



July 11, 2009

SHUOYING INDUSTRIAL (SHENZHEN) CO., LTD.  
NO.1 Shuoying Rd., Hebei Industry Area, Dalang, Longhua Town,  
Baoan, Shenzhen, China

Dear Tony Pan,

Enclosed you will find your file copy of a Part 15 report (FCC ID: XJNSY21860005).

For your reference, TCB will normally take another one week for reviewing the report.  
Approval will then be granted when no query is sorted.

Please contact me if you have any questions regarding the enclosed material.

Sincerely,

A handwritten signature in black ink, appearing to read "Shawn Xing".

Shawn Xing  
Assistant Manager

Enclosure



## SHUOYING INDUSTRIAL (SHENZHEN) CO., LTD.

### Application For Certification **(FCC ID: XJNSY21860005)**

Computer Peripheral

*Billy Li*

SZ09060284-1

Billy Li

July 11, 2009

- The test results reported in this test 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 is for the exclusive use of Intertek's Client and is provided pursuant to the agreement between Intertek and its Client. Intertek's responsibility and liability are limited to the terms and conditions of the agreement. Intertek assumes no liability to any party, other than to the Client in accordance with the agreement, for any loss, expense or damage occasioned by the use of this report. Only the Client is authorized to copy or distribute this report. Any use of the Intertek name or one of its marks for the sale or advertisement of the tested material, product or service must first be approved in writing by Intertek. The observations and test results referenced from this report are relevant only to the sample tested. This report by itself does not imply that the material, product, or service is or has ever been under an Intertek certification program.
- For Terms And Conditions of the services, it can be provided upon request.
- The evaluation data of the report will be kept for 3 years from the date of issuance.

TRF no.: FCC 15C\_PC\_a  
FCC ID: XJNSY21860005

**Intertek Testing Services Shenzhen Ltd. Kejiyuan Branch**  
6F, D Block, Huahan Building, Langshan Road, Nanshan District, Shenzhen, P. R. China  
Tel: (86 755) 8601 6288 Fax: (86 755) 8601 6751 Website: [www.china.intertek-etslsemko.com](http://www.china.intertek-etslsemko.com)

# 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 Labeling
<i>EXHIBIT 6:</i>	Technical Specifications
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<i>EXHIBIT 8:</i>	Miscellaneous Information
<i>EXHIBIT 9:</i>	Test Equipment List

# INTERTEK TESTING SERVICES

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## MEASUREMENT / TECHNICAL REPORT

**SHUOYING INDUSTRIAL (SHENZHEN) CO., LTD. – MODEL: SY-2186**  
**Additional Model: DC-14, DC-14S**  
**FCC ID: XJNSY21860005**

**July 11, 2009**

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

Equipment Type: JBP- Class B Computing Device Peripheral

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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.

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Transition Rules Request per 15.37?      Yes       No

If no, assumed Part 15, Subpart C for intentional radiator – the new 47 CFR [10-1-08  
Edition] provision.

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Report prepared by:

Shawn Xing  
Intertek Testing Services Shenzhen Ltd.  
Kejiyuan Branch  
6F, D Block, Huahan Building, Langshan Road  
Nanshan District, Shenzhen, P. R. China  
Phone: (86 755) 8601 6288  
Fax: (86 755) 8601 6751

# INTERTEK TESTING SERVICES

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## INTERTEK TESTING SERVICES

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### List of attached file

Exhibit Type	File Description	Filename
Test Report	Test Report	report.pdf
Test Setup Photo	Radiated Emission	radiated photos.pdf
Test Setup Photo	Conducted Emission	conducted photos.pdf
External Photo	External Photo	external photos.pdf
Internal Photo	Internal Photo	internal photos.pdf
Block Diagram	Block Diagram	block.pdf
ID Label / Location	Label Artwork and Location	label.pdf
User Manual	User Manual	manual.pdf
Cover Letter	Letter of Agency	agency.pdf
Equipment List	Test Equipment List	equipment list.pdf

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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 Digital Camera. The device is powered by USB port for Download and PC Camera mode, and powered by 2 AA batteries for other modes.

