KTL Test Report:	9R01881
Applicant:	Digital Security Controls Ltd. 3301 Langstaff Road Concord, Ontario L4K 4L2
Equipment Under Test: (E.U.T.)	WLS 9001 Spread Spectrum Receiver
FCC ID:	F5399SS9001
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:	17

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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

C	Y	Y	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 Rose, Test Technician

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	Complies

Footnotes For N/A's:

Test Conditions:

Indoor	Temperature:	20 °C
	Humidity:	31 %
Outdoor	Temperature:	15 °C
	Humidity:	38 %

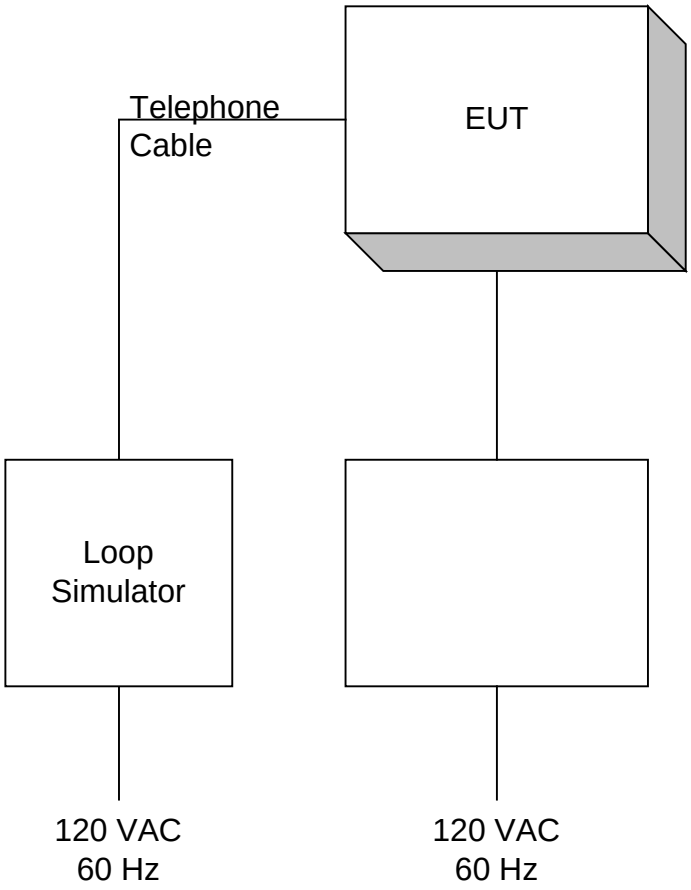
Section 2. Equipment Under Test (E.U.T.)

Manufacturer:	Digital Security Controls Ltd.
Model No.:	WLS 9000
Serial No.:	None
Date Received In Laboratory:	October 5, 1999
KTL Identification No.:	Item #3

Equipment Details

Frequency Range:	877.35 MHz (Fixed Local Oscillator)
Number of Channels:	1
Operating Frequency(ies) of Sample:	924 MHz
Primary Power Requirement:	9 VAC
Bandwidth and Emission Designator:	Not Applicable
Intermediate Frequency(ies):	Not Applicable

Configuration of the Equipment Under Test (E.U.T)



Section 3. Receiver Antenna Conducted Emissions

NAME OF TEST: Receiver Antenna Conducted Emissions	PARA. NO.: 15.111
TESTED BY:	DATE:

Test Results: Complies/Does Not Comply. See attached graphs and table.

Measurement Data: See attached graphs and table.

NOT APPLICABLE

Section 4. Radiated Emissions

NAME OF TEST: Radiated Emissions	PARA. NO.: 15.109(a)
TESTED BY: Kevin Rose	DATE: October 5, 1999

Minimum Standard:

Frequency(MHz)	Field Strength (dBμV/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 48.5 dBμV/m @ 3m at 1754.69 MHz. This is 5.5 dB 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.

