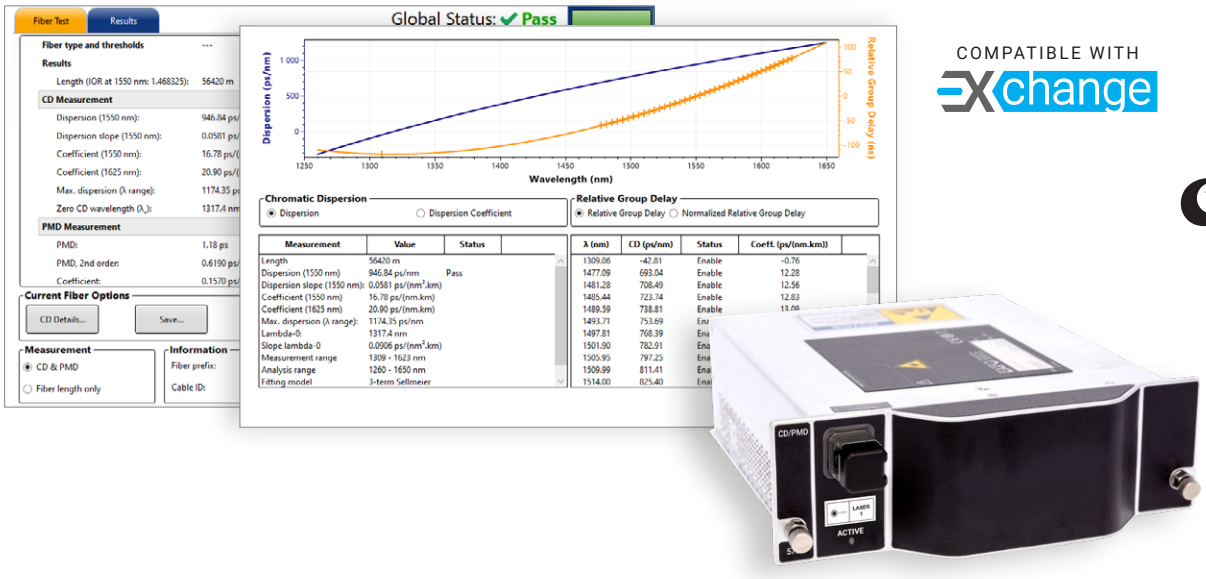
SPEC SHEET **NEW**

FTBx-570 single-ended CD/PMD analyzer

FAST, ACCURATE CD AND PMD MEASUREMENTS

Industry's only solution for fast single-ended CD/PMD testing for full fiber characterization.



COMPATIBLE WITH EXchange

2024 DIAMOND TECHNOLOGY REVIEWS DTR

CABLING INNOVATORS AWARDS PLATINUM HONOREE

KEY FEATURES

Single-ended testing efficiency: conduct CD/PMD tests on multiple links from a single location, minimizing truck rolls and reducing operational expenses (OPEX)

Impressive dynamic range: up to 37 dB with reflector (30 dB without reflector)

Rapid and accurate: achieve CD and PMD results as well as getting length and delay measurement results, in 25 seconds

Extensive band coverage: O and SCL bands

Standards compliance: adhere to industry standards (e.g., ITU-T G.650.3, TIA-455-243, TIA-455-175-C and IEC 61282-9)

Single-button operation: avoid human errors and get the right results the first time

Connectivity: leverage cloud-hosted capabilities for job management and reporting with EXFO Exchange and FastReporter 3 while ensuring operational compliance across teams

APPLICATIONS

Qualification of links up to 400G/800G and beyond

Metro, core, DCI and cellular/mobile xhaul network testing

Fully compliant fiber characterization (with fiber testing tools and cloud-hosted capabilities)

PLATFORM COMPATIBILITY



Platform FTB-1v2 Pro



Platform FTB-2 Pro



Platform FTB-4 Pro

MEGA HERTZ

EXFO

INDUSTRY'S ONLY SOLUTION FOR FAST SINGLE-ENDED TESTING OF CD/PMD

Building upon EXFO's leading expertise in dispersion testing, the FTBx-570 enables technicians to characterize multiple optical links from a single location, with a single instrument by testing both chromatic dispersion (CD) and polarization mode dispersion (PMD). In addition, the FTBx-570 provides fiber length measurements allowing users to know precisely the fiber under test distance. The FTBx-570 utilizes this length measurement data for the dispersion coefficient data removing the need for technicians to input the length data manually, ultimately avoiding mistakes as seen with dual-ended CD/PMD solutions. The FTBx-570 also provides delay information per wavelength, key information required for today's high speed network deployments. Utilizing a patented approach to CD/PMD testing, the FTBx-570 equips technicians to excel in characterizing today's and tomorrow's high-speed networks. With disaggregated networks where network elements from multiple vendors are deployed, it is more important than ever to characterize the fiber networks. The EXFO FTBx-570's intuitive interface and highly intelligent functionalities ensure that test parameters are automatically optimized, for any link.

