# Appendix Test Data

| | | | |
|---|---|---|---|
| Report No.: | 18220WC30199101 | Test Sample No.: | 1-2-2 |
| Start Test Date: | 2023.09.12 | Finish Test Date: | 2023.09.13 |
| Test Engineer: | Hayman Chen | Auditor: | Rick Luo |
| Temperature: | 25.3℃ | Relative Humidity: | 48% |
| Pressure: | 102 kPa | | |

## Appendix A: 20dB Emission Bandwidth

### Test Result

| TestMode | Antenna | Frequency[MHz] | 20db EBW[MHz] | FL[MHz] | FH[MHz] | Limit[MHz] | Verdict |
|---|---|---|---|---|---|---|---|
| DH5 | Ant1 | 2402 | 0.960 | 2401.541 | 2402.501 | --- | --- |
| | | 2441 | 0.963 | 2440.535 | 2441.498 | --- | --- |
| | | 2480 | 0.939 | 2479.547 | 2480.486 | --- | --- |
| 2DH5 | Ant1 | 2402 | 1.287 | 2401.373 | 2402.660 | --- | --- |
| | | 2441 | 1.326 | 2440.337 | 2441.663 | --- | --- |
| | | 2480 | 1.281 | 2479.376 | 2480.657 | --- | --- |

## Test Graphs

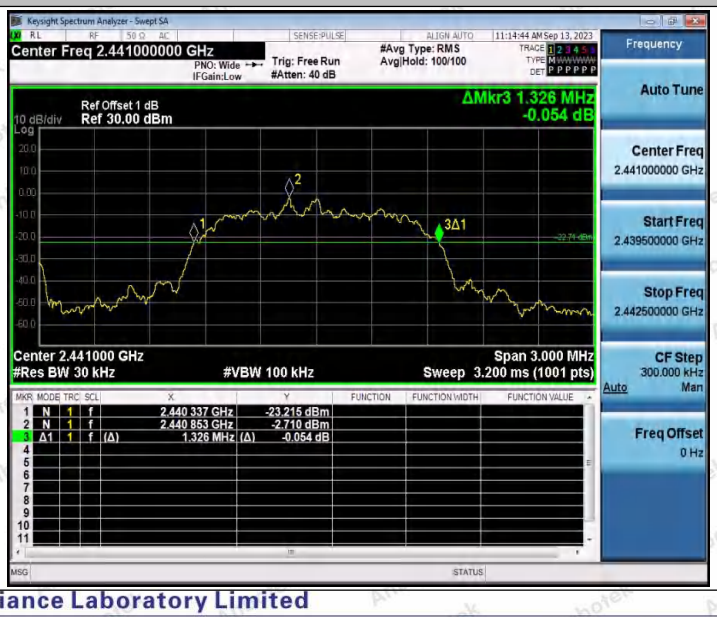
DH5_Ant1_2402

DH5_Ant1_2441

DH5_Ant1_2480

2DH5_Ant1_2402

2DH5_Ant1_2441



2DH5_Ant1_2480

# Appendix B: Occupied Channel Bandwidth

## Test Result

| TestMode | Antenna | Frequency[MHz] | OCB [MHz] | FL[MHz] | FH[MHz] | Limit[MHz] | Verdict |
|---|---|---|---|---|---|---|---|
| DH5 | Ant1 | 2402 | 0.85879 | 2401.5758 | 2402.4346 | --- | --- |
| | | 2441 | 0.87765 | 2440.5678 | 2441.4455 | --- | --- |
| | | 2480 | 0.86705 | 2479.5694 | 2480.4365 | --- | --- |
| 2DH5 | Ant1 | 2402 | 1.1931 | 2401.4083 | 2402.6014 | --- | --- |
| | | 2441 | 1.1826 | 2440.4129 | 2441.5955 | --- | --- |
| | | 2480 | 1.1739 | 2479.4165 | 2480.5904 | --- | --- |

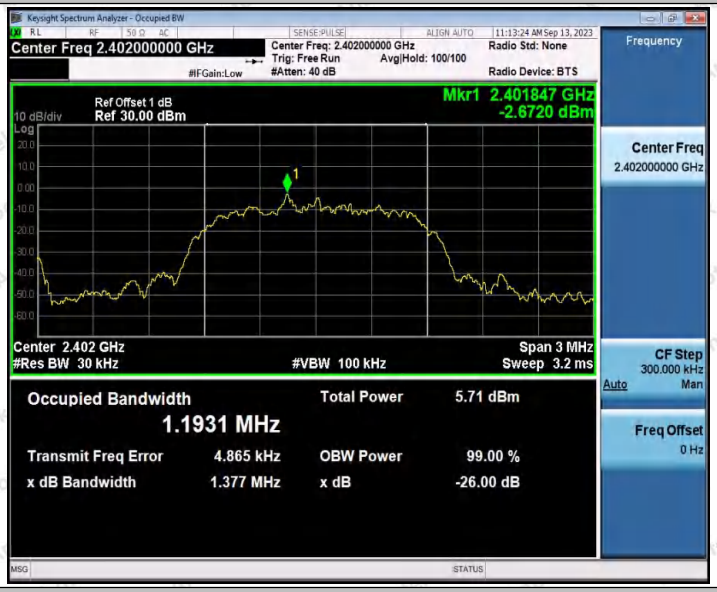
## Test Graphs

DH5_Ant1_2402

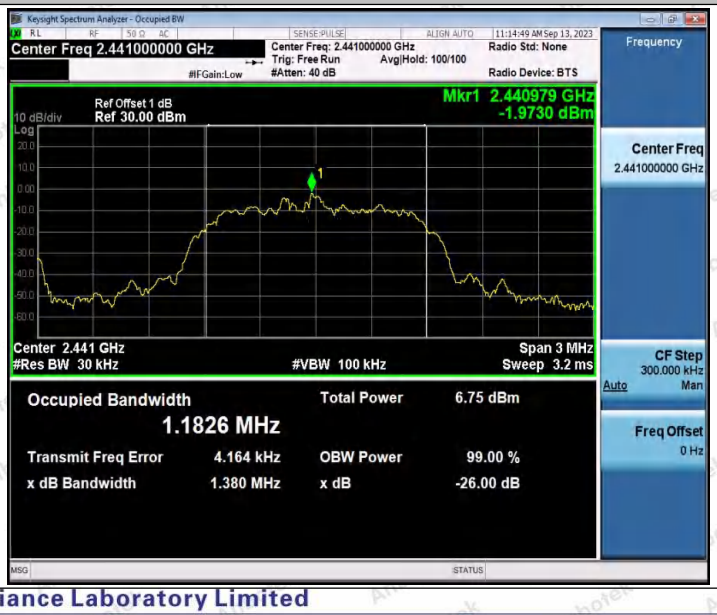
DH5_Ant1_2441

DH5_Ant1_2480

2DH5_Ant1_2402




2DH5_Ant1_2441



2DH5_Ant1_2480

# Appendix C: Maximum conducted output power

## Test Result Peak

| Test Mode | Antenna | Frequency[MHz] | Conducted Peak Power[dBm] | Conducted Limit[dBm] | Verdict |
|---|---|---|---|---|---|
| DH5 | Ant1 | 2402 | 0.14 | ≤20.97 | PASS |
| | | 2441 | 0.79 | ≤20.97 | PASS |
| | | 2480 | 0.92 | ≤20.97 | PASS |
| 2DH5 | Ant1 | 2402 | 1.01 | ≤20.97 | PASS |
| | | 2441 | 1.62 | ≤20.97 | PASS |
| | | 2480 | 1.80 | ≤20.97 | PASS |

## Test Graphs

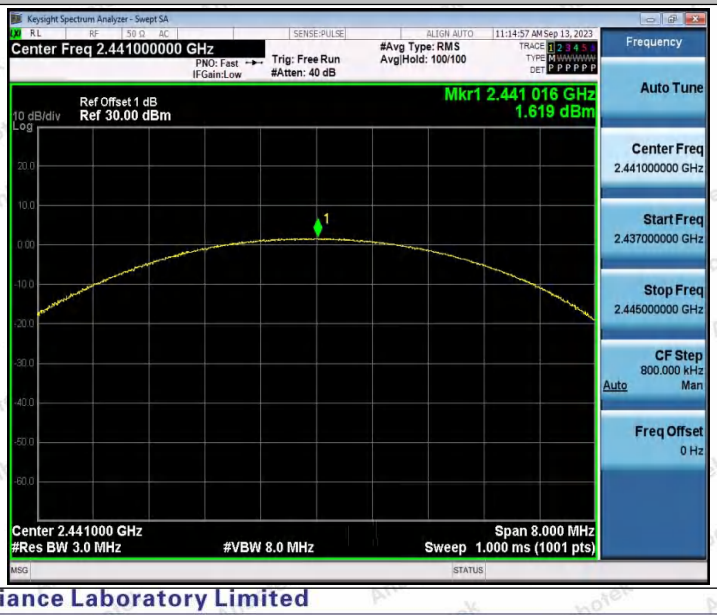
DH5_Ant1_2402

DH5_Ant1_2441

DH5_Ant1_2480

2DH5_Ant1_2402

2DH5_Ant1_2441



2DH5_Ant1_2480

# Appendix D: Carrier frequency separation

## Test Result

| TestMode | Antenna | Frequency[MHz] | Result[MHz] | Limit[MHz] | Verdict |
|---|---|---|---|---|---|
| DH5 | Ant1 | Hop | 0.998 | ≥0.963 | PASS |
| 2DH5 | Ant1 | Hop | 1.000 | ≥0.884 | PASS |

