Test Report:	5W36823.6 Issue 2
Applicant:	Instantel Inc. 309 Legget Drive Kanata, Ontario K2K 3A3
Equipment Under Test: (EUT)	International Hugs Tags
FCC ID:	ISEITG
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:	 Sim Jagpal, Resource Manager
Date:	March 29, 2005
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 C63.4-2003. 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.

THE FOLLOWING DEVIATIONS FROM, ADDITIONS TO, OR EXCLUSIONS FROM THE TEST SPECIFICATIONS HAVE BEEN MADE.
See " Summary of Test Data".

TESTED BY: _____ DATE: March 29, 2005
Jason Nixon, Telecom Specialist

Summary Of Test Data

Name of Test	Para. Number	Results
Transmission Requirements	15.231(a)	Complies
Radiated Emissions	15.231(b)	N/A (1)
Occupied Bandwidth	15.231(c)	Complies
Frequency Tolerance	15.231(d)	N/A (2)
Periodic Alternate Field Strength Requirements	15.231(e)	Complies
Powerline Conducted Emissions	15.207	N/A (3)

Justification of N/A's:

(1) The EUT transmits periodically, therefore it was required to comply with the limits of 15.231(e).
(2) The EUT does not operate in the frequency range of 40.66 – 40.70 MHz.
(3) The EUT is battery powered.

Test Conditions:

Indoor Temperature: 22°C
Humidity: 16%

Outdoor Temperature: 10°C
Humidity: 78%

Section 2. Equipment Under Test

General Equipment Information

Manufacturer:	Instantel Inc.
Model No.:	806A5201
Serial No.:	None
Date Received In Laboratory:	January 21, 2005
Nemko Identification No.:	7
Frequency Range (*or fixed frequency*):	433.42-434.42MHz
RF Power in Watts:	N/A
Field Strength (*distance*):	61.0dBuV/m @ 434.17MHz @ 3m
Occupied Bandwidth (99% BW):	650kHz
Type of Modulation:	PCM
Emission Designator (TRC-43:)	650K0L1D
Transmitter Spurious (*worst case*):	26.2dBuV/m @ 1302.51MHz @ 3m
Receiver Spurious (*worst case*):	N/A
Antenna:	Integral

Section 3. Transmission Requirements

Para. No.: 15.231(a)

Test Performed By: Jason Nixon	**Date of Test: January 24, 2005**

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: Complies

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

Rationale for Compliance with Transmission Requirements

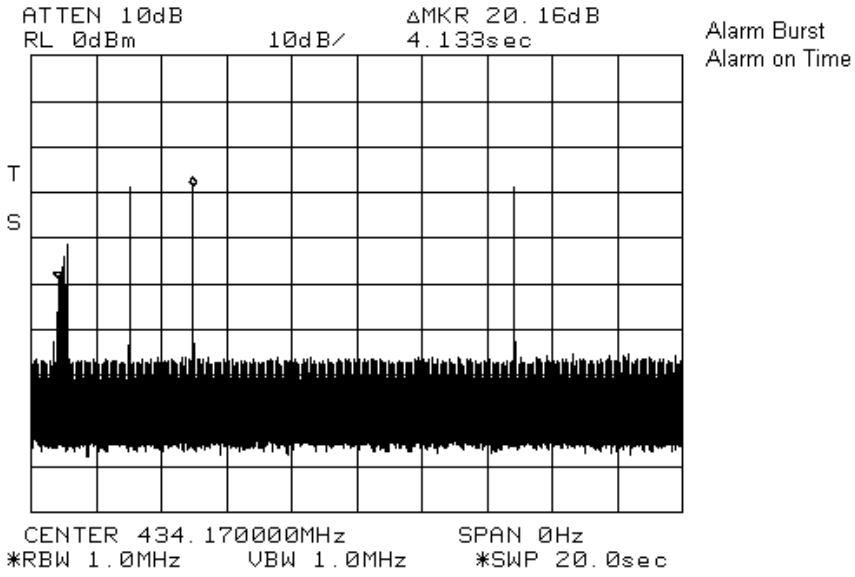
15.231(a)(1) : The apparatus is not manually controlled.

15.231(a)(2) : The apparatus does transmit automatically to report an alarm condition. See plots below. Each Alarm transmission consists of a 6 pulses burst followed by two single pulses. This occurs for each alarm condition.

