22 | ≤-41.20 | 46.98 | ≤54 | PASS |
| | | | | Peak | 2483.500 | -39.5 | ≤-21.20 | 55.70 | ≤74 | PASS |
| | | | | Peak | 2492.560 | -38.28 | ≤-21.20 | 56.92 | ≤74 | PASS |
| | | | | Peak | 2500.000 | -41.24 | ≤-21.20 | 53.96 | ≤74 | PASS |
| 3DH1 | Ant1 | Low | 2402 | AV | 2310.000 | -49.07 | ≤-41.20 | 46.13 | ≤54 | PASS |
| | | | | AV | 2387.570 | -48.53 | ≤-41.20 | 46.67 | ≤54 | PASS |
| | | | | AV | 2390.000 | -48.71 | ≤-41.20 | 46.49 | ≤54 | PASS |
| | | | | Peak | 2310.000 | -40.67 | ≤-21.20 | 54.53 | ≤74 | PASS |
| | | | | Peak | 2370.350 | -38.84 | ≤-21.20 | 56.36 | ≤74 | PASS |
| | | | | Peak | 2390.000 | -40.88 | ≤-21.20 | 54.32 | ≤74 | PASS |
| | | High | 2480 | AV | 2483.500 | -46.97 | ≤-41.20 | 48.23 | ≤54 | PASS |
| | | | | AV | 2483.520 | -46.97 | ≤-41.20 | 48.23 | ≤54 | PASS |
| | | | | AV | 2500.000 | -48.43 | ≤-41.20 | 46.77 | ≤54 | PASS |
| | | | | Peak | 2483.500 | -37.42 | ≤-21.20 | 57.78 | ≤74 | PASS |
| | | | | Peak | 2483.680 | -35.01 | ≤-21.20 | 60.19 | ≤74 | PASS |
| | | | | Peak | 2483.680 | -35.01 | ≤-21.20 | 60.19 | ≤74 | PASS |

| | | | | | | | | | | |
|--|--|--|--|------|----------|--------|---------|-------|-----|------|
| | | | | Peak | 2500.000 | -40.72 | ≤-21.20 | 54.48 | ≤74 | PASS |
|--|--|--|--|------|----------|--------|---------|-------|-----|------|

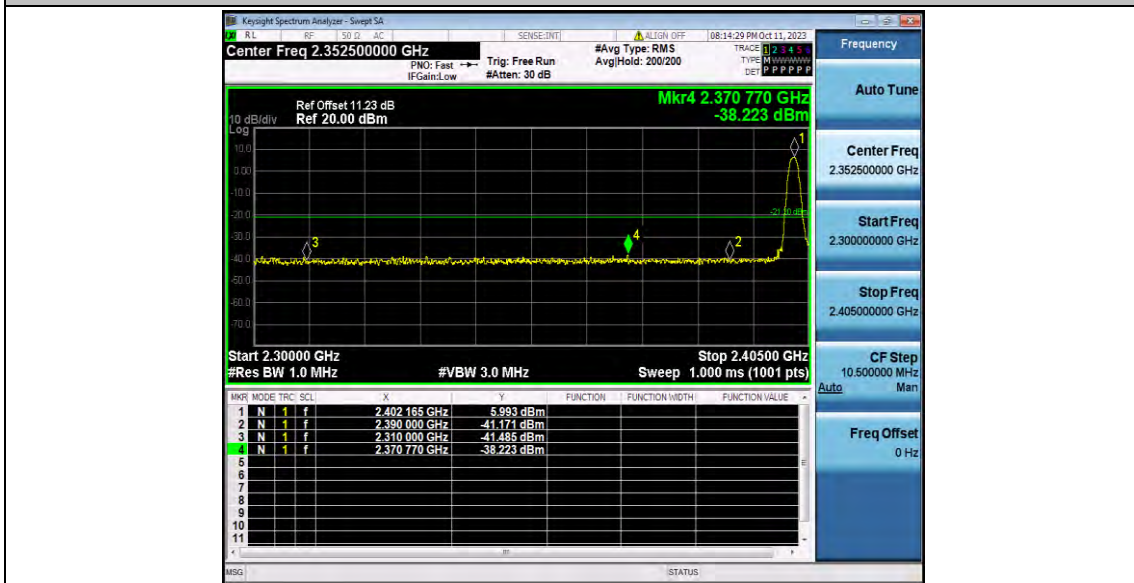
Note:

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.

