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RF Exposure Evaluation Report

Report No. : CQASZ20180700096E-02

Applicant: Tiinlab Acoustic Technology (Shenzhen) Co., Ltd.

Address of Applicant: Tianliao Building F14 East Block (New Materials Industrial Park), Xueyuan Road, Nanshan District, Shenzhen, China

Manufacturer: Tiinlab Acoustic Technology (Shenzhen) Co., Ltd.

Address of Manufacturer: Tianliao Building F14 East Block (New Materials Industrial Park), Xueyuan Road, Nanshan District, Shenzhen, China

Equipment Under Test (EUT):

Product: Mi Bluetooth Neckband Earphones Basic

Model No.: LYXQEJ02JY

Brand Name: MI

FCC ID: 2AN5MLYXQEJ02JY

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

Date of Test: 2018-07-31 to 2018-08-03

Date of Issue: 2018-08-03

Test Result : **PASS***

Tested By:

Martin Lee

(Martin Lee)

Reviewed By:

Jack Ai

(Jack Ai)

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
CQASZ20180700096E-02	Rev.01	Initial report	2018-08-03

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3 General Information

3.1 Client Information

Applicant:	Tiinlab Acoustic Technology (Shenzhen) Co., Ltd.
Address of Applicant:	Tianliao Building F14 East Block (New Materials Industrial Park), Xueyuan Road, Nanshan District, Shenzhen, China
Manufacturer:	Tiinlab Acoustic Technology (Shenzhen) Co., Ltd.
Address of Manufacturer:	Tianliao Building F14 East Block (New Materials Industrial Park), Xueyuan Road, Nanshan District, Shenzhen, China

3.2 General Description of EUT

Product Name:	Mi Bluetooth Neckband Earphones Basic
Model No.:	LYXQEJ02JY
Trade Mark:	MI
Hardware Version:	PCB-EM022-V0.5
Software Version:	FW_EM022_V19
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:	Non Signaling Test Tool (manufacturer declare)
Antenna Type:	Wired antenna
Antenna Gain:	2.0dBi
Power Supply:	lithium battery:DC3.7V, 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 ≤ 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	1.070
Middle	1.570
Highest	1.360
π/4DQPSK mode	
Test channel	Peak Output Power (dBm)
Lowest	3.610
Middle	4.170
Highest	3.910
8DPSK mode	
Test channel	Peak Output Power (dBm)
Lowest	4.210
Middle	4.800
Highest	4.550

The Max Conducted Peak Output Power is 4.800dBm in middle channel(2.441GHz);

The best case gain of the antenna is 2.0dBi.

EIRP= 4.80dBm + 2.0dBi = 6.80dBm

6.80dBm logarithmic terms convert to numeric result is nearly 4.79mW

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 = $(4.79\text{mW} / 5 \text{ mm}) \times \sqrt{2.441\text{GHz}} = 1.50$ 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.: CQASZ20180700096E-01