

KTL Test Report: OR02637.1

Applicant: VTECH Engineering Canada Ltd.
200-7671 Alderbridge Way
Richmond, BC
V6X 1Z9

**Equipment Under Test:
(E.U.T.)** SPP-ID970 Cordless Telephone

FCC ID: EW780-4258-05

In Accordance With: **FCC Part 15, Subpart C, 15.249**
For 900 MHz Cordless Telephones

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:

EQUIPMENT: SPP-ID970 Cordless Telephone
FCC ID: EW780-4258-05

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EQUIPMENT: SPP-ID970 Cordless Telephone
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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 15.249. 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

| | | |
|---|---|---|
| E | T | S |
|---|---|---|

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: _____

Glen Westwell, Technologist

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This report applies only to the items tested.

EQUIPMENT: SPP-ID970 Cordless Telephone
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Summary Of Test Data

Base

| Name Of Test | Para. No. | Result |
|---------------------|------------------|---------------|
| Conducted Emissions | 15.207 | Complies |
| Radiated Emissions | 15.249 | Complies |

Handset

| Name Of Test | Para. No. | Result |
|---------------------|------------------|---------------|
| Radiated Emissions | 15.249 | Complies |

Footnotes For N/A's:

Test Conditions:

Indoor Temperature: 25 °C
 Humidity: 43 %

Outdoor Temperature: 20 °C
 Humidity: 43 %

EQUIPMENT: SPP-ID970 Cordless Telephone
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Section 2B. General Equipment Specification

Handset

Frequency Range: 920.25 MHz – 924.60 MHz
Operating Frequency(ies) of Sample: 920.25 MHz – 924.60 MHz
Tunable Bands: 1
Number of Channels: 30 Channels
Channel Spacing: 150 kHz
Emission Designator: 377K0F1D
User Frequency Adjustment: None

Integral Antenna

Yes

No

Note: If antenna is not integral to transmitter explain method of attachment and type of unique connector:

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Section 3. Powerline Conducted Emissions – Base Station

Para. No.: 15.207

| | |
|---|------------------------------------|
| Test Performed By: Glen Westwell | Date of Test: June 13, 2000 |
|---|------------------------------------|

Minimum Standard:

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

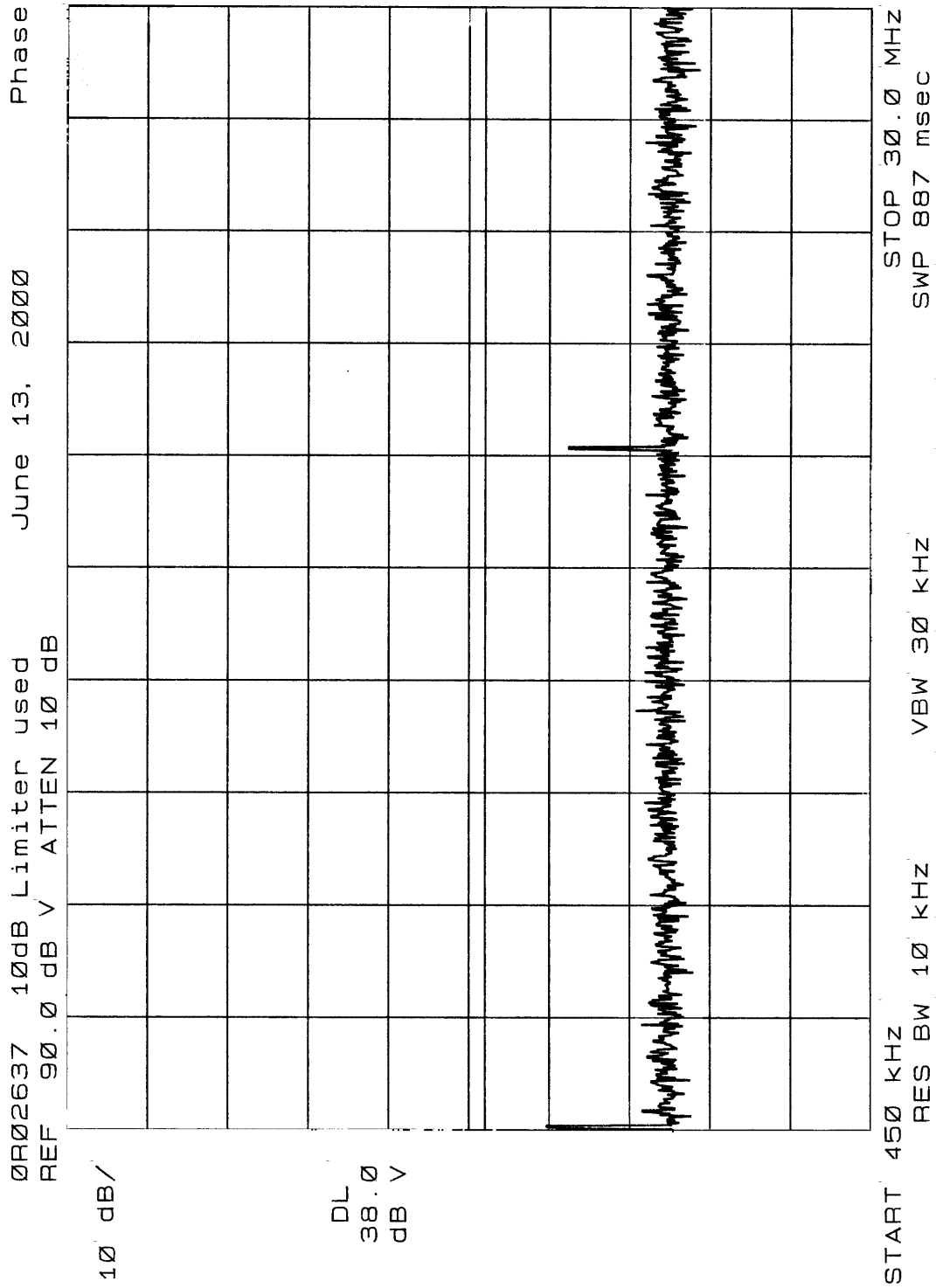
Test Results: Complies. See attached graph(s).

