Standards Council of Canada
Accredited Laboratory
Scope of Accreditation 75

Conseil canadien des normes
Laboratoire accrédité
Portée d'accréditation 75

TM

Test Report:	1W04425
Applicant:	Desa International PO Box 9004, 2701 Industrial Ave. Bowling Green, KY 92101-9004 USA
Equipment Under Test: **(EUT)**	SL-6133 TX 315 MHz Remote Wireless Switch Transmitter
FCC ID:	BJ4-61RWRC33TX
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:	November 13, 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: DATE: November 12, 2001
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)	Complies
Periodic Alternate Field Strength Requirements	15.231(e)	N/A
Powerline Conducted Emissions	15.207	N/A

Note: This device is battery operated only.

Test Conditions:

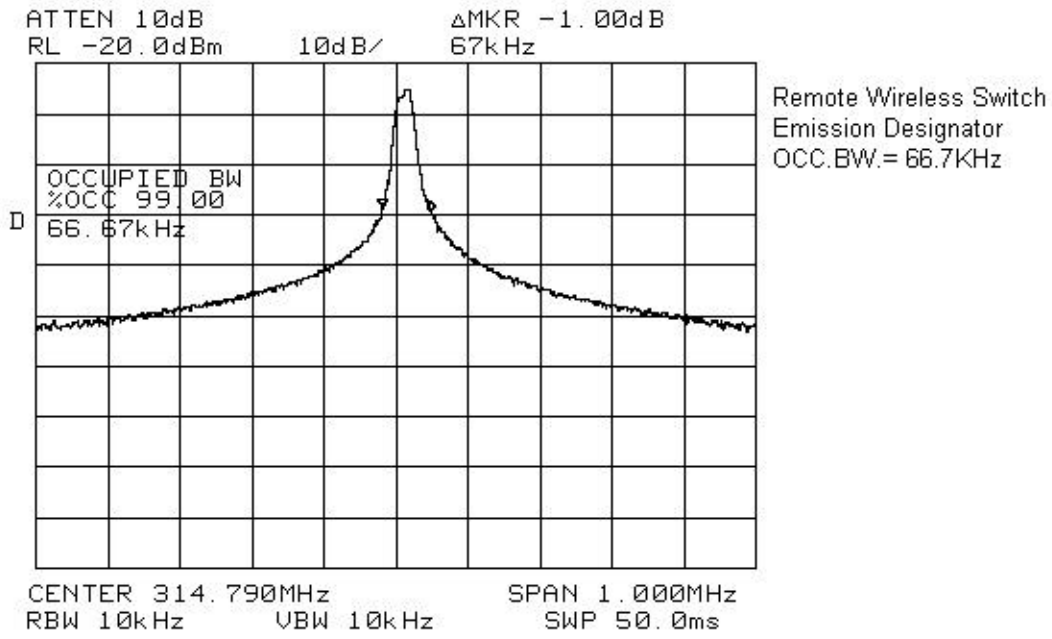
Indoor Temperature: 24 °C
Humidity: 38 %

Outdoor Temperature: 10 °C
Humidity: 42 %

Section 2. Equipment Under Test

General Equipment Information

Manufacturer:	Heath / Zenith For Desa International
Model No.:	SL-6133TX
Serial No.:	None
Date Received In Laboratory:	October 17, 2001
Nemko Identification No.:	Item #2
Transmitter Frequency:	315 MHz
Emission Designator:	66K7L1D


ATTEN 10dB
RL -20.0dBm
10dB/
ΔMKR -1.00dB
67kHz
OCCUPIED BW
%OCC 99.00
66.67kHz
D
Remote Wireless Switch
Emission Designator
OCC.BW.= 66.7KHz
CENTER 314.790MHz
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:** October 23, 2001

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.

