NQMS*fiber*

NETWORK TESTING—MONITORING

The ultimate plug-and-play remote fiber test system (RFTS)

- Low cost of ownership, thanks to low maintenance and high level of automation
- 24/7 detection, location and tracking of fiber degradations
- Automatic discovery and provisioning capabilities
- Unique RFTS test method for reference data management
- Designed for core, metro and FTTx/access network requirements
- Highly customizable element management server (EMS)
- Locally or remotely operated through a Web-based RTU user interface

NQMS*fiber*
NETWORK QUALITY MONITORING SYSTEMS

FTTx
Test Solutions

www.EXFO.com
Telecom Test and Measurement

EXFO
EXPERTISE REACHING OUT

Introducing EXFO's Second-Generation RFTS Solution

Managing your cable and fiber network is a full-time concern—which is why choosing a 24/7 monitoring solution to better control it only makes sense. By running remote test units (RTUs) deployed at key locations across the network, EXFO's NQMS*fiber* Network Quality Monitoring System brings **a trouble-free approach to network operation and maintenance**.

PLUG-AND-PLAY BENEFITS: AUTO-DISCOVERY AND REFERENCE DATA MANAGEMENT

Right from the start, each NQMS*fiber* RTU creates a basic test schedule for each detected optical route and selects the best OTDR test parameters for each test setup. This results in immediate system commissioning as soon as RTUs are activated.

What's more, NQMS*fiber* uses a unique, customizable reference data buildup method as it "learns" the specifics of your network, providing the operation and maintenance team with a statistical picture of the network optical loss stability—and enabling them to fine-tune the monitoring system's alert sensitivity accordingly.

NQMSfiber system architecture
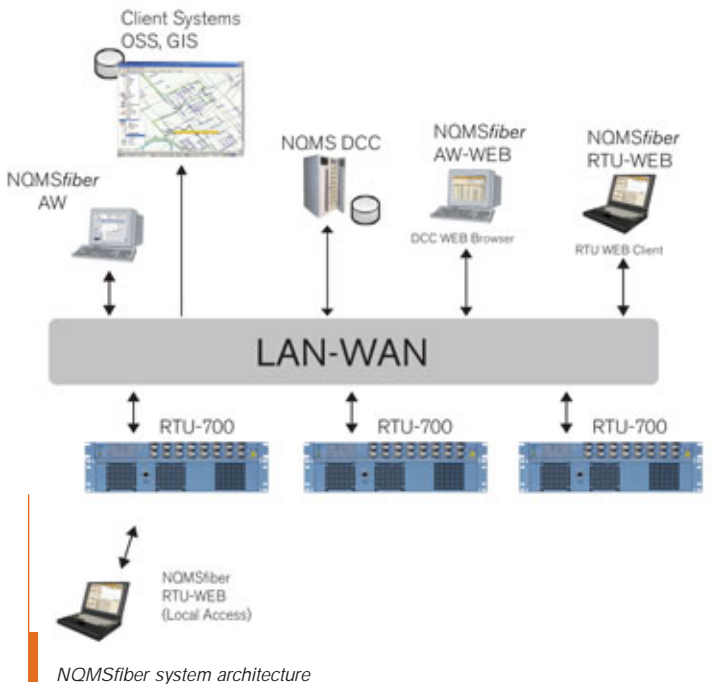
SMART TESTING : VARIOUS METHODS

NQMS*fiber* offers **four test methods**, providing users—field technicians, NOC operators, network maintenance managers, network engineers, etc.—with the flexibility to select the testing approach that best suits their needs. Tests can be scheduled, performed on-demand or run continuously.

- **Ad Hoc Test** is a fully manual OTDR test for service restoration or troubleshooting.
- **On-Demand Testing** is used to discover the cause of a possible fiber degradation or to get more accurate information on the status of an optical route.
- **Proactive Maintenance** enables scheduled tests used to further analyze trends associated with seasonality or with construction work along specific cables. All acquired traces are automatically stored.
- **Monitoring** continuously checks—in less than 10 seconds per port—for major degradation or breaks. Alerts are also sent through various communication channels based on user-selected on-duty schedules.

OTDR MONITORING

NQMS*fiber* "looks" at your fiber links from different angles. It can be configured to generate alerts in the event that the **event loss**, **cable section loss** or **total link loss** exceed preset thresholds.

- **Event loss**, which is measured to pinpoint a break, bend or splice degradation
- **Section loss**, which can indicate environment-induced stresses over an entire cable section
- **Total loss**, which helps ensuring that your link-loss budget is kept under control

PER-DOMAIN MANAGEMENT

You can assign RTUs to regions or sections of a route to specific system users. A user may be internal or external to your company, such as a subscriber, an operator leasing your dark fibers or a VIP customer. These assignations increase maintenance efficiency and simplify system operation for networks that are split in multiple regions and that serve users with different profiles and interests.

