



CASIA2 *STAR Analysis*

INTRODUCING THE GLAUCOMA APPLICATION “STAR ANALYSIS”

You + eye.
We care.

OUR PROMISE

Your specialist
*for easy-to-use
high-tech solutions.*



Our comprehensive range of precision diagnostic instruments reflects our commitment to maximum quality, service and innovation. This leads to early prevention, accurate diagnoses and examinations that are as comfortable as possible. All for the patient's benefit.

Our highly motivated team of experts works continuously to develop solutions for ophthalmic diagnostics that will remain viable into the future. With the courage to innovate and curiosity about what the future has to offer, we share a common goal: to make the day-to-day work of ophthalmologists and opticians as easy and as successful as possible.



ABOUT THE PRODUCT

CASIA2

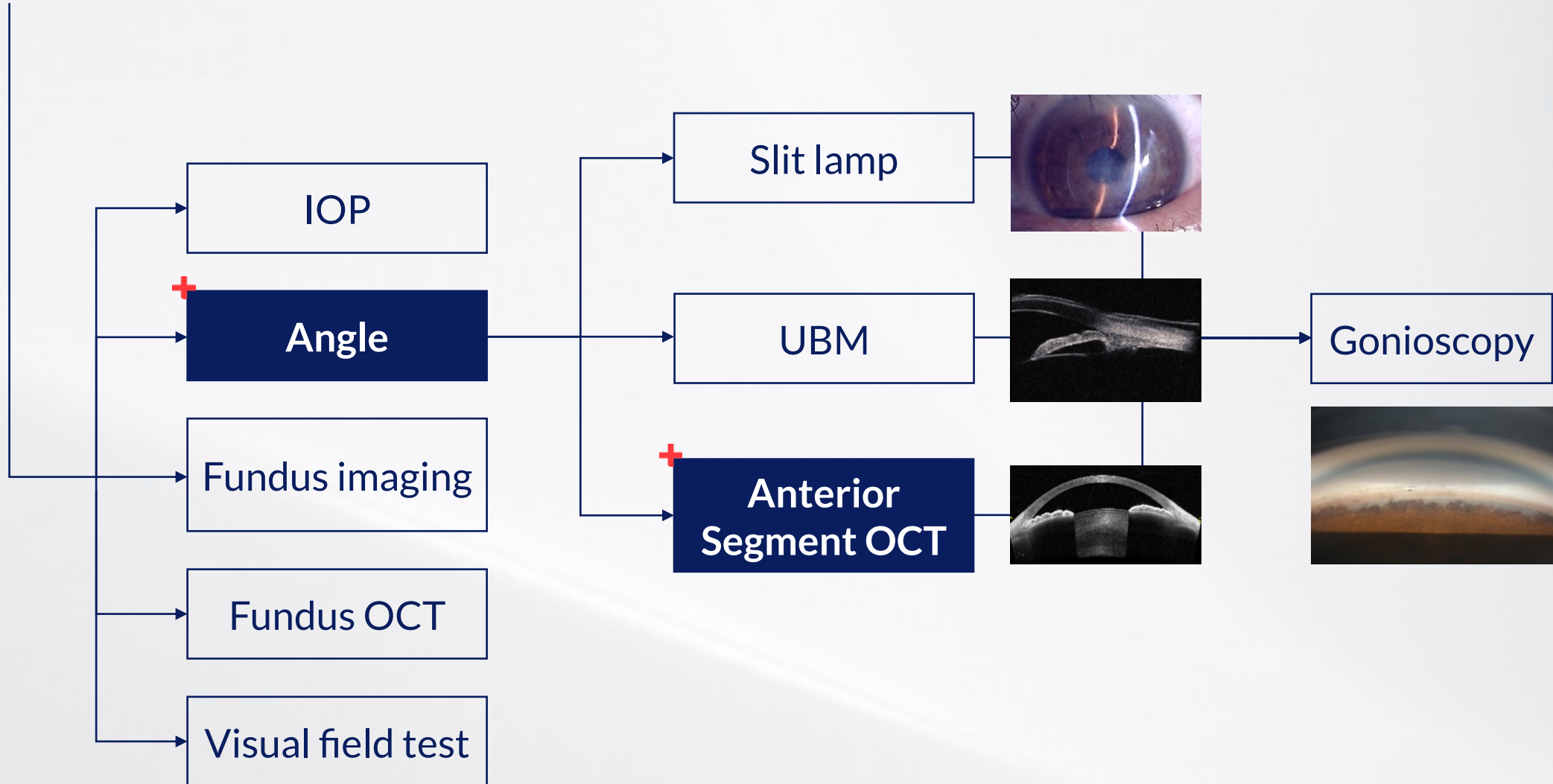
Cornea/Anterior Segment OCT



The CASIA2 provides an impressive user experience with intuitive operation and automation, supported by an unbelievable measurement speed (a topographic image is captured in just 0.3 seconds). Our software guides you through measurement, analysis and the final report.

