Anritsu

Network Master Series
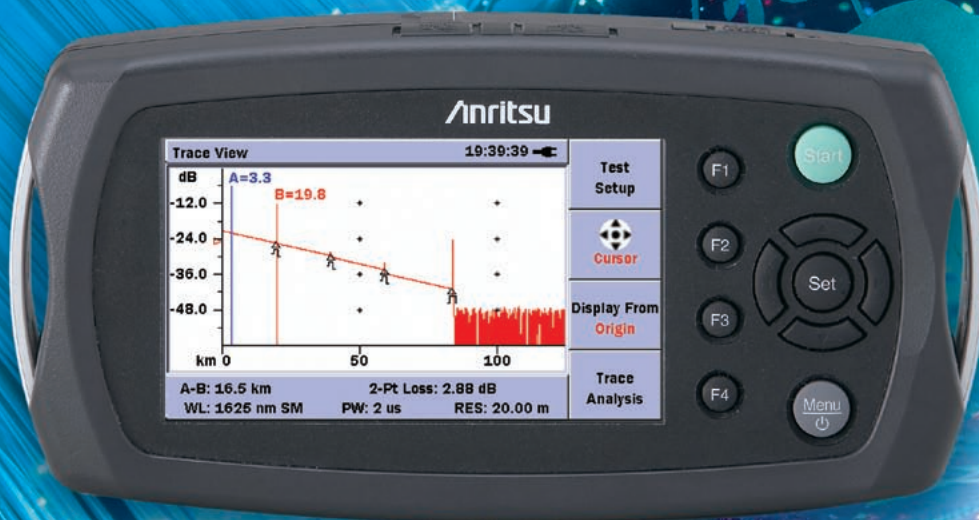
MT9090A
Mainframe
MU909014A/A1/B/B1
MU909015B/B1
µOTDR Module™

1310 nm/1550 nm for Installation,
1625 nm & 1650 nm for Maintenance

Network Master

Field Optical Testing Redefined!

MT9090A with MU909014x/15x Overview

There are many handheld OTDRs on the market that appear to be a good value until they are put into action and the user quickly finds out that they lack the performance needed to install and maintain today's networks.

The new MU909014x/15x µOTDR Module series for the MT9090A Network Master platform from Anritsu finally addresses this need by providing all of the features and performance required for installation and maintenance of optical fibers in a compact, modular test set. The MT9090A represents an unmatched level of value and ease of use, while not compromising performance. Data sampling of five centimeters, dead zones of less than one meter and dynamic range up to 37 dB ensure accurate and complete fiber evaluation of any network type – premise to access, metro to core…including PON-based FTTx networks featuring up to a 1 × 64 split.

The MT9090A with MU909014x/15x module represents a new era in optical fiber testing!

Key Features

• High-end OTDR performance in a pocket-size package with unique battery operation
• Full AUTO mode simplies operation, no OTDR knowledge needed
• Complete PON testing through splitters up to 1 × 64

µOTDR Module™ is a trademark of Anritsu Corporation.

MU909014x/15x
µOTDR Module™
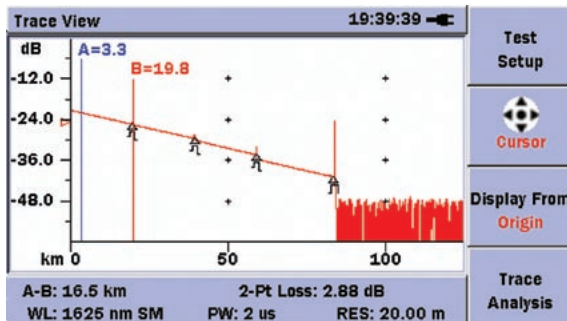1310 nm/1550 nm for Installation, 1625 nm & 1650 nm for Maintenance

A Truly Revolutionary OTDR!

