

# SAR TEST EXCLUSION EVALUATION REPORT

**Product Name:** AIR COUTURE EARBUDS BUNDLE

**Trade Mark:** AIRBUDS

**Model No.:** 14816

**Add. Model No.:** 14811, 14813, 14814, 14815, 14772,  
14771, 14362, 14361, 14365, 14366 ,  
14367, 10612

**Report Number:** 24042411021RFC-2

**Test Standards:** FCC 47 CFR Part 2.1093

**FCC ID:** 2ATOM-14816

**Test Result:** PASS

**Date of Issue:** September 3, 2024

Prepared for:

**AFH Industries Inc.**

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UTTR-RF-FCCPART1-V1.1

## Version

| Version No. | Date              | Description |
|-------------|-------------------|-------------|
| V1.0        | September 3, 2024 | Original    |



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UTTR-RF-FCCPART1-V1.1

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## 1. GENERAL INFORMATION

### 1.1 CLIENT INFORMATION

|                                 |                                                 |
|---------------------------------|-------------------------------------------------|
| <b>Applicant:</b>               | AFH Industries Inc.                             |
| <b>Address of Applicant:</b>    | 7FL,110 West 34th street New York United states |
| <b>Manufacturer:</b>            | AFH Industries Inc.                             |
| <b>Address of Manufacturer:</b> | 7FL,110 West 34th street New York United states |

### 1.2 EUT INFORMATION

|                                                                                                                                                                                                            |                                                                                     |               |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|---------------|
| Product Name:                                                                                                                                                                                              | AIR COUTURE EARBUDS BUNDLE                                                          |               |
| Model No. /HVIN:                                                                                                                                                                                           | 14816                                                                               |               |
| Add. Model No.:                                                                                                                                                                                            | 14811, 14813, 14814, 14815, 14772, 14771, 14362, 14361, 14365, 14366 , 14367, 10612 |               |
| Trade Mark:                                                                                                                                                                                                | AIRBUDS                                                                             |               |
| DUT Stage:                                                                                                                                                                                                 | Identical Prototype                                                                 |               |
| EUT Supports Function:<br>(Provided by the customer)                                                                                                                                                       | 2.4 GHz ISM Band:                                                                   | Bluetooth 5.3 |
| Sample Received Date:                                                                                                                                                                                      | April 24, 2024                                                                      |               |
| Note:<br>1. The additional model 14811, 14813, 14814, 14815, 14772, 14771, 14362, 14361, 14365, 14366 , 14367, 10612 is identical with the test model 14816 except the model number for marketing purpose. |                                                                                     |               |

**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                     |  |
| <b>Number of Channels:</b>                         | 79                                      |  |
| <b>Channel Separation:</b>                         | 1 MHz                                   |  |
| <b>Antenna Type:</b>                               | Chip Antenna                            |  |
| <b>Antenna Gain:</b><br>(Provided by the customer) | 3.59 dBi                                |  |
| <b>Maximum Conducted Peak Power:</b>               | -2.087 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   |
| $\pi$ /4DQPSK<br>(DH1, DH3, DH5) | 2402 MHz to 2480 MHz | Channel 0             | Channel 39 | Channel 78 |
|                                  |                      | 2402 MHz              | 2441 MHz   | 2480 MHz   |

## 1.5 GENERAL DESCRIPTION OF APPLIED STANDARDS

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

## 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 D04 Interim General RF Exposure Guidance v01 | 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 D04

According to KDB 447498 D04, SAR-based thresholds are derived based on frequency, power, and separation distance of the RF source. The formula defines the thresholds in general for either available maximum time-averaged power or maximum time-averaged ERP, whichever is greater.

The separation distance is the smallest distance from any part of the antenna or radiating structure for all persons, during operation at the applicable ERP. In the case of mobile or portable devices, the separation distance is from the outer housing of the device where it is closest to the antenna.

This method shall only be used at separation distances from 0.5 cm to 40 cm and at frequencies from 0.3 GHz to 6 GHz (inclusive).  $P_{th}$  is given by Formula (B.2).

$$P_{th} \text{ (mW)} = ERP_{20 \text{ cm}} \text{ (mW)} = \begin{cases} 2040f & 0.3 \text{ GHz} \leq f < 1.5 \text{ GHz} \\ 3060 & 1.5 \text{ GHz} \leq f \leq 6 \text{ GHz} \end{cases} \quad (\text{B.1})$$

$$P_{th} \text{ (mW)} = \begin{cases} ERP_{20 \text{ cm}} (d/20 \text{ cm})^x & d \leq 20 \text{ cm} \\ ERP_{20 \text{ cm}} & 20 \text{ cm} < d \leq 40 \text{ cm} \end{cases} \quad (\text{B.2})$$

where

$$x = -\log_{10} \left( \frac{60}{ERP_{20 \text{ cm}} \sqrt{f}} \right)$$

$f$  is in GHz,  $d$  is the separation distance (cm), and  $ERP_{20 \text{ cm}}$  is per Formula (B.1).

Table B.2—Example Power Thresholds (mW)

| Frequency (MHz) | Distance (mm) |    |    |     |     |     |     |     |     |     |
|-----------------|---------------|----|----|-----|-----|-----|-----|-----|-----|-----|
|                 | 5             | 10 | 15 | 20  | 25  | 30  | 35  | 40  | 45  | 50  |
| 300             | 39            | 65 | 88 | 110 | 129 | 148 | 166 | 184 | 201 | 217 |
| 450             | 22            | 44 | 67 | 89  | 112 | 135 | 158 | 180 | 203 | 226 |
| 835             | 9             | 25 | 44 | 66  | 90  | 116 | 145 | 175 | 207 | 240 |
| 1900            | 3             | 12 | 26 | 44  | 66  | 92  | 122 | 157 | 195 | 236 |
| 2450            | 3             | 10 | 22 | 38  | 59  | 83  | 111 | 143 | 179 | 219 |
| 3600            | 2             | 8  | 18 | 32  | 49  | 71  | 96  | 125 | 158 | 195 |
| 5800            | 1             | 6  | 14 | 25  | 40  | 58  | 80  | 106 | 136 | 169 |

### 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

#### 3.3.1.1 Antenna Type:

Chip Antenna

#### 3.3.1.2 Antenna Gain:

2402MHz to 2480 MHz: 3.59 dBi

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

| Operating Mode | Frequency | Tune-up Power<br>(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 | -3                                   | 1.5       | 3.59         | 2.09                    | 1.6181 | 5                   | 3                            |

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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The test report is effective only with both signature and specialized stamp. The result(s) shown in this report refer only to the sample(s) tested. Without written approval of UnionTrust, this report can't be reproduced except in full.

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