

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

Energy Saving Lamp

Model No.: FS15W, FS20W, FS23W

Serial No.: F05012701, F05012702, F05012703

FCC ID: S6K131S0305

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
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	7
2.4 Test Configuration.....	7
2.5 Operating Condition of EUT	7
2.6 Test Procedures	7
2.7 Test Results	8
3 MAGNETIC FIELD EMISSION TEST	12
3.1 Test Equipment.....	12
3.2 Block Diagram of Test Setup	12
3.3 Magnetic Field Emission Limit.....	12
3.4 EUT Configuration on Test.....	13
3.5 Operating Condition of EUT	13
3.6 Test Procedures	13
3.7 Test Results	13

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. : FS15W, FS20W, FS23W
(B) Serial No. : F05012701, F05012702, F05012703
(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.

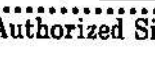
This report applies to above tested sample only. This report shall not be reproduced in part without written approval of Audix Technology (Shanghai) Co., Ltd.

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 25-28, 2005

Prepared by : Sarah Liu 2005.4.1 Test Engineer : Dennis Zhang 2005.4.1
SARAH LIU
(Assistant)  DENNIS ZHANG
For and on behalf of
Audix Technology (Shanghai) Co., Ltd. (Engineer)

Reviewer : Sammy Chen 2005.4.1 Approved Signatory : Byron Kwo 2005.4.1
SAMMY CHEN
(Supervisor)  BYRON KWO
Authorized Signatory(s) (Deputy 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 : FS15W, FS20W, FS23W

Serial Number : F05012701, F05012702, F05012703

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)
FS15W	26.01	14.41
FS20W	37.80	20.60
FS23W	40.50	22.70

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 : $U = 1.84\text{dB}$

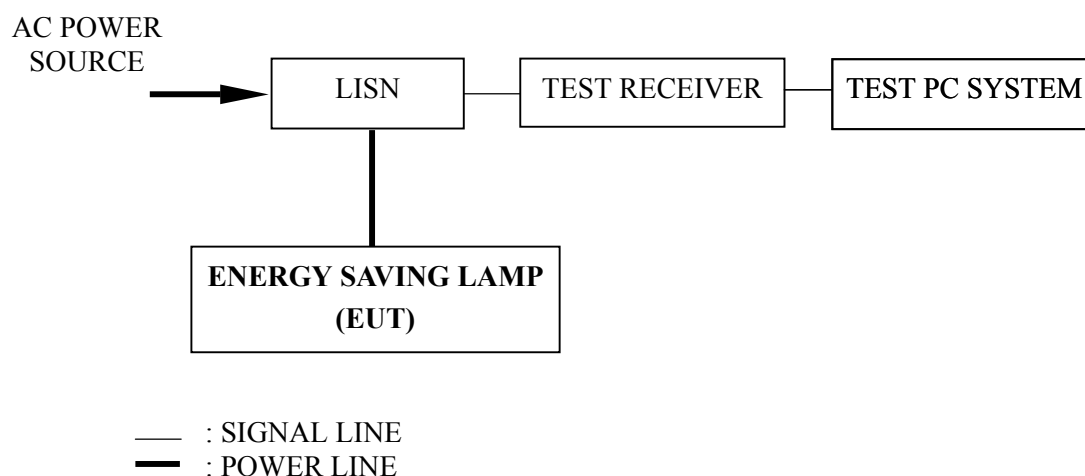
2 AC POWERLINE CONDUCTED EMISSION TEST

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.	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	
	(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** >

Conducted disturbance in the worse case: (43.12 ± 1.84) dB μ V

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 FS23W. The worst emission is detected at 0.450 MHz with corrected signal level of 43.12 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 : 23°C

