Optical Coherence Tomography
RS-1 Glauvas

THE ART OF EYE CARE

Faster workflow without compromising diagnostic confidence

The RS-1 Glauvas is an innovative OCT system with 250 kHz scan speed, high-quality wide and deep area imaging, great operability, and deep learning-based analytics. With these capabilities, the RS-1 Glauvas provides streamlined workflow and diagnostic confidence for glaucoma and retinal vascular diseases in high-volume clinical practices.
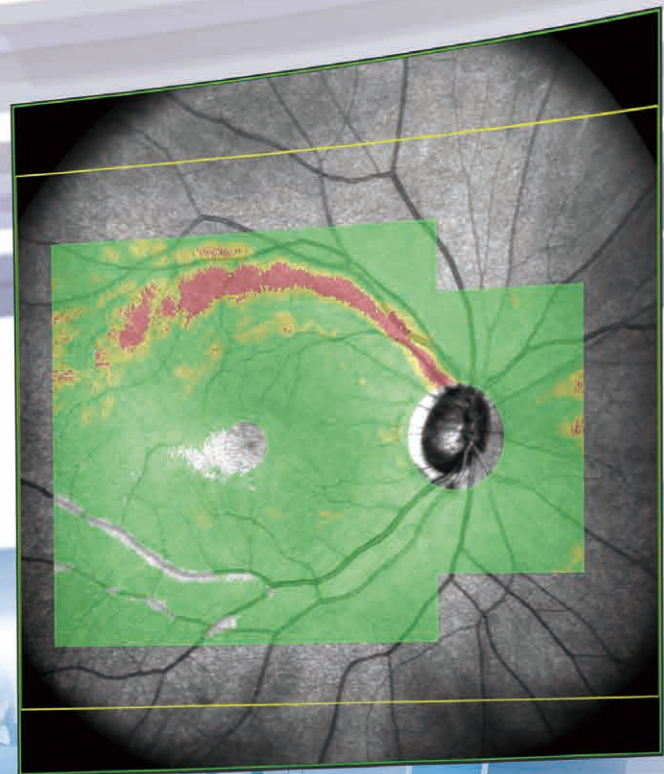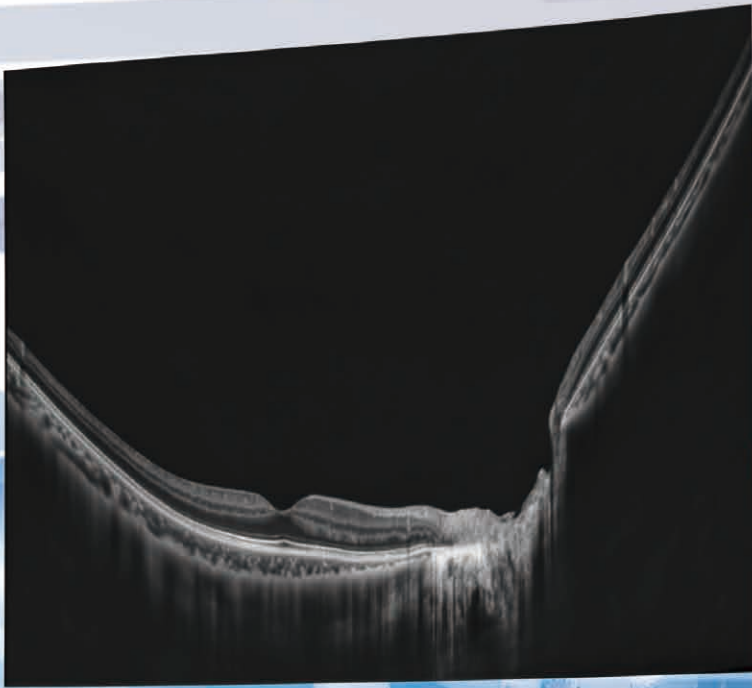
RS-1
Glauvas

