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Find the *Exfo IQ-5523-ST-89* at our website: ***Click HERE***

IQ-5500

PMD Analyzer

- Analysis range from 0.05 to 200 ps
- Up to 50 dB dynamic range
- Auto-Diagnostic Mode for unknown PMD values
- Second-order PMD delay and coefficient





PMD Analyzer

Fiber-optic test and measurement equipment

EXFO

PMD Measurement Speed, Simplicity, Accuracy

The subject of intense R&D and production testing, polarization mode dispersion (PMD) can be a key factor in limiting high-speed transmission. PMD is caused by asymmetries in fiber geometry and by localized stress throughout the waveguide generating the birefringence phenomenon. The main effect of PMD on fiber-optic links is a loss of system margin or increased bit-error rate, which limits a system's speed and bandwidth capacity. In analog systems, PMD creates composite second-order distortion, limiting the number of channels.

Based on the ultra-fast interferometric method, the IQ-5500 PMD Analyzer is designed for R&D and manufacturing applications. The IQ-5500 PMD Analyzer combines vibration immunity with industrial-grade reliability and delivers the performance you expect from advanced industrial instrumentation. With the interferometric method's inherent vibration immunity, testing is more efficient because there is no need to tape down or carefully fix the fiber or device under test.



IQ-5500 PMD Analyzer housed in IQ-200 Optical Test System

Wide Range of Cable and Fiber Applications

Characterize fiber at the speed of production. EXFO's easy-to-use measurement setups enable you to evaluate your manufacturing process, troubleshoot your production system, and experiment with new fiber designs and solutions. The IQ-5500 PMD Analyzer is perfect for assessing fiber quality during manufacturing, either under zero-stress situations (flat, unrolled) or light-stress conditions (on a spool). Also, characterize your incoming fiber and monitor your cabling process by checking how PMD values vary at each stage of the production process. Troubleshoot problem areas and validate new production procedures to obtain better results.

Hardware Combinations

Standard Measurement Range

The standard setup for PMD measurements consists of the IQ-5500 PMD Analyzer and the IQ-2100 BP Light Source set inside the IQ-203 Control Unit. Typical measurement time is 15 seconds for PMD values of 50* fs to 35 ps.

Extended-Range Option

Characterize fibers with PMD values of up to 200 ps* using the PMD extended-range option. Use the IQ-5500-ER PMD Analyzer set inside the IQ-203 Control Unit, combined with either the IQ-2100 BP Light Source or M-2100 BP Broadband Light Source, depending on the required dynamic range.

High Dynamic Range

For highly attenuated fibers and long-haul measurements, combine the IQ-5500 PMD Analyzer (set inside the IQ-203 Control Unit) with the M-2100 BP Broadband Light Source benchtop unit. This optimal high-power EELED source provides a dynamic range reaching 50 dB. Averaging PMD over the entire wavelength range of a source (without filtering) preserves full power for PMD measurement.

Simulation of Random Mode-Coupling

Introduce a known PMD delay into a system under test by including the EM-550 or EM-551 PMD Emulator in your test setup. One application is to simulate the effect of random mode-coupling PMD on the signal. Also, use the setup to calibrate instruments before taking measurements.



EM-550 PMD Emulator

** Measurement range is 0.1 to 115 ps with calculated wave below 0.1 ps and interpolated value above 115 ps.*

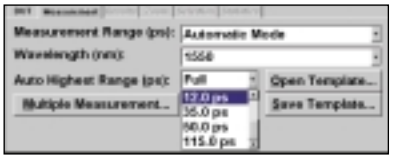
Powerful Software Features

Obtain a complete PMD diagnosis—with delay and coefficient—often in under 15 seconds. The IQ-5500 PMD Analyzer features powerful Windows-compatible software for fast calculation and advanced analysis. Yet the intuitive interface enables engineers and technicians to obtain PMD measurements with minimal training and limited intervention.

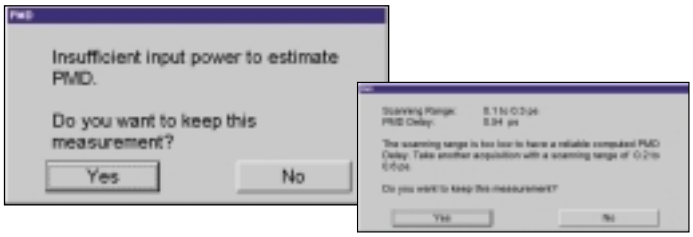
Add comments to your measurements, build tables, analyze statistical data, and evaluate and record your results for future reference. Observe PMD distribution directly on-screen. Powerful analysis tools deliver fast, accurate results and information.

Scanning Accuracy: Automatic and Auto-Diagnostic Modes

In Automatic Mode, the software intelligently estimates the appropriate scanning range and then returns a PMD delay and coefficient based on the estimate. Highly reliable, this function is ideal when testing fibers of unknown PMD value. Automatic Mode requires little extra time to test small values—important during the production testing of cables and fibers.

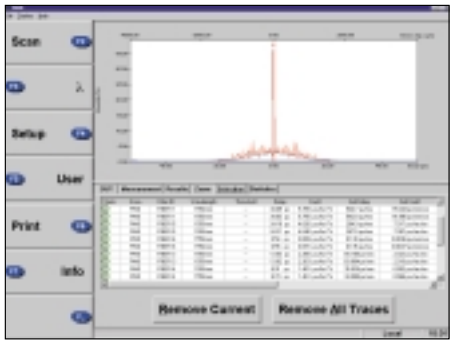


By comparison, in Auto-Diagnostic Mode the software returns a PMD estimate but suggests a new scanning range for further testing if the original range was not appropriate. Depending on your accuracy needs, you can keep the returned estimate or perform another acquisition.



