

**ELECTROMAGNETIC EMISSIONS COMPLIANCE REPORT  
INTENTIONAL RADIATOR CERTIFICATION TO  
FCC PART 15 SUBPART C REQUIREMENT**

*OF*

**BEAUTY SPEAKER**

**MODEL No.: BT118**

**BRAND NAME:**



**FCC ID: VAD-BT118**

**REPORT NO: E0704082F**

**ISSUE DATE: May 10, 2007**

*Prepared for*

**SHENZHEN BAOAN FENDA INDUSTRIAL CO., LTD.  
Fenda Hi-Tech Industrial Zone, Sanwei, Xixiang, Bao'An District, Shenzhen,  
GuangDong, China**

*Prepared by*



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## VERIFICATION OF COMPLIANCE

Applicant:	SHENZHEN BAOAN FENDA INDUSTRIAL CO., LTD. Fenda Hi-Tech Industrial Zone, Sanwei, Xixiang, Bao'An District, Shenzhen, Guangdong, China
Product Description:	BEAUTY SPEAKER
Brand Name:	 
Model Number:	BT118
File Number:	E0704082F
Date of Test:	April 20, 2007 to May 09, 2007

### We hereby certify that:

The above equipment was tested by SHENZHEN EMTEK CO., LTD. The test data, data evaluation, test procedures, and equipment configurations shown in this report were made in accordance with the procedures given in ANSI C63.4 (2003) and the energy emitted by the sample EUT tested as described in this report is in compliance with conducted and radiated emission limits of FCC Rules Part 15.249.

The test results of this report relate only to the tested sample identified in this report.

*Approved By*



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**David Lee / Q.A. Manager**  
**SHENZHEN EMTEK CO., LTD.**

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## **1. GENERAL INFORMATION**

### **1.1 Product Description**

The SHENZHEN BAOAN FENDA INDUSTRIAL CO., LTD. Model: BT118 (referred to as the EUT in this report) The EUT is an short range, lower power, BEAUTY SPEAKER designed as an " Input Device. It is designed by way of utilizing the FM modulation achieves the system operating.

A major technical descriptions of EUT is described as following:

- A). Operation Frequency: 925.8MHz, 926.6MHz, 927.4MHz
- B). Modulation: FM
- C). Number of Channel: 3
- D). Antenna Designation: Internal
- E). Duty cycle: 50%
- F). Power Supply: DC12V/0.5A with Adapter

### **1.2 Related Submittal(s) / Grant (s)**

This submittal(s) (test report) is intended for FCC ID: VAD-BT118 filing to comply with Section 15.249 of the FCC Part 15, Subpart C Rules, The composite system (receiver) is compliance with Subpart B is authorized under a DoC procedure.

### **1.3 Test Methodology**

Both conducted and radiated testing were performed according to the procedures in ANSI C63.4 (2003). Radiated testing was performed at an antenna to EUT distance 3 meters. The customer requested FCC tests for a BEAUTY SPEAKER for iPod Player

### **1.4 Special Accessories**

Not available for this EUT intended for grant.

### **1.5 Equipment Modifications**

Not available for this EUT intended for grant.

## 1.6 Test Facility

### Site Description

#### EMC Lab.

: Accredited by CNAL, 2005.11.02  
The certificate is valid until 2010.11  
The Laboratory has been assessed and proved to be in compliance  
with CNAL/AC01:2003(identical to ISO/IEC17025:1999)  
The Certificate Registration Number is L2291

Accredited by TUV Rheinland Guangzhou, 2005.1  
The certificate is valid until 2008.2  
The Laboratory has been assessed according to the requirements  
ISO/IEC 17025:1999

Accredited by FCC, July 07, 2005  
The Certificate Registration Number is 709623.

Accredited by Industry Canada, August 30, 2005  
The Certificate Registration Number is 46405-4480

#### Name of Firm

: SHENZHEN EMTEK CO., LTD

#### Site Location

: Bldg 69, Majialong Industry Zone,  
Nanshan District, Shenzhen, Guangdong, China

## 2. System Test Configuration

### 2.1 EUT Configuration

The EUT configuration for testing is installed on RF field strength measurement to meet the Commissions requirement and operating in a manner which intends to maximize its emission characteristics in a continuous normal application.

### 2.2 EUT Exercise

The Transmitter was operated in the normal operating mode. the Tx frequency was fixed which was for the purpose of the measurements.

