
TOPCON
CONNECTING VISIONS
DRI OCT-1
See, Discover, Explore

“ We developed our understanding of retinal diseases based on what we have been able to see, but imperfect visualization can yield only imperfect knowledge. Most major advances in our understanding of retinal diseases were preceded by advances in imaging. Improving our imaging of the choroid and deeper structures will illuminate a path to a new frontier of knowledge.”

Dr. Richard F. Spaide
Vitreous-Retina-Macula Consultants of New York

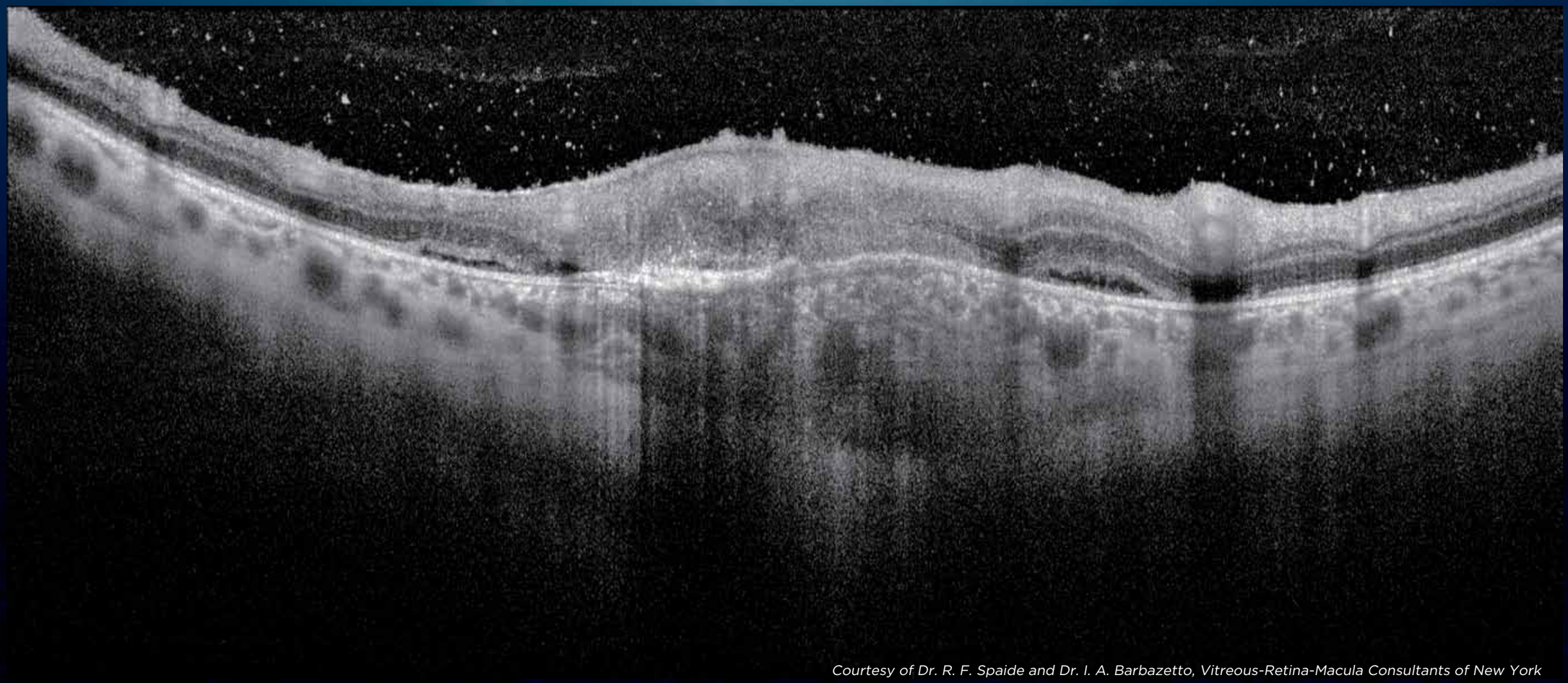
See, Discover, Explore

DRI OCT·1
Deep Range Imaging OCT

DRI OCT-1
See, Discover, Explore

DEEP RANGE IMAGING

