Standards Council of Canada
Accredited Laboratory
Scope of Accreditation 75

Conseil canadien des normes
Laboratoire accrédité
Portée d'accréditation 75

TM

Test Report:	2W06152
Applicant:	Instantel Inc. 309 Legget Drive Kanata, Ontario K2K 3A3
Equipment Under Test: (EUT)	Baby Tag
FCC ID:	ISEBTG
In Accordance With:	**FCC Part 15, Subpart C, 15.231**
Tested By:	Nemko Canada Inc. 303 River Road, R.R. 5 Ottawa, Ontario K1V 1H2
Authorized By:	Glen Westwell, Wireless Technologist
Date:	24 June 2002
Total Number of Pages:	18

Table of Contents

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 Part 15, Subpart C. All tests were conducted using measurement procedure ANSI C63.4-1992. Radiated emissions are made on an open area test site. A description of the test facility is on file with the FCC.

THIS TEST REPORT RELATES ONLY TO THE ITEM(S) TESTED.

TESTED BY: _____ DATE: 24 June 2002

Kevin Carr, EMC Specialist

Summary Of Test Data

Name of Test	Para. Number	Results
Transmission Requirements	15.231(a)	N/A
Radiated Emissions	15.231(b)	Complied
Occupied Bandwidth	15.231(c)	Complied
Frequency Tolerance	15.231(d)	N/A
Periodic Alternate Field Strength Requirements	15.231(e)	Complied
Powerline Conducted Emissions	15.207	N/A

Test Conditions:

Indoor Temperature: 22°C
Humidity: 45%

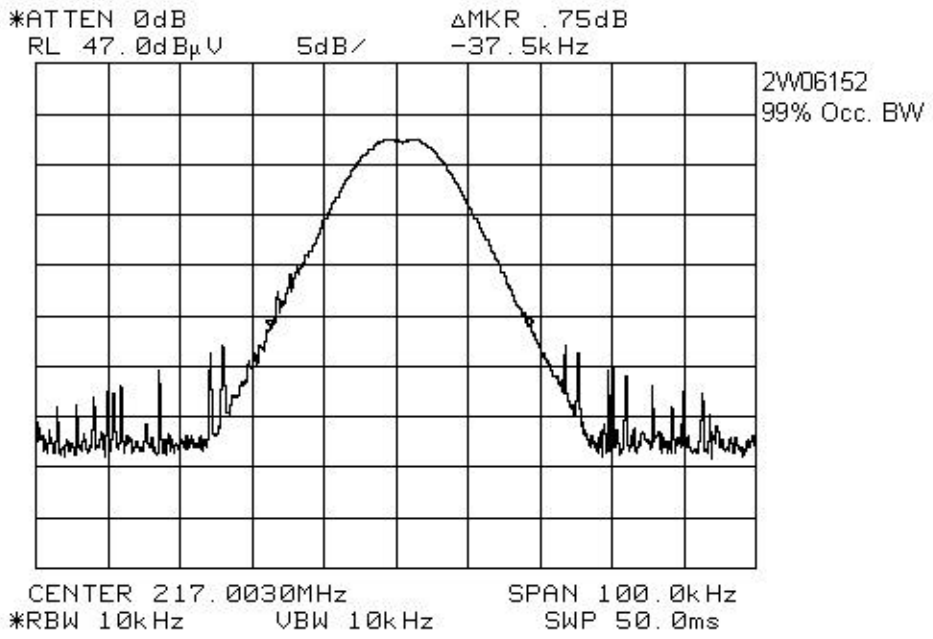
Outdoor Temperature: 17°C
Humidity: 55%

Section 2. Equipment Under Test

General Equipment Information

Manufacturer:	Instantel Inc.
Model No.:	806A2401
Serial No.:	None
Date Received In Laboratory:	20 June 2002
Nemko Identification No.:	1
Transmit Frequency (fixed)	217.003MHz
20 dB Bandwidth:	37.5kHz
Type of Modulation:	FSK
Emission designator:	37k5P0D
Occupied Bandwidth (99% BW):	37.5kHz

99% Occupied Band Width



Section 3. Transmission Requirements

Para. No.: 15.231(a)

Test Performed By: Kevin Carr	**Date of Test: 20 June 2002**

Minimum Standard:

15.231(a) Continuous transmissions such as voice, video or data transmissions are not permitted.

