

Beijing Golden U Land Lighting Technology Development Co., Ltd.

Energy Saving Lamp

Model Number: 1005-15W(EUT-15)/1005-18W(EUT-18)/
1005-20W(EUT -20)/1005-25W(EUT-25)/

Prepared for : Beijing Golden U Land Lighting Technology
Development Co., Ltd.
4F, No.8 Yard Dong Fang East Street,
Chao Yang District, Beijing, China

Prepared By : Audix Technology (Shenzhen) Co., Ltd.
No. 6, Ke Feng Rd., 52 Block,
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Report Number : ACS-F02016
Date of Test : Jan.26~31, 2002
Date of Report : Feb.04, 2002

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TEST REPORT DECLARATION

Applicant : Beijing Golden U Land Lighting Technology Development Co., Ltd.

Manufacturer : Beijing Golden U Land Lighting Technology Development Co., Ltd.
Shenzhen Branch

EUT Description : Energy Saving Lamp

(A) MODEL NO. : 1005-15W(EUT-15)/1005-18W(EUT-18)/
1005-20W(EUT -20)/1005-25W(EUT-25)/

(B)POWER SUPPLY : 120V / 60Hz

Test Procedure Used:

FCC RULES AND REGULATIONS PART 18 SUBPART C RF LIGHTING DEVICES
CONSUMER (1998) AND MP-5/1986

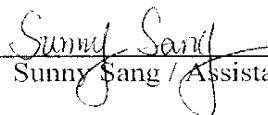
The device described above is tested by Audix Technology (Shenzhen) Co., Ltd. to determine the maximum emission levels emanating from the device. The maximum emission levels are compared to the FCC Part 18 Subpart C limits for radiation and conduction emissions. The test results are contained in this test report and Audix Technology (Shenzhen) Co., Ltd. is assumed of full responsibility for the accuracy and completeness of these measurements. Also, this report shows that the EUT is technically compliant with FCC requirements.

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

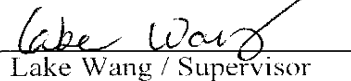
This report must not be used by the applicant to claim product endorsement by NVLAP or any agency of the U.S. Government.

Date of Test : Jan.26~31, 2002

Prepared by :

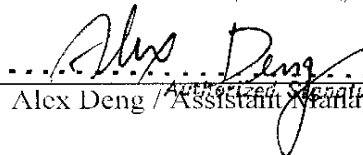

Sunny Sang / Assistant

Reviewer :


Lake Wang / Supervisor

For and on behalf of
AUDIX TECHNOLOGY (SHENZHEN) CO.,LTD.

Approved & Authorized Signer :


Alex Deng / Assistant Manager

Name of the Representative of the Responsible Party :

Signature :

1. GENERAL INFORMATION

1.1. Description of Device (EUT)

Description	:	Energy Saving Lamp
Model Number	:	1005-15W(EUT-15)/1005-18W(EUT-18)/ 1005-20W(EUT -20)/1005-25W(EUT-25)/
Applicant	:	Beijing Golden U Land Lighting Technology Development Co., Ltd. 4F, No.8 Yard Dong Fang East Street, Chao Yang District, Beijing, China
Manufacturer	:	Beijing Golden U Land Lighting Technology Development Co., Ltd. Shenzhen Branch No.16, Chang Xing Industry Park, Gong Ming Town, Shenzhen, China
Date of Test	:	Jan.26~31, 2002

1.2. Test Facility

Site Description

3m Anechoic Chamber	:	Certificated by FCC, USA Aug. 24, 2000
3m & 10m Open Site	:	Certificated by FCC, USA Jan. 29, 2001
EMC Lab.	:	Certificated by VCCI, Japan Oct. 29, 1998 certificated by DATech, German Feb. 02, 1999 certificated by NVLAP, USA NVLAP Code: 200372-0 certificated by DNV, Norway May 26, 1999
Name of Firm	:	Audix Technology (Shenzhen) Co., Ltd.
Site Location	:	No. 6, Ke Feng Rd., 52 Block, Shenzhen Science & Industrial Park, Nantou, Shenzhen, Guangdong, China

1.3. Test Uncertainty

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

Radiated Emission Uncertainty = $\pm 4.26\text{dB}$

2. POWER LINE CONDUCTED EMISSION TEST

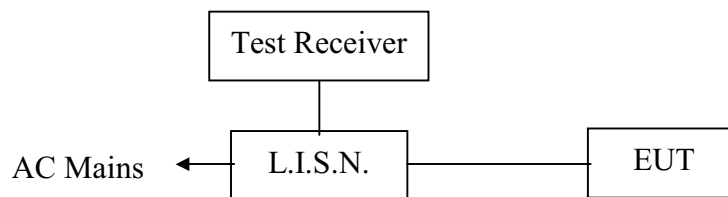
2.1. Test Equipment

The following test equipments are used during the power line conducted emission test:

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Test Receiver	Rohde & Schwarz	ESHS20	836600/006	Jun. 03, 01	1 Year
2.	L.I.S.N.	Kyoritsu	KNW-407	8-541-4	Jun. 03, 01	1 Year
3.	Terminator	EMCO	50Ω	No. 1	Jun. 03, 01	1 Year
4.	Terminator	EMCO	50Ω	No. 2	Jun. 03, 01	1 Year
5.	RF Cable	FUJIKURA	RG-55/U	LISN Cable	Aug. 26, 01	1/2 Year
6.	Coaxial Switch	Anritsu	MP59B	M73989	Dec.01, 01	1/2 Year

2.2. Block Diagram of Test Setup

2.2.1. Block diagram of connection between the EUT and simulators



(EUT: Energy Saving Lamp)

2.3. Power Line Conducted Emission Test Limits

Frequency MHz	Maximum RF Line Voltage	
	μV	dB(μV)
0.45 ~ 30	250	48

Remarks: RF Line Voltage (dB(μV)) = 20 log RF Line Voltage (μV)

2.4.Configuration of EUT on Test

The following equipment are installed on Power Line Conducted Emission Test to meet the commission requirement and operating regulations in a manner which tends to maximize its emission characteristics in a normal application.

2.4.1.Energy Saving Lamp (EUT)

Model Number	:	1005-15W(EUT-15)/1005-18W(EUT-18)/ 1005-20W(EUT-20)/1005-25W(EUT-25)/
Manufacturer	:	Beijing Golden U Land Lighting Technology Development Co., Ltd. Shenzhen Branch

2.5.Operating Condition of EUT

- 2.5.1.Setup the EUT and simulator as shown as Section 2.2.
- 2.5.2.Turn on the power of all equipment.
- 2.5.3.Let the EUT work in test mode (ON) and test it.

2.6.Test Procedure

The EUT is put on a table which is 0.8m above the ground , it is connected to the power mains through a line impedance stabilization network (L.I.S.N.). This provides a 50 ohm coupling impedance for the EUT. Please refer the block diagram of the test setup and photographs. Both sides of AC line are checked to find out the maximum conducted emission levels. In order to find the maximum emission levels, the relative positions of equipment and all of the interface cables shall be changed according to ANSI C63.4-1992 on Conducted Emission Test.

The bandwidth of test receiver (R & S ESHS20) is set at 10KHz.

