Canon

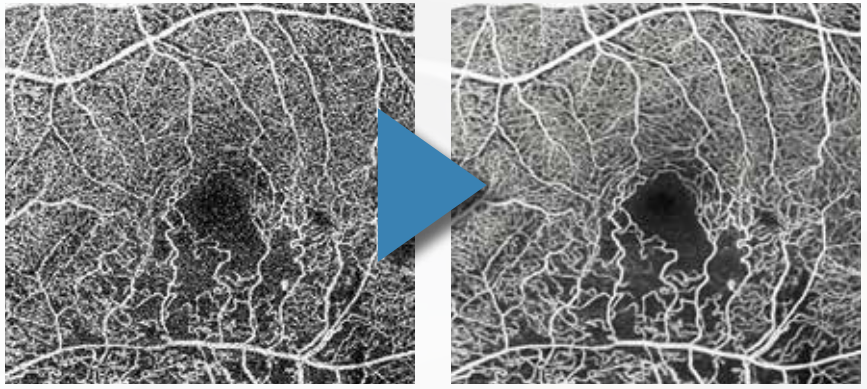
Xephilio OCT-A1

Optical Coherence Tomography

AI-powered performance

Deep Learning helps optimizing image quality

For the first time, Xephilio OCT-A1 uses sophisticated Deep Learning technology to effectively remove noise and enhance details in a single scan. The revolutionary Intelligent Denoise technology helps you save time, improve the quality and consistency of your exams, and make the exam more comfortable for your patients.



Single OCTA scan

Intelligent Denoise-optimized scan

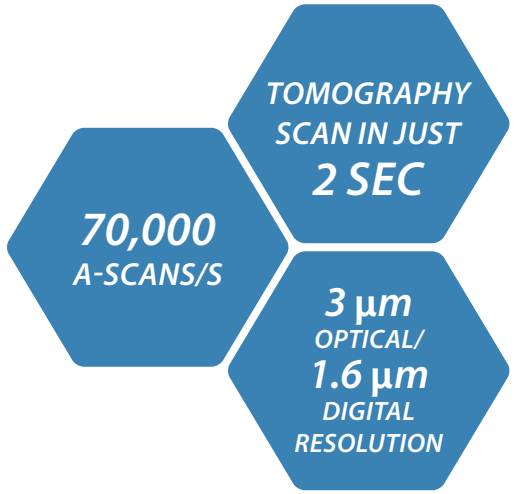
Xephilio *OCT-A1*

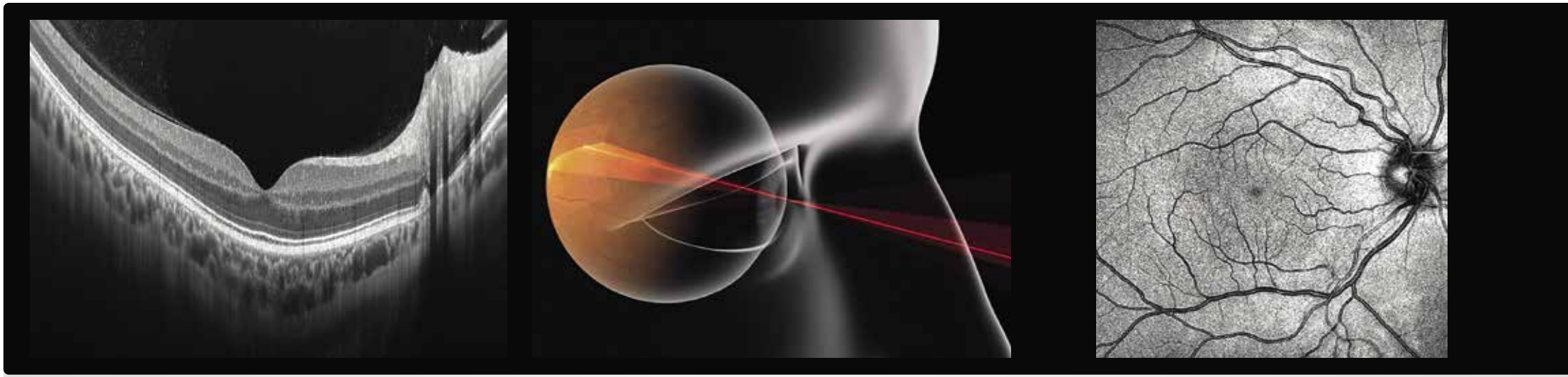
Fast, easy acquisition with incredible detail

For outstanding performance and exceptional ease of use you can rely on every day, look no further than Xephilio OCT-A1. Superior image quality and a host of automated features optimize and simplify your examinations, while the system's high scanning speed enables short examination times, increasing your efficiency and your patients' comfort.

High definition imaging within a blink of an eye

Thanks to Canon's recognized optical expertise, Xephilio OCT-A1 offers superb image quality. With a native optical resolution of 3 µm (1.6 µm digital), the system enables excellent differentiation of structures and individual layers of the retina. The high scanning speed of 70,000 A-scans/s enables very short examination times of under 2 seconds, resulting in less motion artefacts and increased patient comfort.





High-definition imaging

Xephilio OCT-A1 offers excellent native optical resolution. In combination with the averaging of multiple scans (up to 200) excellent image quality with amazing detail resolution can be achieved.

Accurate scanning, outstanding ease of use

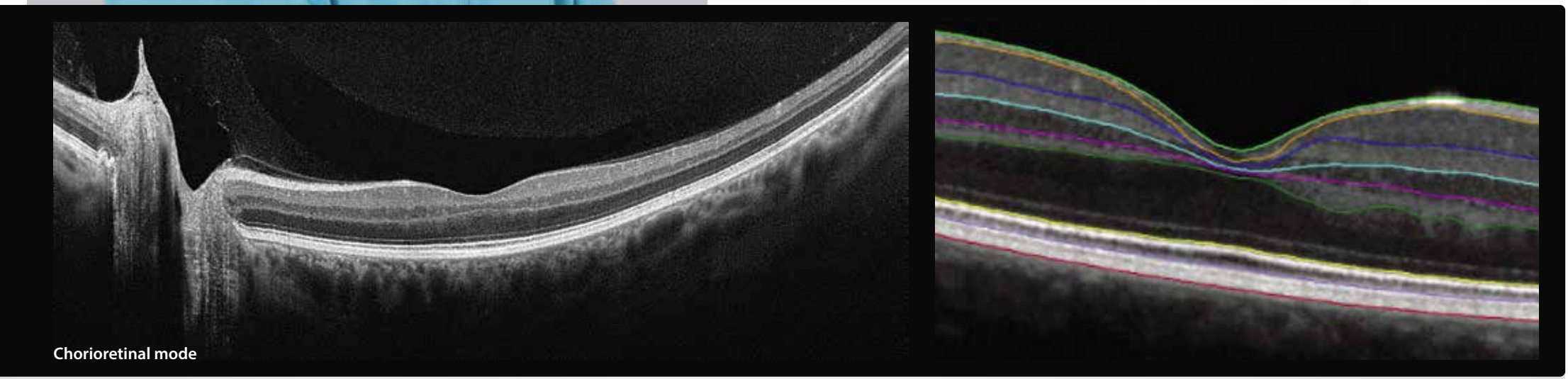
The system's integrated Scanning Laser Ophthalmoscope (SLO) contributes significantly to scan quality and ease of use. By providing real-time retinal tracking, it enables accurate monitoring of the examination.

Fast and precise follow-up

The SLO also enables accurate follow-up examinations by automatically adjusting to the same scan position as used in the previous exam. For reliable comparison, the software automatically selects identical scan parameters.

Achieve consistently high image quality, automatically

At times, involuntary eye movement during examinations are unavoidable. With its integrated SLO real-time retinal tracking technology the system's allows you to maintain the exact same scanning position automatically. As a result, Xephilio OCT-A1 retinal tracking greatly reduces movement artefacts and thus provides consistent, high image quality! The intelligent automatic re-scanning of any missed areas during the acquisition even allows for the patient to blink during the examination, and greatly contributes to improved patient comfort



Chorioretinal mode

High definition, enhanced depth, wide field of view

The Xephilio OCT-A1 offers specific scan modes for optimal detailed vitreous or choiroretinal imaging with a scan width of up to 13 mm.

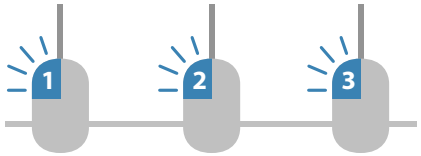
Reliable 10 layer recognition

Canon's Xephilio OCT-A1 can automatically detect and distinguish 10 layers of the retina – including Bruch's membrane (BM) – thanks to its excellent image quality and resolution.

Fast and easy acquisition with incredible detail

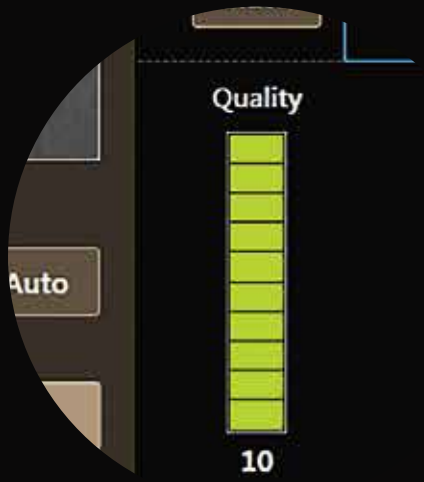
With a range of intelligent functions, examinations with the Xephilio OCT-A1 have become extremely easy: requiring only 3 mouse clicks from the initial alignment on the pupil to the image acquisition! The operation does not require extensive training and with the automated functions the scan quality is virtually operator independent. In addition all scan procedures can be pre-set, making the Xephilio OCT-A1 the ideal device for delegating examinations.
The operation by just mouse clicks also facilitates the possibility that the examinations can be done safely from a few meters away, or even from another room or location.

