# FCC TEST REPORT

# FCC ID: 2BCV2-W35

| | | |
|---|---|---|
| Product | : | Smart Power Adapter(Support Bluetooth Function) |
| Model Name | : | W35, W35-A,W35-B,W35-C,W35-D,W35,D200,D300,D600,M1, M2,M3,M4,M5,M6,M7,M8,M9 |
| Brand | : | N/A |
| Report No. | : | PTC25070809301E-FC01 |

**Prepared for**

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**Prepared by**

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# 1 TEST RESULT CERTIFICATION

| | | |
|---|---|---|
| Applicant's name | : | Shenzhen Dili Sheng electronic Technology Co., LTD |
| Address | : | 2nd Floor, Building 3, Jinpeng Industrial Zone, Bantian, Longgang District Shenzhen, China |
| Manufacture's name | : | Shenzhen Dili Sheng electronic Technology Co., LTD |
| Address | : | 2nd Floor, Building 3, Jinpeng Industrial Zone, Bantian, Longgang District Shenzhen, China |
| Product name | : | Smart Power Adapter(Support Bluetooth Function) |
| Model name | : | W35, W35-A,W35-B,W35-C,W35-D,W35,D200,D300,D600, M1,M2,M3,M4,M5,M6,M7,M8,M9 |
| Standards | : | FCC CFR47 Part 15 Section 15.247 |
| Test procedure | : | ANSI C63.10-2020 |
| Test Date | : | Jul. 18, 2025 to Jul. 29, 2025 |
| Date of Issue | : | Jul. 29, 2025 |
| Test Result | : | Pass |

This device described above has been tested by PTC, and the test results show that the equipment under test (EUT) is in compliance with the FCC requirements. And it is applicable only to the tested sample identified in the report.

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Test Engineer:

Jack zhou / Engineer

Technical Manager:

Simon Pu / Manager

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## 2 Test Summary

| Test Items | Test Requirement | Result |
|---|---|---|
| Radiated Spurious Emissions | 15.205(a)<br>15.209<br>15.247(d) | PASS |
| Band edge | 15.247(d)<br>15.205(a) | PASS |
| Conduct Emission | 15.207 | PASS |
| 20dB Bandwidth | 15.247(a)(1) | PASS |
| Maximum Peak Output Power | 15.247(b)(1) | PASS |
| Frequency Separation | 15.247(a)(1) | PASS |
| Number of Hopping Frequency | 15.247(a)(1)(iii) | PASS |
| Dwell time | 15.247(a)(1)(iii) | PASS |
| Antenna Requirement | 15.203 | PASS |

## 3 TEST FACILITY

Precise Testing & Certification Co., Ltd.

Address: Building 1, No. 6, Tongxin Road, Dongcheng Street, Dongguan, Guangdong, China

FCC Registration Number: 790290

A2LA Certificate No.: 4408.01

IC Registration Number: 12191A

FCC Designation Number. CN1219

# 4 General Information

## 4.1 General Description of E.U.T.

| | | |
|---|---|---|
| Product Name | : | Smart Power Adapter(Support Bluetooth Function) |
| Model Name | : | W35 |
| Additional model | : | W35-A,W35-B,W35-C,W35-D,W35,D200,D300,D600,M1,M2,M3,M4,M5,M6,M7, M8,M9 |
| Specification | : | BT BDR+EDR |
| Operation Frequency | : | 2402-2480MHz |
| Number of Channel | : | 79 channels for BDR+EDR |
| Type of Modulation | : | GFSK, Π/4-DQPSK,8DPSK For DSS |
| Antenna installation | : | PCB antenna |
| Antenna Gain | : | -0.47 dBi |
| Rated Power Supply | : | Input:100-240V ~ 50,60Hz 0.5A Max<br>Output: USB-A 5.0V⎓1.0A |
| Test Power Supply | : | Input:100-240V ~ 50,60Hz 0.5A Max<br>Output: USB-A 5.0V⎓1.0A |
| Hardware Version | : | V1.0 |
| Software Version | : | V1.0 |
| Test sample No. | : | PTC25070809301E-1/2,PTC25070809301E-2/2. |

## 4.2 Test Mode

The EUT has been tested under its typical operating condition. Pre-defined engineering program for regulatory testing used to control the EUT for staying in continuous transmitting. Only the worst case data were reported.

The EUT has been associated with peripherals pursuant to ANSI C63.10-2020 and configuration operated in a manner tended to maximize its emission characteristics in a typical application. Frequency range investigated: radiation (9 KHz to the 10th harmonics of the highest fundamental frequency or to 40 GHz, whichever is lower).

The EUT has been tested under TX operating condition.

This EUT is a FHSS system, were conducted to determine the final configuration from all possible combinations. We use software control the EUT, Let EUT hopping on and transmit with highest power, all the modes GFSK, Π/4-DQPSK, 8DPSK have been tested. 79 Channels are provided by EUT. The 3 channels of lower, medium and higher were chosen for test.

Channel List:

| Channel | Frequency (MHz) | Channel | Frequency (MHz) | Channel | Frequency (MHz) | Channel | Frequency (MHz) |
|---|---|---|---|---|---|---|---|
| 0 | 2402 | 1 | 2403 | 2 | 2404 | 3 | 2405 |
| 4 | 2406 | 5 | 2407 | 6 | 2408 | 7 | 2409 |
| 8 | 2410 | 9 | 2411 | 10 | 2412 | 11 | 2413 |
| 12 | 2414 | 13 | 2415 | 14 | 2416 | 15 | 2417 |
| 16 | 2418 | 17 | 2419 | 18 | 2420 | 19 | 2421 |
| 20 | 2422 | 21 | 2423 | 22 | 2424 | 23 | 2425 |
| 24 | 2426 | 25 | 2427 | 26 | 2428 | 27 | 2429 |
| 28 | 2430 | 29 | 2431 | 30 | 2432 | 31 | 2433 |
| 32 | 2434 | 33 | 2435 | 34 | 2436 | 35 | 2437 |
| 36 | 2438 | 37 | 2439 | 38 | 2440 | 39 | 2441 |
| 40 | 2442 | 41 | 2443 | 42 | 2444 | 43 | 2445 |
| 44 | 2446 | 45 | 2447 | 46 | 2448 | 47 | 2449 |
| 48 | 2450 | 49 | 2451 | 50 | 2452 | 51 | 2453 |
| 52 | 2454 | 53 | 2455 | 54 | 2456 | 55 | 2457 |
| 56 | 2458 | 57 | 2459 | 58 | 2460 | 59 | 2461 |
| 60 | 2462 | 61 | 2463 | 62 | 2464 | 63 | 2465 |
| 64 | 2466 | 65 | 2467 | 66 | 2468 | 67 | 2469 |
| 68 | 2470 | 69 | 2471 | 70 | 2472 | 71 | 2473 |
| 72 | 2474 | 73 | 2475 | 74 | 2476 | 75 | 2477 |
| 76 | 2478 | 77 | 2479 | 78 | 2480 | - | - |

| Channel | Frequency(MHz) |
|---|---|
| 0 | 2402 |
| 39 | 2441 |
| 78 | 2480 |

# 5 Equipment During Test

## 5.1 Equipments List

RF Conducted Test

| Name of Equipment | Manufacturer | Model | Serial No. | Characteristics | Last Calibration | Calibration Interval |
|---|---|---|---|---|---|---|
| MXG Signal Analyzer | Agilent | N9020A | SER MY5111038 | 10Hz-26.5GHz | Aug.15, 2024 | 1 Year |
| Coaxial Cable | CDS | 79254 | 46107086 | 10Hz-30GHz | Aug.15, 2024 | 1 Year |
| Power Meter | Anritsu | ML2495A | 0949003 | 300MHz-40GHz | Aug.15, 2024 | 1 Year |
| Power Sensor | Anritsu | MA2411B | 0917017 | 300MHz-40GHz | Aug.15, 2024 | 1 Year |
| DC power Supply | Agilent | E3642A | MY52420017 | 0-8V,5A/0-20 ,2.5A | Aug.15, 2024 | 1 Year |
| Humidity Chamber | AISRY | ASR-HW2-1000 | 20230926003 | -40℃-150℃ | Feb.23 ,2025 | 1year |
| Test S/W | Tonscend | JS1120-3 | / | / | / | / |

Remark: The temporary antenna connector is soldered on the PCB board in order to perform conducted tests and this temporary antenna connector is listed in the equipment list.

Radiated Emissions

| Name of Equipment | Manufacturer | Model | Serial No. | Characteristics | Last Calibration | Calibration Interval |
|---|---|---|---|---|---|---|
| EMI Test Receiver | Rohde&Schwarz | ESPI7 | 101671 | 9KHz-7GHz | Aug.15, 2024 | 1 Year |
| Loop Antenna | Schwarzbeck | FMZB 1519 | 192 | 9 KHz -30MHz | Nov.28, 2024 | 1 Year |
| Bilog Antenna | SCHWARZBECK | VULB9160 | 9160-3355 | 25MHz-2GHz | Sep.10, 2025 | 1 Year |
| Preamplifier (low frequency) | SCHWARZBECK | BBV 9475 | 9745-0013 | 9KHz-1GHz | Mar.21, 2025 | 1 Year |
| Cable | IMRO | AK-9515E(9m) | Cable-L | 9KHz-3GHz | Aug.15, 2024 | 1 Year |

| | | | | | | |
|---|---|---|---|---|---|---|
| Spectrum Analyzer | Rohde&Schwarz | FSV40 | 6625-01-588-5515 | 9KHz-40GHz | Aug.15, 2024 | 1 Year |
| Horn Antenna | SCHWARZBECK | BBHA9120D | 9120D-1246 | 1GHz-18GHz | Dec.12, 2024 | 1 Year |
| Power Amplifier | ZHINAN | ZN3380C | 15002 | 1GHz-26.5GHz | Aug.15, 2024 | 1 Year |
| Horn Antenna | SCHWARZBECK | BBHA 9170 | 9170-1066 | 15GHz-40GHz | Jul. 24, 2025 | 1 Year |
| Amplifier | SCHWARZBECK | BBV 9721 | 9721-205 | 18GHz-40GHz | Jul. 25, 2025 | 1 Year |
| Cable | H+S | CBL-26 | N/A | 1GHz-26.5GHz | Aug.15, 2024 | 1 Year |
| RF Cable | R&S | R204 | R21X | 1GHz-40GHz | Aug.15, 2024 | 1 Year |
| Test S/W | Tonscend | TS+ | / | / | / | / |

Conducted Emissions

| Name of Equipment | Manufacturer | Model | Serial No. | Characteristics | Calibration Date | Calibration Interval |
|---|---|---|---|---|---|---|
| EMI Test Receiver | Rohde&Schwarz | ESCI3 | 101417 | 9KHz-3GHz | Aug.15, 2024 | 1 Year |
| Artificial Mains Network | Rohde&Schwarz | ENV216 | 102453 | 9KHz-300MHz | Oct.30, 2024 | 1 Year |
| Artificial Mains Network | Rohde&Schwarz | ENV216 | 101342 | 9KHz-300MHz | Oct.30, 2024 | 1 Year |
| Limiter | R&S | ESH3-Z2 | 0357.8810.54-102808-NB | 0Hz-30MHz | Aug.15, 2024 | 1 Year |
| RF Switch | DIAMOND ANTENNA | CX-210 | / | 0.09MHz-6GHz | Mar. 21,2025 | 1 Year |
| Test S/W | Tonscend | JS32-CE | / | / | / | / |

## 5.2 Measurement Uncertainty

| Parameter | Uncertainty |
|---|---|
| RF output power, conducted | ±1.0dB |
| Power Spectral Density, conducted | ±2.2dB |
| Radio Frequency | ± 1 x $10^{-6}$ |
| Bandwidth | ± 1.5 x $10^{-6}$ |
| Time | ±2% |
| Duty Cycle | ±2% |
| Temperature | ±1°C |
| Humidity | ±5% |
| DC and low frequency voltages | ±3% |
| Conducted Emissions (150kHz~30MHz) | ±3.64dB |
| Radiated Emission(9kHz~30MHz) | ±3.15dB |
| Radiated Emission(30MHz~1GHz) | ±5.03dB |
| Radiated Emission(1GHz~25GHz) | ±4.74dB |

## 5.3 Description of Support Units

| Equipment | Model No. | Series No. | Parameters |
|---|---|---|---|
| Cement resistor | Cement resistor | N/A | N/A |

# 6 Conducted Emission

| | | |
|---|---|---|
| Test Requirement: | : | FCC CFR 47 Part 15 Section 15.207 |
| Test Method: | : | ANSI C63.10-2020 |
| Test Result: | : | PASS |
| Frequency Range: | : | 150kHz to 30MHz |
| Class/Severity: | : | Class B |
| Detector: | : | Peak for pre-scan (9kHz Resolution Bandwidth) |

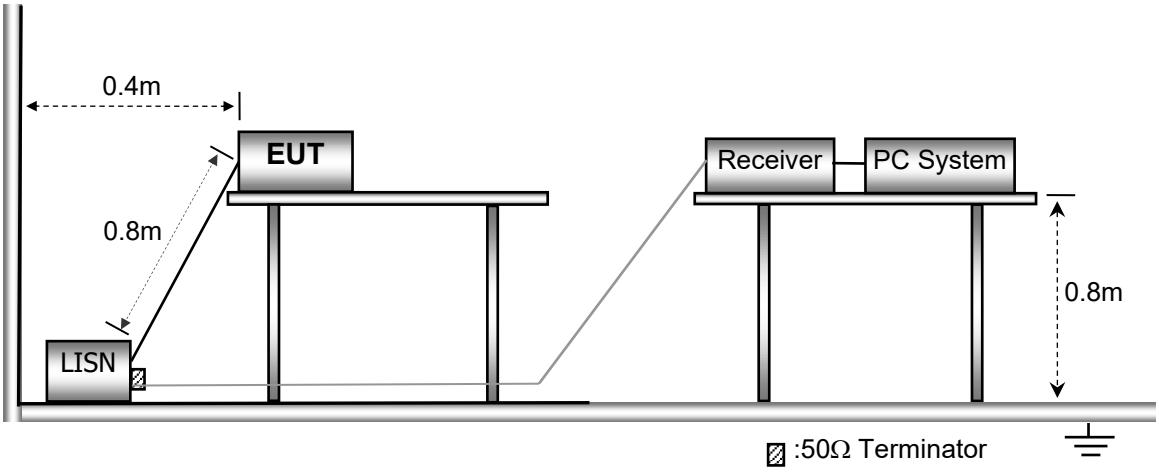
## 6.1 E.U.T. Operation

Operating Environment **:**

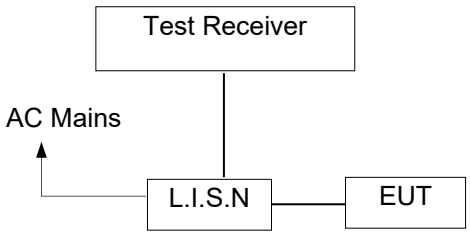
| | | |
|---|---|---|
| Temperature: | : | 23.2°C |
| Humidity: | : | 51 % RH |
| Atmospheric Pressure: | : | 101.12 kPa |
| Test Voltage | : | AC 120V/60Hz |

## 6.2 EUT Setup

The conducted emission tests were performed using the setup accordance with the ANSI C63.10: 2020.



## 6.3 Test SET-UP (Block Diagram of Configuration)




## 6.4 Measurement Procedure:

1. The EUT was placed on a table, which is 0.8m above ground plane.
2. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
3. Repeat above procedures until all frequency measured was complete.

## 6.5 Conducted Emission Limit

**Conducted Emission**

| Frequency(MHz) | Quasi-peak | Average |
|---|---|---|
| 0.15-0.5 | 66-56 | 56-46 |
| 0.5-5.0 | 56 | 46 |
| 5.0-30.0 | 60 | 50 |

**Note:**

1. The lower limit shall apply at the transition frequencies

2.The limit decreases in line with the logarithm of the frequency in the range of 0.15 to 0.50MHz.

## 6.6 Measurement Description

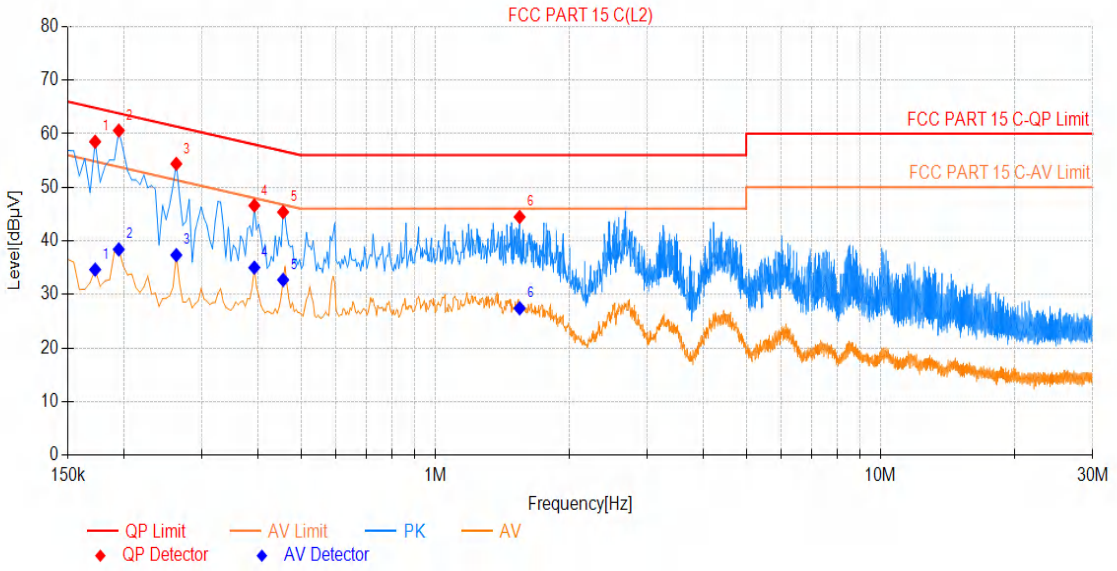
The maximised peak emissions from the EUT was scanned and measured for both the Live and Neutral Lines. Quasi-peak & average measurements were performed if peak emissions were within 6dB of the average limit line.

## 6.7 Conducted Emission Test Result

Pass

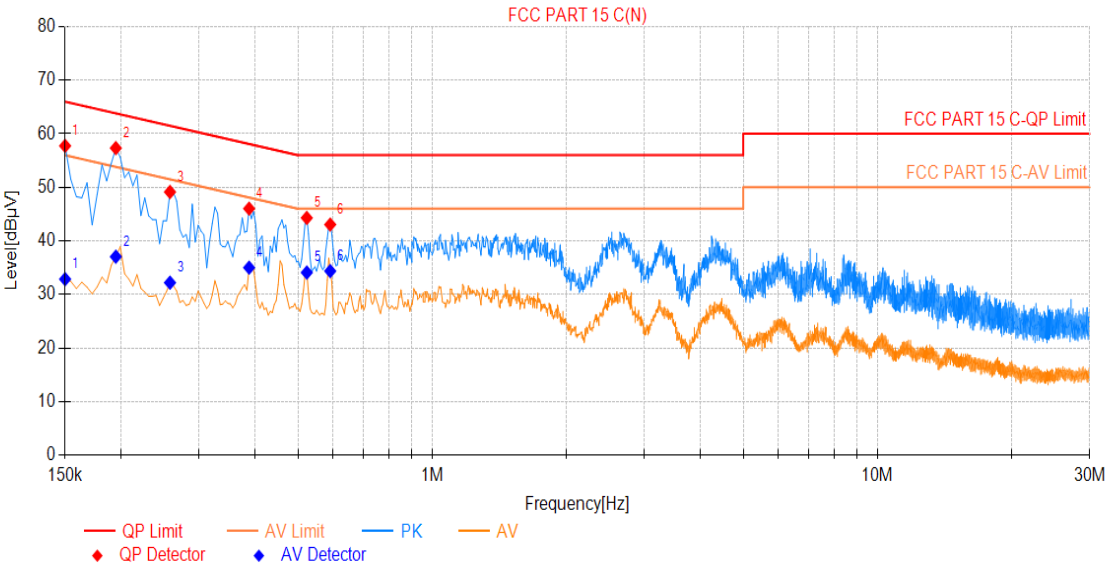
Conducted emission at both 120V & 240V is assessed, and emission at 120V represents the worst case. All the modulation modes were tested the data of the worst mode (GFSK) are recorded in the following pages and the others modulation methods do not exceed the limits.

Line -120V/60Hz:




| Final Data List | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| NO. | Freq. [MHz] | QP Reading [dBµV] | Factor [dB] | QP Value [dBµV] | QP Limit [dBµV] | QP Margin [dB] | AV Reading [dBµV] | AV Value [dBµV] | AV Limit [dBµV] | AV Margin [dB] | Verdict |
| 1 | 0.173 | 48.71 | 9.81 | 58.52 | 64.84 | 6.32 | 24.82 | 34.63 | 54.84 | 20.21 | PASS |
| 2 | 0.195 | 50.79 | 9.81 | 60.60 | 63.82 | 3.22 | 28.60 | 38.41 | 53.82 | 15.41 | PASS |
| 3 | 0.263 | 44.58 | 9.81 | 54.39 | 61.35 | 6.96 | 27.53 | 37.34 | 51.35 | 14.01 | PASS |
| 4 | 0.393 | 36.79 | 9.81 | 46.60 | 58.00 | 11.40 | 25.20 | 35.01 | 48.00 | 12.99 | PASS |
| 5 | 0.456 | 35.56 | 9.81 | 45.37 | 56.77 | 11.40 | 22.91 | 32.72 | 46.77 | 14.05 | PASS |
| 6 | 1.550 | 34.65 | 9.82 | 44.47 | 56.00 | 11.53 | 17.59 | 27.41 | 46.00 | 18.59 | PASS |

Neutral -120V/60Hz:




| Final Data List | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| NO. | Freq. [MHz] | QP Reading [dBµV] | Factor [dB] | QP Value [dBµV] | QP Limit [dBµV] | QP Margin [dB] | AV Reading [dBµV] | AV Value [dBµV] | AV Limit [dBµV] | AV Margin [dB] | Verdict |
| 1 | 0.150 | 47.93 | 9.81 | 57.74 | 66.00 | 8.26 | 23.05 | 32.86 | 56.00 | 23.14 | PASS |
| 2 | 0.195 | 47.52 | 9.81 | 57.33 | 63.82 | 6.49 | 27.24 | 37.05 | 53.82 | 16.77 | PASS |
| 3 | 0.258 | 39.33 | 9.81 | 49.14 | 61.50 | 12.36 | 22.39 | 32.20 | 51.50 | 19.30 | PASS |
| 4 | 0.389 | 36.22 | 9.81 | 46.03 | 58.10 | 12.07 | 25.20 | 35.01 | 48.10 | 13.09 | PASS |
| 5 | 0.524 | 34.48 | 9.81 | 44.29 | 56.00 | 11.71 | 24.27 | 34.08 | 46.00 | 11.92 | PASS |
| 6 | 0.591 | 33.24 | 9.81 | 43.05 | 56.00 | 12.95 | 24.55 | 34.36 | 46.00 | 11.64 | PASS |

Note:QP Margin[dB]= QP Limit[dBµV]- QP Value[dBµV], AV Margin[dB]= AV Limit[dBµV]- AV Value[dBµV].

