

# MTS-6000

## Compact Optical Test Platform



### Key Features

- Compact, lightweight, and highly integrated platform
- More than 40 application modules already supported for multimode and single-mode
- Built-in VFL, power meter, LTS, ORL, and video inspection scope options
- Choose from IL/ORL, OTDR, PMD, CD, AP and/or WDM plug-ins
- Exceeds Telcordia specifications for ruggedness, drop testing, and extended battery life
- Compatible with plug-in modules from the MTS-5100<sup>1</sup> and MTS-8000

### Applications

- Performs multimode and single-mode OTDR and optical loss test (bidirectional)
- Conducts connector inspection and continuity testing
- Finds faults and identifies traffic
- Tests FTTx/PON and CWDM networks
- Performs fiber dispersion testing (PMD/CD/AP) for 10G/10GE/40G
- Allows for use of talk set/data port for automated end-to-end communication and unit control
- Generates proof-of-performance reports

The JDSU MTS-6000 is a highly integrated test platform designed for all phases of the fiber network life cycle. It provides field service technicians with the highest levels of performance and upgradeability on the market today.

The modular design of the MTS-6000 offers an extensive portfolio of test functionality with over 40 different fiber modules supporting a wide range of applications. The versatility of the MTS-6000 allows technicians to standardize using one type of test equipment and then introduce new testing capabilities in the field without incurring additional training or device costs.

The MTS-6000 is compatible with our existing fiber module product line, so technicians can exchange plug-in modules between the MTS-8000 Scalable Optical Test Platform and the MTS-6000, in the field and without the need for additional tools. To ensure the highest level of return on your capital investment for test equipment, an extension allows you to upgrade existing OTDR modules from the MTS-5100 for use with the MTS-6000.

To ensure the highest-level return on investment for your test equipment, upgrade existing optical time domain reflectometer (OTDR) modules from the MTS-5100 (with an extension) for use with the MTS-6000.

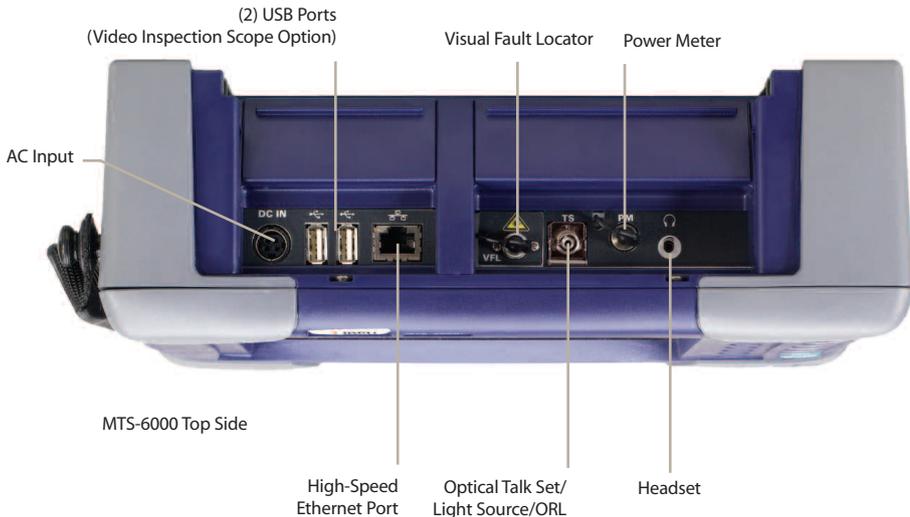
<sup>1</sup>Compatible with the MTS-5100 line of MM, SR, DR, HD, and VHD OTDR modules

## Ideal for Field Testing

The MTS-6000 is a highly integrated platform with a single module slot and the option to extend internal memory up to 1 gigabyte. The platform features an intuitive graphical user interface (GUI) shown on a large 8.4 inch transreflective color display (with an optional touchscreen) to improve viewing under any condition. The high capacity Lithium ion battery adds extended life. Other features include an optional video inspection scope (via USB port), and optional built-in optical test functions, such as a visual fault locator (VFL), power meter, optical return loss (ORL) and loss test sets (LTS). The MTS-6000 also has a built-in optical talk set option for communicating and controlling remote units along the fiber, and it can transfer data fast using the USB or Ethernet port.



