


RF Exposure Evaluation Report

Applicant: Remote Tech LLC
Address of Applicant: 310 ALDER RD, DOVER DE 19904 USA
Equipment Under Test (EUT)
Product Name: Smart Key
Model No.: RT-HK4F28
FCC ID: 2AOKM-HK18
Applicable standards: KDB 447498 D04 Interim General RF Exposure Guidance v01
Date of sample receipt: 24 Jul., 2023
Date of Test: 25 Jul., to 18 Aug., 2023
Date of report issue: 18 Aug., 2023
Test Result: PASS

Tested by: June Li **Date:** 18 Aug., 2023
Reviewed by: Janet **Date:** 18 Aug., 2023
Approved by: Manager **Date:** 18 Aug., 2023



This equipment has been shown to be capable of compliance with the applicable technical standards as indicated in the measurement report and was tested in accordance with the measurement procedures specified in above the application standard version. Test results reported herein relate only to the item(s) tested.

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1 Version

| Version No. | Date | Description |
|-------------|---------------|-------------|
| 00 | 18 Aug., 2023 | Original |
| | | |
| | | |
| | | |
| | | |

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3 General Information

3.1 Client Information

| | |
|---------------|----------------------------------|
| Applicant: | Remote Tech LLC |
| Address: | 310 ALDER RD, DOVER DE 19904 USA |
| Manufacturer: | Remote Tech LLC |
| Address: | 310 ALDER RD, DOVER DE 19904 USA |

3.2 General Description of E.U.T.

| | |
|------------------------|-------------------------------------------------------------------------------|
| Product Name: | Smart Key |
| Model No.: | RT-HK4F28 |
| Operation Frequency: | 433.92 MHz |
| Modulation technology: | ASK |
| Antenna Type: | PCB Antenna |
| Antenna gain: | -12.88 dBi |
| Power Supply: | DC 3V (CR2032 battery) |
| Test Sample Condition: | The test samples were provided in good working order with no visible defects. |

3.3 Operating Modes

| Operating mode | Detail description |
|----------------|------------------------------------------------|
| Tx mode | Keep the EUT in continuously transmitting mode |

3.4 Additions to, Deviations, or Exclusions from the Method

| |
|----|
| No |
|----|

3.5 Laboratory Facility

| |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>The test facility is recognized, certified, or accredited by the following organizations:</p> <ul style="list-style-type: none"> ● FCC - Designation No.: CN1211 JianYan Testing Group Shenzhen Co., Ltd. has been accredited as a testing laboratory by FCC(Federal Communications Commission). The test firm Registration No. is 727551. ● ISED – CAB identifier.: CN0021 The 3m Semi-anechoic chamber of JianYan Testing Group Shenzhen Co., Ltd. has been Registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 10106A-1. ● CNAS - Registration No.: CNAS L15527 JianYan Testing Group Shenzhen Co., Ltd. is accredited to ISO/IEC 17025:2017 General Requirements for the Competence of Testing and Calibration laboratories for the competence of testing. The Registration No. is CNAS L15527. ● A2LA - Registration No.: 4346.01 This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2017 General requirements for the competence of testing and calibration laboratories. The test scope can be found as below link: https://portal.a2la.org/scopepdf/4346-01.pdf |
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3.6 Laboratory Location

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|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>JianYan Testing Group Shenzhen Co., Ltd. Address: No.101, Building 8, Innovation Wisdom Port, No.155 Hongtian Road, Huangpu Community, Xinqiao Street, Bao'an District, Shenzhen, Guangdong, People's Republic of China. Tel: +86-755-23118282, Fax: +86-755-23116366 Email: info-JYTee@lets.com, Website:http://jyt.lets.com</p> |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

4 Technical Requirements Specification

4.1 Limits

According to KDB 447498 D04 Interim General RF Exposure Guidance v01 RF Exposure Procedures and Equipment Authorization Policies for Mobile and Portable Devices.

RF Exposure Test Exemptions for Single Source

SAR-based Exemption

Evaluation of compliance with the exposure limits in § 1.1310 of this chapter, and preparation of an EA if the limits are exceeded, is necessary for portable devices having single RF sources with more than an available maximum time-averaged power of 1 mW, more than the ERP listed in Table 1 to §1.1307(b)(3)(i)(C), or more than the P_{th} in the following formula, whichever is greater. The following formula shall only be used in conjunction with portable devices not exempt by § 1.1307(b)(3)(i)(C) at distances from 0.5 centimeters to 20 centimeters and frequencies from 0.3 GHz to 6 GHz.

$$P_{th} \text{ (mW)} = \begin{cases} ERP_{20 \text{ cm}}(d/20 \text{ cm})^x & d \leq 20 \text{ cm} \\ ERP_{20 \text{ cm}} & 20 \text{ cm} < d \leq 40 \text{ cm} \end{cases} \quad \text{(B.2)}$$

where

$$x = -\log_{10} \left(\frac{60}{ERP_{20 \text{ cm}} \sqrt{f}} \right)$$

and f is in GHz, d is the separation distance (cm), and $ERP_{20 \text{ cm}}$ is per Formula (B.1).

$$P_{th} \text{ (mW)} = ERP_{20 \text{ cm}} \text{ (mW)} = \begin{cases} 2040f & 0.3 \text{ GHz} \leq f < 1.5 \text{ GHz} \\ 3060 & 1.5 \text{ GHz} \leq f \leq 6 \text{ GHz} \end{cases} \quad \text{(B.1)}$$

4.2 Result

According to the calculation formula of power:
 $EIRP = P * G = (E * d)^2 / 30$, So $P = (E * d)^2 / (30 * G)$.

Where:

P = transmitter output power in watts,

G = numeric gain of the antenna in the direction of interest relative to an isotropic radiator (unitless),

E = electric field strength in V/m, --- $10^{((dBuV/m)/20)}/10^6$,

d = measurement distance in meters (m)---3m,

Thus, Worse case below:

| Frequency (MHz) | Maximum field strength@3m (dBuV/m) | Maximum field strength@3m (V/m) | Antenna Gain (dBi) | Antenna Gain (numeric) | Distance (m) | Output power (mW) |
|-----------------|------------------------------------|---------------------------------|--------------------|------------------------|--------------|-------------------|
| 433.92 | 82.87 | 0.0139 | -12.88 | 0.052 | 3 | 1.128 |

| Mode | Frequency (MHz) | Distance (cm) | Output power (mW) | Limit for SAR test exemption(mW) | Verdict |
|------|-----------------|---------------|-------------------|----------------------------------|---------|
| ASK | 433.92 | 0.5 | 1.128 | 23.16 | Pass |

4.3 Conclusion

Cuz $1.0 \text{ mW} < 23.16 \text{ mW}$, The device is exempt from the SAR test and satisfies RF exposure evaluation.

-----End of report-----