

Application for FCC Certificate
On Behalf of
Fujian Lijia Electrical Appliance Co., Ltd
Energy Saving Lamp

Model No.: LJ-24S LJ-20S LJ-18S LJ-15S

FCC ID : PW4FJ3668

Prepared For : Fujian Lijia Electrical Appliance Co., Ltd
No.02 Section 1, Cangshan Hi-Tech
Industrial Park Fuzhou, Fujian, China

Prepared By : Audix Technology (Shanghai) Co., Ltd.
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Report No. : ACI-F01074
Date of Test : Sept 12-15, 2001
Date of Report : Sept 21, 2001

TABLE OF CONTENTS

	Page
1 GENERAL INFORMATION.....	4
1.1 Description of Equipment Under Test.....	4
1.2 Description of Test Facility	5
1.3 Measurement Uncertainty	5
2 AC POWERLINE CONDUCTED EMISSION TEST	6
2.1 Test Equipment.....	6
2.2 Block Diagram of Test Setup	6
2.3 Conducted Emission Limits	6
2.4 Test Configuration.....	7
2.5 Operating Condition of EUT.....	7
2.6 Test Procedures.....	7
2.7 Test Results.....	8
3 FIELD STRENGTH TEST	12
3.1 Test Equipment.....	12
3.2 Block Diagram of Test Setup	12
3.3 Test Configuration.....	12
3.4 Operating Condition of EUT.....	12
3.5 Test Procedure	13
3.6 Test Result	13

TEST REPORT FOR FCC CERTIFICATE

Applicant : Fujian Lijia Electrical Appliance Co., Ltd
Manufacturer : Fujian Lijia Electrical Appliance Co., Ltd
EUT Description : Energy Saving Lamp
(A) Model No.:
LJ-24S LJ-20S LJ-18S LJ-15S
(B) Serial No.:
E090703 E090702 E090704 E090701
(C) Power Supply: 120V/60Hz

Test Procedure Used:

*FCC RULES AND REGULATIONS PART 18 CONSUMER DEVICES (2000)
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 : Oct 09, 2001

Prepared by : Jeeny Luo
JEENY LUO
(Assistant)

Test Engineer : Solon Gong
SOLOM GONG
(Engineer)
For and on behalf of
AUDIX TECHNOLOGY (SHANGHAI) CO., LTD.

Reviewer : Byron Kwo
BYRON KWO
(Supervisor)

Approved Signatory : Alex Chiu
ALEX CHIU
.....(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 : LJ-24S, LJ-20S, LJ-18S, LJ-15S

Applicant : Fujian Lijia Electrical Appliance Co., Ltd
No.02 Section 1, Cangshan Hi-Tech
Industrial Park Fuzhou, Fujian, China

Manufacturer : Fujian Lijia Electrical Appliance Co., Ltd
No.02 Section 1, Cangshan Hi-Tech
Industrial Park Fuzhou, Fujian, China

M/N	APPARENT POWER (VA)	REAL POWER (W)
LJ-24S	44.6	24.0
LJ-20S	38.1	19.2
LJ-18S	32.1	17.0
LJ-15S	29.3	14.9

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	:	3 F 34 Bldg 680 Guiping Rd, Caohejing Hi-Tech Park, Shanghai, China 200233
NVLAP Lab Code	:	200371-0

1.3 Measurement Uncertainty

Conducted Emission Uncertainty : $U = \pm 2.66\text{dB}$

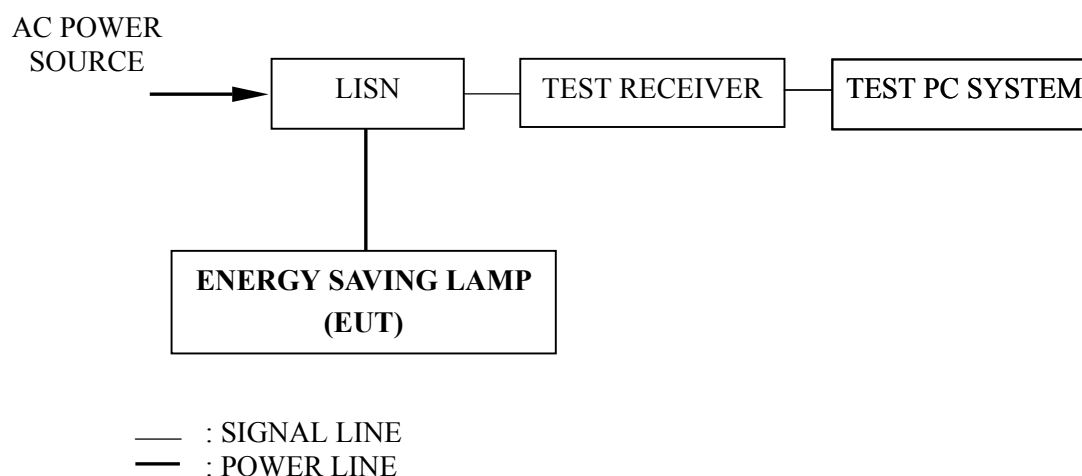
2 AC POWERLINE CONDUCTED EMISSION TEST

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 24, 2001	1 Year
2.	Line Impedance Stabilization Network (LISN)	Kyoritsu	KNW-407	8-1280-5	May 08, 2001	1 Year

2.2 Block Diagram of Test Setup



2.3 Conducted Emission Limits

Frequency (MHz)	Maximum RF Line Voltage	
	(μV)	$\text{dB}(\mu\text{V})$
0.45 ~ 2.51	250	48
2.51 ~ 3	3000	70
3 ~ 30	250	48
NOTE 1 – RF Line Voltage $\text{dB}(\mu\text{V}) = 20 \log \text{RF Line Voltage } (\mu\text{V})$		

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

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 bandwidth of Test Receiver ESHS10 was set at 10 kHz.

The frequency range from 450 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.

2.6 Test Procedures

2.6.1 Setup the EUT as shown in Sec. 2.2.

2.6.2 Turn on the power of all equipment.

2.6.3 The EUT will be operated normally.

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 : 23°C

Model No. : LJ-24S Humidity : 53%

Test Mode : ON Date of Test : Oct 09, 2001

Test Line	Frequency (MHz)	Factor (dB)	Meter Reading dB(μV)	Emission Level dB(μV)	Limits dB(μV)	Margin (dB)
VA	0.456	0.33	41.61	41.94	48.00	6.06
	0.510	0.31	43.33	43.64	48.00	4.36
	0.562	0.30	42.80	43.10	48.00	4.90
	0.594	0.30	40.86	41.16	48.00	6.84
	0.665	0.29	40.97	41.26	48.00	6.74
	0.714	0.29	40.82	41.11	48.00	6.89
VB	0.502	0.31	40.71	41.02	48.00	6.98
	0.535	0.31	40.56	40.87	48.00	7.13
	0.604	0.30	41.87	42.17	48.00	5.83
	0.659	0.29	41.01	41.30	48.00	6.70
	0.783	0.28	39.60	39.88	48.00	8.12
	0.856	0.28	40.07	40.35	48.00	7.65
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 0.510 MHz with corrected signal level of 43.64 dB(μV) (limit is 48.00 dB(μV)), when the VA of the EUT is connected to LISN.						