250,000 A-scans/s high-speed imaging

250kHz
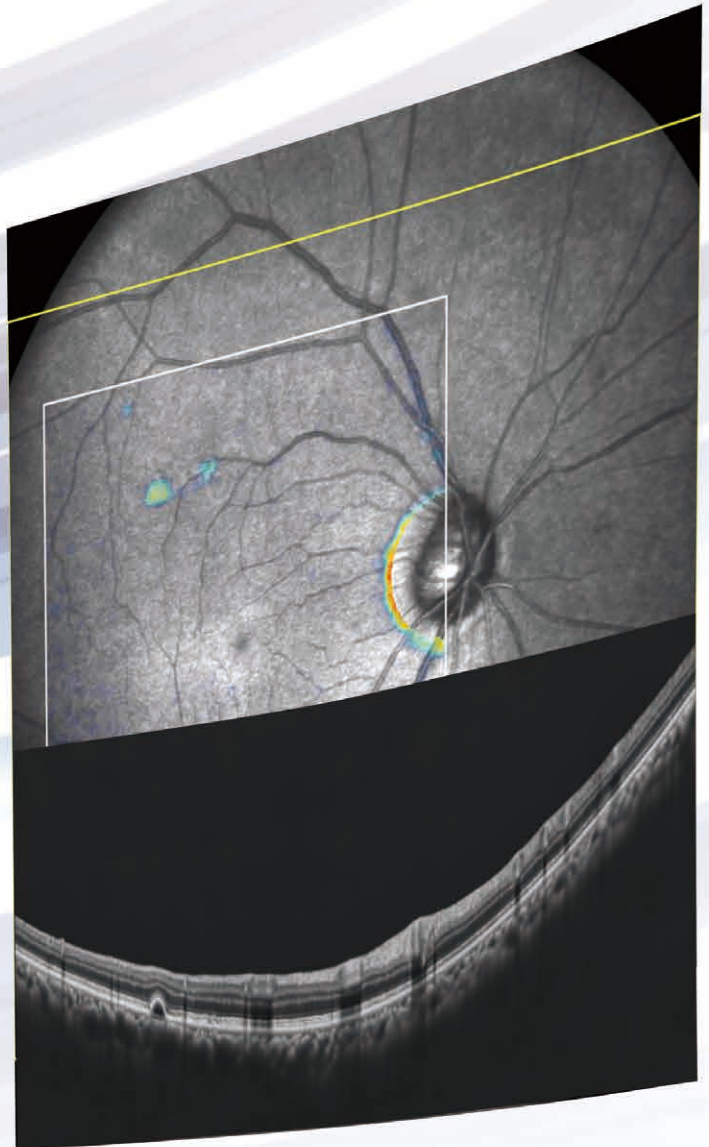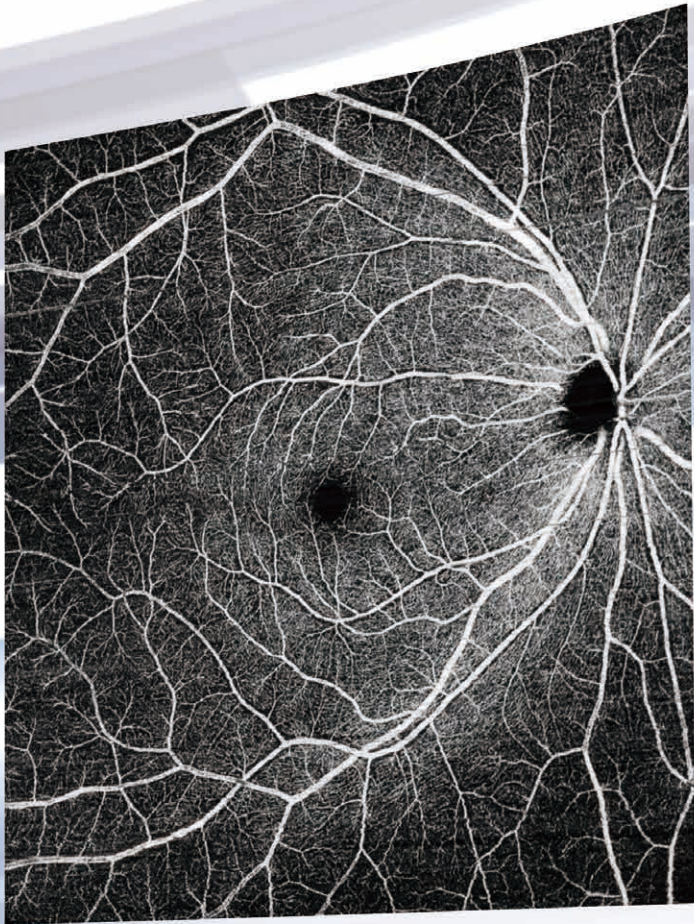
Wide, deep, high-resolution imaging

Effortless operation and interpretation

Advanced analytics

250,000 A-scans/s high-speed imaging

The incorporation of 250,000 A-scans/s accelerates your workflow by reducing capture time. The high-speed imaging also addresses patient fixation errors thus contributing to greater image clarity and patient comfort.
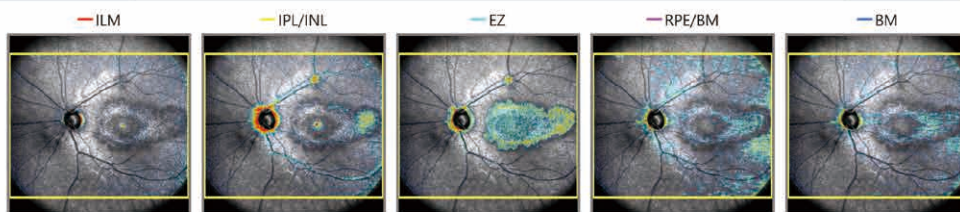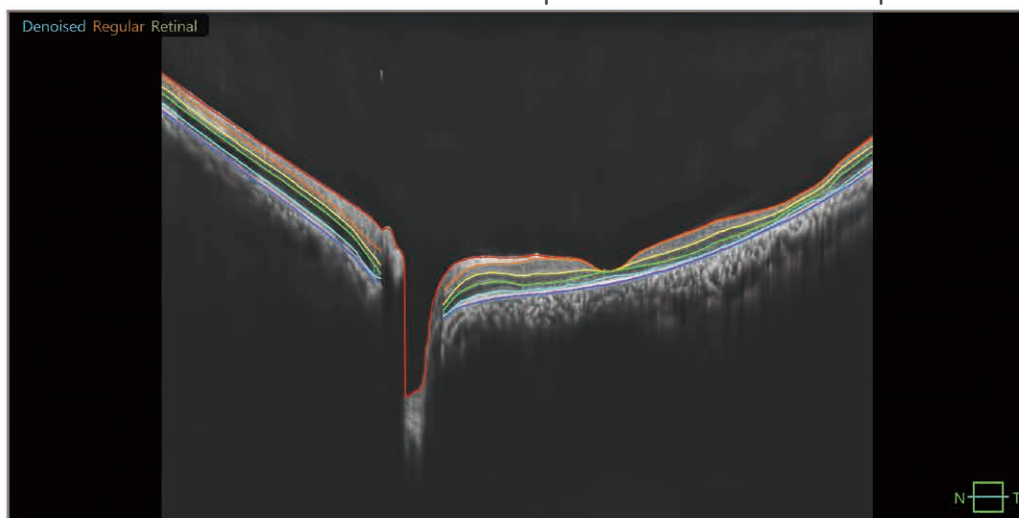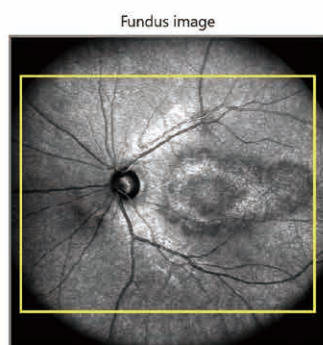
RS-1 Glauvas: 250,000 A-scans/s