MTS-6000 Front Panel



MTS-6000 Top Side

## Overview of Fiber Optic Applications

### Compact and Highly Integrated

The versatility of the MTS-6000 allows it to address premises to long-haul networks comprising new technologies, such as various fiber networks (FTTx), remote optical add/drop multiplexers (ROADMs), and 40 G.

- Built-in VFL, laser source power meter, LTS, talk set/data, and video inspection scope options (simultaneously)
- Bidirectional insertion loss (IL) and ORL capabilities combined in one module
- OTDR and chromatic dispersion (CD) capabilities combined in one module
- Polarization mode dispersion (PMD), wave division multiplexing (WDM), and attenuation profile (AP) capabilities combined in one module
- PMD, CD, and AP capabilities combined in one module

### Wide Range of Test Applications

- |                             |   |
|-----------------------------|---|
| <b>LAN/WAN Premises</b>     | <ul style="list-style-type: none"> <li>– 10 GigE local area network (LAN) qualification<br/><i>Solution:</i> MTS-6000 with the unique universal SRL 850/1300/1310/1550/1625 nm OTDR Module</li> </ul>   |
| <b>FTTx/Access Networks</b> | <ul style="list-style-type: none"> <li>– End-to-end connectivity on point-to-point networks, including sectionalized testing on a passive optical network (PON) (without a splitter)<br/><i>Solution:</i> MTS-6000 with the VSRe, SRe, MR OTDR module at 1310/1550 nm</li> <li>– End-to-end connectivity on PONs, including splitter qualification<br/><i>Solution:</i> MTS-6000 with the MR, LR, or VLR at 1310/1490/1550 nm OTDR module<br/>Add optional VFL, power meter, and video inspection scope</li> <li>– In-service maintenance and troubleshooting without service disruption<br/><i>Solution:</i> MTS-6000 with the filtered LR OTDR module at 1625 nm</li> </ul> |
| <b>Metro/Core Networks</b>  | <ul style="list-style-type: none"> <li>– End-to-end connectivity and fiber splice qualification<br/><i>Solution:</i> MTS-6000 with the MR, LR, or VLR at 1310/1550/1625 nm OTDR module<br/>Add optional VFL, power meter, and video inspection scope</li> </ul>   |

<b>Ultralong-Haul Networks</b>	<ul style="list-style-type: none"><li>– End-to-end connectivity and fiber splice qualification</li></ul> <p><i>Solution:</i> MTS-6000 with the UHD OTDR module at 1310/1550/1625 nm Dynamic range of 50 dB available at 1550 nm</p>
<b>10G/40G Fiber Characterization</b>	<ul style="list-style-type: none"><li>– Characterize fiber in high-speed transmission systems for loss/dispersion</li></ul> <p><i>Solution:</i> MTS-6000 with the PMD/CD/AP, ODTR, and OFI module</p>
<b>CWDM/DWDM</b>	<ul style="list-style-type: none"><li>– Characterize fiber and prove suitability to carry multiple channels (water peak)</li></ul> <p><i>Solution:</i> MTS-6000 with the VLR OTDR module at 1383 nm Add the combined PMD/WDM/SA or CDWM OTDR module</p>
<b>Modular Platform</b>	<ul style="list-style-type: none"><li>– New technologies developed in the future</li></ul> <p><i>Solution:</i> MTS-6000 with the new JDSU field-upgradeable application module</p>



Modular design

**Industry leader for dynamic range with 50 dB**

**Revolutionary 50 cm dead zone**

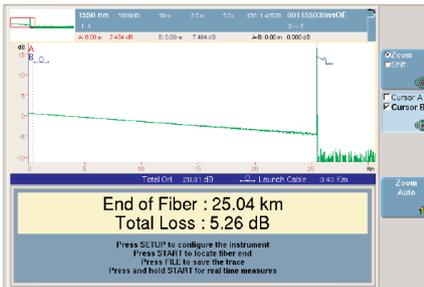


Figure 2 Fault locator mode

## OTDR and IL/ORL Testing

### A Wide Range of OTDR Modules

The JDSU OTDR plug-in module family provides a wide range of high-performance OTDRs. Over 40 field-interchangeable modules are compatible with the MTS-6000 for testing and troubleshooting any multimode or single-mode network. The OTDR family includes six lines of OTDRs featuring:

- New wavelengths to cover 1383 nm (CWDM) and 1490 nm (FTTx)
- Highest dynamic range up to 50 dB
- Shortest dead zones down to 0.5 m in multimode and 0.8 m in singlemode
- Fastest scan speed at 0.1 s in real-time mode

### From Simple Fault Locator to Expert OTDR...

The fault locator boosts productivity in the field by providing:



- Fast detection
- Precise fault location
- One-button automation
- No specific settings required
- Distance, loss, and ORL measurements

The expert mode offers high-level trace analysis possibilities, making your MTS-6000 platform a powerful instrument for commissioning and troubleshooting by offering:

- Manual settings (pulse, acquisition time, resolution, distance range)
- Manual addition and deletion of events
- Manual slopes, splices, and reflectances measurement

**Unique to the market:  
Fully automatic bidirectional  
acquisition and analysis**

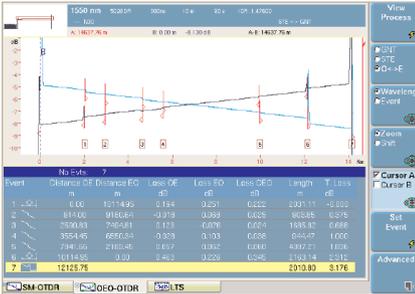
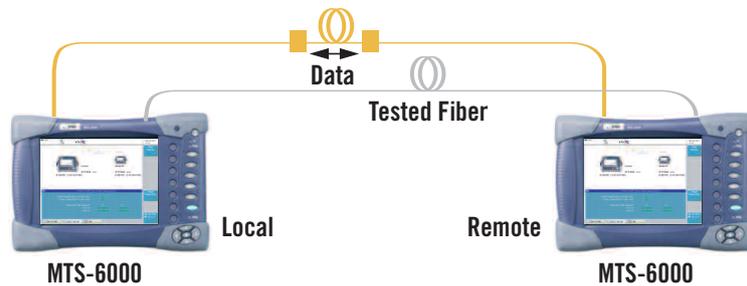


Figure 3 Bidirectional OTDR measurement

**Ideal for End-to-End Commissioning**

OTDR bidirectional testing is required to obtain true and accurate splice loss readings. JDSU has developed an innovative automatic bidirectional analysis function that is integrated directly into the MTS-6000 platform, saving at least 50 percent of the time required for traditional bidirectional analysis.

- Offers communication between two units via the link under test to set up the same optimized acquisition parameters
- Displays and saves automatic acquisitions in both directions on both units
- Eliminates operator error



**CWDM OTDR Modules**

The CWDM OTDR module allows in-service OTDR measurements at International Telecommunications Union (ITU-T) G.694.2 CWDM wavelengths.

This solution was developed to help network operators and dark fiber providers characterize, maintain, and troubleshoot CWDM systems from short- to medium-haul fiber networks.

