Report No.: DDT-R21030923-2E2

Issued Date: Apr. 15, 2021

RF EXPOSURE REPORT

FOR

Applicant	:	Retro Manufacturing, LLC
Address	:	7470 Commercial Way, Henderson, NV 89011 USA
Equipment under Test	:	RADIO CONTROL BOX MOTOR 4HD RETRO SOUND
Model No.	:	MOTOR 4HD, Retro radio, Huntington, New York, New port, Santa Cruz, Redondo, Detroit, Monterey, Daytona, Apache, Wonderbar 1, Wonderbar 3
Trade Mark	:	Retro Sound, Retro Radio, Retro Manufacturing
FCC ID	:	2AXWTMOTOR4HD
Manufacturer	:	ACTION INDUSTRIES (M) SDN. BHD.
Address	:	2480, TINGKAT PERUSAHAAN ENAM, PRAI FREE TRADE ZONE, 13600, PERAI, PENANG, MALAYSIA

Issued By: Dongguan Dongdian Testing Service Co., Ltd.

Add.: No. 17, Zongbu Road 2, Songshan Lake Sci&Tech, Industry Park, Dongguan City, Guangdong Province, China, 523808

Tel.: +86-0769-38826678, **E-mail:** ddt@dgddt.com, http://www.dgddt.com

REPORT

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Test Report Declare

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Address	:	2480, TINGKAT PERUSAHAAN ENAM, PRAI FREE TRADE ZONE, 13600, PERAI, PENANG, MALAYSIA
Factory	:	ACTION ASIA(SHENZHEN) CO., LTD.
Address	:	4 Floor, Block 1, No.25 Jinxing Industrial Park, Jian'an Road, Fuyong Town, Bao'an District, Shenzhen China

Standard Used: KDB447498 D01 General RF Exposure Guidance v06

We Declare:

The equipment described above is assessed by Dongguan Dongdian Testing Service Co., Ltd and in the configuration assessed the equipment complied with the standards specified above. The assessed results are contained in this report and Dongguan Dongdian Testing Service Co., Ltd is assumed of full responsibility for the accuracy and completeness of these assess.

After evaluation, our opinion is that the equipment In Accordance with above standard.

Report No:	DDT-R21030923-2E2		
Date of Receipt:	Mar. 12, 2021	**Date of Test:**	Mar. 12, 2021 ~ Apr. 09, 2021

Prepared By: ***Approved By:***

Sam Li

Sam Li/Engineer ***Damon Hu/EMC Manager***

Note: This report applies to above tested sample only. This report shall not be reproduced in parts without written approval of Dongguan Dongdian Testing Service Co., Ltd.

Revision History

Rev.	Revisions	Issue Date	Revised By
---	Initial issue	Apr. 15, 2021	

1. General Information

1.1. Description of equipment

EUT* Name	:	RADIO CONTROL BOX MOTOR 4HD RETRO SOUND
Model Number	:	MOTOR 4HD, Retro radio, Huntington, New York, New port, Santa Cruz, Redondo, Detroit, Monterey, Daytona, Apache, Wonderbar 1, Wonderbar 3
Difference of model number	:	Different sales countries, different models, No other difference. So, choose MOTOR 4HD to test
EUT function description	:	Please reference user manual of this device
Power supply	:	DC 12V, 15A
Radio Specification	:	Bluetooth V5.0
Operation frequency	:	2402 MHz - 2480 MHz
Modulation	:	GFSK, π/4-DQPSK, 8DPSK
Data rate	:	1 Mbps, 2 Mbps, 3 Mbps
Antenna Type	:	Integral PCB antenna, maximum PK gain: 0 dBi
Serial Number	:	N/A

1.2. Assess laboratory

Dongguan Dongdian Testing Service Co., Ltd

Add.: No. 17, Zongbu Road 2, Songshan Lake Sci&Tech, Industry Park, Dongguan City, Guangdong Province, China, 523808

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CNAS Accreditation No. L6451; A2LA Accreditation No. 3870.01

FCC Designation Number: CN1182; FCC Test Firm Registration Number: 540522

Industry Canada site registration number: 10288A-1; CAB identifier: CN0048

2. RF Exposure Evaluation

2.1. Requirement

Systems operating under the provisions of FCC 47 CFR section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy level in excess of the Commission's guidelines.

In accordance with 47 CFR FCC Part 2 Subpart J, section 2.1091 this device has been defined as mobile device whereby a distance of 0.2m normally can be maintained between the user and the device, and below RF Permissible Exposure limit shall comply with.

Limits for General Population/Uncontrolled Exposure

(B) Limits for General Population / Uncontrolled Exposure

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/ cm^2)	Averaging Time $\|E\|^2$,$\|H\|^2$ or S (minutes)
0.3-1.34	614	1.63	(100)*	30
1.34-30	824/f	2.19/f	(180/f)*	30
30-300	27.5	0.073	0.2	30
300-1500			F/1500	30
1500-100,000			1.0	30

Note: f = frequency in MHz ; *Plane-wave equivalent power density

2.2. Calculation Method

$$E(V/m) = \frac{\sqrt{30 \times P \times G}}{d} \qquad \text{Power Density: } S(mW/cm^2) = \frac{E^2}{377}$$

E = Electric field (V/m)
P = Peak RF output power (mW)
G = EUT Antenna numeric gain (numeric)=
d = Separation distance between radiator and human body (m)
The formula can be changed to

We can change the formula to:

$$S = \frac{30 \times P \times G}{377 \times d^2} \quad \text{or, } d = \sqrt{\frac{30 \times P \times G}{377 \times S}}$$

From the peak EUT RF output power, the minimum mobile separation distance, d=0.2m, as well as the gain of the used antenna, the RF power density can be obtained.

2.3. Estimation Result

Mode	PK Output power (dBm)	Output power (mW)	Antenna Gain (dBi)	Antenna Gain (linear)	MPE Values (mW/cm^2)	MPE Limit (mW/cm^2)
Bluetooth Max power	2.04	1.60	0	1	0.000318	1

Note: The estimation distance is 20cm

Conclusion: Compliance with RF Exposure requirement

END OF REPORT