

CA-800

Corneal Analyzer



Easy-to-Use Corneal Topography and Dry Eye Workstation



COMPREHENSIVE CORNEAL ANALYZER

The CA-800 allows for complete evaluation of the anterior surface and tear related structures.

Features



Topography Map,
Corneal Wavefront (Zernike)
Analysis



Contact Lens Fitting
Simulation



Keratoconus Screening



Tear Film Breakup
Tear Meniscus Height/
Blink Analysis



White to White
Measurement



Meibomian Gland
Analysis



Comparison Map, Differential
Map, Corneal Height Map



Pupillometry



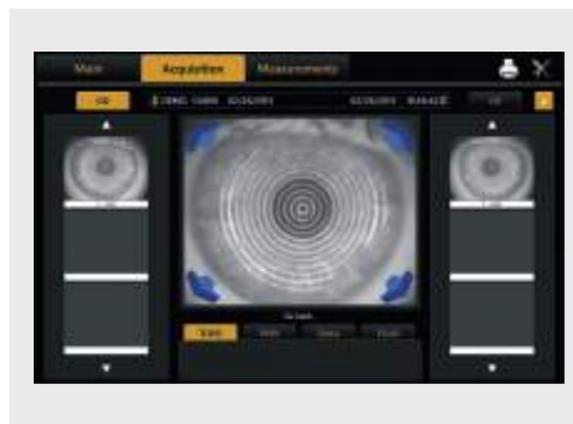
PC Integrated,
Space Saving



- | | |
|------------------------------------|----------------------------|
| 1 Patient database and acquisition | 12 Tear film breakup |
| 2 Topography | 13 Patient ID |
| 3 OD/OS on one screen | 14 Contact lens fitting |
| 4 Aberrometry | 15 Keratometry and Indices |
| 5 Height map | 16 Keratoconus screening |
| 6 Comparison and Differential map | 17 Ring editing |
| 7 Pupillometry | 18 Report printing |
| 8 Fluorescein imaging | 19 3D map |
| 9 White to white | 20 Display options |
| 10 Meibography | 21 Full screen mode |
| 11 Tear meniscus height/blink | |

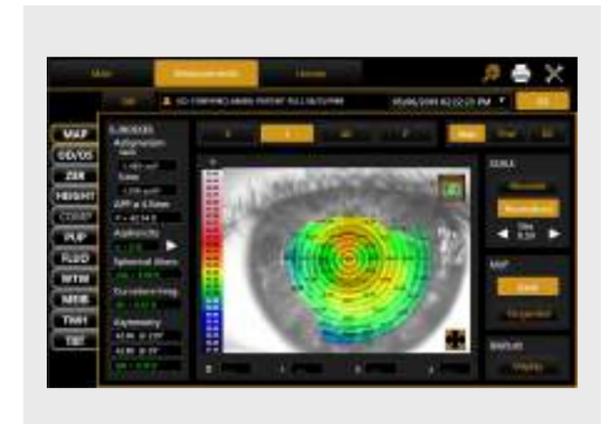
Acquisition

The CA-800 is easy to use. Visual signals support fast and easy alignment and accurate focusing. The CA-800 has Right and Left eye detection, preventing incorrect filing of data to the wrong eye. The automated best image selection mode in the CA-800 software, selects the best focused position and automatically acquires the image.



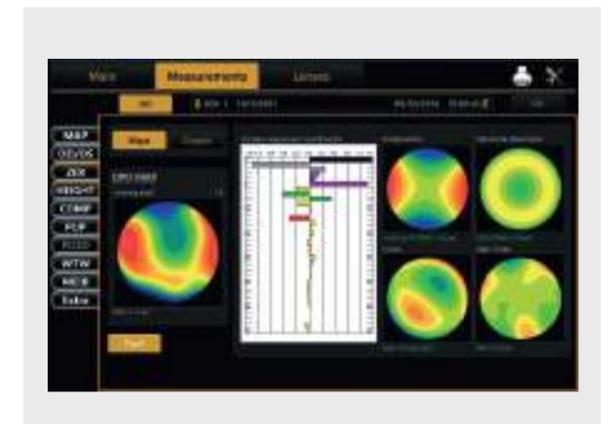
Keratoconus screening

With the CA-800, signs of corneal asymmetry of the cornea can easily be detected even at an early stage. By analyzing various characteristics of the corneal shape, a keratoconus probability index is calculated, with color coding to indicate the level of compatibility of each metric with keratoconus. The CLMI (Cone Location and Magnitude Index) is available as an alternative. These metrics along with comparison maps, make it easy to monitor keratoconus and keratoconus-like patterns over time*.



