

## **Applicant Name**

Application  
For  
Certification  
**(FCC ID: OGPJSE99)**

RF Lighting Device

WO# 9811126.dot

CKL/at

May 19, 1999

- The test results reported in this report shall refer only to the sample actually tested and shall not refer or be deemed to refer to bulk from which such a sample may be said to have been obtained.
- This report shall not be reproduced except in full without prior authorization from Intertek Testing Services Hong Kong Limited

FCC ID : OGPJSE99

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# INTERTEK TESTING SERVICES

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## LIST OF EXHIBITS

### *INTRODUCTION*

|                   |                           |
|-------------------|---------------------------|
| <i>EXHIBIT 1:</i> | General Description       |
| <i>EXHIBIT 2:</i> | System Test Configuration |
| <i>EXHIBIT 3:</i> | Emission Results          |
| <i>EXHIBIT 4:</i> | Equipment Photographs     |
| <i>EXHIBIT 5:</i> | Product Labelling         |
| <i>EXHIBIT 6:</i> | Technical Specifications  |
| <i>EXHIBIT 7:</i> | Instruction Manual        |
| <i>EXHIBIT 8:</i> | Miscellaneous Information |

# MEASUREMENT/TECHNICAL REPORT

**Shenzhen Jiashi Electronics Co. Ltd. MODEL: Jiashi JS9812**  
**Series 7W, 9W, 11W, 13W, 15W, 18W, 20W, 22W, 24W**  
**FCC ID: OGPJSE99**

**May 19, 1999**

This report concerns (check one:)      Original Grant   X        Class II Change           

Equipment Type: RF Lighting Device

Deferred grant requested per 47 CFR 0.457(d)(1)(ii)? Yes\_\_\_ No X

If yes, defer until: \_\_\_\_\_  
date

Company Name agrees to notify the Commission by: \_\_\_\_\_  
date

of the intended date of announcement of the product so that the grant can be issued on that date.

Report prepared by:

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# INTERTEK TESTING SERVICES

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## Table of Contents

|  |    |
|--|----|
| 1.0 <b><u>General Description</u></b> .....          | 2  |
| 1.1 Product Description .....                        | 2  |
| 1.2 Related Submittal(s) Grants .....                | 2  |
| 1.3 Test Methodology .....                           | 3  |
| 1.4 Test Facility .....                              | 3  |
| 1.5 Equipment List .....                             | 4  |
| 2.0 <b><u>System Test Configuration</u></b> .....    | 6  |
| 2.1 Justification .....                              | 6  |
| 2.2 EUT Exercising Software .....                    | 6  |
| 2.3 Special Accessories .....                        | 6  |
| 2.4 Equipment Modification .....                     | 7  |
| 2.5 Support Equipment List and Description .....     | 7  |
| 3.0 <b><u>Emission Results</u></b> .....             | 9  |
| 3.1 Field Strength Calculation .....                 | 10 |
| 3.1 Field Strength Calculation (cont) .....          | 11 |
| 3.2 Radiated Emission Configuration Photograph ..... | 12 |
| 3.3 Radiated Emission Data .....                     | 13 |
| 3.4 Line Conducted Configuration Photograph .....    | 16 |
| 3.5 Line Conducted Emission Data .....               | 18 |
| 4.0 <b><u>Equipment Photographs</u></b> .....        | 20 |
| 5.0 <b><u>Product Labelling</u></b> .....            | 22 |
| 6.0 <b><u>Technical Specifications</u></b> .....     | 24 |
| 7.0 <b><u>Instruction Manual</u></b> .....           | 26 |

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## INTERTEK TESTING SERVICES

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### List of attached file

| Exhibit type      | File Description               | filename                     |
|-------------------|--------------------------------|------------------------------|
| Cover Letter      | Letter of Agency               | letter.pdf                   |
| Test Report       | Test Report                    | report.doc                   |
| Test Setup Photo  | Radiated Emission              | radiated1.jpg, radiated2.jpg |
| Test Setup Photo  | Conducted Emission             | conduct1.jpg to conduct3.jpg |
| Test Report       | Conducted Emission Test Result | conduct.pdf                  |
| External Photo    | External Photo                 | ophoto1.jpg, ophoto2.jpg     |
| Internal Photo    | Internal Photo                 | iphoto1.jpg to iphoto4.jpg   |
| Block Diagram     | Block Diagram                  | block.pdf                    |
| Schematics        | Circuit Diagram                | circuit.pdf                  |
| ID Label/Location | Label Artwork and Location     | label.pdf                    |
| User Manual       | User Manual                    | manual.pdf                   |

