ePulse: Laser Measurement News

December 2013

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 or have them subscribe.

Tutorials

Bridging the THz Gap in Radiometry

The Renowned German standards laboratory Physikalisch-Technische Bundesanstalt - PTB, has now developed a highly accurate calibration standard for calibrating Terahertz radiation based on a modified Ophir 3A-P meter. THz Radiometry.

Technical Digest: Fiber Lasers, Versatility in Light

The meteoric rise of fiber lasers in the past decade is a result not just of their compactness, simplicity, and efficiency, but of their versatility as well. These *Laser Focus World* articles cover the fundamentals of fiber lasers and provide application examples of high-energy pulse fiber lasers. Fiber Lasers.

Applications

Overcoming Problems with Unoptimized Lasers

Unoptimized lasers can cause resonator problems, misaligned beams, damaged optics, and gas impurities. Optimizing laser beams can maximize cut speeds, maximize and stabilize laser power, balance beam profiles, and remove dross from laser cuts. Unoptimized Lasers.

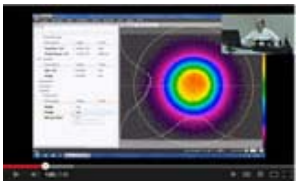
Laser Ablation Makes Automotive Interiors Shine

PREH, Saale Germany, manufactures electronic controls for some of today's finest automobiles. Laser ablation is used to manufacture the controls that operate climate and driver systems. This process is made possible when a focused laser beam is used to remove layers of coatings to form an optically transmissive area of the device. Recently, residue from the removed coatings was covering the laser beam delivery optics. This reduced the power of the laser beam and was causing the etching process to fail. Find out how PREH found a

Video of the Month

Laser Spot Size and Divergence

Measuring laser beam spot sizes and divergence. The setup uses a HeNe Class 3 laser, SP620U CCD camera, and BeamGage. The software is measuring spot size at 0.5mm, using ISO beam width and % peak. Video: Spot Size and Divergence.



BeamTrack Sensors Measure Laser Power, Position, & Size

The BeamTrack Sensor Series is the industry's first thermal sensors that combine power and energy measurement, beam position, and beam size in a single compact device. See them in action. Video: BeamTrack.

Laser Puzzle

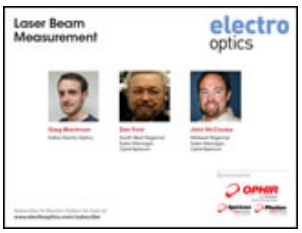
Try your hand at this month's Laser Puzzle. All entries will receive a 4GB pen drive and the new Ophir Laser Measurement Poster. The grand prize winner will receive a 16GB iPad. E-mail answers to sales@us.ophiropt.com. Need a hint? E-mail kevin.kirkham@us.ophiropt.com

Here are the answers to the last issue's puzzle. The winner of last issue's puzzle was **Aaron Montello, Project Engineer, Prima Power Laserdyne**. "As far as Ophir/Spiricon equipment usage, as a laser system manufacturer, using energy/power meters and beam analyzers are both very important. For applications work, we need to understand how the beam interacts with the material being processed, which means

way to let the laser operators know if the laser beam was too weak to produce satisfactory components. Laser Ablation.

Webcast

Laser Beam Measurement



This informative webcast from Electro Optics magazine covers every aspect of laser beam measurement. John McCauley and Dan Ford of Ophir-Spiricon provide expert advice on topics such as: what measurements should be taken and why, what technologies are available for laser measurement, and when these measurements should be taken. Webcast: Beam Measurement.

Business News

How Continuous Improvement in Customer Service Affects You

The question driving continuous improvements at Ophir-Spiricon is, "What can we do to provide better service to our customers?" Over the last couple of years, hundreds of continuous improvement suggestions have been made. The typical time for implementation of these improvements has been 1.5 days. Continuous Improvement.

Ophir-Spiricon Receives Best Practices Award for Continuous Improvement

Ophir-Spiricon has been recognized with a Best Practices Award for Continuous Improvement from the Utah Manufacturers Association. The Utah Manufacturers Association evaluated eligible manufacturers on a variety of continuous improvement measures: process management, implementation, measurement, corrective actions, and improvements tied to operating objectives. Best Practices.