Innovation in a nutshell:

- Groundbreaking single-ended testing reduces test time and OPEX.
- Highly robust technology for measuring CD/PMD for underground and aerial fiber.
- First-time-right results through accurate and repeatable dispersion measurements out to 30 dB (37 dB with a reflector).
- Complies with ITU-T G.650.3, TIA-455-243 and TIA-455-175-C standards.

SINGLE-ENDED TESTING: A MASSIVE OPEX SAVER

In typical dual-ended dispersion testing scenarios, technicians are needed at each fiber end; one to setup and run the dispersion tester and another technician to setup and run the optical broadband light source.

Single-ended testing with EXFO's FTBx-570 speeds up the process in four ways:

1. A single technician is needed at one fiber end to accurately carry out the test.
2. The fibers can be tested in multiple directions, turning a job that could take hours into one that takes minutes.
3. Measurement of fiber length to immediately know the test distance, which is used to determine dispersion coefficient results, greatly minimizing input errors by users of dual-ended solutions.
4. Understanding latency or delay is critical for today's high speed networks; the FTBx-570 provides this important delay information.

The result is a streamlined testing process with drastic reduction in terms of truck rolls and OPEX.

On average, single-ended testing achieves full network characterization in **68% less time** than other methods.

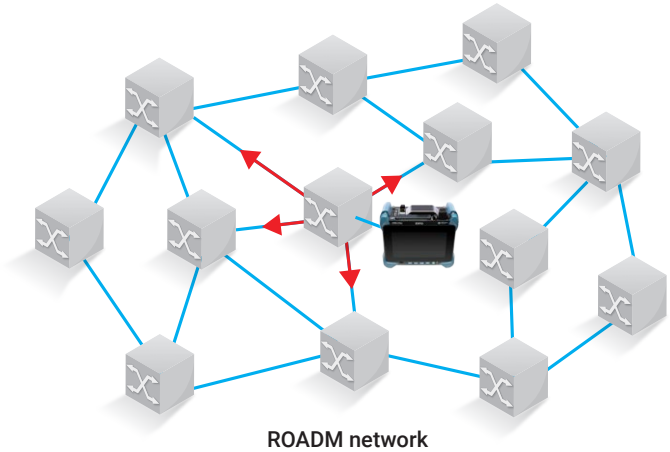


Figure 1. In a typical mesh network, unless several sections can be tested from a single node, technical crews must travel a lot.

Impact of single-ended vs. end-to-end testing in mesh networks on truck rolls.

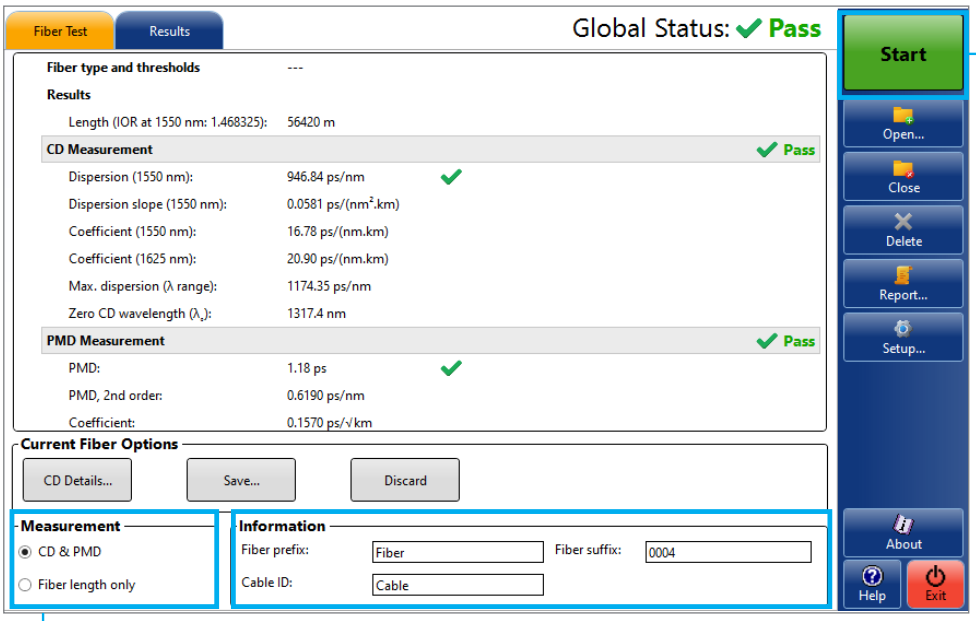
TEST TYPE	NUMBER OF TECHNICIANS	TOTAL NUMBER OF TRUCK ROLLS
End-to-end	2	19
Single-ended	1	6
		In this case, 68% less truck rolls

