



# TEST REPORT

Applicant: Shenzhen Guan Ersheng Electronics Co., LTD.  
Address of Applicant: Building 301, No. 355 Zhangge Road, Zhangge Community, Fucheng Street, Longhua New District, Shenzhen  
Manufacturer/Factory: Shenzhen Guan Ersheng Electronics Co., LTD.  
Address of Manufacturer/Factory: Building 301, No. 355 Zhangge Road, Zhangge Community, Fucheng Street, Longhua New District, Shenzhen  
Product Name: Bluetooth Headset  
Model No.: YX46  
Trade Mark: N/A  
FCC ID: 2BF2R-YX46  
Applicable standards: FCC CFR Title 47 Part 15 Subpart C Section 15.247  
Date of Test: Jan.06, 2025-Feb.27, 2025  
Date of report issued: Feb.28, 2025

Remark:

The results shown in this test report refer only to the sample(s) tested , this test report cannot be reproduced, except in full without prior written permission of the company.

The report would be invalid without specific stamp of test institute and the signatures of compiler and approver

## Prepared By

Shenzhen ETR Standard Technology Co., Ltd.

Address: No.103, No.10, Phase I, Zone 3, Xinxing Industrial Park, Xinhe, Fuhai Street, Bao'an District, Shenzhen, Guangdong, China

Compiled by:

Reviewed by:

Approved by:

Project Engineer

Project Manager

Authorized Signature



### Report Revision History

| Report No.   | Description | Issue Date   |
|--------------|-------------|--------------|
| ET-25010044E | Original    | Feb.28, 2025 |
|              |             |              |

# Contents

Page

|          |                                                |           |
|----------|------------------------------------------------|-----------|
| <b>1</b> | <b>TEST SUMMARY .....</b>                      | <b>4</b>  |
| <b>2</b> | <b>GENERAL INFORMATION .....</b>               | <b>5</b>  |
| 2.1      | GENERAL DESCRIPTION OF EUT .....               | 5         |
| 2.2      | TEST MODE .....                                | 7         |
| 2.3      | DESCRIPTION OF SUPPORT UNITS .....             | 7         |
| 2.4      | DEVIATION FROM STANDARDS .....                 | 7         |
| 2.5      | ABNORMALITIES FROM STANDARD CONDITIONS .....   | 7         |
| 2.6      | TEST FACILITY .....                            | 7         |
| 2.7      | TEST LOCATION .....                            | 7         |
| 2.8      | ADDITIONAL INSTRUCTIONS .....                  | 7         |
| <b>3</b> | <b>TEST INSTRUMENTS LIST .....</b>             | <b>8</b>  |
| <b>4</b> | <b>TEST RESULTS AND MEASUREMENT DATA .....</b> | <b>9</b>  |
| 4.1      | ANTENNA REQUIREMENT .....                      | 9         |
| 4.2      | CONDUCTED EMISSIONS .....                      | 10        |
| 4.3      | CONDUCTED PEAK OUTPUT POWER .....              | 13        |
| 4.4      | 20dB EMISSION BANDWIDTH .....                  | 14        |
| 4.5      | CARRIER FREQUENCIES SEPARATION .....           | 19        |
| 4.6      | HOPPING CHANNEL NUMBER .....                   | 24        |
| 4.7      | DWELL TIME .....                               | 27        |
| 4.8      | BAND EDGE .....                                | 33        |
| 4.8.1    | Conducted Emission Method .....                | 33        |
| 4.8.2    | Radiated Emission Method .....                 | 40        |
| 4.9      | SPURIOUS EMISSION .....                        | 43        |
| 4.9.1    | Conducted Emission Method .....                | 43        |
| 4.9.2    | Radiated Emission Method .....                 | 48        |
| <b>5</b> | <b>TEST SETUP PHOTO .....</b>                  | <b>61</b> |
| <b>6</b> | <b>EUT CONSTRUCTIONAL DETAILS .....</b>        | <b>61</b> |

## 1 Test Summary

| Test Item                        | Section in CFR 47  | Result | Test by   |
|----------------------------------|--------------------|--------|-----------|
| Antenna Requirement              | 15.203/15.247 (c)  | Pass   | /         |
| AC Power Line Conducted Emission | 15.207             | Pass   | Carr Kang |
| Conducted Peak Output Power      | 15.247 (b)(1)      | Pass   | Yvan Fan  |
| 20dB Occupied Bandwidth          | 15.247 (a)(1)      | Pass   | Yvan Fan  |
| Carrier Frequencies Separation   | 15.247 (a)(1)      | Pass   | Yvan Fan  |
| Hopping Channel Number           | 15.247 (a)(1)(iii) | Pass   | Yvan Fan  |
| Dwell Time                       | 15.247 (a)(1)(iii) | Pass   | Yvan Fan  |
| Radiated Emission                | 15.205/15.209      | Pass   | Carr Kang |
| Band Edge                        | 15.247(d)          | Pass   | Yvan Fan  |

Remarks:

1. Pass: The EUT complies with the essential requirements in the standard.
2. Test according to ANSI C63.10:2013

### Measurement Uncertainty

| Test Item                         | Uncertainty Criterion | Measurement Uncertainty | Notes |
|-----------------------------------|-----------------------|-------------------------|-------|
| Occupied Channel Bandwidth        | ±5%                   | ±0.55%                  | (1)   |
| RF output power, conducted        | ±1.5dB                | ±0.99dB                 | (1)   |
| Dwell Time                        | ±5%                   | ±0.05%                  | (1)   |
| Power Spectral Density, conducted | ±3dB                  | ±0.61dB                 | (1)   |
| Unwanted Emissions, conducted     | ±3dB                  | ±0.64dB                 | (1)   |
| AC Power Line Conducted Emission  | ±6dB                  | ± 2.64 dB               | (1)   |
| Radiated emissions Below 1GHz     | ±6dB                  | ±4.32 dB                | (1)   |
| Radiated emissions Above 1GHz     | ±6dB                  | ±4.56dB                 | (1)   |

Note (1): The measurement uncertainty is for coverage factor of k=2 and a level of confidence of 95%.

## 2 General Information

### 2.1 General Description of EUT

|                        |                                                                                                                                                         |
|------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------|
| Product Name:          | Bluetooth Headset                                                                                                                                       |
| Model No.:             | YX46                                                                                                                                                    |
| Test Model:            | YX46                                                                                                                                                    |
| Difference of model(s) | N/A                                                                                                                                                     |
| Hardware Version:      | YX46-CHAGER-V1.1 (Charging compartment)<br>YX45-L-X (left ear)<br>YX45-R-X (Right ear)                                                                  |
| Software Version:      | 5.4                                                                                                                                                     |
| Operation Frequency:   | 2402MHz~2480MHz                                                                                                                                         |
| Channel numbers:       | 79                                                                                                                                                      |
| Channel separation:    | 1MHz                                                                                                                                                    |
| Modulation type:       | GFSK, $\pi/4$ -DQPSK                                                                                                                                    |
| Antenna Type:          | Chip antenna                                                                                                                                            |
| Antenna gain:          | 2.7dBi(Declare by applicant)<br>Note: Antenna information is provided by applicant, Testing lab is not responsible for the accuracy of the information. |
| Battery                | DC 3.7V 28mAh                                                                                                                                           |
| Power supply:          | DC 3.7V From Battery                                                                                                                                    |

| Operation Frequency each of channel |           |         |           |         |           |         |           |
|-------------------------------------|-----------|---------|-----------|---------|-----------|---------|-----------|
| Channel                             | Frequency | Channel | Frequency | Channel | Frequency | Channel | Frequency |
| 1                                   | 2402MHz   | 21      | 2422MHz   | 41      | 2442MHz   | 61      | 2462MHz   |
| 2                                   | 2403MHz   | 22      | 2423MHz   | 42      | 2443MHz   | 62      | 2463MHz   |
| 3                                   | 2404MHz   | 23      | 2424MHz   | 43      | 2444MHz   | 63      | 2464MHz   |
| 4                                   | 2405MHz   | 24      | 2425MHz   | 44      | 2445MHz   | 64      | 2465MHz   |
| 5                                   | 2406MHz   | 25      | 2426MHz   | 45      | 2446MHz   | 65      | 2466MHz   |
| 6                                   | 2407MHz   | 26      | 2427MHz   | 46      | 2447MHz   | 66      | 2467MHz   |
| 7                                   | 2408MHz   | 27      | 2428MHz   | 47      | 2448MHz   | 67      | 2468MHz   |
| 8                                   | 2409MHz   | 28      | 2429MHz   | 48      | 2449MHz   | 68      | 2469MHz   |
| 9                                   | 2410MHz   | 29      | 2430MHz   | 49      | 2450MHz   | 69      | 2470MHz   |
| 10                                  | 2411MHz   | 30      | 2431MHz   | 50      | 2451MHz   | 70      | 2471MHz   |
| 11                                  | 2412MHz   | 31      | 2432MHz   | 51      | 2452MHz   | 71      | 2472MHz   |
| 12                                  | 2413MHz   | 32      | 2433MHz   | 52      | 2453MHz   | 72      | 2473MHz   |
| 13                                  | 2414MHz   | 33      | 2434MHz   | 53      | 2454MHz   | 73      | 2474MHz   |
| 14                                  | 2415MHz   | 34      | 2435MHz   | 54      | 2455MHz   | 74      | 2475MHz   |
| 15                                  | 2416MHz   | 35      | 2436MHz   | 55      | 2456MHz   | 75      | 2476MHz   |
| 16                                  | 2417MHz   | 36      | 2437MHz   | 56      | 2457MHz   | 76      | 2477MHz   |
| 17                                  | 2418MHz   | 37      | 2438MHz   | 57      | 2458MHz   | 77      | 2478MHz   |
| 18                                  | 2419MHz   | 38      | 2439MHz   | 58      | 2459MHz   | 78      | 2479MHz   |
| 19                                  | 2420MHz   | 39      | 2440MHz   | 59      | 2460MHz   | 79      | 2480MHz   |
| 20                                  | 2421MHz   | 40      | 2441MHz   | 60      | 2461MHz   |         |           |

Note:

In section 15.31(m), regards to the operating frequency range over 10 MHz, the Lowest frequency, the middle frequency, and the highest frequency of channel were selected to perform the test, and the selected channel see below:

| Channel             | Frequency |
|---------------------|-----------|
| The lowest channel  | 2402MHz   |
| The middle channel  | 2441MHz   |
| The Highest channel | 2480MHz   |

## 2.2 Test mode

|                                                                                                   |                                                 |
|---------------------------------------------------------------------------------------------------|-------------------------------------------------|
| Charging mode                                                                                     | Headphones are charged through an adapter       |
| Transmitting mode                                                                                 | Keep the EUT in continuously transmitting mode. |
| <i>Remark: For battery operated equipment, the EUT was performed using a new DC 3.7V battery.</i> |                                                 |

## 2.3 Description of Support Units

| Equipment | Model     | S/N | Manufacturer |
|-----------|-----------|-----|--------------|
| Adapter   | MDY-11-EM | /   | Xiaomi       |
| /         | /         | /   | /            |

## 2.4 Deviation from Standards

|       |
|-------|
| None. |
|-------|

## 2.5 Abnormalities from Standard Conditions

|       |
|-------|
| None. |
|-------|

## 2.6 Test Facility

|                             |                                            |
|-----------------------------|--------------------------------------------|
| Test laboratory:            | Shenzhen ETR Standard Technology Co., Ltd. |
| CNAS Registration Number:   | L11864                                     |
| A2LA Certificate Number:    | 6640.01                                    |
| FCC Designation Number:     | CN1326                                     |
| FCC Test Firm Registration: | 183064                                     |

## 2.7 Test Location

|                              |                                                                                                                           |
|------------------------------|---------------------------------------------------------------------------------------------------------------------------|
| All tests were performed at: |                                                                                                                           |
| Laboratory location:         | No.103, No.10, Phase I, Zone 3, Xinxing Industrial Park, Xinhe, Fuhai Street, Bao'an District, Shenzhen, Guangdong, China |
| Telephone:                   | +86 755 85259392                                                                                                          |
| Fax:                         | +86 755 27219460                                                                                                          |

## 2.8 Additional Instructions

|                   |                    |
|-------------------|--------------------|
| Test Software     | FCC_assist_1.0.2.2 |
| Power level setup | Default            |

### 3 Test Instruments list

| Item | Equipment name           | Manufacturer   | Model                   | Serial No.             | Calibration date | Due date  |
|------|--------------------------|----------------|-------------------------|------------------------|------------------|-----------|
| 1    | EMI Test Receiver        | Rohde&schwarz  | ESCI7                   | 100605                 | 2024.3.12        | 2025.3.11 |
| 2    | EMI Test Receiver        | Rohde&schwarz  | ESCI3                   | 102696                 | 2024.3.12        | 2025.3.11 |
| 3    | Loop Antenna             | schwarabeck    | FMZB 1519 B             | FMZB 1519 B            | 2024.3.19        | 2026.3.21 |
| 4    | Broadband antenna        | schwarabeck    | VULB9168                | 1064                   | 2024.3.19        | 2026.3.21 |
| 5    | Horn antenna             | schwarabeck    | BBHA9120D               | 9120D-1145             | 2024.3.19        | 2026.3.21 |
| 6    | amplifier                | EMtrace        | RP01A                   | 50117                  | 2024.3.12        | 2025.3.11 |
| 7    | Artificial power network | schwarabeck    | NSLK8127                | 8127483                | 2024.3.12        | 2025.3.11 |
| 8    | Artificial power network | ETS            | 3186/2NM                | 1132                   | 2024.3.12        | 2025.3.11 |
| 9    | 10dB attenuator          | HUBER+SUHNER   | 10dB                    | /                      | 2024.3.12        | 2025.3.11 |
| 10   | amplifier                | Space-Dtronics | EVLAN0118G-P40          | 19113001               | 2024.3.12        | 2025.3.11 |
| 11   | Filter                   | Xingbo         | XBLBQ-GTA19             | 210410-3-1             | 2024.3.12        | 2025.3.11 |
| 12   | Spectrum analyzer        | KEYSIGHT       | N9020A                  | MY55370280             | 2024.3.12        | 2025.3.11 |
| 13   | Power detector box       | MWRFTest       | MW100-PSB               | MW201020JYT            | 2024.3.12        | 2025.3.11 |
| 14   | Power meter              | Rohde&Schwarz  | NRP-Z11                 | 1138.3004.02-117725-vh | 2024.3.12        | 2025.3.11 |
| 15   | amplifier                | SKET           | LNPA_1840-50 (18-40GHz) | SK2019040302           | 2024.3.12        | 2025.3.11 |
| 16   | Horn antenna             | schwarabeck    | BBHA 9170               | 946                    | 2024.3.19        | 2026.3.18 |
| 17   | Spectrum analyzer        | Rohde&schwarz  | FSU40                   | 1166.1660K43           | 2024.3.12        | 2025.3.11 |

