

Application for FCC Certification
On Behalf of
Suzhou Rongwen Kubai Lighting System Co., Ltd.

Electronic Ballast for Fluorescent Lamp
(50 Watt Power Supply)

Model No.: 50W
FCC ID: O6V-8

Prepared For : Suzhou Rongwen Kubai Lighting System Co., Ltd.
Huang Jing Town Taicang City Jiangsu Province China

Prepared By : AUDIX Technology (Shanghai) Co., Ltd.
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Report No. : ACI-F00043
Date of Test : Apr 13 ~ 14, 2000
Date of Report : Aug 23, 2000

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TEST REPORT

Applicant : Suzhou Rongwen Kubai Lighting System Co., Ltd.
Manufacturer : Suzhou Rongwen Kubai Lighting System Co., Ltd.
EUT Description : Electronic Ballast for Fluorescent Lamp / 50 Watt Power Supply
(A) Model No. : 50W
(B) Serial No. : ACI-20000412003
(C) Power Supply : AC 120V/60Hz

Test Procedure Used:

*FCC RULES AND REGULATIONS PART 18 CONSUMER DEVICES (1998)
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 radiated and conducted emissions.

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.

Date of Test : Aug 13-14, 2000

Prepared by :

Sue Sun
(SUE SUN)

Test Engineer :

Steven Lee
(STEVEN LEE)

Reviewer :

Hui Wang
(HUI WANG)

Approved Signatory :

Jeremy Geng
(JEREMY GENG)

1 GENERAL INFORMATION

1.1 Description of Equipment Under Test

Description : Electronic Ballast for Fluorescent Lamp/50W Power Supply

Type of EUT : ☒ Production ☐ Pre-product ☐ Pro-type

Model Number : 50W

Applicant : Suzhou Rongwen Kubai Lighting System Co., Ltd.
Huang Jing Town Taicang City
Jiangsu Province China

Manufacturer : Suzhou Rongwen Kubai Lighting System Co., Ltd.
Huang Jing Town Taicang City
Jiangsu Province China

1.2 Description of Test Facility

Site Description : Sept. 17, 1998 file on
(Semi-Anechoic Chamber) 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

NVLAP Lab Code : 200371-0

1.3 Measurement Uncertainty

Conducted Emission Uncertainty : U = 2.66dB

Radiated Emission Uncertainty : U = 3.90dB

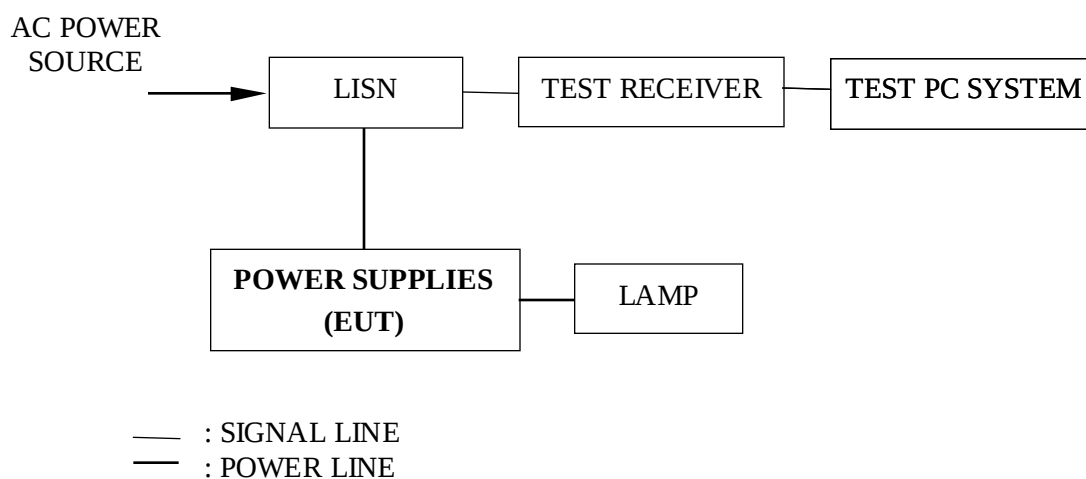
2 AC POWERLINE CONDUCTED EMISSION TEST

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	May 24, 2000	1 Year
2.	Line Impedance Stabilization Network (LISN)	Kyoritsu	KNW-407	8-1280-4	Jun. 04, 2000	1 Year

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 ~ 30	250	48
NOTE 1 – RF Line Voltage dB(μ V) = 20 log RF Line Voltage (μ 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 with a lamp 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 emission. 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 emission 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 : Power Supplies Temperature : 20 °

