

# Digital and Optical

Measuring Test Solutions for NGN



## OPTICAL TEST SET

### MT9810B

#### Multipurpose Optical Measuring Instruments Supporting D-WDM Light Sources

- Integrated light source and optical sensor
- +10 dBm high-output light source, -110 dBm high sensitivity sensor
- Full line of ITU-T-compliant DFB-LDs supporting D-WDM
- High-power +35 dBm sensor for WDM (MA9331A)

The MT9810B Optical Test Set is the most fundamental optical measurement instrument with a complete line-up of light sources (DFB-LD, FP-LD, SLD) and optical sensors (high-speed, general-purpose, high-power).



## MULTI CHANNEL BOX

### MT9812B

#### For Adding Light Sources and Optical Sensors for Maximum of 9 Channels

- Accepts total of 9 light sources and optical sensors (sold separately)
- Multi-wavelength WDM light source (1530 – 1610 nm)
- GPIB and RS-232C standard I/Fs

The MT9812B with multiple DFB-LD light sources supports evaluation systems for multi-channel devices. Up to nine MT9810B-compatible light sources (DFB-LD, FP-LD, SLD) and optical sensor units can be installed in it.



## OPTICAL SPECTRUM ANALYZER

### MS9710C

600 to 1750 nm

#### High Performance for DWDM Optical Communications

- Wavelength accuracy of  $\pm 20$  pm (C-band) and  $\pm 50$  pm (L-band)
- Dynamic range of 42 dB (0.2 nm from peak wavelength), 70 dB (1 nm from peak wavelength)
- WDM measurement of wavelength, level, and SNR for up to 300 channels

The MS9710C is a diffraction-grating spectrum analyzer for analyzing optical spectra in the 600 to 1750 nm wavelength band. In addition to uses such as measurement of LD and LED spectra, it has functions for measuring the transmission characteristics of passive elements such as optical isolators, as well as NF/Gain of optical fiber amplifier systems.



## OPTICAL CHANNEL SELECTOR

### MN9662A/9664A/9672A/9674A

1.2 to 1.65  $\mu$ m

#### For Automatic Switching of Optical Paths

- Low polarization-dependent Loss (0.03 dBp-p: MN9662A/9664A)
- Cleanable and replaceable optical adapters (FC, SC, ST, DIN, HMS-10/A)

The optical channel selector is a switching device used for outputting the light that is inputted to the common channels to any channel. The above devices are equipped with eight (for MN9662A/9672A) and sixteen (for MN9664A/9674A) channels, making them ideal for the evaluation of devices for WDM and various optical transmission devices.





## TUNABLE LASER

### Tunics Reference/Plus/Purity

1260 to 1640 nm

#### The New Benchmark in Tunable Laser Sources

- Tunics Reference: Output Power higher than 10 dBm, ultra-wide mode-hop free tuning range,  $\pm 5$  pm high-wavelength accuracy
- Tunics Purity: Ultra-low ASE noise with SSE ratio  $> 90$  dB.
- Tunics Plus: Ideal general-purpose tunable laser source

Tunics is a tunable light source with the functions and performance required for evaluating DWDM systems and devices.



## 8-CHANNEL MODULAR PLATFORM

### OSICS Mainframe

#### Ideal for Multi-Channel Testing of DWDM Systems

- Versatile units matching application, including DFB light sources, tunable light sources, etc.
- DWDM Application support
- Remote control

The OSICS platform offers the highest flexibility and largest choice of plug-ins required in fiber-optic system testing, particularly for Dense Wavelength Division Multiplexing (DWDM). Up to 8 plug-in modules can be mixed and matched in a single OSICS mainframe, thus fulfilling all needs for applications requiring multi-wavelength sources.



