# RF Test Data for BT(BDR/EDR) (Conducted Measurement)

**Product Name: Bluetooth Soundbar**

**Trade Mark: RECOIL**

**Test Model: PSB11**

**FCC ID: 2A6RGPSB11**

# Environmental Conditions

| | |
|---|---|
| Temperature: | 25.5°C |
| Relative Humidity: | 55% |
| ATM Pressure: | 100.0 kPa |
| Test Engineer: | Anna Hu |
| Supervised by: | Hugo Chen |
| NOTE | N/A |

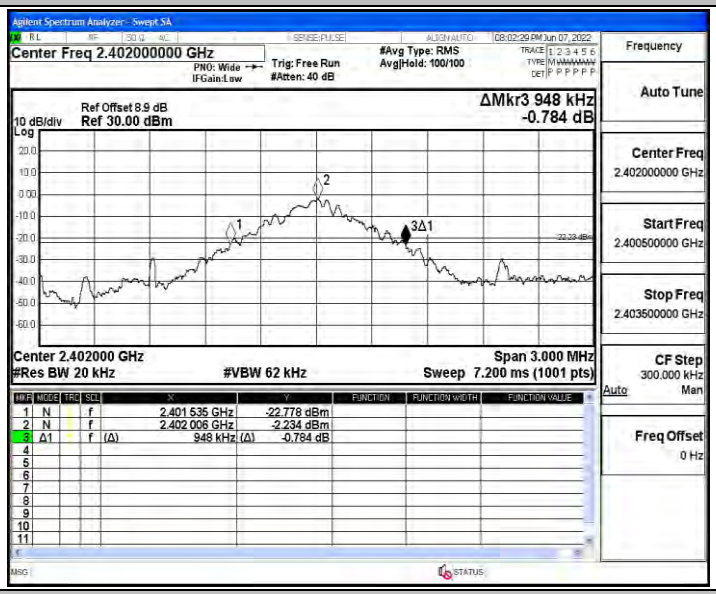
## Appendix A: 20dB Emission Bandwidth

### Test Result

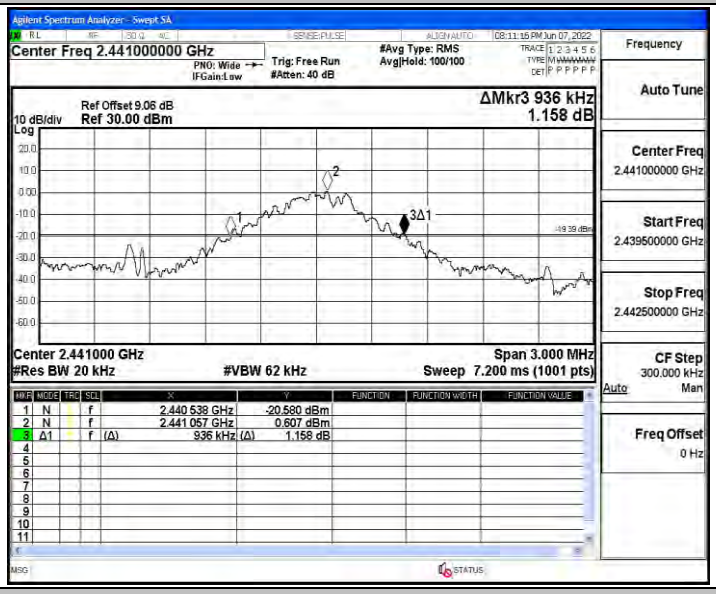
| TestMode | Antenna | Channel | 20db EBW[MHz] | FL[MHz] | FH[MHz] | Limit[MHz] | Verdict |
|---|---|---|---|---|---|---|---|
| DH5 | Ant1 | 2402 | 0.948 | 2401.535 | 2402.483 | --- | --- |
| | | 2441 | 0.936 | 2440.538 | 2441.474 | --- | --- |
| | | 2480 | 0.945 | 2479.538 | 2480.483 | --- | --- |
| 2DH5 | Ant1 | 2402 | 1.227 | 2401.385 | 2402.612 | --- | --- |
| | | 2441 | 1.236 | 2440.382 | 2441.618 | --- | --- |
| | | 2480 | 1.449 | 2479.367 | 2480.816 | --- | --- |
| 3DH5 | Ant1 | 2402 | 1.269 | 2401.361 | 2402.630 | --- | --- |
| | | 2441 | 1.263 | 2440.370 | 2441.633 | --- | --- |
| | | 2480 | 1.233 | 2479.388 | 2480.621 | --- | --- |

## Test Graphs

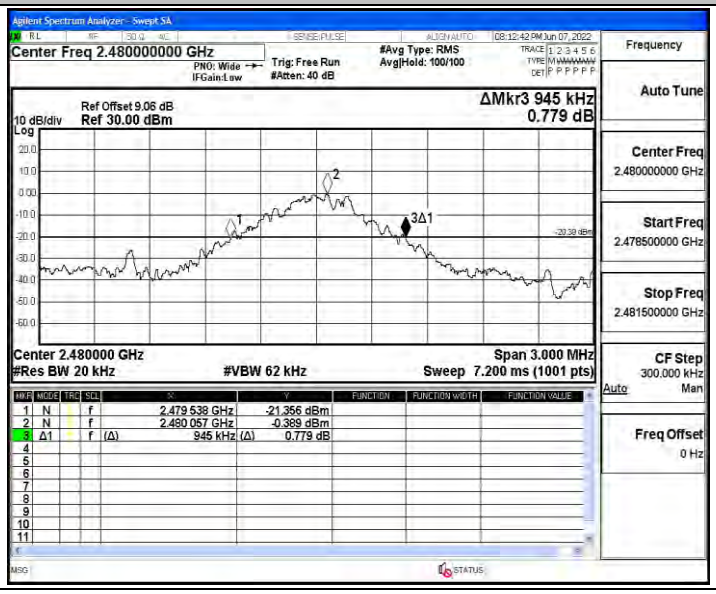
DH5_Ant1_2402



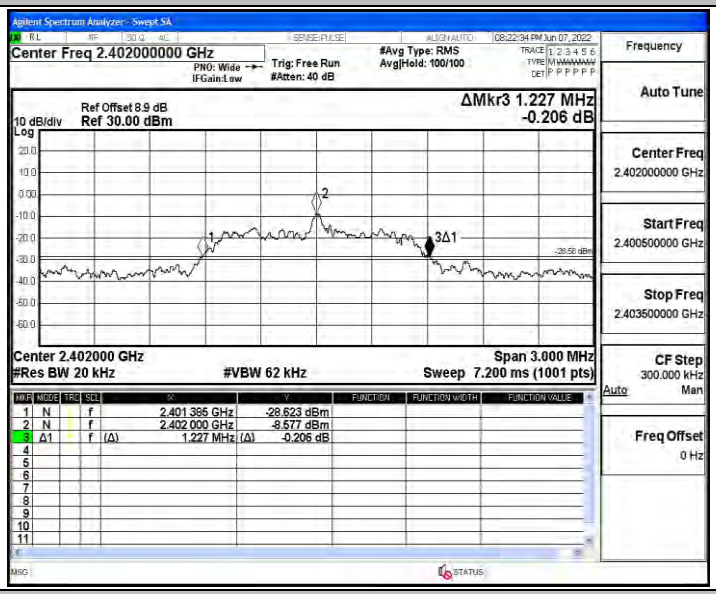

DH5_Ant1_2441



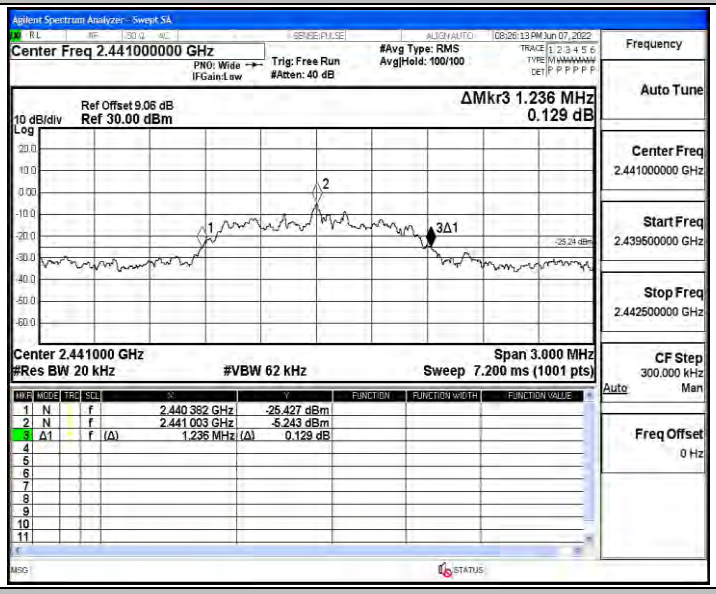

DH5_Ant1_2480



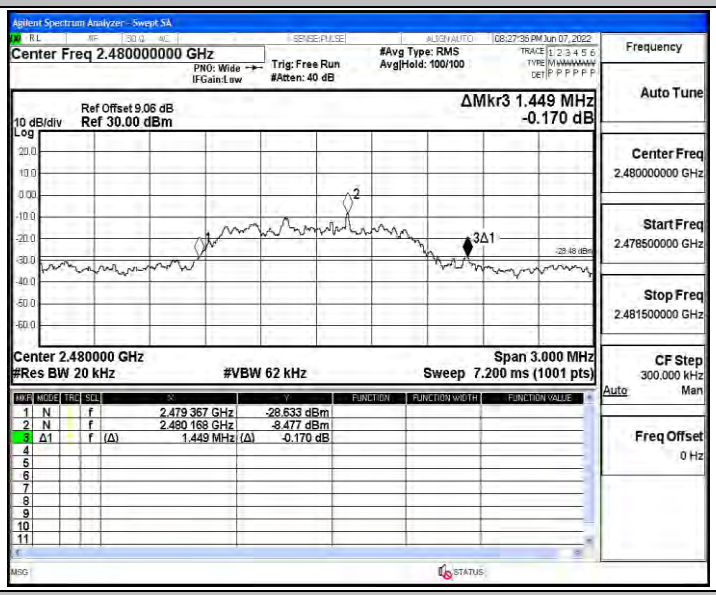
2DH5_Ant1_2402



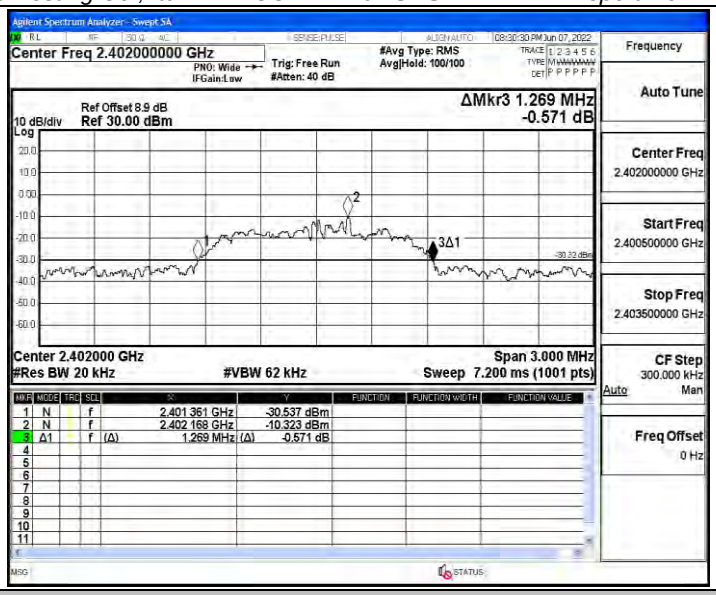

2DH5_Ant1_2441



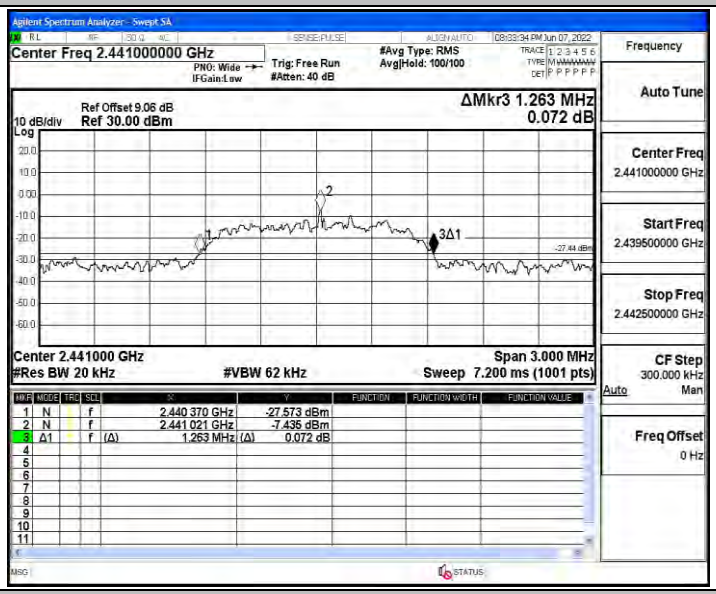

2DH5_Ant1_2480



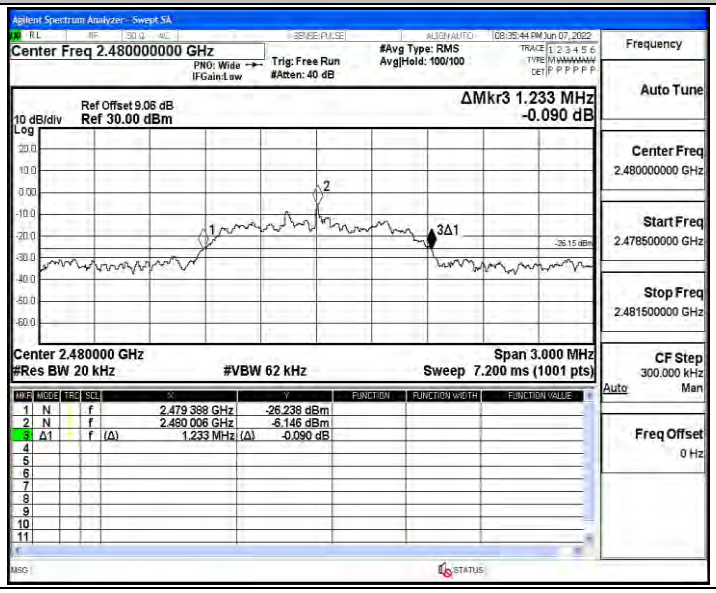

3DH5_Ant1_2402




3DH5_Ant1_2441




3DH5_Ant1_2480



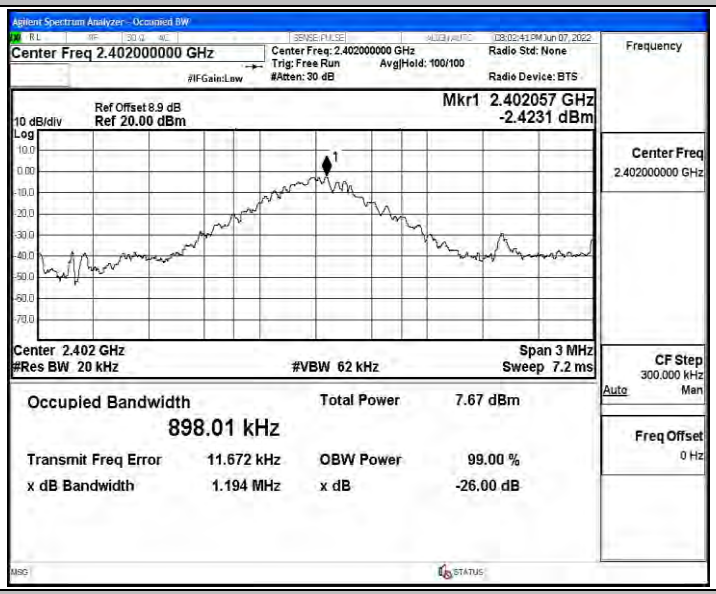
# Appendix B: Occupied Channel Bandwidth

## Test Result

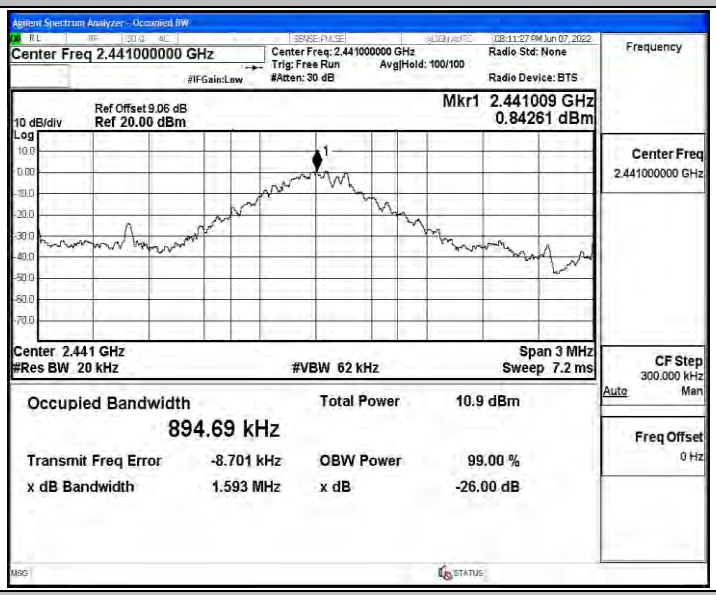
| TestMode | Antenna | Channel | OCB [MHz] | FL[MHz] | FH[MHz] | Limit[MHz] | Verdict |
|---|---|---|---|---|---|---|---|
| DH5 | Ant1 | 2402 | 0.89801 | 2401.563 | 2402.461 | --- | --- |
| | | 2441 | 0.89469 | 2440.544 | 2441.439 | --- | --- |
| | | 2480 | 0.91385 | 2479.538 | 2480.452 | --- | --- |
| 2DH5 | Ant1 | 2402 | 2.0775 | 2400.914 | 2402.991 | --- | --- |
| | | 2441 | 2.1290 | 2439.890 | 2442.019 | --- | --- |
| | | 2480 | 2.0833 | 2478.903 | 2480.986 | --- | --- |
| 3DH5 | Ant1 | 2402 | 2.1857 | 2400.907 | 2403.093 | --- | --- |
| | | 2441 | 2.0476 | 2439.947 | 2441.994 | --- | --- |
| | | 2480 | 2.1083 | 2478.908 | 2481.016 | --- | --- |