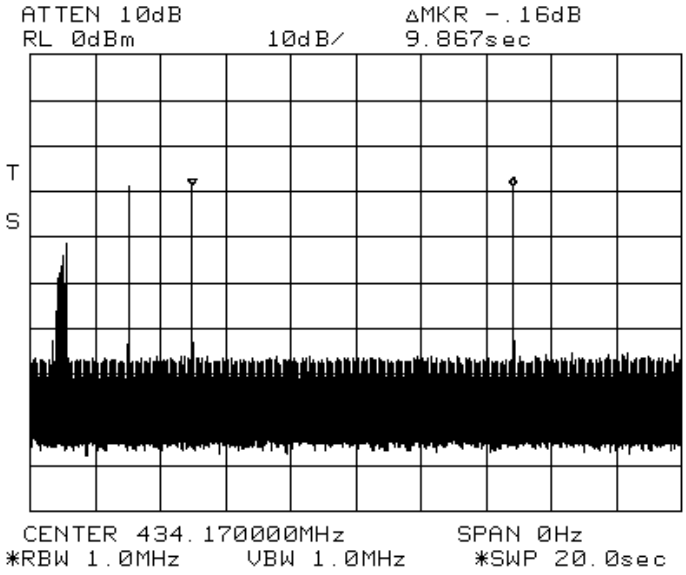
15.231(a)(3) : The apparatus does transmit periodically but this is covered under 15.231(e).

15.231(a)(4) : The apparatus is not used during emergencies.

Alarm On-Time

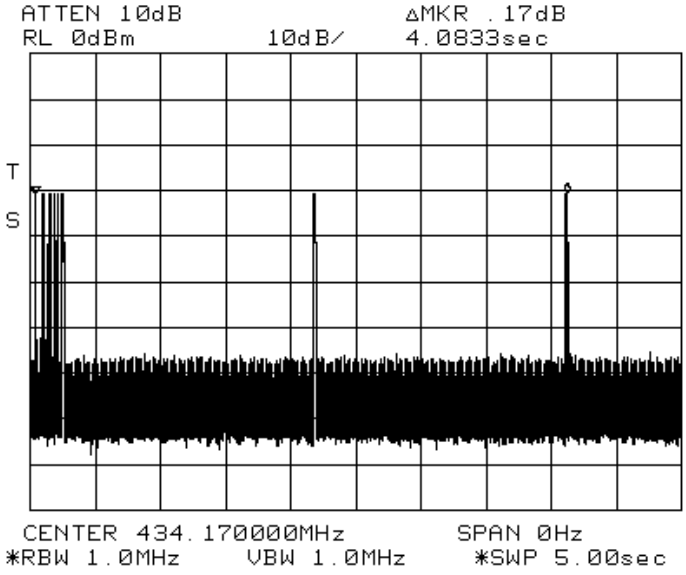


Time for change of Alarm to Supervisory Signal



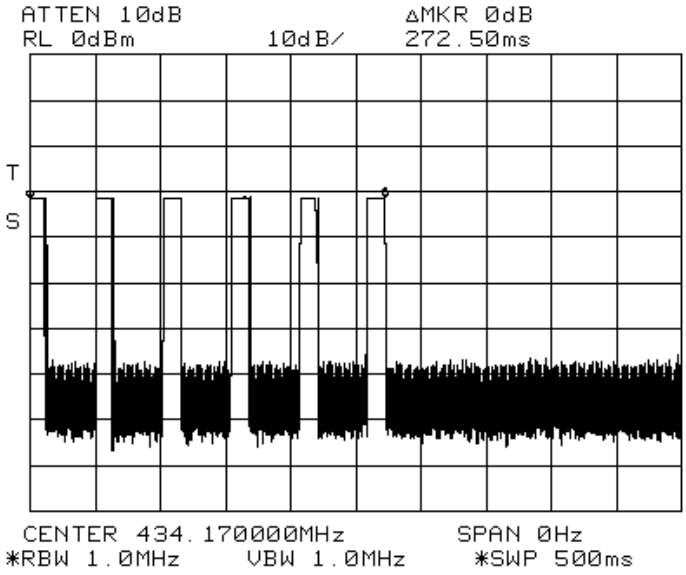
Alarm burst
Time to go Back to supervisory