Note: the calibration interval of the above test instruments is 12 or 24 months and the calibrations are traceable to international system unit (SI).

| Software Name           | Manufacturer | Model    | Version           |
|-------------------------|--------------|----------|-------------------|
| RF test software        | MWRFTest     | MTS 8310 | V2.0.0.0          |
| Conducted test software | EZ-EMC       | Farad    | Ver.EMC-CON 3A1.1 |
| Radiated test software  | EZ-EMC       | Farad    | Ver.FA-03A2 RE    |

## 4 Test results and Measurement Data

### 4.1 Antenna requirement

| Standard requirement:                                                                                                                                                                                                                                                                                                                                                                                                                                                            | FCC Part15 C Section 15.203 /247(c) |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------|
| <b>15.203 requirement:</b><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. |                                     |
| <b>15.247(c) (1)(i) requirement:</b><br>(i) 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 6dBi.                                                                                |                                     |
| <b>E.U.T Antenna:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                     |
| <i>The antenna is Chip antenna, the best case gain of the antenna is 2.7dBi, reference to the appendix II for details.</i>                                                                                                                                                                                                                                                                                                                                                       |                                     |

## 4.2 Conducted Emissions

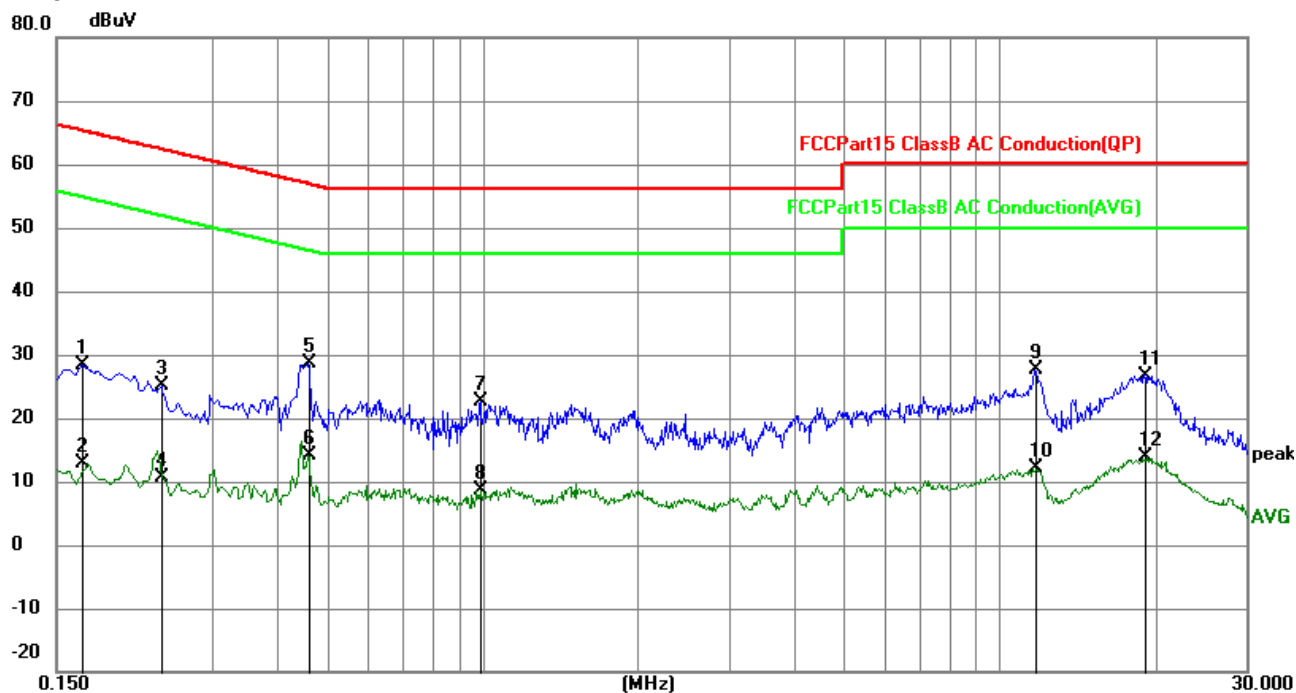
|                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |              |         |     |           |          |           |
|--------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|---------|-----|-----------|----------|-----------|
| Test Requirement:                                | FCC Part15 C Section 15.207                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |              |         |     |           |          |           |
| Test Method:                                     | ANSI C63.10:2013                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |              |         |     |           |          |           |
| Test Frequency Range:                            | 150KHz to 30MHz                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |              |         |     |           |          |           |
| Receiver setup:                                  | RBW=9KHz, VBW=30KHz, Sweep time=auto                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |              |         |     |           |          |           |
| Limit:                                           | Frequency range (MHz)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Limit (dBuV) |         |     |           |          |           |
|                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Quasi-peak   |         |     | Average   |          |           |
|                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 0.15-0.5     |         |     | 66 to 56* |          | 56 to 46* |
|                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 0.5-5        |         |     | 56        |          | 46        |
|                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 5-30         |         |     | 60        |          | 50        |
| * Decreases with the logarithm of the frequency. |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |              |         |     |           |          |           |
| Test setup:                                      | <div><div><div><div><div></div><div>Reference Plane</div></div><div><div></div><div>40cm</div></div></div><div><div><div>LISN</div><div>AUX Equipment</div><div>E.U.T</div></div><div>Test table/Insulation plane</div></div><div><div><div>80cm</div><div>LISN</div><div>Filter</div><div>AC power</div></div><div>EMI Receiver</div></div></div><div><div>Remark:</div><div>E.U.T: Equipment Under Test</div><div>LISN: Line Impedance Stabilization Network</div><div>Test table height=0.8m</div></div></div>                                                                                                                                                                                                                    |              |         |     |           |          |           |
| Test procedure:                                  | <div><div>1. The E.U.T and simulators are connected to the main power through a line impedance stabilization network (L.I.S.N.). This provides a 50ohm/50uH coupling impedance for the measuring equipment.</div><div>2. The peripheral devices are also connected to the main power through a LISN that provides a 50ohm/50uH coupling impedance with 50ohm termination. (Please refer to the block diagram of the test setup and photographs).</div><div>3. Both sides of A.C. line are checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.10:2013 on conducted measurement.</div></div> |              |         |     |           |          |           |
| Test Instruments:                                | Refer to section 3.0 for details                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |              |         |     |           |          |           |
| Test mode:                                       | Refer to section 2.2 for details                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |              |         |     |           |          |           |
| Test environment:                                | Temp.:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 21.5°C       | Humid.: | 34% | Press.:   | 1017mbar |           |
| Test voltage:                                    | DC 5V from adapter with AC 120V 60Hz                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |              |         |     |           |          |           |
| Test results:                                    | Pass                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |              |         |     |           |          |           |

### Remark:

1. Both high voltage and low voltage have been tested, and the report only shows the worst case data with AC 120V/60Hz.
2. Bluetooth does not work in charging mode, test data is charging mode data.

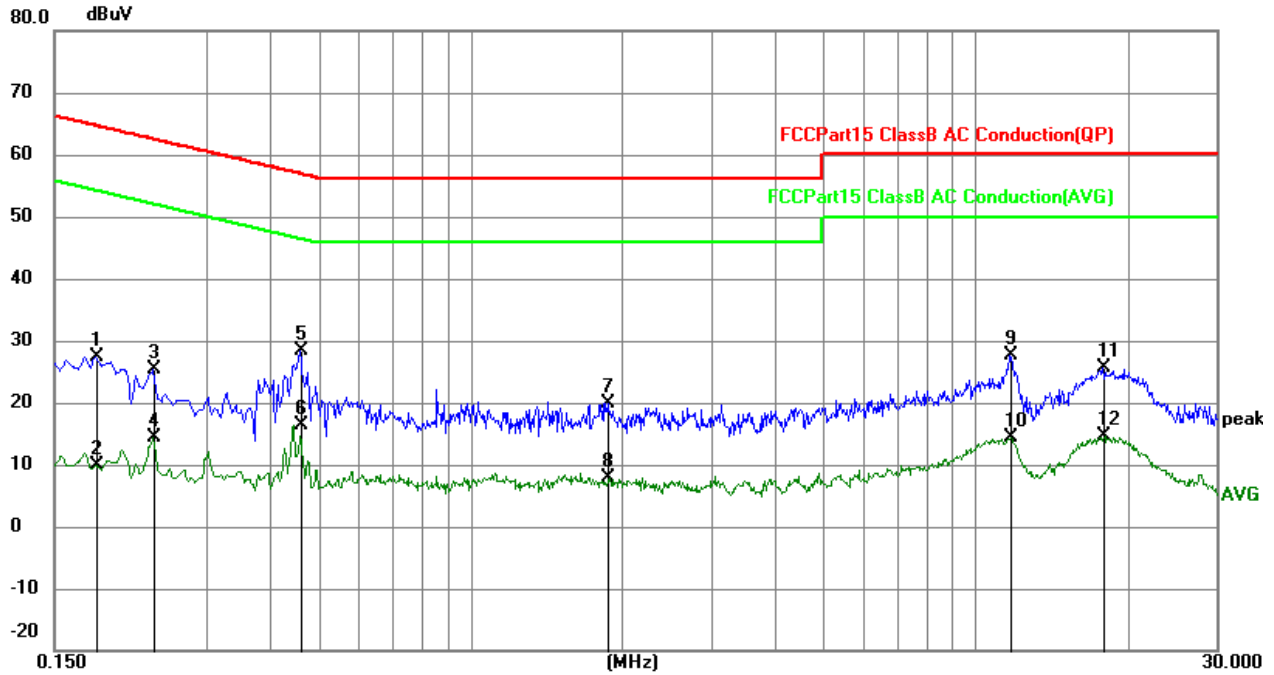
# Measurement data:

Line:



| No. | Frequency (MHz) | Reading (dBuV) | Factor (dB) | Level (dBuV) | Limit (dBuV) | Margin (dB) | Detector |
|-----|-----------------|----------------|-------------|--------------|--------------|-------------|----------|
| 1   | 0.1680          | 18.60          | 9.81        | 28.41        | 65.06        | -36.65      | QP       |
| 2   | 0.1680          | 3.09           | 9.81        | 12.90        | 55.06        | -42.16      | AVG      |
| 3   | 0.2400          | 15.30          | 9.82        | 25.12        | 62.10        | -36.98      | QP       |
| 4   | 0.2400          | 0.75           | 9.82        | 10.57        | 52.10        | -41.53      | AVG      |
| 5   | 0.4605          | 18.76          | 9.93        | 28.69        | 56.68        | -27.99      | QP       |
| 6   | 0.4605          | 4.27           | 9.93        | 14.20        | 46.68        | -32.48      | AVG      |
| 7   | 0.9914          | 12.77          | 9.96        | 22.73        | 56.00        | -33.27      | QP       |
| 8   | 0.9914          | -1.39          | 9.96        | 8.57         | 46.00        | -37.43      | AVG      |
| 9   | 11.7015         | 17.79          | 9.82        | 27.61        | 60.00        | -32.39      | QP       |
| 10  | 11.7015         | 2.27           | 9.82        | 12.09        | 50.00        | -37.91      | AVG      |
| 11  | 19.0725         | 17.06          | 9.69        | 26.75        | 60.00        | -33.25      | QP       |
| 12  | 19.0725         | 4.12           | 9.69        | 13.81        | 50.00        | -36.19      | AVG      |

Neutral:

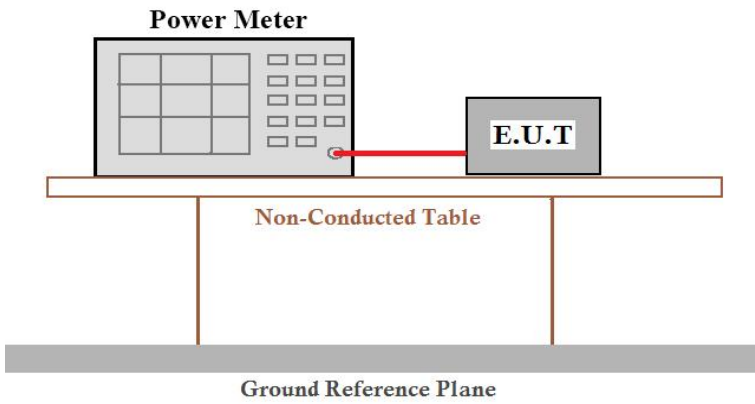


| No. | Frequency (MHz) | Reading (dBuV) | Factor (dB) | Level (dBuV) | Limit (dBuV) | Margin (dB) | Detector |
|-----|-----------------|----------------|-------------|--------------|--------------|-------------|----------|
| 1   | 0.1815          | 17.69          | 9.81        | 27.50        | 64.42        | -36.92      | QP       |
| 2   | 0.1815          | 0.19           | 9.81        | 10.00        | 54.42        | -44.42      | AVG      |
| 3   | 0.2355          | 15.44          | 9.82        | 25.26        | 62.25        | -36.99      | QP       |
| 4   | 0.2355          | 4.62           | 9.82        | 14.44        | 52.25        | -37.81      | AVG      |
| 5   | 0.4605          | 18.51          | 9.93        | 28.44        | 56.68        | -28.24      | QP       |
| 6   | 0.4605          | 6.56           | 9.93        | 16.49        | 46.68        | -30.19      | AVG      |
| 7   | 1.8735          | 10.07          | 9.86        | 19.93        | 56.00        | -36.07      | QP       |
| 8   | 1.8735          | -1.96          | 9.86        | 7.90         | 46.00        | -38.10      | AVG      |
| 9   | 11.6879         | 17.74          | 9.82        | 27.56        | 60.00        | -32.44      | QP       |
| 10  | 11.6879         | 4.44           | 9.82        | 14.26        | 50.00        | -35.74      | AVG      |
| 11  | 17.9250         | 15.88          | 9.70        | 25.58        | 60.00        | -34.42      | QP       |
| 12  | 17.9250         | 4.81           | 9.70        | 14.51        | 50.00        | -35.49      | AVG      |

Notes:

1. An initial pre-scan was performed on the line and neutral lines with peak detector.
2. Quasi-Peak and Average measurement were performed at the frequencies with maximized peak emission.
3. Final Level = Receiver Read level + LISN Factor + Cable Loss

### 4.3 Conducted Peak Output Power

|                   |                                                                                    |               |
|-------------------|------------------------------------------------------------------------------------|---------------|
| Test Requirement: | FCC Part15 C Section 15.247 (b)(1)                                                 |               |
| Test Method:      | ANSI C63.10:2013 and KDB558074 D01 15.247 Meas Guidance v05r02                     |               |
| Limit:            | 20.97dBm                                                                           |               |
| Test setup:       |  |               |
| Test Instruments: | Refer to section 3.0 for details                                                   |               |
| Test mode:        | Refer to section 2.2 for details                                                   |               |
| Test environment: | Temp.: 22.2°C                                                                      | Humid.: 33%RH |
| Test voltage:     | DC 3.7V                                                                            |               |
| Test results:     | Pass                                                                               |               |

### Measurement Result

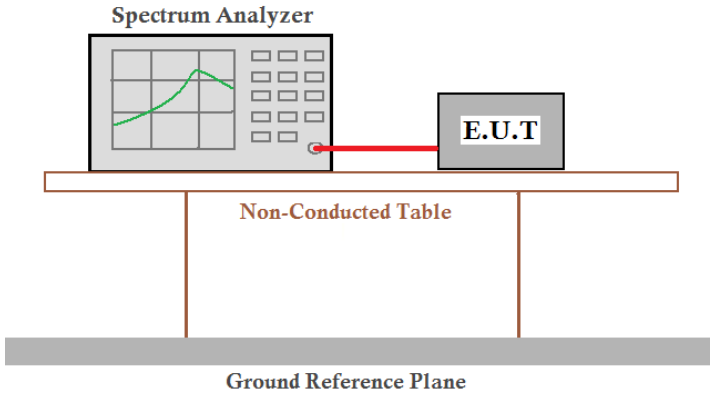
#### YX45-L-X (left ear)

| Mode           | Test channel | Peak Output Power (dBm) | Limit (dBm) | Result |
|----------------|--------------|-------------------------|-------------|--------|
| GFSK           | Lowest       | -0.73                   | 20.97       | Pass   |
|                | Middle       | 0.64                    |             |        |
|                | Highest      | 0.47                    |             |        |
| $\pi/4$ -DQPSK | Lowest       | 1.37                    | 20.97       | Pass   |
|                | Middle       | 1.41                    |             |        |
|                | Highest      | 1.26                    |             |        |

#### YX45-R-X (Right ear)

| Mode           | Test channel | Peak Output Power (dBm) | Limit (dBm) | Result |
|----------------|--------------|-------------------------|-------------|--------|
| GFSK           | Lowest       | 1.81                    | 20.97       | Pass   |
|                | Middle       | 1.43                    |             |        |
|                | Highest      | 1.21                    |             |        |
| $\pi/4$ -DQPSK | Lowest       | 2.64                    | 20.97       | Pass   |
|                | Middle       | 2.27                    |             |        |
|                | Highest      | 2.06                    |             |        |

#### 4.4 20dB Emission Bandwidth

|                   |                                                                                    |               |
|-------------------|------------------------------------------------------------------------------------|---------------|
| Test Requirement: | FCC Part15 C Section 15.247 (a)(1)                                                 |               |
| Test Method:      | ANSI C63.10:2013                                                                   |               |
| Limit:            | N/A                                                                                |               |
| Test setup:       |  |               |
| Test Instruments: | Refer to section 3.0 for details                                                   |               |
| Test mode:        | Refer to section 2.2 for details                                                   |               |
| Test environment: | Temp.: 22.2°C                                                                      | Humid.: 33%RH |
| Test voltage:     | DC 3.7V                                                                            |               |
| Test results:     | Pass                                                                               |               |

#### Measurement Result

##### YX45-L-X (left ear)

| Mode           | Test channel | 20dB Emission Bandwidth (MHz) | Result |
|----------------|--------------|-------------------------------|--------|
| GFSK           | Lowest       | 1.027                         | Pass   |
|                | Middle       | 1.037                         |        |
|                | Highest      | 1.042                         |        |
| $\pi/4$ -DQPSK | Lowest       | 1.307                         | Pass   |
|                | Middle       | 1.330                         |        |
|                | Highest      | 1.329                         |        |

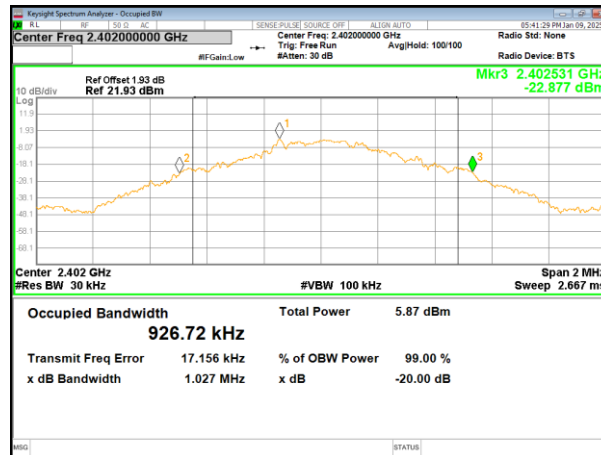
##### YX45-R-X (Right ear)

| Mode           | Test channel | 20dB Emission Bandwidth (MHz) | Result |
|----------------|--------------|-------------------------------|--------|
| GFSK           | Lowest       | 0.941                         | Pass   |
|                | Middle       | 1.016                         |        |
|                | Highest      | 1.006                         |        |
| $\pi/4$ -DQPSK | Lowest       | 1.284                         | Pass   |
|                | Middle       | 1.305                         |        |
|                | Highest      | 1.304                         |        |

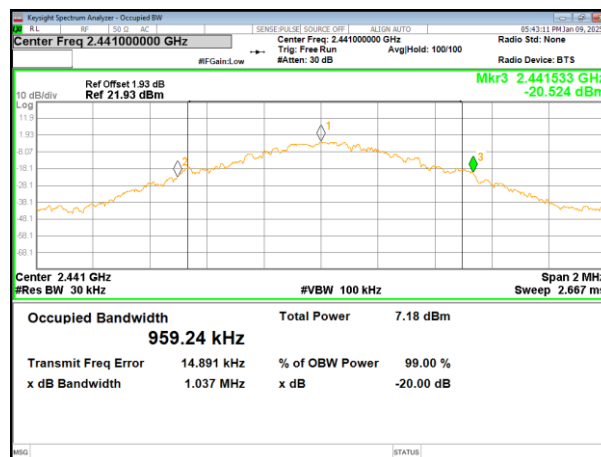
Test plot as follows: YX45-L-X (left ear)

Test mode:

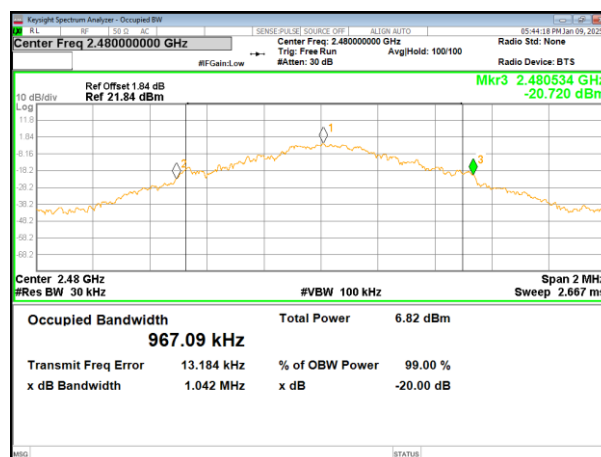
GFSK mode



Lowest channel



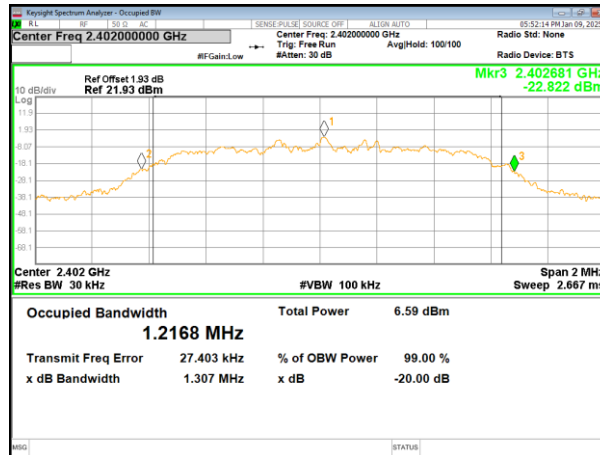
Middle channel



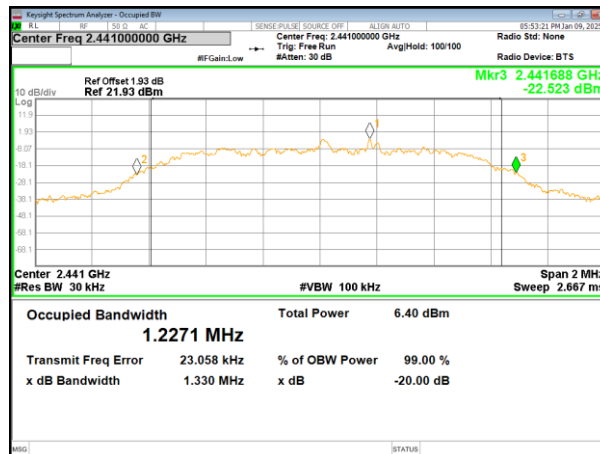
Highest channel

Test mode:

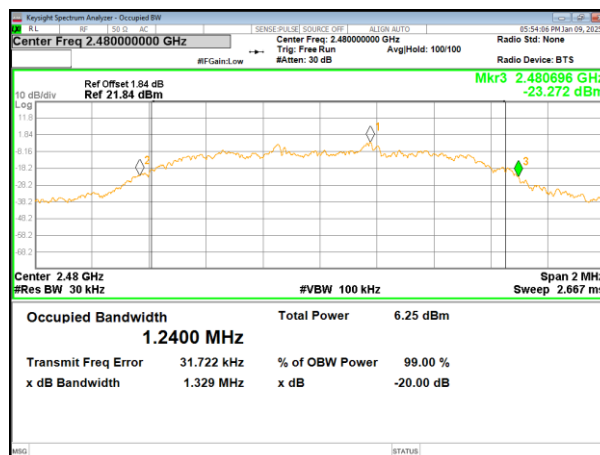
$\pi/4$ -DQPSK mode



Lowest channel



Middle channel

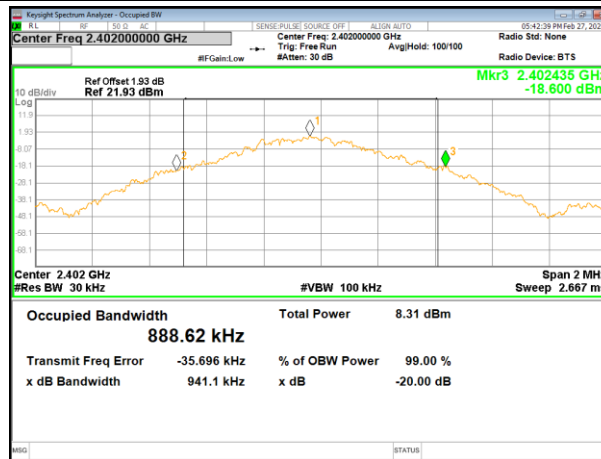


Highest channel

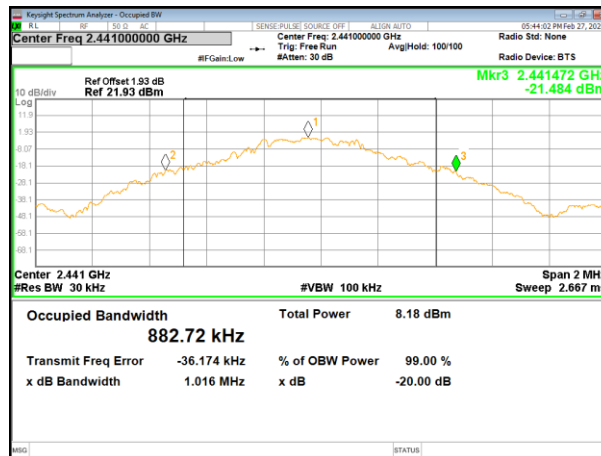
Test plot as follows: YX45-R-X (Right ear)

