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RF Exposure Evaluation Report

Report No.: CQASZ20210801466E-02
Applicant: Shenzhen Maipinda Technology Co.,Ltd.
Address of Applicant: 7th Floor, Building B, Xinyuan,Yushan Industrial Park, Shiyan Str., Baoan Dist., Shenzhen, Guangdong CHINA 518000
Equipment Under Test (EUT):
EUT Name: Wireless Microphone
Model No.: M21, M22, M23, M24, M26
Test Model No.: M21
Brand Name: N/A
FCC ID: 2A243-MAIPINDA
Standards: 47 CFR Part 1.1307
47 CFR Part 1.1310
KDB447498D01 General RF Exposure Guidance v06
Date of Receipt: 2021-08-30
Date of Test: 2021-08-30 to 2021-09-09
Date of Issue: 2021-09-10
Test Result: PASS*

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

Tested By:

Lewis Zhou

(Lewis Zhou)

Reviewed By:

Rock Huang

(Rock Huang)

Approved By:

Jack ai

(Jack ai)



1 Version

Revision History Of Report

Report No.	Version	Description	Issue Date
CQASZ20210801466E-02	Rev.01	Initial report	2021-09-10

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3 General Information

3.1 Client Information

Applicant:	Shenzhen Maipinda Technology Co.,Ltd.
Address of Applicant:	7th Floor, Building B, Xinyuan, Yushan Industrial Park, Shiyan Str., Baoan Dist., Shenzhen, Guangdong CHINA 518000
Manufacturer:	Shenzhen Maipinda Technology Co.,Ltd.
Address of Manufacturer:	7th Floor, Building B, Xinyuan, Yushan Industrial Park, Shiyan Str., Baoan Dist., Shenzhen, Guangdong CHINA 518000
Factory:	Shenzhen Maipinda Technology Co.,Ltd.
Address of Factory:	7th Floor, Building B, Xinyuan, Yushan Industrial Park, Shiyan Str., Baoan Dist., Shenzhen, Guangdong CHINA 518000

3.2 General Description of EUT

Product Name:	Wireless Microphone
Model No.:	M21, M22, M23, M24, M26
Test Model No.:	M21
Trade Mark:	N/A
Hardware Version:	ac697n_adapter-v1.0.0
Software Version:	K8-V5
Frequency Range:	2402MHz ~ 2480MHz
Modulation Type:	GFSK
Number of Channels:	79 (declared by the client)
Sample Type:	<input type="checkbox"/> Mobile <input checked="" type="checkbox"/> Portable <input type="checkbox"/> Fix Location
Test Software of EUT:	FCC_assist_1.0.2.2
Antenna Type:	Chip antenna
Antenna Gain:	3.5dbi
Power Supply:	lithium battery:DC3.6V, 70mAh, Charge by DC5.0V

4 RF Exposure 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

4.2 EUT RF Exposure Evaluation

1) For 2.4G

$$e_{\text{irp}} = p_t \times g_t = (E \times d)^2 / 30$$

where:

p_t = transmitter output power in watts,

g_t = numeric gain of the transmitting antenna (unitless),

E = electric field strength in V/m, $10^{((\text{dB}\mu\text{V/m})/20)/10^6}$,

d = measurement distance in meters (m)---3m,

$$\text{So } p_t = (E \times d)^2 / 30 / g_t$$

The worst case (refer to report CQASZ20210801466E-01) is below:

Antenna polarization: Horizontal		
Frequency (MHz)	Level (dBuV/m)	Polarization
2402	90.32	Peak
2402	87.90	Average

For 2402MHz wireless:

Field strength = 90.32dB μ V/m @3m

Ant. gain 3.5dBi; so Ant numeric gain=2.239

$$\text{So } p_t = \{ [10^{(90.32/20)/10^6} \times 3]^2 / 30 / 2.239 \} \times 1000 \text{mW} = 0.144 \text{mW}$$

$$\text{So } (0.144 \text{mW} / 5 \text{mm}) \times \sqrt{2.402 \text{GHz}} = 0.045,$$

$$0.045 < 3.0 \text{ for 1-g SAR}$$

So the SAR report is not required.