

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

Energy Saving Lamp

Model No.: JLS Sensor 15W JLS Sensor 20W
JLS Sensor 23W JLS Sensor 26W

FCC ID: N6AFJEE0305

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-F03029
Date of Test : May 11, 2003
Date of Report : May 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.:
JLS Sensor 15W, JLS Sensor 20W
JLS Sensor 23W, JLS Sensor 26W
(B) 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 : May 11, 2003

Prepared by : Cathrin Yin 2003.5.11 Test Engineer : Paul Chu 2003.5.16
CATHRIN YIN PAUL CHU
(Assistant) (Engineer)
 For and on behalf of
Audix Technology (Shanghai) Co., Ltd.
Reviewer : Sammy Chen 2003.5.16 Approved Signatory : Byron Kwo 2003.5.16
SAMMY CHEN BYRON KWO
(Engineer) (Authorized Signatory/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 Sensor 15W, JLS Sensor 20W
JLS Sensor 23W, JLS Sensor 26W
The Circuit Card Copper Traces are in agreement with the schematic.

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 Sensor 15W	28.30	14.50
JLS Sensor 20W	36.40	19.40
JLS Sensor 23W	40.90	21.50
JLS Sensor 26W	47.40	24.70

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

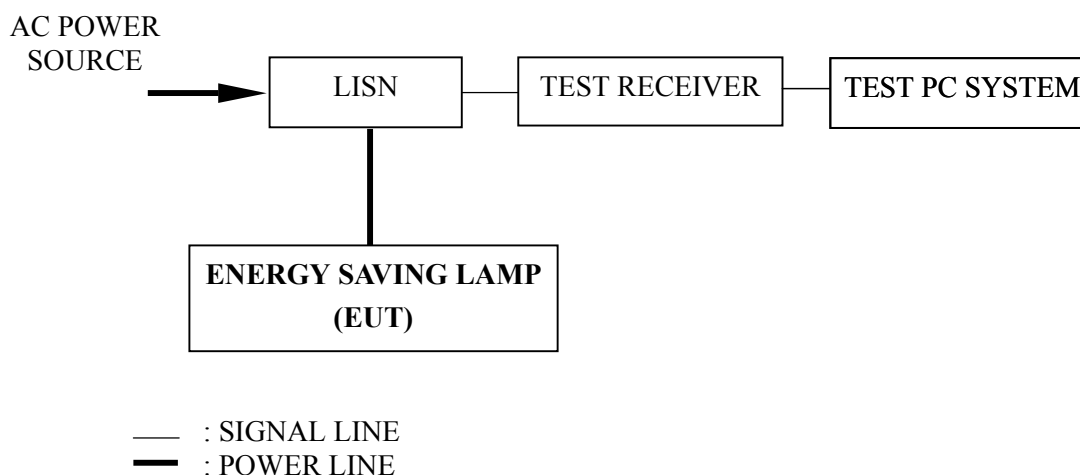
2 AC POWERLINE CONDUCTED EMISSION TEST

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	844077/007	Jun 03, 2002	1 Year
2.	Line Impedance Stabilization Network (LISN)	Kyoritsu	KNW-407	8-1280-5	Apr 24, 2003	1 Year

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 Sensor 15W Humidity : 53%

Test Mode : Lighting Date of Test : May 11, 2003

Test Line	Frequency (MHz)	Factor (dB)	Meter Reading dB(μV)	Emission Level dB(μV)	Limits dB(μV)	Margin (dB)
VA	0.484	0.15	31.86	32.01	48.00	15.99
	0.647	0.16	31.34	31.50	48.00	16.50
	0.866	0.16	30.22	30.38	48.00	17.62
	1.082	0.16	29.23	29.39	48.00	18.61
	1.255	0.17	28.79	28.96	48.00	19.04
	16.055	0.60	32.92	33.52	48.00	14.48
VB	0.484	0.15	33.91	34.06	48.00	13.94
	0.735	0.16	32.25	32.41	48.00	15.59
	0.953	0.16	30.68	30.84	48.00	17.16
	1.172	0.17	31.11	31.28	48.00	16.72
	1.568	0.17	29.01	29.18	48.00	18.82
	16.750	0.62	29.27	29.89	48.00	18.11
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 0.484 MHz with corrected signal level of 34.06 dB (μV) (limit is 48.00 dB (μV)), when the VB of the EUT is connected to LISN.						

