

EMI Test Report

On Model Name: CFL
Model Numbers: FE172 13S / FE172 9S / FE172 7S /
FE172A 13S / FE172A 9S / FE172A 7S
Broad Name: N/A
Trade Mark: N/A

Prepared for Zhejiang Yankon Group Co., Ltd.

According to FCC Part 18

Test Report #: ZHE-0806-0408SH-FCC
Prepared by: Cloud Feng
Reviewed by: Harry Zhao
QC Manager: Paul Chen

Test Report Released by: Paul J. Chen 2008, June 30
Paul Chen Date

Test Location

Tests performed in a Certified ANSI Semi-Anechoic Chamber and Shielded Room performed testing.

Test Site Location: *ECMG Worldwide Certification Solution, Inc. (China)
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Accreditation Bodies

The report is prepared by ECMG Worldwide Certification Solution, Inc., which is a fully accredited Test Laboratory for ITE, ISM and Telecommunications Products.

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Table of Contents

<i>GOVERNMENT DISCLAIMER NOTICE</i>	<i>1</i>
<i>REPRODUCTION CLAUSE</i>	<i>1</i>
<i>ADMINISTRATIVE DATA</i>	<i>2</i>
<i>EUT DESCRIPTION</i>	<i>2</i>
<i>TYPE OF DERIVER</i>	<i>2</i>
<i>TEST SUMMARY</i>	<i>3</i>
<i>TEST MODE JUSTIFICATION</i>	<i>4</i>
<i>EUT EXERCISE SOFTWARE</i>	<i>4</i>
<i>EQUIPMENT MODIFICATION</i>	<i>4</i>
<i>TEST SYSTEM DETAILS</i>	<i>5</i>
<i>CONFIGURATION OF TESTED SYSTEM</i>	<i>6</i>
<i>ATTACHMENT 1 - CONDUCTED EMISSION TEST RESULTS</i>	<i>7</i>
<i>ATTACHMENT 2 - RADIATED EMISSION TEST RESULTS</i>	<i>10-13</i>

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Administrative Data

Test Sample : CFL

Model Numbers : FE172 13S / FE172 9S / FE172 7S / FE172A
13S / FE172A 9S / FE172A 7S

Model Tested : FE172 13S

Trade Marks : N/A

Serial Number : Engineering Sample

Date Tested : 2008, June 18th

Applicant : Zhejiang Yankon Group Co., Ltd.
No.485 Fengshan Road, Shangyu City, Zhejiang,
China

Telephone : 86-575-82137551

Fax : 86-575-82185650

Manufacturer : Zhejiang Yankon Group Co., Ltd.
Tongjiang Road, Shangyu City, Zhejiang, China

EUT Description

Zhejiang Yankon Group Co., Ltd., model FE172 13S (referred to as the EUT in this report) is a Compact Fluorescent Lamps.

The highest frequency generated by the EUT is 0.05 MHz, so the frequency range tested is from 9KHz - 30MHz.

Type of Deriver

Models FE172 9S / FE172 7S / FE172A 13S / FE172A 9S / FE172A 7S are identical to original model FE172 13S except for the mechanical structure, the shape of the tube and the rated power. The maximum power one was chosen to perform the test.

Test Summary

All models were tested the conducted emission and the radiated emission, the margin of FE172 13S is the smallest. In the report we only display the test result of FE172 13S.

The Electromagnetic Compatibility requirements on model FE172 13S for this test are stated below. All results listed in this report relate exclusively to this above-mentioned model as the Equipment Under Test. This report confers no approval or endorsement upon any other component, host or subsystem used in the test set-up.

Emission Tests				
Specifications	Description	Test Results	Test Point	Remark
FCC Part 18.307	Conducted Emission	For FE172 13S: Passed by 1.43 dB of QP	AC Input Port	Attachment 1
FCC Part 18.305	Radiated Emission	For FE172 13S: Passed by 37.3 dB of QP	Enclosure	Attachment 2

Test Mode Justification

This device complies with Part 18 of the FCC rules. The EUT was tested in the lighting mode.

EUT Exercise Software

This device is not programmable and does not software.

