

RF Exposure Evaluation Report

Product : TouchLock XL Plus
Trade mark : BIO-key
Model/Type reference : BF1409
Serial Number : N/A
Report Number : EED32K00105602
FCC ID : 2AIKJ-BF1409
Date of Issue : Jun. 05, 2018
47 CFR Part 1.1307
Test Standards : 47 CFR Part 2.1093
KDB 447498D01v06
Test result : PASS

Prepared for:

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2 Version

| Version No. | Date | Description |
|-------------|---------------|-------------|
| 00 | Jun. 05, 2018 | Original |
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4 General Information

4.1 Client Information

| | |
|--------------------------|---|
| Applicant: | BIO-key Hong Kong Limited |
| Address of Applicant: | Unit 1212, 12/F, Grand City Plaza, 1-17 Sai Lau Kok Road, Tsuen Wan, New Territories, Hong Kong |
| Manufacturer: | Dongguan Otoma Industrial Co., Ltd. |
| Address of Manufacturer: | No. 8, Shanglang Road, Xiabian Zone, Chang' an Town, Dongguan City, Guangdong Province, P. R. China |
| Factory: | Dongguan Otoma Industrial Co., Ltd. |
| Address of Factory: | No. 8, Shanglang Road, Xiabian Zone, Chang' an Town, Dongguan City, Guangdong Province, P. R. China |

4.2 General Description of EUT

| | |
|----------------------------------|-----------------------------------|
| Product Name: | TouchLock XL Plus |
| Model No.(EUT): | BF1409 |
| Trade mark: | BIO-key |
| EUT Supports Radios application: | BT 4.1 Signal mode , 2402-2480MHz |

4.3 Product Specification subjective to this standard

| | |
|-----------------------|---|
| Frequency Range: | 2402-2480MHz |
| Modulation Type: | GFSK |
| Test power grade: | (manufacturer declare)N/A |
| Test software of EUT: | (manufacturer declare)BLUENRG_GUI.exe |
| Antenna Type: | PCB Antenna |
| Antenna Gain: | 0.49dBi |
| Power Supply: | Battery:3.7V, 130mAh |
| Hardware Version: | (manufacturer declare)5.0 |
| Software version: | (manufacturer declare)29 |
| Output Power: | 3.442dBm The Conducted Peak Output Power data refer to the report EED32K00105601 |
| Sample Received Date: | May 03, 2018 |
| Sample tested Date: | May 03, 2018 to Jun. 05, 2018 |
| Remark: | The tested sample(s) and the sample information are provided by the client. |

4.4 Test Location

All tests were performed at:

Centre Testing International Group Co., Ltd.

Hongwei Industrial Zone, Bao'an 70 District, Shenzhen, Guangdong, China 518101

Telephone: +86 (0) 755 3368 3668 Fax:+86 (0) 755 3368 3385

No tests were sub-contracted.

FCC Designation No.: CN1164

4.5 Deviation from Standards

None.

4.6 Abnormalities from Standard Conditions

None.

4.7 Other Information Requested by the Customer

None.

5 SAR Evaluation

5.1 RF Exposure Compliance Requirement

5.1.1 Standard Requirement

According to KDB447498D01 General RF Exposure Guidance v06
Standalone SAR test exclusion considerations

Unless specifically required by the published RF exposure KDB procedures, standalone 1-g head or body and 10-g extremity SAR evaluation for general population exposure conditions, by measurement or numerical simulation, is not required when the corresponding SAR Exclusion Threshold condition, listed below, is satisfied.

5.1.2 Limits

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:

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

$f(\text{GHz})$ is the RF channel transmit frequency in GHz

Power and distance are rounded to the nearest mW and mm before calculation¹⁷

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

5.1.3 EUT RF Exposure

The Max Conducted Output Power is 3.442dBm;

The best case gain of the antenna is 0.49dBi.

$EIRP = 3.442\text{dBm} + 0.49\text{dBi} = 3.932\text{dBm}$

3.932dBm logarithmic terms convert to numeric result is nearly 2.473mW

According to the formula. calculate the EIRP test result:

$$\left[\frac{\text{max. power of channel, including tune-up tolerance, mW}}{\text{min. test separation distance, mm}} \right] \cdot \left[\sqrt{f(\text{GHz})} \right]$$

General RF Exposure = $(2.473\text{mW} / 5 \text{ mm}) \times \sqrt{2.480\text{GHz}} = 0.779$ ①

SAR requirement:

$S = 3.0$ ② ;

① $<$ ②.

So the SAR report is not required.

PHOTOGRAPHS OF EUT Constructional Details

Refer to Report No. EED32K00105601 for EUT external and internal photos.

*** End of Report ***

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