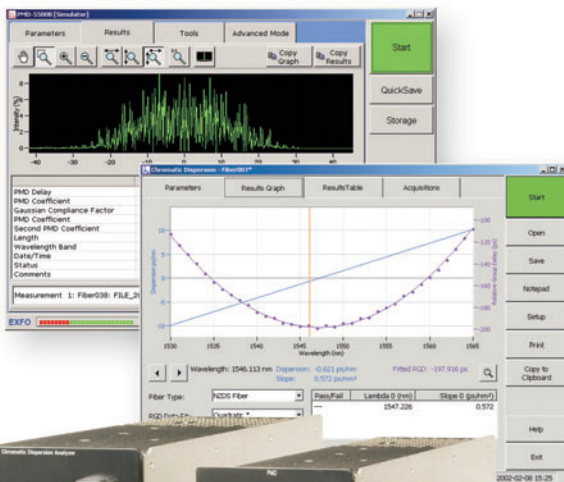


FTB-5500B/FTB-5800

NETWORK TESTING—OPTICAL



Polarization Mode Dispersion Analyzer—FTB-5500B

- Less than five-second testing time for any PMD range
- No auto-correlation peak, for enhanced accuracy
- NIST traceable
- Ideal for aerial fibers
- Patented design*: test through EDFAs
- 40 Gbit/s-ready

Chromatic Dispersion Analyzer—FTB-5800

- Complete CD characterization
- Highly accurate phase-shift method
- No communication between source and receiver
- Patented design*: test through EDFAs
- 40 Gbit/s-ready

* Patent-pending, International PCT Publ. No.WO2004/070341. Measurement method approved by TIA-FOTP-124A.

Platform Compatibility

- FTB-400 Universal Test System



Combining CD and PMD for Precise Link Characterization

Designed for ultra-long-haul and 40 Gbit/s applications, EXFO's FTB-5500B PMD and FTB-5800 CD analyzer combo provides you with the speed, accuracy and high performance you need to ensure high-quality network services. Housed in the rugged FTB-400 Universal Test System, the FTB-5500B and FTB-5500 test modules survive splashes, knocks and drops—ideal for CO and field conditions.



EXFO's CD and PMD analyzers, housed in the FTB-400 platform

Measuring Polarization Mode Dispersion the Fast Way

Polarization mode dispersion (PMD) represents a significant danger to both legacy and newly deployed networks. And as systems of 10 Gbit/s and faster develop, PMD concern and awareness continue to grow. EXFO's FTB-5500B PMD Analyzer helps you get ahead in the field. Whether you need to verify the capacity of legacy fiber or upgrade a network to 40 Gbit/s, the modular FTB-5500B is fast, reliable and ready to go.



FTB-5500B PMD Analyzer

Key Features

- Five-second testing time →
- No auto-correlation peak →
- Testing through EDFAs →
- Suitable for all networks →

Key Benefits

- Test more fiber, faster
- Ultra-high accuracy
- Reduce test cost
- Future-proof: 40 Gbit/s-ready, designed for long-haul and ultra-long-haul networks

Second-Order PMD

Particularly important in multichannel transmission and as rates reach 40 Gbit/s, second-order PMD is derived from the measured PMD value. EXFO's software provides second-order PMD delay and coefficient values for telecom fibers. These values allow you to characterize fibers and cables more precisely than simple PMD and better control the transmission quality of high-speed systems.

Characterizing Chromatic Dispersion in the Field

The ongoing race to develop high-speed transmission systems and to increase available bandwidth is facing certain limitations. Chromatic dispersion (CD) measurements are becoming more and more critical for carriers and service providers looking to improve their systems by upgrading to 10 Gbit/s or 40 Gbit/s (OC-192/STM-64 and OC-768/STM-256). EXFO's FTB-5800 CD Analyzer* offers high performance in a field-ready unit for all chromatic dispersion testing situations.

*Protected by US patent 6,429,929 and foreign equivalents.



