





# ISO/IEC17025 Accredited Lab.

Report No: FCC0806242 File reference No: 2007-09-12

Applicant: Chuangfeng Electronics Co.,Ltd.

Product: 27MHz Wireless Optical Mouse

Model No: KM-630W

Brand Name: N/A

Test Standards: FCC Part 15 Subpart C, Paragraph 15.227

Test result:

It is herewith confirmed and found to comply with the

requirements set up by ANSI C63.4&FCC Part 15 Subpart C, Paragraph 15.227 regulations for the evaluation of

electromagnetic compatibility

Approved By

Jack Chung

Jack Chung Manager

Dated: July, 10,2008

Results appearing herein relate only to the sample tested The technical reports is issued errors and omissions exempt and is subject to withdrawal at

# SHENZHEN TIMEWAY TECHNOLOGY CONSULTING CO LTD

East 5/Block 4, Anhua Industrial Zone, No.8, Tairan Rd. CheGongMiao, FuTian District, Shenzhen, CHINA.

Tel (755) 83448688 Fax (755) 83442996

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Date: 2008-07-10



# **Special Statement:**

The testing quality ability of our laboratory meet with "Quality Law of People's Republic of China" Clause 19.

The testing quality system of our laboratory meets with ISO/IEC-17025 requirements, which is approved by CNAS. This approval result is accepted by MRA of APLAC.

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

#### **CNAS-LAB Code: L2292**

The EMC Laboratory has been assessed and in compliance with CNAS-CL01 accreditation criteria for testing Laboratories (identical to ISO/IEC 17025:1999 General Requirements) for the Competence of testing Laboratories.

# FCC-Registration No.: 899988

The EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications commission. The acceptance letter from the FCC is maintained in our files. Registration No.:899988.

# IC- Registration No.: IC5205A-01

The EMC Laboratory has been registered and fully described in a report filed with the (IC) Industry Canada. The acceptance letter from the IC is maintained in our files. Registration No.: IC 5205A-01.

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#### 1.0 General Details

#### 1.1 Test Lab Details

Name: SHENZHEN TIMEWAY TECHNOLOGY CONSULTING CO LTD

Address: 5/F,Block 4, Anhua Industrial Zone.,No.8 TaiRan Rd.CheGongMiao,FuTian District,

Shenzhen, CHINA.

Telephone: (755) 83448688 Fax: (755) 83442996

Site on File with the Federal Communications Commission – United Sates

Registration Number: 899988

For 3m & 10 m OATS

Site Listed with Industry Canada of Ottawa, Canada

Registration Number: IC: 5205

For 3m & 10 m OATS

#### 1.2 Applicant Details

Applicant: Chuangfeng Electronics Co., Ltd

Address: Huali Industrial Zone, Songbotang, Changping Town, Dongguan City, Guangdong, China

Telephone: (86-769) 83911229-227 Fax: (86-769) 83911442

## 1.3 Description of EUT

Product: 27MHz Wireless Optical Mouse

Manufacturer: Huali Industrial Zone, Songbotang, Changping Town, Dongguan City,

Guangdong, China

Brand Name: N/A

Model Number: KM-630W

Additional Model Name N/A
Additional Trade Name N/A

Rating: 3V DC (2pcs AA batteries)

Operation Frequency 27.042MHz

Number of Channel 1

Antenna Designation A permanent fixed antenna, which is built-in, designed as an indispensable part of

the EUT.

#### 1.4 Submitted Sample: 1 Sample

#### 1.5 Test Duration

2008-07-03 to 2008-07-08

The report refers only to the sample tested and does not apply to the bulk.