Model No. : 50W Humidity : 53%

Test Mode : ON Date of Test : Apr 14, 2000

Test Line	Frequency (MHz)	Factor (dB)	Meter Reading dB(μV)	Emission Level dB(μV)	Limits dB(μV)	Margin (dB)
VA	0.469	0.45	35.69	36.14	48.00	11.86
	0.532	0.41	32.32	32.73	48.00	15.27
	0.589	0.40	32.78	33.18	48.00	14.82
	0.643	0.40	32.37	32.77	48.00	15.23
	0.711	0.40	30.09	30.49	48.00	17.51
	1.051	0.40	28.80	29.20	48.00	18.80
VB	0.461	0.53	41.39	41.92	48.00	6.08
	0.519	0.51	39.64	40.15	48.00	7.85
	0.579	0.48	36.18	36.66	48.00	11.34
	0.638	0.44	37.28	37.72	48.00	10.28
	0.803	0.40	36.31	36.71	48.00	11.29
	1.038	0.40	34.52	34.92	48.00	13.08

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 0.461 MHz with corrected signal level of 41.92 dB(μV) (limit is 48.00 dB(μV)), when the VB of the EUT is connected to LISN.

TEST ENGINEER: 
(STEVEN LEE)

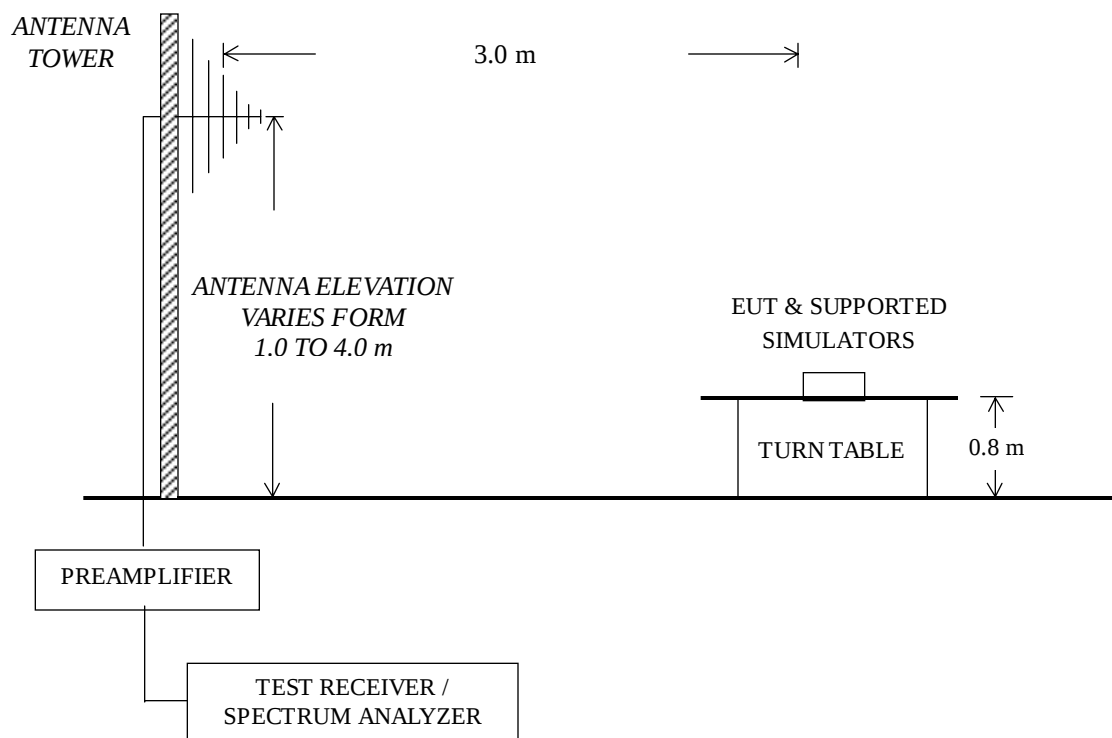
3 RADIATED EMISSION TEST

3.1 Test Equipment

The following test equipment are used during the radiated emission test in a semi-anechoic chamber:

Item	Type	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Spectrum Analyzer	HP	8593EM	3628A00167	May 28, 2000	1 Year
2.	Preamplifier	HP	8447D	2944A06849	June 10, 2000	1/2 Year
3.	Bilog Antenna	Chase	CBL6111	1146	June 10, 2000	1/2 Year
4.	Test Receiver	Rohde & Schwarz	ESVS10	844594/001	May 24, 2000	1 Year

