

FCC TEST REPORT

FCC ID : QE8611XXTX27

Applicant : **Interactive Toy Concepts(HK) Ltd.**
7/F.,Eu Yan Sang Tower,11-15 Chatham Road South, TST,Kowloon,
Hongkong

Equipment Under Test (EUT) :

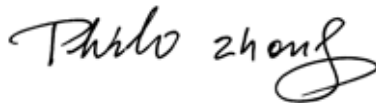
Product description : R/C AIR PLANE

Model No. : 61121/61123

Standards : FCC 15 Paragraph 15.205, Paragraph 15.209, Paragraph 15.227,
Paragraph 15.31, Paragraph 15.33, Paragraph 15.35.

Date of Test : January 11,2006

Test Engineer : Tiger Su

Reviewed By : 

PERPARED BY:
Shenzhen Huatongwei International Inspection Co., Ltd
Keji S,12th,Road, Hi-tech Industrial Park, Shenzhen, Guangdong, China

FCC Registration Number: 662850

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3 Test Summary

| Test | Test Requirement | Test Method | Class / Severity | Result |
|---|-------------------------|--------------------|-------------------------|---------------|
| Radiated Emission (25MHz to 1GHz) | FCC PART 15: 2003 | ANSI C63.4: 2003 | Class B | PASS |
| Conducted Emission (150KHz to 30MHz) | FCC PART 15: 2003 | ANSI C63.4: 2003 | Class B | N/A |

4 General Information

4.1 Client Information

Applicant: **Interactive Toy Concepts(HK) Ltd.**
Address of Applicant: 7/F.,Eu Yan Sang Tower,11-15 Chatham Road South,
TST,Kowloon, Hongkong

4.2 General Description of E.U.T.

Product description: R/C AIR PLANE
Model No.: 61121/61123

4.3 Details of E.U.T.

Power Supply: Transmitter: 9.0VDC Battery
Receiver: 3.6V DC Battery

4.4 Description of Support Units

The EUT has been tested as an independent device unit.

4.5 Standards Applicable for Testing

The customer requested FCC tests for a R/C AIR PLANE. The standards used were FCC 15 Paragraph 15.205, Paragraph 15.209, Paragraph 15.227,Paragraph 15.31,Paragraph 15.33, Paragraph 15.35.

4.6 Test Facility

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

- **FCC – Registration No.: 662850**

Shenzhen Huatongwei International Inspection Co., Ltd, 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 662850, November 17, 2003.

4.7 Test Location

All Emissions tests were performed at:-Shenzhen Huatongwei International Inspection Co., Ltd. at Keji S,12th,Road, Hi-tech Industrial Park, Shenzhen, Guangdong, China.

5 Equipment Used during Test

| Conducted Emission Test | | | | | | |
|--------------------------------|-----------------------------------|---------------------|--------------------------|----------------------|------------------|-----------------|
| Item | Test Equipment | Manufacturer | Model No. | Serial No. | Cal. Date | Due date |
| 1 | Shielding Room | ETS | 8 x 4 x 4 m ³ | N0.2 | N/A | N/A |
| 2 | LISN | Rohde & Schwarz | ESH2-Z5 | 100028 | 06-11-2005 | 05-11-2006 |
| 3 | EMI Test Receiver | Rohde & Schwarz | ESCS30 | 100038 | 06-11-2005 | 05-11-2006 |
| Radiated Emission Test | | | | | | |
| Item | Test Equipment | Manufacturer | Model No. | Serial No. | Cal. Date | Due date |
| 1 | 3m Semi- Anechoic Chamber | ETS | N/A | N/A | 06-11-2005 | 05-11-2006 |
| 2 | EMI Test Receiver | ROHDE & SCHWARZ | ESI 26 | 100009 | 06-11-2005 | 05-11-2006 |
| 3 | EMI Test Receiver | ROHDE & SCHWARZ | ESCS30 | 100038 | 06-11-2005 | 05-11-2006 |
| 4 | EMI Test Software | ROHDE & SCHWARZ | ES-K1 | N/A | N/A | N/A |
| 5 | Bilog Type Antenna | ETS | 2075 | 2346 | 06-11-2005 | 05-11-2006 |
| 6 | Horn Antenna | ROHDE & SCHWARZ | HF906 | 1000029 | 06-11-2005 | 05-11-2006 |
| 7 | Ultra-Broadband Antenna | ROHDE & SCHWARZ | HL562 | 100015 | 06-11-2005 | 05-11-2006 |
| Common Used Equipment | | | | | | |
| Item | Test Equipment | Manufacturer | Model No. | Series No. | Cal. Date | Due date |
| 1 | Temperature, Humidity & Barometer | OREGON SCIENTIFIC | BA-888 | 20001 to20004 | 25-07-2005 | 25-07-2006 |
| 2 | DMM | FLUKE | 73 | 70681567 or 70671126 | 23-07-2005 | 23-07-2006 |

