

# Acterna MTS 5100<sup>e</sup> and MTS 5200<sup>e</sup>

Family of Field Optical Testers



DWDM ready

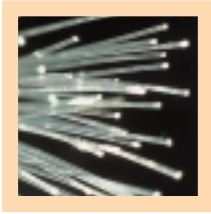
For the Installation and Maintenance of Fiber Optic Networks

**Speed, Flexibility, Upgradeability**



**ACTERNA**<sup>™</sup>  
The Keepers of Communications

# 2 Acterna – The Keepers of Communications



## Acterna – Improving the World of Communications

Around the globe, communications companies look to Acterna for the best in effective, innovative solutions for the development, installation, maintenance and optimization of their networks. For Optical Networks, Telecom Access Networks, Wireless Networks, Data Networks, Acterna provides world-leading products and services to enhance your competitive advantage.

## Total Solutions for Fiber Optics

Our comprehensive range of fiber optic products comprises handheld light sources, power meters, loss test sets, attenuators and visual fault locators, Remote Fiber Test Systems, Optical Measurement Systems for device calibration, OTDRs and DWDM test solutions including optical spectrum analyzers, PMD measurement and optical network testers.

## Speed, Flexibility, Upgradeability

Fiber networks are rapidly expanding as the demand for new higher bandwidth digital services grows. New optical transport technologies such as DWDM (Dense Wavelength Division Multiplexing) and their corresponding network architectures are becoming essential. The new MTS<sup>e</sup> platform now offers installers and operators of fiber networks, optical test solutions with unrivalled speed, flexibility and upgradeability.

## Universal Test Set

The Universal Test Set defines the requirements and objectives for multifunction test. The concept has been documented by Bellcore, in 'GR-2876-CORE Generic Requirements for Universal Test Sets' December 1995. Today, telecommunications, cable television, and data communication users increasingly demand highly portable test equipment that offers a large number of functions on a common platform.



## DWDM: Acterna Leading the Wave

Acterna has extensive DWDM experience and has now been delivering effective DWDM test solutions for more than seven years.

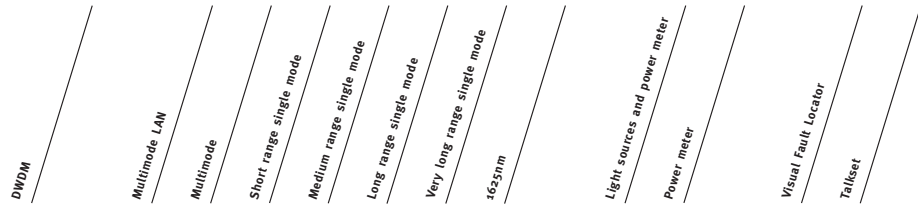
In 1996 we introduced the world's first Optical Spectrum Analyzer for field use, which gained rapid market acceptance in the installation of first generation DWDM systems.

In 1999 we launched the OSA-155, which has set new standards in performance through a unique combination of features such as the ability to filter out an optical channel for further digital analysis. Acterna also provide laser source and power meter handheld instruments for DWDM analysis. Currently we devote the majority of our R&D spend to DWDM solutions and the new MTS 5100<sup>e</sup> and MTS 5200<sup>e</sup> are our latest DWDM ready products, leading the wave of fiber optic test solutions. The explosive growth of the DWDM market continues, and the transmission of Terabits of data per second is already a reality. Acterna lead the industry, constantly keeping one step ahead of the latest technologies with a continually expanding portfolio of economical, application oriented test solutions for the installation and maintenance of fiber networks and systems.

## MTS 5100<sup>e</sup>/5200<sup>e</sup> Media Test Set: Faster and More Flexible

The previous generation MTS 5100/5200 has become an industry standard for OTDR testers around the world. The new MTS<sup>e</sup> builds on this reputation with greatly enhanced speed, performance, and extended test applications for new DWDM network architectures.

The MTS 5100<sup>e</sup>/5200<sup>e</sup> provides fiber installers and maintenance teams with outstanding performance for improved test productivity, whilst enhanced modular design ensures that the unit is readily field configured for the future. User configuration and upgrade in the field is easy and testing is also simplified with a familiar user interface and integrated test functions.



