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Report Template Version: V05
Report Template Revision Date: 2021-11-03

# RF Exposure Evaluation Report

| | |
|---|---|
| **Report No.:** | CQASZ20220100048E-03 |
| **Applicant:** | Yibai Science & Technology (Shenzhen) Co., Ltd. |
| **Address of Applicant:** | No. 1112, Building 5A, Tusincere Technology Park. Huanggekeng Community Longcheng Street, Longgang District. Shenzhen, China |
| **Equipment Under Test (EUT):** | |
| **EUT Name:** | True Wireless Earphone |
| **Model No.:** | X-Boat |
| **Test Model No.:** | X-Boat |
| **Brand Name:** | N/A |
| **FCC ID:** | 2AVYG-XBOAT |
| **Standards:** | 47 CFR Part 1.1307<br>47 CFR Part 2.1093<br>KDB447498D01 General RF Exposure Guidance v06 |
| **Date of Receipt:** | 2022-01-11 |
| **Date of Test:** | 2022-01-11 to 2022-01-20 |
| **Date of Issue:** | 2022-01-24 |
| **Test Result:** | **PASS*** |

***In the configuration tested, the EUT complied with the standards specified above.**

***Tested By:*** lewis zhou

***( Lewis Zhou )***

***Reviewed By:*** Rock Huang

***( Rock Huang )***

***Approved By:***

***( Jack Ai)***

# 1 Version

**Revision History Of Report**

| Report No. | Version | Description | Issue Date |
|---|---|---|---|
| CQASZ20220100048E-03 | Rev.01 | Initial report | 2022-01-24 |

# 2 Contents

# 3 General Information

## 3.1 Client Information

| | |
|---|---|
| Applicant: | Yibai Science & Technology (Shenzhen) Co., Ltd. |
| Address of Applicant: | No. 1112, Building 5A, Tusincere Technology Park. Huanggekeng Community Longcheng Street, Longgang District. Shenzhen, China |
| Manufacturer: | Yibai Science & Technology (Shenzhen) Co., Ltd. |
| Address of Manufacturer: | No. 1112, Building 5A, Tusincere Technology Park. Huanggekeng Community Longcheng Street, Longgang District. Shenzhen, China |
| Factory: | Yibai Science & Technology (Shenzhen) Co., Ltd. |
| Address of Factory: | No. 1112, Building 5A, Tusincere Technology Park. Huanggekeng Community Longcheng Street, Longgang District. Shenzhen, China |

## 3.2 General Description of EUT

| | |
|---|---|
| Product Name: | True Wireless Earphone |
| Model No.: | X-Boat |
| Test Model No.: | X-Boat |
| Trade Mark: | N/A |
| Software Version: | V-739_AD6973D4_V2.2.4_21.11.23_X-Boat_1_E3471230 |
| Hardware Version: | X-Boat-73D-V1 |
| Power Supply: | Charging box: Li-ion battery: DC 3.7V 300mAh, Charge by DC 5V for adapter |
| | Earphone: Li-ion battery: DC 3.7V 35mAh, Charge by DC 3.7V for Charging box |

## 3.3 General Description of BLE

| | |
|---|---|
| Operation Frequency: | 2402MHz~2480MHz |
| Modulation Type: | GFSK |
| Transfer Rate: | 1Mbps/2Mbps |
| Number of Channel: | 40 |
| Product Type: | ☐ Mobile ☒ Portable ☐ Fix Location |
| Antenna Type: | Chip antenna |
| Antenna Gain: | 2.21 dBi |

## 3.4 General Description of BT

| | |
|---|---|
| Operation Frequency: | 2402MHz~2480MHz |
| Modulation Type: | GFSK, π/4DQPSK, 8DPSK |
| Transfer Rate: | 1Mbps/2Mbps/3Mbps |
| Number of Channel: | 79 |
| Product Type: | ☐ Mobile ☒ Portable ☐ Fix Location |
| Antenna Type: | Chip antenna |
| Antenna Gain: | 2.21 dBi |

# 4 SAR Evaluation

## 4.1 RF Exposure Compliance Requirement

### 4.1.1 Standard Requirement

According to KDB447498D01 General RF Exposure Guidance v06

4.3.1. Standalone SAR test exclusion considerations

Unless specifically required by the published RF exposure KDB procedures, standalone 1-g head or body and 10-g extremity SAR evaluation for general population exposure conditions, by measurement or numerical simulation, is not required when the corresponding SAR Exclusion Threshold condition, listed below, is satisfied.