6 Conducted Emission Test

| | |
|-------------------|--|
| Product: | R/C AIR PLANE |
| Test Requirement: | FCC Part15 Paragraph 15.207 |
| Test Method: | Based on FCC Part15 Paragraph 15.207 |
| Test Date: | |
| Frequency Range: | 150kHz to 30MHz |
| Class: | Class B |
| Detector: | Peak for pre-scan (9kHz Resolution Bandwidth) Quasi-Peak & Average if maximised peak within 6dB of Average Limit |

6.1 Test Equipment

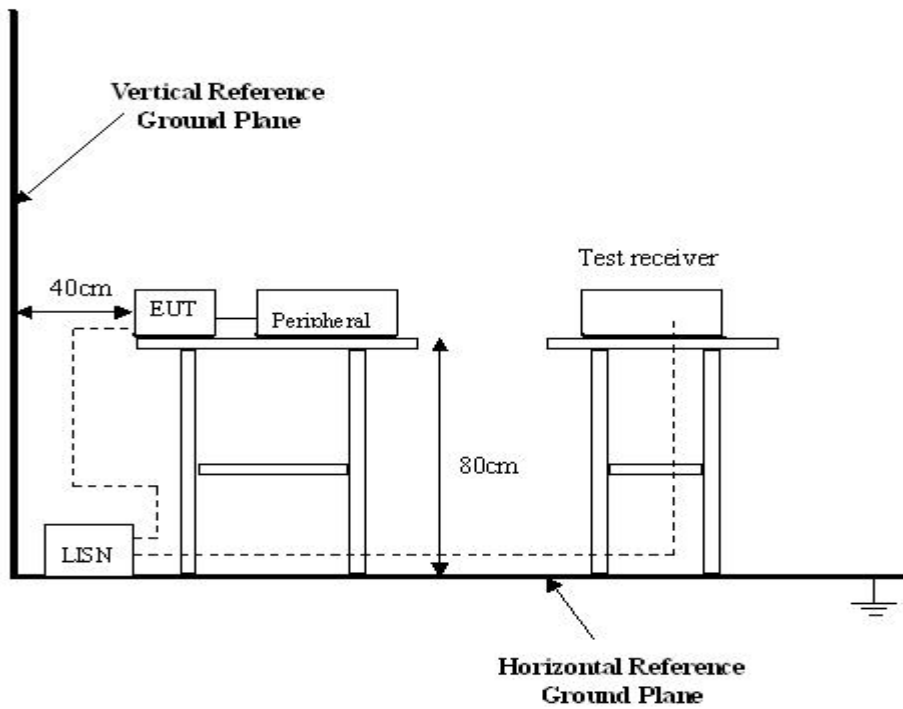
Please refer to Section 5 this report.

6.2 Test Procedure

1. The EUT was tested according to ANSI C63.4:2003. The frequency spectrum from 150kHz to 30MHz was investigated.
2. The maximised peak emissions from the EUT was scanned and measured for both the Live and Neutral Lines. Quasi-peak & average measurements were performed if peak emissions were within 6dB of the average limit line.

6.3 Conducted Test Setup

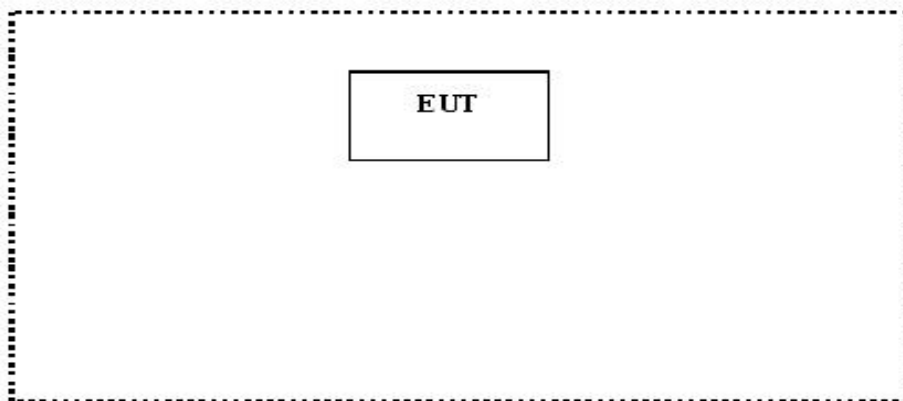
The conducted emission tests were performed using the setup accordance with the ANSI C63.4:2003, The specification used in this report was the FCC Part15 Paragraph 15.207 limits.