Alarm On-Time

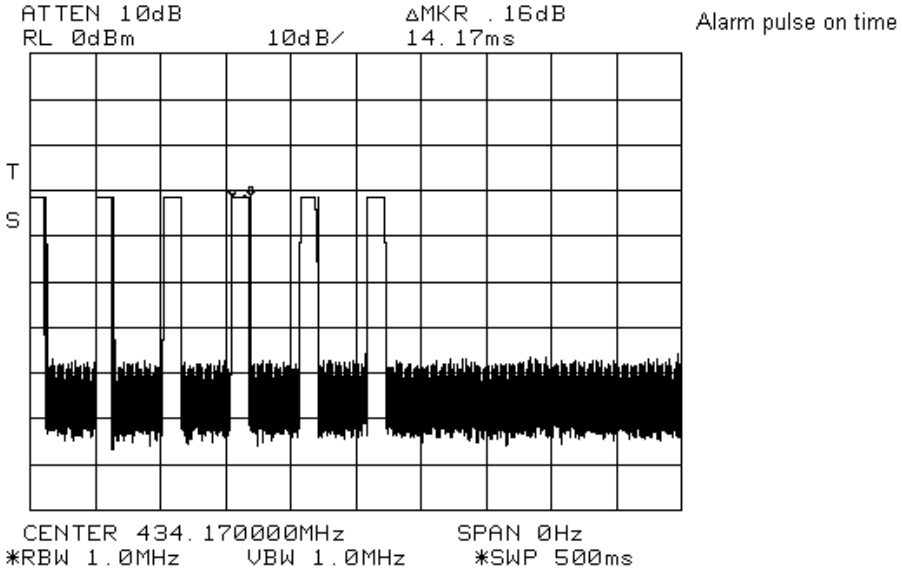


Alarm on time

On-Time of Six Pulse Burst



On-Time of single Pulse



Section 4. Occupied Bandwidth

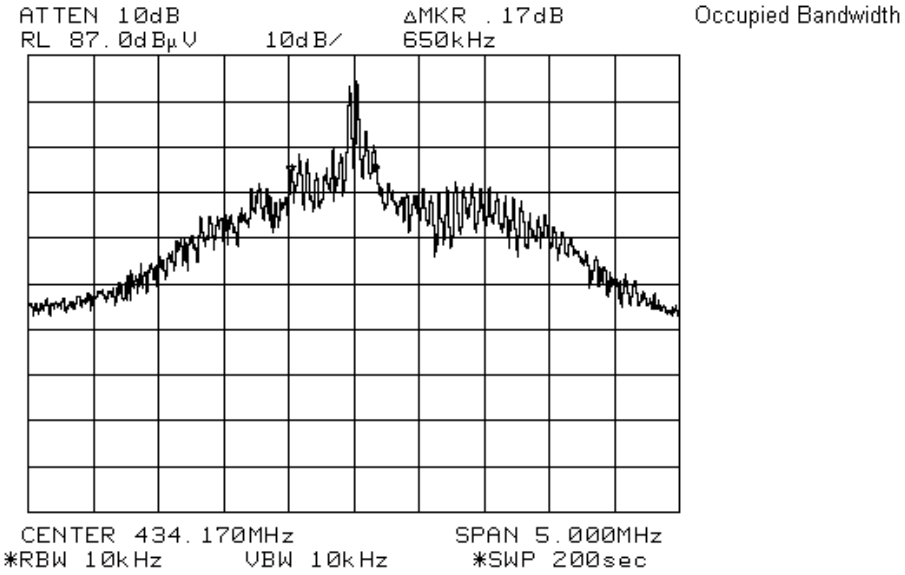
Para. No.: 15.231(c)

Test Performed By: Jason Nixon	**Date of Test: January 24, 2005**

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.

Test Results: Complies

Test Data: See attached graph.



Section 5. Periodic Alternate Field Strength Requirements

Para. No.: 15.231(e)

Test Performed By: Jason Nixon	**Date of Test: January 24, 2005**

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: Complies

Test Data: As per attached tabulated data.

