Chapter 15
Test Mode Operation

COMMUNICATION DIAGNOSTICS

Communication diagnostic tests verify that your BitSURFR Pro, your PC, the central office switch, and the remote unit are all operating correctly. These tests help determine the element responsible for a fault.

Initiate and terminate communication tests using the AT command set.

☞ **Note**
If the S18 Test Timer is enabled (not set to 0), then any test currently being executed will end when this timer expires.

Local Terminal Loopback &T9 S18

The local terminal (DTE) loopback test loops data back to the PC by connecting the TD and RD pins so that whatever the PC sends is echoed back (Figure 15-1).

To initiate this test from your PC or terminal enter: **AT&T9**. The BitSURFR Pro may be on-line or off-line when the test is initiated. Any protocol, mode, and DTE rate can be used. The test is successful if the data is successfully echoed back to the PC (a BERT (bit error rate test) device can be helpful in checking for data errors). This test verifies the operation of the PC, the PC cable, and the PC interface of the BitSURFR Pro.

This test terminates when the S18 timer expires.

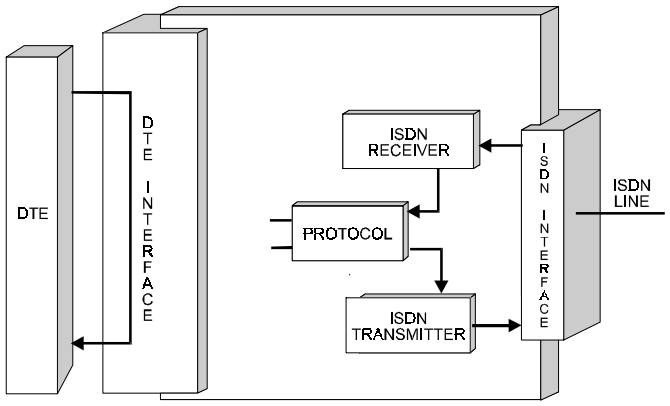

Figure 15-1
Local Terminal Loopback

Local Loopback Test &T1

Local loopback loops data from the local PC back to the PC so that whatever the PC sends is echoed back (Figure 15-2). Also, the RTS pin is echoed on the CTS pin and the DTR pin is echoed on the DSR, DCD, and RI pins. Run this test if you are encountering data errors before and after data calls are placed. This test is useful in diagnosing the PC and the BitSURFR Pro. The DTR Reset (**&D3**) option will not affect this test mode.

To initiate the test from your PC or terminal, enter:

AT&T1

The BitSURFR Pro may be on-line or off-line when the test is initiated. Any protocol, mode, and DTE rate may be used. Data from the local PC will be echoed back to the sender and the CTS pin will follow the RTS pin and the DSR, DCD and RI pins will follow the DTR pin. The PC portion of the test verifies the operation of the PC, the PC cable the PC interface in the BitSURFR Pro and the data buffers in the BitSURFR Pro. The test is successful if the data is successfully echoed back to the sender. A BERT device can be helpful in checking for data errors.

To terminate the test, use the **AT +++** escape sequence.

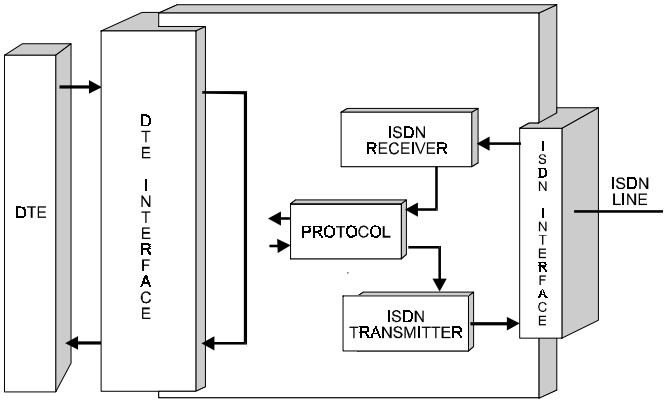

Figure 15-2
Local Loopback

Digital Loopback Test &T3

Digital loopback loops the ISDN B-Channel data normally sent to the local PC (Figure 15-3). Any B-Channel data received by the BitSURFR Pro is processed by the rate-adaptation protocol, and then echoed back out the B-channel to the sending unit. This test is useful in diagnosing the PC, BitSURFR Pro, switch ISDN line, and remote unit. Run this test if you are encountering data errors after a call is placed successfully.

To initiate the test from your PC, enter +++ to escape to command mode and enter:

AT&T3

The BitSURFR Pro must be on-line when the test is initiated (a call must be placed) before the unit can loop B-channel data. Any protocol, mode, and DTE rate may be used although the protocol on the two units must be compatible. The remote unit should be set to the same rate adaptation protocol as the local BitSURFR Pro, and left in normal data mode (*not* placed in Bilateral test mode). Data sent by the remote TA will be received by the local BitSURFR Pro, then echoed back to the remote TA. The test is successful if the data is correctly echoed back to the sender. A BERT device can be helpful in checking for data errors.

The test should be run in both directions if possible (i.e., use the local BitSURFR Pro as both the sending unit and as the loopback unit). If the B-channel data test is successful, it indicates that the local and remote units and network are functioning. If there are errors, the problem could be in any of those elements.

