Visante *omni*
Technical Specifications

System Components

- Visante OCT Model 1000
- ATLAS Model 9000
  (also compatible with ATLAS Models 993 and 995)
- Visante-ATLAS Power Table (optional)

DICOM compatibility

With the optional DICOM Gateway module, Visante *omni* can be linked to compatible patient management systems or electronical medical records systems. Paperless workflow between connected work stations and computers eliminates data entry errors and increases efficiency and safety.

Features	VISANTE *omni*	Visante OCT
Anterior segment OCT scanning	•	•
Pachymetry maps	•	•
Relative pachymetry map	•	•
Automatic eye tracking	•	•
V-Trac™ Registration	•	
Anterior and posterior topography maps	•	
Holladay Report	•	
ATLAS Review Software[9]	•	
ATLAS PathFinder II Corneal Analysis[10]	•	

[9] Available on Visante OCT instrument
[10] ATLAS Model 9000 exams only
[11] Requires ATLAS Model 993, 995, or 9000 Corneal Topographer

VISANTE OCT Anterior Segment Imaging System (Model 1000) Specifications	
Illumination laser source	Long wavelength 1,310 nm superluminescent LED
Scan types Anterior segment	Range: 16 mm x 6 mm
	Single, dual and quad line scans
	256 A scans per line sampling
Global Pachymetry	Range: 10 mm x 3 mm
	16- line scan pattern
	2048 measurement points
Corneal	10 mm x 3 mm (High-resolution)
	512 A scans per line sampling
Raw Image Mode	Range: 16 mm x 6 mm (Standard), 10 mm x 3 mm (High-resolution)
	512 A scans per line sampling
Optical resolution	Axial: 18 µm Transverse (center): 60 µm
Software Modules	Refractive Tools
	Irido-Corneal Tools
	Topography Link Software[11]
	DICOM Gateway
Computer	Windows® XP Professional / 3.0 GHz Pentium® IV / 1 GB memory
	Integrated 15-inch flat-panel display
Dimensions/ Weight	48.5 cm H x 43.8 cm W x 63.2 cm D; 34.5 kg (19.1 inch H x 17.2 inch W x 24.9 inch D; 76.1 lb)
Electrical	110/120V~, 60Hz, 2.6 A 220/240V~, 50 Hz, 1.3 A

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Visante *omni*

A new dimension in anterior segment evaluation

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ZEISS

Visante *omni*

The power of two: Anterior Segment Imaging with Corneal Topography

As the first system to combine OCT and Placido disk technologies, Visante® *omni* creates a new dimension in corneal and anterior segment evaluation. Integrating proven anterior topography from the ATLAS® Corneal Topographer with precision OCT pachymetry, Visante *omni* provides comprehensive anterior and posterior topography with pachymetry analysis for improved patient selection and care. The Holladay Report conveniently summarizes these results on a single page for effective decision-making and practice efficiency.

As individual diagnostic devices, the Visante® OCT and the ATLAS Corneal Topographer are valuable assets to clinical practice. United as Visante *omni*, the system offers physicians a precise and unique assessment of the cornea and anterior segment. Visante *omni* has the power to enhance diagnosis and improve patient selection to achieve a new level of therapeutic confidence.

Visante OCT:

Precision Anterior Segment Imaging

The Visante OCT uses a non-contact technique to provide sharp, highly detailed images and precise biometrics of the anterior segment, including corneal shape and angle information — without the need for ocular anesthesia or time-consuming water baths. Visante OCT delivers valuable pre- and post-surgical information for use in excimer laser surgery and corneal transplants as well as pre-and post-glaucoma surgical care and phakic IOL implantations.