TEST ENGINEER: Solon Gong
(SOLON GONG)

EUT : Energy Saving Lamp Temperature : 23°C

Model No. : LJ-20S Humidity : 53%

Test Mode : ON Date of Test : Oct 09, 2001

Test Line	Frequency (MHz)	Factor (dB)	Meter Reading dB(μV)	Emission Level dB(μV)	Limits dB(μV)	Margin (dB)
VA	0.475	0.32	44.71	45.03	48.00	2.97
	0.523	0.31	41.95	42.26	48.00	5.74
	0.569	0.30	38.73	39.03	48.00	8.97
	0.665	0.29	38.44	38.73	48.00	9.27
	0.714	0.29	39.77	40.06	48.00	7.94
	0.838	0.28	40.19	40.47	48.00	7.53
VB	0.456	0.33	41.49	41.82	48.00	6.18
	0.515	0.31	38.72	39.03	48.00	8.97
	0.548	0.30	38.67	38.97	48.00	9.03
	0.643	0.29	39.09	39.38	48.00	8.62
	0.702	0.29	39.09	39.38	48.00	8.62
	0.870	0.28	38.05	38.33	48.00	9.67
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 0.475 MHz with corrected signal level of 45.03 dB(μV) (limit is 48.00 dB(μV)), when the VA of the EUT is connected to LISN.						

TEST ENGINEER: Solon Gong
(SOLON GONG)

EUT : Energy Saving Lamp Temperature : 23°C

Model No. : LJ-18S Humidity : 53%

Test Mode : ON Date of Test : Oct 09, 2001

Test Line	Frequency (MHz)	Factor (dB)	Meter Reading dB(μV)	Emission Level dB(μV)	Limits dB(μV)	Margin (dB)
VA	0.494	0.31	39.00	39.31	48.00	8.69
	0.574	0.30	38.11	38.41	48.00	9.59
	0.617	0.30	37.36	37.66	48.00	10.34
	0.659	0.29	37.78	38.07	48.00	9.93
	0.685	0.29	38.07	38.36	48.00	9.64
	0.742	0.29	36.11	36.40	48.00	11.60
VB	0.471	0.32	37.86	38.18	48.00	9.82
	0.515	0.31	37.70	38.01	48.00	9.99
	0.574	0.30	38.77	39.07	48.00	8.93
	0.659	0.29	39.56	39.85	48.00	8.15
	0.742	0.29	36.93	37.22	48.00	10.78
	0.831	0.28	33.65	33.93	48.00	14.07
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 0.659 MHz with corrected signal level of 39.85 dB(μV) (limit is 48.00 dB(μV)), when the VB of the EUT is connected to LISN.						

TEST ENGINEER: Solon Gong
(SOLON GONG)

EUT : Energy Saving Lamp Temperature : 23°C

Model No. : LJ-15S Humidity : 53%

Test Mode : ON Date of Test : Oct 09, 2001

Test Line	Frequency (MHz)	Factor (dB)	Meter Reading dB(μV)	Emission Level dB(μV)	Limits dB(μV)	Margin (dB)
VA	0.548	0.30	35.47	35.77	48.00	12.23
	0.627	0.30	36.74	37.04	48.00	10.96
	0.665	0.29	35.58	35.87	48.00	12.13
	0.754	0.29	34.00	34.29	48.00	13.71
	0.824	0.28	33.47	33.75	48.00	14.25
	0.983	0.27	30.89	31.16	48.00	16.84
VB	0.467	0.32	34.72	35.04	48.00	12.96
	0.548	0.30	35.43	35.73	48.00	12.27
	0.627	0.30	34.54	34.84	48.00	13.16
	0.665	0.29	34.46	34.75	48.00	13.25
	0.754	0.29	33.72	34.01	48.00	13.99
	0.824	0.28	33.03	33.31	48.00	14.69
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 0.627 MHz with corrected signal level of 37.04 dB(μV) (limit is 48.00 dB(μV)), when the VA of the EUT is connected to LISN.						

TEST ENGINEER: Solon Gong
(SOLON GONG)

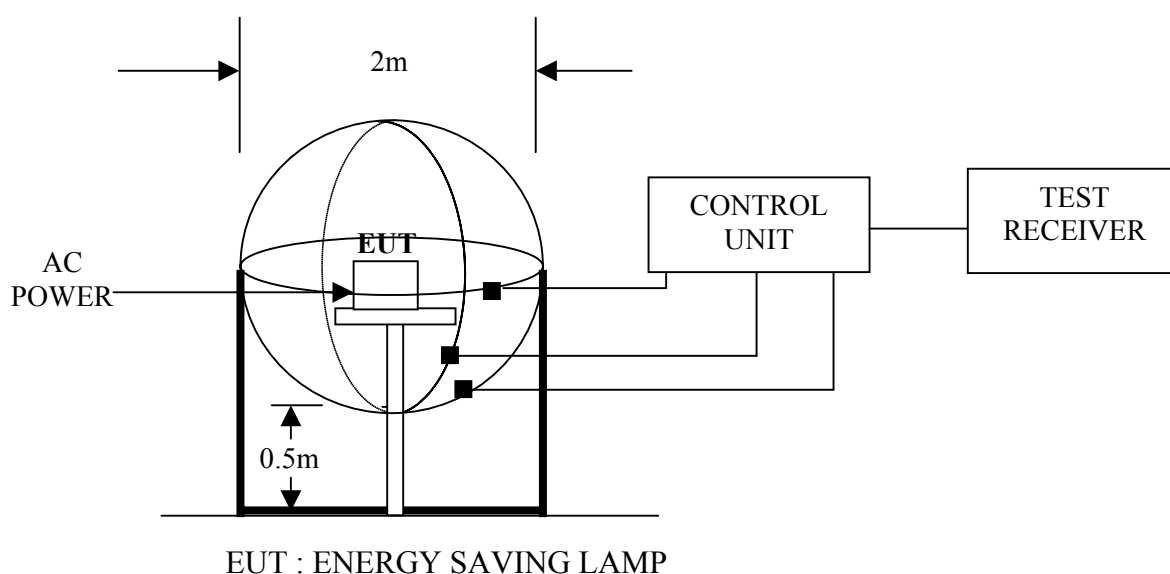
3 FIELD STRENGTH TEST

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	May 05, 2001	1/2 Year
2.	Test Receiver	Rohde & Schwarz	ESHS10	844077/020	Apr 24, 2001	1 Year

3.2 Block Diagram of Test Setup



3.3 Test Configuration

The configuration of the EUT is same as those used in conducted emission test.

