Test Report:	1W03899.1
Applicant:	VTECH Engineering Canada 200-7671 Alderbridge Way Richmond, BC V6X 1Z9
Equipment Under Test: (EUT)	AT&T 9320 Cordless Telephone
In Accordance With:	**FCC Part 15, Subpart C, 15.249** For 900 MHz Cordless Telephones
Tested By:	Nemko Canada Inc. (Formerly KTL Ottawa Inc.) 3325 River Road, R.R. 5 Ottawa, Ontario K1V 1H2
Authorized By:	 R. Grant, Wireless Group Manager
Date:	May 31, 2001
Total Number of Pages:	22
Authorized Copy:	Soft Copy

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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

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: May 31, 2001
Wayne Clarke, Wireless Technologist

VTECH Engineering Canada Ltd.

1 Purpose

This document describes the changes on the RF circuitry that are made to the VTech designed family models. AT&T 9320 is the first one employing the changes & tested in this application. It is a 900MHz analog basic cordless telephone designed & manufactured by VTech. The original FCC ID is :

EW79108

Changes are made to improve the performance of the phone and at the same time to reduce the cost.

2 Changes on Handset & Base

The major changes on radio circuitry from the current approved version to the new version are :-

Item	New Version	Old Version	Areas affected
1) Antenna	Wire antenna & matching circuitry New Wire antenna & matching circuitry	Metal coil antenna Old wire antenna	Handset Base
2) RF IC to new version	UAA3515A	UAA3515	Handset & Base
3) MCU clock signal	Output from RF IC -- CLKO	External resonator	Base

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:	22 °C
	Humidity:	33 %
Outdoor	Temperature:	18 °C
	Humidity:	93 %

Section 2. General Equipment Specification

Manufacturer:	VTECH Engineering Canada
Model No.:	AT&T 9320
Serial No.:	Base: AH790540049 Handset: HA780540077
Date Received In Laboratory:	May 16, 2001
Nemko Identification No.:	Item #'s 1 & 2

Base

Frequency Range:	902.3 to 906.65MHz
Operating Frequency(ies) of Sample:	902.3 and 906.65MHz
Tunable Bands:	One
Number of Channels:	30
Channel Spacing:	150kHz
Emission Designator:	308KF3E
User Frequency Adjustment:	None

	Yes	**No**
Integral Antenna	☒	☐

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

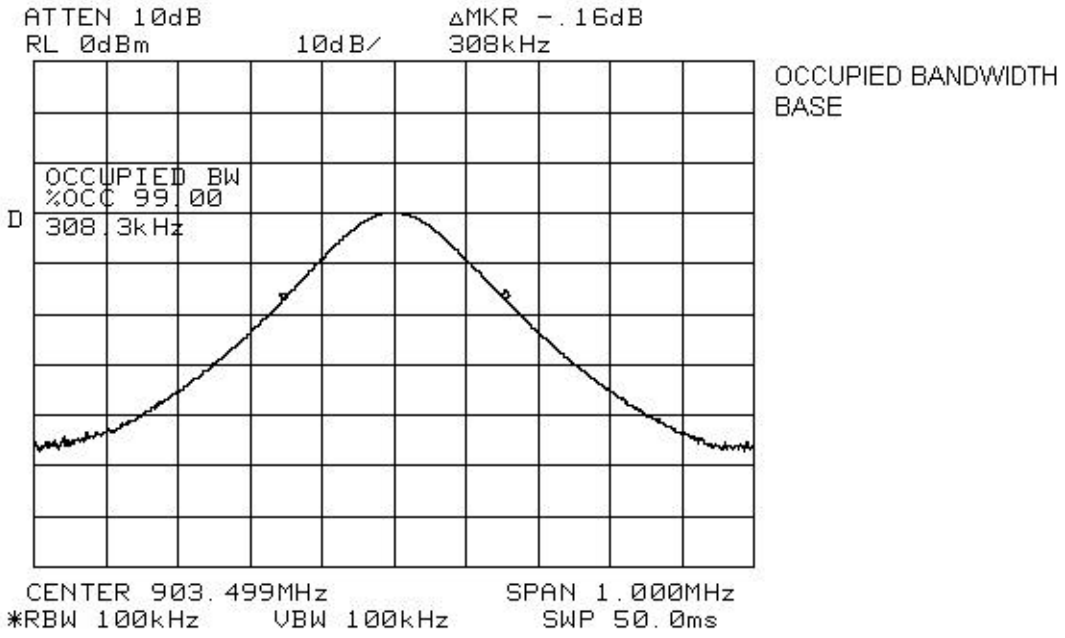
Section 2. General Equipment Specification

