

FCC ID PER PART 18

MEASUREMENT AND TEST REPORT

FOR

Savia Electronics (Suzhou) Co. Ltd.

Xinpu Road, Sheng pu, Suzhou Industrial Park

FCC ID: QW2Savia2003001

February 23, 2003

This Report Concerns: <input checked="" type="checkbox"/> Original Report	Equipment Type: Compact Fluorescent Lamps Lighting Devices
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Report Number: <u>R0302131</u>	
Test Date: <u>February 13, 2003</u>	
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Note: The test report is specially limited to the use of the above client company and the product model. It may not be duplicated without prior written consent of Bay Area Compliance Laboratory Corporation. This report **must not** be used by the client to claim product endorsement by NVLAP or any agency of the U.S. Government

TABLE OF CONTENTS

1 - GENERAL INFORMATION	3
1.1 PRODUCT DESCRIPTION FOR EQUIPMENT UNDER TEST (EUT)	3
1.2 OBJECTIVE	3
1.3 RELATED SUBMITTAL(S)/GRANT(S)	3
1.4 TEST METHODOLOGY	3
1.5 TEST FACILITY	3
1.6 TEST EQUIPMENT LIST AND DETAILS	4
1.7 EQUIPMENT UNDER TEST (EUT) GENERAL DESCRIPTION	4
1.8 LOCAL SUPPORT EQUIPMENT	4
1.9 INTERFACE PORTS AND CABLING	4
2 - SYSTEM TEST CONFIGURATION	5
2.1 JUSTIFICATION	5
2.2 EUT EXERCISE PROGRAM	5
2.3 SCHEMATICS/BLOCK DIAGRAM	5
2.4 EQUIPMENT MODIFICATIONS	5
2.5 CONFIGURATION OF TEST SYSTEM	6
2.6 TEST SETUP BLOCK DIAGRAM	6
3 - CONDUCTED EMISSIONS TEST DATA	7
3.1 MEASUREMENT UNCERTAINTY	7
3.2 EUT SETUP	7
3.3 EMI RECEIVER SETUP	7
3.4 TEST PROCEDURE	7
3.5 SUMMARY OF TEST RESULTS	8
3.6 CONDUCTED EMISSIONS TEST DATA	8

1 - GENERAL INFORMATION

1.1 Product Description for Equipment Under Test (EUT)

The *Savia Electronics (Suzhou) Co. Ltd.*, Model: AF15W; AF20W; AF25W or the "EUT" as referred to in this report is a Compact Fluorescent Lamps Lighting Devices. The EUT (AF15W) measures 2.25"L x 2.25"W x 5.00"H, the EUT (AF20W) measures 2.25"L x 2.25"W x 5.25"H, and the EUT (AF25W) measures 2.25"L x 2.25"W x 5.75"H.

Note: The test data collected are from a representative production sample provided by the manufacturer.

1.2 Objective

This Following test report is prepared on behalf of *Savia Electronics (Suzhou) Co. Ltd.* in accordance with Part 2, Subpart J, and Part 18, Subparts A and B of the Federal Communication Commissions rules.

The objective of the manufacturer is to demonstrate compliance with FCC Part 18 limit requirements for Industrial, Scientific, and Medical Equipment.

1.3 Related Submittal(s)/Grant(s)

No Related Submittals.

1.4 Test Methodology

All measurements contained in this report were conducted in accordance with MP-5, FCC Methods of Measurements of Radio Noise Emissions from Industrial, Scientific, and Medical Equipment. All radiated and conducted emission measurements were performed at Bay Area Compliance Laboratory Corp. (BACL). The radiated testing was performed at an antenna-to-EUT distance of 3 Meters.

1.5 Test Facility

The Open Area Test site used by Bay Area Compliance Laboratory Corporation to collect radiated and conducted emission measurement data is located in the back parking lot of the building at 230 Commercial Street, Sunnyvale, California, USA.

Test site at Bay Area Compliance Laboratory Corporation has been fully described in reports submitted to the Federal Communication Commission (FCC). The details of these reports have been found to be in compliance with the requirements of Section 2.948 of the FCC Rules on February 11 and December 10, 1997. The facility also complies with the radiated and AC line conducted test site criteria set forth in ANSI C63.4-2000 and FCC MP-5.

The Federal Communications Commission and Voluntary Control Council for Interference have the reports on file and listed under FCC as Test Firm Registration Number: 800513. The test site has been approved by the FCC and VCCI for public use and listed in the FCC Public Access Link (PAL) database.

