

About ISDN BRI testing

The HST-3000 ISDN BRI SIM enables you to install and maintain ISDN BRI services. Using the HST with the BRI SIM, you can place, receive, and analyze calls, test data services using BERT analysis, test voice services using a microphone/speaker audio headset, and monitor physical (layer 1), LAPD (layer 2), and Q.931 (layer 3) results.

What's new This release of the ISDN BRI SIM now allows you to do the following:

- Loopback 2 B channels and the D channel for analysis when emulating central office equipment in LT (line termination) mode.
- Request that a device on the far end send a stream of traffic with continuous CRC errors.
- Schedule timed tests.

S/T Interface software option If you purchase the S/T Interface software option, (part number: HST3000-ST), you can also use the ISDN BRI SIM to do the following:

- Emulate terminal equipment devices (for example, an ISDN phone or terminal adapter), and place circuit or packet calls using ISDN TE mode for the S/T interface.
- Emulate a network termination device, and passively monitor BRI service using ISDN NT1 mode for the BRI interface (S/T and U interfaces).

Features and capabilities Using the ISDN BRI SIM, you can:

- Store frequently used numbers in a phone book, and then select a number from the phone book when placing a call.
- Place and receive up to two calls simultaneously using the standard transmit-receive interfaces. After a call is established, you can insert voice traffic into the associated B Channel, or perform BERT analysis of the B Channel.
- BERT (IDSL) of the physical line.
- Perform BERT analysis of two B Channels simultaneously.
- Emulate central office equipment using Line Termination (LT) mode.
- Emulate terminal equipment devices using Terminal Equipment (TE) mode for a U interface.
- Process calls for the following switches:
 - AT&T 5ESS
 - Nortel DMS 100
 - National ISDN-1 (NI-1) and National ISDN-2 (NI-2) compliant switches
 - Siemens EWSD
- Monitor and analyze ISDN BRI service while the network is in-service.
- Isolate and locate problems by viewing D channel decode text for all captured transmitted and received frames when you monitor or terminate ISDN BRI service. After viewing the decode text, you can save the text to a file on the HST-3000.
- Place D channel packet calls on the U or S/T interface, and then send a FOX message to verify that the correct text is received on the far end of the circuit.

About BRI interfaces and the HST emulation modes

The HST ISDN BRI SIM offers six emulation modes for testing the U, S/T, and BRI interfaces. Each mode allows the HST to emulate a specific network device or devices when testing ISDN BRI service. [Figure 1](#) illustrates the BRI interfaces.

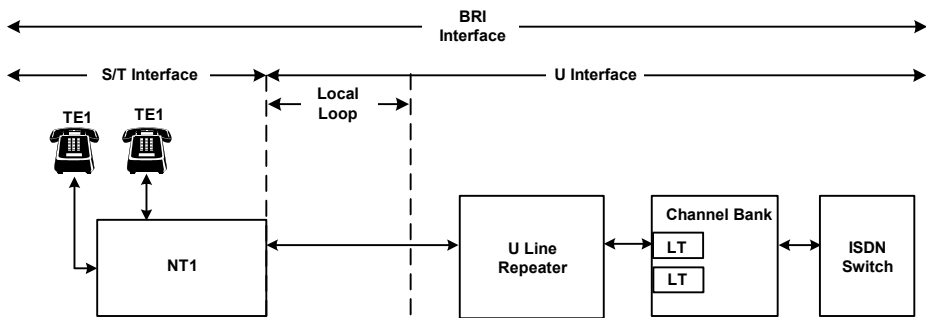


Figure 1 BRI interfaces

For details on testing ISDN BRI service using the HST, refer to [Chapter 2 “BRI Testing”](#).

U interface The U interface is the physical 2-wire echo cancelling interface spanning from the central office, to the local loop, and finally, to the customer premises. Each of the modes available for testing the U interface is described below, and illustrated in [Figure 2](#).

