

SAR Evaluation Report

Application No.: SZCR2103020038AT
Applicant: Edifier International Limited
Address of Applicant: P.O. Box 6264 General Post Office Hong Kong
Manufacturer: Beijing Edifier Technology Co., Ltd.
Address of Manufacturer: 8th floor, ZuoAn Building, NO.68 BeiSiHuanXiLu, Haidian District, Beijing 100080, CHINA
Factory: Dongguan Edifier Technology Co., Ltd.
Address of Factory: No.2 Gongyedong Road, Songshan Lake Sci & Tech Industry Park, Dongguan, Guangdong 523808, PR.China
Equipment Under Test (EUT):
EUT Name: True Wireless Stereo Earbuds with Active Noise Cancellation
Model No.: EDF201010
Trade mark: EDIFIER
FCC ID: Z9G-EDF129
Standards: 47 CFR Part 1.1307
47 CFR Part 2.1093
KDB447498D01 General RF Exposure Guidance v06
Date of Receipt: 2021-03-16
Date of Test: 2021-03-17 to 2021-03-29
Date of Issue: 2021-03-30

Test Result :	PASS*
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* In the configuration tested, the EUT complied with the standards specified above.

Keny Xu
EMC Laboratory Manager



2 Version

<i>Revision Record</i>				
<i>Version</i>	<i>Chapter</i>	<i>Date</i>	<i>Modifier</i>	<i>Remark</i>
01		2021-03-30		Original

Authorized for issue by:			
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4 General Information

4.1 General Description of EUT

Power supply:	Lithium Ion Battery: DC 3.8V 350mAh rechargeable battery which charged by Type-C port Lithium Ion Battery: DC 3.8V 35mAh rechargeable battery which charged by charging case for left earbud and right earbud
Cable(s):	Type-C cable: 47cm unshielded
For BT:	
Operation Frequency:	2402MHz to 2480MHz
Bluetooth Version:	V5.0 Dual mode
Modulation Type:	GFSK, pi/4DQPSK, 8DPSK
Number of Channels:	79
Channel Spacing:	1MHz
Spectrum Spread Technology:	Frequency Hopping Spread Spectrum(FHSS)
Antenna Type:	LDS Antenna
Antenna Gain:	Left earbud:-2.6dBi Right earbud:-3.2dBi
For BLE:	
Operation Frequency:	2402MHz to 2480MHz
Bluetooth Version:	V5.0 Dual mode
Modulation Type:	GFSK
Number of Channels:	40
Channel Spacing:	2MHz
Data rate:	1Mbit/s
Antenna Type:	LDS Antenna
Antenna Gain:	Left earbud:-2.6dBi Right earbud:-3.2dBi



4.2 Test Location

All tests were performed at:

SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch

No. 1 Workshop, M-10, Middle section, Science & Technology Park, Shenzhen, Guangdong, China
518057

Telephone: +86 (0) 755 2601 2053 Fax: +86 (0) 755 2671 0594

No tests were sub-contracted.

4.3 Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

- **A2LA (Certificate No. 3816.01)**

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory is accredited by the American Association for Laboratory Accreditation(A2LA). Certificate No. 3816.01.

- **VCCI**

The 3m Fully-anechoic chamber for above 1GHz, 10m Semi-anechoic chamber for below 1GHz, Shielded Room for Mains Port Conducted Interference Measurement and Telecommunication Port Conducted Interference Measurement of SGS-CSTC Standards Technical Services Co., Ltd. have been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: G-20026, R-14188, C-12383 and T-11153 respectively.

- **FCC –Designation Number: CN1178**

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory has been recognized as an accredited testing laboratory.

Designation Number: CN1178. Test Firm Registration Number: 406779.

- **Innovation, Science and Economic Development Canada**

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory has been recognized by ISED as an accredited testing laboratory.

CAB identifier: CN0006.

IC#: 4620C.