Equipment Modification

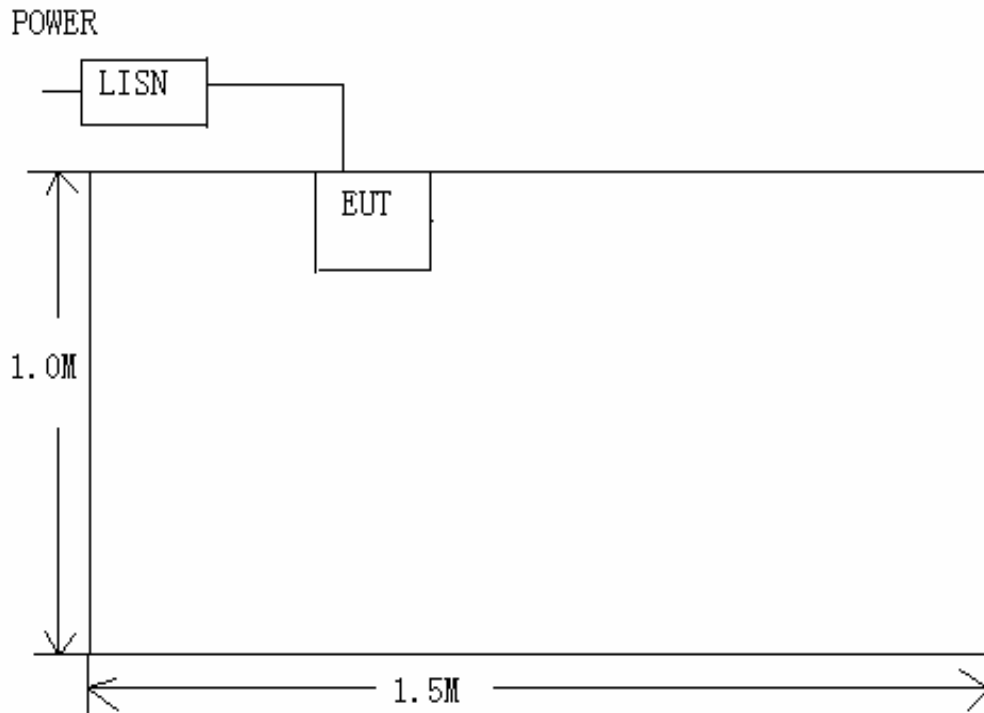
Any modifications installed previous to testing by Zhejiang Yankon Group Co., Ltd. will be incorporated in each production model sold or leased in United States.

There were no modifications installed by ECMG Worldwide Certification Solution, Inc. (China) test personnel.

Test System Details

EUT	
Model Numbers:	<i>FE172 13S / FE172 9S / FE172 7S / FE172A 13S / FE172A 9S / FE172A 7S</i>
Model Tested:	<i>FE172 13S</i>
Trade Mark:	<i>N/A</i>
Input Voltage:	<i>AC 120V/60Hz</i>
Serial Number:	<i>Engineering Sample</i>
Description:	<i>RF Lighting</i>
Manufacturer:	<i>Zhejiang Yankon Group Co., Ltd.</i>
EUT Power Supply	
<i>None</i>	
Support Equipment	
<i>None</i>	
Cable Description	
<i>N/A</i>	

