



Test Report: 4W26001


Applicant: Desa International Inc.
P.O. Box 90004, 2901 Industrial Avenue,
Bowling Green, KY.
42102, USA

**Equipment Under Test:
(EUT)** 6030 RF Tx Wall Mount Motion Sensor

FCC ID: BJ4-60WRC30TX

In Accordance With: **FCC Part 15, Subpart C, 15.231**
Class II Permissive Change

Tested By: Nemko Canada Inc.
303 River Road, R.R. 5
Ottawa, Ontario K1V 1H2

Authorized By: 
G. Westwell, Wireless Technologist

Date: 27 July 2004

Total Number of Pages: 17

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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 C63.4-2001. 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: _____
Jason Nixon, Telecom Specialist

DATE: 27 July 2004

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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.

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)
Power line Conducted Emissions	15.207	N/A (3)

Justification of N/A's

- (1) The EUT does not operate in the frequency range of 40.66 – 40.70 MHz.
- (2) The EUT does not periodically transmission at predetermined intervals.
- (3) The EUT is battery powered.
- (4) This application is for a Class II Permissive Change as detailed by the customer provided information below.

NEW CIRCUIT			OLD CIRCUIT		
Quantity	Description	Location	Quantity	Description	Location
1	RES SMD0603 47 OHM 5%	R24	1	RES, 1/8W 22 OHM 5%	R30
1	RES. SMD 0603 33K 5% 0.8x1.6	R23	1	RES, 1/8W 100K OHM 5%	R28
1	RES. SMD 0603 47 OHM 5%	R20		N/A	
1	C. CAP NPO SMD0603 1PF+-.25PF	C12		N/A	
1	CER CAP NPO SMD0603 3.3PF+-.25PF	C14	1	CER CAP NPO 4.7PF	C24
1	CER CAP NPO 5.6PF 0603 +/- .25PF	C17	1	CER CAP NPO 47PF	C25
1	CER.CAP. X7R SMD0603 1000PF	C15		N/A	
1	CER.CAP. Y5V SMD0603 0.1U 20%	C16		N/A	
1	FIX INDUCTOR 47nH5% 1.2X2 0805	L1	1	FIXED INDUCTOR 47nH 5%	L1
1	ANTENNA	ANT1	1	ANTENNA	L2
1	SAW RESONATOR 315MHz	X1		N/A	
1	NPN-MMBTH10LT1 SMD	Q2	1	NPN RF TRANS C1923Y	Q4
	N/A		1	RES, 1/8W 27K,5%	R29
	N/A		1	CER CAP NPO 3PF	C20
	N/A		1	CER CAP NPO 20PF	C23
	N/A		1	CER CAP NPO 5.6PF	C22
	N/A		1	VARIABLE CAP 2-5 PF	C21

EQUIPMENT: 6030 RF Tx Wall Mount Motion Sensor

Test Conditions:

Indoor

Temperature: 24° C

Humidity: 56 %

Outdoor

Temperature: 20° C

Humidity: 42 %

Section 2. Equipment Under Test

General Equipment Information

Manufacturer:	Desa International Inc.
Company Number:	3984A
Model No.:	6030-TX
Serial No.:	None
Date Received In Laboratory:	July 7, 2004
Nemko Identification No.:	Item no. 1
Test Voltage	Two AA batteries of 1.5 volts
Frequency Range (<i>or fixed frequency</i>):	315 MHz, Fixed
Field Strength (<i>distance</i>):	68.4 dB μ V/m @ 3m
Occupied Bandwidth (99% BW):	34.3 kHz
Type of Modulation:	Pulse Modulated
Emission Designator (TRC-43:)	34K3L1D

Section 3. Transmission Requirements

Para. No.: 15.231(a)

Test Performed By: Jason Nixon

Date of Test: July 20, 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.