The frequency range from 450KHz to 30MHz is checked.

The test result are reported on Section 2.7., all the scanning waveforms for Conducted Emission Test are attached in Appendix I.

2.7.Power Line Conducted Emission Test Results

PASS.

The frequency range from 450KHz to 30 MHz is investigated.

All emissions not reported below are too low against the prescribed limits.

Date of Test :	Jan.26, 2002	Temperature :	24°C
EUT :	Energy Saving Lamp	Humidity :	56%
Model No. :	1005-15W(EUT-15)	Test Mode :	ON
Test Engineer :	Sean		

Frequency MHz	Reading		Limit dB(μV)
	Phase VA dB(μV)	Phase VB dB(μV)	
0.456	31.1	*	48.00
0.514	*	30.7	48.00
1.054	26.5	*	48.00
1.091	*	29.0	48.00
1.167	*	27.4	48.00
1.318	*	22.7	48.00
1.409	28.8	*	48.00
1.476	28.9	28.9	48.00
1.654	28.8	*	48.00
7.425	*	15.0	48.00
8.099	13.1	*	48.00

Remark: 1. All readings are Quasi-Peak values.
2. The worst emission is detected at 0.456 MHz with corrected signal level of 31.1dB(μV) (limit is 48.00 dB(μV)) when the VA side of the EUT is connected to L.I.S.N.

Reviewer: _____

Date of Test :	Jan. 26, 2002	Temperature :	24°C
EUT :	Energy Saving Lamp	Humidity :	56%
Model No. :	1005-18W(EUT-18)	Test Mode :	ON
Test Engineer :	Sean		

Frequency MHz	Reading		Limit dB(μV)
	Phase VA dB(μV)	Phase VB dB(μV)	
0.450	42.7	*	48.00
0.451	*	43.2	48.00
0.507	42.6	*	48.00
0.509	*	42.0	48.00
0.630	*	40.7	48.00
0.986	40.3	*	48.00
0.926	*	38.4	48.00
1.107	40.6	*	48.00
1.468	37.4	34.6	48.00
6.791	*	30.7	48.00
7.183	30.8	*	48.00

Remark: 1. All readings are Quasi-Peak values.
2. The worst emission is detected at 0.451 MHz with corrected signal level of 43.2dB(μV) (limit is 48.00 dB(μV)) when the VB side of the EUT is connected to L.I.S.N.

Reviewer: _____

Date of Test :	Jan. 26, 2002	Temperature :	24°C
EUT :	Energy Saving Lamp	Humidity :	56%
Model No. :	1005-20W(EUT-20)	Test Mode :	ON
Test Engineer :	Sean		

Frequency MHz	Reading		Limit dB(μV)
	Phase VA dB(μV)	Phase VB dB(μV)	
0.392	40.2	*	48.00
0.458	*	39.0	48.00
0.563	36.4	*	48.00
0.696	*	36.0	48.00
0.777	35.0	*	48.00
1.336	*	32.5	48.00
0.380	*	34.0	48.00
1.389	34.7	*	48.00
1.458	*	33.6	48.00
1.468	34.6	*	48.00
5.104	*	24.0	48.00
5.226	23.2	*	48.00

Remark: 1. All readings are Quasi-Peak values.
2. The worst emission is detected at 0.766 MHz with corrected signal level of 39.4dB(μV) (limit is 48.00 dB(μV)) when the VB side of the EUT is connected to L.I.S.N.

Reviewer: _____

Date of Test :	Jan. 29, 2002	Temperature :	24°C
EUT :	Energy Saving Lamp	Humidity :	56%
Model No. :	1005-25W(EUT-25)	Test Mode :	ON
Test Engineer :	Sean		

Frequency MHz	Reading		Limit dB(μV)
	Phase VA dB(μV)	Phase VB dB(μV)	
0.475	40.4	*	48.00
0.486	*	39.6	48.00
0.621	39.0	*	48.00
0.695	*	37.6	48.00
0.765	36.9	*	48.00
1.067	31.2	*	48.00
1.147	*	30.7	48.00
1.214	30.1	*	48.00
1.305	*	31.6	48.00
1.911	*	34.3	48.00
4.805	*	9.2	48.00
5.455	16.8	*	48.00

Remark: 1. All readings are Quasi-Peak values.
2. The worst emission is detected at 0.475 MHz with corrected signal level of 40.4dB(μV) (limit is 48.00 dB(μV)) when the VA side of the EUT is connected to L.I.S.N.

Reviewer: _____

3. RADIATED EMISSION TEST

3.1. Test Equipment

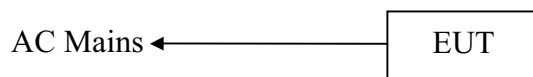
The following test equipments are used during the radiated emission test:

3.1.1. For Anechoic Chamber

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	EMI Test Receiver	HP	85422E	3625A00181	Jun. 03, 01	1 Year
2.	Test Receiver	Rohde & Schwarz	ESVS20	830350/005	Jun. 03, 01	1 Year
3.	Amplifier	HP	8447D	2944A07794	Jun. 02, 01	1/2 Year
4.	Bilog Antenna	Chase	CBL6112A	2176	Sep. 25, 01	1 Year
5.	Computer	N/A	N/A	N/A	N/A	N/A
6.	Printer	NEC	P3800	568101448	N/A	N/A
7.	RF Cable	MIYAZAKI	5D-2W	3# Chamber No.1	Aug.07, 01	1/2 Year
8.	RF Cable	MIYAZAKI	5D-2W	3# Chamber No.2	Aug.07, 01	1/2 Year
9.	RF Cable	FUJIKURA	RG-55/U	3# Chamber No.3	Aug.07, 01	1/2 Year
10.	RF Cable	FUJIKURA	RG-55/U	3# Chamber No.4	Aug.07, 01	1/2 Year
11.	Coaxial Switch	Anritsu	MP59B	M74389	Dec.01, 01	1/2 Year

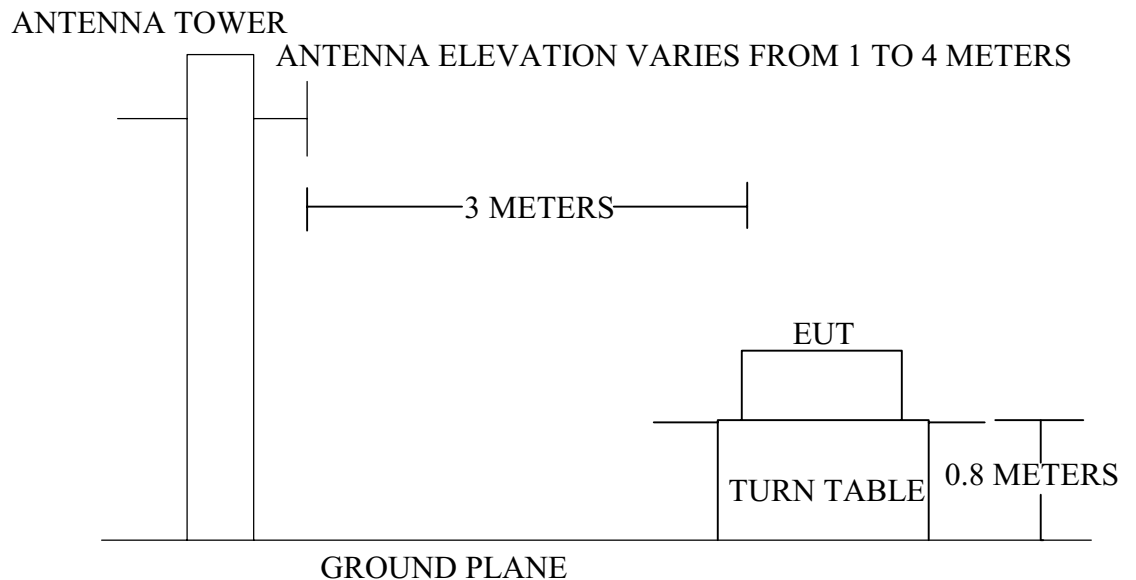
3.2. Block Diagram of Test Setup

3.2.1. Block diagram of connection between the EUT and simulators



(EUT: Energy Saving Lamp)

