



**Test Report:** 1W04321


**Applicant:**  **Nemko**  
Desa International  
PO Box 9004, 2701 Industrial Avenue  
Bowling Green, KY  
42101-9004  
USA

**Equipment Under Test:  
(EUT)** Desa International SL-6005  
4 & 6 Button Remote 315 MHz Transmitter

**FCC ID:** BJ4-60WRC05TX

**In Accordance With:** **FCC Part 15, Subpart C, 15.231**

**Tested By:** Nemko Canada Inc.  
3325 River Road, R.R. 5  
Ottawa, Ontario K1V 1H2

**Authorized By:**   
R. Grant, Wireless Group Manager

**Date:** December 14, 2001

**Total Number of Pages:** 19

**Authorized Copy:** Soft Copy

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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 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: Glen Westwell, Wireless Technologist

DATE: December 14, 2001

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This report applies only to the items tested.

*EQUIPMENT: Desa International SL-6005 4 & 6 Button Remote 315 MHz Transmitter*

*FCC ID: BJ4-60WRC05TX*

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**Summary Of Test Data**

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

**Note:** Primary Transmitter in 6005 transmitter family FCC listing.

This unit is the primary unit for a family device listing with FCC, other units will not have the marked supplemental control pushbuttons. Each button controls the transmission of a pulse-coded address followed by a command for the unit with the corresponding address.

Unit is powered by 12VDC Battery and operates on a modulated carrier frequency of 315 MHz.

**Test Conditions:**

**Indoor**                      Temperature: 23 °C  
    Humidity: 36 %

**Outdoor**                      Temperature: 10 °C  
    Humidity: 42 %

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## **Section 2. Equipment Under Test**

### **General Equipment Information**

**Manufacturer:** Desa International

**Model No.:** 60WRC05-4TX  
60WRC05-6TX

**Serial No.:** None

**Date Received In Laboratory:** November 20, 2001

**Nemko Identification No.:** Item #'s 1 & 2

**Transmitter Frequency:** 315 MHz

**Emission Designator:** 63K3L1D

**Note:** The 6 button and 4 button remote transmitter are functionally the same, except for user features and functions. The worst case emissions were detected using the 6 button remote.



### Section 3. Transmission Requirements

Para. No.: 15.231(a)

<b>Test Performed By:</b> Glen Westwell	<b>Date of Test:</b> November 26, 2001
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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: Desa International SL-6005 4 & 6 Button Remote 315 MHz Transmitter*

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**Rationale for Compliance with Transmission Requirements**

**15.231(a)(1) :** This manually switched transmitter de-activates after 316.7mS when pressed and released.

**15.231(a)(2) :** This is a manually operated transmitter.

**15.231(a)(3) :** There are no periodic transmissions.

**15.231(a)(4) :** Not applicable.





## Section 4. Radiated Emissions

Para. No.: 15.231(b)

<b>Test Performed By:</b> Glen Westwell	<b>Date of Test:</b> November 23, 2001
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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

