

# TEST REPORT

**FCC ID: YVYHM8184**

**Product: Wireless Optical Mouse**

**Model No.: HM8184**

**Additional Model: N/A**

**Trade Mark: N/A**

**Report No.: TCT170522E027**

**Issued Date: Jun. 07, 2017**

Issued for:

**Zaidtek Electronic Technology (Xiamen) Co., Ltd.**

**No.285, Wengjiao Road, Haicang District, Xiamen, Fijian, China**

Issued By:

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### Appendix A: Photographs of Test Setup

### Appendix B: Photographs of EUT

## 1. Test Certification

<b>Product:</b>	Wireless Optical Mouse
<b>Model No.:</b>	HM8184
<b>Additional Model:</b>	N/A
<b>Trade Mark:</b>	N/A
<b>Applicant:</b>	Zaidtek Electronic Technology (Xiamen) Co., Ltd.
<b>Address:</b>	No.285, Wengjiao Road, Haicang District, Xiamen, Fijian, China
<b>Manufacturer:</b>	Zaidtek Electronic Technology (Xiamen) Co., Ltd.
<b>Address:</b>	No.285, Wengjiao Road, Haicang District, Xiamen, Fijian, China
<b>Date of Test:</b>	May 23, 2017 – Jun. 06, 2017
<b>Applicable Standards:</b>	FCC CFR Title 47 Part 15 Subpart C Section 15.249

The above equipment has been tested by Shenzhen Tongce Testing Lab. 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:**

Garen

**Date:**

Jun. 06, 2017

**Reviewed By:**

Joe Zhou

**Date:**

Jun. 07, 2017

**Approved By:**

Tomsin

**Date:**

Jun. 07, 2017

## 2. Test Result Summary

Requirement	CFR 47 Section	Result
Antenna Requirement	§15.203	PASS
AC Power Line Conducted Emission	§15.207	N/A
Field Strength of Fundamental	§15.249 (a)	PASS
Spurious Emissions	§2.1053 §15.249 (a) (d)/ §15.209	PASS
Band Edge	§2.1053 §15.249 (d)/ §15.205	PASS
20dB Occupied Bandwidth	§2.1049 §15.215 (c)	PASS

**Note:**

1. Pass: Test item meets the requirement.
2. Fail: Test item does not meet the requirement.
3. N/A: Test case does not apply to the test object.
4. The test result judgment is decided by the limit of test standard.

### 3. EUT Description

<b>Product:</b>	Wireless Optical Mouse
<b>Model No.:</b>	HM8184
<b>Additional Model:</b>	N/A
<b>Trade Mark:</b>	N/A
<b>Hardware Version:</b>	V1.2
<b>Software Version:</b>	V1.1
<b>Operation Frequency:</b>	2405MHz - 2470MHz
<b>Number of Channel:</b>	34
<b>Modulation Technology:</b>	GFSK
<b>Antenna Type:</b>	Integral PCB Antenna
<b>Antenna Gain:</b>	-3.56dBi
<b>Power Supply:</b>	DC 3V (AAA 1.5V*2 Battery)

#### Operation Frequency Each of Channel

Operation Frequency each of channel								
Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel
1	2405MHz	11	2424MHz	21	2444MHz	31	2464MHz	
2	2406MHz	12	2426MHz	22	2446MHz	32	2466MHz	
3	2408MHz	13	2428MHz	23	2448MHz	33	2468MHz	
4	2410MHz	14	2430MHz	24	2450MHz	34	2470MHz	
5	2412MHz	15	2432MHz	25	2452MHz			
6	2414MHz	16	2434MHz	26	2454MHz			
7	2416MHz	17	2436MHz	27	2456MHz			
8	2418MHz	18	2438MHz	28	2458MHz			
9	2420MHz	19	2440MHz	29	2460MHz			
10	2422MHz	20	2442MHz	30	2462MHz			

Remark: Channel 1, 14 and 34 are selected to perform the tests.

#### Note:

In section 15.31(m), regards to the operating frequency range over 10 MHz, the Lowest frequency, the middle frequency, and the highest frequency of channel were selected to perform the test, and the selected channel see below:

Channel	Frequency
The lowest channel	2405MHz
The middle channel	2430MHz
The Highest channel	2470MHz

## 4. General Information

### 4.1. Test Environment and Mode

Operating Environment:	
Temperature:	25.0 °C
Humidity:	54 % RH
Atmospheric Pressure:	1010 mbar
Test Mode:	
Engineering mode:	Keep the EUT in continuous transmitting by select channel
<p>The sample was placed (0.8m below 1GHz, 1.5m above 1GHz) above the ground plane of 3m chamber. Measurements in both horizontal and vertical polarities were performed. During the test, each emission was maximized by: having the EUT continuously working, investigated all operating modes, rotated about all 3 axis (X, Y &amp; Z) and considered typical configuration to obtain worst position, manipulating interconnecting cables, rotating the turntable, varying antenna height from 1m to 4m in both horizontal and vertical polarizations. The emissions worst-case are shown in Test Results of the following pages.</p>	

### 4.2. 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.

## 5. Facilities and Accreditations

### 5.1. Facilities

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

- FCC - Registration No.: 572331

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

### 5.2. Location

Shenzhen Tongce Testing Lab

Address: 1F, Leinuo Watch Building, Fuyong Town, Baoan Dist, Shenzhen, China

TEL: +86-755-27673339

### 5.3. Measurement Uncertainty

The reported uncertainty of measurement  $y \pm U$ , where expended 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	Conducted Emission	$\pm 2.56\text{dB}$
2	RF power, conducted	$\pm 0.12\text{dB}$
3	Spurious emissions, conducted	$\pm 0.11\text{dB}$
4	All emissions, radiated(<1GHz)	$\pm 3.92\text{dB}$
5	All emissions, radiated(>1GHz)	$\pm 4.28\text{dB}$
6	Temperature	$\pm 0.1^\circ\text{C}$
7	Humidity	$\pm 1.0\%$

