

# EMI Test Report

On Model Name: CFL  
Model Numbers: FE226 3016 / FE226 3015 / FE 224  
2014 / FE224 2012 / FE246 2012  
Broad Name: N/A  
Trade Mark: N/A

Prepared for Zhejiang Yankon Group Co., Ltd.

According to FCC Part 18

*Test Report #:* ZHE-0806-0418SH-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  
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**FCC Registration Number:** *172634*

### **Accreditation Bodies**

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### **Administrative Data**

*Test Sample* : CFL

*Model Numbers* : FE226 3016 / FE226 3015 / FE 224 2014 /  
FE224 2012 / FE246 2012

*Model Tested* : FE226 3016

*Trade Marks* : N/A

*Serial Number* : Engineering Sample

*Date Tested* : 2008, June 18<sup>th</sup>

*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 FE226 3016 (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 FE226 3015 / FE 224 2014 / FE224 2012 / FE246 2012 are identical to original model FE226 3016 except for the mechanical structure 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 FE226 3016 is the smallest. In the report we only display the test result of FE226 3016.

The Electromagnetic Compatibility requirements on model FE226 3016 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.

<b>Emission Tests</b>				
<b>Specifications</b>	<b>Description</b>	<b>Test Results</b>	<b>Test Point</b>	<b>Remark</b>
FCC Part 18.307	Conducted Emission	<b>For FE226 3016:</b> Passed by 9.58 dB of QP	AC Input Port	Attachment 1
FCC Part 18.305	Radiated Emission	<b>For FE226 3016:</b> Passed by 38.63 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.*

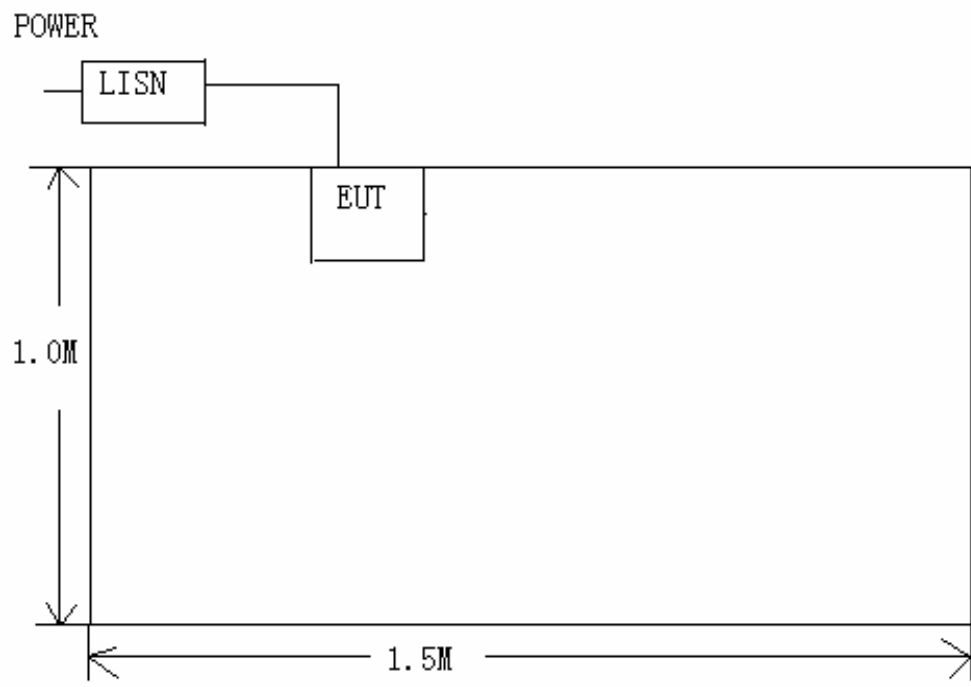
*There were no modifications installed by ECMG Worldwide Certification Solution, Inc. (China) test personnel.*

