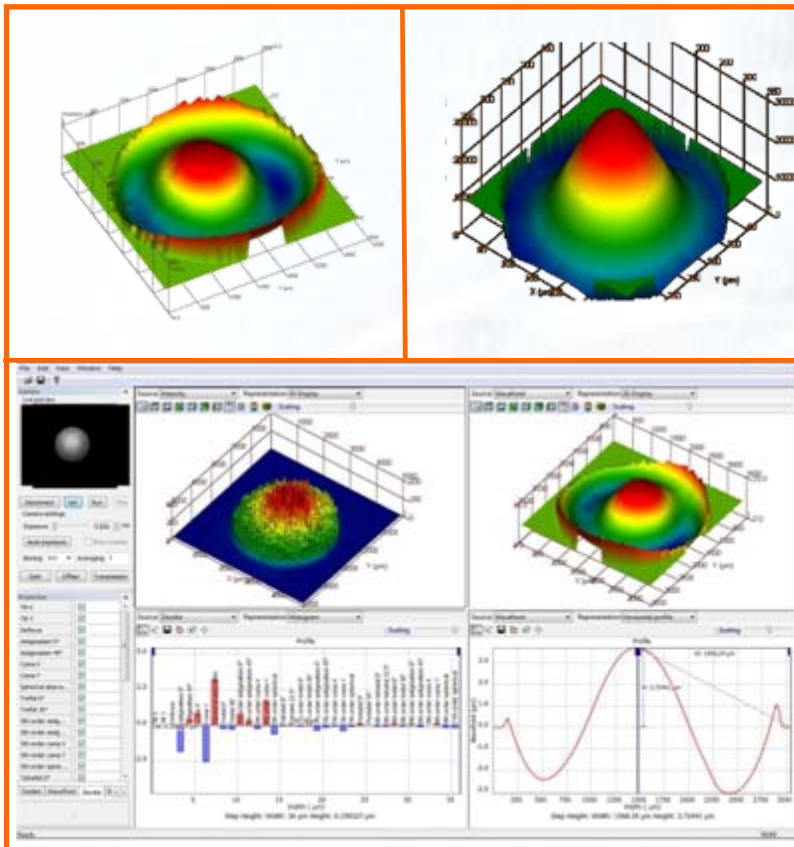


High Resolution CCD Beam Profiler

Instant Beam Propagation & Wavefront Analysis

One Shot  $M^2$  Measurement



A Smart and Affordable Beam Profiling Solution

Take advantage of the latest advances in wavefront sensing. The compact and light BeamWave® delivers all critical beam profiling parameters without complex and expensive equipment.

# All-In-One CCD BEAM PROFILER

With **no moving parts or additional accessories**, BeamWave® performs all critical laser beam measurements including intensity distribution, wavefront and beam propagation parameters.

## High Resolution Beam Profiling

**Intensity distribution • XY Profile • Centroid • Divergence angle • Asymmetry**

BeamWave is a reliable CCD beam profiler for pulse & CW laser offering high dynamic and resolution for accurate intensity analysis.