### 2.3 Test Procedure

#### 2.3.1 Conducted Emissions (Not apply in the report)

The EUT is a placed on as turn table which is 0.8 m above ground plane. According to the requirements in Section 13.1.4.1 of ANSI C63.4-2003. Conducted emissions from the EUT measured in the **frequency range between 0.15 MHz and 30MHz** using **CISPR Quasi-Peak and average detector mode**.

#### 2.3.2 Radiated Emissions

The EUT is a placed on as turn table which is 0.8 m above ground plane. The turn table shall rotate 360 degrees to determine the position of maximum emission level. EUT is set 3m away from the receiving antenna which varied from 1m to 4m to find out the highest emission. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical. In order to find out the max. emission, the relative positions of this hand-held transmitter(EUT) was rotated through three orthogonal axes according to the requirements in Section 13.1.4.1 of ANSI C63.4-2003.

### 2.4 Limitation

#### (1) Conducted Emission (Not apply in the report)

Frequency(MHz)	Quasi-peak	Average
0.15-0.5	66-56	56-46
0.5-5.0	56	46
5.0-30.0	60	50

**Note:**

1. The lower limit shall apply at the transition frequencies
2. The limit decreases in line with the logarithm of the frequency in the range of 0.15 to 0.50MHz.

## (2) Radiated Emissions

### FCC Rule: 15.249(d)(e)

FCC Part 15, Subpart C Section 15.209 limit of radiated emission for frequency below 1000GHz. The emissions from an intentional radiator shall not exceed the field strength level specified in the following table:

Frequency (MHz)	Field strength $\mu\text{V/m}$	Distance(m)	Field strength at 3m $\text{dB}\mu\text{V/m}$
30-88	100	3	40
88-216	150	3	43.5
216-960	200	3	46
Above 960	500	3	54

- Remark: 1. Emission level in  $\text{dB}\mu\text{V/m} = 20 \log (\mu\text{V/m})$   
 2. Measurement was performed at an antenna to the closed point of EUT distance of meters.

### FCC Part 15, Section 15.35(b) limit of radiated emission for frequency above 1000MHz

Frequency(MHz)	Class A( $\text{dB}\mu\text{V/m}$ )(at 3m)		Class B( $\text{dB}\mu\text{V/m}$ )(at 3m)	
	PEAK	AVERAGE	PEAK	AVERAGE
Above 1000	80.0	60.0	74.0	54.0

### Peak Output Power(Transmitter)

FCC Part 15, Subpart C Section 15.249. The field strength of emissions from intentional radiators operated within these frequency bands shall comply with the following:

Frequency(MHz)	Filed Strength of Fundamental(at 3m)		Filed Strength of Harmonics(at 3m)	
	PEAK	AVERAGE	PEAK	AVERAGE
902-928	114	94	74.0	54.0
2400-2483.5	114	94	74.0	54.0
5725-5875	114	94	74.0	54.0
24000-24250	128	108	88.0	68.0

**(3) Band edge**

Emission radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50dB below the level of the fundamental or to the general radiated emission limits in section 15.209, whichever is the lesser attenuation.

<b>Frequency Range(MHz)</b>	<b>Limit(dBuV/m)</b>	
	<b>Peak</b>	<b>AV</b>
902-928		
2400-2483.5	74	54
5725-5850		
24000-24250		



## 2.5 Configuration of Tested System

**Fig. 2-1 Configuration of Tested System**

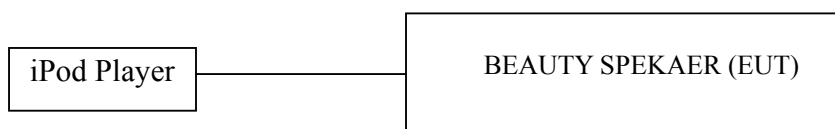


Table 2-1 Equipment Used in Tested System

Item	Equipment	Mfr/Brand	Model/Type No.	FCC ID	Series No.	Note
1.	BEAUTY SPEAKER	FENDA	BT118	VAD-BT118	N/A	<b>EUT</b>
2.	iPod Player	ipod	M512	N/A	N/A	

**Note:**

- (1) Unless otherwise denoted as EUT in 『Remark』 column , device(s) used in tested system is a support equipment.

