

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

Serial No.: F04060901 F04060902
 F04060903 F04060904

FCC ID: N6AFJEE0404

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-F04055
Date of Test : Jun 28-30, 2004
Date of Report : July 02, 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 MINI I 18W, JLS MINI I 20W
JLS MINI I 23W, JLS MINI I 26W
(B) Serial No.:
E04060901, E04060902,
E04060903, E04060904
(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 (Please see the EUT Description above), which was tested in 3m anechoic chamber on Jun 28-30, 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 : Jun 28-30, 2004

Prepared by : Cathrin Yin 2004.07.23 Test Engineer :
CATHRIN YIN
(Assistant)

Harry Zhao 2004.7.23
AUDIX HARRY ZHAO
For and on behalf of
Audix Technology (Shanghai) Co., Ltd.
(Engineer)

Reviewer : Sammy Chen 2004.7.23
SAMMY CHEN
(Engineer)

Approved Signatory : Wong Kwo 2004.7.23
Authorized Signature(s) KWO
(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 MINI I 18W, JLS MINI I 20W
JLS MINI I 23W, JLS MINI I 26W

Serial Number : F04060901, F04060902,
F04060903, F04060904,

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	30.75	16.69
JLS MINI I 20W	41.20	22.10
JLS MINI I 23W	43.70	23.90
JLS MINI I 26W	46.20	25.90

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

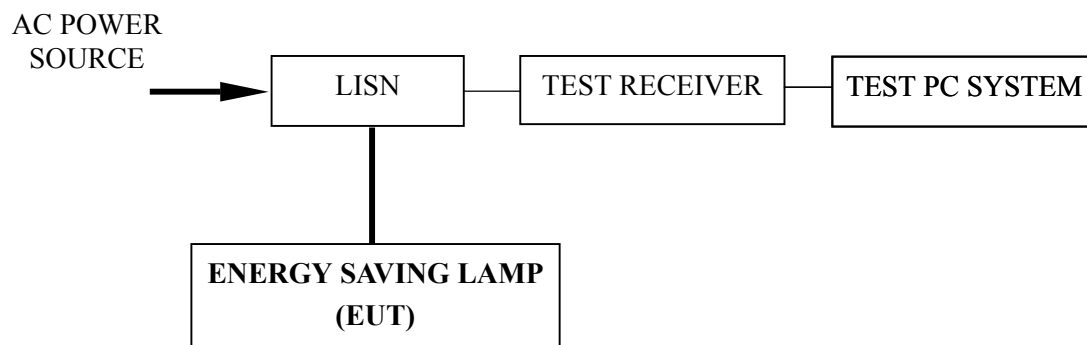
2 AC POWERLINE CONDUCTED EMISSION TEST

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 20, 2004	1 Year
2.	Line Impedance Stabilization Network (LISN)	Kyoritsu	KNW-407	8-1280-5	Apr 27, 2004	1 Year
3.	50Ω Coaxial Switch	ANRITSU	MP59B	M73389	Mar 21, 2004	1/2 Year
4.	Software	Audix	E3	SET00200 9804M592	-	-

2.2 Block Diagram of Test Setup



— : SIGNAL LINE
 — : POWER LINE

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 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

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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.

The worse case is for JLS MINI I 26W. The worst emission is detected at 0.609 MHz with corrected signal level of 45.33 dB(μ V) (limit is 48.00 dB(μ V)), when the VB of the EUT is connected to LISN.

EUT : Energy Saving Lamp Temperature : 25.8°C

Model No. : JLS MINI I 18W Humidity : 57%

Serial No. : F04060901 Date of Test : Jun 28, 2004

Test Line	Frequency (MHz)	Meter Reading dB(μV)	Factor (dB)	Emission Level dB(μV)	Limits dB(μV)	Margin (dB)
VA	0.460	36.77	0.28	37.05	48.00	10.95
	0.574	37.85	0.29	38.14	48.00	9.86
	0.691	41.15	0.28	41.43	48.00	6.57
	0.803	44.27	0.29	44.56	48.00	3.44
	0.975	38.71	0.29	39.00	48.00	9.00
	1.483	29.82	0.31	30.13	48.00	17.87
VB	0.460	36.16	0.32	36.48	48.00	11.52
	0.574	37.29	0.32	37.61	48.00	10.39
	0.685	39.76	0.33	40.09	48.00	7.91
	0.856	38.81	0.35	39.16	48.00	8.84
	0.911	39.34	0.36	39.70	48.00	8.30
	1.369	30.63	0.38	31.01	48.00	16.99
NOTE 1 - Probe Factor means insertion loss of LISN. NOTE 2 - Factor = Cable Loss + Probe Factor. NOTE 3 - Emission Level = Meter Reading + Factor. NOTE 4 - All reading are Quasi-Peak Values.						

