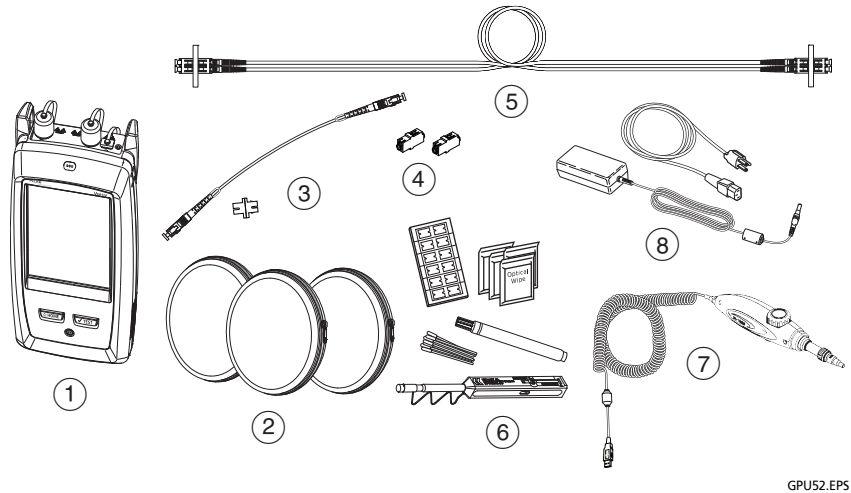
Tutorial: Do a Bi-Directional SmartLoop Test

The tutorial in this section gives instructions on how to set up for a bi-directional SmartLoop test, set up the launch compensation function, make connections, do a test, and save the results.

When you do a bi-directional SmartLoop test, one OTDR test at one end of the link gives you bi-directional results for both fibers. Also, the tester automatically averages the bi-directional results and includes the averaged results in the test record.

Figure 15 shows the equipment necessary for this tutorial.



1. Main Versiv unit with OptiFiber Pro module installed
2. Three launch cords for launch, tail, and loopback connections (match the fiber to be tested)
3. OTDR port protector patch cord and adapter (30 cm, 12 in)
4. Two singlemode adapters
5. Dual-fiber link or segment
6. Fiber cleaning supplies
7. FI-1000 video probe with USB connector
8. AC adapter with line cord (optional)

Figure 15. Equipment for the SmartLoop Tutorial

Step 1: See How Much Memory is Available

On the home screen, tap the **TOOLS** icon, then tap **Memory Status**.

The **MEMORY STATUS** screen shows these values:

- The percentage of memory available
- The number of test records that are saved
- The number of ID sets that have been downloaded to the tester from LinkWare PC or LinkWare Live.
- The memory space taken by other files, such as the databases for projects and limits.

Step 2: Set Up a Bi-Directional SmartLoop Test

Note

*You can select settings for any module that the tester can use. It is not necessary to install a module before you set up a test for that module. If a module is not installed, the **MODULE** screen shows to let you select the module you will use.*

2-1 Attach an OptiFiber Pro module to the tester.

2-2 On the home screen, tap the test setup panel.

2-3 On the **CHANGE TEST** screen, tap **NEW TEST**.

2-4 On the **TEST TYPE** screen, tap **SmartLoop OTDR (Auto)**.

2-5 On the **TEST SETUP** screen, tap each setting to make these selections:

- **Module:** This is the module you will use for the test.

Note

You can select settings for any module that the tester can use. It is not necessary to install a module before you set up a test for that module.

- **Test Type**: Make sure the **Test Type** is **SmartLoop OTDR (Auto)**.
- **Bi-Directional**: Tap the **On/Off** control to make it show **On**.
- **Wavelengths**: You can do tests at one or all of the wavelengths that the fiber type supports. For this tutorial, select all available wavelengths.
- **Fiber Type**: Select the type of fiber you will test. The **FIBER TYPE** screen shows the last 10 types of fiber that were selected.

  If you do not see the necessary fiber type, tap **MORE**, tap the name of a **Fiber Group**, then tap a fiber in the group.
- **Fiber Type Settings**: Tap this item to see the index of refraction (**IR**) and **Backscatter** values for the **Fiber Type** you selected.
- **Test Limit**: The test limit specifies the limits for measurements so that the tester can give a **PASS** or **FAIL** result to the test. The **TEST LIMIT** screen shows the last 10 limits that were selected.