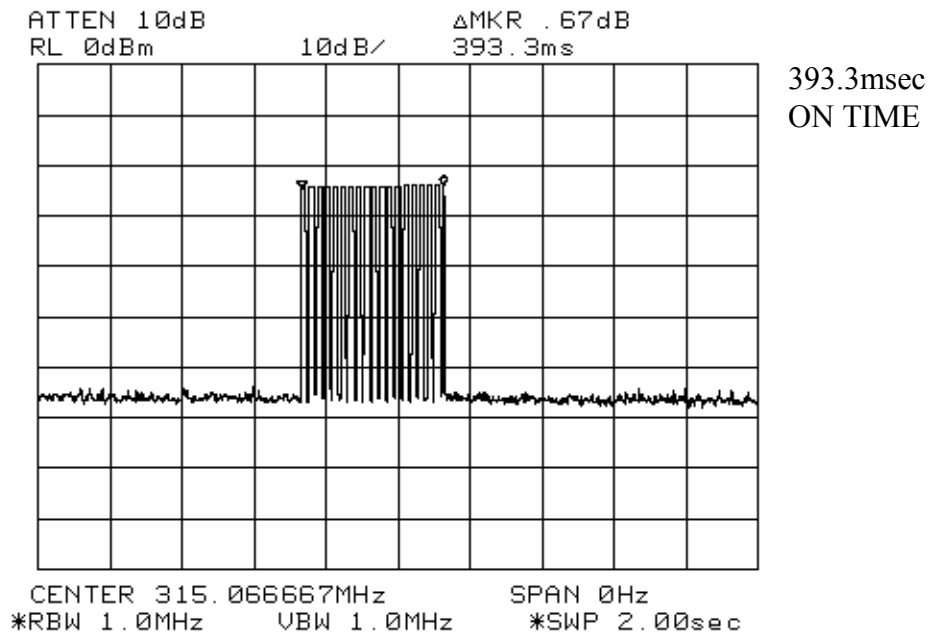
Test Results: Complied

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):	N/A – The EUT does not continuously transmit voice, video or data and is manually operated.
15.231(a)(1):	N/A – The EUT is not manually operated.
15.231(a)(2):	Complies the EUT is automatically de-activated after 393.3msec.
15.231(a)(3):	N/A – The EUT does not periodically transmit at pre-determined intervals.
15.231(a)(4):	N/A – The EUT is not intended for emergency purposes.

EQUIPMENT: 6030 RF Tx Wall Mount Motion Sensor



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Section 4. Radiated Emissions

Para. No.: 15.231(b)

Test Performed By: Jason Nixon	Date of Test: July 20, 2004
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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: Complied**Test Data:** As per attached tabulated data.

