

Quick Card

T-BERD 5800 Network Tester

C37.94 Bit Error Rate Testing (BERT)

This quick card describes how to configure and run a C37.94 Optical Bit Error Rate Test to a hard loop or another similarly configured T-BERD/MTS 5800.

Equipment Requirements:

- T-BERD 5800 equipped with the following:
 - BERT software release V27.2 or greater
 - C5C3794 ITU C37.94 Optical BERT option
 - C37.94 capable optical transceiver (SFP) to match the line under test
- Patch cables to match the optical transceiver and the line under test
- Fiber optic inspection microscope (P5000i or FiberChek Probe)
- Fiber optic cleaning supplies



Figure 1: Equipment Requirements

The following information is required to complete the test:

- Clock Source (Internal or Recovered)
- Data Rate (Number of 64K Channels)
- Test Pattern(s)
- BER Pass/Fail Threshold

Fiber Inspection Guidelines:

- All fiber end-faces must be clean and pass an inspection test prior to connection.
- Use the VIAVI P5000i or FiberChek Probe microscope to inspect both sides of every connection being used (SFP Port, bulkhead connectors, patch cords, etc.)

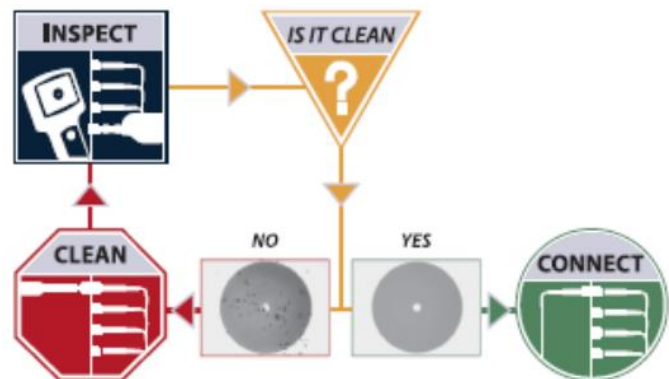


Figure 2: Inspect Before You Connect



Connect to Fiber Under Test:

1. Insert **C37.94 optics** into the **Port 1 SFP/SFP+** slot on the top of the T-BERD/MTS.
2. After inspecting the fiber end faces, connect the **C37.94 optics** to the fiber under test using an LC-LC jumper cable.



Figure 3: T-BERD/MTS 5800v2 Dual Port mainframe

Launch and Configure Test:

1. Press the Power button  to turn on the test set.
2. Press the Test icon  at the top of the screen.
3. Using the **Select Test** menu, **Quick Launch** menu, or **Job Manager**, launch the **C37.94 BERT►P1 Terminate** test.

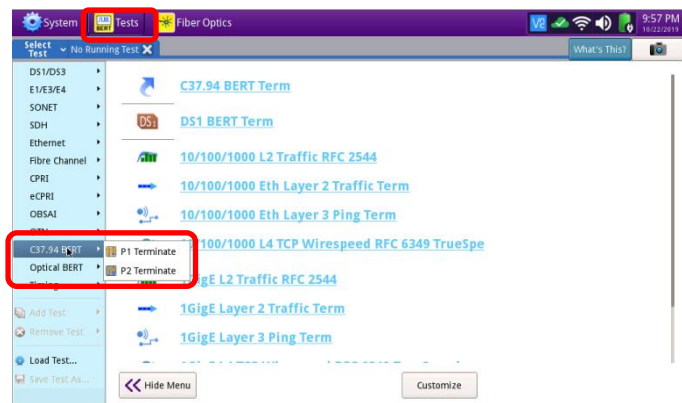






Figure 4: Launch Screen

4. Tap  to open the **Tools Panel** and select .
5. Press  to continue.
6. Press the **Setup** Soft Key, , on the top right side of the screen.

