ADTRAN U-BR1TE IV
ISDN 2B1Q Interface
Installation and Maintenance

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1. GENERAL

This practice provides installation and maintenance procedures for the ADTRAN U-BR1TE IV ISDN 2B1Q Interface (U-BR1TE IV), Figure 1 is an illustration of the U-BR1TE IV, (P/N 1104020Lx). The versions of the U-BR1TE IV covered in this practice are listed in Table 1.

Table 1. List Versions of U-BR1TE IV

List	Description	CLEI
L1	Reduced Option (RED OPT)	D4CIA5T2_ _
L2	Standard (STD)	D4C5BMUB_ _
L3	With Mechanized Loop Testing (MLT)	D4CIA6T2_ _

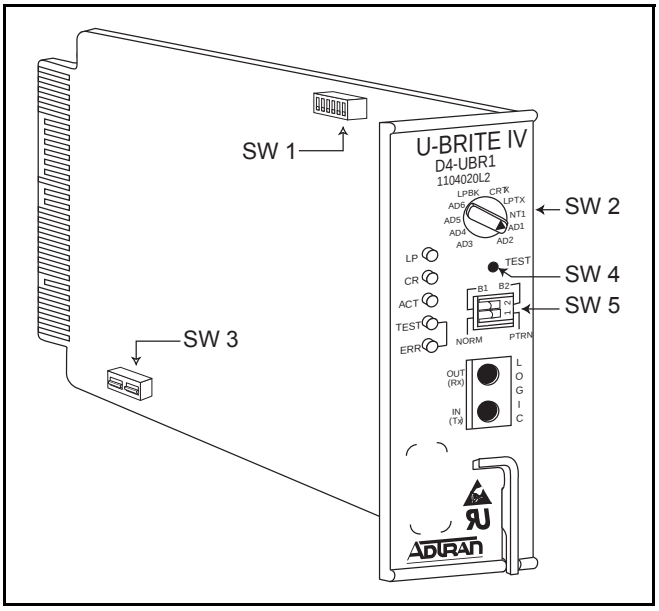

Figure 1. ADTRAN U-BR1TE IV

Revision History

This Installation and Maintenance Practice has been reissued to include following changes:

- Updated CLEI Code applicable to the L2 unit
- Removed references to the L2#G unit
- Added note indicating L3 unit as discontinued
- Updated Warranty section

Description

The U-BR1TE IV is a unit that plugs into a single channel slot of an AT&T D4/SLC®-96 channel bank. It provides an ISDN U-interface and allows the transport of Basic Rate 2B+D information over T1 carriers and twisted pair wiring. The U-BR1TE IV is used at both the Central Office Terminal (COT) and the Remote Terminal (RT) locations. Clear channel capability (B8ZS) is not required of the T1 facility if zero byte substitution is enabled. The U-BR1TE IV plugs into a single channel slot of the D4 bank, but can require three time slots when transporting 2B+D information. Block error rate performance over the T1 facility is monitored and is available to the network.

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Features

- List 1 (L1): Reduced option, non-MLT unit. 2B+D and ZBS operation only
- List 2 (L2): Fully optioned, non-MLT unit
- List 3 (L3): Fully optioned, compatible with MLT 3.0/ ISDN, production of L3 unit has been discontinued
- ISDN 2B1Q interface which meets all Layer 1 requirements as specified in ANSI T1.601-1991
- 18 kft nominal range on mixed gauge wire
- Internal test pattern allows for testing of individual B Channels without requiring external test equipment
- Transportation of ISDN Basic Rate 2B+D information over T1 facilities in the 3-DS0 format specified in TR-NWT-000397
- All Layer 1 maintenance functions
- Performance monitoring of the Layer 1 facility as specified in TR-NWT-000397 and TR-TSY-000829
- Distinctive metallic DC test signature to identify either line unit LT or line unit NT mode of operation as specified in TR-NWT-000397
- Provides loopback capability for full 2B+D as well as individual B channels in both loop and carrier directions. Individual B channel loopbacks may be initiated at the U-BR1TE IV front panel or from a remote location through the maintenance channel
- B1 and B2 loopback addressability at the front panel for the NT1 and up to six devices in the Network-to-Customer direction
- DS0 logic level transmit and receive data access through front panel bantam jacks
- A built-in Cyclic Redundancy Check (*crc*) clock error detector allows for local performance monitoring at the front panel without test equipment
- Addressing and error status with front panel LED indicators. Test functions chosen by a front panel ten-position rotary switch
- Responds to OCU and CSU latching loopback in 2B, B1, and B2 modes of operation (List 2 and List 3 only)

The U-BR1TE IV is fully compatible in functionality and is interchangeable with the following units:

- U-BR1TE (P/N 1100020L1 and P/N 1100020L3)
- U-BR1TE II (P/N 1102020L2 and P/N 1102020L3)
- U-BR1TE III (P/N 1103020L2 and P/N 1103020L3)

In addition to being compatible and interchangeable with these ADTRAN units, the U-BR1TE IV (List 2 and List 3) integrates the SYNC and CRC indications into a single LED for Loop and Carrier status and adds features in leased mode, including CSU Latching Loopback and sending Abnormal Station Code (ASC) Bipolar Violation towards the network. Also, the option selection and the test switch, on the U-BR1TE IV, are identical to those found on the ADTRAN U-BR1TE III.

2. INSTALLATION

CAUTION!
SUBJECT TO ELECTROSTATIC DAMAGE OR DECREASE IN RELIABILITY.
HANDLING PRECAUTIONS REQUIRED.

After unpacking the unit, inspect it for damage. If damage is noted, file a claim with the carrier, then contact ADTRAN. (Refer to *Warranty and Customer Service*).