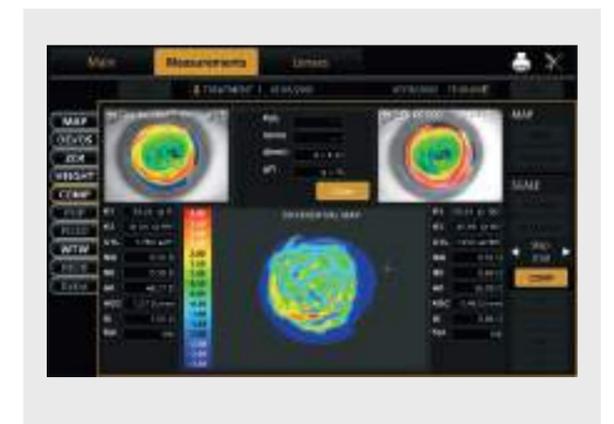
Corneal Zernike analysis

The Zernike analysis module provides 36 polynomials up to the 7th order, giving a clear view of the optical aberrations which can disturb vision. Based on this information, the CA-800 simulates the effect on vision, which is useful for educating patients about their condition. The pupil size can be selected to examine the implications of the corneal aberrations under different light levels.



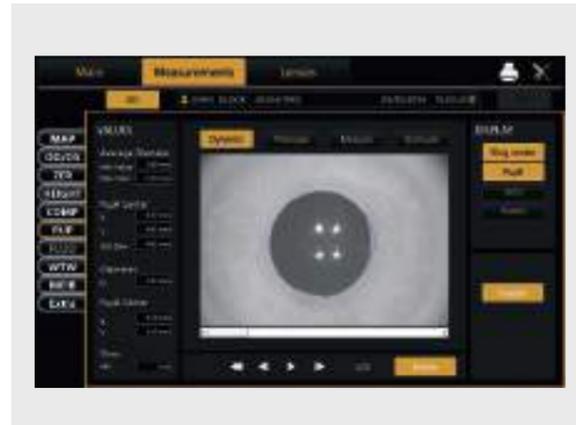
Corneal comparison & differential map

With the CA-800, it is easy to compare topography maps between two examinations of the same patient to examine changes over time. Parameters such as keratometry, apical curvature and corneal symmetry can be analyzed to monitor any corneal surface changes, for example caused by keratoconus. With the differential map, the effect of a procedure such as refractive surgery, can be observed. It is also useful to examine the response of the cornea to an orthokeratology lens.



Pupillometry

The CA-800 is equipped with different LED lights to support dynamic and static pupillometry under a range of lighting conditions. With the CA-800, the user can check the pupil position and diameter (under photopic through to scotopic lighting conditions) in relation to the position of the optical zone of an Ortho-K treatment, contact lens, intraocular lens or laser treatment. Dynamic pupillometry provides clear information on the reaction time of the pupil along with changes in pupil center location.



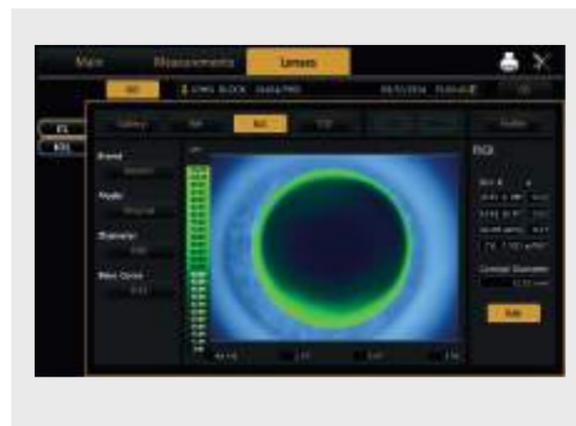
Fluorometry

The CA-800 incorporates eight blue LED's for fluorescein imaging and real time fluorescein movies which are valuable for contact lens fitting and dry eye assessment. During every measurement, the CA-800 automatically registers the pupil diameter, for comparison with the size and location of the contact lens optical zone. Real time fluorescein movies allow the eye care practitioner to judge the movement of the contact lens on the cornea, the distribution of the tear film under the contact lens as well as the wetting of the anterior surface of the contact lens. Staining of the ocular surface can also be recorded as images or a movie. The tear film condition, corneal artifacts and fluorescein break up time (BUT) can be observed.



