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

Energy Saving Lamp

Model No.: JLS MINI-I 18W JLS MINI-I 20W
JLS MINI-I 23W JLS MINI-I 26W

FCC ID: N6AFJEE0302

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-F03011
Date of Test : Jan 27, 2003
Date of Report : Feb 08, 2003

TABLE OF CONTENTS

Page

1 GENERAL INFORMATION 4
1.1 Description of Equipment Under Test 4
1.2 Description of Test Facility 4
1.3 Measurement Uncertainty 4
2 AC POWERLINE CONDUCTED EMISSION TEST 5
2.1 Test Equipment 5
2.2 Block Diagram of Test Setup 5
2.3 Conducted Emission Limits 5
2.4 Test Configuration 6
2.5 Operating Condition of EUT 6
2.6 Test Procedures 6
2.7 Test Results 7
3 FIELDSTRENGTH TEST 11
3.1 Test Equipment 11
3.2 Block Diagram of Test Setup 11
3.3 Test Configuration 11
3.4 Operating Condition of EUT 11
3.5 Test Procedure 12
3.6 Test Result 12

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.:
JLS MINI-I 18W, JLS MINI-I 20W
JLS MINI-I 23W, JLS MINI-I 26W

(B) Serial No.:
E03012701, E03012702,
E03012703, E03012704

(C) Power Supply: 120V/60Hz

Test Procedure Used:

FCC RULES AND REGULATIONS PART 18 CONSUMER DEVICES (2002) 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 : Jan 27, 2003

Prepared by : Cathrin Yin 2003.2.17
CATHRIN YIN
(Assistant)

Test Engineer : Solon Gong 2003.2.17
SOLON GONG
(Engineer)

AUDIX®

Reviewer : Sammy Chen 2003.02.18
SAMMY CHEN
(Engineer)

Approved Signatory : Byron Kwo 20Feb/03
BYRON KWO
(Assistant Manager)

Authorized Signature(s)

1 GENERAL INFORMATION

1.1 Description of Equipment Under Test

Description : Energy Saving Lamp

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

Model Number : JLS MINI-I 18W, JLS MINI-I 20W
JLS MINI-I 23W, JLS MINI-I 26W

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)
JLS MINI-I 18W	35.72	19.80
JLS MINI-I 20W	38.20	21.30
JLS MINI-I 23W	45.10	24.60
JLS MINI-I 26W	51.20	29.00

1.2 Description of Test Facility

Site Description (Semi-Anechoic Chamber) : Sept. 17, 1998 file on
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

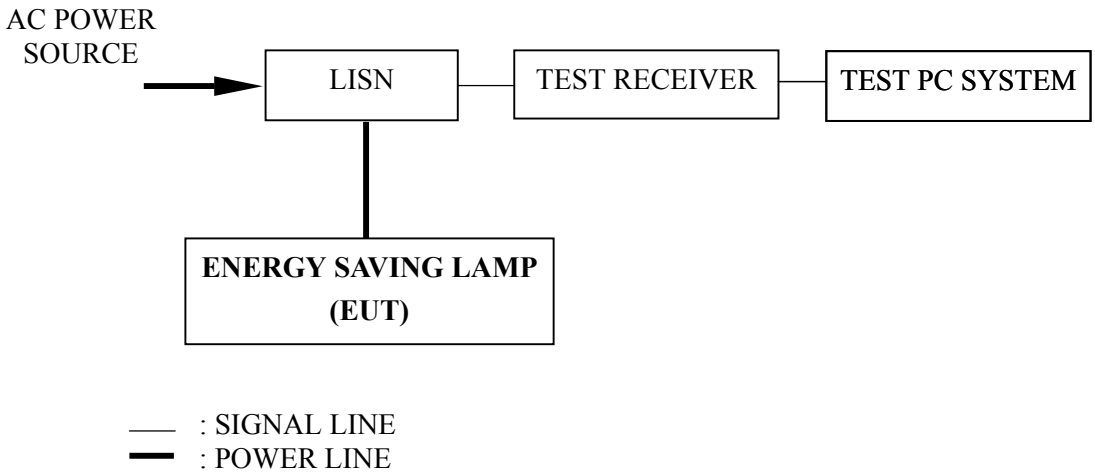
2 AC POWERLINE CONDUCTED EMISSION TEST

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



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 (ON) 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.	:	JLS MINI-I 18W	Humidity :	53%
Test Mode	:	ON	Date of Test :	Jan 27, 2003

Test Line	Frequency (MHz)	Factor (dB)	Meter Reading dB(μV)	Emission Level dB(μV)	Limits dB(μV)	Margin (dB)
VA	**0.182**	**0.18**	**52.71**	**52.89**	**64.37**	**11.48**
	0.274	0.11	42.87	42.98	60.98	18.00
	0.322	0.09	39.20	39.29	59.66	20.37
	0.456	0.07	39.28	39.35	56.76	17.41
	0.731	0.03	38.42	38.45	56.00	17.55
	0.880	0.04	38.68	38.72	56.00	17.28
VB	0.182	0.18	51.14	51.32	64.37	13.05
	0.274	0.13	42.95	43.08	60.98	17.90
	0.320	0.12	39.84	39.96	59.71	19.75
	0.456	0.10	37.57	37.67	56.76	19.09
	0.549	0.09	37.88	37.97	56.00	18.03
	0.595	0.08	38.12	38.20	56.00	17.80

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 0.182 MHz with corrected signal level of 52.89 dB (μV) (limit is 64.37 dB (μV)), when the VA of the EUT is connected to LISN.

