

Intertek

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Fototec Optical Industries Ltd.

Application
For
Certification
(FCC ID: VBY00082)
Computer Peripheral

JGZ0705261-1

May 28, 2007

- 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.
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- 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.

Intertek Testing Services Shenzhen Ltd. Guangzhou Branch

1~8th floor, Block E2, 11 Cai Pin Road, Science city, Guangzhou Economic Development Zone, Guangzhou, P. R. China
Tel: (8620) 8213 9688 Fax: (8620) 3205 7538

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MEASUREMENT / TECHNICAL REPORT

Fototec Optical Industries Ltd. – MODEL: 00082

FCC ID: VBY00082

May 28, 2007

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

Equipment Type: Class B Computing Device Peripheral (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.

Transition Rules Request per 15.37? Yes ☐ No ☒

If no, assumed Part 15, Subpart C for intentional radiator – the new 47 CFR [08-07-06 Edition] provision.

Report prepared by:

Tendge Huang
Intertek Testing Services Shenzhen Ltd.
Guangzhou Branch
1~8th floor, Block E2, 11 Cai Pin Road,
Sciencecity, Guangzhou Economic
Development Zone, Guangzhou, P. R.China.
Phone: (8620) 8213 9688
Fax: (8620) 3205 7538

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List of attached file

Exhibit Type	File Description	Filename
Test Report	Test Report	report.pdf
Operation Description	Technical Description	descri.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
Schematics	Circuit Diagram	circuit.pdf
ID Label / Location	Label Artwork and Location	label.pdf
User Manual	User Manual	manual.pdf

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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 web camera model:00082. The main function of EUT is acting as a camera to take the photo. More over, it also with a flash card which can works as a memory to store data. It is powered from PC USB port or two 1.5V "AAA" batteries.

For electronic filing, the brief circuit description is saved with filename: descri.pdf

1.2 Related Submittal(s) Grants

This is an application for certification of a computer peripheral.

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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). All measurements were performed in Semi-Anechoic Chamber. Preliminary scans were performed in the Semi-Anechoic Chamber 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 Semi-chamber facility used to collect the radiated data is **SHENZHEN ACADEMY OF METROLOGY AND QUALITY INSPECTION** and located at Bldg. of Metrology & Quality Inspection, Longzhu Road, Shenzhen, Guangdong, 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

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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 USB port or by two new 1.5V “AAA” batteries.

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.

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.

All modes were tested and playing mode was the worst-case test modes.

The frequency range from 9kHz to 1GHz 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

The software Pixie Princess Digital Camera was used for compliance of this product.

2.3 Special Accessories

USB cable: shielded with a ferrite in the cable

2.4 Equipment Modification

No modifications were installed by 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	Manufacture	Model No.	Serial No.
Test PC	Compaq	P9111A#AB2	CN31104346
LCD Monitor	Compaq	P4825	CN3087A026
Keyboard	Compaq	KB-0133	CT:B55930DGAN N3NU
Mouse	Compaq	M-S69	CT:F466BOMMSN S05J2
Printer	Canon	BJC-265SP	EVX81604
Modem	TP-Link	TM-EC5658V	03402406009
DSLAM	Harbour	Hammer 3300	---
Adaptor for LCD	Liteon	PA-1400-02	3101571101LN
Adaptor for Printer	Canon	AD-300	---
Adaptor for Modem	---	EI-41-AD901	---

Confirmed by:

Tendge Huang
Project Engineer
Intertek Testing Services Shenzhen Ltd.
Guangzhou Branch
Agent for Fototec Optical Industries Ltd.

 Signature
May 28, 2007 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'd)

Example

Assume a receiver reading of 62.0dB μ 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 μ V/m. This value in dB μ V/m was converted to its corresponding level in μ V/m.