Applications	WDM Module	OTDR Modules						OTS Modules		Options		
	WDM	ML	MM	SR	DR	HD	VHD	1625	LTS	PM	VFL	TS
LAN/WAN		●	●	●	●				●	●	●	●
CATV				●	●	●			●	●	●	●
Short Haul Telephony				●	●			●	●	●	●	●
Long Haul Telephony						●	●	●	●	●	●	●
DWDM Short Haul	●			●	●			●	●	●	●	●
DWDM Long Haul	●					●	●	●	●	●	●	●





### MTS 5100<sup>e</sup> Mini Optical Test Platform

- Two field-configurable optical modules
- New DWDM test module
- A choice of 19 OTDR modules with VFL options
- Light sources, power meter with talk set options
- RS232C and Centronics I/O
- Ethernet interface option
- 1GB hard disk option
- External keyboard option

### MTS 5200<sup>e</sup> Mainframe Optical Test Platform

- All MTS 5100<sup>e</sup> features
- Optional internal printer
- Optional IEEE-488 GPIB interface
- Optional display output

## A Single Unit - Multiple Functions, including DWDM

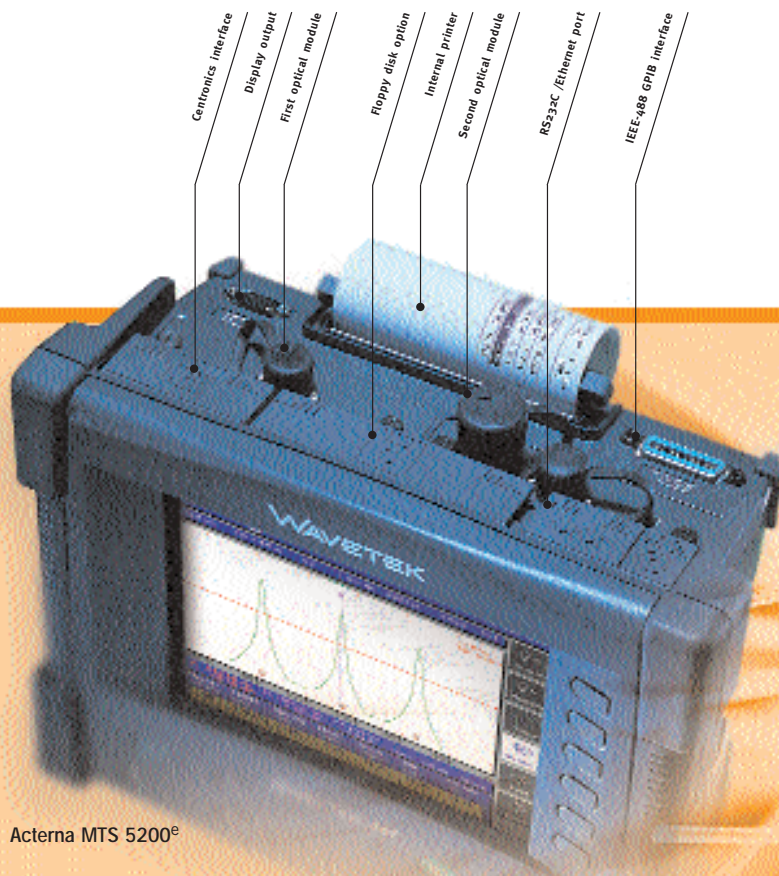
The MTS 5100<sup>e</sup> and 5200<sup>e</sup> are field modular optical testers for fiber network installation, maintenance and troubleshooting. Two field interchangeable module slots allow users to quickly mix and match configurations to cover any fiber test application from 635 to 1625nm, to DWDM.

## More Flexible, More Cost-Effective

The MTS<sup>e</sup> can easily be configured to include test modules for DWDM, OTDR LAN (ML), OTDR Multimode (MM), OTDR Short-haul (SR), medium-haul (DR), long-haul (HD), and very long-haul (VHD), 1625nm, and Optical Loss Testing with light sources and power meters. Options are also available for Visual Fault Locators (VFL) and optical talk sets.