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)	Ant. HGT. (m)	Table (deg.)	RCVD Signal (dBµV/m)	Ant. Factor (dB)**	Amp. Gain (dB)***	Dist. Corr. (dB)	Field Strength (dBµV/m)	Limit (dBµV/m)	Margin (dB)
877.35	E/D4	V			0.0	34.6			34.6	46.0	11.4
877.35	E/D4	H			4.3	34.6			38.9	46.0	7.1
1754.69	Hrn2	V			61.7	29.8	-43.0		48.5	54.0	5.5
1754.69	Hrn2	H			59.0	29.8	-43.0		45.8	54.0	8.2
2632.05	Hrn2	V			50.7	31.6	-45.5		36.8	54.0	17.2
2632.05	Hrn2	H			53.2	31.6	-45.5		39.3	54.0	14.7
3509.4	Hrn2	V			40.8	35.3	-42.2		33.9	54.0	20.1
3509.4	Hrn2	H			44.8	35.3	-42.2		37.9	54.0	16.1

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

Radiated Photographs (Worst Case Configuration)

FRONT VIEW

REAR VIEW

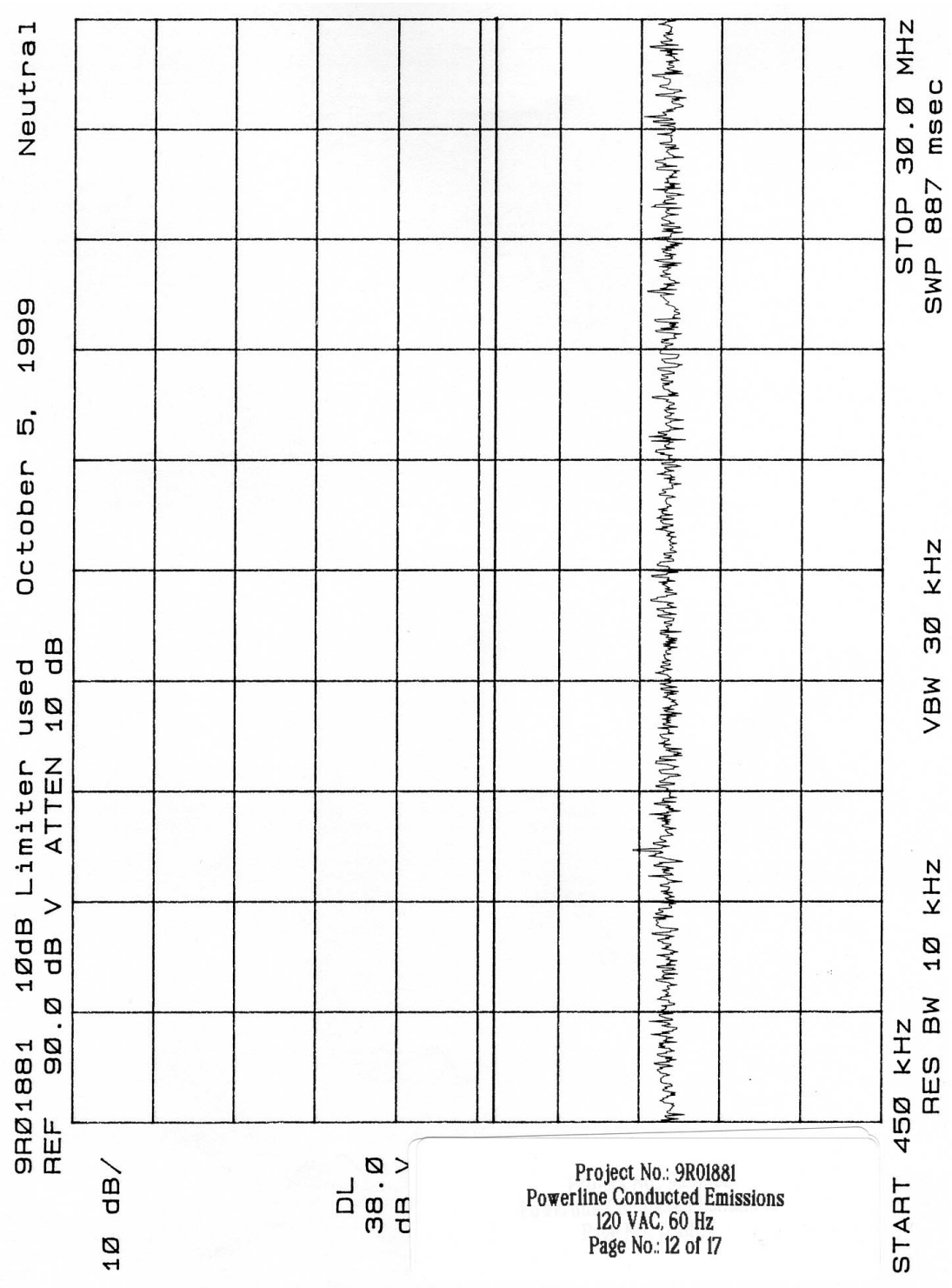
Section 5. Powerline Conducted Emissions