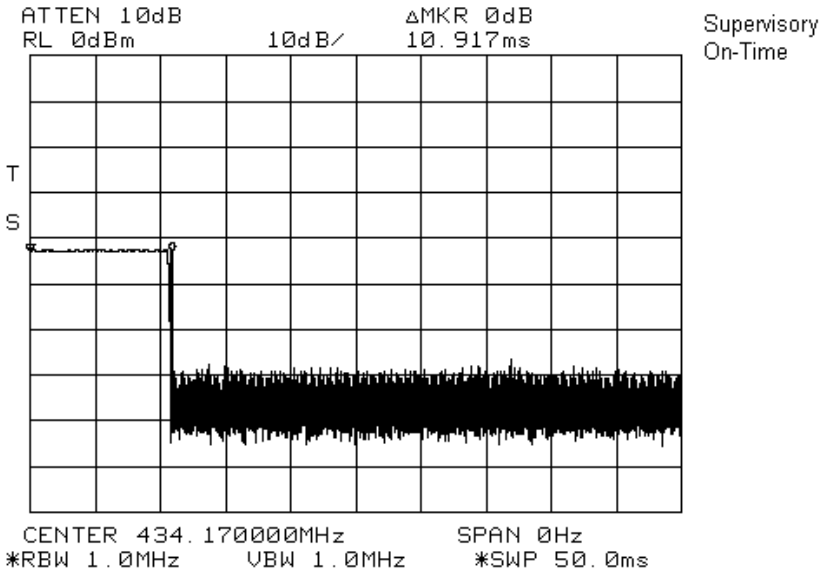
All measurements were performed using a Peak Detector with 100kHz RBW below 1GHz and a 1MHz RBW above 1GHz.

All emissions were searched from 30MHz up to the 10^{th} harmonic of the transmitter.

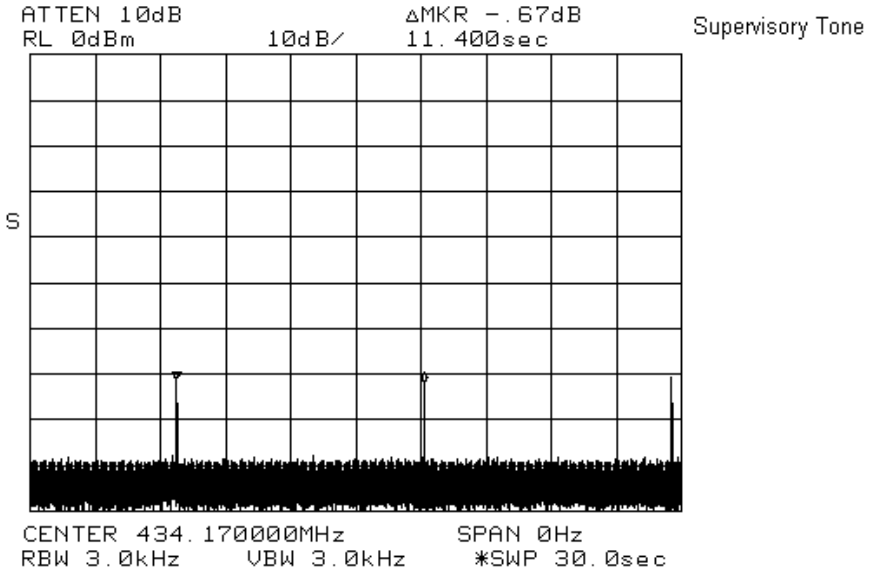
The apparatus was tested on three orthogonal axis and with a fresh battery.

Frequency (MHz)	Antenna	Polarity	RCVD Signal (dBuV)	Ant. Factor (dB)	Amp. Gain (dB)	Duty Cycle Corr.	Cable Loss (dB)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)
434.1700	ED4	V	46.7	21.6	N/A	-10.6	2.7	60.3	72.9	12.6
434.1700	ED4	H	47.3	21.6	N/A	-10.6	2.7	61.0	72.9	11.9
1302.5100	Horn2	V	52.9	26.6	46.5	-10.6	3.3	25.7	52.9	27.2
1302.5100	Horn2	H	53.4	26.6	46.5	-10.6	3.3	26.2	52.9	26.7
Legend: Antenna Legend: BC = Biconical, BL = Bilog, LP = Log-Periodic, Horn = Horn, ED = EMCO Dipole										