## 6. Test Results and Measurement Data

### 6.1. Antenna Requirement

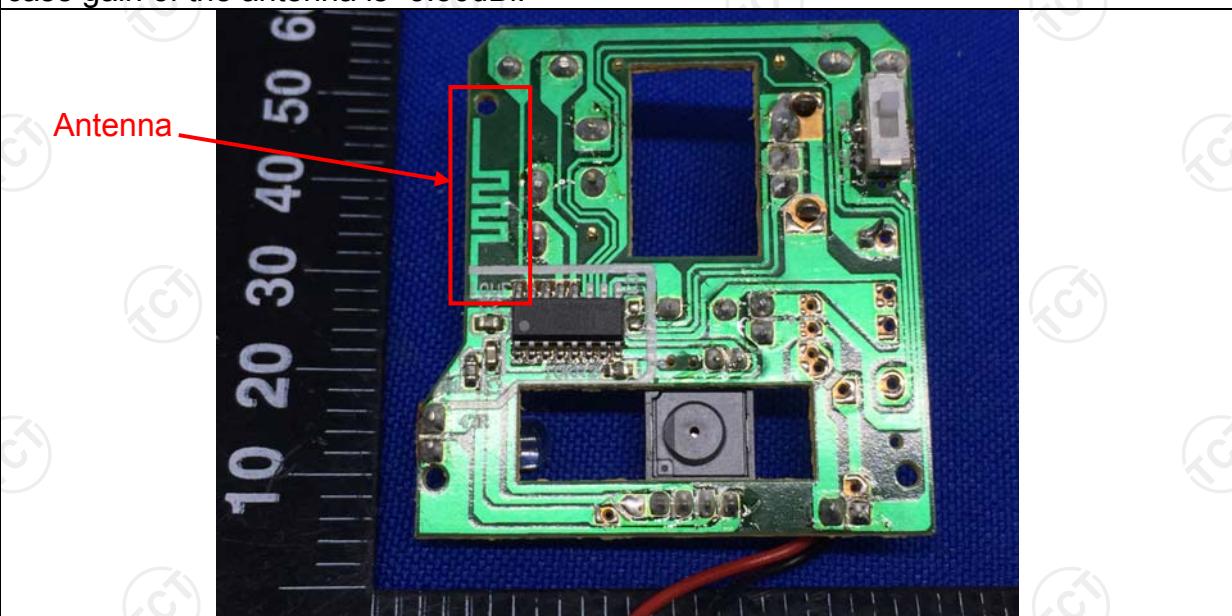
Standard requirement:	FCC Part15 C Section 15.203
-----------------------	-----------------------------

#### 15.203 requirement:

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

#### E.U.T Antenna:

The EUT antenna is an integral antenna which permanently attached, and the best case gain of the antenna is -3.56dBi.



## 6.2. Conducted Emission

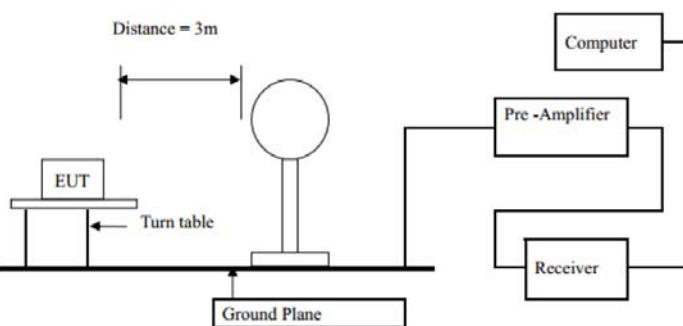
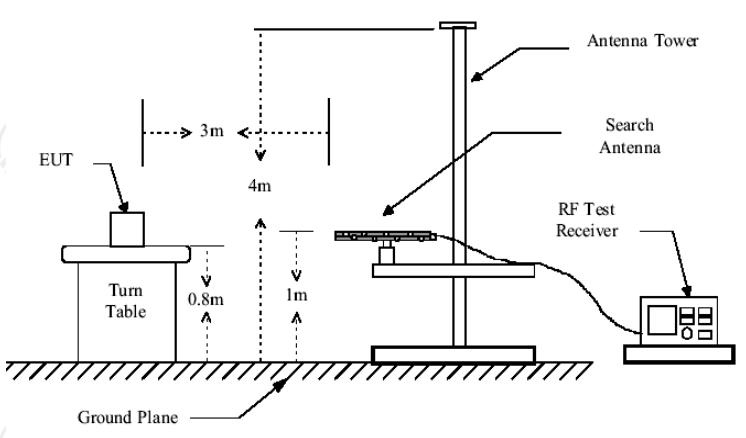
### 6.2.1. Test Specification

