

Test Report: 1W04149

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

**Equipment Under Test:
(EUT)** 6131/6132 One/Two Button Transmitter

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:

Total Number of Pages: 20

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EQUIPMENT: 6131/6132 One/Two Button Transmitter

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".



NVLAP LAB CODE: 100351-0

TESTED BY: _____ DATE: _____
Wayne Clarke, Wireless Technologist

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This report applies only to the items tested.

EQUIPMENT: 6131/6132 One/Two Button Transmitter

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

Test Conditions:

Indoor Temperature: 24 °C
 Humidity: 33 %

Outdoor Temperature: 28 °C
 Humidity: 79%

EQUIPMENT: 6131/6132 One/Two Button Transmitter

Section 2. Equipment Under Test

General Equipment Information

Manufacturer: Desa International

Model No.: 6131: One Button Transmitter
6132: Two Button Transmitter

Serial No.: None

Date Received In Laboratory: August 3, 2001

Nemko Identification No.: Item #'s 11 & 12

Both EUTs were tested and results of both tests are included:

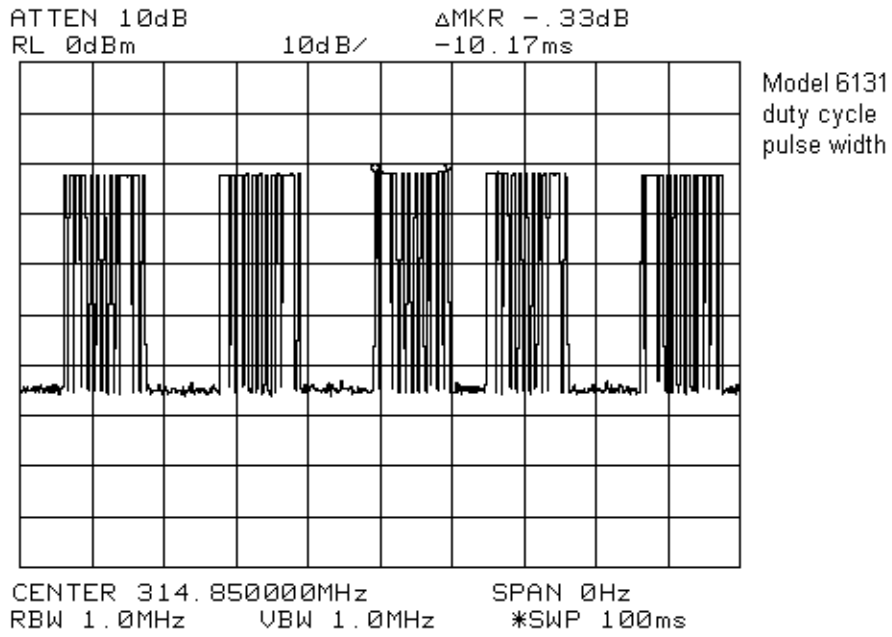
Model: 6131

Model: 6132

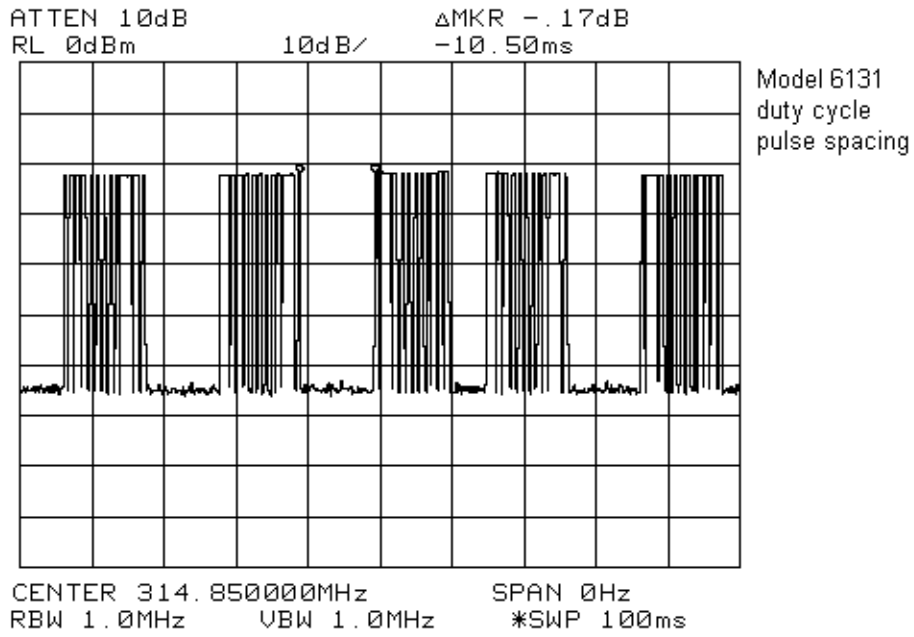
$$\begin{aligned}
 \text{Duty Cycle} &= 20 \text{ Log } \frac{\text{On Time ms}}{100 \text{ ms}} \\
 &= 20 \text{ Log } \frac{5 \times 10.17\text{ms}}{100\text{ms}} \\
 &= 20 \text{ Log } \frac{50.85}{100\text{ms}} \\
 &= 20 \text{ Log } 0.5085 \\
 &= -5.9 \text{ dB}
 \end{aligned}$$

$$\begin{aligned}
 \text{Duty Cycle} &= 20 \text{ Log } \frac{\text{On Time ms}}{100 \text{ ms}} \\
 &= 20 \text{ Log } \frac{5 \times 11.17\text{ms}}{100\text{ms}} \\
 &= 20 \text{ Log } \frac{55.85}{100\text{ms}} \\
 &= 20 \text{ Log } 0.55085 \\
 &= -5.1 \text{ dB}
 \end{aligned}$$

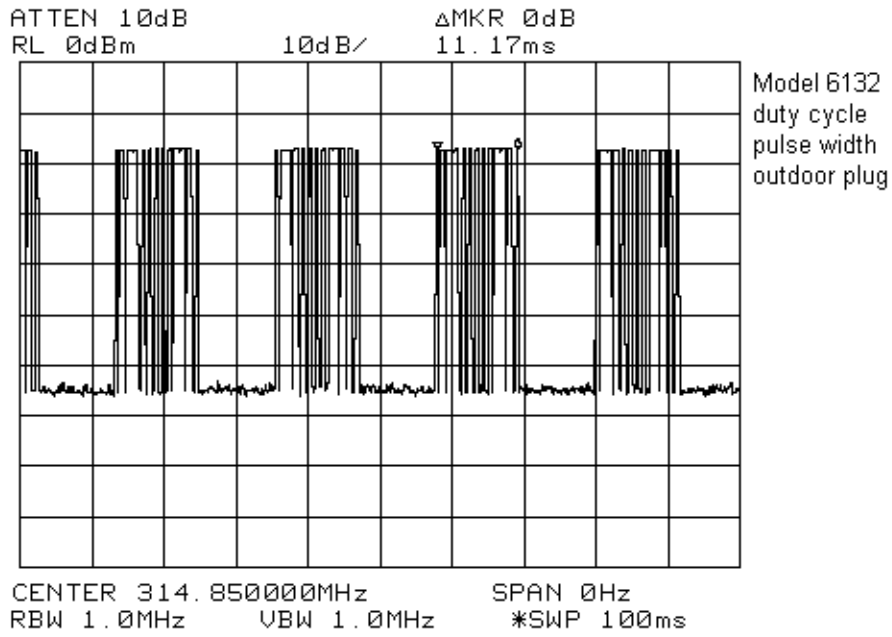
EQUIPMENT: 6131/6132 One/Two Button Transmitter



