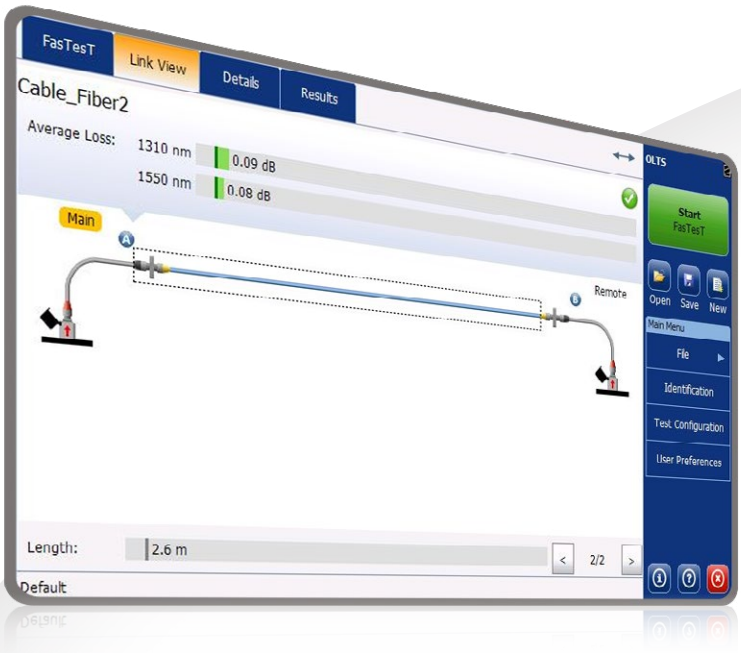
FTBx-940/945 Telco OLTS

FULLY AUTOMATED FasTesT™ BIDIRECTIONAL MEASUREMENTS FOR INSERTION LOSS, OPTICAL RETURN LOSS AND FIBER LENGTH



FASTEST

EF COMPLIANT

ConnectorMax2

EXFO Connect

SPEC SHEET

Multifunction optical loss test set (OLTS) measuring insertion loss (IL), optical return loss (ORL) and fiber length at two wavelengths in 5 seconds via fully automated bidirectional FasTesT™ analysis.

KEY FEATURES

- Unmatched FasTesT™ performances: 100% automated bidirectional test at two wavelengths under 5 seconds
- 100% automated fiber inspection: one-step process with pass/fail analysis at both fiber ends
- On-board assistant and diagnosis to reduce reference errors and negative loss
- Improved short fiber measurement
- On-board professional PDF reporting
- Best-in-class singlemode distance range of 200 km
- Compatible with the FTB-1v2/FTB-1 Pro, FTB-2/FTB-2 Pro and FTB-4 Pro platforms
- EXFO Connect-ready

APPLICATIONS

- FTTx construction
- Telecommunications and outside plant networks testing
- Data centers
- Enterprise structured cabling

COMPLEMENTARY PRODUCTS

Platform
FTB-1v2/
FTB-1 Pro

Platform
FTB-2/FTB-2 Pro

Platform
FTB-4 Pro

Fiber inspection probe
FIP-400B (WiFi or USB)

OTDR/iOLM
FTBx-720C QUAD
OTDR/iOLM

THE NEXT GENERATION OF AUTOMATED OLTS: MORE FEATURES, GREATER PERFORMANCE

Ever since its introduction in 1996, the patented FasTesT™ technology revolutionized the industry by fully automating the test sequence, saving countless hours of testing and troubleshooting in the field. Proven in thousands of diverse network deployments across the globe, FasTesT™ truly enables CAPEX/OPEX savings.

THE BENEFITS

Trustworthy test results

Fully automated fiber inspection

Fiber inspection is at the heart of ensuring that accurate references and measurements can be made. The FTBx-940/945 integrates EXFO's fully automated line of fiber inspection probes to assess and certify connector health within a few seconds. EXFO's FIP-430B (USB) and FIP-435B (wireless) rely on elaborate algorithms that do the hard work for you to automatically center, focus, capture and analyze the connector image. No user intervention needed: achieve repeatable and accurate inspection, 100% of the time.