TEST ENGINEER: Paul Chu
(PAUL CHU)

EUT : Energy Saving Lamp Temperature : 21.8°C

Model No. : JLS Sensor 20W Humidity : 53%

Test Mode : Lighting Date of Test : May 11, 2003

Test Line	Frequency (MHz)	Factor (dB)	Meter Reading dB(μV)	Emission Level dB(μV)	Limits dB(μV)	Margin (dB)
VA	0.467	0.12	33.70	33.82	48.00	14.18
	0.774	0.11	32.80	32.91	48.00	15.09
	1.029	0.10	32.29	32.39	48.00	15.61
	1.187	0.11	30.40	30.51	48.00	17.49
	1.521	0.12	30.39	30.51	48.00	17.49
	16.734	0.73	26.61	27.34	48.00	20.66
VB	0.736	0.16	34.92	35.08	48.00	12.92
	0.877	0.16	33.62	33.78	48.00	14.22
	1.038	0.16	31.69	31.85	48.00	16.15
	1.428	0.17	27.44	27.61	48.00	20.39
	1.900	0.19	27.81	28.00	48.00	20.00
	16.113	0.60	30.47	31.07	48.00	16.93
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 0.736 MHz with corrected signal level of 35.08 dB (μV) (limit is 48.00 dB (μV)), when the VB of the EUT is connected to LISN.						

TEST ENGINEER: Paul Chu
(PAUL CHU)

EUT : Energy Saving Lamp Temperature : 21.8°C

Model No. : JLS Sensor 23W Humidity : 53%

Test Mode : Lighting Date of Test : May 11, 2003

Test Line	Frequency (MHz)	Factor (dB)	Meter Reading dB(μV)	Emission Level dB(μV)	Limits dB(μV)	Margin (dB)
VA	0.519	0.12	34.74	34.86	48.00	13.14
	0.648	0.11	34.92	35.03	48.00	12.97
	0.841	0.10	34.44	34.54	48.00	13.46
	1.341	0.11	28.07	28.18	48.00	19.82
	2.128	0.14	27.83	27.97	48.00	20.03
	15.845	0.68	30.35	31.03	48.00	16.97
VB	0.544	0.15	34.52	34.67	48.00	13.33
	0.790	0.16	35.82	35.98	48.00	12.02
	1.069	0.16	32.76	32.92	48.00	15.08
	1.297	0.17	31.19	31.36	48.00	16.64
	2.507	0.20	28.58	28.78	48.00	19.22
	16.318	0.61	24.10	24.71	48.00	23.29
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 0.790 MHz with corrected signal level of 35.98 dB (μV) (limit is 48.00 dB (μV)), when the VB of the EUT is connected to LISN.						

TEST ENGINEER: Paul Chu
(PAUL CHU)

EUT : Energy Saving Lamp Temperature : 21.8°C

Model No. : JLS Sensor 26W Humidity : 53%

Test Mode : Lighting Date of Test : May 11, 2003

Test Line	Frequency (MHz)	Factor (dB)	Meter Reading dB(μV)	Emission Level dB(μV)	Limits dB(μV)	Margin (dB)
VA	0.622	0.11	32.55	32.66	48.00	15.34
	0.803	0.11	34.03	34.14	48.00	13.86
	0.975	0.10	33.92	34.02	48.00	13.98
	1.153	0.11	32.93	33.04	48.00	14.96
	1.916	0.14	28.61	28.75	48.00	19.25
	15.257	0.65	28.34	28.99	48.00	19.01
VB	0.539	0.15	31.81	31.96	48.00	16.04
	0.682	0.16	32.30	32.46	48.00	15.54
	0.863	0.16	33.03	33.19	48.00	14.81
	1.047	0.16	32.15	32.31	48.00	15.69
	1.916	0.19	28.55	28.74	48.00	19.26
	15.712	0.59	22.63	23.22	48.00	24.78
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 0.803 MHz with corrected signal level of 34.14 dB (μV) (limit is 48.00 dB (μV)), when the VA of the EUT is connected to LISN.						

TEST ENGINEER: Paul Chu
(PAUL CHU)

