

# SAR TEST EXCLUSION EVALUATION REPORT

**Product Name:** TWS Earbuds  
**Trade Mark:** Chug Inc. , Gems, deal worthy, heyday  
**Model No.:** TWS08  
**Report Number:** 24112614900RFC-2  
**Test Standards:** FCC 47 CFR Part 2.1093  
**FCC ID:** 2AO23-TWS08P  
**Test Result:** PASS  
**Date of Issue:** December 19, 2024

Prepared for:

**Chug, Inc.**

**7157 Shady Oak Rd, Eden Prairie MN 55344, United States**

Prepared by:

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UTTR-RF-FCCPART1-V1.1

## Version

| Version No. | Date              | Description |
|-------------|-------------------|-------------|
| V1.0        | December 19, 2024 | Original    |



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## 1. GENERAL INFORMATION

### 1.1 CLIENT INFORMATION

|                                 |                                                                                                                           |
|---------------------------------|---------------------------------------------------------------------------------------------------------------------------|
| <b>Applicant:</b>               | Chug, Inc.                                                                                                                |
| <b>Address of Applicant:</b>    | 7157 Shady Oak Rd, Eden Prairie MN 55344, United States                                                                   |
| <b>Manufacturer:</b>            | Hunan XuanTong Technology Co., Ltd                                                                                        |
| <b>Address of Manufacturer:</b> | B2 Building, Standard Factory, Caojiapeng Four Phases, Baofeng Street, Shimen County, Changde City, Hunan Province, China |

### 1.2 EUT INFORMATION

|                                                             |                                       |               |
|-------------------------------------------------------------|---------------------------------------|---------------|
| <b>Product Name:</b>                                        | TWS Earbuds                           |               |
| <b>Model No.:</b>                                           | TWS08                                 |               |
| <b>Trade Mark:</b>                                          | Chug Inc. , Gems, deal worthy, heyday |               |
| <b>DUT Stage:</b>                                           | Identical Prototype                   |               |
| <b>EUT Supports Function:</b><br>(Provided by the customer) | 2.4 GHz ISM Band:                     | Bluetooth 5.4 |
| <b>Sample Received Date:</b>                                | November 25, 2024                     |               |

**Remark:** The above EUT's information was provided by customer. Please refer to the specifications or user's manual for more detailed description.

### 1.3 PRODUCT SPECIFICATION SUBJECTIVE TO THIS STANDARD

| For BT_EDR                                         |                                         |          |
|----------------------------------------------------|-----------------------------------------|----------|
| <b>Frequency Band:</b>                             | 2400 MHz to 2483.5 MHz                  |          |
| <b>Frequency Range:</b>                            | 2402 MHz to 2480 MHz                    |          |
| <b>Bluetooth Version:</b>                          | Bluetooth BR + EDR                      |          |
| <b>Modulation Technique:</b>                       | Frequency Hopping Spread Spectrum(FHSS) |          |
| <b>Type of Modulation:</b>                         | GFSK, $\pi/4$ DQPSK, 8DPSK              |          |
| <b>Number of Channels:</b>                         | 79                                      |          |
| <b>Channel Separation:</b>                         | 1 MHz                                   |          |
| <b>Antenna Type:</b>                               | PCB Antenna                             |          |
| <b>Antenna Gain:</b><br>(Provided by the customer) | 1.7 dBi                                 |          |
| <b>Maximum Conducted Peak Power:</b>               | Left Earbud:                            | 6.16 dBm |
|                                                    | Right Earbud:                           | 6.00 dBm |

### 1.4 OTHER INFORMATION

| Test channels for BT_EDR         |                      |                       |            |            |
|----------------------------------|----------------------|-----------------------|------------|------------|
| Mode                             | Tx/Rx Frequency      | Test RF Channel Lists |            |            |
|                                  |                      | Lowest(L)             | Middle(M)  | Highest(H) |
| GFSK<br>(DH1, DH3, DH5)          | 2402 MHz to 2480 MHz | Channel 0             | Channel 39 | Channel 78 |
|                                  |                      | 2402 MHz              | 2441 MHz   | 2480 MHz   |
| $\pi/4$ DQPSK<br>(DH1, DH3, DH5) | 2402 MHz to 2480 MHz | Channel 0             | Channel 39 | Channel 78 |
|                                  |                      | 2402 MHz              | 2441 MHz   | 2480 MHz   |
| 8DPSK<br>(DH1, DH3, DH5)         | 2402 MHz to 2480 MHz | Channel 0             | Channel 39 | Channel 78 |
|                                  |                      | 2402 MHz              | 2441 MHz   | 2480 MHz   |

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## 1.5 GENERAL DESCRIPTION OF APPLIED STANDARDS

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The EUT is a RF product, according to the specifications of the manufacturers. It must comply with the requirements of the following standards:

**FCC 47 CFR Part 2.1093**

All test items have been performed and recorded as per the above standards

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## 1.6 DEVIATION FROM STANDARDS

None.

## 1.7 ABNORMALITIES FROM STANDARD CONDITIONS

None.

## 1.8 OTHER INFORMATION REQUESTED BY THE CUSTOMER

None.

## 2. EQUIPMENT LIST

Please refer to the RF test report.