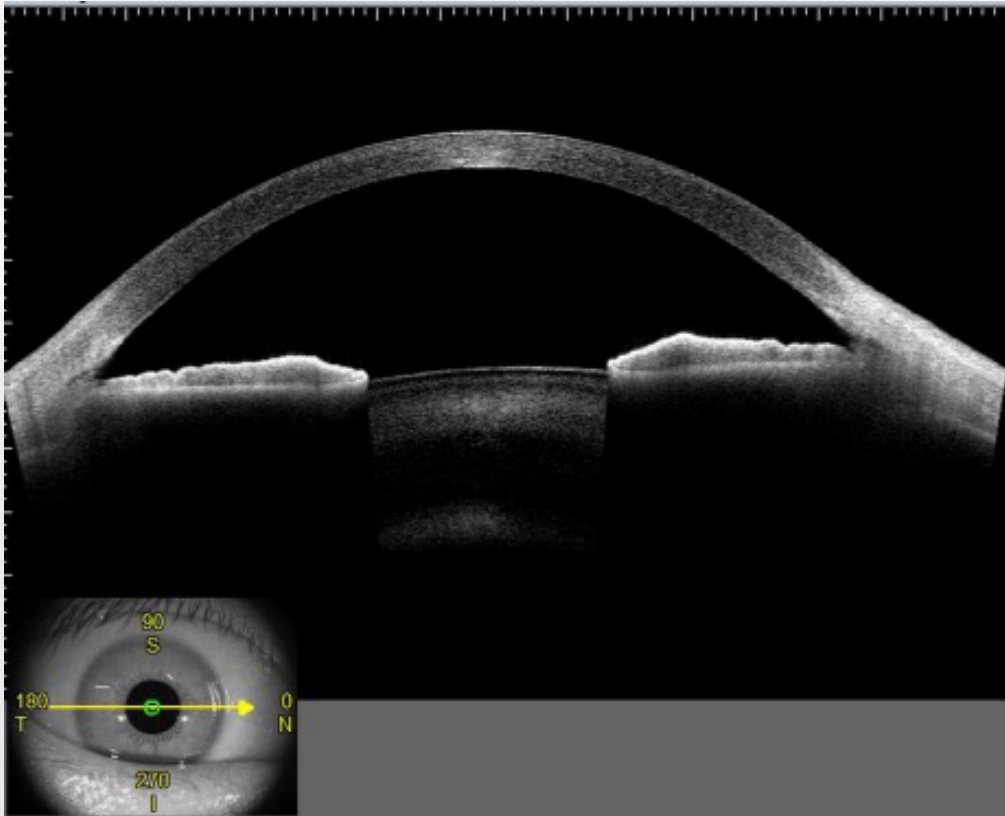


Examination of Glaucoma

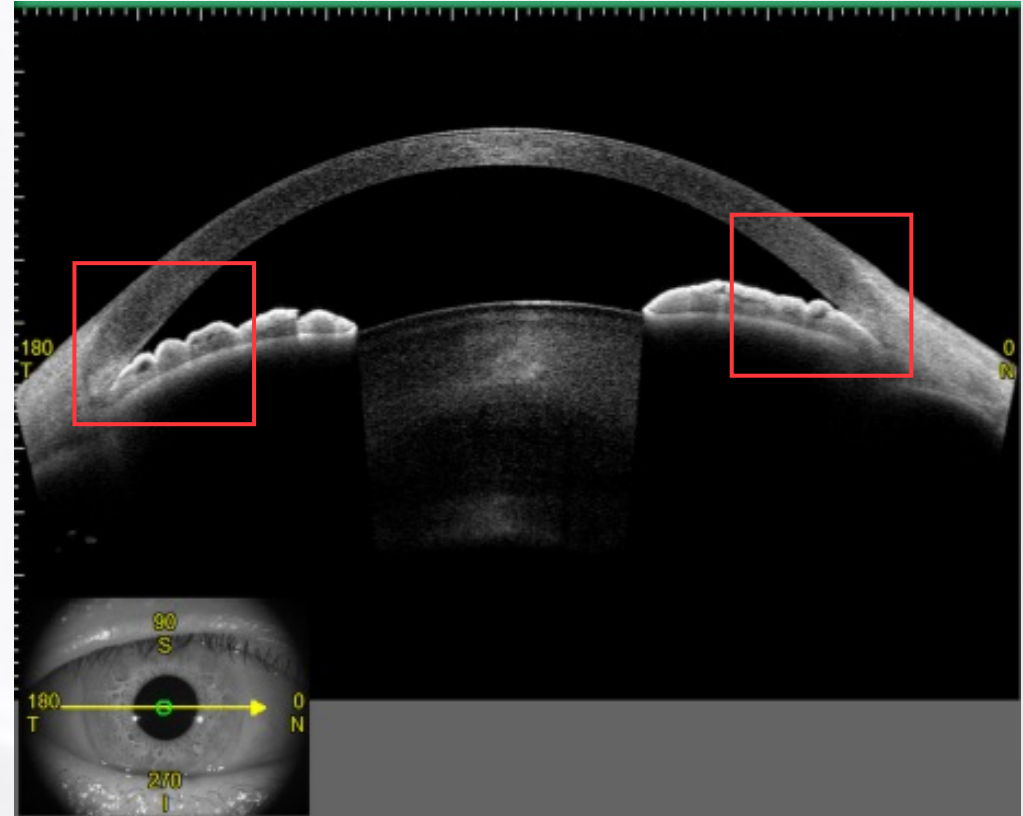


Anterior Segment OCT Image

Open angle



Closure angle

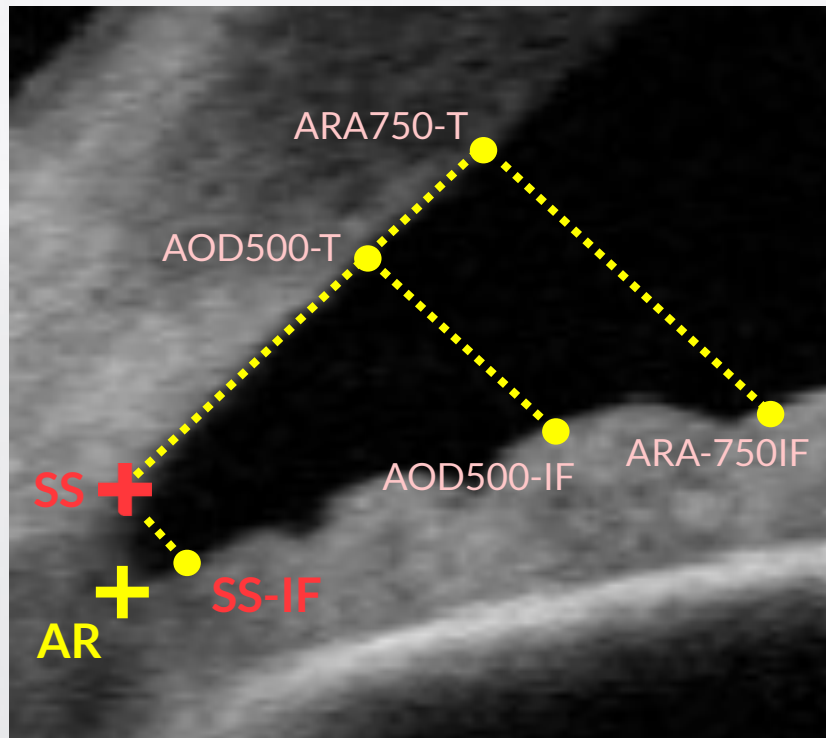


Narrow angle can be found easily with CASIA2 images



Quantification of the Angle

After 1992, many parameters for angle analysis by UBM have been suggested by Pavlin.
(AJO 1992)