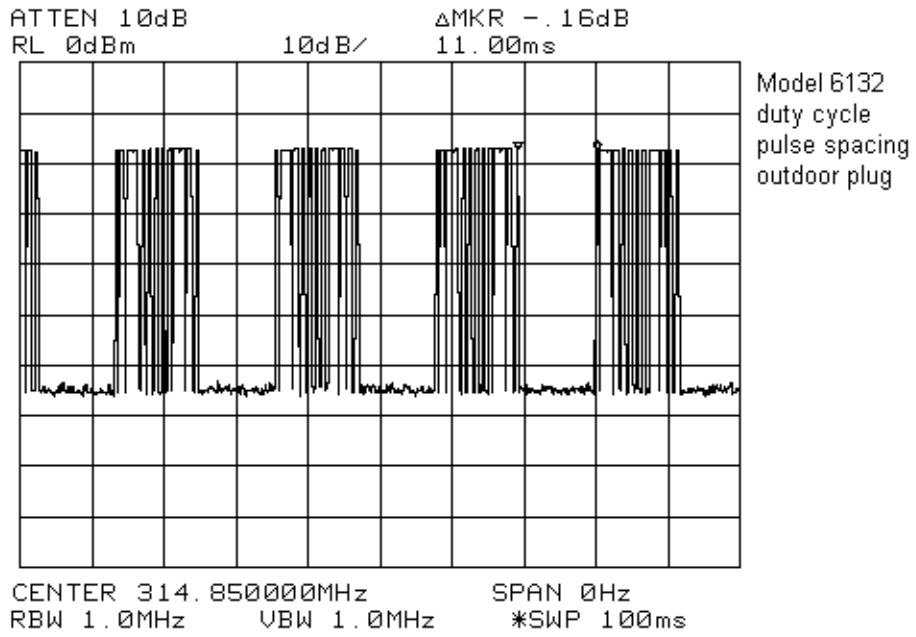
EQUIPMENT: 6131/6132 One/Two Button Transmitter



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EQUIPMENT: 6131/6132 One/Two Button Transmitter

Section 3. Transmission Requirements

Para. No.: 15.231(a)

Test Performed By: Wayne Clarke	Date of Test: July 31, 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: 6131/6132 One/Two Button Transmitter

Rationale for Compliance with Transmission Requirements

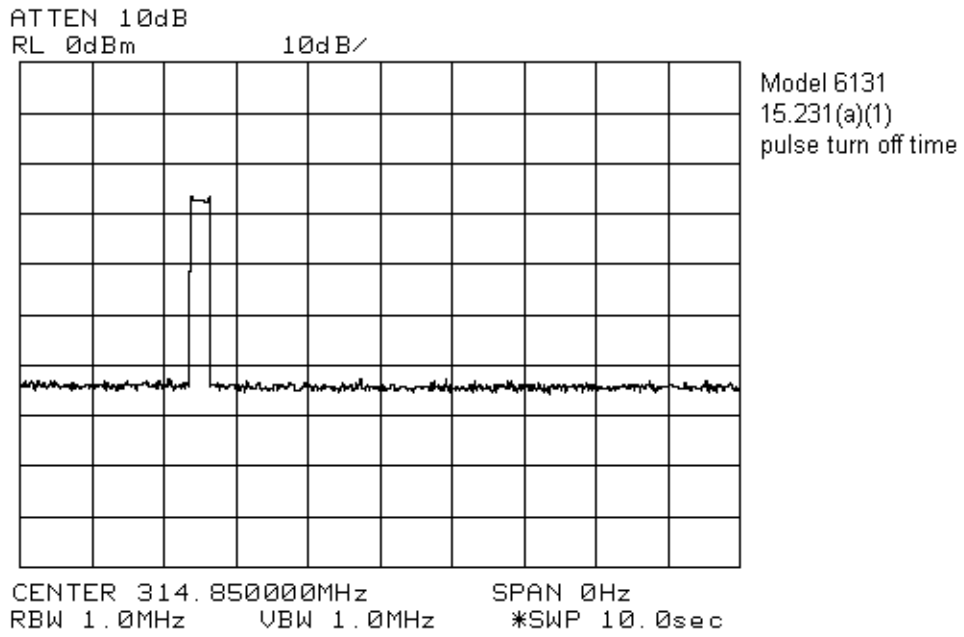
15.231(a)(1) : Push button to transmit. Plot shows EUT is off when push button released.

