

The HDTD_X Analyzer

The HDTD_X[™] (High-Definition Time Domain Crosstalk) analyzer plots the locations and magnitudes of crosstalk on the cabling under test. The analyzer, along with the tester's automatic diagnostics, helps you isolate the causes of NEXT and ELFEXT failures.

Running the HDTD_X Analyzer

After an Autotest, you can view HDTD_X results if the Autotest test failed or had a **PASS*** result, or if **HDTD_X/HDTD_R** in Setup is set to **All AUTOTESTs**.

To see HDTD_X results for a failed Autotest, select **HDTD_X Analyzer** on the Autotest **Summary** screen.

To run the HDTD_X analyzer as a single test:

Note

You can run the HDTD_X analyzer with or without a smart remote. Without a remote, results on short cables may be unreliable.

- 1 Turn the rotary switch to **SINGLE TEST** and verify that the test limit and cable type are correct. Change them in **SETUP** if necessary.
- 2 Attach the appropriate interface adapters to the tester and smart remote.

- 3 Turn on the smart remote; then connect the tester and remote to the cabling.
- 4 Turn the rotary switch to **SINGLE TEST**, select **HDTD_X Analyzer**; then press .
- 5 To run the HDTD_X analyzer continuously, press  **Plot by Pair** to select a pair; then press  to start the scanning function.
- 6 To save the results, press . Select or create a cable ID; then press  again.

Note

*If **Store Plot Data** is set to **No**, the HDTD_X plot will not be included in saved results.*

Figure 6-1 describes the HDTD_X plot.

