

ePulse: Laser Measurement News

The true measurement of laser performance



ePulse: Laser Measurement News June 2012

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

Understanding Dynamic Range: The Numbers Game

Dynamic Range is the ratio of the largest measurable signal to the smallest. But there is a fair amount of confusion caused by the reporting of dynamic range when it comes to laser beam profilers. Here we explain the terminology used in the discussion of this parameter. [Read the dynamic range tutorial](#).

Applications

Process Validation of Laser Welded Parts in Biomedical Apps

"What does beam profiling do for me?" "How can I use the data I get from a beam profile?" We recently met with a customer in the biomedical industry to discuss beam profiling as it applies to their laser welding processes. The challenge began with why weren't two identical laser systems producing the same number of acceptable parts. [Find out how beam profiling provided the answer](#).

Solar Cell Manufacturing Requires Critical Laser Scribing Process

The competitive nature of the manufacturing of solar cells is largely influenced by the zero defect approach of high-speed automation. To this end, YAG lasers have been called upon to provide the precise laser scribing of the panels. [See how they made it happen](#).

Business News

Making Waves in Recalibration and Repair

The Recalibration and Repair Department is dedicated to improving processes and procedures to provide quality service to Ophir's customers. Current initiatives include obtaining ISO 17025 international certification to signify competence in calibration laboratory techniques and certification documents. In addition, the company has reduced recalibration and repair lead time from 25 days to 3.1 days. [Find out more about Ophir-Spiricon Recalibration and Repair](#).

Video of the Month

Measuring Laser Focus Spot Size in an Industrial Medical Device Application

This step-by-step tutorial shows how to set up a camera-based beam profiling system on an industrial single-pulse laser welding system. Demonstrates how to simultaneously analyze a laser's focused spot, measure a laser's energy per pulse, and measure temporal pulse shape. [View the laser beam profiler video](#).



From the Blog

Beam Profiling, a Key for Solar Revolution

Many solar production lines use laser based methods to manufacture thin film silicon photovoltaic modules. In order to cut photovoltaic sheets precisely without overheating the photovoltaic material, it is necessary to use small diameter beams with high enough power density to cut smoothly and precisely. [Find out how they ensure uniform cuts](#).

2012 Catalogs: Power Meter & Beam Profiling

Download the 2012 Ophir-Spiricon Laser Measurement Catalogs today. Tutorials and products in [Power Meters](#) and [Beam Profiling](#).

Laser Puzzle

This month's Laser Puzzle is in **YOUR** hands. We're looking for puzzle submissions. Be creative and send us a brain teaser related to laser measurement, or, at a

Technical Tips

BeamScan Replacement Chart

Photon's NanoScan scanning slit profilers provide major performance enhancements while maintaining the ease-of-use and flexibility that customers have come to expect with its predecessor, the world-renowned BeamScan. NanoScan scanheads are available to measure CW and pulsed beams across the entire spectral range from UV to far infrared. For a limited time take advantage of a trade-in discount on upgrading to the new NanoScan; see your local sales representative for details. [Here is the current list of replacements for BeamScan models.](#)

Don't Damage Your Pyrocam III By Using the Wrong Power Supply

The Pyrocam III uses a +5VDC 2A rated universal power supply with a standard 5 mm barrel plug. It is possible to connect a higher VDC rated power supply, but don't. [Get the details here.](#)

Android App for Laser Power Measurement

The Quasar Reader turns your Android smartphone into a laser power meter. [Review the documentation and download today.](#)

Don't Damage Your Ophir Power Meter By Using the Wrong Power Supply

Ophir power meters use a 12 VDC power supply that supplies 500 mA. This power supply is reverse voltage to most US products, meaning the outside connection is positive (+) and the inside is negative (-). [Get the details here.](#)

FAQs

Beam Profiling

My Pyrocam III camera has laser burn spots on the detector. Can the detector be replaced or do I need to replace the whole camera? [Read the FAQ.](#)

My Photon NanoScan is due for calibration. How do I get an RMA to send it in? [Read the FAQ.](#)

Power/Energy Meters

Can I use a non-Ophir power supply with my Ophir equipment? [Read the FAQ.](#)