## Test Graphs

DH5_Ant1_Hop

2DH5_Ant1_Hop

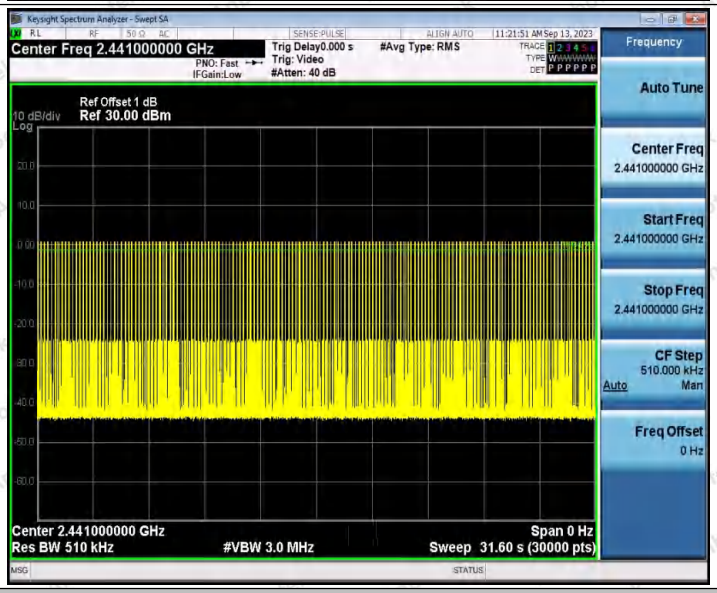
# Appendix E: Time of occupancy

## Test Result

| TestMode | Antenna | Frequency[MHz] | BurstWidth [ms] | TotalHops [Num] | Result[s] | Limit[s] | Verdict |
|---|---|---|---|---|---|---|---|
| DH1 | Ant1 | Hop | 0.381 | 317 | 0.121 | ≤0.4 | PASS |
| DH3 | Ant1 | Hop | 1.638 | 159 | 0.26 | ≤0.4 | PASS |
| DH5 | Ant1 | Hop | 2.887 | 111 | 0.32 | ≤0.4 | PASS |
| 2DH1 | Ant1 | Hop | 0.390 | 318 | 0.124 | ≤0.4 | PASS |
| 2DH3 | Ant1 | Hop | 1.643 | 153 | 0.251 | ≤0.4 | PASS |
| 2DH5 | Ant1 | Hop | 2.891 | 109 | 0.315 | ≤0.4 | PASS |

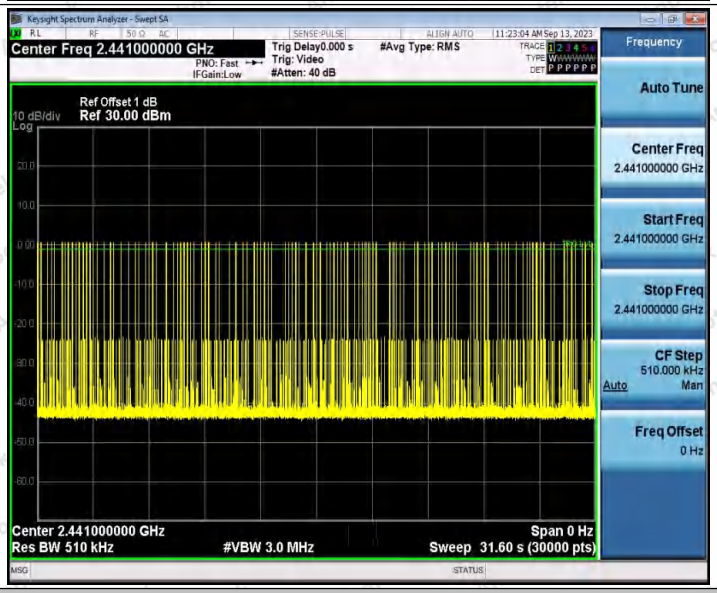
## Test Graphs

DH1_Ant1_Hop



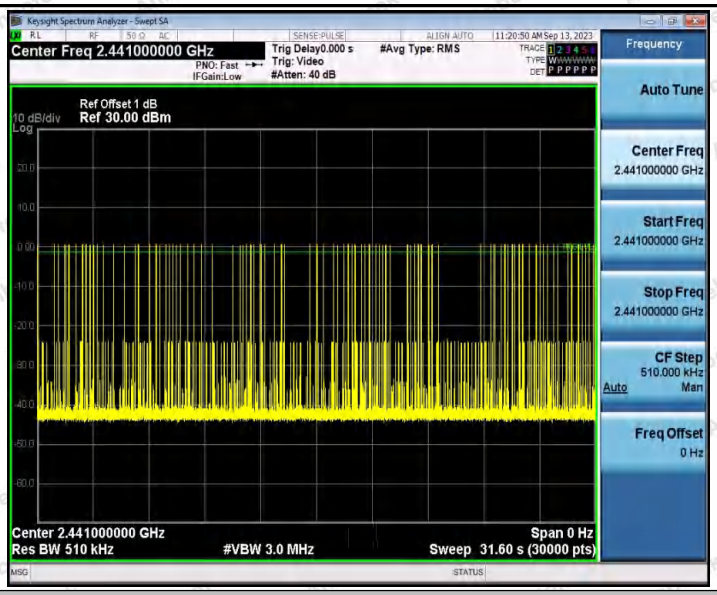

DH3_Ant1_Hop

Keysight Spectrum Analyzer - Swept SA
Center Freq 2.441000000 GHz
Trig Delay-2.000 ms
#Avg Type: RMS
Trig: Video
#Atten: 40 dB
PNO: Fast
IFGain:Low
Ref Offset 1 dB
10 dB/div
Ref 30.00 dBm
ΔMkr2 1.638 ms
16.39 dB
Center 2.441000000 GHz
Res BW 1.0 MHz
#VBW 3.0 MHz
Span 0 Hz
Sweep 10.13 ms (8000 pts)
Frequency
Auto Tune
Center Freq
2.441000000 GHz
Start Freq
2.441000000 GHz
Stop Freq
2.441000000 GHz
CF Step
1.000000 MHz
Auto
Man
Freq Offset
0 Hz

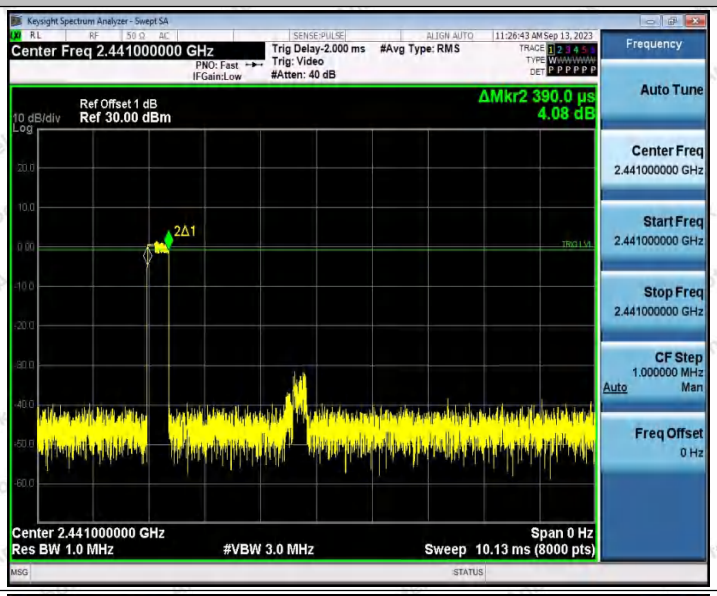

Keysight Spectrum Analyzer - Swept SA
Center Freq 2.441000000 GHz
Trig Delay0.000 s
#Avg Type: RMS
Trig: Video
#Atten: 40 dB
PNO: Fast
IFGain:Low
Ref Offset 1 dB
10 dB/div
Ref 30.00 dBm
Center 2.441000000 GHz
Res BW 510 kHz
#VBW 3.0 MHz
Span 0 Hz
Sweep 31.60 s (30000 pts)
Frequency
Auto Tune
Center Freq
2.441000000 GHz
Start Freq
2.441000000 GHz
Stop Freq
2.441000000 GHz
CF Step
510.000 kHz
Auto
Man
Freq Offset
0 Hz

