Standards Council of Canada
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Laboratoire accrédité
Portée d'accréditation 75

TM

Test Report:	6W60620
Applicant:	DESA Speciality LLC 2901 Industrial Ave Bowling Green, KY 42102 USA
Apparatus:	6030-TX Wireless PIR Sensor
FCC ID:	BJ4-WRC6030TX
In Accordance With:	FCC Part 15 Subpart C, 15.231 Periodic operation in the band 40.66-40.70MHz and above 70 MHz.
Tested By:	Nemko Canada Inc. 303 River Road Ottawa, Ontario K1V 1H2
Authorized By:	Sim Jagpal, Resource Manager
Date:	March 1, 2006
Total Number of Pages:	17

Report Summary

These tests were conducted on a sample of the equipment for the purpose of demonstrating compliance with Part 15, Subpart C. Radiated tests were conducted in accordance with 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.

The assessment summary is as follows:

Apparatus Assessed:	6030-TX Wireless PIR Sensor
Specification:	FCC Part 15 Subpart C, 15.231
Compliance Status:	Complies
Exclusions:	None
Non-compliances:	None
Report Release History:	Original Release

Author: Jason Nixon, Telecom Specialist

Note that the results contained in this report relate only to the items tested and were obtained in the period between the date of initial receipt of samples and the date of issue of the report.

This test report has been completed in accordance with the requirements of ISO/IEC 17025.

TABLE OF CONTENTS

Section 1 : Equipment Under Test

1.1 Product Identification

The Equipment Under Test was identified as follows:

6030-TX Wireless PIR Sensor

1.2 Samples Submitted for Assessment

The following samples of the apparatus have been submitted for type assessment:

Sample No.	Description	Serial No.
1	Motion Sensor	5G17
2	Motion Sensor	5G24

The first samples were received on: February 8, 2006

1.3 Theory of Operation

The 6030-TX PIR sensor is used in conjunction with a light of a doorbell. Whenever the 6030-TX detects motion, it transmits a signal to the light of doorbell receiver to turn them on. The 6030-TX also has a photocell which allows it to automatically turn off during the day.

1.4 Technical Specifications of the EUT

Manufacturer: DESA Speciality LLC

Operating Frequency: 315MHz

Emission Designator: 57K7L1D

Modulation: Pulse Width Modulated

Antenna Data: Integral

Power Source: 2 ‘AA’ Batteries

Section 2 : Test Conditions

2.1 Specifications

The apparatus was assessed against the following specifications:

FCC Part 15 Subpart C, 15.231

Periodic operation in the band 40.66-40.70 MHz and above 70 MHz.

2.2 Deviations From Laboratory Test Procedures

No deviations were made from laboratory test procedures.

2.3 Test Environment

All tests were performed under the following environmental conditions:

Temperature range	:	15 – 30 ^{o}C
Humidity range	:	20 - 75 %
Pressure range	:	86 - 106 kPa
Power supply range	:	+/- 5% of rated voltages

2.4 Test Equipment

Equipment	Manufacturer	Model No.	Asset/Serial No.	Next Cal.
Spectrum Analyzer	Rohde & Schwarz	FSP	FA001920	March 22/06
Spectrum Analyzer	Rohde & Schwarz	FSU	FA001877	May 17/06
Spectrum Analyzer	Hewlett-Packard	8566B	FA001309	May 18/06
Spectrum Analyzer Display	Hewlett-Packard	85662A	FA001309	May 18/06
Bilog	Schaffner	CBL6112B	FA001504	NCR
Horn Antenna #1	EMCO	3115	FA000649	Jan. 12/07
1.0 – 2.0 GHz Amplifier	JCA	12-400	FA001498	July 14/06
2.0 – 4.0 GHz Amplifier	JCA	24-600	FA001496	July 14/06
Log Periodic Antenna #1	EMCO	LPA-25	FA000477	Aug. 29/06

NCR- No Cal. Required

Section 3 : Observations

3.1 Modifications Performed During Assessment

No modifications were performed during assessment.

3.2 Record Of Technical Judgements

No technical judgements were made during the assessment.

3.3 EUT Parameters Affecting Compliance

The user of the apparatus could not alter parameters that would affect compliance.

3.4 Test Deleted

No Tests were deleted from this assessment.

3.5 Additional Observations

There were no additional observations made during this assessment.

Section 4 : Results Summary

This section contains the following:

FCC Part 15 Subpart C : Test Results

The column headed 'Required' indicates whether the associated clauses were invoked for the apparatus under test. The following abbreviations are used:

N	No : not applicable / not relevant.
Y	Yes : Mandatory i.e. the apparatus shall conform to these tests.
N/T	Not Tested, mandatory but not assessed. (See section 3.4 Test deleted)

The results contained in this section are representative of the operation of the apparatus as originally submitted.