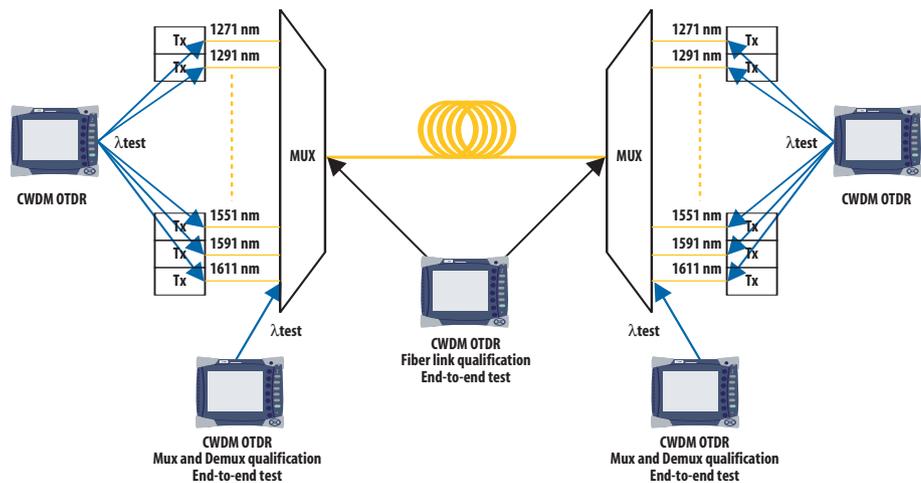


Figure 4 Qualification of a CWDM network

### FTTx/PON In-Service Modules

To avoid interrupting customer traffic (in-service testing) of B/G/E-PON networks the filtered OTDR module performs an out-of-band test using 1625 nm wavelength.

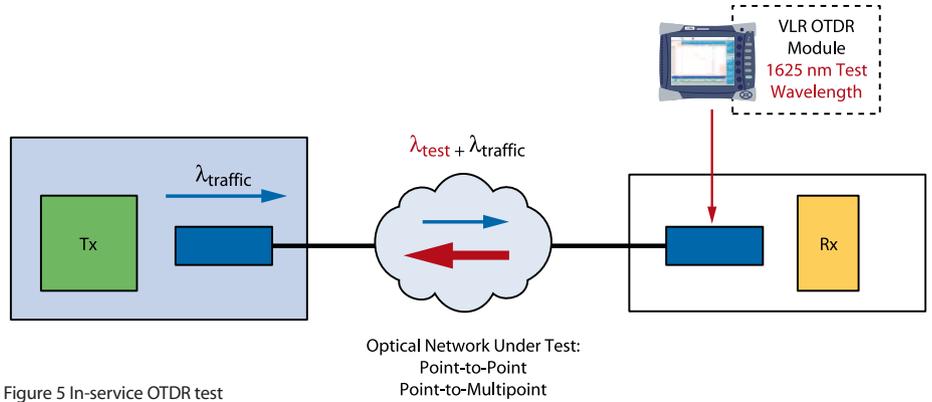
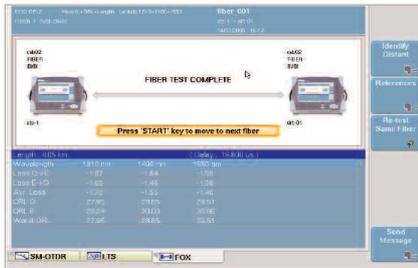


Figure 5 In-service OTDR test

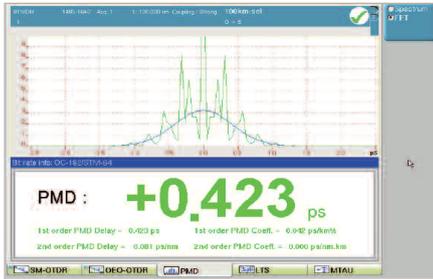


### Insertion Loss and Optical Return Loss Testing

- Measures bidirectional IL, ORL, and fiber length
- Offers one-button automated testing
- Choose three wavelengths from 1310, 1490, 1550, and 1625 nm
- Compatible with the OFI-2000 Multifunction Loss Test Set

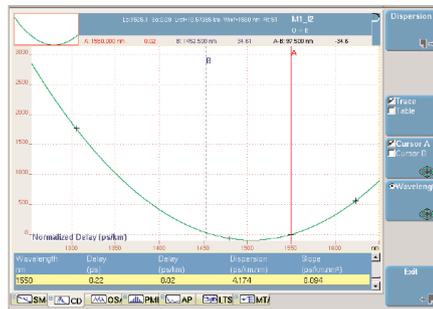
## CD, PMD, AP, and WDM Testing

The MTS-6000 enables CD and PMD measurements to identify fiber viability for very high-speed transmission systems. It also enables WDM and AP tests to validate the link compatibility with DWDM system implementation.