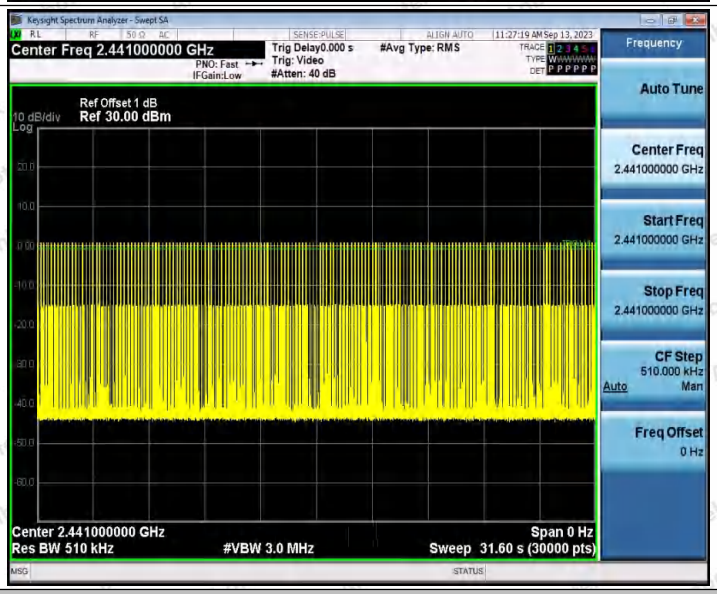
DH5_Ant1_Hop

Keysight Spectrum Analyzer - Swept SA
Center Freq 2.441000000 GHz
Trig Delay-2.000 ms
#Avg Type: RMS
Trig: Video
#Atten: 40 dB
PNO: Fast
IFGain:Low
Ref Offset 1 dB
10 dB/div
Ref 30.00 dBm
ΔMkr2 2.887 ms
15.16 dB
Center 2.441000000 GHz
Res BW 1.0 MHz
#VBW 3.0 MHz
Span 0 Hz
Sweep 10.13 ms (8000 pts)
Frequency
Auto Tune
Center Freq
2.441000000 GHz
Start Freq
2.441000000 GHz
Stop Freq
2.441000000 GHz
CF Step
1.000000 MHz
Auto
Man
Freq Offset
0 Hz

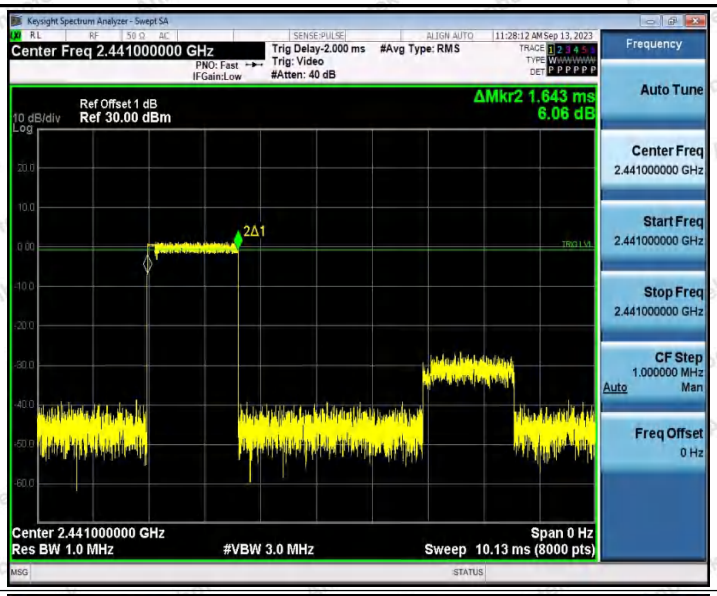


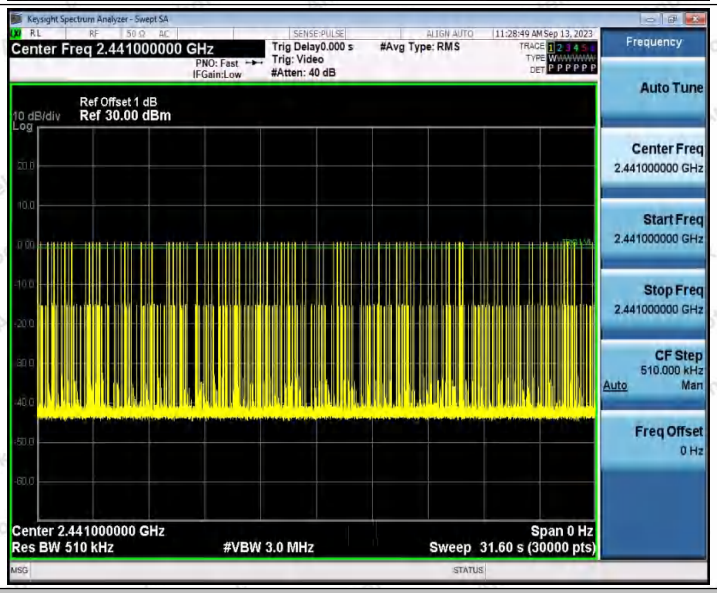

2DH1_Ant1_Hop



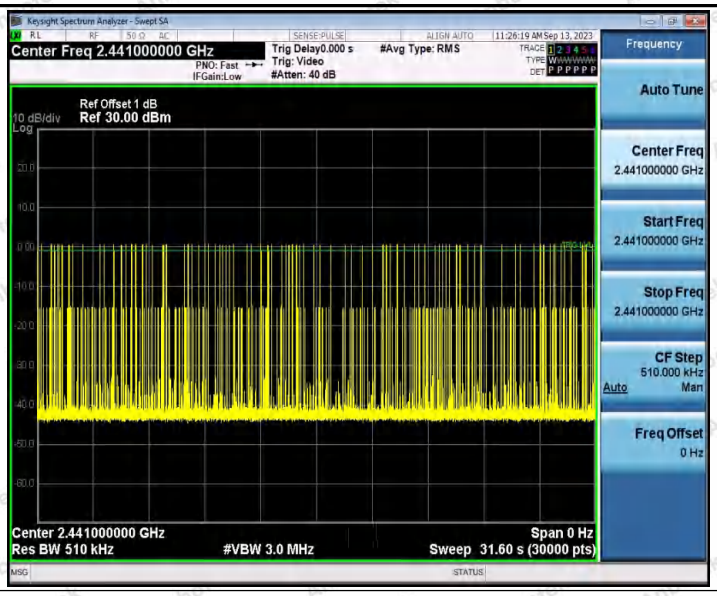




2DH3_Ant1_Hop




2DH5_Ant1_Hop


Keysight Spectrum Analyzer - Swept SA
Center Freq 2.441000000 GHz
PNO: Fast
IFGain:Low
Trig Delay0.000 s
Trig: Video
#Atten: 40 dB
#Avg Type: RMS
11:26:19 AM Sep 13, 2023
Frequency
Auto Tune
Center Freq
2.441000000 GHz
Start Freq
2.441000000 GHz
Stop Freq
2.441000000 GHz
CF Step
510.000 kHz
Auto
Man
Freq Offset
0 Hz
Ref Offset 1 dB
10 dB/div
Ref 30.00 dBm
Log
Center 2.441000000 GHz
Res BW 510 kHz
#VBW 3.0 MHz
Span 0 Hz
Sweep 31.60 s (30000 pts)
MSG
STATUS