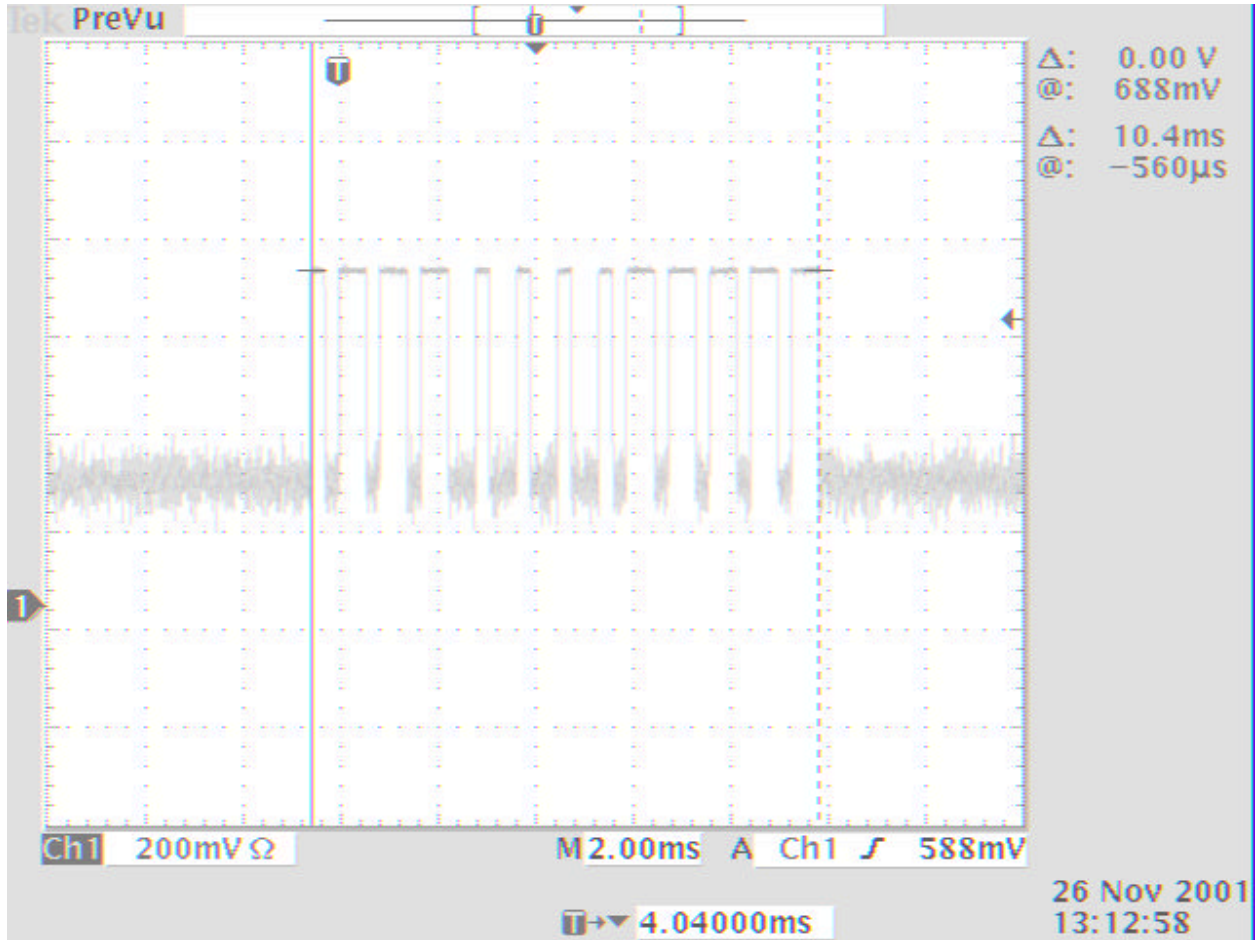
**Test Results:** Complies.

**Test Data:** As per attached tabulated data.

**Duty Cycle:** 13 pulse/packet @ 556µS (worst case) = 7.23mS  
 5 packets/100mS (5 x 7.23) = 36.1mS  
 $\therefore 20\text{Log} \frac{36.1\text{mS}}{100\text{mS}} = -8.8 \text{ dB}$

