



RF Exposure Report

FCC ID: 2AAGF-ACTONIIB

Applicant: Zound Industries International AB

Address: Centralplan 15 SE-111 20 Stockholm Sweden

Manufacturer: Zound Industries International AB

Address: Centralplan 15 SE-111 20 Stockholm Sweden

Product: WIRELESS HOME BLUETOOTH SPEAKER

Brand: Marshall

Test Model(s): ACTON II BT

Series Model(s): N/A

Test Date: Jan. 18, 2022 ~ Feb. 20, 2022

Issued Date: Mar. 17, 2022

Issued By: Hwa-Hsing (Dongguan) Testing Co., Ltd.

Address: No.101, Bld N1, Yuyuan 2Rd, Yuyuan Industrial Park, HuangJiang Town, Dongguan, China

Test Firm Registration No.: 915896

Standards: 47 CFR FCC Part 15, Subpart C (Section 15.247)
ANSI C63.10:2013

The above equipment has been tested by **Hwa-Hsing (Dongguan) Testing Co., Ltd.**, and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's EMC characteristics under the conditions specified in this report.

Prepared by :

Reviewed by :

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Approved by :

Harry Li / Technical Director

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Release control record

Issue No.	Reason for change	Date issued
220110EL10-SE-US-01	Original Release	Mar. 17, 2022



1 General Information

1.1 General Description of EUT

Product	WIRELESS HOME BLUETOOTH SPEAKER
Brand	Marshall
Test Model(s)	ACTON II BT
Series Model(s)	N/A
FCC ID	2AAGF-ACTONIIB
Status of EUT	Engineering Prototype
Power Supply Rating	100-240V ~ , 50/60Hz,36W
Modulation Type	GFSK, π/4DQPSK,8DPSK
Transfer Rate	1/2/3Mbps
Operating Frequency	2402 ~ 2480MHz
Number of Channel	BLE: 40 EDR: 79
Output Power (AVG)	6.25dBm
Antenna Type	FPCB Antenna
Antenna Gain	4.84dBi Maximum peak Gain
Antenna Connector	I-PEX
Accessory Device	N/A
Cable Supplied	AC Cable: Unshielded,180cm

Note:

1. Please refer to the EUT photo document (Reference No.: 220110EL10-1&-2) for detailed product photo.
2. The above EUT information is declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications or User's Manual.



2 RF exposure limit

Limits for maximum permissible exposure (MPE)

Limits for general population / uncontrolled exposure				
Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm ²)	Average time (minutes)
300-1500	F/1500	30
1500-100,000	1.0	30

Note: F = Frequency in MHz

2.1 MPE calculation formula

$$Pd = (Pout * G) / (4 * pi * r^2)$$

Where:

Pd = power density in mW/cm²

Pout = output power to antenna in mW

G = gain of antenna in linear scale

Pi = 3.1416

R = distance between observation point and center of the radiator in cm

Classification:

The antenna of this product, under normal use condition, is at least 20cm away from the body of the user.



3 Calculation result of maximum conducted power

The antennas provided to the EUT, please refer to the following table:

Function	Frequency Band	Antenna Gain (dBi)	Antenna Type	Transmit and Receive Chain	Maximum AVG Power(dBm)
Bluetooth	2400~2483.5MHz	4.84	FPCB	1TX,1RX	6.25

Frequency band (MHz)	Max power (mW)	Antenna gain (dBi)	Distance (cm)	Power density (mW/cm ²)	Limit (mW/cm ²)
2400~2483.5MHz	4.22	4.84	20	0.002557	1.0

Conclusion:

Therefore, the worst-case situation is 0.002289mW/cm², which is less than “1”. This confirmed that the device compliance with FCC 1.1310 MPE limit.



Appendix – Information on the Testing Laboratories

We, [Hwa-Hsing \(Dongguan\) Co., Ltd.](#), A global provider of TESTING and CERTIFICATION services for consumer products, electronic products and wireless information technology products. Adhering to the core values “HONEST and TRUSTWORTHY, OBJECTIVE and IMPARTIALITY, RIGOROUS and AFFICIENT”, commitment to provide professional, perfect and efficient comprehensive ONE-STOP solution of TESTING and CERTIFICATION services for Manufacturers, Buyers, Traders, Brands, Retailers. Assist client to better manage risk, protect their brands, reduce costs and cut time to over 150 markets in global. Our laboratories are FCC recognized accredited test firms and accredited and approved according to ISO/IEC 17025.

If you have any comments, please feel free to contact us at the following:

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