# Appendix F: Number of hopping channels

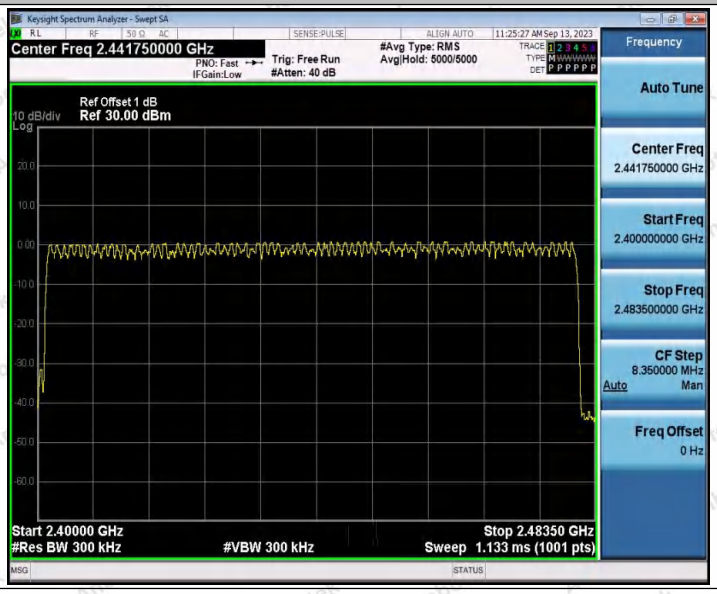
## Test Result

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

## Test Graphs

| DH5_Ant1_Hop |
|---|
| |



| 2DH5_Ant1_Hop |
|---|
|  |

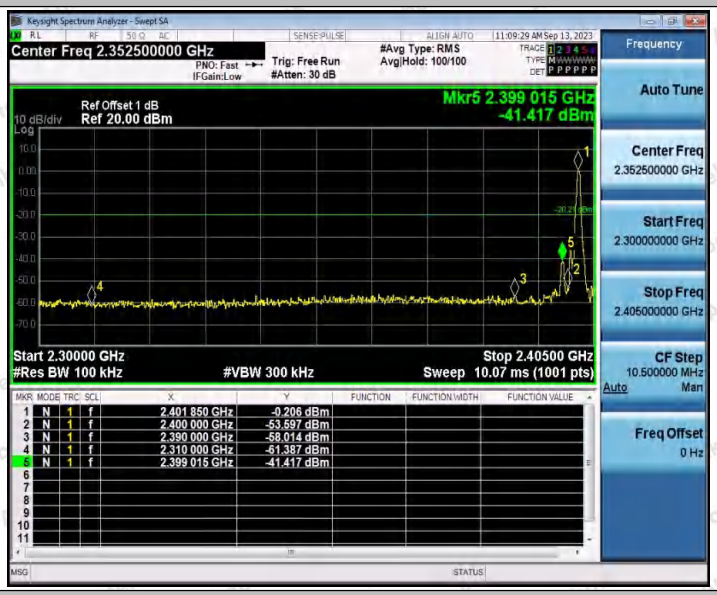
# Appendix G: Band edge measurements

## Test Result

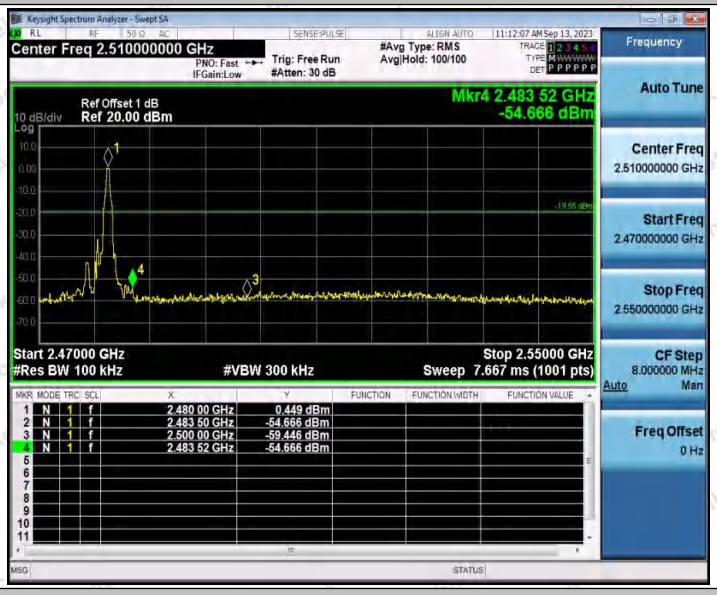
| TestMode | Antenna | ChName | Frequency[MHz] | RefLevel [dBm] | Result [dBm] | Limit [dBm] | Verdict |
|---|---|---|---|---|---|---|---|
| DH5 | Ant1 | Low | 2402 | -0.21 | -41.42 | ≤-20.21 | PASS |
| | | High | 2480 | 0.45 | -54.67 | ≤-19.55 | PASS |
| | | Low | Hop_2402 | -0.27 | -54.93 | ≤-20.27 | PASS |
| | | High | Hop_2480 | 0.52 | -54.26 | ≤-19.48 | PASS |
| 2DH5 | Ant1 | Low | 2402 | -0.07 | -41.23 | ≤-20.07 | PASS |
| | | High | 2480 | 0.63 | -55.55 | ≤-19.37 | PASS |
| | | Low | Hop_2402 | -0.99 | -55.11 | ≤-20.99 | PASS |
| | | High | Hop_2480 | 0.55 | -54.96 | ≤-19.45 | PASS |