Contact lens fitting simulation

The CA-800 provides a comprehensive platform to optimize contact lens fitting. On-board simulation software automatically selects the best fitting contact lens based on an internal contact lens database for all the main manufacturers (upgradable and customizable by the user). Lens parameters and position can be modified, and the resulting fluorescein simulation saved to a library, to allow rapid comparison between lens options. This minimizes the number of lenses that need to be trialed on the patient's eye, saving time and making the process more acceptable for the patient.



Meibomian gland analysis

With the Infra-red illumination of the CA-800, the Meibomian glands of the upper and lower eyelid can be captured and analyzed. Posterior blepharitis is the most common form of lid margin disease. MGD (Meibomian Gland Dysfunction) can cause or exacerbate dry eye symptoms and eyelid inflammation. The oil glands become blocked with thickened secretions. Chronically clogged glands eventually become unable to secrete oil which results in permanent changes in the tear film resulting in ocular surface disease. With the CA-800, Meibomian glands can easily be observed, to inform management decisions and encourage compliance with treatment.



DRY EYE SUITE

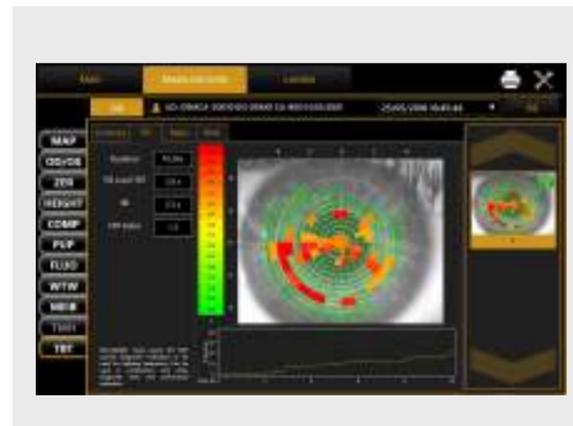
Blink analysis

The blink analysis function records normal blinking over a period of time to automatically calculate the average blinks per minute and inter-blink interval. Combining this data with the non-invasive tear break up measurement allows the Ocular Protection Index (OPI) to be calculated, identifying eyes at risk of ocular surface damage.



Non-invasive breakup time

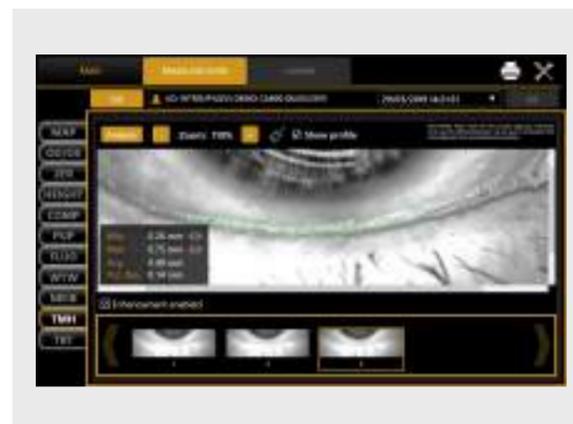
The non-invasive breakup time (NIBUT) records the patient's tear film condition while they hold their blink. It is the Gold Standard for assessing tear breakup, as recommended by DEWS II*. The corneal surface is divided into sectors with breakup defined as the time for 5% of all sectors to demonstrate breakup. Repeat measurements can be averaged, also allowing areas of recurrent first break to be identified. In addition to these informative metrics, the video playback feature allows visualization of the tear breakup over time, along with associated changes in topography and anterior surface aberrations.



