

LinkWare™ PC

Cable Test Management Software

Getting Started Guide

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Getting Started with LinkWare PC Cable Test Management Software

Introduction

LinkWare™ PC software is a Windows® program that helps you organize, customize, print, and save copper and fiber cable test records from these Fluke Networks devices:

- DSX CableAnalyzer™ Tester (Versiv and DSX-600 Series)
- CertiFiber™ Pro Optical Loss Test Set (Versiv)
- OptiFiber® Pro and Pro HDR OTDRs (Versiv)
- FI-1000 FiberInspector™ Pro Video Probe (Versiv)
- FI-3000 FiberInspector™ Pro Video Probe (Versiv)
- Imports Versiv records from the LinkWare Live web application
- DTX Series CableAnalyzer Series Testers
- MultiFiber™ Pro Optical Power Meter
- OF-500 OptiFiber OTDR
- SimpliFiber® Pro Optical Power Meter
- DSP Series CableAnalyzer™ Series Testers
- OMNIScanner® Series Testers

This guide helps you get started importing test records and creating test reports with LinkWare PC software. For additional information, see the LinkWare PC online help.

Contacting Fluke Networks

Notes

If you contact Fluke Networks about your tester, have the tester's software and hardware version numbers available if possible.

*If you contact Fluke Networks about this software, have the software's version number available, along with the type and version number of the operating system on the PC. This information is available by clicking **Help > About...** on the software's menu.*



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- Korea: 82 2 539-6311
- Singapore: +65-6799-5566
- Taiwan: (886) 2-227-83199
- USA: 1-800-283-5853

Visit our website for a complete list of phone numbers.

Recommended PC Specifications

- 1 gigahertz (GHz) or faster, 32-bit (x86) or 64-bit (x64) processor
- 4 gigabyte (GB) RAM (8 GB recommended if viewing large numbers of OTDR traces)
- Windows® 7, 8.1, or 10 operating system
- Microsoft® Internet Explorer 8.0 or higher or other web browser. Viewing records exported to XML files requires a web browser that supports XML
- PC monitor with minimum 1200 x 800 resolution
- Appropriate serial port (USB or RS-232) to connect to your tester

Note

You need administrator rights on the PC to install LinkWare PC software.

Localizing the LinkWare PC Window

To change the language for LinkWare PC and for printed reports
Select **Options > Language**.

To change the length units and the date, time, and number formats
Select **Options > Configuration**.

Using the Online Help

The LinkWare PC online help provides detailed information on LinkWare PC features.

To get help for the current LinkWare PC window
Press F1.

To see the online help contents or search the help for a specific topic
Select **Help** on the LinkWare PC menu; then select **Contents** or **Search**.

Connecting the Tester to a PC

Connect the tester to a USB or serial (RS-232) port on the PC using the USB or serial cable that came with the tester.

For details on the USB and serial connections, including descriptions of the interface cables, see the LinkWare PC online help.

To connect a tester to a USB port

Connect the tester to a USB port on the PC while the Windows operating system is running and the tester is on.

To connect a tester to a serial port (RS-232)

- 1 Connect the tester to a serial port on the PC.
- 2 Select **Options > Serial Port in the LinkWare PC window.**
- 3 In the **Serial Port Options** dialog, set the COM port number under **Serial Port** to match the port number on the PC.
- 4 Click **Test Connection.**

Connecting the Memory Card Reader to a PC

Some testers can store test records on a memory card, and come with a USB memory card reader for uploading the records to a PC.

To connect a USB memory card reader to a USB port

Plug the reader into a USB port on the PC while the Windows operating system is running. If a device installation Wizard appears, follow its instructions to install a driver provided by the Windows operating system.

Importing Test Records from a Tester

Note

If you don't have any test data, but want to practice using LinkWare PC, you can use the sample file included with LinkWare PC software. The sample ".flw" file is copied to your LinkWare PC directory during installation.

You can import records from a Fluke Networks cable tester or from a memory card or PC folder that contains the test records (.tst files) from a Fluke Networks cable tester.



Import Connected Tester button

To import test records into a LinkWare PC database

Click the **Import Connected Tester** or the **Import** button.



Import button

- **Import Connected Tester** button: LinkWare PC automatically detects the type of tester connected to the PC.
- **Import** button: You can select a tester from the dropdown list. You can also select test result files (.tst files) or a LinkWare PC database file (.flw file) to import from a drive.

If LinkWare PC cannot connect to the tester or reports errors during data transfer, see “Connection Problems” in the LinkWare PC online help for troubleshooting information.

Importing Versiv and DSX-600 Series Test Records from LinkWare Live

With a LinkWare Live account and a wired or wireless internet connection for your Versiv or DSX-600 Series tester in the field, you can transfer test records from the tester to the cloud. Then, you can import the records from LinkWare Live to LinkWare PC. This makes it unnecessary to take the tester or a USB drive back to the office to import results to LinkWare PC.

To sign up for a LinkWare Live account

Go to <https://www.linkwarelive.com/signup>.



LinkWare Live button

Or, click the **LinkWare Live** button on the LinkWare PC tool bar. This takes you to the LinkWare Live sign in page, where you can sign up for an account, or sign in if you already have an account.

For information on how to upload records from a Versiv or DSX-600 Series tester to LinkWare Live, see the product’s Users Manual or Technical Reference Handbook available on the Fluke Networks website.



Import from LinkWare Live button

To import test records from LinkWare Live

Click the **Import from LinkWare Live Button**, or click **LinkWare™ Live Sign In** in the upper-right corner, then sign in to your LinkWare Live account. If you do not have an account, click **Create Account**.

Looking at Test Results

The main LinkWare PC window (Figure 1) shows the database tree and summaries of the records in the database.