Physical Requirements

The U-BR1TE IV plugs into a single D4/SLC-96 channel slot. The connector pin assignments are illustrated in Figure 2.

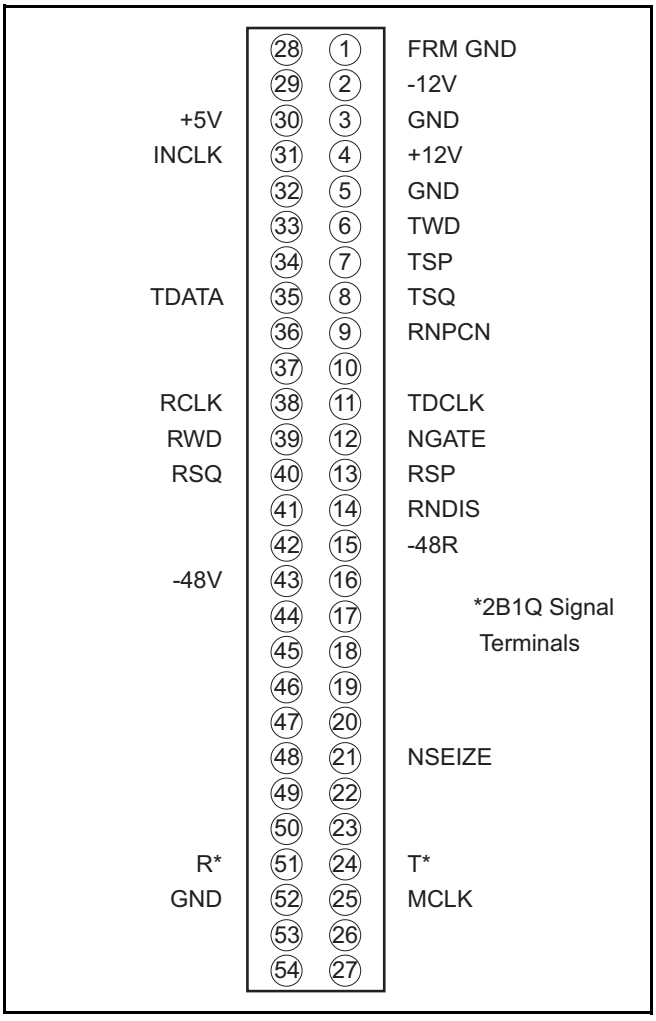


Figure 2. Connector Pin Assignments

When provisioned for basic rate service (2B+D), the U-BR1TE IV occupies three time slots. In a D4 or SLC-96 Mode III channel bank, it occupies the time slot associated with the physical channel slot that it occupies and the next two time slots to the right. The physical channel slots, whose time slots are used in this manner, must remain unoccupied.

In a SLC-96 Mode I with D1D counting channel bank, the time slots are allocated as shown in Figure 3 with two time slots per physical channel slot.

The unit uses two time slots in one physical slot and a time slot from an adjacent slot when configured for 2B+D operation. When selected for Slot 1, 4, 7, or 10 operation, the unit occupies the two time slots associated with the physical slot in which it resides and the upper time slot of the next adjacent physical slot.

When selected for Slot 2, 5, 8, or 11 operation, the unit occupies the lower time slot of the occupied physical slot and the adjacent two time slots of the next physical slot to the right. When using the Slot 2, 5, 8, 11 option, the physical slot to the right must be left vacant. A unit selected for one or two time slots, B1+D, B2+D, B1, B2, 2B, and D only (L2 and L3 only), occupies only the two time slots associated with the physical slot used. In this configuration, option the unit for Slot 1, 4, 7, or 10. Refer to Table 2 and Figure 4 for additional channel slot deployment restrictions for each bank type.

D4 Bank Requirements

The COT D4 bank must be configured with an OIU-2 selected for external timing. The COT bank must be provided with an external composite clock synchronized with the network.

SLC-96 Bank Requirements

The COT SLC-96 bank must be configured with a special service unit (SSU) selected for external timing. The COT SLC-96 bank must be provided with an external composite clock synchronized with the network.

Interface Requirements

The U-BR1TE IV unit includes two interfaces. The loop-side interface is an ISDN U-interface which is used to deliver basic rate service. The carrier-side interface is a D4/SLC-96 channel bank interface which is used to insert data into the 1.544 Mbps T1 stream. Only the polarity-insensitive T and R leads are used in the cross-connection.

Table 2. Time Slots that CANNOT Contain BR1TE Cards

Service Setting	D	B1+D or B2 +D (*)	2B+D (**)
D4 Bank /w D4 Counting	–	–	23, 24
SLC-96 Mode I w/ D1D Counting	–	–	6,1 2
SLC-96 Mode III w/ D1D Counting	–	6, 12, 18, 24	5, 6, 44, 42, 17, 18, 23, 24
D4 bank w/ D1D COunting or SLS-96 Mode III w/D4 Counting	–	12, 24	11, 12, 23, 24