The Model: DC-14, DC-14S are the same as the tested Model: SY-2186 in hardware and software aspect. The only differences are the appearance, trade name and model no. for trading purpose.

### 1.2 Related Submittal(s) Grants

This is an application for certification of a computer peripheral.

## INTERTEK TESTING SERVICES

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### 1.3 Test Methodology

Both AC mains line-conducted and radiated emission measurements were performed according to the procedures in ANSI C63.4 (2003). Radiated emission measurement was performed in Semi-anechoic chamber and conducted emission measurement was performed in shield room. For radiated emission measurement, preliminary scans were performed in the semi-anechoic chamber only to determine the worst case modes. 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 Semi-anechoic chamber and conducted measurement facility used to collect the radiated data is **Intertek Testing Services Shenzhen Ltd. Kejiyuan Branch** and located at 6F, D Block, Huahan Building, Langshan Road, Nanshan District, Shenzhen, P. R. China. This test facility and site measurement data have been fully placed on file with the FCC.

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**EXHIBIT 2**

**SYSTEM TEST CONFIGURATION**

## INTERTEK TESTING SERVICES

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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 ANSI C63.4 (2003).

The EUT was powered from PC USB port for Download and PC Camera mode, and was powered by 2 new AA batteries for other modes

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. The step by step procedure for maximizing emissions led to the data reported in Exhibit 3.0.

The rear of unit shall be flushed with the rear of the table for Download and PC Camera mode, and the unit was placed in the center of the turntable for other modes. The worst case data was reported in this report.

The equipment under test (EUT) was configured for testing in a typical fashion (as a customer would normally use it). The EUT was placed on turntable, which enabled the engineer to maximize emissions through its placement in the three orthogonal axes.

The frequency range from 30MHz to 2GHz was searched for spurious emissions from the device. Only those emissions reported were detected. All other emissions were at least 20 dB below the applicable limits.

#### 2.2 EUT Exercising Software

There is software CD attached to exercise the device.

#### 2.3 Special Accessories

The device is tested with an USB extended cable with ferrite bead. They are marked together with the device.

#### 2.4 Equipment Modification

Any modifications installed previous to testing by SHUOYING INDUSTRIAL (SHENZHEN) CO., LTD. will be incorporated in each production model sold / leased in the United States.

No modifications were installed by Intertek Testing Services Shenzhen Ltd.  
Kejiyuan Branch

## INTERTEK TESTING SERVICES

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### 2.5 Measurement Uncertainty

When determining the test conclusion, the Measurement Uncertainty of test has been considered.

### 2.6 Support Equipment List and Description

This product was tested in the following configuration:

Refer List:

Description	Manufacturer	Model No.
Test PC	Lenovo	T61
Test PC	HP	AJ411AV
Hard Disk	Smart.drive	HD3-SU2FW
USB Cable	Smart.drive	Length 155cm
1394 Cable	Smart.drive	Length 180cm

All the items listed under section 2.0 of this report are

*Confirmed by:*

*Shawn Xing*  
*Assistant Manager*  
*Intertek Testing Services Shenzhen Ltd.*  
*Kejiyuan Branch*  
*Agent for SHUOYING INDUSTRIAL (SHENZHEN) CO., LTD.*



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

July 11, 2009 Date

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**EXHIBIT 3**

**EMISSION RESULTS**

## INTERTEK TESTING SERVICES

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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  $\text{dB}\mu\text{V}/\text{m}$

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

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'd)

#### Example

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

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

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

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

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

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

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

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

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

## **INTERTEK TESTING SERVICES**

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### **3.2 Radiated Emission Configuration Photograph**

Worst Case Radiated Emission  
At  
60.790MHz (PC Camera Mode)

For electronic filing, the worst case radiated emission configuration photograph is saved with filename: radiated photos.pdf.

