DIGITAL DATA SYSTEM
500A-TYPE DATA SERVICE UNIT
TEST PROCEDURES

CONTENTS PAGE

1. GENERAL

1.01 This section contains procedures to be used when testing the 500A-type data service unit (DSU). Procedures for investigating a trouble condition are given in Section 595-200-300, entitled Digital Data System—500A-Type Data Service Unit—Maintenance.

1.02 This section is reissued to remove the "circuit assurance" and "system status" options which were removed before commercial service began. Since this reissue constitutes a general revision, arrows ordinarily used to indicate changes have been omitted.

1.03 The tests covered in this section are listed and defined below.

A. Local Test: This is a partial test of the customer interface leads, the DSU transmit and receive logic, and the power supply. In order to perform this test, the DSU must be connected to ac power.

B. DSU Functional Test: This test verifies the operation of circuits within the DSU which control the zero suppression code and idle code generation and detection. The ability of the DSU to transmit and receive data and control codes in conjunction with the associated office channel unit (OCU) is determined by this test. In addition, the DSU is monitored for response to control codes, generated by the serving test center (STC), which determine loopback modes (DSU and CHAN). Voice coordination with the STC is required to perform this test. This voice coordination is not over the digital data system (DDS), but must be via direct distance dialing (DDD).

C. Straightaway Test: The purpose of this test is to evaluate the performance of the DDS channel through an error performance run coordinated with the STC. A maximum of three errors, at any of the data rates (2.4, 4.8, 9.6, and 56 kb/s), in each direction of data transmission during a 15-minute interval is permitted for the DDS channel to be acceptable. Voice coordination with the STC is required to perform this test. This voice coordination is not over DDS, but must be via DDD.

1.04 The tests given in this section are to be performed in the order given for installation testing. For maintenance testing, they may be performed individually or in any combination.

Caution: A dc loop current in excess of 250 mA may damage the DSU/CSU at the station end. Do not use test

equipment that applies a current greater than 250 mA to the cable pairs, unless the OCU has been removed and the DSU/CSU has been disconnected from the pairs. In addition, a dc voltage in excess of 50 volts applied to repeatered loops can cause damage to the repeater. Do not use test equipment that applies a voltage greater than 50 volts to the cable pair on repeatered loops.

1.05 By performing the local test first, the telephone company (TELCO) employee may locate a minor trouble condition without involvement of the STC. This test ascertains the operation of the DSU power supply and customer interface leads with the exception of the data-set-ready lead.

1.06 Since the service maintenance philosophy for the DSU is immediate replacement with a known operable DSU upon failure of any one test, no remedial action is given in the detailed test procedures to follow. If the replacement DSU fails any one of the installation tests, the cable pairs may be the trouble source and must be analyzed as specified in Section 314-410-310, entitled Digital Data System—Local Loop—Maintenance Procedures.

Customer permission should be obtained to ensure that the data channel is idle prior to conducting any test given in this section.

2. APPARATUS

2.01 This part describes the DTSs that are required at the customer location during installation or maintenance testing.

2.02 The 912A wideband data test set (WDTS) (J79912A-L1/47) is used for testing the wideband 500A-L1/5 DSU (56-kb/s service).

2.03 The 914C DTS (J79914C-L1) is used for testing the subrate 500A-L1/2, 3, 4 DSUs (2.4-, 4.8-, 9.6-kb/s service).

2.04 The 921A DTS (J79921A) can be used in place of the 912A WDTS and the 914C DTS.

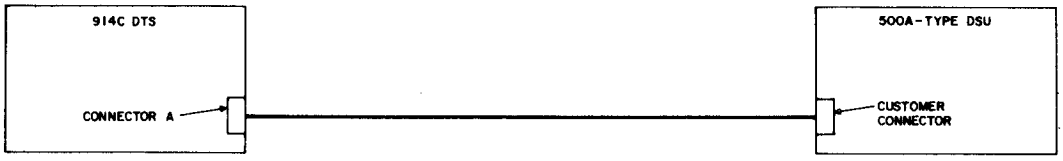
3. TEST PROCEDURES—912A WDTS AND 914C DTS

3.01 This part contains the procedures necessary to perform the tests described in Part 1. The test procedures using a 912A WDTS or 914C DTS are given below; test procedures using a 921A DTS are contained in Part 4.