On-board, step-by-step animated reference assistant

Accurate and repeatable test results start with proper test cord referencing. Accurate referencing greatly reduces common mistakes often encountered in the field. Thanks to the reference assistant's animated and interactive interface this step of the testing sequence is now as simple and easy as can be.

Test shorter links than ever before

Thanks to highly accurate optics, this OLTS can test with extreme precision short links with very low loss.

EXFO's patent-pending, one-cord Simplex reference method

Greatly reduces test uncertainty for greater test accuracy, which is a key factor when testing short fiber links such as drop fibers in FTTH networks.

Test efficiency

› FasTesT™: acquisition time in five seconds

› Online reporting–live from the field

› Maximum simplicity and fast-learning curve with on-board user assistance:

  › **Port LED indicators**: guide the user through the referencing and testing processes. LED indicators show the user on which optical port to connect the fiber and a beep indicates that the connection is established to confirm continuity.

  › **On-board diagnosis**: throughout the referencing and testing processes, the instrument delivers real-time information on the test cord health as well as pass/fail results according to pre-set or custom criteria. When performing testing, the instrument delivers diagnosis about the loss, length and can even identify the presence of a macrobend (refer to side picture).

  › **Margin meters**: indicate the result status as well as the margin according to preset thresholds.

› The FTBx-940/945 includes a *Test Again* feature allowing the user to re-test bad fibers in three easy steps:

1. Go back to test results
2. Quickly and correctly identify the bad fiber by looking at the pass/fail status
3. Press *Test Again*

Optimized test sequence

› **Real-time continuity feature:** The main and remote units emit visual and audible signals to let the technicians on both ends know that a connection has been established on the specific fiber under test. This also allows the technicians to start the test right away, saving time on each fiber tested.

› **Text messaging capabilities:** Allows users to send text messages through the fiber under test faster than other test sets in the industry.

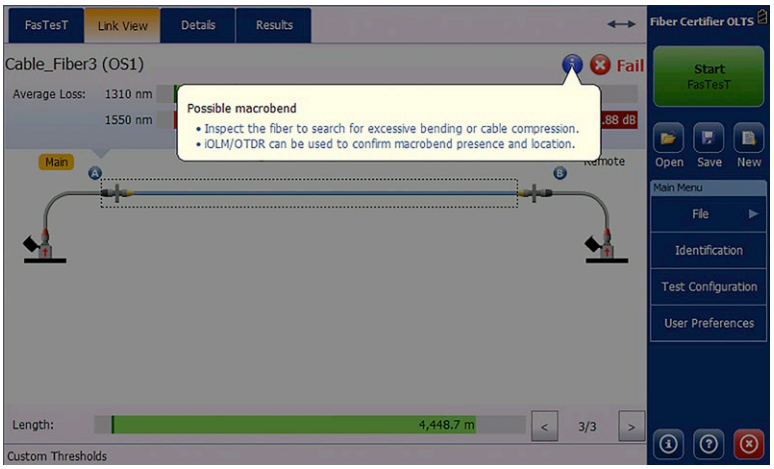


Figure 1. On-board diagnosis helps the technician take proper action

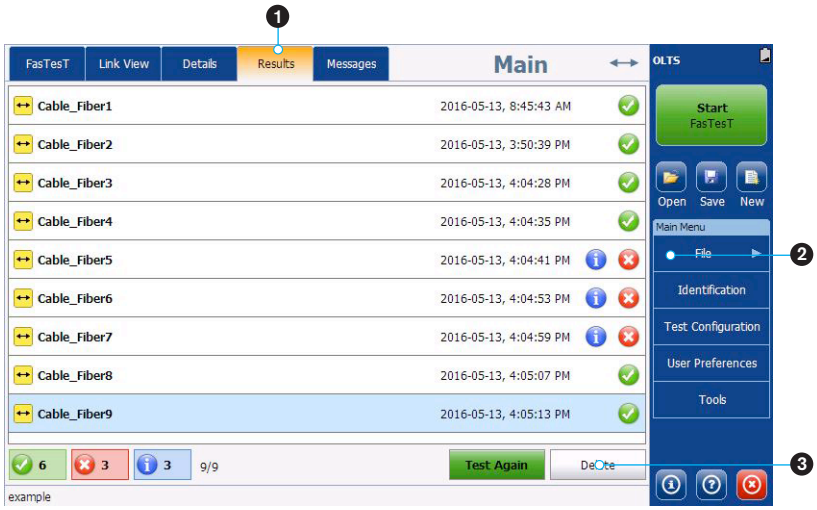


Figure 2. See results clearly and test again easily

1. ***Results*** tab lists all the fibers tested in a cable
2. Pass/Fail status indicated under ***Results***
3. ***Test Again*** button allows re-testing a "failed fiber" using the same settings

