

# Be-an-expert training courses

See further. Test smarter.



**EXFO**

Smarter network  
in sight.™

# Be-an-expert training program

## You've got the instrument. Now get the training.

Want to improve your testing skills? Here's the right place to start: our Be-an-expert program, with easy-to-understand courses to get you up to speed.

We've designed our training program to provide you with multiple learning resources for our most popular products. These resources are designed to help you improve your efficiency and productivity, or simply get you started on your new EXFO test equipment.

## Total network assessment expertise

Benefit from proven test and measurement know-how, and gear up for efficiency.

- Over 30 years of experience in telecommunications
- Over 4000 people in more than 60 countries are trained each year

## Our mission

Our mission is to maximize your return on investment by helping you get the most out of your test instrument. This goal is achieved by offering the right mix of theory and hands-on training, as well as useful tips gained from years of experience with testing equipment.

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## Contact us

To book your training or  
for more information:

Tel.: **1 866 683-0155**  
(USA and Canada)  
**+1 418 683-5498**  
(worldwide)

Email: [tech.training@EXFO.com](mailto:tech.training@EXFO.com)

# Get certified and stand out from the crowd

## Stay one step ahead

Professional certification is key to demonstrate to your clients that you are fully qualified to carry out complex tasks in the ever-evolving telecom landscape.

**Be EXFO certified.**

**Build your credibility.**

**Stay on top of your game.**

## Training across your organization

Our Be-an-expert program is fully scalable to meet the training needs of large organizations and global companies. Get in touch with our training team to discuss your specific needs and tailor the optimal training content and mode for your organization.



Our certification partners

# Three ways to learn from our experts

Get up and running quicker and with better results—just choose either one of our practical, hands-on training methods.

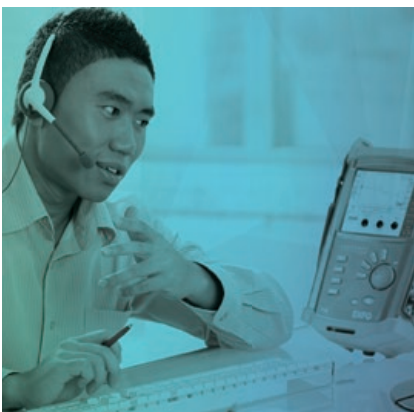


## On-site training



### Make the most of having face time with one of our experts

Offered at your location or at our facilities, our training programs can be adapted to small and large groups, which allows for a customized and flexible approach. Every session covers both theoretical and practical aspects of the technology, with a focus on real-world testing situations. All exercises have been specially created to give technical staff exactly what they need. We are also available to guide attendees through live test sessions on actual fiber links.



## On-request live e-learning



### Discuss your application with our technical training specialist

Should you prefer a personalized online training session, our technical support team can help. We understand that the scheduled times for live discussions on testing topics may not always be convenient, so feel free to contact us to schedule an online training session at a more appropriate time for you. Our training department will contact you to schedule and personalize your Web-based session.

Note: Live e-learning sessions are offered in English, French or Spanish.



## Self-paced e-learning



### Explore our e-learning portal

EXFO Academy, part of the Be-an-expert training program, provides e-learning training sessions that you and your employees can complete at your own pace. EXFO Academy is designed for groups of 50 people or more, and offers numerous training possibilities covering a full range of topics.

# EXFO certified fiber optic training (ECFT) series

Our certification validates the acquisition of specialized knowledge and know-how in the field of telecommunications. It covers fundamentals, network test & measurement standards and technologies, and best practices.

Be-an-expert training program is a cost-effective, consistent way to train new team members, or to get your whole department up to speed for increased productivity, accuracy and performance.

**Join the ranks of leading telecom service providers.** Make the strategic choice to require our ECFT certification to ensure the highest standards.



Verizon Wireless  
dark fiber testing



T-Mobile optical  
technology training



SCTE Broadband Transport  
Specialist (BTS)



Google fiber ECFT  
(contractors)



ATC FTTA and DAS  
testing (contractors)



AT&T ASG FTTA and  
DAS testing (contractors)

# Training courses

## Data center and enterprise optical certification

Fiber-optic structure cabling infrastructure remains one of the most critical pieces of the puzzle to ensure customer quality of experience (QoE) and business-related service level agreements (SLAs). These courses will teach you the skills to correctly assess the performance of that infrastructure in data centers and enterprise private networks. Network topologies and fiber types, fiber-optic connector inspection and maintenance best practices, report generation and a hands-on session with MaxTester and OTDR-iOLM set-up are featured in these courses.