TEST ENGINEER: Harry Zhao
(HARRY ZHAO)

EUT : Energy Saving Lamp Temperature : 25.8°C

Model No. : JLS MINI I 20W Humidity : 57%

Serial No. : F04060902 Date of Test : Jun 28, 2004

Test Line	Frequency (MHz)	Meter Reading dB(μV)	Factor (dB)	Emission Level dB(μV)	Limits dB(μV)	Margin (dB)
VA	0.548	41.51	0.28	41.79	48.00	6.21
	0.604	41.93	0.28	42.21	48.00	5.79
	0.754	42.48	0.29	42.77	48.00	5.23
	0.983	41.93	0.29	42.22	48.00	5.78
	1.341	31.40	0.32	31.72	48.00	16.28
	2.024	30.02	0.34	30.36	48.00	17.64
VB	0.562	39.13	0.32	39.45	48.00	8.55
	0.617	39.68	0.33	40.01	48.00	7.99
	0.685	38.73	0.33	39.06	48.00	8.94
	0.817	41.78	0.34	42.12	48.00	5.88
	1.228	34.55	0.37	34.92	48.00	13.08
	2.041	28.84	0.40	29.24	48.00	18.76
NOTE 1 - Probe Factor means insertion loss of LISN. NOTE 2 - Factor = Cable Loss + Probe Factor. NOTE 3 - Emission Level = Meter Reading + Factor. NOTE 4 - All reading are Quasi-Peak Values.						

TEST ENGINEER: *Harry Zhao*
(HARRY ZHAO)

EUT : Energy Saving Lamp Temperature : 25.8°C

Model No. : JLS MINI I 23W Humidity : 57%

Serial No. : F04060903 Date of Test : Jun 28, 2004

Test Line	Frequency (MHz)	Meter Reading dB(μV)	Factor (dB)	Emission Level dB(μV)	Limits dB(μV)	Margin (dB)
VA	0.502	41.01	0.28	41.29	48.00	6.71
	0.609	41.87	0.28	42.15	48.00	5.85
	0.723	42.90	0.29	43.19	48.00	4.81
	0.856	43.49	0.28	43.77	48.00	4.23
	1.078	41.76	0.30	42.06	48.00	5.94
	1.725	28.35	0.33	28.68	48.00	19.32
VB	0.489	39.86	0.31	40.17	48.00	7.83
	0.599	41.88	0.33	42.21	48.00	5.79
	0.654	42.80	0.33	43.13	48.00	4.87
	0.958	37.21	0.36	37.57	48.00	10.43
	1.124	34.90	0.37	35.27	48.00	12.73
	1.799	31.03	0.39	31.42	48.00	16.58
NOTE 1 - Probe Factor means insertion loss of LISN. NOTE 2 - Factor = Cable Loss + Probe Factor. NOTE 3 - Emission Level = Meter Reading + Factor. NOTE 4 - All reading are Quasi-Peak Values.						

TEST ENGINEER: *Harry Zhao*
(HARRY ZHAO)

EUT : Energy Saving Lamp Temperature : 25.8°C

Model No. : JLS MINI I 26W Humidity : 57%

Serial No. : F04060904 Date of Test : Jun 28, 2004

Test Line	Frequency (MHz)	Meter Reading dB(μV)	Factor (dB)	Emission Level dB(μV)	Limits dB(μV)	Margin (dB)
VA	0.479	42.03	0.28	42.31	48.00	5.69
	0.594	43.82	0.28	44.10	48.00	3.90
	0.783	42.05	0.29	42.34	48.00	5.66
	0.987	41.17	0.29	41.46	48.00	6.54
	1.105	37.32	0.30	37.62	48.00	10.38
	2.476	27.77	0.36	28.13	48.00	19.87
VB	0.471	43.28	0.31	43.59	48.00	4.41
	0.609	45.00	0.33	45.33	48.00	2.67
	0.714	43.74	0.34	44.08	48.00	3.92
	0.841	41.23	0.35	41.58	48.00	6.42
	0.934	39.70	0.36	40.06	48.00	7.94
	1.471	29.63	0.38	30.01	48.00	17.99
NOTE 1 - Probe Factor means insertion loss of LISN. NOTE 2 - Factor = Cable Loss + Probe Factor. NOTE 3 - Emission Level = Meter Reading + Factor. NOTE 4 - All reading are Quasi-Peak Values.						