Introducing the first handheld OTDR that does not compromise performance – the new µOTDR from Anritsu. With performance that rivals traditional OTDRs that are four times the size and more than double the price, the Network Master MT9090A µOTDR has created a new class of test instruments. It features 5 cm resolution for accurate mapping of events, dead zones of less than 1 meter (3 feet) and a dynamic range of up to 35 dB – enough to test over 150 km (90+ miles). The MT9090A µOTDR also takes portability to a new level by being the first handheld OTDR that truly fits in the palm of your hand.
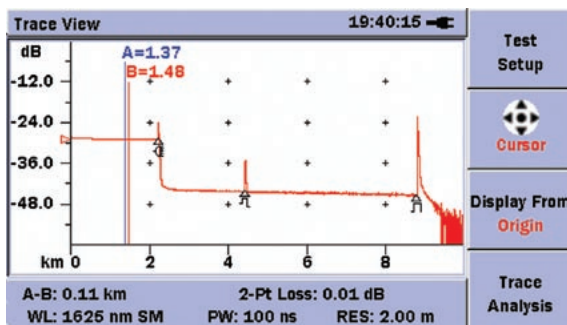
Complete Testing Tool - Premise to Core

With a dynamic range of up to 37 dB, the µOTDR evolves far beyond the premise/access applications that other handheld OTDRs service. Metro links can be tested with lower pulsewidths which provides greater detail and better resolution while long haul fibers up to 175 km (108 miles) can also be completely evaluated.

FTTx and PON Ready

With splitter-based fiber-to-the-x (FTTx) deployments becoming more popular, the need for test equipment to thoroughly test and maintain them has risen. The µOTDR series features the ability to test up to a 1 × 64 split completely from end-to-end and with high resolution.

Full Auto Operation

To ensure easy operation and accurate results for all levels of users, the MT9090A µOTDR can be configured to automatically select all test parameters. The user simply presses the "Start" button and within a few seconds has a complete, easy to read summary of the fiber under test.

<1 m Dead Zone for Short Fiber Analysis

With less than 1 meter dead zones, the MT9090A is perfect for evaluating central office, FTTx and intra building cables.

Fast Real Time Sweeping

The MT9090A µOTDR features real-time updates as quickly as 0.25 seconds. This is useful for connector and splice optimizations as well as verifications of parameter selection.
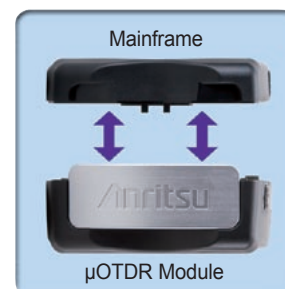
Portable

The MT9090A µOTDR takes portability to a whole new level. With dimensions of just 19 cm × 9.6 cm × 4.8 cm (7.5" × 3.8" × 1.9") and a weight of only 700 g (1.54 lbs.), the µOTDR is the smallest and lightest OTDR on the market. With its lightweight design and user friendly dimensions, the MT9090A is perfect for the outside plant environment and can easily be managed with one hand. The standard soft case with shoulder strap further increases portability when traveling from the truck to the testing site.

Rugged

With no fans or vents to allow dust and moisture to enter the unit, the MT9090A was designed for the challenging outside plant environment.

Modular Design

The MT9090A features a modular design allowing modules to be easily changed in the field. Users can interchange different OTDR modules or perform other optical network testing such as optical channel analysis with the available CWDM channel analyzer module or 10/100/1000 MB Ethernet testing on optical or electrical links. Operation is quite similar between modules so the user is immediately familiar with operation.

4.3-inch Wide Screen Display for Easy Viewing

The high resolution, full color, 4.3-inch wide screen display is the perfect format for viewing OTDR results. It also provides excellent readability both indoors and outdoors.

Integrated Launch Fiber

To further simplify testing, the MU909014x/15x series is the only handheld OTDR that features an integrated launch cable. A ten meter (30 feet) fiber is built-in so initial fiber connections can be verified without the need for additional patchcords or launch fibers.

Reliable. Capable.

When buying products, you tend to choose ones that are innovative and from established companies. When you need to install and maintain optical networks, this should also apply. With over 50 years of combined OTDR design, Anritsu, which now includes NetTest, delivers the features that matter. Having been in the test and measurement business for a long time, we understand the importance of performance, portability, reliability, easy operation and of course price.

