

**Signal Communications Limited**

Application  
For  
Certification  
**(FCC ID: NAGSCVT-991102)**

**TeleEye Pro Transmission Unit**  
December 17, 1999

WO# 9912566  
Ben W. K. Ho/at  
December 17, 1999

- 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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FCC ID: NAGSCVT-991102

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## INTERTEK TESTING SERVICES

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### LIST OF EXHIBITS

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# INTERTEK TESTING SERVICES

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## MEASUREMENT/TECHNICAL REPORT

**Signal Communications Limited - MODEL: TeleEye Pro PTA8-B1  
TeleEye Pro PTA8-C1  
FCC ID: NAGSCVT-991102**

**December 17, 1999**

This report concerns (check one:)      Original Grant       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

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 [10-1-96 Edition] provision.

Report prepared by:

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### List of attached file

Exhibit type	File Description	filename
Cover Letter	Letter of Agency	letter.pdf
Test Report	Test Report	report.doc
Operation Description	Technical Description	descri.pdf
Test Setup Photo	Radiated Emission	radiated1.jpg, radiated2.jpg
Test Setup Photo	Conducted Emission	conduct1.jpg to conduct3.jpg
Test Report	Conducted Emission Test Result	conduct.pdf
External Photo	External Photo	ophoto1.jpg, ophoto2.jpg
Internal Photo	Internal Photo	iphoto1.jpg, iphoto2.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

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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 TeleEye Pro Transmission Unit. The EUT is powered by AC120V 60Hz input, DC 9-12V output adaptor. It is a video monitoring system which can transmit B/W video frames or color video frames from up to 8 CCTV cameras to the PC monitor. Also it has multiple alarm inputs with independent NC/NO trigger contacts. Besides, it enables remote control through 2 relay switches.

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

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### **1.2 Related Submittal(s) Grants**

This is a single Application for Certification. No simultaneous filings under Part 15.

### 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.

**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 C63.4 (1992.)

The EUT was powered from AC120V 60Hz input, DC9V 1A output adaptor.

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.

#### 2.2 EUT Exercising Software

The EUT exercise program used during radiated and conducted testing was designed to exercise the various system components in a manner similar to a typical use. The software, contained on a 3½" disk, was inserted into Drive A and was installed into the harddisk.

Once the program was loaded, the camera can be controlled by using the mouse. For simplicity of testing, the unit was setted to move continuously.

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### 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 Signal Communications Limited 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 & Description

Refer List:

- 1. HD 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. TeleEye Pro 8 CAM transmission unit
- 7. 2 x 120V ac to 9V dc power adapters
- 8. NTSC Camera
- 9. 9 pins Aux port cable (3m)
- 10. 8 x BNC cables (3m)
- 11. 9 pins Null modem cable (>3m)
- 12. 8 x  $75\Omega$  terminators
- 13. Software CD  
Name: Telewin
- 14. 37 pins switch control cable (3m)
- 15. Alarm tester
- 16. RS232 MINI-TESTER
- 17. 9 pins male to 25 pins female converter

*Confirmed by:*

*Wilbur Ng*  
Assistant Manager  
Intertek Testing Services  
Agent for Signal Communications Limited



Signature

December 17, 1999 Date

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**EXHIBIT 3**

**EMISSION RESULTS**

3.0 **Emission Results**

Data included were result from worst case configuration (the configuration which resulted in the highest emission levels). A sample calculation, configuration photographs, data tables and graphical representations of the emissions are included.

### 3.1 Field Strength Calculation

The field strength is calculated by adding the Antenna Factor and Cable Factor, and subtracting the Amplifier Gain (if any) from the measured reading. The basic equation with a sample calculation is as follows:

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

where FS = Field Strength in dB $\mu$ V/m

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

CF = Cable Attenuation Factor in dB

AF = Antenna Factor in dB

AG = Amplifier Gain in dB

In the following table(s), the reading shown on the data table reflects the preamplifier gain. An example for the calculations in the following table is as follows:

$$FS = RR + LF$$

where FS = Field Strength in dB $\mu$ V/m

RR = RA - AG in dB $\mu$ V

LF = CF + AF in dB

Assume a receiver reading of 52.0 dB $\mu$ 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, giving a field strength of 32 dB $\mu$ V/m. This value in dB $\mu$ V/m was converted to its corresponding level in  $\mu$ V/m.