  For this tutorial, select **General Fiber**. If you do not see this limit on the **TEST LIMIT** screen, tap **MORE**, tap **Miscellaneous**, then tap **General Fiber**.

2-6 On the **TEST SETUP** screen, tap **SAVE**.

2-7 On the **CHANGE TEST** screen, tap the **SmartLoop OTDR** test you made, then tap **USE SELECTED**.

For more information on settings, see “Settings for OTDR Tests” on page 286.

Step 3: Turn Off the Auto Save Function

For this tutorial, you will manually save the test results.

3-1 On the home screen, tap the **Next Fiber A ID/Next Fiber B ID** panel.

3-2 On the **CHANGE ID** screen, tap the **Auto Save** control to make it show **Off**.

3-3 Stay on this screen to do the next step.

Step 4: Enter IDs for the Fibers

4-1 On the **CHANGE ID** screen, tap the **FIBER A ID:** panel.

4-2 Enter an ID for fiber A, then tap **DONE** twice.

The **CHANGE ID** screen shows the ID you entered for fiber A. For the **Fiber B ID**, the tester increments the **Fiber A ID** by one.

4-3 Tap **DONE** to save the IDs. If you see a message about an ID that is not in the list, tap **YES**.

Step 5: Set Up Launch Fiber Compensation

5-1 On the home screen, tap the **TOOLS** icon, then tap **Set Launch Compensation**.

5-2 On the **SET LAUNCH METHOD** screen, make sure that **SmartLoop** is selected.

5-3 Clean and inspect the OTDR port and the connectors on the three launch cords.

5-4 Make the connections shown in Figure 16.

5-5 Tap **SET**.

5-6 When the **SET LAUNCH COMP** screen shows, make sure the tester shows the correct distances for the end of the launch cord and the start of the tail cord. See Figure 17.

5-7 Tap **SAVE**. The tester shows the lengths of the three cords, and the time and date when you saved the launch compensation settings.