A complete exam with just **3 clicks**



Automated anterior tracking

After clicking approximately on the center of the pupil, the system automatically detects and maintains the exact center, even when the patient is moving their eye or blinks.



Automatic image optimization

During the acquisition the built-in auto focus and C-gate functions will automatically determine the highest signal quality for the best possible results.

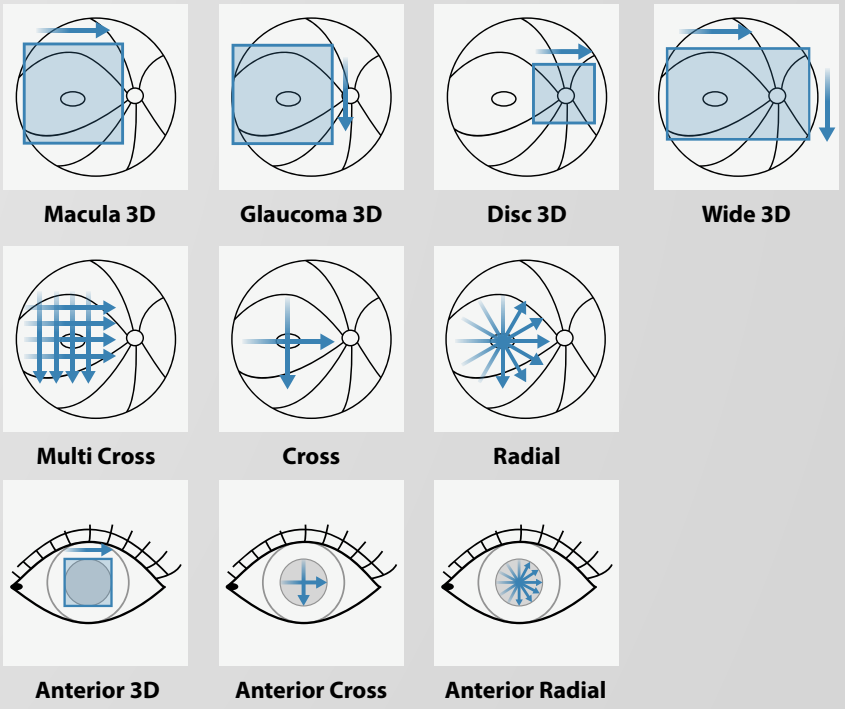
Real-time retinal tracking

By detecting and compensating movements in the fundus images on a frame-by-frame basis the impact of small involuntary movements during fixation and motion artefacts is greatly reduced.

Fast, consistent exams – Enhanced patient experience

Xephilio OCT-A1 offers ten fixed and freely programmable exam presets, allowing you to combine multiple scan modes into a single exam. Using presets can help you improve the workflow and consistency of exams and, at the same time, increase patient comfort. The new wide 3D scan mode (13x10) mm combines the Glaucoma 3D and Disc 3D scan into a just single scan! This shortens the glaucoma examination considerably.

Macula Disease	Macula 3D | Multi Cross
Glaucoma	Glaucoma 3D | Disc 3D | Cross | Wide 3D
Choroid	Macula 3D | Multi Cross
General	Glaucoma 3D | Disc 3D | Cross
Anterior	Anterior Cross | Radial | 3D
...	...
Custom	up to 5 scan modes

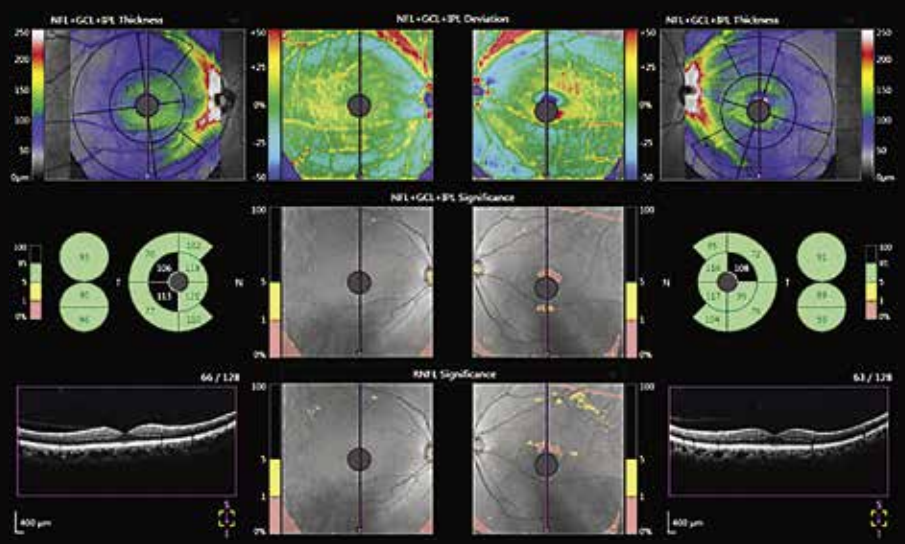


Versatile reporting possibilities, extensive normative database

Xephilio OCT-A1 provides you with a full range of reporting tools, including the relevant normative database. Thanks to its extensive DICOM and EMR capability, results from multiple Canon imaging modalities can be stored, shared and analyzed as needed in your daily practice.

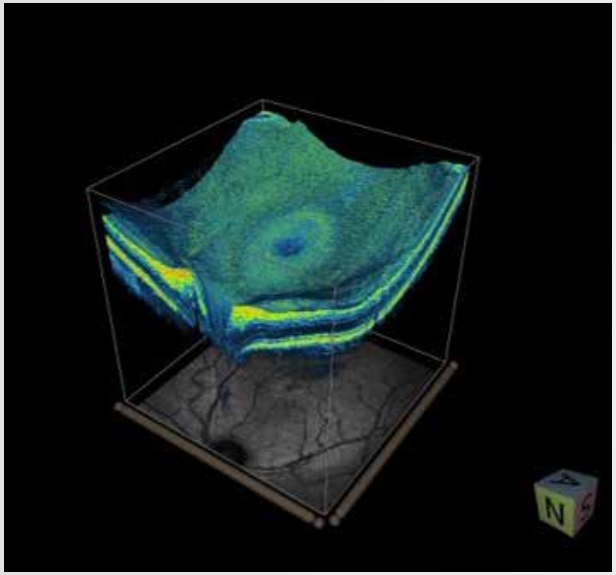
Macula

The system provides a detailed analysis of retinal thickness using comparisons with normative database, ETDRS grids, various tables and 3D visualizations.



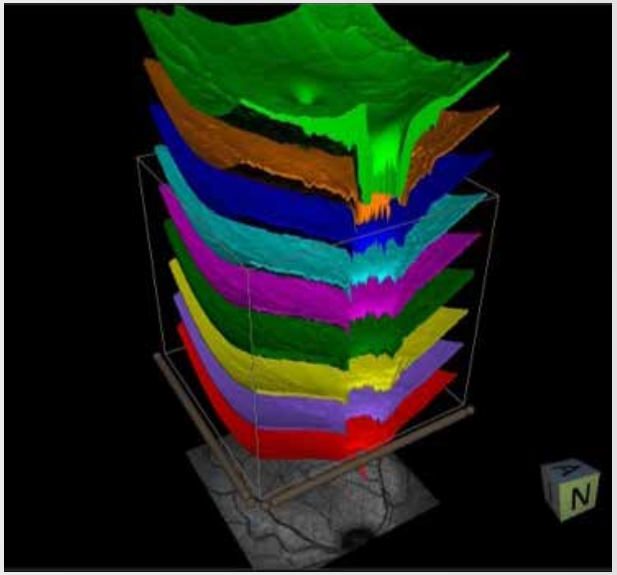
Glaucoma

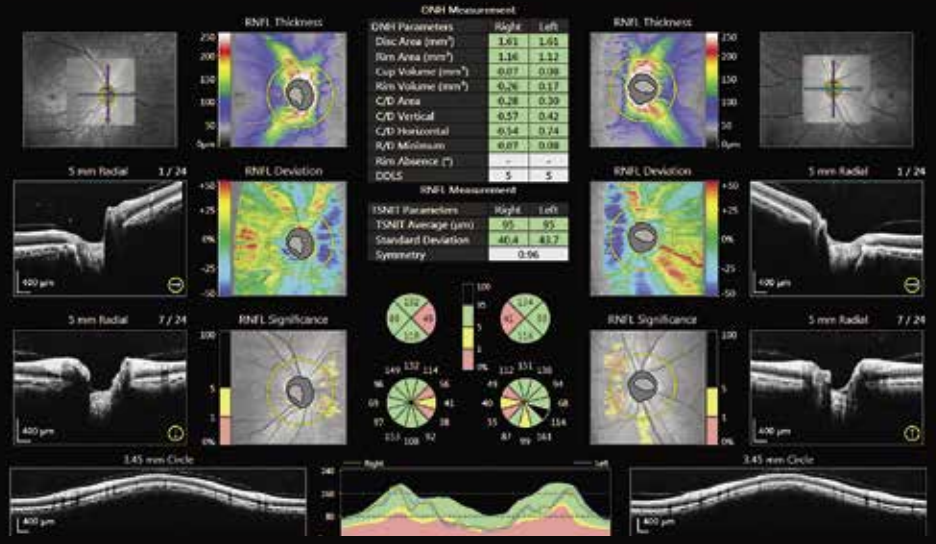
Early detection is the key to slowing the progression of glaucoma. Xephilio OCT-A1 supports NFL + GCL + IPL and GCL + IPL measurements with a wide set of graphical representations for complete analysis.