3.2 Block Diagram of Test Setup



3.3 Radiated Emission Limits

Frequency (MHz)	Distance (m)	Field strength limits ($\mu\text{V/m}$)	Converted Field Strengths Limits By 3 meters Measuring Distance	
			$\mu\text{V/m}$	$\text{dB}(\mu\text{V/m})$
30 ~ 88	30	10	100	40.0
88 ~ 216	30	15	150	43.5
216 ~ 1000	30	20	200	46.0
NOTE 1 - Emission Level $\text{dB}(\mu\text{V/m}) = 20 \log \text{Emission Level } (\mu\text{V/m})$ NOTE 2 - The tighter limit applies at the band edges. NOTE 3 - Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the device or system. NOTE 4 - The measurements are made at 3 meters distance, then the permissible field strength limits be adjusted using $1/d$ as an attenuation factor.				

3.4 Test Configuration

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

Please refer to Sec. 2.4.

3.5 Operating Condition of EUT

The EUT with a lamp was placed on a turn table which is 0.8 meter above ground. The turn table rotated 360 degrees to determine the position of the maximum emission level. The EUT was set 3 meters away from the receiving antenna, which was mounted on an antenna tower. The antenna moved up and down between 1 meter and 4 meters to find out the maximum emission level. Broadband antenna (Calibrated Bilog Antenna) or dipole antenna were used as receiving antenna. Both horizontal and vertical polarization of the antenna were set on measurement. In order to find the maximum emission, all of the interference cables were manipulated according to MP-5/1986 requirements during radiated emission test.

The bandwidth setting on Test Receiver ESVS10 was 120 kHz.

The frequency range from 30 MHz to 1000 MHz was checked. The test mode – ON was done on radiated emission test and the test results of the highest emissions are listed in Sec. 3.7.

3.6 Test Procedures

Same as conducted emission test which is listed in Sec. 2.6, except the test set up replaced by Sec. 3.2.

3.7 Test Results

<PASS>

The frequency and amplitude of the highest radiated emissions relative the limit is reported. All the emissions not reported below are too low against the FCC Part 18 limit.

EUT : Power Supplies Temperature : 20 °

Model No. : 50W Humidity : 53%

Test Mode : ON Date of Test : Apr 14, 2000

Polarization	Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Meter Reading dB(μV)	Emission Level dB(μV/m)	Limits dB(μV/m)	Margin (dB)
Horizontal	33.88	16.54	2.23	25.53	23.35	16.59	40.00	23.41
	41.64	12.86	2.33	25.44	23.71	13.46	40.00	26.54
	120.21	13.23	3.65	25.10	22.88	14.66	43.50	28.84
	153.19	10.81	4.16	25.10	28.50	18.37	43.50	25.13
	264.74	13.20	5.46	25.10	24.19	17.75	46.00	28.25
	482.02	19.20	7.78	26.56	24.46	24.88	46.00	21.12
Vertical	30.97	17.73	2.06	25.56	26.53	20.76	40.00	19.24
	38.73	14.51	2.30	25.47	25.94	17.28	40.00	22.72
	67.83	6.69	2.74	25.25	32.07	16.25	40.00	23.75
	124.09	12.08	3.78	25.10	26.57	17.33	43.50	26.17
	206.54	9.85	4.82	25.10	30.93	20.50	43.50	23.00
	242.43	12.22	5.24	25.10	28.71	21.07	46.00	24.93

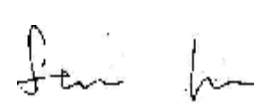
NOTE 1 – Emission Level = Meter Reading + Antenna Factor + Cable Loss – Preamp Factor

NOTE 2 – All reading are Quasi-Peak values.

NOTE 3 – The worst emission at horizontal polarization was detected at 482.02 MHz with corrected signal level of 24.88 dB(μV) (limit is 46.00 dB(μV)), when the antenna was 1.20m height and the turn table was at 110°.

NOTE 4 – The worst emission at vertical polarization was detected at 30.97 MHz with corrected signal level of 20.76 dB(μV) (limit is 40.00 dB(μV)), when the antenna was 1.00 m height and the turn table was at 78°.

NOTE 5 – 0° was the table front facing the antenna. Degree is calculated from 0° clockwise facing the antenna.

