ADTRAN
PRACTICES

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

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MODEL DSU II TST
ALL-RATE DATA SERVICE UNIT/CHANNEL SERVICE UNIT (DSU/CSU) TEST UNIT
INSTALLATION/MAINTENANCE

Contents

1. GENERAL

1.01 This section provides installation and maintenance information for the ADTRAN All-Rate DSU II TST with secondary channel. Figure 1 is a frontal, three-dimensional view of the unit showing the Data/Test switch and LEDs. Figure 2 provides a top view of the unit showing the option settings. Configuration of these options is described in the ADTRAN DSU II Users Manual. Specific information such as a description can be found in other ADTRAN Practice Sections. The part numbers and basic features for the DSU II TST are provided below:

Equipment	Part No.	Features
DSU II TST	1200009L2	LED indicator for line loss in excess of 34 dB on DDS® local loop; -45 dB receiver sensitivity at 56 kB/s;Flip top housing for easy option switch access; Synchronous & asynchronous 2.4, 4.8, 9.6, 19.2 kB/s and synchronous 56 or 64 kB/s primary channel rates. Asynchronous 75, 150, 300, 1200 and 2400 baud SC rates. EIA RS 232C and CCITT V.35 DTE interfaces.

1.02 This practice has been reissued to add an ADTRAN part number,a new Sales telephone number and the latest CLEI designation.

1.03 The DSU II TST All-Rate Data Service Unit/ Channel Service Unit (DSU/CSU) is designed for use by Telco Installation personnel in the installation of digital data circuits. Three special features have been added to the DSU II for the TST version:

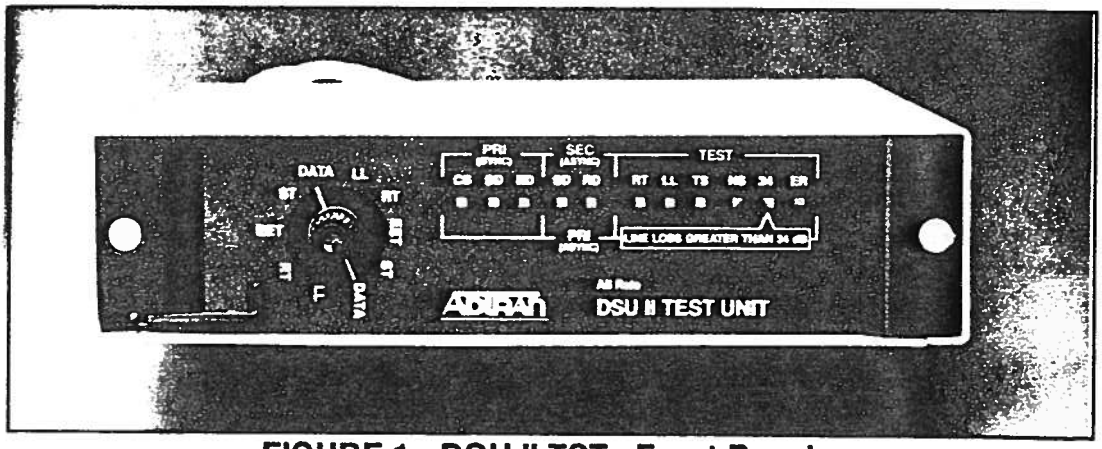
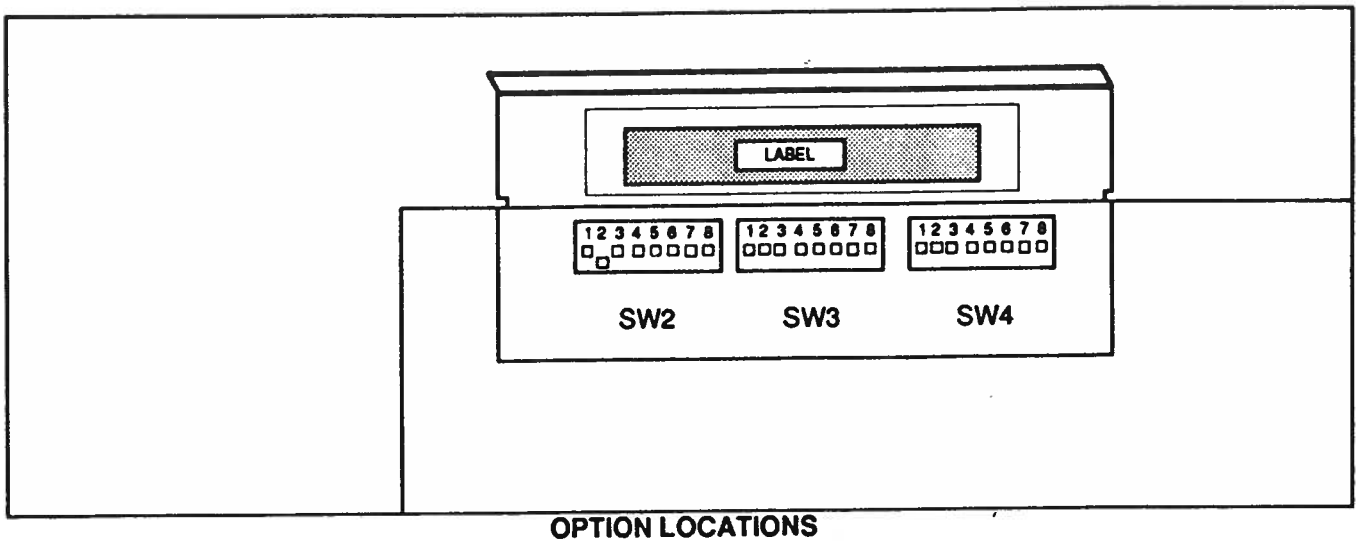
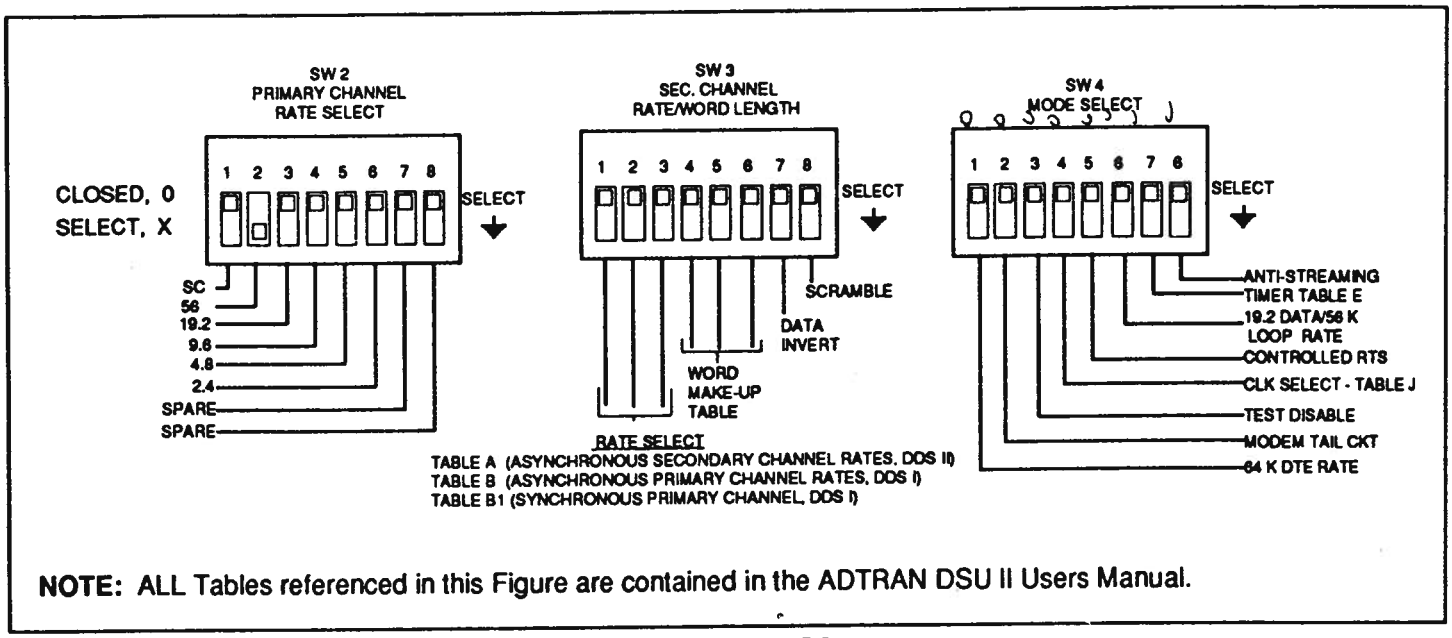


