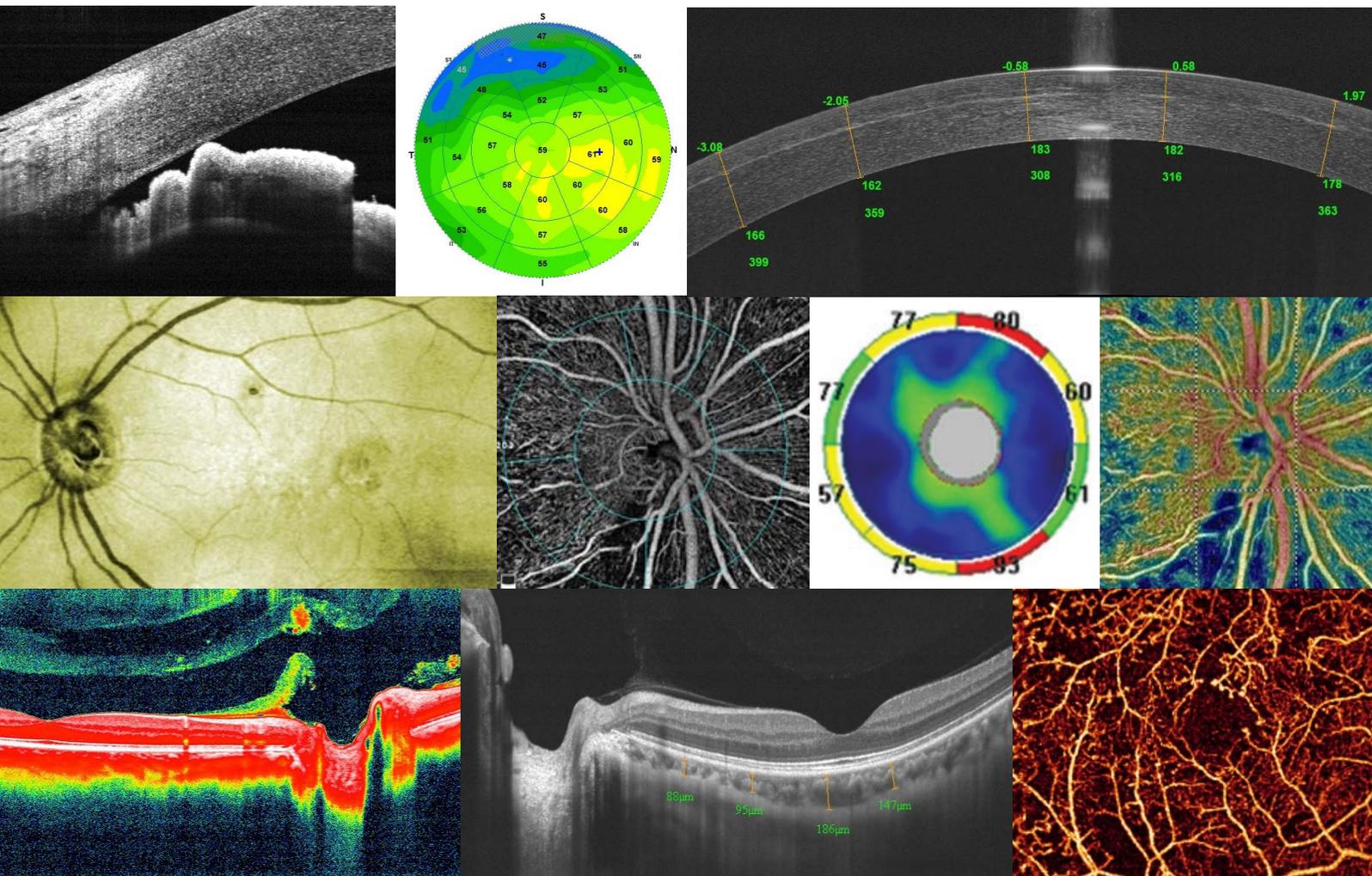


# Avanti<sup>®</sup> Widefield OCT

with AngioVue<sup>®</sup> OCT Angiography



Simply the best  
OCT & OCTA  
image quality.

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Letter from Founder & CEO

Anterior Segment

Glaucoma

Retina

Configurations

Networking

Specifications

Optovue

*Optovue extends sincere appreciation to Adil El Maftouhi OD (Centre Rabelais, Lyon, France) for the use of his images throughout this brochure. Unless noted, all images are courtesy of Adil El Maftouhi.*

Dear Friends of Optovue,

Since introducing Spectral Domain OCT to the ophthalmology market in 2006, Optovue has focused on developing OCT technologies that transform the lives of patients and physicians around the world. Our long string of "firsts" demonstrates that innovation is the backbone of our scientific heritage, and we are committed to continually expanding the frontiers of OCT by advancing image quality, system efficiency and clinical applications.

Over the past decade, and in collaboration with industry-leading ophthalmic specialists, we have pursued a bold and single-minded vision to offer state-of-the-art eye care technology to patients around the world by furthering the science of OCT and significantly improving access to OCT technology.

Headquartered in California's Silicon Valley, Optovue is the only company in the world solely dedicated to the development, manufacture and sale of OCT. Our employees are true experts in the field of OCT who are committed to improving global eye health care.

I am heartened to witness continued development in the field of OCT, especially the leading role Optovue has played, that will potentially redefine the understanding of retinal disease and produce significant advancements in disease treatment and management.

Sincerely,

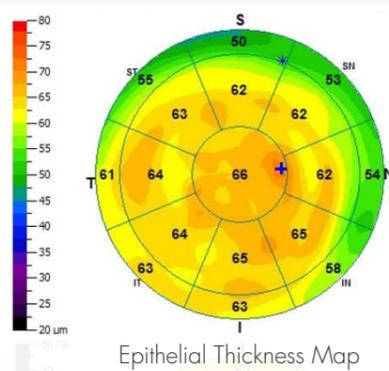
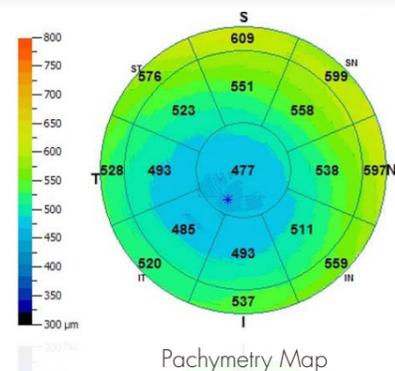
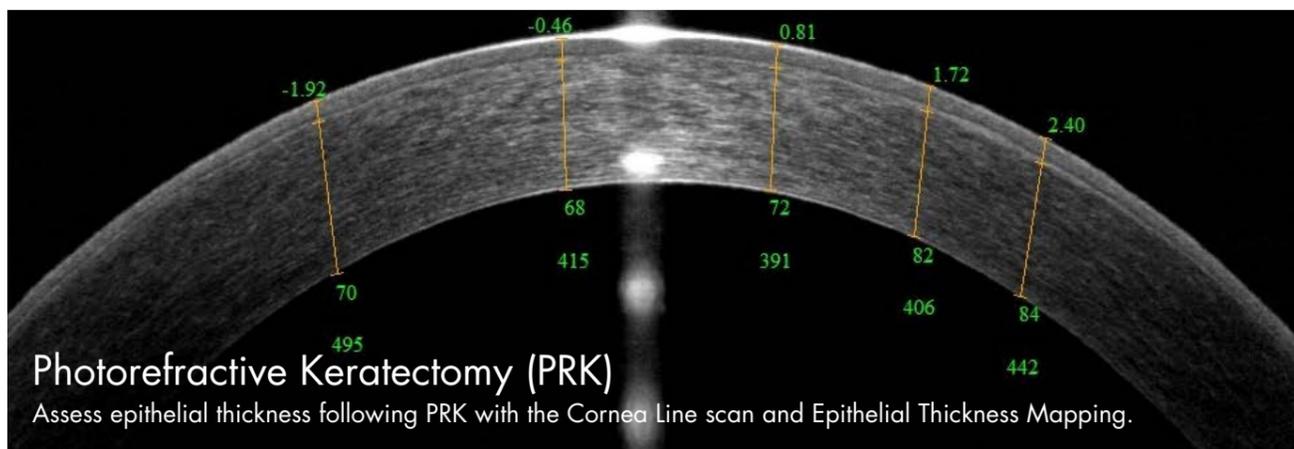
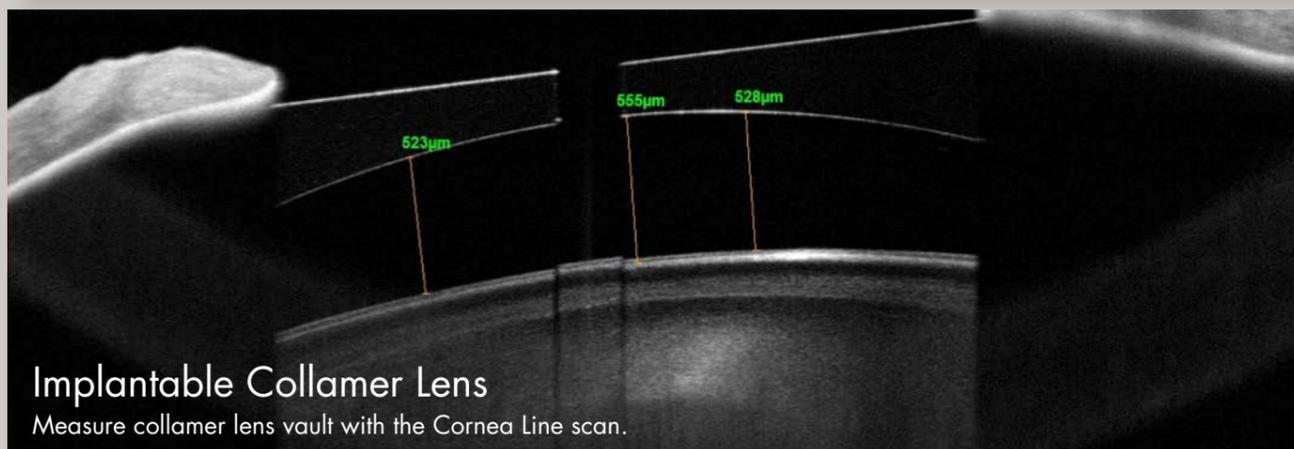
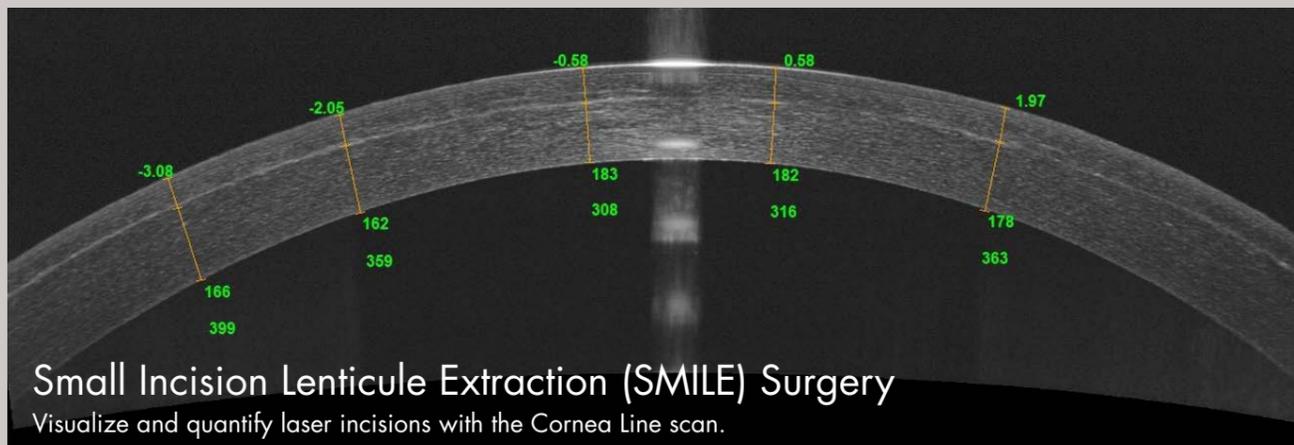


Jay Wei  
Founder and CEO  
Optovue, Inc.

