CA-800
Tear Module

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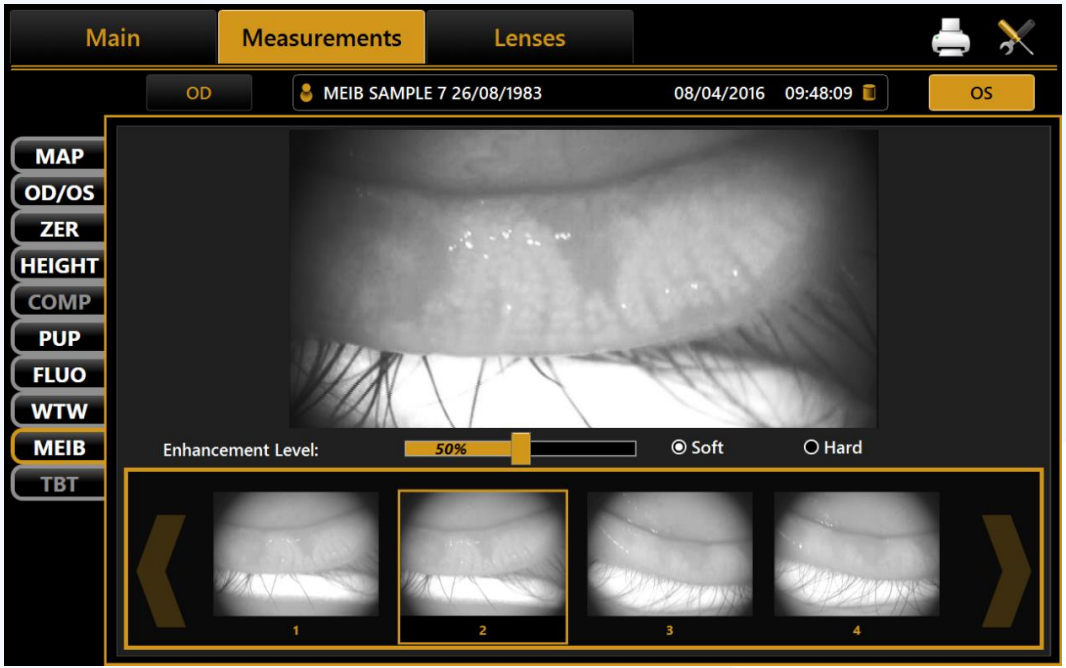
Meibomian Gland Imaging

TOPCON

Meibomian Gland [MEIB] Viewing



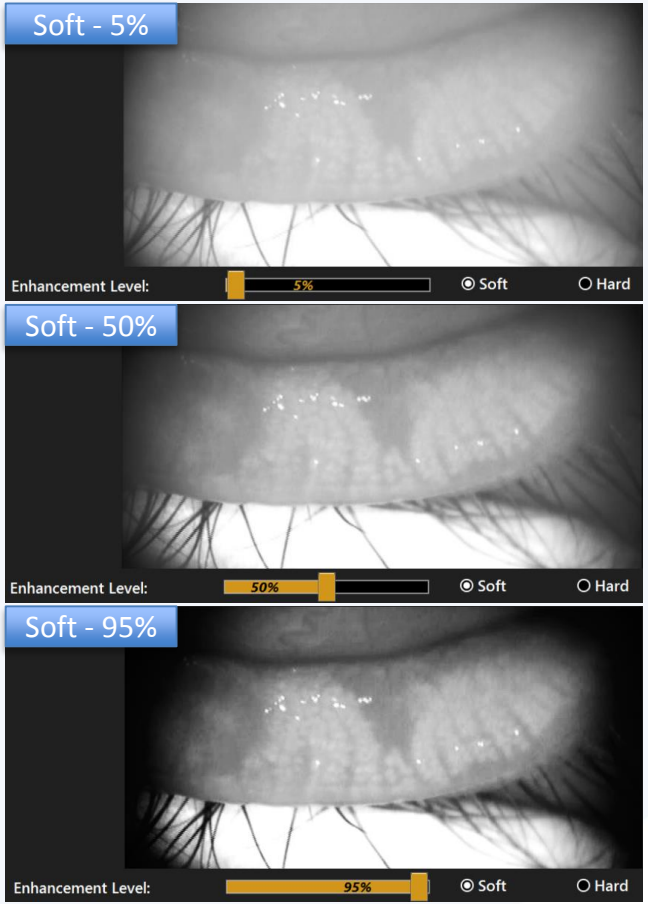
Meibomian Images are displayed in the center of the screen

*Two types of an adjustable **Contrast Enhancement** are displayed directly below the image*

Thumbnails of additional images captured during the same exam are displayed below the main image

TOPCON

Meibomian Gland [MEIB] Viewing – Contrast Enhancement

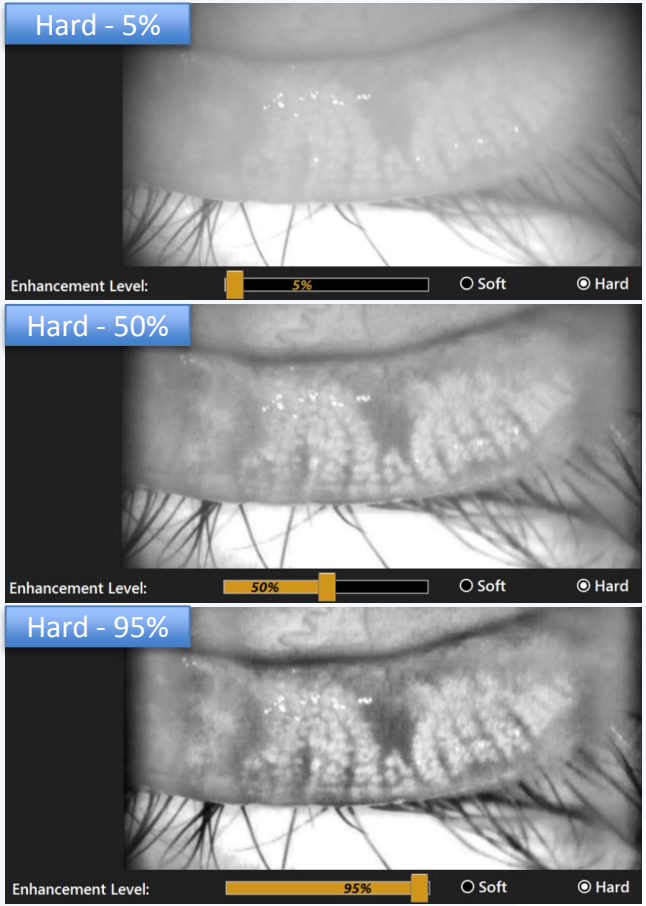


Soft *Contrast Enhancement*

As the slider is increased the dark areas of the image are made darker relative to the bright areas

TOPCON

Meibomian Gland [MEIB] Viewing – Contrast Enhancement



Hard *Contrast Enhancement*

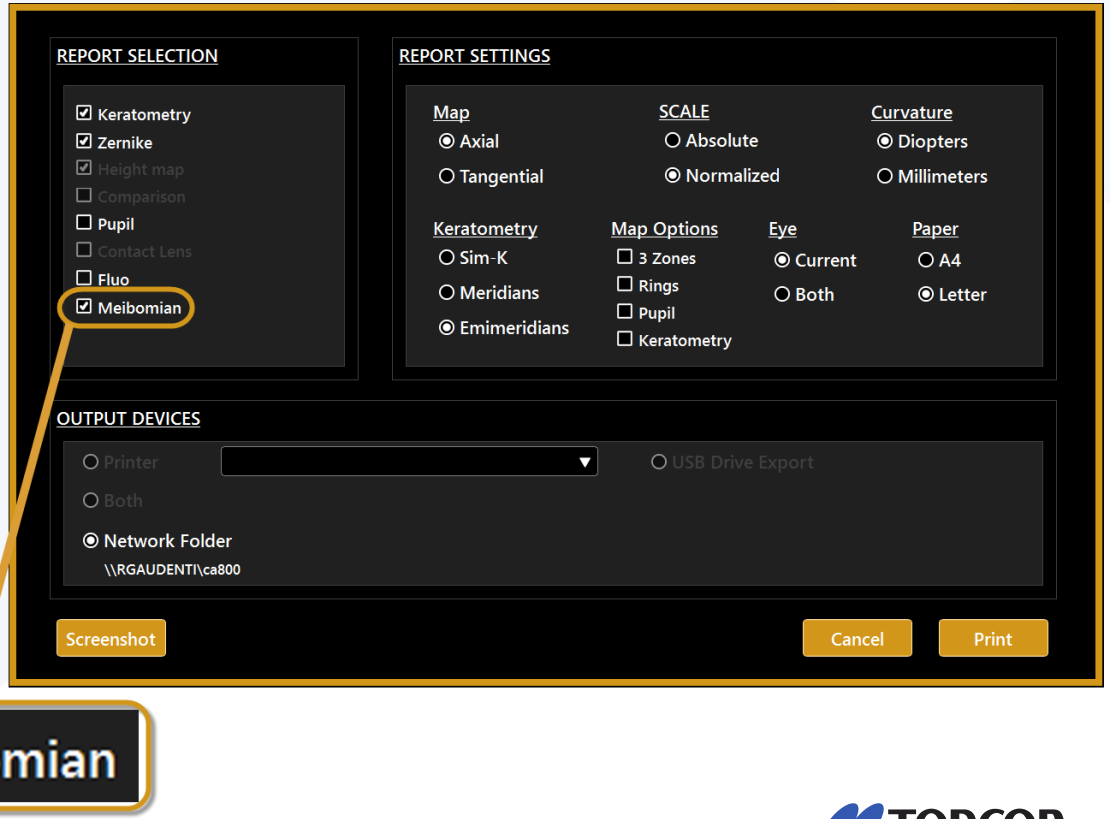
As the slider is increased the bright areas of the image are made darker relative to the dark areas