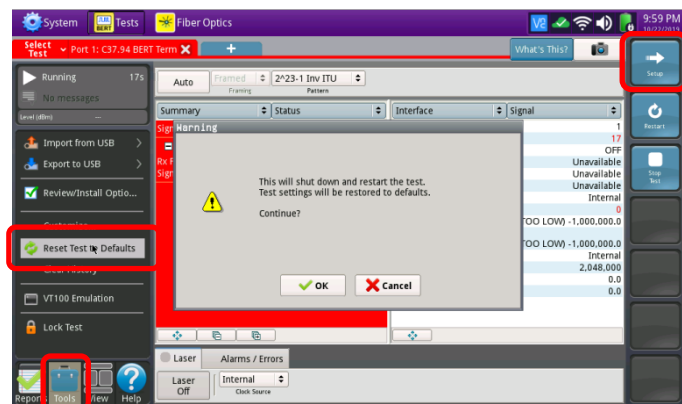


Figure 5: Tools Panel

7. Review the displayed **SFP** information to verify that the correct optics are installed.
8. Select the **Signal** folder and configure the **Clock Source**:
 - Select **Internal** if the T-BERD/MTS is to provide clock to the Multiplexor
 - Select **Recovered** if the Multiplexor is providing clock to the T-BERD/MTS.
 - Note: Only one device on the C37.94 circuit should be set to provide internal clock. Multiple Clocks will cause intermittent **Bit/TSE Errors** and **Patterns Slips**.

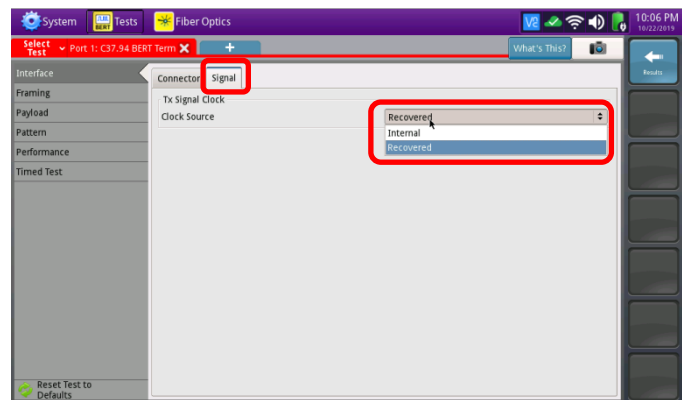



Figure 6: Signal Setup

9. Tap **Payload** to display data rate settings.
10. Enter the value for **N**, the number of 64K channels on the interface (1 through 12).
11. Press the **Results** Soft Key  to view the **Test Results** screen.

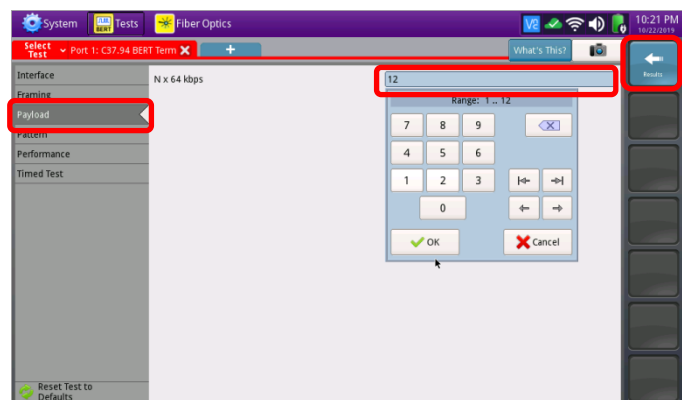





Figure 7: Payload Setup

12. Using the drop-down menus, select **“Payload/BERT”** for the right Results display.
13. Select the **Laser** tab in the **Actions** panel, and tap . The button will turn yellow and be relabeled .
14. Press the **Restart** soft key .
15. Verify the following:
 - **Signal Present** LED is green
 - **Frame Sync** LED is green
 - **Pattern Sync** LED is green
 - **Summary/Status** results shows **‘ALL SUMMARY RESULTS OK’**

