Standards Council of Canada
Accredited Laboratory
Scope of Accreditation 75

Conseil canadien des normes
Laboratoire accrédité
Portée d'accréditation 75

TM

Test Report:	2W04962
Applicant:	Desa International Inc. P.O. Box 90004, 2901 Industrial Ave. Bowling Green, KY 42102 USA
Equipment Under Test: (EUT)	6132C Series Wireless Remote Controls 315MHz Transmitter
FCC ID:	BJ4-61WRC32CTX
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:	 J. Harrington, RF Group Manager
Date:	24 May 2002
Total Number of Pages:	19

Table of Contents

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: _____ DATE: 24 May 2002
Glen Westwell, Wireless Technologist

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)	N/A
Periodic Alternate Field Strength Requirements	15.231(e)	N/A
Powerline Conducted Emissions	15.207	N/A

Indoor Temperature: 23 °C
Humidity: 34 %

Outdoor Temperature: 15 °C
Humidity: 42 %

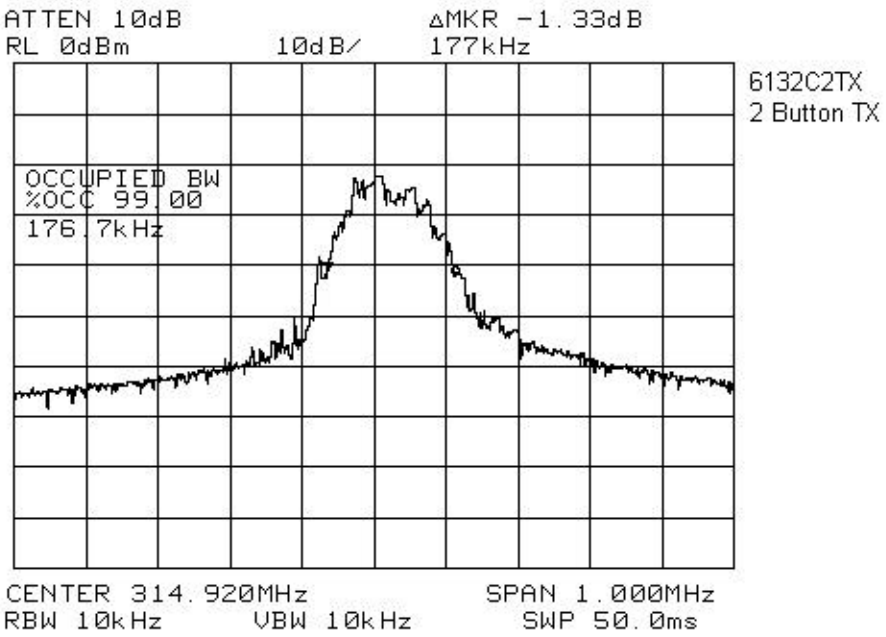
Section 2. Equipment Under Test

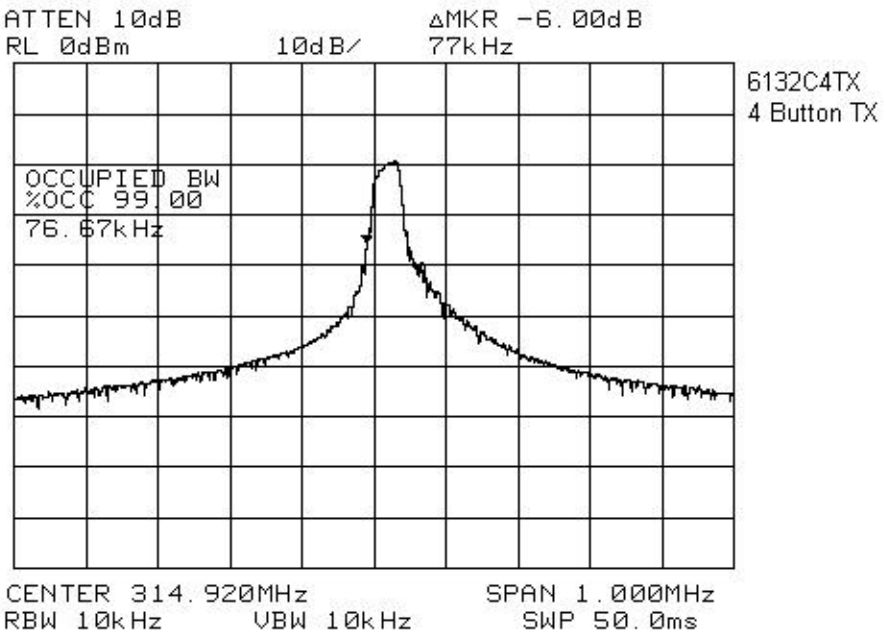
General Equipment Information

Manufacturer:	Desa International Inc.
Model No.:	6132C2TX (2 Button Remote) 6132C4TX (4 Button Remote)