My laser wavelength is not showing up as a selectable wavelength when I use a "thermal" detector. I only see a range. Why? [Read the FAQ.](#)

What's New

NanoScan 2.0 Scanning Slit Profiler Adds Enhanced User Interface

Photon's NanoScan 2.0 is a NIST calibrated laser beam profiler. The system uses moving slits to measure beam sizes from microns to centimeters at beam powers from microwatts to kilowatts, with little to no attenuation. The latest version adds an enhanced GUI with support for the ribbon toolbar. Dockable and floatable windows plus concealable ribbon toolbars allow users to make the most of any size display, from small laptops to large, multi-monitor desktops. [Read more about NanoScan.](#)

minimum, related to photonics. Send in the puzzle and the answers.

All entries will receive a 4GB pen drive and the new Ophir Laser Measurement Poster. The grand prize winner (most creative puzzle) will receive a 16GB iPad. E-mail the puzzle to kevin.kirkham@us.ophiropt.com



Ophir Laser Measurement

Poster: dozens of reference algorithms on beam profiling, physical constants, conversions, and wavelengths for popular lasers and corresponding beam profiling cameras.

Here are the [answers to the last issue's puzzle](#). The winner was **Chad Buddenberg, Enginetics Aerospace**. "Ophir's ModeCheck beam analyzer is a great piece of equipment that allows us to check the laser beam profile for more than just a second or two. It allows us to check the beam profile for an extended period of time, which in turn replicates in reality how we actually use the laser. We were able to see the conditions of the beam and adjust accordingly to give us a better quality cut. We also use the High Power Water Cooled Thermal Sensors and Power Pucks; they allow us to check the laser power, again for an extended period of time. Thank you, Ophir." - Chad Buddenberg

Trade Shows

[MD&M Brazil](#)

June 26-27, 2012
Sao Paul, Brazil
Booth 815

[SPIE Optics + Photonics](#)

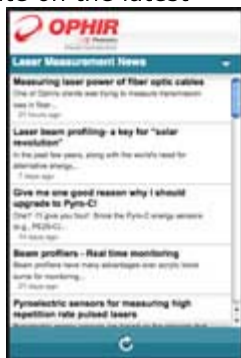
August 12-16, 2012
San Diego, CA
Booth 516

Fast Ship Program

Ophir-Spiricon's [Fast Ship program](#) provides one-day shipment of the most popular power/energy, beam profiling, and M2 laser

Mobile App - ePulse: Laser Measurement News

Now you can use your smartphone to keep up to date on the latest developments in laser analysis, beam diagnostics, and beam profiling. Ophir has launched a mobile app of its popular ePulse: Laser Measurement Newsletter. Each time you open the app, it automatically updates with the latest industry insight, new products, and technical tips on laser measurement and spectral analysis. Videos, white papers, tips, and more. Using your smartphone, browse to <http://www.mippin.com/ophir> and download the app.



RLI Training: Laser Safety Officer, Principles of Lasers

Rockwell Laser Industries is providing two laser training courses in July. **L-210 Hands-On Laser Safety Officer (LSO)** Training provides in-depth, hands-on training for the LSO. At the conclusion of this course the attendee will be able to fulfill the duties of the LSO as specified by ANSI Z136.1-2007, American National Standard for Safe Use of Lasers. **L-113 Principles of Lasers** is designed for those responsible for operating and maintaining laser systems. The course provides a solid intro to lasers and knowledge base for those planning to attend the LSO course. [RLI Laser Training Courses](#).

SME Webinar: Improving the Performance of Industrial Lasers

The SME Industrial Laser Community will hold a webinar on **August 23, 2012** at 2pm eastern. **Improving the Performance of Industrial Lasers** will discuss the latest power/energy measurement and beam profiling tools, and how these technologies should be applied to industrial lasers. The course will be taught by John McCauley, Midwest Regional Sales Manager at Ophir-Spiricon. [SME Laser Training Course](#).

measurement equipment.

Free Laser Measurement Equipment

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 of our latest innovative instruments, detectors, or 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.

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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 Ophir-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.

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