## TUNABLE OPTICAL CHANNEL DROP UNIT

### Xtract

1450 to 1650 nm

#### Perfect and Unique Tool for Clean Signal Extraction

- Best in class filter: Flat top and sharp edges, for a clean extraction without any data corruption
- Variable Bandwidth option, to adapt to any kind of modulation, Up to 40 Gb/s and beyond
- Automatic channel detection, for a fast and accurate ( $< 15$  pm) positioning on the channel to extract

Xtract features a square flat-top tunable filter allowing clean DWDM optical channel extraction.



## ALL-BAND OPTICAL COMPONENT TESTER

### MT9820A

1250 to 1650 nm

#### Test solution for a fast and accurate characterization of optical components

- Fast insertion loss measurement: 4 ports of an optical component tested simultaneously in a few seconds on the full telecom bands
- 5 pm high wavelength accuracy, resolution down to 1 pm
- Compatible with most Tunable Laser Sources, performance independent of TLS

Fast accurate evaluation of optical components for applications ranging from R&D to manufacturing.



## ACCESS MASTER™ MT9083A

0.85/1.3 μm (MMF), 0.78/1.31/1.383/1.49/1.55/1.625/1.65 μm (SMF)

### All-in-One Solution for Optical Fiber Construction and Maintenance of Access, FTTx, LAN and Metro Networks

- High resolution and high dynamic range ensure thorough and complete fiber evaluation
- IP testing option verifies throughput, frame loss and point-to-point connectivity
- Test up to four wavelengths with a single unit-single mode, multimode or both

MT9083A ACCESS Master supports many measurement functions and performance required for optical fiber construction and maintenance in a compact, lightweight, all-in-one unit that eliminates the burden of carrying many different test sets and instruments on-site.



## MULTI-LAYER NETWORK TESTING PLATFORM CMA5000

-OTDR, ORL, OSA, PMD and CD modules

### Testing of DWDM, OTDR, ORL, PMD and CD Made Simple

- Extensive series of high performance OTDR Modules for Single Mode, Multimode and Hybrid Solutions.
- Wide spectral range OSA (1250 to 1650 nm) for characterization of the full telecom spectral range with a single unit.
- Fast and accurate PMD characterization with a high dynamic range, through multiple EDFAs.
- Highly accurate CD test using industry recognized FOTP-168 methods, combined OTDR and chromatic dispersion measurement system, reducing testing times.
- Unique single end ORL (optical return loss) test module.

Full featured installation and maintenance tool to test all optical requirements for high speed and long haul networks. CMA5000 covers all needs from the lowest physical levels, OTDR, ORL and Connector inspection to CD and PMD. DWDM optical networks can also be measured with the OSA abilities. The CMA5000 platform is also capable of higher layer testing (refer to separate section)



## NETWORK MASTER SERIES MT9090A

MU909011A Drop Cable Fault Locator Module

### Purpose-Built for Short Fiber Applications

- Unique, purpose-built solution for short fiber applications such as FTTx drop cables
- High resolution and extremely short deadzones ensure thorough short fiber evaluation
- Unique 780 nm wavelength for in-service maintenance of PONs without filters

The MT9090A represents a new era in drop cable and premise testing. Its ease of use, low price, high-resolution and size make this the perfect product for "last mile" testing.



## NETWORK MASTER SERIES MT9090A

MU909020A Optical Channel Analyzer Module

### Testing of CWDM Access Network

- Dedicated tool for installation, commissioning, and troubleshooting of CWDM networks
- Fast and accurate overview of all CWDM channels and channel drifts over time

The MU909020A provides an overview of the power levels and wavelengths of all 18 CWDM channels at a glance, with easy comparison to pass and fail indicators.



# OPTICAL MEASURING INSTRUMENTS

## OTDR MODULE

### MW9077A/A1/A2/B

1.31  $\mu\text{m}$  (SM)/1.55  $\mu\text{m}$  (SM)/1.625  $\mu\text{m}$  (SM)

#### Compact and High-performance OTDR Module for Optical Fiber Monitoring Systems

- Compact A5-size for monitoring optical fiber systems
- Wide operating temperature range
- High-performance successor to MW9076 series
- Fast data transmission by Ethernet interface

The MW9077A/A1/A2/B OTDR Module is ideal for monitoring optical fiber systems and offers a compact and high-performance solution for optical fiber applications.



