



Test Report: 4W26820.8


Applicant: PARADOX SECURITY SYSTEMS
780 INDUSTRIAL BLVD
ST-EUSTACHE
QUEBEC, CANADA, J7R 5V3

**Equipment Under Test:
(EUT)** MG-PMD85 (433MHz), Wireless Motion Detector

FCC ID: KDYMGPM85

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 Specialist

Date: 13 October 2004

Total Number of Pages: 15

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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 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 APPLIES ONLY TO THE ITEM(S) TESTED.

THE FOLLOWING DEVIATIONS FROM, ADDITIONS TO, OR EXCLUSIONS FROM THE TEST SPECIFICATIONS HAVE BEEN MADE. NONE
See " Summary of Test Data".



TESTED BY: _____
Chris Maidens, EMC Specialist

DATE: 7 October 2004

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This report applies only to the items tested.

Nemko Canada Inc., a testing laboratory, is accredited by the Standards Council of Canada. The tests included in this report are within the scope of this accreditation.



EQUIPMENT: MG-PMD85 (433MHz), Wireless Motion Detector

Summary Of Test Data

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

Justification for N/A's

N/A(1)	The Eut does not transmit in the band 40.66-40.070MHz
N/A(2)	The requirements of this section are not applicable to this EUT.
N/A(3)	The EUT is Battery Powered (3 "AA" batteries)

Test Conditions:

Indoor Temperature: 22°C
 Humidity: 60%

Section 2. Equipment Under Test

General Equipment Information

Manufacturer:	Paradox Security Systems
Company Number:	2438A
EUT Description:	The EUT is a wireless motion detector for use with a Magellan alarm system.
Model No.:	MG-PMD85
Serial No.:	098099
Date Received In Laboratory:	14 September 2004
Nemko Identification No.:	11
Frequency Range (or fixed frequency):	Fixed, 433.92MHz
Type of Modulation:	ASK, 100% or OOK
Emission Designator (TRC-43:)	94K0L1D

Section 3. Transmission Requirements

Para. No.: 15.231(a)

Test Performed By: Chris Maidens	Date of Test: Sept. 14, 2004
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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.

EQUIPMENT: MG-PMD85 (433MHz), Wireless Motion Detector

Section 4. Radiated Emissions

Para. No.: 15.231(b)

Test Performed By: Chris Maidens	Date of Test: Sept. 14, 2004
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Minimum Standard:

Fundamental Frequency (MHz)	Field Strength of Fundamental ($\mu\text{V/m @ 3m}$)	Field Strength of Spurious Emissions ($\mu\text{V/m @ 3m}$)
40.66 - 40.70	2,250	225
70-130	1, 250	125
130-174	1,250 to 3,750*	125 to 375
174-260 (note 1)	3,750	375
260-470 (note 1)	3,750 to 12,500*	375 to 1,250
Above 470	12,500	1,250

Restricted Band Limits		
Frequency (MHz)	Field Strength ($\mu\text{V/m @ 3m}$)	Field Strength ($\text{dB}\mu\text{V/m @ 3m}$)
30 - 88	100	40.0
88 - 216	150	43.5
216 - 960	200	46.0
Above 960	500	54.0

Test Results: Complies.

Test Data: As per attached tabulated data.

EQUIPMENT: MG-PMD85 (433MHz), Wireless Motion Detector

Radiated Disturbance Test Data:

Test Date: September 14, 2004											
Engineer's Name: Chris Maidens											
Temperature (C°): 20						Humidity %: 64					
Tested as per (Table Top/Floor Standing): Table Top											
Test Distance (meters): 3						Range: 1					
Freq. (MHz)	Ant.	Pol. V/H	RCVD Signal (dBµV)	Ant. Factor (dB)	Amp. Gain (dB)	Duty Cycle Corr. (-dB)	Cable Loss (dB)	Field Strength (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Amp.
433.9200	ED4	H	44.8	21.6	0	-11.1	2.7	58.0	80.8	22.8	Peak
433.9200	ED4	V	59.3	21.6	0	-11.1	2.7	72.5	80.8	8.3	Peak
867.8420	LP2	V	35.0	22.5	0	-11.1	3.9	50.3	60.8	10.5	Peak
867.8420	LP2	H	29.5	23.7	0	-11.1	3.9	46.0	60.8	14.8	Peak
1301.7600	Horn1	V	61.8	26.4	46.5	-11.1	3.3	33.8	49.5	15.7	Peak
1301.7600	Horn1	H	55.3	26.3	46.5	-11.1	3.3	27.3	49.5	22.2	Peak
1735.6800	Horn1	V	58.7	28.2	46.6	-11.1	3.9	33.0	60.8	27.8	Peak
1735.6800	Horn1	H	53.2	28.0	46.6	-11.1	3.9	27.3	60.8	33.5	Peak
2169.6000	Horn1	V	69.2	29.1	55.3	-11.1	4.7	36.6	60.8	24.2	Peak
2169.6000	Horn1	H	67.3	29.1	55.3	-11.1	4.7	34.7	60.8	26.1	Peak
2603.5200	Horn1	V	69.0	30.2	56.5	-11.1	8.0	39.6	60.8	21.2	Peak
2603.5200	Horn1	H	70.3	30.2	56.5	-11.1	8.0	40.9	60.8	19.9	Peak
3037.4400	Horn1	V	64.8	31.2	56.1	-11.1	6.1	34.9	60.8	25.9	Peak
3037.4400	Horn1	H	64.0	31.4	56.1	-11.1	6.1	34.2	60.8	26.6	Peak
3471.3600	Horn1	V	62.0	31.3	55.1	-11.1	7.2	34.3	60.8	26.5	Peak
3471.3600	Horn1	H	61.3	31.5	55.1	-11.1	7.2	33.8	60.8	27.0	Peak
3905.2800	Horn1	V	59.2	32.8	54.6	-11.1	7.6	33.9	49.5	15.6	Peak
3905.2800	Horn1	H	59.8	32.8	54.6	-11.1	7.6	34.5	49.5	15.0	Peak
4339.2000	Horn1	V	56.7	32.8	52.5	-11.1	8.3	34.2	49.5	15.3	Peak
4339.2000	Horn1	H	57.5	32.8	52.5	-11.1	8.3	35.0	49.5	14.5	Peak
<p>Note 1: Antenna Legend: BC = Biconical, BL = Bilog, LP = Log-Periodic, Horn = Horn, ED = EMCO Dipole</p> <p>Note 2: Detector Legend: Q-Peak = 120 kHz RBW, Average = 1.0 MHz RBW, N.D. = Not Detected</p>											
Notes:		<ol style="list-style-type: none"> 1) Emissions were searched to the 10th harmonic of the fundamental (433.92 to 4339.2MHz) 2) The EUT was tested with fresh batteries. 3) Receiver bandwidth of 100kHz was used below 1GHz, & 1MHz bandwidth was used on emissions above 1GHz. 4) The EUT was tested in 3 orthogonal axes, the worst case was reported. 									