3D visualization

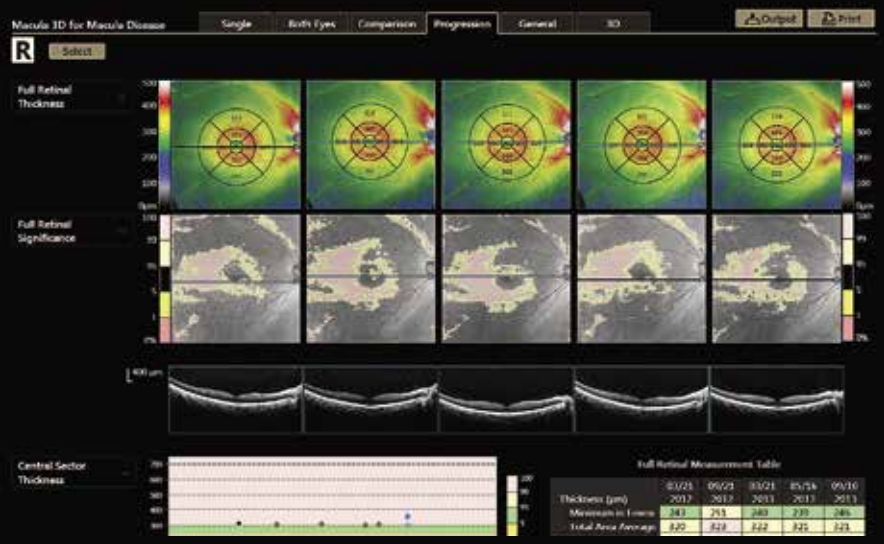
Available as volume or solid image. Cross sections can be shown and layers can be peeled away. Also very suitable for patient education.





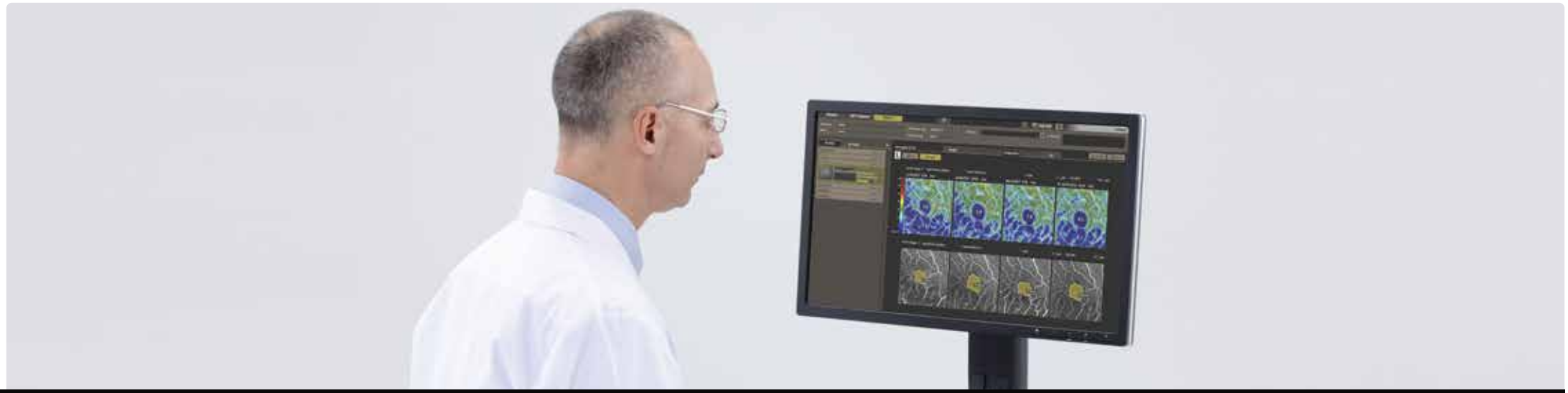
Optic Disc Analysis

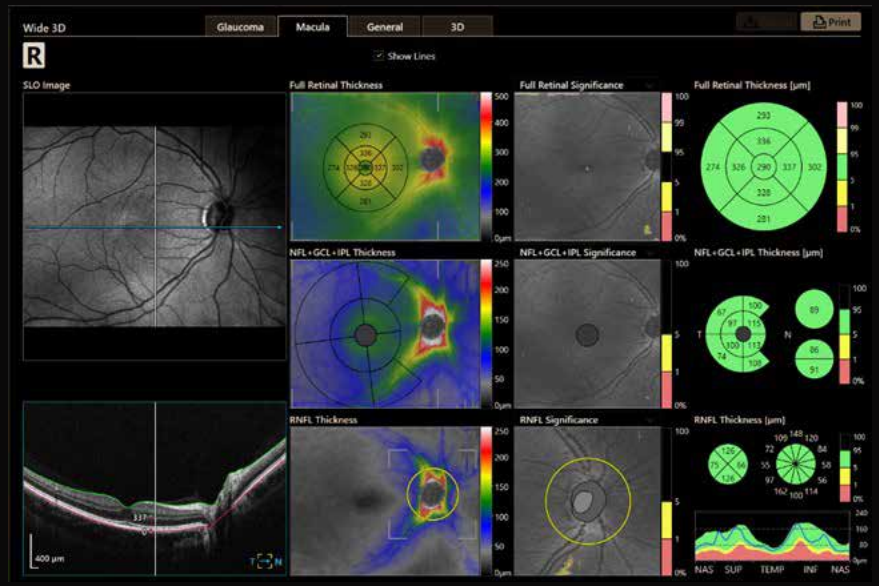
Measurement result of the optic disc and TSNIT / NSTIN region. Results of RNFL analysis are shown as maps relating to the RNFL thickness, RNFL profile and RNFL grid . The shape analysis of the optic disc is shown in Disc, Cup, Rim, and other ONH parameters

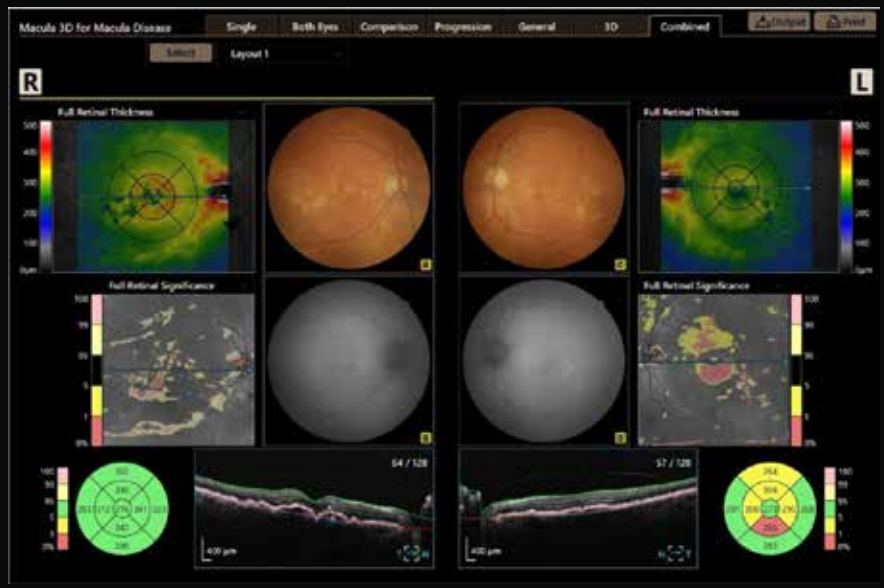


Progression report

Analysis results comparing five examinations arranged in time sequence of eyes on the same side in the same scan mode, and same size of scanning area.







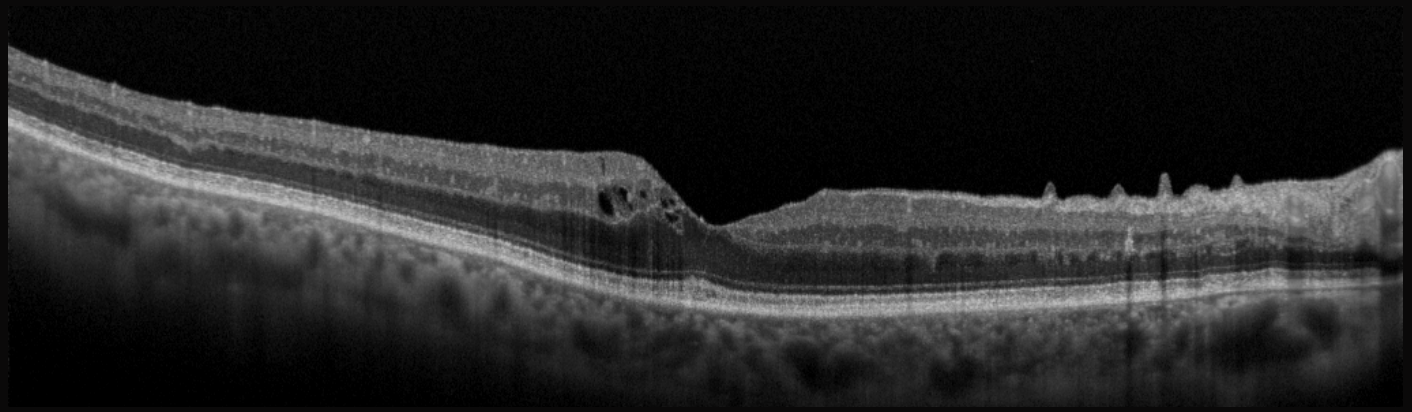
Wide 3D Glaucoma scan mode

This new Wide 3D scan mode (13x10 mm) enables to perform a very efficient and time saving Glaucoma scan, determining not only the thickness of the NFL+GCL+IPL layers , but also the RNFL thickness around the optic disc: all in just one scan! Results can be shown in the new combined Glaucoma 3D report.

