Application for FCC Certificate
On Behalf of
Fujian Joinluck Electronic Enterprise Co., Ltd.

Energy Saving Lamp

Model No.: Circline 13W

FCC ID: N6AFJEE0303

Prepared For : Fujian Joinluck Electronic Enterprise Co., Ltd.
Cangshan Industrial Area, Cangshan District,
Fuzhou, Fujian, China.

Prepared By : Audix Technology (Shanghai) Co., Ltd.
3F 34Bldg 680 Guiping Rd,
Caohejing Hi-Tech Park,
Shanghai, China 200233.

Tel : +86-21-64955500
Fax : +86-21-64955491

Report No. : ACI-F03014
Date of Test : Mar 03-Apr 18, 2003
Date of Report : Mar 13, 2003

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TEST REPORT FOR FCC CERTIFICATE

Applicant	:	Fujian Joinluck Electronic Enterprise Co., Ltd.
Manufacturer	:	Fujian Joinluck Electronic Enterprise Co., Ltd.
EUT Description	:	Energy Saving Lamp (A) Model No.: Circline 13W (B) Serial No.: E03030301 (C) Power Supply: 120V/60Hz

Test Procedure Used:

FCC RULES AND REGULATIONS PART 18 CONSUMER DEVICES (2002)/FCC 02-157 AND MP-5/1986

The device described above is tested by Audix Technology (Shanghai) Co., Ltd. to determine the maximum emission levels emanating from the device. The maximum emission levels are compared to the FCC Part 18 RF Lighting Device limits both conducted emissions and field strength.

The test results are contained in this test report and Audix Technology (Shanghai) Co., Ltd. is assumed full responsibility for the accuracy and completeness of these measurements. Also, this report shows that the EUT to be technically compliant with the FCC official limits.

This report applies to above tested sample only. This report shall not be reproduced in part without written approval of Audix Technology (Shanghai) Co., Ltd.

This report must not be used by the applicant to claim product endorsement by NVLAP or any agency of the U.S. Government.

Date of Test : Mar 03-Apr 18, 2003

Prepared by : Cathrin Yin 2003.3.14 **Test Engineer :** Solon Gong 2003.3.14

CATHRIN YIN (Assistant) — SOLON GONG (Engineer)

AUDIX®

For and on behalf of Audix Technology (Shanghai) Co., Ltd.

Reviewer : Sammy Chen 2003.03.17 **Approved Signatory :** Byron Kwo 18 MAR 03

SAMMY CHEN (Engineer) — BYRON KWO (Assistant Manager)

Authorized Signatory(ies)

1 GENERAL INFORMATION

1.1 Description of Equipment Under Test

Description : Energy Saving Lamp

Type of EUT : ☑ Production ☐ Pre-product ☐ Pro-type

Model Number : Circline 13W

Applicant : Fujian Joinluck Electronic Enterprise Co., Ltd.
Cangshan Industrial Area, Cangshan District,
Fuzhou, Fujian, China.

Manufacturer : Fujian Joinluck Electronic Enterprise Co., Ltd.
Cangshan Industrial Area, Cangshan District,
Fuzhou, Fujian, China.

Test Model	Apparent Power (V • A)	Real Power (W)
Circline 13W	25.60	14.20

1.2 Description of Test Facility

Site Description : Sept. 17, 1998 file on
(Semi-Anechoic Chamber) Federal Communications Commission
FCC Engineering Laboratory
7435 Oakland Mills Road
Columbia, MD 21046, USA

Name of Firm : Audix Technology (Shanghai) Co., Ltd.

Site Location : 3F 34Bldg 680 Guiping Rd,
Caohejing Hi-Tech Park,
Shanghai, China 200233.

