

RF Exposure Evaluation Report

Product : Robosen Bumblebee G1 Flagship Robot
Trade mark : robosen
Model/Type reference : DHFF
Serial Number : N/A
Report Number : EED32Q81728502
FCC ID : 2ATNWDHFF
Date of Issue : Dec. 13, 2024
Test Standards : 47 CFR Part 1.1307
47 CFR Part 1.1310
47 CFR Part 2.1091
47 CFR Part 2.1093
KDB 447498 D04 Interim General RF
Exposure Guidance v01
Test result : PASS

Prepared for:

Robosen Robotics (ShenZhen) Co., Ltd
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1 Version

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3 General Information

3.1 Client Information

Applicant:	Robosen Robotics (ShenZhen) Co., Ltd
Address of Applicant:	A3703, 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:	A3703, Bldg 11, Shenzhen Bay ECO-Tech Park, No.16, Gaoxin South Science and Tech Rd., Nanshan Dist., Shenzhen, Guangdong, China
Factory:	Jetta (China) Industries Co., Ltd.
Address of Factory:	333 Cai Xin Lu, Lan He Zhen, Nan Sha Qu, Guangzhou, China

3.2 General Description of EUT

Product Name:	Robosen Bumblebee G1 Flagship Robot
Model No.(EUT):	DHFF
Trade Mark:	robosen

3.3 Product Specification subjective to this standard

Frequency Range:	2402MHz~2480MHz	
Modulation Type:	GFSK	
Test Power Grade:	Default	
Test Software of EUT:	rftool.exe	
Antenna Type:	PCB Antenna	
Antenna Gain:	-0.79dBi	
Power Supply:	Battery:	DC 3V
Sample Received Date:	Nov. 15, 2024	
Sample tested Date:	Nov. 15, 2024 to Nov. 27, 2024	
Remark: Company Name and Address shown on Report, the sample(s) and sample Information was/ were provided by the applicant who should be responsible for the authenticity which CTI hasn't verified.		

3.4 Test Location

All tests were performed at:

Centre Testing International Group Co., Ltd

Building C, Hongwei Industrial Park Block 70, Bao'an District, Shenzhen, China

Telephone: +86 (0) 755 33683668 Fax: +86 (0) 755 33683385

No tests were sub-contracted.

FCC Designation No.: CN1164

3.5 Deviation from Standards

None.

3.6 Abnormalities from Standard Conditions

None.

3.7 Other Information Requested by the Customer

None.

4 SAR Evaluation

4.1 RF Exposure Compliance Requirement

4.1.1 Limits

The SAR-based exemption formula of § 1.1307(b)(3)(i)(B), repeated here as Formula (B.2), applies for single fixed, mobile, and portable RF sources with available maximum time-averaged power or effective radiated power (ERP), whichever is greater, of less than or equal to the threshold P_{th} (mW).

This method shall only be used at separation distances from 0.5 cm to 40 cm and at frequencies from 0.3 GHz to 6 GHz (inclusive). P_{th} is given by Formula

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

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).

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

The 1 mW Blanket Exemption of § 1.1307(b)(3)(i)(A) applies for single fixed, mobile, and portable RF sources with available maximum time-averaged power of no more than 1 mW, regardless of separation distance.

4.1.2 Test Procedure

Software provided by client enabled the EUT to transmit and receive data at lowest, middle and highest channel individually.

4.1.3 EUT RF Exposure Evaluation

For Stand alone:

Frequency (MHz)	Estimation distance (cm)	Max. Conducted Output power (dBm)	Antenna Gain (dBi)	ERP (dBm)	ERP (mW)	Limit (mW)	MPE ratio
2402	0.5	1.38	-0.7900	-1.56	0.6982	2.7877	0.2505

Note:

- ① EIRP=conducted power+antenna gain;
- ② $ERP=EIRP-2.15$;
- ③ $EIRP(dBm) = \text{Field strength of the fundamental signal}(dBuV/m@3m) - 95.23$;
- ④ $ERP(mW) = 10^{(ERP(dBm)/10)}$;
- ⑤ The estimation distance is 0.5cm;
- ⑥ The test data please refer to the report of EED32Q81728501 and only the worst case data was recorded in the report.

The test report is effective only with both signature and specialized stamp, The result(s) shown in this report refer only to the sample(s) tested. Without written approval of CTI, this report can't be reproduced except in full.

*** End of Report ***