## Test Graphs

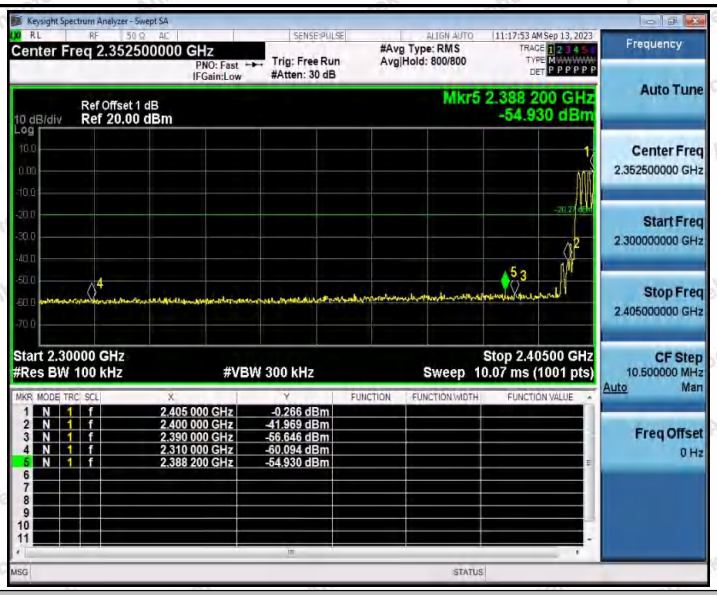
DH5_Ant1_Low_2402



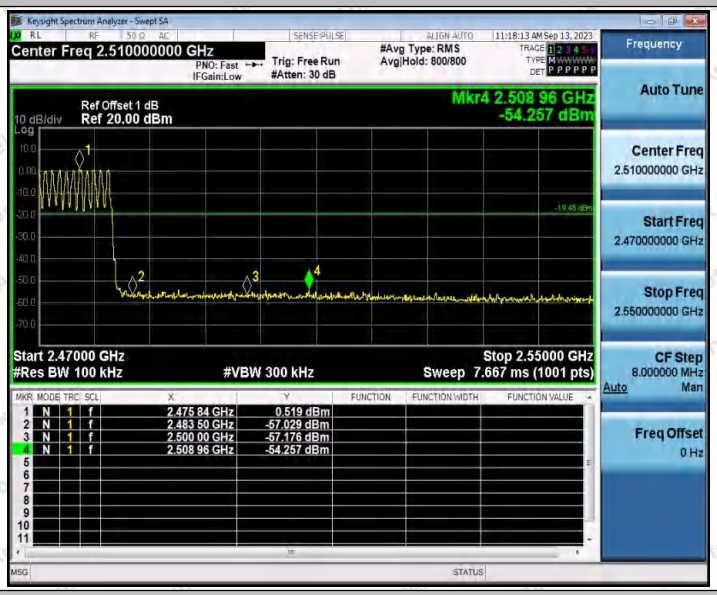

DH5_Ant1_High_2480



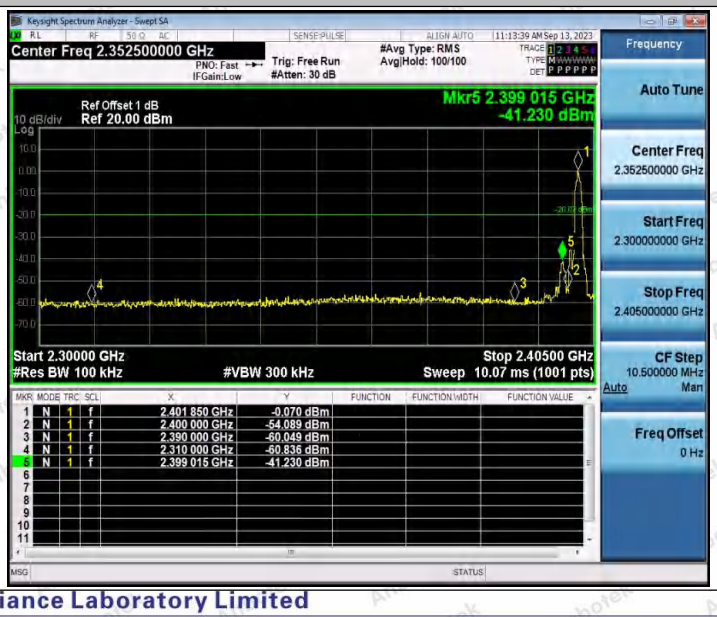

DH5_Ant1_Low_Hop_2402



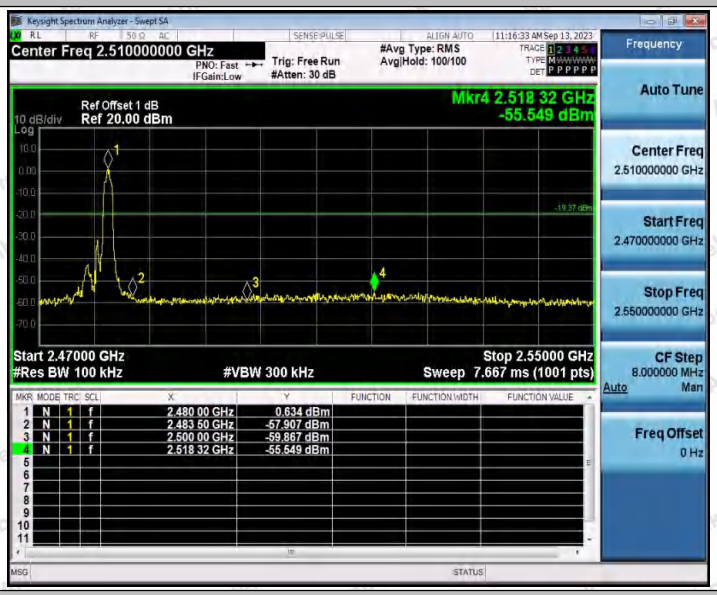

DH5_Ant1_High_Hop_2480



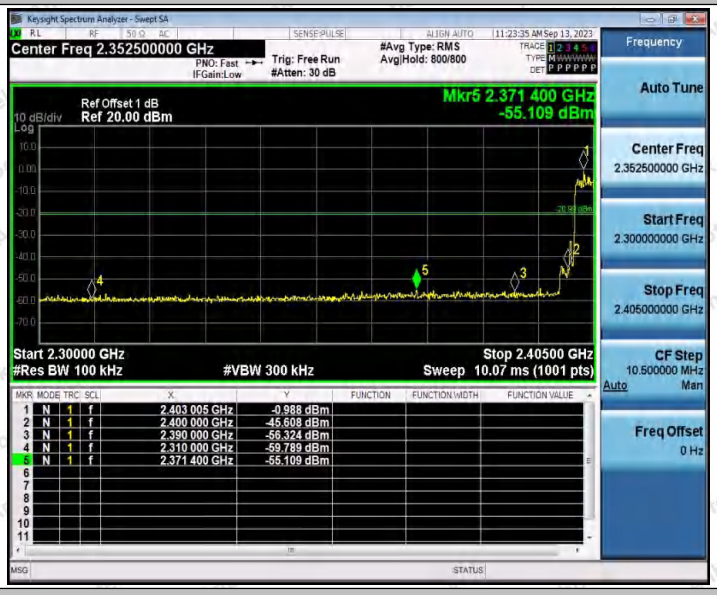

2DH5_Ant1_Low_2402



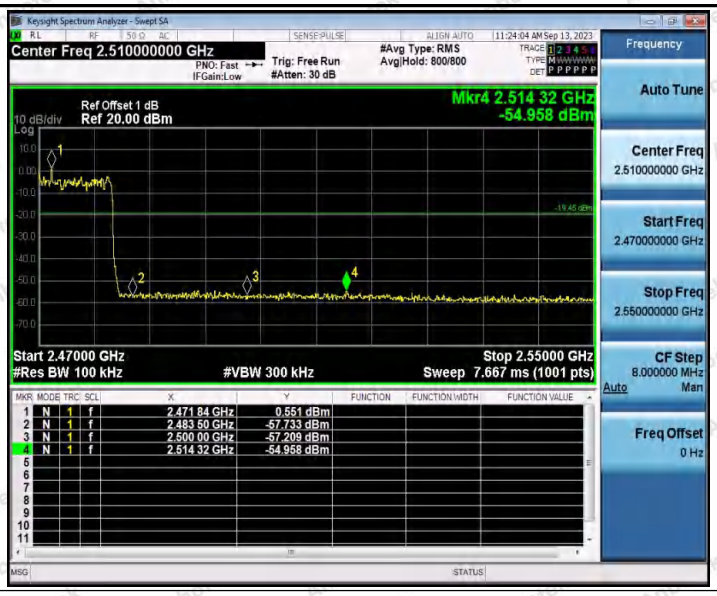
2DH5_Ant1_High_2480




2DH5_Ant1_Low_Hop_2402




2DH5_Ant1_High_Hop_2480


Keysight Spectrum Analyzer - Swept SA
Center Freq 2.510000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 30 dB
#Avg Type: RMS
Avg|Hold: 800/800
11:24:04 AM Sep 13, 2023
Ref Offset 1 dB
10 dB/div
Ref 20.00 dBm
Log
Mkr4 2.514 32 GHz
-54.958 dBm
Start 2.47000 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 2.55000 GHz
Sweep 7.667 ms (1001 pts)
1 N 1 f 2.471 84 GHz 0.551 dBm
2 N 1 f 2.483 50 GHz -57.733 dBm
3 N 1 f 2.500 00 GHz -57.209 dBm
4 N 1 f 2.514 32 GHz -54.958 dBm
Frequency
Auto Tune
Center Freq
2.510000000 GHz
Start Freq
2.470000000 GHz
Stop Freq
2.550000000 GHz
CF Step
8.000000 MHz
Auto
Man
Freq Offset
0 Hz

# Appendix H: Conducted Spurious Emission

## Test Result

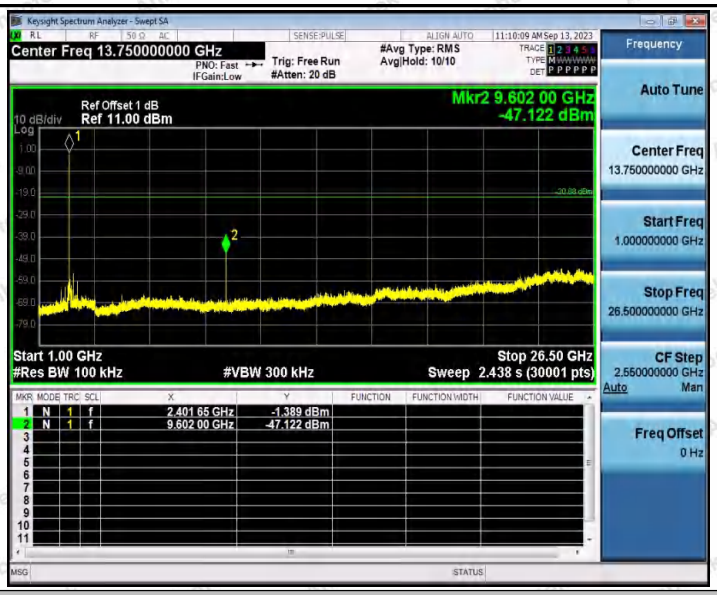
| TestMode | Antenna | Frequency[MHz] | FreqRange [MHz] | RefLevel [dBm] | Result [dBm] | Limit [dBm] | Verdict |
|---|---|---|---|---|---|---|---|
| DH5 | Ant1 | 2402 | Reference | -0.88 | -0.88 | --- | PASS |
| | | | 30~1000 | -0.88 | -68.86 | ≤-20.88 | PASS |
| | | | 1000~26500 | -0.88 | -47.12 | ≤-20.88 | PASS |
| | | 2441 | Reference | 0.31 | 0.31 | --- | PASS |
| | | | 30~1000 | 0.31 | -67.69 | ≤-19.69 | PASS |
| | | | 1000~26500 | 0.31 | -44.64 | ≤-19.69 | PASS |
| | | 2480 | Reference | 0.03 | 0.03 | --- | PASS |
| | | | 30~1000 | 0.03 | -68.59 | ≤-19.97 | PASS |
| | | | 1000~26500 | 0.03 | -45.77 | ≤-19.97 | PASS |
| 2DH5 | Ant1 | 2402 | Reference | -4.27 | -4.27 | --- | PASS |
| | | | 30~1000 | -4.27 | -68.85 | ≤-24.27 | PASS |
| | | | 1000~26500 | -4.27 | -47.15 | ≤-24.27 | PASS |
| | | 2441 | Reference | 0.41 | 0.41 | --- | PASS |
| | | | 30~1000 | 0.41 | -68.97 | ≤-19.59 | PASS |
| | | | 1000~26500 | 0.41 | -44.62 | ≤-19.59 | PASS |
| | | 2480 | Reference | -1.26 | -1.26 | --- | PASS |
| | | | 30~1000 | -1.26 | -68.26 | ≤-21.26 | PASS |
| | | | 1000~26500 | -1.26 | -45.7 | ≤-21.26 | PASS |

