Application for FCC Certificate
On Behalf of
XIAMEN LEEDARSON IMPORT & EXPORT CO., LTD

Energy Saving Lamp

Model No.: R15W, R20W, R23W

Serial No.: F05012704, F05012705, F05012706

FCC ID: S6K132R0305

Prepared For : XIAMEN LEEDARSON IMPORT & EXPORT CO., LTD
6B, JINSHAN BUILDING, NO.862 XIAHE ROAD,
XIAMEN, 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-F05017
Date of Test : Mar 25-28, 2005
Date of Report : Mar 31, 2005

TABLE OF CONTENTS

Page

TEST REPORT FOR FCC CERTIFICATE

Applicant	:	XIAMEN LEEDARSON IMPORT & EXPORT CO., LTD
Manufacturer	:	LEEDARSON LIGHTING CO., LTD
EUT Description	:	Energy Saving Lamp
	(A) Model No.	: R15W, R20W, R23W
	(B) Serial No.	: F05012704, F05012705, F05012706
	(C) Power Supply	: 120V/60Hz

Test Procedure Used:

FCC RULES AND REGULATIONS PART 18 CONSUMER DEVICES (2004.10) 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 Mar 25-28, 2005, 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 : Mar 28, 2005

Prepared by : Sarah Liu 2005.4.1 Test Engineer : Dennis Zhang 2005.4.1

SARAH LIU (Assistant)

DENNIS ZHANG (Engineer)

For and on behalf of Audix Technology (Shanghai) Co., Ltd.

Reviewer : Sammy Chen 2005.04.01 Approved Signatory : Byron Kwo 04/09/05

SAMMY CHEN (Supervisor)

BYRON K.W.O (Deputy 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	:	R15W, R20W, R23W
Serial Number	:	F05012704, F05012705, F05012706
Note	:	Except the lamp shades, model numbers and serial numbers, they are the same product. The circuit card copper traces are in agreement with the schematic.
Applicant	:	XIAMEN LEEDARSON IMPORT & EXPORT CO., LTD 6B, JINSHAN BUILDING, NO.862 XIAHE ROAD, XIAMEN, CHINA
Manufacturer	:	LEEDARSON LIGHTING CO., LTD BAOSHUI ROAD, XINTAI INDUSTRIAL, CHANGTAI XIAN, ZHANGZHOU SHI, CHINA

Test Model	Apparent Power (V • A)	Real Power (W)
R15W	26.55	14.46
R20W	32.40	17.00
R23W	37.20	20.30

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.
FCC registration Number	:	91789
Accredited by NVLAP, Lab Code	:	200371-0