# 7 Radiated Spurious Emissions

Test Requirement : FCC CFR47 Part 15 Section 15.209 & 15.247

Test Method : ANSI C63.10-2020

Test Result : PASS

Measurement Distance : 3m

Limit : See the follow table

| Frequency (MHz) | Field Strength | | Field Strength Limit at 3m Measurement Dist | |
|---|---|---|---|---|
| | uV/m | Distance (m) | uV/m | dBuV/m |
| 0.009 ~ 0.490 | 2400/F(kHz) | 300 | 10000 * 2400/F(kHz) | $20\log^{(2400/F(kHz))} + 80$ |
| 0.490 ~ 1.705 | 24000/F(kHz) | 30 | 100 * 24000/F(kHz) | $20\log^{(24000/F(kHz))} + 40$ |
| 1.705 ~ 30 | 30 | 30 | 100 * 30 | $20\log^{(30)} + 40$ |
| 30 ~ 88 | 100 | 3 | 100 | $20\log^{(100)}$ |
| 88 ~ 216 | 150 | 3 | 150 | $20\log^{(150)}$ |
| 216 ~ 960 | 200 | 3 | 200 | $20\log^{(200)}$ |
| Above 960 | 500 | 3 | 500 | $20\log^{(500)}$ |

## 7.1 EUT Operation

Operating Environment :

Temperature : 24.5 °C

Humidity : 55.5% RH

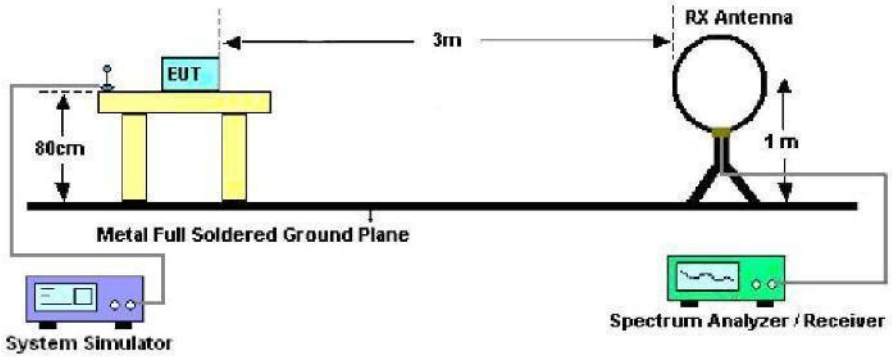
Atmospheric Pressure : 101.3kPa

Test Voltage : AC 120V60Hz

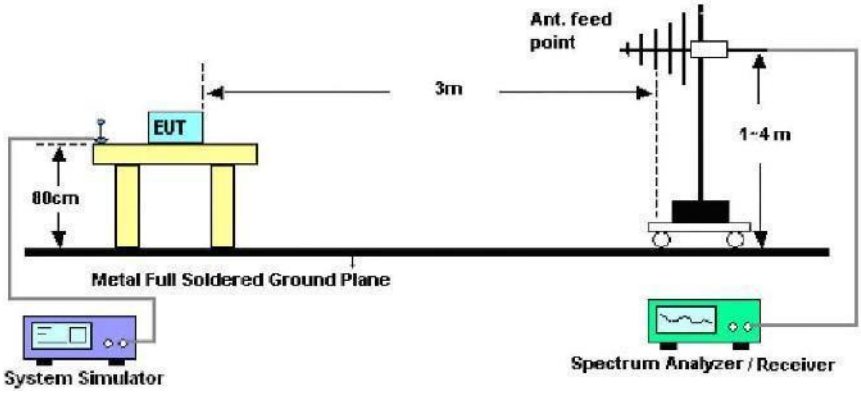
## 7.2 Test Setup

The radiated emission tests were performed in the 3m Semi- Anechoic Chamber test site

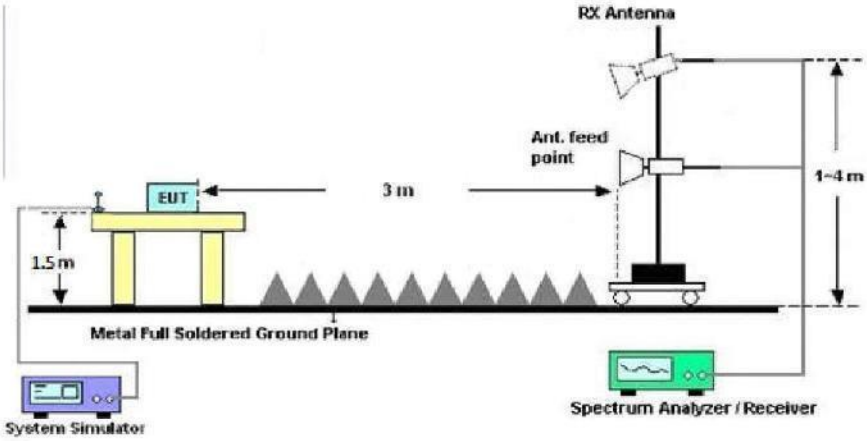
The test setup for emission measurement below 30MHz.




The test setup for emission measurement from 30 MHz to 1 GHz.




The test setup for emission measurement above 1 GHz.



## 7.3 Spectrum Analyzer Setup

| Spectrum Parameter | Setting |
|---|---|
| Attenuation | Auto |
| Start Frequency | 1000 MHz |
| Stop Frequency | 10th carrier harmonic |
| RB / VB (emission in restricted band) | 1 MHz / 1 MHz for Peak, 1 MHz / *10Hz* for Average |

| Receiver Parameter | Setting |
|---|---|
| Attenuation | Auto |
| Start ~ Stop Frequency | 9kHz~150kHz / RB 200Hz for QP |
| Start ~ Stop Frequency | 150kHz~30MHz / RB 9kHz for QP |
| Start ~ Stop Frequency | 30MHz~1000MHz / RB 120kHz for QP |

## 7.4 Test Procedure

1. The testing follows the guidelines in Spurious Radiated Emissions of ANSI C63.10-2020.

2. Below 1000MHz, The EUT was placed on a turn table which is 0.8m above ground plane. And above 1000MHz, The EUT was placed on a styrofoam table which is 1.5m above ground plane.

3. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower.

4. For each suspected emission, the EUT was arranged to its worst case and then tune the Antenna tower (From 1m to 4m) and turntable (from 0 degree to 360 degree) to find the maximum reading. A pre-amp and a high pass filter are used for the test in order to get better signal level to comply with the guidelines.

5. Set to the maximum power setting and enable the EUT transmit continuously.

6. Final measurement (Above 1GHz): The frequency range will be divided into different sub ranges depending of the frequency range of the used horn antenna. The EMI Receiver set to peak and average mode and a resolution bandwidth of 1MHz. The measurement will be performed in horizontal and vertical polarization of the measuring antenna and while rotating the EUT in its vertical axis in the range of 0 degree to 360 degree in order to have the antenna inside the cone of radiation.

7. Test Procedure of measurement (For Above 1GHz):

1) Monitor the frequency range at horizontal polarization and move the antenna over all sides of the EUT(if necessary move the EUT to another orthogonal axis).

2) Change the antenna polarization and repeat 1) with vertical polarization.

3) Make a hardcopy of the spectrum.

4) Measure the frequency of the detected emissions with a lower span and resolution bandwidth to increase the accuracy and note the frequency value.

5) Change the analyser mode to Clear/ Write and found the cone of emission.

6) Rotate and move the EUT, so that the measuring distance can be enlarged to 3m and the antenna will be still inside the cone of emission.

7) Measure the level of the detected frequency with the correct resolution bandwidth, with the antenna polarization and azimuth and the peak and average detector, which causes the maximum emission.

8) Repeat steps 1) to 7) for the next antenna spot if the EUT is larger than the antenna beamwidth.

7. The radiation measurements are tested under 3-axes(X,Y,Z) position(X denotes lying on the table, Y denotes side stand and Z denotes vertical stand), After pre-test, It was found that the worse radiation emission was get at the X position. So the data shown was the X position only.

## 7.5 Summary of Test Results

**Test Frequency: 9KHz-30MHz**

Note:

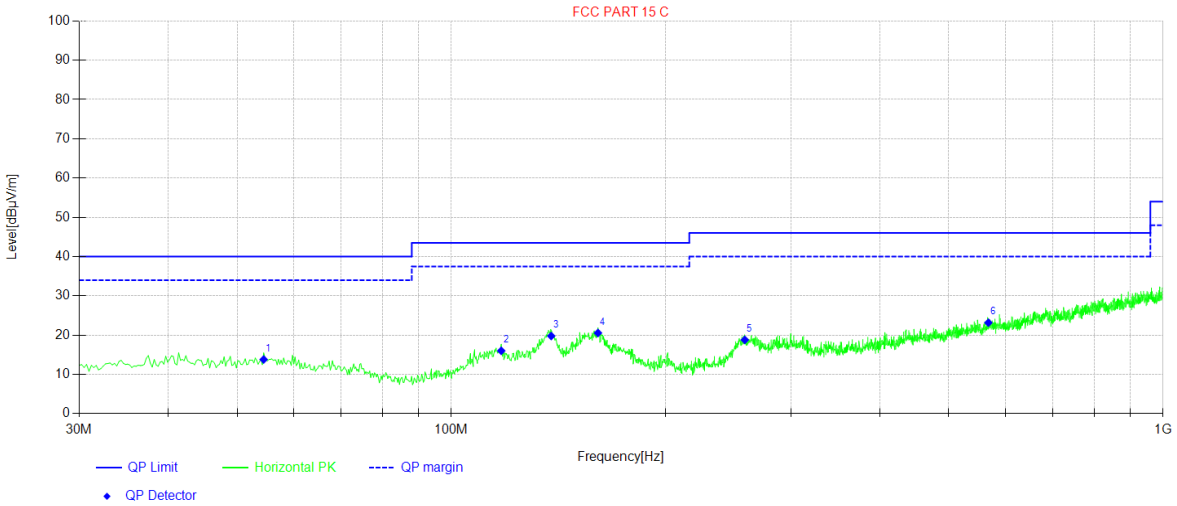
The amplitude of spurious emission that is attenuated by more than 20dB below the permissible limit has no need to be reported.

Distance extrapolation factor =40log(Specific distance/ test distance)( dB);
Limit line=Specific limits(dBuV) + distance extrapolation factor.

**Test Frequency: 30MHz ~ 1GHz**

Please refer to the following test plots,Low Channel (2402MHz) Worst case GFSK for record:

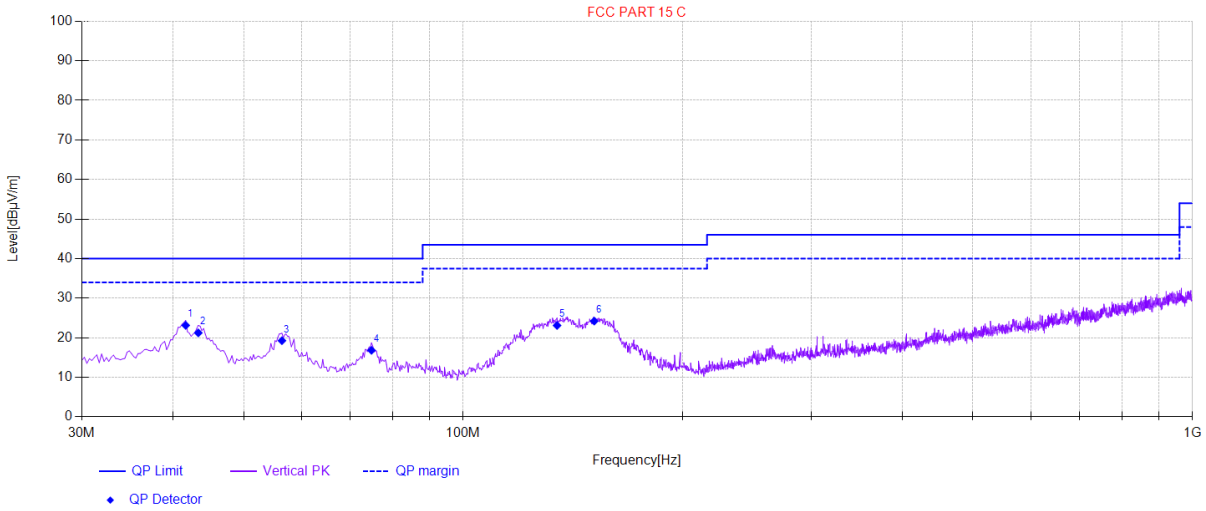
Test plot for Horizontal




| Final Data List[QP] | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| NO. | Freq. [MHz] | QP Reading [dBµV/m] | Factor [dB] | QP Value [dBµV/m] | QP Limit [dBµV/m] | QP Margin [dB] | Polarity | Verdict |
| 1 | 54.49 | 24.71 | -10.91 | 13.80 | 40.00 | 26.20 | Horizontal | PASS |
| 2 | 117.54 | 26.57 | -10.56 | 16.01 | 43.50 | 27.49 | Horizontal | PASS |
| 3 | 138.16 | 29.61 | -9.83 | 19.78 | 43.50 | 23.72 | Horizontal | PASS |
| 4 | 160.71 | 30.24 | -9.69 | 20.55 | 43.50 | 22.95 | Horizontal | PASS |
| 5 | 258.44 | 29.03 | -10.24 | 18.79 | 46.00 | 27.21 | Horizontal | PASS |
| 6 | 568.35 | 25.24 | -2.07 | 23.17 | 46.00 | 22.83 | Horizontal | PASS |

Remark: Emission Level=Reading+Cable Loss+ANT Factor-AMP Factor

Test plot for Vertical




| Final Data List[QP] | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| NO. | Freq. [MHz] | QP Reading [dBµV/m] | Factor [dB] | QP Value [dBµV/m] | QP Limit [dBµV/m] | QP Margin [dB] | Polarity | Verdict |
| 1 | 41.64 | 34.12 | -10.98 | 23.14 | 40.00 | 16.86 | Vertical | PASS |
| 2 | 43.34 | 32.18 | -10.94 | 21.24 | 40.00 | 18.76 | Vertical | PASS |
| 3 | 56.43 | 30.31 | -11.05 | 19.26 | 40.00 | 20.74 | Vertical | PASS |
| 4 | 74.86 | 30.62 | -13.79 | 16.83 | 40.00 | 23.17 | Vertical | PASS |
| 5 | 134.52 | 33.06 | -9.95 | 23.11 | 43.50 | 20.39 | Vertical | PASS |
| 6 | 151.25 | 33.49 | -9.28 | 24.21 | 43.50 | 19.29 | Vertical | PASS |

Remark:Emission Level=Reading+Cable Loss+ANT Factor-AMP Factor

## Test Frequency 1GHz-25GHz

Bluetooth (GFSK, Pi/4-DQPSK, 8DPSK)mode have been tested, and the worst result GFSK mode was report as below:

| Test Mode: CH00 GFSK | | | | | Test channel: Lowest | | | |
|---|---|---|---|---|---|---|---|---|
| Peak Value | | | | | | | | |
| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Preamp Factor (dB) | Level (dBuV/m) | Limit (dBuV/m) | Over Limit (dB) | Pol. |
| 4804 | 45.02 | 34.04 | 6.58 | 34.09 | 51.55 | 74 | -22.45 | V |
| 7206 | 41.93 | 37.11 | 7.73 | 34.5 | 52.27 | 74 | -21.73 | V |
| 9608 | 37.87 | 39.31 | 9.23 | 34.79 | 51.62 | 74 | -22.38 | V |
| 4804 | 45.45 | 34.04 | 6.58 | 34.09 | 51.98 | 74 | -22.02 | H |
| 7206 | 36.31 | 37.11 | 7.73 | 34.5 | 46.65 | 74 | -27.35 | H |
| 9608 | 39.56 | 39.31 | 9.23 | 34.79 | 53.31 | 74 | -20.69 | H |
| Average Value | | | | | | | | |
| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Preamp Factor (dB) | Level (dBuV/m) | Limit (dBuV/m) | Over Limit (dB) | Pol. |
| 4804 | 33.37 | 34.04 | 6.58 | 34.09 | 39.90 | 54 | -14.10 | V |
| 7206 | 26.67 | 37.11 | 7.73 | 34.5 | 37.01 | 54 | -16.99 | V |
| 9608 | 24.32 | 39.31 | 9.23 | 34.79 | 38.07 | 54 | -15.93 | V |
| 4804 | 33.05 | 34.04 | 6.58 | 34.09 | 39.58 | 54 | -14.42 | H |
| 7206 | 27.69 | 37.11 | 7.73 | 34.5 | 38.03 | 54 | -15.97 | H |
| 9608 | 25.86 | 39.31 | 9.23 | 34.79 | 39.61 | 54 | -14.39 | H |

| Test Mode: CH39 GFSK | | | | | Test channel: Middle | | | |
|---|---|---|---|---|---|---|---|---|
| Peak Value | | | | | | | | |
| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Preamp Factor (dB) | Level (dBuV/m) | Limit (dBuV/m) | Over Limit (dB) | Pol. |
| 4882 | 41.48 | 34.38 | 6.69 | 34.09 | 48.46 | 74 | -25.54 | V |
| 7323 | 38.57 | 37.22 | 7.78 | 34.53 | 49.04 | 74 | -24.96 | V |
| 9764 | 34.71 | 39.46 | 9.35 | 34.8 | 48.72 | 74 | -25.28 | V |
| 4882 | 44.03 | 34.38 | 6.69 | 34.09 | 51.01 | 74 | -22.99 | H |
| 7323 | 37.32 | 37.22 | 7.78 | 34.53 | 47.79 | 74 | -26.21 | H |
| 9764 | 34.31 | 39.46 | 9.35 | 34.8 | 48.32 | 74 | -25.68 | H |
| Average Value | | | | | | | | |
| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Preamp Factor (dB) | Level (dBuV/m) | Limit (dBuV/m) | Over Limit (dB) | Pol. |
| 4882 | 31.60 | 34.38 | 6.69 | 34.09 | 38.58 | 54 | -15.42 | V |
| 7323 | 29.46 | 37.22 | 7.78 | 34.53 | 39.93 | 54 | -14.07 | V |
| 9764 | 23.66 | 39.46 | 9.35 | 34.8 | 37.67 | 54 | -16.33 | V |
| 4882 | 34.22 | 34.38 | 6.69 | 34.09 | 41.20 | 54 | -12.80 | H |
| 7323 | 28.06 | 37.22 | 7.78 | 34.53 | 38.53 | 54 | -15.47 | H |
| 9764 | 23.65 | 39.46 | 9.35 | 34.8 | 37.66 | 54 | -16.34 | H |

| Test Mode: CH78 GFSK | | | | | Test channel: Highest | | | |
|---|---|---|---|---|---|---|---|---|
| Peak Value | | | | | | | | |
| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Preamp Factor (dB) | Level (dBuV/m) | Limit (dBuV/m) | Over Limit (dB) | Pol. |
| 4960 | 43.47 | 34.72 | 6.79 | 34.09 | 50.89 | 74 | -23.11 | V |
| 7440 | 40.61 | 37.34 | 7.82 | 34.57 | 51.20 | 74 | -22.80 | V |
| 9920 | 33.86 | 39.62 | 9.46 | 34.81 | 48.13 | 74 | -25.87 | V |
| 4960 | 40.82 | 34.72 | 6.79 | 34.09 | 48.24 | 74 | -25.76 | H |
| 7440 | 38.02 | 37.34 | 7.82 | 34.57 | 48.61 | 74 | -25.39 | H |
| 9920 | 37.16 | 39.62 | 9.46 | 34.81 | 51.43 | 74 | -22.57 | H |
| Average Value | | | | | | | | |
| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Preamp Factor (dB) | Level (dBuV/m) | Limit (dBuV/m) | Over Limit (dB) | Pol. |
| 4960 | 32.89 | 34.72 | 6.79 | 34.09 | 40.31 | 54 | -13.69 | V |
| 7440 | 26.83 | 37.34 | 7.82 | 34.5 | 37.49 | 54 | -16.51 | V |
| 9920 | 25.70 | 39.62 | 9.46 | 34.79 | 39.99 | 54 | -14.01 | V |
| 4960 | 32.19 | 34.72 | 6.79 | 34.09 | 39.61 | 54 | -14.39 | H |
| 7440 | 27.61 | 37.34 | 7.82 | 34.5 | 38.27 | 54 | -15.73 | H |
| 9920 | 24.33 | 39.62 | 9.46 | 34.79 | 38.62 | 54 | -15.38 | H |

Note:

1. The testing has been conformed to 10*2480MHz=24800MHz.
2. All other emissions more than 30dB below the limit.
3. Factor = Antenna Factor + Cable Loss – Pre-amplifier.

   Emission Level = Reading + Factor

   Over Limit =Emission Level-Limit

## Spurious Emission in Restricted Band 2310-2390MHz and 2483.5-2500MHz

Bluetooth (GFSK, Pi/4-DQPSK, 8DPSK)mode have been tested, and the worst result GFSK model was report as below

| Test Mode: Low Channel 2402MHz | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Preamp Factor (dB) | Level (dBuV/m) | Limit (dBuV/m) | Over (dB) | Polarity H/V | Test Value |
| 2310 | 47.74 | 28.67 | 6.72 | 37.26 | 45.87 | 74 | -28.13 | H | Peak |
| 2390 | 60.50 | 28.08 | 6.81 | 37.12 | 58.27 | 74 | -15.73 | H | Peak |
| 2310 | 47.72 | 28.67 | 6.72 | 37.26 | 45.85 | 74 | -28.15 | V | Peak |
| 2390 | 55.37 | 28.08 | 6.81 | 37.12 | 53.14 | 74 | -20.86 | V | Peak |
| 2310 | 40.94 | 28.67 | 6.72 | 37.26 | 39.07 | 54 | -14.93 | H | AV |
| 2390 | 44.32 | 28.08 | 6.81 | 37.12 | 42.09 | 54 | -11.91 | H | AV |
| 2310 | 39.25 | 28.67 | 6.72 | 37.26 | 37.38 | 54 | -16.62 | V | AV |
| 2390 | 44.26 | 28.08 | 6.81 | 37.12 | 42.03 | 54 | -11.97 | V | AV |

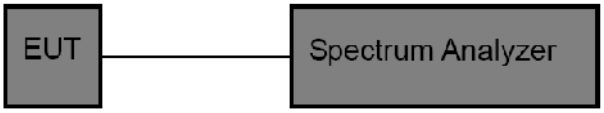
| Test Mode: High Channel 2480MHz | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Preamp Factor (dB) | Level (dBuV/m) | Limit (dBuV/m) | Over (dB) | Polarity H/V | Test Value |
| 2400 | 59.45 | 27.38 | 6.15 | 36.29 | 56.69 | 74 | -17.31 | H | Peak |
| 2483.5 | 48.21 | 27.43 | 6.68 | 36.79 | 45.53 | 74 | -28.47 | H | Peak |
| 2400 | 60.51 | 27.38 | 6.15 | 36.29 | 57.75 | 74 | -16.25 | V | Peak |
| 2483.5 | 48.27 | 27.43 | 6.68 | 36.79 | 45.59 | 74 | -28.41 | V | Peak |
| 2400 | 41.24 | 27.38 | 6.15 | 36.29 | 38.48 | 54 | -15.52 | H | AV |
| 2483.5 | 39.89 | 27.43 | 6.68 | 36.79 | 37.21 | 54 | -16.79 | H | AV |
| 2400 | 43.70 | 27.38 | 6.15 | 36.29 | 40.94 | 54 | -13.06 | V | AV |
| 2483.5 | 40.04 | 27.43 | 6.68 | 36.79 | 37.36 | 54 | -16.64 | V | AV |

# 8 Maximum Peak Output Power Test

## 8.1 Test Standard and Limit

| | |
|---|---|
| Test Standard | FCC Part15 C Section 15.247 (b)(3) |
| Test Limit | 125mW |

## 8.2 Test Setup




## 8.3 Test Procedure

1. The testing follows the Measurement Procedure of FCC KDB No. 558074 D01 15.247 Meas Guidance v05r02 section 8.3.1.
2. The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.
3. Set to the maximum power setting and enable the EUT transmit continuously.
4. Measure the conducted output power and record the results in the test report.