Technical Tips

Beam Profiling

How to Measure Pulsed Lasers with a Scanning-Slit Profiler

Scanning slit profilers boast several advantageous qualities, such as the ability to measure high powers without attenuation, relatively inexpensive infrared compatibility, and more. But what about pulsed beams? Well, it depends on your pulse frequency, beam width, and what kind of accuracy are you looking for. Read the Tech Tip.

BeamGage What's This Button

You may have experienced a break in the What's This button in BeamGage when it is no longer working after you've updated Adobe Reader. This is a security feature in Reader. Here's what to do. Read the Tech Tip.

Power/Energy Meters

StarLab Logs

How do you zoom in on a log you've taken with StarLab? Read the Tech Tip.

FAQs

Power/Energy Meters

For water-cooled sensors, the specifications say that the temperature of the cooling water should be in the range of 18-30°C. Tap water is usually colder in our country. Is it OK to use water that is colder than the specified range? Read the FAQ.

When an Ophir power meter product is discontinued, how long will Ophir support it? Read the FAQ.

we need to understand the properties of the beam, and the power and beam quality are the top two on the list. Also, for designing new system components, I have used both power meters and beam analyzers to ensure we aren't distorting the beams or introducing power losses that will affect system performance." - Aaron Montello

From the Blog

An Easy Way to Measure M-Squared

M^2 is a measure of how well your laser beam focuses, or more accurately, how close it is to a perfect Gaussian beam. M^2 can present a number of challenges, including tricky setup and slow measurement process. Find out more. M-Squared.

2013 Catalogs: Power Meters & Beam Profiling

Download the Ophir-Spiricon Laser Measurement Catalogs today. Tutorials and product specifications for Power Meters and Beam Profiling. New Beam Profiling Magalog includes application notes, technology articles, and reference algorithms.

Fast Ship Program

Ophir-Spiricon's Fast Ship program provides one-day shipment of the most popular power/energy, beam profiling, and M^2 laser measurement equipment across the U.S.

Trade Shows

Photonics West
February 4-6, 2014
San Francisco, CA
Booth 1301

MD&M West
February 11-13, 2014
Anaheim, CA
Booth 573

Free Laser Measurement Equipment

If you're an end user of our laser equipment, let's hear about 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 of our latest innovative instruments, detectors, or

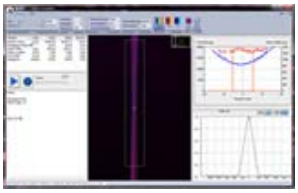
How much over the specified power rating of a thermal sensor can it still measure? Read the FAQ.

Beam Profiling
How can I be certain that my beam profiler is measuring accurately? Is there a standard calibration methodology? Read the FAQ.

Won't the NanoScan slit diffract the beam? Read the FAQ.

How can I use BeamGage Professional with my BeamGage Standard camera system? Read the FAQ.

What's New



First Non-Contact Industrial Beam Monitoring System for Very High Power YAG and Fiber Lasers
BeamWatch is a non-contact, focus spot size and position monitor for high power YAG and fiber lasers. It is the industry's first laser monitoring system to quickly and accurately measure laser parameters without requiring contact with the laser beam. It takes measurements every 60ms, measuring the Rayleigh scatter caused by the beam. This provides instant readings of focus spot size and beam position, as well as dynamic measurements of focal plane location during process start-up. BeamWatch.

30K-W Power Meter Directly Measures Very High Power Lasers
The 30K-W meter measures YAG and fiber lasers in the 800-2000 nm range, and CO^2 lasers at 10.6 microns. Created for material processing lasers used in such applications as metal cutting and welding, the meter features a unique design that allows direct measurement of very high powers and power densities. A wide aperture of 74mm allows it to handle large diameter beams. 30K-W Power Meter.

profiling cameras and software to use in your lab. E-mail kevin.kirkham@us.ophiropt.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.

Follow Us Online

Social Media

Blog
The Ophir Laser Measurement Group

Web
www.ophiropt.com/photonics

About Ophir-Spiricon, LLC

With over 30 years of experience, Ophir Photonics, a Newport Corporation brand, 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, including the award-winning **BeamTrack** power/position/size meters and Spiricon's **Ultracal™**, the baseline correction algorithm that helped establish the ISO 11146-3 standard for beam measurement accuracy. The 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. ISO/IEC 17025:2005 accredited for calibration of laser measurement instruments.

3050 North 300 West, North Logan, UT 84341
Tel: +1 435-753-3729
www.ophiropt.com/photonics