

**KTL Test Report:** 0L0278RUS3

**Applicant:** Nextcell, Inc.  
661 E. 18<sup>th</sup> Street  
Plano, TX 75074

**Equipment Under Test:** Pocket Spider Wireless Modem Transceiver

**In Accordance With:** **FCC CFR 47, Part 15, Subpart B**  
Class B Verification

**Tested By:** KTL Dallas, Inc..  
802 N. Kealy  
Lewisville, Texas 75057-3136

**Authorized By:**

  
Tom Tidwell, Wireless Group Manager

**Date:** 10/12/00

**Total Number of Pages:** 19

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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 CFR 47, Part 15, Subpart B for Class B Digital Devices.

These tests were conducted using measurement procedures of ANSI C63.4-1992.

The equipment was tested for conducted emissions from 0.45 MHz to 30 MHz using a 50 µH line impedance stabilization network (L.I.S.N.) as described in ANSI C63.4-1992. Peripheral equipment was also operated through a 50 µH L.I.S.N.

The equipment was tested for radiated emissions from 30 MHz to 1000 MHz in accordance with the requirements of CFR 47, Part 15, Subpart B. Frequencies were initially identified in a large shielded room. Amplitude measurements were made on an outdoor Open Area Test Site. Details of the outdoor site are on file with the FCC.

### **Abstract:**

<b>Name Of Test</b>	<b>Para. No.</b>	<b>Results</b>
Conducted Emissions	15.107	<a href="#">N/A</a>
Radiated Emissions	15.109	<a href="#">Complies</a>

THE FOLLOWING DEVIATIONS FROM, ADDITIONS TO, OR EXCLUSIONS FROM THE TEST SPECIFICATIONS HAVE BEEN MADE: **NONE**



**NVLAP Lab Code: 100426-0**

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**Section 2. Equipment Under Test (E.U.T.)**

Manufacturer: [NEXTCELL](#)

Model No.: [POCKET SPIDER MODEM](#)

Serial No.: [SAMPLE 1](#)

Part No.: [N/A](#)

Production Unit

Pre-Production Unit

The E.U.T. arrived on [Aug 09, 2000](#), in [good](#) condition.

**Description of E.U.T.:**

The Cellular Digital Packet Data (CDPD) network is a two-way wireless data communication system. This system uses cellular telephone channels to transfer data seamlessly from a mobile to a base. The Pocket Spider modem is designed to operate with hand-held PC platforms via the PCMCIA slot.

Clock, Oscillator, Highest Frequencies Utilized:

- (1) [926.1 MHz](#)
- (2) [180.0 MHz](#)

**Modifications Incorporated in E.U.T.:**

The E.U.T. has not been modified from what is described by the brand name and unique type identification stated above.

**Justification:**

The E.U.T. was configured for testing as per typical installation. Position and bundling of cables were investigated to establish maximum amplitude of emissions.

The following combinations were investigated to establish worst case configuration:

(1) EUT was rotated in three orthogonal planes in order to determine worst-case orientation.

**Exercise Program:**

The E.U.T. exercise program used during radiated and conducted testing was designed to exercise the various system components in a manner similar to typical use.

**Exercise Mode:**

(1) The EUT is in receive mode.

**E.U.T. Photographs:**



### Section 3. Equipment Configuration

#### Equipment Configuration List:

Item	Generic Description	Manufacturer	Model No.	Serial No.	Rev. No.	FCC ID Status <sup>1</sup>
(A)	Pocket Spider	Nextcell	Pocket Spider	Sample 1	-	-
(B)	Hand-held Computer		Joranda 680	Sg93040217	-	-
(C)						
(D)						
(E)						
(F)						
(G)						

\* = E.U.T. (Equipment-Under-Test) or part of E.U.T.

