

Safety - EMI - Telecom - ISO Guide 25

## **ENGINEERING TEST REPORT**

ON: THE ELECTRA ENTERPRISES "VID-906 VIDEO TRANSMITTER"

FCC ID: NIMT906

IN ACCORDANCE WITH: FCC PART 15, SUBPART C PARAGRAPH 15.249 902-928 MHz TRANSMITTERS

PROJECT NO.: 8R00260

**TESTED FOR:** 

ELECTRA ENTERPRISES 390 EDGELEY BLVD., UNIT 21 CONCORD, ONTARIO L4K 3Z6

#### TESTED BY:

CERTELECOM LABORATORIES INC. 3325 RIVER ROAD, R.R. 5 OTTAWA, ONTARIO K1V 1H2

**APRIL 1998** 

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This report applies only to the items tested.

FCC PART 15, SUBPART C PARAGRAPH 15.249 PROJECT NO.: 8R00260

EQUIPMENT: VID-906 Video Transmitter

FCC ID: NIMT906

EQUIPMENT DESCRIPTION:

The E.U.T. is an analog video transmitter that operates at

906 MHz

MODEL NO.:

VID-906

SERIAL NO.:

None

#### GENERAL:

These tests were conducted on a sample of the equipment for the purpose of demonstrating compliance with FCC Part 15 Subpart C, Paragraph 15.249 for Intentional Radiators operating within the frequency band 902 - 928 MHz.

#### ABSTRACT:

NAME OF TEST	PARA. NO.	RESULTS	_
Radiated Emissions	15.249(a)	Complies	
Powerline Conducted Emissions	15.207(a)	Not Applicable	

THIS TEST REPORT RELATES ONLY TO THE ITEM(S) TESTED.

THE FOLLOWING DEVIATIONS FROM, ADDITIONS TO, OR EXCLUSIONS FROM THE TEST SPECIFICATIONS HAVE BEEN MADE. None

It is recommended that the margin of compliance be improved to allow for manufacturing tolerances.

Tom Tidwell, Senior Technologist

APPROVED BY:

W. Waterhouse, RF Engineering Lab Manager

DATE: /MAY 1998

DATE: 7HMAY 1998

FCC PART 15, SUBPART C PARAGRAPH 15.249 PROJECT NO.: 8R00260

EQUIPMENT: VID-906 Video Transmitter

FCC ID: NIMT906

# **General Equipment Information**

#### **TRANSMITTER**

Frequency Range:

906 Fixed

Frequency of Sample Tested:

906 MHz

Tunable Bands:

N/A

Number of Channels:

N/A

Channel Spacing:

N/A

Emission Designator:

49C303F

Crystal Frequencies:

N/A

User Frequency Adjustment:

N/A

Necessary Bandwidth:

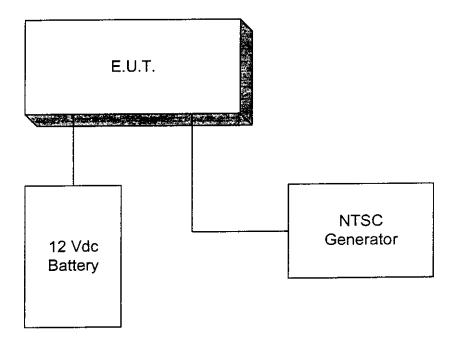
49.3 kHz

FCC PART 15, SUBPART C PARAGRAPH 15.249 PROJECT NO.: 8R00260

EQUIPMENT: VID-906 Video Transmitter

FCC ID: NIMT906

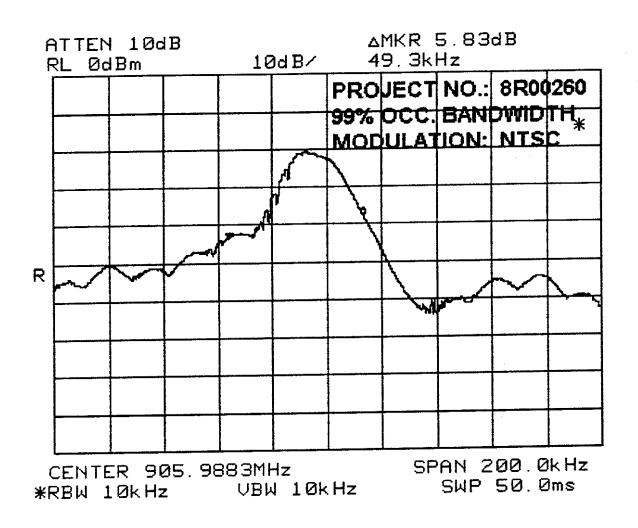
## CONFIGURATION OF EQUIPMENT UNDER TEST