FIGURE 1 - DSU II TST - Front Panel

®Dataphone Digital Service (DDS) is a registered service mark of AT&T Communications.



OPTION LOCATIONS
DSU II TST - TOP VIEW



NOTE: ALL Tables referenced in this Figure are contained in the ADTRAN DSU II Users Manual.

OPTION SETTINGS

FIGURE 2 - Option Locations and Option Switches

- 34 dB line loss LED on the front panel.
- "Flip Top" housing for easy access to the option switches.
- Latching DSU loopback in secondary channel operation.

1.04 The ADTRAN DSU II TST is for Telco Installation personnel use, on the customer premise, to aid in the installation of digital data circuits.

1.05 The ADTRAN DSU II TST provides both synchronous and asynchronous data rates of 2.4, 4.8, 9.6, 19.2 kB/s and synchronous data rates of 56 or 64 kB/s along with asynchronous secondary channel rates of 75, 150, 300, 1200 and 2400 baud. The asynchronous secondary channel rates can be comprised of 10 or 11 bits per character. The primary synchronous/secondary channel asynchronous rates selectable are:

Primary Rate (Sync)	Secondary Channel) (Async)
2.4 kB/s	75 baud
4.8 kB/s	75, 150 baud
9.6 kB/s	75, 150 or 300 baud
19.2 kB/s	75, 150 or 300 baud
56 kB/s	150, 300, 1200, or 2400* baud
64 kB/s	NONE

*Only available point to-point with scrambler enabled.

The primary asynchronous rates selectable are 300, 1200, 2400, 4800, 9600, and 19,200 baud. Secondary channel operation is not operative with asynchronous primary channel operations.

1.06 The ADTRAN DSU II TST is a single stand alone unit which may be desk or wall mounted.

The front panel is shown in Figure 1. It contains a rotary mode selection switch and eleven (11) LED indicators. The Mode Select switch is used to select either the Normal Data mode or the Test modes.

The rear panel contains three (3) data DTE connectors, which provide either V.35 (synchronous), RS-232 (synchronous or asynchronous), and RS-232 asynchronous secondary channel inputs. An Eight (8) pin Telco jack, a power cord and a fuse are also located on the rear panel (see Figure 3).

2. INSTALLATION

2.01 After unpacking the unit, immediately inspect it for possible shipping damage. If damage is discovered file a claim immediately with the carrier, then contact ADTRAN Customer Service.

2.02 A captive six (6) foot power cord is provided with each DSU II TST unit. The power cord is terminated by a three-prong plug which connects to a grounded power receptacle.

NOTE:
Ensure that a grounded, 115VAC, 60 Hz, receptacle is used to provide power.