# **INTERTEK TESTING SERVICES**

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## **EXHIBIT 1**

### **GENERAL DESCRIPTION**

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### 1.0 **General Description**

#### 1.1 Product Description

The equipment under test (EUT) is a self-ballasted lamp, model: Jiashi JS9812 Series 7W, 9W, 11W, 13W, 15W, 18W, 20W, 22W and 24W. The EUT is powered by AC 120V, 60Hz and operated with 20kHz to activated the fluorescent lamp. The self-ballasted lamps have two different shape of tubes. The lamps with 7W to 22W are 3U shape tubes which share the same circuit but are in different power. Whilst the lamp 24W is a screw shape tube. The difference in circuit between these two type of lamps is an additional capacitor (C10) adding across the a.c. terminal of the highest powered lamp. The lamps with 7 to 22W and 24W were tested independently and the worst case result (18W and 24W) are presented in the report.

The brief circuit description is listed as follows :

- D<sub>1</sub> to D<sub>4</sub> and associated circuit act as a rectifier.
- T<sub>1</sub> and T<sub>2</sub> and associated circuit act as an oscillator.

#### 1.2 Related Submittal(s) Grants

This is a single application of certification of a consumer RF lighting device.

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### 1.3 Test Methodology

Both AC mains line-conducted and radiated emission measurements were performed according to the procedures in MP-5. All measurements were performed in Open Area Test Sites. Preliminary scans were performed in the Open Area Test Sites only to determine worst case modes. For each scan, the procedure for maximizing emissions in Appendices D and E were followed. All Radiated tests were performed at an antenna to EUT distance of 3 meters, unless stated otherwise in the "**Justification Section**" of this Application.

### 1.4 Test Facility

The open area test site and conducted measurement facility used to collect the emission data is located at Garment Centre, 576 Castle Peak Road, Kowloon, Hong Kong. This test facility and site measurement data have been fully placed on file with the FCC.



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### 1.5 Equipment List

#### 1) Radiated Emission Test for FCC Part 18

| Equipment         | Registration No. | Manufacturer | Model No.            | Serial No.           | Calibration Due Date |
|-------------------|------------------|--------------|----------------------|----------------------|----------------------|
| EMI Test Receiver | EW-0014          | R&S          | ESVS30               | 842807/001           | December 1999        |
| Biconical Antenna | EI-088           | CDI          | B100<br>B200<br>B300 | 3098<br>3112<br>3118 | June 1999            |
| EMI Test Receiver | EW-0015          | R&S          | ESHS30               | 827128/009           | December 1999        |

#### 2) Disturbance Voltage Tests for FCC Part 18

| Equipment         | Registration No. | Manufacturer | Model No. | Serial No. | Calibration Due Date |
|-------------------|------------------|--------------|-----------|------------|----------------------|
| EMI Test Receiver | EW-0015          | R&S          | ESVS30    | 827128/009 | June 1999            |
| Absorbing Clamp   | EI-128           | R&S          | MDS21     | 840031/001 | November 1999        |
| LISN              | EW-0090          | R&S          | ESH3-Z5   | 840731/013 | February 2000        |

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## **EXHIBIT 2**

### **SYSTEM TEST CONFIGURATION**

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### 2.0 **System Test Configuration**

#### 2.1 Justification

The system was configured for testing in a typical fashion (as a customer would normally use it), and in the confines as outlined in MP-5.

The EUT was powered from AC120V, 60 Hz.

For maximizing emissions, the EUT was rotated through 360°, the antenna height was varied from 1 meter to 4 meters above the ground plane, and the antenna polarization was changed. This step by step procedure for maximizing emissions led to the data reported in Exhibit 3.0.

The unit was operated standalone and placed in the center of the turntable.

The equipment under test (EUT) was configured for testing in a typical fashion (as a customer would normally use it). The EUT was mounted to a cardboard box, which enabled the engineer to maximize emissions through its placement in the three orthogonal axes. The worst case bit sequence was applied during test.

#### 2.2 EUT Exercising Software

There was no special software to exercise the device. Once the EUT is turned on, it emits the RF noise.

#### 2.3 Special Accessories

There are no special accessories necessary for compliance of this product.

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### 2.4 Equipment Modification

Any modifications installed previous to testing by Applicant Name will be incorporated in each production model sold/leased in the United States.

No modifications were installed by Intertek Testing Services.

### 2.5 Support Equipment List and Description

A standalone Lampholder is used for supporting the EUT.