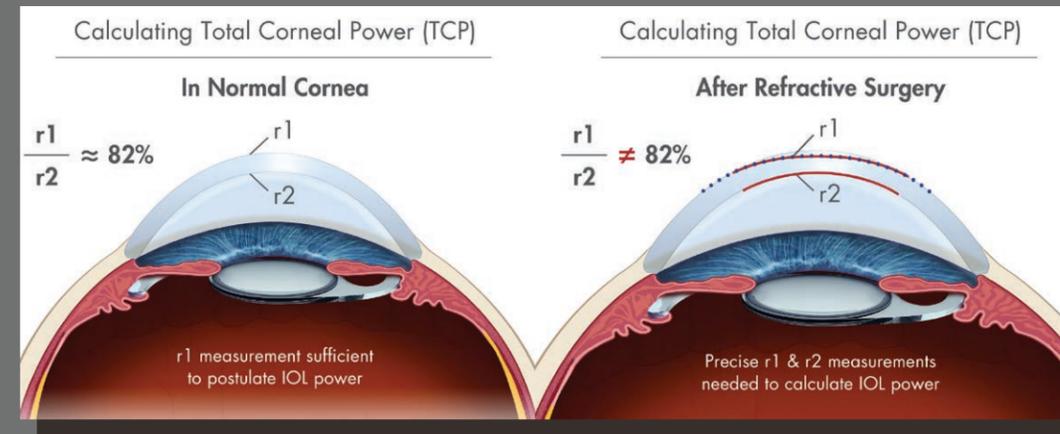


### Refractive Surgery

Visualize and measure anterior segment surgery outcomes with the **Cornea Line scan, Pachymetry and 9mm Epithelial Thickness Mapping.**



### Cataract Surgery



Total Cornea Power (TCP)<sup>®</sup> measures the front and back surface of the cornea to enable precise calculation of corneal power in post-laser vision correction patients.

### TCP DATA POINTS

Enter the data points into the ASCRS calculator to generate recommended lens power. <http://iolcalc.ascrs.org/>

#### CORNEAL POWER

Within central 3mm zone

Power	Net	Anterior	Posterior
	41.08	47.20	-6.22

#### CURVATURE RADIUS

Anterior R:	Posterior R:
7.966	6.434

#### PACHYMETRY

Layer Offset Thickness

SN-IT (2-5mm):	S-I (2-5mm):	Location Y:
9	8	59
Min: 463	Min-Max: -71	
Min-Median: -33		

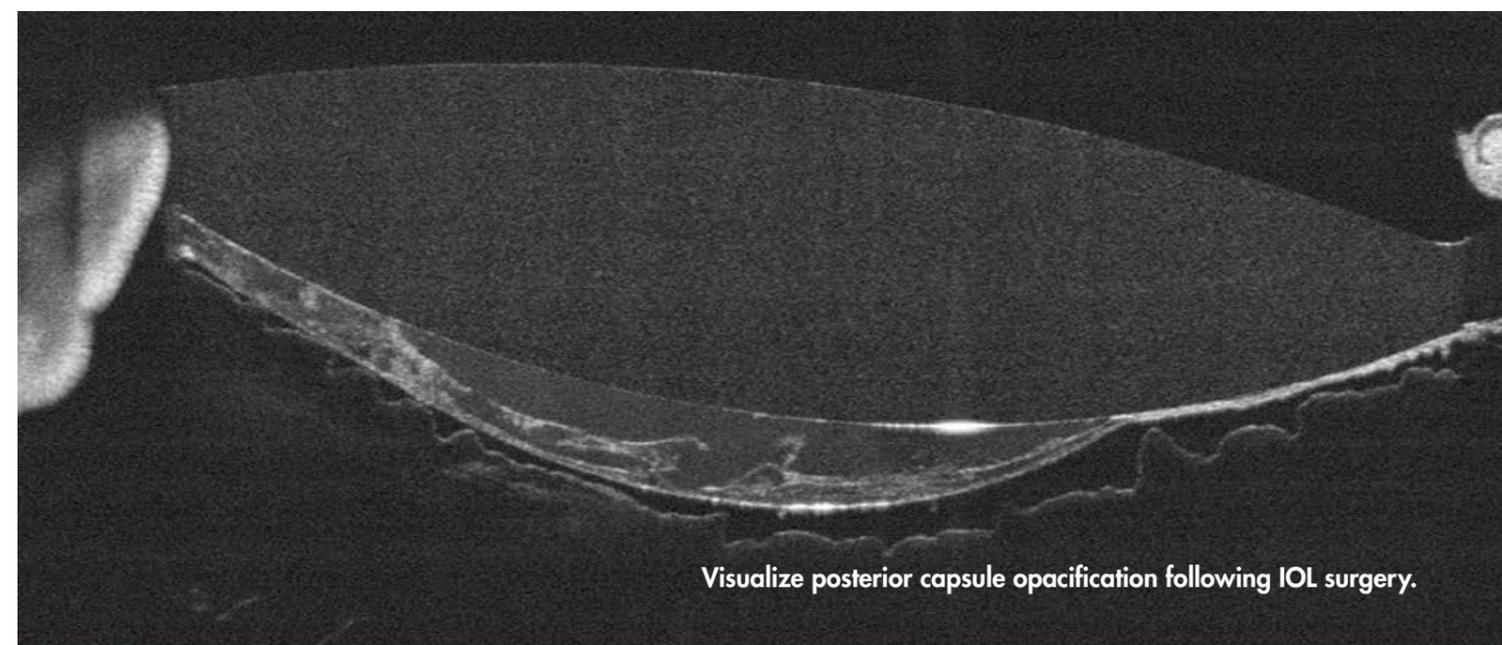
Min thickness at (-0.129mm, 0.059mm) indicated as\*

#### EPITHELIUM

Epithelium statistics within central 5mm

S (2-5mm):	I (2-5mm):
55	57
Min: 51	Max: 61
Std Dev: 2.3	Min-Max: -10

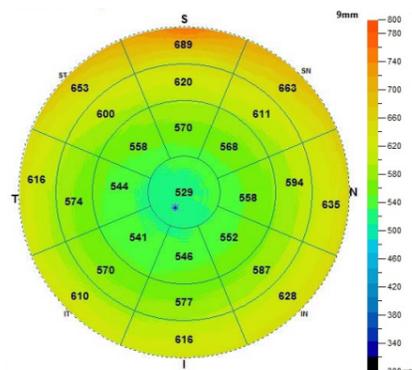
Min/Max thickness indicated as\*/+



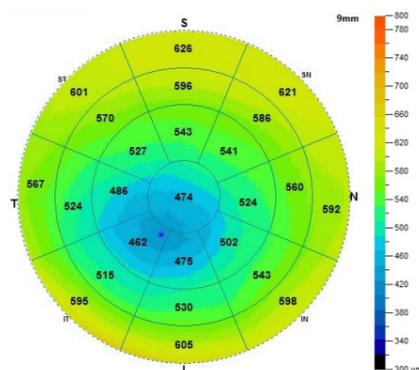
### Keratoconus & Other Ectasias

Quantify **epithelial, stromal and total corneal thickness** to aid in disease diagnosis. Pachymetric measurements may be compared to the Coollabs Keratoconus Risk Scoring System to further enhance diagnostic accuracy.

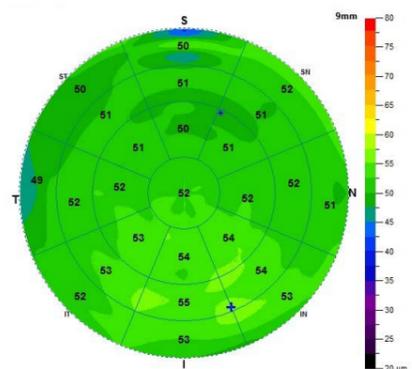
(<http://www.coollab.net/resources>)



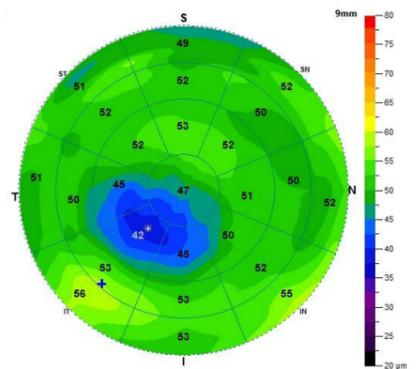
Normal eye - 9mm Pachymetry Map



Keratoconus eye - 9mm Pachymetry Map



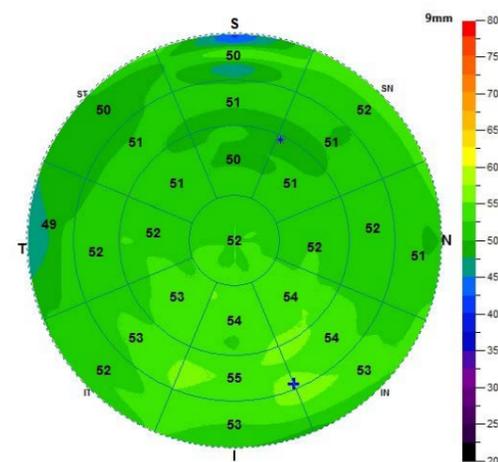
Normal eye - 9mm Epithelial Thickness Map



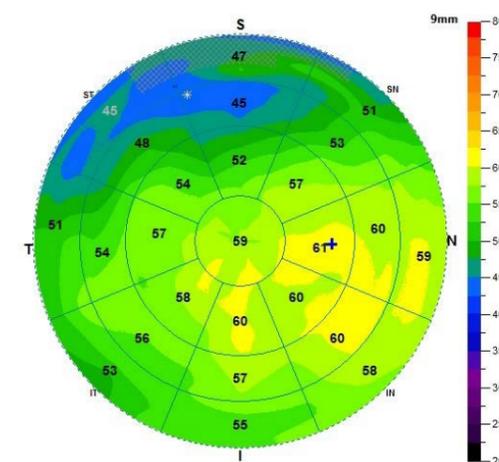
Keratoconus eye - 9mm Epithelial Thickness Map

### Dry Eye

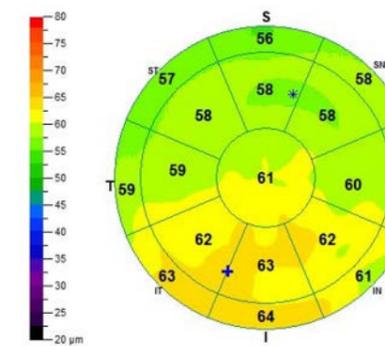
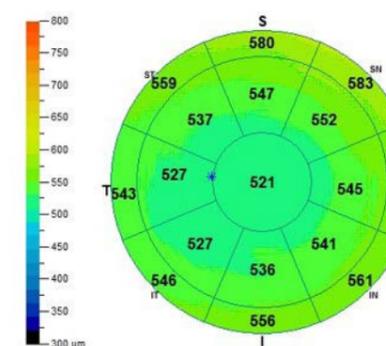
Add new information to the diagnosis and management of dry eye patients with **Epithelial Thickness Mapping**.



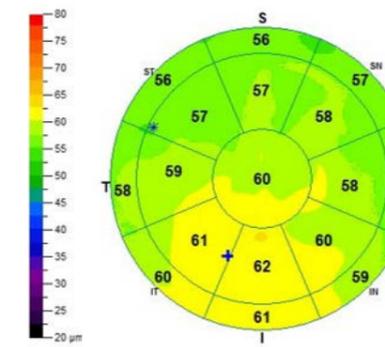
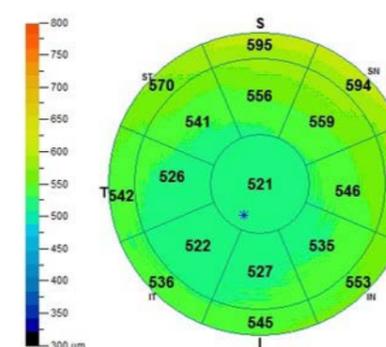
Epithelial Thickness in Normal Eye



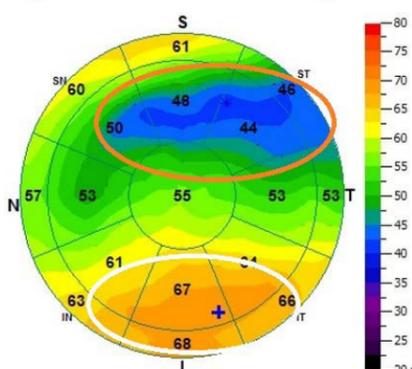
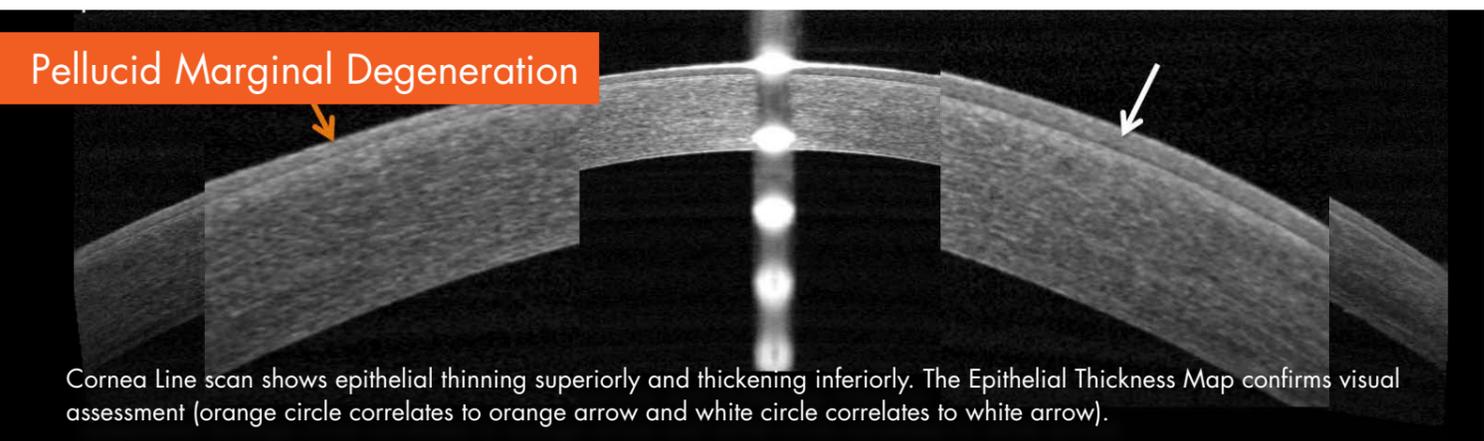
Epithelial Thickness in Dry Eye



