Canon

Xephilio OCT-R1

Optical Coherence Tomography

Full Auto
Combo OCT Retinal Camera

Xephilio OCT-R1

Introducing a Powerful Combination of a fully automated SD-OCT and unsurpassed HD resolution retinal imaging technology made by Canon.

One-Touch Operation

Simply tap on the screen and the OCT-R1 will complete the examination automatically.

Sequential Auto

Just one touch is sufficient to initiate a fully automated examination protocol for both eyes. Combined with Audio Guidance of the OCT-R1, the patient can be guided through the examination without any involvement from the operator.

The Xephilio OCT-R1

The combination of OCT and high definition retinal camera in the Xephilio OCT-R1 makes it an ideal solution for screening and practices with high volume patients. The OCT-R1 offers a large and high-quality OCT scan up to 14.7 x 13.4 mm, with a 24.2 MP resolution and specific algorithm processes in the EOS for optimal ophthalmic imaging.

Combined with the retinal camera, the OCT-R1 produces high definition and unsurpassed true-color imaging.

The comprehensive RX software is designed to automatically combine the information from both the OCT and the retinal camera for complete reporting and diagnostic support. Optionally, a large touchscreen makes the Xephilio OCT-R1 device easy to operate.

Small Footprint and Flexible Layout

The Xephilio OCT-R1 offers the advantage of having a very small footprint and a flexible layout. Place in a corner or against a wall, the Xephilio OCT-R1 can easily fit into any room, even in smaller spaces, allowing for optimal use of the available space.

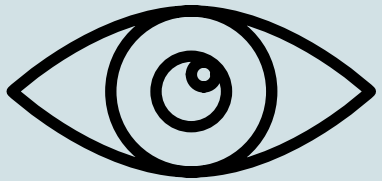
Furthermore, an optional portable touchscreen can be positioned either parallel to the device or beside it, providing flexibility and convenience for the user. This adaptability in placement ensures that the OCT-R1 can seamlessly integrate into any eye care facility, regardless of the room layout or size.

Excellent ergonomics

The OCT-R1 is designed with excellent ergonomics in mind. The forehead rest features a 5 degree tilt to make it more comfortable for the patient to maintain their forehead against the rest. This helps to reduce any discomfort and improve patient collaboration during the imaging process, resulting in a more efficient and successful OCT scan. The thoughtful design of the OCT-R1 is just one of the ways that Canon prioritizes patient comfort.

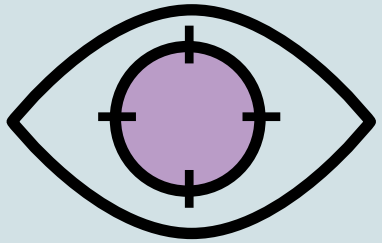
External eye Auto alignment and tracking

The Xephilio OCT-R1 makes it simple to find and maintain the correct center position during imaging. By simply tapping on the pupil in the external eye image, the device will automatically adjust to the proper position, and any involuntary eye movements will be continuously compensated for. By using Canon enhanced OCT tracking technology, the risk of artifacts or errors due to eye motion is greatly reduced, resulting in more accurate and reliable imaging results.



Retinal auto tracking and autofocus

The retinal auto tracking adjusts the OCT scanning position continuously to adjust for even minute eye movements. Focus is adjusted automatically for OCT and retinal camera as well.

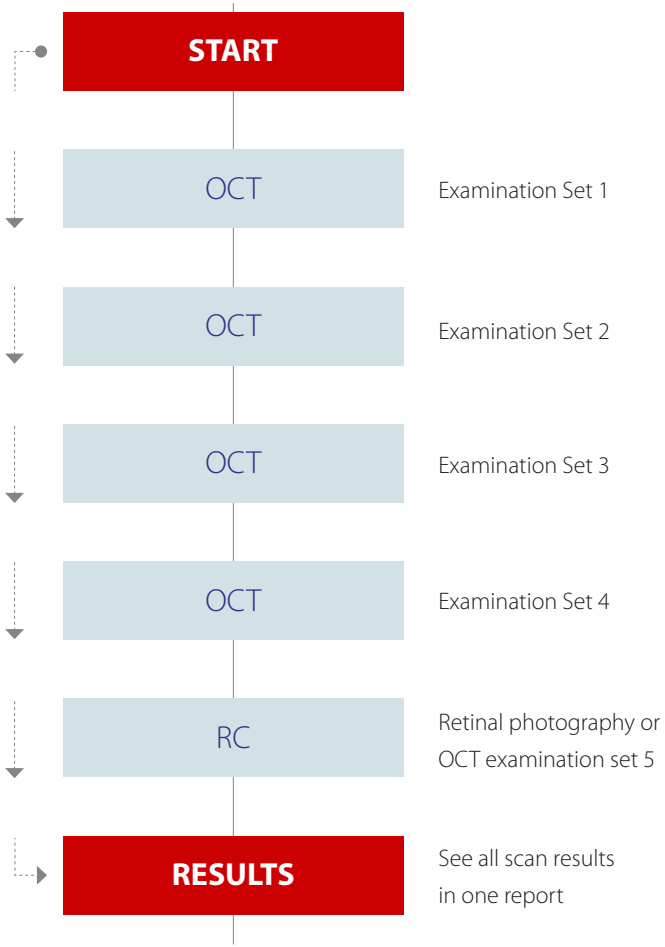


Simplified Connectivity

Say goodbye to complicated setups and multiple cables. The OCT-R1 offers a hassle-free connection experience with its USB-C cable. With just one cable, you can easily connect the OCT-R1 to your PC, simplifying both PC requirements and installation. Enjoy a streamlined and efficient workflow with our simplified connectivity solution.

Sequential Auto

The OCT-R1 offers a fully automated examination protocol that can be initiated with just one touch. This advanced feature streamlines the imaging process and ensures accuracy and consistency in the imaging data obtained from both eyes.
When used in conjunction with the audio guidance feature, this makes the device exceptionally easy to use for both patients and operators. The OCT-R1 is an excellent choice for practitioners who value speed, accuracy, and patient comfort.

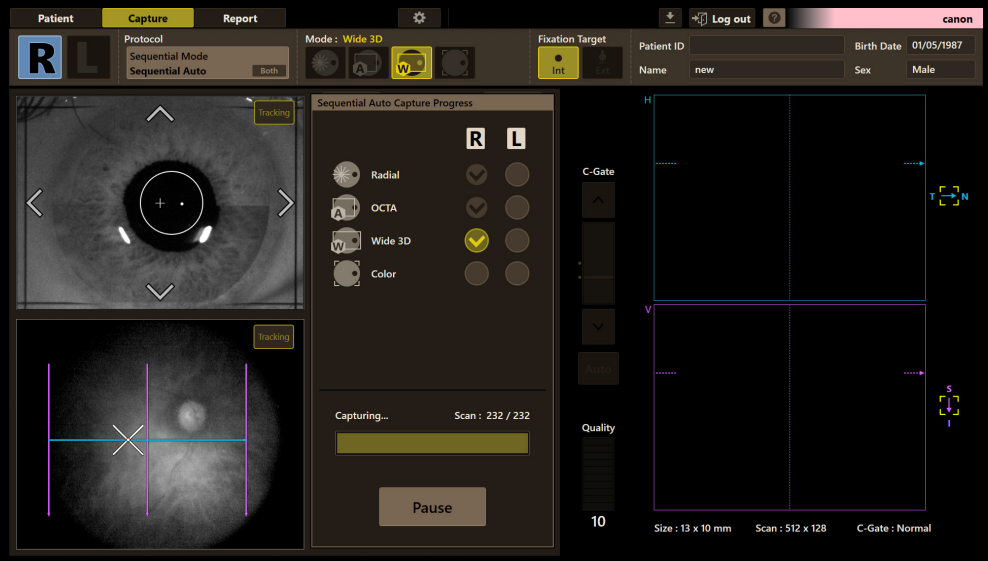


Fully automated sequential examination protocol

The sequence of the examination protocol can be created to your requirements. It can consist of up to 4 OCT examinations + 1 retinal image or 5 OCT examinations for both eyes.

Smart Auto Scanning

During the sequential auto sequence, the status of the capturing clearly shows how far each step of the examination has progressed.



