

# RF EXPOSURE REPORT



Report No.: 15050044-FCC-H2

Supersede Report No.: N/A

|                                                                                                                                      |                                                                        |  |
|--------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------|--|
| Applicant                                                                                                                            | b mobile HK Limited                                                    |  |
| Product Name                                                                                                                         | Mobile phone                                                           |  |
| Model No.                                                                                                                            | AX1055                                                                 |  |
| Serial No.                                                                                                                           | AX1050,AX1065                                                          |  |
| Test Standard                                                                                                                        | FCC 2.1093:2014                                                        |  |
| Test Date                                                                                                                            | October 28 to November 17, 2015                                        |  |
| Issue Date                                                                                                                           | November 17, 2015                                                      |  |
| 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"/>                                                             |                                                                        |  |
| <i>Winnie Zhang</i>                                                                                                                  | <i>David Huang</i>                                                     |  |
| 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        |
|-----------------|----------------|-------------|-------------------|
| 15050044-FCC-H2 | NONE           | Original    | November 17, 2015 |
|                 |                |             |                   |
|                 |                |             |                   |
|                 |                |             |                   |
|                 |                |             |                   |
|                 |                |             |                   |

## 2. Customer information

|                  |                                                                                                                |
|------------------|----------------------------------------------------------------------------------------------------------------|
| Applicant Name   | b mobile HK Limited                                                                                            |
| Applicant Add    | Flat 18; 14/F Block 1; Golden Industrial Building;16-26 Kwai Tak Street; Kwai Chung;New Territories; Hong Kong |
| Manufacturer     | b mobile HK Limited                                                                                            |
| Manufacturer Add | Flat 18; 14/F Block 1; Golden Industrial Building;16-26 Kwai Tak Street; Kwai Chung;New Territories; Hong Kong |

## 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<br>China 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:           | Mobile phone                                                                                                                                                                                                                                                      |
| Main Model:                   | AX1055                                                                                                                                                                                                                                                            |
| Serial Model:                 | AX1050,AX1065                                                                                                                                                                                                                                                     |
| Date EUT received:            | October 27, 2015                                                                                                                                                                                                                                                  |
| Test Date(s):                 | October 28 to November 17, 2015                                                                                                                                                                                                                                   |
| Antenna Gain:                 | GSM850: 1 dBi<br>PCS1900: 1.8 dBi<br>UMTS-FDD Band V: 1.8 dBi<br>UMTS-FDD Band II: 1.8 dBi<br>Bluetooth: -0.8dBi<br>BLE: 3.3dBi<br>WIFI: -0.55 dBi<br>LTE Band 2: -1.6 dBi<br>LTE Band 4:-1.7 dBi<br>LTE Band 5: -3.1 dBi<br>LTE Band 7: -1.2 dBi<br>GPS:-0.65dBi |
| Type of Modulation:           | GSM / GPRS: GMSK<br>EGPRS: GMSK, 8PSK<br>UMTS-FDD: QPSK, 16QAM<br>802.11b/g/n: DSSS, OFDM<br>Bluetooth: GFSK, $\pi/4$ DQPSK, 8DPSK<br>BLE: GFSK<br>LTE Band: QPSK, 16QAM<br>GPS:BPSK                                                                              |
| RF Operating Frequency (ies): | GSM850 TX: 824.2 ~ 848.8 MHz; RX: 869.2 ~ 893.8 MHz<br>PCS1900 TX: 1850.2 ~ 1909.8 MHz; RX: 1930.2 ~ 1989.8 MHz                                                                                                                                                   |

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UMTS-FDD Band V TX: 826.4 ~ 846.6 MHz; RX: 871.4 ~ 891.6 MHz

UMTS-FDD Band II TX:1852.4 ~ 1907.6 MHz;

RX: 1932.4 ~ 1987.6 MHz

WIFI:802.11b/g/n(20M): 2412-2472 MHz

WIFI:802.11n(40M): 2422-2462 MHz

Bluetooth& BLE: 2402-2480 MHz

LTE Band 2 TX: 1852.5 ~ 1907.5 MHz; RX : 1932.5 ~ 1987.5 MHz

LTE Band 4 TX: 1712.5 ~ 1752.5 MHz; RX : 2112.5 ~ 2152.5 MHz

LTE Band 5 TX: 826.5 ~ 846.5 MHz; RX : 871.5 ~ 891.5 MHz

LTE Band 7 TX: 2502.5 ~ 2567.5 MHz; RX : 2622.5 ~ 2687.5 MHz

GPS RX:1575.42 MHz

Battery:

Model:A5007

Standard Voltage:DC3.7V

Rated Capacity:2200mAh,8.14Wh

Adapter:

Model:N/A

Input: AC100-240V; 50/60Hz; 0.15A

Output: DC 5.0V,1A

Input Power:

Port:

Power Port, Earphone Port, USB Port

Trade Name :

Bmobile

GPRS/EGPRS Multi-slot class

8/10/12

FCC ID:

ZSW-30-020

## 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:

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

**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       | 4.195                 | 4±1                 | 5                       | 3.162                  | 0.98   | 3     |
|            | Mid  | 2441       | <b>7.044</b>          | 7±1                 | 8                       | 6.310                  | 1.97   | 3     |
|            | High | 2480       | 5.173                 | 5±1                 | 6                       | 3.981                  | 1.25   | 3     |
| π /4 DQPSK | Low  | 2402       | 3.360                 | 3±1                 | 4                       | 2.512                  | 0.78   | 3     |
|            | Mid  | 2441       | 6.241                 | 6±1                 | 7                       | 5.012                  | 1.57   | 3     |
|            | High | 2480       | 4.390                 | 4±1                 | 5                       | 3.162                  | 1.00   | 3     |
| 8-DPSK     | Low  | 2402       | 3.476                 | 3±1                 | 4                       | 2.512                  | 0.78   | 3     |
|            | Mid  | 2441       | 6.376                 | 6±1                 | 7                       | 5.012                  | 1.57   | 3     |
|            | High | 2480       | 4.488                 | 4±1                 | 5                       | 3.162                  | 1.00   | 3     |

### WIFI Mode:

| Modulation    | CH   | Freq (MHz) | Conducted Power (dBm) | Tune Up Power (dBm) | Max Tune Up Power (dBm) | Max Tune Up Power (mW) | Result | Limit |
|---------------|------|------------|-----------------------|---------------------|-------------------------|------------------------|--------|-------|
| 802.11b       | Low  | 2412       | 9.31                  | 8.5±1               | 9.5                     | 8.913                  | 2.77   | 3     |
|               | Mid  | 2437       | 8.99                  | 8.5±1               | 9.5                     | 8.913                  | 2.78   | 3     |
|               | High | 2462       | <b>9.38</b>           | 8.5±1               | 9.5                     | 8.913                  | 2.80   | 3     |
| 802.11g       | Low  | 2412       | 8.33                  | 8.5±1               | 9.5                     | 8.913                  | 2.77   | 3     |
|               | Mid  | 2437       | <b>8.97</b>           | 8.5±1               | 9.5                     | 8.913                  | 2.78   | 3     |
|               | High | 2462       | 8.37                  | 8.5±1               | 9.5                     | 8.913                  | 2.80   | 3     |
| 802.11n (20M) | Low  | 2412       | 8.23                  | 8.5±1               | 9.5                     | 8.913                  | 2.77   | 3     |
|               | Mid  | 2437       | <b>9.37</b>           | 8.5±1               | 9.5                     | 8.913                  | 2.78   | 3     |
|               | High | 2462       | 8.97                  | 8.5±1               | 9.5                     | 8.913                  | 2.80   | 3     |
| 802.11n (40M) | Low  | 2422       | 8.40                  | 8.5±1               | 9.5                     | 8.913                  | 2.77   | 3     |
|               | Mid  | 2437       | 8.47                  | 8.5±1               | 9.5                     | 8.913                  | 2.78   | 3     |
|               | High | 2452       | <b>8.72</b>           | 8.5±1               | 9.5                     | 8.913                  | 2.79   | 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       | -2.823                | -2±1                | -1                      | 0.794                  | 0.25   | 3     |
|            | Mid  | 2440       | <b>-0.149</b>         | 0±1                 | 1                       | 1.259                  | 0.39   | 3     |
|            | High | 2480       | -2.200                | -2±1                | -1                      | 0.794                  | 0.25   | 3     |

**Result:** Compliance

No SAR measurement is required.