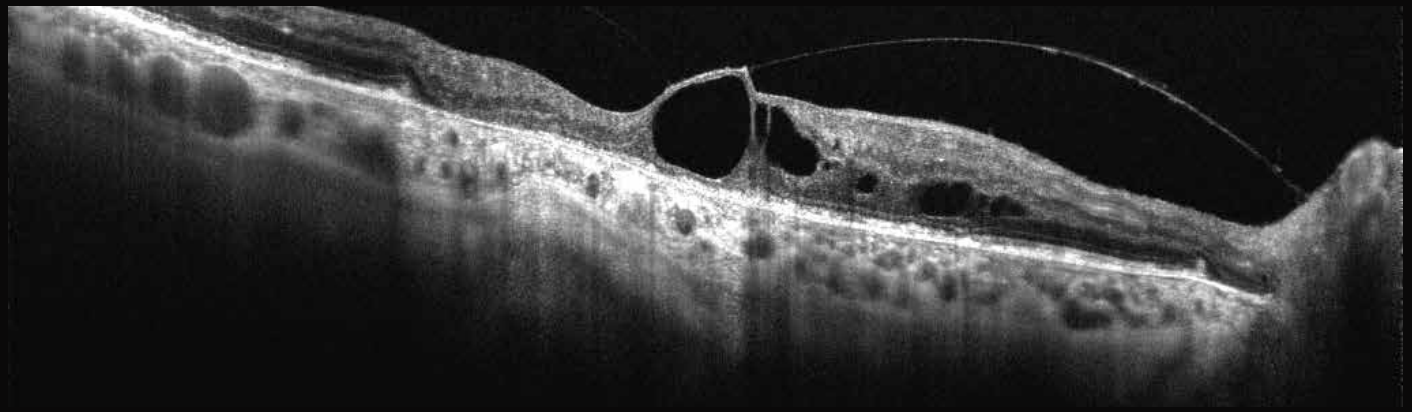
Combined report : OCT + retinal images

By importing retinal images from a retinal camera, these can be integrated with the OCT evaluation in a combined report . When using a Canon retinal camera this image import is even done fully automatically. This import function provides a big workflow advantage over a combination unit since both devices can be used independently.

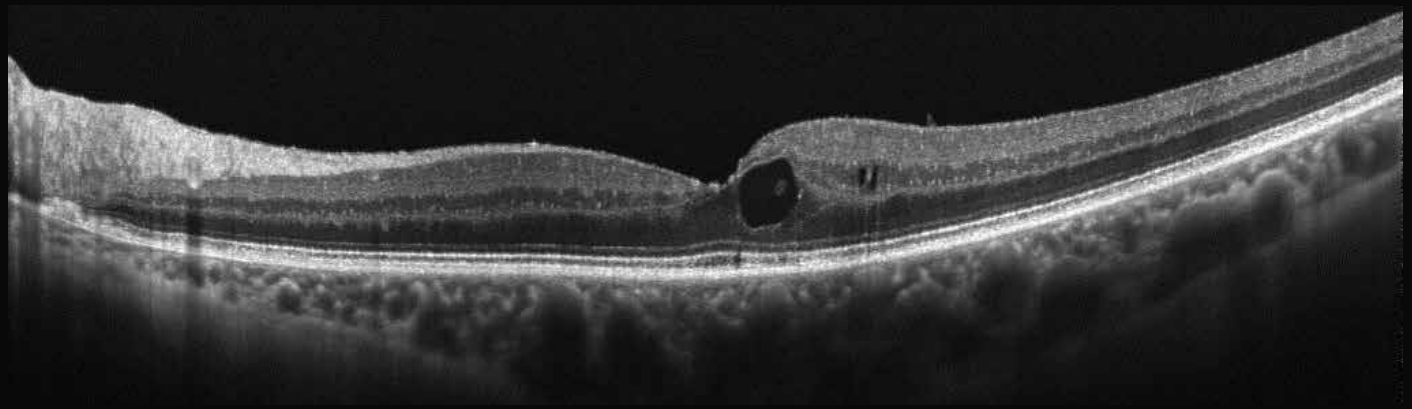
Clinical gallery



Pucker



Vitreous macular traction



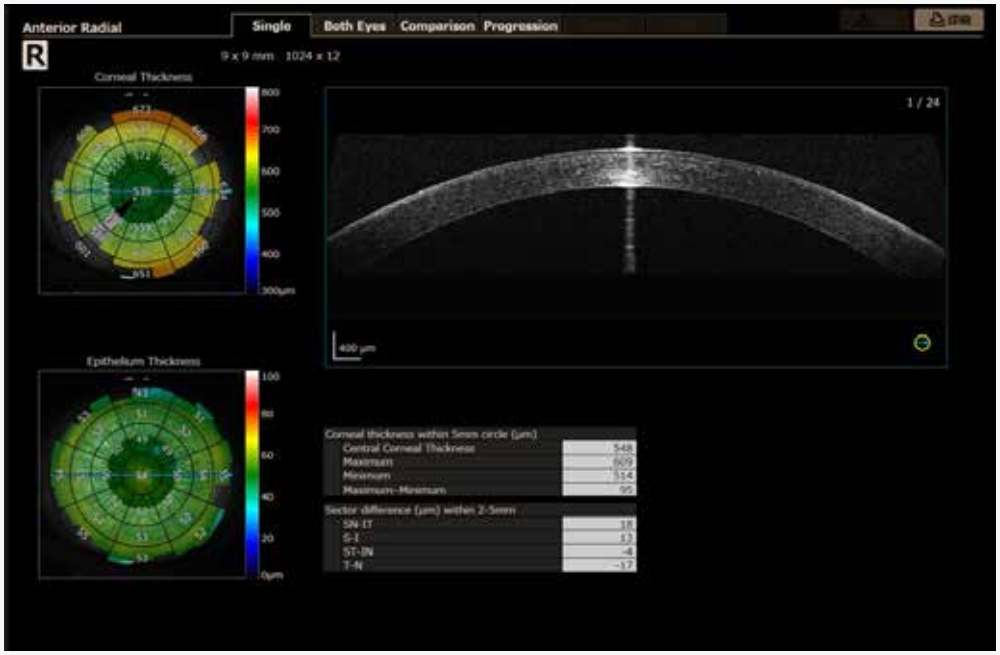
Macular edema

Images courtesy of Prof Tariq Aslam, Manchester University, UK

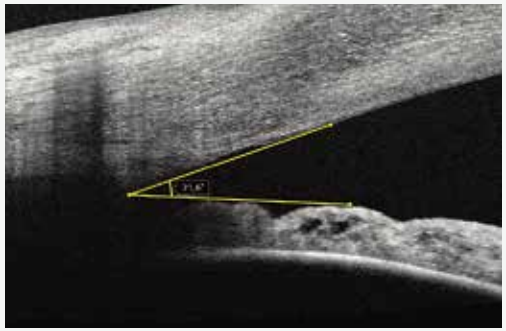
Anterior segment analysis

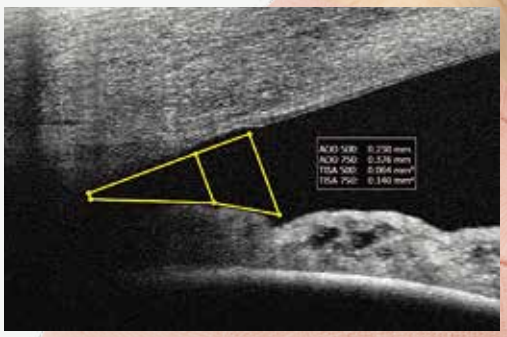
With the optional Anterior Segment Adapter ASA-1, Xephilio OCT-A1 also gives you the ability to analyze and document the anterior segment of the eye during the same exam. The included measurement package allows you to quantify standard parameters quickly and easily.

Both 6 mm and 9 mm wide anterior radial scans and reports are available.



The corneal thickness analysis on Xephilio OCT-A1 is presented as maps of corneal thickness and epithelium thickness including corneal grids, as well as numerical table.