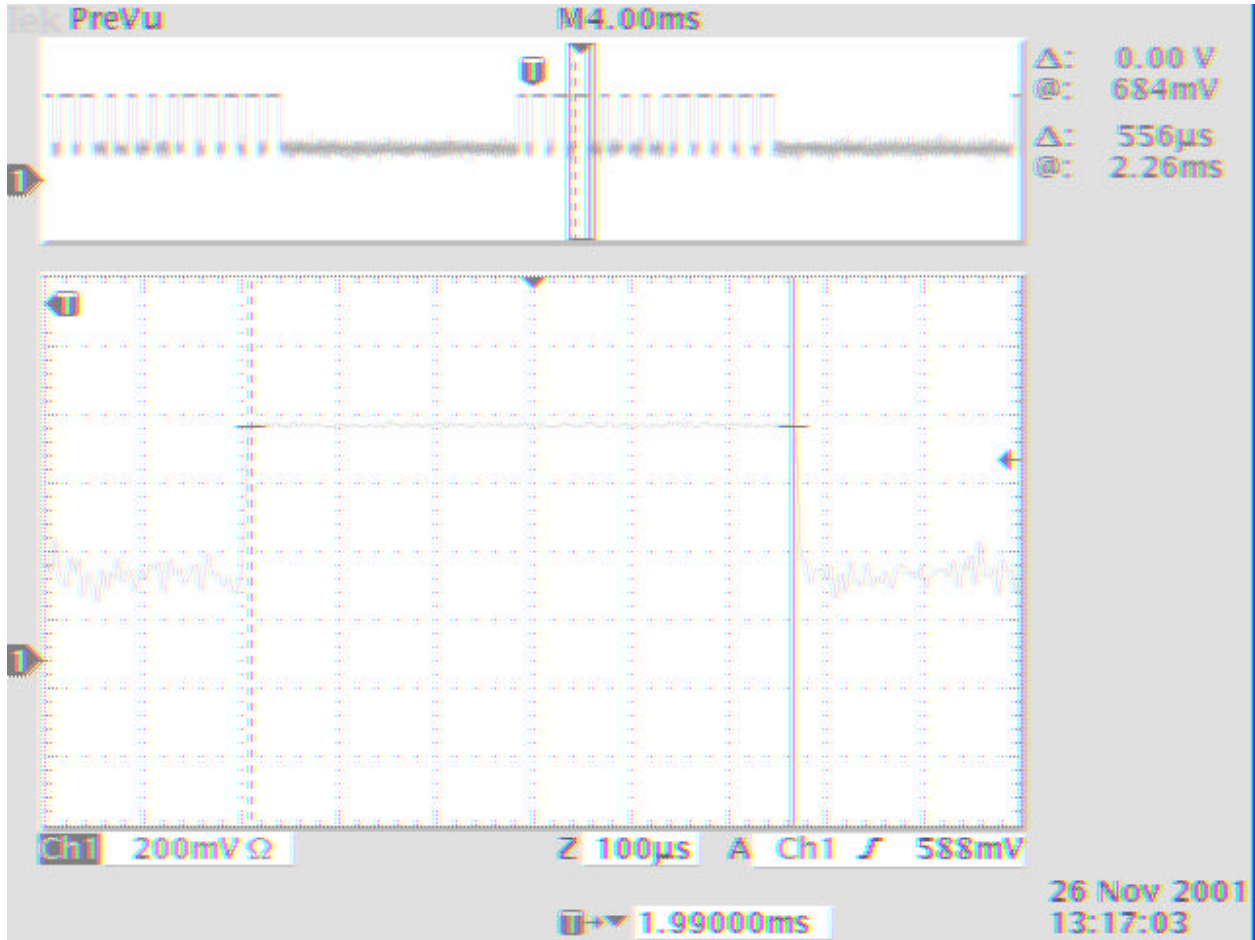
EQUIPMENT: *Desa International SL-6005 4 & 6 Button Remote 315 MHz Transmitter*

FCC ID: *BJ4-60WRC05TX*



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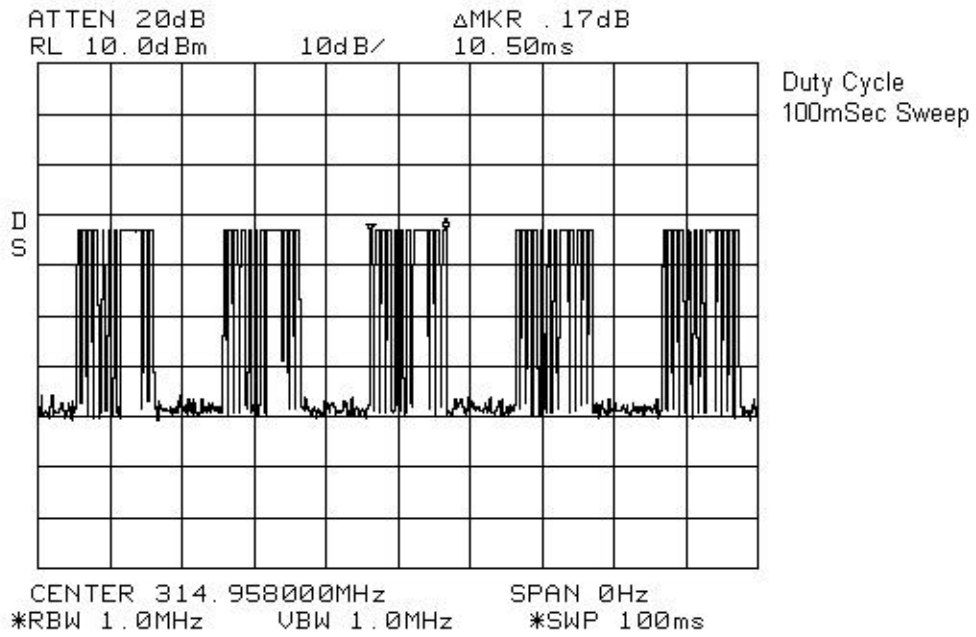
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**Test Data - Radiated Emissions**

