



KTL Ottawa

Safety - EMI - Telecom - ISO Guide 25

ENGINEERING TEST REPORT

**ON:
THE ELECTRA ENTERPRISES
"TC900 VIDEO TRANSMITTER"**

FCC ID: NIMTC900

**IN ACCORDANCE WITH:
FCC PART 15, SUBPART C, 15.249
FOR 900 MHz TRANSMITTERS**

PROJECT NO.: 8R00451

TESTED FOR:

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

TESTED BY:

KTL OTTAWA INC.
3325 RIVER ROAD, R.R. 5
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NVLAP LAB CODE: 100351-0

JUNE 1998

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This report applies only to the items tested.

Table Of Contents

Section 1. Summary of Test Results

- General
- Summary of Test Data

Section 2. General Equipment Specification

- Specifications
- Modifications
- Theory of Operation
- System Diagram

Section 3. Powerline Conducted Emissions

- Test Results
- Graphs
- Photographs

Section 4. Radiated Emissions

- Test Results
- Table
- Photographs

Section 5. Test Equipment List

Annex A. Test Diagrams

- Conducted Emissions
- Radiated Prescan
- Test Site for Radiated Emissions

EQUIPMENT: TC900 Video Transmitter

Section 1. Summary Of Test Results

Manufacturer: Electra Enterprises

Model No.: TC900

Serial No.: None

General: **All measurements are traceable to national standards.**

These tests were conducted on a sample of the equipment for the purpose of demonstrating compliance with FCC Part 15.249. All tests were conducted using measurement procedure ANSI C63.4-1992. Radiated Emissions were made on an open area test site.

New Submission

Production Unit

Class II Permissive Change

Pre-Production Unit

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.
See " Summary of Test Data".



NVLAP LAB CODE: 100351-0

TESTED BY: _____ DATE: _____
Tom Tidwell, Senior Technologist

APPROVED BY: _____ DATE: _____
W. Waterhouse, RF Engineering Lab Manager

EQUIPMENT: TC900 Video Transmitter

Summary Of Test Data

NAME OF TEST	PARA. NO.	RESULT
Conducted Emissions	15.207	Complies
Radiated Emissions	15.249	Complies

Footnotes For N/A's:

Test Conditions: Temperature: 27 °C
 Humidity: 25 %

EQUIPMENT: TC900 Video Transmitter

Section 2. General Equipment Specification

Equipment:	Video Transmitter				
Model Number:	TC900				
Serial Number:	None				
Frequency Range:	916.5 MHz (Fixed)				
Operating Frequency(ies) of Sample:	Not Applicable				
Tunable Bands:	Not Applicable				
Number of Channels:	1				
Channel Spacing:	Not Applicable				
Emission Designator:	108KC3F				
Crystal Frequencies:	Not Applicable				
User Frequency Adjustment:	Not Applicable				
Integral Antenna	<table><tr><td>Yes</td><td>No</td></tr><tr><td><input type="checkbox"/></td><td><input checked="" type="checkbox"/></td></tr></table>	Yes	No	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Yes	No				
<input type="checkbox"/>	<input checked="" type="checkbox"/>				

The antenna connector is a standard TNC connector. The manufacturer will use permanent thread lock to install the antenna. The metal enclosure is secured with tamper-proof screws.