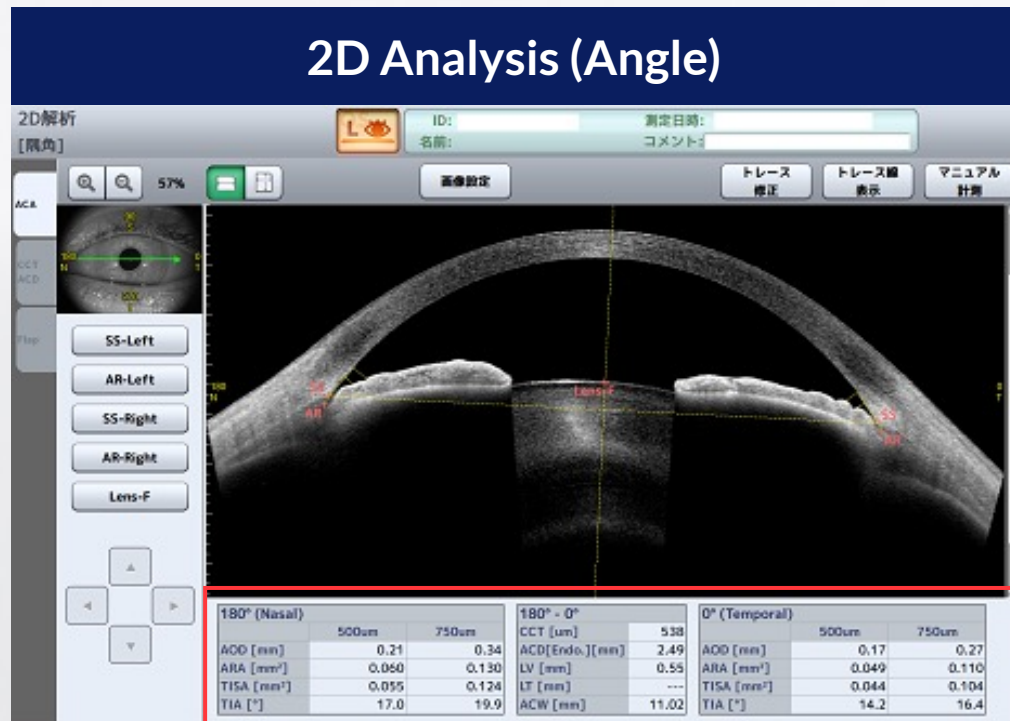
AOD	[mm]	Angle Opening Distance	Perpendicular length between corneal posterior (250um, 500um and 750um far from SS) and iris.
TIA	[degree]	Trabecular Iris Angle	Angle of anterior chamber.
ARA	[mm ²]	Angle Recess Area	Area of entire angle that is surrounded by AOD line.
TISA	[mm ²]	Trabecular Iris Space Area	Area of angle that is surrounded by SS and AOD line.