## Test Graphs

DH5_Ant1_2402_0~Reference

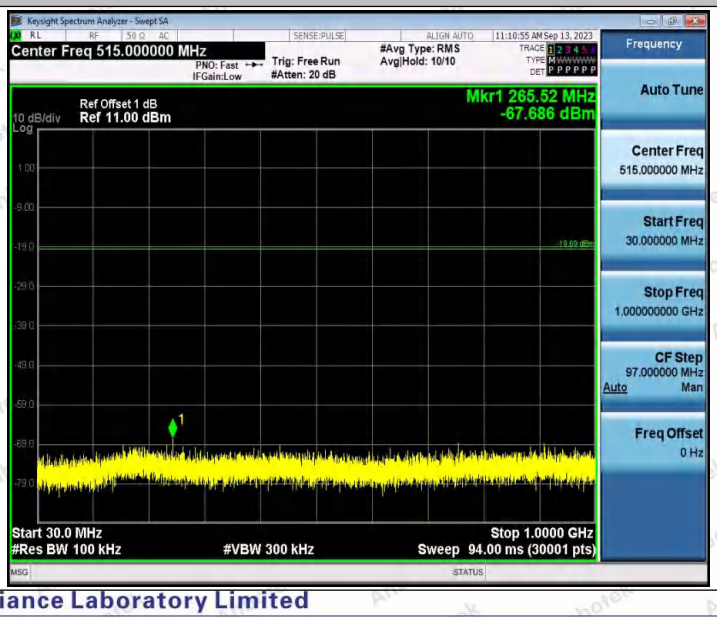
DH5_Ant1_2402_30~1000

DH5_Ant1_2402_1000~26500

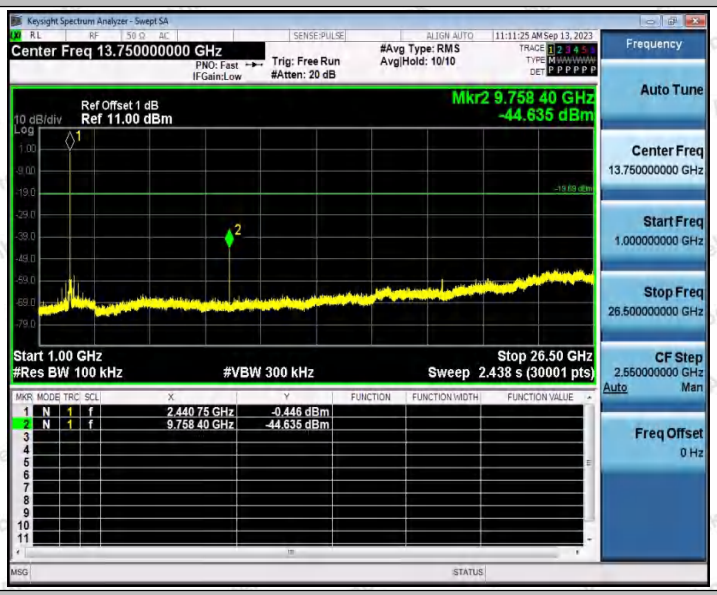



DH5_Ant1_2441_0~Reference

DH5_Ant1_2441_30~1000

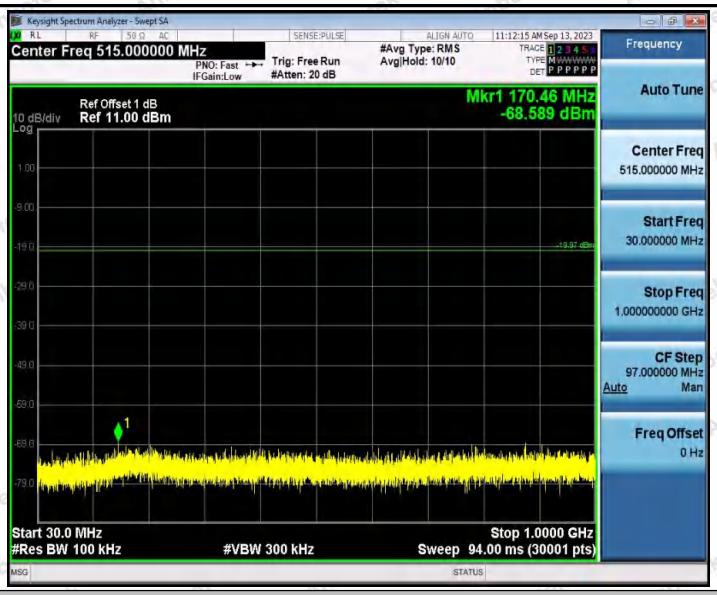


DH5_Ant1_2441_1000~26500

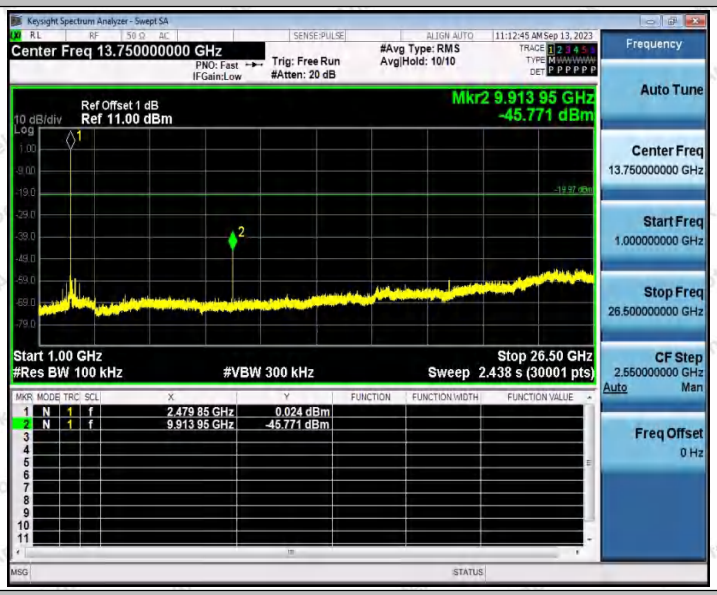



DH5_Ant1_2480_0~Reference

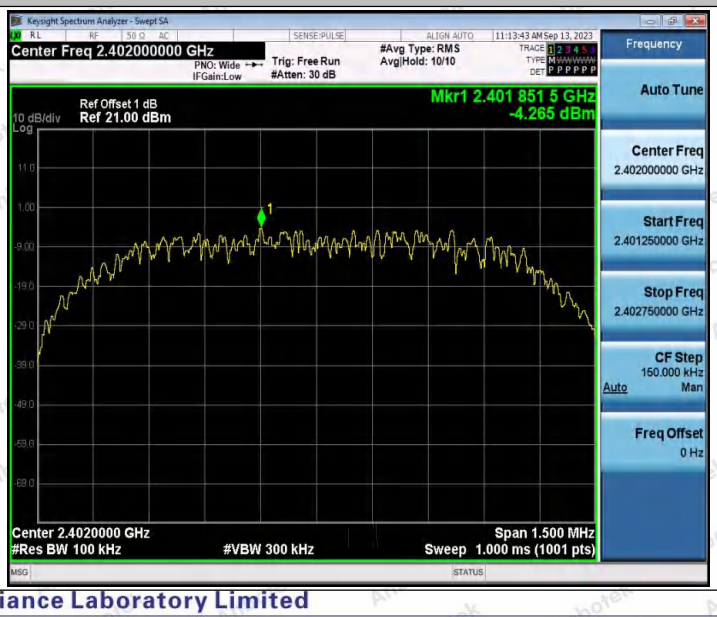
DH5_Ant1_2480_30~1000



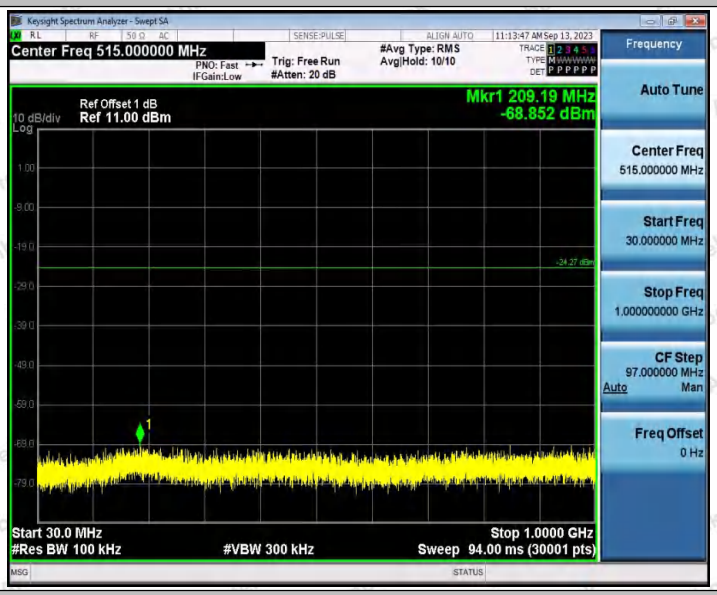

DH5_Ant1_2480_1000~26500



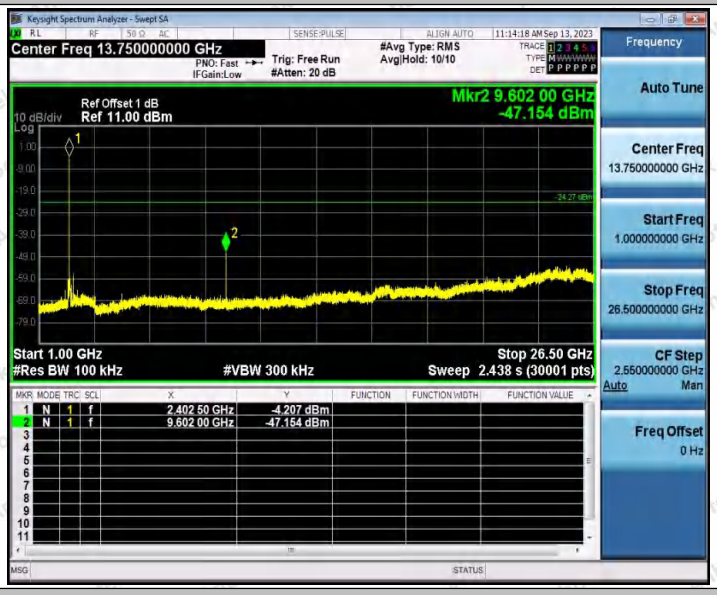

2DH5_Ant1_2402_0~Reference



2DH5_Ant1_2402_30~1000

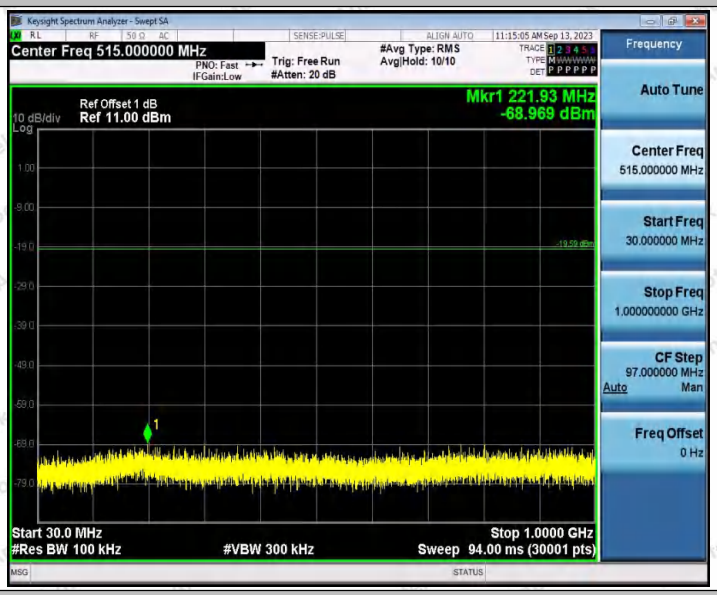



2DH5_Ant1_2402_1000~26500

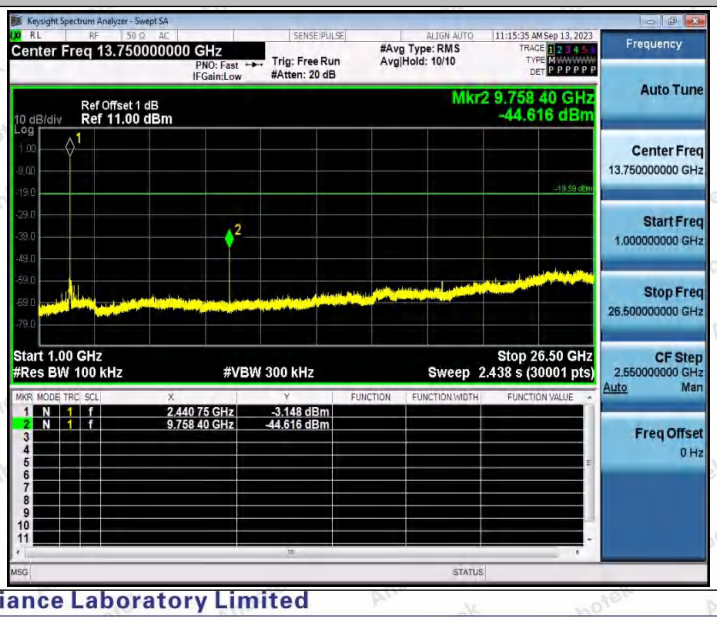



2DH5_Ant1_2441_0~Reference

2DH5_Ant1_2441_30~1000

