

# CMA4500 Series

## SPECIFICATIONS

### Optical Time Domain Reflectometer



The CMA 4500 is a full featured, non-modular solution for situations that only require OTDR and Loss Test Set capabilities.

#### **You can have it all with the CMA4500**

Highlights include a powerful PC based unit, large, high resolution color display that's easy to read, touch screen and hard key user interfaces and several optics options to cover any testing requirements from single mode to multimode, from 1 meter to 250 Km. Additional features include dual USB ports, a 10/100 Ethernet interface and an optional integrated CD-R/W drive for easy data transfer. Whether you're a first time user or industry veteran, the CMA4500 will take fiber installation, maintenance and documentation of your optical network to a new level.

#### **Added value through performance**

As added value, the CMA4500 can be equipped with a stabilized light source and power meter for complete end-to-end loss testing. In addition, a Visual Fault Locator (VFL) option enables users to visually locate breaks within central offices and quickly identify specific fibers within a cable or splice tray. Round this out with the optional connector inspection microscope to reduce costly and timely troubleshooting of connector related issues and your CMA4500 quickly becomes the one tool you'll rely on to get your network up and running.

#### **Key Benefits**

- **All-in-one test set with fixed optics reduces complexity and equipment needed**
- **Increased network reliability through accurate fiber characterization**
- **Sophisticated analysis software provides consistent and accurate fiber characterization**
- **Dedicated testing modes simplify commonly performed tasks**
- **Full function OTDR - testing from fault location to advanced analysis**
- **Touch screen plus hard key user interface ensures smooth and efficient operation**
- **Solutions for Metro, CWDM, ultra-long haul and PON based, fiber-to-the-premise (FTTP)**

CMA4500 Series	
Common Specifications (all CMA 4500 Models)	
<b>Model</b>	<b>4500D</b>
<b>Processor</b>	Ultra low power 733 MHz
<b>RAM</b>	256 MB
<b>Operating System</b>	Windows XP Pro
<b>Display</b>	10.4 inch (26.4 cm) color XGA (1024 x 768) LCD with touchscreen interface
<b>Internal Storage</b>	20GB (min) hard drive
<b>Removable Storage (Modular)</b>	Optional: CD-R/W, 3.5 inch 1.44 MB floppy drive
<b>Interfaces</b>	PS/2 (2), USB (2), 10/100 Ethernet, IrDA
<b>Power Supply</b>	Auto switching 92-132 VAC, 184-264 VAC (47-63 Hz)
<b>Dimensions (h x w x d)</b>	24.1 x 34.3 x 9.5 cm (9.5 x 13.5 x 3.75 inches)
<b>Environmental Conditions</b>	Operation: 0° to 45°C (32° to 122°F) Storage: -25° to 60°C (-13° to 140°F) Humidity: 95% max, non-condensing
<b>Weight</b>	5.4 kg including battery and optics
<b>Battery Type</b>	Li-Ion
<b>Distance Range</b>	Single mode: 5, 20, 50, 75, 125, 250, 300 km Multimode: 5, 15, 20, 40, 64 km
<b>Sampling Resolution</b>	Single mode: 0.125, 0.5, 1, 2, 4, 8, 16 m Multimode: 0.125, 0.5, 1, 2, 4 m
<b>Sampling Points</b>	Up to 256,000
<b>Index of Refraction (IOR) Range</b>	1.300000 to 1.700000
<b>Distance Measurement Accuracy</b>	0.0025% of distance measurement ± distance resolution ± index uncertainty
<b>Loss Measurement Accuracy (Linearity)</b>	±0.04 dB/dB
<b>Loss Resolution</b>	0.001 dB
<b>Laser Safety</b>	Meets IEC60825-1 Class I and CDRH Class 1 Requirements (Eye Safe) 21 CFR 1040
<b>Optical Connector</b>	Singlemode: Universal with UFC, USC, UST, AFC, ASC, DIN, LC Multimode: Universal with FC, SC, ST
<b>Operating Modes</b>	Fault Locate, Standard OTDR, Construction (Automated Multi-wavelength, Multi-fiber testing), NetWorks (data processing and report generation) Optional: Power Meter, Stabilized Light Source, Visual Fault Locator (VFL), Video Inspection Probe (VIP)