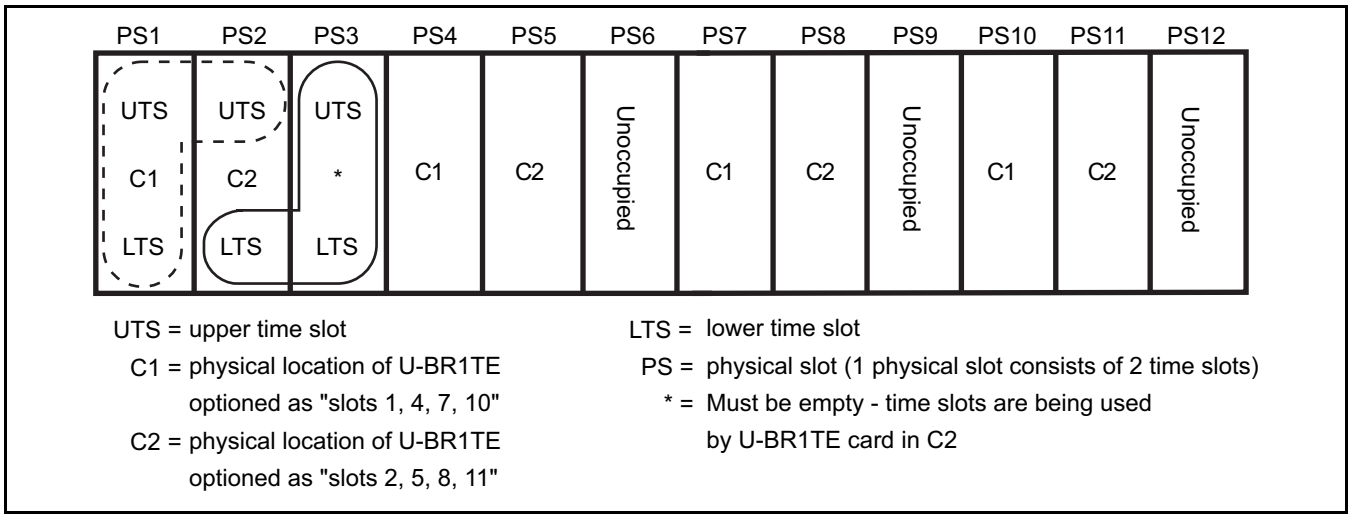
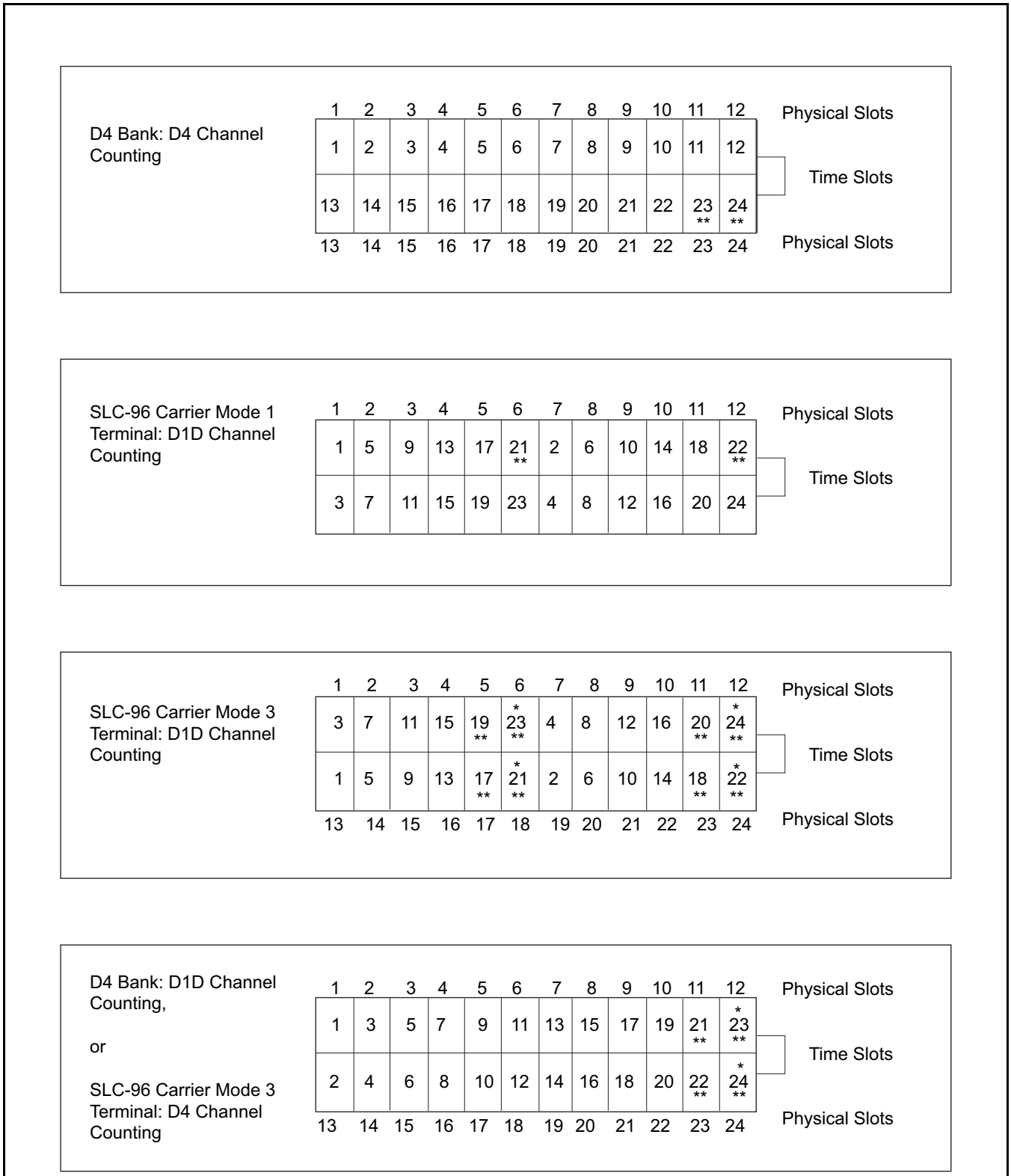


Figure 3. Time Slot Assignments for 2B+D Service in SLC Mode I with D1D Counting



* A channel unit with B+D service cannot occupy this slot
** A channel unit with 2B+D service cannot occupy this slot

Figure 4. Time Slots that CANNOT Contain BR1TE Cards

Option Switch Settings

Figure 5 displays the locations for SW1 and SW3 on the U-BR1TE IV RED OPT. Figure 6 displays the locations for SW1 and SW3 on the U-BR1TE IV STD and U-BR1TE IV MLT.