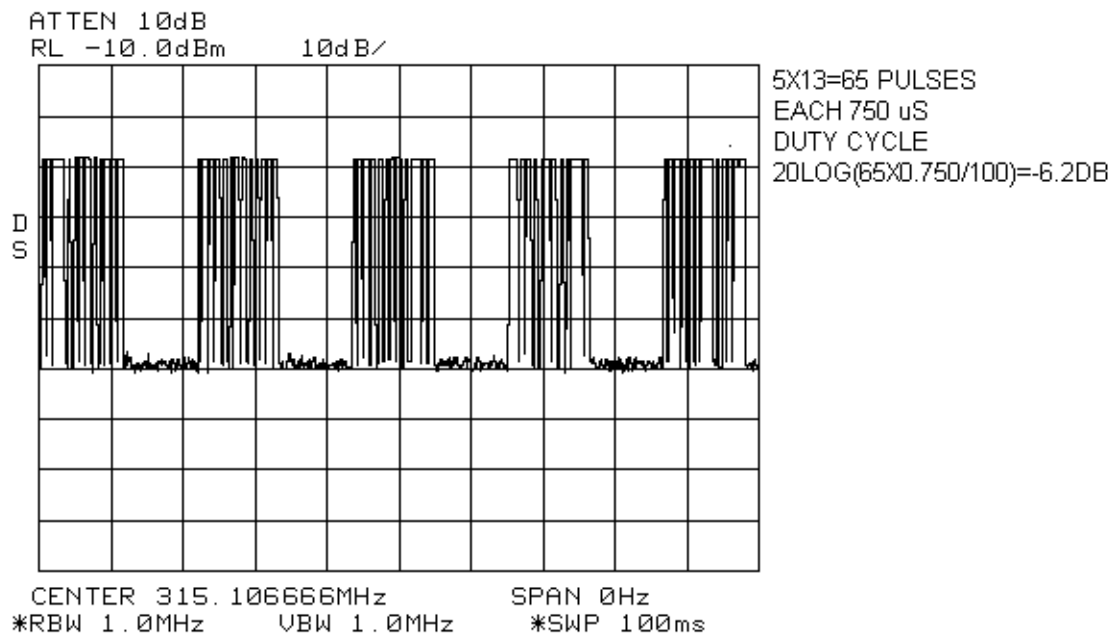
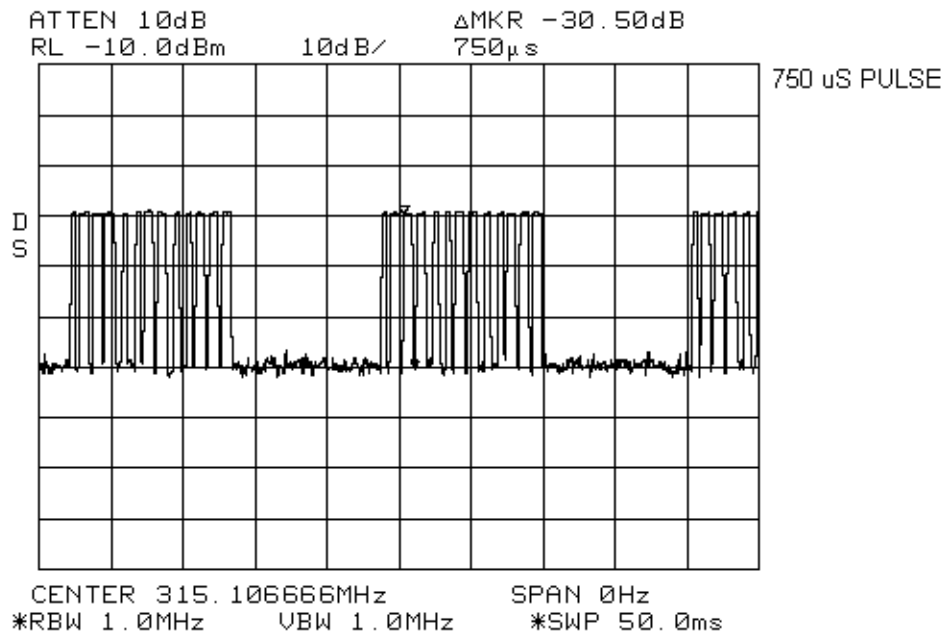
EQUIPMENT: 6030 RF Tx Wall Mount Motion Sensor