### 3. Summary Of Test Results

FCC Rules	Description Of Test	Result
§ 15.249(d)	Band edge test	Compliant
§ 15.207	Conducted Emission	Compliant
§ 15.249(e), (b), § 15.209	Radiated Emission	Compliant
§ 15.203	Antenna Requirement	Compliant

### 4. Description of test modes

The EUT (BEAUTY SPEAKER) has been tested under normal operating condition.

Three channels of EUT (the lowest channel, the middle channel and the highest channel) have been chosen for testing under Normal Operating condition. In this report, all the measured datum of the three channels have been reported. No software used to control the EUT for staying in continuous transmitting mode for testing.

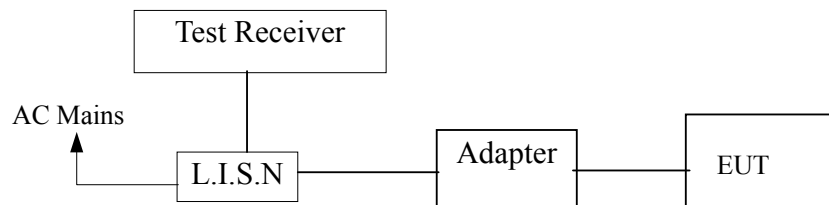
Channel	Frequency(MHz)
1	925.8MHz
2	926.6MHz
3	927.4MHz

## 5. Conducted Emissions Test

### 5.1 Measurement Procedure:

1. The EUT was placed on a table which is 0.8m above ground plane.
2. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
3. Repeat above procedures until all frequency measured were complete.

### 5.2 Test SET-UP (Block Diagram of Configuration)



### 5.3 Measurement Equipment Used:

Conducted Emission Test Site # 4					
EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.
Test Receiver	Rohde & Schwarz	ESCS30	828985/018	05/29/2006	05/29/2007
L.I.S.N	Rohde & Schwarz	ESH2-Z5	834549/005	05/29/2006	05/29/2007
L.I.S.N	Rohde & Schwarz	ESH2-Z5	834549/005	05/29/2006	05/29/2007
50ΩCoaxial Switch	Anritsu	MP59B	M20531	005/29/2006	05/29/2007

#### 5.4 Measurement Result:

Date of Test:	<u>April 26, 2007</u>	Temperature:	<u>22°C</u>
Frequency Detector:	<u>0.15~30MHz</u>	Humidity:	<u>50%</u>
Test Result:	<u>PASS</u>	Test Mode:	<u>Transmitting</u>

Test Line	Frequency MHz	Emission Level QP dB(μV)	Emission Level AV dB(μV)	Limits QP dB(μV)	Limits AV dB(μV)	Margin QP dB(μV)	Margin AV dB(μV)
Neutral	0.460	45.20	34.00	56.09	46.09	-10.89	-12.09
	3.080	41.10	33.10	56.00	46.00	-14.90	-12.90
	18.025	38.80	29.10	60.00	50.00	-21.20	-20.90
Line	0.440	51.30	36.80	57.06	47.06	-5.76	-10.26
	3.150	47.20	37.30	56.00	46.00	-8.80	-8.70
	18.075	45.70	34.80	60.00	50.00	-14.30	-15.20