## Test Graphs

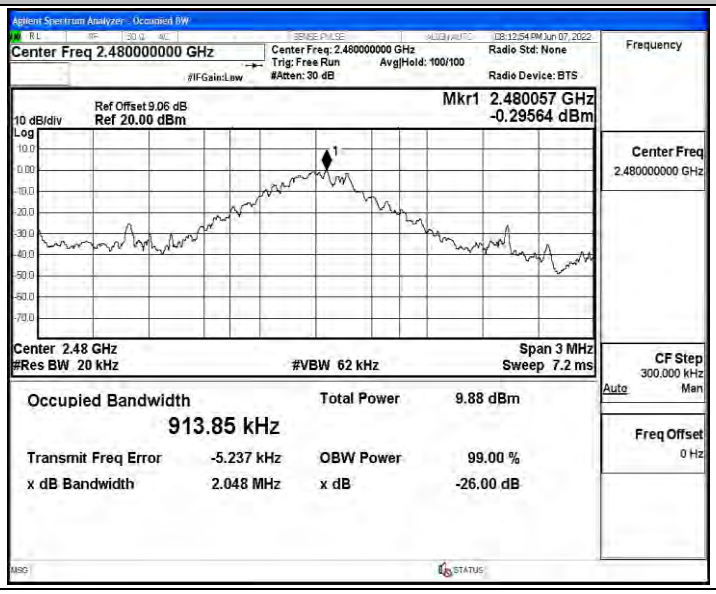
DH5_Ant1_2402



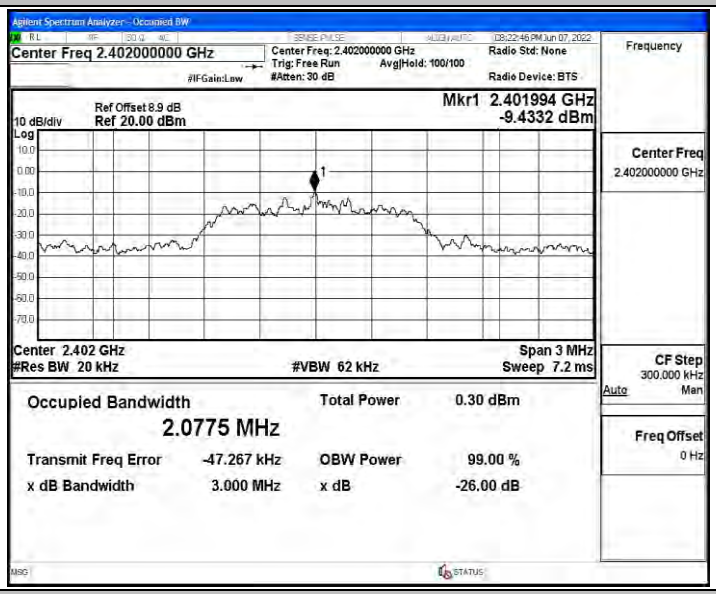

DH5_Ant1_2441



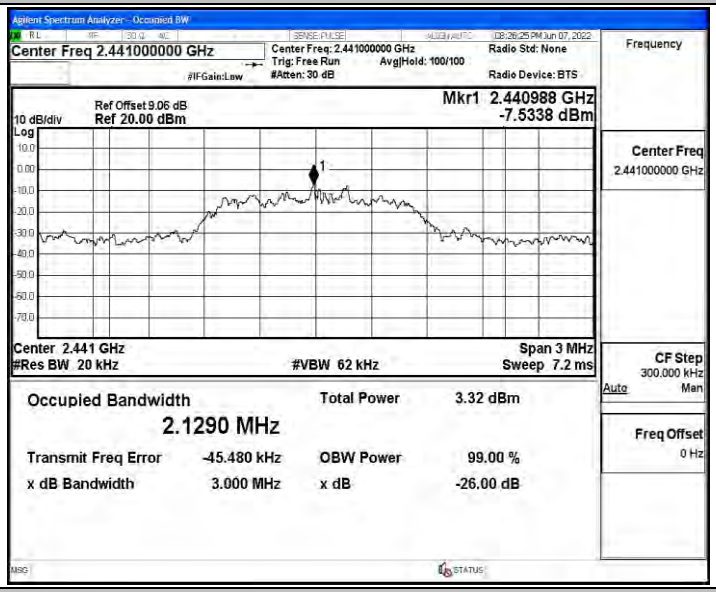

DH5_Ant1_2480



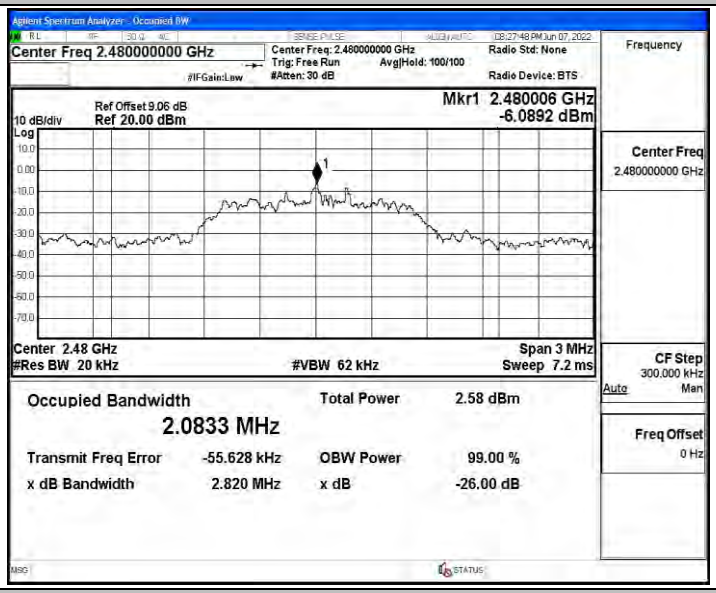
2DH5_Ant1_2402



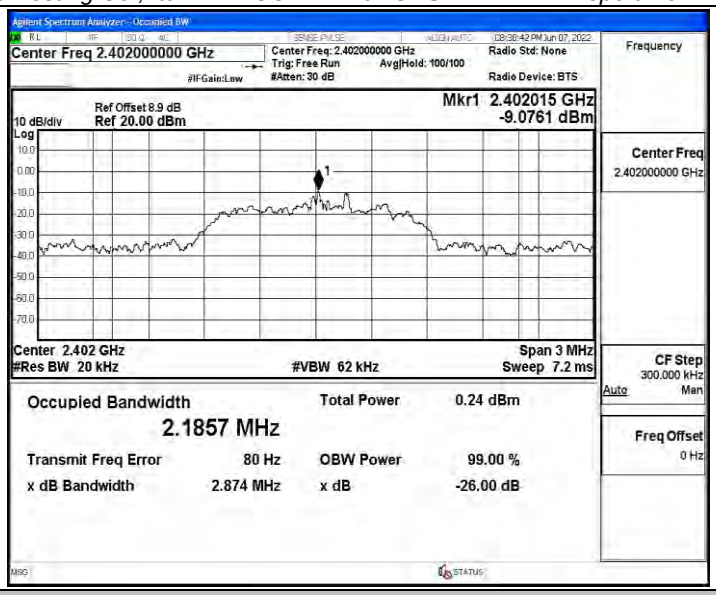

2DH5_Ant1_2441



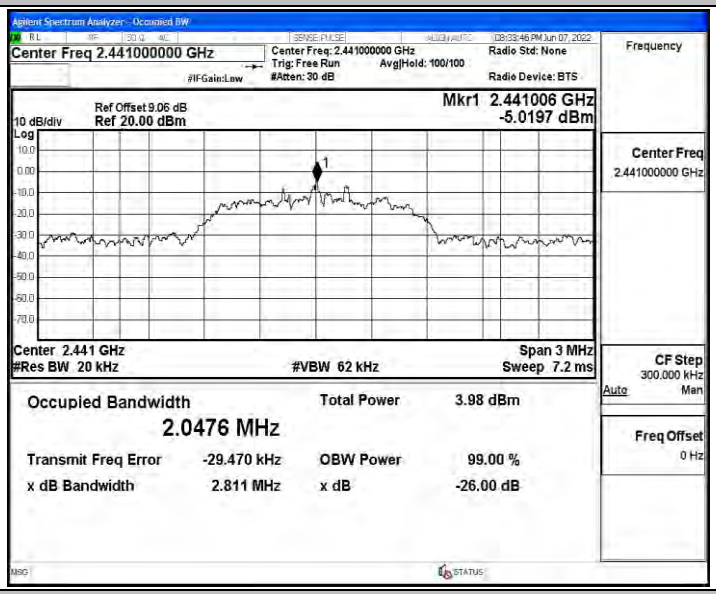

2DH5_Ant1_2480



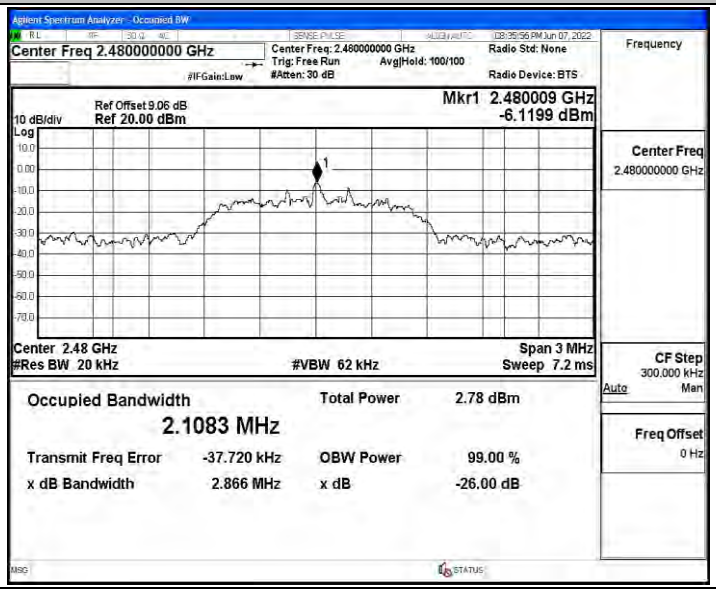

3DH5_Ant1_2402




3DH5_Ant1_2441




3DH5_Ant1_2480



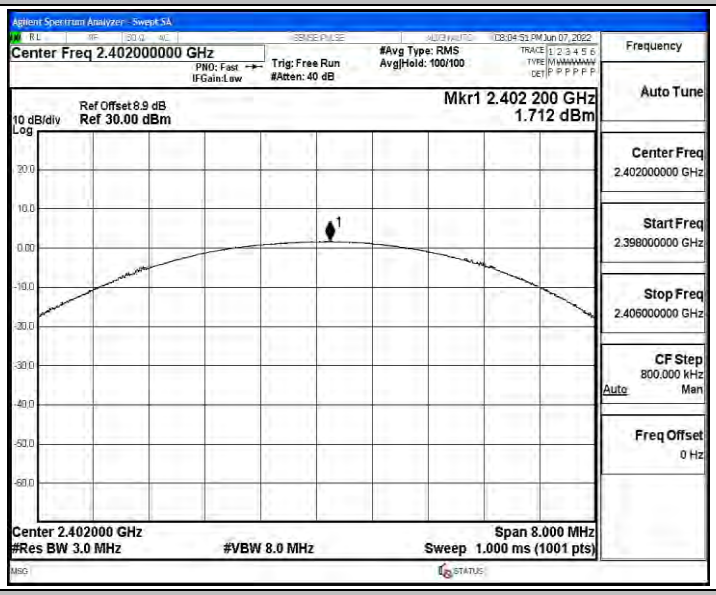
# Appendix C: Maximum conducted output power

## Test Result

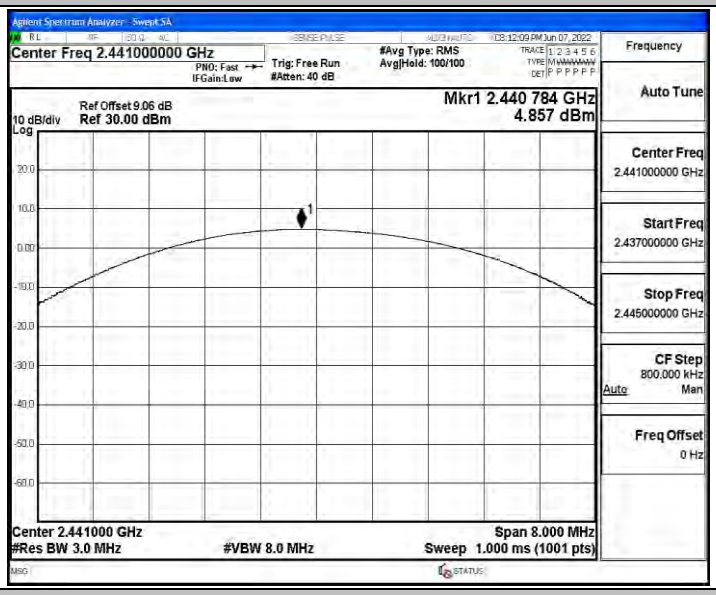
| TestMode | Antenna | Channel | Result[dBm] | Limit[dBm] | Verdict |
|---|---|---|---|---|---|
| DH5 | Ant1 | 2402 | 1.71 | ≤30 | PASS |
| | | 2441 | 4.86 | ≤30 | PASS |
| | | 2480 | 3.91 | ≤30 | PASS |
| 2DH5 | Ant1 | 2402 | -2.22 | ≤20.97 | PASS |
| | | 2441 | 0.8 | ≤20.97 | PASS |
| | | 2480 | -0.16 | ≤20.97 | PASS |
| 3DH5 | Ant1 | 2402 | -1.45 | ≤20.97 | PASS |
| | | 2441 | 1.89 | ≤20.97 | PASS |
| | | 2480 | 0.8 | ≤20.97 | PASS |

