

### TSAN 036 E2E

#### Dataradio Technical Support

For additional assistance: [www.dataradio.com](http://www.dataradio.com)

Within the U.S.A.	1-800-992-7774	International	1-507-833-8819
-------------------	----------------	---------------	----------------

### End-To-End Test with Wireless Modems

A pair of Dataradio wireless modems can be tested using the Dataradio Field Programming Software. The Field Programming Software has several useful utilities embedded in the program that assist in testing the wireless modems. The testing setup requires that a computer running the Field Programming Software be attached to each user Com port on the individual wireless modem. Please refer to the appropriate technical manual for assistance in setting up and running the Field Programming Software. The Utilities will allow the user to send ASCII text or Hex characters through the wireless modems being tested.

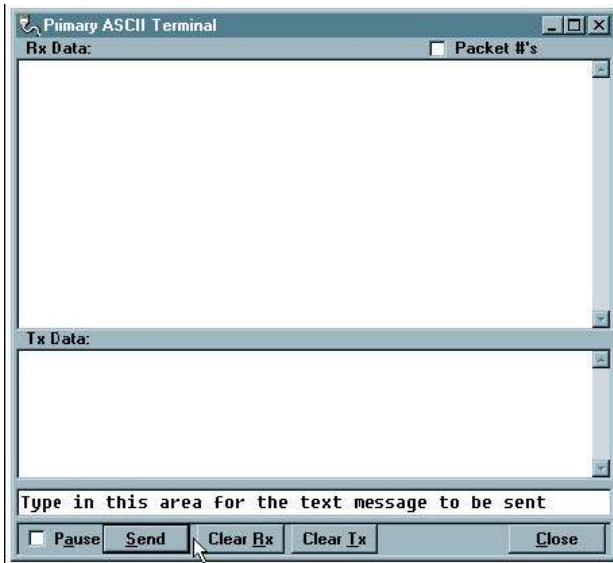
The wireless modems must be setup so that they have the appropriate receive and transmit signal levels for the test. The signal strength will be much stronger if the units are tested on the bench compared to being tested in a field installation. These signals must be attenuated or the output power level adjusted if the units are being tested on the bench. Signal levels in the area of  $-80$  to  $-70$  dB are the best for bench testing. Dataradio offers in-line attenuators and rubber duck antennas for this purpose. You can contact Dataradio Customer Service or Technical Support for specific information on these items.

Under the “Utilities” menu, select “Port Settings”. The settings shown are the settings for the serial port of the computer for the transmission of test data. These settings must be the same for each device in the test. If the ports are not set correctly, the data displayed maybe garbled and unreadable.

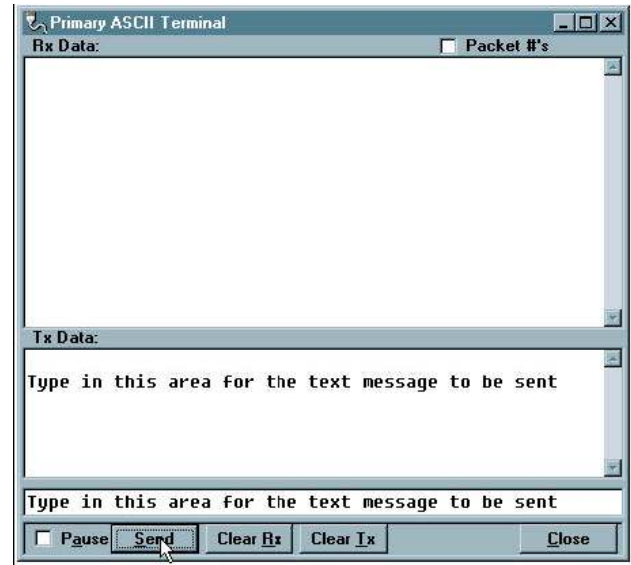
Also in the “Utilities” menu, the user can access “Port statistics”. These fields can be set to zero and the actual number of data bytes will be tracked. This can be useful when determining whether the proper amounts of data are being sent and received in a system.

Under the “Utilities” menu chose the “ASCII Terminal”. From the “ASCII Terminal” selection chose the “Primary” selection. This will open an ASCII terminal window using the primary COM port of the computer. This procedure should be done for both wireless modems being tested.

The ASCII Terminal utility has provisions for transmitting the ASCII data, displaying ASCII data received and displaying ASCII transmitted data. Figure 1 shows the window for the Primary ASCII Terminal.



**Figure 1: ASCII Terminal**



**Figure 2: Text message sent**

Figure 1 also shows the area that is used to send an ASCII text message. The ASCII data message is typed into this area. The ASCII text message is then sent out the wireless modem through the computer's primary port once the "Send" button is clicked. The sent ASCII message is then displayed in the TX Data area of the ASCII Terminal window as shown in Figure 2.

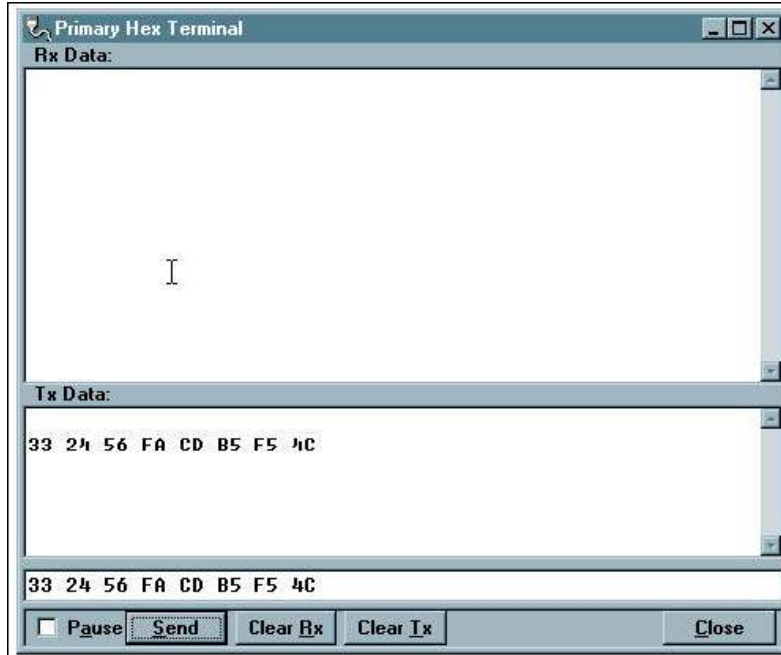
The ASCII message is transmitted to the other wireless modem. The ASCII terminal program will display the received ASCII message in the RX Data area as shown Figure 3.



**Figure 3: Text message received**

If the message was not displayed as typed, then a problem may exist in the system. Check all parameters and connections in the system. The signal level should also be checked again. The wireless modem's link test utility can be used to verify a communication path.

The above procedure can also be used with the Hex Terminal utility. When the Hex Terminal is used, the information is entered in as hex code. Figure 4 shows how the information will look when it is typed in and sent in hex.



**Figure 4: Hex Terminal**

In the hex terminal mode the program will not allow ASCII information to be sent. It will only allow valid hex characters.

For information regarding reviewing captured user data with a data tap device, refer to Dataradio Technical Services Application note TSAN 011.