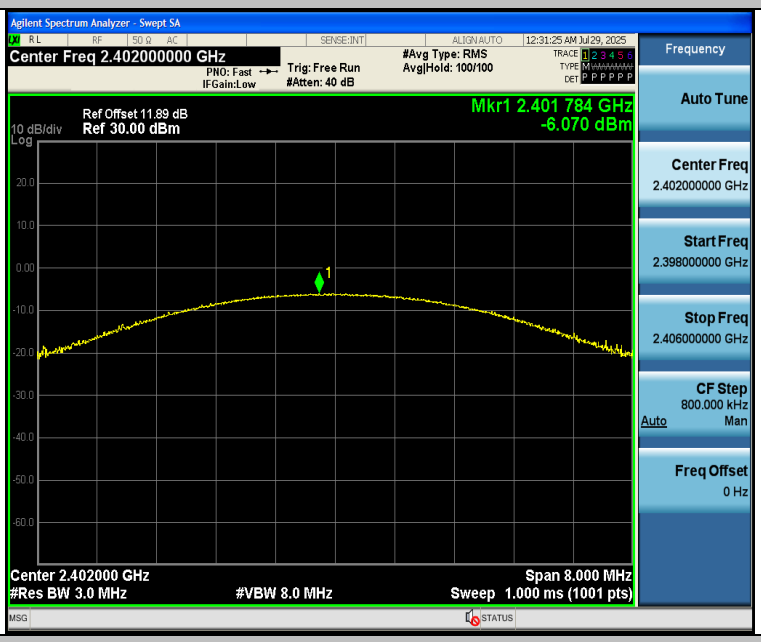
## 8.4 Test Data

| | | | | | |
|---|---|---|---|---|---|
| Test Item | : | Max. peak output power | Test Mode | : | CH Low ~ CH High |
| Test Voltage | : | AC 120V | Temperature | : | 24.5℃ |
| Test Result | : | PASS | Humidity | : | 55%RH |

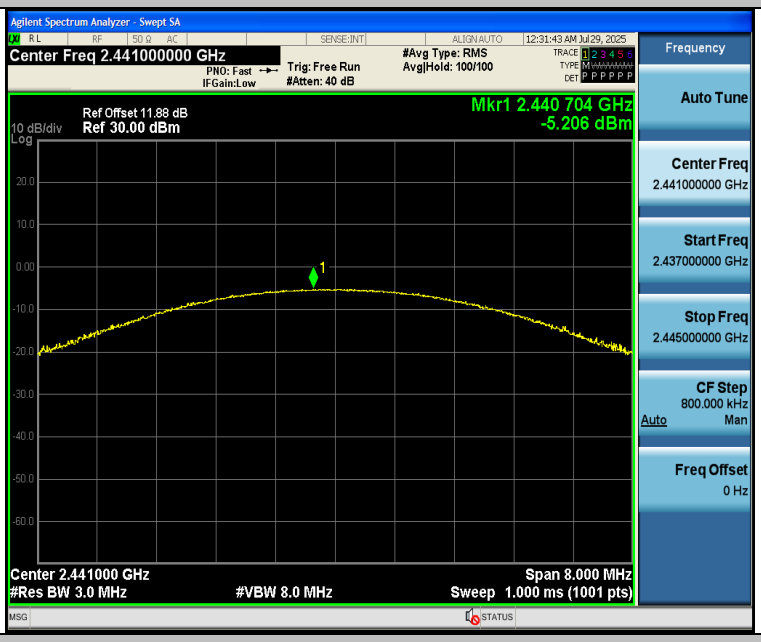
| Test Mode | Antenna | Frequency[MHz] | Conducted Peak Power[dBm] | Conducted Limit[dBm] | Verdict |
|---|---|---|---|---|---|
| DH5 | Ant1 | 2402 | -6.07 | ≤30 | PASS |
| DH5 | Ant1 | 2441 | -5.21 | ≤30 | PASS |
| DH5 | Ant1 | 2480 | -4.12 | ≤30 | PASS |
| 2DH5 | Ant1 | 2402 | -5.35 | ≤21 | PASS |
| 2DH5 | Ant1 | 2441 | -4.64 | ≤21 | PASS |
| 2DH5 | Ant1 | 2480 | -3.48 | ≤21 | PASS |
| 3DH5 | Ant1 | 2402 | -4.85 | ≤21 | PASS |
| 3DH5 | Ant1 | 2441 | -4.16 | ≤21 | PASS |
| 3DH5 | Ant1 | 2480 | -3.05 | ≤21 | PASS |

## Test Graphs:

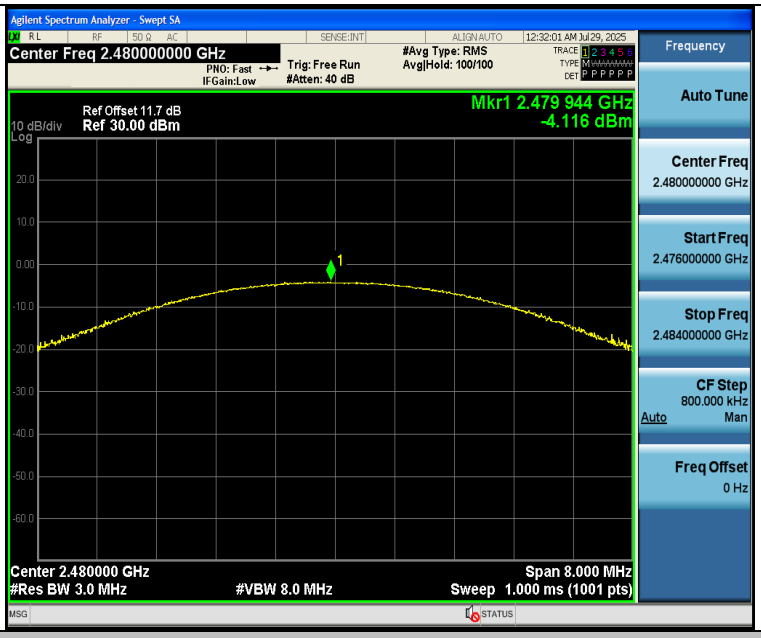
DH5-Ant1-2402-PASS



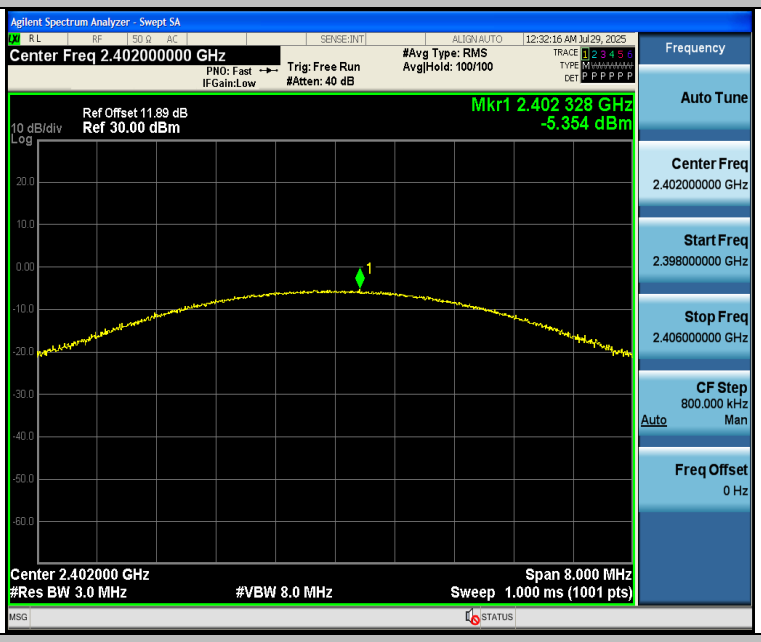

DH5-Ant1-2441-PASS



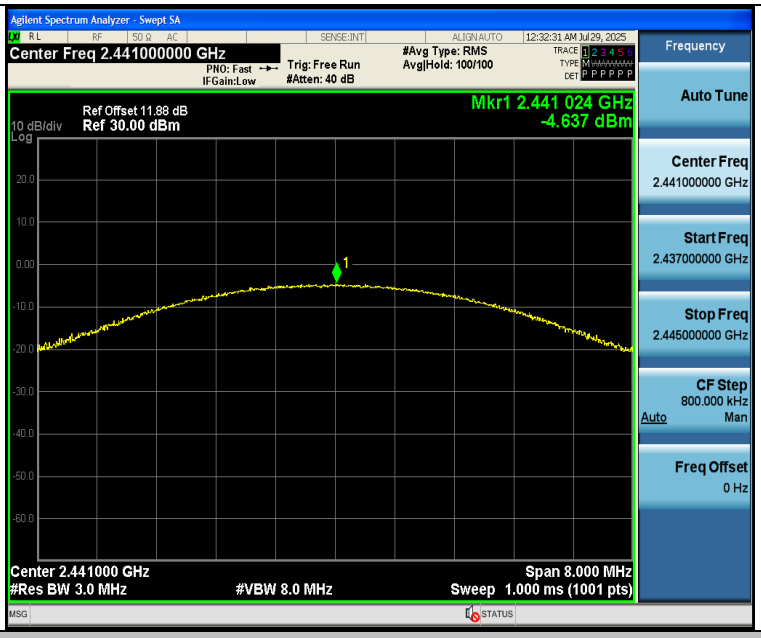

DH5-Ant1-2480-PASS



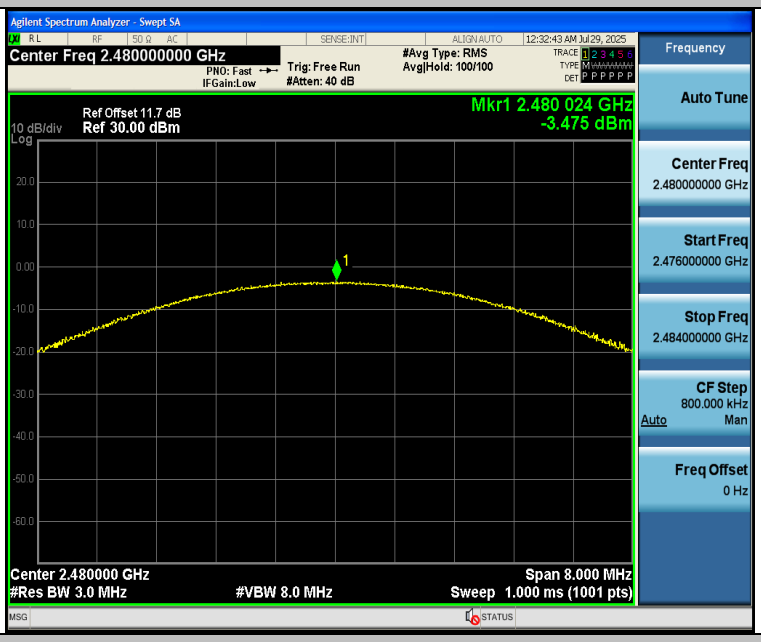

2DH5-Ant1-2402-PASS



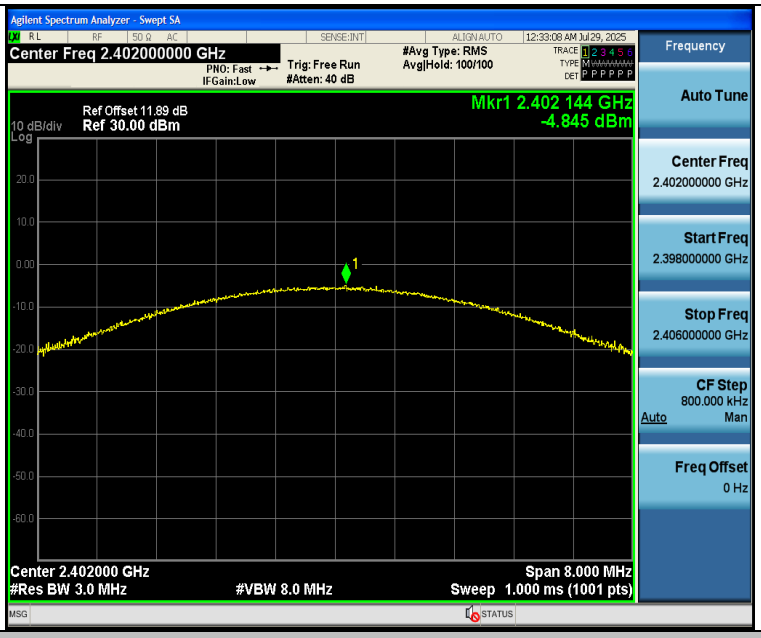

2DH5-Ant1-2441-PASS



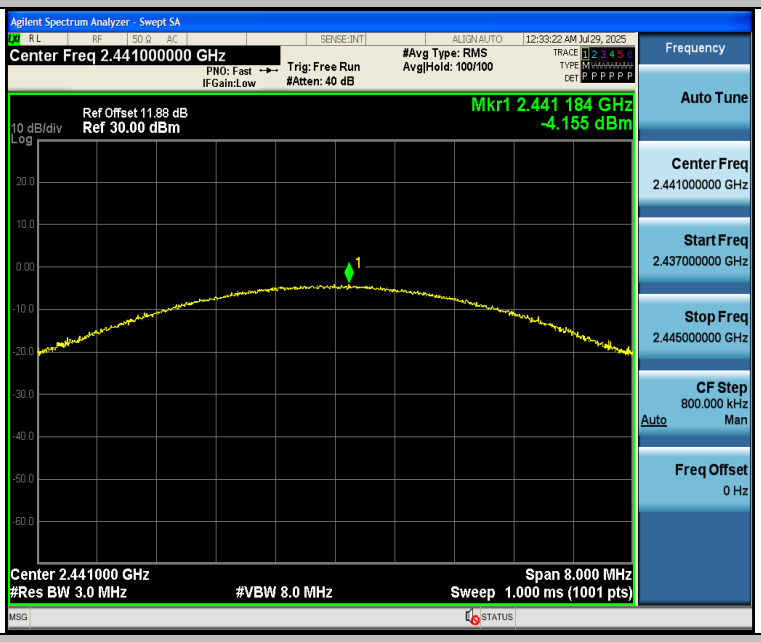

2DH5-Ant1-2480-PASS



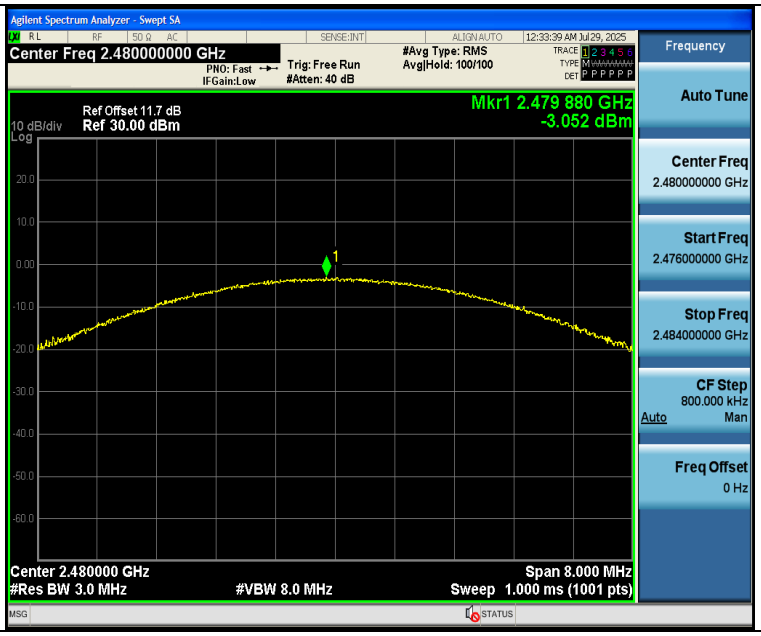

3DH5-Ant1-2402-PASS




3DH5-Ant1-2441-PASS




3DH5-Ant1-2480-PASS

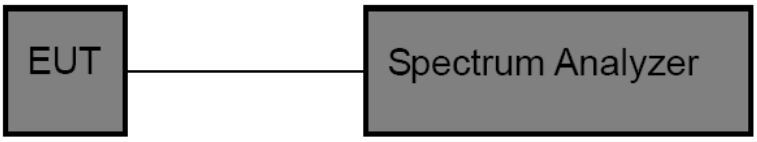

Agilent Spectrum Analyzer - Swept SA
Center Freq 2.480000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 40 dB
#Avg Type: RMS
Avg|Hold: 100/100
12:33:39 AM Jul 29, 2025
Ref Offset 11.7 dB
10 dB/div
Ref 30.00 dBm
Log
Mkr1 2.479 880 GHz
-3.052 dBm
Center 2.480000 GHz
#Res BW 3.0 MHz
#VBW 8.0 MHz
Span 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

# 9 20DB Occupy Bandwidth Test

## 9.1 Test Standard

| | |
|---|---|
| Test Standard | FCC Part15 C Section 15.247 (a)(1) |

## 9.2 Test Setup




## 9.3 Test Procedure

Using the following spectrum analyzer settings:

1. Span= approximately 2 to 3 times the 20dB bandwidth, centered on a hopping channel.
2. Set the RBW = 30 kHz.
3. Set the VBW = 100 kHz.
4. Sweep time = auto couple.
5. Detector function = peak.
6. Trace mode = max hold.
7. Allow trace to fully stabilize.

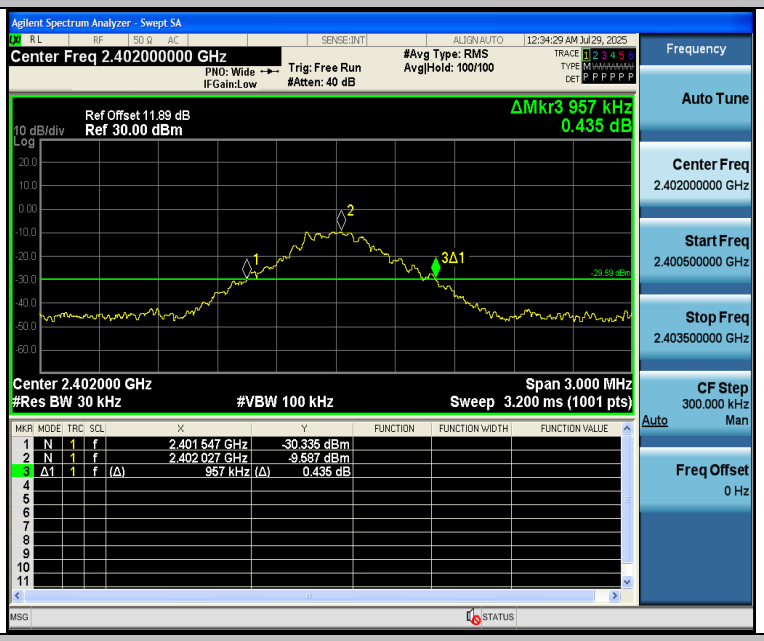
## 9.4 Test Data

| | | | | | |
|---|---|---|---|---|---|
| Test Item | : | 20dB BW | Test Mode | : | CH Low ~ CH High |
| Test Voltage | : | AC 120V | Temperature | : | 24.5℃ |
| Test Result | : | PASS | Humidity | : | 55%RH |

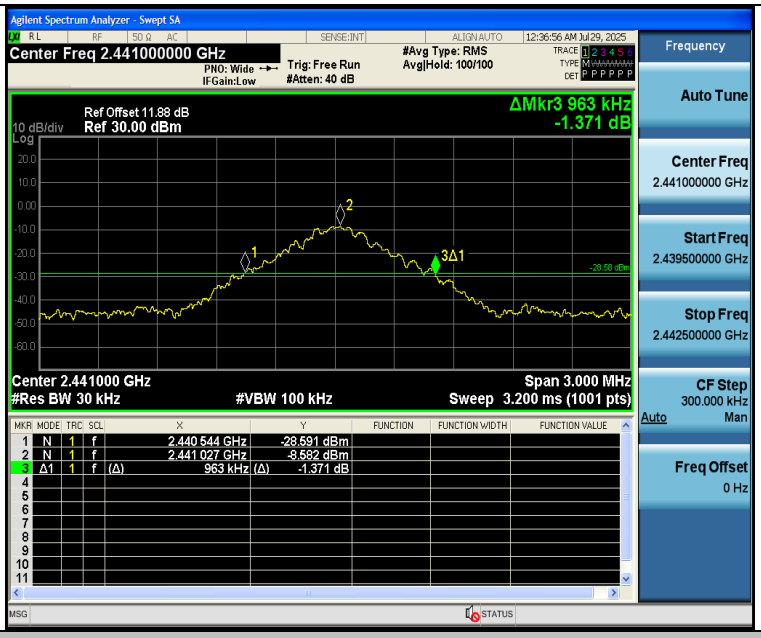
| TestMode | Antenna | Frequency[MHz] | 20db EBW[MHz] | FL[MHz] | FH[MHz] | Limit[MHz] | Verdict |
|---|---|---|---|---|---|---|---|
| DH5 | Ant1 | 2402 | 0.957 | 2401.547 | 2402.504 | --- | --- |
| DH5 | Ant1 | 2441 | 0.963 | 2440.544 | 2441.507 | --- | --- |
| DH5 | Ant1 | 2480 | 0.954 | 2479.544 | 2480.498 | --- | --- |
| 2DH5 | Ant1 | 2402 | 1.308 | 2401.355 | 2402.663 | --- | --- |
| 2DH5 | Ant1 | 2441 | 1.326 | 2440.349 | 2441.675 | --- | --- |
| 2DH5 | Ant1 | 2480 | 1.311 | 2479.355 | 2480.666 | --- | --- |
| 3DH5 | Ant1 | 2402 | 1.275 | 2401.364 | 2402.639 | --- | --- |
| 3DH5 | Ant1 | 2441 | 1.329 | 2440.346 | 2441.675 | --- | --- |
| 3DH5 | Ant1 | 2480 | 1.338 | 2479.340 | 2480.678 | --- | --- |