AUTOMATIC SLA SUPPORT

EXFO's NQMS™ can automate the generation and distribution of reports. In NQMS*fiber*, an alarm report can be sent to your VIP customer every day, week or month. This report summarizes the history and the total duration of each alarm on a route, from its creation to when it was resolved. The report can optionally show various other details such as the type and exact location of a fault, as well as the details of each event logged during the alarm lifecycle. The report can typically present all alarms that occurred during a predefined time period.

PROGRAMMABLE RECONFIGURATION OF REFERENCE PARAMETERS

NQMS*fiber* is designed to help you minimize your input for updating or resetting the test reference parameters, as it can be programmed to acquire new reference data at specific dates.

A Customizable, Three-Tiered Element Management Server (EMS)

NQMSfiber software

ADMINISTRATIVE WORKSTATION (AW)

The AW user interface is the NQMS*fiber*'s main software application. System administrators, network maintenance managers and NOC operators use it to administrate the system, configure test setups, create schematic views of the network, document the network and the optical routes, locate, view and manage alarms, browse and analyze test results, and perform various system operation and maintenance tasks.

*A WIDE RANGE OF SYSTEM MANAGEMENT FUNCTIONS*
The AW user interface offers numerous functions; namely, it allows you to:

- Define user properties
- Assign users on-duty schedules for sending alerts
- Configure tests and establish schedules
- View and manage alarms
- Look up test results
- Create topology views and set background images
- Locate sites onto an optical route, for fast fault location
- Set alert parameters and channels (e-mail, SMS, etc.)
- Perform on-demand testing using pre-defined test setups
- Automatically generate reports
- View status for the system and monitored routes

WEB ACCESS TO SERVER DATA

With this user interface (AW Web browser), NOC operators and field technicians can quickly access the current network QoS and drill into information for a particular optical route, a given user/client section or a region for which the user has view-only or full access rights. They can view the problems that are not yet resolved and see if an alarm has been acknowledged (and if so, by whom). The NQMS*fiber* AW-Web browser allows multiple thin clients to concurrently:

- Obtain the optical network status from a QoS perspective
- View and manage current and historical alarms
- Perform on-demand testing
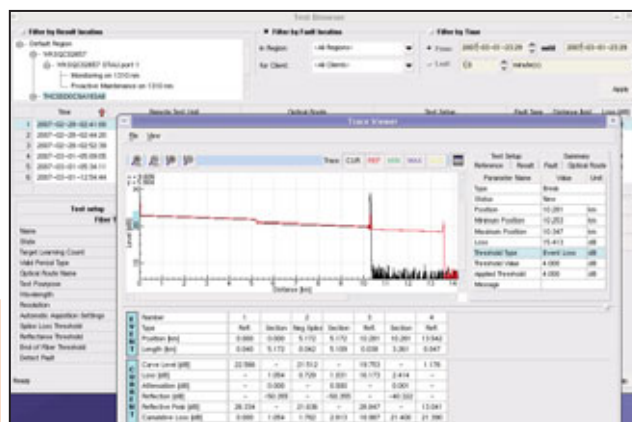
WEB-BASED RTU USER INTERFACE

Each RTU can be directly accessed through a Web browser. One of the two Ethernet ports available on the RTU is dedicated to local access. The Web server installed on the RTU also provides access from a remote location. Remote users can therefore view current RTU and scheduled test status using the Web browser. NQMS*fiber* Web servers are compatible with Firefox® and Microsoft Internet Explorer® browsers.

The RTU user interface provides access to the following information:

- Optical port and route status from a testing perspective
- Hardware and software status
- Communication status
- Current networking configuration
- Current and scheduled test activities
- Event history in an audit log

The RTU-Web user interface enables local or remote users to perform the following tests and verifications:

- Select a port, set OTDR test parameters, acquire the trace and then view results and event table
- Download the trace to any reachable LAN location or to a user's PC for further analysis using EXFO's OTDR Viewer software application or FastReporter data post-processing software
- Measures and assess the optical quality of the equipment (switch, OTDR) and of the connection with the fibers under test, using a dedicated dialog
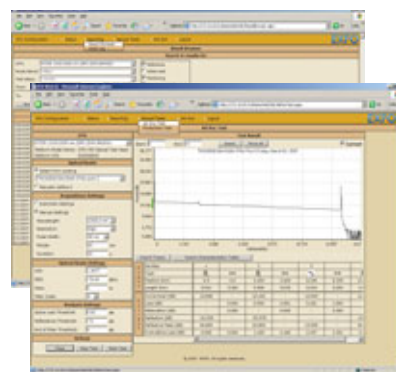
SPECIFICATIONS

