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NIMO
TR1504

LAMBDA-X
ADVANCED VISION & METROLOGY

www.lambda-x.com



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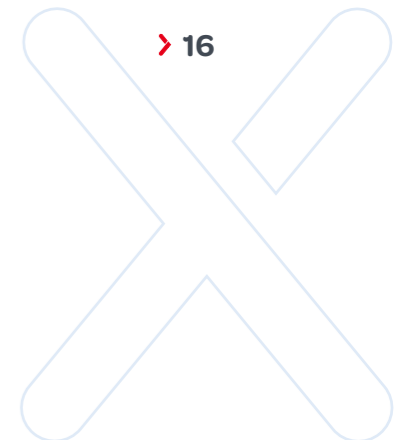
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NIMOTR1504

The key to understanding complex contact lenses

Based on the patented Phase Shifting Schlieren method, the NIMO TR1504 offers a cutting-edge solution for the control of contact lenses. With its advanced technology, the NIMO offers the highest resolution of any commercially available power mapping instruments, providing valuable information from every single camera pixel.

Products and Services

- › Suitable for RGP's as well as soft lenses
- › Measure soft, rigid corneal and rigid scleral lenses
- › High resolution power maps and power profiles
- › Measure spherical, multifocal, aspheric, toric lenses
- › Rapid data acquisition - complete assessment of the most complex lenses in just a few seconds
- › One time calibration
- › Dynamic range -30.00 to +30.00 D
- › Wavefront analysis with Zernike coefficients
- › Automatic mark detection for torics
- › Rich user friendly software interface



DESIGNED TO BE DIFFERENT

The contact lens industry today is a tough and competitive environment. The growing market for specialist products, including multifocal, toric and high definition lenses, are the building blocks of a profitable contact lens manufacturing business.

Confident measurement of complex lenses requires a credible, reliable and fast high precision instrument. NIMO delivers a fresh approach which addresses the most stringent requirements of the ever more challenging contact lens industry to ensure you know exactly what you are making.

NIMO delivers today's most powerful solution to your measurement needs.

Luc Joannes
Inventor



NIMO

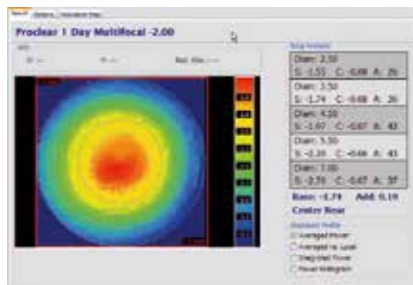
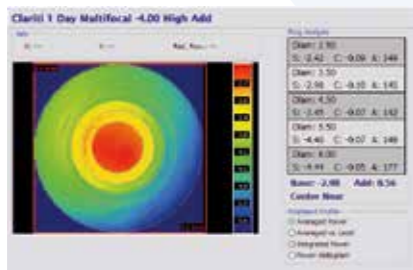
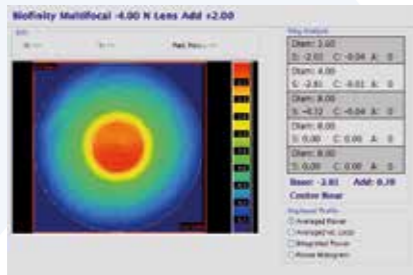
“Power profiles are of great value in indicating the characteristics of different lens designs and, ideally, should always be provided by contact lens manufacturers.”

Sotiris Plainis, David A. Atchison, PhD,
W. Neil Charman, DSc



POWER PROFILES

Essential to understand the clinical application of multifocal and high definition soft lenses.