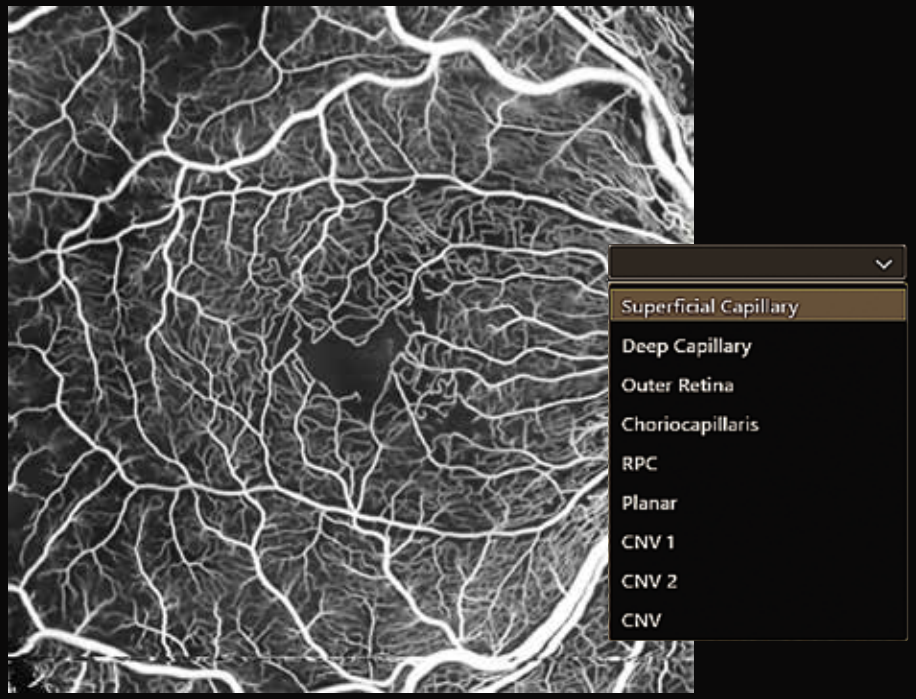


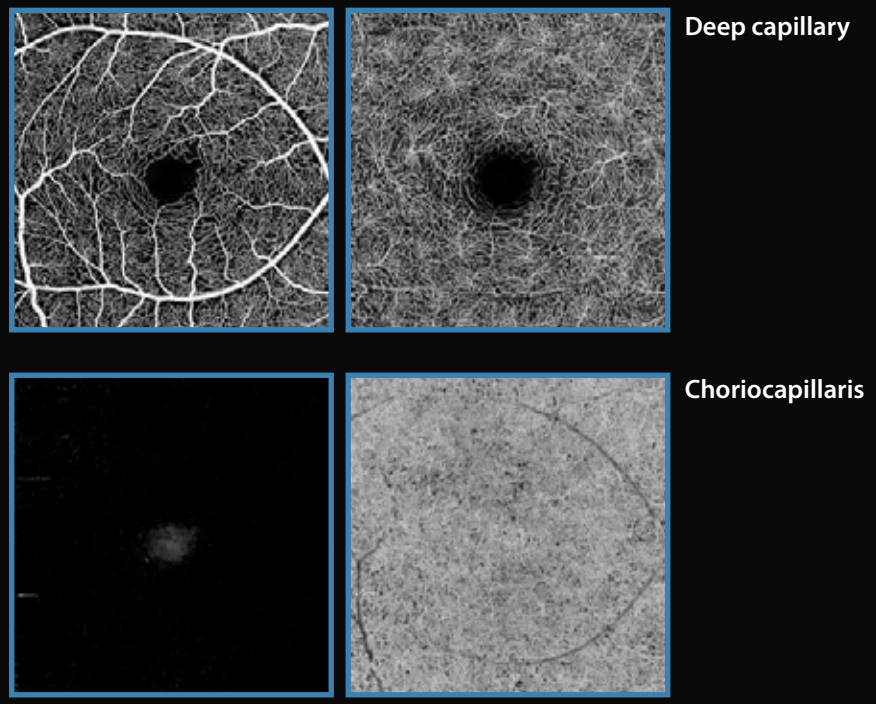
The anterior segment analysis kit allows you to measure the distance between two points, arbitrary angles, a well as AOD (Angle Opening distance) and TISA (Trabecular Iris Space Area) values.


Canon
Xephilio

Visualize the microvasculature of the retina with OCT angiography

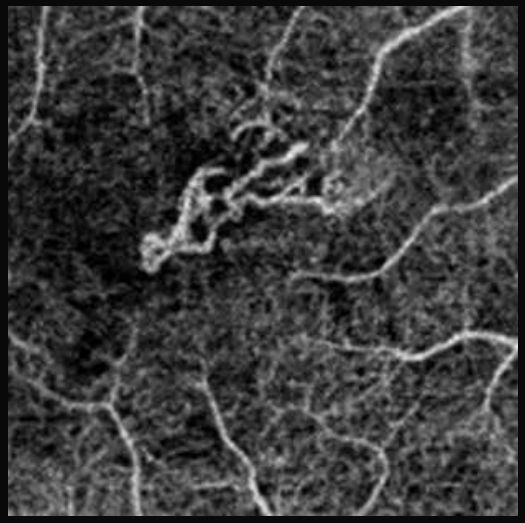
OCT angiography is a sophisticated technology that detects the movement of red blood cells in the retinal vasculature and allows you to visualize tiny vessels in detail. OCT Angio is a non invasive examination and provides results within seconds. It does not require an injection with fluorescein or dilation of the pupil.





Angio Expert is the name of Canon's OCT Angiography. It combines the high optical resolution of the OCT-A1 with sophisticated software algorithms to extract motion information from the tomograms ; even the smallest bloodvessels can be visualized in 2D and even 3D. The freely selectable layers in Angio Expert can be used to create a so-called slabs to obtain the preferred image. Layers can be defined, based on automatic segmentation or customized.

Angio Expert is available as a Lite version with just some basic functionalities and as a HD version with extensive features.



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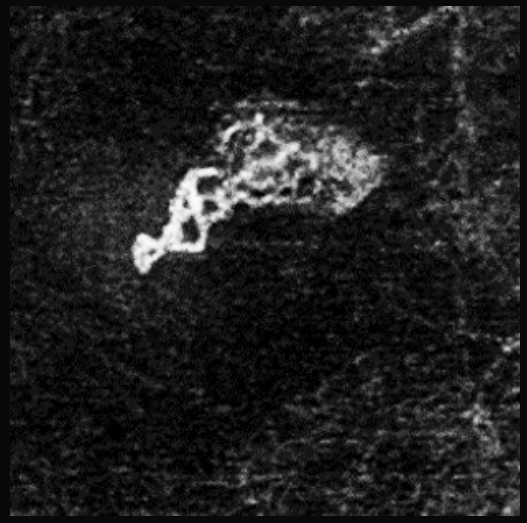

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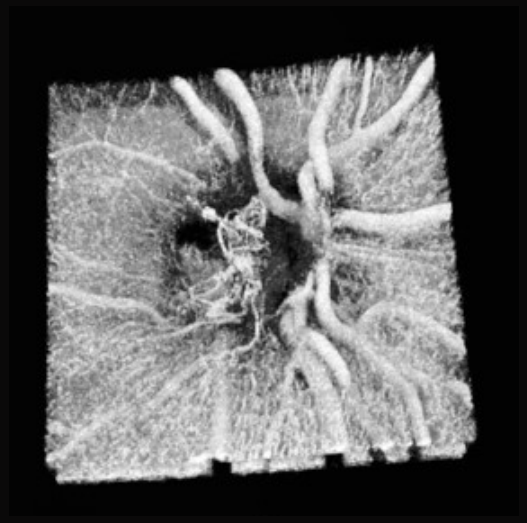
Projection artifact Removal

Projection artifacts from the overlying retinal circulation can interfere strongly with the correct diagnosis and Projection Artifact Removal is crucial. Canon's algorithm is based on using full 3 D signal data, for a natural Projection artifacts removal, without removing clinical information.



3D OCTA

The Xephilio OCT-A1 is strong in 3D visualization and for OCTA it can provide detailed full layer 3D views. A feature that of course is not avaiable in the classic angiography imaging.

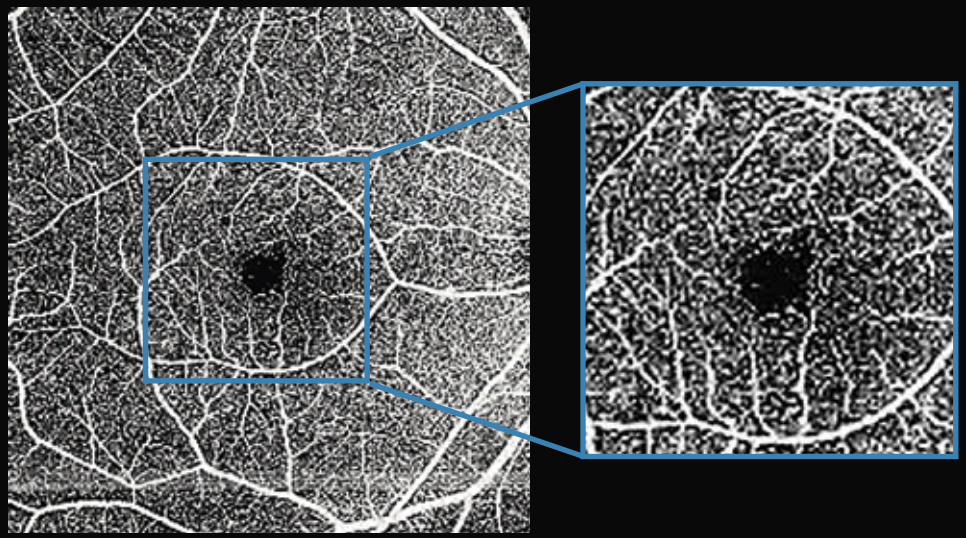
SLO with OCTA Overlay

For supporting the diagnosis , the SLO image can overlaid with the OCTA image, so also the area of the retina without bloodvessels can be observed. The overlay transparency is adjustable by a slider function.

Unlock the full potential with Angio Expert HD

Take advantage of the full potential of Xephilio OCT-A1 with the optional HD software. Angio Expert HD not only offers a wide range of advanced image quality tools, but also adds advanced OCTA analysis to your portfolio.

Enhanced coverage and resolution with high density scans



Conventional scan

Expert HD

Angio Expert HD gives you a higher pixel density and an extended field of view, without losing the image resolution even from wide angles. In this way, you can image vessels and capillaries over a large area with high precision. High-density scans offer extended formats of up to 696 x 696 pixels to provide excellent image quality.