TEST ENGINEER: Solon Gong
(SOLON GONG)

EUT :	Energy Saving Lamp	Temperature :	21.8℃
Model No. :	JLS MINI-I 20W	Humidity :	53%
Test Mode :	ON	Date of Test :	Jan 27, 2003

Test Line	Frequency (MHz)	Factor (dB)	Meter Reading dB(μV)	Emission Level dB(μV)	Limits dB(μV)	Margin (dB)
VA	0.168	0.20	44.83	45.03	65.08	20.05
	0.211	0.15	43.19	43.34	63.18	19.84
	0.251	0.13	42.06	42.19	61.73	19.54
	0.336	0.08	35.66	35.74	59.31	23.57
	0.461	0.06	36.64	36.70	56.67	19.97
	0.708	0.03	36.49	36.52	56.00	19.48
VB	0.170	0.20	44.22	44.42	64.94	20.52
	0.214	0.15	42.10	42.25	63.05	20.80
	0.258	0.14	41.86	42.00	61.51	19.51
	0.558	0.09	38.38	38.47	56.00	17.53
	0.690	0.08	36.57	36.65	56.00	19.35
	0.817	**0.08**	**39.64**	**39.72**	**56.00**	**16.28**

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 0.817 MHz with corrected signal level of 39.72 dB (μV) (limit is 56.00 dB (μV)), when the VB of the EUT is connected to LISN.

TEST ENGINEER: Solon Gong
(SOLON GONG)

EUT	:	Energy Saving Lamp	Temperature :	21.8℃
Model No.	:	JLS MINI-I 23W	Humidity :	53%
Test Mode	:	ON	Date of Test :	Jan 27, 2003

Test Line	Frequency (MHz)	Factor (dB)	Meter Reading dB(μV)	Emission Level dB(μV)	Limits dB(μV)	Margin (dB)
VA	0.174	0.19	46.37	46.56	64.77	18.21
	0.262	0.12	43.45	43.57	61.38	17.81
	0.437	0.07	37.43	37.50	57.11	19.61
	0.516	0.06	37.18	37.24	56.00	18.76
	0.690	**0.03**	**40.74**	**40.77**	**56.00**	**15.23**
	0.943	0.05	38.76	38.81	56.00	17.19
VB	0.171	0.20	44.33	44.53	64.90	20.37
	0.214	0.15	41.63	41.78	63.05	21.27
	0.256	0.15	41.41	41.56	61.56	20.00
	0.339	0.11	39.18	39.29	59.22	19.93
	0.471	0.09	39.45	39.54	56.49	16.95
	0.592	0.09	39.65	39.74	56.00	16.26

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 0.690 MHz with corrected signal level of 40.77 dB (μV) (limit is 56.00 dB (μV)), when the VA of the EUT is connected to LISN.

TEST ENGINEER: Solon Gong
(SOLON GONG)

EUT	:	Energy Saving Lamp	Temperature :	21.8℃
Model No.	:	JLS MINI-I 26W	Humidity :	53%
Test Mode	:	ON	Date of Test :	Jan 27, 2003

Test Line	Frequency (MHz)	Factor (dB)	Meter Reading dB(μV)	Emission Level dB(μV)	Limits dB(μV)	Margin (dB)
VA	0.183	0.18	49.20	49.38	64.33	14.95
	0.228	0.14	46.39	46.53	62.52	15.99
	0.274	0.11	44.71	44.82	60.98	16.16
	0.727	0.03	41.45	41.48	56.00	14.52
	0.853	0.04	40.12	40.16	56.00	15.84
	0.958	0.05	41.55	41.60	56.00	14.40
VB	0.182	0.18	49.33	49.51	64.37	14.86
	0.229	0.15	46.31	46.46	62.48	16.02
	0.274	0.13	44.71	44.84	60.98	16.14
	0.731	0.08	41.26	41.34	56.00	14.66
	0.958	**0.08**	**41.55**	**41.63**	**56.00**	**14.37**
	1.210	0.09	39.45	39.54	56.00	16.46

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 0.958 MHz with corrected signal level of 41.63 dB (μV) (limit is 56.00 dB (μV)), when the VB of the EUT is connected to LISN.

TEST ENGINEER: Solon Gong
(SOLON GONG)

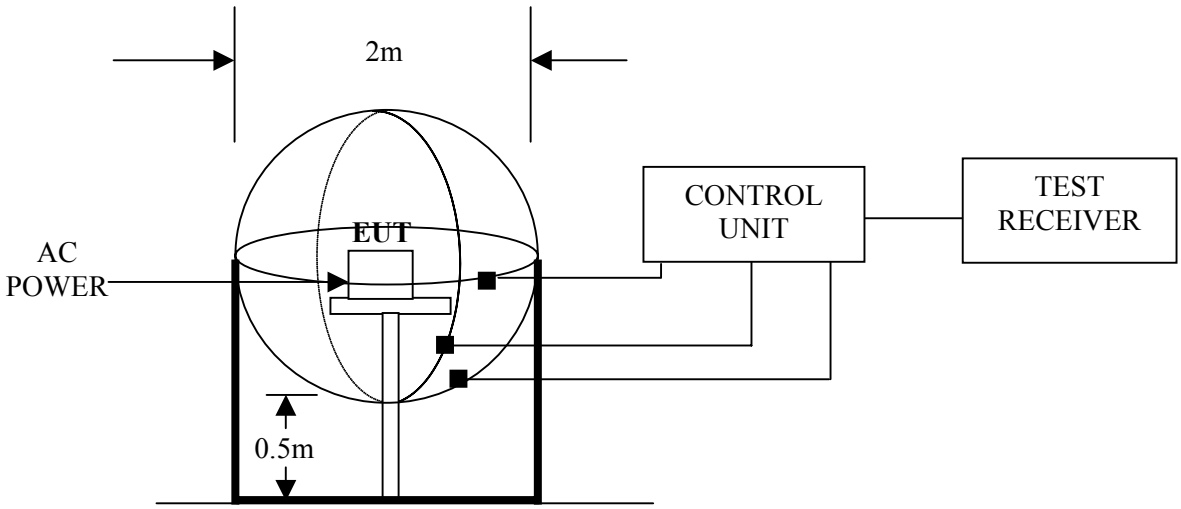
3 FIELDSTRENGTH TEST

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	Laplace	RF300	5001	Oct 29, 2002	1/2 Year
2.	Test Receiver	Rohde & Schwarz	ESHS10	844077/007	Jun 03, 2002	1 Year

3.2 Block Diagram of Test Setup



EUT : Energy Saving Lamp

3.3 Test Configuration

The configuration of the EUT is same as those used in conducted emission test. Refer to Sec. 2.4, except the test setup replaced by Sec. 3.2.