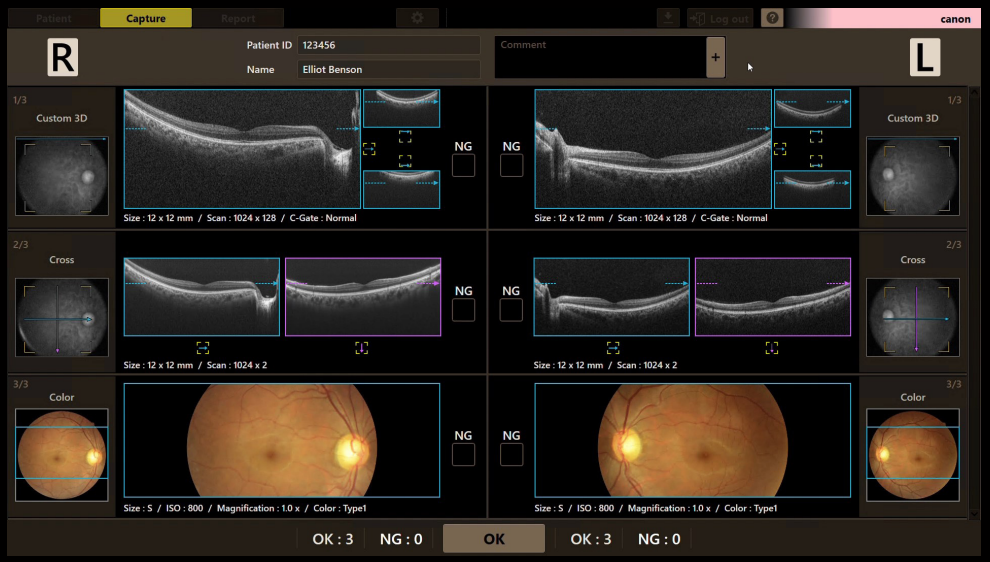
Audio guidance

The OCT-R1 offers audio guidance to help guide the patient through the entire OCT examination process, starting from the initial alignment until the OCT scan is captured. This audio guidance optional feature ensures a smooth workflow and helps both the patient and the operator navigate through the procedure with ease. Furthermore, the device supports multiple languages, allowing for easy communication and usability with patients from different linguistic backgrounds. This versatility makes the OCT-R1 a highly suitable choice for various clinical settings.

Please place your chin and forehead.	After select patient while in capturing screen.
Please fixate on the internal dot and keep your eyes open.	At time of starting alignment.
You can blink while the device moves to the other eye.	After left eye completed and just before move to right eye in Sequence Auto mode.
Checking the results. Please, wait.	Just before result of study is displayed.
The examination is finished.	At study completion.

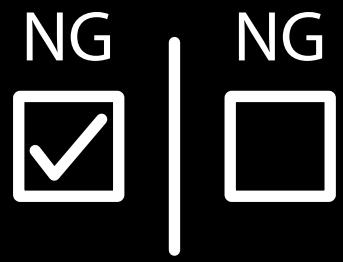
Reviewing results

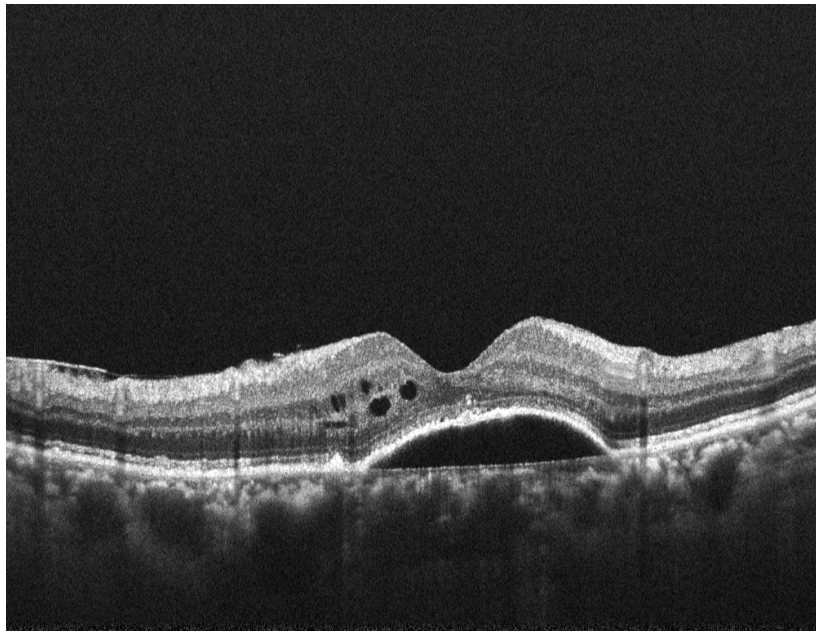
The results of the sequential examination are visualized in a comprehensive overview. With the retry function scans that have too low image quality can be re taken very easily.



Auto image quality alert function

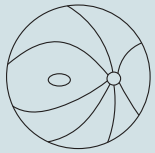
One useful feature of the software is the alert function that notifies the OCT examiner when a captured image has insufficient image quality. This feature is especially helpful when dealing with a large number of examinations, as the examiner can quickly identify and address any problematic images, saving time and ensuring accuracy. By using this advanced alert function, the OCT-R1 minimizes the risk of incorrect diagnoses due to poor image quality and provides a helpful tool for busy clinicians.



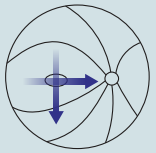


Fast and consistent exams

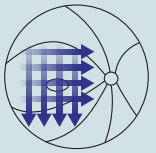
The Xephilio OCT-R1 is a highly customizable device that offers programmable exam presets, allowing operators to combine multiple scan modes into a single exam. This unique feature is designed to reduce patient journey and improve clinic workflow. With the wide 3D scan mode (13x10 mm), the Glaucoma 3D and Disc 3D scans can be combined into a single scan, significantly shortening the glaucoma examination process while allowing progression follow up.



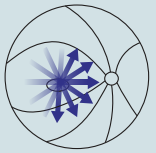
Custom 3D



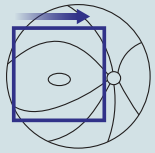
Cross



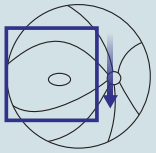
Multicross



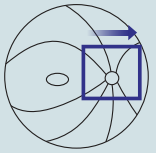
Radial



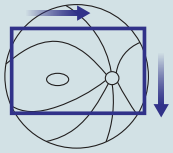
Macula 3D



Glaucoma 3D

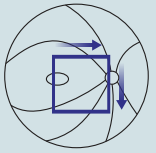


Disc 3D

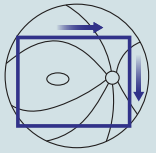


Wide 3D

OCT Angiography (optional)