Serial No.:	2&4
Date Received In Laboratory:	May 1, 2002
Nemko Identification No.:	Item #2&4
Tx:	315 MHz Fixed
Emission Designator:	176K7L1D (2 Button Remote) 76K7L1D (4 Button Remote)
Type of Modulation:	Pulse Modulated

Note:

The 4 Button remote (6132C4TX) was used to determine radiated emissions compliance. Both the 2 Button & 4 Button remote transmitter utilize the same printed circuit board, power supply, encoder IC and RF tank circuit.


ATTEN 10dB
RL 0dBm
10dB/
ΔMKR -1.33dB
177kHz
6132C2TX
2 Button TX
OCCUPIED BW
%OCC 99.00
176.7kHz
CENTER 314.920MHz
SPAN 1.000MHz
RBW 10kHz
VBW 10kHz
SWP 50.0ms


ATTEN 10dB
RL 0dBm
10dB/
ΔMKR -6.00dB
77kHz
6132C4TX
4 Button TX
OCCUPIED BW
%OCC 99.00
76.67kHz
CENTER 314.920MHz
SPAN 1.000MHz
RBW 10kHz
VBW 10kHz
SWP 50.0ms

Section 3. Transmission Requirements

Para. No.: 15.231(a)

Test Performed By: Glen Westwell	**Date of Test:** 22 May, 2002

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.

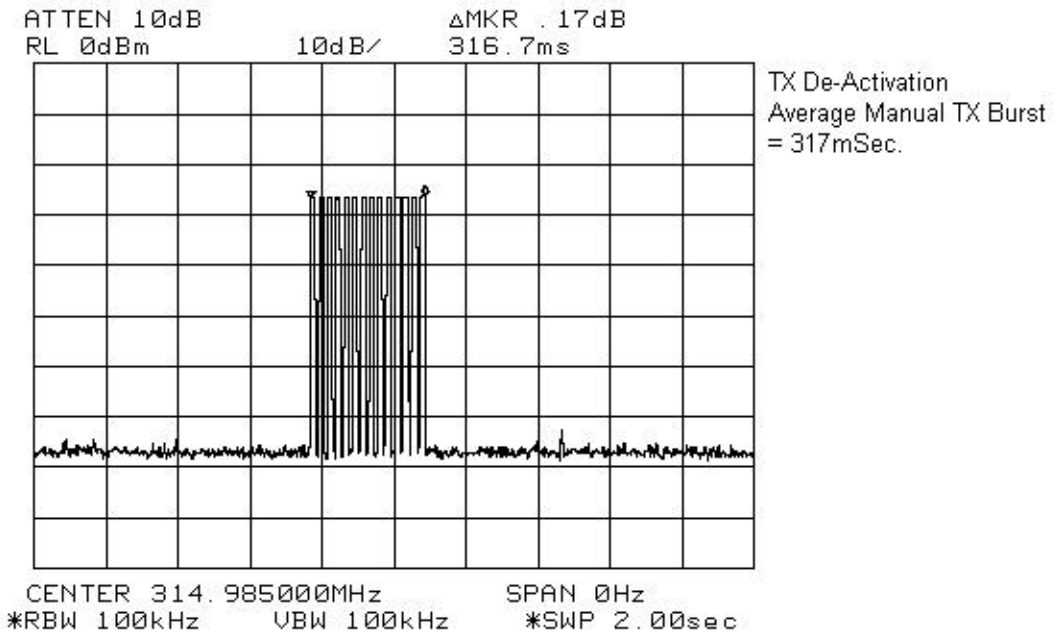
15.231(a)(2) A transmitter activated automatically shall cease transmission within 5 seconds of activation.

