

KTL Test Report: 0R02509

Applicant: Instantel Inc.
362 Terry Fox Drive
Kanata, Ontario
K2K 2P5

**Equipment Under Test:
(E.U.T.)** Dual LAR

FCC ID: ISEDLAR

In Accordance With: **FCC Part 15, Subpart B**
Radio Receivers

Tested By: KTL Ottawa Inc.
3325 River Road, R.R. 5
Ottawa, Ontario K1V 1H2

Authorized By:

R. Grant, Wireless Group Manager

Date:

Total Number of Pages: 10

EQUIPMENT: Dual LAR
FCC ID: ISEDLAR

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EQUIPMENT: Dual LAR
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Section 1. Summary of Test Results

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, Subpart B. Measurement procedure ANSI C63.4-1992 was used for all tests. Radiated Emissions were measured on an open area test site.



New Submission



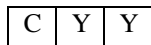
Production Unit



Class II Permissive Change



Pre-Production Unit



Equipment Code

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: _____
Kevin Carr, Technologist

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This report applies only to the items tested.

EQUIPMENT: Dual LAR
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Summary Of Test Data

| Name Of Test | Para. No. | Results |
|-------------------------------|------------------|----------------|
| Antenna Conducted Emissions | 15.111 | Not Applicable |
| Radiated Emissions | 15.109 | Complies |
| Powerline Conducted Emissions | 15.107 | Not Applicable |

Footnotes For N/A's: This equipment does not interface the public utility network.

Test Conditions:

Indoor Temperature: 24 °C
 Humidity: 30 %

Outdoor Temperature: 24 °C
 Humidity: 30 %

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Section 2. General Equipment Specification

| | |
|--|------------------------------------|
| Manufacturer: | Instantel |
| Model No.: | Dual LAR |
| Serial No.: | None |
| Date Received In Laboratory: | May 17, 2000 |
| KTL Identification No.: | Item #6, 11 & 12 |
| Frequency Range: | Rx 217.003, Lo 262 MHz |
| Number of Channels: | 1 |
| Operating Frequency(ies) of Sample: | 262.0 MHz |
| Crystal Frequency(ies): | 12.8 MHz, 45.545 MHz, 8 MHz, 5 MHz |
| Primary Power Requirement: | 10-30 Vdc |
| Bandwidth and Emission Designator: | Not Applicable |
| Intermediate Frequency(ies): | 45 MHz, 455 kHz |

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Section 3. Radiated Emissions

Para. No.: 15.109(a)

| | |
|--------------------------------------|-----------------------------------|
| Test Performed By: Kevin Carr | Date of Test: May 23, 2000 |
|--------------------------------------|-----------------------------------|

Minimum Standard:

| Frequency(MHz) | Field Strength (dB μ V/m @ 3m) |
|----------------|---------------------------------------|
| 30 - 88 | 40.0 |
| 88 - 216 | 43.5 |
| 216 - 960 | 46.0 |
| Above 960 | 54.0 |

Test Results: Complies. The worst-case emission level is 44.0 dB μ V/m @ 3m at 262 MHz. This is 2.0dB below the specification limit.

Measurement Data: See attached table.

For super-regenerative receivers the receiver is cohered using a signal generator and dipole antenna.

Handheld equipment and equipment not designed to be mounted in any fixed orientation, the E.U.T. is tested in three orthogonal axis to obtain worst case results.