Measurement Data: See attached graph(s).

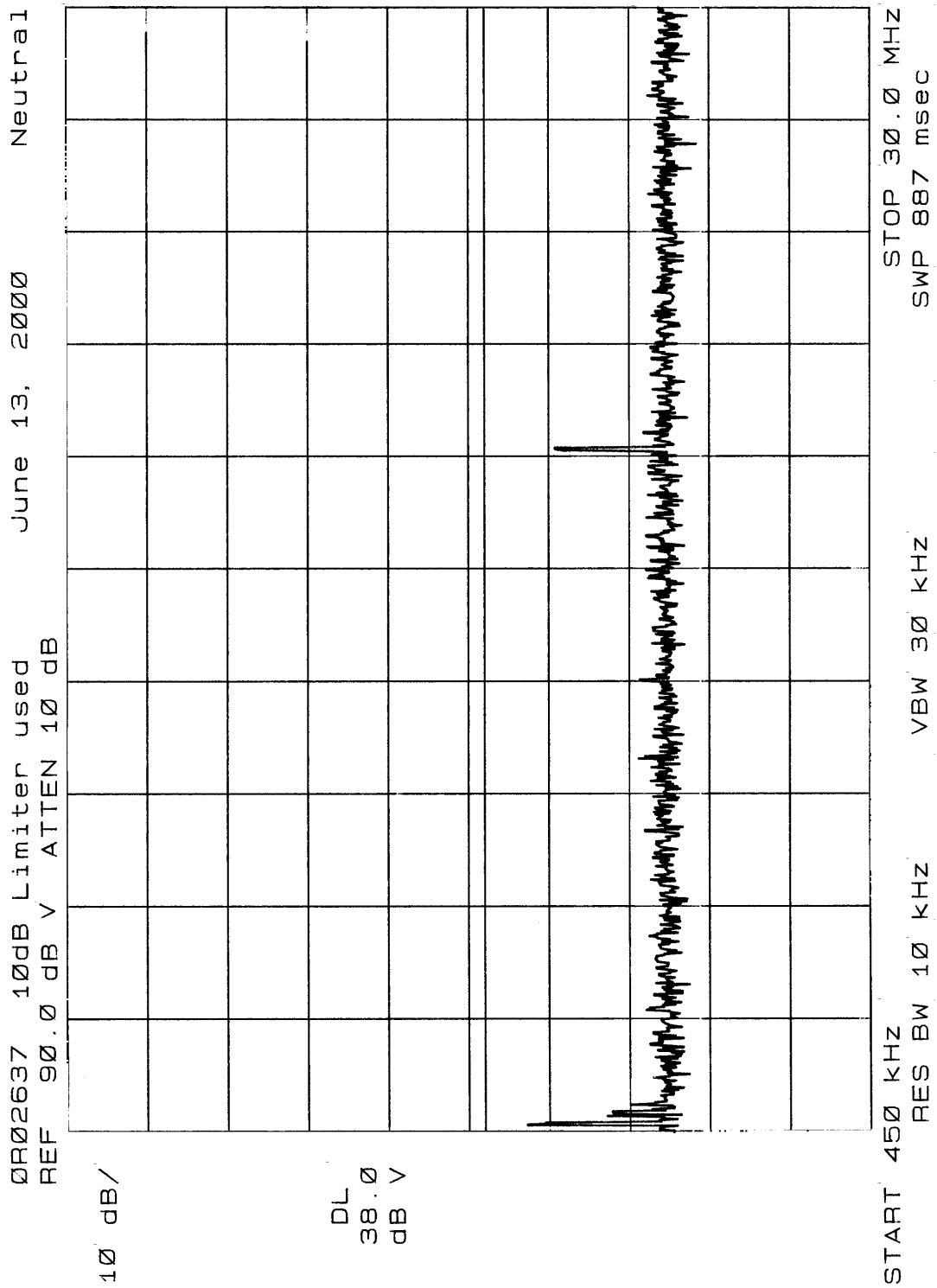
Method of Measurement: (Procedure ANSI C63.4-1992)