To see detailed test results for a record

Click the **Detail** button, or double-click on the record in the list. Table 1 describes the icons that may appear in the **Info** column in the main LinkWare PC window. Figure 2 shows examples of windows that show detailed results. Click on the tabs to see results for each test in the record.



Print Preview button

To see what a printed report or summary will look like

Click the **Print Preview** button or select **File > Print Preview**.

The screenshot shows the LinkWare PC interface with the following components and callouts:

- 1**: Menu bar (File, Edit, Options, Records, Utilities, Help)
- 2**: File Explorer showing the database tree structure
- 3**: Tree/Admin. Rpt. Example folder
- 4**: Tests panel showing a list of test results (e.g., Insertion Loss, NEXT, PS NEXT)
- 5**: Detail button
- 6**: Properties button
- 7**: Detailed test results panel for a selected record (Cable Type: Cat 6A U/UTP)
- 8**: Info column in the table containing icons
- 9**: Window title bar and standard OS window controls
- 10**: Toolbar with navigation and utility icons




Cable ID	Date / Time	Status	Length(m)	Headroom	Info	Test Limit
27	10/31/2014 02:18:12 PM	PASS	10.8	N/A (NEXT)	General 75 Ohm COAX	
28	10/31/2014 02:28:55 PM	FAIL	12.0	N/A (NEXT)	DSX 734 Recommend LS	
29	05/10/2013 08:47:34 AM	PASS	54.4	7.1 (NEXT)	ISO11801 PL2 Class Fa (1 GHz)	
30	04/30/2013 08:35:57 AM	PASS	1.7	7.0 (NEXT)	TIA Cat 5e Channel	
31	04/30/2013 08:43:56 AM	PASS	4.5	4.7 (NEXT)	ISO11801 Channel Class Ea	
32	04/30/2013 08:44:27 AM	PASS	4.5	5.1 (NEXT)	TIA Cat 6A Channel	
33	04/30/2013 09:28:28 AM	PASS	4.3	7.3 (NEXT)	TIA Cat 6A Channel (+TCL)	
34	04/30/2013 09:29:32 AM	PASS	4.3	7.0 (NEXT)	ISO11801 Channel Class Ea (+All)	
35	06/28/2002 02:21:01 PM	PASS	57.1	1.4 (NEXT)	TIA Cat 6 Perm. Link	
36	06/28/2002 01:47:44 PM	PASS	29.0	3.1 (NEXT)	TIA Cat 6 Perm. Link	
37	06/28/2002 10:02:00 AM	PASS	93.0	0.25 (Loss)	TIAS688 BACKBONE	
38	06/28/2002 10:04:00 AM	FAIL	278.9	-0.42 (Loss)	TIAS688 BACKBONE	

Figure 1. The LinkWare PC Database Window

ALP04.EPS

- ① The command menus and toolbar, where you select most LinkWare PC functions.
- ② Tabs for the databases that are open.
- ③ The structure of the database tree. You can organize the database by adding project, site, building, floor, telecommunication room, rack, and patch panel icons, then moving test records to the appropriate places.
- ④ The **Tests** pane shows the tests that are in the highlighted record and the worst margin for each test.
- ⑤ To see detailed information for the highlighted record, click the **Detail** button or double-click on the record in the list. See Figure 2.
- ⑥ To see and enter properties for the highlighted record, click the **Properties** button or right-click on the record in the list, then select **Properties**. The **Record Properties** dialog box lets you enter descriptions of the location of the link, the hardware used in the link, and other details not included in test results.
- ⑦ This pane shows some details about the selected record. To see more details, click the **Detail** button.
- ⑧ The record summary list shows the records in the currently selected level in the database tree.
- ⑨ Lets you sign in to LinkWare Live to transfer results to LinkWare PC. To go to the LinkWare Live web page, click the **LinkWare Live** button on the toolbar (⑩).
- ⑩ The **LinkWare Live** button takes you to the LinkWare Live sign in page, where you can sign up for an account, or sign in if you already have an account.

Table 1. Icons in the Info Column

Icon	Description
	The plot icon is shown if a copper test record includes plot data.
	The DTX-NSM icon is shown if a copper test records includes DTX-NSM network connectivity results.
	The note icon is shown if a note has been entered in the record's properties. To see the note, right-click on the record, then select Properties .