$$RA = 52.0 \text{ dB}\mu\text{V}/\text{m}$$

$$AF = 7.4 \text{ dB} \quad RR = 23.0 \text{ dB}\mu\text{V}$$

$$CF = 1.6 \text{ dB} \quad LF = 9.0 \text{ dB}$$

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

$$FS = RR + LF$$

$$FS = 23 + 9 = 32 \text{ dB}\mu\text{V}/\text{m}$$

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

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### 3.2 Radiated Emission Configuration Photograph

Worst Case Radiated Emission

45.126 MHz

For electronic filing, test configuration photographs are saved with filename:  
radiated1.jpg & radiated2.jpg

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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 13.3 dB

### **TEST PERSONNEL:**



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*Tester Signature*

Ben W. K. Ho, Electronics Engineer

*Typed/Printed Name*

December 17, 1999

*Date*

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Company: Signal Communications Limited

Date of Test: December 14, 1999

Model: TeleEye Pro PTA8-B1

TeleEye Pro PTA8-C1

Mode: B/W Mode

Table 1

## Radiated Emissions

Polarity	Frequency (MHz)	Reading (dB $\mu$ V)	Antenna Factor (dB)	Pre- Amp Gain (dB)	Net at 3m (dB $\mu$ V/m)	Limit at 3m (dB $\mu$ V/m)	Margin (dB)
V	30.726	31.8	10	16	25.8	40.0	-14.2
H	35.316	31.2	11	16	26.2	40.0	-13.8
H	40.284	31.7	11	16	26.7	40.0	-13.3
H	45.182	33.6	9	16	26.6	40.0	-13.4
H	50.813	36.4	6	16	26.4	40.0	-13.6
H	55.645	29.1	13	16	26.1	40.0	-13.9

Notes: 1. Peak Detector Data

2. No other harmonic or spurious were detected at a test distance of 3 meter.
3. Negative value in the margin column shows emission below limit.

Test Engineer: Ben W. K. Ho

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Company: Signal Communications Limited

Date of Test: December 14, 1999

Model: TeleEye Pro PTA8-B1

TeleEye Pro PTA8-C1

Mode: Color Mode

Table 2

## Radiated Emissions

Polarity	Frequency (MHz)	Reading (dB $\mu$ V)	Antenna Factor (dB)	Pre-Amp Gain (dB)	Net at 3m (dB $\mu$ V/m)	Limit at 3m (dB $\mu$ V/m)	Margin (dB)
V	30.374	31.9	10	16	25.9	40.0	-14.1
H	35.682	31.1	11	16	26.1	40.0	-13.9
H	40.549	31.4	11	16	26.4	40.0	-13.6
H	45.126	33.7	9	16	26.7	40.0	-13.3
H	50.751	36.6	6	16	26.6	40.0	-13.4
H	55.813	29.2	13	16	26.2	40.0	-13.8

Notes: 1. Peak Detector Data

2. No other harmonic or spurious were detected at a test distance of 3 meter.
3. Negative value in the margin column shows emission below limit.

Test Engineer: Ben W. K. Ho

3.4 Line Conducted Configuration Photograph

Worst Case Line-Conducted Configuration

0.45 MHz

For electronic filing, test configuration photographs are saved with filename: conduct1.jpg, conduct2.jpg & conduct3.jpg.

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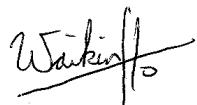
### 3.5 Line Conducted Emission Configuration Data

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 16.5 dB

\* All readings are peak unless stated otherwise.

### **TEST PERSONNEL:**



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*Tester Signature*

Ben W. K. Ho, Electronics Engineer

*Typed/Printed Name*

December 17, 1999

*Date*

# INTERTEK TESTING SERVICES

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Company: Signal Communications Limited

Date of Test: December 14, 1999

Model: TeleEye Pro PTA8-B1

TeleEye Pro PTA8-C1

Graph 1

**Conducted Emissions**  
**Section 15.107 Requirements**

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Company: Signal Communications Limited

Date of Test: December 14, 1999

Model: TeleEye Pro PTA8-B1

TeleEye Pro PTA8-C1

Table 2

**Conducted Emissions**  
**Section 15.107 Requirements**

**EXHIBIT 4**

**EQUIPMENT PHOTOGRAPHS**

4.0 **Equipment Photographs**

For electronic filing, photographs of the tested EUT are saved with filename: ophoto1.jpg, ophoto2.jpg for external photo, and iphoto1.jpg, iphoto2.jpg for internal photo.

**EXHIBIT 5**

**PRODUCT LABELLING**

5.0 **Product Labelling**

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

**EXHIBIT 6**

**TECHNICAL SPECIFICATIONS**

6.0 **Technical Specifications**

For electronic filing, block diagram and schematics of the camera control unit are saved with filename: circuit.pdf and block.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.