Initial Test Setup

3.02 The procedures given in this part are to be used for conditioning the test equipment prior to starting any test in this section.

STEP	ACTION	VERIFICATION
	Subrate DSU	
1	Connect the interface connection cable, provided with the 914C DTS, from connector A on the DTS to the customer interface connector of the subrate DSU.	
2	Insert the power plug of the DTS into a 117-volt 60-Hz ac outlet.	
3	Program the DTS with ten matrix pins and position the switches per Fig. 1.	
4	Press the DTS POWER switch.	POWER indicator lighted.



914C DTS MATRIX PROGRAM

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	STG	
GRD	●	○	○	○	○	○	●	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	GRD
SD	○	●	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	SD
RD	○	○	●	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	RD
SI	○	○	○	●	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	SI
DSI	○	○	○	○	●	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	DSI
DS2	○	○	○	○	○	●	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	DS2
S2	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	S2
DS3	○	○	○	○	○	○	○	●	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	DS3
TPI	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	TPI
TP2	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	TP2
S3	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	S3
DS4	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	DS4
DS5	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	DS5
S4	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	S4
SCT	○	○	○	○	○	○	○	○	○	○	○	○	○	○	●	○	○	○	○	○	○	○	○	○	○	○	SCT
S5	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	S5
SCR	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	●	○	○	○	○	○	○	○	○	○	SCR
DS6	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	DS6
S6	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	S6
DS7	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	DS7
DS8	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	DS8
S7	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	S7
TP3	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	TP3
S8	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	S8

914C DTS SWITCH SETTINGS
(ALL OTHER SWITCHES NOT USED)

SWITCH	SETTING
INTERFACE MODE	VOLTAGE
SI	OFF
TEST SET MODE	SER
COUNTER	BIT ERRORS
FUNCTION	OFF
RCV BIT RATE	EXT +
RCV WORD LENGTH	5 I I
WORD SYNC	AUTO
ALL INTERFACE	
SELECTOR SWITCHES	DEPRESSED
TRANSMIT BIT RATE	EXT +
TRANSMIT WORD LENGTH	5 I I
TRANSMIT SIG LEV	±4V

INDICATOR LIGHT DESIGNATIONS

DSI	CLEAR TO SEND
DS2	DATA SET READY
DS3	RECEIVED LINE SIGNAL DETECTOR

Fig. 1—914C DTS Testing Configuration

STEP	ACTION	VERIFICATION
	56-kb/s DSU	
1	Connect the interface cable (CA201) provided with the 912A WDTS from the high-speed interface unit of the WDTS to the customer interface connector of the 56-kb/s DSU.	
2	Insert the power plug of the WDTS into a 117-volt 60-Hz ac outlet.	
3	Position the WDTS controls as in Table A.	
4	Position the WDTS POWER switch to ON.	POWER indicator is lighted.

Take appropriate action as given in Section 010-250-001, entitled Crediting Charges or Test Calls, to ensure that the customer is not billed for test calls. Before starting Test B or C, establish voice communication with the STC and verify that the DSU under test is the correct list code and that customer options specified on the circuit layout record card (CLRC) are installed in the DSU.

3.03 The tests presented in this part should be performed after the DSU has been installed to ensure that the installation is ready to be placed in service.

3.04 A letter a, b, c, etc, added to a step number indicates an action which may or may not be required, depending on local conditions. The condition under which a lettered step should be made is given in the ACTION column.

TABLE A

912A WDTS SWITCH POSITIONS

SWITCH	POSITION
TRANSMIT BIT RATE	EXT
RECEIVE BIT RATE	EXT
TRANSMIT TEST SIGNAL	2047
RECEIVE TEST SIGNAL	2047
OUTPUT	INVERTED
INPUT	INVERTED
WORD SYNC	AUTO
TIMING	0
COUNTER	ON
DATA TERM READY	OFF
REQ TO SEND	OFF
LOCAL TEST	OFF
TEST MODE	OPERATE

A. Local Test

STEP	ACTION	VERIFICATION
	Subrate DSU	
1	If this is the first test, perform initial setup described in paragraph 3.02.	
2	Apply power to the DSU.	PWR indicator is lighted.