OCTA Small

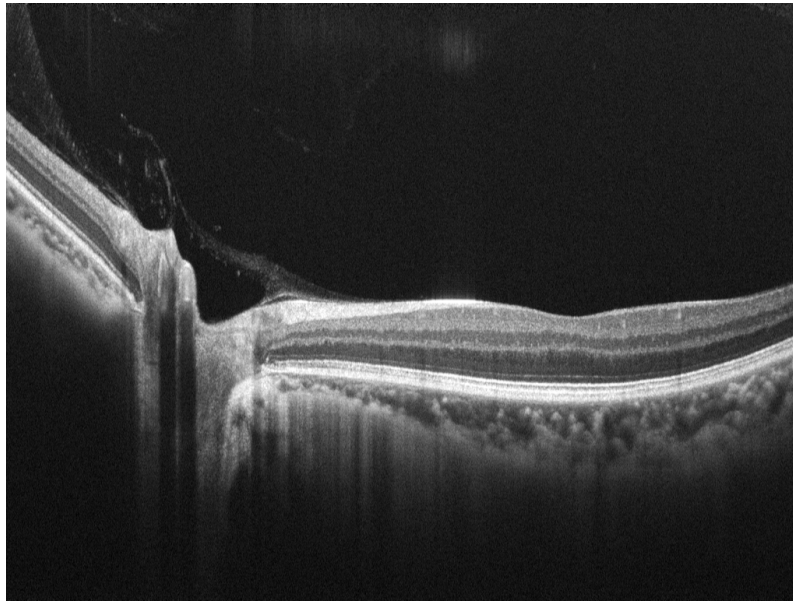


OCTA Medium

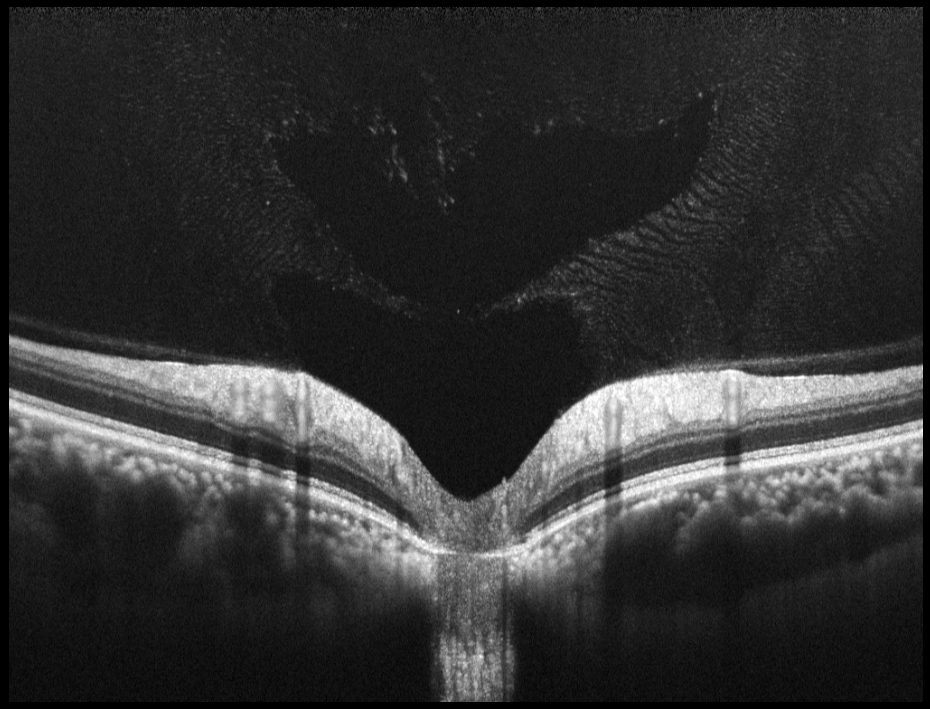
Averaging scans

The Xephilio OCT-R1 includes an averaging function that allows for the combination of up to 50 multiple scans to eliminate any optical noise.

By averaging these scans, the OCT-R1 is able to produce a highly detailed and clear image. This feature is particularly useful when dealing with challenging or noisy OCT images, as it helps to enhance overall image quality and improve diagnostic accuracy. The OCT-R1's averaging function is an excellent tool for clinicians seeking to obtain the most precise and reliable results from their OCT examinations.

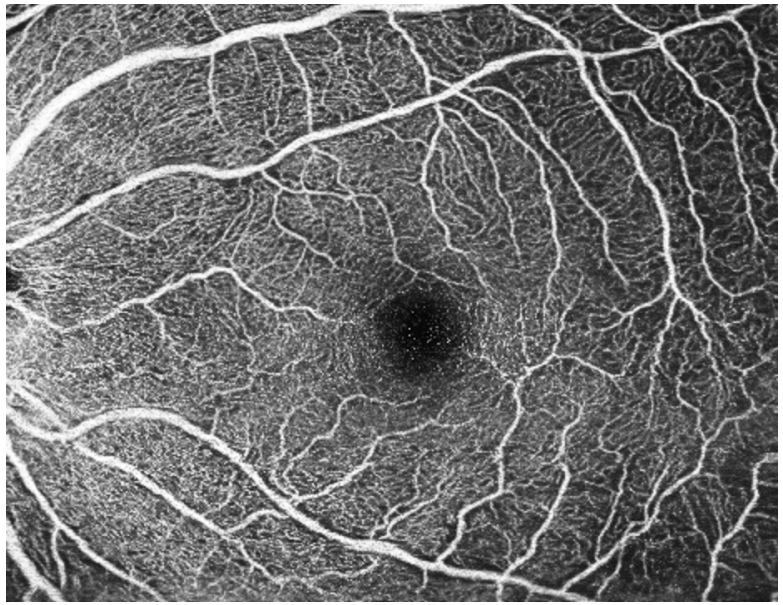


The Xephilio OCT-R1 is capable of making very wide scans : Max 14.7 mm × 13.4 mm in very high resolution of 1536 a-scans wide.



Visualize the microvasculature of the retina with OCT Angiography*

One of the most advanced features of the Xephilio OCT is its ability to perform OCT Angiography, a non-invasive technology that allows clinicians to visualize the microvasculature of the retina in extraordinary detail. Using this technology, the OCT-R1 detects the movement of red blood cells in the retinal vasculature, making it possible to identify even the tiniest vessels with incredible precision. Canon OCT Angio provides results within only few seconds and does not require an injection with fluorescein or dilation of the pupil, making it a patient-friendly, hassle-free procedure. OCT Angio is an exciting advancement in ophthalmic technology that promises to revolutionize the way retinal examinations are performed and diagnoses are made.

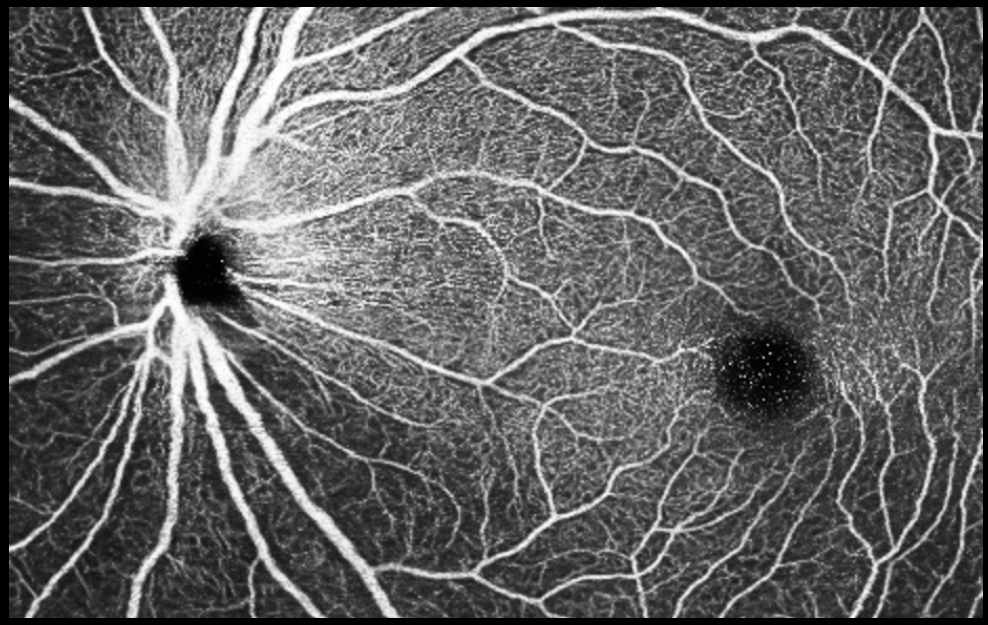


OCT Angiography with Angio Expert*

Angio Expert is Canon's Xephilio OCT Angiography software that can be used with the OCT-R1. This optional software utilizes sophisticated algorithms to extract motion information from the tomograms obtained by the OCT-R1. It enables the visualization of even the smallest blood vessels in both 2D and 3D formats. Angio Expert is available in two versions: Lite and HD, with the HD version offering full features.

The software allows for scans of various sizes, ranging from 232 x 232 to 464 x 464 (A-Scan x B-Scan). The scan area can also be quite wide, ranging from 3 x 3 up to 13.4 x 13.4 mm, providing a large OCTA scan area for comprehensive analysis.

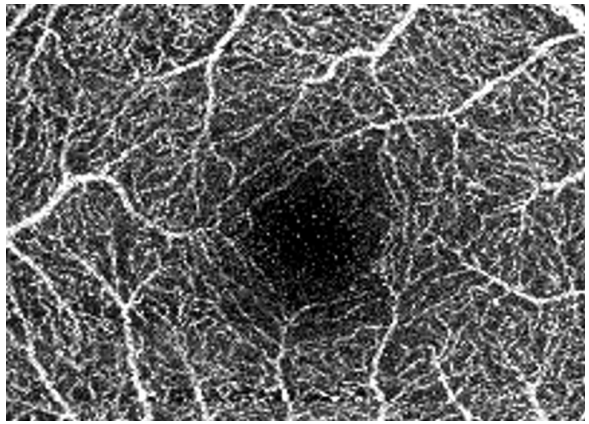
The combination of the Xephilio OCT-R1 with the Angio Expert software provides a powerful tool for ophthalmologists to visualize and analyze the retinal microvasculature with exceptional detail and accuracy.



