

Signal Communications Limited

Application
For
Certification
(FCC ID: NAGSCVT-000126)

TeleEye Pro Transmission Unit

March 20, 2000

WO# 0001874
Ben W. K. Ho/kid
March 20, 2000

- 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-000126

LIST OF EXHIBITS

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INTERTEK TESTING SERVICES

MEASUREMENT/TECHNICAL REPORT

**Signal Communications Limited - MODEL: TeleEye Pro PTA16-B1
TeleEye Pro PTA16-C1
FCC ID: NAGSCVT-000126**

March 20, 2000

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:

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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 16 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.

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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 (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 16 CAM transmission unit
- 7. 2 x 120V ac to 9V dc power adapters
- 8. NTSC Camera
- 9. 9 pins Aux port cable (3m)
- 10. 16 x BNC cables (3m)
- 11. 9 pins Null modem cable (>3m)
- 12. 16 x 75Ω 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:

Wilson Loke
Manager
Intertek Testing Services
Agent for Signal Communications Limited



Signature

_____March 20, 2000_____ 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 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

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 μ V/m

RR = RA - AG in dB μ V

LF = CF + AF in dB

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

72.829 MHz

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

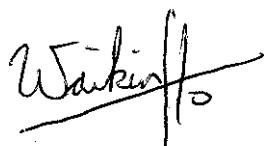
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3.3 Radiated Emission Data

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 13.7 dB

TEST PERSONNEL:



Tester Signature

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

March 20, 2000
Date

INTERTEK TESTING SERVICES

Company: Signal Communications Limited

Date of Test: March 15, 2000

Model: TeleEye Pro PTA16-B1

TeleEye Pro PTA16-C1

Mode: B/W Mode

Table 1

Radiated Emissions

| Polarity | Frequency (M Hz) | 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 | 48.631 | 29.5 | 11.9 | 16 | 25.4 | 40.0 | -14.6 |
| H | 72.829 | 35.2 | 7.1 | 16 | 26.3 | 40.0 | -13.7 |
| H | 97.683 | 31.5 | 10.6 | 16 | 26.1 | 43.5 | -17.4 |
| H | 121.831 | 27.7 | 12.8 | 16 | 24.5 | 43.5 | -19.0 |
| H | 145.692 | 29.0 | 11.6 | 16 | 24.6 | 43.5 | -18.9 |

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

INTERTEK TESTING SERVICES

Company: Signal Communications Limited

Date of Test: March 15, 2000

Model: TeleEye Pro PTA16-B1

TeleEye Pro PTA16-C1

Mode: Color Mode

Table 2

Radiated Emissions

| Polarity | Frequency (M Hz) | 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 | 48.631 | 29.4 | 11.9 | 16 | 25.3 | 40.0 | -14.7 |
| H | 72.829 | 35.1 | 7.1 | 16 | 26.2 | 40.0 | -13.8 |
| H | 97.683 | 31.7 | 10.6 | 16 | 26.3 | 43.5 | -17.2 |
| H | 121.831 | 27.8 | 12.8 | 16 | 24.6 | 43.5 | -18.9 |
| H | 145.692 | 28.9 | 11.6 | 16 | 24.5 | 43.5 | -19.0 |

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

0.46 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 13.7 dB

* All readings are peak unless stated otherwise.

TEST PERSONNEL:

Tester Signature

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

March 20, 2000
Date

INTERTEK TESTING SERVICES

Company: Signal Communications Limited
Model: TeleEye Pro PTA16-B1
TeleEye Pro PTA16-C1

Date of Test: March 15, 2000

Graph 1

Conducted Emissions
Section 15.107 Requirements

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Company: Signal Communications Limited
Model: TeleEye Pro PTA16-B1
TeleEye Pro PTA16-C1

Date of Test: March 15, 2000

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.