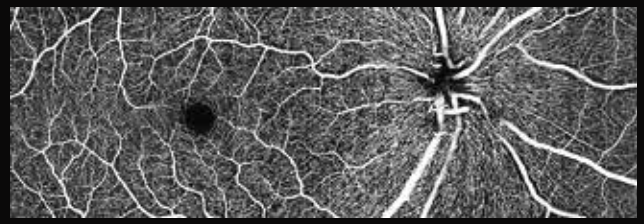
Always the right angle

With Angio Expert HD, you can choose the optimal scan density for any viewing angle you choose. The system provides various square and rectangular formats from 3 x 3 mm to 10 x 10 mm and 12 x 4 mm.

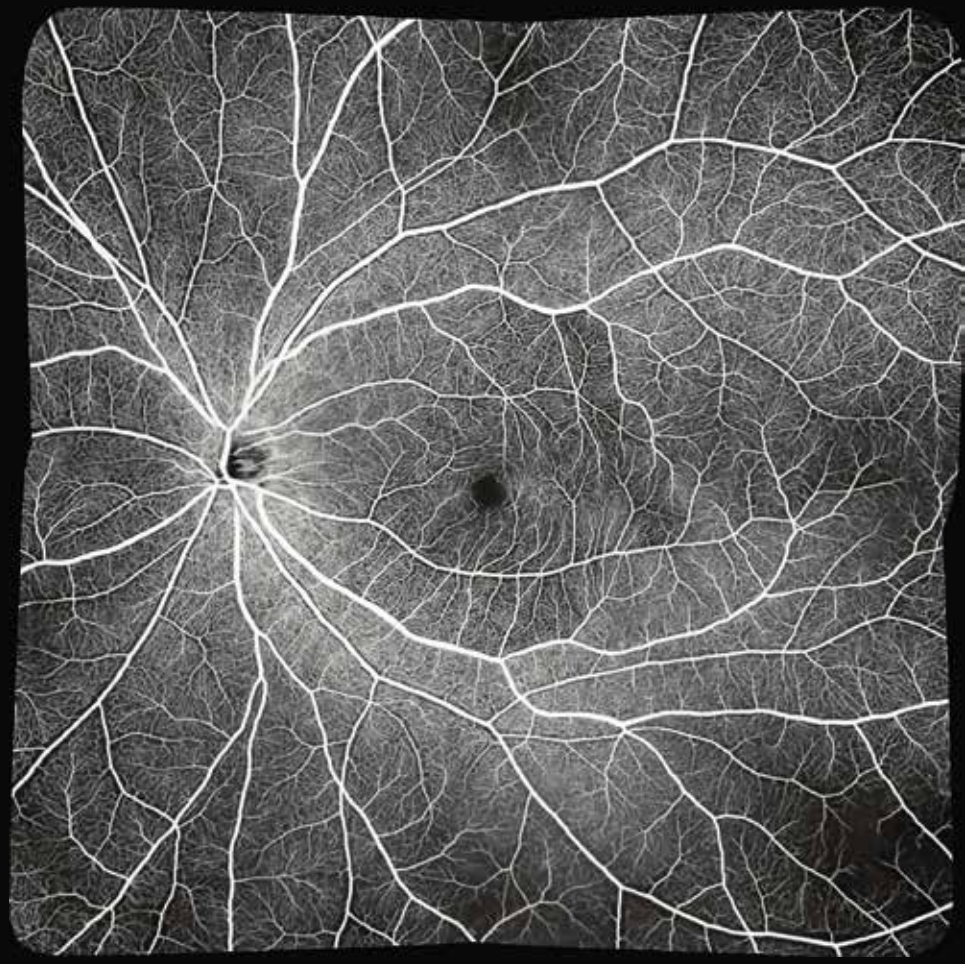
8 x 8 mm

10 x 10 mm

6 x 6 mm



12 x 4 mm

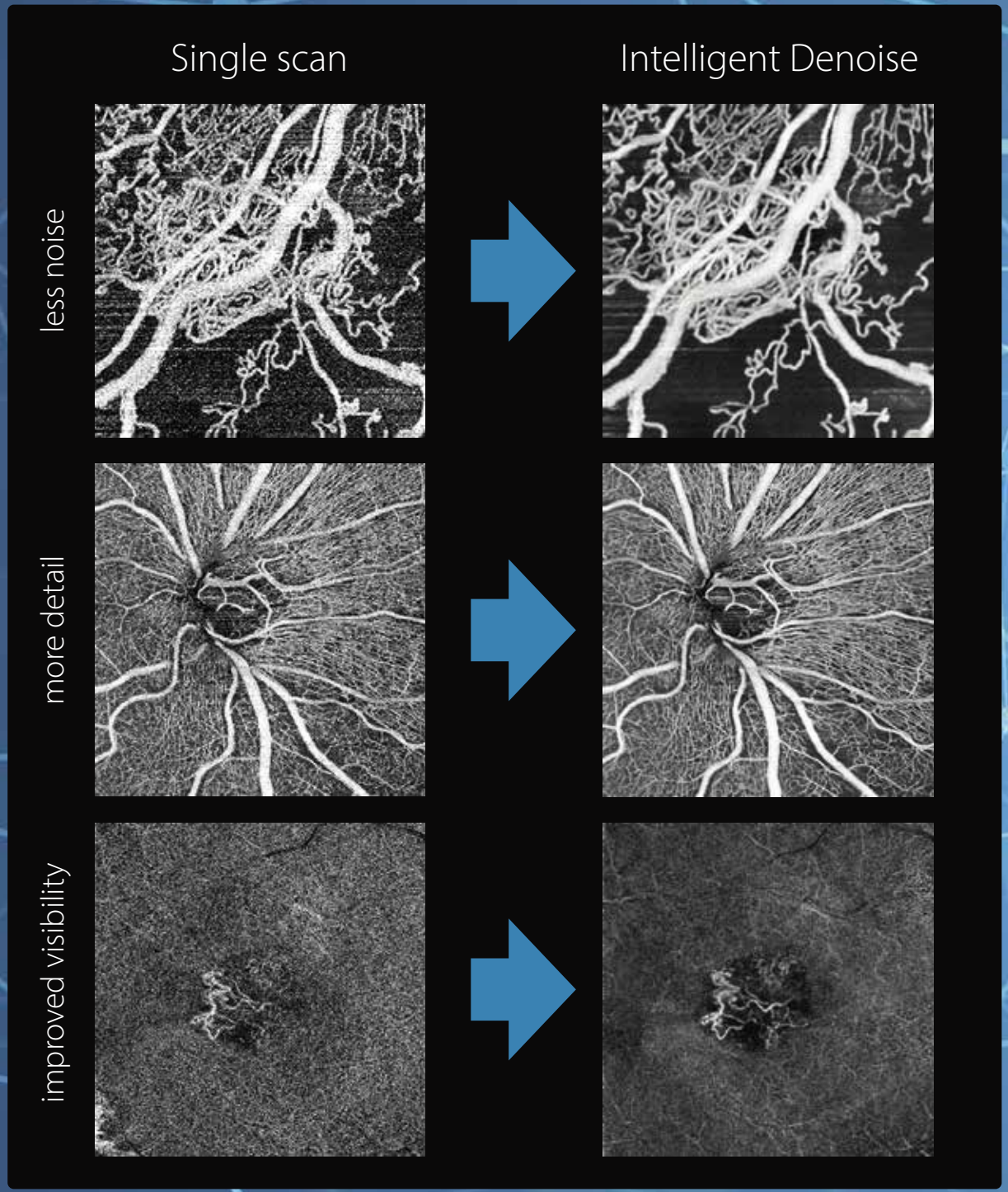


Panoramic imaging

With the optional Mosaic software, you can create ultra-wide OCTA images up to 17.5 mm in length from 4 or 5 shots. Mosaic also lets you scan difficult-to-image patients in multiple sessions. It then uses faster but smaller scans, which can be combined into scans of the required size.

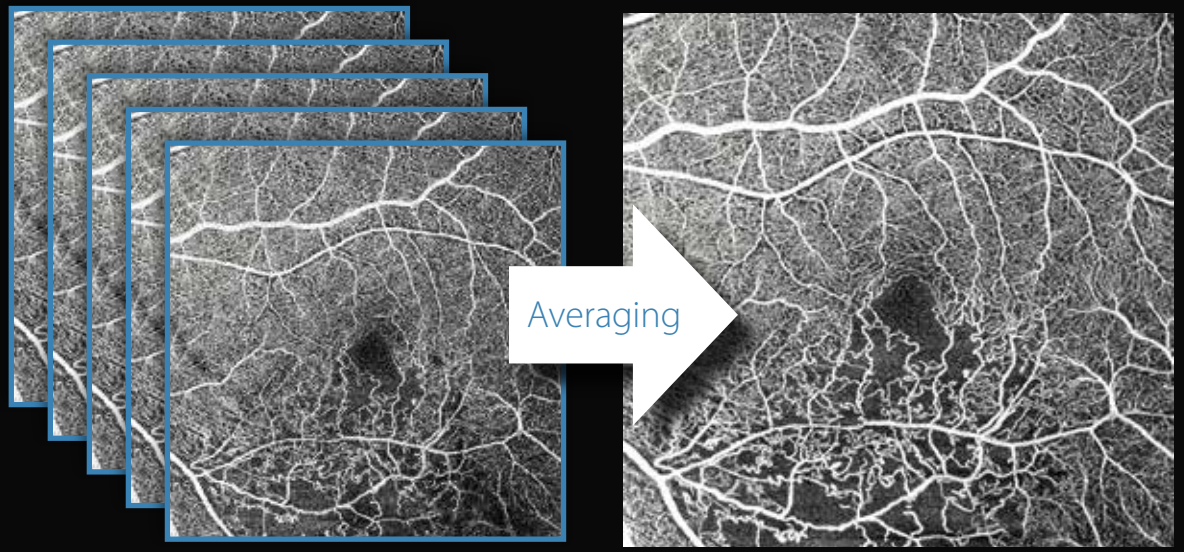
AI helps you save time and improve imaging

Canon's Deep Learning technology Intelligent Denoise offers a new quality of OCTA images based on individual scans – without the need to acquire and merge multiple images. The revolutionary technology delivers images with greatly reduced image noise, increased detail and improved visibility within just seconds.



