



Shenzhen Global Test Service Co.,Ltd.

No.7-101 and 8A-104, Building 7 and 8, DCC Cultural and Creative Garden, No.98, Pingxin North Road, Shangmugu Community, Pinghu Street, Longgang District, Shenzhen, Guangdong

RF Exposure evaluation

Report Reference No..... : **GTSR18050150-02**

FCC ID..... : **2APWE-HG12**

Compiled by

(position+printed name+signature) : File administrators Jimmy Wang

Supervised by

(position+printed name+signature) : Test Engineer Peter Xiao

Approved by

(position+printed name+signature) : Manager Jason Hu

Date of issue..... : May.28, 2018

Representative Laboratory Name : **Shenzhen Global Test Service Co.,Ltd.**

Address..... : 1F, Building No. 13A, Zhonghaixin Science and Technology City, No.12,6 Road, Ganli Industrial Park, Buji Street, Longgang District, Shenzhen, Guangdong

Applicant's name..... : **Shenzhen HongDao ShanHe Industry Co.,Ltd.**

Address..... : **Room 405&406, Building C, Zhigu Tech Park, Yingtian 4 Rd., Xixiang, Bao'an District, Shenzhen, China**

Test specification

Standard : **47CFR §2.1093(d)/KDB447498 v06**

TRF Originator : Shenzhen Global Test Service Co.,Ltd.

Master TRF : Dated 2014-12

Shenzhen Global Test Service Co.,Ltd. All rights reserved.

This publication may be reproduced in whole or in part for non-commercial purposes as long as the Shenzhen Global Test Service Co.,Ltd. is acknowledged as copyright owner and source of the material. Shenzhen Global Test Service Co.,Ltd. takes no responsibility for and will not assume liability for damages resulting from the reader's interpretation of the reproduced material due to its placement and context.

Test item description : **Bluetooth Earbuds**

Trade Mark : /

Manufacturer : **Shenzhen HongDao ShanHe Industry Co.,Ltd.**

Model/Type reference..... : **HG12**

Listed Models : **HGXX(XX=01-99, indicate difference between the customer code)**

Modulation Type : **GFSK**

Difference : All the same except the model number

Operation Frequency..... : From 2402MHz to 2480MHz

Hardware Version : **V02**

Software Version : **2.1.0.11688**

Rating : DC 5V from adapter/DC 3.7V from battery

Result..... : **PASS**

TEST REPORT

Test Report No. :	GTSR18050150-02	Jun. 05, 2017
		Date of issue

Equipment under Test : **Bluetooth Earbuds**

Model /Type : **HG12**

Listed Models : **HGXX(XX=01-99, indicate difference between the customer code)**

Applicant : **Shenzhen HongDao ShanHe Industry Co.,Ltd.**

Address : **Room 405&406, Building C, Zhigu Tech Park, Yingtian 4 Rd., Xixiang, Bao'an District, Shenzhen, China**

Manufacturer : **Shenzhen HongDao ShanHe Industry Co.,Ltd.**

Address : **Room 405&406, Building C, Zhigu Tech Park, Yingtian 4 Rd., Xixiang, Bao'an District, Shenzhen, China**

Test Result:	PASS
---------------------	-------------

The test report merely corresponds to the test sample.

It is not permitted to copy extracts of these test result without the written permission of the test laboratory.

Contents

<u>1.</u>	<u>SUMMARY</u>	4
1.1.	EUT configuration	4
1.2.	Product Description	4
<u>2.</u>	<u>TEST ENVIRONMENT</u>	5
2.1.	Address of the test laboratory	5
2.2.	Test Facility	5
2.3.	Environmental conditions	5
2.4.	Statement of the measurement uncertainty	5
<u>3.</u>	<u>METHOD OF MEASUREMENT</u>	6
3.1.	Applicable Standard	6
3.2.	Requirement	6
3.3.	Simultaneous transmission MPE Considerations	6
<u>4.</u>	<u>EVALUATION RESULT</u>	7
<u>5.</u>	<u>CONCLUSION</u>	7

1. SUMMARY

1.1. EUT configuration

The following peripheral devices and interface cables were connected during the measurement:

- supplied by the manufacturer

- supplied by the lab

<input type="radio"/>	ADAPTER	M/N:	KZ0502000W
		Manufacturer:	CLEMENTONI

1.2. Product Description

Product Name:	Bluetooth Earbuds
Trade Mark:	/
Model/Type reference:	HG12
Power supply:	DC 5V from adapter / DC 3.7V from Battery
Antenna Type:	Internal Antenna
Antenna Gain:	0.00 dBi
Bluetooth	Supported BT4.2 The module support the BT3.0&BT4.0, but the BT3.0 is shield by software.
BT	
Modulation Type	GFSK
Operation frequency	2402-2480 MHz

2. TEST ENVIRONMENT

2.1. Address of the test laboratory

Shenzhen Global Test Service Co.,Ltd.

No.7-101 and 8A-104, Building 7 and 8, DCC Cultural and Creative Garden, No.98, Pingxin North Road, Shangmugu Community, Pinghu Street, Longgang District, Shenzhen, Guangdong

2.2. Test Facility

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

FCC-Registration No.: 165725

Shenzhen Global Test Service Co.,Ltd EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files.