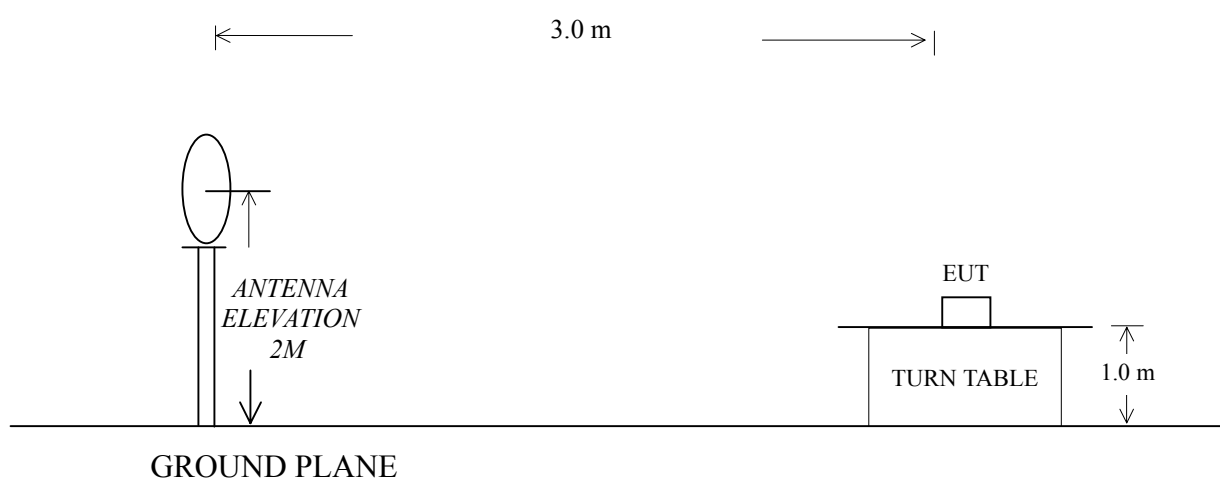
3 MAGNETIC FIELD EMISSION TEST

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(μ V/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 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>

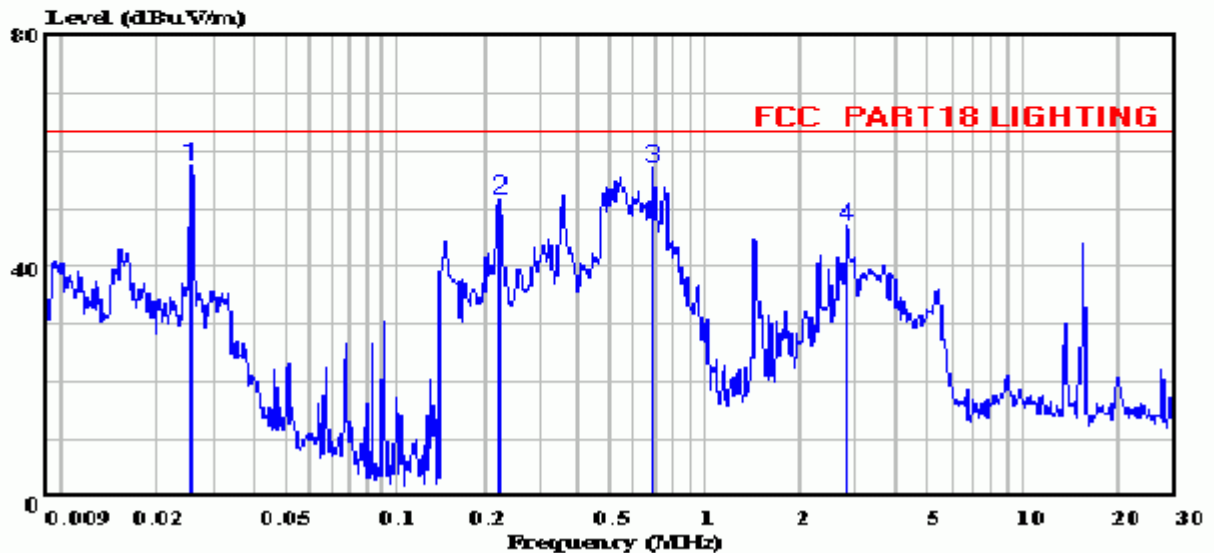
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Date: 2003-05-11 Time: 17:43:52



Site : audix-aci NO.3 CHAMBER
Condition : FCC PART18 LIGHTING 3m
Project No : AQE-000387
Applicant : Fujian Joinluck Electronic Enterprise
: Co., Ltd
EUT : Energy Saving Lamp
M/N : JLS Sensor 15W
S/N :
Power Supply : 120V/60Hz
Ambient : 23'C 53%
Test Mode : lighting
Test Engineer: Paul Chu

