

QUICK CARD

C37.94 Bit Error Rate Testing (BERT)






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

- T-BERD/MTS 5800 equipped with the following:
 - Transport software release V31.2.1 or greater
 - C5C3794 ITU C37.94 Optical BERT option
- C37.94 capable optical transceiver (SFP) to match the line under test (1310nm Single mode or 850nm Multimode)
- Cables to match the optical transceiver and the line under test (Single mode or Multimode)
- Fiber optic inspection microscope (P5000i or FiberChek Probe)
- Fiber optic cleaning supplies



Figure 1: Equipment Requirements

LAUNCH TEST

1. Press the Power button  to turn on the T-BERD/MTS.
2. Press the **Test** icon  at the top of the screen to display the **Launch Screen**.
3. Using the **Select Test** menu, Quick Launch menu, or Job Manager, launch the C37.94 BERT test on Port 1:
C37.94 BERT ▶ P1 Terminate.
4. Tap  to open the **Tools Panel** and select .
5. Press  to continue.

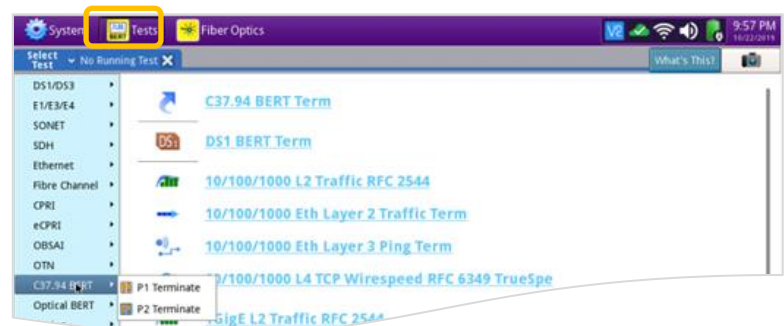


Figure 2: Launch Screen

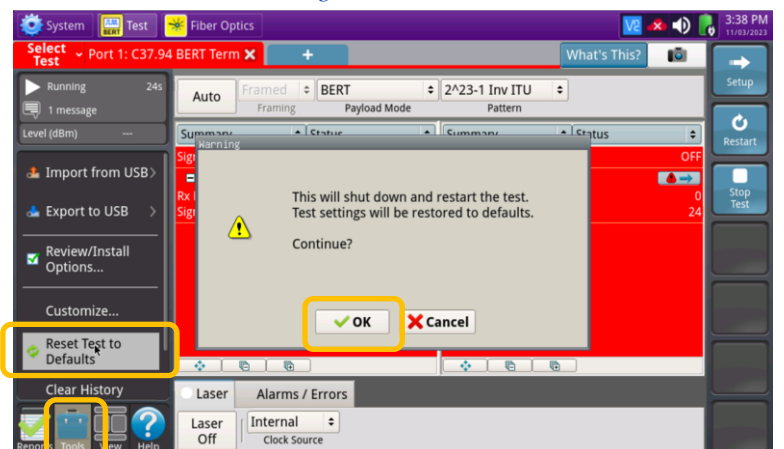


Figure 3: Tools Panel

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CONFIGURE TEST

The following Information is needed to configure the test:

- Clock Source (Internal or Recovered)
- Data Rate (Number of 64K Channels)
- Test Pattern(s) (default is 2^23-1 ANSI)
- BER Pass/Fail Threshold



Figure 4: Work Order

1. Insert desired C37.94 optics into the **Port 1 SFP/SFP+** slot on the top of the T-BERD/MTS.
2. Press the **Setup** soft key  on the top right side of the screen.
3. Select the **Interface/Connector** folder.
4. Review **SFP** information in the **Connector** tab. Verify that the correct optics are installed.
5. Select the indicated folders and configure your test as follows. Leave all other values at default, unless specified in the work order.

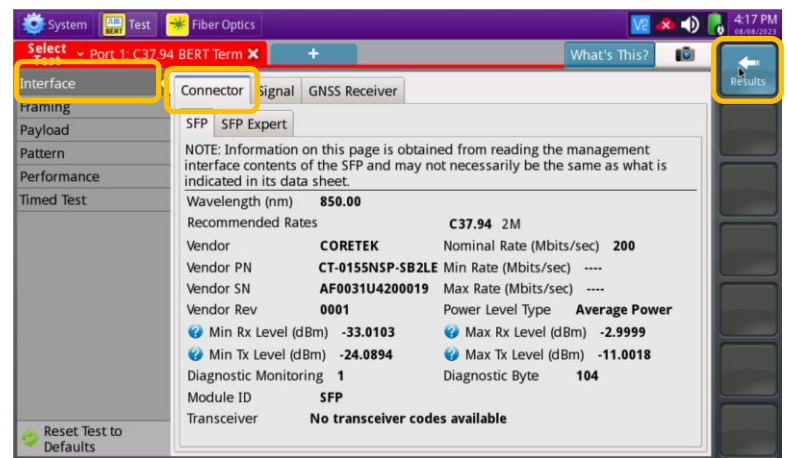


Figure 5: Setup, Interface/SFP

Folder	Option	Value(s)
Interface, Signal	Clock Source	<ul style="list-style-type: none"> • Select Internal to provide clock to the Multiplexor or far end T-BERD/MTS • Select Recovered if the Multiplexor or far-end T-BERD/MTS is providing clock to this 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.
Payload	N x 64 kbps	Enter the value for N , the number of 64K channels. Enter 12 to test all channels.
Pattern	Pattern Mode	ANSI
	Pattern	QRSS

