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)	
Model	**4500D**
Processor	Ultra low power 733 MHz
RAM	256 MB
Operating System	Windows XP Pro
Display	10.4 inch (26.4 cm) color XGA (1024 x 768) LCD with touchscreen interface
Internal Storage	20GB (min) hard drive
Removable Storage (Modular)	Optional: CD-R/W, 3.5 inch 1.44 MB floppy drive
Interfaces	PS/2 (2), USB (2), 10/100 Ethernet, IrDA
Power Supply	Auto switching 92-132 VAC, 184-264 VAC (47-63 Hz)
Dimensions (h x w x d)	24.1 x 34.3 x 9.5 cm (9.5 x 13.5 x 3.75 inches)
Environmental Conditions	Operation: 0° to 45°C (32° to 122°F) Storage: -25° to 60°C (-13° to 140°F) Humidity: 95% max, non-condensing
Weight	5.4 kg including battery and optics
Battery Type	Li-Ion
Distance Range	Single mode: 5, 20, 50, 75, 125, 250, 300 km Multimode: 5, 15, 20, 40, 64 km
Sampling Resolution	Single mode: 0.125, 0.5, 1, 2, 4, 8, 16 m Multimode: 0.125, 0.5, 1, 2, 4 m
Sampling Points	Up to 256,000
Index of Refraction (IOR) Range	1.300000 to 1.700000
Distance Measurement Accuracy	0.0025% of distance measurement ± distance resolution ± index uncertainty
Loss Measurement Accuracy (Linearity)	±0.04 dB/dB
Loss Resolution	0.001 dB
Laser Safety	Meets IEC60825-1 Class I and CDRH Class 1 Requirements (Eye Safe) 21 CFR 1040
Optical Connector	Singlemode: Universal with UFC, USC, UST, AFC, ASC, DIN, LC Multimode: Universal with FC, SC, ST
Operating Modes	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[6]	Optical fiber type	Pulse width[1]	Dynamic Range (SNR=1)[2]	Deadzone (back-scattered)[3]	Deadzone (Fresnel)[4]
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[5]	1310±20 nm 1490±20 nm 1550±25 nm			40/40/40 dB	6.5m	1.7m
4500-P3[5]	1310±20 nm 1490±20 nm 1550±25 nm 1625±15 nm			37/37/37/37 dB	6.5m	1.7m

Notes

[1] Range dependent

[2] 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)

[3] Deadzones measured on -45 dB reflections (typical)

[4] Using Bellcore/Telcordia TR-TSY-000196 Issue 2 (typical)

[5] For 549x Modules, the End-to-End Loss Accuracy for Class B PONs is +/- 0.75dB (typical)

[6] At 23°C, 10us pulsewidth

Quad Single mode/Multimode and Multimode Models						
Model	**Wavelength[5]**	**Optical fiber type**	**Pulse width[1]**	**Dynamic Range (SNR=1)[2]**	**Deadzone (back-scattered)[3]**	**Deadzone (Fresnel)[4]**
4500-60	850±30 nm 1300±30 nm 1310±20 nm 1550±25nm	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		Multimode (62.5 um), SingleMode (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 1300±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		Multimode (50 um)		24/26 dB	5/7m	3/3m

Notes

[1] Wavelength and range dependent

[2] 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)

[3] Deadzones measured on -45 dB reflections (typical)

[4] Using Bellcore/Telcordia TR-TSY-000196 Issue 2 (typical)

[5] At 23°C, 10us pulsewidth

Single wavelength and other specialty wavelengths available upon request.

Loss Test Set Option Specifications (optional)			
Stabilized Light Source[2]	**Type**	**Single Mode (8-10 um)**	**Multimode (50 or 62.5)**
		Laser (same wavelength and specs as OTDR)	LED (850/1300±30 nm)
	Output	-8 dBm (min)	-25 dBm (min)
	Stability[1]	±0.2 dB (8 hours)	±0.1 dB (8 hours)
	Modes of Operation	CW, 1 KHz, 2 KHz	
	Connector Type	Same as OTDR	
Power Meter	**Detector Type**	InGaAs	
	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

[1] At 23°C

[2] 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/adapter, 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	60 = 850/1300 nm 25 dB 50 μ m and 1310/1550 nm 35 dB
35 = 1310/1550 nm 40 dB	61 = 850/1300 nm 25 dB 62.5 μ m and 1310/1550 nm 35 dB
45 = 1310/1550 nm 43/45 dB	62 = 850/1300 nm 25 dB 62.5 μ m and 1310/1550 nm 40 dB
54 = 1550 nm 50 dB	66 = 850/1300 nm 25 dB 62.5 μ m
	69 = 850/1300 nm 25 dB 50 μ m
81 = 1310/1383/1550 nm 37 dB	P1 = 1310/1490/1550 nm 40 dB[1]
83 = 1310/1383/1550/1625 nm 37 dB	P3 = 1310/1490/1550/1625 nm 37 dB[1]

∗ 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[1]

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

UFC = FC/UPC	AFC = FC/APC
USC = SC/UPC	ASC = SCAPC
UST = ST/UPC	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	5 = ASC
2 = USC	6 = AST
3 = UST	7 = DIN
4 = AFC	8 = LC

D = Line Cord Options

US = United States	UK = United Kingdom
AU = Australia	SW = Switzerland
EU = Europe	IT = Italy

[1] 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 spaces 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.