15.231(a)(2) : N/A – EUT is push button activated

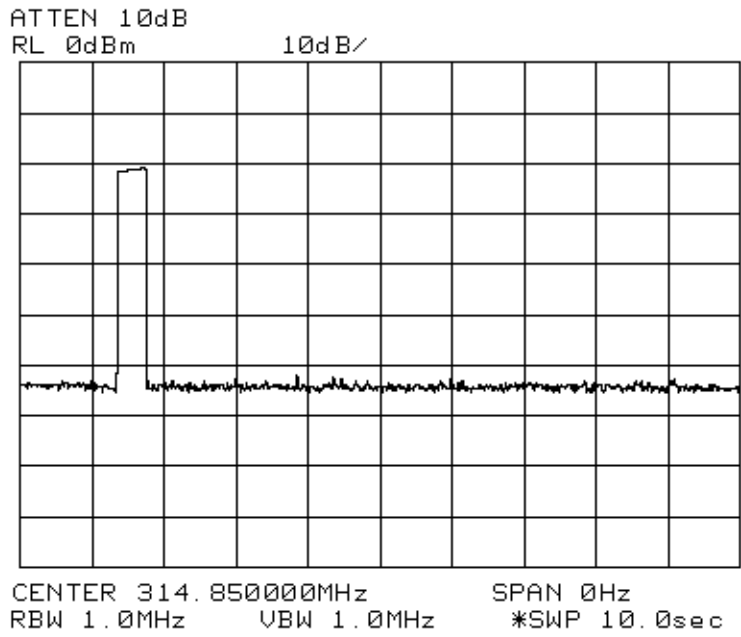
15.231(a)(3) : N/A – No automatic transmission

15.231(a)(4) : N/A

EQUIPMENT: 6131/6132 One/Two Button Transmitter



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Model 6132
15.231(a)(1)
pulse turn off time
outdoor plug

EQUIPMENT: 6131/6132 One/Two Button Transmitter

Section 4. Radiated Emissions

Para. No.: 15.231(b)

Test Performed By: Wayne Clarke	Date of Test: August 7, 2001
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Minimum Standard:

Fundamental Frequency (MHz)	Field Strength of Fundamental ($\mu\text{V/m @ 3m}$)	Field Strength of Spurious Emissions ($\mu\text{V/m @ 3m}$)
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 ($\mu\text{V/m @ 3m}$)	Field Strength ($\text{dB}\mu\text{V/m @ 3m}$)
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.

EQUIPMENT: 6131/6132 One/Two Button Transmitter

Test Data - Radiated Emissions

Test Distance (meters) : 3m		Range: A Tower		Receiver: ESVP/HP8564E		RBW: 120kHz, 1000Hz		Detector: Peak	
Freq. (MHz)	Ant. *	Pol. (V/H)	RCVD Signal (dBµV/m)	Ant. Factor (dB)**	Amp. Gain (dB)***	Dist. Corr. (dB)	Field Strength (dBµV/m)	Limit (dBµV/m)	Margin (dB)
Model: 6131									
314.67	E/D4	V	45.3	20.2		-5.9	59.6	75.6	16.0
314.67	E/D4	H	59.1	20.2		-5.9	73.4	75.6	2.2
629.48	E/D4	V	18.5	27.5		-5.9	40.1	55.6	15.5
629.48	E/D4	H	20.5	27.5		-5.9	42.1	55.6	13.5
944.21	E/D4	V	16.5	31.8		-5.9	42.4	55.6	13.2
944.21	E/D4	H	20.2	31.8		-5.9	46.1	55.6	9.5
Model: 6132									
314.99	E/D3	V	44.6	20.3		-5.1	59.8	75.6	15.8
314.99	E/D3	H	57.6	20.3		-5.1	72.8	75.6	2.8
629.98	E/D4	V	17.2	27.6		-5.1	39.7	55.6	15.9
629.98	E/D4	H	22.4	27.6		-5.1	44.9	55.6	10.7
944.97	E/D4	V	N.D.	31.8				55.6	
944.97	E/D4	H	18.6	31.8		-5.1	45.3	55.6	10.3
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									

EQUIPMENT: 6131/6132 One/Two Button Transmitter

Section 5. Occupied Bandwidth

Para. No.: 15.231(c)

