

ePulse: Laser Measurement News

The true measurement of laser performance



ePulse: Laser Measurement News

November/December 2019

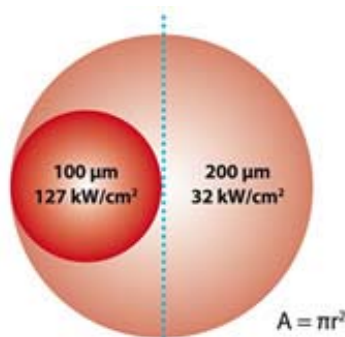
Welcome to **ePulse: Laser Measurement News**, a review of new developments in laser beam measurements, beam diagnostics, and beam profiling. Each issue contains industry news, product information, and technical tips to help you solve challenging laser measurement and spectral analysis requirements. Please forward to interested colleagues or have them [subscribe](#).

Feature

Laser Measurements in Materials Processing: How and When They Absolutely, Positively Must Be Made

By Kevin Kirkham and Christian Dini, Ophir

Laser power and beam size can change over time, which affects the way that the laser light interacts with the material being processed. When the power density changes, the laser system is no longer processing the material as it was designed. Once the laser system is ready to be applied, there are five times in the lifecycle of a laser system when the collection and application of laser performance measurement data are critical to the expected outcome of the process. [Materials Processing](#).



Applications

Never Work Outside the Specification...Never?

By Nicolas Meunier, Business Development Manager, High-Power, Ophir

Does it make sense to use a laser measurement system with a laser that doesn't fit the spec of the measurement device? Normally, we would answer an emphatic "no." Working with our customers, we discovered things are different with BeamWatch Integrated. The system has now been successfully used with Gaussian beam profiles, tophat beams, and USP lasers. Here's what we found. [BeamWatch Integrated](#).



Machine Vision Applications in Laser Measurement Systems

For many years now machine vision has been used in laser measurement applications. The camera's ability to see a laser beam is directly affected by its sensitivity in certain regions of the spectrum. [Machine Vision](#).

Videos of the Month

High Attenuation Laser Beam Splitter

The LBS-300-HP-NIR beam splitter allows camera-based beam profiling for high power lasers. This patent-pending device features enabling technology that, for the first time ever, allows camera-based beam profiling for high power lasers.

[Video: LBS-300-HP-NIR](#).



Customized OEM Sensors with Ethernet Interface

Do you need to integrate a customized sensor into your system? Learn about Ophir's new "UAE" family of sensors with an Ethernet interface, for OEM applications. [Video: Customized OEM Sensors](#).



Laser Puzzle

[Try your hand at this month's Laser Puzzle](#). This month we're jumping into a visualization challenge. Can you cut it?

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@enigmaturge.com.

[Here's the answer to last issue's puzzle](#). Congratulations to the

Measuring Color Uniformity

The color uniformity of light generated by LED luminaires plays a major role in many lighting applications. This makes it an important parameter to measure in both the R&D stage and during the quality assurance process. [Color Uniformity](#).



Webinars

Do You Know If the Laser in Your AM System Is in Spec?

By John McCauley, Key Accounts Manager, Ophir

Date: December 10, 2019 at 1:00pm EDT / 5:00pm GMT

Laser-based additive manufacturing brings many benefits to manufacturing, including reduced tooling costs, easier testing of complex geometries, and faster time to market. The challenge is that the performance of your laser will change over time. Understanding your laser's behavior is critical to successfully applying it to the AM process. In this webinar we will discuss laser system performance changes and how to understand them. Hosted by *The Additive Report*. [Register here](#).

Research News

On the Effect of Thermal Lensing During Selective Laser Melting

Multi KW single mode lasers are increasingly being used in Selective Laser Melting (SLM), typically with the aim of improving productivity. This work discusses the characteristics of a thermally induced focal shift supplemented by a method for the compensation of this effect. An Ophir thermophile laser power meter was used to measure and dump the generated power output. The laser caustic measurements were carried out with an Ophir BeamWatch® non-contact beam profiler. [Selective Laser Melting](#).

High Power Broadband Orange Laser by Double-Pass Sum-Frequency Mixing in MgO:PPLN

A Watt-level broadband orange laser is demonstrated by use of double-pass sum frequency mixing in a step-chirped MgO-doped periodically poled lithium niobate (MgO:PPLN) crystal. This presents an attractive approach for generating high power and broadband short-wavelength lasers from a single crystal, which may extend the potential biomedical and spectroscopic applications. The output power was measured with the Ophir Vega power meter. Beam quality and stability were measured using the Ophir BeamGage laser beam analyzer. The output power stability of the orange light was recorded using Ophir StarLab. [Broadband Orange Laser](#).

Defectoscopy of ZnGeP2 Single Crystals Using a Strontium Vapour Laser

A modified method of optical defectoscopy of ZnGeP2 single crystal plates using a strontium vapour laser ($\lambda = 1.03$ and 1.09 mm) is proposed based on shadow imaging of internal defects in plates cut parallel to the (100) plane. We study the defects by recording and analyzing IR images obtained in a transmission mode. The IR images were formed using a strontium vapour laser and analyzed using an Ophir BeamCube laser beam analyzer. [Defectoscopy](#).

What's New

winner of last issue's puzzle - **Eugene Guay, Physics Teacher, Lower Merion High School**. Eugene uses a number of Ophir sensors in his physics classes when discussing photonics. He is a strong advocate of Ophir and appreciates the technical support and assistance he receives when planning his classes.