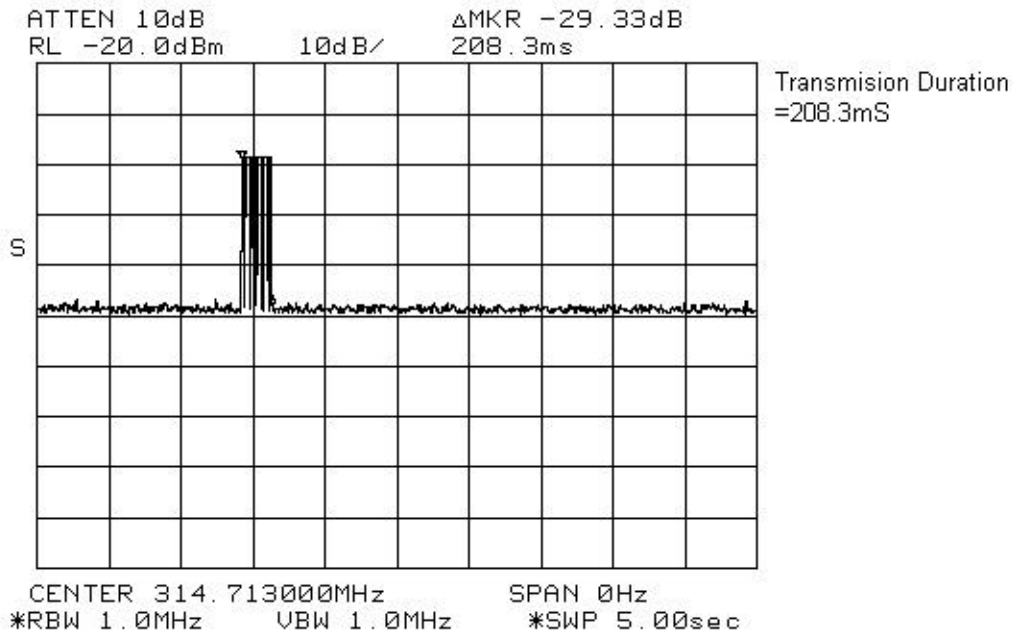
Rationale for Compliance with Transmission Requirements

15.231(a)(1) : This manually switched transmitter deactivates after 208.3 ms.

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

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

15.231(a)(4) : N/A


ATTEN 10dB
RL -20.0dBm
10dB/
ΔMKR -29.33dB
208.3ms
Transmision Duration
=208.3mS
S
CENTER 314.713000MHz
SPAN 0Hz
*RBW 1.0MHz
VBW 1.0MHz
*SWP 5.00sec

Section 4. Radiated Emissions

Para. No.: 15.231(b)