All parameters in the table can be measured by CASIA2

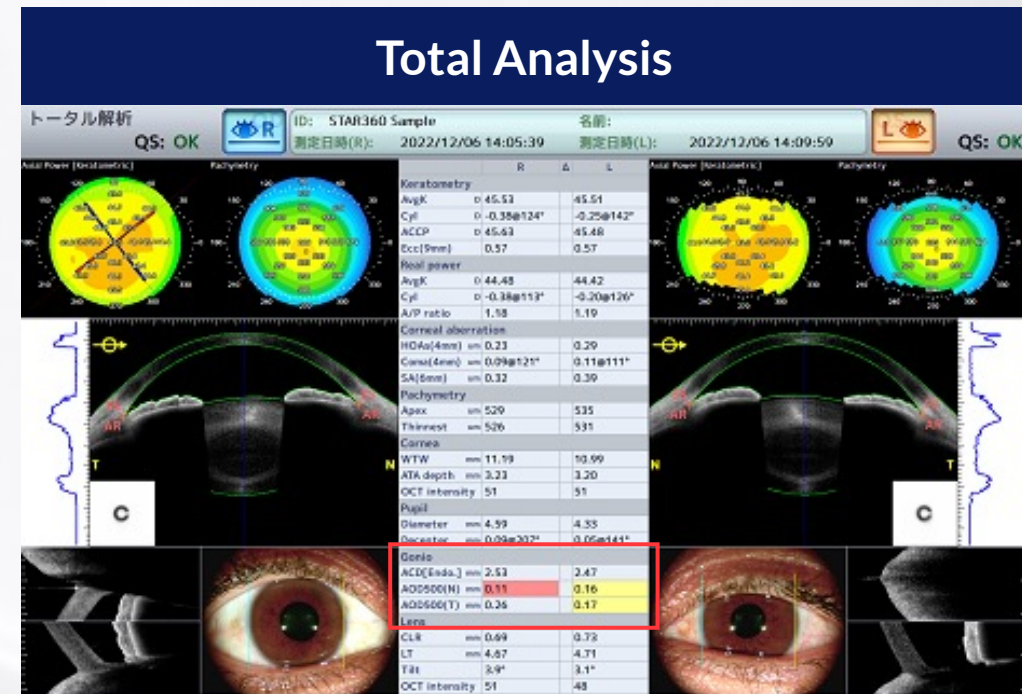


Challenges solved with STAR Analysis

Challenge 1: There are parameters but no normative data for the angle



Many parameters are available, but there is no normative data.



There are normative data, but they are for regular eye only (not for angle closure).

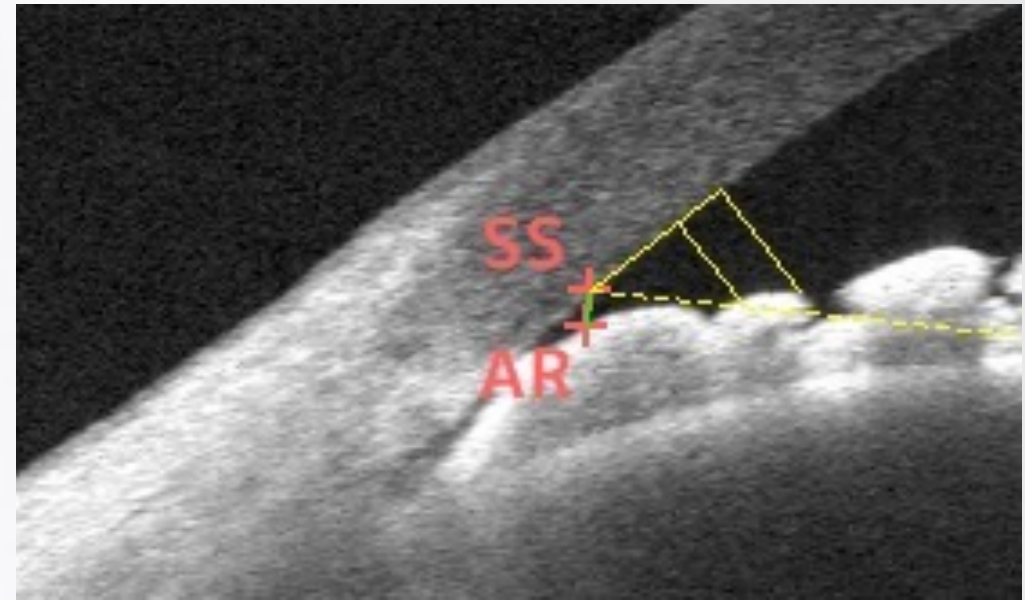


Challenges solved with STAR Analysis

Challenge 2: There were cases where the auto detection of SS and AR failed and required manual correction



Segmentation error



There were cases where important measurement points could not be found automatically.