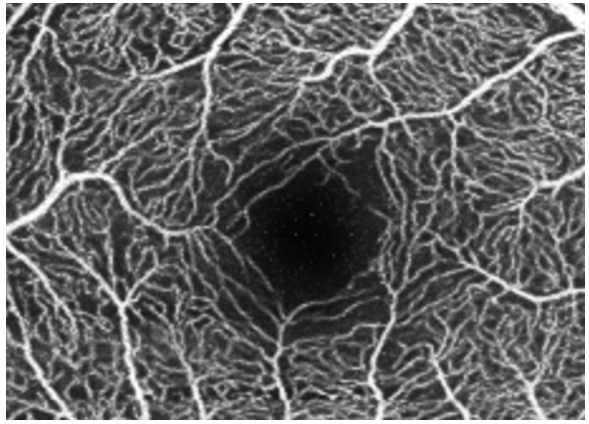
Very large OCTA scan area of up to 13.4x13.4 mm

Intelligent Denoise*

AI technology Intelligent Denoise offers a new quality of OCTA images.Utilizing a single OCT-A acquisition, Canon AI technology revolutionizes OCTA images by reducing image noise, enhancing details, and improving visibility within seconds, providing a new level of OCT-A quality.



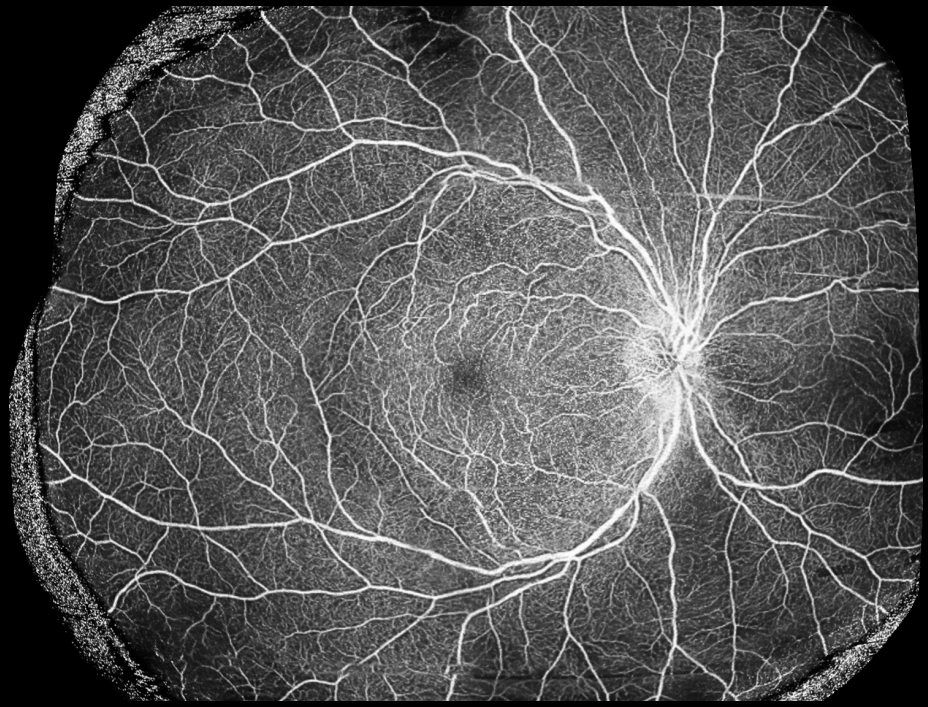
Without Intelligent Denoise



With Intelligent Denoise

Panoramic Imaging*

With Mosaic software, you can create wide OCT-A images by combining 4 or 5 OCT-A scans, helpful to visualize retinal pathologies in the far periphery. Another advantage is that when dealing with difficult-to-image patients you have the flexibility to perform the examination in multiple sessions, by using smaller and therefore quicker scans. The mosaic software then combines them into the larger required scan.



24.2 MP Purpose-built digital EOS camera

Canon is a well-known leading camera manufacturer that has created a unique digital camera called the EOS Retina, which is specifically designed for ophthalmic photography. This camera is integrated with a DIGIC image processor that uses dedicated algorithms to provide optimal image parameters for retinal imaging. As a result, the EOS Retina delivers the best possible retinal image with accurate representation of true colors.

In the Xephilio OCT-R1, this camera is now part of the optical system, which further enhances the quality of the retinal images captured. Canon EOS Retina advanced technology being integrated into the latest Xephilio OCT-R1 to improve eye care diagnostic capabilities and patient outcomes.

Retinal Camera Function

Full Auto

With the Full Automatic eye exam technology, all it takes is a simple tap on the external eye image to automatically find and maintain the correct center position.
(This function is further amplified with an optional Touchscreen Panel)

Auto Focus

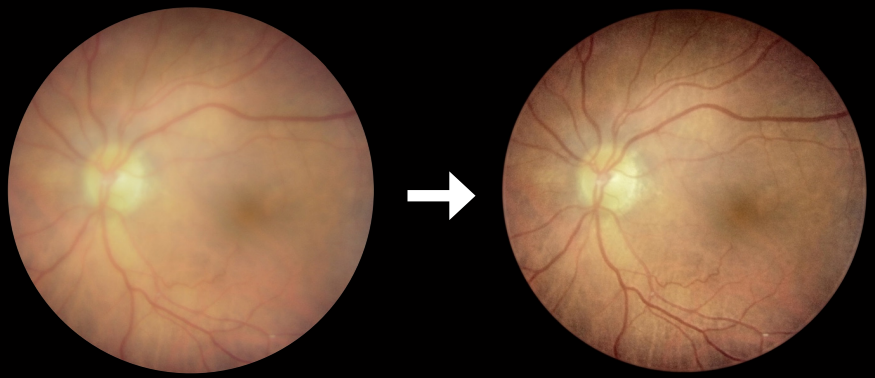
OCT-R1 next-generation focusing technology allows for fast and accurate focus, even on eyes with small pupils allowing precise eye examinations.

Photometric Auto Exposure

Canon's unique method of photometric auto exposure ensures optimal intensity of the observation light and flash. It adjusts in real time, depending on the reflected light from the retina. This guarantees correct exposure, independent of ethnicity or pupil size.

Canon Opacity Suppression

Ocular opacities can obstruct image clarity, by scattering light and blurring the edges of blood vessels, and reducing the difference in brightness of the retina. Furthermore, a cataract can cause images to appear more yellow, thereby hindering the clarity of structures. With our unique and sophisticated Canon Opacity Suppression software tool, the original brightness and color of the retina will be restored. Our technology is designed to reduce the effect ocular opacity for a clearer view of the blood vessels. This results in more accurate diagnoses as obscure structures become more recognizable for diagnostic purposes.

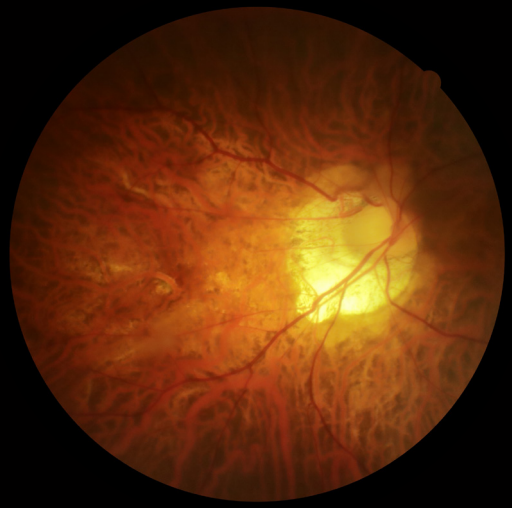


High definition image quality

See more than ever before with the Canon EOS 24.2 MP Digital camera and very latest high quality optics.

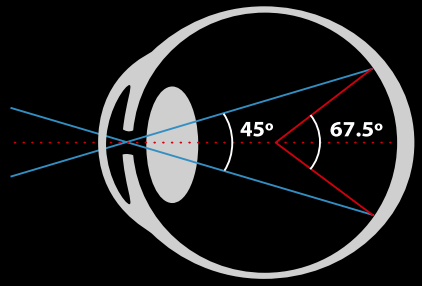
Extensive Photography Modes

To cover your various imaging requirements



45 degrees images

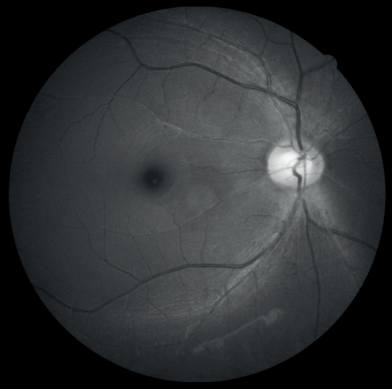
The imaging standard for retinal screening (67.5 degrees when using center of eye as reference). Additionally a X 2 magnification (30 degrees) is available.