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1.6 Test Uncertainty

Conducted Emissions Uncertainty = 3.6dB Radiated Emissions Uncertainty =4.7dB

1.7 Test Engineer

The sample tested by

Print Name: Terry Tang

2.0	Test Equipments				
Instrument Type	Manufacturer	Model	Serial No.	Date of Cal.	Due Date
ESPI Test Receiver	ROHDE&SCHWARZ	ESPI 3	100379	2007-12-05	2008-12-04
Absorbing Clamp	ROHDE&SCHWARZ	MDS-21	100126	2007-12-05	2008-12-04
TWO Line-V-NETW	ROHDE&SCHWARZ	EZH3-Z5	100294	2007-12-05	2008-12-04
TWO Line-V-NETW	ROHDE&SCHWARZ	EZH3-Z5	100253	2007-12-05	2008-12-04
Ultra Broadband ANT	ROHDE&SCHWARZ	HL562	100157	2007-12-05	2008-12-04
ESDV Test Receiver	ROHDE&SCHWARZ	ESDV	100008	2007-03-30	2008-03-29
4-WIRE ISN	ROHDE&SCHWARZ	ENY 41	830663/044	2008-02-18	2009-02-17
GG ENY22 Double 2-Wire ISN	ROHDE&SCHWARZ	ENY22	83066/016	2008-02-18	2009-02-17
Impuls-Begrenzer	ROHDE&SCHWARZ	ESH3-Z2	100281	2008-02-18	2009-02-17
System Controller	CT	SC100	-	2008-02-18	2009-02-17
Printer	EPSON	РНОТО ЕХЗ	CFNH234850	2008-02-18	2009-02-17
FM-AM Signal Generator	JUNGJIN	SG-150M	389911177	2008-02-18	2009-02-17
Color TV Pattern Generator	PHILIPS	PM5418	LO621747	2008-02-18	2009-02-17
Computer	IBM	8434	1S8434KCE99BLX LO*	-	-
Oscillator	KENWOOD	AG-203D	3070002	2008-02-18	2009-02-17

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		12/	<i>\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\</i>		
Spectrum Analyzer	HAMEG	HM5012	-	-	-
Power Supply	LW	APS1502	-	-	-
5K VA AC Power Source	California Instruments	5001iX	56060	2008-02-18	2009-02-17
CDN	EM TEST	CDN M2/M3	-	2008-02-18	2009-02-17
Attenuation	EM TEST	ATT6/75	-	2008-02-18	2009-02-17
Resistance	EM TEST	R100	-	2008-02-18	2009-02-17
Electromagnetic Injection Clamp	LITTHI	EM101	35708	2008-02-18	2009-02-17
Signal Generator	ROHDE&SCHWARZ	SMT03	100029	2008-02-18	2009-02-17
Power Amplifier	AR	150W1000	300999	2008-02-18	2009-02-17
Field probe	Holaday	HI-6005	105152	2008-02-18	2009-02-17
Bilog Antenna	Chase	CBL6111C	2576	2008-02-18	2009-02-17
Loop Antenna	EMCO	6502	00042960	2008-02-18	2009-02-17
ESPI Test Receiver	ROHDE&SCHWARZ	ESI26	838786/013	2008-02-18	2009-02-17
3m OATS			N/A	2008-02-18	2009-02-17
Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA9170265	2007-08-16	2008-08-15
Horn Antenna	SCHWARZBECK	BBHA 9120D	9120D-631	2007-07-03	2008-07-02

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#### 3.0 **Technical Details**

#### 3.1 **Summary of test results**

The FIIT has h	heen tested	according to	the following	specifications:
THE LUI HAS I	neen testeu	according to	յ աթ լարտալը	2 SDECINCAUOUS.

Standard	Test Type	Result	Notes
FCC Part 15, Paragraph 15.207	Conducted	N/A	
	<b>Emission Test</b>		
FCC Part 15 Subpart C Paragraph 15.227 Limit	Field Strength of Fundamental	PASS	Compiles
FCC Part 15, Paragraph 15.209	Radiated Emission Test	PASS	Compiles
Attenuation below the general limits specified	Band Edge	PASS	Compiles
in Section 15.209(a) is not required. In	Test		
addition, Radiated emissions which fall in the			
restricted bands, as defined in Section			
15.205(a), must also comply with the Radiated			
emission limits specified in Section 15.209(a)			
(see Section 15.205(c)).			

#### 3.2 **Test Standards**

FCC Part 15 Subpart C, Paragraph 15.227

#### **EUT Modification** 4.0

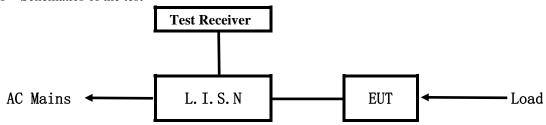
No modification by Shenzhen Timeway Technology Consulting Co.,Ltd

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#### 5. Power Line Conducted Emission Test

#### 5.1 Schematics of the test

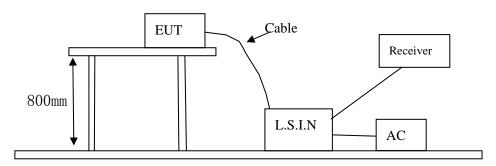


**EUT: Equipment Under Test** 

#### 5.2 Test Method and test Procedure

The EUT was tested according to ANSI C63.4-2003. The Frequency spectrum From 0.15MHz to 30MHz was investigated. The LISN used was 500hm/50uH as specified by section 5.1 of ANSI C63.4 –2003.

