

EXHIBIT 4

Test Report

APPLICATION FOR CERTIFICATION

On Behalf of

Zhongshan Tissile Lighting Co., Ltd.

Energy Saving Lamp

Model Number : EUTS-11W, EUTS-13W, EUTS-15W
SRES-11W, SRE-13W, SRE-15W
EUT-15W, EUT-20W, EUT-24W, EUT-26W
SRE-15W, SRE-20W, SRE-26W
EUF-30W, EUF-35W, EUF-40W

Prepared for : Zhongshan Tissile Lighting Co., Ltd.
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Report Number : SUT-F02001
Date of Test : Jan. 7-18, 2002
Date of Report : Jan. 21-25, 2002

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TEST REPORT DECLARATION

Applicant : Zhongshan Tissile Lighting Co., Ltd.
Manufacturer : Zhongshan Tissile Lighting Co., Ltd.
EUT Description : Energy Saving Lamp
(A) Model No. : EUTS-11W, EUTS-13W, EUTS-15W
SRES-11W, SRES-13W, SRES-15W
EUT-15W, EUT-20W, EUT-24W, EUT-26W
SRE-15W, SRE-20W, SRE-26W
EUF-30W, EUF-35W, EUF-40W
(B) Serial No. : F2002012501
(C) Power : 120V/60HZ

Test Procedure Used:

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

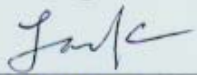
The device described above has been tested in Audix Lab. by Shenzhen Unitech Technology Co., Ltd. to determine the maximum emission levels emanating from the device. The maximum emission levels are compared to the FCC Part 18 Subpart C limits for radiation and conduction emissions. The test results are contained in this test report and Shenzhen Unitech Technology 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 Shenzhen Unitech Technology 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. 7-18, 2002

Prepared by : 
Kelly. G / Assistant

Reviewer : 
For and on Behalf of Engineer
SHENZHEN UNITECH TECHNOLOGY CO., LTD.

Approved & Authorized Signer : 
Jimmy. J / Manager

1. GENERAL INFORMATION

1.1. Description of Device (EUT)

Description	:	Energy Saving Lamp
Model Number	:	EUTS-11W, EUTS-13W, EUTS-15W SRES-11W, SRES-13W, SRES-15W EUT-15W, EUT-20W, EUT-24W, EUT-26W SRE-15W, SRE-20W, SRE-26W EUF-30W, EUF-35W, EUF-40W
Applicant	:	Zhongshan Tissile Lighting Co., Ltd. Cao er Road, Eastern Road, Guzhen Town, Zhongshan City, Guangdong, P.R China
Manufacturer I	:	Zhongshan Tissile Lighting Co., Ltd. Cao er Road, Eastern Road, Guzhen Town, Zhongshan City, Guangdong, P.R China
Manufacturer II	:	Zhongshan Soliling Electron Co., Ltd. The Third Caosan, Guzhen, Zhongshan, Guangdong, P.R China
Date of Receipt of Sample	:	Jan. 3, 2002
Date of Test	:	Jan. 7-18, 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 Feb. 13, 1998
EMC Lab.	:	Certificated by VCCI, Japan Oct. 29, 1998
		Certificated by DATech, German Feb. 02, 1999
		Certificated by NVLAP, USA until Mar. 03, 2001 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, P.R 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

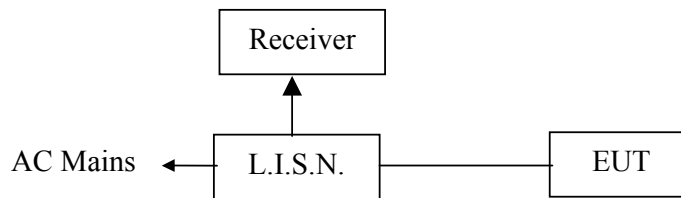
2.1. Test Equipment

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	Feb. 29, 01'	1/2 Year
6.	Passive Probe	Rohde & Schwarz	ESH-Z3	299.7810.52	Jun. 03, 01'	1 Year
7.	Coaxial Switch	Anritsu	MP59B	M73989	Jun. 03, 01'	1/2 Year

2.2. Block Diagram of Test Setup

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 No. : EUTS-11W, EUTS-13W, EUTS-15W
SRES-11W, SRES-13W, SRES-15W

EUT-15W, EUT-20W, EUT-24W, EUT-26W

SRE-15W, SRE-20W, SRE-26W

EU-30W, EU-35W, EU-40W

Serial No. : F2002012501

Manufacturer I : Zhongshan Tissile Lighting Co., Ltd.
Cao er Road, Eastern Road, Guzhen Town, Zhongshan
City, Guangdong, P.R China

Manufacturer II : Zhongshan Soliling Electron Co., Ltd.
The Third Caosan, Guzhen Town, Zhongshan City,
Guangdong, P.R China

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 connected to the power mains through a line impedance stabilization network (L.I.S.N.). This provides a 50 ohms 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 results 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.