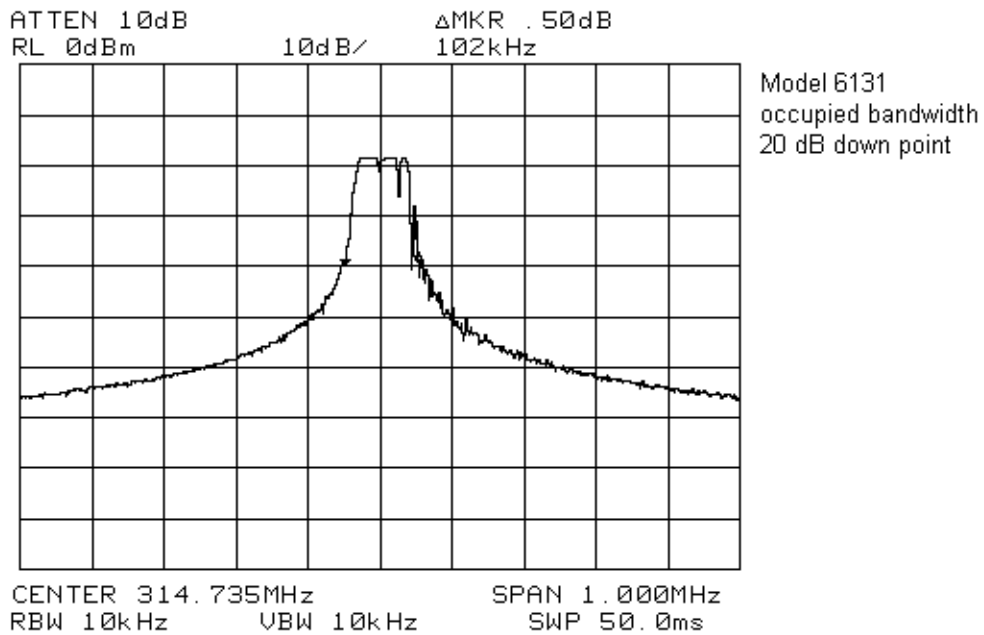
Test Performed By: Wayne Clarke	Date of Test: July 31, 2001
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Minimum Standard: 15.231(c) The bandwidth of the emission shall be no wider than 0.25% of the center frequency for devices operating above 70 MHz and below 900 MHz. For devices operating above 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.

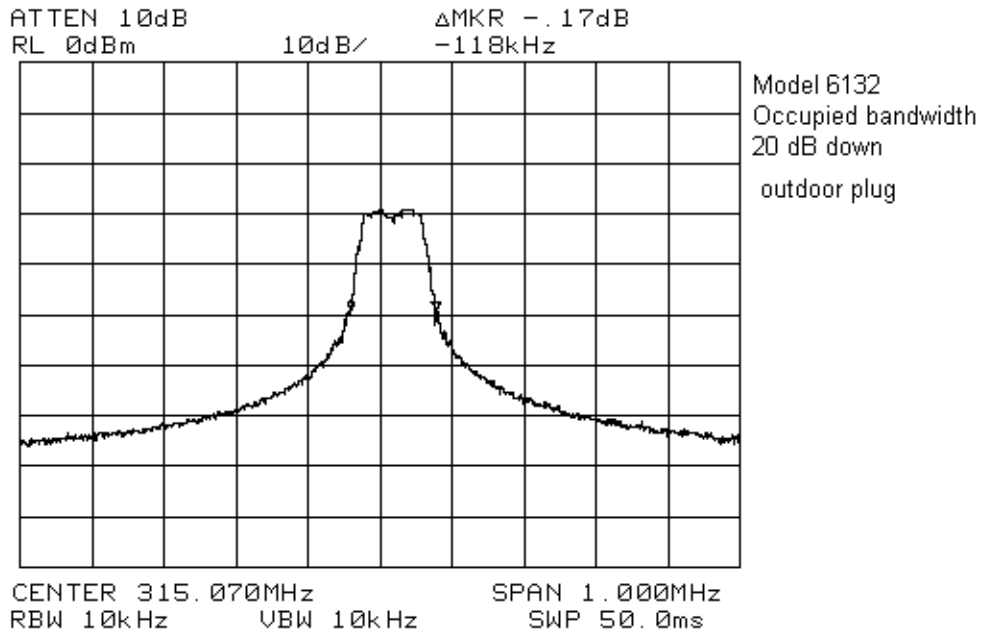
Test Results: Complies.

