# RF EXPOSURE REPORT

## FOR

| | | |
|---|---|---|
| **Applicant** | : | ION Audio, LLC |
| **Address** | : | 200 Scenic View Drive, Cumberland, RI 02864 U.S.A. |
| **Equipment under Test** | : | HIGH-POWER BLUETOOTH PA SYSTEM WITH LIGHTS |
| **Model No.** | : | TOTAL PA GLOW 3, TOTAL PA SUPREME, TOTAL PA PREMIER |
| **Trade Mark** | : | ION |
| **FCC ID** | : | 2AB3E-IPA123 |
| **IC** | : | 10541A-IPA123 |
| **Manufacturer** | : | ION Audio, LLC |
| **Address** | : | 200 Scenic View Drive, Cumberland, RI 02864 U.S.A. |

**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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**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-R19082907-1E5 | | |
| **Date of Receipt:** | Oct. 21, 2019 | **Date of Test:** | Oct. 21, 2019 ~ Nov. 25, 2019 |

***Prepared By:***

Sam Li

***Sam Li/Engineer***

***Approved By:***

***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 | Nov. 25, 2019 | |
| | | | |

# 1. General information

## 1.1. Description of Equipment

| | | |
|---|---|---|
| EUT* Name | : | HIGH-POWER BLUETOOTH PA SYSTEM WITH LIGHTS |
| Model Number | : | TOTAL PA GLOW 3, TOTAL PA SUPREME, TOTAL PA PREMIER |
| Difference of model number | : | All models are identical except the appearance and model number, therefore the test performed on the model TPTAL PA GLOW3. |
| EUT function description | : | Please reference user manual of this device |
| Power supply | : | 100-120V~, 50/60Hz |
| Radio Specification | : | Bluetooth V5.0 |
| Operation frequency | : | 2402MHz-2480MHz |
| Modulation | : | GFSK, π/4-DQPSK |
| Data rate | : | 1Mbps, 2Mbps |
| Antenna Type | : | Integral PCB antenna, maximum PK gain: -0.58 dBi |
| Sample Type | : | Series production |

## 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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# 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 | 3.18 | 2.08 | -0.58 | 0.87 | 0.00036 | 1 |

Note: The estimation distance is 20cm

Conclusion: No SAR evaluation required since transmitter power is below FCC threshold

**END OF REPORT**