## Test System Details

<b>EUT</b>	
<b>Model Numbers:</b>	<b>FE226 3016 / FE226 3015 / FE 224 2014 / FE224 2012 / FE246 2012</b>
<b>Model Tested:</b>	<b>FE226 3016</b>
<b>Trade Mark:</b>	<b>N/A</b>
<b>Input Voltage:</b>	<b>AC 120V/60Hz</b>
<b>Serial Number:</b>	<b>Engineering Sample</b>
<b>Description:</b>	<b>RF Lighting</b>
<b>Manufacturer:</b>	<b>Zhejiang Yankon Group Co., Ltd.</b>
<b>EUT Power Supply</b>	
<b>None</b>	
<b>Support Equipment</b>	
<b>None</b>	
<b>Cable Description</b>	
<b>N/A</b>	



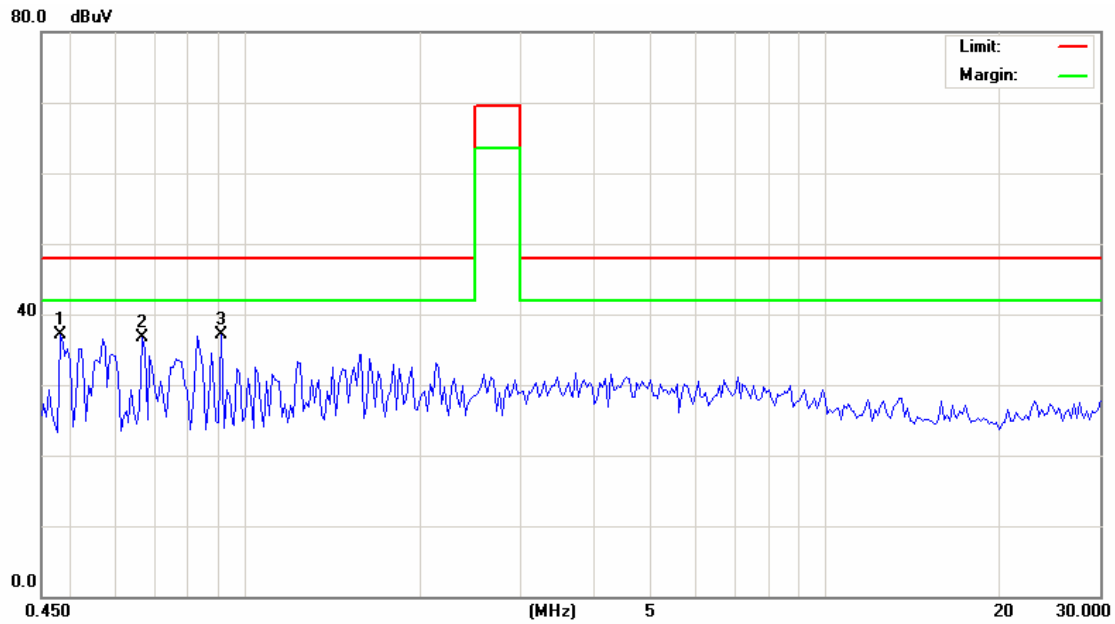
**Configuration of Tested System**



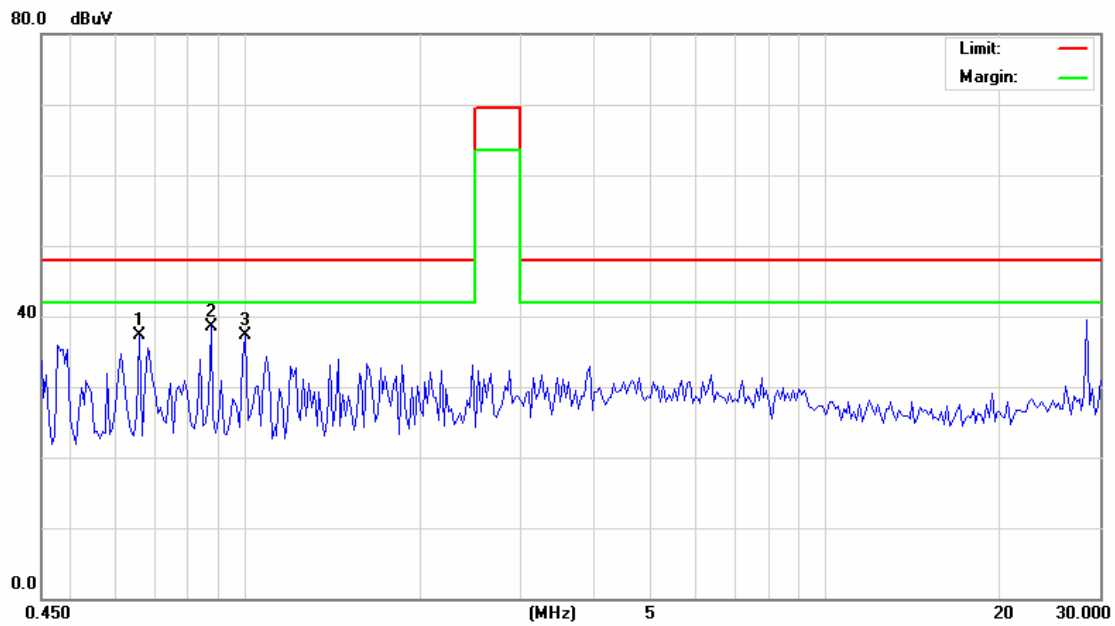
## ATTACHMENT 1 - CONDUCTED EMISSION TEST RESULTS

<b>CLIENT:</b>	Zhejiang Yankon Group Co., Ltd.	<b>TEST REFERENCE:</b>	FCC Part 18: 2007
<b>MODEL TESTED:</b>	FE226 3016	<b>PRODUCT:</b>	CFL
<b>MODEL NUMBERS:</b>	FE226 3016 / FE226 3015 / FE 224 2014 / FE224 2012 / FE246 2012		
<b>SERIAL NO.:</b>	Engineering Sample	<b>EUT DESIGNATION:</b>	RF Lighting
<b>TEMPERATURE:</b>	23°C	<b>HUMIDITY:</b>	58%
<b>ATM PRESSURE:</b>	101.6Pa	<b>GROUNDING:</b>	None
<b>TESTED BY:</b>	Cloud Feng	<b>DATE OF TEST:</b>	2008, June 18
<b>SETUP METHOD:</b>	FCC / OST MP-5 (1986)		