6.4 EUT Operating Condition

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

- A. Setup the EUT and simulators as shown on follow.
- B. Enable RF signal and confirm EUT active.
- C. Modulate output capacity of EUT up to specification.



6.5 Conducted Emission Limits

66-56 dB μ V/m between 0.15MHz & 0.5MHz

56 dB μ V/m between 0.5MHz & 5MHz

60 dB μ V/m between 5MHz & 30MHz

Note: In the above limits, the tighter limit applies at the band edges.

6.6 Conducted Emission Test Result

Owing to the DC operation of EUT, this test is not performed.

7 Radiation Emission Test

| | |
|-----------------------|---|
| Product: | R/C AIR PLANE |
| Test Requirement: | FCC Part15 Paragraph 15.209, Paragraph 15.227 |
| Test Method: | Based on FCC Part15 Paragraph 15.33 |
| Test Date: | January 11,2006 |
| Frequency Range: | 25MHz to 1GHz |
| Measurement Distance: | 3m |
| Detector: | Peak for pre-scan (120kHz resolution bandwidth) Quasi-Peak if maximised peak within 6dB of limit |

7.1 Test Equipment

Please refer to Section 5 this report.

7.2 Measurement Uncertainty

All measurements involve certain levels of uncertainties, especially in the field of EMC. The factors contributing to uncertainties are spectrum analyzer, cable loss, antenna factor calibration, antenna directivity, antenna factor variation with height, antenna phase center variation, antenna factor frequency interpolation, measurement distance variation, site imperfections, mismatch (average), and system repeatability.

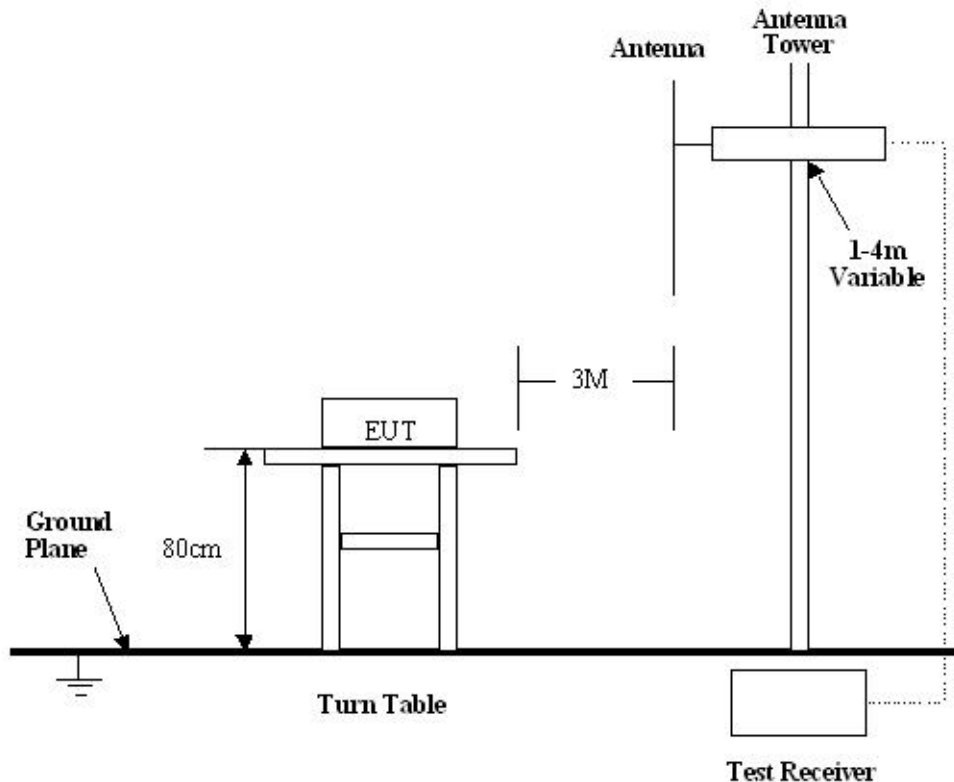
Based on ANSI C63.4:2003, The Treatment of Uncertainty in EMC Measurements, the best estimate of the uncertainty of a radiation emissions measurement at SZHTW is +4.0 dB.