#### <sup>1</sup>FCC ID STATUS

- |  |  |
|--|--|
| 1. FCC DOC   | 2. FCC A/B Verification                          |
| 3. None – (If performing FCC testing, contact lab manager) | 4. Certification (include FCC ID in parenthesis) |

#### Inter-connection Cables: [N/A](#)

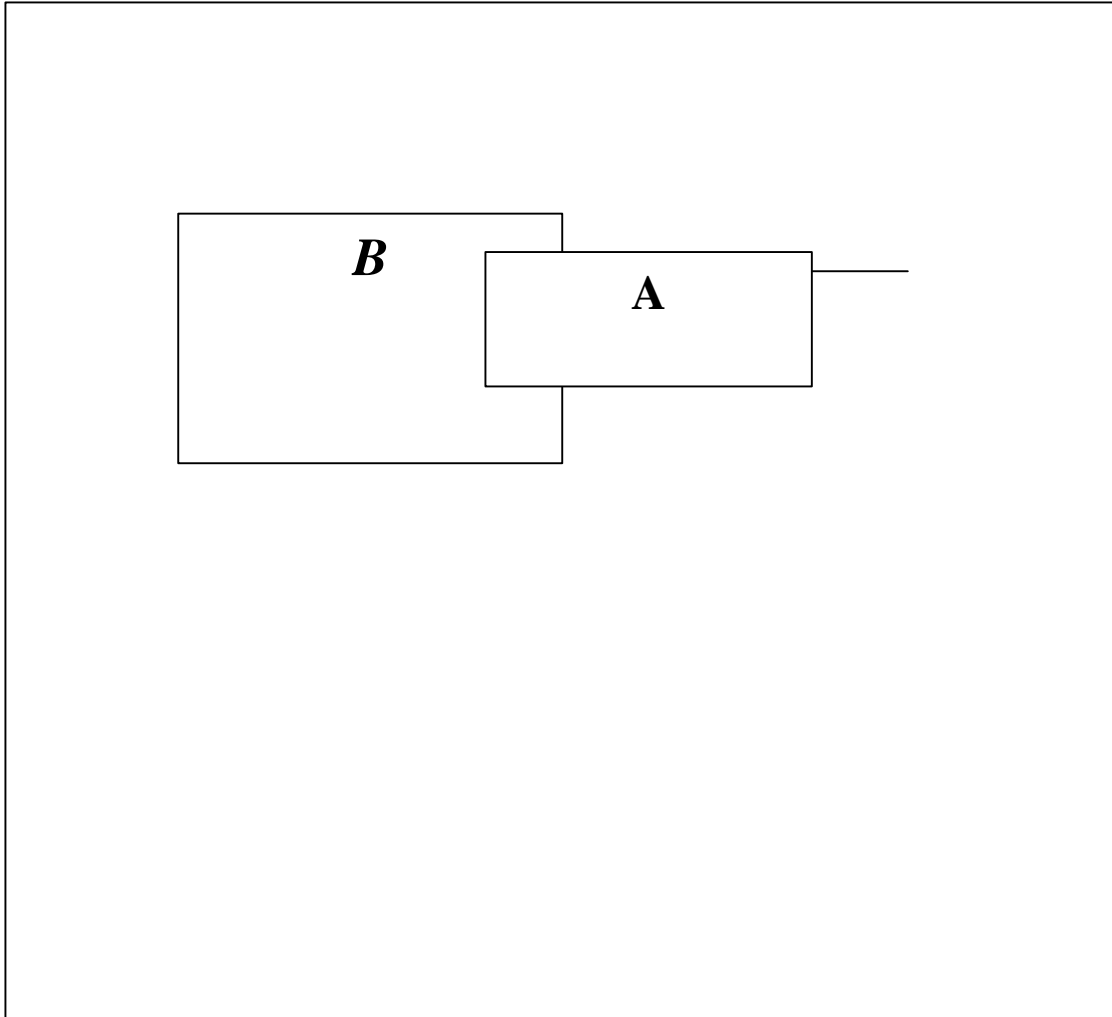
Item	Cable Type	Manufacturer	Length (m)	Termination <sup>2</sup>	Shield	Quantity
(1)						
(2)						
(3)						
(4)						

#### <sup>2</sup>TERMINATION

- |                     |                |
|---------------------|----------------|
| 1. Peripheral       | 2. Loopback    |
| 3. EUT              | 4. Resistive   |
| 5. Remote Equipment | 6. Other _____ |

NOTE: Please see block diagram on the following page.