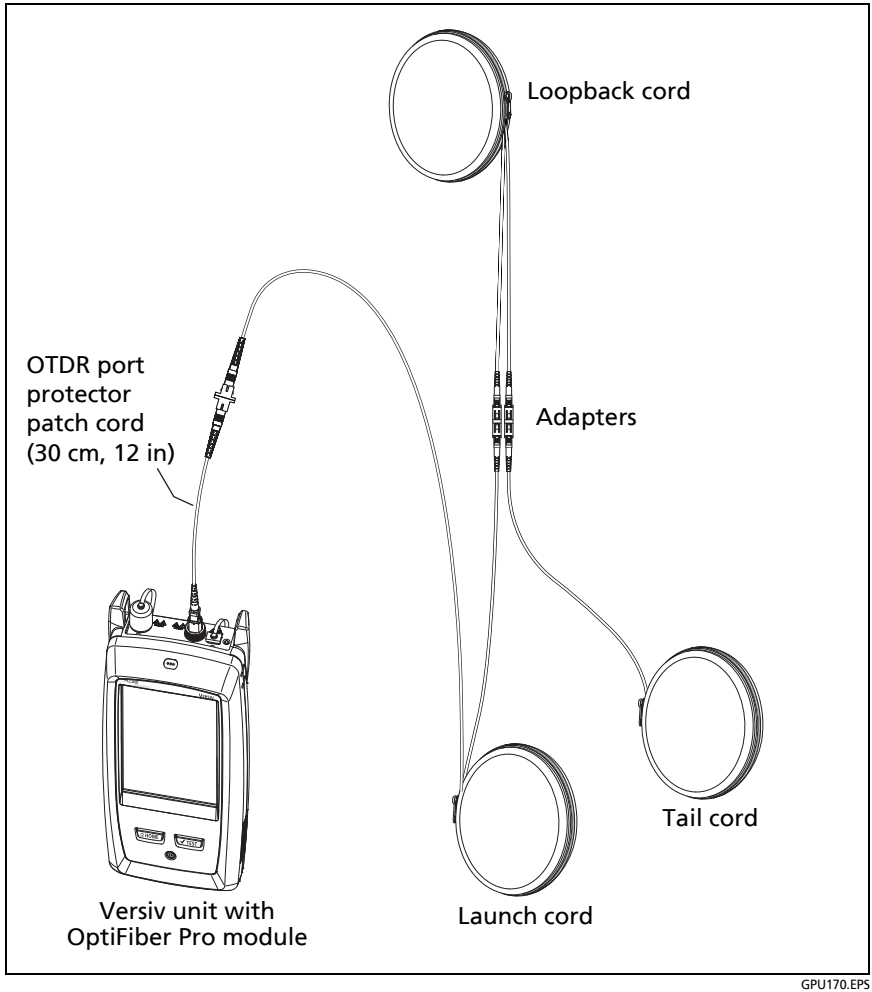


Figure 16. SmartLoop Launch Compensation Connections

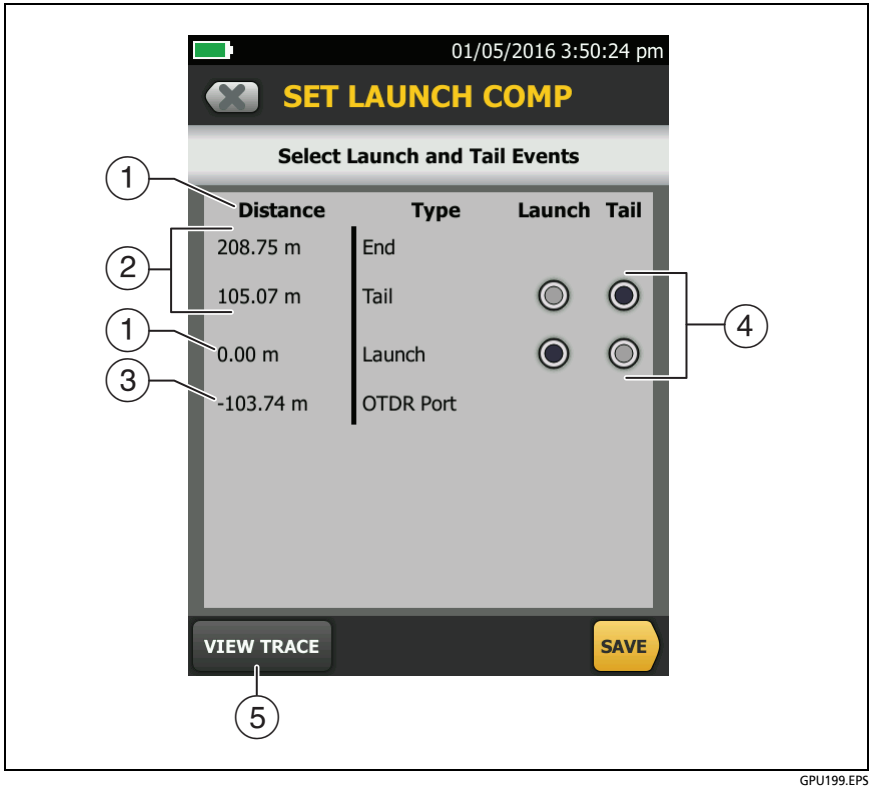


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Figure 17. SET LAUNCH COMP Screen for the SmartLoop Test

(1) The distances shown are relative to the end of the launch cord, which is at 0.00 m.

(2) The loopback cord is 105.07 m long, so the tail cord starts at 105.07 m. The length of the loopback cord plus the tail cord is 208.75 m.

(3) The launch cord is 103.74 m long, so the OTDR port shows at -103.74 m.

(4) If you set up the launch compensation when connected to a link, you can tap the **Launch** and **Tail** buttons if necessary to select the correct locations for the ends of the launch and tail cords.

⑤ If necessary, you can look at the OTDR trace to identify launch and tail events and see the quality of the connections.

Step 6: Do the SmartLoop Test

6-1 Clean and inspect the connectors on the fiber link.

6-2 Connect the launch, loopback, and tail cords to the link, as shown in Figure 18 for **End 1**.

6-3 Tap **TEST** or press ✔TEST.

6-4 Halfway through the test, the tester tells you to connect the tail cord to the OTDR port. Make the connections for **End 2** as shown in Figure 18, then tap **DONE**.

⚠ Caution

Switch the launch and tail connections at the end of the short patch cord. If you switch the connectors at the patch panel, you will possibly get less accurate results for those connections during the second half of the test.

