

FCC TEST REPORT

FCC ID : VL3ITEM11000

Applicant : **Aviva Sports Inc.**
4059 State Road A Montreal, MO 65591

Equipment Under Test (EUT) :

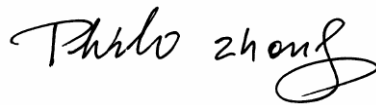
Product description : Fishin Buddy

Model No. : Item#11000

Standards : FCC 15 Subpart C Paragraph 15.227

Date of Test : Sep.10, 2007

Test Engineer : Tiger Su

Reviewed By : 

PERPARED BY:

Waltek Services (Shenzhen) Co., Ltd.

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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:	Aviva Sports Inc.
Address of Applicant:	4059 State Road A Montreal, MO 65591
Manufacturer:	Union Power Information Ind. Co., Ltd.
Address:	No. 70 Chang Jiang Fu Road, He Au Village, Heng Gang Town, Shenzhen City, Guang Dong Province, P.R.C

4.2 General Description of E.U.T.

Product description:	Fishin Buddy
Model No.:	Item#11000

4.3 Details of E.U.T.

Power Supply:	TX: DC 9V Battery
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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 Fishin Buddy. The standards used were FCC 15 Paragraph 15.227, Paragraph 15.205, Paragraph 15.209, 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:

- **IC – Registration No.: IC6002**
SGS-CSTC Standards Technical Services Co., Ltd ShenZhen Branch EMC Lab, EMC Laboratory has been registered and fully described in a report filed with the Industry Canada. The acceptance letter from the Industry Canada is maintained in our files. Registration IC6002
- **FCC – Registration No.: 556682**
SGS-CSTC Standards Technical Services Co., Ltd. ShenZhen Branch EMC Lab, 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 556682, August 04, 2005.

4.7 Test Location

All Emissions tests were performed at:-

No.1 Workshop, M-10, Middle Section, Science & Technology Park, ShenZhen, China 518057

5 Equipment Used during Test

Equipment	Brand Name	Model	Cal. Int Months	Last Cal. Date
3m Anechoic chamber				
EMC Analyzer	Agilent	E7402A	12	2007-08
EMI Test Receiver	R&S	ESS	12	2007-08
Pre Amplifier	Anritsu	MH648A	12	2007-08
Bilog Antenna	SCHAFFNER	CBL6111C	12	2007-08
Loop Antenna	EVERFINE	FA#SZX070606E029	12	2007-08
AM/FM Stereo Signal Generator	Panasonic	VP-8122A	12	2007-08
Signal Generator	R&S	SMG	12	2007-08
RF Selector	TOYO	NS4901A	-	-
Turn Disc	HD	DS4150S	-	-
Antenna Mast	HD	MA2400	-	-
EMI Shielded Room				
Spectrum analyzer	ADVANTEST	R3261C	12	2007-08
EMI Test Receiver	R&S	ESS	12	2007-08
Pre Amplifier	Anritsu	MH648A	12	2007-08
LISN	Kyoritsu	KNW-403D	12	2007-08
Absorbing Clamp	R&S	MDS-21	12	2007-08
Distortion Meter	MEGURO	MAK-6578A	12	2007-08
AM/FM Stereo Signal Generator	Panasonic	VP-8122A	12	2007-08
Oscilloscope	LEADER	LS1020	12	2007-08
Function Generator	National	VP-7422A	12	2007-08
Signal Generator	R&S	SMG	12	2007-08
RF Selector	TOYO	NS4000	-	-
Remote Controller	TOYO	MAC	-	-

6 **Conducted Emission Test**

Product Name:	Fishin Buddy
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**