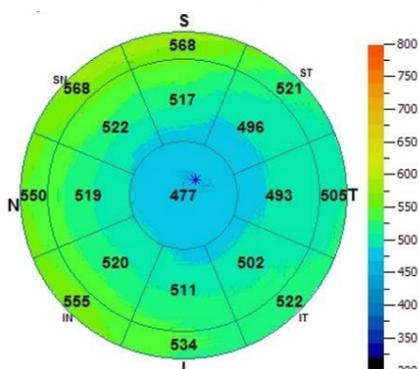
Pachymetry and Epithelial Thickness Map in Dry Eye at Baseline



Pachymetry and Epithelial Thickness Map in Dry Eye Following Two Weeks of Treatment



Epithelial Thickness Map

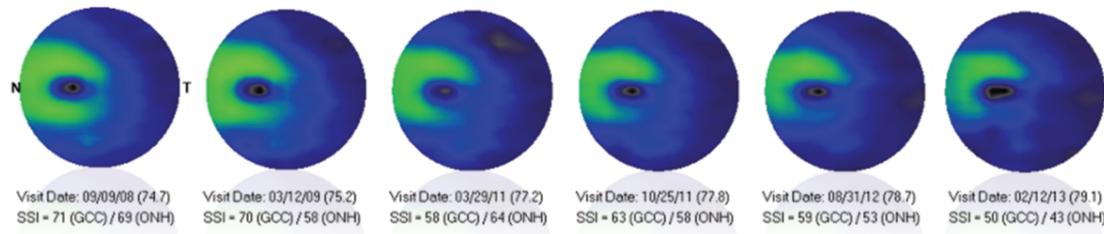


Pachymetry Map

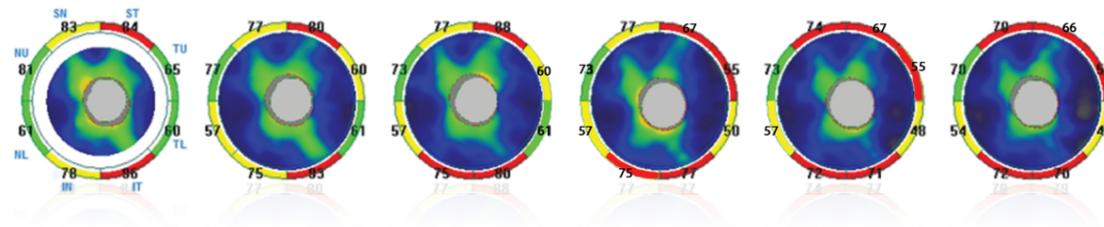
### Trend Analysis

Trend analysis tracks change in both GCC and RNFL to estimate future progression. Optovue-exclusive focal loss volume (FLV) analysis allows detection of focal defects in the ganglion cell complex, which is the most predictive factor for glaucoma progression<sup>1</sup>.

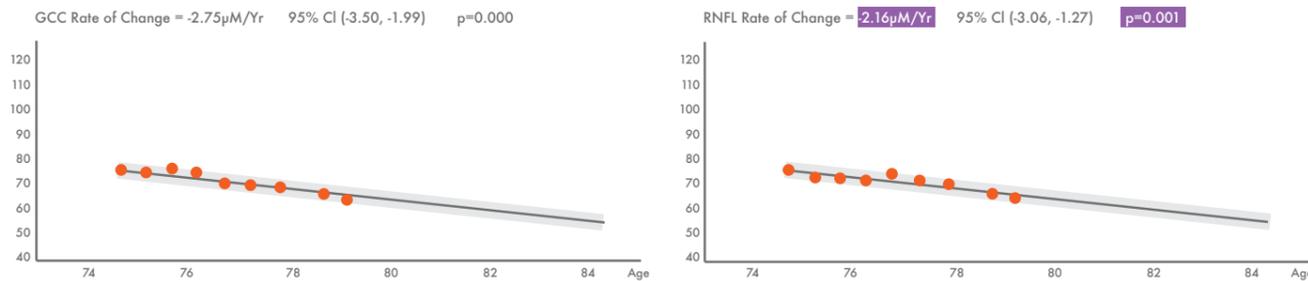
#### GCC Thickness Map



#### RNFL Thickness Map

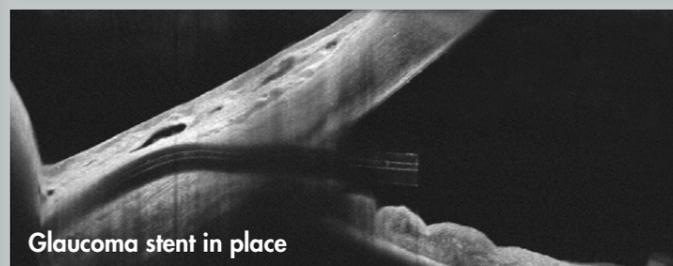
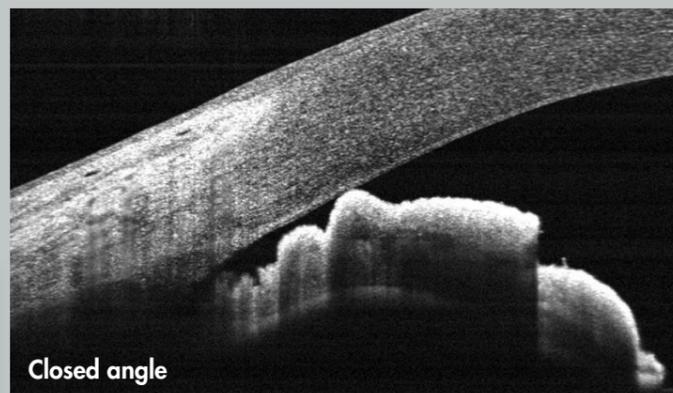
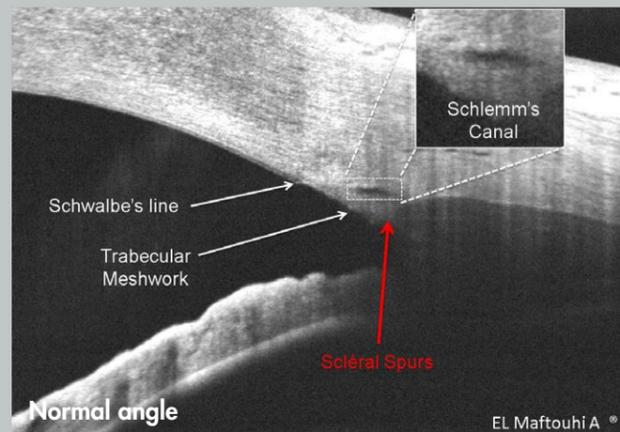


Trend plots approximate rate of change in GCC and RNFL thickness based on all available OCT data.



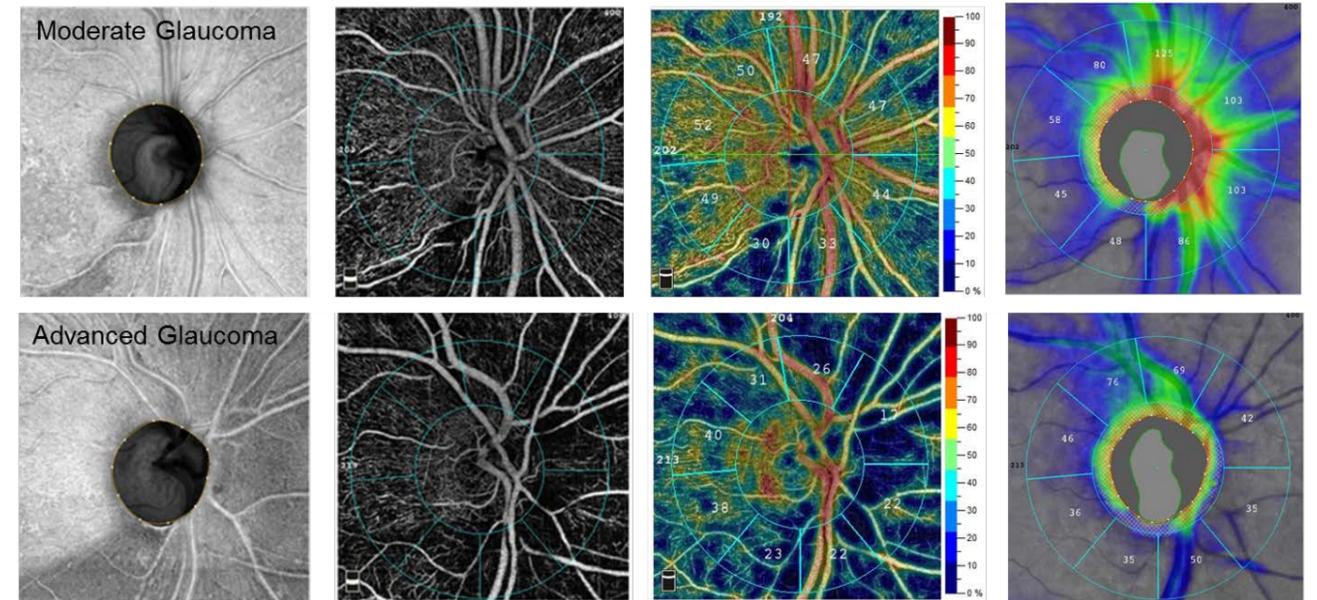
### Angle Analysis

Acquire high-resolution images of the irido-corneal angle to visualize angle structure, the trabecular meshwork and Schlemm's canal. Quantitative measurement tools enable careful assessment of the angle in glaucoma patients.

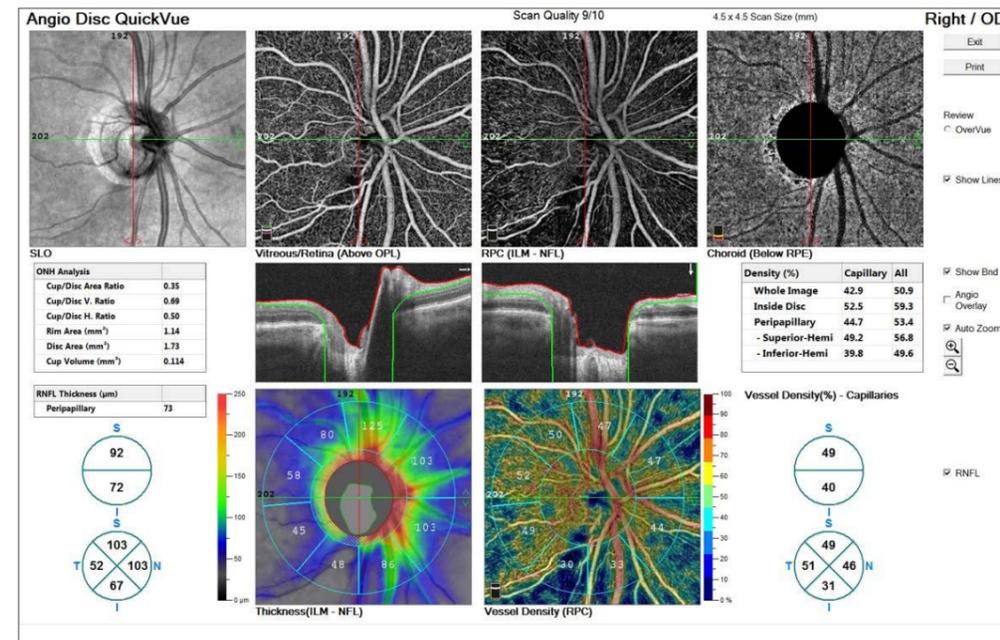
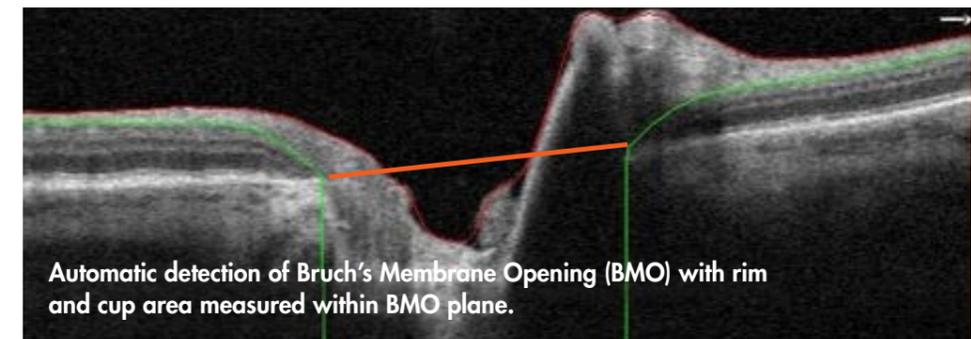


### OCT Angiography of the Optic Disc

Enhance glaucoma diagnosis and management with a single scan protocol showing OCT intensity, radial peripapillary capillary (RPC) vasculature, RPC density and RNFL thickness.