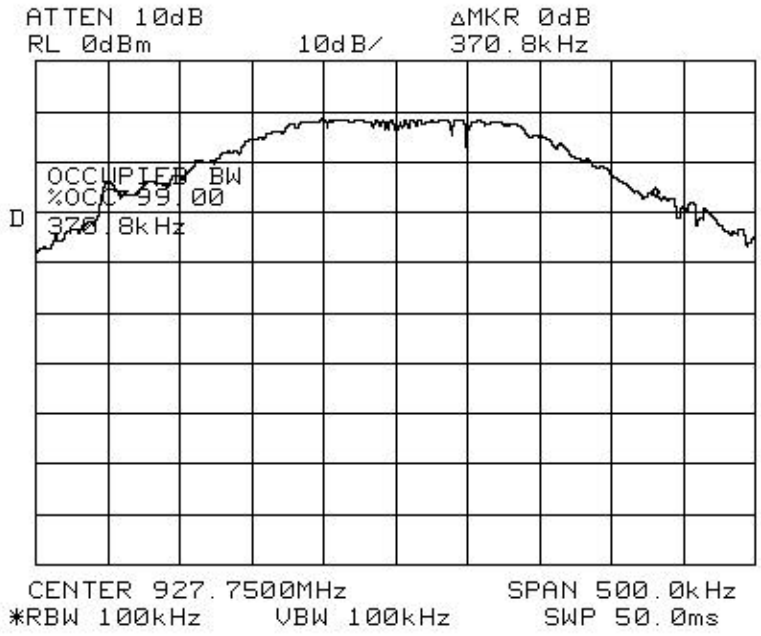
Handset: AT&T 9320

Frequency Range:	923.1 to 927.75MHz
Operating Frequency(ies) of Sample:	924.3MHz, 927.0MHz
Tunable Bands:	One
Number of Channels:	30
Channel Spacing:	150kHz
Emission Designator:	370KF3E
User Frequency Adjustment:	Channel Change to Change Preset Channels

	Yes	**No**
Integral Antenna	☒	☐

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


ATTEN 10dB
RL 0dBm
10dB/
ΔMKR -.16dB
308kHz
OCCUPIED BANDWIDTH
BASE
OCCUPIED BW
%OCC 99.00
D
308.3kHz
CENTER 903.499MHz
SPAN 1.000MHz
*RBW 100kHz
VBW 100kHz
SWP 50.0ms



OCCUPIED BANDWIDTH
HANDSET

Section 3. Powerline Conducted Emissions

Para. No.: 15.207

Test Performed By: Wayne Clarke	**Date of Test:** May 17, 2001

Minimum Standard:

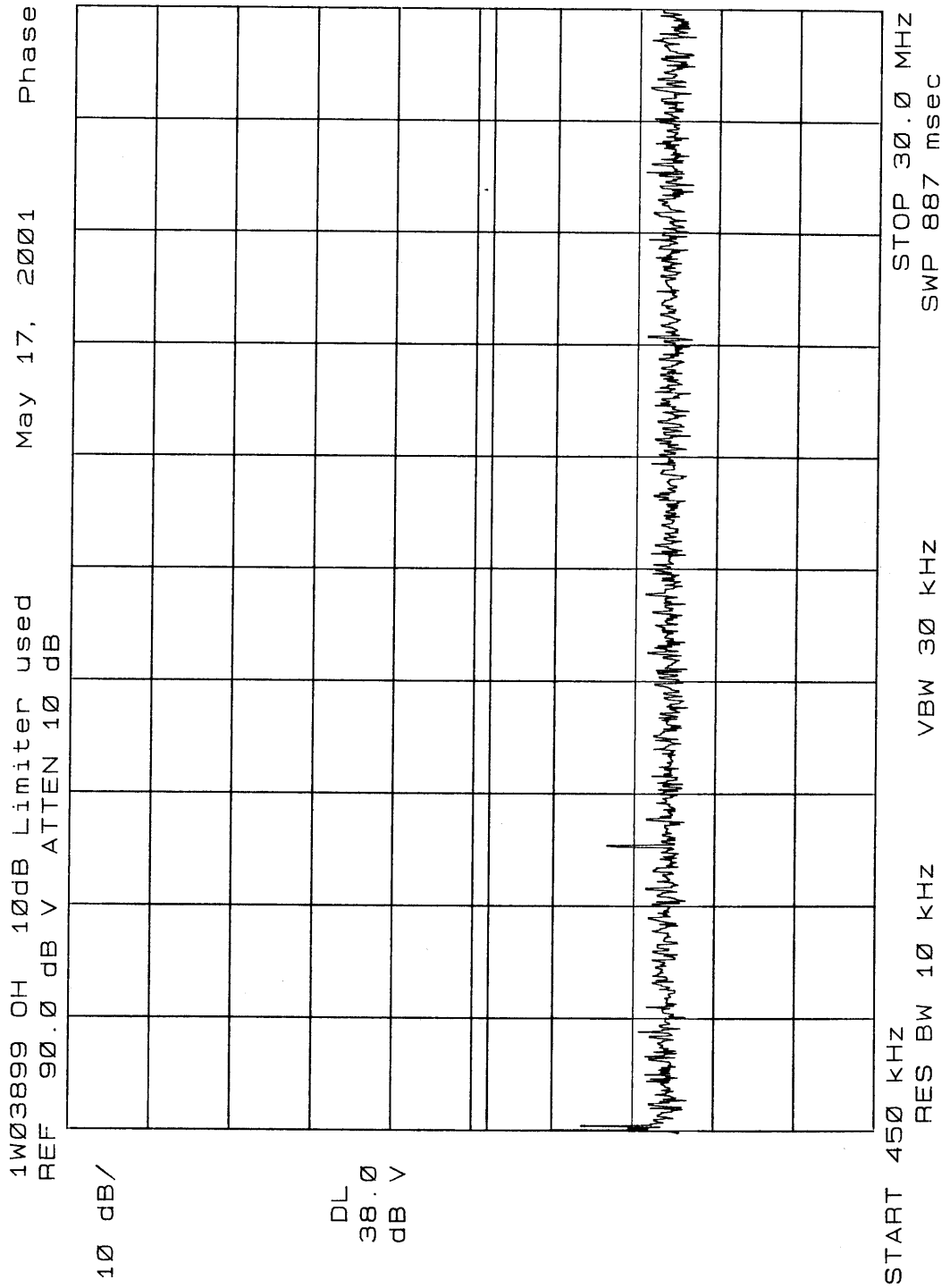
Frequency (MHz)	**Maximum Powerline Conducted RF Voltage**	
	(μV)	**(dBμV)**
0.45 - 30.0	250	48