Typical MTS<sup>e</sup> configurations combine a dual window 850nm to 1550nm dual port multimode and single mode OTDR for complete installation testing. Combining both a WDM test module and an OTDR module in the same unit can further extend test applications on DWDM networks reducing the number of testers required in the field.

A comprehensive set of standard input/outputs facilitates documentation, file processing, and remote operation. A new Ethernet interface option facilitates and greatly simplifies the data transfer of large files to base.



Acterna MTS 5200<sup>e</sup>

## Setting New Standards in the Field

The MTS was already renowned for its field capabilities. Every aspect of its outstanding performance is now enhanced in the new MTS<sup>e</sup>.

## Field Optimized

Compact and lightweight, weighing less than 3.5kg (7.7 lbs), the MTS<sup>e</sup> is ideal for outside plant testing. A hardened casing with protective bumpers ensures that the unit performs faultlessly even in the harshest conditions, while protected input and output connectors provide excellent resistance to water and dust.

## Long Battery Life for Improved Productivity

Field-testing is maximized by the long operating life of the MTS<sup>e</sup> - up to 16 hours using two batteries. The Nickel Metal Hydride cells can be rapidly recharged in less than three hours either inside, or outside the unit. An optional 12V DC car adapter further extends field operations.

## Easy to Operate

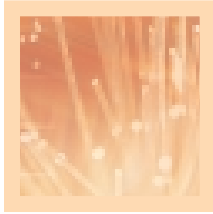
The MTS<sup>e</sup> has a familiar, intuitive user-friendly interface that allows simple one button testing in most applications. A large 8.4 inch color display option gives easy to read results for both the trace waveform and tabular event list.

## What's New

- DWDM ready
- Ethernet option
- 400 traces internal storage (typical)



# Faster and More Productive



## The Need for Speed

To improve productivity, the MTS<sup>e</sup> is based on the latest generation of RISC microprocessor, which combines high performance with low power consumption. The MTS<sup>e</sup> is now four times faster than the previous model and four times more precise with 128K data points. This allows the field operator to maximize the number of tests and stay operational for longer.

## Fast Start-Up, Function Swap in Seconds

The MTS<sup>e</sup> is up and running 15 seconds after the unit is powered up enabling almost immediate operation. The unit also facilitates swapping functions, which can be performed in seconds, for example between DWDM and OTDR, or between OTDR and loss-test set testing.

## Unprecedented Speed and Power

The MTS<sup>e</sup> delivers unprecedented data acquisition speed and processing power. With OTDR 'real-time' sweep scan rates of up to 10 times a second, data is instantly available. For high fiber count testing, the multi-task MTS<sup>e</sup> allows the user to enter filenames, analyze results, and print whilst the unit is acquiring data. This significantly reduces operator workload and improves productivity.

## Greater Productivity

Once calculated, the fiber test parameters can be simply locked-in to the unit ensuring measurement consistency. Simple one-button testing and automatic file-increment facilities also save time in the field. A powerful macro function stores test sequences greatly reducing operator workload for intensive tasks.



## Extraordinary Flexibility

With a comprehensive range of data storage possibilities and a powerful suite of PC software programs to generate test reports, the MTS<sup>e</sup> is extraordinarily flexible. Internal memory (400 traces typically), a floppy disk option, and a 1GB hard disk option provide secure storage for many thousands of test results. For fiber commissioning applications where several wavelengths and both-way measurements are required, the MTS<sup>e</sup> can export data to the WinTrace/ WinCable PC software.