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.


ATTEN 10dB
RL 0dBm
10dB/
ΔMKR .17dB
316.7ms
TX De-Activation
Average Manual TX Burst
= 317mSec.
CENTER 314.985000MHz
SPAN 0Hz
*RBW 100kHz
VBW 100kHz
*SWP 2.00sec

Rationale for Compliance with Transmission Requirements

15.231(a)(1) : Complies, transmitter de-activates immediately upon release.

15.231(a)(2) : N/A, manual operation only.

15.231(a)(3) : There are no provisions for regular predetermined periodic transmissions.

15.231(a)(4) : N/A

Section 4. Radiated Emissions

Para. No.: 15.231(b)

Test Performed By: Glen Westwell **Date of Test:** 22 May, 2002

Minimum Standard:

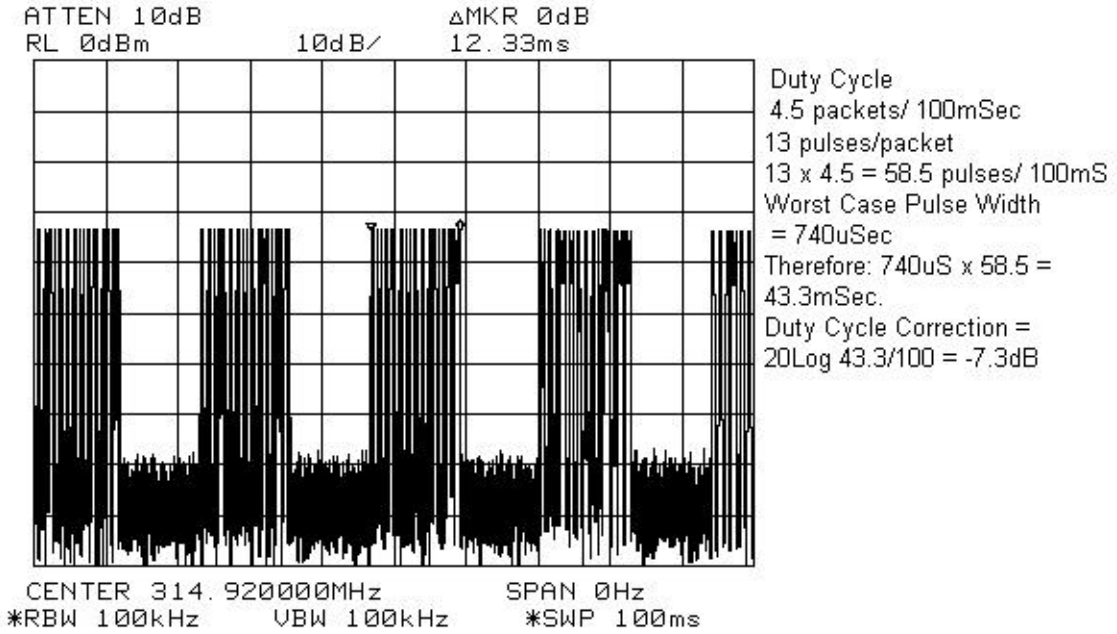
Fundamental Frequency (MHz)	Field Strength of Fundamental (µV/m @ 3m)	Field Strength of Spurious Emissions (µV/m @ 3m)
40.66 - 40.70	2,250	225
70-130	1, 250	125
130-174	1,250 to 3,750*	125 to 375
174-260 (note 1)	3,750	375
260-470 (note 1)	3,750 to 12,500*	375 to 1,250
Above 470	12,500	1,250