<b>TEST PROCEDURE:</b>	<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>		
<b>TESTED RANGE:</b>	150kHz to 30MHz		
<b>TEST VOLTAGE:</b>	120VAC/60Hz		
<b>RESULTS:</b>	<p><b>For FE226 3016:</b> The EUT meets the requirements of test reference for Conducted Emissions on line N by 9.58 dB of Quasi-Peak detector.</p> <p>The test results relate only to the equipment under test provided by client.</p>		
<b>CHANGES OR MODIFICATIONS:</b>	There were no modifications installed by ECMG Worldwide Certification Solution, Inc. (China) test personnel.		
<b>M. UNCERTAINTY:</b>	Freq. $\pm 2 \times 10^{-7}$ x Center Freq., Amp $\pm 2.6$ dB		

**For FE226 3016:**



**Line L Conducted Emission Graph**



**Line N Conducted Emission Graph**

<b>Line L (Hot Lead)</b>				
Signal	Frequency (MHz)	Corrected QP Level (dBuV)	Limits QP (dBuV)	Margin QP (dB)
1	0.484	37.06	48.00	-10.94
2	0.671	36.76	48.00	-11.24
3	0.919	37.08	48.00	-10.92
<b>Line N (Neutral Lead)</b>				
Signal	Frequency (MHz)	Corrected QP Level (dBuV)	Limits QP (dBuV)	Margin QP (dB)
1	0.664	37.37	48.00	-10.63
2	0.881	38.42	48.00	-9.58
3	1.010	37.39	48.00	-10.61
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.					

