



Nemko

Test Report: 2W06711.2

Applicant: Paradox Security Systems
780 Industrial Blvd.
Ste-Eustache, Quebec
J7R 5V3

**Equipment Under Test:
(EUT)** OMN DCT2 433 MHz
Wireless Door Contact

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: 22 January 2003

Total Number of Pages: 17

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EQUIPMENT: OMN DCT2 433MHz Wireless Door Contact

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.

THE FOLLOWING DEVIATIONS FROM, ADDITIONS TO, OR EXCLUSIONS FROM THE TEST SPECIFICATIONS HAVE BEEN MADE.

See " Summary of Test Data".



Test Performed By: _____
Russell Grant

Date: 20 January 2003

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This report applies only to the items tested.

EQUIPMENT: OMN DCT2 433MHz Wireless Door Contact

Summary Of Test Data

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

Test Conditions:

Indoor Temperature: 20°C
 Humidity: 10%

Outdoor Temperature: 15°C
 Humidity: 5%

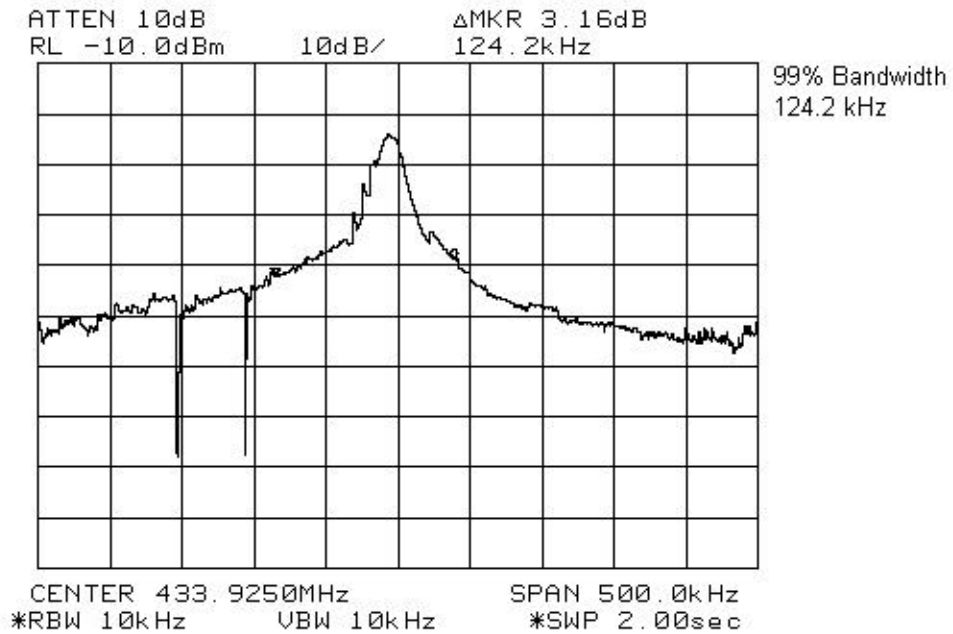
EQUIPMENT: OMN DCT2 433MHz Wireless Door Contact

