FTB-5700 Single-Ended Dispersion Analyzer

AUTOMATED CD AND PMD MEASUREMENTS IN ONE EASY-TO-USE MODULE

FROST & SULLIVAN
2011 BEST PRACTICES AWARD
GLOBAL PORTABLE FIBER OPTIC TEST EQUIPMENT MARKET SHARE LEADERSHIP AWARD

SPEC SHEET

The ultimate CD/PMD characterization solution.

Standards Compliant | CD: EIA/TIA FOTP-175B
PMD: EIA/TIA FOTP-243

KEY FEATURES

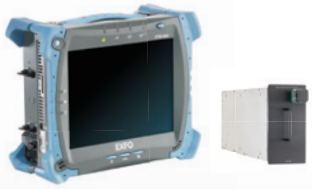
- Polarization mode dispersion (PMD) and chromatic dispersion (CD) measurements for all types of networks
- Standards-compliant approach delivering accurate results on the first measurement
- Fully automated, highly intelligent interface
- One test solution for all dispersion testing—for reduced CAPEX
- Single-ended testing of multiple links from one location—for fewer truck rolls and reduced OPEX

APPLICATIONS

- Accurate, complete 10 Gbit/s, 40 Gbit/s and 100 Gbit/s qualification
- Metro, core and long-haul network testing

PLATFORM COMPATIBILITY

Compact Platform
FTB-200



Platform
FTB-500

EXFO Assessing Next-Gen Networks

“New Market Reality Requires a New CD and PMD Testing Approach”

The high-speed networking market has been trying to reconcile two conflicting objectives: deliver the faster data rates–10G, 40G and 100G–expected by subscribers, while keeping OPEX down to maintain profitability. Most network operators are well on their way to achieving the first objective, thanks to new fiber deployments and new technology advances such as coherent detection, DPSK/DQPSK and ROADM-based mesh networks. However, the additional field work resulting from it all–installation and activation, as well as the greater dispersion granularity now required–can push operation expenses in the wrong direction. Moreover, these new requirements force operators to retain the services of more field crews, potentially lowering the average expertise level of technicians and increasing the rate of repeat jobs.

In a nutshell, network operators are having to absorb more CAPEX to equip their additional technicians, and even more importantly, they are also having to absorb more truck rolls and OPEX.

The good news is, the above-mentioned technology advances are gradually making next-generation high-speed networks increasingly tolerant to dispersion, shifting the focus of the test instrument away from extreme accuracy, in favor of more built-in intelligence, simpler setups, automated test sequences that generate results that are immediately accurate. EXFO’s FTB-5700 was designed to deliver exactly that, adding an exclusive, game-changing feature–single-endedness, which in itself dramatically cuts truck rolls.

CD AND PMD TESTING COMBO—THE BENEFITS

Single lightweight unit that:

- Enables single-ended testing–market-exclusive feature
- Allows one technician to test both CD and PMD
- Fully automated, highly intelligent interface–no training required
- Minimizes manual intervention, for fail-safe results
- Reduces required connections to just one
- Faster time to revenue

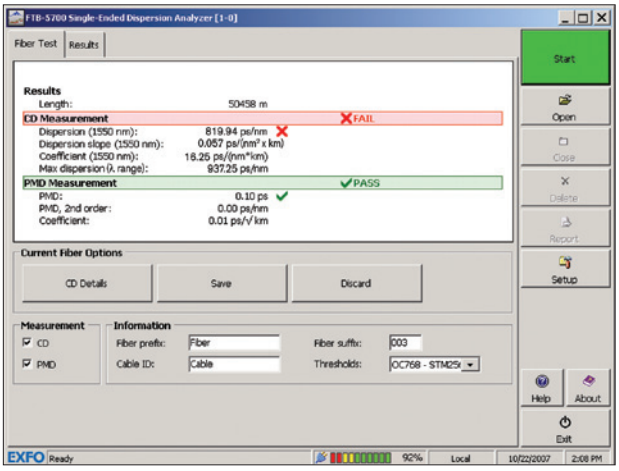
THE ONLY SINGLE-ENDED PMD AND CD ANALYZER ON THE MARKET

The ongoing race to develop high-speed transmission systems and to increase available bandwidth is facing certain limitations. For one thing, chromatic dispersion measurements are becoming more and more critical for carriers and service providers looking to upgrade their systems to faster transmission rates and longer routes, thanks to the advent of reconfigurable optical add/drop multiplexers (ROADMs). Polarization mode dispersion, which has always been a real threat to both legacy and next-generation networks, is also becoming a more important matter as high-speed services are being massively deployed. And then, there is the lingering concern about OPEX.