### 5.5 Conducted Measurement Photos:



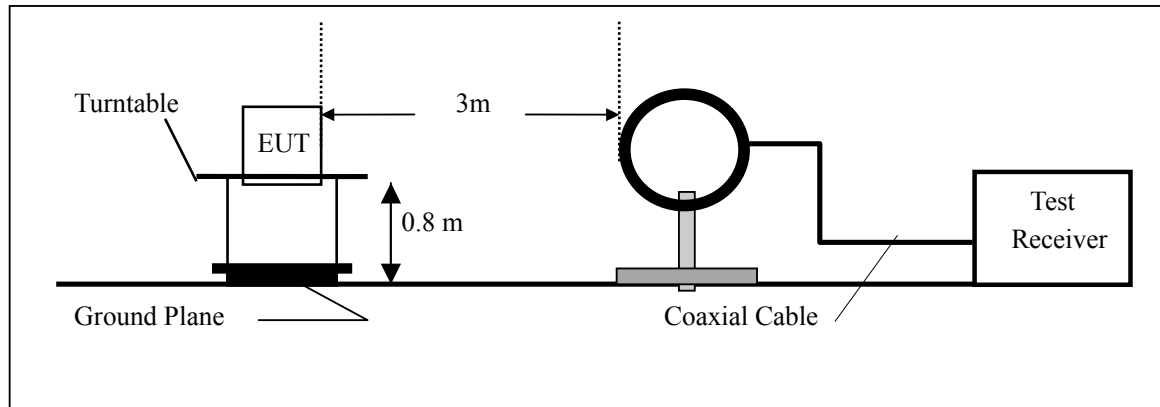
## **6. Radiated Emission Test**

### **6.1 Measurement Procedure**

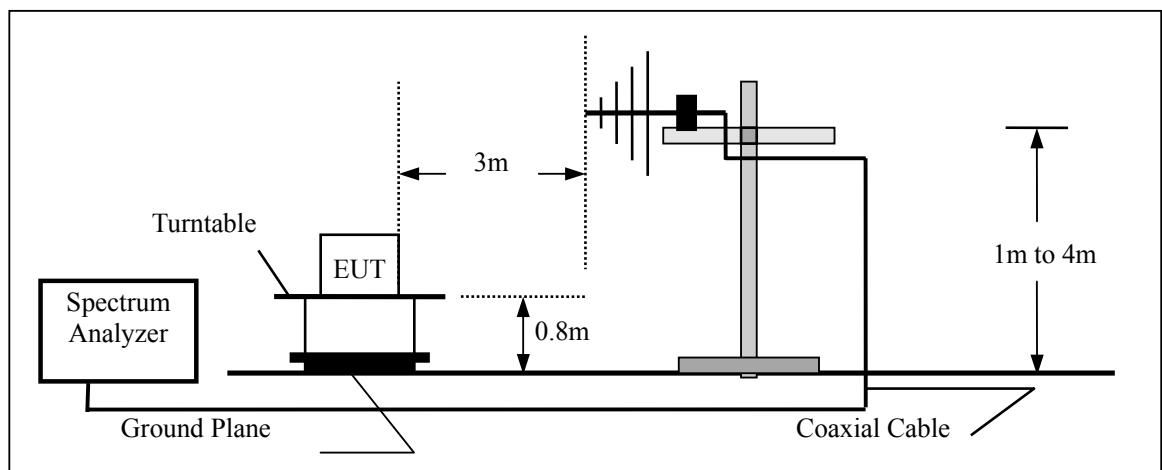
- 1 The EUT was placed on a turn table which is 0.8m above ground plane.
2. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
3. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
4. Repeat above procedures until all frequency measured were complete.

## 6.2 Test SET-UP (Block Diagram of Configuration)

### (A) Radiated Emission Test Set-Up, Frequency Below 30MHz



### (B) Radiated Emission Test Set-Up, Frequency Below 1000MHz



### 6.3 Measurement Equipment Used:

EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.
Spectrum Analyzer	Rohde & Schwarz	FSP7	839511/010	05/29/2006	05/29/2007
EMI Test Receiver	Rohde & Schwarz	ESCS30	828985/018	05/29/2006	05/29/2007
Pre-Amplifier	HP	8447D	2944A07999	05/29/2006	05/29/2007
Bilog Antenna	Schwarzbeck	VULB9163	142	05/29/2006	05/29/2007
Loop Antenna	ARA	PLA-1030/B	1029	05/29/2006	05/29/2007

### 6.4 Out of Band Radiated Measurement Result

Operation Mode: TX Mode                      Test Date : April 27, 2007  
Frequency Range: 30~1000MHz              Temperature : 28 °C  
Test Result: PASS                              Humidity : 65 %  
Measured Distance: 3m                      Test By: Andy

Freq. (MHz)	Ant.Pol. H/V	Emission Level (dBuV)	Limit 3m (dBuV/m)	Margin (dB)	Note
31.900	V	34.41	40.00	-5.59	PK
53.125	V	36.84	40.00	-3.16	PK
84.600	V	35.80	40.00	-4.20	PK
128.070	V	39.79	43.50	-3.71	PK
32.850	H	28.90	40.00	-11.10	PK
55.810	H	26.10	40.00	-13.90	PK
85.120	H	30.10	40.00	-9.90	PK
130.15	H	29.40	43.50	-14.10	PK

**Note:** (1) All Readings are Peak Value.  
(2) Emission Level= Reading Level+Probe Factor +Cable Loss  
(3) The average measurement was not performed when the peak measured data under the limit of average detection.