*EQUIPMENT: Dual LAR**FCC ID: ISEDLAR***Test Data - Radiated Emissions**

| Test Distance (meters) : 3 | | Range: A Tower | | Receiver: ESVP | | RBW(kHz): 120 | | Detector: Q-Peak | |
|-------------------------------|-----------|-------------------|----------------------------|--------------------------|-------------------------|------------------------|-------------------------------|---------------------|----------------|
| Freq. (MHz) | Ant. * | Pol. (V/H) | RCVD Signal (dBμV/m) | Ant. Factor (dB)** | Amp. Gain (dB)*** | Dist. Corr. (dB) | Field Strength (dBμV/m) | Limit (dBμV/m) | Margin (dB) |
| 190.0 | B/C1 | V | 22.1 | 15.4 | | | 37.5 | 43.5 | 6.0 |
| 190.0 | B/C1 | H | 20.8 | 15.4 | | | 36.2 | 43.5 | 7.3 |
| 219.9 | B/C1 | V | 10.6 | 18.4 | | | 29.0 | 46.0 | 17.0 |
| 219.9 | B/C1 | H | 18.0 | 18.3 | | | 36.3 | 46.0 | 9.7 |
| 220.0 | B/C1 | V | 20.8 | 18.4 | | | 39.2 | 46.0 | 6.8 |
| 220.0 | B/C1 | H | 23.6 | 18.4 | | | 42.0 | 46.0 | 4.0 |
| 262.0 | B/C1 | V | 18.3 | 20.5 | | | 38.8 | 46.0 | 7.2 |
| 262.0 | B/C1 | H | 24.4 | 20.5 | | | 44.9 | 46.0 | 1.1* |
| 204.0 | B/C1 | V | 17.0 | 16.9 | | | 33.9 | 43.5 | 9.6 |
| 204.0 | B/C1 | H | 18.2 | 16.9 | | | 35.1 | 43.5 | 8.4 |
| 135.0 | B/C1 | V | 15.0 | 14.4 | | | 29.4 | 43.5 | 14.1 |
| 135.0 | B/C1 | H | 17.8 | 14.4 | | | 32.2 | 43.5 | 11.3 |
| 140.0 | B/C1 | V | 21.6 | 14.7 | | | 36.3 | 43.5 | 7.2 |
| 140.0 | B/C1 | H | 17.2 | 14.7 | | | 31.9 | 43.5 | 11.6 |
| 138.0 | B/C1 | V | 15.4 | 14.5 | | | 29.9 | 43.5 | 13.6 |
| 138.0 | B/C1 | H | 13.6 | 14.5 | | | 28.1 | 43.5 | 15.4 |
| 136.0 | B/C1 | V | 18.1 | 14.4 | | | 32.5 | 43.5 | 11.0 |
| 136.0 | B/C1 | H | 11.7 | 14.4 | | | 26.1 | 43.5 | 17.4 |
| 524.0 | L/P | V | 6.7 | 22.9 | | | 29.6 | 46.0 | 16.4 |
| 524.0 | L/P | H | 7.7 | 22.9 | | | 30.6 | 46.0 | 15.4 |
| 786.0 | L/P | V | 8.6 | 27.6 | | | 36.2 | 46.0 | 9.8 |
| 786.0 | L/P | H | 10.2 | 27.6 | | | 37.8 | 46.0 | 8.2 |
| 1048.0 | Hrn2 | V | 16.3 | 27.8 | | | 44.1 | 54.0 | 9.9 |
| 1048.0 | Hrn2 | H | 10.0 | 27.8 | | | 37.8 | 54.0 | 16.2 |
| 1310.0 | Hrn2 | V | 16.5 | 29.4 | | | 45.9 | 54.0 | 8.1 |
| 1310.0 | Hrn2 | H | 13.2 | 29.4 | | | 42.6 | 54.0 | 11.4 |
| 262.0 | E/D3 | V | 20.3 | 20.6 | | | 40.9 | 46.0 | 5.1 |
| 262.0 | E/D3 | H | 23.4 | 20.6 | | | 44.0 | 46.0 | 2.0 |

Notes:

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

* Re-Measured Using Dipole Antenna. () Denotes Failing Emission Level.

- (1) 120 kHz, Q-Peak,
- (2) 10 kHz, Peak,
- (3) 100 kHz RGW, 300 kHz VBW, Peak,
- (4) 300 kHz RBW, 1 MHz VBW, Peak,
- (5) 1 MHz RBW, 3 MHz VBW, Peak,
- (6) 1 MHz RBW, 10 Hz VBW, Peak

