



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:

Jane Li
Test Engineer

Date:

18 Aug., 2023

Reviewed by:

Project Engineer

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.

This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.

1 Version

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

2 Contents

Page

Cover Page	1
1 Version	2
2 Contents.....	3
3 General Information.....	4
3.1 Client Information	4
3.2 General Description of E.U.T.	4
3.3 Operating Modes.....	5
3.4 Additions to, Deviations, or Exclusions from the Method	5
3.5 Laboratory Facility	5
3.6 Laboratory Location.....	5
4 Technical Requirements Specification.....	6
4.1 Limits	6
4.2 Result	6
4.3 Conclusion.....	6

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

The test facility is recognized, certified, or accredited by the following organizations:

● **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>

3.6 Laboratory Location

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>

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:

$EIRP = P \cdot G = (E \cdot d)^2 / 30$, So $P = (E \cdot d)^2 / (30 \cdot G)$.

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-----