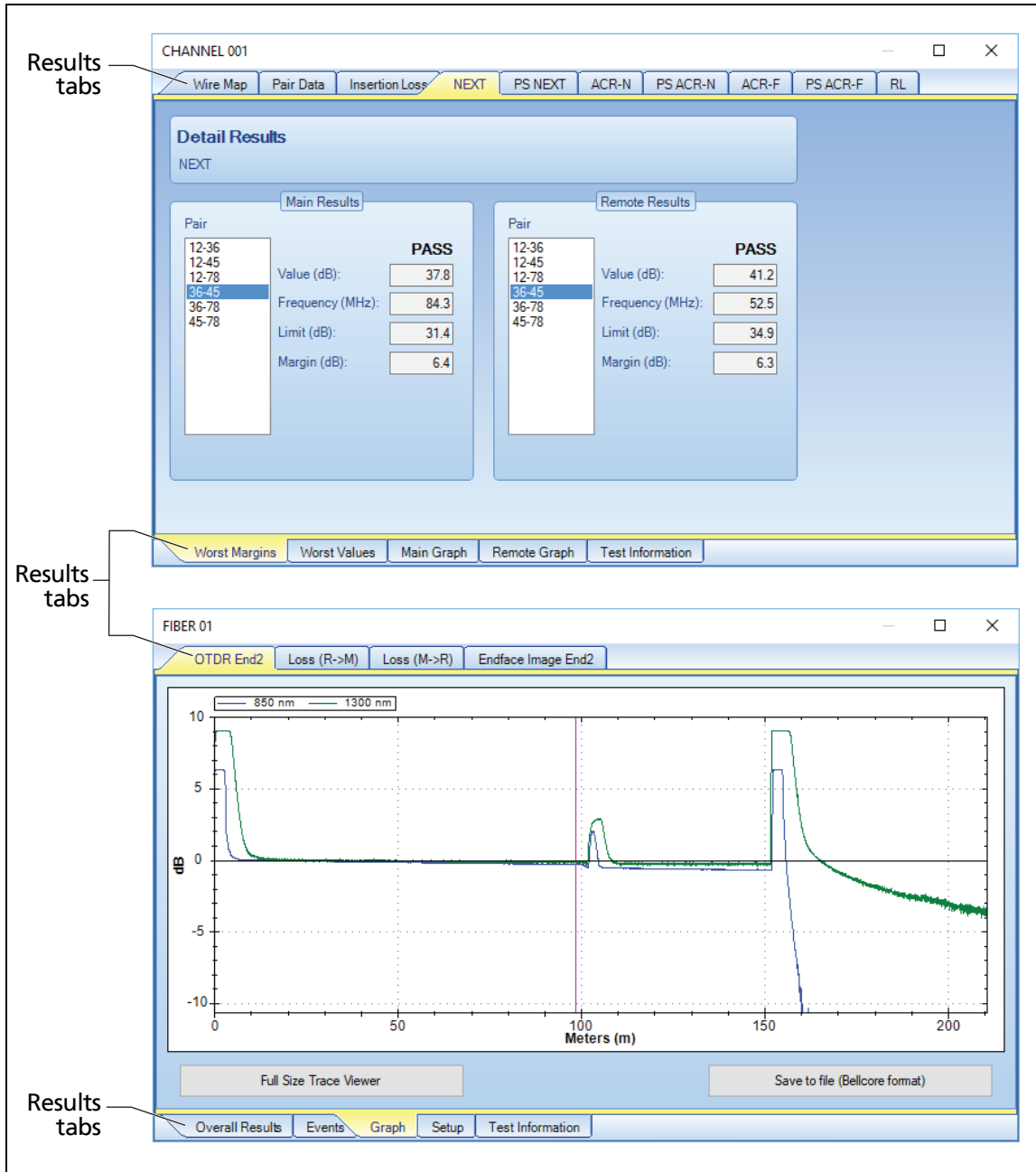


Figure 2. Examples of Detailed Results Windows for Twisted Pair and Fiber Records

ALP05.EPS

Organizing Your Database

You can organize your database by changing the database tree and by moving and sorting the records.

The database tree at the left side of the main LinkWare PC window lets you structure your database to match the layout of the cabling installation. Figure 3 shows an example of a database tree with icons added to represent elements in the installation. Table 2 describes the icons in the LinkWare PC database tree.

To show the names of the installation elements at the bottom of printed reports, select **Options > Reports**, then click the **Show 606-C identifier information** box. For jobs that use the 606-C administration standard, showing this information helps demonstrate compliance with the standard.

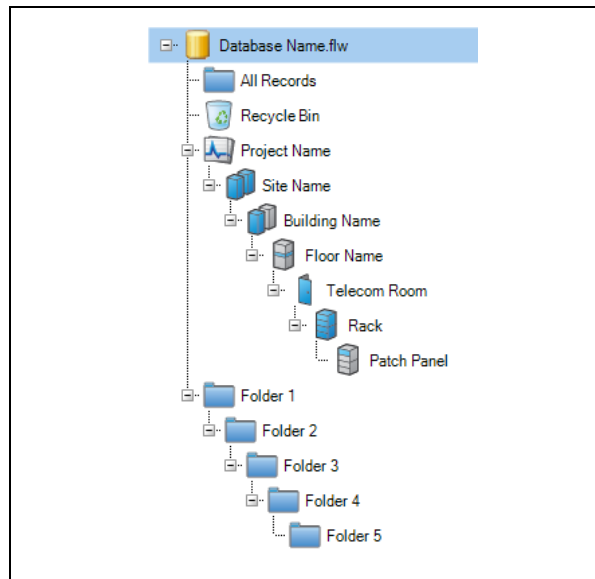













Figure 3. The LinkWare PC Database Tree

ALP06.BMP

Table 2. Database Icons

Icon	Description
	LinkWare PC database: This icon shows the name of the LinkWare PC database.
	All Records folder: This folder shows all the test records in the database.
	<p>Recycle Bin: The bin contains any tests you have deleted.</p> <p style="text-align: center;"><i>Note</i></p> <p style="text-align: center;"><i>If you delete records, then import the same records again, LinkWare PC shows them as Previously Imported, unless you emptied the Recycle Bin after you deleted the records.</i></p>
	<p>Project: This is typically a customer name, work order, or other project identifier. When you import DTX or OptiFiber records, LinkWare PC creates a Project icon for each folder or project name used in the tester.</p> <p>When you import DSX, CertiFiber Pro, or OptiFiber Pro records, LinkWare PC creates a Project icon for each project name used in the tester.</p> <p>When you import records from a SimpliFiber or MultiFiber Pro meter, LinkWare PC creates a Project icon with the project name you entered during the import process.</p> <p>When you import OMNIScanner records, LinkWare PC creates a Project icon for each project or job name used in the tester.</p>
	<p>Site: A job site.</p> <p>When you import DTX or DSP records, LinkWare PC creates a Site icon for each site name used in the tester.</p>
	Building: A building at a job site.
	Floor: A floor in a building.
	Telecom room: A telecommunications room on a floor.
	Rack: A rack of patch panels in a telecommunications room.
	Patch panel: A patch panel, punch-down block, or group of panels or blocks with sequentially numbered ports.
	Folder: You can put records in up to five levels of folders.

To add levels to the database tree

Right-click on an existing icon that is one level up from the level you want to add. Select **Add new** from the popup menu, then select an icon to represent the level you want to add.

To edit an icon's properties, which include 606-C information for some icons

Right-click on the icon; then select **Properties**.