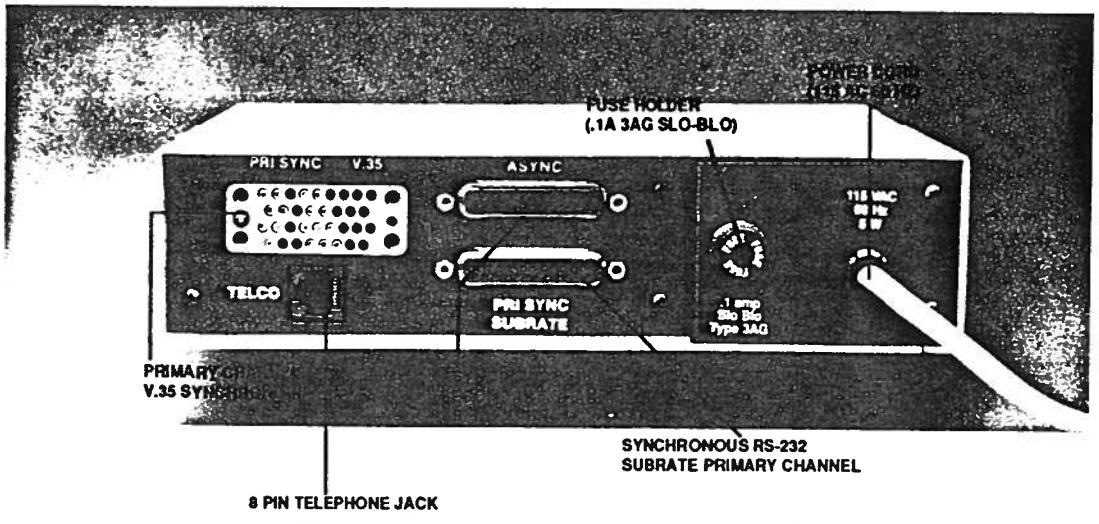


FIGURE 3 - DSU II TST Rear Panel

Switch Position	Function	Description
EET	End-to-End Test	The local DSU II TST sends an internally derived test pattern to the remote DSU II TST which sends back a different test pattern. The DTEs at both ends are disconnected. This test is applicable only in point-to-point configurations and is activated only by placing the rotary switch in position "EET" with the far end DSU II TST in DATA. Status of the test is indicated on the unit as follows: Indicators: TS - ON (Blinks on remote unit) LL - OFF RT - OFF ER - ON for approximately one second at test start and any time test fails. DTE Signals: RD, CTS, RLSD, DSR, SRD, SCTS, SRLSD, SDSR - Mark.
ST	Self Test	The DSU II TST tests itself by using the internally derived test pattern. The DTE is disconnected and the line output is looped back to the line input. Status of the test is indicated at the faceplate LEDs as follows: Indicators: TS - ON LL - ON RT - OFF ER - ON for approx.1/2 second at test invocation then OFF if test passes. DTE Signals: RD, CTS, RLSD, DSR, SRD, SCTS, SRLSD, SDSR - Mark.
DATA	Normal Data Operation	Puts the DSU II TST on line in the operational mode. Test LEDs are OFF and ASY and SYNC LEDS flash as appropriate. DTE signals are active as appropriate.
LL	Local Loopback	This loopback can also be initiated by the DDS/SC network test center (CSU loopback), provided the switch is placed in the DATA position. In this test mode, the SD (Send Data) DTE signal is looped to the RD (ReceiveData) signal allowing for testing of the DTE and interface cable. It also loops the Receive Data (RD) to the Transmit Data (TD) at the network side of the unit. Status of the test is indicated on the unit as follows: Indicators: TS - ON LL - ON RT - OFF ER - OFF DTE Signals: Active as appropriate, SDSR - Mark.
RT	Remote Test	In this test mode, the signal received from the network is looped back to the network. Status of the test is indicated on the unit as follows: Indicators: TS - ON LL - OFF RT - ON ER - OFF DTE Signals: RD, CTS, RLSD, DSR, SRD, SCTS, SRLSD, SDSR - Mark.