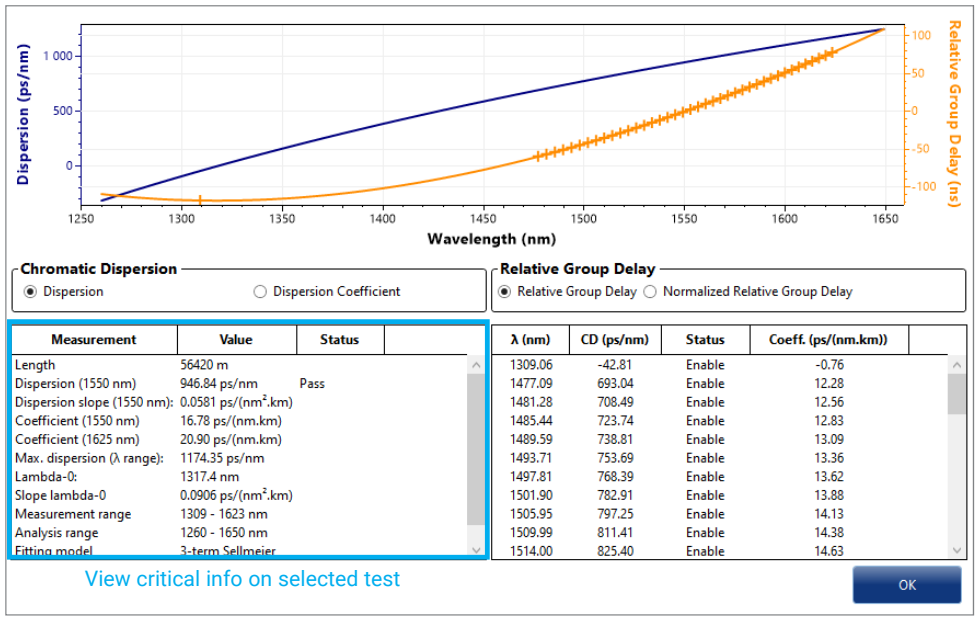
Table 1. In addition to driving down OPEX, fewer truck rolls also mean faster delivery of new services—for faster time to revenue.

GET IT RIGHT THE FIRST TIME

In today's competitive context, repeat truck rolls are no longer a viable option. Thanks to its single-button operation and automated settings, the FTBx-570 guarantees that the right results are obtained in a single CD/PMD test. Featuring easy-to-read pass/fail results and providing a view of all key parameters and values on one screen, the FTBx-570 GUI combines performance with simplicity and efficiency.

Simple as 1-2-3:





CD/PMD TESTING IN MOBILE/CELLULAR DEPLOYMENTS

Network capacity is expanding throughout the network, and with 5G it is no different. Mobile xhaul (fronthaul, midhaul, backhaul) is growing the fastest. With metro network spans sometimes exceeding 100 km, and mobile backhaul ranging from a few kilometers up to 120 km in length, these long distances can create dispersion issues which greatly degrade signal quality—since dispersion increases with distance. In addition, 5G data rates are typically at 10 Gbit/s however, in some deployments, upwards of 25 to 100 Gbit/s. Considering that even at 10 Gbit/s dispersion issues start to appear, it is critical to grasp the implications of higher and higher speeds on the network. It is therefore recommended to thoroughly test dispersion after construction or prior to upgrades. Besides to fully characterize fiber, CD and PMD must be tested (as per ITU-T G.650.3). In all cases, single-ended testing with the FTBx-570 is preferable to dual-ended testing, because it requires less technicians, less truck rolls, and consequently decreases OPEX.

