

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

Energy Saving Lamp

Model No.:	JLS-S Mini 5W	JLS-S Mini 7W	JLS-S Mini 9W
	JLS-S Mini 11W	JLS-S Mini 13W	JLS-S Mini 15W

Serial No.:	F04022301	F04022302	F04022303
	F04022304	F04022305	F04022306

FCC ID: N6AFJEE0401

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

Prepared By :Audix Technology (Shanghai) Co., Ltd.
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Report No. : ACI-F04010
Date of Test : Feb 28, 2004
Date of Report : Mar 05, 2004

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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.:
JLS-S Mini 5W, JLS-S Mini 7W, JLS-S Mini 9W,
JLS-S Mini 11W, JLS-S Mini 13W, JLS-S Mini 15W
(B) Serial No.:
F04022301, F04022302, F04022303,
F04022304, F04022305, F04022306
(C) Power Supply: 120V/60Hz

Test Procedure Used:

*FCC RULES AND REGULATIONS PART 18 CONSUMER DEVICES (2003.10)
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 (M/N: JLS-S Mini 5W, JLS-S Mini 7W, JLS-S Mini 9W, JLS-S Mini 11W, JLS-S Mini 13W, JLS-S Mini 15W, S/N: F04022301, F04022302, F04022303, F04022304, F04022305, F04022306), which was tested in 3m anechoic chamber on Feb 28, 2004, 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 contains data that are not covered by the NVLAP accreditation.

This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the federal government.

Date of Test : Feb 28, 2004

Prepared by : Cathrin Yin 2004.03.08 Test Engineer : Coffon Ye 2004.03.08
CATHRIN YIN
(Assistant)
AUDIX® COFFON YE
(Engineer) For and on behalf of
Audix Technology (Shanghai) Co., Ltd.
Reviewer : Sammy Chen 2004.03.08 Approved Signatory : BYRON KWO 2004.03.08
SAMMY CHEN
(Engineer)
Authorized Signatory(s)
(Assistant Manager)

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-S Mini 5W, JLS-S Mini 7W, JLS-S Mini 9W, JLS-S Mini 11W, JLS-S Mini 13W, JLS-S Mini 15W
Except the outward appearance and model number, their Circuit Card Copper Traces are in agreement with the schematic. They all are tested. In this report only JLS-S Mini 5W, JLS-S Mini 9W and JLS-S Mini 15W is recorded.

Serial Number : F04022301, F04022302, F04022303, F04022304, F04022305, F04022306

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-S Mini 5W	9.34	5.15
JLS-S Mini 7W	13.70	7.80
JLS-S Mini 9W	17.28	9.52
JLS-S Mini 11W	19.68	11.18
JLS-S Mini 13W	23.00	12.50
JLS-S Mini 15W	25.80	13.60

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 : $U = \pm 2.66\text{dB}$

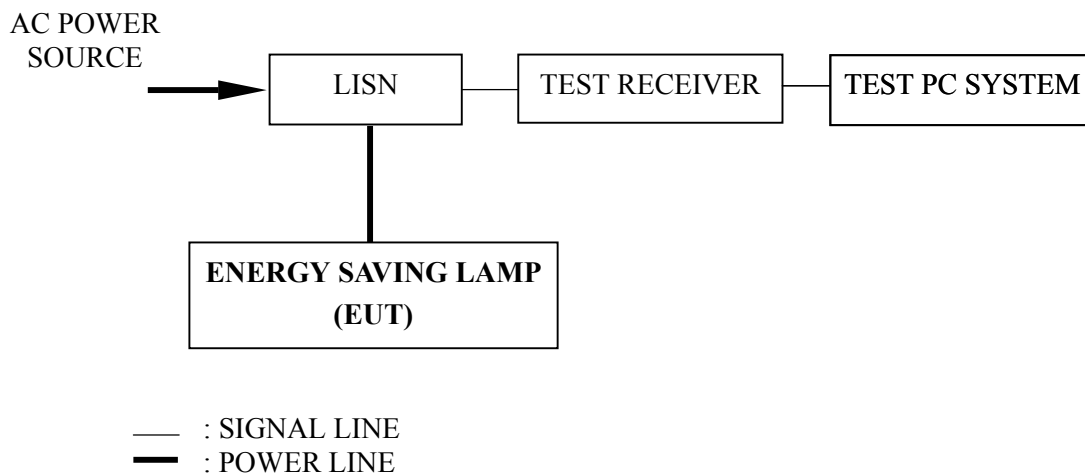
2 AC POWERLINE CONDUCTED EMISSION TEST

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	844077/020	Apr 21, 2003	1 Year
2.	Line Impedance Stabilization Network (LISN)	Kyoritsu	KNW-407	8-1280-5	Apr 24, 2003	1 Year
3.	Coaxial Switch	Anritsu	MP59B	M73389	Oct 28, 2003	1/2 Year
4.	Software	Audix	E3	SET00200 9804M592	-	-