Topcon OCT, the ultimate product chosen by professionals

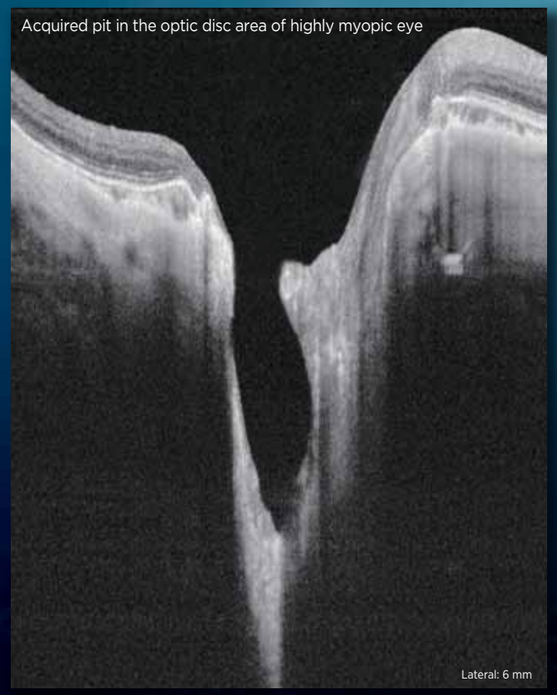


Courtesy of Dr. R. F. Spaide and Dr. I. A. Barbazetto, Vitreous-Retina-Macula Consultants of New York

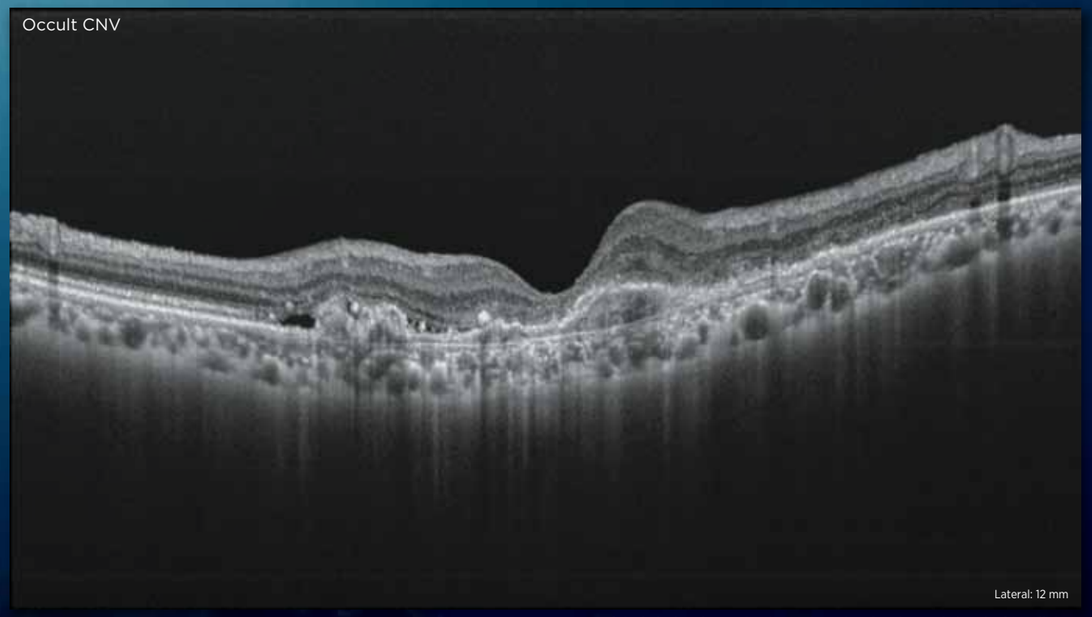
"This patient had toxoplasmosis retinochoroiditis with cellular infiltrates in the vitreous. The advantage of swept source OCT is the tremendous ability to visualize every level of involvement. The cells in the vitreous, the retinal thickening with loss of laminations, and the choroidal thickening associated with the retinochoroiditis are all clearly demonstrated in a single scan."

* DRI OCT-1 allows photography of IR/Enhanced IR/Red-free only.

