

RF Exposure Evaluation Report

Product : XIAO MG24
Trade mark : Seeed Studio
Model/Type reference : XIAO MG24, XIAO MG24 Sense
Serial Number : N/A
Report Number : EED32Q82089903
FCC ID : Z4T-XIAOMG24
Date of Issue : Jan. 09, 2025
Test Standards : 47 CFR Part 1.1307
47 CFR Part 1.1310
47 CFR Part 2.1091
47 CFR Part 2.1093
KDB 447498 D04 Interim General RF
Exposure Guidance v01
Test result : PASS

Prepared for:

Seeed Technology Co., Ltd
9F, G3 Building, TCL International E City, Zhongshanyuan Road, Nanshan
District, Shenzhen

Prepared by:

Centre Testing International Group Co., Ltd.
Hongwei Industrial Zone, Bao'an 70 District,
Shenzhen, Guangdong, China
TEL: +86-755-3368 3668
FAX: +86-755-3368 3385

Compiled by:

Keven Tan

Reviewed by:

Frazer Li

Keven Tan

Frazer Li

Approved by:

Aaron Ma

Date:

Jan. 09, 2025

Aaron Ma

Check No.: 7826161224



1 Version

Version No.	Date	Description
00	Jan. 09, 2025	Original

2 Contents

	Page
1 VERSION	2
2 CONTENTS	3
3 GENERAL INFORMATION	4
3.1 CLIENT INFORMATION	4
3.2 GENERAL DESCRIPTION OF EUT	4
3.3 PRODUCT SPECIFICATION SUBJECTIVE TO THIS STANDARD	4
3.4 TEST LOCATION	5
3.5 DEVIATION FROM STANDARDS	5
3.6 ABNORMALITIES FROM STANDARD CONDITIONS	5
3.7 OTHER INFORMATION REQUESTED BY THE CUSTOMER	5
4 SAR EVALUATION	6
4.1 RF EXPOSURE COMPLIANCE REQUIREMENT	6
4.1.1 Limits	6
4.1.2 Test Procedure	6
4.1.3 EUT RF Exposure Evaluation	7

3 General Information

3.1 Client Information

Applicant:	Seeed Technology Co., Ltd
Address of Applicant:	9F, G3 Building, TCL International E City, Zhongshanyuan Road, Nanshan District, Shenzhen
Manufacturer:	Seeed Technology Co., Ltd
Address of Manufacturer:	9F, G3 Building, TCL International E City, Zhongshanyuan Road, Nanshan District, Shenzhen
Factory:	Shenzhen Xinxian Technology Co.,Limited
Address of Factory:	F5, Building B17, Hengfeng Industrial City, No. 739 Zhoushi Rd, Baoan District, Shenzhen, Guangdong, P.R.C.

3.2 General Description of EUT

Product Name:	XIAO MG24
Model No.:	XIAO MG24, XIAO MG24 Sense
Test Model No.:	XIAO MG24
Trade mark:	Seeed Studio

3.3 Product Specification subjective to this standard

Frequency Range:	BLE: 2402MHz to 2480MHz Zigbee: 2405MHz to 2480MHz	
Modulation Type:	GFSK	
Test Power Grade:	Default	
Test Software of EUT:	NcpCommander.exe	
Antenna Type:	Ceramic Antenna	
Antenna Gain:	4.97dBi	
Power Supply:	Battery:	DC 5V
Sample Received Date:	Dec. 25, 2024	
Sample tested Date:	Dec. 25, 2024 to Dec. 30, 2024	

Remark:

Model No.: XIAO MG24, XIAO MG24 Sense	
Name: XIAO MG24 Model: XIAO MG24	
Name: XIAO MG24 Sense Model: XIAO MG24 Sense	
Only the model XIAO MG24 was tested.	
The difference between XIAO MG24 Sense and XIAO MG24 is that there is a microphone.	
Difference description	
XIAO MG24	Normal
XIAO MG24 Sense	Welded microphone

3.4 Test Location

All tests were performed at:

Centre Testing International Group Co., Ltd

Building C, Hongwei Industrial Park Block 70, Bao'an District, Shenzhen, China

Telephone: +86 (0) 755 33683668 Fax: +86 (0) 755 33683385

No tests were sub-contracted.

FCC Designation No.: CN1164

3.5 Deviation from Standards

None.