To terminate the test, enter: **AT&T0**

To return to data mode, enter: **ATO**

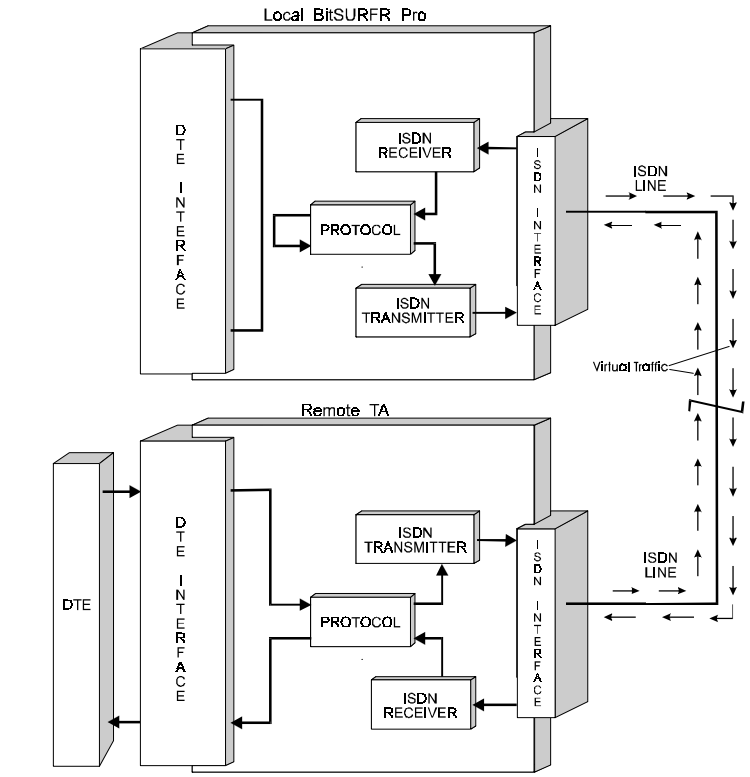

Figure 15-3
Digital Loopback

Bilateral Loopback Test &T8

Bilateral loopback combines the functions of local loopback and digital loopback. It loops data from the local PC back to the PC, so that whatever the PC sends is echoed back (Figure 15-4). Also, it loops the ISDN B-Channel data normally sent to the local PC. Any B-Channel data received by the BitSURFR Pro is processed by the rate-adaptation protocol, and then echoed back out the B-channel to the sending unit. This test is useful in diagnosing the PC, BitSURFR Pro, switch, ISDN line, and remote unit. Run this test if you are encountering data errors after a call is placed successfully. The DTR Reset (&D3) option will not affect this test mode.

To initiate the test from your PC, enter: **AT&T8**. The BitSURFR Pro can be on-line or off-line when initiating the test, but you must place a call before the unit can loop B-channel data. You can use any protocol, mode, and DTE rate, however, the protocol and DTE rates on the two units must be compatible. The remote unit should be set to the same rate adaptation protocol as your BitSURFR Pro and left in normal data mode (NOT placed in Bilateral test mode). Data sent by the remote TA will be received by the BitSURFR Pro then echoed back to the remote TA. The test is successful if the data is successfully echoed back to the sender. A BERT device can be helpful in checking for data errors. Also, data from the local PC will be echoed back to the PC. The PC portion of the test verifies the operation of the PC, the PC cable, the PC interface of the BitSURFR Pro, and the data buffers in the BitSURFR Pro.

The test should be run in both directions if possible (i.e. use the local BitSURFR Pro as both the sending unit and as the loopback unit). If the B-channel data test is successful, it indicates that the local and remote units and the network are functioning. If there are errors, the problem could be in any of those elements.

To terminate the test use the AT +++ escape sequence to return to AT command mode and enter: **AT&T0**.

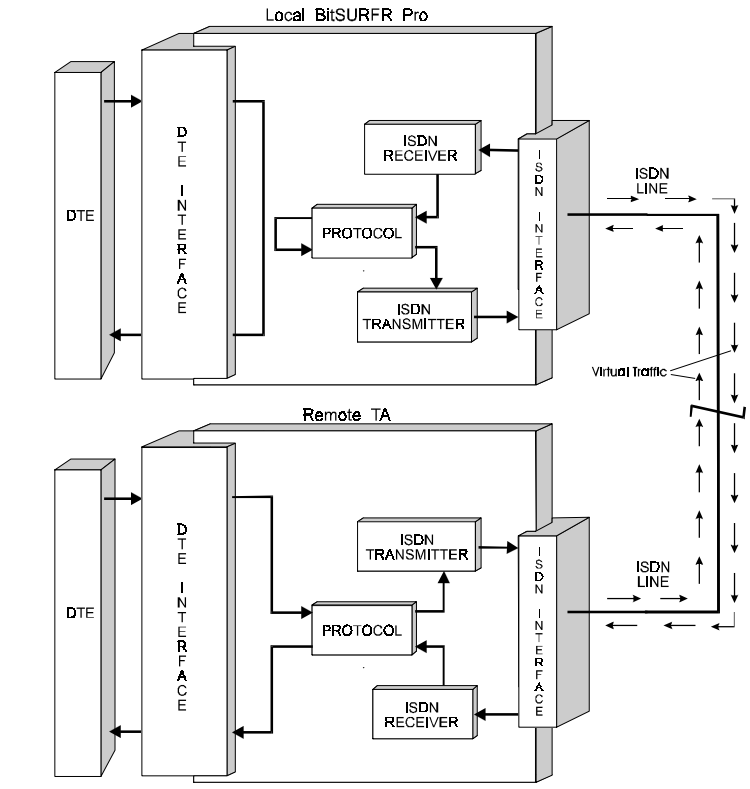

Figure 15-4
Bilateral Loopback