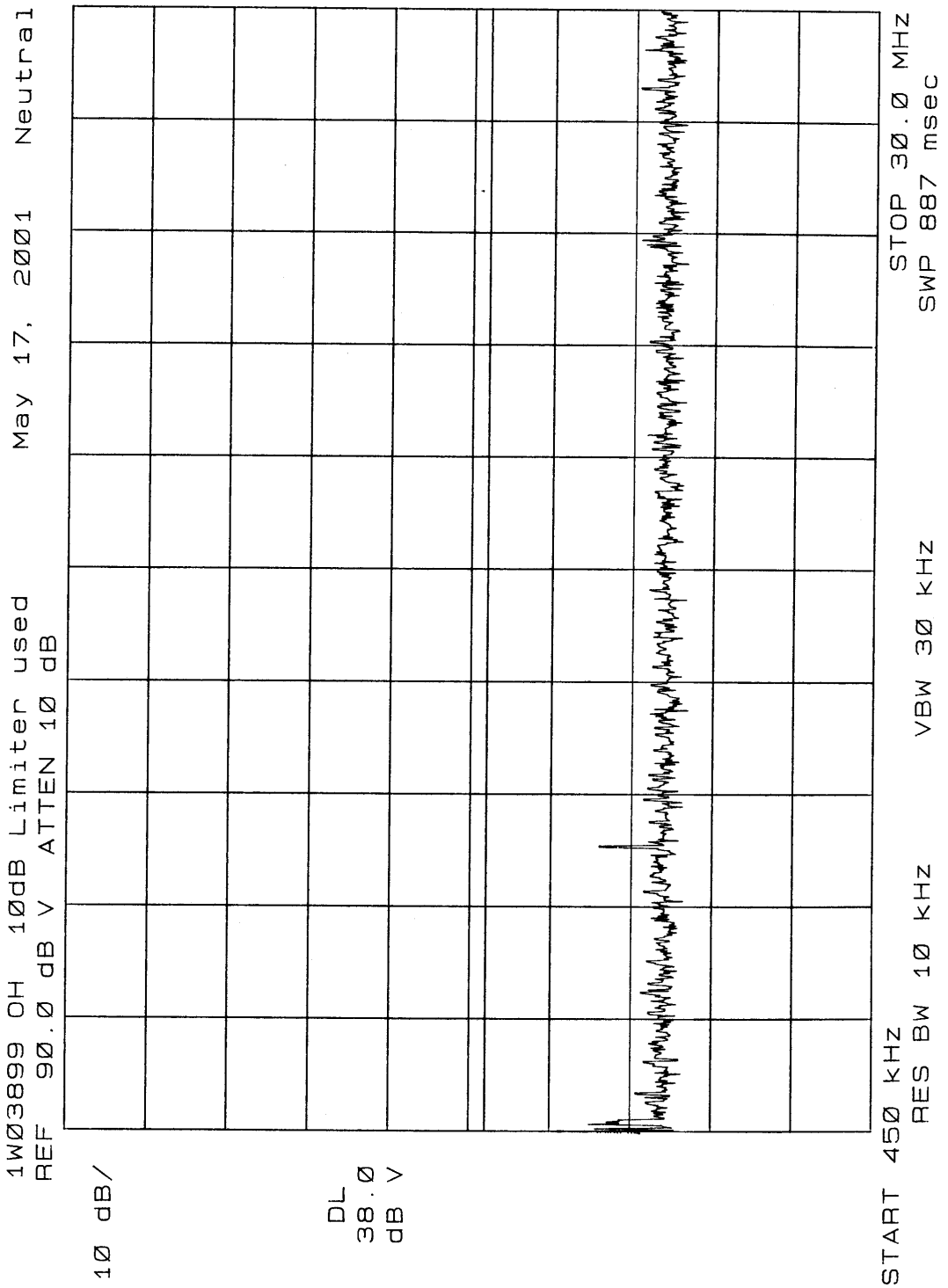
Test Results: Complies. See attached graph(s).

Measurement Data: See attached graph(s).

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

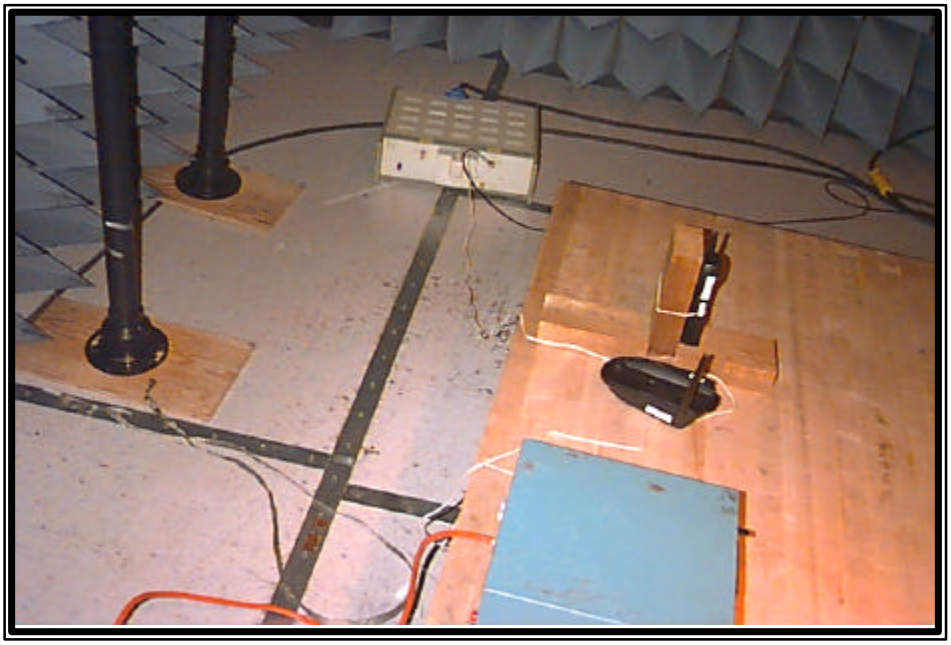
Measurements were made using a spectrum analyzer with 10 kHz RBW, Peak Detector. Any emissions that are close to the limit are measured using a test receiver with 10 kHz bandwidth, CISPR Quasi-Peak Detector.


