/Inritsu

CMA5000 OTDR Module Series   SPECIFICATIONS

Optical Domain Reflectometer

The compact size of the OTDR Application module allows another module (OTDR or test fiber box) to be inserted into a small bay adapter and up to three more into a medium or large bay adapter.

The CMA5000 Optical Time Domain Reflectometer (OTDR) application represents the latest offering from a company that's been in the OTDR business for over 25 years. Our world–class OTDR modules continue this tradition with the latest in high performance hardware and dedicated, easy to use software.

Benefits

- **Never obsolete - modular design allows new or additional modules to be added**

- **Sophisticated analysis software provides consistent and accurate fiber characterization**

- **Dedicated testing modes simplify commonly performed tasks**

- **Easy to use for any skill level - testing from fault location to advanced analysis**

- **Dual touch screen and hard key user interfaces ensure smooth and efficient operation**

- **Solutions for all network types: Metro, CWDM, ultra-long haul and PON based, FTTP deployments**

- **Complete fiber characterization from 8 available wavelengths**

- **Automated, on-the-box reporting**

High Performance Hardware
To satisfy even the most demanding testing requirements, the CMA5000 series OTDR modules, feature a multitude of available wavelengths including 850 nm, 1300 nm, 1310 nm, 1383 nm, 1410 nm, 1490 nm, 1550 nm and 1625nm.. Up to four of these wavelengths can then be combined into a single optical port providing full spectrum fiber characterization at the press of a button and are ideal for testing backbone or metro networks that deploy CWDM. For ultra-long haul systems, the CMA5000 OTDR modules feature up to 50 dB of dynamic range (enough to see approximately 250 km of fiber) - with an impressive 1 meter resolution.

Dedicated, Ease to Use Software

To simplify testing, the CMA5000 features dedicated testing modes to automate and simplify the task at hand. FAULT LOCATE mode is designed for the novice just starting out or someone who only uses an OTDR occasionally. Simply connect the fiber and press test, the unit will verify the fiber is connected correctly, select testing parameters, execute the test and provide a text response indicating fault/break location and end to end loss.

Fig.1: Fault Locate Mode - ease to read results

For those who have more experience or would like to perform more advanced testing, CLASSIC OTDR mode allows the user to select all parameters, compare up to eight traces and even generate splice loss reports.
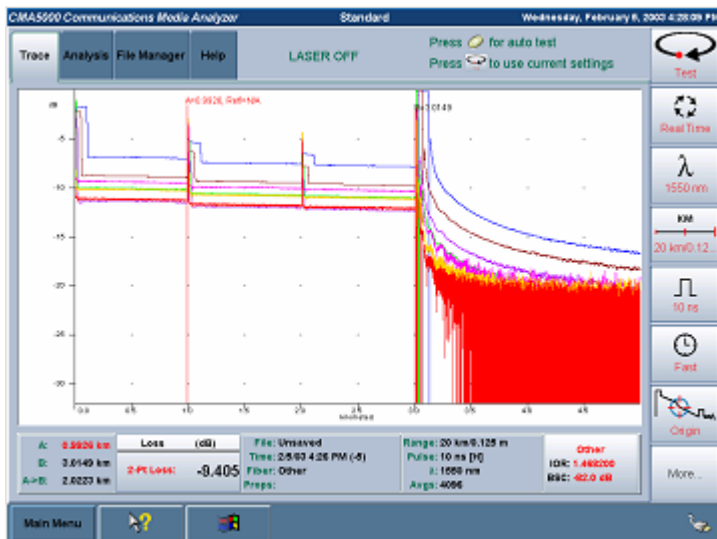