Model No. : FS15W Humidity : 56%

Serial No. : F05012701 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	0.519	30.30	10.28	40.58	48.00	7.42
	0.557	25.91	10.28	36.19	48.00	11.81
	0.774	25.62	10.29	35.91	48.00	12.09
	0.934	24.34	10.29	34.63	48.00	13.37
	1.207	22.02	10.31	32.33	48.00	15.67
	2.229	21.86	10.35	32.21	48.00	15.79
VB	0.515	31.61	10.31	41.92	48.00	6.08
	0.622	26.98	10.33	37.31	48.00	10.69
	0.720	26.59	10.34	36.93	48.00	11.07
	0.841	25.25	10.35	35.60	48.00	12.40
	1.105	22.83	10.37	33.20	48.00	14.80
	1.769	22.02	10.39	32.41	48.00	15.59
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: Dennis Zhang
(DENNIS ZHANG)

EUT : Energy Saving Lamp Temperature : 23°C

Model No. : FS20W Humidity : 56%

Serial No. : F05012702 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	0.452	30.45	10.28	40.73	48.00	7.27
	0.523	29.59	10.28	39.87	48.00	8.13
	0.831	26.99	10.29	37.28	48.00	10.72
	1.459	25.83	10.31	36.14	48.00	11.86
	3.897	23.52	10.40	33.92	48.00	14.08
	15.845	26.17	10.88	37.05	48.00	10.95
VB	0.523	29.53	10.31	39.84	48.00	8.16
	0.736	28.23	10.34	38.57	48.00	9.43
	1.021	26.82	10.36	37.18	48.00	10.82
	1.446	26.00	10.38	36.38	48.00	11.62
	3.159	23.39	10.45	33.84	48.00	14.16
	15.845	24.88	10.82	35.70	48.00	12.30
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: Dennis Zhang
(DENNIS ZHANG)

EUT : Energy Saving Lamp Temperature : 23°C

Model No. : FS23W Humidity : 56%

Serial No. : F05012703 Date of Test : Mar 25, 2005

Test Line	Frequency (MHz)	Meter Reading dB(μV)	Factor (dB)	Emission Level dB(μV)	Limits dB(μV)	Margin (dB)
VA	0.467	31.89	10.28	42.17	48.00	5.83
	0.539	30.95	10.28	41.23	48.00	6.77
	0.594	29.00	10.28	39.28	48.00	8.72
	1.308	27.46	10.31	37.77	48.00	10.23
	1.580	26.31	10.32	36.63	48.00	11.37
	3.093	25.08	10.38	35.46	48.00	12.54
VB	0.450	32.80	10.32	43.12	48.00	4.88
	0.557	29.01	10.31	39.32	48.00	8.68
	0.720	26.79	10.34	37.13	48.00	10.87
	0.783	25.76	10.34	36.10	48.00	11.90
	1.393	26.52	10.38	36.90	48.00	11.10
	3.159	25.02	10.45	35.47	48.00	12.53
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: Dennis Zhang
(DENNIS ZHANG)