### Data center and enterprise tier 1 testing—FE-1040

Duration: 1 day



This course will cover certification testing, specifically: fiber cabling standards, both end-to-end and insertion loss measurements, Encircled-Flux (EF) test conditions, reference test methods and test cords, connectivity considerations (length, polarity, gender), fiber-link pass/fail analysis, testing and measurement considerations, and data center fiber-link certification reporting.

#### Optional pre-requisite:

[Tier 1: Introduction to optical fiber—FE-1150](#)

Duration: 1 hour



### Data center and enterprise tier 2 troubleshooting—FE-1041

Duration: 1 day



Covers troubleshooting using an OTDR and iOLM testing, specifically: end-to-end loss, reflectance, ORL characterization, OTDR trace and optical link mapper view interpretation, event pass/fail analysis, fault finding and event characterization.

#### Optional pre-requisite:

[Tier 2: OTDR fundamentals—FE-1151](#)

Duration: 1 hour



## Expert webinar series and educational videos

Free web-based technical training is also available to help you become an expert on your EXFO equipment in no time. **See page 12.**



On-site training



On-request live e-learning



Self-paced e-learning

# Optical loss and reflection

When it comes to basic fiber measurements and FTTx test solutions, the starting point of all fiber characterization is to test insertion loss (IL), optical return loss (ORL) and reflection. These dynamic courses will review the optical principles being applied to testing in today's telecommunications industry. Learn about the proper methodology for testing IL and familiarize yourself with how FTTH projects are very sensitive to ORL and reflections.

**Basic fiber optics and loss testing (IL and ORL)—FE-1031**  
Duration: 1 day



Provides a substantial comprehension of light propagation theory and an overall understanding of the fundamentals of fiber optics. It also covers loss testing methods, connector maintenance and ConnectorMax software.

Connect<sup>or</sup>Max<sup>2</sup>

**Testing with the MaxTester and multitest modules (OLTS)—FE-1039**  
Duration: 1 day



Offers a refresher on fiber-optic theory and an overview of IL and ORL testing using OLTS. Participants will learn how to operate MaxTester and multitest instruments in manual and automated (FasTesT) modes.

**Basic measurement techniques (IL and ORL)—FE-0532**  
Duration: 1/2 day



Focuses mainly on the practical aspects of IL and ORL testing. Participants will learn how to measure these parameters using simple test instruments, such as a power meter, light source and backreflection meter.

## OTDR

OTDR testing is a key component of fiber characterization and is required in all areas: PON FTTx/MDU, metro CWDM, LAN/WAN access, metro/long-haul and ultra-long-haul networks. Whether you would like to go over reflectometry basics and OTDR post-processing software or explore more advanced OTDR topics, such as echoes, troubleshooting and gainers, a number of different OTDR courses are available.

**Introduction to OTDR Testing—FE-1033**  
Duration: 1 day



Teaches participants how to interpret OTDR measurements based on general reflectometry theory. It also covers the limitations of both the theory and the instrument, as understanding these limitations will enable the attendees to get reliable results from an OTDR.

Connect<sup>or</sup>Max<sup>2</sup>

**Advanced OTDR Testing and iOLM—FE-0535**  
Duration: 1/2 day



Covers advanced OTDR analysis functions and the post-processing tools related to OTDR testing. Participants will learn how to use the time-saving features of EXFO's OTDRs; namely, ToolBox, iOLM features and FastReporter 2 software.

**iOLM** | intelligent Optical Link Mapper

**FastReporter 2**  
EFFICIENT POST-PROCESSING SOFTWARE

**FTTx**  
Test Solutions

On-site training

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# FTTx

FTTx stands for fiber-to-the-x, where x is a variable that represents the location to which fiber is rolled out. Basically, a location can be anywhere and everywhere. In these courses, FTTx testing will focus on fiber-to-the-home (FTTH) and fiber-to-the-antenna (FTTA), as well as distributed antenna systems (DAS). FTTH requires PON testing, whereas FTTA and DAS require insertion loss (IL), optical return loss (ORL) and OTDR testing. All this and so much more will be covered in this series of training courses.

