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RF Exposure Evaluation Report

Report No. :	CQASZ20180400024E-02
Applicant:	Shenzhen Timekettle Technologies Co., Ltd
Address of Applicant:	Room 602, Building 3, Minqi Science Park, Pingshan 1st Rd, Nanshan, Shenzhen, China
Manufacturer:	Shenzhen Timekettle Technologies Co., Ltd
Address of Manufacturer:	Room 602, Building 3, Minqi Science Park, Pingshan 1st Rd, Nanshan, Shenzhen, China
Factory:	Shenzhen Timekettle Technologies Co., Ltd
Address of Factory:	Room 602, Building 3, Minqi Science Park, Pingshan 1st Rd, Nanshan, Shenzhen, China
Equipment Under Test (EUT):	
Product:	Real-time Earphone Translator
Model No.:	WT2-X1, WT2-X2, WT2-X3, WT2-X4, WT2-X5
Brand Name:	WT2
FCC ID:	2AQ2G-WT2
Standards:	47 CFR Part 1.1307 47 CFR Part 2.1091 KDB447498D01 General RF Exposure Guidance v06
Date of Test:	2018-04-25 to 2018-05-02
Date of Issue:	2018-05-02
Test Result :	**PASS***

Tested By: Aaron Ma

(Aaron Ma)

Reviewed By: Owen Zhou

(Owen Zhou)

Approved By:

(Jack Ai)

SHENZHEN HUAXIA TESTING TECHNOLOGY CO.,LTD 华夏准测 APPROVED

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

The test report is effective only with both signature and specialized stamp, The result(s) shown in this report refer only to the sample(s) tested. Without written approval of CQA, this report can't be reproduced except in full.

2 Version

Revision History Of Report

Report No.	Version	Description	Issue Date
CQASZ20180400024E-02	Rev.01	Initial report	2018-05-02

3 Contents

4 General Information

4.1 Client Information

Applicant:	Shenzhen Timekettle Technologies Co., Ltd
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Factory:	Shenzhen Timekettle Technologies Co., Ltd
Address of Factory:	Room 602, Building 3, Minqi Science Park, Pingshan 1st Rd, Nanshan, Shenzhen, China

4.2 General Description of EUT

Product Name:	Real-time Earphone Translator
Model No.:	WT2-X1, WT2-X2, WT2-X3, WT2-X4, WT2-X5
Trade Mark:	WT2
Hardware Version:	V1.0
Software Version:	V1.0
Operation Frequency:	2402MHz~2480MHz
Bluetooth Version:	V4.1
Modulation Technique:	Frequency Hopping Spread Spectrum(FHSS)
Modulation Type:	GFSK, π/4DQPSK, 8DPSK
Number of Channel:	79
Hopping Channel Type:	Adaptive Frequency Hopping systems
Sample Type:	portable production
Test Software of EUT:	Broadcom Blue Tool (manufacturer declare)
Antenna Type:	Ceramic antenna
Antenna Gain:	-1.57dBi
Power Supply:	lithium battery:DC3.7V

Remark:
All model: WT2-X1, WT2-X2, WT2-X3, WT2-X4, WT2-X5

Only the model WT2-X1 was tested, since the electrical circuit design, layout, components used and internal wiring were identical for the above models, with difference being color of appearance and model name.

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:

[(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

5.1.3 EUT RF Exposure

For BT:

Measurement Data

GFSK mode	
Test channel	Peak Output Power (dBm)
Lowest	-2.62
Middle	-2.04
Highest	-2.31
π/4DQPSK mode	
Test channel	Peak Output Power (dBm)
Lowest	-4.21
Middle	-3.57
Highest	-4.03
8DPSK mode	
Test channel	Peak Output Power (dBm)
Lowest	-4.17
Middle	-3.53
Highest	-3.92

The Max Conducted Peak Output Power is -2.04dBm in middle channel(2.441GHz);

The best case gain of the antenna is-1.57dBi.

EIRP= -2.04dBm – 1.57dBi =-3.61dBm

-3.61dBm logarithmic terms convert to numeric result is nearly 0.44mW

According to the formula. calculate the EIRP test result:

[(max. power of channel, including tune-up tolerance, mW)/(min. test separation distance, mm)] · [√f(GHz)]

General RF Exposure = (0.44mW / 5 mm) x √2.441GHz = 0.137 ①

SAR requirement:

S= 3.0 ② ;

① < ②.

So the SAR report is not required.

Remark: The Max Conducted Peak Output Power data refer to report Report No.: CQASZ20180400024E-01