



Test Report: 4W26820.10

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

**Equipment Under Test:
(EUT)** MG-REM1 (433MHz), Wireless Remote Control

FCC ID: KDYMGREM1

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

Table of Contents

Section 1. Summary of Test Results3

Section 2. Equipment Under Test5

Section 3. Transmission Requirements6

Section 4. Radiated Emissions8

Section 5. Occupied Bandwidth12

Section 6. Block Diagrams14

Section 7. Test Equipment List15

EQUIPMENT: MG-REMI (433MHz) Wireless Remote Control

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-REMI (433MHz) Wireless Remote Control

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 (DL2032 battery) |

Test Conditions:

Indoor Temperature: 20°C
 Humidity: 49%

EQUIPMENT: MG-REM1 (433MHz) Wireless Remote Control

Section 2. Equipment Under Test

General Equipment Information

| | |
|--|--------------------------|
| Manufacturer: | Paradox Security Systems |
| Company Number: | 2438A |
| Model No.: | MG-REM1 |
| Serial No.: | None |
| Date Received In Laboratory: | September 14, 2004 |
| Nemko Identification No.: | 21, 22 |
| Frequency Range (or fixed frequency): | Fixed, 433.92MHz |
| Type of Modulation: | ASK, 100% or OOK |
| Emission Designator (TRC-43:) | 96K0L1D |

Section 3. Transmission Requirements

Para. No.: 15.231(a)

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

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

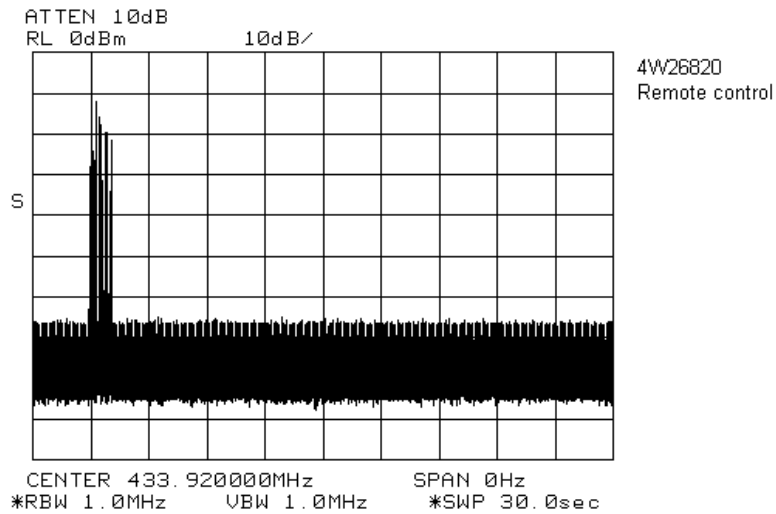
Test Data: Compliance was determined by verification of technical specifications and a functional test on the equipment.

EQUIPMENT: MG-REMI (433MHz) Wireless Remote Control

Rationale for Compliance with Transmission Requirements

15.231(a)(1) : N/A- The EUT does not continuously transmit voice, video or data, nor is it intended for manually activated transmissions

15.231(a)(2) : Complies. The EUT transmits for less than 5 seconds (plot shows 3s/div)



15.231(a)(3) : N/A- No periodic polling or supervisory transmissions.

15.231(a)(4) : N/A- The EUT is not for emergencies involving fire, security, and safety of life

EQUIPMENT: MG-REMI (433MHz) Wireless Remote Control

Section 4. Radiated Emissions

Para. No.: 15.231(b)

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

Minimum Standard:

| Fundamental Frequency (MHz) | Field Strength of Fundamental (µV/m @ 3m) | Field Strength of Spurious Emissions (µV/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 (µV/m @ 3m) | Field Strength (dBµV/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-REMI (433MHz) Wireless Remote Control