Anritsu Corporation
5-1-1 Onna, Atsugi-shi, Kanagawa, 243-8555 Japan
Phone: +81-46-223-1111
Fax: +81-46-296-1264

- **U.S.A.**

Anritsu Company
1155 East Collins Blvd., Richardson, TX 75081, U.S.A.
Toll Free: 1-800-ANRITSU (267-4878)
Phone: +1-972-644-1777
Fax: +1-972-671-1877

- **Canada**

Anritsu Electronics Ltd.
700 Silver Seven Road, Suite 120, Kanata, Ontario K2V 1C3, Canada
Phone: +1-613-591-2003
Fax: +1-613-591-1006

- **Brazil**

Anritsu Electrônica Ltda.
Praca Amadeu Amaral, 27 - 1 Andar
01327-010-Paraiso-São Paulo-Brazil
Phone: +55-11-3283-2511
Fax: +55-11-3288-6940

- **U.K.**

Anritsu EMEA Ltd.
200 Capability Green, Luton, Bedfordshire LU1 3LU, U.K.
Phone: +44-1582-433280
Fax: +44-1582-731303

- **France**

Anritsu S.A.
9, Avenue du Québec Z.A. de Courtabœuf
91951 Les Ulis Cedex, France
Phone: +33-1-60-92-15-50
Fax: +33-1-64-46-10-65

- **Germany**

Anritsu GmbH
Nemetschek Haus, Konrad-Zuse-Platz 1
81829 München, Germany
Phone: +49 89 442308-0
Fax: +49 89 442308-55

- **Italy**

Anritsu S.p.A.
Via Elio Vittorini, 129, 00144 Roma, Italy
Phone: +39-6-509-9711
Fax: +39-6-502-2425

- **Sweden**

Anritsu AB
Borgafjordsgatan 13, 164 40 KISTA, Sweden
Phone: +46-853470700
Fax: +46-853470730

- **Finland**

Anritsu AB
Teknobulevardi 3-5, FI-01530 Vantaa, Finland
Phone: +358-20-741-8100
Fax: +358-20-741-8111

- **Denmark**

Anritsu A/S
Kirkebjerg Allé 90 DK-2605 Brøndby, Denmark
Phone: +45-72112200
Fax: +45-72112210

- **Spain**

Anritsu EMEA Ltd.
Oficina de Representación en España
Edificio Veganova
Avda de la Vega, n° 1 (edf 8, pl 1, of 8)
28108 ALCOBENDAS - Madrid, Spain
Phone: +34-914905761
Fax: +34-914905762

- **United Arab Emirates**

Anritsu EMEA Ltd.
Dubai Liaison Office
P O Box 500413 - Dubai Internet City
Al Thuraya Building, Tower 1, Suit 701, 7th Floor
Dubai, United Arab Emirates
Phone: +971-4-3670352
Fax: +971-4-3688460

- **Singapore**

Anritsu Pte Ltd.
10, Hoe Chiang Road, #07-01/02, Keppel Towers,
Singapore 089315
Phone: +65-6282-2400
Fax: +65-6282-2533

- **P.R. China (Hong Kong)**

Anritsu Company Ltd.
Suite 923, 9/F., Chinachem Golden Plaza, 77 Mody Road,
Tsimshatsui East, Kowloon, Hong Kong, P.R. China
Phone: +852-2301-4980
Fax: +852-2301-3545

- **P.R. China (Beijing)**

Anritsu Company Ltd.
Beijing Representative Office
Room 1515, Beijing Fortune Building,
No. 5, Dong-San-Huan Bei Road,
Chao-Yang District, Beijing 10004, P.R. China
Phone: +86-10-6590-9230
Fax: +86-10-6590-9235

- **Korea**

Anritsu Corporation, Ltd.
8F Hyunjuk Building, 832-41, Yeoksam dong,
Kangnam-ku, Seoul, 135-080, Korea
Phone: +82-2-553-6603
Fax: +82-2-553-6604

- **Australia**

Anritsu Pty Ltd.
Unit 21 / 270 Ferntree Gully Road,
Notting Hill, Victoria 3168 Australia
Phone: +61-3-9558-8177
Fax: +61-3-9558-8255

- **Taiwan**

Anritsu Company Inc.
7F, No. 316, Sec. 1, Neihu Rd., Taipei 114, Taiwan
Phone: +886-2-8751-1816
Fax: +886-2-8751-1817

- **India**

Anritsu Corporation
India Liaison Office
Unit No. S-3, Second Floor, Esteem Red Cross Bhavan,
No. 26, Race Course Road, Bangalore 560 001, India
Phone: +91-80-32944707
Fax: +91-80-22356648