Timlex International Ltd.

Application
For
Certification
(FCC ID: PMDCP084B)

VGA Digital Camera

WO# 0102819
WL / Sandy
May 24, 2001

Intertek Testing Services Hong Kong Ltd.
2/F., Garment Centre, 576 Castle Peak Road, Kowloon, Hong Kong.
Tel: (852) 2173 8888 Fax: (852) 2785 5487

LIST OF EXHIBITS

MEASUREMENT/TECHNICAL REPORT

Timlex International Ltd.
MODEL: CP084
Argus DC1600
Prime Peripherals MegaPics 325

FCC ID: PMDCP084B

May 24, 2001

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

Equipment Type: Computer Peripheral (example: computer, printer, modem, etc.)

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.

Transition Rules Request per 15.37? Yes ___ No X

If no, assumed Part 15, Subpart C for intentional radiator - the new 47 CFR [10-1-96 Edition] provision.

Report prepared by:

Wilson Loke
Intertek Testing Services
2/F., Garment Center,
576, Castle Peak Road,
HONG KONG
Phone: 852-2173-8575
Fax: 852-2745-8306

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List of attached file

Exhibit type	File Description	filename
Test Report	Test Report	report.doc
Operation Description	Technical Description	descri.pdf
Test Setup Photo	Radiated Emission	radiated1.jpg, radiated2.jpg
External Photo	External Photo	ophoto1.jpg to 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

EXHIBIT 1

GENERAL DESCRIPTION

1.0 General Description

1.1 Product Description

The Equipment Under Test (EUT) is a VGA Digital Camera. The EUT is powered by 3 x fully charged 1.5V "AAA" batteries. The EUT use the capture mode to select the Low/High resolution to taken photos and select the self-timer mode to take photos with the self-timer. The EUT will auto off after 30 seconds. The EUT has internal memory to store the pictures in digital format and the pictures can be transferred to PC through the USB cable by using applicable software.

The Model: Argus DC1600 and Prime Peripherials MegaPics 325 are the same as the Model: CP084 in hardware aspect. The difference in model number serves as marketing strategy.

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

1.2 Related Submittal(s) Grants

This is a single application for certification of a computer peripheral.

1.3 Test Methodology

Radiated emission measurements were performed according to the procedures in ANSI C63.4 (1992). 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.

EXHIBIT 2

SYSTEM TEST CONFIGURATION

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 (1992).

The EUT was powered from 3 x fully charged 1.5V "AAA" battery.

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 with a computer system and placed in 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 placed on turntable, which enabled the engineer to maximize emissions through its placement in the three orthogonal axes.

The download mode and the on-line mode are applied during test.

2.2 EUT Exercising Software

A “digital camera driver” was installed for downloading the photo from the camera to computer. And the Microsoft Netmeeting software is used to exercise the device’s on-line mode.

2.3 Special Accessories

One USB cable with ferrite is used.

2.4 Equipment Modification

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

2.5 Support Equipment List and Description

This product was tested with a computer system.

Refer List:

1. HP COMPUTER: Model: D3397A
   S/N: SG54500246, FCCID:K4UVECTRAVL5
2. HP MONITOR: Model: D2804A
   S/N: KR53185780
   FCCID:CSYSC-428VSP
3. HP MOUSE: Model: M-S34
   S/N: LCA53438640
   FCCID:DZL210582
4. HP KEYBOARD: Model: E03633QLUS
   FCCID:CIGE03614
5. HP PRINTER: Model: C2642A
   S/N: SG67B131RY
   FCCID: B94C2642X
6. MODEM: Model: 6800CN
   FCCID: BFJ9D907-00038
7. One 1m monitor cable with ferrite
8. One 1m parallel cable
9. 2 × 1m telephone line with termination
10. One 1m serial cable
11. One USB cable with ferrite (provided by client)

Confirmed by:

Wilson Loke
Manager
Intertek Testing Services Hong Kong Ltd.
Agent for Timlex International Ltd.

Signature

May 24, 2001 Date

EXHIBIT 3

EMISSION RESULTS

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.

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 dBμV/m

RA = Receiver Amplitude (including preamplifier) in dBμV
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

3.1 Field Strength Calculation (cont'd)

Example

Assume a receiver reading of 62.0 dBμV 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 dBμV/m. This value in dBμV/m was converted to its corresponding level in μV/m.

RA = 62.0 dBμV
AF = 7.4 dB
CF = 1.6 dB
AG = 29.0 dB
PD = 0 dB

AV = -10 dB

FS = 62 + 7.4 + 1.6 - 29 + 0 + (-10) = 32 dBμV/m

Level in mV/m = Common Antilogarithm [(32 dBμV/m)/20] = 39.8 μV/m

3.2 Radiated Emission Configuration Photograph

Worst Case Radiated Emission
at
336.009 MHz

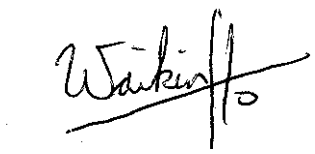
For electronic filing, the front view and back view of test configuration photograph is saved with filename: radiated1.jpg and radiated2.jpg respectively.