3.4 Operating Condition of EUT

Same as conducted emission test which is listed in Sec. 2.5, except the test setup replaced by Sec. 3.2.

3.5 Test Procedure

The EUT was placed on a wooden table, which is in the center of the loop antenna. The loop antenna is 0.5 meters above the ground. Each side had one sensor. The three sensors were through the control unit to connect the Test receiver, which receiving the emission and find out the maximum emission of each side of the loop antenna.

The IF bandwidth of R&S Test Receiver ESHS10 was set at 200 Hz from 9kHz to 150kHz and 10kHz from 150 kHz to 30 MHz.

The IF frequency range from 9 kHz to 30 MHz was checked.

The test mode (ON) was done on field strength test and all the test results are listed in Sec. 3.6.

3.6 Test Result

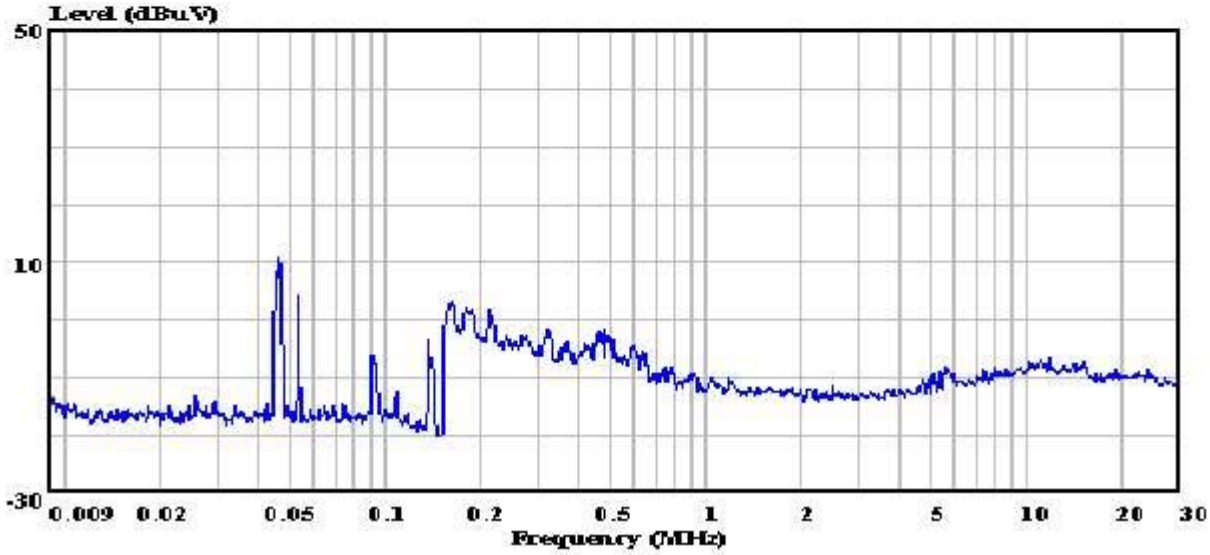
<**PASS**>

Refer to the following pages.

Audix Technology (Shanghai) Co., Ltd.
敦吉電子(上海)有限公司

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

Data#: 1001 File#: C:\emivm\TEST\J\joinluck.emi
Date: 2003-01-27 Time: 16:23:45

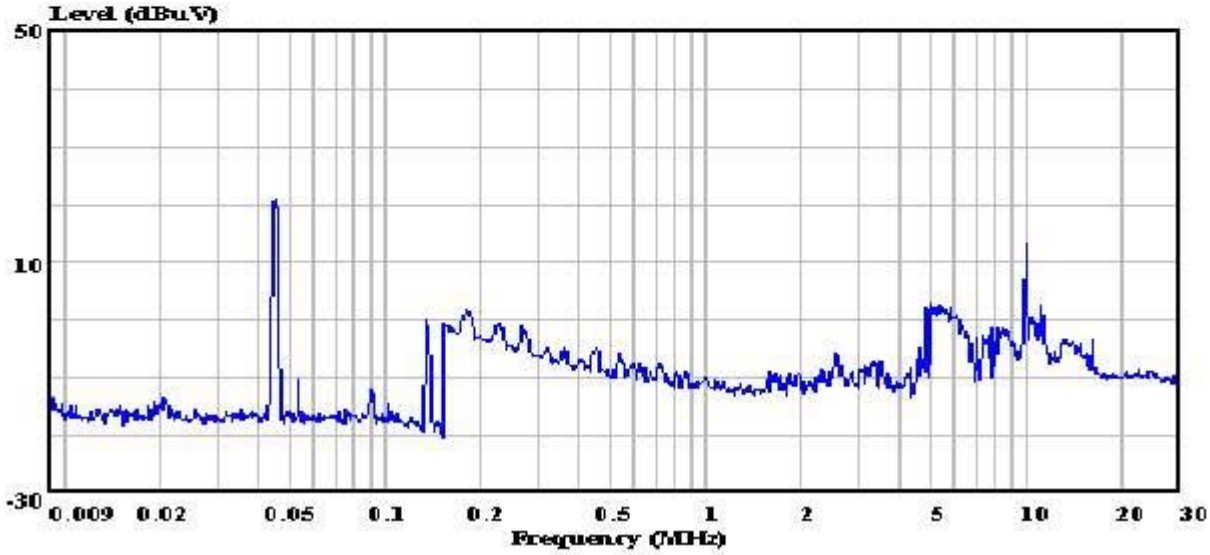


Site	: Conducted emission
Condition	:
Project No.	: AOE-000332
Applicant	: Fujian Joinluck Electronic Enterprise
	: Co., Ltd.
EUT	: Energy Saving Lamp
M/N	: JLS MINI-I 18W
S/N	: E03012701
Power Supply	: 120V/60Hz
Ambient	: 21.8'C 53%
Test Line	: A
Test Mode	: ON
Test Engineer:	