Test mode:

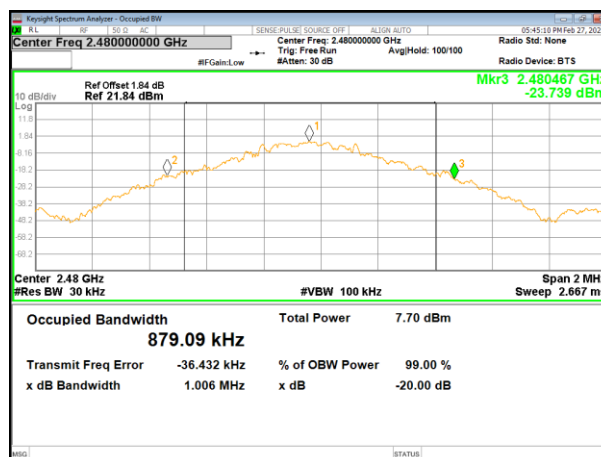
GFSK mode



Lowest channel



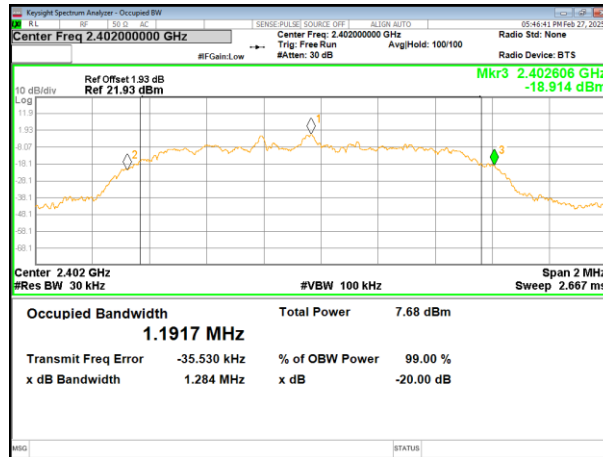
Middle channel



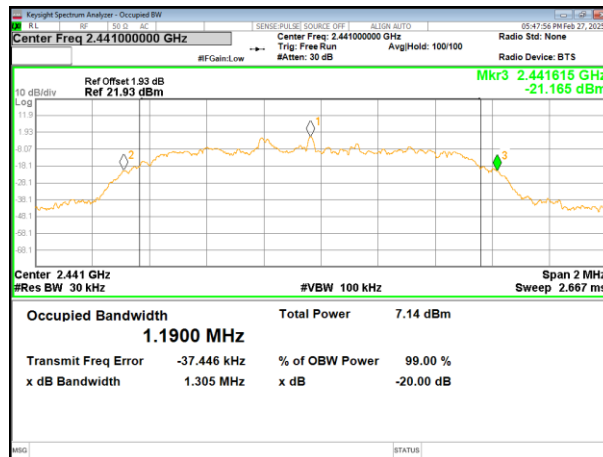
Highest channel

Test mode:

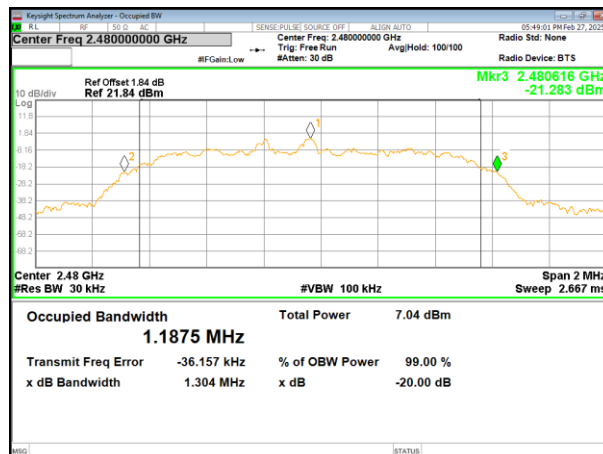
$\pi/4$ -DQPSK mode



Lowest channel

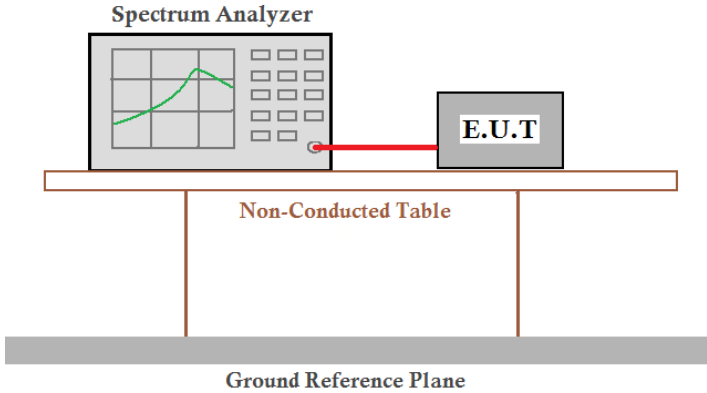


Middle channel



Highest channel

#### 4.5 Carrier Frequencies Separation

|                   |                                                                                    |               |
|-------------------|------------------------------------------------------------------------------------|---------------|
| Test Requirement: | FCC Part15 C Section 15.247 (a)(1)                                                 |               |
| Test Method:      | ANSI C63.10:2013                                                                   |               |
| Receiver setup:   | RBW=300KHz, VBW=1000KHz, detector=Peak                                             |               |
| Limit:            | >0.025MHz or 2/3 of the 20dB bandwidth (whichever is greater)                      |               |
| Test setup:       |  |               |
| Test Instruments: | Refer to section 3.0 for details                                                   |               |
| Test mode:        | Refer to section 2.2 for details                                                   |               |
| Test environment: | Temp.: 22.2°C                                                                      | Humid.: 33%RH |
| Test voltage:     | DC 3.7V                                                                            |               |
| Test results:     | Pass                                                                               |               |

#### Measurement Result

##### YX45-L-X (left ear)

| Mode           | Test channel | Carrier Frequencies Separation (MHz) | Limit (MHz) | Result |
|----------------|--------------|--------------------------------------|-------------|--------|
| GFSK           | Lowest       | 1.014                                | 0.685       | Pass   |
|                | Middle       | 1.074                                | 0.691       | Pass   |
|                | Highest      | 1.140                                | 0.695       | Pass   |
| $\pi/4$ -DQPSK | Lowest       | 1.092                                | 0.871       | Pass   |
|                | Middle       | 1.224                                | 0.887       | Pass   |
|                | Highest      | 1.218                                | 0.886       | Pass   |

##### YX45-R-X (Right ear)

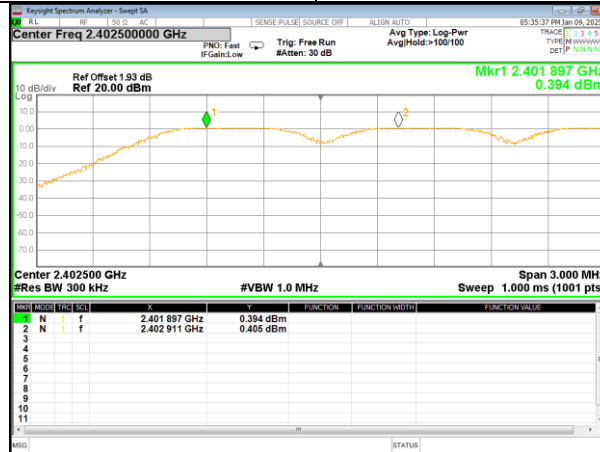
| Mode           | Test channel | Carrier Frequencies Separation (MHz) | Limit (MHz) | Result |
|----------------|--------------|--------------------------------------|-------------|--------|
| GFSK           | Lowest       | 1.014                                | 0.627       | Pass   |
|                | Middle       | 1.047                                | 0.677       | Pass   |
|                | Highest      | 1.006                                | 0.671       | Pass   |
| $\pi/4$ -DQPSK | Lowest       | 1.158                                | 0.856       | Pass   |
|                | Middle       | 1.053                                | 0.870       | Pass   |
|                | Highest      | 1.413                                | 0.869       | Pass   |

Note: According to section 4.4

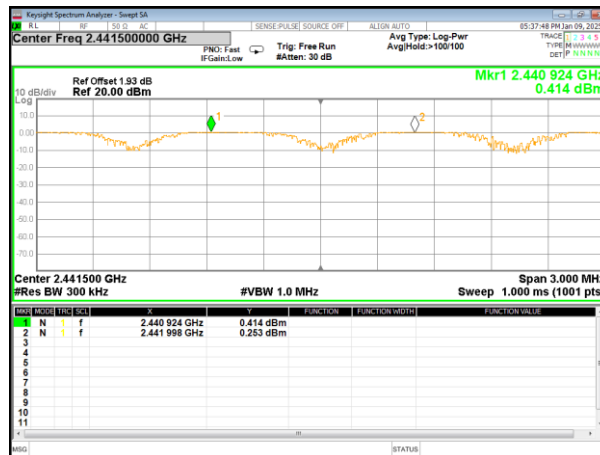
Test plot as follows: YX45-L-X (left ear)

Modulation mode:

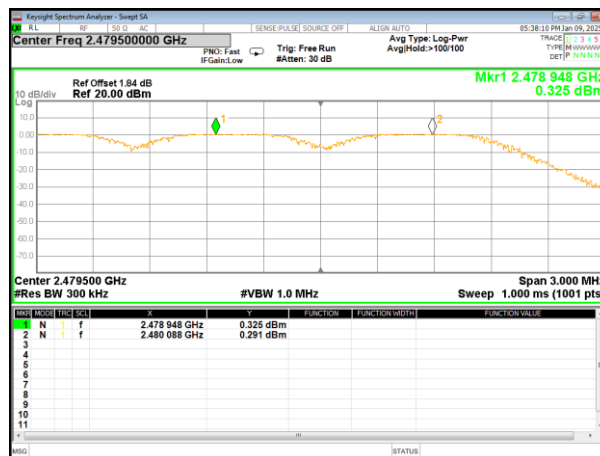
GFSK



Lowest channel



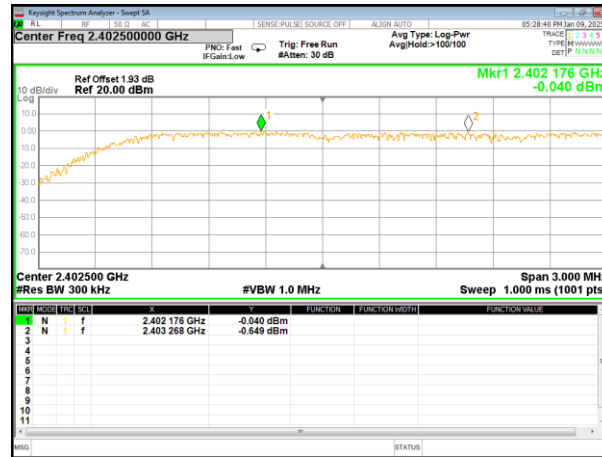
Middle channel



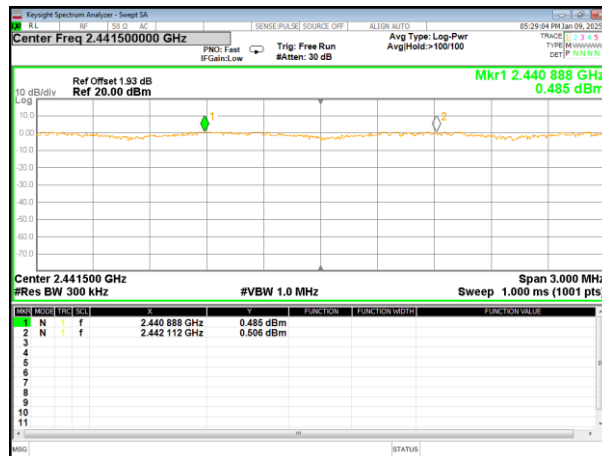
Highest channel

Test mode:

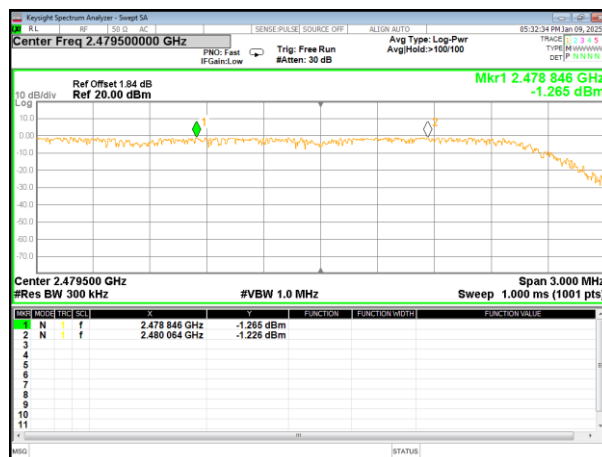
$\pi/4$ -DQPSK



Lowest channel



Middle channel

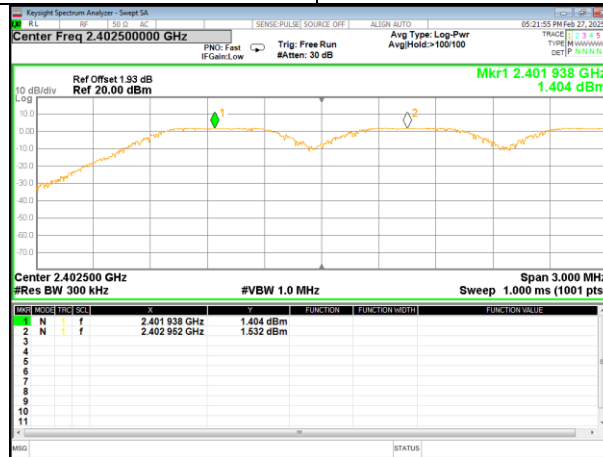


Highest channel

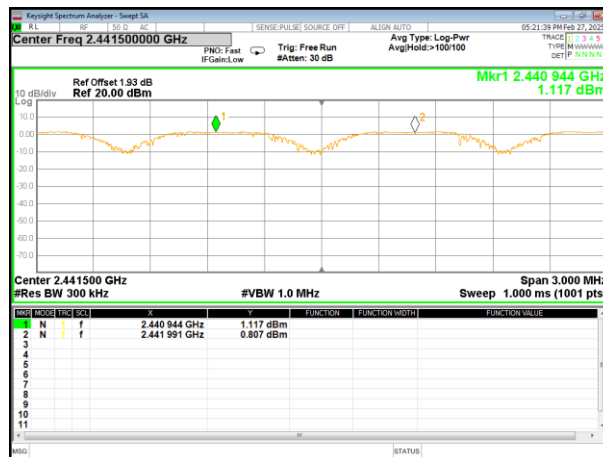
Test plot as follows: YX45-R-X (Right ear)

Modulation mode:

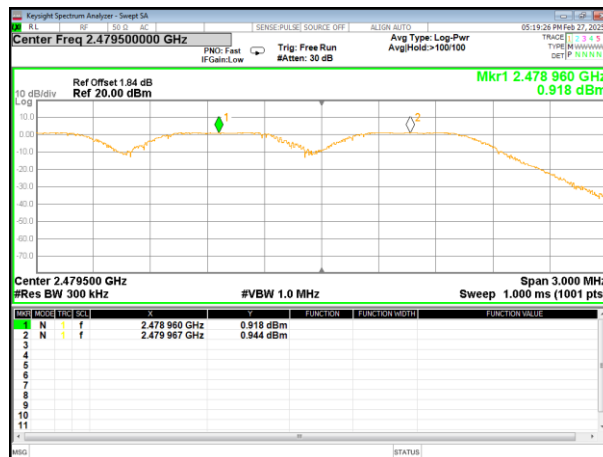
GFSK



Lowest channel



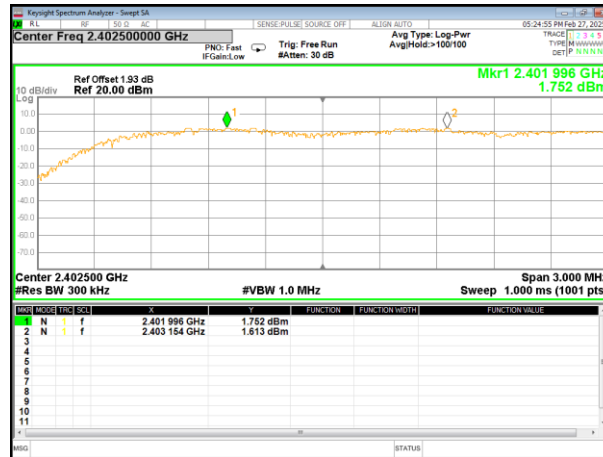
Middle channel



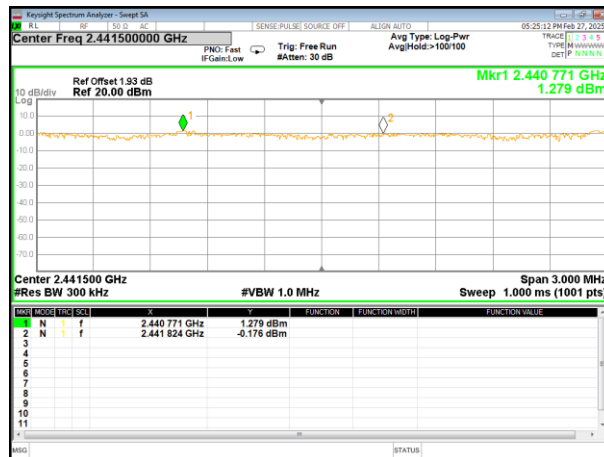
Highest channel

Test mode:

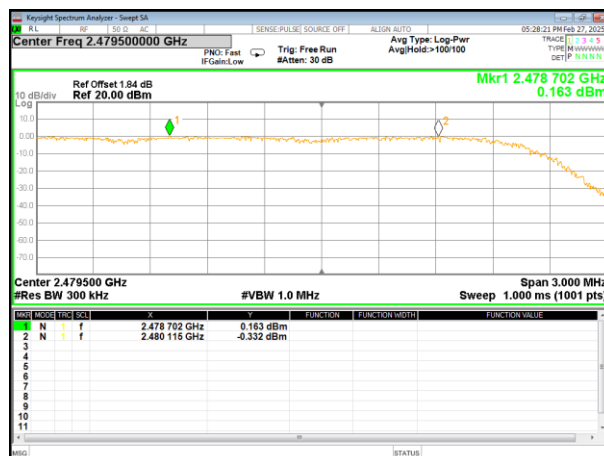
$\pi/4$ -DQPSK



Lowest channel

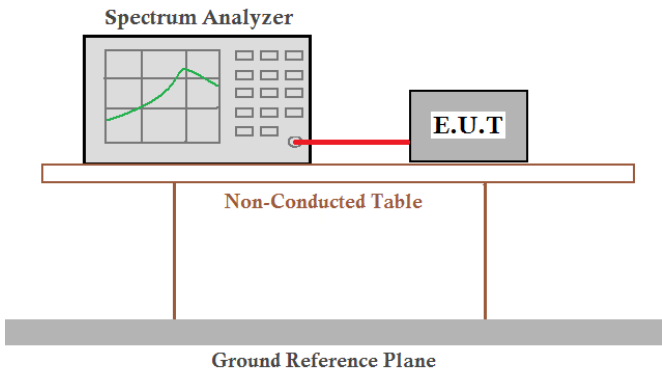


Middle channel



Highest channel

## 4.6 Hopping Channel Number

|                   |                                                                                    |
|-------------------|------------------------------------------------------------------------------------|
| Test Requirement: | FCC Part15 C Section 15.247 (a)(1)(iii)                                            |
| Test Method:      | ANSI C63.10:2013                                                                   |
| Receiver setup:   | RBW=100kHz, VBW=300kHz, Frequency range=2400MHz-2483.5MHz, Detector=Peak           |
| Limit:            | 15 channels                                                                        |
| Test setup:       |  |
| Test Instruments: | Refer to section 3.0 for details                                                   |
| Test mode:        | Refer to section 2.2 for details                                                   |
| Test environment: | Temp.: 22.2°C      Humid.: 33%RH                                                   |
| Test voltage:     | DC 3.7V                                                                            |
| Test results:     | Pass                                                                               |

### Measurement Data:

#### YX45-L-X (left ear)

| Mode           | Hopping channel numbers | Limit | Result |
|----------------|-------------------------|-------|--------|
| GFSK           | 79                      | 15    | Pass   |
| $\pi/4$ -DQPSK | 79                      | 15    | Pass   |

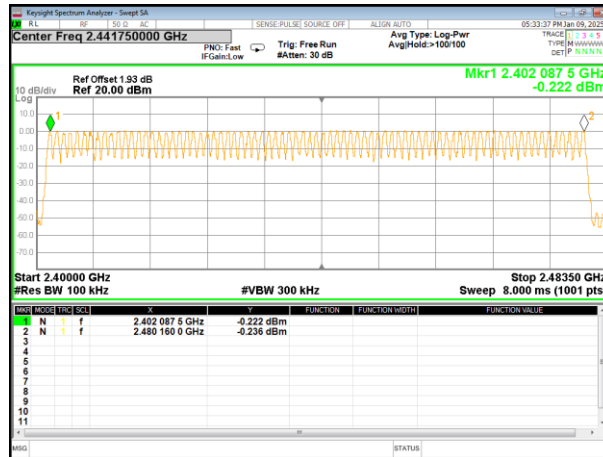
#### YX45-R-X (Right ear)

| Mode           | Hopping channel numbers | Limit | Result |
|----------------|-------------------------|-------|--------|
| GFSK           | 79                      | 15    | Pass   |
| $\pi/4$ -DQPSK | 79                      | 15    | Pass   |

Test plot as follows: YX45-L-X (left ear)

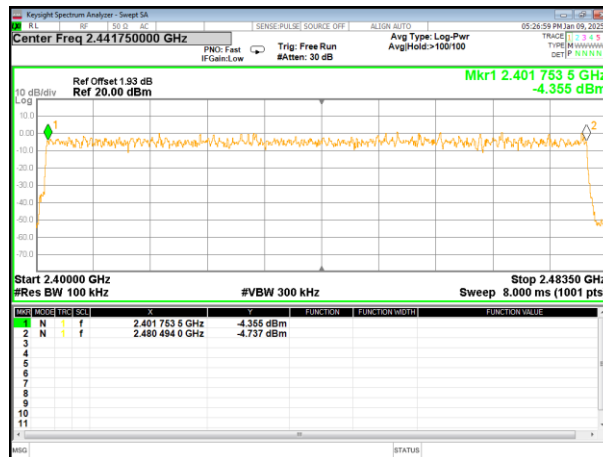
Test mode:

GFSK



Test mode:

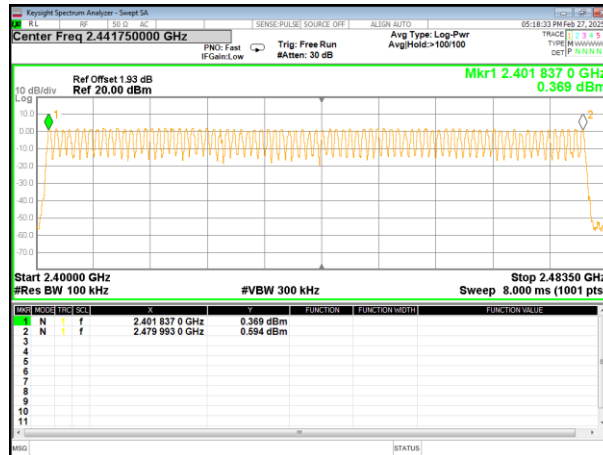
$\pi/4$ -DQPSK



Test plot as follows: YX45-R-X (Right ear)

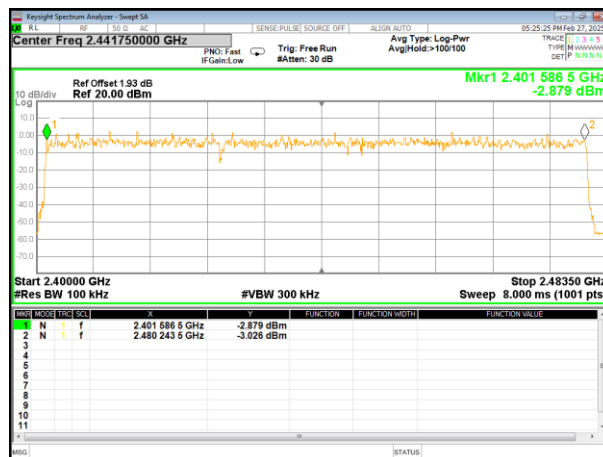
Test mode:

GFSK

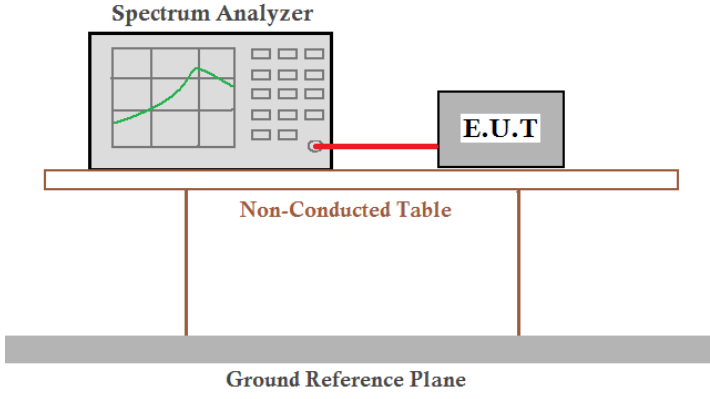


Test mode:

$\pi/4$ -DQPSK



#### 4.7 Dwell Time

|                   |                                                                                                                                                                                                                                                                                                                                                                                                |               |
|-------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Test Requirement: | FCC Part15 C Section 15.247 (a)(1)(iii)                                                                                                                                                                                                                                                                                                                                                        |               |
| Test Method:      | ANSI C63.10:2013                                                                                                                                                                                                                                                                                                                                                                               |               |
| Receiver setup:   | RBW=1MHz, VBW=3MHz, Span=0Hz, Detector=Peak                                                                                                                                                                                                                                                                                                                                                    |               |
| Limit:            | 0.4 Second                                                                                                                                                                                                                                                                                                                                                                                     |               |
| Test setup:       |  <p>The diagram illustrates the test setup. A Spectrum Analyzer is connected to an E.U.T (Equipment Under Test) via a red cable. Both the Spectrum Analyzer and the E.U.T are placed on a Non-Conducted Table. The table is supported by two vertical legs. Below the table is a Ground Reference Plane.</p> |               |
| Test Instruments: | Refer to section 3.0 for details                                                                                                                                                                                                                                                                                                                                                               |               |
| Test mode:        | Refer to section 2.2 for details                                                                                                                                                                                                                                                                                                                                                               |               |
| Test environment: | Temp.: 22.2°C                                                                                                                                                                                                                                                                                                                                                                                  | Humid.: 33%RH |
| Test voltage:     | DC 3.7V                                                                                                                                                                                                                                                                                                                                                                                        |               |
| Test results:     | Pass                                                                                                                                                                                                                                                                                                                                                                                           |               |