Images courtesy of Drs. Weinreb, Nudleman, Goldbaum, Zangwill, San Diego, California



**Disc QuickVue Report**  
OCT and OCTA analysis in a single scan protocol. Vessel density analysis based on the RPC (ILM~NFL).

1. Zhang X, Loewen N, Tan O, Greenfield D, Schuman J, Varma R, Huang D. Predicting Development of Glaucomatous Visual Field Conversion Using Baseline Fourier-Domain Optical Coherence Tomography. Am J Ophthalmol. 2016 Mar; 163:29-37.

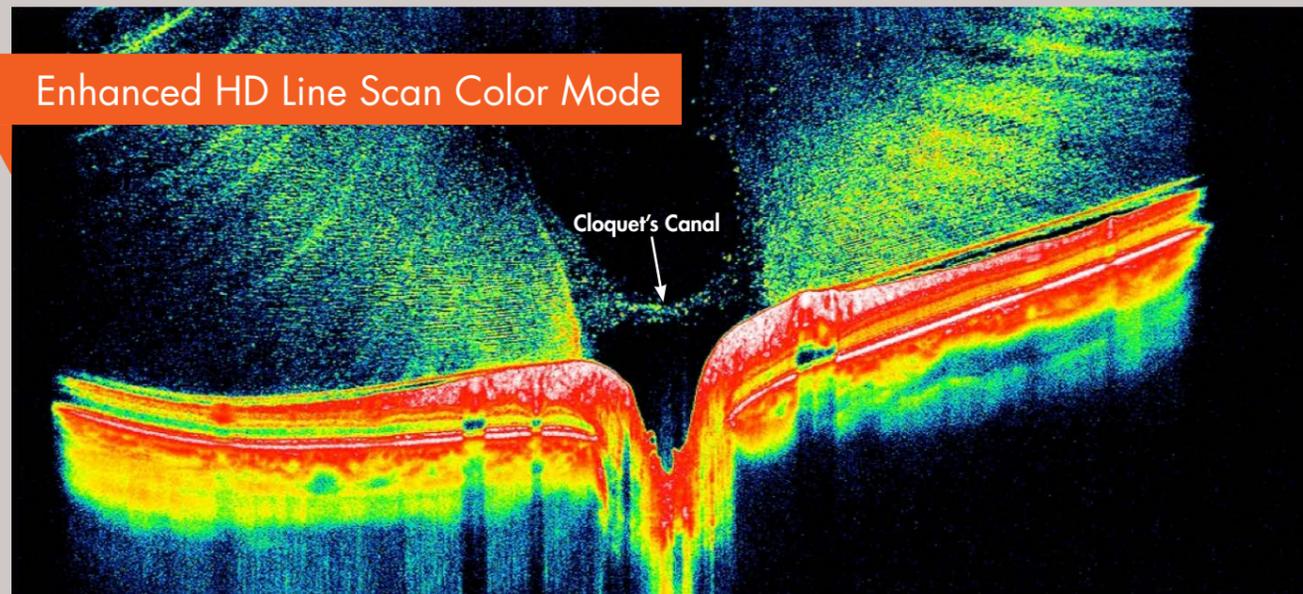
### Enhanced HD Imaging of the Vitreous and Choroid

12mm widefield scan with enhanced depth imaging mode provides high resolution views (5µm axial resolution and 15µm transverse) of the vitreous, retina and choroid with quantitative analysis tools.

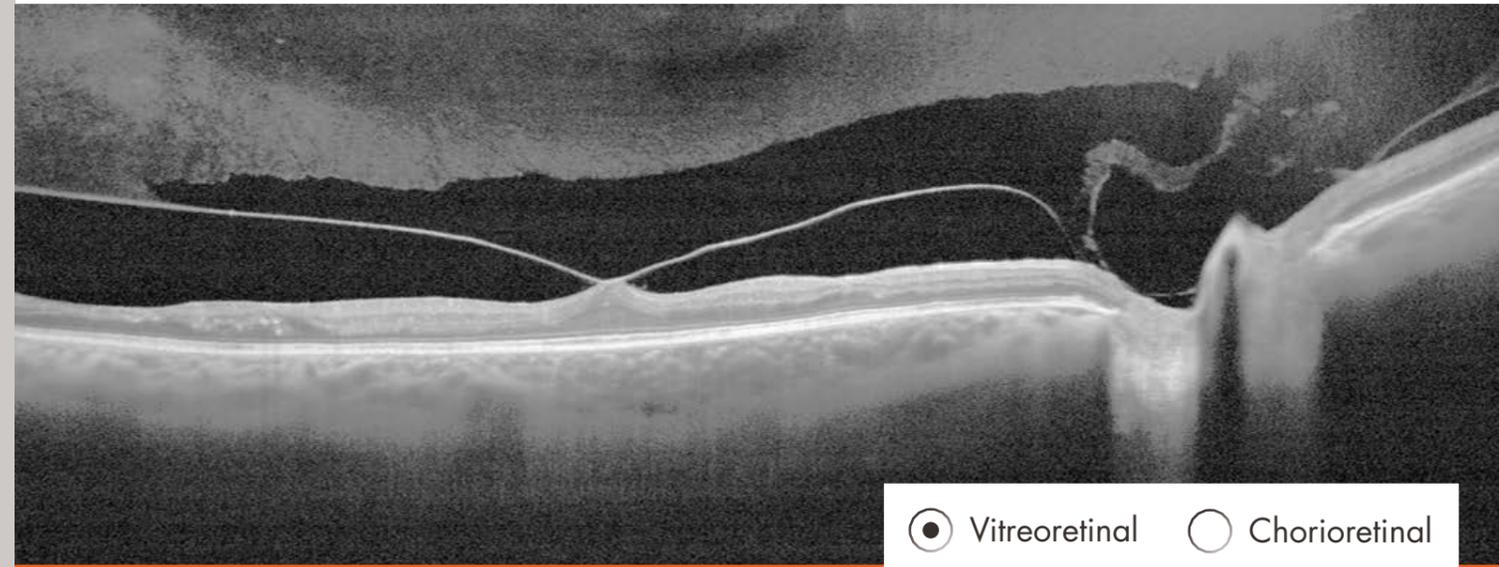
#### Enhanced HD Line Scan



#### Enhanced HD Line Scan Color Mode



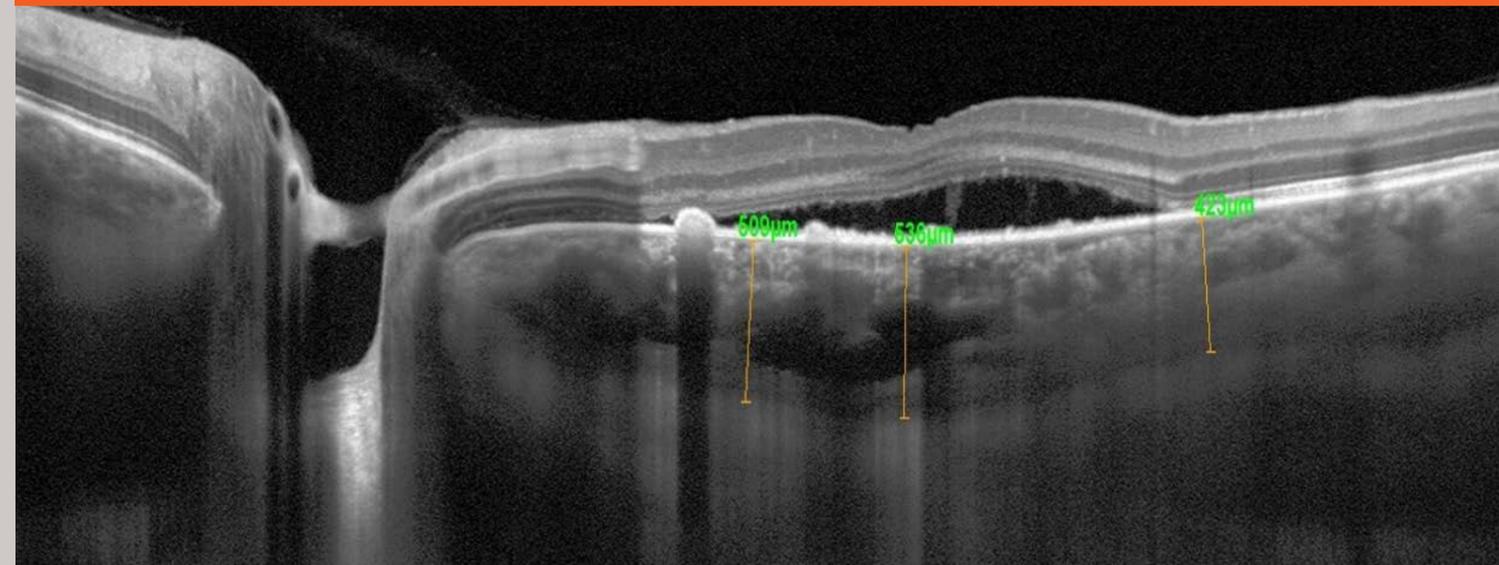
### Enhanced HD Imaging of the Vitreous and Choroid



Easily toggle between vitreous and chorioretinal mode with the Enhanced HD Line scan.

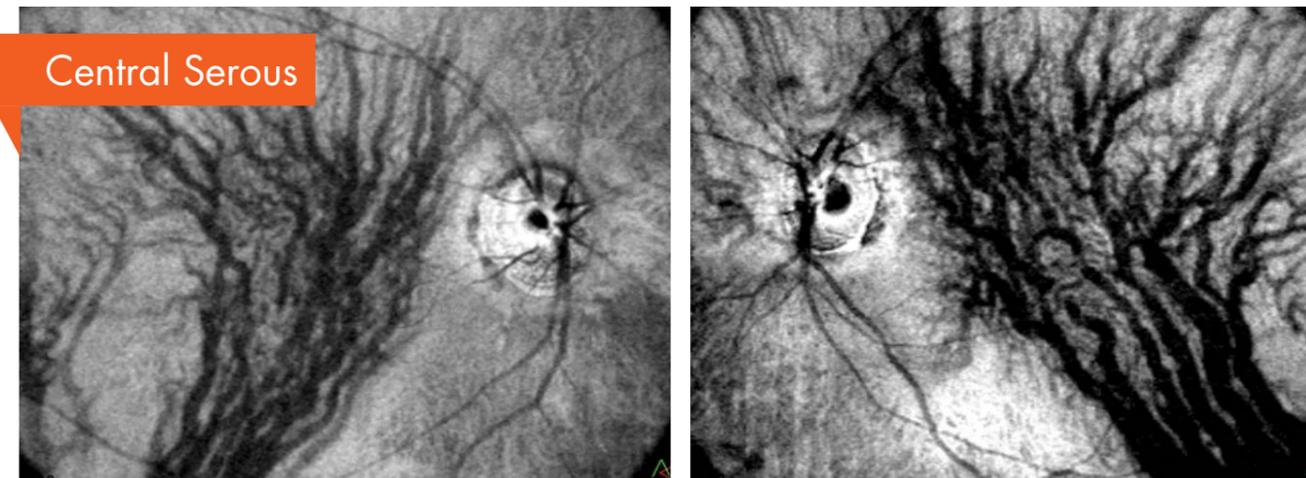


Quantify choroidal thickness with the caliper tool.