3.2.2. Test Setup Diagram in Anechoic Chamber



3.3.Radiated Emission Limit

FREQUENCY MHz	DISTANCE Meters	FIELD STRENGTHS LIMIT	
		μV/m	dB(μV)/m
30 ~ 88	3	100	40.0
88 ~ 216	3	150	43.5
216 ~ 960	3	200	46.0
960 ~ 1000	3	500	54.0

- Remark :
- (1) Emission level (dB)μV = 20 log Emission level μV/m
 - (2) The smaller limit shall apply at the cross point between two frequency bands.
 - (3) Distance is the distance in meters between the measuring instrument, antenna and the closest point of any part of the device or system.

3.4.EUT Configuration on Test

The following equipment are installed on Radiated Emission Test to meet the commission requirements and operating regulations in a manner which tends to maximize its emission characteristics in normal application.

3.4.1.Energy Saving Lamp (EUT)

Model Number : 1005-15W(EUT-15)/1005-18W(EUT-18)/
1005-20W(EUT-20)/1005-25W(EUT-25)/
Manufacturer : Beijing Golden U Land Lighting Technology
Development Co., Ltd. Shenzhen Branch

3.5.Operating Condition of EUT

1. Setup the EUT as shown in Section 3.2..
2. Let the EUT work in test mode (ON) and test it.

3.6. Test Procedure

The EUT and its simulators are placed on a turn table, which is 0.8 meter high above the ground. The turn table can rotate 360 degrees to determine the position of the maximum emission level. The EUT is set 3.0 meters away from the receiving antenna, which is mounted on an antenna tower. The antenna can be moved up and down between 1.0 meter and 4 meters to find out the maximum emission levels. Broadband antenna (calibrated bilog antenna) is used as receiving antenna. Both horizontal and vertical polarization of the antenna are set on test. In order to find the maximum emission levels, all of the interface cables must be manipulated according to MP-5/1986 on Radiated Emission Test.

The bandwidth of the EMI test receiver (R&S ESVS20) is set at 120KHz.

The frequency range from 30MHz to 1000MHz is checked.

The test mode (ON) are tested in Anechoic Chamber and all the scanning waveforms are attached in Appendix II.

3.7. Radiated Emission Test Result

PASS.

The frequency range from 30MHz to 1000MHz is investigated. Please see the following pages.

As the peak value is too low against the limit, So the Quasi-Peak value and average value have been omitted. The scanning waveforms are put in Appendix II.

4. MODIFICATION TO TEST SPECIFICATIONS

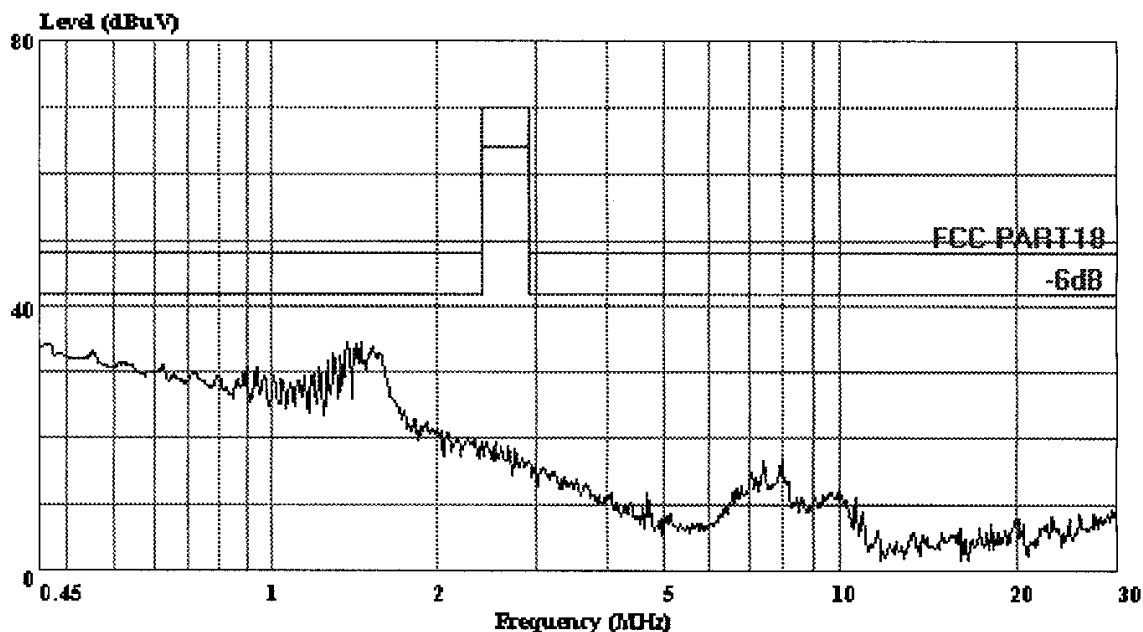
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APPENDIX I

Data#: 7

File#: Golden U Land Lighting.EMI

Date: 2002-01-28 Time: 09:43:47



AUDIX TECHNOLOGY (SHENZHEN) CO., LTD. (Audix ATC)