15.231(a)(1) A manually operated transmitter shall employ a switch that will automatically deactivate the transmitter within not more than 5 seconds after being released.

15.231(a)(2) A transmitter activated automatically shall cease transmission within 5 seconds of activation.

15.231(a)(3) Periodic transmissions at regular pre-determined intervals are not permitted. However polling or supervisory transmissions to determine system integrity of transmitters used in security or safety applications are allowed if the periodic rate of transmission does not exceed one transmission of not more than one second duration per hour for each transmitter.

15.231(a)(4) Intentional radiators which are employed for radio control purposes during emergencies involving fire, security, and safety of life, when activated to signal an alarm, may operate during the pendency of the alarm.

Test Results: Not Compliant. EUT was tested to 15.231(e), Reduced Field Strengths.

Test Data: Compliance was determined by verification of technical specifications and a functional test on the equipment.

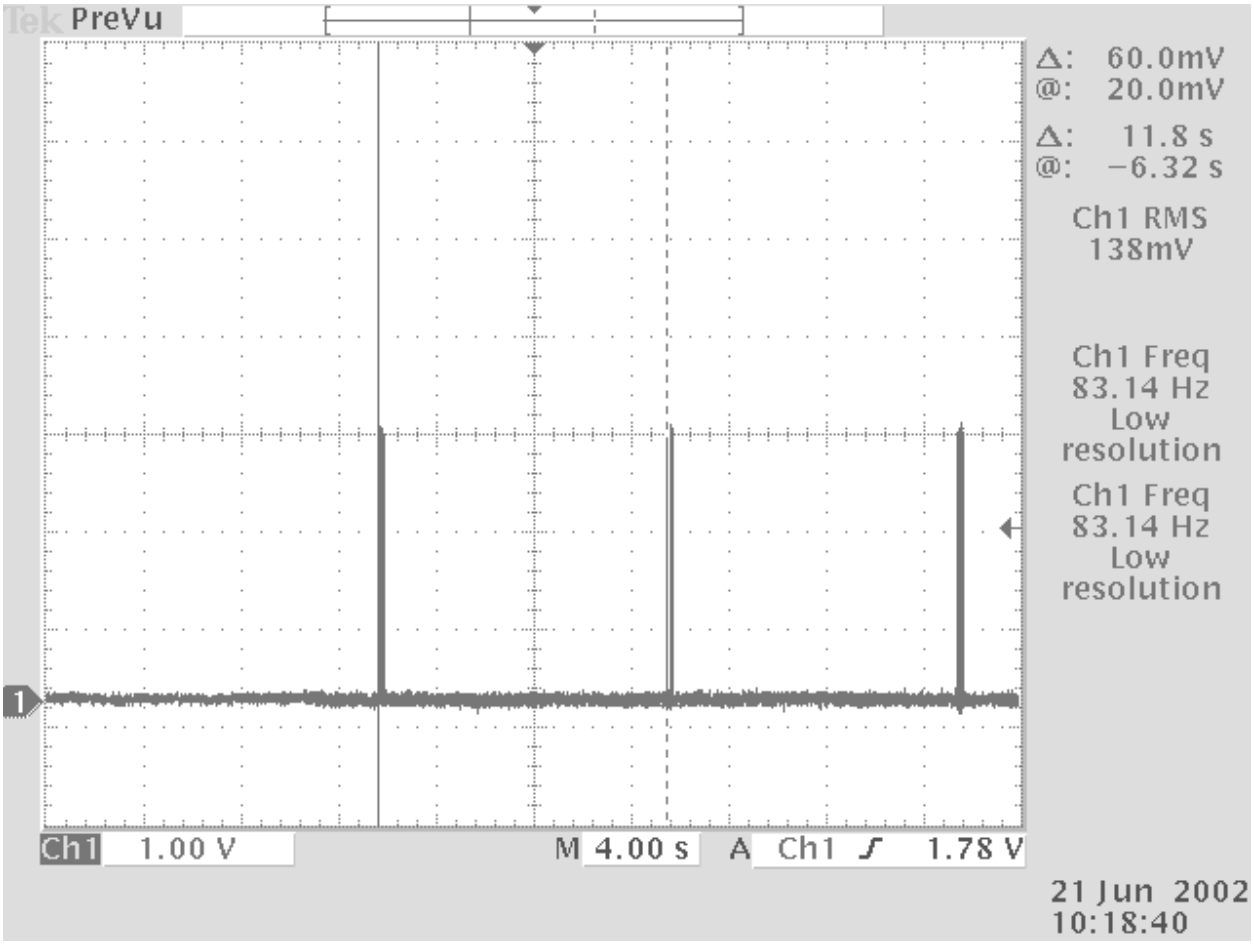
Rationale for Compliance with Transmission Requirements