NAME OF TEST: Powerline Conducted Emissions	PARA. NO.: 15.107
TESTED BY: Kevin Rose	DATE: October 5, 1999

Minimum Standard: The RF energy feed back into the power lines shall not exceed 48 dBµV on any frequency between 0.45 MHz and 30 MHz inclusive.

Test Results: Complies. See attached graphs.

Measurement Data: See attached graphs.


9R01881 10dB Limiter used October 5, 1999 Neutral
REF 90.0 dB V ATTEN 10 dB
10 dB/
DL
38.0
dB V
START 450 kHz
RES BW 10 kHz
VBW 30 kHz
STOP 30.0 MHz
SWP 887 msec
Project No.: 9R01881
Powerline Conducted Emissions
120 VAC, 60 Hz
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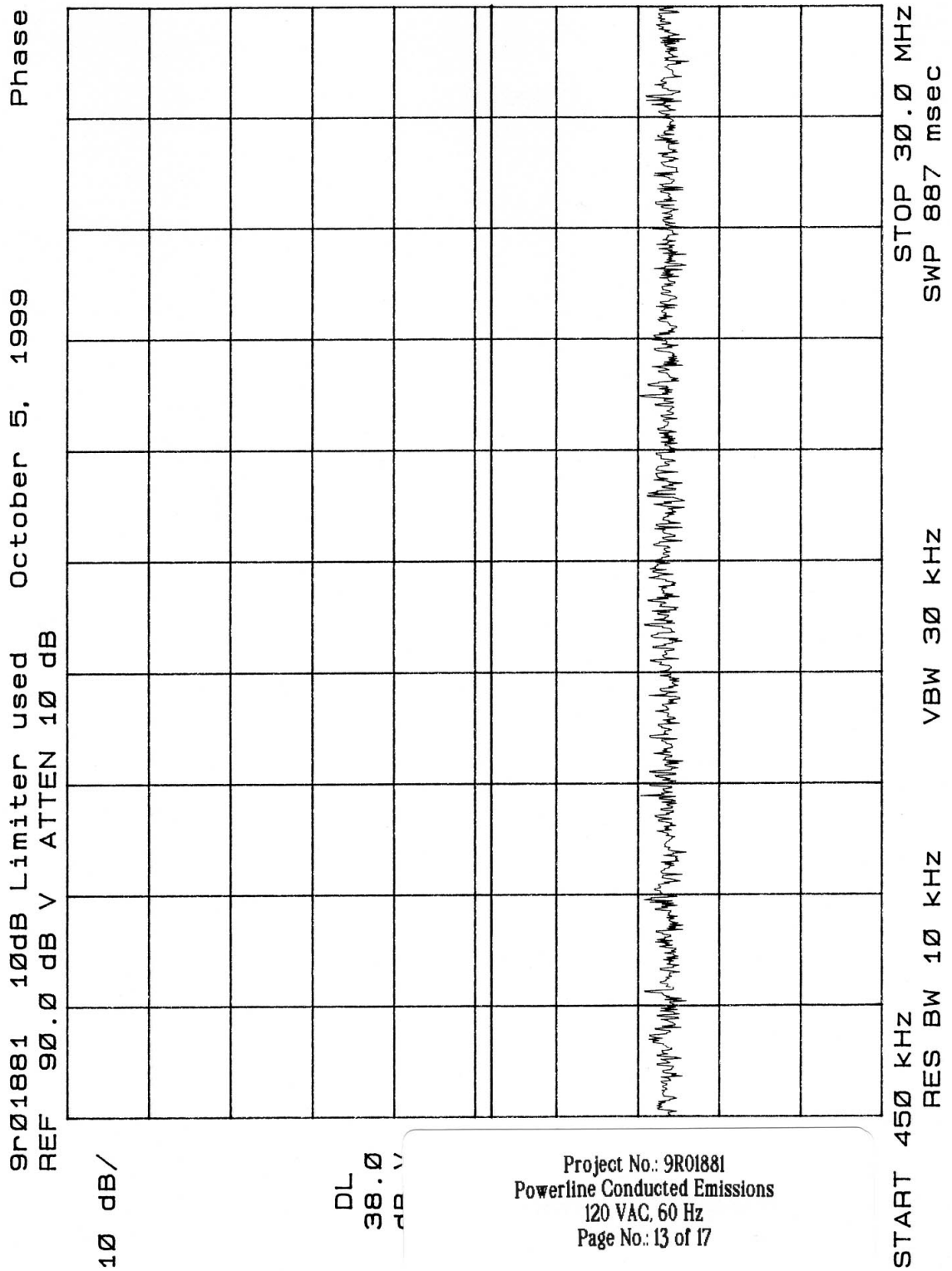
9r01881 10dB Limiter used October 5, 1999 Phase
REF 90.0 dB V ATTEN 10 dB
10 dB/
DL
38.0
START 450 kHz
RES BW 10 kHz
VBW 30 kHz
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SWP 887 msec
Project No.: 9R01881
Powerline Conducted Emissions
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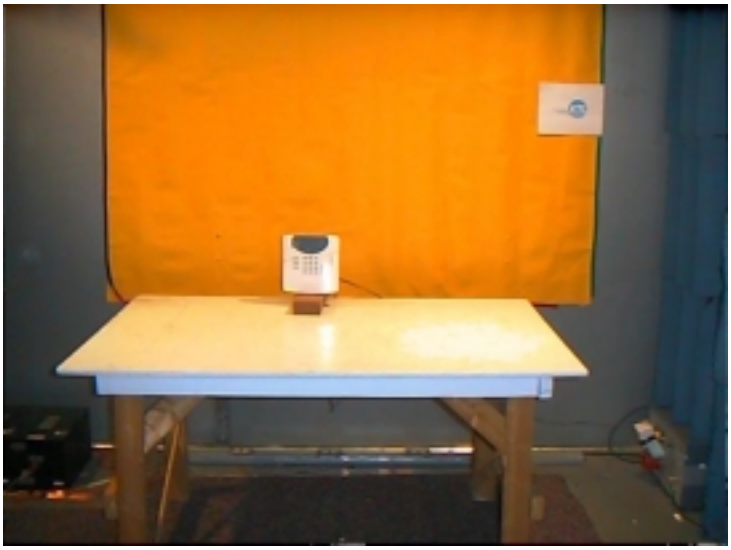
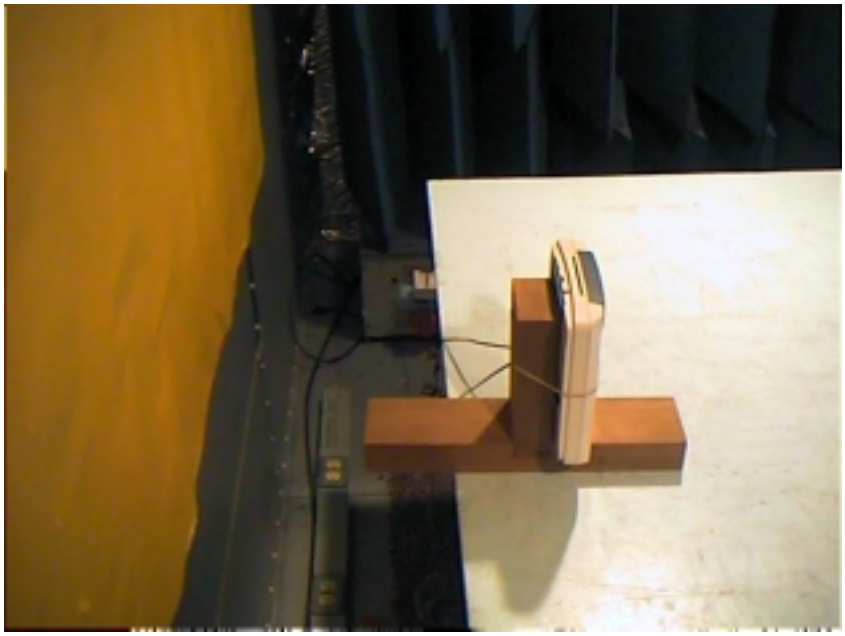
Powerline Conducted Photographs (Worst Case Configuration)