Audix Technology (Shanghai) Co., Ltd.
敦吉電子(上海)有限公司

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

Data#: 1003 File#: C:\emivm\TEST\J\joinluck.emi
Date: 2003-01-27 Time: 16:26:37

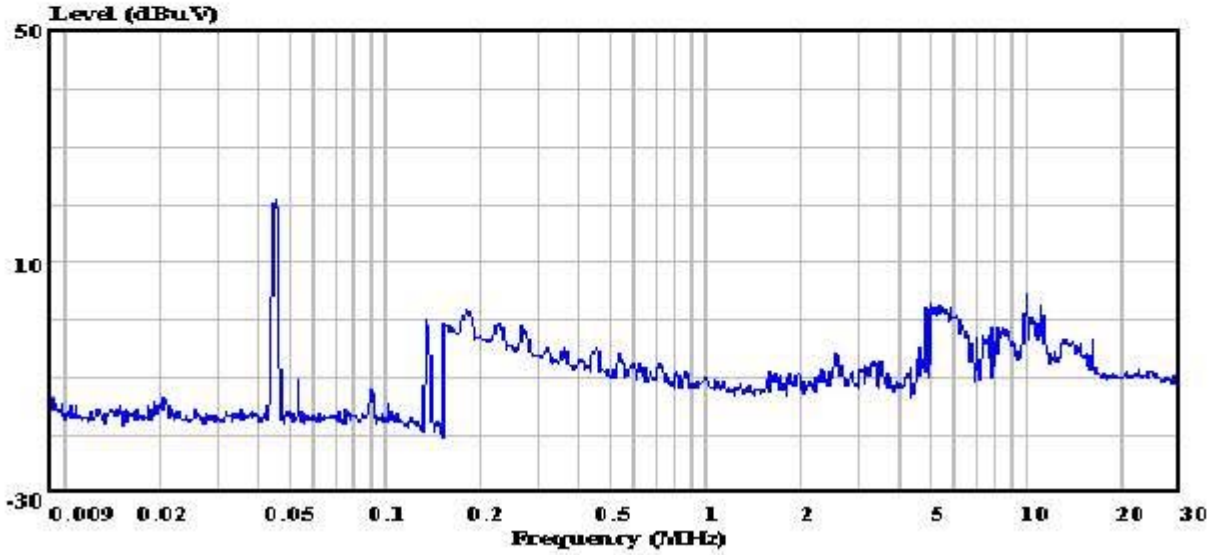


Site : Conducted emission
Condition :
Project No. : AOE-000332
Applicant : Fujian Joinluck Electronic Enterprise
: Co., Ltd.
EUT : Energy Saving Lamp
M/N : JLS MINI-I 18W
S/N : E03012701
Power Supply : 120V/60Hz
Ambient : 21.8'C 53%
Test Line : B
Test Mode : ON
Test Engineer: Solon

Audix Technology (Shanghai) Co., Ltd.
敦吉電子(上海)有限公司

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

Data#: 1004 File#: C:\emivm\TEST\J\joinluck.emi
Date: 2003-01-27 Time: 16:26:37

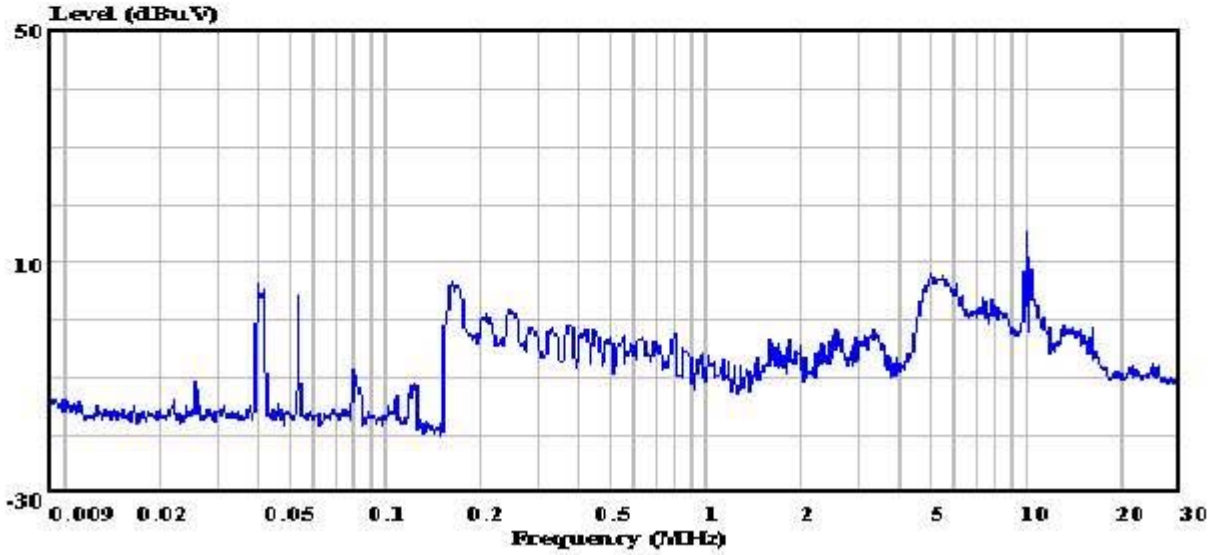


Site : Conducted emission
Condition :
Project No. : AOE-000332
Applicant : Fujian Joinluck Electronic Enterprise
: Co., Ltd.
EUT : Energy Saving Lamp
M/N : JLS MINI-I 18W
S/N : E03012701
Power Supply : 120V/60Hz
Ambient : 21.8'C 53%
Test Line : C
Test Mode : ON
Test Engineer: Solon

