



REPORT No. : SZ17090159S01

RF EXPOSURE EVALUATION REPORT

APPLICANT : SOWAK INTERNATIONAL CO.,LTD

PRODUCT NAME : Bluetooth earphone

MODEL NAME : W1,W2,W3,W4,W5,W6,W7,W8,W9,W10

TRADE NAME : sowak

BRAND NAME : sowak

FCC ID : 2ANS6SOWAK-W

STANDARD(S) : 47CFR 2.1093
KDB 447498 D01 General RF Exposure
Guidance v06

ISSUE DATE : 2017-10-17

SHENZHEN MORLAB COMMUNICATIONS TECHNOLOGY Co., Ltd.

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Change History		
Issue	Date	Reason for change
1.0	2017-10-17	First edition



REPORT No. : SZ17090159S01

TEST REPORT DECLARATION

Applicant	SOWAK INTERNATIONAL CO.,LTD
Applicant Address	NO,16 Renmin Dong Road Kengzi Sub-Distric Pingshan District Shenzhen Guangdong China
Manufacturer	SHENZHEN SOWAK ELECTRONIC CO,LTD
Manufacturer Address	NO,16 RENMIN DONG ROAD KENGZI SUB-DISTRICT PINGSHAN DISTRICT SHENZHEN CITY,GUANGDONG PROVINCE
Product Name	Bluetooth earphone
Model Name	W1,W2,W3,W4,W5,W6,W7,W8,W9,W10
Brand Name	sowak
HW Version	W8-IS2021
SW Version	W8-IS2021
Test Standards	47CFR 2.1093; KDB 447498 D01 General RF Exposure Guidance v06
Issue Date	2017-10-17
SAR Evaluation	Not Required

Tested by : Peng Fuwei
Peng Fuwei (Test engineer)

Approved by : Peng Huarui
Peng Huarui (Supervisor)



1. TECHNICAL INFORMATION

Note: the following data is based on the information by the applicant.

1.1. Identification of Applicant

Company Name:	SOWAK INTERNATIONAL CO.,LTD
Address:	NO,16 Renmin Dong Road Kengzi Sub-District Pingshan District Shenzhen Guangdong China

1.2. Identification of Manufacturer

Company Name:	SHENZHEN SOWAK ELECTRONIC CO,LTD
Address:	NO,16 RENMIN DONG ROAD KENGZI SUB-DISTRICT PINGSHAN DISTRICT SHENZHEN CITY,GUANGDONG PROVINCE

1.3. Equipment Under Test (EUT)

Model Name:	W1,W2,W3,W4,W5,W6,W7,W8,W9,W10
Trade Name:	sowak
Brand Name:	sowak
Hardware Version:	W8-IS2021
Software Version:	W8-IS2021
Frequency Bands:	Bluetooth 4.1:2402-2480MHz;
Modulation Mode:	Bluetooth 4.1: GFSK;
Antenna Type:	Ceramic Antenna
Antenna Gain:	6.62 dBi

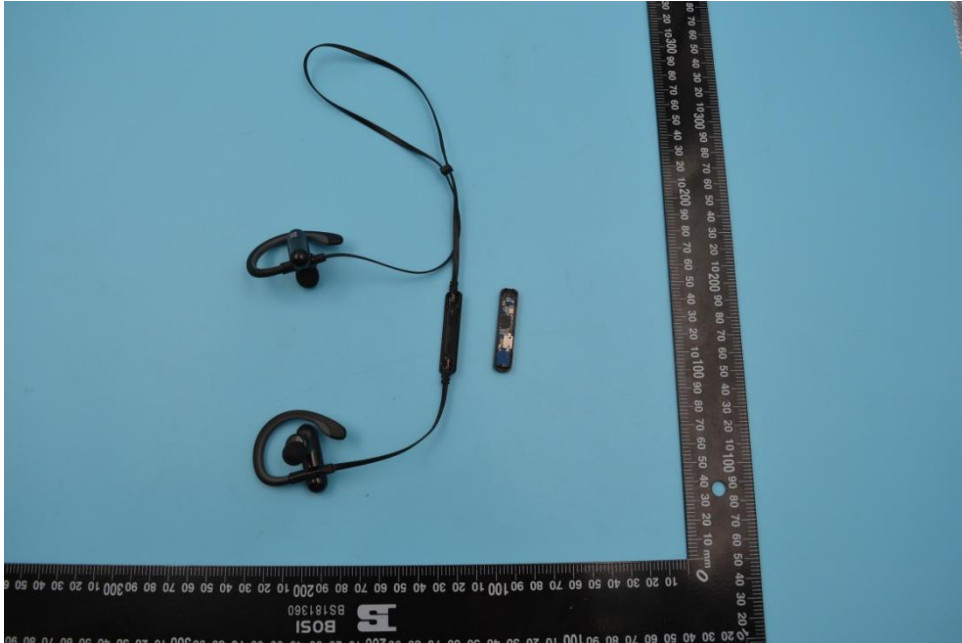
NOTE 1: According to the designer, the model W1 and model W2,W3,W4,W5,W6,W7,W8,W9,W10 are accordant in both hardware and software. These models only differ in application information. The detail difference for W2,W3,W4,W5,W6,W7,W8,W9,W10 application is as below:

1. The new additional model name is W2,W3,W4,W5,W6,W7,W8,W9,W10
2. The new brand name is sowak.

The application information of W1 is indentify except mentioned above.