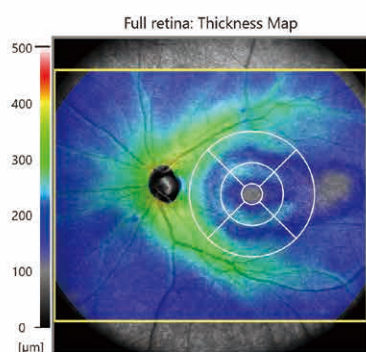The previous model:
85,000 A-scans/s

Approx.
3 times faster
than the previous model

Retina map 15.0 x 12.0 mm / Scan depth 4.2 mm

Full retina: Thickness Map

500
400
300
200
100
0
[μm]

Denoised Regular Retinal

Fundus image

ILM   IPL/INL   EZ   RPE/BM   BM

Macula line 16.5 mm / Scan depth 4.2 mm

Wide, deep, high-resolution imaging

With RS-1 Glauvas, a single B-scan image clearly presents the area from the optic nerve head to the temporal vascular arcade, and the 4.2 mm depth B-scan imaging readily captures the oblate retinal shape of myopic eyes. Improvements in AngioScan OCT-Angiography include wider and clearer images for assessing chorioretinal microvasculature.
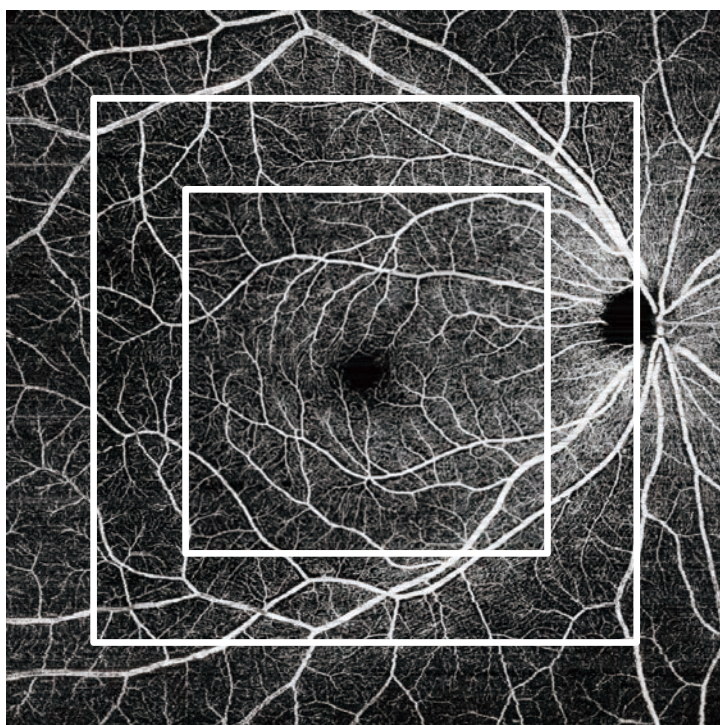
B-scan
Scan width
- Line: 16.5 mm
- Map: 15.0 x 12.0 mm
Scan depth: 4.2 mm

OCT-Angiography (optional)
Scan range: 6 x 6, 9 x 9, 12 x 12 mm

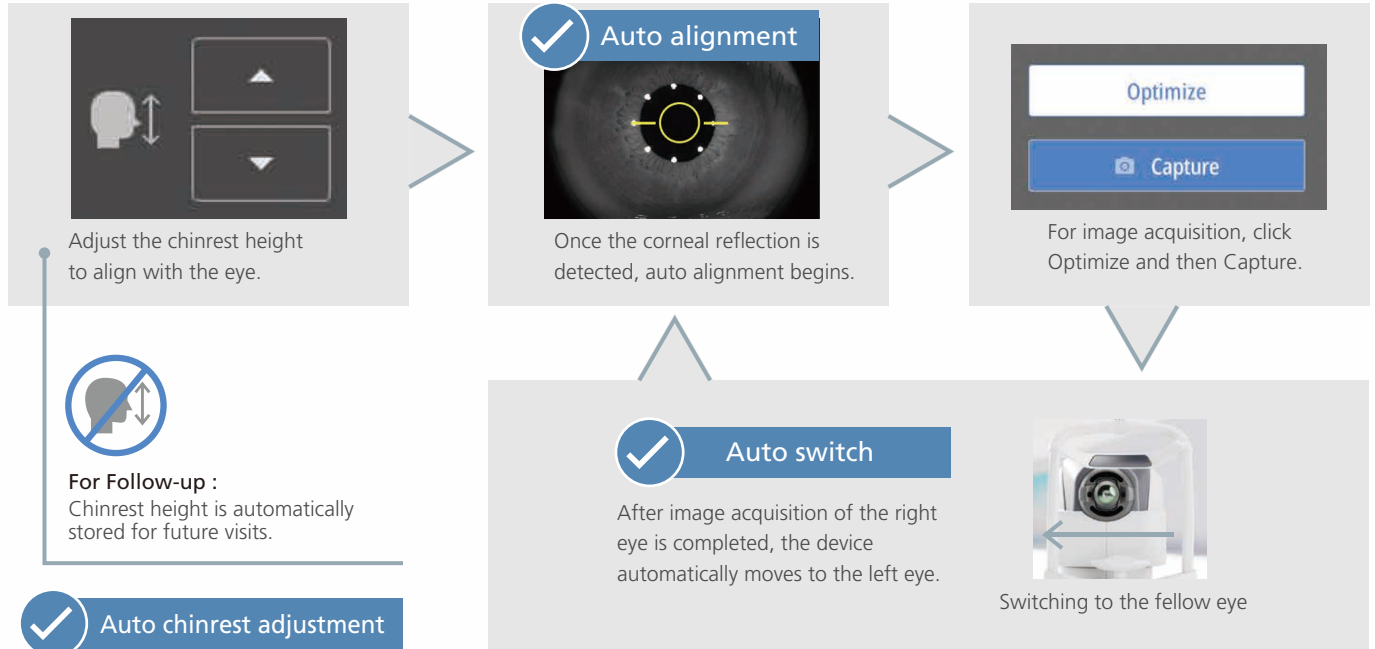OCT-Angiography : 6 x 6, 9 x 9, 12 x 12 mm

Effortless operation and interpretation

Easy image capture with automated functions

The auto alignment and auto switch functions allow anyone to effortlessly capture images. Operators need to only adjust the chinrest height and click Optimize and Capture.