SS (scleral spur) | AR (angle recess)

Release of STAR Analysis

STAR: Scleral spur Tracking for Angle analysis and Registration

(Application supervisor: Christopher Leung MD, MB ChB | The University of Hong Kong)

Feature 1

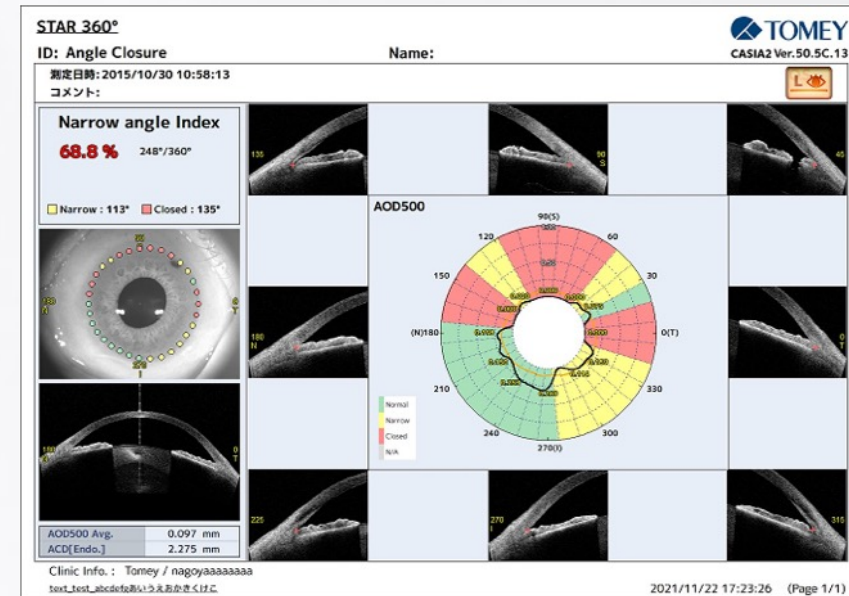
360° analysis with visualization of the angle is similar to that of a gonioscope.

Feature 2

Simple and easily readable result with chart display.

Feature 3

Improved result thanks to improvements in characteristic point detection.



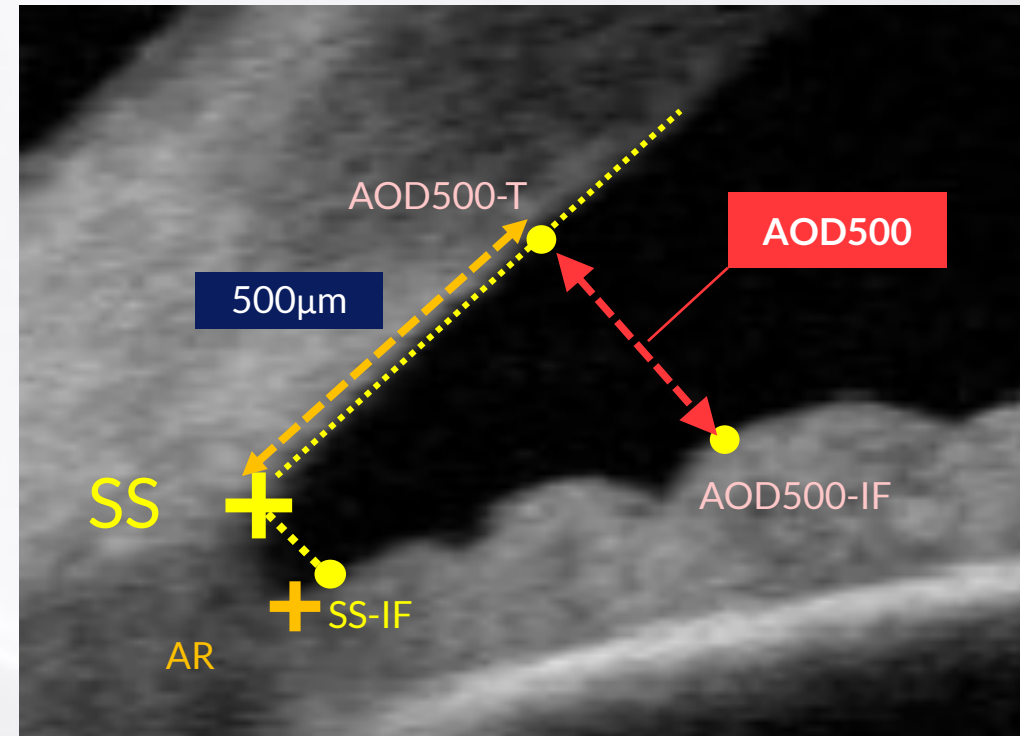
STAR Analysis: Angle Opening Distance AOD500

In STAR Analysis, angle condition is checked by the parameter **AOD500**.

What is AOD500?

Perpendicular “length” between corneal posterior (500µm from SS [scleral spur]) and iris.

- SS is used as basic characteristic point.
- Improvement of SS auto-detection means a more seamless experience examining the angle.
- Angle opening condition is automatically evaluated.



STAR Analysis: Image Layout

In STAR Analysis, the following image layout is provided.