TOPCON

Meibomian Report Output

The Meibomian Gland images can now be output as a report.

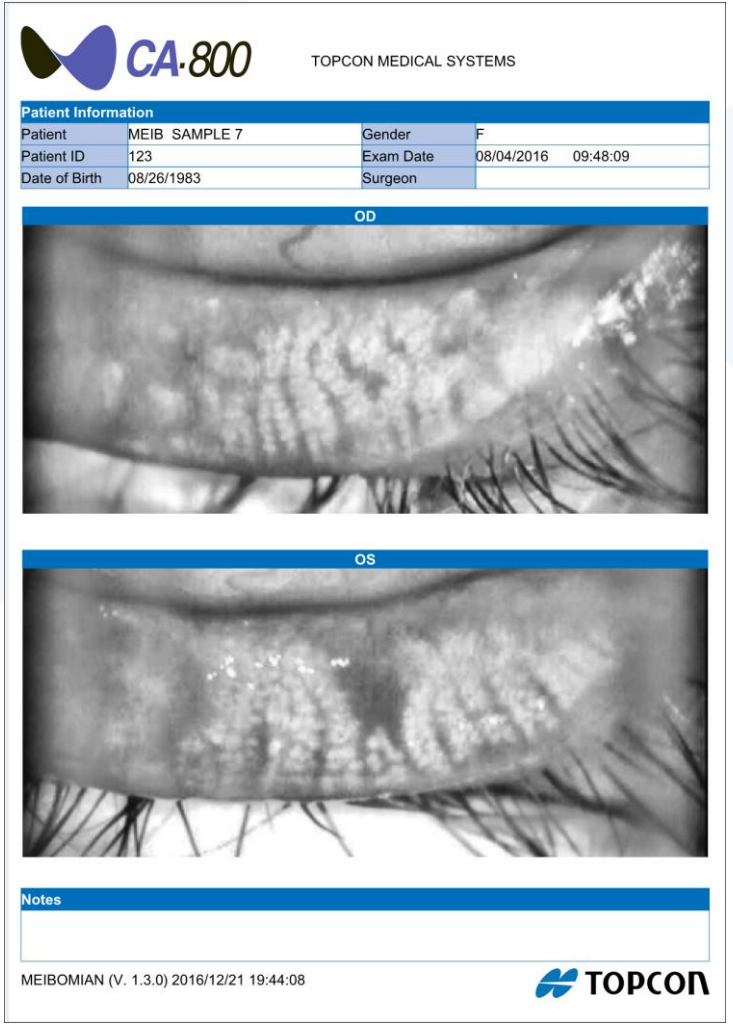
Previous versions required using the screenshot output to export Meibomian Gland images



Meibomian Report Sample

Patient information is included in the header at the top of the page

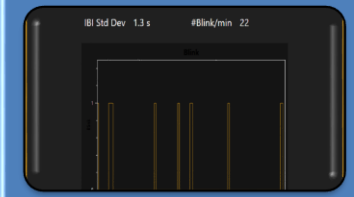
Right eye [OD] is displayed above the Left eye [OS]



Tear Module

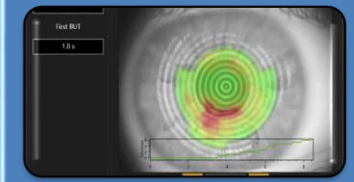
Tear Module

The new Tear Module for CA-800 Introduces new Acquisition and Viewing modes to enhance the dry eye application of the CA-800



BLINK

- *Blink Detection*
- Records blinks over a period of time
- Calculates average blinks per minute and blink interval



TBT

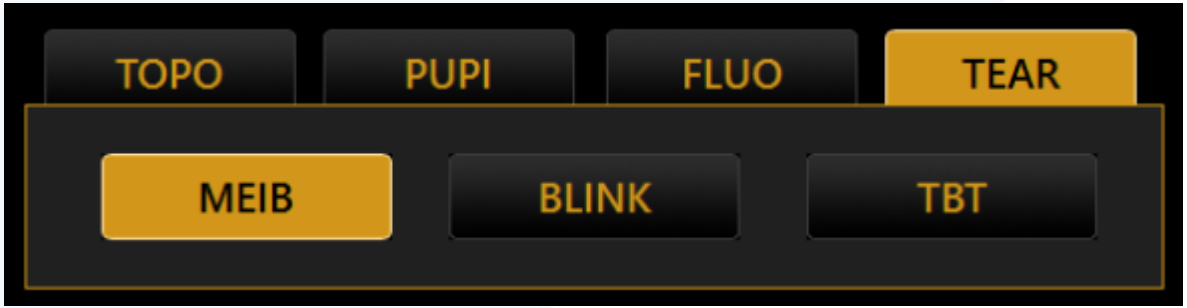
- *Tear Film Break up Time*
- Calculates First Break up and Average Breakup
- Allows video playback highlighting the corneal surface

TOPCON

Acquisition

New **TEAR** *category in Acquisition*

- **TEAR** *replaces the* **Extra** *category*
- *Adds* ***Blink*** *detection and* ***Tear Breakup Time*** *acquisition modes*



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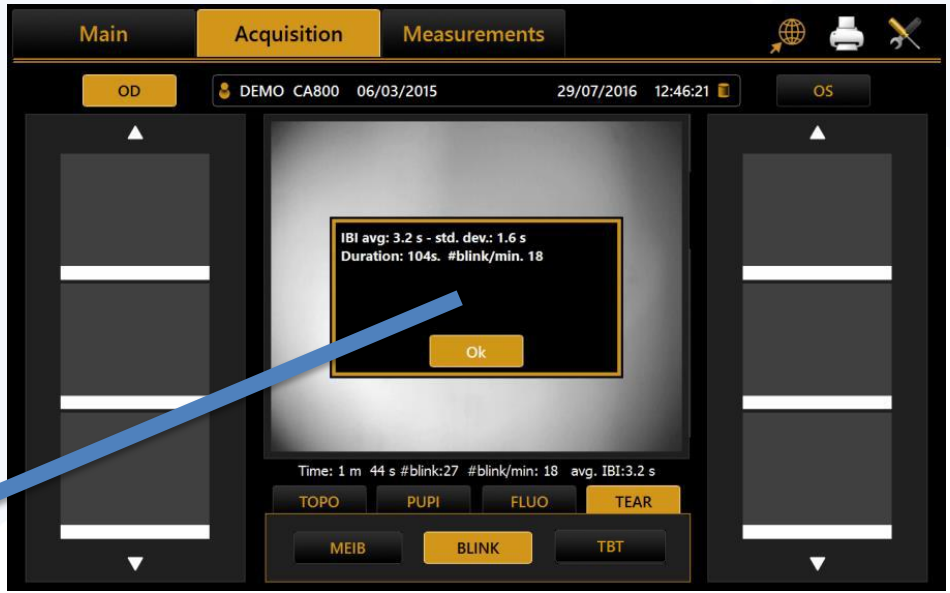
BLINK Acquisition

1. *Select the **BLINK** mode in the **TEAR** acquisition category*
2. *Align the CA-800 until the eye image appears clear*
3. *Press the joystick button to begin acquisition*
4. *Instruct the patient to blink normally*
5. *Press joystick button again to complete acquisition*