15.231(a)(1) : N/A, EUT is not manually operated

15.231(a)(2) : Complied to 15.231(e)

15.231(a)(3) : Complied, EUT is Polled

15.231(a)(4) : Complied. EUT transmits during the pendancy of the alarm.


Tek PreVu
Δ: 60.0mV
@: 20.0mV
Δ: 11.8 s
@: −6.32 s
Ch1 RMS
138mV
Ch1 Freq
83.14 Hz
Low
resolution
Ch1 Freq
83.14 Hz
Low
resolution
1
Ch1 1.00 V
M 4.00 s
A Ch1 ∫ 1.78 V
21 Jun 2002
10:18:40

Section 4. Occupied Bandwidth

Para. No.: 15.231(c)

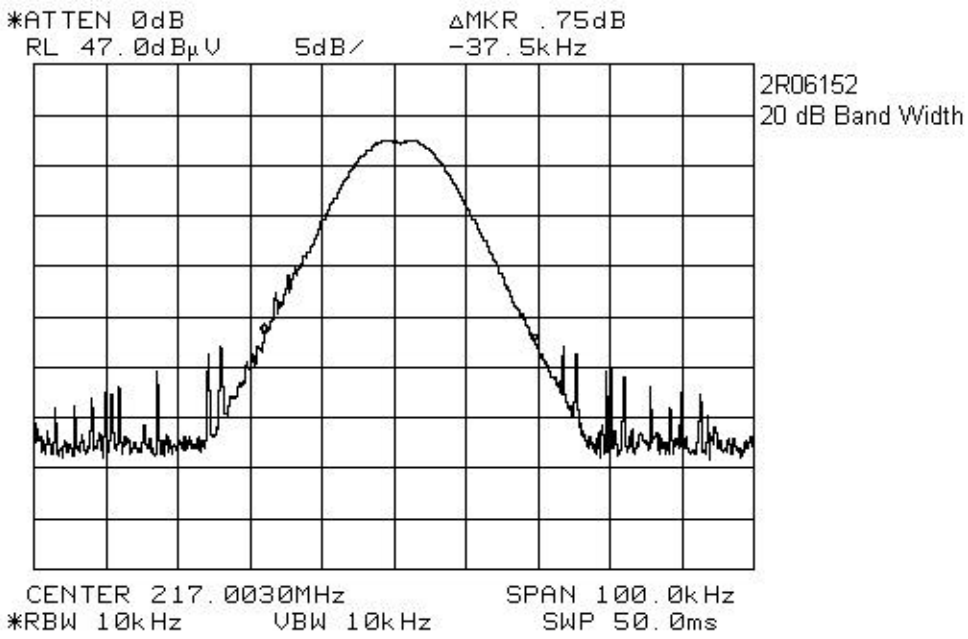
Test Performed By: Kevin Carr	**Date of Test: 21 June 2002**

Minimum Standard: 15.231(c) The bandwidth of the emission shall be no wider than 0.25% of the center frequency for devices operating above 70 MHz and below 900 MHz. For devices operating above 900 MHz, the emission shall be no wider than 0.5% of the center frequency. Bandwidth is determined at the points 20 dB down from the modulated carrier.

Limit: 0.5425MHz

Test Results: Complied. 20dB BW was 0.0375MHz

Test Data: See attached graph.