## FTTH PON testing—FE-1001

Duration: 1 day



Provides an overview of FTTH PON, and explains how to test a network at every step of its architecture. The complete line of FTTH testing products will be used to cover all test phases: construction, activation and troubleshooting.



**iOLM** | intelligent Optical Link Mapper

## Introduction to FTTA and DAS testing—FE-1002

Duration: 1 day



Gives a complete overview of FTTA and DAS optical networks, including how to test your network at every testing point. Using the complete line of FTTA testing products, you will go through each testing scenario, from construction to activation and troubleshooting. Each topic is discussed and reviewed, with a hands-on session enabling participants to get a feel for the applications.



**FastReporter 2**  
EFFICIENT POST-PROCESSING SOFTWARE

**iOLM** | intelligent Optical Link Mapper

## FTTH PON testing—FE-3001

Duration: 3 days



Provides a complete overview of FTTH PON, and explains how to test a network at every step of its lifecycle. Using the complete FTTH testing products, all test phases will be covered: construction, activation and troubleshooting.



**iOLM** | intelligent Optical Link Mapper



## Bundled training

Benefit from EXFO's bundle offering that will allow you to increase your knowledge and reduce your total cost by committing to a series of training sessions. For more information, write us at [tech.training@EXFO.com](mailto:tech.training@EXFO.com).



On-site training



On-request live e-learning



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# Dispersion characterization and spectral testing

Dispersion is a major cause of signal degradation. This means that it is extremely important to test for both polarization mode dispersion (PMD) and chromatic dispersion (CD) in order to maintain optimum transmission performance. Optical spectrum analyzers are the perfect tool for accurate fine-tuning of your WDM network. Learn more about our new in-band testing feature that makes full use of our polarization-resolved optical spectrum technique.

## Polarization mode dispersion testing—FE-1043

Duration: 1 day



Gives an overview of general dispersion phenomena occurring in fiber-optic communications, as well as the problems caused specifically by PMD. It also describes the internal workings of EXFO's PMD analyzer and explains how to interpret the result obtained with the instrument.



## Introduction to WDM systems, optical spectrum analyzers (OSA) and in-band testing—FE-1035

Duration: 1 day



Offers an overview of WDM systems and how to test them using an optical spectrum analyzer. It covers appropriate OSA configurations, critical test parameters and requirements, as well as actual test procedures.



**LINK AWARE™** **WDM AWARE™**  
TECHNOLOGY TECHNOLOGY

## Introduction to dispersion testing (CD and PMD)—FE-1044

Duration: 1 day



Provides an overview of general dispersion phenomena occurring in fiber-optic communications, as well as the problems caused specifically by PMD and CD. It also covers the internal workings of EXFO's PMD and CD analyzers and explains how to interpret the result obtained with the instruments.



## Chromatic dispersion testing—FE-1050

Duration: 1 day



Gives an overview of general dispersion phenomena occurring in fiber-optic communications, as well as the problems caused specifically by CD. Attendees will learn how to differentiate various types of fiber and how to compensate for CD. It also covers the internal workings of EXFO's CD analyzer and explains how to test and interpret the results obtained with the instrument.



## Fiber characterization—FE-1010

Duration: 1 day



This one-day class provides a comprehensive step-by-step technique for conducting fiber characterization tests on a singlemode fiber pair. The course teaches all the methods, standards and practices required to produce a comprehensive report. Explanations of loss, dispersion and tests are delivered through innovative animations and definitions.



On-site training



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Self-paced e-learning

## Transport

OTN-based networks are becoming the network of choice for carriers who demand a stable and resilient method of delivering 40G/100G Ethernet services. These circuits need to be proven capable of handling any of the demanding services that are required to transport data. To do so, test routines must be performed. These tasks can be complex and cumbersome when they are not executed with the proper test equipment.

### Introduction to legacy SONET testing—FE-1081

Duration: 1 day



Covers the basics of legacy SONET technology and its test applications using EXFO's FTB/IQS-8115/8120/8130 SONET/SDH analyzers.