BLINK Acquisition

Blinks are automatically detected and counted

Blinks per minute and average time between blinks are calculated



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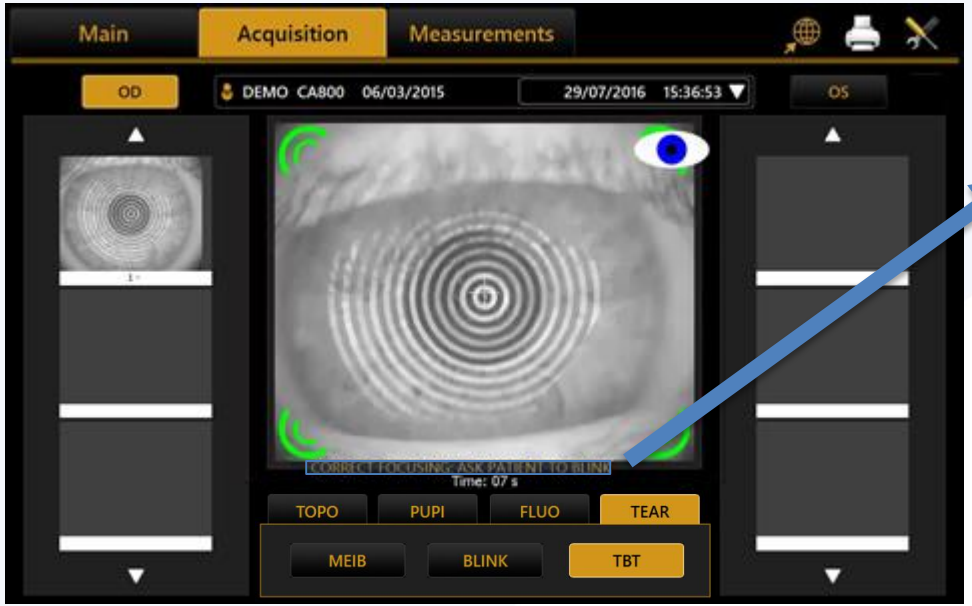
TBT(Tear Breakup Time) Acquisition

1. *Align to the center of the rings until they become clear*
2. *Press the joystick button to activate the focusing guides [**Red** and **Blue** arrows]*
3. *Follow the arrows until **Green** marks are shown in the corners*
4. *You will see a message at the bottom of the window:*
   "CORRECT FOCUSING ASK PATIENT TO BLINK"

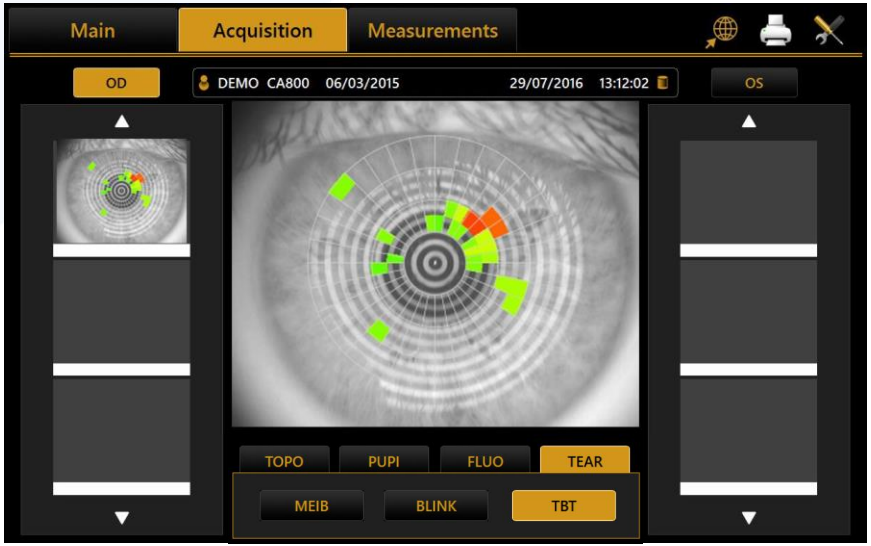


TOPCON

TBT(Tear Breakup Time) Acquisition – cont.

5. *Blink is automatically detected and analysis of the Tear Film behavior begins*
6. *Acquisition stops automatically when a second blink is detected*

NOTE: If a second blink occurs within 5 seconds of the first blink, analysis is automatically restarted. Maximum duration is 50 seconds



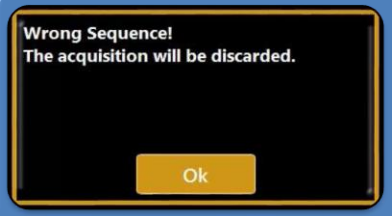
TBT(Tear Breakup Time) Acquisition Results

When acquisition stops, the result of analysis is displayed. Three results are possible:

Breakup Detected

- *First Breakup and Avg Breakup results are displayed*

No significant breakup detected



Wrong Sequence!

- *Acquisition is discarded, repeat Tear Breakup Time acquisition*

Tear Module Viewing

A new tab is displayed on the left side of the Measurements Viewing screen

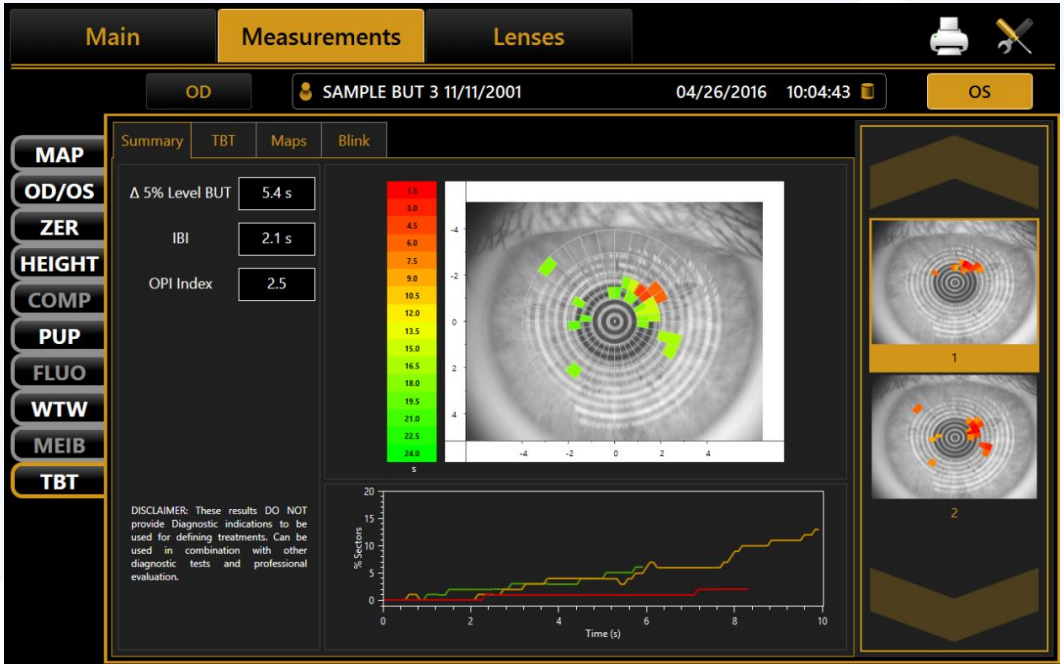
TBT *is added for viewing Blink detection and Tear Film analysis*

TOPCON

Tear Film Breakup Time [TBT] Viewing

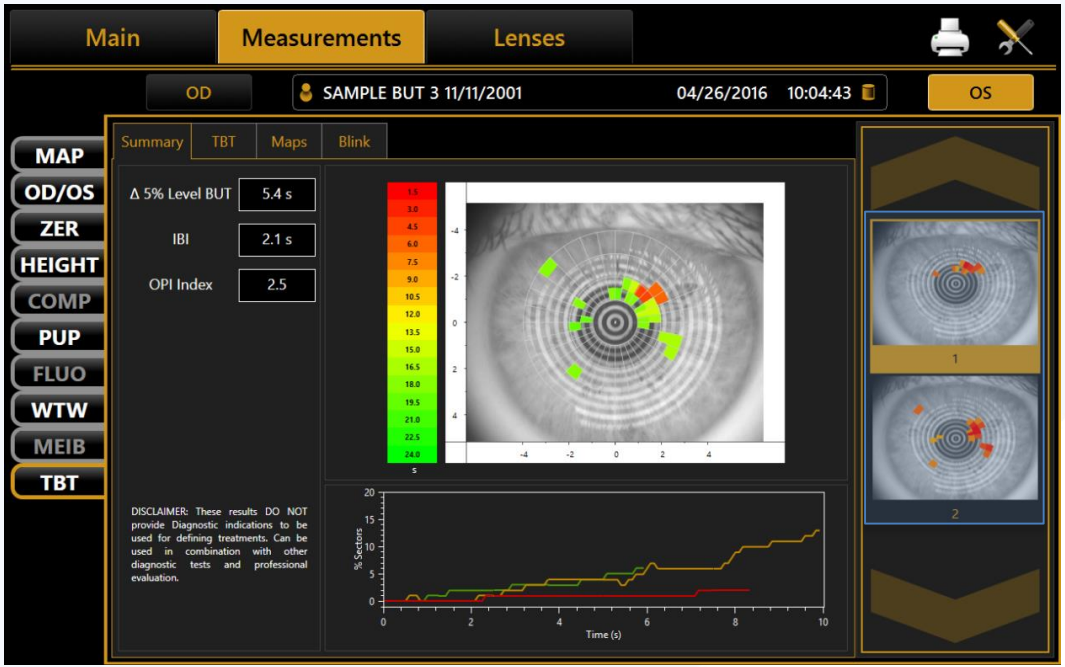
Summary Tab

*The **Summary** Tab displays statistics and graphical data related to the Tear Film condition for all **TBT** acquisitions of the currently selected exam*