All the items listed under section 2.0 of this report are

*Confirmed by:*

*C. K. Lam  
Technical Manager  
Intertek Testing Services  
Agent for Applicant Name*



\_\_\_\_\_.Signature

\_\_\_\_\_.May 19, 1999

\_\_\_\_\_.Date

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## **INTERTEK TESTING SERVICES**

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### **EXHIBIT 3**

### **EMISSION RESULTS**

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### 3.0 **Emission Results**

Data is included worst case configuration (the configuration which resulted in the highest emission levels). A sample calculation, configuration photographs and data tables of the emissions are included.

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### 3.1 Field Strength Calculation

The field strength is calculated by adding the reading on the Spectrum Analyzer to the factors associated with preamplifiers (if any), antennas, cables, pulse desensitization and average factors (when specified limit is in average and measurements are made with peak detectors). A sample calculation is included below.

$$FS = RA + AF + CF - AG + PD + AV$$

where FS = Field Strength in dB $\mu$ V/m

RA = Receiver Amplitude (including preamplifier) in dB $\mu$ V

CF = Cable Attenuation Factor in dB

AF = Antenna Factor in dB

AG = Amplifier Gain in dB

PD = Pulse Desensitization in dB

AV = Average Factor in -dB

In the radiated emission table which follows, the reading shown on the data table may reflect the preamplifier gain. An example of the calculations, where the reading does not reflect the preamplifier gain, follows:

$$FS = RA + AF + CF - AG + PD + AV$$

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### 3.1 Field Strength Calculation (cont)

#### Example

Assume a receiver reading of 62.0 dB $\mu$ V is obtained. The antenna factor of 7.4 dB and cable factor of 1.6 dB is added. The amplifier gain of 29 dB is subtracted. The pulse desensitization factor of the spectrum analyzer was 0 dB, and the resultant average factor was -10 dB. The net field strength for comparison to the appropriate emission limit is 32 dB $\mu$ V/m. This value in dB $\mu$ V/m was converted to its corresponding level in  $\mu$ V/m.

$$RA = 62.0 \text{ dB}\mu\text{V}$$

$$AF = 7.4 \text{ dB}$$

$$CF = 1.6 \text{ dB}$$

$$AG = 29.0 \text{ dB}$$

$$PD = 0 \text{ dB}$$

$$AV = -10 \text{ dB}$$

$$FS = 62 + 7.4 + 1.6 - 29 + 0 + (-10) = 32 \text{ dB}\mu\text{V/m}$$

$$\text{Level in mV/m} = \text{Common Antilogarithm} [(32 \text{ dB}\mu\text{V/m})/20] = 39.8 \mu\text{V/m}$$



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### 3.2 Radiated Emission Configuration Photograph

Worst Case Radiated Emission

55.796 MHz

For electronic filing, the worst case radiated emission configuration photograph is saved with filename: radiated1.jpg, radiated2.jpg

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### 3.3 Radiated Emission Data

The data on the following page lists the significant emission frequencies, the limit and the margin of compliance. Numbers with a minus sign are below the limit.

Judgement: Passed by 12.8 dB

#### **TEST PERSONNEL:**



\_\_\_\_\_  
*Signature*

Danny T. L. Chui, Compliance Engineer  
*Typed/Printed Name*

\_\_\_\_\_  
May 19, 1999  
*Date*

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## INTERTEK TESTING SERVICES

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Company: Shenzhen Jiashi Electronics Co. Ltd.  
Model: JiaShi JS9812 24W

Date of Test: April 3, 1999

Table 1

### Radiated Emissions

| Polarity | Frequency<br>(M H z) | Reading<br>(dB $\mu$ V ) | Antenna<br>Factor<br>(dB ) | Pre-<br>Amp<br>Gain<br>(dB ) | D istance<br>Factor<br>(-dB ) | Net<br>at 30m<br>(dB $\mu$ V /m ) | L im it<br>at 30m<br>(dB $\mu$ V /m ) | M argin<br>(dB ) |
|----------|----------------------|--------------------------|----------------------------|------------------------------|-------------------------------|-----------------------------------|---------------------------------------|------------------|
| H        | 30.498               | 31.2                     | 10                         | 16                           | 20                            | 5.2                               | 20                                    | -14.8            |
| H        | 35.642               | 32.3                     | 10                         | 16                           | 20                            | 6.3                               | 20                                    | -13.7            |
| H        | 40.781               | 32.4                     | 10                         | 16                           | 20                            | 6.4                               | 20                                    | -13.6            |
| H        | 45.642               | 31.7                     | 10                         | 16                           | 20                            | 5.7                               | 20                                    | -14.3            |
| H        | 50.841               | 31.4                     | 11                         | 16                           | 20                            | 6.4                               | 20                                    | -13.6            |
| H        | 55.796               | 32.2                     | 11                         | 16                           | 20                            | 7.2                               | 20                                    | -12.8            |

- Notes:
1. Peak Detector Data unless otherwise stated.
  2. All measurements were made at 3 meter. Harmonic emissions not detected at the 3-meter distance were measured at 0.3-meter and an inverse proportional extrapolation was performed to compare the signal level to the 3-meter limit. No other harmonic emissions than those reported were detected at a test distance of 0.3-meter.
  3. Negative value in the margin column shows emission below limit.

