

Quick Card

T-BERD 6000Av2 Network Tester Datacom Bit Error Rate Testing (BERT)

This quick card describes how to configure the T-BERD 6000A as Data Terminal Equipment (DTE) and run a Bit Error Rate Test on a Datacom interface using typical configuration settings. Please refer to the **MSAM Data Communication and Diphase Testing Manual** for an explanation of all settings.

Equipment Requirements:

- T-BERD 6000Av2 equipped with the following:
 - o BERT software release V26.3 or greater
 - Test options:
 - High Speed Datacom test option (VIAVI Part# CTHSDATA)
- Multi-Services Application Module (VIAVI Part# C1010V2)
- Datacom Physical Interface Module (PIM) (VIAVI Part# CPHSDATAV2)
- One of the following Datacom cables to connect the Datacom PIM to the line under test:
 - RS-232/V.24, MIL-188c, EIA-530 Cable (VIAVI Part# CB-44385)
 - o RS-449/V.36 Cable (VIAVI Part# CB-44388)
 - o V.35 Cable (VIAVI Part# CB-44390)

The following information is required to complete the test:

- Interface (RS-232/V.24, MIL-188c, EIA-530, RS-449/V.36, or V.35)
- Signal Mode (Balanced or Unbalanced)
- Timing Mode (Synchronous or Asynchronous)
- Rx Timing Source (Internal, Interface, or Recovered)
- Tx Timing Source (Internal or Interface)
- Out of Band Flow Control (On or Off)
- Test Patterns(s)
- BER Pass/Fail Threshold

Connect to Line Under Test:

- Connect the desired Datacom cable to the Datacom PIM.
- Use the connector labeled "To DCE" to connect to the line under test.



Figure 1: Equipment Requirements



Launch and Configure Test:

- 1. Press the Power button 📖 to turn on the test set.
- 2. Press the Home button and tap the

BERT icon to launch the MSAM.



Figure 2: Home screen

3. Using the Select Test menu or Quick Launch menu, launch the HS Datacom HS Datacom BERT ► Terminate test.



Figure 3: Launch Screen



Figure 4: Reset Test to Defaults

- 4. Tap the tools menu and select Reset Test to Defaults
- 5. Press **Vok** to continue.



6. Press the **Setup** Soft Key, *interception*, on the top right side of the screen. Select the indicated tabs and configure your test as follows. Leave all other values at default, unless specified in the work order.

Folder	Option	Value(s)	
Interface	Interface	RS-232/V.24, EIA-530, RS-449/V.36, etc.	
	Equipment Type	DTE	
	Signal Mode	Balanced or Unbalanced	
Timing	Timing Mode	Synchronous or Asynchronous	
	Rx Timing Source	Recovered or Interface (RT). If unknown, select Interface (RT).	
	Tx Timing Source	Internal (Synth), External (BNC), or Interface (ST). If unknown, select Interface (ST) for Synchronous timing, select Internal (Synth) for Asynchronous timing.	
	Synthesizer Frequency	Enter frequency in kHz; i.e. 9.6 kHz for 9600 bps.	
Pattern	Pattern Mode	ANSI	
	Pattern	Enter the first Pattern in your test plan (QBF, QRSS, etc.)	

- 7. Press the **Results** Soft Key **Form** to view the **Test Results** screen.
- 8. Tap the **Signal Lead** tab at the bottom of the screen and tap the **RTS** and **DTR** buttons.
- 9. Press the **Restart** soft key

Select View Test View P1: HS Datacom BEF	Reports Tools Help 🕥 IT Term	P1: HS Datacom BERT Term Running 1m:14s	Setup			
RS-232/V.24						
Summary	Summary 🗘 Status 🗢	Summary 🗘 Status 🗘	Restart			
Attern Sync Attern Sy	ALL SUMMARY RESULTS OK	ALL SUMMARY RESULTS OK				
Errors Sign	hal Lead Loop					
RTS DT	R LL RL					

Figure 5: Test Results Screen, Signal Leads



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

Select View	Reports Tools Help ᡚ	P1: HS Datacom BERT Ter				
P1: HS Datacom BER	IT Term	Running	3m:24s	Setup		
RS-232/V.24	DTE \$ 9.600 2^23-1 ANS Equipment Synth. Frequency (kHz) Patte	il 🗘		Ċ		
Summary	Summary 🗢 Status 🗧	HS Datacom BERT	÷	Restart		
Patient Sync Patient Syn	ALL SUMMARY RESULTS OK	Pattern Losses Pattern Slips Bit Errors Bit Errors Bit Errors Rate Interval Bit Error Rate Block Errors Error Free Blocks Block Error Rate Interval Block Error Rate	0 0 0.00E+00 0.00E+00 1,551 1,613 0.00E+00 0.00E+00			
Errors Signal Lead Loop						
RTS						

Figure 6: Test Results Screen, HS Datacom/BERT

- 12. In the T-BERD's Quick Config menu, change "Pattern" to the next value in the test plan.
- 13. Press the **Restart** soft key to reset results.
- 14. Allow test to run for desired duration and verify the following:
 - **Pattern Sync** LED is green.
 - Bit Error Rate does not exceed your required threshold. (0.00E+00 if pass/fail threshold unknown)

Select View Reports Tools Help 🔞 P1: HS Datacom BERT Term					
P1: HS Datacom BER	T Term		Running	4m:13s	Setup
RS-232/V.24 \$	DTE \$ 9.600 Equipment Synth. Frequency (k	2^23-1 ANSI ²⁾ Mark	<u><u></u></u>		Ċ
Summary HS Datacom	Summary 🗘 Statu	Space	com CBERT	÷	Restart
Pattern Sync Pattern Invert History		1:3	lips	0	
+ Data Rx		1:7	Rate Bit Error Rate	0.00E+00 0.00E+00	
Control Rx	ALL SUM	3:1 / 7:1	cks ors	1,951 0	
DSR RLSD RI	RESUL	63 511	e Blocks or Rate Block Error Bate	1,951 0.00E+00 0.00E+00	
TM	ОК	2047 2047 Rev 2047 Rev Inv 2^15-1 ANSI 2^15-1 ITU 2~20-1 ANSI		0.002.100	
	* • • •	2^20-1 ITU			
Errors Signal Lead Loop		2^20-1 Inv ANSI 2^20-1 Inv ITU			
RTS DTF	3 LL RL	2^23-1 ANSI			

Figure 7: Test Plan

15. Repeat steps 12 through 14 for all Patterns in the test plan. Patterns may include:

- Simulates live traffic QRSS
- QBF Quick Brown Fox message
- R-Trip Delay

Measures Round Trip Delay (RTD) instead of Bit Errors (RTD values are shown instead of BER in the "Payload/BERT" results display)