ePulse: Laser Measurement News

November 2014

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.

Features

How to Profile Large, Small, and High Power Laser Beams
Don't you wish there was a one size fits all beam profiler? You can get one laser beam profiler and use it with many different kinds of laser beams - you'll just need the proper accessories to use with each laser. There are two main issues that will come up: laser intensity and beam size. Beam Profiling.

High Power Fiber Lasers Drive New Measurement Techniques
By Kevin Kirkham, Regional Sales Manager, Ophir-Spiricon LLC
The beam focus of high-power fiber lasers can be characterized via imaging of Rayleigh scattering in air -- an indirect detection method that avoids damage to detectors due to ultrahigh-power beams. Find out more in this *Laser Focus World* article. High Power Laser Fibers.

Additive Manufacturing: The Laser Source Is Critical
By Dick Rieley, Mid-Atlantic Regional Sales Manager, Ophir-Spiricon LLC
Laser beam power, spot size, and focus point must be measured and controlled to produce parts to specification through 3D printing. Read the details in this *Photonics Spectra* article. Additive Manufacturing.

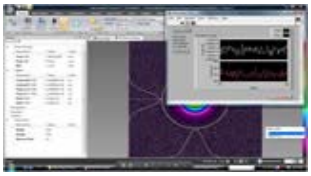
Power Meter OEM Application Experience
By Jimmy Green, OEM Specialist, Ophir-Spiricon LLC
What happens when you have an application that requires a specific sensor to fit your application's technology and mechanical specs? You know a standard Ophir sensor works, but you want to tweak the specs and size to fit. Here's how the process worked for an OEM that needed to modify our 20C-UA thermal sensor. OEM Modifications.

Applications

High Power Lasers in Medical Applications
By John McCauley, Product Specialist, Ophir-Spiricon LLC
Advances in laser technology have had a tremendous impact on the medical industry, especially medical devices. Various wavelengths of light can be used in different ways in medical procedures. And the importance of high power industrial lasers for the development and production of medical devices cannot be overlooked. Find out more in this *Novus Light* article. Medical Applications.

Videos of the Month

BeamGage Automation
BeamGage Professional and BeamGage Enterprise allow programmers to access all the functionality of the graphical user interface through LabVIEW, Visual Basic, C++, and C#. This video is a short introduction to automation with a LabVIEW demo. Video: LabVIEW Automation.



Measuring Beams Coming Out of a Fiber
When you need to measure a beam coming out of a fiber, there are some parameters that may have a different meaning than when referring to "regular" beam measurements. Missing these could lead to incorrect measurements and equipment damage. This video clarifies the issues. Video: Measuring Beams from Fiber.

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 **Darrell Miles, IBM Micoelectronics**. "The lab I work in does fault localization on silicon integrated circuits. We use Ophir power

Webinar

Fiber Lasers: An Overview
Fiber lasers have made impressive progress in recent years. Their design offers a combination of high power, low maintenance, and reliability. In this on-demand webcast, *Laser Focus World's* Jeff Hecht reviews the state of the art in fiber lasers, describing their design, active materials, properties, and the advantages of various designs. Sponsored by Ophir-Spiricon LLC. Fiber Lasers.

Business

Why Is Test Equipment Always Suspect?
By Dick Rieley, Mid-Atlantic Regional Sales Manager, Ophir-Spiricon LLC
When a laser malfunctions and diagnostics begin, why is test equipment the first to be questioned for its accuracy when it was the laser that failed? Recently, a customer's 3D system designed to produce 25mW tested on our 30A thermal laser sensor at 75mWs! You won't believe what happened...it wasn't a failure of the test equipment. Test Equipment.

Raising the Standard of Service
By Kristen Winterton, Calibration Technician, Ophir-Spiricon LLC
We believe in providing extras for our customers. One of these is "Before and After" data on all products at no additional cost. To eliminate worry, all calibrated products follow the same process: an "As Received" verification, adjustments if necessary, and a final verification of adherence to specification. Additionally, products processed through our calibration lab are accredited to the ISO/IEC 17025:2005 standard at no additional cost. Recalibration and Repair.