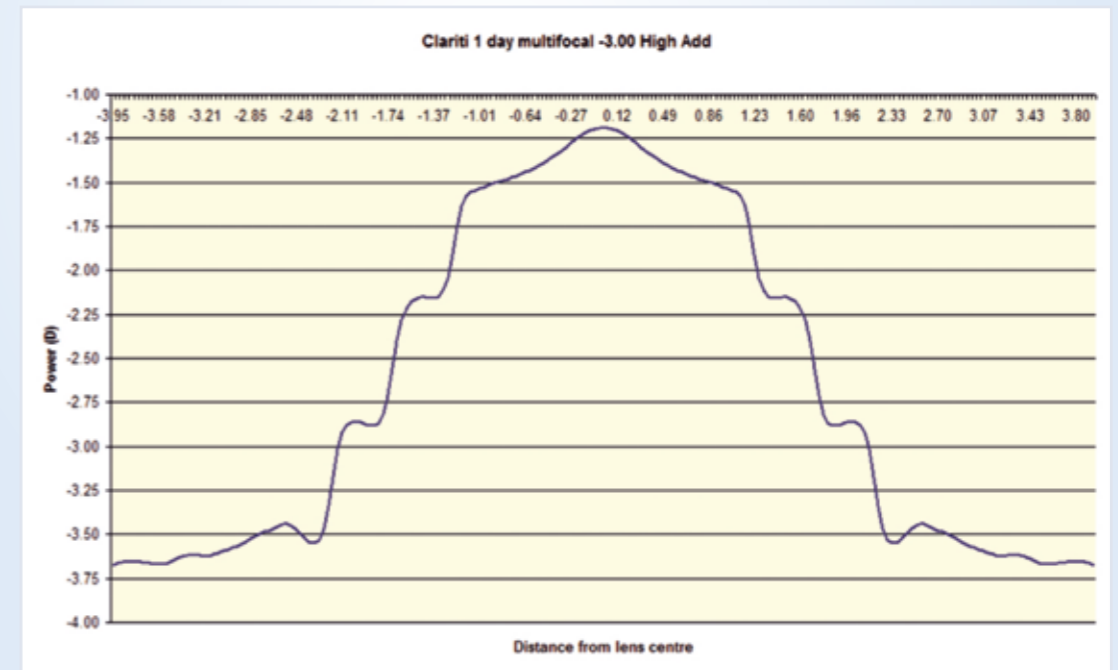
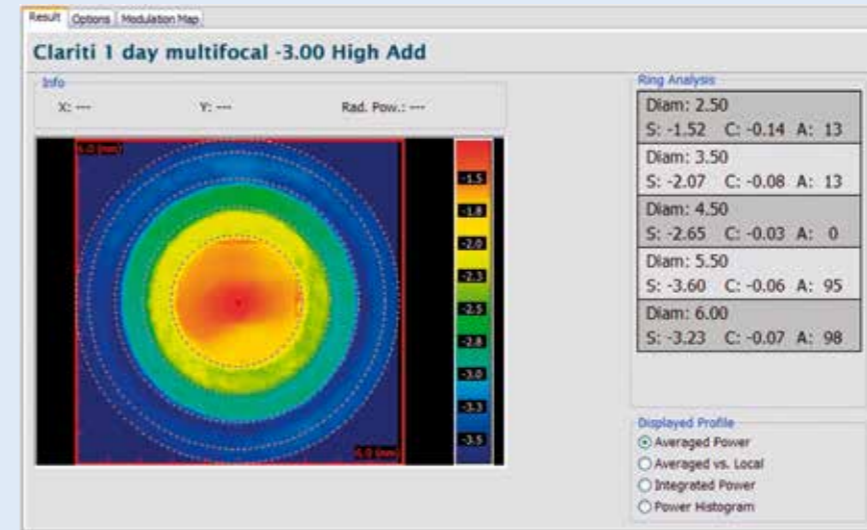
Capture and analyse Power Profiles using the NIMO: The key to understanding multifocal and high definition contact lenses.

In recent years, the optical complexity of multifocal and high definition contact lenses has increased, generating a demand for the development and use of new metrology procedures to check and compare both process output and finished product.

The NIMO TR1504 from Lambda-X provides contact lens manufacturers with an advanced and unique measurement technology that can enable clear understanding of power profiles which determine clinical functionality. The valuable information you can extract from every single pixel is of paramount importance in the measurement of either the power profiles where there are different rates of power change for the central and peripheral portions, or lenses which have a series of concentric annular zones, separated by abrupt discontinuities.

The NIMO offers a precise, fast, robust and highly repeatable metrology solution.

Produced in Belgium the NIMO has been deployed successfully and reliably around the world in high volume production facilities as well as in specialist contact lens laboratories.



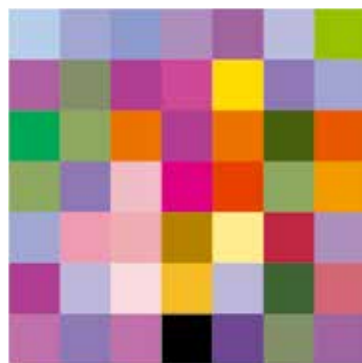
Use the NIMO option to save a CSV file of the power profile to get a clear understanding of the distribution of power within the lens optic zone.