Second-Order PMD Delay and Coefficient

EXFO's PMD software provides second-order PMD delay and coefficient values based on initial PMD values. Not only do these values increase the precision of cable and fiber characterization, they provide better control of transmission quality since high second-order values affect both high-bandwidth digital and analog transmission.



Statistical PMD results

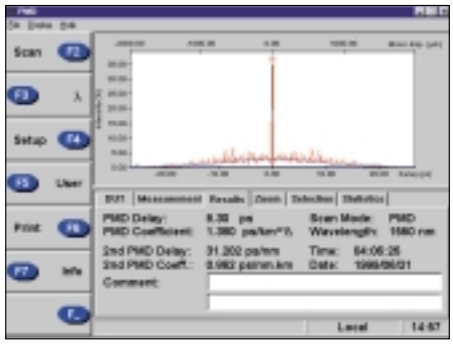


Table of PMD measurements and coefficients

Specialist Test Solutions

Get more out of your EXFO instruments with hardware combinations such as OTDR environmental applications, PMD monitoring applications, and PMD-OTDR MultiTest applications. For instance, a PMD-OTDR MultiTest application is ideal for studying the long-term behavior of fiber under changing environmental conditions by simultaneously measuring PMD while performing bidirectional and multiwavelength OTDR testing. Based on the modular IQ-200 Optical Test System, these hardware solutions are ideal for extensively characterizing cable and fiber during production, qualification, and system integration.

* Depending on working parameter conditions.

SPECIFICATIONS

Model		IQ-5502	IQ-5503	IQ-5523
Wavelength (nm)		1310	1550	1310/1550
Analysis range[1] (ps)	standard	0.06 to 35	0.05 to 35	0.06/0.05 to 35
	extended	0.06 to 200	0.05 to 200	0.06/0.05 to 200
Dynamic range[2] (dB)		46 (51)[3]	42 (50)[3]	34 (42)[3]
Typical measuring time[4] (s)		15[5]	15[5]	15[5]
Measurement linearity[6] (Hi-Bi measurement mode)		$2\sigma = 0.8\% + 0.05$ ps		
Accuracy[7] over N measurements at different polarization states[8] (random coupling regime)		$2\sigma = 0.17 \times (\text{PMD}/N)^{1/2} + 0.05$ ps		
Repeatability without change in measurement conditions (random coupling regime)		1% ±0.05 ps		
Repeatability over N measurements at different polarization states[8] (random coupling regime)		$2\sigma = 0.17 \times (\text{PMD}/N)^{1/2} + 0.05$ ps		

GENERAL SPECIFICATIONS

Size (H x W x D)		12 x 7.5 x 26.2 cm	4 3/4 x 3 x 10 1/3 in.
Weight		2.18 kg	4 13/16 lb.
Temperature	operating	0° to 40°C	32° to 104°F
	storage	–40° to 50°C	–40° to 122°F
Relative humidity		0 to 80% non-condensing	

FIXED PMD EMULATOR SPECIFICATIONS

Model	EM-550	EM-551
Wavelength (nm)	1310/1550	1310/1550
PMD nominal values (ps)	1, 5, and 10	1

FIXED PMD EMULATOR GENERAL SPECIFICATIONS

Size (H x W x D)		7.2 x 22.5 x 19.9 cm	4.2 x 15.7 x 19.9 cm
		2 7/8 x 8 7/8 x 7 7/8 in.	1 5/8 x 6 1/4 x 7 7/8 in.
Temperature	operating	–5° to 50°C 41° to 122°F	
	storage	–40° to 50°C –40° to 122°F	
Relative humidity		0 to 95% non-condensing	

ORDERING INFORMATION

IQ-55XX-XX

Wavelength and range code
- 02 = 1310 nm, 0.06 to 35 ps
- 03 = 1550 nm, 0.05 to 35 ps
- 23 = 1310/1550 nm, 0.05 to 35 ps
- 2R = 1310 nm, extended range 0.06 to 200 ps
- 3R = 1550 nm, extended range 0.05 to 200 ps
- DR = 1310/1550 nm, extended range 0.06/0.05 to 200 ps

Connector code
- 89 = FC/UPC
- 90 = ST/UPC
- 91 = SC/UPC

NOTES

1. Measurement range is 0.1 to 115 ps. Calculated value below 0.1 ps and interpolated value above 115 ps.
2. With a power source of -20 dBm at 1550 nm and -16 dBm at 1310 nm (power at the output of the polarized source) for the range 0.1 ps ≤PMD ≤1 ps.
3. With our M-2100 Broadband Light Source.
4. For PMD < 1.2 ps at 1550 nm.
5. Typical
6. Deviation from linearity within which 95% (2σ) of the measurements are found (birefringent fiber).
7. With regards to EXFO standards.
8. Averaging over N measurements corresponding to N, well-separated polarization states on the Poincaré sphere for options 02, 03, and 23.

EXFO is certified ISO 9001 and attests to the quality of its products. These products are accompanied by a 24-month warranty and an excellent after-sales support service.

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 brochure 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.

Contact EXFO for prices and availability or to obtain the phone number of your local EXFO distributor.

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