Tear Film Breakup Time [TBT] Viewing

Summary Tab – Thumbnails



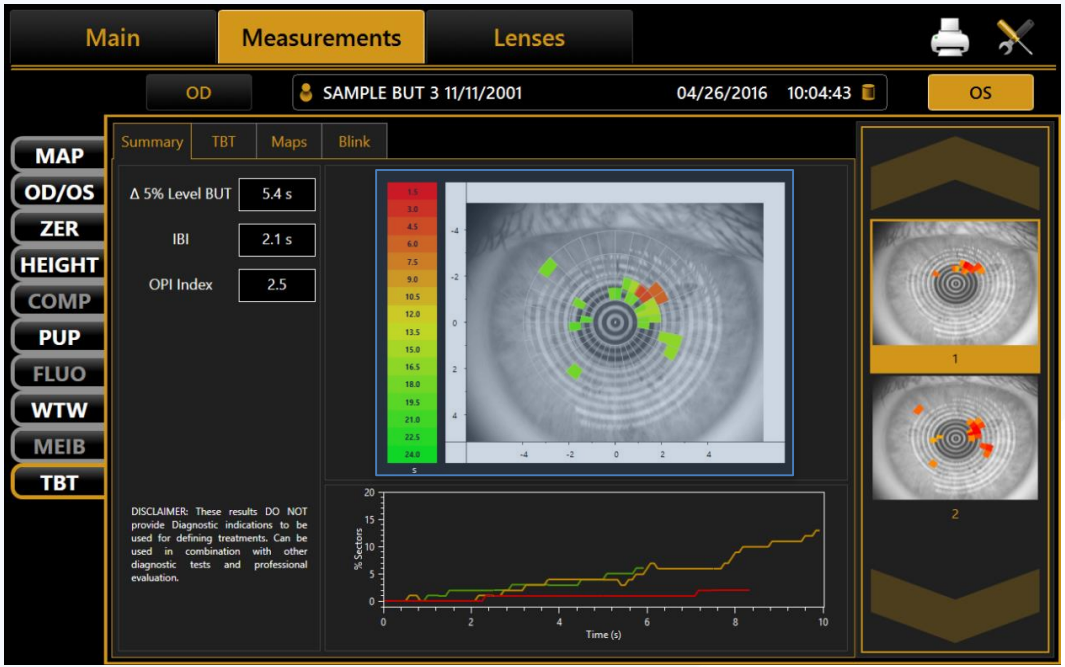
Thumbnails

- *Thumbnails of additional TBT acquisitions captured during the selected exam*
- Color-coded Sector map shown for other acquisitions

TOPCON

Tear Film Breakup Time [TBT] Viewing

Summary Tab – Sector Map



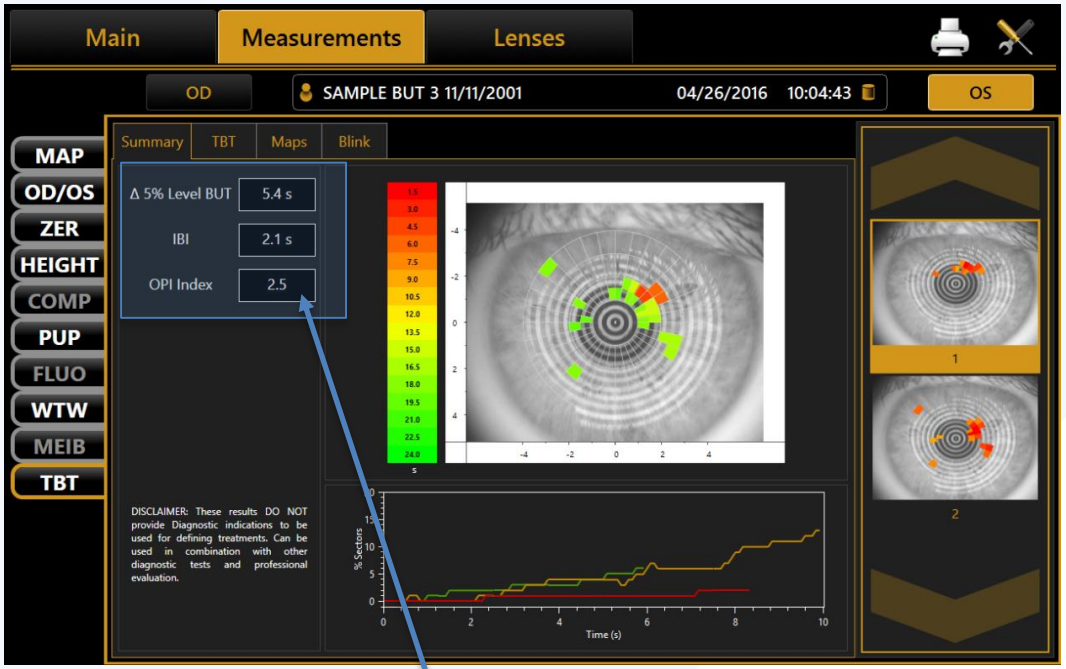
Sector Map

- *Shows each sector where Breakup was detected for all **TBT** acquisitions of the selected exam*
- *Sectors color-coded by time when Breakup occurred*

TOPCON

Tear Film Breakup Time [TBT] Viewing

Summary Tab- Stats



Δ5% Level BUT

- Average time at which the percentage of sectors with Breakup reached 5%

IBI (Inter-Blink Interval)

- Time between blinks

OPI (Ocular Protection Index)

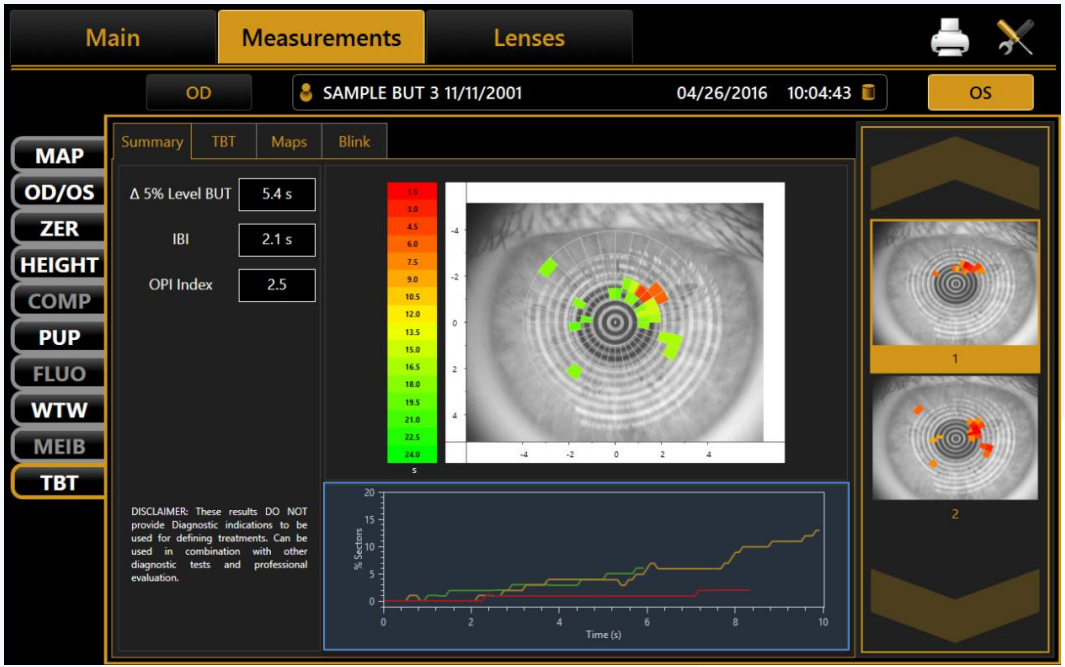
- Rate between **Δ5% Level BUT** and **IBI** (**Δ5% Level BUT/IBI**) for all **TBT** acquisitions of selected exam.