FCC PART 15, SUBPART C PARAGRAPH 15.249 PROJECT NO.: 8R00260

EQUIPMENT: VID-906 Video Transmitter

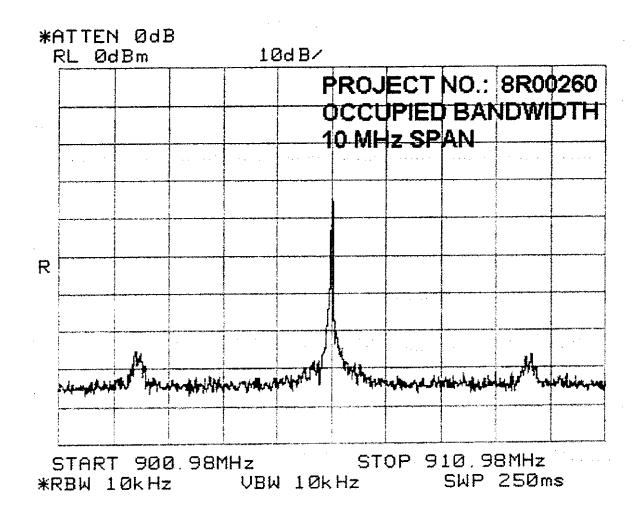
FCC ID: NIMT906



FCC PART 15, SUBPART C PARAGRAPH 15.249 PROJECT NO.: 8R00260

EQUIPMENT: VID-906 Video Transmitter

FCC ID: NIMT906

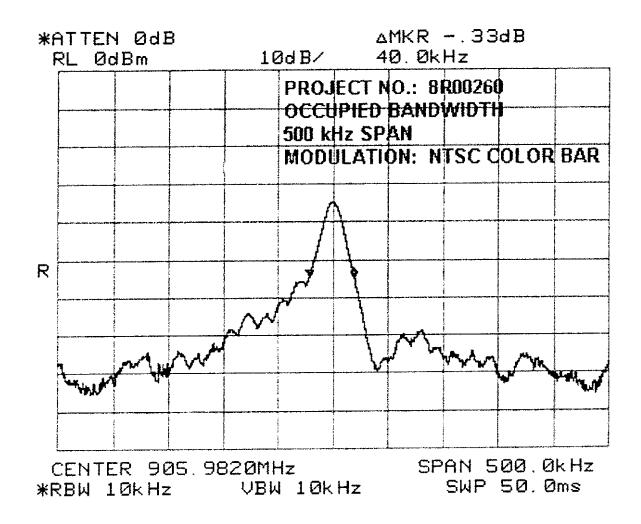


FCC PART 15, SUBPART C
PARAGRAPH 15.249

PROJECT NO.: 8R00260

EQUIPMENT: VID-906 Video Transmitter

FCC ID: NIMT906\_



FCC PART 15, SUBPART C PARAGRAPH 15.249 PROJECT NO.: 8R00260

EQUIPMENT: VID-906 Video Transmitter

FCC ID: NIMT906

NAME OF TEST: Radiated Emissions PARA. NO.: 15.249(a) & (c)

TESTED BY: Tom Tidwell DATE: April 17, 1998

TEST CONDITIONS:

Temperature and Humidity: 20°, 24°

Test Voltage: 9 Vdc

#### MINIMUM STANDARD:

Fundamental	Field Strength of	Field Strength	Field Strength	Field Strength
Frequency	Fundamental	of Fundamental	of Spurious	of Spurious
(MHz)	(mV/m @ 3m)	(dBµV/m @ 3m)	(µV/m @ 3m)	(dBµV/m @ 3m)
902 - 928	50	94	500	54

Any emissions radiated outside the specified frequency band, except for harmonics shall be attenuated by at least 50 dB below the level of the fundamental emission or meet the following limits, whichever is the lesser attenuation.