And the test data, please see Appendix I.

3. RADIATED EMISSION TEST

3.1. Test Equipment

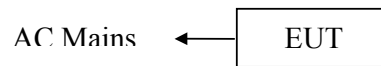
The following test equipments are used during the radiated emission test:

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. 03, 01'	1/2 Year
4.	Bilog Antenna	Chase	CBL6112A	2176	Sep. 24, 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	Feb. 10, 01'	1/2 Year
8.	RF Cable	MIYAZAKI	5D-2W	3# Chamber No.2	Feb. 10, 01'	1/2 Year
9.	RF Cable	FUJIKURA	RG-55/U	3# Chamber No.3	Feb. 10, 01'	1/2 Year
10.	RF Cable	FUJIKURA	RG-55/U	3# Chamber No.4	Feb. 10, 01'	1/2 Year
11.	Coaxial Switch	Anritsu	MP59B	M74389	Jun. 03, 01'	1/2 Year

3.2. Block Diagram of Test Setup

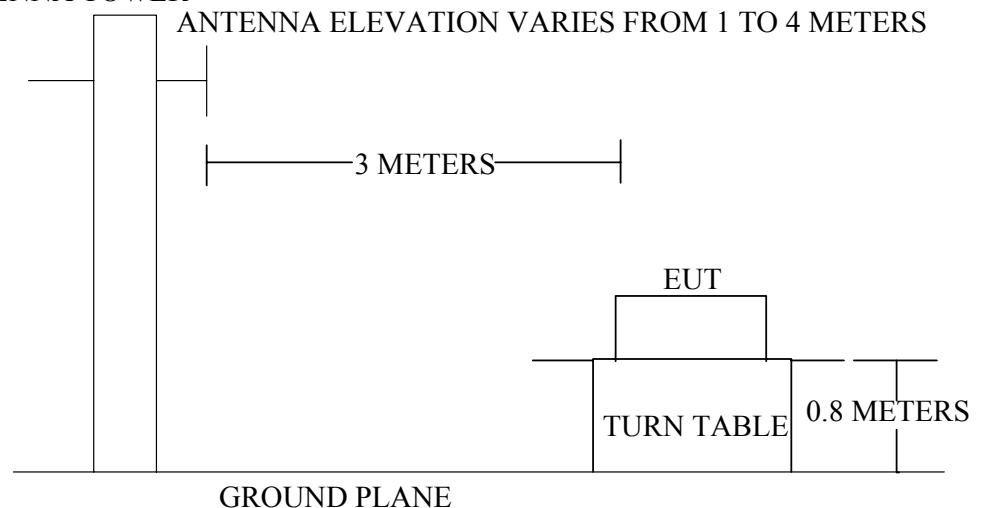
3.2.1. Block diagram of connection between the EUT and simulators



(EUT: Energy Saving Lamp)

3.2.2. Test Setup Diagram in Anechoic Chamber

ANTENNA TOWER



3.3. Radiated Emission Limit

FREQUENCY MHz	DISTANCE Meters	FIELD STRENGTHS LIMIT	
		$\mu\text{V/m}$	$\text{dB}(\mu\text{V})/\text{m}$
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 $(\text{dB})\mu\text{V} = 20 \log \text{Emission level } \mu\text{V/m}$
 - (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 No. : EUTS-11W, EUTS-13W, EUTS-15W
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- Serial No. : F2002012501
- Manufacturer I : Zhongshan Tissile Lighting Co., Ltd.
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- Manufacturer II : Zhongshan Soliling Electron Co., Ltd.
 The Third Caosan, Guzhen Town, Zhongshan City, Guangdong, P.R China

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 turned table, which is 0.8 meter high above the ground. The turned 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 a 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 Results

PASS.

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

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

And the test data, please see Appendix II.

4. MODIFICATION TO TEST SPECIFICATIONS

[NONE]

5. PHOTOGRAPH

5.1. Photo of Power Line Conducted Emission Test



5.2. Photo of Radiated Emission Test (In Anechoic Chamber)