To see all the records at the levels below a level in the database tree

Right-click anywhere in the tree; then select **Include lower-level records** from the popup menu. If **Include lower-level records** is not selected at a level, you see only the records stored at that level.

To rename an icon

Right-click on the icon's label. Select **Rename** from the popup menu; then enter a new name in the label box. Press ENTER or click on a different icon when you are finished.

To rename the database icon

Select **File > Save As** to save the database with a different name.

To move an icon in the database tree*Note*

You can move only icons that are below the project level in the database.

Use the mouse to drag the icon and drop it in a new location.

To delete an icon from the database tree

Right-click on an icon; then select **Delete** from the popup menu. Or, drag the icon and drop it on the **Recycle Bin**. Deleting an icon also deletes all lower-level icons and all records stored at and below the deleted icon.

To restore deleted records and their associated icons

Select the records in the recycle bin, right-click on the selected records; then select **Restore**. To restore all icons and records from the recycle bin, right-click on the bin, then select **Restore All Records**.

Moving Records

After you import records into a LinkWare PC file and build a database tree, you can organize the records by moving them to the appropriate locations in the database tree. You can also move records to another database.

To move records between levels in the database tree

- 1 Click on the name in the database tree where the records are located.

Note

*If **Include lower-level records** is checked (right-click on the icon to see this), moving records out of any location also moves them from all lower locations.*

- 2 Select the records you want to move.
- 3 Using the mouse, drag the records and drop them in the desired location.

To move records to another LinkWare PC database

- 1 Open the source and destination databases.
- 2 If the tree for the destination database does not include an icon at a Project or Folder level or below, create one now.
- 3 In the source database, select the records you want to move, drag them over the tab of the destination database, then drop them on the correct icon in the database tree.

Copying and Pasting Records

To copy records within the current LinkWare PC database or to another LinkWare PC database

- 1 Select the records in the record list.
- 2 Select **Edit > Copy** or type Ctrl +C.
- 3 In the database tree, click on the destination for the records.
- 4 Select **Edit > Paste** or type Ctrl +V.

Deleting and Restoring Records

You can delete a record from any location in the database tree. Deleting a record removes the record from all levels in the database. For example, if a record is stored in a patch panel icon, and **Include lower-level records** is selected, you could delete the record from the patch panel icon or from any icon above it.

You can also delete duplicate records that were mistakenly imported twice or copied and pasted within the same database. This function finds duplicate records by comparing cable IDs and timestamps. Deleting duplicate records deletes all duplicates at the level you select and below.

Deleted records go into the LinkWare PC **Recycle Bin**, where they remain until you empty the bin, move the records, or restore the records.

To delete records

Select the records; then press Delete on the keyboard.

To delete duplicate records

Click on the database icon where you want duplicate records deleted; then select **Utilities > Delete Duplicate Records**.

To delete a database icon and all the records stored in that icon

Right-click on the icon; then select **Delete** from the popup menu.

To restore deleted records and their associated icons to the database tree

Select the records in the recycle bin, right-click on the selected records; then select **Restore**.

Sorting Records

You can sort records in ascending or descending order based on cable identification, date and time, site, operator, test summary result, length, or headroom items. LinkWare PC displays and prints records in the order you specify.

Sorting records at any level in the database tree applies the same sorting order to all levels of the database tree.



Column heading

To sort records by one item

Click on a column heading in the records list. Click on the same heading again to sort the records in the opposite order. Click again to sort the records in the original order, as they were when you imported them.

The **Sort** function lets you sort records by multiple items. For example, you could sort the records in ascending alphabetical order by site name; then you could sort the records for each site in descending order by cable identification.



Sort button

To sort records by multiple items

Click the **Sort** button or select **Records > Sort**.

Sorting with all fields set to **None** sorts the records in the order they were saved in the tester.

Adding and Editing Database Information

You can add administration information to create administration reports. You can also edit some of the information imported with the test records.

Note

You cannot edit test results in LinkWare PC.

Creating 606-C Administration Reports

LinkWare PC lets you document a cabling installation to meet the Telecommunications Industry Association's 606-C administration standard. Even if you are not required to meet this standard, you may find some or all of the required documentation useful to you or your customers.




Note

Telecommunications Industry Association standards are subject to changes and amendments. Contact the TIA for detailed information on standards.

Table 3 lists the records defined by the 606-C standard and the paths to the dialog boxes where you can enter information for the records.

For details on 606-C information, press F1 from a record's or icon's **Properties** dialog box, or select "606-C" in the LinkWare PC online help index.

Table 3. Administration Records

Record	How to Enter Information
Horizontal link record Backbone cable record	<p>Right-click on a test record; then select Properties. Select Horizontal Record or Backbone Record in the Record Properties dialog box.</p> <p>To enter this information for a group of test records, highlight the group, right-click on the group; then select Report Properties.</p> <p>To enter patch panel information for these records, right-click on a patch panel icon in the database tree; then select Properties.</p>
Telecommunications space record Telecommunications grounding busbar record (TGB record) Firestopping record	 <p>Right-click on a telecommunications room icon in the database tree; then select Properties.</p>
Building record Telecommunications main grounding busbar record (TMGB record)	 <p>Right-click on a building icon in the database tree; then select Properties.</p>
Site record	 <p>Right-click on a site icon in the database tree; then select Properties.</p>

Editing ID Information Imported from the Tester

Note

LinkWare PC will not search for or modify test results in records. The message "Unable to find" or "Unable to find or modify this text" appears if you try to search for or modify results.

Test records can include the following ID information imported from the tester:

- Cable or circuit ID
- Operator name
- Cable type

To edit the cable or circuit ID, operator name, or cable type for one record
Right-click on the record; then select **Properties** from the popup menu, or select **Edit > Record Properties**.