*https://www.tfosdewreport.org/public/images/TFOS_DEWS_II_Diagnostic_method.pdf

Tear meniscus height

Detailed images of the inferior tear meniscus can be captured with the CA-800. During review, touching the meniscus adds a marker based on automatic detection of the lid margin and the top of the tear meniscus. The position, separation and angle of each marker can be fine tuned if required. The tear meniscus profile is then displayed along with relevant metrics: minimum, maximum, average and variation.



ADDITIONAL FEATURES

i-Map

The optional software i-Map enables delegation of acquisition to support staff while the clinician reviews the data in another room. i-Map allows full manipulation of the data. It contributes to optimizing your clinical workflow.



DICOM™ Compliance

The DICOM panel in the CA-800 connectivity settings allows the user to set the required parameters for the connections to the available DICOM features:

- Modality Worklist
- Patient Root Query
- Storage
- Storage Commitment



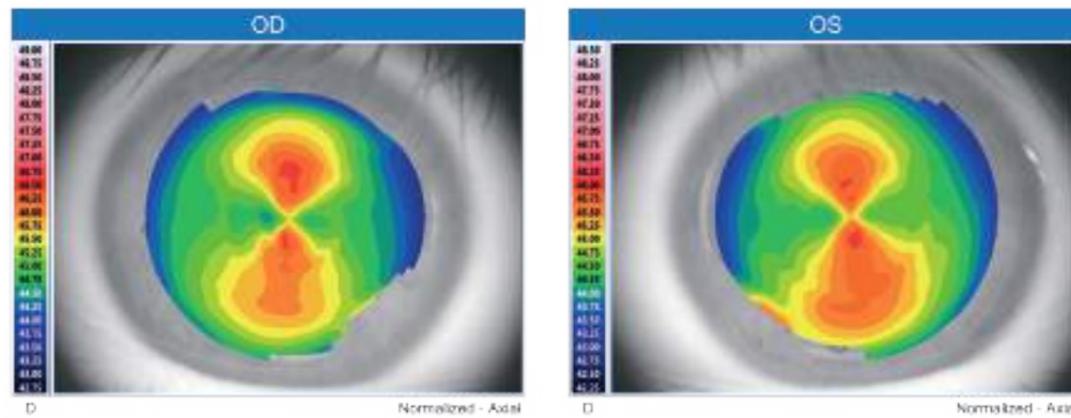


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Patient Information

Patient	CORNEAL ANALYZER	Gender	M
Patient ID	12345678	Exam Date	17/02/2015 13:37:29
Date of Birth	01/01/2000	Surgeon	

TOPOGRAPHICAL MAP



Sim-K					
K1		K2		CYL	
44.84	@ 180°	46.27	@ 90°	-1.43D	ax180°
K1		K2		CYL	
44.36	@ 7°	45.78	@ 97°	-1.41D	ax7°

Cornea Data					
Cornea Decentralization X - Y		-0.23 mm	0.04 mm	Cornea Decentralization X - Y	
Diameter		12.28 mm		Diameter	
Pupillar Decentralization X - Y		H= -0.04 mm	V= 0.11 mm	Pupillar Decentralization X - Y	
Avg. Pupillar Diam.		3.54 mm		Avg. Pupillar Diam.	
Avg. Pupillar Power		45.51 D		Avg. Pupillar Power	
		45.51 D		45.15 D	

Keratoconus Screening							
AK	AGC	SI	Kpi	AK	AGC	SI	Kpi
45.80 D	0.50 D/mm	0.05 D	0%	46.26 D	0.88 D/mm	0.30 D	0%
Topography not compatible with keratoconus				Topography not compatible with keratoconus			
A	D	Ro - Teta	Rnd	A	D	Ro - Teta	Rnd

Keratrefractive Indices							
SD	SAI	e	Kc	SD	SAI	e	Kc
SD = 0.38 D	SAI = 0.19 D	e = 0.42	45.45	SD = 0.29 D	SAI = 0.34 D	e = 0.36	45.18