OPI < 1 *indicates a potential Dry Eye issue*

TOPCON

Tear Film Breakup Time [TBT] Viewing

Summary Tab – Breakup Graph



Breakup Graph

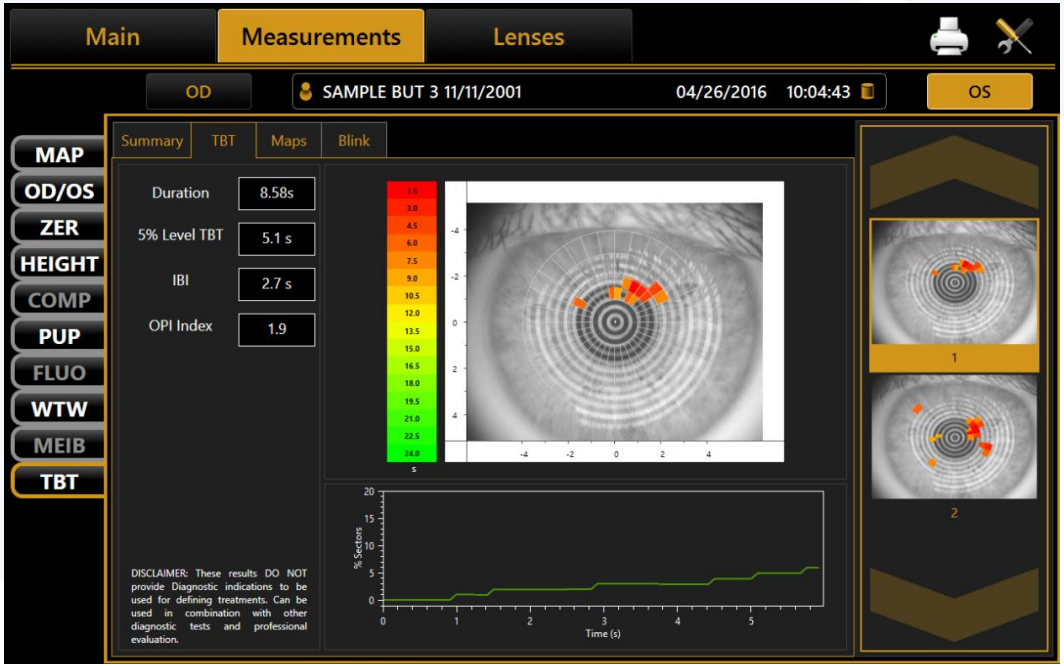
- *Plots % of sectors with Breakup over time for all **TBT** acquisitions of the selected exam*

TOPCON

Tear Film Breakup Time [TBT] Viewing

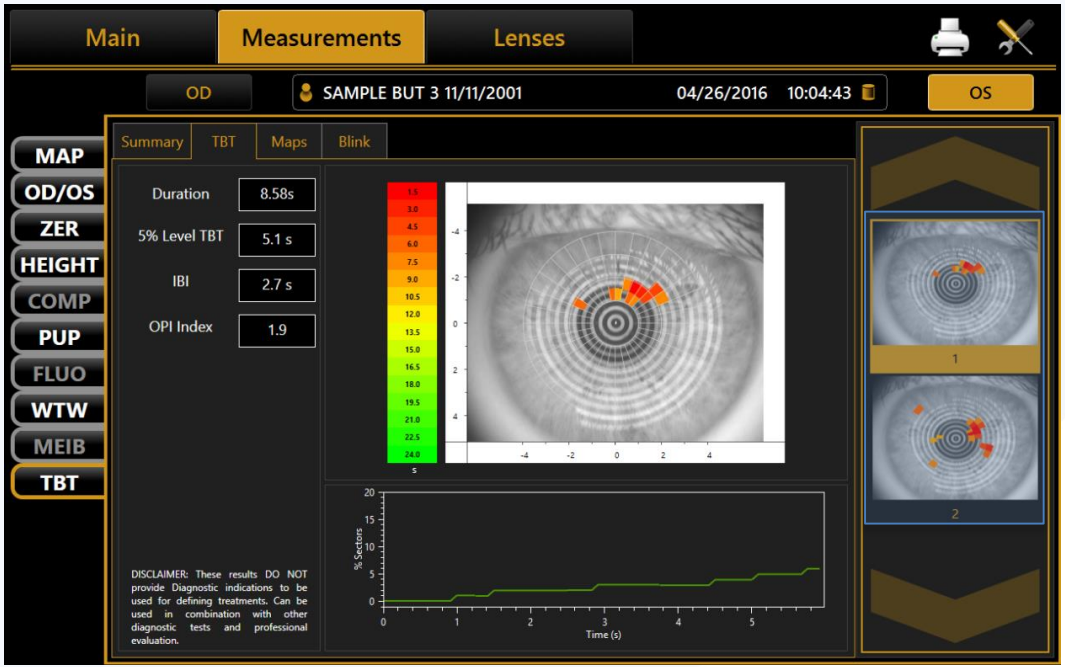
TBT Tab

*The **TBT** Tab displays statistics and graphical data related to the Tear Film condition for the selected **TBT** acquisition*



Tear Film Breakup Time [TBT] Viewing

TBT Tab – Thumbnails



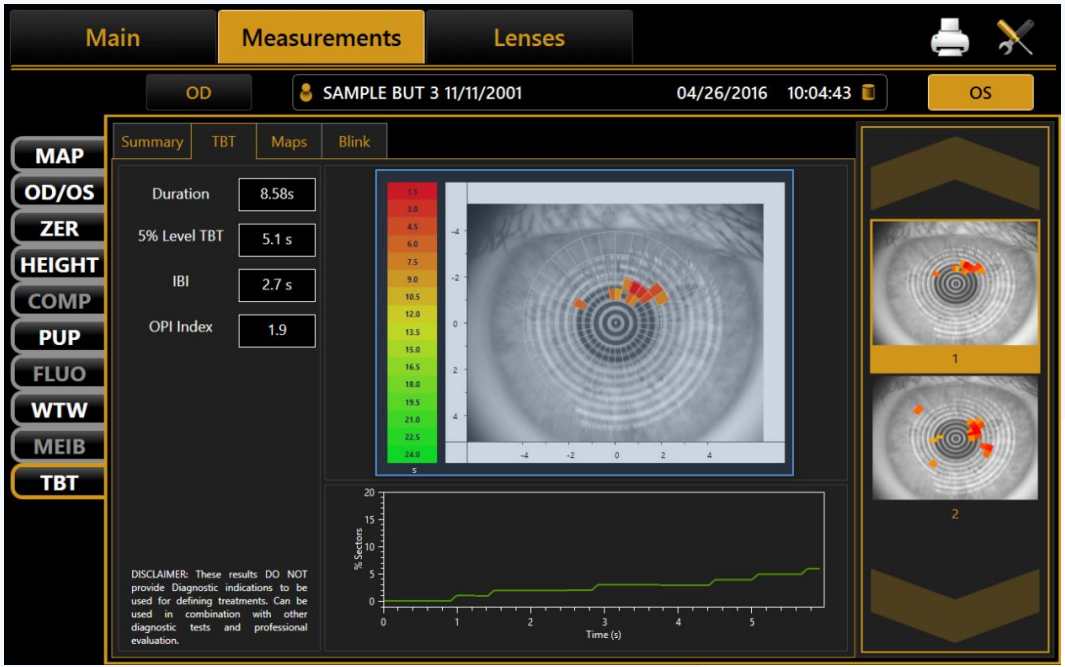
Thumbnails

- *Thumbnails of additional TBT acquisitions captured during the selected exam*
- Color-coded Sector map shown for other acquisitions
- Yellow outline indicates selected Acquisition