Test Performed By: Glen Westwell **Date of Test:** October 24, 2001

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

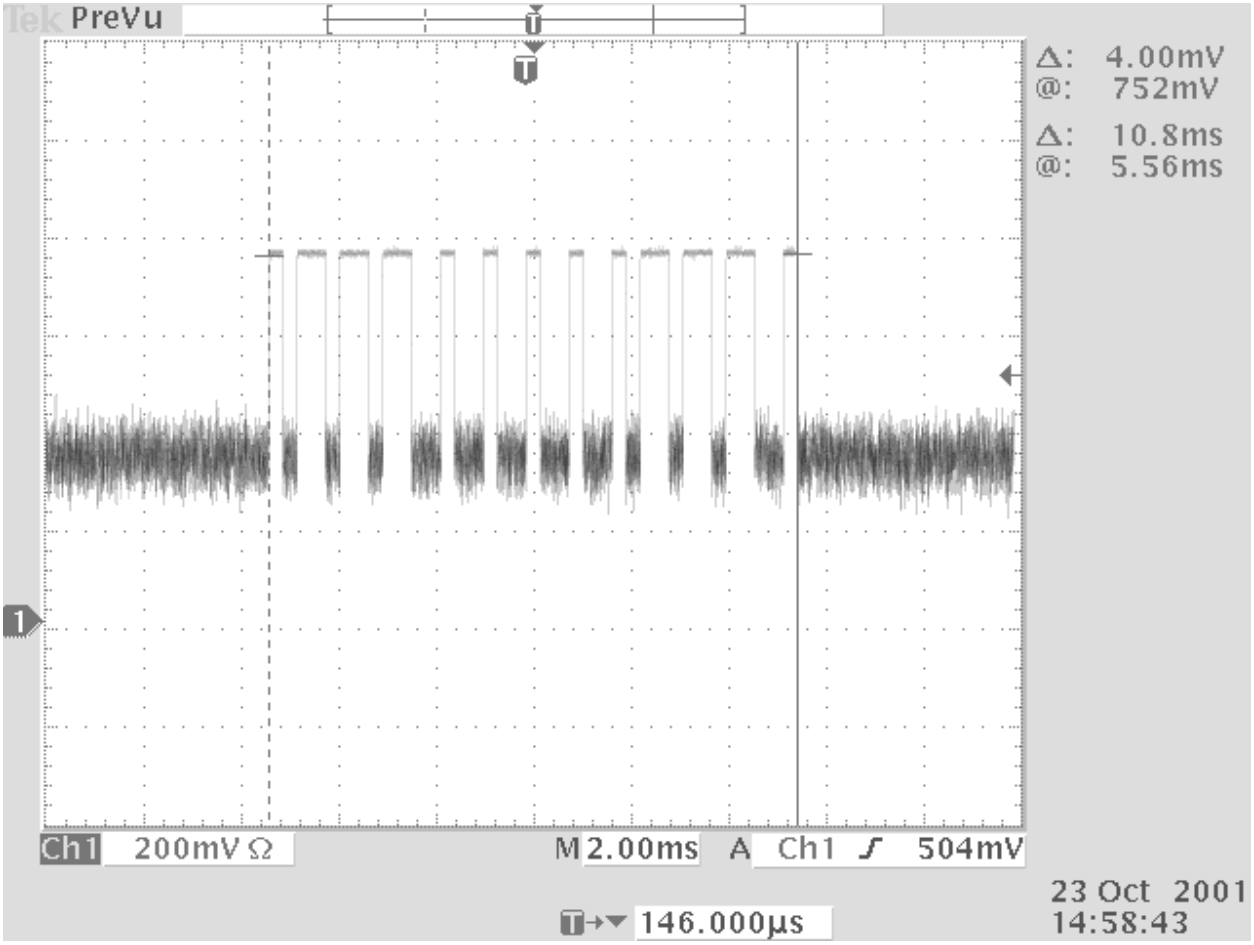
Test Results: Complies

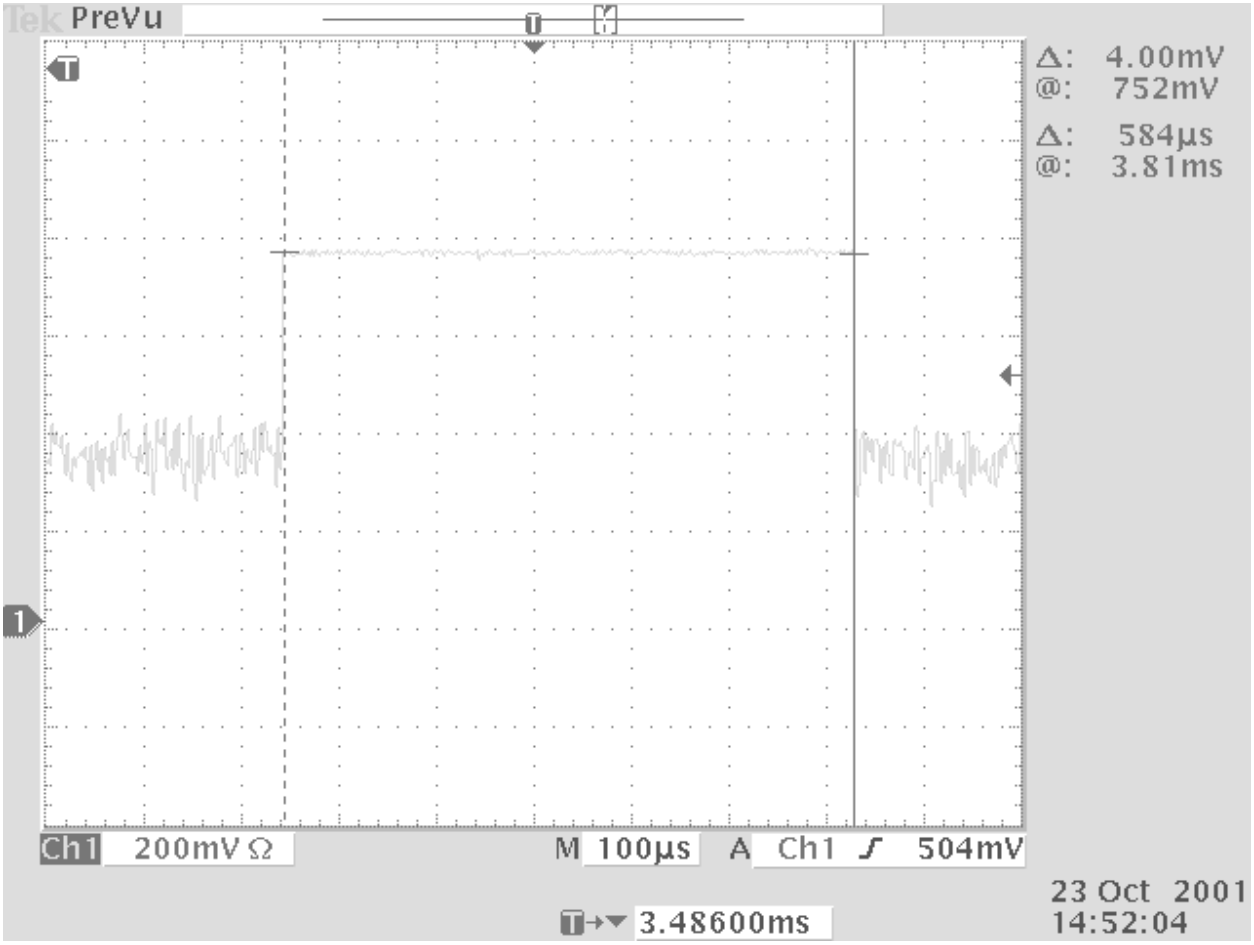
Test Data: As per attached tabulated data.