■ FTB-5800 CD Analyzer

Key Features

Personalized data management



Phase-shift method



Testing through EDFAs



Suitable for all networks



Key Benefits

Generate clear, customized report

Ultra-high accuracy

Reduce test cost

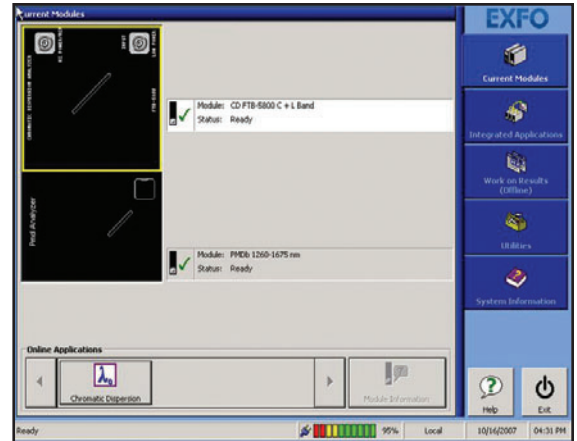
Future-proof: 40 Gbit/s-ready, designed for long-haul, ultra-long-haul and WDM networks

Reducing CD Tolerances

40 Gbit/s has drastically reduced chromatic dispersion (CD) tolerances compared to 10 Gbit/s. In addition, ROADM and low-noise amplifiers increase all optical distances. Only a phase-shift measurement method, which offers more than 900 test points in the C+L band, can guarantee measurements accurate enough for 40 Gbit/s upgrades.

Powerful Software Features at the Touch of a Button

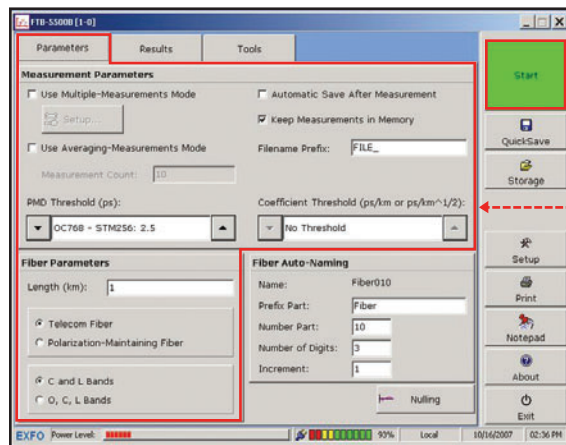
EXFO's ToolBox software suite runs the FTB-400's test module applications. The user-friendly touchscreen provides easy access to menus and functions, for highly productive, yet simple testing in the field.



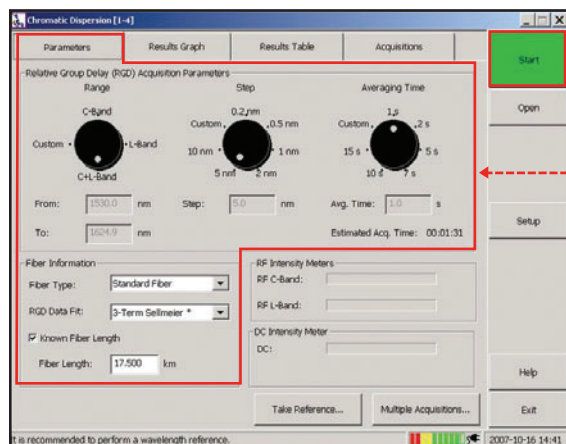
EXFO's ToolBox software can run both modules, housed in the FTB-400, at the same time.

Set and Test.

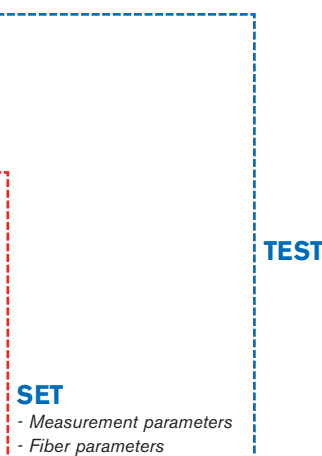
Simple test setup parameters for error-free testing.