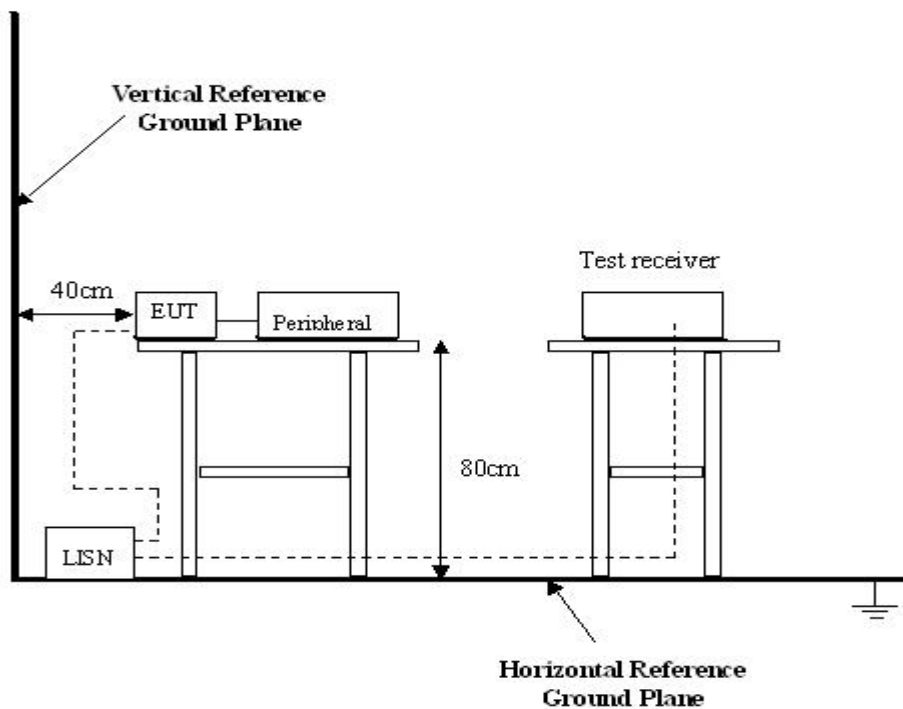
Please refer to Section 5 this report.

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

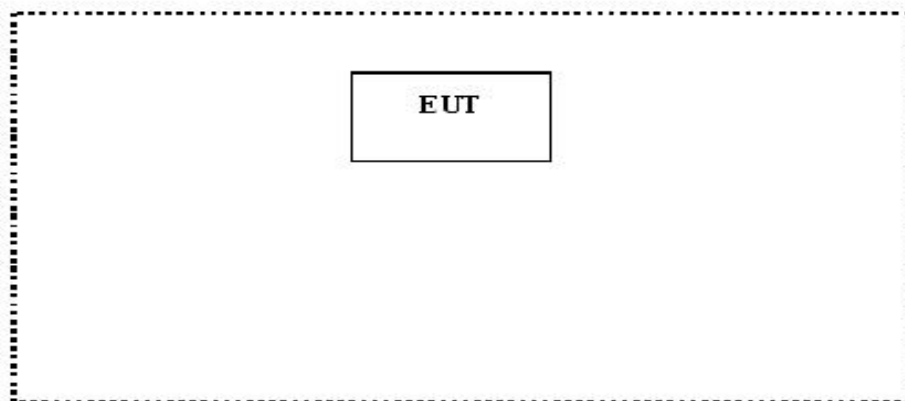
The conducted emission tests were performed using the setup accordance with the ANSI C63.4:2003, The specification used in this report was the FCC Part15 Paragraph 15.207 limits.



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 Name:	Fishin Buddy
Test Requirement:	FCC Part15 Paragraph 15.227
Test Method:	Based on FCC Part15 Paragraph 15.33
Test Date:	Sep.10, 2007
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 SGS EMC Lab is +4.0 dB.