2.2 Block Diagram of Test Setup



2.3 Conducted Emission Limits

Frequency (MHz)	Maximum RF Line Voltage	
	(μ V)	dB(μ V)
0.45 ~ 2.51	250	48
2.51 ~ 3	3000	70
3 ~ 30	250	48
NOTE 1 – RF Line Voltage dB (μ V) = 20 log RF Line Voltage (μ V) NOTE 2 – The tighter limits shall apply at the boundary between two frequency ranges.		

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 450 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°C

Model No. : JLS-S Mini 5W Humidity : 53%

Serial No. : F04022301

Test Mode : Lighting Date of Test : Feb 28, 2004

Test Line	Frequency (MHz)	Factor (dB)	Meter Reading dB(μV)	Emission Level dB(μV)	Limits dB(μV)	Margin (dB)
VA	0.460	0.13	36.34	36.47	48.00	11.53
	0.557	0.13	34.25	34.38	48.00	13.62
	0.742	0.13	34.52	34.65	48.00	13.35
	0.975	0.11	34.10	34.21	48.00	13.79
	2.137	0.15	29.68	29.83	48.00	18.17
	14.386	0.56	18.62	19.18	48.00	28.82
VB	0.510	0.16	35.14	35.30	48.00	12.70
	0.648	0.18	35.29	35.47	48.00	12.53
	0.831	0.18	32.27	32.45	48.00	15.55
	1.124	0.18	33.05	33.23	48.00	14.77
	2.058	0.21	30.29	30.50	48.00	17.50
	13.622	0.52	19.40	19.92	48.00	28.08
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 0.460 MHz with corrected signal level of 36.47 dB (μV) (limit is 48.00 dB (μV)), when the VA of the EUT is connected to LISN.						

TEST ENGINEER: Coffon Ye
(COFFON YE)

EUT : Energy Saving Lamp Temperature : 21.8°C

Model No. : JLS-S Mini 9W Humidity : 53%

Serial No. : F04022303

Test Mode : Lighting Date of Test : Feb 28, 2004

Test Line	Frequency (MHz)	Factor (dB)	Meter Reading dB(μV)	Emission Level dB(μV)	Limits dB(μV)	Margin (dB)
VA	0.569	0.13	37.04	37.17	48.00	10.83
	0.817	0.12	34.83	34.95	48.00	13.05
	0.975	0.11	36.02	36.13	48.00	11.87
	1.197	0.12	36.32	36.44	48.00	11.56
	2.174	0.15	31.28	31.43	48.00	16.57
	15.978	0.66	23.78	24.44	48.00	23.56
VB	0.498	0.16	37.81	37.97	48.00	10.03
	0.702	0.18	33.02	33.20	48.00	14.80
	1.115	0.18	35.53	35.71	48.00	12.29
	1.264	0.18	34.62	34.80	48.00	13.20
	2.808	0.23	32.13	32.36	70.00	37.64
	15.712	0.61	23.76	24.37	48.00	23.63

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 0.498 MHz with corrected signal level of 37.97 dB (μV) (limit is 48.00 dB (μV)), when the VB of the EUT is connected to LISN.

TEST ENGINEER: Coffon Ye
(COFFON YE)

EUT : Energy Saving Lamp Temperature : 21.8°C

Model No. : JLS-S Mini 15W Humidity : 53%

Serial No. : F04022306

Test Mode : Lighting Date of Test : Feb 28, 2004

Test Line	Frequency (MHz)	Factor (dB)	Meter Reading dB(μV)	Emission Level dB(μV)	Limits dB(μV)	Margin (dB)
VA	0.528	0.13	38.21	38.34	48.00	9.66
	0.673	0.13	36.96	37.09	48.00	10.91
	1.167	0.12	34.95	35.07	48.00	12.93
	1.965	0.15	32.78	32.93	48.00	15.07
	6.870	0.24	30.33	30.57	48.00	17.43
	16.734	0.72	25.78	26.50	48.00	21.50
VB	0.599	0.17	38.05	38.22	48.00	9.78
	0.754	0.18	35.75	35.93	48.00	12.07
	1.243	0.18	34.45	34.63	48.00	13.37
	2.093	0.21	32.35	32.56	48.00	15.44
	2.991	0.23	31.71	31.94	70.00	38.06
	16.113	0.62	25.58	26.20	48.00	21.80
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 0.528 MHz with corrected signal level of 38.34 dB (μV) (limit is 48.00 dB (μV)), when the VA of the EUT is connected to LISN.						