TEST ENGINEER: *Harry Zhao*
(HARRY ZHAO)

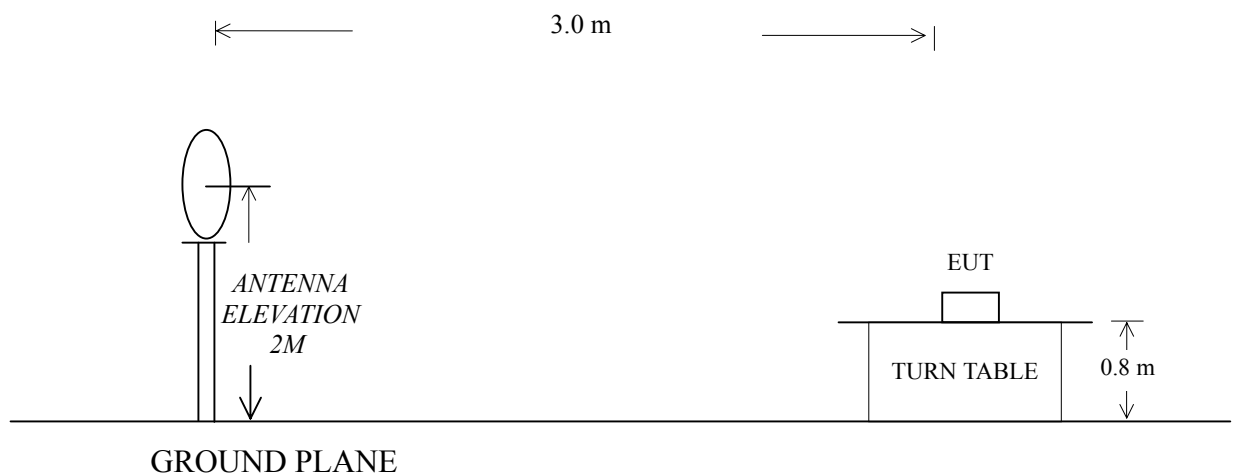
3 MAGNETIC FIELD EMISSION TEST

3.1 Test Equipment

The following test equipment are used during the field strength test in a semi-anechoic chamber:

Item	Type	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Loop Antenna	Schaffner	HLA6120	1193	Aug 06, 2003	2 Year
2.	Test Receiver	Rohde & Schwarz	ESVS10	844594/001	Apr 20, 2004	1 Year
3.	50Ω Coaxial Switch	ANRITSU	MP59B	M74689	Mar 21, 2004	1/2 Year
4.	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)	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 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 0.8 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

NOTE 1 - Probe Factor means antenna factor of the 0.6m Loop Antenna.

NOTE 2 - Factor = Probe Factor + Cable Loss

NOTE 3 - Level = Read Level+ Factor

NOTE 4 - All reading are Quasi-Peak values.

