QUICK CARD

# T1 Bit Error Rate Testing (BERT)

This quick card describes how to configure and run a T1 Bit Error Rate Test to a hard loop, or another similarly configured T-BERD.

- T-BERD/MTS 5800 equipped with the following:
  - BERT software release V30.1.0 or greater
  - C5E1DS1 test option: E1/DS1 Electrical
  - C5DUALPORT test option: Dual Port option (required on T-BERD 5800-100G only)
- One of the following T1 cable sets to connect the T-BERD 5800 DS1 Port(s) to the line under test:
  - Two (2) Bantam to Bantam cables (CB-10615)
  - Dual Bantam to RJ-48C cable (CB-41645)
  - RJ-48C Patch cable (Straight-through or cross-over depending upon equipment under test)


*Figure 1: Equipment Requirements*

## LAUNCH TEST

1. Press the Power button to turn on the T-BERD.
2. Press the **Test** icon Tests 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 **DS1/DS3►DS1►DS1 BERT►Terminate** test.

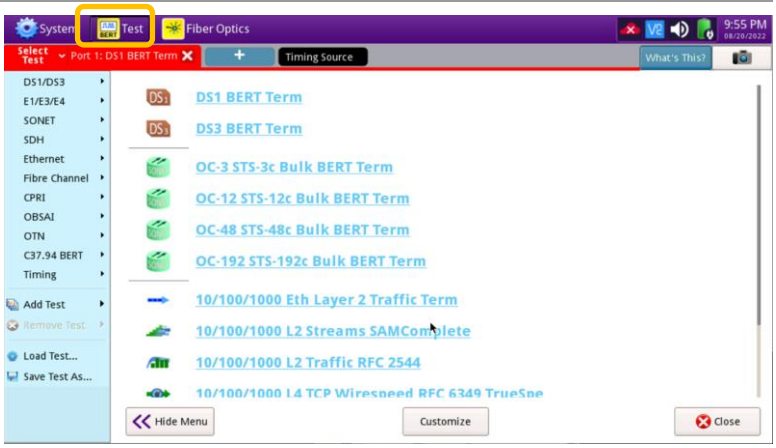


*Figure 2: Launch Screen*

4. Tap Tools to open the **Tools** Panel and select Reset Test to Defaults.
5. Press OK to continue.

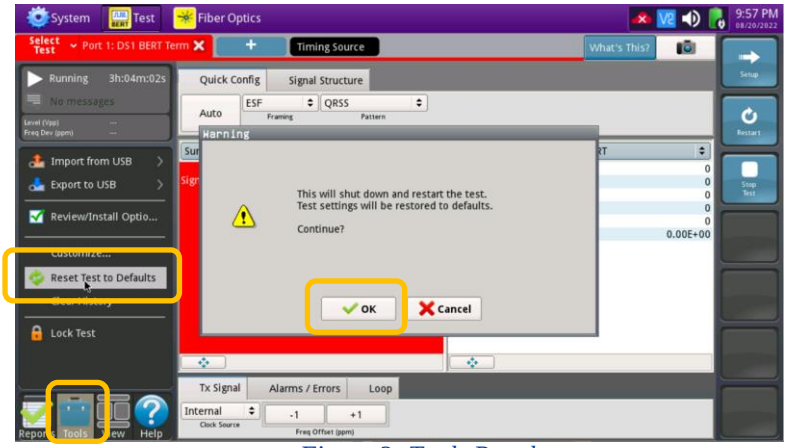


*Figure 3: Tools Panel*

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## CONFIGURE TEST

- The following Information is needed to configure the test:
  - T1 Line Code (B8ZS or AMI)
  - T1 Framing (ESF or D4)
  - Clock Source (Internal or Recovered)
  - Test Patterns(s)
  - BER Pass/Fail Threshold

*Figure 4: Work Order*

1. Press the **Setup** soft key 

on the top right side of the screen.