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.

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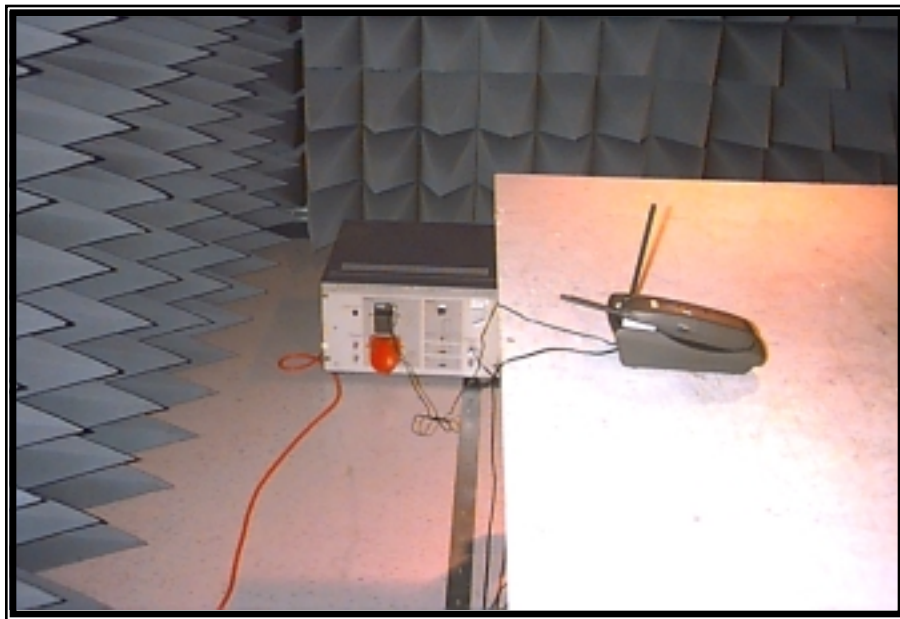
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EQUIPMENT: SPP-ID970 Cordless Telephone
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Conducted Photographs - Base (Worst Case Configuration)

Side View



Front View



EQUIPMENT: SPP-ID970 Cordless Telephone
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Section 4A. Radiated Emissions (Base)

Para. No.: 15.249

| | |
|---|------------------------------------|
| Test Performed By: Glen Westwell | Date of Test: June 20, 2000 |
|---|------------------------------------|

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 84.5 dBµV/m @ 3m at 902.29 MHz. This is 9.5 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.

EQUIPMENT: SPP-ID970 Cordless Telephone
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Test Data - Radiated Emissions (Base)

| 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) |
| Channel 00 | | | | | | | | | |
| 902.29 | E/D4 | V | 50.1 | 34.4 | | | 84.5 | 94.0 | 9.5 |
| 902.29 | E/D4 | H | 45.1 | 34.4 | | | 79.5 | 94.0 | 14.5 |
| 902.01 | E/D4 | V | 0.2 | 34.4 | | | 34.6 | 94.0 | 11.4 |
| Channel 14 | | | | | | | | | |
| 904.39 | E/D4 | V | 50.1 | 34.4 | | | 84.5 | 94.0 | 9.5 |
| 904.39 | E/D4 | H | 42.7 | 34.4 | | | 77.1 | 94.0 | 16.9 |
| Channel 29 | | | | | | | | | |
| 906.64 | E/D4 | V | 43.0 | 34.4 | | | 77.4 | 94.0 | 16.6 |
| 906.64 | E/D4 | H | 49.9 | 34.4 | | | 84.3 | 94.0 | 9.7 |
| Notes: B/C = Biconical, B/L = Biconilog, L/P = Log-Periodic, H = Horn, D/P = Dipole * Re-measured using dipole antenna. ** Includes cable loss when amplifier is not used. *** Includes cable loss. () Denotes failing emission level. N.D. = Not Detected | | | | | | | | | |

- (1) All harmonics were searched at 3 meters and 1 meter.
- (2) Measuring equipment noise floor was 20dB below specification limit.