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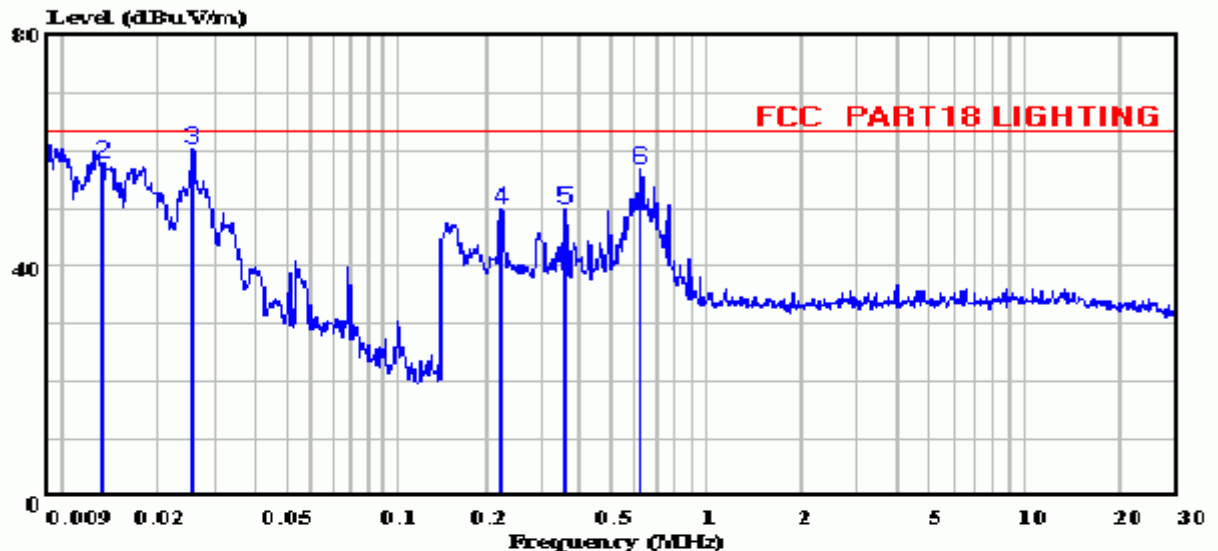
Refer to the following pages.



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aciemc@audix.com

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Date: 2004-06-30 Time: 17:31:42



Site : audix-aci NO.3 CHAMBER
Condition : FCC PART18 LIGHTING 3m HLA6120
Project No : AOE-000678
Applicant : Fujian Joinluck Electronic Enterprise
: Co.,Ltd
EUT : Energy Saving Lamp
M/N : JLS MINI I 18W
S/N : F04060901
Power Supply : 120V/60Hz
Ambient : 23'C 53%
Test Mode : Lighting
Test Engineer: *Henry Zhu*

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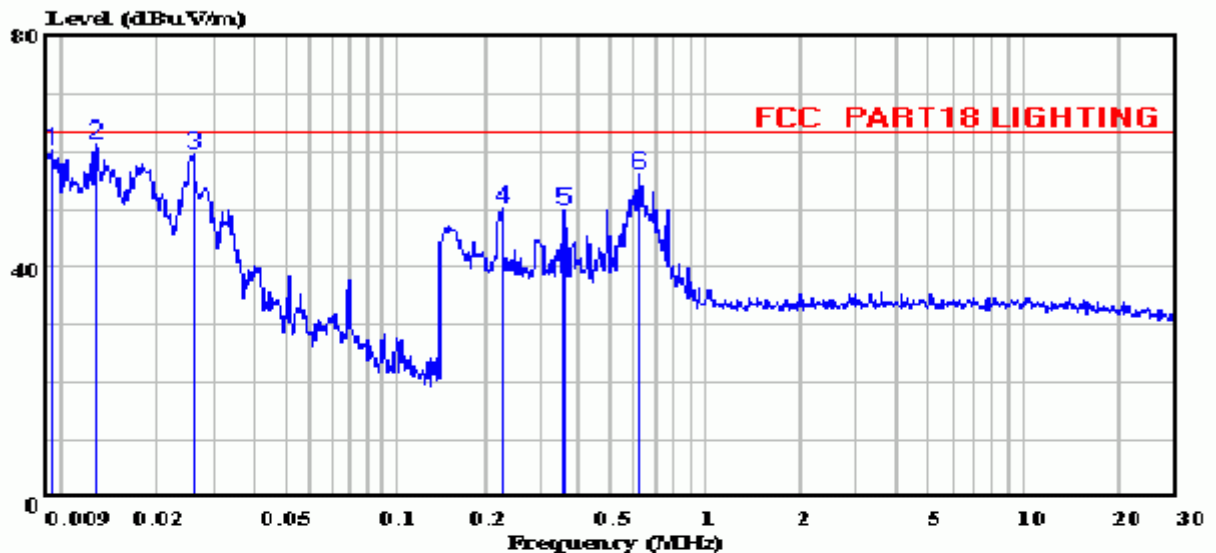
		Read		Limit	Over		Probe	Cable
	Freq	Level	Level	Line	Limit	Factor	Factor	Loss
	MHz	dBuV	dBuV/m	dBuV/m	dB	dB	dB	dB
1	0.009	41.40	62.20	63.50	-1.30	20.80	20.70	0.10
2	0.013	36.94	57.77	63.50	-5.73	20.83	20.70	0.13
3	0.025	39.62	60.40	63.50	-3.10	20.78	20.59	0.19
4	0.235	29.25	49.72	63.50	-13.78	20.47	20.10	0.37
5	0.370	29.31	49.72	63.50	-13.78	20.41	20.00	0.41
6	0.636	36.37	56.82	63.50	-6.68	20.45	20.00	0.45