Fig.2: Classic OTDR - advanced testing

Cable commissioning is also automated through the use of CONSTRUCTION OTDR mode where a wizard allows the user to select the required testing wavelengths, number of fibers and file naming scheme. The wizard then becomes the project manager guiding the user through the testing and ensuring consistency with testing parameters and file naming - virtually eliminating user induced errors.
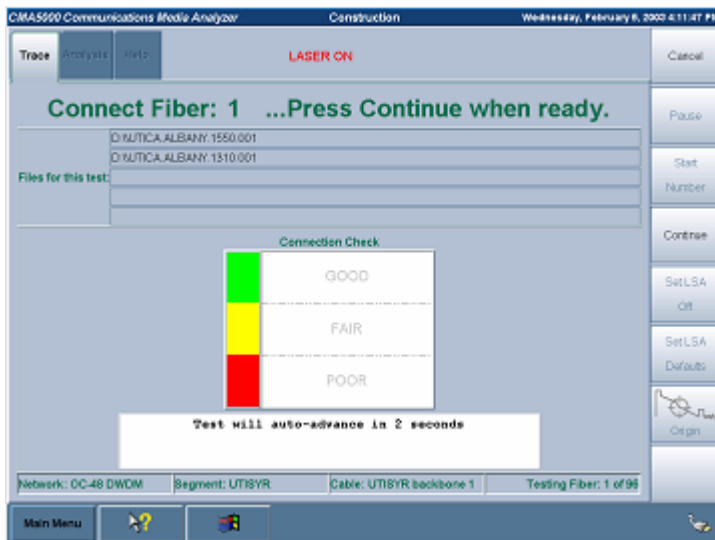

Fig.3: Construction OTDR - automated multi-fiber testing

Challenging new architectures such as Fiber-To-The-x (FTTx) deployments that incorporate Passive Optical Networks (PON) are also easily addressed with our exclusive PON MODE solution featuring dead zones as small as 1 meter and the ability to classify up to a 1X32 splitter.
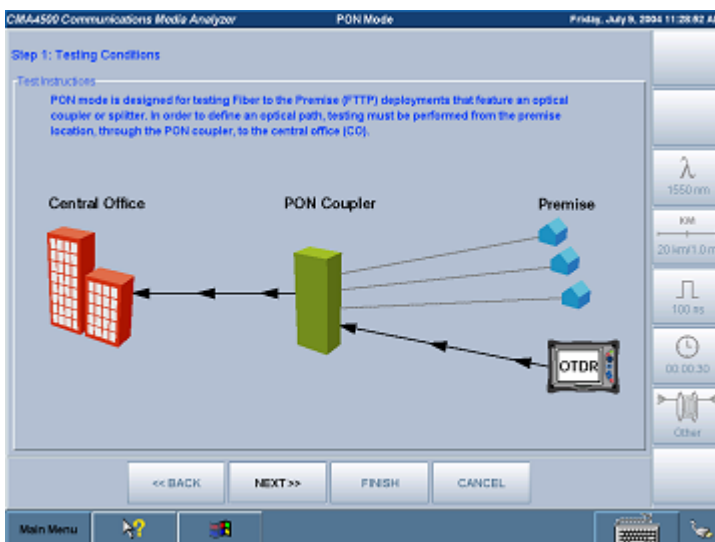

Fig.4: PON Mode - Exclusive testing solution optimized for splitter based networks.

Reflectance and Optical Return Loss

With data rates increasing and video applications growing exponentially, reflectance and optical return loss (ORL) become key parameters that will make or break your network. To simplify testing these, NetTest has developed a unique OTDR based, ORL application that provides meter accuracy, combined with the trouble-shooting ability of an OTDR to add the expertise you need in testing today's demanding optical systems. Simply connect the fiber, enter your PASS/FAIL threshold and press test. If a test fails ORL, a quick press of our exclusive troubleshooting key presents a table listing the top three contributors to the failing ORL - complete with location. By identifying the problem connector, technicians will save hours of random troubleshooting time. The ORL option also functions as a 1 km single mode launch box increasing its value.

Added Value

To further increase the value of your CMA5000 OTDR, it can be equipped with one of two integrated power meters (standard or CATV), a high output stabilized light source and integrated Visual Fault Locator (VFL). These options are integrated into the single slot OTDR module and do not require an additional module slot like some other solutions. In addition, all OTDR wavelengths are available as stabilized light sources reducing the equipment cost and providing a complete end-to-end loss testing solution.

Whatever your testing needs, our world-class OTDR products are designed to reduce the time to install, commission and maintain fiber spans.