### Introduction to legacy SDH testing—FE-1082

Duration: 1 day



Presents an overview of legacy SDH technology and its test applications using EXFO's FTB/IQS-8115/8120/8130 SONET/SDH analyzers.



### Introduction to next-generation SONET/SDH testing—FE-1083

Duration: 1 day



Covers the fundamentals of next-generation SONET/SDH technology and its test applications using EXFO's FTB/IQS-8115/8120/8130 SONET/SDH analyzers.



### Introduction to optical transport networks and G.709 testing—FE-1084

Duration: 1 day



Introduces the basics of optical transport networks (OTNs) in relation to the ITU-T G.709 recommendation. The training session discusses both theoretical and practical aspects; namely, G.709 test applications using EXFO's FTB/IQS-8115/8120/8130 SONET/SDH analyzers.



## Datacom

Ensuring the consistent delivery of quality data services, such as VoIP and IP video, comes with numerous challenges, the likes of which include increased network complexity and bandwidth demands, the availability of mission-critical applications and the performance sensitivity between data service and real-time applications. Because they are critical to business operations, data communication services require specific network performance levels, with advanced test solutions required in order to validate these performance levels.

### Introduction to Ethernet testing—FE-1085

Duration: 1 day



Covers the basics of Ethernet technology and its test applications using EXFO's Ethernet test modules. This training session discusses both theoretical and practical aspects.



### Introduction to Ethernet testing—FE-2085

Duration: 2 days



Provides detailed information on the Ethernet technology and its test applications using EXFO's Ethernet test modules, covering the functionalities and features of each module. This training session discusses both theoretical and practical aspects.




# Copper access

The expansion of DSL has led to widespread deployment, enabling the reuse of existing copper loops and providing the mass market with cost-effective triple-play services. As networks evolve to withstand emerging bandwidth-intensive applications, service providers need to offer error-free video, quality voice services and reliable high-speed Internet to ensure customer satisfaction.

**Introduction to MaxTester testing—  
FE-1090**

**Duration: 1 day**




Gives an overview of copper and DSL technologies, as well as test applications using EXFO's MaxTester 6XX or FTB-6XX and CoLT-350, which are designed to stand up to the challenges of the outside-plant environment.



**Advanced MaxTester testing—  
FE-1094**

**Duration: 2 days**




Provides in-depth coverage of DSL technologies and test applications using EXFO's MaxTester 6XX or FTB-6XX and CoLT-350.



**Introduction to AXS-200/635—  
FE-1095**

**Duration: 1 day**



Covers the fundamentals of copper and DSL technologies and test applications using EXFO's AXS-200/635 Triple-Play Test Set.



# Fiber monitoring

EXFO's fiber monitoring equipment, such as NQMS*fiber* system and Fiber Guardian, is the ideal monitoring solution for managing your cable and fiber network, in addition to helping you reduce the time dedicated to troubleshooting and link restoration. Learn more about how to manage fiber alarms, alarms reporting, topology view and trouble tickets. The NQMS*fiber* training series also includes a section on OTDR trace interpretation to help operators better locate, analyze and solve any fault on the fiber.

## Fiber Test Insight training—NQMS-INST-FIB-FTI

Duration: 1 day



Course for system administrators and operator managers. It covers the functionalities of the Fiber Test Insight software components and explains the system's features and operation.