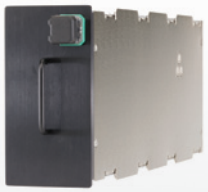
Combining PMD and CD in one test solution that enables technicians to characterize multiple links from a single location, the FTB-5700 is built specifically for today's high-speed network reality. Its highly intelligent interface and functionalities **ensure that test parameters are automatically optimized, whatever the link**.

FTB-5700 KEY FEATURES

- Groundbreaking single-ended testing technology: reduces both the testing time and operational expenses (OPEX)
- Highly robust technology for underground and aerial fiber
- Network recognition: unit automatically adopts the proper parameter setups
- Link-length measurement
- Complies with ITU G.650.3 fiber testing standard and FOTP-243 standard and FOTP-175B standards



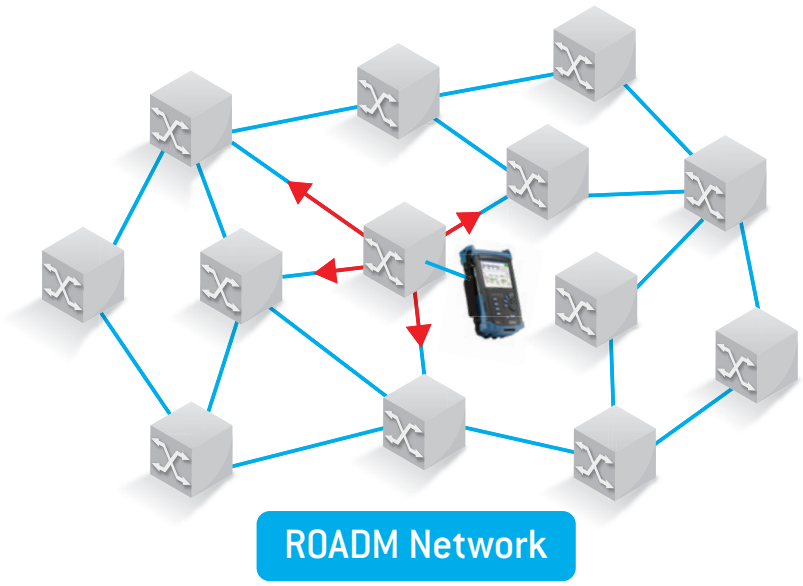
The FTB-5700 features a highly intuitive user interface presenting straightforward pass/fail results.



SINGLE-ENDED TESTING: DRIVING OPEX DOWN IN A HURRY

As bandwidth demand grows, more and more links are being upgraded to speeds at which dispersion testing becomes essential. Very often, only a pair of fibers at each point of presence (PoP) require testing. In such a scenario, the time-consuming aspect has to do with the engineers' transit time from one PoP to another.

EXFO's single-ended solution speeds up the process in two ways. First, engineer A does not have to wait for engineer B to arrive at the other end of the link with the light source. And second, fibers can be tested in multiple directions, turning a job that could take hours into one that takes minutes while reducing truck rolls and OPEX.



In a typical mesh network, unless several sections can be tested from a single node, technical crews are in for a lot of traveling around.