## INTERTEK TESTING SERVICES

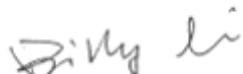
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### 3.3 Radiated Emission Data

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 0.9dB margin (PC Camera Mode)

### **TEST PERSONNEL:**



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*Signature*

Billy Li, Compliance Engineer

*Typed / Printed Name*

July 11, 2009

*Date*

## INTERTEK TESTING SERVICES

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Company: SHUOYING INDUSTRIAL (SHENZHEN) CO., LTD.

Date of Test: July 11, 2009

Model: SY-2186

Worst Case Operating Mode: PC Camera

**Table 1**

### Radiated Emissions

Polarization	Frequency (MHz)	Reading (dB $\mu$ V)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dB $\mu$ V/m)	Limit at 3m (dB $\mu$ V/m)	Margin (dB)
Horizontal	60.790	47.6	20.0	11.5	39.1	40.0	-0.9
Horizontal	145.889	46.8	20.0	13.5	40.3	43.5	-3.2
Horizontal	826.716	49.9	20.0	15.0	44.9	46.0	-1.1
Horizontal	1200.250	60.3	20.0	10.1	50.4	54.0	-3.6
Vertical	60.796	48.1	20.0	9.7	37.8	40.0	-2.2
Vertical	97.258	51.9	20.0	10.4	42.3	43.5	-1.2
Vertical	145.889	49.9	20.0	12.2	42.1	43.5	-1.4
Vertical	1224.000	53.7	20.0	17.4	51.1	54.0	-2.9

NOTES:

1. All measurements were made at 3 meters. Harmonic emissions not detected at the 3-meter distances 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.
2. Negative value in the margin column shows emission below limit.
3. All emissions below 1000MHz are below the QP limit and all emissions above 1000MHz are below the AV limit.
4. Peak detector was used when the frequency above 1000MHz and QP detector was used when the frequency below 1000MHz.

Test Engineer: Billy Li

## INTERTEK TESTING SERVICES

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Company: SHUOYING INDUSTRIAL (SHENZHEN) CO., LTD.

Date of Test: July 11, 2009

Model: SY-2186

Worst Case Operating Mode: Take Pictures

**Table 2**

### Radiated Emissions

Polarization	Frequency (MHz)	Reading (dB $\mu$ V)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dB $\mu$ V/m)	Limit at 3m (dB $\mu$ V/m)	Margin (dB)
Vertical	30.970	28.3	20.0	18.6	26.9	40.0	-13.1
Vertical	32.910	28.8	20.0	17.2	26.0	40.0	-14.0
Vertical	41.155	28.9	20.0	12.1	21.0	40.0	-19.0
Vertical	47.460	27.5	20.0	9.4	16.9	40.0	-23.1
Vertical	128.455	34.4	20.0	7.3	21.7	43.5	-21.8
Vertical	381.625	29.4	20.0	14.7	24.1	46.0	-21.9

NOTES: 1. All measurements were made at 3 meters. Harmonic emissions not detected at the 3-meter distances 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.

2. Negative value in the margin column shows emission below limit.

3. All emissions are below the QP limit.

Test Engineer: Billy Li

## **INTERTEK TESTING SERVICES**

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### **3.4 Conducted Emission Configuration Photograph**

**Worst Case Neutral-Conducted Configuration  
at  
24.150 MHz**

For electronic filing, the worst case conducted emission configuration photograph is saved with filename: conducted photos.pdf.

## INTERTEK TESTING SERVICES

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### 3.5 Conducted Emission Data

Judgement: Passed by 3.9 dB margin

#### **TEST PERSONNEL:**



*Signature*

Billy Li, Compliance Engineer  
*Typed/Printed Name*

July 11, 2009

*Date*

## INTERTEK TESTING SERVICES

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Company: SHUOYING INDUSTRIAL (SHENZHEN) CO., LTD.