## Real Time Wavefront Measurement

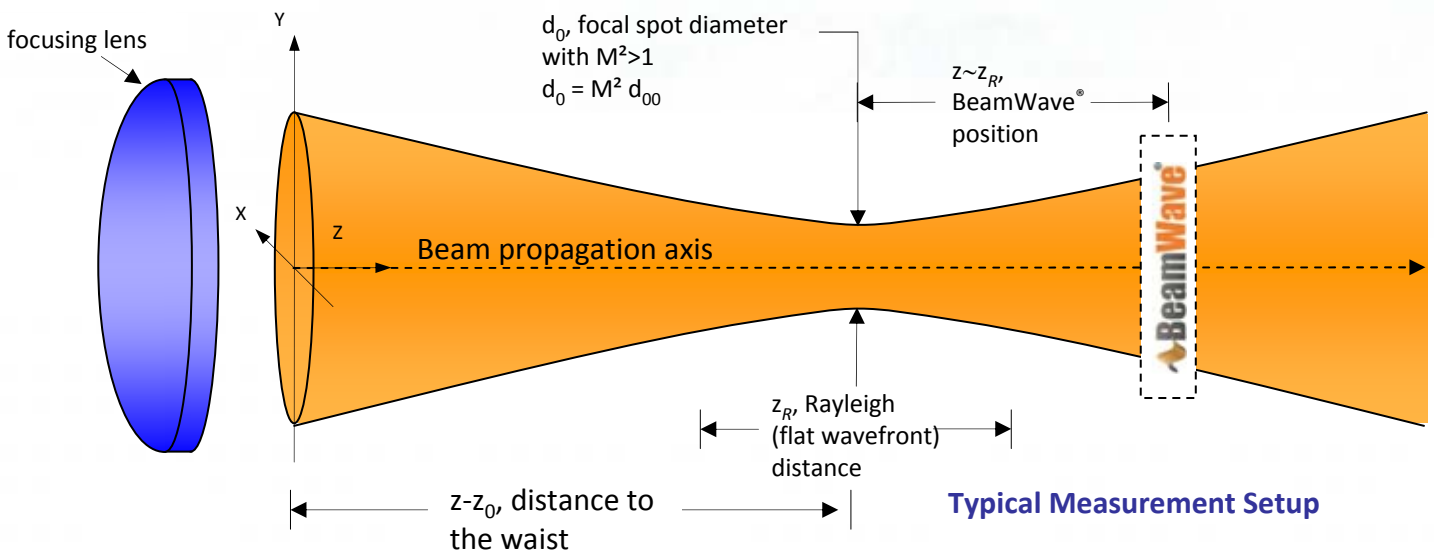
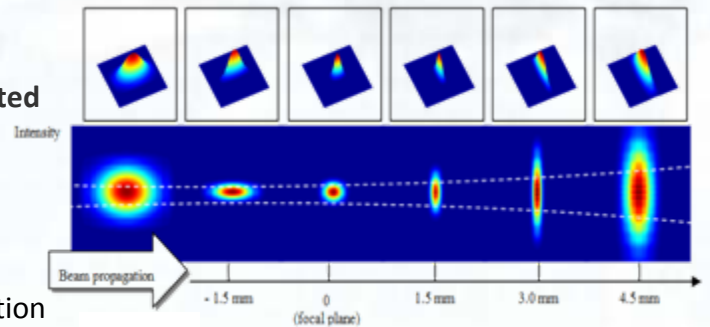
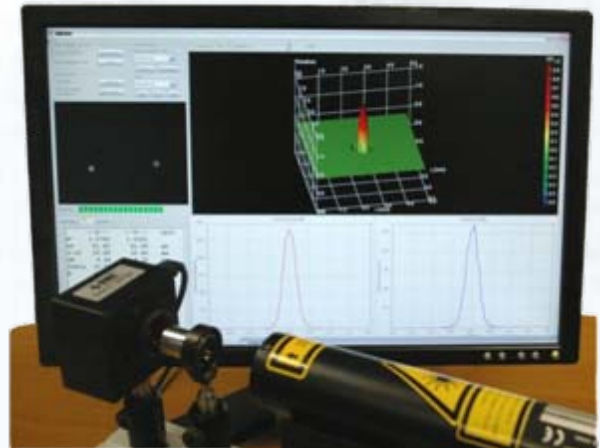
**Zernike Analysis • Low and high Order Aberrations • Astigmatism**

BeamWave provides high resolution wavefront data, these useful parameters allows laser beam analysis in its all dimensions.

## On Click Beam Propagation Analysis

**One Shot  $M^2$  • Intensity distribution at any selected plane • Divergence angle • Rayleigh Range**

Thanks to its capability to measure simultaneously phase and intensity, BeamWave delivers beam propagation analysis, thus providing an instant picture of laser beam behavior along the propagation axis.

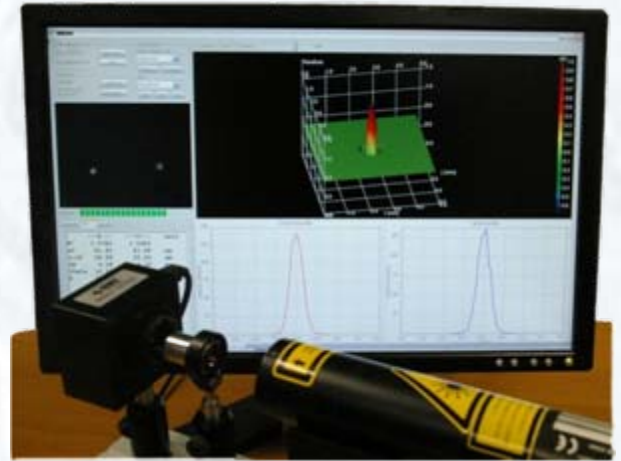


**Typical Measurement Setup**

# All-In-One CCD BEAM PROFILER

Beam propagation parameters, relative power density, wavefront, and intensity in any plane are measured with the same device.

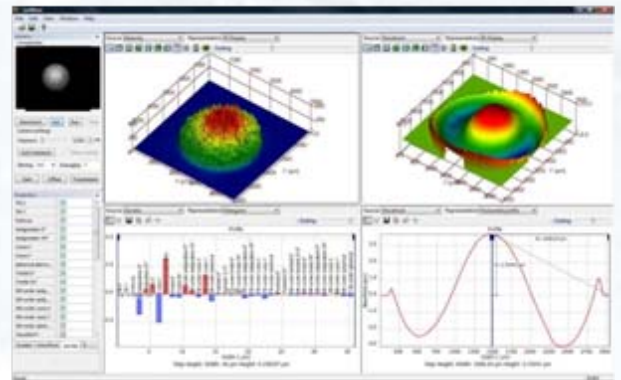
- No mechanical mounts, stepper motors or moving stages
- No maintenance cost of moving devices
- No mechanical adjustments during lifetime of the instrument
- No bulky systems for measuring several parameters are needed



## Simultaneous high-resolution intensity & wavefront

Acquisition of intensity is made directly on CCD chip, reconstruction of wavefront is performed by software.

