

Optical Component Dispersion Measurements

Agilent Technologies and Inometrix Inc.

Achieve optimum performance in your optical communications systems with fast and accurate dispersion measurements

The performance of an optical communications system is dictated, ultimately, by the dispersion characteristics of its optical components. The accurate measurement of dispersion is essential in order to optimize the performance of your optical communications systems. For short length optical components dispersion is traditionally measured using interferometer techniques.

The Virtual Reference Analyzer from Inometrix Inc. replaces the physical reference path within the interferometer with a software or virtual path. This improves the accuracy, reduces the test time, and lowers the cost of characterizing short length optical devices. The system requires no calibration and is immune to thermal or vibrational effects. In addition, all measurements can be made with a single wavelength sweep, significantly reducing the testing time. The removal of the physical reference path also reduces the overall cost of the test equipment required.

The Inometrix Virtual Reference Analyzer is used in conjunction with the Agilent

81600B tunable laser source family. The Agilent 81600B is a versatile and high performance tunable laser source that allows the precise characterization of advanced optical components. The instrument provides fast and accurate sweeps across the entire wavelength range with specified accuracy throughout.

The Inometrix/Agilent system has an operating range of 1260 nm to 1640 nm and can be used to measure dispersion characteristics including group delay, group index, group velocity dispersion, dispersion length and chromatic dispersion. It provides full characterization with a single wavelength sweep and orders of magnitude increases in sensitivity and accuracy.

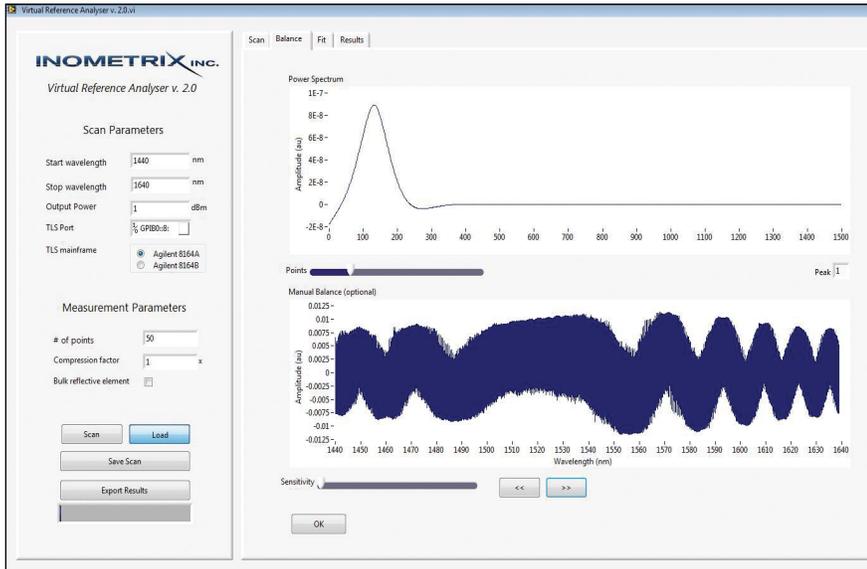
The Virtual Reference Analyzer from Inometrix when used with the Agilent 81600B allows you to fully characterize your short-length optical components accurately and quickly ensuring that you can achieve the optimum performance in your optical communications systems.



- *Measure dispersion characteristics of short-length optical components*
- *Replaces physical with virtual reference path for interferometer measurements*
- *Improves accuracy, reduces test time, lowers cost*
- *Used with Agilent 81600B tunable laser source*
- *Operates in 1260 nm to 1640 nm wavelength range*
- *Provides full characterization with a single wavelength sweep*
- *Achieve optimum performance in your optical communications systems*



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To learn how this solution can address your specific needs please contact Agilent's solutions partner, Inometrix, Inc.

www.agilent.com/find/inometrix

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Agilent Technologies

Solutions Partner

Dispersion Measurements

Dispersion is a speed-limiting effect that broadens the pulses used to transmit information digitally and which, if excessive, can cause inter-symbol interference. Established techniques exist to measure the dispersion of long-length optical components, including time of flight and modulation phase shift. For short-length measurements, however, interferometers are traditionally used.

Interferometers use a light source split into two paths, one a well characterized reference path and the other a test path with unknown characteristics. When the light beams are brought back together information can be obtained about the differences between the two and from these dispersion parameters can be calculated.

Since the traditional interferometer approach uses a physical reference path it is prone to calibration errors and uncertainties due to thermal or vibrational effects. In addition the reference path has to be constructed from highly-accurate components resulting in high cost. The approach also requires multiple wavelength scans of either the source or the receiver in order to fully characterize a component leading to excessive test times.

By replacing the physical reference path with a virtual path these disadvantages can be overcome providing significant benefits in the characterization of short-length optical components.

System Components

Agilent Technologies

81600B Tunable laser source family

Inometrix Inc.

Virtual Reference Analyzer v2.0

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Inometrix Inc. manufactures innovative optical solutions for sensing, testing and imaging based on its patented Single Arm Interferometer technology and patent pending Virtual Reference™ Interferometer Technology. www.inometrix.com

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