Test Date: July 20, 2004											
Engineer's Name: Jason Nixon											
Temperature (C°): 20								Humidity: 42 %			
Test Distance (meters): 3								Range: A			
Freq. (MHz)	Ant.	Pol. V/H	RCVD Signal (dBμV) R.S.	Ant. Factor (dB) A.F.	Amp. Gain (dB) A.G.	Duty Cycle Corr. (-dB) D.C.C.	Cable Loss (dB) C.L.	Field Strength (dBμV/m) F.S.	Limit (dBμV/m) L.	Margin (dB) M.	Amp.
315.0000	ED3	V	51.3	19.1		-6.2	2.3	66.5	75.6	9.1	
315.0000	ED3	H	53.2	19.1		-6.2	2.3	68.4	75.6	7.2	
630.0000	LP2	V	24.6	20.9		-6.2	3.1	42.4	55.6	13.2	
630.0000	LP2	H	23.0	21.3		-6.2	3.1	41.2	55.6	14.4	
945.0000	LP2	V	26.5	23.7		-6.2	4.0	48.0	55.6	7.6	
945.0000	LP2	H	23.7	24.6		-6.2	4.0	46.1	55.6	9.5	
1260.0000	Horn1	V	72.4	26.3	46.5	-6.2	3.2	49.2	54.0	4.8	1-2GHz
1260.0000	Horn1	H	74.1	26.3	46.5	-6.2	3.2	50.8	54.0	3.2	1-2GHz
1575.0000	Horn1	V	67.1	28.0	46.3	-6.2	3.4	45.9	54.0	8.1	1-2GHz
1575.0000	Horn1	H	67.3	27.9	46.3	-6.2	3.4	46.0	54.0	8.0	1-2GHz
1890.0000	Horn1	V	59.1	28.3	46.3	-6.2	4.0	38.8	55.6	16.8	1-2GHz
1890.0000	Horn1	H	59.9	28.1	46.3	-6.2	4.0	39.4	55.6	16.2	1-2GHz
2205.0000	Horn1	V	73.6	29.1	55.5	-6.2	4.4	45.4	54.0	8.6	2-4GHz
2205.0000	Horn1	H	69.1	29.1	55.5	-6.2	4.4	40.8	54.0	13.2	2-4GHz
Note 1: Antenna Legend: BC = Biconical, BL = Bilog, LP = Log-Periodic, Horn = Horn, ED = EMCO Dipole											
Notes:		All emissions to the 10 th harmonic were searched. Receiver bandwidth of 100KHz was used below 1GHz & 1MHz bandwidth was used above 1GHz. In both cases a peak detector was used. Emissions were measured at the Ottawa Facility. The EUT was tested with two fresh new batteries of 1.5 volts.									

Duty Cycle Calculation

$$20\log(65 \times 0.750 / 100) = -6.2\text{dB}$$

EQUIPMENT: 6030 RF Tx Wall Mount Motion Sensor



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Radiated Photographs



Section 5. Occupied Bandwidth

Para. No.: 15.231(c)

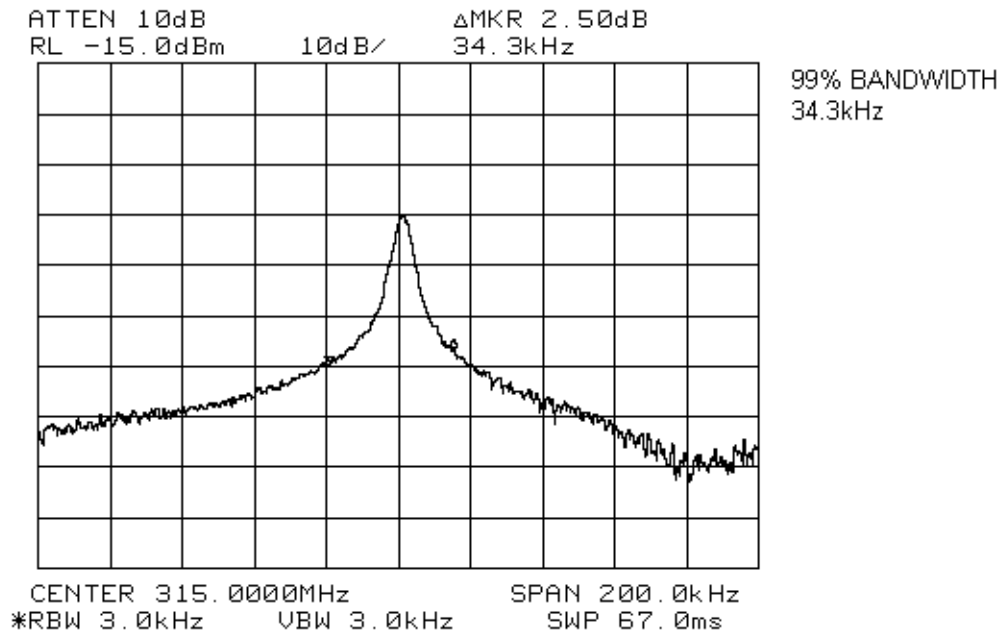
Test Performed By: Jason Nixon	Date of Test: July 21, 2004
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Minimum Standard: 15.231(c) The bandwidth of the emission shall be no wider than 0.25% of the center frequency for devices operating above 70 MHz and below 900 MHz. For devices operating above 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: Complied

