



Signal Communications Ltd.

Application
For
Certification
(FCC ID: NAGSCVX-030821)

TeleEye III+ Video Recording Transmitter
October 7, 2003

0313957
DL/ Sandy
October 7, 2003

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MEASUREMENT/TECHNICAL REPORT

Signal Communications Ltd.

Brand Name/ Model: TeleEye/ VX-16008, VX-4001, VX-4002, VX-8002, VX-8004, VX-16004
CAMERIO/ VX-16008, VX-4001, VX-4002, VX-8002, VX-8004, VX-16004
FCC ID: NAGSCVX-030821

October 7, 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:

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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.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	circuit1.pdf, circuit2.pdf, circuit3.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 video recording transmitter which is a one-plug module on LAN and the Internet for remote and local video monitoring and recording. The EUT is powered by AC 100-240V 50/60Hz input, DC 12V output adaptor. It provides simultaneous remote monitoring, recording and playback. Users can keep track of live video and play back recorded video from any remote locations. It can support up to 16 video and alarm inputs and 4 relay switches. Also it has the features of password protection on connection and settings and built-in real time clock.

The Models bearing the following model numbers have the following difference:

<u>Model No.</u>	<u>Features</u>
VX-4001, VX-4002	Support 4 video channels, 4 alarm inputs
VX-8002, VX-8004	Support 8 video channels, 8 alarm inputs
VX-16004, VX-16008	Support 16 video channels, 16 alarm inputs

The transmitter's features will be enabled by both software and hardware as indicated in block diagram and circuit diagram. The difference in these models is in the No. of encoder PCB, and necessary component but same PCB layout in main board.

The VX-16008 is full component version.

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 (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.

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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 (1992).

The EUT was powered from AC 100-240V 50/60Hz input, DC 12V 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.

The model VX-16008 is the full version and its test data is demonstrated on the report.

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 in a CD ROM, was inserted into CD Drive and was installed into the hard disk.

Once the program was loaded, the cameras will capture images and the images will be shown on the monitor and recorded in the hard disk.

2.3 Special Accessories

Shielded cables are necessary for compliance of this product.

2.4 Equipment Modification

Any modifications installed previous to testing by Signal Communications Ltd. will be incorporated in each production model sold/leased in the United States.

No modifications were installed by Intertek Testing Services.

2.5 Measurement Uncertainty

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

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2.6 Support Equipment List and Description

Refer List	1. Compaq Computer Model: D510S S/N: 3Z2AKN9ZJ023 DOC Product	1. IBM Computer Model: 42H S/N: 99GMHN1 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. IBM Keyboard Model: KB-0225 S/N: 1203496 DOC Product
	4. Compaq Mouse Model: M-S69 FCCID: JNZ211443	4. IBM Mouse Model: MU29J S/N: 23-067135 DOC Product
	5. HP Printer Model: C2642A S/N: SG67B131RY FCCID: B94C2642X	
	6. Hayes Modem Model: 6800CN FCCID: BFJ9D907-00038	
	7. DF 112 (PAL) Camera with 3m long cable and 12V d.c. output adaptor	
	8. Alarm Box	
	9. HDD Cartridge with 40G HDD	
	10. RS-232/RS-485 converter	
	11. 1 x shielded RJ45 LAN cable (crossover) with 3.3m long	
	12. 16 x 3m shielded BNC cable with 75ohm terminator	
	13. 1 x 8m shielded BNC cable	
	14. 1 x 3.6m shielded Alarm & SW cable	
	15. 1 x 3m shielded Modem cable	
	16. 1 x 3m shielded AUX cable	
	17. Adaptor: Input: AC 100-240V 50/60Hz Output: DC 12V 5.0A 60W Model: UE60-120500SPA	
	18. Software: TeleEye III+ VX	
	19. TV receiver	
	20. 1 x 3m shielded TV cable	

Confirmed by:

Derek Leung
Supervisor
Intertek Testing Services Hong Kong Ltd.
Agent for Signal Communications Ltd.



Signature

October 7, 2003

Date

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EXHIBIT 3

EMISSION RESULTS

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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.

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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.

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

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

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

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

$$FS = RR + LF$$

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

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

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3.2 Radiated Emission Configuration Photograph

Worst Case Radiated Emission

364.470 MHz

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

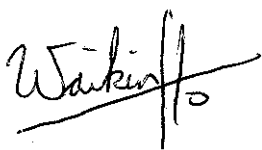
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3.3 Radiated Emission Data

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 0.9 dB

TEST PERSONNEL:



Tester Signature

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

October 7, 2003
Date

INTERTEK TESTING SERVICES

Company: Signal Communications Ltd.
Model: TeleEye/ VX-16008

Date of Test: September 13, 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	75.000	39.7	6.3	16	30.0	40.0	-10.0
H	150.000	34.4	11.9	16	30.3	43.5	-13.2
H	199.530	27.5	17.3	16	28.8	43.5	-14.7
H	224.999	32.9	11.8	16	28.7	46.0	-17.3
H	233.160	42.4	11.4	16	37.8	46.0	-8.2
H	300.000	46.3	14.3	16	44.6	46.0	-1.4
H	332.000	45.7	14.6	16	44.3	46.0	-1.7
H	364.470	46.2	14.9	16	45.1	46.0	-0.9
H	431.940	40.7	16.3	16	41.0	46.0	-5.0
H	465.003	32.8	16.8	16	33.6	46.0	-12.4
H	599.994	41.7	18.6	16	44.3	46.0	-1.7
H	638.110	29.0	19.2	16	32.2	46.0	-13.8

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. Interconnecting cabling or wiring was connected to one of each type of functional port of the EUT, and each cable or wire was terminated in a device typical of actual usage. Additional connecting cables or wires were added to the EUT to determine the effect these cables or wires had on emissions from the EUT. The number of additional cables or wires were limited to the condition where the addition of another cable or wire did not significantly affect the emission level, i.e. varies less than 2 dB, provided that the emission level remains compliant. These additional cables or wires need not be terminated.

Test Engineer: Ben W. K. Ho

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3.4 Conducted Emission Configuration Photograph

Worst Case Line-Conducted Configuration
at
0.53 MHz

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

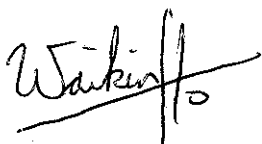
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3.5 Conducted Emission Data

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

Judgement: Passed by 5.7 dB

TEST PERSONNEL:



Signature

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

October 7, 2003
Date

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Company: Signal Communications Ltd.
Model: TeleEye/ VX-16008

Date of Test: September 13, 2003

Graph 1

Conducted Emissions Section 15.107 Requirements

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Company: Signal Communications Ltd.
Model: TeleEye/ VX-16008

Date of Test: September 13, 2003

Table 2

Conducted Emissions Section 15.107 Requirements

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EXHIBIT 4

EQUIPMENT PHOTOGRAPHS

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4.0 **Equipment Photographs**

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

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EXHIBIT 5

PRODUCT LABELLING

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5.0 **Product Labelling**

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

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EXHIBIT 6

TECHNICAL SPECIFICATIONS

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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.

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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.