FCC TEST REPORT

of

FM Transmitter

Brand name： Languang and Minton

Model No.： LGC-5028

Serial No.： N/A

Report No.： FCC05-8018

Date： July 12, 2005

Prepared for

Shenzhen Languang Import & Export Co., Ltd

R314, 3F, Languang Bldg, Zhenhua Rd. Shenzhen

Prepared by

ShenZhen Electronic Product Quality Testing Center

Electronic Testing Building, Shahe Road, Xili, Nanshan District, Shenzhen, 518055, P. R. China. Tel: 86 755 26627338 Fax:86 755 26627238

Table of Contents

1 General Description of EUT

Product:	FM Transmitter
Brand name:	Languang and Minton
Model No.:	LGC-5028
Power Supply:	DC 12V
Output:	/
I/O Signal Ports:	Audio Input
Frequency Range:	88.22~107.94MHz
Applicant:	Shenzhen Languang Import & Export Co., Ltd
Applicant Address:	R314, 3F, Languang Bldg, Zhenhua Rd. Shenzhen
Manufacturer:	Shenzhen Languang Audio Manufacture Co., Ltd
Manufacturer Address:	No. 49, Third Industry Yard, North of Baozi Street, Kengzi Town Languang District, Shenzhen, 518122, P.R.China.

NOTE:

1. The EUT is a short range, wireless car radio FM transmitter, classified as intentional radiators according FCC Part 15 Subpart C.

2 Summary of Test Results

The EUT has been tested according to FCC part 15. The test procedure is according to ANSI C63.4: 2003. The test results are as following:

EMISSION		
Standard	**Test Type**	**Result**
\$15.207	Conducted Emission	☐PASS ☐Fail ☒Inapplicable
\$15.209 & \$15.239	Radiated Emission	☒PASS ☐Fail ☐Inapplicable
\$15.239	26 dB Bandwidth	☒PASS ☐Fail ☐Inapplicable

3 Test Report Certification

We, ShenZhen Electronic Product Quality Testing Center, hereby certify that the Equipment Under Test (EUT) described above has been tested in our facility. The test record, data evaluation and EUT configuration represented herein are true and accurate accounts of measurements of the sample's EMC characteristics under the conditions herein specified.

Tested by:_____, Date:_____
Zhu Qi

Checked by:_____, Date:_____
Smart Li

Approved by:_____, Date:_____
Wang Keqin

4 Radiated Emission Test

4.1 Limits of Radiated Emission

The field strength of radiated emissions from intentional radiators at a distance of 3 meters shall not exceed the following values:

Frequency of Emission (MHz)	Field Strength (μV/m)	Field Strength (dBμV/m)
30 - 88	100	40
88 -216	150	43.5
216 - 960	200	46
Above 960	500	54

NOTE:

1. Field Strength (dBμV/m)=20log Field Strength (μV/m).
2. In the emission tables above, the tighter limit applies at the band edges.

4.2 Test Instruments

Description	Manufacturer	Model No.	Serial No.	Cal. Due Date
Test Receiver	ROHDE&SCHWARZ	ESIB26	100130	2006.06.10
Ultra Broadband Ant.	ROHDE&SCHWARZ	HL562	100089	2006.06.05
Semi-Anechoic Chamber	Albatross	H-249	P21505-016-001	2006.04.18

4.3 Test Procedure

a. The EUT was placed on the top of a ratable 0.8 meters above the ground at a semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.

b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.

c. The antenna is a broadband antenna, and its height is varied from one meter to four meter above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.