Test Engineer: Danny T. L. Chui

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## INTERTEK TESTING SERVICES

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Company: Shenzhen Jiashi Electronics Co. Ltd.  
Model: JiaShi JS9812 18W

Date of Test: April 3, 1999

Table 2

### Radiated Emissions

| Polarity | Frequency<br>(M H z) | Reading<br>(dB $\mu$ V ) | Antenna<br>Factor<br>(dB ) | Pre-<br>Amp<br>Gain<br>(dB ) | D istance<br>Factor<br>(-dB ) | Net<br>at 30m<br>(dB $\mu$ V /m ) | L im it<br>at 30m<br>(dB $\mu$ V /m ) | M argin<br>(dB ) |
|----------|----------------------|--------------------------|----------------------------|------------------------------|-------------------------------|-----------------------------------|---------------------------------------|------------------|
| H        | 30.643               | 31.4                     | 10                         | 16                           | 20                            | 5.4                               | 20                                    | -14.6            |
| H        | 35.457               | 30.8                     | 10                         | 16                           | 20                            | 4.8                               | 20                                    | -15.2            |
| H        | 40.564               | 30.3                     | 10                         | 16                           | 20                            | 4.3                               | 20                                    | -15.7            |
| H        | 45.653               | 30.7                     | 10                         | 16                           | 20                            | 4.7                               | 20                                    | -15.3            |
| H        | 50.252               | 30.2                     | 11                         | 16                           | 20                            | 5.2                               | 20                                    | -14.8            |
| H        | 55.454               | 30.6                     | 11                         | 16                           | 20                            | 5.6                               | 20                                    | -14.4            |

- Notes:
1. Peak Detector Data unless otherwise stated.
  2. All measurements were made at 3 meter. Harmonic emissions not detected at the 3-meter distance were measured at 0.3-meter and an inverse proportional extrapolation was performed to compare the signal level to the 3-meter limit. No other harmonic emissions than those reported were detected at a test distance of 0.3-meter.
  3. Negative value in the margin column shows emission below limit.

Test Engineer: Danny T. L. Chui

## **INTERTEK TESTING SERVICES**

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### 3.4 Line Conducted Configuration Photograph

#### Worst Case Line-Conducted Configuration

0.48 MHz

For electronic filing, the worst case line-conducted configuration photograph are saved with filename: conduct1.jpg to conduct3.jpg

## **INTERTEK TESTING SERVICES**

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Company: Shenzhen Jiashi Electronics Co. Ltd.  
Model: JiaShi JS9812 22W and 24W

Date of Test: April 3, 1999

### **Conducted Emissions Section 18.307 Requirements**

For electronic filing, the conducted emission test result is saved with filename: conduct.pdf

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## INTERTEK TESTING SERVICES

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### 3.5 Line Conducted Emission Configuration Data

The data on the following page lists the significant emission frequencies, the limit, and the margin of compliance. Numbers with a minus sign are below the limit.

Judgement: Passed by 42.4 dB

\* All readings are peak unless stated otherwise.

#### ***TEST PERSONNEL:***



*Signature*

Danny T. L. Chui, Compliance Engineer

*Typed/Printed Name*

May 19, 1999

*Date*

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**EXHIBIT 4**

**EQUIPMENT PHOTOGRAPHS**



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### 4.0 **Equipment Photographs**

For electronic filing, the photographs are saved with filename: ophoto1.jpg to ophoto2.jpg and iphoto1.jpg to iphoto4.jpg

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**EXHIBIT 5**

**PRODUCT LABELLING**

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### 5.0 **Product Labelling**

For electronic filing, the FCC ID label artwork and the label location are saved with filename: label.pdf

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**EXHIBIT 6**

**TECHNICAL SPECIFICATIONS**

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### 6.0 **Technical Specifications**

For electronic filing, the block diagram and schematics are saved with filename: block.pdf and circuit.pdf respectively.

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**EXHIBIT 7**

**INSTRUCTION MANUAL**

## INTERTEK TESTING SERVICES

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### 7.0 **Instruction Manual**

For electronic filing, a preliminary copy of the Instruction Manual is saved with filename: manual.pdf

This manual will be provided to the end-user with each unit sold/leased in the United States.