T-BERD/MTS 5800 Portable Network Tester



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)

LAUNCH TEST

- 1. Press the Power button 6 to turn on the T-BERD.
- 2. Press the **Test** icon **E** at the top of the screen to display the **Launch Screen**.
- Using the Select Test menu, Quick Launch menu, or Job Manager, launch the DS1/DS3 ► DS1 ► DS1 BERT ► Terminate test.

4.	Tap 💼 to open the Tools Panel and
	Select 😋 Reset Test to Defaults 🛛
5.	Press 🔭 to continue.

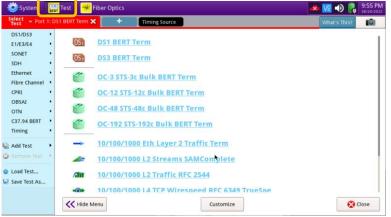


Figure 1: Equipment Requirements

Figure 2: Launch Screen



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

Select - Port 1: DS1 B	ERT Term 🗙 🕂 Timing Source		What's This?
nterface	DS1		
raming	Rx Input	Term	•
Payload	Line Code	B8ZS	•
Pattern	Clock Source	Internal	•
oop	Clock Offset (ppm)	0	
Service Disruption	LBO	0 dB	•
Performance	1		
Timed Test			



- 1. Press the **Setup** soft key and the top right side of the screen.
- 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)	
	Rx Input	Term	
	Line Code	lf unknown, select "B8ZS"	
Interface	Clock Source	lf unknown, select "Internal"	
	Clock Offset	0 ppm	
	LBO	0 dB	
Framing	Framing	lf unknown,	
Framing	Framing	select "ESF"	
Pattern	Pattern Mode	ANSI	
Fallem	Pattern	QRSS	

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

🔅 System 🔛 Test 🏾 😽 Fiber Optic		📣 🚾 🕕 💦 10:02 PM
Select - Port 1: DS1 BERT Term 🗙 - +	Timing Source	What's This?
Interface Framing	ESF \$	Persidt
Framing	(c)r	
Payload		
Pattern		
Loop		
Service Disruption		
Performance		
Timed Test		



System 🔛 Te	st 🛛 😽 Fiber Optics	🔺 🚾 🌒 🦉	08/20/202
Select ~ Port 1: DS1 B	ERT Term 🗙 🕂 Timing Source	What's This?	
Interface	Pattern Mode	ANSI \$	Results
Framing	Pattern	QRSS	1
Pavload		63	
		511	
Loop		511 QRSS	
Service Disruption	-	2047 2047 QRSS	-
		2047 QRSS 2^15-1 ANSI	
Performance		2^15-1 Inv ANSI	
Timed Test		2^20-1 ANSI	
		2^20-1 Inv ANSI	
		2^20-1 ITU	
		2^20-1 Inv ITU	
		QRSS 2^23-1 ANSI	
		2^23-1 ANSI 2^23-1 Inv ANSI	
		All Ones	
		All Zeros	
		Min/Max	
		T1-2/96	
Reset Test to Defaults		T1-3/54 T1-4/120	

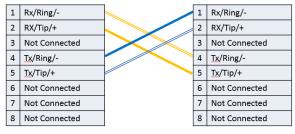
Figure 7: Setup, Pattern



QUICK CARD

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.



Rx/Ring/-1 1 Rx/Ring/-2 RX/Tip/+ 2 RX/Tip/+ 3 Not Connected 3 Not Connected 4 Tx/Ring/-4 Tx/Ring/-5 5 Tx/Tip/+ Tx/Tip/+ 6 Not Connected 6 Not Connected 7 Not Connected 7 Not Connected 8 Not Connected 8 Not Connected Figure 9: RJ-48C Straight Through Cable

Figure 8: RJ-48C Crossover Cable

RUN TEST

- 1. Using drop-down menus 主 , select "Interface/Signal" for the right results display.
- 2. Press the Restart soft key
- Verify the following: 3.
 - 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.
- 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)

× Quick Config Signal Structure QRSS
 Pattern Auto Ċ Status Interface Signal Losses Signal Loss Seconds Rx Level (Vpp) Rx Level (dBdsx) Freq Measurement Reference Rx Freq Deviation (ppm) Rx Freq Max Deviation (ppm) ALL SUMMARY RESULTS 0.0 OK 0.00E+00 BPV Rate BPV Error Seconds ESF Datalink Msg ESF Synchronization Msg Tx Signal Alarms / Errors Loop nternal Cleck Sour -1 +1

Select v Port 1: DS1 BERT T	erm 🗙	Timing Source	_		What's This?	
Running 2h:51m:28s	Quick Co	onfig Signal Structure				Set
No messages	Auto	ESF QRSS Framing Pattern	÷			C
eq Dev (ppm) 0.0	Summary	¢ Status		Payload Pattern Sync Losses	¢ BERT	Rest.
Signal Present B275 Direct Prame Sync Pattern Sync Haters	A	LL SUMMARY RESULTS OK		Pattern Sync Loss Second Pattern Slips Pattern Slip Seconds Bit/TSE Errors Bit/TSE Error Rate	ls	0.000+00
* ** 60 /	Tx Signal	Alarms / Errors Loop		•	-	

Figure 11: Results, Payload BERT

Figure 10: Results, Interface/Signal

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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)

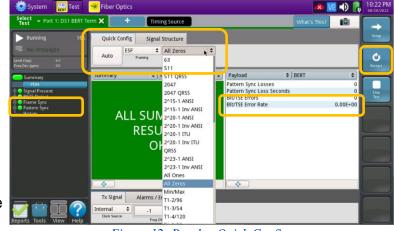


Figure 12: Results, Quick Config



Figure 13: Results, DS1/MultiPat

CREATE REPORT



3. A report will be saved to the T-BERD 5800's /bert/reports folder.

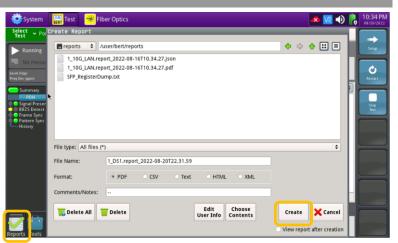


Figure 14: Create Report

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