FTB-5500B PMD Analyzer



FTB-5800 CD Analyzer

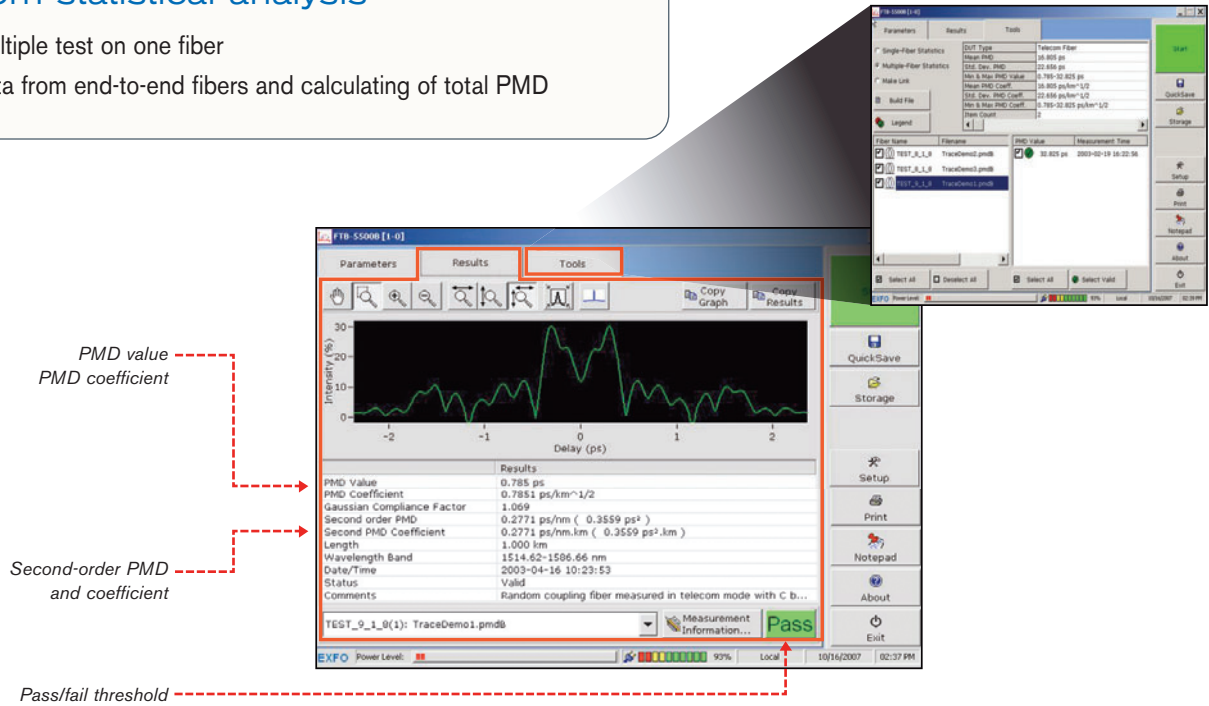


Powerful Software Features at the Touch of a Button (Cont'd)

Personalized data management for clear, customized report creation.