## Test Graphs

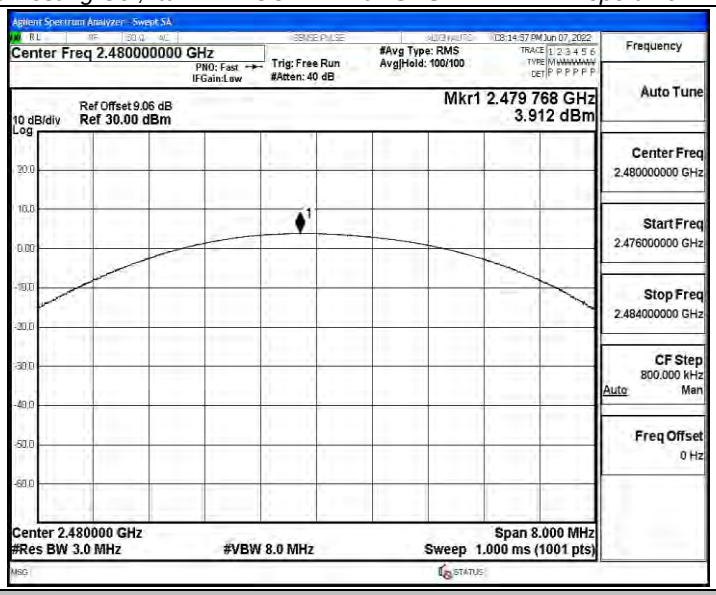
DH5_Ant1_2402



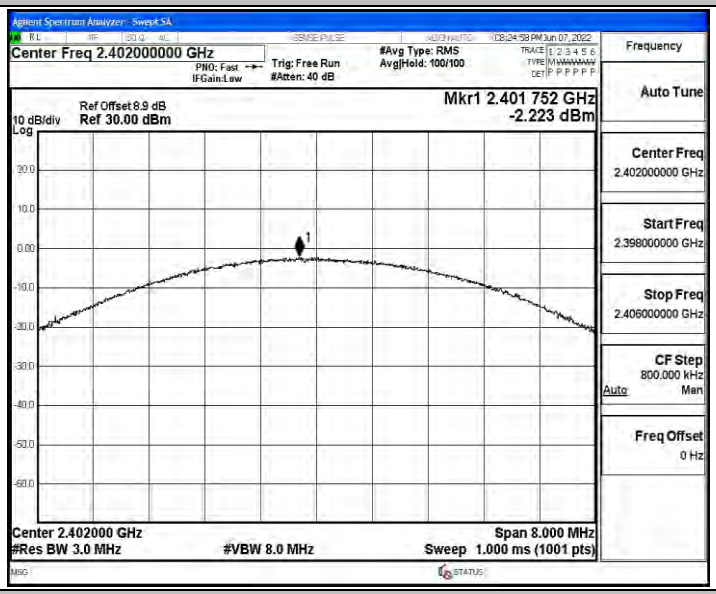

DH5_Ant1_2441



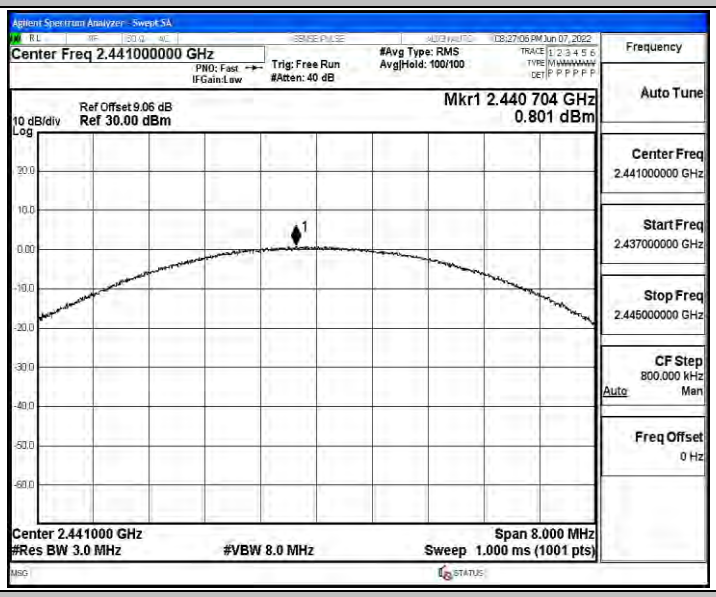

DH5_Ant1_2480



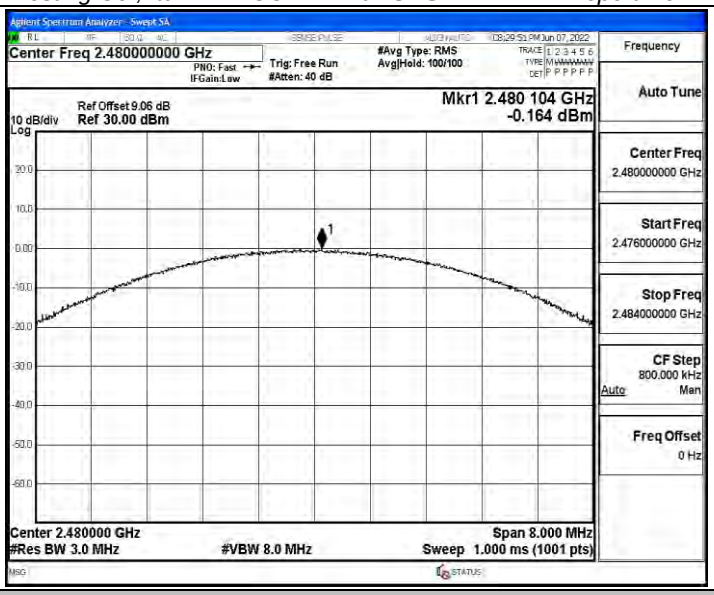

2DH5_Ant1_2402



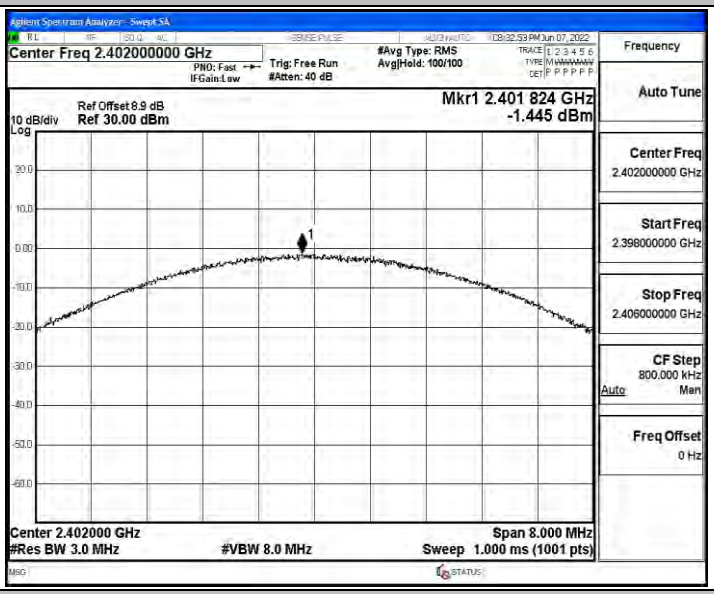

2DH5_Ant1_2441



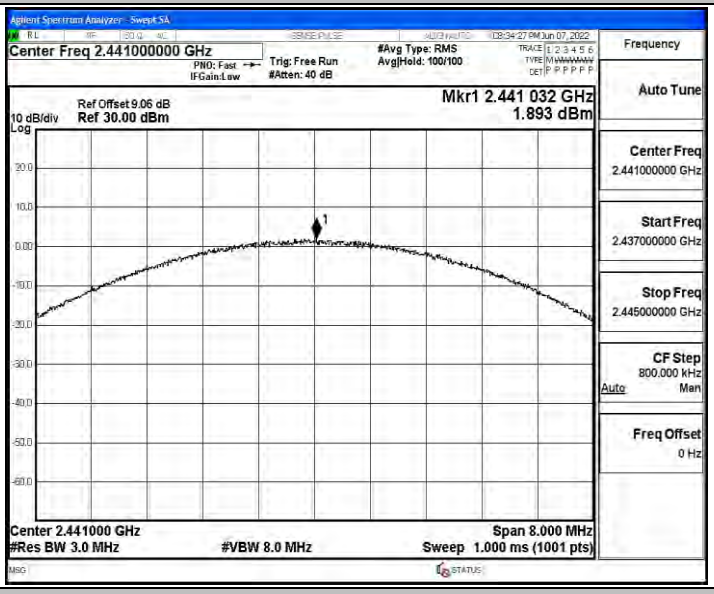

2DH5_Ant1_2480



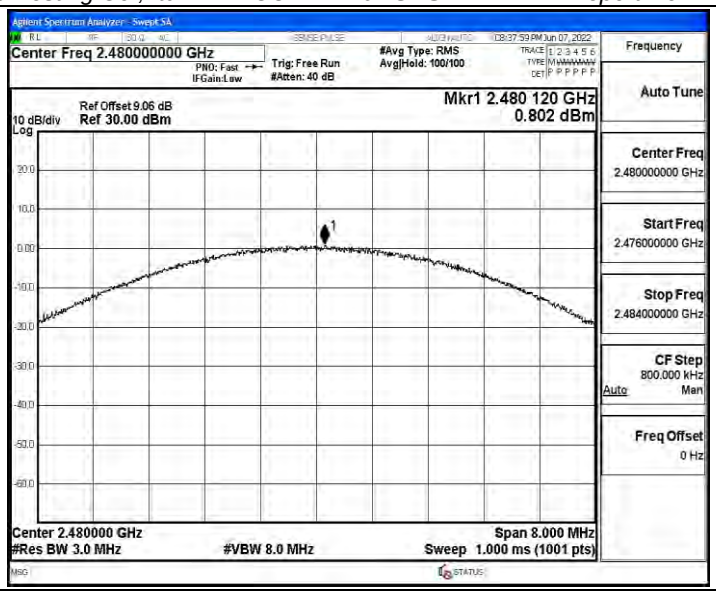

3DH5_Ant1_2402




3DH5_Ant1_2441




3DH5_Ant1_2480


Agilent Spectrum Analyzer - Swept SA
Center Freq 2.480000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 40 dB
#Avg Type: RMS
Avg|Hold: 100/100
08:37:59 PM Jun 07, 2022
Ref Offset 9.06 dB
10 dB/div
Ref 30.00 dBm
Log
Mkr1 2.480 120 GHz
0.802 dBm
Center 2.480000 GHz
#Res BW 3.0 MHz
#VBW 8.0 MHz
Span 8.000 MHz
Sweep 1.000 ms (1001 pts)
Frequency
Auto Tune
Center Freq
2.480000000 GHz
Start Freq
2.476000000 GHz
Stop Freq
2.484000000 GHz
CF Step
800.000 kHz
Auto
Man
Freq Offset
0 Hz

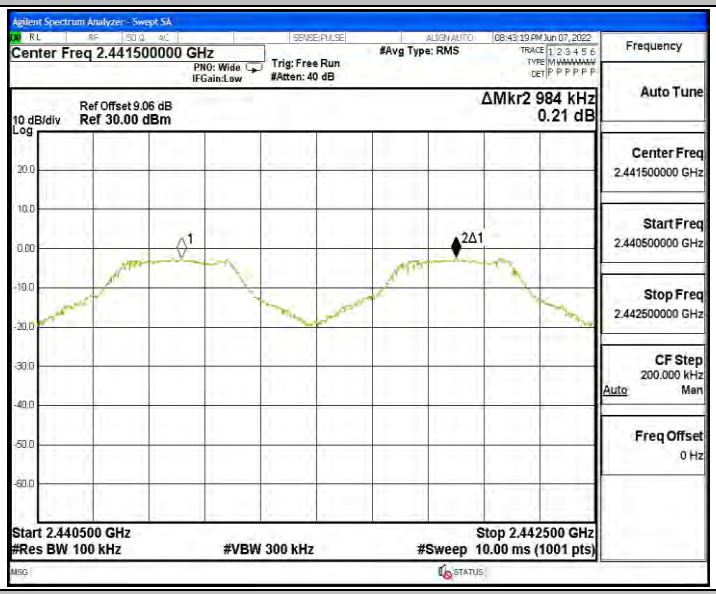
# Appendix D: Carrier frequency separation

## Test Result

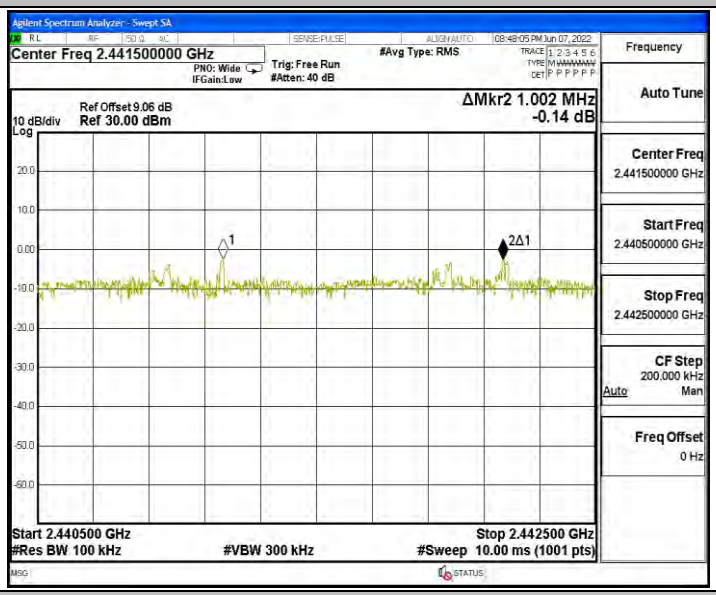
| TestMode | Antenna | Channel | Result[MHz] | Limit[MHz] | Verdict |
|---|---|---|---|---|---|
| DH5 | Ant1 | Hop | 0.984 | ≥0.948 | PASS |
| 2DH5 | Ant1 | Hop | 1.002 | ≥0.966 | PASS |
| 3DH5 | Ant1 | Hop | 1.036 | ≥0.846 | PASS |

## Test Graphs

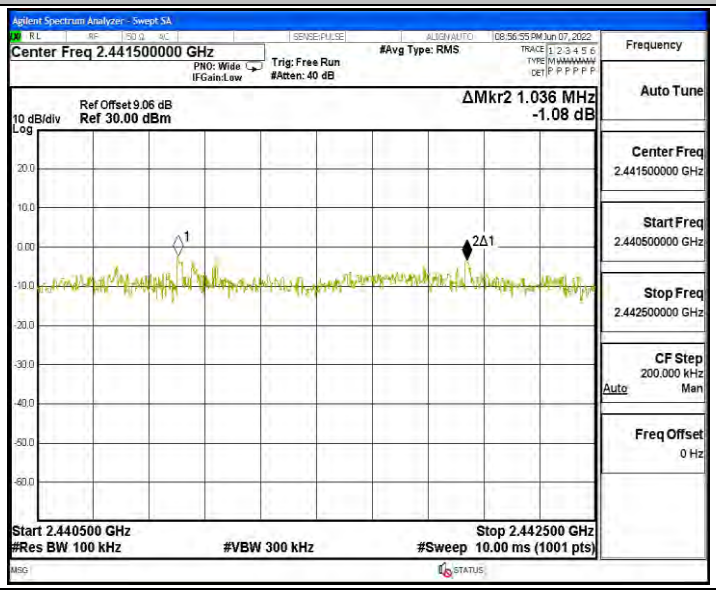
DH5_Ant1_Hop




2DH5_Ant1_Hop




3DH5_Ant1_Hop



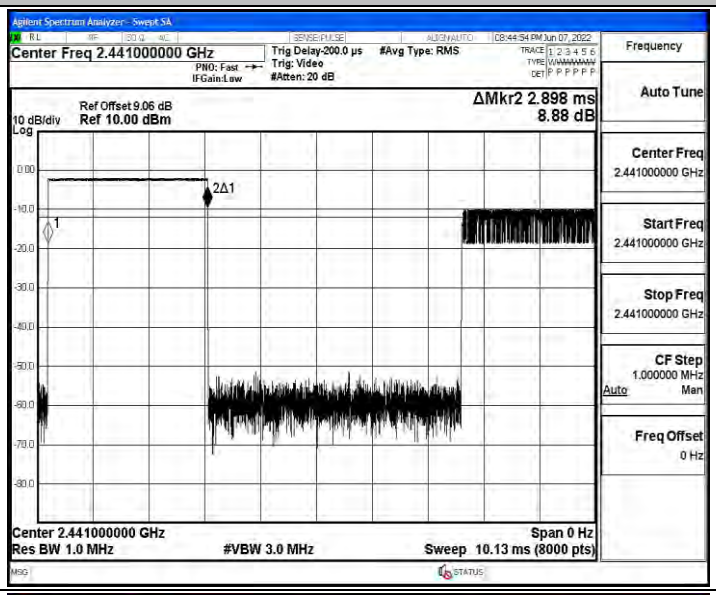
# Appendix E: Time of occupancy

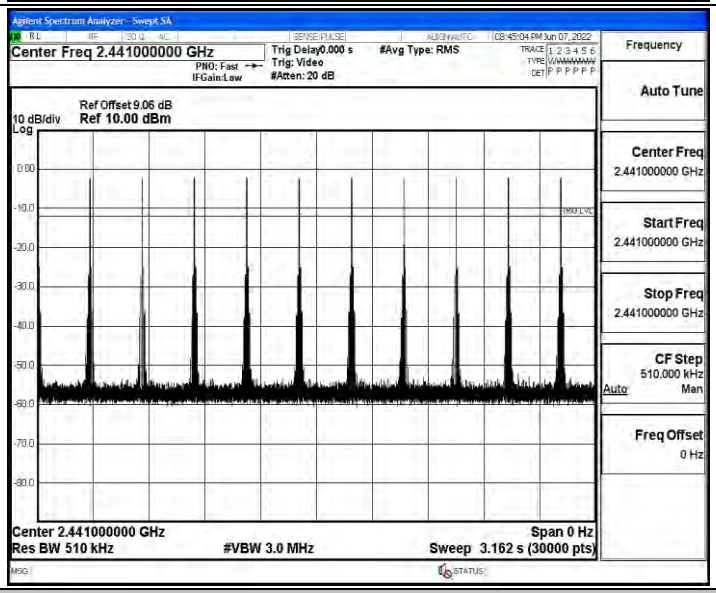
## Test Result

| TestMode | Antenna | Channel | BurstWidth [ms] | TotalHops [Num] | Result[s] | Limit[s] | Verdict |
|---|---|---|---|---|---|---|---|
| DH5 | Ant1 | Hop | 2.90 | 110 | 0.319 | ≤0.4 | PASS |
| 2DH5 | Ant1 | Hop | 2.90 | 110 | 0.319 | ≤0.4 | PASS |
| 3DH5 | Ant1 | Hop | 2.90 | 110 | 0.319 | ≤0.4 | PASS |

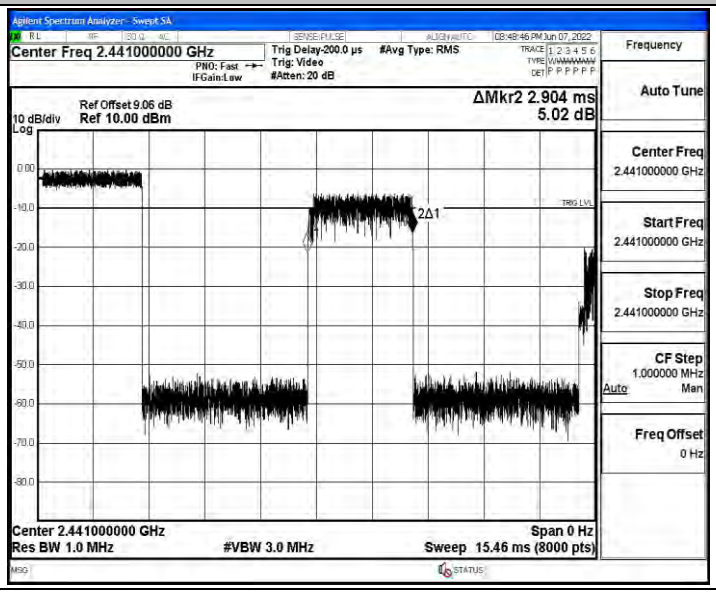
## Test Graphs

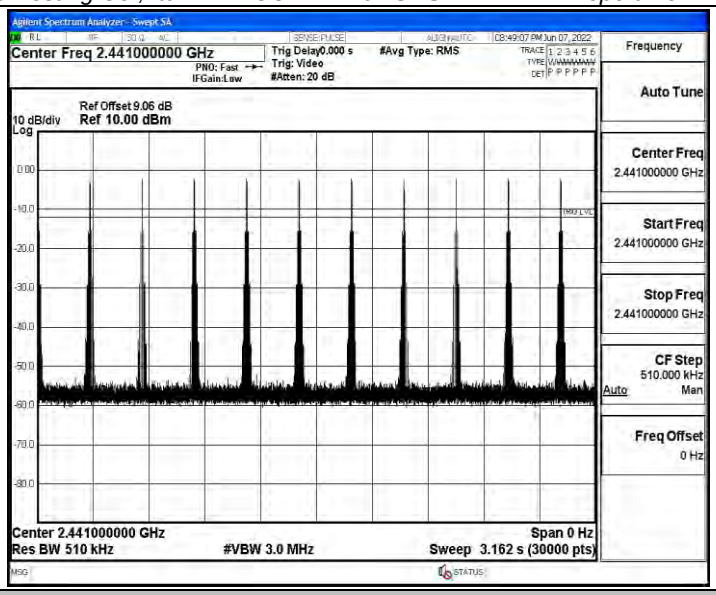
DH5_Ant1_Hop



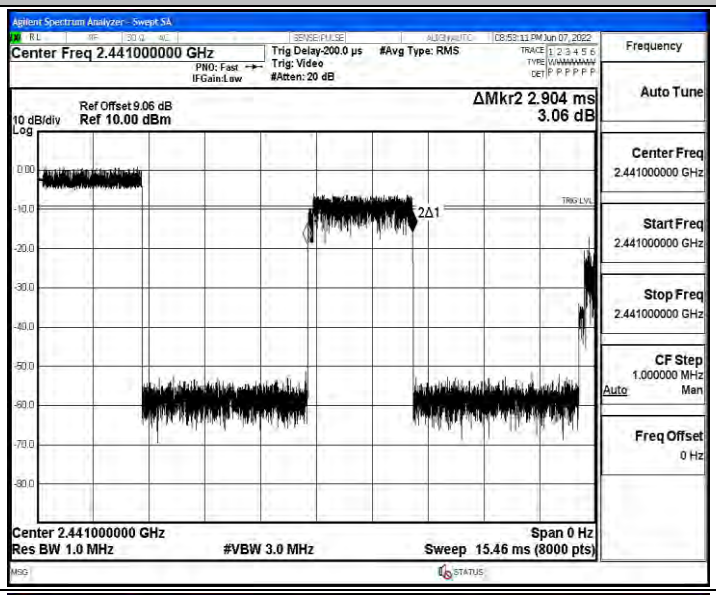



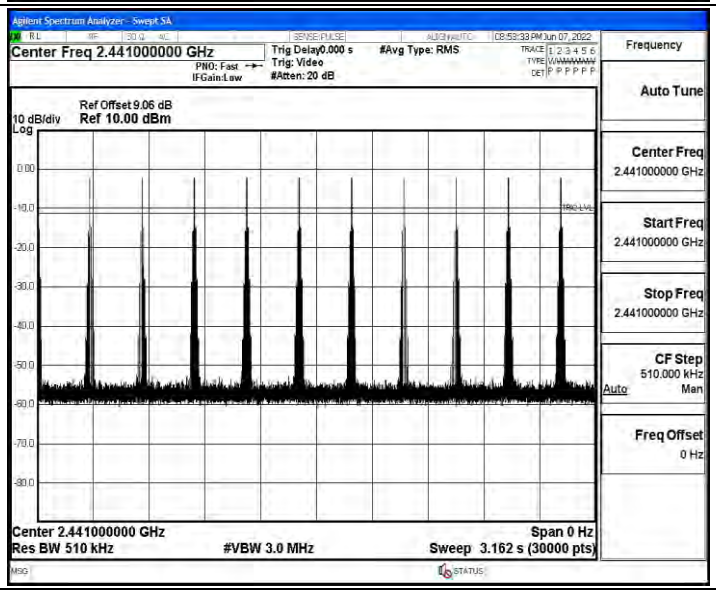

2DH5_Ant1_Hop






3DH5_Ant1_Hop



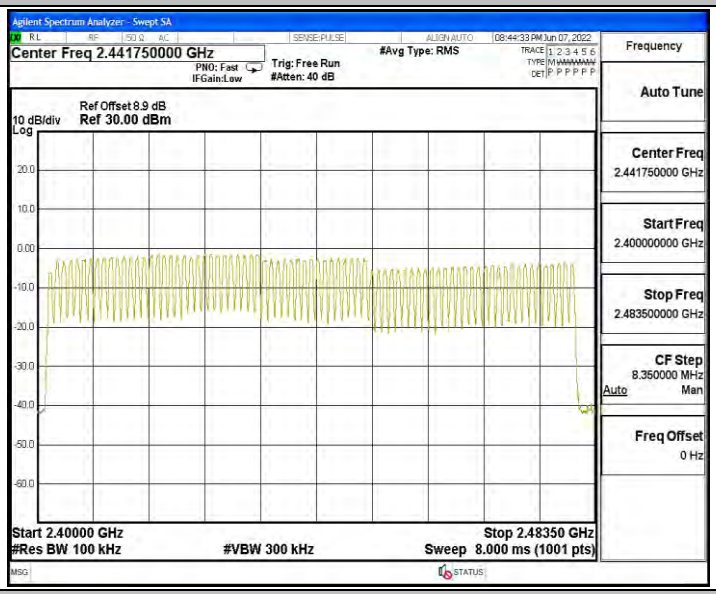
# Appendix F: Number of hopping channels