*ATTEN 0dB
RL 47.0dBµV
5dB/
ΔMKR .75dB
-37.5kHz
2R06152
20 dB Band Width
CENTER 217.0030MHz
SPAN 100.0kHz
*RBW 10kHz
VBW 10kHz
SWP 50.0ms

Section 5. Periodic Alternate Field Strength Requirements

Para. No.: 15.231(e)

Test Performed By: Kevin Carr	**Date of Test: 21 June 2002**

Minimum Standard: 15.231(e) Intentional radiators may operate at a periodic rate exceeding that specified in paragraph (a) of this section and may be employed for any type of operation, including operation prohibited in paragraph (a) of this section, provided the intentional radiator complies with the provisions of paragraphs (b) through (d) of this section, except the field strength table in paragraph (b) of this section is replaced by the following.

Fundamental Frequency (MHz)	**Field Strength of Fundamental (µV/m @ 3m)**	**Field Strength of Spurious Emissions (µV/m @ 3m)**
40.66 - 40.70	1,000	100
70 - 130	500	50
130 - 174	500 to 1,500	50 to 150
174 - 260	1,500	150
260-470	1,500 to 5,000	150 to 500
Above 470	5,000	500

In addition, devices operated under the provisions of this paragraph shall be provided with a means for automatically limiting operation so that the duration of each transmission shall not be greater than one second and the silent period between transmissions shall be at least 30 times the duration of the transmission but in no case less than 10 seconds.

Test Results: Complied. The EUT was verified for maximum amplitude in three orthagonal positions. Worst case has been reported.

Test Data: As per attached tabulated data.
Duty Cycle=20Log{(13.3+14.0)/100}=-11.3dB

Test Data - Radiated Emissions

Test Distance (meters) : 3		Range: A		Receiver: ESVP, HP8564E			RBW(kHz): 120, 1000		Detector: Peak, Peak	
No.	Freq. (MHz)	Ant.	Pol (V/H)	RCVD Signal (dBµV)	Ant. Factor (dB)**	Amp. Gain (dB)***	Duty Cycle Corr. (dB)	Field Strength (dBµV/m)	Limit (dBµV/m)	Margin (dB)
1	217	E/D3	V	36.9	16.8		-11.3	42.4	63.5	21.1
2	217	E/D3	H	54.2	16.8		-11.3	59.7	63.5	3.8
3	434	L/P1	V	20.8	19.2		-11.3	28.7	43.5	14.8
4	434	L/P1	H	21.3	19.2		-11.3	29.2	43.5	14.3
5	651	L/P1	V	22.4	23.7		-11.3	34.8	43.5	8.7
6	651	L/P1	H	19.5	23.7		-11.3	31.9	43.5	11.6
7	868.012	L/P1	V	22.8	27.2		-11.3	38.7	43.5	4.8
8	868.012	L/P1	H	20.2	27.2		-11.3	36.1	43.5	7.4
9	1085.1	Hrn2	V	55.8	27.7	47.9	-11.3	24.3	54	29.7
10	1084.96	Hrn2	H	56.8	27.7	47.9	-11.3	25.3	54	28.7
11	1302.1	Hrn2	V	51.5	28.8	48.2	-11.3	20.8	54	33.2
12	1302	Hrn2	H	55.1	28.8	48.2	-11.3	24.4	54	29.6
13	1519.1	Hrn2	V	58.6	29.7	47.8	-11.3	29.2	54	24.8
14	1519	Hrn2	H	54.6	29.7	47.8	-11.3	25.2	54	28.8
15	1736.1	Hrn2	V	55.5	31.4	47.9	-11.3	27.7	54	26.3
16	1736.1	Hrn2	H	56.8	31.4	47.9	-11.3	29	54	25
17	2170.1	Hrn2	V	65.2	34	58.6	-11.3	29.3	54	24.7
18	2170.2	Hrn2	H	69.4	34	58.6	-11.3	33.5	54	20.5
19	72.336	B/C1	V	15.3	9.4			24.7	40	15.3
20	72.336	B/C1	H	18.4	9.4			27.8	40	12.2

Notes:

B/C = Biconical, BL = Bilog, L/P = Log-Periodic, H = Horn, D/P = Dipole, E/D = EMCO Dipole

* Re-measured using dipole antenna.