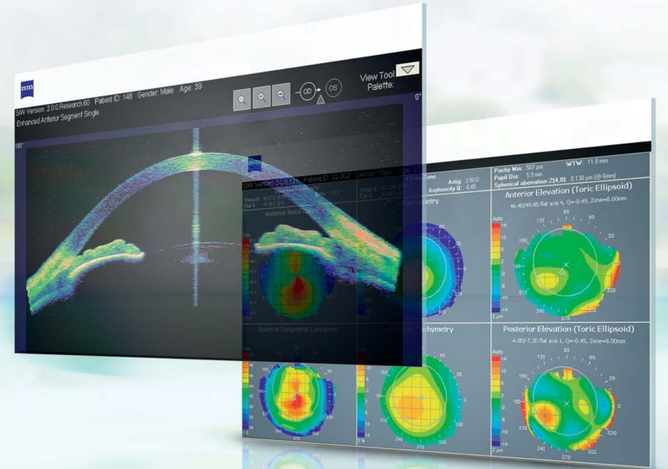
ATLAS: Proven Placido Disk Corneal Topography

Designed for accuracy and ease of use, ATLAS has been shown to provide accurate and repeatable results through its patented Placido disk technology.[1,2] The ATLAS excels in a variety of applications, including assisting with refractive surgery screening, aspheric IOL selection, and contact lens fitting.

V-Trac™ Registration System

Linking ATLAS topography and Visante OCT pachymetry, V-Trac Registration System enables Visante *omni* to reliably generate posterior topography through precise corneal vertex alignment, with strict criteria to prevent potential misalignment.

Visante OCT



ATLAS

[1] *M. Jeandervin and J. Barr, "Comparison of repeat videokeratography: repeatability and accuracy," Optom. Vis. Sci. 75, 663–669 (1998)*

[2] *Evaluating data acquisition and smoothing functions of currently available videokeratoscopes. J Cataract Refract Surg 22 (1996);22:421-426*

OCT and Placido Disk

Visante *omni* provides an advanced and authentic view of the anterior segment with the potential to optimize outcomes across a broad range of applications. Visante *omni* is a powerful tool for the refractive surgeon, enhancing patient selection through early detection of corneal abnormalities. With its unmatched performance and versatility, Visante *omni* is also well suited for application in cataract and glaucoma care.

Visante *omni* highlights

- Advances two powerful and proven technologies: OCT and Placido disk
- High-resolution image quality
- Full-width anterior segment imaging
- Complete anterior chamber angle visualization and measurement
- Holladay Report for advanced analysis and efficient patient selection

ATLAS

Visante OCT

"This unique combination of OCT and Placido disk technologies may be a significant improvement for diagnostics in terms of corneal disease."

Jack T. Holladay, MD, MSEE, FACS

Refractive Surgery

Enhance patient selection and advance diagnostic confidence

The unique visualization and measurement capabilities of Visante *omni* make it a versatile and indispensible surgical planning and postoperative system for refractive surgeons.

PathFinder™ II Corneal Analysis Software
The ATLAS incorporates PathFinder II Corneal Analysis Software, a reliable anterior topographic program with an extensive clinical database to assist with refractive surgery patient selection and keratoconus detection. PathFinder II has been independently validated to have 90% sensitivity and 94% specificity in discriminating normal versus abnormal corneas.[3]

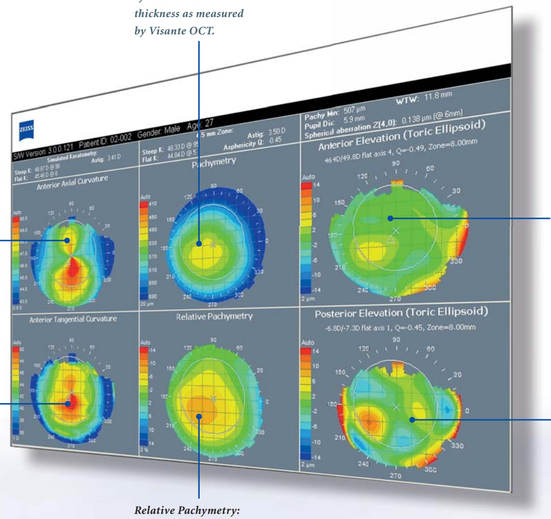
Refractive tools for LASIK and phakic IOL surgery
The Refractive Tools Software Module enables rapid visualization of residual stromal bed thickness and depth of corneal opacities or structures through an adjustable Residual Stromal Bed Safety Line. Phakic IOL tools provide preoperative simulation and postoperative confirmation of IOL placement in the anterior chamber with respect to sensitive structures such as the crystalline lens and corneal endothelium. Additional features include:

- Endothelial Safety Rainbow
- Corneal endothelium distance calipers
- Central and peripheral crystalline lens vault calipers

Pachymetry:
Provides a complete 10 mm diameter map of absolute corneal thickness as measured by Visante OCT.

Anterior Axial Curvature:
The Axial Map describes overall corneal power. Note the asymmetry and inferior steepening in this case.

Anterior Tangential Curvature:
The Tangential Map more sensitively describes local curvature, as seen here with the distinct highlighting of the corneal apex.



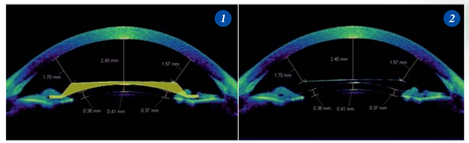
Anterior Elevation:
Irregularities, measured in microns, that cannot be described by a best-fit toric ellipsoid surface which has been shown to best model the normal cornea.[4]

Posterior Elevation:
Irregularities, measured in microns, that cannot be described by a best-fit toric ellipsoid surface. Studies have shown that posterior elevation may be the most sensitive metric to detect early corneal pathology such as suspect keratoconus.[5,6]

Relative Pachymetry:
Indicates the percent deviation of pachymetry from typical corneal thickness, which may better visualize localized thinning.

The Holladay Report:
Integrating posterior topography
Developed in collaboration with Jack Holladay, MD, the Visante *omni* Holladay Report provides an easy to interpret, single-page overview of corneal pachymetry and topography. Enabling efficient patient selection, the Holladay Report includes:

- Topography maps of the anterior and posterior cornea, including posterior elevation
- Pachymetry and relative pachymetry analyses
- Key corneal data, including simulated keratometry (K's), asphericity Q, white to white, and spherical aberration Z(4,0)



1) Pre-operative Phakic IOL placement simulation

2) Post-operative Phakic IOL imaging

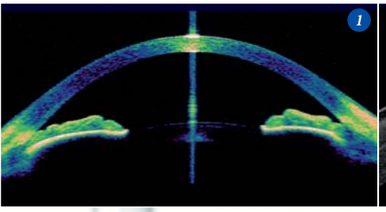
[3] *Data on file*

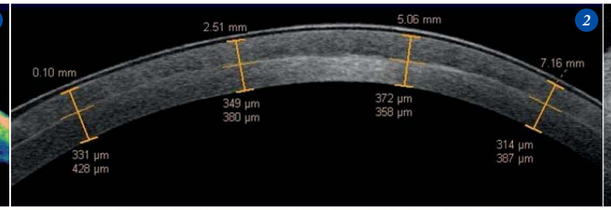
[4] *Rafael Navarro, Luis González, and José L. Hernández, "Optics of the average normal cornea from general and canonical representations of its surface topography," J. Opt. Soc. Am. A 23, 219-232 (2006)*

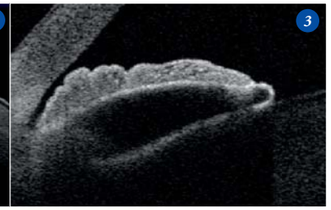
[5] *Comparative evaluation of refractive surgery candidates with Placido topography, Orbscan II, Pentacam, and wavefront analysis. Mohammad-Reza Nilforoushan, Mark Speaker, Michael Marmor, Jodi Abramson, William Tullo, Dana Morschauser, Robert Latkany. Journal of Cataract & Refractive Surgery. 2008 April;34(4): 623-31.*