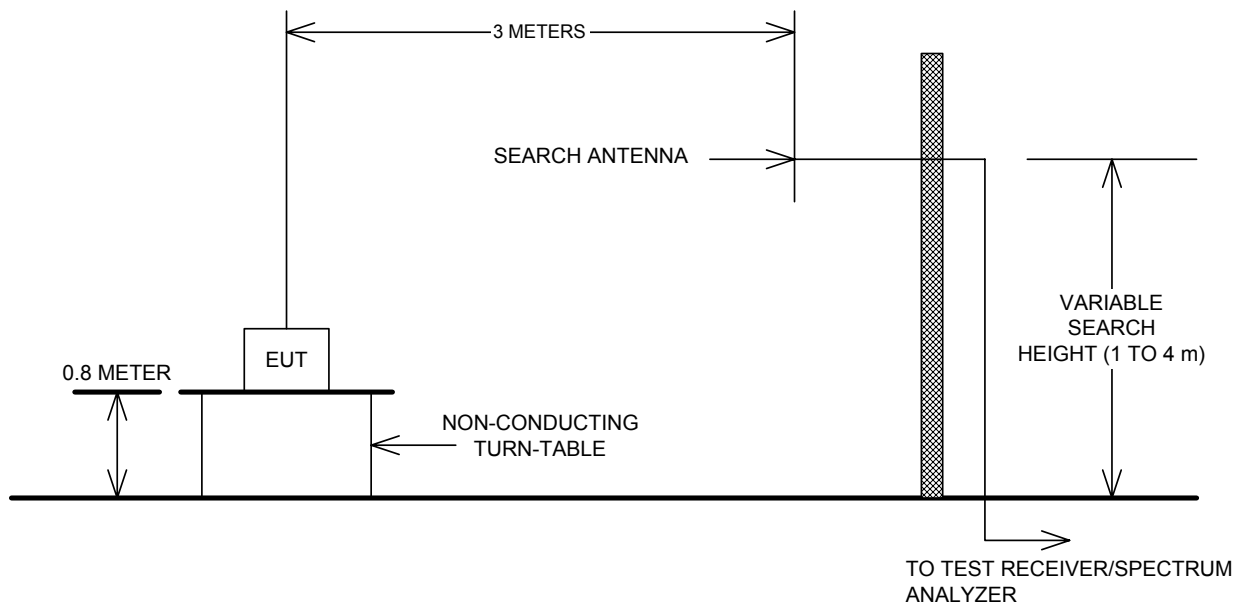
Test Data: See attached graph.

EQUIPMENT: 6030 RF Tx Wall Mount Motion Sensor



Section 6. Block Diagram

Outdoor Test Site For Radiated Emissions



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

EQUIPMENT: 6030 RF Tx Wall Mount Motion Sensor

Section 7. Test Equipment List

CAL Cycle	Equipment	Manufacturer	Model No.	Asset/Serial No.	Last Cal.	Next Cal.
1 Year	Receiver	Rohde & Schwarz	ESVS-30	FA001437	July. 24/03	July. 24/04
1 Year	Spectrum Analyzer	Hewlett-Packard	8566B	FA001309	May 28/04	May 28/05
1 Year	Spectrum Analyzer Display	Hewlett-Packard	85662A	FA001309	May 28/04	May 28/05
1 Year	Spectrum Analyzer	Hewlett-Packard	8565E	FA000981	May 31/04	May 31/05
1 Year	Dipole Antenna Set	EMCO #1	3121C	FA000814	May 09/04	May 09/05
1 Year	Horn Antenna #1	EMCO	3115	FA000649	Dec. 18/03	Dec. 18/04
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
Note: N/A = Not Applicable, NCR = No Cal Required, COU = CAL On Use, OUT = Out For CAL/Repair						