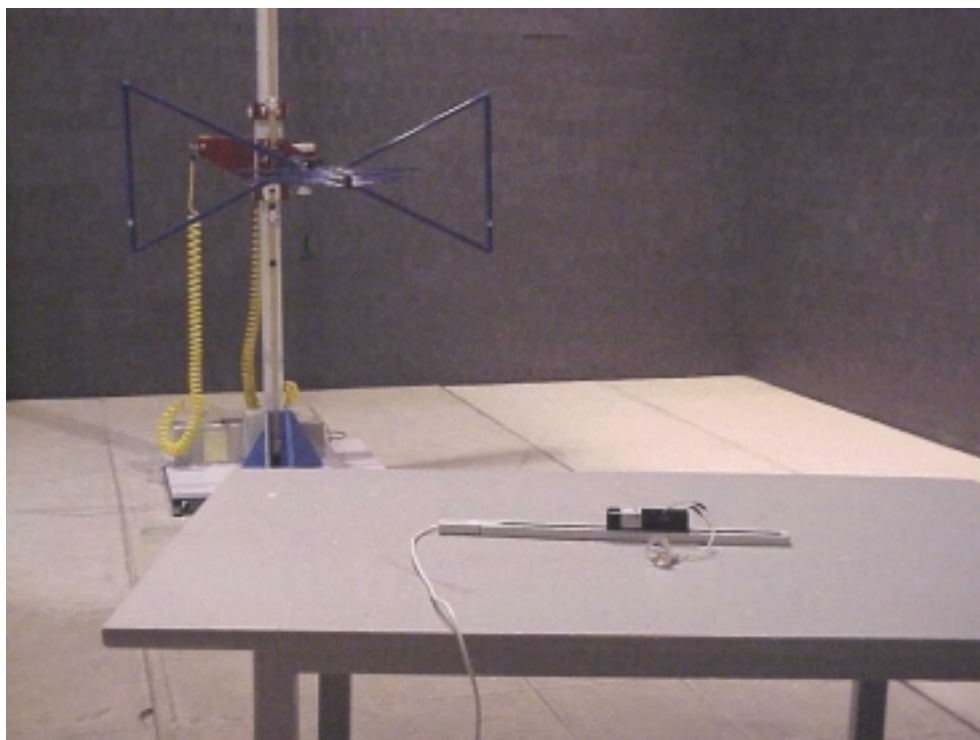
TEST ENGINEER: 
(STEVEN LEE)

4 PHOTOGRAPHS

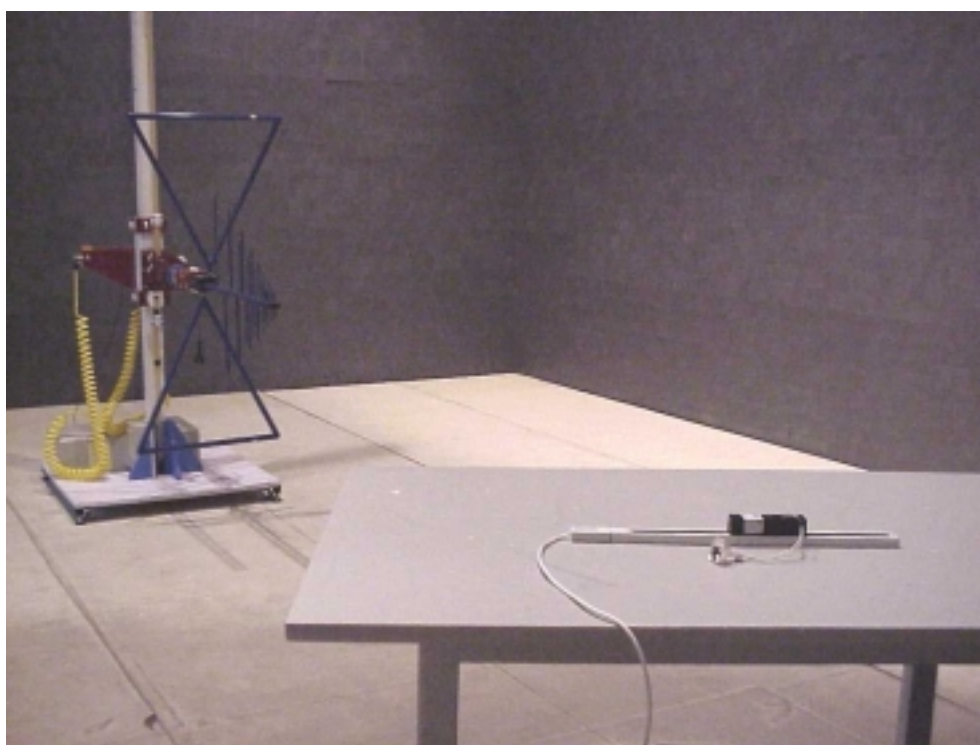
4.1 AC Powerline Conducted Emission Test



4.2 Radiated Emission Test



HORIZONTAL



VERTICAL