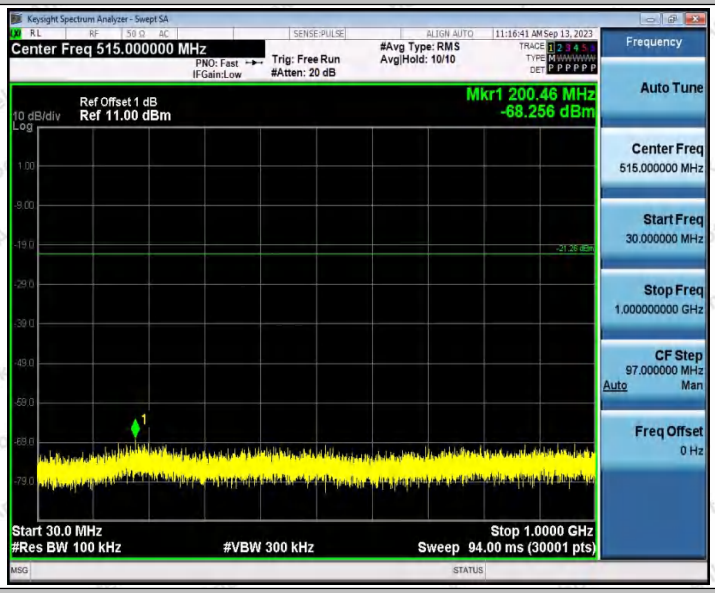



2DH5_Ant1_2441_1000~26500

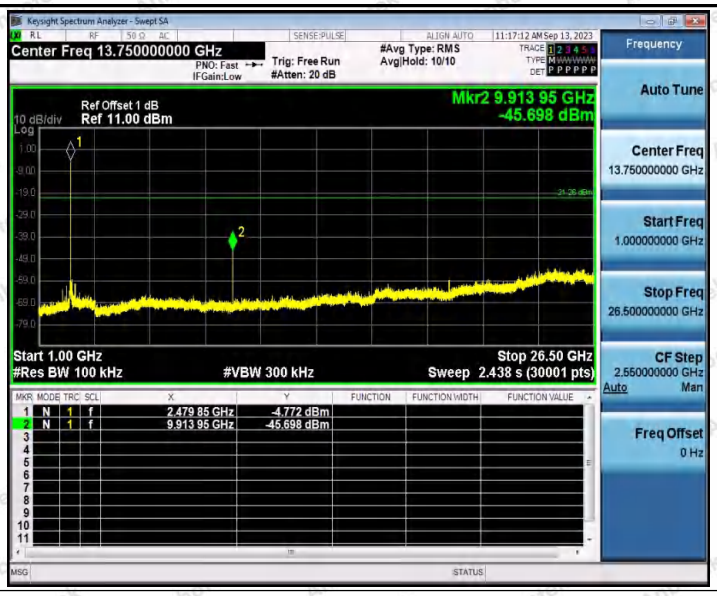


2DH5_Ant1_2480_0~Reference

2DH5_Ant1_2480_30~1000




2DH5_Ant1_2480_1000~26500


Keysight Spectrum Analyzer - Swept SA
Center Freq 13.750000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 20 dB
#Avg Type: RMS
Avg|Hold: 10/10
11:17:12 AM Sep 13, 2023
Ref Offset 1 dB
10 dB/div
Ref 11.00 dBm
Mkr2 9.913 95 GHz
-45.698 dBm
Start 1.00 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 26.50 GHz
Sweep 2.438 s (30001 pts)
1 N 1 f 2.479 85 GHz -4.772 dBm
2 N 1 f 9.913 95 GHz -45.698 dBm
Frequency
Auto Tune
Center Freq
13.750000000 GHz
Start Freq
1.000000000 GHz
Stop Freq
26.500000000 GHz
CF Step
2.550000000 GHz
Auto
Man
Freq Offset
0 Hz