Benefit from statistical analysis

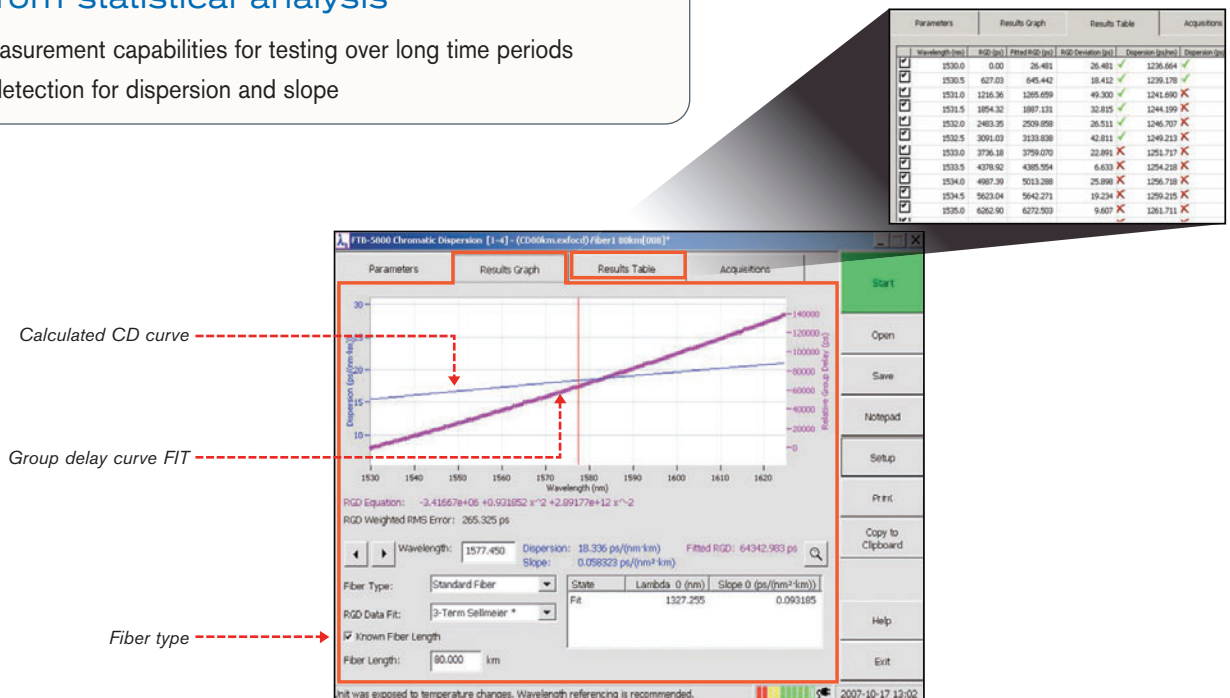
- Averaging multiple test on one fiber
- Gathering data from end-to-end fibers and calculating of total PMD (link creation)



Large graphic display of both the dispersion and the relative group delay.

Benefit from statistical analysis

- Multiple measurement capabilities for testing over long time periods
- Threshold detection for dispersion and slope



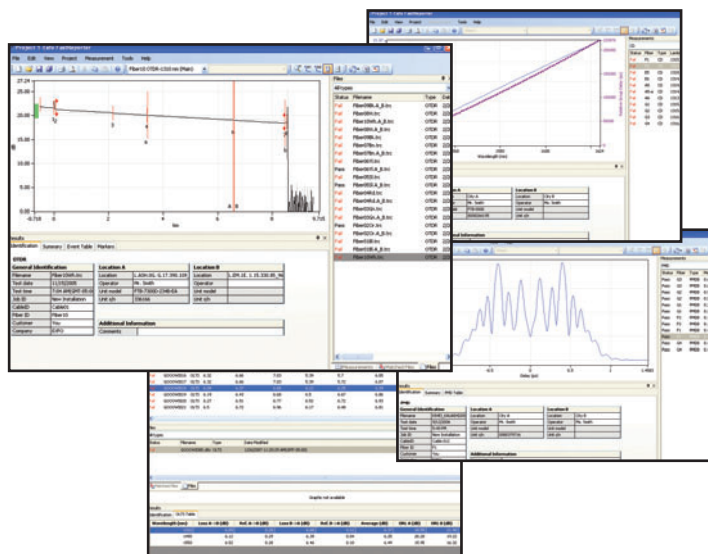
Additional PMD and CD Combo Advantages

The Ultra-Long-Haul Advantage

Now you can test whole links instead of only sections, reducing manipulation, error and testing time. Because filtering is done at the receiver end and not at the source, transmission through one-way devices such as isolators and EDFAs is possible. Tests have been performed through as many as 120 cascaded amplifiers.

The FLS-5800 CD/PMD Analyzer Source Advantage

A single light source, the FLS-5800 CD/PMD Analyzer Source, can help you characterize CD and PMD—reducing testing time and minimizing the potential for human error.



Fast-Track Data Post-Processing with FastReporter Software

The optional FastReporter software package provides you with the post-processing tools and functionalities you need to optimize your test cycles, whatever the application. Designed for off-line analysis of field-acquired data, FastReporter offers a truly intuitive graphical user interface, which contributes to boosting productivity.

Flexible Reporting

Choose from various report templates, including PMD, CD and fiber characterization. Generate comprehensive cable reports in PDF, Excel or HTML format.

EXFO's Dispersion Analyzer Series: Application Chart

For extreme accuracy and ultra-long-haul network applications, EXFO also offers the FTB-5700 Single-Ended Dispersion Analyzer. This chart shows the list of applications for each of EXFO's dispersion analyzer series.