Figure 3. Continuity feature

SOFTWARE TEST TOOLS

This series of platform-based software testing tools enhances the value of the FTB-1v2/FTB-1 Pro, FTB-2/FTB-2 Pro and FTB-4 Pro platforms, providing additional testing capabilities without the need for additional modules or units.

EXpert Test Tools

EXpert VoIP TEST TOOLS

EXpert VoIP generates a voice-over-IP call directly from the test platform to validate performance during service turn-up and troubleshooting.

› Supports a wide range of signaling protocols, including SIP, SCCP, H.248/Megaco and H.323
› Supports mean-opinion-score (MOS) and R-factor quality metrics
› Simplifies testing with configurable pass/fail thresholds and RTP metrics

EXpert IP TEST TOOLS

EXpert IP integrates six commonly used datacom test tools into one platform-based application to ensure that field technicians are prepared for a wide range of testing needs.

› Rapidly performs debugging sequences with VLAN scan and LAN discovery
› Validates end-to-end ping and traceroute
› Verifies file-transfer-protocol (FTP) performance and hypertext-transfer-protocol (HTTP) availability

EXpert IPTV TEST TOOLS

This powerful IPTV quality assessment solution enables set-top-box emulation and passive monitoring of IPTV streams, allowing quick and easy pass/fail verification of IPTV installations.

› Real-time video preview
› Analyzes up to 10 video streams
› Comprehensive quality-of-service (QoS) and quality-of-experience (QoE) metrics, including the MOS score

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EXFO Connect

AUTOMATE ASSET MANAGEMENT. PUSH TEST DATA IN THE CLOUD. GET CONNECTED.

EXFO Connect pushes and stores test equipment and test-data content automatically in the cloud, allowing you to streamline test operation from build-out to maintenance.

AVAILABLE IN THE FTB-1v2/FTB-1 PRO, FTB-2, FTB-2 PRO AND FTB-4 PLATFORMS

INTUITIVE INTERFACE

Widescreen display and single touch gesture support

UNMATCHED CONNECTIVITY

WiFi, Bluetooth, Gigabit Ethernet and multiple USB ports

INCREASED PRODUCTIVITY

Store, push and share test data automatically

Do more by going FTB Pro

The Windows 10 operating system allows for a wide choice of third-party applications and supports an extensive range of USB devices.

› Start faster and multitask
› Use the Office suite
› Connect to printers, cameras, keyboards, mice, and more

Bring your own apps

- Share your desktop (e.g., using TeamViewer)
- Antivirus software
- Communicate via email services and over-the-top (OTT) apps
- Record and automate actions
- Share files via cloud-based storage

Go FTB Pro!

KEEP YOUR CONNECTORS CLEAN. KEEP YOUR NETWORK RUNNING SMOOTHLY.

AUTOMATION AT YOUR FINGERTIPS

In combination with EXFO's automated fiber inspection probes and backed by FasTesT™, the FTBx-940/945 OLTS allows for 100% automated fiber inspection at both ends of the fiber link.

DISCOVER THE INDUSTRY'S FIRST FULLY AUTOMATED FIBER INSPECTION PROBE

Housing a unique automatic focus adjustment system, the FIP-400B automates each operation in the sequence of inspecting a connector endface. The result: **fiber inspection is now a quick, one-step process that can be performed by technicians of all skill levels**.