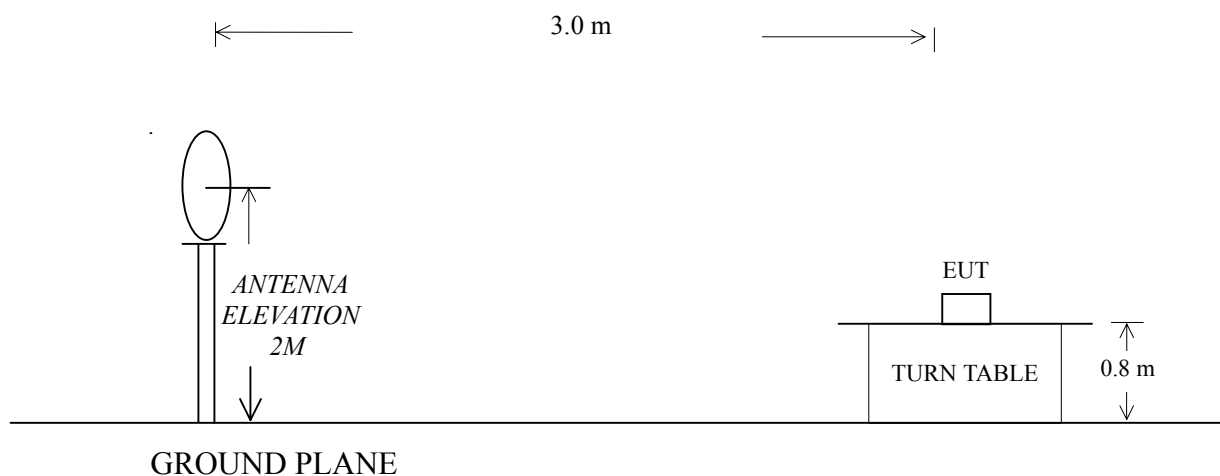
3 MAGNETIC FIELD EMISSION TEST

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	Rohde & Schwarz	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>

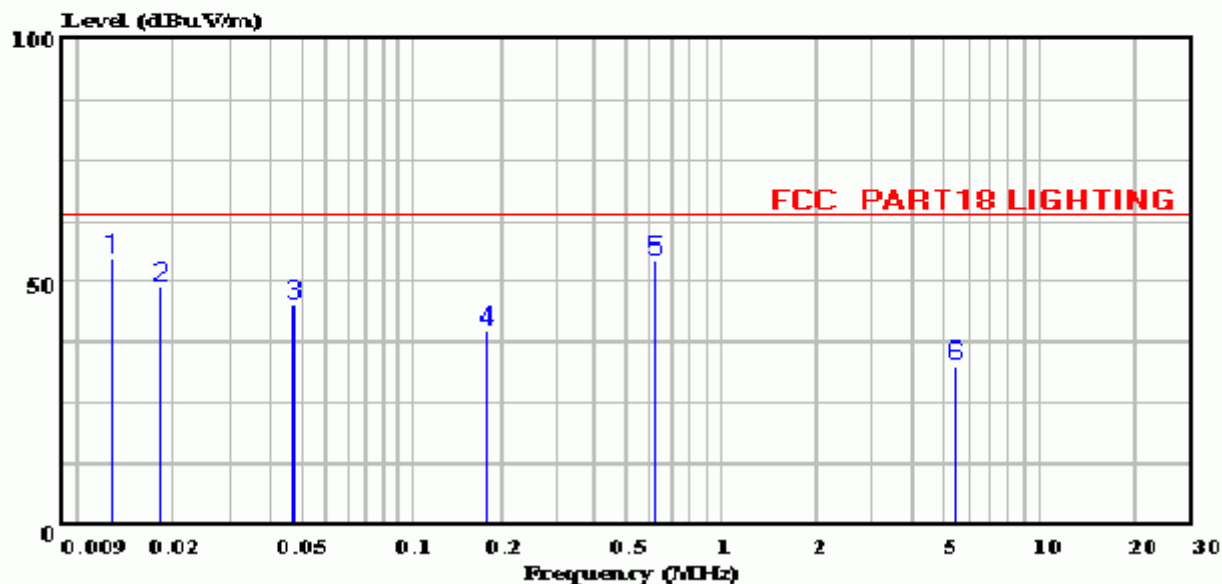
Refer to the following pages.



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#: 249 File#: D:\Test-Data\U\U1.emi

Date: 2005-03-28 Time: 11:03:44



Site : Chamber 3
 Condition : FCC PART18 LIGHTING 3m
 Project No. : AOE-000842-F1
 Applicant : XIAMEN LEEDARSON IMPORT&EXPORT
 : CO.,LTD
 EUT : Energy Saving Lamp
 M/N : FS15W
 S/N : F05012701
 Power Supply : 120V/ 60Hz
 Ambient : 20C, 55%
 Test Mode : Lighting
 Test Engineer: Dennis Zhang