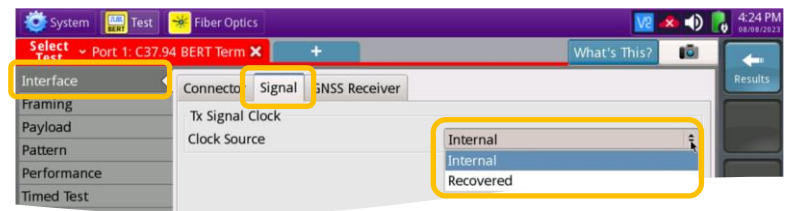


Figure 6: Setup, Interface/Signal

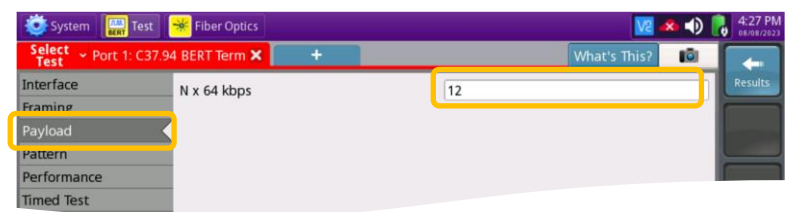


Figure 7: Setup, Payload

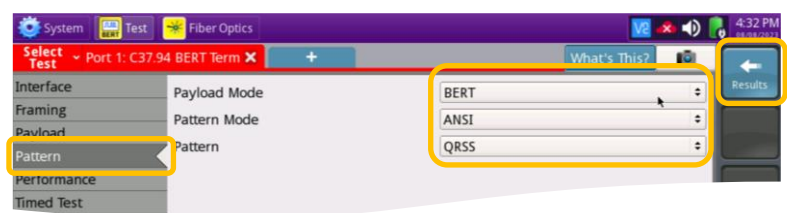



Figure 8: Setup, Pattern

6. Press the **Results** soft key  to view the Test Results screen.

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CONNECT TO LINE UNDER TEST

- Use the VIAVI P5000i or FiberChek Probe microscope to inspect both sides of every connection being used (SFP, attenuators, patch cables, bulkheads)
 - Focus fiber on the screen.
 - If it appears dirty, clean the fiber end-face and re-inspect.
 - If it appears clean, run inspection test.
 - If it fails, clean the fiber and re-run inspection test. Repeat until it passes.
- Connect the SFP to the port under test using a jumper cable compatible with the line under test.

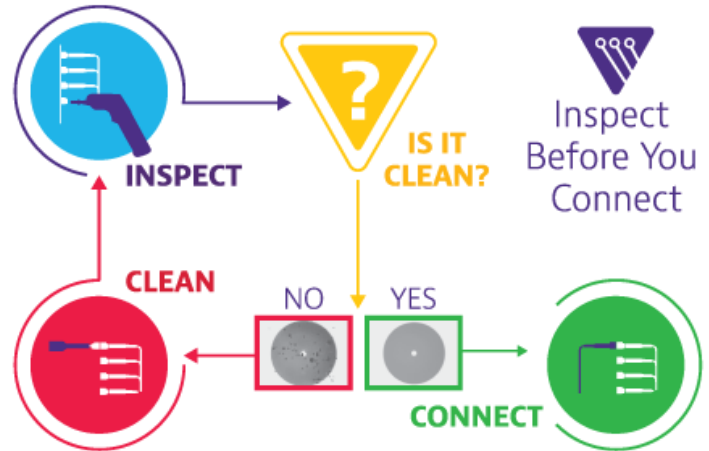


Figure 9: Inspect Before You Connect

RUN TEST

- Using drop-down menus , select **“Payload/BERT”** for the right results display.
- Select the **Laser** tab in the Actions panel, and press . The button will turn yellow and be relabeled .
- Press the **Restart** soft key .
- Verify the following:
 - Level (dBm)** is within the Rx Level range of the SFP.
 - Summary** LED is green.
 - Signal Present** LED is green.
 - Frame Sync** LED is green.
 - Pattern Sync** LED is green.
 - Summary/Status** results shows **‘ALL SUMMARY RESULTS OK’**
- 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)