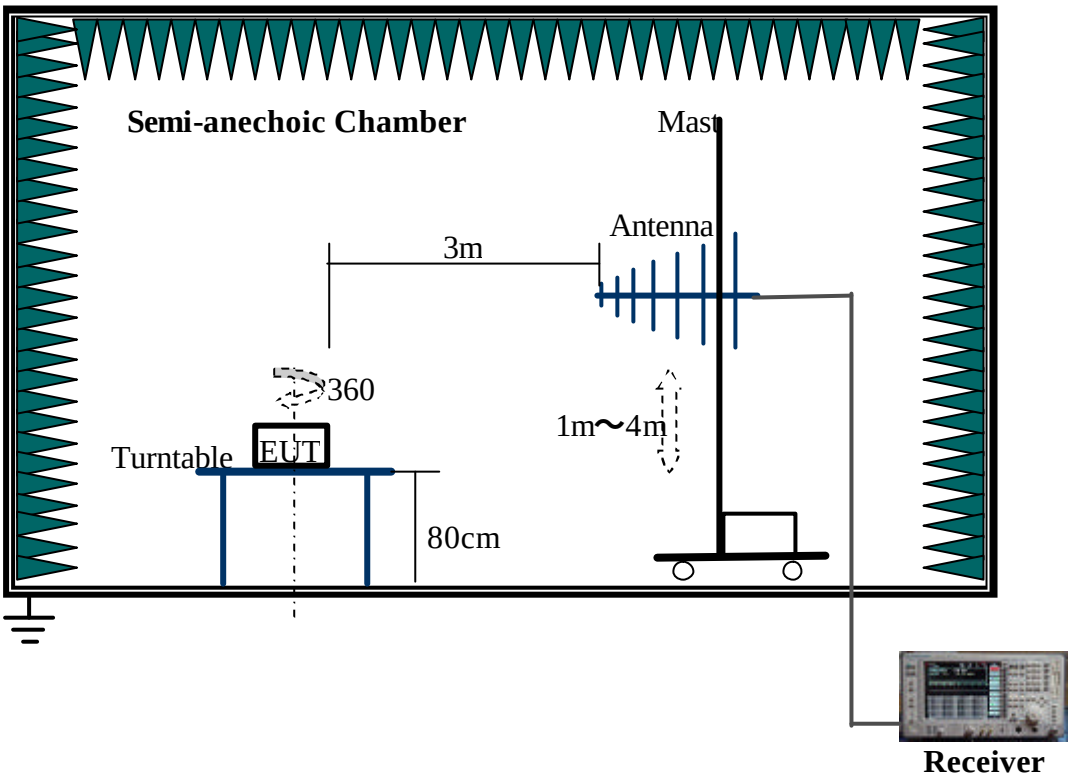
d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to the heights from 1 to 4 meters and the ratable table was turned from 0 degrees to 360 degrees to find the maximum reading.

e. The test-receiver system was set to Peak Detector Function and Specified Bandwidth with

Maximum Hold Mode.

f. If the emission level of the EUT in peak mode was 10 dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emission that did not have 10 dB margin would be retested one by one using the quasi-peak method.

4.4 Test Setup



For the actual test configuration, please refer to the related item-Photographs of the Test Configuration.

4.5 EUT Operating Conditions

The EUT was powered by 12Vdc.

The EUT was working continuously at the highest middle and the lowest frequency during the test.

4.6 Test Results

Working Frequency: 88.02MHz

No	Frequency (MHz)	Antenna Polarization	Antenna Height (cm)	Table Angle (Degree)	QP Limits (dBmV)	Emission Level QP(dBmV)	Emission Level PK(dBmV)	Emission Level AV(dBmV)
1	88.02	V	100	0	47.96	34.45	34.79	34.08
2	88.02	H	100	0	47.96	32.09	32.37	31.88
3	176.04	H	100	0	43.5	21.68	--	--
4	94.06	V	100	0	43.5	9.27	--	--
5	94.06	H	100	0	43.5	8.79	--	--
6	97.48	V	100	0	43.5	9.54	--	--
7	97.48	H	100	0	43.5	9.08	--	--