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

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

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

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

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

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

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

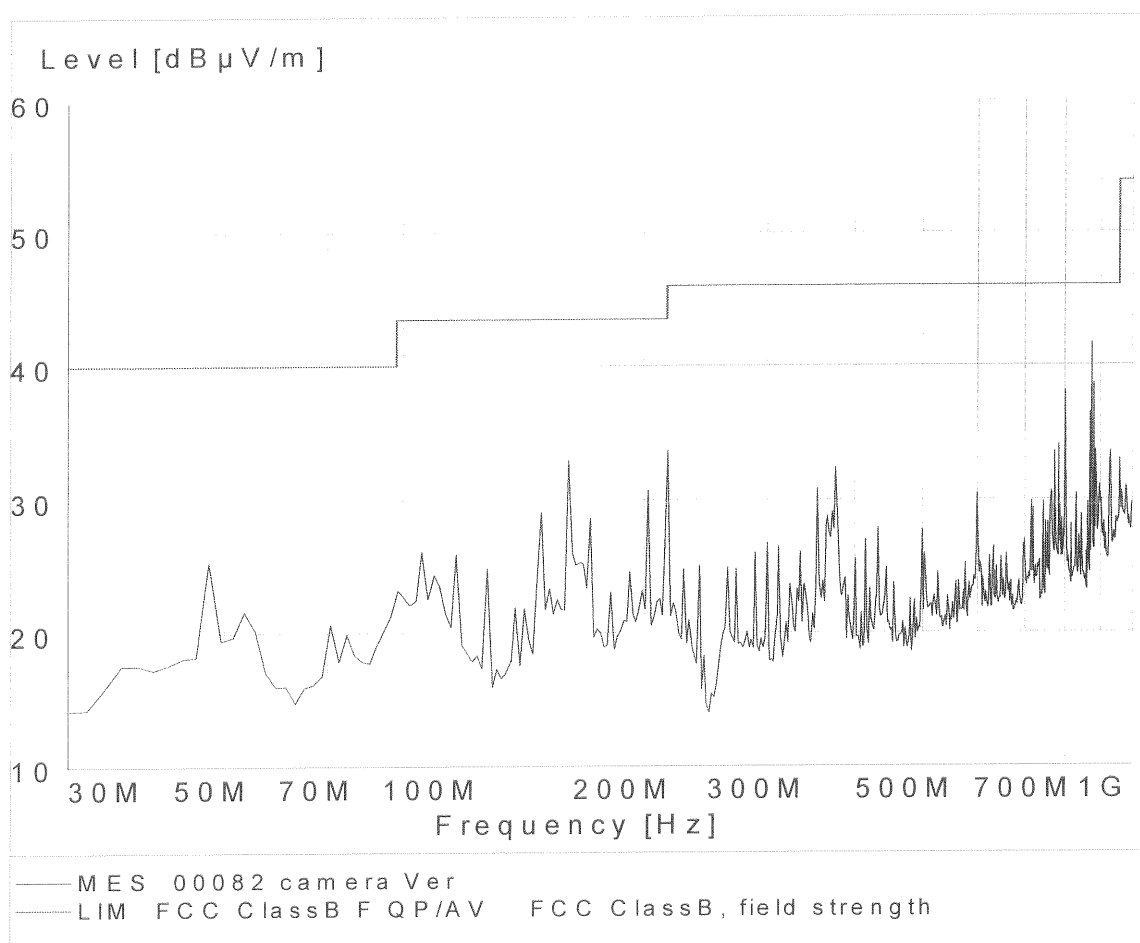
$$\text{Level in } \mu\text{V/m} = \text{Common Antilogarithm} [(32\text{dB}\mu\text{V/m})/20] = 39.8\mu\text{V/m}$$

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3.2 Radiated Emission Configuration Photograph

Worst Case Radiated Emission
at
875.055MHz

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



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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 4.5dB margin

TEST PERSONNEL:



Signature

Louisa Lu, Engineer

Typed / Printed Name

May 28, 2007

Date

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Company: Fototec Optical Industries Ltd.
Model: 00082
Worst Case Operating Mode: Playing

Date of Test: May 22, 2007

Table 1

Radiated Emissions

Polarization	Frequency (MHz)	Reading (dB μ V)	Antenna Factor (dB)	Pre-Amp Gain (dB)	Net at 3m (dB μ V/m)	Limit at 3m (dB μ V/m)	Margin (dB)
V	155.955	45.5	12.5	25.9	32.1	43.5	-11.4
V	875.055	45.0	22.2	25.7	41.5	46.0	-4.5
H	156.002	46.1	12.5	25.9	32.7	43.5	-10.8
H	336.009	47.4	14.6	25.4	36.6	46.0	-9.4