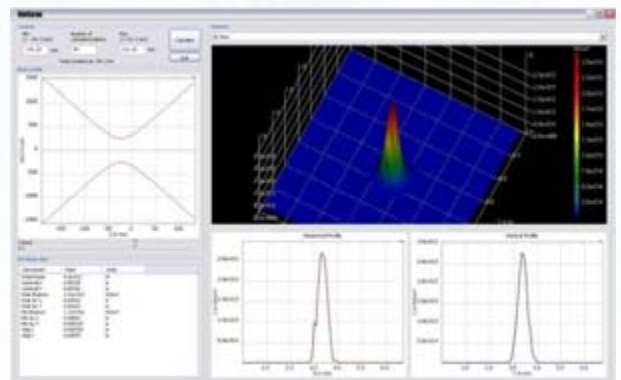
- No need to acquire a two distinct instruments (beam profiler & wavefront sensor) to obtain same measurement
- Detailed profile of the beam in an arbitrary plane



## One shot $M^2$ measurement of both CW and pulsed lasers

Calculation of  $M^2$ , divergence, collimation and other beam propagation parameters of both CW and pulsed lasers is made by software.

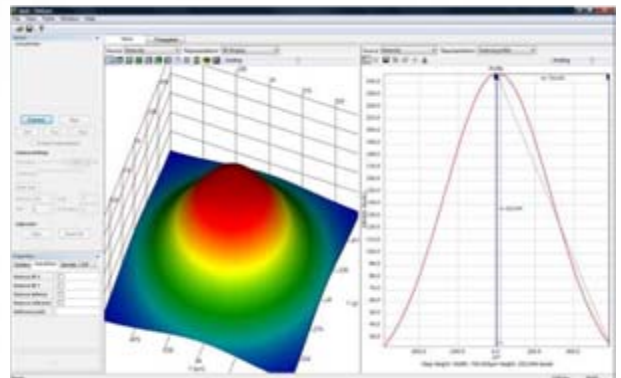
- No need of additional instrumentation, saving time and costs
- Measurement are highly repeatable
- Measurement of even misaligned lasers are performed



## Instant measurement of the entire beam over the broad range around focal region

Beam propagation computed by software from simultaneous intensity and wavefront acquisition.

- Save time for laser beam adjustment
- Predictive laser beam analysis



# All-In-One CCD BEAM PROFILER

GUI software XP, Vista and Windows 7 compatible, performs intensity and wavefront acquisition in a remarkably fast and easy way and provides comprehensive tools for beam profiling including intensity distribution and beam propagation parameters.

- **Acquisition & Display**
  - Automatic calibration & acquisition
  - Live display 2D and 3D intensity, wavefront, PSF
  - Single and continuous acquisition
- **Analysis**

Beam intensity parameters:

  - Maximum intensity levels
  - Ellipticity of the beam spot
- Beam spot major and minor axis dimensions
- Beam propagation parameters:
  - $M^2$  parameter for the X and Y directions
  - $4\sigma$  Waist size in X and Y directions
  - Distance between camera position and waist planes
  - Rayleigh range
- Divergence angle of the beam
- PSF, Strehl ratio
- Real-time Zernike display and analysis
- Profiles of wavefront and intensity
- **Export & Report**
  - Wavefront and Zernike data
  - Report Editor
  - HTML Compatible Presentation

## Specifications

	BeamWave® 500	BeamWave® 1000
Maximum input beam diameter ( $1/e^2$ ), mm	3.2	4.8
Beam Intensity Measurements?	CW & Pulsed Lasers in XY for any Z	CW & Pulsed Lasers in XY for any Z
Wavelength range, nm	350 - 1100	350 - 1100
Measures $M^2$ ?	CW and Pulsed lasers	CW and Pulsed lasers
$M^2$ range	1 to >50	1 to >50
$M^2$ accuracy	+/- 5%	+/- 5%
$M^2$ repeatability	< 2%	< 2%
Phase/Wavefront measurements possible?	yes	yes
Wavefront and Intensity XY resolution, um	6.45	6.45
Wavefront Measurement Points	500 x 500	1392 x 1040
Wavefront Sensitivity ( $\lambda$ ), rms	0.005	0.005
Wavefront Accuracy ( $\lambda$ ), rms	0.01	0.01
Wavefront Dynamic Range ( $\lambda$ )	1 500	1 500
Measurement Time	Real-Time	Real-Time
Computer interface	USB 2.0	2 x USB 2.0
Weight, kg	0.350	2.5
Dimensions, mm	41 x 55 x 80	87 x 161 x 84