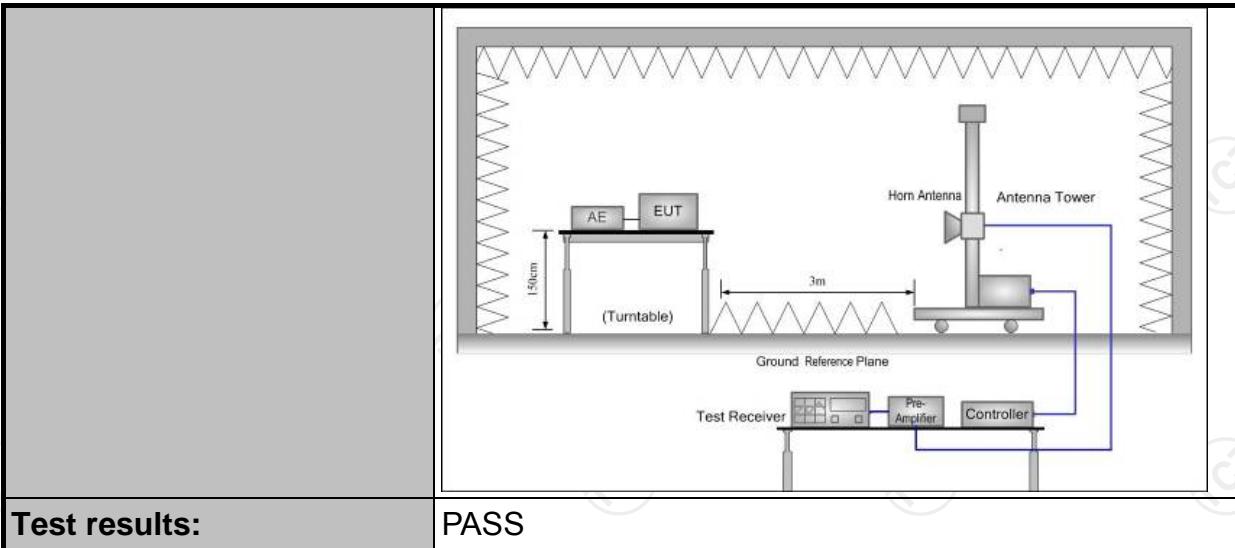
<b>Test Requirement:</b>	FCC Part15 C Section 15.207														
<b>Test Method:</b>	ANSI C63.10:2013														
<b>Frequency Range:</b>	150 kHz to 30 MHz														
<b>Receiver setup:</b>	RBW=9 kHz, VBW=30 kHz, Sweep time=auto														
<b>Limits:</b>	<table border="1"> <thead> <tr> <th rowspan="2">Frequency range (MHz)</th> <th colspan="2">Limit (dBuV)</th> </tr> <tr> <th>Quasi-peak</th> <th>Average</th> </tr> </thead> <tbody> <tr> <td>0.15-0.5</td> <td>66 to 56*</td> <td>56 to 46*</td> </tr> <tr> <td>0.5-5</td> <td>56</td> <td>46</td> </tr> <tr> <td>5-30</td> <td>60</td> <td>50</td> </tr> </tbody> </table>	Frequency range (MHz)	Limit (dBuV)		Quasi-peak	Average	0.15-0.5	66 to 56*	56 to 46*	0.5-5	56	46	5-30	60	50
Frequency range (MHz)	Limit (dBuV)														
	Quasi-peak	Average													
0.15-0.5	66 to 56*	56 to 46*													
0.5-5	56	46													
5-30	60	50													
<b>Test Setup:</b>	<p>Reference Plane</p> <p><i>Remark:</i> E.U.T: Equipment Under Test LISN: Line Impedance Stabilization Network Test table height=0.8m</p>														
<b>Test Mode:</b>	Transmitting mode with modulation														
<b>Test Procedure:</b>	<ol style="list-style-type: none"> <li>1. The E.U.T and simulators are connected to the main power through a line impedance stabilization network (L.I.S.N.). This provides a 50ohm/50uH coupling impedance for the measuring equipment.</li> <li>2. The peripheral devices are also connected to the main power through a LISN that provides a 50ohm/50uH coupling impedance with 50ohm termination. (Please refer to the block diagram of the test setup and photographs).</li> <li>3. Both sides of A.C. line are checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.10:2013 on conducted measurement.</li> </ol>														
<b>Test Result:</b>	N/A, Power supply is DC 3V from AAA 1.5V*2 Battery, so not applicable.														

## 6.3. Radiated Emission Measurement

### 6.3.1. Test Specification

<b>Test Requirement:</b>	FCC Part15 C Section 15.209/ Part 2 J Section 2.1053								
<b>Test Method:</b>	ANSI C63.10:2013								
<b>Frequency Range:</b>	9 kHz to 25 GHz								
<b>Measurement Distance:</b>	3 m								
<b>Antenna Polarization:</b>	Horizontal & Vertical								
<b>Receiver Setup:</b>	Frequency	Detector	RBW	VBW	Remark				
	9kHz- 150kHz	Quasi-peak	200Hz	1kHz	Quasi-peak Value				
	150kHz- 30MHz	Quasi-peak	9kHz	30kHz	Quasi-peak Value				
	30MHz-1GHz	Quasi-peak	120kHz	300kHz	Quasi-peak Value				
	Above 1GHz	Peak	1MHz	3MHz	Peak Value				
		Peak	1MHz	10Hz	Average Value				
<b>Limit(Field strength of the fundamental signal):</b>	Frequency	Limit (dBuV/m @3m)		Remark					
	2400MHz-2483.5MHz	94.00		Average Value					
		114.00		Peak Value					
<b>Limit(Spurious Emissions):</b>	Frequency	Limit (dBuV/m @3m)		Remark					
	0.009-0.490	2400/F(KHz)		Quasi-peak Value					
	0.490-1.705	24000/F(KHz)		Quasi-peak Value					
	1.705-30	30		Quasi-peak Value					
	30MHz-88MHz	40.0		Quasi-peak Value					
	88MHz-216MHz	43.5		Quasi-peak Value					
	216MHz-960MHz	46.0		Quasi-peak Value					
	960MHz-1GHz	54.0		Quasi-peak Value					
	Above 1GHz	54.0		Average Value					
		74.0		Peak Value					
<b>Limit (band edge) :</b>	Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or to the general radiated emission limits in Section 15.209, whichever is the lesser attenuation.								
<b>Test Procedure:</b>	<ol style="list-style-type: none"> <li>1. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter chamber in below 1GHz, 1.5m above the ground in above 1GHz. The table was rotated 360 degrees to determine the position of the highest radiation.</li> <li>2. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.</li> <li>3. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make</li> </ol>								

	<p>the measurement.</p> <ol style="list-style-type: none"> <li>4. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.</li> <li>5. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.</li> <li>6. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.</li> </ol>
<b>Test setup:</b>	<p>For radiated emissions below 30MHz</p>  <p>30MHz to 1GHz</p>  <p>Above 1GHz</p> <p>(The diagram below shows the test setup that is utilized to make the measurements for emission from 1GHz to the tenth harmonic of the highest fundamental frequency or to 40GHz emissions, whichever is lower.)</p>



### 6.3.2. Test Instruments

ESPI Test Receiver	ROHDE&SCHW ARZ	ESVD	100008	Aug. 11, 2017
Spectrum Analyzer	ROHDE&SCHW ARZ	FSEM	848597/001	Aug. 11, 2017
Spectrum Analyzer	Agilent	N9020A	MY49100060	Aug. 12, 2017
Pre-amplifier	EM Electronics Corporation CO.,LTD	EM30265	07032613	Aug. 11, 2017
Pre-amplifier	HP	8447D	2727A05017	Aug. 11, 2017
Loop antenna	ZHINAN	ZN30900A	12024	Aug. 13, 2017
Broadband Antenna	Schwarzbeck	VULB9163	340	Aug. 13, 2017
Horn Antenna	Schwarzbeck	BBHA 9120D	631	Aug. 13, 2017
Horn Antenna	Schwarzbeck	BBHA 9170	373	Aug. 13, 2017
Coax cable	TCT	RE-low-01	N/A	Aug. 11, 2017
Coax cable	TCT	RE-high-02	N/A	Aug. 11, 2017
Coax cable	TCT	RE-low-03	N/A	Aug. 11, 2017
Coax cable	TCT	RE-high-04	N/A	Aug. 11, 2017
Antenna Mast	CCS	CC-A-4M	N/A	N/A
EMI Test Software	Shurples Technology	EZ-EMC	N/A	N/A