HIGH RESOLUTION POWER MAPS

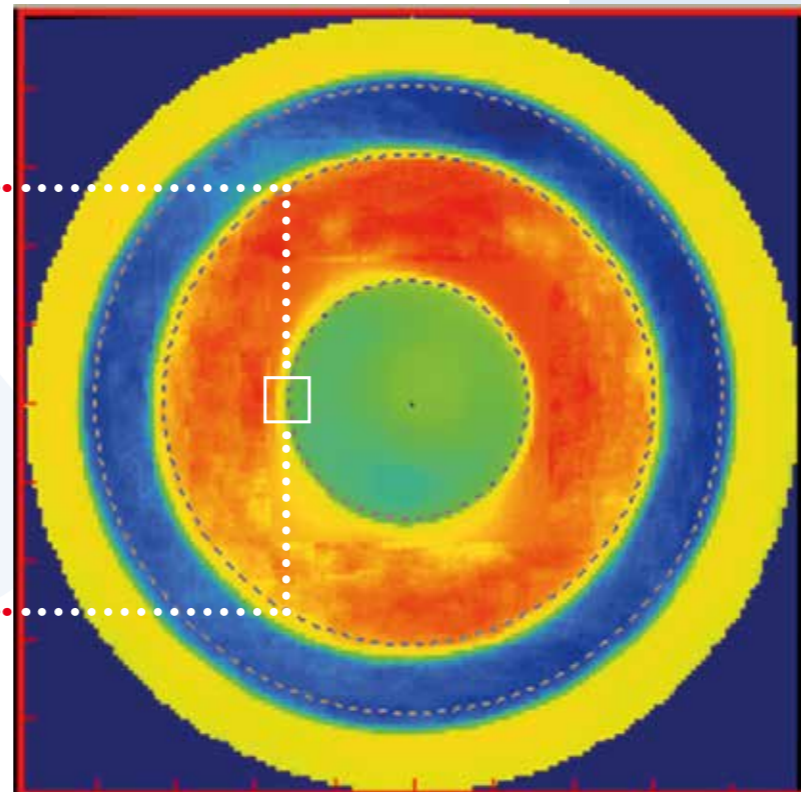
The NIMO provides high-definition power mapping which other commercially available instruments just cannot compete with.



Highest resolution Schack Hartmann instrument

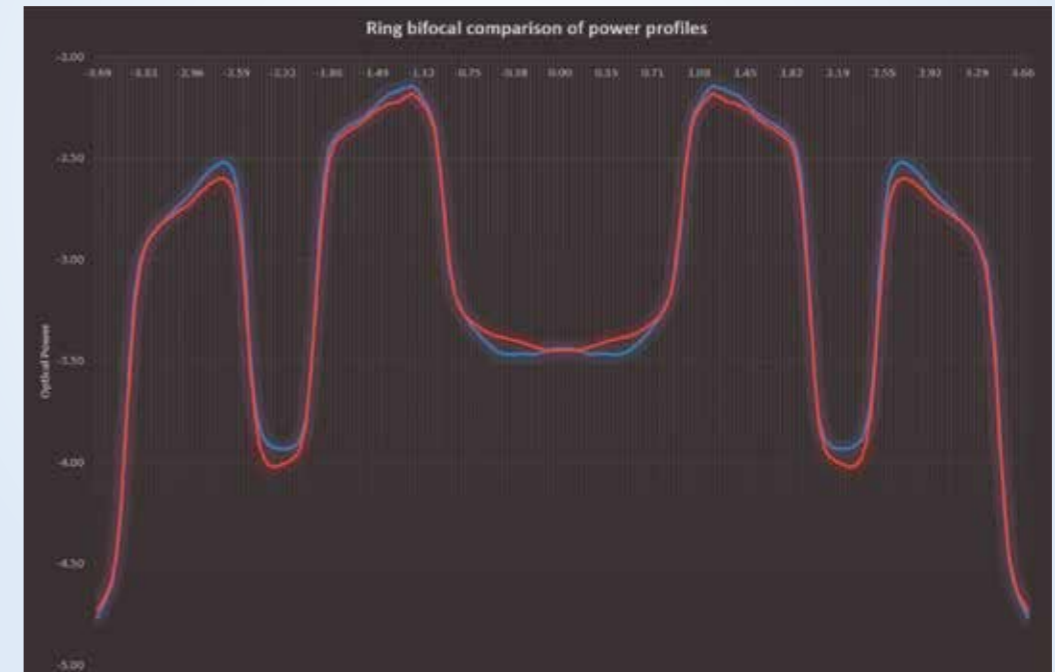


NIMOTR1504



The TR1504 has the highest spatial resolution of any commercially available power mapping instrument. Its spatial resolution of 18 microns compares to the 100 microns of the best Shack-Hartmann device.