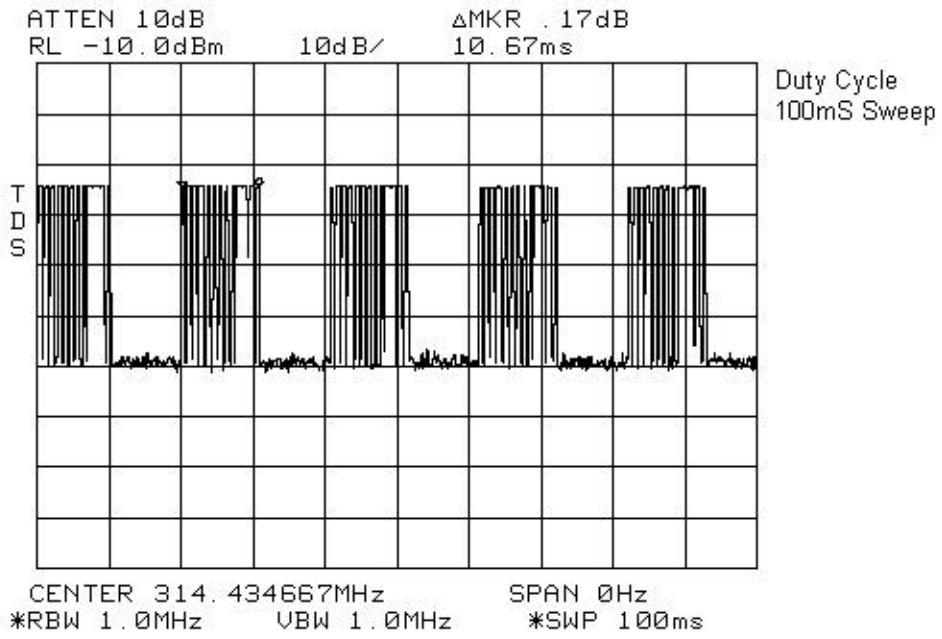
Duty Cycle: 13 Pulses / Packet @ 584µS (worst case) = 7.6ms
5 packets / 100ms (5 x 7.6 ms) = 38ms

$$\therefore 20 \text{ Log } \frac{38ms}{100ms} = -8.4\text{dB}$$

Duty Cycle Correction Factor = -8.4dB


Tek PreVu
Δ: 4.00mV
@: 752mV
Δ: 10.8ms
@: 5.56ms
Ch1 200mV Ω
M 2.00ms A Ch1 ƒ 504mV
146.000µs
23 Oct 2001
14:58:43


PreVu
Δ: 4.00mV
@: 752mV
Δ: 584µs
@: 3.81ms
Ch1 200mV Ω
M 100µs A Ch1 ƒ 504mV
3.48600ms
23 Oct 2001
14:52:04


