

FCC TEST REPORT  
for  
Shenzhen Loyal Electronics Co., Ltd.

Wireless Mouse  
Model No.: G6230E

Prepared for : Shenzhen Loyal Electronics Co., Ltd.  
Address : No.5, First Industry Park, Shanmen Songgang, Baoan, Shenzhen,  
Guangdong, China

Prepared By : Shenzhen Anbotek Compliance Laboratory Limited  
Address : 1/F., Building 1, SEC Industrial Park, No.0409 Qianhai Road,  
Nanshan District, Shenzhen, Guangdong, China  
Tel: (86) 755-26066544  
Fax: (86) 755-26014772

Report Number : 201308689F  
Date of Test : Aug. 05~ 14, 2013  
Date of Report : Aug. 14, 2013

**TABLE OF CONTENTS**

Description

Page

Test Report

**1. GENERAL INFORMATION ..... 4**

    1.1. Description of Device (EUT) ..... 4

    1.2. Auxiliary Equipment Used during Test ..... 5

    1.3. Description of Test Facility ..... 6

    1.4. Measurement Uncertainty ..... 6

**2. TEST PROCEDURE ..... 7**

**3. CONDUCTED LIMITS ..... 8**

    3.1. Block Diagram of Test Setup ..... 8

    3.2. Power Line Conducted Emission Measurement Limits (15.207) ..... 8

    3.3. Configuration of EUT on Measurement ..... 8

    3.4. Operating Condition of EUT ..... 9

    3.5. Test Procedure ..... 9

    3.6. Power Line Conducted Emission Measurement Results ..... 9

**4. RADIATION INTERFERENCE..... 12**

    4.1. Requirements (15.249, 15.209): ..... 12

    4.2 Test Procedure ..... 12

    4.3 Test Results..... 12

**5. OCCUPIED BANDWIDTH..... 18**

    5.1. Requirements (15.249): ..... 18

    5.2. Test Procedure ..... 18

    5.3. Test Configuration: ..... 18

    5.4. Test Results..... 19

**6. PHOTOGRAPH..... 22**

    6.1. Photo of Power Line Conducted Emission Measurement ..... 22

    6.2. Photo of Radiation Emission Test ..... 23

APPENDIX I (External Photos) (2 Pages)

APPENDIX II (Internal Photos) (3 Pages)

## TEST REPORT

Applicant : Shenzhen Loyal Electronics Co., Ltd.  
Manufacturer : Shenzhen Loyal Electronics Co., Ltd.  
EUT : Wireless Mouse  
Model No. : G6230E  
Serial No. : N/A  
Trade Mark : **Loshine**  
Rating : DC 3.0V Battery

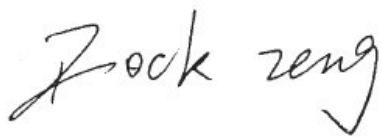
Measurement Procedure Used:


FCC Part15 Subpart C, Paragraph 15.207, 15.249 & 15.209

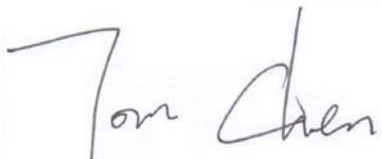
The device described above is tested by Shenzhen Anbotek Compliance Laboratory Limited to determine the maximum emission levels emanating from the device and the severe levels of the device can endure and its performance criterion. The measurement results are contained in this test report and Shenzhen Anbotek Compliance Laboratory Limited is assumed full of responsibility for the accuracy and completeness of these measurements. Also, this report shows that the EUT (Equipment Under Test) is technically compliant with the FCC Part 15 Subpart C requirements.

This report applies to above tested sample only and shall not be reproduced in part without written approval of Shenzhen Anbotek Compliance Laboratory Limited.

Date of Test : Aug. 05~ 14, 2013

Prepared by :   
(Tested Engineer / Rock Zeng)

Reviewer :   
(Project Manager / Sally Zhang)

Approved & Authorized Signer :   
(Manager / Tom Chen)

## 1. GENERAL INFORMATION

### 1.1. Description of Device (EUT)

EUT : Wireless Mouse

Model Number : G6230E

Test Power Supply : DC 3V

Frequency : 2409MHz, 2417MHz, 2426MHz, 2435MHz, 2445MHz, 2455MHz, 2465MHz, 2476MHz

No. of Channels : 8

Antenna Specification : Printed Antenna:1.2 dBi

Applicant : Shenzhen Loyal Electronics Co., Ltd.  
Address : No.5, First Industry Park, Shanmen Songgang, Baoan, Shenzhen, Guangdong, China

Manufacturer : Shenzhen Loyal Electronics Co., Ltd.  
Address : No.5, First Industry Park, Shanmen Songgang, Baoan, Shenzhen, Guangdong, China

Date of receiver : Aug. 05, 2013

Date of Test : Aug. 05~ 14, 2013

## 1.2.Auxiliary Equipment Used during Test

PC	: Manufacturer: DELL M/N: OPTIPLEX 380 S/N: 1J63X2X CE , FCC: DOC
MONITOR	: Manufacturer: DELL M/N: E170Sc S/N: CN-00V539-64180-055-0UPS CE , FCC: DOC
KEYBOARD	: Manufacturer: DELL M/N: SK-8115 S/N: CN-0DJ313-71616-06C-02XN CE , FCC: DOC Cable: 1m, unshielded
MOUSE	: Manufacturer: DELL M/N: M-UARDEL7 S/N: N/A CE , FCC: DOC Cable: 1m, unshielded
Printer	: Manufacturer:Brother M/N: MFC-3360C S/N: N/A CE, FCC:DOC
Power Line	: Non-Shielded, 1.5m
VGA Cable	: Non-Shielded, 1.5m
Network Cable	: Non-Shielded, 1.5m

### 1.3. Description of Test Facility

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

**CNAS - LAB Code: L3503**

Shenzhen Anbotek Compliance Laboratory Limited., Laboratory has been assessed and in compliance with CNAS/CL01: 2006 accreditation criteria for testing laboratories (identical to ISO/IEC 17025:2005 General Requirements) for the Competence of Testing Laboratories.

**FCC-Registration No.: 752021**

Shenzhen Anbotek Compliance Laboratory Limited, 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 752021, July 10, 2013.

**IC-Registration No.: 8058A-1**

Shenzhen Anbotek Compliance Laboratory Limited., 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 8058A-1, February 22, 2013.

