

# **RF EXPOSURE EVALUATION REPORT**

**Application No.:** GZCR2105020238HS  
**Applicant:** Beijing Kingsmith Technology Co., Ltd  
**Address of Applicant:** Floor 4, Building 25, Area 18, ABP Park, Fengtai, Beijing, China  
**Manufacturer:** Beijing Kingsmith Technology Co., Ltd  
**Address of Manufacturer:** Floor 4, Building 25, Area 18, ABP Park, Fengtai, Beijing, China  
**Factory:** Beijing Kingsmith Technology Co., Ltd  
**Address of Factory:** Floor 4, Building 25, Area 18, ABP Park, Fengtai, Beijing, China  
**Equipment Under Test (EUT):**  
**EUT Name:** Motorized Treadmill  
**Model No.:** TRFxFB, TRFxFB-H ("X"represent 0~9)  
 ✦ Please refer to section 2 of this report which indicates which item was actually evaluated and which were electrically identical.  
**Trade Mark:** KINGSMITH  
**Standard(s) :** 47 CFR Part 1.1307  
 47 CFR Part 1.1310  
 47 CFR Part 2.1091  
 KDB447498 D01 General RF Exposure Guidance DR04-44307  
**Date of Receipt:** 2021-05-13  
**Date of Evaluation:** 2021-05-31  
**Date of Issue:** 2021-07-28

<b>Evaluation Result:</b>	<b>Pass*</b>
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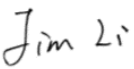

\* In the configuration evaluated, the EUT complied with the standards specified above.

Kobe Jian  
EMC Laboratory Manager



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Revision Record				
Version	Chapter	Date	Modifier	Remark
01		2021-07-28		Original

<b>Authorized for issue by:</b>			
<b>Tested By</b>			
	_____		
	<b>Jim Li/Project Engineer</b>		
<b>Reviewed By</b>			
	_____		
	<b>Ricky Liu/Reviewer</b>		



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## 2 Evaluation Summary

**Note:**

E.U.T./EUT means Equipment Under Test.

Pass means the test result passed the test standard requirement, please find the detailed decision rule in the report relative section.

**■ Declaration of EUT Family Grouping:**

Model No.: TRFxFB, TRFxFB-H ("X"represent 0~9)

According to the declaration from the applicant, the electrical circuit design, layout, components used and internal wiring were identical for all models, with only difference being the outer color, vignette and model name.

Therefore, only the model TRF0FB was tested in this report.



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## 4 General Information

### 4.1 Details of E.U.T.

Power supply: AC 100-127V~, 50/60Hz for main unit.  
DC 3V= size 'AAA' battery x 2 for 2.4 GHz remote control.  
Rated Power:746W

Cable(s): AC mains, 3 wires, 2.0M, unshielded.

RF Character: Refer to report GZCR210502023802 for BT BLE.  
Refer to report GZCR210502023803 for 2.4G Proprietary.

### 4.2 Evaluating Location

All tests were performed at:

SGS-CSTC Standards Technical Services Co., Ltd., Guangzhou Branch EMC Laboratory,  
198 Kezhu Road, Sciencetech Park, Guangzhou Economic & Technology Development District,  
Guangzhou, China 510663

Tel: +86 20 82155555 Fax: +86 20 82075059

No tests were sub-contracted.



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### 4.3 Facility

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

● **NVLAP (Lab Code: 200611-0)**

SGS-CSTC Standards Technical Services Co., Ltd., Guangzhou EMC Laboratory is accredited by the National Voluntary Laboratory Accreditation Program (NVLAP/NIST). NVLAP Code: 200611-0.

The report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the Federal Government.

● **ACMA**

SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory can also perform testing for the Australian/New Zealand Regulatory Compliance Mark (RCM).

● **SGS UK(Certificate No.: 32), SGS-TUV SAARLAND and SGS-FIMKO**

Have approved SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory as a supplier of EMC TESTING SERVICES and SAFETY TESTING SERVICES.

● **CNAS (Lab Code: L0167)**

SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory has been assessed and in compliance with CNAS-CL01:2018 accreditation criteria for testing laboratories (identical to ISO/IEC 17025:2017 General Requirements) for the Competence of Testing Laboratories.

● **FCC Recognized Accredited Test Firm(Registration No.: 486818)**

SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory has been accredited and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Designation Number: CN5016, Test Firm Registration Number: 486818.

● **ISED (Registration No.: 4620B, CAB identifier: CN0052)**

SGS-CSTC Standards Technical Services Co., Ltd., has been registered by Innovation Science and Economic Development Canada for Wireless Device Testing laboratories to test to Canadian radio equipment requirements. Registration No. 4620B, CAB identifier: CN0052.

● **VCCI (Registration No.: R-12460, C-12584, G-20107 and T-11179)**

The 10m Semi-anechoic chamber, 966 Anechoic Chamber and Shielded Room of SGS-CSTC Standards Technical Services Co., Ltd. have been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: R-12460, C-12584, G-20107 and T-11179 respectively.

● **CBTL (Lab Code: TL129)**

SGS-CSTC Standards Technical Services Co., Ltd., E&E Laboratory has been assessed and fully comply with the requirements of ISO/IEC 17025:2017, the Basic Rules, IECEE 01 and Rules of procedure IECEE 02, and the relevant IECEE CB-Scheme Operational documents.