Page: 1

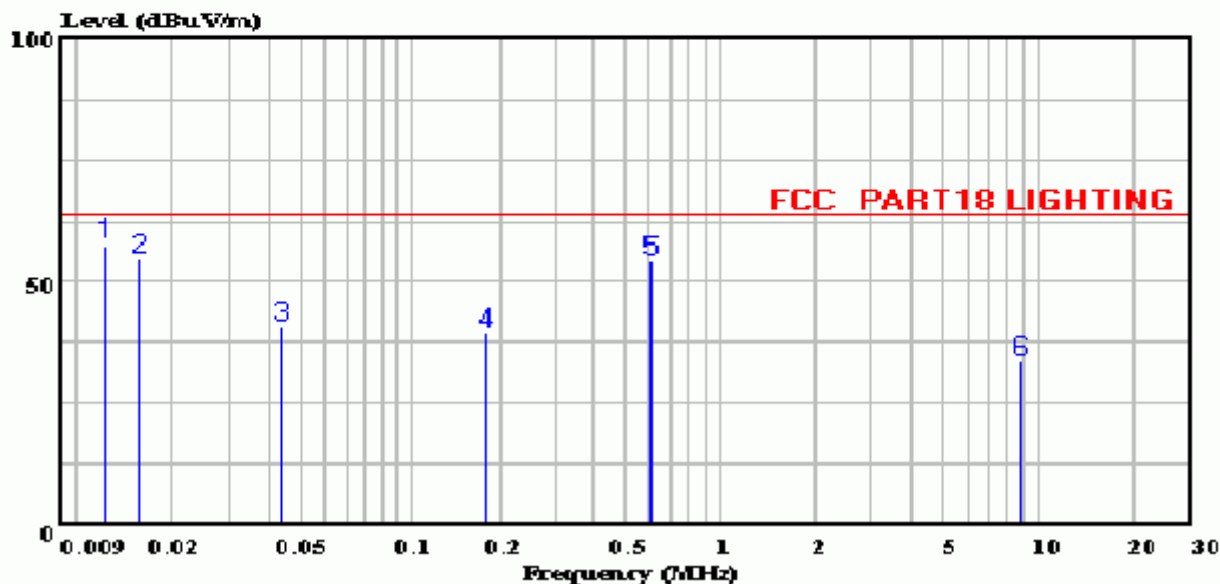
	Freq	Level	Limit	Over	Read	Probe	Cable
	MHz	dBuV/m	Line	Limit	Level	Factor	Loss
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB
1	0.013	54.63	63.50	-8.87	33.88	20.75	0.05
2	0.018	48.95	63.50	-14.55	28.25	20.70	0.07
3	0.047	45.17	63.50	-18.33	24.59	20.58	0.10
4	0.192	40.12	63.50	-23.38	19.88	20.24	0.15
5	0.636	54.48	63.50	-9.02	34.27	20.21	0.21
6	5.506	32.74	63.50	-30.76	12.33	20.41	0.41



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#: 250 File#: D:\Test-Data\U\U1.emi

Date: 2005-03-28 Time: 11:06:05



Site : Chamber 3
 Condition : FCC PART18 LIGHTING 3m
 Project No. : AOE-000842-F1
 Applicant : XIAMEN LEEDARSON IMPORT&EXPORT
 : CO.,LTD
 EUT : Energy Saving Lamp
 M/N : FS20W
 S/N : F05012702
 Power Supply : 120V/ 60Hz
 Ambient : 20C, 55%
 Test Mode : Lighting
 Test Engineer: *Denmi's Zhang*