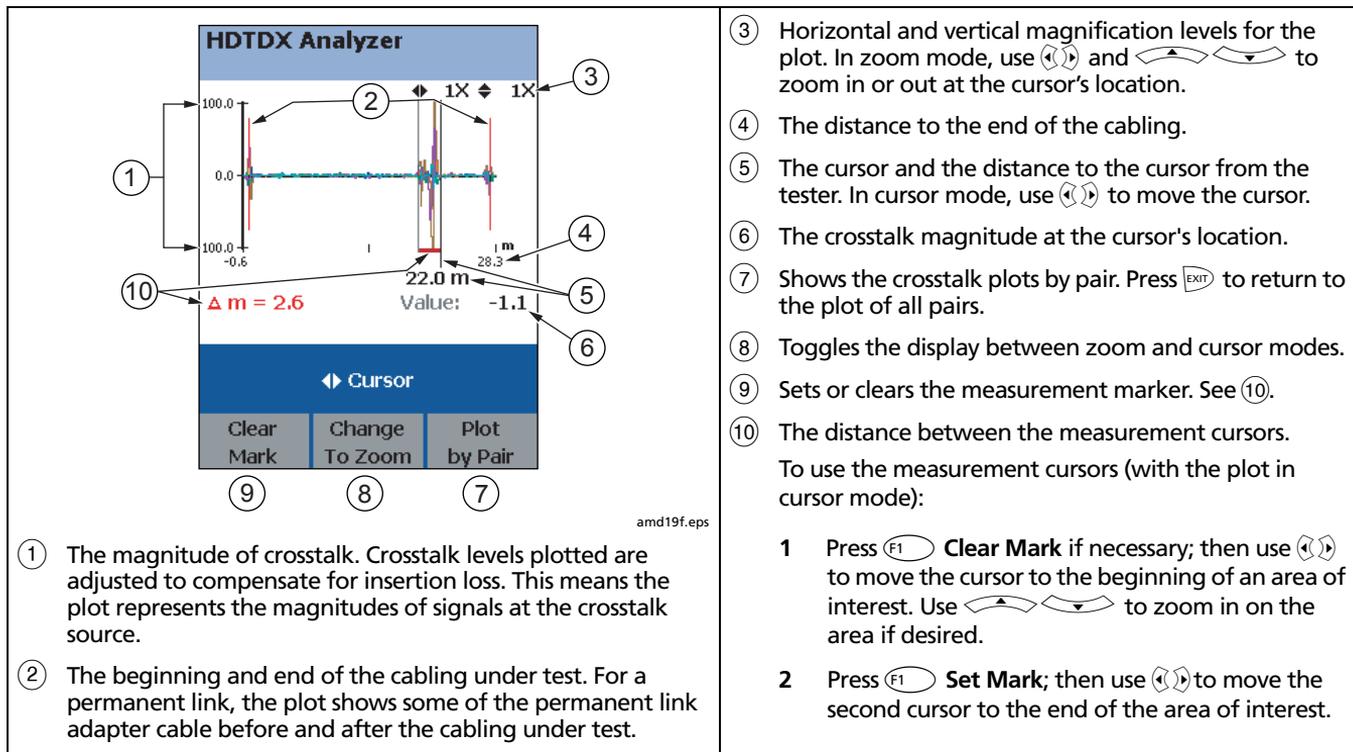


Figure 6-1. HDTDX Plot (permanent link adapters used)

Recognizing Faults on HDTDx Plots

Figure 6-2 shows how some common faults appear on HDTDx plots.

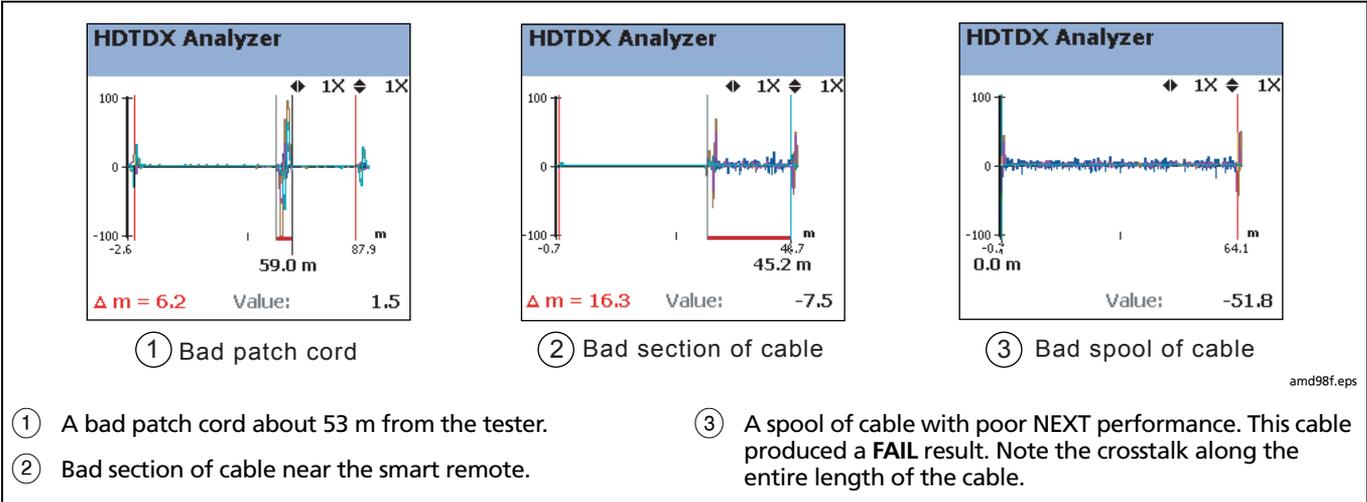


Figure 6-2. Interpreting HDTDx Plots

The HDTDR Analyzer

The HDTDR™ (High-Definition Time Domain Reflectometry) analyzer plots the locations and magnitudes of reflections caused by impedance anomalies. The analyzer, along with the tester's automatic diagnostics, helps you isolate the causes of return loss failures.

Running the HDTDR Analyzer

After an Autotest, you can view HDTDR results if the Autotest test failed or had a **PASS*** result, or if **HDTDX/HDTDR** in Setup is set to **All AUTOTESTs**.

To see HDTDR results for failed Autotest, select **HDTDR** on the Autotest **Summary** screen.

To run the HDTDR test as a single test:

Note

Though you can run the HDTDR analyzer without a smart remote, the following steps assume you are using a remote.

