# RF EXPOSURE REPORT

Report No.: 16070747-FCC-H

Supersede Report No.: N/A

| | |
|---|---|
| Applicant | Leader Light Ltd |
| Product Name | Bluetooth Speaker |
| Model No. | 8050189 |
| Serial No. | 8050190 , 8050193, E-593 |
| Test Standard | FCC 2.1093:2015 |
| Test Date | June 23 to July 12, 2016 |
| Issue Date | July 12, 2016 |
| Test Result | ☑ Pass ☐ Fail |
| Equipment complied with the specification | ☑ |
| Equipment did not comply with the specification | ☐ |

| | | |
|---|---|---|
| Loren Luo | David Huang | |
| Loren Luo<br>Test Engineer | David Huang<br>Checked By | |

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Test result presented in this test report is applicable to the tested sample only


Issued by:

SIEMIC (SHENZHEN-CHINA) LABORATORIES

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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 |
| --- | --- | --- | --- |
| 16070747-FCC-H | NONE | Original | July 12, 2016 |
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# 2. Customer information

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| --- | --- |
| Applicant Name | Leader Light Ltd |
| Applicant Add | Rm303,Chinachem Golden Plaza,77Mody Road,Tsimshatsui,Kowloon,Hongkong |
| Manufacturer | Leader Light Ltd |
| Manufacturer Add | Rm303,Chinachem Golden Plaza,77Mody Road,Tsimshatsui,Kowloon,Hongkong |

# 3. Test site information

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| --- | --- |
| 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: | Bluetooth Speaker |
| Main Model: | 8050189 |
| Serial Model: | 8050190，8050193, E-593 |
| Date EUT received: | June 22, 2016 |
| Test Date(s): | June 23 to July 12, 2016 |
| Antenna Gain: | Bluetooth& BLE :0dBi |
| Antenna Type: | PCB antenna |
| Type of Modulation: | Bluetooth: GFSK, π /4DQPSK, 8DPSK<br>BLE: GFSK |
| RF Operating Frequency (ies): | Bluetooth& BLE: 2402-2480 MHz |
| Number of Channels: | Bluetooth: 79CH<br>BLE: 40CH |
| Port: | USB Port,AUX-IN |
| Input Power: | Battery:<br>Spec: 3.7V,600mAh, 2.22Wh<br>USB:5V |
| Trade Name : | N/A |
| FCC ID: | 2AEHD8050189 |

# 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* ≤ 50 mm are determined by:

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

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

The test exclusions are applicable only when the minimum *test separation distance* is ≤ 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.

**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 | Frequency (MHz) | Conducted Power (dBm) | Tune Up Power (dBm) | Max Tune Up Power (dBm) | Max Tune Up Power (mW) | Result | Limit |
|---|---|---|---|---|---|---|---|---|
| GFSK | Low | 2402 | -1.162 | -2±1 | -1 | 0.794 | 0.25 | 3 |
| | Mid | 2441 | -2.188 | -2±1 | -1 | 0.794 | 0.25 | 3 |
| | High | 2480 | -1.855 | -2±1 | -1 | 0.794 | 0.25 | 3 |
| π /4 DQPSK | Low | 2402 | -0.156 | -1±1 | 0 | 1.000 | 0.31 | 3 |
| | Mid | 2441 | -1.012 | -1±1 | 0 | 1.000 | 0.31 | 3 |
| | High | 2480 | -0.697 | -1±1 | 0 | 1.000 | 0.31 | 3 |
| 8-DPSK | Low | 2402 | **0.129** | 0±1 | 1 | 1.259 | 0.39 | 3 |
| | Mid | 2441 | -0.786 | 0±1 | 1 | 1.259 | 0.39 | 3 |
| | High | 2480 | -0.561 | 0±1 | 1 | 1.259 | 0.40 | 3 |

### BLE 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 | -7.872 | -7.5±1 | -6.5 | 0.224 | 0.07 | 3 |
| | Mid | 2440 | **-7.168** | -7.5±1 | -6.5 | 0.224 | 0.07 | 3 |
| | High | 2480 | -7.405 | -7.5±1 | -6.5 | 0.224 | 0.07 | 3 |

**Result:** Compliance

No SAR measurement is required.