Event Table with User Defined Thresholds

PASS/FAIL thresholds for key acceptance criteria such as splice loss, reflectance and total span loss can be set in the MT9090A allowing technicians to easily assess a fiber's condition. Failing values are clearly highlighted in the event table alerting technicians of potential problems.
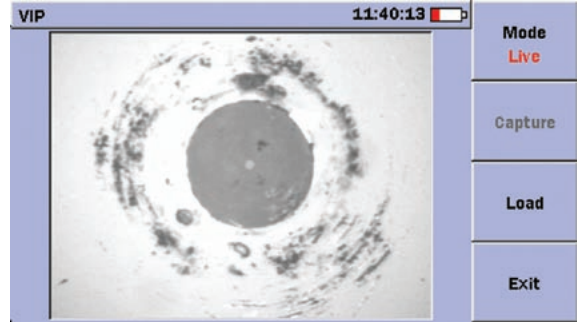
Unique Battery Operation

Since AC power is not always available where you need it, especially at fiber pedestals, the MT9090A typically provides 8 hours of testing on a single charge. This coupled with an optional car cigarette lighter cord guarantees the MT9090A is ready when you are. µOTDR supports widely available NiMH and Alkaline batteries for truly unique battery operation.

Quick Startup

The MT9090A is ready for measurement in under 15 seconds so productive work can start immediately.

Video Inspection Probe Support

When equipped with the optional connector video inspection probe (VIP), the µOTDR becomes a powerful tool for evaluating connector cleanliness and quality. Connector end faces can be safely viewed and images stored to document all aspects of your network.

Screen Capture Function

Screen shots are sometimes useful for adding to reports so the MT9090A features the ability to save screen shots as Bitmap images.
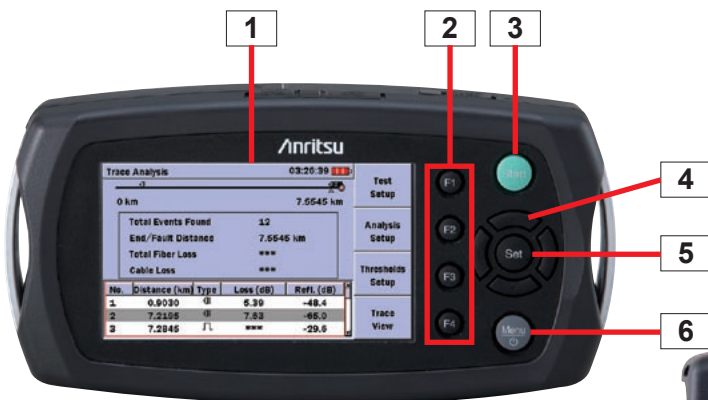
Visible Light Source

An optional visible laser diode "red light" to visually troubleshoot splices, connectors and the fiber management is also available.
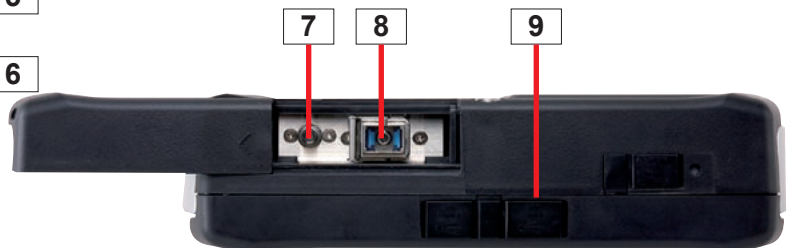
Integrated Power Meter Function

As added value, an integrated power meter is available for measuring power levels at key wavelengths such as 1310, 1490, 1550, 1625 nm and 1650 nm with a single instrument.

Small on price, Not on features!