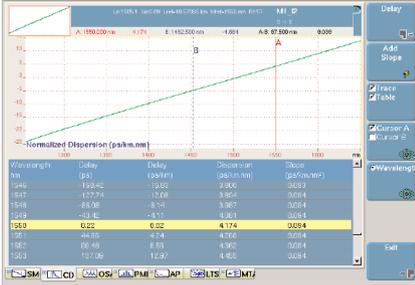
### Polarization Mode Dispersion Testing

- Fast and accurately measures PMD delay, PMD coefficient, and second-order values
- Offers high dynamic range (up to 65 dB) dedicated for metropolitan, long haul, and very long haul fiber optic links
- Offers shock- and vibration-proof design (with no moving parts)
- Allows for measurement through multiple amplifiers
- Provides statistics and long-term monitoring



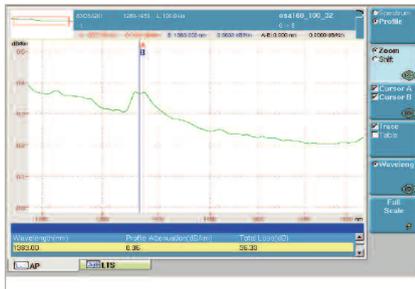
### Chromatic Dispersion Testing - OTDR-Based Method

- Requires access to only one end of the fiber
- Offers dynamic range (up to 120 km) dedicated for any metropolitan fiber optic links
- Includes acquisition points around 1310, 1480, 1550, and 1625 nm for accurate CD from 1260 to 1650 nm
- Integrates a four-wavelength OTDR and light source
- Provides sectional analysis capability for troubleshooting
- Offers shock- and vibration-proof design (with no moving parts)



### Chromatic Dispersion Testing - Phase-Shift Method

- Offers high dynamic range (up to 55 dB) dedicated for metropolitan, long haul, and very long haul fiber optic links
- Provides full wavelength range characterization (1260 to 1640 nm)
- Allows for measurement through multiple amplifiers
- Offers shock- and vibration-proof design (with no moving parts)



### Attenuation Profile Testing

- Provides total loss and dB/km values for full band testing (1260 to 1640 nm)
- Allows CDWM and dense wavelength division multiplexing (DWDM) transmission band characterization
- Provides water peak (1383 nm area) characterization
- Offers shock- and vibration-proof design (with no moving parts)
- Combined with WDM and PMD functions or with CD and PMD functions



### DWDM Maintenance Testing

- Measures channel level, power, and wavelength in the S, C, and L bands
- Provides the most compact DWDM test solution that measures optical signal-to-noise ratio (OSNR)
- Tests wavelengths from 1260 to 1640 nm or 1485 to 1640 nm
- Offers high wavelength accuracy
- Provides statistics and long-term monitoring
- Offers shock- and vibration-proof design (with no moving parts)

## Options and Accessories

### Greater Productivity with Communications

With limited telephone line and cell phone coverage during fiber testing, the MTS-6000 offers a built-in optical talk set option for permanent communication between test technicians. Near- and far-end technicians can communicate with each other, avoiding many of the testing mistakes that can prove costly if another truck roll is required to fix a problem.

For bidirectional testing that requires both the near- and far-end units to acquire data, the Data mode on the optional talk set synchronizes data acquisition for both units during OTDR testing and retrieves test results for pass/fail analysis.