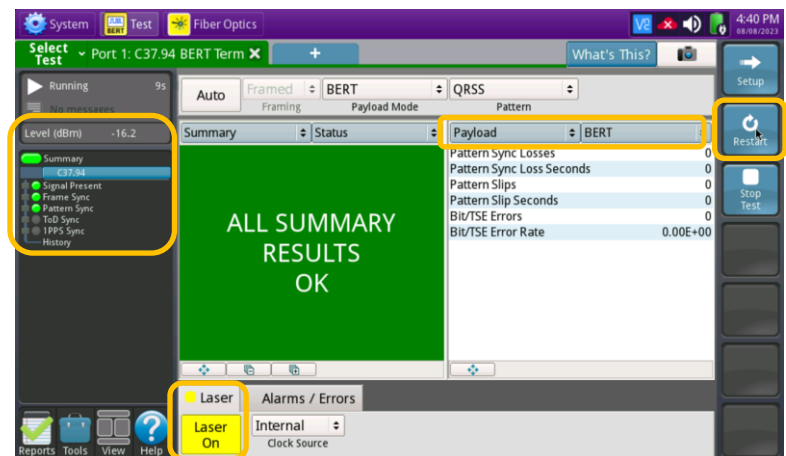



Figure 10: Results, Payload BERT

Status	Tip
Signal Present LED not green	Check your cables . Tx and Rx may be reversed.
Pattern Sync LED not green	There may be no loop or no connectivity to the far end test instrument. The Payload and Pattern settings may not match the far end test instrument.
Pattern Slips incrementing	Clock Source is set incorrectly. Change Clock Source to “Recovered.”

Figure 11: Troubleshooting Tips

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6. In the T-BERD/MTS **Quick Config** menu, change “**Pattern**” to the next value in the test plan.
7. Press the **Restart** soft key  to reset results.
8. Allow test to run for desired duration and verify the following:
 - ▶ **Pattern Sync** LED is green.
 - ▶ **Bit/TSE Error Rate** or **Round Trip Delay** does not exceed your required threshold.
 - ▶ Repeat steps 6 through 8 for all **Patterns** in the test plan. Patterns may include **Delay** to measures **Round Trip Delay** (RTD) instead of Bit Errors. RTD values are shown instead of BER in the “Payload/BERT” results display.

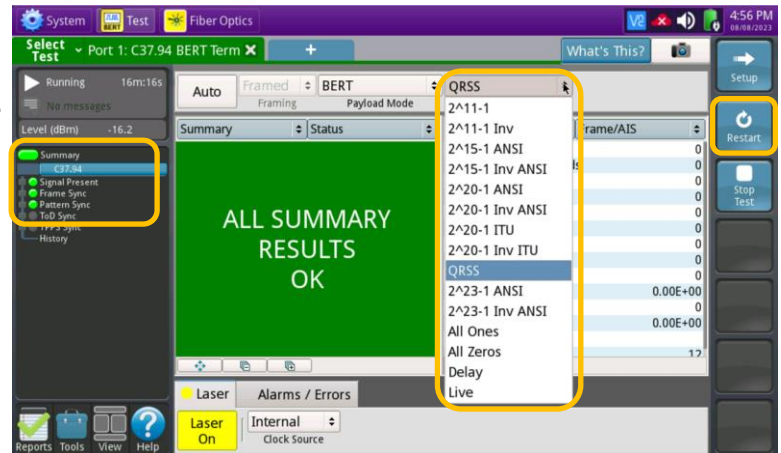

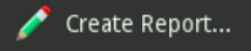



Figure 12: Results, Quick Config

CREATE REPORT

1. Tap  to open the **Reports** Panel and select .
2. Tap .
3. A report will be saved to the T-BERD/MTS **/bert/reports** folder.

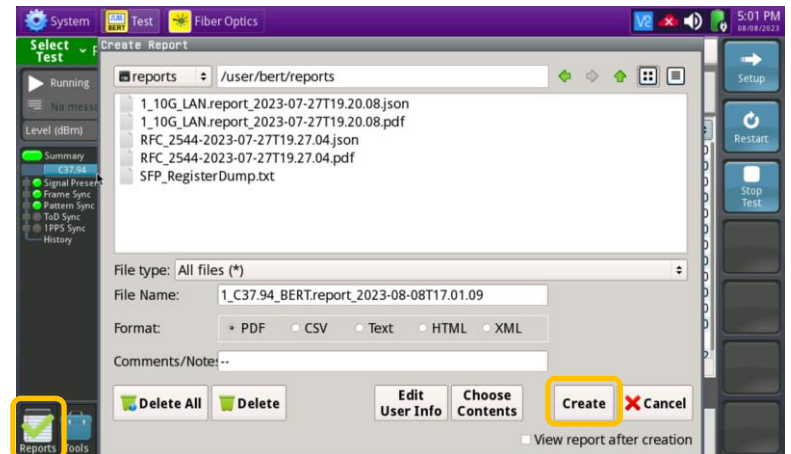


Figure 13: Create Report