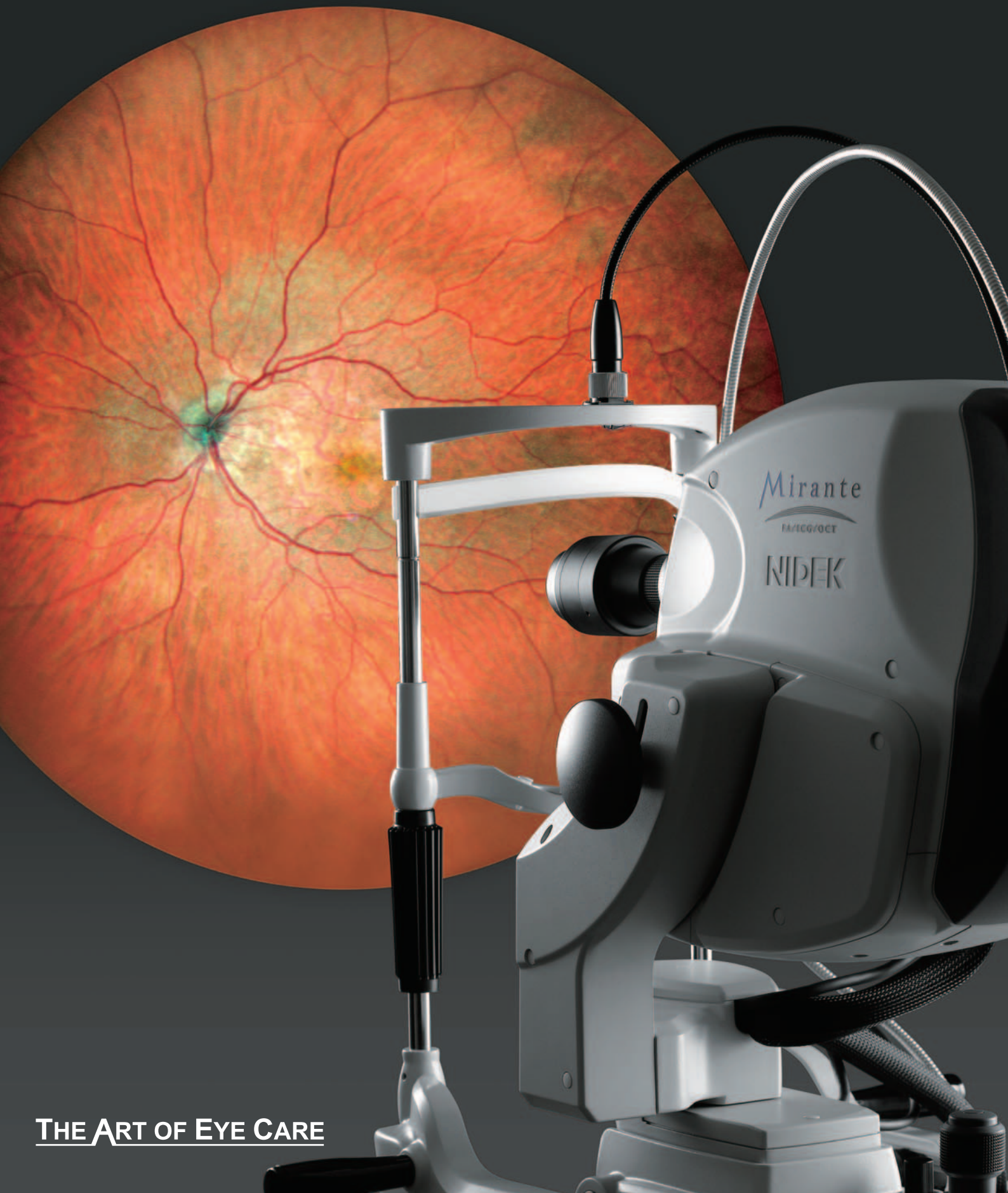
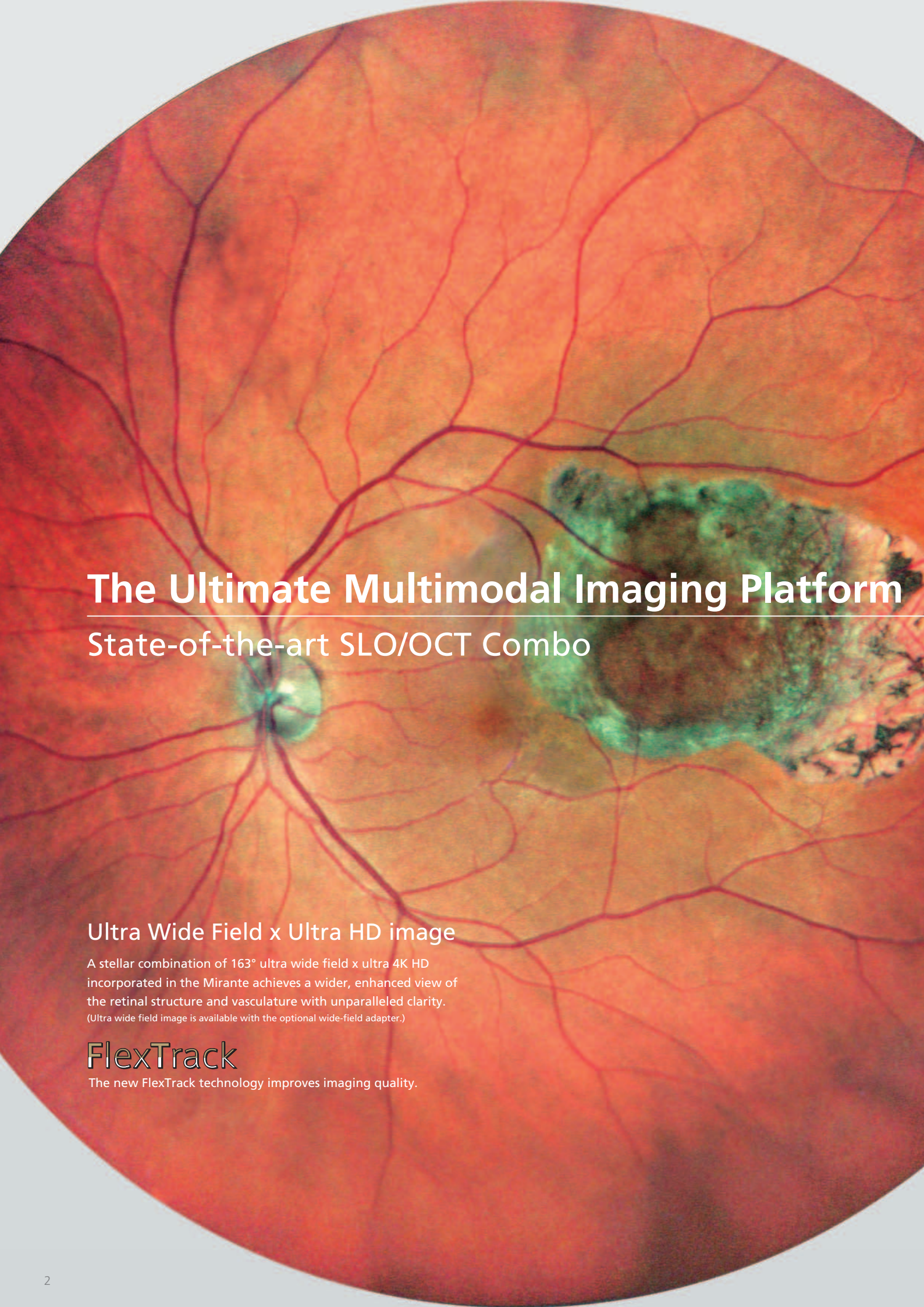
NIDEK

Scanning Laser Ophthalmoscope

Mirante



THE ART OF EYE CARE



The Ultimate Multimodal Imaging Platform

State-of-the-art SLO/OCT Combo

Ultra Wide Field x Ultra HD image

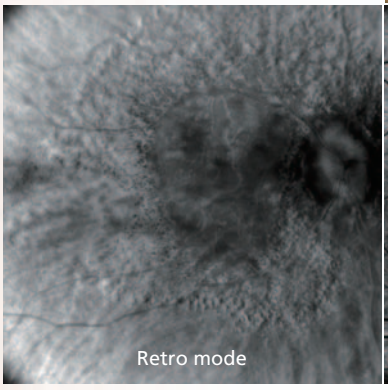
A stellar combination of 163° ultra wide field x ultra 4K HD incorporated in the Mirante achieves a wider, enhanced view of the retinal structure and vasculature with unparalleled clarity.
(Ultra wide field image is available with the optional wide-field adapter.)