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

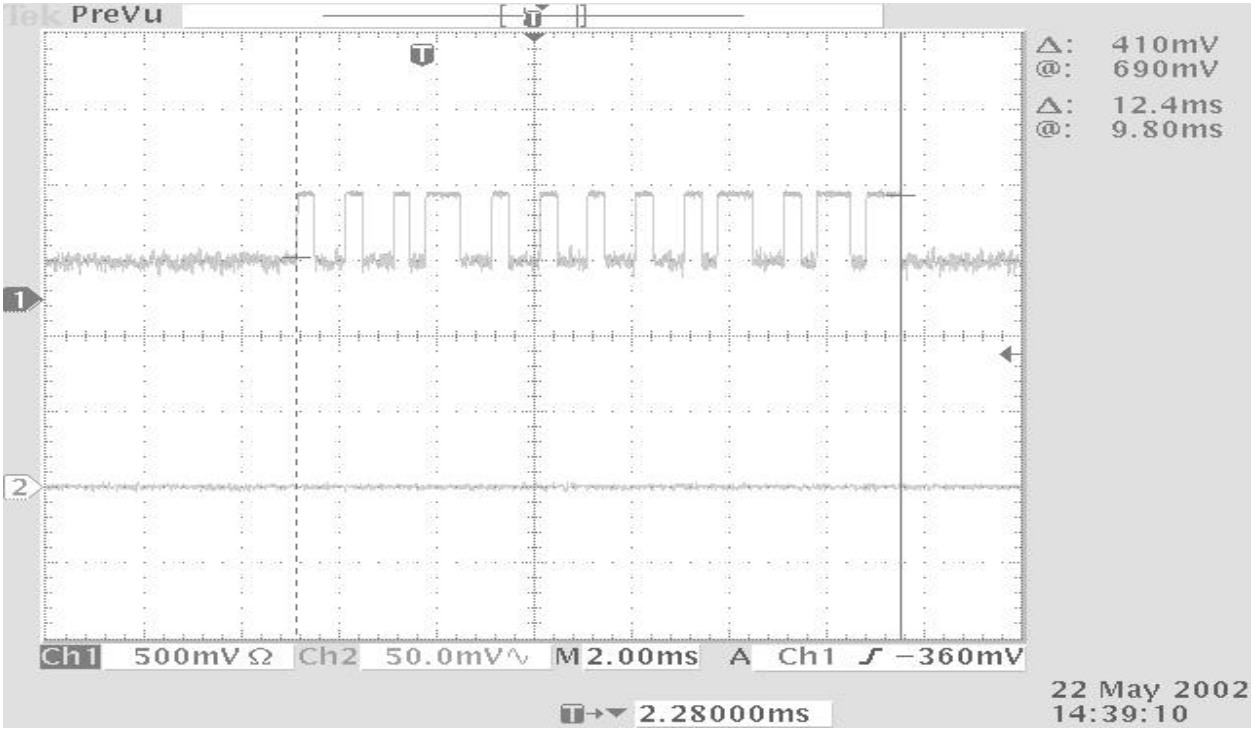
Test Results: Complies

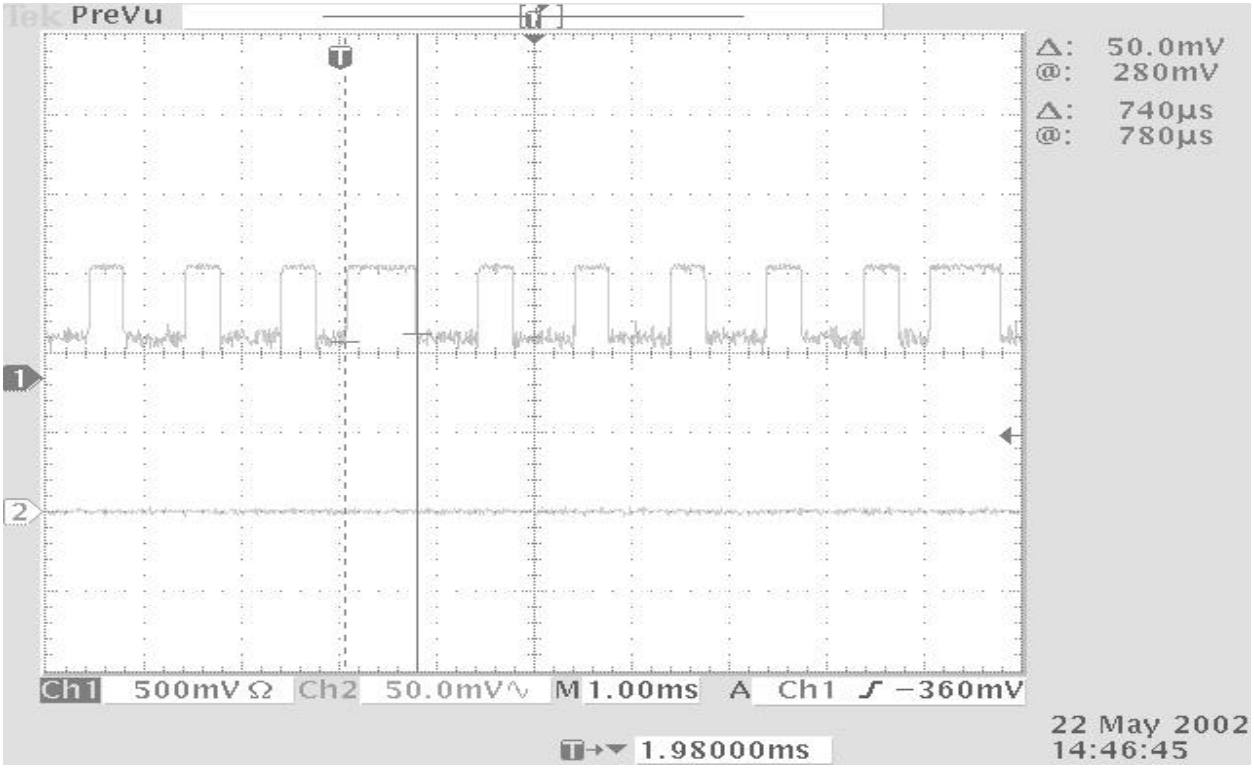
Test Data: As per attached tabulated data.

Duty Cycle correction factor: -7.3dB



Duty Cycle
4.5 packets/ 100mSec
13 pulses/packet
13 x 4.5 = 58.5 pulses/ 100mS
Worst Case Pulse Width
= 740uSec
Therefore: 740uS x 58.5 =
43.3mSec.
Duty Cycle Correction =
20Log 43.3/100 = -7.3dB


PreVu
Δ: 410mV
@: 690mV
Δ: 12.4ms
@: 9.80ms
Ch1 500mV Ω Ch2 50.0mV M2.00ms A Ch1 −360mV
2.28000ms
22 May 2002
14:39:10


PreVu
Δ: 50.0mV
@: 280mV
Δ: 740µs
@: 780µs
Ch1 500mV Ω Ch2 50.0mV M1.00ms A Ch1 −360mV
1.98000ms
22 May 2002
14:46:45

