



## Shenzhen Huaxia Testing Technology Co., Ltd

1F., Block A of Tongsheng Technology Building, Huahui Road, Dalang Street, Longhua District, Shenzhen, China

Telephone: +86-755-26648640  
Fax: +86-755-26648637  
Website: [www.cqa-cert.com](http://www.cqa-cert.com)

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# RF Exposure Evaluation Report

**Report No.:** CQASZ20210300370E-02  
**Applicant:** Edifier International Limited  
**Address of Applicant:** P.O. Box 6264 General Post Office Hong Kong  
**Equipment Under Test (EUT):**  
**EUT Name:** True Wireless Gaming Earbuds  
**Model No.:** GM4  
**Brand Name:** EDIFIER,HECATE  
**FCC ID:** Z9G-EDF108  
**Standards:** 47 CFR Part 1.1307  
47 CFR Part 2.1093  
KDB447498D01 General RF Exposure Guidance v06  
**Date of Receipt:** 2021-3-29  
**Date of Test:** 2021-3-29 to 2021-4-12  
**Date of Issue:** 2021-4-12  
**Test Result:** **PASS\***

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

**Tested By:** Jun Li  
(Jun Li)  
**Reviewed By:** Ares Liu  
(Ares Liu)  
**Approved By:** Sheek Luo  
(Sheek Luo)



## 1 Version

### Revision History Of Report

Report No.	Version	Description	Issue Date
CQASZ20210300370E-02	Rev.01	Initial report	2021-4-12

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### 3 General Information

#### 3.1 Client Information

Applicant:	Edifier International Limited
Address of Applicant:	P.O. Box 6264 General Post Office Hong Kong
Manufacturer:	Dongguan Edifier Esports Technology Co., Ltd
Address of Manufacturer:	5th floor, Office Building in the 1st district, No. 2, East Industry Road, Songshan Lake Science & Technology Industrial Park, Dongguan, 523808, 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

#### 3.2 General Description of EUT

Product Name:	True Wireless Gaming Earbuds
Test Model No.:	GM4
Trade Mark:	EDIFIER,HECATE
Hardware Version:	V1.0
Software Version:	V1.0
Operation Frequency:	2402MHz~2480MHz
Bluetooth Version:	V5.0
Modulation Technique:	Frequency Hopping Spread Spectrum(FHSS)
Modulation Type:	GFSK, $\pi/4$ DQPSK, 8DPSK
Transfer Rate:	1Mbps
Number of Channel:	79
Hopping Channel Type:	Adaptive Frequency Hopping systems
Product Type:	<input type="checkbox"/> Mobile <input checked="" type="checkbox"/> Portable <input type="checkbox"/> Fix Location
Antenna Type:	FPC antenna
Antenna Gain:	1.96dBi
EUT Power Supply:	lithium battery: DC3.7V,50mAh/60mAh, Charge by DC5.0V

## 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  $\leq 50$  mm are determined by:

$$\left[ \frac{\text{(max. power of channel, including tune-up tolerance, mW)}}{\text{(min. test separation distance, mm)}} \cdot \sqrt{f(\text{GHz})} \right] \leq 3.0$$
 for 1-g SAR and  $\leq 7.5$  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 calculation<sup>17</sup>

The result is rounded to one decimal place for comparison

The test exclusions are applicable only when the minimum test separation distance is  $\leq 50$  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 (Left)

#### Measurement Data

GFSK mode				
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power	
			(dBm)	(mW)
Lowest(2402MHz)	4.090	3±1	4	2.512
Middle(2441MHz)	4.930	4±1	5	3.162
Highest(2480MHz)	4.690	4±1	5	3.162
π/4DQPSK mode				
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power	
			(dBm)	(mW)
Lowest(2402MHz)	3.050	2±1	3	1.995
Middle(2441MHz)	3.790	3±1	4	2.512
Highest(2480MHz)	3.460	2.5±1	3.5	2.239
8DPSK mode				
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power	
			(dBm)	(mW)
Lowest(2402MHz)	3.360	2.5±1	3.5	2.239
Middle(2441MHz)	4.140	3±1	4	2.512
Highest(2480MHz)	3.900	3±1	4	2.512

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)	4.090	3±1	4	2.512	0.779	3.0
Middle (2441MHz)	4.930	4±1	5	3.162	0.988	
Highest (2480MHz)	4.690	4±1	5	3.162	0.996	
Conclusion: the calculated value ≤3.0, SAR is exempted.						

Remark: The Max Conducted Peak Output Power data refer to report Report No.:CQASZ20210300370E-01

2) For BT (Right)

Measurement Data

GFSK mode				
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power	
			(dBm)	(mW)
Lowest(2402MHz)	3.620	3±1	4	2.512
Middle(2441MHz)	4.380	3.5±1	4.5	2.818
Highest(2480MHz)	4.180	3±1	4	2.512
π/4DQPSK mode				
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power	
			(dBm)	(mW)
Lowest(2402MHz)	2.350	1.5±1	2.5	1.778
Middle(2441MHz)	3.080	2±1	3	1.995
Highest(2480MHz)	2.730	2±1	3	1.995
8DPSK mode				
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power	
			(dBm)	(mW)
Lowest(2402MHz)	2.760	2±1	3	1.995
Middle(2441MHz)	3.510	2.5±1	3.5	2.239
Highest(2480MHz)	3.180	2±1	3	1.995

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)	3.620	3±1	4	2.512	0.779	3.0
Middle (2441MHz)	4.380	3.5±1	4.5	2.818	0.881	
Highest (2480MHz)	4.180	3±1	4	2.512	0.791	
Conclusion: the calculated value ≤3.0, SAR is exempted.						

Remark: The Max Conducted Peak Output Power data refer to report Report No.:CQASZ20210300370E-02