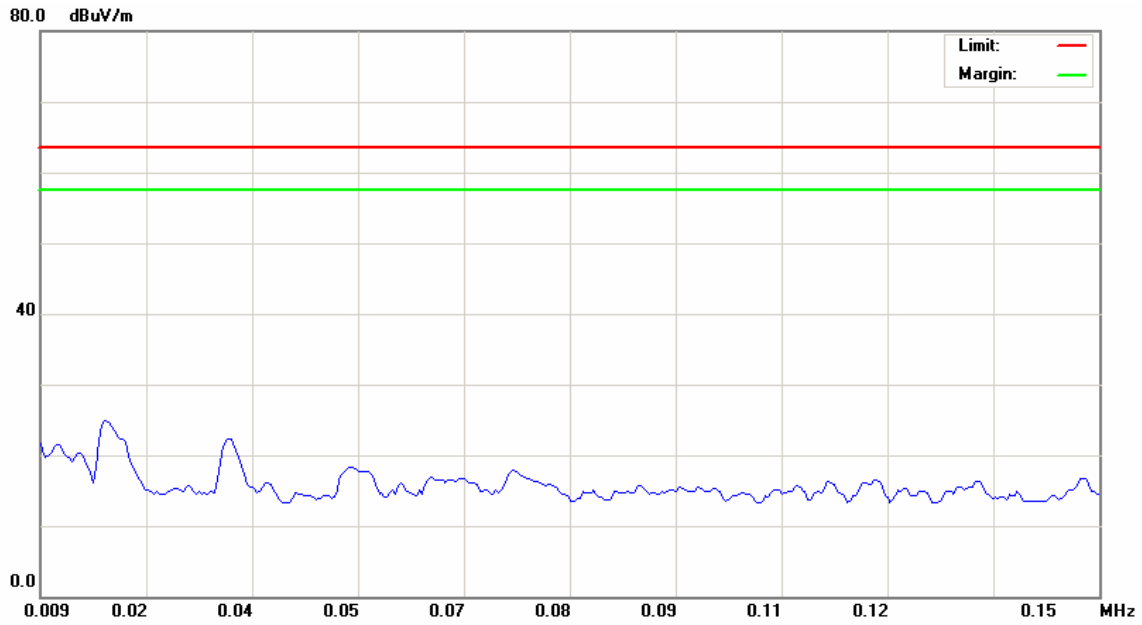
SIGNED BY: Cloud Feng  
ENGINEER

REVIEWED BY: Hayden  
SENIOR ENGINEER

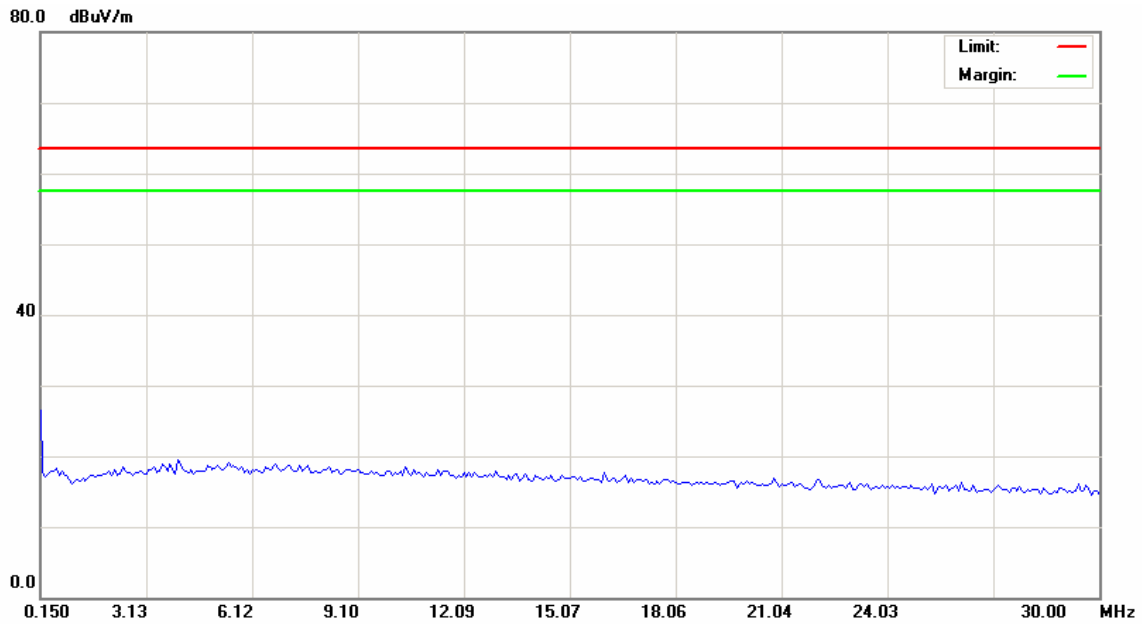
## ATTACHMENT 2 - RADIATED EMISSION TEST RESULTS

<b>CLIENT:</b>	Zhejiang Yankon Group Co., Ltd.	<b>TEST REFERENCE:</b>	FCC Part 18: 2007
<b>MODEL TESTED:</b>	FE226 3016	<b>PRODUCT:</b>	CFL
<b>MODEL NUMBERS:</b>	FE226 3016 / FE226 3015 / FE 224 2014 / FE224 2012 / FE246 2012		
<b>SERIAL NO.:</b>	Engineering Sample	<b>EUT DESIGNATION:</b>	RF Lighting
<b>TEMPERATURE:</b>	23°C	<b>HUMIDITY:</b>	58%
<b>ATM PRESSURE:</b>	101.6Pa	<b>GROUNDING:</b>	None
<b>TESTED BY:</b>	Cloud Feng	<b>DATE OF TEST:</b>	2008, June 18
<b>SETUP METHOD:</b>	FCC/OST MP-5 (1986)		
<b>TEST PROCEDURE:</b>	<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>		
<b>TESTED RANGE:</b>	9kHz to 30MHz		
<b>TEST VOLTAGE:</b>	120VAC / 60Hz		
<b>RESULTS:</b>	<p><b>For FE226 3016:</b>  The EUT meets the requirements of test reference for Radiated Emissions on Horizontal polarization by 38.63 dB at 0.0175 MHz.</p> <p>The test results relate only to the equipment under test provided by client.</p>		
<b>CHANGES OR MODIFICATIONS:</b>	There were no modifications installed by ECMG Worldwide Certification Solution, Inc. (China) test personnel.		
<b>M. UNCERTAINTY:</b>	Freq. $\pm 2 \times 10^{-7}$ x Center Freq., Amp $\pm 2.6$ dB		

**For FE226 3016:**



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



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

<b>9kHz – 0.15MHz</b>							
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	24.87	63.50	-38.63	0	200
2	0.0340	8.86	22.26	63.50	-41.24	0	200
3	0.0502	8.87	18.24	63.50	-45.26	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.							
<b>0.15MHz – 30MHz</b>							
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	0.5977	10.25	18.22	63.50	-45.28	0	150
2	4.0304	10.36	19.44	63.50	-44.06	0	150
3	16.0451	9.39	17.75	63.50	-45.75	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
<p>Note: All testing were performed using internationally recognized standards. All test instruments were calibrated.</p>					

SIGNED BY:                     *Clouf Feng*                      
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REVIEWED BY:                     *Hongshao*                      
**SENIOR ENGINEER**