STEP	ACTION	VERIFICATION
3	Place the DSU slide switch in position LL.	PWR and LL indicators are lighted. NS and RT indicators are off.
4	Position the 914C DTS switch S1 to ON.	DS1 and DS3 are lighted. DS2 remains off. NO CLOCK and NO DATA indicators are off.
5	Press the DTS counter RESET button.	Counter reads zero errors.
6	Position DTS switch S1 to OFF.	If the DSU is equipped with option YS (continuous request-to-send)— DS1 and DS3 remain lighted. DS2 remains off. If the DSU is equipped with option YT (switched request-to-send)— DS1 and DS3 are off. NO DATA indicator is lighted.
7	If no further tests are to be performed, disconnect the DTS and restore the DSU slide switch to the center position.	
56-kb/s DSU		
1	If this is the first test, perform initial setup described in paragraph 3.02.	
2	Apply power to the DSU.	PWR indicator is lighted.
3	Place the DSU slide switch in position LL.	PWR and LL indicators are lighted. NS and RT indicators are off.
4	Position the 912A WDTS REQ TO SEND switch to ON.	CLEAR TO SEND and RCVD LINE SIG DETR indicators are lighted. DATA SET READY indicator remains off. NO DATA and NO SYNC indicators are off.
5	Position the COUNTER switch to ON and press the reset button located on the counter face.	Counter reads zero errors.
6	Position the REQ TO SEND switch to OFF.	If the DSU is equipped with option YS (continuous request to send)— CLEAR TO SEND and RCVD LINE SIG DETR indicators remain lighted. DATA SET READY indicator remains off. If the DSU is equipped with option YT (switched request to send)— CLEAR TO SEND and RCVD LINE SIG DETR indicators go off.

STEP	ACTION	VERIFICATION
		Counter begins to count errors. NO DATA indicator lights.
7	If no further tests are to be performed, disconnect the WDTS and restore the DSU slide switch to the center position.	

B. DSU Functional Test

Subrate DSU

1	If this is the first test, perform initial setup described in paragraph 3.02.	
2	Apply power to the DSU.	PWR indicator is lighted. NS, LL, and RT indicators are off.
3	Request the STC to transmit repeated idle control code.	
4	Position the 914C DTS switch S1 to ON.	DS1 and DS2 are lighted. DS3 is off.
5	Request the STC to transmit the OCU loopback control code.	After a 1- to 2-second transition interval, NS indicator on the DSU lights.
6	Request the STC to transmit repeated bytes with a "1" inserted in position 8.	NS indicator on DSU goes off. DS3 on DTS lights. (STC receives byte pattern 00000001.)
7	Request the STC to transmit a repeated 511-bit test word.	
8	Reset the DTS counter by momentarily pressing the RESET pushbutton.	Counter reads zero errors during a 10-second interval.
9	Place the DSU slide switch in the RT position.	DS1, DS2, and DS3 indicators on DTS are off. RT indicator on the DSU lights.
10	Request the STC to make a 10-second error check.	
11	Place the DSU slide switch in the center position.	RT indicator is off.
12	Request the STC to transmit the DSU loopback control code.	RT indicator lights.
13	Request the STC to transmit a repeated CHAN loopback control code.	At the DTS— DS1 and DS3 indicators light.