Refer to Sec. 2.4.

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 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 frequency range from 9 kHz to 30 MHz was checked.

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

3.6 Test Result

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Refer to the following pages.

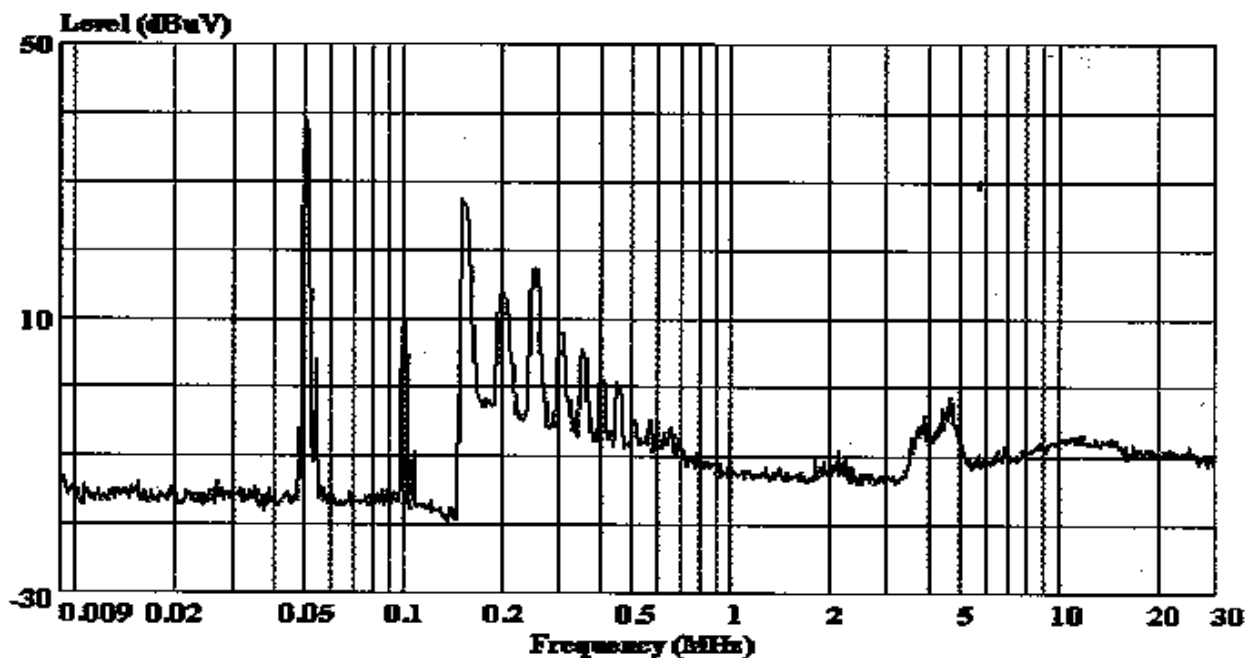


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Date: 2001-10-09 Time: 10:26:54



Site : audix-aci
Condition :
Project No : AQE-000116
Applicant : Fujian Lijia Electrical Appliance
Co., Ltd
EUT : Energy Saving Lamp
M/N : LJ-24S
S/N : E090703
Power Supply : 120V/60Hz
Ambient : 23°C 53%
Test Mode : ON
Test Line : A
Test Engineer: *Solon*

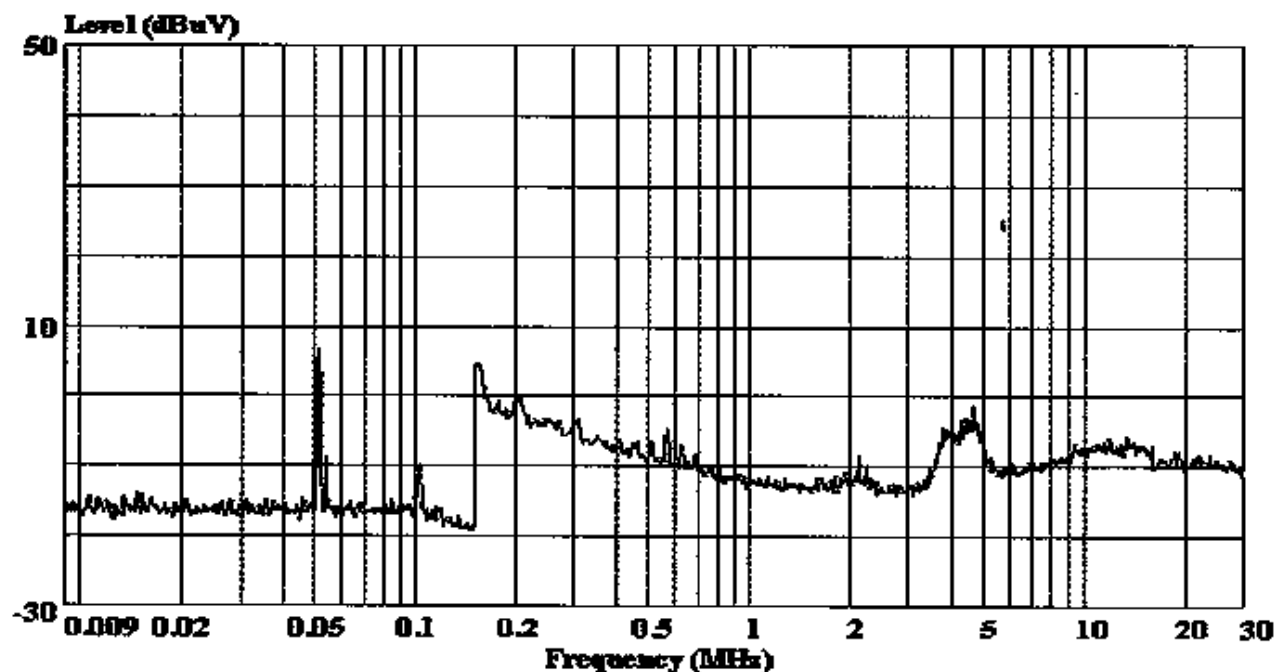


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Date: 2001-10-09 Time: 10:22:37