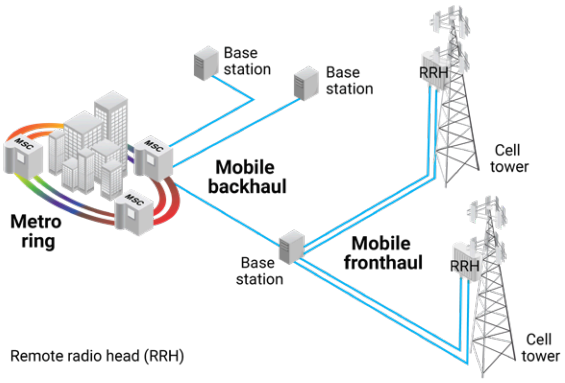


Figure 2. Mobile backhaul.

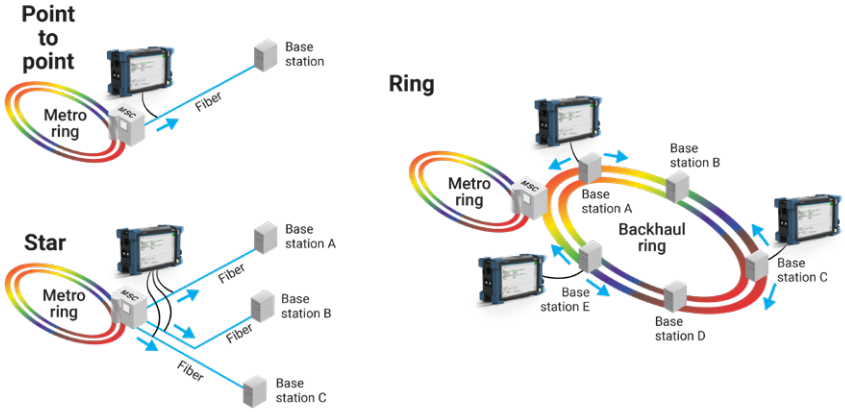


Figure 3. Benefits of single-ended dispersion testing in different mobile backhaul architectures.

DISPERSION TESTING ON CLIENT SIDE DEPLOYMENT FEATURING CFPS

Historically, dispersion testing was performed mainly on the line side. Nowadays, dispersion testing is also required on the client side, driven by the adoption of compact form pluggables (CFPs) for 40G/100G transmission. Given that multiwavelength CFPs can reach much longer distances than their predecessors (SFP, SFP+ and XFP)—up to 40 km—dispersion phenomena like CD and PMD, which scale with distance, can become an issue. The IEEE 802.3-2022 standard has set CD and PMD tolerances for client-side deployments as follows:

CD/PMD TOLERANCES					
Service	**100GBASE-LR4**	**100GBASE-ER4**	**100GBASE-ZR**	**200GBASE-FR4**	**400GBASE-ER8**
Operating distance (km)	10	30	80	40	40
Positive dispersion (max) (ps/nm)[a,b]	9.5	28	2000	37	37
Negative dispersion (min) (ps/nm)[a,b]	–28.5	–85	0	–114	–201
DGD_{max} (ps)	8	10.3	20	10.3	10.3
PMD (max) (ps)[c]	2.5	3.2	4.5	3.2	3.2

a. Positive dispersion and negative dispersion, as found in the standard, represent max and min CD values.

b. Over the wavelength range 1264.5 nm to 1310.19 nm.

c. Values provided by EXFO (not part of the standard), using a 3.19 value for DGD_{max}/PMD ratio corresponding to a 0.001% outage probability.

If a particular link does not meet these thresholds, it means that the transmitter/receiver pair is not required to operate within the specified bit-error-rate (BER). Therefore, the advent of CFPs make dispersion testing mandatory on the client side, and the single-ended FTBx-570 is perfectly suited to equip technicians for the job.

DISPERSION TESTING IN COHERENT DEPLOYMENTS

Dispersion testing in coherent deployments is crucial for ensuring reliable and efficient optical communication systems. While coherent systems are more robust against impairments, they are not immune to the likes of chromatic dispersion. To optimize Raman gain and efficiency, the fiber type of the effective area must be known. While it is known in most greenfield deployments, the same cannot be said for brownfield deployments. When in doubt, the fiber type can be determined using the FTBx-570: lambda zero, CD slope and coefficient at 1310 nm or 1550 nm. The FTBx-570 is uniquely positioned to take these measurements. Plus, the unit will calculate the fiber length for an accurate slope and coefficient measurement.

THE FTBX-570'S IMPRESSIVE DYNAMIC RANGE

The FTBx-570 boasts an impressive dynamic range; 30 dB or 37 dB with a reflector mirror. Let's take a close look at what that means.