FIVE MODELS TO FIT YOUR BUDGET

- **The FIP-430B**: complete and fully automated feature set, includes the powerful fiber image-centering system, focus adjustment and optimization, and on-board pass/fail analysis.
- **The FIP-435B**: go one step further with the wireless probe. Includes all FIP-430B features.
- **The semi-automated FIP-420B**: same features as the FIP-430B, without the automated focus adjustment.
- **The semi-automated FIP-425B**: wireless version of the semi-automated FIP-420B.
- **The FIP-410B**: all basic inspection features needed for manual inspection only.

100% Automated [a] | **1-step** Process [a] | **57%** Shorter test time [b]

FEATURES	USB WIRED			WIRELESS	
	Basic **FIP-410B**	Semi-automated **FIP-420B**	Fully automated **FIP-430B**	Semi-automated **FIP-425B**	Fully automated **FIP-435B**
Three magnification levels	√	√	√	√	√
Image capture	√	√	√	√	√
Five-megapixel CMOS capturing device	√	√	√	√	√
Automatic fiber image-centering function	X	√	√	√	√
Automatic focus adjustment	X	X	√	X	√
Onboard pass/fail analysis	X	√	√	√	√
Pass/fail LED indicator	X	√	√	√	√
WiFi connectivity	X	X	X	√	√

POWERFUL CONNECTOR ENDFACE IMAGE VIEWING AND ANALYSIS SOFTWARE

- Automatic pass/fail analysis of the connector endfaces
- Lightning-fast results in seconds with simple one-touch operation
- Complete test reports for future referencing
- Stores images and results for recordkeeping

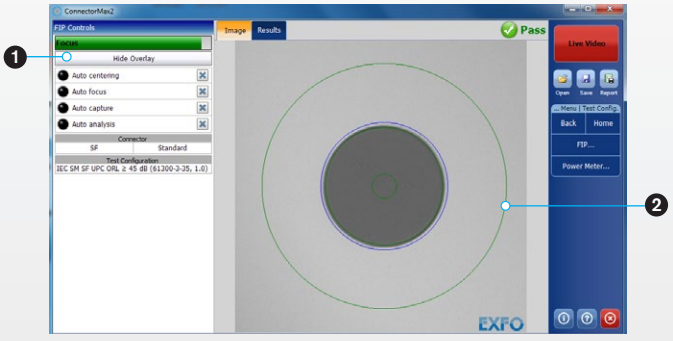

Figure 4. Clear pass/fail results

1 Inspection Controls 2 Fiber Inspection Area

a. Models FIP-430B and FIP-435B.

b. Data sourced from EXFO's case study, with calculation based on typical analysis time.

FAST TRACK DATA POST-PROCESSING WITH FastReporter 2 (OPTIONAL)

ONE SOFTWARE DOES IT ALL

This powerful reporting software is the perfect complement to your FTBx-940/945 OLTS. It allows you to create and customize reports to fully address your needs. Being able to rely on a single software to manage all your data and generate all your reports for your entire optical-layer test applications is your best option for maximum efficiency. FastReporter 2 was designed to handle everything for you.