Analysis result

(Range of closure angle area)

■ : 0% ~ 13.8%

■ : 13.9% ~

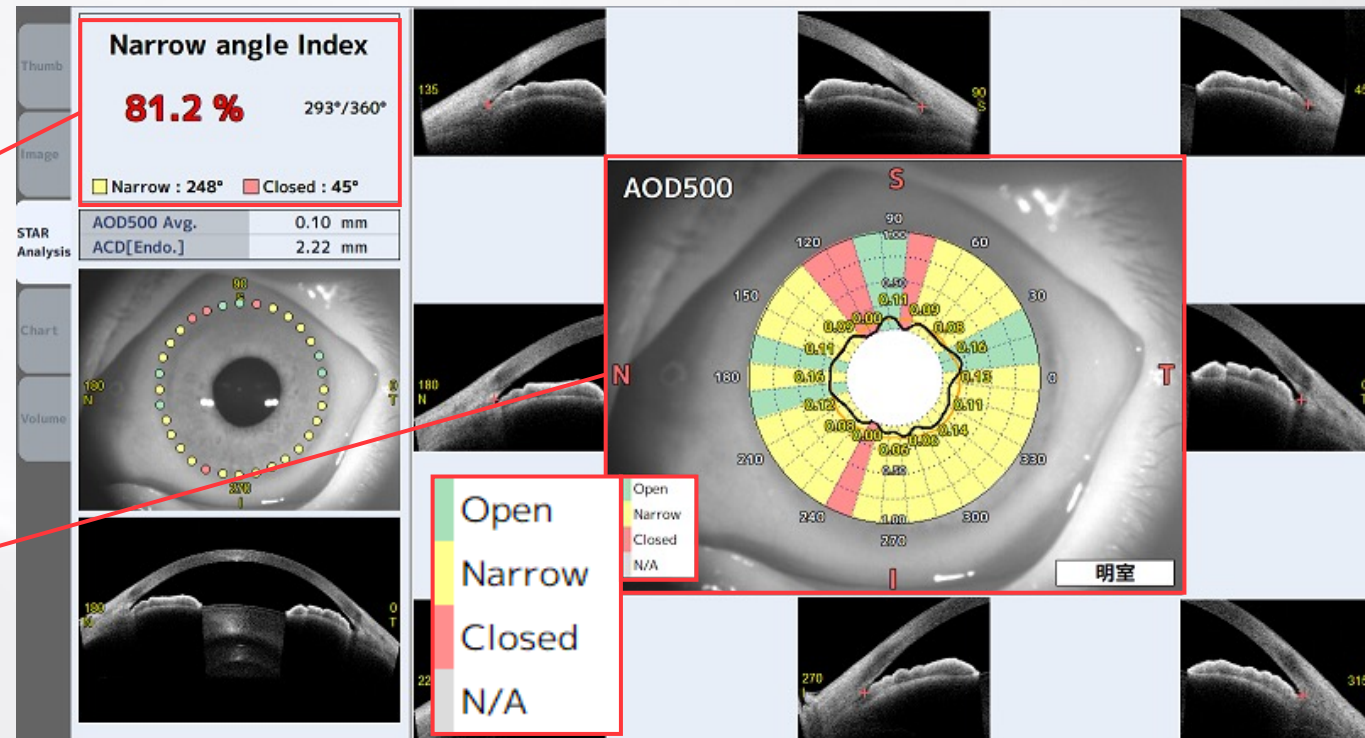
360° chart

■ (Open): $\geq 5^{\text{th}}$ percentile

■ (Narrow): $< 5^{\text{th}}$ percentile

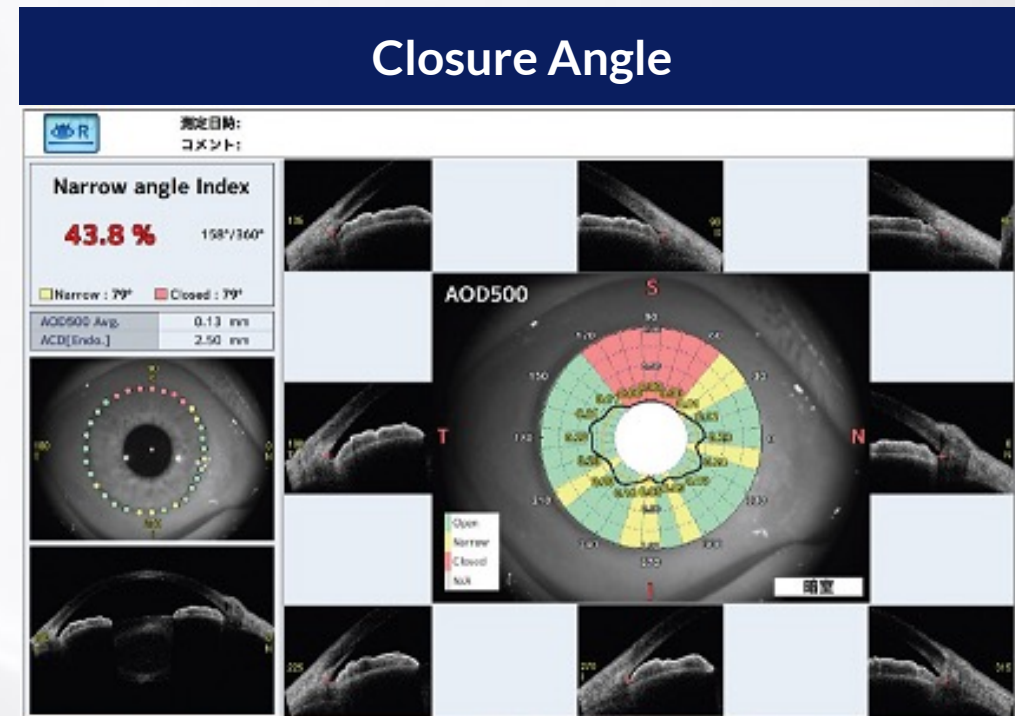