Adjust the chinrest height to align with the eye.

Auto alignment

Once the corneal reflection is detected, auto alignment begins.

Optimize

Capture

For image acquisition, click Optimize and then Capture.

For Follow-up :
Chinrest height is automatically stored for future visits.

Auto switch

After image acquisition of the right eye is completed, the device automatically moves to the left eye.

Switching to the fellow eye

Auto chinrest adjustment

## Newly-designed joystick for smooth operation

Based on user preference, operation with a newly-designed joystick is also available. The 4-direction button allows smooth, fine movement of the device.

## Combo image capture for better clinic efficiency

Customizable combo image capture provides preset scanning patterns based on each target disease or examination routine of a facility, enhancing workflow.

Example of combo setting: Glaucoma
Macula line, macula map, and disc map are sequentially captured.

Macula line   Macula map   Disc map
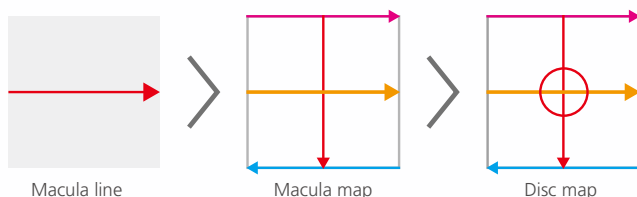
Enhanced SLO sensitivity

The high SLO sensitivity facilitates reliable image capture, including in eyes with opacities, enabling preoperative assessment for cataract and diabetic retinopathy (DR).
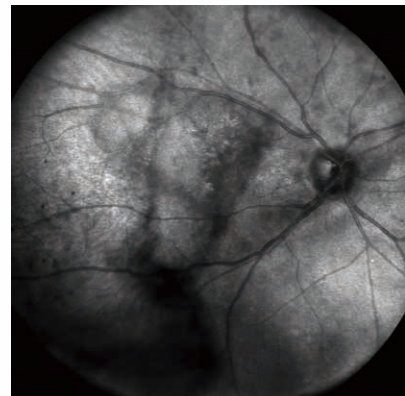
Intuitive user interface

The OCT Viewer software allows quick access to images and analytics. The display can be viewed by day, scan pattern, and analysis mode within a single screen - allowing faster review of imaging and analytics.

Analysis mode
Summary, glaucoma, and macular analysis modes are available depending on scan patterns.

Right eye / both eyes / left eye

Date

Scan pattern
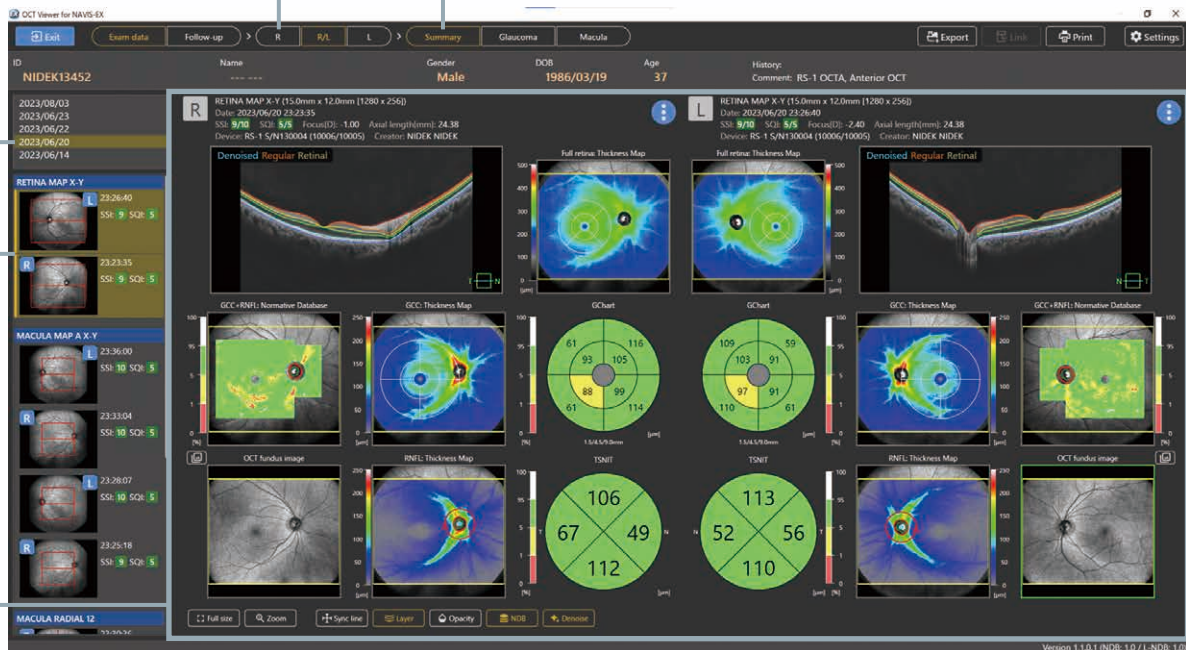
Summary analysis for comprehensive screening

When summary analysis on the retina map is selected, all the necessary items for overall screening can be reviewed at a glance.
- Top: B-scan image and thickness map of all retinal layers for diagnosis of macular disease
- Middle/bottom: Normative database, thickness maps of the GCC and RNFL, and other information for glaucoma screening