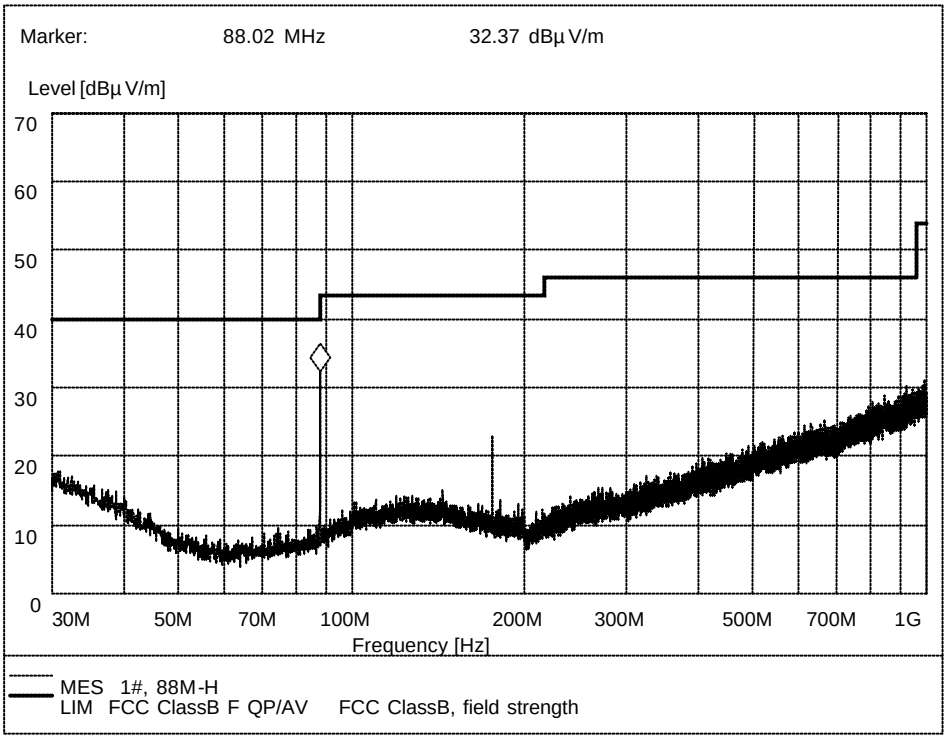
Working Frequency: 97.98MHz

No	Frequency (MHz)	Antenna Polarization	Antenna Height (cm)	Table Angle (Degree)	QP Limits (dBmV)	Emission Level QP(dBmV)	Emission Level PK(dBmV)	Emission Level AV(dBmV)
1	97.98	V	100	0	47.96	30.49	27.58	24.76
2	97.98	H	100	0	47.96	30.48	28.19	25.57
3	195.96	H	100	0	43.5	21.68	--	--
4	94.06	V	100	0	43.5	8.06	--	--
5	94.06	H	100	0	43.5	8.45	--	--
6	97.48	V	100	0	43.5	8.98	--	--
7	97.48	H	100	0	43.5	8.76	--	--

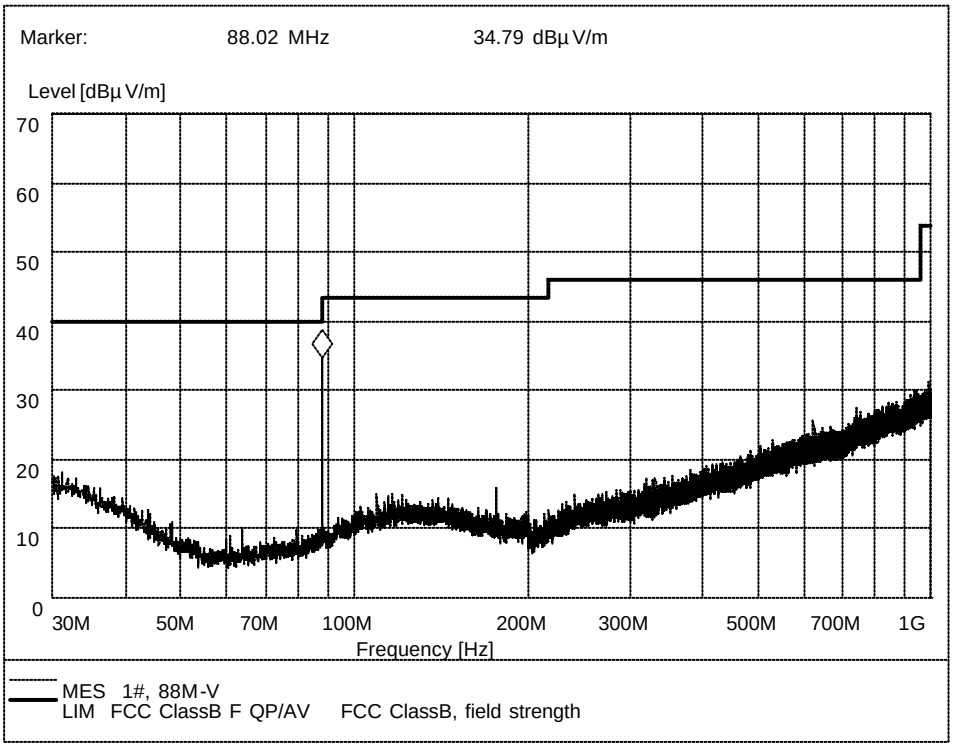
Working Frequency: 107.94MHz

No	Frequency (MHz)	Antenna Polarization	Antenna Height (cm)	Table Angle (Degree)	QP Limits (dBmV)	Emission Level QP(dBmV)	Emission Level PK(dBmV)	Emission Level AV(dBmV)
1	107.94	V	100	0	47.96	18.08	22.36	17.56
2	107.94	H	100	0	47.96	17.87	23.19	15.43
3	215.88	H	150	0	43.5	22.64	--	--
4	323.92	H	150	0	46	20.48	--	--
5	94.06	V	100	0	43.5	8.82	--	--
6	94.06	H	100	0	43.5	8.16	--	--
7	97.48	V	100	0	43.5	9.46	--	--
8	97.48	H	100	0	43.5	9.15	--	--