## NQMS*fiber* training—NQMS-INST-FIB-UTR

Duration: 2 days



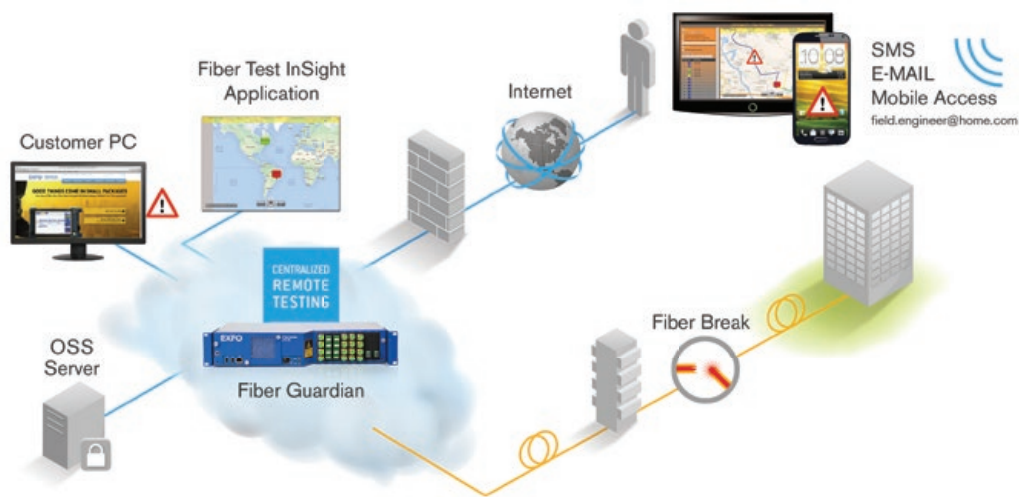
Intended for system administrators and operator managers. It covers the functionalities of NQMS*fiber* components and explains the system's features and functions.

## NQMS*fiber* training—OSPM-TRA

Duration: 2 days



Intended for network maintenance managers and technicians. It covers the OSP InSight system architecture, drawing and configuration.



On-site training



On-request live e-learning




Self-paced e-learning

# Service assurance

Quality of the customer experience is paramount nowadays. Service providers need metrics to measure performance as well as real-time analytics and visibility at the network, service and subscriber levels. This is where EXFO Worx comes in. It provides the means to meet predefined service quality levels, provide tangible metrics of network performance, optimize network operations, provide management guidance and ultimately offer the best subscriber experience.

**EXFO Worx operations and system administration training—BP-9111**

**Duration: 2 days**




Intended for users who need to utilize EXFO Worx for network monitoring and debugging. This course is also for system administrators who will be responsible for maintenance and monitoring of the EXFO Worx software.

Provides an overview and covers the architecture of EXFO Worx. Offers hands-on exercises and lectures regarding configuration. Covers how to create services and SLAs and how to build testing strategies.

**EXFO Xtract training—EXP-TRAIN-OPS, EXP-TRAIN-FULL**

**Duration: 2 days each**




Provides an overview and covers the architecture of EXFO Xtract.

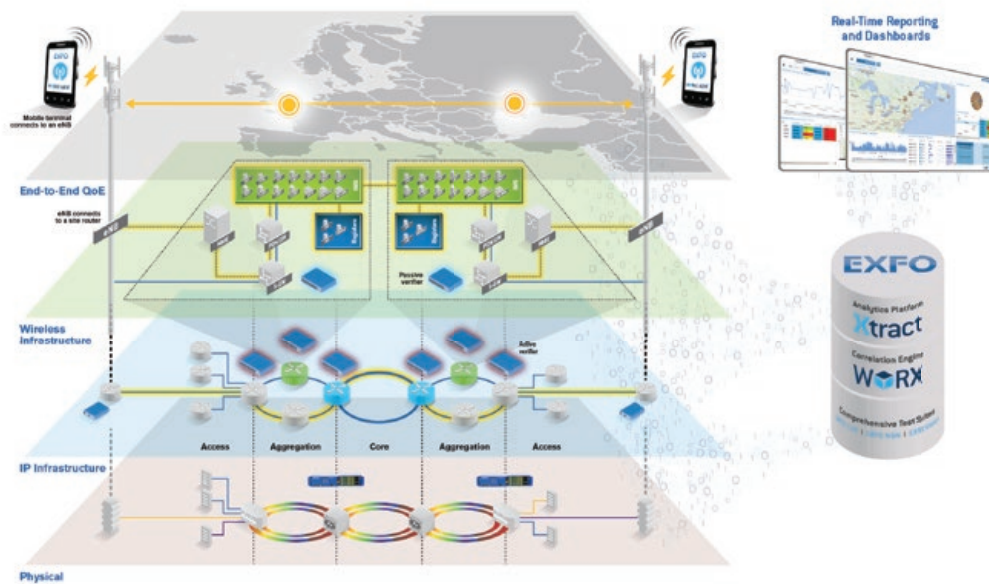
- EXP-TRAIN-OPS is intended for EXFO Xtract users and gives them hands-on labs and lectures on Xtract environment configuration and how to best use Xtract in their context.
- EXP-TRAIN-FULL is intended for EXFO Xtract users and administrators. It includes EXP-TRAIN-OPS material and information on how to set up and configure EXFO Xtract for an administrator.