Frequency (MHz)	Field Strength (μV/m @ 3m)	Field Strength (dB @ 3m)
30 - 88	100	40.0
88 - 216	150	43.5
216 - 960	200	46.0
Above 960	500	54.0

TEST RESULTS:

Complies. The worst-case emission level is 52.5 dB  $\mu V/m$  @ 3m  $\,$ 

at 2718 MHz. This is 1.5 dB below the specification limit.

MEASUREMENT DATA: See attached table.

PARAGRAPH 15.249 PROJECT NO.: 8R00260 FCC PART 15, SUBPART C

> EQUIPMENT: VID-906 Video Transmitter FCC ID: NIMT906

DATE: April 17, 1998         TEST DISTANCE (metres): 3           E.U.T. SM: None         RECEIVER: As per table           FREQ.         ANT.         POL.         BW & Det         TABLE         RECEIVER BW: As per table           FREQ.         ANT.         POL.         BW & Det         TABLE         RECEIVER BW: As per table           FREQ.         ANT.         POL.         BW & Det         TABLE         RECEIVER BW: As per table           FREQ.         ANT.         POL.         BW & Det         TABLE         RECEIVER BW: As per table           FREQ.         ANT.         POL.         BW & Det         TABLE         AZIMUTH         SIGNAL         FACTOR         GAIN         CORR.         STEEDTH         LIMIT         MARGIN           906.0         E/D4         V         3         56.8         34.5         AS         91.3         94.0         2.7           906.0         E/D4         H         3         52.2         34.5         AS         86.7         94.0         2.7           1812.0         Hm2         V         5         60.8         30.9         45.8         50.9         74.0         25.1           1812.0         Hm2         V         5	TESTED BY: Tom Tidwell	Com Tidwe	=			DETECTO	DETECTOR: As per table	r table			
D.: VID-906         TEST RECEIVER: As per table           POL.         BW & Det         TABLE         RECEIVER BW: As per table         ANTENNA         AMP         DIST.         FIELD         LIMIT           (VM)         ***         AZIMUTH         SIGNAL         FACTOR         GAIN         CORR.         STRENGTH         LIMIT           (VM)         3         (GBuV)         (dB)***         (dB)***         (dBuV/m)         (dBuV/m)         94.0           V         5         (GBuV)         (dB)***         (dB)***         46.0         94.0           V         5         65.8         30.9         -45.8         50.9         74.0           V         5         66.8         30.9         -45.8         50.9         74.0           V         5         66.8         30.9         -45.9         74.0         74.0           V         5         66.8         30.9         -45.9         52.5         54.0           V         5         66.8         30.9         -45.9         74.0         74.0           V         5         52.0         40.2         45.2         47.0         74.0           V         5         52.4	E: April I'	7, 1998				TEST DIS	TANCE(II	tetres): 3			
RECEIVER BW: As per table           POL.         BW& Det         TABLE         RECEIVED         ANTENNA         AMP         DIST.         FIELD         LIMIT           (VII)         ***         AZIMUTH         SIGNAL         FACTOR         GAIN         CORR.         STRENGTH         LIMIT           V         3         (Degrees)         (dBuV)         (dB)***         (dB)***         (dB)***         (dB)***         (dBuVm)         (dBuVm)           V         5         (dBuV)         (dB)**         (dB)***         (dB)***         (dBuVm)         94.0           V         5         65.8         34.5         86.7         94.0           V         5         66.8         30.9         -45.8         74.0           V         5         60.8         30.9         -45.8         52.5         54.0           V         5         64.5         33.9         -45.9         74.0         74.0           V         5         64.5         33.9         -45.9         74.0         74.0           V         5         52.4         40.2         -45.2         74.0         74.0           V         5         52.8         39.8 </td <td>T. MODEL</td> <td>NO.: VID</td> <td>906-0</td> <td></td> <td></td> <td>TEST RE</td> <td>CEIVER: ,</td> <td>As per tab</td> <td>le</td> <td></td> <td></td>	T. MODEL	NO.: VID	906-0			TEST RE	CEIVER: ,	As per tab	le		