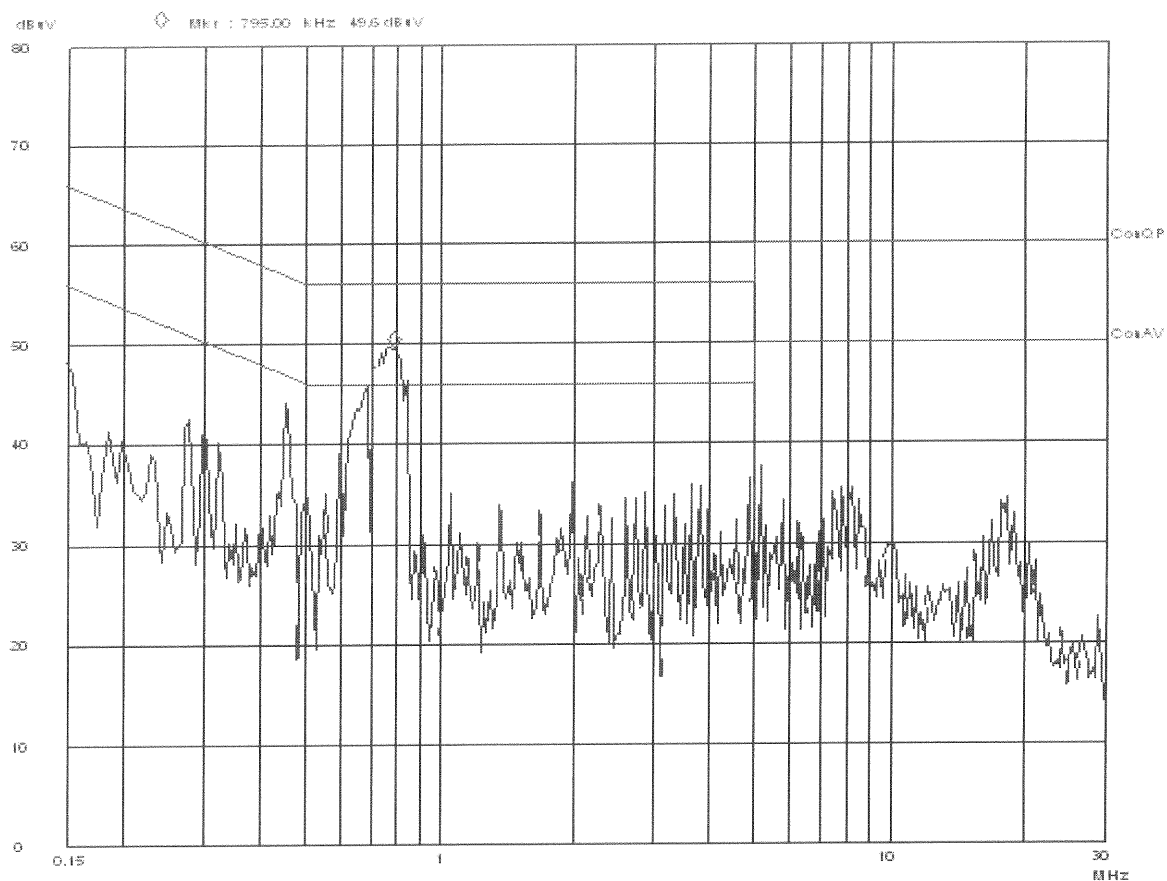
- NOTES: 1. All measurements were made at 3 meters. Harmonic emissions not detected at the 3-meter distances were measured at 0.3-meter and an inverse proportional extrapolation was performed to compare the signal level to the 3-meter limit. No other harmonic emissions than those reported were detected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

Test Engineer: Louisa Lu

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3.4 Conducted Emission Configuration Photograph

Worst Case Line-Conducted Configuration
at
0.458 MHz



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3.5 Conducted Emission Data

For electronic filing, the graph and data table of conducted emission is saved with filename: conducted.pdf.

Judgement: Passed by 5.7 dB margin

TEST PERSONNEL:



Signature

Louisa Lu, Engineer
Typed/Printed Name

May 28, 2007
Date

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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.

EXHIBIT 5
PRODUCT LABELLING

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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.

EXHIBIT 6
TECHNICAL SPECIFICATIONS

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6.0 Technical Specifications

For electronic filing, the block diagram and schematic of the tested EUT are saved with filename: block.pdf and circuit.pdf respectively.

EXHIBIT 7
INSTRUCTION MANUAL

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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.

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EXHIBIT 8

MISCELLANEOUS INFORMATION

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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 transmitters operating under Part 15, Subpart C rules.

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

The transmitting 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 EUT is adjusted through all three orthogonal axes to obtain maximum emission levels. 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 peak mode. Average readings, when required, are taken by measuring the duty cycle of the equipment under test and subtracting the corresponding amount in dB from the measured peak readings.

The frequency range scanned is from the lowest radio frequency signal generated in the device which is greater than 9kHz to the tenth harmonic of the highest fundamental frequency or 40GHz, whichever is lower. For line-conducted emissions, the range scanned is 150kHz to 30MHz.

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8.1 Emissions Test Procedures (cont'd)

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

AC power to the unit is varied from 85% to 115% nominal and variation in the fundamental emission field strength is recorded. If battery powered, a new, fully charged battery is used.

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

The IF bandwidth used for measurement of radiated signal strength was 100kHz or greater when frequency is below 1000MHz. Where pulsed transmissions of short enough pulse duration warrant, a greater bandwidth is selected according to the recommendations of Hewlett Packard Application Note 150-2. A discussion of whether pulse desensitivity is applicable to this unit is included in this report (See Exhibit 8.2). Above 1000 MHz, a resolution bandwidth of 1 MHz is used.