

Eagletron Telecommunications Ltd.

Application
For
Certification
(FCC ID: DRW9338)

Digital Camera

0316867
DL/ Sandy
November 18, 2003

- 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 shall not be reproduced except in full without prior authorization from Intertek Testing Services Hong Kong Limited.
- 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 Hong Kong Ltd.

2/F., Garment Centre, 576 Castle Peak Road, Kowloon, Hong Kong.

Tel: (852) 2173 8888 Fax: (852) 2371 0521 Website: www.hk.intertek-etlsemko.com

INTERTEK TESTING SERVICES

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 Labelling
<i>EXHIBIT 6:</i>	Technical Specifications
<i>EXHIBIT 7:</i>	Instruction Manual
<i>EXHIBIT 8:</i>	Miscellaneous Information

INTERTEK TESTING SERVICES

MEASUREMENT/TECHNICAL REPORT

Eagletron Telecommunications Ltd.
MODEL: HOMA 9338

FCC ID: DRW9338

November 18, 2003

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 [08-20-02 Edition] provision.

Report prepared by: Derek Leung
Intertek Testing Services
2/F., Garment Center,
576, Castle Peak Road,
HONG KONG
Phone: 852-2173-8504
Fax: 852-2371-0521

INTERTEK TESTING SERVICES

Table of Contents

1.0 <u>General Description</u>	2
1.1 Product Description	2
1.2 Related Submittal(s) Grants	2
1.3 Test Methodology	3
1.4 Test Facility	3
2.0 <u>System Test Configuration</u>	5
2.1 Justification	5
2.2 EUT Exercising Software	5
2.3 Special Accessories	5
2.4 Equipment Modification	6
2.5 Measurement Uncertainty	6
2.6 Support Equipment List and Description	6
3.0 <u>Emission Results</u>	8
3.1 Field Strength Calculation	9
3.2 Radiated Emission Configuration Photograph	11
3.3 Radiated Emission Data	12
3.4 Conducted Emission Configuration Photograph	15
3.5 Conducted Emission Data	16
4.0 <u>Equipment Photographs</u>	18
5.0 <u>Product Labelling</u>	20
6.0 <u>Technical Specifications</u>	22
7.0 <u>Instruction Manual</u>	24
8.0 <u>Miscellaneous Information</u>	26
8.1 Emissions Test Procedures	27

INTERTEK TESTING SERVICES

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.doc
Test Setup Photo	Conducted Emission	conducted photos.doc
Test Report	Conducted Emission Test Result	conducted.pdf
External Photo	External Photo	external photos.doc
Internal Photo	Internal Photo	internal photos.doc
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

INTERTEK TESTING SERVICES

EXHIBIT 1

GENERAL DESCRIPTION

INTERTEK TESTING SERVICES

1.0 **General Description**

1.1 Product Description

The Equipment Under Test (EUT) is a Digital Camera. The EUT is powered by built-in rechargeable battery. It can take pictures or video clips and they can be stored into internal memory. They can be transferred to computer through USB cable and by using applicable software. Also, it can be functioned as PC camera. The built-in rechargeable can be recharged when the USB port is connected to computer.

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.

INTERTEK TESTING SERVICES

1.3 Test Methodology

Both AC mains line-conducted and 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.

INTERTEK TESTING SERVICES

EXHIBIT 2

SYSTEM TEST CONFIGURATION

INTERTEK TESTING SERVICES

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 built-in rechargeable battery.

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.

The frequency range from 9 kHz to 1 GHz 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

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

2.3 Special Accessories

One USB cable with ferrite is used.

INTERTEK TESTING SERVICES

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 Measurement Uncertainty

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

2.6 Support Equipment List and Description

This product was tested with a computer system.

Refer List:	1. Compaq Computer Model: D510S S/N: 3Z2AKN9ZJ023 DOC Product	1. HP Computer Model: Vectra VL420 S/N: SG20409996 DOC Product
	2. TopVision LCD Monitor Model: 03761428 S/N: M0034H02390020 DOC Product	2. HP Monitor Model: D2813 S/N: TW63600424 FCCID: A3KM043
	3. Compaq Keyboard Model: KB-0133 S/N: B55940EGANR0CE DOC Product	3. HP Keypad Model: SK-2502 S/N: C0205303122 FCCID: GYUR41SK
	4. Compaq Mouse Model: M-S69 FCCID: JNZ211443	4. HP Mouse Model: M-S34 FCCID: DZL211029
	5. HP Printer Model: C2642A S/N: SG67B131RY FCCID: B94C2642X	5. 2 x 1m telephone line with termination
	6. Hayes Modem Model: 6800CN FCCID: BFJ9D907-00038	6. 1 x serial cable with 1m long
		7. 1 x parallel cable with 1m long
		8. USB cable with length less than 3m and ferrite
		9. 9338 Driver

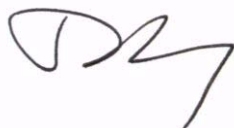
Confirmed by:

Derek Leung

Supervisor

Intertek Testing Services Hong Kong Ltd.

