NQMS*fiber*

NETWORK QUALITY MONITORING SYSTEM

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NETWORK QUALITY MONITORING SYSTEMS

FTTx
Test Solutions

SPEC SHEET

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

KEY FEATURES

- One-click automatic provisioning capabilities
- Web-based element management system (EMS) and remote test unit (RTU)
- 24/7 detection, location and tracking of fiber degradations
- Unique RFTS test method for reference data management
- Comprehensive monitoring and reporting capabilities
- Fault-on-map feature with GIS-based network documentation (optional)

EXFO

A STRAIGHTFORWARD APPROACH TO NETWORK OPERATION AND MAINTENANCE

Managing your cable and fiber network is a full-time concern. By running remote test units (RTUs) deployed at key locations across the network, EXFO's NQMS*fiber* Network Quality Monitoring System is the ideal monitoring solution.

Featuring sophisticated functions such as alarm management and reporting, trouble-ticket handling and complete network status schematic viewing, the NQMS*fiber* enables you to integrate all your network operation and maintenance activities into your existing network management systems. NQMS*fiber* also provide network documentation based on GIS for mapping of the as-built and fault-on-map feature.

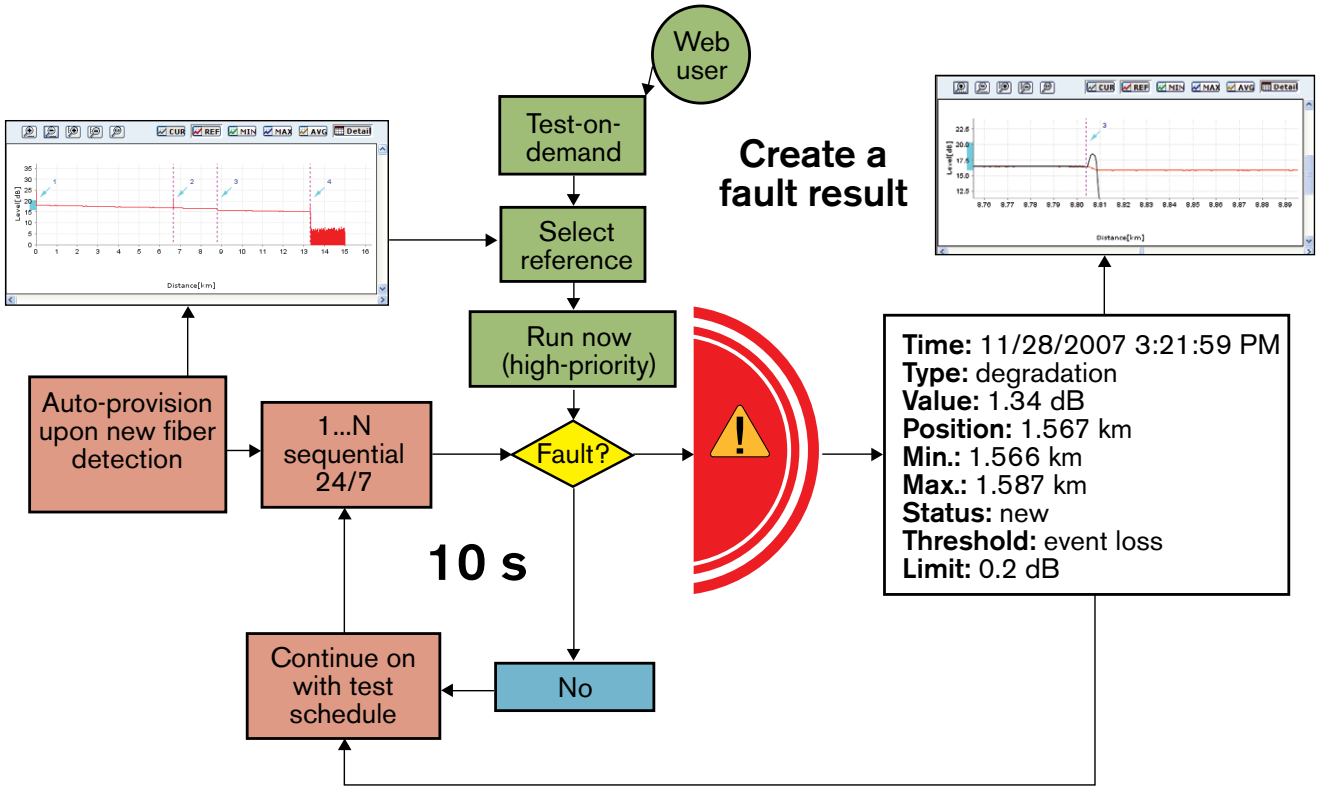


Figure 1. Monitoring and testing on demand functional diagram

A Fully Scalable Solution For All Your Monitoring Needs