- In metro links where there are frequent splices, attenuation can be up to 0.25 dB/km, so distances of 120 km to 150 km are achievable.
- In the core network, attenuation is usually around 0.2 dB/km, meaning CD/PMD testing up to 150 km and 185 km is possible.
- On long range optical links, where ITU-T G.654 fiber is deployed, attenuation could be as low as 0.16 dB/km, resulting in distances ranging from 190 km to 230 km.

NETWORK TYPE	Global link attenuation (dB/km)	Achievable distance without mirror (km)	Achievable distance with mirror (km)
Metro	0.25	120	150
Core network	0.20	150	185
Longhaul	0.16	190	230

CD AND PMD TESTING COMBO—THE BENEFITS

Single lightweight unit that:

- Enables single-ended testing, an EXFO-exclusive innovation.
- Allows one technician to test both CD and PMD.
- Features a fully automated, intuitive interface—no training required.
- Minimizes manual intervention for fail-safe results.
- Reduces required connections to just one.

Combine your FTBx-570 with EXFO's OTDR and OLTS modules in addition to EXFO Exchange for the ultimate fiber characterization kit.



2024 DIAMOND TECHNOLOGY REVIEWS 4.5 DTR

CABLING INNOVATORS AWARDS PLATINUM HONOREE

"Discovering the problems with existing fibers that may have never been activated because the real reason behind getting bits through is hidden from OTDRs. This platform is a great step forward to bring to the field technician."

- DIAMOND TECH REVIEW JUDGE

EXFO

FIBER CONNECTOR INSPECTION AND CERTIFICATION– THE ESSENTIAL FIRST STEP BEFORE ANY CD/PMD TESTING

Taking the time to properly inspect a fiber-optic connector using an EXFO fiber inspection scope can prevent a host of issues from arising further down the line, thus saving you time, money and trouble. Moreover, using a fully automated solution with autofocus capabilities will turn this critical inspection phase into a fast and hassle-free one-step process.

Did you know that the connector of your CD/PMD is also critical?

The presence of a dirty connector at the CD/PMD port, patch cord, or launch cable can negatively impact your test results, and even cause permanent damage during mating. Therefore, it is critical to regularly inspect these connectors to ensure that they are free of any contamination. Making inspection the first step of your fiber characterization best practices will maximize the performances of your CD/PMD and your efficiency.



FEATURES	USB WIRED	WIRELESS	AUTONOMOUS
	FIP-430B	FIP-435B	FIP-500
Image capture	•	•	•
Five-megapixel CMOS capturing device	•	•	•
Automatic fiber image-centering function and focus adjustment	•	•	•
On-board pass/fail analysis	•	•	•
Pass/fail LED indicator	•	•	•
USB connectivity to an EXFO platform or PC	•	•	
Wireless connectivity to an EXFO platform or PC		•	
Wireless connectivity to a smartphone		•	•
On-board touch screen			•
SmarTips with automated thresholds			•
Quick-connect mechanism			•

For more information, visit **www.EXFO.com/fiberinspection**.

AVAILABLE IN THE FTB-1v2 PRO, FTB-2 PRO AND FTB-4 PRO PLATFORMS

The EXFO FTB platforms are the most compact solutions in the industry for multirate, multitechnology, multiservice testing, delivering all the power of a high-end platform in a conveniently sized, go-anywhere field-testing tool.

INTUITIVE INTERFACE

Widescreen display and multitouch capability

UNMATCHED CONNECTIVITY

WiFi, Bluetooth, Gigabit Ethernet and multiple USB ports

INCREASED PRODUCTIVITY

Store, push and share test data automatically

Do more with the EXFO FTB platform

The Windows 10 operating system allows for a wide choice of third-party applications and supports an extensive range of USB devices.

- Start faster and multitask
- Use any office suite
- Connect to printers, cameras, keyboards, mice, and more