STEP	ACTION	VERIFICATION
		At the DSU— RT indicator is off. LL indicator is lighted.
14	If no further tests are to be performed, disconnect the DTS.	
56-kb/s DSU		
1	If this is the first test, perform initial setup described in paragraph 3.02.	
2	Apply power to the DSU.	PWR indicator is lighted. NS, LL, and RT indicators are off.
3	Request the STC to transmit repeated idle control code.	
4	Position the 912A WDTS REQ TO SEND switch to ON.	DATA SET READY and CLEAR TO SEND indicators lighted. RCVD LINE SIG DETR indicator is off.
5	Request the STC to transmit the OCU loopback control code.	After a 1- to 2-second transition interval, NS indicator on the DSU lights.
6	Request the STC to transmit repeated bytes with a "1" inserted in position 8.	
7	Position the WDTS OUTPUT switch to SPACE.	NS indicator on the DSU goes off. RCVD LINE SIG DETR indicator on the WDTS lights. (STC receives byte pattern 00000001.)
8	Request the STC to transmit a repeated 2047-bit test word.	
9	Position the WDTS COUNTER switch to ON and press the reset pushbutton located on the counter face.	Counter reads zero errors during a 10-second interval.
10	Place the DSU slide switch in the RT position.	At the WDTS— CLEAR TO SEND, DATA SET READY and RCVD LINE SIG DETR indicators are off. RT indicator on the DSU lights.
11	Request the STC to perform a 10-second error check.	
12	Place the DSU slide switch in the center position.	RT indicator goes off.

STEP	ACTION	VERIFICATION
13	Request the STC to transmit the DSU loopback control code.	RT indicator on DSU lights.
14	Request the STC to transmit the CHAN loopback control code.	At the WDTS— CLEAR TO SEND and RCVD LINE SIG DETR indicators are lighted. At the DSU— LL indicator is lighted.
15	If no further tests are to be performed— Disconnect the WDTS and restore the DSU slide switch to the center position.	

C. Straightaway Test

Subrate DSU

1	If this is the first test, perform initial setup described in paragraph 3.02.	
2	Apply power to the DSU.	PWR indicator is lighted. NS, LL, and RT indicators are off.
3	Request the STC to transmit and to check the received 511-bit test word for errors.	
4	Position the 914C DTS switch S1 to ON.	DS1, DS2, and DS3 indicators are lighted.
5	Reset the 914C DTS counter by momentarily pressing the RESET button.	
6	Start timing a 15-minute interval.	Maximum number of errors is three counted by the DTS and three counted by the STC receiver.
7a	If more than three errors are counted on either counter— Reset both counters and start timing another 15-minute interval.	
8b	If more than three errors are counted on either counter within the first 5 minutes of the second attempt— Wait 5 minutes, reset the counters and start another 15-minute interval. ***Note:*** An extraordinary condition, such as a severe electrical storm or an intermittent failure of customer-supplied ac power, may affect the performance of the DDS channel. The straightaway test cannot properly be performed until these conditions have cleared.	

STEP	ACTION	VERIFICATION
9c	If three attempts fail to achieve the 15-minute requirement, the STC must commence troubleshooting the channel in accordance with Section 314-901-300.	
10	Request the STC to perform a 15-minute DSU loopback and a 15-minute CHAN loopback error run, and to record the number of errors counted on the CLRC as a benchmark for future use.	
11	Disconnect the 914C DTS and restore the DSU slide switch to the center position.	
56-kb/s DSU		
1	If this is the first test, perform initial setup described in paragraph 3.02.	
2	Apply power to the DSU.	PWR indicator is lighted. NS, LL, and RT indicators are off.
3	Request the STC to transmit a repeated 2047-bit test word and to check the received 2047-bit test word for errors.	
4	Position the 912A WDTS REQ TO SEND switch to ON.	CLEAR TO SEND, RCVD LINE SIG DETR, and DATA SET READY indicators are lighted.
5	Position the WDTS COUNTER switch to ON.	
6	Reset the WDTS counter by pressing the reset button located on the counter face.	
7	Start timing a 15-minute interval.	Maximum number of errors is three counted by the WDTS and three counted by the STC receiver.
8a	If more than three errors are counted on either counter— Reset both counters and start timing another 15-minute interval.	
9b	If more than three errors are counted on either counter within the first 5 minutes of the second attempt— Wait 5 minutes, reset the counters, and start another 15-minute interval. ***Note:*** An extraordinary condition, such as a severe electrical storm or an intermittent failure of customer-supplied ac power, may	

STEP	ACTION	VERIFICATION
	affect the performance of the DDS channel. The straightaway test cannot properly be performed until these conditions have cleared.	
10c	If three attempts fail to achieve the 15-minute requirement, the STC must commence troubleshooting the channel in accordance with Section 314-901-300.	
11	Request the STC to perform a 15-minute DSU loopback and a 15-minute CHAN loopback error run and to record the number of errors on the CLRC as a benchmark for future use.	
12	Disconnect the WDTS and restore the DSU slide switch to the center position.	