On-time for Periodic transmissions



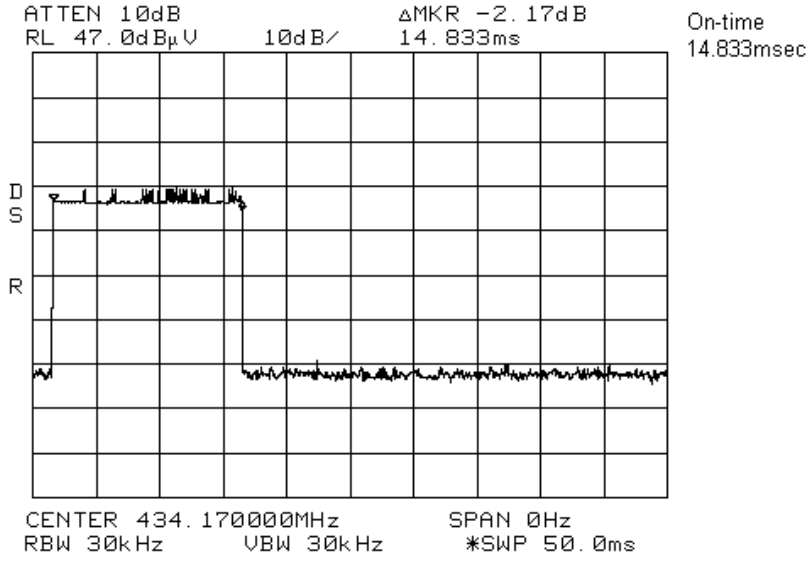
Time between Periodic transmissions

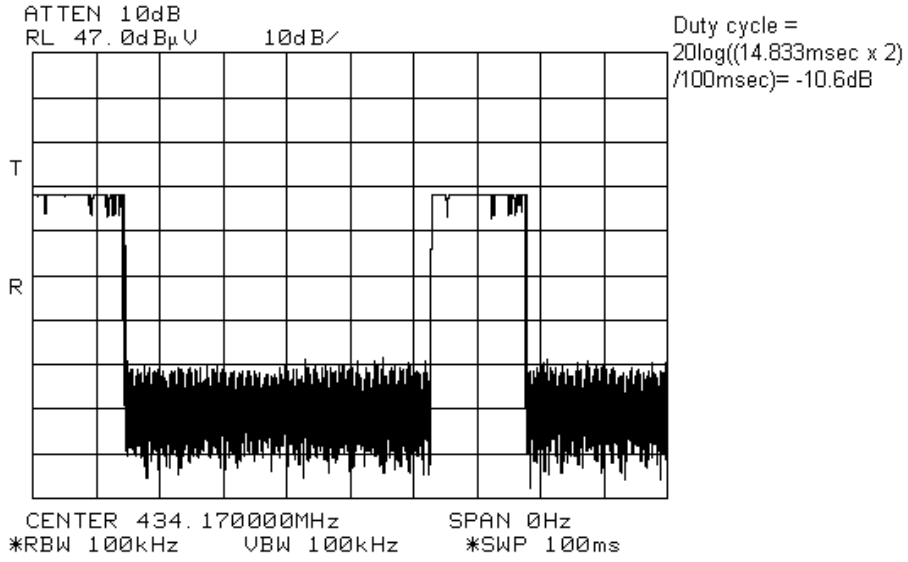


Time between transmissions > 30 x transmission on-time

11.4s > 30 x 10.917msec

Duty Cycle Correction Factor





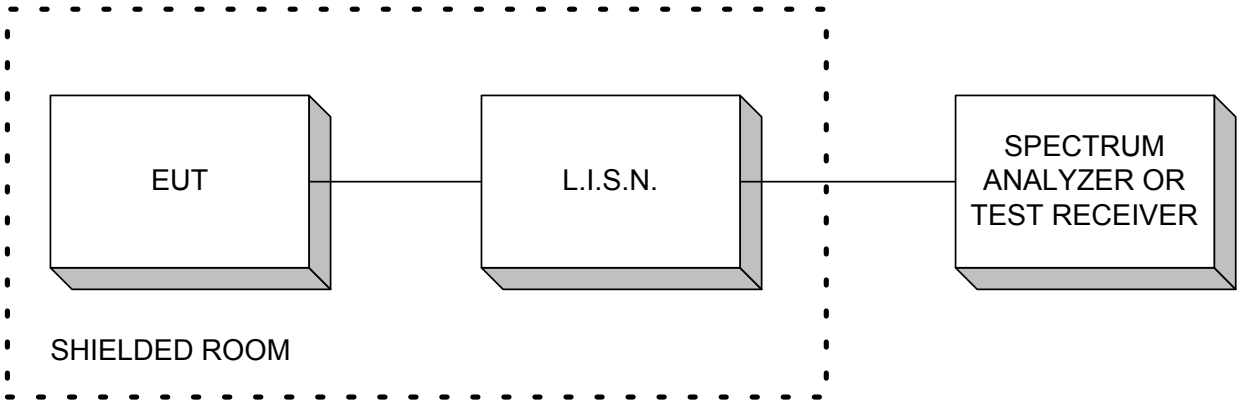
1 Pulse = 14.833 msec, worst case is 2 pulses in 100msec
Duty Cycle = 20log((2 x 14.833)/100) = -10.6dB
The worst case duty cycle would occur during an alarm condition when 6 pulses are transmitted over a 272msec period.