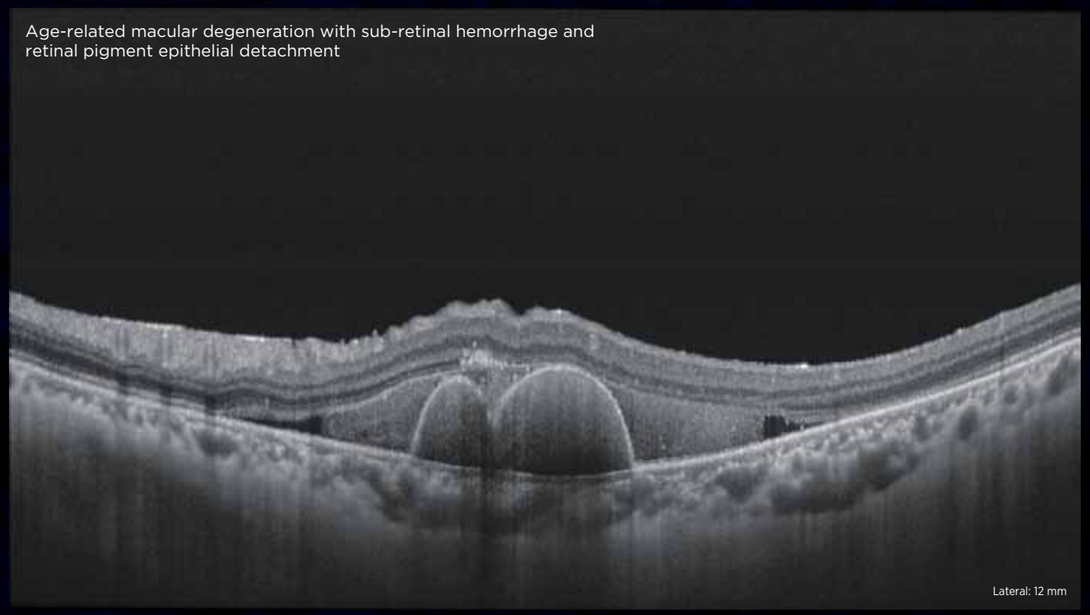
CASE REPORTS



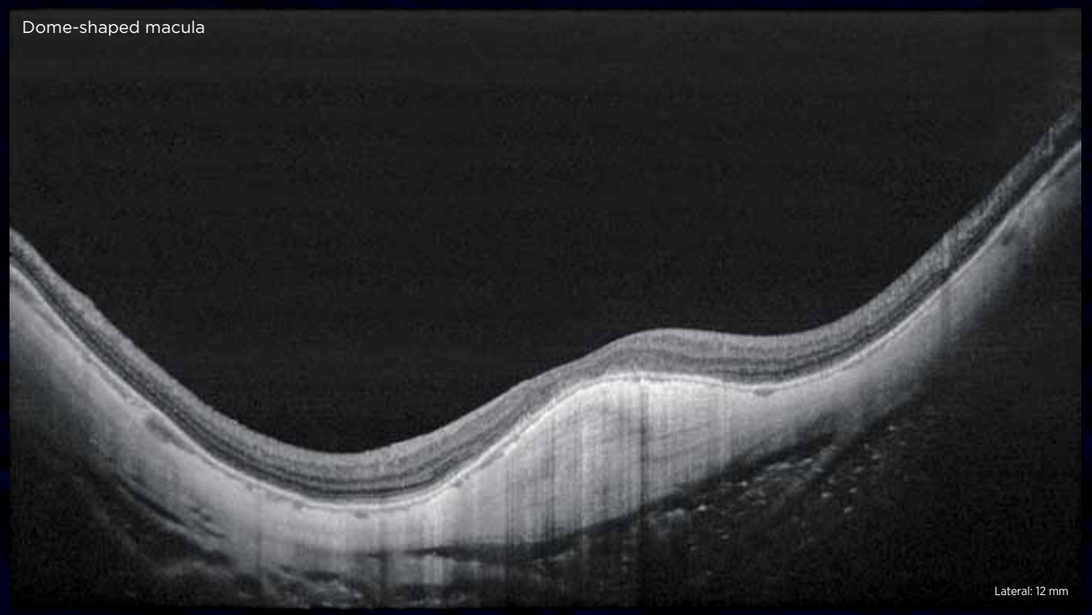
Courtesy: Department of Ophthalmology, Tokyo Medical and Dental University



Courtesy: Department of Ophthalmology, Osaka University Graduate School of Medicine