EQUIPMENT: MG-PMD85 (433MHz), Wireless Motion Detector

OATS Set up Photo



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Section 5. Occupied Bandwidth

Para. No.: 15.231(c)

Test Performed By: Chris Maidens	Date of Test: Sept. 14, 2004
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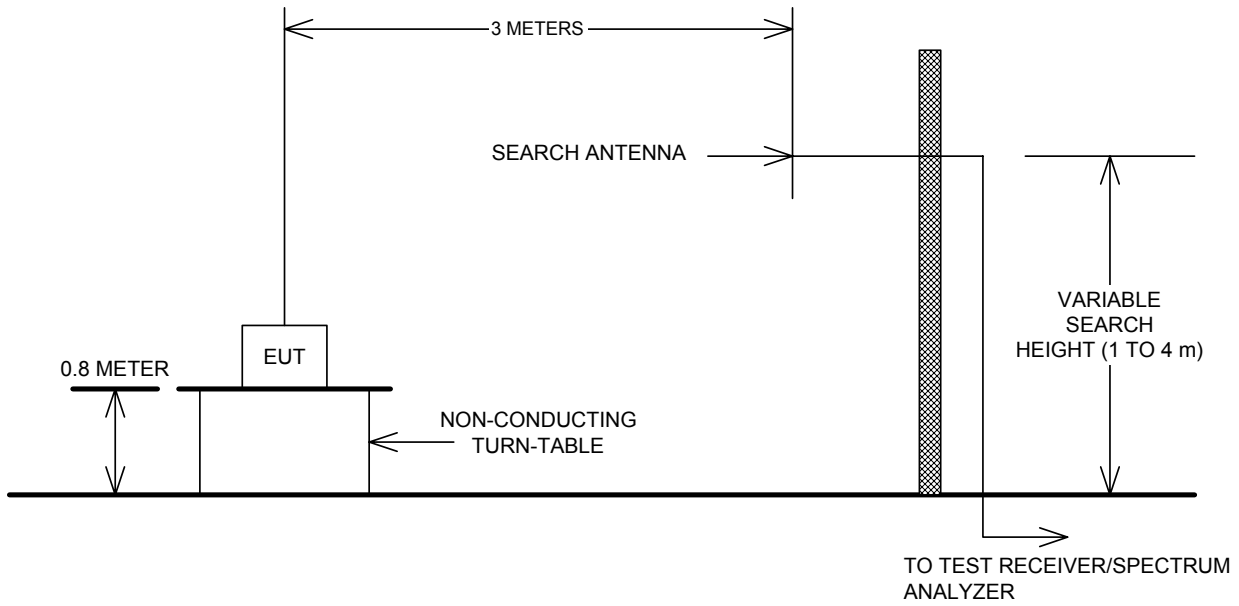
Minimum Standard: 15.231(c) The bandwidth of the emission shall be no wider than 0.25% of the center frequency for devices operating above 70 MHz and below 900 MHz. For devices operating above 900 MHz, the emission shall be no wider than 0.5% of the center frequency. Bandwidth is determined at the points 20 dB down from the modulated carrier.

Test Results: Complies

Test Data: See attached plots.

Section 6. Block Diagrams

Outdoor Test Site For Radiated Emissions



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

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Section 7. Test Equipment List

Equipment List - Radiated Emissions

CAL Cycle	Equipment	Manufacturer	Model No.	Asset/Serial No.	Last Cal.	Next Cal.
1 Year	Spectrum Analyzer	Hewlett-Packard	8564E	FA001367	June 28/04	June 28/05
1 Year	Horn Antenna #1	EMCO	3115	FA000649	Dec. 18/03	Dec. 18/04
1 Year	Dipole Antenna Set	EMCO #1	3121C	FA000814	April 21/04	April 21/05
1 Year	Log Periodic Antenna #2	EMCO	3148	FA001355	May 05/04	May 05/05
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, OUT = Out For CAL/Repair