Test Distance (meters) : 3		Range: A Tower		Receiver: 8565E		RBW(kHz): 100		Detector: Peak	
Freq. (MHz)	Ant. *	Pol. (V/H)	RCVD Signal (dBµV/m)	Ant. Factor (dB)**	Amp. Gain (dB)***	Duty Cycle (dB)	Field Strength (dBµV/m)	Limit (dBµV/m)	Margin (dB)
315.0	L/P1	V	53.8	18.0		-8.8	63.0	75.6	12.6
315.0	L/P1	H	54.8	18.0		-8.8	64.0	75.6	11.6
630.0	E/D4	V	33.8	28.4		-8.8	54.2	55.6	1.4
630.0	E/D4	H	31.4	28.4		-8.8	51.0	55.6	4.6

**Notes:**  
 B/C = Biconical, B/L = Biconilog, L/P = Log-Periodic, H = Horn, D/P = Dipole  
 \* Re-measured using dipole antenna.  
 \*\* Includes cable loss when amplifier is not used.  
 \*\*\* Includes cable loss.  
 ( ) Denotes failing emission level.  
 N.D. = Not Detected

- (1) All Spurious and Harmonics were searched up to the 10<sup>th</sup> harmonic.
- (2) The EUT was searched in 3 orthogonal axis for worst case emissions.

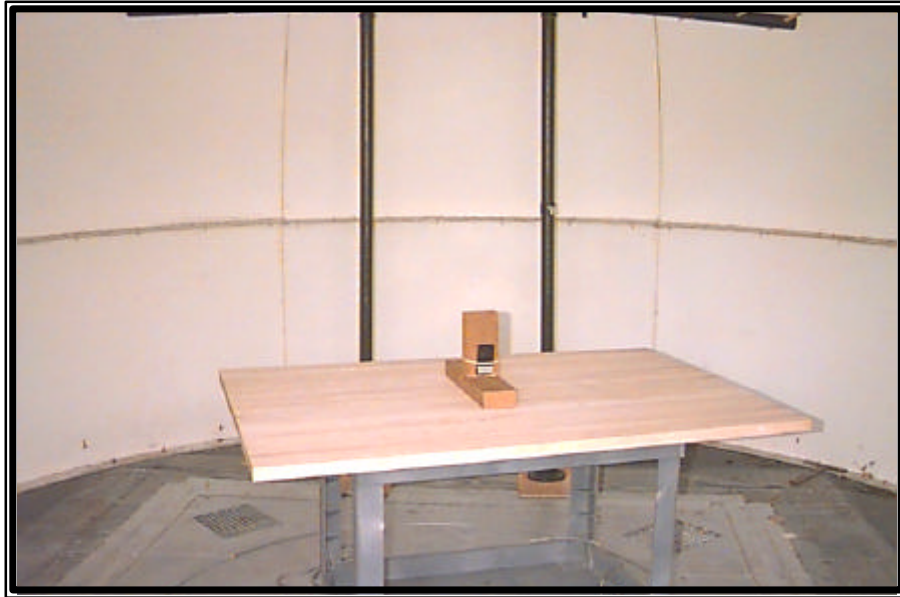
*EQUIPMENT: Desa International SL-6005 4 & 6 Button Remote 315 MHz Transmitter*

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**Radiated Emissions Photograph**

**Front View:**



*EQUIPMENT: Desa International SL-6005 4 & 6 Button Remote 315 MHz Transmitter*

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## **Section 5. Occupied Bandwidth**

**Para. No.: 15.231(c)**

<b>Test Performed By:</b> Glen Westwell	<b>Date of Test:</b> November 26, 2001
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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.