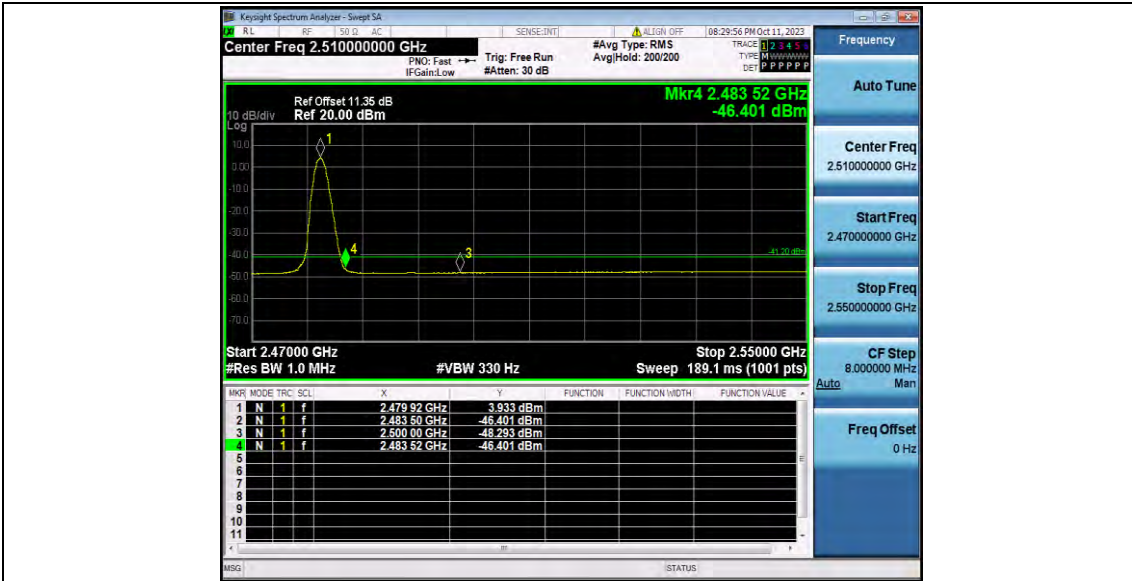
Test Graphs



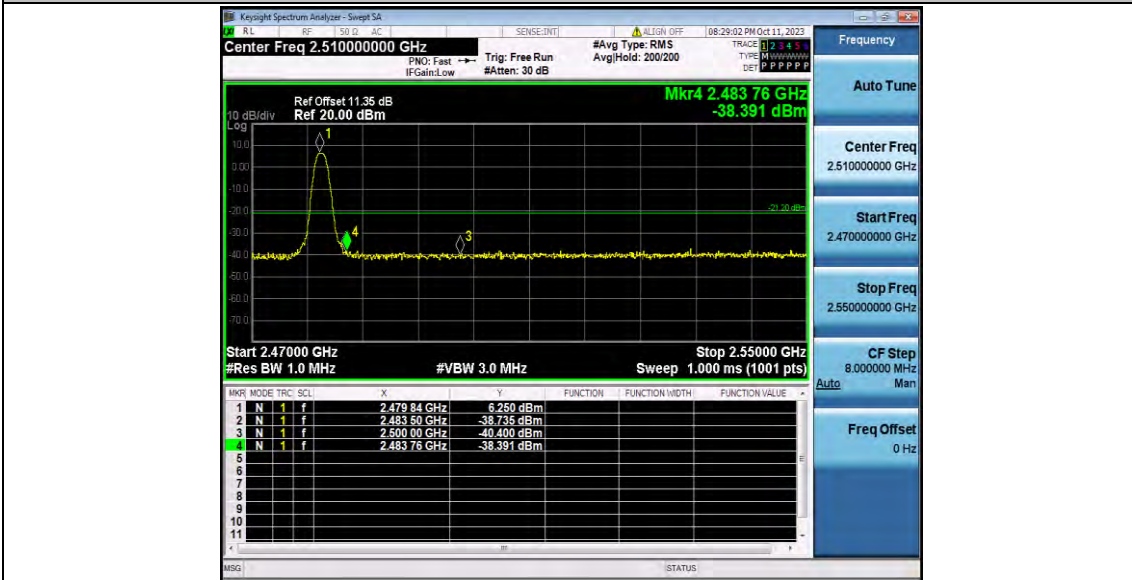
DH1_Ant1_Low_2402_AV



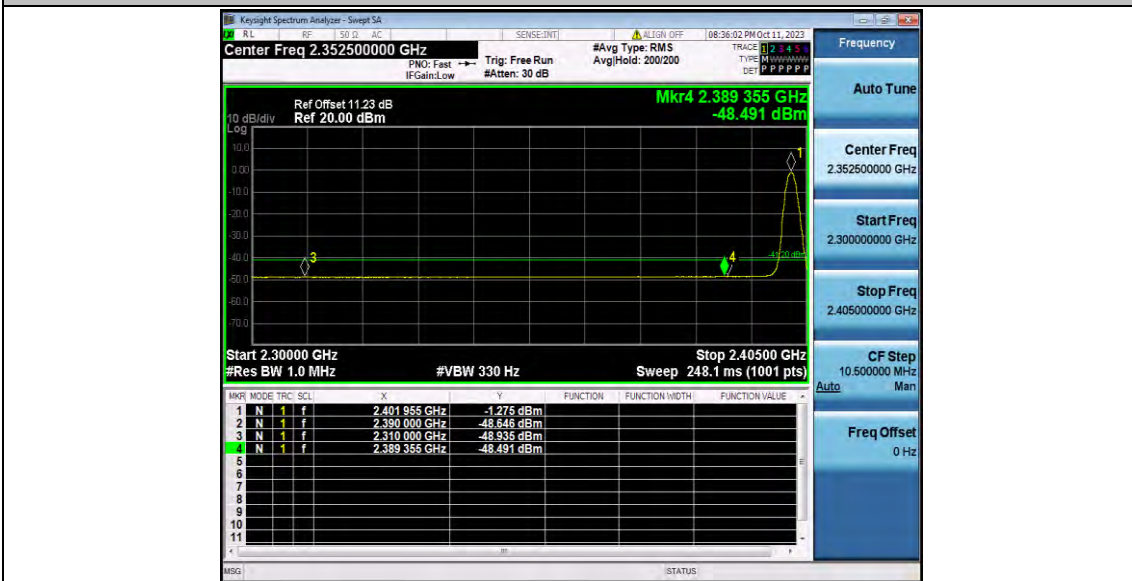
