

INTERTEK TESTING SERVICES

MEASUREMENT/TECHNICAL REPORT

Sky City International Ltd. - MODEL: SC6208ACR
FCC ID: NW9-SKY-SC-S

25 June, 1998

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

Equipment Type: Consumer RF Lighting (example: computer, printer, modem, etc.)

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

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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EXHIBIT 1

GENERAL DESCRIPTION

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1.0 General Description

1.1 Product Description

The Equipment Under Test (EUT) is a remote control fluorescent lamp operating at 0.025 - 0.030 MHz. The EUT is powered by AC mains. There is only one control switch (ON/OFF/remote control) on the sample. Once the switch is turned to ON, the lamp is turned ON.

The brief circuit description is listed in the following.

- Q_1 and associated circuit act as a regulator.
- Q_9 and associated circuit act as an oscillator receiver.
- U_1 and associated circuit act as an amplifier.
- U_2 and associated circuit act as a starter.
- U_3 and associated circuit act as a demodulator.

1.2 Related Submittal(s) Grants

This is a single application for certification of a consumer RF lighting device. The FCC ID the Transmitter portion is NW9-SKY-SC-T and of the receiver portion is NW9-SKY-SC-R.

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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 section 5 and 6 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 Emissions Test for FCC Part 18

Equipment	Registration No.	Manufacturer	Model No.	Serial No.	Calibration Due Date
Loop Antenna	EI034	EMCO	6502	9206-2706	August 1998
EMI Test Receiver	EI-135	R&S	ESVS30	842807/001	November 1998
Biconical Antenna	EI-088	CDI	B100 B200 B300	3098 3112 3118	December 1998
EMI Test Receiver	EI-025	R&S	ESHS30	827128/009	December 1998

2) Disturbance Voltage Tests for FCC Part 18

Equipment	Registration No.	Manufacturer	Model No.	Serial No.	Calibration Due Date
EMI Test Receiver	EI-135	R&S	ESVS30	842807/001	November 1998
Absorbing Clamp	EI-128	R&S	MDS21	840031/001	November 1998
LISN	EI-130	R&S	RSH3-Z5	840731/013	February 1999

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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 AC mains.

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). In order to maximize the emission, the test engineer placed the EUT in three orthogonal axes.

2.2 EUT Exercising Software

There was no special software to exercise the device. Once the EUT is powered up, 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 Sky City International Ltd. 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

This product was tested in a standalone configuration.

All the items listed under section 2.0 of this report are

Confirmed by:

*C. K. Lam
Assistant Manager
Intertek Testing Services
Agent for Sky City International Ltd.*

Lam _____ Signature

June 25, 1998 _____ Date

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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 μ V/m

RA = Receiver Amplitude (including preamplifier) in dB μ 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 μ 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 μ V/m. This value in dB μ V/m was converted to its corresponding level in μ 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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3.3 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 17.7 dB

TEST PERSONNEL:



Signature

Kenneth H. M. Lam, Compliance Engineer
Typed/Printed Name

June 25, 1998
Date

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Company: Sky City International Ltd.
Model: SC6208ACR

Date of Test: 16 June, 1998

Table 1

Radiated Emissions

Polarity	Frequency (MHz)	Reading (dB μ V)	Antenna Factor (dB)	Pre-Amp Gain (dB)	Distance Factor (-dB)	Calculated Net at 30m (dB μ V/m)	Limit at 30m (dB μ V/m)	Margin (dB)
H	32.156	27.3	10	16	20	1.3	20	-18.7
H	44.835	27.7	10	16	20	1.7	20	-18.3
H	54.056	27.3	11	16	20	2.3	20	-17.7
H	63.974	27.8	9	16	20	0.8	20	-19.2
H	71.351	30.5	7	16	20	1.5	20	-18.5
H	83.113	29.7	7	16	20	0.7	20	-19.3

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.
4. Horn antenna and average detector are used for the emission over 1000MHz.

Test Engineer: Kenneth H. M. Lam

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Company: Sky City International Ltd.
Model: SC6208ACR

Date of Test: 16 June, 1998

Graph 1

**Conducted Emissions
Section 18.307 Requirements**

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Company: Sky City International Ltd.
Model: SC6208ACR

Date of Test: 16 June, 1998

Table 2

**Conducted Emissions
Section 18.307 Requirements**

ITS Intertek Testing Services

ETL Testing Laboratories

Report No.: 3803597

Tested By: Hong, Report No.: 3803597

Scan Settings (1 Range)

Frequencies			Receiver Settings					
Start	Stop	Step	IF BW	Detector	M-Time	Atten	Preampl	OpRge
450k	30M	5k	10k	PK	20ms	AUTO	LN	OFF
60dB								

Final Measurement Results:

Frequency MHz	QP Level dBuV	QP Limit dBuV
0.45000	44.1	48.0
0.60000	32.7	48.0
0.80000	34.0	48.0
0.99500	33.7	48.0
1.29000	33.6	48.0
2.15000	27.8	48.0
2.64000	34.6	48.0
3.05000	37.6	48.0
3.67500	27.4	48.0
6.14000	28.1	48.0
6.31500	37.1	48.0

* limit exceeded

Ctrl. No.: N/A

FCC ID: NW9-SKY-SC-S

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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 3.9 dB

* All readings are peak unless stated otherwise.

TEST PERSONNEL:

K. Lam.
Signature

Kenneth H. M. Lam, Compliance Engineer
Typed/Printed Name

June 25, 2018
Date

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EXHIBIT 4

EQUIPMENT PHOTOGRAPHS

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4.0 Equipment Photographs

Photographs of the tested EUT are attached.