Courtesy: Department of Ophthalmology, Fukushima Medical University



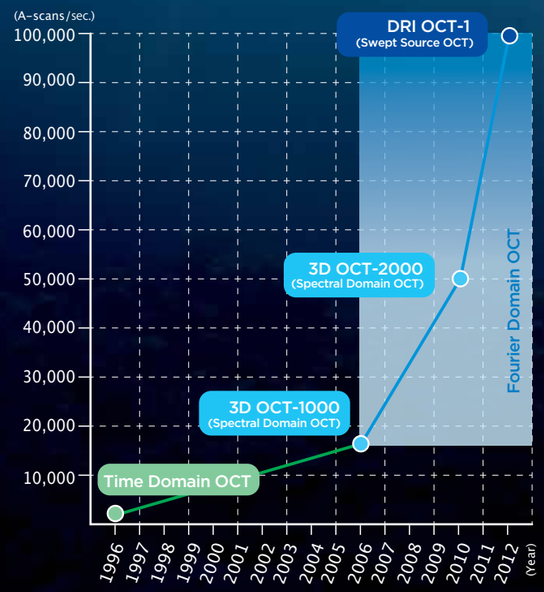
Courtesy: Department of Ophthalmology and Visual Sciences, Kyoto University Hospital

SWEPT SOURCE OCT - DEEP RANGE IMAGING

TOPCON has developed a new Swept Source OCT with 1,050nm wavelength with the world' s fastest* scanning speed of 100,000A-scans/sec. Utilizing this 1,050nm wavelength, DRI OCT-1 can penetrate deeper, visualizing ocular tissues such as choroid or even sclera within an incredibly short time as well as easily image through cataracts and other media opacities.

* According to Topcon survey - March 2012

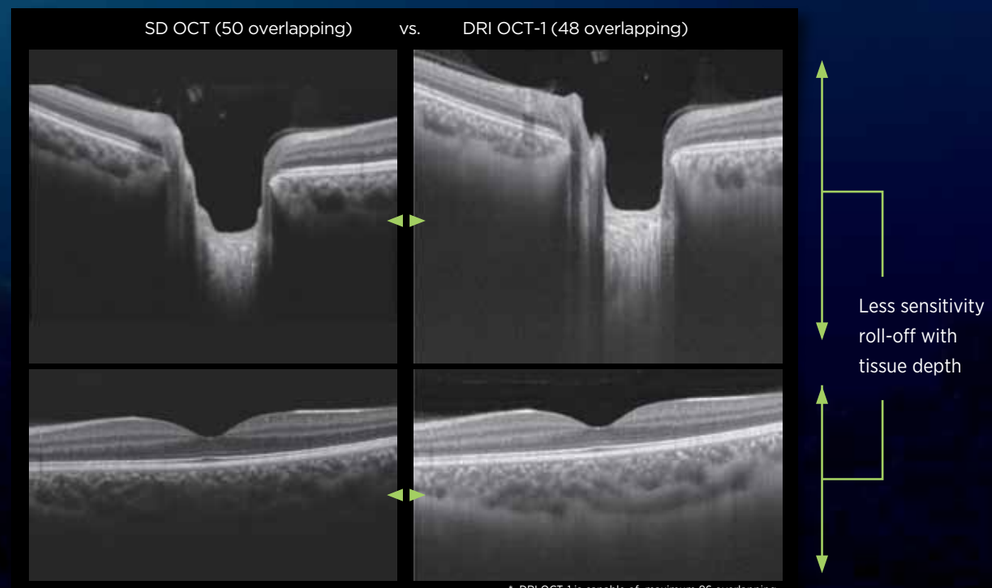
World's Fastest Scanning Speed of 100,000A-scans/sec.



1,050nm - DEEP RANGE IMAGING

DRI OCT-1 displays detail structures of not only retina but choroid and even sclera- irrespective of the opaque media. With the capability of imaging deeper anatomic structures with less influence in scattering, DRI OCT-1 can visualize the entire tomogram with high sensitivity.

Comparing SD OCT vs. DRI OCT-1 Image Quality



* DRI OCT-1 is capable of maximum 96 overlapping.