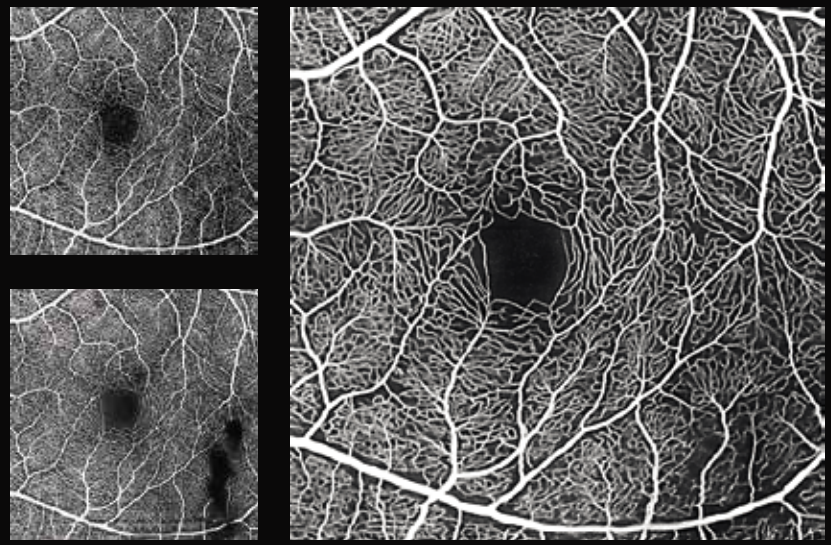
Taking OCTA to the next level

Sophisticated technologies such as Flow Fusion and the new AI-based Intelligent Denoise option can help you further improve the clinical outcomes of your OCTA studies. These tools can not only enhance your workflow and diagnostic confidence, but also help increase patient comfort and well-being.



Flow Fusion Technology

SLO-enabled Flow Fusion technology allows you to combine up to nine consecutive OCTA scans into a single image with significantly improved image quality and reduced noise. Flow Fusion is also great for sub-dividing complex examinations for difficult-to-image patients and then combining individual results.



The perfect combination

While Intelligent Denoise helps you save time and improve patient comfort, a combination with Flow Fusion offers you an additional opportunity to overcome signal dropouts caused by vitreous artefacts.

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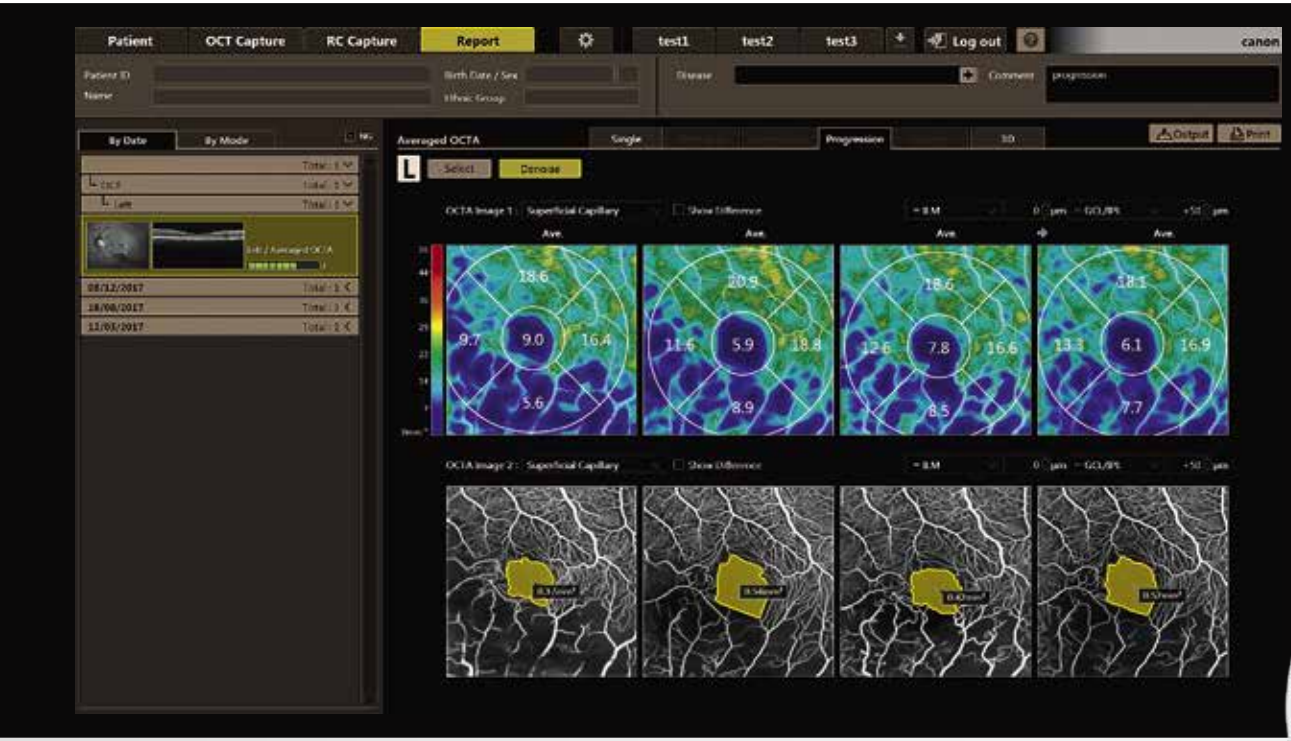
Automated area analysis and measurement

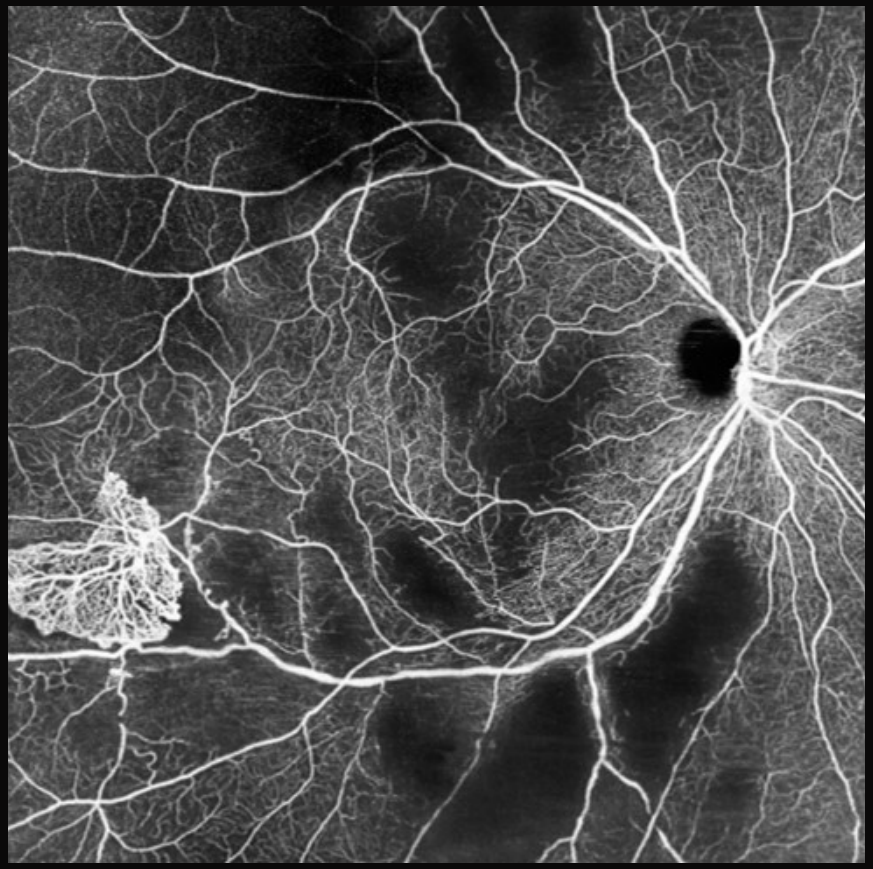
With a simple click on a non-perfused area or the foveal avascular zone, the target area is automatically detected, analyzed and displayed.

