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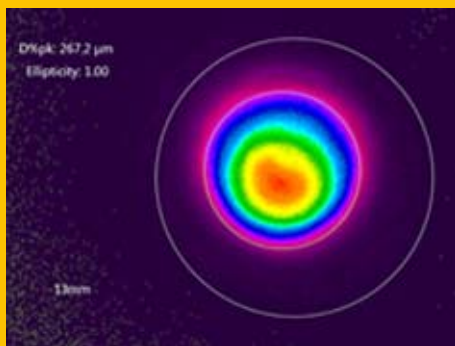
ePulse: Laser Measurement News March 2017

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](#).*

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Features



Assuring Correct Metallurgy in Direct Laser Melting

By Gary Wagner, GM, Ophir (U.S.)

The metallurgy must be consistent to create strong, uniform structures using laser-based additive manufacturing processes that meet flyable DOD standards or FDA requirements. Consistency also requires a laser beam of known dimension, power density, and focal spot location.

Additive Manufacturing

Laser Parameters

Diameter (mm)	<input type="text"/>
Max Power (avg.)	<input type="text"/> W
Max Energy	<input type="text"/> J
Repetition Rate	<input type="text"/> Hz
Pulse Width	<input type="text"/> s

Laser Power and Energy Tools for Beam Profiling

By Chuck Reagan, Sales Engineer, Ophir

There are a number of valuable tools on the Ophir web site that help lasers users determine the appropriate sensors for their laser beams. These tools also help compute power or energy density, peak and average power, laser fluence, sensor damage limits, safety, and focal spot size.

Laser Profiling

Applications



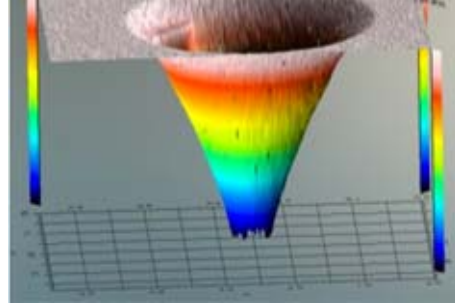


Testing High Volume Luminaire Builds

By Dick Rieley, Sales Manager, Mid-Atlantic Region, Ophir

Traditional QC testing of medium- and large-size luminaires uses cumbersome, six- to ten-foot integrating spheres and testing processes that can only be accomplished on a sampling basis. A new, innovative instrument design now allows complete measurements to be completed in seconds on the production floor.

FluxGage



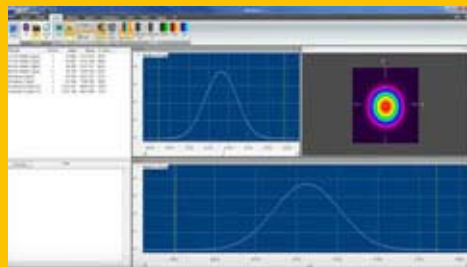
Optical Measurement of Narrow Holes

By Roei Yiftah, Industrial Product Manager; Moshe Danziger, Application Engineer, and Shmulik Barzilay, International Sales Manager, Optimet

Measuring deep and narrow holes with an aspect ratio of 1:5 has been a difficult and largely unsolved problem. It's even more problematic if both the bottom surface and steep-angled side walls need to be measured.

Measuring Narrow Holes

Videos of the Month



NanoScan Slit-Based Beam Profiler

It's easy to set up and take a beam measurement with NanoScan, the scanning slit beam profiling system that can measure a laser beam directly, with very high pointing accuracy, often without attenuation optics.

VIDEO: NanoScan



Luminaire Measurement

FluxGage is a revolutionary, compact LED luminaire measurement system that measures flux, color, and flicker, important quantities for evaluating the performance of LED-based products. Designed for R&D, incoming inspection, and quality control of parts.

VIDEO: FluxGage

Business - How to Innovate

GEMBA Academy

Geoff Cox, Production Manager at Ophir, talks about innovation with GEMBA Academy. Find out how he and his team generate, vet, and implement new ideas, and why they don't have a rewards system.

[Podcast: How to Innovate](#)



New at Photonics West



Next Generation Automated M² Measurement

BeamSquared is a compact, fully automated tool that measures the quality of a laser beam to optimize performance. Measure propagation characteristics of continuous wave and pulsed laser systems in under one minute.