7.3 Test Procedure

1. For the radiated emissions test, since the EUT does not have a power source, there was no connection to AC outlets.
2. Maximizing procedure was performed on the six (6) highest emissions to ensure EUT is compliant with all installation combinations.
3. 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 μ V of specification limits), and are distinguished with a "Qp" in the data table.
4. The EUT was under normal mode during the final qualification test and the configuration was used to represent the worst case results.

7.4 Radiated Test Setup

The radiated emission tests were performed in the 3m Semi- Anechoic Chamber test site, using the setup accordance with the ANSI C63.4:2003, The specification used in this report was the FCC Part15 Paragraph 15.209, Paragraph 15.227 limits.



7.5 Spectrum Analyzer Setup

According to FCC Part15 Paragraph 15.209, Paragraph 15.227 Rules, the system was tested to 1000 MHz.

- Start Frequency25 MHz
- Stop Frequency1000 MHz
- Sweep Speed Auto
- IF Bandwidth100 kHz
- Video Bandwidth1 MHz
- Quasi-Peak Adapter Bandwidth120 kHz
- Quasi-Peak Adapter Mode.....Normal
- Resolution Bandwidth1MHz

7.6 Corrected Amplitude & Margin Calculation

The Corrected Amplitude is calculated by adding the Antenna Factor and Cable Factor, and subtracting the Amplifier Gain from the Amplitude reading. The basic equation is as follows:

$$\text{Corr. Ampl.} = \text{Indicated Reading} + \text{Antenna Factor} + \text{Cable Factor} - \text{Amplifier Gain}$$

The “**Margin**” column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of -7dB μ V means the emission is 7dB μ V below the maximum limit for Class B. The equation for margin calculation is as follows:

$$\text{Margin} = \text{Corr. Ampl.} - \text{Class B Limit}$$

7.7 Summary of Test Results

According to the data in section 7.10, the EUT complied with the FCC Part15 Paragraph 15.209 and Paragraph 15.227 standards.

7.8 EUT Operating Condition

Same as section 6.4 of this report.

7.9 Radiated Emissions Limit**A. FCC Part 15 subpart C Paragraph 15.227 Limit**

| Fundamental Frequency(MHZ) | Field Strength of Fundamental |
|-------------------------------|-------------------------------|
| | dBuV/m |
| 27.145 | 100 |

Note:(1) Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the device or system.

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

| Frequency(MHZ) | Distance(m) | Field strength(dBuV/m) |
|----------------|-------------|------------------------|
| 30-88 | 3 | 40.0 |
| 88-216 | 3 | 43.5 |
| 216-960 | 3 | 46.0 |
| Above 960 | 3 | 54.0 |

- Note:** (1) $RF\ Voltage(dBuV) = 20 \log RF\ Voltage(uV)$
(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.

B. General Radiated Emission Data

Test Item: General Radiated Emission Data
 Test Voltage: 9.0VDC Battery
 Test Mode: TX On
 Temperature: 24 °C
 Humidity: 52%RH
 Test Result: PASS

| Frequency (MHz) | Antenna Polarization | Emission Level (dBuV/m) | FCC 15 Subpart C Limit (dBuV/m) | Margin (dB) | Antenna Height (m) | Turntable Angle (°) |
|-----------------|----------------------|-------------------------|---------------------------------|-------------|--------------------|-----------------------|
| 54.290 | Horizontal | 18.7 | 40.0 | 21.3 | 1.5 | 142 |
| 81.445 | Horizontal | 16.5 | 40.0 | 23.5 | 1.8 | 30 |
| 108.580 | Horizontal | 19.4 | 43.5 | 24.1 | 1.8 | 60 |
| 515.755 | Horizontal | 25.0 | 46.0 | 21.0 | 1.5 | 124 |
| 950.075 | Horizontal | 31.2 | 46.0 | 14.8 | 1.5 | 357 |
| 54.290 | Vertical | 35.0 | 40.0 | 5.0 | 1.5 | 60 |
| 81.445 | Vertical | 31.2 | 40.0 | 8.8 | 1.5 | 45 |
| 108.580 | Vertical | 16.2 | 43.5 | 27.3 | 1.5 | 209 |
| 515.755 | Vertical | 25.9 | 46.0 | 20.1 | 1.8 | 45 |
| 950.075 | Vertical | 30.4 | 46.0 | 15.6 | 1.8 | 175 |