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 | N/A |
| 433.9200 | ED4 | V | 59.3 | 21.6 | 0 | -11.1 | 2.7 | 72.5 | 80.8 | 8.3 | N/A |
| 867.8420 | LP2 | V | 35.0 | 22.5 | 0 | -11.1 | 3.9 | 50.3 | 60.8 | 10.5 | N/A |
| 867.8420 | LP2 | H | 29.5 | 23.7 | 0 | -11.1 | 3.9 | 46.0 | 60.8 | 14.8 | N/A |
| 1301.7600 | Horn1 | V | 61.8 | 26.4 | 46.5 | -11.1 | 3.3 | 33.8 | 49.5 | 15.7 | 1-2GHz |
| 1301.7600 | Horn1 | H | 55.3 | 26.3 | 46.5 | -11.1 | 3.3 | 27.3 | 49.5 | 22.2 | 1-2GHz |
| 1735.6800 | Horn1 | V | 58.7 | 28.2 | 46.6 | -11.1 | 3.9 | 33.0 | 60.8 | 27.8 | 1-2GHz |
| 1735.6800 | Horn1 | H | 53.2 | 28.0 | 46.6 | -11.1 | 3.9 | 27.3 | 60.8 | 33.5 | 1-2GHz |
| 2169.6000 | Horn1 | V | 69.2 | 29.1 | 55.3 | -11.1 | 4.7 | 36.6 | 60.8 | 24.2 | 2-4GHz |
| 2169.6000 | Horn1 | H | 67.3 | 29.1 | 55.3 | -11.1 | 4.7 | 34.7 | 60.8 | 26.1 | 2-4GHz |
| 2603.5200 | Horn1 | V | 69.0 | 30.2 | 56.5 | -11.1 | 8.0 | 39.6 | 60.8 | 21.2 | 2-4GHz |
| 2603.5200 | Horn1 | H | 70.3 | 30.2 | 56.5 | -11.1 | 8.0 | 40.9 | 60.8 | 19.9 | 2-4GHz |
| 3037.4400 | Horn1 | V | 64.8 | 31.2 | 56.1 | -11.1 | 6.1 | 34.9 | 60.8 | 25.9 | 2-4GHz |
| 3037.4400 | Horn1 | H | 64.0 | 31.4 | 56.1 | -11.1 | 6.1 | 34.2 | 60.8 | 26.6 | 2-4GHz |
| 3471.3600 | Horn1 | V | 62.0 | 31.3 | 55.1 | -11.1 | 7.2 | 34.3 | 60.8 | 26.5 | 2-4GHz |
| 3471.3600 | Horn1 | H | 61.3 | 31.5 | 55.1 | -11.1 | 7.2 | 33.8 | 60.8 | 27.0 | 2-4GHz |
| 3905.2800 | Horn1 | V | 59.2 | 32.8 | 54.6 | -11.1 | 7.6 | 33.9 | 49.5 | 15.6 | 2-4GHz |
| 3905.2800 | Horn1 | H | 59.8 | 32.8 | 54.6 | -11.1 | 7.6 | 34.5 | 49.5 | 15.0 | 2-4GHz |
| 4339.2000 | Horn1 | V | 56.7 | 32.8 | 52.5 | -11.1 | 8.3 | 34.2 | 49.5 | 15.3 | 4-8GHz |
| 4339.2000 | Horn1 | H | 57.5 | 32.8 | 52.5 | -11.1 | 8.3 | 35.0 | 49.5 | 14.5 | 4-8GHz |
| <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: | <p>1) Emissions were searched to the 10th harmonic of the fundamental (433.92 to 4339.2MHz)</p> <p>2) The EUT was tested with a fresh battery.</p> <p>3) Receiver bandwidth of 100kHz was used below 1GHz, & 1MHz bandwidth was used on emissions above 1GHz.</p> <p>4) The EUT was tested in 3 orthogonal axes, the worst case was reported.</p> | | | | | | | | | | |

EQUIPMENT: MG-REMI (433MHz) Wireless Remote Control

OATS Set up Photo



EQUIPMENT: MG-REMI (433MHz) Wireless Remote Control

Section 5. Occupied Bandwidth

Para. No.: 15.231(c)

