

MKS Instruments Announces Ophir® Wide Beam Imager for Measuring Large and Divergent Beams of SWIR Wavelengths

Andover, MA – November 17, 2020 – [MKS Instruments, Inc.](http://www.mksinst.com) (NASDAQ: MKSI), a global provider of technologies that enable advanced processes and improve productivity, has announced the **Ophir® Wide Beam Imager SWIR (WB-I SWIR)**, a compact, calibrated optical system for measuring the size and power distribution of large and divergent beams of VCSELs and LEDs in the SWIR range (900 - 1700nm). Current methods of profiling wide and divergent SWIR wavelength beams provide inaccurate results due to the high angle dependence of the sensor, or require bulky and expensive laboratory equipment that is not suitable for field operation or production environments. The WB-I SWIR profiler, when combined with Ophir BeamGage software and an InGaAs camera, is capable of imaging any beam shape (round, line, square, or doughnut) that is too large for a camera sensor. It features a 45mm diameter aperture and can accurately measure beams with an angle of incidence up to 70 degrees (compare with 15 degrees for standard beam profilers). Beams are captured on a translucent diffusive screen and then re-imaged to produce a complete and accurate mapping of the light's intensity distribution. The WB-I SWIR profiler is designed for use with camera-based beam profiling systems in such areas as eye-safe applications using IR VCSELs or diodes, automotive LIDAR, facial and gesture recognition, and remote sensing.

"Large or diverging beams present special challenges because the apertures of conventional beam profilers are too small to collect the entire



spot,” said Reuven Silverman, General Manager Ophir Photonics. "In addition, the quantum efficiency of traditional beam detectors is highly affected by the angle of incidence. The quantum efficiency recedes dramatically with angles of incidence as high as 20 degrees, causing significant measurement errors. The WB-I SWIR is a calibrated device that can handle beam angles up to 70 degrees. It captures the beam and images its power distribution onto the camera with an accuracy of better than $\pm 5\%$."

Similar to its sister product, the **WB-I** device, which measures UV, VIS, and NIR beams in the 350 – 1100nm range, the **WB-I SWIR** profiler is a compact device that is quick to install, easy-to-use, and dust-proof. Unlike low accuracy, do-it-yourself devices or slow and expensive goniometers, the WB-I SWIR produces images with reduced speckle and high accuracy measurements of power distribution.

The **WB-I SWIR** profiler is supported by **Ophir BeamGage Professional** software, the industry's most advanced beam analysis system. BeamGage is based on **Ultracal**, Ophir's patented, baseline correction algorithm that helped establish the ISO 11146-3 standard for beam measurement accuracy. BeamGage software includes all the calculations needed to make accurate, ISO approved laser beam measurements, including total power, peak fluence, ellipticity, goodness of fit, and more. The software provides advanced image processing features, NIST-traceable power measurements, trend charting, data logging, pass/fail production testing, and multilingual support for English, Japanese, and Chinese. Advanced features include partitioning of the camera output for separate analysis of multiple laser beams from sources such as fiber, a .NET interface for full remote control when integrating beam analysis into an automated application, and camera sharing.

When used together, the **WB-I SWIR** profiler, **BeamGage** software, and the **Ophir SP1203** InGaAs camera can provide real-time beam shape analysis and visualization. That means changes of the beam shape due to different applied currents can easily be detected.

Availability

The **Ophir WB-I SWIR** profiler is available now.

DATA SHEET: <https://tinyurl.com/6ha5kd6d>

About MKS Instruments

MKS Instruments, Inc. (NASDAQ: MKSI), is a global provider of instruments, systems, subsystems and process control solutions that measure, monitor, deliver, analyze, power and control critical parameters of advanced manufacturing processes to improve process

performance and productivity for our customers. Our products are derived from our core competencies in pressure measurement and control, flow measurement and control, gas and vapor delivery, gas composition analysis, electronic control technology, reactive gas generation and delivery, power generation and delivery, vacuum technology, temperature sensing, lasers, photonics, optics, precision motion control, vibration control and laser-based manufacturing systems solutions. We also provide services relating to the maintenance and repair of our products, installation services and training. Our primary served markets include semiconductor, industrial technologies, life and health sciences, research and defense. Additional information can be found at www.mksinst.com.

About the Ophir Brand

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, OEM and replacement high-quality optics and sub-assemblies for CO₂ and high-power fiber laser material processing applications. Ophir products enhance our customers' capabilities and productivity in the semiconductor, industrial technologies, life and health sciences, research and defense markets. For more information, visit www.ophiropt.com.

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