A2LA-Lab Cert. No.: 4758.01

Shenzhen Global Test Service Co.,Ltd. EMC Laboratory has been accredited by A2LA for technical competence in the field of electrical testing, and proved to be in compliance with ISO/IEC 17025: 2005 General Requirements for the Competence of Testing and Calibration Laboratories and any additional program requirements in the identified field of testing.

CNAS-Lab Code: L8169

Shenzhen Global Test Service Co.,Ltd. has been assessed and proved to be in compliance with CNAS-CL01 Accreditation Criteria for Testing and Calibration Laboratories (identical to ISO/IEC 17025: 2005 General Requirements) for the Competence of Testing and Calibration Laboratories. Date of Registration: Dec. 11, 2015. Valid time is until Dec. 10, 2018.

2.3. Environmental conditions

During the measurement the environmental conditions were within the listed ranges:

Temperature:	15-35 °C
Humidity:	30-60 %
Atmospheric pressure:	950-1050mbar

2.4. Statement of the measurement uncertainty

The data and results referenced in this document are true and accurate. The reader is cautioned that there may be errors within the calibration limits of the equipment and facilities. The measurement uncertainty was calculated for all measurements listed in this test report acc. to TR-100028-01 "Electromagnetic compatibility and Radio spectrum Matters (ERM);Uncertainties in the measurement of mobile radio equipment characteristics; Part 1" and TR-100028-02 "Electromagnetic compatibility and Radio spectrum Matters (ERM);Uncertainties in the measurement of mobile radio equipment characteristics; Part 2 " and is documented in the Shenzhen Global Test Service Co.,Ltd quality system acc. to DIN EN ISO/IEC 17025. Furthermore, component and process variability of devices similar to that tested may result in additional deviation. The manufacturer has the sole responsibility of continued compliance of the device.

Hereafter the best measurement capability for Shenzhen GTS laboratory is reported:

Test Items	Measurement Uncertainty	Notes
Transmitter power conducted	0.57 dB	(1)

(1) This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

3. Method of measurement

3.1. Applicable Standard

According to §1.1307(b)(1), systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy level in excess of the Commission's guidelines.

According to §1.1310 and §2.1093 RF exposure requirement

KDB447498 v06: Mobile and Portable Devices RF Exposure Procedures and Equipment Authorization Policies.

3.2. Requirement

According to KDB447498 D01 General RF Exposure Guidance v06 Section 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 Test Exclusion Threshold condition, listed below, is satisfied. These test exclusion conditions are based on source-based time-averaged maximum conducted output power of the RF channel requiring evaluation, adjusted for tune-up tolerance, and the minimum test separation distance required for the exposure conditions.²² The minimum test separation distance is determined by the smallest distance from the antenna and radiating structures or outer surface of the device, according to the host form factor, exposure conditions and platform requirements, to any part of the body or extremity of a user or bystander (see 5) of section 4.1). To qualify for SAR test exclusion, the test separation distances applied must be fully explained and justified by the operating configurations and exposure conditions of the transmitter and applicable host platform requirements, typically in the SAR measurement or SAR analysis report, according to the required published RF exposure KDB procedures. When no other RF exposure testing or reporting is required, a statement of justification and compliance must be included in the equipment approval, in lieu of the SAR report, to qualify for the SAR test exclusion. When required, the device specific conditions described in the other published RF exposure KDB procedures must be satisfied before applying these SAR test exclusion provisions; for example, handheld PTT two-way radios, handsets, laptops & tablets etc.²³"

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

- f (GHz) is the RF channel transmit frequency in GHz
- Power and distance are rounded to the nearest mW and mm before calculation
- The result is rounded to one decimal place for comparison
- 3.0 and 7.5 are referred to as the numeric thresholds in the step 2 below

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 according to 5) in section 4.1 is applied to determine SAR test exclusion.

3.3. Simultaneous transmission MPE Considerations

According to KDB447498 :For mobile exposure host platform to qualify for simultaneous transmission MPE test exclusion, all transmitters and antennas in the host must be either evaluated for MPE compliance, by measurement or computational modeling, or qualify for the standalone MPE test exclusion in section 7.1. Simultaneous transmission MPE test exclusion applies when the sum of the MPE ratios for all simultaneous transmitting antennas incorporated in a host device, based on the calculated/estimated, numerically modeled or measured field strengths or power density, is ≤ 1.0 .

This means that:

$\sum \text{ of MPE ratios} \leq 1.0$

4. Evaluation Result

BT						
	Peak Output power	Target power W/ tolerance (dBm)	Max tune up power tolerance (dBm)	Maximum Output Power: mW	Separation distance mm	RF exposure
2440	1.69	1±1.0	2	1.5849	5	0.4951

5. Conclusion

The measurement results comply with the FCC Limit per 47 CFR 2.1093 for the uncontrolled RF Exposure and SAR Exclusion Threshold per KDB 447498 v06.

.....End of Report.....