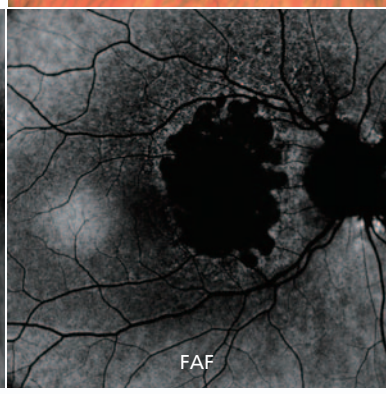
FlexTrack

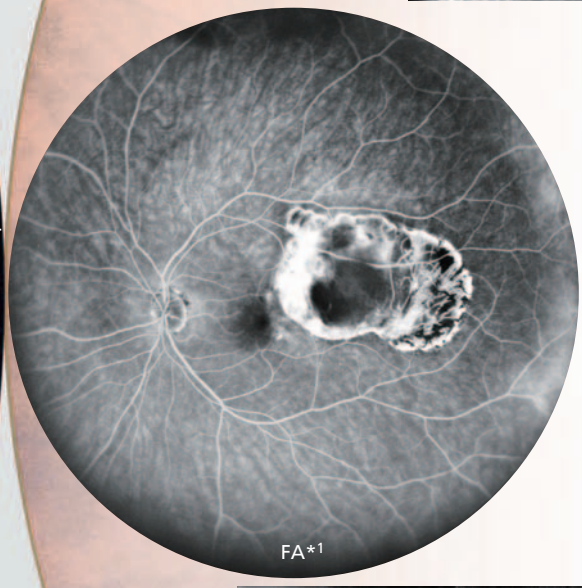
The new FlexTrack technology improves imaging quality.

Confocal SLO

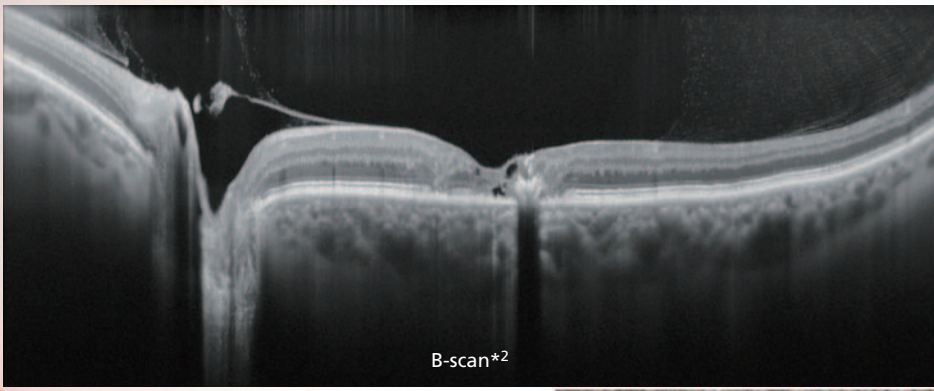

Color


Retro mode

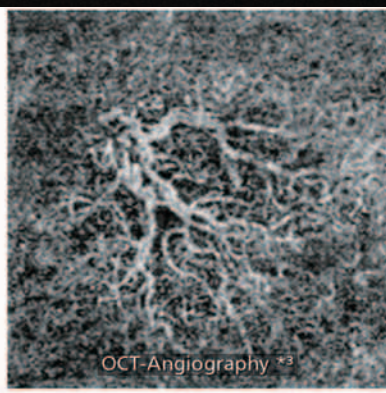

FAF


FA*1


ICG*1


B-scan*2

OCT


OCT-Angiography *3

*1 Available for the SLO/OCT model. Optional for the SLO model.
*2 Available for the SLO/OCT model.
*3 Optional for the SLO/OCT model.

Color SLO

Unsurpassed color and clarity for every detail

Mirante SLO/OCT
Mirante SLO

163° ultra wide field color image

The clear image of the entire 163° field of view enables detailed evaluation of pathologies from the fovea to the extreme periphery.
(Ultra wide field imaging is available with the optional wide-field adapter.)

Refine mode
As required, capturing two images with slightly different fixation reduces reflection, producing a clear ultra wide field image.



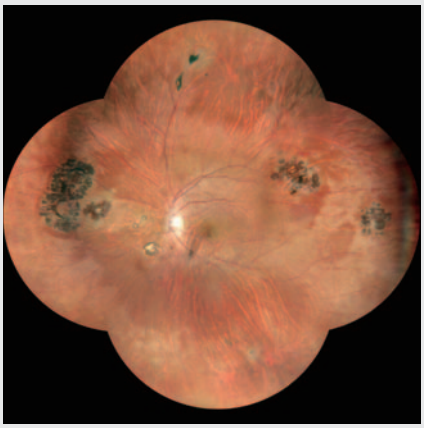
163° ultra wide field color image

Panorama image composition

Panorama imaging with preset fixation points captures details of pathology even in the extreme periphery.

Tilt and swing features

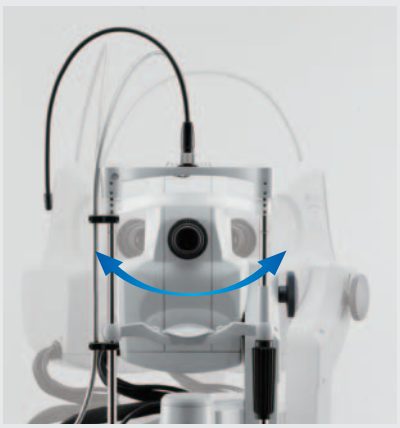
The tilt and swing functions for the optical head allows imaging of the peripheral fundus and acquisition of panorama images. These functions also help for patients with unstable fixation.



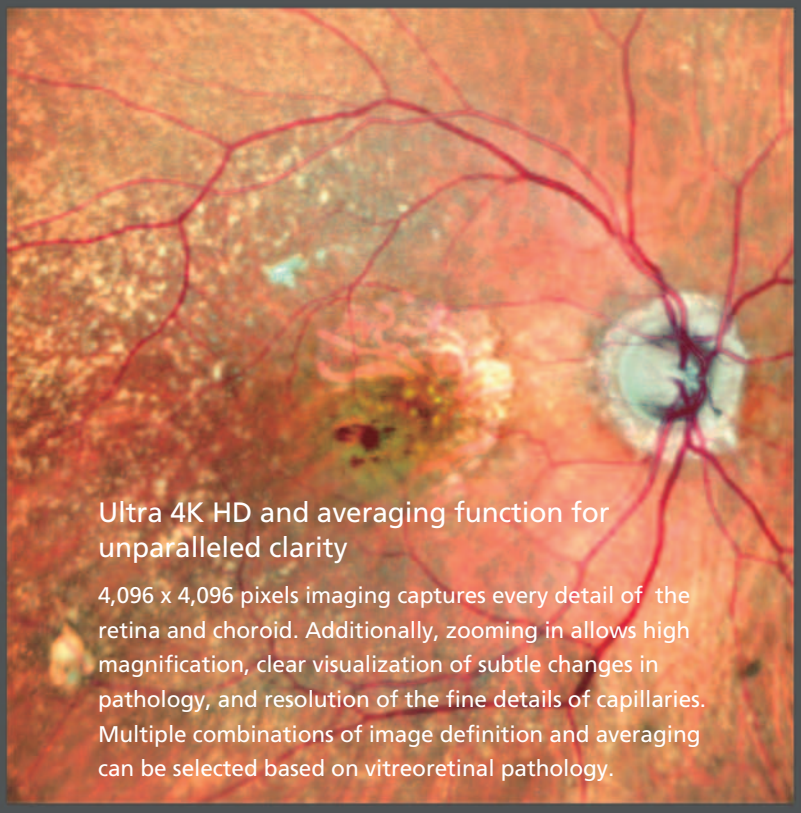
Panorama image



Tilt



Swing

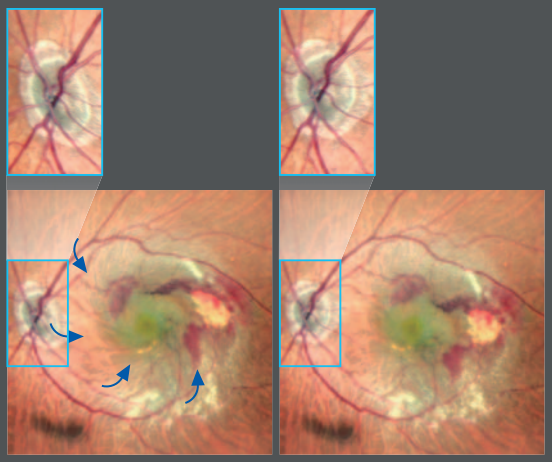


Ultra 4K HD and averaging function for unparalleled clarity

4,096 x 4,096 pixels imaging captures every detail of the retina and choroid. Additionally, zooming in allows high magnification, clear visualization of subtle changes in pathology, and resolution of the fine details of capillaries. Multiple combinations of image definition and averaging can be selected based on vitreoretinal pathology.