NVLAP Lab Code : 200371-0

1.3 Measurement Uncertainty

Conducted Emission Uncertainty : U = ±2.66dB

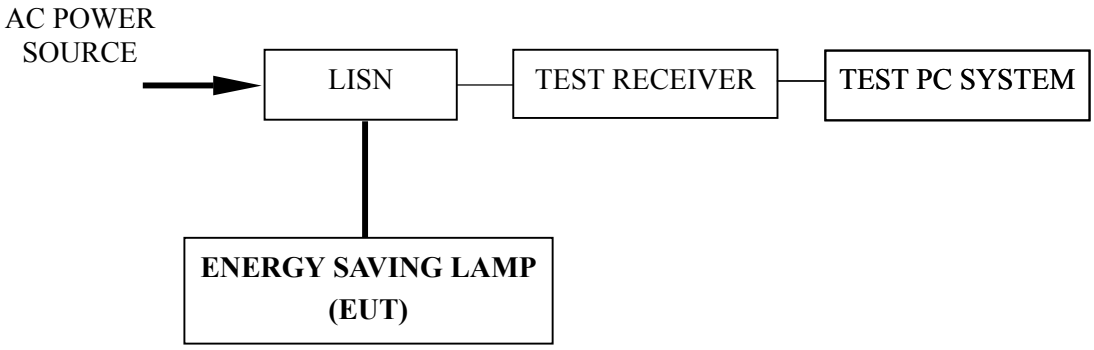
2 AC POWERLINE CONDUCTED EMISSION TEST

2.1 Test Equipment

The following test equipment are used during the powerline conducted emission test in a shielded room:

Item	Type	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Test Receiver	Rohde & Schwarz	ESHS10	844077/007	Jun 03, 2002	1 Year
2.	Line Impedance Stabilization Network (LISN)	Kyoritsu	KNW-407	8-1280-5	May 09, 2002	1 Year

2.2 Block Diagram of Test Setup



—— : SIGNAL LINE
━━ : POWER LINE

2.3 Conducted Emission Limits

Frequency of Emission (MHz)	Conducted Limit (dBμV)	
	Quasi-peak	Average
0.15 ~ 0.5	66~56	56~46
0.5 ~ 5	56	46
5 ~ 30	60	50
NOTE 1 – Decreases with the logarithm of the frequency within the band 0.15 MHz to 0.5MHz. NOTE 2 - The lower limit applies at the band edges.		

2.4 Test Configuration

The EUT (listed in Sec. 1.1) was installed as shown on Sec. 2.2 to meet FCC requirement and operating in a manner which tends to maximize its emission level in a normal application.

2.5 Operating Condition of EUT

2.5.1 Setup the EUT as shown in Sec. 2.2.

2.5.2 Turn on the power of all equipment.

2.5.3 The EUT will be operated normally.

2.6 Test Procedures

The EUT was connected to the power mains through a Line Impedance Stabilization Network (LISN). This provided a 50 ohm coupling impedance for the measuring equipment.

Both sides of AC line were checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables were changed or manipulated according to MP-5/1986 during conducted emission test.

The IF bandwidth of Test Receiver ESHS10 was set at 10 kHz.

The frequency range from 150 kHz to 30 MHz was checked.

The test mode (Lighting) was done on conducted test and the test results of the highest emissions are listed in Sec. 2.7.

2.7 Test Results

< PASS >

The frequency and amplitude of the highest AC powerline conducted emissions relative to the limit is reported. All emissions not reported below are too low against the prescribed limits.

EUT	:	Energy Saving Lamp	Temperature :	21.8℃	
Model No.	:	Circline 13W	Humidity	:	53%
Test Mode	:	Lighting	Date of Test :	Mar 03-Apr 18, 2003	