ANT.         POL.         BW & Det         TABLE         RECEIVED         ANTENNA         AMP         DIST.         FIELD         LIMIT           **         (VII)         ***         AZIMUTH         SIGNAL         FACTOR         GAIN         CORR.         STRENGTH         LIMIT           E/D4         V         3         56.8         34.5         —         91.3         94.0           E/D4         V         3         56.8         34.5         —         91.3         94.0           E/D4         H         3         52.2         34.5         —         91.3         94.0           E/D4         H         3         52.2         34.5         —         94.0         94.0           Hm2         V         5         65.8         30.9         -45.8         50.9         74.0           Hm2         V         5         60.8         30.9         -45.8         52.5         54.0           Hm2         V         5         66.8         33.9         -45.9         74.0         74.0           Hm2         V         5         66.8         30.9         -45.9         77.0         74.0           Hm2 <td< td=""><td>T. S/N: No</td><td>ne</td><td></td><td></td><td></td><td>RECEIVE</td><td>R BW: As</td><td>s per table</td><td></td><td></td><td></td></td<>	T. S/N: No	ne				RECEIVE	R BW: As	s per table			
**         AZIMUTH SIGNAL (BB)***         FACTOR (GB)***         GAIN (GB)***         CORR. (GB)***         STRENGTH (GB)***           E/D4         V         3         56.8         34.5         ————————————————————————————————————				TABLE	RECEIVED	ANTENNA	AMP	DIST.	FIELD	LIMIT	MARGIN
*         (Vift)         (Degrecs)         (dBuV)         (dB)***         (dB)**         (dB)**			*	AZIMUTH	SIGNAL	FACTOR	GAIN	CORR.	STRENGTH		
E/D4         V         3         56.8         34.5         94.0         91.3         94.0           E/D4         H         3         52.2         34.5         86.7         94.0           Hm2         V         5         60.8         30.9         -45.8         50.9         74.0           Hm2         V         5         64.5         33.9         -45.9         52.5         54.0           Hm2         V         5         64.5         33.9         -45.9         52.5         54.0           Hm2         V         5         63.4         33.9         -45.9         51.4         54.0           Hm2         V         5         40.2         -45.9         51.4         54.0           Hm2         V         5         40.2         -45.2         47.0         74.0           Hm2         V         5         52.4         40.2         -45.2         47.4         74.0           Hm2         V         5         52.8         39.8         -45.5         74.0         74.0           Hm2         V         5         48.7         45.5         74.0         74.0           Hm2         V	Hz) *	(V/H)		(Degrees)	(dBuV)	(dB)**	(dB)***		(dBuV/m)	(dBuV/m)	(dB)
E/D4         H         3         52.2         34.5         86.7         94.0           Hm2         V         5         65.8         30.9         -45.8         50.9         74.0           Hm2         H         5         60.8         30.9         -45.8         50.9         74.0           Hm2         V         5         64.5         33.9         -45.9         52.5         54.0           Hm2         V         5         63.4         33.9         -45.9         51.4         54.0           Hm2         V         5         40.2         -45.9         51.4         54.0         74.0           Hm2         V         5         40.2         -45.2         47.1         74.0         74.0           Hm2         V         5         39.8         -45.5         47.1         74.0         74.0           Hm2         V         5         39.8         -45.5         74.0         74.0           Im2         V         5         48.7         45.5         74.0         74.0           Im2         V         5         48.7         45.5         74.1         74.0           Ima         5		4 V	3		56.8	34.5			91.3	94.0	2.7
Hm2         V         5         65.8         30.9         -45.8         50.9         74.0           Hm2         H         5         60.8         30.9         -45.8         50.9         74.0           Hm2         V         5         64.5         33.9         -45.9         52.5         54.0           Hm2         II         5         63.4         33.9         -45.9         51.4         54.0           Hm2         V         5         40.2         -45.2         47.0         74.0           Hm2         V         5         40.2         -45.2         47.1         74.0           Hm2         V         5         39.8         -45.5         47.1         74.0           Hm2         V         5         48.7         42.5         45.5         74.0           IIm2         V         5         48.7         42.6         -45.5         74.0           IIm2         V         5         48.7         42.6         -45.7         45.6         74.0           IIm2         V         5         44.2         45.6         74.0         74.0			3		52.2	34.5			86.7	94.0	7.3