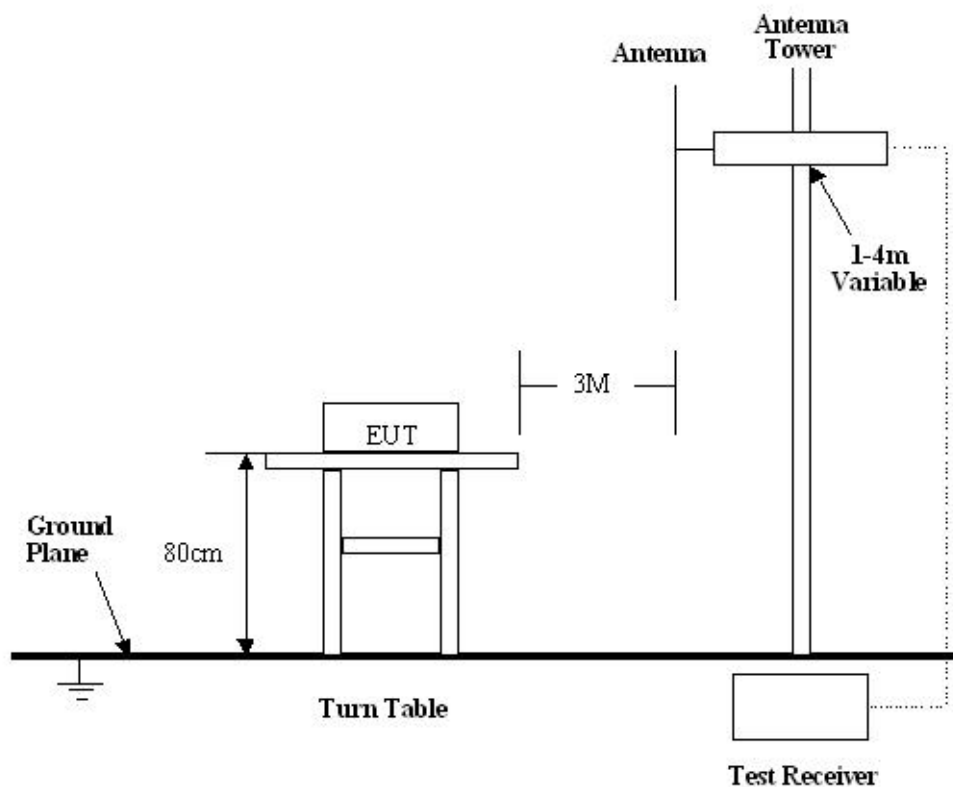
7.3 Test Procedure

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.

5. For below 30MHz, a loop antenna with its vertical plane is placed 3m from the EUT and rotated about its vertical axis for maximum response at each azimuth about the EUT. And the centre of the loop shall be 1m above the ground.
6. 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 coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section. This product has a permanent antenna fulfil the requirement of this section.
7. The device was rotated through three orthogonal axes to determine which attitude and configuration produce the highest emission during measurement.

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 15.227 Rules, the system was tested to 1000 MHz.

Start Frequency	25 MHz
Stop Frequency	1000 MHz
Sweep Speed	Auto
IF Bandwidth	100 kHz
Video Bandwidth	1 MHz
Quasi-Peak Adapter Bandwidth	120 kHz
Quasi-Peak Adapter Mode.....	Normal
Resolution Bandwidth	1MHz

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 -7dBμV means the emission is 7dBμV 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 15.227 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	80

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.

7.10 Radiated Emissions Test Result

Formula of conversion factors:the field strength at 3m was egtablished by adding
The meter reading of the spectrum analyer (which is set to read in units of dBuV)
To the antenna correction factor supplied by the antenna manufacturer. The antenna
Correction factors are stared in terms of dB.The gain of the pressletor was accounted
For in the spectrum analyser meter reading.

Example:

Freq(MHz) Meter Reading +ACF=FS
33 20dBuV+10.36dB=30.36dBuV/m @3m

7.11 Radiated Emission Test Data

Test Item:	Radiated Emission Test Data
Test Voltage:	9 VDC 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 (°)
27.145	Vertical	60.5	80.0	19.5	1.0	45
27.145	Horizontal	58.8	80.0	21.2	1.5	60
54.290	Horizontal	17.6	40.0	22.4	2	180
81.435	Horizontal	18.5	40.0	21.5	1.8	90
108.580	Horizontal	21.4	43.5	22.1	1.5	180
135.725	Horizontal	25.2	43.5	18.3	1.2	90
162.870	Horizontal	31.0	43.5	12.5	1.5	60
190.015	Horizontal	24.7	43.5	18.8	1.8	120
217.160	Horizontal	19.7	46.0	26.3	1.2	120
244.305	Horizontal	25.5	46.0	20.5	2.0	45
271.450	Horizontal	26.1	46.0	19.9	1.5	90
298.595	Horizontal	26.7	46.0	19.3	1.2	180
54.290	Vertical	19.1	40.0	20.9	1.5	120
81.435	Vertical	19.7	40.0	20.3	1.8	60
108.580	Vertical	22.4	43.5	21.1	1.5	180
135.725	Vertical	26.7	43.5	16.8	1.5	120
162.870	Vertical	32.6	43.5	10.9	2.0	180
190.015	Vertical	26.5	43.5	17.0	1.0	60
217.160	Vertical	22.1	46.0	23.9	1.5	120
244.305	Vertical	27.3	46.0	18.7	1.8	120
271.450	Vertical	28.0	46.0	18.0	1.5	120
298.595	Vertical	28.7	46.0	17.3	1.5	180