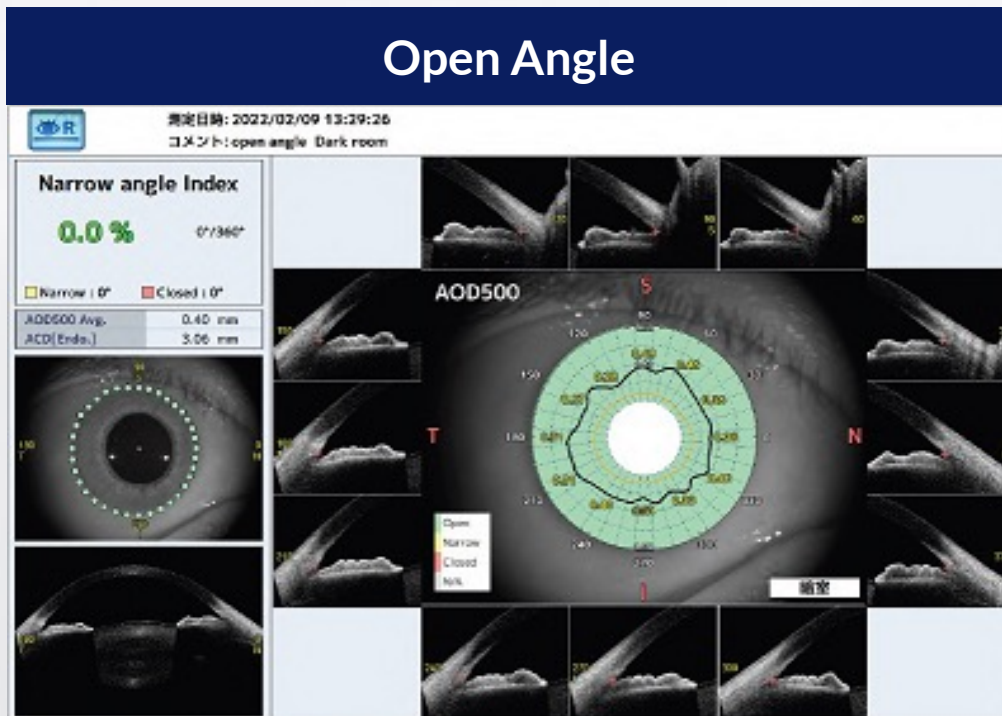
■ (Closed): AOD500 = 0.0

□ N/A: Data is not available



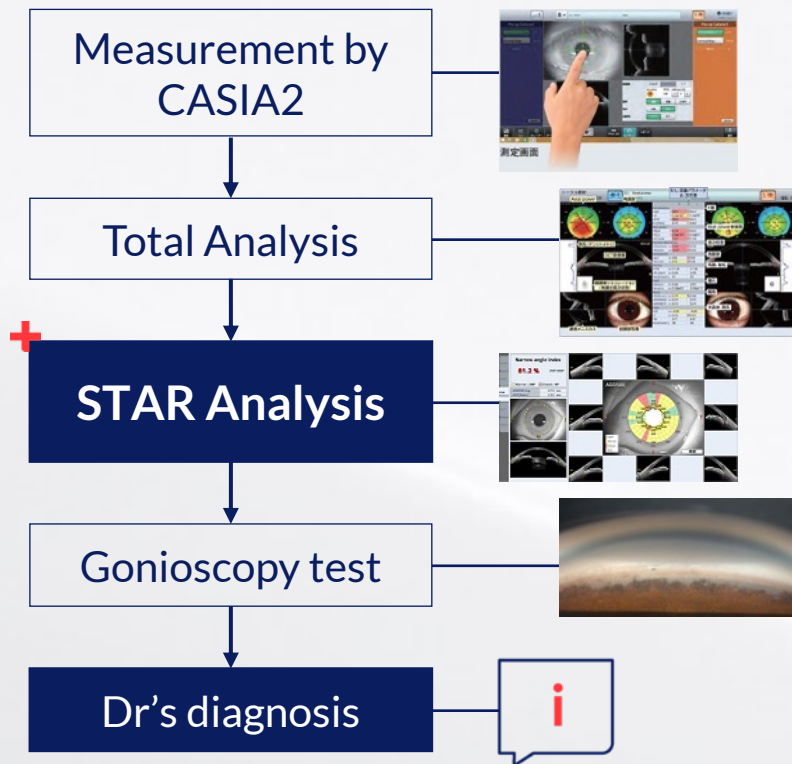
STAR Analysis: Image Layout

In STAR Analysis, the following image layout is provided.