FlexTrack

New FlexTrack algorithm corrects image distortion due to unstable fixation and enhances averaging quality.



Distorted image due to poor fixation

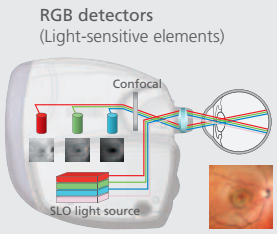
Corrected image using FlexTrack



Color histogram adjusted similar to slit lamp view

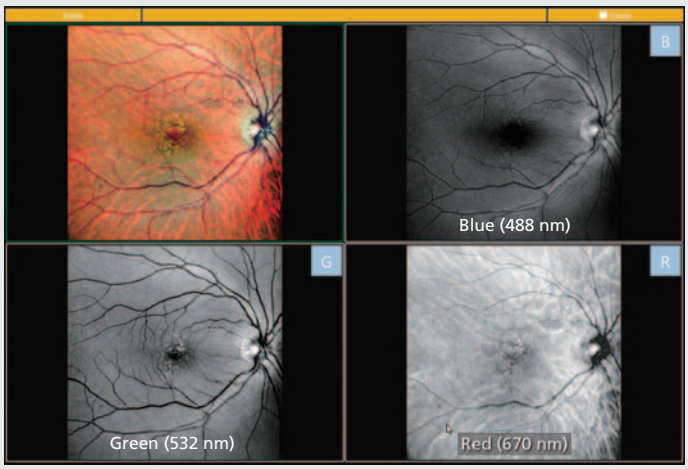


Color histogram adjusted similar to fundus camera image



RGB triple detectors

Three separate RGB detectors simultaneously scan different depths of retina with red, green, and blue wavelengths. A color histogram is available for fine adjustment based on pathology or practitioner preference.



Summary view for RGB color and single color images

RGB color + selectable color display with a single shot

Single color images in red, green, and blue wavelengths can be displayed after color image acquisition. Each wavelength is available with just a single shot, and the image layers can be selected based on user preference or a specific pathology.
The viewer software allows image processing options including noise removal and adjustments for brightness, contrast, and sharpness.

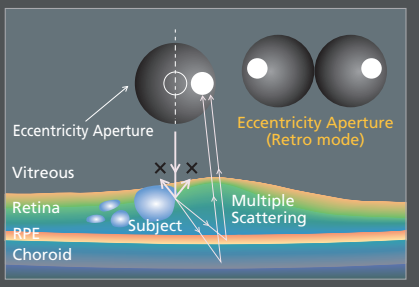
Retro mode / FAF

Value added, non-invasive modalities expanding your practice

Mirante SLO/OCT
Mirante SLO

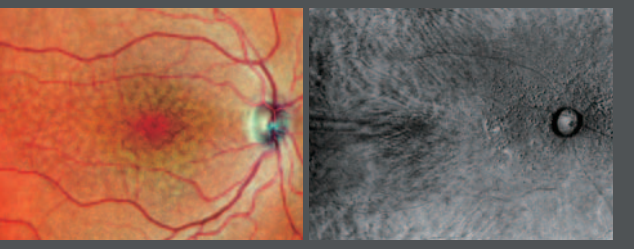
Retro mode

Retro mode is a unique non-invasive technique for detecting pathologic changes in the choroid.
This imaging modality uses scattered IR light to detect abnormal reflection in the choroid caused by drusen, edema and other subtle chorioretinal pathologies.



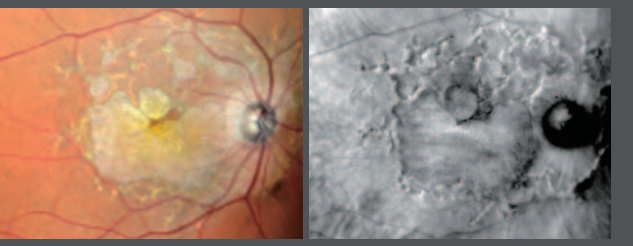
Retro mode

Drusen



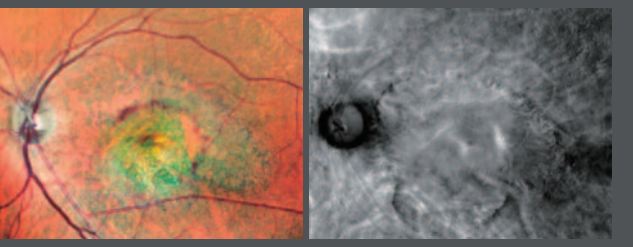
Color | Retro mode

Stargardt disease



Color | Retro mode

CNV

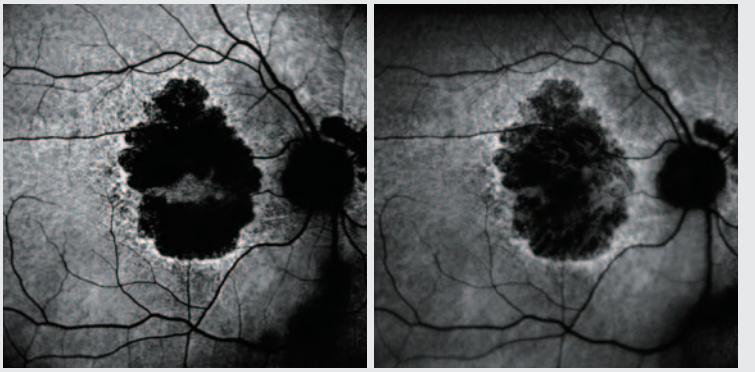


Color | Retro mode

Blue-FAF / Green-FAF (fundus autofluorescence)

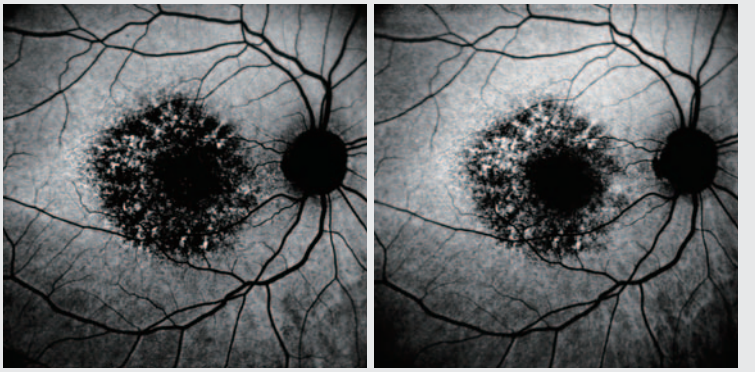
FAF imaging is a non-invasive method to evaluate the retinal pigment epithelium (RPE) without contrast dye.
Green-FAF reduces the effects of xanthophyll from the macula on imaging and is useful for monitoring deeper layers under the macula.
Blue-FAF imaging captures high definition images for diagnosing early AMD.
Gain level and contrast can be adjusted manually or automatically depending on the vitreoretinal pathology.

Geographic atrophy



Green-FAF | Blue-FAF

Macular dystrophy



Green-FAF | Blue-FAF

Easy-to-use functions
Intuitive functionality for efficient workflow

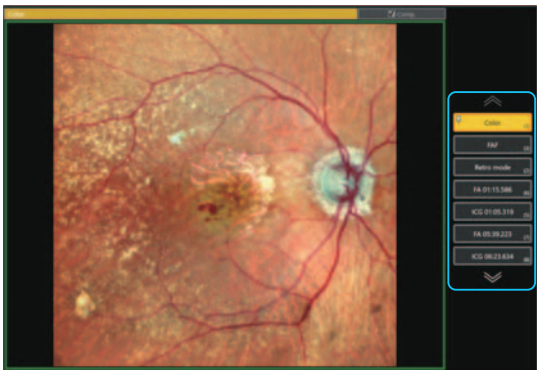
Mirante SLO/OCT
Mirante SLO

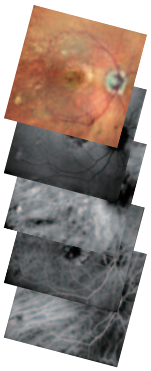


Simple interface and easy operation

The Mirante has multiple modalities and functions with interface software that presents these choices in a simple, easy-to-use manner. This functionality streamlines the clinical workflow while capturing images with the required settings. Image acquisition with the Mirante is simple. The SLO image is focused automatically by pressing the optimize button. After optimization is completed, the image can be captured by pressing the release button.