- 1 Turn the rotary switch to **SINGLE TEST** and verify that the test limit and cable type are correct. Change them in **SETUP** if necessary.
- 2 Attach the appropriate interface adapters to the tester and smart remote.

- 3 Turn on the smart remote; then connect the tester and remote to the cabling.
- 4 Turn the rotary switch to **SINGLE TEST**, select **HDTDR Analyzer**; then press **TEST**.
- 5 To run the HDTDR analyzer continuously, press **F3** **Plot by Pair** to select a pair; then press **ENTER** to start the scanning function.
- 6 To save the results, press **SAVE**. Select or create a cable ID; then press **SAVE** again.

Note

*If **Store Plot Data** is set to **No**, the HDTDR plot will not be included in saved results.*

Figure 6-3 describes the HDTDR analyzer plot.

Recognizing Faults on HDTDR Plots

Figure 6-4 on page 6-14 shows how some common faults appear on HDTDR plots.

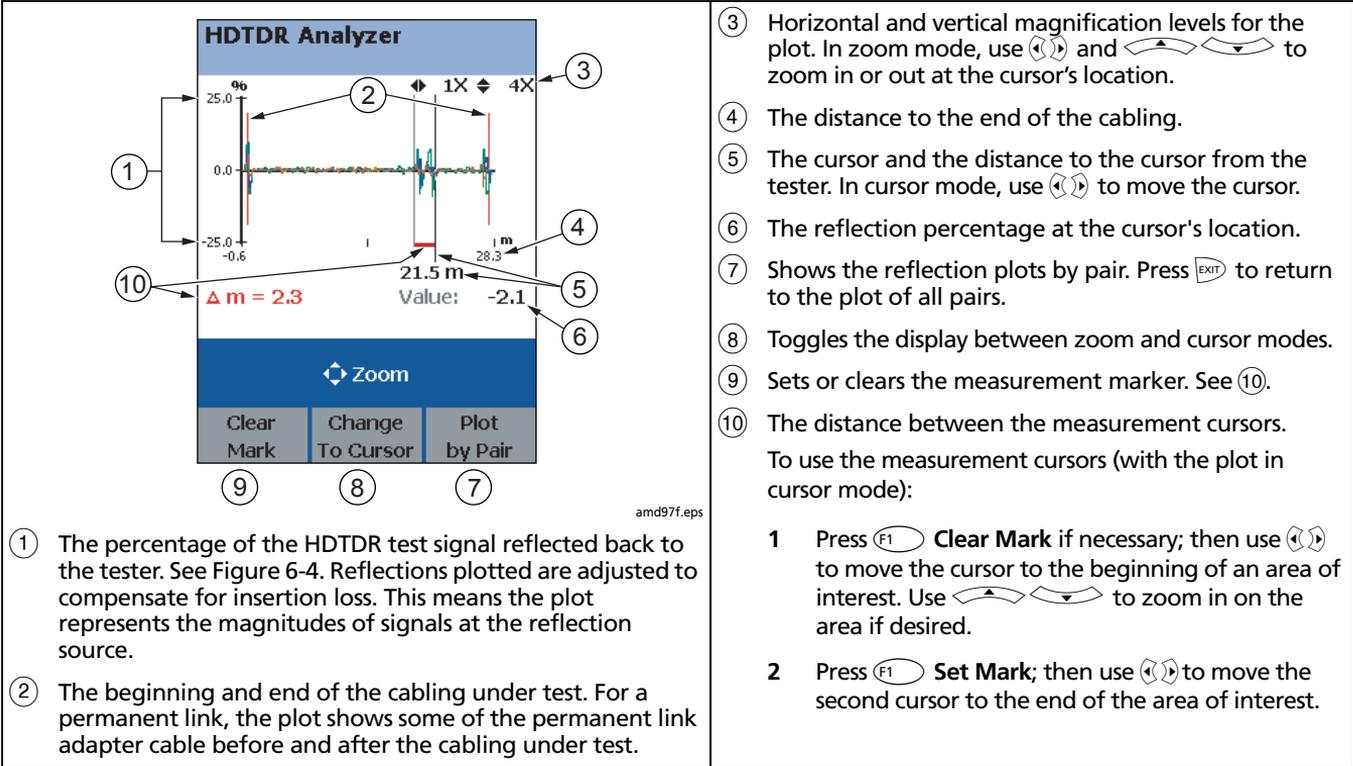
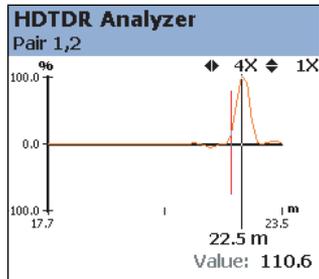


