



Report No.: SZEM190501429403

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## **SAR Evaluation Report**

Application No.: SZEM1905014294CR

Applicant: Robosen Robotics (ShenZhen) Co., Ltd

Address of Applicant: A2306, Bldg 11, Shenzhen Bay ECO-Tech Park, No.16, Gaoxin South

Science and Tech Rd., Nanshan Dist, Shenzhen, Guangdong, China

Manufacturer: Robosen Robotics (ShenZhen) Co., Ltd

Address of Manufacturer: A2306, Bldg 11, Shenzhen Bay ECO-Tech Park, No.16, Gaoxin South

Science and Tech Rd., Nanshan Dist, Shenzhen, Guangdong, China

Factory: DONG GUAN WIREAR ELECTRONIC LTD

Address of Factory: 7, Yihong Road, Yan Tian, Fenggang Dongguan City, Guangdong, China

**Equipment Under Test (EUT):** 

**EUT Name:** Interstellar Agent T9

Model No.: T9, T9-A, T9-C, T9-E, T9-P, T9-X ♣

Please refer to section 2 of this report which indicates which model was

actually tested and which were electrically identical.

Trade mark: robosen FCC ID: 2ATNWT9

Standards: 47 CFR Part 1.1307

47 CFR Part 2.1093

KDB447498D01 General RF Exposure Guidance v06

**Date of Receipt:** 2019-05-22

**Date of Test:** 2019-05-23 to 2019-11-13

**Date of Issue:** 2019-11-18

Test Result : PASS\*

Keny Xu EMC Laboratory Manager

Ceny. Ku



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<sup>\*</sup> In the configuration tested, the EUT complied with the standards specified above.



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## 2 Version

|         | Revision Record |            |          |          |  |
|---------|-----------------|------------|----------|----------|--|
| Version | Chapter         | Date       | Modifier | Remark   |  |
| 01      |                 | 2019-11-18 |          | Original |  |
|         |                 |            |          |          |  |
|         |                 |            |          |          |  |

| Authorized for issue by: |                              |  |
|--------------------------|------------------------------|--|
|                          | Peter. Gray                  |  |
|                          | Peter Geng /Project Engineer |  |
|                          | EvicFu                       |  |
|                          | Eric Fu /Reviewer            |  |



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## **General Information**

## 4.1 General Description of EUT

| Power Supply:        | DC 7.4V 2000mAh rechargeable battery which charged from AC/DC power adapter AC/DC power adapter information, Model: GA-1202000 Input: AC 100-240V, 50/60Hz, 0.6A Output: DC 12V, 2000mA |
|----------------------|---|
| Cable:               | DC cable: 150cm, unshielded with one ferrite core USB cable: 100cm, unshielded  |
| Operation Frequency: | 2402MHz to 2480MHz  |
| Bluetooth Version:   | V4.2 LE   |
| Modulation Type:     | GFSK  |
| Number of Channels:  | 40  |
| Channel Spacing:     | 2MHz  |
| Antenna Type:        | PCB board antenna   |
| Antenna Gain:        | -3 dBi  |

#### Remark:

Model No.: T9, T9-A, T9-C, T9-E, T9-P, T9-X

Only the model T9 was tested, since the electrical circuit design, layout, components used, internal wiring and functions were identical for the above models, with only difference on exterior color.



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#### 4.2 Test Location

All tests were performed at:

SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch

No. 1 Workshop, M-10, Middle section, Science & Technology Park, Shenzhen, Guangdong, China

Telephone: +86 (0) 755 2601 2053 Fax: +86 (0) 755 2671 0594

No tests were sub-contracted.

### 4.3 Test Facility

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

#### A2LA (Certificate No. 3816.01)

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory is accredited by the American Association for Laboratory Accreditation(A2LA). Certificate No. 3816.01.

#### VCCI

The 3m Fully-anechoic chamber for above 1GHz, 10m Semi-anechoic chamber for below 1GHz, Shielded Room for Mains Port Conducted Interference Measurement and Telecommunication Port Conducted Interference Measurement of SGS-CSTC Standards Technical Services Co., Ltd. have been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: G-20026, R-14188, C-12383 and T-11153 respectively.

#### • FCC -Designation Number: CN1178

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory has been recognized as an accredited testing laboratory.

Designation Number: CN1178. Test Firm Registration Number: 406779.

#### · Innovation, Science and Economic Development Canada

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory has been recognized by ISED as an accredited testing laboratory.

CAB identifier: CN0006.

IC#: 4620C.



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#### 4.4 Deviation from Standards

None.

#### 4.5 Abnormalities from Standard Conditions

None

## 4.6 Other Information Requested by the Customer

None.



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### 5 SAR Evaluation

### 5.1 RF Exposure Compliance Requirement

#### 5.1.1 Standard Requirement

According to KDB447498D01 General RF Exposure Guidance v06

4.3.1. 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:

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

f(GHz) is the RF channel transmit frequency in GHz

Power and distance are rounded to the nearest mW and mm before calculation<sup>17</sup>

The result is rounded to one decimal place for comparison

The test exclusions are applicable only when the minimum test separation distance is  $\leq$  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. power (including tune-up tolerance) is -1.68 dBm on the lowest channel 2.402 GHz (\*) -1.68 dBm logarithmic terms convert to numeric result is nearly 0.68 mW According to the formula. calculate the test exclusion thresholds:

General RF Exposure = 
$$\frac{(\text{Max. Power of channel, including tune-up tolerance, mW}) * \sqrt{f (\text{GHz})}}{(\text{min. test separation distance, mm})}$$

General RF Exposure =  $(0.68 \text{ mW} / 5 \text{ mm}) \times \sqrt{2.402 \text{ GHz}} = 0.21$  (1) SAR requirement:

$$S = 3.0$$
 (2) (1) < (2)

So the SAR report is not required.

(\*) Max. power refer to Report No.:SZEM190501429402

- End of the Report -



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