You are considering purchasing a monitoring system but your current needs do not require a fully-integrated server-based solution? EXFO's Fiber Guardian Stand-Alone Remote OTDR Unit is the perfect entry point to start monitoring at your own pace. Plus, it allows you to migrate seamlessly to a complete monitoring solution without changing test units whenever you are ready. To learn more about Fiber Guardian, visit our website and contact your local sales representative to discover how you can start monitoring easily and affordably.

THE NEW STANDARD IN FIBER MONITORING MEASUREMENT

Based on EXFO's Most Recent OTDRs

The NQMS*fiber* RTUs support EXFO's FTB-7000 series D and E modules, which provide high-resolution and accurate loss measurements in short and long fiber environments respectively. All RTUs have one-meter resolution scans for resolving closely-spaced events such as connectors or mechanical splices in an access site.

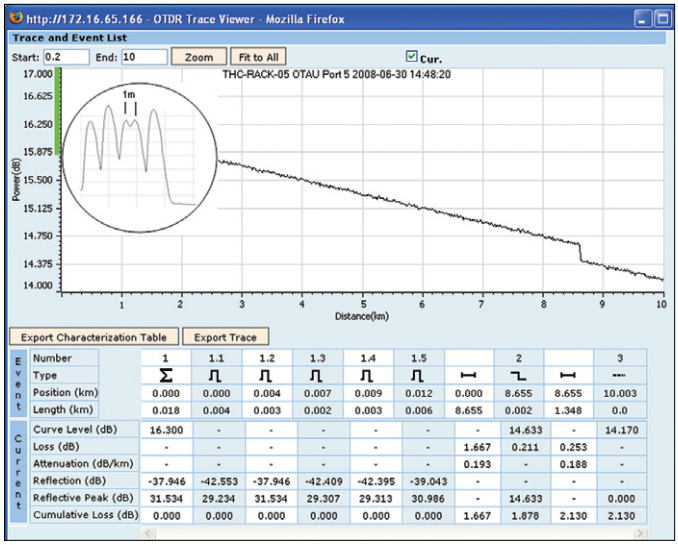


Figure 2. High-resolution view of a fiber link

Learning Function

Get the most out of your system, thanks to EXFO's innovative RFTS function called Learning, which automatically establishes and optimizes fault-detection thresholds across full dynamic range. By setting a default set of target thresholds and learning schedule, long optimization hours will be history.

Peak-Level Monitoring Function

Insert a stable or reproducible reflecting element and use it as a demarcation point. The reference level of this point can then be monitored at a much faster rate than the fiber back-scatter level. This function also provides a wider monitoring range than a standard Rayleigh backscattering signal–perfect for ultra-long-haul networks where fiber ends may not be seen.