1W03899 OH 10dB Limiter used
REF 90.0 dB V ATTEN 10 dB
May 17, 2001 Phase
10 dB/
DL
38.0
dB V
START 450 kHz
RES BW 10 kHz
VBW 30 kHz
STOP 30.0 MHz
SWP 887 msec

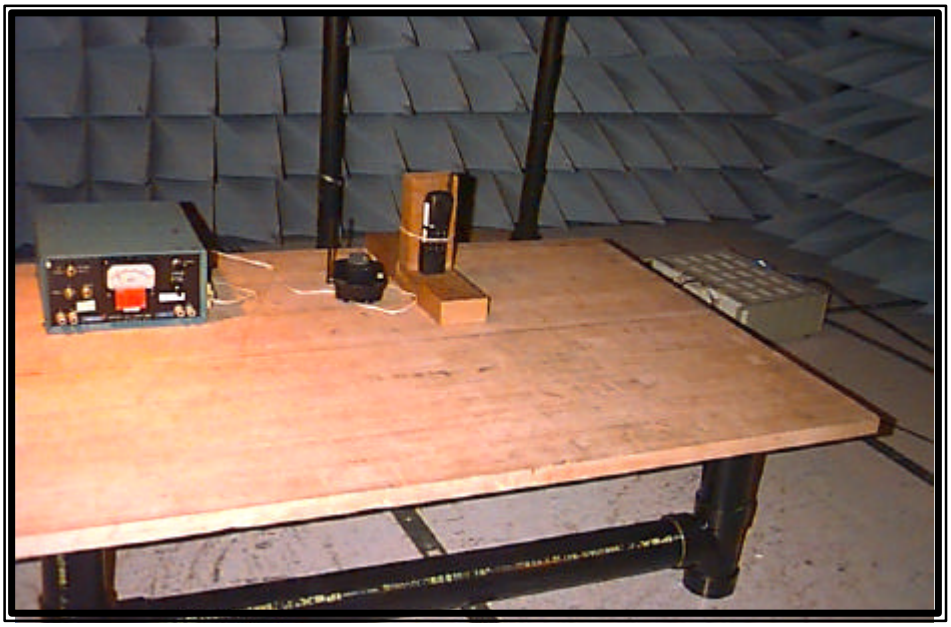

1WØ3899 OH 10dB Limiter used May 17, 2ØØ1 Neutral
REF 9Ø.Ø dB V ATTEN 1Ø dB
1Ø dB/
DL
38.Ø
dB V
START 45Ø kHz
RES BW 1Ø kHz
VBW 3Ø kHz
STOP 3Ø.Ø MHz
SWP 887 msec

Conducted Photographs – Base & Handset (Worst Case Configuration)

Side View



Rear View



Section 4A. Radiated Emissions (Base)

Para. No.: 15.249

Test Performed By: Wayne Clarke	**Date of Test:** May 17, 2001

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 92.9dBµV/m @ 3m at 902.3 MHz. This is 1.1 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 EUT was tested on three orthogonal axis to determine orientation of worst-case emission levels.