DH1_Ant1_Low_2402_Peak



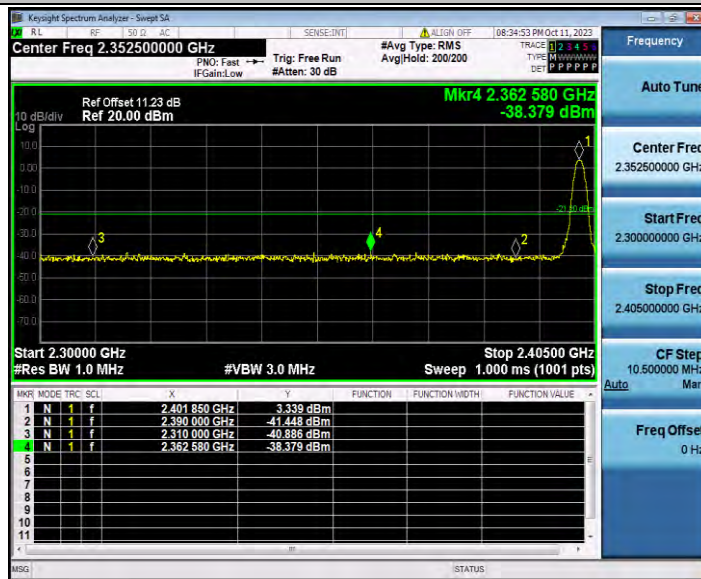
DH1_Ant1_High_2480_AV



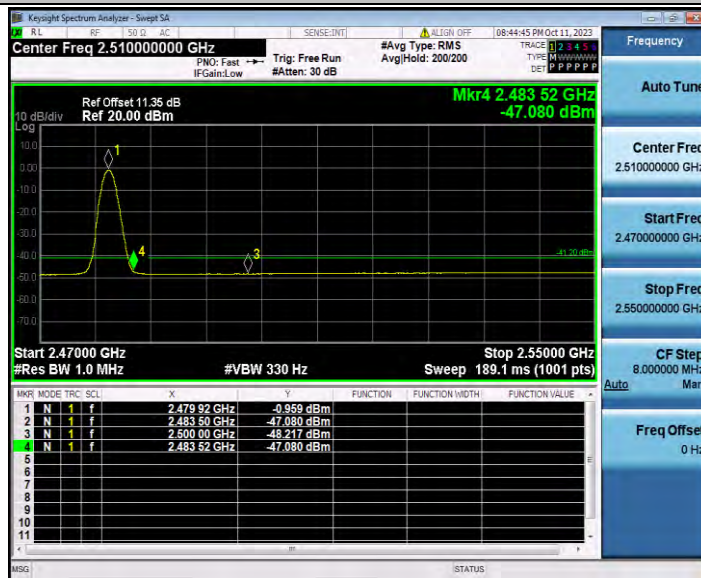