**Configuration of the Equipment Under Test (E.U.T.):**





## **Section 4. Conducted Emissions**

<b>Test Performed By:</b>	<b>Date of Test:</b>
---------------------------	----------------------

### **Test Conditions:**

Test Voltage: \_\_\_ Vac @ 60 Hz

Temperature: \_\_\_ °C

Humidity: \_\_\_ %

### **Purpose:**

The test is intended to demonstrate the compliance of the Equipment Under Test (E.U.T.) to the limits for conducted emissions as defined by CFR 47, Part 15, Subpart B, Class B, Paragraph Number 15.107.

Not Applicable

### **Test Results:**

The E.U.T. **complies / does not comply**.

*Test #* \_\_\_\_\_:

The worst case emission is \_\_\_ dB $\mu$ V at \_\_\_ MHz on the **Hot / Neutral** side of the line. This is \_\_\_ dB below the quasi-peak specification limit of \_\_\_ dB $\mu$ V.

### **Measurement Data:**

See data test on page \_\_\_.

**Specification Limits:**

Frequency(MHz)	Maximum Powerline Conducted RF Voltage	
	mV	dBmV
0.45 - 30.0	250	48

**Method of Measurement (Procedure ANSI C63.4-1992):**

Measurements were made using a spectrum analyzer with 10 kHz RBW, Peak detector. Any emissions that are close to the limit are measured using a test receiver with 9 or 10 kHz bandwidth, CISPR Quasi-Peak detector.

Not Applicable

## **Section 5. Radiated Emissions**

<b>Test Performed By: Kevin Rose</b>	<b>Date of Test: Sept 28 2000</b>
--------------------------------------	-----------------------------------

### **Test Conditions:**

Test Voltage: [3.7vdc](#)

Temperature: [21°C](#)

Humidity: [46%](#)

### **Purpose:**

The test is intended to demonstrate the compliance of the Equipment Under Test (E.U.T.) to the limits for radiated emissions as defined by CFR 47, Part 15, Subpart B, Class B, Paragraph Number 15.109.

### **Test Results:**

The E.U.T. [complies](#)

The worst case emission is [37.8dBμV/m](#) at [54.2 MHz](#) at a distance of 10 meters in [Horizontal](#) polarization. This is [2.2 dB](#) below the quasi-peak specification limit of [40dBμV/m](#).

### **Measurement Data:**

See test data on page(s) [15](#).

**Specification Limits:**

Frequency(MHz)	Maximum Field Strength at 3m and 10m			
	3m (mV/m)	3m (dBmV/m)	10m (mV/m)	10m (dBmV/m)
30 - 88	100	40	31.6	30
88 - 216	150	43.5	47.3	33.5
216 - 960	200	46	63.1	36
Above 960	500	54	158.5	44

**Method of Measurement (Procedure ANSI C63.4-1992):**

The equipment was prescanned in a shielded room using a spectrum analyzer and broadband antenna. A list of frequencies was compiled for investigation in the open field. For emissions below 1000 MHz the equipment was then moved to an open area test site where amplitude measurements were made at a distance of 10 meters. The bandwidth was set to 100 kHz and the detector function was Peak.

Any emission above 1000 MHz was measured with horn antenna and low noise pre-amplifier at a distance of 3 meters. The bandwidth was set to 1 MHz and the detector function was average.