Specifications

Specifications						
Single Mode Models						
Model	Wavelength[6]	**Optical fiber type**	**Pulse width[1]**	**Dynamic Range (SNR=1)[2]**	**Deadzone (back-scattered)[3]**	**Deadzone (Fresnel)[4]**
5225	1310±20 nm 1550±25 nm	Single Mode (8-10 um)	5, 10, 20, 50, 100, 200, 500, 1000, 2000, 5000, 10000, 20000 ns	37/36 dB	9/9m	4/3.5m
5235	1310±20 nm 1550±25 nm			40/40 dB	8/6m	4/3m
5236	1310±20 nm 1550±25 nm 1625±15 nm			40/40/40 dB	8/6/6m	4/3/3m
5245	1310±20 nm 1550±25 nm		5, 10, 20, 50, 100, 200, 500, 1000, 2000, 5000, 10000, 20000, 30000 ns	43/45 dB	10/10m	5/5m
5246	1310±20 nm 1550±25 nm 1625±15 nm			43/45/43 dB	10/10/10m	6/5/5m
5254	1550±20 nm 1550±25 nm			50 dB	10m	5m
5281	1310±20 nm 1383±3 nm 1550±25 nm		5, 10, 20, 50, 100, 200, 500, 1000, 2000, 5000, 10000, 20000 ns	40/38/41 dB	8/9/6m	4/5/3m
5283	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
5491[5]	1310±20 nm 1490±10 nm 1550±25 nm			40/40/40 dB	6.5m	1.7m
5493[5]	1310±20 nm 1490±10 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 23º C, 10us pulsewidth

Quad Single Mode/Multimode and Multimode Models						
Model	Wavelength[6]	Optical fiber type	Pulse width[1]	Dynamic Range (SNR=1)[2]	Deadzone (back-scattered)[3]	Deadzone (Fresnel)[4]
5260	850±30 nm 1300±30 nm 1310±20 nm 1550±25 nm	Multimode(50 um), SingleMode(8-10 um)	Singlemode: 5, 10, 20, 50, 100, 200, 500, 1000, 2000, 5000, 10000, 20000 ns	24/26/35/35 dB	7/8/10/10m	5/5/5/5m
5261		Multimode(62.5 um), SingleMode(8-10 um)		24/26/35/35 dB	7/8/10/10m	5/5/5/5m
5262			Multimode: 5, 20, 50, 100, 200, 500, 1000 ns	24/26/40/40 dB	7/8/10/10m	5/5/5/5m
5266	850±30 nm 1300±30 nm 1550±25 nm	Multimode(62.5 um)	5, 20, 50, 100, 200, 500, 1000 ns	24/26 dB	5/7m	2.5/2.5m
5269		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 23º C, 10us pulsewidth

Common Specifications	
Distance[1] Range	Single mode: 5, 20, 50, 75, 125, 250, 300 km Multimode: 5, 15, 20, 40, 64 km
Sampling resolution[1]	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
IOR settings	1.300000-1.700000
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	Single mode: Universal with UFC, USC, UST, AFC, ASC 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)

Notes

[1] Wavelength and range dependent

Loss Test Set Option Specifications (optional)			
Stabilized Light Source[2]	Type	**Single Mode (8-10 um)**	**Multimode (50 or 62.5 um)**
		Laser (same wavelength and specs as OTDR)	**LED (850/1300±30 nm)**
	Output	-8 dBm (min)	-25dBm (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	780-1800nm	
	Calibrated Wavelengths	850, 1300, 1310, 1490, 1550, 1625 nm	
	Power Range	Standard:+10 to -55 dBm CATV: +20 to -45 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 -50dBm)	
	Connector Type	Universal (uses LP-XX adapters)	
Visual Fault Locator3	Wavelength	650±20nm	
	Output	0 dBm into 9/125um fiber (max)	
	Transmission Modes	CW, 2Hz	
	Connector Type	2.5 mm universal	
	Safety	IEC 60825-1 Class II, FDA (21 CFR 1040. 10 Class 2)	

Notes

[1] At 23º C

[2] Quad models 5260, 5261, 5262 only feature single mode light sources.

[3] VFL not available on 5260, 5261 or 5262

Ordering Information

The CMA5200 OTDR's are Single Bay modules that include one OTDR/Source Universal Adapter (UC-130-XX) at no charge. For units with a Power Meter option, a Meter Connector Adapter (LP-XX) is also included at no charge.

• **Module Number:**

52_ _-_ _ _- OTDR-_ _ _
   A   B   C

A = Select an OTDR ModuleModule (Additional OTDR modules are available in various combinations of wave lengths and dynamic ranges. Please contact Anritsu for for a comprehensive list.)