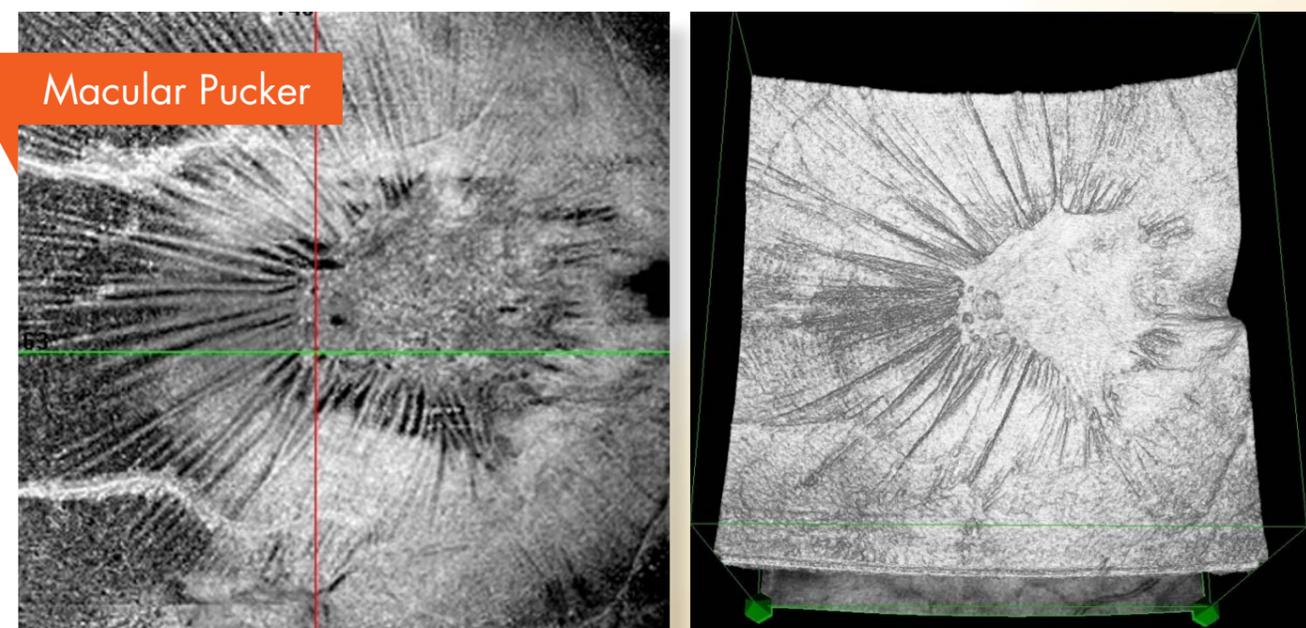


### 3D En Face Imaging

See the retina in three dimensions and **study individual layers** of the retina with en face imaging.

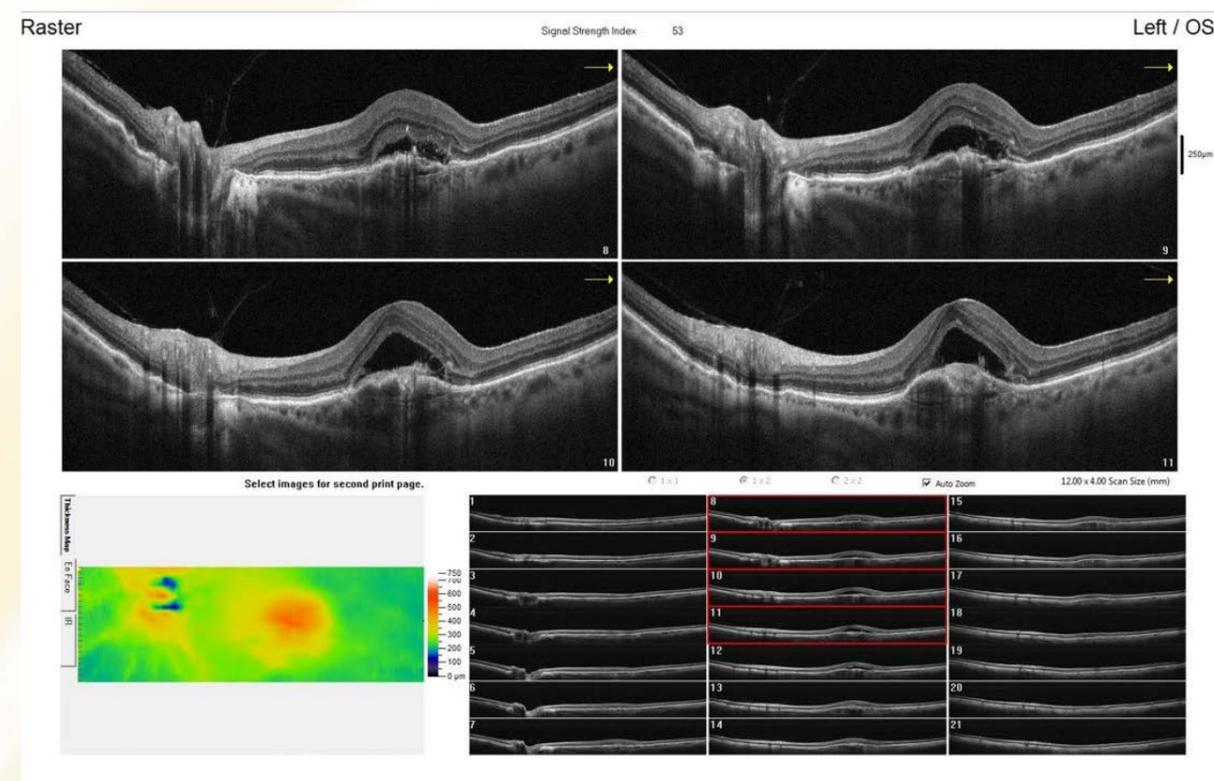


Quickly identify dilated choroidal vessels typically associated with pachychoroid in central serous chorioretinopathy (CSCR).

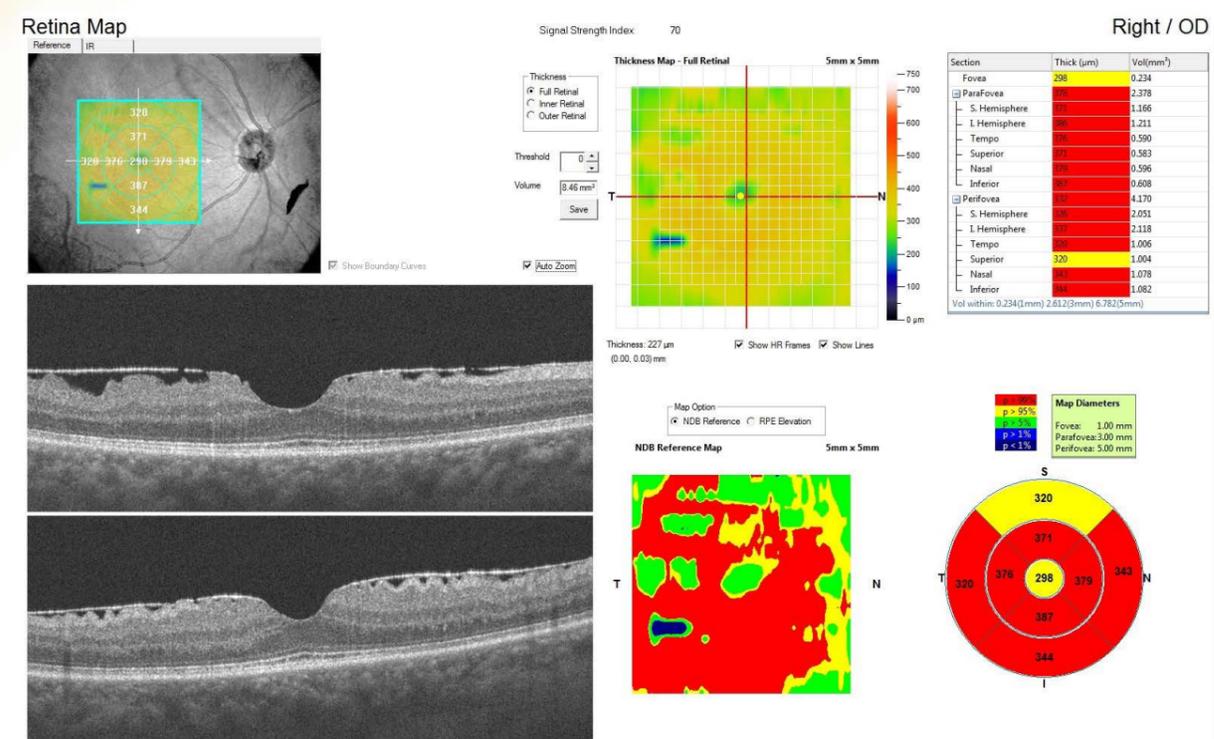


### Comprehensive Retinal Analysis

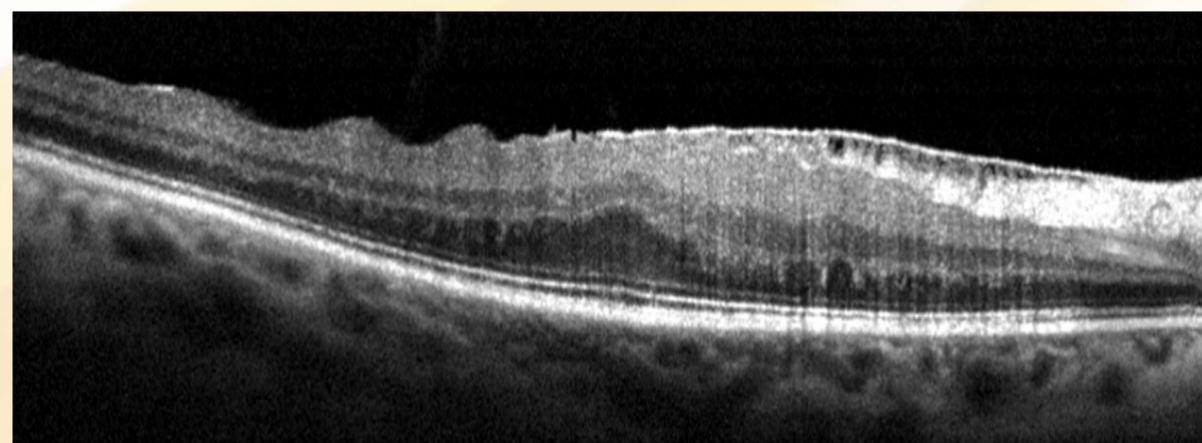
Avanti® reports provide a comprehensive assessment of the retina in an **easy-to-read** format.



21-line Raster scan with thickness map in AMD.



Retinal thickness map with normative comparison showing epiretinal membrane.



En face OCT, the 3D Cube scan and the OCT B-scan display a macular pucker.