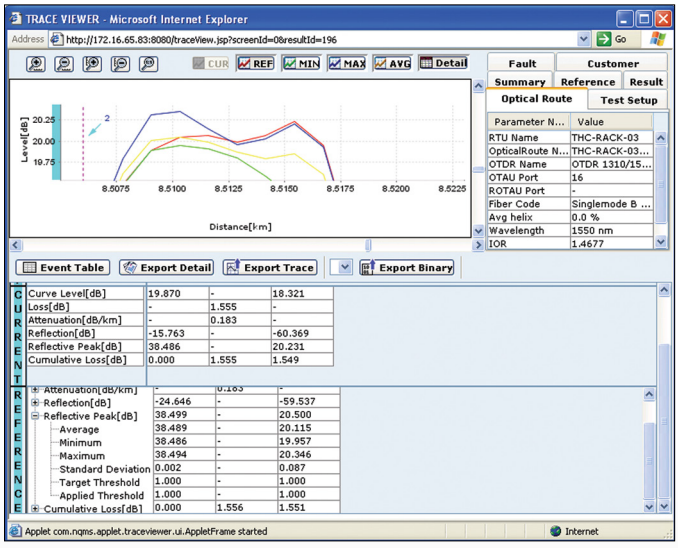


Figure 3. Learning functions acquire multiple traces as part of the reference trace

One Reference: That's All You Need

The combined benefits of best-in-class OTDRs, learning function and peak-level monitoring provide powerful, fast and meaningful monitoring and proactive maintenance functions. Choose faster scans and let the system do the work for you–there is no need for additional reference traces or for long and complicated configuration sessions.

WHATEVER THE DEGRADATION, NQMS*fiber* TRACKS IT DOWN

A Do-It-All Solution

The NQMS*fiber* RTUs can automatically detect, locate and track degradations, no matter what or where they are. RTUs measure and report accurate information such as degradation type, value and location.

Be Proactive or Fast Reacting

In proactive mode, decide when and how often you wish to execute various tests. In case of degradation, no matter how small, the system will record the event and alert your staff as per set rules and conditions.

In reactive mode, you can keep using your usual routines and turn to the NQMS*fiber* system when a loss-of-signal alarm is detected in order to execute a test-on-demand to verify the affected link optical status. This function is available in a 100 % multitasking environment; your request will be queued, should another technician is already using the system.

Customize Alarms and Ease System Integration

The NQMS*fiber* alarms are defined by the system administrator. Any status change of a fiber, test or system parameter can be used to create an alarm condition. So whether you want to capture proactive maintenance events without creating an alarm or to listen to particular alarms from your corporate alarm management system, the NQMS*fiber* can do it.