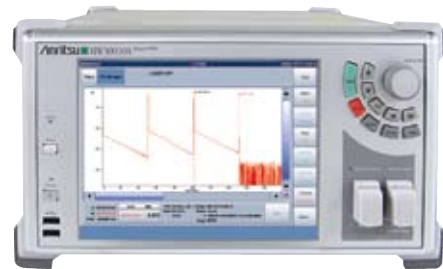
## COHERENT OTDR

### MW90010A

#### Measure submarine cables up to 12,000-km long

- Fault detection with 10-m distance resolution
- Compact and lightweight all-in-one design for on-site portability
- Simple and easy touch-panel operation for easy first-time use by any operator

The MW90010A Coherent OTDR is a measuring instrument for detecting faults in ultra-long optical submarine cables of up to 12,000 km including multiple repeaters (EDFAs).



## LOSS TEST SETS

### CMA50 Series

850, 1300, 1310, 1490, 1550, 1625 nm

#### Ideal for Bi-Directional Testing

- Up to 4 sources per unit, out of a single port
- High power and stable output for high dynamic range testing and accurate loss readings
- Auto-wavelength switching provides fast and accurate results
- Visual Fault Location source option
- LAN Access and network testing option via RJ45 port

Fast and easy-to-use, Anritsu's CMA50 line of Loss Test Sets is designed for both attenuation and power throughput measurements on fiber optic links. They are offered with common calibrated wavelengths and connector options to meet any testing requirement from FTTx networks to long haul telephony links to multimode LAN, and CATV.



## HANDHELD POWER METERS

### CMA5 Series

850, 1300, 1310, 1490, 1550, 1625 nm

#### Economical, Accurate and Easy-to-use Handheld Units

- Pocket-sized and rugged design
- Multiple calibration wavelengths to address all network types: datacom, multimedia, WDM as well as FTTx
- High input power capacity enables optical amplifier characterization and multimedia/CATV measurements

The CMA5 Series Power Meters are economical, accurate and easy-to-use handheld units for attenuation and power throughput measurements on point-to-point fiber optic links.



## PULSE PATTERN GENERATORS/ERROR DETECTORS

### SIGNAL QUALITY ANALYZER

## MP1800A Series

#### Small and Flexible Cost-efficient BER Test Solution

- Wide frequency band of 0.1 to 12.5 Gbit/s
- Differential and single-end interfaces as standard
- Long programmable patterns up to 128-Mbits
- Burst BER function as standard
- Synchronous and asynchronous multi-channel operation
- Jittered data generation
- Stressed Receiver Conformance Test
- Up to 3.5 Vpp data output

SQA series offer suitable BER test solution for XFP, SFP, PON modules up to 12.5 Gbit/s, and devices for 43.5G and beyond in combination with MP1803A/04A/11A/12A, MUX and DEMUX.



### 43.5G MUX/43.5G DEMUX

## MP1803A/MP1804A

25 to 43.5 Gbit/s

#### For R&D and Manufacturing of 40 Gbit/s Devices and Transmission Systems

- Adopting high resolution variable delay unit (Resolution: 0.1 ps)
- High resolution threshold voltage setting suitable for the Q factor analysis (Resolution: 0.001 V)
- Digital display
- For various applications with the remote control

MP1803A multiplexes four data streams into one stream up to 43.5 Gbit/s.

MP1804A functions opposite of MP1803A. MP1803A and MP1804A are designed well cooperated with MP1800A of 4-channel PPG and 4-channel ED configuration.



## DIGITAL MEASURING INSTRUMENTS

### MD1230 FAMILY

MD1230B DATA QUALITY ANALYZER

MD1231A1 IP NETWORK ANALYZER

#### IP Testing Instruments Changing in Response to Applications for Core, Metropolitan-area, and Access Networks

- Portability and 10M to 10G interface support
- Frame wire-rate sending and real-time traffic analysis
- Multi-stage VLAN support and tunable clock functions
- Cost-effective multi-port measurements

Anritsu's MD1230 family packs all the functions needed for measuring network quality, including full-wire-rate packet Tx and Rx, into a single, compact unit. The unified operation increases measurement efficiency and cuts costs.