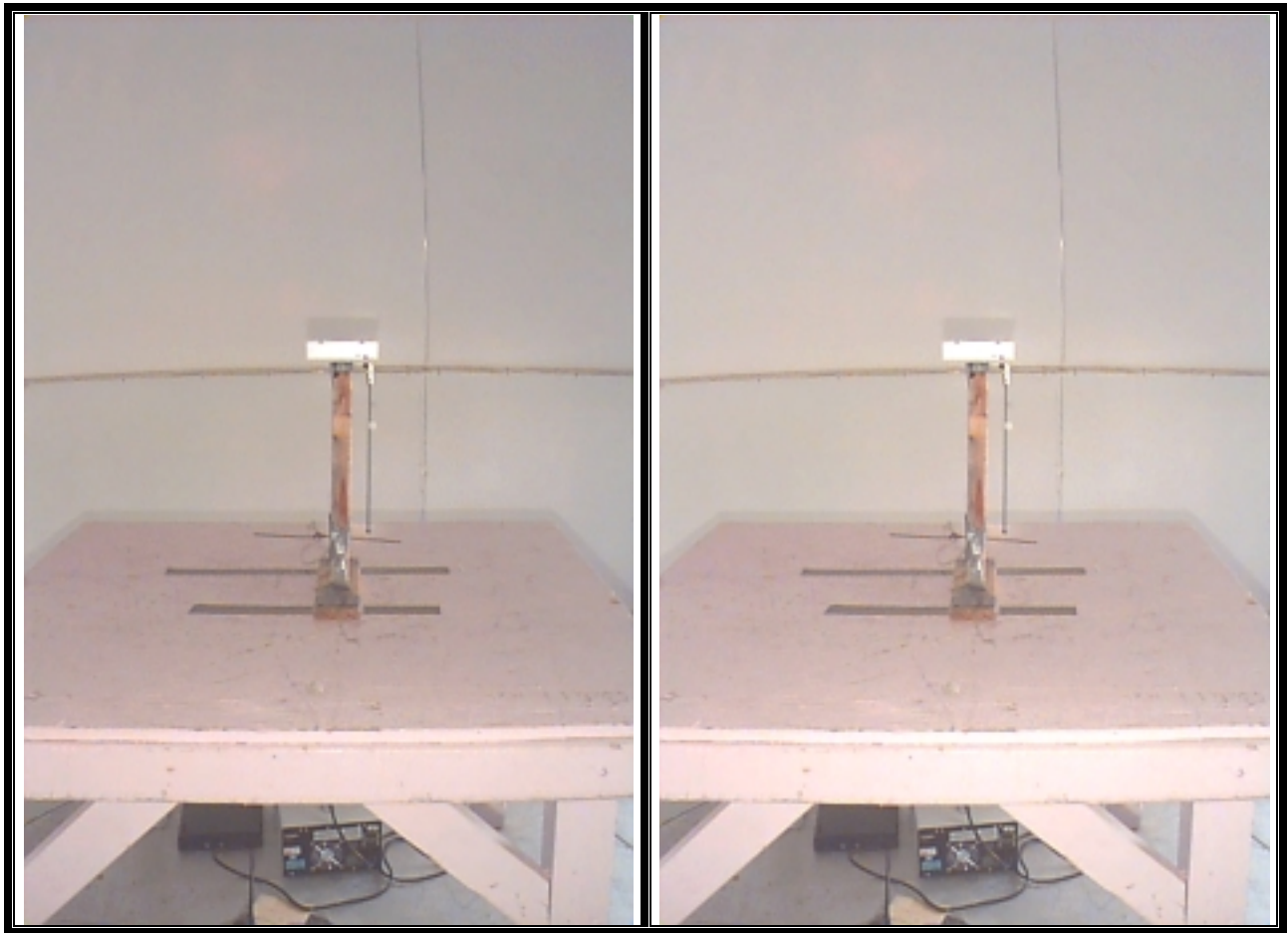
N.D. = Not Detected

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Radiated Photographs

Front View

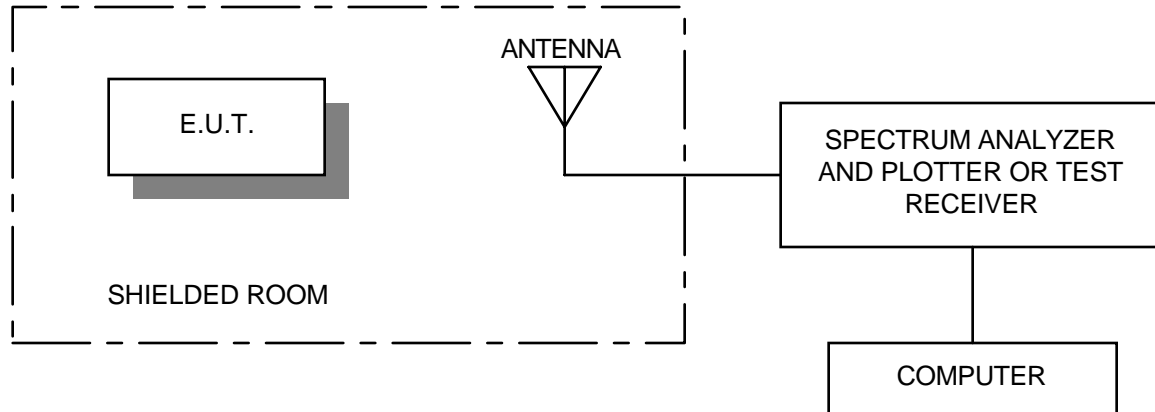
Rear View



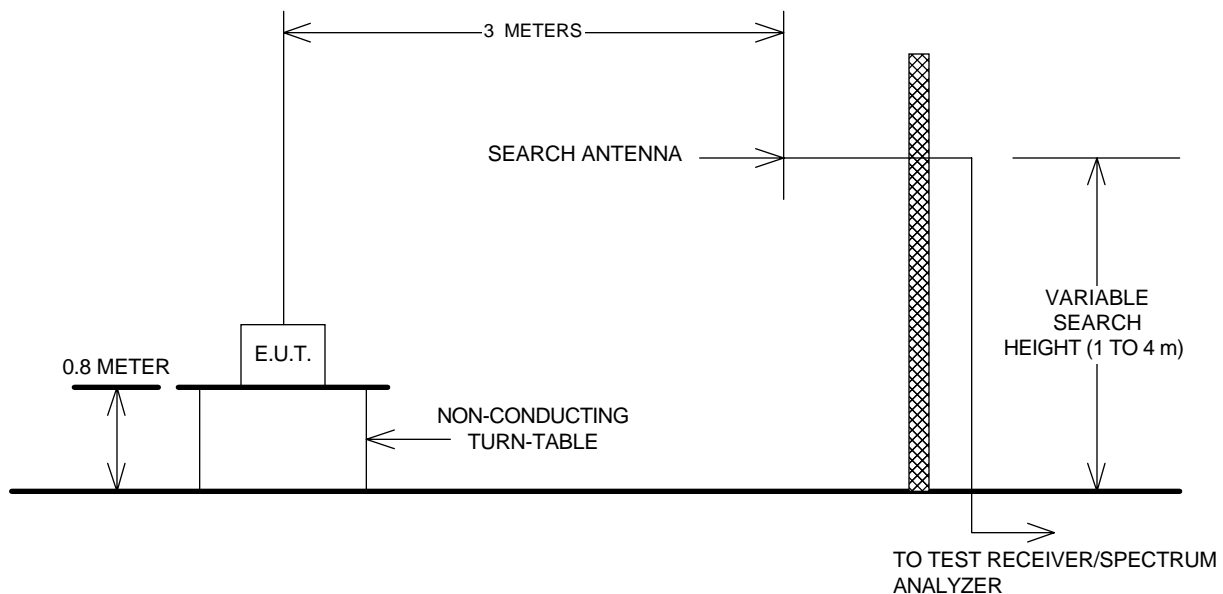
EQUIPMENT: Dual LAR
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Section 4. Block Diagrams

Radiated Prescan



Outdoor Test Site For Radiated Emissions



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

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Section 5. Test Equipment List

| CAL CYCLE | EQUIPMENT | MANUFACTURER | MODEL | SERIAL | LAST CAL. | NEXT CAL. |
|----------------------|-----------------------|---------------------|--------------|---------------|------------------|------------------|
| 1 Year | Spectrum Analyzer | Hewlett Packard | 8564E | 3846A01407 | May 31/99 | May 31/00 |
| 1 Year | Receiver | Rohde & Schwarz | ESVP | 892661/014 | April 5/00 | April 5/01 |
| 1 Year | Horn Antenna | EMCO #2 | 3115 | 4336 | Nov. 11/99 | Nov. 11/00 |
| 1 Year | Dipole Antenna Set | EMCO #2 | 3121C | FA001349 | June 5/00 | June 5/01 |
| 1 Year | Biconical (1) Antenna | EMCO | 3109 | 9204-2708 | Aug. 4/99 | Aug. 4/00 |
| 1 Year | DC Power Supply | G.W. | | FA001337 | April 20/00 | April 20/01 |

NA: Not Applicable
NCR: No Cal Required
COU: CAL On Use