ePulse: Laser Measurement News

January 2011

Welcome to **ePulse: Laser Measurement News**, a review of new developments in laser beam measurements, beam diagnostics, and beam profiling. Each issue contains industry news, product information, and technical tips to help you solve challenging laser measurement and spectral analysis requirements. Please forward to interested colleagues.

Tutorials

A Novel Far-Field Scanning Technique for Rapid Measurement of Optical Fiber Parameters

A new far-field scanning technique allows for accurate measurement of Mode-Field Diameter and Effective Area of single-mode fibers in less than 20 seconds. This paper describes how the Numerical Aperture is measured in real-time and the compact instruments that have been developed to eliminate variations in measured parameters due to source fluctuations. Read the article.

What is M2 and Why Do I Care?

Most laser engineers and scientists are familiar with beam width, position, divergence angle, Gaussian fit, and other parameters that are used for characterizing a laser beam. M2 enables a user to quantitatively evaluate the focusability of the laser beam. It is a measure of how close an actual beam is to a perfect Gaussian single mode beam and is very easy to use in predicting the focused spot properties. Read the paper or view the video.

Applications

Measuring Laser Performance and Solar Cell Manufacturing

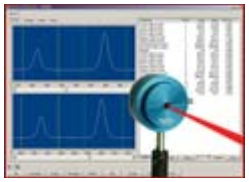
The Green movement is encouraging the use of energy efficient technologies such as solar cells. But solar cells currently shows a slow return on investment and face challenges related to the efficiency of the material used. The industry is focused on reducing costs through automated processes. Lasers have proven to be highly reliable, consistent, and predictable, especially for scribing the photovoltaic material on the individual cells of the large panels. Find out how laser beam diagnostics are used to ensure consistency.

Imaging Lenses and Finding Precise Focus Point with NanoScan

Slit surfaces and slit edge reflect light that interferes with reflections from surfaces. When the slit is in the exact focal plane and perfectly aligned, the configuration is like an interferometer.

Video of the Month

Laser Beam Profiling
Make sure the laser beam you expect is the one that is delivered. See how beam profiling can help you get the most performance out of your laser. Learn more by watching the video.



The Photonics West 2011 Treasure Hunt

Show us what you got. Work your way through our pre-Photonics West Treasure Hunt and you could walk away with one of two Grand Prizes -- a **42-inch LCD flat screen monitor** or an **Apple iPad**. Correctly answer 5 questions using info on the Ophir or Photonics West web sites by January 26, 2011 and you will get a tie dyed t-shirt and be entered in the drawing for the Grand Prizes. Start the Treasure Hunt.

Free Expert Consultation @ Photonics West

Sign up for a Breakfast with a Power Meter or Beam Profiling engineer at Photonics West. Discuss specifics about your application. Email kevin.kirkham@ophir-spiricon.com to make an appointment.

Laser Puzzle

Try your hand at this issue's Laser Puzzle. All entries will

Find out how the interference can be reduced or eliminated.

Technical Tips

Beam Profiling: Avoiding Back Reflections with NanoScan
When profiling a coherent laser beam with a NanoScan with non-blackened, reflective apertures (slit or pinhole), it is possible that interference due to back reflections may be observed on the beam trace. Read the detailed analysis.

FAQs

Power/Energy Meters
How is it possible that a thermal sensor can pass the calibration before test, but still need a disc replacement? Does Ophir-Spiricon automatically replace thermal sensor discs during calibration just to make more money? Read the FAQ.

I sometimes need to see an analog representation of my laser power on a scope, in parallel to measuring it with a thermal sensor. What solutions are available? Read the FAQ.

Beam Profiling
I don't understand the difference between the classification of Laser Beam Analysis Systems, Focal Spot Analyzer, and Laser Beam Profile? Read the FAQ.

Why is my Pyrocam III not recognized in Windows 7? Read the FAQ.

Does NanoScan work with 64-bit Windows 7? Read the FAQ.