### SONET/SDH/PDH/ATM ANALYZER

## MP1570A

1.5 Mbit/s to 10 Gbit/s

#### Comprehensive Testing of Core Networks from One Compact Portable Analyzer

- All-in-one 1.5M – 10G measurements
- VC4-64c/OC-192c Concatenation mapping test
- ITU-T O.172-compliant Jitter and Wander tests

The MP1570A is a measuring instrument for manufacturing, installing, maintaining, and inspecting SONET/SDH/PDH/ATM equipment and devices. The modular design supports cost-effective customization for target measurements.





## 40G SDH/SONET ANALYZER MP1595A

### Multi-bit Rate Measurements up to 40/43G

- All-in-one support for PDH/DSn/SDH/SONET/OTN analysis from 1.5M to 43G
- APS, Delay, and Through Mode measurements
- O.182-compliant Poisson distribution error insertion
- Jitter measurement when used with MP1797A

The all-in-one MP1595A 40G SDH/SONET Analyzer has the performance and functions required for analyzing equipment and devices supporting PDH, DSn, SDH, SONET, and OTN at bit rates from 1.5M to 43G.



## NETWORK PERFORMANCE TESTER MP1590B/MP1591A

### One Box Tester Supporting Converged Network

- All-in-one PDH/DSn/SDH/SONET/OTN/Jitter measurements
- EoS, virtual concatenation, and LCAS measurements
- 10/100/1000M, Gigabit, and 10 Gigabit Ethernet measurements
- Single-system simultaneous measurement of up to 128 Ethernet ports (MP1591A)

The MP1590B/MP1591A Network Performance Tester can be used to make performance tests and jitter measurements of previous PDH, DSn, SDH/SONET, and OTN-related equipment and devices as well as OTN, EoS, virtual concatenation, and LCAS measurements of so-called next-generation networks.



## ALL-IN-ONE FIELD TESTER CMA 3000

### Installation and Maintenance of Mobile-Access and Fixed-Access Networks, Transmission Networks and Switching

- Powerful testing of framed N x 64 kbps and unframed 2 Mbps systems
- High flexibility through easy-to-install options
  - Ethernet interface (10/100/1000 Mbps) and VoIP testing options
  - SDH interface including STM-1, STM-1/4 and STM-1/4/16
  - E3 interface
  - ATM layer measurements
  - V-Series interfaces
  - Frame Relay testing
  - SS7, Abis and ISDN protocol analysis
  - ISDN PRI call emulation
- Simultaneous bi-directional monitoring of all supported interfaces

CMA 3000 is Anritsu's next-generation portable, compact and user-friendly field tester. It's designed specifically for field technicians who install and maintain mobile-access and fixed-access networks, transmission networks and switching.



## MULTI-LAYER NETWORK TESTING PLATFORM CMA5000

- XTA, UTA, GIGE modules

### Installation and Maintenance Test from PDH/T-Carrier, SDH/SONET/OTU to 11 Gig and 10 M. Eth. to 10 GigE

- Automated RFC-2544 tests
- Round Trip Delay with 100 ns resolution
- APS measurement with 125 μs resolution
- ATM, NGN monitoring
- FEC evaluation with O.182

CMA5000 transmission test modules can support field installers and maintenance engineers who require a single tool for data network testing from n x 64 BER and physical interfaces of 1.5 Mbit/s to 10 Gbps for SDH/SONET. OTN networks on both 2.66 Gbps and 10.7 Gbps are also supported. Ethernet interfaces from 10 Mbit/s to 10 Gbps (LAN-PHY and WAN-PHY) allowing full data network testing abilities.

The CMA5000 platform is also capable of lower layer optical testing (refer to other section)



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