## Test Result

| TestMode | Antenna | Channel | Result[Num] | Limit[Num] | Verdict |
|---|---|---|---|---|---|
| DH5 | Ant1 | Hop | 79 | ≥15 | PASS |
| 2DH5 | Ant1 | Hop | 79 | ≥15 | PASS |
| 3DH5 | Ant1 | Hop | 79 | ≥15 | PASS |

## Test Graphs

DH5_Ant1_Hop




2DH5_Ant1_Hop

3DH5_Ant1_Hop

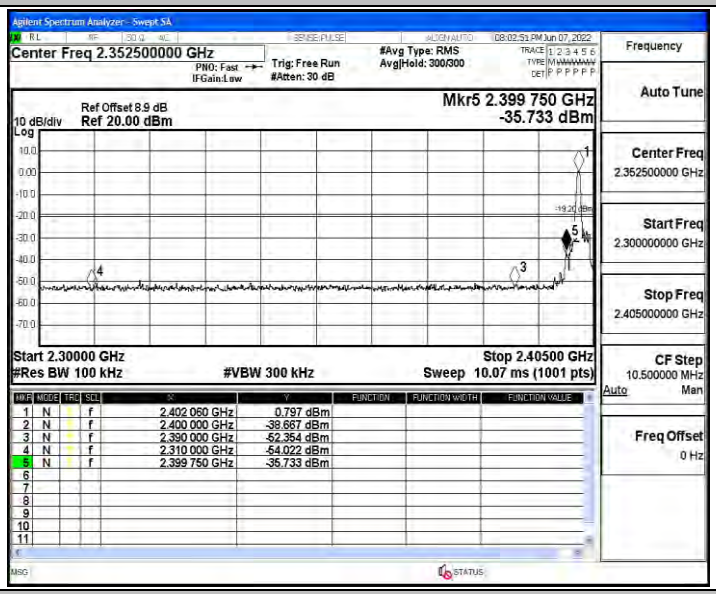
# Appendix G: Band edge measurements

## Test Result

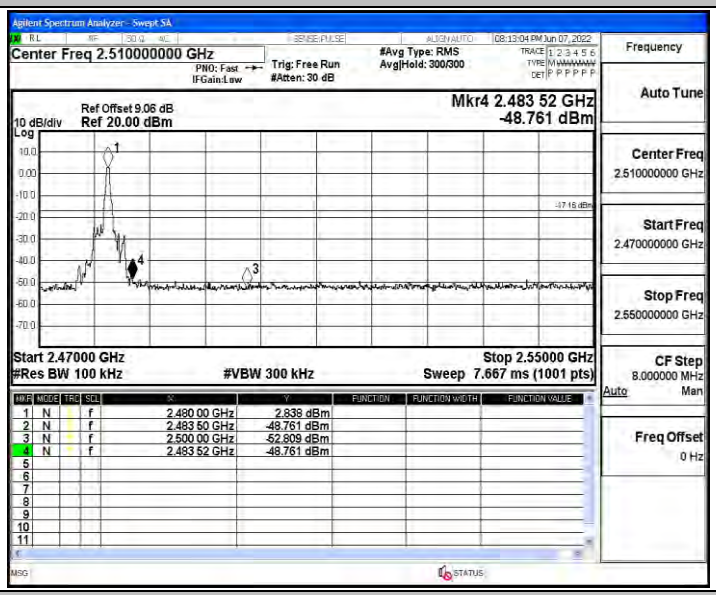
| TestMode | Antenna | ChName | Channel | RefLevel [dBm] | Result [dBm] | Limit [dBm] | Verdict |
|---|---|---|---|---|---|---|---|
| DH5 | Ant1 | Low | 2402 | 0.80 | -35.73 | ≤-19.2 | PASS |
| | | High | 2480 | 2.84 | -48.76 | ≤-17.16 | PASS |
| | | Low | Hop_2402 | -3.75 | -50.32 | ≤-23.75 | PASS |
| | | High | Hop_2480 | -4.48 | -49.56 | ≤-24.48 | PASS |
| 2DH5 | Ant1 | Low | 2402 | -6.46 | -43.13 | ≤-26.46 | PASS |
| | | High | 2480 | -3.48 | -49.49 | ≤-23.48 | PASS |
| | | Low | Hop_2402 | -4.48 | -49.96 | ≤-24.48 | PASS |
| | | High | Hop_2480 | -4.80 | -49.05 | ≤-24.8 | PASS |
| 3DH5 | Ant1 | Low | 2402 | -5.82 | -42.33 | ≤-25.82 | PASS |
| | | High | 2480 | -4.41 | -49.25 | ≤-24.41 | PASS |
| | | Low | Hop_2402 | -7.08 | -50.09 | ≤-27.08 | PASS |
| | | High | Hop_2480 | -5.44 | -49.27 | ≤-25.44 | PASS |

## Test Graphs

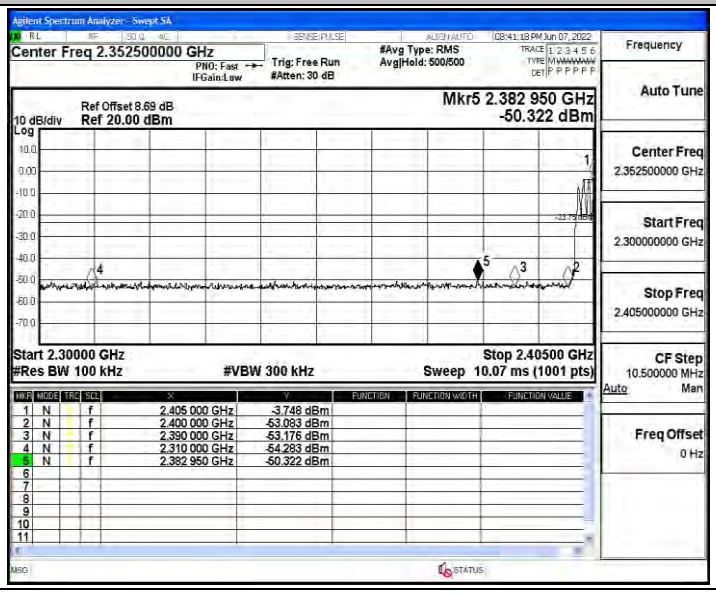
DH5_Ant1_Low_2402



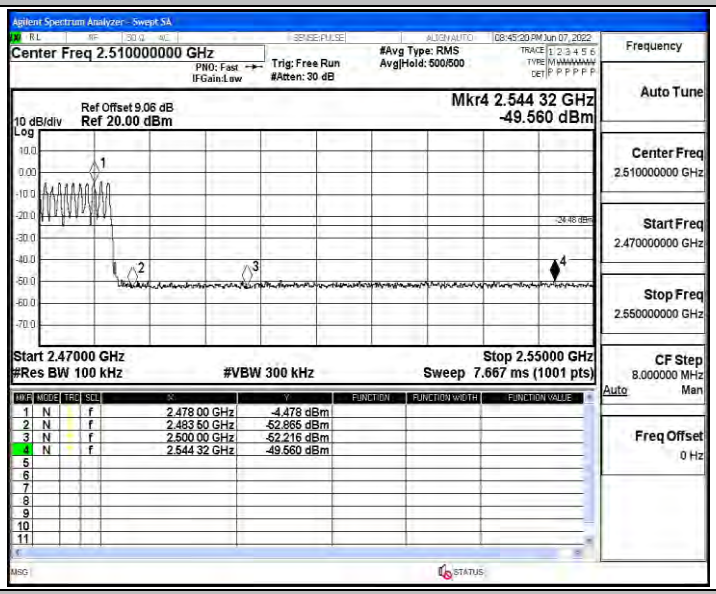

DH5_Ant1_High_2480



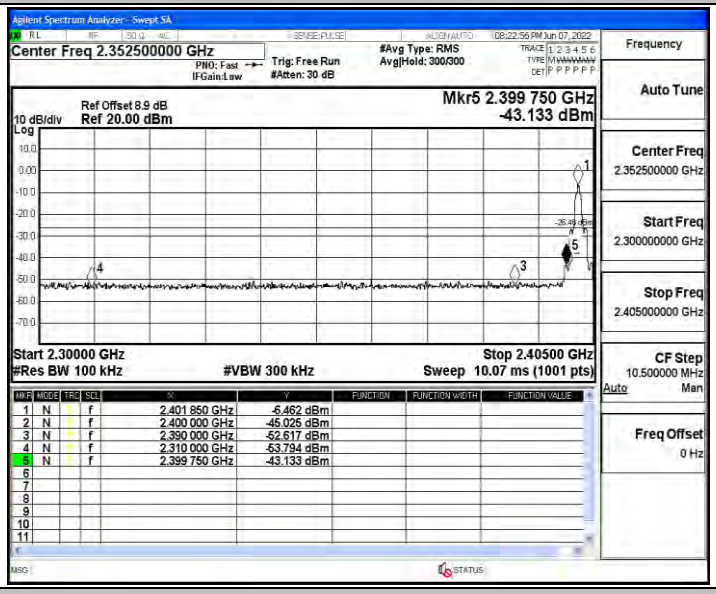

DH5_Ant1_Low_Hop_2402



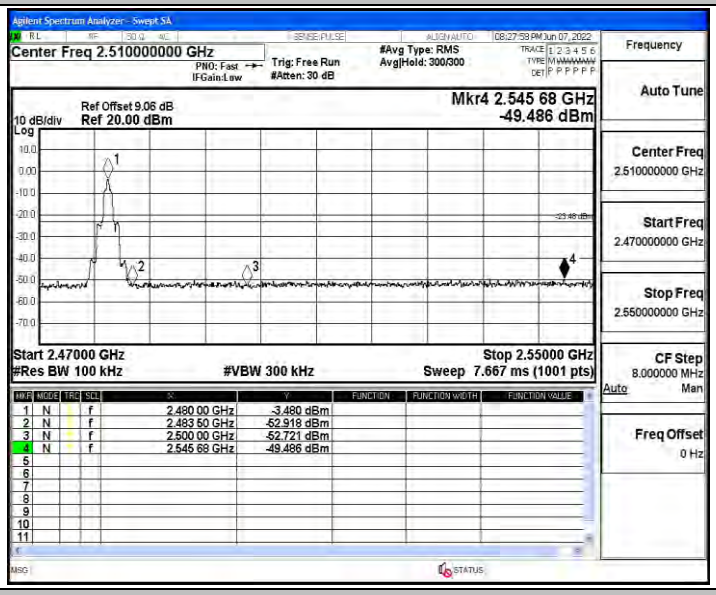
DH5_Ant1_High_Hop_2480



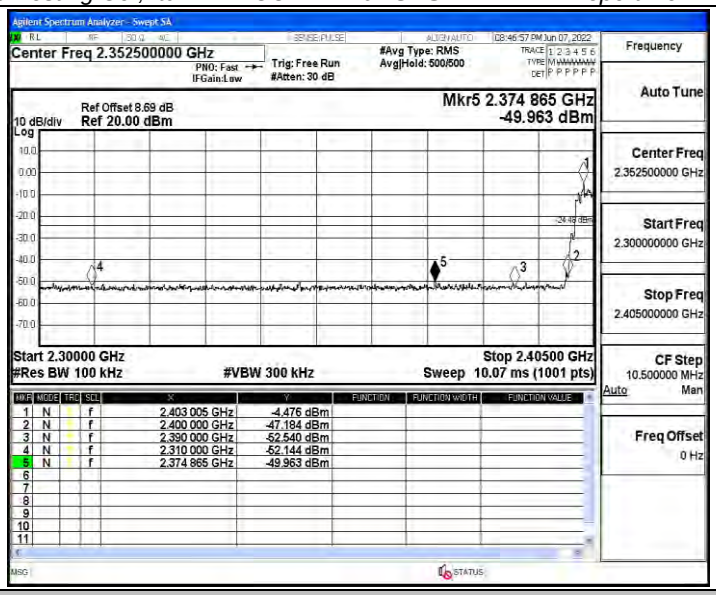

2DH5_Ant1_Low_2402



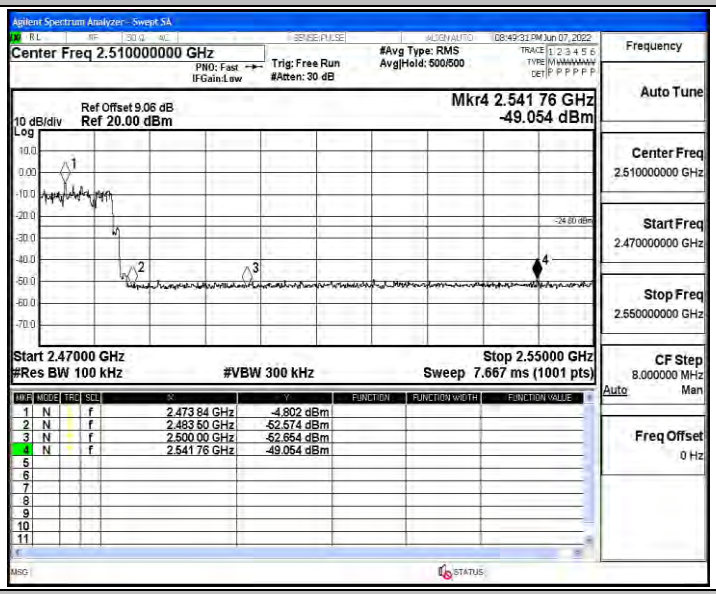

2DH5_Ant1_High_2480



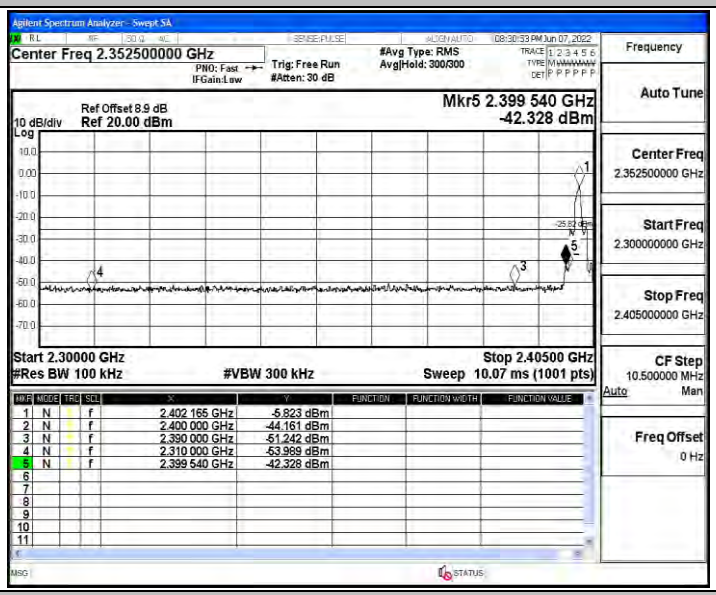

2DH5_Ant1_Low_Hop_2402



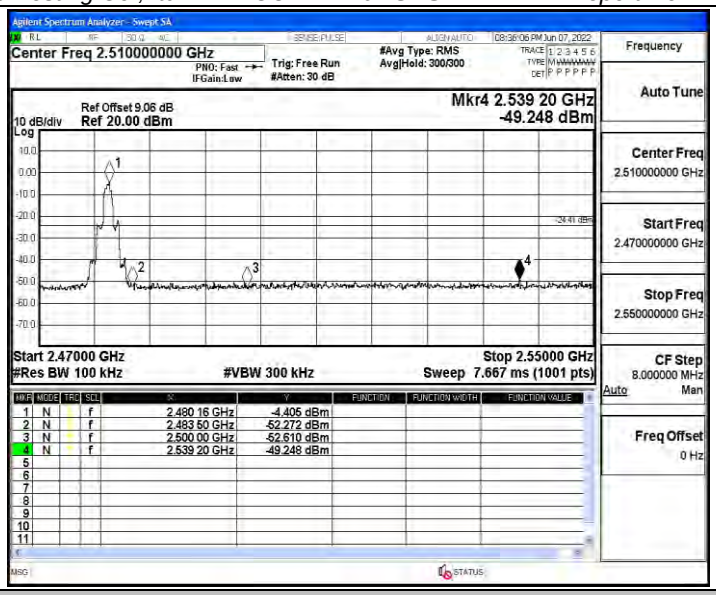

2DH5_Ant1_High_Hop_2480



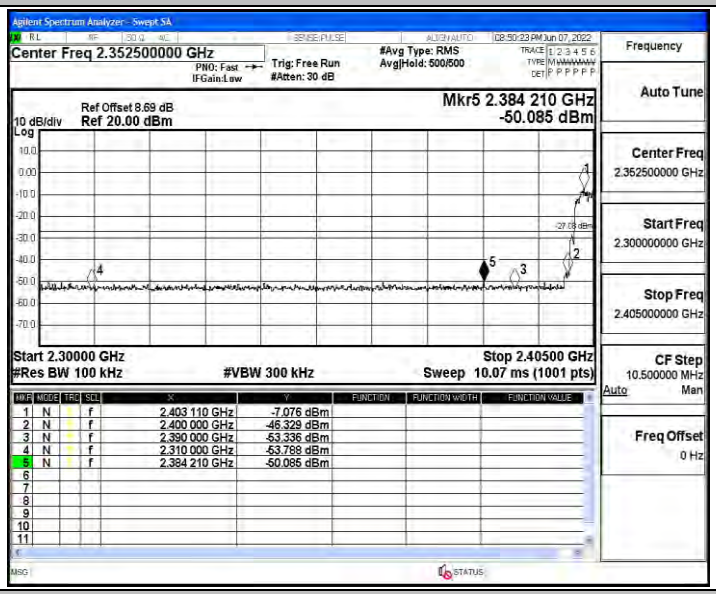

3DH5_Ant1_Low_2402



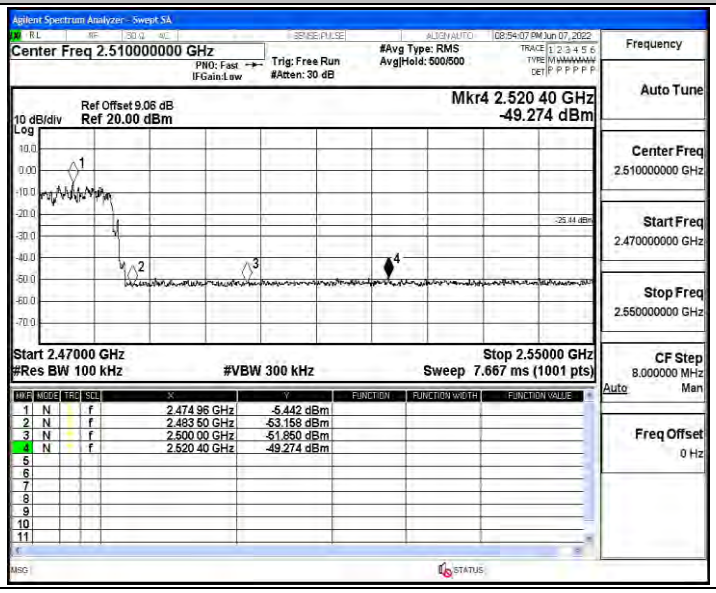

3DH5_Ant1_High_2480




3DH5_Ant1_Low_Hop_2402




3DH5_Ant1_High_Hop_2480



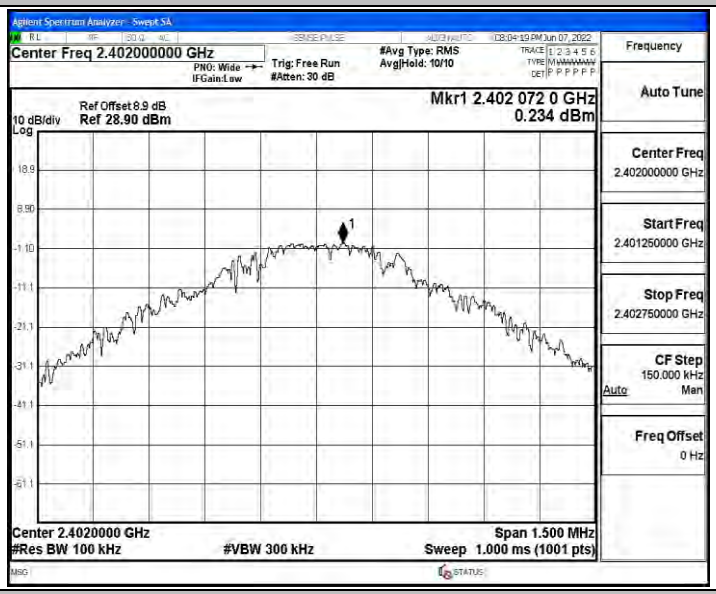
# Appendix H: Conducted Spurious Emission