### 4.1.2 Limits

The 1-g and 10-g SAR test exclusion thresholds for 100 MHz to 6 GHz at test separation distances ≤ 50 mm are determined by:

[(max. power of channel, including tune-up tolerance, mW)/(min. test separation distance, mm)] · [√f(GHz)] ≤ 3.0 for 1-g SAR and ≤ 7.5 for 10-g extremity SAR, where

f(GHz) is the RF channel transmit frequency in GHz
Power and distance are rounded to the nearest mW and mm before calculation[17]
The result is rounded to one decimal place for comparison

The test exclusions are applicable only when the minimum test separation distance is ≤ 50 mm and for transmission frequencies between 100 MHz and 6 GHz. When the minimum test separation distance is < 5 mm, a distance of 5 mm is applied to determine SAR test exclusion

### 4.1.3 EUT RF Exposure

**1) For BLE**

**Measurement Data**

| GFSK mode (1Mbps) | | | | |
|---|---|---|---|---|
| Test channel | Peak Output Power (dBm) | Tune up tolerance (dBm) | Maximum tune-up Power | |
| | | | (dBm) | (mW) |
| Lowest(2402MHz) | -9.19 | -9.0±1 | -8.0 | 0.158 |
| Middle(2440MHz) | -8.43 | --8.5±1 | -7.5 | 0.178 |
| Highest(2480MHz) | -8.37 | -8.5±1 | -7.5 | 0.178 |
| GFSK mode (2Mbps) | | | | |
| Test channel | Peak Output Power (dBm) | Tune up tolerance (dBm) | Maximum tune-up Power | |
| | | | (dBm) | (mW) |
| Lowest(2402MHz) | -9.31 | -9.0±1 | -8.0 | 0.158 |
| Middle(2440MHz) | -8.53 | -8.5±1 | -7.5 | 0.178 |
| Highest(2480MHz) | -8.23 | -8.0±1 | -7.0 | 0.200 |

| Worst case: GFSK mode (2Mbps) | | | | | | |
|---|---|---|---|---|---|---|
| Channel | Maximum Peak Conducted Output Power (dBm) | Tune up tolerance (dBm) | Maximum tune-up Power | | Calculated value | Exclusion threshold |
| | | | (dBm) | (mW) | | |
| Lowest (2402MHz) | -9.31 | -9.0±1 | -8.0 | 0.158 | 0.276 | 3.0 |
| Middle (2440MHz) | -8.53 | -8.5±1 | -7.5 | 0.178 | 0.312 | |
| Highest (2480MHz) | -8.23 | -8.0±1 | -7.0 | 0.200 | 0.396 | |
| Conclusion: the calculated value ≤3.0, SAR is exempted. | | | | | | |

Remark: The Max Conducted Peak Output Power data refer to report Report No.: CQASZ20220100048E-02
BT can not simultaneous transmitting at same time.

2) **For BT**

**Measurement Data**

| GFSK mode | | | | |
|---|---|---|---|---|
| Test channel | Peak Output Power (dBm) | Tune up tolerance (dBm) | Maximum tune-up Power | |
| | | | (dBm) | (mW) |
| Lowest(2402MHz) | -6.77 | -6.5±1 | -5.5 | 0.282 |
| Middle(2441MHz) | -6.29 | -6.0±1 | -5.0 | 0.316 |
| Highest(2480MHz) | -6 | -6.0±1 | -5.0 | 0.316 |
| π/4DQPSK mode | | | | |
| Test channel | Peak Output Power (dBm) | Tune up tolerance (dBm) | Maximum tune-up Power | |
| | | | (dBm) | (mW) |
| Lowest(2402MHz) | -6.68 | -6.5±1 | -5.5 | 0.282 |
| Middle(2441MHz) | -5.87 | -6.0±1 | -5.0 | 0.316 |
| Highest(2480MHz) | -5.63 | -5.5±1 | -4.5 | 0.355 |
| 8DPSK mode | | | | |
| Test channel | Peak Output Power (dBm) | Tune up tolerance (dBm) | Maximum tune-up Power | |
| | | | (dBm) | (mW) |
| Lowest(2402MHz) | -6.41 | -6.5±1 | -5.5 | 0.282 |
| Middle(2441MHz) | -6.12 | -6.0±1 | -5.0 | 0.316 |
| Highest(2480MHz) | -5.63 | -5.5±1 | -4.5 | 0.355 |

| Worst case: π/4DQPSK mode | | | | | | |
|---|---|---|---|---|---|---|
| Channel | Maximum Peak Conducted Output Power (dBm) | Tune up tolerance (dBm) | Maximum tune-up Power | | Calculated value | Exclusion threshold |
| | | | (dBm) | (mW) | | |
| Lowest (2402MHz) | -6.68 | -6.5±1 | -5.5 | 0.282 | 0.087 | 3.0 |
| Middle (2441MHz) | -5.87 | -6.0±1 | -5.0 | 0.316 | 0.099 | |
| Highest (2480MHz) | -5.63 | -5.5±1 | -4.5 | 0.355 | 0.112 | |
| Conclusion: the calculated value ≤3.0, SAR is exempted. | | | | | | |

Remark: The Max Conducted Peak Output Power data refer to report Report No.: CQASZ20220100048E-01
BLE can not simultaneous transmitting at same time.

*** END OF REPORT ***