**Measurement Result:**
**YX45-L-X (left ear)**

| Mode  | Frequency (MHz) | Pulse Time (ms) | Total Dwell Time (ms) | Burst Count | Period Time (ms) | Limit (ms) | Result |
|-------|-----------------|-----------------|-----------------------|-------------|------------------|------------|--------|
| 1-DH1 | 2441            | 0.375           | 118.125               | 315         | 31600            | 400        | Pass   |
| 1-DH3 | 2441            | 1.631           | 256.067               | 157         | 31600            | 400        | Pass   |
| 1-DH5 | 2441            | 2.879           | 296.537               | 103         | 31600            | 400        | Pass   |
| 2-DH1 | 2441            | 0.379           | 120.901               | 319         | 31600            | 400        | Pass   |
| 2-DH3 | 2441            | 1.638           | 268.632               | 164         | 31600            | 400        | Pass   |
| 2-DH5 | 2441            | 2.886           | 326.118               | 113         | 31600            | 400        | Pass   |

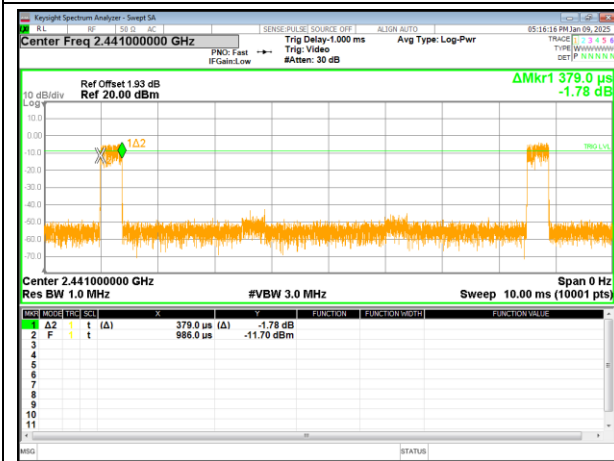
**YX45-R-X (Right ear)**

| Mode  | Frequency (MHz) | Pulse Time (ms) | Total Dwell Time (ms) | Burst Count | Period Time (ms) | Limit (ms) | Result |
|-------|-----------------|-----------------|-----------------------|-------------|------------------|------------|--------|
| 1-DH1 | 2441            | 0.383           | 121.028               | 316         | 31600            | 400        | Pass   |
| 1-DH3 | 2441            | 1.638           | 257.166               | 157         | 31600            | 400        | Pass   |
| 1-DH5 | 2441            | 2.886           | 320.346               | 111         | 31600            | 400        | Pass   |
| 2-DH1 | 2441            | 0.391           | 124.338               | 318         | 31600            | 400        | Pass   |
| 2-DH3 | 2441            | 1.644           | 267.972               | 163         | 31600            | 400        | Pass   |
| 2-DH5 | 2441            | 2.891           | 277.536               | 96          | 31600            | 400        | Pass   |

Test plot as follows: YX45-L-X (left ear)



2DH1-2441MHz-One burst



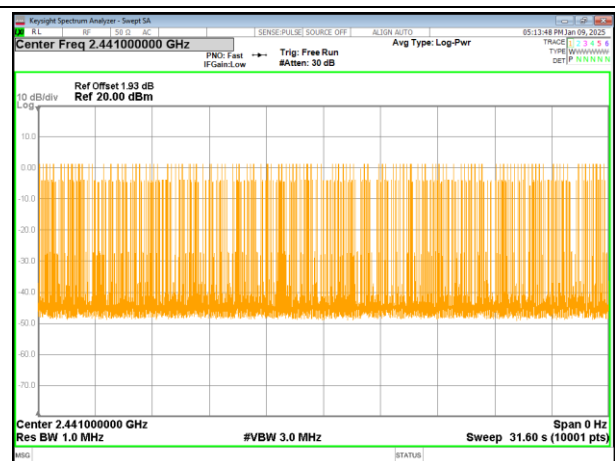
2DH1-2441MHz-Accumulated



2DH3-2441MHz-One burst



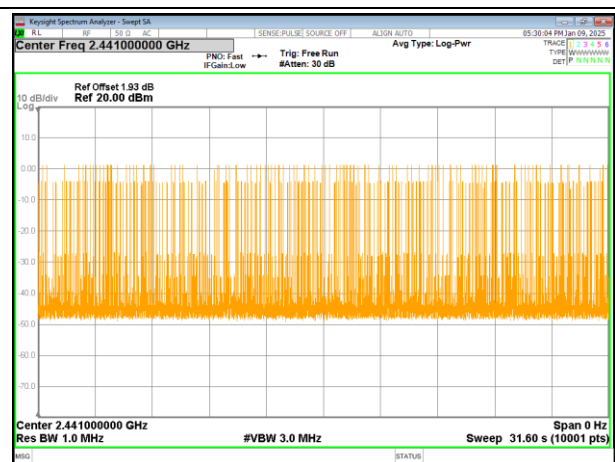
2DH3-2441MHz-Accumulated



2DH5-2441MHz-One burst

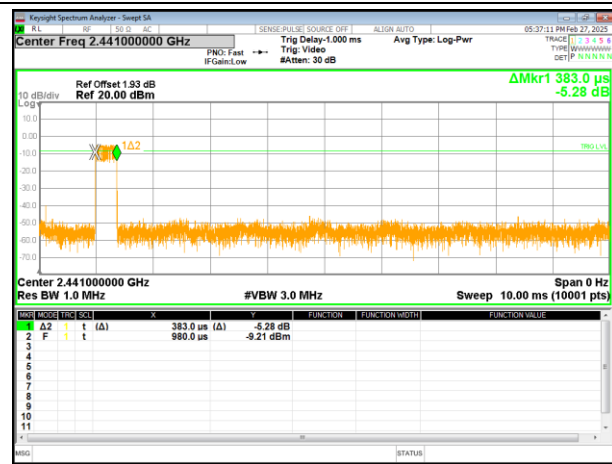


2DH5-2441MHz-Accumulated



Test plot as follows: YX45-R-X (Right ear)