## Test Graphs:

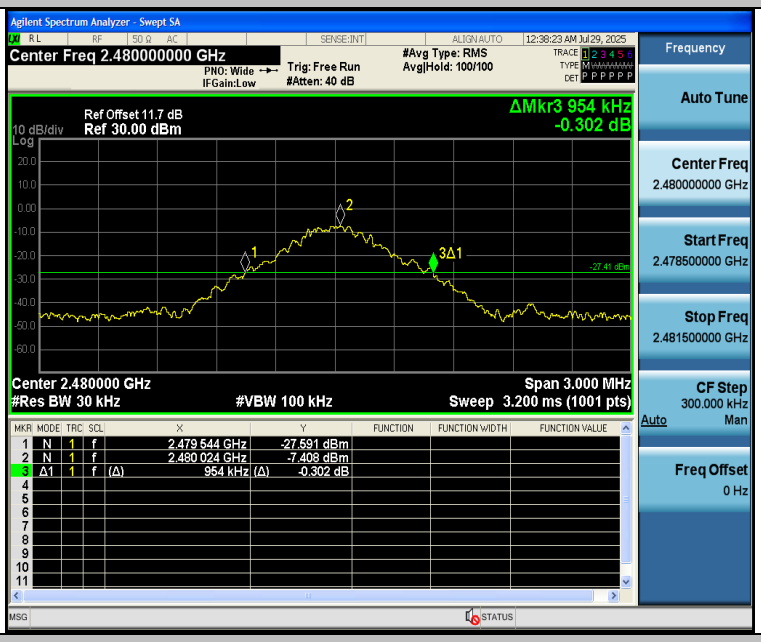
DH5-Ant1-2402



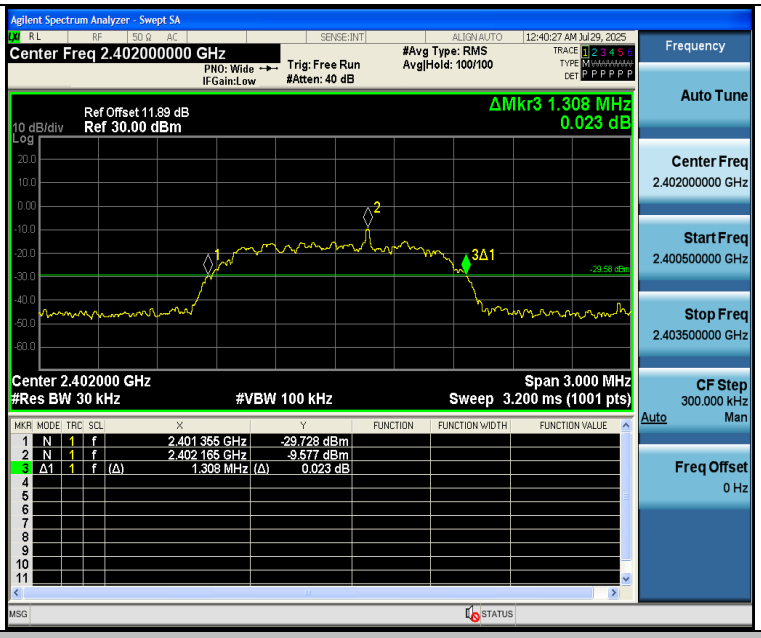

DH5-Ant1-2441



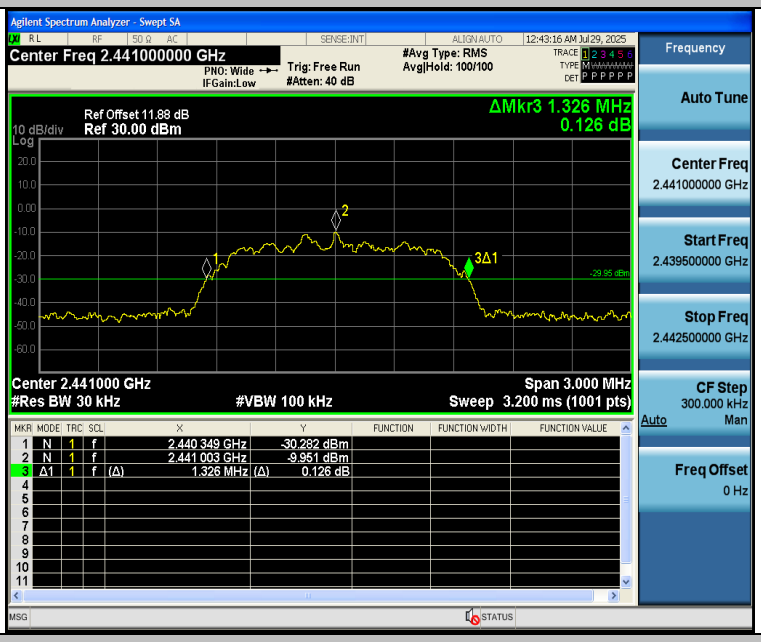

DH5-Ant1-2480



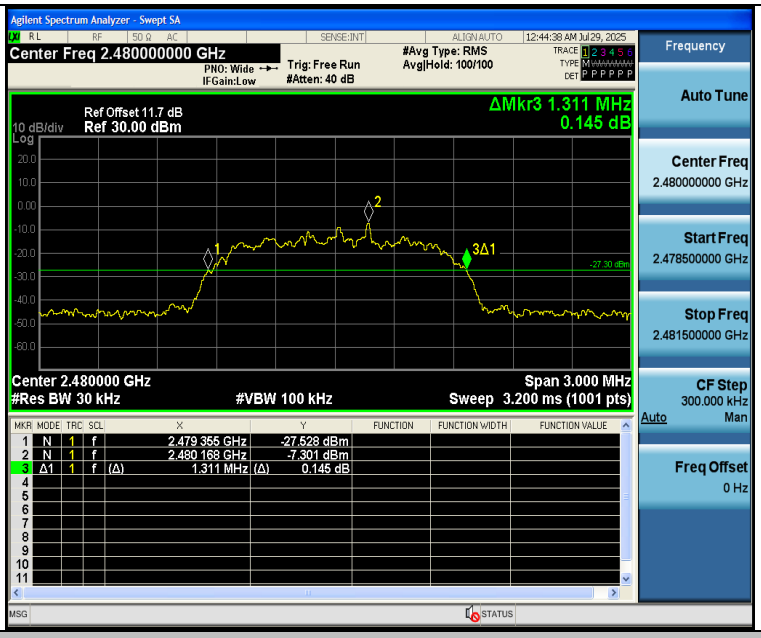

2DH5-Ant1-2402



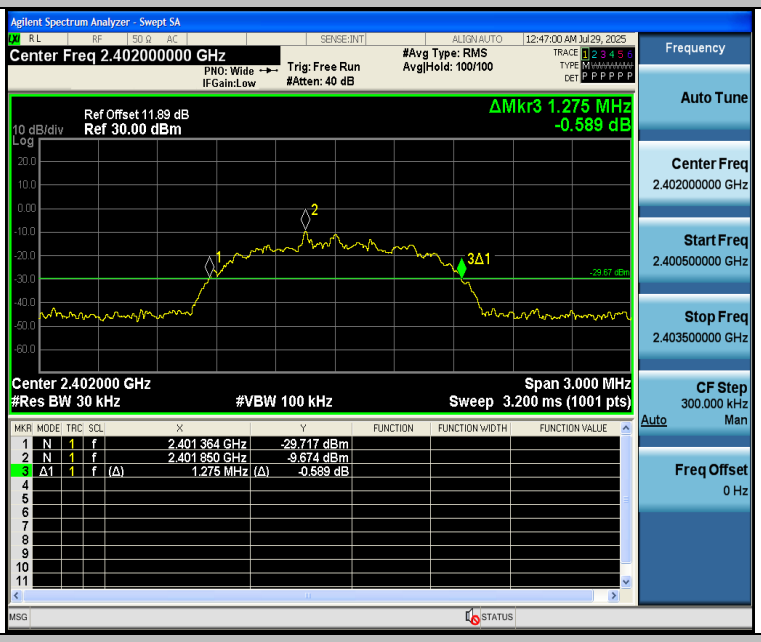

2DH5-Ant1-2441



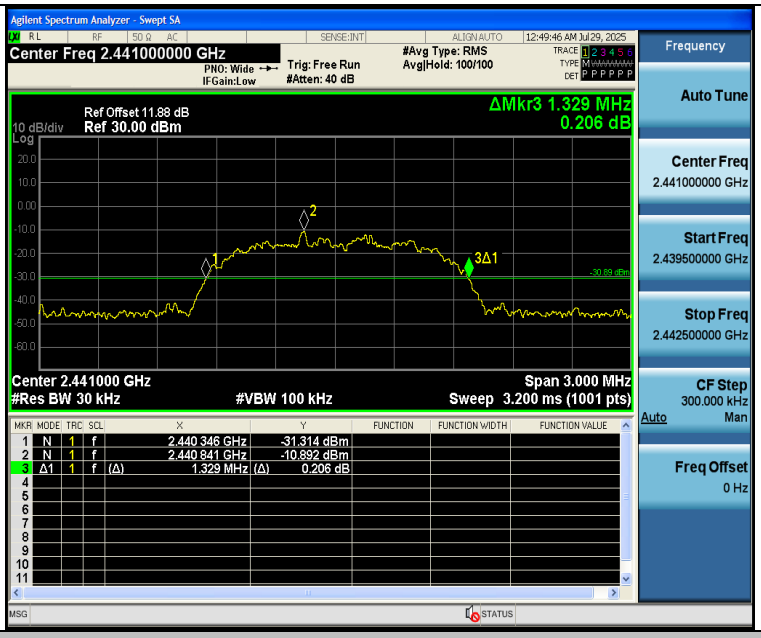

2DH5-Ant1-2480



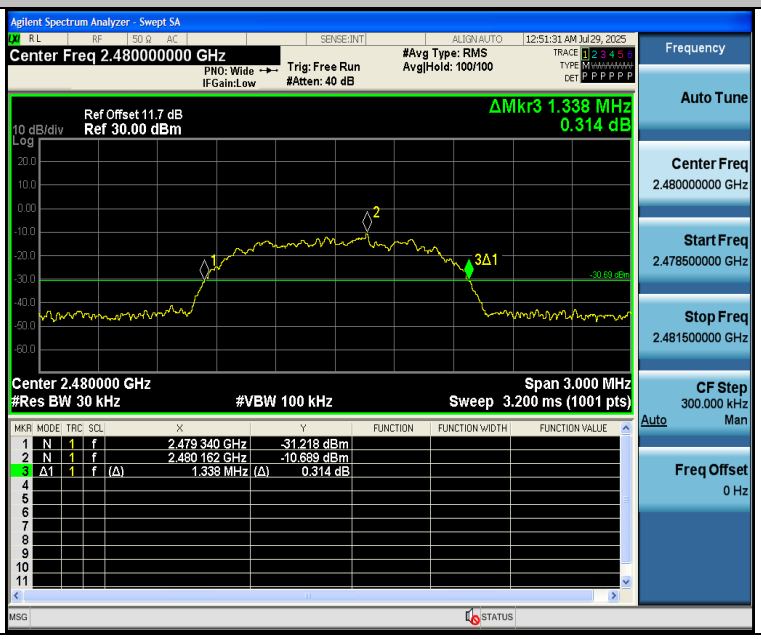

3DH5-Ant1-2402




3DH5-Ant1-2441




3DH5-Ant1-2480

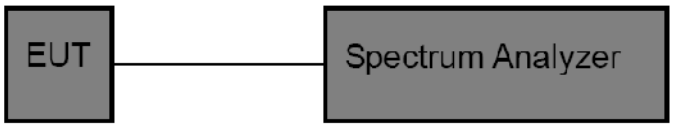


# 10 Carrier Frequency Separation Test

## 10.1 Test Standard and Limit

| | |
|---|---|
| Test Standard | FCC Part15 C Section 15.247 (a)(1) |
| Test Limit | >25KHz or >two-thirds of the 20 dB bandwidth |

## 10.2 Test Setup




## 10.3 Test Procedure

The EUT must have its hopping function enabled. Using the following spectrum analyzer settings:

1. Span= Wide enough to capture the peaks of two adjacent channels
2. Set the RBW = 300 kHz.
3. Set the VBW = 300 kHz.
4. Sweep time = auto couple.
5. Detector function = peak.
6. Trace mode = max hold.
7. Allow trace to fully stabilize.

## 10.4 Test Data

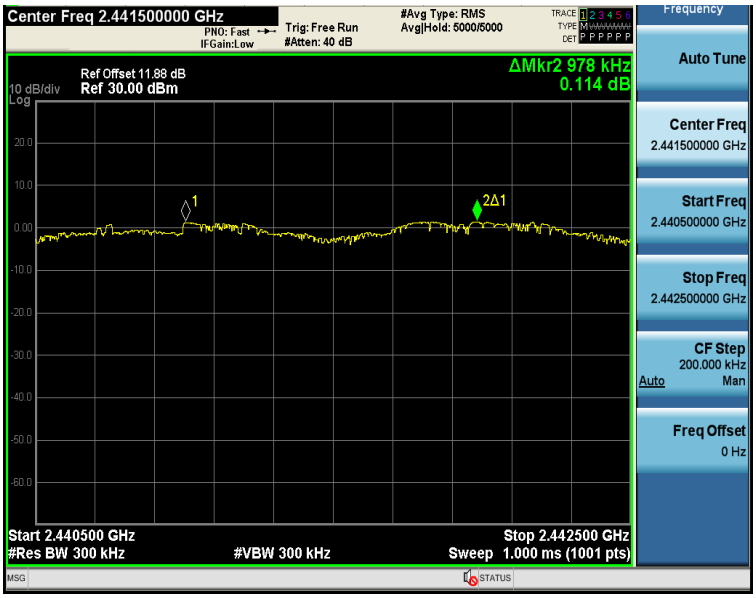
| | | | | | |
|---|---|---|---|---|---|
| Test Item | : | Frequency Separation | Test Mode | : | CH Low ~ CH High |
| Test Voltage | : | AC 120V | Temperature | : | 24.5℃ |
| Test Result | : | PASS | Humidity | : | 55%RH |

| TestMode | Antenna | Frequency[MHz] | Result[MHz] | Limit[MHz] | Verdict |
|---|---|---|---|---|---|
| DH5 | Ant1 | Hop | 0.982 | ≥0.642 | PASS |
| 2DH5 | Ant1 | Hop | 0.978 | ≥0.884 | PASS |
| 3DH5 | Ant1 | Hop | 1.184 | ≥0.892 | PASS |

## Test Graphs:

DH5-Ant1-Hop-PASS

2DH5-Ant1-Hop-PASS



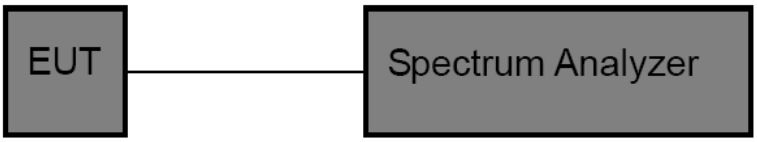

3DH5-Ant1-Hop-PASS

# 11 Number of Hopping Channel Test

## 11.1 Test Standard and Limit

| | |
|---|---|
| Test Standard | FCC Part15 C Section 15.247 (a)(1) |
| Test Limit | >15 channels |

## 11.2 Test Setup




## 11.3 Test Procedure

The EUT must have its hopping function enabled. Using the following spectrum analyzer setting:

1. Span= the frequency band of operation
2. Set the RBW = 300kHz.
3. Set the VBW = 300kHz.
4. Sweep time = auto couple.
5. Detector function = peak.
6. Trace mode = max hold.
7. Allow trace to fully stabilize.

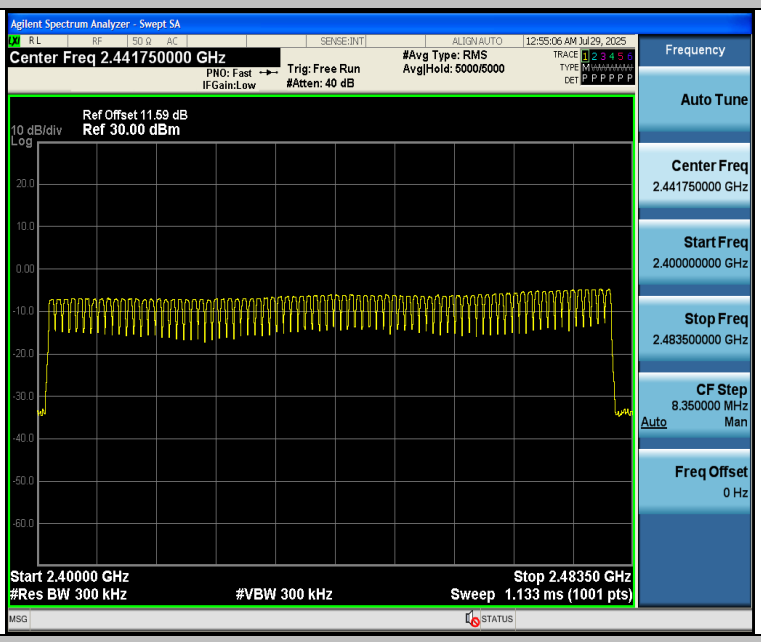
## 11.4 Test Data

| | | | | | |
|---|---|---|---|---|---|
| Test Item | : | Number of Hopping Frequency | Test Mode | : | CH Low ~ CH High |
| Test Voltage | : | AC 120V | Temperature | : | 24.5℃ |
| Test Result | : | PASS | Humidity | : | 55%RH |

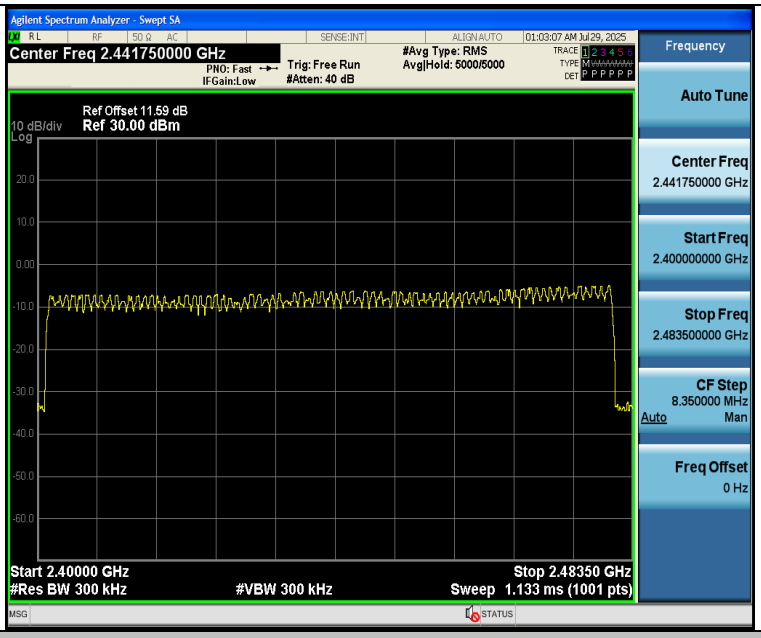
| TestMode | Antenna | Frequency[MHz] | Result[Num] | Limit[Num] | Verdict |
|---|---|---|---|---|---|
| DH5 | Ant1 | Hop | 79 | ≥15 | PASS |
| 2DH5 | Ant1 | Hop | 79 | ≥15 | PASS |
| 3DH5 | Ant1 | Hop | 79 | ≥15 | PASS |

**Test Graphs:**

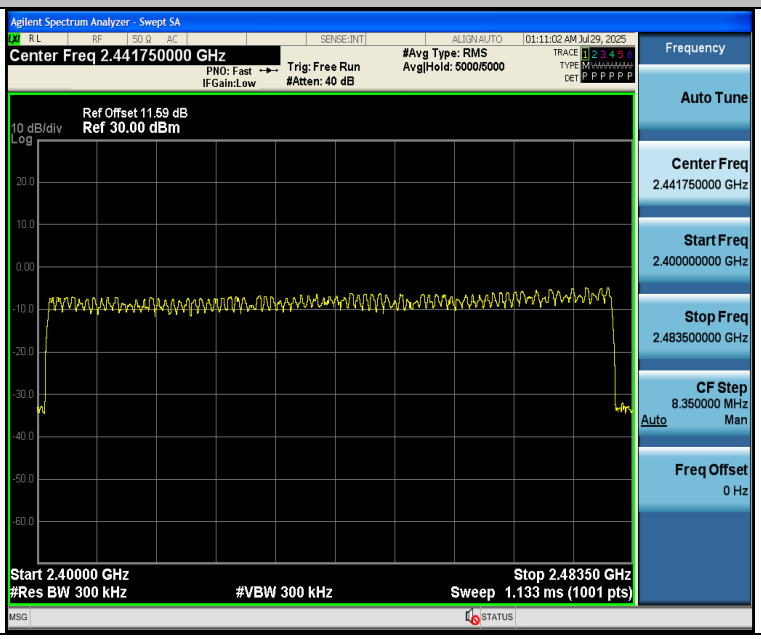
DH5-Ant1-Hop-PASS




2DH5-Ant1-Hop-PASS




3DH5-Ant1-Hop-PASS

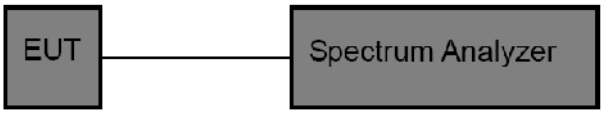


# 12 Dwell Time Test

## 12.1 Test Standard and Limit

| | |
|---|---|
| Test Standard | FCC Part15 C Section 15.247 (a)(1) |
| Test Limit | 0.4 sec |

## 12.2 Test Setup




## 12.3 Test Procedure

The EUT must have its hopping function enabled. Use the following spectrum analyzer settings:

1. Span= zero span, centered on a hopping channel
2. Set the RBW = 1 MHz.
3. Set the VBW = 3 MHz.
4. Sweep time = as necessary to capture the entire dwell time per hopping channel.
5. Detector function = peak.
6. Trace mode = max hold.
7. Allow trace to fully stabilize.

## 12.4 Test Data

| | | | | | |
|---|---|---|---|---|---|
| Test Item | : | Time of Occupancy | Test Mode | : | CH Low ~ CH High |
| Test Voltage | : | AC 120V | Temperature | : | 24.5℃ |
| Test Result | : | PASS | Humidity | : | 55%RH |

| TestMode | Antenna | Frequency[MHz] | BurstWidth [ms] | TotalHops [Num] | Result[s] | Limit[s] | Verdict |
|---|---|---|---|---|---|---|---|
| DH5 | Ant1 | Hop | 2.878 | 106.67 | 0.307 | ≤0.4 | PASS |
| 2DH5 | Ant1 | Hop | 2.884 | 106.67 | 0.308 | ≤0.4 | PASS |
| 3DH5 | Ant1 | Hop | 2.887 | 106.67 | 0.308 | ≤0.4 | PASS |
| DH1 | Ant1 | Hop | 0.375 | 320 | 0.12 | ≤0.4 | PASS |
| 2DH1 | Ant1 | Hop | 0.384 | 320 | 0.123 | ≤0.4 | PASS |
| 3DH1 | Ant1 | Hop | 0.385 | 320 | 0.123 | ≤0.4 | PASS |
| DH3 | Ant1 | Hop | 1.630 | 160 | 0.261 | ≤0.4 | PASS |
| 2DH3 | Ant1 | Hop | 1.637 | 160 | 0.262 | ≤0.4 | PASS |
| 3DH3 | Ant1 | Hop | 1.635 | 160 | 0.262 | ≤0.4 | PASS |

Note:

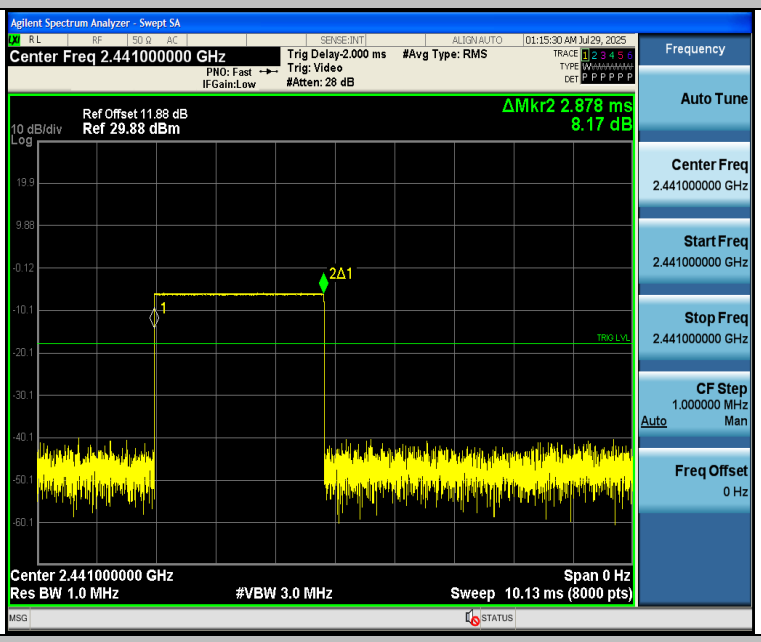
1.DH1/2DH1 Dwell Time: Reading * (1600/2)*31.6/(channel number).

2.DH3/2DH3 Dwell Time: Reading * (1600/4)*31.6/(channel number).

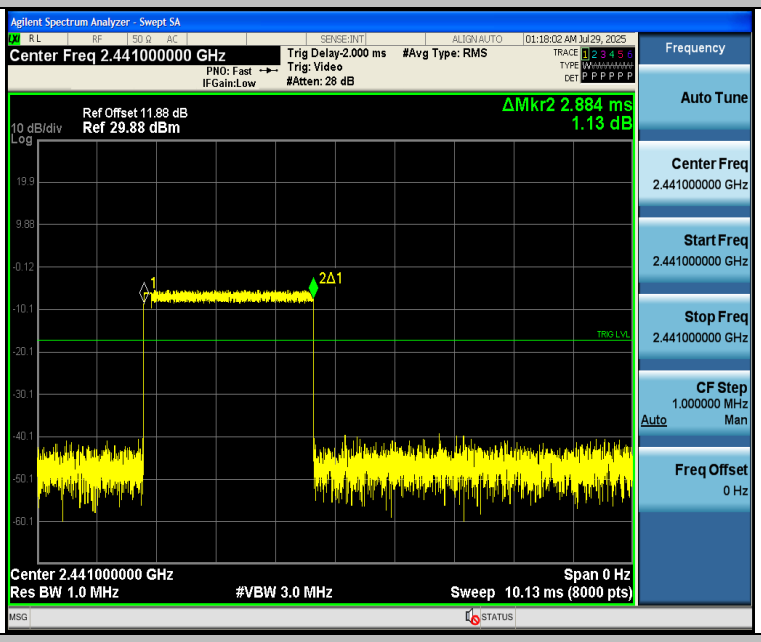
3.DH5/2DH5 Dwell Time: Reading * (1600/6)*31.6/(channel number).