Digital Red Free and Cobalt imaging

The images will be automatically generated from the raw color image data. So no additional capturing of images is required. Canon's proprietary image processing provides an image quality fully comparable with optical filters.

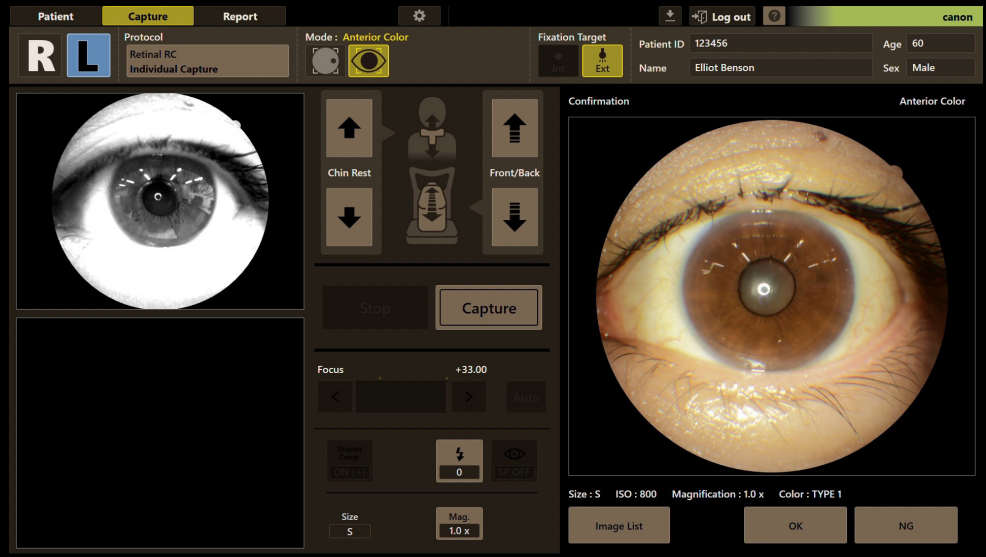
Digital Redfree



Digital Cobalt

Anterior Photography

Quick and easy anterior segment photography to document the cornea, pupil, eyelid and sclera.



Wide Field Imaging*

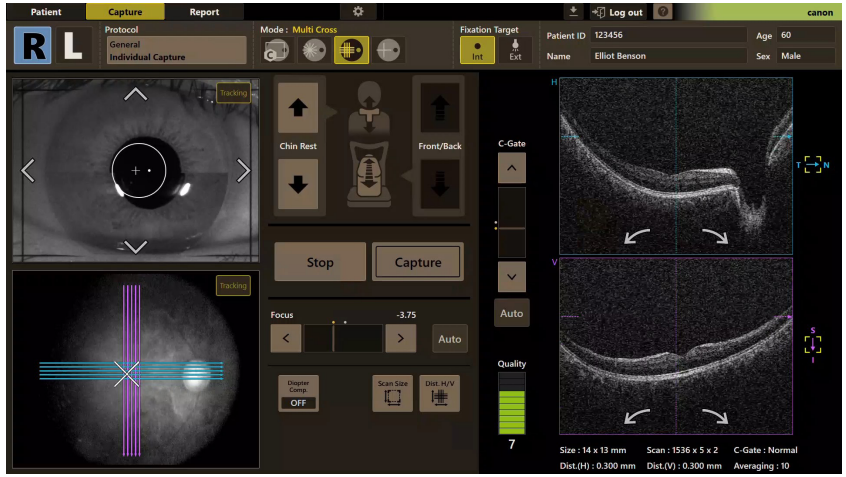
Combine up to 20 images into a wide field mosaic image covering an area of up to 100 degrees. The operator is assisted by automatic fixation light guidance. Press the OK button after capturing the image to move to the next fixation position, or press NG to retake the image.

Retinal Expert software

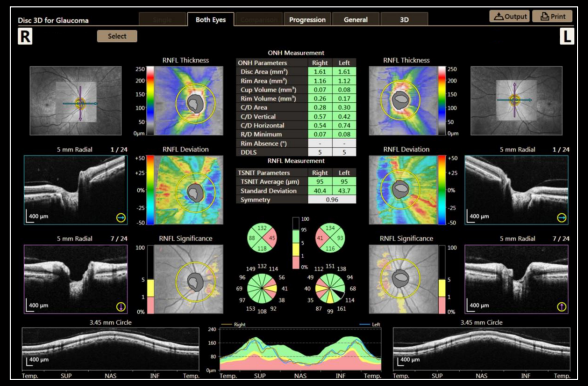
The Graphic User Interface (GUI) of Canon's Retinal Expert software is designed to be intuitive and user-friendly. It is optimized for touch screen operation, with generously dimensioned and clear icons that make navigation effortless.

OCT

The OCT capture screen provides a comprehensive live view of the anterior eye, posterior retina, and tomograms. Large windows allow for easy monitoring of the OCT capture, ensuring precise and accurate results. Even in full auto mode, the RX software offers full control over the OCT-R1 device, giving the operator the flexibility and assurance they need for an efficient imaging outcome.

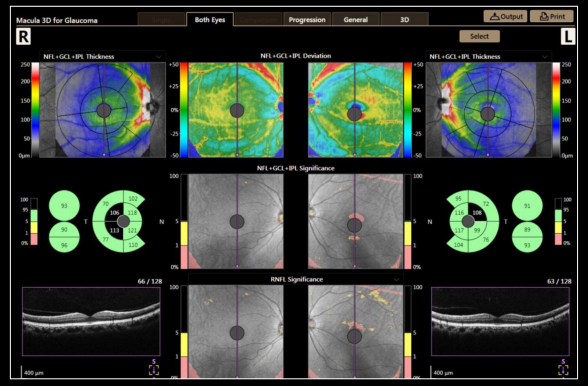


Extensive Glaucoma Examinations



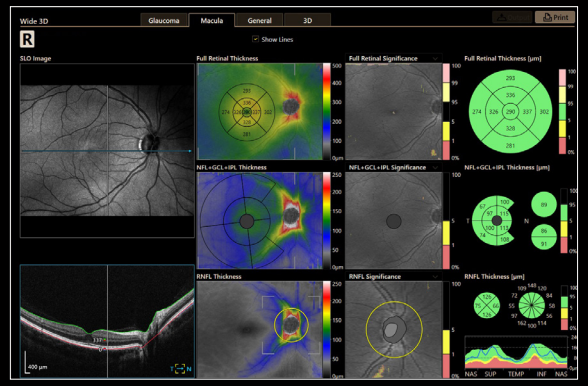
Disc 3D

Xephilio OCT-R1 allows a comprehensive analysis of all optic disc parameters, including comparisons with an extensive normative database.



Macula 3D for glaucoma

Early detection is the key to slowing the progression of glaucoma. Xephilio OCT-R1 supports NFL + GCL + IPL and GCL + IPL measurements with a wide set of graphical representations for complete analysis.



Wide 3D scan mode

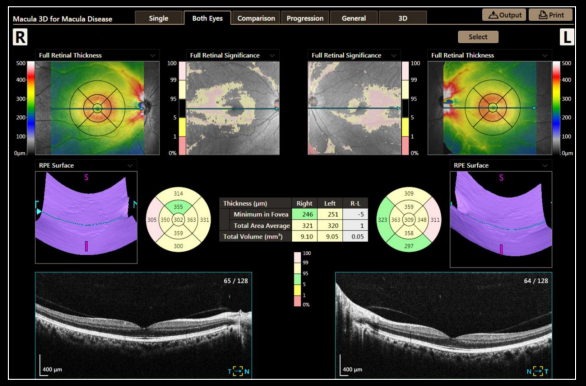
This time saving Wide 3D scan mode (13x10 mm) combines 2 scans: Glaucoma scan, combining the Macula 3D for glaucoma and Disc 3D scans in 1 single acquisition.

Efficient Patient Data Management with Retinal Expert Software

The Retinal Expert software eliminates the need for time-consuming manual input of patient data. It offers the convenience of importing patient lists directly from the practice management system or through a modality worklist in a DICOM environment. This streamlines the workflow and reduces the chance of errors in data entry.