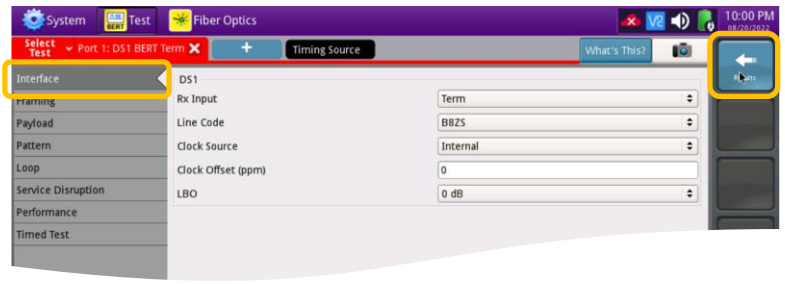


*Figure 5: Setup, Interface*

2. Select the indicated folders and configure your test as follows. Leave all other values at default, unless specified in the work order.

| Folder | Option | Value(s) |
|---|---|---|
| Interface | Rx Input | Term |
| | Line Code | If unknown, select “B8ZS” |
| | Clock Source | If unknown, select “Internal” |
| | Clock Offset | 0 ppm |
| | LBO | 0 dB |
| Framing | Framing | If unknown, select “ESF” |
| Pattern | Pattern Mode | ANSI |
| | Pattern | QRSS |

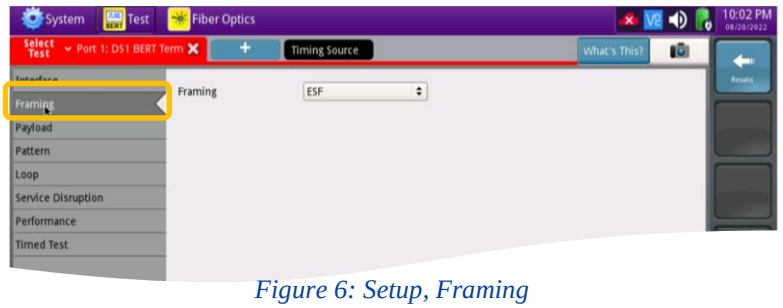


*Figure 6: Setup, Framing*

3. Press the **Results** soft key 

to view the Test Results screen.

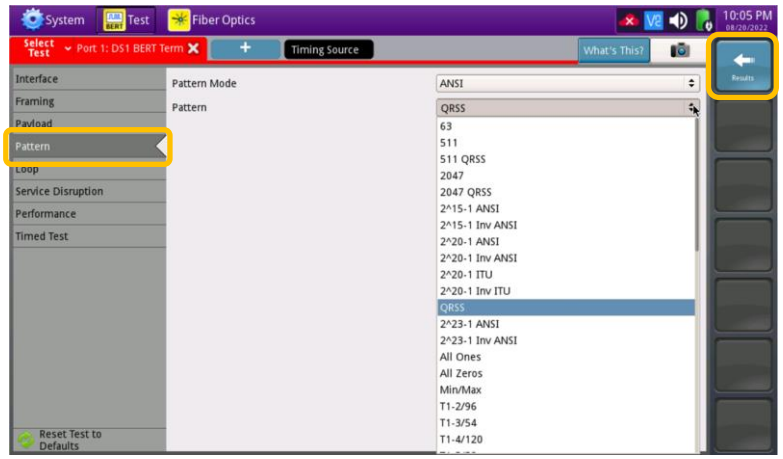


*Figure 7: Setup, Pattern*

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## CONNECT TO LINE UNDER TEST

- T-BERD 5811 AND T-BERD 5822 mainframes have both RJ-48C and bantam ports. You may use Bantam to Bantam, Dual Bantam to RJ-48C, RJ-48C straight through, or RJ-48C crossover cables to connect the T-BERD to the line under test.
- T-BERD 5882 and T-BERD 5800-100G mainframes have an RJ-48C port. Dual Bantam to RJ-48C, RJ-48C straight through, or RJ-48C crossover cables may be used.