DH1_Ant1_High_2480_Peak



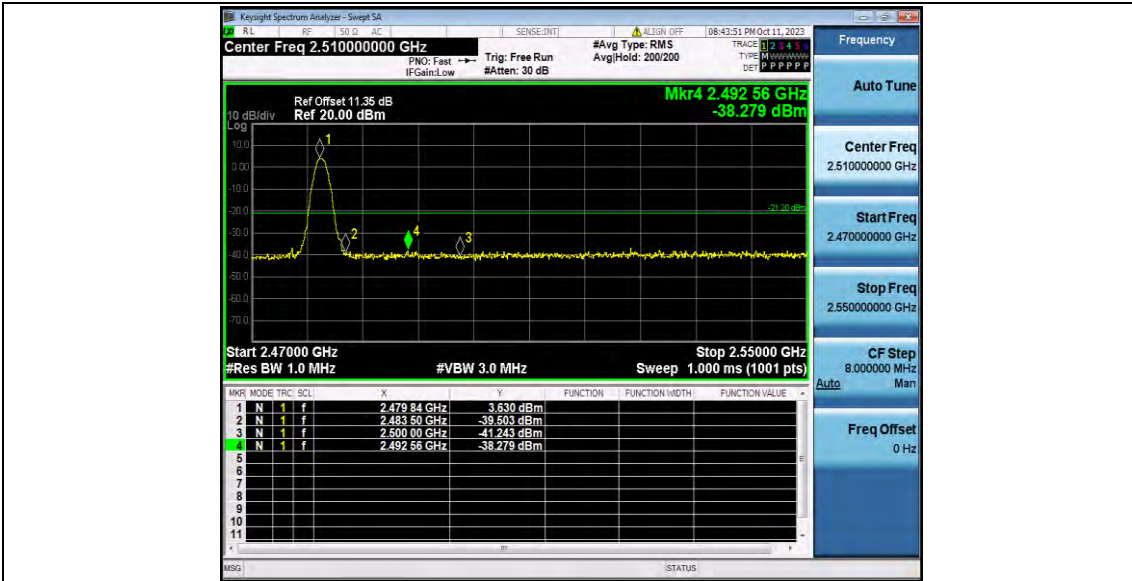
2DH1_Ant1_Low_2402_AV



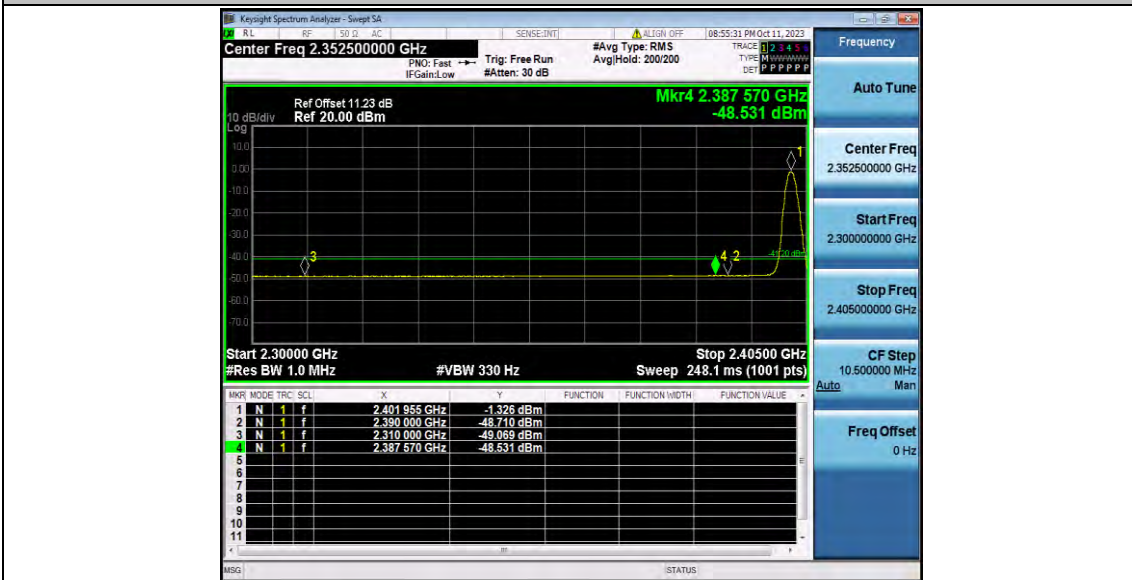
