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RF Exposure Evaluation Report

Report No.: CQASZ20230500856E-03

Applicant: SHENZHEN MAONO TECHNOLOGY CO., LTD

Address of Applicant: No. 1307, 13th Floor, Building 4, Phase II of Tianan Yungu Industrial Park, Gangtou Community, Bantian Street, Longgang District, Shenzhen, China

Equipment Under Test (EUT):

EUT Name: Handheld Wireless microphone

Model No.: WM750 A1, WM750 A2, WM760 A1, WM760 A2, WM770 A1, WM770 A2, WM780 A1, WM780 A2, WM790 A1, WM790 A2, WM750 B1, WM750 B2, WM760 B1, WM760 B2, WM770 B1, WM770 B2, WM780 B1, WM780 B2, WM790 B1, WM790 B2, WM750 C1, WM750 C2, WM760 C1, WM760 C2, WM770 C1, WM770 C2, WM780 C1, WM780 C2, WM790 C1, WM790 C2

Test Model No.: WM760 A2

Brand Name: MAONO

FCC ID: 2AJJB-WM760-A2

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

Date of Receipt: 2023-05-22

Date of Test: 2023-05-22 to 2023-06-19

Date of Issue: 2023-06-21

Test Result: **PASS***

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

Tested By: Lewis Zhou
(Lewis Zhou)

Reviewed By: Timo Lei
(Timo Lei)

Approved By: Jack Ai
(Jack Ai)



1 Version

Revision History Of Report

Report No.	Version	Description	Issue Date
CQASZ20230500856E-03	Rev.01	Initial report	2023-06-21

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3 General Information

3.1 Client Information

Applicant:	SHENZHEN MAONO TECHNOLOGY CO., LTD
Address of Applicant:	No. 1307, 13th Floor, Building 4, Phase II of Tianan Yungu Industrial Park, Gangtou Community, Bantian Street, Longgang District, Shenzhen, China
Manufacturer:	Guangdong Dingchuang Smart Manufacturing Company Limited
Address of Manufacturer:	Room 401, Building 8, Fenggang Tianan Digital City, No.208, Fenggang Section, Dongshen Road, Fenggang Town, Dongguan City, Guangdong Province
Factory:	Guangdong Dingchuang Smart Manufacturing Company Limited
Address of Factory:	Room 401, Building 8, Fenggang Tianan Digital City, No.208, Fenggang Section, Dongshen Road, Fenggang Town, Dongguan City, Guangdong Province

3.2 General Description of EUT

Product Name:	Handheld Wireless microphone
Model No.:	WM750 A1, WM750 A2, WM760 A1, WM760 A2, WM770 A1, WM770 A2, WM780 A1, WM780 A2, WM790 A1, WM790 A2, WM750 B1, WM750 B2, WM760 B1, WM760 B2, WM770 B1, WM770 B2, WM780 B1, WM780 B2, WM790 B1, WM790 B2, WM750 C1, WM750 C2, WM760 C1, WM760 C2, WM770 C1, WM770 C2, WM780 C1, WM780 C2, WM790 C1, WM790 C2
Test Model No.:	WM760 A2
Trade Mark:	MAONO
Software Version:	WM760_KT0641TX_SY_Beta_AMIC_ANSI_2023_4_4
Hardware Version:	WM760-TX-V1.2-PCB (20230327)
Sample Type:	☐ Mobile ☒ Portable
Operation Frequency:	902.5MHz-912MHz, 912.5-922MHz
Channel Numbers:	902.5MHz-912MHz:20 912.5-922MHz:20
Modulation Type:	FSK
Antenna Type:	PCB Antenna
Antenna Gain:	-0.5dBi
Power Supply:	Dry cell:2*AA DC 1.5V battery

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

$$e_{\text{irp}} = p_{\text{t}} \times g_{\text{t}} = (E \times d)^2 / 30$$

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,

So $p_{\text{t}} = (E \times d)^2 / 30 / g_{\text{t}}$

Antenna polarization: Horizontal		
Frequency (MHz)	Level (dBuV/m)	Polarization
907.5	90.63	Peak
907.5	87.36	Average

Antenna polarization: Vertical		
Frequency (MHz)	Level (dBuV/m)	Polarization
907.5	85.62	Peak
907.5	85.47	Average

For 907.5MHz wireless:

Field strength = 90.63dBuV/m @3m

Ant. gain -0.5dBi; so Ant numeric gain=0.891

So $pt = \{ [10^{(90.63/20)} / 10^6 \times 3]^2 / 30 / 0.891 \} \times 1000mW = 0.389mW$

So $(0.389mW/5mm) \times \sqrt{0.9075GHz} = 0.074$,

0.074<3.0 for 1-g SAR

So the SAR report is not required.

Antenna polarization: Horizontal		
Frequency (MHz)	Level (dBuV/m)	Polarization
917.5	90.47	Peak
917.5	88.44	Average

Antenna polarization: Vertical		
Frequency (MHz)	Level (dBuV/m)	Polarization
917.5	85.13	Peak
917.5	84.34	Average

For 917.5MHz wireless:

Field strength = 90.47dBuV/m @3m

Ant. gain -0.5dBi; so Ant numeric gain=0.891

So $pt = \{ [10^{(90.47/20)} / 10^6 \times 3]^2 / 30 / 0.891 \} \times 1000mW = 0.375mW$

So $(0.375mW/5mm) \times \sqrt{0.9175GHz} = 0.0718$,

0.0718<3.0 for 1-g SAR

So the SAR report is not required.