Comparing Spectral Domain OCT and Swept Source OCT

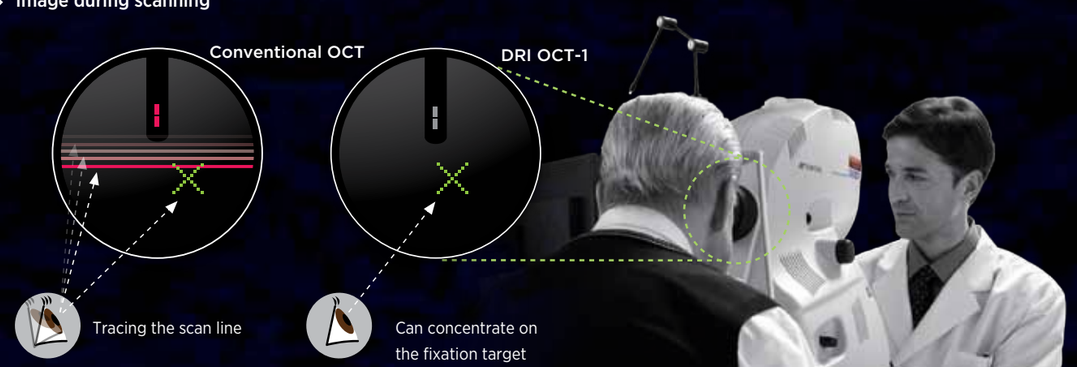
	Spectral Domain OCT (3D OCT-2000)	Swept Source OCT (DRI OCT-1)
Light Source	Spectral-domain	Swept-source
Wavelength	840nm	1,050nm
Scan Speed	50,000 A-scans/sec.	100,000 A-scans/sec.
B-Scan Acquisition Time (Resolution: Line 1,024)	Approx . 0.02 sec.	Approx . 0.01 sec.
3D Scan Acquisition Time (Resolution: 3D 512×128)	Approx . 1.6 sec.	Approx . 0.9 sec.
Maximum Overlapping Scan Count (Resolution: Line 1,024, 3D 512×64)	Max. 50 Line (3D N/A)	Max. 96 Line (3D Max. 4)

* The acquisition time for B-scan describes the time for line scan comprised of 1,024 A-scans and 3D Scan describes the time for 128 horizontal scan lines comprised of 512 A-scans. The figure may differ from the actual patient capturing time.

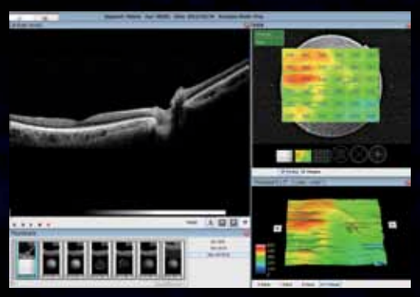
Invisible Scan Lines

An invisible scanning line due to the 1,050nm wavelength contributes to reduced patient eye motion, enhancing successful rates of scanning and fast examination workflow.

» **Image during scanning**



IMAGING FUNCTION



Easy Capture

Register / Select Patient

When registering a patient, patient ocular parameters can be inputted. Using the patient ocular parameters information, the software compensates the circle diameter during the circle scanning and the distance area and volume during the 3D scanning, which ensures accurate scan performance and further analysis.

* In case compensation magnification exceeds the acceptable range, the default value is applied.

Selecting Capture Icons

Various scan patterns of 3D / Cross / Radial / Circle / Line provide optimal scanning selections according to the patient disease condition.

* The detailed information of the capture icons can be referred to in the last paragraph of this catalog.

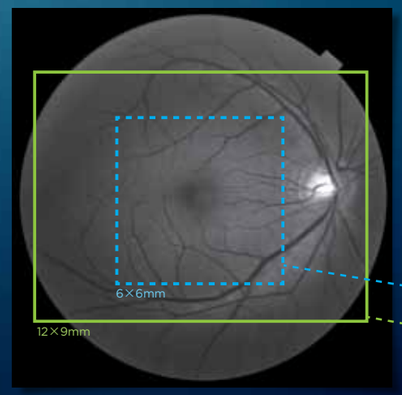
Capture

The photography mode can be selected from IR / Enhanced IR / Red-free images. The invisible scan lines and no requirement for flash reduces the patient fatigue with IR / Enhanced IR image capturing. Operators may repeatedly capture the patient eye as required.

Analysis

The captured image and analyzed data can be viewed from the FastMap™ installed computer.

* FastMap: database and analysis software

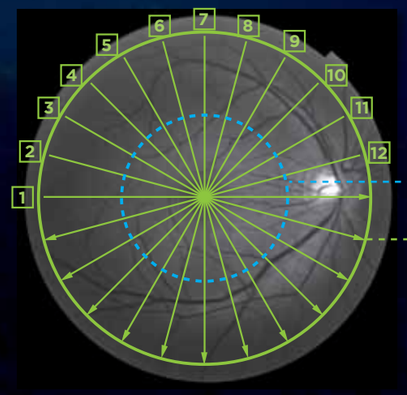


12mm Wide Scan

The increased scan coverage of the macular area to disc afforded by the 12mm wide scan may be useful for the evaluation of abnormalities observed in a broader area. Furthermore an instant single shot of the 12mm wide area will reduce patient fatigue and tremendously enhance examination workflow. Indulge yourself with what you can see now.