1.3.1. Photographs of the EUT

1. EUT view



1.3.2. Identification of all used EUT

The EUT identity consists of numerical and letter characters, the letter character indicates the test sample, and the following two numerical characters indicate the software version of the test sample.

EUT Identity	Hardware Version	Software Version
1#	W8-IS2021	W8-IS2021

1.4. Applied Reference Documents

Leading reference documents for testing:

No.	Identity	Document Title
1	47 CFR§2.1093	Radiofrequency Radiation Exposure Evaluation: portable devices
2	KDB 447498 D01v06	General RF Exposure Guidance



2. DEVICE CATEGORY AND RF EXPOSURE LIMIT

Per user manual, this device is a Bluetooth Earphone. Based on 47CFR 2.1093, this device belongs to portable device category with General Population/Uncontrolled exposure.

Portable Devices:

47CFR 2.1093(b)

For purposes of this section, a portable device is defined as a transmitting device designed to be used so that the radiating structure(s) of the device is/are within 20 centimeters of the body of the user.

GENERAL POPULATION / UNCONTROLLED EXPOSURE

47CFR 2.1093(d) (2)

Limits for General Population/Uncontrolled exposure: 0.08 W/kg as averaged over the whole-body and spatial peak SAR not exceeding 1.6 W/kg as averaged over any 1 gram of tissue (defined as a tissue volume in the shape of a cube). Exceptions are the hands, wrists, feet and ankles where the spatial peak SAR shall not exceed 4 W/kg, as averaged over any 10 grams of tissue (defined as a tissue volume in the shape of a cube). General Population/Uncontrolled limits apply when the general public may be exposed, or when persons that are exposed as a consequence of their employment may not be fully aware of the potential for exposure or do not exercise control over their exposure. Warning labels placed on consumer devices such as cellular telephones will not be sufficient reason to allow these devices to be evaluated subject to limits for occupational/controlled exposure in paragraph (d)(1) of this section.

3. MEASUREMENT OF CONDUCTED PEAK OUTPUT POWER

1. Bluetooth Peak output power

Band	Channel	Output Power(dBm)		
		GFSK	$\pi/4$ -DQPSK	8-DPSK
BT 4.1+EDR	0	-1.34	-0.70	-0.32
	39	-2.46	-2.08	-1.69
	78	-4.00	-3.50	-3.11



4. RF EXPOSURE EVALUATION

The device only incorporates a Bluetooth transmitter, so standalone SAR evaluation is required for Bluetooth and simultaneous SAR is not required.

Standalone transmission SAR evaluation

According to KDB 447498 section 4.3.1, the 1-g SAR test exclusion thresholds at test separation Distances ≤ 50 mm are determined by:

$[(\text{max. power of channel, including tune-up tolerance, mW})/(\text{min. test separation distance, mm})] \cdot [\sqrt{f(\text{GHz})}] \leq 3.0$

The maximum tune-up limit power is **0.79mW @ 2.402GHz**

When Bluetooth Earphone is worn on the head, so use **5mm** as the most conservative minimum test separation distance,

$[(\text{max. power of channel, including tune-up tolerance, mW})/(\text{min. test separation distance, mm})] \cdot [\sqrt{f(\text{GHz})}] = 0.25 \leq 3.0$

So SAR evaluation is not required for this device.



ANNEX A GENERAL INFORMATION

1. Identification of the Responsible Testing Laboratory

Company Name:	Shenzhen Morlab Communications Technology Co., Ltd.
Department:	Morlab Laboratory
Address:	FL.3, Building A, FeiYang Science Park, No.8 LongChang Road, Block 67, BaoAn District, ShenZhen, GuangDong Province, P. R. China
Responsible Test Lab Manager:	Mr. Su Feng
Telephone:	+86 755 36698555
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2. Identification of the Responsible Testing Location

Name:	Shenzhen Morlab Communications Technology Co., Ltd. Morlab Laboratory
Address:	FL.3, Building A, FeiYang Science Park, No.8 LongChang Road, Block 67, BaoAn District, ShenZhen, GuangDong Province, P. R. China

***** END OF REPORT *****