Notes

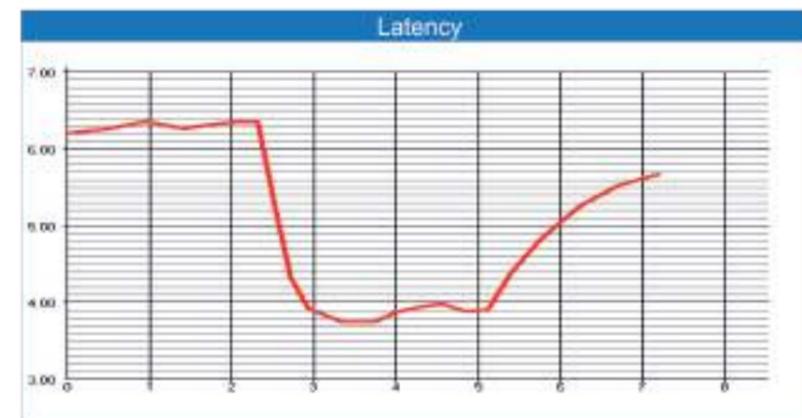
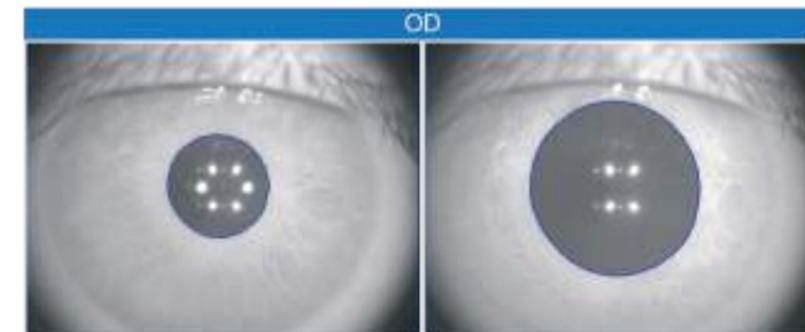


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Patient	CORNEAL ANALYZER	Gender	M
Patient ID	12345678	Exam Date	06/03/2015 18:06:43
Date of Birth	01/01/2000	Surgeon	

PUPILLOMETRY



Dynamic pupillography				
Diameter		Pupil Center		
Min	Max	Center Mean	Std Dev.	
3.74 mm	6.36 mm	-0.22 mm	0.02 mm	
		0.01 mm		

Photopic pupillography				
Diameter		Pupil Center		
Avg. Diam.	Diam. Std Dev.	Center X - Y	Cen. Std Dev.	
3.76 mm	0.06 mm	-0.20 mm	0.06 mm	
		0.03 mm		

Mesopic pupillography				
Diameter		Pupil Center		
Avg. Diam.	Diam. Std Dev.	Center X - Y	Cen. Std Dev.	
4.90 mm	0.33 mm	-0.18 mm	0.33 mm	
		0.02 mm		

Scotopic pupillography				
Diameter		Pupil Center		
Avg. Diam.	Diam. Std Dev.	Center X - Y	Cen. Std Dev.	
5.53 mm	0.11 mm	-0.16 mm	0.11 mm	
		-0.01 mm		

Notes



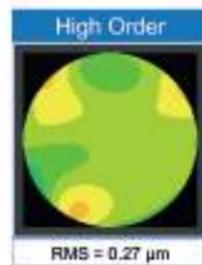
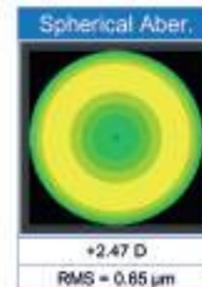
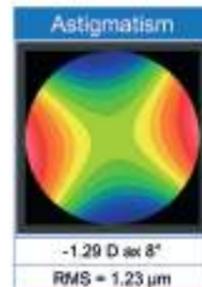
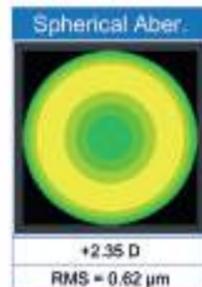
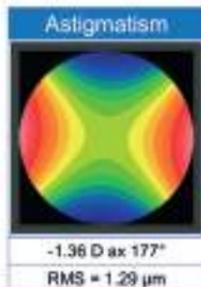
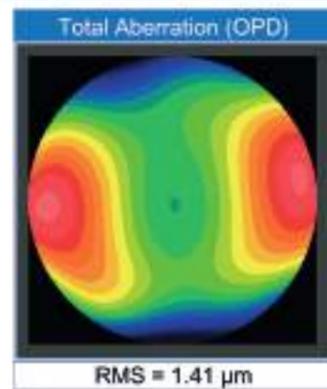
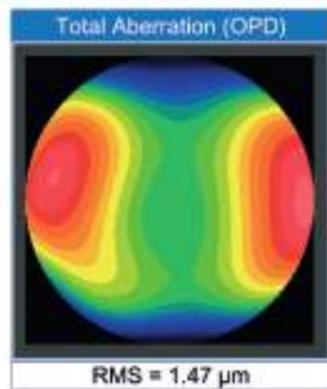
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Patient ID	12345678	Exam Date	17/02/2015 13:37:29
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ZERNIKE