Technical Tips

Power/Energy Meters

Do You Use a Comet "Power Puck" for Multiple Measurements?
If so, you are probably aware that the Comet will warn you when it's too hot, at which point you need to cool it down by dipping it in water. Did you know the data sheet specifies a max number of readings before the Comet must be cooled? Read the Tech Tip.

How Long Should an Ophir Display Be Charged?
Periodically, an Ophir display should be left on to fully discharge the battery. Then it should be fully recharged, fully discharged, and fully recharged again to maintain the life of the battery. Read the Tech Tip.

Beam Profiling

Why You Should Not Use Image Files for Data Analysis
Image logging and export formats in BeamGage are for use in reports and presentations. There are real data formats for use in mathematical analyses. Read the Tech Tip.

FAQs

Beam Profiling
Can I use my beam profiling camera as a power meter? Read the FAQ.

I installed the latest NanoScan software from the web page for my NanoScan sensor and now it is asking for the license key. How do I get that? Read the FAQ.

Power/Energy Meters
How do I upgrade my StarLite firmware? Read the FAQ.

meters to measure the laser power from the laser scanning microscope (LSM) units in our analytical systems. This helps us keep track of the system performance, and the laser energy striking the device under test." -- Darrell Miles, IBM Microelectronics

From the Blog

Laser Peak Power and Average Power: What's the Difference?
So, you want to measure your laser's power. Or energy. Or position. But you need to find a meter and sensor in your power range. Does “power” mean average power or peak power? Let’s look at this in more detail and how it affects your choice of a power meter. Laser Power.

2014 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.

Trade Shows

Photonics West
February 10-12, 2015
San Francisco, CA
Booth 1401

MD&M West
Anaheim, CA
February 10-12, 2015
Booth 472

International Laser Safety Conference
March 23-26, 2015
Albuquerque, NM
Booth 1151

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.

How to Get a 15% Discount

If you're an end user of our laser equipment, we'd like to know more about how you use it.

Can I use a PD300 photodiode sensor to measure the power of a scanned beam? Read the FAQ.

Can I buy a filter replacement for my PD300 sensor and replace it myself? Read the FAQ.

When replacing a power meter battery, should it be recalibrated? Read the FAQ.

What's New

Very Large Aperture Laser Sensor

The 1000W-BB-120 Thermal Sensor is a water-cooled thermopile detector that features a very large 120mm aperture for handling large beams and laser diode bars. The wide dynamic range measures powers from 1W to 1000W and energy from 2J to 600J. The broadband absorbers can measure a spectral range from 190nm to 20µm. The laser sensor provides a damage threshold of 6kW/cm² at full power and a 6s response time that is faster than all competitive models. Thermal Sensor.

Compact Pyroelectric Laser Sensor for Measuring Very High Energy, Peak Power Lasers

The F-PE80BF-DIF-C is a compact, fan-cooled, pyroelectric laser sensor that covers a wide range of wavelengths, from 0.19µm to 2.9nm. It is designed for measuring very high energy/peak power lasers, including Nd:YAG and harmonics. The sensor measures pulses with average powers to 200W, three times higher than other products on the market. It provides energy measurement down to 0.5mJ. An innovative BF coating and diffuser deliver the highest damage thresholds in the industry, to 50J/cm² at 2ms. Pyroelectric Sensor.

Provide us with 500 words and a few images. In exchange, we will give you a 15% discount on your Ophir-Spiricon laser measurement equipment. Here's a sample application article to get you started. We'll showcase your application in our ePulse newsletter and you'll get recognition by the industry for your commitment to providing high quality laser services. And you'll get the discount! E-mail kevin.kirkham@us.ophiropt.com

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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 R&D 100 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.

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