4.4 Deviation from Standards

None.

4.5 Abnormalities from Standard Conditions

None.

4.6 Other Information Requested by the Customer

None.



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5 SAR Evaluation

5.1 RF Exposure Compliance Requirement

5.1.1 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.

5.1.2 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:

$$\left[\frac{\text{max. power of channel, including tune-up tolerance, mW}}{\text{min. test separation distance, mm}} \right] \cdot \sqrt{f(\text{GHz})} \leq 3.0$$
 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 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

5.1.3 EUT RF Exposure



For BT:

For right earbud

The Max. power (including tune-up tolerance) is 1.51 dBm on the lowest channel 2.402 GHz (*)
 1.51 dBm logarithmic terms convert to numeric result is nearly 1.42 mW

According to the formula. calculate the test exclusion thresholds:

$$\left[\frac{\text{(max. power of channel, including tune-up tolerance, mW)}}{\text{(min. test separation distance, mm)}} \right] \cdot \sqrt{f(\text{GHz})}$$

$$\text{General RF Exposure} = (1.42 \text{ mW} / 5 \text{ mm}) \times \sqrt{2.402 \text{ GHz}} = 0.44 \quad (1)$$

SAR requirement:

$$S = 3.0 \quad (2)$$

$$(1) < (2)$$

So the SAR report is not required.

(*) Max. power refer to Report No.:SZCR210302003802

For left earbud

The Max. power (including tune-up tolerance) is -0.34 dBm on the middle channel 2.441 GHz (*)
 -0.34 dBm logarithmic terms convert to numeric result is nearly 0.92 mW

According to the formula. calculate the test exclusion thresholds:

$$\left[\frac{\text{(max. power of channel, including tune-up tolerance, mW)}}{\text{(min. test separation distance, mm)}} \right] \cdot \sqrt{f(\text{GHz})}$$

$$\text{General RF Exposure} = (0.92 \text{ mW} / 5 \text{ mm}) \times \sqrt{2.441 \text{ GHz}} = 0.29 \quad (1)$$

SAR requirement:

$$S = 3.0 \quad (2)$$

$$(1) < (2)$$

So the SAR report is not required.

(*) Max. power refer to Report No.:SZCR210302003802



For BLE:

For right earbud

The Max. power (including tune-up tolerance) is 3.02 dBm on the lowest channel 2.402 GHz (*)
3.02 dBm logarithmic terms convert to numeric result is nearly 2.00 mW

According to the formula. calculate the test exclusion thresholds:

$$\left[\frac{\text{(max. power of channel, including tune-up tolerance, mW)}}{\text{(min. test separation distance, mm)}} \cdot \sqrt{f(\text{GHz})} \right]$$

$$\text{General RF Exposure} = (2.00 \text{ mW} / 5 \text{ mm}) \times \sqrt{2.402 \text{ GHz}} = 0.62 \quad (1)$$

SAR requirement:

$$S = 3.0 \quad (2)$$

$$(1) < (2)$$

So the SAR report is not required.

(*) Max. power refer to Report No.:SZCR210302003803

For left earbud

The Max. power (including tune-up tolerance) is 0.67 dBm on the middle channel 2.44 GHz (*)
0.67 dBm logarithmic terms convert to numeric result is nearly 1.17 mW

According to the formula. calculate the test exclusion thresholds:

$$\left[\frac{\text{(max. power of channel, including tune-up tolerance, mW)}}{\text{(min. test separation distance, mm)}} \cdot \sqrt{f(\text{GHz})} \right]$$

$$\text{General RF Exposure} = (1.17 \text{ mW} / 5 \text{ mm}) \times \sqrt{2.44 \text{ GHz}} = 0.37 \quad (1)$$

SAR requirement:

$$S = 3.0 \quad (2)$$

$$(1) < (2)$$

So the SAR report is not required.

(*) Max. power refer to Report No.:SZCR210302003803

- End of the Report -