EQUIPMENT: Pocket Spider Wireless Modem

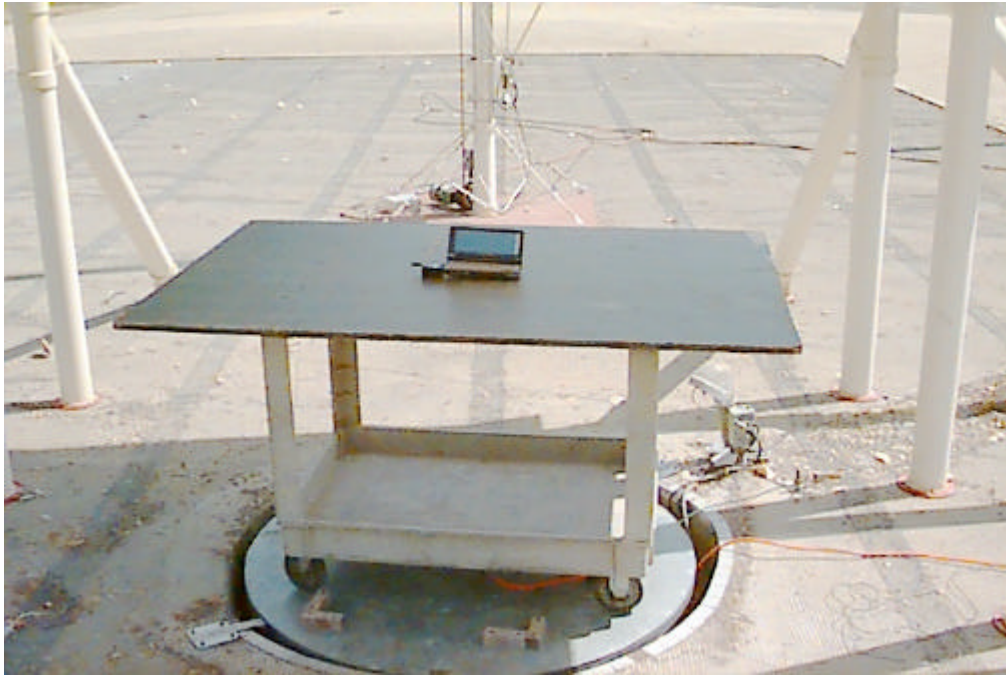
Report No.: 0L0278RUS3

Client Name:	NEXTCELL	Job #:	0L0278R	Date:	SEPTEMBER 21 2000
EUT Model:	POCKET SPIDER	Serial #:	SAMPLE 1	Time:	11:56 AM
EUT Config:	STANDBY			Staff:	KEVIN ROSE
Test Specification:	FCC CLASS B SUB PART B			Test #:	RAD
Rod Ant. #:	NA	Cable #:	c1a	Detect. Type:	peak
Bicon Ant. #:	2013	Preamp #:	2207	Res. BW (kHz):	100
Log Ant. #:	2017	Limiter #:	NA	Video BW (kHz):	100
Bilog Ant. #:	NA	Atten. #:	NA	Temp. (deg. C):	22
Dipole Ant. #:	2014	Detector #:	1036	Humidity (%):	48
				Location:	a oats
				Distance (m):	3M
				EUT Voltage (V):	3.7 vdc
				EUT Freq. (Hz):	0
				Photo ID:	0L0278R RAD