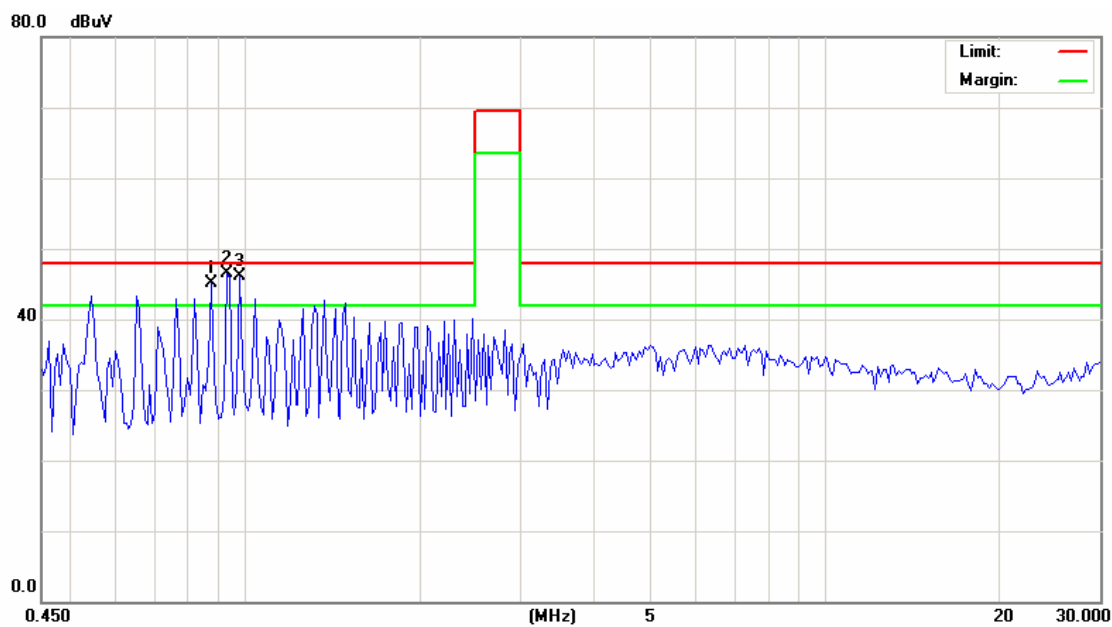
Configuration of Tested System



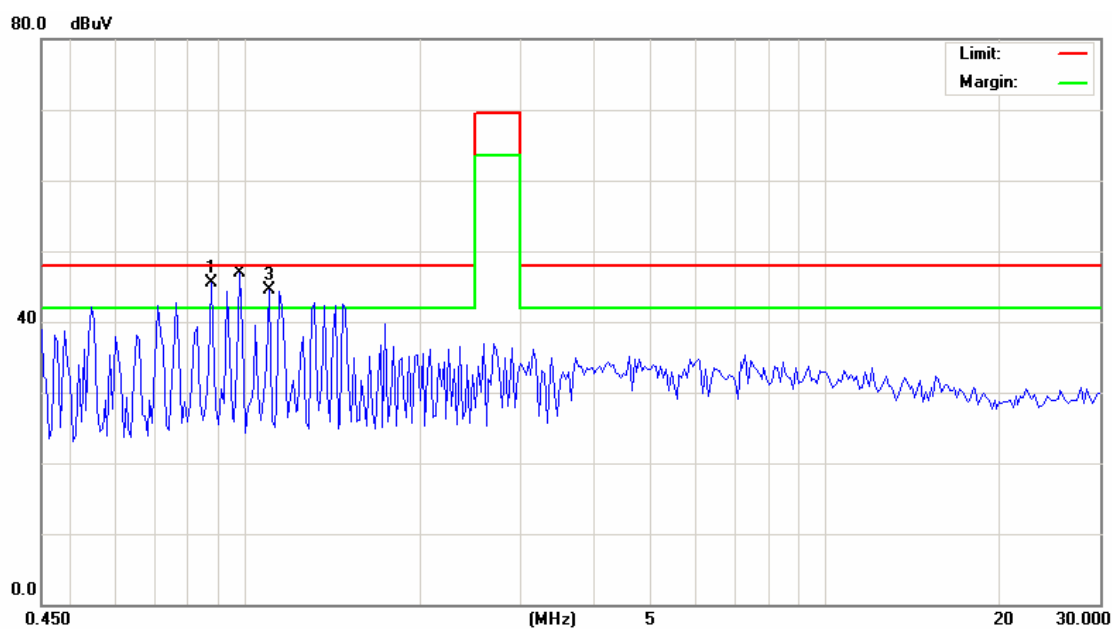
ATTACHMENT 1 - CONDUCTED EMISSION TEST RESULTS

CLIENT:	Zhejiang Yankon Group Co., Ltd.	TEST REFERENCE:	FCC Part 18
MODEL TESTED:	FE172 13S	PRODUCT:	CFL
MODEL NUMBERS:	FE172 13S / FE172 9S / FE172 7S / FE172A 13S / FE172A 9S / FE172A 7S		
SERIAL NO.:	Engineering Sample	EUT DESIGNATION:	RF Lighting
TEMPERATURE:	23°C	HUMIDITY:	58%
ATM PRESSURE:	101.6Pa	GROUNDING:	None
TESTED BY:	Cloud Feng	DATE OF TEST:	2008, June 18
SETUP METHOD:	FCC / OST MP-5 (1986)		
TEST PROCEDURE:	<p>a. The EUT was placed 0.4 meter from the conducting wall of the shielding room was kept at least 80 centimeters from any other grounded conducting surface.</p> <p>b. Connect EUT to the power mains through a line impedance stabilization network(LISN)</p> <p>c. The LISN provides 50ohm coupling impedance for the measuring instrument</p> <p>d. Both sides of AC line were checked for maximum conducted interference.</p> <p>e. The frequency range from 150KHz to 30MHz was searched..</p> <p>f. Set the test-receiver system to Peak Detect Function and Specified bandwidth.</p> <p>g. If the emission level of the EUT in peak mode was 20 dB lower than the specified, then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions will be tested using the quasi-peak method in about six maximal points and the results will be reported.</p>		