FRONT VIEW

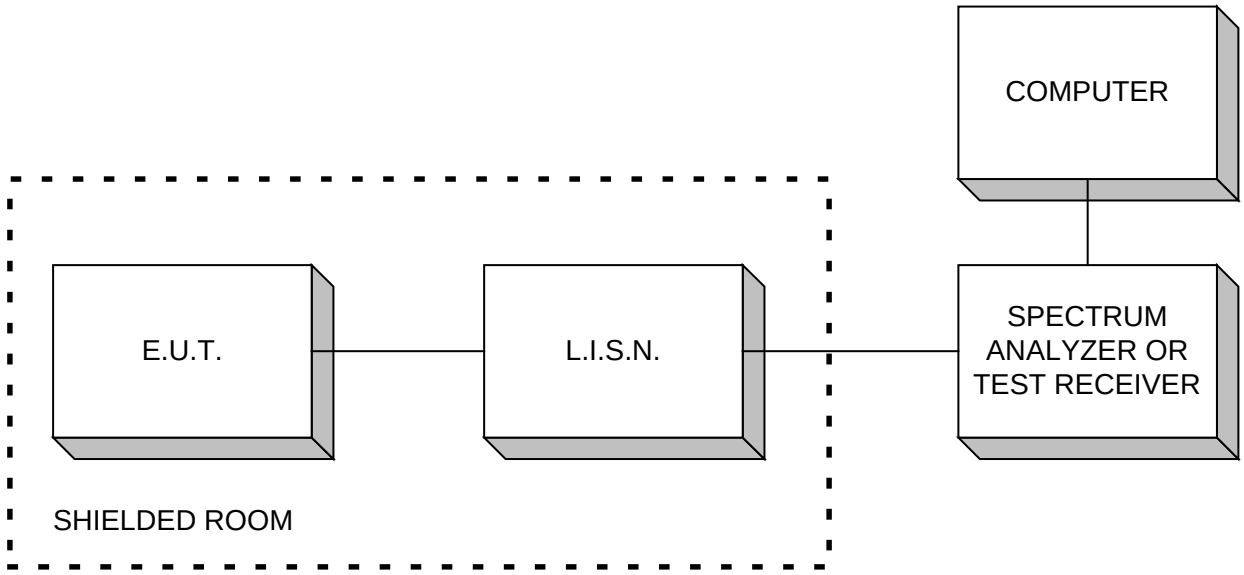


REAR VIEW

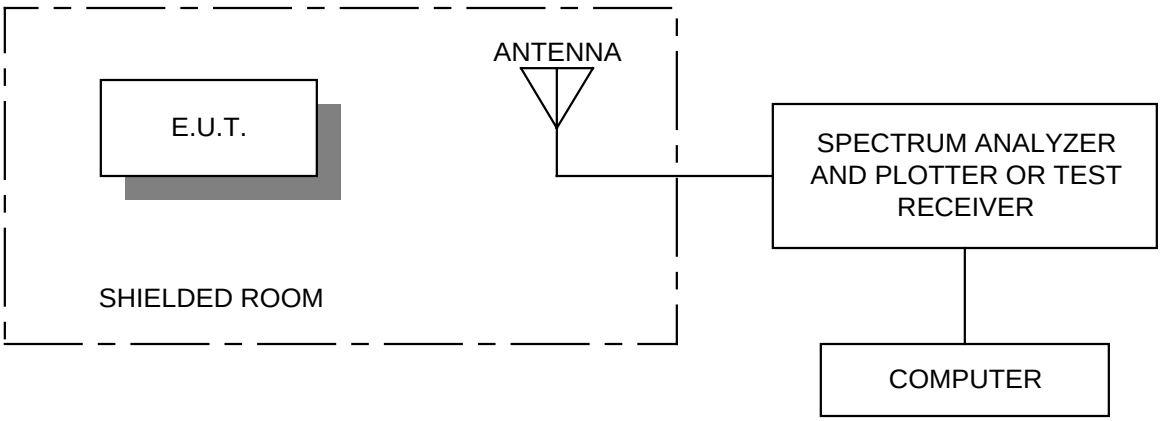


Section 6. Block Diagrams

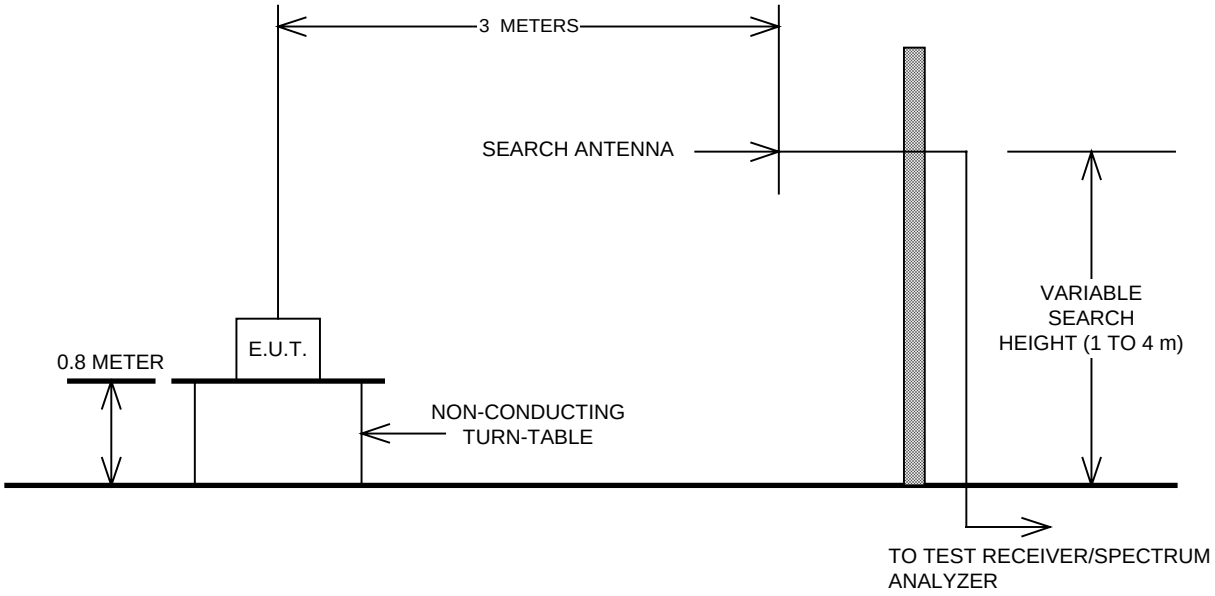
Conducted Emissions



Radiated Prescan



Outdoor Test Site For Radiated Emissions



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

Section 7. Test Equipment List

CAL CYCLE	EQUIPMENT	MANUFACTURER	MODEL	SERIAL	LAST CAL.	NEXT CAL.	
1 Year	Spectrum Analyzer	Hewlett Packard	8565E	FA000981	June 16/99	June 16/00	
1 Year	Spectrum Analyzer-**1**	Hewlett Packard	8566B	2311A02238	Oct. 22/98	Oct. 22/99	
1 Year	Spectrum Analyzer Display-**1**	Hewlett Packard	8566B	2314A04759	Oct. 22/98	Oct. 22/99	
1 Year	Quasi-peak adapter-**1**	Hewlett-Packard	85650A	2043A00302	Oct. 22/98	Oct. 22/99	
1 Year	LISN	Rohde & Schwarz	ESH2-Z5	890485/017	July 23/98	Sept. 24/99	
1 Year	Receiver	Rohde & Schwarz	ESVP	892661/014	Mar. 29/99	Mar. 29/00	
2 Year	Horn Antenna	EMCO #2	3115	4336	Oct. 30/97	Oct. 30/99	
1 Year	Dipole Antenna Set	EMCO	3121C	1029	Nov. 18/98	Nov. 18/99	

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