

Appendix E: Incoming Inspection Test

The purpose of the incoming inspection test is to verify that the CTS850 SDH Test Set is functioning properly. The incoming inspection test relies on the front panel status lights to indicate the results of the test. Figure E 1 shows the location of the status lights used in these procedures.

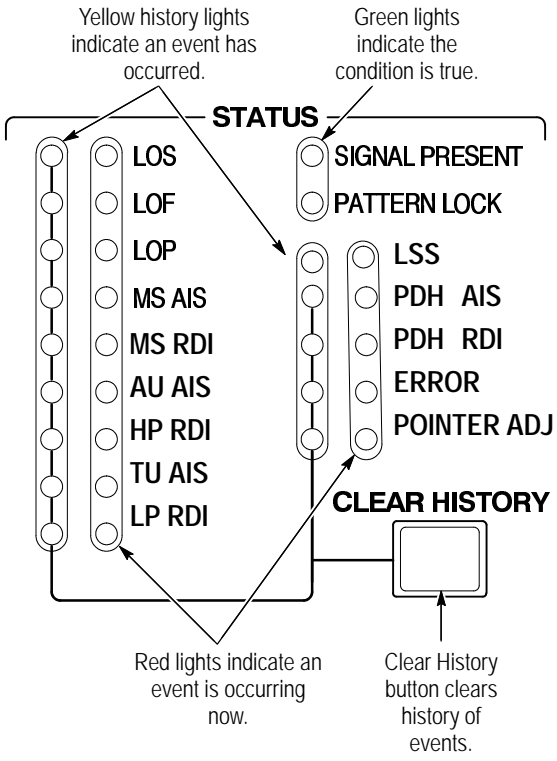


Figure E 1: Front-Panel Status Lights

Table E 1 details the equipment required to complete the incoming inspection test.

Table E 1: Required Equipment

Item Number and Description	Minimum Requirements	Example	Purpose
1 Optical Fiber Cable ¹	62.5/125 m multimode fiber; FC/PC connector on one end; compatible with CTS850 connector option on other end	FC/PC to FC/PC, Tektronix part number 174-2322-00	Interconnect optical signals
2 10 dB Optical Attenuator ²	10 dB at = 1550 nm, with connectors compatible with item 1 and CTS connector option	Tektronix part number 119-5118-00 (included with Option 05)	Provide optical attenuation at 1550 nm
3 75 Coaxial Cable	75 impedance; ≈1 m length, BNC connectors	Tektronix part number 012-1338-00	Interconnect electrical signals
4 120 Siemens Cable	120 impedance; ≈2 m length, banana plugs	Tektronix part number 012-1469-00	Interconnect electrical signals

¹ This equipment is required to test a CTS850 with any one of the optional Optical/Electrical Plug-in Interface Modules installed; otherwise, it is not required.

² This equipment is only required if Option 05 is installed.

Loop-Back Connection

The incoming inspection test requires an external loop-back connection from the TRANSMIT/OUT output to the RECEIVE/IN input. For the SDH rate electrical loop-back, you can use the 75

BNC coaxial cable provided as a standard accessory to the CTS850. If the Add/Drop/Test Option is installed, you can use the 75 ohm coaxial cable for checking 2 Mb/s Balanced, 34 Mb/s, and 140 Mb/s operation. You will need to use a 120 ohm Siemens cable (a standard accessory with the Add/Drop/Test Option) to check 2 Mb/s Unbalanced operation. If one of the Electrical/Optical Plug-in Interface Modules is installed in your CTS850, you also need a short optical cable that is compatible with the optical connectors on your instrument. Optical cables are not included as standard accessories to the CTS850.

How to Proceed

If the CTS850 fails any of these tests, it has failed the incoming inspection test. Double check the electrical and optical connections and repeat any failed test. If the failure persists, contact your local Tektronix field office or representative for assistance.

You can perform the following tests in any order. Each test is independent and does not depend on the setup from the previous test.

H Turn on the CTS850. Allow it to warm up for 20 minutes before proceeding with the tests.

System Self Test with External Loop-Back

This test executes the Self Test including coverage of the transmitter and receiver I/O circuitry.

Equipment Required	75 ohm BNC coaxial cable for electrical loop-back Optical loop-back cable if Electrical/Optical Plug-in Interface Module is installed 10 dB optical attenuator if Option 05 is installed
Prerequisites	CTS850 warmed-up at least twenty minutes
Time Required	Approximately two minutes

1. Attach electrical and optical loop-back cables from the TRANSMIT/OUT outputs to the RECEIVE/IN inputs.

NOTE. Connectors labeled OUT and IN are present only on instruments equipped with the Add/Drop/Test Option.