3.6 Abnormalities from Standard Conditions

None.

3.7 Other Information Requested by the Customer

None.

4 SAR Evaluation

4.1 RF Exposure Compliance Requirement

4.1.1 Limits

The SAR-based exemption formula of § 1.1307(b)(3)(i)(B), repeated here as Formula (B.2), applies for single fixed, mobile, and portable RF sources with available maximum time-averaged power or effective radiated power (ERP), whichever is greater, of less than or equal to the threshold Pth (mW).

This method shall only be used at separation distances from 0.5 cm to 40 cm and at frequencies from 0.3 GHz to 6 GHz (inclusive). Pth is given by Formula

$$P_{th} \text{ (mW)} = \begin{cases} ERP_{20 \text{ cm}} (d/20 \text{ cm})^x & d \leq 20 \text{ cm} \\ ERP_{20 \text{ cm}} & 20 \text{ cm} < d \leq 40 \text{ cm} \end{cases}$$

where

$$x = -\log_{10} \left(\frac{60}{ERP_{20 \text{ cm}} \sqrt{f}} \right)$$

and f is in GHz, d is the separation distance (cm), and ERP20cm is per Formula (B.1).

$$P_{th} \text{ (mW)} = ERP_{20 \text{ cm}} \text{ (mW)} = \begin{cases} 2040f & 0.3 \text{ GHz} \leq f < 1.5 \text{ GHz} \\ 3060 & 1.5 \text{ GHz} \leq f \leq 6 \text{ GHz} \end{cases} \quad (\text{B.1})$$

The 1 mW Blanket Exemption of § 1.1307(b)(3)(i)(A) applies for single fixed, mobile, and portable RF sources with available maximum time-averaged power of no more than 1 mW, regardless of separation distance.

4.1.2 Test Procedure

Software provided by client enabled the EUT to transmit and receive data at lowest, middle and highest channel individually.

4.1.3 EUT RF Exposure Evaluation

For Stand alone:

BLE:

Frequency (MHz)	Estimation distance (cm)	Max. Conducted Output power (dBm)	Antenna Gain (dBi)	ERP (dBm)	ERP (mW)	Limit (mW)	MPE ratio	Result
2402	0.5	0.02	4.97	2.84	1.9231	2.7877	0.6899	Pass

Zigbee:

Frequency (MHz)	Estimation distance (cm)	Max. Conducted Output power (dBm)	Antenna Gain (dBi)	ERP (dBm)	ERP (mW)	Limit (mW)	MPE ratio	Result
2405	0.5	-1.04	4.97	1.78	1.5066	2.7849	0.5410	Pass

Note:

- ① EIRP=conducted power+antenna gain;
- ② $ERP = EIRP - 2.15$;
- ③ $EIRP(dBm) = \text{Field strength of the fundamental signal}(dBuV/m@3m) - 95.23$;
- ④ $ERP(mW) = 10^{(ERP(dBm)/10)}$;
- ⑤ The estimation distance is 0.5cm;
- ⑥ The test data please refer to the report of EED32Q82089901, EED32Q82089902 and only the worst case data was recorded in the report.

声明

Statement

1. 检测报告无批准人签字、“专用章”及报告骑缝章无效;

This report is considered invalid without approved signature, special seal and the seal on the perforation;

2. 报告中公司名称及地址、样品及样品信息由申请者提供, 申请者应对其真实性负责, CTI 不负责验证其真实性;
The Company Name shown on Report and Address, the sample(s) and sample information was/were provided by the applicant who should be responsible for the authenticity which CTI hasn't verified;

3. 本报告检测结果仅对受测样品负责;

The result(s) shown in this report refer(s) only to the sample(s) tested;

4. 除非另有说明, 报告参照 ILAC-G8:09/2019/CNAS-GL015: 2022 使用简单接受判定规则进行符合性判定;
Unless otherwise stated, the decision rule for conformity reporting is based on Binary Statement for Simple Acceptance Rule stated in ILAC-G8:09/2019/CNAS-GL015:2022;

5. 未经 CTI 书面同意, 不得部分复制本报告;

Without written approval of CTI, this report can't be reproduced except in full;

6. 如检测报告中的英文内容与中文内容有差异, 以中文为准。

In case of any discrepancy between the English version and Chinese version of the testing reports (if generated), the Chinese version shall prevail.

*** 报告结束 ***

*** End of Report ***