2DH1_Ant1_Low_2402_Peak



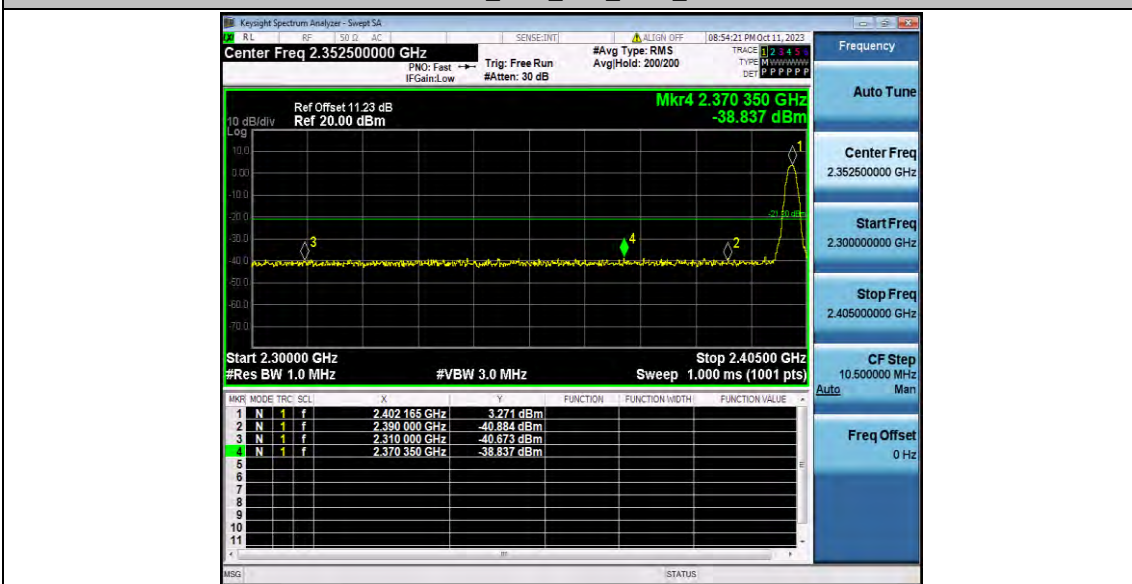
2DH1_Ant1_High_2480_AV



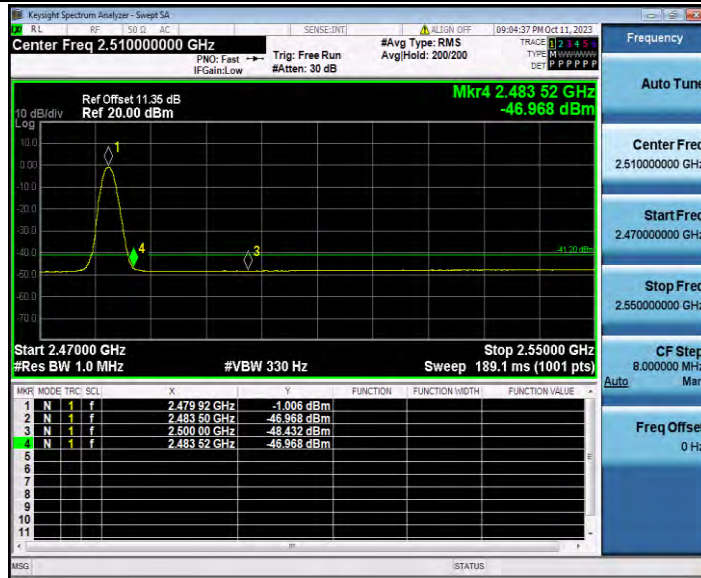
2D11_Ant1_High_2480_Peak