1	4.3-inch high resolution, indoor/outdoor color display	5	Set to select/accept
2	Dedicated function keys for performing tasks	6	Menu key for easy access to set-ups and mass storage
3	Start key for true one-button testing	7	Visible laser diode (option)
4	Arrow keys for zooming, cursor movement and menu navigation	8	OTDR port (Integrated power meter)
		9	Dual USB ports for quick and easy data transfer

Top View

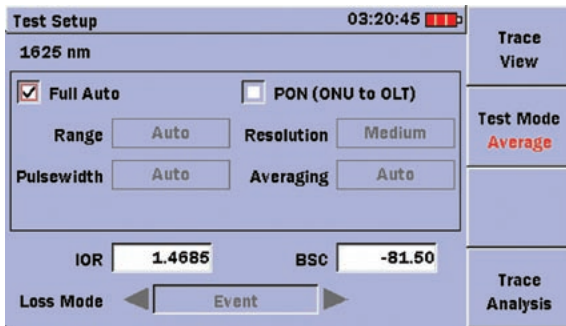# Installation and Maintenance Simplified

Since the MT9090A is designed for technicians of any level, its hardware and user interface are optimized for simplicity. A customizable testing sequence and "Full Auto" mode automates testing and guides novice users. Specialized maintenance wavelengths are also available to eliminate equipment damage and transmission interruptions.

Installation Simplified

The MU909014x/15x µOTDR Module series provides easy and accurate verification of fiber installations at 1310 nm & 1550 nm to ensure your network is ready for any transmission type. The user simply connects the fiber, selects "Full Auto" and presses "Start" - all settings are automatically selected to ensure accurate and constant results for any skill level. Upon completion, all key fiber characteristics are displayed within seconds. Experienced users can also "fine tune" all testing parameters and make manual measurements.
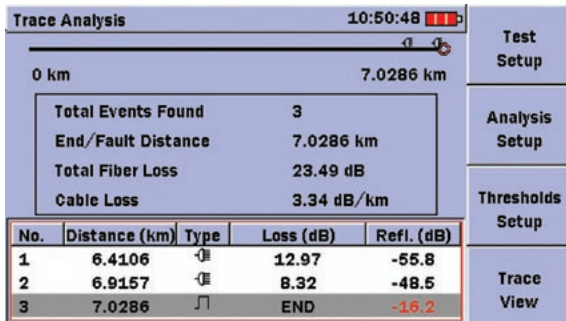
Step 1 – Connect fiber and Power on
Step 2 – Select "Full Auto" and Press "Start"

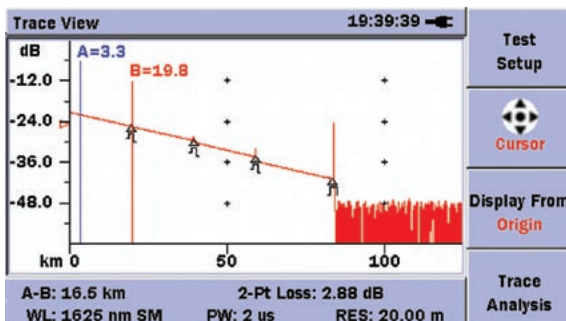All testing parameters are automatically selected.

Step 3 – Read Results

Test results including all splices and connectors, as well as total fiber length and loss are shown in an easy to read table.

Step 4 – View Trace

View trace if desired to see the complete fiber trace and make any manual measurements.

Maintenance Simplified

Being able to test active fibers is a key requirement for network maintenance since multiple users often share portions of the network and taking them all out of service is not an option. To address this need, special modules are available in the MT9090A µOTDR series. 1650 nm is recommended by the ITU-T L.41 for active maintenance since it features 100 nm of isolation from the nearest 1550 nm transmission wavelength. The 1650 nm OTDR also features an integrated filter to block transmissions from damaging the OTDR. 1625 nm is also available and can be used for in-service testing or as an "extra" test to verify installation for stresses such as macrobends.

Network Documentation Simplified

Simple Data Storage

With internal data storage plus support for external USB memory devices, the MT9090A is more than capable. Add to this auto file saving and naming for easy, error-free documenting of your network.
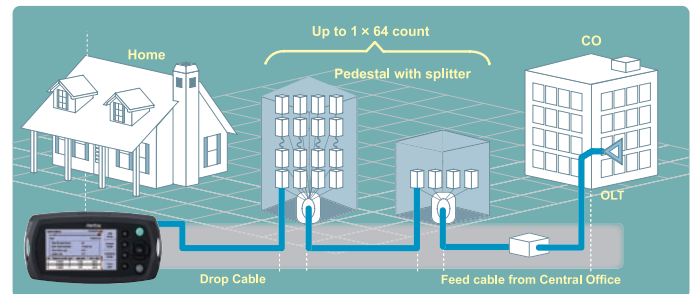
Common OTDR Data Format

The MT9090A supports the universal Telcordia SR-4731 format making it compatible with not only legacy Anritsu and NetTest products, but with many other vendors data.