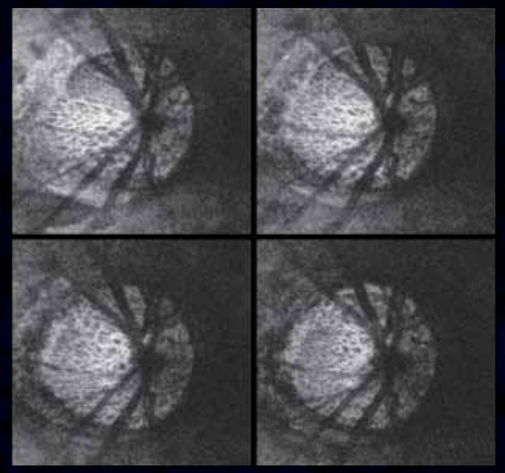
Conventional 6×6mm, 3D Scan

New 12×9mm, 3D Scan



Conventional 6mm, 12 Radial Scan

New 12mm, 12 Radial Scan



Visualization of the lamina cribrosa

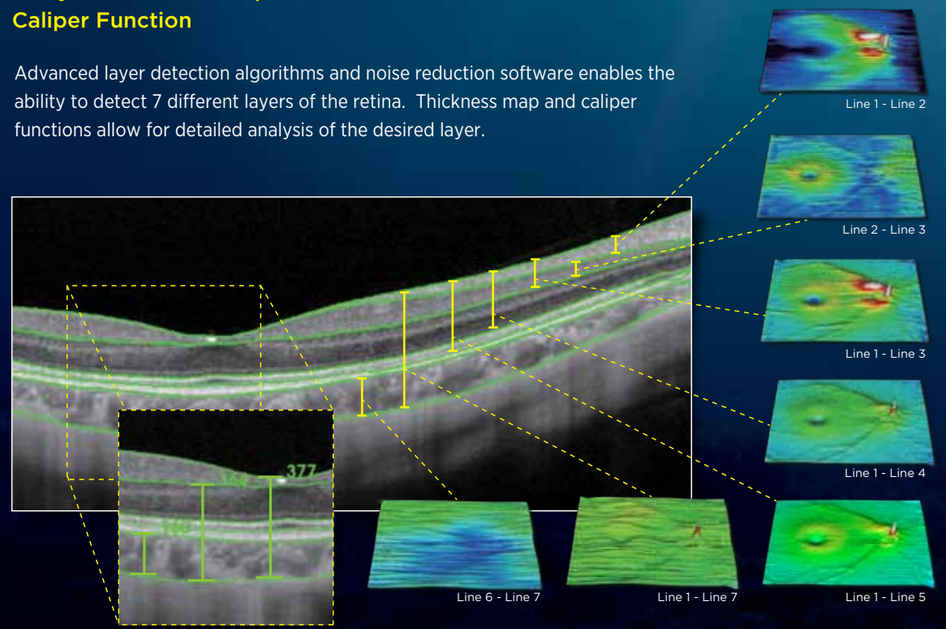
The image on the left shows a Z-plain of optic disc cupping. Less intensity laminar dot sign is observed. DRI OCT-1 can even offer a possibility of opening up new frontiers in the field of glaucoma research.

* The lamina cribrosa was captured using the 3D 256×256, 3×3mm protocol.
* The image can appear differently based on individual operators.

ANALYSIS FEATURE

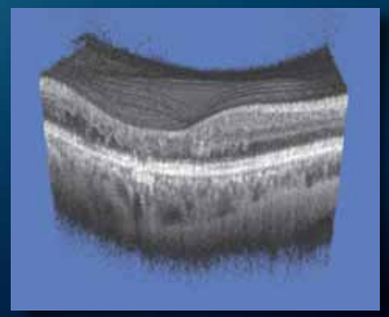
7 Layers Segmentation
7 Layers Thickness Map
Caliper Function

Advanced layer detection algorithms and noise reduction software enables the ability to detect 7 different layers of the retina. Thickness map and caliper functions allow for detailed analysis of the desired layer.

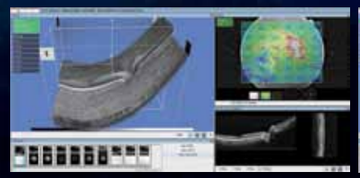


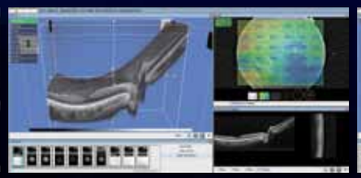
3D Volume Rendering

The captured 3D image can be magnified / narrowed, rotated, cropped, sliced and peeled to any x, y, z direction.


