

RF Exposure Evaluation Report

Product : Maticontroller
Trade mark : Energize Lab
Model/Type reference : Maticontroller
Serial Number : N/A
Report Number : EED32Q81188502
FCC ID : 2BLNC-MATIC
Date of Issue : Oct. 22, 2024
Test Standards : 47 CFR Part 1.1307
47 CFR Part 1.1310
47 CFR Part 2.1091(mobile devices)
47 CFR Part 2.1093(portable devices)
KDB 447498 D04 Interim General RF
Exposure Guidance v01
Test result : PASS

Prepared for:

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Date:

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1 Version

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3 General Information

3.1 Client Information

Applicant:	Shenzhen Zhuneng Technology Co., Ltd.
Address of Applicant:	405-1, Honglang North, Zhongli Venture Community, No. 49, Dabao Road, Xin'an Street, Baoan District
Manufacturer:	Shenzhen Zhuneng Technology Co., Ltd.
Address of Manufacturer:	405-1, Honglang North, Zhongli Venture Community, No. 49, Dabao Road, Xin'an Street, Baoan District
Factory:	Kpower Technology Co.,Ltd
Address of Factory:	No.8, Changhong 4th Road, Hengli Town, Dongguan, Guangdong, China.

3.2 General Description of EUT

Product Name:	Maticontroller
Model No.(EUT):	Maticontroller
Trade Mark:	Energize Lab

3.3 Product Specification subjective to this standard

Operation Frequency:	2479MHz	
Modulation Type:	GFSK	
Number of Channel:	1	
Antenna Type:	Internal antenna	
Antenna Gain:	3 dBi	
Test Software:	RF Test (manufacturer declare)	
EUT Power Grade:	Default (Power level is built-in set parameters and cannot be changed and selected)	
Power Supply:	Battery:	DC 3.7V
Test Voltage:	DC 3.7V	
Sample Received Date:	Aug. 09, 2024	
Sample tested Date:	Sep. 09, 2024 to Oct. 10, 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 only 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
2479	0.5	3	3.0000	3.85	2.4266	2.7181	0.8928

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 EED32Q81188501 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 ***