TABLE A - Faceplate Data/Test Mode

PHYSICAL NETWORK INTERFACE

2.03 The interface consists of four leads which are paired to provide the receive data pair and transmit data pair. The four leads are provided on an 8-position modular jack located on the rear panel (Figure 3).

The following are the pin assignments for the modular (Telco) jack on the rear of the DSU II TST.

Pin Number	Function	Signal Direction
1	Transmit Data (R1)	From Customer To Network Interface
2	Transmit Data (T1)	From Customer To Network Interface
7	Receive Data (T)	From Network Interface To Customer
8	Receive Data (R)	From Network Interface To Customer

The other four pins (3-6) are not connected.

3. FACEPLATE OPTIONS and STATUS LEDs

3.01 Five-position Faceplate Switch:
The DATA/TEST mode of operation of the DSU II TST is selected by this switch. The functions are shown in Table A.

3.02 LED Indicators:
The DSU II TST contains ten status LEDs which are positioned in three groups: TEST, ASY (Asynchronous) and SYNC (synchronous). General status of the LEDs relative to each group follows;

TEST:
In the TEST mode, the LEDs are colored red and yellow to clearly show the test mode and test results:

34 (Red) ..... Flashes when loop loss exceeds 34 dB.
ER (Red) ..... ON for 0.5 second when an error is detected in the ST and EET test configuration.
TS (Yellow) ... ON for test mode.
LL (Yellow) ... ON for local loop.
RT (Yellow) ... ON for remote test.

ASY (asynchronous primary or secondary channel):
In the ASY group, the LEDs provide indication of activity on the asynchronous channel:

RD (Green) ... ON when receive data is space.
SD (Green) .... ON when send data is space.

SYNC (synchronous primary channel):
In the SYNC group, the LEDs provide indication of activity on the synchronous channel:

RD (Green) ... ON when receive data is space.
SD (Green) .... ON when send data is space.
CS (Green) .... ON when Clear To Send is on.

3.03 34 DB. LED:
The **34** LED on the front panel of the DSU II TST flashes when the line loss of the data circuit exceeds 34 dB. The Telco Installation/Maintenance personnel should then consider an ADTRAN ARR-2 All-Rate repeater at the network termination.

NOTE:
To assure a proper measurement on the 34 LED, all switches on SW2 should be in the closed (Toward the circuit card edge) position. Select the rate and secondary channel for the circuit being installed. After selecting the rate, examine the front panel 34 LED to determine if the line loss exceeds 34 dB.

4. INTERNAL OPTIONS

4.01 Option settings for SW2, an eight (8) position dip switch are located on the inside cover of the "Flip Top". The Option settings for SW3 and SW4 are outlined on a label affixed to the bottom of the DSU II TST unit. More detailed information on option selection can be found in the ADTRAN DSU II Users Manual.

5. TESTING

5.01 In case of equipment malfunction, use the automated testing capability of the Serving Test Center (STC) or the front panel test switches.

5.02 Testing Invoked by the DDS Network:
The DSU II TST responds to the following loopback commands issued by the DDS network:

- Channel Loopback
- DSU Loopback
- DSU Latching Loopback (SC only).

5.03 Indicators:
The DSU II TST contains faceplate LEDs which provide a visual indication of the functioning of the unit. These indicators are described in sections 3.02 and 3.03.

NOTE:
If TS and ER LEDs on the faceplate are blinking simultaneously, then contradictory options have been entered. An example would be if both 4.8 and 9.6 were selected as data rate.

6. MAINTENANCE

6.01 The Model DSU II TST requires no routine maintenance to operate properly. In case of equipment malfunction, use the front panel test switch

6.02 ADTRAN does not recommend that repairs be performed in the field. Repair services may be obtained by returning the defective unit to the ADTRAN Repair Department.

7. SPECIFICATIONS

Power Requirements: 115 VAC, 60 Hz, 5 Watts
Operating Temperature : 0° to 50° C (32° to 122° F)