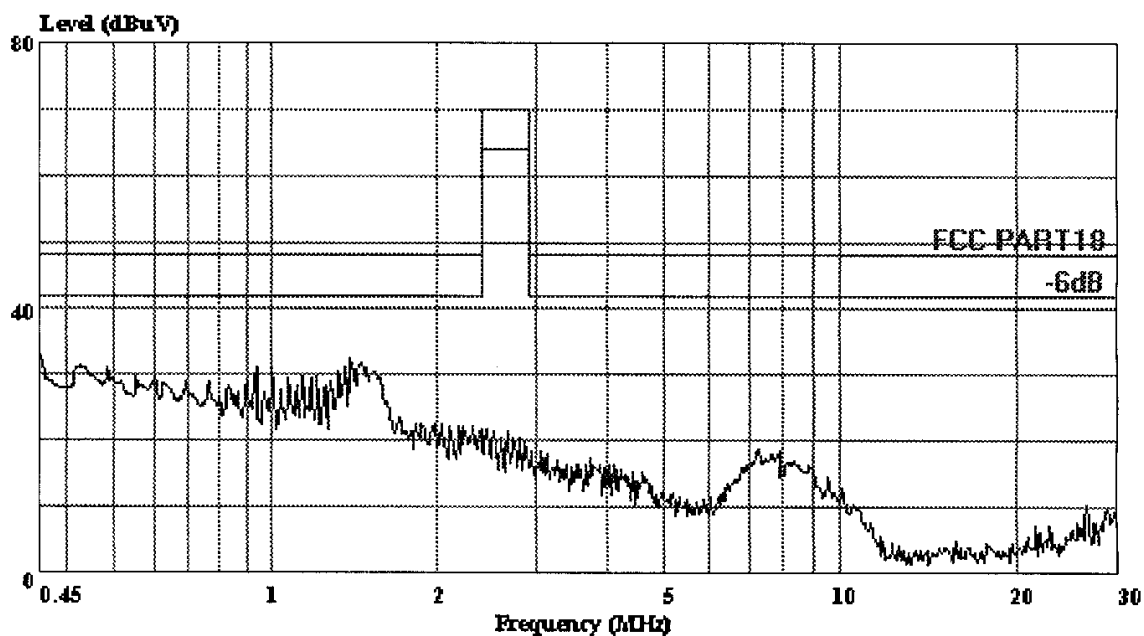
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Condition: FCC PART18
EUT: : Energy Saving Lamp
M/N: : 1005-15 (EUT-15)
OP Cond: : On
Tested By: Sean Xing
Test Spec: 120Vac/60Hz Va
Comment: : Temp: 24°C
: Humi: 56%

Data#: 8 File#: Golden U Land Lighting.EMI

Date: 2002-01-28 Time: 09:51:00



AUDIX TECHNOLOGY (SHENZHEN) CO., LTD. (Audix ATC)

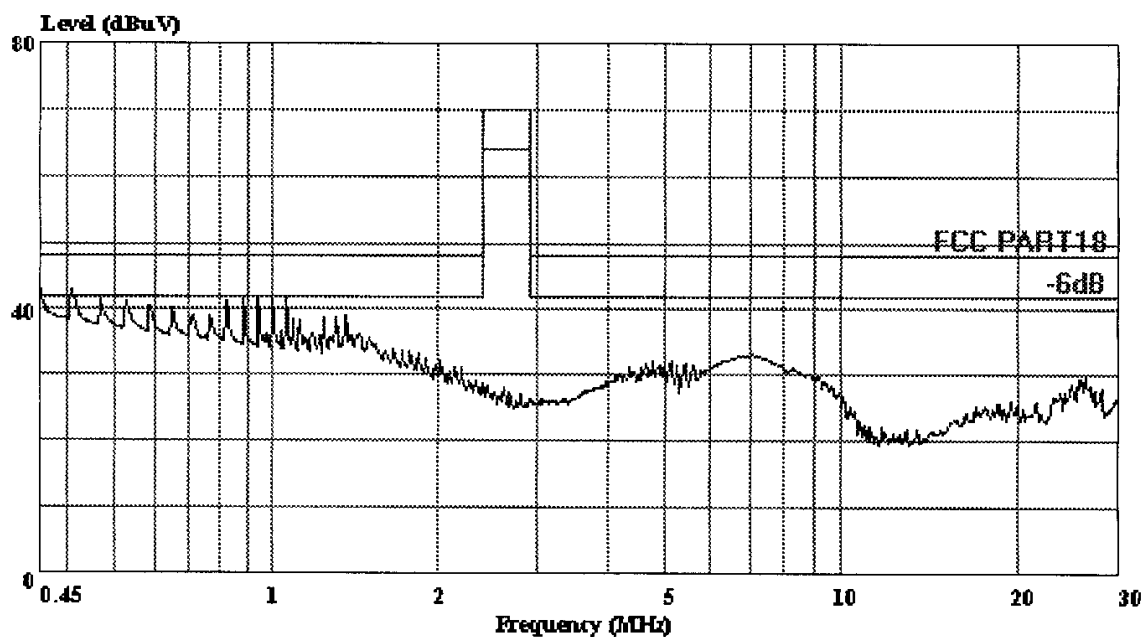
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EUT: : Energy Saving Lamp
M/N: : 1005-15 (EUT-15)
OP Cond: : On
Tested By: Sean Xing
Test Spec: 120Vac/60Hz Vb
Comment: : Temp: 24°C
: Humi: 56%

Data#: 10 File#: Golden U Land Lighting.EMI

Date: 2002-01-28 Time: 10:25:39



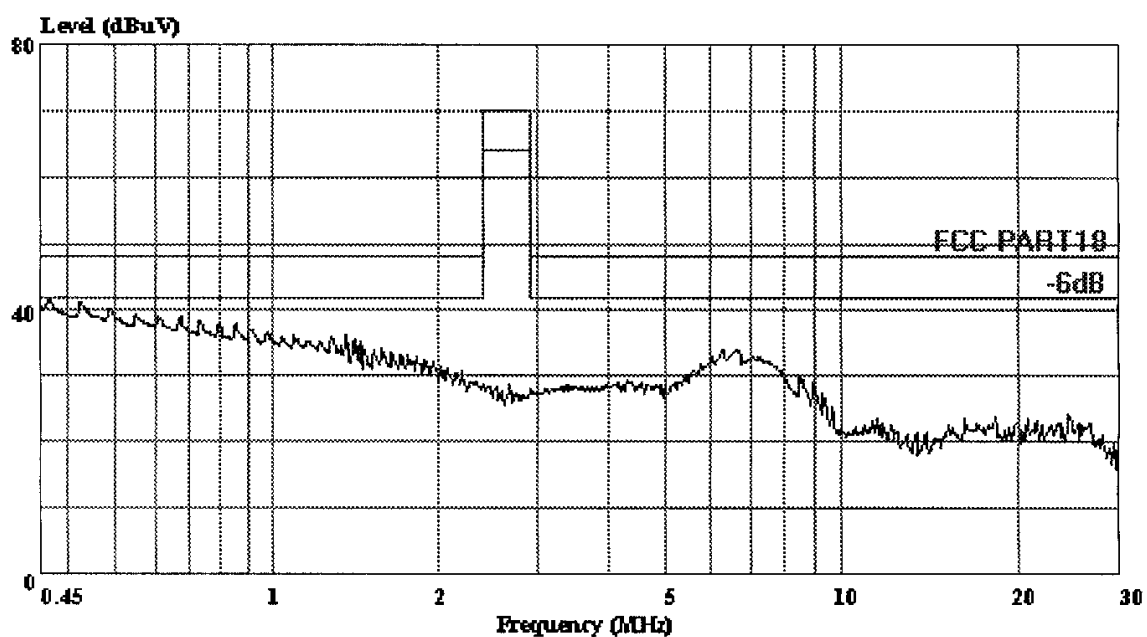
AUDIX TECHNOLOGY (SHENZHEN) CO., LTD. (Audix ATC)

Trace:

Ref Trace:

Condition: FCC PART18
EUT: : Energy Saving Lamp
M/N: : 1005-18 (EUT-18)
OP Cond: : On
Tested By: Sean Xing
Test Spec: 120Vac/60Hz Va
Comment: : Temp: 24°C
: Humi: 56%