TOPCON

Tear Film Breakup Time [TBT] Viewing

TBT Tab – Sector Map



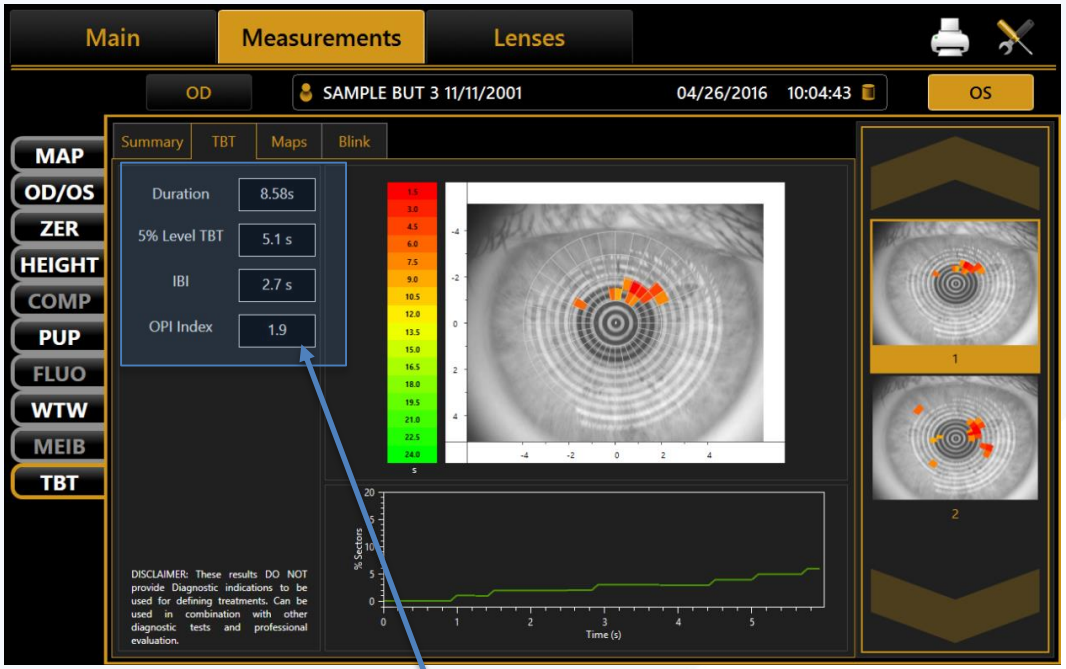
Sector Map

- *Shows each sector where Breakup was detected for the selected **TBT** acquisition*
- *Sectors color-coded by type when Breakup occurred*

TOPCON

Tear Film Breakup Time [TBT] Viewing

TBT Tab - Stats



Duration

- Measurement Time

5% Level TBT

- Time at which the percentage of sectors with Breakup reached 5%

IBI (Inter-Blink Interval)

- Time between blinks

OPI (Ocular Protection Index)

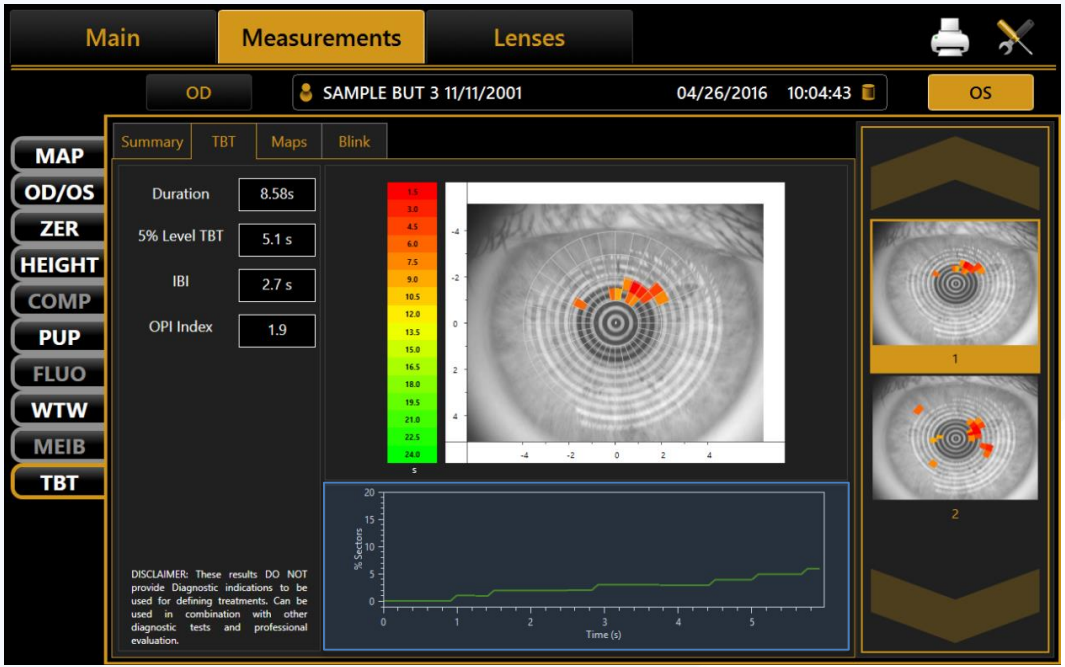
- Rate between **5% Level TBT** and **IBI** (**5% Level TBT/IBI**)

OPI < 1 *indicates a potential Dry Eye issue*

TOPCON

Tear Film Breakup Time [TBT] Viewing

TBT Tab – Breakup Graph



Breakup Graph

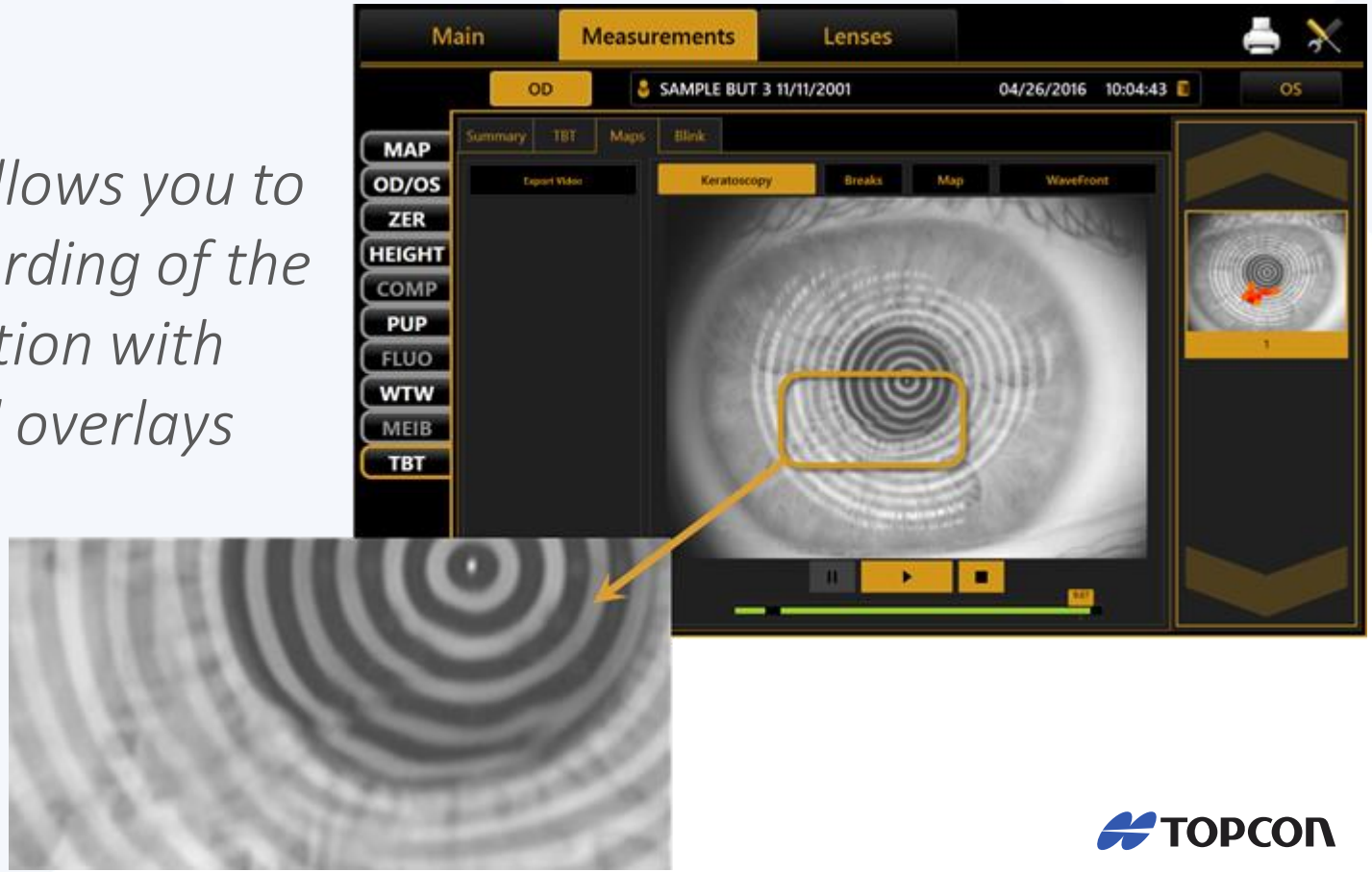
- *Plots % of sectors with Breakup over time for the selected **TBT** acquisition*