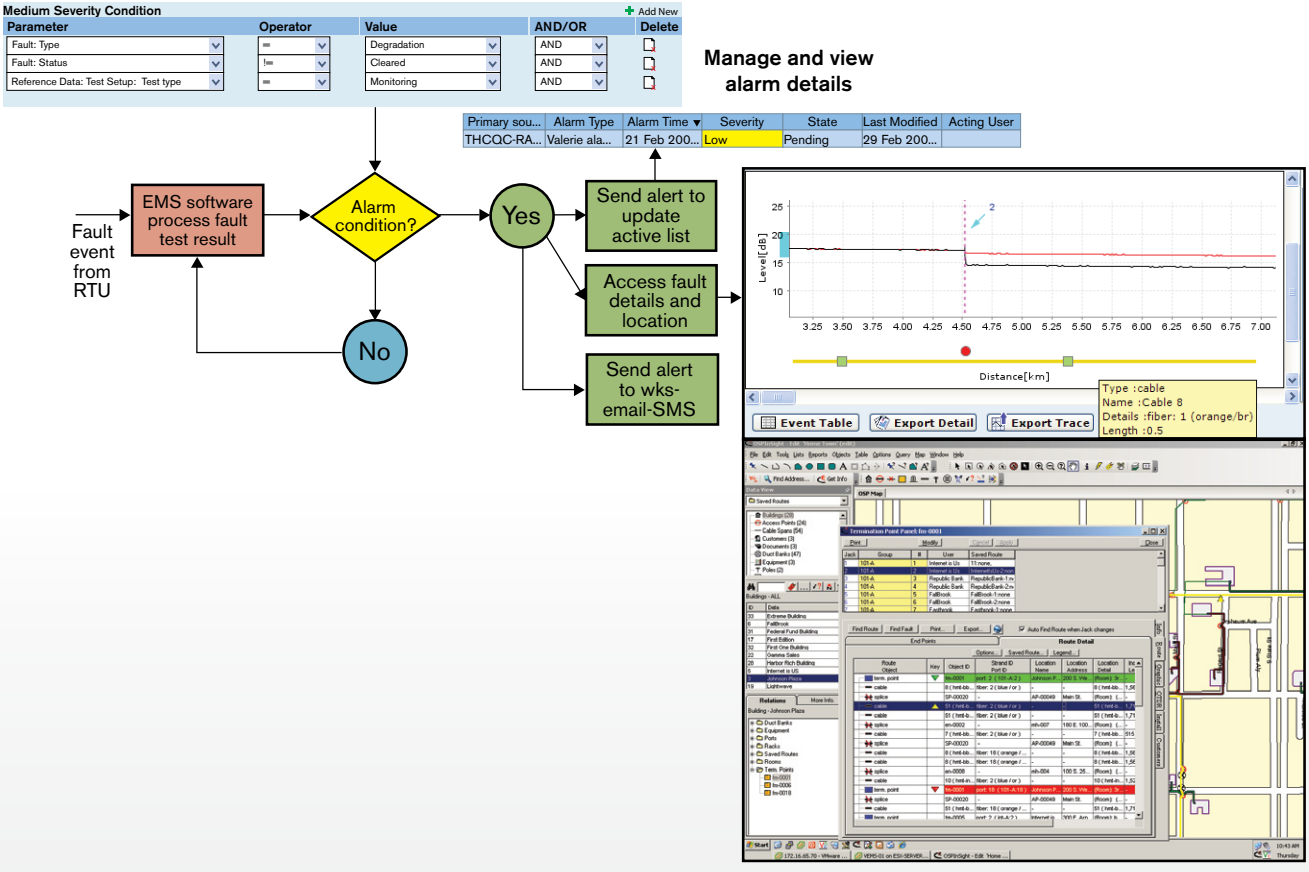


Figure 4. Alarm management and fault location on a linear and network map view

RELIABLE, FAIL-SAFE AND SECURE SOLUTION

MEMs Optical Switches—Extended Lifetime

EXFO integrates network-grade micro-electromechanical (MEM) optical switches at the same price as traditional optomechanical switches, which usually last 10 to 100 million cycles in stable laboratory environments. Now available in the NQMS*fiber*, this new MEM optical switch extends the system's switching lifetime to 1 billion cycles, in actual field conditions.

Your Data Are Always Safe

With two hard disk drives in RAID configuration, the NQMS*fiber* system never misses a fault condition. Various fail-safe and redundancy functions are available to deal with loss of site power, with of a disk or power supply failure, or poor communication-link between the server and the RTUs.

Second Server for 100% Availability

In addition to its standard, primary server, EXFO offers a stand-by solution, based on the Oracle® DataGuard™ software. This affordable solution provides no data loss and allows fast restoration should the primary server unit fail, without requiring any important changes to your private network configuration.

Basic RTU Control Through SMS Messaging

If operating in stand-alone mode or should the main communication link between the server and the RTU go down, keep control of your unit with wireless and SMS messaging. This function will allow you to keep receiving alerts or sending test-on-demand requests. Security measures can be defined to filter unwanted requests.

Figure 5. SMS messaging and test-on-demand triggering

COMPREHENSIVE MONITORING

Auto-Discovery

Upon a new connection, the NQMS*fiber* and its subsystems are self-registered to an element management system (EMS), configuring all the data entry in seconds. Once a new fiber connection is detected, the RTU system automatically creates an optical route with a clear and easy-to-use auto-naming convention. Then, the 24/7 surveillance can start without any additional user intervention. This one-click procedure can easily be performed by beginners.

Regional Management

Regional segmentation of the RTUs, test ports and related alarms enables technicians to see and act only on alarms that are issued from the area they are assigned to, while managers can view multiple regions at once. This feature can also be used to generate a comprehensive schematic view of the network and its status.