**Test Location**

All Emissions tests were performed at Shenzhen Anbotek Compliance Laboratory Limited. at 1/F., Building 1, SEC Industrial Park, No.0409 Qianhai Road, Nanshan District, Shenzhen, Guangdong, China

### 1.4. Measurement Uncertainty

Radiation Uncertainty	:	Ur = 4.3dB
Conduction Uncertainty	:	Uc = 3.4dB

## 2. Test Procedure

**GENERAL:** This report shall NOT be reproduced except in full without the written approval of Shenzhen Anbotek Compliance Laboratory Limited. The EUT was transmitting a test signal during the testing.

**RADIATION INTERFERENCE:** The test procedure used was ANSI STANDARD C63.4-2009 using a spectrum analyzer with a pre-selector. The analyzer was calibrated in dB above a microvolt at the output of the antenna. The resolution bandwidth was 100KHz and the video bandwidth was 300KHz up to 1.0GHz and 1.0MHz with a video BW of 3.0MHz above 1.0GHz. The ambient temperature of the EUT was 74.3oF with a humidity of 69%.

**FORMULA OF CONVERSION FACTORS:** The Field Strength at 3m was established by adding the meter reading of the spectrum analyzer (which is set to read in units of dBuV) to the antenna correction factor supplied by the antenna manufacturer. The antenna correction factors are stated in terms of dB. The gain of the Preselector was accounted for in the Spectrum Analyzer Meter Reading.

**Example:**

Freq (MHz) METER READING + ACF = FS  
20 dBuV + 10.36 dB = 30.36 dBuV/m @ 3m

**ANSI STANDARD C63.4-2009 10.1.7 MEASUREMENT PROCEDURES:** The EUT was placed on a table 80 cm high and with dimensions of 1m by 1.5m. The EUT was placed in the center of the table (1.5m side). The table used for radiated measurements is capable of continuous rotation.

When an emission was found, the table was rotated to produce the maximum signal strength. At this point, the antenna was raised and lowered from 1m to 4m. The antenna was placed in both the horizontal and vertical planes.

### 3. Conducted Limits

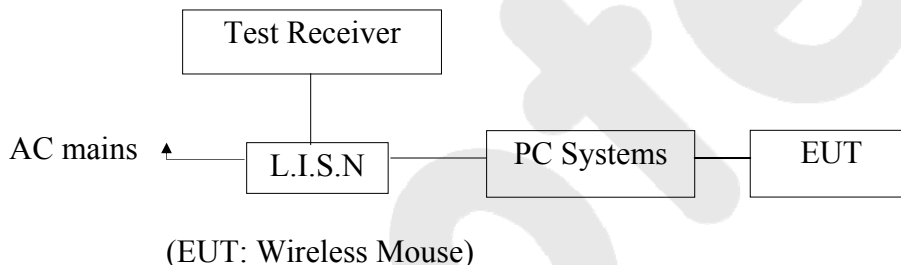
#### Test Equipment

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Two-Line V-network	Rohde & Schwarz	ENV216	10055	Apr. 23, 2013	1 Year
2.	EMI Test Receiver	Rohde & Schwarz	ESCI	100627	Apr. 23, 2013	1 Year
3.	RF Switching Unit	Compliance Direction	RSU-M2	38303	Apr. 23, 2013	1 Year

Conduction Uncertainty :  $U_c = 3.4\text{dB}$

#### 3.1. Block Diagram of Test Setup

##### 3.1.1. Block diagram of connection between the EUT and simulators



#### 3.2. Power Line Conducted Emission Measurement Limits (15.207)

Frequency MHz	Limits dB(μV)	
	Quasi-peak Level	Average Level
0.15 ~ 0.50	66 ~ 56*	56 ~ 46*
0.50 ~ 5.00	56	46
5.00 ~ 30.00	60	50

Notes: 1. \*Decreasing linearly with logarithm of frequency.  
2. The lower limit shall apply at the transition frequencies.

#### 3.3. Configuration of EUT on Measurement

The following equipments are installed on Power Line Conducted Emission Measurement to meet the commission requirement and operating regulations in a manner which tends to maximize its emission characteristics in a normal application.

EUT : Wireless Mouse  
Model Number : G6230E  
Applicant : Shenzhen Loyal Electronics Co., Ltd.



### 3.4. Operating Condition of EUT

- 3.4.1. Setup the EUT and simulator as shown as Section 3.1.
- 3.4.2. Turn on the power of all equipment.
- 3.4.3. Let the EUT work in test mode (ON) and measure it.

### 3.5. Test Procedure

The EUT system is connected to the power mains through a line impedance stabilization network (L.I.S.N.). This provides a 50ohm coupling impedance for the EUT system. Please refer the block diagram of the test setup and photographs. Both sides of AC line are checked to find out the maximum conducted emission. In order to find the maximum emission levels, the relative positions of equipment and all of the interface cables shall be changed according to FCC ANSI C63.4-2003 on Conducted Emission Measurement.

The bandwidth of test receiver (ESCI) set at 9KHz.

The frequency range from 150KHz to 30MHz is checked.

The test results are reported on Section 3.6.

### 3.6. Power Line Conducted Emission Measurement Results

**PASS.**

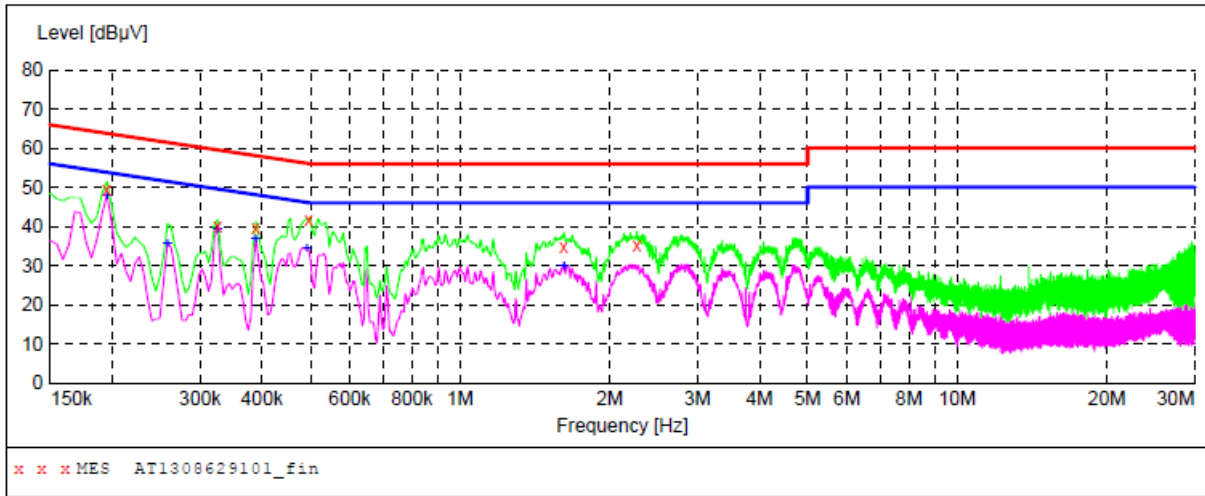
The frequency range from 150KHz to 30 MHz is investigated.