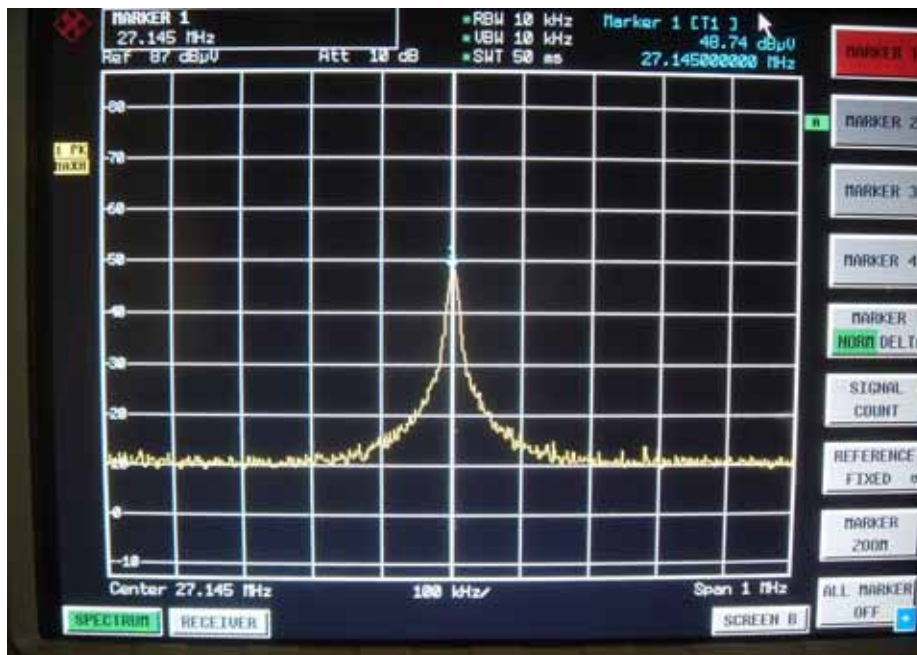
8 Occupied Bandwidth

| | |
|-------------------|--|
| Test Requirement: | FCC Part15 C |
| Test Method: | Based on FCC Part15 Paragraph 15.227 Operation within the band 26.65-27.65MHz |
| Test Date: | January 11,2006 |
| Test mode: | TX On |
| Temperature: | 24 °C |
| Humidity: | 52%RH |

8.1 Test Procedure

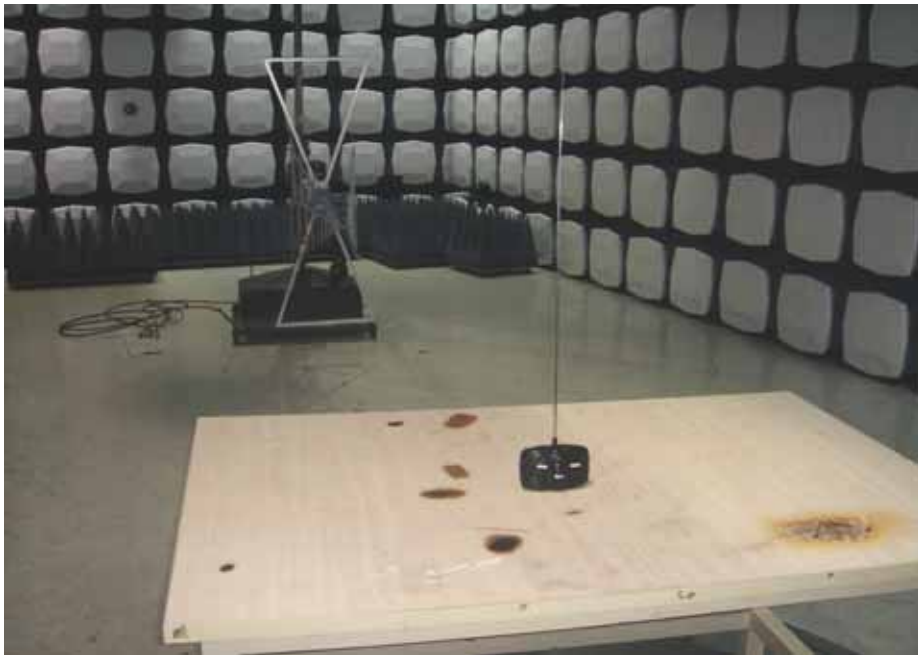
1. The field strength of any emissions which appear outside of the band shall not exceed the general radiated emission limits in section 15.209.
2. The useful radiated emission from the EUT was detected by the spectrum analyser with peak detector.

