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Report Template Version: V04

Report Template Revision Date: 2018-07-06

RF Exposure Evaluation Report

Report No.: CQASZ20210400455E-02
Applicant: Shenzhen Yuangu Technology Co., Ltd.
Address of Applicant: No.101, 1st Factory Building, Hebei Industrial Park, Ma'antang Community, Hebeizhongxing Road, Bantian Sub-district, Longgang District, Shenzhen, China
Equipment Under Test (EUT):
EUT Name: TRULY WIRELESS EARBUDS
Model No.: AEA9
Brand Name: AXLOIE
FCC ID: 2ATWG-AEA9L
Standards: 47 CFR Part 1.1307
47 CFR Part 2.1093
KDB447498D01 General RF Exposure Guidance v06
Date of Receipt: 2021-4-14
Date of Test: 2021-4-14 to 2021-5-8
Date of Issue: 2021-5-8
Test Result: PASS*

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

Tested By:

Lewis Zhou

(Lewis Zhou)

Jun Li

Reviewed By:

(Jun Li)

Sheek Luo

Approved By:

(Sheek Luo)



1 Version

Revision History Of Report

Report No.	Version	Description	Issue Date
CQASZ20210400455E-02	Rev.01	Initial report	2021-5-8

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3 General Information

3.1 Client Information

Applicant:	Shenzhen Yuangu Technology Co., Ltd.
Address of Applicant:	No.101, 1st Factory Building, Hebei Industrial Park, Ma'antang Community, Hebeizhongxing Road, Bantian Sub-district, Longgang District, Shenzhen, China
Manufacturer:	Shenzhen Yuangu Technology Co., Ltd.
Address of Manufacturer:	No.101, 1st Factory Building, Hebei Industrial Park, Ma'antang Community, Hebeizhongxing Road, Bantian Sub-district, Longgang District, Shenzhen, China
Factory:	Shenzhen Yuangu Technology Co., Ltd.
Address of Factory:	No.101, 1st Factory Building, Hebei Industrial Park, Ma'antang Community, Hebeizhongxing Road, Bantian Sub-district, Longgang District, Shenzhen, China

3.2 General Description of EUT

Product Name:	TRULY WIRELESS EARBUDS	
Model No.:	AEA9	
Trade Mark:	AXLOIE	
EUT Supports Radios application:	Bluetooth dual mode: 2402-2480MHz	
Hardware Version:	1623-E1-L-V1 20201231	
Software Version:	PAU1623FB-S1R1_20210111_MT_E1_(AXLOIE B2)_TZC_EQ_NTC19_D-mic2_kegong_L_20210417_A_2563	
EUT Power Supply:	Left ear:	lithium battery: DC 3.7V, 50mAh, Charge by DC 5.0V
	The earphone box:	lithium battery: DC 3.7V, 800mAh, Charge by DC 5.0V

3.3 General Description of BT

Operation Frequency:	2402MHz~2480MHz
Bluetooth Version:	V5.0
Modulation Technique:	Frequency Hopping Spread Spectrum(FHSS)
Modulation Type:	GFSK, $\pi/4$ DQPSK, 8DPSK
Number of Channel:	79
Transfer Rate:	1Mbps/2Mbps/3Mbps
Hopping Channel Type:	Adaptive Frequency Hopping systems
Sample Type:	☐ Mobile ☒ Portable ☐ Fix Location
Test Software of EUT:	AWRDLAB_1.0.7.227
Antenna Type:	Chip antenna
Antenna Gain:	0dBi

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:

$$\left[\frac{\text{(max. power of channel, including tune-up tolerance, mW)}}{\text{(min. test separation distance, mm)}} \right] \cdot \sqrt{f(\text{GHz})} \leq 3.0 \text{ for 1-g SAR and } \leq 7.5 \text{ for 10-g extremity SAR, where}$$

$f(\text{GHz})$ is the RF channel transmit frequency in GHz

Power and distance are rounded to the nearest mW and mm before calculation¹⁷

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 BT

Measurement Data

GFSK mode				
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power	
			(dBm)	(mW)
Lowest(2402MHz)	-3.630	-4.5±1	-3.5	0.447
Middle(2441MHz)	-2.320	-3.5±1	-2.5	0.562
Highest(2480MHz)	-2.160	-3±1	-2	0.631
π/4DQPSK mode				
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power	
			(dBm)	(mW)
Lowest(2402MHz)	-4.200	-5.5±1	-4.5	0.355
Middle(2441MHz)	-2.990	-4±1	-3	0.501
Highest(2480MHz)	-2.870	-4±1	-3	0.501
8DPSK mode				
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power	
			(dBm)	(mW)
Lowest(2402MHz)	-4.060	-5±1	-4	0.398
Middle(2441MHz)	-2.830	-4±1	-3	0.501
Highest(2480MHz)	-2.680	-4±1	-3	0.501

Worst case: GFSK mode						
Channel	Maximum Peak Conducted Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune- up Power		Calculated value	Exclusion threshold
			(dBm)	(mW)		
Lowest (2402MHz)	-3.630	-4.5±1	-3.5	0.447	0.138	3.0
Middle (2441MHz)	-2.320	-3.5±1	-2.5	0.562	0.176	
Highest (2480MHz)	-2.160	-3±1	-2	0.631	0.199	
Conclusion: the calculated value ≤3.0, SAR is exempted.						

Remark: The Max Conducted Peak Output Power data refer to report Report No.: CQASZ20210400455E-01