OD

OS



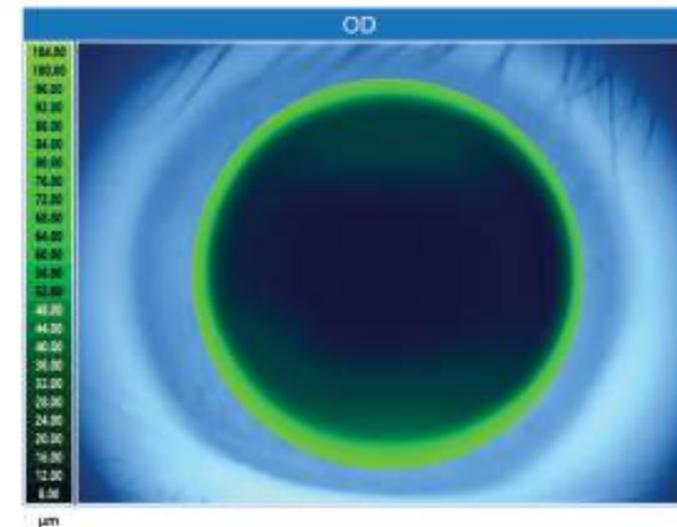
Notes



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Date of Birth	01/01/2000	Surgeon	

CONTACT LENSES



Sim-K		
K1	K2	CYL
44.84 @ 180°	46.27 @ 90°	-1.43D ax180°

Refraction			
Sphere	Cylinder	Axis	VD
1.25	-0.50	110	12.00

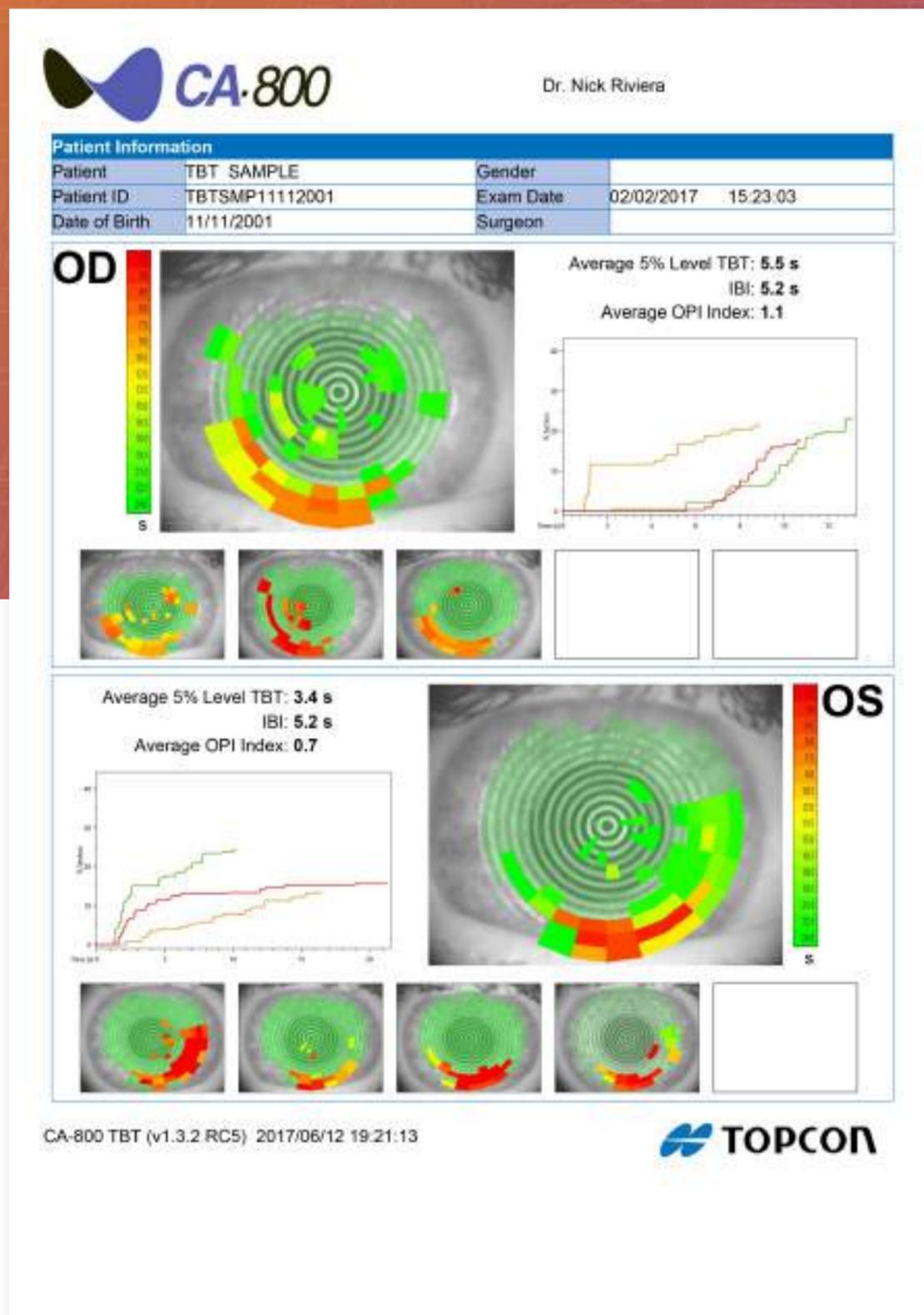
Cornea Data	
Cornea Decentralization X - Y	---
Diameter	12.26 mm

Lens Data		
Brand	Model	Base Curve
Generic	Tricurve	7.6
Diameter	Power	Toricity
9.8		

Notes

Report Samples

SPECIFICATION OF CA-800



Keratocorne cone	24 rings equally distributed on a 43D sphere
Analyzed points	Over 100.000
Measured points	6.200
Corneal coverage	Up to 9.8mm on a sphere of radius 8.00mm (42.2 diopters with n=1.3375)
Diopter power range	From 1D to 120D
Resolution	+/- 0.01D, 1 micron
Accuracy / Precision axial radius	+/- 0.03mm altimetric data, +/- 2µm at 4mm
Capture system	Guided focus with auto-capture
Output ports	2xUSB, LAN
Monitor	LCD 10.1 inch capacitive touch screen
Database	Internal
Pupillometry	Dynamic, Photopic, Mesopic, Scotopic
Fluorescein	Image, Video
Report	Corneal map, Comparison map, Contact lens, Height map, Zernike analysis, Pupillometry, Toric IOL, Screenshot, NIBUT, Meibomian gland analysis, TMH, Fluorescein
Working environment	10°-40°C, Relative humidity 30-75% (no dewing), Atmospheric pressure 700-1060hPa
Power source	AC 100-240V 50/60 Hz
Power consumption	80 VA
Dimensions	320mm (W) x 490mm (H) x 470mm (L), 15 Kg
Connections	Wi-Fi Optional, LAN integrated / iMAP
Printing options	USB printer, Network printer, PDF on network shared folder, PDF on USB
Operating System	Windows 10 Enterprise LTSC (Long Term Support Channel)
RAM	4GB
Hard Disk	At least 500GB SATA Hard drive (database storage) 32 GB Solid State Drive (operating system and application software)



LEARN MORE

about using the CA-800 at
Topcon Healthcare University



* Not available in all countries, please check with your distributor for availability in your country
* Subject to change in design and/or specifications without advanced notice

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IMPORTANT In order to obtain the best results with this instrument, please be sure to review all user instructions prior to operation.

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