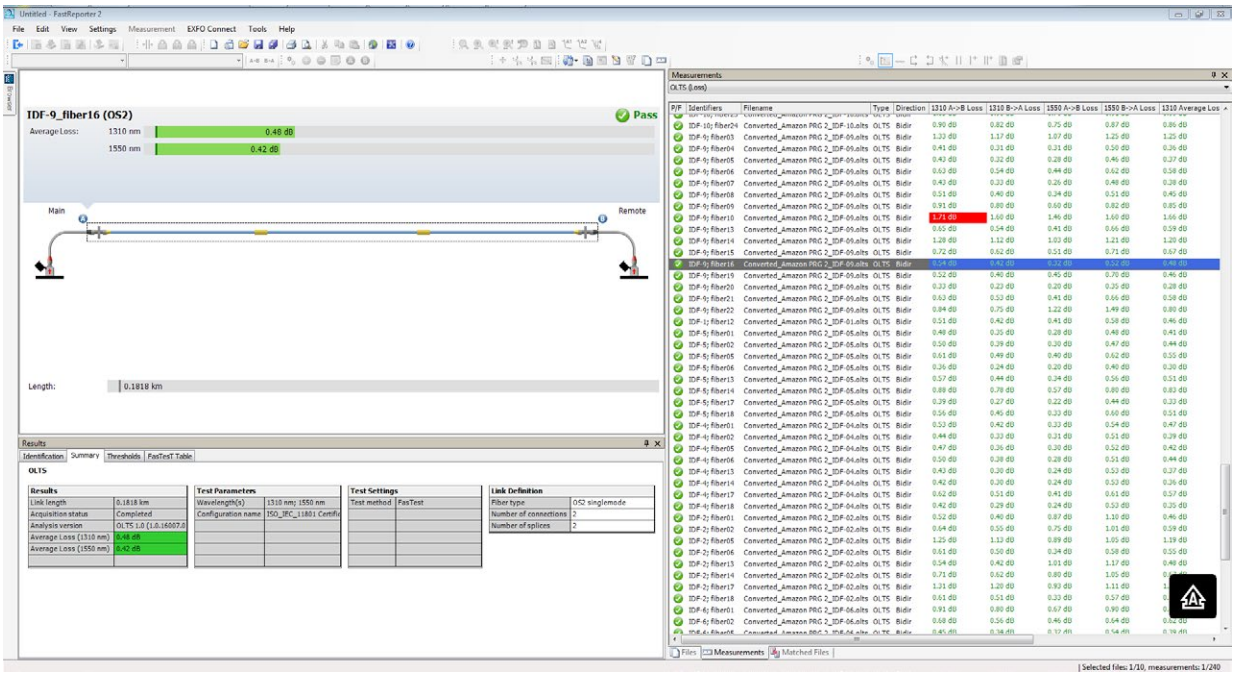

Figure 5. FastReporter 2 takes care of all the documenting and reporting for you

CHALLENGE NO. 1 — EDITING MULTIPLE MEASUREMENT FILES

Batch documenting

- Document an entire project/cable
- Manage separate measurements simultaneously

Batch standardization

- Adjust cable and fiber parameters
- Add/remove OTDR events
- Adjust detection thresholds
- Perform manual measurements on OTDR files
- Set pass/fail thresholds

CHALLENGE NO. 2 — ANALYZING MULTIPLE MEASUREMENT FILES

Specialized analysis tool to:

- Perform OTDR-iOLM bidirectional batch analysis
- Detect duplicated measurements
- Easily identify results that don't meet network requirements
- Apply new configurations, threshold and/or standards in batch

CHALLENGE NO. 3 — DOCUMENTING YOUR NETWORK

Flexibility

- Various report templates and formats (PDF, Excel, HTML)
- Report customization via Excel or Crystal Reports
- Combined reports such as:
  - Fiber characterization (CD, PMD, OTDR and OLTS)
  - OTDR and fiber inspection (FIP)
  - iOLM and fiber inspection (FIP)

SPECIFICATIONS

POWER METER SPECIFICATIONS [a]

Detector type	InGaAs
Uncertainty [b]	±(5 % + 32 pW)
Measurement range (dBm)	5 to −75
Calibrated wavelengths (nm)	850, 1270, 1290, 1300, 1310, 1330, 1350, 1370, 1383, 1390, 1410, 1430, 1450, 1470, 1490, 1510, 1530, 1550, 1570, 1590, 1610, 1625, 1650
Tone detection (Hz)	270/330/1000/2000

SOURCE SPECIFICATIONS [a]

Output power (dBm) [c]	Multimode (850 nm/1300 nm): −25 SM1 (1310 nm/1550 nm): 2.5 SM3 (1310 nm/1550 nm/1625 nm): 1 / −1 / −5 SM4 (1310 nm/1490 nm/1550 nm): 1 / −5 / −1
Output power stability (dB)	±0.05 over 8 h
Spectral width (FWHM) (nm)	850 nm: 30 to 60 1300 nm: 100 to 150

FasTesT™ LOSS/LENGTH SPECIFICATIONS [a]