Setup Photo's (worst case)
Vertical Polarization

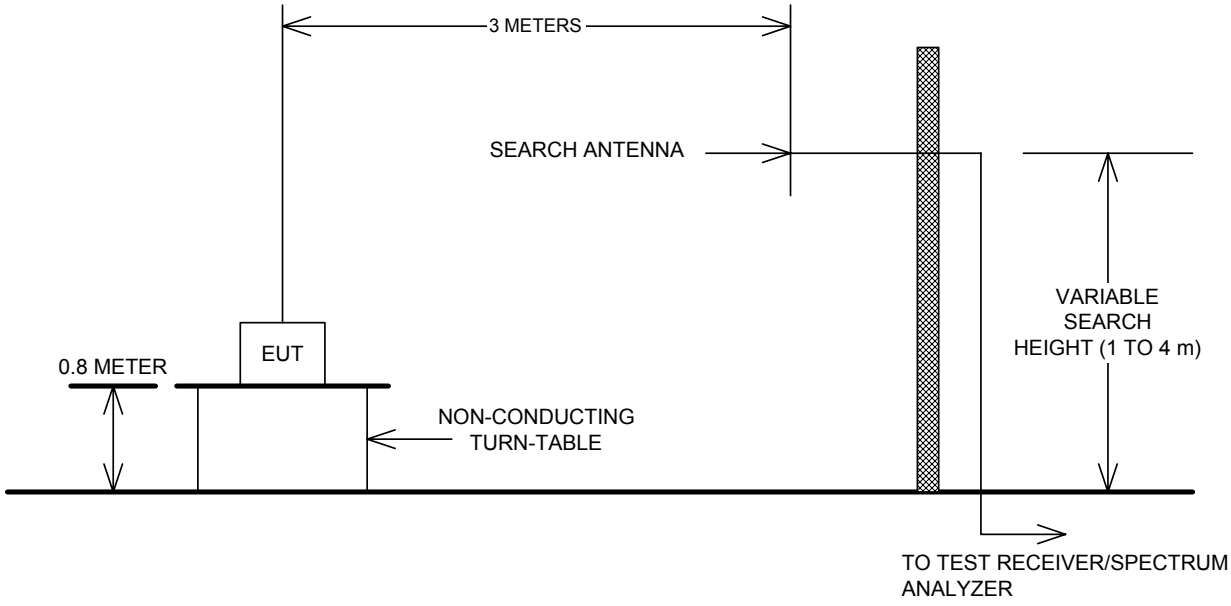
Horizontal Polarization

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

Radiated Emissions Test Equipment Used						
CAL Cycle	Equipment	Manufacturer	Model No.	Asset/Serial No.	Last Cal.	Next Cal.
1 Year	Spectrum Analyzer	Hewlett-Packard	8564E	3943A01798	Dec 22/04	Dec 22/05
1 Year	Dipole Antenna Set	EMCO #1	3121C	FA000814	April 21/04	April 21/05
1 Year	Log Periodic Antenna #1	EMCO	LPA-25	FA000477	Aug. 26/04	Aug. 26/05
1 Year	Horn Antenna #2	EMCO	3115	FA000825	Dec. 14/04	Dec. 14/05
1 Year	1.0 – 2.0 GHz Amplifier	JCA	12-400	FA001498	June 18/04	June 18/05
1 Year	2.0 – 4.0 GHz Amplifier	JCA	24-600	FA001496	June 18/04	June 18/05
1 Year	4.0 – 8.0 GHz Amplifier	JCA	48-600	FA001497	June 18/04	June 18/05
Note: N/A = Not Applicable, NCR = No Cal Required, COU = CAL On Use						