TEST ENGINEER: Coffon Ye
(COFFON YE)

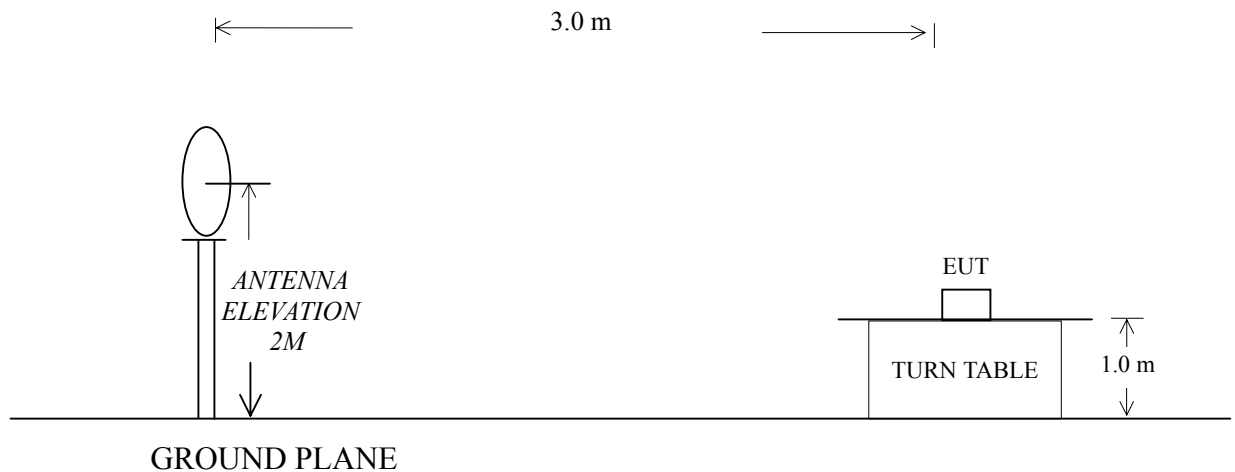
3 MAGNETIC FIELD EMISSION TEST

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	Schaffner	HLA6120	1193	Aug 05, 03	1 Year
2.	Test Receiver	Rohde & Schwarz	ESHS10	844077/020	Apr 23, 03	1 Year
3.	Software	Audix	E3	SET00200 9912M295-2	-	-

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)	Distance (m)	Field Strength Limits ($\mu\text{V/m}$)	Converted Field Strength Limits By 3 Meters Measuring Distance dB($\mu\text{V/m}$)
0.009~30	300	15	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. NOTE 2 – Audix Technology (Shanghai) Co., Ltd. only has a 3 meters Semi-anechoic Chamber to do the radiated disturbance test, therefore, Audix Shanghai used 3 meters measuring distance and converted limits to judge the EUT compliance with or not.			

3.4 EUT Configuration on Test

The FCC part 18 regulations 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 Procedures

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 Results

<PASS>

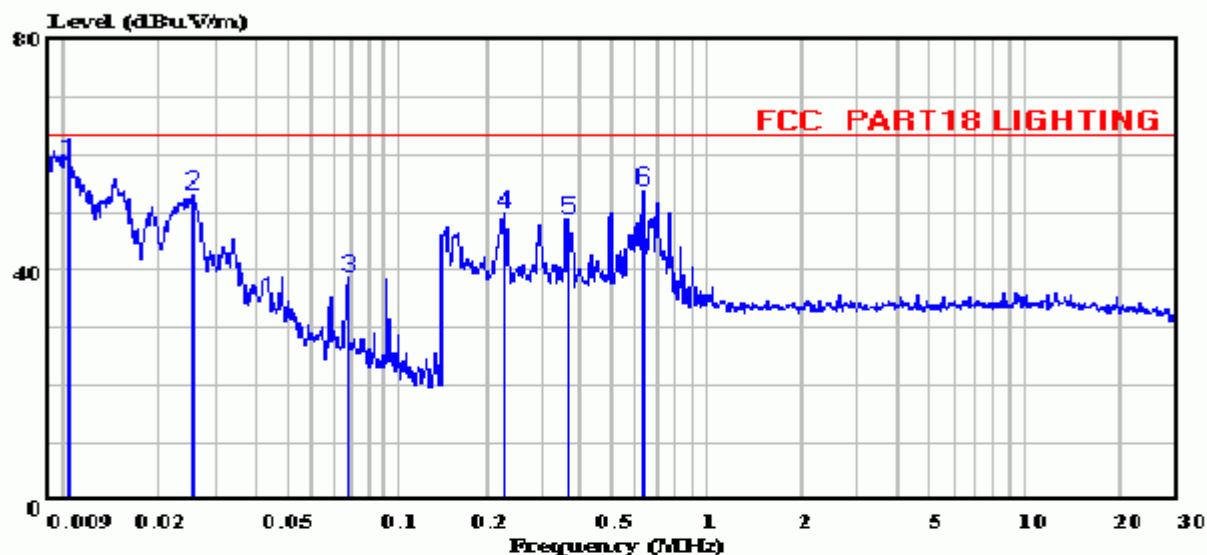
Refer to the following pages.