Test Data - Radiated Emissions (Base)

Test Distance (meters) : 3		Range: A Tower		Receiver: 8565E		RBW(kHz): 1000		Detector: 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)
902.3	E/D4	V	60.5	32.4			92.9	94.0	1.1
902.3	E/D4	H	58.4	32.4			90.8	94.0	3.2
935.75	E/D4	V	4.2	32.6			36.8	46.0	9.2
935.75	E/D4	H	1.2	32.6			33.8	46.0	12.2
1804.6	Hrn1	V	48.0	33.0	-48.1		32.9	54.0	21.1
1804.6	Hrn1	H	46.5	33.0	-48.1		31.4	54.0	22.6
2706.9	Hrn1	V	61.3	37.8	-60.0		39.1	54.0	14.9
2706.9	Hrn1	H	57.7	37.8	-60.0		35.5	54.0	18.5
3609.2	Hrn1	V	55.0	40.8	-57.4		38.4	54.0	15.6
4511.5	Hrn1	V	57.2	43.4	-55.5		45.1	54.0	8.9
4511.5	Hrn1	H	55.2	43.4	-55.5		43.1	54.0	10.9
906.65	E/D4	V	58.8	32.5			91.3	94.0	2.7
906.65	E/D4	H	51.2	32.5			83.7	94.0	10.3
935.3	E/D4	V	9.5	32.6			42.1	46.0	3.9
935.3	E/D4	H	7.5	32.6			40.1	46.0	5.9
1813.3	Hrn1	V	54.7	33.0	-48.1		39.6	54.0	14.4
1813.3	Hrn1	H	51.7	33.0	-48.1		36.6	54.0	17.4
2719.95	Hrn1	V	58.5	37.9	-60.0		36.4	54.0	17.6
2719.95	Hrn1	H	56.2	37.9	-60.0		34.1	54.0	19.9
4533.25	Hrn1	V	56.5	43.4	-55.5		44.4	54.0	9.6
4533.25	Hrn1	H	57.8	43.4	-55.5		45.7	54.0	8.3

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

Section 4B. Radiated Emissions (Handset)

Para. No.: 15.249

Test Performed By: Wayne Clarke	**Date of Test:** May 17, 2001

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 44.9 dBµV/m @ 3m at 895.65MHz. This is 1.1dB 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 EUT was tested on three orthogonal axis to determine orientation of worst-case emission levels.

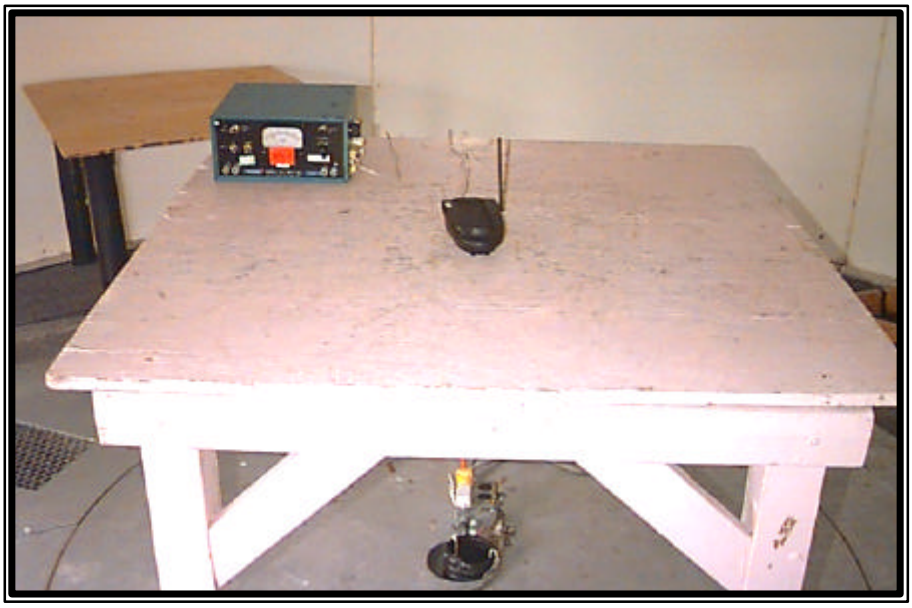
Test Data - Radiated Emissions (Handset)