Customer Management

The NQMS*fiber* allows you to assign customers to one or multiple routes and obtain comprehensive reporting of events that occurred in the past weeks or months. By generating a list of fault history by customer, the system pinpoints when and what happened for true SLA management. You can also set a higher priority alert or program alarm escalation in case an event affects a specific customer.

Topology View Status Monitoring

The system lets you place main sites onto any background and connect them to create a regional network topology, from very simple to more complex topologies, similar to the ones on all your systems. Should an alarm occur on an optical route, it turns from green to yellow, orange or red according to the severity of the situation. Link to fault details are immediate and the RTUs and fiber routes alarm summary for this particular region are aggregated into easy-to-read tables, enabling fast correlation with other events in the network.

Figure 6. View regions and status

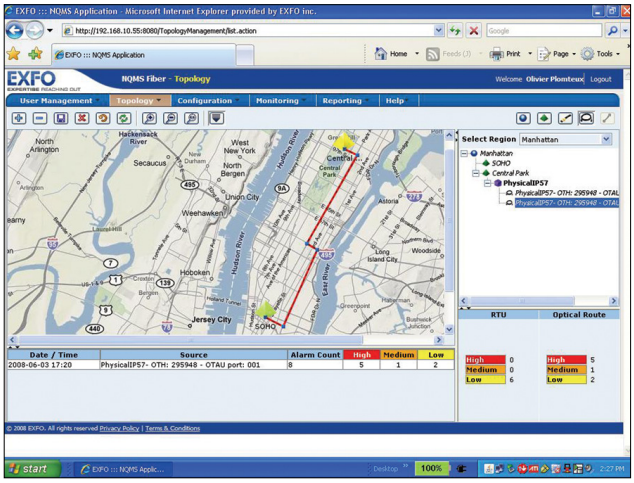


Figure 7. Build your schematic with a background and remove it afterwards

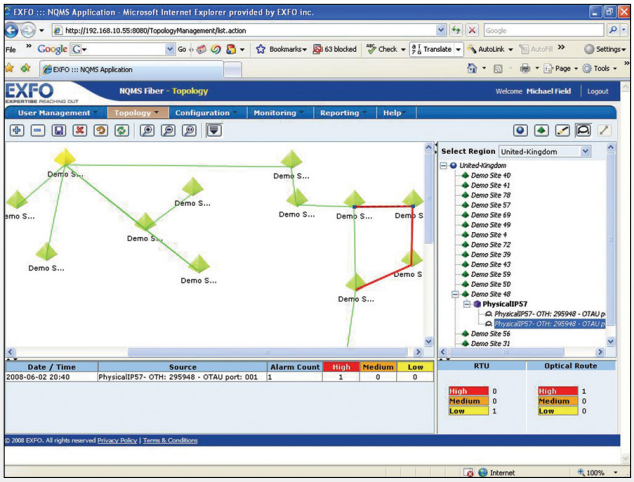


Figure 8. Nest into one region and view route changing color if there is an alarm

WEB-ACCESSIBLE SOLUTION

Allowing for secure and mobile access, the NQMS*fiber* EMS software is the only fully web-based RFTS solution on the market. The real-time alarm management and status monitoring functions are supported using applets, which are fully integrated in web-browser tools such as Internet Explorer™ and Firefox™. Standard licensing provides simultaneous access to 20 users, whether they are connecting through the LAN or virtually from anywhere outside the corporate network.