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

### 6.3.3. Test Data

#### Field Strength of Fundamental

Frequency (MHz)	Emission PK/AV (dB $\mu$ V/m)	Horizontal /Vertical	Limits PK/AV (dB $\mu$ V/m)	Margin (dB)
2405	88.65(PK)	H	114/94	-25.35
2405	75.60(AV)	H	114/94	-18.40
2430	87.10(PK)	H	114/94	-26.90
2430	74.61(AV)	H	114/94	-19.39
2470	85.81(PK)	H	114/94	-28.19
2470	71.98(AV)	H	114/94	-22.02
2405	88.19(PK)	V	114/94	-25.81
2405	76.70(AV)	V	114/94	-17.30
2430	86.60(PK)	V	114/94	-27.40
2430	76.50(AV)	V	114/94	-17.50
2470	87.76(PK)	V	114/94	-26.24
2470	75.09(AV)	V	114/94	-18.91

#### Spurious Emissions

#### Frequency Range (9 kHz-30MHz)

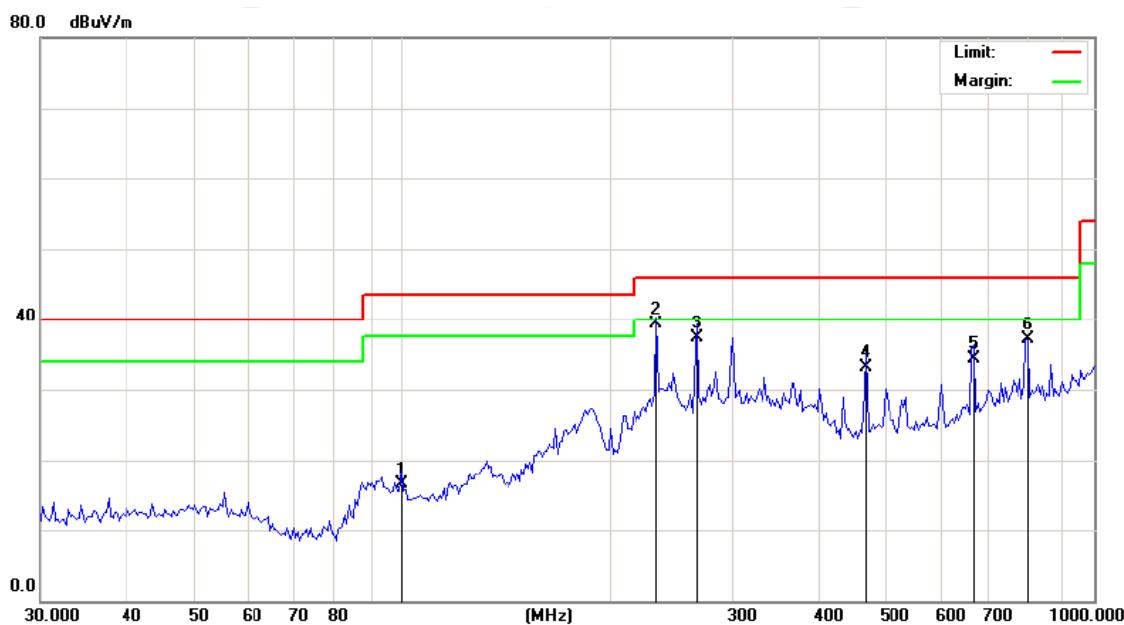
Frequency (MHz)	Level@3m (dB $\mu$ V/m)	Limit@3m (dB $\mu$ V/m)
--	--	--
--	--	--
--	--	--
--	--	--

**Note:** 1. Emission Level=Reading+ Cable loss-Antenna factor-Amp factor

2. The emission levels are 20 dB below the limit value, which are not reported. It is deemed to comply with the requirement

Frequency Range (30MHz-1GHz)

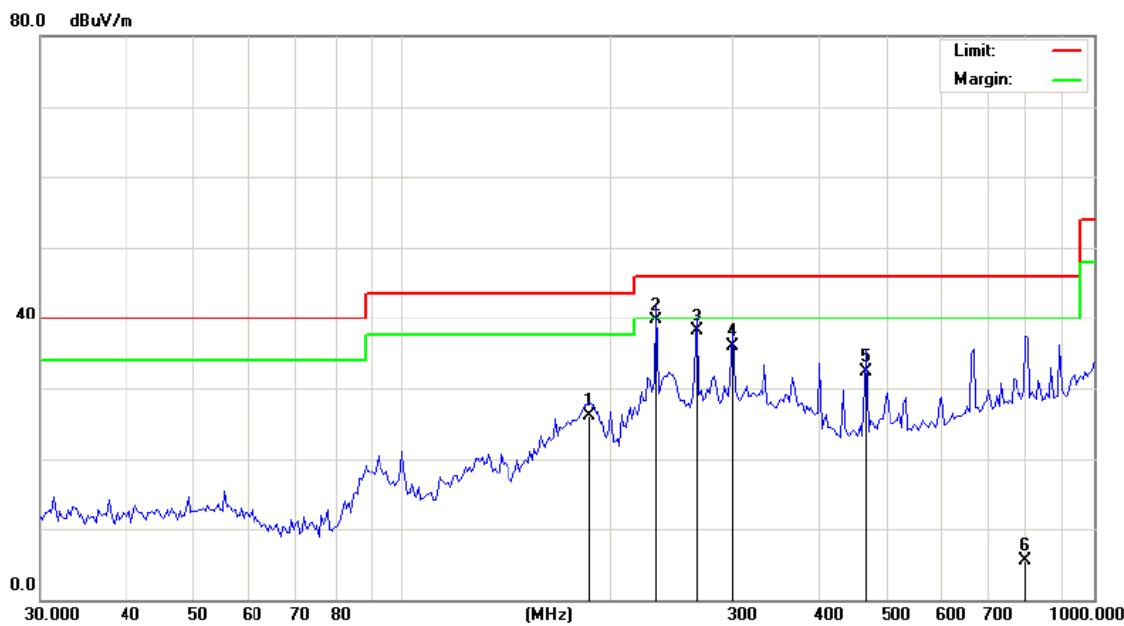
Horizontal:



Site: Temperature: 23  
 Limit: FCC Part 15B Class B RE\_3 m Humidity: 54 %  
 Polarization: **Horizontal** Power: DC 3V

No.	Mk.	Freq. MHz	Reading Level	Correct Factor	Measure- ment	Limit	Over	Antenna Height cm	Table Degree	Comment
			dBuV	dB	dBuV/m	dBuV/m	dB	Detector	degree	
1		99.7676	27.90	-11.47	16.43	43.50	-27.07	QP	0	
2	*	233.4881	49.85	-10.53	39.32	46.00	-6.68	QP	0	
3		266.8395	46.64	-9.38	37.26	46.00	-8.74	QP	0	
4		468.1650	37.09	-3.99	33.10	46.00	-12.90	QP	0	
5		669.9523	34.89	-0.49	34.40	46.00	-11.60	QP	0	
6		804.2523	35.60	1.51	37.11	46.00	-8.89	QP	0	

Vertical:



No.	Mk.	Freq.	Reading	Correct	Measure-	Limit	Over	Antenna	Table		
			Level	Factor	ment					Degree	
			MHz	dBuV	dB	dBuV/m	dB	Detector	cm	degree	Comment
1		186.4684	38.82	-12.62	26.20	43.50	-17.30	QP		0	
2	*	233.4881	50.14	-10.53	39.61	46.00	-6.39	QP		0	
3		266.8394	47.43	-9.38	38.05	46.00	-7.95	QP		0	
4		300.6988	44.23	-8.25	35.98	46.00	-10.02	QP		0	
5		468.1650	36.29	-3.99	32.30	46.00	-13.70	QP		0	
6		798.6204	4.00	1.44	5.44	46.00	-40.56	QP		0	

**Note:** Measurements were conducted in all channels (high, middle, low), and the worst case (low channel) was submitted only.

### Above 1GHz

Frequency (MHz)	Ant. Pol. H/V	Peak reading (dB $\mu$ V)	AV reading (dB $\mu$ V)	Correction Factor (dB/m)	Emission Level		Peak limit (dB $\mu$ V/m)	AV limit (dB $\mu$ V/m)	Margin (dB)
					Peak (dB $\mu$ V/m)	AV (dB $\mu$ V/m)			
2387.50	H	54.67	---	-4.20	50.47	---	74.00	54.00	-3.53
2387.50	H	---	48.15	-4.20	---	43.95	74.00	54.00	-8.98
4810.00	H	52.48	---	-3.94	48.54	---	74.00	54.00	-5.46
7215.00	H	47.65	---	0.52	48.17	---	74.00	54.00	-5.83
---	---	---	---	---	---	---	---	---	---
2387.50	V	51.36	---	-4.20	47.16	---	74.00	54.00	-6.84
2387.50	V	---	49.43	-4.20	---	45.23	74.00	54.00	-8.77
4810.00	V	48.62	---	-3.94	44.68	---	74.00	54.00	-9.32
7215.00	V	45.27	---	0.52	45.79	---	74.00	54.00	-8.21
---	---	---	---	---	---	---	---	---	---

### Middle channel: 2430 MHz

Frequency (MHz)	Ant. Pol. H/V	Peak reading (dB $\mu$ V)	AV reading (dB $\mu$ V)	Correction Factor (dB/m)	Emission Level		Peak limit (dB $\mu$ V/m)	AV limit (dB $\mu$ V/m)	Margin (dB)
					Peak (dB $\mu$ V/m)	AV (dB $\mu$ V/m)			
4860.00	H	53.27	---	-3.98	49.29	---	74.00	54.00	-4.71
7290.00	H	48.82	---	0.57	49.39	---	74.00	54.00	-4.61
---	---	---	---	---	---	---	---	---	---
---	---	---	---	---	---	---	---	---	---
---	---	---	---	---	---	---	---	---	---
4860.00	V	51.09	---	-3.98	47.11	---	74.00	54.00	-6.89
7290.00	V	50.35	---	0.57	50.92	---	74.00	54.00	-3.08
---	---	---	---	---	---	---	---	---	---
---	---	---	---	---	---	---	---	---	---
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### High channel: 2470 MHz

Frequency (MHz)	Ant. Pol. H/V	Peak reading (dB $\mu$ V)	AV reading (dB $\mu$ V)	Correction Factor (dB/m)	Emission Level		Peak limit (dB $\mu$ V/m)	AV limit (dB $\mu$ V/m)	Margin (dB)
					Peak (dB $\mu$ V/m)	AV (dB $\mu$ V/m)			
2483.50	H	52.08	---	-2.38	49.70	---	74.00	54.00	-4.30
2483.50	H	---	42.34	-2.38	---	39.96	74.00	54.00	-14.04
4940.00	H	50.62	---	-3.98	46.64	---	74.00	54.00	-7.36
7410.00	H	49.57	---	0.57	50.14	---	74.00	54.00	-3.86
---	---	---	---	---	---	---	---	---	---
2483.50	V	50.61	---	-2.38	48.23	---	74.00	54.00	-5.77
2483.50	V	---	43.25	-2.38	---	40.87	74.00	54.00	-13.13
4940.00	V	51.83	---	-3.98	47.85	---	74.00	54.00	-6.15
7410.00	V	48.24	---	0.57	48.81	---	74.00	54.00	-5.19
---	---	---	---	---	---	---	---	---	---

#### Note:

1. Emission Level=Peak Reading + Correction Factor; Correction Factor= Antenna Factor + Cable loss – Pre-amplifier
2. Margin (dB) = Emission Level (Peak) (dB $\mu$ V/m)-Average limit (dB $\mu$ V/m)
3. The emission levels of other frequencies are very lower than the limit and not show in test report.
4. Measurements were conducted from 1 GHz to the 10th harmonic of highest fundamental frequency.
5. Data of measurement shown “---” in the above table mean that the reading of emissions is attenuated more than 20 dB below the limits or the field strength is too small to be measured.