Structural Normality Map (SN Map) facilitating rapid interpretation

The SN Map detects and highlights structural abnormalities and even subtle retinal changes. This function clearly indicates a region of interest, layer by layer, and enhances clinical efficiency by reducing interpretation time.
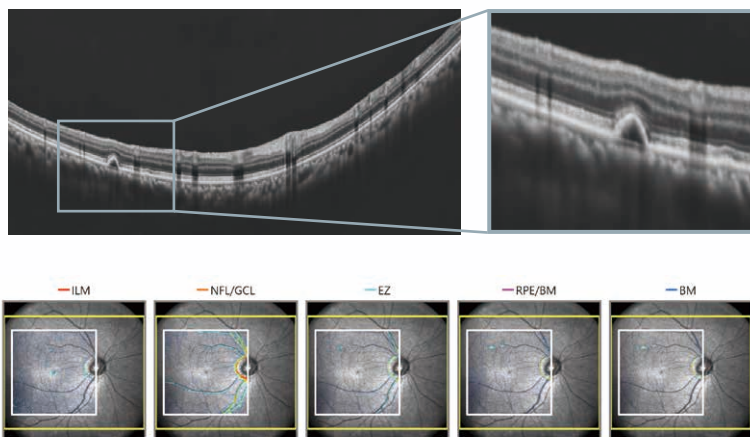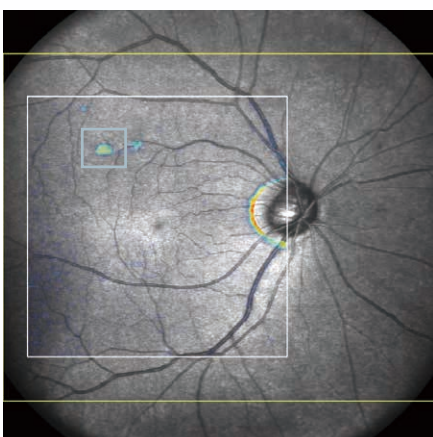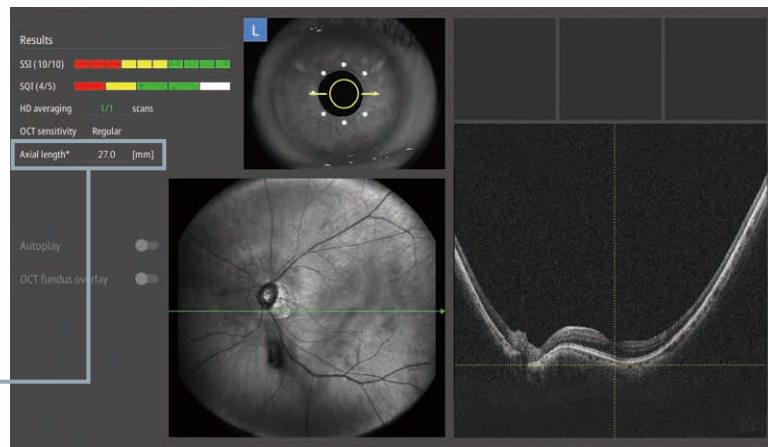
Advanced analytics
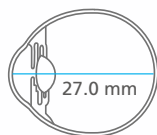
Glaucoma analysis in myopia

The long axial length normative database[*1] presents analysis with axial length compensation, allowing for a more accurate glaucoma assessment in patients with axial myopia.
The OCT Viewer automatically switches to this database as required, by using the axial length[*2] which is a parameter for scan width correction.

Depending on this value, an optimal database is automatically selected.
- Less than 26 mm: Normative database
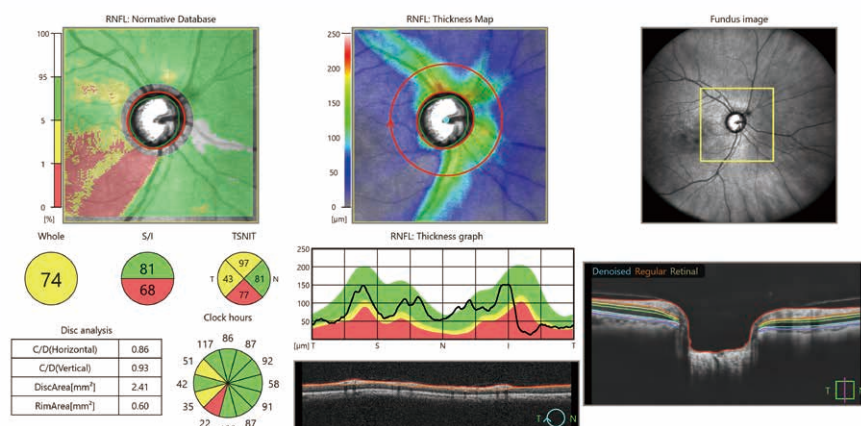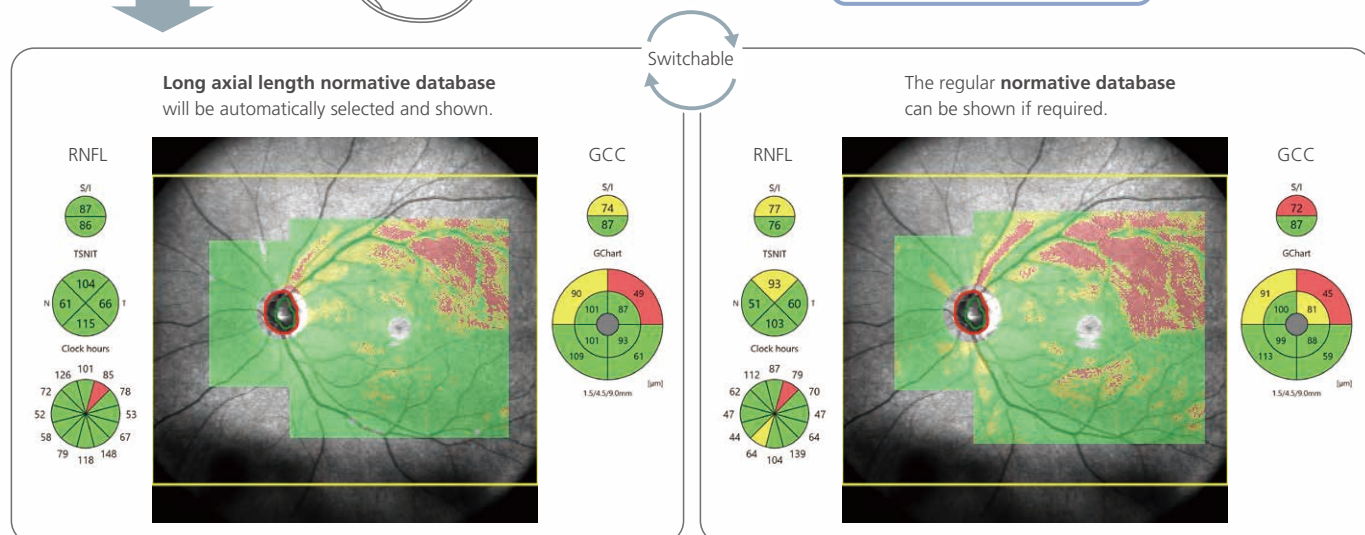- 26 mm or longer: Long axial length normative database

Watch video
Check out how this function works.

