

# ePulse: Laser Measurement News

The true measurement of laser performance



## ePulse: Laser Measurement News September 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

#### Are You Safe at a Laser Light Show?

Whether at rock concerts, nightclubs, or theme parks, laser lighting produces uniquely colorful and vivid effects. But assessing laser exposure in entertainment applications is a challenge. Both the beam emission and the environment pose obstacles. Find out how Ophir's BC20 detector is used to measure live effects and ensure safety. [Laser Light Show](#).

### Applications

#### Industrial Laser Marking

Laser material processing is the largest non-diode commercial application for industrial lasers. Review the latest developments in the "Laser Marking Technical Digest" from *Industrial Laser Solutions* magazine. Topics include "smart additives" for enhancing plastics, 2D matrix codes, medical technology, and choosing the best laser markers. [Laser Marking Technical Digest](#).

#### New Laser Technology Inspects Complex Aircraft Structures

Many of today's aircraft are made of new materials that require sophisticated inspection and repair procedures. Older inspection technologies are often incapable of testing the integrity of composite structures. iPhoton has developed a new, laser-based ultrasonic technology that fills the void and inspects complex, polymer-matrix composites. [Inspecting Aircraft Structures](#).

### Business News

#### Ophir Photonics Wins 2012 R&D 100 Award with BeamTrack™

The R&D 100 Awards recognize the 100 most technologically significant products introduced over the last year. This year's winners include Ophir Photonics' BeamTrack™ Laser Power/Position/Size Sensors, a unique series of thermal detectors that combine multiple functions in one device: power, energy, beam position, and beam size. [R&D 100 Awards](#).

#### Customers Speak Out About Repair and Recalibration

### Video of the Month

#### Power Meter How-To's: Wavelength, Spots, Broadband Sources

Practical tips on how to work with Ophir power meters.

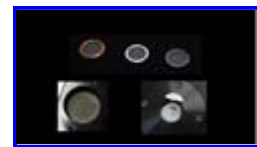
#### How to Set Your Power Meter's Wavelength

How to set the correct wavelength for your measurement, even when it's not one of the default wavelengths offered by the meter. [View the video](#).



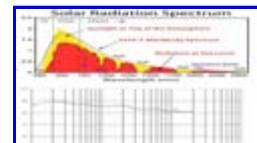
#### How to Determine if a Spot Means Damage

Sometimes a laser beam can damage a sensor's absorber surface. But in some cases, it's unclear whether a visible mark is damage or not. How to decide whether a sensor needs servicing. [View the video](#).



#### How to Measure Broadband Sources

How to use Ophir sensors and meters to measure the power or energy of broadband light sources, from LEDs to flash lamps to solar radiation. [View the video](#).



### Laser Puzzle

[Try your hand at this month's Laser Puzzle](#). All entries will

The Recalibration and Repair Department strives to give customers the best recalibration and repair experience - accuracy and minimal downtime. Customers like SIMCO tell us, "Ophir is one of the best manufacturers to work with. The quality of work and customer service far exceed expectations." [Repair and Recalibration](#).

## Technical Tips

### Care of NanoScan Apertures

NanoScan slit and pinhole aperture substrates are very thin and extremely fragile. Physical contact will likely damage them. Find out how to prevent damage and treat the slits with care. [NanoScan Apertures](#).

### Lens Calculator for ModeScan 1780

To get the best results from the ModeScan 1780, it is important to understand which lens to use and where to locate it for particular parameters of the laser under test. The ModeScan 1780 Calculator is a spreadsheet that computes laser propagation parameters in the laser space and the test space. [ModeScan 1780 Calculator](#).

### Power Meter Repair and Recalibration

During the calibration process, occasionally the settings of the instrument are set back to the default. When sending your power meter for repair or recalibration, note the settings on the meter and sensor before you ship. This will save time when reintegrating the device into your measurement system. [Power Meter Repair](#).

## FAQs

### Beam Profiling

Why won't the Pyrocam III run when it is selected in BeamGage? [Read the FAQ](#).

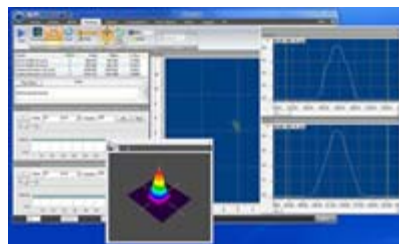
### Power/Energy Meters

How is the power meter sensor calibrated for wavelengths other than the specific wavelengths used for calibration? [Read the FAQ](#).

## What's New

### NanoScan™ v2 Enhanced User Interface for Scanning Slit Profiler

NanoScan is a NIST-calibrated laser beam profiler ideal for profiling CO2 beams in material processing. The new GUI supports the Microsoft® Windows ribbon toolbar, including dockable and floatable windows. Support for both the 64-bit and 32-bit versions of Windows provides more system configuration options and faster processing speed. NanoScan-Pro includes an integrated automation interface. [NanoScan v2](#).



### RLI Training: Measurements for Laser Safety

Rockwell Laser Industries is providing **Measurements for Laser Safety** training October 23-25, 2012, in Cincinnati, OH. This course teaches how to perform laser safety measurements and covers such topics as pulse duration, diameter of focused beams, near field and far field measurements, and applicable standards. Also includes hands-on workshop exercises. [RLI Laser Training Course](#).

## Fast Ship Program

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

The winner of last issue's puzzle was **Blaz Kmetec, PhD, R&D Division Head at LPKF Laser & Elektronika d.o.o.,**. "The company develops and manufactures tools, mostly laser based, for micromachining, solar panel scribing, and structuring of various electronic parts. I am currently studying the effect of laser parameters on the focal properties of the laser beam to optimize the laser output for certain laser machining or laser structuring applications. To acquire beam properties, we always use Ophir and Spiricon equipment: [SP620U](#) profiler (with BeamGage) that provides all beam characteristics, and [50\(150\)A-PPS](#) power meter (with [StarLab](#)) which is the only device that measures laser power but does not exhibit a strong dependency of measured power vs. beam size that I know of. With the SP620U profiler, we always succeeded to detect thermal lensing of optical components irradiated by a laser beam no matter how weak the effect. We would not be able to avoid high power laser mirrors, beam splitters and polarizers prone to thermal lensing if we did not have such a reliable and adaptable tool to detect changes in laser beam profile in real time. We use the same Ophir and Spiricon equipment for inspection during laser production, to monitor laser output by continuous logging of profiler results before attesting to the laser reliability and suitability for the customer." - Blaz Kmetec

## From the Blog

### How to Measure Pulsed Laser Beams with a Photodiode Sensor

Each type of laser power sensor has its own area of relevance. The informed user can make the most of a sensor by knowing when and how to use it. Photodiodes, for instance, are excellent for lower power lasers. [Pulsed Laser Beams](#).

## 2012 Catalogs: Power Meter & Beam Profiling

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



## Free Laser Measurement Equipment

[Many products available next business day in US](#)

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](mailto: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.

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

## Trade Shows

[International Congress on Applications of Lasers & Electro-Optics](#)  
September 23-27, 2012  
Anaheim, CA

[IEEE International Semiconductor Laser Conference](#)  
October 7-10, 2012  
San Diego, CA

[Lasers for Manufacturing Event \(LME\)](#)  
October 23-24, 2012  
Schaumburg, IL

[MD&M Minneapolis](#)  
October 31-November 1, 2012  
Minneapolis, MN

[FABTECH](#)  
November 12-14, 2012  
Las Vegas, NV

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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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