1.3 Measurement Uncertainty

Conducted Emission Expanded Uncertainty : U = 1.84dB

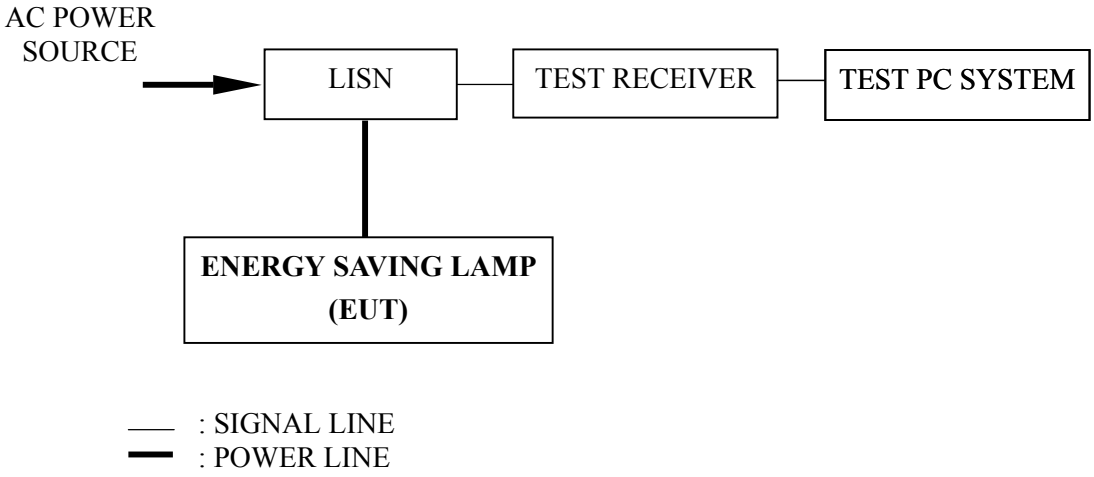
2 AC POWERLINE CONDUCTED EMISSION TEST

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	R&S	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.	Attenuator	Yalian	TTS-1	#1	Mar 18, 2005	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	
	(μV)	dB(μV)
0.45 ~ 2.51	250	48
2.51 ~ 3	3000	70
3 ~ 30	250	48

NOTE 1 – RF Line Voltage dB (μV) = 20 log RF Line Voltage (μV)
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 >

Conducted disturbance in the worse case: (43.88 ±1.84) dBμV

Where the recorded uncertainty is an expanded uncertainty, as defined in GUM and calculated using a coverage factor of 2 which gives a level of confidence of approximately 95%.

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 R23W. The worst emission is detected at 0.563 MHz with corrected signal level of 43.88 dB(μV) (limit is 48.00 dB(μV)), when the VB of the EUT is connected to LISN.

EUT : Energy Saving Lamp Temperature : 23℃

Model No. : R15W Humidity : 56%

Serial No. : F05012704 Date of Test : Mar 28, 2005

Test Line	Frequency (MHz)	Meter Reading dB(μV)	Factor (dB)	Emission Level dB(μV)	Limits dB(μV)	Margin (dB)
VA	**0.479**	**30.38**	**10.28**	**40.66**	**48.00**	**7.34**
	0.528	30.22	10.28	40.50	48.00	7.50
	0.614	27.22	10.28	37.50	48.00	10.50
	0.748	24.68	10.29	34.97	48.00	13.03
	1.697	16.21	10.33	26.54	48.00	21.46
	2.229	17.91	10.35	28.26	48.00	19.74
VB	0.519	29.85	10.31	40.16	48.00	7.84
	0.574	28.05	10.32	38.37	48.00	9.63
	0.761	22.17	10.34	32.51	48.00	15.49
	1.115	20.14	10.37	30.51	48.00	17.49
	2.571	17.29	10.43	27.72	70.00	42.28
	6.185	15.96	10.52	26.48	48.00	21.52

NOTE 1 - Probe Factor means insertion loss of LISN.
NOTE 2 - Factor = Cable Loss (including 10dB attenuator) + Probe Factor.
NOTE 3 - Emission Level = Meter Reading + Factor.
NOTE 4 - All reading are Quasi-Peak Values.

TEST ENGINEER: Denn's Zhang
(DENNIS ZHANG)

EUT	:	Energy Saving Lamp	Temperature	:	23℃
Model No.	:	R20W	Humidity	:	56%
Serial No.	:	F05012705	Date of Test	:	Mar 28, 2005

Test Line	Frequency (MHz)	Meter Reading dB(μV)	Factor (dB)	Emission Level dB(μV)	Limits dB(μV)	Margin (dB)
VA	0.523	32.19	10.28	42.47	48.00	5.53
	0.685	30.26	10.28	40.54	48.00	7.46
	0.761	29.37	10.29	39.66	48.00	8.34
	1.593	24.18	10.32	34.50	48.00	13.50
	3.897	22.99	10.40	33.39	48.00	14.61
	6.423	22.72	10.45	33.17	48.00	14.83
VB	**0.510**	**32.45**	**10.31**	**42.76**	**48.00**	**5.24**
	0.589	30.87	10.32	41.19	48.00	6.81
	0.702	30.03	10.33	40.36	48.00	7.64
	0.777	29.54	10.34	39.88	48.00	8.12
	2.286	24.33	10.41	34.74	48.00	13.26
	6.898	23.39	10.52	33.91	48.00	14.09

NOTE 1 - Probe Factor means insertion loss of LISN.
NOTE 2 - Factor = Cable Loss (including 10dB attenuator) + Probe Factor.
NOTE 3 - Emission Level = Meter Reading + Factor.
NOTE 4 - All reading are Quasi-Peak Values.

