Kaleo

Kaleo measures at the same time the aberrations and the MTF of spherical and aspherical optics. PHASICS wave front analysis is based on an innovative technology (4-Wave Lateral Shearing Interferometry*). It permits to characterize highly opened optics without any relay lens.

"SIMULTANEOUS MEASUREMENT OF ABERRATIONS & MTF"

Kaleo is particularly adapted to industry needs and allows a complete diagnostic of the lens quality in only one measurement.

Kaleo combines ergonomics and measurement process help with a robust software. This makes it very easy to use.

PHASICS - The phase control company

KALEO BENEFITS

- Complete optics quality diagnostic in only one measurement
- High numerical aperture optics measurement without any relay lens
- High precision measurement with 4-Wave Lateral Shearing Interferometry
- Ease of use and fast measurement

KEY FEATURES

- Simultaneous aberrations, MTF & PSF measurement
- Zernike, MTF graph, strehl ratio
- Short EFL and/or high numerical aperture lens analysis
- Ergonomics/ease of use
- Simple and clear user interface
- Various working environment (R&D, production)

APPLICATIONS

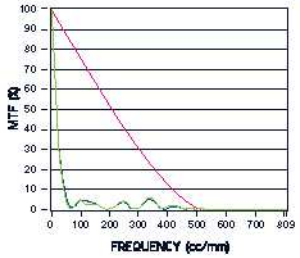
- Aspherical lenses
- Collimation lens for laser diodes and fibers
- Photo objectives for cell phone
- Intra-ocular lenses

LENS QUALITY DIAGNOSTIC

1

ABERRATIONS (λ)	
Max-Min	1.931
RMS	0.451
ZERNIKE	
Astigmatism - Module	0.013
Astigmatism - Angle (°)	21.4
Coma - Module	0.052
Coma - Angle (°)	34.6
Spherical Aberration (3rd order)	-0.444
Spherical Aberration (5th order)	0.000
RMS Zernike	0.448

3



↙ SIMULTANEOUS ABERRATIONS AND MTF MEASUREMENT

Example of lens quality analysis for an aspheric lens:
NA = 0.16 (f/3.05) ; focal length = 13.5 mm ; diameter = 4.5 mm

2

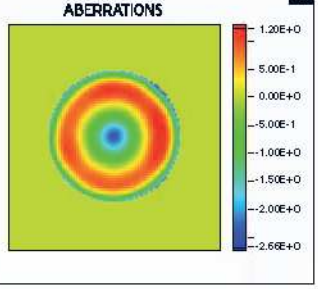


Fig. 1: Summary of the main Zernike aberrations

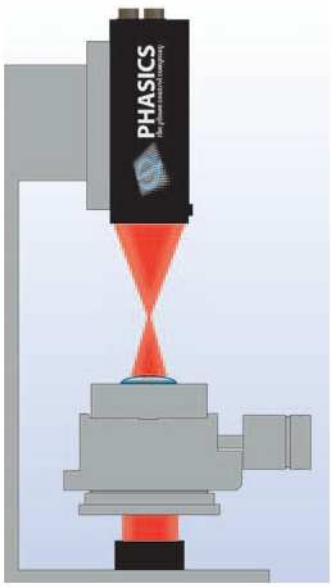
Fig. 2: Phase map. Total aberration : 0.451 λ RMS.

Fig. 3: MTF graph in X and Y; Diffraction limit displayed

↓ SPECIFICATIONS

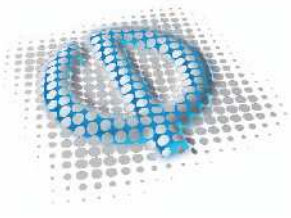
Lens diameter	from 3 mm to 20 mm
Numerical aperture	up to 0.3 (f/1.6)
Focal length	from 3 mm to 50 mm
Sampling	up to 120 x 120 points
Precision	10 nm RMS
Wavelength range	400 nm - 1100 nm
Repeatability	1 nm RMS
Light source interface	Optical fiber (optional source)
Dimensions (l x H x L)	250 x 470 x 350 mm

*Principle of a lens quality measurement with **Kaleo***



← DIRECT MEASUREMENT WITHOUT ANY RELAY LENS

Technology of wave front sensing used by PHASICS (ONERA patented) allows measuring lens aberrations without any relay lens.
A calibrated light beam passes through the lens. The sensor measures the deviation from a sphere of the wave front transmitted.
Though working with very divergent beams, no relay lens is necessary between the lens and the sensor.



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