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aciemc@audix.com

Data#: 88 File#: D:\EMI_TEST\Data\J\joinluck.emi

Date: 2004-02-28 Time: 08:36:22



Site : audix-aci NO.3 CHAMBER
Condition : FCC PART18 LIGHTING 3m HLA6120
Project No : AOE-000591
Applicant : Fujian Joinluck Electronic Enterprise
: Co.,Ltd
EUT : Energy Saving Lamp
M/N : JLS-S Mini 5W
S/N : F04022301
Power Supply : 120V/60Hz
Ambient : 23'C 53%
Test Mode : Lighting
Test Engineer:

Cefan Ye

Page: 1

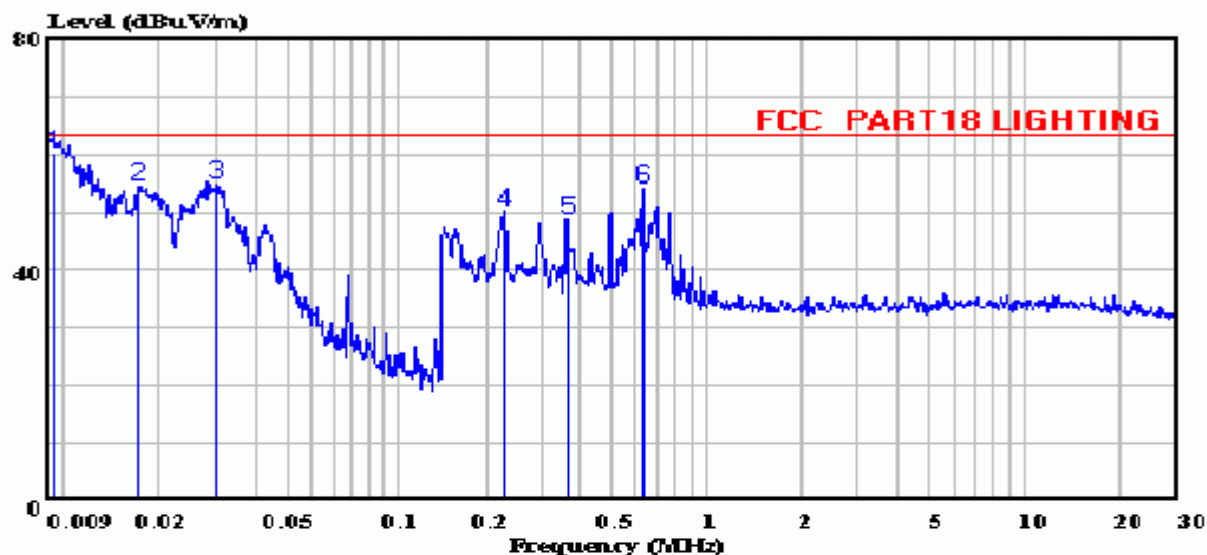
	Freq	Read Level	Level	Limit Line	Over Limit	Factor	Cable Loss	Probe Factor
	MHz	dBuV	dBuV/m	dBuV/m	dB	dB	dB	dB
1	0.010	38.20	59.01	63.50	-4.49	20.81	0.11	20.70
2	0.026	32.23	53.01	63.50	-10.49	20.78	0.19	20.59
3	0.077	18.11	38.68	63.50	-24.82	20.57	0.28	20.29
4	0.238	29.27	49.74	63.50	-13.76	20.47	0.37	20.10
5	0.376	28.51	48.92	63.50	-14.58	20.41	0.41	20.00
6	0.647	33.53	53.98	63.50	-9.52	20.45	0.45	20.00



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Date: 2004-02-28 Time: 08:43:08