TESTED RANGE:	150kHz to 30MHz		
TEST VOLTAGE:	120VAC/60Hz		
RESULTS:	<p>For FE172 13S: The EUT meets the requirements of test reference for Conducted Emissions on line L by 1.43 dB of Quasi-Peak detector.</p> <p>The test results relate only to the equipment under test provided by client.</p>		
CHANGES OR MODIFICATIONS:	There were no modifications installed by ECMG Worldwide Certification Solution, Inc. (China) test personnel.		
M. UNCERTAINTY:	Freq. $\pm 2 \times 10^{-7}$ x Center Freq., Amp ± 2.6 dB		

For FE172 13S:



Line L Conducted Emission Graph



Line N Conducted Emission Graph

Line L (Hot Lead)				
Signal	Frequency (MHz)	Corrected QP Level (dBuV)	Limits QP (dBuV)	Margin QP (dB)
1	0.881	45.11	48.00	-2.89
2	0.938	46.57	48.00	-1.43
3	0.988	46.01	48.00	-1.99
Line N (Neutral Lead)				
Signal	Frequency (MHz)	Corrected QP Level (dBuV)	Limits QP (dBuV)	Margin QP (dB)
1	0.881	45.57	48.00	-2.43
2	1.002	45.59	48.00	-2.41
3	1.110	44.47	48.00	-3.53
Note: All readings are using a bandwidth of 9 kHz, with a 30 ms sweep time. A video filter was not used.				

Test Equipment	Manufacturer	Model	Serial No.	Last Cal.	Cal. Due Date
EMI Receiver	HP	85462A	3650A00363	11/29/07	11/28/08
LISN	R&S	ESH3-Z5	844249/018	12/04/07	12/03/08
Note: All testing were performed using internationally recognized standards. All test instruments were calibrated.					