Please refer the following pages.

**CONDUCTED EMISSION TEST DATA**

EUT: Wireless Mouse M/N: G6230E  
 Operating Condition: ON  
 Test Site: 1# Shielded Room  
 Operator: Finley Li  
 Test Specification: AC 120V/60Hz for Adapter  
 Comment: Live Line  
 Tem:25°C Hum:50%

**SCAN TABLE: "Voltage (150K~30M) FIN"**  
 Short Description: 150K-30M Disturbance Voltages



**MEASUREMENT RESULT: "AT1308629101\_fin"**

8/5/2013 5:58PM

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.195000	49.60	20.1	64	14.2	QP	L1	GND
0.325500	40.30	20.1	60	19.3	QP	L1	GND
0.388500	39.60	20.1	58	18.5	QP	L1	GND
0.496500	41.70	20.1	56	14.4	QP	L1	GND
1.616500	34.80	20.3	56	21.2	QP	L1	GND
2.269000	35.40	20.3	56	20.6	QP	L1	GND

**MEASUREMENT RESULT: "AT1308629101\_fin2"**

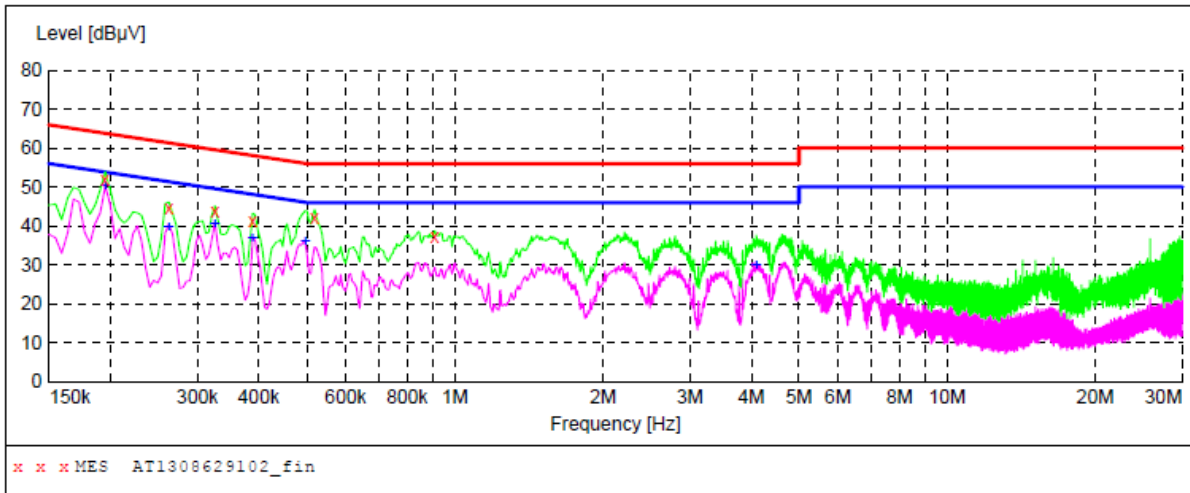
8/5/2013 5:58PM

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.195000	47.90	20.1	54	5.9	AV	L1	GND
0.258000	35.80	20.1	52	15.7	AV	L1	GND
0.325500	39.20	20.1	50	10.4	AV	L1	GND
0.388500	36.90	20.1	48	11.2	AV	L1	GND
0.492000	34.60	20.1	46	11.5	AV	L1	GND
1.616500	29.80	20.3	46	16.2	AV	L1	GND

**CONDUCTED EMISSION TEST DATA**

EUT: Wireless Mouse M/N: G6230E  
 Operating Condition: ON  
 Test Site: 1# Shielded Room  
 Operator: Finley Li  
 Test Specification: AC 120V/60Hz for Adapter  
 Comment: Neutral Line  
 Tem:25°C Hum:50%

**SCAN TABLE: "Voltage (150K~30M) FIN"**  
 Short Description: 150K-30M Disturbance Voltages



**MEASUREMENT RESULT: "AT1308629102\_fin"**

8/5/2013 6:05PM

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.195000	52.10	20.1	64	11.7	QP	N	GND
0.262500	44.40	20.1	61	17.0	QP	N	GND
0.325500	43.80	20.1	60	15.8	QP	N	GND
0.388500	41.50	20.1	58	16.6	QP	N	GND
0.519000	42.20	20.1	56	13.8	QP	N	GND
0.910500	37.10	20.1	56	18.9	QP	N	GND

**MEASUREMENT RESULT: "AT1308629102\_fin2"**

8/5/2013 6:05PM

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.195000	50.50	20.1	54	3.3	AV	N	GND
0.262500	39.80	20.1	51	11.6	AV	N	GND
0.325500	40.70	20.1	50	8.9	AV	N	GND
0.388500	36.80	20.1	48	11.3	AV	N	GND
0.496500	35.90	20.1	46	10.2	AV	N	GND
4.096000	29.80	20.5	46	16.2	AV	N	GND

## 4. Radiation Interference

### 4.1. Requirements (15.249, 15.209):

FIELD STRENGTH of Fundamental: @3M 902-928 MHz 2.4-2.4835 GHz 94 dB $\mu$ V/m @3m	FIELD STRENGTH of Harmonics  54 dB $\mu$ V/m @3m	S15.209 30 - 88 MHz 88 - 216 MHz 216 - 960 MHz ABOVE 960 MHz	40 dBuV/m 43.5 46 54dBuV/m
--	---	--	-------------------------------------

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 15.209, whichever is the lesser attenuation.

### 4.2 Test Procedure

The EUT is placed on a turn table which is 0.8 meter high above the ground. The turn table can rotate 360 degrees to determine the position of the maximum emission level. The EUT is set 3 meters away from the receiving antenna which is mounted on a antenna tower. The antenna can be moved up and down from 1 to 4 meters to find out the maximum emission level. Both horizontal and vertical polarization of the antenna are set on test.

