

Short Length Optical Component Measurement

Agilent Technologies
and Inometrix Inc.

Maximize the performance of your optical communications systems with fast and accurate dispersion measurements.

The performance of your optical communications systems is dictated, ultimately, by the dispersion characteristics of your optical components. Dispersion is a speed limiting effect that broadens the pulses used to transmit information digitally and which, if excessive, can cause inter-symbol interference.

INOMETRIX INC.

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Traditionally interferometer techniques are used to measure the dispersion characteristics of short length optical components. The Virtual Reference Analyzer from Inometrix Inc. replaces the physical reference path within the interferometer with a software or virtual path.



Interferometer Measurements

Established techniques exist to measure the dispersion characteristics of long length optical components, including time of flight and modulation phase shift. For short length measurements, however, interferometric techniques 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.

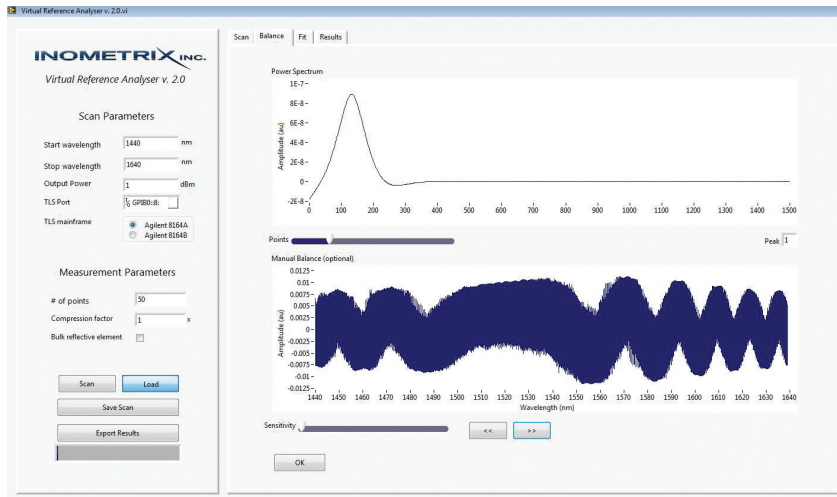
Since the traditional interferometer approach uses a physical reference path it is prone to calibration errors and uncertainties due to thermal or vibrational effects. In addition the reference path has to be constructed from highly accurate components resulting in high cost. The approach also requires 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.



Agilent Technologies

Short Length Optical Component Measurement



This improves the accuracy, reduces the test time and lowers the cost of characterizing your 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 maximize the performance of your optical communications systems.

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For more information on Agilent Technologies' products, applications or services, please contact your local Agilent office. The complete list is available at:

www.agilent.com/find/contactus.

INOMETRIX INC.

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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Ordering Information

Agilent Technologies
81600B Tunable laser source family

Inometrix Inc.
Virtual Reference Analyzer v2.0



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