4. TEST PROCEDURES—921A DTS

4.01 This part contains the procedures necessary to perform the tests described in Part 1 using a 921A DTS.

4.02 A letter a, b, c, etc. added to a step number indicates an action which may or may not be required, depending on local conditions. The condition under which a lettered step should be performed is given in the ACTION column. For example steps designated with an "a" apply to subrate DSUs while steps designated "b" apply to 56 kb/s DSUs.

4.03 The procedures given in this part are to be used for conditioning the test equipment prior to starting any of the tests.

STEP	ACTION	VERIFICATION
1	Connect the DTS to the customer interface connector of the DSU using the interface cords provided with the DTS. ***Note:*** The interface cord is equipped with a 37-pin connector on each end. A 6-inch adapter cord matches the interface cord to the interface connector on the DSU.	
2	Verify that all 7 interface selector switches (white bow-tie) on the front of the DTS are in the TERM position.	
3	Insert the power plug of the 921A DTS into a 117-volt 60-Hz ac outlet.	
4a	Subrate DSU— Remove the EIA RS-232-C interface card from the storage area in the DTS. Ensure that all 25 interface lead switches are in the normal position, insert the card into the interface connector and close the latch. (A red dot on	

STEP	ACTION	VERIFICATION
	the switch is visable when the switch is in the normal position.)	
4b	56-kb/s DSU— Remove the CCITT V.35 interface card from the storage area in the DTS. Ensure that all 14 interface lead switches are in the normal position, insert the card into the interface connector and close the latch. (A red dot on the switch is visable when the switch is in the normal position.)	
5	Apply power to DSU.	PWR indicator is lighted.
6	Operate the POWER switch on the 921A DTS to ON.	POWER ON indicator is lighted.
7	Press RST key on the DTS.	Display indicates— 921A VERS #01, (or higher) briefly, then DATA SET : is displayed if the DTS is not defective. If the DTS is defective, TEST FAILED appears on the display and another test set must be obtained to perform these procedures.
8a	Subrate DSU— Select the 500A (subrate) by entering 80 on the DTS input keyboard.	Display indicates— DATA SET : 80.
8b	56-kb/s DSU— Select the 500A (56 kb/s) by entering 81 on the DTS input keyboard. ***Note:*** To delete a wrong entry on the input keyboard, press the backspace arrow.	Display indicates— DATA SET : 81.
9	Press GO key.	Display indicates— BIT RATE !
10a	Subrate DSU— Select subrate service by entering one of the following on the DTS input keyboard— 24 for 2.4-kb/s service 48 for 4.8-kb/s service 96 for 9.6-kb/s service.	Display indicates— BIT RATE : followed by either 24, 48, or 96.
10b	56-kb/s DSU— Select 56-kb/s service by entering 56 on the DTS input keyboard.	Display indicates— BIT RATE : 56.

STEP	ACTION	VERIFICATION
11	Press GO key.	Display indicates— TEST SEQ : Interface indicator DSR is lighted, SCT and SCR ON-OFF indicators are of equal intensity, SD and RD indicators "1" are lighted.

Take appropriate action as given in the Section 010-250-001, entitled Crediting Charges on Test Calls, to ensure that the customer is not billed for test calls. Before starting Test B or C, establish voice communication with the STC and verify that the DSU under test is the correct list code and that customer options specified on the CLRC are installed in the DSU.

4.04 The tests presented in this part should be performed after the DSU has been installed to ensure that the installation is ready to be placed in service.