### AngioVue OCT Angiography

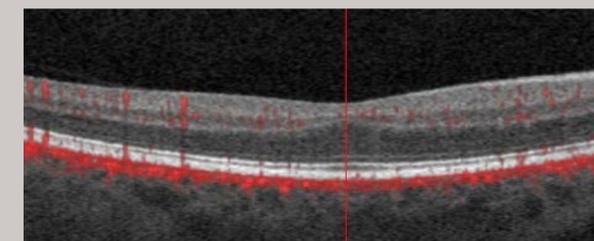
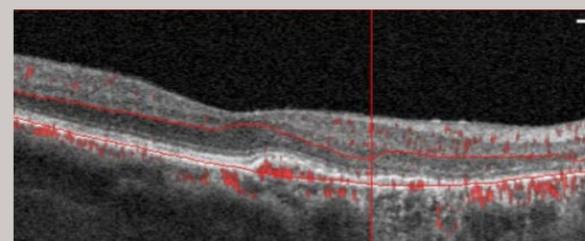
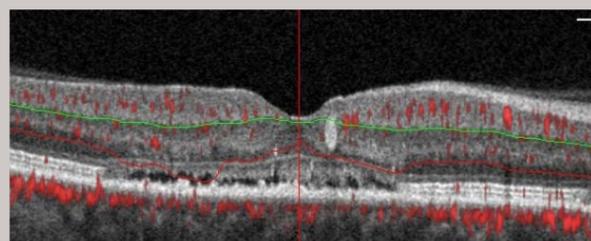
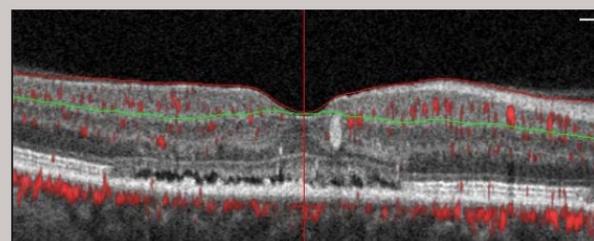
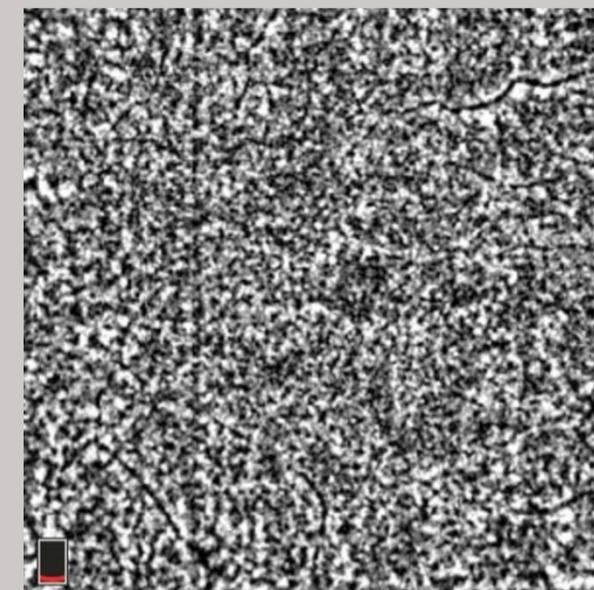
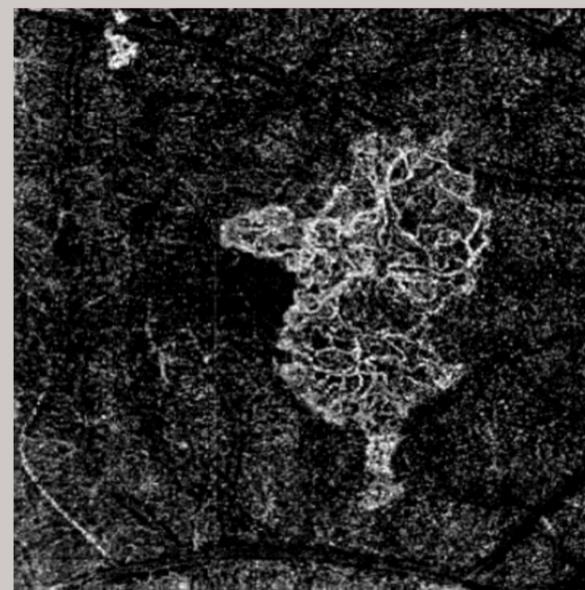
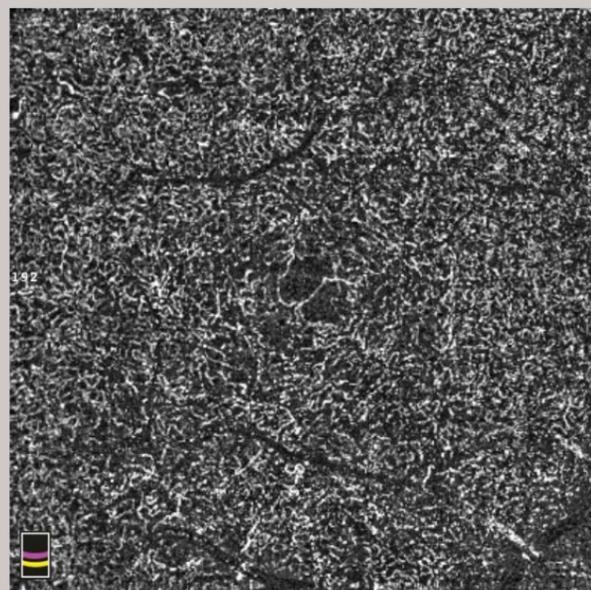
Add AngioVue OCTA to the Avanti platform to enable **non-invasive vascular imaging** of retinal and optic disc vessels.

Superficial Complex

Deep Complex

Outer Retina Zone

Choriocapillaris



### AngioVueHD™

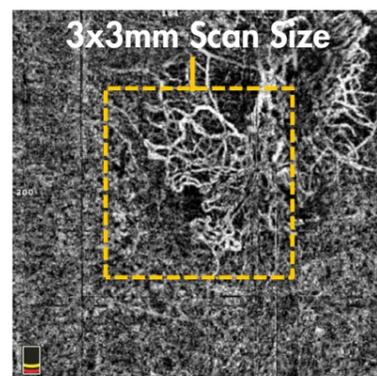
**High density OCTA** (400x400 vs. traditional OCTA density of 304x304) provides unprecedented views of the fine vessels extending beyond the central 3x3mm region of the macula. AngioVueHD affords the highest resolution for large format images.

### AngioVueHD Automatic Montage

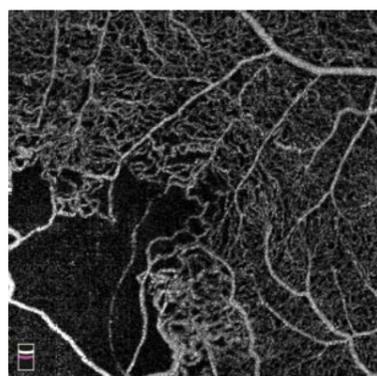
10x6mm field-of-view with outstanding resolution of retinal vasculature in the macula and optic disc.

### SSADA: Split-Spectrum Amplitude Decorrelation Angiography

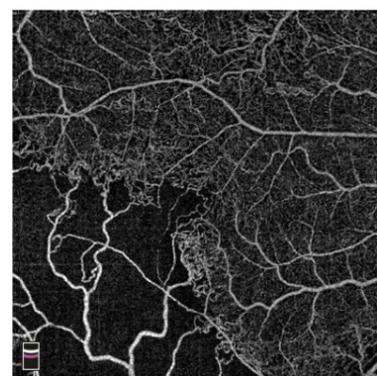
OCTA relies on the acquisition of sequential OCT B-scans at a single cross-section of the retina and a comparison of the scans against one another. The differences between scans indicate the presence of blood flow. SSADA is a proprietary algorithm that shortens the scan time needed to acquire the sequential B-scans while producing unparalleled OCTA image quality by optimizing the signal to noise ratio.



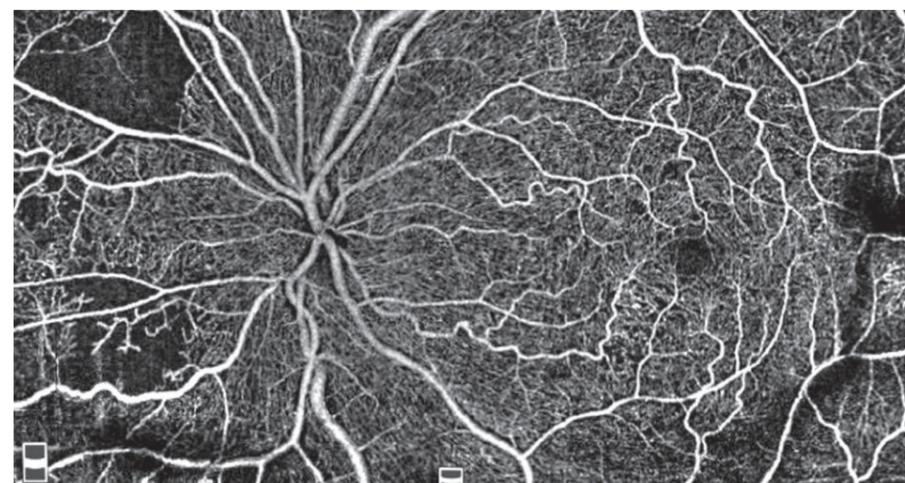
CNV



BRVO 3x3mm

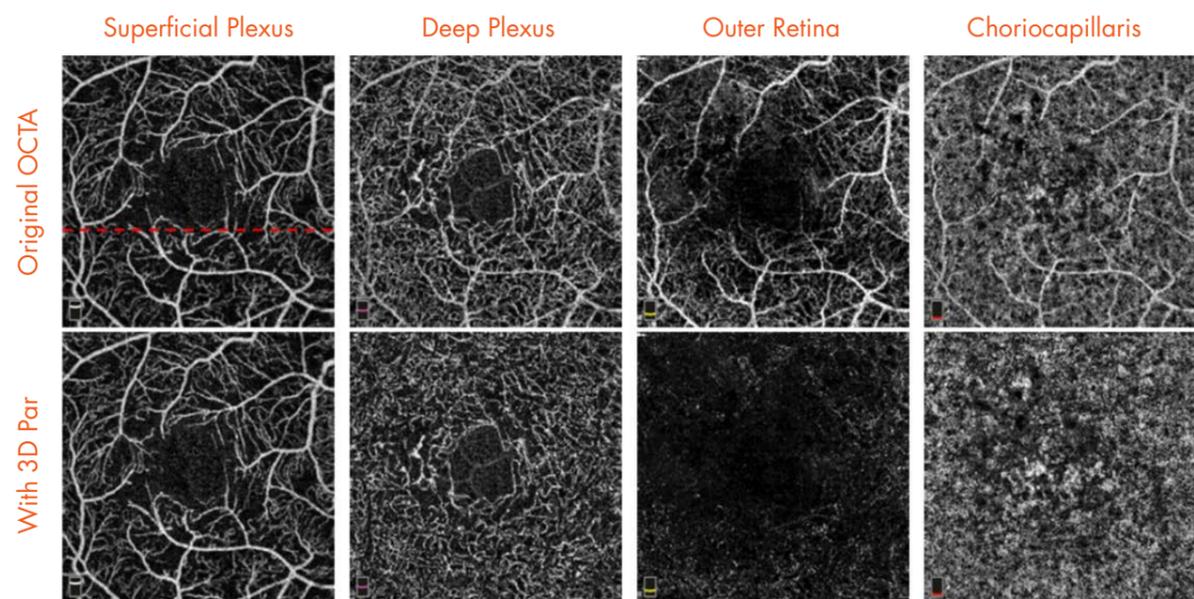


BRVO 6x6mm HD



### AngioVue Projection Artifact Removal

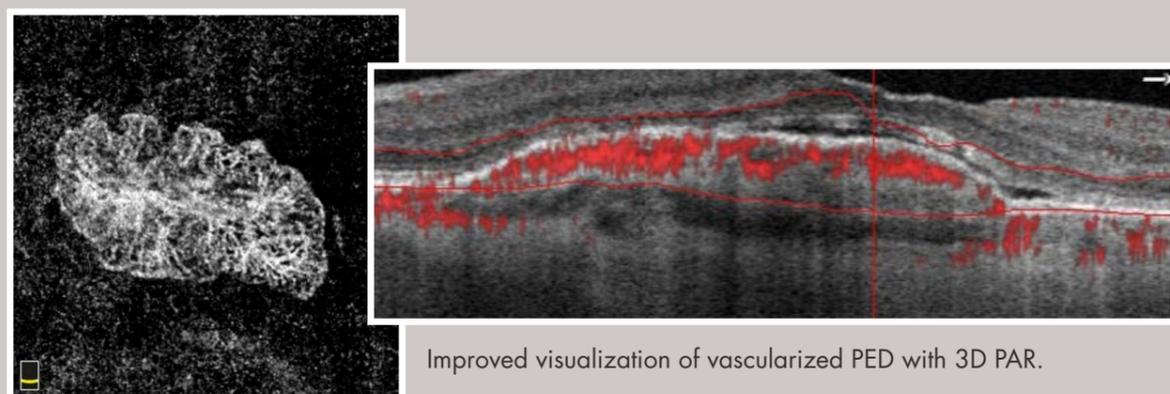
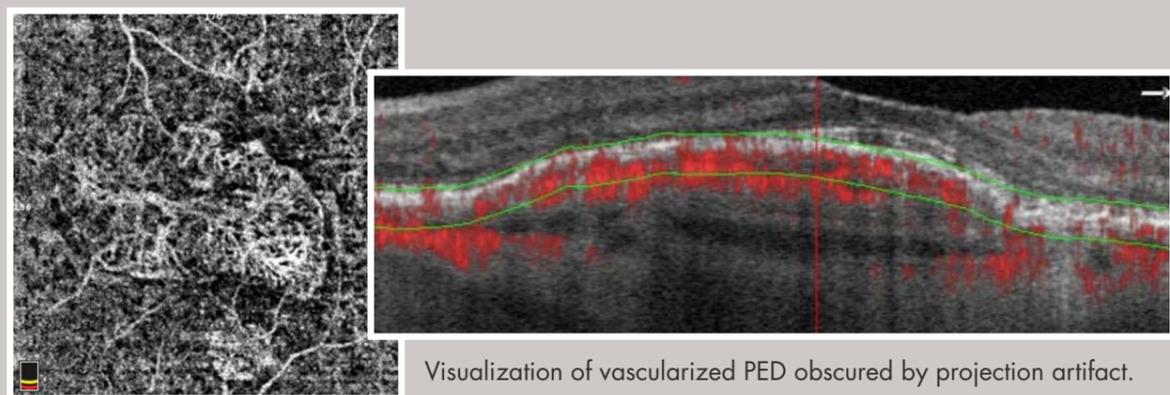
3D Projection Artifact Removal (PAR) reduces projection artifact in **all posterior layers** by performing vessel-by-vessel analysis to remove artefactual vessels while keeping authentic vasculature, which is **essential for accurate image interpretation and quantification**.