Test Data - Radiated Emissions

Test Distance (meters) : 3		Range: A Tower		Receiver: ESVP/HP8564E		RBW(kHz): 120/1000		Detector: Peak	
Freq. (MHz)	Ant.	Pol. (V/H)	RCVD Signal (dBµV)	Ant. Factor (dB)**	Amp. Gain (dB)***	Duty Cycle Corr. (dB)	Field Strength (dBµV/m)	Limit (dBµV/m)	Margin (dB)
315.0	L/P1	V	58.0	18.0		-7.3	68.7	75.6	6.9
315.0	L/P1	H	59.8	18.0		-7.3	70.5	75.6	5.1
630.0	L/P1	V	24.3	23.2		-7.3	40.2	55.6	15.4
630.0	L/P1	H	25.0	23.2		-7.3	40.9	55.6	14.7
945.0	L/P1	V	N.D.	29.1		-7.3	N.D.	55.6	--
945.0	L/P1	H	N.D.	29.1		-7.3	N.D.	55.6	--
1260.0	Hrn 2	V	72.5	28.2	-48.1	-7.3	45.3	55.6	10.3
1260.0	Hrn 2	H	73.4	28.2	-48.1	-7.3	46.2	54.0	9.4
1575.0	Hrn 2	V	63.5	29.7	-48.1	-7.3	37.8	54.0	16.2
1575.0	Hrn 2	H	64.5	29.7	-48.1	-7.3	38.8	54.0	15.2
1890.0	Hrn 2	V	56.2	32.0	-48.7	-7.3	32.2	55.6	23.4
1890.0	Hrn 2	H	55.8	32.0	-48.7	-7.3	31.8	55.6	22.2
2205.0	Hrn 2	V	68.3	33.3	-58.7	-7.3	35.6	54.0	18.4
2205.0	Hrn 2	H	69.1	33.3	-58.7	-7.3	36.4	54.0	17.6
2520.0	Hrn 2	V	62.8	34.3	-59.7	-7.3	30.1	55.6	25.5
2520.0	Hrn 2	H	63.3	34.3	-59.7	-7.3	30.6	55.6	25.0

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

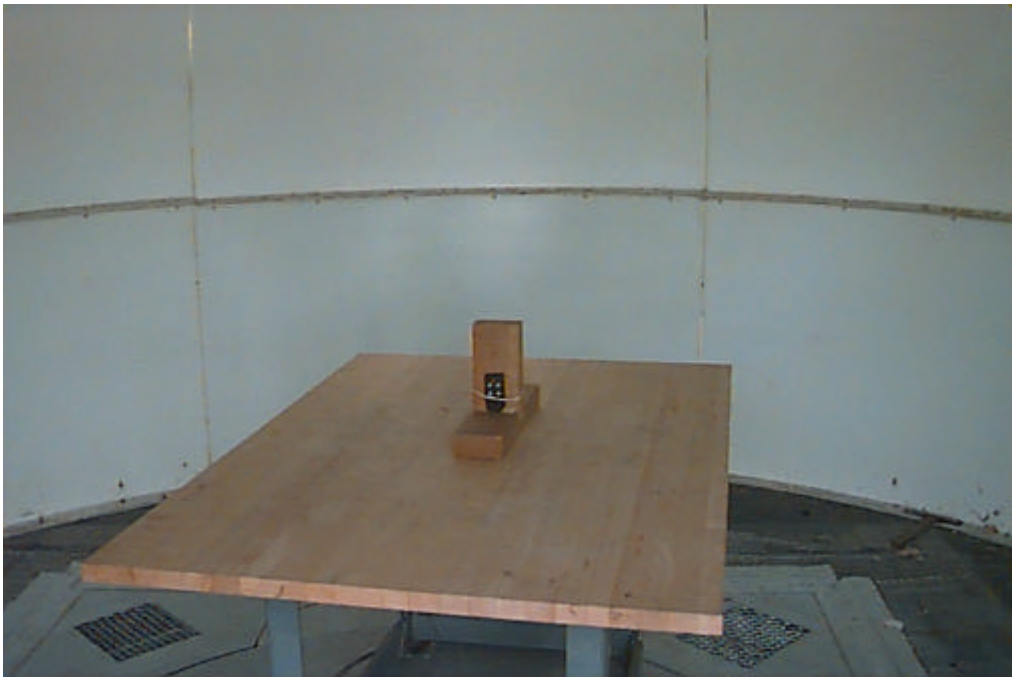
All spurious and harmonic emissions were search to the 10th harmonic.

The EUT was searched on 3 orthogonal axis for maximum emission detection.

The EUT was power with a fresh 12Vdc cell.