Table 3 contains the option settings for SW1 and SW3 for all lists of the U-BR1TE IV. Switches SW1-1 and SW1-2 select the bank type for the U-BR1TE IV. Switches SW1-3, SW1-4, and SW1-5 select the service level of the U-BR1TE IV. Switch SW1-6 disables or enables Zero Byte Substitution.

The termination mode of the U-BR1TE IV is set by switch SW3-1. This switch should be set toward "LULT" when the unit is installed as Adjacent-to U-Repeater, Adjacent-to-Customer, or Tandem Office Source configuration. This switch should be set toward "LUNT" for Adjacent-to-Switch and Tandem Office Sink configurations.

The function of the SW3-2 switch is dependent upon the SW3-1 setting as follows.

- In the LULT(RT) mode, SW3-2 controls sealing current. When used in an Adjacent-to-Customer configuration, sealing current should be provided (SW3-2 On). In a Tandem Office Source, sealing current is not required, and should be disabled (SW3-2 Off).
- In the LUNT(COT) mode, SW3-2 controls periodic wake-up tones. Periodic wake-up tones should be disabled when located in an Adjacent-to-Switch location (SW3-2 On). Periodic wake-up tones are required (SW3-2 Off) when located in a Tandem Office Sink configuration, or when adjacent to a device requiring wake-up tones, such as a Newbridge switch.

Refer to Figure 7 for switch settings at various network locations.

