# MPE TEST REPORT

| | |
|---|---|
| **Applicant** | MOBIKE (HONG KONG) LIMITED |
| **FCC ID** | 2AK4SLBC-CATM01 |
| **Product** | Mobike Lock |
| **Brand** | mobike |
| **Model** | LC_CATM01, LB_CATM01 |
| **Report No.** | RXA1707-0235MPE01R1 |
| **Issue Date** | September 27, 2017 |

TA Technology (Shanghai) Co., Ltd. tested the above equipment in accordance with the requirements in **FCC 47 CFR Part 1§1.1310**. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

Jiangpeng Lan

*Performed by: Jiangpeng Lan*

Kai Xu

*Approved by: Kai Xu*


## TA Technology (Shanghai) Co., Ltd.

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# 1 Test Laboratory

## 1.1 Notes of the Test Report

This report shall not be reproduced in full or partial, without the written approval of **TA technology (shanghai) co., Ltd.**The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein .Measurement Uncertainties were not taken into account and are published for informational purposes only. This report is written to support regulatory compliance of the applicable standards stated above. This report must not be used by the client to claim product certification, approval, or endorsement by any government agencies.

## 1.2 Test facility

**CNAS (accreditation number:L2264)**

TA Technology (Shanghai) Co., Ltd. has obtained the accreditation of China National Accreditation Service for Conformity Assessment (CNAS).

**FCC (Designation number: CN1179, Test Firm Registration Number: 446626)**

TA Technology (Shanghai) Co., Ltd. has been listed on the US Federal Communications Commission list of test facilities recognized to perform electromagnetic emissions measurements.

**IC (recognition number is 8510A)**

TA Technology (Shanghai) Co., Ltd. has been listed by industry Canada to perform electromagnetic emission measurement.

**VCCI (recognition number is C-4595, T-2154, R-4113, G-10766)**

TA Technology (Shanghai) Co., Ltd. has been listed by industry Japan to perform electromagnetic emission measurement.

**A2LA (Certificate Number: 3857.01)**

TA Technology (Shanghai) Co., Ltd. has been listed by American Association for Laboratory Accreditation to perform electromagnetic emission measurement.

## 1.3 Testing Location


| | |
|---|---|
| Company: | TA Technology (Shanghai) Co., Ltd. |
| Address: | No.145, Jintang Rd, Tangzhen Industry Park, Pudong Shanghai, China |
| City: | Shanghai |
| Post code: | 201201 |
| Country: | P. R. China |
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## 1.4 Laboratory Environment

| | |
|---|---|
| Temperature | Min. = 18°C, Max. = 25 °C |
| Relative humidity | Min. = 30%, Max. = 70% |
| Ground system resistance | < 0.5 Ω |
| Ambient noise is checked and found very low and in compliance with requirement of standards. Reflection of surrounding objects is minimized and in compliance with requirement of standards. | |

# 2 Description of Equipment under Test

**Client Information**

| | |
|---|---|
| **Applicant** | MOBIKE (HONG KONG) LIMITED |
| **Applicant address** | 10/F HONGKONG OFFSHORE CENTRE NO.28 AUSTIN AVENUE TSIM SHA TSUI KL |
| **Manufacturer** | MOBIKE (HONG KONG) LIMITED |
| **Manufacturer address** | 10/F HONGKONG OFFSHORE CENTRE NO.28 AUSTIN AVENUE TSIM SHA TSUI KL |

**General Technologies**

| | |
|---|---|
| **Model** | LC_CATM01, LB_CATM01 |
| **SN** | / |
| **Hardware Version** | LC_CATM01 |
| **Software Version** | 501 |
| **Date of Testing:** | July 30, 2017 ~ September 5, 2017 |

**Discrepancy declaration of LC_CATM01 and LB_CATM01:**

| HARDWARE MODIFICATION | LC_CATM01 | LB_CATM01 |
|---|---|---|
| Mechanical shell | Black, gray | Black |
| PCB | The same | The same |
| radio frequency module | The same | The same |
| Other | The same | The same |
| Note: 1. LC_CATM01/ LB_CATM01 version has the same hard ware specification, the only difference lies in the shape of the outside shell.<br>2. During the test, the preliminary test was performed with LC_CATM01 and LB_CATM01, LC_CATM01 was selected as the worst Model and recorded data in this report. | | |