ATTEN 10dB
ΔMKR .17dB
RL -10.0dBm
10dB/
10.67ms
Duty Cycle
100mS Sweep
T
D
S
CENTER 314.434667MHz
SPAN 0Hz
*RBW 1.0MHz
VBW 1.0MHz
*SWP 100ms

Test Data - Radiated Emissions

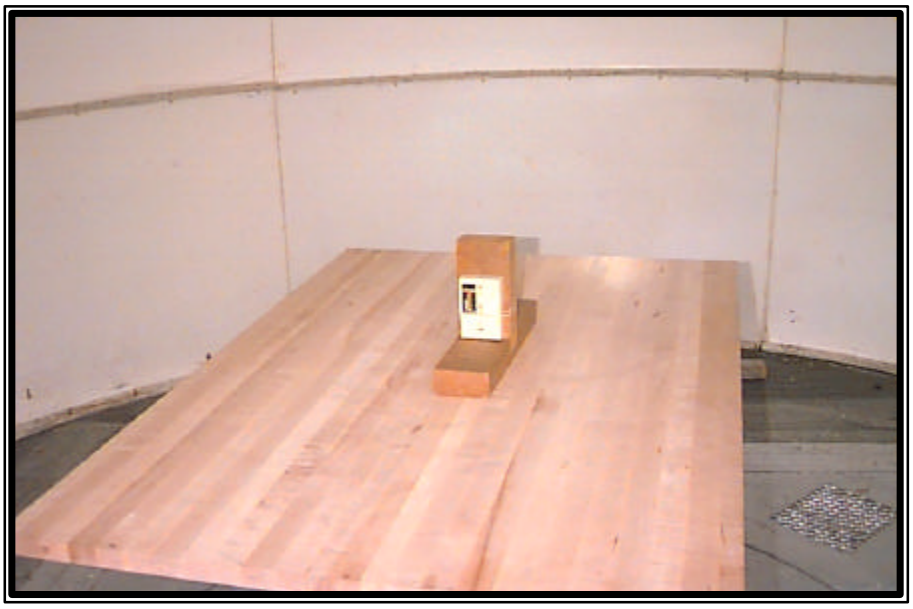
Test Distance (meters) : 3		Range: A Tower		Receiver: 8565E		RBW(kHz): 100		Detector: Peak	
Freq. (MHz)	Ant. *	Pol. (V/H)	RCVD Signal (dBµV/m)	Ant. Factor (dB)**	Amp. Gain (dB)***	Duty Cycle Corr. (dB)	Field Strength (dBµV/m)	Limit (dBµV/m)	Margin (dB)
314.75	L/P1	V	60.4	17.9		-8.4	69.9	75.6	5.7
314.75	L/P1	H	58.7	17.9		-8.4	68.2	75.6	7.4
629.75	E/D4	V	24.5	28.4		-8.4	44.5	46.0	1.5
629.75	E/D4	H	23.2	28.4		-8.4	43.2	46.0	2.8
944.83	E/D4	V	17.5	33.9		-8.4	43.0	46.0	3.0
944.83	E/D4	H	17.0	33.9		-8.4	42.5	46.0	3.5

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 emissions to the 10^{th} harmonic were searched, only those within 20dB of the limit were reported.