Remote test unit

RTU-720 NQMS*fiber* Remote Test Unit

OTDR modules (see below)	Metro/core
Optical ports	1/8/16
Number of external optical ports	Up to 96
OTDR-to-port loss (dB)	1
typical at 1550 nm, 1 X 8 model	
Alarm relay outputs (2)	System and server communication status
Network interfaces (2)	10/100 Base-T Ethernet one dedicated to local access
Dial-up modem (1) [a]	v. 92, 56k
Unit status front LEDs	4
Power supply (AC or DC)	100-240 VAC, 50/60 Hz −47/−57 VDC
Software user interface Local access, LAN and dial-up	Web-based Internet Explorer™ Mozilla™
Operating temperature	0 °C to 50 °C (32 °F to 122 °F)
Size (for 19 in or 23 in racks) (H x W x D)	44 mm x 427 mm x 295 mm (1.72 in x 16.8 in x 11.6 in)
Certifications	CE, CSA-UL, RoHS

NQMS Data Collection Center (DCC)

Server platform *(typical)*

- Rackmount unit
- Linux Red Hat® operating system
- Intel® Xeon 1.66 GHz Dual-Core
- 5 Gbyte RAM (min.)
- 5 x 80 Gbyte HDDs, hot swap SAS
- RAID 0,1
- Redundant AC 835 W power supplies
- Remote access adapter (IP-based)

Application server software

- One (1) seat per RTU and AW client
- Embedded Oracle database

NQMS*fiber* Administrative Workstation (AW)

- Desktop application software
- NQMS*fiber* Edit/View license
- Windows® XP Workstation
- Also available on Linux

SUPPORTED OTDR MODELS

OTDR Specification [b]	Metro	Core
FTB-7000 series model	FTB-7300D	FTB-7500E
Fiber type	Singlemode	
Models and wavelength (nm)		
RTU-720-003M	1550	
RTU-720-023M	1310/1550	
RTU-720-004M	1625	
RTU-720-034M	1550/1625	
RTU-720-023L		1310/1550
RTU-720-034L		1550/1625
Dynamic range (dB) [c]		
1310 nm	39	45
1550 nm	38	45 [d]
1625 nm	36	45
Event dead zone (m) [e]	1	0.8
Attenuation dead zone (m) [e]	5	4
Distance range (km)	260	400
Sampling resolution (m)	0.04	0.04
Number of points (max)	128000	256000
Distance uncertainty [f] (m)	± (0.75 +0.0025% x distance + sampling resolution)	± (0.75 +0.001% x distance + sampling resolution)

OPTIONAL ITEMS

Remote OTAU
Up to 96 ports

Web Client (AW-Web)
Web browser system access

OSP Data Management System (GIS)
Certified product: *OSPInSight* - AFO, Inc.

Live Fiber
FWDM (line 1310-1550 nm, monitor 1625 nm)

Communication Networks
PSTN, ISDN

Interface-to-Client Systems
SNMP MIBs, e-mails (XML)

ORDERING INFORMATION [g] (RTU-700)

RTU-720-XX-XX-XX-XX

Models
RTU-720-003M = NQMS*fiber* Remote Test Unit, 1550 nm SM OTDR: metro
RTU-720-004M = NQMS*fiber* Remote Test Unit, 1625 nm SM OTDR: metro
RTU-720-023M = NQMS*fiber* Remote Test Unit, 1310/1550 nm SM OTDR: metro
RTU-720-023L = NQMS*fiber* Remote Test Unit, 1310/1550 nm SM OTDR: core
RTU-720-034M = NQMS*fiber* Remote Test Unit, 1550/1625 nm SM OTDR: metro
RTU-720-034L = NQMS*fiber* Remote Test Unit, 1550/1625 nm SM OTDR: core

Ports
01 = 1 port
08 = 8 ports
16 = 16 ports

Connector
58 = FC/APC narrow key
88 = SC/APC

Power
AC = 100-240 VAC Power supply
DC = −48 VDC Power supply

Rack-mount kit
RK19 = RTU rack-mount kit 19″
RK23 = RTU rack-mount kit 23″
RKET = ETSI adapters

Example : RTU-720-003M-08-58-RK19-DC

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a. A second modem is optional.
b. All specifications valid at 23 °C ± 2 °C (73.4 °F ± 3.6 °F) with a FC connector, unless otherwise specified.
c. Typical dynamic range with longest pulse and three-minute averaging SNR > 1.
d. Typical dynamic range is 43 dB at 1550 nm for the FTB-7500E-023B (1310/1550 model).
e. Typical values.
f. Does not include uncertainty due to fiber index.
g. NQMS*fiber* requires additional parts for final ordering; please contact EXFO for further information.

Find out more about EXFO's extensive line of high-performance portable instruments by visiting our website at **www.EXFO.com**.

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