### 3. SAR TEST EXCLUSION EVALUATION

#### 3.1 REFERENCE DOCUMENTS FOR EVALUATION

| No. | Identity                                        | Document Title                                                                              |
|-----|-------------------------------------------------|---------------------------------------------------------------------------------------------|
| 1   | FCC 47 CFR Part 2.1093                          | Radiofrequency radiation exposure evaluation: portable devices.                             |
| 2   | KDB 447498 D01 General RF Exposure Guidance v06 | RF EXPOSURE PROCEDURES AND EQUIPMENT AUTHORIZATION POLICIES FOR MOBILE AND PORTABLE DEVICES |

#### 3.2 EXEMPTION LIMITS FOR ROUTINE EVALUATION – SAR EVALUATION

##### 3.2.1 SAR Test Exclusion Threshold

##### 3.2.1.1 KDB 447498 D01 v06

#### Appendix A

#### *SAR Test Exclusion Thresholds for 100 MHz – 6 GHz and ≤ 50 mm*

Approximate SAR Test Exclusion Power Thresholds at Selected Frequencies and Test Separation Distances are illustrated in the following Table. The equation and threshold in 4.3.1 must be applied to determine SAR test exclusion.

| MHz  | 5  | 10 | 15  | 20  | 25  | mm                                       |
|------|----|----|-----|-----|-----|------------------------------------------|
| 150  | 39 | 77 | 116 | 155 | 194 | <i>SAR Test Exclusion Threshold (mW)</i> |
| 300  | 27 | 55 | 82  | 110 | 137 |                                          |
| 450  | 22 | 45 | 67  | 89  | 112 |                                          |
| 835  | 16 | 33 | 49  | 66  | 82  |                                          |
| 900  | 16 | 32 | 47  | 63  | 79  |                                          |
| 1500 | 12 | 24 | 37  | 49  | 61  |                                          |
| 1900 | 11 | 22 | 33  | 44  | 54  |                                          |
| 2450 | 10 | 19 | 29  | 38  | 48  |                                          |
| 3600 | 8  | 16 | 24  | 32  | 40  |                                          |
| 5200 | 7  | 13 | 20  | 26  | 33  |                                          |
| 5400 | 6  | 13 | 19  | 26  | 32  |                                          |
| 5800 | 6  | 12 | 19  | 25  | 31  |                                          |

| MHz  | 30  | 35  | 40  | 45  | 50  | mm                                      |
|------|-----|-----|-----|-----|-----|-----------------------------------------|
| 150  | 232 | 271 | 310 | 349 | 387 | SAR Test<br>Exclusion<br>Threshold (mW) |
| 300  | 164 | 192 | 219 | 246 | 274 |                                         |
| 450  | 134 | 157 | 179 | 201 | 224 |                                         |
| 835  | 98  | 115 | 131 | 148 | 164 |                                         |
| 900  | 95  | 111 | 126 | 142 | 158 |                                         |
| 1500 | 73  | 86  | 98  | 110 | 122 |                                         |
| 1900 | 65  | 76  | 87  | 98  | 109 |                                         |
| 2450 | 57  | 67  | 77  | 86  | 96  |                                         |
| 3600 | 47  | 55  | 63  | 71  | 79  |                                         |
| 5200 | 39  | 46  | 53  | 59  | 66  |                                         |
| 5400 | 39  | 45  | 52  | 58  | 65  |                                         |
| 5800 | 37  | 44  | 50  | 56  | 62  |                                         |

**Note:** 10-g Extremity SAR Test Exclusion Power Thresholds are 2.5 times higher than the 1-g SAR Test Exclusion Thresholds indicated above. These thresholds do not apply, by extrapolation or other means, to occupational exposure limits.

### 3.2.2 Test Procedure

Software provided by client enabled the EUT to transmit and receive data at lowest, middle and highest channel individually.

## 3.3 MPE CALCULATION RESULTS

**Note:** For the test results, the EUT had been tested with all conditions. But only the worst case was shown in test report.

### 3.3.1 For BT

For BR+EDR function, operating at 2402MHz to 2480 MHz for GFSK,  $\pi/4$  DQPSK, 8DPSK

#### 3.3.1.1 Antenna Type:

Chip Antenna

#### 3.3.1.2 Antenna Gain:

2402MHz to 2480 MHz: 1.7 dBi

#### 3.3.1.3 Results for FCC 47 CFR Part 2.1093

| Operating Mode | Frequency | Tune-up Power (conducted average) | Tolerance | Antenna Gain | Calculated maximum EIRP |        | Separation Distance | SAR Test Exclusion Threshold |
|----------------|-----------|-----------------------------------|-----------|--------------|-------------------------|--------|---------------------|------------------------------|
|                | (MHz)     | (dBm)                             | (dBm)     | (dBi)        | (dBm)                   | (mW)   | (mm)                | (mW)                         |
| BR+EDR         | 2402-2480 | 2.0                               | 2         | 1.7          | 5.7                     | 3.7154 | 5                   | 10                           |

So the transmitter complies with the RF exposure requirements and the SAR is not required.

## APPENDIX 1 PHOTOS OF TEST SETUP

N/A

## APPENDIX 2 PHOTOS OF EUT CONSTRUCTIONAL DETAILS

Refer to Appendix 2 for EUT external and internal Photos.

\*\*\* End of Report \*\*\*

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