**Band Edge Requirement**

Low channel: 2405 MHz									
Frequency (MHz)	Ant. Pol. H/V	Peak reading (dB $\mu$ V)	AV reading (dBuV)	Correction Factor (dB/m)	Emission Level		Peak limit (dB $\mu$ V/m)	AV limit (dB $\mu$ V/m)	Margin (dB)
					Peak (dB $\mu$ V/m)	AV (dB $\mu$ V/m)			
2400	H	49.13	---	-4.2	44.93	---	74.00	---	-29.07
2400	H	---	42.56	-4.2	---	38.36	---	54.00	-15.64
---	---	---	---	---	---	---	---	---	---
2400	V	48.61	---	-4.2	44.41	---	74.00	---	-29.59
2400	V	---	39.78	-4.2	---	35.58	---	54.00	-18.42
---	---	---	---	---	---	---	---	---	---

High channel: 2470 MHz									
Frequency (MHz)	Ant. Pol. H/V	Peak reading (dB $\mu$ V)	AV reading (dBuV)	Correction Factor (dB/m)	Emission Level		Peak limit (dB $\mu$ V/m)	AV limit (dB $\mu$ V/m)	Margin (dB)
					Peak (dB $\mu$ V/m)	AV (dB $\mu$ V/m)			
2483.5	H	50.84	---	-4.2	46.64	---	74.00	---	-27.36
2483.5	H	---	41.63	-4.2	---	37.43	---	54.00	-16.57
---	---	---	---	---	---	---	---	---	---
2483.5	V	49.39	---	-4.2	45.19	---	74.00	---	-28.81
2483.5	V	---	40.82	-4.2	---	36.62	---	54.00	-17.38
---	---	---	---	---	---	---	---	---	---

**Note:**

1. Emission Level=Peak Reading + Correction Factor; Correction Factor= Antenna Factor + Cable loss – Pre-amplifier
2. Margin (dB) = Emission Level (Peak/Average)(dB $\mu$ V/m)-(Peak/Average) limit (dB $\mu$ V/m)
3. The emission levels of other frequencies are very lower than the limit and not show in test report.
4. Measurements were conducted from 1 GHz to the 10th harmonic of highest fundamental frequency.
5. Data of measurement shown “---” in the above table mean that the reading of emissions is attenuated more than 20 dB below the limits or the field strength is too small to be measured.

## 6.4.20dB Occupied Bandwidth

### 6.4.1. Test Specification

<b>Test Requirement:</b>	FCC Part15 C Section 15.215(c)/ Part 2 J Section 2.1049
<b>Test Method:</b>	ANSI C63.10: 2013
<b>Limit:</b>	N/A
	<ol style="list-style-type: none"> <li>1. According to the follow Test-setup, keep the relative position between the artificial antenna and the EUT.</li> <li>2. Set to the maximum power setting and enable the EUT transmit continuously.</li> <li>3. Use the following spectrum analyzer settings for 20dB Bandwidth measurement. Span = approximately 2 to 3 times the 20 dB bandwidth, centered on a hopping channel; RBW<math>\geq</math>1% of the 20 dB bandwidth; VBW<math>\geq</math>RBW; Sweep = auto; Detector function = peak; Trace = max hold.</li> <li>4. Measure and record the results in the test report.</li> </ol>
<b>Test setup:</b>	 <p>The diagram illustrates the test setup. A green 'Spectrum Analyzer' is connected to a yellow 'EUT' (Equipment Under Test) via a grey cable. The analyzer has a digital display screen and two control knobs. The EUT is a simple rectangular box.</p>
<b>Test Mode:</b>	Transmitting mode with modulation
<b>Test results:</b>	PASS

### 6.4.2. Test Instruments

RF Test Room				
Equipment	Manufacturer	Model	Serial Number	Calibration Due
Spectrum Analyzer	Agilent	N9020A	MY49100060	Aug. 12, 2017

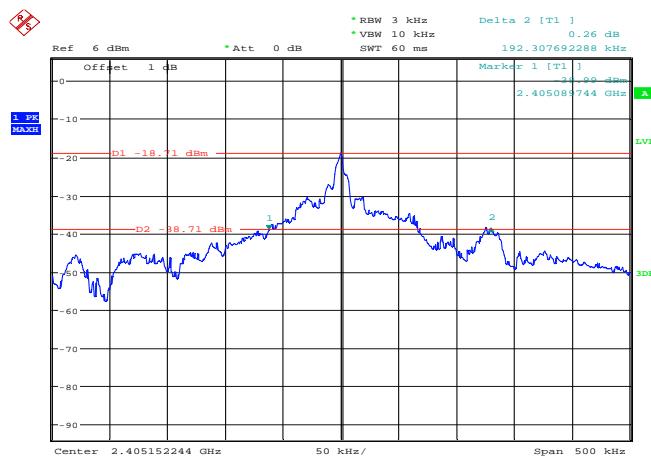
**Note:** The calibration interval of the above test instruments is 12 months and the calibrations are traceable to international system unit (SI).

**6.4.3. Test data**

Test Channel	20dB Occupy Bandwidth (kHz)	Limit	Conclusion
Lowest	192.31	---	PASS
Middle	201.12	---	PASS
Highest	127.40	---	PASS