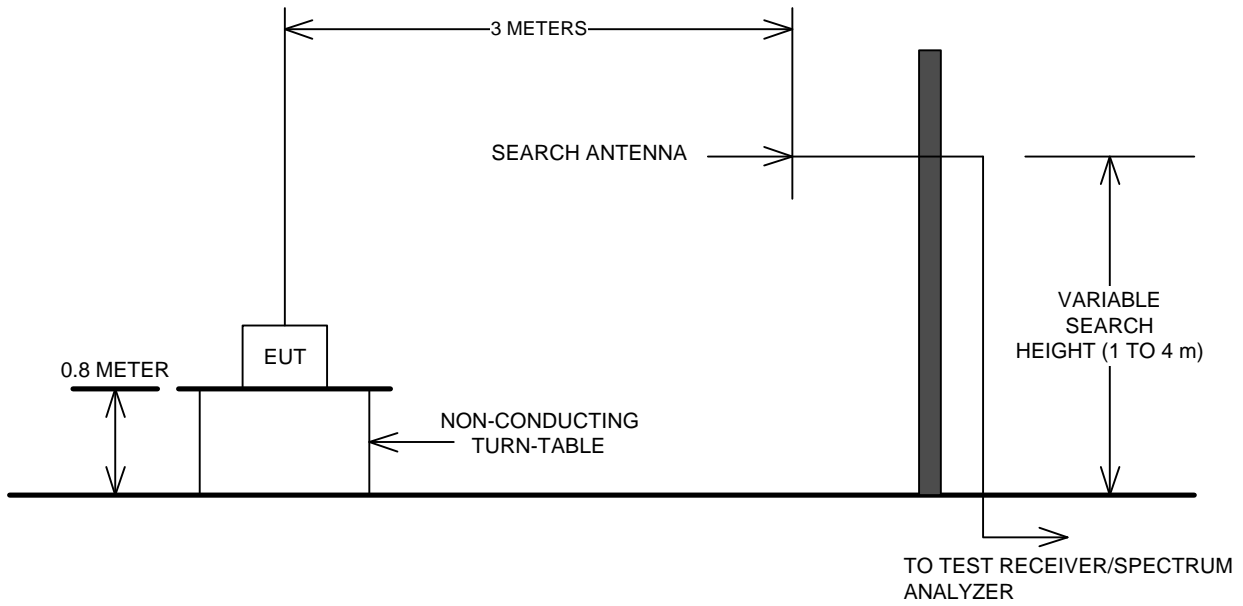
**Test Data:** See attached graph.





## 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**

<b>CAL CYCLE</b>	<b>EQUIPMENT</b>	<b>MANUFACTURER</b>	<b>MODEL</b>	<b>SERIAL</b>	<b>LAST CAL.</b>	<b>NEXT CAL.</b>
1 Year	Spectrum Analyzer	Hewlett Packard	8565E	FA000981	June 08/01	June 08/02
1 Year	Spectrum Analyzer-1	Hewlett Packard	8566B	2311A02238	Dec. 10/00	Dec. 10/01
1 Year	Spectrum Analyzer Display-1	Hewlett Packard	8566B	2314A04759	Dec. 10/00	Dec. 10/01
1 Year	Quasi-peak adapter-1	Hewlett-Packard	85650A	2043A00302	Dec. 14/00	Dec. 14/01
	Plotter	Hewlett Packard	7470A	2308A30807	NCR	NCR
1 Year	Log Periodic Antenna 1	EMCO	LPA-25	1141	Aug. 28/01	Aug. 28/02
1 Year	Dipole Antenna Set	EMCO #2	3121C	FA001349	Apr. 3/01	Apr. 3/02
1 Year	Oscilloscope	Tektronix	TDS 3012	FA001560	June 29/01	June 29/02

NA: Not Applicable  
NCR: No Cal Required  
COU: CAL On Use