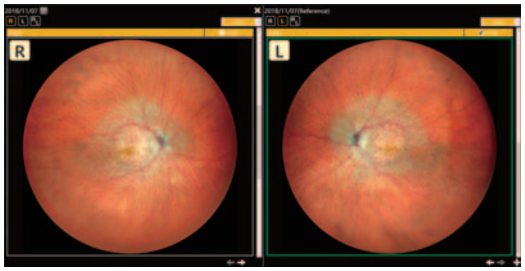
Presenting multimodal images in a summary screen allows faster, more comprehensive evaluation of disease.

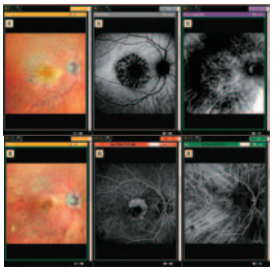




Fly Through

The Fly Through function further enhances multimodal imaging by registering and synchronizing images from different modalities to view the same area while scrolling through the region of interest.





Side by Side

The Side by Side function displays up to 3 images on one screen for all SLO modalities for the left and right eyes and displays the images in chronological order.

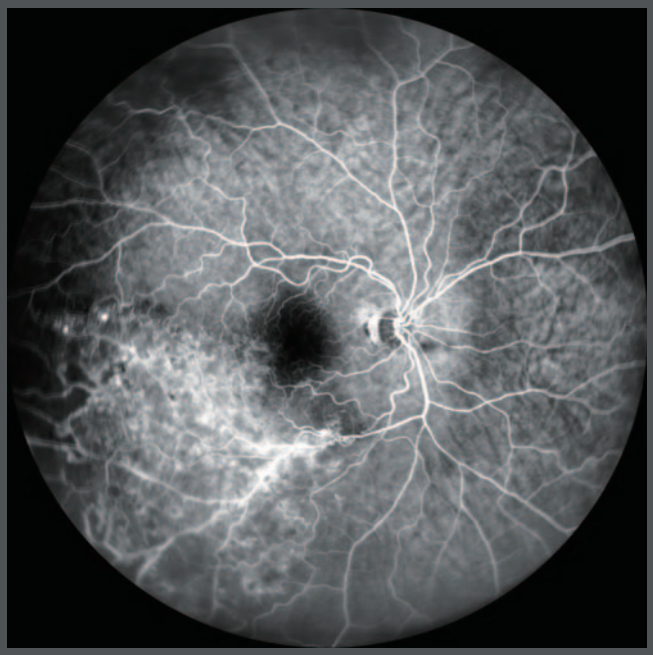
FA and ICG

Effective evaluation of dynamic and static blood flow

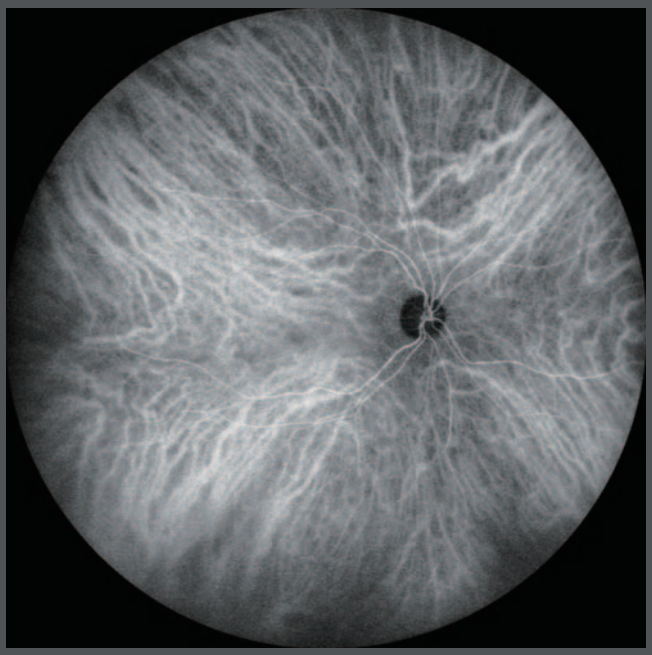
Mirante SLO/OCT
Mirante SLO (optional)

163° ultra wide field FA and ICG images

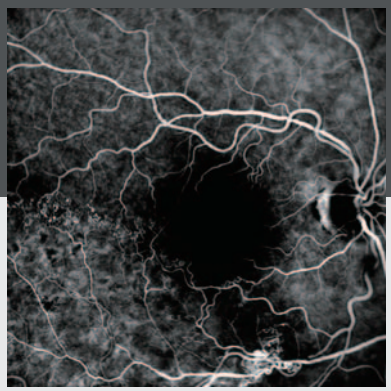
(Ultra wide field imaging is available with the optional wide-field adapter.)



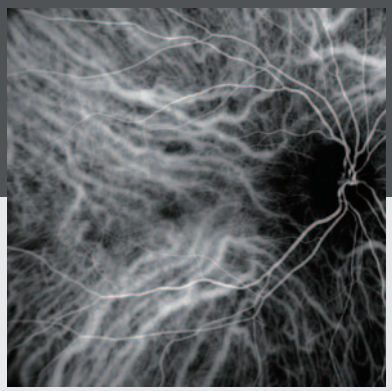
163° ultra wide field FA image



163° ultra wide field ICG image



89° standard FA image

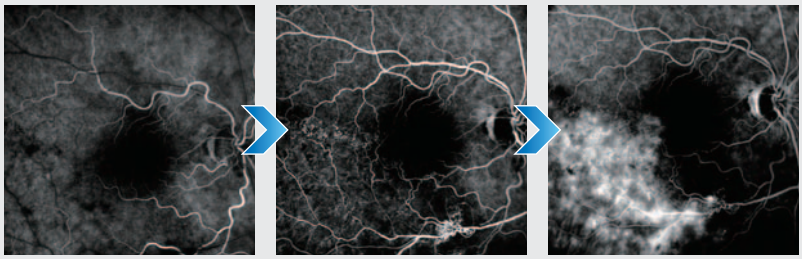


89° standard ICG image

HD dynamic and static angiogram

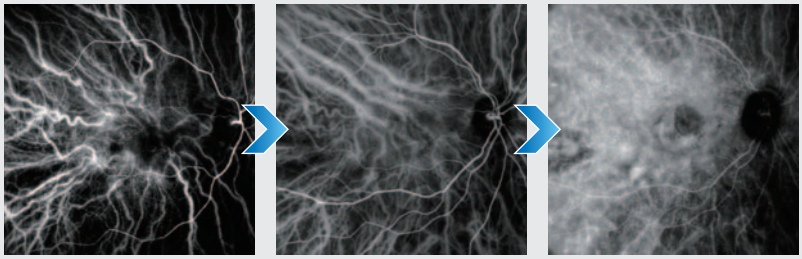
Auto gain control (AGC) optimizes gain level and contrast for early, peak, and late phases on angiography. Image definition is selectable up to 16 megapixels depending on ocular pathology. Averaging function for static imaging maintains high contrast even during the late phase of angiography. Videos can be recorded at a maximum of 1,024 x 1,024 pixels for up to 120 seconds. Multiple short videos can be recorded during the same measurement.