# 3 Maximum conducted output power (measured) and antenna Gain

the numeric gain (G) of the antenna with a gain specified in dB is determined by
Numeric gain (G) =10^(antenna gain/10)

| Band | Maximum Conducted Output Power (dBm) | Antenna Gain (dBi) | Numeric gain (dB) |
|---|---|---|---|
| LTE Band 2 | 25.00 | -2.80 | 0.525 |
| LTE Band 4 | 25.00 | -2.44 | 0.570 |
| LTE Band 12 | 24.00 | -2.50 | 0.562 |
| LTE Band 13 | 24.00 | -2.33 | 0.585 |
| Bluetooth (Low Energy) | -3.00 | -2.87 | 0.516 |

According to section 1.1310 of FCC 47 CFR Part 1, limits for maximum permissible exposure (MPE) are as following

TABLE 1 – LIMITS FOR MAXIMUN PERMISSIBLE EXPOSURE (MPE)

| Frequency Range (MHz) | Electric Field Strength (V/m) | Magnetic Field Strength (A/m) | Power Density (mW/cm2) | Averaging Time (minutes) |
|---|---|---|---|---|
| (A) Limits for Occupational/Controlled Exposures | | | | |
| 0.3-3.0 | 614 | 1.63 | *(100) | 6 |
| 3-30 | 1842/f | 4.89/f | *(900/f2) | 6 |
| 30-300 | 61.4 | 0.163 | 1.0 | 6 |
| 300-1500 | | | f/300 | 6 |
| 1500-100,000 | | | 5 | 6 |
| (B) Limits for General Population/Uncontrolled Exposure | | | | |
| 0.3-1.34 | 614 | 1.63 | *(100) | 30 |
| 1.34-30 | 824/f | 2.19/f | *(180/f2) | 30 |
| 30-300 | 27.5 | 0.073 | 0.2 | 30 |
| 300-1500 | | | f/1500 | 30 |
| 1500-100,000 | | | 1.0 | 30 |

f = frequency in MHz
* = Plane-wave equivalent power density

Note1. Occupational/controlled limits apply in situations in which persons are exposed as a consequence of their employment provided those persons are fully aware of the potential for exposure and can exercise control over their exposure. Limits for occupational/controlled exposure also apply in situations when an individual is transient through a location where occupational / controlled limits apply provided he or she is made aware of the potential for exposure.

Note2: General population/uncontrolled exposures apply in situations in which the general public may be exposed, or in which persons that are exposed as a consequence of their employment may not be fully aware of the potential for exposure or can not exercise control over their exposure.

The maximum permissible exposure for 300~1500MHz is f/1500, and 1500~100,000MHz is 1.0.So

| Band | The maximum permissible exposure |
|---|---|
| LTE Band 2 | 1.0mW/cm$^2$ |
| LTE Band 4 | 1.0mW/cm$^2$ |
| LTE Band 12 | 0.466mW/cm$^2$ |
| LTE Band 13 | 0.518mW/cm$^2$ |
| Bluetooth (Low Energy) | 1.0mW/cm$^2$ |

**Distance to the center of radiation of the antenna Calculations:**

The following information provides the minimum separation distance for the highest gain antenna provided. This calculation is based on the conducted power, considering maximum power and antenna gain. The formula shown in KDB 447498 D01 is used in the calculation.

Equation from KDB 447498 D01 General RF Exposure Guidance v06 (10/23/2015) is:

$$R= (PG / 4\prod S)^{1/2}$$

Where: $\prod$= 3.1416

S = The maximum permissible exposure (in appropriate units, e.g. mW/cm$^2$)

P = Time-average maximum tune up procedure (in appropriate units, e.g., mW)

G = the numeric gain of the antenna

R = distance to the center of radiation of the antenna

| Band | PG (dBm) | PG (mW) | The operate distance (cm) | Limit R (cm) |
|---|---|---|---|---|
| LTE Band 2 | 25.525 | 356.862 | 8 | >5.33 |
| LTE Band 4 | 25.570 | 360.579 | 8 | >5.36 |
| LTE Band 12 | 24.562 | 285.891 | 8 | >6.99 |
| LTE Band 13 | 24.585 | 287.409 | 8 | >6.65 |
| Bluetooth (Low Energy) | -5.87 | 0.259 | 8 | >0.14 |
| Note: This equipment should be installed and operated with a minimum distance of 8cm between the device and the user or bystanders. | | | | |