All readings from 30MHz to 1GHz are quasi-peak values with a resolution bandwidth of 120kHz. All reading are above 1GHz, peak & average values with a resolution bandwidth of 1MHz. The EUT is tested in 9\*6\*6 Chamber.

The test results are listed in Section 4.3.

#### Test Equipment

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	EMI Test Receiver	Rohde & Schwarz	ESCI	101604	Apr. 23, 2013	1 Year
2.	Bilog Broadband Antenna	Schwarzbeck	VULB9163	VULB 9163-289	Apr. 23, 2013	1 Year
3.	Pre-amplifier	SONOMA	310N	186860	Apr. 23, 2013	1 Year
4.	EMI Test Software EZ-EMC	SHURPLE	N/A	N/A	N/A	N/A

Radiation Uncertainty : Ur = 4.3dB

### 4.3 Test Results

PASS.

Please refer the following pages.

**Data:**

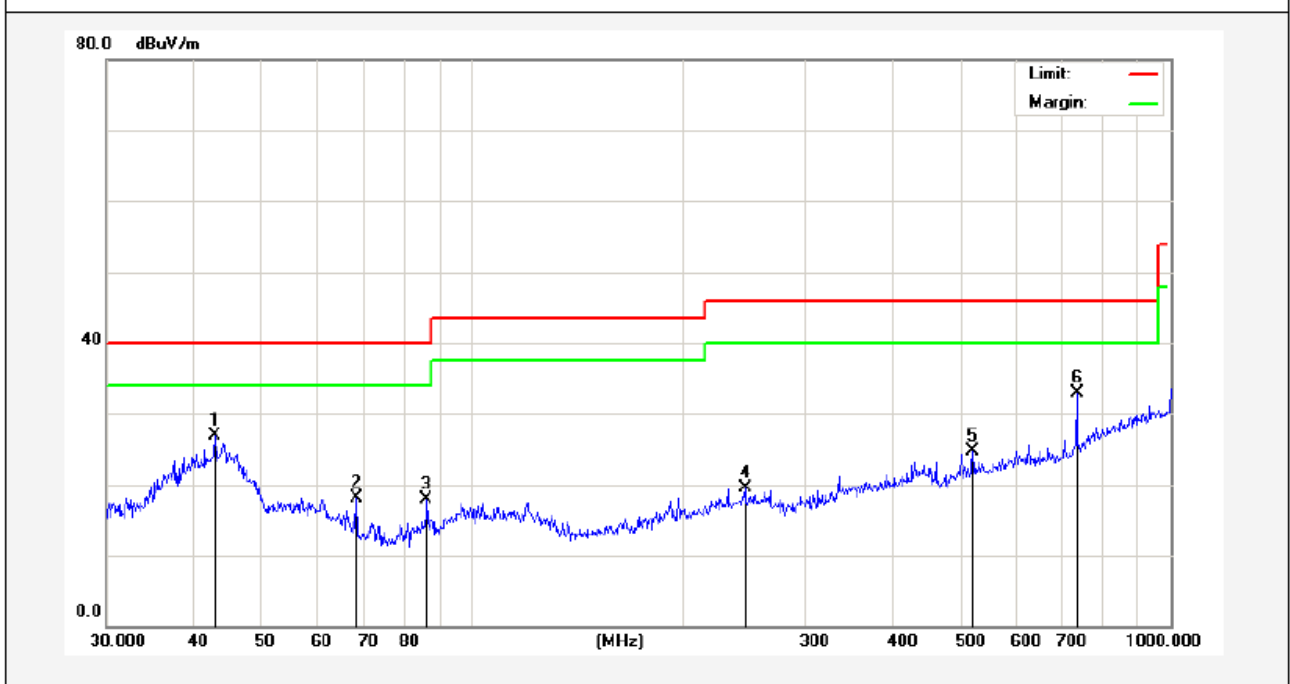
**Below 1GHz:**

<b>Job No.:</b>	AT1307814F	<b>Polarization:</b>	Horizontal
<b>Standard:</b>	(RE)FCC PART15 C _3m	<b>Power Source:</b>	DC 3V
<b>Test item:</b>	Radiation Test	<b>Date:</b>	2013/08/05
<b>Temp.(C)/Hum.(%RH):</b>	24.3( C)/55%RH	<b>Time:</b>	20/02/45
<b>EUT:</b>	Wireless Mouse	<b>Test By:</b>	Rock Zeng
<b>Model:</b>	G6230E	<b>Distance:</b>	3m
<b>Mode:</b>	ON		
<b>Note:</b>	30-1000MHz		

No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/)	Over Limit (dB)	Detector	Height (cm)	degree (deg)	Remark
1	41.5670	32.96	-10.99	21.97	40.00	-18.03	peak			
2	55.2207	33.55	-14.94	18.61	40.00	-21.39	peak			
3	59.8588	32.82	-15.38	17.44	40.00	-22.56	peak			
4	84.9995	34.10	-20.35	13.75	40.00	-26.25	peak			
5	420.5803	33.44	-12.38	21.06	46.00	-24.94	peak			
6	699.3046	39.37	-8.50	30.87	46.00	-15.13	peak			

<b>Job No.:</b>	<b>AT1307814F</b>	<b>Polarziation:</b>	<b>Vertical</b>
<b>Standard:</b>	<b>(RE)FCC PART15 C _3m</b>	<b>Power Source:</b>	<b>DC 3V</b>
<b>Test item:</b>	<b>Radiation Test</b>	<b>Date:</b>	<b>2013/08/05</b>
<b>Temp.(C)/Hum.(%RH):</b>	<b>24.3( C)/55%RH</b>	<b>Time:</b>	<b>20/04/29</b>
<b>EUT:</b>	<b>Wireless Mouse</b>	<b>Test By:</b>	<b>Rock Zeng</b>
<b>Model:</b>	<b>G6230E</b>	<b>Distance:</b>	<b>3m</b>
<b>Mode:</b>	<b>ON</b>		
<b>Note:</b>	<b>30-1000MHz</b>		