Social Media: Blog

Laser Peak Power Calculator

Now you can easily choose the right optical elements and suitable sensors for your laser system with the Ophir Laser Peak Power Calculator. Here's how it works. [Laser Peak Power Calculator](#).

Highly Versatile Laser Power Meter

The Centauri power meter provides the best of two world's - full-featured software functions; a large, 7" touch screen, and portability. Plus it works with all of Ophir's laser power meters and PC interfaces. Find out more. [Laser Power Meter](#).

Catalogs: Power Meters & Beam Profiling

Download the 2019 Ophir Laser Measurement Catalogs today. Tutorials and product specifications for [Power Meters](#) and [Beam Profiling](#). [Beam Profiling Magalog](#) includes application notes, technology articles, and reference algorithms.

Trade Shows

[Formnext](#)

November 19-22, 2019
Frankfurt, Germany

[Photonix 2019](#)

December 4-6, 2019
Makuhari Messe, Japan

[Photonics West](#)

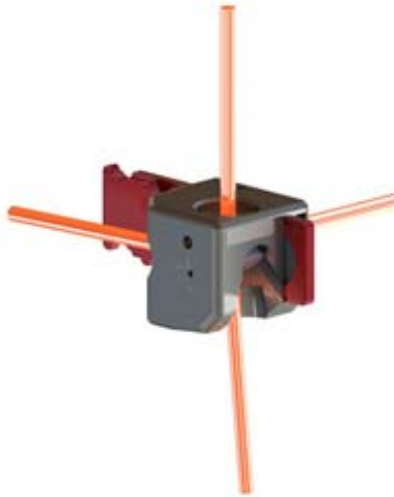
February 4-6, 2020
San Francisco, CA

[EALA - European Automotive Laser Applications](#)

February 11-12, 2020
Bad Neuenahr, Germany

Compact Laser Beam Splitter for Extremely High Attenuation to 15MW/cm²

The Ophir® LBS-300HP-NIR Beam Splitter for high power NIR lasers is enabling technology that, for the first time ever, allows camera-based beam profiling for high power lasers. It is a compact device that can deliver extremely high power density attenuation, up to 15MW/cm² at 5kW. It reflects less than 0.0001% of the incident NIR beam while transmitting 99.9999%. This enables measurement of beam shape, focal spot, beam waist, and overall power. Ideal for online beam profiling in high power military lasers and Nd:YAG applications in industrial materials processing and R&D. [Beam Splitter](#).



FAQs

Power Meters

To help ensure correct alignment of my beam in my 120K-W sensor, can I insert the laser head (the QBH connector) into the opening of the 120K-W "beam dump" cylinder? [Read the FAQ](#).

I'm seeing fluctuations in the power reading from my water-cooled sensor. How can I know whether it's coming from the sensor or not? [Read the FAQ](#).

Why not measure the fiber Laser in an open space? Why do I need the QBH adapter? [Read the FAQ](#).

Beam Profiling

How do you get close to the CCD camera's published full-resolution frame rate? [Read the FAQ](#).

How can you get pointing stability data from the NanoScan when referencing the spatial displacement from a central reference location? [Read the FAQ](#).

[MD&M West/Medical Expo](#)

February 11-13, 2020
Anaheim, CA

[FMA Annual Meeting](#)

March 5, 2020
San Antonio, TX

[Light & Building 2020](#)

March 8-13, 2020
Frankfurt, Germany

[DPG-Fruhjahrstagung \(SAMOP\) 2020](#)

March 10-12, 2020
Hannover, Germany

[OFC](#)

March 10-12, 2020
San Diego, CA

[LEF 2020](#)

March 10-11, 2020
Nurnber, Germany

[AMUG](#)

March 22-26, 2020
Chicago, IL

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.

Follow Us Online

Social Media



Blog

[The Ophir Laser Measurement Group](#)

Web

www.ophiropt.com/photonics

About Ophir

Ophir is a brand within the MKS Instruments Light & Motion division. The Ophir product portfolio consists of laser and LED measurement products, including laser power and energy meters, laser beam profilers measuring femto-watt to hundred-kilowatt lasers, high-performance IR and visible optical elements, IR thermal imaging lenses and zoom lenses for defense and commercial applications, and OEM and replacement high-quality optics and sub-assemblies for CO₂ and high-power fiber laser material processing applications. Dedicated to continuous innovation in laser measurement, the product portfolio includes the **R&D 100** award-winning **BeamTrack** power/position/size meters and Spiricon **UltraCal™**, the baseline correction algorithm that helped establish the ISO 11146-3 standard for beam measurement accuracy. The company is **ISO/IEC 17025:2005** accredited for calibration of laser measurement instruments. The company's modular, customizable solutions serve semiconductor, industrial, life and health sciences, research, and defense industries throughout the world. An ISO 9001:2008 Registered Company.

You are receiving this newsletter because you have previously expressed an interest in Ophir. To let a colleague know about *ePulse: Laser Measurement News*, forward this e-mail to them or have them [subscribe](#). If you do not want to receive *ePulse: Laser Measurement News*, complete our [online unsubscribe request](#).

© 2019, Ophir
3050 North 300 West, North Logan, UT 84341
Tel: +1 435-753-3729
www.ophiropt.com/phonics