8 Occupied Bandwidth

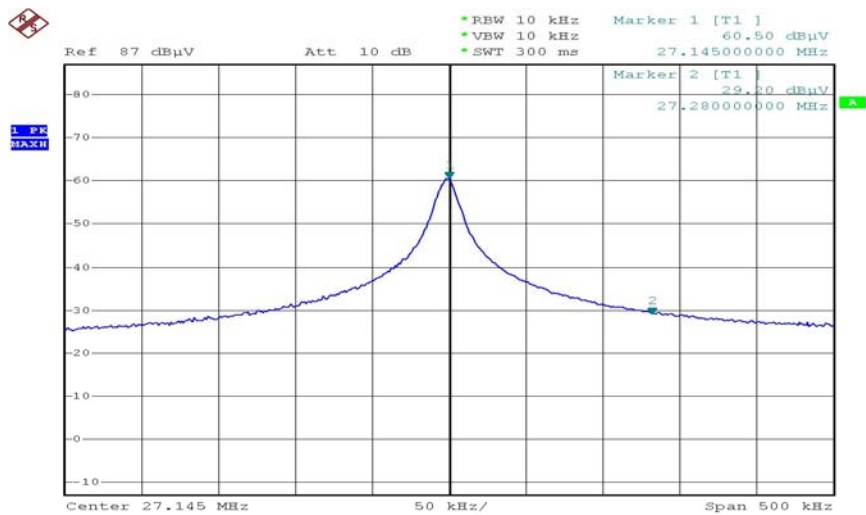
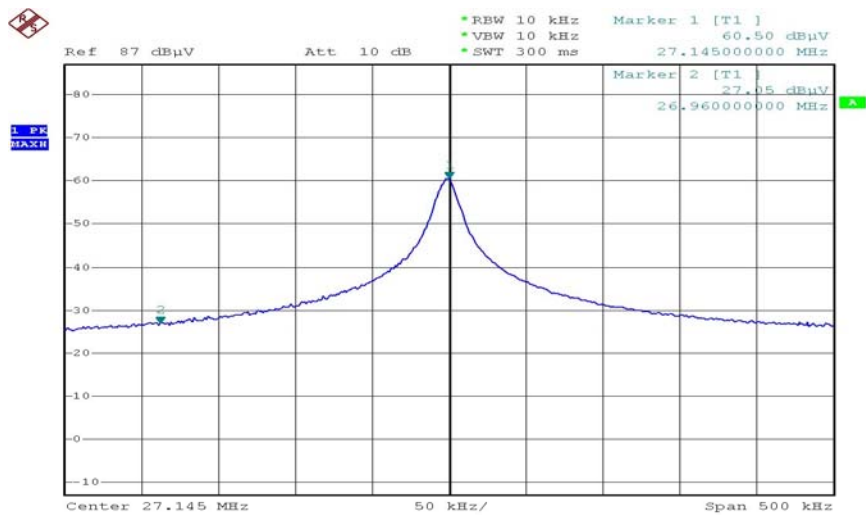
Rules of test : FCC Part15.227
Test Date: Sep.10, 2007
Test mode: TX On
Temperature: 24 °C
Humidity: 52%RH

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.
3. The result has been complied with the 15.227 (b), see the following plot:

Frequency MHz	Emission dBuV/m	Limit dBuV/m
26.96	27.05	40
27.28	29.20	40

The graph as below.