A. Local Test

STEP	ACTION	VERIFICATION
1	If this is the first test, perform initial setup described in paragraph 4.03.	
2	Place the DSU slide switch in position LL.	PWR and LL indicators on the DSU are lighted. NS and RT indicators on the DSU are off. Interface indicator DSR on the DTS is off.
3	Select the control for the request-to-send (RS) lead by entering 36 on the DTS.	Display indicates— TEST SEQ : 36 RS=? (0 OR 1).
4	Press key number 1.	Display indicates— TEST SEQ : 36 RS=1 (0 OR 1).
5	Select error test (DOT, SPACE, MARK, and PSEUDORANDUM WORD) by entering 55 on DTS.	Display briefly indicates— : 36 RS=1 (0 or 1) 55 then display becomes :
6a	Subrate DSU— Press GO key.	Display briefly indicates— TEST COMPLETE then display becomes— D=DT 0=SP 1=MK 2=2047 5=511 6=63 Interface indicators RS, CS and RLSD on the DTC are lighted; DSR is off.
6b	56 kb/s DSU— Press GO key.	Display briefly indicates— TEST COMPLETE then display becomes— D=DT 0=SP 1=MK 2=2047. Interface indicators RS, CS, and RLSD on the DTC are lighted; DSR is off.

STEP	ACTION	VERIFICATION
7	Press key number 2.	Display indicates— 2047 BIT ERROR TEST, briefly, then 1=BIT ERRORS 2=BLOCK ERRORS is displayed.
8	Press key number 1.	Display indicates— ???? SECONDS.
9	Select 10 seconds by entering 0010 on DTS.	Display indicates— 0010 SECONDS, briefly, then 0000 BITS IN ERROR is displayed. From this point, the DTS counts the number of errors received. At the end of the test, the display indicates TEST COMPLETE, then total SYNC LOSSES, then the total BITS in ERROR, repeatedly. ***Requirement:*** Zero BITS IN ERROR.
10	Press TST key on DTS in order to stop repetition of display in Step 9.	If the DSU is equipped with option YT (switched request-to-send)— Display indicates— TEST COMPLETE, briefly, then TEST SEQ: is displayed. Interface indicators RS, CS, and RLSD on the DTS are off. If the DSU is equipped with option YS (continuous request-to-send)— Display indicates— TEST COMPLETE, briefly, then TEST SEQ: is displayed. Interface indicators CS and RLSD on the DTS are lighted.
11	Restore the DSU slide switch to the center position.	Interface indicator lamp DSR on the DTS is lighted. LL indicator on the DSU is off. If the DSU is equipped with option YS— Interface indicator RLSD on the DTS is off.
12	If no further tests are to be performed, disconnect the DTS as described in Part C, steps 13 through 16. ***Note:*** If it is necessary to perform any of the functions shown below, press the indicated key on the DTS. Restart test----------A key Display time remaining in test---B key Clear display----------C key End test----------D key	

STEP	ACTION	VERIFICATION
	Insert errors into data stream---E key Force out-of-sync condition------F key.	
B.	**DSU Functional Test**	
1	If this is the first test, perform the initial setup described in paragraph 4.03.	
2	Request the STC to transmit repeated idle control code.	
3	Select the control for the RS lead by entering 36 on the DTS.	Display indicates— TEST SEQ : 36 RS=? (0 OR 1).
4	Press key number 1 on DTS then select error test (DOT, SPACE, MARK, and PSEUDORANDUM WORD) by entering 55 on DTS.	Display briefly indicates— TEST SEQ : 36 RS=1 (0 OR 1) 55 then display becomes :
5a	Subrate DSU— Press GO key.	Display briefly indicates— TEST COMPLETE, then D=DT 0=SP 1=MK 2=2047 5=511 6=63 Interface indicators DSR, RS, and CS on the DTS are lighted; RLSD indicator is off.
5b	56 kb/s DSU— Press GO key.	Display briefly indicates— TEST COMPLETE then display becomes— D=DT 0=SP 1=MK 2=2047 Interface indicators DSR, RS, and CS on the DTS are lighted. RLSD indicator is off.
6	Request the STC to transmit the OCU loopback control code.	After a 1- to 2-second transition interval, the NS indicator on the DSU lights.
7	Request the STC to transmit byte pattern 00000001.	The NS indicator on the DSU goes off. Interface indicators DSR, RS, CS, and RLSD on the DTS are lighted.
8	Press key number 0 on DTS.	Display indicates— SPACING BIT ERROR TEST, briefly, then 1=BIT ERRORS 2=BLOCK ERRORS.
9	Press key number 1 on DTS.	Display indicates— ???? SECONDS.
10	Select 10 seconds by entering 0010 on DTS.	Display indicates— 0010 SECONDS, briefly, then 0000 BITS IN ERROR is displayed. From this point, the DTS counts the number of errors received. At the end of the test, the display indicates TEST COMPLETE, then