To edit the operator name or cable type for multiple records
Select the records, right-click, then select **Properties** from the popup menu, or select **Edit > Report Properties**.

To edit the project or site name for one or more records
Right-click on the project or site name in the database tree; then select **Rename** from the popup menu. Enter a new name in the label box. Press ENTER or click on a different icon when you are finished.

Note

*The project and site names appear at the bottom of printed reports if you selected **Show 606-C identifier information** in the **Report Options** dialog box (**Options > Reports**).*

To search for and replace ID information
Select **Edit > Replace**.

Customizing Your Report's Appearance

Select **Options > Reports** to choose what will be shown on printed reports. You can choose to do the following:

- Put your own logo on reports.
- Show 606-C information at the bottom of reports.
- Print summaries every time you print reports.
- Select and arrange the plots that appear on copper cable reports.
- Add FiberInspector images to CertiFiber Pro, OptiFiber Pro, and OptiFiber reports.

For more information on these options, press F1 in the **Report Options** dialog box.

Printing Your Reports

You can print cable test reports and summaries and 606-C administration reports.

Previewing Reports and Summaries

To preview reports or summaries before you print them

- 1 In the record list, select the records you want to preview. To select all the records, type Ctrl + A or select **Edit > Select All**.
- 2 Select **File > Print Preview**; then select what you want to preview.

Printing Reports and Summaries

Figures 4 and 5 show examples of copper and fiber test reports. Report features may vary slightly, depending on which version of LinkWare PC you have.

You can also print 606-C administration reports. Information for these reports comes from the properties you enter for the reports and the icons in the database tree.

To always print a summary list whenever you print Autotest reports

Select **Options > Reports**; then select **Automatic Summary Print** on the **Summary** tab.

To print Autotest reports, summaries, or administration reports

- 1 In the database tree, click on the level that contains the records you want to print.
- 2 In the record list, select the records you want to print. To select all the records, type Ctrl + A or select **Edit > Select All**.
- 3 Select **File > Print**; then select what you want to print.



Cable ID: 01-B-3

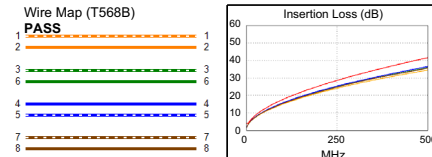
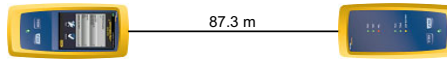
Date / Time: 03/12/2018 09:57:47 AM
Headroom 4.8 dB (NEXT 12-36)
Test Limit: ISO11801 PL2 Class Ea
 Cable Type: Cat 6A U/UTP
 NVP: 68.2%

Operator: Rick Vinnels
 Software Version: V5.5 Build 2
 Limits Version: V7.0
 Calibration Start Date:
 Main (Module): 08/15/2017
 Remote (Module): 08/15/2017

Test Summary: PASS

Model: DSX-8000
 Main S/N: 3758016
 Remote S/N: 1704030
 Main Adapter: DSX-PLA804
 Remote Adapter: DSX-PLA804

Length (m), Limit 90.0	[Pair 12]	87.3
Prop. Delay (ns), Limit 496	[Pair 45]	453
Delay Skew (ns), Limit 43	[Pair 45]	26
Resistance (ohms), Limit 20.60	[Pair 78]	12.51
Insertion Loss Margin (dB)	[Pair 45]	5.1
Frequency (MHz)	[Pair 45]	500.0
Limit (dB)	[Pair 45]	41.6



Worst Case Margin Worst Case Value

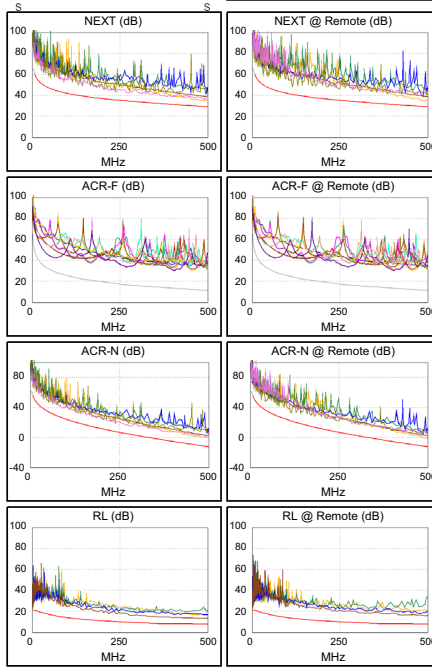
	MAIN	SR	MAIN	SR
PASS				
Worst Pair	12-36	12-36	12-36	12-36
NEXT (dB)	4.8	5.0	4.8	5.0
Freq. (MHz)	488.0	490.0	488.0	490.0
Limit (dB)	29.5	29.4	29.5	29.4
Worst Pair	36	36	36	36
PS NEXT (dB)	6.5	6.1	6.5	6.2
Freq. (MHz)	488.0	480.0	488.0	500.0
Limit (dB)	26.6	26.8	26.6	26.4

	MAIN	SR	MAIN	SR
PASS				
Worst Pair	36-78	78-36	78-36	36-78
ACR-F (dB)	12.9	12.8	17.0	17.1
Freq. (MHz)	47.8	47.8	404.0	404.0
Limit (dB)	31.7	31.7	13.1	13.1
Worst Pair	36	36	36	45
PS ACR-F (dB)	15.3	15.2	18.2	19.5
Freq. (MHz)	54.8	56.0	403.0	499.0
Limit (dB)	27.5	27.3	10.1	8.3

	MAIN	SR	MAIN	SR
PASS				
Worst Pair	12-36	36-78	12-36	12-36
ACR-N (dB)	10.4	10.1	10.4	10.5
Freq. (MHz)	488.0	114.5	488.0	490.0
Limit (dB)	-11.6	22.0	-11.6	-11.7
Worst Pair	78	36	36	36
PS ACR-N (dB)	11.2	11.6	12.5	11.9
Freq. (MHz)	236.5	480.0	500.0	500.0
Limit (dB)	5.4	-13.9	-15.3	-15.3