EQUIPMENT: TC900 Video Transmitter

Description of Modification for Class II Permissive Change

NOT APPLICABLE

EQUIPMENT: TC900 Video Transmitter

Modifications Made During Testing

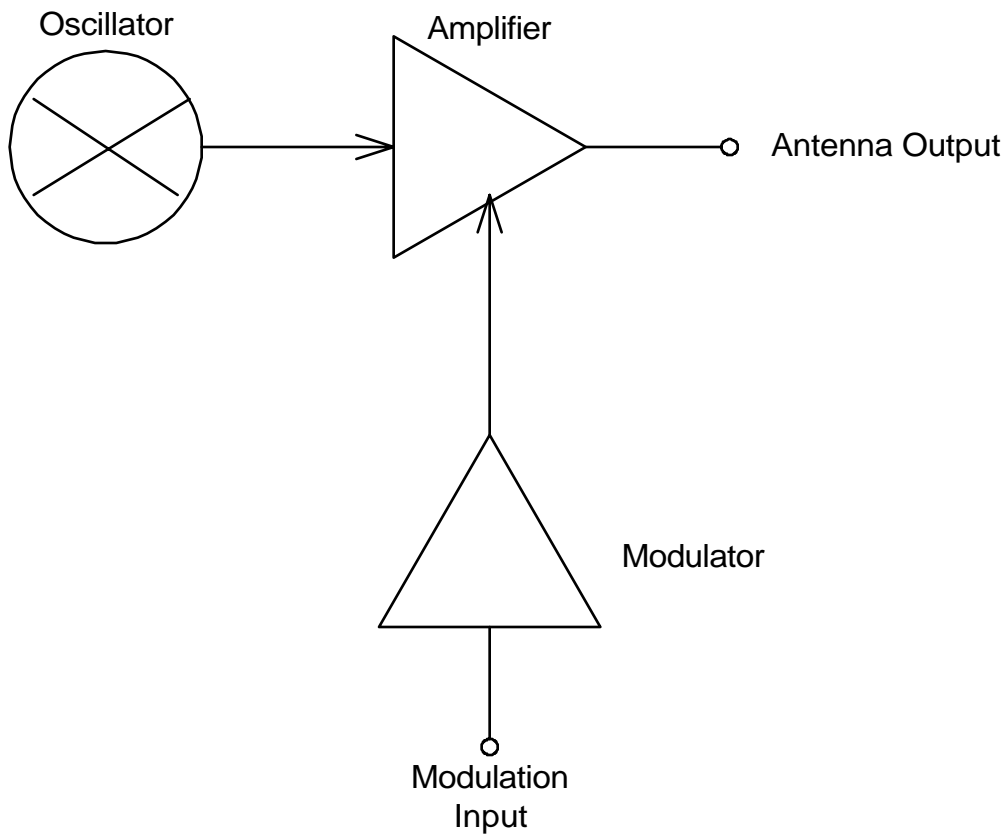
NOT APPLICABLE

EQUIPMENT: TC900 Video Transmitter

Theory of Operation

The E.U.T. is a video only transmitter operating at 916.5 MHz. The transmitter can be used in any application to wirelessly transmit analogue video information. Modulation input would typically be a 1 V pk/pk NTSC video signal from a camera.

System Diagram



EQUIPMENT: TC900 Video Transmitter

Section 3. Powerline Conducted Emissions

NAME OF TEST: Powerline Conducted Emissions	PARA. NO.: 15.207
TESTED BY: Tom Tidwell	DATE: June 24, 1998

Test Conditions: Standard Temperature and Humidity
Standard Test Voltage

Minimum Standard:

Frequency (MHz)	Maximum Powerline Conducted RF Voltage	
	(μ V)	(dB μ V)
0.45 - 30.0	250	48

Test Results: Complies. See attached graph(s).

Measurement Data: See attached graph(s).

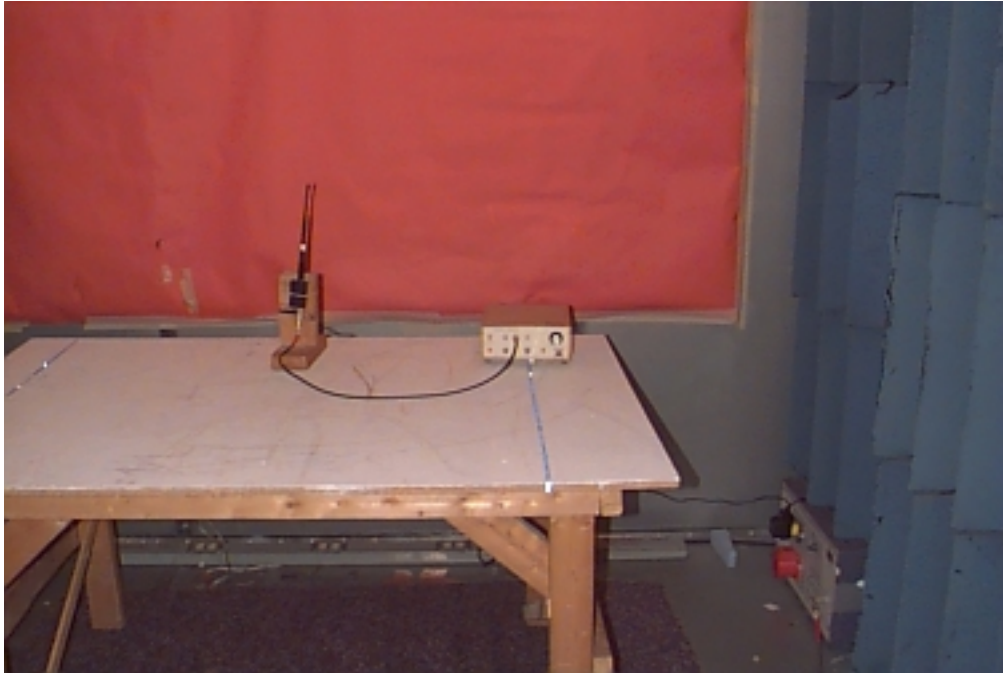
Method of Measurement: (Procedure ANSI C63.4-1992)

Measurements were made using a spectrum analyzer with 10 kHz RBW, Peak Detector. Any emissions that are close to the limit are measured using a test receiver with 10 kHz bandwidth, CISPR Quasi-Peak Detector.