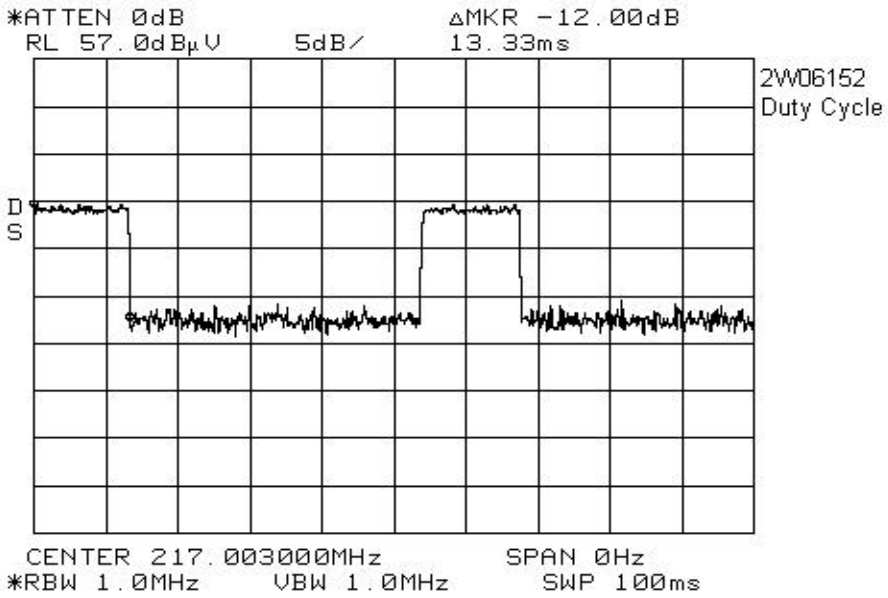
** Includes cable loss when amplifier is not used.

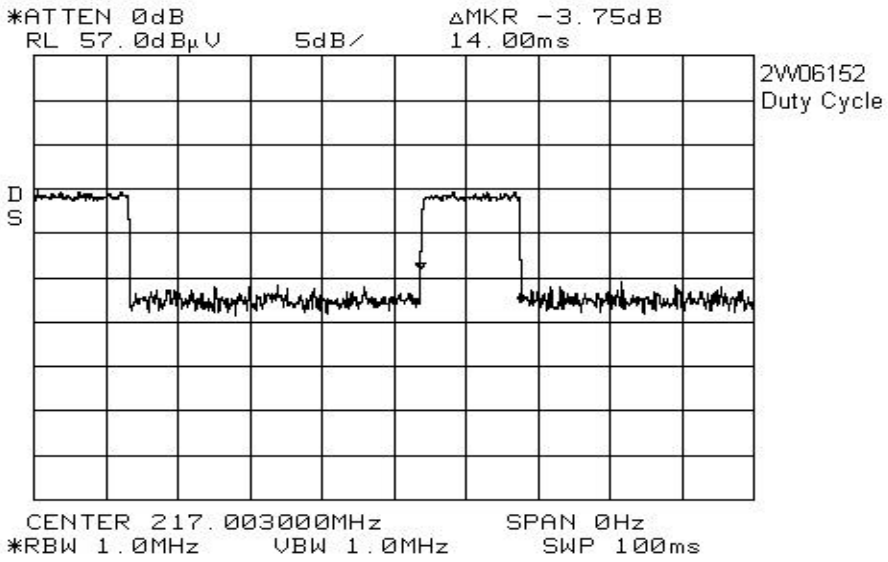
*** Includes cable loss.