Site : audix-aci
Condition :
Project No : AQE-000116
Applicant : Fujian Lijia Electrical Appliance
Co., Ltd
EUT : Energy Saving Lamp
M/N : LJ-24S
S/N : E090703
Power Supply : 120V/60Hz
Ambient : 23°C 53%
Test Mode : ON
Test Line : B
Test Engineer: *Sdon*

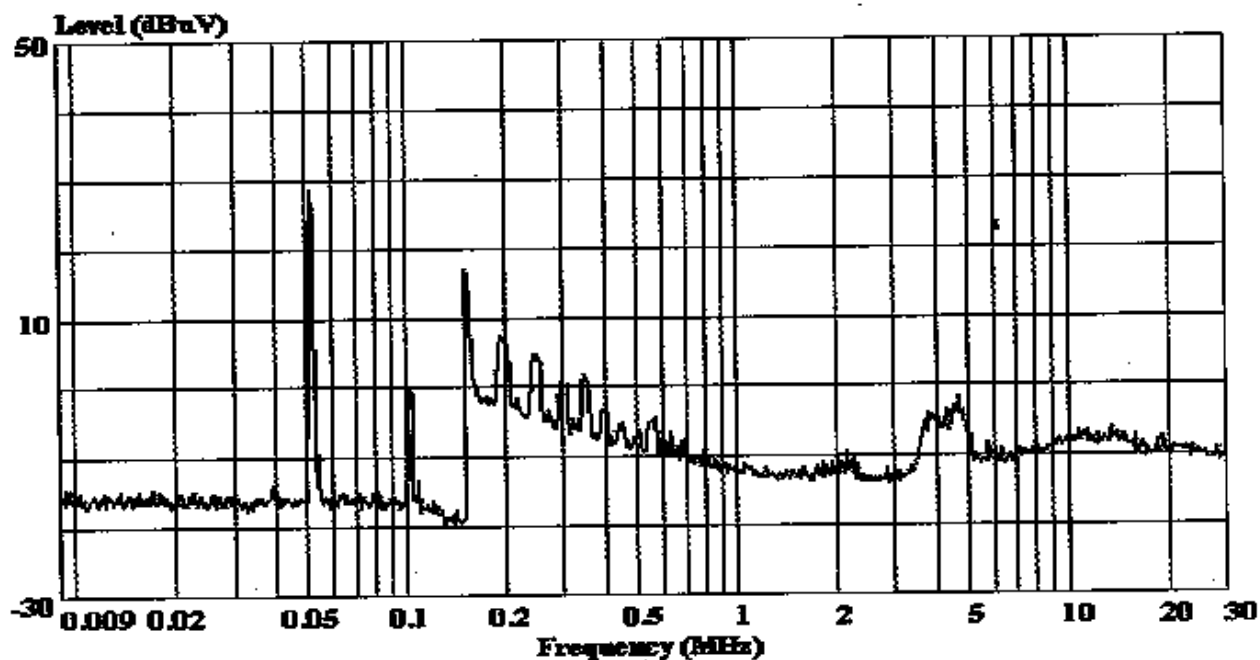


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Site : audix-aci
Condition :
Project No : AQE-000116
Applicant : Fujian Lijia Electrical Appliance
Co.,Ltd
EUT : Energy Saving Lamp
M/N : LJ-24S
S/N : E090703
Power Supply : 120V/60Hz
Ambient : 23'C 53%
Test Mode : ON
Test Line : C
Test Engineer: *Selen*

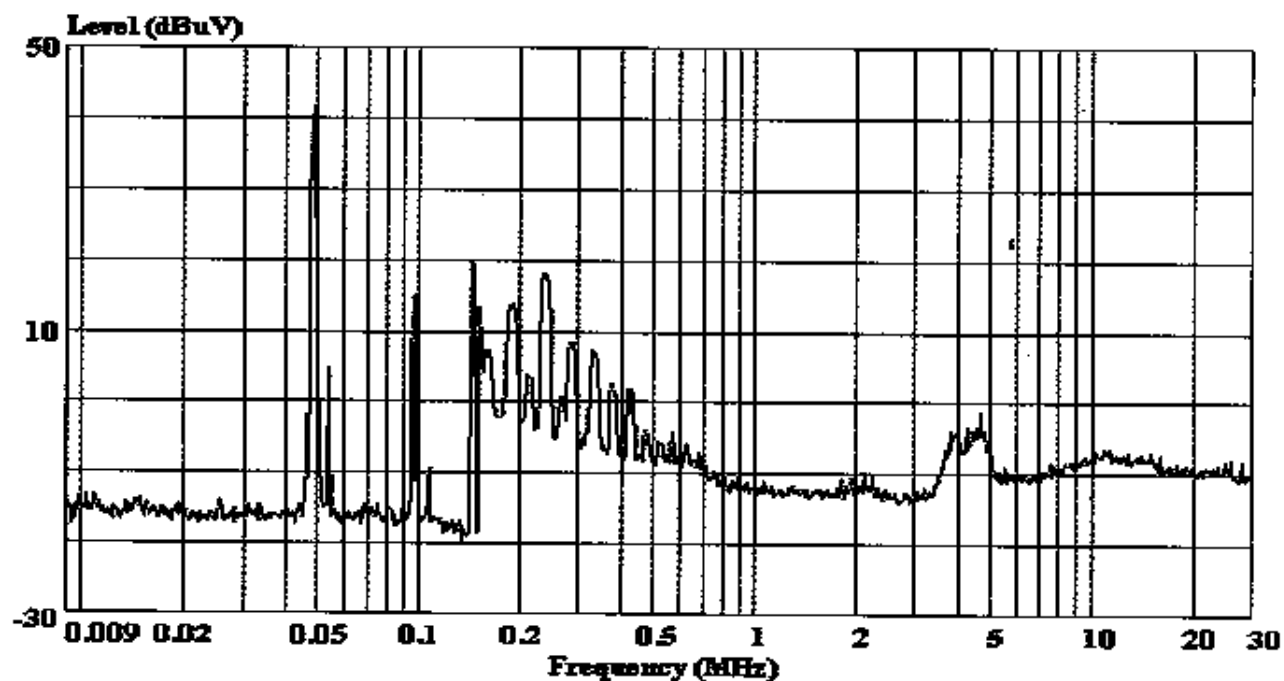


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Date: 2001-10-09 Time: 09:59:55