#### Block diagram of Test setup



# 5.3 Configuration of The EUT

The EUT was configured according to ANSI C63.4-2001. All interface ports were connected to the appropriate peripherals. All peripherals and cables are listed below.

One channels are provided to the EUT

### A. EUT

Device	Manufacturer	Model	FCC ID
27MHz	Chuangfeng Electronics Co., Ltd	KM-630W	UK5KM-630W
Wireless			
Optical Mouse			

#### B. Internal Device

Device	Manufacturer	Model	FCC ID/DOC
N/A			

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# C. Peripherals

Device	Manufacturer	Model	FCC ID/DOC	Cable
N/A				

# 5.4 EUT Operating Condition

Operating condition is according to ANSI C63.4 -2003.

- A Setup the EUT and simulators as shown on follow
- B Enable AF signal and confirm EUT active to normal condition

# 5.5 Power line conducted Emission Limit according to Paragraph 15.207

Eraguanay (MHz)	Class A Lim	its (dB µ V)	Class B Limits (dB \( \mu \) V)	
Frequency(MHz)	Quasi-peak Level	Average Level	Quasi-peak Level	Average Level
$0.15 \sim 0.50$	79.0	66.0	66.0~56.0*	56.0~46.0*
$0.50 \sim 5.00$	73.0	60.0	56.0	46.0
5.00 ~ 30.00	73.0	60.0	60.0	50.0

Notes:

- 1. \*Decreasing linearly with logarithm of frequency.
- 2. The tighter limit shall apply at the transition frequencies

#### 5.6 Test Results

The frequency spectrum from 0.15MHz to 30MHz was investigated. All reading are quasi-peak values with a resolution bandwidth of 9kHz.

Note: EUT powered by 2 pcs AA batteries, this test item not applicant

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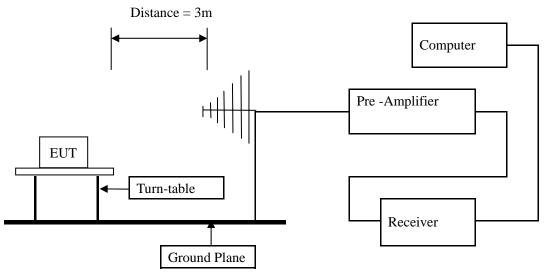
Date: 2008-07-10



#### 6 Radiated Emission Test

- 6.1 Test Method and test Procedure:
- (1) The EUT was tested according to ANSI C63.4 –2003. The radiated test was performed at Timeway Laboratory. This site is on file with the FCC laboratory division, Registration No.899988
- (2) The EUT, peripherals were put on the turntable which table size is 1m x 1.5 m, table high 0.8 m. All set up is according to ANSI C63.4-2003.
- (3) The frequency spectrum from 30 MHz to 1 GHz was investigated. All readings from 30 MHz to 1 GHz are quasi-peak values with a resolution bandwidth of 120 kHz. All readings are above 1 GHz, peak values with a resolution bandwidth of 1 MHz. Measurements were made at 3 meters.
- (4) The antenna high is varied from 1 m to 4 m high to find the maximum emission for each frequency.
- (5) Maximizing procedure was performed on the six (6) highest emissions to ensure EUT compliance is with all installation combinations. All data was recorded in the peak detection mode. Quasi-peak readings was performed only when an emission was found to be marginal (within -4 dB of specification limit), and are distinguished with a "QP" in the data table.
- (6) The antenna polarization: Vertical polarization and Horizontal polarization.