FA



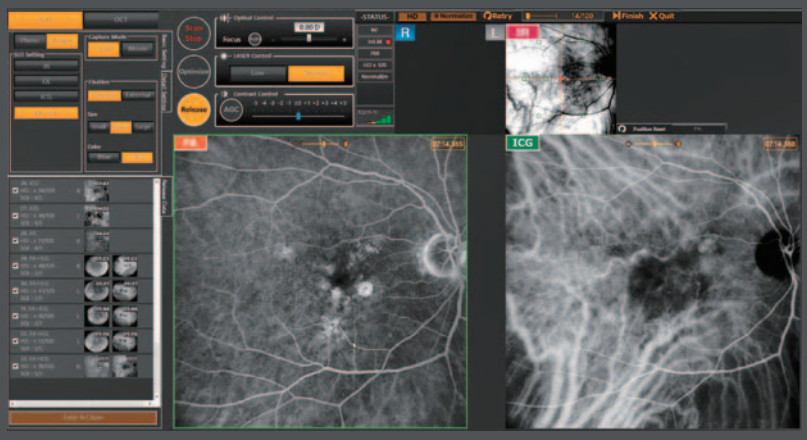
Early phase　　Mid phase　　Late phase

ICG

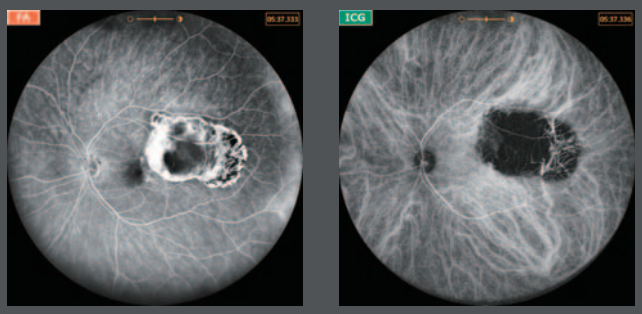


Simultaneous FA and ICG

The Mirante allows simple, simultaneous acquisition of FA and ICG images.
The live IR monitoring enables alignment prior to fluorescence emission and reduces the risk of missing the very early phase of angiography.
The AGC simultaneously adjusts contrast of each FA and ICG image, making the imaging of dynamic blood flow a very simple procedure.



Simultaneous FA and ICG imaging display (standard)



Simultaneous FA and ICG imaging display (ultra wide field)

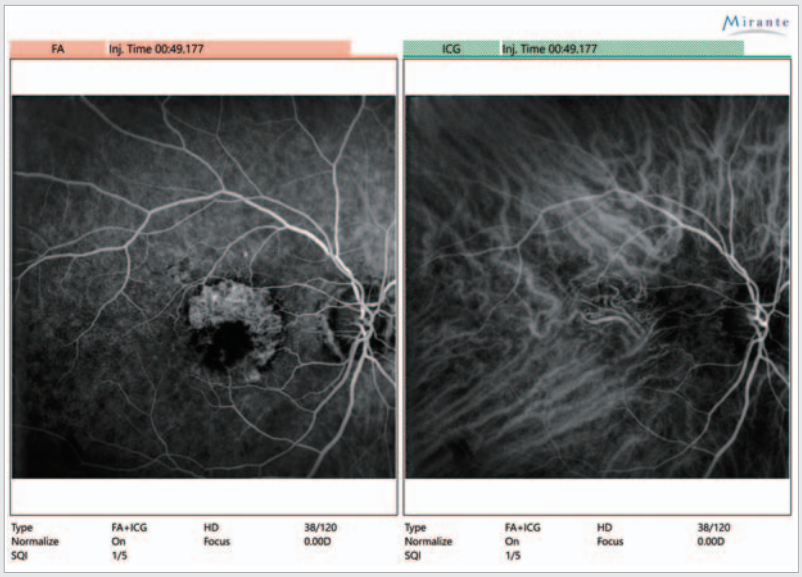


Live IR monitoring

Using live IR monitoring, physicians can start alignment before fluorescence emission.

Easy comparison of FA and ICG

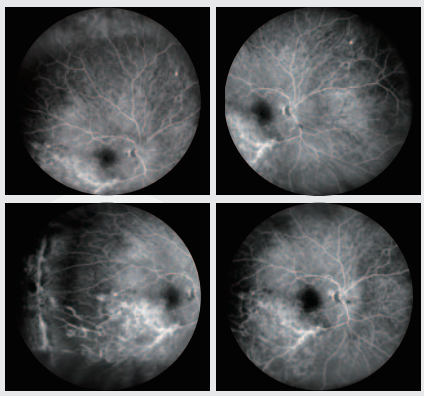
The viewer software can present FA and ICG images side-by-side, facilitating convenient and comprehensive evaluation of angiography.



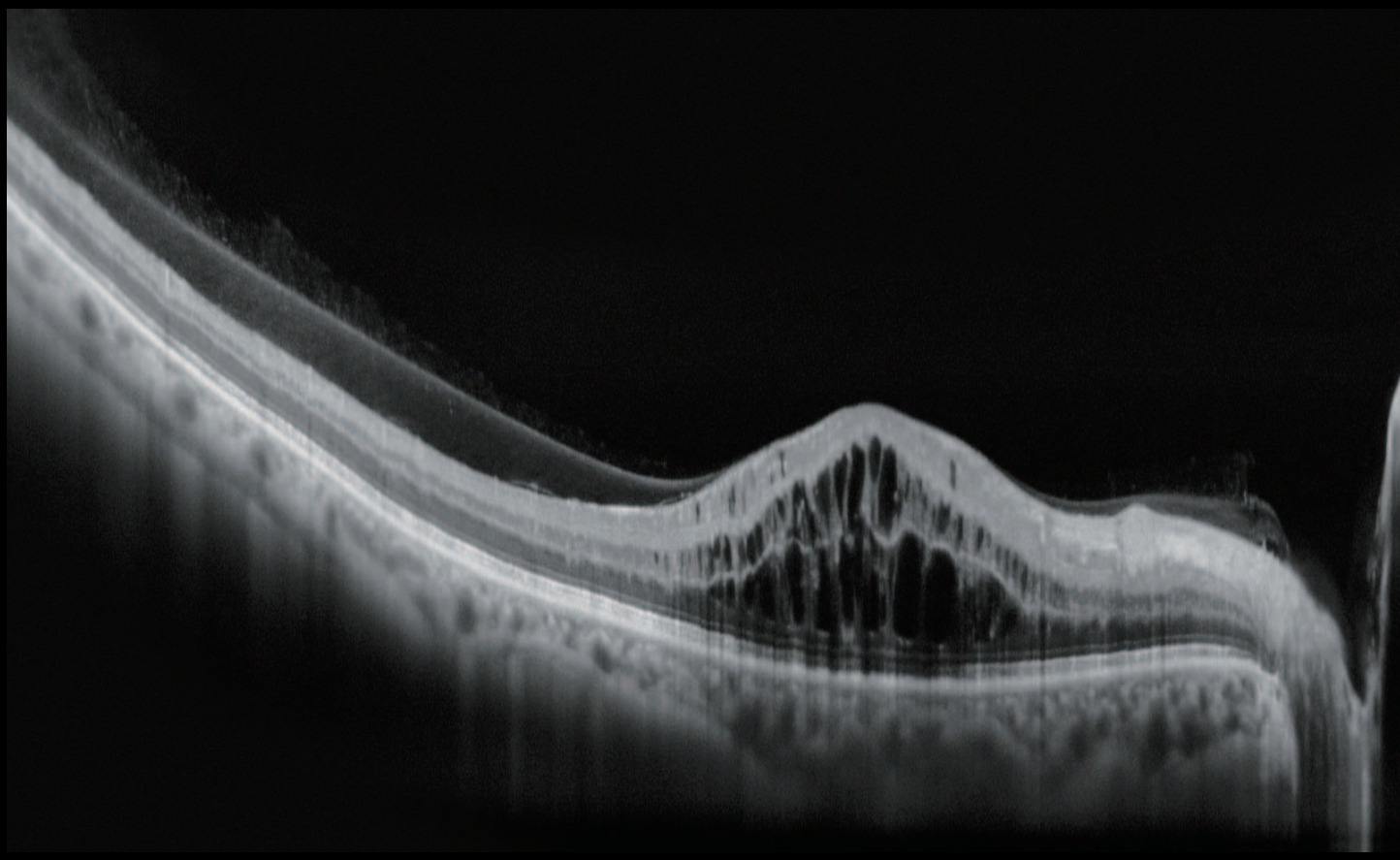
Side-by-side display of FA and ICG

FA and peripheral fundus

The tilt and swing features and ultra wide field capability allows peripheral imaging during fluorescein angiography.