Site : audix-aci
Condition :
Project No : AQE-000116
Applicant : Fujian Lijia Electrical Appliance
: Co.,Ltd
EUT : Energy Saving Lamp
M/N : LJ-20S
S/N : E090702
Power Supply : 120V/60Hz
Ambient : 23'C 53%
Test Mode : ON
Test Line : A
Test Engineer: *Selen*

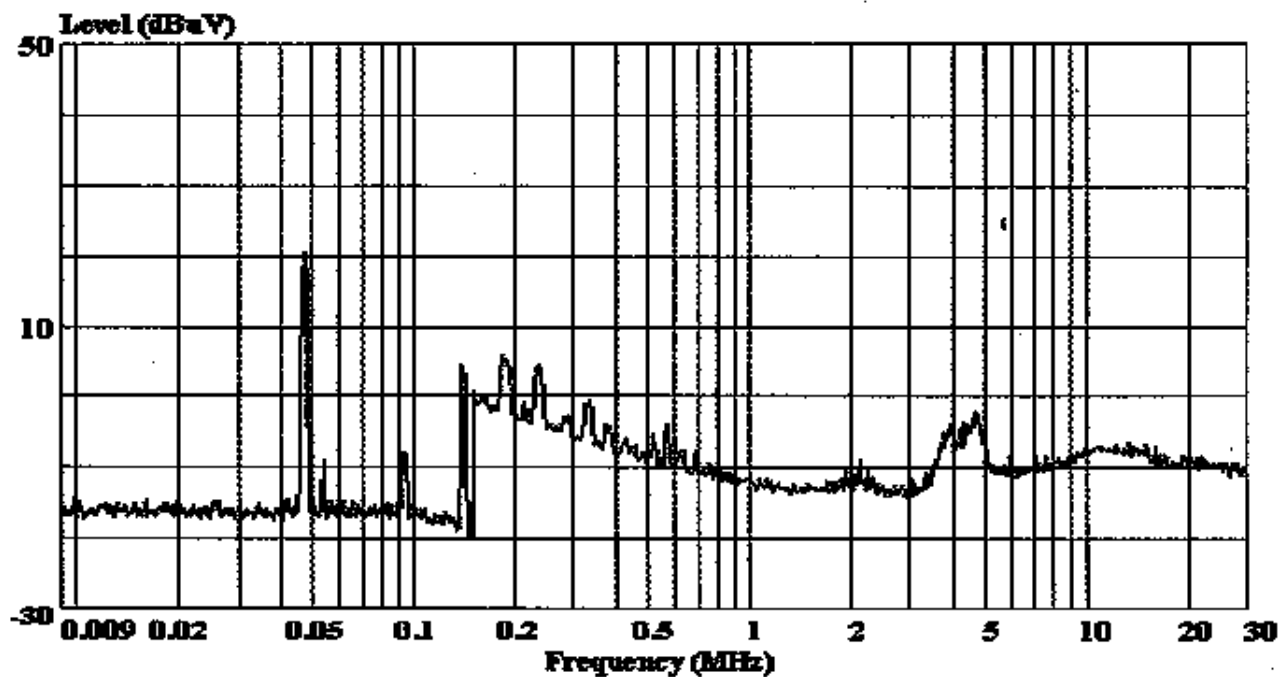


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Date: 2001-10-09 Time: 10:03:25



Site : audix-aci
Condition :
Project No : AQE-000116
Applicant : Fujian Lijia Electrical Appliance
: Co.,Ltd
EUT : Energy Saving Lamp
M/N : LJ-20S
S/N : E090702
Power Supply : 120V/60Hz
Ambient : 23°C 53%
Test Mode : ON
Test Line : B
Test Engineer: *Sala*

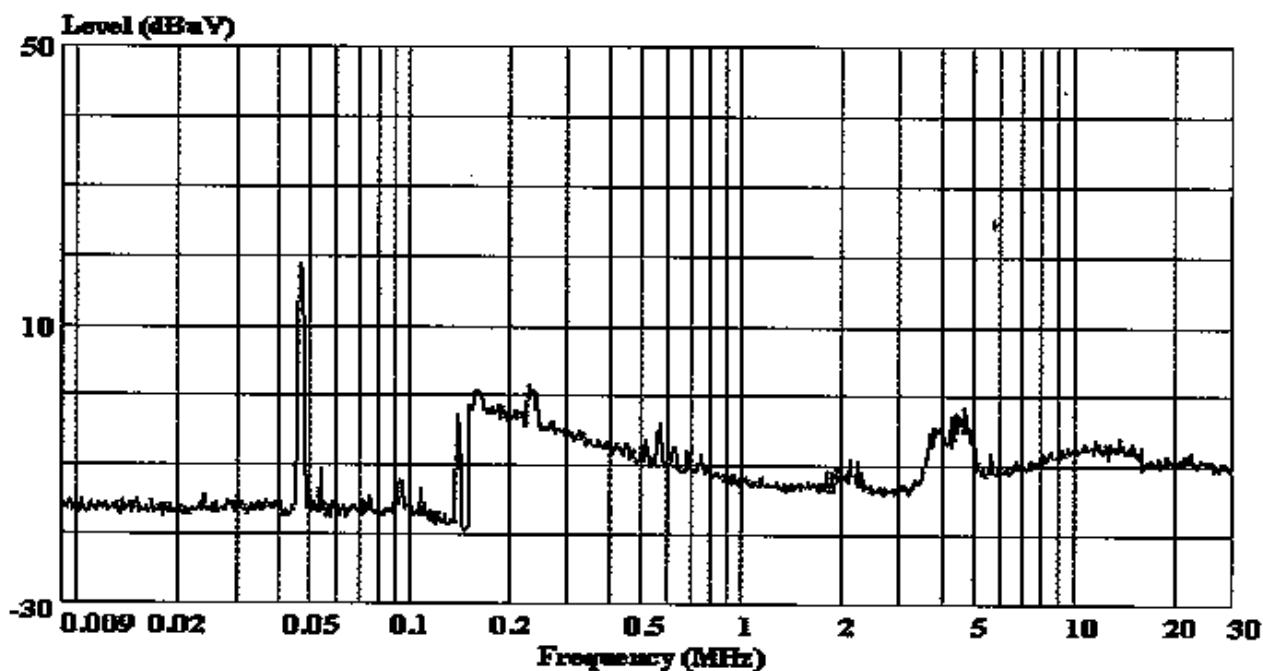


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Date: 2001-10-09 Time: 10:14:02



Site : audix-aci
Condition :
Project No : AQE-000116
Applicant : Fujian Lijia Electrical Appliance
: Co., Ltd
EUT : Energy Saving Lamp
M/N : LJ-20S
S/N : E090702
Power Supply : 120V/60Hz
Ambient : 23°C 53%
Test Mode : ON
Test Line : C
Test Engineer: *Solon*

