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CMA5000/a OTDR Module Series   SPECIFICATIONS

Optical Time Domain Reflectometer

The compact size of the OTDR Application module allows another module (such as an additional OTDR or Gigabit Ethernet) to be inserted into a small bay adapter and up to three more into a medium bay adapter.

The CMA5000/a Optical Time Domain Reflectometer (OTDR) application represents the latest offering from a company that's been in the OTDR business for over 30 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/a 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/a 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/a 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.
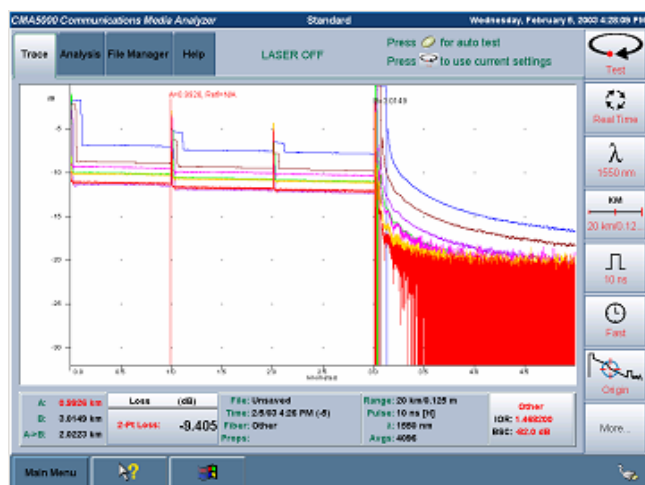

Fig.2: Classic OTDR - advanced testing

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, Anritsu 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.

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.
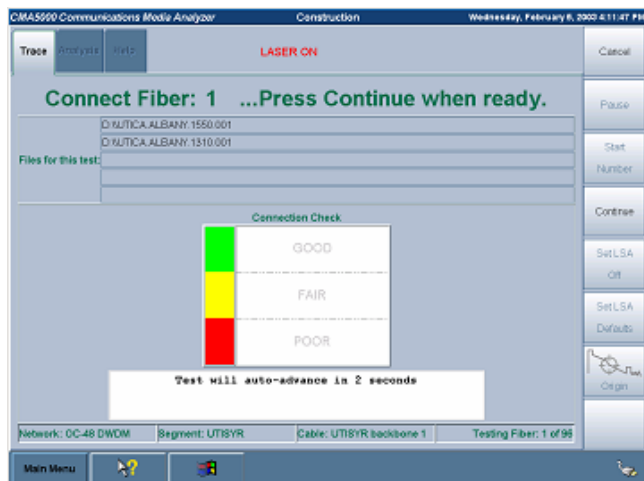

Fig.3: Construction OTDR - automated multi-fiber testing

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.
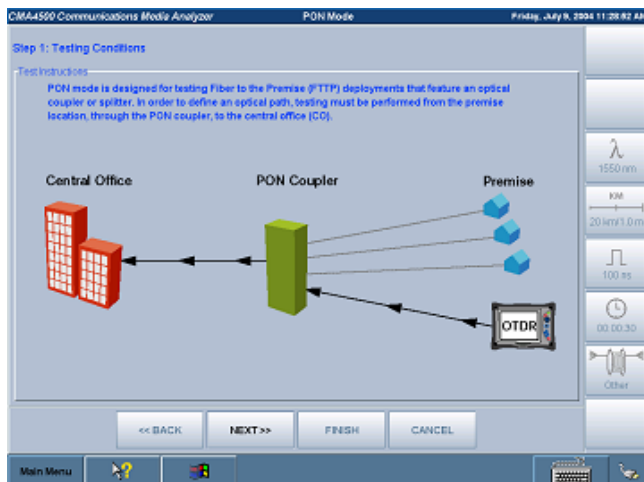

Fig.4: PON Mode - Exclusive testing solution optimized for splitter-based networks.

Added Value

To further increase the value of your CMA5000/a OTDR, it can be equipped with an integrated power meter, 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±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±20 nm 1550±25 nm			40/40/40 dB	6.5m	1.7m
5493[5]	1310±20 nm 1490±20 nm 1550±25 nm 1625±15 nm			37/37/37/37 dB	6.5m	1.7m
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 **Multimode**: 5, 20, 50, 100, 200, 500, 1000ns	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				24/26/40/40 dB	7/8/10/10m	5/5/5/5m
5266	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
5269		Multimode(50 um)		24/26 dB	5/7m	3/3m

Notes

[1]   Wavelength and range dependent

[2]   SNR=1, up to 256k averages (typical, subtract approximately 2 dB of range to 98% peak noise. Bellcore/Telcordia TR-TSY-000196 Issue2)

[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

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	+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 23°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 series OTDRs 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 OTDR Module (Additional OTDR modules are available in various combinations of wave lengths and dynamic ranges.
        Please contact Anritsu 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 wavelength 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
        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. ($_{abc}$: a = SM port, b = MM port, c = 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

5236-210-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.

MT9090A Network Master

The MT9090A Network Master is a palm-size, field modular platform designed for first level fault isolation. Its small size, simple interface, rugged/sealed design and low price make it just right for large-scale technician deployment. Test modules include OTDR/fault locator and CWDM channel analysis.

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.

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