9 Photographs of Testing

9.1 Radiation Emission Test View

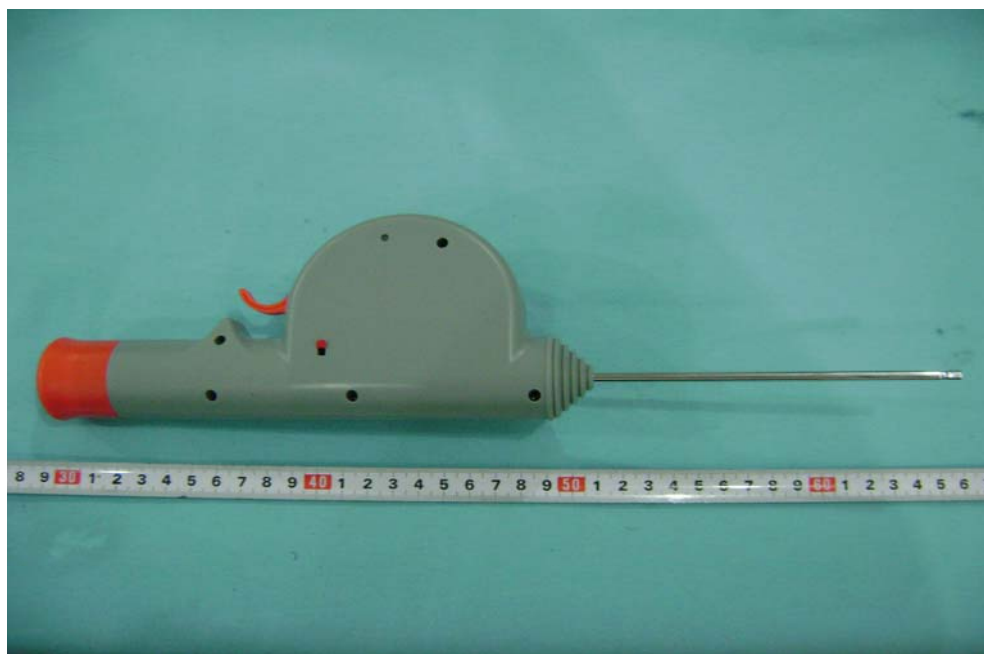


10 Photographs - Constructional Details

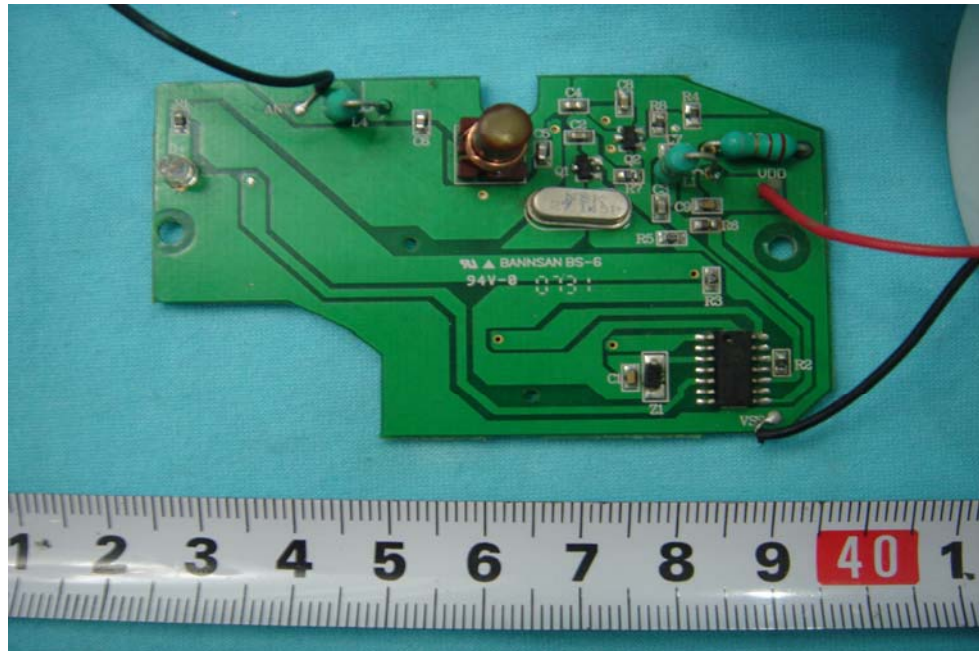
10.1 EUT - Front View



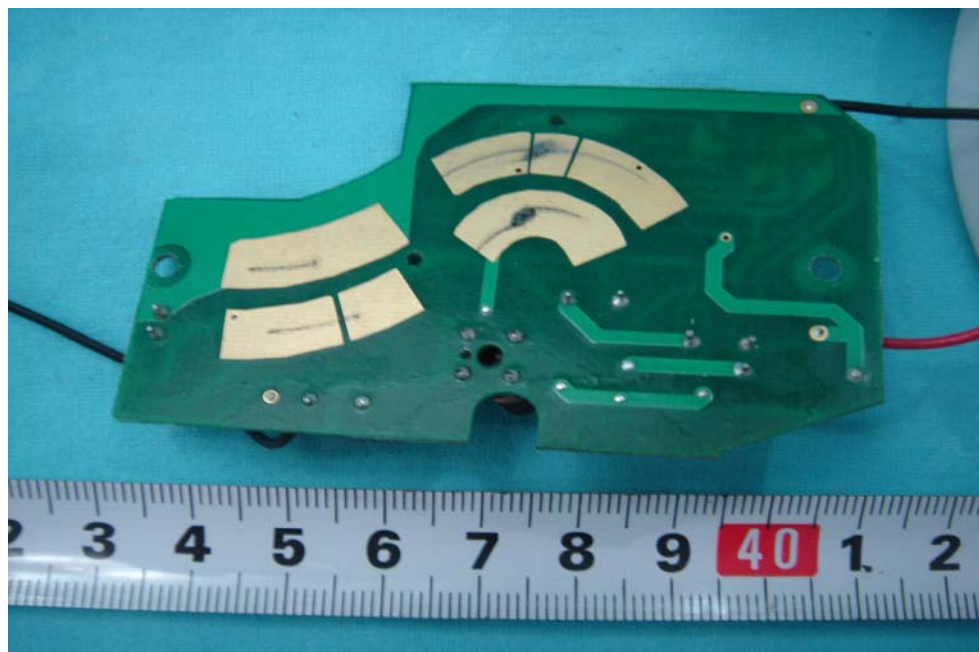
10.2 EUT - Back View



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

