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ePulse: Laser Measurement News

April 2015

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.

Feature

Helping Photonics Markets See the Light
By John McCauley, Product Specialist, Ophir-Spiricon
With 2015 being the International Year of Light, it makes you wonder if Einstein, who first theorized about stimulated emission of radiation in 1917, or Townes, who first worked with "MASER's" in the late 1950's, had any idea where this ever-evolving technology would take us. From life-saving stints to energy-saving photovoltaic cells to weapons and defense, there seems to be no limit to where light technologies will take us in the future. Year of Light.

Tutorials

Measuring Very Low Power IR Lasers
What if you need to measure very low power beams, on the order of nanowatts, but with wavelengths in the mid or far IR region. This leaves you in a quandary: photodiode-based sensor or thermal sensor? Low Power IR Lasers.

M-Squared: The KPI of Lasers
Similar to managing a business, there are many ways to manage your laser and many different values you can measure. The question is which measurements optimize laser efficiency: power consumed, time to process parts? If you're looking for a KPI (Key Performance Indicator), a good place to start is measuring power and M-Squared (M^2). M-Squared.

Apples to Apples: Which Camera Technologies Work Best for Beam Profiling Applications, Part 3
By Greg Slobodzian, Director of Engineering-Retired, Ophir-Spiricon
This white paper takes an in-depth look at the evolution of today's commercial camera technologies and their use in measuring laser beams. Here we will investigate the beam aperture selection process using a state-of-the-art CCD camera connected via a USB2 serial port. Laser Beam Width, Pt 3.

Applications

Videos of the Month

UltraCal Tutorial
UltraCal eliminates background noise to make beam width measurements the most accurate in the industry. Video: UltraCal.

Measuring LED Irradiance and Dosage
Does your application involve irradiating a target surface with an LED, such as UV curing of adhesives? Ophir's new PD300RM sensor family measures irradiance and dosage for UV and Visible LEDs. Video: PD300RM.

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 john.mccauley@us.ophiropt.com

Here are the answers to the last issue's puzzle. The winner of last issue's puzzle was **Brian Olmsted, VP, Senior Scientist, LaserMax.** "Here at LaserMax, we manufacture lasers that emit in the visible, near, shortwave, midwave and long-wave infrared. We have three Ophir Nova II power meters along with a NanoScan NS-PYRO and a

Case Study: Solving a Difficult Military Beam Alignment Task
By Dick Rieley, East Coast Regional Sales Manager, Ophir Photonics Group
The US military often serves as a proving ground for emerging technologies. One example is the use of a laser in a periscope of a nuclear-powered submarine. Laser quality and alignment are crucial. So how is the accuracy of the laser ensured? Beam Alignment.

Webinar

Laser Measurements Critical to Successful Additive Manufacturing Processes
By John McCauley, Product Specialist, Ophir-Spiricon
Maximizing the stability of the variables going into any manufacturing process ensures consistency and high quality. And when a laser is used during additive manufacturing processes, knowing how the laser interacts with the material is crucial to the success of the parts being built up. In this *Laser Focus World* webcast, John McCauley, Product Specialist, Ophir Photonics Group, discusses what variables the laser introduces, how they can be monitored and controlled, and more. On-Demand Webcast: Additive Manufacturing.

Technical Tips

Beam Profiling

How the Beam Partition Feature Works in BeamGage Pro
BeamGage® Professional partitions with multiple beams on one display with individual results. The Partition feature allows subdividing the camera imager into separate regions, called partitions, and which can then compute separate beam results within each partition. Read the Tech Tip.

Power/Energy Meters

Accessing Vega Log Files with StarLab
Occasionally, it's not possible to measure a laser system directly with StarLab. The Vega handheld meter can be interfaced to upload the files. Here's how. Read the Tech Tip.

FAQs

Power/Energy Meters
Can I use a thermal BB (broadband) type sensor to measure an IPL source? Read the FAQ.

What is the BeamTrack PPS sensor beam size measurement method and accuracy? Read the FAQ.

When using a BeamTrack sensor, is the response time for Position and Size measurements the same as for Power measurements? Read the FAQ.

Beam Profiling
Why can't I use an Ophir-Spiricon GigE device on a laptop that is on a docking station? Read the FAQ.

How can I get closer to the front of the NanoScan V2 since it has a new C-mount adapter ring? Read the FAQ.

What's New

Spiricon SP503U CCD Camera beam profiler. We have found the Ophir/Spiricon-Photon equipment and services to be very useful and reliable for our work across all of the wavelength bands. In addition to beam profiling, we measure the beam divergence using a transforming lens." -- Brian Olmsted.

From the Blog

How to Measure LED Power...Accurately
LEDs are replacing more traditional light sources as efficient, durable, cost-effective alternatives. But should we measure them the same way? LED Power.

2015 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

Metalloobrabotka 2015
May 25-29, 2015
Moscow, Russia

FMA's Advanced Laser Application Workshop (ALAW)
June 1-3, 2015
Detroit, MI

MD&M East
June 9-11, 2015
New York, NY
Booth 2349

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.

Photonics West: What You Missed
If you weren't able to make it to San Francisco and Photonics West this February, Ophir's John McCauley walks you through what you missed. Video: Photonics West.

Beam Profiling System Adds High Speed, High Res Camera for Large Beams
The BeamGage® family of laser beam profiling systems has added the LT665 USB 3.0 Large Array Beam Profiling Camera. Designed for applications where high speed, high sensitivity, and high resolution are critical, the camera features a fast USB 3.0 interface that delivers 6 megapixels (MP) at up to 27 frames per second (fps). The large, 1-inch format provides an active area with 4.5µm square pixels (2752 x 2192 array), far better resolution than competing CMOS cameras. BeamGage LT665 Camera.

Light Measurement System for Narrowband LED and Laser Sources

The PD300RM Irradiance and Energy Density Sensor is a calibrated irradiance and dosage sensor that measures narrowband LED and laser sources between 200 and 850nm. The sensor automatically adjusts to provide correct power and energy measurements based on the specific wavelength designated by the user. This delivers a more accurate reading than traditional radiometers. The PD300RM also incorporates a cosine corrected quartz glass diffuser, suitable for UV radiation. PD300RM 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 company, 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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