

RF Exposure Evaluation Report

Product : robosen Mega Optimus Prime
Trade mark : robosen
Model/Type reference : QTZ-40-T-01
Serial Number : N/A
Report Number : EED32N80049702
FCC ID : 2ATNWOP40
Date of Issue : Mar. 01, 2021
: 47 CFR Part 1.1307
Test Standards : 47 CFR Part 2.1093
KDB447498D01 General RF Exposure Guidance v06
Test result : PASS

Prepared for:

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2 Version

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4 General Information

4.1 Client Information

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:	Dongguan Viya Electronics Co., Ltd.
Address of Factory:	7, Yihong Road, Yan Tian, Fengguang Dongguan City, Guangdong, China

4.2 General Description of EUT

Product Name:	robosen Mega Optimus Prime
Model No.(EUT):	QTZ-40-T-01
Trade Mark:	robosen
EUT Supports Radios application:	4.2 BT Single mode, 2402MHz to 2480MHz

4.3 Product Specification subjective to this standard

Frequency Range:	2402MHz to 2480MHz
Modulation Type:	GFSK
Test Power Grade:	Default
Test Software of EUT:	BeeMPTool
Antenna Type:	PCB Antenna
Antenna Gain:	3 dBi
Power Supply:	DC 5V
Max Conducted Peak Output Power:	-5.64 dBm The Max Conducted Peak Output Power data refer to the report EED32M00172401
Sample Received Date:	Jun. 15, 2021
Sample tested Date:	Jan. 15, 2021 to Mar. 01, 2021
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.	

4.4 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

4.5 Deviation from Standards

None.

4.6 Abnormalities from Standard Conditions

None.

4.7 Other Information Requested by the Customer

None.

5 SAR Evaluation

5.1 RF Exposure Compliance Requirement

5.1.1 Standard Requirement

According to KDB447498D01 General RF Exposure Guidance v06
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:

$[(\text{max. power of channel, including tune-up tolerance, mW})/(\text{min. test separation distance, mm})] \cdot$

$[\sqrt{f(\text{GHz})}] \leq 3.0$ for 1-g SAR and ≤ 7.5 for 10-g extremity SAR, where

$f(\text{GHz})$ is the RF channel transmit frequency in GHz

Power and distance are rounded to the nearest mW and mm before calculation¹⁷

The result is rounded to one decimal place for comparison

The test exclusions are applicable only when the minimum test separation distance is ≤ 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 tune-up power is -6dBm +/- 1dB, therefore the highest tune-up power is

-5dBm (0.32mW) @2480 MHz

When the minimum test separation distance is < 5 mm, a distance of 5 mm according to 5) in section 4.1 is applied to determine SAR test exclusion.

So,

$$(0.32\text{mW} / 5\text{mm}) * (2.480\text{GHz}^{0.5}) = 0.10$$

$$[(\text{max. power of channel, including tune-up tolerance, mW}) / (\text{min. test separation distance, mm})] * [\sqrt{f(\text{GHz})}] = 0.10 < 3.0$$

Therefore, standalone SAR measurements are not required for both head and body

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PHOTOGRAPHS OF EUT Constructional Details

Refer to Report No. EED32N80049701 for EUT external and internal photos.

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 ***