

RF EVALUATION TEST REPORT

Applicant..... : SHENZHEN HENGSHANG ELECTRONIC CO., LTD

Address..... : Building 2, Zone B, Zhanmi Ling Industrial Zone, Xinmu Community, Pinghu Street, Longgang District, Shenzhen City, Guangdong Province

Manufacturer..... : SHENZHEN HENGSHANG ELECTRONIC CO., LTD

Address..... : Building 2, Zone B, Zhanmi Ling Industrial Zone, Xinmu Community, Pinghu Street, Longgang District, Shenzhen City, Guangdong Province

Factory..... : SHENZHEN HENGSHANG ELECTRONIC CO., LTD

Address..... : Building 2, Zone B, Zhanmi Ling Industrial Zone, Xinmu Community, Pinghu Street, Longgang District, Shenzhen City, Guangdong Province

Product Name..... : 2.4GHz Wireless Optical Mouse

Brand Name..... :  , RECCAZR

Model No. : M50, HY272, M3, M5, M6, M7, M8, M9, M10
(For model difference refer to section 2.)

FCC ID..... : 2BDIRHS- M50

Measurement Standard..... : 47 CFR PART 2, Section 2.1093

Receipt Date of Samples.... : June 24, 2024

Date of Tested..... : June 24, 2024 to August 07, 2024

Date of Report..... : August 12, 2024

This report shows that above equipment is technically compliant with the requirements of the standards above. All test results in this report apply only to the tested sample(s). Without prior written approval of Dongguan Nore Testing Center Co., Ltd, this report shall not be reproduced except in full.


Prepared by

Jenny Liu / Project Engineer


Iori Fan / Authorized Signatory

Table of Contents

1. General Description of EUT	4
2. Test Facility and Location	6
3. Applicable Standards and References.....	6
4. Maximum Permissible Exposure Limit	7
5. RF Exposure Evaluation Results	9

Revision History

Report Number	Description	Issued Date
NTC2406332F01	Initial Issue	2024-08-12

1. General Description of EUT

Product Information	
Product name:	2.4GHz Wireless Optical Mouse
Main Model Name:	M50
Additional Model Name:	HY272, M3, M5, M6, M7, M8, M9, M10
Model Difference:	These models have the same circuitry, electrical mechanical, PCB Layout and physical construction. The difference is model number due to marketing purpose.
S/N:	2406-3498
Brand Name:	 , RECCAZR
Hardware version:	Not stated
Software version:	Not stated
Rating:	DC 1.5V AA Battery
Typical arrangement:	Table-top
I/O Port:	Refer to user manual
Accessories Information	
Adapter:	N/A
Cable:	N/A
Other:	N/A
Additional Information	
Note:	According to the model differences, all the test were performed on the model M50.
Remark:	All the information above are provided by the manufacturer. More detailed feature of the EUT please refers to the user manual.

Technical Specification (2.4G Function)	
Frequency Range:	2403.65-2479.65MHz
Modulation Type:	GFSK
Number of Channel:	16 (refer to following channel list for details)
Antenna Type:	PCB Antenna
Antenna Gain:	3.85 dBi (Declared by manufacturer)

2. Test Facility and Location

Test Site	:	Dongguan Nore Testing Center Co., Ltd. (Dongguan NTC Co., Ltd.)
Accreditations and Authorizations	:	The Laboratory has been assessed and proved to be in compliance with CNAS/CL01 Listed by CNAS, August 13, 2018 The Certificate Registration Number is L5795. The Certificate is valid until August 13, 2024 The Laboratory has been assessed and proved to be in compliance with ISO17025 Listed by A2LA, November 01, 2017 The Certificate Registration Number is 4429.01 Listed by FCC, November 06, 2017 Test Firm Registration Number: 907417 Listed by Industry Canada, June 08, 2017 The Certificate Registration Number. Is 46405-9743A
Test Site Location	:	Building D, Gaosheng Science and Technology Park, Hongtu Road, Nancheng District, Dongguan City, Guangdong Province, China

3. Applicable Standards and References

According to the specifications of the manufacturer, the EUT must comply with the requirements of the following standards:

Test Standards:

47 CFR Part 1, 1.1307

47 CFR Part 2, 2.1093

KDB 447498 D04 v01

4. Maximum Permissible Exposure Limit

According to 47 CFR Part 1, 1.1307, for single RF sources (i.e., any single fixed RF source, mobile device, or portable device, as defined in paragraph (b)(2) of this section): A single RF source is exempt if: 47 CFR Part 1, 1.1307

(A) The available maximum time- averaged power is no more than 1 mW, regardless of separation distance. This exemption may not be used in conjunction with other exemption criteria other than those in paragraph (b)(3)(ii)(A) of this section. Medical implant devices may only use this exemption and that in paragraph (b)(3)(ii)(A);

(B) Or the available maximum time- averaged power or effective radiated power (ERP), whichever is greater, is less than or equal to the threshold P_{th} (mW) described in the following formula. This method shall only be used at separation distances (cm) from 0.5 centimeters to 40 centimeters and at frequencies from 0.3 GHz to 6 GHz (inclusive). P_{th} is given by:

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

Where,

$$x = -\log_{10} \left(\frac{60}{ERP_{20 \text{ cm}} \sqrt{f}} \right) \text{ and } f \text{ is in GHz;}$$

And,

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

d = the minimum separation distance (cm) in any direction from any part of the device antenna(s) or radiating structure(s) to the body of the device user.

For multiple RF sources: Multiple RF sources are exempt if:

(A) The available maximum time- averaged power of each source is no more than 1 mW and there is a separation distance of two centimeters between any portion of a radiating structure operating and the nearest portion of any other radiating structure in the same device, except if the sum of multiple sources is less than 1 mW during the time-averaging period, in which case they may be treated as a single source (separation is not required). This exemption may not be used in conjunction with other exemption criteria other than those in paragraph (b)(3)(i)(A) of this section. Medical implant devices may only use this exemption and that in paragraph (b)(3)(i)(A).

(B) in the case of fixed RF sources operating in the same time-averaging period, or of multiple mobile or portable RF sources within a device operating in the same time averaging period, if the sum of the fractional contributions to the applicable thresholds is less than or equal to 1 as indicated in the following equation.

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

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 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. RF Exposure Evaluation Results

Single RF Source					
Mode	Frequency (MHz)	Max. EIRP (dBm)	Max. EIRP (mW)	Separation Distance (cm)	Part 1.1307 Option (B) P_{th} (mW)
GFSK	2479.650	-6.528	0.222	0.5	2.79

$$EIRP = E + 20 \log d - 104.8$$

where d is the measurement distance = 3m, E=88.73dBu/m

Conclusion:

According to 47 CFR §1.1307 (b)(3)(i)(B), the RF exposure analysis concludes that the product is compliant with the FCC RF exposure requirements in portable exposure condition.

---End---