Hm2         H         5         60.8         30.9         -45.8         45.9         74.0           Hm2         V         5         64.5         33.9         -45.9         52.5         54.0           Hm2         II         5         63.4         33.9         -45.9         51.4         54.0           Hm2         V         5         40.2         -45.2         47.0         74.0           Hm2         V         5         35.4         40.2         -45.2         47.4         74.0           Hm2         V         5         35.8         39.8         -45.5         47.1         74.0           Hm2         W         5         48.7         42.6         45.5         74.0           IIm2         V         5         48.7         42.6         -45.7         45.6         74.0           IIm2         V         5         48.7         42.6         -45.7         41.1         74.0		Z V	5		65.8	30.9	-45.8		50.9	74.0	23.1
Hm2         V         5         64.5         33.9         -45.9         52.5         54.0           Hm2         II         5         63.4         33.9         -45.9         51.4         54.0           Hm2         V         5         63.4         33.9         -45.2         47.0         74.0           Hm2         V         5         52.4         40.2         -45.2         47.4         74.0           Hm2         V         5         52.8         39.8         -45.5         47.1         74.0           Hm2         V         5         48.7         42.6         -45.7         45.6         74.0           IIm2         V         5         48.7         42.6         -45.7         41.1         74.0           IIm2         W         5         44.2         42.6         -45.7         41.1         74.0			5		8.09	30.9	-45.8		45.9	74.0	28.1
Hm2         II         5         63.4         33.9         -45.9         51.4         54.0         74.0           Hm2         V         5         52.0         40.2         -45.2         47.0         74.0           Hm2         W         5         52.4         40.2         -45.2         47.4         74.0           Hm2         V         5         52.8         39.8         -45.5         47.1         74.0           Hm2         V         5         48.7         42.6         -45.5         74.0           Hm2         V         5         48.7         42.6         -45.7         45.6         74.0           Hm2         W         5         44.2         42.6         -45.7         41.1         74.0			5		64.5	33.9	-45.9		52.5	54.0	1.5
Hm2         V         5         40.2         45.2         47.0         74.0           Hm2         H         5         52.4         40.2         -45.2         47.4         74.0           Hm2         V         5         52.8         39.8         -45.5         47.1         74.0           Hm2         H         5         51.2         39.8         -45.5         74.0         74.0           Ilm2         V         5         48.7         42.6         -45.7         45.6         74.0           Ilm2         H         5         44.2         42.6         -45.7         41.1         74.0	-		5		63.4	33.9	-45.9		51.4	54.0	2.6
Hm2         H         5         52.4         40.2         -45.2         47.4         74.0           Hm2         V         5         52.8         39.8         -45.5         47.1         74.0           Hm2         H         5         51.2         39.8         -45.5         45.5         74.0           IIm2         V         5         48.7         42.6         -45.7         45.6         74.0           IIm2         H         5         44.2         42.6         -45.7         41.1         74.0		7 N	5		52.0	40.2	-45.2		47.0	74.0	27.0
Hm2         V         5         52.8         39.8         -45.5         47.1         74.0           Hm2         H         5         51.2         39.8         -45.5         45.5         74.0           Ilm2         V         5         48.7         42.6         -45.7         45.6         74.0           Ilm2         H         5         44.2         42.6         -45.7         41.1         74.0			5		52.4	40.2	-45.2		47.4	74.0	26.6
Hm2         H         5         51.2         39.8         -45.5         45.5         74.0           Ilm2         V         5         48.7         42.6         -45.7         45.6         74.0           Ilm2         H         5         44.2         42.6         -45.7         41.1         74.0		12 V	5		52.8	39.8	-45.5		47.1	74.0	26.9
IIm2         V         5         48.7         42.6         -45.7         45.6         74.0           IIm2         II         5         44.2         42.6         -45.7         41.1         74.0			5		51.2	39.8	-45.5		45.5	74.0	28.5
Hm2 H 5 44.2 42.6 -45.7 41.1 74.0		12 V	5		48.7	42.6	-45.7		45.6	74.0	28.4
			5		44.2	42.6	-45.7		41.1	74.0	32.9