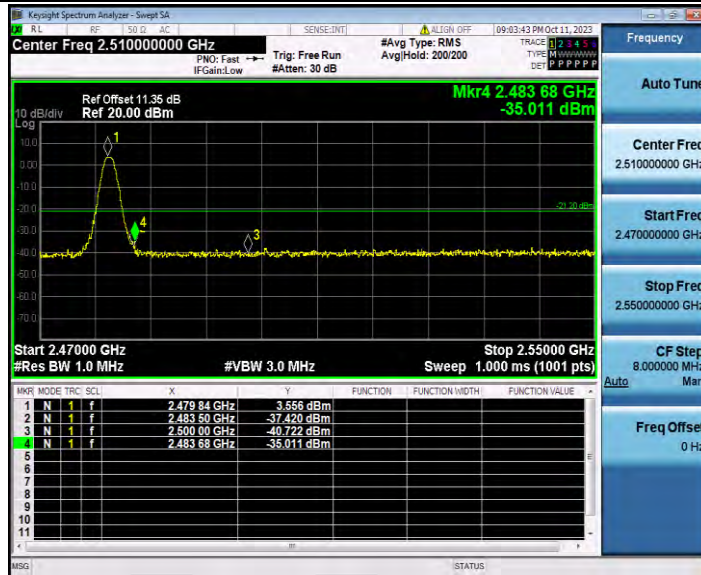
3DH1_Ant1_Low_2402_AV



3DH1_Ant1_Low_2402_Peak



3DH1_Ant1_High_2480_AV



3DH1_Ant1_High_2480_Peak