Bring your own apps

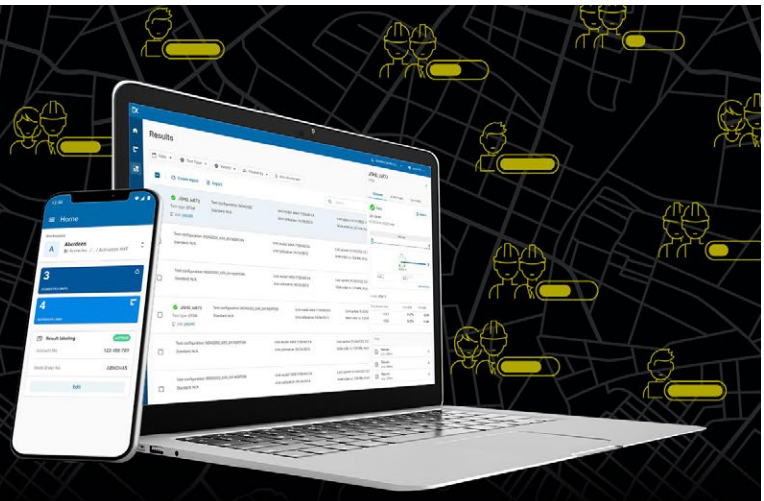
- Share your desktop (e.g., using TeamViewer™)
- Antivirus software
- Communicate via email services and over-the-top (OTT) apps
- Record and automate actions
- Share files via cloud-based storage

EXchange

SHARE TEST RESULTS. BOOST COMPLIANCE. UNLOCK INSIGHTS.

Cloud-hosted solution for sharing test results and ensuring compliance.

Paired with EXFO's leading test instruments, EXFO Exchange drives an entire ecosystem, while integrating seamlessly with existing operation processes.



KEY BENEFITS

- **Automate test results management**
- **Boost compliance and efficiency**
- **Improve collaboration and visibility**
- **Access comprehensive reporting**
- **Unlock insights to see what matters**

SIMPLE SETUP IN THREE STEPS

1

Create your free EXFO Exchange account

Begin your journey by creating an EXFO Exchange account. Setting up your account is quick and easy.

Create an account

2

Install the mobile app

Download the EXFO Exchange app to allow test data from compatible EXFO devices to be uploaded securely to the cloud (free of charge).

DISPONIBILE SU Google Play | Download on the App Store

For MaxTester and FTB users, install the native app.

Access the Native app

3

Save time and boost efficiency

Once your account created—and the mobile app installed and paired with compatible EXFO devices—all test results will be sent to the cloud. On the web app, you will see field test results from all invited testers.

Get **started >**

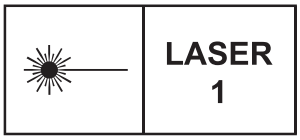
EXFO

SPECIFICATIONS

SPECIFICATIONS [a]		
Measured wavelength range (nm)	SCL-band O-band	1475 to 1626 1310 ± 1
Dynamic range (dB)	SCL-band	30 (37 with reflector)
Test time (s) [b]	25	
Link length		
Range (km) [c]	1 to 240	
Distance uncertainty (km)	±(0.01 + 1 % × distance)	
CD		
CD uncertainty (ps/nm) [d, e]	± 2.5	
Zero dispersion wavelength in SCL-band (nm) for G.653, G.655.C, G.655.D [f]	± 1.5	
PMD [g]		
PMD display range (ps)	Up to 35	
PMD uncertainty (ps) [e, h]	±(0.2 + 5 % × PMD)	

GENERAL SPECIFICATIONS		
Size (H × W × D)		51 mm × 159 mm × 185 mm (2 in × 6 1 /4 in × 7 5 /16 in)
Weight		1.4 kg (3.1 lb)
Temperature	Operating Storage	0 °C to 50 °C (32 °F to 122 °F) −40 °C to 50 °C (−40 °F to 122 °F)
Relative humidity		0 % to 95 % non-condensing

LASER SAFETY



Class 1 Laser, compliant with IEC-60825-1:2014

a. Typical, for fiber length ≥ 1 km.
b. Up to 50 km.
c. Within specified dynamic range.
d. End-to-end dispersion, at 1550 nm, on 50 km G.652 singlemode fiber; equivalent to dispersion coefficient = 0.05 ps/(nm.km).
e. At 23°C ± 2°C.
f. Measured on 10 km G.653 (λo = 1548 nm), and on 15 km G.655.C (λo = 1569 nm).
g. For strong mode coupling (telecom fiber).
h. Between 0.5 ps and 20 ps PMD range.

ORDERING INFORMATION

FTBx-570-XX-XX

Model
CD-PMD-O = Single-ended CD and PMD analyzer with O, S, C, L band support

Example: FTBx-570-CD-PMD-O-EA-EUI-91

Connector
EI-EUI-28 = UPC/DIN 47256
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

Provided by: Mega Hertz | 800-883-8839 | info@go2mhz.com | www.go2mhz.com

https://www.go2mhz.com/product/single-ended-cd-pmd-analyzer/

EXFO serves over 2000 customers in more than 100 countries.

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