		FTB-5700 Single-Ended Dispersion Analyzer	FTB-5500B PMD Analyzer	FTB-5800 CD Analyzer
10 Gbit/s	Short reach	✓	✓	✓
	Long reach	✓	✓	✓
	Ultra-long reach		✓	✓
	Amplified link		✓	✓
	Compensation	✓	✓	✓
40 Gbit/s	Short reach	✓	✓	✓
	Long reach	✓	✓	✓
	Ultra-long reach		✓	✓
	Amplified link		✓	✓
	Compensation		✓	✓

FTB-5500B PMD Analyzer

SPECIFICATIONS

Wavelength range (nm)	1260 to 1675 (O to U band)
Measurement range (ps)	0 to 115
Sensitivity ^a (dBm)	-45
Measuring time (s)	4.5 (for any PMD value)
Absolute uncertainty (accuracy) ^b (ps)	± (0.020 + 2 % of PMD)
Allows measurement through EDFA	Yes (above 120 EDFAs)

Notes

- a. Typical, for C band. May be increased with averaging. With the FLS-5800, the typical dynamic range is 47 dB.
b. For C band, assuming averaging over all states of polarization.

GENERAL SPECIFICATIONS

Temperature		
operating	0 °C to 40 °C	(32 °F to 104 °F)
storage	-40 °C to 70 °C	(-40 °F to 158 °F)
Relative humidity	0 % to 93 % non-condensing	
Size (H x W x D) (module only)	9.6 cm x 7.6 cm x 26.0 cm	(3 3/4 in x 3 in x 10 1/4 in)
Weight (module only)	1.5 kg (3.4 lb)	

FTB-5800 CD Analyzer

SPECIFICATIONS ^a

Wavelength range (nm)		1530 to 1625	
		1200 to 1700 ^b	
Wavelength step (nm)	Minimum	0.1	
Measurement points	Maximum	950, user-definable	
Dynamic range ^c (dB)		42	
Wavelength uncertainty ^d (accuracy) (nm)		0.1	
Dispersion uncertainty ^d (accuracy) (ps/nm)	20 km of G.652	1.6	
	120 km of G.652	3.1	
	20 km of G.655	1.9 (guaranteed)	
Dispersion repeatability ^d (ps/nm)		20 km	80 km
		0.04	0.2
		120 km	1.1
Zero-dispersion wavelength λ_0 repeatability ^d (nm)		0.1	0.14
Dispersion slope repeatability λ_0 ^d (%)		0.03	0.05
Minimum fiber length (km)		< 1	
Maximum fiber length ^e (km)		> 5400	
Measurement time per point ^e (s)	Minimum	< 1	

Notes

- a. All specifications are typical with four seconds averaging time per point (where applicable), at a temperature of 23 °C ± 1 °C, with FC connectors and after warmup time.
b. Displayed range. Values may be extrapolated.
c. Dynamic range is defined as the difference between the strongest signal and the weakest signal the receiver can detect. Extra averaging may be required. Uncertainty (accuracy) is not guaranteed at limits of range.
d. C+L band.
e. Including EDFAs.
f. Additional gain setting time may be required prior to the first point of each band.

GENERAL SPECIFICATIONS

Size (H x W x D) (module)	9.6 cm x 10 cm x 26 cm	(3 3/4 in x 3 15/16 in x 10 1/4 in)
Weight (module)	2 kg	(4.5 lb)

ORDERING INFORMATION

PMD ANALYZER

FTB-5500B-XX

Connector *

- EI-EUI-28 = UPC/DIN 47256
- EI-EUI-76 = UPC/HMS-10/AG
- EI-EUI-89 = UPC/FC narrow key
- EI-EUI-90 = UPC/ST
- EI-EUI-91 = UPC/SC

- EI-EUI-95 = UPC/E-2000
- EA-EUI-28 = APC/DIN 47256
- EA-EUI-89 = APC/FC narrow key
- EA-EUI-91 = APC/SC
- EA-EUI-95 = APC/E-2000