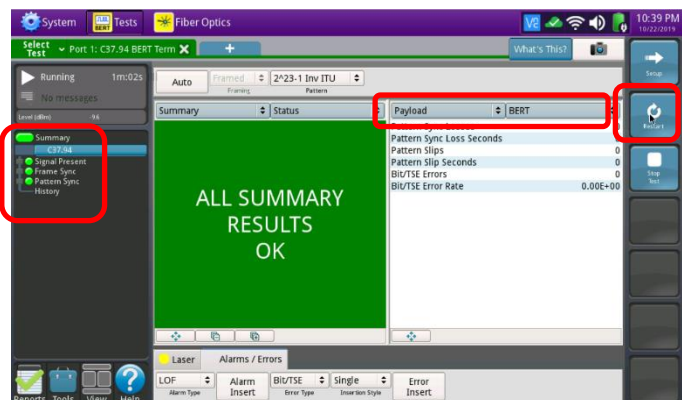


Figure 8: Results

16. Allow the test to run for desired duration and verify the following:

- **Bit/TSE Error Rate** result does not exceed your required threshold. (0.00E+00 if pass/fail threshold unknown)

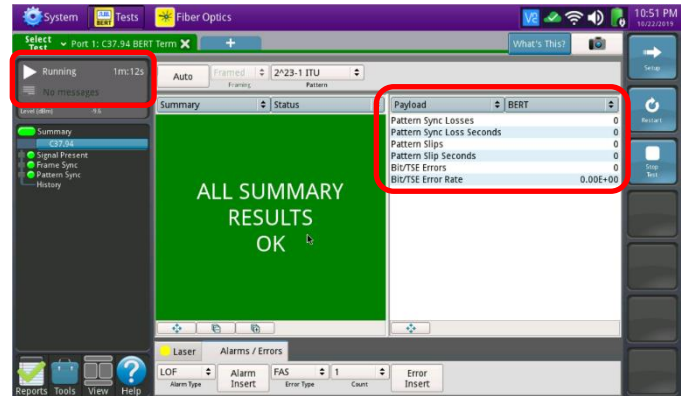



Figure 9: Test Results Screen, Payload/BERT

17. In the T-BERD/MTS's **Quick Config** menu, change "Pattern" to the next value in the test plan.

18. Press the **Restart** soft key  to reset results.

19. Allow test to run for desired duration and verify the following:

- **Pattern Sync** LED is green.
- **Bit/TSE Error Rate** does not exceed your required threshold. (0.00E+00 if pass/fail threshold unknown)

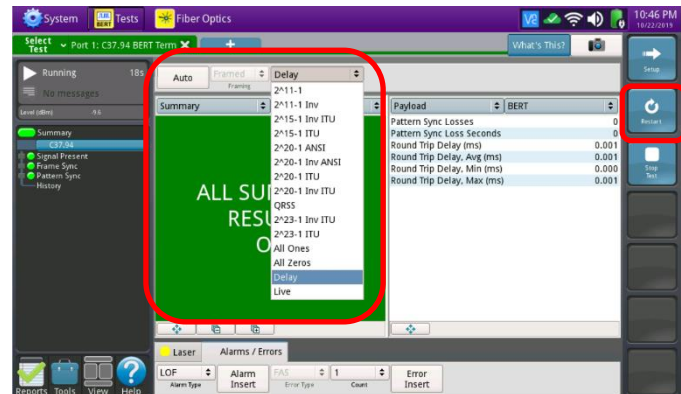


Figure 10: Test Plan

20. Repeat steps 17 through 19 for all Patterns in the test plan. Patterns may include:

- **QRSS** Simulates live traffic
- **All Zeros** Tests for DS1 channels mis-optimized for AMI
- **Delay** Measures Round Trip Delay (RTD) instead of Bit Errors (RTD values are shown instead of BER in the "Payload/BERT" results display)