TOPCON

Tear Film Breakup Time [TBT] Viewing

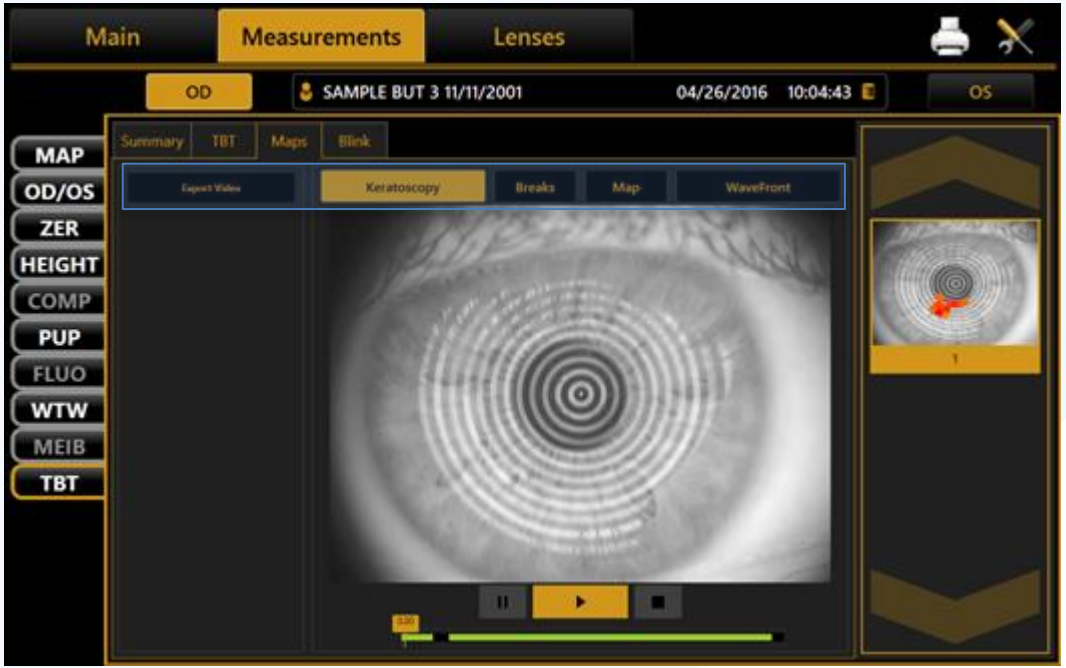
Maps Tab

*The **Maps** Tab allows you to play back a recording of the selected acquisition with various optional overlays*



Tear Film Breakup Time [TBT] Viewing

Maps Tab – Playback Modes



Keratoscopy

- Play back the acquisition with no overlay to see the quality of the Placido rings

Breaks

- Play back the acquisition with an overlay that highlights the quality of the tear film based on the Placido rings

Map

- Play back the acquisition with an overlay of the Topography Maps

Wavefront

- Play back the acquisition with an overlay of Wavefront Aberration maps

Export Video

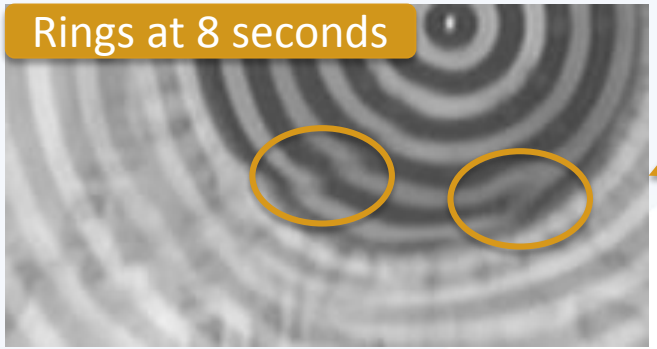
- To the left of the playback modes is an “Export Video Icon that allows you to save the video to USB drive or shared network folder

TOPCON

Tear Film Breakup Time [TBT] Viewing

Maps Tab - Keratoscopy

***Keratoscopy** allows you to play back a recording of the selected acquisition so the quality of the Placido rings can be seen*



TOPCON

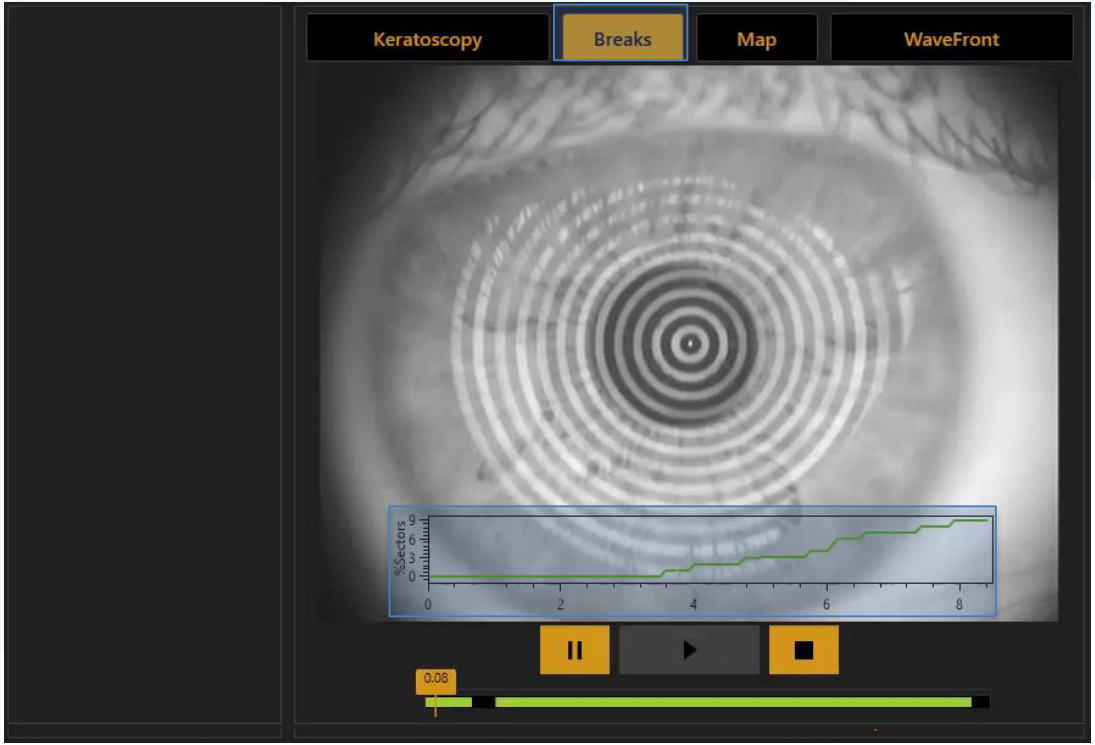
Tear Film Breakup Time [TBT] Viewing

Maps Tab - Breaks

***Breaks** allows you to play back a recording of the selected acquisition with an overlay of the **Tear Film Breakup** color-coded by **Breakup** severity*

***Green** indicates good tear film*
Orange** and **Red** indicate **Breakup

***Breakup Graph** is displayed along the bottom of the **Breaks** video showing % of Sectors w/**Breakup** over time*



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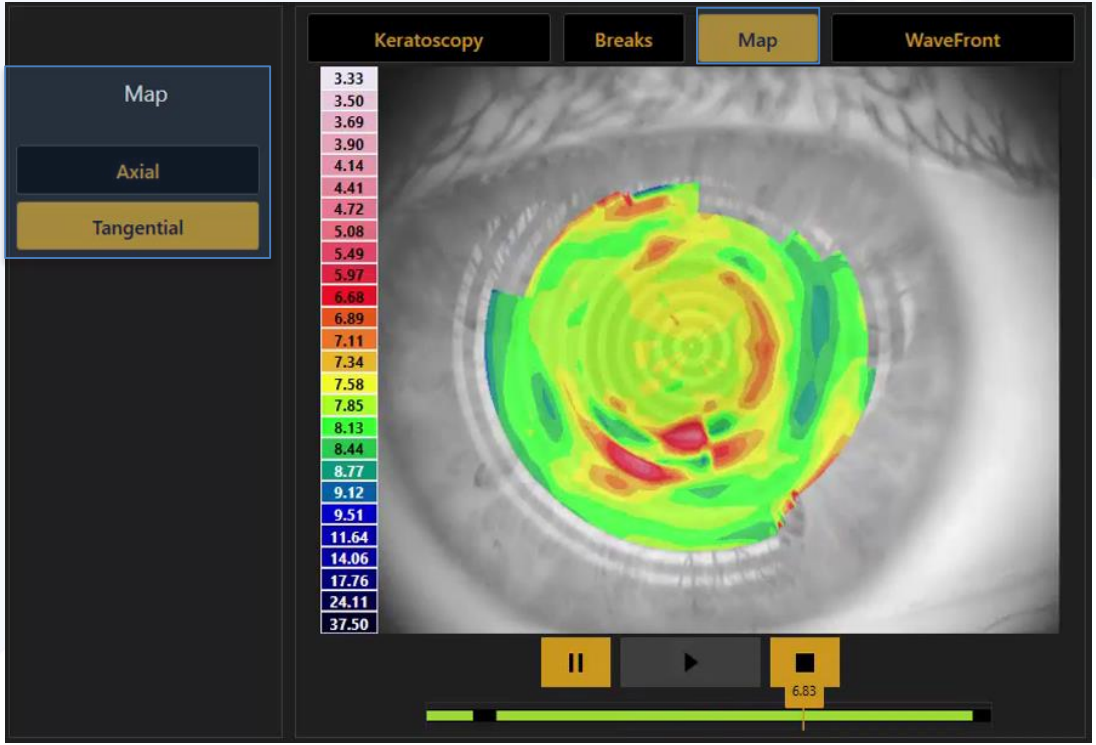
Tear Film Breakup Time [TBT] Viewing