Data#: 9 File#: Golden U Land Lighting.EMI
Date: 2002-01-28 Time: 10:20:05



AUDIX TECHNOLOGY (SHENZHEN) CO., LTD. (Audix ATC)

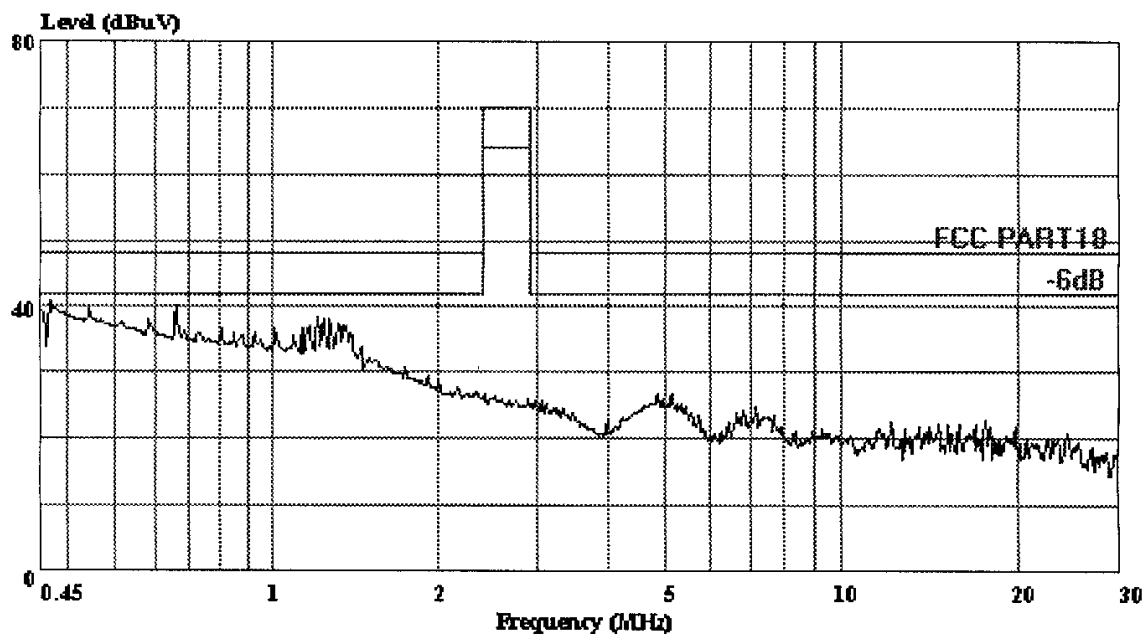
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Ref Trace:

Condition: FCC PART18
EUT: : Energy Saving Lamp
M/N: : 1005-18 (EUT-18)
OP Cond: : On
Tested By:: Sean Xing
Test Spec:: 120Vac/60Hz Vb
Comment: : Temp:24'C
 : Humi:56%

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Date: 2002-01-28 Time: 10:39:33



AUDIX TECHNOLOGY (SHENZHEN) CO., LTD. (Audix ATC)

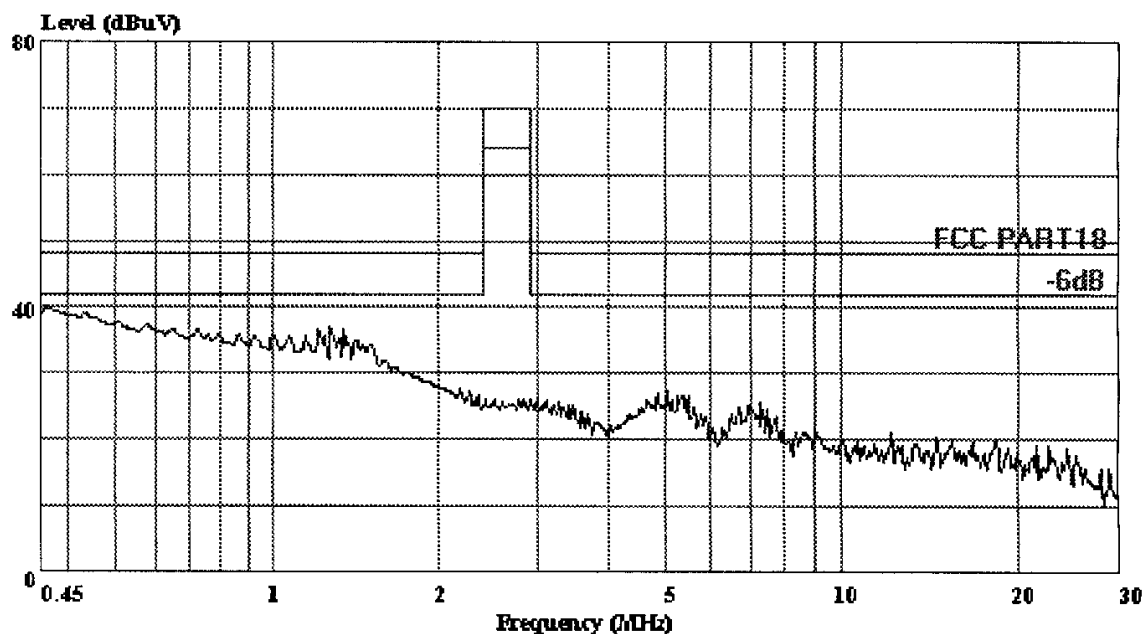
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Ref Trace:

Condition: FCC PART18
EUT: : Energy Saving Lamp
M/N: : 1005-20 (EUT-20)
OP Cond: : On
Tested By: Sean Xing
Test Spec: 120Vac/60Hz Va
Comment: : Temp: 24°C
 : Humi: 56%

Data#: 12 File#: Golden U Land Lighting.EMI

Date: 2002-01-28 Time: 10:44:41



AUDIX TECHNOLOGY (SHENZHEN) CO., LTD. (Audix ATC)

Trace:

Ref Trace:

Condition: FCC PART18
EUT: : Energy Saving Lamp
M/N: : 1005-20 (EUT-20)
OP Cond: : On
Tested By:: Sean Xing
Test Spec:: 120Vac/60Hz Vb
Comment: : Temp:24'C
: Humi:56%