Example: FTB-5500B-EI-EUI-89

CD ANALYZER

FTB-5800-XX

Connector ■

- EI-EUI-28 = UPC/DIN 47256
- EI-EUI-76 = UPC/HMS-10/AG
- EI-EUI-89 = UPC/FC narrow key
- EI-EUI-90 = UPC/ST
- EI-EUI-91 = UPC/SC

- EI-EUI-95 = UPC/E-2000
- EA-EUI-28 = APC/DIN 47256
- EA-EUI-89 = APC/FC narrow key
- EA-EUI-91 = APC/SC
- EA-EUI-95 = APC/E-2000

Example: FTB-5800-EI-EUI-89

CD/PMD ANALYZER SOURCE

FLS-5834A-XX

Model ■

FLS-5834A = 1550 nm and 1625 nm

Connector ■

- EI-EUI-28 = UPC/DIN 47256
- EI-EUI-76 = UPC/HMS-10/AG (EI only)
- EI-EUI-89 = UPC/FC narrow key
- EI-EUI-90 = UPC/ST (EI only)
- EI-EUI-91 = UPC/SC
- EI-EUI-95 = UPC/E-2000
- EA-EUI-28 = APC/DIN 47256
- EA-EUI-89 = APC/FC narrow key
- EA-EUI-91 = APC/SC
- EA-EUI-95 = APC/E-2000

Example: FLS-5834A-EI-EUI-89

POLARIZED LIGHT SOURCE

FLS-110-XXP-XX

Model ■

FLS-110-02P = 1310 nm LED
FLS-110-03P = 1550 nm LED

Connector *

- 58 = FC/APC narrow key
- 89 = FC/UPC narrow key
- 91 = SC/UPC
- EI-EUI-28 = UPC/DIN 47256
- EI-EUI-76 = UPC/HMS-10/A
- EI-EUI-89 = UPC/FC narrow key
- EI-EUI-90 = UPC/ST
- EI-EUI-91 = UPC/SC
- EI-EUI-95 = UPC/E-2000
- EA-EUI-28 = APC/DIN 47256
- EA-EUI-89 = APC/FC narrow key
- EA-EUI-91 = APC/SC
- EA-EUI-95 = APC/E-2000

Example: FLS-110-02P-EI-EUI-89

* EXFO Universal Interface is protected by US patent 6,612,750.

SAFETY

FLS-110	THIS PRODUCT COMPLIES WITH 21 CFR 1040.10 AND 1040.11, AND WITH IEC 60825-1:1993+A1:1997.	CLASS 1 LED PRODUCT
FLS-5834A	IEC 60825-1:2001	CLASS 1M LED PRODUCT


Rugged Handheld Solutions

OPTICAL

- OTDRs
- OLTSs
- Power meters
- Light sources
- Talk sets

COPPER ACCESS

- ADSL/ADSL+, SHDSL, VDSL test sets
- VoIP and IPTV test sets
- Ethernet test sets
- POTS test sets



Platform-Based Solutions

OPTICAL FIBER


- OTDRs
- OLTSs
- ORL meters
- Variable attenuators

DWDM TEST SYSTEMS

- OSAs
- PMD analyzers
- Chromatic dispersion analyzer

TRANSPORT AND DATA COM

- Next-generation SONET/SDH and OTN testers
- SONET/DSn (DS0 to OC-192) testers
- SDH/PDH (64 kbit/s to STM-64) testers
- T1/T3, E1 testers
- 10/100 Mbit/s and Gigabit Ethernet testers
- Fibre Channel testers
- 10 Gigabit Ethernet testers



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EXFO is certified ISO 9001 and attests to the quality of these products. This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation. EXFO has made every effort to ensure that the information contained in this specification sheet is accurate. However, we accept no responsibility for any errors or omissions, and we reserve the right to modify design, characteristics and products at any time without obligation. Units of measurement in this document conform to SI standards and practices. In addition, all of EXFO's manufactured products are compliant with the European Union's WEEE directive. For more information, please visit www.EXFO.com/recycle. Contact EXFO for prices and availability or to obtain the phone number of your local EXFO distributor.

For the most recent version of this spec sheet, please go to the EXFO website at <http://www.EXFO.com/specs>
In case of discrepancy, the Web version takes precedence over any printed literature.