RF EXPOSURE

EXEMPT REPORT

APPLICANT	:	Homewerks Worldwide, LLC
PRODUCT NAME	:	Bluetooth Bath Fan
MODEL NAME	:	7130-13-BT
BRAND NAME	:	Home Net Werks
FCC ID	:	SYJ7130-13-BT
STANDARD(S)	:	47CFR 2.1093 KDB 447498
RECEIPT DATE	:	2019-06-24
TEST DATE	:	2019-07-12
ISSUE DATE	:	2019-07-12

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MORLAB

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DIRECTORY

Change History		
Version	**Date**	**Reason for change**
1.0	2019-07-12	First edition

1. Technical Information

Note: Provide by manufacturer.

1.1 Applicant and Manufacturer Information

Applicant:	Homewerks Worldwide, LLC
Applicant Address:	55 Albrecht Drive., Lake Bluff, IL 60044 USA
Manufacturer:	FOSHAN HUIKAIDA TECHNOLOGY LIMITED
Manufacturer Address:	4/F 4 Building No.1 Huabao Nan Road Chancheng District Foshan City Guangdong Province,China

1.2 Equipment Under Test (EUT) Description

EUT Name:	Bluetooth Bath Fan
Hardware Version:	N/A
Software Version:	N/A
Frequency Bands:	Bluetooth：2402-2480MHz
Modulation Mode:	BR+EDR: GFSK(1Mbps)，π/4-DQPSK(EDR 2Mbps) BLE: GFSK(1Mbps)
Antenna Type:	PCB Antenna
Antenna Gain:	-0.58dBi

1.3 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#	N/A	N/A

1.4 Applied Reference Documents

Leading reference documents for testing:

No.	Identity	Document Title
1	47 CFR§2.1093	Radio Frequency 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 Bath Fan. 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 RF Output Power

1. Bluetooth output power

Mode	Channel	Frequency (MHz)	Average power (dBm)	
			1Mbps	2Mbps
BR / EDR	CH 00	2402	**2.12**	0.69
	CH 39	2441	2.04	0.64
	CH 78	2480	1.75	0.33
Tune-up Limit			2.5	1.0

Mode	Channel	Frequency (MHz)	Average power (dBm)
			GFSK
LE	CH 00	2402	0.94
	CH 19	2440	0.78
	CH 39	2480	0.42
Tune-up Limit			1.0

Note: According to KDB 447498 Section 4.3, SAR test exclusion conditions are based on source-based time-averaged maximum conducted output power of the RF channel requiring evaluation, adjusted for tune-up tolerance, and the minimum test separation distance required for the exposure conditions.

4. RF Exposure Evaluation

➢ **Standalone transmission SAR evaluation:**

1. According to KDB 447498 section 4.3.1, the 1-g SAR test exclusion thresholds at test separation Distances≤ 50 mm are determined by:
   [(max. power of channel, including tune-up tolerance, mW)/(min. test separation distance, mm)]·[√f(GHz)] ≤ 3.0.
   - f(GHz) is the RF channel transmit frequency in GHz
   - Power and distance are rounded to the nearest mW and mm before calculation
   - The result is rounded to one decimal place for comparison

2. When the Bluetooth Bath Fan is used on Body, 5mm as the most conservative minimum test separation distance was used for evaluating,

Channel	Frequency (GHz)	Max. tune-up Power (dBm)	Max. Power (mW)	Test distance (mm)	Result	exclusion thresholds for 1-g SAR
CH 0	2.412	2.5	1.78	5	0.55	3.0

3. When standalone SAR is not required to be measured, per FCC KDB 447498 D01v06 4.3.2), the following equation must be used to estimate the standalone 1g SAR f.

$$\text{Estimated SAR} = \frac{\sqrt{f(GHz)}}{7.5} \cdot \frac{\text{Max. power of channel, mW}}{\text{Min. Separation Distance, mm}}$$

Mode	Max. tune-up Power (dBm)	Exposure Position	Head/Body
		Test Distance (mm)	5
Bluetooth	2.5	Estimated SAR (W/kg)	0.07

- **Simultaneous SAR evaluation:**

This device only incorporates a Bluetooth module, Therefore simultaneous SAR evaluation is not required.

Annex A General Information

1. Identification of the Responsible Testing Laboratory

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