## Test Graphs:

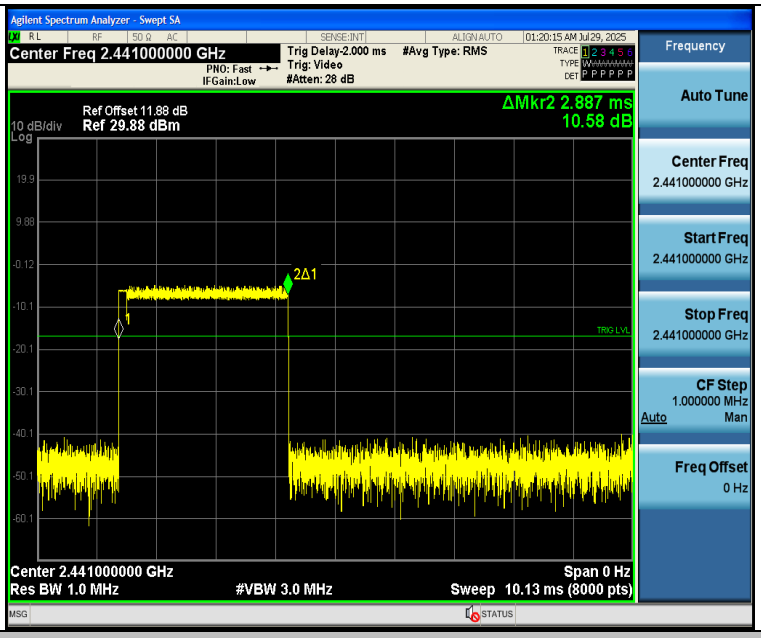
DH5-Ant1-Hop-PASS



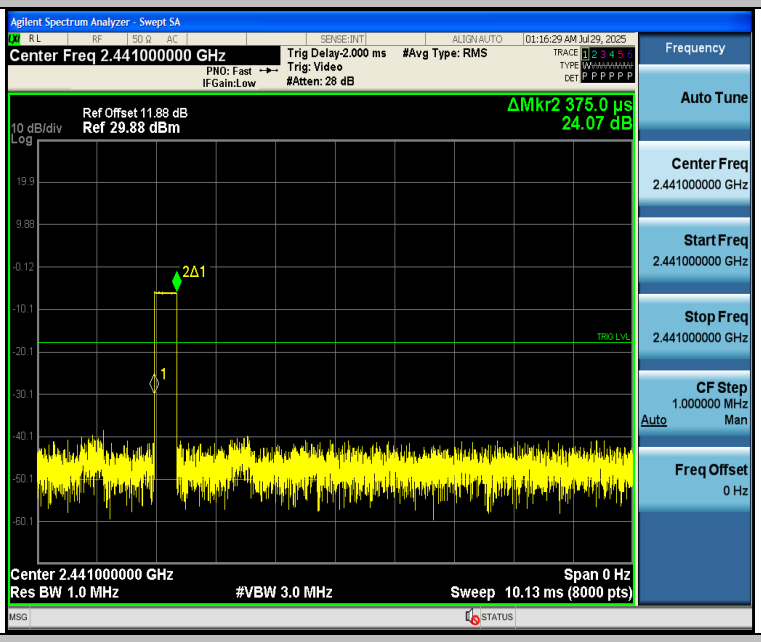

2DH5-Ant1-Hop-PASS



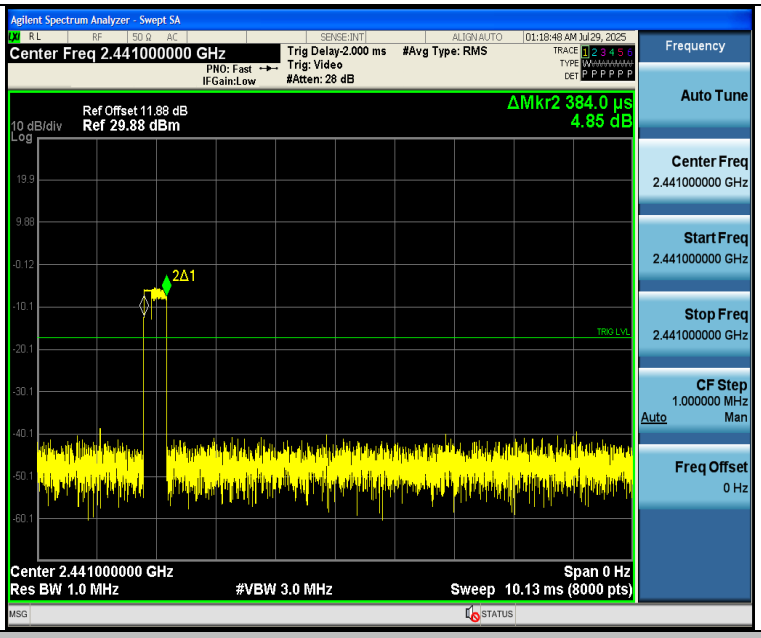

3DH5-Ant1-Hop-PASS



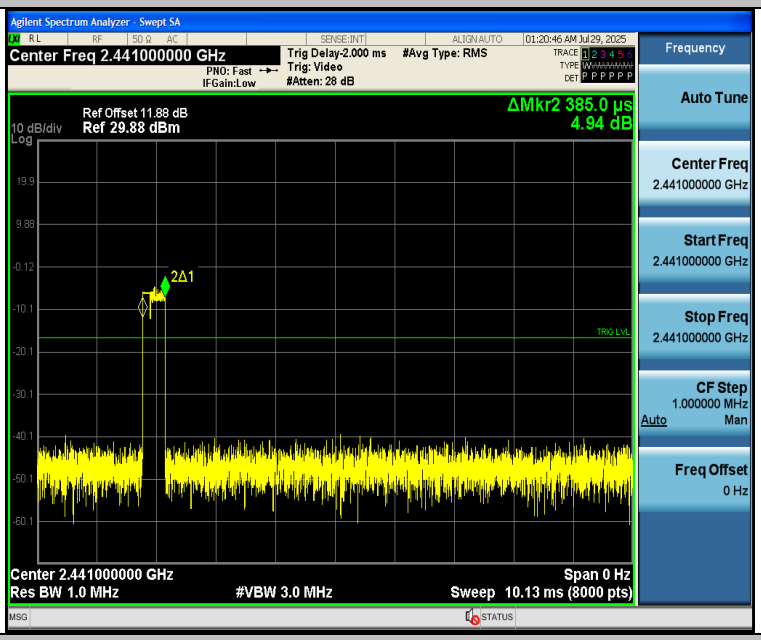

DH1-Ant1-Hop-PASS



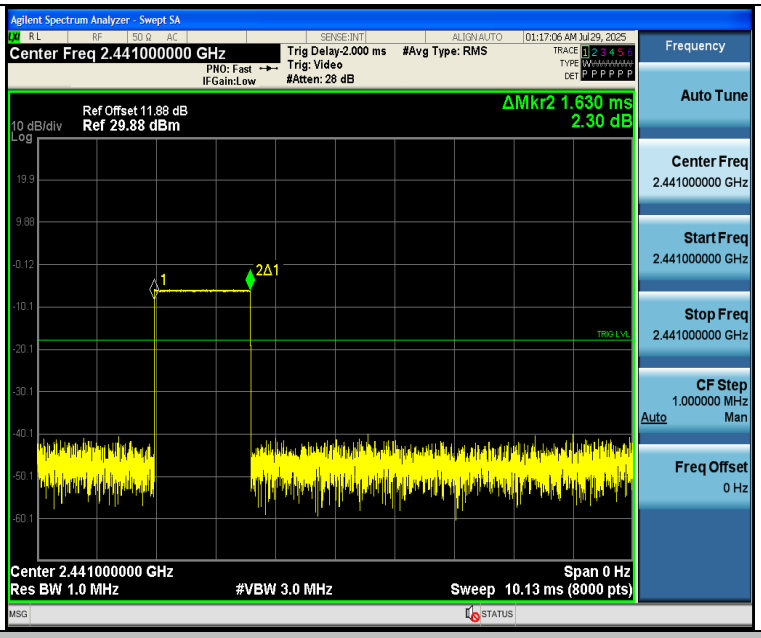

2DH1-Ant1-Hop-PASS



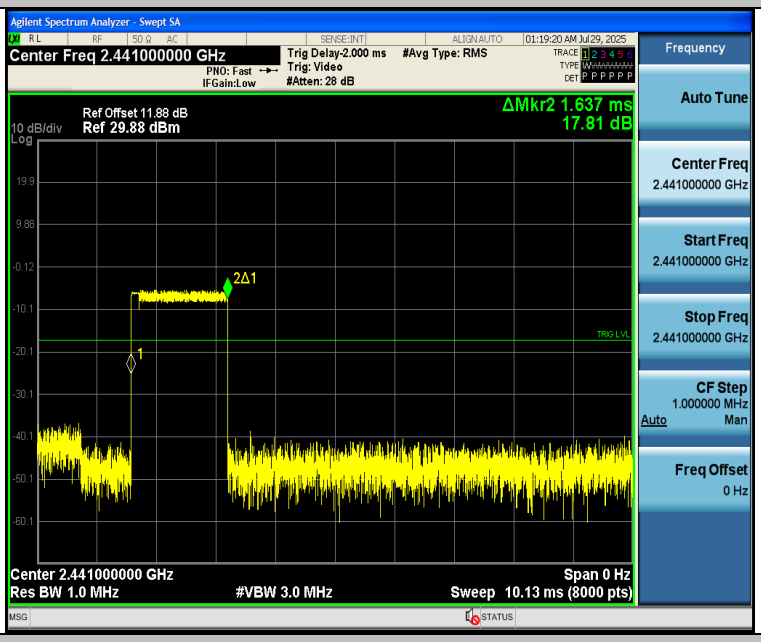

3DH1-Ant1-Hop-PASS




DH3-Ant1-Hop-PASS




2DH3-Ant1-Hop-PASS




3DH3-Ant1-Hop-PASS

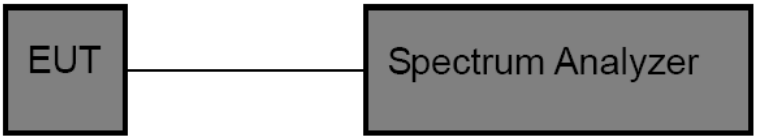
Agilent Spectrum Analyzer - Swept SA
Center Freq 2.441000000 GHz
Trig Delay-2.000 ms
#Avg Type: RMS
Trig: Video
#Atten: 28 dB
PNO: Fast
IFGain:Low
01:22:22 AM Jul 29, 2025
Ref Offset 11.88 dB
10 dB/div
Ref 29.88 dBm
Log
ΔMkr2 1.635 ms
5.10 dB
2Δ1
TRIG LVL
Center 2.441000000 GHz
Span 0 Hz
Res BW 1.0 MHz
#VBW 3.0 MHz
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

# 13 100kHz Bandwidth of Frequency Band Edge Requirement

## 13.1 Test Standard and Limit

| | |
|---|---|
| Test Standard | FCC Part15 C Section 15.247 (d) |
| Test Limit | in any 100 kHz bandwidth outside the frequency bands in which the spread spectrum intentional radiator in operating, the radio frequency power that is produced by the intentional radiator shall be at least 20dB below that in the 100kHz bandwidth within the band that contains the highest level of the desired power, In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in 15.209(a). |

## 13.2 Test Setup




## 13.3 Test Procedure

The EUT must have its hopping/Non-hopping function enabled. Using the following spectrum analyzer setting:

**Reference Level:**

1. Remove the antenna from the EUT and then connect a low RF cable from the antenna port to the spectrum; Set to the maximum power setting and enable the EUT transmit continuously.
2. Set the spectrum analyzer: RBW = 100kHz, VBW = 300kHz, Sweep = auto.
Detector function = peak, Trace = max hold.

**Spurious Emissions Measurement:**

1. Remove the antenna from the EUT and then connect a low RF cable from the antenna port to the spectrum;
2. Set the spectrum analyzer: RBW = 100kHz, VBW = 300kHz, Sweep = auto.
Detector function = peak, Trace = max hold.

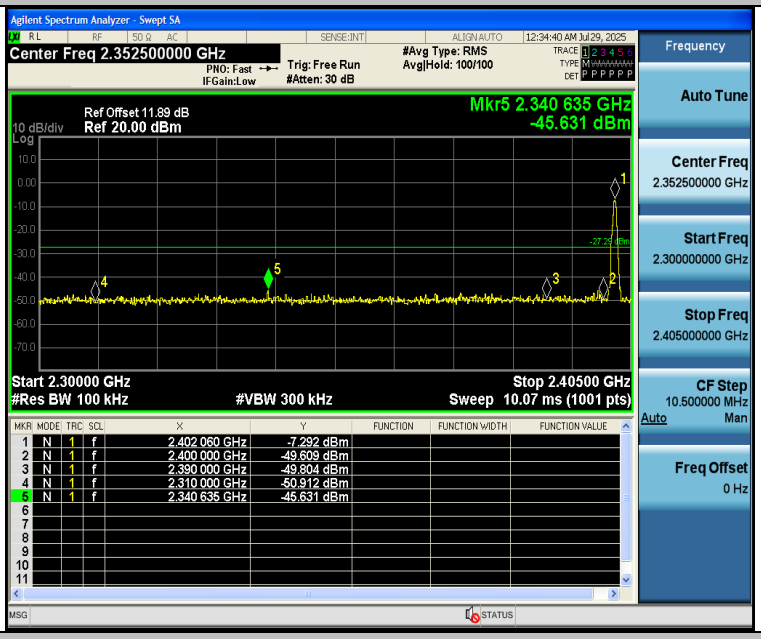
## 13.4 Test Data

| | | | | | |
|---|---|---|---|---|---|
| Test Item | : | Band edge | Test Mode | : | CH Low ~ CH High |
| Test Voltage | : | AC 120V | Temperature | : | 24.5℃ |
| Test Result | : | PASS | Humidity | : | 55%RH |

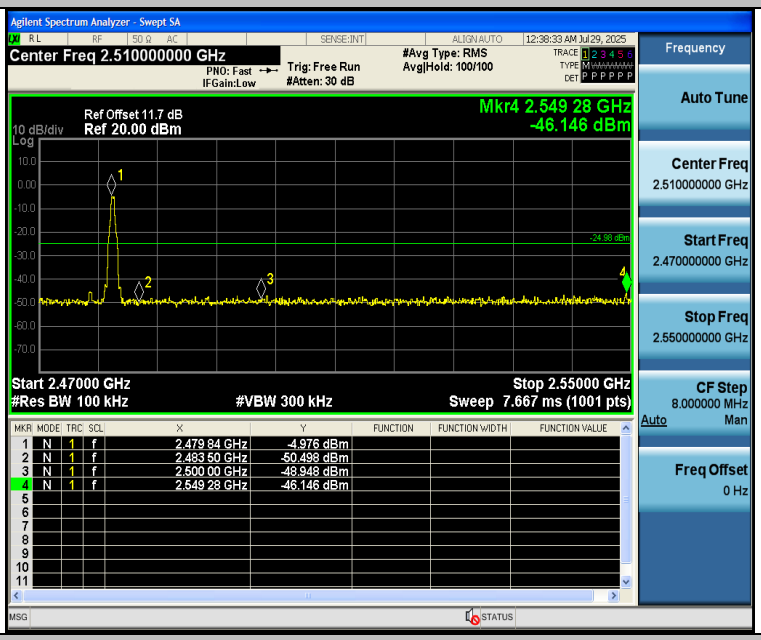
| TestMode | Antenna | ChName | Frequency[MHz] | RefLevel [dBm] | Result [dBm] | Limit [dBm] | Verdict |
|---|---|---|---|---|---|---|---|
| DH5 | Ant1 | Low | 2402 | -7.29 | -45.63 | ≤-27.29 | PASS |
| DH5 | Ant1 | High | 2480 | -4.98 | -46.15 | ≤-24.98 | PASS |
| DH5 | Ant1 | Low | Hop_2402 | -8.16 | -46.52 | ≤-28.16 | PASS |
| DH5 | Ant1 | High | Hop_2480 | -5.08 | -45.18 | ≤-25.08 | PASS |
| 2DH5 | Ant1 | Low | 2402 | -10.32 | -47.08 | ≤-30.32 | PASS |
| 2DH5 | Ant1 | High | 2480 | -5.59 | -46.8 | ≤-25.59 | PASS |
| 2DH5 | Ant1 | Low | Hop_2402 | -11.16 | -46.44 | ≤-31.16 | PASS |
| 2DH5 | Ant1 | High | Hop_2480 | -6.54 | -46.19 | ≤-26.54 | PASS |
| 3DH5 | Ant1 | Low | 2402 | -8.18 | -46.19 | ≤-28.18 | PASS |
| 3DH5 | Ant1 | High | 2480 | -6.14 | -46.88 | ≤-26.14 | PASS |
| 3DH5 | Ant1 | Low | Hop_2402 | -11.02 | -46.73 | ≤-31.02 | PASS |
| 3DH5 | Ant1 | High | Hop_2480 | -4.78 | -45.97 | ≤-24.78 | PASS |