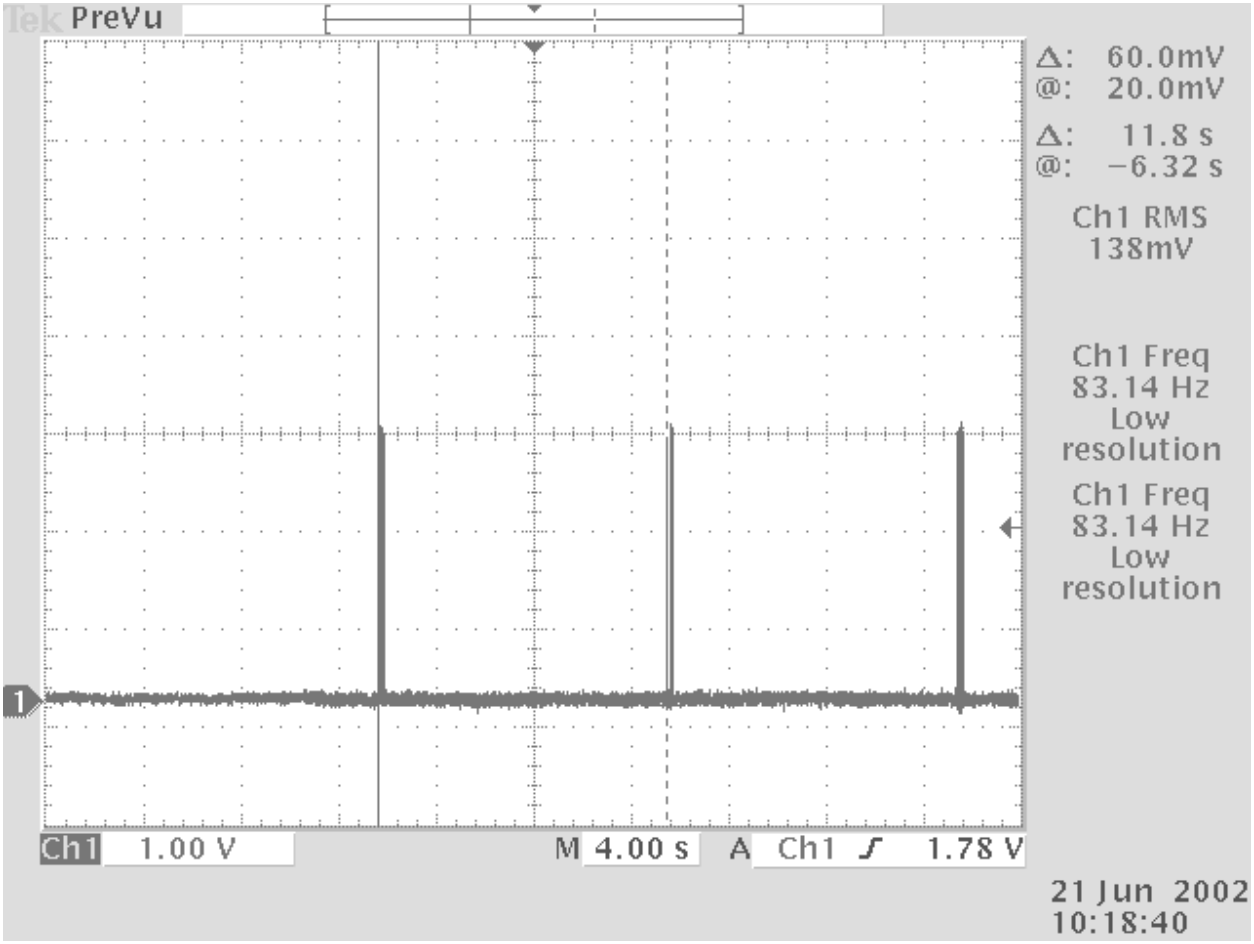
( ) Denotes failing emission level.