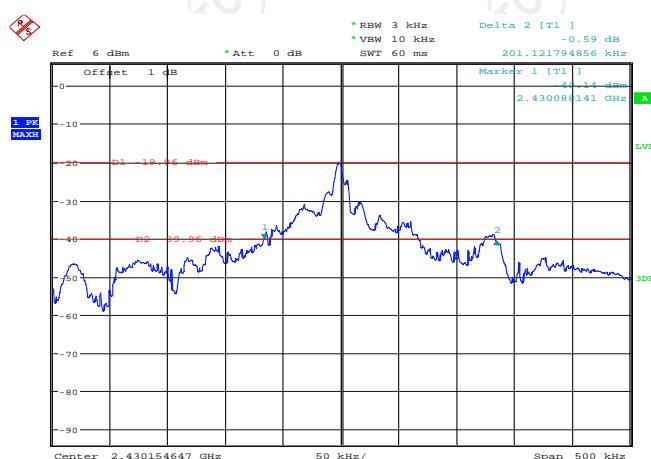
**Test plots as follows:**

### Lowest channel



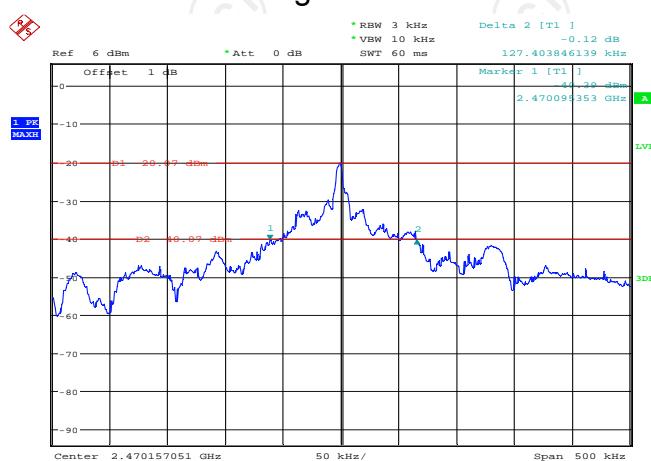
Date: 27.MAY.2017 16:24:34

### Middle channel



Date: 27.MAY.2017 16:21:57

### Highest channel



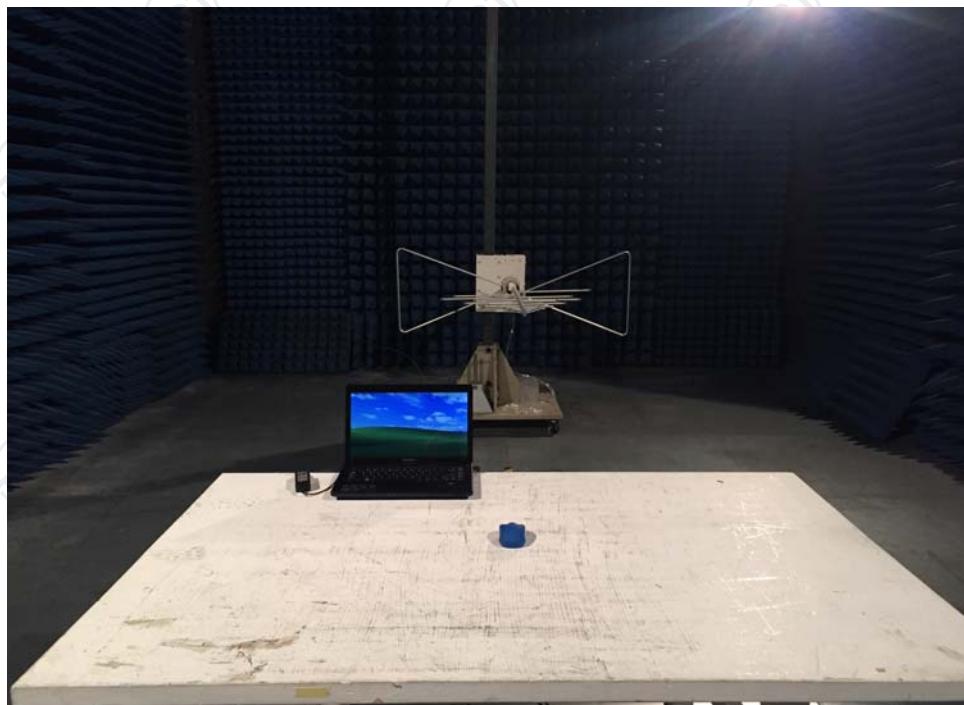
Date: 27.MAY.2017 16:15:33

## Appendix A: Photographs of Test Setup

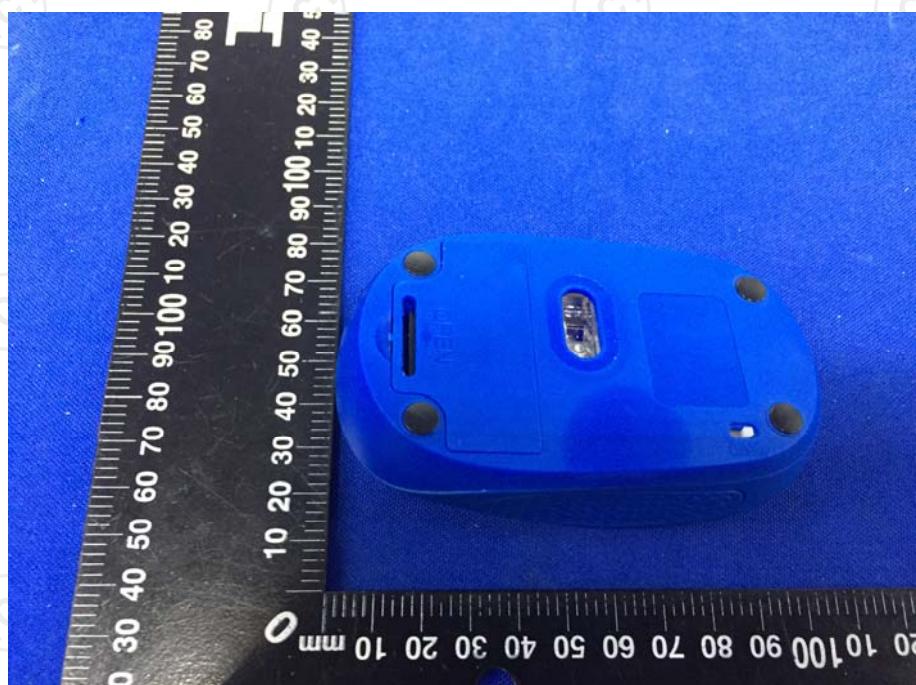
Product: Wireless Optical Mouse

Model: HM8184