Easy "Drag and Drop" File Transfers

When the MT9090A is connected to a PC via a USB cable, the internal memory can be directly accessed. Data can be selected, dragged and dropped into the PC memory, greatly simplifying file transfers. The MT9090A also supports the use of USB memory sticks.

Free and Simple Software Upgrades

Firmware upgrades are easily performed via USB and available from the Anritsu website for registered users or through Anritsu customer support.

Specifications

MT9090A Mainframe

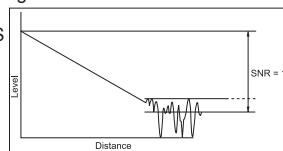|	
Dimensions and Mass	190 (W) × 96 (H) × 48 (D) mm (7.5" × 3.8" × 1.9") (including mainframe and module) <700 g (1.54 lbs.) (including mainframe, module and Standard battery)
Display	4.3-inch TFT Color LCD (480 × 272 pixels, transmissive)
Interface	USB 1.1, Type A × 1 (memory), Type B × 1 (USB mass storage)

MU909014A/A1/B/B1 and MU909015B/B1 µOTDR Module

Model name		MU909015B/B1-056/066	MU909014B/B1-056/066	MU909014A/A1-053/063	MU909014A/A1-054/064
Center Wavelength[1]		1310/1550±20 nm[2]	1310/1550±20 nm[2]	1625±15 nm	1650±15 nm
Dynamic Range[3], [4]	PW = 20 µsec	37 dB/36 dB	32.5 dB/31 dB	32.5 dB[5] (1490 nm/1550 nm cut filter included)	32.5 dB[5] (1490 nm/1550 nm cut filter included)
	PW = 500 nsec	28 dB/26 dB	24.5 dB/23 dB	24.5 dB[5] (1490 nm/1550 nm cut filter included)	24 dB[5] (1490 nm/1550 nm cut filter included)
Fiber Type		10 µm/125 µm SMF (ITU-T G.652)			
Optical Connector		UPC (*05x)/APC (*06x) are selectable, FC/SC/LC/ST/DIN adapters are changeable			
Distance Range		0.5, 1, 2.5, 5, 10, 25, 50, 75, 125, 250 km			
Pulse Width		5, 10, 20, 50, 100, 200, 500 ns, 1, 2, 5, 10, 20 µs			
Dead Zone[6]		Fresnel: <1 m, Backscatter: <5 m			
Number of Sampling Points[7]		<125,001 pts (Course: <6,251 pts, Medium: <25,001 pts, Fine: <125,001 pts)			
Sampling Resolution		5 cm (min.)			
Linearity		Which ever is greater ±0.05 dB/dB or ±0.1 dB			
Return Loss Measurement Accuracy[8]		±2 dB			
Distance Measurement Accuracy		±1 m ±3 × Measurement distance × 10^{-5} ± Marker resolution (excluding IOR uncertainty)			
Data Storage		Internal memory: 40 MB (<1,000 traces)			
		External (USB Memory): 1 GB (<30,000 traces)			
IOR Setting		1.3000 to 1.7000 (0.0001 steps)			
Units		km, m, kft, ft, mi			
Testing Modes		Full automatic, Manual, Real time, Optical Power Meter, Visible Fault Locator (Option), Video Inspection Prove (Option)			
Fiber Event Analysis		Automatic, Displayed in table format based on user defined PASS/FAIL thresholds			
Loss Measurement Modes		2 point loss, Splice loss, dB/km Loss LSA, ORL, Event			
OTDR Trace Format		Telcordia universal (.SOR) issue 2 (SR-4731)			
Other Functions		Integrated launch fiber: 10 m (30ft)			
		Connection check: Automatic check of OTDR to FUT connection quality			
		Live fiber detect (Option 056/066 only): Verifies presence of communication light in fiber			
		Real time sweep: <1 sec (typ.)			
Optical Power Meter (same port as OTDR port) (only for MU909014B/B1/15B/B1)		Wavelength: 1310/1490/1550/1625/1650 nm	Not applicable		
		Measurement range: –50 to –5 dBm			
		Accuracy: ±0.5 dB (at –20 dBm, CW, +25°C, 1310/1490/1550 nm)			
		Maximum input: +10 dBm			
Visible Fault Locator (only for MU909014A1/B1/15B1)		Connector: 2.5 mm universal			
		Wavelength: 650±15 nm (CW, +25°C)			
		Output power: 0±3 dBm (CW, +25°C)			
		Modulation: CW, 1 Hz			
Language		User Selectable (English, Simplified Chinese, Traditional Chinese, Korean, Japanese, French, German, Italian, Spanish, Polish, Portuguese, Danish, Swedish, Spanish (Latin America) and Russian)			
Power Supply		9 V (dc), 100 V (ac) to 240 V (ac), Allowable Input voltage range: 90 V (ac) to 264 V (ac), 50 Hz/60 Hz			
Battery		NiMH (Standard battery), NiMH (AA Type), Alkaline Dry Battery (AA Type)[9]			
		Operating time (Standard battery): 8 hours (typ.)[10]			
		Recharging time: <4 hours (typ.)[11]			
Environment		Operating temperature and humidity: –5 to +40°C, <80 % (no condensation)			
		Storage temperature and humidity: –20 to +60°C, <80 %			
		Vibration: MIL-T-28800E Class 3, Dust and Drip proof: IP51			
EMC		EN61326-1, EN61000-3-2			
Laser Safety[12]		IEC Pub 60825-1: 2007 Class 1, IEC Pub 60825-1: 2007 Class 3R (VLD Option), 21CFR1040.10			