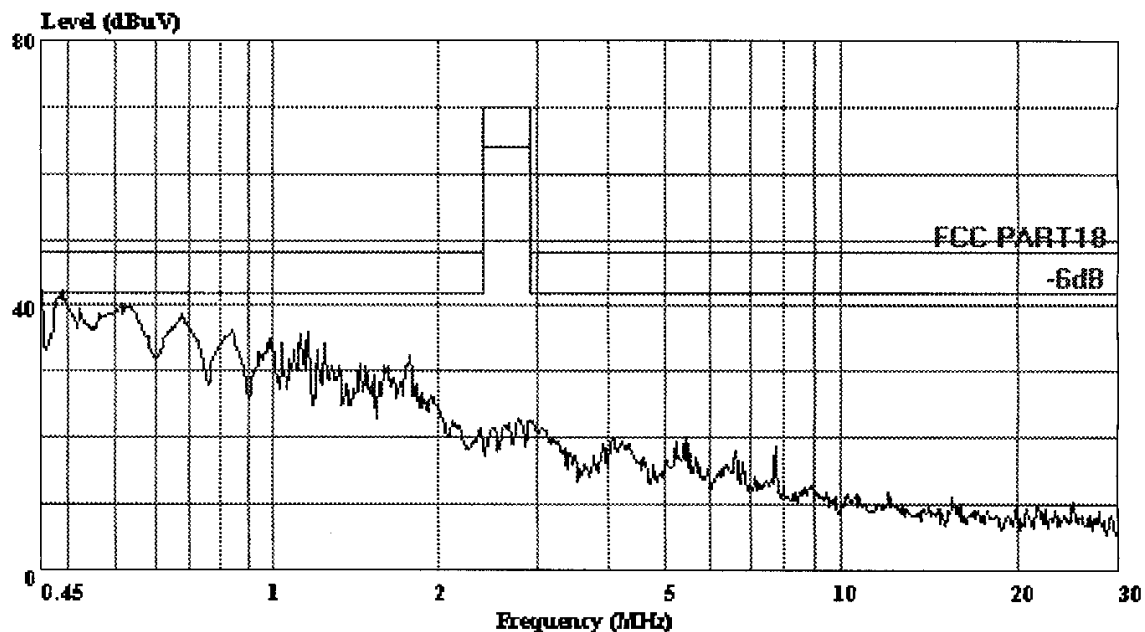


AUDIX TECHNOLOGY (SHENZHEN) CO., LTD.

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Nantou, Guangdong, China
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Fax: 0755-6632877

Data#: 14 File#: Golden U Land Lighting.EMI

Date: 2002-01-28 Time: 15:11:53



AUDIX TECHNOLOGY (SHENZHEN) CO., LTD. (Audix ATC)

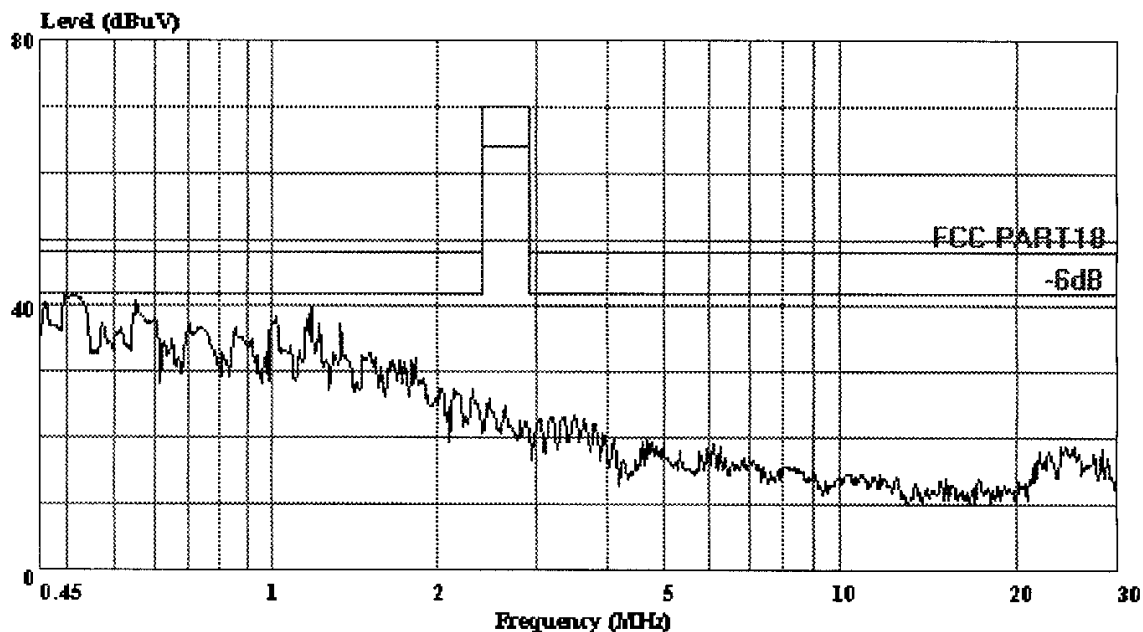
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Ref Trace:

Condition: FCC PART18
EUT: : Energy Saving Lamp
M/N: : 1005-25 (EUT-25)
OP Cond: : On
Tested By: Sean Xing
Test Spec: 120Vac/60Hz Va
Comment: : Temp: 24°C
: Humi: 56%

Data#: 13 File#: Golden U Land Lighting.EMI

Date: 2002-01-28 Time: 15:03:25



AUDIX TECHNOLOGY (SHENZHEN) CO., LTD. (Audix ATC)

Trace:

Ref Trace:

Condition: FCC PART18
EUT: : Energy Saving Lamp
M/N: : 1005-25 (EUT-25)
OP Cond: : On
Tested By: Sean Xing
Test Spec: 120Vac/60Hz Vb
Comment: : Temp: 24°C
: Humi: 56%

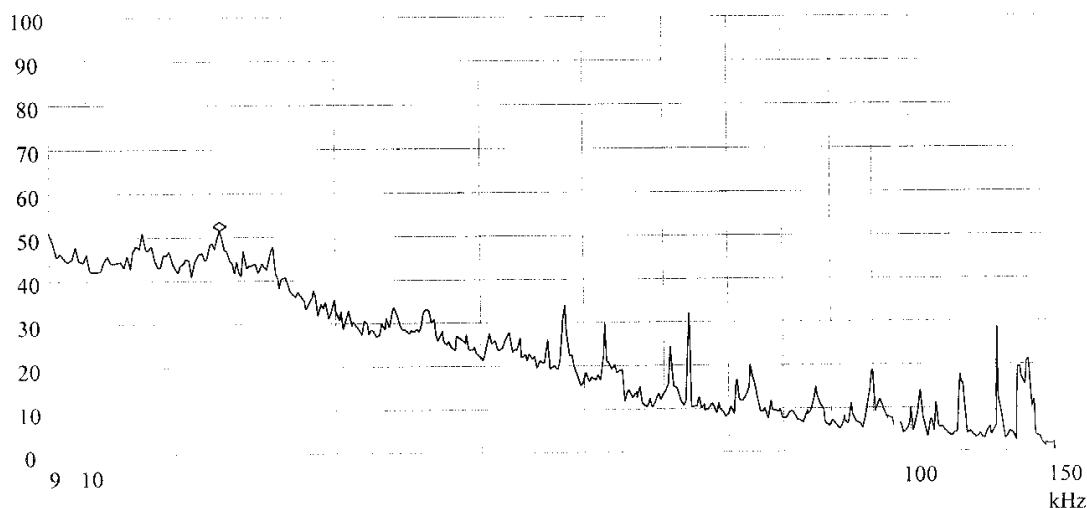
APPENDIX II

Emission Test FCC PART 18

30. Jan 02 17:16

EUT: ENERGY SAVING LAMP M/N: 1005-15(EUT-15)
Manuf: GOLDEN U LAND LIGHTING
On Cond: ON
Operator: SEAN XING
Test Spec: 120Vac/60Hz
Comment: Tem 22°C
Humi 55%