	MAIN	SR	MAIN	SR
PASS				
Worst Pair	78	78	78	78
RL (dB)	5.0	7.4	5.0	7.4
Freq. (MHz)	492.0	420.0	492.0	420.0
Limit (dB)	8.0	8.0	8.0	8.0

Compliant Network Standards:
 10BASE-T 100BASE-TX 100BASE-T4
 100BASE-T 10GBASE-T ATM-25
 ATM-51 ATM-155 100VG-AnyLan
 TR-4 TR-16 Active TR-16 Passive



LinkWare™ PC Version 10.0

Project: TOWNCENTER BANK
 Park Plaza expansion.flw
 Floor: 12
 Rack: B

Site: Centerville
 Building: Park Plaza
 Telecom Room: 1
 Patch: 3



Figure 4. Copper Cable Report from a DSX Tester



Cable ID: Puget-3-C-2

Date / Time: 03/12/2018 02:58:17 PM n = 1.482000 (850 nm)
 Cable Type: OM3 Multimode 50 n = 1.477000 (1300 nm)
 Backscatter Coefficient: -68.0dB (850 nm) Backscatter Coefficient: -75.8dB (1300 nm)

Test Summary: PASS

Modal Bandwidth: 2000MHz-km (850 nm)
 Modal Bandwidth: 500MHz-km (1300 nm)

OTDR Bidir. Avg. PASS

Test Limit: General Fiber RL = 35 dB
 Limits Version: 7.0
 Date / Time: 03/12/2018 02:58:17 PM
 Operator: Rick Vinmels
 Tester: optifiber pro (17370006 v5.99 build 2018...
 Module: OFP-QUAD (1820014)
 Calibration Date: 12/05/2011
 No Launch Compensation

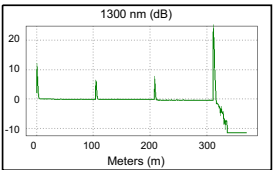
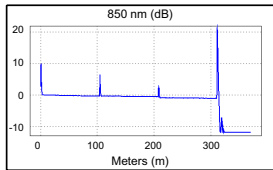
Settings (Auto OTDR) 850 nm 1300 nm
 Range (Auto) 371 m 370 m
 Resolution (Auto) 0.03 m 0.03 m
 Pulse Width (Auto) 3 ns 3 ns
 Averaging Time (Auto) 1 s 6 s
 Loss Threshold (Auto) 0.10 dB 0.10 dB
 End Threshold (Auto) 0.00 dB 0.00 dB

Measurements	Status	850 nm		1300 nm	
		Value	Limit	Value	Limit
Overall Length (m)		310.61			
Overall Loss (dB)		0.90		0.28	
ORL (dB)		35.67		39.51	
Events					
310.61 m End					
Reflectance (dB)		-15.50		-17.73	
Attn Coeff (dB/km)		2.21		0.55	
207.57 m Reflection	PASS				
Loss (dB)		0.11	0.75	0.08	0.75
Reflectance (dB)		-48.79	-35.00	-52.73	-35.00
Attn Coeff (dB/km)		2.17		0.41	
103.99 m Reflection	PASS				
Loss (dB)		0.02	0.75	0.03	0.75
Reflectance (dB)		-47.06	-35.00	-49.72	-35.00
Attn Coeff (dB/km)		3.83		1.03	
0.00 m OTDR Port					
Reflectance (dB)		-42.99		-44.87	

OTDR End1

Test Limit: General Fiber RL = 35 dB
 Limits Version: 7.0
 Date / Time: 03/12/2018 02:57:13 PM
 Operator: Rick Vinmels
 Tester: optifiber pro (17370006 v5.99 build 2018...
 Module: OFP-QUAD (1820014)
 Calibration Date: 12/05/2011
 No Launch Compensation

Settings (Auto OTDR) 850 nm 1300 nm
 Range (Auto) 371 m 370 m
 Resolution (Auto) 0.03 m 0.03 m
 Pulse Width (Auto) 3 ns 3 ns
 Averaging Time (Auto) 1 s 6 s
 Loss Threshold (Auto) 0.10 dB 0.10 dB
 End Threshold (Auto) 0.00 dB 0.00 dB



OTDR End2

Test Limit: General Fiber RL = 35 dB
 Limits Version: 7.0
 Date / Time: 03/12/2018 02:58:11 PM
 Operator: Rick Vinmels
 Tester: optifiber pro (17370006 v5.99 build 2018...
 Module: OFP-QUAD (1820014)
 Calibration Date: 12/05/2011
 No Launch Compensation

Settings (Auto OTDR) 850 nm 1300 nm
 Range (Auto) 371 m 370 m
 Resolution (Auto) 0.03 m 0.03 m
 Pulse Width (Auto) 3 ns 3 ns
 Averaging Time (Auto) 1 s 6 s
 Loss Threshold (Auto) 0.10 dB 0.10 dB
 End Threshold (Auto) 0.00 dB 0.00 dB

LinkWare™ PC Version 10.0

Project: Guest Rooms
 Mukilteo Suites.flw
 Telecom Room: TR-3
 Patch: 2

Site: Puget
 Floor: 3
 Rack: C



Figure 5. Fiber Cable Report from an OptiFiber Pro Tester (page 1)

Saving Your Database

Saving your database as a Fluke LinkWare PC (.flw) file saves all the records in one file that you or your customer can reopen and modify with LinkWare PC.

You can also export records to text (.txt) or comma-separated value (.csv) files for use with other applications. See the LinkWare PC online help for details.



Save
button

To save a database with the same name and in the same location

Click the **Save** button or select **File > Save**.