## Test Result

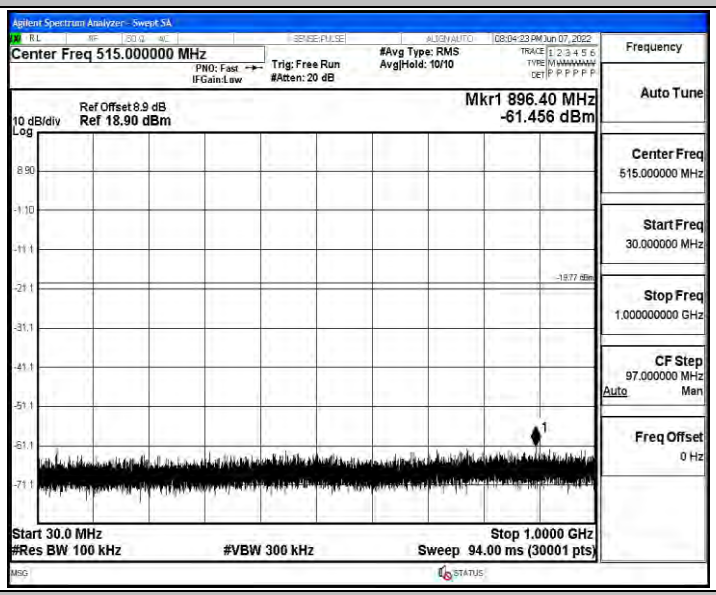
| TestMode | Antenna | Channel | FreqRange [MHz] | RefLevel [dBm] | Result [dBm] | Limit [dBm] | Verdict |
|---|---|---|---|---|---|---|---|
| DH5 | Ant1 | 2402 | Reference | 0.23 | 0.23 | --- | PASS |
| | | | 30~1000 | 0.23 | -61.46 | ≤-19.77 | PASS |
| | | | 1000~26500 | 0.23 | -50.27 | ≤-19.77 | PASS |
| | | 2441 | Reference | 3.32 | 3.32 | --- | PASS |
| | | | 30~1000 | 3.32 | -60.86 | ≤-16.68 | PASS |
| | | | 1000~26500 | 3.32 | -51.42 | ≤-16.68 | PASS |
| | | 2480 | Reference | 2.28 | 2.28 | --- | PASS |
| | | | 30~1000 | 2.28 | -61.57 | ≤-17.72 | PASS |
| | | | 1000~26500 | 2.28 | -50.18 | ≤-17.72 | PASS |
| 2DH5 | Ant1 | 2402 | Reference | -9.41 | -9.41 | --- | PASS |
| | | | 30~1000 | -9.41 | -61.56 | ≤-29.41 | PASS |
| | | | 1000~26500 | -9.41 | -52.01 | ≤-29.41 | PASS |
| | | 2441 | Reference | -6.49 | -6.49 | --- | PASS |
| | | | 30~1000 | -6.49 | -61.69 | ≤-26.49 | PASS |
| | | | 1000~26500 | -6.49 | -50.66 | ≤-26.49 | PASS |
| | | 2480 | Reference | -3.74 | -3.74 | --- | PASS |
| | | | 30~1000 | -3.74 | -61.56 | ≤-23.74 | PASS |
| | | | 1000~26500 | -3.74 | -51.75 | ≤-23.74 | PASS |
| 3DH5 | Ant1 | 2402 | Reference | -9.89 | -9.89 | --- | PASS |
| | | | 30~1000 | -9.89 | -62.29 | ≤-29.89 | PASS |
| | | | 1000~26500 | -9.89 | -49.82 | ≤-29.89 | PASS |
| | | 2441 | Reference | -3.34 | -3.34 | --- | PASS |
| | | | 30~1000 | -3.34 | -62.09 | ≤-23.34 | PASS |
| | | | 1000~26500 | -3.34 | -51.14 | ≤-23.34 | PASS |
| | | 2480 | Reference | -3.55 | -3.55 | --- | PASS |
| | | | 30~1000 | -3.55 | -61.55 | ≤-23.55 | PASS |
| | | | 1000~26500 | -3.55 | -51.67 | ≤-23.55 | PASS |