The graph as below.



9 Photographs of Testing

9.1 Radiation Emission Test View



10 Photographs - Constructional Details

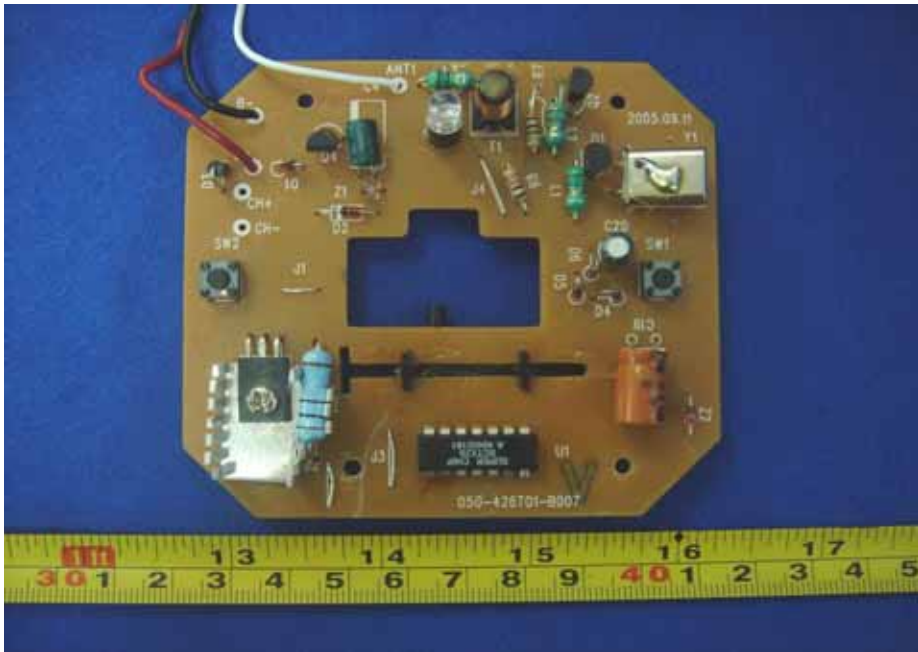
10.1 EUT - Front View



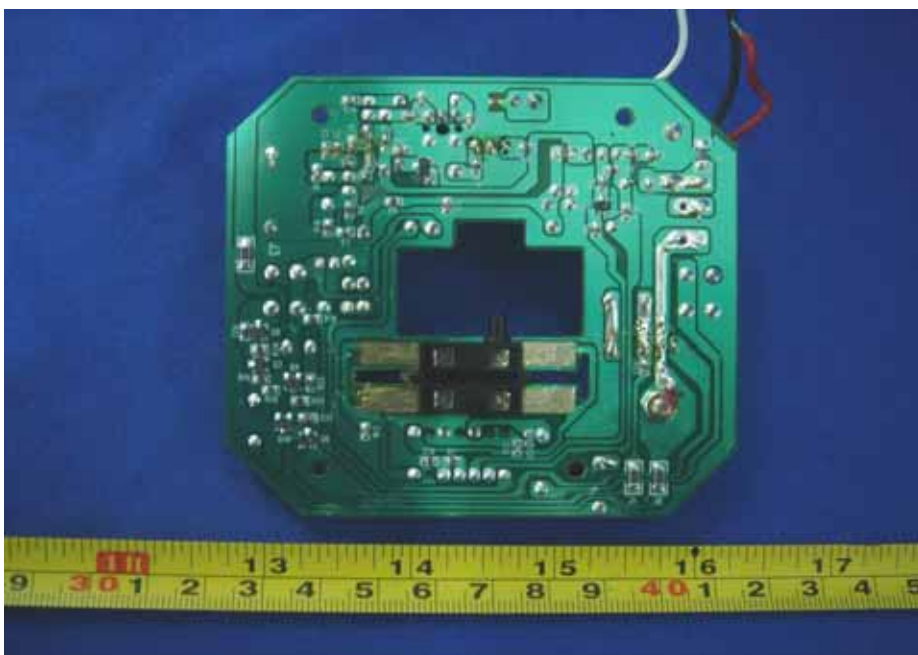
10.2 EUT - Back View



10.3 PCB - Front View



10.4 PCB - Back View



11 FCC ID Label

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. 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.

Proposed Label Location on EUT
EUT Bottom View/proposed FCC Mark Location