1DH1-2441MHz-One burst



1DH1-2441MHz-Accumulated



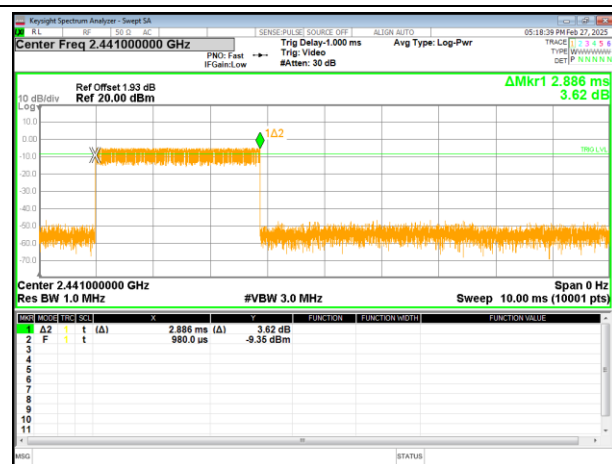
1DH3-2441MHz-One burst



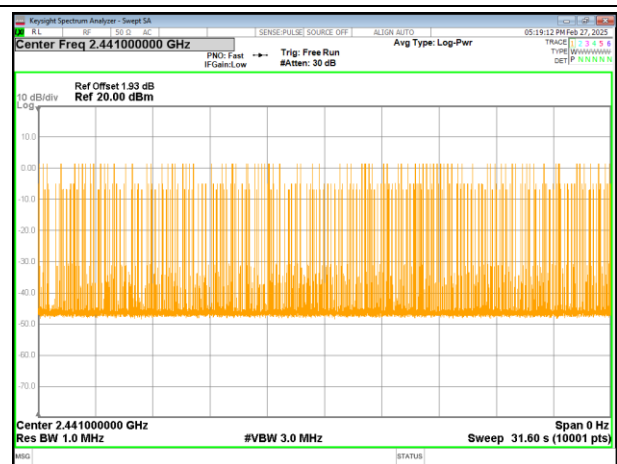
1DH3-2441MHz-Accumulated



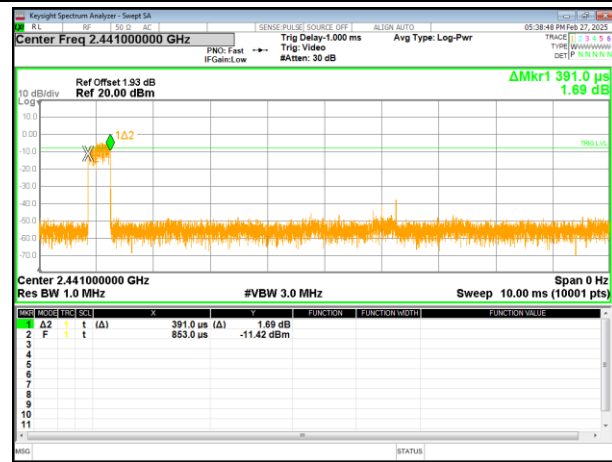
1DH5-2441MHz-One burst



1DH5-2441MHz-Accumulated



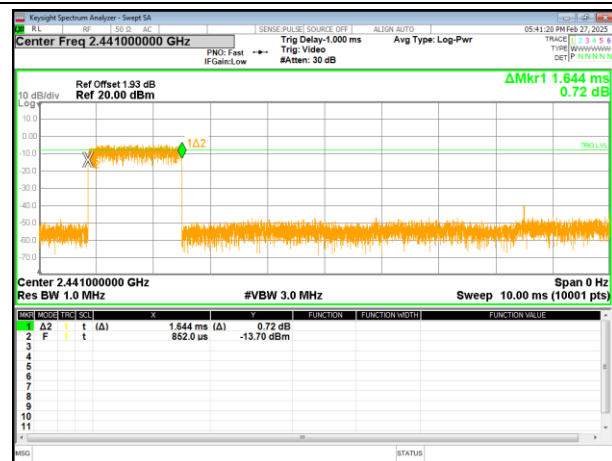
2DH1-2441MHz-One burst



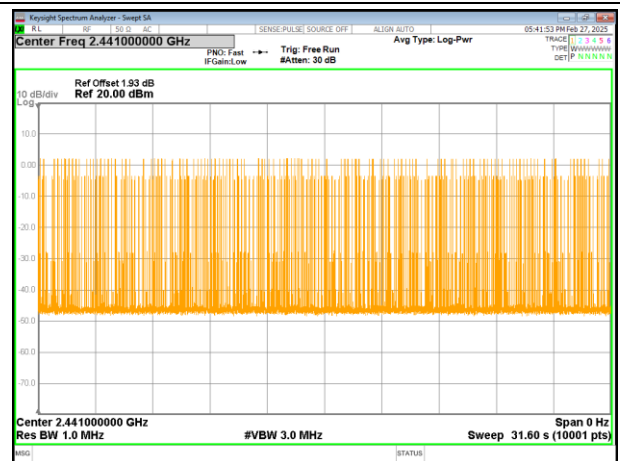
2DH1-2441MHz-Accumulated



2DH3-2441MHz-One burst



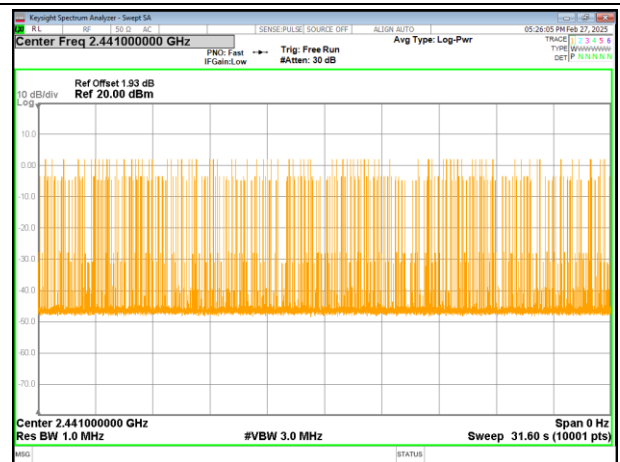
2DH3-2441MHz-Accumulated



2DH5-2441MHz-One burst

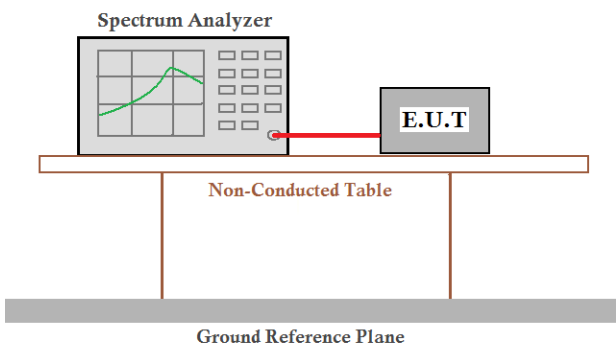


2DH5-2441MHz-Accumulated



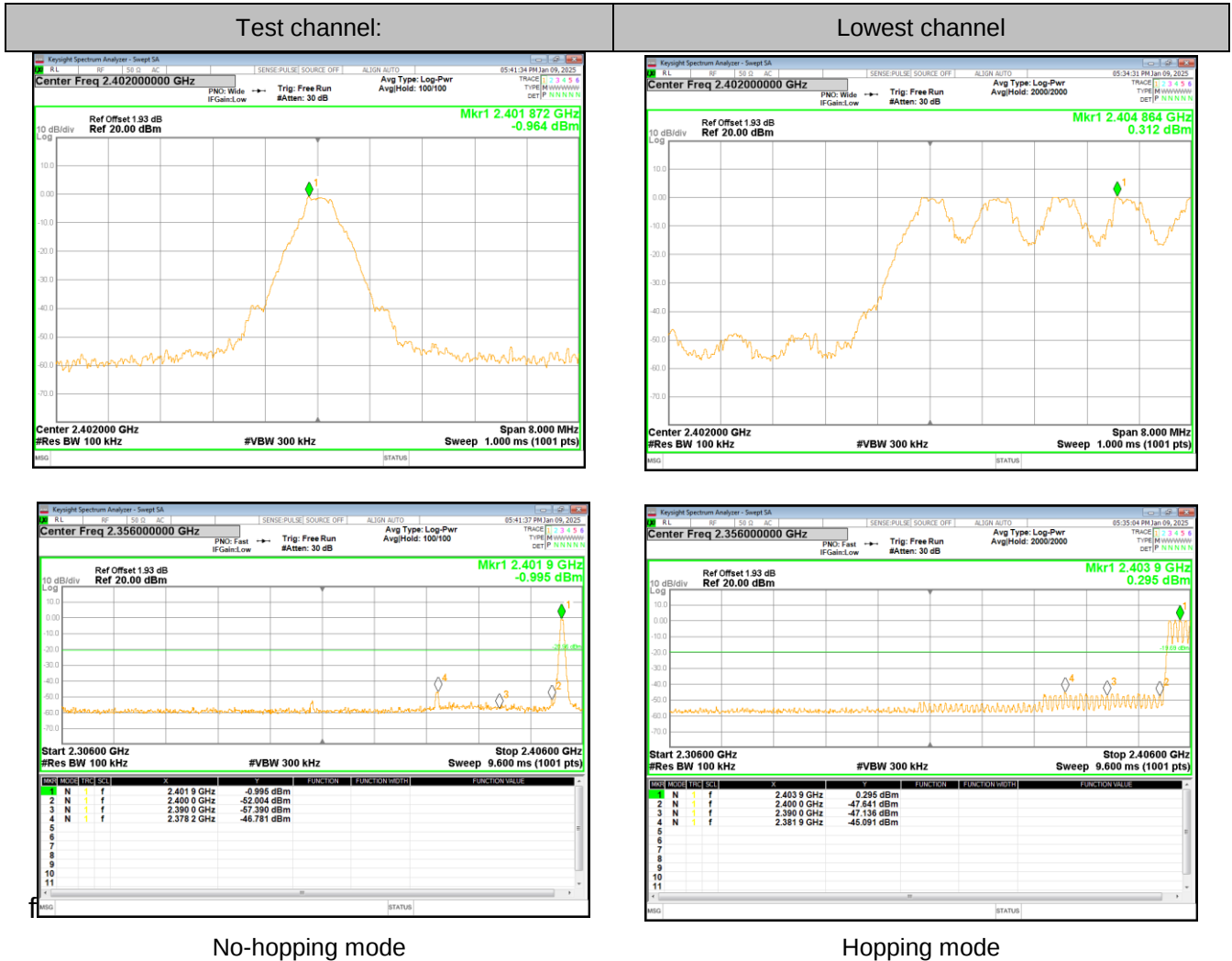
## 4.8 Band Edge

### 4.8.1 Conducted Emission Method

|                   |                                                                                                                                                                                                                                                                                                                                                                                         |               |
|-------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Test Requirement: | FCC Part15 C Section 15.247 (d)                                                                                                                                                                                                                                                                                                                                                         |               |
| Test Method:      | ANSI C63.10:2013                                                                                                                                                                                                                                                                                                                                                                        |               |
| Receiver setup:   | RBW=100kHz, VBW=300kHz, Detector=Peak                                                                                                                                                                                                                                                                                                                                                   |               |
| Limit:            | In any 100 kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement. |               |
| Test setup:       |  <p>The diagram illustrates the test setup for conducted emission measurement. A Spectrum Analyzer is connected via a red cable to an E.U.T (Equipment Under Test). Both are placed on a Non-Conducted Table, which is supported by a Ground Reference Plane.</p>                                    |               |
| Test Instruments: | Refer to section 3.0 for details                                                                                                                                                                                                                                                                                                                                                        |               |
| Test mode:        | Refer to section 2.2 for details                                                                                                                                                                                                                                                                                                                                                        |               |
| Test environment: | Temp.: 26.2°C                                                                                                                                                                                                                                                                                                                                                                           | Humid.: 52%RH |
| Test voltage:     | DC 3.7V                                                                                                                                                                                                                                                                                                                                                                                 |               |
| Test results:     | Pass                                                                                                                                                                                                                                                                                                                                                                                    |               |

Test plot as follows: YX45-L-X (left ear)

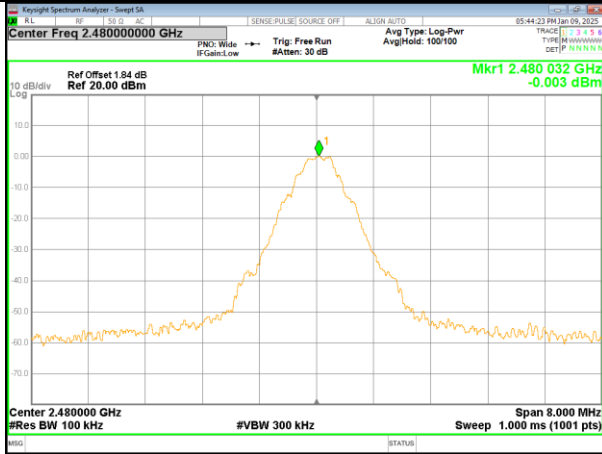
GFSK Mode:



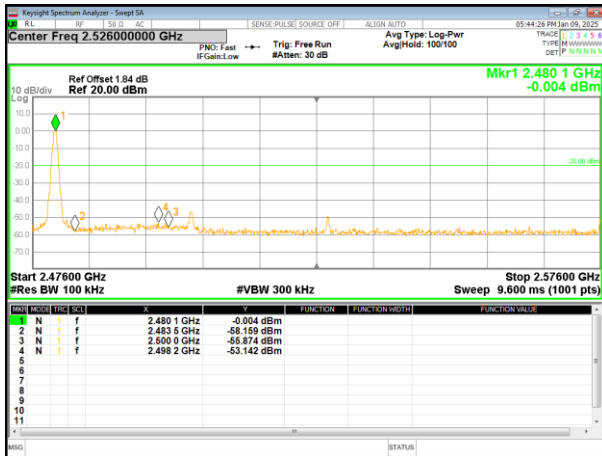
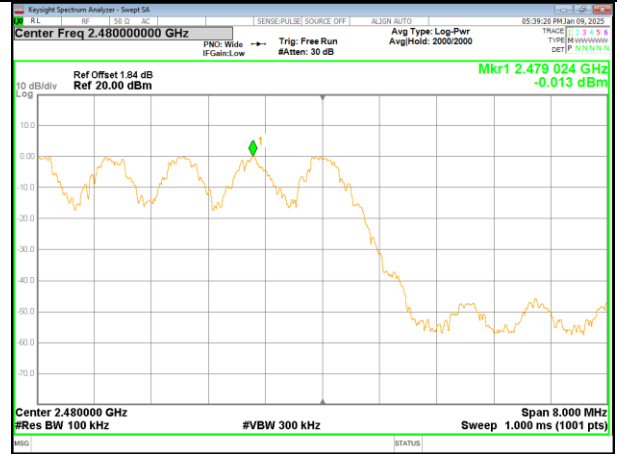
No-hopping mode

Hopping mode

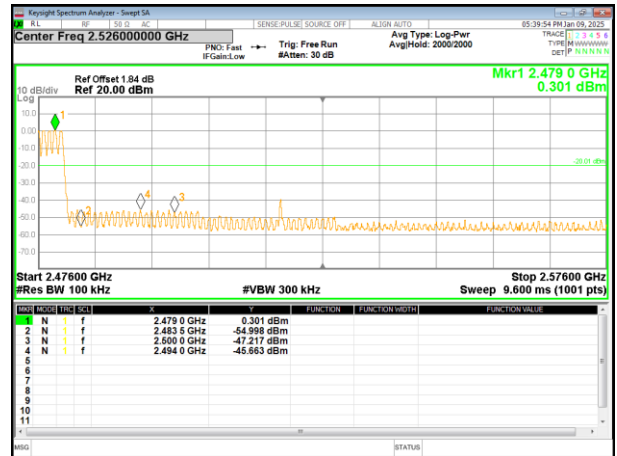
Test channel:



Highest channel



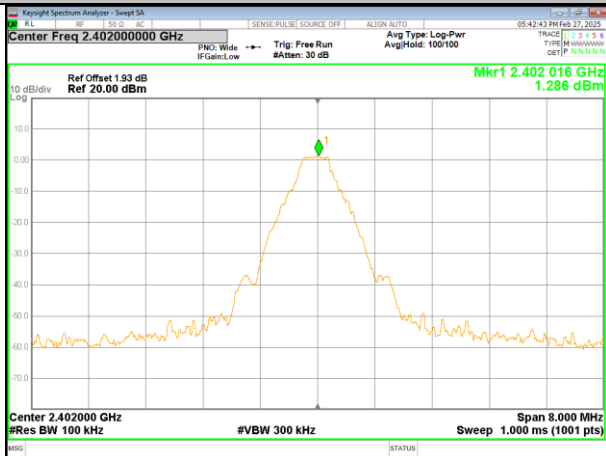
No-hopping mode



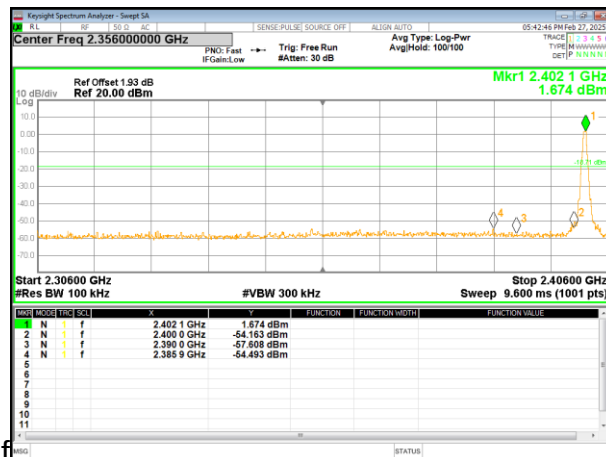
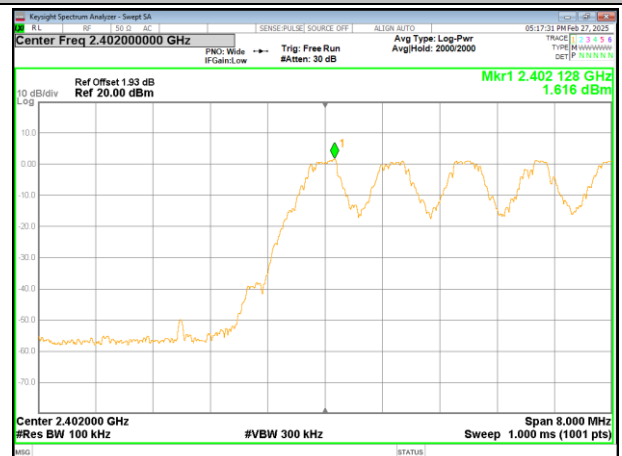
Hopping mode

Test plot as follows: YX45-R-X (Right ear)  
GFSK Mode:

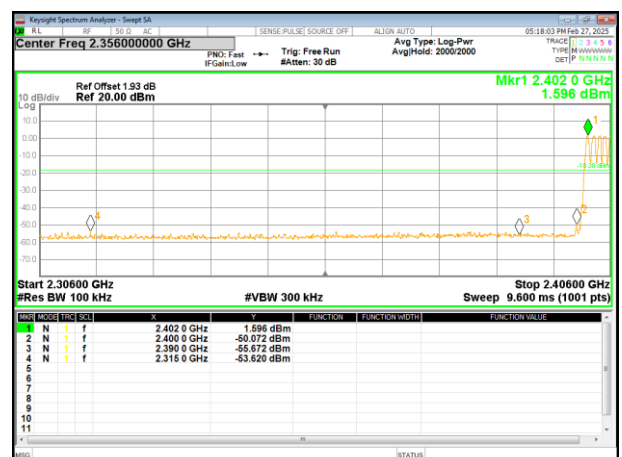
Test channel:



Lowest channel

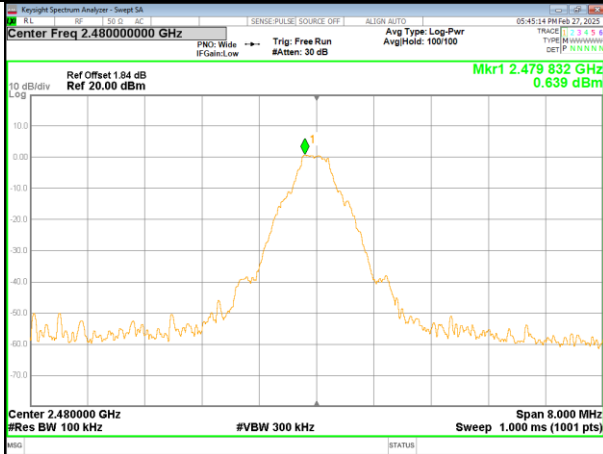


No-hopping mode

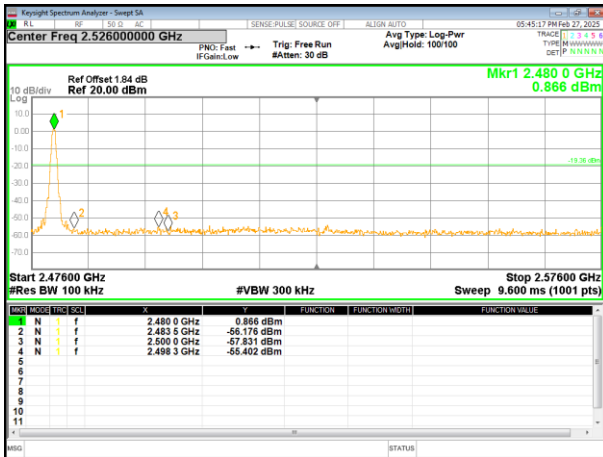
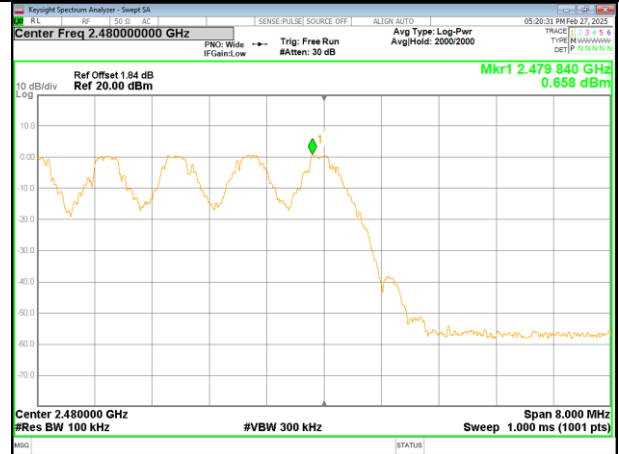


Hopping mode

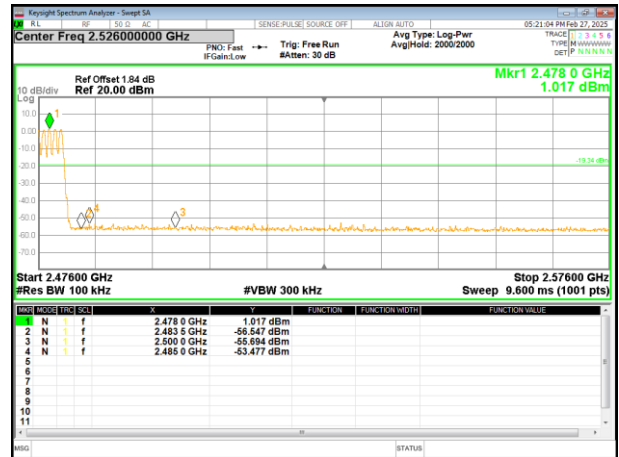
Test channel:



Highest channel

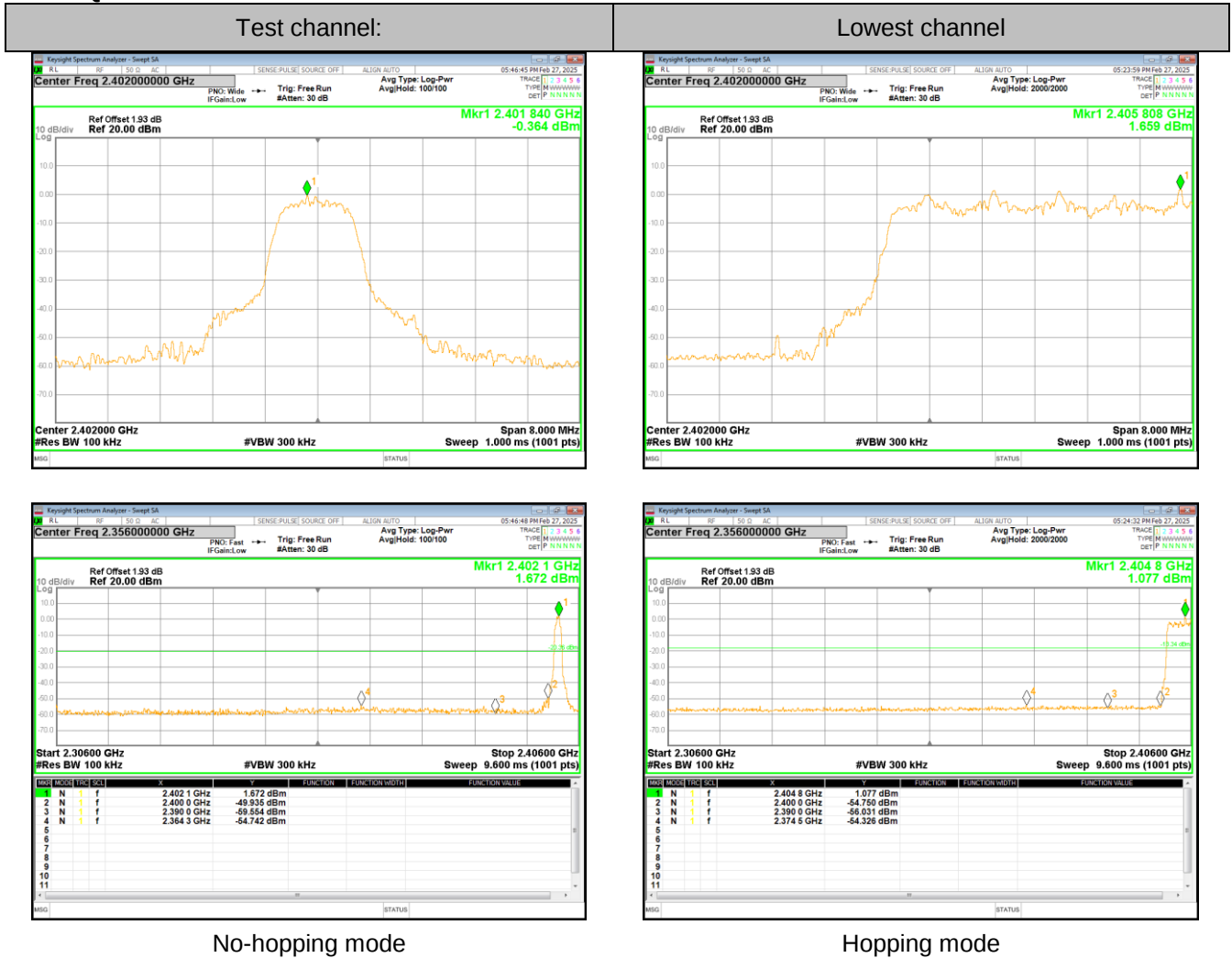


No-hopping mode

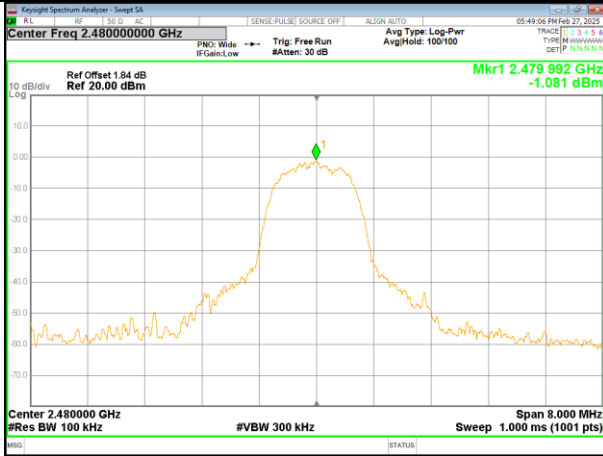


Hopping mode

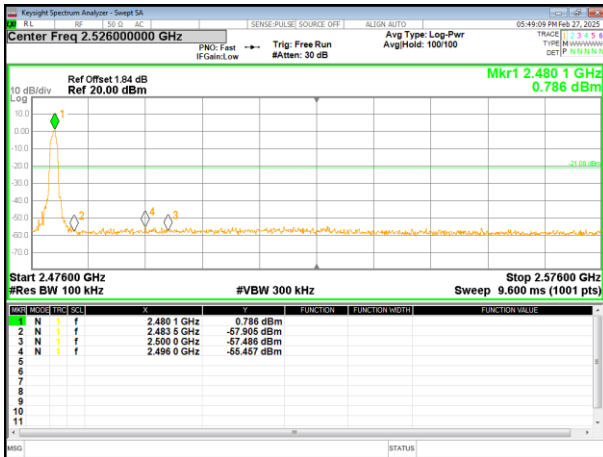
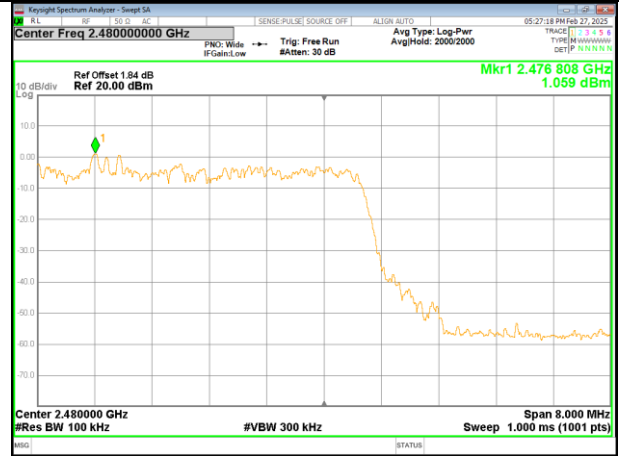
$\pi/4$ -DQPSK Mode:



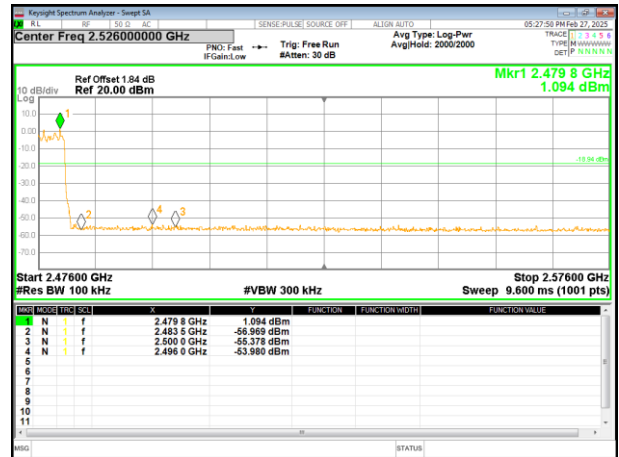
Test channel:



Highest channel

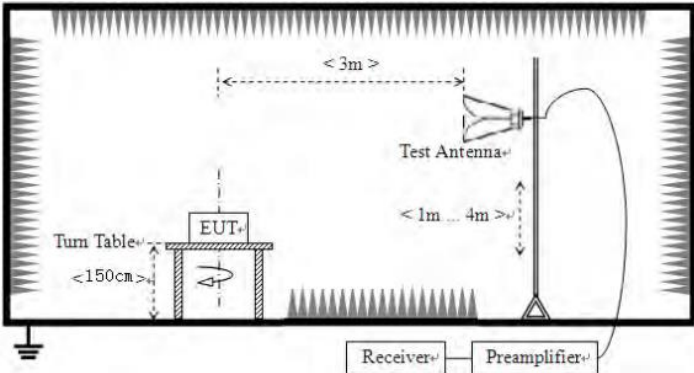


No-hopping mode



Hopping mode

#### 4.8.2 Radiated Emission Method

|                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |          |                    |      |               |
|-----------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|--------------------|------|---------------|
| Test Requirement:     | FCC Part15 C Section 15.209 and 15.205                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |          |                    |      |               |
| Test Method:          | ANSI C63.10:2013                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |          |                    |      |               |
| Test Frequency Range: | All of the restrict bands were tested, only the worst band's (2310MHz to 2500MHz) data was showed.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |          |                    |      |               |
| Test site:            | Measurement Distance: 3m                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |          |                    |      |               |
| Receiver setup:       | Frequency                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Detector | RBW                | VBW  | Remark        |
|                       | Above 1GHz                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Peak     | 1MHz               | 3MHz | Peak Value    |
|                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Peak     | 1MHz               | 10Hz | Average Value |
| Limit:                | Frequency                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |          | Limit (dBuV/m @3m) |      | Remark        |
|                       | Above 1GHz                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |          | 54.00              |      | Average Value |
|                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |          | 74.00              |      | Peak Value    |
| Test setup:           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |          |                    |      |               |
| Test Procedure:       | <div>1. The EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter camber. The table was rotated 360 degrees to determine the position of the highest radiation.</div> <div>2. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.</div> <div>3. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.</div> <div>4. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rota table was turned from 0 degrees to 360 degrees to find the maximum reading.</div> <div>5. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.</div> <div>6. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.</div> |          |                    |      |               |
| Test Instruments:     | Refer to section 3.0 for details                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |          |                    |      |               |
| Test mode:            | Refer to section 2.2 for details                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |          |                    |      |               |
| Test environment:     | Temp.: 22.2°C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |          | Humid.: 33%RH      |      |               |
| Test voltage:         | DC 3.7V                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |          |                    |      |               |
| Test results:         | Pass                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |          |                    |      |               |