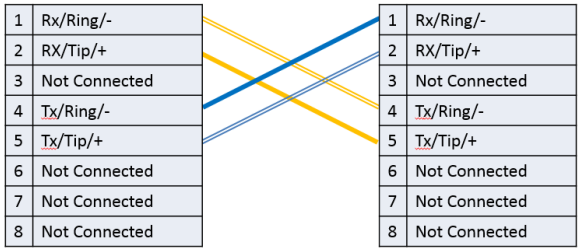


*Figure 8: RJ-48C Crossover Cable*

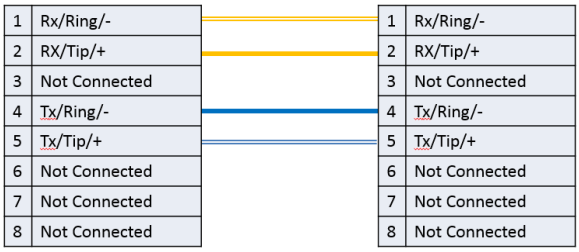


*Figure 9: RJ-48C Straight Through Cable*

## RUN TEST

1. Using drop-down menus , select "**Interface/Signal**" for the right results display.
2. Press the Restart soft key .
3. Verify the following:
   - **Summary** LED is green.
   - **Signal Present** LED is green.
     If the LED is red, check your cables.
     Tx and Rx may be reversed.
   - **Frame Sync** LED is green.
   - **RX Frequency (Hz)** = 1544000 +/- 50 Hz.

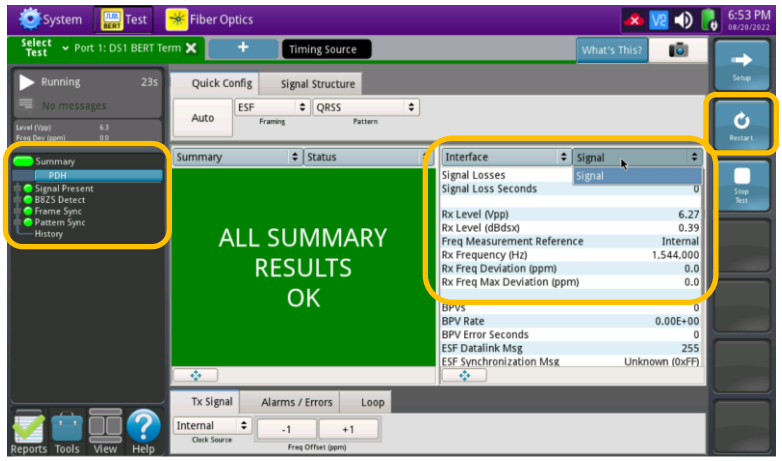


*Figure 10: Results, Interface/Signal*

4. Using drop-down menus , select "**Payload/BERT**" for the right results display.
5. Allow the test to run for desired duration and verify the following:
   - **Pattern Sync** LED is green.
   - **Bit/TSE Error Rate** result does not exceed your required threshold. (0.00E+00 if pass/fail threshold unknown)

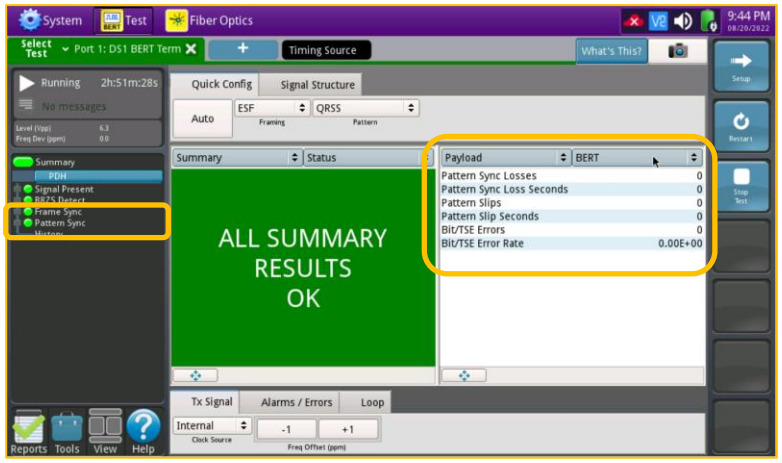


*Figure 11: Results, Payload BERT*

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6. In the T-BERD's **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** does not exceed your required threshold. (0.00E+00 if pass/fail threshold unknown)
9. Repeat steps 6 through 8 for all **Patterns** in the test plan. Patterns may include:
   - **QRSS**: Simulates live T1 traffic
   - **All Zeros**: Tests for equipment mis-optioned for AMI
   - **Multipat**: Five commonly used test patterns to allow BER testing without having to select each test pattern individually. Patterns are: All Ones, 1:7, 2 in 8, 3 in 24, and QRSS. Results are shown in the "DS1/Multipat" results display.
   - **Delay**: Measures Round Trip Delay (RTD) instead of Bit Errors (RTD values are shown instead of BER in the "Payload/BERT" results display)