N.D. = Not Detected

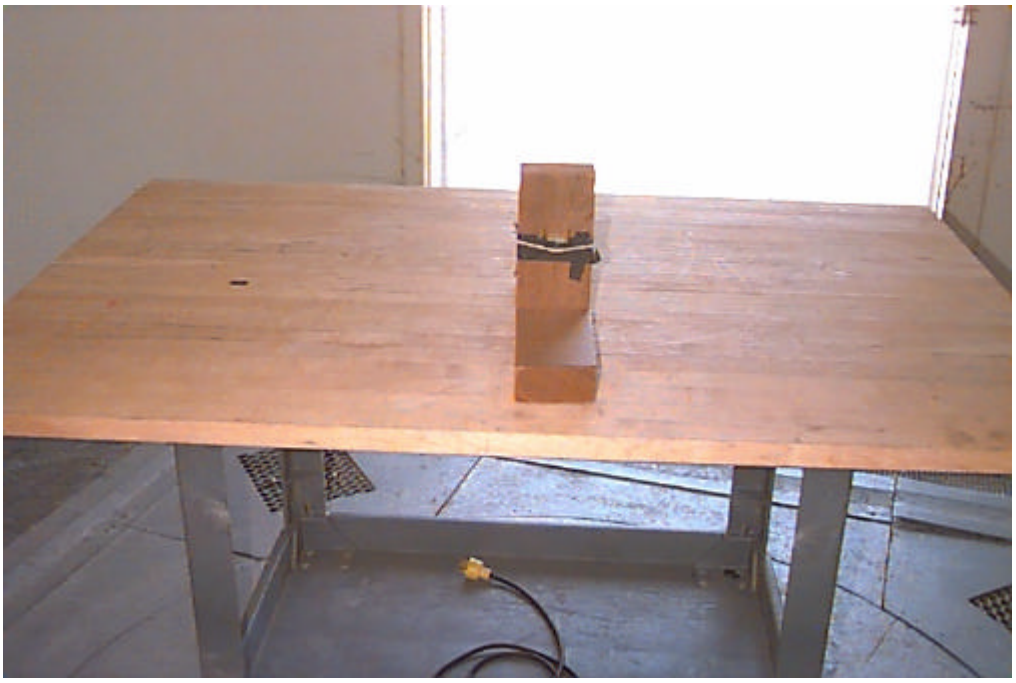
Duty Cycle:


*ATTEN 0dB
ΔMKR -12.00dB
RL 57.0dBµV
5dB/
13.33ms
2W06152
Duty Cycle
D
S
CENTER 217.003000MHz
SPAN 0Hz
*RBW 1.0MHz
VBW 1.0MHz
SWP 100ms


*ATTEN 0dB
ΔMKR -3.75dB
RL 57.0dBµV
5dB/
14.00ms
2W06152
Duty Cycle
D
S
CENTER 217.003000MHz
SPAN 0Hz
*RBW 1.0MHz
VBW 1.0MHz
SWP 100ms

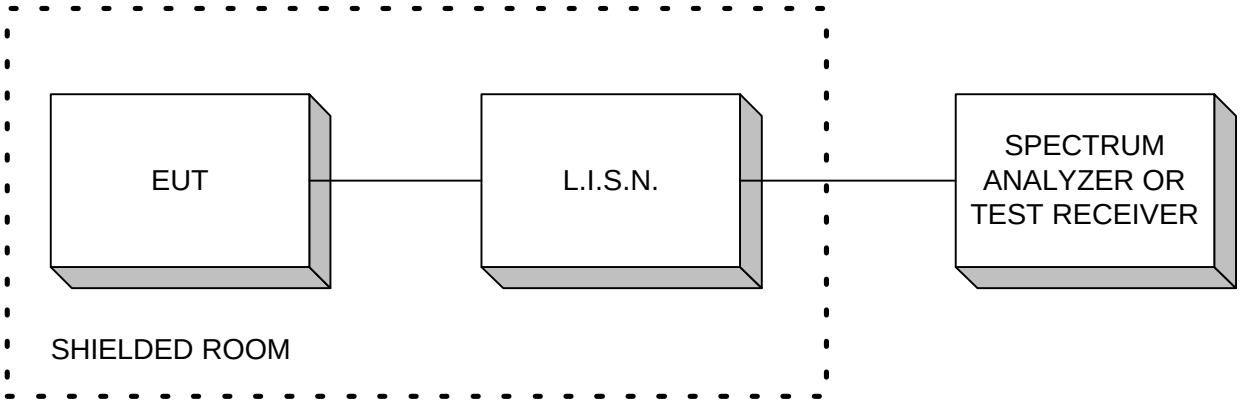

Tek PreVu
Δ: 60.0mV
@: 20.0mV
Δ: 11.8 s
@: −6.32 s
Ch1 RMS
138mV
Ch1 Freq
83.14 Hz
Low
resolution
Ch1 Freq
83.14 Hz
Low
resolution
1
Ch1 1.00 V
M 4.00 s
A Ch1 ∫ 1.78 V
21 Jun 2002
10:18:40