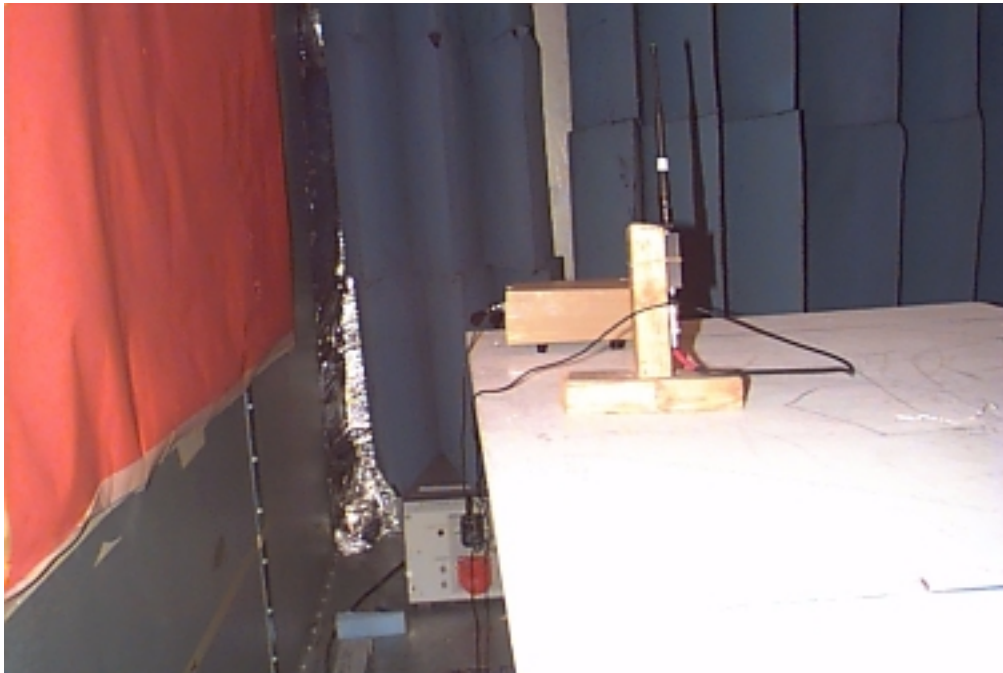
EQUIPMENT: TC900 Video Transmitter

Conducted Photographs (Worst Case Configuration)

Front View



Side View



EQUIPMENT: TC900 Video Transmitter

Section 4. Radiated Emissions

NAME OF TEST: Radiated Emissions	PARA. NO.: 15.249
TESTED BY: Tom Tidwell	DATE: June 19, 1998

Test Conditions: Outdoor Range
 Standard Test Voltage

Minimum Standard: Para no. 15.249

(a) The field strengths shall not exceed the following:

Fundamental (MHz)	Field Strength (mV/m)	Field Strength (dBµV)	Harmonic (mV/m)	Harmonic (dBµV)
902-928	50	94	0.5	54

(b) Field strength limits are specified at a distance of 3 metres.

(c) Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or to the general radiated limits of 15.209 whichever is the less attenuation.

(d) The emission limits shown above are based on measurement instrumentation employing a CISPR quasi-peak detector below 1000 MHz and an averaging detector above 1000 MHz. However, the peak field strength of any emission shall not exceed the average limit by more than 20 dB.

Test Results: Complies. The worst-case emission level is 93.2 dBµV/m @ 3m at 916.42 MHz. This is 0.8 dB below the specification limit.

Measurement Data: See attached table.

Maximizing Emission Levels:

For hand held equipment or equipment that may be mounted in a variety of positions, the E.U.T. was tested on three orthogonal axis to determine orientation of worst-case emission levels.

The spectrum was searched up to the 10th harmonic of the fundamental frequency.