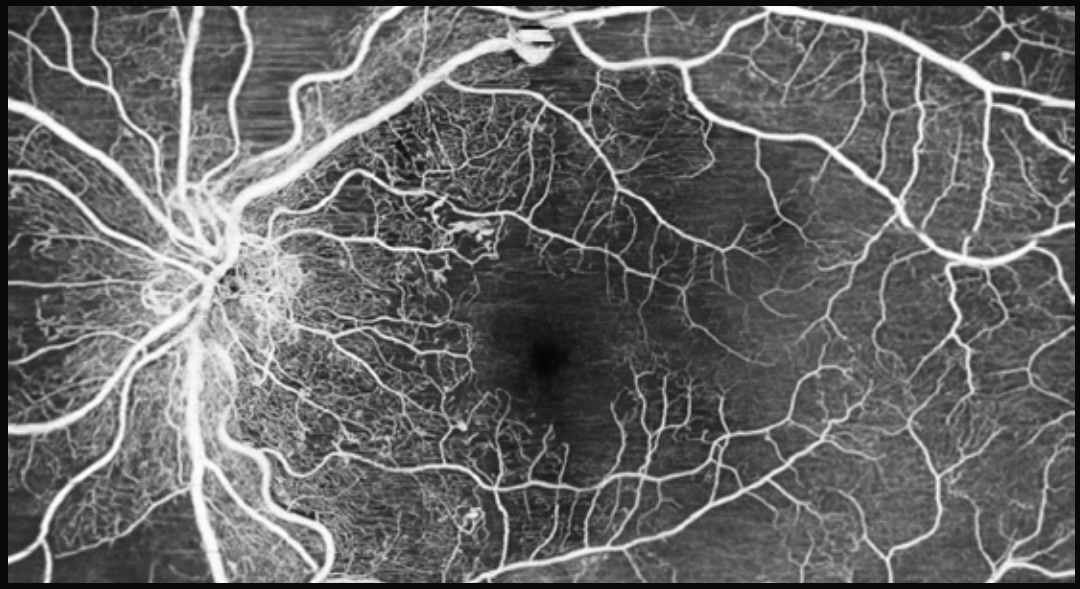


Analysis and reporting tools

Canon Medical's Angio Expert software provides a complete set of manual and automated analysis tools, including distance, area, area density and skeleton density. The associated progression report displays up to four exams simultaneously next to each other.

Clinical OCTA gallery





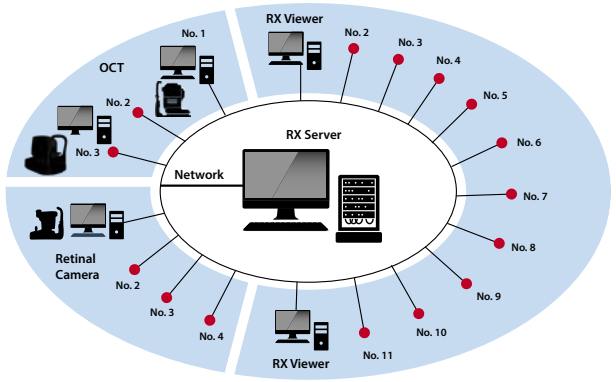
Proliferative diabetic retinopathy

Images Courtesy of Prof T. Aslam, Manchester University, UK

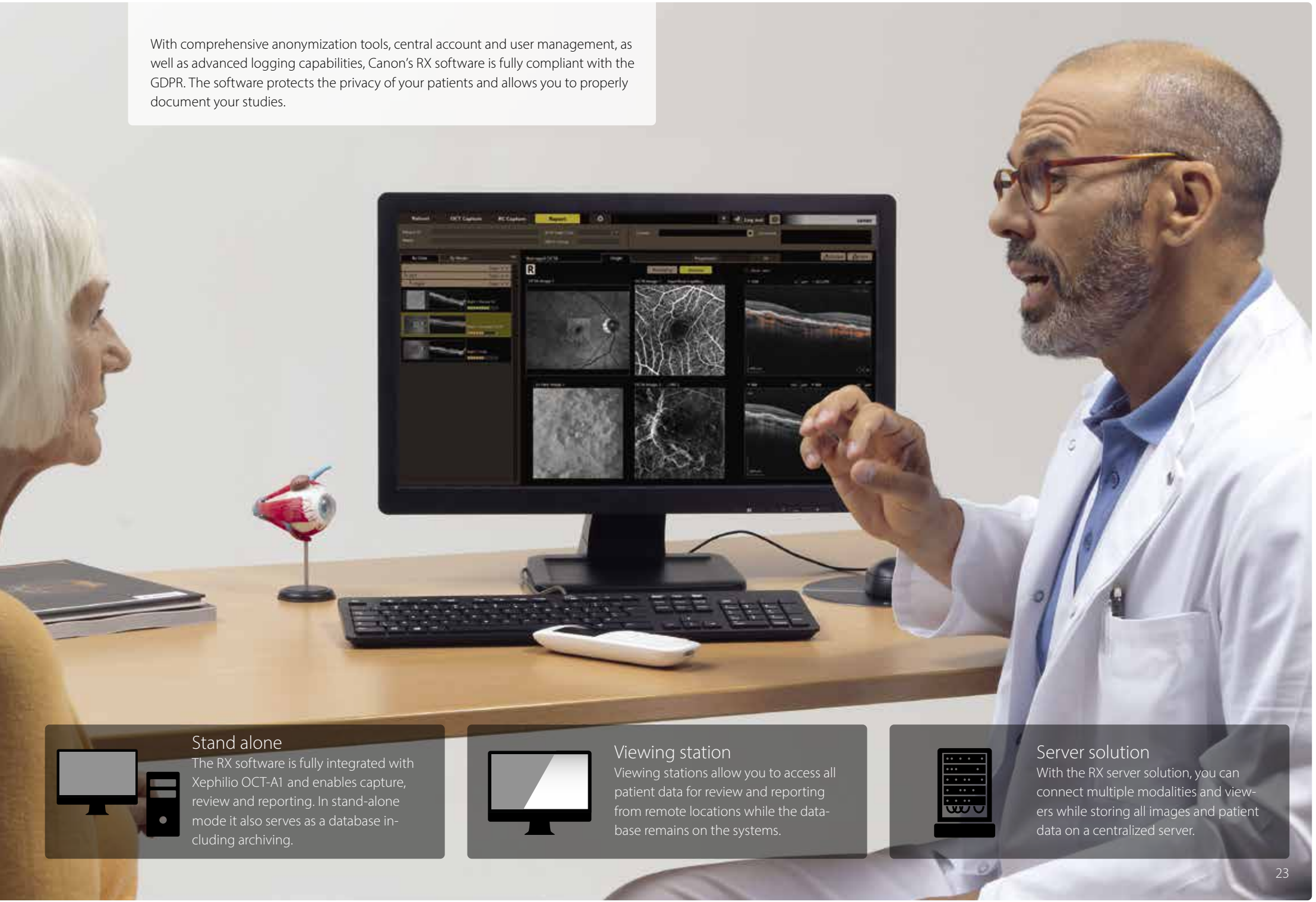
A scalable IT solution to match all your patient data and connectivity requirements

RX

The Retinal Expert (RX) ophthalmic software platform ranges from stand-alone installations to server-based multi-access solutions, combining Canon's retinal cameras and OCTs. The multi-modality platform is designed for seamless integration into your existing EMR system or practice management software and also offers cloud based storage solutions. RX Software is fully DICOM compliant - included as standard.



With comprehensive anonymization tools, central account and user management, as well as advanced logging capabilities, Canon's RX software is fully compliant with the GDPR. The software protects the privacy of your patients and allows you to properly document your studies.



Stand alone

The RX software is fully integrated with Xephilio OCT-A1 and enables capture, review and reporting. In stand-alone mode it also serves as a database including archiving.

Viewing station

Viewing stations allow you to access all patient data for review and reporting from remote locations while the database remains on the systems.

Server solution

With the RX server solution, you can connect multiple modalities and viewers while storing all images and patient data on a centralized server.

Specifications Xephilio OCT-A1	
Scan rate	70,000 A-scan / second
Axial resolution (digital / optical)	1.6 / 3 µm
Transversal resolution	20 µm
Wave length	855 nm *
Minimum pupil diameter	3.0 mm
Working distance	35 mm
Fundus imaging method	Flying spot SLO
SLO size (H x V)	13 mm x 10 mm
OCT width	3~13 mm
OCT depth	2.0 mm
Internal fixation light	1 x 1 mm or 6 x 6 mm
External fixation light	EL-1 (option)

Dimension and weight	
Dimension (W x D x H)	387 x 499 x 474 mm
Weight	29 kg

* Output on cornea < 2.67 mW (scanning beam controlled by the laser safety system)

Specifications Xephilio OCT-A1		
OCT scan parameters		
Retina scan mode		Vitreous and choroidal modes available C-gate direction: normal / inverse
		Imaging position (fixation light position) Macular / Disc / Posterior
	Macula 3D	1024 A-scan x 128 (10 x 10 mm) Horizontal
	Glaucoma 3D	1024 A-scan x 128 (10 x 10 mm) Vertical
	Disc 3D	512 A-scan x 256 (6 x 6 mm) Horizontal
	Wide 3D	512 A-scan x 128 B-scan
	Custom 3D	1024 A-scan x 128 Vertical / Horizontal 3 x 3 mm / 6 x 6 mm / 10 x 10 mm
	Multi Cross	1024 A-scan (horizontal 3 – 13 mm, vertical 3 – 10 mm) Averaging: 1 – 50
	Cross	1024 A-scan (horizontal 3 – 13 mm, vertical 3 – 10 mm) Averaging: 1 – 200
	Radial	1024 A-scan (3 mm / 6 mm / 10 mm) 12 directions (15 degree interval) Averaging: 1 – 50
	OCTA	OCT angiography (option)
Anterior scan mode		C-gate direction: Normal
		Imaging position: Center of SLO
	Anterior 3D	6 mm Horizontal
	Anterior Cross	3 mm / 6 mm Horizontal Averaging: 1 – 200
	Anterior Radial	6 mm; 12 directions (15 degrees interval)
		6 or 9 mm; 12 directions (15 degrees interval)

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Canon Medical Systems Corporation meets internationally recognized standards for Quality Management System ISO 9001, ISO 13485.
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