With step change bifocal or multifocal lenses, high resolution measurement is essential to enable the manufacturer to monitor their process and product quality.



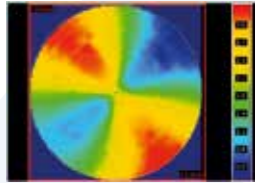


TORIC AND MULTIFOCAL TORIC SOFT LENSES

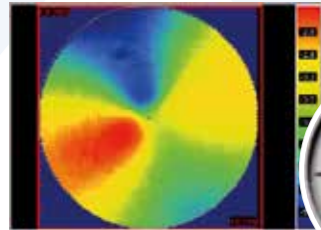
- NIMO TR1504 for measurement of toric soft lenses.
- High performance. Delivered.
- Now with automatic mark detection for soft torics.

AUTOMATIC MARK DETECTION FOR SOFT TORICS

How accurate are toric soft lenses? Get NIMO into your quality system to be confident of your soft torics. That's high performance, delivered.



Toric soft lenses require good reproducibility in order to avoid clinical problems arising from manufacturing variations in their parameters. If you manufacture soft torics, your process capability will determine the clinical success of your product and ultimately the commercial market success or failure. The NIMO determines sphere power, cylinder power and cylinder axis with unsurpassed accuracy and precision.



Now, NIMO has introduced automatic mark detection to improve measurement precision even further.

We measured a typical soft toric having power-related dimensions $-2.75 / -2.25 \times 20$ five times independently using: a) the NIMO set to manual mark detection; b) the NIMO with the new automatic mark detection system; and c) a manually focussing focimeter (lensometer).

The results were as follows:

	NIMO Automatic Mark Detection	NIMO Manual Mark Detection	Focimeter (Lensometer)
Sphere power (D)	-2.74 ± 0.03	-2.75 ± 0.03	-2.66 ± 0.15
Cylinder power (D)	-1.99 ± 0.02	-2.01 ± 0.02	-2.16 ± 0.14
Axis direction	$18.2^\circ \pm 0.40^\circ$	$17.8^\circ \pm 0.74^\circ$	$18.0^\circ \pm 2.16^\circ$

SPECIFICATIONS

The NIMO TR1504 is a power mapping device. It is designed to provide power and full wavefront characterisation for all types of contact lenses, including spherical, aspheric, toric or multifocal. For complex lenses the NIMO has matchless repeatability and reproducibility. Routine instrument calibration is no longer required and the NIMO software provides a rich user-friendly interface with extensive options and full traceability.

Hardware specifications

Measurement principle	Phase-shifting Schlieren in transmission mode
Field of view	15 × 15 mm ²
Clear aperture	Maximum 15 mm diameter
Wavelength	546 nm
Imaging device	1024 × 1024 pixels
Spatial resolution	18 × 18 μm ² or 36 × 36 μm ² when Binning
Absolute power range	± 40 D on 5 mm Ø and ± 30 D on 8 mm Ø
Repeatability / variance	Better than 0.007 D (wet) / 0.05 D (wet)
External dimensions	215 × 250 × 850 mm ³ (8.5 × 9.8 × 33.4 in ³)

Software specifications

Measurement conditions	Dry or wet (power conversion from back curvature, thickness and refractive index)
Spherical	Sphere power, cylinder, prism, quality factor
Toric	Sphere power, cylinder, axis, prism, quality factor
Multifocal	Radial power maps and profiles on circular/annular areas, base, addition, centre near (CN) or centre distance (CD)
Toric multifocal	As for multifocal, plus cylinder and axis
Modes of operation	Production batch (PB) which has limited access to options or single measurement (SM) which provides full access to all options
Data output, production batch (PB)	Text file, one line per measurement, batch report, statistics
Data output, single measurement (SM)	Right click saves images and power maps as .CSV or .BMP