EQUIPMENT: TC900 Video Transmitter

Radiated Photographs (Worst Case Configuration)

Front View



EQUIPMENT: TC900 Video Transmitter

Section 5. Test Equipment List

Equipment List - Conducted Emissions - Shielded Room #1

CAL Cycle	Equipment	Manufacturer	Model #	Serial/Asset #	Last Cal.	Next Cal.
1Year	LISN	Rohde & Schwarz	ESH2-Z5	890485/017	July 25/97	July 25/98
1Year	LISN(peripheral)	Tegam	95300-50	T-109014/15	July 25/97	July 25/98
1Year	Spectrum analyzer	Hewlett-Packard	8566B	2311A02238	Sept. 30/97	Sept. 30/98
1Year	Spectrum analyzer display	Hewlett-Packard	8566B	2314A04759	Sept. 30/97	Sept. 30/98
1Year	Quasi-peak adapter	Hewlett-Packard	85650A	2043A00302	Sept. 30/97	Sept. 30/98
1 Year	Transient Limiter	Hewlett-Packard	1194 7A	3107A01766	July 23/97	July 23/98

Equipment List - Radiated Emissions

CAL Cycle	Equipment	Manufacturer	Model #	Serial/Asset #	Last Cal.	Next Cal.
	Biconilog Antenna	EMCO	3143	9404-1039	NCR	NCR
1Year	Dipole Antenna Set	EMCO	3121C	1029	Oct. 28/97	Oct. 28/98
1Year	Spectrum Analyzer	Hewlett-Packard	8566B	2311A02238	Sept. 30/97	Sept. 30/98
1Year	Spectrum Analyzer Display	Hewlett-Packard	8566B	2314A04759	Sept. 30/97	Sept. 30/98
2 Year	Horn Antenna	EMCO	3115	4336	Oct. 30/97	Oct. 30/99
1 Year	Log Periodic Antenna	EMCO	LPA-25	1141	July 10/97	July 10/98
1 Year	Low Noise Amplifier	Avantek	AWT-8035	1005	Oct. 24/97	Oct. 24/98
1 Year	Low Noise Amplifier	DBS Microwave	DWT-13035	9623	Oct. 24/97	Oct. 24/98

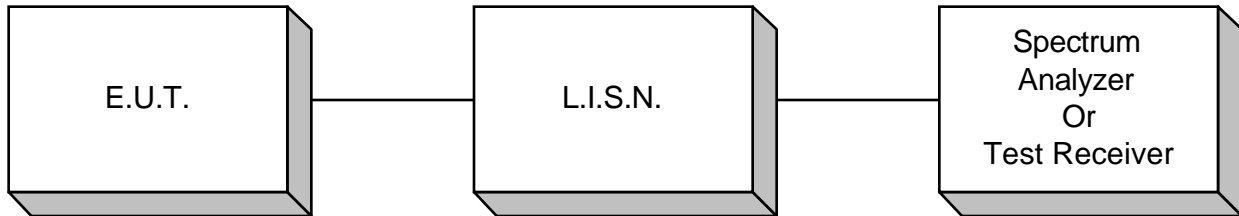
Note: N/A = Not Applicable
 NCR = No Cal Required

EQUIPMENT: TC900 Video Transmitter

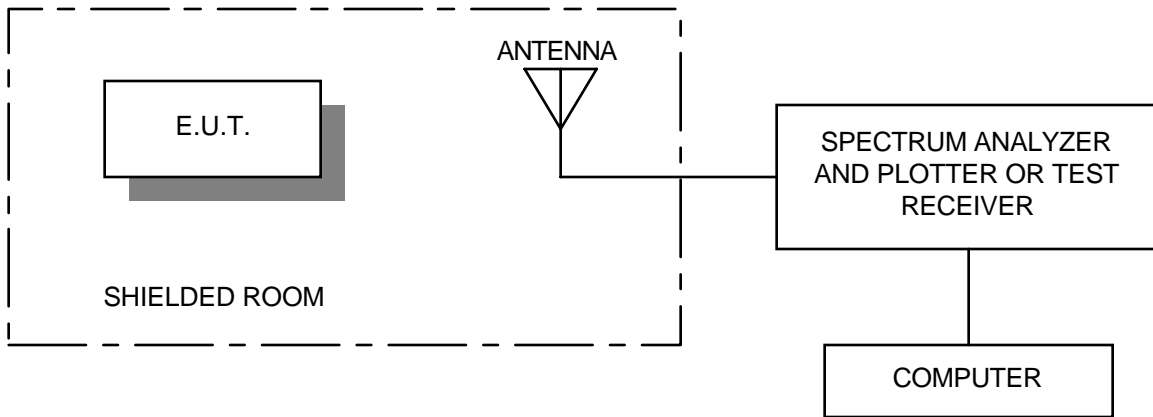
ANNEX A
TEST DIAGRAMS

EQUIPMENT: TC900 Video Transmitter

Conducted Emissions



Radiated Prescan



EQUIPMENT: TC900 Video Transmitter

Test Site For Radiated Emissions