Emission Frequency (MHz)	Ant. Pol. (H/V)	Det. Atten. (dB)	Meter Reading (dBuV)	Antenna Factor (dB)	Path Loss (dB)	RF Gain (dB)	Corrected Reading (dBuV/m)	Spec. Limit (dBuV/m)	CR/SL Diff. (dB)	Pass Fail Marginal	Notes
926.02	V		37.5	22.7	8.5	24.3	44.4	46.0	-1.6	Marginal	
926.02	V		31.5	22.7	8.5	24.3	38.4	46.0	-7.6	Pass	QP
720.01	V		30.0	20.9	7.3	24.1	34.0	46.0	-12.0	Pass	
433.95	V		28.0	17.2	5.3	24.0	26.4	43.5	-17.1	Pass	
899.9	V		29.0	22.2	7.9	23.9	35.2	46.0	-10.8	Pass	
899.9	H		33.4	22.2	7.9	23.9	39.6	46.0	-6.4	Pass	
720.0	H		38.0	20.9	7.3	24.1	42.0	46.0	-4.0	Pass	
926.02	H		36.0	22.7	8.5	24.3	42.9	46.0	-3.1	Pass	
433.95	H		31.0	17.2	5.3	24.0	29.4	43.5	-14.1	Pass	
371.9	H		35.0	16.6	4.5	24.2	31.8	43.5	-11.7	Pass	
180.0	H		36.4	17.1	2.7	24.2	32.0	43.5	-11.5	Pass	
217.0	H		35.5	14.5	3.5	24.2	29.3	43.5	-14.2	Pass	
54.2	H		37.3	12.6	1.7	24.5	27.1	40.0	-12.9	Pass	
54.2	H		48.0	12.6	1.7	24.5	37.8	40.0	-2.2	Pass	
180.0	H		35.3	17.1	2.7	24.2	30.9	43.5	-12.6	Pass	
217.0	H		33.4	14.5	3.5	24.2	27.2	43.5	-16.3	Pass	

**Radiated Emissions Photographs**

FRONT



REAR



Section 6.                    Sample Calculations

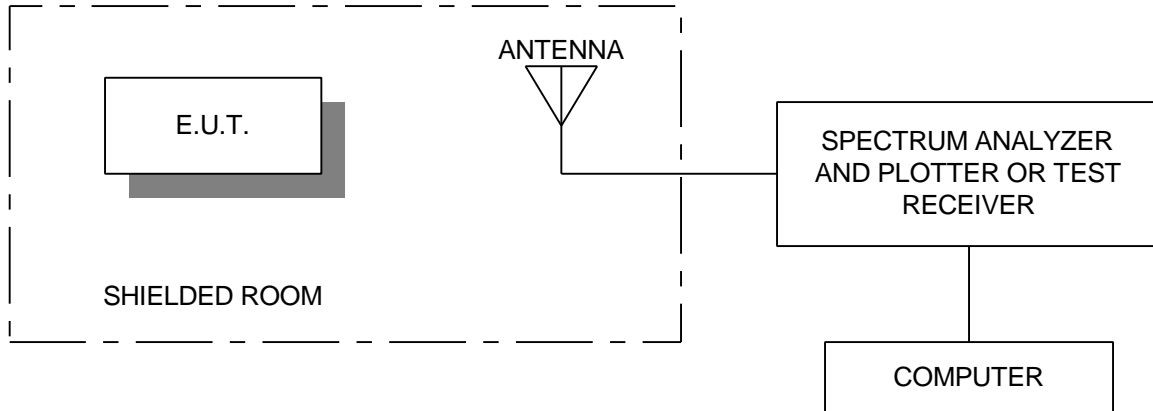
**Radiated Emissions:**

Emissions are measured at a distance of 3 meters and corrected for antenna factor and cable loss.