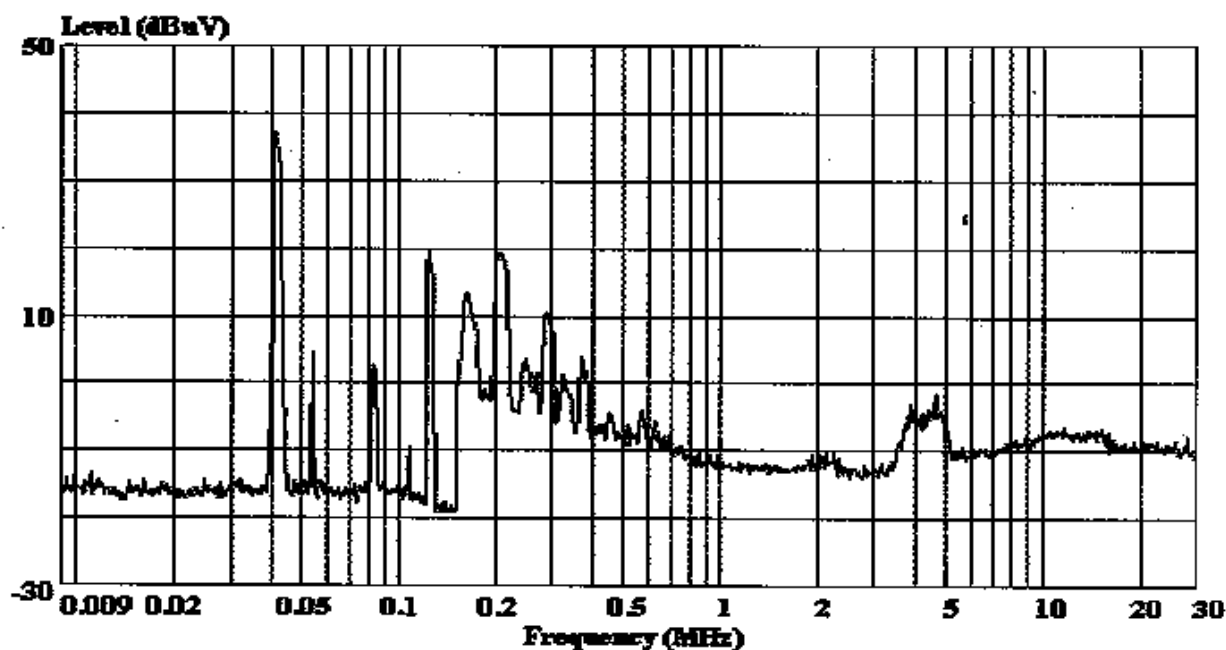


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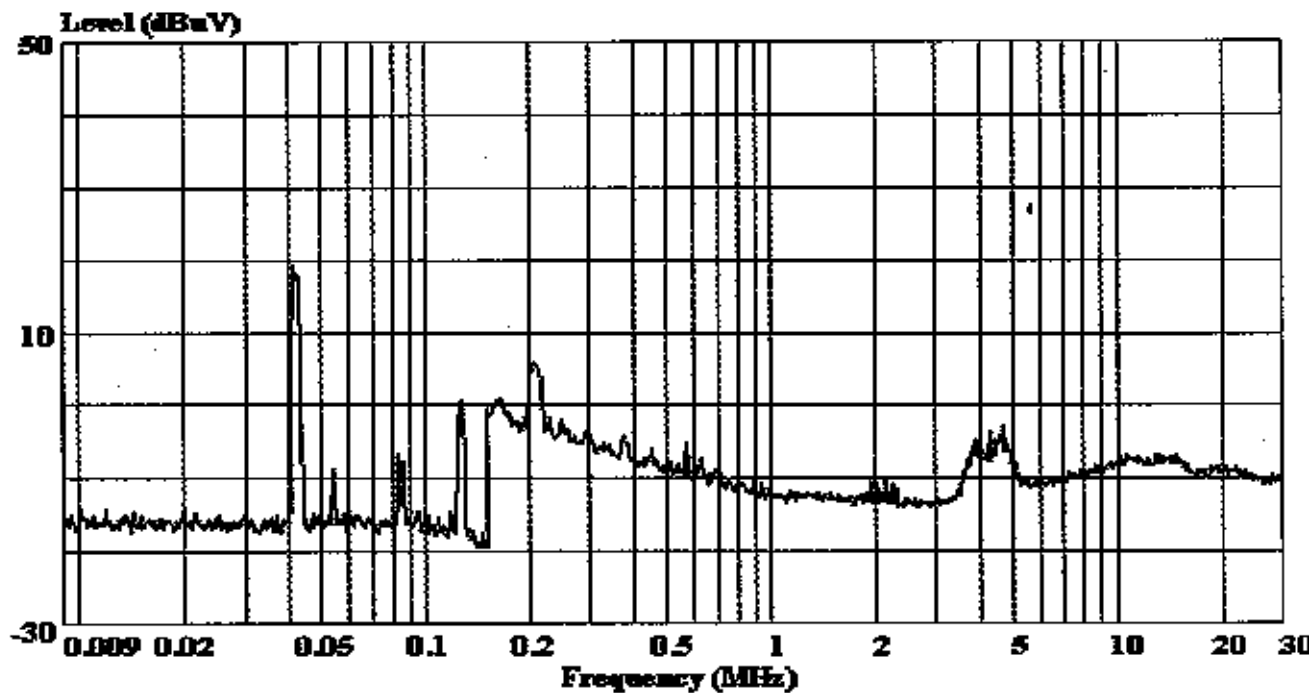
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Condition :
Project No : AQE-000116
Applicant : Fujian Lijia Electrical Appliance
: Co., Ltd
EUT : Energy Saving Lamp
M/N : LJ-18S
S/N : E090704
Power Supply : 120V/60Hz
Ambient : 23°C 53%
Test Mode : ON
Test Line : A
Test Engineer: *Schen*



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Date: 2001-10-09 Time: 09:50:11



Site : audix-aci
Condition :
Project No : AQE-000116
Applicant : Fujian Lijia Electrical Appliance
: Co.,Ltd
EUT : Energy Saving Lamp
M/N : LJ-18S
S/N : E090704
Power Supply : 120V/60Hz
Ambient : 23°C 53%
Test Mode : ON
Test Line : B
Test Engineer: *Solon*