Operation Mode:	TX(925.8MHz)	Test Date :	April 27, 2007
Frequency Range:	1-10GHz	Temperature :	28 °C
Test Result:	PASS	Humidity :	65 %
Measured Distance:	3m	Test By:	Andy

Freq. (GHz)	Ant.Pol. H/V	Emission Level(dBuV)		Limit 3m(dBuV/m)		Margin(dB)	
		PK	AV	PK	AV	PK	AV
925.80(F)	V	87.45	83.40	114	94	-26.55	-10.60
1851.60	V	55.18	50.81	74	54	-18.82	-3.19
2777.40	V	54.88	49.60	74	54	-19.12	-4.40
3703.20	V	51.20	47.50	74	54	-22.80	-6.50
4629.00	V	48.10	44.51	74	54	-25.90	-9.49
925.80(F)	H	83.97	79.10	114	94	-31.03	-14.90
1851.60	H	52.85	48.80	74	54	-21.15	-5.20
2777.40	H	48.95	46.80	74	54	-25.05	-7.20
3703.20	H	45.38	42.10	74	54	-28.62	-11.90
4629.00	H	47.92	43.80	74	54	-26.08	-10.20

**No others harmonics emissions are higher than 20dB below the limits of 47 CFR Part 15.209.**

**Note:** (1) All Readings are Peak Value and AV.  
(2) Emission Level= Reading Level+Probe Factor +Cable Loss  
(3) The average measurement was not performed when the peak measured data under the limit of average detection.

Operation Mode: TX(926.6MHz)      Test Date : April 27, 2007  
Frequency Range: 1-10GHz      Temperature : 28 °C  
Test Result: PASS      Humidity : 65 %  
Measured Distance: 3m      Test By: Andy

Freq. (GHz)	Ant.Pol. H/V	Emission Level(dBuV)		Limit 3m(dBuV/m)		Margin(dB)	
		PK	AV	PK	AV	PK	AV
926.60(F)	V	85.50	82.81	114	94	-27.50	-11.19
1853.20	V	53.91	49.80	74	54	-20.09	-4.20
2779.80	V	51.14	48.71	74	54	-22.86	-5.29
3706.40	V	49.10	45.92	74	54	-24.90	-8.08
4633.00	V	47.11	43.17	74	54	-26.89	-10.83
926.60(F)	H	84.12	81.47	114	94	-29.88	-12.53
1853.20	H	51.48	48.97	74	54	-22.52	-5.03
2779.80	H	49.77	46.74	74	54	-24.23	-7.26
3706.40	H	47.54	44.68	74	54	-26.46	-9.32
4633.00	H	45.40	42.47	74	54	-28.60	-11.53

**No others harmonics emissions are higher than 20dB below the limits of 47 CFR Part 15.209.**

**Note:** (1) All Readings are Peak Value and AV.  
(2) Emission Level= Reading Level+Probe Factor +Cable Loss  
(3) The average measurement was not performed when the peak measured data under the limit of average detection.

Operation Mode: TX(927.4MHz)      Test Date : April 27, 2007  
Frequency Range: 1-10GHz      Temperature : 28 °C  
Test Result: PASS      Humidity : 65 %  
Measured Distance: 3m      Test By: Andy

Freq. (GHz)	Ant.Pol. H/V	Emission Level(dBuV)		Limit 3m(dBuV/m)		Margin(dB)	
		PK	AV	PK	AV	PK	AV
927.40(F)	V	86.91	83.14	114	94	-27.09	-10.86
1854.80	V	54.10	49.71	74	54	-19.90	-4.29
2782.20	V	50.32	47.24	74	54	-23.68	-6.76
3709.60	V	47.85	44.16	74	54	-26.15	-9.84
4367.00	V	45.64	41.10	74	54	-28.36	-12.90
927.40(F)	H	85.67	81.56	114	94	-28.33	-12.44
1854.80	H	53.97	48.10	74	54	-20.03	-5.90
2782.20	H	50.15	46.68	74	54	-23.85	-7.32
3709.60	H	47.97	44.15	74	54	-26.03	-9.85
4367.00	H	43.28	40.18	74	54	-30.72	-13.82

**No others harmonics emissions are higher than 20dB below the limits of 47 CFR Part 15.209.**

**Note:** (1) All Readings are Peak Value and AV.  
(2) Emission Level= Reading Level+Probe Factor +Cable Loss  
(3) The average measurement was not performed when the peak measured data under the limit of average detection.