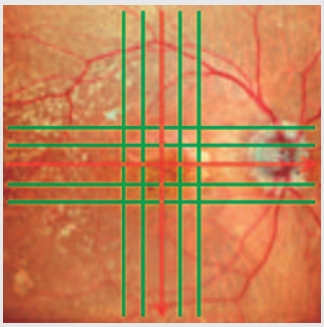
FA of the peripheral fundus



Macula line 16.5 mm / 2,048 A-scans

HD wide area OCT

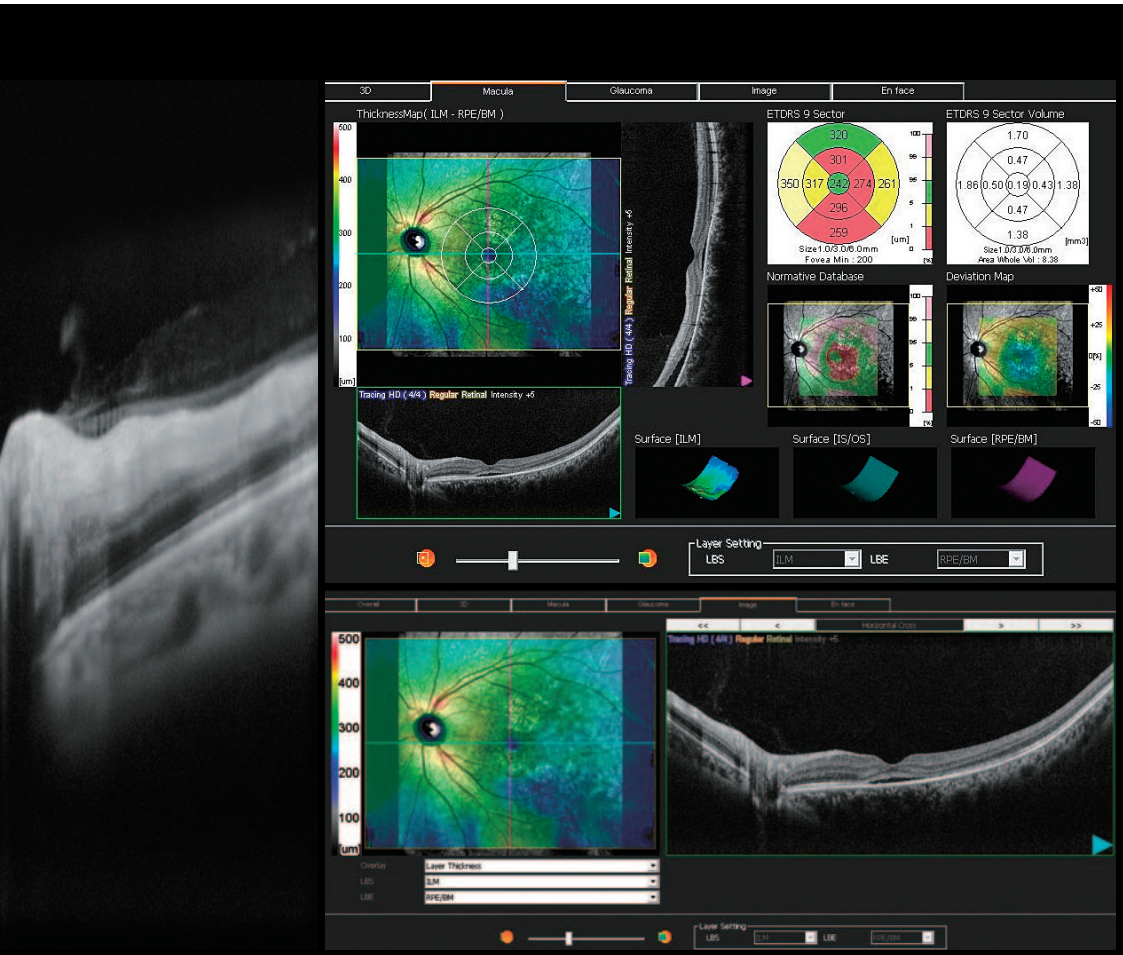
The maximum 16.5 x 12 mm area scan available with the Mirante allows wide area diagnosis including the macula and optic disc in a single shot. The ultra fine mode and tracing HD plus functions provide high quality images for detailed observation from the vitreous layers to the choroid.



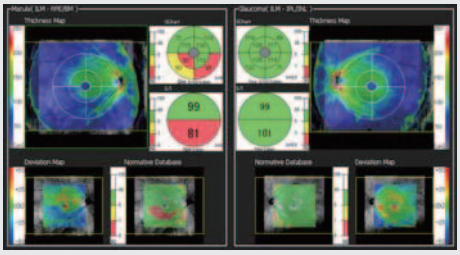
SLO image



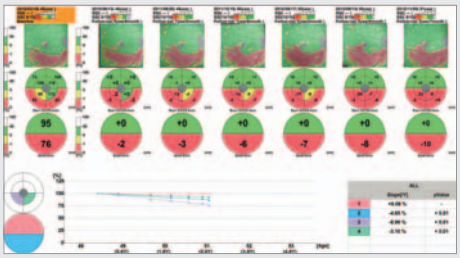
Macula multi cross 12 x 12 mm



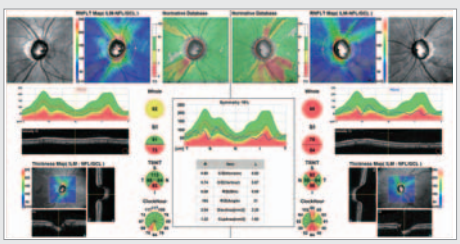
Macula map
16.5 x 12 mm
1,024 A-scans x 128 lines



Macula map (both eyes)



Glaucoma follow-up



Disc map (both eyes)

Glaucoma analysis

The Mirante incorporates 16.5 x 12 mm thickness map which visually presents pathological changes from the central retina to the periphery.

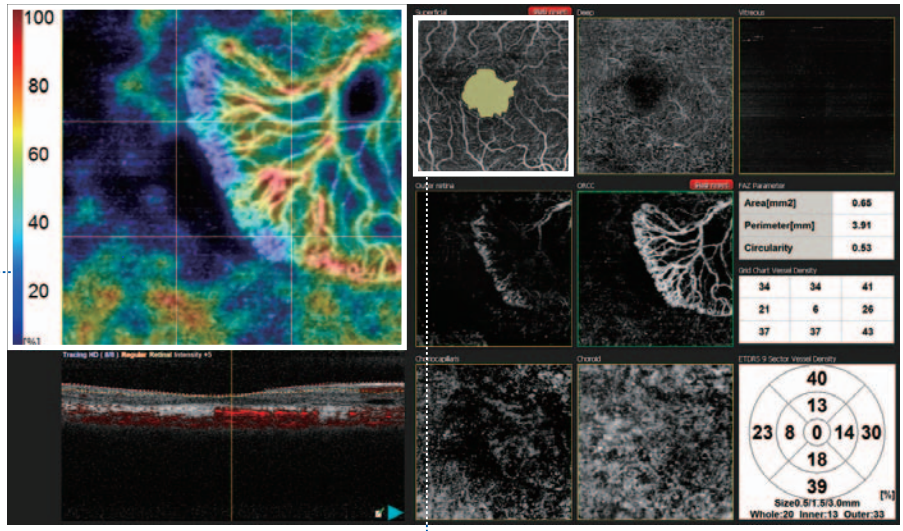
9 x 9 mm normative database allows [NFL+GCL+IPL] analysis from optic disc to macula in a single report.

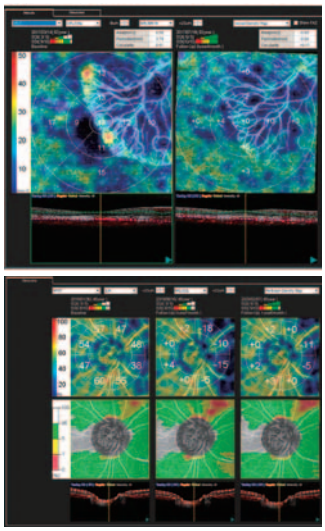
Segmentation into multiple slabs

The simple interface provides seven slabs for the macula map / four slabs for the disc map with intuitive functionality and removal of projection artifacts.

Follow-up function

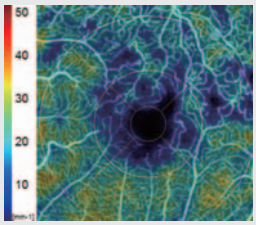
The follow-up function presents the changes over time, in vessel density or perfusion density in easily understandable maps. Data are presented in chronologic order to evaluate vascular changes with disease progression.