Main Functions—EMS WEB GUI (version 5.0)

- Configure and view network status in a topology format
- Configure, program and run alarm reports
- Request a test-on-demand and view results
- Configure monitoring and proactive maintenance tests (including detection thresholds)
- Configure, manage, view and act upon alarms
- Create and manage work orders (trouble-ticket)
- Manage database
- Change user profiles and access rights
- View and print fault trace with details
- Display linear view of the OSP physical link with fault distance from nearest site (available with OSPInSight integration only)

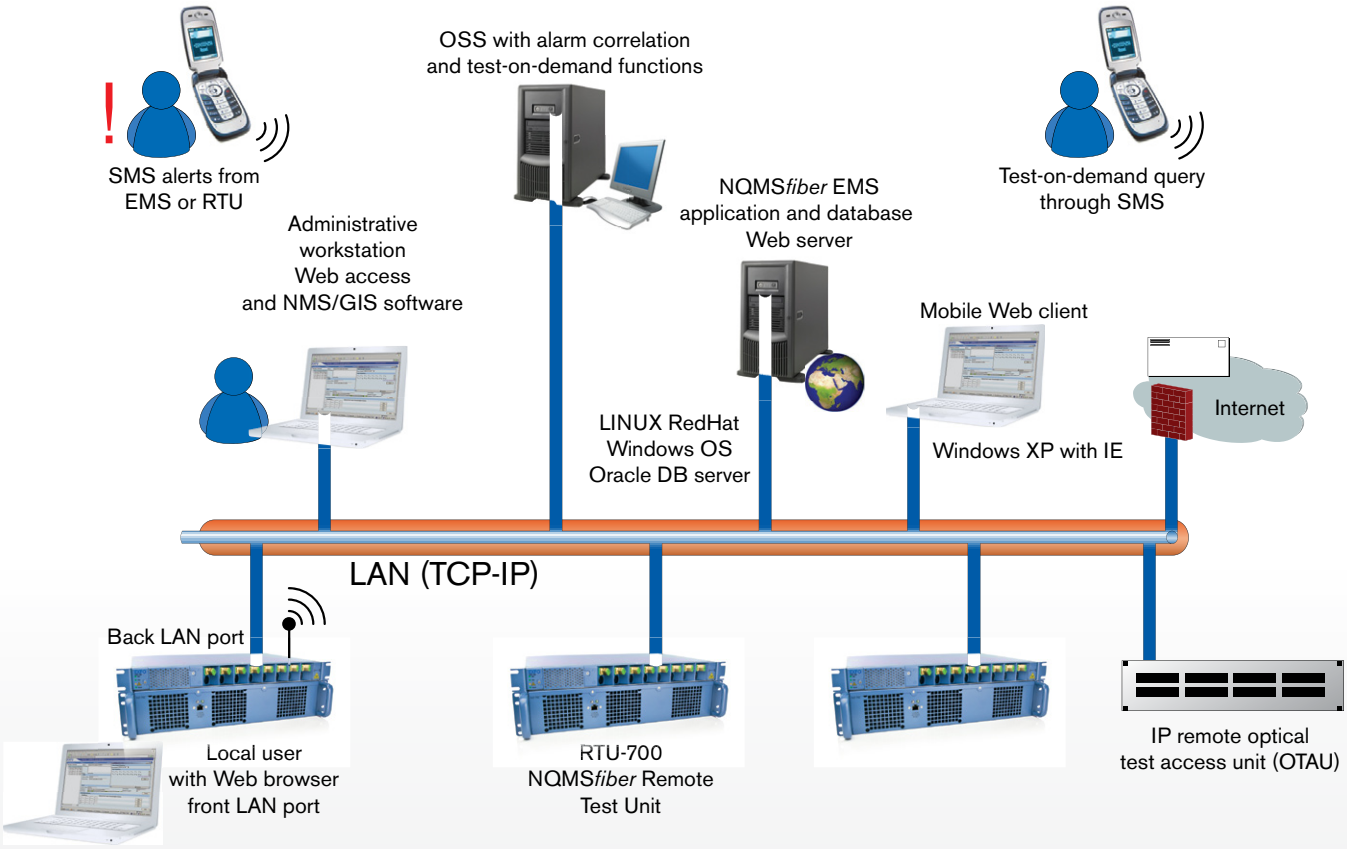


Figure 9. Web server EMS and RTU system layout

GENERAL SPECIFICATIONS

EMS—SERVER PLATFORM

Server platform	› Rackmount › Redhat Linux and Windows OS › Intel® Xeon processors (1 or 2)
NQMS application server software	› Web server › 5 or 20 simultaneous connection licensing › Firefox® and Internet Explorer® access
Database server	Embedded Oracle® 11g™ Standard ed.
Options	› Additional user connections › Oracle Enterprise ed. › OSPInSight Oracle database › Cold and hot stand-by server › SNMP v2.0 alerting interface (MIB) › Server peripherals › PSTN routers for RTU comm. link back-up › GSM modem for SMS alerting

ADMINISTRATIVE WORKSTATION (GIS/NMS)

Network management system (option)	› OSPM–EDIT software license › OSPM–VIEW software license › Desktop computer (optional)
Options	› Data conversion and integration services › Land-based maps › Other third-party RDBMS NMS/GIS solution (upon request)

NQMS*fiber* SERVICES

SLA Type	Silver	Gold	Platinum
Software warranty and updates (incl. third-party software)	✓	✓	✓
8/5 help-desk and remote support	48 h/annum	72 h/annum	unlimited
New EMS/RTU releases	*	✓	✓
Repair and return of hardware (FlexCare)	*	✓	✓
24/7 help-desk and on-site support	*	*	✓
Spare(s) and maintenance kit(s)	*	*	✓