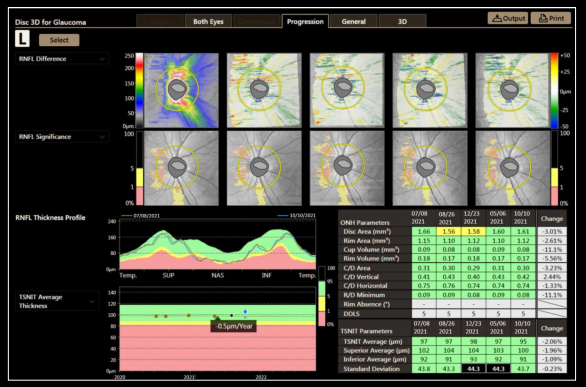
With the cache functionality feature, recent studies are stored on the capture station. This significantly speeds up access to previous examinations as there is no longer a need to wait for downloads due to limited network speed. Clinicians can quickly retrieve and review previous reports, enhancing efficiency and saving valuable time.

Retinal Expert software seamlessly integrates with your practice software. This means that with just a click, the RX software can automatically open on the specific patient, allowing for easy capturing of new images or reviewing of existing reports. This integration enhances workflow efficiency and ensures a smooth transition between different clinical tasks.and assurance they need for an efficient imaging outcome.



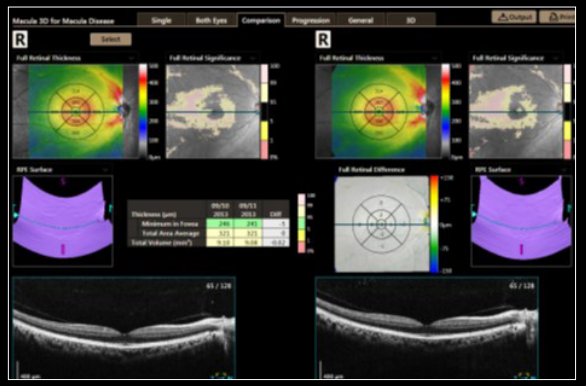
Macula Examination

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



Progression

Select up to five previous studies to observe progression.



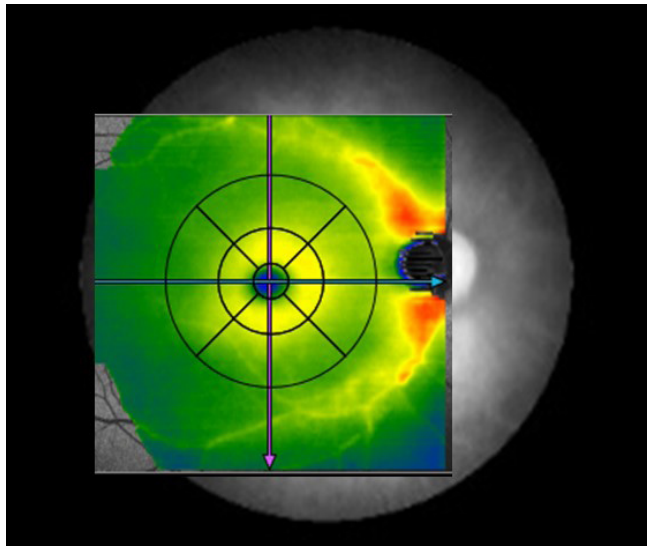
Comparison

Compare two examinations of the same eye, in same scan mode, same size of scanning area, from different dates.

The Retinal Expert software offers an automatic overlay function, which searches for the most suitable available retinal image for comparison. This feature eliminates the need for clinicians to manually search for similar retinal images, streamlining the diagnostic process and saving valuable time.

The software's automatic overlay function also ensures correct alignment of OCT color mapping, enabling accurate comparisons of retinal images over time. In situations where the automatic function does not provide satisfactory images, the software allows clinicians to manually select or import images from other devices for analysis. This feature ensures that clinicians have complete control over the diagnostic process and can access the retinal images they need to make informed decisions.

With automatic overlay and manual selection capabilities, the RX software makes comparing and analyzing retinal images easier and more precise, improving OCT diagnostic accuracy and helping clinicians provide better patient care.

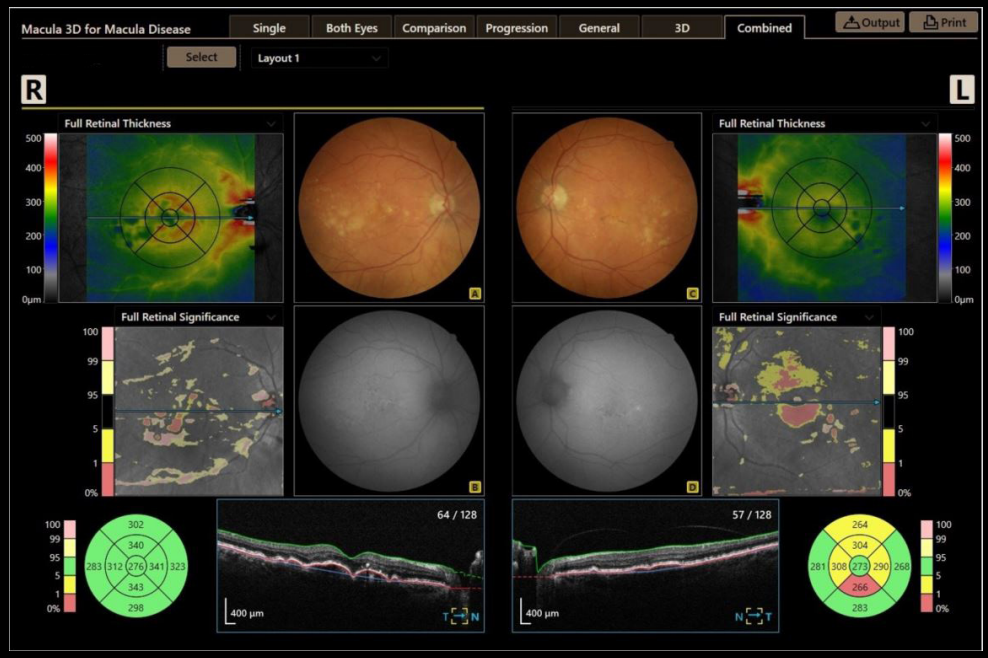


Comprehensive Overview Report with combined OCT and Retinal Images

The RX software generates an extensive overview report that combines OCT scans with retinal images. This report provides clinicians with comprehensive diagnostic information, facilitating a well-informed patient diagnosis.

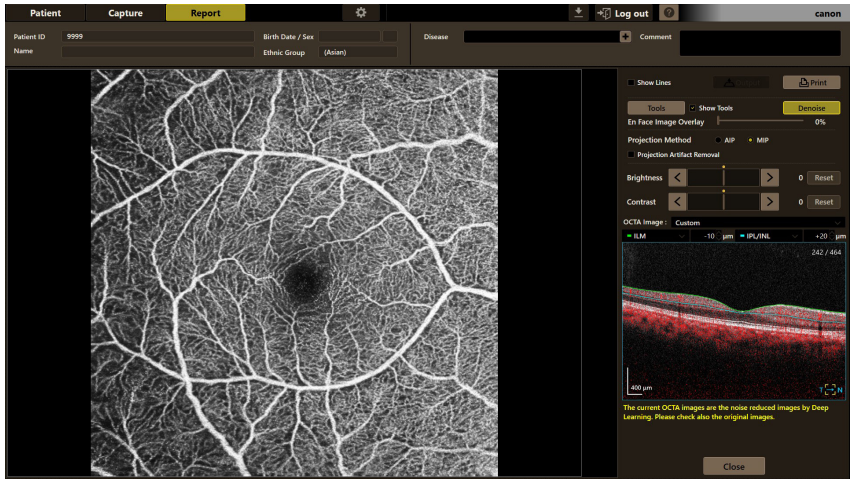
The RX software generates the overview report with easy-to-read information and analysis results, improving the speed and accuracy of diagnosis. With all relevant clinical information and results presented in one concise report, clinicians can quickly compare the information and make informed decisions about patient care.

By providing a comprehensive overview report, the RX software streamlines the diagnostic process and improves the accuracy of diagnosis, ultimately leading to better patient outcomes.