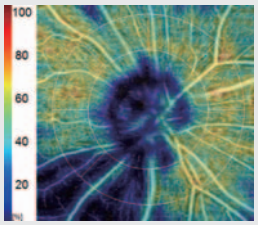


Vessel Density Map and Perfusion Density Map

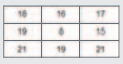
Quantification of vessels in each layer provides metrics to assess disease progression and the effects of treatment. Quantitative analysis can be performed with the Vessel Density Map and Perfusion Density Map. Both maps can be displayed in all slabs.



Vessel Density Map
(Superficial capillary plexus)



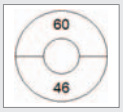
Perfusion Density Map
(Radial peripapillary capillary plexus)



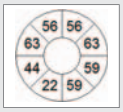
Grid chart [mm-1]



ETDRS chart [mm-1]



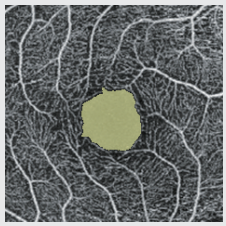
S/I chart [%]



TSNIT [%]

Autodetection of FAZ and shape analysis

Foveal Avascular Zone (FAZ) is automatically detected and shape metrics are provided for rapid assessment.



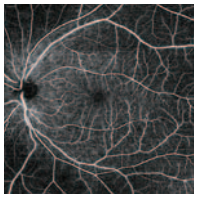
Autodetection of FAZ

Area[mm2]	0.52
Perimeter[mm]	3.04
Circularity	0.71

FAZ parameter

Wide area scan

Scan size can range from 3 mm to maximum of 12 mm in 0.3 mm increments in 512 x 512 scans.



Tracing HD plus

The tracing HD plus function tracks eye movements to maintain the same scan location on the SLO image for accurate image capture.

Selectable definition

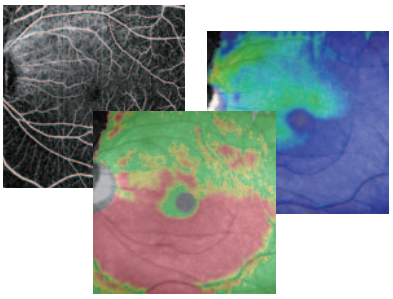
Two, four, or eight scans per line (2 HD, 4 HD, or 8 HD) can be selected.

Evaluate retinal structure and function simultaneously using combined OCT and Microperimetry images

Various OCT modalities can be registered with Microperimetry.



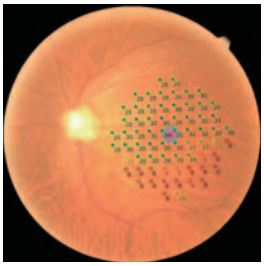
SLO/OCT
Mirante



Structure

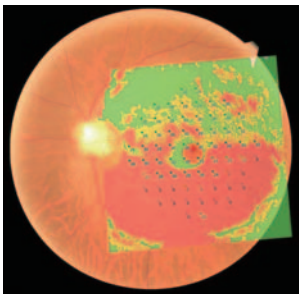


Microperimeter
MP-3



Function

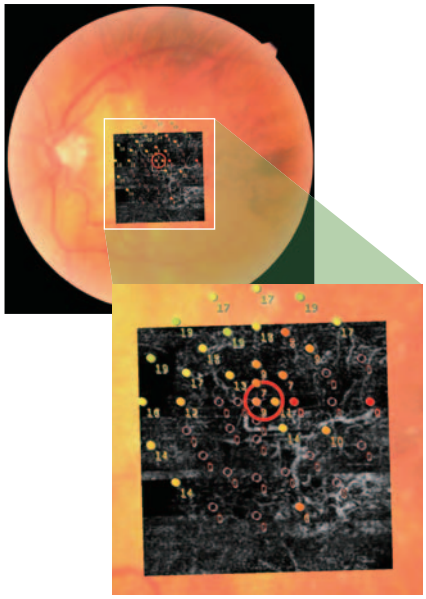




Structure and function

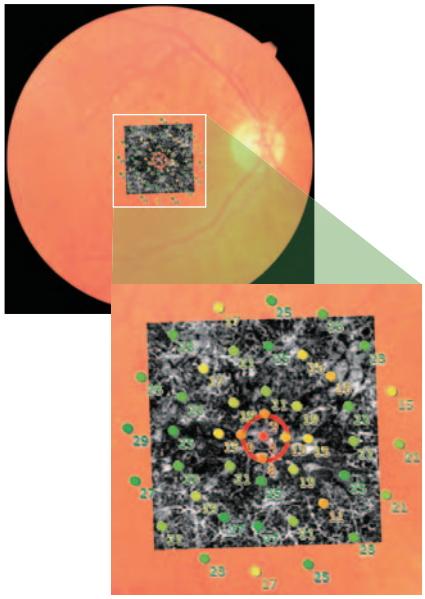
Clinical case

Age-related macular degeneration (AMD)



OCT-Angiography + Microperimetry
(Outer retina)

Diabetic macular edema (DME)

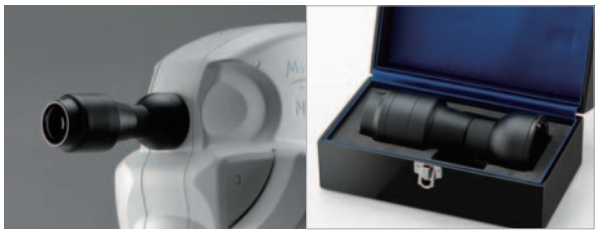


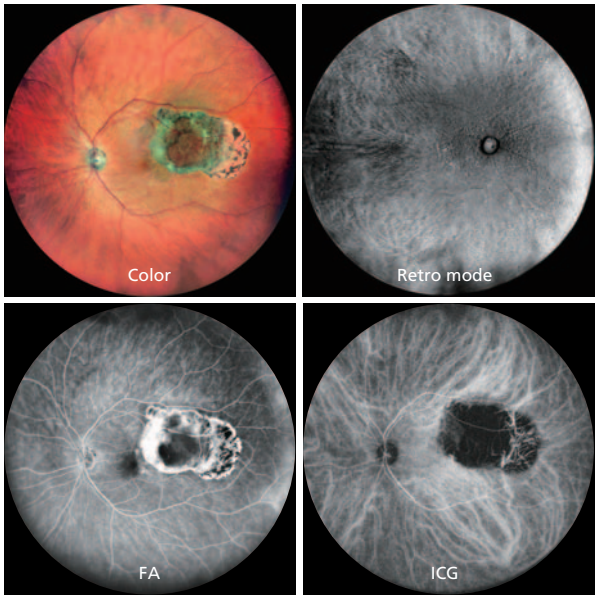
OCT-Angiography + Microperimetry
(Deep capillary)

Optional accessories

Wide-field adapter

163° ultra wide field imaging is available with the optional wide-field adapter.





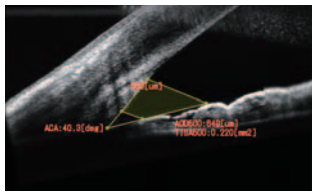
Anterior segment OCT adapter*

The optional anterior segment module enables observation and analyses of the anterior segment.

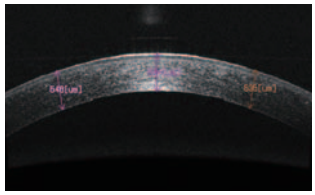
* Available for the SLO/OCT model.



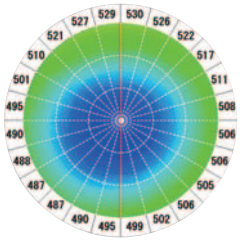
<Angle measurement>
- ACA
- AOD500 (AOD750)
- TISA500 (TISA750)



<Cornea measurement>
- Corneal thickness
  Corneal apical thickness and user designated locations



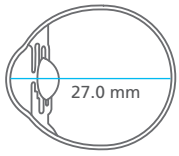
- Corneal thickness map
  Map indicating corneal thickness plotted radially

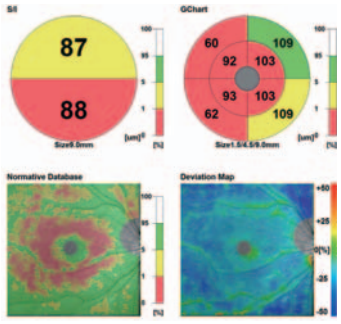


Long axial length normative database

The long axial length normative database is optional software for assisting clinicians in diagnosing macular diseases and glaucoma in patients with long eyes. Data was collected from a sample of Asian patients.