Agent for Eagletron Telecommunications Ltd.



Signature

November 18, 2003 Date

INTERTEK TESTING SERVICES

EXHIBIT 3

EMISSION RESULTS

INTERTEK TESTING SERVICES

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.

INTERTEK TESTING SERVICES

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:

$$FS = RA + AF + CF - AG + PD + AV$$

INTERTEK TESTING SERVICES

3.1 Field Strength Calculation (cont'd)

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.

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

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

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

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

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

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

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

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

INTERTEK TESTING SERVICES

3.2 Radiated Emission Configuration Photograph

Worst Case Radiated Emission
at
155.954 MHz

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

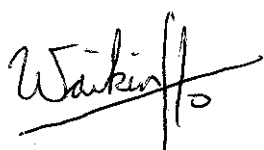
INTERTEK TESTING SERVICES

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 7.5 dB

TEST PERSONNEL:



Signature

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

November 18, 2003
Date

INTERTEK TESTING SERVICES

Company: Eagletron Telecommunications Ltd.
Model: HOMA 9338
Mode: Standalone (Standby)

Date of Test: October 27, 2003

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)
H	96.000	33.7	10.6	16	28.3	43.5	-15.2
H	155.960	31.9	12.4	16	28.3	43.5	-15.2
H	192.007	28.6	17.1	16	29.7	43.5	-13.8
H	288.008	31.3	13.3	16	28.6	46.0	-17.4
H	384.003	29.9	15.4	16	29.3	46.0	-16.7
H	480.003	27.5	17.3	16	28.8	46.0	-17.2

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.

Test Engineer: Ben W. K. Ho

INTERTEK TESTING SERVICES

Company: Eagletron Telecommunications Ltd.
Model: HOMA 9338
Mode: PC Live

Date of Test: October 27, 2003

Table 2

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)
H	96.000	41.0	10.6	16	35.6	43.5	-7.9
H	155.954	39.6	12.4	16	36.0	43.5	-7.5
H	192.007	33.4	17.1	16	34.5	43.5	-9.0
H	210.019	31.2	11.8	16	27.0	43.5	-16.5
H	288.008	33.6	13.3	16	30.9	46.0	-15.1
H	384.003	36.5	15.4	16	35.9	46.0	-10.1
H	432.016	33.7	16.3	16	34.0	46.0	-12.0
H	480.003	34.2	17.3	16	35.5	46.0	-10.5
H	528.015	33.9	18.2	16	36.1	46.0	-9.9
H	576.015	35.8	18.6	16	38.4	46.0	-7.6
H	624.020	33.1	18.9	16	36.0	46.0	-10.0

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.

Test Engineer: Ben W. K. Ho

INTERTEK TESTING SERVICES

3.4 Conducted Emission Configuration Photograph

Worst Case Line-Conducted Configuration
at
0.180 MHz

For electronic filing, the worst case line-conducted configuration photograph are saved with filename: conducted photos.doc.

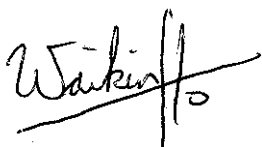
INTERTEK TESTING SERVICES

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 6.5 dB

TEST PERSONNEL:



Signature

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

November 18, 2003
Date

INTERTEK TESTING SERVICES

EXHIBIT 4

EQUIPMENT PHOTOGRAPHS

INTERTEK TESTING SERVICES

4.0 Equipment Photographs

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

INTERTEK TESTING SERVICES

EXHIBIT 5

PRODUCT LABELLING

INTERTEK TESTING SERVICES

5.0 **Product Labelling**

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

INTERTEK TESTING SERVICES

EXHIBIT 6

TECHNICAL SPECIFICATIONS

INTERTEK TESTING SERVICES

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.

INTERTEK TESTING SERVICES

EXHIBIT 7

INSTRUCTION MANUAL

INTERTEK TESTING SERVICES

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

EXHIBIT 8

MISCELLANEOUS INFORMATION

INTERTEK TESTING SERVICES

8.0 Miscellaneous Information

This miscellaneous information includes emission measuring procedure.

INTERTEK TESTING SERVICES

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 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. A detailed description for the calculation of the average factor can be found in Exhibit 8.3.

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. For line conducted emissions, the range scanned is 450 kHz to 30 MHz.

INTERTEK TESTING SERVICES

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 - 1992.

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