Note

*The **Save** button and the **Save** selection on the **File** menu are available only if you have made changes to the database since it was last saved.*

To save a previously saved database with a different name or in a different location

- 1 Select **File > Save As**.
- 2 In the **Save Database As** dialog box, enter a file name for your database.
- 3 Select a directory for saving the file; then click **Save**. LinkWare PC automatically adds the .flw extension to the filename.

Making PDF Files for Delivering Reports Electronically

Saving reports in PDF format lets you deliver them on diskette, CD, by email, and by other electronic methods. PDF files can be viewed and printed without LinkWare PC by opening them with the widely-used Adobe® Acrobat® Reader™ software. You can download this software from the Adobe website.

Note

LinkWare PC cannot open PDF files.

If you save multiple reports in a PDF file, LinkWare PC saves them in one PDF file where each report is on a separate page.

To save test reports as a PDF file

1 If you want to save only some of the records from the database, select them now.



PDF button

2 Click the **PDF** button on the LinkWare PC toolbar.

3 Select options in the **Save as PDF** dialog box.

If you selected multiple records and you do not select **Save each record as individual PDF**, LinkWare PC puts all the records into one PDF file.

4 Click **OK**.

- If you did not select **Save each record as individual PDF**, enter a file name and select a location for the reports, then click **Save**.
- If you did select **Save each record as individual PDF**, select a location for the reports, then click **OK**. LinkWare PC saves each report separately. The name of each PDF file is the name of the cable ID.

To save 606-C administration reports as a PDF file

1 If you want to save horizontal link or backbone cable reports for only some of the records in the database, select the records now.

2 Select **File > PDF > Administration Reports**; then choose the type of report you want.

3 In the **Save as PDF** dialog box, enter a file name for your reports. The .pdf file extension is automatically added to the file name.

4 Select a directory for saving the file; then click **OK**.

To combine PDF files

Adobe® Acrobat® software lets you combine multiple PDF files into one file. Visit the Adobe website at www.adobe.com for details.

Capturing Graphs for Use in Other Applications

You may want to use an image of a graph from twisted pair or OTDR results in another application such as a word processor or in a PowerPoint® presentation.

In the detailed results and **OTDR Trace Viewer** windows, you can save a graph in .emf, .png, .gif, .jpg, .tif, or .bmp format. For twisted pair results, you can also copy a graph to the clipboard to paste into a document made with another application such as a word processor.

To save an image of a graph of twisted pair results

- 1 Double-click on a record that includes plot data.
- 2 In the detailed results window, click on the tab for a test that has plot data, then click on the **Main Graph** or **Remote Graph** tab at the bottom of the window.
- 3 Right-click on the graph, then select **Save Image As**.
- 4 In the **Save As** dialog, select a location and enter a file name for the image.
- 5 In the **Save as type** box, select a format for the image, then click **Save**.

To copy an image of a graph of twisted pair results to the clipboard to use in another application

- 1 Right-click on the graph, then select **Copy**.
- 2 To put the image into another application, put the cursor where you want the image, right-click, then select **Paste**. Or select **Edit > Paste** on the application's tool bar.

To save an image of an OTDR graph

- 1 Double-click on a record that includes OTDR results.
- 2 In the detailed results window, click on the **Graph** tab at the bottom, then click the **Full Size Trace Viewer** button.
- 3 Select an OTDR tab; then click the **Full Size Trace Viewer** button.
- 4 In the **OTDR Trace Viewer** window, click the **Save** button.
- 5 In the **Save As dialog**, select a location and enter a file name for the image.
- 6 In the **Save as type** box, select a format for the image, then click **Save**.



Save
button

Exporting Records to XML Files

Exporting records to XML files adds data identifiers called tags to the record data so it may be used by programs that can read XML (Extensible Markup Language). For example, XML files can be displayed in a web browser, used by a word processor to create a printed report, or used by a program that generates statistics from the data.

LinkWare PC provides program files to display the XML files in a web browser, as shown in Figure 6. The files, which are called style sheets, define the formatting for the records. You can modify the style sheets to change the formatting of the web pages.

When you export records to XML files, LinkWare PC puts the style sheets in a folder named "form" in the folder with the XML files. If you move or delete the "form" folder, you will not be able to open the files in a web browser. If you give the XML files to someone, be sure to also give them the "form" folder.

Note

Viewing XML files requires a web browser that supports XML.

To export records to XML files

- 1 In the records list in the LinkWare PC window, select the records you want to export. If you want to export all the records in the list, you can make that choice in step 3.
- 2 Click the **Export to XML** button or select **File > Export to XML**.
- 3 In the **Export to XML** dialog box, select **Selected Records in List** or **All Records in List**; then click **OK**.
- 4 Select the folder where you want to save the files; then click **OK**.



Export to XML button

LinkWare PC saves the records as a set of XML files, and opens the file "index.xml", which shows the summary data for the records. To see detailed data for a test, click on a Cable ID.

For more information on XML files, see the LinkWare PC online help.