What's New

What's New at Ophir & Preview of Photonics West Introductions
In spite of the financial ups and downs of the economy in 2010, Ophir had a busy year with lots of new products introductions. See what's new and get a preview of what's coming next week at **Photonics West**, San Francisco, CA. See Ophir at **Booth 2123**.

Many products available next business day in US

TRUMPF Names Ophir Optronics a Premium Supplier
Ophir Optronics has been named a TRUMPF Premium Supplier. Germany-based TRUMPF is a world leader in industrial lasers and laser system technology. Find out more.

PF Absorber Sensors Provide 20X the Power Handling
The **PF Sensors** are a new line of high damage threshold power volume absorbers for short pulsed lasers (<1us) that absorb a laser's energy in the volume of the material being used. They make use of a spray deposited on the surface, not the typical glass or ceramic substrate. As a result, they can handle up to 20x the power density, up to 3KW/cm2, and 3 times the response rate, as fast as 1s. Find out more.

StarLab Software Adds Support for Windows 7 64-bit and LabVIEW
StarLab laser measurement software converts a PC into a multi-

receive a 2GB pen drive. The grand prize winner will receive an iPad 16GB WiFi. E-mail answers to sales@ophir-spiricon.com. Need a hint? E-mail kevin.kirkham@ophir-spiricon.com.

Here are the answers to the last issue's puzzle. The winner was **Daniel Sickl, Senior Engineer, Flextronics**. "Our Althofen/Austria subsidiary of Flextronics, a global EMS company, produces a medical device for a well known OEM. It contains a laser with >1400nm wavelength. For the final quality control of this laser, we have integrated a BeamGage Pro systems with a Spiricon SP620U camera to automatically measure spot size and location." - Daniel Sickl

Trade Shows

SPIE Photonics West
Jan 25-27, 2011
San Francisco, CA
Booth 2123

SPIE Defense, Security+Sensing
April 26-28, 2011
Orlando, FL

CLEO:2011
May 3-5, 2011
Baltimore, MD
Booth 1206

Laser World of Photonics
May 23-26, 2011
Munich, Germany

Fast Ship Program

Ophir-Spiricon's new Fast Ship program provides one-day shipment of the most popular power/energy, beam profiling, and M2 laser measurement equipment.

About Ophir-Spiricon, LLC

Ophir-Spiricon is part of the Ophir Photonics Group. With over 30 years of experience, the Laser Measurement Group provides a complete line of instrumentation including power and energy meters, beam profilers, spectrum analyzers, and goniometric radiometers. Dedicated to continuous innovation in laser measurement, the company holds a number of patents,

channel laser power/energy station. The newest edition incorporates Microsoft® COM Object technology. Ophir's COM Object, OphirLMMeasurement, is used by developers to create reusable software components and to link these together to create applications. Supports all of Ophir's USB-enabled laser power/energy meters and PC interfaces. Find out more.

Free Laser Measurement Equipment
That's right. If you're an end user of our laser equipment, let's hear about it and how you use it in your application. You can write the whole article or you can collaborate with our talented writers. In exchange, we can negotiate you receiving one our latest innovative instruments, detectors, or profiling cameras and software to use in your lab. For power/energy meters, e-mail Burt.Mooney@Ophir-Spiricon.com and for beam profilers, e-mail Kevin.Kirkham@Ophir-Spiricon.com. In a few nanoseconds, you'll be telling the laser world about your application using our equipment and a femtosecond or two later you'll be logging your data on our equipment like the Nova II, Vega, Quasar or BeamGage.

Power Meter & Beam Profiling Catalogs
Download the 2010 Ophir-Spiricon Laser Measurement Catalogs today. Tutorials and products in Power Meters and Beam Profiling.

including Ultracal™, the baseline correction algorithm that helped establish the ISO 11146-3 standard for beam measurement accuracy. The recently acquired Photon family of products includes NanoScan scanning-slit technology, which is capable of measuring beam size and position to sub-micron resolution. The company's modular, customizable solutions serve manufacturing, medical, military, and research industries throughout the world.

An ISO 9001:2008 Registered Company.

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