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aciemc@audix.com

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Date: 2004-06-30 Time: 17:36:33



Site : audix-aci NO.3 CHAMBER
Condition : FCC PART18 LIGHTING 3m HLA6120
Project No : AOE-000678
Applicant : Fujian Joinluck Electronic Enterprise
: Co.,Ltd
EUT : Energy Saving Lamp
M/N : JLS MINI I 20W
S/N : F04060902
Power Supply : 120V/60Hz
Ambient : 23'C 53%
Test Mode : Lighting
Test Engineer: *Harry Zhuo*

Page: 1

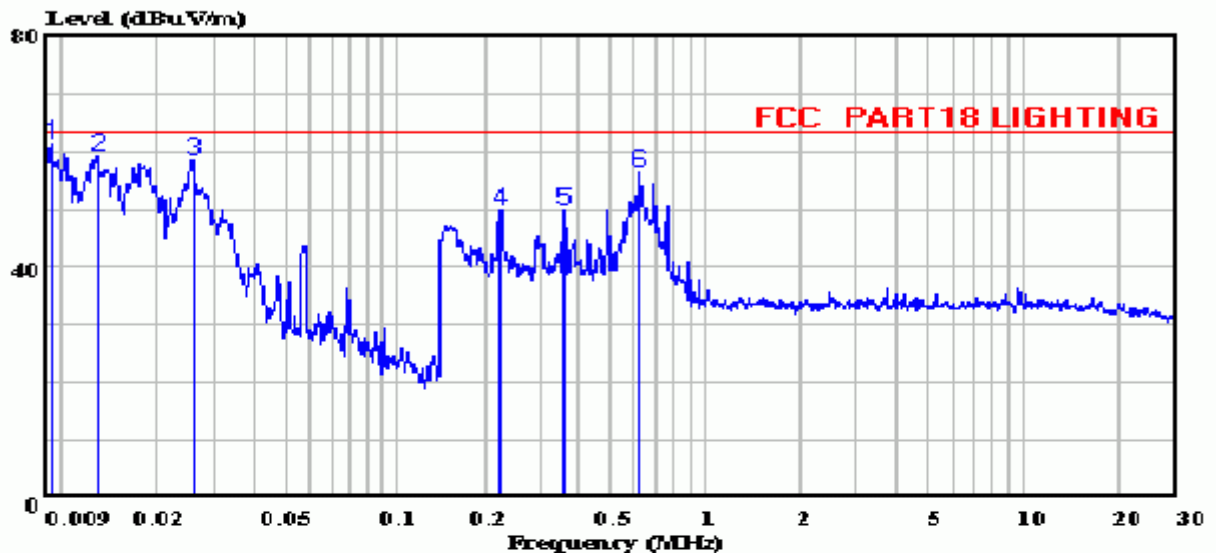
	Freq	Read Level	Level	Limit Line	Over Limit	Factor	Probe Factor	Cable Loss
	MHz	dBuV	dBuV/m	dBuV/m	dB	dB	dB	dB
1	0.009	39.56	60.36	63.50	-3.14	20.80	20.70	0.10
2	0.013	40.59	61.42	63.50	-2.08	20.83	20.70	0.13
3	0.026	38.75	59.53	63.50	-3.97	20.78	20.59	0.19
4	0.237	29.72	50.19	63.50	-13.31	20.47	20.10	0.37
5	0.370	29.37	49.78	63.50	-13.72	20.41	20.00	0.41
6	0.636	35.63	56.08	63.50	-7.42	20.45	20.00	0.45



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Date: 2004-06-30 Time: 17:40:57



Site : audix-aci NO.3 CHAMBER
Condition : FCC PART18 LIGHTING 3m HLA6120
Project No : AOE-000678
Applicant : Fujian Joinluck Electronic Enterprise
: Co.,Ltd
EUT : Energy Saving Lamp
M/N : JLS MINI I 23W
S/N : F04060903
Power Supply : 120V/60Hz
Ambient : 23'C 53%
Test Mode : Lighting
Test Engineer:

Hang Zhuo

Page: 1

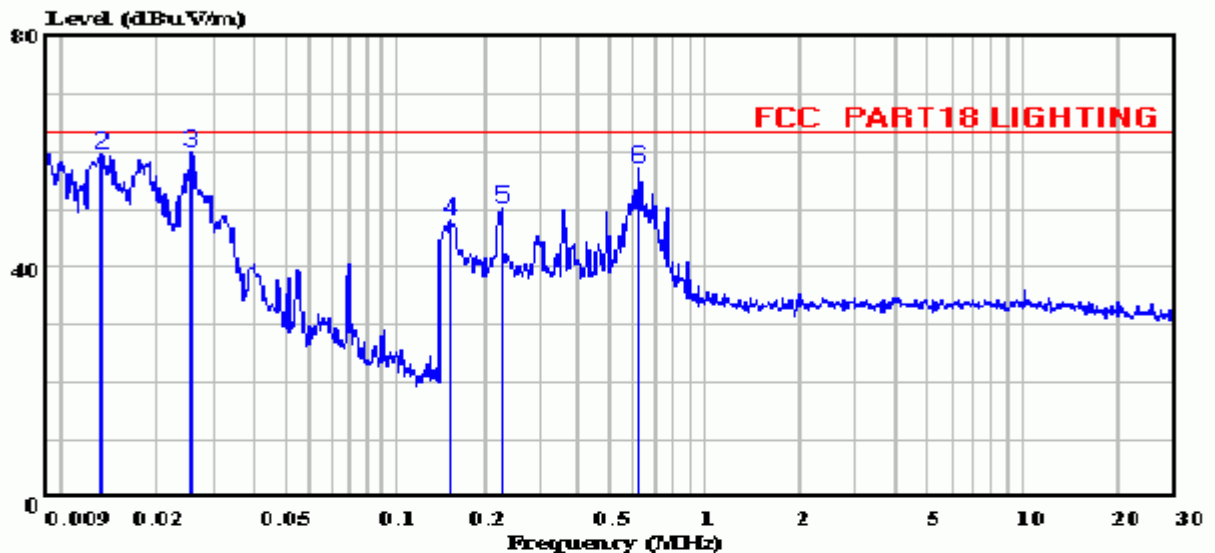
	Freq	Read Level	Level	Limit Line	Over Limit	Factor	Probe Factor	Cable Loss
	MHz	dBuV	dBuV/m	dBuV/m	dB	dB	dB	dB
1	0.009	40.47	61.27	63.50	-2.23	20.80	20.70	0.10
2	0.013	38.43	59.26	63.50	-4.24	20.83	20.70	0.13
3	0.026	37.70	58.48	63.50	-5.02	20.78	20.59	0.19
4	0.235	29.43	49.90	63.50	-13.60	20.47	20.10	0.37
5	0.373	29.60	50.01	63.50	-13.49	20.41	20.00	0.41
6	0.636	35.89	56.34	63.50	-7.16	20.45	20.00	0.45



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Data#: 129 File#: D:\EMI_TEST\Data\J\joinluck.emi

Date: 2004-06-30 Time: 17:44:54



Site : audix-aci NO.3 CHAMBER
Condition : FCC PART18 LIGHTING 3m HLA6120
Project No : AOE-000678
Applicant : Fujian Joinluck Electronic Enterprise
: Co.,Ltd
EUT : Energy Saving Lamp
M/N : JLS MINI I 26W
S/N : F04060904
Power Supply : 120V/60Hz
Ambient : 23'C 53%
Test Mode : Lighting
Test Engineer: *Harry Zhao*

Page: 1

		Read		Limit	Over		Probe	Cable
	Freq	Level	Level	Line	Limit	Factor	Factor	Loss
	MHz	dBuV	dBuV/m	dBuV/m	dB	dB	dB	dB
1	0.009	40.83	61.63	63.50	-1.87	20.80	20.70	0.10
2	0.013	38.74	59.57	63.50	-3.93	20.83	20.70	0.13
3	0.025	39.24	60.02	63.50	-3.48	20.78	20.59	0.19
4	0.166	27.78	48.15	63.50	-15.35	20.37	20.03	0.34
5	0.237	29.82	50.29	63.50	-13.21	20.47	20.10	0.37
6	0.636	36.55	57.00	63.50	-6.50	20.45	20.00	0.45