TEST ENGINEER: Denn's Zhang
(DENNIS ZHANG)

EUT	:	Energy Saving Lamp	Temperature	:	23℃
Model No.	:	R23W	Humidity	:	56%
Serial No.	:	F05012706	Date of Test	:	Mar 28, 2005

Test Line	Frequency (MHz)	Meter Reading dB(μV)	Factor (dB)	Emission Level dB(μV)	Limits dB(μV)	Margin (dB)
VA	0.475	31.00	10.28	41.28	48.00	6.72
	0.563	**33.59**	**10.29**	**43.88**	**48.00**	**4.12**
	0.650	32.30	10.28	42.58	48.00	5.42
	0.736	29.40	10.29	39.69	48.00	8.31
	1.078	27.40	10.30	37.70	48.00	10.30
	2.229	24.77	10.35	35.12	48.00	12.88
VB	0.455	25.10	10.32	35.42	48.00	12.58
	0.519	31.70	10.31	42.01	48.00	5.99
	0.677	25.30	10.33	35.63	48.00	12.37
	0.838	29.48	10.35	39.83	48.00	8.17
	1.056	27.93	10.36	38.29	48.00	9.71
	2.174	25.19	10.41	35.60	48.00	12.40

NOTE 1 - Probe Factor means insertion loss of LISN.
NOTE 2 - Factor = Cable Loss (including 10dB attenuator) + Probe Factor.
NOTE 3 - Emission Level = Meter Reading + Factor.
NOTE 4 - All reading are Quasi-Peak Values.

TEST ENGINEER: Denn's Zhang
(DENNIS ZHANG)

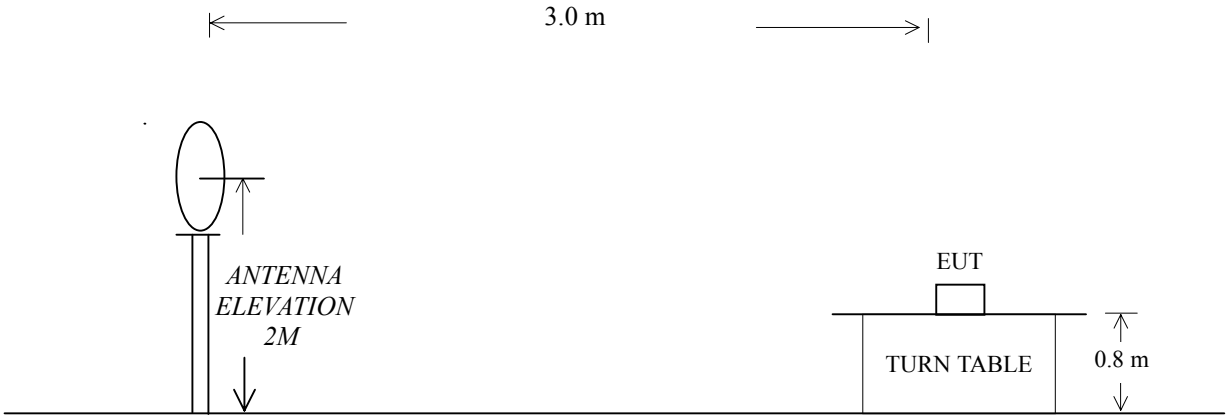
3 MAGNETIC FIELD EMISSION TEST

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	R&S	ESHS10	830223/007	Apr 20, 2004	1 Year
3.	50Ω Coaxial Switch	ANRITSU	MP59B	M73389	Mar 19, 2005	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 center of the loop at 2m height above the floor.