dBuA Mkr : 14.50 kHz 51.5 dBuA

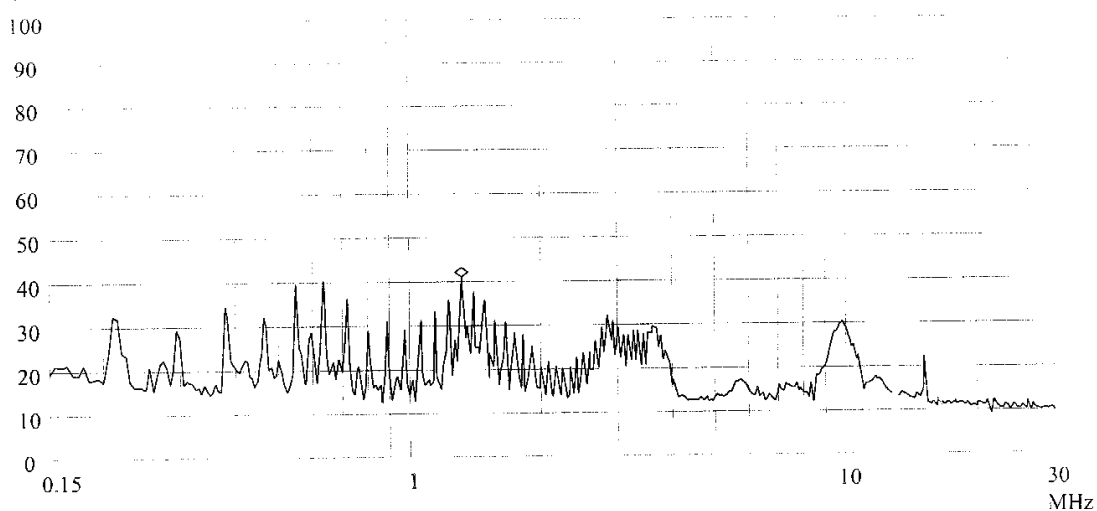


Emission Test FCC PART 18

30. Jan 02 17:10

EUT: ENERGY SAVING LAMP M/N: 1005-15(EUT-15)
Manuf: GOLDEN U LAND LIGHTING
On Cond: ON
Operator: SEAN XING
Test Spec: 120Vac/60Hz
Comment: Tem 22°C
Humi 55%

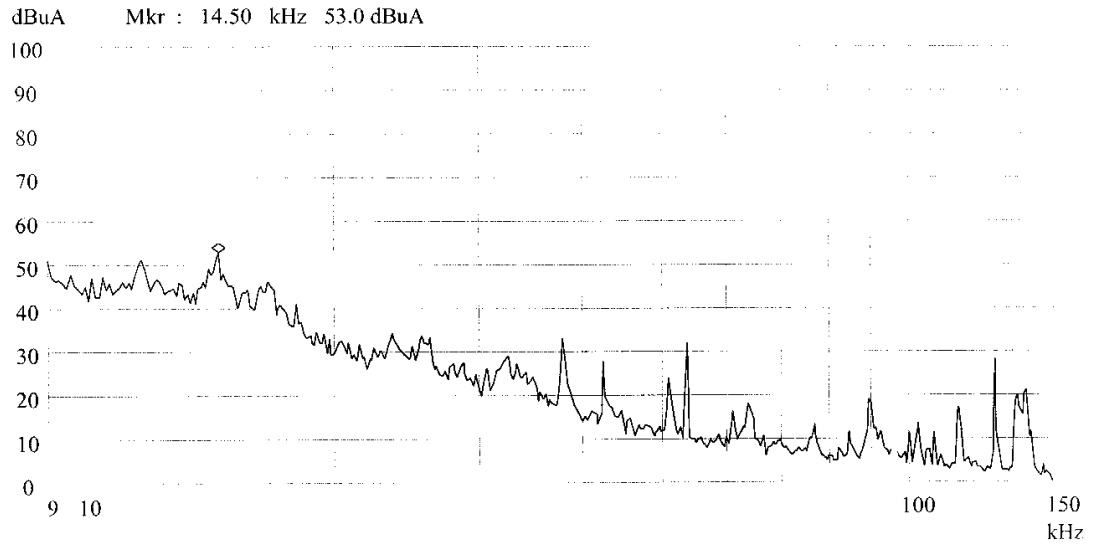
dBuA Mkr : 1.31500MHz 41.1 dBuA



Emission Test FCC PART 18

30. Jan 02 17:22

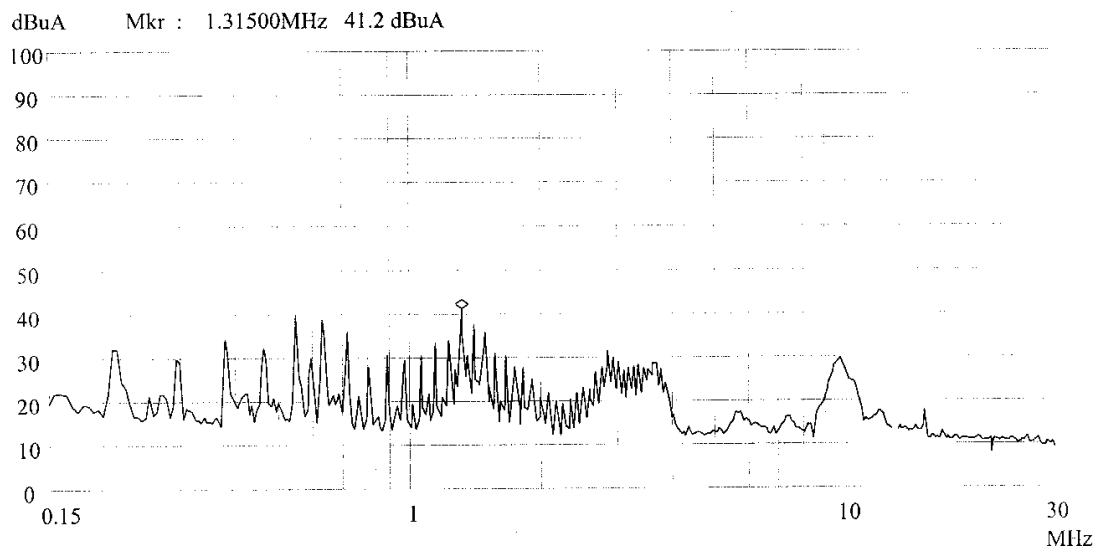
EUT: ENERGY SAVING LAMP M/N: 1005-18(EUT-18)
Manuf: GOLDEN U LAND LIGHTING
On Cond: ON
Operator: SEAN XING
Test Spec: 120Vac/60Hz
Comment: Tem 22°C
Humi 55%