*1: At +25°C
*2: Typical value, ±25 nm is Guaranteed
*3: Typical value, Distance range: 125 km, Averaging: 180 sec, SNR = 1, +25°C, Except while charging battery, Subtract 1 dB for guarantee
*4: Dynamic range (one-way back-scattered light)
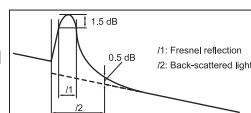 SNR=1: The level difference between the RMS nose level and the level where near end back-scattering occurs.

*5: In service Signal is –20 dBm (CW) at 1310 nm/1550 nm
*6: Return Loss 45 dB, +25°C
 Fresnel: PW = 5 ns,
  1.5 dB down from the peak of Fresnel
 Backscatter: PW = 5 ns, Deviation ±0.5 dB

*7: Either medium and fine density value is selected depends on distance range
*8: Distance range: 25 km, Pulse width: 2 µs, 20 km open the fiber-end.
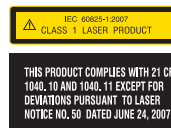*9: All specifications are guaranteed by standard battery.
 Some Alkaline dry battery is heated.
*10: Back light low, Sweeping halted, +25°C
*11: Typical, +10 to +30°C, Power off
*12: Safety measures for laser products
 This option complies with optical safety standards in Class1, 1M, 3R of IEC 60825-1; the following descriptive labels are affixed to the product.

Ordering information

Please specify the model/order number, name and quantity when ordering.
The names listed in the chart below are Order Names. The actual name of the item may differ from the Order Name.

1) Select Mainframe

Model/Order No.	Description
MT9090A	Mainframe (with color LCD)

2) Select Base Module

Model/Order No.	Description
MU909014A	µOTDR Module (Single wavelength, 30 dB class OTDR)
MU909014A1	µOTDR Module (Single wavelength, 30 dB class OTDR with VLD)
MU909014B	µOTDR Module (2 wavelength, 30 dB class OTDR)
MU909014B1	µOTDR Module (2 wavelength, 30 dB class OTDR with VLD)
MU909015B	µOTDR Module (2 wavelength, 35 dB class OTDR)
MU909015B1	µOTDR Module (2 wavelength, 35 dB class OTDR with VLD)

3) Select Module, Connector Interface and Testing Options

Includes operation manual, quick reference guide, battery pack, AC charger/adapter, standard soft case and strap.