Page: 1

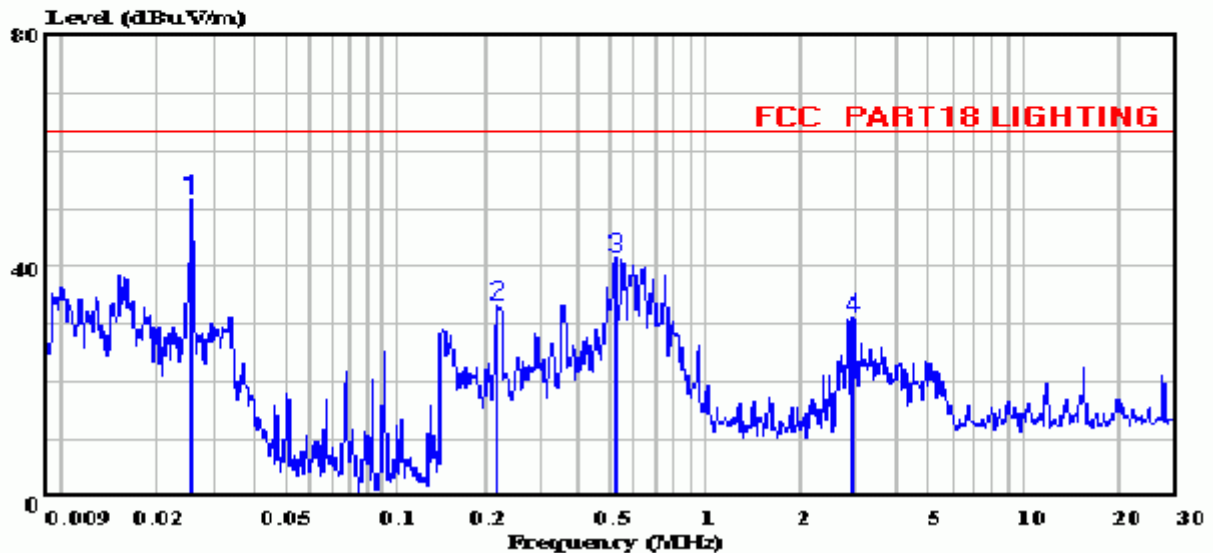
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	Freq	Level	Level	Line	Limit
	MHz	dBuV	dBuV/m	dBuV/m	dB
1	0.025	57.41	57.41	63.50	-6.09
2	0.233	51.59	51.59	63.50	-11.91
3	0.707	56.88	56.88	63.50	-6.62
4	2.831	47.04	47.04	63.50	-16.46



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Date: 2003-05-11 Time: 17:46:22



Site : audix-aci NO.3 CHAMBER
Condition : FCC PART18 LIGHTING 3m
Project No : AQE-000387
Applicant : Fujian Joinluck Electronic Enterprise
: Co., Ltd
EUT : Energy Saving Lamp
M/N : JLS Sensor 20W
S/N :
Power Supply : 120V/60Hz
Ambient : 23'C 53%
Test Mode : lighting
Test Engineer: *Paul Chu*

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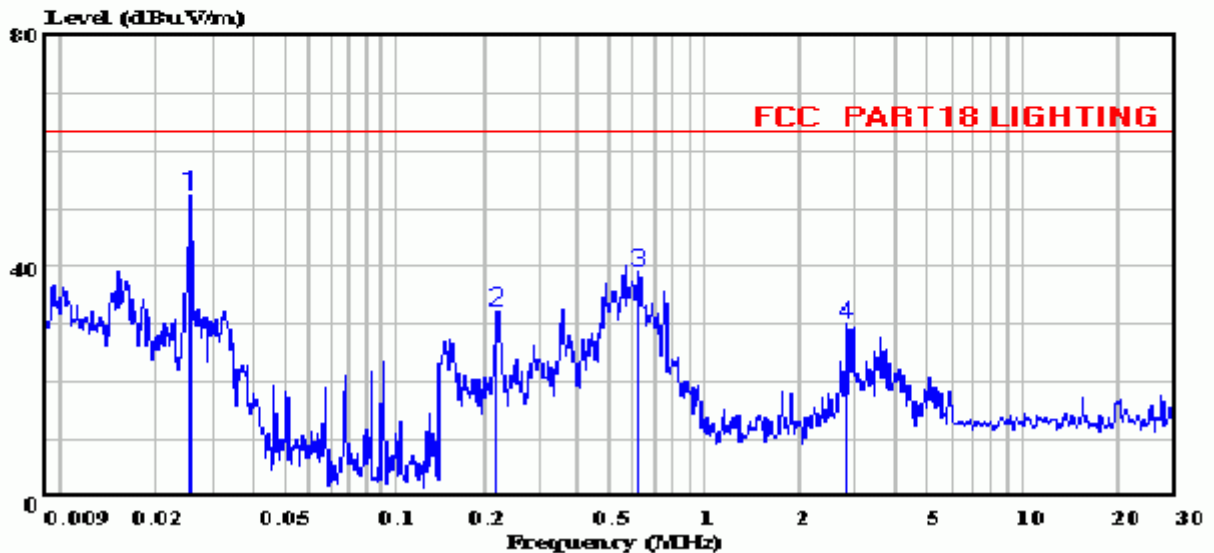
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	Freq	Level	Level	Line	Limit
	MHz	dBuV	dBuV/m	dBuV/m	dB
1	0.025	51.80	51.80	63.50	-11.70
2	0.229	33.38	33.38	63.50	-30.12
3	0.532	41.48	41.48	63.50	-22.02
4	2.948	31.21	31.21	63.50	-32.29