## Test Graphs:

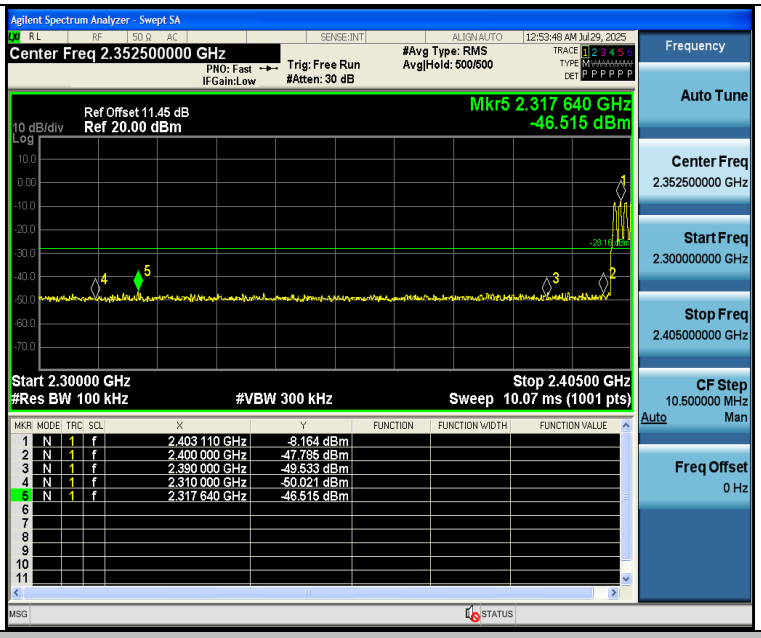
DH5-Ant1-2402-PASS



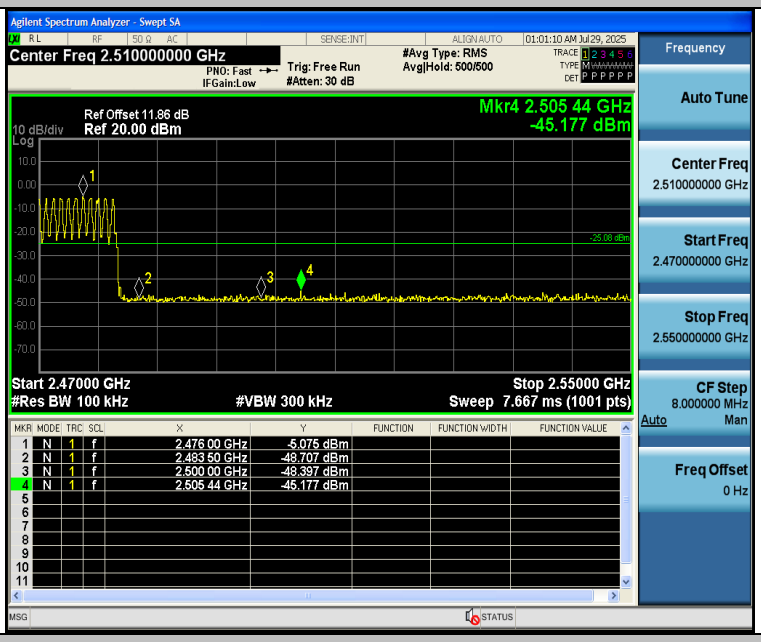

DH5-Ant1-2480-PASS



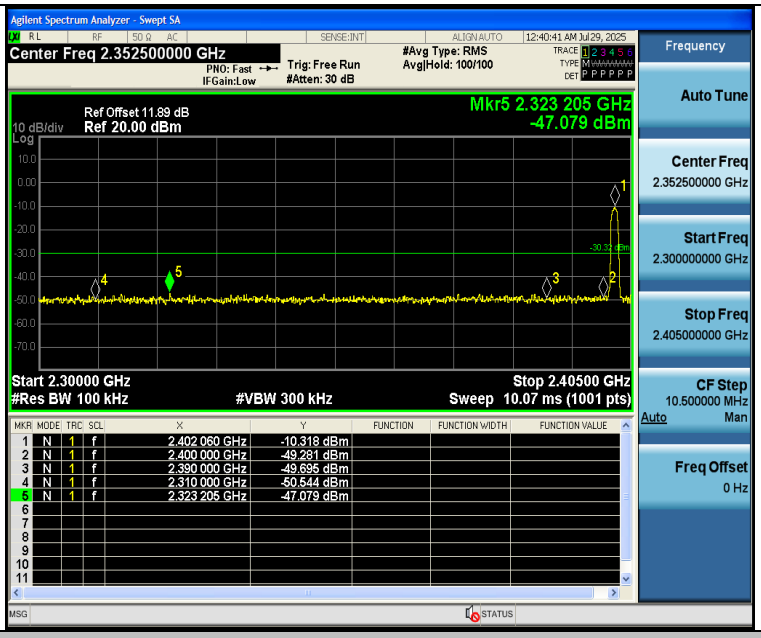

DH5-Ant1-Hop_2402-PASS



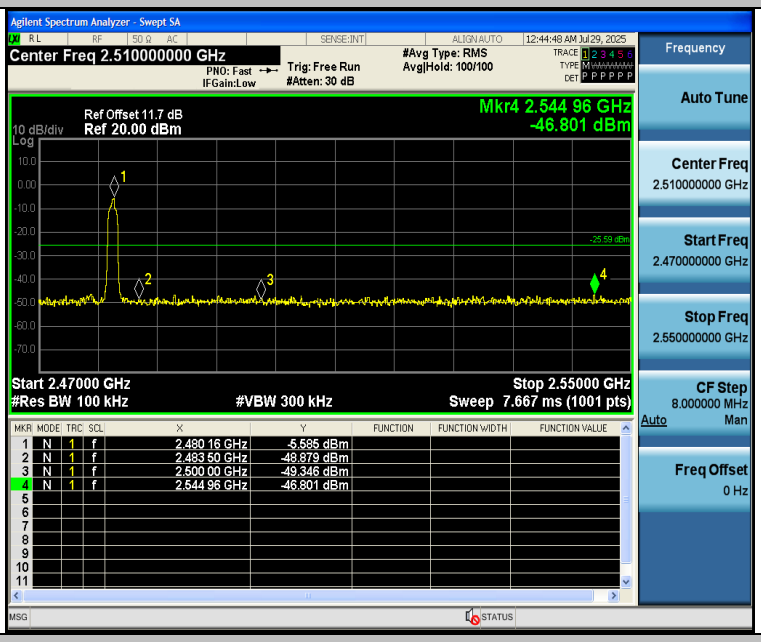

DH5-Ant1-Hop_2480-PASS



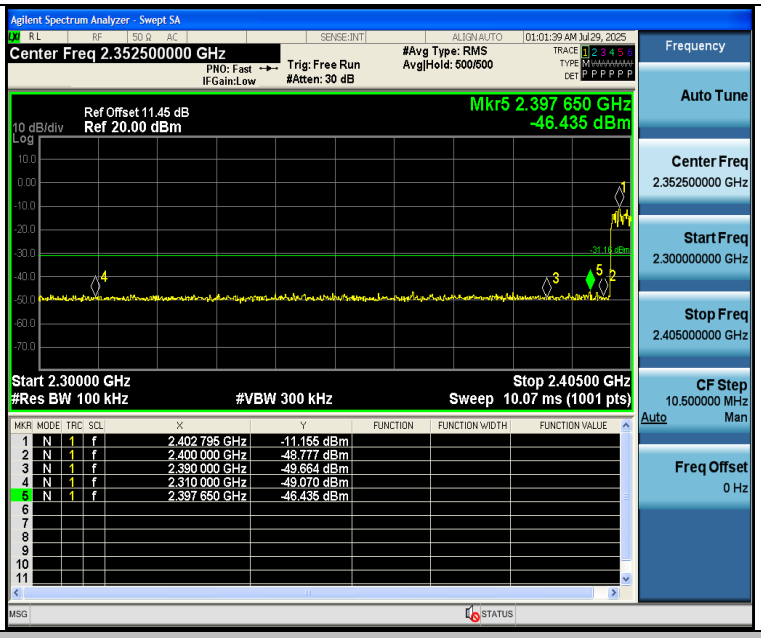

2DH5-Ant1-2402-PASS



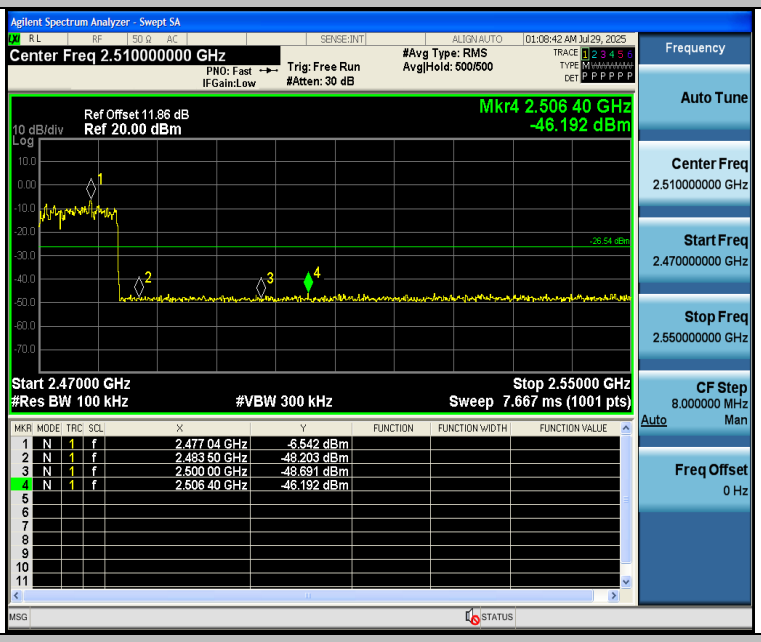

2DH5-Ant1-2480-PASS



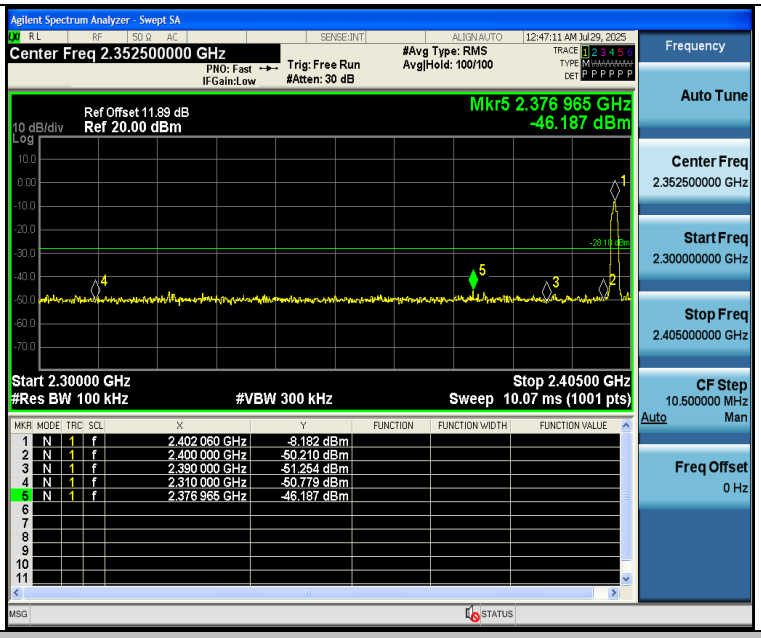

2DH5-Ant1-Hop_2402-PASS



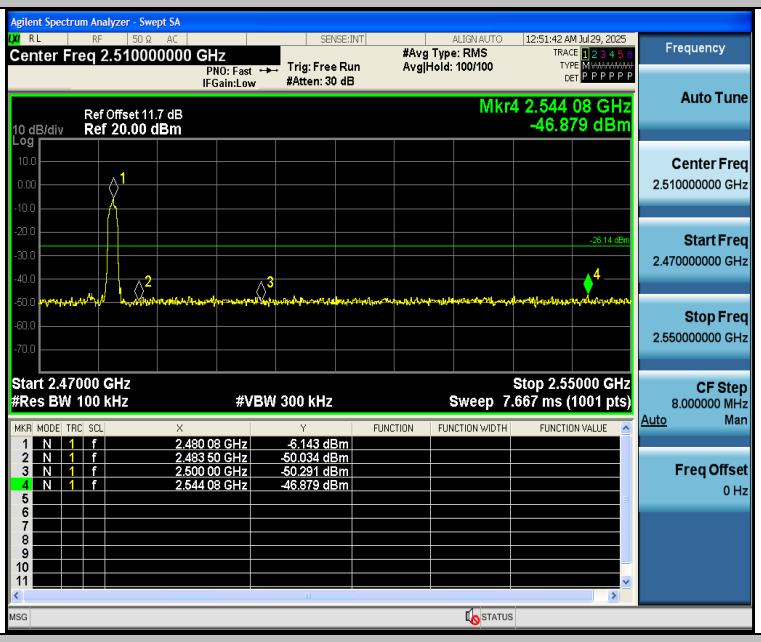

2DH5-Ant1-Hop_2480-PASS



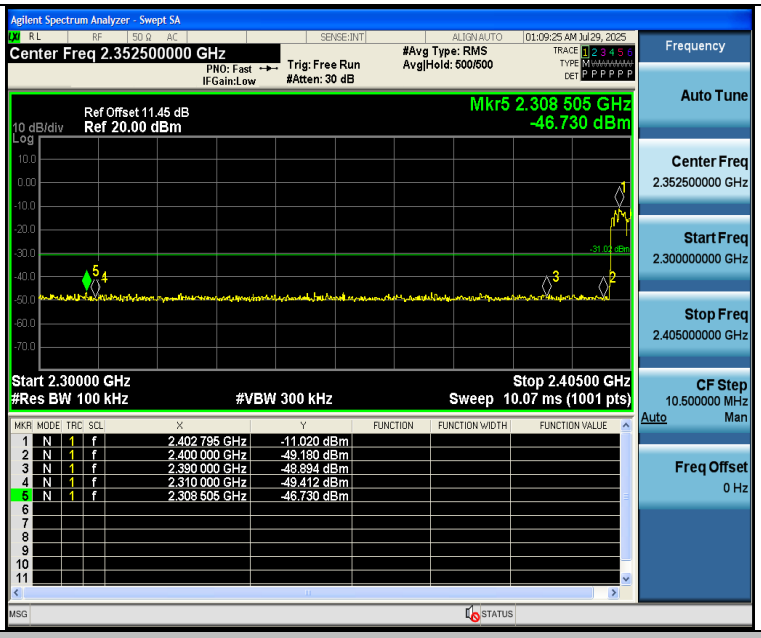

3DH5-Ant1-2402-PASS



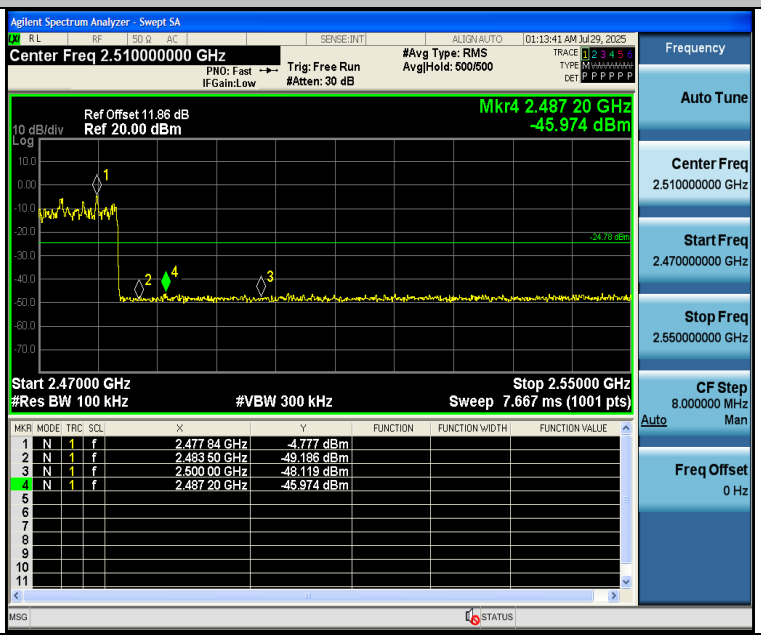

3DH5-Ant1-2480-PASS




3DH5-Ant1-Hop_2402-PASS




3DH5-Ant1-Hop_2480-PASS



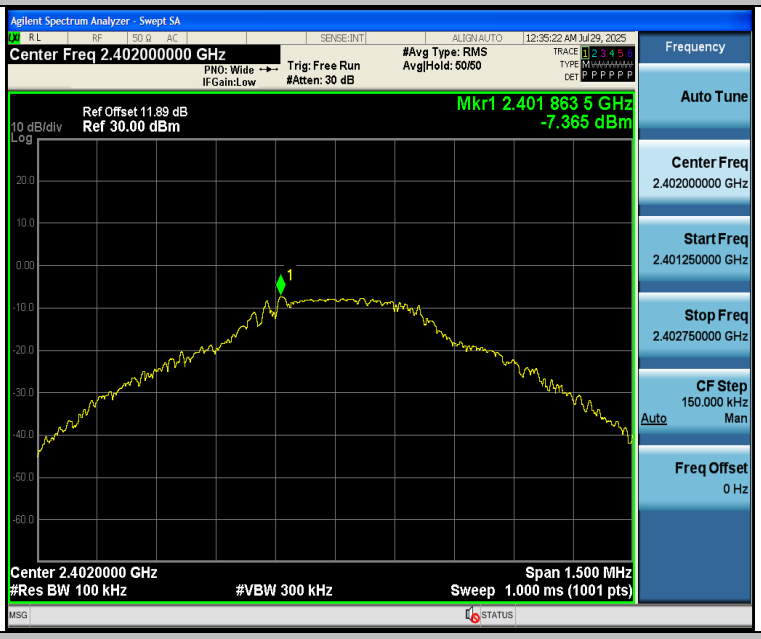
Conducted Emission Method

Test Result

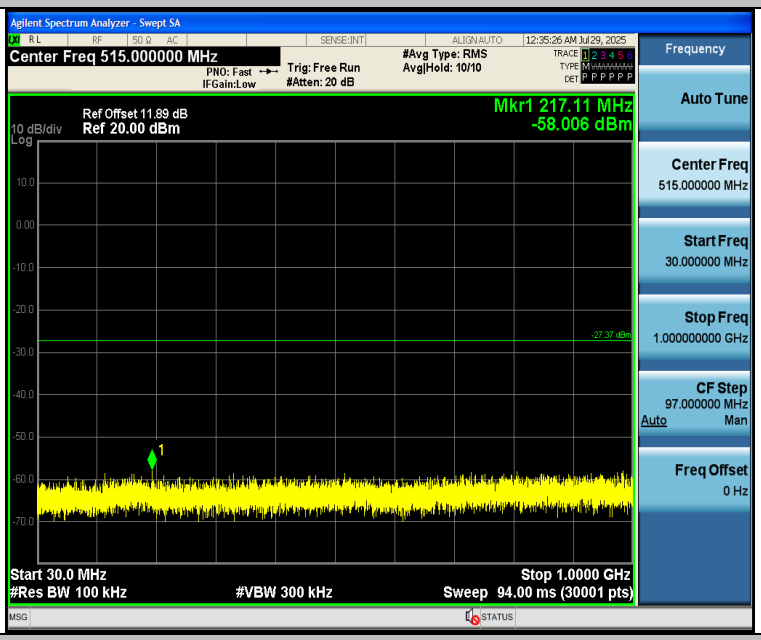
| TestMode | Antenna | Frequency[MHz] | FreqRange [MHz] | RefLevel [dBm] | Result [dBm] | Limit [dBm] | Verdict |
|---|---|---|---|---|---|---|---|
| DH5 | Ant1 | 2402 | 0~Reference | -7.37 | -7.37 | --- | PASS |
| DH5 | Ant1 | 2402 | 30~1000 | -7.37 | -58.01 | ≤-27.37 | PASS |
| DH5 | Ant1 | 2402 | 1000~26500 | -7.37 | -42.42 | ≤-27.37 | PASS |
| DH5 | Ant1 | 2441 | 0~Reference | -6.94 | -6.94 | --- | PASS |
| DH5 | Ant1 | 2441 | 30~1000 | -6.94 | -57.41 | ≤-26.94 | PASS |
| DH5 | Ant1 | 2441 | 1000~26500 | -6.94 | -41.91 | ≤-26.94 | PASS |
| DH5 | Ant1 | 2480 | 0~Reference | -5.67 | -5.67 | --- | PASS |
| DH5 | Ant1 | 2480 | 30~1000 | -5.67 | -57.51 | ≤-25.67 | PASS |
| DH5 | Ant1 | 2480 | 1000~26500 | -5.67 | -42.16 | ≤-25.67 | PASS |
| 2DH5 | Ant1 | 2402 | 0~Reference | -7.40 | -7.40 | --- | PASS |
| 2DH5 | Ant1 | 2402 | 30~1000 | -7.40 | -57.44 | ≤-27.4 | PASS |
| 2DH5 | Ant1 | 2402 | 1000~26500 | -7.40 | -41.38 | ≤-27.4 | PASS |
| 2DH5 | Ant1 | 2441 | 0~Reference | -6.84 | -6.84 | --- | PASS |
| 2DH5 | Ant1 | 2441 | 30~1000 | -6.84 | -57.67 | ≤-26.84 | PASS |
| 2DH5 | Ant1 | 2441 | 1000~26500 | -6.84 | -41.61 | ≤-26.84 | PASS |
| 2DH5 | Ant1 | 2480 | 0~Reference | -7.10 | -7.10 | --- | PASS |
| 2DH5 | Ant1 | 2480 | 30~1000 | -7.10 | -57.86 | ≤-27.1 | PASS |
| 2DH5 | Ant1 | 2480 | 1000~26500 | -7.10 | -42.38 | ≤-27.1 | PASS |
| 3DH5 | Ant1 | 2402 | 0~Reference | -9.66 | -9.66 | --- | PASS |
| 3DH5 | Ant1 | 2402 | 30~1000 | -9.66 | -56.37 | ≤-29.66 | PASS |
| 3DH5 | Ant1 | 2402 | 1000~26500 | -9.66 | -42.13 | ≤-29.66 | PASS |
| 3DH5 | Ant1 | 2441 | 0~Reference | -6.43 | -6.43 | --- | PASS |
| 3DH5 | Ant1 | 2441 | 30~1000 | -6.43 | -57.45 | ≤-26.43 | PASS |
| 3DH5 | Ant1 | 2441 | 1000~26500 | -6.43 | -41.45 | ≤-26.43 | PASS |
| 3DH5 | Ant1 | 2480 | 0~Reference | -8.44 | -8.44 | --- | PASS |
| 3DH5 | Ant1 | 2480 | 30~1000 | -8.44 | -57.81 | ≤-28.44 | PASS |
| 3DH5 | Ant1 | 2480 | 1000~26500 | -8.44 | -42.17 | ≤-28.44 | PASS |

Test Graphs:

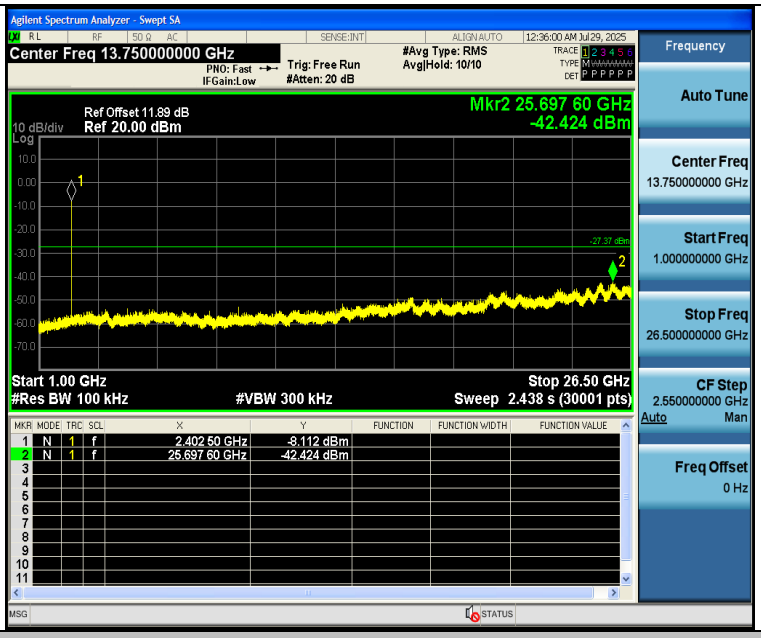
DH5-Ant1-2402-0~Reference-PASS




DH5-Ant1-2402-30~1000-PASS

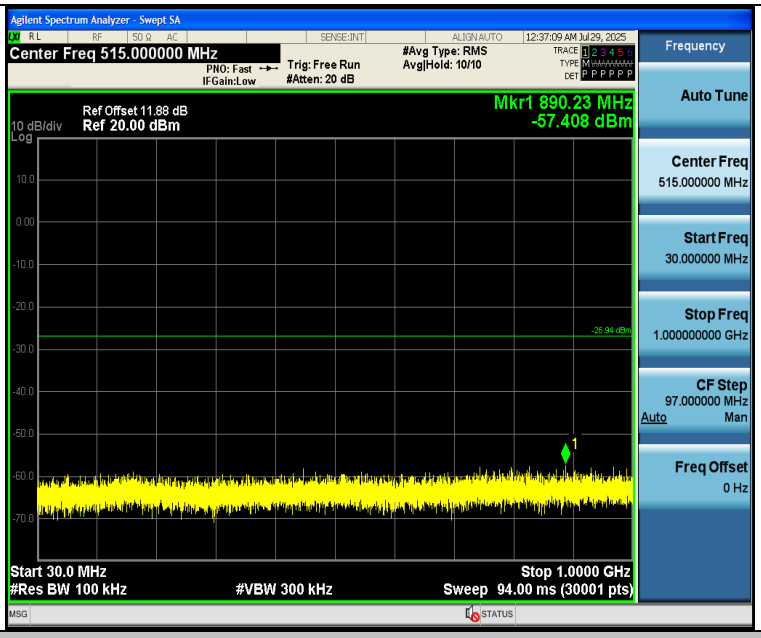



DH5-Ant1-2402-1000~26500-PASS

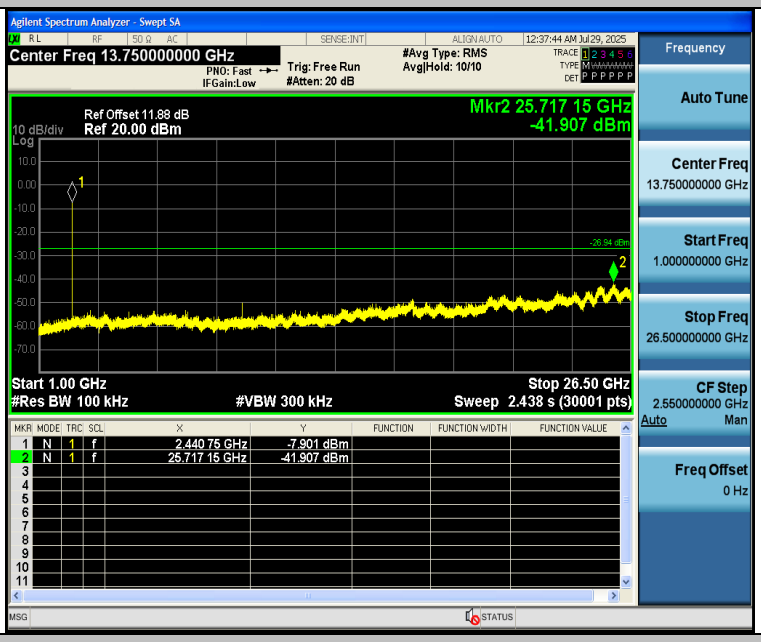



DH5-Ant1-2441-0~Reference-PASS

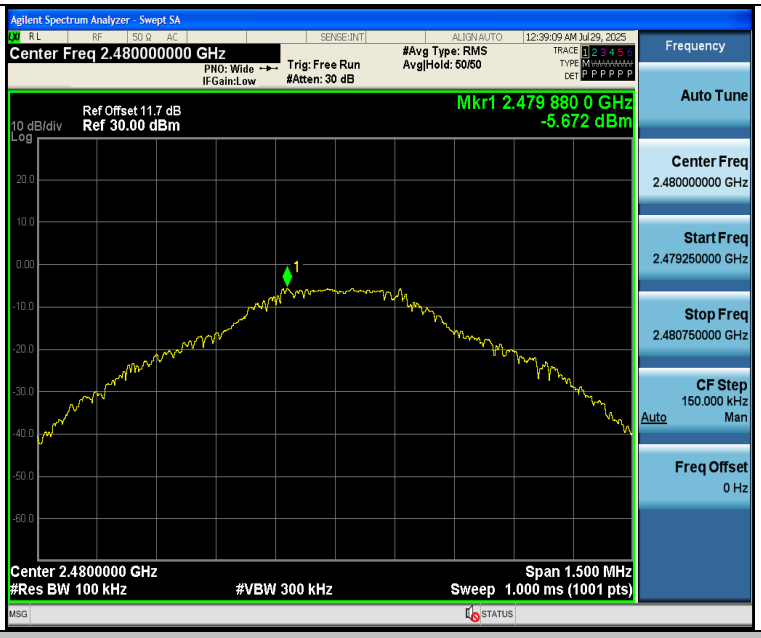
DH5-Ant1-2441-30~1000-PASS



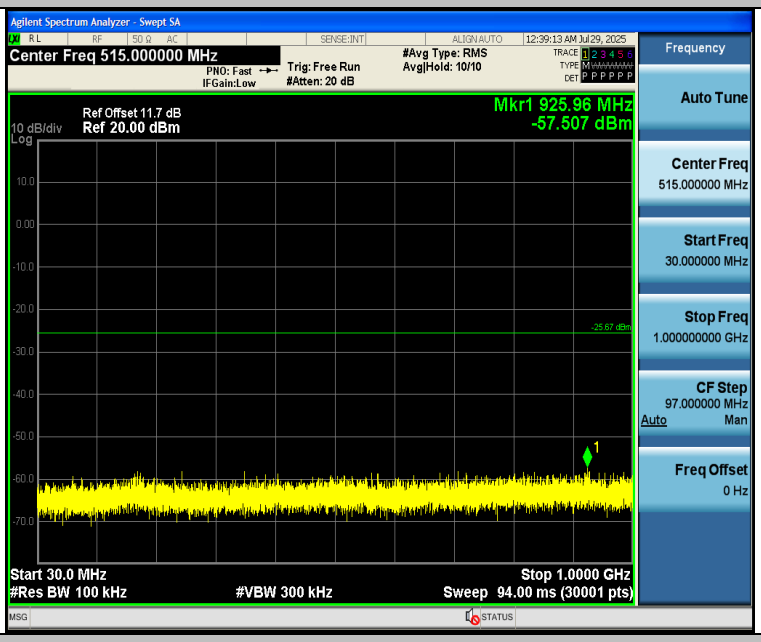

DH5-Ant1-2441-1000~26500-PASS



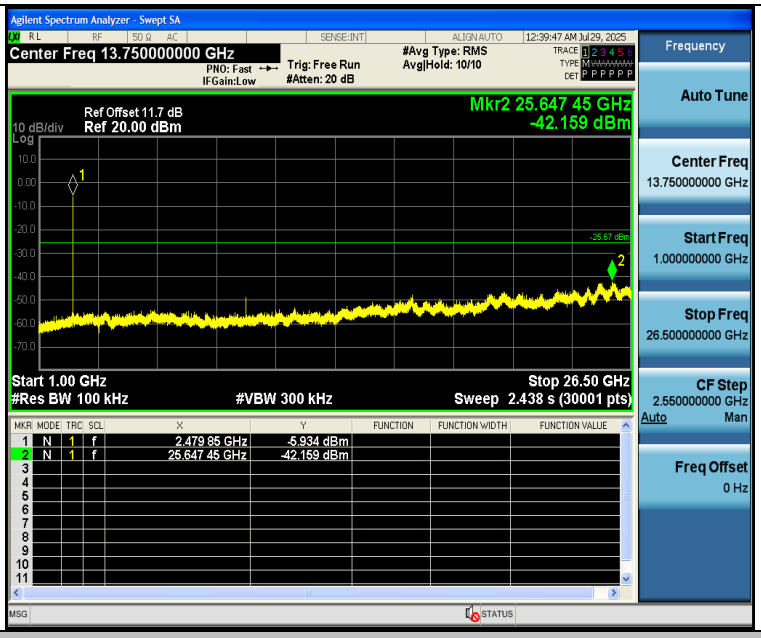

DH5-Ant1-2480-0~Reference-PASS



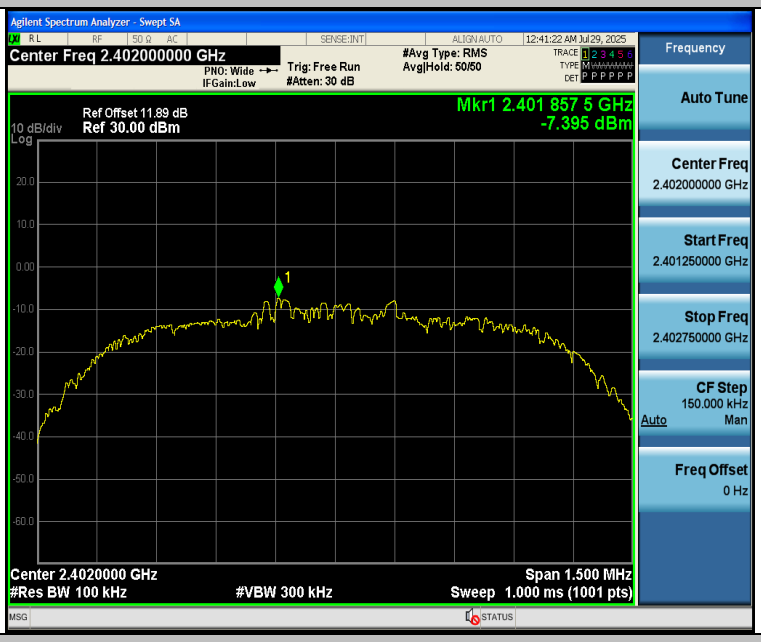

DH5-Ant1-2480-30~1000-PASS



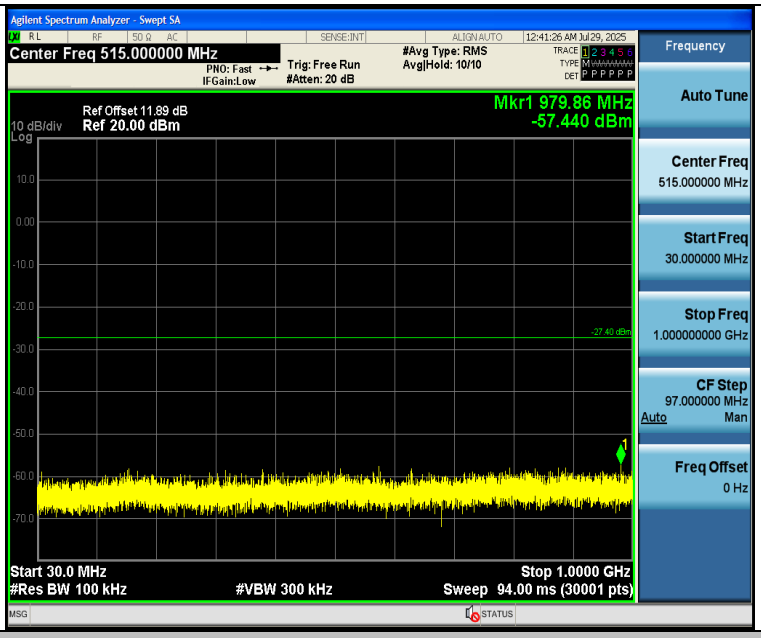

DH5-Ant1-2480-1000~26500-PASS



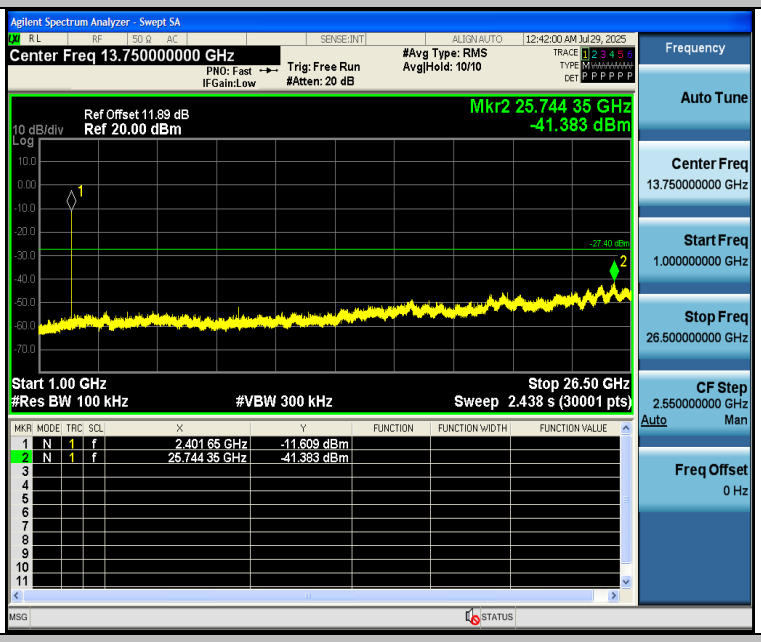

2DH5-Ant1-2402-0~Reference-PASS




2DH5-Ant1-2402-30~1000-PASS

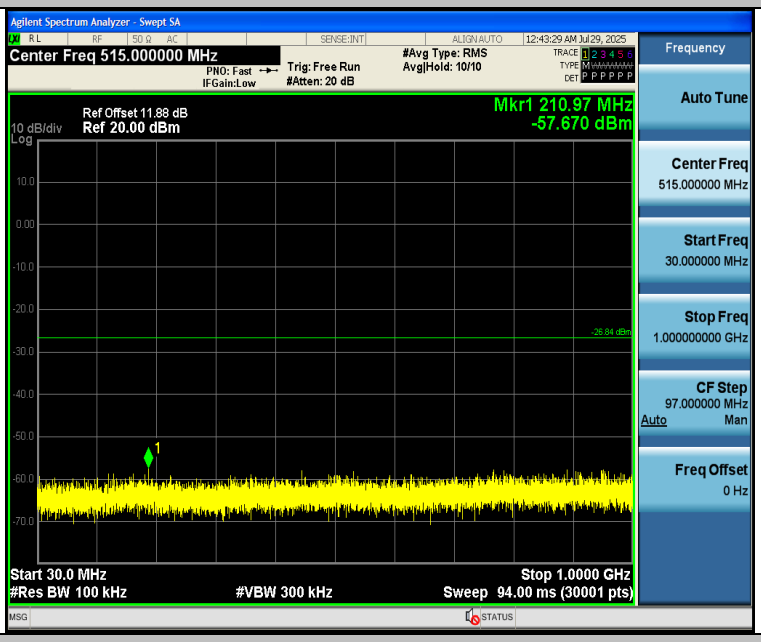



2DH5-Ant1-2402-1000~26500-PASS

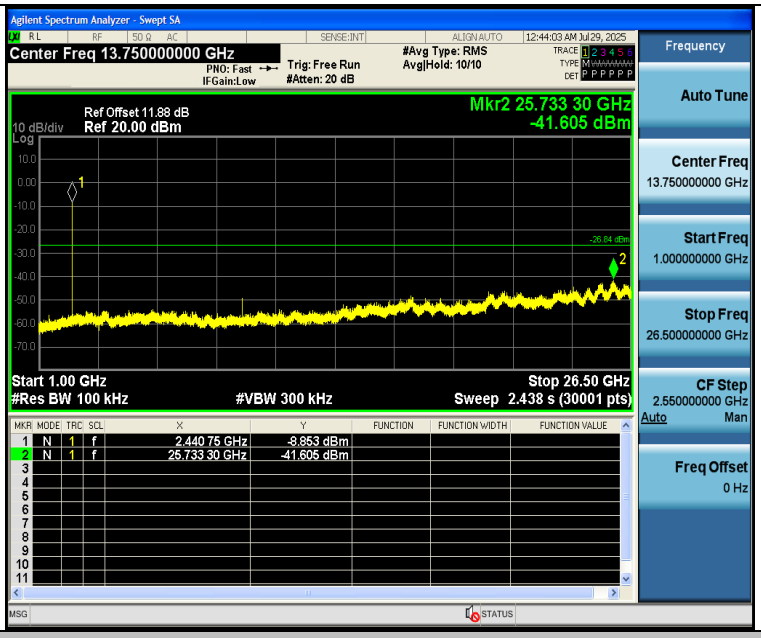



2DH5-Ant1-2441-0~Reference-PASS

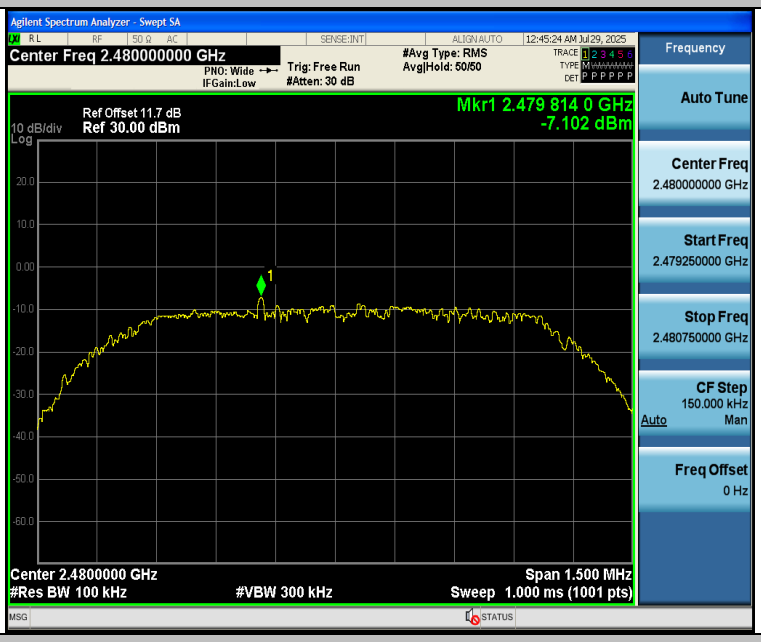
2DH5-Ant1-2441-30~1000-PASS



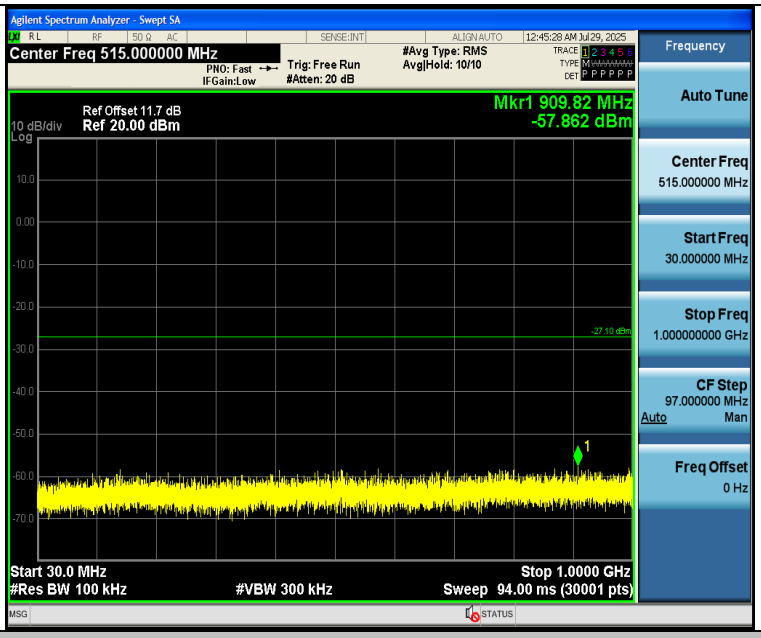

2DH5-Ant1-2441-1000~26500-PASS



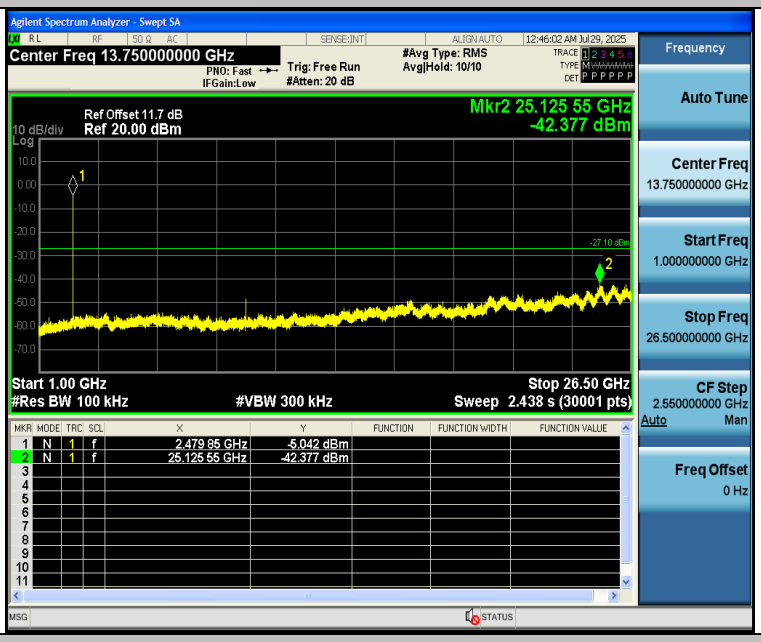

2DH5-Ant1-2480-0~Reference-PASS



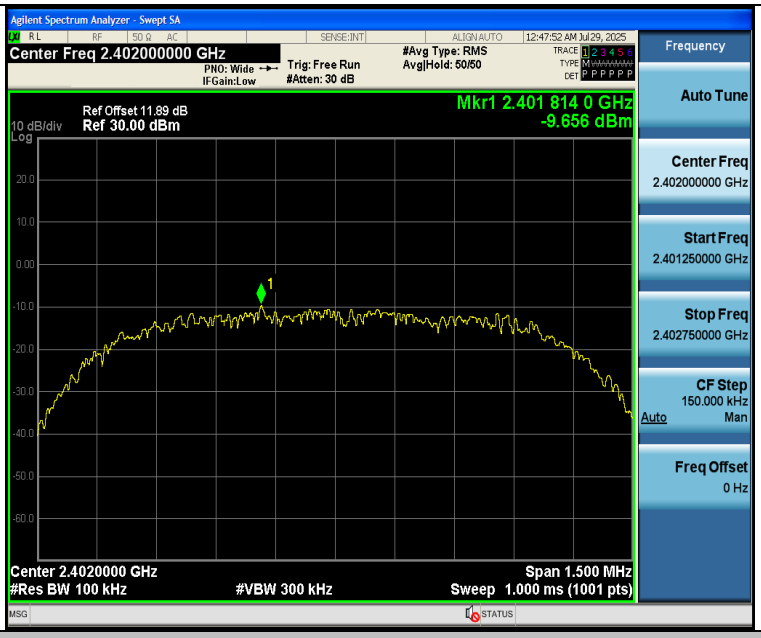

2DH5-Ant1-2480-30~1000-PASS



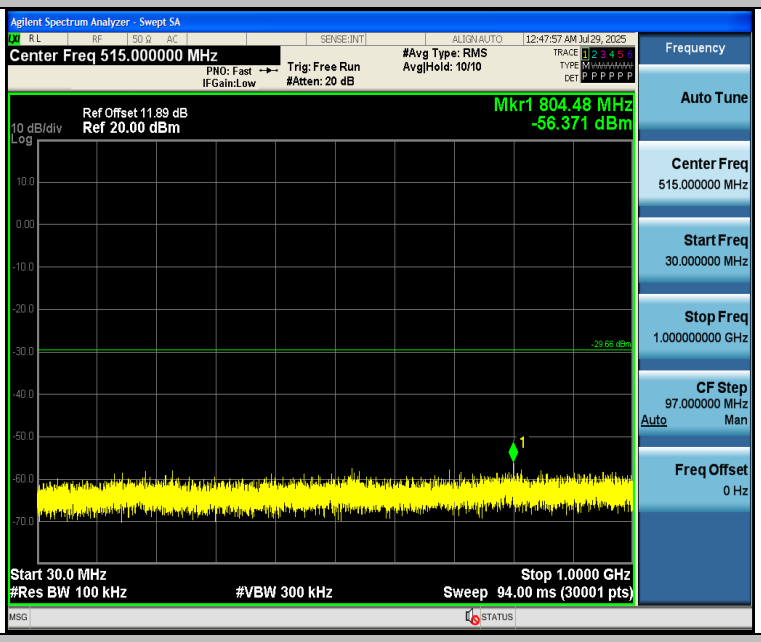

2DH5-Ant1-2480-1000~26500-PASS



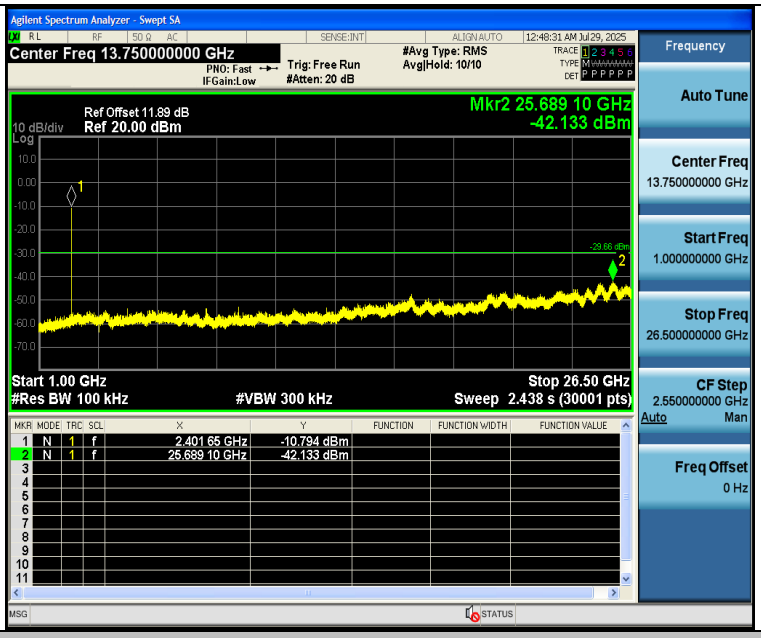

3DH5-Ant1-2402-0~Reference-PASS



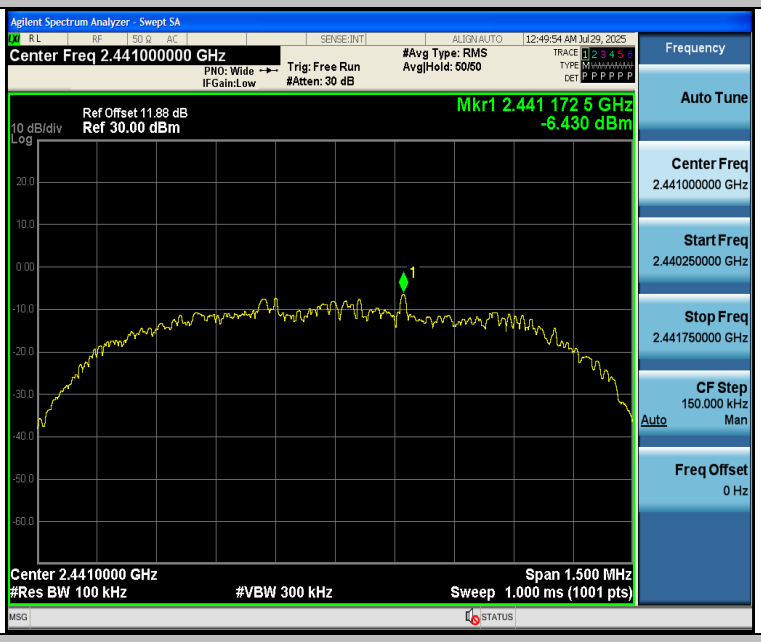

3DH5-Ant1-2402-30~1000-PASS



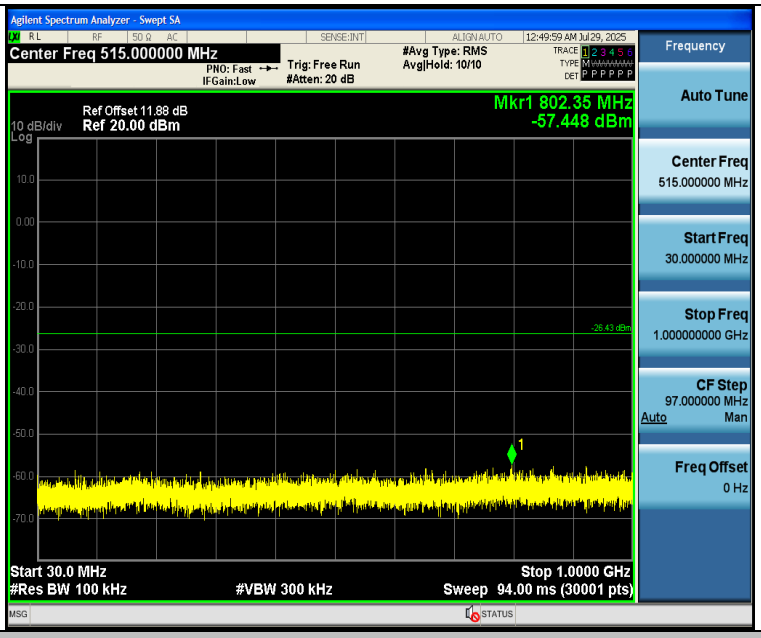

3DH5-Ant1-2402-1000~26500-PASS



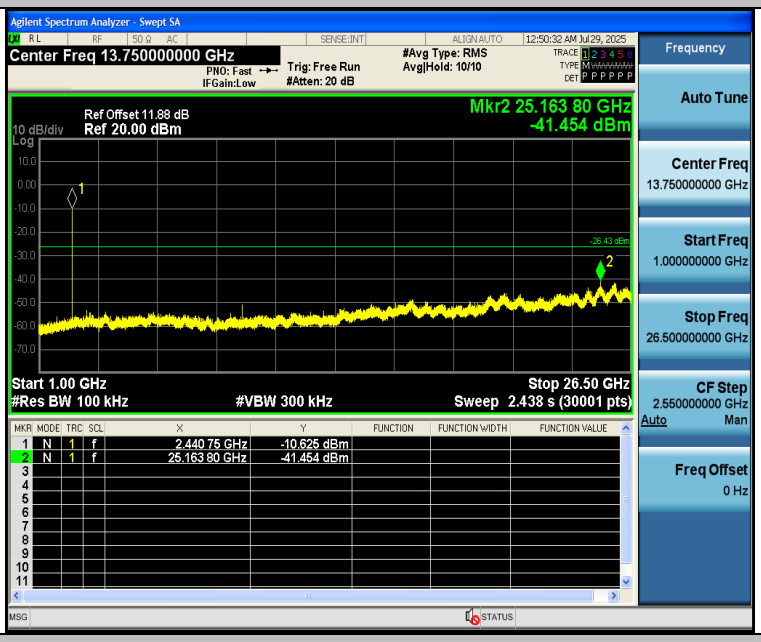

3DH5-Ant1-2441-0~Reference-PASS




3DH5-Ant1-2441-30~1000-PASS

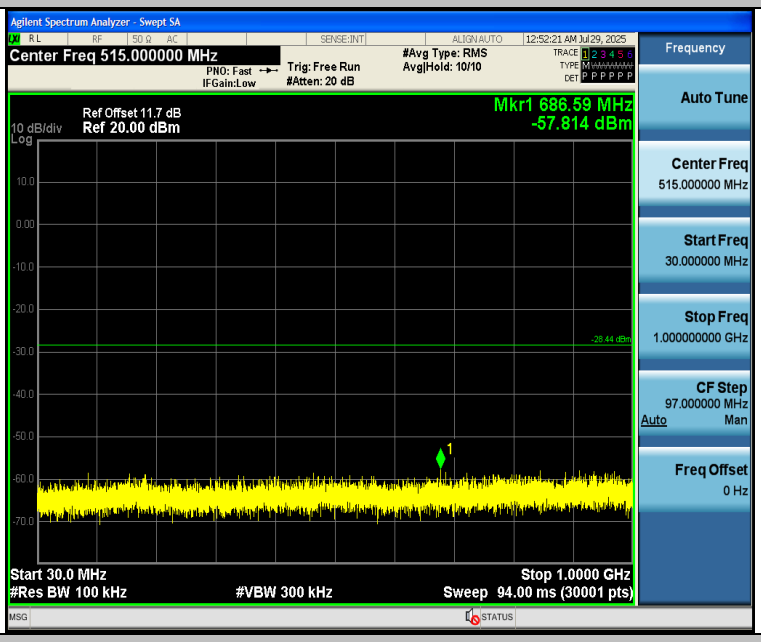



3DH5-Ant1-2441-1000~26500-PASS

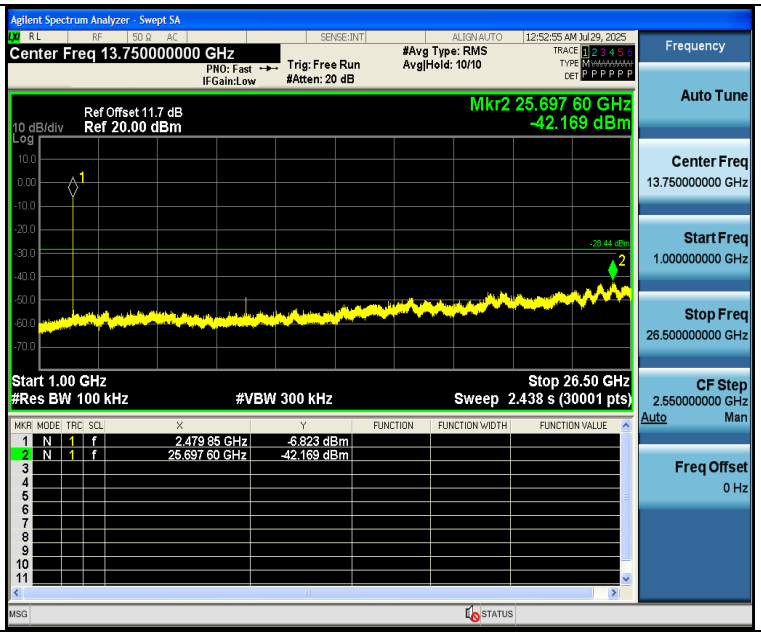



3DH5-Ant1-2480-0~Reference-PASS

3DH5-Ant1-2480-30~1000-PASS




3DH5-Ant1-2480-1000~26500-PASS


Agilent 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
12:52:55 AM Jul 29, 2025
Ref Offset 11.7 dB
10 dB/div
Ref 20.00 dBm
Log
Mkr2 25.697 60 GHz
-42.169 dBm
-28.44 dBm
Start 1.00 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 26.50 GHz
Sweep 2.438 s (30001 pts)
MKR MODE TRC SCL X Y FUNCTION FUNCTION WIDTH FUNCTION VALUE
1 N 1 f 2.479 85 GHz -6.823 dBm
2 N 1 f 25.697 60 GHz -42.169 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
MSG
STATUS

# 14 Antenna Requirement

## 14.1 Test Standard and Requirement

| | |
|---|---|
| Test Standard | FCC Part15 Section 15.203 /247(c) |
| Requirement | 1) 15.203 requirement:<br><br>An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.<br><br>2) 15.247(c) (1)(i) requirement:<br><br>Systems operating in the 2400-2483.5 MHz band that is used exclusively for fixed. Point-to-point operations may employ transmitting antennas with directional gain greater than 6dBi provided the maximum conducted output power of the intentional radiator is reduced by 1 dB for every 3 dB that the directional gain of the antenna exceeds 6 dBi. |

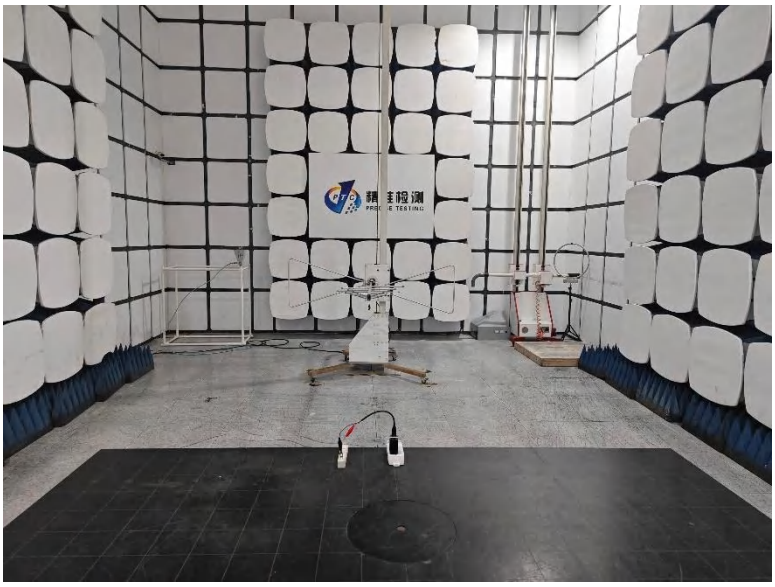
## 14.2 Antenna Connected Construction

The antenna is PCB Antenna which permanently attached, and the best case gain of the antenna is -0.47 dBi. It complies with the standard requirement.