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/)	Over Limit (dB)	Detector	Height (cm)	degree (deg)	Remark
1	42.8997	38.51	-11.51	27.00	40.00	-13.00	peak			
2	68.3907	37.00	-18.93	18.07	40.00	-21.93	peak			
3	86.2001	36.18	-18.23	17.95	40.00	-22.05	peak			
4	245.9508	33.50	-14.06	19.44	46.00	-26.56	peak			
5	520.8881	35.24	-10.59	24.65	46.00	-21.35	peak			
6	734.4913	40.30	-7.44	32.86	46.00	-13.14	peak			

**Above 1 GHz:**

Horizontal  
CH Low (2409MHz)

Frequency MHz	Cable Loss dB	Ant Factor dB/m	Preamp Factor dB	Read Level dBμV	Level dBμV/m	Limit dBμV/m	Over Limit dB	Remark
2409.000	2.17	31.21	35.30	86.77	84.85	114.0	-29.15	Peak
2409.000	2.17	31.21	35.30	84.69	82.77	94.0	-11.23	AV
4818.150	2.56	34.01	34.71	41.21	43.07	74.0	-30.93	Peak
4818.150	2.56	34.01	34.71	38.35	40.21	54.0	-13.79	AV
7227.760	2.98	36.16	35.15	38.07	42.06	74.0	-31.94	Peak
7227.760	2.98	36.16	35.15	28.15	32.14	54.0	-21.86	AV
9636.000	---	---	---	---	---	---	---	---
12045.00	---	---	---	---	---	---	---	---
14454.00	---	---	---	---	---	---	---	---
16863.00	---	---	---	---	---	---	---	---
---	---	---	---	---	---	---	---	---

Vertical  
CH Low (2409MHz)

Frequency MHz	Cable Loss dB	Ant Factor dB/m	Preamp Factor dB	Read Level dBμV	Level dBμV/m	Limit dBμV/m	Over Limit dB	Remark
2409.000	2.17	31.21	35.30	88.15	86.23	114.0	-27.77	Peak
2409.000	2.17	31.21	35.30	81.07	79.15	94.0	-14.85	AV
4818.150	2.56	34.01	34.71	41.25	43.11	74.0	-30.89	Peak
4818.150	2.56	34.01	34.71	38.46	40.32	54.0	-13.68	AV
7227.310	2.98	36.16	35.15	37.77	41.76	74.0	-32.24	Peak
7227.310	2.98	36.16	35.15	34.08	38.07	54.0	-15.93	AV
9636.000	---	---	---	---	---	---	---	---
12045.00	---	---	---	---	---	---	---	---
14454.00	---	---	---	---	---	---	---	---
16863.00	---	---	---	---	---	---	---	---
---	---	---	---	---	---	---	---	---

Horizontal  
CH Middle (2435MHz)

Frequency MHz	Cable Loss dB	Ant Factor dB/m	Preamp Factor dB	Read Level dB $\mu$ V	Level dB $\mu$ V/m	Limit dB $\mu$ V/m	Over Limit dB	Remark
2435.000	2.19	31.22	34.60	91.84	90.65	114.0	-23.35	Peak
2435.000	2.19	31.22	34.60	81.02	79.83	94.0	-14.17	AV
4870.190	2.57	35.00	34.58	39.44	42.43	74.0	-31.57	Peak
4870.190	2.57	35.00	34.58	37.76	40.75	54.0	-13.25	AV
7305.070	3.00	36.17	35.14	35.54	39.57	74.0	-34.43	Peak
7305.070	3.00	36.17	35.14	34.09	38.12	54.0	-15.88	AV
9740.000	---	---	---	---	---	---	---	---
12175.00	---	---	---	---	---	---	---	---
14610.00	---	---	---	---	---	---	---	---
17045.00	---	---	---	---	---	---	---	---
---	---	---	---	---	---	---	---	---

Vertical  
CH Middle (2435MHz)

Frequency MHz	Cable Loss dB	Ant Factor dB/m	Preamp Factor dB	Read Level dB $\mu$ V	Level dB $\mu$ V/m	Limit dB $\mu$ V/m	Over Limit dB	Remark
2435.000	2.19	31.22	34.60	89.26	88.07	114.0	-25.93	Peak
2435.000	2.19	31.22	34.60	82.65	81.46	94.0	-12.54	AV
4870.140	2.57	35.00	34.58	43.79	46.78	74.0	-27.22	Peak
4870.140	2.57	35.00	34.58	42.42	45.41	54.0	-8.59	AV
7305.050	3.00	36.17	35.14	39.01	43.04	74.0	-30.96	Peak
7305.050	3.00	36.17	35.14	38.45	42.48	54.0	-11.52	AV
9740.000	---	---	---	---	---	---	---	---
12175.00	---	---	---	---	---	---	---	---
14610.00	---	---	---	---	---	---	---	---
17045.00	---	---	---	---	---	---	---	---
---	---	---	---	---	---	---	---	---



Horizontal  
CH High (2476MHz)

Frequency MHz	Cable Loss dB	Ant Factor dB/m	Preamp Factor dB	Read Level dB $\mu$ V	Level dB $\mu$ V/m	Limit dB $\mu$ V/m	Over Limit dB	Remark
2476.000	2.20	31.65	36.00	95.48	93.33	114.0	-20.67	Peak
2476.000	2.20	31.65	36.00	88.46	86.31	94.0	-7.69	AV
4952.220	2.58	35.06	34.79	43.78	46.63	74.0	-27.37	Peak
4952.220	2.58	35.06	34.79	37.44	40.29	54.0	-13.71	AV
7386.990	3.02	36.19	34.90	41.06	45.37	74.0	-28.63	Peak
7386.990	3.02	36.20	35.20	37.35	41.37	54.0	-12.63	AV
9863.000	---	---	---	---	---	---	---	---
12339.00	---	---	---	---	---	---	---	---
14815.00	---	---	---	---	---	---	---	---
17291.00	---	---	---	---	---	---	---	---
---	---	---	---	---	---	---	---	---

Vertical  
CH High (2476MHz)

Frequency MHz	Cable Loss dB	Ant Factor dB/m	Preamp Factor dB	Read Level dB $\mu$ V	Level dB $\mu$ V/m	Limit dB $\mu$ V/m	Over Limit dB	Remark
2476.000	2.20	31.65	36.00	83.67	81.52	114.0	-32.48	Peak
2476.000	2.20	31.65	36.00	82.34	80.19	94.0	-13.81	AV
4952.130	2.58	35.06	34.79	42.76	45.61	74.0	-28.39	Peak
4952.130	2.58	35.06	34.79	39.55	42.4	54.0	-11.60	AV
7387.010	3.02	36.19	34.90	38.23	42.54	74.0	-31.46	Peak
7387.010	3.02	36.20	35.20	36.91	40.93	54.0	-13.07	AV
9863.000	---	---	---	---	---	---	---	---
12339.00	---	---	---	---	---	---	---	---
14815.00	---	---	---	---	---	---	---	---
17291.00	---	---	---	---	---	---	---	---
---	---	---	---	---	---	---	---	---

**NOTE: “ --- ” in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured. The results of different modulations are the same.**

## 5. Occupied Bandwidth

### 5.1. Requirements (15.249):

The field strength of any emissions appearing outside the band edges and up to 10 kHz above and below the band edges shall be attenuated at least 50 dB below the level of the carrier or to the general limits of 15.249.