Sample case:
Patient with 27.0 mm axial length[*2]

27.0 mm

Switchable

Long axial length normative database will be automatically selected and shown.

The regular **normative database** can be shown if required.

Less false positives with deep learning segmentation (DL segmentation)

The accuracy of segmentation affects the outcomes of glaucoma analysis. DL segmentation reduces artifacts and errors in the normative database and thickness maps even in eyes with opacities, thus decreasing false positives and enhancing clinic efficiency by reducing unnecessary follow-up visits. Additionally, the scan width correction allows precise analytics based on the patient's axial length[*2].


*1 Data was collected from a sample of Asian patients.
*2 The value of the axial length is obtained based on the results of the OCT image capture and differs from the actual measured value of the axial length.
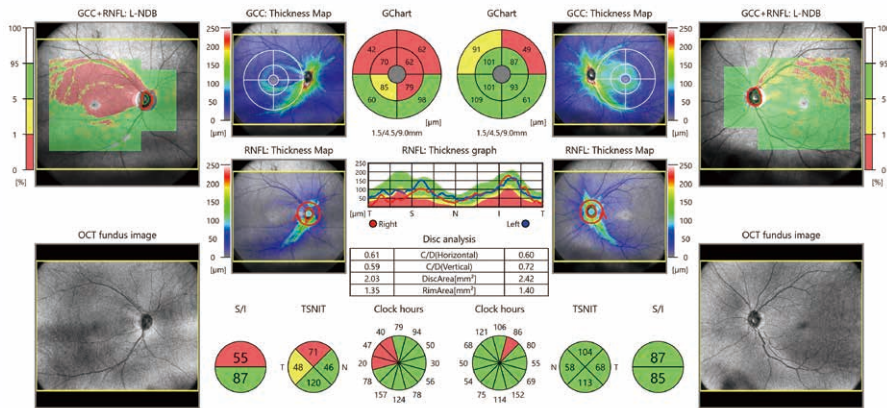
Retina map for combined diagnosis of the disc and macula

The retina map captures both the disc and macula in a single shot. Normative database analysis is performed for both the RNFL and GCC on a single OCT image, facilitating efficient diagnostic screening.
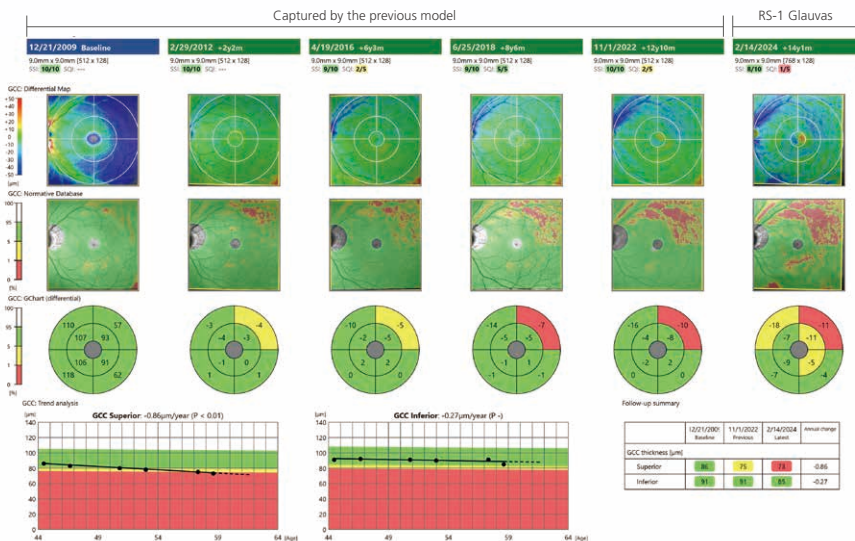
Follow-up capture and analysis

The tracing HD function addresses involuntary eye movements to ensure that the same scan location is maintained on the SLO image even for follow-up visits. The chronological change is presented for retinal thickness with various maps, charts, and graphs for trend analysis which allows long-term follow-up examination. Data from the previous model and RS-1 Glauvas can be combined and presented at the same location for follow-up analysis.
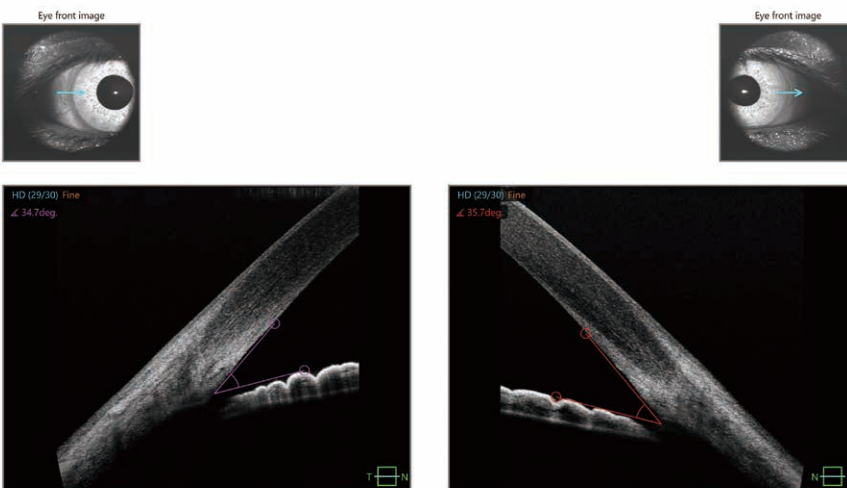
Anterior segment OCT