Test Line	Frequency (MHz)	Factor (dB)	Meter Reading dB(μV)	Emission Level dB(μV)	Limits dB(μV)	Margin (dB)
VA	0.172	0.22	51.15	51.37	64.88	13.51
	0.215	0.21	47.43	47.64	63.02	15.38
	0.301	0.14	42.32	42.46	60.21	17.75
	0.430	0.13	37.13	37.26	57.24	19.98
	0.516	0.12	33.97	34.09	56.00	21.91
	0.650	0.11	33.19	33.30	56.00	22.70
VB	0.172	0.23	51.91	52.14	64.87	12.73
	0.212	0.20	47.19	47.39	63.14	15.75
	0.258	0.20	45.86	46.06	61.51	15.45
	0.478	0.15	45.33	45.48	56.37	10.89
	0.529	**0.15**	**45.76**	**45.91**	**56.00**	**10.09**
	0.621	0.15	41.17	41.32	56.00	14.68

NOTE 1 – Emission Level = Meter Reading + Factor
NOTE 2 – Factor = Insertion Loss + Cable Loss
NOTE 3 – All reading are Quasi-Peak Values.
NOTE 4 – The worst emission is detected at 0.529 MHz with corrected signal level of 45.91 dB (μV) (limit is 56.00 dB (μV)), when the VB of the EUT is connected to LISN.

TEST ENGINEER: _____
(SOLON GONG)

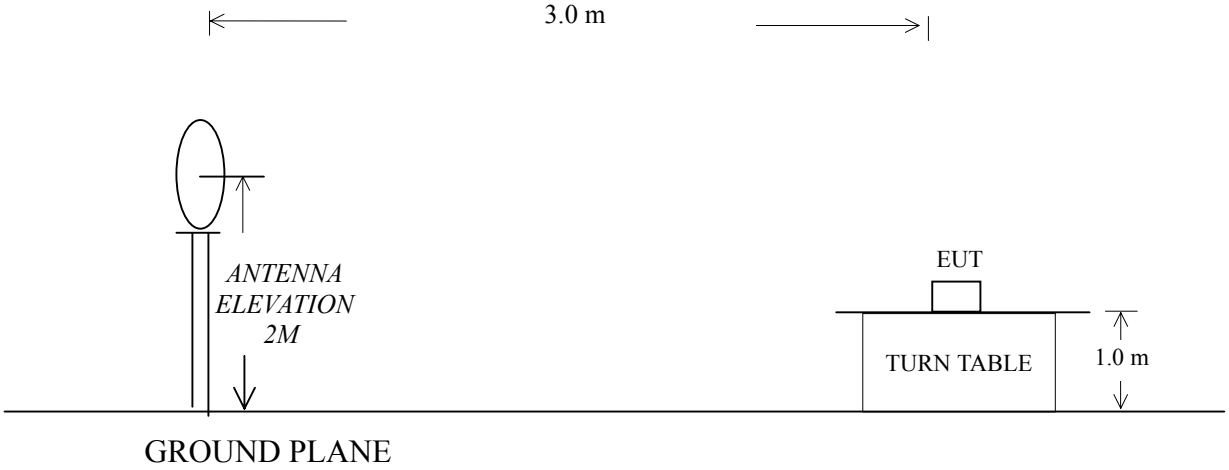
3 MAGNETIC FIELD EMISSION TEST

3.1 Test Equipment

The following test equipment are used during the field strength test in a shielded room:

Item	Type	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Loop Antenna	Rohde & Schwarz	HFH2-Z2	881057/56	Oct 11, 00	3 Year
2.	Test Receiver	Rohde & Schwarz	ESHS10	844077/007	Jun 03, 02	1 Year

3.2 Block Diagram of Test Setup



3.3 Magnetic Field Emission Limit

All emanations from Non-ISM frequency devices or system, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strengths specified below:

Frequency (MHz)	Quasi-peak Electric Field Test Distance 3m dB(μV/m)
0.009~30	63.5
NOTE 1– Distance refers to the distance in meters between the test antenna and the closed point of any part of the EUT.	

3.4 EUT Configuration on Test

The Fcc part 18 requlations test method must be used to find the maximum emission during Radiated Emission test.
The configuration of the EUT is same as used in conducted emission test. Please Refer to Section 2.4.

