\textit{OCT + OCTA}

Avanti\textsuperscript{TM}  
WIDEFIELD OCT

with

AngioVue\textsuperscript{TM}  
OCTA IMAGING
Avanti Widefield OCT with AngioVue OCTA Imaging

Comprehensive Structural and Functional Imaging — in a Single Imaging Platform
Comprehensive OCT Imaging

The Avanti™ Widefield OCT is a powerful clinical tool that will transform the way you diagnose ocular disease — from the anterior segment to the choroid, to let you tailor your approach to treatment for truly personalized care.

- Visualize the vitreous and deep choroid and gain new information beyond the traditional 6x6mm cube
- Track and estimate rate of change in RNFL and GCC thickness
- Quantitatively assess the anterior segment to expand the clinical utility of your OCT system

The Future of Retinal Imaging

AngioVue™ OCTA Angiography (OCTA) brings valuable new information to clinical practice through non-invasive visualization and quantification of retinal blood flow.

- Visualize microvascular blood flow non-invasively in a matter of seconds
- Analyze areas of flow, non-flow and vessel density quantitatively to track disease
- Personalize patient care with novel, real-time information that aids in treatment decisions
Retina Applications

See Retinal Blood Flow in Exquisite Detail

Quantitatively Assess Vasculature

Glaucoma Applications

Visualize Optic Disc Blood Flow

Measure Ganglion Cell Thickness with Normative Comparison
View Retinal Structure in High Definition

Evaluate Individual Layers of the Retina

Anterior Segment Applications

Quantify Corneal & Epithelial Thickness

View and Quantify Anterior Chamber Structures
AngioVue OCT Angiography
Crystal Clear Imaging in Seconds

See retinal blood flow in a whole new way with three-dimensional images that are separated into individual layers of vasculature to provide an unprecedented level of detail.

Superficial Capillary Plexus  Deep Capillary Plexus
Outer Retinal Zone  Choriocapillaris
Leading OCTA Innovation and Clinical Applications

- Non-invasive visualization of retinal blood flow.
- Objectively track disease with AngioAnalytics™, the world’s first OCTA quantification.
- Depth resolved imaging displays individual layers of the retina to isolate specific areas of interest and reveal microvasculature not easily seen with FA/ICG.
- Image acquisition requires less time than a dye-based procedure and can be accomplished by a technician.
**Retina Applications**

Visualize widefield views of retinal anatomy and en face views of structural layers.

9x12 mm Widefield

En Face View: IPL Layer

En Face View: RPE Layer

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Analyze retinal structures with comprehensive reports.

Retina Map Report

OCTA OverVue Report

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Personalize patient care by quantitatively tracking change with AngioAnalytics.

Flow Area: 1.529 mm²

Non-Flow Area: 1.081 mm²

Flow Area Measurement

Non-Flow Area Measurement

Vessel Density Map and Quantification

Vessel Density Map

Vessel Density Quantification

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### OCT Thickness

- **ILM-IPL Section Thickness (µm):**
  - Superior-Hemi: 158
  - Inferior-Hemi: 160

### OCT Thickness ILM-RPE & Flow Density

- **Section Thickness (µm) & Density (%):**
  - Whole en face: N/A, 40.05%
  - Fovea: 365 µm, 25.02%
  - Parafovea: 427 µm, 41.02%
    - Tempo: 441 µm, 40.72%
    - Superior: 426 µm, 40.21%
    - Nasal: 405 µm, 38.99%
    - Inferior: 437 µm, 44.15%

### Grid-based Flow Density (%)

- 42.88%
- 41.39%
- 46.08%
- 40.39%
- 26.62%
- 32.85%
- 43.78%
- 41.73%
- 44.52%

### Angio Flow Density (%)

- **Section Density (%):**
  - Whole en face: 49.73%
  - Inside Disc: 26.31%
  - Peripapillary: 59.59%
    - Nasal: 63.85%
    - Inferior nasal: 68.06%
    - Inferior tempo: 61.99%
    - Superior tempo: 64.16%
    - Superior nasal: 68.87%
    - Tempo: 52.03%

### OCTA OverVue Report

- **Flow Area:** 1.529 mm²
- **Non-Flow Area:** 1.081 mm²

- **Vessel Density Map and Quantification:**
  - Flow Area: 1.529 mm²
  - Non-Flow Area: 1.081 mm²
  - Vessel Density Map
  - Vessel Density Quantification
Visualize individual layers of vasculature.

Superficial Capillary Plexus  
Deep Capillary Plexus  
Outer Retina  
Choriocapillaris

Images courtesy of Bruno Lumbroso, MD, Rome, Italy

Analyze retinal structures with comprehensive reports.

OCT OverVue Report  
Change and Trend Analysis Report

Personalize patient care by imaging as often as needed.

CNV Patient Baseline  
24 Hours Post-injection  
7 Days Post-injection  
30 Days Post-injection

Images courtesy of Pravin Dugel, MD, Phoenix, Arizona
Glaucoma Applications

Visualize optic nerve vascular changes in known glaucoma patients.

![Normal Optic Disc](image1)
![Moderate Glaucoma](image2)
![Severe Glaucoma](image3)

Images courtesy of Michel Puech, MD, Paris, France

Analyze anatomical structure and vascular structure with comprehensive reporting.