3D Macula 512×64　6×6mm　4 Overlapping


3D Disc 512×64　6×6mm　4 Overlapping

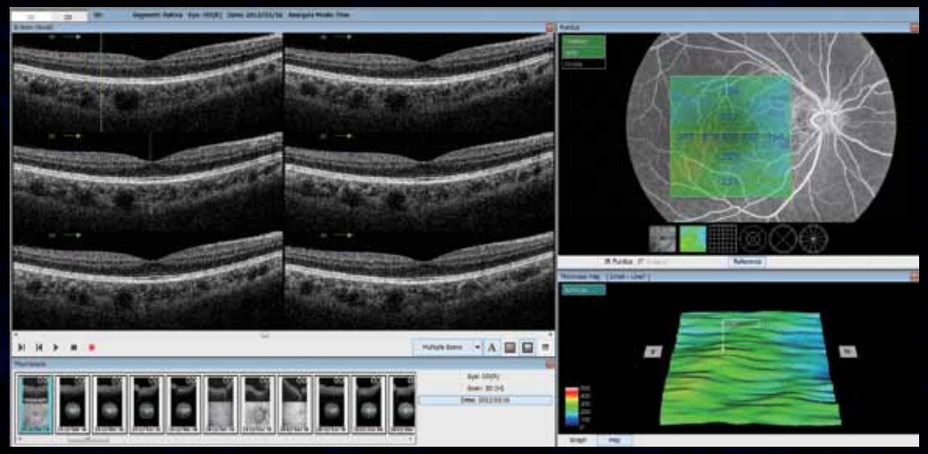

Peeling


Cropping


Slicing

Import Function

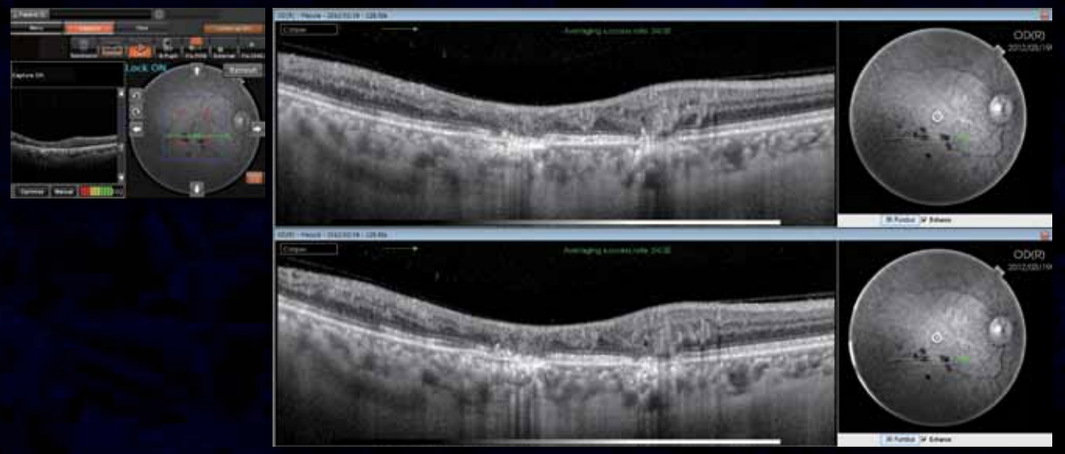
Color / FA / FAF images can be imported and compared with OCT images. By simply by double-clicking an optional point of the OCT image and the imported image display area, the point location is shown as a green line with a cross mark. Comparison across various retinal image modalities may better enhance our understanding of disease pathophysiology.



Follow-up Examination & Comparison Function

When referring to a past examined image, the software detects the same scanning location of the fundus image during the follow-up examination.

* In the case of a patient with unstable fixation or serious diseases, the function may not work properly.



SPECIFICATIONS

Observation & photography of fundus	
Scan Mode	IR, Red-free
Picture Angle	43°
Operating Distance	40.7mm
Photographable Diameter of Pupil	Normal: φ4.0mm or more Small pupil diameter: φ3.3mm or more
Fundus Image Resolution (on Fundus)	10 lines/mm or more

Observation & photography of fundus tomogram	
Scan Range	Horizontal: 3 ~ 12mm Vertical: 3 ~ 12mm
Scan Speed	100,000 A-scans per second
Scan Patterns	3D scan (horizontal / vertical) Linear scan (Line-scan/Cross-scan/Radial-scan) Circle scan
Lateral Resolution	20μm
In-depth Resolution	8μm
Photographable Diameter of Pupil	φ2.5mm or more

Observation & photography of fundus image/fundus tomogram	
Internal Fixation Target	Matrix LCD (The display position can be changed and adjusted. The presenting method can be changed.)