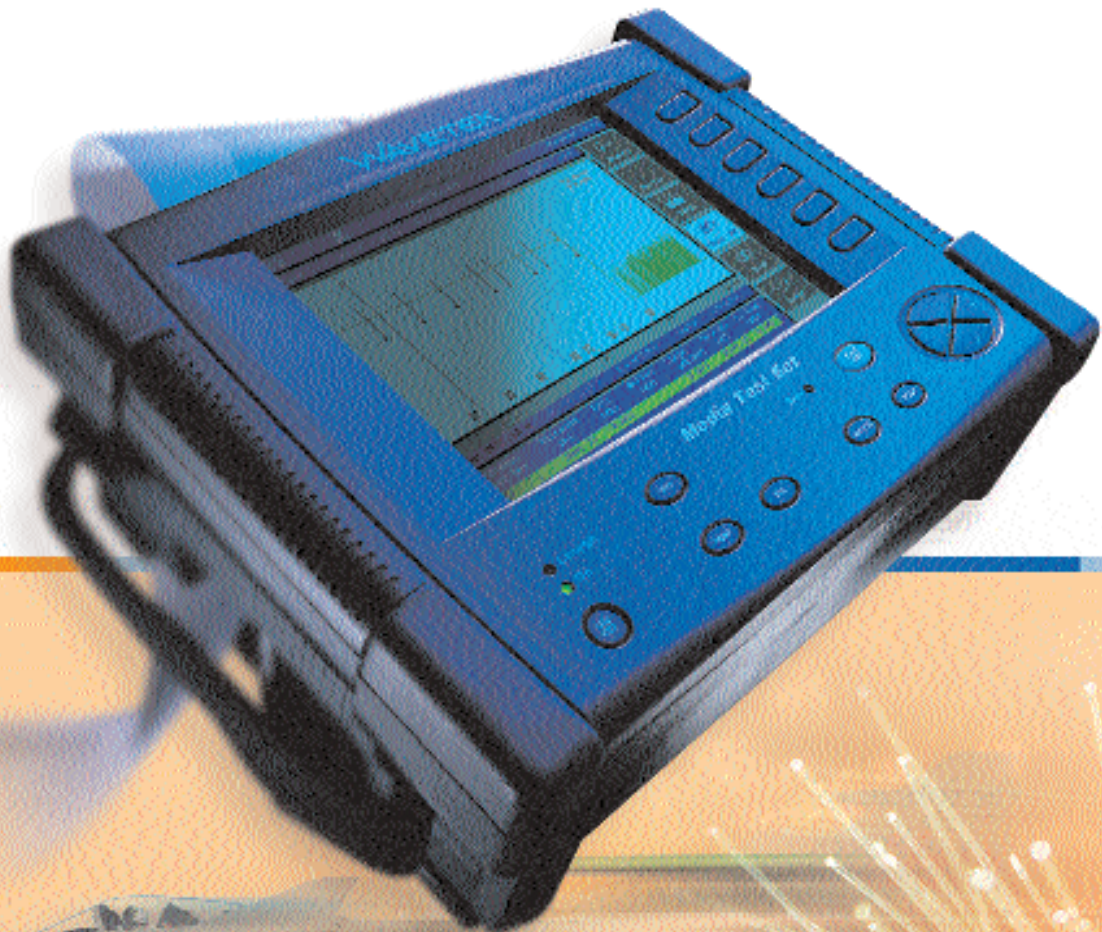
Using the highest performance very long-range OTDR module, the MTS<sup>e</sup> is now up to six times faster than previous models. For example, this represents a time saving of 70% in testing a 144 fiber-optic cable both ways at two wavelengths.

## Greater Speed = Greater Productivity

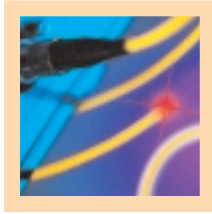
### What's New

- Fast start-up in just 15s
- 2 x faster real-time scans (0.1s)
- 4 x faster acquisition speeds
- 4 x number of acquisition points (128k)

- More fibers tested
- Less time in the field
- Quicker installs
- Faster repairs