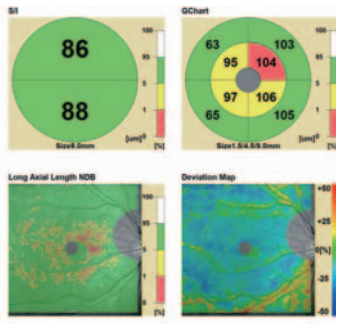
Sample analysis of a patient with long axial length (27.0 mm)





Normative database

Axial length compensation



Long axial length normative database

Function overview - Mirante and RS Series

●: Available

				Mirante SLO/OCT	Mirante SLO	RS-3000 Advance 2	Retina Scan Duo™
SLO/ Fundus image	Angle of view	Ultra wide field*1	163°*2	●	●		
		Standard	89°*2	●	●		
	Still image definition (pixel x pixel)	4,096 x 4,096		●	●		
		2,048 x 2,048		●	●		
		1,536 x 1,536		●	●		
		1,024 x 1,024		●	●		
		768 x 768		●	●		
		512 x 512		●	●		
	Color fundus	Color		●	●		●
	Fundus fluorescence	FA and ICG		●	●(optional)		
	Fundus autofluorescence	Blue-FAF		●	●		
		Green-FAF		●	●		●
	Retro mode	DR/DL/RA		●	●		
	Red-free	RGB		●	●		●
OCT	Scan speed	Up to 85,000 A-scans/s		●		●	
		Up to 53,000 A-scans/s					●
	OCT sensitivity	Regular	85,000 A-scans/s	●		●	
			53,000 A-scans/s				●
		Fine	53,000 A-scans/s	●		●	
			25,600 A-scans/s				●
		Ultra fine	13,250 A-scans/s	●		●	●
	A-scan	2,048 points		●			
		1,024 points		●		●	●
		512 points		●		●	●
		256 points		●		●	●
	B-scan*3	256 scans		●		●	●
		128 scans		●		●	●
		64 scans		●		●	●
		32 scans		●		●	
		16 scans		●		●	
	OCT-Angiography*4	512 x 512 scans		●			
		256 x 256 scans		●		●	
	Scan range	X: 3 to 16.5 mm		●			
		X: 3 to 12 mm				●	●
		Y: 3 to 12 mm		●			
		Y: 3 to 9 mm				●	●
	Scan wavelength	880 nm		●		●	●

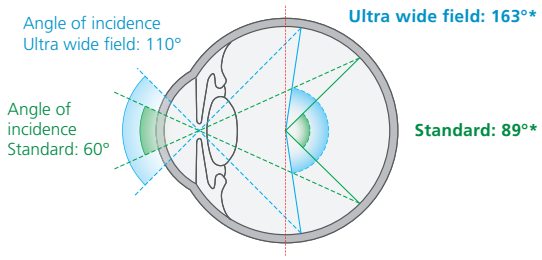
*1 Ultra wide field imaging is available with the optional wide-field adapter.
*2 Measured from the center of the eye
*3 Only for macula map and disc map
*4 AngioScan (OCT-Angiography) is available with the optional OCT-A dongle.

Mirante Specifications

SLO	
Principal	Confocal scanning
Angle of view	Standard: Diagonal angle of view 89°
(Measured from the center of the eye)	Ultra wide field*1: ø163°
Light source	488, 532, 670, 790 nm
Still image size	4,096 x 4,096, 2,048 x 2,048, 1,536 x 1,536, 1,024 x 1,024, 768 x 768, 512 x 512 (pixel x pixel)
Video size*2	1,024 x 1,024, 768 x 768, 512 x 512 (pixel x pixel)
Minimum pupil diameter	ø3.3 mm
Working distance	Standard: 19 mm / Ultra wide field*1: 9 mm
OCT*3	
Principal	Spectral domain OCT
Optical resolution	Z: 7 µm, X-Y: 20 µm
Scan range	
Retina	X: 3 to 16.5 mm, Y: 3 to 12 mm, Z: 2.1 mm
Anterior*4	X: 2 to 8 mm, Z: 2.1 mm
OCT light source	SLD, 880 nm
Scan speed	Up to 85,000 A-scans/s
Image averaging	Up to 120 images
Normative database	9 x 9 mm (macula), 6 x 6 mm (disc)
Minimum pupil diameter	ø2.5 mm
Focus adjustment range	-15 to +15 D
Working distance	Standard: 19 mm / Anterior*4: 15.4 mm
Software analysis	
Retina	Segmentation of 6+1 retinal layers, macular thickness map, RNFL thickness map, [NFL+GCL+IPL] analysis, optic nerve analysis
Anterior*4	Corneal thickness measurement, corneal thickness map, angle measurement
Common specification	
Diopter correction range	-15 to +15 D
Internal fixation lamp	Red (670 nm) / blue (488 nm)
External fixation lamp	White
Tilt	±10°
Swing	±20°
PC networking	Available
Power supply	100 to 240 V AC, 50/60 Hz
Power consumption	Device main body 150 VA
Dimensions/mass*5	345 (W) x 548 (D) x 527 to 557 (H) mm / 23 kg (SLO/OCT model) 22 kg (SLO model) 13.6 (W) x 21.6 (D) x 20.7 to 21.9 (H)" / 51 lbs. (SLO/OCT model) 49 lbs. (SLO model)
Optional accessories	Wide-field adapter, motorized optical table, PC rack, isolation transformer, external fixation lamp (multi-joint), anterior segment OCT adapter*3, AngioScan (OCT-Angiography)*3, long axial length normative database*3, B-Scan Denoising Software*3, FA/ICG dongle*6

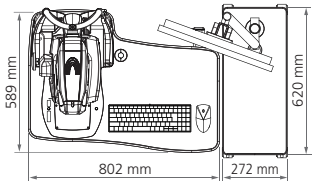
*1 Ultra wide field imaging is available with the optional wide-field adapter.
*2 Optional for the SLO model.
*3 Available for the SLO/OCT model.
*4 Anterior segment OCT adapter is optional.
*5 Only for image capturing unit.
*6 Available for the SLO model.

Central angle of view



* Measured from the center of the eye





Images courtesy of
Luigi Sacco Hospital, University of Milan, Italy
Asia Eye Centre, Singapore
Doheny Eye Center, UCLA, USA
Retina Foundation & Eye Research Center, India
Kagoshima University Hospital, Japan
Exilaser Clinic, Peru
Chiba University Hospital, Japan
Tohoku University, Japan
Careggi University Hospital, University of Florence, Italy

EDUCATION

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/



Case reports



Videos

Product/model name: Scanning Laser Ophthalmoscope Mirante
Brochure and listed features of the device are intended for non-US practitioners.
Specifications may vary depending on circumstances in each country.
Specifications and design are subject to change without notice.

Eye & Health Care
NIDEK CO., LTD.

HEAD OFFICE (International Div.)
34-14 Maehama, Hiroishi-cho, Gamagori, Aichi 443-0038, JAPAN
TEL: +81-533-67-8895
URL: www.nidek.com
[Manufacturer]

TOKYO OFFICE (International Div.)
3F Sumitomo Fudosan Hongo Bldg., 3-22-5 Hongo, Bunkyo-ku, Tokyo 113-0033, JAPAN
TEL: +81-3-5844-2641
URL: www.nidek.com

NIDEK INC.
2040 Corporate Court, San Jose, CA 95131, U.S.A.
TEL: +1-408-468-6400
+1-800-223-9044 (US Only)
URL: usa.nidek.com

NIDEK S.A.
Europarc, 13 rue Auguste Perret, 94042 Créteil, FRANCE
TEL: +33-1-49 80 97 97
URL: www.nidek.fr

NIDEK TECHNOLOGIES S.R.L.
Via dell'Artigianato, 6/A, 35020 Albignasego (Padova), ITALY
TEL: +39 049 8629200 / 8626399
URL: www.nidektechnologies.it

NIDEK (SHANGHAI) CO., LTD.
Rm3205,Shanghai Multi Media Park, No.1027 Chang Ning Rd, Chang Ning District, Shanghai, CHINA 200050
TEL: +86 021-5212-7942
URL: www.nidek-china.cn

NIDEK SINGAPORE PTE. LTD.
51 Changi Business Park Central 2, #06-14, The Signature 486066, SINGAPORE
TEL: +65 6588 0389
URL: www.nidek.sg