Test Distance (meters) : 3		Range: A Tower		Receiver: 8565E		RBW(kHz): 1000		Detector: 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)
924.3	E/D4	V	54.2	32.5			86.7	94.0	7.3
924.3	E/D4	H	55.0	32.5			87.5	94.0	6.5
1848.6	Hrn1	V	55.5	33.2	-48.1		40.6	54.0	13.4
1848.6	Hrn1	H	54.3	33.2	-48.1		39.4	54.0	14.6
2772.9	Hrn1	V	69.5	38.0	-59.9		47.6	54.0	6.4
2772.9	Hrn1	H	65.0	38.0	-59.9		43.1	54.0	10.9
3697.2	Hrn1	V	60.2	41.2	-57.7		43.7	54.0	10.3
895.65	E/D4	V	12.7	32.2			44.9	46.0	1.1
895.65	E/D4	H	3.8	32.2			36.0	46.0	10.0
927.0	E/D4	V	53.2	32.5			85.7	94.0	8.3
927.0	E/D4	H	52.0	32.5			84.5	94.0	9.5
893.55	E/D4	V	9.1	32.2			41.3	46.0	4.7
893.55	E/D4	H	1.3	32.2			33.5	46.0	12.5
1854.0	Hrn1	V	52.5	33.3	-48.1		37.7	54.0	16.3
1854.0	Hrn1	H	52.7	33.3	-48.1		37.9	54.0	16.1
2781.0	Hrn1	V	65.8	38.0	-59.9		43.9	54.0	10.1
2781.0	Hrn1	H	64.0	38.0	-59.9		42.1	54.0	11.9

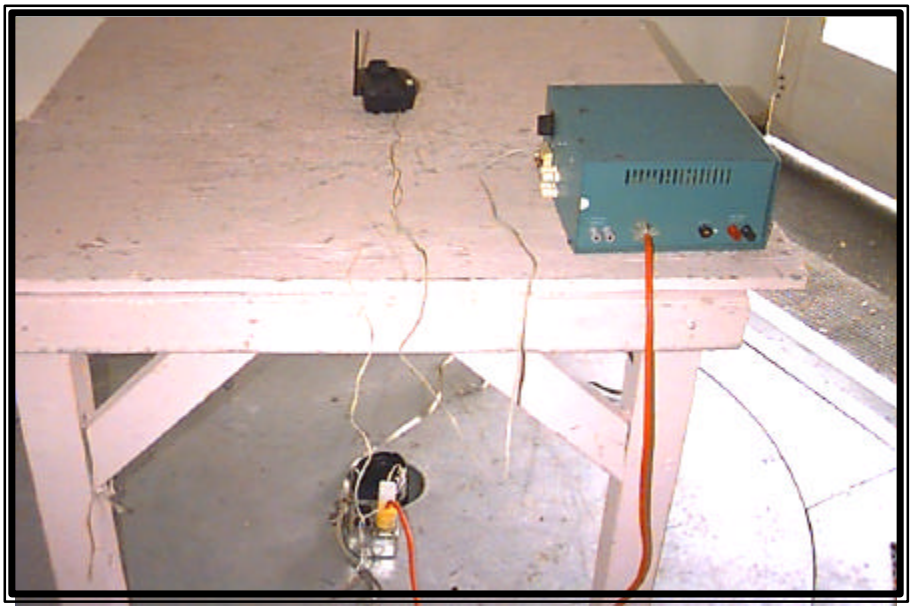
Notes:
B/C = Biconical, B/L = Biconilog, L/P = Log-Periodic, H = Horn, D/P = Dipole
* Re-measured using dipole antenna.
** Includes cable loss when amplifier is not used.
*** Includes cable loss.
( ) Denotes failing emission level.
N.D. = Not Detected

Radiated Photographs – Base & Handset (Worst Case Configuration)