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 1.0 dB

TEST PERSONNEL:



Signature

Ben W. K. Ho, Compliance Engineer
Typed/Printed Name

May 24, 2001
Date

Company: Timlex International Ltd. Date of Test: May 2, 2001
Model: CP084

Table 1

Radiated Emissions

Polarity	Frequency (MHz)	Reading (dBµV)	Antenna Factor (dB)	Pre-Amp Gain (dB)	Net at 3m (dBµV/m)	Limit at 3m (dBµV/m)	Margin (dB)
V	36.012	38.4	11.2	16	33.6	40.0	-6.4
V	48.012	33.4	11.9	16	29.3	40.0	-10.7
V	60.013	31.7	9.9	16	25.6	40.0	-14.4
H	72.007	40.1	7.1	16	31.2	40.0	-8.8
H	84.007	39.9	6.7	16	30.6	40.0	-9.4
H	108.003	39.3	12.2	16	35.5	43.5	-8.0
H	120.013	43.2	12.8	16	40.0	43.5	-3.5
H	132.020	38.3	12.3	16	34.6	43.5	-8.9
H	168.010	40.5	13.8	16	38.3	43.5	-5.2
H	180.007	38.2	16.2	16	38.4	43.5	-5.1
H	192.016	33.9	17.1	16	35.0	43.5	-8.5
H	204.003	34.5	11.8	16	30.3	43.5	-13.2
H	216.006	38.8	11.8	16	34.6	46.0	-11.4
H	228.006	39.9	11.4	16	35.3	46.0	-10.7
H	240.011	42.9	11.4	16	38.3	46.0	-7.7
H	252.024	34.2	12.4	16	30.6	46.0	-15.4

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

*Emission within the restricted band meets the requirement of part 15.205. The corresponding limit as per 15.209 is based on Quasi peak detector data for frequencies below 1000 MHz and average detector data for frequencies over 1000 MHz.

Test Engineer: Ben W. K. Ho

Company: Timlex International Ltd. Date of Test: May 2, 2001
Model: CP084

Table 1 (Cont'd)

Radiated Emissions

Polarity	Frequency (MHz)	Reading (dBµV)	Antenna Factor (dB)	Pre-Amp Gain (dB)	Net at 3m (dBµV/m)	Limit at 3m (dBµV/m)	Margin (dB)
H	264.009	39.1	12.4	16	35.5	46.0	-10.5
H	276.009	39.5	13.3	16	36.8	46.0	-9.2
H	288.009	38.0	13.3	16	35.3	46.0	-10.7
H	300.009	36.2	14.3	16	34.5	46.0	-11.5
H	312.009	36.3	14.3	16	34.6	46.0	-11.4
H	324.009	32.3	14.3	16	30.6	46.0	-15.4
H	336.009	46.4	14.6	16	45.0	46.0	-1.0
H	348.009	39.0	14.6	16	37.6	46.0	-8.4
H	360.009	42.7	14.9	16	41.6	46.0	-4.4
H	372.009	34.1	14.9	16	33.0	46.0	-13.0
H	384.007	41.2	15.4	16	40.6	46.0	-5.4
H	396.007	36.4	15.4	16	35.8	46.0	-10.2
H	408.007	30.2	15.9	16	30.1	46.0	-15.9
H	456.007	37.2	16.8	16	38.0	46.0	-8.0
H	480.007	39.1	17.3	16	40.4	46.0	-5.6
H	504.007	39.1	18.0	16	41.1	46.0	-4.9

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.

*Emission within the restricted band meets the requirement of part 15.205. The corresponding limit as per 15.209 is based on Quasi peak detector data for frequencies below 1000 MHz and average detector data for frequencies over 1000 MHz.

Test Engineer: Ben W. K. Ho

Company: Timlex International Ltd. Date of Test: May 2, 2001
Model: CP084

Table 1 (Cont'd)

Radiated Emissions

Polarity	Frequency (MHz)	Reading (dBµV)	Antenna Factor (dB)	Pre-Amp Gain (dB)	Net at 3m (dBµV/m)	Limit at 3m (dBµV/m)	Margin (dB)
H	528.007	31.0	18.2	16	33.2	46.0	-12.8
H	552.007	38.4	18.3	16	40.7	46.0	-5.3
H	576.008	33.1	18.6	16	35.7	46.0	-10.3
H	600.008	31.3	18.9	16	34.2	46.0	-11.8
H	648.003	31.0	19.2	16	34.2	46.0	-11.8
H	708.083	25.3	21.3	16	30.6	46.0	-15.4

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

*Emission within the restricted band meets the requirement of part 15.205. The corresponding limit as per 15.209 is based on Quasi peak detector data for frequencies below 1000 MHz and average detector data for frequencies over 1000 MHz.

Test Engineer: Ben W. K. Ho

EXHIBIT 4

EQUIPMENT PHOTOGRAPHS

4.0 **Equipment Photographs**

For electronic filing, the photographs of the tested EUT are saved with filename: ophoto1.jpg to ophoto2.jpg for external photo and iphoto1.jpg to iphoto4.jpg for internal photo.

EXHIBIT 5

PRODUCT LABELLING

5.0 **Product Labelling**

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

EXHIBIT 6

TECHNICAL SPECIFICATIONS

6.0 **Technical Specifications**

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

EXHIBIT 7

INSTRUCTION MANUAL

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.

EXHIBIT 8

MISCELLANEOUS INFORMATION

8.0 Miscellaneous Information

This miscellaneous information includes emission measuring procedure.

8.1 Emissions Test Procedures

The following is a description of the test procedure used by Intertek Testing Services in the measurements of digital camera 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 - 1992.

The 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 9 kHz to the tenth harmonic of the highest fundamental frequency or 40 GHz, whichever is lower.

8.1 Emissions Test Procedures (cont'd)

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

It is battery powered and a new, fully charged battery is used.

The IF bandwidth used for measurement of radiated signal strength was 100 kHz or greater when frequency is below 1000 MHz. Above 1000 MHz, a resolution bandwidth of 1 MHz is used.

Measurements are normally conducted at a measurement distance of three meters. However, to assure low enough noise floor in the forbidden bands and above 1 GHz, signals are acquired at a distance of one meter or less. All measurements are extrapolated to three meters using inverse scaling, unless otherwise reported. Measurements taken at a closer distance are so marked.