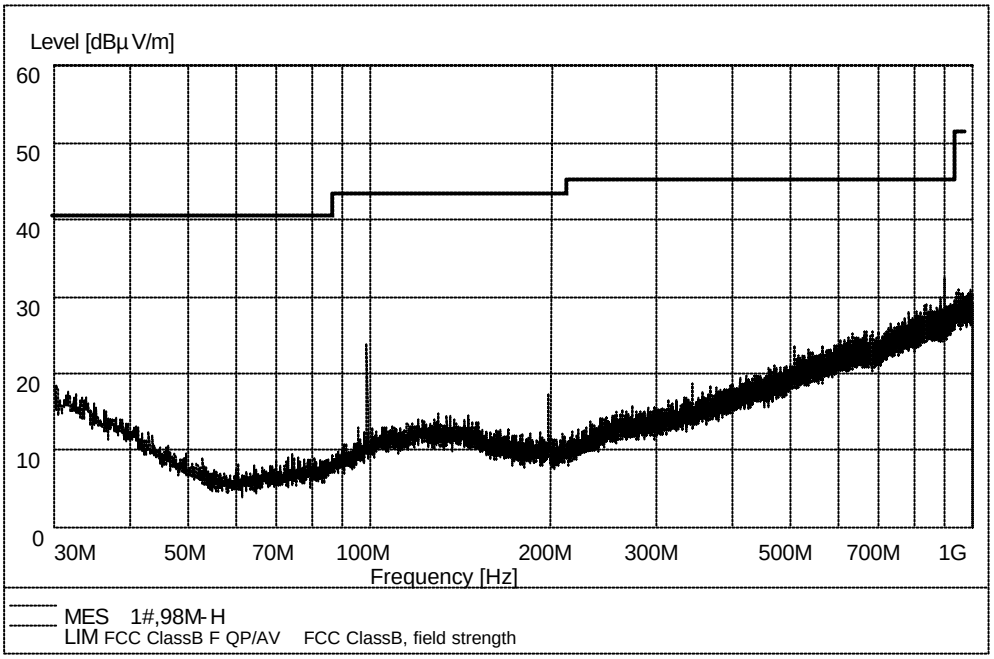
1. Electromagnetic radiation disturbances, antenna polarization: Horizontal. Working frequency: 88.02 MHz



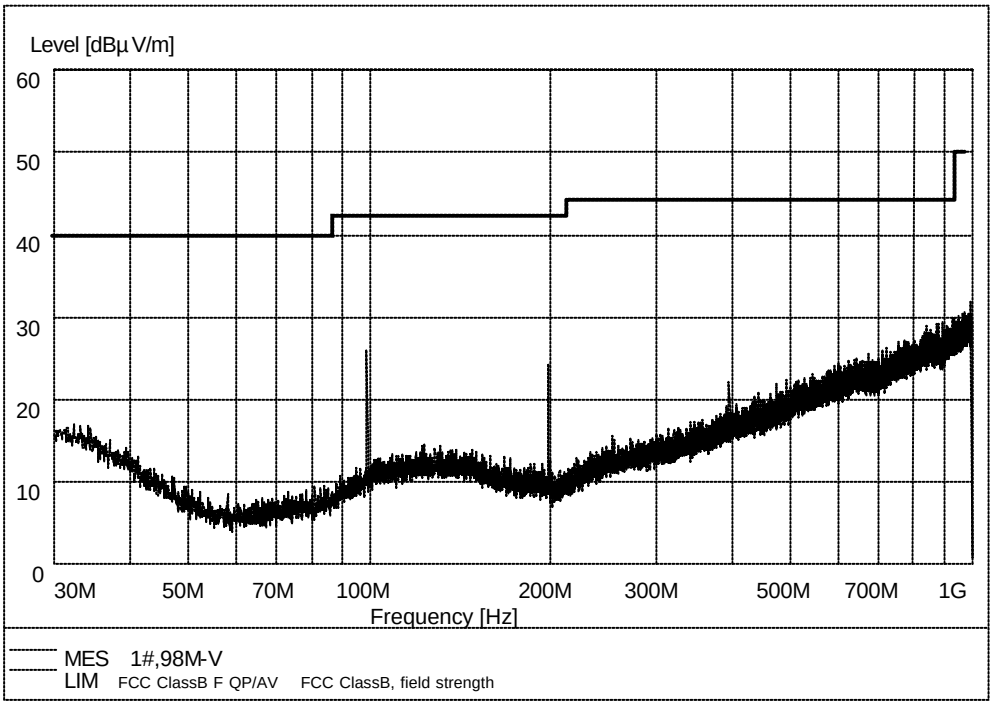
2. Electromagnetic radiation disturbances, antenna polarization: Vertical. Working frequency: 88.02 MHz