Audix Technology (Shanghai) Co., Ltd.
敦吉電子(上海)有限公司

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

Data#: 999 File#: C:\emivm\TEST\J\joinluck.emi
Date: 2003-01-27 Time: 16:19:53

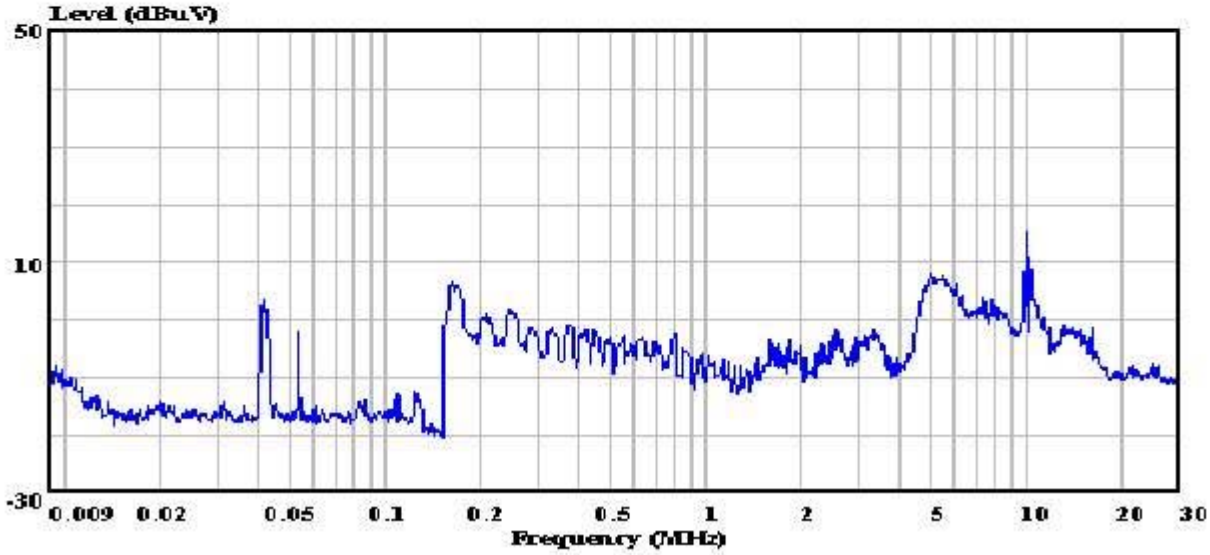


Site	: Conducted emission
Condition	:
Project No.	: AOE-000332
Applicant	: Fujian Joinluck Electronic Enterprise
	: Co., Ltd.
EUT	: Energy Saving Lamp
M/N	: JLS MINI-I 20W
S/N	: E03012702
Power Supply	: 120V/60Hz
Ambient	: 21.8'C 53%
Test Line	: A
Test Mode	: ON
Test Engineer:	Solon

Audix Technology (Shanghai) Co., Ltd.
敦吉電子(上海)有限公司

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

Data#: 997 File#: C:\emivm\TEST\J\joinluck.emi
Date: 2003-01-27 Time: 16:09:57

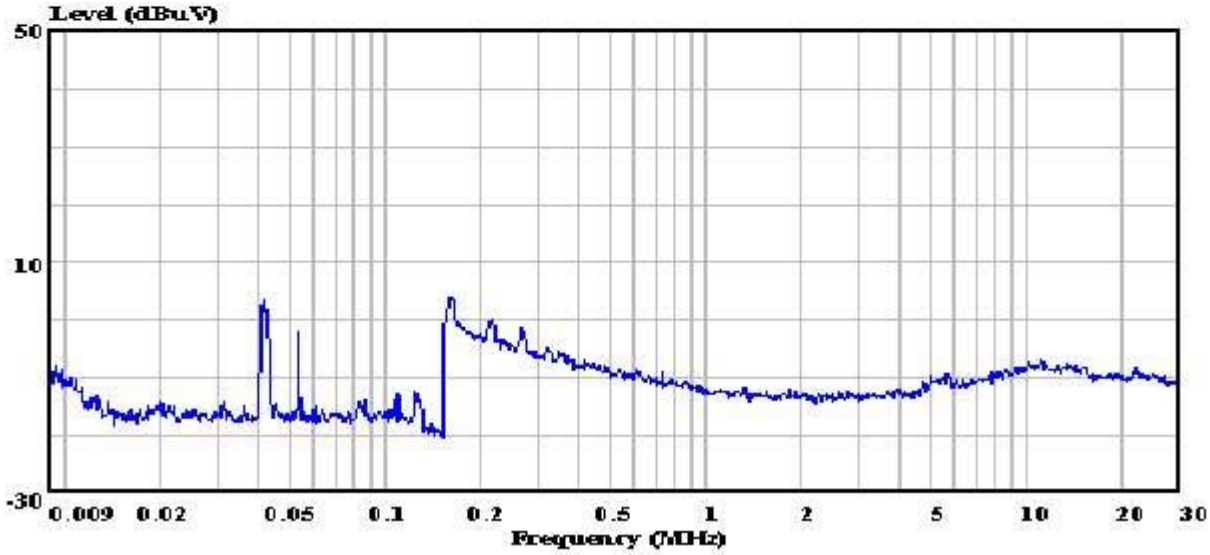


Site : Conducted emission
Condition :
Project No. : AOE-000332
Applicant : Fujian Joinluck Electronic Enterprise
: Co., Ltd.
EUT : Energy Saving Lamp
M/N : JLS MINI-I 20W
S/N : E03012702
Power Supply : 120V/60Hz
Ambient : 21.8'C 53%
Test Line : B
Test Mode : ON
Test Engineer: Solon