2. Set up and execute the system self test with the following sequence:

Press Menu Button	Select Menu Page	Highlight Parameter	Select Choice
UTILITY	SELF TEST	Self Test Group	Sys: Ext
		Self Test Control	Run

SDH Signals

This test checks that the CTS850 transmits and receives error-free signals at all SDH rates.

Equipment Required	75 BNC coaxial cable for electrical loop-back Optical loop-back cable if Electrical/Optical Plug-in Interface Module is installed 10 dB optical attenuator if Option 05 is installed
Prerequisites	CTS850 warmed up at least twenty minutes
Time Required	Approximately five minutes

1. Attach electrical and optical loop-back cables from the TRANSMIT outputs to the RECEIVE inputs.

2. Perform the initial setup of the CTS850 with the following sequence:

Press Menu Button	Select Menu Page	Highlight Parameter	Select Choice
TEST SETUPS	RECALL INSTRUMENT SETUPS	DEFAULT FACTORY SETTINGS	Recall Setup
TRANSMIT	TRANSMIT SETTINGS	Tx/Rx Setup	Coupled
	POINTERS & TIMING	Pointer Control	Set Value
		Pointer Value set to	Default 522

3. To check the rate, press the **CLEAR HISTORY** button, wait two seconds, and then verify that no yellow history lights are on.

NOTE. When changing the transmit rate, the LOP, LOS, and LOF history lights may turn on; this is normal. However, the red event lights should not stay on.

4. Steps 5 through 8 of this procedure apply only if one of the Electrical/Optical Plug-in Interface Modules (Option 03 or Option 04) is installed in your CTS850.
5. To check the STM-1 rate, perform the setup sequence:

Press Menu Button	Select Menu Page	Highlight Parameter	Select Choice
TRANSMIT	TRANSMIT SETTINGS	Transmit Rate	STM-1

6. Press the **CLEAR HISTORY** button, wait two seconds, and then verify that no yellow history lights are on.

- If your CTS850 does not have STM-4 capability, you have completed the incoming inspection test. To check the STM-4 rate, perform the setup sequence:

Press Menu Button	Select Menu Page	Highlight Parameter	Select Choice
TRANSMIT	TRANSMIT SETTINGS	Transmit Rate	STM-4

- Press the **CLEAR HISTORY** button, wait two seconds, and then verify that no yellow history lights are on.

PDH Signals

This test checks that the CTS850 transmits and receives error-free signals at all PDH rates.

Equipment Required	75 BNC coaxial cable for 2 Mb/s Unbalanced, 34 Mb/s and 140 Mb/s electrical loop-back 120 Siemens Cable for 2 Mb/s Balanced electrical loop-back
Prerequisites	CTS850 warmed up at least twenty minutes
Time Required	Approximately five minutes

- Attach electrical and optical loop-back cables from the OUT outputs to the IN inputs.

2. Perform the initial setup of the CTS850 with the following sequence:

Press Menu Button	Select Menu Page	Highlight Parameter	Select Choice
TEST SETUPS	RECALL INSTRUMENT SETUPS	DEFAULT FACTORY SETTINGS	Recall Setup
TRANSMIT	TRANSMIT SETTINGS	Tx/Rx Setup	Coupled
		Transmit Rate	2 Mb/s Balanced

3. To check the 2 Mb/s Balanced rate, press the **CLEAR HISTORY** button, wait two seconds, and then verify that no yellow history lights are on.
4. To check the 2 Mb/s Unbalanced rate, set the transmit rate as follows:

Press Menu Button	Select Menu Page	Highlight Parameter	Select Choice
TRANSMIT	TRANSMIT SETTINGS	Transmit Rate	2 Mb/s Unbalanced

NOTE. When changing the transmit rate, the LOP, LOS, and LOF history lights may turn on; this is normal. However, the red error lights should not stay on.

5. Press the **CLEAR HISTORY** button, wait two seconds, and then verify that no yellow history lights are on.

6. To check the 34 Mb/s rate, perform the setup sequence:

Press Menu Button	Select Menu Page	Highlight Parameter	Select Choice
TRANSMIT	TRANSMIT SETTINGS	Transmit Rate	34 Mb/s

7. Press the **CLEAR HISTORY** button, wait two seconds, and then verify that no yellow history lights are on.

8. To check the 140 Mb/s rate, perform the setup sequence:

Press Menu Button	Select Menu Page	Highlight Parameter	Select Choice
TRANSMIT	TRANSMIT SETTINGS	Transmit Rate	140 Mb/s

9. Press the **CLEAR HISTORY** button, wait two seconds, and then verify that no yellow history lights are on.

This completes the incoming inspection test.