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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:	yobybo
FCC ID:	2AVYG-XBOAT
Standards:	47 CFR Part 1.1307 47 CFR Part 2.1093 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

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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:	yobybo
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 ***