STEP	ACTION	VERIFICATION
		total SYNC LOSSES, then the total BITS IN ERROR, repeatedly. ***Requirement:*** Zero BITS in ERROR. (STC receives byte pattern 00000001.)
11	At completion of test, press TST key on DTS to stop repetition of display in Step 11. ***Note:*** If it is necessary to perform any of the functions shown below, press the indicated key on the DTS. Restart test----------A key Display time remaining in test---B key Clear display----------C key End test----------D key.	Display indicates— TEST SEQ :
12	Request the STC to transmit a repeated 2047 bit test word.	
13	Select the control for the RS lead by entering 36 on the DTS.	Display indicates— TEST SEQ : 36 RS? (0 or 1).
14	Press key number 1 then select error test (DOT, SPACE, MARK, and PSEUDORANDOM WORD) by entering 55 on the DTS.	Display briefly indicates— TEST SEQ : 36 RS=1 (0 or 1) 55 then display indicates :
15a	Subrate DSU— Press GO key DTS.	If the DSU is equipped with option YT (switched request to send)— Display briefly indicates— TEST COMPLETE then display indicates— D=DT 0=SP 1=MK 2=2047 5=511 6=63 Interface indicators RLSD, RS, and CS on DTS are off. If the DSU is equipped with option YS (continuous request to send)— Display briefly indicates— TEST COMPLETE then display indicates— D=DT 0=SP 1=MK 2=2047 5=511 6=63 Interface indicators RLSD and CS on DTS are lighted; RS is off.
15b	56 kb/s DSU— Press GO key on DTS.	If the DSU is equipped with option YT (switched request to send)— Display briefly indicates— TEST COMPLETE then display indicates—

STEP	ACTION	VERIFICATION
		D=DT 0=SP 1=MK 2=2047 Interface indicators RLSD, RS, and CS on DTS are off. If the DSU is equipped with option YS (continuous request to send)— Display briefly indicates— TEST COMPLETE then display indicates— D=DT 0=SP 1=MK 2=2047 Interface indicators RLSD and CS on DTS are lighted; RS is off.
16	Press key number 2 on DTS.	Display indicates— 2047 BIT ERROR TEST, briefly, then 1=BIT ERRORS 2=BLOCK ERRORS.
17	Press key number 1 on DTS.	Display indicates— ???? SECONDS.
18	Select 10 seconds by entering 0010 on DTS.	Display indicates— 0010 SECONDS, briefly, then 0000 BITS IN ERROR is displayed. From this point, the DTS counts the number of errors received. At the end of the test, the display indicates TEST COMPLETE, then total SYNC LOSSES, then the total BITS IN ERROR, repeatedly. ***Requirement:*** Zero BITS in ERROR. (STC receives 2047 pattern).
	Note: If it is necessary to perform any of the functions shown below, press the indicated key on the DTS. Restart test----------A key Display time remaining in test---B key Clear display----------C key End test----------D key.	
19	Place the DSU slide switch in position RT.	PWR and RT indicators on the DSU are lighted. NS and LL indicators on the DSU are off. Interface indicators RLSD, DSR, and CS on the DTS are off.
20	Request the STC perform a 10 second error run.	***Requirement:*** Zero BITS in ERROR.