Audix Technology (Shanghai) Co., Ltd.
敦吉電子(上海)有限公司

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

Data#: 995 File#: C:\emivm\TEST\J\joinluck.emi
Date: 2003-01-27 Time: 15:57:55

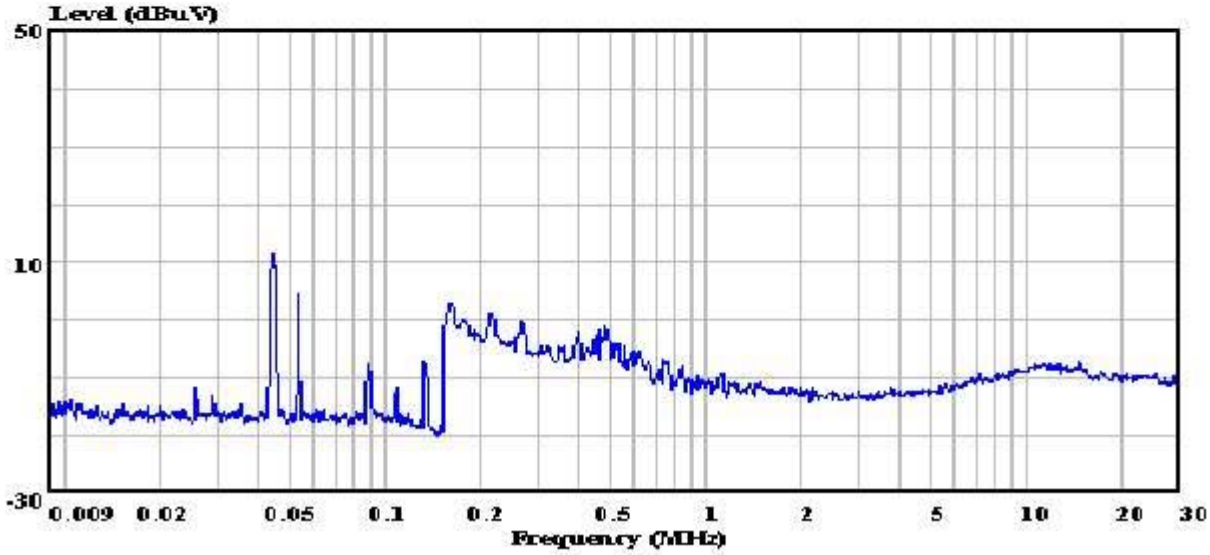


Site : Conducted emission
Condition :
Project No. : AOE-000332
Applicant : Fujian Joinluck Electronic Enterprise
: Co., Ltd.
EUT : Energy Saving Lamp
M/N : JLS MINI-I 20W
S/N : E03012702
Power Supply : 120V/60Hz
Ambient : 21.8'C 53%
Test Line : C
Test Mode : ON
Test Engineer: Solon

Audix Technology (Shanghai) Co., Ltd.
敦吉電子(上海)有限公司

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

Data#: 989 File#: C:\emivm\TEST\J\joinluck.emi
Date: 2003-01-27 Time: 15:20:05

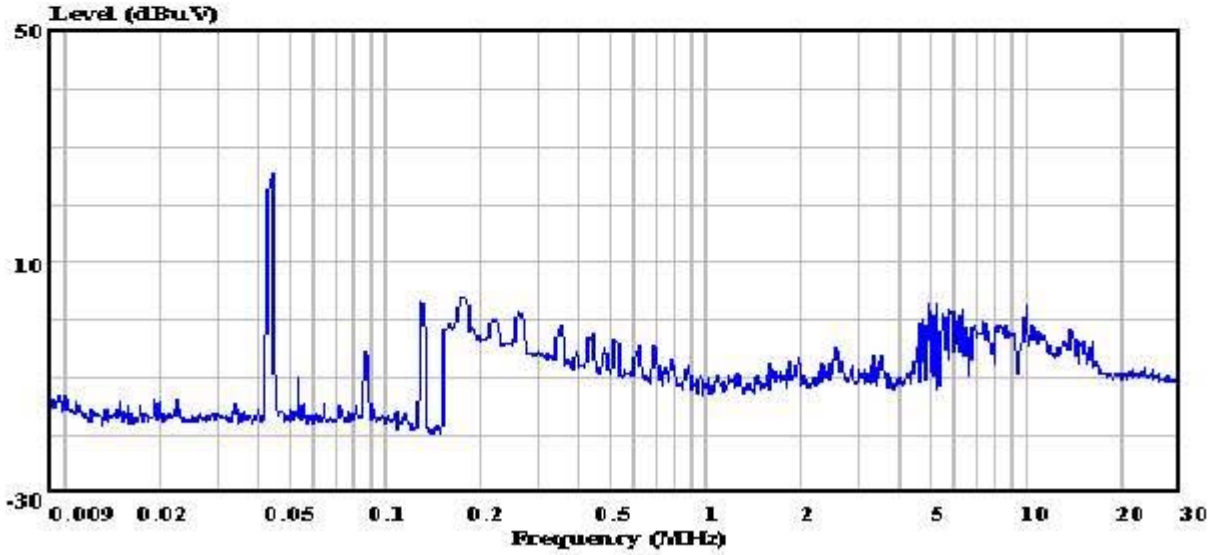


Site : Conducted emission
Condition :
Project No. : AOE-000332
Applicant : Fujian Joinluck Electronic Enterprise
: Co., Ltd.
EUT : Energy Saving Lamp
M/N : JLS MINI-I 23W
S/N : E03012703
Power Supply : 120V/60Hz
Ambient : 21.8'C 53%
Test Line : A
Test Mode : ON
Test Engineer: Solon