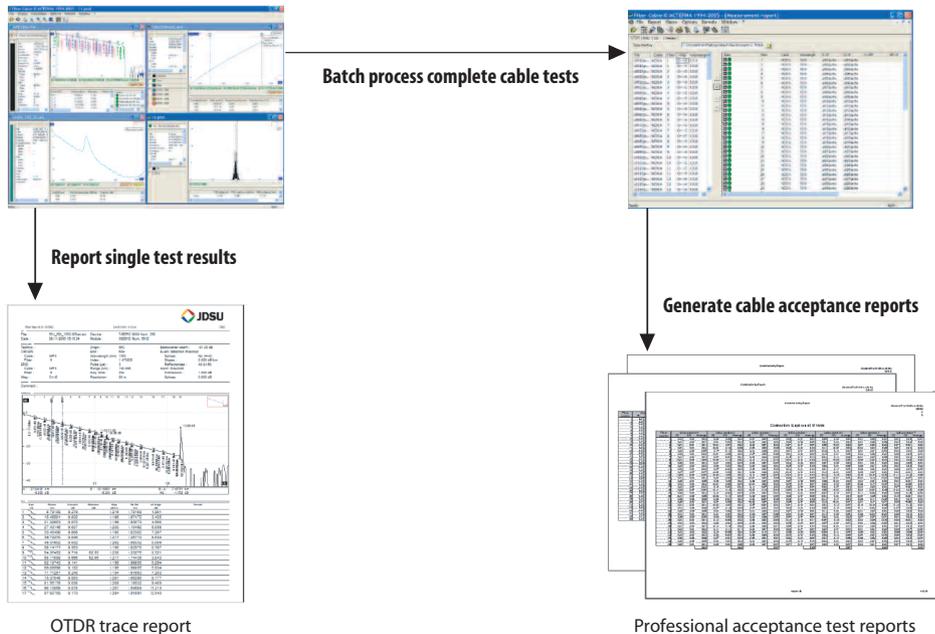
- Provides 45 dB optical talk set
- Provides file transfer capability through the fiber
- Provides remote control of the far-end unit
- Provides a talk set compatible with the OFI-2000 and with the OTS-55 Optical Talk Set stand-alone unit

### Effective Test Report Generation

Transfer data and generate comprehensive reports using JDSU FiberTrace and FiberCable analysis software.

- Generate proof-of-performance reports with a high degree of customization
- Create dedicated tables for each test result (OTDR, CD, PMD, and ORL)
- Provides pass/fail indicators for quick analysis of problem areas
- Identifies macro bends and provides fault report summary

Multi-application post-analysis software





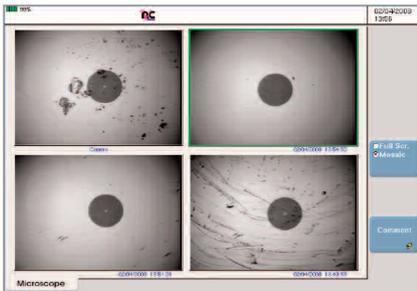
The MTS-6000 with the optional mouse, keyboard, battery, headset, AC/DC adapter charger, and video inspection scope

### Comprehensive Line of Accessories

A wide range of available accessories provide technicians with everything needed to benefit from the complete testing capabilities of the of the MTS-6000.

### Join the MTS Family of Optical Test Solutions

Based on the same graphical user interface (GUI) and file formats, the MTS-6000, MTS-6000A, and the MTS-8000 form a family of solutions for high-performance field testing. In addition, the fiber application plug-in modules are field interchangeable with the MTS-6000, MTS-6000A, and the MTS-8000, ensuring maximum flexibility and investment protection.



View clean and dirty fiber end faces with the connector inspection option.

The MTS-6000 can house one fiber application plug-in module. The MTS-6000A with the Multi-Services Application Module (MSAM) offers Ethernet and SONET/SDH testing at line rates from 10 Mb/s up to 10 Gb/s, as well as the ability to verify and troubleshoot higher-layer IP video, Layer 4 UDP/PCP, FTP, and HTTP. The MTS-8000 can house multiple modules simultaneously, enabling the performance of almost any combination of network test functions in a single unit. In addition, the MTS-8000 also offers:

- DWDM turn-up testing
- Dual-port optical spectrum analysis
- DWDM channel isolation for BERT analysis
- E1/T1 to 10G BERT analysis
- 10/100/1000/1G/10G Ethernet testing



MTS-8000 field-scalable optical test platform



MTS-6000 LITE  
Compact OTDR



MTS-6000  
Compact Optical Test Platform



MTS-6000A  
Compact Network Test Platform



MTS-8000  
Scalable Optical Test Platform

**Specifications**

**Specifications for Typical 25°C**

**Display**

TFT color, 8.4 in LCD, 800 x 600, high-visibility (standard)  
 Touchscreen, TFT color, 8.4 in LCD, 800 x 600, high-visibility (optional)