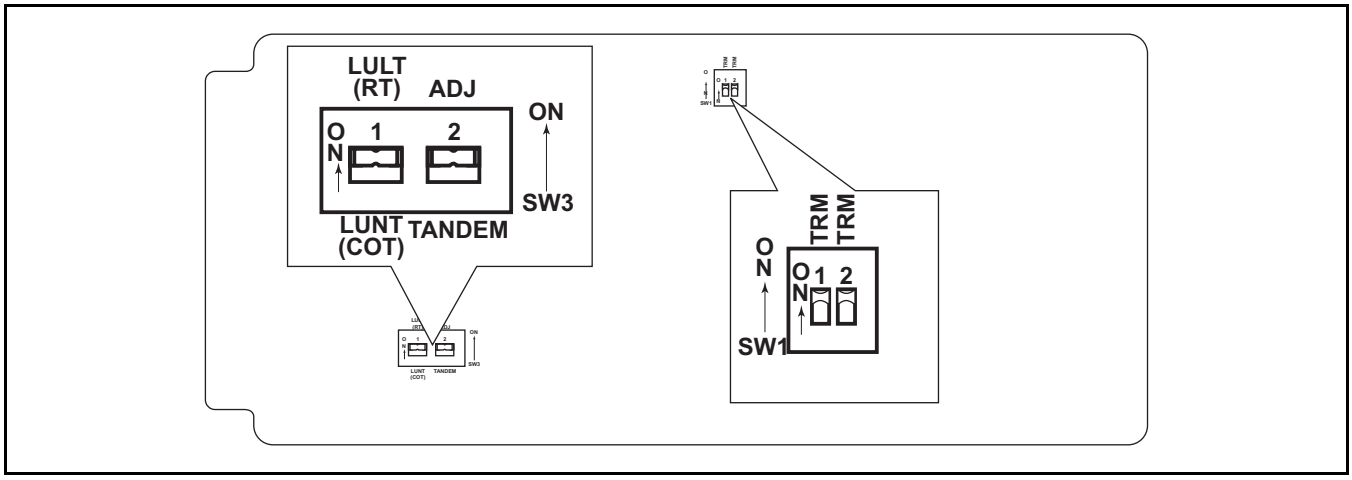


Figure 5. SW1 and SW3 Labeling For List 1

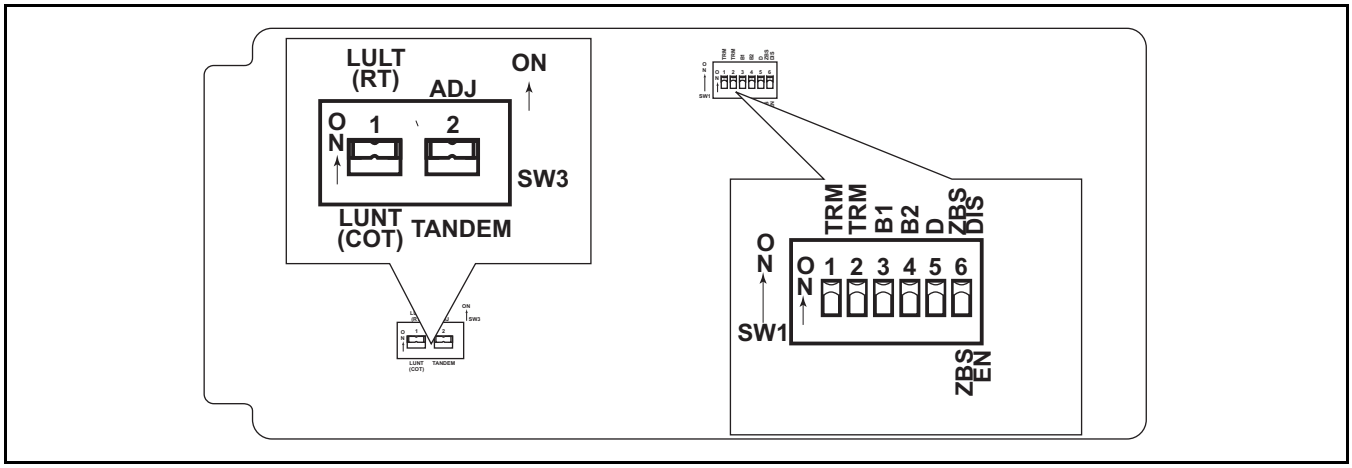


Figure 6. SW1 and SW3 Labeling For List 2 and 3

Table 3. SW1 and SW3 Option Settings

Applicable Unit	Option Setting		Switches		
L1, L2, L3	**Bank Type Selection**		**SW1-1 (TRM)**	**SW1-2 (TRM)**	
	Bank	**Count/Slot**			
	D4	D4 Counting	On	Off	
		D1D Counting	On	On	
	SLC I	CU in slots 1,4,7,10	On	On	
		CU in slots 2, 5, 8, 11	Off	Off	
	SLC-III	D4 Counting	On	On	
		D1D Counting	Off	On	
L2, L3 (1)	**Service Level Selection**		**SW1-3 (B1)**	**SW1-4 (B2)**	**SW1-5 (D)**
	2B+D		On	On	On
	2B		On	On	Off
	B1+D		On	Off	On
	B2+D		Off	On	On
	B1		On	Off	Off
	B2		Off	On	Off
	D		Off	Off	On
L2, L3 (1)	**Zero Byte Substitution** (2)		**SW1-6 (ZBS DIS/ZBS EN)**		
	Label	**Function**			
	ZBS DIS	Disables ZBS	On		
	ZBS EN	Enables ZBS	Off		
L1, L2, L3	**Function**		**SW3-1 (LULT/LUNT)**	**SW3-2 (ADJ/TANDEM)**	
	DC sealing current provided		On/(LULT)	On/(ADJ)	
	DC sealing current **not** provided		On/(LULT)	Off/(TANDEM)	
	Periodic wake-up tone **not** provided		Off/(LUNT)	On/(ADJ)	
	Periodic wake-up tone provided		Off/(LUNT)	Off/(TANDEM)	

1. The L1 unit is optioned for 2B+D and ZBS enabled.
2. The ZBS option must be set the same for the COT and RT. SW1-6 should be set toward “ZBS EN” for AMI provisioned carriers. The switch setting is optional for B8ZS- provisioned carriers. Consult local provisioning guidelines.