# Multiple Tests in a Single, Easy-to-Use Platform



## Multiple Test Functions

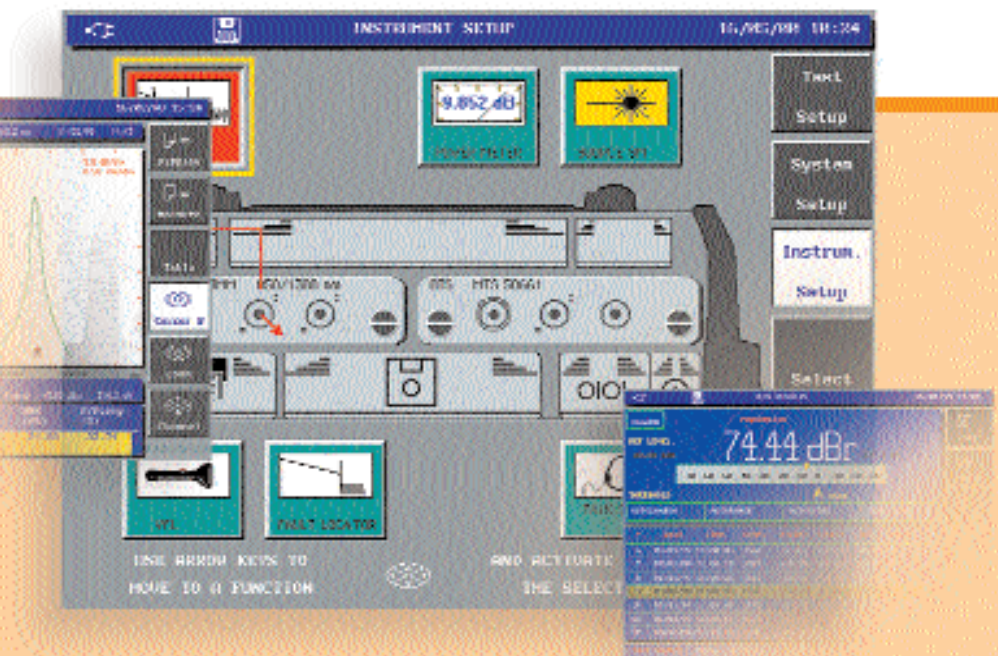
The MTS<sup>c</sup> can be configured and expanded by the user to match almost any network application and any type of field test. As well as DWDM and OTDR testing, users can choose between VFL, light source, power meter, and talkset options all within the same compact unit. A graphical setup page automatically recognizes installed modules allowing the user to simply navigate and select the appropriate module. A single 'START' key press performs the selected measurement, automatically displaying results.

## Simple User Interface

The MTS<sup>c</sup> has a familiar, intuitive user interface requiring no training for experienced users, and shortening the learning curve for novices. All the setup parameters are logically presented on one page with simple pull-down menus showing the multiple choices. To reduce test time, a simple macro function is provided as standard. This allows the user to store repetitive keystrokes in a sequence file that can be played on successive traces.

## Effective File Management

The MTS<sup>c</sup> facilitates data storage and retrieval with an advanced file management facility for the internal SRAM (3M), the floppy disk (1.44M), and the hard disk option (1GB). An auto-incrementing file utility simplifies storage of a large number of traces during fiber installation. Conforming to the Bellcore GR-196 OTDR data format, the user can easily import and export data between different OTDR testers. Bit map files can also be copied into other PC applications for reports.





## DWDM Testing

Equipped with a 5071 WDM module, the MTS<sup>e</sup> automatically provides all the necessary parameters to maintain a DWDM network. It can test for channel wavelength/ frequency, channel spacing, power, and optical signal-to-noise ratio (OSNR). By pressing a single key, the MTS<sup>e</sup> performs an acquisition immediately followed by an analysis of the existing channels. Measurement parameters are presented over the full spectrum in a waveform as well as in a tabular display. For easy analysis, a simple 'click' on the table brings the relevant waveform center screen, where the zoom function provides a more detailed view. When a large number of DWDM systems need to be tested, a set of test sequences can be stored as a macro and implemented at the touch of a button saving time and resource.

## High Performance OTDR Testing

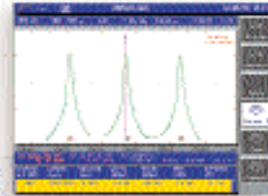
The MTS<sup>e</sup> provides unprecedented levels of speed, processing power, resolution, and range. Extremely short dead zones down to 1m can be used to pinpoint faults close to cable junctions or splice points. An outstanding dynamic range in excess of 43dB at 1550nm means that even the longest spans of fiber can be tested. Up to 128K data points ensures that the fiber is characterized with the highest precision.