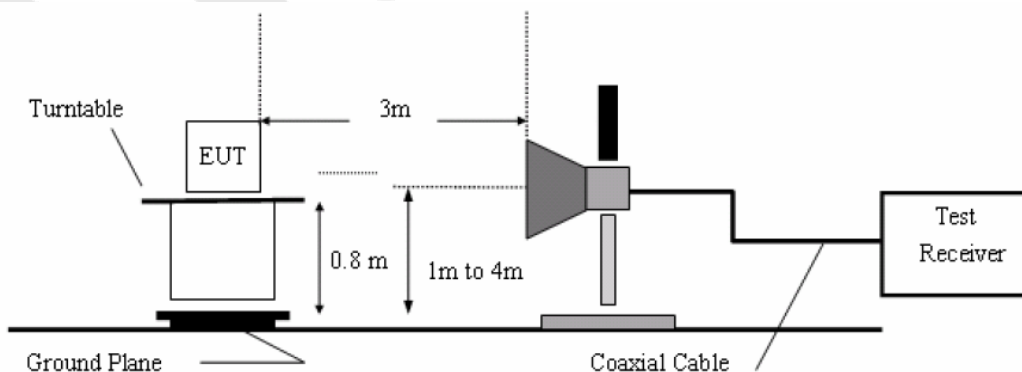
### 5.2. Test Procedure

The EUT is placed on a turn table which is 0.8 meter high above the ground. The turn table can rotate 360 degrees to determine the position of the maximum emission level. The EUT is set 3 meters away from the receiving antenna which is mounted on a antenna tower. The antenna can be moved up and down from 1 to 4 meters to find out the maximum emission level. Both horizontal and vertical polarization of the antenna are set on test.

#### Test Equipment

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	EMI Test Receiver	Rohde & Schwarz	ESCI	101604	Apr. 23, 2013	1 Year
2.	Bilog Broadband Antenna	Schwarzbeck	VULB9163	VULB 9163-289	Apr. 23, 2013	1 Year
3.	Pre-amplifier	SONOMA	310N	186860	Apr. 23, 2013	1 Year
4.	EMI Test Software EZ-EMC	SHURPLE	N/A	N/A	N/A	N/A

### 5.3. Test Configuration:

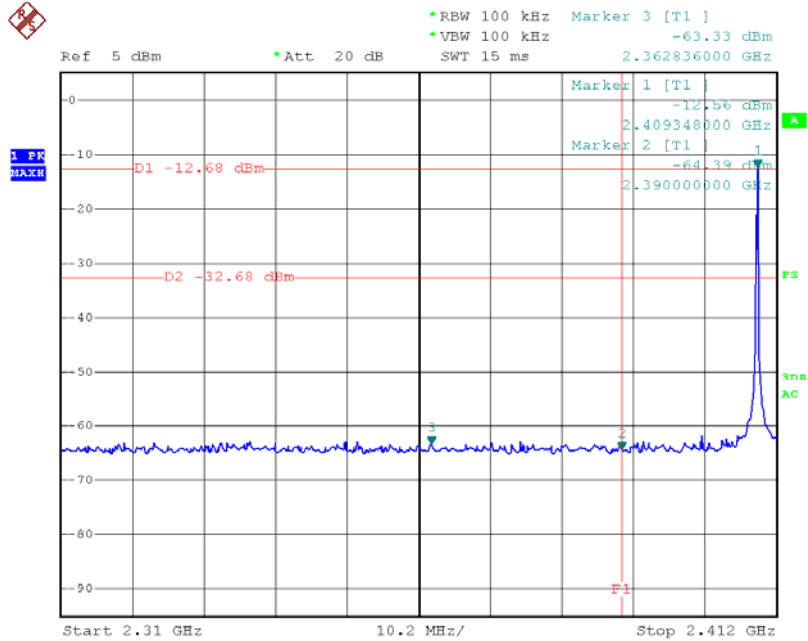


### 5.4. Test Results

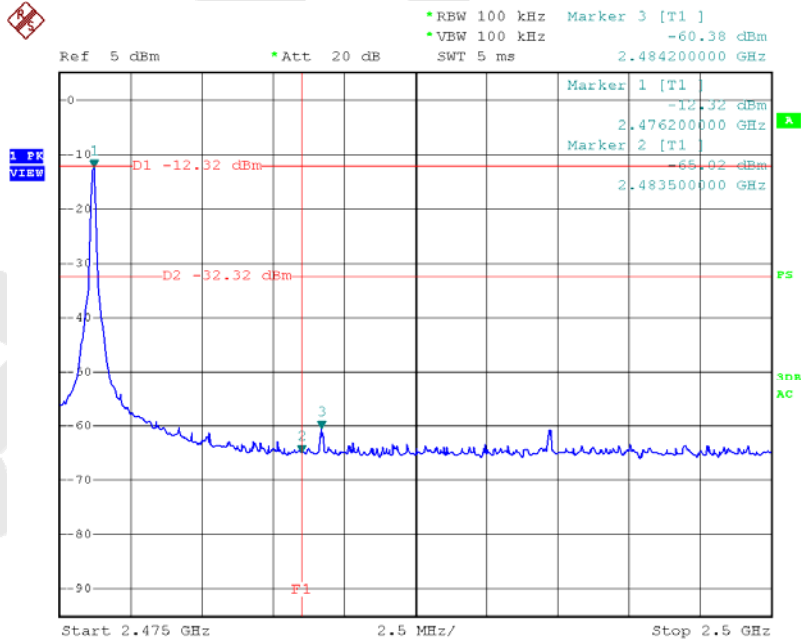
Pass.

Please refer the following plot.