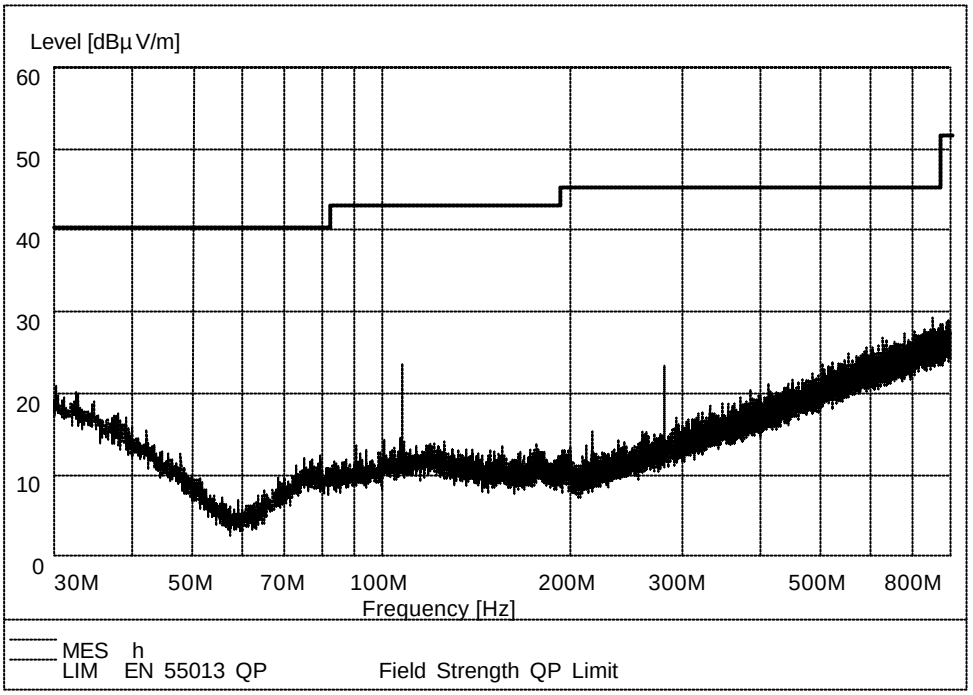
3. Electromagnetic radiation disturbances, antenna polarization: Horizontal. Working frequency: 97.98 MHz



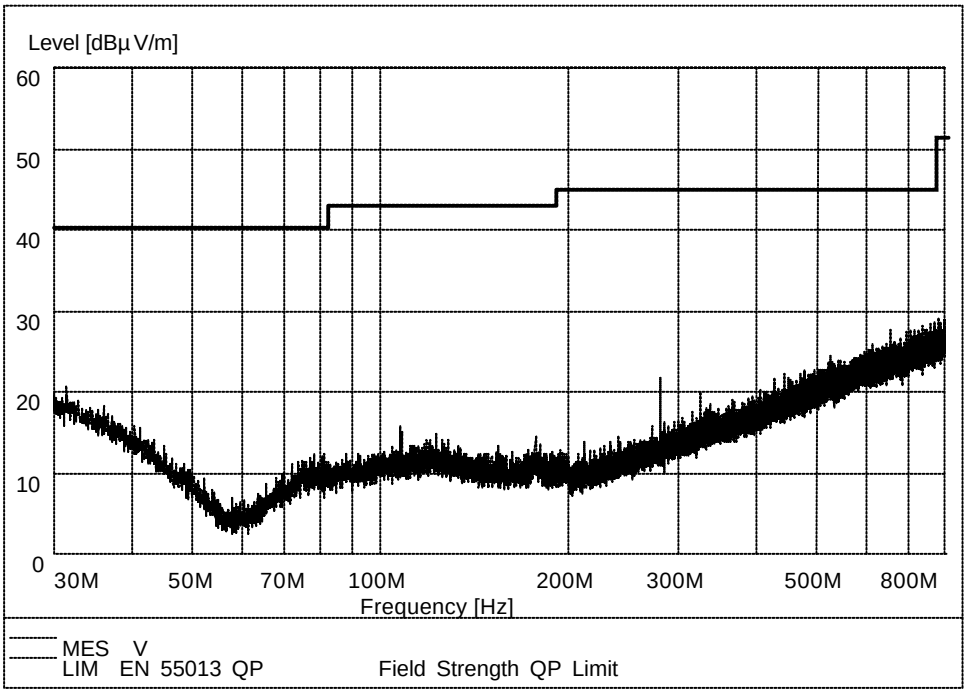
4. Electromagnetic radiation disturbances, antenna polarization: Vertical. Working frequency: 97.98 MHz



5. Electromagnetic radiation disturbances, antenna polarization: Horizontal. Working frequency: 107.94 MHz



6. Electromagnetic radiation disturbances, antenna polarization: Vertical. Working frequency: 107.94 MHz



5 Occupied Bandwidth

5.1 Definition

According to FCC §2.1049, the occupied bandwidth is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers radiated are each equal to 0.5 percent of the total mean power radiated by a given emission.

