

FCC RF Exposure Exemption report

for

Wireless Trackball Mouse

Model No.: MRT1D-1

FCC ID: YWO-MRT1D-1

of

Applicant: ELECOM CO., LTD.

Address: Fushimimachi 4-1-1, Chuo-ku, Osaka City, Osaka Japan 541-8765

Tested and Prepared

by

Worldwide Testing Services (Taiwan) Co., Ltd.

FCC Registration No.: TW1477, TW1072

Industry Canada filed test laboratory Reg. No.: 20037, 5107A



Report No.: W6M22312-23187-EE



Registration number: W6M22312-23187-EE

FCC ID: YWO-MRT1D-1

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1 General Information

1.1 Notes

The purpose of conformity testing is to increase the probability of adherence to the essential requirements or conformity specifications, as appropriate.

The complexity of the technical specifications, however, means that full and thorough testing is impractical for both technical and economic reasons.

Furthermore, there is no guarantee that a test sample which has passed all the relevant tests conforms to a specification.

Neither is there any guarantee that such a test sample will interwork with other genuinely open systems. The existence of the tests nevertheless provides the confidence that the test sample possesses the qualities as maintained and that its performance generally conforms to representative cases of communications equipment.

Laboratory disclaimer-

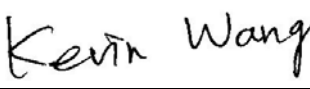
1. The test results of this test report relate exclusively to the item tested as specified in 1.5.
2. The test report may only be reproduced or published in full.
3. Reproduction or publication of extracts from the report requires the prior written approval of the Worldwide Testing Services(Taiwan) Co., Ltd.
4. Antenna gain is provided by applicant and laboratory issue relevant data and results.

Tester:

January 31, 2024		Sora Kuo	
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Date	WTS-Lab.	Name	Signature
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Technical responsibility for area of testing:

January 31, 2024		Kevin Wang	
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Date	WTS	Name	Signature
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1.2 Testing laboratory

1.2.1 Location

10m OATS

No.5-1, Lishui, Shuang Sing Village, Wanli Dist.,
New Taipei City 207, Taiwan (R.O.C.)

3 meter semi-anechoic chamber

No.35, Aly. 21, Ln. 228, Ankang Rd., Neihu Dist.,
Taipei City 114, Taiwan (R.O.C.)

Tel: 886-2-6613-0228

Worldwide Testing Services (Taiwan) Co., Ltd.

6F., No. 58, Ln. 188, Ruiguang Rd., Neihu Dist.,
Taipei City 114, Taiwan (R.O.C.)

Tel: 886-2-6606-8877

1.2.2 Details of accreditation status

Accredited testing laboratory

FCC filed test laboratory Reg. No.: TW1477, TW1072

Industry Canada filed test laboratory Reg. No.: 20037, 5107A

Test location, where different from Worldwide Testing Services (Taiwan) Co., Ltd.

Name: ./.

Accredited no.: ./.

Street: ./.

Town: ./.

Country: ./.

1.3 Details of approval holder

Name: ELECOM CO., LTD.

Street: Fushimimachi 4-1-1, Chuo-ku,

Town: Osaka City, Osaka

Country: Japan 541-8765



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1.4 Application details

Date of receipt of test item: January 05, 2024
Date of test: from January 08, 2024 to January 30, 2024

1.5 General information of Test item

Type of test item: Wireless Trackball Mouse
Model number: MRT1D-1
Multi-listing model number: ./.
Sample no.: #03

Technical data

Frequency band: 2403- 2480MHz

Band	Channel	Power (dBm)
2.4GHz	2403 MHz	1.77
	2441 MHz	1.40
	2480 MHz	0.93

Power supply: Battery 1.5Vd.c.*2
Operation modes: Duplex
Modulation type: FHSS
Antenna type: PCB antenna
Antenna gain: 1.8 dBi
Host device: none

Manufacturer: (if applicable)

Name: ./.
Street: ./.
Town: ./.
Country: ./.

1.6 Test standards

447498 D01 General RF Exposure Guidance v06



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2 Technical test

2.1 Summary of test results

No deviations from the technical specification(s) were ascertained in the course of the tests performed.

or

The deviations were ascertained in the course of the tests performed.

2.2 Test environment

Relative humidity content: 20 ... 75 %

Air pressure: 86 ... 103 kPa

Power supply: Battery 1.5Vd.c.*2

Extreme conditions parameters: ./.

Test item Name	Uncertainty
Estimation Result of Uncertainty of Conducted Output Power Measurement	Expanded Uncertainty : 1.64 dB

The decision rule is: Measurement uncertainty is not included in the calculation of test results.

2.3 Test Equipment List

No.	Test equipment	Type	Serial No.	Manufacturer	Cal. Date	Next Cal. Date
ETSTW-RE 055	SPECTRUM ANALYZER	FSU 26	200074	R&S	2023/3/22	2024/3/21



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3.2 Equivalent Isotropic Radiated Power (EIRP)

FCC Rule: 15.247(b)(3)

EIRP = max. conducted output power + antenna gain

EIRP = 1.77 dBm + 1.8 dBi [antenna gain claimed by manufacturer] = 3.57 dBm = 2.2751 mW

3.3 Exemption Limits for Routine Evaluation according to FCC KDB Publication

RESULT:

Test standard : FCC KDB Publication
447498 D01 General RF Exposure Guidance v06

According to 447498 D01 General RF Exposure Guidance v06:

SAR evaluation, by measurement or numerical simulation, is not required when the corresponding SAR Exclusion Threshold condition, listed below, is satisfied.

3.3.1 Exemption Limits for Routine Evaluation – SAR Evaluation

SAR evaluation is required if the separation distance between the user and/or bystander and the antenna and/or radiating element of the device is less than or equal to 20 cm, except when the device operates at or below the applicable output power level (adjusted for tune-up tolerance) for the specified separation distance defined in Table .

Table: SAR evaluation — Exemption limits for routine evaluation based on frequency and separation distance

MHz	5	10	15	20	25	mm
2403	10.09	19.26	29.34	38.51	48.51	SAR Test Exclusion Threshold (mW)

MHz	30	35	40	45	50	mm
2403	57.68	67.77	77.85	87.03	97.11	SAR Test Exclusion Threshold (mW)

Output power level shall be the higher of the maximum conducted or equivalent isotropically radiated power (e.i.r.p.) source-based, time-averaged output power.

Established separation distance is 5 mm.

Operating frequency band : 2403-2480 MHz

Max. output power level at 5 mm separation distance at 2403 MHz according to table is: 10.09 mW

The product is exempt from SAR Evaluation/Testing because the output power of 2.2751 mW is below the exemption limit of 10.09 mW.