OCTA*: Projection artifact Removal

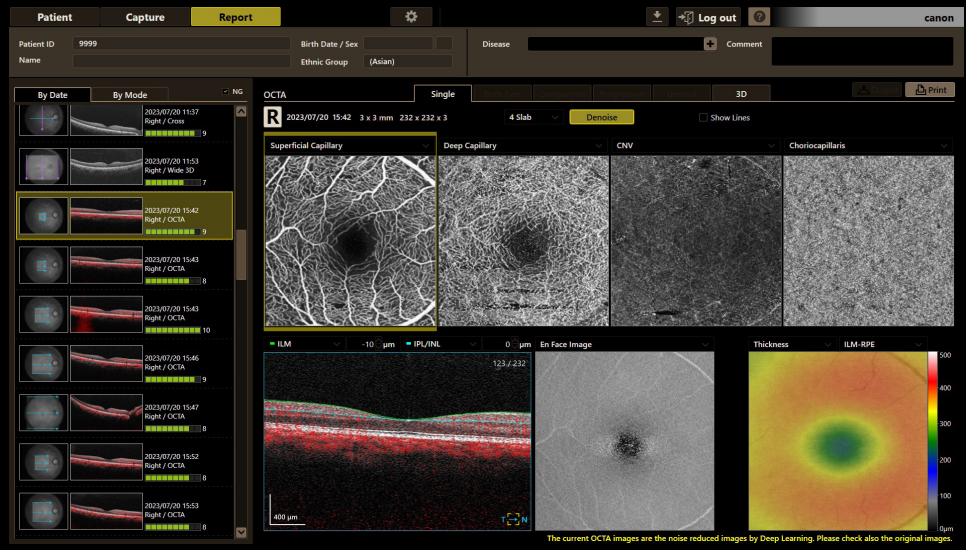
Projection artifacts from the overlying retinal circulation can sometimes interfere with a correct diagnosis. Canon's Angio Expert addresses this issue by utilizing a specialized algorithm that relies on full 3D signal data for a natural removal of projection artifacts. This ensures that the clinical information is preserved while still enhancing the accuracy of the diagnosis.



OCTA*: Customizable Slabs for Precise Viewing

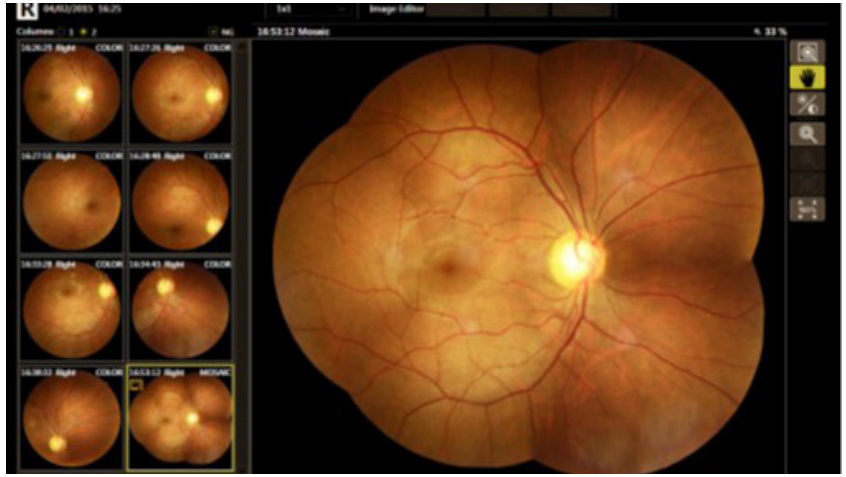
The Retinal Expert software provides 4 separate windows to display the Superficial Capillary, Deep Capillary, CNV (Choroidal Neovascularization), and Choriocapillaris. This allows for a comprehensive and detailed examination of the different layers of the retina.

The slabs in each window are completely adjustable, offering flexibility to suit your specific OCT imaging requirements. You can customize the depth of each slab, allowing for precise viewing and analysis of the retinal layers. This flexibility ensures that clinicians can focus on the specific pathological location they need to observe, leading to more accurate diagnoses and treatment planning.



Mosaic / Panoramic*

Automatic stitching of up to 20 images for a very wide combined image, up to 100 degrees.



Stereo view

Pairing and viewing two images.

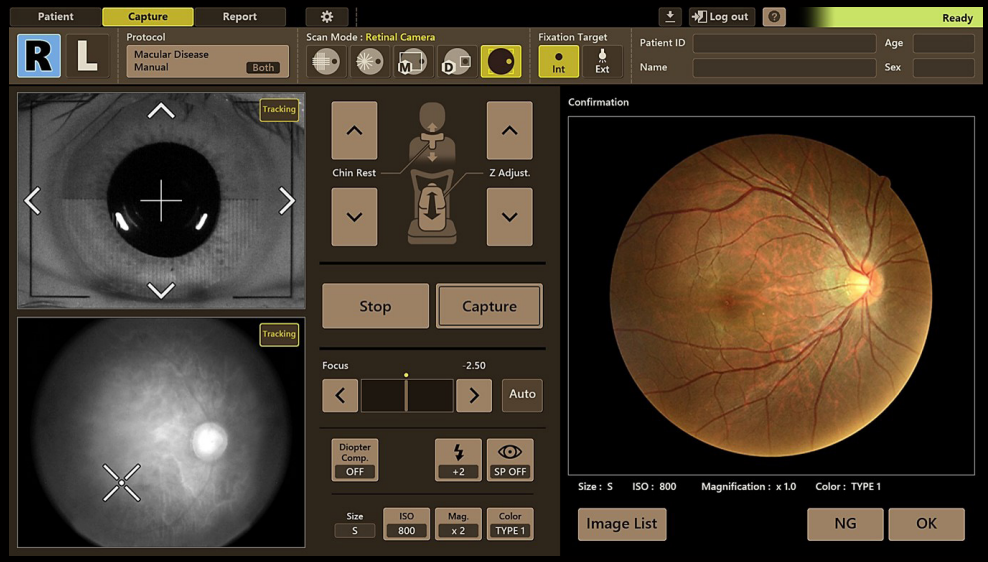
Live Viewing and Control for Retinal Photography

The RX software offers a capture screen for retinal photography that provides live viewing of both the anterior eye and the posterior retina simultaneously. This real-time view allows clinicians to precisely position the camera and ensure proper alignment for capturing high-quality retinal images.

All settings and controls for retinal photography are directly accessible on the capture screen. Clinicians can conveniently adjust parameters such as ISO value, which affects image brightness and clarity, to achieve the desired image quality.

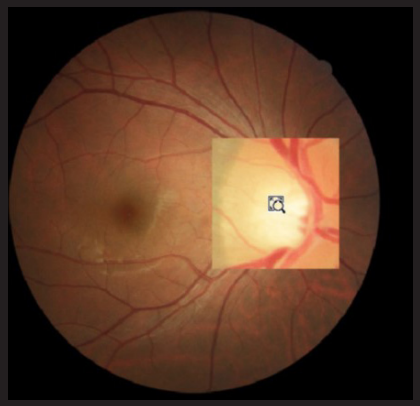
The software also provides options for dealing with specific scenarios, such as small pupils or difficulties with patient fixation. Clinicians can select the Small Pupil mode to optimize image capture in cases where the pupil size is limited. Additionally, a Fixation Target can be displayed on the screen to assist patients in maintaining a steady fixation during image acquisition.

By providing live viewing and easy access to settings and controls, the RX software ensures clinicians have the necessary tools to capture high-quality retinal photographs and facilitates a more efficient and effective examination process.



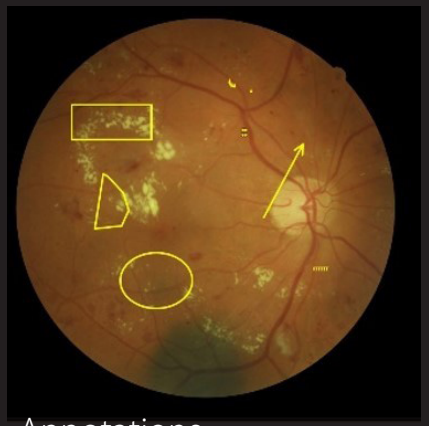
Extensive software tools

RX Software offers an impressive arsenal of tools to assist your diagnosis and to create a clear and complete report. Use the emboss function on a retinal image, change its gamma value, adjust its brightness and contrast, change its color balance, add annotations to it, and analyze its C/D ratio. Images can also be rotated, flipped and mirrored.