### 4.4 Deviation from Standards

None

### 4.5 Abnormalities from Standard Conditions

None



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## 5 Radio Spectrum Technical Requirement

### 5.1 RF Exposure

#### 5.1.1 Test Requirement:

CFR 47 Part 1.1310

Limit:

According to FCC Part1.1310: The criteria listed in the following table shall be used to evaluate the environment impact of human exposure to radio frequency (RF) radiation as specified in Part1.1307(b)

**TABLE 1—LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)**

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm <sup>2</sup> )	Averaging time (minutes)
<b>(A) Limits for Occupational/Controlled Exposure</b>				
0.3-3.0	614	1.63	*100	6
3.0-30	1842/f	4.89/f	*900/f <sup>2</sup>	6
30-300	61.4	0.163	1.0	6
300-1,500			f/300	6
1,500-100,000			5	6
<b>(B) Limits for General Population/Uncontrolled Exposure</b>				
0.3-1.34	614	1.63	*100	30
1.34-30	824/f	2.19/f	*180/f <sup>2</sup>	30
30-300	27.5	0.073	0.2	30
300-1,500			f/1500	30
1,500-100,000			1.0	30

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

According to §2.1091, the limit for Radiofrequency radiation exposure evaluation: mobile devices.

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

$$\sum_{i=1}^a \frac{P_i}{P_{th,i}} + \sum_{j=1}^b \frac{ERP_j}{ERP_{th,j}} + \sum_{k=1}^c \frac{Evaluated_k}{Exposure \ Limit_k} \leq 1 \quad (\text{C.1})$$

Where:

a = number of fixed, mobile, or portable RF sources claiming exemption using [paragraph \(b\)\(3\)\(i\)\(B\)](#) of this section for  $P_{th}$ , including existing exempt transmitters and those being added.

b = number of fixed, mobile, or portable RF sources claiming exemption using [paragraph \(b\)\(3\)\(i\)\(C\)](#) of this section for Threshold ERP, including existing exempt transmitters and those being added.

c = number of existing fixed, mobile, or portable RF sources with known evaluation for the specified



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minimum distance including existing evaluated transmitters.

$P_i$  = the available maximum time-averaged power or the ERP, whichever is greater, for fixed, mobile, or portable RF source  $i$  at a distance between 0.5 cm and 40 cm (inclusive).

$P_{th,i}$  = the exemption threshold power ( $P_{th}$ ) according to [paragraph \(b\)\(3\)\(i\)\(B\)](#) of this section for fixed, mobile, or portable RF source  $i$ .

$ERP_j$  = the ERP of fixed, mobile, or portable RF source  $j$ .

$ERP_{th,j}$  = exemption threshold ERP for fixed, mobile, or portable RF source  $j$ , at a distance of at least  $\lambda/2\pi$  according to the applicable formula of [paragraph \(b\)\(3\)\(i\)\(C\)](#) of this section.

$Evaluated_k$  = the maximum reported SAR or MPE of fixed, mobile, or portable RF source  $k$  either in the device or at the transmitter site from an existing evaluation at the location of exposure.

$Exposure Limit_k$  = either the general population/uncontrolled maximum permissible exposure (MPE) or specific absorption rate (SAR) limit for each fixed, mobile, or portable RF source  $k$ , as applicable from [§ 1.1310 of this chapter](#).

**5.1.2 Conclusion**

Normal use condition for Distance between antenna and body:	≥ 20 cm declared by applicant
Antenna Gain(max):	-0.237 dBi declared by applicant for 2.4G BT antenna. 0 dBi declared by applicant for 2.4G Proprietary antenna.

Test Mode	Frequency (MHz)	P/ E-field strength	Pi	Pth
2.4G BT	2402	3.59 dBm	2.239 mW	3060 mW
	2440	3.89 dBm	2.449 mW	3060 mW
	2480	3.78 dBm	2.388 mW	3060 mW
2.4G Proprietary	2450	83.9 dBuV/m@3m	16.57 mW*	3060 mW

\*: E-field (dBuV/m @0.2m) = E-field (dBuV/m @3m) + 40log(3/0.2)= 130.94dBuV/m @0.2m

E-field (V/m) = 10<sup>^</sup>[E-field (dBuV/m) /20] × 10<sup>-6</sup>=3.5252 V/m@0.2m\*

P(W) = (E\*d)<sup>2</sup>/(30\*G)

Where:

f = 2.450 GHz

d = 0.2 m

G = 1

P = (1.971\*0.2)<sup>2</sup>/(30\*1) = 0.01657 W(16.57 mW\*)

According to the formula C.1, we can calculate MPE.

$$\sum_{i=1}^a \frac{P_i}{P_{th,i}} + \sum_{j=1}^b \frac{ERP_j}{ERP_{th,j}} + \sum_{k=1}^c \frac{Evaluated_k}{Exposure Limit_k} \leq 1 \quad (C.1)$$



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2.4G Proprietary and 2.4G BT module can transmit simultaneously, so the maximum rate of MPE is  $16.57/3060 + 2.449/3060 = 0.0054 + 0.0008 = 0.0062 < 1.0$ .

The EUT meet the Exemption Limits for Routine Evaluation – SAR Evaluation, so no SAR evaluation is required for the EUT.

**Note:**

Refer to report No. GZCR210502023802 for EUT test Max Conducted Peak Output Power value.

Refer to report No. GZCR210502023803 for EUT test Field Strength of the Fundamental Signal value.



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## 6 EUT Constructional Details (EUT Photos)

Refer to external and internal photos for GZCR2105020238HS

- End of the Report -



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