# Block diagram of Test setup for frequency 30-1000MHz

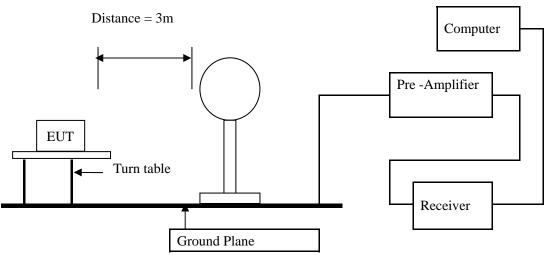


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# Block diagram of Test setup for frequency below 30MHz



- 6.2 Configuration of The EUT

  Same as section 5.3 of this report
- 6.3 EUT Operating Condition

  Same as section 5.4 of this report.
- 6.4 Radiated Emission Limit

All emission from a digital device, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strength specified below:

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# Date: 2008-07-10 FCC Part 15 Subpart C Paragraph 15.227 Limit

 $\mathbf{A}$ 

Fundamental Frequency (MHz)	Field Strength of Fundamental (3m)		
	uV/m	dBuV/m	
26.96-27.28	10000	80	

Note:

- 1. RF Field Strength  $(dBuV) = 20 \log RF \text{ Voltage } (uV)$
- 2.Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the device or system.
- 3. The emission limit in this paragraph is based on measurement instrumentation employing an average detector.
- 4. Radiated measurements for intentional radiators < 30MHz is done with a loop antenna

#### B. Frequencies in restricted band are complied to limit on Paragraph 15.209.

	<u> </u>	0 1
Frequency Range (MHz)	Distance (m)	Field strength (dB µ V/m)
0.009 – 0.490	3	20log 2400/F (kHz) + 80
0.490 - 1.705	3	20log 24000/F (kHz) + 40
1.705 – 30.00	3	20log 30 + 40
30-88	3	40.0
88-216	3	43.5
216-960	3	46.0
Above 960	3	54.0

Note:

- 1. RF Voltage  $(dBuV) = 20 \log RF \text{ Voltage } (uV)$
- 2. In the Above Table, the tighter limit applies at the band edges.
- 3. Distance refers to the distance in meters between the measuring instrument antenna and the EUT
- 4. If measurement is made at 3m distance, then F.S Limitation at 3m distance is adjusted by using the formula  $Ld1 = Ld2 * (d2/d1)^2$

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## 6.5 Test result

## A Fundamental Radiated Emission Data

Product:	Wireless Mouse	Test Mode:	Keep Tx transmitting
Test Item:	Fundamental Radiated Emission	Temperature:	25℃
	Data		
Test Voltage:	3VDC	Humidity:	56%
Test Result:	Pass		

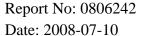
Frequency (MHz)	Emission PK/AV (dBuV/m)	Horiz / Vert	Limits PK/AV (dBuV/m)	Margin (dB)
27.042	58.67 (PK)	Horizontal	100/80	-21.33
27.042	53.38 (PK)	Vertical	100/80	-26.62

Note: (1) PK= Peak, AV= Average

(2) Emission Level = Reading Level + Probe Factor + Cable Loss-Pre Amp.

(3)Margin=Emission-Limits

(4)According to section 15.35(b), the peak limit is 20dB higher than the average limit



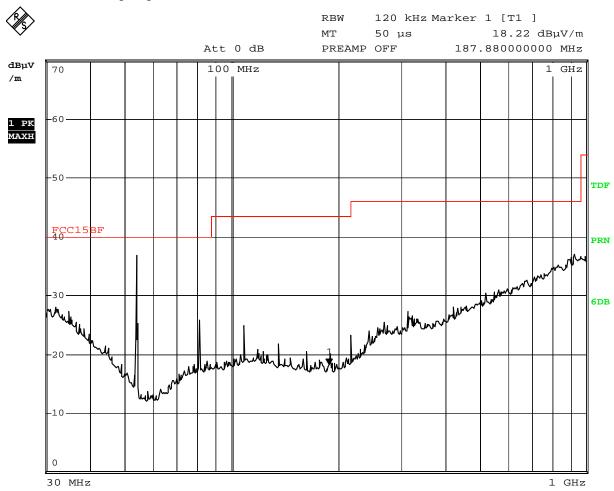
# General Radiated Emission Data and Harmonics Radiated Emission Data

## Radiated Emission In Horizontal (30MHz----1000MHz)

EUT set Condition: Keep Tx transmitting

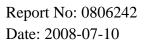
**Results:** Pass

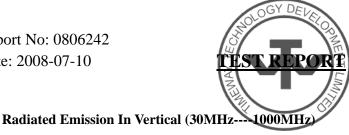
Please refer to following diagram for individual



