Phasics
EXOSENS GROUP

Kaleo MTF

Automated MTF & WFE measurement station for high CRA lenses





QUICKLY CHARACTERIZE YOUR COMPLEX LENSES...

The specifications of small lenses and assemblies have become challenging with **large Field Of Views** (FOV up to ± 90°) and **very high Chief Ray Angles** (CRA up to 50°). When either manufacturing or using small lenses, it is necessary to easily check their optical quality.

Kaleo MTF allows this complete and comprehensive characterization, by automatically measuring **on and off-axis MTF** and **wavefront aberrations** at multiple wavelengths.

This test station is used both in production facilities with programmable sequences or in R&D laboratories with access to advanced features and settings.

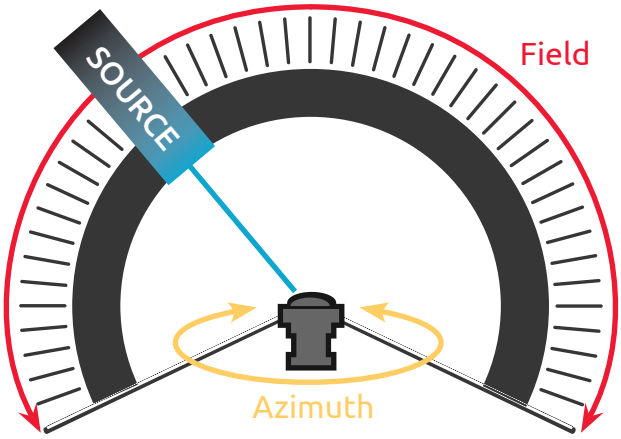
KEY FEATURES

- Automated
- MTF & WFE
- On and Off-axis
- Very high CRA
- Multi-wavelength

PHASICS - The phase control company

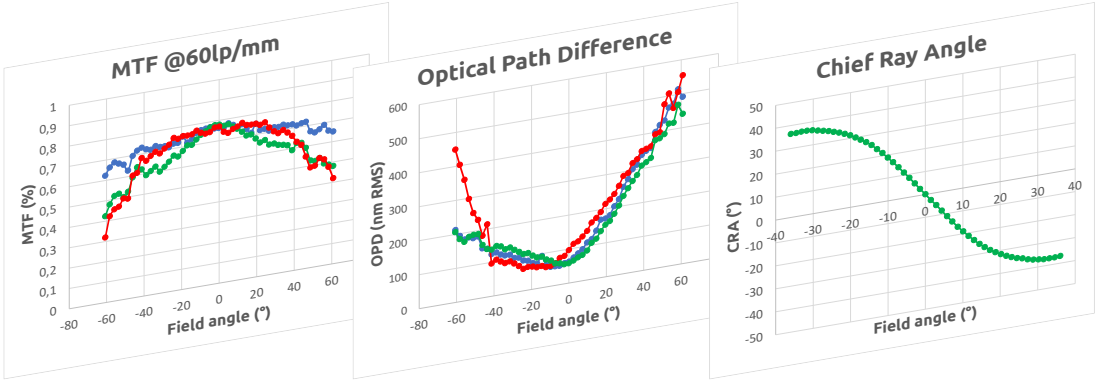
...THROUGH THEIR ENTIRE FIELD AND FOR ALL AZIMUTHS...

Select your wavelengths, field angles, azimuths and number of repetitions (when repeatability assessment is needed), **Kaleo MTF does the rest.**



Access the **complete characterization** of your lenses, for each wavelength and azimuth:

- MTF (on-axis & off-axis)
- OPD (on-axis & off-axis)
- EFL
- F#
- Image height
- CRA
- Field curvature
- Distortion
- PSF
- Through focus MTF
- Zernike polynomials
- Relative illumination



Aberrations of a complex lens at 455 nm 530 nm 656 nm

...IN JUST A FEW CLICKS

Manage the results easily thanks to the user friendly interface:
• Access all parameters and settings
• Ensure optimal throughput via an intuitive touch-screen interface
• Monitor acquisitions and analysis via real time status
• Access all results, available for each wavelength and azimuth, and select the desired analysis.
• Post-process data after acquisition
• Compare the results to the optical design file (compatible with Zemax)

1 EASY-TO-USE
• Fast and fully automated measurements and analysis
• Quick set-up with no alignment
• Easy data management with an intuitive software

2 COMPLETE CHARACTERIZATION
• On and off-axis MTF measurement at any frequency without target
• More than MTF with access to all aberrations of the lenses
• Highly accurate and reproducible measurements

3 VERSATILE MEASUREMENTS
• Various samples, even with very high CRA
• Acquisitions available at several wavelengths
• Measurement available for wide fields and all azimuths

MARKETS


Automotive ADAS


Smartphone


AR/VR


Drone


Security

Kaleo MTF ON & OFF-AXIS TESTING

SPECIFICATIONS

MTF on-axis	Accuracy Repeatability	<1%* <0.5%*
MTF off-axis	Accuracy Repeataility	<2%** <1%**
MTF max frequency	1000 lp/mm	
EFL accuracy	Accuracy Repeatability	<2% <1%
OPD (on-axis)	Accuracy Repeatability	<20nm RMS <5nm RMS

** This specification is obtained for reference sample measured at 660 nm for 3 frequencies.*
*** This specification is given over the whole field of view.*

FUNTIONALITIES

Optical set up	Infinite to finite configuration
Wavelengths	Up to 8 wavelengths between 405 and 940 nm
Entrance pupil diameter	Up to 8.8 mm
f#	> 1.7
Focal length range	5 to 40 mm***
Flange focal length	8 to 33 mm***
Field of view	Up to ± 90°
Chief Ray angle	Up to 50°
Option	motorized azimuth (0° to 360°) motorized lens tray
Dimensions (height x width x depth)	1520 mm x 650 mm x 890 mm
Weight	150 kg

**** Results depending on the F# of the sample*

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PHASICS S.A.
Bâtiment Mercury I - Espace Technologique
Route de l'Orme des Merisiers, 91190 Saint Aubin, FRANCE
Tel : +33 1 80 75 06 33

PHASICS CORP.
5277 Manhattan Circle - Suite 102
Boulder CO 80303, USA
Tel : +1 415 610 9741

武汉莱速科技有限公司
www.laspeed.cn
info@laspeed.cn
13545051195

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2026-03 *This document is not contractual*