## Powerful System Loss Testing

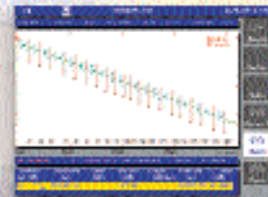
The MTS<sup>e</sup> can be converted into a powerful tester for system loss testing using the light source and power meter options. A combination of large storage and automatic functions (auto-lambda, auto-store, etc.) facilitates testing cables with high fiber counts. The light source has a built-in attenuator, enabling the output power to vary between 0dBm and -10dBm. For faster measurements, dual wavelength loss can also be measured at the touch of a single key. An additional talkset capability allows operators at both ends to converse in full duplex mode (like a telephone call).

## What's New

- DWDM and OTDR in one unit
- LAN multimode OTDR module
- Test fiber module



DWDM waveform display



OTDR results screen showing over 200 km of fiber

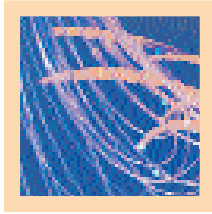


Results screen during attenuation tests with automatic storage

**With two optical module slots side by side, the MTS<sup>e</sup> offers the highest levels of modularity in a truly field-based unit.**



# Modular and Flexible with Easy Upgrade in the Field



## Advanced Design for Advanced Services

The MTS<sup>e</sup> offers unprecedented levels of modularity and flexibility for a family of field testers. Optical modules can be interchanged on the job so that the user can change test applications in the field. Because the MTS<sup>e</sup> can accommodate two optical modules simultaneously, the user can start with a single module tester at first and add a second module at a later date, spreading capital investment over time.

## Configurable Test Equipment

With many different types of optical test sets available on the market, organizations can quickly find themselves with a pool of outdated and incompatible test instruments with diverse user interfaces. Offering both a mini and a mainframe base unit with common hardware and software, the MTS<sup>e</sup> allows organizations to optimize optical tester investment for the future. The MTS 5100<sup>e</sup> and MTS 5200<sup>e</sup> base units accept all individually calibrated modules available in the range. Upgrade to DWDM has never been easier.

## Simple Upgrade Path to Remote Fiber Test System (RFTS)

The continual challenge to improve Quality of Service and reduce Mean-Time-To-Repair has seen the introduction of Remote Fiber Test Systems (RFTS) that can automate the detection and location of cable breaks. The MTS<sup>e</sup> family also includes a rack-based Optical test unit with common hardware and software from the MTS 5100<sup>e</sup> and 5200<sup>e</sup> that can be incorporated into an RFTS. This rack-based Optical test unit or Remote Test Unit (RTU) can be deployed at strategic points in the network and can automatically generate fault reports back to a network management system. The RTU can also accept all the different modules available in the MTS<sup>e</sup> range and allows a simple path for the user to move from an instrument solution to a system solution at a later date.

## Protecting Your Investment

All OTDR and OTS modules can operate on both MTS 5100/5200 and on MTS 5100<sup>e</sup>/5200<sup>e</sup>. For existing MTS users, all the optical modules installed in the field can be used in the MTS<sup>e</sup> base unit protecting your investment and maximizing your return. An upgrade from MTS to the new MTS<sup>e</sup> is also available...



**All optical modules can be used in the MTS 5100<sup>e</sup>, the MTS 5200<sup>e</sup> and the Atlas RFTS**

## What's New

- DWDM ready
- Ethernet option
- 400 traces internal storage (typical)
- Fast start-up in just 15s
- 2 x faster real-time scans (0.1s)
- 4 x faster acquisition speeds
- 4 x number of acquisition points (128k)
- DWDM and OTDR in one unit
- LAN multimode OTDR module
- Test fiber module

## Complementary software packages for the MTS<sup>e</sup>

- WinTrace PC software for OTDR trace analysis. For troubleshooting and analysis of fiber test results.
- WinWDM PC analysis software for DWDM post processing measurement.
- WinCable PC software to generate OTDR cable acceptance test reports using OTDR results.





(FOST MT1X 05/01 AE)

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