
OCT + OCTA
Optovue is solely dedicated to advancing optical coherence tomography (OCT) for the early detection and diagnosis of sight-threatening diseases.

Over the past decade, and in collaboration with industry-leading ophthalmic specialists, Optovue has pursued a single-minded vision to improve the eye health of patients around the world.

From the first Spectral-Domain OCT to today’s OCT angiography (OCTA) platform, Optovue has remained focused on furthering OCT image quality, efficiency and clinical applications that enable you to elevate your level of care.

**Come and join us in our shared purpose.**
Introducing the AngioVue Imaging System

The AngioVue™ Imaging System, installed in more than 450 ophthalmic practices worldwide, is a dual-modality system capable of imaging both structure and function of the ocular microvasculature.

AngioVue provides detailed visualization of the individual layers of retinal vasculature to enable personalized management of disease progression non-invasively, without the use of dye, and with image acquisition in under three seconds.

AngioAnalytics™, the world’s only OCT angiography-based quantification of ocular blood flow, tracks disease by providing objective measures of areas of flow, non-flow and flow density.

AngioMontage™ provides the first widefield view of retinal microvasculature to enable earlier detection and management of disease.
Visualize microvascular blood flow non-invasively in less than three seconds.

Analyze areas of flow, non-flow, and flow density quantitatively to track disease.

Personalize patient care with novel real-time information that aids in treatment decisions.

Baseline  24 hours post-injection  7 days post-injection  30 days post-injection
AngioVue combines structural OCT data with new vascular imaging and quantification information to provide a comprehensive presentation of retinal health with a single imaging platform.

Visualization and Quantification

AngioVue images are 3-dimensional and depth-resolved, so for the first time, physicians can isolate layers of interest for detailed visualization and analysis of retinal pathology.
The world’s first OCTA quantification enables the measurement of flow, non-flow and flow density to objectively track disease.

**AGE-RELATED MACULAR DEGENERATION**

Objectively measure response to injected therapy:

<table>
<thead>
<tr>
<th>Baseline</th>
<th>24hrs post-injection</th>
<th>7 days post-injection</th>
<th>30 days post-injection</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flow Area: 1.30mm$^2$</td>
<td>Flow Area: 1.04mm$^2$</td>
<td>Flow Area: 0.45mm$^2$</td>
<td>Flow Area: 0.80mm$^2$</td>
</tr>
</tbody>
</table>

**DIABETIC RETINOPATHY**

Quantitatively track disease progression:

- Non-Flow Area: 0.816mm$^2$
- Flow Density Map
- Flow Density Quantification

Images courtesy of Bruno Lumbroso, MD, Rome, Italy. Colorization per Organ Health Science University
AngioMontage combines two 6x6mm scan images to create a wider field of view that improves visualization of abnormalities in the retinal vasculature. This unprecedented display of microvasculature enables assessment of the essential part of the retina to aid in the early diagnosis and management of sight-threatening diseases.

Montage review screen showing angioretina and angiodisc overlayed on a widefield en face OCT scan. AngioMontage images may be viewed in black and white or layer-based color.
AngioVue Clinical Applications

Choroidal Neovascularization

**Fluorescein Angiography**

*Case 1*

The FA image shows retinal vascular structure and hyperfluorescence pattern typical of CNV.

*Case 2*

The OCTA en face image of the superficial plexus shows the retinal vascular structure while the OCTA en face image of the choroid shows the CNV vessel network surrounded by choriocapillaris.

**AngioVue**

*Superficial Capillary Plexus*

*Choriocapillaris*
Fluorescein Angiography

Vascular structure and regions of perfusion are visualized in both the FA and OCTA images. Microaneurysms are visible in both images.

AngioVue

Superficial Capillary Plexus

Radial peripapillary capillaries are visualized in all regions of the OCTA en face image and are difficult to see in the FA image.
AngioVue Technology

AngioVue incorporates four essential technologies to create stunningly detailed images with minimal acquisition and processing time, making it ideal for busy clinical practices.

SSADA: Split-Spectrum Amplitude Decorrelation Angiograph

SSADA was developed by David Huang at Oregon Health Sciences.

SSADA is a proprietary algorithm used to detect motion in the vessels. It acquires sequential OCT b-scans at a single cross-section of the retina and compares the scans against one another. The differences between scans indicate the presence of flow.

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

En Face Visualization

AngioVue images are three-dimensional and depth-resolved to enable assessment of individual layers of retinal vasculature.

En face colorization uses a standard color scheme to allow the clinician to identify different retinal layers of interest. The en face layer indicator provides a reference to the retinal layers displayed.
MCT™: Motion Correction Technology

Developed by MIT and the University of Erlangen

MCT corrects residual eye motion artifacts and increases the image intensity. Unlike other motion-correcting technologies, MCT is done as part of the post-scan processing and eliminates the need to re-scan the patient when motion is present.

AngioVue Technology

CUDA Parallel Computing Platform

CUDA dramatically reduces the computation time needed to process images and correct motion artifacts after scan acquisition, making it easy to integrate OCTA imaging into the practice workflow. With CUDA, images load in seconds, not minutes.
### Technical Specifications

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>OCT scanning speed</td>
<td>70,000 A-scans per second</td>
</tr>
<tr>
<td>Optical axial resolution</td>
<td>~5 microns (digital pixel sampling = 3 μm)</td>
</tr>
<tr>
<td>Optical transverse resolution</td>
<td>~15 microns</td>
</tr>
<tr>
<td>OCT axial imaging depth</td>
<td>2 to 3 mm (dependent on scan protocol)</td>
</tr>
<tr>
<td>AngioVue imaging volume</td>
<td>304 x 304 A-lines (2 repeats / B-scan)</td>
</tr>
<tr>
<td>Total A-scans per volume</td>
<td>~209,000 A-lines (including flyback)</td>
</tr>
<tr>
<td>Acquisition time per imaging volume</td>
<td>(209K / 70K) ~3 seconds</td>
</tr>
<tr>
<td>AngioVue imaging size (retina)</td>
<td>3x3, 6x6</td>
</tr>
<tr>
<td>AngioVue imaging size (optic disc)</td>
<td>3x3, 4.5x4.5 mm</td>
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The **AngioVue™** Imaging System is pending 510(k) clearance in the U.S. **AngioAnalytics™** is not cleared by the FDA for sale in the U.S.

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