[6] *Comparison of and correlation between anterior and posterior corneal elevation maps in normal eyes and keratoconus-suspect eyes. Schlegel Z, Hoang-Xuan T, Gatinel D. Journal of Cataract & Refractive Surgery. 2008 May;34(5):789-95.*

Advanced Diagnostic Utility





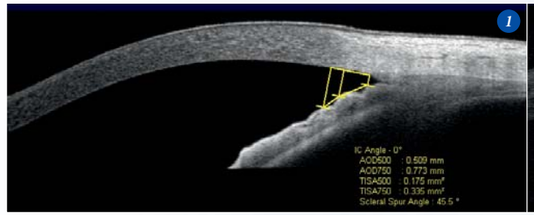


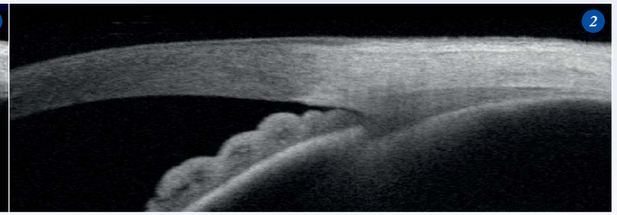
1) Full-width anterior segment image in rainbow color scheme
2) Flap tool measurement after lamellar keratoplasty
3) High-resolution image of an iris cyst

Valuable and multi-disciplined applications of both Visante OCT and ATLAS add superior diagnostic care and confidence to your daily practice workflow.

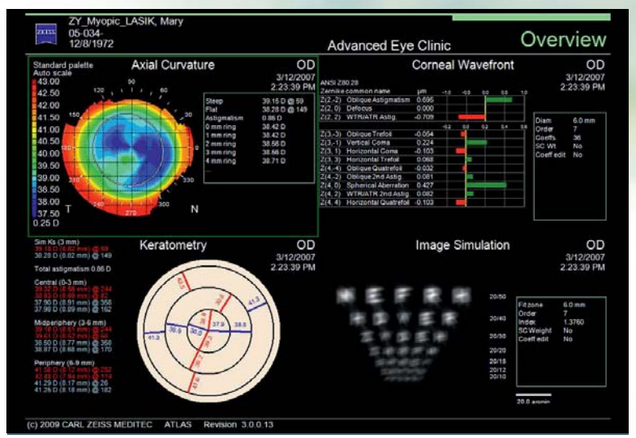
Anterior Segment Care
Visante OCT can significantly improve diagnostic and treatment confidence in cornea and anterior segment care. Surgical planning and guidance can be optimized for anterior and posterior lamellar surgery, or when imaging behind an opaque or scarred cornea. Diagnostic capabilities are further enhanced with accurate visualization and measurement of iris abnormalities.

Glaucoma Care
The infrared light source and non-contact technique of the Visante OCT facilitates a natural view and assessment of the anterior chamber angle, without the influence of corneal indentation or pupil constriction (miosis). Visante OCT allows rapid evaluation of the anterior chamber angle and structures as part of a complete anterior segment examination. Imaging the angle region post Laser Peripheral Iridotomy (LPI) ensures patency of the procedure and removal of the narrow angle condition and associated risks.





1) High-resolution image with objective irido-corneal angle results
2) High-resolution image of a narrow anterior chamber angle



Overview with Numerical Ring values, Corneal Wavefront, Simulated Keratometry, and Image Simulation.

Cataract Care
The ATLAS enhances IOL selection and power calculation, especially for challenging cases such as post kerato-refractive surgery and premium IOL patients.

- Established IOL power formulas for myopic and hyperopic LASIK/PRK and RK[7,8]
- Optimized aspheric IOL selection with corneal spherical aberration, Z(4,0)
- Patient education with image simulation of higher-order corneal aberrations
- Perioperative astigmatism management

[7] *iol.ascrs.org (accessed 3/13/09)*
[8] *http://doctor-hill.com/iol-main/keratorefractive.htm (accessed 3/13/09)*