4.1 FCC Part 15 Subpart C : Test Results

Part 15	Test Description	Required	Result
15.207(a)	Powerline Conducted Emissions	N (1)	
15.209(a)	Radiated Emissions within Restricted Bands	Y	PASS
15.231(a)(1)	Manually operated transmitter	N	
15.231(a)(2)	Automatically activated transmitter	Y	PASS
15.231(a)(3)	Periodic transmissions at regular predetermined intervals	Y	PASS
15.231(a)(4)	Radiators used in cases of emergency	Y	PASS
15.231(a)(5)	Set-up information for security systems	Y	PASS
15.231(b)	Radiated Emissions	Y	PASS
15.231(c)	20dB Bandwidth	Y	PASS
15.231(d)	Devices operating within the frequency band 40.66-40.70 MHz	N	
15.231(e)	Radiated emissions for Periodic radiators	N	

Notes:

(1) The EUT is battery powered.

Appendix A : Test Results

Clause 15.209(a) Radiated Emissions within Restricted Bands

Except as provided elsewhere in this subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table:

Frequency (MHz)	Field Strength (microvoltsmeter)	Measurement Distance (meters)
0.009-0.490	2400/F (kHz)	300
0.490-1.705	24000/F (kHz)	30
1.705-30.0	30	30
30-88	1001	3
88-216	1502	3
216-960	2003	3
Above 960	500	3

Test Conditions:

Sample Number:	1	**Temperature:**	10
Date:	February 14, 2006	**Humidity:**	74
Modification State:	0	**Tester:**	Jason Nixon
		Laboratory:	OATS

Test Results:

See Attached Table for Results

Additional Observations:

The Spectrum was searched from 30MHz to 4GHz.

These results apply to emissions found in the Restricted bands defined in FCC Part 15 Subpart C, 15.205.

The EUT was measured on three orthogonal axis. The EUT was tested with fresh new batteries.

All measurements were performed using a Peak Detector with 100kHz RBW below 1GHz and a 1MHz RBW above 1GHz at a distance of 3 meters.

	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)	Detector
1	2835.0000	Horn1	V	66.9	30.1	59.2	-5.8	5.5	43.2	74.0	30.8	Peak
									37.4	54.0	16.5	Average
2	2835.0000	Horn1	H	68.6	30.3	59.2	-5.8	5.5	45.1	74.0	28.9	Peak
									39.3	54.0	14.6	Average

Clause 15.231(a) Conditions for intentional radiators to comply with periodic operation

The provisions of this section are restricted to periodic operation within the band 40.66-40.70 MHz and above 70 MHz. Except as shown in paragraph (e) of this section, the intentional radiator is restricted to the transmission of a control signal such as those used with alarm systems, door openers, remote switches, etc. Continuous transmissions, voice, video and the radio control of toys are not permitted. Data is permitted to be sent with a control signal. The following conditions shall be met to comply with the provisions for this periodic operation:

(1) A manually operated transmitter shall employ a switch that will automatically deactivate the transmitter within not more than 5 seconds of being released.

(2) A transmitter activated automatically shall cease transmission within 5 seconds after activation.

(3) Periodic transmissions at regular predetermined intervals are not permitted. However, polling or supervision transmissions, including data, to determine system integrity of transmitters used in security or safety applications are allowed if the total duration of transmissions does not exceed more than two seconds per hour for each transmitter. There is no limit on the number of individual transmissions, provided the total transmission time does not exceed two seconds per hour.

(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 condition.

(5) Transmission of set-up information for security systems may exceed the transmission duration limits in paragraphs (a)(1) and (a)(2) of this section, provided such transmissions are under the control of a professional installer and do not exceed ten seconds after a manually operated switch is released or a transmitter is activated automatically. Such set-up information may include data.

Test Conditions:

Sample Number:	2	**Temperature:**	22
Date:	February 16, 2006	**Humidity:**	14
Modification State:	0	**Tester:**	Jason Nixon
		Laboratory:	Wireless

Test Results:

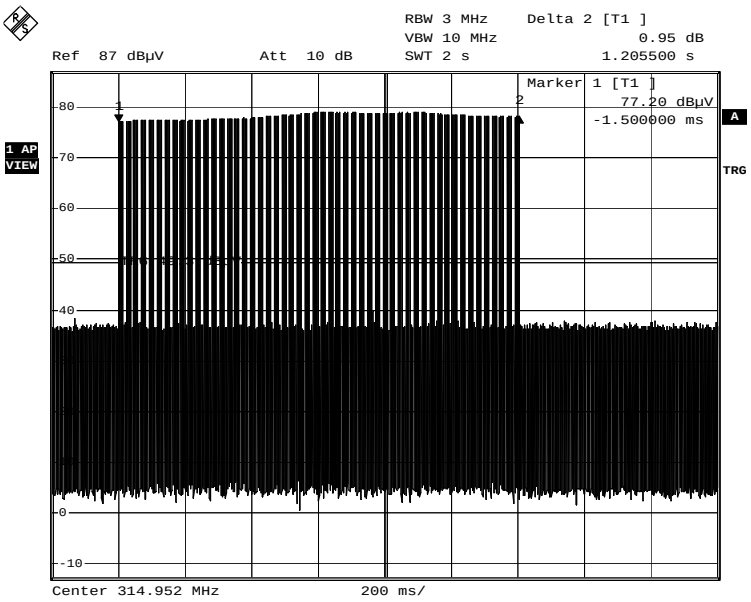
(1) The EUT is not manually operated.

(2) When automatically activated the EUT ceases transmission in 1.2sec. See attached Plot for details.

(3) The EUT does not periodically transmit.

(4) The EUT is not used for emergency alarms.

(5) The EUT is not used for security systems.



Transmission time for a single motion detected

Date: 16.FEB.2006 13:58:01

Clause 15.231(b) Radiated Emissions

In addition to the provisions of 15.205, the field strength of emissions from intentional radiators operated under this section shall not exceed the following:

Fundamental Frequency (MHz)	Field Strength of Fundamental (microvolts/meter)	Field Strength of Spurious Emissions (microvolts/meter)
40.66-40.70	2,250	225
70-130	1,250	125
130-174	1,250 to 3,750	125 to 375
174-260	3,750	375
260-470	3,750 to 12,500	375 to 1,250
Above 470	12,500	1,250

Test Conditions:

Sample Number:	1	**Temperature:**	10
Date:	February 14, 2006	**Humidity:**	74
Modification State:	0	**Tester:**	Jason Nixon
		Laboratory:	OATS

Test Results:

See Attached Table for Results

Additional Observations:

The Spectrum was searched from 30MHz to 4GHz.

The EUT was measured on three orthogonal axis. The EUT was tested with fresh new batteries.

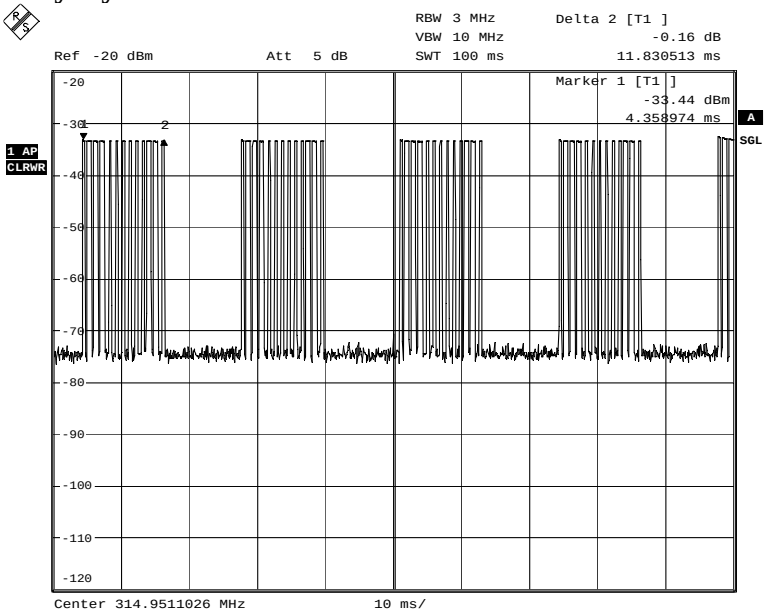
All measurements were performed using a Peak Detector with 100kHz RBW below 1GHz and a 1MHz RBW above 1GHz at a distance of 3 meters.

Duty cycle = 20log((11.83*4.31)/100) = -5.85dB
Pulse train on-time = 11.83msec
Number of pulse trains in 100msec = 100/(11.83+11.35) = 4.31

Freq. (MHz)	Ant	Pol. V/H	RCVD Signal (dBµV)	Ant. Factor (dB)	Amp. Gain (dB)	Duty Cycle Corr. (dB)	Cable Loss (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)
315.0000	LP1	V	61.3	14.7	N/A	-5.8	2.6	72.8	75.6	2.8
315.0000	LP1	H	63.6	14.9	N/A	-5.8	2.6	75.3	75.6	0.3
630.0000	LP1	V	36.0	20.0	N/A	-5.8	3.5	53.7	55.6	1.9
630.0000	LP1	H	33.8	20.2	N/A	-5.8	3.5	51.7	55.6	3.9
3150.0000	Horn1	V	66.3	31.2	58.9	-5.8	5.2	38.0	55.6	17.6
3150.0000	Horn1	H	64.3	31.5	58.9	-5.8	5.2	36.3	55.6	19.3