NOTES:

B/C = Biconical, B/L = Biconilog, L/P = Log-Periodic, H = Horn, D/P = Dipole

<sup>\*</sup> Re-Measured using dipole antenna. () Denotes failing emission

<sup>\*\* (1) 120</sup> kHz, Q-Peak, (2) 10 kHz, Peak, (3) 100 kHz RBW, 300 kHz VBW, (4) 300 kHz RBW, 1 MHz VBW, (5) 1 MHz RBW, 1 MHz VBW, (6) 1 MHz RBW, 10 Hz VBW, (7) 3 MHz RBW, 3 MHz VBW

FCC PART 15, SUBPART C PARAGRAPH 15.249 PROJECT NO.: 8R00260

EQUIPMENT: VID-906 Video Transmitter

FCC ID: NIMT906

NAME OF TEST: Powerline Conducted Emissions

PARA. NO.: 15.207(a)

TESTED BY:

DATE:

TEST CONDITIONS:

Standard Temperature and Humidity

Standard Test Voltage

MINIMUM STANDARD:

The R.F. that is conducted back onto the Appower line on any

frequency within the band 0.45 to shall not exceed

250μV (48 dBμV) across 50 ohr.

TEST RESULTS:

Complies/Does Not Comply. See attached graphs.

MEASUREMENT DATA:

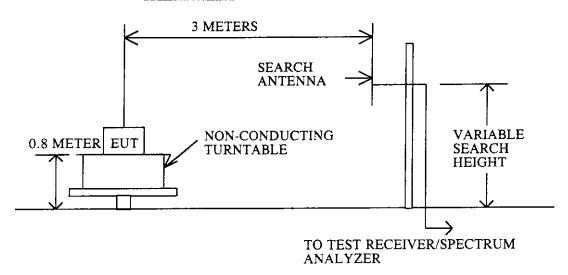
See attached are as

FCC PART 15, SUBPART C PARAGRAPH 15.249 PROJECT NO.: 8R00260

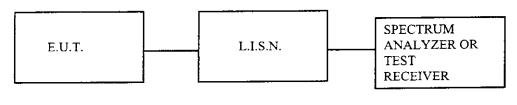
EQUIPMENT: VID-906 Video Transmitter

FCC ID: NIMT906

#### TEST SITE FOR RADIATED EMISSIONS



#### **CONDUCTED EMISSIONS**



SHIELDED ROOM

FCC PART 15, SUBPART C PARAGRAPH 15.249 PROJECT NO.: 8R00260

EQUIPMENT: VID-906 Video Transmitter

FCC ID: NIMT906

#### **TEST EQUIPMENT LIST**

## **Equipment List - Radiated Emissions**

CAL Cycle	Equipment	Manufacturer	Model #	Serial/Asset #	Last Cal.	Next Cal.
1 Year	Dipole Antenna Set	EMCO	3121C	1029	Oct. 28/97	Oct. 28/98
1Year	Receiver	Rohde & Schwarz	ESVP	892661/014	Mar. 31/98	Mar. 31/99
i Year	Spectrum Analyzer	Hewlett-Packard	8565E	FA000981	May 9/97	May 9/98
	Plotter	Hewlett Packard	7470A	2210A08836	N/A	N/A
1 Year	Biconical (1) Antenna	EMCO	3109	9204-2708	July 11/97	July 11/98
2 Year	Horn Antenna	EMCO	3115	4336	Oct. 30/97	Oct. 30/99
l Year	Log Periodic Antenna	EMCO	LPA-25	1141	July 10/97	July 10/98
l Year	Low Noise Amplifier	Avantek	AWT- 8035	1005	Oct. 24/97	Oct. 24/98

Note:

N/A = Not Applicable NCR = No Cal Required