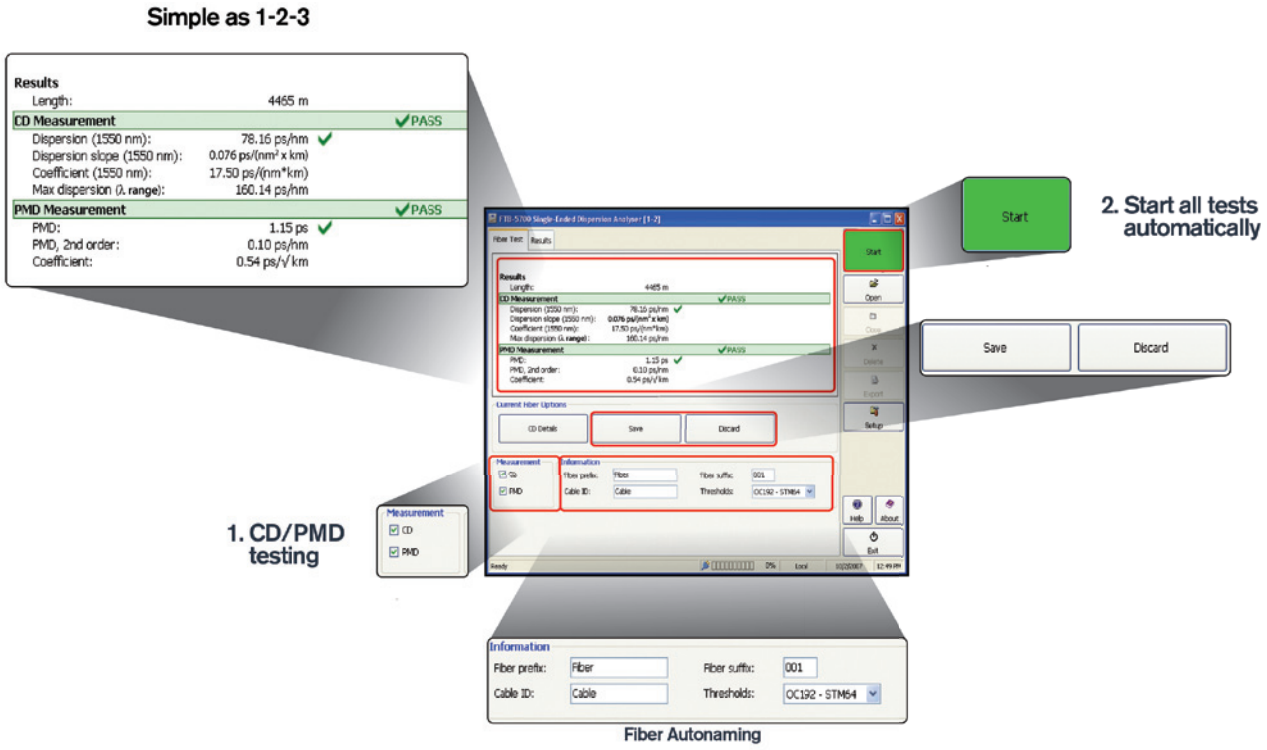
Typically, single-ended testing allows full network characterization in 66% less time than any other traditional test method. Here is the impact on truck rolls for the mesh network illustrated above:

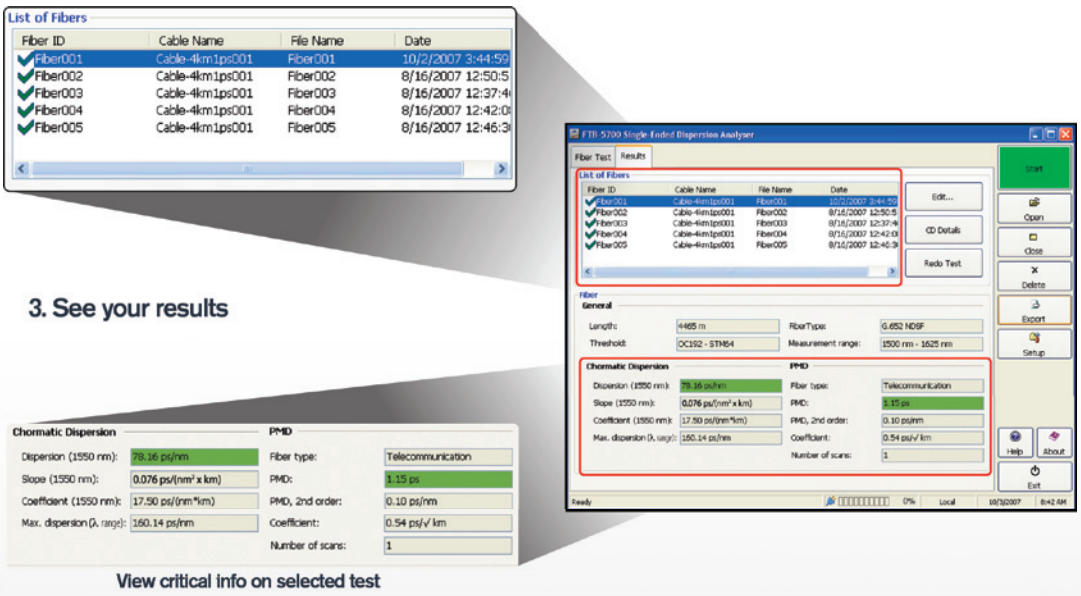
Test type	Number of technicians	Total number of truck rolls
End-to-end	2	19
Single-ended	1	6
		In this case, 68% less truck rolls