Audix Technology (Shanghai) Co., Ltd.
敦吉電子(上海)有限公司

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

Data#: 991 File#: C:\emivm\TEST\J\joinluck.emi
Date: 2003-01-27 Time: 15:23:19

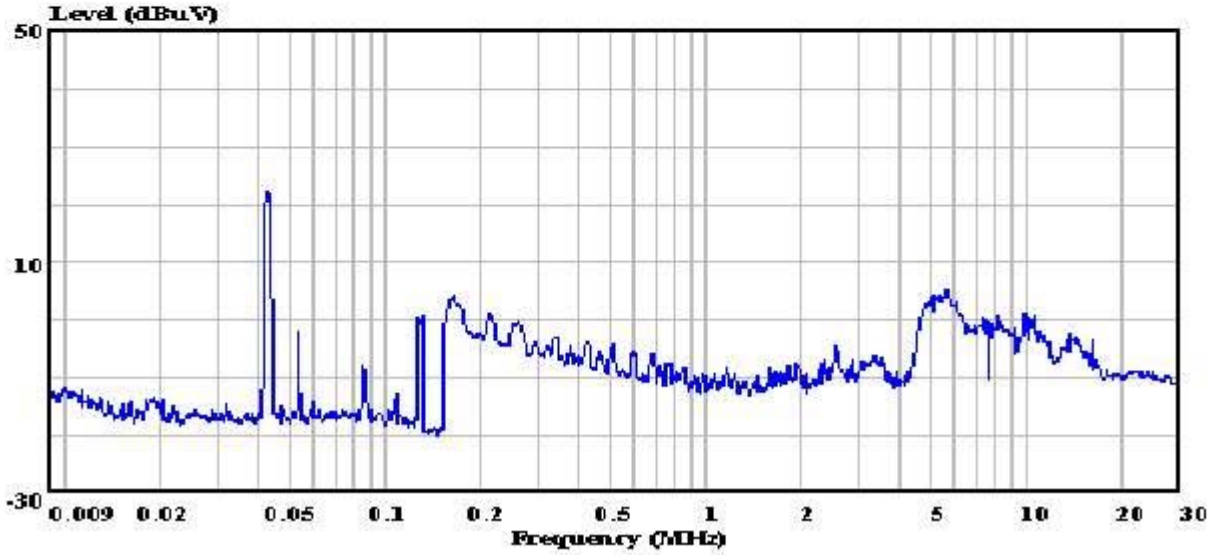


Site : Conducted emission
Condition :
Project No. : AOE-000332
Applicant : Fujian Joinluck Electronic Enterprise
: Co., Ltd.
EUT : Energy Saving Lamp
M/N : JLS MINI-I 23W
S/N : E03012703
Power Supply : 120V/60Hz
Ambient : 21.8'C 53%
Test Line : B
Test Mode : ON
Test Engineer: Solon

Audix Technology (Shanghai) Co., Ltd.
敦吉電子(上海)有限公司

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

Data#: 993 File#: C:\emivm\TEST\J\joinluck.emi
Date: 2003-01-27 Time: 15:44:57

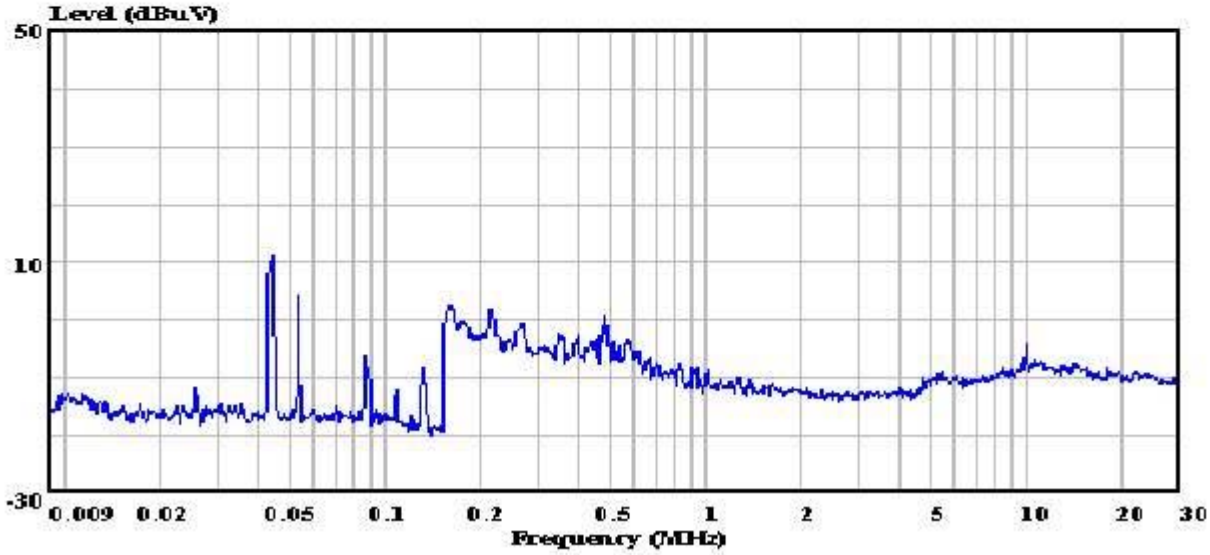


Site : Conducted emission
Condition :
Project No. : AOE-000332
Applicant : Fujian Joinluck Electronic Enterprise
: Co., Ltd.
EUT : Energy Saving Lamp
M/N : JLS MINI-I 23W
S/N : E03012703
Power Supply : 120V/60Hz
Ambient : 21.8'C 53%
Test Line : C
Test Mode : ON
Test Engineer: Solon