Occupied bandwidth is also known as the 99% emission bandwidth. The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26dB below the transmitter power.

5.2 Test Instruments

Same as 4.2

5.3 Test Procedure

a. The occupied bandwidth measurement was performed in a full anechoic chamber using radiation measurement method. The air lost of the site and the factors of the test system is pre-calibrated using substitution method.

b. The EUT was placed on the vertical axis of a turntable 0.8 meters above the ground.

c. For the frequency range 30 MHz to 3 GHz, ultra-broadband bi-log antenna was used. The antenna was at the same height as the EUT. Since there was no reflection from the chamber floor and the site was pre-calibrated, the antenna height need not to be changed as the open site method. The polarization of the receiving antenna was the same as that of the EUT transmitting antenna.

d. The spectrum analyzer was set to Maxpeak Detector and Maximum Hold mode. The resolution bandwidth was set to at least 1% of the emission bandwidth. For FM signal, VBW=RBW=3kHz.

5.4 Test Setup

Same as 4.4

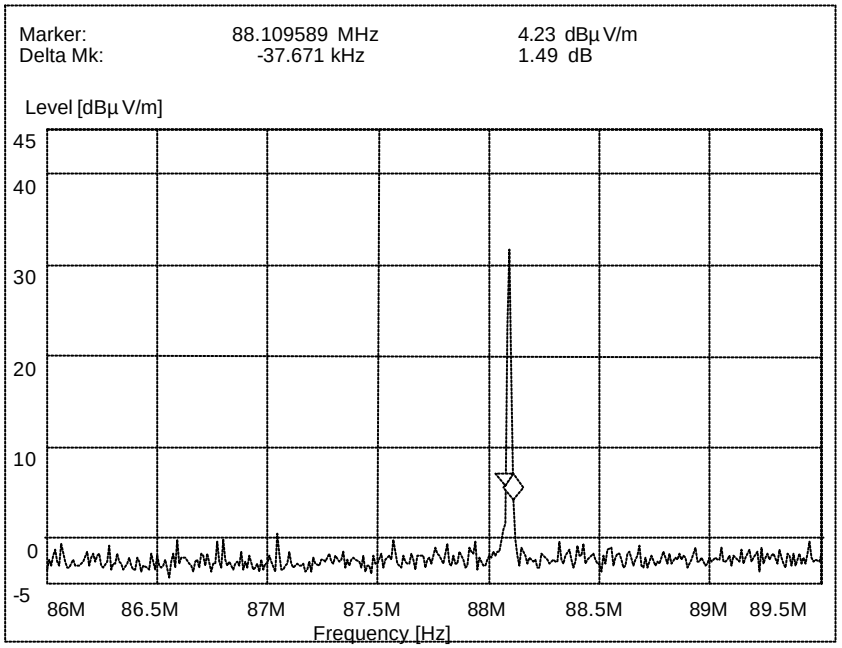
5.5 EUT Setup and Operating Conditions

The EUT was powered by 12Vdc.
The EUT was working continuously at the highest and the lowest frequency during the test.

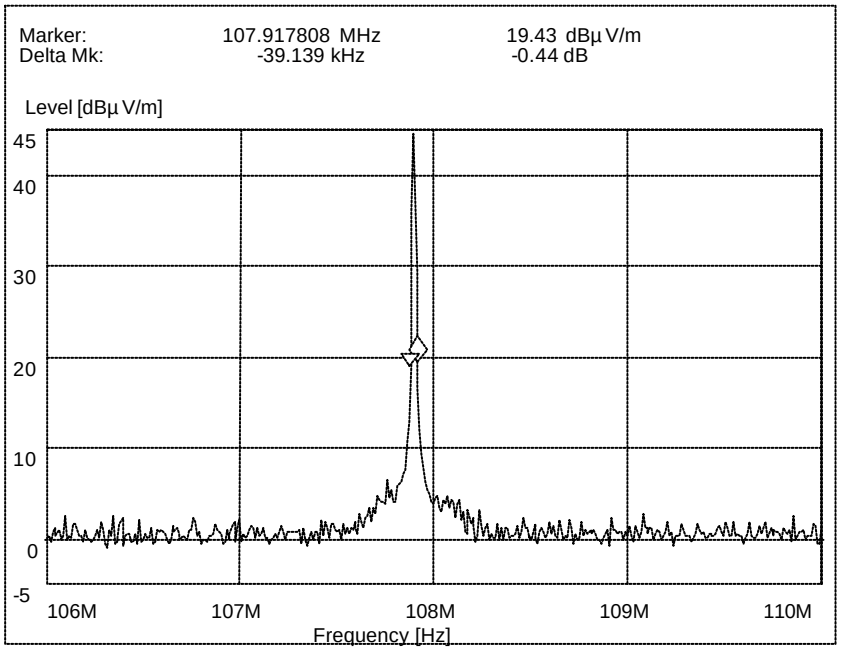
5.6 Test Results

The 26dB emission bandwidth at the lowest and the highest frequency is showed in the following plots.