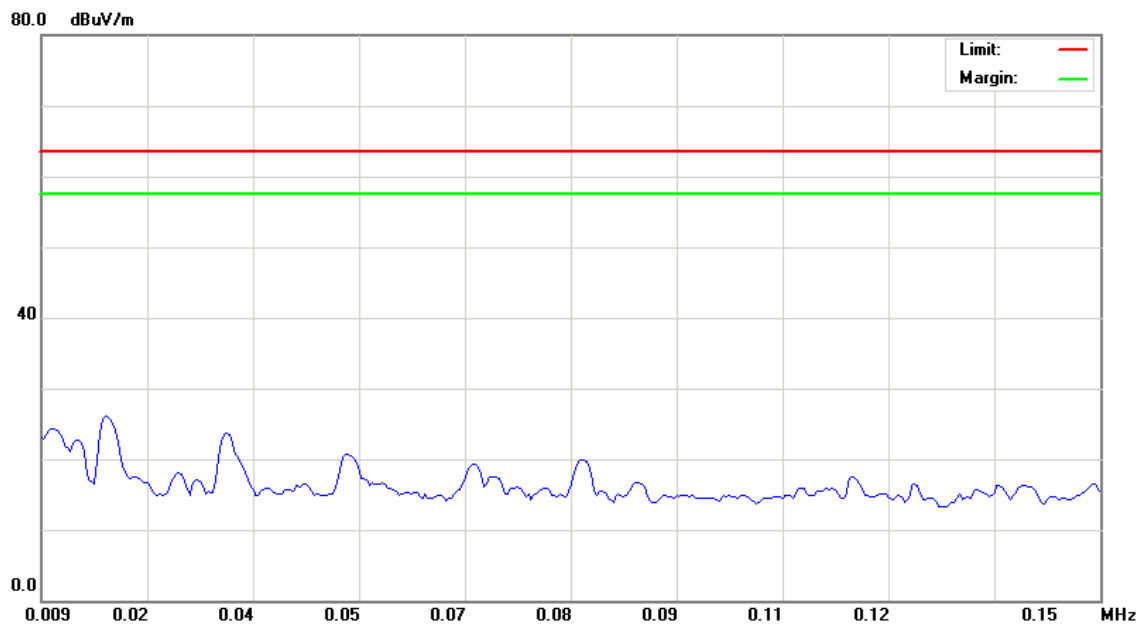
SIGNED BY: Cloud Feng
ENGINEER

REVIEWED BY: Hayden
SENIOR ENGINEER

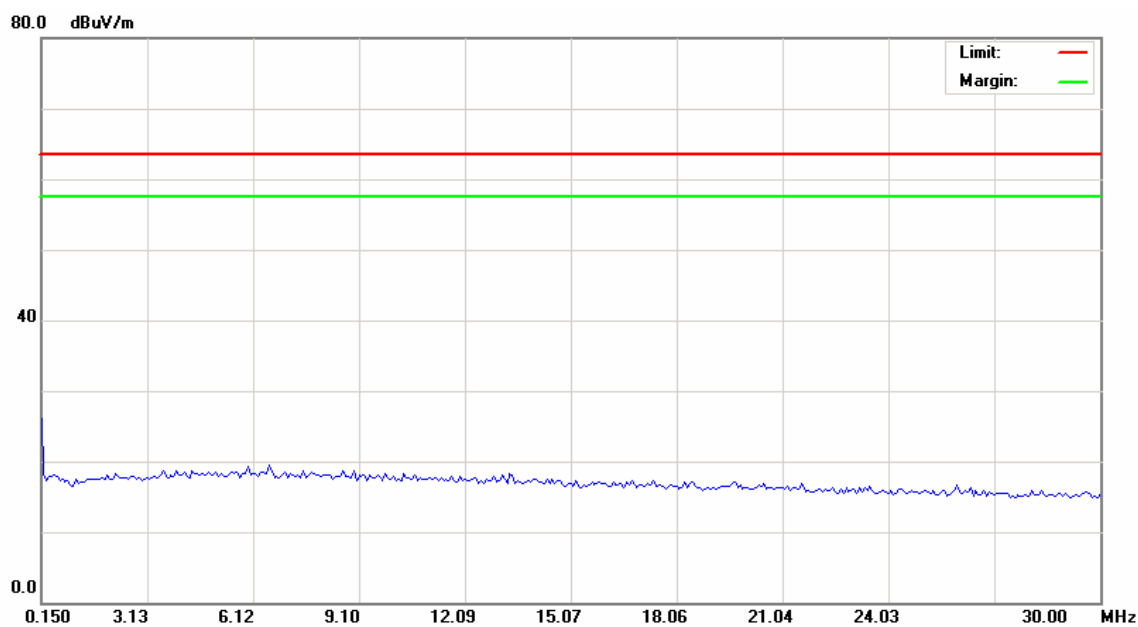
ATTACHMENT 2 - RADIATED EMISSION TEST RESULTS

CLIENT:	Zhejiang Yankon Group Co., Ltd.	TEST REFERENCE:	FCC Part 18
MODEL TESTED:	FE172 13S	PRODUCT:	CFL
MODEL NUMBERS:	FE172 13S / FE172 9S / FE172 7S / FE172A 13S / FE172A 9S / FE172A 7S		
SERIAL NO.:	Engineering Sample	EUT DESIGNATION:	RF Lighting
TEMPERATURE:	23°C	HUMIDITY:	58%
ATM PRESSURE:	101.6Pa	GROUNDING:	None
TESTED BY:	Cloud Feng	DATE OF TEST:	2008, June 18
SETUP METHOD:	FCC/OST MP-5 (1986)		
TEST PROCEDURE:	<p>a. The EUT was placed on a rotatable table with 1.0 meters above ground.</p> <p>b. The EUT was set 3 meters from the interference-receiving antenna, which was mounted on the top of a variable height antenna tower.</p> <p>c. For each suspected emission the EUT was arranged to its worst case and turn table (from 0 degree to 360 degree) to find the maximum reading.</p> <p>d. If the emission level of the EUT in peak mode was 20 dB lower than the specified, then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions will be tested using the quasi-peak method in about six maximal points and the results will be reported.</p> <p>Explanation of the Correction Factor are given as follows:</p> $FS = RA + AF + CF - AG$ <p>Where: FS = Field Strength RA = Receiver Amplitude AF = Antenna Factor CF = Cable Attenuation Factor AG = Amplifier Gain</p>		
TESTED RANGE:	9kHz to 30MHz		
TEST VOLTAGE:	120VAC / 60Hz		
RESULTS:	<p>For FE172 13S: The EUT meets the requirements of test reference for Radiated Emissions on Horizontal polarization by 37.3 dB at 0.0175 MHz.</p> <p>The test results relate only to the equipment under test provided by client.</p>		