Radiated Photographs

Front View



Section 5. Occupied Bandwidth

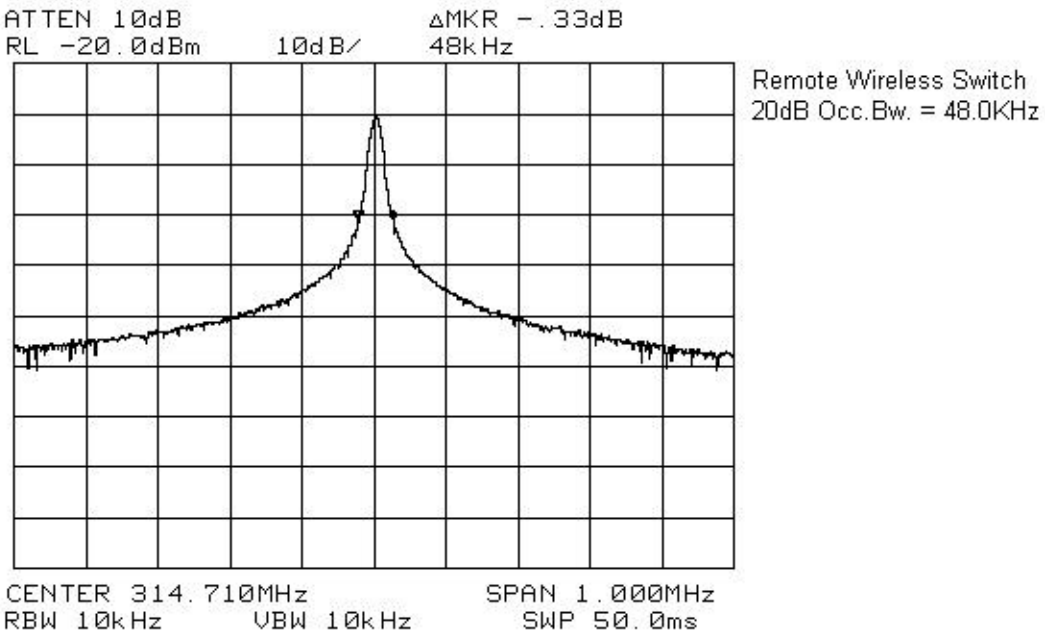
Para. No.: 15.231(c)

Test Performed By: Glen Westwell	**Date of Test:** October 23, 2001

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.

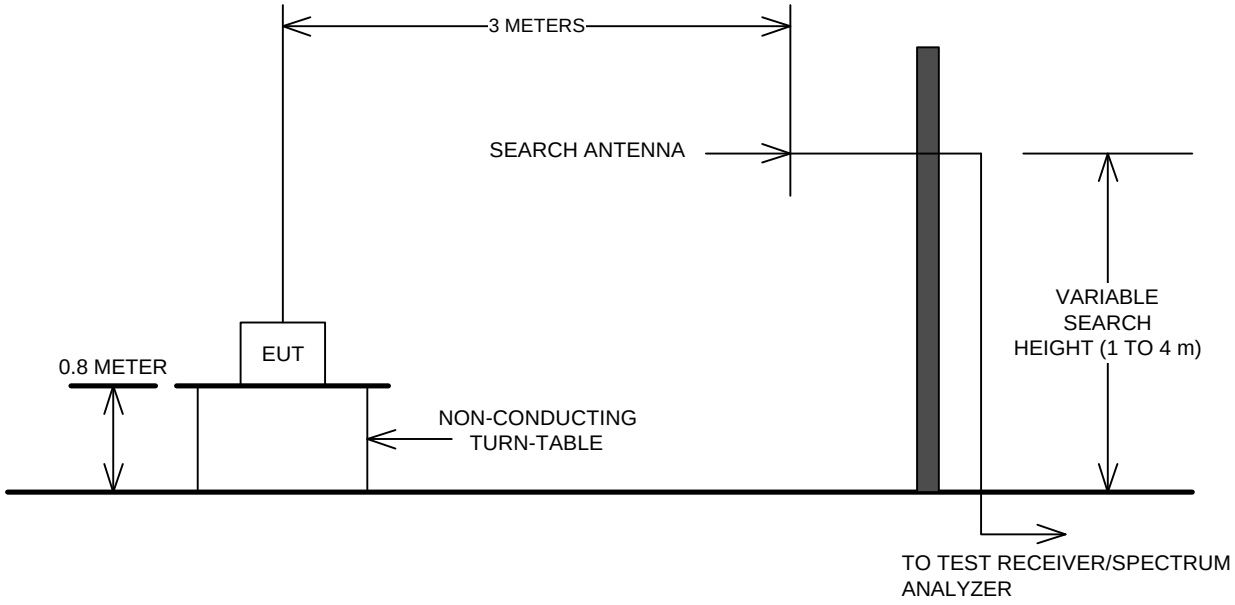
Test Results: Complies.

Test Data: See attached graph.


ATTEN 10dB
ΔMKR -.33dB
RL -20.0dBm
10dB/
48kHz
Remote Wireless Switch
20dB Occ.Bw. = 48.0KHz
CENTER 314.710MHz
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	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