Images courtesy of Drs. Weinreb, Nudleman, Goldbaum, Zangwill, San Diego, California

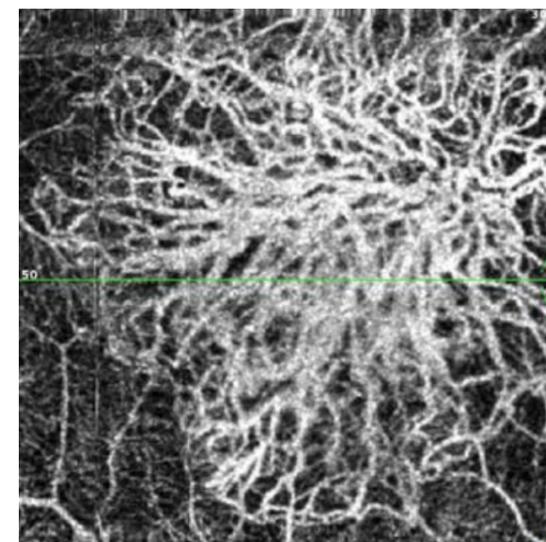
### 3D PAR™ Improves Visualization

Abnormal vasculature in the outer retina and choroid is more easily identified when projection artifact is removed.

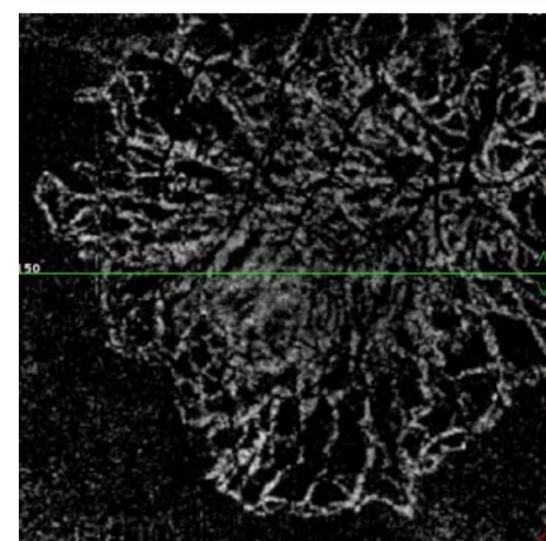


### 3D PAR Reduces Over-Correction

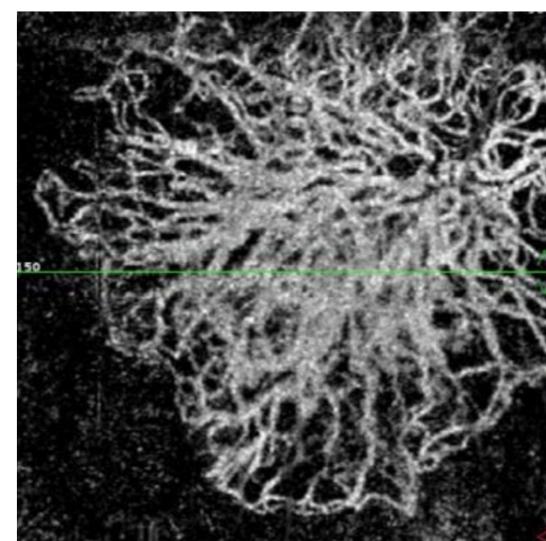
Unlike traditional projection artifact removal algorithms, **3D PAR maintains the signal strength** to better display real vasculature.



No PAR



2D PAR/  
Traditional  
PAR

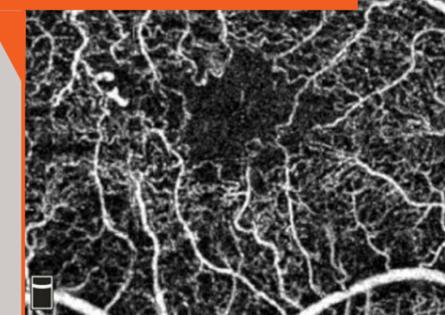


3D PAR

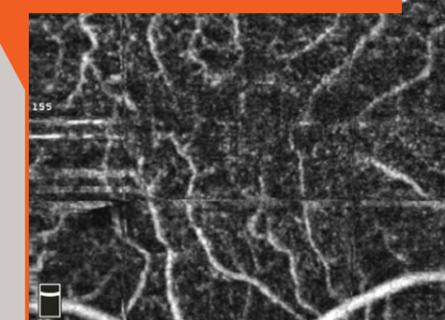
### DualTrac™ Motion Correction

DualTrac Motion Correction Technology combines real-time tracking, a high-speed infrared camera (30 frames/sec.), and patented post-processing to enable true 3D correction of distortion in all directions. The outcome is ultra precise motion correction resulting in superior image quality.

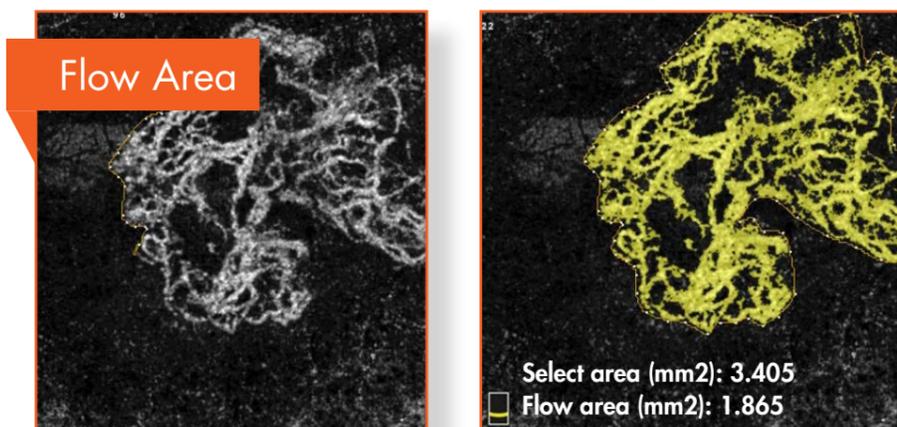
### With DualTrac



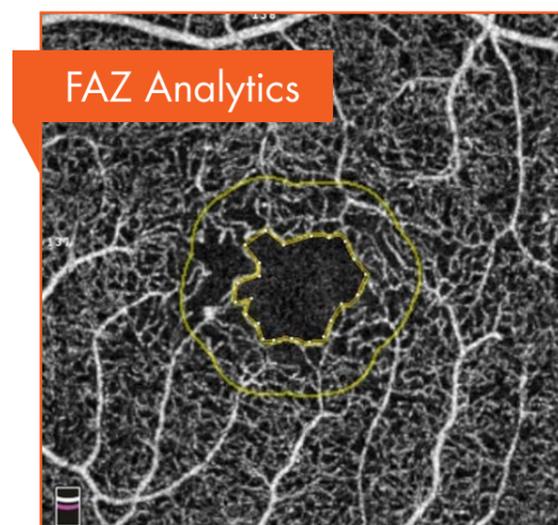
### Without DualTrac



### AngioAnalytics



Measure Flow Area by outlining a region for vessel detection. The extracted Flow Area measurement is based on the Outer Retina slab (OPL ~ BRM).



Measurements include Foveal Avascular Zone (FAZ) area, perimeter, A-circularity index and foveal vessel density.\*

\*Based on methods described by Richard Rosen, MD and Toco Chui, MD, ARVO 2016.

### Vessel Density Mapping

Vessel density mapping measures the vessel density of the superficial and deep plexi of the retina as well as the radial peripapillary capillary layer of the optic disc.

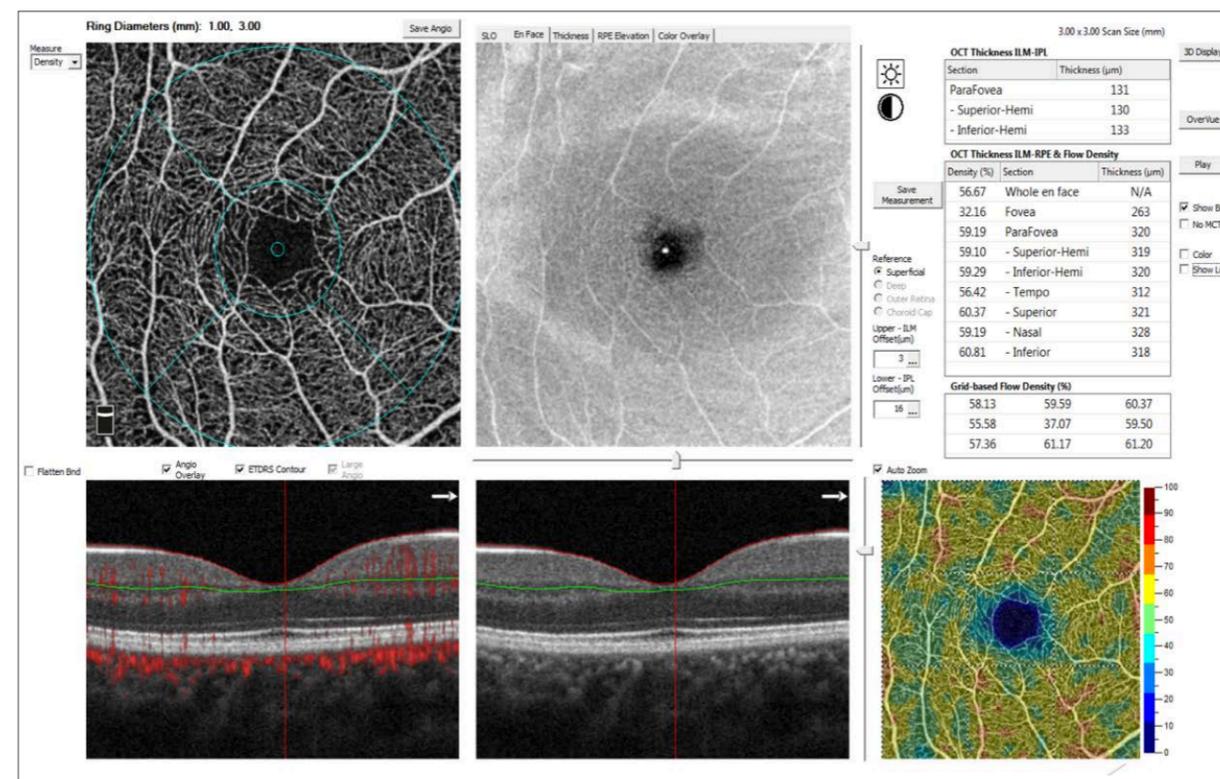
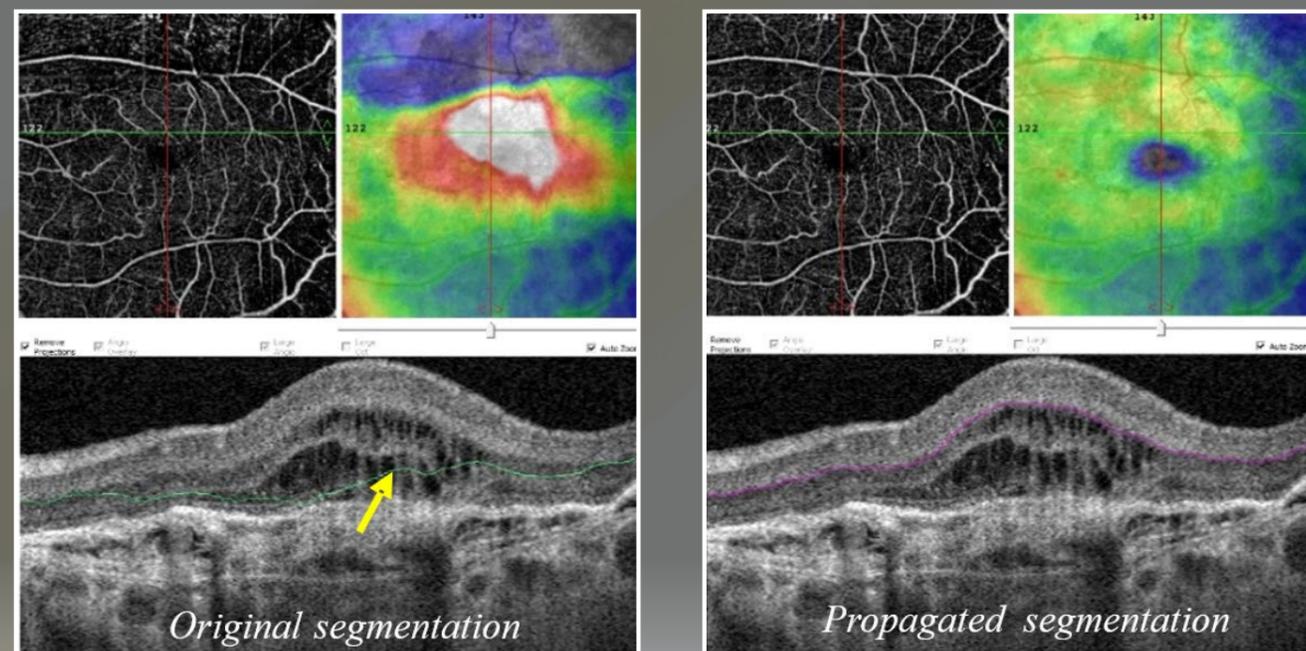


Image courtesy of Julie Rodman, OD, FAAO, Ft. Lauderdale, Florida

### Segmentation Quick-Edit

When segmentation editing is needed, boundaries may be manually adjusted at a single point and propagated throughout the entire B-scan in less than one second to quickly improve the accuracy and consistency of CNV assessment and quantification - even in eyes with extensive pathology.