Includes M² software, high accuracy camera, and optical train.

[Video: BeamSquared](#)



Integrating Spheres for Divergent and Collimated Beams

Ophir's new integrating sphere and photodiode sensor systems are designed for measuring the optical power of divergent, narrowband light sources, such as laser diodes and LEDs. Precisely calibrated spheres measure powers from 20nW to 30W.

[Integrating Spheres](#)

FAQs

Beam Profiling

- What is new or different in the latest BeamGage software release?

[FAQ](#)

- With BeamWatch, how can I get readings void of comets or streaks in my

image?

FAQ

- BeamGage® is supported with Automation via .Net components. Do you have a listing of the BeamGage automation class hierarchy?

FAQ

Power/Energy Meters

- Among the Integrating Sphere accessories offered, there are Port Plugs (white) and Port Covers (black). What's the difference?

FAQ

- Can the Ophir meter model AN/2 be repaired and calibrated?

FAQ

- How can I get a replacement power supply, battery, or interface cable for my Ophir power meter?

FAQ

- Is there an easy way to remotely initiate logging on-board a meter, such as StarLab?

FAQ

Social Media



What is an ND Filter? How You Should (and Shouldn't) Use It

A Neutral Density filter is your CCD laser beam profiler's first line of defense. There is little or no reflection, so most of the laser is absorbed and some of it is transmitted as an attenuated form of the original beam.

ND Filters

Laser Puzzle

Try your hand at this month's Laser Puzzle. All submissions will receive an 8GB USB pen drive. The grand prize winner will receive a 16GB iPad. E-mail answers to sales@us.ophiropt.com. Need a hint? E-mail john.mceldowney@us.ophiropt.com.

Here are the answers to the last issue's puzzle. The winner of last issue's puzzle was **Caleb Trevithick**, Battelle. "We frequently need to characterize large numbers of laser diodes. The first time I set out, we had



a NanoScan2 available, but nobody knew how to use it. No problem. With the single device and the included software, I was able to easily measure power, profile the beam, and find the beam waist. Using the logging feature, I was then able to export the data to an Excel file, and all the necessary data was at my fingertips. Having the NanoScan2 has truly been a valuable lab upgrade, and we've only found more ways to use it, such as in laser development. We're very grateful to have it."

New 2017 Catalogs: Power Meters & Beam Profiling



Download the new 2017 Ophir Laser Measurement Catalogs today. Tutorials and product specifications for **Power Meters** and **Beam Profilers**. **Beam Profiling Magalog** includes application notes, technology articles, and reference algorithms.

Trade Shows

- **Laser World of Photonics China**, Mar 14-16, 2017, Shanghai, China
- **CREOL Affiliates Day**, Mar 17, 2017, CREOL, Orlando, FL
- **AMUG**, Mar 19-23, 2017, Chicago, IL
- **ILSC (International Laser Safety Conference)**, Mar 20-23, 2017, Atlanta, GA
- **OSA OFC/NFOEC**, Mar 21-23, 2017, Los Angeles, CA
- **German THz Conference 2017**, Mar 29-31, 2017, Bochum, Germany
- **OTST 2017**, Apr 2-7, 2017, Dresden, Germany
- **Photonix 2017**, Apr 5-7, 2017, Tokyo, Japan
- **Developments in Optics and Communications 2017**, Apr 6-7, 2017, Riga, Latvia
- **SPIE Defense & Security**, Apr 9-13, 2017, Anaheim, CA
- **LED Taiwan**, Apr 12-15, 2017, Taipei, Taiwan
- **LASER EXPO 2017**, Apr 19-21, 2017, Pacifico Yokohama, Japan
- **UKP-Workshop**, Apr 26-27, 2017, Aachen, Germany

Fast Ship Program

Ophir's **Fast Ship program** provides one-day shipment of the most popular power/energy, beam profiling, and M² 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. Provide us with 500 words and a few images. In exchange, we will give you a 15% discount on your Ophir 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.

About Ophir

With over 40 years of experience, Ophir 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 is **ISO/IEC 17025:2005** accredited for calibration of laser measurement instruments. 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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