Radiated Emission



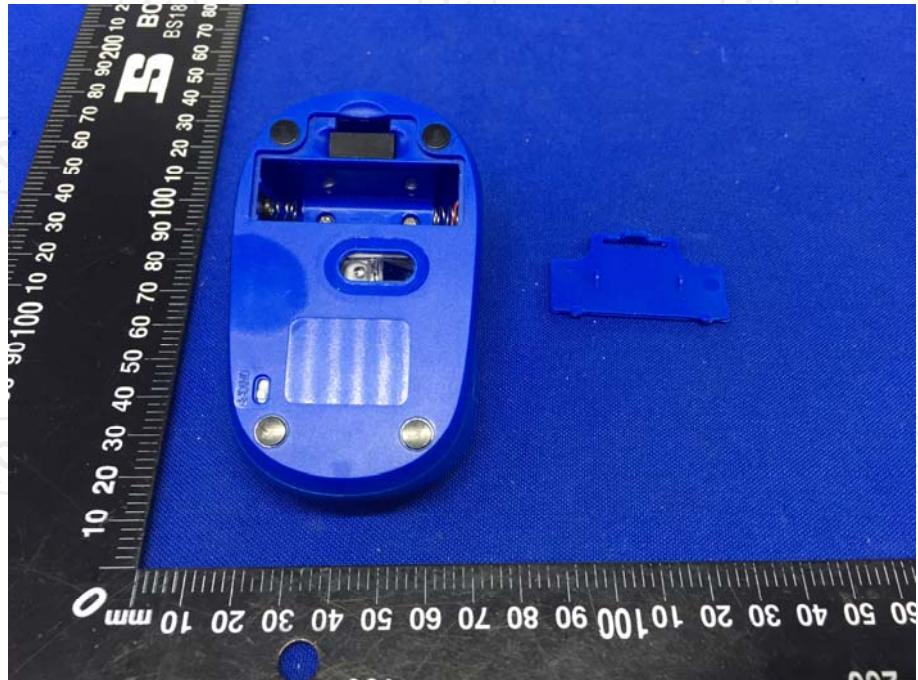
**Appendix B: Photographs of EUT**  
**Product: Wireless Optical Mouse**  
**Model: HM8184**  
**External Photos**

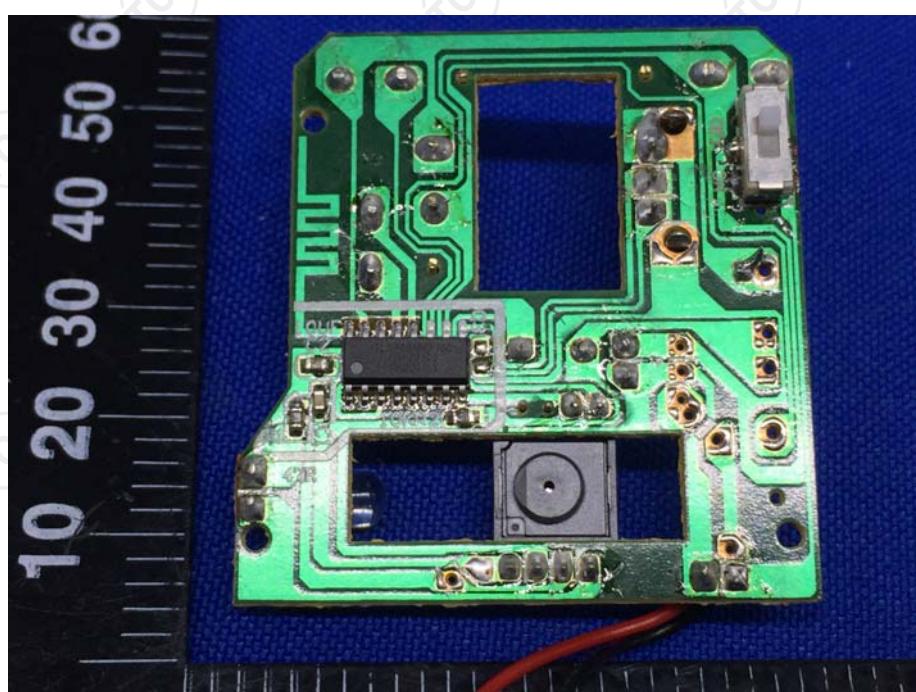
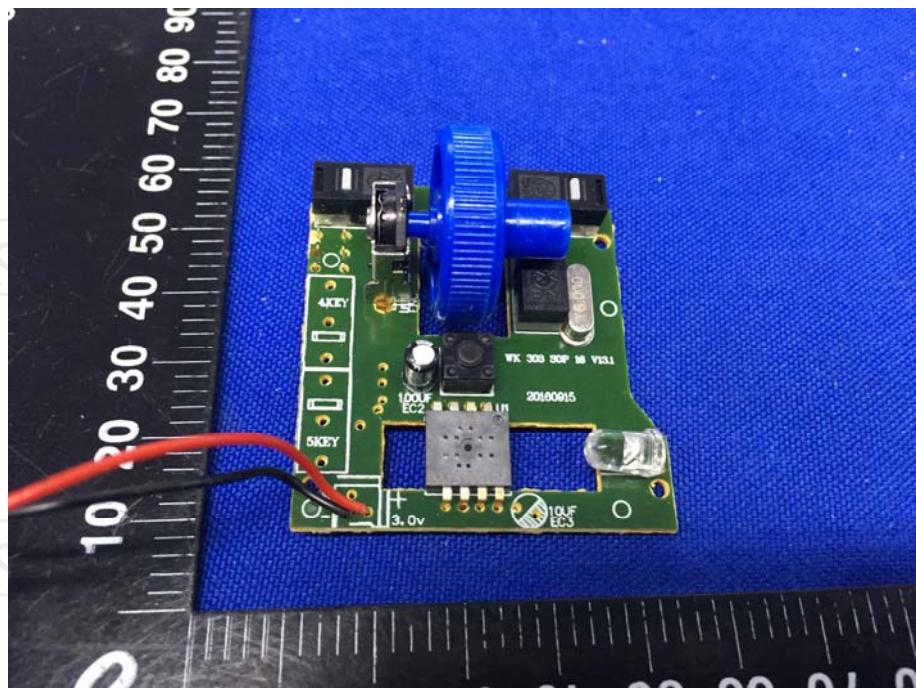






**Appendix B: Photographs of EUT  
Product: Wireless Optical Mouse  
Model: HM8184  
Internal Photos**





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