The optional anterior segment adapter enables observation and analysis of the anterior chamber angle (ACA) and cornea. It helps clinicians detect eyes at risk of angle closure and assess changes in ACA and cornea caused by glaucoma progression or treatment effects.
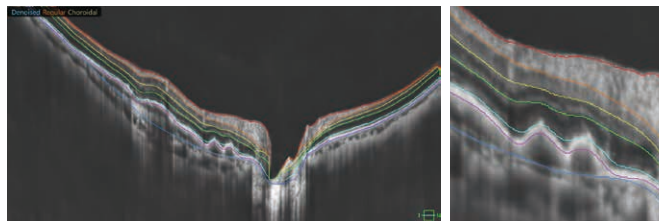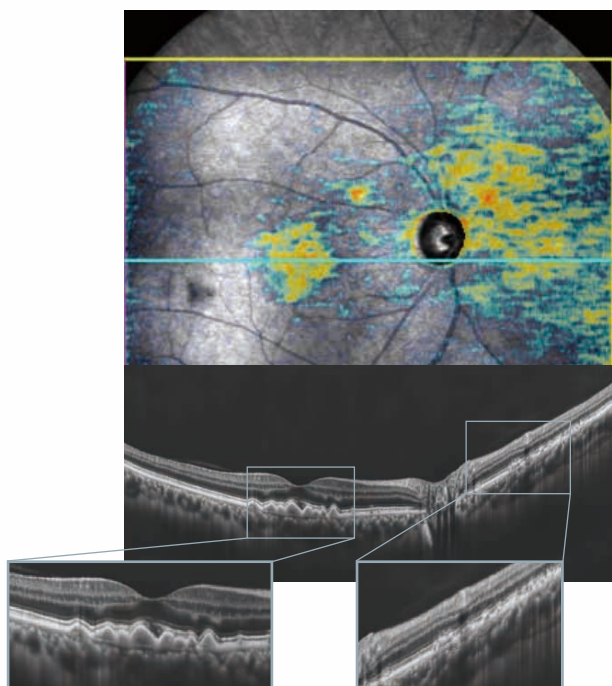
Retina
Advanced analytics

SN Map improving diagnostic confidence on early detection

The DL segmentation provides an SN Map that presents structural abnormalities and changes. This functionality aids clinicians in detecting minute structural changes at a glance, contributing to greater diagnostic confidence even for early signs of retinal changes.
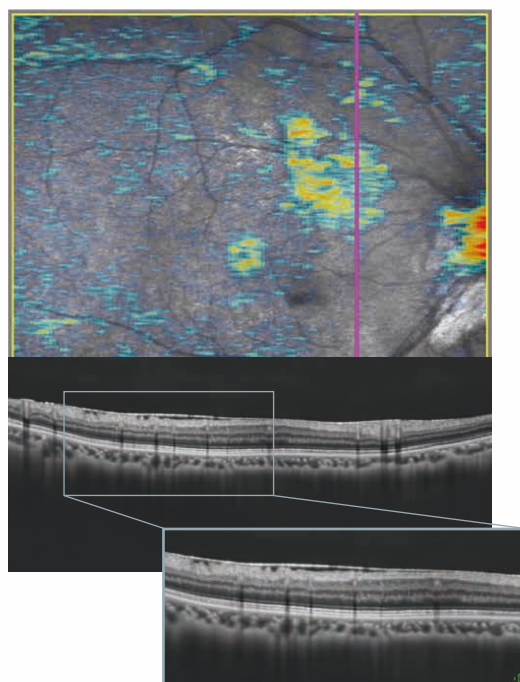

Less affected by a lesion or image contrast, the DL segmentation detects the edge of each layer on a B-scan image. Based on this highly precise segmentation, the SN Map can show subtle changes.

Drusen

Epiretinal membrane (ERM)

Enhanced OCT-A resolution with a new imaging algorithm

Sharp, wide OCT-Angiography enables detailed imaging of microvasculature even at the periphery of the scan area. In addition, a new algorithm, Complex OCT signal Difference Analysis Angiography 2 (CODAA 2), improves contrast, allowing for enhanced imaging. The high-definition OCT-Angiography enables greater clinical use of noninvasive imaging of retinal vascular diseases, reducing dependence on contrast dye tests.
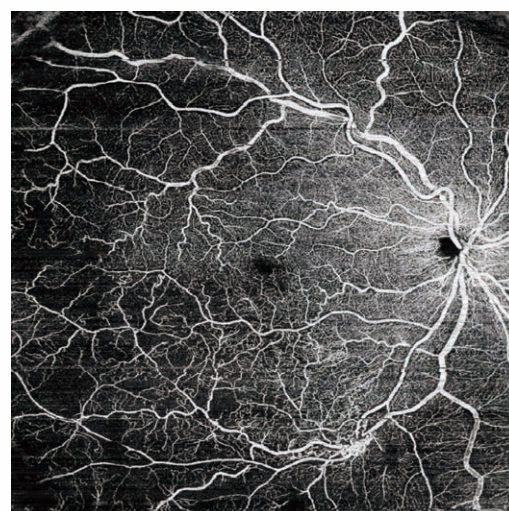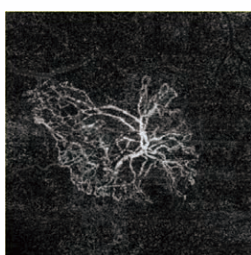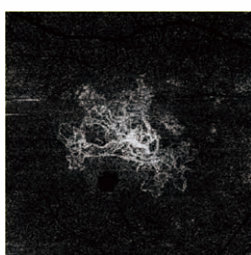
B-scan Denoising Software for both efficiency and image quality