Single Mode Models						
Model	Wavelength <sup>6</sup>	Optical fiber type	Pulse width <sup>1</sup>	Dynamic Range (SNR=1) <sup>2</sup>	Deadzone (back-scattered) <sup>3</sup>	Deadzone (Fresnel) <sup>4</sup>
4500-25	1310±20 nm 1550±25 nm	Single Mode (8-10 um)	5, 10, 20, 50, 100, 200, 500, 1000, 2000, 5000, 10000, 20000ns	37/36 dB	9/9m	4/3.5m
4500-35	1310±20 nm 1550±25 nm			40/40 dB	8/6m	4/3m
4500-36	1310±20 nm 1550±25 nm 1625±15 nm			40/40/40 dB	8/6/6m	4/3/3m
4500-45	1310±20 nm 1550±25 nm		5, 10, 20, 50, 100, 200, 500, 1000, 2000, 5000, 10000, 20000, 30000ns	43/45 dB	10/10m	5/5m
4500-46	1310±20 nm 1550±25 nm 1625±15 nm			43/45/43 dB	10/10/10m	6/5/5m
4500-54	1550±25 nm			50 dB	10m	5m
4500-81	1310±20 nm 1383±3 nm 1550±25 nm		5, 10, 20, 50, 100, 200, 500, 1000, 2000, 5000, 10000, 20000ns	40/38/41 dB	8/9/6m	4/5/3m
4500-83	1310±20 nm 1383±3 nm 1550±25 nm 1625±15 nm			35/35/35/35 dB	8/9/6/6m	4/5/3/3m
4500-P1 <sup>5</sup>	1310±20 nm 1490±20 nm 1550±25 nm			40/40/40 dB	6.5m	1.7m
4500-P3 <sup>5</sup>	1310±20 nm 1490±20 nm			37/37/37/37 dB	6.5m	1.7m
	1550±25 nm 1625±15 nm					

**Notes**

- <sup>1</sup> Range dependent
- <sup>2</sup> SNR=1 with up to 256k averages (typical, subtract approximately 2 dB of range to 98% peak noise. Bellcore/Telcordia TR-TSY-000196 Issue 2)
- <sup>3</sup> Deadzones measured on -45 dB reflections (typical)
- <sup>4</sup> Using Bellcore/Telcordia TR-TSY-000196 Issue 2 (typical)
- <sup>5</sup> For 549x Modules, the End-to-End Loss Accuracy for Class B PONs is +/- 0.75dB (typical)
- <sup>6</sup> At 23°C, 10us pulsewidth

Quad Single mode/Multimode and Multimode Models						
Model	Wavelength <sup>5</sup>	Optical fiber type	Pulse width <sup>1</sup>	Dynamic Range (SNR=1) <sup>2</sup>	Deadzone (back-scattered) <sup>3</sup>	Deadzone (Fresnel) <sup>4</sup>
4500-60	850±30 nm 1300±30 nm	Multimode (50 um), Single Mode (8-10 um)	Singlemode: 5, 10, 20, 50, 100, 200, 500, 1000, 2000, 5000, 10000, 20000 ns Multimode: 5, 20, 50, 100, 200, 500, 1000 ns	24/26/35/35 dB	7/8/10/10m	5/5/5m
4500-61	1310±20 nm 1550±25nm	Multimode (62.5 um), Single Mode (8-10 um)		24/26/35/35 dB	7/8/10/10m	5/5/5m
4500-62				24/26/40/40 dB	7/8/10/10m	5/5/5m
4500-66	850±30 nm	Multimode (62.5 um)	5, 20, 50, 100, 200, 500, 1000 ns	24/26 dB	5/7m	2.5/2.5m
4500-69	1300±30 nm	Multimode (50 um)		24/26 dB	5/7m	3/3m

Notes

- <sup>1</sup> Wavelength and range dependent
  - <sup>2</sup> SNR=1 with up to 256k averages (typical, subtract approximately 2 dB of range to 98% peak noise. Bellcore/Telcordia TR-TSY-000196 Issue 2)
  - <sup>3</sup> Deadzones measured on -45 dB reflections (typical)
  - <sup>4</sup> Using Bellcore/Telcordia TR-TSY-000196 Issue 2 (typical)
  - <sup>5</sup> At 23°C, 10us pulsewidth
- Single wavelength and other specialty wavelengths available upon request.