Front View



Rear View



Section 5. Test Equipment List

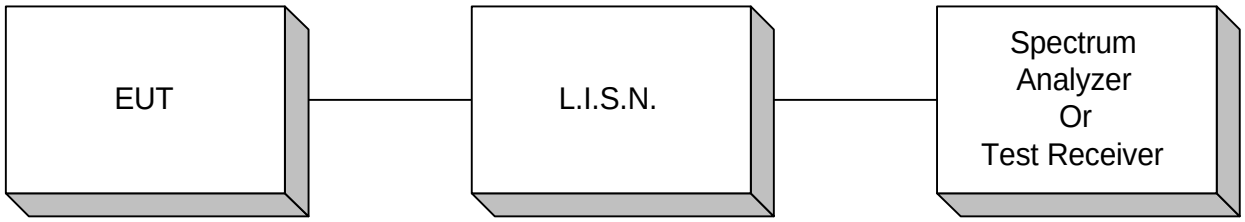
CAL Cycle	Equipment	Manufacturer	Model No.	Asset/Serial No.	Last Cal.	Next Cal.
1.5 Year	LISN	EMCO	4825/2	FA001545	Feb. 14/00	Aug. 14/01
1Year	LISN(peripheral)	Tegam	95300-50	FA000986	Oct. 1900	Oct. 19/01
1Year	LISN(peripheral)	Tegam	95300-50	FA000986	Oct. 1900	Oct. 19/01
1Year	Receiver	Rohde & Schwarz	ESH3	FA000872	Jan. 03.01	Jan. 03.02
1 Year	Spectrum Analyzer	Hewlett-Packard	8566B	FA001309	Dec. 10/00	Dec. 10/01
1 Year	Spectrum Analyzer Display	Hewlett-Packard	85662A	FA001309	Dec. 10/00	Dec. 10/01
1 Year	Quasi-Peak Adapter	Hewlett-Packard	85650A	FA000801	Dec. 14/00	Dec. 14/01
1 Year	Transient Limiter	Hewlett-Packard	1194 7A	FA000975	Oct. 12/00	Oct. 12/01
EX	Receiver	Rohde & Schwarz	ESVP	FA000871	Apr. 05/00	July. 05/01
EX	Receiver	Rohde & Schwarz	ESVS-30	FA001437	Jan. 28/00	May. 28/00
1Year	Spectrum Analyzer	Hewlett-Packard	8565E	FA000981	June 16/00	June 16/01
1Year	Spectrum Analyzer	Hewlett-Packard	8566B	FA001309	Dec. 10/00	Dec. 10/01
1Year	Spectrum Analyzer Display	Hewlett-Packard	85662A	FA001309	Dec. 10/00	Dec. 10/01
1Year	Quasi-Peak Adapter	Hewlett-Packard	85650A	FA000801	Dec. 14/00	Dec. 14/01
	Bilog Antenna	Schaffner	CBL6612B	FA001503	NCR	NCR
1Year	Dipole Antenna Set	EMCO #1	3121C	FA000814	Apr. 16/01	Apr. 16/02
1 Year	Horn Antenna #1	EMCO	3115	FA000649	Dec. 11/00	Dec. 11/01
COU	High Pass Filter	K&L	EDH1-2000	FA001434		

Note: N/A = Not Applicable
NCR = No Cal Required
COU = CAL On Use
OUT = Out For CAL/Repair

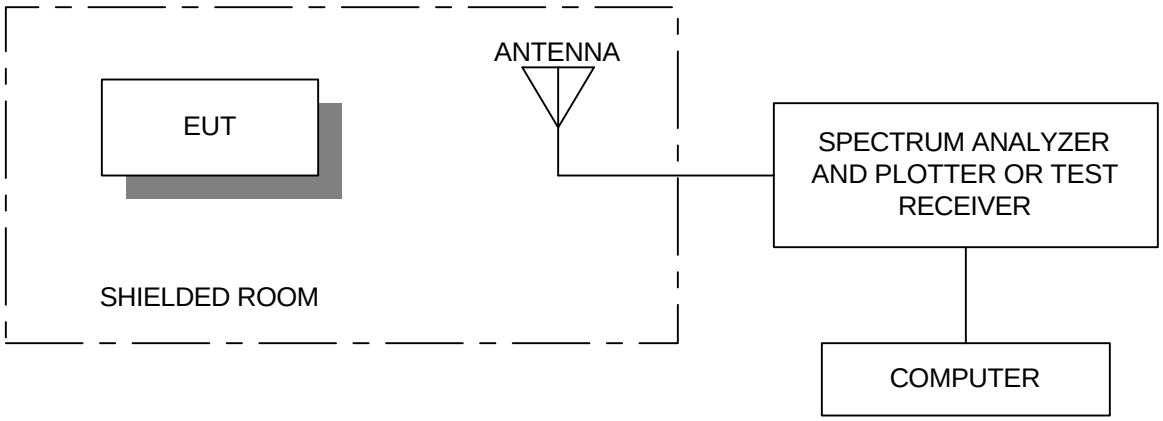
Annex A

Test Diagrams

Conducted Emissions



Radiated Prescan



Test Site For Radiated Emissions