OATS, SET UP PHOTO

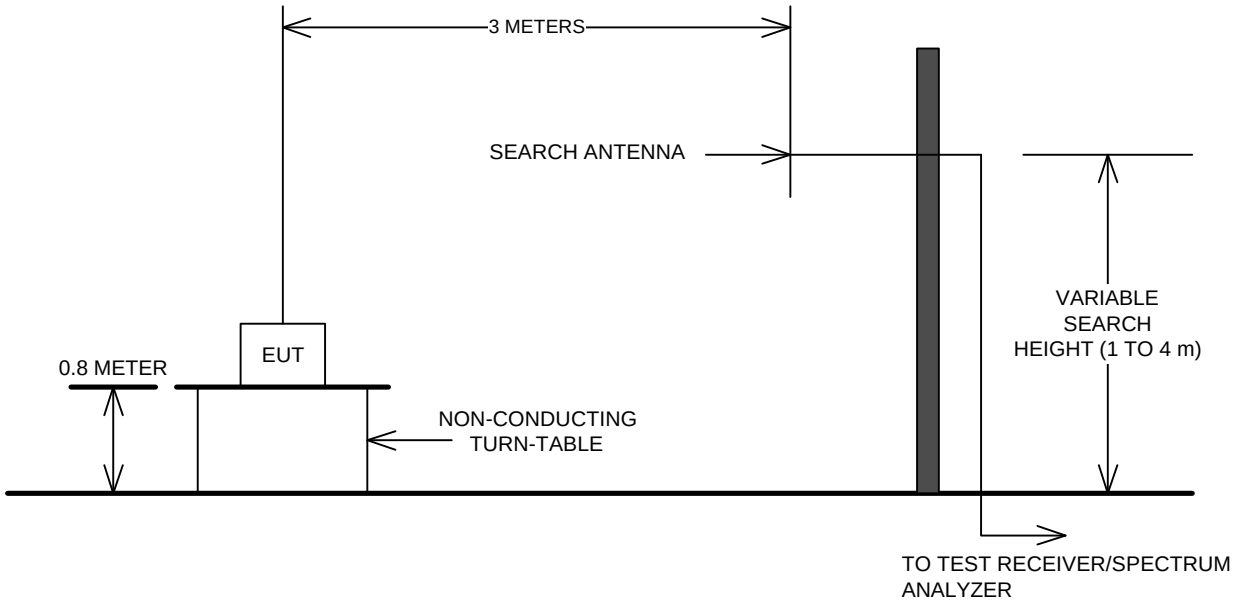


Section 6. Block Diagrams

Conducted Emissions



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 NEMKO CANADA - OTTAWA

Equipment List - Radiated Emissions

CAL Cycle	Equipment	Manufacturer	Model No.	Asset/Serial No.	Last Cal.	Next Cal.
1 Year	Receiver	Rohde & Schwarz	ESVP	FA000951	May. 02/02	May. 02/03
1 Year	Spectrum Analyzer	Hewlett-Packard	8564E	FA001367	Mar. 06/02	Mar. 06/03
1 Year	Dipole Antenna Set	EMCO #1	3121C	FA000814	May. 06/02	May. 06/03
1 Year	Biconical (1) Antenna	EMCO	3109	FA000805	Aug. 22/01	Aug. 22/02
1 Year	Horn Antenna #2	EMCO	3115	FA000825	Dec. 01/01	Dec. 01/02
1 Year	Log Periodic Antenna #1	EMCO	LPA-25	FA000477	Aug. 28/01	Aug. 28/02
1 Year	1.0 – 2.0 GHz Amplifier	JCA	12-400	FA001498	June. 04/02	June. 04/03
1 Year	2.0 – 4.0 GHz Amplifier	JCA	24-600	FA001496	June. 04/02	June. 04/03

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