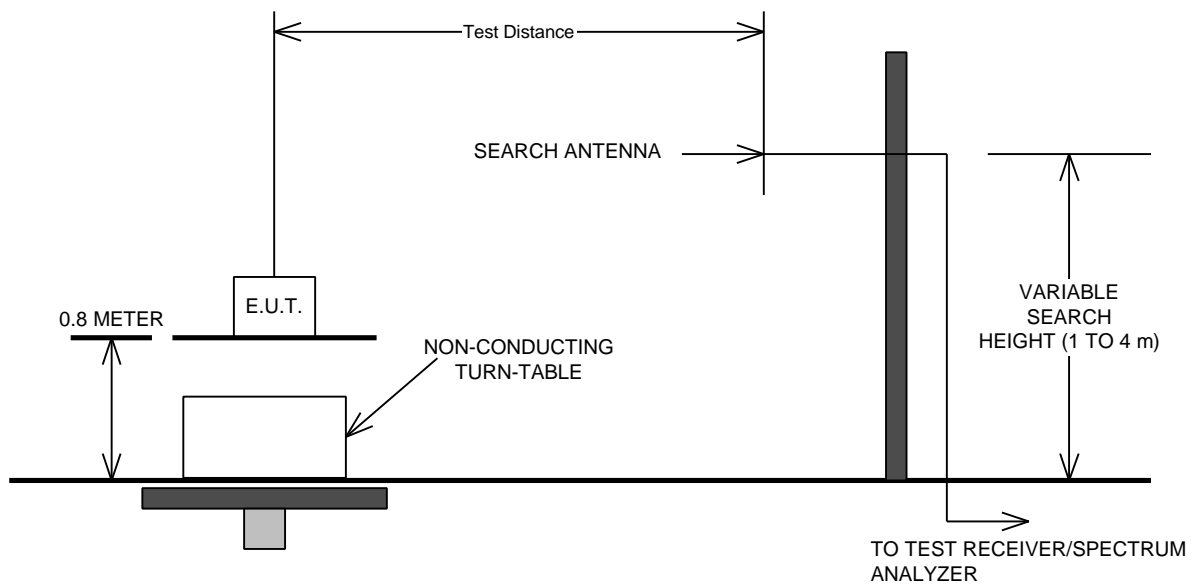
- i.e.     Received Signal = 25 dB $\mu$ V @ 100 MHz  
          Antenna Factor & Cable Loss = 9.8 dB  
          Field Intensity = 25 + 9.8 = 34.8 dB $\mu$ V/m @ 10 m

## Section 7. Block Diagrams

### Radiated Prescan:



### Outdoor Test Site for Radiated Emissions:





*EQUIPMENT:* Pocket Spider Wireless ModemReport No.: [0L0278RUS3](#)**Section 8. Test Equipment List**

KTL ID	Description	Manufacturer	Serial Number	Calibration
		Model Number		Date
G2017	ANTENNA, LOG PERIODIC	A.H. SYSTEMS SAS-200/510	556	02/26/00
1479	Biconical Antenna 20-330 MHz	A. H. Systems SAS-200/540	496	10/19/99
1480	Bilog Antenna	Schaffner-Chase CBL6111C	2572	01/14/00
1484	Cable 2.0-18.0 Ghz	Storm PR90-010-072	N/A	05/25/00
1485	Cable 2.0-18.0 Ghz	Storm PR90-010-216	N/A	05/25/00
1036	SPECTRUM ANALYZER	ROHDE & SCHWARZ FSEK30	830844/006	06/14/99 2 Yr. cycle
1A	OATS A Cable	KTL	Site A OATS	12/22/99
G2207	PREAMP, 25dB	ICC LNA25	398	05/24/00
1464	Spectrum analyzer	Hewlett Packard 8563E	3551A04428	11/03/99
1505	Polorad Test Receiver	HP 22837-234	872095002	01/22/00

## **ANNEX A – LABELING REQUIREMENTS**

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***FCC Class B Verification***

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***Congratulations***

*Your product has successfully complied with 47 CFR FCC Part 15.B Class B Verification requirements.*

**FCC Class B Verified Label:**

This device has been tested and Verified to comply with Part 15, Class B, of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

In addition to placing the above label on your product, the three items that are required to be included in your product's manual are:

- (1) For a Class B Verified device, the instructions furnished to the user shall include the following or similar statement, placed in a prominent location at the front of the manual:

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**NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:**

- Reorient or relocate the receiving antenna.
  - Increase the separation between the equipment and receiver.
  - Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
  - Consult the dealer or an experienced radio/TV technician for help.
- 

- (2) The user's manual must caution the user that changes or modifications not expressly approved by the party responsible for compliance (you/your company) could void the user's authority to operate the equipment.
- (3) In addition, the instruction manual must include appropriate instructions on the first page of the manual concerning installation of the device or special accessories (special cabling, shields, adapters) that must be used with the device. An appropriate caution statement should warn the user to utilize the special accessories supplied with the equipment for continued FCC compliance.

Please do not hesitate to contact us for future testing or consultation services. Thank you for choosing KTL Dallas, Inc.