1. Lowest frequency: 88.02MHz Occupied Bandwidth is: 37.671 kHz



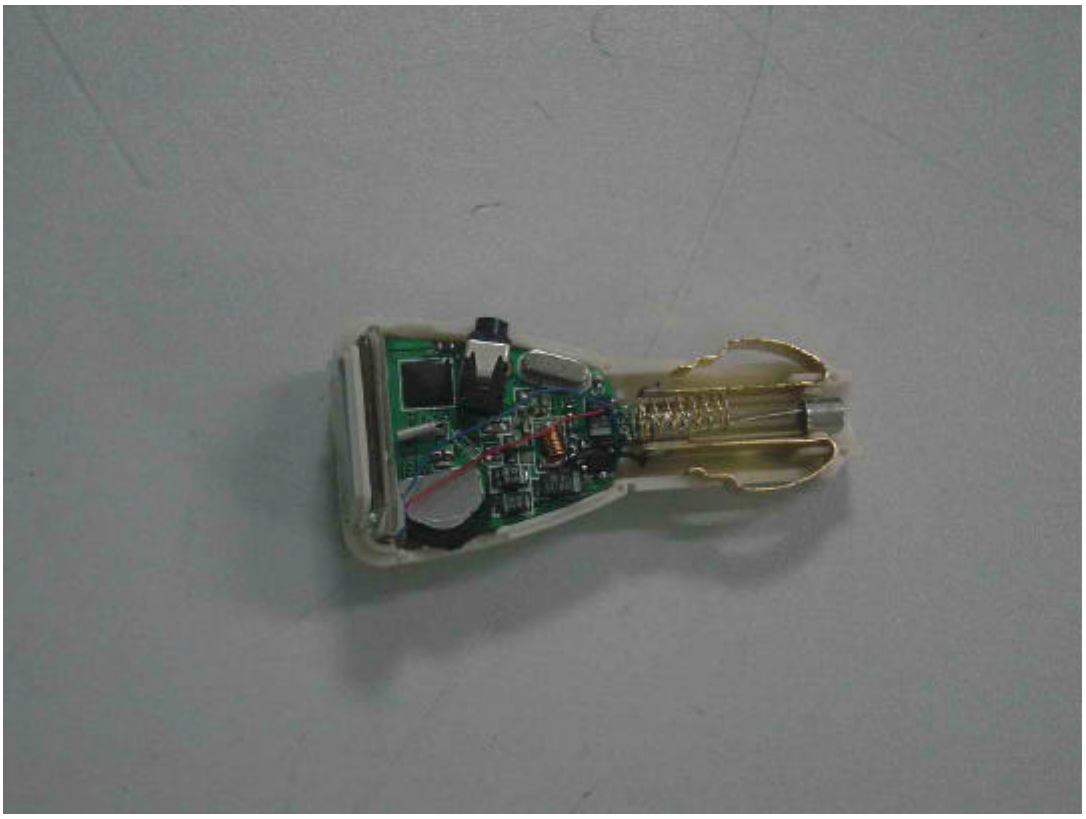
2. Highest frequency: 107.94MHz Occupied Bandwidth is: 39.139 kHz