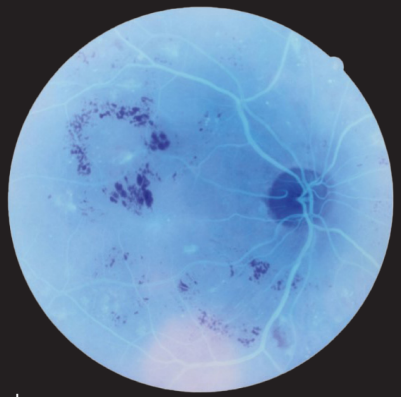
Loupe function

Zoom in on pathology.



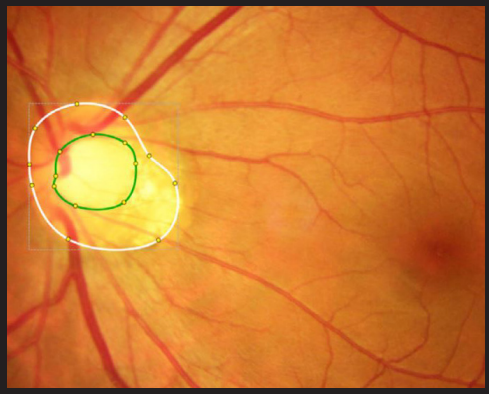
Annotations

Add a shape or texts to a captured image.



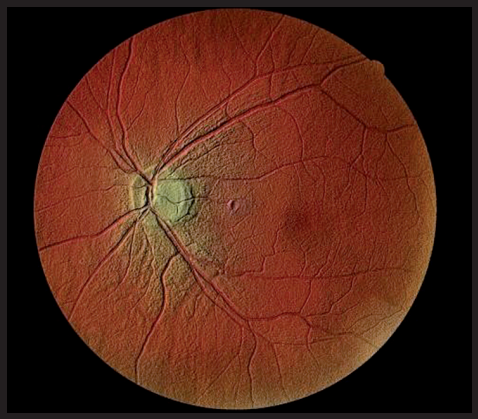
Invert

Inverts the color of an image to assist diagnosis.



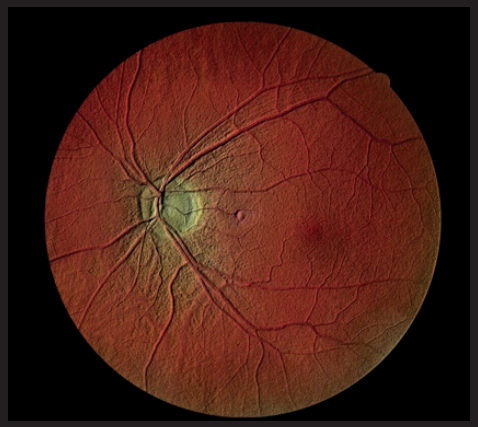
Cup/disc measurement

Measure the optic nerve papillary area.



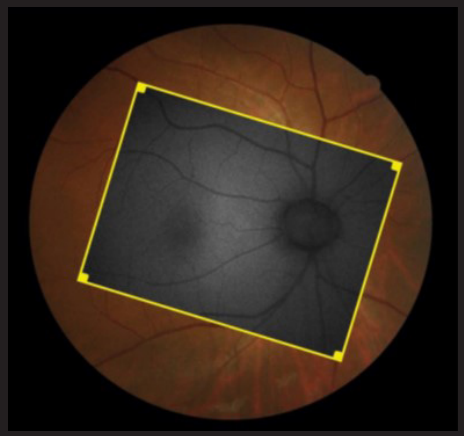
Emboss Negative

The blood vessels stand out



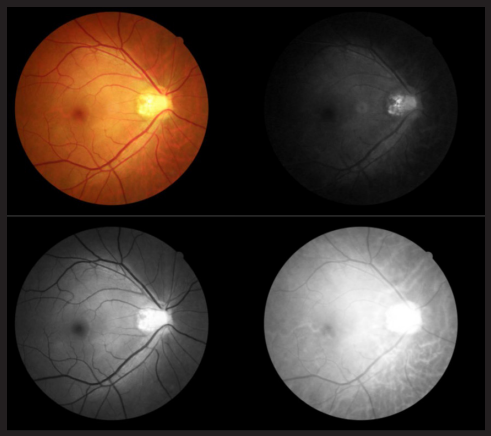
Emboss positive

The optic disc stands out.



Overlay

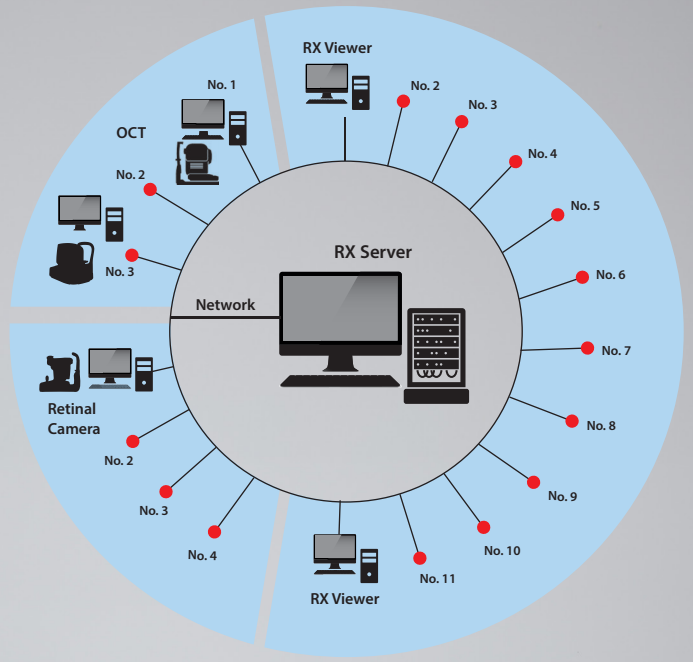
Overlay 2 images to see differences and changes in pathology over time.



RGB Channel view

View separate RGB channels.

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



Canon 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 GDPR compliant. The software protects the privacy of your patients and allows you to properly document your studies.

Stand alone

The RX Capture software is fully integrated with Canon retinal cameras and enables capturing, reviewing and reporting in stand-alone mode. It also serves as a database including archiving.

Viewing station*

RX Viewer software allows you to access all patient data for reviewing and reporting from remote locations while the database remains on the RX server.

Server solution*

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

RX

Specifications

OCT Type	Spectral Domain
Light source	SLED
Central OCT wave length	880 nm
Axial Resolution (Optical)	7 µm
Scan width	3 ~ 14.7 mm
Scan depth	2.3 mm
Scan Rate	50,000 A scans/sec
Minimum pupil : OCT	2.5 mm
Retinal observation	Digital camera (IR image)
Photography	Color, Red free, Cobalt, Anterior segment
Photography angle	45 degrees/ 30 degrees digital
Resolution	24.2 MP / Center resolution : 63 lines
Minimum pupil camera	4.0 mm (3.3 SP)
Chinrest	Motorized
Dimensions W x D x H (mm)	335 x 490 x 473
Weight	23 kg

Specification may subjected to changes without any notice

OCT Scan Parameters

	Macula 3D	Glaucoma 3D	Disc 3D	Wide 3D
A-scan x B-scan	1024 x 128	1024 x 128	512 x 256	512 x 128 1024 x 1
Scan Width (V x H) (mm)	10 x 10	10 x 10	6 x 6	13 x 10 13
Scan direction	Horizontal	Vertical	Horizontal	Vertical/Horizontal

	Custom 3D	Cross	Multicross	Radial
A-scan x B-scan	1024 x 128	1024 x 1 x 2 1536 x 1 x 2	1024 x 1 x 2 1536 x 1 x 2	1024 x 12 1536 x 12
Scan Width (V x H) (mm)	3 x 3 ~ 14.7 x 13.4	3 x 3 ~ 14.7 x 13.4 6 x 6 ~ 14.7 x 13.4	3 x 3 ~ 14.7 x 13.4 6 x 6 ~ 14.7 x 13.4	3 x 3 ~ 14.7 x 13.4 6 x 6 ~ 14.7 x 13.4
Scan direction	Horizontal or vertical	Vertical/Horizontal	Vertical/Horizontal	Radial
Averaging		1/5/10/20/50	1/5/10/20	1/5/10/20

Anterior segment can be visualized without the need of an additional lens adapter.

*Optional:

1. OCT Angiography (Angio Expert Software)
2. Intelligent De-noise
3. Retinal Expert (RX) Viewer
4. Retinal Expert (RX) Server
5. Mosaic / Panoramic Software

Optional: EL-1 Fixation target

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