EQUIPMENT: SPP-ID970 Cordless Telephone
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Radiated Photographs - Base (Worst Case Configuration)

Front View



EQUIPMENT: SPP-ID970 Cordless Telephone
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Section 4B. Radiated Emissions (Handset)

Para. No.: 15.249

| | |
|---|------------------------------------|
| Test Performed By: Glen Westwell | Date of Test: June 20, 2000 |
|---|------------------------------------|

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 87.0 dBµV/m @ 3m at 924.62 MHz. This is 7.0 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.

EQUIPMENT: SPP-ID970 Cordless Telephone
 FCC ID: EW780-4258-05

Test Data - Radiated Emissions (Handset)

| 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) |
| Channel 00 | | | | | | | | | |
| 920.25 | E/D4 | V | 42.4 | 34.5 | | | 76.9 | 94.0 | 17.1 |
| 920.24 | E/D4 | H | 31.9 | 34.5 | | | 66.4 | 94.0 | 27.6 |
| 1840.57 | Hrn2 | V | 48.0 | 33.3 | -48.1 | | 33.2 | 54.0 | 20.8 |
| 1840.53 | Hrn2 | H | 52.0 | 33.3 | -48.1 | | 37.2 | 54.0 | 16.8 |
| 2760.75 | Hrn2 | V | 56.2 | 38.1 | -59.9 | | 34.4 | 54.0 | 19.6 |
| 2760.78 | Hrn2 | H | 55.3 | 38.1 | -59.9 | | 33.5 | 54.0 | 20.5 |
| Channel 14 | | | | | | | | | |
| 922.34 | E/D4 | V | 24.5 | 34.5 | | | 59.0 | 94.0 | 35.0 |
| 922.34 | E/D4 | H | 36.9 | 34.5 | | | 71.4 | 94.0 | 22.6 |
| 1844.73 | Hrn2 | V | 46.8 | 33.3 | -48.1 | | 32.0 | 54.0 | 22.0 |
| 1844.73 | Hrn2 | H | 43.5 | 33.3 | -48.1 | | 28.7 | 54.0 | 25.3 |
| 2767.12 | Hrn2 | V | 55.5 | 38.2 | -59.9 | | 33.8 | 54.0 | 20.2 |
| 2767.12 | Hrn2 | H | 56.3 | 38.2 | -59.9 | | 34.6 | 54.0 | 19.4 |
| Channel 29 | | | | | | | | | |
| 924.62 | E/D4 | V | 52.5 | 34.5 | | | 87.0 | 94.0 | 7.0 |
| 924.62 | E/D4 | H | 41.2 | 34.5 | | | 75.7 | 94.0 | 18.3 |
| 928.0 | E/D4 | V | -0.1 | 34.6 | | | 34.5 | 46.0 | 11.5 |
| 1849.43 | Hrn2 | V | 52.0 | 33.3 | -48.1 | | 37.2 | 54.0 | 16.8 |
| 1849.4 | Hrn2 | H | 53.5 | 33.3 | -48.1 | | 38.7 | 54.0 | 15.3 |
| 2773.87 | Hrn2 | V | 62.0 | 38.2 | -59.9 | | 40.3 | 54.0 | 13.7 |
| 2773.9 | Hrn2 | H | 61.5 | 38.2 | -59.9 | | 39.8 | 54.0 | 14.2 |
| Notes: B/C = Biconical, B/L = Biconilog, L/P = Log-Periodic, H = Horn, D/P = Dipole * Re-measured using dipole antenna. ** Includes cable loss when amplifier is not used. *** Includes cable loss. () Denotes failing emission level. N.D. = Not Detected | | | | | | | | | |

- (1) All emissions were searched at 3 meters and 1 meter.
- (2) Measuring equipment noise floor was 20dB below specification limit.
- (3) Harmonic search was done using 8564E with 1 MHz RBW.