Audix Technology (Shanghai) Co., Ltd.
敦吉電子(上海)有限公司

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

Data#: 987 File#: C:\emivm\TEST\J\joinluck.emi
Date: 2003-01-27 Time: 15:11:44

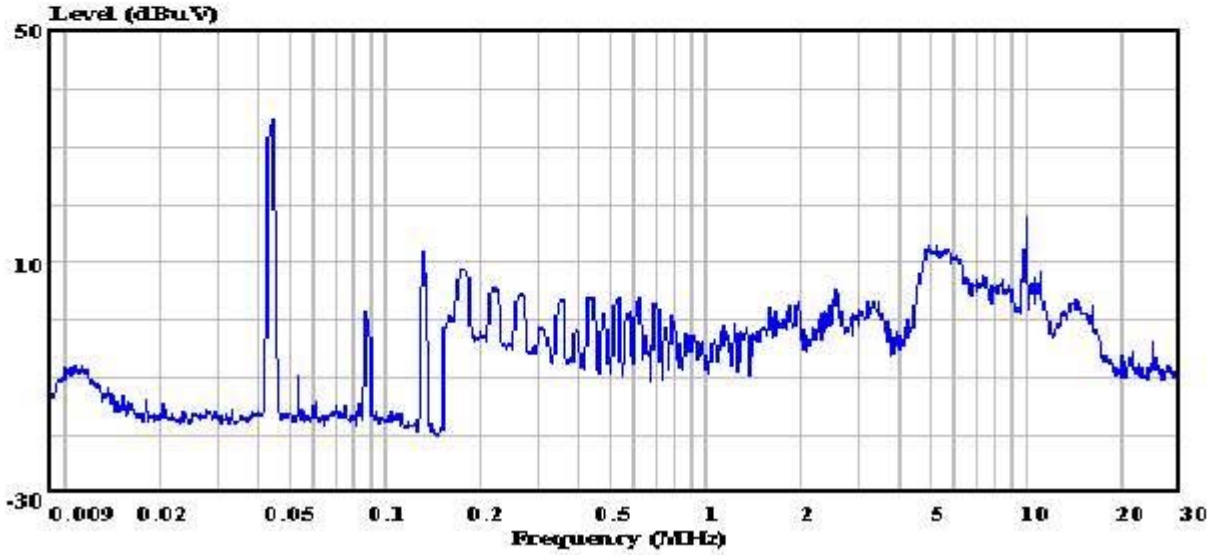


Site : Conducted emission
Condition :
Project No. : AOE-000332
Applicant : Fujian Joinluck Electronic Enterprise
: Co., Ltd.
EUT : Energy Saving Lamp
M/N : JLS MINI-I 26W
S/N : E03012704
Power Supply : 120V/60Hz
Ambient : 21.8'C 53%
Test Line : A
Test Mode : ON
Test Engineer: Solon

Audix Technology (Shanghai) Co., Ltd.
敦吉電子(上海)有限公司

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

Data#: 985 File#: C:\emivm\TEST\J\joinluck.emi
Date: 2003-01-27 Time: 15:05:22

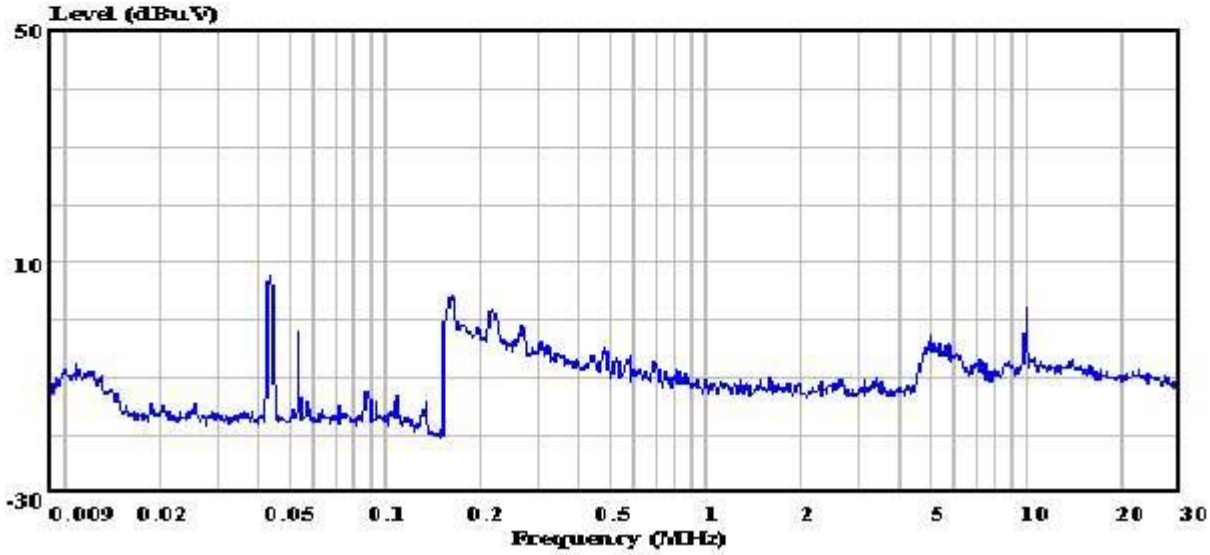


Site : Conducted emission
Condition :
Project No. : AOE-000332
Applicant : Fujian Joinluck Electronic Enterprise
: Co., Ltd.
EUT : Energy Saving Lamp
M/N : JLS MINI-I 26W
S/N : E03012704
Power Supply : 120V/60Hz
Ambient : 21.8'C 53%
Test Line : B
Test Mode : ON
Test Engineer: Solon

Audix Technology (Shanghai) Co., Ltd.
敦吉電子(上海)有限公司

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

Data#: 983 File#: C:\emivm\TEST\J\joinluck.emi
Date: 2003-01-27 Time: 14:54:58



Site : Conducted emission
Condition :
Project No. : AOE-000332
Applicant : Fujian Joinluck Electronic Enterprise
: Co., Ltd.
EUT : Energy Saving Lamp
M/N : JLS MINI-I 26W
S/N : E03012704
Power Supply : 120V/60Hz
Ambient : 21.8'C 53%
Test Line : C
Test Mode : ON
Test Engineer: Solon