Date: 8.JUL.2008 17:51:16

Frequency (MHz)	Level@3m (dB $\mu$ V/m)	Antenna Polarity	Limit@3m (dB \mu V/m)
54.087	36.21	Н	40.00

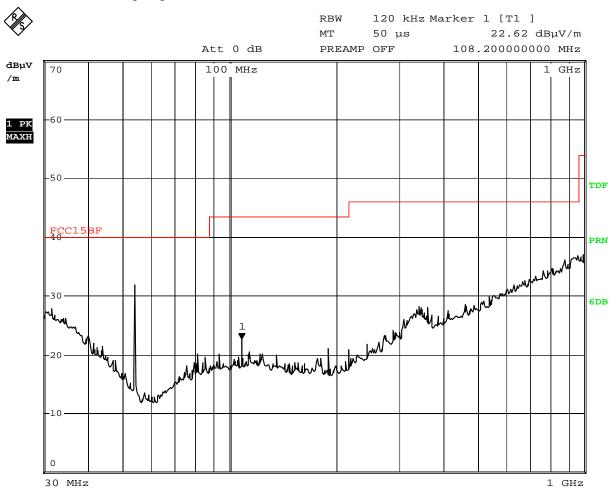




**EUT set Condition:** Keep Tx transmitting

**Results: Pass** 

Please refer to following diagram for individual



Date: 8.JUL.2008 17:54:21

Freque	ency (MHz)	Level@3m (dB $\mu$ V/m)	Antenna Polarity	Limit@3m (dB $\mu$ V/m)
54	4.087	31.09	V	40.00

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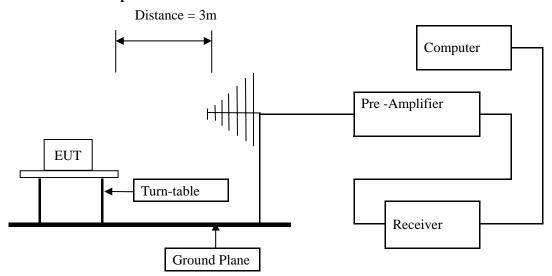


# 7. Band Edge

#### 7.1 Test Method and test Procedure:

- (1) The EUT was tested according to ANSI C63.4 –2003. The radiated test was performed at Timeway Laboratory. This site is on file with the FCC laboratory division, Registration No.899988
- (2) The frequency spectrum from 30 MHz to 1 GHz was investigated. All readings from 30 MHz to 1 GHz are quasi-peak values with a resolution bandwidth of 120 kHz. All readings are above 1 GHz, peak values with a resolution bandwidth of 1 MHz. Measurements were made at 3 meters.
- (3) The antenna high is varied from 1 m to 4 m high to find the maximum emission for each frequency.
- (4) Maximizing procedure was performed on the six (6) highest emissions to ensure EUT compliance is with all installation combinations. All data was recorded in the peak detection mode. Quasi-peak readings was performed only when an emission was found to be marginal (within -4 dB of specification limit), and are distinguished with a "QP" in the data table.
- (5) The antenna polarization : Vertical polarization and Horizontal polarization.

#### 7. 2 Radiated Test Setup



For the actual test configuration, please refer to the related items – Photos of Testing

## 7.3 Configuration of The EUT

Same as section 5.3 of this report

#### 7.4 EUT Operating Condition

Same as section 5.3 of this report.

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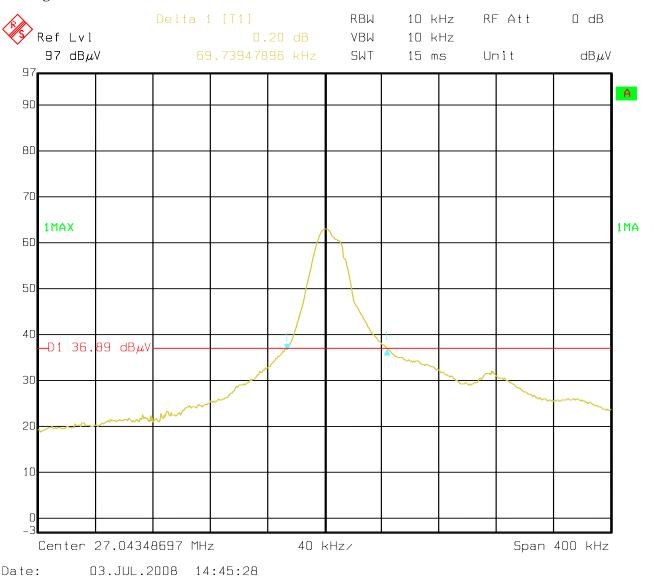
## 7.5 Band Edge Limit