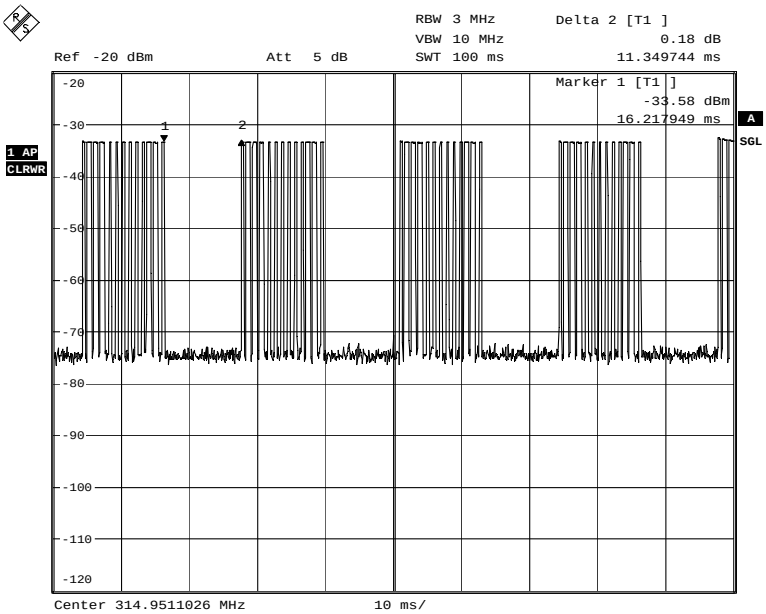
Note 1: Antenna Legend: BC = Biconical, BL = Bilog, LP = Log-Periodic, Horn = Horn, ED = EMCO Dipole

Duty Cycle:



On-time in 100msec

Date: 13.FEB.2006 10:43:42



Pause between packets

Date: 13.FEB.2006 10:44:52

Clause 15.231(c) 20dB Bandwidth

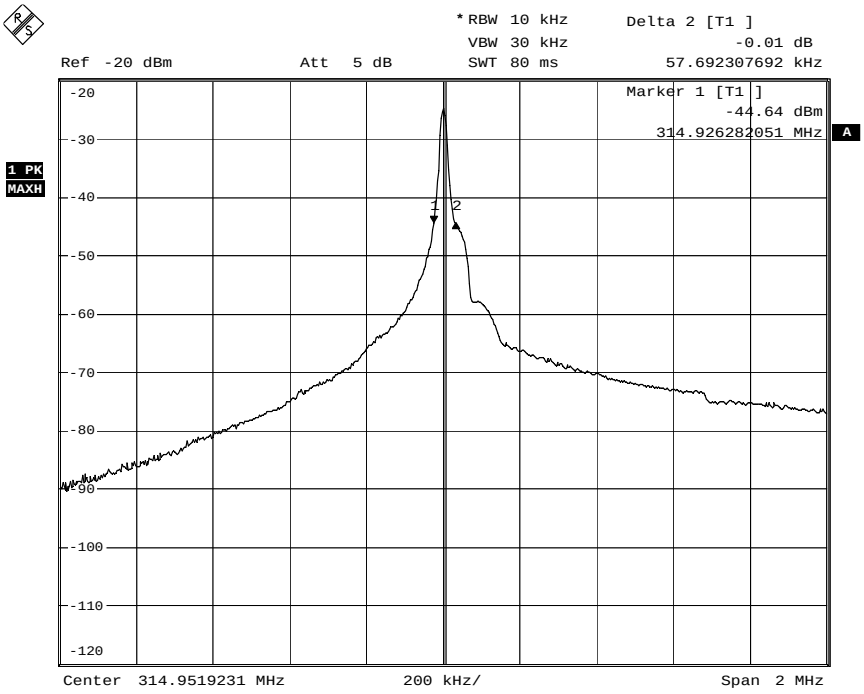
The bandwidth of the emission shall be no wider than 0.25% of the center frequency for devices operating above 70 MHz and below 900 MHz. For devices operating above 900 MHz, the emission shall be no wider than 0.5% of the center frequency. Bandwidth is determined at the points 20 dB down from the modulated carrier.

Test Conditions:

Sample Number:	1	**Temperature:**	21
Date:	February 13, 2006	**Humidity:**	12
Modification State:	0	**Tester:**	Jason Nixon
		Laboratory:	Wireless

Test Results:

20dB Bandwidth:



20dB Occupied Bandwidth

Date: 13.FEB.2006 14:51:28

Appendix B : Setup Photographs

Spurious Emissions Setup:

Appendix C : Block Diagram of Test Setups

Test Site For Radiated Emissions