Electric Rating	
Source voltage	AC 100/110/120/220/230/240V
Frequency	50-60Hz
Power input	200VA

Dimensions / Weight	
Dimensions	545mm(W)x535mm(D)x585 ~ 615mm(H)
Weight	35.0kg

Scan Pattern Example

Scan Pattern	Maximum Scan Resolution	Maximum Overlapping Scan Count	Maximum Scan Length (mm)
3D	512×256	—	12×9
	512×64	4	12×9
5 Line Cross	1,024×10	32	12
12 Radial	1,024×12	32	12
Circle	1,024	32	3.4
Line	1,024	96	12

* More variable scan patterns available with a combination of different resolution, overlapping scan count and scan length.

DEEP RANGE IMAGING

DRI OCT-1

3D Optical Coherence Tomography

CE 0123

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IMPORTANT Subject to change in design and/or specifications without advanced notice.
In order to obtain the best results with this instrument, please be sure to review all user instructions prior to operation.

Topcon Europe Medical B.V.
Essebaan 11; 2908 LJ Capelle a/d IJssel; P.O. Box 145;
2900 AC Capelle a/d IJssel; The Netherlands
Phone: +31-(0)10-4585077; Fax: +31-(0)10-4585045
E-mail: medical@topcon.eu; www.topcon-medical.eu

Topcon Danmark
Praestemarksvej 25; 4000 Roskilde, Danmark
Phone: +45-46-327500; Fax: +45-46-327555
E-mail: info@topcondanmark.dk
www.topcondanmark.dk

Topcon Scandinavia A.B.
Neongatan 2; P.O. Box 25; 43151 Mölndal, Sweden
Phone: +46-(0)31-7109200; Fax: +46-(0)31-7109249
E-mail: medical@topcon.se; www.topcon.se

Topcon España S.A.
HEAD OFFICE; Frederic Mompou, 4;
08960 Sant Just Desvern; Barcelona, Spain
Phone: +34-93-4734057; Fax: +34-93-4733932
E-mail: medica@topcon.es; www.topcon.es

Topcon Italy
Viale dell' Industria 60;
20037 Paderno Dugnano, (MI) Italy
Phone: +39-02-9186671; Fax: +39-02-91081091
E-mail: topconitaly@tiscali.it; www.topcon.it

Topcon France
BAT A1; 3 route de la révolte, 93206 Saint Denis Cedex
Phone: +33-(0)1-49212323; Fax: +33-(0)1-49212324
E-mail: topcon@topcon.fr; www.topcon.fr

Topcon Deutschland GmbH
Hanns-Martin-Schleyer Strasse 41;
D-47877 Willich, Germany
Phone: (+49) 2154-885-0; Fax: (+49) 2154-885-177
E-mail: med@topcon.de; www.topcon.de

Topcon Portugal
Rua da Forte, 6-6A, L-0.22; 2790-072
Carnaxide; Portugal
Phone: +351-210-994626; Fax: +351-210-938786
www.topcon.pt

Topcon Polska Sp. z o.o.
ul. Warszawska 23; 42-470 Siewierz; Poland
Phone: +48-(0)32-670-50-45; Fax: +48-(0)32-671-34-05
www.topcon-polska.pl

Topcon (Great Britain) Ltd.
Topcon House; Kennet Side; Bone Lane; Newbury
Berkshire RG14 5PX; United Kingdom
Phone: +44-(0)1635-551120; Fax: +44-(0)1635-551170
E-mail: medical@topcon.co.uk, www.topcon.co.uk

Topcon Ireland
Unit 276, Blanchardstown; Corporate Park 2
Ballycoolin; Dublin 15, Ireland
Phone: +353-18975900; Fax: +353-18293915
E-mail: medical@topcon.ie; www.topcon.ie

TOPCON CONNECTING VISIONS

TOPCON EUROPE MEDICAL
75-1 Hasunuma-cho, Itabashi-ku, Tokyo 174-8580, Japan. Phone:3-3558-2523/2522 Fax:3-3960-4214 www.topcon.co.jp

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