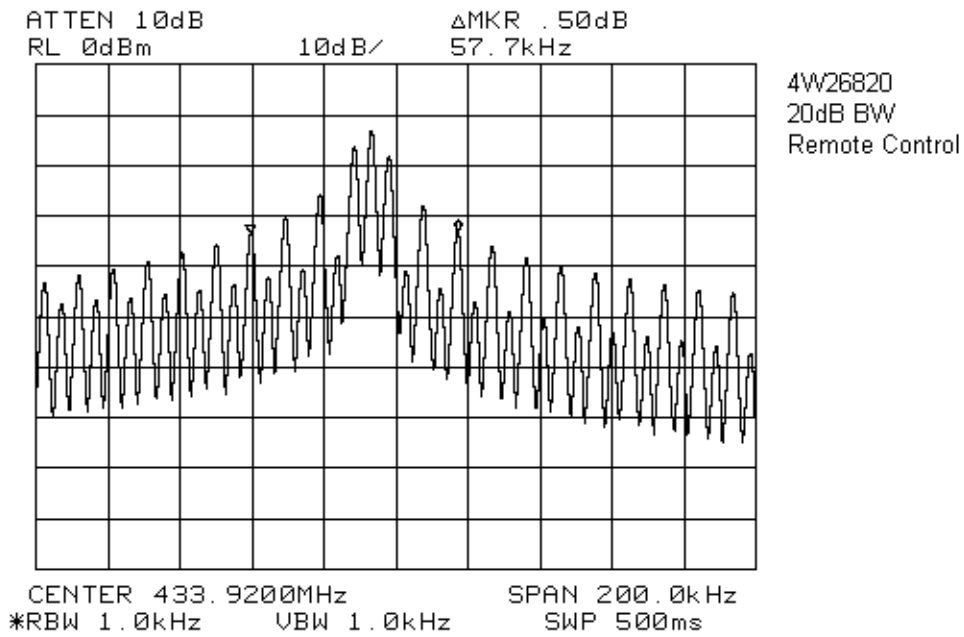
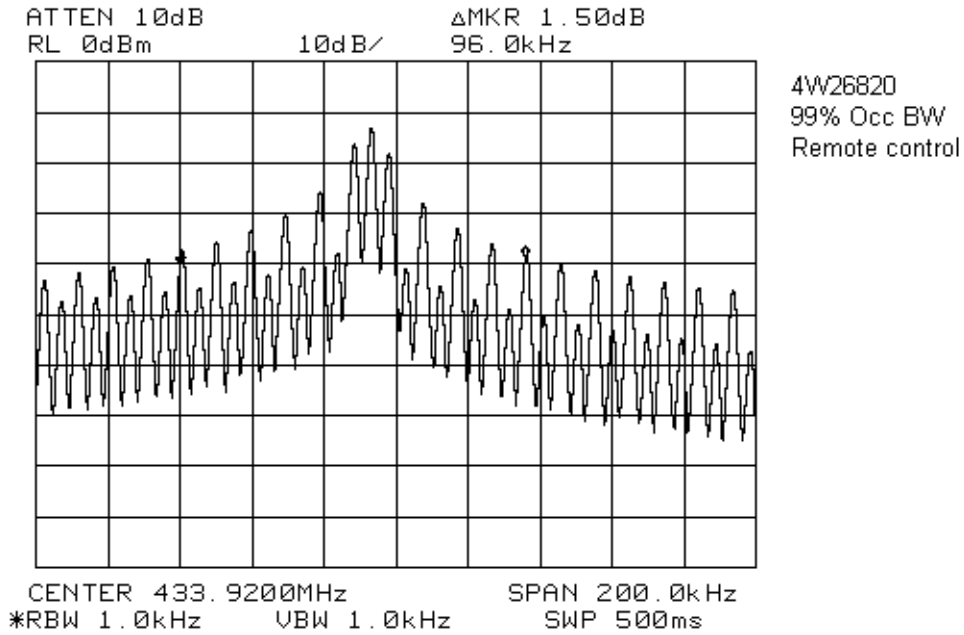
| | |
|---|-------------------------------------|
| Test Performed By: Chris Maidens | Date of Test: Sept. 14, 2004 |
|---|-------------------------------------|

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

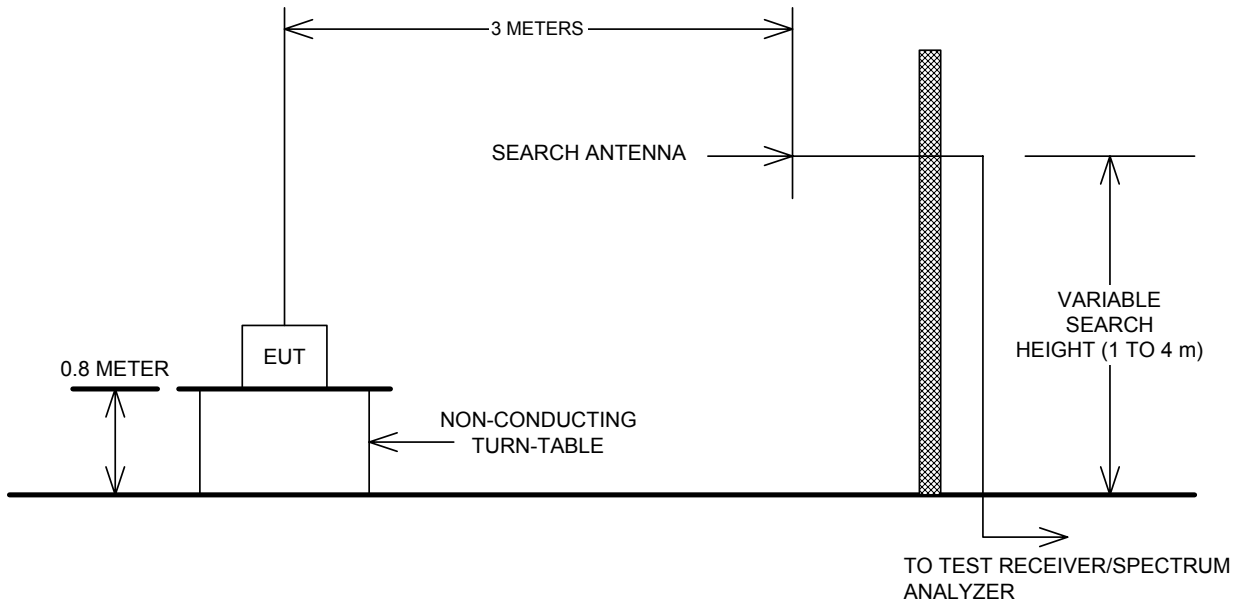
Test Data: See attached graph.

EQUIPMENT: MG-REMI (433MHz) Wireless Remote Control



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.

EQUIPMENT: MG-REMI (433MHz) Wireless Remote Control

Section 7. Test Equipment List

| 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