Test Result Summary

Created by: LinkWare PC (V9.2)
Created on: 01/20/2015 05:12:51 PM

Cable ID	Date / Time	Summary	Length	Test Limit	Media	Headroom		
						NEXT	RL	Loss Margin
CHANNEL 001	04/12/2004 10:39:45 AM	PASS	27.7 m	ISO11801 Channel Class D	Twisted Pair	6.3 dB	5.6 dB	
CHANNEL 002	04/12/2004 10:41:22 AM	FAIL	27.7 m	TIA Cat 6 Channel	Twisted Pair	-6.6 dB	1.5 dB	
LINK 003	04/12/2004 10:45:40 AM	PASS	15.3 m	Aus/NZ PL max Class E	Twisted Pair	8.0 dB	5.9 dB	
LINK 004	04/12/2004 02:44:43 PM	PASS	87.9 m	EN50173 PL Class F	Twisted Pair	2.8 dB	4.1 dB	
LINK 005	04/12/2004 10:50:12 AM	PASS	15.3 m	CATV Broadband	Twisted Pair			
LINK 006	04/12/2004 11:00:59 AM	PASS*	97.3 m	JIS X5150:2004 Cl. F Channel	Twisted Pair	6.0 dB	1.1 dB	
PAIR 1: FIBER A	04/12/2004 10:34:49 AM	FAIL	306.1 m	ISO11801 OF-300 Channel	Fiber			-14.10 dB
PAIR 1: FIBER B	04/12/2004 10:34:49 AM	FAIL	306.1 m	ISO11801 OF-300 Channel	Fiber			-2.71 dB
PAIR 2: FIBER A	04/12/2004 12:18:17 PM	PASS	100.8 m	ISO11801 OF-300 Channel	Fiber			0.87 dB
PAIR 2: FIBER B	04/12/2004 12:18:17 PM	PASS	100.8 m	ISO11801 OF-300 Channel	Fiber			1.70 dB
PAIR 3: FIBER A	04/12/2004 12:35:58 PM	FAIL	302.1 m	ISO11801 OF-300 Channel	Fiber			0.91 dB
PAIR 3: FIBER B	04/12/2004 12:35:58 PM	FAIL	302.1 m	ISO11801 OF-300 Channel	Fiber			-2.38 dB
PAIR 4: FIBER A	04/12/2004 12:52:55 PM	PASS	21.6 m	TIA568B Fiber Horiz	Fiber			0.75 dB
PAIR 4: FIBER B	04/12/2004 12:52:55 PM	PASS	21.6 m	TIA568B Fiber Horiz	Fiber			1.36 dB
PAIR 5: FIBER A	04/12/2004 12:56:50 PM	PASS	23.8 m	TIA568B Fiber Horiz	Fiber			0.82 dB
PAIR 5: FIBER B	04/12/2004 12:56:50 PM	FAIL	23.8 m	TIA568B Fiber Horiz	Fiber			-2.98 dB

LINK0003.GIF

Figure 6. Example of a Web Page Created from Records Exported to an XML File

Creating Cable ID Lists

Note

For information on industry standards for cable IDs, search for **cable ID standards** in the online help index in LinkWare PC.

The **Create ID List** utility lets you create lists of cable IDs and save them in a tester's internal memory. You can also save the lists on the PC to download to the tester later.

Note

Not all testers support this function.

- 1 Select **Utilities** > (tester name) > **Create ID List** from the LinkWare PC menu.
- 2 Note the guidelines for IDs given near the top of the **Custom ID List** dialog box.
- 3 Enter IDs as follows:



Add and Delete
buttons

To add or delete individual IDs in the list

To add an ID, enter the ID in the editing box, then press Enter or click the **Add** button. To delete an ID, highlight it in the list, then click the **Delete** button.

Note

For some testers, LinkWare PC changes all letters to upper case to match the letters available in the tester.



Sequence
button

To create a list of sequential IDs

Click the **Build Sequence** button or select **ID List** > **Build Sequence**. In the **Build Sequence** dialog box, enter a **Start Id** and an **End Id**, then click **OK**. LinkWare PC builds an ID list by incrementing the alphanumeric characters in your start ID from right to left until the end ID is reached.



Sort button

To sort the ID list in ascending alphanumeric order

Click the **Sort** button or select **ID List** > **Sort**.



New button

To start a new list

Click the **New** button or select **File** > **New**.



Save button

To save the ID list on the PC to download the tester later

Click the **Save** button or select **File** > **Save**, enter a file name, select a location on the PC, then click **Save**.

LinkWare PC saves list files with the extension ".ids".



Open button

To open an existing ID list that is on the PC

Click the **Open** button or select **File > Open**. Locate a list file (.ids extension); then click **Open**.

Note

When you open an existing ID list, LinkWare PC deletes IDs that do not meet the ID guidelines.

- 4 To download the list to a DSX, DTX, CertiFiber Pro, or OptiFiber Pro tester, connect the tester to the PC and turn on the tester; then click the **To (tester name)** button or select **ID List > To (tester name)**.

To download the list to an OptiFiber tester, click the **Write to OptiFiber** button; then select a folder to associate with the list.

To use the ID list in a DTX tester

Select **List** as the **Cable ID Source**; then select the name of the list you downloaded.

To use the ID list in a DSX, CertiFiber Pro, or OptiFiber Pro tester

On the tester, import the list into the current project. For more information on ID lists, see the OptiFiber Pro Users Manual or Technical Reference Handbook.

To use the ID list in an OptiFiber tester

Do a test, then, when you save the test, select the ID list you downloaded. See the OptiFiber Technical Reference Handbook or online help for details.

To use the ID list in a DSP tester

Save the list on a memory card, put the card into the tester, then select the list under the auto increment feature in the tester's setup mode.

About LinkWare Stats

LinkWare PC includes LinkWare Stats statistical report software. LinkWare Stats provides statistical analysis of cable test reports and generates browsable, graphical reports.

LinkWare Stats reports show key statistics from twisted pair and fiber cable test records exported from a LinkWare PC database. These statistics help you do the following:

- Quickly determine the overall quality of cabling installation.
- Identify link performance consistency, trends, and the best and worst links.
- Review the capability of the cabling infrastructure.
- Monitor the usage of your test equipment and spot trends in equipment and operator performance.
- Document an installation to get a manufacturer's extended cabling system warranty.
- Compare the capabilities of different cabling systems.
- Add value to your installation services by providing comprehensive documentation to your customers.

To use LinkWare Stats



LinkWare
Stats button

- 1 Open any LinkWare PC database.
- 2 Click the **LinkWare Stats** button on the LinkWare toolbar or select **File > LinkWare Stats**.

See the online help in LinkWare Stats for more information.