Section 2. Equipment Under Test

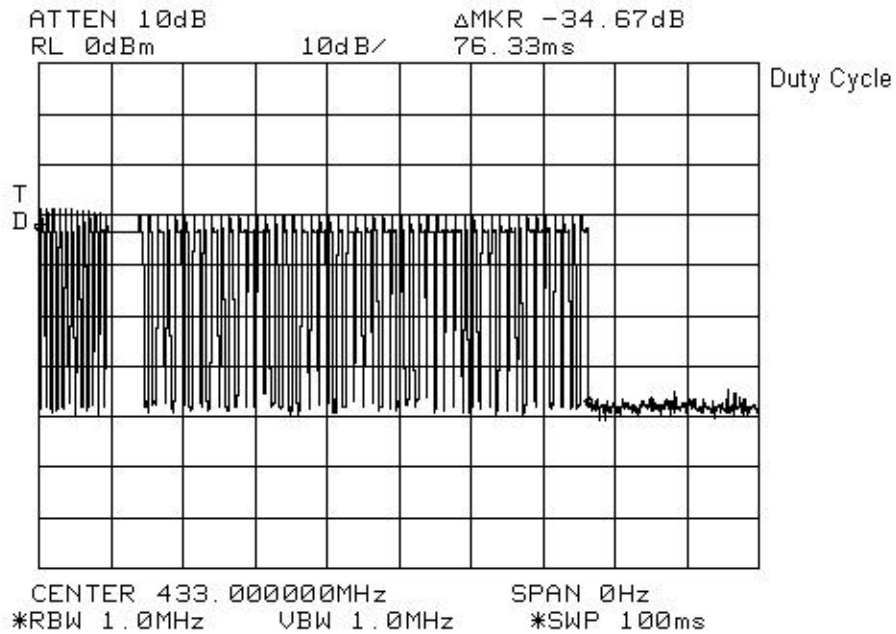
General Equipment Information

Manufacturer:	Paradox Security Systems
Model No.:	OMN DCT2
Serial No.:	None
Date Received In Laboratory:	Dec 4, 2002
Nemko Identification No.:	1
Wireless Door Contact Transmit Frequency:	433 MHz Fixed
Emission Designator:	124KL1D
Modulation:	Pulse Modulated Carrier On/Off Modulation
Correction Factor:	Duty Cycle $20\log(75/100)=-2.5\text{dB}$
Power:	3V Lithium Battery

EQUIPMENT: OMN DCT2 433MHz Wireless Door Contact



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Section 3. Transmission Requirements

Para. No.: 15.231(a)

Test Performed By: Russell Grant	Date of Test: Jan 20, 2003
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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: OMN DCT2 433MHz Wireless Door Contact

Rationale for Compliance with Transmission Requirements

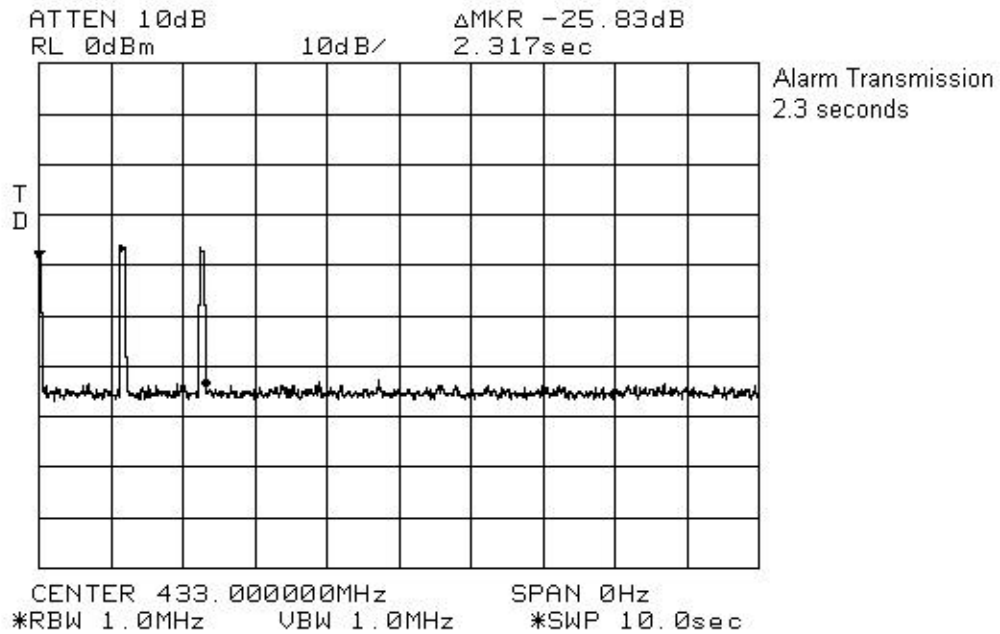
15.231(a)(1) : The transmitter is deactivated within 2.3 seconds.

15.231(a)(2) : No automatic activation.

15.231(a)(3) : No periodic transmissions.

15.231(a)(4) : 2.3 seconds activation.

EQUIPMENT: OMN DCT2 433MHz Wireless Door Contact



EQUIPMENT: OMN DCT2 433MHz Wireless Door Contact

Section 4. Radiated Emissions**Para. No.: 15.231(b)****Test Performed By: Russell Grant****Date of Test: Jan 20, 2003****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 (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.
The EUT was tested using a fresh battery.
All emissions to the 10th harmonics were searched.
Emissions were searched on 3 orthogonal axis.

EQUIPMENT: OMN DCT2 433MHz Wireless Door Contact

Radiated Emissions Set Up



EQUIPMENT: OMN DCT2 433MHz Wireless Door Contact

Standard: FCC Part C

Date: 20-Jan-03

Tester: Dome# 1

Tower: A

Distance: 3m

Location: Ottawa

Test Lab

Receiver: 8565E

Comment:

Temp:

Humidity:

Frequency (MHz)	Antenna	Polarity	RCVD Signal (dBuV)	Ant. Factor (dB)	Sig. Sub. Factor	Amp. Gain (dB)	Duty Cycle Corr.	Cable Loss (dB)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Amp.
1 433.0000	ED4	V	38.0	21.9			25	2.7	60.1	80.8	20.7		
2 433.0000	ED4	H	57.0	21.4			25	2.7	78.6	80.8	2.2		
3 866.0000	ED4	V	4.0	28.5			25	3.9	33.9	60.8	26.9		
4 866.0000	ED3	H	10.0	20.9			25	3.9	32.3	60.8	28.5		
5 1299.0000	Hom2	V	65.0	26.6		48.2	25	3.2	44.1	60.8	16.7		1-2GHz
6 1299.0000	Hom2	H	62.0	26.6		48.2	25	3.2	41.1	60.8	19.7		1-2GHz
7 1732.0000	Hom2	V	59.0	28.4		47.8	25	3.8	40.9	60.8	19.9		1-2GHz
8 1732.0000	Hom2	H	65.0	28.8		47.8	25	3.8	47.3	60.8	13.5		1-2GHz
9 2165.0000	Hom2	V	49.0	28.9		58.5	25	4.3	21.1	60.8	39.7		2-4GHz
10 2165.0000	Hom2	H	57.0	28.9		58.5	25	4.3	29.2	60.8	31.6		2-4GHz
11 2598.0000	Hom2	V	56.0	30.0		60.2	25	6.0	29.3	60.5	31.2		2-4GHz
12 2598.0000	Hom2	H	62.0	29.9		60.2	25	6.0	35.2	60.5	25.3		2-4GHz
13 3031.0000	Hom2	V	48.0	31.0		59.8	25	6.6	23.2	60.5	37.3		2-4GHz
14 3031.0000	Hom2	V	53.0	31.0		59.8	25	6.6	28.2	60.5	32.3		2-4GHz
15 3464.0000	Hom2	V	48.0	31.1		59.1	25	5.6	23.1	60.5	37.4		2-4GHz
16 3464.0000	Hom2	H	52.0	31.1		59.1	25	5.6	27.1	60.5	33.4		2-4GHz
17 3897.0000	Hom2	V	47.0	32.8		58.2	25	7.8	26.9	54.0	27.1		2-4GHz
18 3897.0000	Hom2	H	50.0	32.9		58.2	25	7.8	30.0	54.0	24.0		2-4GHz

EQUIPMENT: OMN DCT2 433MHz Wireless Door Contact

Section 5. Occupied Bandwidth

Para. No.: 15.231(c)

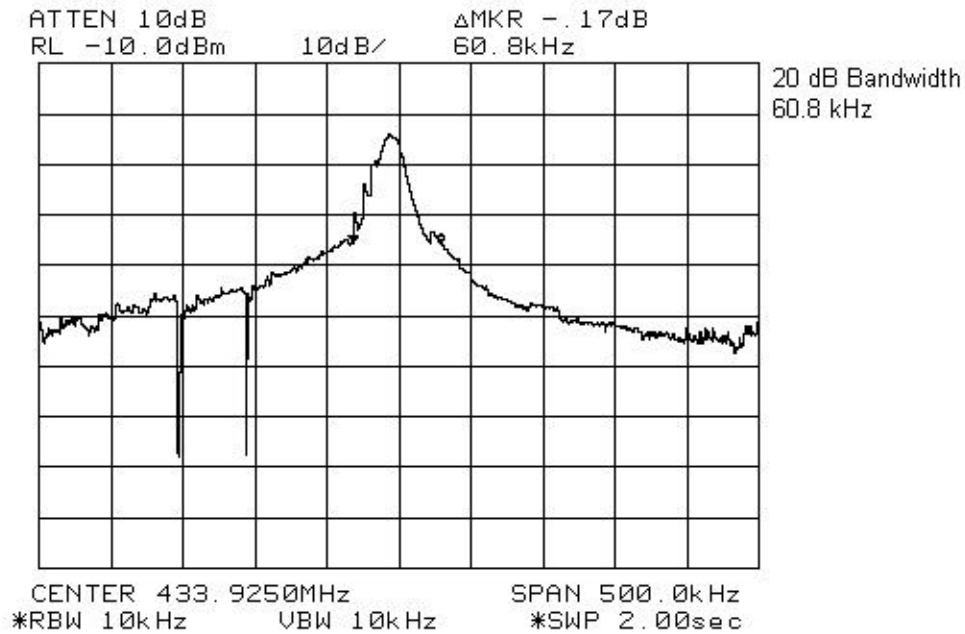
Test Performed By: Russell Grant	Date of Test: Jan 20, 2003
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Minimum Standard: 15.231(c) The bandwidth of the emission shall be no wider than 0.25% of the center frequency for devices operating above 70 MHz and below 900 MHz. For devices operating above 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