(Note: Marker 3 means the highest value in 2.39GHz~2.4GHz or 2.4835~2.5GHz)

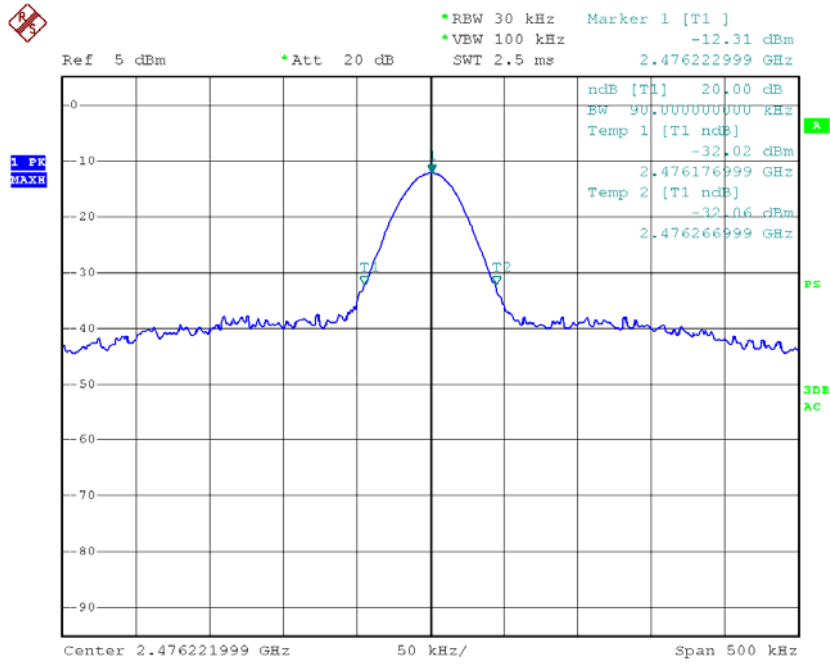


Date: 8.AUG.2013 16:03:15



Date: 8.AUG.2013 16:11:52





Date: 8.AUG.2013 15:42:22

Anbotek

## 6. PHOTOGRAPH

### 6.1. Photo of Power Line Conducted Emission Measurement





6.2. Photo of Radiation Emission Test











Anbotek

## APPENDIX I (External Photos)

Figure 1  
The EUT-Front View



Figure 2  
The EUT-Back View



Figure 3  
