

RF Exposure Evaluation Report

Product : IPX4 Waterproof Speaker with Suction Cup
Trade mark : MINISO
Model/Type reference : K-364
Serial Number : N/A
Report Number : EED32O80373803
FCC ID : 2ART4-K-364
Date of Issue : May 19, 2022
Test Standards : 47 CFR Part 1.1307
47 CFR Part 2.1093
KDB447498D01 General RF Exposure Guidance v06
Test result : PASS

Prepared for:

MINISO Corporation

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Prepared by:

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2 Version

Version No.	Date	Description
00	May 19, 2022	Original

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4 General Information

4.1 Client Information

Applicant:	MINISO Corporation
Address of Applicant:	Room 2501, No. 486 Heye Square Kangwang Middle Road, Liwan District, Guangzhou, Guangdong, China
Manufacturer:	Shenzhen Kingstar Industrial Co.,Ltd
Address of Manufacturer:	Room 210, Minle Technology Building, Minle Industrial Park, Longhua Shenzhen China
Factory:	Shenzhen Kingstar Industrial Co.,Ltd
Address of Factory:	Room 210, Minle Technology Building, Minle Industrial Park, Longhua Shenzhen China

4.2 General Description of EUT

Product Name:	IPX4 Waterproof Speaker with Suction Cup
Model No.:	K-364
Trade mark:	MINISO

4.3 Product Specification subjective to this standard

Frequency Range:	2402MHz to 2480MHz
Modulation Type:	BLE:GFSK; BT Classic:GFSK, $\pi/4$ DQPSK
Test Power Grade:	Default
Antenna Type	PIFA Antenna
Antenna Gain	-0.58 dBi
Power Supply:	DC 3.7V
Max Conducted Peak Output Power:	BLE:4.11dBm, BT: 2.43dBm The Max Conducted Peak Output Power data refer to the report EED32O80373801 and EED32O80373802
Sample Received Date:	Mar. 21, 2022
Sample tested Date:	Mar. 21, 2022 to Apr. 02, 2022
Company Name and Address shown on Report, the sample(s) and sample Information was/ were provided by the applicant who should be responsible for the authenticity which CTI hasn't verified.	

4.4 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

4.5 Deviation from Standards

None.

4.6 Abnormalities from Standard Conditions

None.

4.7 Other Information Requested by the Customer

None.

5 RF Exposure Evaluation

5.1 RF Exposure Compliance Requirement

Given $E = \frac{\sqrt{30 \times P \times G}}{d}$ & $S = \frac{E^2}{377}$

Where E = Field strength in Volts / meter

P = Power in Watts

G = Numeric antenna gain

d = Distance in meters

S = Power density in milliwatts / square centimeter

Combining equations and re-arranging the terms to express the distance as a function of the remaining variables yields:

$$S = \frac{30 \times P \times G}{377 d^2}$$

Changing to units of mW and cm, using:

$$P \text{ (mW)} = P \text{ (W)} / 1000 \text{ and}$$

$$d \text{ (cm)} = d \text{ (m)} / 100$$

Yields

$$S = \frac{30 \times (P/1000) \times G}{377 \times (d/100)^2} = 0.0796 \times \frac{P \times G}{d^2} \quad \text{Equation 1}$$

Where d = Distance in cm

P = Power in mW

G = Numeric antenna gain

S = Power density in mW / cm²

5.2 Maximum Permissible Exposure

Substituting the MPE safe distance using $d = 20$ cm into Equation 1:

$$S = 0.000199 \times P \times G$$

Where P = Power in mW

G = Numeric antenna gain

S = Power density in mW / cm²

1) For Bluetooth Classic

Measurement Data:

GFSK mode				
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power	
			(dBm)	(mW)
Lowest(2402MHz)	1.21	1.5±0.5	2	1.585
Middle(2441MHz)	1.5	1.5±0.5	2	1.585
Highest(2480MHz)	1.7	1.5±0.5	2	1.585

π/4DQPSK mode				
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power	
			(dBm)	(mW)
Lowest(2402MHz)	2	2±0.5	2.5	1.778
Middle(2441MHz)	2.26	2±0.5	2.5	1.778
Highest(2480MHz)	2.43	2±0.5	2.5	1.778

2) For BLE

Measurement Data:

GFSK mode				
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power	
			(dBm)	(mW)
Lowest(2402MHz)	3.67	3.5±1	4.5	2.818
Middle(2440MHz)	3.94	3.5±1	4.5	2.818
Highest(2480MHz)	4.11	3.5±1	4.5	2.818

BLE:

Ch.	Frq.(MHz)	P (mW)	Gain (num.)	D (cm)	Power density in mW / cm ²	Limit (mW/cm ²)
39	2480	2.818	0.875	20	0.0005	1

BT Classic:

Ch.	Frq.(MHz)	P (mW)	Gain (num.)	D (cm)	Power density in mW / cm ²	Limit (mW/cm ²)
78	2480	1.778	0.875	20	0.0003	1

Note: Refer to report No. EED32O80373801, EED32O80373802.

PHOTOGRAPHS OF EUT Constructional Details

Refer to Report No. EED32O80373801 for EUT external and internal photos.

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 CTI, this report can't be reproduced except in full.

*** End of Report ***