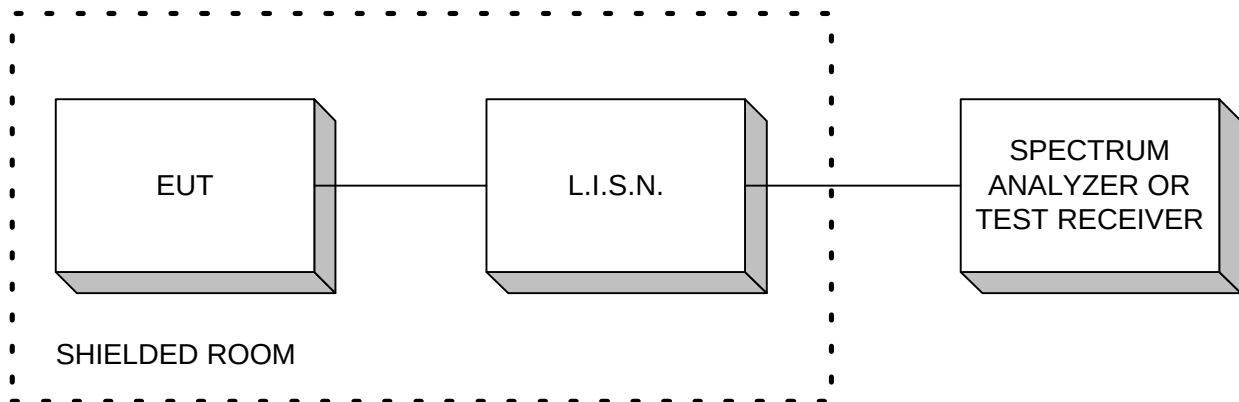
Test Data: See attached graph.

EQUIPMENT: OMN DCT2 433MHz Wireless Door Contact

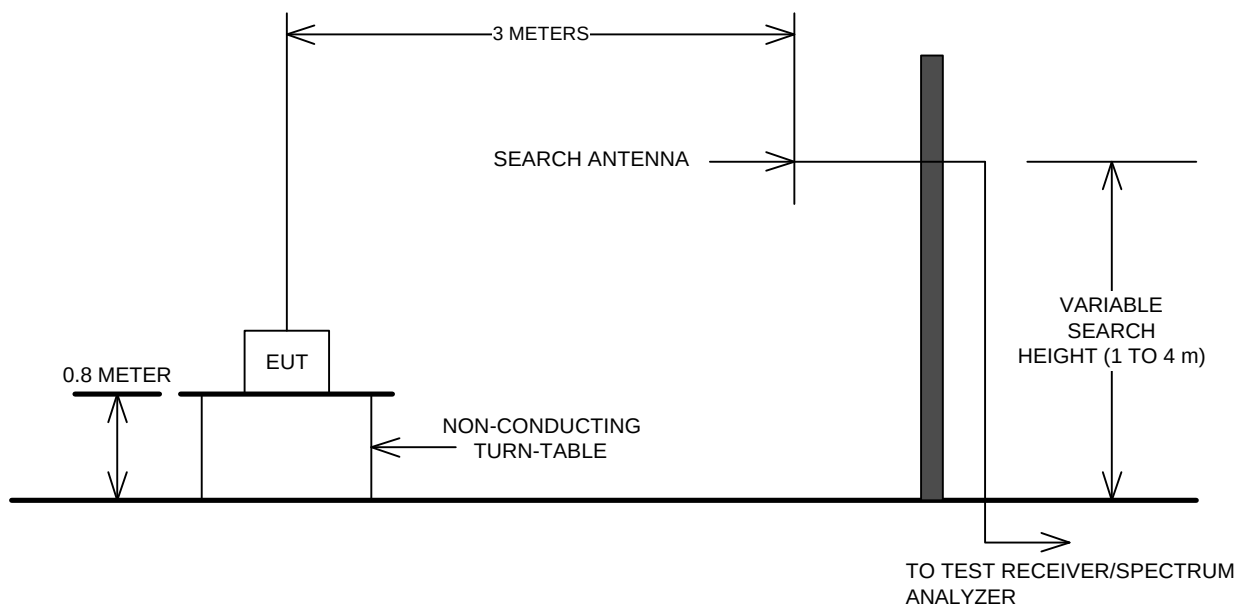


Section 6. Block Diagrams

Conducted Emissions



Outdoor Test Site For Radiated Emissions



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

EQUIPMENT: OMN DCT2 433MHz Wireless Door Contact

Section 7. Test Equipment List

CAL CYCLE	EQUIPMENT	MANUFACTURER	MODEL	SERIAL
1 Year	Spectrum Analyzer	Hewlett Packard	8565E	FA000981
1 Year	Horn Antenna	EMCO #2	3115	4336
1 Year	Dipole Antenna Set	EMCO #2	3121C	FA001349
1 Year	RF AMP	JCA	2-4 GHz	FA001496
1 Year	RF AMP	JCA	1-2 GHz	FA001498
1 Year	RF AMP	JCA	4-8 GHz	FA001497