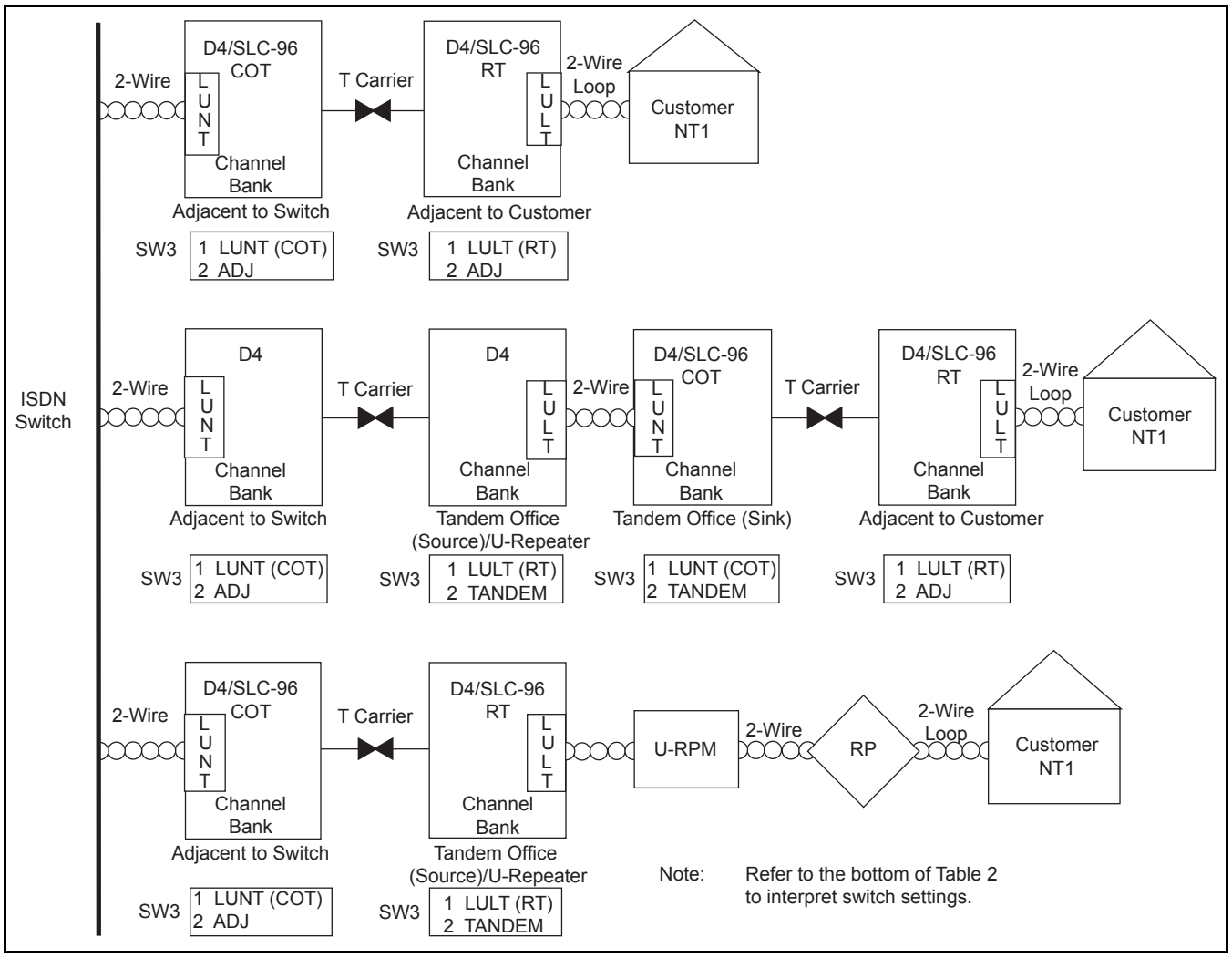


Figure 7. Position Switch Settings at Network Locations

Front Panel Features

The U-BR1TE IV front panel features a two position DIP switch, a recessed pushbutton, a rotary switch, a bantam jack, and LEDs, as illustrated in Figure 1. The **B1/B2** DIP switch selects the desired bearer channel, **B1** or **B2**, to be tested during local tests using the U-BR1TE IV front panel. The **NORM/PTRN** DIP switch is recessed to prevent inadvertent operation. The ten-position rotary switch is used to determine the specific test that will be performed, including downstream loopbacks (refer to Table 4). LED indicators display the current status of the unit, as listed in Table 5.

Table 4. Rotary Switch Options

Display	Interpretations
AD1	Address #1, address of this unit
AD2	Address #2, the next downstream unit away
AD3	Address #3, the second unit downstream
AD4	Address #4, the third unit downstream
AD5	Address #5, the fourth unit downstream
AD6	Address #6, the fifth unit downstream
LPBK	Loopback, forces unit to loopback the selected B1 or B2 channel. Loopbacks occur in both customer and network directions.
CRTX	Carrier transmit, in the carrier direction
LPTX	Loop transmit, in the loop direction
NT1	NT1, address of the NT1

Table 5. Front Panel LEDs

Label	Status		Description
LP (Loop Status)	○	Off	Loop synchronization has been established and no Near End Block Errors (NEBE) are being received from the loop interface.
	●	Yellow	BER > 10^{-5} is detected
	✷	Yellow Flashing	Receipt of a NEBE or during local performance monitoring (refer to *Testing*) when BER > 10^{-6} is detected
	●	Red	U-interface is out of sync or has a loss of signal.
CR (Carrier Status)	○	Off	Carrier synchronization (framing per TR-TSY-000397) has been established and no Near End Block Errors (NEBE) are being received from the Carrier interface.
	●	Yellow	BER > 10^{-5} is detected.
	✷	Yellow Flashing	Receipt of a NEBE or during local performance monitoring (refer to *Testing*) when a BER > 10–6 is detected
	●	Red	Illuminated when no framing pattern is received.
ACT (Activation)	●	Green	Layer 1 is established from the ISDN switch to the customer ISDN terminal equipment.
TST (Test)	●	Green	In local performance monitoring or the local test pattern gen/det is invoked.
	●	Yellow	A front panel test has been successfully initiated or U-BR1TE IV is responding to a 2B+D loopback request.
	✷	Yellow Flashing	Flashes yellow once every two seconds when responding to a B1 loopback request or when forced into a B1 loopback from the front panel. Flashes yellow twice every two seconds when responding to a B2 loopback request or when forced into a B2 loopback from the front panel.
ERR (Error)	✷	Red Flashing	Errors are seen by local test pattern detector.

3. TESTING

The U-BR1TE IV responds to embedded operation channel loopbacks, including B1, B2, and 2B+D, when configured for D channel operation. When used in non-D channel modes of operation (B1, B2, or 2B), the Adjacent-to-Customer U-BR1TE IV responds to an in-band OCU or CSU latching loopback sequence for each B-channel (List 2 and List 3 only). When remote testing is not available, or during isolation of trouble or equipment malfunction, the U-BR1TE IV front panel provides local capabilities. Use of the internal 2047 pseudorandom test pattern generator or the bantam jacks allows skilled personnel to test in both the downstream and upstream directions, including loopback for 6 addressable ISDN devices and the customer's NT1. The front panel bantam jacks accommodate standard DS0 Logic Testers such as the TP1 108/109 RT II or FIREBERD 4000/6000 which complete both the upstream and downstream testing.

Loopback Tests (ADR1 - ADR6, NT1)

Loopbacks in the Network-to-Customer direction can be initiated from either the ISDN switch or the front panel. Either the internal 2047 test pattern or a DS0 digital test set provide the 64 kbps test pattern to be tested in B1 or B2. When initiating loopbacks from the U-BR1TE IV front panel, the downstream direction is automatically selected based on the card position in the network.

To initiate a loopback using the internal 2047 test pattern, complete the following:

1. Select the desired loopback address using the ten-position rotary switch. Refer to Table 4.
2. Select the desired bearer channel using the **B1/B2** DIP switch.
3. Select **PTRN** on the **NORM/PTRN** DIP switch.

4. Depress the recessed **TEST** pushbutton to initiate the test. The **TEST** LED illuminates green when the loopback is established to the selected address, and the **ERR** LED should go out following synchronization to the test pattern. If the selected address does not respond, the **TEST** LED remains out and the **ERR** LED illuminates.
5. To insert one bit error, momentarily (for less than two seconds) depress the **TEST** pushbutton. The **ERR** LED should flash upon receipt of the injected error.
6. Tests to additional network addresses may be performed by changing the selector knob to the desired address. It is not necessary to exit the test mode to select a new address.
7. To deactivate the loopback, depress the **TEST** pushbutton for two seconds, until the green **TEST** LED is extinguished, or select **NORM** on the **NORM/PTRN** DIP switch.