EQUIPMENT: SPP-ID970 Cordless Telephone
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Radiated Photographs - Handset (Worst Case Configuration)

Front View



EQUIPMENT: SPP-ID970 Cordless Telephone
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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 | Nov. 31/00 |
| 1 Year | Spectrum Analyzer | Hewlett Packard | 8565E | FA000981 | June 16/00 | June 16/01 |
| 1 Year | Spectrum Analyzer-1 | Hewlett Packard | 8566B | 2311A02238 | Nov. 6/99 | Nov. 6/00 |
| 1 Year | Spectrum Analyzer Display-1 | Hewlett Packard | 8566B | 2314A04759 | Nov. 6/99 | Nov. 6/00 |
| 1 Year | LISN | Tegam | 95300-50 | T-12855/56 | Aug. 24/99 | Aug. 24/00 |
| 1 Year | Receiver | Rohde & Schwarz | ESVP | 892661/014 | April 5/00 | April 5/01 |
| 1 Year | Horn Antenna | EMCO #1 | 3115 | 3132 | Dec. 21/99 | Dec. 21/00 |
| 1 Year | Dipole Antenna Set | EMCO #2 | 3121C | FA001349 | June 5/00 | June 5/01 |
| 1 Year | RF AMP | JCA | 2-4 GHz | FA001496 | May 31/00 | May 31/01 |
| 1 Year | RF AMP | JCA | 1-2 GHz | FA001498 | May 31/00 | May 31/01 |
| 1 Year | RF AMP | JCA | 4-8 GHz | FA001497 | May 31/00 | May 31/01 |
| 1 Year | Plotter | Hewlett Packard | 7550A | FA001129 | NCR | NCR |
| | High Pass Filter | K&L | 3DH1-2000 | FA001434 | COU | COU |

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

KTL Ottawa

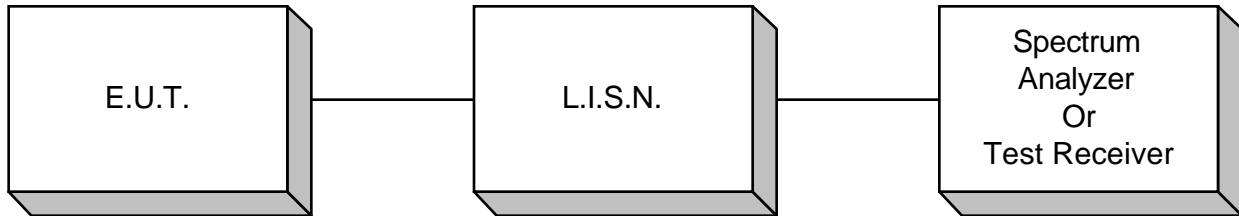
FCC PART 15, SUBPART C
FOR 900 MHz CORDLESS TELEPHONES
PROJECT NO.: 0R02637.1
ANNEX A

EQUIPMENT: SPP-ID970 Cordless Telephone
FCC ID: EW780-4258-05

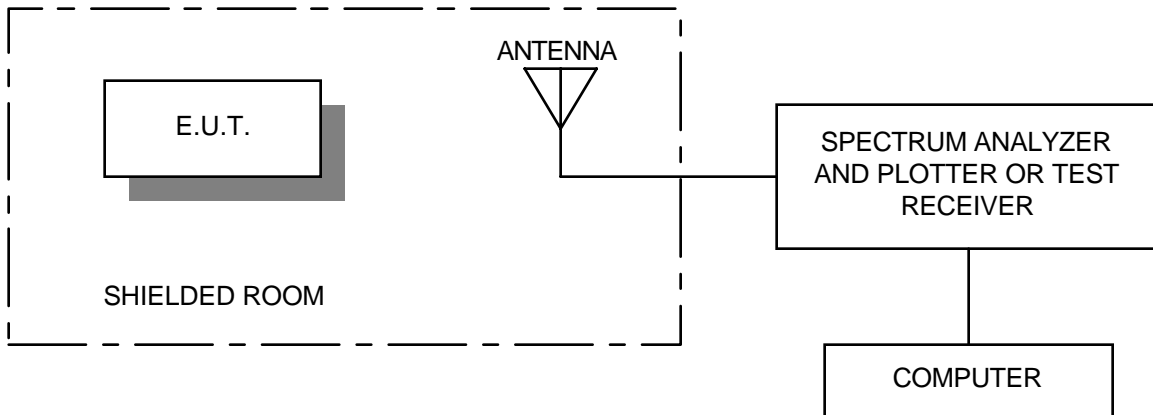
Annex A
Test Diagrams

EQUIPMENT: SPP-ID970 Cordless Telephone
FCC ID: EW780-4258-05

Conducted Emissions



Radiated Prescan



EQUIPMENT: SPP-ID970 Cordless Telephone
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Test Site For Radiated Emissions