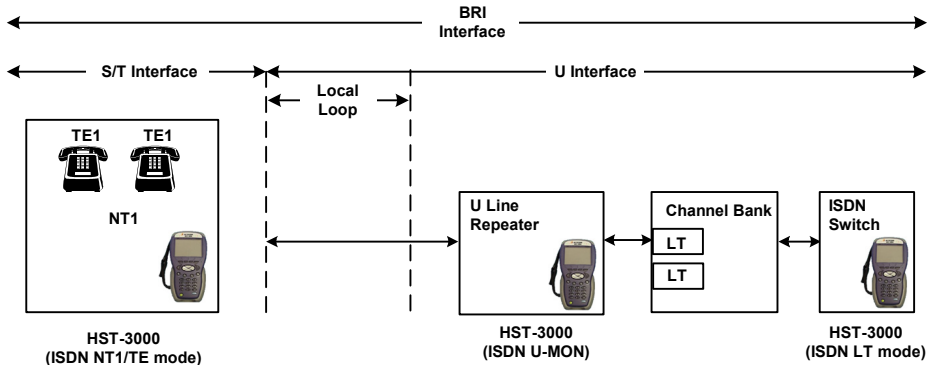


Figure 2 HST emulation modes for the U Interface

ISDN NT1/TE In **ISDN NT1/TE** mode, the HST emulates a NT1, *while simultaneously emulating up to two TE devices*. Using this mode, you can place circuit and packet calls on the U interface.

ISDN LT In **ISDN LT** mode, the HST emulates an ISDN switch. Using this mode, you can place circuit mode calls on the U interface.

ISDN U-MON In **ISDN U-MON** mode, the HST emulates a line repeater, allowing you to passively monitor ISDN BRI service on the U interface.

S/T interface The S/T interface is the standard 4-wire (2 RX, 2 TX) interface used by ISDN terminals on the terminal side of a NT1. In **ISDN TE mode**, the HST emulates a TE device, allowing you to place circuit and packet calls on the S/T interface (see [Figure 3](#)).

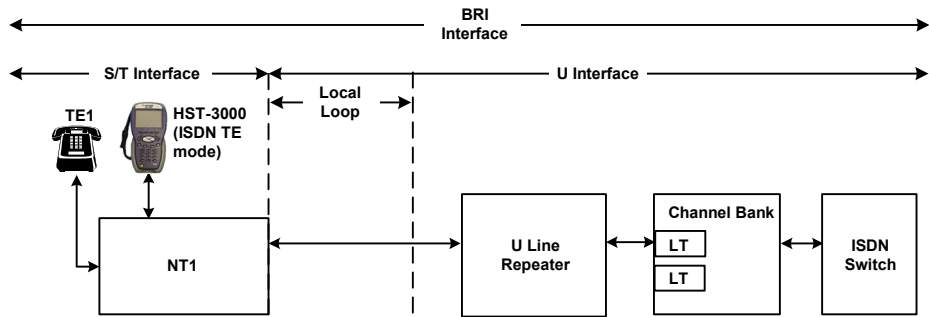


Figure 3 ISDN TE mode for the S/T Interface

BRI interface The BRI interface spans both the U interface and the S/T interface. Each of the modes available for testing the BRI interface is described below.

ISDN NT1 In **ISDN NT1** mode, the HST emulates a NT1 device, allowing you to monitor ISDN service on the entire BRI interface (see [Figure 4](#)).

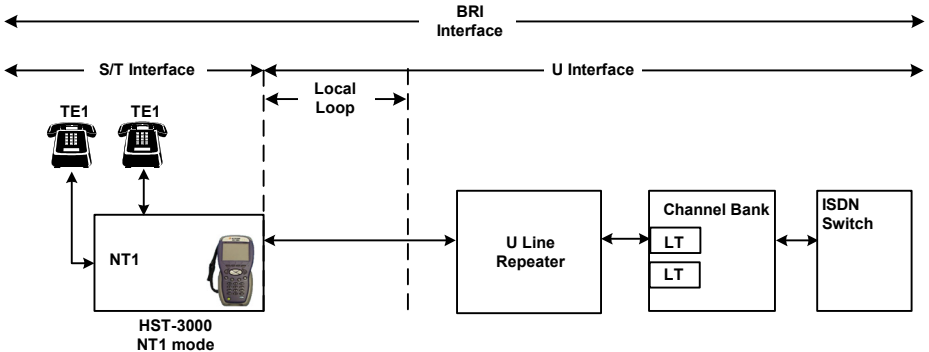


Figure 4 ISDN NT1 emulation mode

BERT (IDSL) In **BERT (IDSL)** mode, you can configure the HST to use one of the emulation modes illustrated in [Figure 5](#), and then BER test the physical layer.