CHANGES OR MODIFICATIONS:	There were no modifications installed by ECMG Worldwide Certification Solution, Inc. (China) test personnel.		
M. UNCERTAINTY:	Freq. $\pm 2 \times 10^{-7}$ x Center Freq., Amp ± 2.6 dB		

For FE172 13S:



Field strength Emission Plot (Peak, Max Hold Mode 9kHz - 0.15MHz)



Field strength Emission Plot (Peak, Max Hold Mode 0.15MHz-30MHz)

9kHz – 0.15MHz							
Signal	Frequency (MHz)	Factor (dB)	Corrected QP Level dB(uV/m)	3 Meter Limits dB(uV/m)	Margin (dB)	Angle of Turner (degree)	Height of Tower (cm)
1	0.0175	9.10	26.20	63.50	-37.30	0	200
2	0.0337	8.86	23.65	63.50	-39.85	0	200
3	0.0498	8.87	20.78	63.50	-42.72	0	200
Set-up/Configuration: FCC/OST MP-5							
Comments: None							
Note: All readings are quasi-peak unless stated otherwise, using a QPA bandwidth of 200Hz, with a 30 ms sweep time. A video filter was not used.							
0.15MHz – 30MHz							
Signal	Frequency (MHz)	Factor (dB)	Corrected QP Level dB(uV/m)	3 Meter Limits dB(uV/m)	Margin (dB)	Angle of Turner (degree)	Height of Tower (cm)
1	3.5826	10.2	18.63	63.50	-44.87	0	150
2	6.5677	10.65	19.46	63.50	-44.04	0	150
3	13.3585	9.80	18.22	63.50	-45.28	0	150
Set-up/Configuration: FCC/OST MP-5							
Comments: None							
Note: All readings are quasi-peak unless stated otherwise, using a QPA bandwidth of 9kHz, with a 30 ms sweep time. A video filter was not used.							

Test Equipment	Manufacturer	Model	Serial No.	Last Cal.	Cal. Due Date
EMI Receiver	HP	85462A	3650A00363	11/29/07	11/28/08
Loop Antenna	EMCO	6502	2053	11/29/07	11/28/08

Note: All testing were performed using internationally recognized standards. All test instruments were calibrated.

SIGNED BY: *Cloud Feng*
ENGINEER

REVIEWED BY: *Hongshao*
SENIOR ENGINEER