**EXFO partner certification training—BP-7140**

**Duration: 3 days**



Designed to provide the service personnel of EXFO service assurance partners with the necessary technical and process skill to deliver services provided by Tier 1-2 Technical Support Engineers, Field Engineers, or Sales Engineers. Provides two days of EXFO Worx Operations and System Administration Training, and one day of job-specific training (TSE, FE, or SE).



# Other training resources

## Expert webinar series

EXFO offers free Web-based training sessions to help you become an expert on your EXFO equipment in no time. Provided by our technical support specialists, these operation-based online training sessions are open to all our customers, and are offered on an ongoing basis. To access our archived webinar recordings or attend upcoming webinars, please visit [www.exfo.com/webinars](http://www.exfo.com/webinars).

## Educational videos

### How to training when you want, as often as you want

These multimedia training capsules will help you get the most out of your EXFO equipment. They include some basic theory, as well as concise information on how to operate the units and obtain high-quality test results. To access these capsules, go to [www.exfo.com/training](http://www.exfo.com/training).



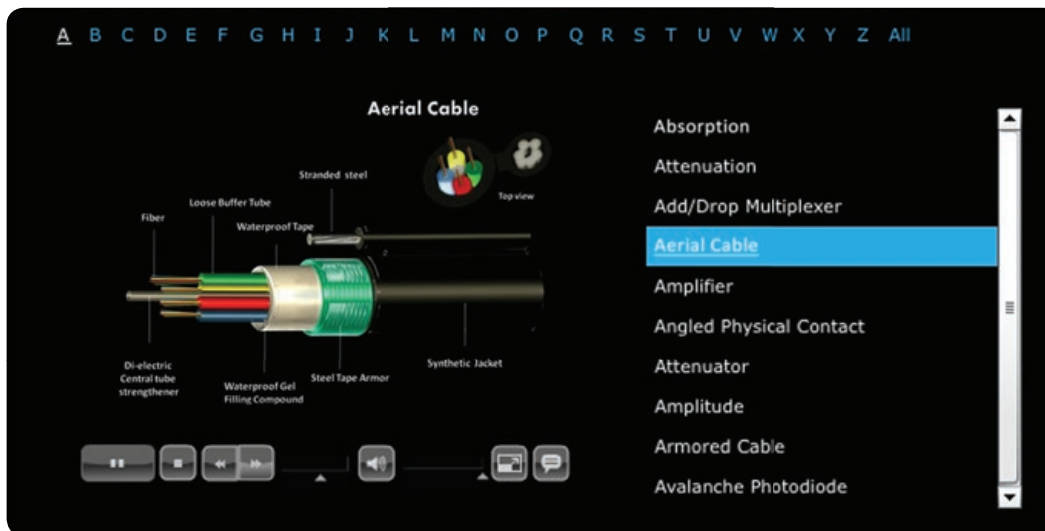
## Product demonstrations

EXFO's solutions were designed from our customers' point of view. Simple, intuitive and ready to make a difference in your testing plans right from the start. With access to hands-on demonstration videos for many products, you can experience the true innovation and ease-of-use of EXFO equipment. Watch these products in action at [www.exfo.com/demos](http://www.exfo.com/demos).

# Animated glossary

## A world's first in fiber optics

There are many terms used in today's telecom industry that can be unfamiliar. Looking up definitions doesn't always give a clear understanding of what it is and what it does. With this in mind, EXFO's Be-an-expert program has produced the world's first animated glossary of telecom terms. Providing concise definitions and animated sequences, this tool will give you a better understanding of telecom terminology. Experience it for yourself at [www.exfo.com/animated-optical-glossary](http://www.exfo.com/animated-optical-glossary).



### First animated glossary

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You have the equipment,  
now take it to the next level.  
Be-an-expert.

## Contact us

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**+1 418 683-5498 (worldwide)**

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**[www.exfo.com/training](http://www.exfo.com/training)**



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