The bandwidth setting on the test receiver (R&S Test Receiver ESHS10) is 200Hz from 9 kHz to 150 kHz and 10 kHz from 150 kHz 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

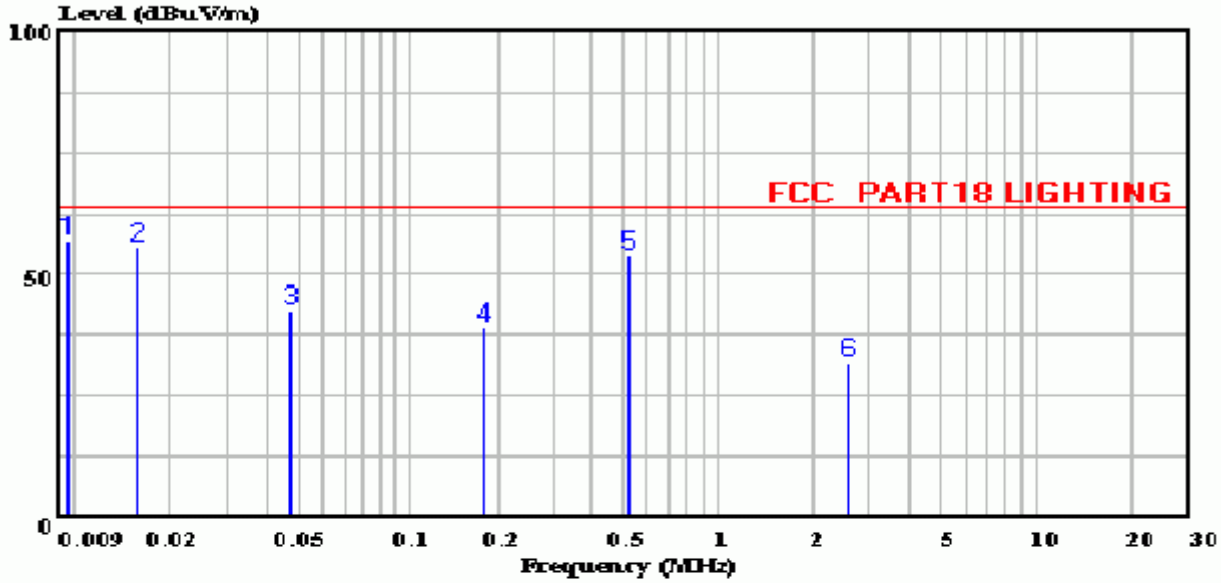
NOTE 1 - Probe Factor means antenna factor of the 0.6m Loop Antenna.
NOTE 2 - Factor = Probe Factor + Cable Loss
NOTE 3 - Level = Read Level+ Factor
NOTE 4 - All reading are Quasi-Peak values.

<**PASS**>

Refer to the following pages.

Audix Technology (Shanghai) Co., Ltd.
3F #34Bldg. No.680 GuiPing Rd.,
CaoHeJing Hi-Tech Park,
Shanghai, China 200233
Tel:+86-21-64955500 Fax:+86-21-64955491
audixaci@8848.net