Date of Test: July 11, 2009

Model: SY-2186

Worst Case Operating Mode: Download

**Table 3**

### Conducted Emissions

Live Line Data

Frequency (MHz)	Quasi-Peak		Average	
	Disturbance level dB(µV)	Permitted limit dB(µV)	Disturbance level dB(µV)	Permitted limit dB(µV)
0.198	42.1	63.7	25.2	53.7
15.200	34.3	60.0	24.3	50.0
16.500	35.1	60.0	25.5	50.0
19.300	37.3	60.0	27.8	50.0
21.214	49.2	60.0	44.6	50.0
24.150	50.4	60.0	45.0	50.0

Neutral Line Data

Frequency (MHz)	Quasi-Peak		Average	
	Disturbance level dB(µV)	Permitted limit dB(µV)	Disturbance level dB(µV)	Permitted limit dB(µV)
0.194	40.1	63.9	25.0	53.9
15.300	34.1	60.0	24.7	50.0
16.600	36.1	60.0	26.3	50.0
19.300	38.2	60.0	27.1	50.0
21.214	49.3	60.0	44.9	50.0
24.150	50.1	60.0	46.1	50.0

Test Engineer: Billy Li

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TRF no.: FCC 15C\_PC\_a

FCC ID: XJNSY21860005

**INTERTEK TESTING SERVICES**

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**EXHIBIT 4**

**EQUIPMENT PHOTOGRAPHS**

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### 4.0 Equipment Photographs

For electronic filing, photographs of the tested EUT are saved with filename: external photos.pdf and internal photos.pdf.

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**EXHIBIT 5**

**PRODUCT LABELLING**

## INTERTEK TESTING SERVICES

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### 5.0 Product Labelling

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

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**INTERTEK TESTING SERVICES**

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**EXHIBIT 6**

**TECHNICAL SPECIFICATIONS**

## INTERTEK TESTING SERVICES

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### 6.0 Technical Specifications

For electronic filing, the block diagram of the tested EUT is saved with filename: block.pdf.

**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.

**INTERTEK TESTING SERVICES**

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**EXHIBIT 8**

**MISCELLANEOUS INFORMATION**

## INTERTEK TESTING SERVICES

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### 8.0 **Miscellaneous Information**

This miscellaneous information includes emission measuring procedure.

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### 8.1 Emissions Test Procedures

The following is a description of the test procedure used by Intertek Testing Services in the measurements of computer peripheral operating under Part 15, Subpart B rules.

The test set-up and procedures described below are designed to meet the requirements of ANSI C63.4 – 2003.

The computer peripheral equipment under test (EUT) is placed on a wooden turntable which is four feet in diameter and approximately one meter in height above the ground plane. During the radiated emissions test, the turntable is rotated and any cables leaving the EUT are manipulated to find the configuration resulting in maximum emissions. The antenna height and polarization are varied during the testing to search for maximum signal levels. The height of the antenna is varied from one to four meters.

Detector function for radiated emissions is in QP mode from the frequency band 30MHz to 1GHz and RBW setting is 120kHz. Detector function for conducted emissions are in QP & AV mode and IFBW setting is 9kHz from the frequency band 150kHz to 30MHz.

For radiated emission, the frequency range scanned is 30MHz to 2GHz. For line-conducted emissions, the range scanned is 150kHz to 30MHz.

## **INTERTEK TESTING SERVICES**

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### **8.1 Emissions Test Procedures (cont'd)**

The EUT is warmed up for 15 minutes prior to the test.

Conducted measurements are made as described in ANSI C63.4 – 2003.

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**EXHIBIT 9**

**TEST EQUIPMENT LIST**

## INTERTEK TESTING SERVICES

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### 9.0 Test Equipment List

For electronic filing, the test equipment list of the tested EUT is saved with filename: equipment list.pdf.