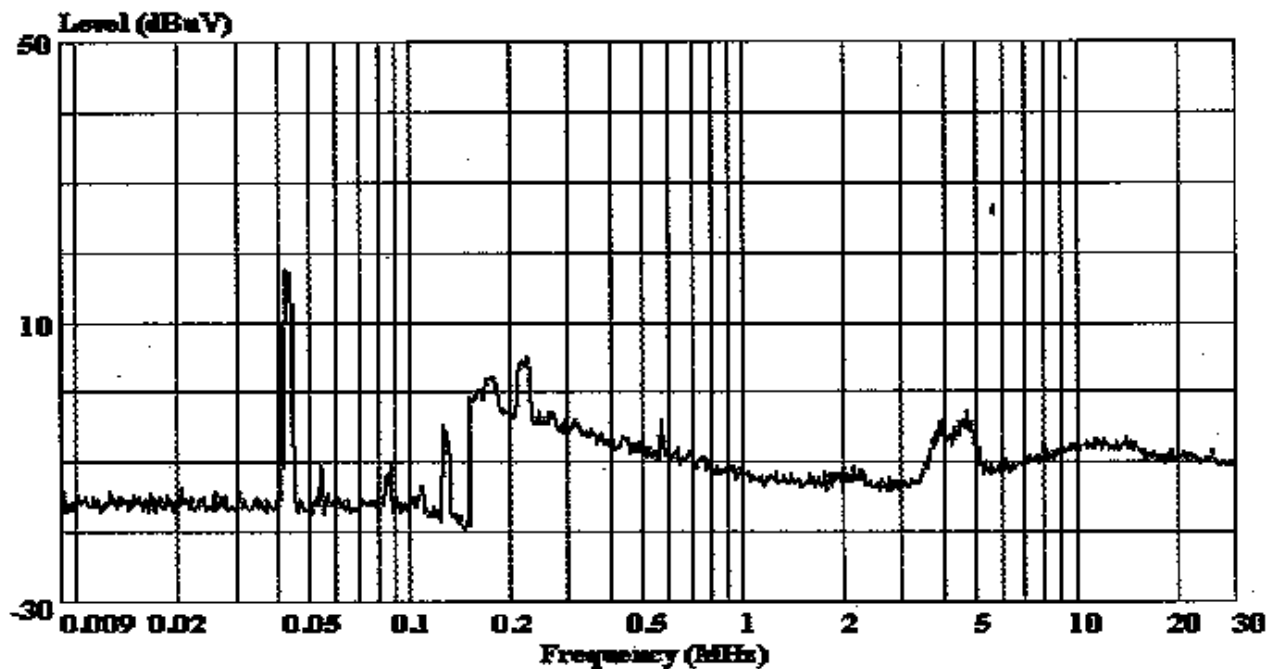


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Date: 2001-10-09 Time: 09:42:28



Site : audix-aci
Condition :
Project No : AQE-000116
Applicant : Fujian Lijia Electrical Appliance
: Co., Ltd
EUT : Energy Saving Lamp
M/N : LJ-18S
S/N : E090704
Power Supply : 120V/60Hz
Ambient : 23°C 53%
Test Mode : ON
Test Line : C
Test Engineer: *Solon*

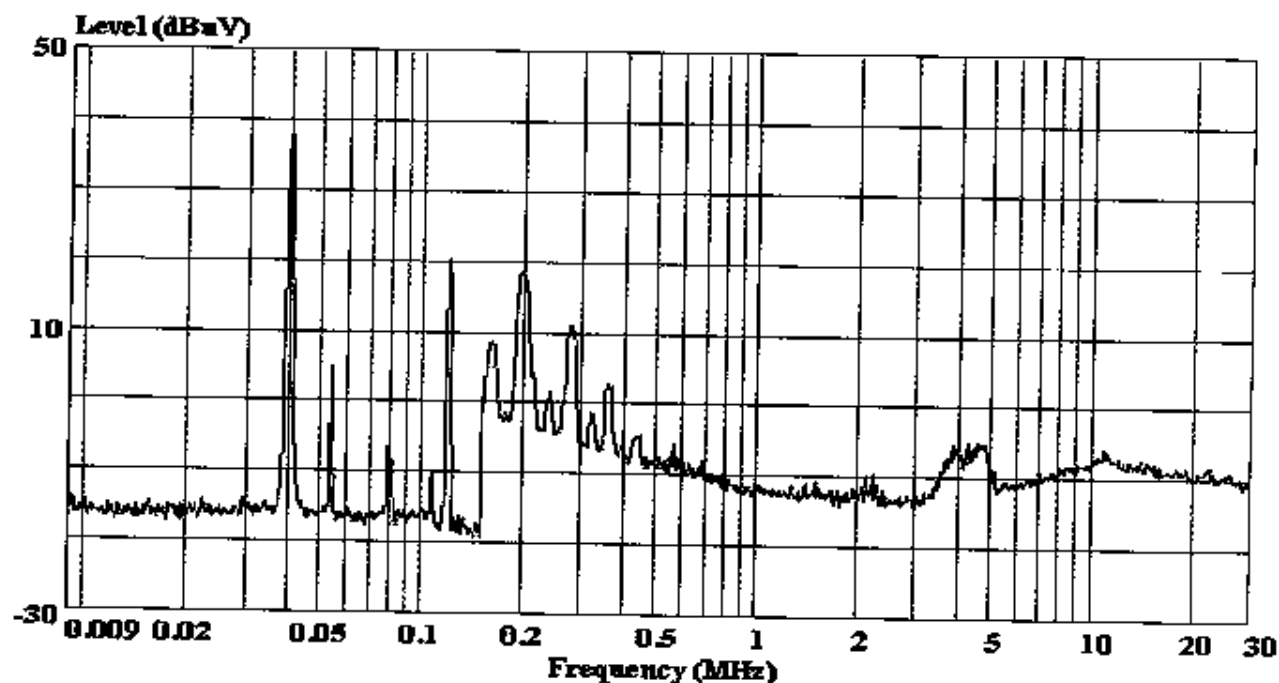


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Date: 2001-10-09 Time: 09:24:38



Site : audix-aci
Condition :
Project No : AQE-000116
Applicant : Fujian Lijia Electrical Appliance
: Co., Ltd
EUT : Energy Saving Lamp
M/N : LJ-15S
S/N : E090701
Power Supply : 120V/60Hz
Ambient : 23°C 53%
Test Mode : ON
Test Line : A
Test Engineer: *Solen*