### 6.5 Radiated Measurement Photos:

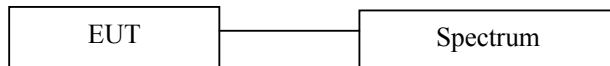


## 7. Band EDGE test

### 7.1 Measurement Procedure

1. The EUT was Operating in FM modulation mode or could be controlled its channel. Printed out test result from the spectrum by hard copy function.
2. The EUT was placed on a turn table which is 0.8m above ground plane.
3. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
4. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
5. Repeat above procedures until all frequency measured were complete.

### 7.2 Test SET-UP (Block Diagram of Configuration)



### 7.3 Measurement Equipment Used:

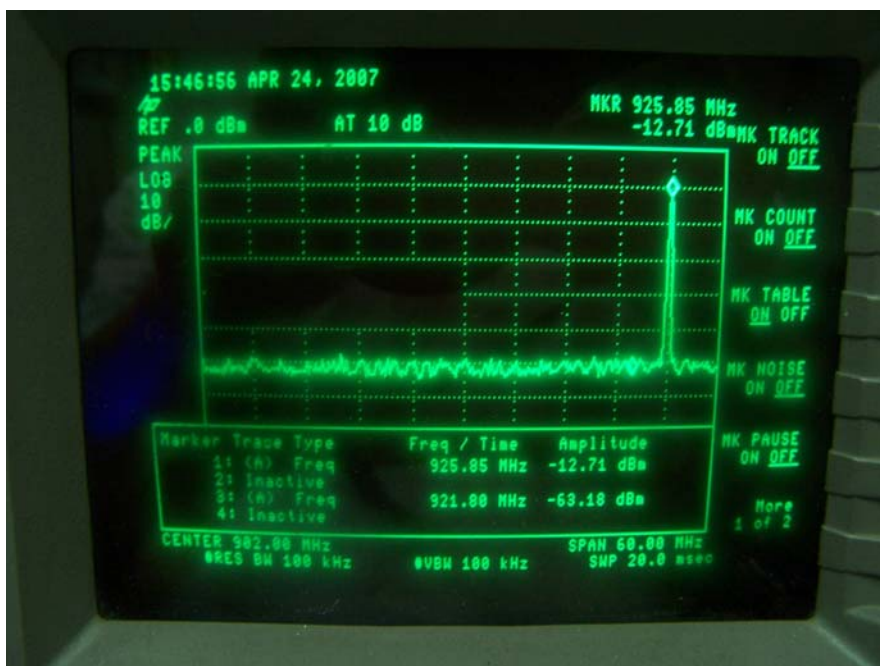
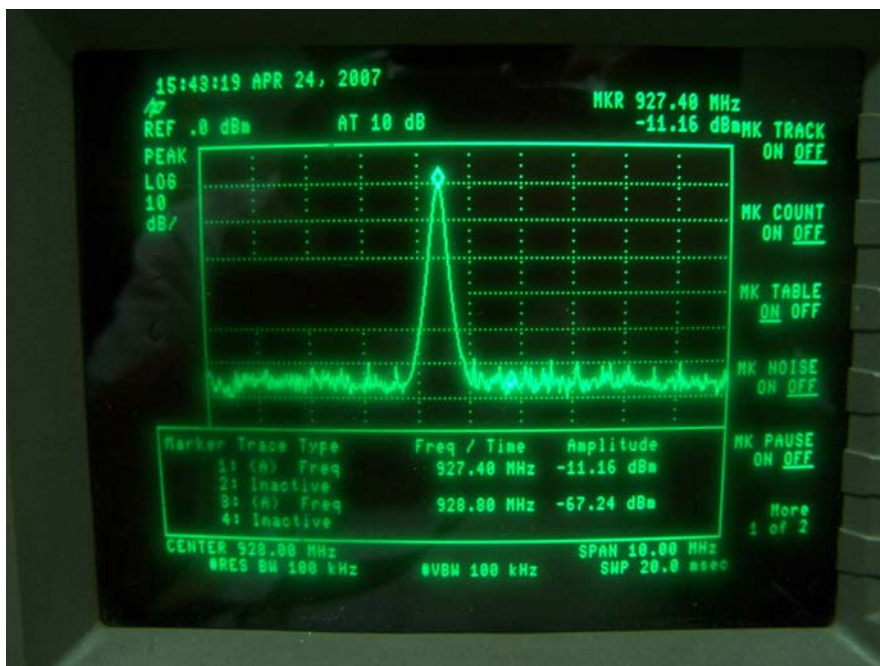
Same as 4.3 Radiated Emission Measurement.