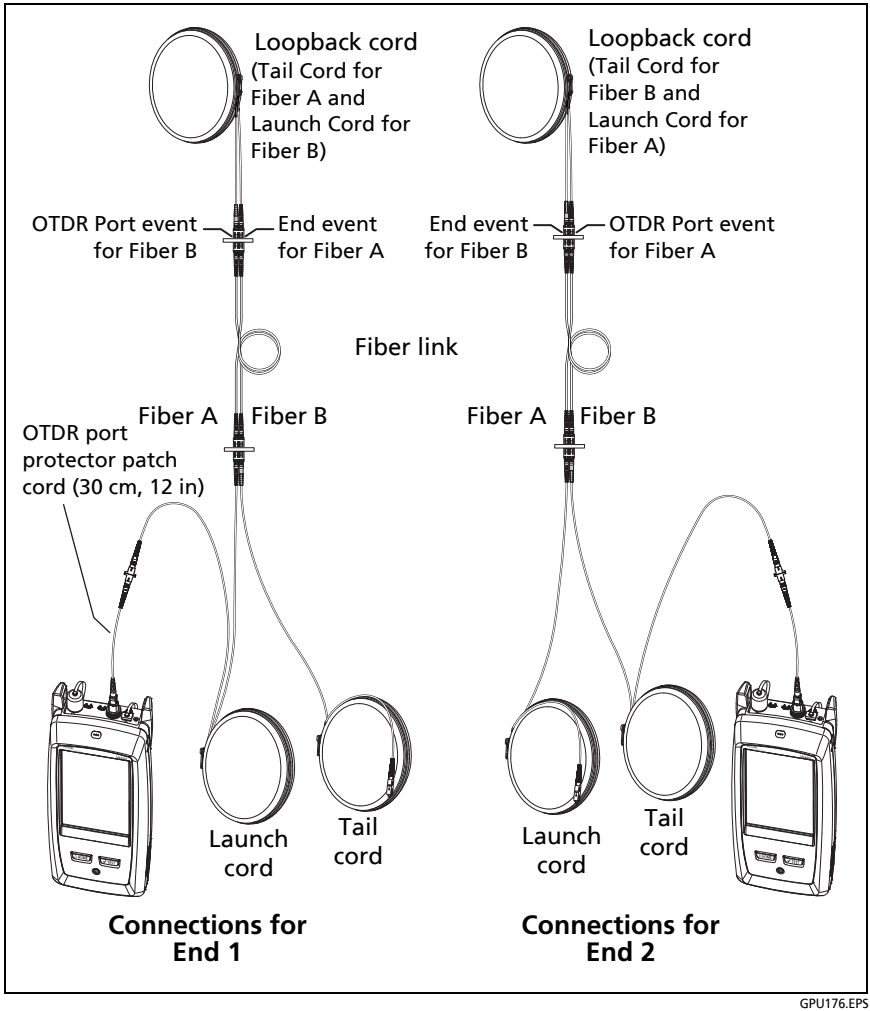

Figure 18. SmartLoop Test Connections for a Bi-Directional Test

Step 7: Look at the Results

The tester shows the SmartLoop results in three formats (Figure 19):

- **EventMap**: Shows a diagram of the events on the fiber, the fiber length, and the overall loss of the fiber.

  Use this screen to quickly locate connectors and faults on the fiber. To see details for an event, tap the event on the map, then tap the information window for the event.

   Tap this button to see the results for the other fiber (**A** or **B**).

   Tap this button to see results from each direction (**End 1** or **End 2**) or the averaged results ($\overline{X}$).

  Touch  for 3 seconds to see a summary of the results from ends 1 and 2 on fibers A and B. To see the EventMap for a result in the list, tap the result.

- **TABLE**: Shows a table of the events on the fiber shown on the **EventMap**.

  Use this screen to quickly see measurements for all events and see the types of events that are on the fiber. The table includes the distance to the event, the loss of the event, the size of the reflection from the event, the type of the event, and a pass/fail status. To see details for an event, tap the event in the table.

- **TRACE**: Shows the OTDR trace for the fiber shown on the **EventMap**.

  Use this screen to examine events and make other measurements.

  Note

  *The **TRACE** tab does not show when you select averaged results on the **EventMap** screen.*