To initiate a loopback using a DS0 digital test set, complete the following:

1. Insert the **TX** and **RX** bantam plug of the DS0 digital test set into the U-BR1TE IV respective front panel bantam jacks. Connect the clock input of the DS0 digital test set to the channel bank's clock source (the D4 OIU, or the SLC-96 SSU). Configure the test set for Near Logic and 64 kbps.
2. Select the desired loopback address using the ten-position rotary switch. Refer to Table 4.
3. Select the desired bearer channel using the **B1/B2** DIP switch.
4. Depress the recessed **TEST** pushbutton to initiate the test. The **TEST** LED illuminates yellow when the loopback is established to the selected address. If the selected address does not respond, the **TEST** LED remains off. Observe the DS0 digital test set for bit errors.
5. Tests to additional network addresses can be performed by changing the selector knob to the desired address. It is not necessary to exit the test mode to select a new address.
6. To deactivate the loopback, depress the **TEST** pushbutton or remove the transmit bantam plug. Upon deactivation of the test, the **TEST** LED goes out.

Point-to-Point Test (CRTX, LPTX)

A point-to-point (straight-away) test can be performed to either the U-interface (**LPTX**) or the T-1 carrier interface (**CRTX**). In both cases, either the internal 2047 test pattern generator or a DS0 digital test set is used to verify the performance of the selected bearer channel.

To initiate a point-to-point test using the internal 2047 test pattern, complete the following:

1. Select the desired test direction, **LPTX** or **CRTX**, using the ten-position rotary switch. Refer to Table 4.
2. Select the desired bearer channel using the **B1/B2** DIP switch.
3. Select **PTRN** on the **NORM/PTRN DIP** switch.
4. Depress the recessed **TEST** pushbutton to initiate the test. The **TEST** LED illuminates green and the **ERR** LED should go out following synchronization to the test pattern from the far end.
5. If the far end unit is a U-BR1TE IV using the internal 2047 test pattern, complete steps 1 through 4, choosing the same front panel switch setting. If the far end is a test set, ensure it is configured for a 2047 test pattern.
6. To insert one bit error, momentarily (for less than two seconds) depress the **TEST** pushbutton. Bit errors are seen at the far end test unit.
7. To deactivate the loopback, depress the **TEST** pushbutton for two seconds, until the green **TEST** LED is extinguished, or select **NORM** on the **NORM/PTRN** DIP switch. Upon deactivation of the test, the **TEST** LED goes out.

To initiate a point-to-point test using a DS0 digital test set, complete the following:

1. Insert the **TX** and **RX** bantam plug of the DS0 digital test set into the U-BR1TE IV respective front panel bantam jacks. Connect the clock input of the DS0 digital test set to the channel banks clock source (D4's OIU, or the SLC-96 SSU). Configure the test set for Near Logic and 64 kbps.
2. Select the desired test direction, **LPTX** or **CRTX**, using the ten-position rotary switch. Refer to Table 4.
3. Select the desired bearer channel using the **B1/B2** DIP switch.
4. Depress the recessed **TEST** pushbutton to initiate the test. The **TEST** LED illuminates yellow.

5. If the far end unit is a U-BR1TE IV using a DS-0 digital test set, complete steps 1 through 4, choosing the same front panel switch setting. Ensure that both test sets are configured for the same test pattern (511, 2047). If the far end unit is a U-BR1TE IV using the internal 2047 test pattern, complete steps 1 through 4 of the previous section.
6. Observe the DS0 digital test set for bit errors.
7. To deactivate the loopback, depress the **TEST** pushbutton, or remove the transmit bantam plug. Upon deactivation of the test, the **TEST** LED goes out.

Local Loopback (LPBK)

A bilateral loopback can be initiated from the U-BR1TE IV front panel for either bearer channel. A local test pattern source is not required for this test. To initiate a local loopback, complete the following:

1. Select the desired bearer channel using the **B1/B2** DIP switch.
2. Select **LPBK** using the ten-position rotary switch. Refer to Table 4.
3. Depress the recessed **TEST** pushbutton to initiate the test. The **TEST** LED illuminates yellow.
4. To deactivate the loopback, depress the **TEST** push-button. Upon deactivation of the test, the **TEST** LED goes out.

Local Performance Monitoring

Performance Monitoring of the local T1 carrier system and 2-wire U-interface of the ISDN data can be performed from the front panel without interruption of service to the customer. For this test, bearer channel selection is not applicable and a test pattern source is not required. To initiate a local performance monitoring, complete the following:

1. Ensure the **NORM/PTRN** DIP switch is in the **NORM** position, and that a bantam plug is NOT installed in the front panel **TX** bantam jack.
2. Select **ADR1** using the ten-position rotary switch.
3. Depress the recessed **TEST** push-button to initiate the test. The **TEST** LED illuminates green.
4. The total number of Near End Block Errors (NEBE) received are simultaneously displayed as *crc* errors with the **LP** and **CR** CRC status LEDs. (See Table 5).
5. To exit Local Performance monitoring, depress the **TEST** button for two seconds or longer. Upon deactivation of the test, the **TEST** LED goes out.

Leased Mode Testing (B1, B2, and 2B)

NOTE

This mode of testing can only be used in applications using either the U-BR1TE IV STD (1104020L2) or the U-BR1TE IV MLT (1104020L3).