STEP	ACTION	VERIFICATION
21	Restore the DSU slide switch to the center position.	RT indicator on the DSU goes off. Interface indicators RLSD, DSR, and CS on the DTS are lighted.
22	Request the STC to transmit the DSU loopback control code.	RT indicator on the DSU lights. Interface indicators RLSD, DSR, and CS on the DTS are off.
23	Request the STC to transmit a repeated CHAN loopback control code.	LL indicator on the DSU lights. RT indicator on the DSU goes off. Interface indicators RLSD and CS on the DTS are lighted.
24	Press TST key on DTS.	Display indicates— TEST SEQ :
25	If no further tests are to be performed, disconnect the DTS as described in Part C, steps 13 through 16.	
C.	**Straightaway Test**	
1	If this is the first test, perform the initial setup described in paragraph 4.03.	
2	Request the STC to transmit a repeated 2047-bit test word.	Interface indicators DSR and RLSD on DTS are lighted.
3	Select the control for the RS lead by entering 36 on the DTS.	Display indicates— TEST SEQ : 36 RS=? (0 OR 1).
4	Press key number 1 on DTS then select error test (DOT, SPACE, MARK, and PSEUDORANDUM WORD) by entering 55 on DTS.	Display briefly indicates— TEST SEQ : 36 RS=1 (0 OR 1) 55 then indicates :
5a	Subrate DSU— Press GO key on DTS.	Display briefly indicates— TEST COMPLETE then indicates— D=DT 0=SP 1=MK 2=2047 5=511 6=63 Interface indicators RLSD, RS, and CS on the DTS are lighted.
5b	56kb/s DSU Press GO key on DTS.	Display briefly indicates TEST COMPLETE then display indicates— D=DT 0=SP 1=MK 2=2047 Interface indicators RLSD, RS, and CS on the DTS are lighted.
6	Press key number 2 on DTS.	Display indicates— 2047 BIT ERROR TEST, briefly, then 1=BIT ERRORS 2=BLOCK ERRORS.

STEP	ACTION	VERIFICATION
7	Press key number 1 on DTS and request STC to reset error counter.	Display indicates— ???? SECONDS.
8	Select 900 seconds by entering 0900 on the DTS.	Display indicates— 0900 SECONDS, briefly, then 0000 BITS in ERROR is displayed. From this point, the DTS counts the number of errors received. At the end of the test, the display indicates TEST COMPLETE, then total SYNC LOSSES, then the total BITS IN ERROR, repeatedly. ***Requirement:*** Maximum number of errors is three counted by the 921A DTS and three counted by the STC KS-20908 DTS.
	Note: If it is necessary to perform any of the functions shown below, press the indicated key on the DTS. Restart test----------A key Display time remaining in test--------B key Clear display----------C key End test----------D key Insert errors in data stream to STC---E key Force out-of-sync condition at STC----F key.	
9	If more than three errors are counted on either counter— Repeat the test by pressing the ***A*** key on the DTS, requesting the STC to reset error counter and time another 900-second interval.	
10	If more than three errors are counted on either counter within the first 5 minutes of the second attempt— Wait 5 minutes. Then repeat the test by pressing the ***A*** key on the DTS, requesting the STC to reset error counter and time another 900-second interval. ***Note:*** An extraordinary condition, such as a severe electrical storm or an intermittent failure of customer-supplied ac power, may affect the performance of the DDS channel. The straightaway test cannot properly be performed until these conditions have cleared.	
11	If three attempts fail to achieve the 900-second requirement, the STC must commence	

STEP	ACTION	VERIFICATION
	troubleshooting the channel in accordance with Section 314-901-300.	
12	Request the STC to perform a 900-second DSU loopback and a 900-second CHAN loopback error run, and to record the number of errors on the CLRC as a benchmark for future use.	
13	Place the POWER switch on the DTS in the OFF position.	POWER ON indicator on the DTS goes off.
14	Remove the DTS adapter cable from the customer interface connector on the DSU.	
15	If no further tests are to be performed, reconnect the DSU to the CPE.	
16a	Subrate DSU— Remove the E1A RS-232-C interface card from the DTS and place in the proper storage area.	
16b	56-kb/s DSU— Remove the CCITT V.35 interface card from the DTS and place it in the proper storage area.	