

EN 62479:2010 Report

Product: Wireless Optical Mouse

Model No.: X-08

**Additional Model No.: DS-2472, DS-2712, DS-2567, DS-2572, M601WL,
M601WL-BA, DS-2772**

Trade Mark: N/A

Report No.: TCT180621E903

Issued Date: Jun. 22, 2018

Issued for:

Eastern Times Technology Co., Ltd.

**Building D, Nan An Industrial Area, Youganpu Village, Fenggang Town,
Dongguan City, Guangdong, China.**

Issued By:

Shenzhen TCT Testing Technology Co., Ltd.

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Shenzhen, Guangdong, China**

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This test report was based on TCT170608E016; only change additional model No.

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1. Test Certification

Product:	Wireless Optical Mouse
Model No.:	X-08
Additional Model No.:	DS-2472, DS-2712, DS-2567, DS-2572, M601WL, M601WL-BA, DS-2772
Trade Mark:	N/A
Applicant:	Eastern Times Technology Co., Ltd.
Address:	Building D, Nan An Industrial Area, Youganpu Village, Fenggang Town, Dongguan City, Guangdong, China.
Manufacturer:	Eastern Times Technology Co., Ltd.
Address:	Building D, Nan An Industrial Area, Youganpu Village, Fenggang Town, Dongguan City, Guangdong, China.
Date of Test:	Jun. 09, 2017 – Jun. 20, 2017
Applicable Standards:	EN 62479:2010

The above equipment has been tested by Shenzhen TCT Testing Technology Co., Ltd., and found compliance with the requirements set forth in the technical standards mentioned above. The results of testing in this report apply only to the product/system, which was tested. Other similar equipment will not necessarily produce the same results due to production tolerance and measurement uncertainties.

Tested By:



Brews Xu

Date:

Jun. 20, 2017

Reviewed By:



Berni Zhao

Date:

Jun. 22, 2018

Approved By:



Tomsin

Date:

Jun. 22, 2018

2. EUT Description

Product Name:	Wireless Optical Mouse
Model :	X-08
Additional Model:	DS-2472, DS-2712, DS-2567, DS-2572, M601WL, M601WL-BA, DS-2772
Trade Mark:	N/A
Hardware Version:	V1.2
Software Version:	V1.0
Operation Frequency:	2408MHz~2474MHz
Modulation Type:	FSK
Antenna Type:	PCB antenna
Antenna Gain:	Mouse: -2dBi Dongle: 0dBi
Power Supply:	DC 1.5V(Single AA Battery) for Mouse DC 5V from USB port for USB dongle
Remark:	All models above are identical in interior structure, electrical circuits and components, and just model names are different for the marketing requirement.

3. Genera Information

3.1. Test environment and mode

Item	Normal condition
Temperature	+25°C
Voltage	DC 1.5V
Humidity	54%
Atmospheric Pressure:	1008 mbar
Test Mode:	
Bluetooth Mode:	Keep the EUT in transmitting mode with modulation.

3.2. Description of Support Units

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

Equipment	Model No.	Serial No.	FCC ID	Trade Name
/	/	/	/	/

Note:

1. All the equipment/cables were placed in the worst-case configuration to maximize the emission during the test.
2. Grounding was established in accordance with the manufacturer's requirements and conditions for the intended use.

3.3. Test Instruments List

Conducted Emission				
Name	Model No.	Manufacturer	Date of Cal.	Due Date
Spectrum Analyzer	N9020A	Agilent	Sep. 28, 2017	Sep. 27, 2018
Signal Generator	N5182A	Agilent	Sep. 28, 2017	Sep. 27, 2018
Signal Generator	E4421B	Agilent	Sep. 28, 2017	Sep. 27, 2018

Note: The calibration interval of the above test instruments is 12 months and the calibrations are traceable to international system unit (SI).

4. Facilities and Accreditations

4.1. Facilities

The test facility is recognized, certified, or accredited by the following organizations:

- FCC - Registration No.: 645098

Shenzhen Tongce Testing Lab

The 3m Semi-anechoic chamber has been registered and fully described in a report with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files.

- IC - Registration No.: 10668A-1

The 3m Semi-anechoic chamber of Shenzhen TCT Testing Technology Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing

4.2. Location

Shenzhen TCT Testing Technology Co., Ltd.