For leased mode applications, the D channel is typically disabled on the U-BR1TE IV. Without the D channel, standard ISDN loopbacks by way of the *eoc* are not available across the T1 carrier system. For this situation the ADTRAN U-BR1TE IV responds to independent network-issued OCU and CSU latching loopback sequences for B1 and B2, when configured as Adjacent-to-Customer.

Upon receipt of a OCU latching loopback sequence the U-BR1TE IV initiates a bilateral loopback for the B channel under test. Upon receipt of a CSU latching loopback sequence, and provided the U-interface is terminated by a NT1/TA, the U-BR1TE IV issues an eoc NT1 loopback for the appropriate B channel. In both tests, the OCU and CSU loopbacks, the other B channel is not affected. The
U-BR1TE IV supports simultaneously testing of both channels. The OCU and CSU latching loopbacks are enabled by the following:

- Minimum of 35 transition in progress (TIP) bytes (X0111010)
- Minimum of 35 LSC bytes: OCU (X1010101), CSU (X0110001)
- Minimum of 100 loopback enable (LBE) bytes (X1010110)
- Minimum of 32 far-end voice (FEV) bytes (X1011010)

X Denotes *Don't Care* bit - either a 1 or a 0.

Upon receipt of a OCU latching loopback, the U-BR1TE IV provides a bilateral loopback on the bearer channel that received the loopback sequence. The other bearer channel is not affected during this loopback.

Upon receipt of a CSU latching loopback sequence in either B1 or B2 channels and the U-interface is in sync, the U-BR1TE IV issues *eoc* loopback request to the NT1 for the appropriate channel. If the U-interface is not in sync, the U-BR1TE IV sends *abnormal station* (x0011110) in both B1 and B2 channels.

Disabling OCU or CSU latching loopback sequence:

- Minimum of 35 TIP bytes

For a U-BR1TE IV in a CSU latching loopback, receipt of the 35 TIPs releases the test in progress, following the release code to a U-BR1TE IV in a CSU test, the U-BR1TE IV issues a Return-to-Normal *eoc* message to the NT1/TA.

The valid front panel tests in leased modes are ADR1, CRTX, LPTX, and LPBK for all circuit positions. NT1, ADR1-ADR6 loopback tests are valid for the Adjacent-to-Customer circuit position only. ADR2 would be used to test an ADTRAN U-Repeater deployed from the U-BR1TE IV.

Local Performance Monitoring is available only for the U-interface, when configured for a leased mode of operation. Refer to the subsections entitled *Loopback Tests (ADR1 - ADR6, NT1)*, *Point-to-Point Test (CRTX, LPTX)*, and *Local Loopback (LPBK)* for applicable test descriptions.

4. MLT 3.0/ISDN CHANNEL TEST

The U-BR1TE IV/MLT unit is compatible with Mechanized Loop Testing (MLT 3.0/ISDN) according to TR-NWT-000397, Issue 3, December 1993. When configured and installed in a SLC-96 channel bank, the U-BR1TE IV/MLT supports the SLC-96 terminal interface to the Channel Test Unit (CTU) controlled by the Pair Gain Tester (PGTC) at the COT.

Channel Test (LUNT Mode)

When PGTC is connected to the U-BR1TE IV/MLT and the Test Initiate Voltage (116 VDC behind 8 kΩ) is applied to the tip with the ring open, the following events occur:

- The channel unit sends a Channel Test *mp-eoc* message downstream to the LULT, signaling the request for a MLT channel test.
- The channel unit pulls the normally high NSEIZE lead low.
- The unit sends a 333.3 Hz tone between the tip and ring leads toward the PGTC. This tone is compliant with TR-TSY-000465.

When the test initiate voltage is removed, the test tone is subsequently removed, the active test status indication to the bank controller is removed, and the Return to Normal *mp-eoc* message is sent to the LULT. The channel unit then begins re-synchronization of the U-interface between the LUNT and the ISDN switch.

Channel Test (LULT Mode)

When a PGTC initiates a channel test at the COT, the COT channel unit sends a Channel Test *mp-eoc* toward the LULT. Upon receipt by the LULT of this *mp-eoc* message, the following events occur:

- The channel unit pulls the normally high NSEIZE lead low, signaling the CTU that a channel test is underway.
- The channel unit begins to poll the NGATE lead, waiting for it to go low.
- When the CTU pulls the NGATE lead low, the LULT connects the bypass pair. This connects the customer drop to the common equipment through LPTT and LPTR. The set-up sequence is complete.
- Upon completion of the automatic test, the NGATE signal returns high, and the bypass relay de-energizes.
- The channel unit then attempts to re-synchronize the U-interface between the LULT and the NT1.

5. MAINTENANCE

The ADTRAN U-BR1TE IV does not require routine maintenance for normal operation.

6. WARRANTY AND CUSTOMER SERVICE

ADTRAN will replace or repair this product within the warranty period if it does not meet its published specifications or fails while in service. Warranty information can be found at www.adtran.com/warranty.

Refer to the following subsections for sales, support, Customer and Product Service (CAPS) requests, or further information.

Part Number

1104020L2

ADTRAN Sales

Pricing and availability
(800) 827-0807

ADTRAN Technical Support

Presales Applications / Post-sale Technical Assistance
(800) 726-8663

Standard hours: Monday-Friday, 7 a.m. - 7 p.m. CST
Emergency hours: 7 days/week, 24 hours/day

ADTRAN Repair/CAPS

Return for repair / upgrade
(256) 963-8722

Repair and Return Address:

ADTRAN, Inc.
CAPS Dept.
901 Explorer Boulevard
Huntsville, Alabama 35806-2807