Data#: 252 File#: D:\Test-Data\U\U1.emi Date: 2005-03-28 Time: 11:12:08



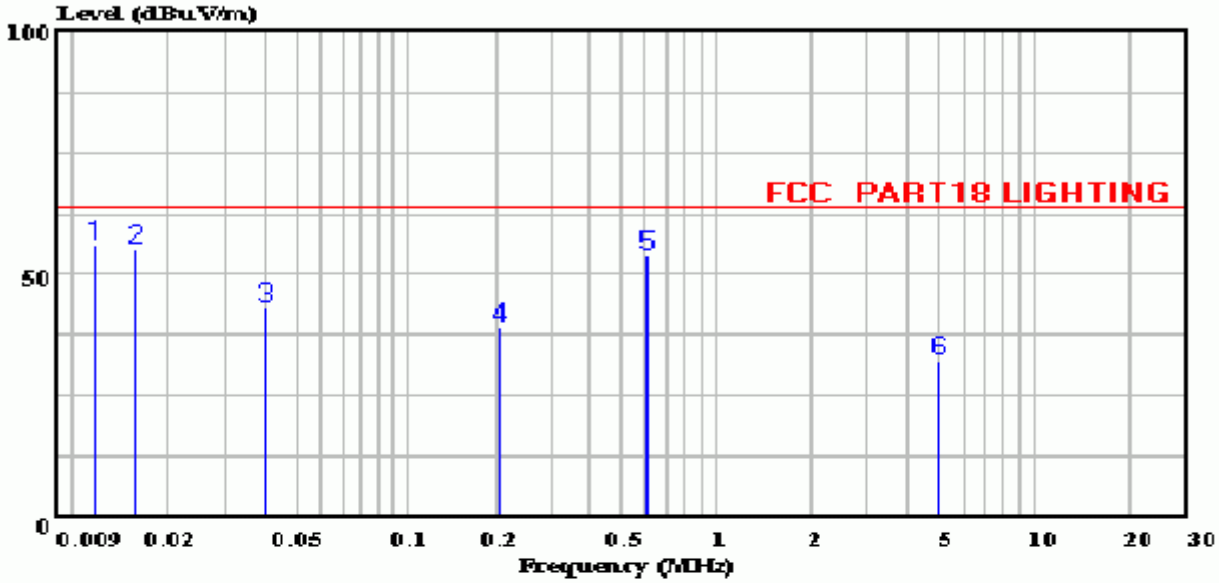
Site : Chamber 3
Condition : FCC PART18 LIGHTING 3m
Project No. : AOE-000842-F2
Applicant : XIAMEN LEEDARSON IMPORT&EXPORT
: CO.,LTD
EUT : Energy Saving Lamp
M/N : R15W
S/N : F05012704
Power Supply : 120V/ 60Hz
Ambient : 20C, 55%
Test Mode : Lighting
Test Engineer: Denm's Zhang

Page: 1

	Freq	Level	Limit Line	Over Limit	Read Level	Probe Factor	Cable Loss
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB
1	0.010	56.94	63.50	-6.56	36.20	20.74	20.70	0.04
2	0.016	55.58	63.50	-7.92	34.84	20.74	20.68	0.06
3	0.047	42.53	63.50	-20.97	21.95	20.58	20.48	0.10
4	0.190	39.16	63.50	-24.34	18.93	20.23	20.08	0.15
5	0.537	53.63	63.50	-9.87	33.42	20.21	20.00	0.21
6	2.589	32.02	63.50	-31.48	11.73	20.29	20.00	0.29

Audix Technology (Shanghai) Co., Ltd.
3F #34Bldg. No.680 GuiPing Rd.,
CaoHeJing Hi-Tech Park,
Shanghai, China 200233
Tel:+86-21-64955500 Fax:+86-21-64955491
audixaci@8848.net