Test Data: See attached graph.

EQUIPMENT: 6131/6132 One/Two Button Transmitter

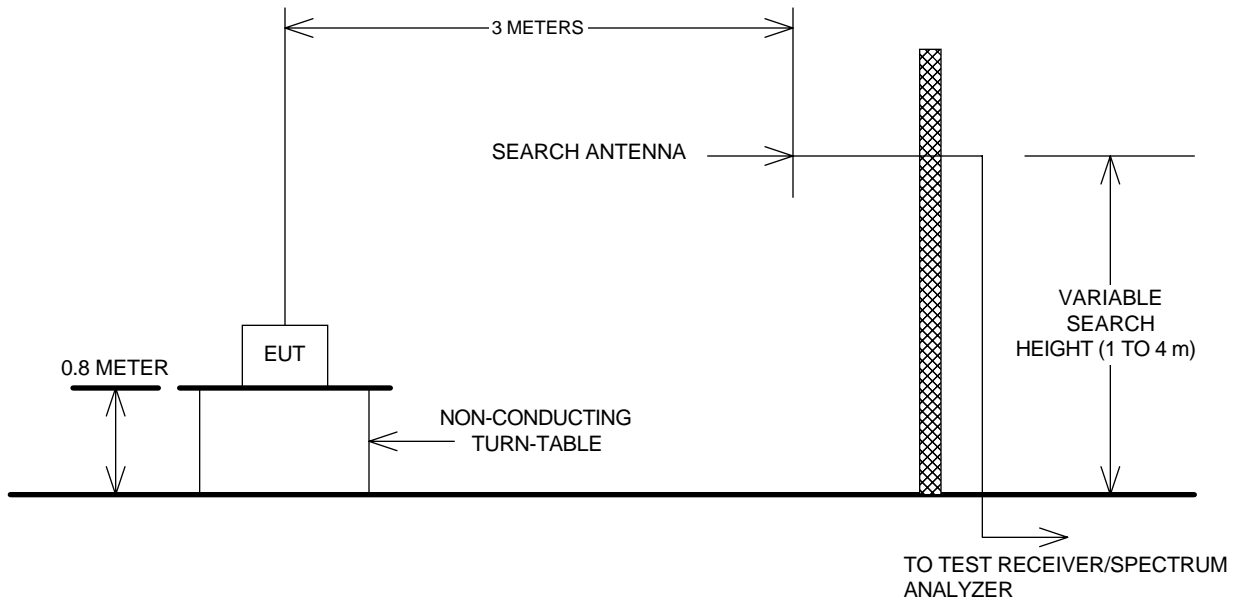


EQUIPMENT: 6131/6132 One/Two Button Transmitter



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.

EQUIPMENT: 6131/6132 One/Two Button Transmitter

Section 7. Test Equipment List

CAL CYCLE	EQUIPMENT	MANUFACTURER	MODEL	SERIAL	LAST CAL.	NEXT CAL.
1 Year	Spectrum Analyzer	Hewlett Packard	8564E	3846A01407	Mar. 2/01	Mar. 2/02
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	Receiver	Rohde & Schwarz	ESVP	892661/014	April 5/01	April 5/02
1 Year	Receiver	Rohde & Schwarz	ESVS-30	843710/002	Oct. 29/99	Oct. 29/00
	Biconilog Antenna	EMCO	3143	1038	NCR	NCR
1 Year	Horn Antenna	EMCO #2	3115	4336	Dec. 1/00	Dec. 1/01
1 Year	Dipole Antenna Set	EMCO #2	3121C	FA001349	Apr. 3/01	Apr. 3/02
1 Year	RF AMP	JCA	2-4 GHz	FA001496	May 31/01	May 31/02
1 Year	RF AMP	JCA	1-2 GHz	FA001498	May 31/01	May 31/02
1 Year	RF AMP	JCA	4-8 GHz	FA001497	May 31/01	May 31/02

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