3.5 Operating Condition of EUT

3.5.1 Setup the EUT as shown on Section 3.2.

3.5.2 Turn on the power of all equipments.

3.5.3 Let the EUT work in test mode (Lighting) and test it.

3.6 Test Procedure

The EUT is placed on a table, which is 1.0 meter above ground. Measurements are performed at 3.0m distance with a 0.6m loop antenna as described in 2.2.4 of MP-5. The antenna shall be with the lower edge of the loop at 2m height above the floor.

The bandwidth setting on the test receiver (R&S Test Receiver ESHS10) is 200Hz from 9kHz to 150kHz and 10kHz from 150kHz to 30MHz. The EUT is tested in a semi-anechoic chamber.

All the scanning waveforms are attached within Sec. 3.7.

3.7 Test Result

<**PASS**>

Refer to the following pages.

3F #34Bldg. No.680 GuiPing Rd.,
CaoHeJing Hi-Tech Park,
Shanghai, China
Tel:+86-21-64955500
Fax:+86-21-64955491
aciemc@audix.com

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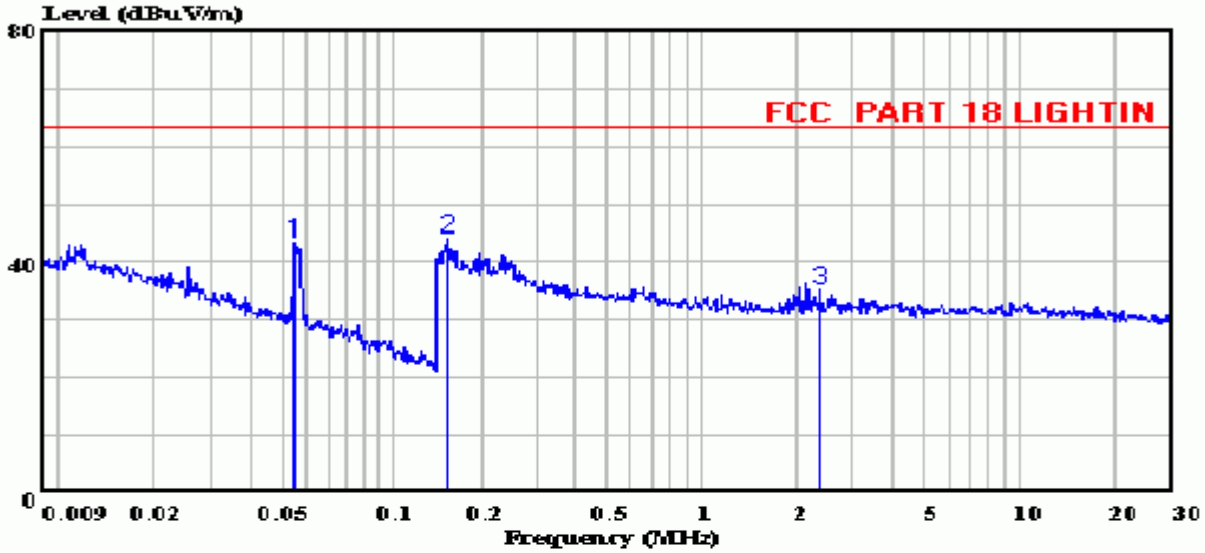

Site : audix-aci NO.3 CHAMBER
Condition : FCC PART 18 LIGHTIN 3m
Project No : AQE-000069
Applicant : Fujian Joinluck Electronic Enterprise
: Co., Ltd
EUT : Electronic Energy Saving Lamp
M/N : Circline 13W
S/N : E03030301
Power Supply : 120V/60Hz
Ambient : 23'C 53%
Test Mode : lighting
Test Engineer:

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	Freq	Read Level	Level	Limit Line	Over Limit
	MHz	dBuV	dBuV/m	dBuV/m	dB
1	0.055	43.56	43.56	63.50	-19.94
2	0.166	44.30	44.30	63.50	-19.20
3	2.407	35.01	35.01	63.50	-28.49