iTrace™

COMBINATION RAY TRACING ABERROMETER/TOPOGRAPHER

TRACEY™ TECHNOLOGIES

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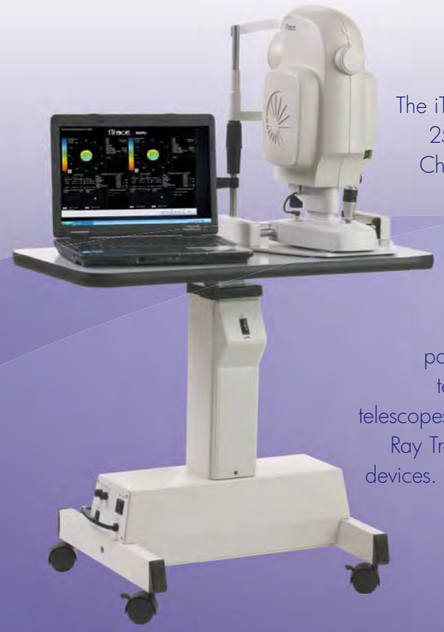
ABERROMETRY for Aberropia

Yesterday's terms of sphere and cylinder were once adequate to describe vision distortions and represented the full extent of what was correctable with conventional spectacles or contact lenses. However, many patients will not achieve good vision with only conventional correction due to higher order aberrations, such as coma, spherical aberration, trefoil, etc. (termed "aberropia"). A new and comprehensive diagnostic tool, the aberrometer, is necessary to fully measure, understand and treat higher order aberrations. An aberrometer can analyze the amount and location of the aberropia and in the case of the iTrace, can distinguish the source of the aberropia in the eye's visual system. You cannot treat what you can't measure and now with the iTrace you can measure virtually all of a patient's aberrations.

THE SCIENCE Behind the iTrace

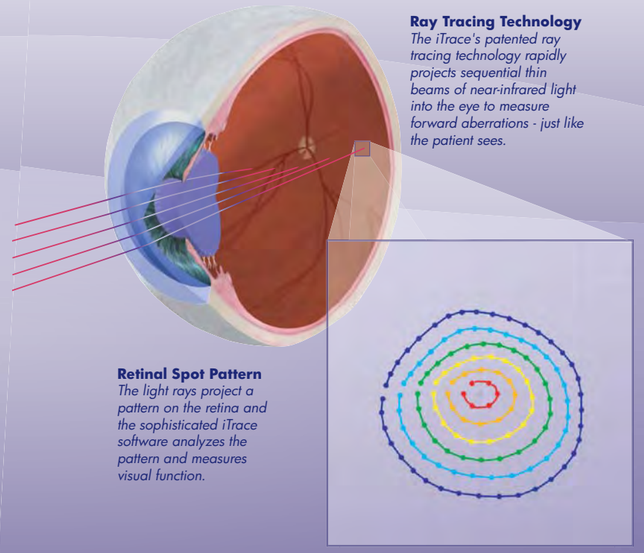
The iTrace uses the principle of ray tracing that was developed from space and defense industry applications to track satellites and missiles. Tracey Technologies adapted this technology to objectively measure the total refractive power of the eye. Unlike other wavefront systems, the iTrace uses this ray tracing capability to assess complete visual function and quality of vision. The iTrace measures both lower and higher order ocular aberrations - achieving a new level of accuracy, speed and dynamic range not possible with conventional refractive techniques.



RAY TRACING the Technology

The iTrace is the most accurate aberrometer available today. The iTrace rapidly projects 256 sequential, parallel thin laser light beams through the pupil within milliseconds. Charting the precise position where each of the beams land on the retina, the iTrace integrates these retinal spot positions to measure overall visual performance. Powerful software tools generate graphical displays of the data to provide complete analysis of the patient's visual function.

Ray Tracing differs from other methods for measuring aberrometry. Other methods, particularly Hartmann-Shack-based systems use technology developed for measuring telescopes. However, human eyes are dynamic rather than static visual systems like telescopes, therefore human eyes require a dynamic measuring technology like Ray Tracing. Ray Tracing also eliminates data confusion, a particular weakness with Hartmann-Shack devices. The iTrace knows where each individual beam lands on the retina and can graph and measure with confidence in the location of each spot.



Ray Tracing Technology
The iTrace's patented ray tracing technology rapidly projects sequential thin beams of near-infrared light into the eye to measure forward aberrations - just like the patient sees.

Retinal Spot Pattern
The light rays project a pattern on the retina and the sophisticated iTrace software analyzes the pattern and measures visual function.

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iTrace Combo with optional Accommodation Kit

System Specifications

Measurement Range:	+/-15 D sphere
	+/-10 D cylinder
Pupil Scan Size:	2.5 mm to 8 mm diameter
Accuracy:	+/- 0.10 D
Reproducibility:	+/- 0.10 D
Footprint Dimensions:	13 in (33 cm) x 17 in (43.2 cm)
Weight (incl. base plate, manipulator and chinrest):	27.4 lb (20 kg)
Options:	Laptop computer
	Motorized table
	iTrace Travel Case
	Accommodation Kit

Optional iTrace Travel Case for transporting iTrace between practice locations

iTrace and laptop with optional motorized instrument table.

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