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***RF Hazard Evaluation Report  
on the  
Falcon Packet Radio  
Model: FPR-U20-110 & FPR-U20-120***

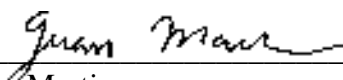
GRANTEE: Wireless-Networks  
2322 El Camino Real  
San Mateo, CA 94403

TEST SITE: Elliott Laboratories, Inc.  
684 W. Maude Ave  
Sunnyvale, CA 94086

REPORT DATE: September 26, 2000

FINAL TEST DATE: September 21, 2000

AUTHORIZED SIGNATORY:

  
\_\_\_\_\_  
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EMC Engineer

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## **GENERAL INFORMATION**

Applicant: Wireless-Networks, Inc.  
2322 El Camino Real  
San Mateo, CA 94403

FCC ID: **O8J-FPR-U20**

### **Technical Description**

The EUT is a wireless modem, which is designed to transmit and receive financial transaction-oriented data. It operates in the 450-470 MHz frequency range with maximum power output of 2 watts. The EUT uses a 12.5 kHz channel bandwidth. The Unit will be sold with a 3.2-dBi antenna (M/N: RT-V/U) and a 22 ft. cable (M/N: RG-58 A/U). The unit will require Professional installation.

### **Frequency Range**

Transmitter: 450 - 470 MHz

### **Range of Operation Power**

2-Watt maximum power output

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## **SCOPE**

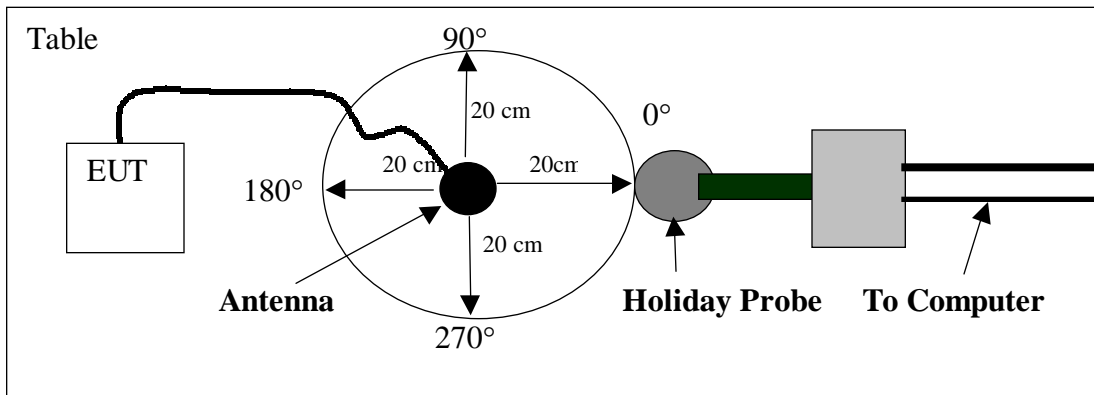
RF Hazard Evaluation testing was performed for the equipment mentioned in this report. OET Bulletin 65 or the ANSI/IEEE C95.3, "IEEE Recommended Practice for the Measurement of Potentially Hazardous Electromagnetic Fields - RF and Microwave" were used as a test procedure guideline to perform the required test. MPE measurements were performed for this product.

The intentional radiator above was tested in a simulated typical installation to demonstrate compliance with the relevant FCC performance and procedural standards.

## **OBJECTIVE**

The primary objective of the manufacturer is compliance with Section 2.1091. Certification of these devices is required as a prerequisite to marketing as defined in Section 2.1033.

Certification is a procedure where the manufacturer or a contracted laboratory makes measurements and submits the test data and technical information to FCC. FCC issues a grant of equipment authorization and a certification number upon successful completion of their review of the submitted documents. Once the equipment authorization has been obtained, the label indicating compliance must be attached to all identical units subsequently manufactured.

**TEST RESULTS****Section 2.1091: Radiofrequency radiation exposure evaluation: Mobile devices.****Test Setup:**

The EUT will be sold with a 17" base-loaded whip antenna, Model RT-V/U, with a gain of 3.2 dBi and a 22 foot long (Min) section of RG-58 A/U Type cable with a measured loss of 2.7 dB.

MPE Evaluation was performed using the OET Bulletin 65 or the ANSI/IEEE C95.3, "IEEE Recommended Practice for the Measurement of Potentially Hazardous Electromagnetic Fields - RF and Microwave" test procedure, for mobile devices.

The EUT was set to transmit at maximum power of 2 watts, this was verified with a spectrum analyzer. The EUT was set to transmit continuous packets of data and the Fundamental frequency set to the middle of the EUT's frequency range. The EUT and its antenna were placed on top of a table, located in an Anechoic Chamber. The measuring probe was placed 20-cm away from the EUT's antenna. The probe was moved around the antenna, while keeping the 20-cm separation. At the same time the probe was increased and lowered in height to measure the maximum points of the 17" antenna. The top of the antenna was also measured, 20-cm away. Both unmodulated and modulated modes were tested. The probe was connected to a computer, which displayed the measured levels in mW/cm<sup>2</sup>.

Normally the EUT will not be transmitting continuously data due to amplifier heat built-up. So the RF exposure from the antenna will be greatly reduced due to the short burst of data that will be transmitted.