Loss Test Set Option Specifications (optional)			
	Type	Single Mode (8-10 um)	Multimode (50 or 62.5)
			Laser (same wavelength and specs as OTDR)
Stabilized Light Source <sup>2</sup>	Output	-8 dBm (min)	-25 dBm (min)
	Stability <sup>1</sup>	±0.2 dB (8 hours)	±0.1 dB (8 hours)
	Modes of Operation	CW, 1 KHz, 2 KHz	
	Connector Type	Same as OTDR	
	Detector Type	InGaAs	
Power Meter	Wavelength Range	780-1800 nm	
	Calibrated Wavelengths	850, 1300, 1310, 1490, 1550, 1625 nm	
	Power Range	+20 to -55 dBm	
	Resolution	0.01 dB, 0.01 watts	
	Accuracy	±4% (+5 to -50 dBm), ±8% (+10 to +5 dBm, -50 to -55 dBm)	
	Linearity	±0.10 dB (+5 to -50 dBm)	
	Connector Type	Universal (uses LP-XX adapters)	
Visual Fault Locator	Wavelength	650±20 nm	
	Output	0 dBm into 9/125 um fiber (max)	
	Transmission Modes	CW, 2 Hz	
	Connector Type	2.5 mm universal	
Safety	IEC 60825-1 Class II, FDA (21 CFR 1040.10 Class 2)		

Notes

- <sup>1</sup> At 23°C
- <sup>2</sup> Quad models 4500-60, 4500-61, 4500-62 only feature single mode light sources.

## Ordering Information

The CMA 4500 is a dedicated, non-modular OTDR featuring AC or battery operation, unique testing modes and a rugged, splash-proof exterior designed for field use. In addition, all CMA 4500 OTDRs feature: 10.4" high resolution (1024x768) color display with touch-screen interface, standard 20 GB hard drive (min), ultra-low power processor with 256MB RAM, Windows XP operating system, Li-Ion battery, AC charger/adaptor, user's manual, and various I/O interfaces including: USB (2), 10/100 Ethernet port, IrDA infrared port, PS/2 keyboard and mouse ports. Languages supported include: English, French, German, Spanish, Italian, Chinese (simplified), Chinese (traditional), and Korean. Also includes choice of Universal adapter (c) and line cord (d).

### • Module Number:

4500D - \_ \_ - \_ - \_ - \_ - \_ - \_  
           A   B   C   D

#### A = Wavelength and Dynamic Range options

25 = 1310/1550nm 37/36 dB

35 = 1310/1550 nm 40 dB

45 = 1310/1550 nm 43/45 dB

54 = 1550 nm 50 dB

60 = 850/1300 nm 25 dB 50  $\mu$  m and 1310/1550 nm 35 dB

61 = 850/1300 nm 25 dB 62.5  $\mu$  m and 1310/1550 nm 35 dB

62 = 850/1300 nm 25 dB 62.5  $\mu$  m and 1310/1550 nm 40 dB

66 = 850/1300 nm 25 dB 62.5  $\mu$  m

69 = 850/1300 nm 25 dB 50  $\mu$  m

81 = 1310/1383/1550 nm 37 dB

83 = 1310/1383/1550/1625 nm 37 dB

P1 = 1310/1490/1550 nm 40 dB<sup>1</sup>

P3 = 1310/1490/1550/1625 nm 37 dB<sup>1</sup>

\* Single wavelength units are available; contact Anritsu Sales for a comprehensive list of available options

#### B = Power Meter Light Source Options

0 = no options

2 = Power Meter, Light Source and VFL<sup>1</sup>

#### C = Connector Options for all models except quad units (60, 61, 62)

UFC = FC/UPC

USC = SC/UPC

UST = ST/UPC

AFC = FC/APC

ASC = SCAPC

AST = ST/APC

#### C = Connector Options for quad units (60, 61 or 62) only – choose up to 3 – 1st = SM port, 2nd =MM port, 3rd = Power Meter port