The B-scan Denoising Software (optional) generates high-definition images from a single frame while decreasing image acquisition time and increasing patient comfort. With deep learning of a large data set of images averaged from 120 images, this denoising technique provides high-definition images comparable to a multiple-image-averaging technique.
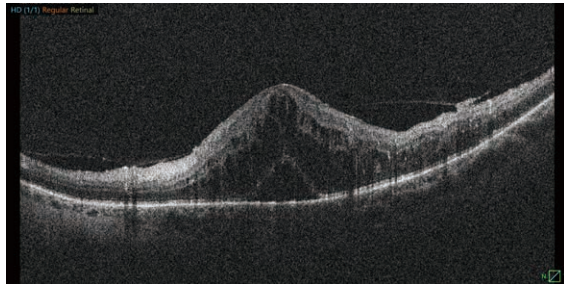
Single-frame image

Denoising

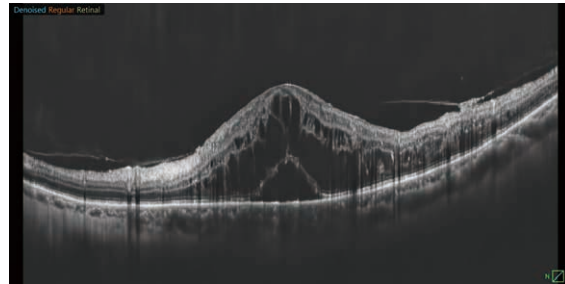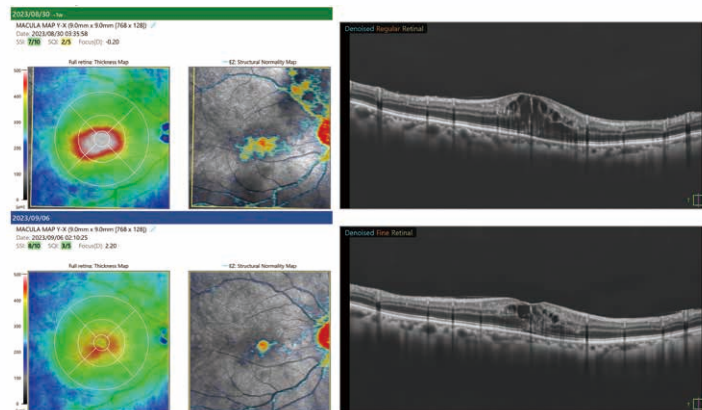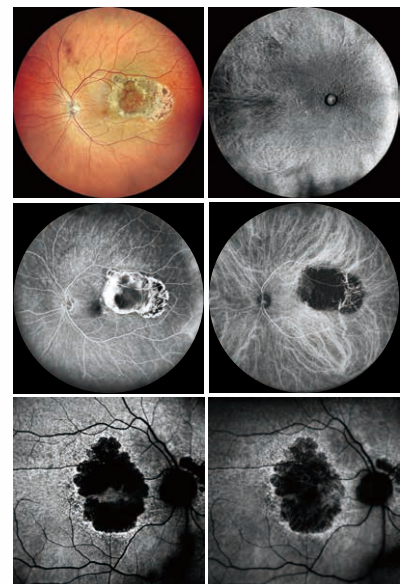Image after B-scan Denoising

Comparison for follow-up assessment

Clinicians select two images for comparison. This functionality enables the assessment of pre-/post-treatment and chronological changes on the follow-up visit.

Advanced multimodal imaging with the Mirante SLO

The use of RS-1 Glauvas and Mirante SLO allows for sophisticated multimodal analysis and expanded diagnostic capabilities.

RS-1 Glauvas Specifications

OCT scanning	
Principle	Spectral domain OCT
Optical resolution	Z: 7 µm, X-Y: 20 µm
Scan width	Line: Up to 16.5 mm
	Map: Up to 15.0 x 12.0 mm
Scan depth	4.2 mm
OCT light source	SLD, 880 nm
Scan speed	Up to 250,000 A-scans/s
Image averaging	Up to 120 images
Fundus surface imaging	
Principle	SLO
Angle of view	53.3°(X) x 53.3°(Y)
Internal fixation lamp color	Green
External fixation lamp color	Red
Auto alignment	X-Y-Z directions
Minimum pupil diameter	ø2.5 mm
Diopter correction range	-20 to +20 D (VD=0 mm)
Working distance	Fundus OCT mode: 24.9 mm / Anterior[*1]: 20.0 mm
Software analysis	
Retina	Segmentation of 7 retinal layers
	Scan width correction
	Full retina thickness map
	GCC thickness map
	RNFL thickness map
	Percentile map (RNFL, GCC+RNFL)
	Structural normality map
	Thickness map
	Disc analysis
	Follow-up analysis
Anterior[*1]	Corneal thickness measurement
	Corneal thickness map
	Angle measurement
Normative database	
Axial length	Less than 26 mm
Age	20 years to under 80 years
Scan pattern	Macula map, disc map, retina map
Long axial length normative database[*2]	
Axial length	26 mm to less than 29 mm
Age	20 years to under 60 years
Scan pattern	Macula map, disc map, retina map
PC networking	Available
Power supply	100 to 240 V AC, 50/60 Hz
Power consumption	Device main body 220 VA
Dimensions/mass	332 (W) x 526 (D) x 586 (H) mm / 30.6 kg
	13.0 (W) x 20.7 (D) x 23.1 (H)" / 67.5 lbs.
Optional accessories	B-scan denoising software, OCT-A dongle, computer, computer monitor, isolation transformer, pole-type computer cabinet (slim), anterior segment OCT image capture kit, motorized optical table, HDD

*1 Anterior segment OCT image capture kit is optional.

*2 Data was collected from a sample of Asian patients.

Image courtesy of
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Kelvin Teo Yi Chong, MD, Singapore
Retina Foundation & Eye Research Center, India
San Giuseppe Hospital - IRCCS MultiMedica, Italy
Vista System Center, Italy

More clinical information available online at the NIDEK Education page

For more clinical information, please visit the Education page on the NIDEK website. This site allows access to case reports, journal articles, and video presentations.

https://www.nidek-intl.com/education/

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