In addition to driving down OPEX, fewer truck rolls also mean faster delivery of new services–for faster time to revenue.

FULLY AUTOMATED, WITH BUILT-IN INTELLIGENCE

Featuring easy-to-read pass/fail results and providing a view of all key parameters and values on one screen, the FTB-5700's user interface is all about field testing simplicity and efficiency.





Start with CD or PMD Testing and Upgrade to a Combined Solution Whenever Needed

Not sure if you will require CD testing in the future but need to test PMD today? The FTB-5700 lets you upgrade your dispersion testing solution as your network testing requirements evolve.

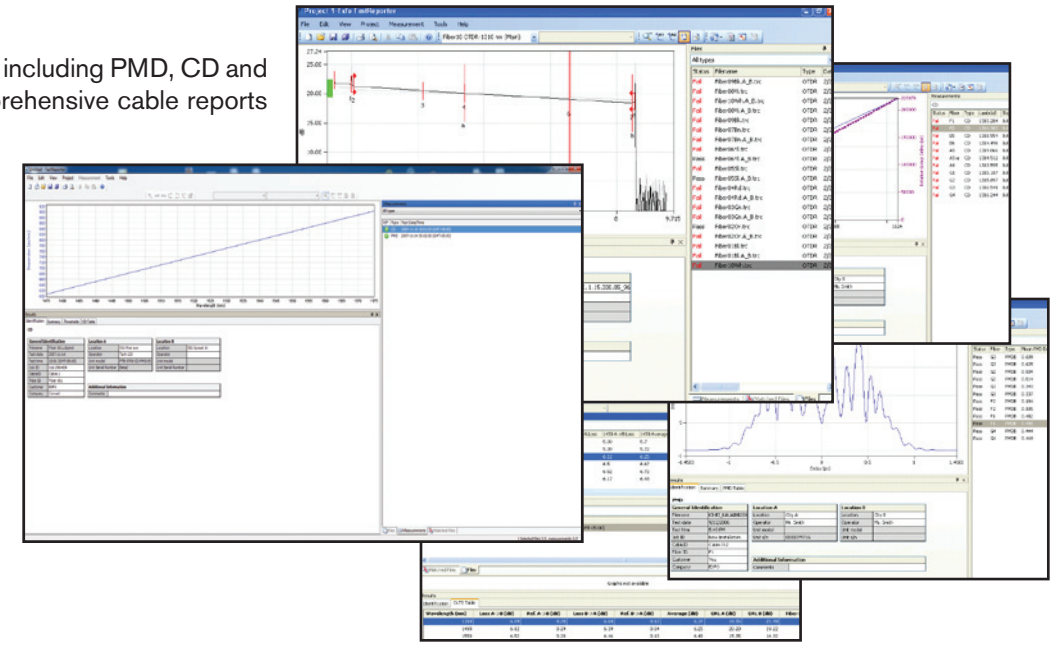
The FTB-5700 unit can be initially equipped with either the CD or PMD test features (FTB-5700-CD or FTB-5700-PMD). As your testing requirements evolve, you can then upgrade to a combined solution (FTB-5700-CD-PMD) through our service centers. This makes the purchase of this 40/100 Gbit/s-ready single-ended dispersion analyzer a truly safe and valuable investment.