## Test Graphs

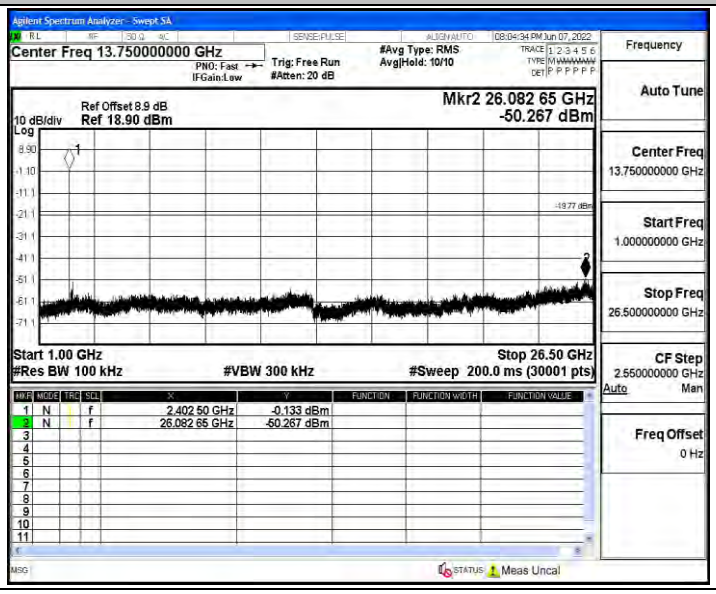
DH5_Ant1_2402_0~Reference



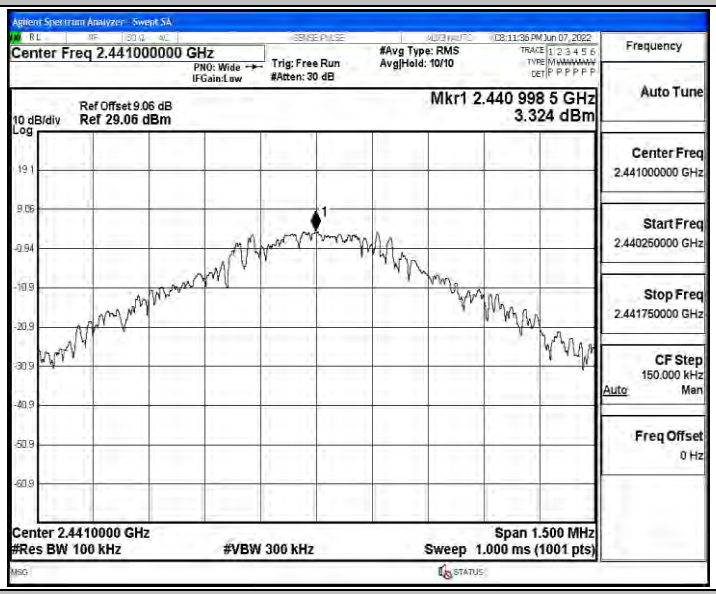

DH5_Ant1_2402_30~1000



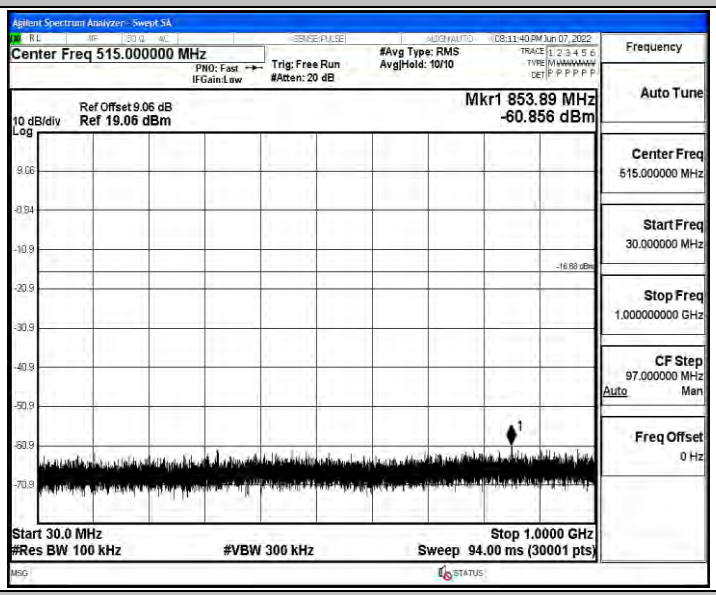

DH5_Ant1_2402_1000~26500



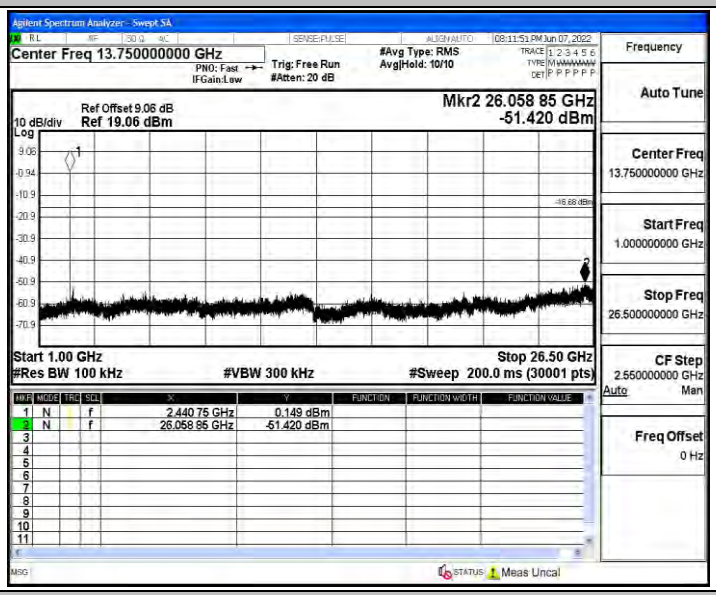
DH5_Ant1_2441_0~Reference



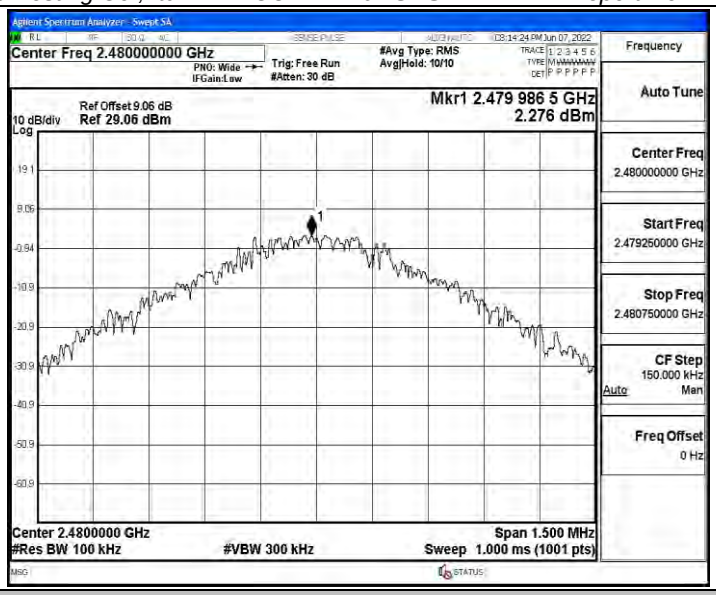

DH5_Ant1_2441_30~1000



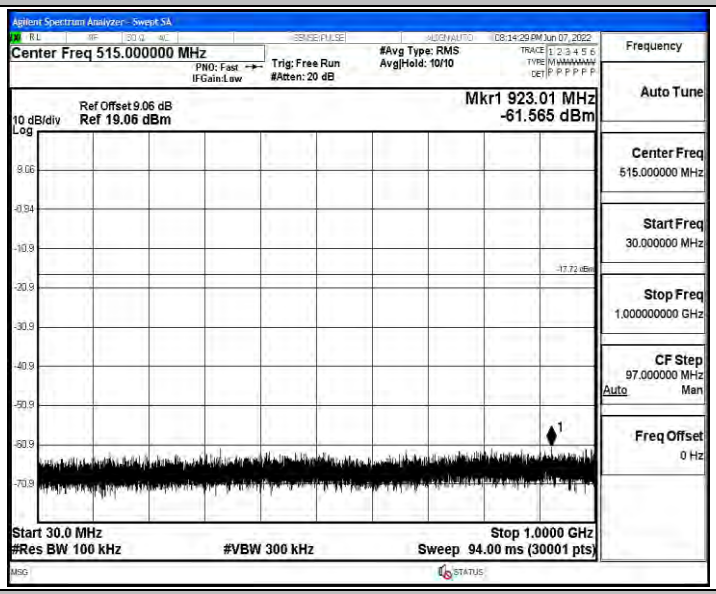

DH5_Ant1_2441_1000~26500



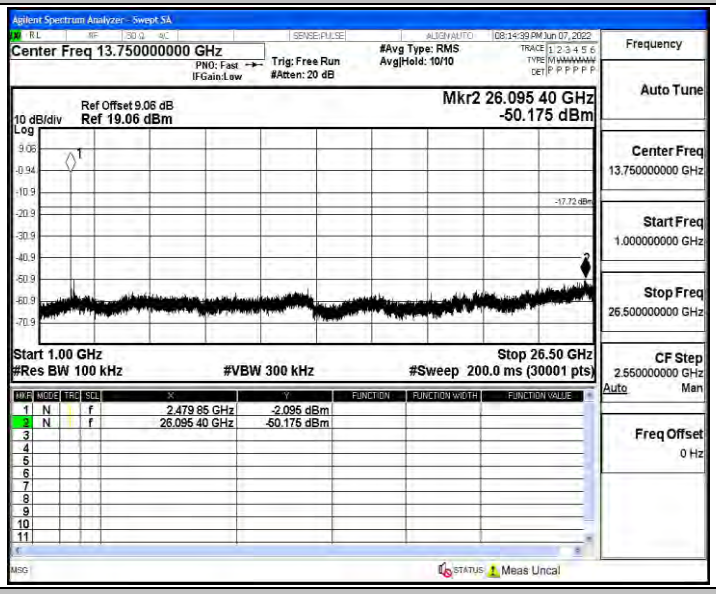

DH5_Ant1_2480_0~Reference



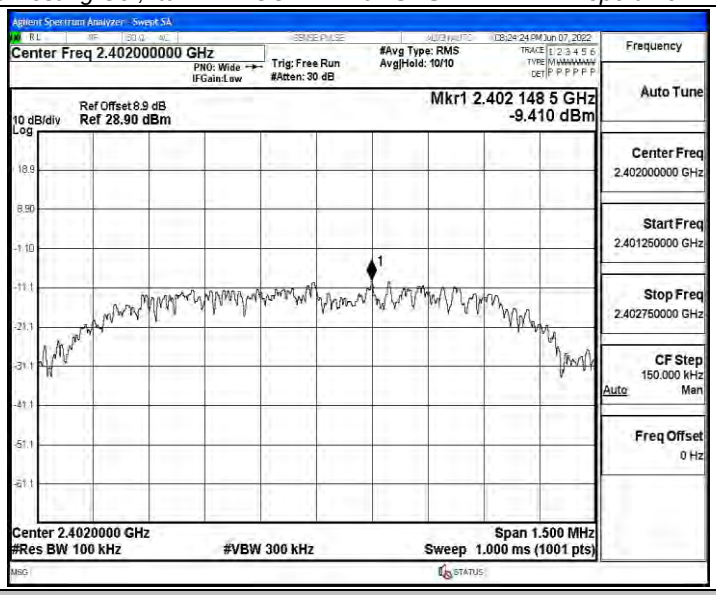

DH5_Ant1_2480_30~1000



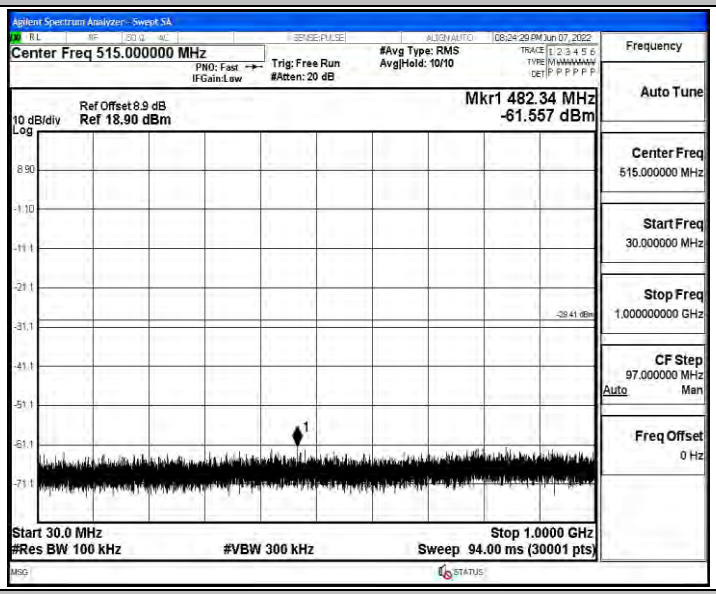

DH5_Ant1_2480_1000~26500



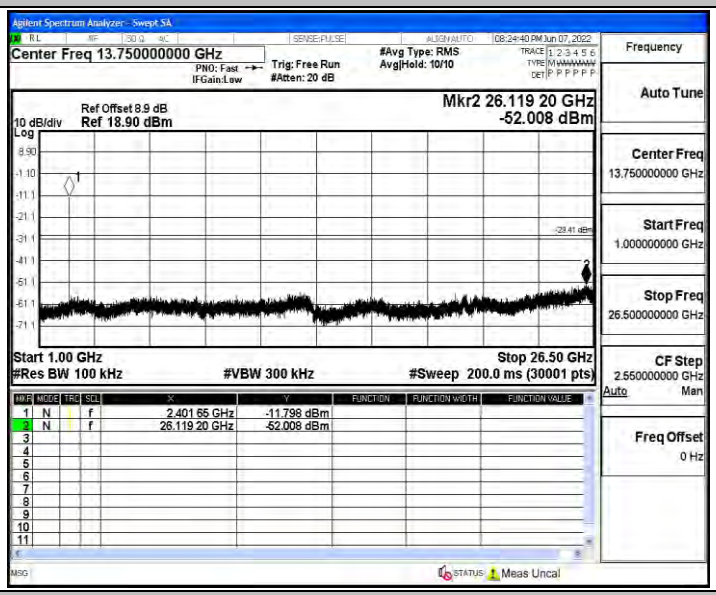

2DH5_Ant1_2402_0~Reference



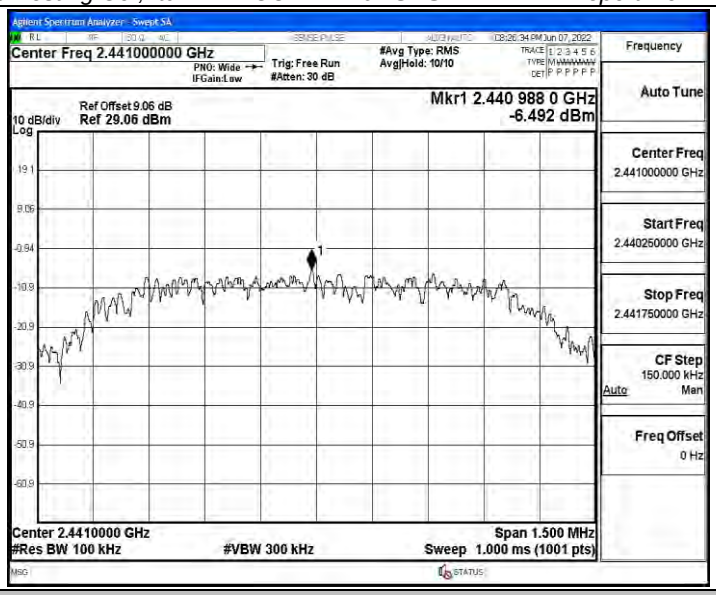

2DH5_Ant1_2402_30~1000



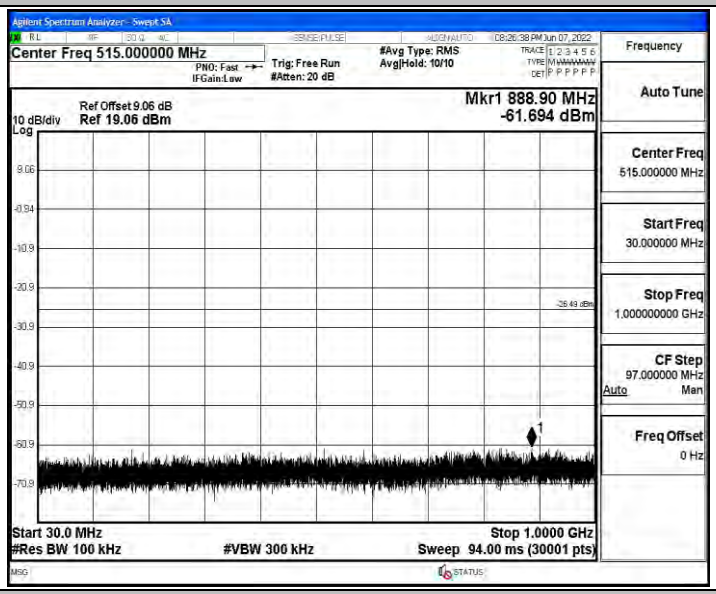

2DH5_Ant1_2402_1000~26500



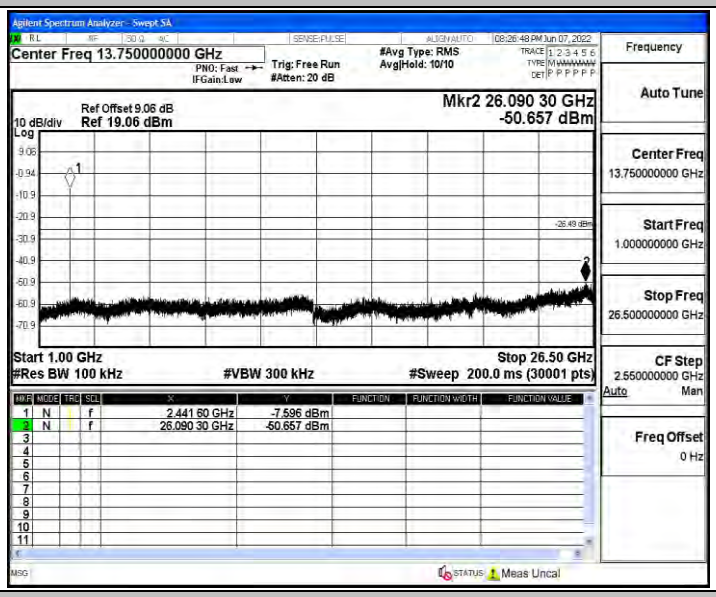

2DH5_Ant1_2441_0~Reference



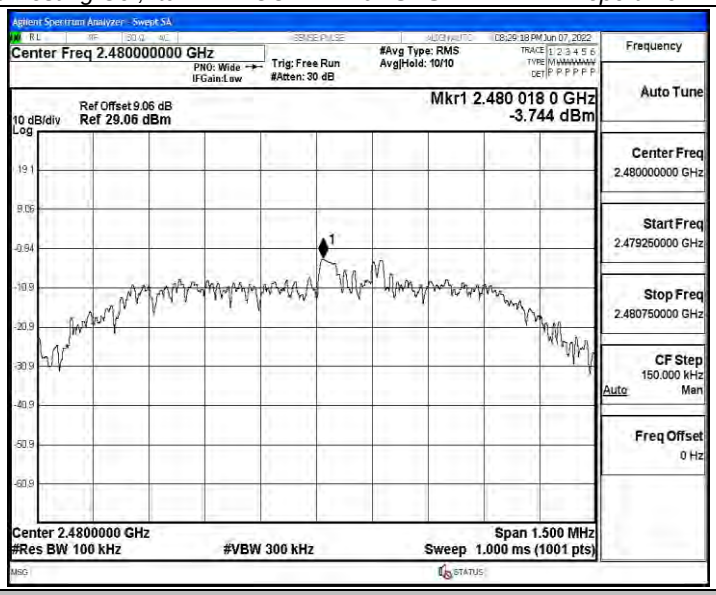

2DH5_Ant1_2441_30~1000



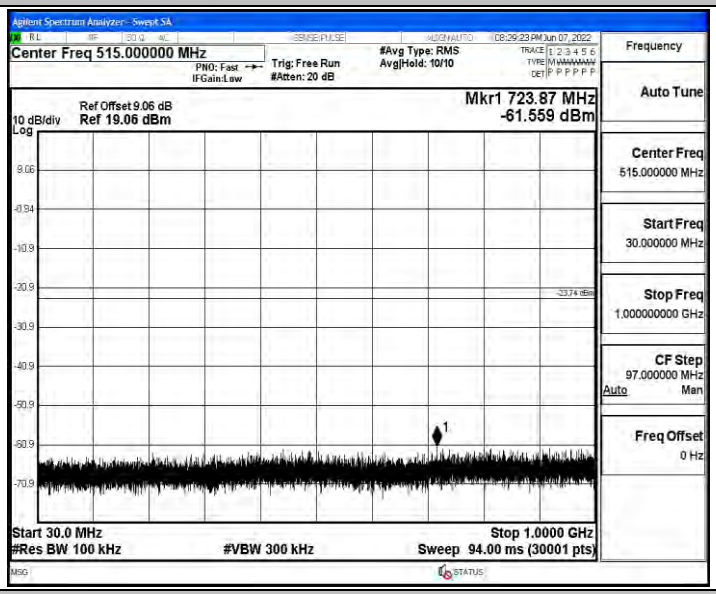

2DH5_Ant1_2441_1000~26500




2DH5_Ant1_2480_0~Reference




2DH5_Ant1_2480_30~1000

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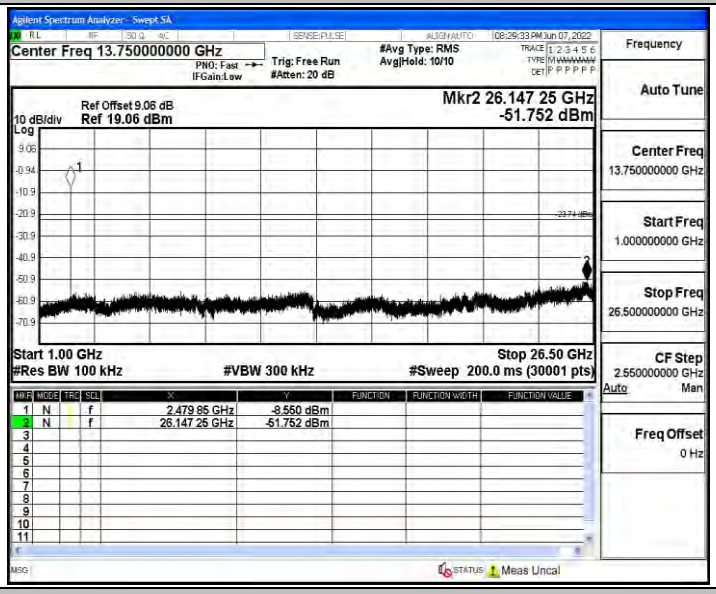


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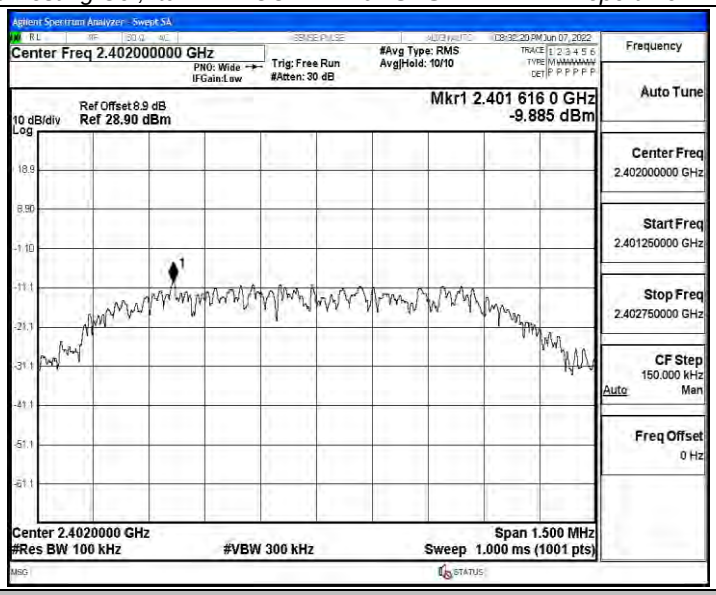


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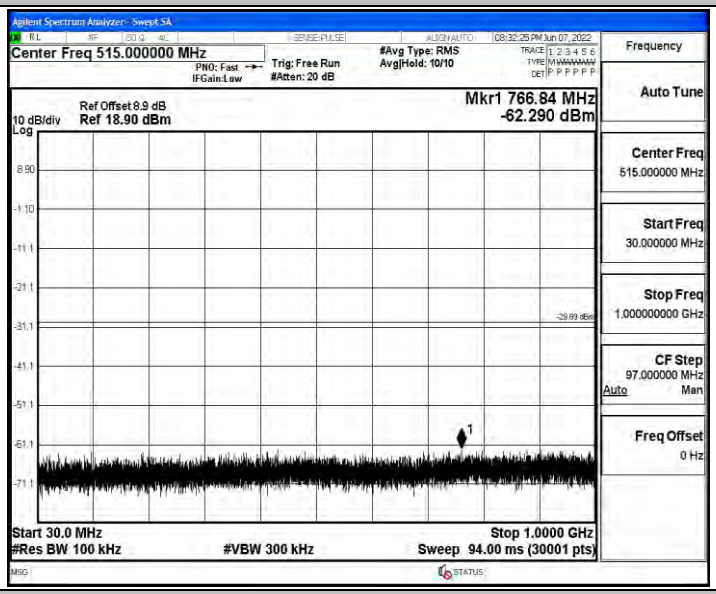


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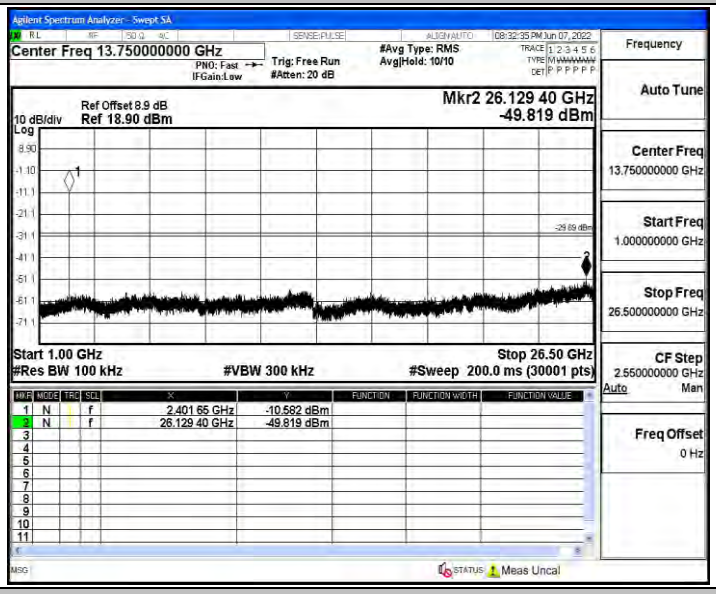


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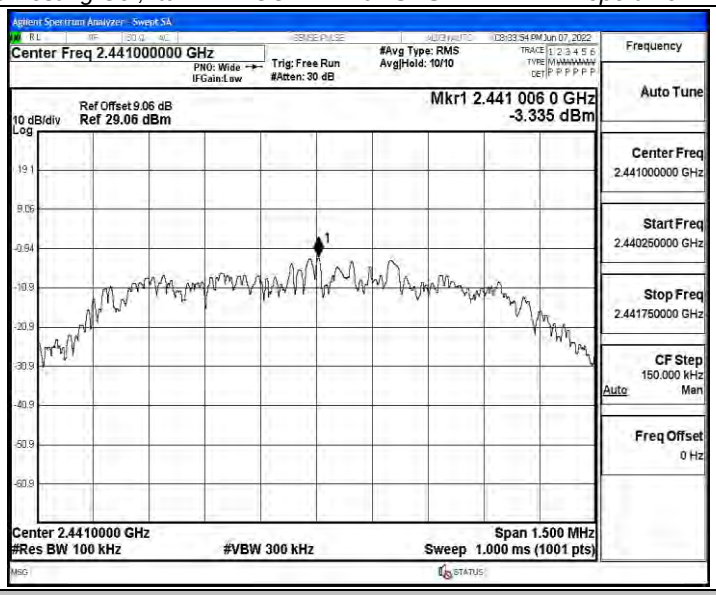
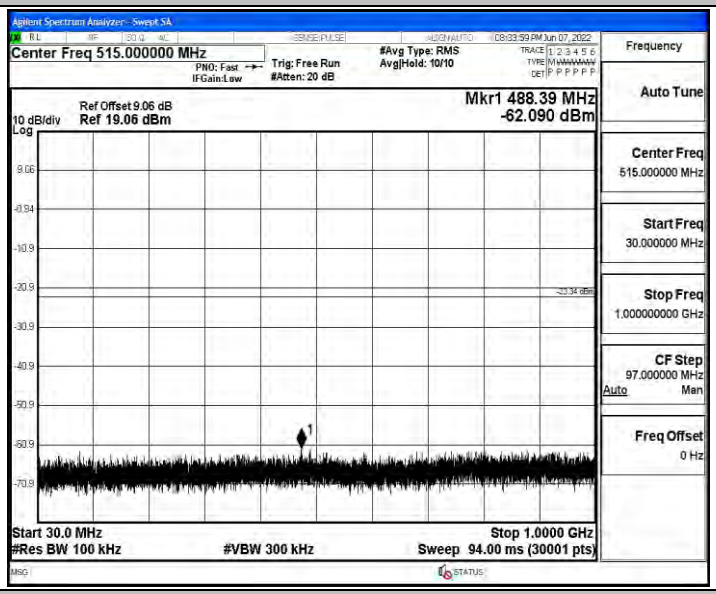
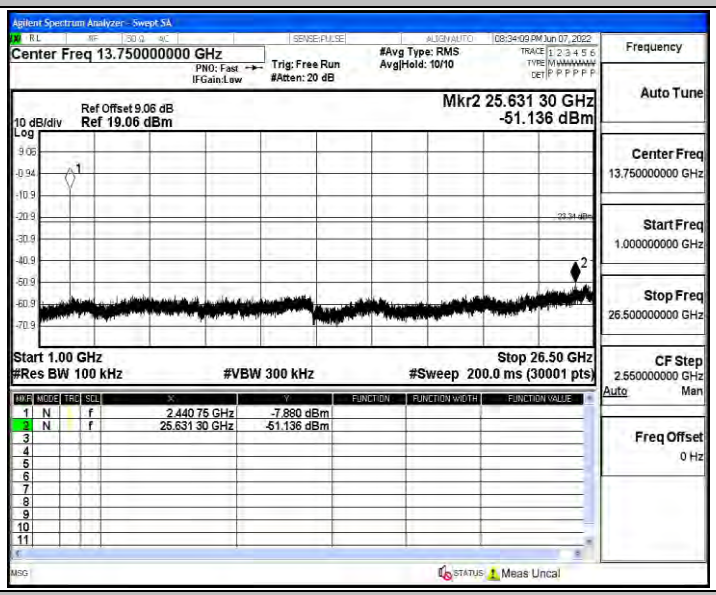