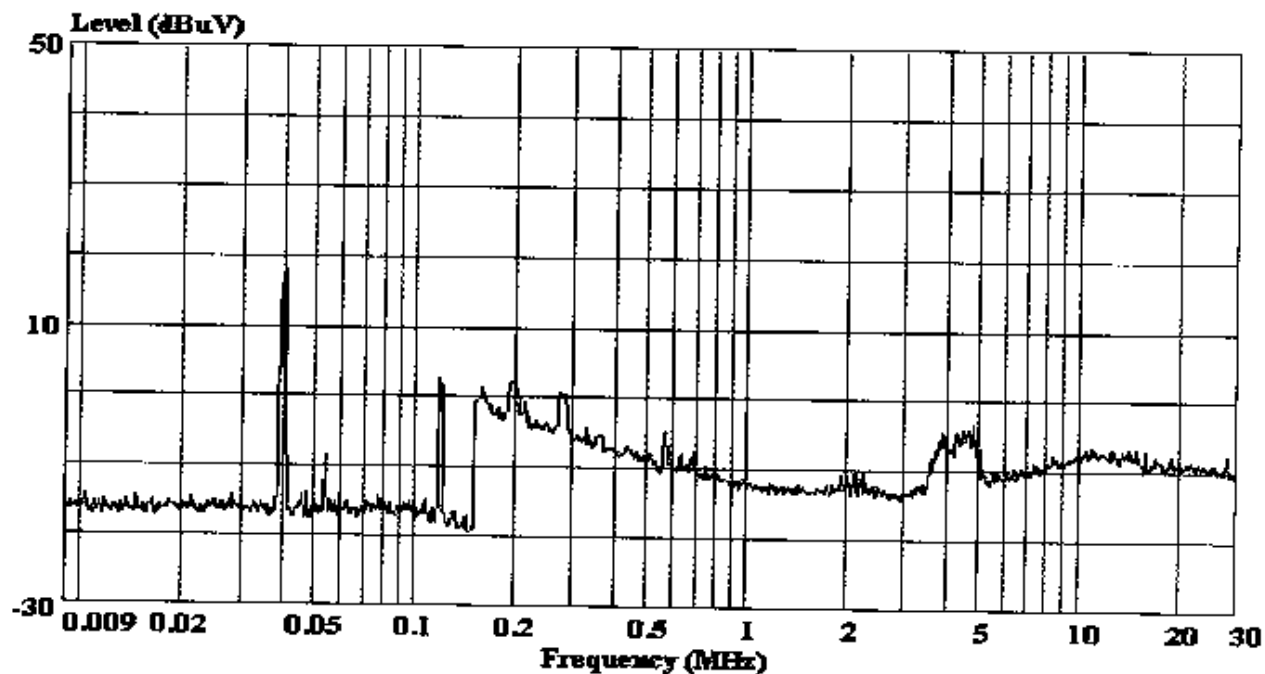


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Data#: 14 File#: D:\EMIVM\TEST\L\Lijia.EMI

Date: 2001-10-09 Time: 09:29:10



Site : audix-aci
Condition :
Project No : AQE-000116
Applicant : Fujian Lijia Electrical Appliance
: Co., Ltd
EUT : Energy Saving Lamp
M/N : LJ-15S
S/N : E090701
Power Supply : 120V/60Hz
Ambient : 23°C 53%
Test Mode : ON
Test Line : B
Test Engineer: *Soton*

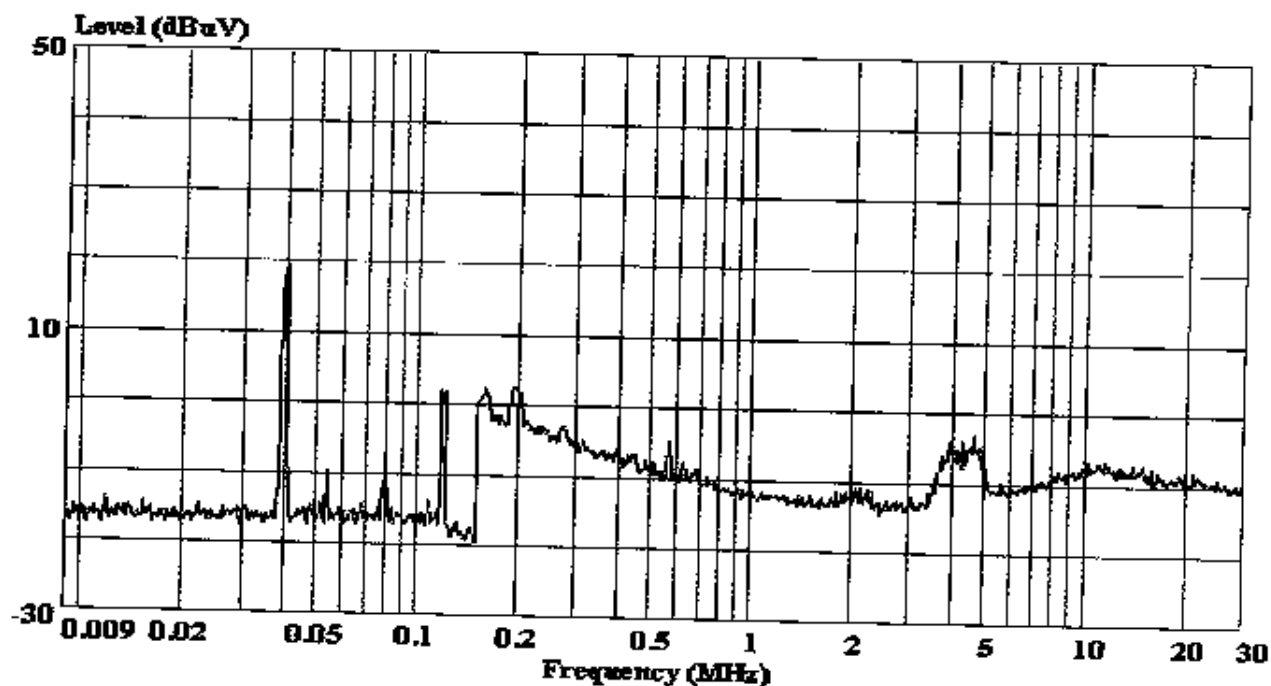


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audixaci@8848.net

Data#: 17 File#: D:\EMIVM\TEST\L\Lijia.EMI

Date: 2001-09-15 Time: 09:37:07



Site : audix-aci
Condition :
Project No : AQE-000116
Applicant : Fujian Lijia Electrical Appliance
: Co., Ltd
EUT : Energy Saving Lamp
M/N : LJ-15S
S/N : E090701
Power Supply : 120V/60Hz
Ambient : 23°C 53%
Test Mode : ON
Test Line : C
Test Engineer: Solon