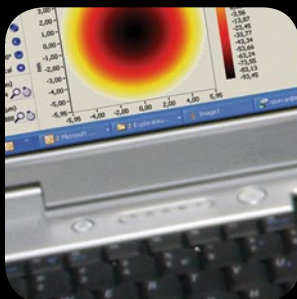
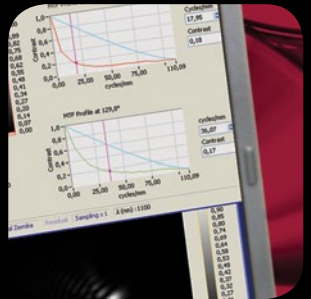
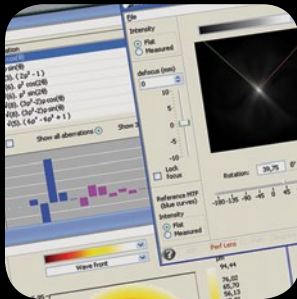
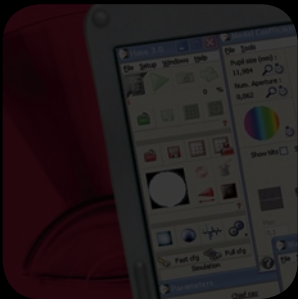




Imagine Optic's HASOv3 wavefront analysis software is the most advanced, full-featured product of its kind. With HASOv3, you can easily:

- Perform both zonal and modal wavefront reconstruction
- View the spot image & raw camera data
- Install add-ons to calculate the PSF, MTF, Strehl ratio & M^2





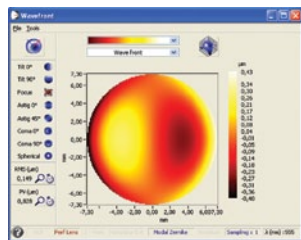
Get the most out of your HASO wavefront sensor

Specially designed for our HASO wavefront sensors, HASOv3 is the most advanced wavefront analysis software available. From beginners to experts, every user can quickly benefit from its interface which divides functions into ergonomic palettes that make it faster and easier for you to find and use the information you need.

Behind the ergonomic interface, powerful functionalities unique to the HASO line await you. Using only one program, you can measure phase and intensity simultaneously and independently, reconstruct the wavefront by either zonal or modal methods, examine the spot diagram in detail, or use the PSF* and Strehl ratio to get detailed information on beam focusing. The ensemble of the information provided about the wavefront enables you to understand why other criteria are not performing as expected, and can help you track down problems faster by locating their source.

Each user can customize the HASOv3 screen layout, report formats and data files to include, exclude or highlight the information he or she wants. Even more, HASOv3 can be controlled remotely via Ethernet or WiFi connections on computers running Windows XP or 7 (version B for x64).

To speak with a sales engineer, learn more or to find a distributor in your region, please visit www.imagine-optic.com/find.

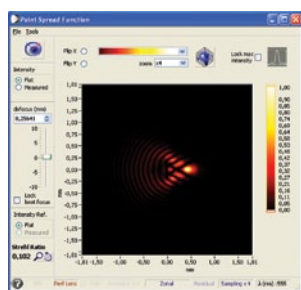


Zonal & modal wavefront reconstruction

Wavefront reconstruction is performed by using the information on local slopes acquired using our patented Shack-Hartmann technology. With HASOv3, you can choose to reconstruct the wavefront by either zonal or modal methods and represent it using known polynomials - Zernike for circular and Legendre for rectangular pupils.



Zonal reconstruction allows you to visualize the wavefront using the highest spatial resolution that the sensor can provide. Modal reconstruction allows for a decomposition of the wavefront on an orthogonal basis, allowing you to understand the aberrations present in the optical system.



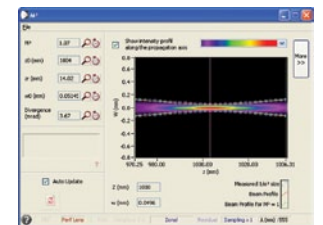
PSF* (Point Spread Function) & Strehl ratio*

The PSF, or far field, is the spatial dispersion of the energy in the laser's focal plane. It is calculated by combining the phase and intensity measurements on the sensor's surface via propagation of the electromagnetic field in accordance with the law of free space propagation.

The PSF module also provides the Strehl ratio, allowing you to compare the actual maximum intensity on the focal plane to a perfect theoretical distribution of intensity without the presence of aberrations, avoiding the need for a beam profiler.

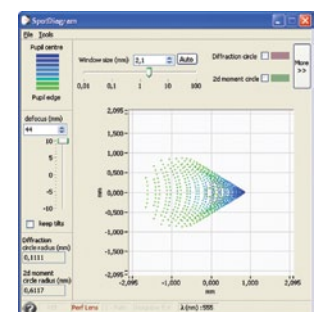
M²*

The M² calculation is accomplished by calculating the propagation of the electromagnetic field on different planes and reconstructing the envelope of propagation. This module also provides information on the waist and divergence of the whole beam or in a given direction.



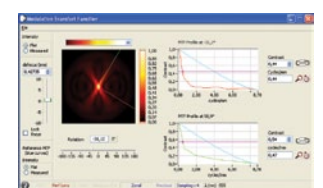
Spot diagram

Calculating the local slopes using the Shack-Hartmann method allows you to acquire the propagation angle of the incident beam passing through each microlens. The spot diagram is reconstructed using this information by simple geometric propagation, without the need to take in account the effects of diffraction. This enables you to easily navigate the beam's Z-propagation axis, thereby offering you full access to information pertaining to the distribution of the different rays. Central and marginal rays are displayed in unique colors in order to better highlight aberrations.



MTF* (Modulation Transfer Function)

Thanks to our patented Shack-Hartmann technology, the MTF is calculated for all directions at the same time. The MTF module also lets you compare your measurement to those of a perfect system. HASOv3 represents the MTF as a curve, using contrast to indicate the spatial frequency in a given direction.



Imagine OpticTM

imagine-optic.com



Imagine Optic SA (main office)

18 rue Charles de Gaulle
91400 Orsay France
Telephone: +33 (0)1 64 86 15 60
Fax: +33 (0)1 64 86 15 61
E-mail: contact@imagine-optic.com

Imagine Optic, Inc.

Boston Office (Headquarters)
Cambridge Innovation Center
One Broadway, 14th floor
Cambridge, MA 02142 - USA
Telephone: 1 (617) 401-2198
Fax: +1(425) 930-9818

San Francisco Office
2415 3rd Street, Suite 231
San Francisco, CA 94107 - USA
Telephone: 1(415) 525-5557
Fax: +1(415) 525-5558

COSINGO (Imagine Optic Spain SL)

Mediterranean Technology Park
Av. del Canal Olímpic s/n
08860 Castelldefels (Barcelona) Spain
Telephone: +34 935 534 148
Fax: +34 935 534 000
E-mail: info@cosingo.com

Imagine Optic China

Pythagore Optical Business Center
323 Guo Ding Rd, Bld 3 - 9th
Yangpu District
200 433 Shanghai
Tel: +86 021 6299 6274
E-mail: china@imagine-optic.com