3DH5_Ant1_2441_30~1000




3DH5_Ant1_2441_1000~26500

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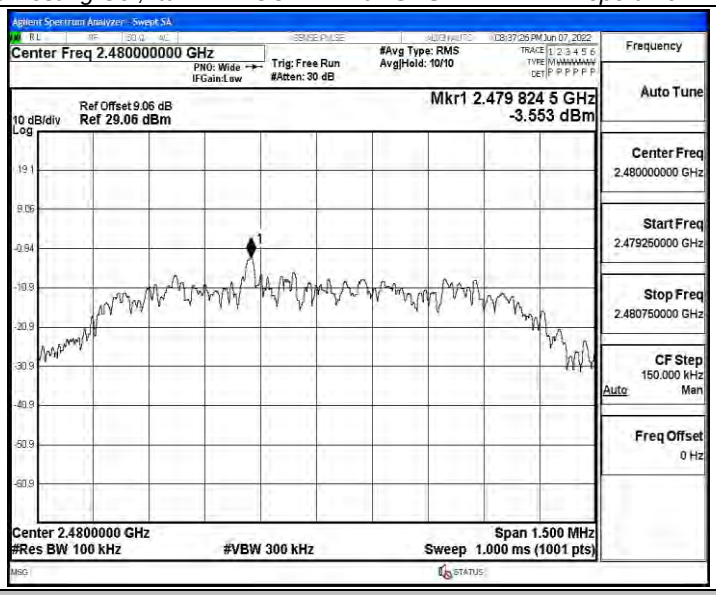
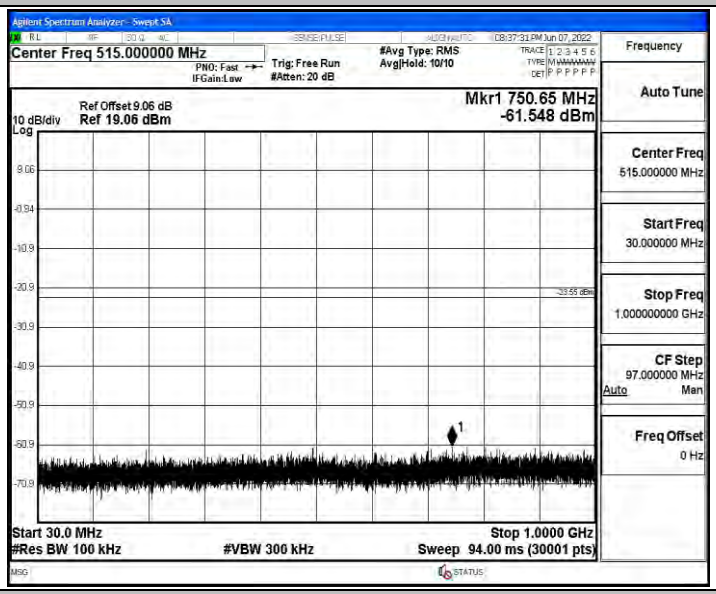
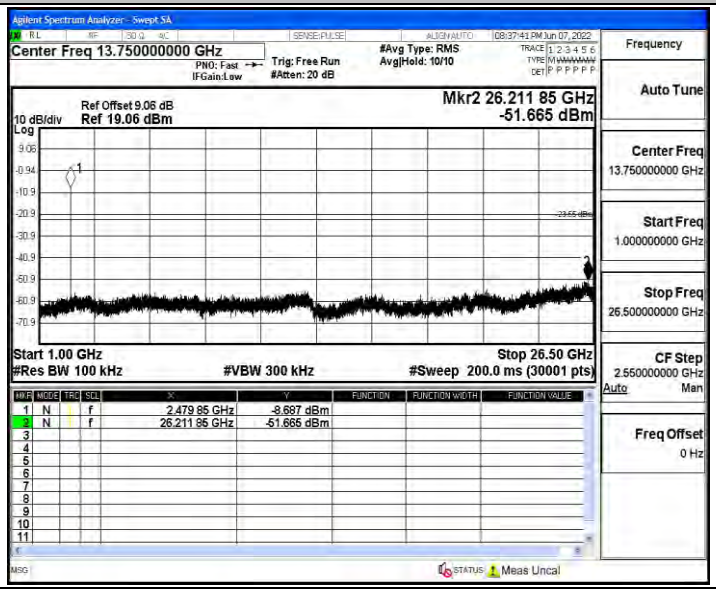



3DH5_Ant1_2480_30~1000




3DH5_Ant1_2480_1000~26500



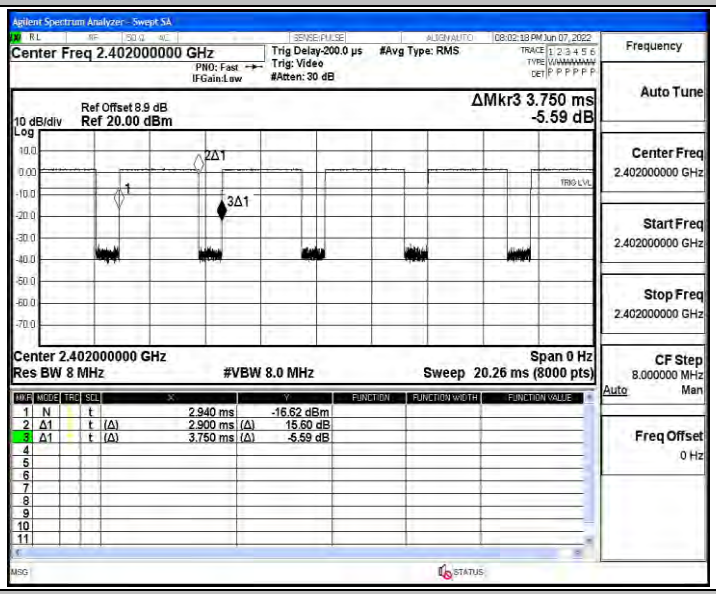
# Appendix I: Duty Cycle

## Test Result

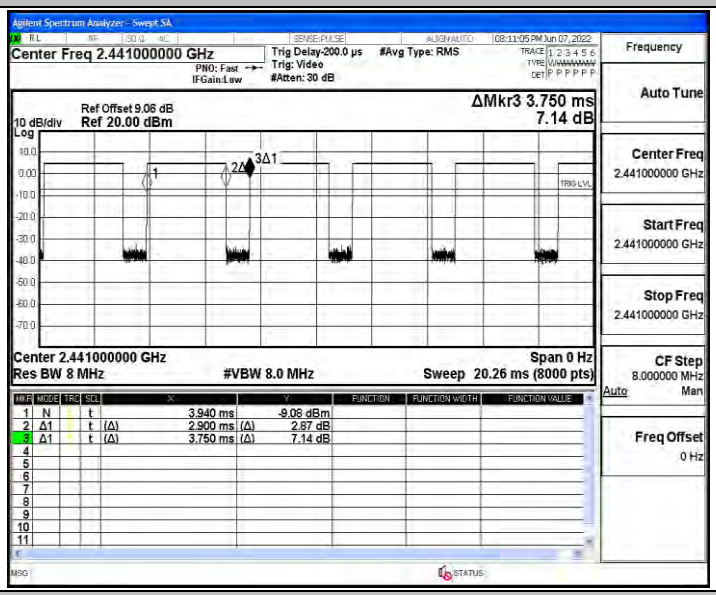
| TestMode | Antenna | Channel | Transmission Duration [ms] | Transmission Period [ms] | Duty Cycle [%] | 1/T[kHz] |
|---|---|---|---|---|---|---|
| DH5 | Ant1 | 2402 | 2.90 | 3.75 | 77.33 | 0.34 |
| | | 2441 | 2.90 | 3.75 | 77.33 | 0.34 |
| | | 2480 | 2.90 | 3.75 | 77.33 | 0.34 |
| 2DH5 | Ant1 | 2402 | 2.90 | 3.75 | 77.33 | 0.34 |
| | | 2441 | 2.91 | 3.75 | 77.60 | 0.34 |
| | | 2480 | 2.91 | 3.75 | 77.60 | 0.34 |
| 3DH5 | Ant1 | 2402 | 2.91 | 3.75 | 77.60 | 0.34 |
| | | 2441 | 2.91 | 3.75 | 77.60 | 0.34 |
| | | 2480 | 2.91 | 3.75 | 77.60 | 0.34 |

## Test Graphs

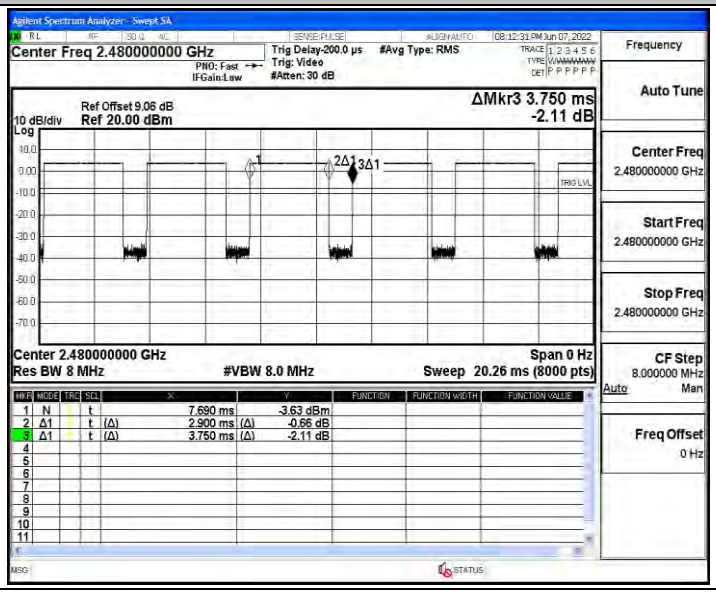
DH5_Ant1_2402



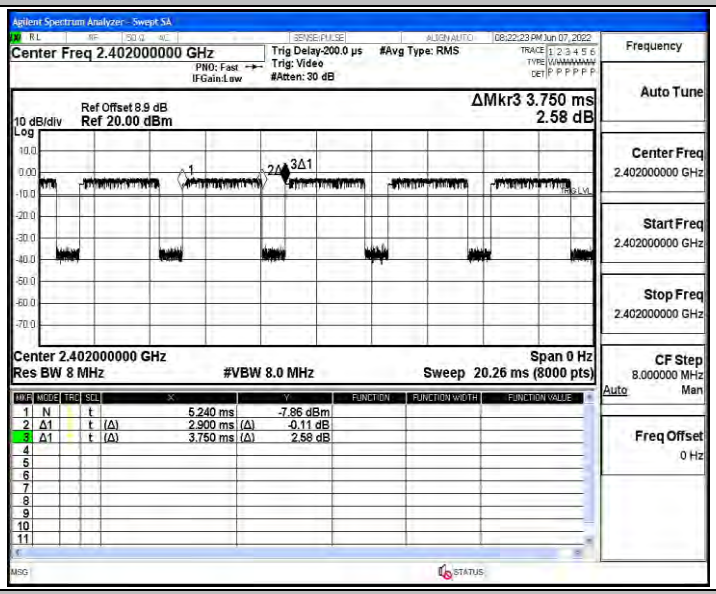

DH5_Ant1_2441



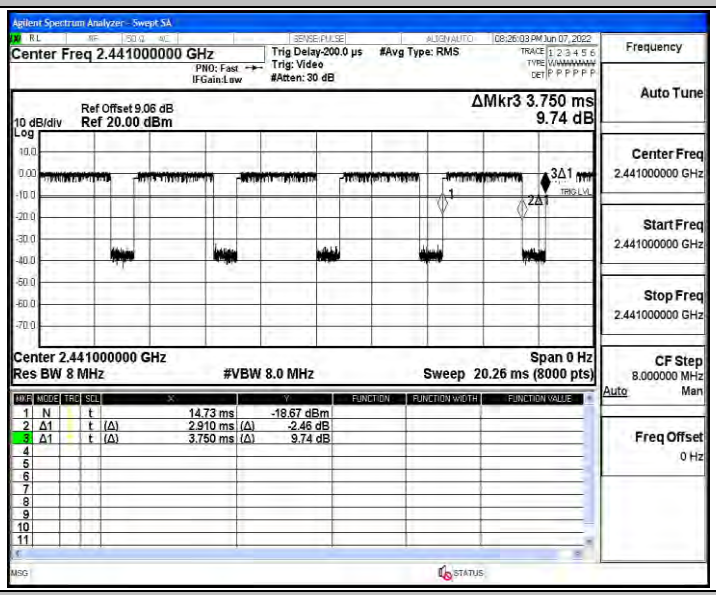

DH5_Ant1_2480



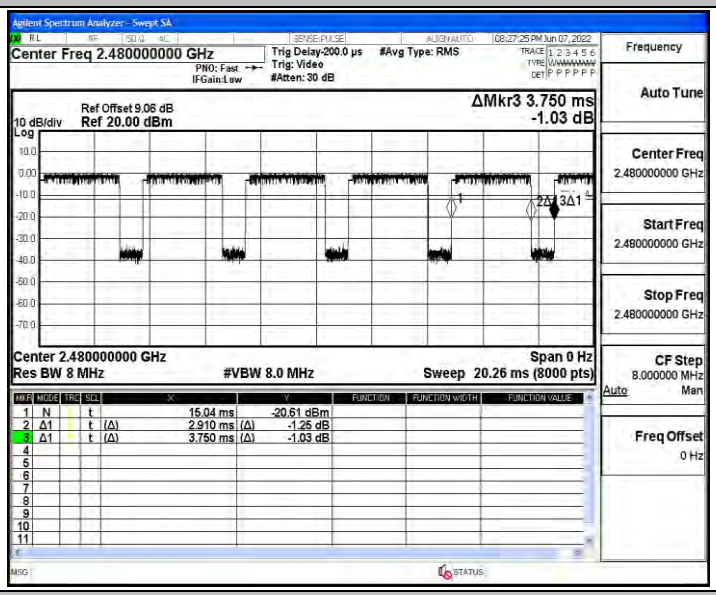
2DH5_Ant1_2402



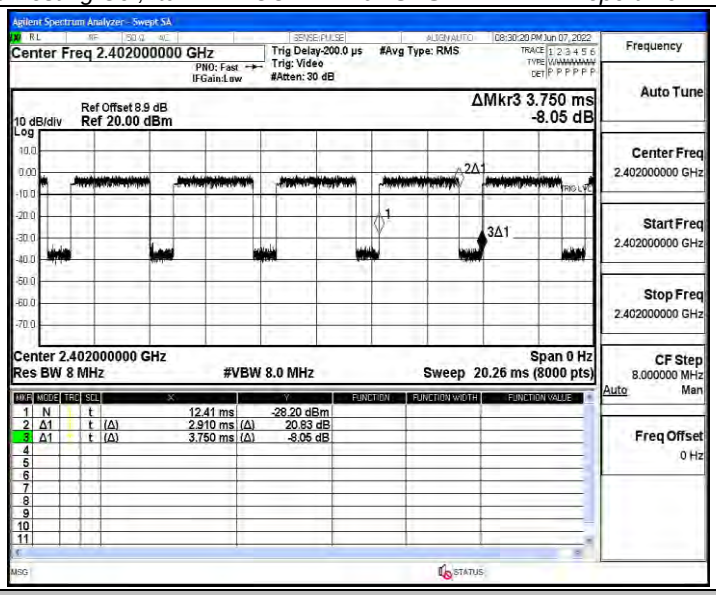

2DH5_Ant1_2441



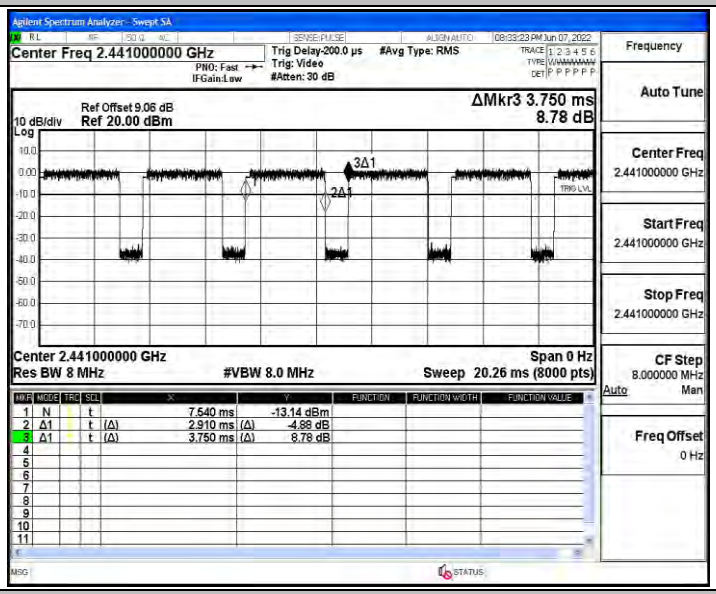

2DH5_Ant1_2480



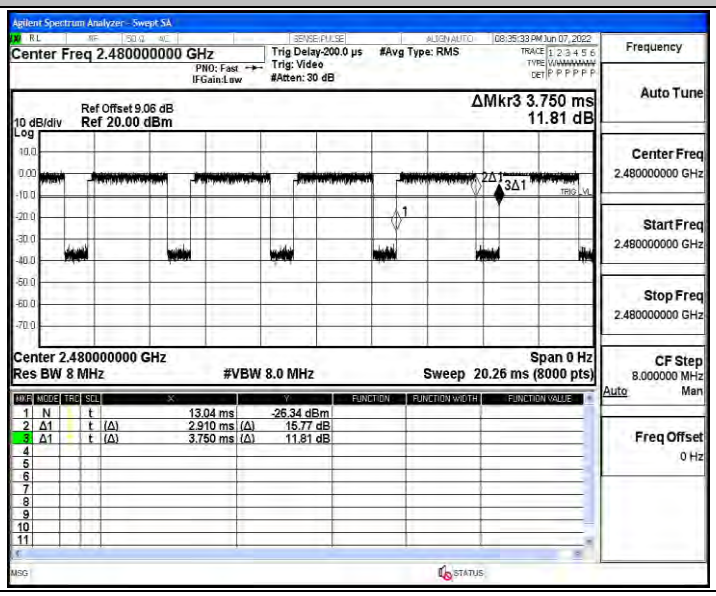

3DH5_Ant1_2402




3DH5_Ant1_2441




3DH5_Ant1_2480



# Appendix J: Emissions in Restricted Bands

## Test Result

| TestMode | Antenna | ChName | Channel | Detector | Freq(MHz) | Result(dBm) | Limit(dBm) | Verdict |
|---|---|---|---|---|---|---|---|---|
| DH5 | Ant1 | Low | 2402 | AV | 2310.000 | -49.58 | ≤-41.20 | PASS |
| | | | | AV | 2386.205 | -49.15 | ≤-41.20 | PASS |
| | | | | AV | 2390.000 | -49.24 | ≤-41.20 | PASS |
| | | | | Peak | 2310.000 | -42.33 | ≤-21.20 | PASS |
| | | | | Peak | 2322.470 | -38.97 | ≤-21.20 | PASS |
| | | | | Peak | 2390.000 | -40.41 | ≤-21.20 | PASS |
| | | High | 2480 | AV | 2483.500 | -41.28 | ≤-41.20 | PASS |
| | | | | AV | 2483.520 | -41.28 | ≤-41.20 | PASS |
| | | | | AV | 2500.000 | -48.47 | ≤-41.20 | PASS |
| | | | | Peak | 2483.500 | -35.18 | ≤-21.20 | PASS |
| | | | | Peak | 2483.520 | -35.18 | ≤-21.20 | PASS |
| | | | | Peak | 2500.000 | -40.19 | ≤-21.20 | PASS |
| 2DH5 | Ant1 | Low | 2402 | AV | 2310.000 | -49.56 | ≤-41.20 | PASS |
| | | | | AV | 2383.160 | -49.09 | ≤-41.20 | PASS |
| | | | | AV | 2390.000 | -49.27 | ≤-41.20 | PASS |
| | | | | Peak | 2310.000 | -43.2 | ≤-21.20 | PASS |
| | | | | Peak | 2335.700 | -39.98 | ≤-21.20 | PASS |
| | | | | Peak | 2390.000 | -41.78 | ≤-21.20 | PASS |
| | | High | 2480 | AV | 2483.500 | -47.2 | ≤-41.20 | PASS |
| | | | | AV | 2483.520 | -47.2 | ≤-41.20 | PASS |
| | | | | AV | 2500.000 | -48.61 | ≤-41.20 | PASS |
| | | | | Peak | 2483.500 | -40.21 | ≤-21.20 | PASS |
| | | | | Peak | 2483.600 | -39.01 | ≤-21.20 | PASS |
| | | | | Peak | 2500.000 | -42.1 | ≤-21.20 | PASS |
| 3DH5 | Ant1 | Low | 2402 | AV | 2310.000 | -49.55 | ≤-41.20 | PASS |
| | | | | AV | 2384.630 | -49.03 | ≤-41.20 | PASS |
| | | | | AV | 2390.000 | -49.15 | ≤-41.20 | PASS |
| | | | | Peak | 2310.000 | -42.56 | ≤-21.20 | PASS |
| | | | | Peak | 2380.430 | -38.13 | ≤-21.20 | PASS |
| | | | | Peak | 2390.000 | -43.6 | ≤-21.20 | PASS |
| | | High | 2480 | AV | 2483.500 | -46.99 | ≤-41.20 | PASS |
| | | | | AV | 2483.520 | -46.99 | ≤-41.20 | PASS |
| | | | | AV | 2500.000 | -48.48 | ≤-41.20 | PASS |
| | | | | Peak | 2483.500 | -39.85 | ≤-21.20 | PASS |
| | | | | Peak | 2494.160 | -38.29 | ≤-21.20 | PASS |
| | | | | Peak | 2500.000 | -41.18 | ≤-21.20 | PASS |