Additionally Bay Area Compliance Laboratory Corporation (USA) is a National Institute of Standards and Technology (NIST) accredited laboratory, under the National Voluntary Laboratory Accredited Program (NVLAP). The scope of the accreditation covers the FCC Method - 47 CFR Part 15 - Digital Devices, IEC/CISPR 22: 1998, and AS/NZS 3548: Electromagnetic Interference - Limits and Methods of Measurement of Information Technology Equipment test methods under NVLAP Lab Code 200167-0.

1.6 Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Cal. Due Date
R/S	Spectrum Analyzer	FSEM	849720/019	08/05/2003
HP	Receiver	PH8546A	A9704039	08/05/2003
HP	Amplifier	8447D	2944A09795	08/05/2003
ETS	Log Periodic Antenna	3146	9603-4421	09/05/2003
ETS	Biconical Antenna	3110B	3360	08/05/2003
Solar Electronics	LISN	TYPE 8012-50-R-24-BNC	21162	09/05/2003
Solar Electronics	LISN	TYPE 8012-50-R-25-BNC	21163	10/05/2003

1.7 Equipment under Test (EUT) General Description

Manufacturer	Description	Model	Serial Number	FCC ID
<i>Savia Electronics (Suzhou) Co. Ltd.</i>	<i>Compact Fluorescent Lamps Lighting Devices</i>	<i>AF15W; AF20W; AF25W</i>	None	QW2Savia2003001

1.8 Local Support Equipment

Manufacturer	Description	Model	Serial Number	FCC ID
Commercial Electric	Power Cord extension	E192912	42927	None

1.9 Interface Ports and Cabling

Cable Description	Length (M)	From/Port	To
Shielded Power Cord Extension Cable	1.6	AC Output	Outlet Adapter

2 - SYSTEM TEST CONFIGURATION

2.1 Justification

The EUT is configured for testing in a typical fashion (as normally used by a typical user).

2.2 EUT Exercise Program

The sequence used is as follows:

The EUT was switched on after being connected to the mains power supply.

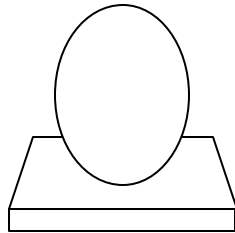
2.3 Schematics/Block Diagram

The EUT's block diagram is presented in Appendix D.