Emission Test FCC PART 18

30. Jan 02 17:33

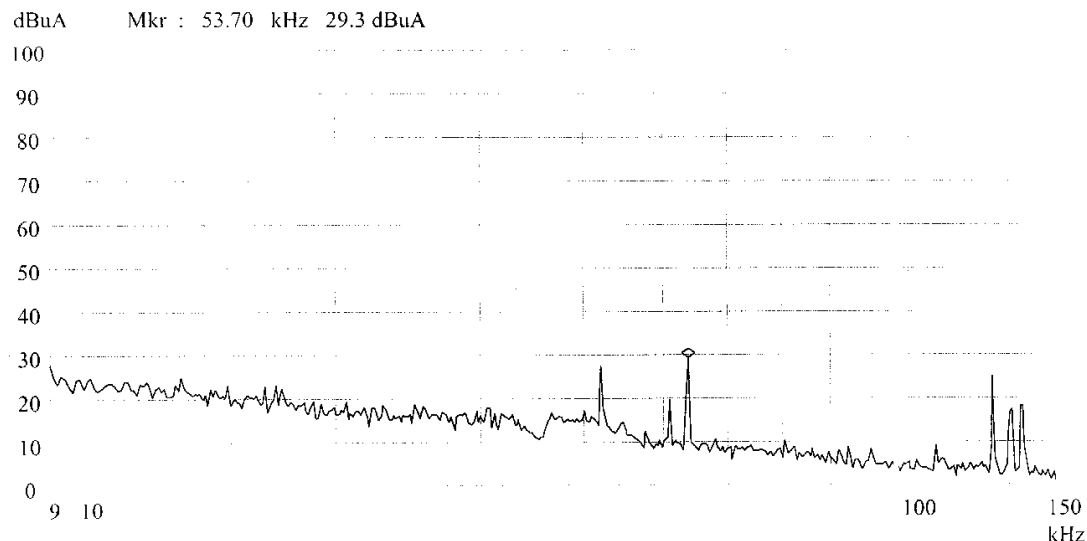
EUT: ENERGY SAVING LAMP M/N: 1005-18(EUT-18)
Manuf: GOLDEN U LAND LIGHTING
On Cond: ON
Operator: SEAN XING
Test Spec: 120Vac/60Hz
Comment: Tem 22°C
Humi 55%



Emission Test FCC PART 18

31. Jan 02 (9:38)

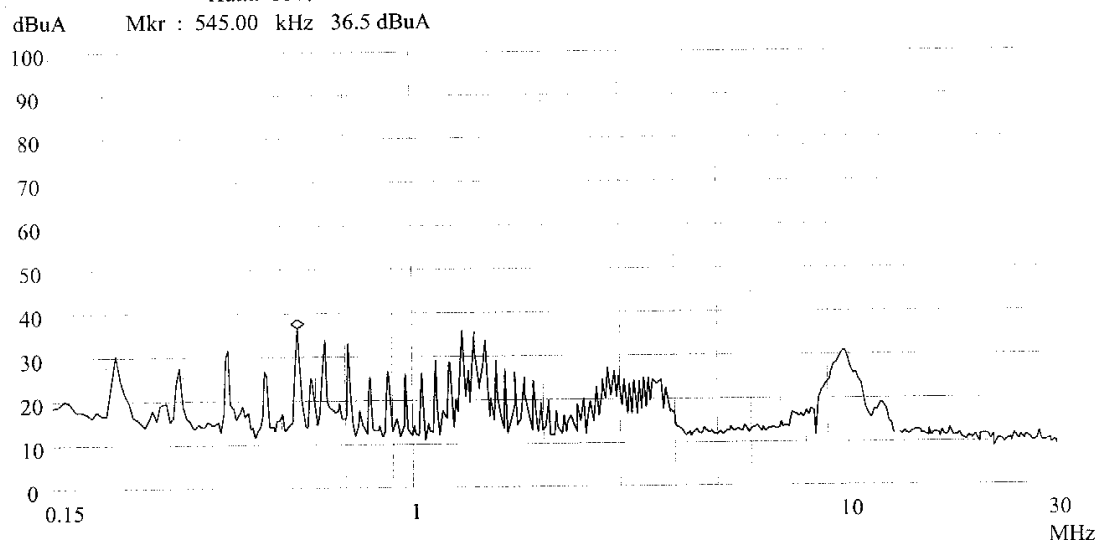
EUT: ENERGY SAVING LAMP M/N: 1005-20(EUT-20)
Manuf: GOLDEN U LAND LIGHTING
On Cond: ON
Operator: SEAN XING
Test Spec: 120Vac/60Hz
Comment: Tem 22°C
Humi 55%



Emission Test FCC PART 18

31. Jan 02 (9:27)

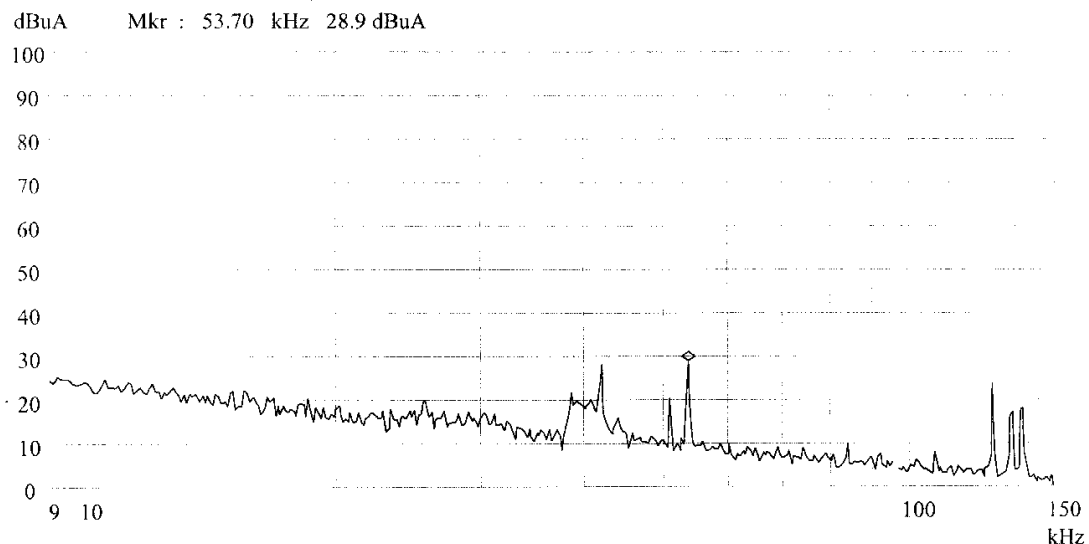
EUT: ENERGY SAVING LAMP M/N: 1005-20(EUT-20)
Manuf: GOLDEN U LAND LIGHTING
On Cond: ON
Operator: SEAN XING
Test Spec: 120Vac/60Hz
Comment: Tem 22°C
Humi 55%



Emission Test FCC PART 18

31. Jan 02 (9:44)

EUT: ENERGY SAVING LAMP M/N: 1005-25(EUT-25)
Manuf: GOLDEN U LAND LIGHTING
On Cond: ON
Operator: SEAN XING
Test Spec: 120Vac/60Hz
Comment: Tem 22°C
Humi 55%



Emission Test FCC PART 18

31. Jan 02 (9:48)

EUT: ENERGY SAVING LAMP M/N: 1005-25(EUT-25)
Manuf: GOLDEN U LAND LIGHTING
On Cond: ON
Operator: SEAN XING
Test Spec: 120Vac/60Hz
Comment: Tem 22°C
Humi 55%