Data#: 253 File#: D:\Test-Data\U\U1.emi Date: 2005-03-28 Time: 11:18:34



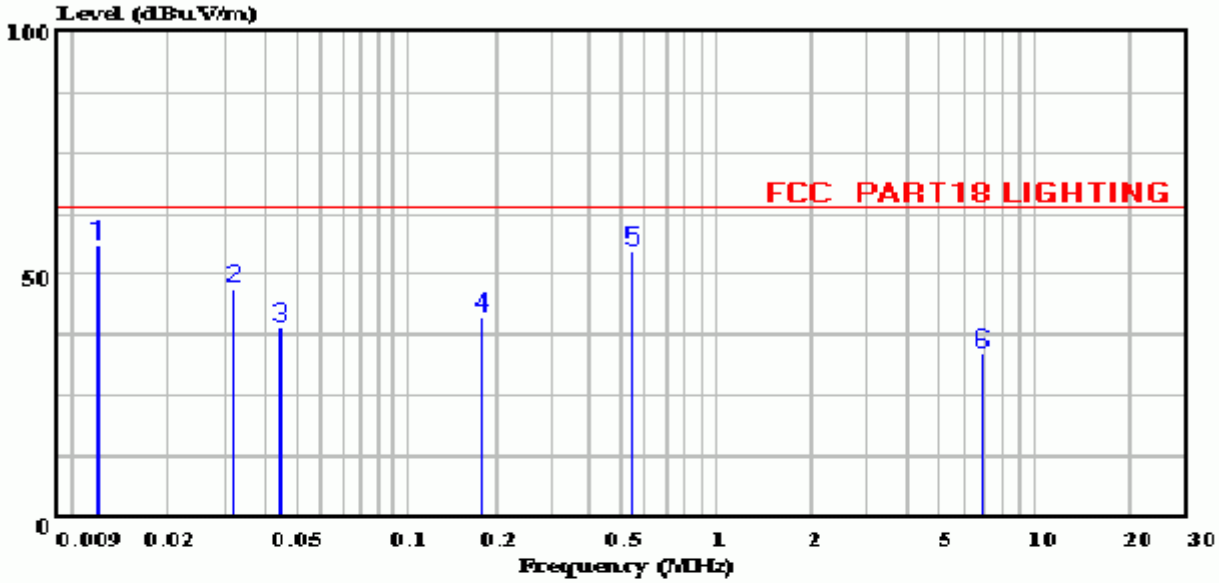
Site : Chamber 3
Condition : FCC PART18 LIGHTING 3m
Project No. : AOE-000842-F2
Applicant : XIAMEN LEEDARSON IMPORT&EXPORT
: CO.,LTD
EUT : Energy Saving Lamp
M/N : R20W
S/N : F05012705
Power Supply : 120V/ 60Hz
Ambient : 20C, 55%
Test Mode : Lighting
Test Engineer: Denni's Zhang

Page: 1

	Freq	Level	Limit Line	Over Limit	Read Level	Probe Factor	Cable Loss
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB
1	0.012	55.97	63.50	-7.53	35.22	20.75	20.70	0.05
2	0.016	54.97	63.50	-8.53	34.23	20.74	20.68	0.06
3	0.040	42.96	63.50	-20.54	22.46	20.50	20.40	0.10
4	0.215	39.13	63.50	-24.37	18.87	20.26	20.10	0.16
5	0.616	53.71	63.50	-9.79	33.50	20.21	20.00	0.21
6	5.036	32.21	63.50	-31.29	11.81	20.40	20.00	0.40

Audix Technology (Shanghai) Co., Ltd.
3F #34Bldg. No.680 GuiPing Rd.,
CaoHeJing Hi-Tech Park,
Shanghai, China 200233
Tel:+86-21-64955500 Fax:+86-21-64955491
audixaci@8848.net

Data#: 254 File#: D:\Test-Data\U\U1.emi Date: 2005-03-28 Time: 11:20:25



Site : Chamber 3
Condition : FCC PART18 LIGHTING 3m
Project No. : AOE-000842-F2
Applicant : XIAMEN LEEDARSON IMPORT&EXPORT
: CO.,LTD
EUT : Energy Saving Lamp
M/N : R23W
S/N : F05012706
Power Supply : 120V/ 60Hz
Ambient : 20C, 55%
Test Mode : Lighting
Test Engineer: Denn's Zhang

Page: 1

	Freq	Level	Limit Line	Over Limit	Read Level	Probe Factor	Cable Loss
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB
1	0.012	55.97	63.50	-7.53	35.22	20.75	20.70	0.05
2	0.032	46.93	63.50	-16.57	26.34	20.59	20.50	0.09
3	0.044	39.07	63.50	-24.43	18.53	20.54	20.44	0.10
4	0.190	41.06	63.50	-22.44	20.83	20.23	20.08	0.15
5	0.564	54.60	63.50	-8.90	34.39	20.21	20.00	0.21
6	6.910	33.58	63.50	-29.92	13.11	20.47	20.00	0.47