Testing speed [c]	FasTesT™ Simplex: 3 seconds (two wavelengths, bidirectional, automated, IL + fiber length) FasTesT™ Simplex: 6 seconds (three wavelengths, bidirectional, automated, IL + ORL + fiber length)	
Wavelengths (nm) [c]	Multimode (LED) 850 ± 20 1300 ± 20	Singlemode (Laser) 1310 ± 20 1490 ± 10 1550 ± 20 1625 ± 10
Launch condition [d]	Encircled Flux (EF) compliancy guaranteed at 50/125 µm multimode source port. Within TIA-526-14-B, ISO/IEC 14763-3 and IEC 61280-4-1 EF template limits at the end of an EXFO reference-grade 50/125 µm test cord.	
Loss range (dB) [e]	Multimode: 20 Singlemode simplex: 45 Singlemode duplex: 50	
Length measurement range (km) [f]	Multimode: 20 Singlemode: 200	
Length measurement uncertainty [c]	Duplex: ±(0.5 m + 0.5 % x length) Simplex: ±(1 m + 0.5 % x length)	
ORL measurement range (dB) [c]	50	
ORL measurement uncertainty (dB) [c, g]	±1	

LASER SAFETY

GENERAL SPECIFICATIONS

Size (H x W x D)		158 mm x 25 mm x 196 mm (6 ¼ in x 1 in x 7 ¾ in)
Weight		0.4 kg (0.9 lb)
Temperature	Operating	0 °C to 50 °C (32 °F to 122 °F)
	Storage	−30 °C to 70 °C (−22 °F to 158 °F)
Relative humidity		0 % to 95 % non-condensing

This picture is shown as a guideline only. Actual module may differ depending on the configuration selected.

a. All specifications valid at 23 °C ± 1 °C and 1550 nm, on batteries and after 15 minutes of warm up, unless otherwise specified.
b. Uncertainty is valid at calibration conditions.
c. Typical.
d. Measured at 850 nm with SC connector.
e. Typical value, at 850 nm for multimode and 1550 nm for singlemode.
f. At 1300 nm for multimode and 1550 nm for singlemode.
g. No discrete reflectance greater than −65 dB. Up to 45 dB.

ORDERING INFORMATION

FTBx-940-XX-XX

Model
FTBx-940 = OLTS

Optical configuration
SM1 = Singlemode 1310/1550 nm, IL

Example: FTBx-940-SM1-EI-EUI-89

Connector [a]
EI-EUI-28 = UPC/DIN 47256
EI-EUI-89 = UPC/FC narrow key
EI-EUI-90 = UPC/ST
EI-EUI-91 = UPC/SC
EI-EUI-95 = UPC/E-2000
EI-EUI-98 = UPC/LC
EA-EUI-28 = APC/DIN 47256
EA-EUI-89 = APC/FC narrow key
EA-EUI-91 = APC/SC
EA-EUI-95 = APC/E-2000
EA-EUI-98 = APC/LC

ORDERING INFORMATION

FTBx-945-XX-XX

Model
FTBx-945 = OLTS

Optical configuration
SM1 = Singlemode 1310/1550 nm, IL and ORL
SM3 = Singlemode 1310/1550/1625 nm, IL and ORL
SM4 = Singlemode 1310/1490/1550 nm, IL and ORL
ICERT-Q1-QUAD = QUAD 850/1300/1310/1550 nm, IL and ORL

Example: FTBx-945-SM1-EA-EUI-91

Connector [b]
EA-EUI-28 = APC/DIN 47256 [c]
EA-EUI-89 = APC/FC narrow key
EA-EUI-91 = APC/SC
EA-EUI-95 = APC/E-2000 [c]
EA-EUI-98 = APC/LC
EI-EUI-89 = UPC/FC [d]
EI-EUI-91 = UPC/SC [d]
EI-EUI-98 = UPC/LC [d]

a. Power meter connector type is the same as the EUI connector type.
b. Connector adapters are the same on singlemode source ports, multimode source ports and power meter ports. Multimode connectors are always UPC.
c. Not available for iCERT model.
d. An hybrid REF grade test cord will be supplied when EI (UPC) interfaces is required.

EA CONNECTORS

To maximize the performance of your FTBx-945 ORL measurements, EXFO recommends using APC connectors on singlemode port. These connectors generate lower reflectance, which is a critical parameter that affects performance for ORL measurement. APC connectors provide better performance than UPC connectors, thereby improving testing efficiency.

EXFO headquarters **T** +1 418 683-0211 **Toll-free** +1 800 663-3936 (USA and Canada)

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