Radiated Photographs

Front View:



Section 5. Occupied Bandwidth

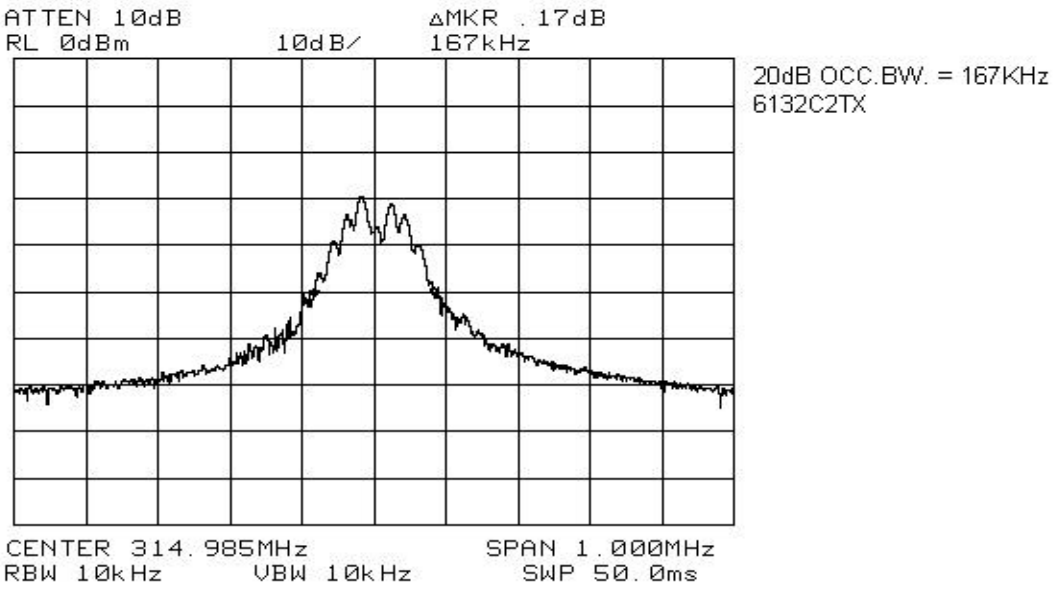
Para. No.: 15.231(c)

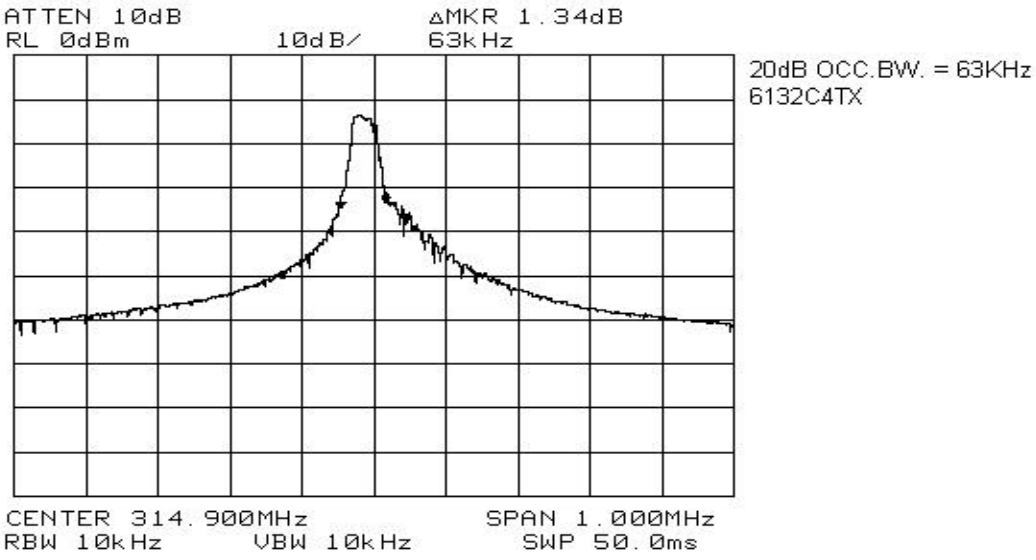
Test Performed By: Glen Westwell	**Date of Test:** 22 May, 2002

