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RF Exposure Evaluation Report

Report No. : CQASZ20180900062E-02

Applicant: Shenzhen ke mai qi electronic technology co. LTD

Address of Applicant: 603-604, 6 / f, building C, zhongyuguan industrial park, longhua street, longhua new district, Shenzhen, China

Manufacturer: Shenzhen ke mai qi electronic technology co. LTD

Address of Manufacturer: 603-604, 6 / f, building C, zhongyuguan industrial park, longhua street, longhua new district, Shenzhen, China

Factory: Shenzhen ke mai qi electronic technology co. LTD

Address of Factory: 603-604, 6 / f, building C, zhongyuguan industrial park, longhua street, longhua new district, Shenzhen, China

Equipment Under Test (EUT):

Product: Bluetooth headset

All Model No.: G3, G1, G2

Test Model No.: G3

Brand Name: N/A

FCC ID: 2ARGMKMAIQ

Standards: 47 CFR Part 1.1307
47 CFR Part 2.1093
KDB447498D01 General RF Exposure Guidance v06

Date of Test: 2018-09-27 to 2018-10-18

Date of Issue: 2018-10-18

Test Result : **PASS***

Tested By:

Daisy Qin

(Daisy Qin)

Reviewed By:

Aaron Ma

(Aaron Ma)

Approved By:

Jack Ai

(Jack Ai)



* 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.

1 Version

Revision History Of Report

Report No.	Version	Description	Issue Date
CQASZ20180900062E-02	Rev.01	Initial report	2018-10-18

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3 General Information

3.1 Client Information

Applicant:	Shenzhen ke mai qi electronic technology co. LTD
Address of Applicant:	603-604, 6 / f, building C, zhongyuguan industrial park, longhua street, longhua new district, Shenzhen, China
Manufacturer:	Shenzhen ke mai qi electronic technology co. LTD
Address of Manufacturer:	603-604, 6 / f, building C, zhongyuguan industrial park, longhua street, longhua new district, Shenzhen, China
Factory:	Shenzhen ke mai qi electronic technology co. LTD
Address of Factory:	603-604, 6 / f, building C, zhongyuguan industrial park, longhua street, longhua new district, Shenzhen, China

3.2 General Description of EUT

Product Name:	Bluetooth headset
All Model No.:	G3, G2, G1
Test Model No.:	G3
Trade Mark:	N/A
Hardware Version:	V1.0
Software Version:	V1.0
Operation Frequency:	2402MHz~2480MHz
Bluetooth Version:	V4.2
Modulation Technique:	Frequency Hopping Spread Spectrum(FHSS)
Modulation Type:	GFSK, $\pi/4$ DQPSK, 8DPSK
Number of Channel:	79
Hopping Channel Type:	Adaptive Frequency Hopping systems
Sample Type:	portable production
Test Software of EUT:	Blue test (manufacturer declare)
Antenna Type:	Ceramic antenna
Antenna Gain:	0dBi
Power Supply:	lithium battery: DC3.7V, Charge by USB

Note:

All model: G3, G2, G1

Only the model G3 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.

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

For BT:

Measurement Data

GFSK mode	
Test channel	Peak Output Power (dBm)
Lowest	1.820
Middle	2.760
Highest	2.920
π/4DQPSK mode	
Test channel	Peak Output Power (dBm)
Lowest	-0.930
Middle	0.040
Highest	0.160
8DPSK mode	
Test channel	Peak Output Power (dBm)
Lowest	-0.380
Middle	0.610
Highest	0.760

The Max Conducted Peak Output Power is 2.92dBm in highest channel(2.480GHz);

The best case gain of the antenna is 0dBi.

EIRP= 2.92dBm + 0dBi = 2.92dBm

2.92dBm logarithmic terms convert to numeric result is nearly 1.959mW

According to the formula. calculate the EIRP test result:

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

General RF Exposure = $(1.959\text{mW} / 5 \text{ mm}) \times \sqrt{2.480\text{GHz}} = 0.61$ 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.:CQASZ20180900062E-01