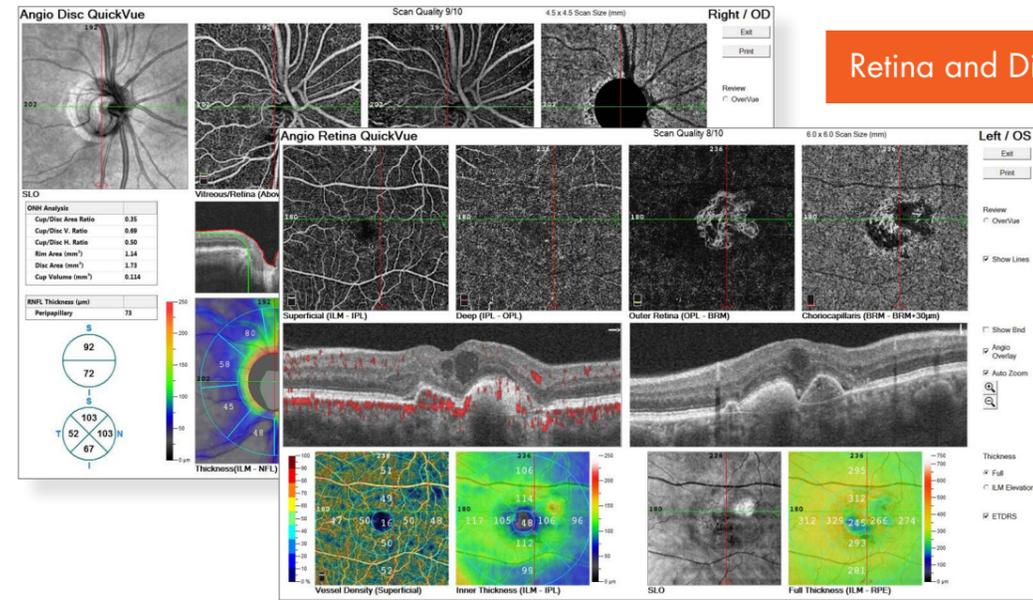


Original segmentation

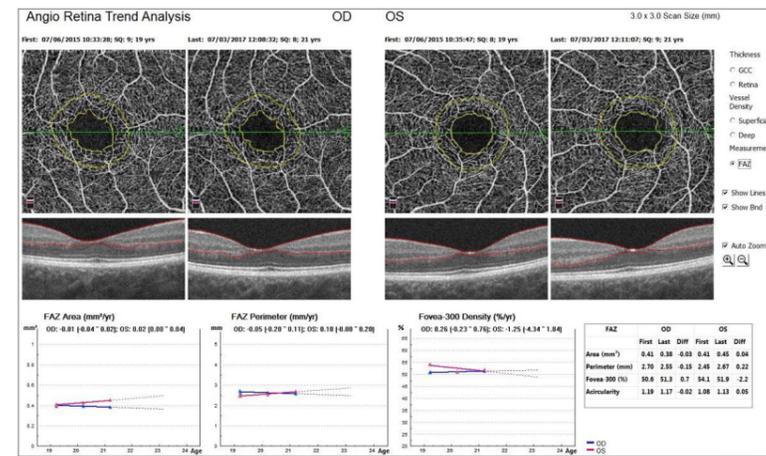
Propagated segmentation

### AngioAnalytics Reports

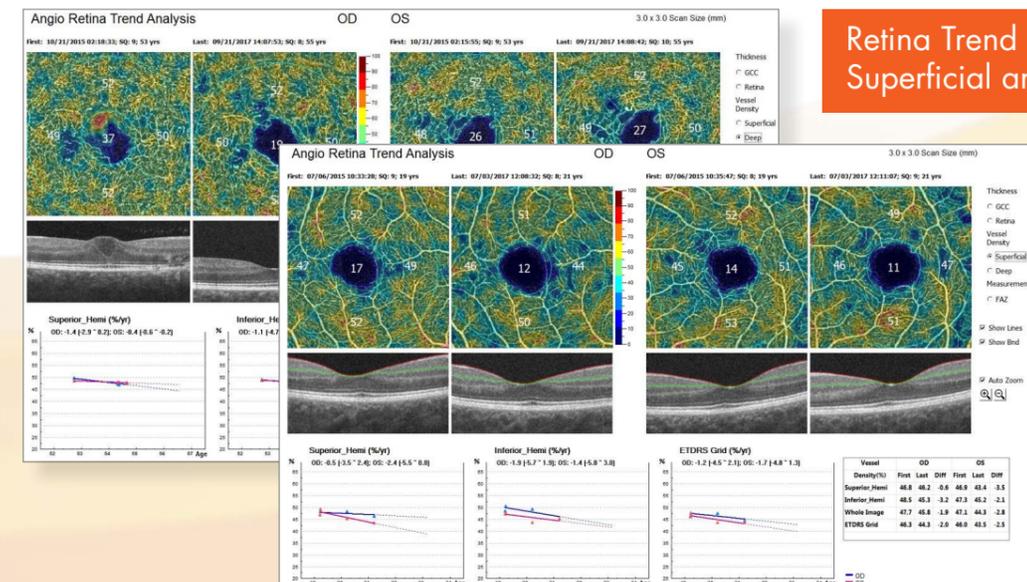
AngioAnalytics reports enable quick and comprehensive analysis of the retina and optic disc.



Retina and Disc QuickVue Reports



FAZ Trend Report



Retina Trend Report - Superficial and Deep Plexus

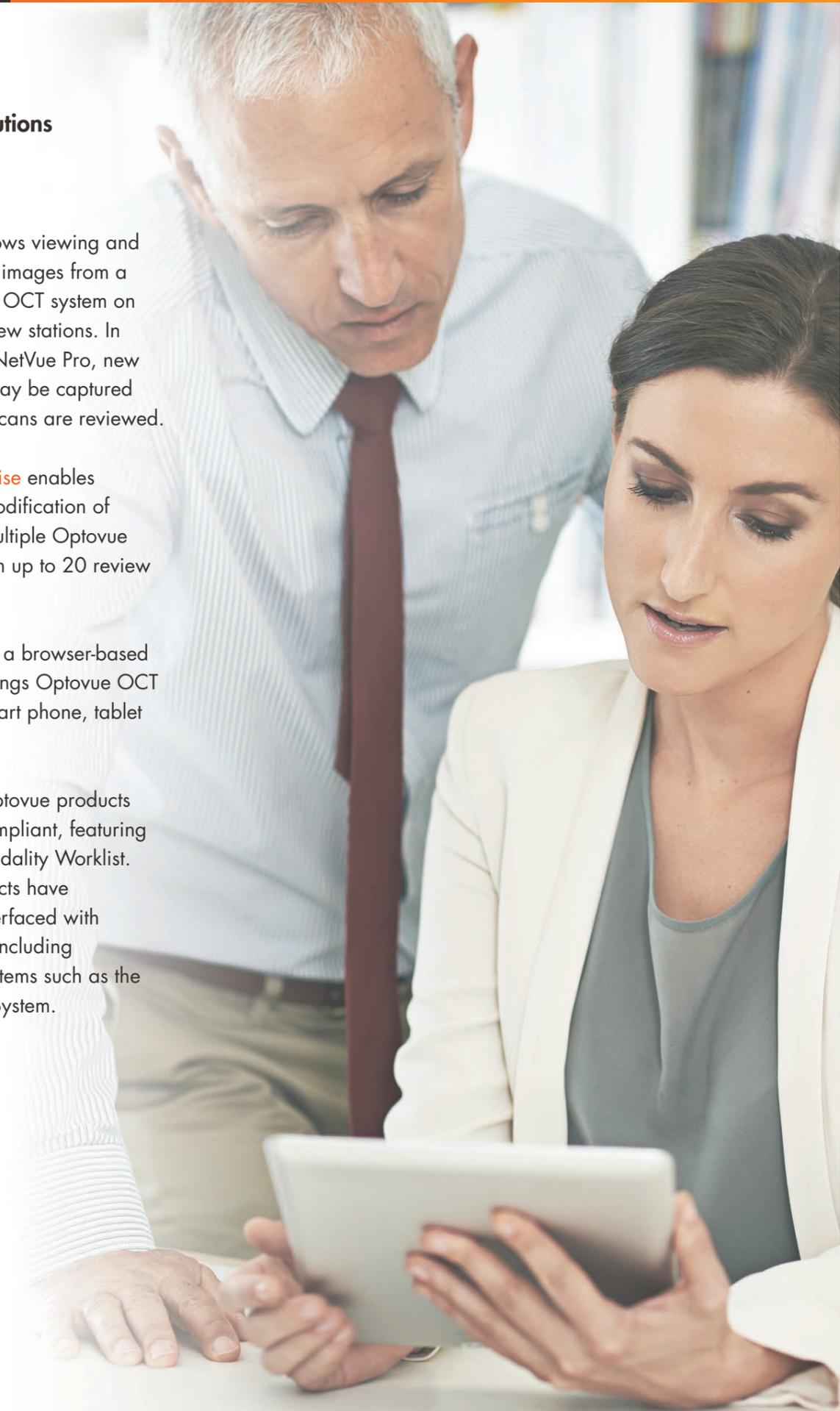
The Avanti Widefield OCT platform with AngioVue OCTA is available in a variety of configurations to meet the specific needs of your practice.

	Avanti Widefield OCT	AngioVue Comprehensive	AngioVue Retina	AngioVue Essential
Retina OCT	•	•	•	•
RNFL / Disc OCT	•	•		•
Anterior Seg OCT	•	•		•
Wellness	•	•		•
Retina OCTA		•	•	•
Optic Disc OCTA		•	•	
OCTA Overview Report		•	•	•
OCTA Working Page		•	•	
AngioAnalytics		•	•	



## Networking Solutions

- **NetVue Pro** allows viewing and modification of images from a single Optovue OCT system on up to eight review stations. In addition, with NetVue Pro, new patient scans may be captured while existing scans are reviewed.
- **NetVue Enterprise** enables viewing and modification of images from multiple Optovue OCT systems on up to 20 review stations.
- **NetVue Web** is a browser-based solution that brings Optovue OCT images to a smart phone, tablet or PC.
- **DICOM.** All Optovue products are DICOM-compliant, featuring C-store and Modality Worklist. Optovue products have successfully interfaced with several PACS, including government systems such as the Vista Imaging System.



### TECHNICAL SPECIFICATIONS

OCT Scanning Speed	70,000 A-scans per second
Optical Axial Resolution	~5 microns (digital pixel sampling = 3 $\mu$ m)
Optical Transverse Resolution	~15 microns
OCT Axial Imaging Depth	2 to 3 mm (dependent on scan protocol)
AngioVue Imaging Volume	304 x 304 A-scans (for non-HD scans) 400 x 400 A-scans (for HD scans)
Acquisition Time Per OCTA Imaging Volume	~3 seconds
AngioVue Imaging Size (Retina)	3x3mm, 6x6mm HD, 8x8mm (AngioVue Essential includes 6x6mm scan only)
AngioVue Imaging Size (Optic Disc)	4.5x4.5mm HD, 6x6mm HD
Field of View	12x9mm

### NETWORKING SPECIFICATIONS

Operating System	Windows 7; 64-bit OS compatible
Hard Drive Availability	Minimum 50GB
Processor Speed	Minimum Intel i5 Recommended Intel i7 3 GHz or higher
Computer RAM	Minimum 8GB RAM Recommended 16GB RAM
Dedicated Graphics Card	Not required Recommended NVIDIA GTX 970
Monitor Resolution	1920x1080, 1680x1050, 1600x1024, 1600x900
Network Bandwidth	1 Gbps or higher

### TABLE SPECIFICATIONS

Width	950mm (37.4 inches)
Depth	600mm (23.6 inches)
Height (Adjustable)	695-995mm (27.4-35.2 inches)

## OPTOVUE EXCLUSIVES:

- Focal loss volume (FLV) analysis for glaucoma
- Total Cornea Power (TCP) for anterior segment surgery
- Vessel Density with trend analysis for the macula (including deep plexus) and disc
- Split-spectrum technology (SSADA) on OCTA scans
- 3D Projection Artifact Removal
- DualTrac Motion Correction Technology

## FIND A DISTRIBUTOR:

Find your local Optovue distributor:

[optovue.com/contact](http://optovue.com/contact)



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Part Number: PN 301-53104 Rev. A

Brochure intended for distribution outside of the U.S. only.

9mm Epithelial Thickness Mapping, AngioAnalytics, 3D PAR and Segmentation Quick-Edit are not FDA cleared for sales in the U.S.

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