Please refer to Setup Photo# 1 under Exhibit 3.

Please, refer to data included under **Exhibit 2: Test Measurement Data**

To assure RF Hazard compliance, warning labels and statements on the manual will be used. The Warning label will be placed on the base, where the antenna will be attached to. The unit will require professional installation. Please, refer to **Exhibit 4: RF Hazard warning label**

**EQUIPMENT UNDER TEST (EUT) DETAILS**

The Wireless-Networks model FPR-U20-110 & FPR-U20-120 is a 450-470 MHz wireless modem to be used in industrial environments for financial transaction-oriented data. The sample was received on September 20, 2000 and tested through September 22, 2000. The EUT consisted of the following component(s):

| Manufacturer/Model/Description                | Serial Number |
|---|---------------|
| Wireless-Networks/FPR-U20-110/Wireless Modem  | N/A           |
| Ying Hao Metal Industrial/RT-V/U/Whip antenna | N/A           |
| N/A / RG-58 A/U/22-ft coaxial cable           | N/A           |

**ENCLOSURE**

The EUT is primarily constructed of metal.

**SUPPORT EQUIPMENT**

The following equipment was used as remote support equipment for emissions testing:

| Manufacturer/Model/Description | Serial Number | FCC ID Number |
|--------------------------------|---------------|---------------|
|                                |               |               |
|                                |               |               |

**EXTERNAL I/O CABLING**

The I/O cabling configuration during emissions testing was as follows:

| Cable Description | Length (m) | From Unit/Port | To Unit/Port     |
|-------------------|------------|----------------|------------------|
| coaxial cable     | 7.3        | Antenna Output | External Antenna |

**TEST SOFTWARE**

During testing the EUT was set to transmit continuous data packets at maximum power. Internal software was used to configure the EUT properly for the required tests.

**TEST MODES**

During emissions testing the transmitter was set to the normal operating mode using 4-level FSK modulation.

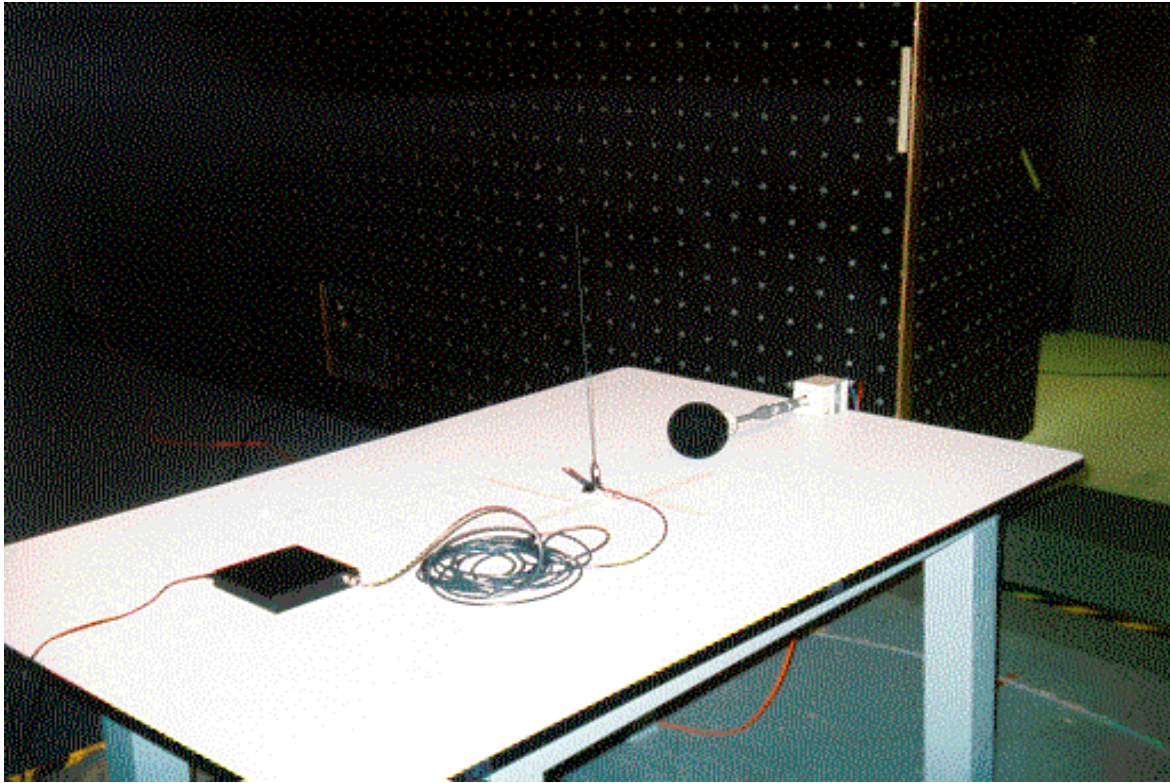
## ***EXHIBIT 1: Test Equipment Calibration Data***

## ***EXHIBIT 2: Test Measurement Data***

The following data includes conducted and radiated emission measurements of the Wireless-Networks model FPR-U20-110 & FPR-U20-120.

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### ***EXHIBIT 3: Photographs of Test Configuration***



Setup Photo# 1

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***EXHIBIT 4: RF Hazard Warning label***

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