

# RF EXPOSURE REPORT



Report No.: 16070349-FCC-H

Supersede Report No.: N/A

|  |  |   |
|--|--|---|
| Applicant  | TOPSAIL (HK) LIMITED   |   |
| Product Name   | Portable Bluetooth Speaker   |   |
| Model No.  | TS-030B  |   |
| Serial No.   | N/A  |   |
| Test Standard  | FCC 2.1093:2015  |   |
| Test Date  | March 31 to April 09, 2016   |   |
| Issue Date   | April 26, 2016   |   |
| Test Result  | <input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail |   |
| Equipment complied with the specification <input checked="" type="checkbox"/>  |  |   |
| Equipment did not comply with the specification <input type="checkbox"/>   |  |   |
| Winnie Zhang   | David Huang  |  |
| Winnie Zhang<br>Test Engineer  | David Huang<br>Checked By  |   |
| This test report may be reproduced in full only<br>Test result presented in this test report is applicable to the tested sample only |  |   |

Issued by:

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## Laboratories Introduction

SIEMIC, headquartered in the heart of Silicon Valley, with superior facilities in US and Asia, is one of the leading independent testing and certification facilities providing customers with one-stop shop services for Compliance Testing and Global Certifications.



In addition to testing and certification, SIEMIC provides initial design reviews and compliance management throughout a project. Our extensive experience with China, Asia Pacific, North America, European, and International compliance requirements, assures the fastest, most cost effective way to attain regulatory compliance for the global markets.

### Accreditations for Conformity Assessment

| Country/Region | Scope                              |
|----------------|------------------------------------|
| USA            | EMC, RF/Wireless, SAR, Telecom     |
| Canada         | EMC, RF/Wireless, SAR, Telecom     |
| Taiwan         | EMC, RF, Telecom, SAR, Safety      |
| Hong Kong      | RF/Wireless, SAR, Telecom          |
| Australia      | EMC, RF, Telecom, SAR, Safety      |
| Korea          | EMI, EMS, RF, SAR, Telecom, Safety |
| Japan          | EMI, RF/Wireless, SAR, Telecom     |
| Singapore      | EMC, RF, SAR, Telecom              |
| Europe         | EMC, RF, SAR, Telecom, Safety      |

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## 1. Report Revision History

| Report No.     | Report Version | Description | Issue Date     |
|----------------|----------------|-------------|----------------|
| 16070349-FCC-H | NONE           | Original    | April 26, 2016 |
|                |                |             |                |
|                |                |             |                |
|                |                |             |                |
|                |                |             |                |

## 2. Customer information

|                  |  |
|------------------|--|
| Applicant Name   | TOPSAIL (HK) LIMITED   |
| Applicant Add    | #2005, Building D, Transportation Bureau, BaoMin First rd., BaoAn, Shenzhen, P.R.China |
| Manufacturer     | TOPSAIL (HK) LIMITED   |
| Manufacturer Add | #2005, Building D, Transportation Bureau, BaoMin First rd., BaoAn, Shenzhen, P.R.China |

## 3. Test site information

|                      |  |
|----------------------|--|
| Lab performing tests | SIEMIC (Shenzhen-China) LABORATORIES   |
| Lab Address          | Zone A, Floor 1, Building 2 Wan Ye Long Technology Park<br>South Side of Zhoushi Road, Bao' an District, Shenzhen, Guangdong China<br>518108 |
| FCC Test Site No.    | 718246   |
| IC Test Site No.     | 4842E-1  |
| Test Software        | Radiated Emission Program-To Shenzhen v2.0   |

#### 4. Equipment under Test (EUT) Information

Description of EUT: Portable Bluetooth Speaker

Main Model: TS-030B

Serial Model: N/A

Date EUT received: March 30, 2016

Test Date(s): March 31 to April 09, 2016

Antenna Gain: 0dBi

Type of Modulation: GFSK,  $\pi/4$  DQPSK

RF Operating Frequency (ies): 2402-2480 MHz

Number of Channels: 79CH

Port: USB Port, Power Port, AUX-IN

Input Power: Battery:  
Spec: DC 3.7V 1200mAh

Trade Name : N/A

FCC ID: 2ACCE-BT030

## 5. FCC §2.1093 - Radiofrequency radiation exposure evaluation: portable devices.

### 5.1 RF Exposure

#### **Standard Requirement:**

According to §15.247 (i) and §1.1307(b)(1), systems operating under the provisions of this 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.

The 1-g and 10-g SAR test exclusion thresholds for 100 MHz to 6 GHz at *test separation distances*  $\leq 50$  mm are determined by:

$[(\text{max. power of channel, including tune-up tolerance, mW}) / (\text{min. test separation distance, mm})] \cdot [\sqrt{f_{(\text{GHz})}}] \leq 3.0 \text{ for 1-g SAR and } \leq 7.5 \text{ for 10-g extremity SAR,}^{16}$  where

- $f_{(\text{GHz})}$  is the RF channel transmit frequency in GHz
- Power and distance are rounded to the nearest mW and mm before calculation<sup>17</sup>
- The result is rounded to one decimal place for comparison

The test exclusions are applicable only when the minimum *test separation distance* is  $\leq 50$  mm and for transmission frequencies between 100 MHz and 6 GHz. When the minimum *test separation distance* is  $< 5$  mm, a distance of 5 mm is applied to determine SAR test exclusion.

Routine SAR evaluation refers to that specifically required by § 2.1093, using measurements or computer simulation. When routine SAR evaluation is not required, portable transmitters with output power greater than the applicable low threshold require SAR evaluation to qualify for TCB approval.

$$\text{result} = P\sqrt{F} / D$$

P= Maximum turn-up power in mW

F= Channel frequency in GHz

D= Minimum test separation distance in mm

## 5.2 Test Result

### Bluetooth Mode:

| Modulation    | CH   | Freq (MHz) | Conducted Power (dBm) | Tune Up Power (dBm) | Max Tune Up Power (dBm) | Max Tune Up Power (mW) | Result | Limit |
|---------------|------|------------|-----------------------|---------------------|-------------------------|------------------------|--------|-------|
| GFSK          | Low  | 2402       | -3.423                | -3.5±1              | -2.5                    | 0.562                  | 0.17   | 3     |
|               | Mid  | 2441       | -3.776                | -3.5±1              | -2.5                    | 0.562                  | 0.18   | 3     |
|               | High | 2480       | -4.615                | -4.5±1              | -3.5                    | 0.447                  | 0.14   | 3     |
| $\pi/4$ DQPSK | Low  | 2402       | <b>-2.307</b>         | -2.5±1              | -1.5                    | 0.708                  | 0.22   | 3     |
|               | Mid  | 2441       | -2.680                | -2.5±1              | -1.5                    | 0.708                  | 0.22   | 3     |
|               | High | 2480       | -3.541                | -3.5±1              | -2.5                    | 0.562                  | 0.18   | 3     |

**Result:** Compliance

No SAR measurement is required.

Note: Minimum test separation distance=50mm.