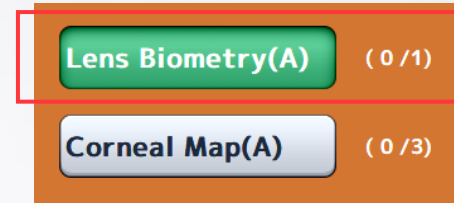
Basic Clinical Flow

Flow

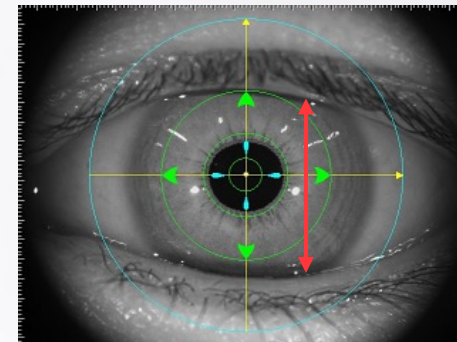


Hint for measurement

- STAR Analysis can use the data collected by Lens Biometry(A) of cataract protocol



- Eye should be open more than $\varphi 8\text{ mm}$



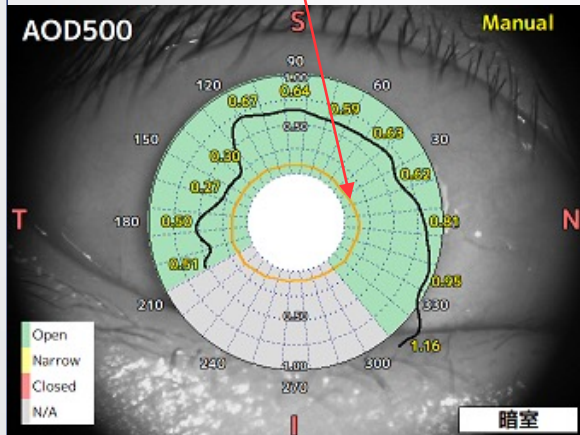
Analysis Criteria

1st step

AOD500 value check for each angle (360°)
→ Open/Narrow/Closed



AOD500 threshold for each angle



Normative data:
394 eyes 394 subjects
AOD500 5th percentile

2nd step

Calculate NAI (Narrow Angle Index):

$$NAI = \frac{Narrow + Closed}{Open + Narrow + Closed}$$

NAI $\geq$ 13.9% → High possibility of closure angle

NAI $<$ 13.9% → Low possibility of closure angle



Summary

The benefits of **STAR Analysis** are the following:

Users can easily grasp risk level for Narrow/Closure angle.

- Reduce the chance of missing Narrow angle eye
- Decide on need for Gonioscopy
- Informed consent based on OCT images

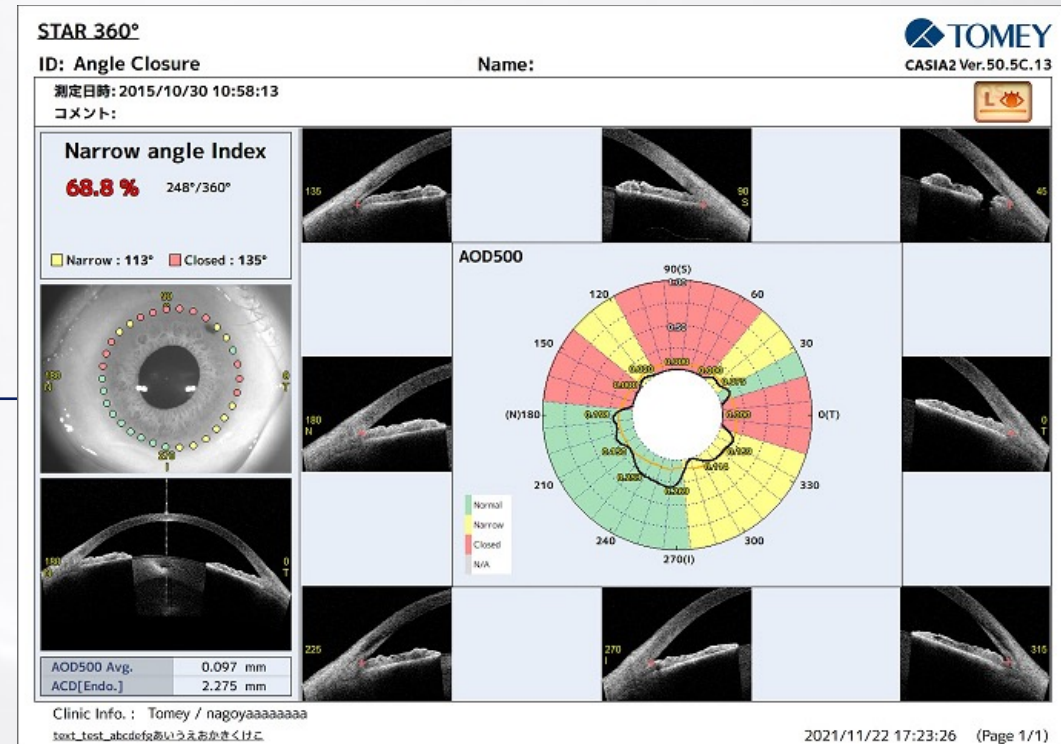
Measurement by
CASIA2

Total Analysis

STAR Analysis

Gonioscopy test

Dr's diagnosis



+ Thank
YOU!





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