Model/Order No.	Description
Maintenance Models	
MU909014A-053	1625 nm, 32.5 dB, UPC
MU909014A-063	1625 nm, 32.5 dB, APC
MU909014A1-053	1625 nm, 32.5 dB, UPC, VLD
MU909014A1-063	1625 nm, 32.5 dB, APC, VLD
MU909014A-054	1650 nm, 32.5 dB, UPC
MU909014A-064	1650 nm, 32.5 dB, APC
MU909014A1-054	1650 nm, 32.5 dB, UPC, VLD
MU909014A1-064	1650 nm, 32.5 dB, APC, VLD
General Purpose Models	
MU909014B-056	1310/1550 nm, 32.5/31 dB, UPC
MU909014B-066	1310/1550 nm, 32.5/31 dB, APC
MU909014B1-056	1310/1550 nm, 32.5/31 dB, UPC, VLD
MU909014B1-066	1310/1550 nm, 32.5/31 dB, APC, VLD
MU909015B-056	1310/1550 nm, 37/36 dB, UPC
MU909015B-066	1310/1550 nm, 37/36 dB, APC
MU909015B1-056	1310/1550 nm, 37/36 dB, UPC, VLD
MU909015B1-066	1310/1550 nm, 37/36 dB, APC, VLD

4) Select Connector Adapter

One adapter included at no charge – must be added as a separate line item.

Model/Order No.	Description
MU909014A/B-037 MU909015B-037	FC (UPC: Models -053, 054 and -056 only)
MU909014A/B-038 MU909015B-038	ST (UPC: Models -053, 054 and -056 only)
MU909014A/B-039 MU909015B-039	DIN (UPC: Models -053, 054 and -056 only)
MU909014A/B-040 MU909015B-040	SC (UPC: Models -053, 054 and -056 only)
MU909014A/B-025 MU909015B-025	FC-APC (APC: Models -063, 064 and -066 only)
MU909014A/B-026 MU909015B-026	SC-APC (APC: Models -063, 064 and -066 only)

5) Select Accessories

Must be added as separate line items.

Model/Order No.	Description
G0203A	Replacement AC Adaptor
G0202A	Replacement NiMH battery pack
B0602A	Deluxe soft case for MT9090A
B0601A	Replacement carry pouch with strap
B0600A	Hard case for MT9090A
Z1023A	Strap
J1402A	Car plug cord
W3415AE	MT9090A/MU909014x/15x Quick Reference Guide (English, Printed)
W3416AE	MT9090A/MU909014x/15x Operation manual (English, Printed)
W3441AE	MT9090A/MU909014x/15x Operation manual (English, Electronic (CD))
OPTION-545VIP	Connector Inspection Microscope
Networks	PC Emulation Software for Data Analysis and Reporting

6) Replacement Adaptors

Must be added as separate line items.

Model/Order No.	Description
J1413A	LC (UPC: Models -053, -054, -056 only)
J0617B	FC (UPC: Models -053, -054, -056 only)
J0618D	ST (UPC: Models -053, -054, -056 only)
J0618E	DIN (UPC: Models -053, -054, -056 only)
J0618F	HMS-10/A (UPC: Models -053, -054, -056 only)
J0619B	SC (UPC or APC: all models)
J0739A	FC (APC: Models -063, -064, -066 only)

B0601A Standard Soft Case

B0602A Deluxe Soft Case

Full Network Master operation without removal from the case. Provides excellent protection for use in hash conditions.

B0600A Hard Case

MT9090 Series Network Master

MU909011A Fault Locator Module
Compact fault locator instrument for an easy and accurate verification of drop cable installation.

MU909020A OCA Module
Compact CWDM channel analyzer to verify power levels, drift and channel presence of CWDM networks.

MU909060A GigE Module
Dedicated field test solution for installation and troubleshooting Ethernet links in the access network.

MT9083 Series ACCESS Master Mini-OTDR
All in one test tool for fiber construction and maintenance.

CMA5000a Multi-Layer Network Test Platform
A wide selection of test modules including Gigabit Ethernet and 10 Gbps Ethernet.

Anritsu

Specifications are subject to change without notice.