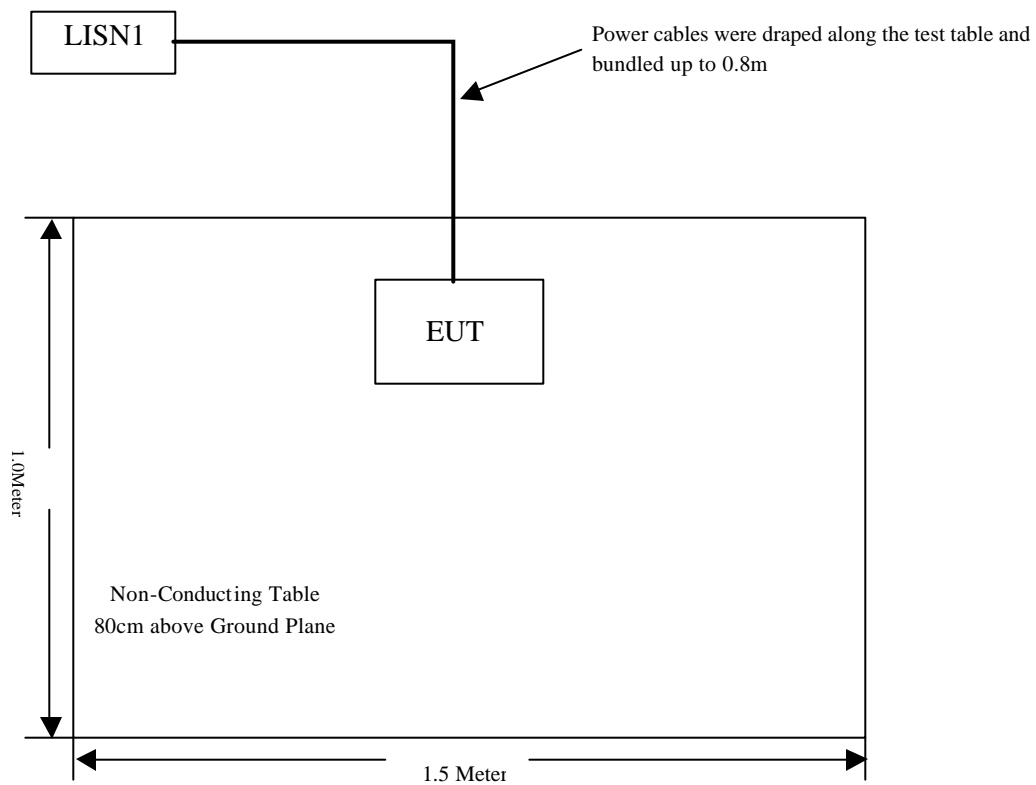
2.4 Equipment Modifications

The EUT was a typical representative production sample with no modifications.

2.5 Configuration of Test System



2.6 Test Setup Block Diagram



3 - CONDUCTED EMISSIONS TEST DATA

3.1 Measurement Uncertainty

All measurements involve certain levels of uncertainties. The factors contributing to uncertainties are spectrum analyzer, amplifier, and calibration procedures, LISN etc.

Based on NIS 81, The Treatment of Uncertainty in EMI Measurements, the best estimate of the uncertainty of any conducted emissions measurement at BACL is ± 2.4 dB.

3.2 EUT Setup

The measurement is performed at the **Open Area Test Site**, using the same setup per FCC MP-5 measurement procedure. The specification used was the FCC Part Subpart C 18 limits.

The EUT was placed on the center of the back edge on the test table.

The power cord extension of the EUT was connected with 120 Vac/60 Hz power source.

3.3 EMI Receiver Setup

The EMI receiver is configured during the conduction test is as follows:

Start Frequency	450 kHz
Stop Frequency	30 MHz
Sweep Speed.....	Auto
IF Bandwidth.....	10 kHz
Video Bandwidth.....	10 kHz
Quasi-Peak Adapter Bandwidth.....	9 kHz
Quasi-Peak Adapter Mode	Normal

3.4 Test Procedure

During the conducted emissions test, the power cord of the power cord extension was connected to the auxiliary outlet of the first LISN.

The six highest emissions were maximized to ensure the EUT is in compliance in all possible installation configurations.

All data was recorded in the peak detection mode. Quasi-peak readings were only performed when an emission was found to be marginal (within -4 dB μ V of the specification limits). Quasi-peak readings are distinguished with a "**Qp**".

The EUT was tested under the normal modes during the final qualification test to represent the worst case results.

3.5 Summary of Test Results

According to the data in section 3.6, the EUT, was found to be in compliance with the FCC 18 Conducted margin for industry, scientific and medical devices, and with the worst margin reading of:

- 13.9 dB μ V at **0.75** MHz at the **Neutral** mode, 0.45-30MHz, Model: AF15W
- 13.9 dB μ V at **0.78** MHz at the **Neutral** mode, 0.45-30MHz, Model: AF20W
- 11.3 dB μ V at **0.75** MHz at the **Neutral** mode, 0.45-30MHz, Model: AF25W

3.6 Conducted Emissions Test Data

3.6.1 Conducted Test, 0.45-30MHz.

LINE CONDUCTED EMISSIONS				FCC PART 18	
Frequency	Amplitude	Detector	Phase	Limit	Margin
MHz	dB μ V	Qp/Ave/Peak	Line/Neutral	dB μ V	dB
AF15W					
0.75	34.1	QP	Neutral	48	-13.9
0.75	34.0	QP	Line	48	-14.0
0.51	32.0	QP	Line	48	-16.0
0.51	31.9	QP	Neutral	48	-16.1
0.63	31.7	QP	Line	48	-16.3
1.13	31.1	QP	Neutral	48	-16.9
AF20W					
0.78	34.1	QP	Neutral	48	-13.9
0.78	33.9	QP	Line	48	-14.1
0.51	33.5	QP	Neutral	48	-14.5
0.45	32.5	QP	Line	48	-15.5
0.66	31.6	QP	Line	48	-16.4
1.13	29.6	QP	Neutral	48	-18.4
AF25W					
0.75	36.7	QP	Neutral	48	-11.3
0.75	35.3	QP	Line	48	-12.7
0.63	33.3	QP	Line	48	-14.7
0.63	31.2	QP	Neutral	48	-16.8
1.13	30.6	QP	Line	48	-17.4
1.13	30.5	QP	Neutral	48	-17.5

3.6.2 Plot of Conducted Emissions Test Data

The plot(s) of conducted emission test is presented in the following page as reference.