Preventive on-site/factory maintenance	*	*	✓

✓: included *: may be added as an option

REMOTE TEST UNIT

OTDR module	Metro	Core	Ultra
FTB-7000 series model	FTB-7300E	FTB-7500E	FTB-7600E
Fiber type	Singlemode		
Wavelength models (nm)	1550 1310/1550 1550/1625 1625	1310/1550 1550/1625	1310/1550 1550/1625
Dynamic range (dB) [a]			
1310 nm	39	45	50 [c]
1550 nm	37	45 [b]	50 [c]
1625 nm	37	45	48 [c]

Notes

a. Typical, with a 3-minute averaging, SNR = 1, using a 20 µs pulse.

b. For FTB-7500E 1310/1550 nm model, dynamic range at 1550 nm is 43 dB.

c. With NZDS fiber (G.655).

REMOTE TEST UNIT

Standard OTDR modules (see below)	Metro Core Ultra
Optical ports	8 or 16
Number of external optical ports	Up to 96
OTDR-to-port-loss (dB) (typical at 1550 nm, 8-port model)	0.8
Internal OTAU lifetime (cycles)	10 million 1 billion (on request)
Alarm relay output	System status
Network interfaces (2) (standard CAT-5 cable)	10/100 Base-T Ethernet (one dedicated to local access)
Dial-up modem (for dial-in remote access)	v. 92, 56 k
GSM modem (for alerting purpose only–optional)	EDGE (E-GPRS) CLASS 10 QUAD-BAND GSM
Unit status front LEDs	4
Storage capacity (HDDs)	80 GB in RAID
Power supply AC DC	 100-240 VAC, 50/60 Hz –40/-57 VDC
UPS (optional)	15 min autonomy
Power consumption steady state (watts) AC DC	 90 70
Software user interface Local access, LAN and dial-up Rear port can be DHCP or fixed address	Web-based Internet Explorer™ Mozilla™

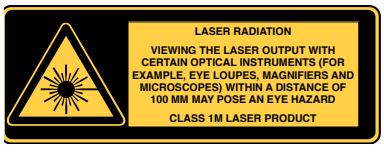
GENERAL SPECIFICATIONS

Size (H x W x D)	132 mm x 427 mm x 310 mm (7 3/16 in x 6 13/16 in x 2 3/16 in)
Weight	13 kg (28.5 lb)
Operating temperature	0 °C to 50 °C (32 °F to 122 °F)
Certifications	CE, CSA-UL, RoHS

STANDARD RTU ACCESSORIES

- Notification agent software tool
- User guide
- Rackmount kit

LASER SAFETY



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