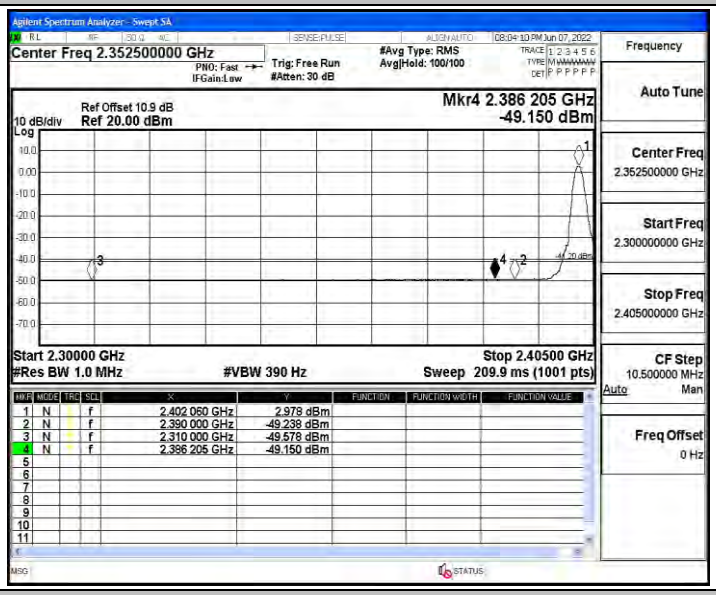
Note：

1. The Antenna Gain is compensated in the graph with 2dBi and Antenna Gain which is Higher.
2. The limit in dBm for average detector is conversion from 54dBuV/m, according to 15.209(a). The limit in

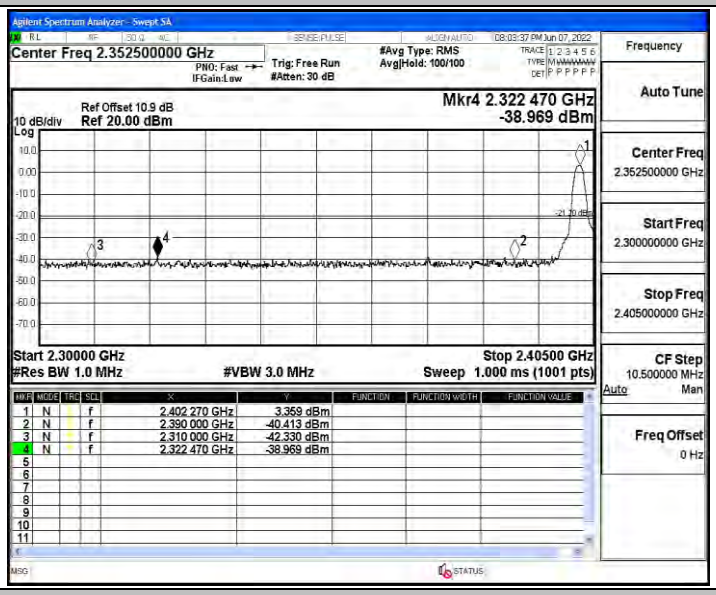
dBm for peak detector is 20dB above the limit of average detector in dBm.

## Test Graphs

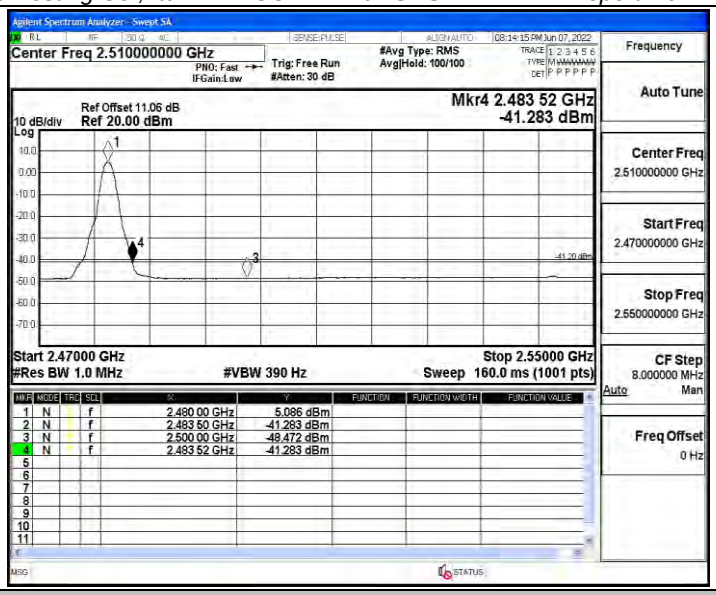
DH5_Ant1_Low_2402_AV



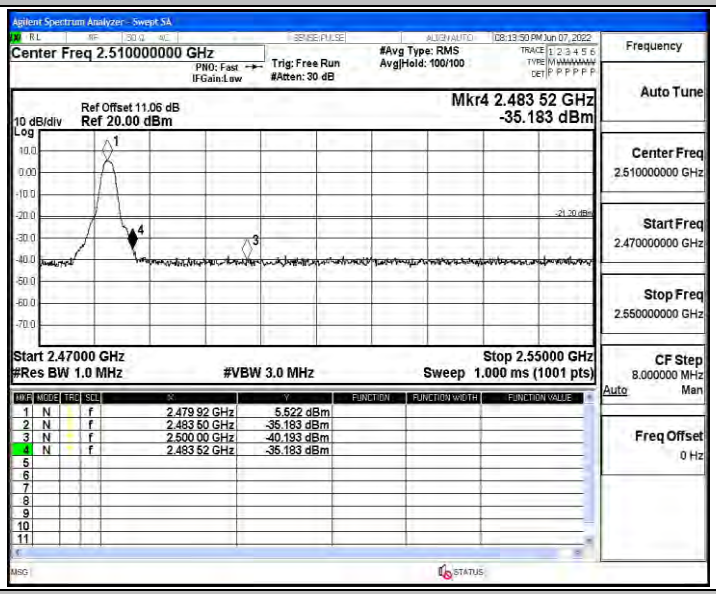

DH5_Ant1_Low_2402_Peak



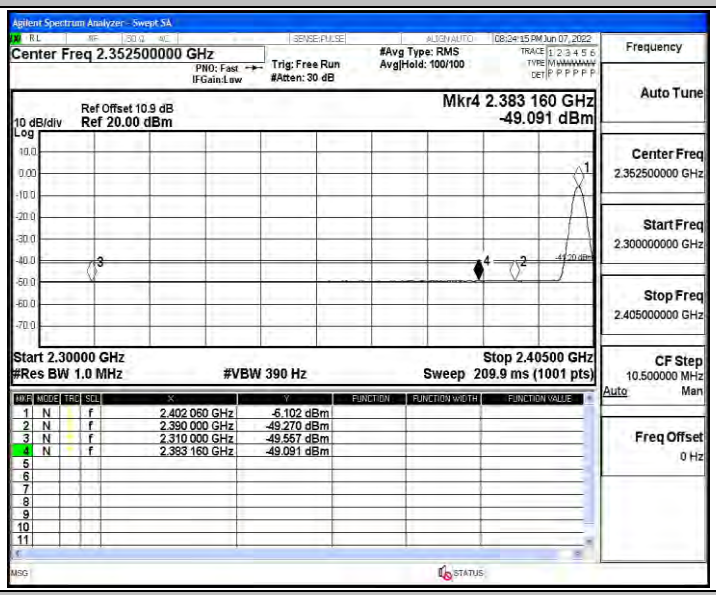

DH5_Ant1_High_2480_AV



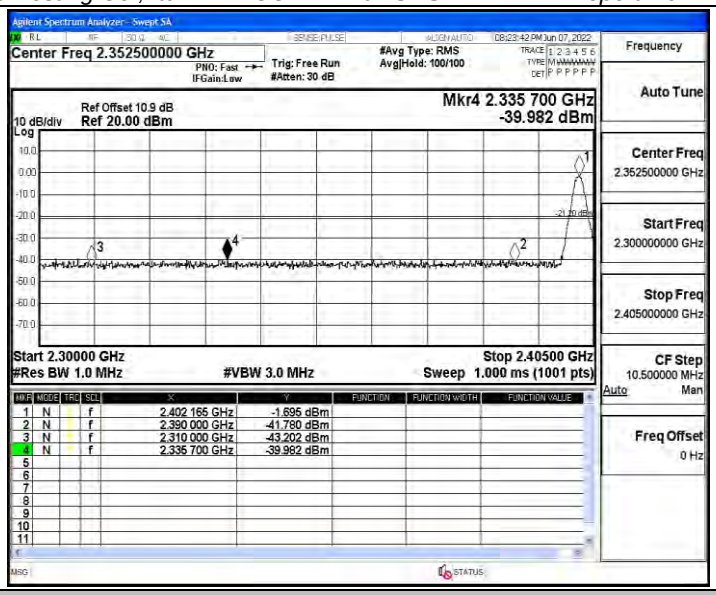

DH5_Ant1_High_2480_Peak



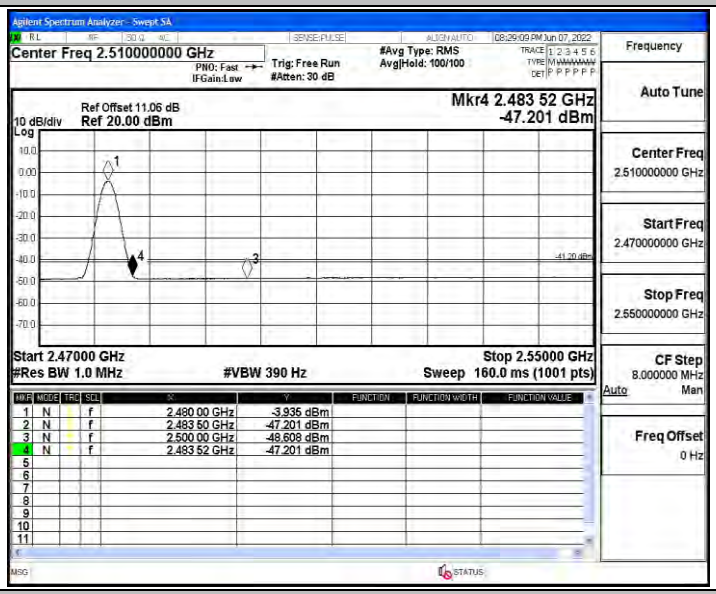

2DH5_Ant1_Low_2402_AV



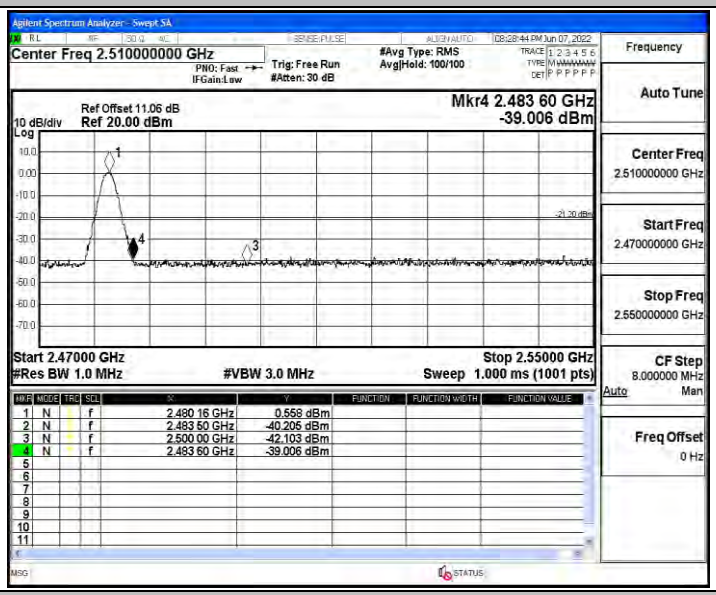

2DH5_Ant1_Low_2402_Peak



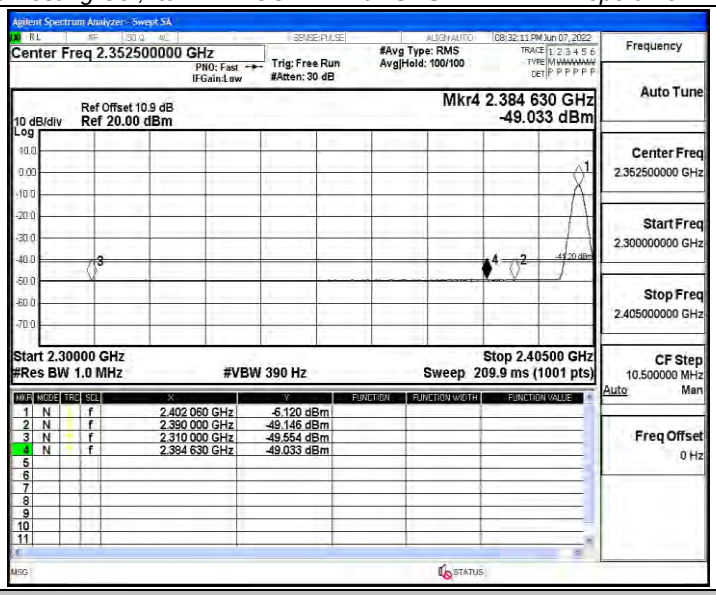

2DH5_Ant1_High_2480_AV



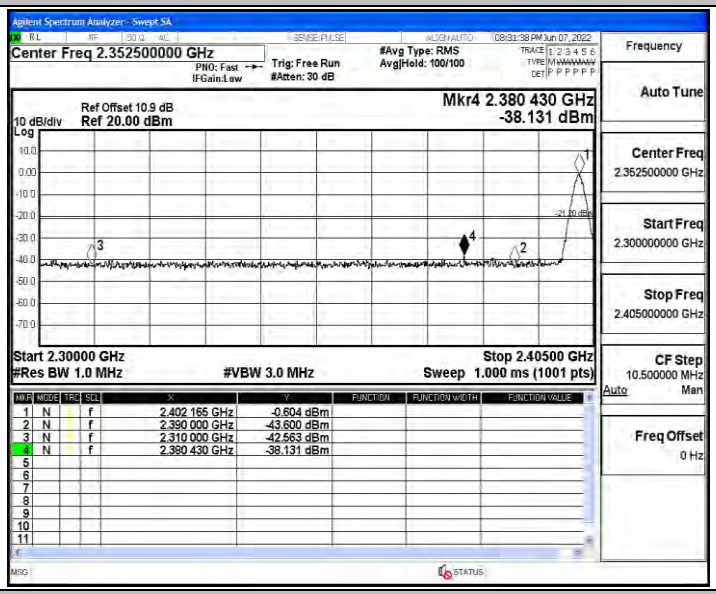

2DH5_Ant1_High_2480_Peak



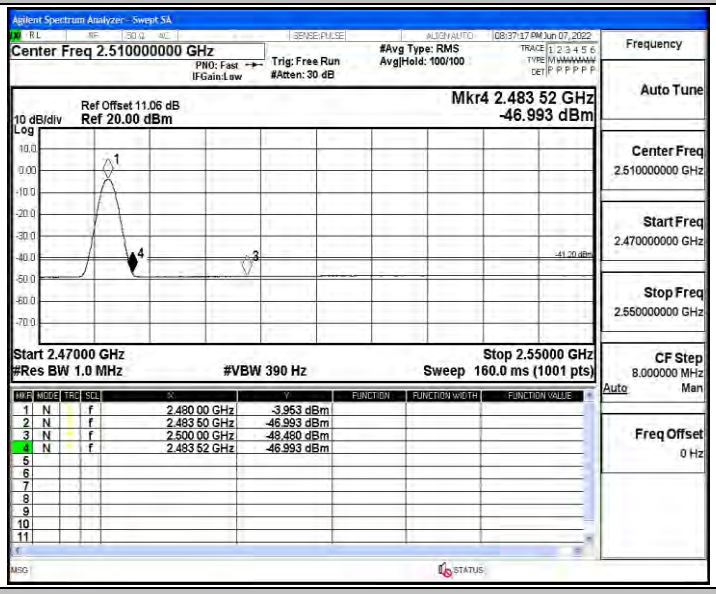

3DH5_Ant1_Low_2402_AV



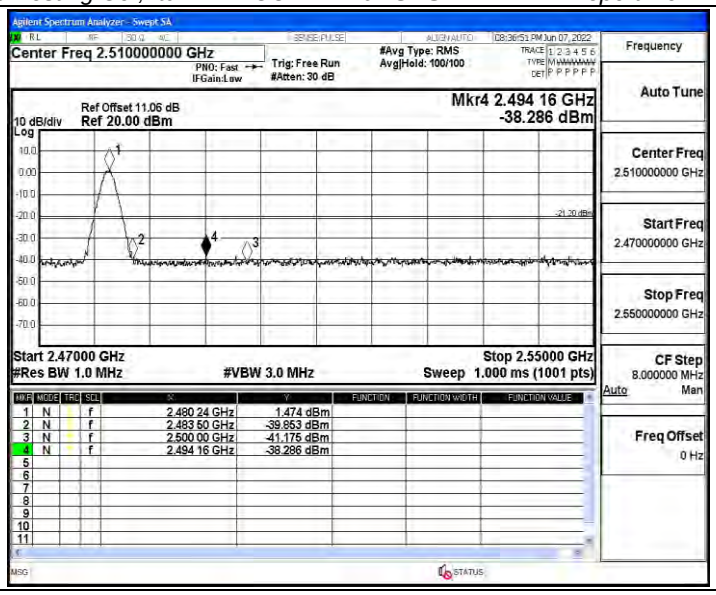

3DH5_Ant1_Low_2402_Peak




3DH5_Ant1_High_2480_AV




3DH5_Ant1_High_2480_Peak


Agilent Spectrum Analyzer - Swept SA
Center Freq 2.510000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 30 dB
#Avg Type: RMS
Avg|Hold: 100/100
08:36:51 PM Jun 07, 2022
Frequency
Auto Tune
Ref Offset 11.06 dB
10 dB/div
Ref 20.00 dBm
Log
Mkr4 2.494 16 GHz
-38.286 dBm
-21.20 dBm
Center Freq
2.510000000 GHz
Start Freq
2.470000000 GHz
Stop Freq
2.550000000 GHz
Start 2.47000 GHz
#Res BW 1.0 MHz
#VBW 3.0 MHz
Stop 2.55000 GHz
Sweep 1.000 ms (1001 pts)
CF Step
8.000000 MHz
Auto
Man
Freq Offset
0 Hz
1 N f 2.480 24 GHz 1.474 dBm
2 N f 2.483 50 GHz -39.653 dBm
3 N f 2.500 00 GHz -41.175 dBm
4 N f 2.494 16 GHz -38.286 dBm
MSG
STATUS