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

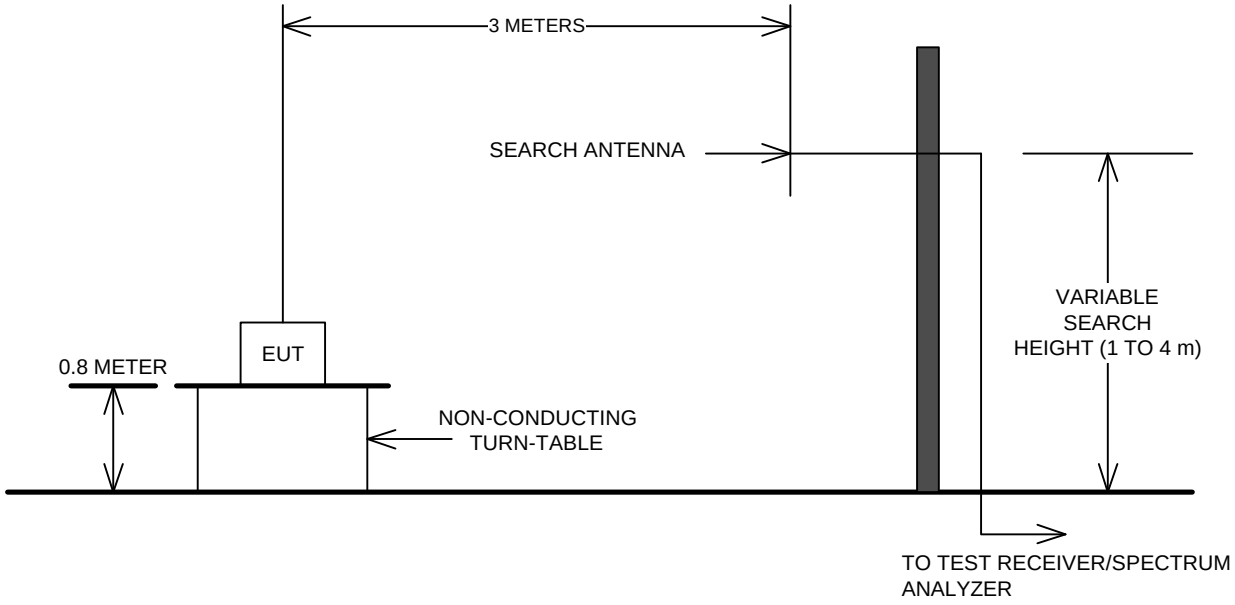
Test Data: See attached graph.


ATTEN 10dB
RL 0dBm
10dB/
ΔMKR .17dB
167kHz
20dB OCC.BW. = 167KHz
6132C2TX
CENTER 314.985MHz
SPAN 1.000MHz
RBW 10kHz
VBW 10kHz
SWP 50.0ms


ATTEN 10dB
RL 0dBm
10dB/
ΔMKR 1.34dB
63kHz
20dB OCC.BW. = 63KHz
6132C4TX
CENTER 314.900MHz
SPAN 1.000MHz
RBW 10kHz
VBW 10kHz
SWP 50.0ms

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.

Section 7. Test Equipment List

CAL CYCLE	EQUIPMENT	MANUFACTURER	MODEL	SERIAL	LAST CAL.	NEXT CAL.
1 Year	Spectrum Analyzer	Hewlett Packard	8565E	FA000981	June 08/01	June 08/02
1 Year	Receiver	Rohde & Schwarz	ESVP	892661/014	02 May 02	02 May 03
1 Year	Horn Antenna	EMCO #2	3115	4336	Dec. 1/01	Dec. 1/02
1 Year	Log Periodic Antenna 1	EMCO	LPA-25	1141	Aug. 28/01	Aug. 28/02
1 Year	Oscilloscope	Tektronix	TDS 3012	FA001560	29 Jun 01	29 Jun 02
1 Year	RF Amp	JCA	1-2GHz	FA001498	02 Aug 01	02 Aug 02
1 Year	RF Amp	JCA	2-4GHz	FA001496	02 Aug 01	02 Aug 02

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