Page: 1

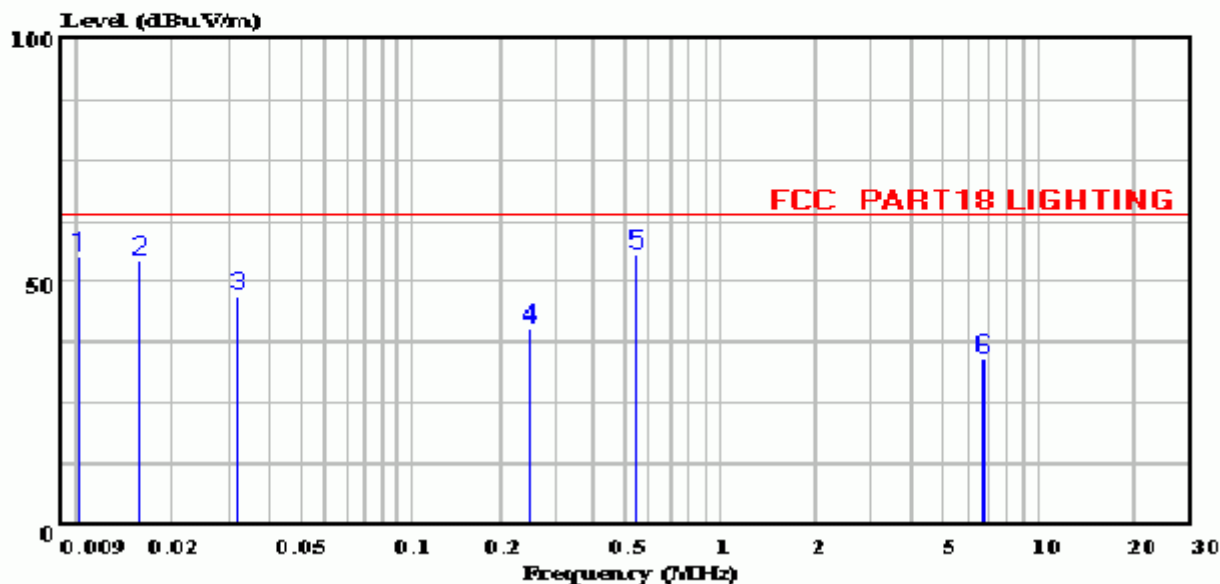
	Freq	Level	Limit	Over	Read	Probe	Cable
	MHz	dBUV/m	Line	Limit	Level	Factor	Loss
			dBUV/m	dB	dBUV	dB	dB
1	0.012	57.76	63.50	-5.74	37.01	20.75	0.05
2	0.016	54.62	63.50	-8.88	33.88	20.74	0.06
3	0.043	40.75	63.50	-22.75	20.21	20.54	0.10
4	0.190	39.30	63.50	-24.20	19.07	20.23	0.15
5	0.616	54.48	63.50	-9.02	34.27	20.21	0.21
6	8.886	33.80	63.50	-29.70	13.27	20.53	0.53



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#: 251 File#: D:\Test-Data\U\U1.emi

Date: 2005-03-28 Time: 11:09:51



Site : Chamber 3
 Condition : FCC PART18 LIGHTING 3m
 Project No. : AOE-000842-F1
 Applicant : XIAMEN LEEDARSON IMPORT&EXPORT
 : CO.,LTD
 EUT : Energy Saving Lamp
 M/N : FS23W
 S/N : F05012703
 Power Supply : 120V/ 60Hz
 Ambient : 20C, 55%
 Test Mode : Lighting
 Test Engineer: Dennis Zhang

Page: 1

	Freq	Level	Limit	Over	Read	Probe	Cable
	MHz	dBUV/m	Line	Limit	Level	Factor	Loss
			dBUV/m	dB	dBUV	dB	dB
1	0.010	54.97	63.50	-8.53	34.23	20.74	0.04
2	0.016	54.40	63.50	-9.10	33.66	20.74	0.06
3	0.032	47.01	63.50	-16.49	26.42	20.59	0.09
4	0.261	40.48	63.50	-23.02	20.23	20.25	0.17
5	0.564	55.72	63.50	-7.78	35.51	20.21	0.21
6	6.799	34.13	63.50	-29.37	13.66	20.47	0.47