![ONH/GCC OU Report with Exclusive FLV% and GLV% Metrics](image4)
![AngioDisc Report](image5)

Personalize treatment with trend analysis reports displaying estimated rates of change.

![Rapidly Progressing Patient](image6)
![Slowly Progressing Patient](image7)

Images courtesy of Linda Zangwill, San Diego, California
Anterior Segment Applications: Cornea Advance

Visualize anterior segment structures to gain new information that aids in pre-surgical planning and post-operative assessment.

- 9mm Epithelial Thickness Map
- Corneal Cross-Sections
- 9mm Pachymetry Map

Analyze corneal angles and thickness quantitatively to increase diagnostic confidence.

- Cornea Angles with Measurement Tools
- Pachymetry Change Analysis

Personalize IOL power calculation for post-refractive surgery patients.

**Total Cornea Power® (TCP)**

Provides direct quantification of the corneal power by measuring both the front and back surfaces of the cornea.

Scan acquisition takes less than two seconds and reduces reliance on historical data.
Case Studies

Choroidal Neovascularization

CNV as visualized with FA and OCTA. Abnormal vasculature is seen in the Outer Retinal Zone of the OCT angiogram.

Fluorescein Angiography

AngioVue: Outer Retinal Zone

AngioVue: Superficial Capillary Plexus (white), Outer Retinal Zone (yellow), Choriocapillaris (red)

Images courtesy of Pravin Dugel, MD, Phoenix, Arizona

Proliferative Diabetic Retinopathy

Proliferative diabetic retinopathy with retinal neovascularization visualized in the vitreous-retina.

AngioVue: Optic Disc

Structural En Face OCT: Vitreous-Retina

AngioVue: Vitreous-Retina with Color Overlay

Images courtesy of Bruno Lumbroso, MD, Rome, Italy.
Glaucoma Progression

Trend analysis software estimates the annual rate of change based on all prior visits and may be used to predict the future rate of change. Correlation of the estimated rate of change with the patient’s age and other unique characteristics aids in clinical decision making.

Case studies courtesy of Linda Zangwill, PhD, San Diego, California

Post-Refractive Surgery IOL power Calculation

Total Cornea Power measurements may be entered into the ASCRS IOL calculator to generate a recommended lens power for post-refractive surgery patients.

TCP data increases the robustness of the IOL calculation.

Case study courtesy of Erik Mertens, MD, Antwerp, Belgium
**AngioVue Technology**

**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 (SNR).

This unique technology elevates image quality by optimizing signal-to-noise ratio while minimizing scan acquisition time.

![SSADA images display less noise and a more detailed microvascular network.](image)

SSADA was developed by David Huang, MD, PhD at Oregon Health Sciences.

**En Face Visualization**

En face technology separates the retina into distinct structural layers for assessment of microvascular changes.

En face colorization uses a standard color scheme for rapid identification of the different retinal layers. The en face layer indicator icon provides a reference to the retinal layers displayed.

Red: Choriocapillaris
Yellow: Outer Retina
White: Superficial Capillary Plexus
Purple: Deep Capillary Plexus
DualTrac™ Motion Correction Technology

DualTrac provides high quality imaging through two levels of motion improvements. The first level, tracking, does a real-time correction for saccades, blinks and drifting of the eye. The second level, MCT, is a post processing approach that performs ultra-precise 3-D pixel level registration to further improve the image.

AngioMontage

See a wider field of view with AngioMontage™, which allows for automatic stitching of two 6x6 mm images centered on the macula and optic disc for a widefield view of retinal vasculature.
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 smartphone, tablet or PC.

- **DICOM**. All Optovue products are DICOM compatible.

Networking Specifications

**Operating System**: Windows 7, 8 and 10; 64-bit OS compatible

**Processor Speed**: 3.0 GHz; Intel Quad Core (desktop); Core 2 (laptop)

**Network Bandwidth**: 1 Gbps or higher

**Computer RAM**: 4 GB or higher

**Monitor Resolution**: 1920 x 1080 at 32-bit color
Product Configurations

- **Avanti Widefield OCT** is a structural OCT system featuring extensive retina, glaucoma and anterior segment applications.

- **AngioVue Imaging** is an option to the Avanti system to enable OCTA capabilities.

- **AngioVue Retina** is a configuration designed specifically for retina practices that combines functional OCTA with structural OCT retina scans.

- **AngioVue Retina** may be upgraded to the comprehensive system that includes glaucoma and anterior segment applications at any time.

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# Technical Specifications

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<th>Specification</th>
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<tr>
<td>OCT scanning speed</td>
<td>70,000 A-scans per second</td>
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<tr>
<td>Optical axial resolution</td>
<td>~5 microns (digital pixel sampling = 3 µm)</td>
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<tr>
<td>Optical transverse resolution</td>
<td>~15 microns</td>
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<tr>
<td>OCT axial imaging depth</td>
<td>2 to 3 mm (dependent on scan protocol)</td>
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<tr>
<td>AngioVue imaging volume</td>
<td>304 x 304 B-scans (2 repeat B-scans with 304 lines per B-scan)</td>
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<tr>
<td>Acquisition time per imaging volume</td>
<td>(209K / 70K) ~3 seconds</td>
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<tr>
<td>AngioVue imaging size (retina)</td>
<td>3x3, 6x6, 8x8 mm</td>
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<tr>
<td>AngioVue imaging size (optic disc)</td>
<td>3x3, 4.5x4.5, 6x6 mm</td>
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