    25 = Singlemode, 37/36 dB dynamic range, dual-wavelength 1310/1550 nm
    35 = Singlemode, 40/40 dB dynamic range, dual-wavelength 1310/1550 nm
    36 = Singlemode, 40/40/40 dB dynamic range, tri-wavelength 1310/1550/1625 nm
    45 = Singlemode, 43/45 dB dynamic range, dual-wavelength 1310/1550 nm
    46 = Singlemode, 43/45/43 dB dynamic range, tri-wavelength 1310/1550/1625 nm
    54 = Singlemode, 50 dB dynamic range, single-wavelength 1550 nm
    60 = Quad 24/26 dB 850/1300 nm 50 μ m multimode and 35 dB 1310/1550 nm single mode
    61 = Quad 24/26 dB 850/1300 nm 62.5 μ m multimode and 35 dB 1310/1550 nm single mode
    62 = Quad 24/26 dB 850/1300 nm 62.5 μ m multimode and 40 dB 1310/1550 nm single mode
    63 = Quad 24/26 dB 850/1300 nm 50 μ m multimode and 40/40 dB 1310/1550 nm single mode
    66 = Multimode 24/26 dB dynamic range, dual-wavelength 850/1300 nm, 62.5 μ m
    69 = Multimode 24/26 dB dynamic range, dual-wavelength 850/1300 nm, 50 μ m
    81 = Singlemode, 37 dB dynamic range, tri-wavelength 1310/1383/1550 nm
    83 = Singlemode, 37 dB dynamic range, quad-wavelength 1310/1383/1550/1625 nm
    91 = Singlemode, 40 dB dynamic range, tri-wavelength 1310/1490/1550 nm
    93 = Singlemode, 37 dB dynamic range, quad wavelegth 1310/1490/1550/1625 nm

B = Select Meter, Light Source and VFL Options (VFL is not available on 5260, 5261 or 5262 module)
    000 = No Meter, Light Source or VFL 001 = VFL Only
    110 = +10 dBm Meter and Light Source 111 = +10 dBm Meter, Light Source and VFL
    210 = +20 dBm Meter and Light Source 211 = +20 dBm Meter, Light Source and VFL

C = Select Connector (APC not available on multimode, for Quad 60, 61, 62 or 63 refer to next section)
    UFC = FC/UPC AFC = FC/APC USC = SC/UPC
    ASC = SC/APC UST = ST/UPC AST = ST/APC

C = Connector Options for Quad units (60, 61, 62, and 63 only)
    Select connector for each port. (1 2 3 : 1 = SM port, 2 = MM port, 3 = PM port)

    0 = none 1 = UFC 2 = USC
    3 = UST 4 = AFC 5 = ASC
    6 = AST 7 = DIN 8 = LC

Example of Order Number and Specification

| 5236-110-OTDR-AFC | Singlemode, 40/40/40 dB dynamic range, tri-wavelength 1310/1550/1625 nm, Power Meter and Light Source with FC/APC connector |
| 5266-001-OTDR-UFC | Multimode 24/26 dB dynamic range, dual-wavelength 850/1300 nm, 62.5 μ m, VFL, with FC/UPC connector |

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.

CMA 3000 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., Suite 100, 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

● **Mexico**
Anritsu Company, S.A. de C.V.
Av. Ejército Nacional No. 579 Piso 9, Col. Granada
11520 México, D.F., México
Phone: +52-55-1101-2370
Fax: +52-55-5254-3147

● **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.
16/18 avenue du Québec-SILIC 720
91961 COURTABOEUF 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: +39-06-509-9711
Fax: +39-06-502-2425

● **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
PO 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.
60 Alexandra Terrace, #02-08, The Comtech (Lobby A)
Singapore 118502
Phone: +65-6282-2400
Fax: +65-6282-2533

● **India**
Anritsu Pte. Ltd.
India Branch 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

● **P.R. China (Hong Kong)**
Anritsu Company Ltd.
Units 4&5, 28th Floor, Greenfield Tower, Concordia Plaza,
No. 1 Science Museum Road, Tsim Sha Tsui East,
Kowloon, Hong Kong
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