**Storage and I/O Interfaces**

Internal memory 1000 test results  
 Extended memory (optional) Minimum 1 GB (optional)  
 2x USB V1.1, 1x RJ45 Ethernet

**Power Supply**

Battery type Standard removable Li-ion batteries  
 AC/DC adapter Input 100–240 V, 50–60 Hz, Output 19 V DC/3.1 A  
 Operation time Up to 11 hrs with standard display, Telcordia GR-196-CORE

**Size and Weight**

Mainframe with one plug-in module and battery (L x H x W) 285 x 195 x 93 mm (11.2 x 7.7 x 3.7 in)  
 Mainframe only (without battery and module) 2.4 kg (5.3 lb)  
 Mainframe (with one plug-in module and battery) 3.4 kg (7.5 lb)

**Environmental Specifications**

Operating temperature range on mains (no options) –20 to +50°C (–4 to 122°F)  
 Operating temperature range (all options) 0 to +40°C (32 to 104°F)  
 Storage temperature range –20 to +60°C (–4 to 140°F)  
 Humidity, non-condensing 95%

**Base Unit Optical Interfaces (optional)**

**Power Meter**

Power level +10 to –60 dBm  
 Calibrated wavelengths 850, 1310, and 1550 nm  
 Connector type Universal push/pull (UPP)

**Talkset**

Wavelength 1550 nm ±20 nm  
 Dynamic range 45 dB  
 Function With data/file transfer  
 Laser safety Class 1M laser  
 Connector type Field interchangeable

**Optical Return Loss**

Selectable wavelength 1310 / 1550 nm  
 Measurement range 0 dB to 45 dB  
 Measurement uncertainty ± 1 dB  
 Display resolution 0.01 dB

**Visual Fault Locator**

Wavelength 635 nm ±15 nm  
 Output power level < 1 mW  
 Laser safety Class 2 laser  
 Connector type Universal push/pull (UPP)

**Continuous Wave Light Source**

Wavelengths (selection) 1310, 1550, and 1625 nm  
 Output power level –3.5 dBm  
 Stability in 15 min ± 0.02 dB  
 Stability in 8 hrs ± 0.2 dB  
 Laser safety Class 1M laser  
 Connector type Field interchangeable

**Video Inspection Scope (via USB)**

Magnification 250X and 400X, through the USB port

**Ordering Information**

**Base Instrument**

MTS-6000 platform with high-visibility color display and battery pack EM6000  
 MTS-6000 platform with high-visibility touchscreen color display and battery pack EM6000T  
 Extended memory (1 GB) E60EXTMEM  
 VFL with 2.5 mm UPP E80VFL  
 Optical talk set E80TS  
 Optical power meter with UPP connector (2.5 mm provided as standard) E80PM  
 Optical loss test set 1550/1625 nm with talk set E8029LTSTS  
 Optical loss test set with talk set (1310/1550/1625 nm) E8036LTSTS  
 Combined LTS and ORL with talk set (1310/1550 nm) E8026LTSTSORL  
 Bidirectional OTDR acquisition option for single-mode module E80bidir  
 Quick capture video microscope, 200x/400x with USB converter EFSCOPE400

**Accessories**

Cigarette lighter power adapter E80lighter  
 Additional Li-Ion rechargeable battery E60LilIon  
 Wrap around carrying case for 6000 platform ESCASE5

**Application Software**

Optical FiberTrace software (for post-analysis) EOFS100  
 Optical FiberCable software (for acceptance report generation) EOFS200

**Optical connectors for the loss test set and talk set options (connector must be of the same type)**

Field replaceable connectors: EUNIPCFC, EUNIPCSC, EUNIPCST, EUNIPCDIN, EUNIPCLC, EUNIAPCFC, EUNIAPCSC, EUNIAPCST, EUNIAPCDIN, EUNIAPCLC

Please refer to the separate module datasheets for detailed specifications.

**Test & Measurement Regional Sales**

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