Address: 1B/F., Building 1, Yibaolai Industrial Park, Qiaotou, Fuyong, Baoan District, Shenzhen, Guangdong, China

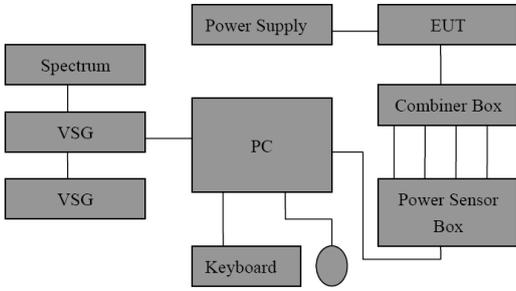
Tel: +86-755-27673339

4.3. Measurement Uncertainty

The reported uncertainty of measurement $y \pm U$, where expanded uncertainty U is based on a standard uncertainty multiplied by a coverage factor of $k=2$, providing a level of confidence of approximately 95 %.

No.	Item	MU
1	Temperature	$\pm 0.1^{\circ}\text{C}$
2	Humidity	$\pm 1.0\%$
3	Spurious Emissions, Conducted	$\pm 2.56\text{ dB}$
4	All Emissions, Radiated	$\pm 4.28\text{ dB}$

5. Technical Requirements Specification in EN 62479

Test Requirement:	EN62479
Limit:	20mW
Test Setup:	
Test Procedure	<p>Step 1: Use a fast power sensor suitable for 2,4 GHz and capable of 1 MS/s. Use the following settings:</p> <ul style="list-style-type: none"> - Sample speed 1 MS/s or faster. - The samples must represent the power of the signal. - Measurement duration: For non-adaptive equipment: equal to the observation period defined in clauses 4.3.1.2.1 or 4.3.2.3.1. For adaptive equipment, the measurement duration shall be long enough to ensure a minimum number of bursts (at least 10) are captured. <p>Note 1: For adaptive equipment, to increase the measurement accuracy, a higher number of bursts may be used.</p> <p>Step 2: For conducted measurements on devices with one transmit chain: -Connect the power sensor to the transmit port, sample the transmit signal and store the raw data. Use these stored samples in all following steps. For conducted measurements on devices with multiple transmit chains: -Connect one power sensor to each transmit port for a synchronous measurement on all transmits ports. -Trigger the power sensors so that they start sampling at the same time. Make sure the time difference between the samples of all sensors is less than half the time between two samples. -For each instant in time, sum the power of the individual samples of all ports and store them. Use these stored samples in all following steps.</p> <p>Step 3: Find the start and stop times of each burst in the stored measurement samples.</p> <p>Note 2: The start and stop times are defined as the points where the power is at</p>

least 20 dB below the RMS burst power calculated in step 4.

Step 4:

Between the start and stop times of each individual burst calculate the RMS power over the burst. Save these Pburst values, as well as the start and stop times for each burst.

Step 5:

The highest of all Pburst values (value "A" in dBm) will be used for maximum e.i.r.p. calculations.

Step 6:

Add the (stated) antenna assembly gain "G" in dBi of the individual antenna.

If applicable, add the additional beamforming gain "Y" in dB. If more than one antenna assembly is intended for this power setting, the maximum overall antenna gain (G or G + Y) shall be used.

The RF Output Power (P) shall be calculated using the formula below:

$$P = A + G + Y$$

Test Instrument:	Refer to section 3.3 for details
Test Mode:	Refer to section 3.1 for details
Test Results:	PASS

5.1.1. Test Data

Mouse:

Maximum Emissions Level				
Modulation	EIRP Level (dBm)	EIRP Level(mW)	Limit (mW)	Result
2408	-6.34	0.232	20	PASS
2440	-8.26	0.149		
2474	-9.50	0.112		

Dongle:

Maximum Emissions Level				
Frequency(MHz)	EIRP Level (dBm)	EIRP Level(mW)	Limit (mW)	Result
GFSK Mode				
2409	-5.47	0.284	20	PASS
2440	-6.81	0.208		
2475	-8.07	0.156		

Note: PASS means EUT complies with the essential requirements in the standard.

*******END OF REPORT*******