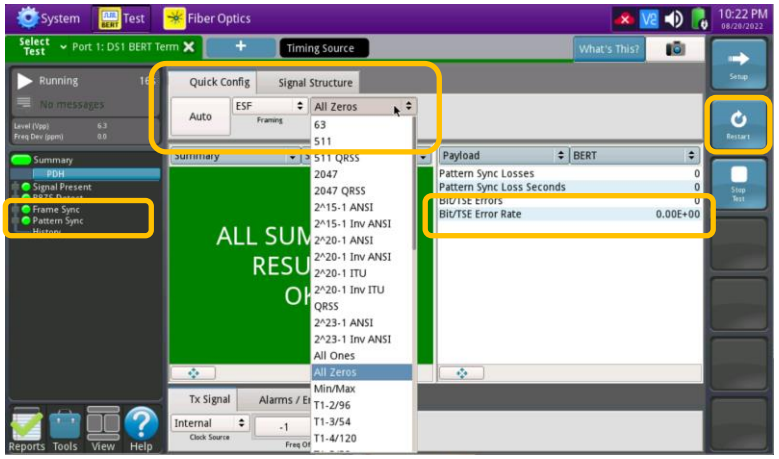



*Figure 12: Results, Quick Config*

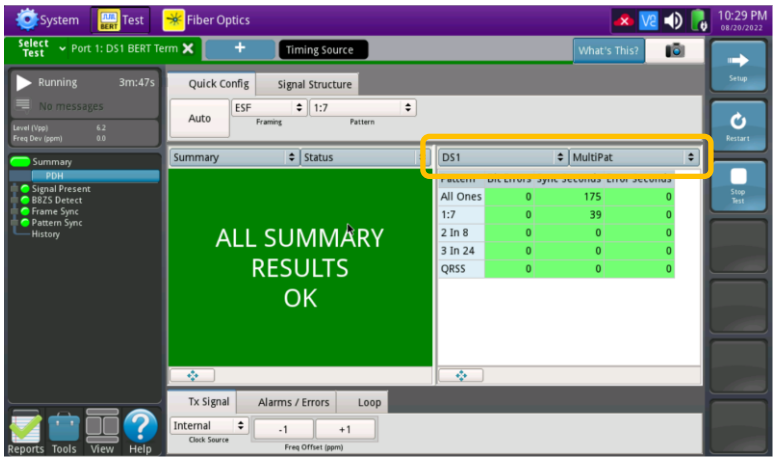
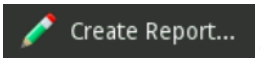
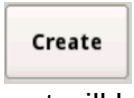



*Figure 13: Results, DS1/MultiPat*

## CREATE REPORT

1. Tap  to open the **Reports** Panel and select  .
2. Tap  .
3. A report will be saved to the T-BERD 5800's **/bert/reports** folder.

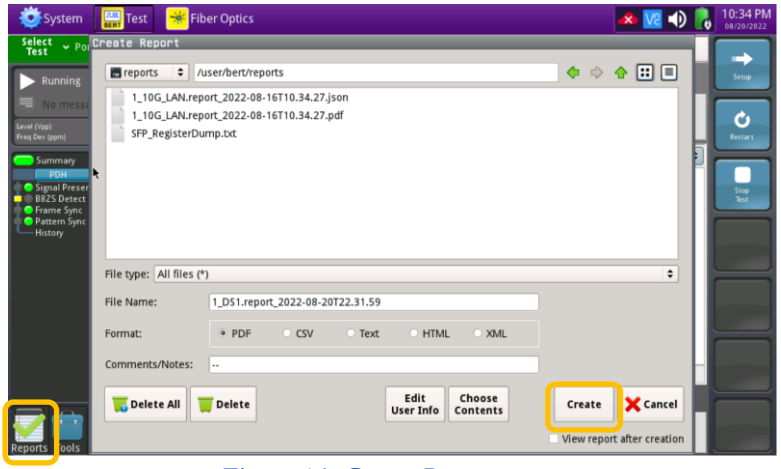



*Figure 14: Create Report*



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