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Data#: 51 File#: E:\EMI_TEST\Data\J\joinluck.emi

Date: 2003-05-11 Time: 17:48:30



Site : audix-aci NO.3 CHAMBER
Condition : FCC PART18 LIGHTING 3m
Project No : AQE-000387
Applicant : Fujian Joinluck Electronic Enterprise
: Co., Ltd
EUT : Energy Saving Lamp
M/N : JLS Sensor 23W
S/N :
Power Supply : 120V/60Hz
Ambient : 23'C 53%
Test Mode : lighting
Test Engineer: *Paul Chu*

Page: 1

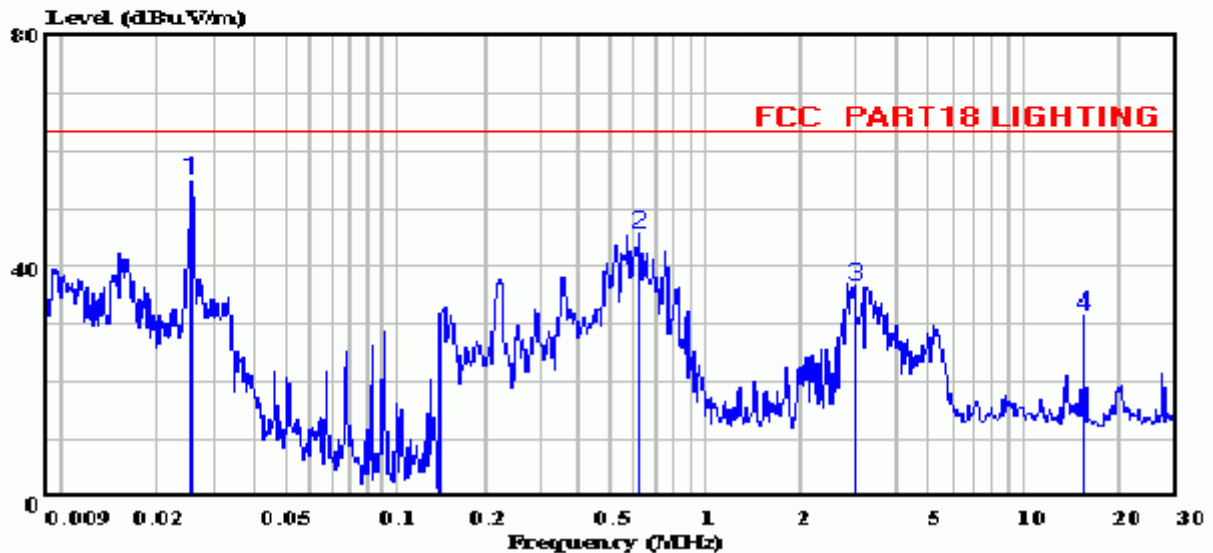
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	Freq	Level	Level	Line	Limit
	MHz	dBuV	dBuV/m	dBuV/m	dB
1	0.025	52.42	52.42	63.50	-11.08
2	0.229	32.39	32.39	63.50	-31.11
3	0.636	38.95	38.95	63.50	-24.55
4	2.831	30.03	30.03	63.50	-33.47



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Data#: 54 File#: E:\EMI_TEST\Data\J\joinluck.emi

Date: 2003-05-11 Time: 17:50:12



Site : audix-aci NO.3 CHAMBER
Condition : FCC PART18 LIGHTING 3m
Project No : AQE-000387
Applicant : Fujian Joinluck Electronic Enterprise
: Co., Ltd
EUT : Energy Saving Lamp
M/N : JLS Sensor 26W
S/N :
Power Supply : 120V/60Hz
Ambient : 23'C 53%
Test Mode : lighting
Test Engineer:

Paul Chu

Page: 1

		Read		Limit	Over
	Freq	Level	Level	Line	Limit
	MHz	dBuV	dBuV/m	dBuV/m	dB
1	0.025	54.97	54.97	63.50	-8.53
2	0.636	45.50	45.50	63.50	-18.00
3	2.972	36.62	36.62	63.50	-26.88
4	15.426	31.68	31.68	63.50	-31.82