Site : audix-aci NO.3 CHAMBER
Condition : FCC PART18 LIGHTING 3m HLA6120
Project No : AOE-000591
Applicant : Fujian Joinluck Electronic Enterprise
: Co.,Ltd
EUT : Energy Saving Lamp
M/N : JLS-S Mini 9W
S/N : F04022303
Power Supply : 120V/60Hz
Ambient : 23'C 53%
Test Mode : Lighting
Test Engineer:

Jeffery

Page: 1

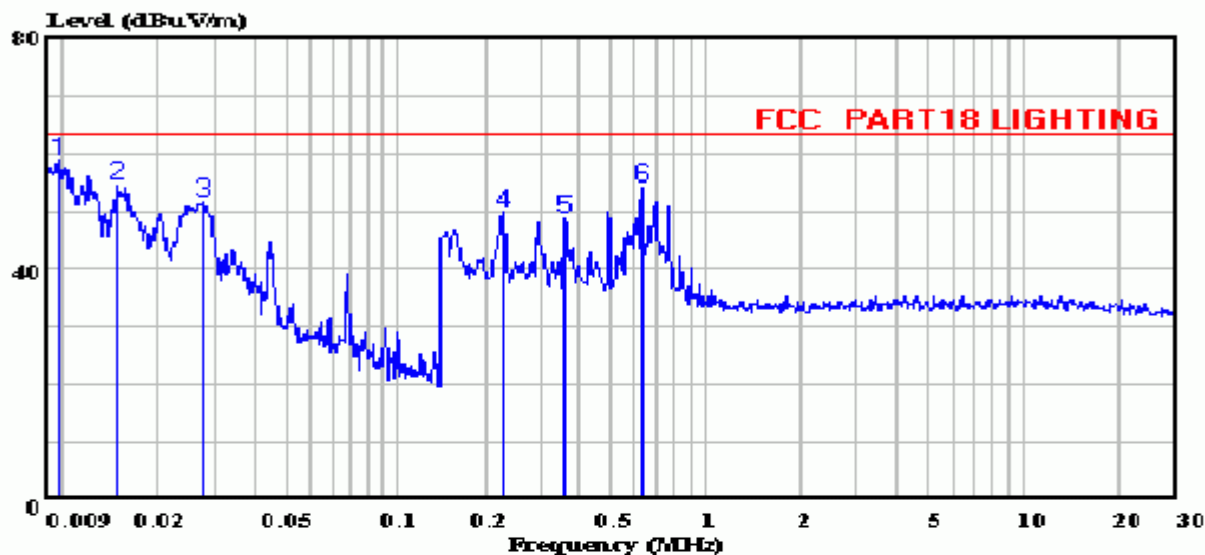
	Freq	Read Level	Level	Limit	Over Limit	Factor	Cable Loss	Probe Factor
	MHz	dBuV	dBuV/m	dBuV/m	dB	dB	dB	dB
1	0.009	39.46	60.26	63.50	-3.24	20.80	0.10	20.70
2	0.017	33.78	54.58	63.50	-8.92	20.80	0.15	20.65
3	0.030	34.00	54.72	63.50	-8.78	20.72	0.20	20.52
4	0.237	29.69	50.16	63.50	-13.34	20.47	0.37	20.10
5	0.376	28.31	48.72	63.50	-14.78	20.41	0.41	20.00
6	0.647	33.81	54.26	63.50	-9.24	20.45	0.45	20.00



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Data#: 103 File#: D:\EMI_TEST\Data\J\joinluck.emi

Date: 2004-02-28 Time: 08:56:11



Site : audix-aci NO.3 CHAMBER
Condition : FCC PART18 LIGHTING 3m HLA6120
Project No : AOE-000591
Applicant : Fujian Joinluck Electronic Enterprise
: Co.,Ltd
EUT : Energy Saving Lamp
M/N : JLS-S Mini 15W
S/N : F04022306
Power Supply : 120V/60Hz
Ambient : 23'C 53%
Test Mode : Lighting
Test Engineer: *Jeffrey*

Page: 1

		Read		Limit	Over	Cable	Probe	
	Freq	Level	Level	Line	Limit	Factor	Loss	Factor
	MHz	dBuV	dBuV/m	dBuV/m	dB	dB	dB	dB
1	0.010	37.91	58.72	63.50	-4.78	20.81	0.11	20.70
2	0.015	33.60	54.44	63.50	-9.06	20.84	0.14	20.70
3	0.028	30.87	51.62	63.50	-11.88	20.75	0.19	20.56
4	0.237	29.31	49.78	63.50	-13.72	20.47	0.37	20.10
5	0.373	28.35	48.76	63.50	-14.74	20.41	0.41	20.00
6	0.647	33.77	54.22	63.50	-9.28	20.45	0.45	20.00