0 = none

1 = UFC

2 = USC

3 = UST

4 = AFC

5 = ASC

6 = AST

7 = DIN

8 = LC

#### D = Line Cord Options

US = United States

AU = Australia

EU = Europe

UK = United Kingdom

SW = Switzerland

IT = Italy

<sup>1</sup> PON Mode Modules 4500-P1 and 4500-P3 are only available with Power Meter, Light Source, and VFL Option

**CMA4500 – OTDR Connector Adapters**

UNIV-FC	Handle-type Universal FC Adapter for Standard UPC Connectors
UNIV-AFC	Handle-type Universal FC Adapter for Angled APC Connectors
UNIV-SC	Handle-type Universal SC Adapter for Standard UPC or Angled APC Connectors
UNIV-ST	Handle-type Universal ST Adapter for Standard UPC Connectors
UNIV-FCSCST	SM and MM Port Set of FC/SC/ST Connector Adapters
UNIV-DIN	Handle-type Universal DIN Adapter for Standard UPC Connectors
UNIV-LC	Handle-type Universal LC Adapter for Standard UPC Connectors

**CMA4500 – Accessories**

4500-BATT	Replacement Li-ION Battery
4500-MANUAL	Replacement User's Guide
4500-HARDCASE	CMA 4500 Hard Transit Case w/ handle & wheels
4500-SOFTCASE	CMA 4500 Soft Carry Case
OPTION-501CD-RW	Integrated CMA5000/4500 CD/Read/Write Module
OPTION-502FLOPPY	Integrated CMA5000/4500 Floppy Drive Module
4500-USBKEY	USB Keyboard with Trackball (US layout)
4500-USBKEY-EU	USB Keyboard with Trackball (EU layout)
4500-USBKEY-UK	USB Keyboard with Trackball (UK layout)
4500-USBKEY-GE	USB Keyboard with Trackball (German layout)
4500-USBFLOPPY	USB External Floppy Drive
4500-USBCDRW	USB External CD-R/W Drive
4500-AUTO	Cigarette Lighter Charger Adapter for CMA4500/5000
4500-ES213	CMA 4500 1 Year Extended Warranty
4500-ES313	CMA 4500 2 Year Extended Warranty
OPTION-511AC	CMA5000/4500 AC Power Adapter (replacement "brick")
USB-DATA-1GB	1 GB USB Memory Stick for CMA 4500 & 5000

## Related Anritsu Products

### **MT9083A ACCESS Master**

Anritsu's new line of MT9083A ACCESS Master OTDRs provides all the measurement functions and performance required for optical fiber construction and maintenance of access, FTTx, LAN and metro networks in a compact, lightweight, all-in-one unit that eliminates the burden of carrying many different test sets and instruments on-site.

The ACCESS Master MT9083A is the first all-in-one tool that does not compromise performance. It features extremely high resolution to see those closely spaced splices and connectors, while still being able to certify 100+ km spans- quickly and accurately. In addition to verifying the integrity of the fiber plant, network performance can also be verified ensuring the customer experience is at its highest level. Whatever your work, construction or maintenance, long haul or intra-building, Anritsu has an MT9083A model for your needs.



### **CMA50 Optical Loss Test Set**

All-in-one light source, power meter, visual fault locator and optical return loss meter for optical fiber construction and maintenance. They are offered with common calibration wavelength and connector options to meet any testing requirement from FTTx networks to long haul telephony links to multimode LAN, and CATV.



### **CMA5 Optical Power Meter and Light Source**

The CMA5 Series Power Meters are ideal for attenuation and power throughput measurements on point-to-point fiber optic links. The CMA5 Series Light Sources provide an economical and stable laser source for use in point-to-point attenuation measurement. They feature a rugged design, built to withstand the difficult testing environment of fiber optic cable installation and maintenance.



### **CMA3000 Mobile and Fixed Access Network Tester**

CMA 3000 is designed specifically for field technicians who install and maintain mobile-access and fixed-access networks. The CMA 3000 is a powerful tool for a wide range of applications, including fast first-aid troubleshooting to comprehensive, in-depth and all-layer analysis of transmission problems. The basic CMA 3000 configuration, with its two 2 Mbps receivers and transmitters, supports framed and unframed testing and monitoring of 2 Mbps systems.





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