The EUT-Overall View





**APPENDIX II (Internal Photos)**

Figure 4  
The EUT-Inside View

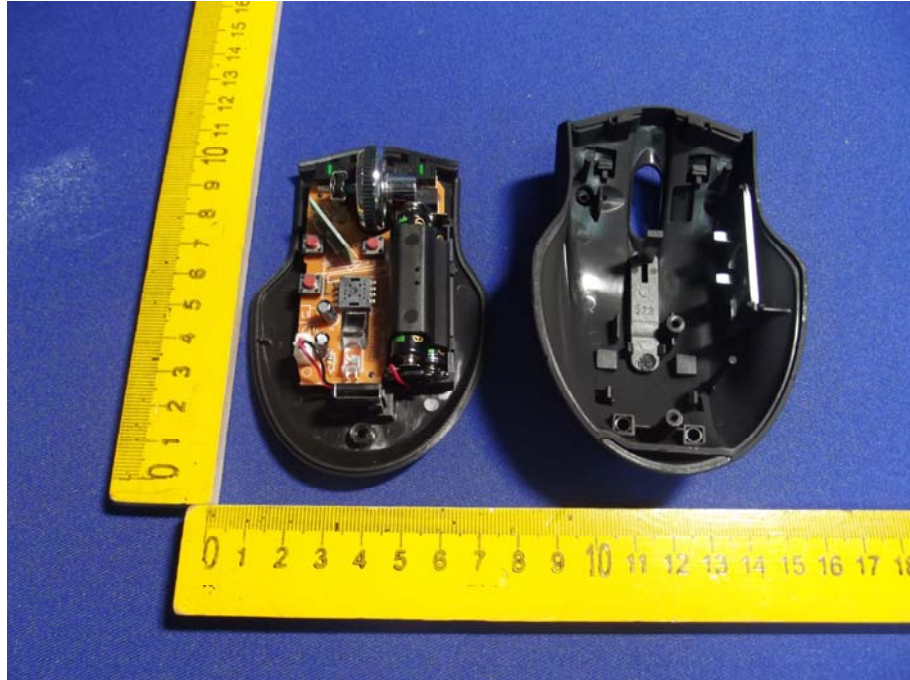


Figure 5  
PCB of the EUT-Front View

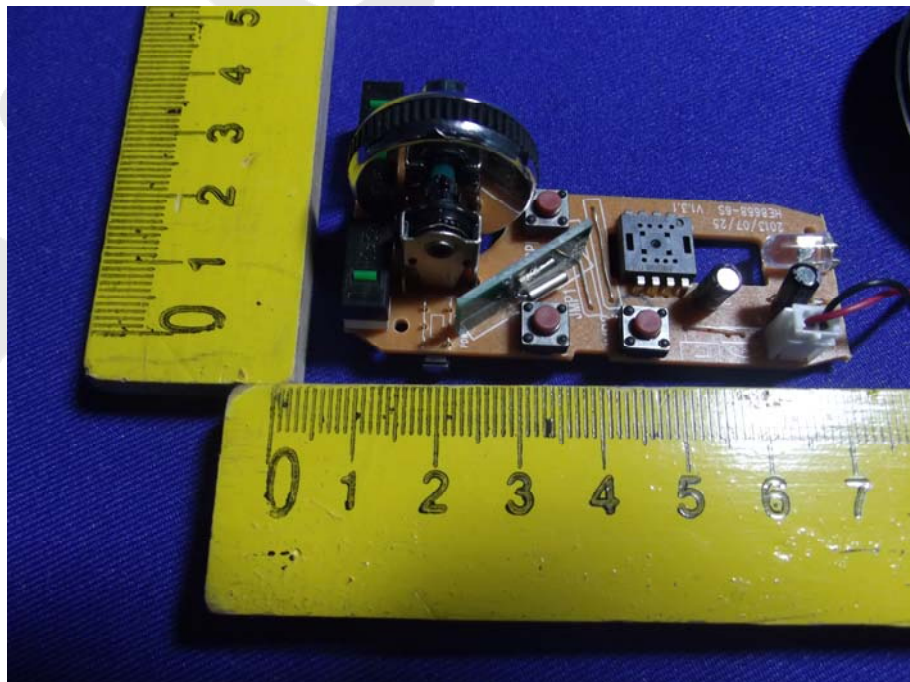


Figure 6  
PCB of the EUT-Back View

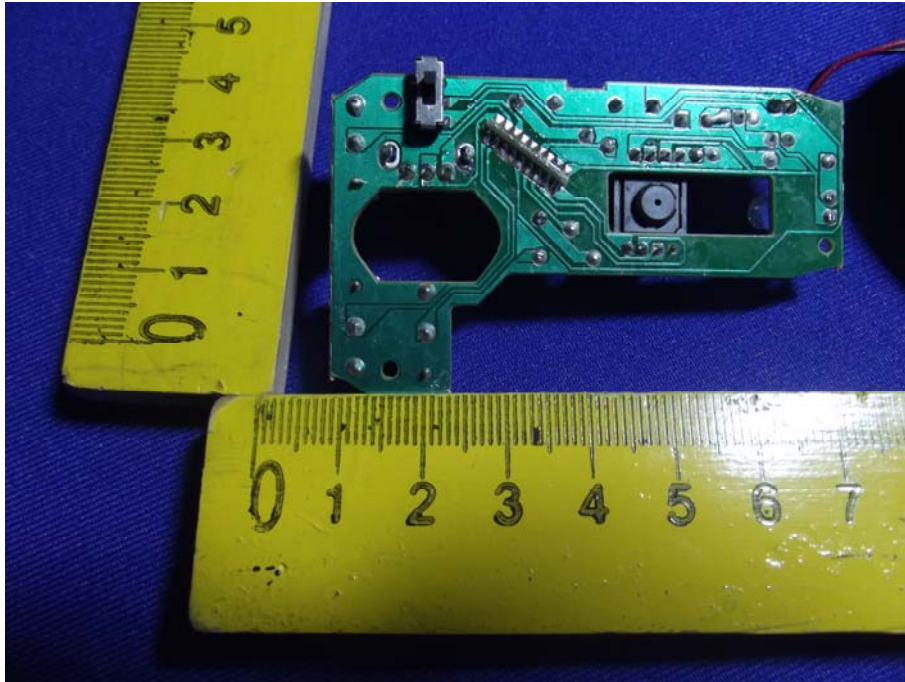


Figure 7  
PCB of the EUT-Front View

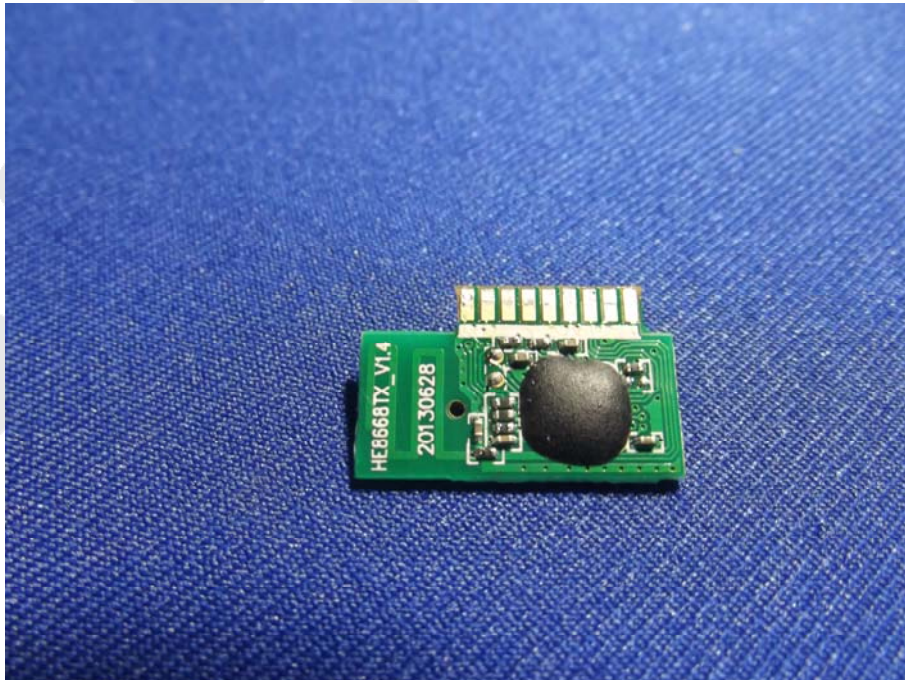
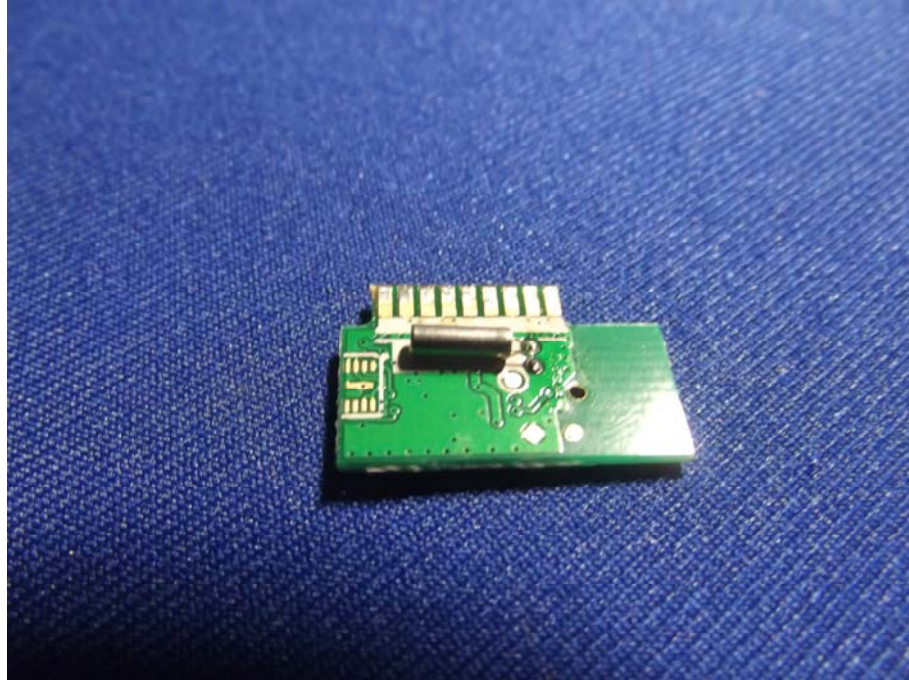




Figure 8  
PCB of the EUT-Back View



Anbotek