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 offline 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.



ENSURE CONNECTOR SUITABILITY WITH ConnectorMax SOFTWARE

Delivering fast pass/fail assessment of connector endfaces, EXFO's ConnectorMax Analysis Software is designed to save both time and money in the field. The industry's first platform-based, automated inspection application, ConnectorMax eliminates guesswork, instead providing clear-cut connector endface analysis.

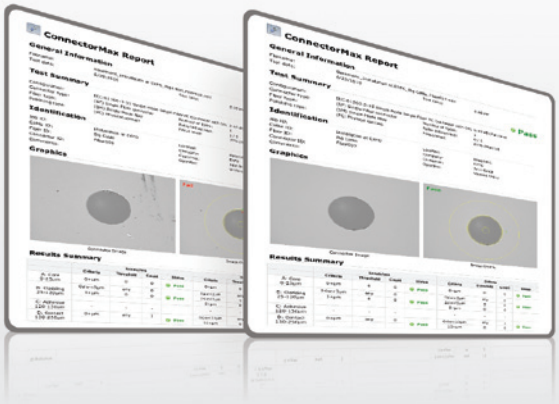
ConnectorMax enables field technicians to analyze defects and scratches and measure their impact on connector performance. Results are then compared against pre-programmed IEC/IPC standards or user-defined criteria, leading to accurate pass/fail verdicts established right on-site.

ConnectorMax therefore helps avoid two time- and money-consuming situations: undetected connector defects that force technicians to later return to the site, and unnecessary replacement of connectors whose slight defects are not enough to get a "fail" verdict.

› Delivers clear-cut pass/fail verdicts, eliminating guesswork in the field and saving time and money

› Lightning-fast: results in 4 seconds through simple one-touch operation

› Full test reports for future referencing



TECHNICAL SPECIFICATIONS [a]

Measured wavelength range (nm)	1475 to 1626
Dynamic range (dB)	25 (32 with reflector)
Maximum measurement distance (km)	≥120 (140 with reflector)
Distance uncertainty (km)	±(0.01 + 1 % x distance)
Chromatic dispersion	
Number of test points	8
CD uncertainty (ps/nm) [b]	±10
Test time (s)	40
PMD [c]	
PMD display range (ps)	up to 50
PMD range (strong mode coupling) (ps)	0.1 to 20
PMD uncertainty (strong mode coupling) (ps) [d]	± (0.2 + 5 % x PMD)
Test time (s)	<180

GENERAL SPECIFICATIONS

Temperature	operating	0 °C to 50 °C	(32 °F to 122 °F)
	storage	–40 °C to 70 °C	(–40 °F to 158 °F)
Relative humidity		0 % to 95 % non-condensing	
Size (H x W x D)		96 mm x 50 mm x 281 mm	(3 3/4 in x 2 in x 11 in)
Weight		1.3 kg	(2.8 lb)

LASER SAFETY

21 CFR 1040.10 AND IEC 60825-1:2007
CLASS 1 LASER PRODUCT

Notes

a. Typical.
b. At 1550 nm, on 100 km of G.652 singlemode fiber.
c. For a fiber length ≥100 m.
d. For strong mode coupling PMD (telecom fiber) up to 15 ps, with averaging.

ORDERING INFORMATION

FTB-5700-XX-XX

Model
FTB-5700-CD-PMD = Single-ended CD and PMD analyzer
FTB-5700-PMD = Single-ended PMD analyzer
FTB-5700-CD = Single-ended CD analyzer

Example: FTB-5700-CD-PMD-EI-EUI-89

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

Specialized Tests

For ultra-long-haul, submarine and amplified network applications, EXFO also offers the FTB-5800 CD Analyzer and FTB-5500B PMD Analyzer. For these modules, the above connector choice applies, but the FLS-5834A light source is required.

Locating high-PMD fiber spans can save a significant amount of time and OPEX. Conversely, failure to do so can result in substantial costs. Building on EXFO's proven PMD measurement expertise, the FTB-5600 Distributed PMD Analyzer, which breaks down link assessment to pinpoint high-PMD sections, enables cost-effective, targeted upgrades.

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