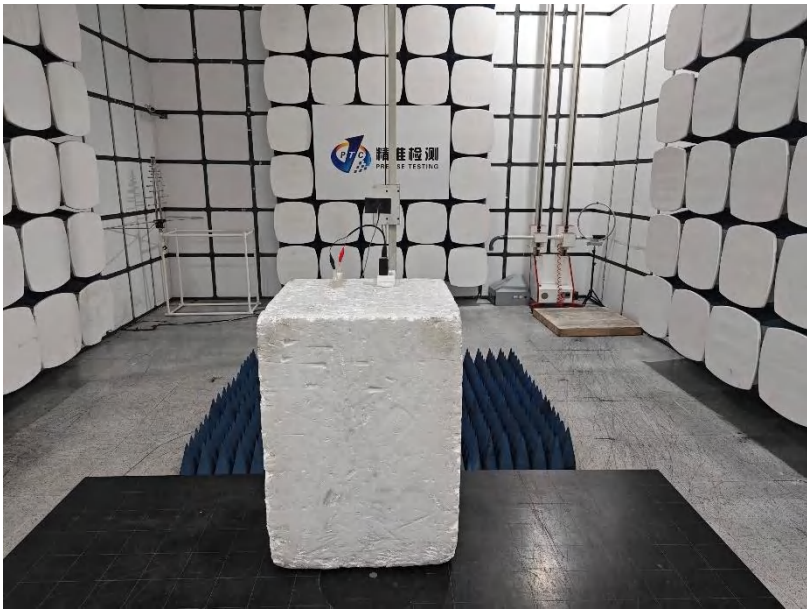
# 15 APPENDIX I -- TEST SETUP PHOTOGRAPH

Conducted Emissions

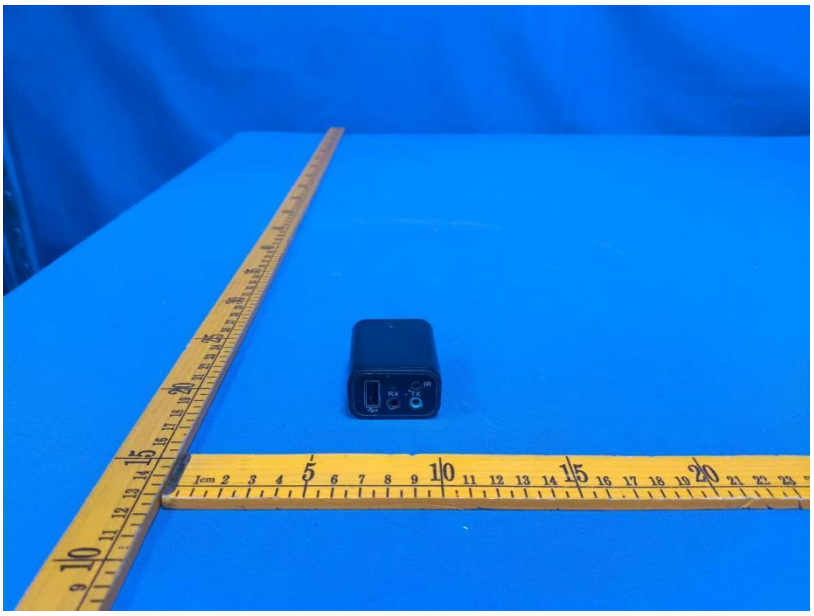
Radiated Emissions
From 30M-1GHz

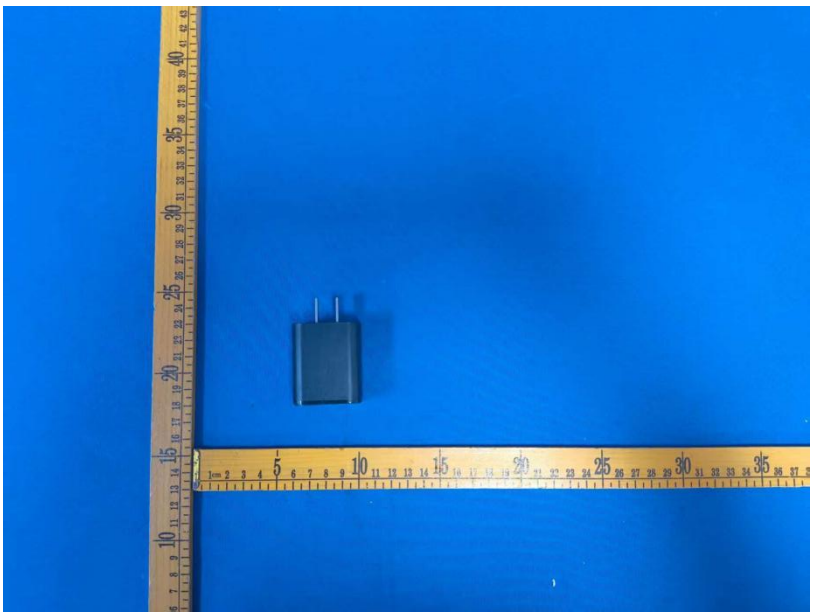


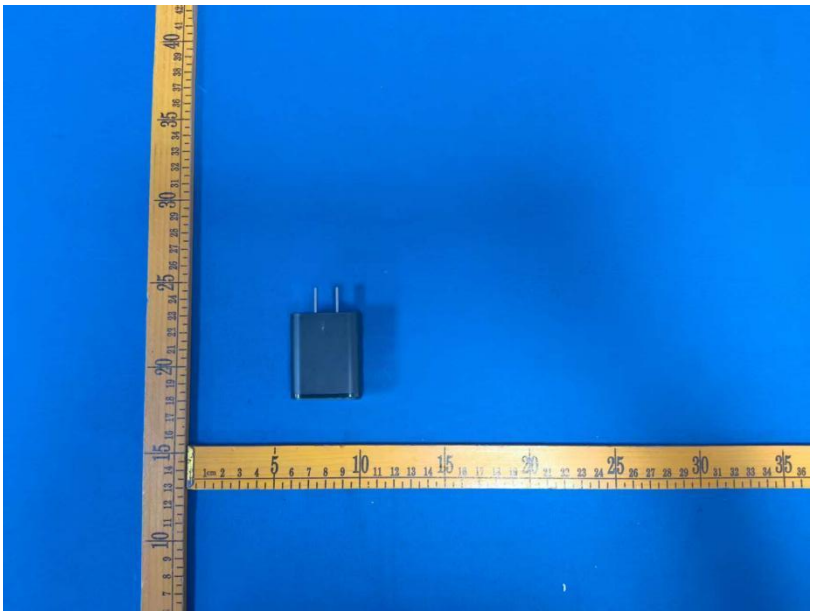
Above 1GHz

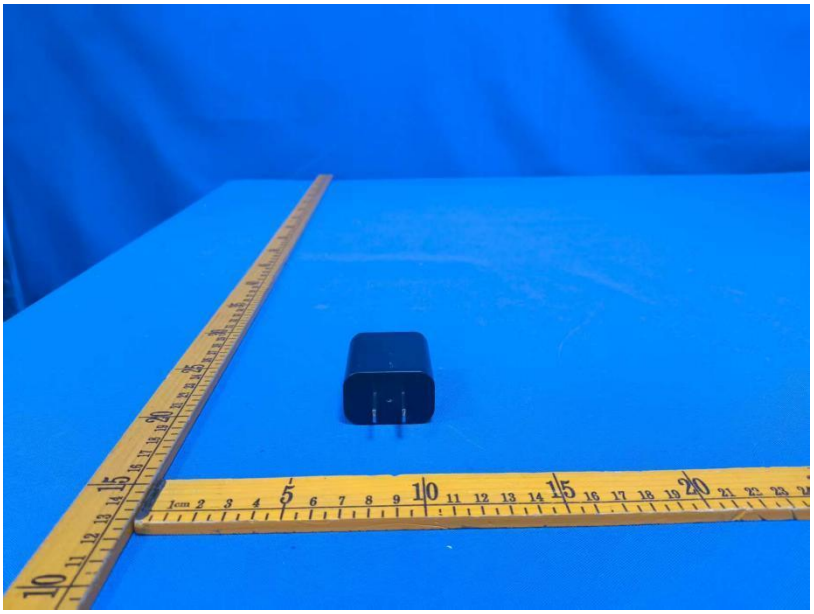


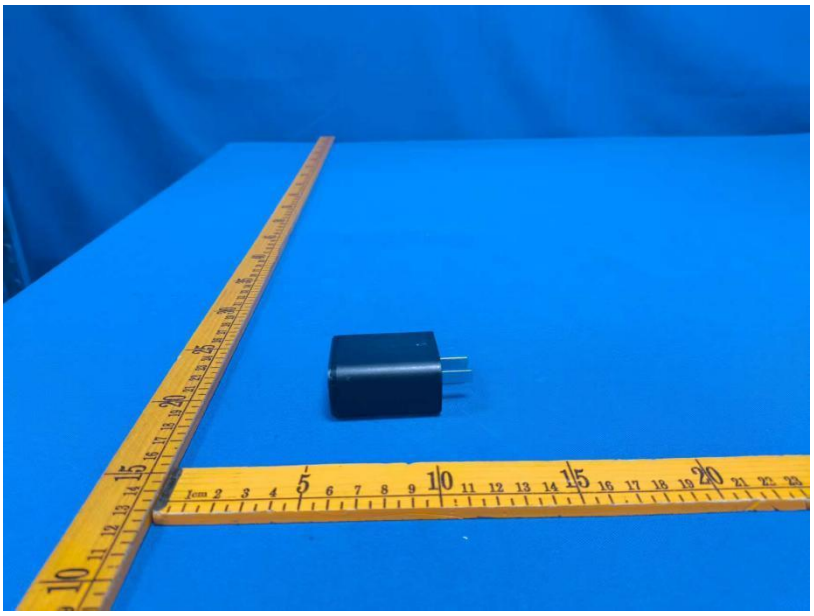
# 16 APPENDIX II -- EUT PHOTOGRAPH

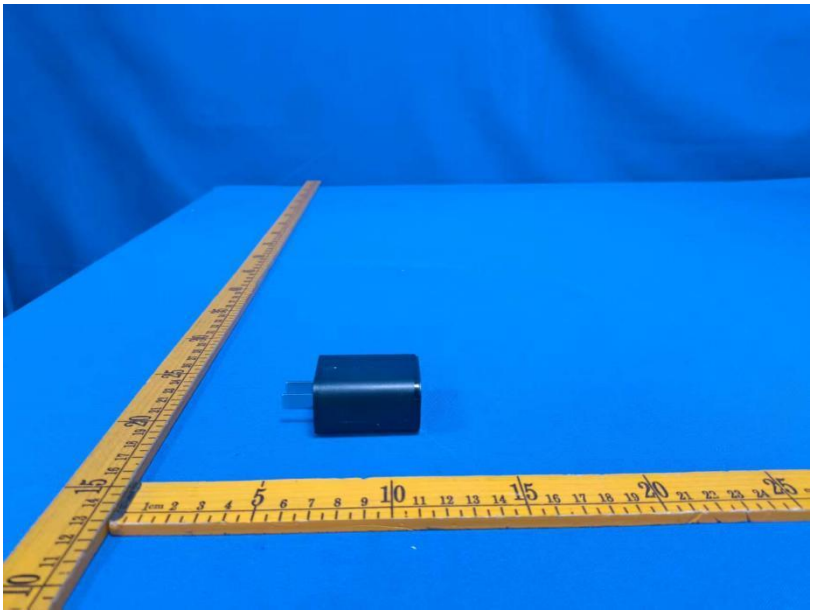


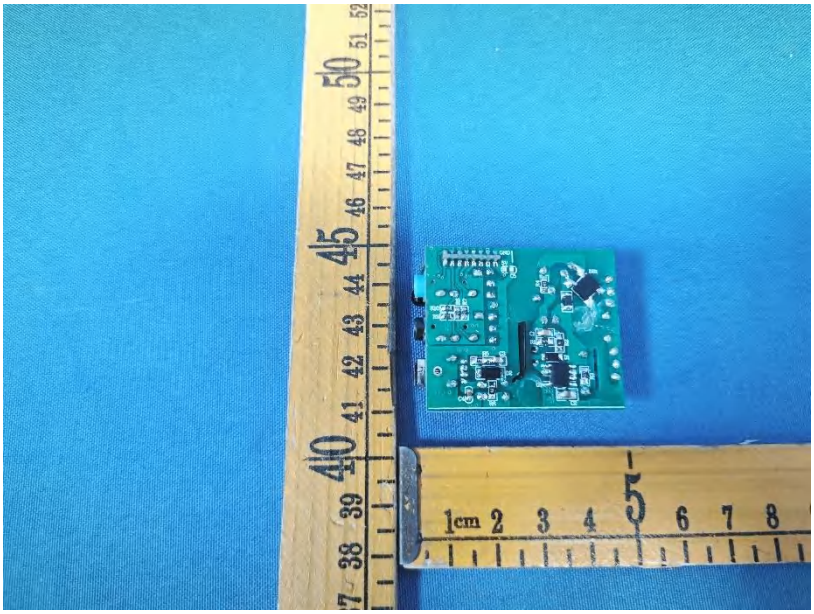


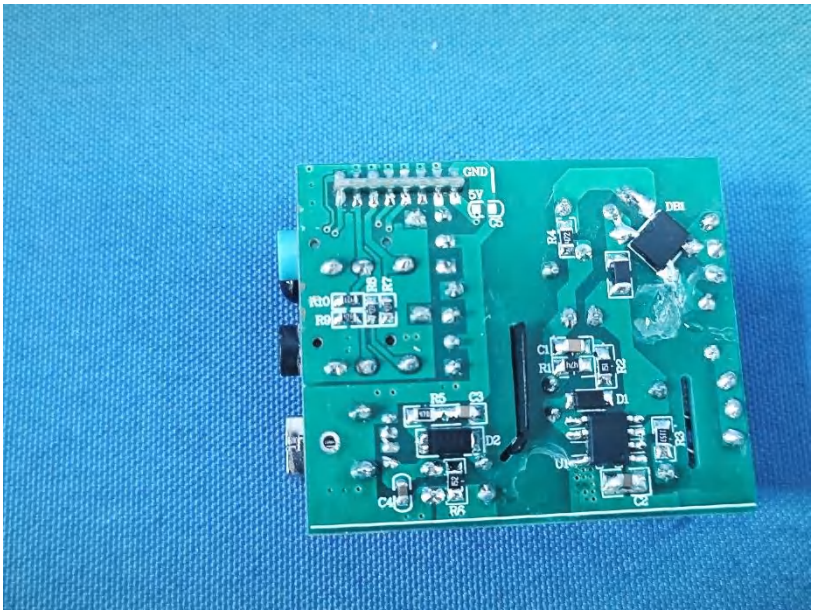


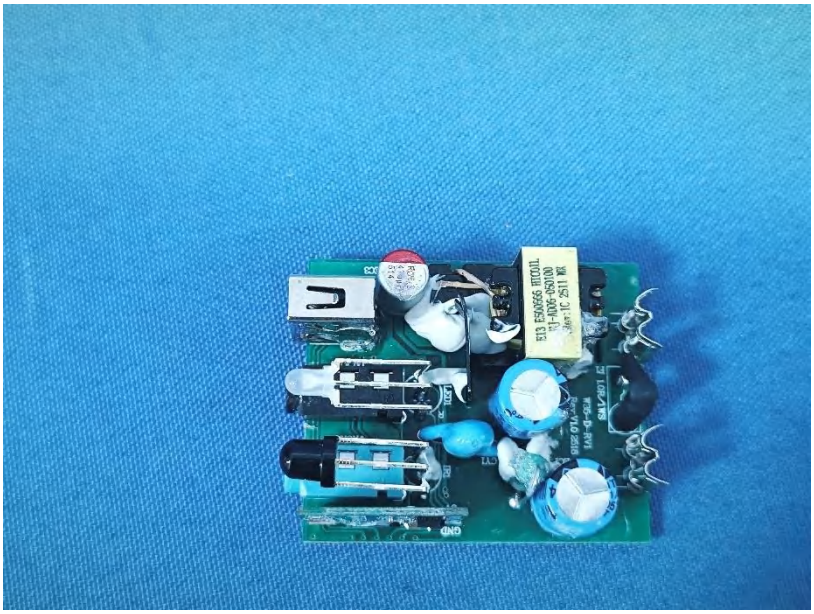


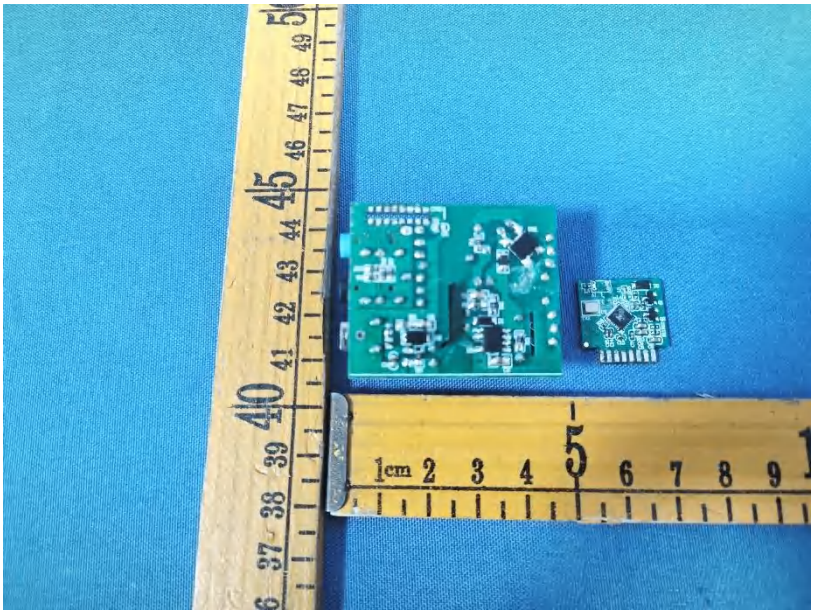


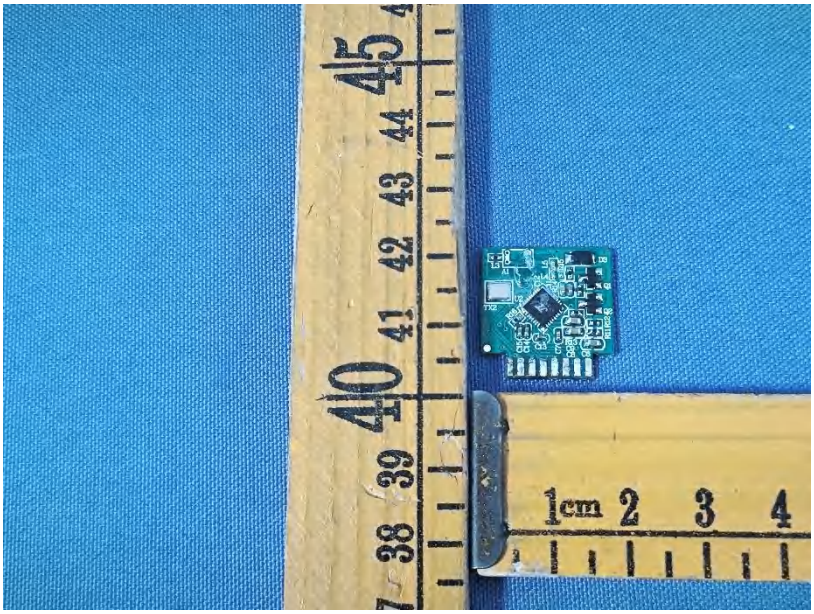


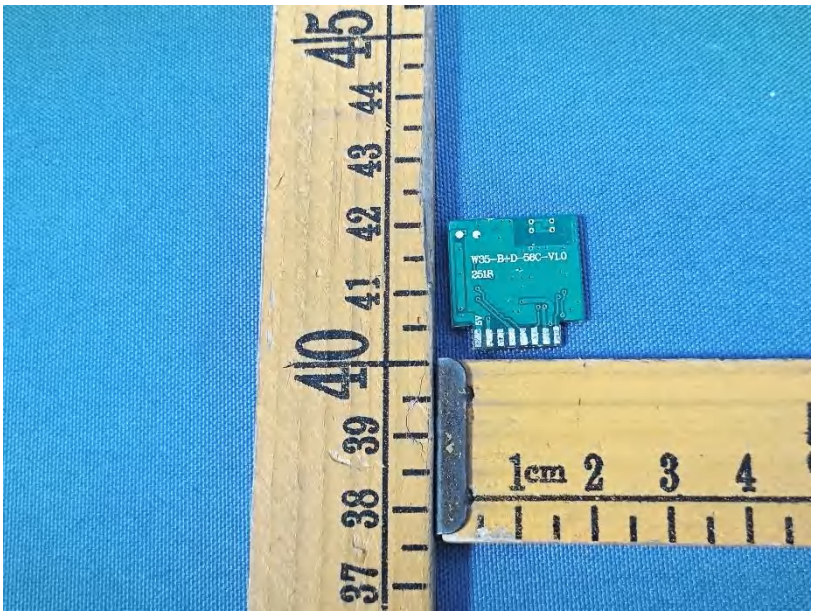


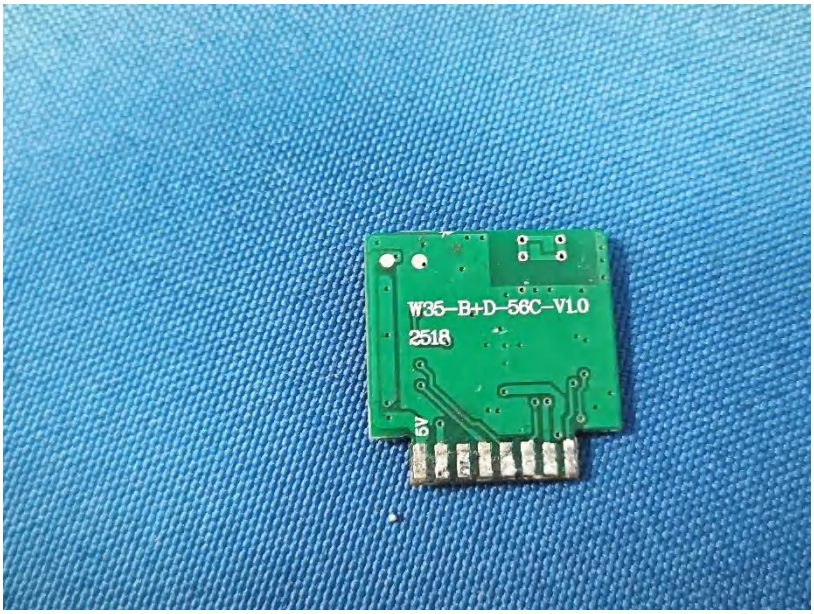

GND
5V
C6
R4
DB1
R2
R7
R10
R9
C1
R1
R3
D1
R5
C3
D2
U1
C4
R6
C2

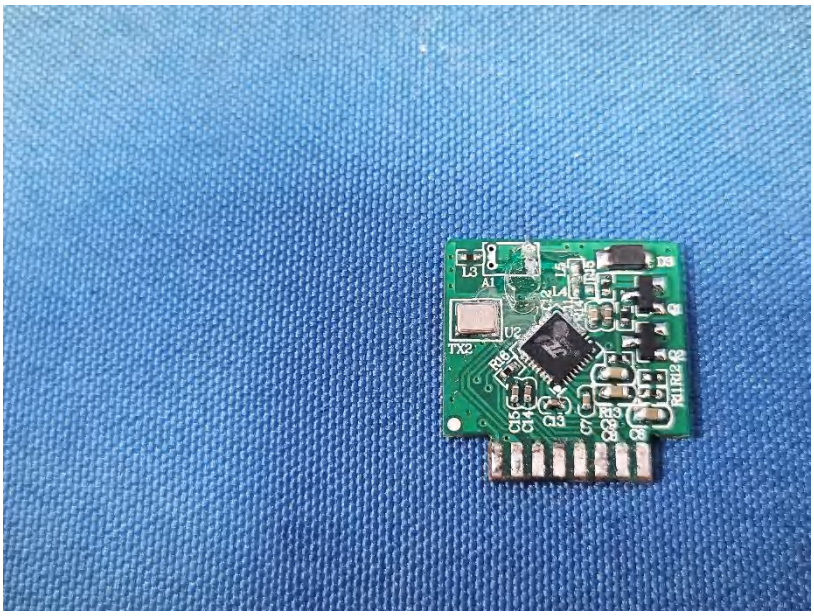

GND
R8
C1
U2
C3
WCS-D-RV1
Ver:V1.0 2025
SAV-1601
E13 E50066 HTC01L
V1-0206-050100
Ver: V1.0 2511 MR

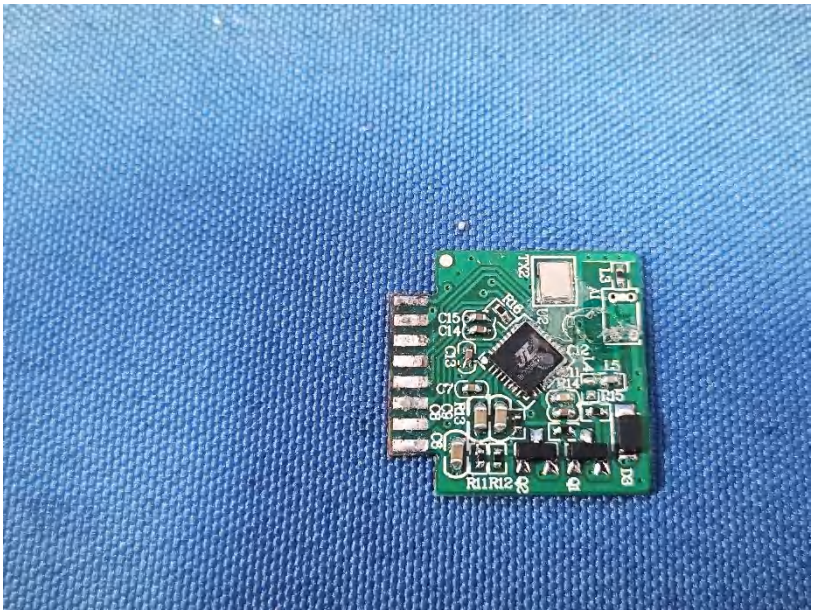

1cm 2 3 4 5 6 7 8 9
37 38 39 40 41 42 43 44 45 46 47 48 49


1cm 2 3 4
38 39 40 41 42 43 44 45


W35-B+D-56C-V1.0
2518
1cm 2 3 4


W35-B+D-56C-V1.0
2518
5V





********THE END REPORT********