### 7.4 Measurement Results:

PSSS

The arrangement of the equipment is installed to meet the standards and operating in a manner, which tends to maximize its emission characteristics in a normal application. The detailed information refers to test picture.

Refer to attached data chart.



## **8. Antenna Application**

### **8.1 Antenna requirement**

The EUT'S antenna is met the requirement of FCC part 15C section 15.203 and 15.240.

According to Section 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by responsible party shall be used with the device.

The EUT has a built in antenna which is a short wire solder on the PCB, this is permanently attached antenna and meets the requirements of this section.

## **APPENDIX 1**

### **PHOTOGRAPHS OF EUT**



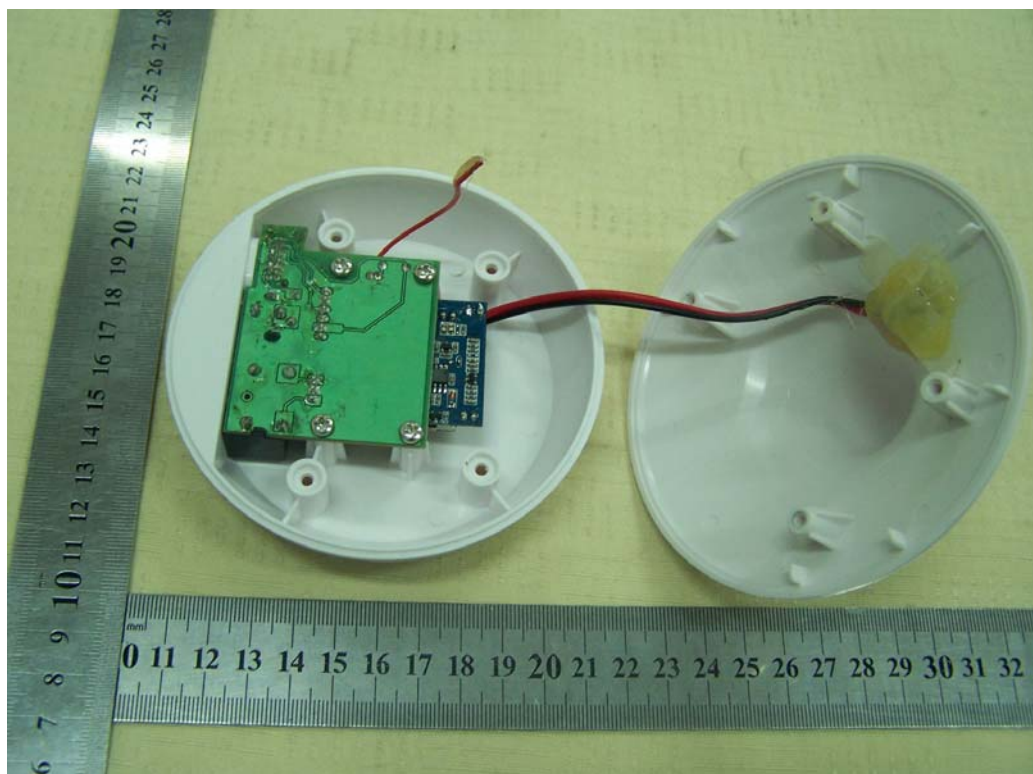
***UP View of EUT***



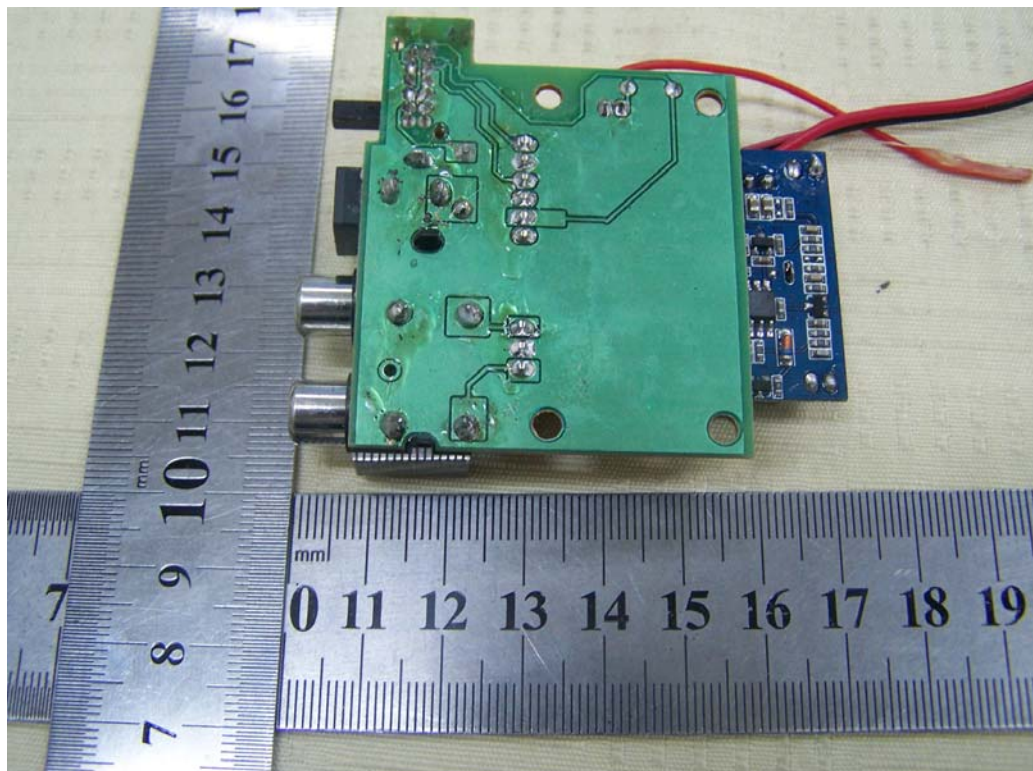
***Bottom View of EUT***



### Internal of *EUT*

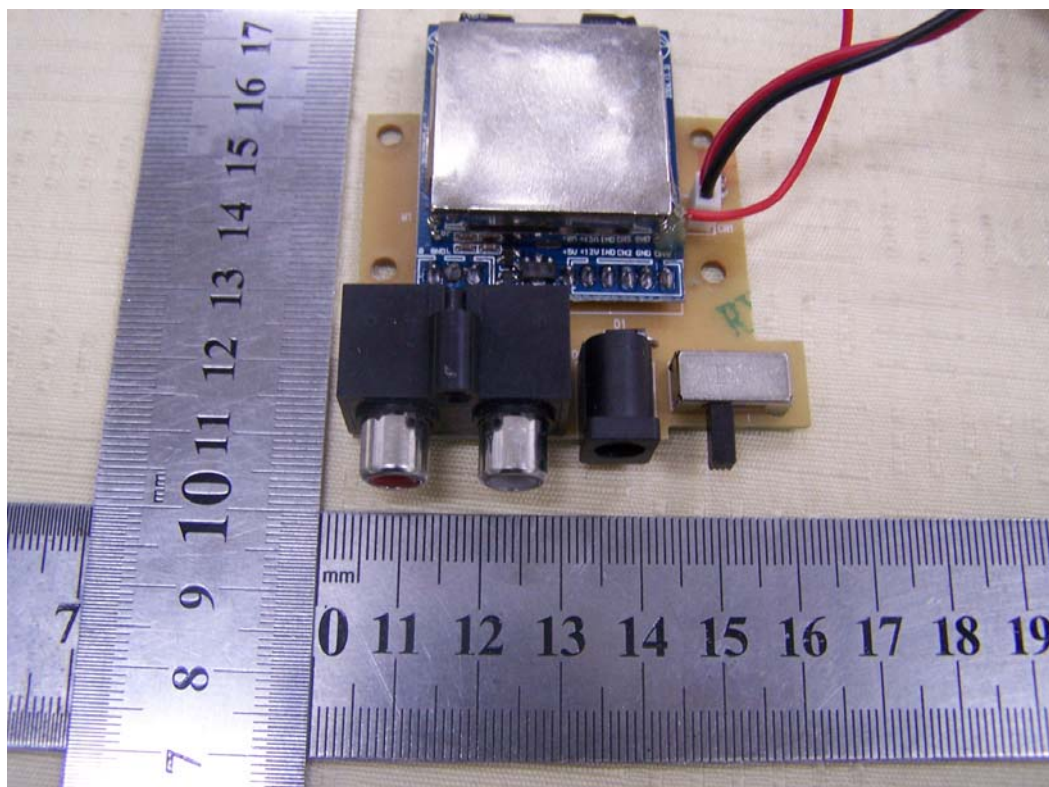


### Internal of *EUT*





**Internal of EUT**



**Internal of EUT**