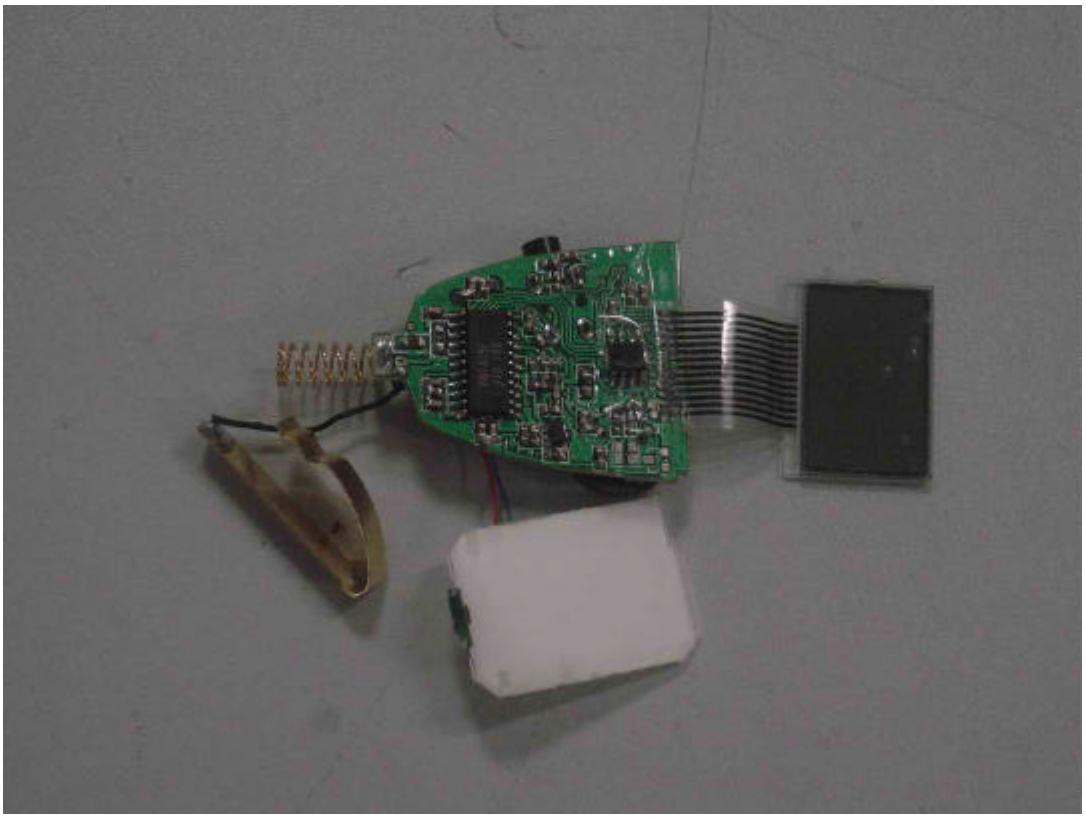


Appendix I：Photographs of the EUT

Appearance

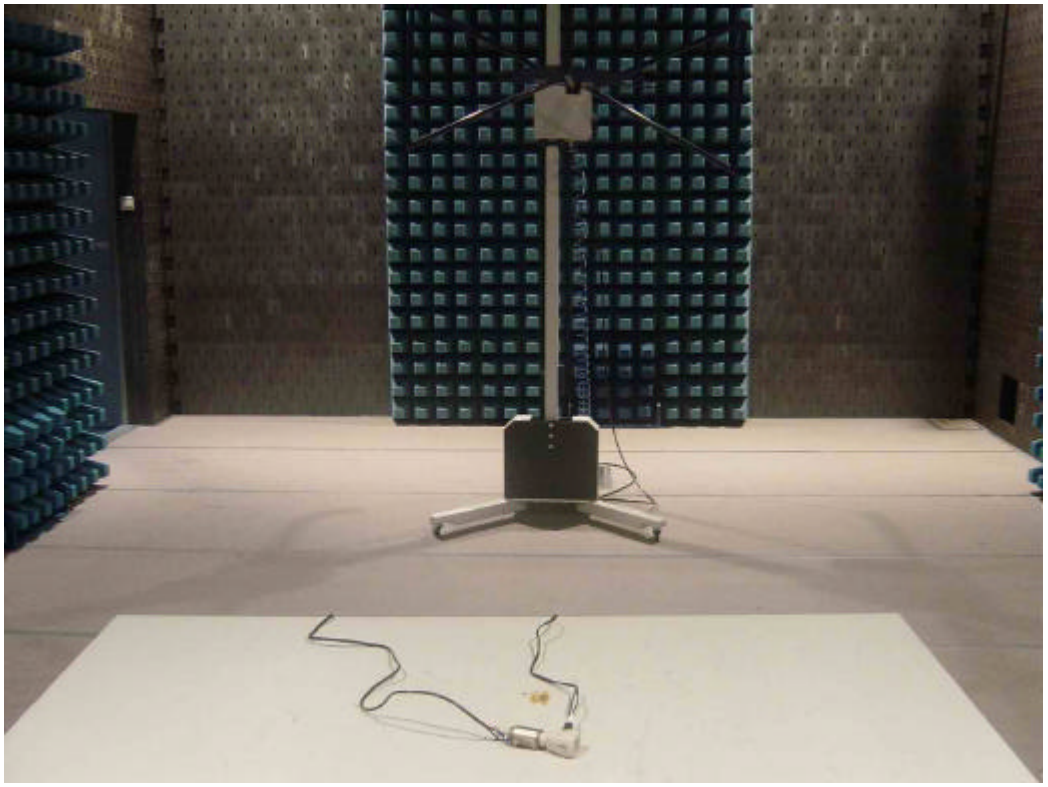
Inside





Appendix II：Photographs of the Test Configuration

Radiated Emission Measurement



Occupied Bandwidth Measurement