The field strength of any emissions which appear outside of this band shall not exceed the general radiated emission limits in Section 15.209.

### **7.6** Band Edge Test Result

Product:	27MHz Wireless Optical Mouse	Test Mode:	Keep Tx transmitting
Test Item:	Fundamental Radiated Emission Data	Temperature:	25℃
Test Voltage:	2.4V DC	Humidity:	56%
Test Result:	Pass		

## **Test Figure:**



Date: 03.00E.2000 14.40.20

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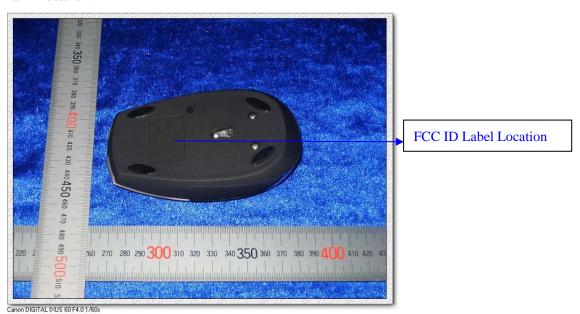
#### 8.0 FCC ID Label

# FCC ID: UK5KM-630W

This device complies with part 15 of the FCC rules. Operation is subject to the following two conditions (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

The label must not be a stick-on paper label. The label on these products must be permanently affixed to the product and readily visible at the time of purchase and must last the expected lifetime of the equipment not be readily detachable.

#### Mark Location:



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# 9.0 Photo of testing

9.1 Conducted test View--

N/A

9.2 Radiated emission test view

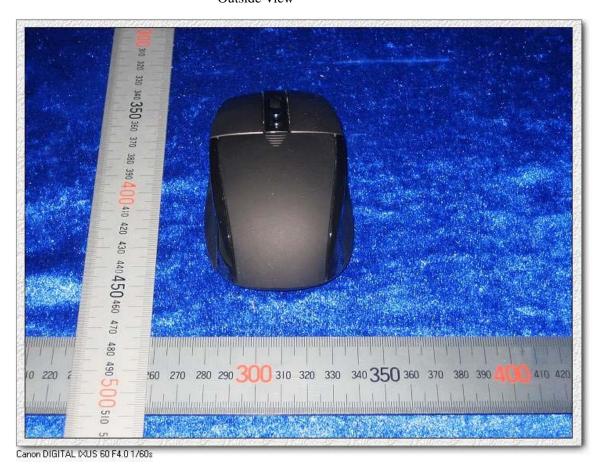


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#### Photo for the EUT



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Canon DIGITAL IXUS 60 F4.0 1/60s

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Canon DIGITAL IXUS 60 F4.0 1/60s

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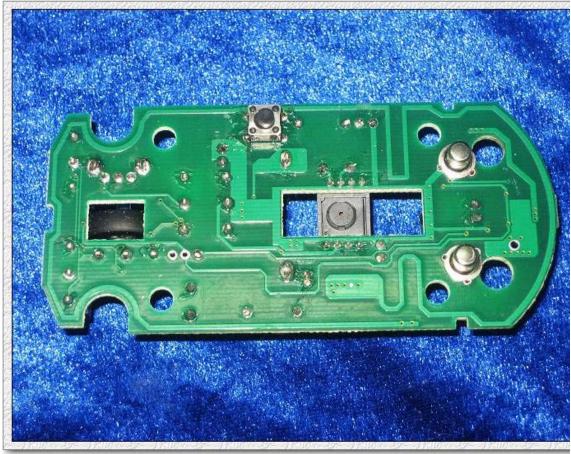


Canon DIGITAL IXUS 60 F5.6 1/60s

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Canon DIGITAL IXUS 60 F4.5 1/60s

# -End of the report-