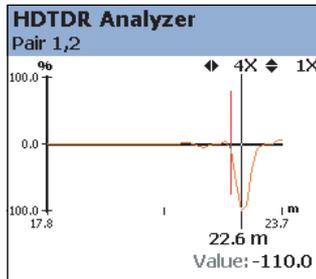
Figure 6-3. HDTDR Plot (permanent link adapters used)

- ① The percentage of the HDTDR test signal reflected back to the tester. See Figure 6-4. Reflections plotted are adjusted to compensate for insertion loss. This means the plot represents the magnitudes of signals at the reflection source.
- ② The beginning and end of the cabling under test. For a permanent link, the plot shows some of the permanent link adapter cable before and after the cabling under test.

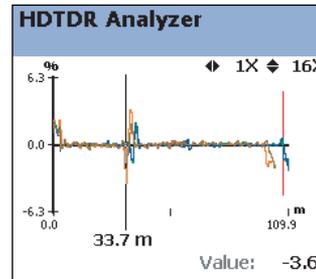
- ③ Horizontal and vertical magnification levels for the plot. In zoom mode, use and to zoom in or out at the cursor's location.
 - ④ The distance to the end of the cabling.
 - ⑤ The cursor and the distance to the cursor from the tester. In cursor mode, use to move the cursor.
 - ⑥ The reflection percentage at the cursor's location.
 - ⑦ Shows the reflection plots by pair. Press to return to the plot of all pairs.
 - ⑧ Toggles the display between zoom and cursor modes.
 - ⑨ Sets or clears the measurement marker. See ⑩.
 - ⑩ The distance between the measurement cursors.
To use the measurement cursors (with the plot in cursor mode):
- 1 Press **Clear Mark** if necessary; then use to move the cursor to the beginning of an area of interest. Use to zoom in on the area if desired.
 - 2 Press **Set Mark**; then use to move the second cursor to the end of the area of interest.



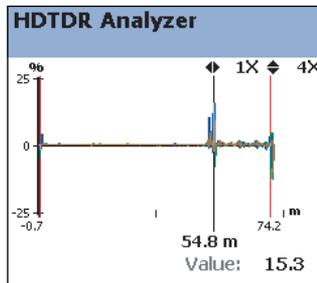
① Open



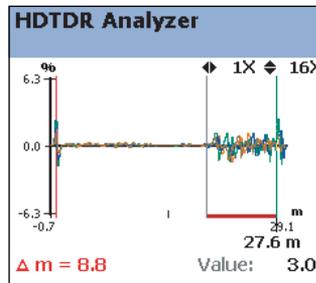
② Short



③ Bad patch cord



④ Cable section with the wrong impedance



⑤ Cable section with poor return loss

Figure 6-4. Interpreting HDTDR Plots

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- ① Open on pair 1,2 near the smart remote. A positive reflection indicates an increase in impedance. Opens are large increases in impedance and create large positive reflections.
- ② Short on pair 1,2 near the smart remote. A negative reflection indicates a decrease in impedance. Shorts are large decreases in impedance and create large negative reflections.
- ③ Bad patch cord at about 33 m.
- ④ A link with a section of cable that has higher impedance ($120\ \Omega$) than the rest of the cable. The bad section starts at about 54 m. Note the positive pulse where the impedance increases at the beginning of the bad section, and the negative pulse where impedance decreases at the end of the section.
- ⑤ A link with a section of cable that has poor return loss. The section produces reflections along its entire length.