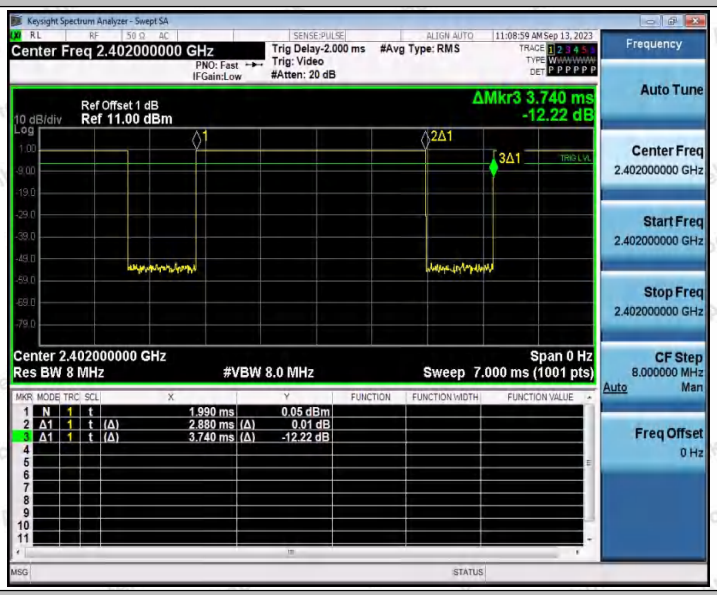
# Appendix I: Duty Cycle

## Test Result

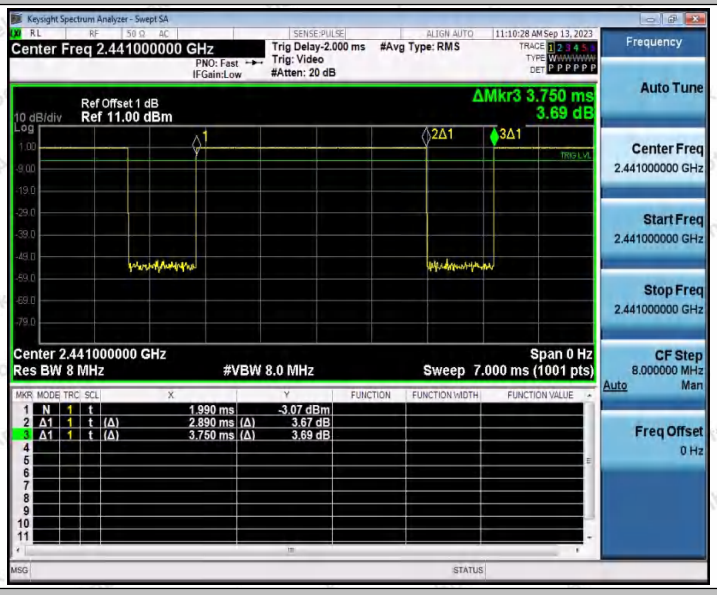
| TestMode | Antenna | Frequency[MHz] | ON Time [ms] | Period [ms] | Duty Cycle [%] | Duty Cycle Factor[dB] |
|---|---|---|---|---|---|---|
| DH5 | Ant1 | 2402 | 2.88 | 3.74 | 77.01 | 1.13 |
| | | 2441 | 2.89 | 3.75 | 77.07 | 1.13 |
| | | 2480 | 2.89 | 3.75 | 77.07 | 1.13 |
| 2DH5 | Ant1 | 2402 | 2.89 | 3.75 | 77.07 | 1.13 |
| | | 2441 | 2.89 | 3.75 | 77.07 | 1.13 |
| | | 2480 | 2.90 | 3.75 | 77.33 | 1.12 |

## Test Graphs

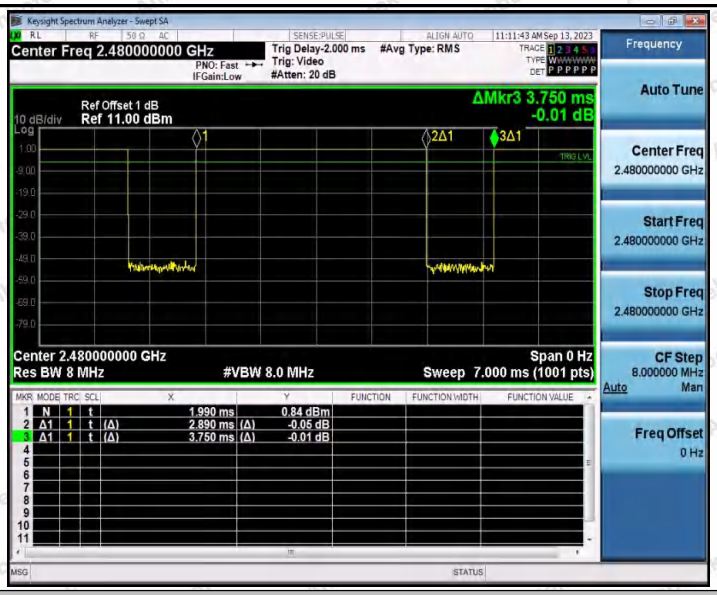
DH5_Ant1_2402



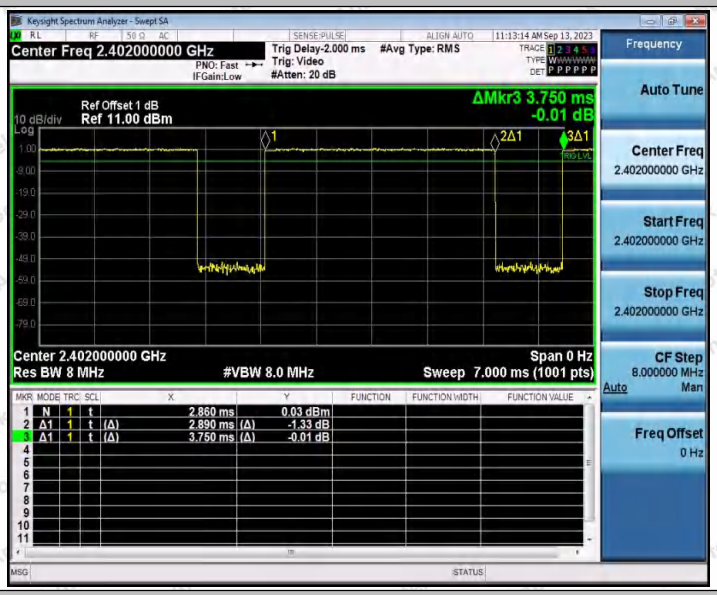

DH5_Ant1_2441



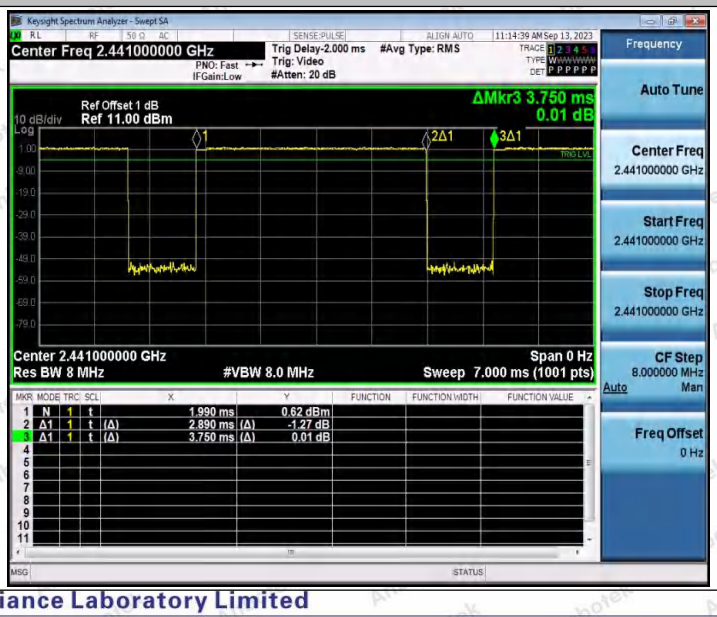

DH5_Ant1_2480

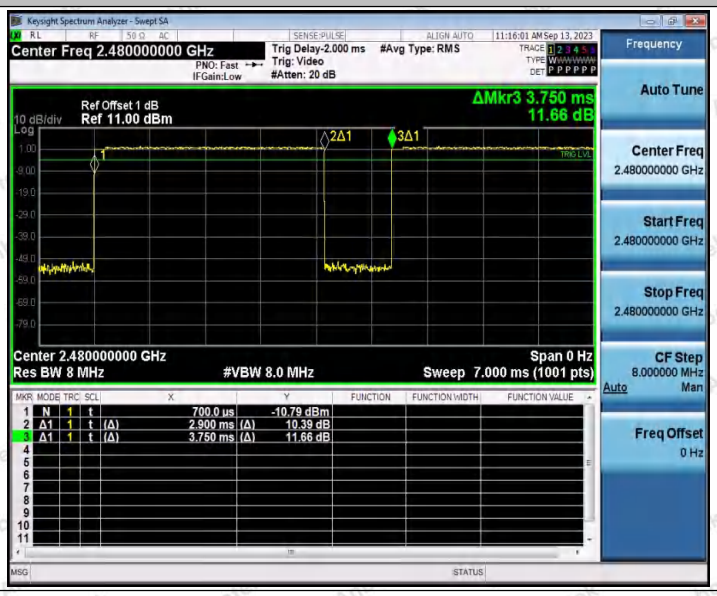



2DH5_Ant1_2402




2DH5_Ant1_2441



| 2DH5_Ant1_2480 |
| --- |
|  |



---End---