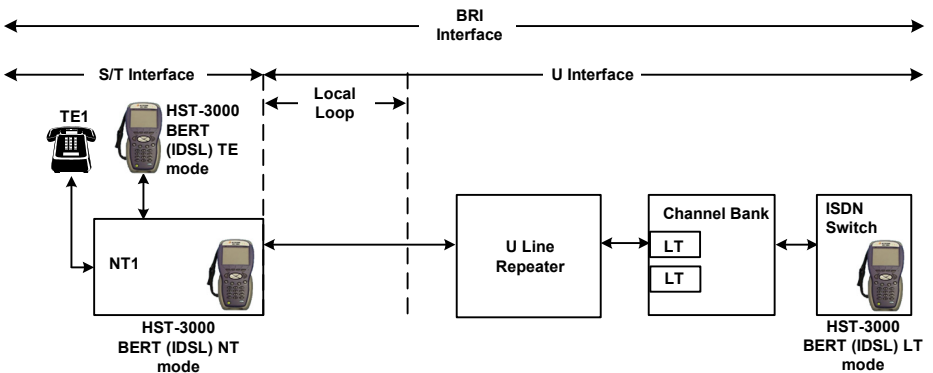


Figure 5 HST emulation modes for BER testing the BRI Interface

Status LEDs

There are six status LEDs located on the front of the HST-3000, above the LCD screen. [Table 6](#) describes the LEDs.

Table 6 Status LEDs

LED	Description
Sync	Solid green — HST-3000 is synchronized with incoming signal; in H8 or J8 sync state, H8 or J8 Active state, H7 Pending state, or J7 sync. Solid red — At least one of the receivers does not have signal or frame synchronization. Not illuminated — HST-3000 not synchronized.
Data	Solid green — Pattern synchronization achieved for each active call or receiver. Solid red — Pattern synchronization was achieved for each active call or receiver and then lost. Not illuminated — Pattern synchronization not detected on at least one active call or receiver.
Error	Not illuminated — All results OK. Solid red — Error condition exists. Causes of the error appear on the Summary Results page. (See “Viewing test results” on page 63 for information about displaying the Summary Results page).
Alarm	Not supported for BRI testing.
LpBk	Solid green — B1, B2, B1+B2, or 2B+D channels have been looped up on the HST-3000 by a response to an EOC message, or the channels have been manually looped up. Not illuminated — No payload channels are currently looped.

Table 6 Status LEDs (Continued)

LED	Description
Batt	<p>Not illuminated — Battery has a useful charge.</p> <p>Solid green — AC adapter is plugged in.</p> <p>Solid red — Battery is approximately 20 percent or below of full charge.</p> <p>Flashing red — Approximately five minutes of use remains. Immediately attach AC adapter or replace battery.</p> <p>Solid amber — Battery capacity indicator (“gas gauge”) needs to be reset (see the <i>HST-3000 Base Unit User’s Guide</i>).</p>

BRI connectors

A SIM with the BRI testing option has the physical interfaces needed to perform ISDN testing. The U and U mon connectors are located on the side of the SIM. [Figure 6](#) shows a BRI SIM with three 8-pin modular connectors.

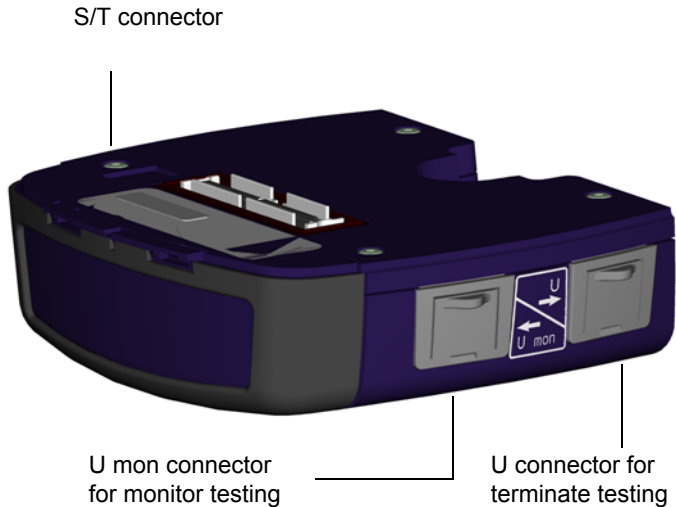


Figure 6 BRI interface connectors



DANGER: ELECTRICAL SHOCK

The S/T connector, located on the right side of the base unit when the SIM is installed, does not include a lightning protector. Connecting an outside plant line to the S/T connector during an electrical storm can result in serious injury or death. Do not connect an outside plant line to the S/T connector.

NOTE:

The BRI interface connectors are protected by flexible dust caps. The dust caps are permanent fixtures and should not be removed.



WARNING: ELECTRICAL SHOCK

Electrical shock may result in serious injury or death. Use care when connecting to telecommunications circuits, to be sure that you do not come in contact with exposed conductors or power mains.

Instrument settings and user preferences

For information about changing instrument and preference settings, such as date and time format, port settings, sound, and screen settings, see the *HST-3000 Base Unit User's Guide*.