Maps Tab - Map

***Map** allows you to play back a recording of the selected acquisition with the **Topography** map overlay to see the change in topography caused by dry eye*

***Axial** or **Tangential** map types can be overlaid*



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Tear Film Breakup Time [TBT] Viewing

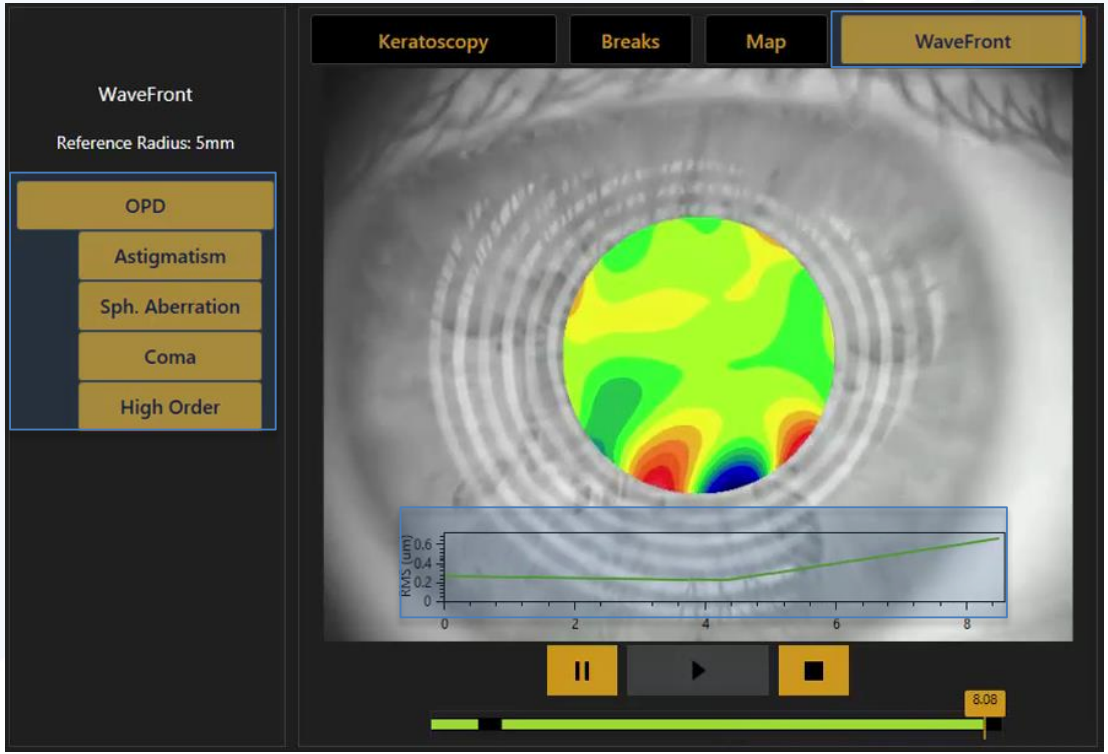
Maps Tab - WaveFront

WaveFront *allows you to play back a recording of the selected acquisition with an overlay of* ***Wavefront Aberrometry Maps*** *to show the effect of the tear film breakup on the patients visual quality*

The user can choose to overlay any or all of the following Wavefront Aberrometry maps:

- *OPD (total Wavefront Aberration)*
- *Astigmatism*
- *Spherical Aberration*
- *Coma*
- *High Order*

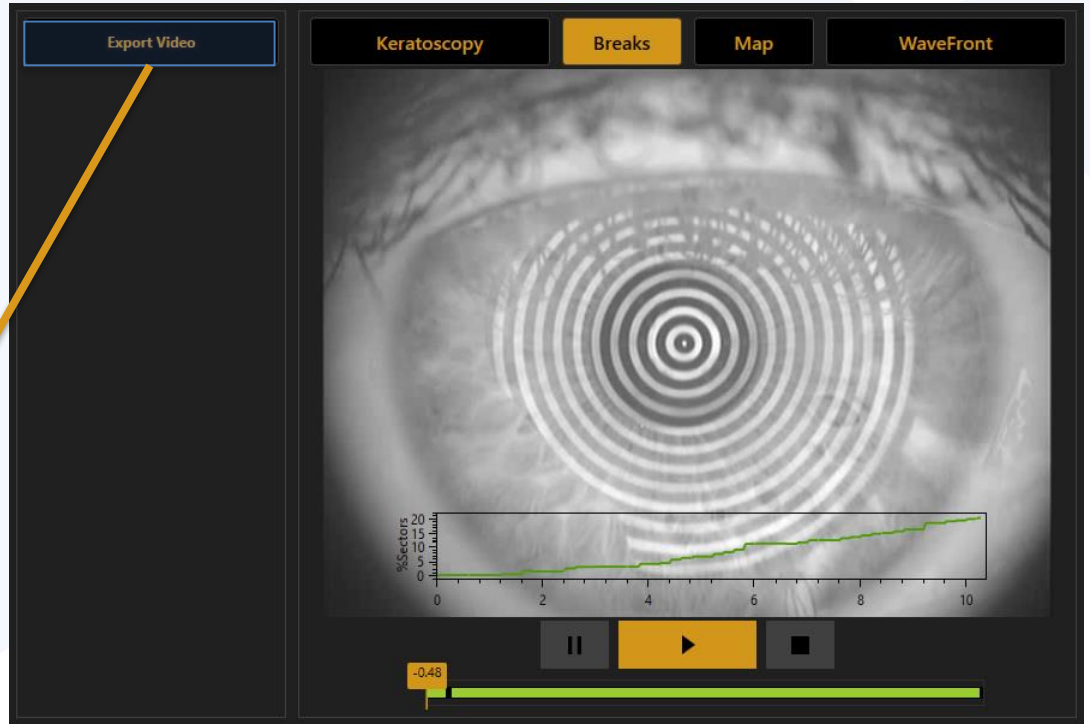
A ***Graph*** *is displayed along the bottom of the* ***WaveFront*** *video showing total Wavefront* ***RMS*** *over time*

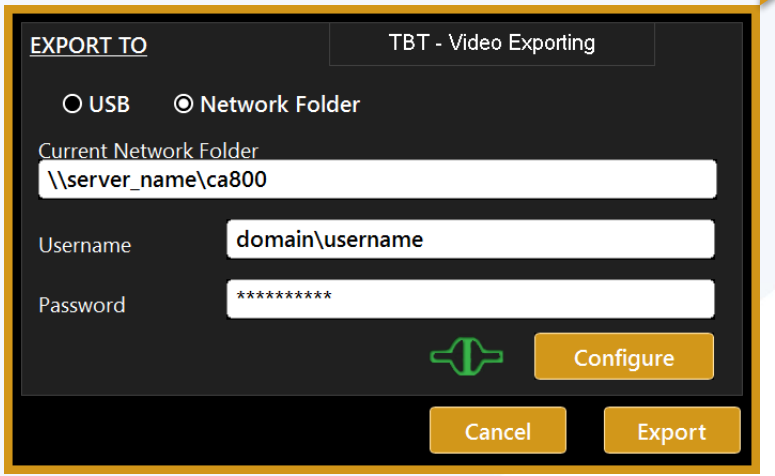


Tear Film Breakup Time [TBT] Viewing

Maps Tab – Export Video

*Any of the Maps videos can be exported by touching the **Export Video** icon*



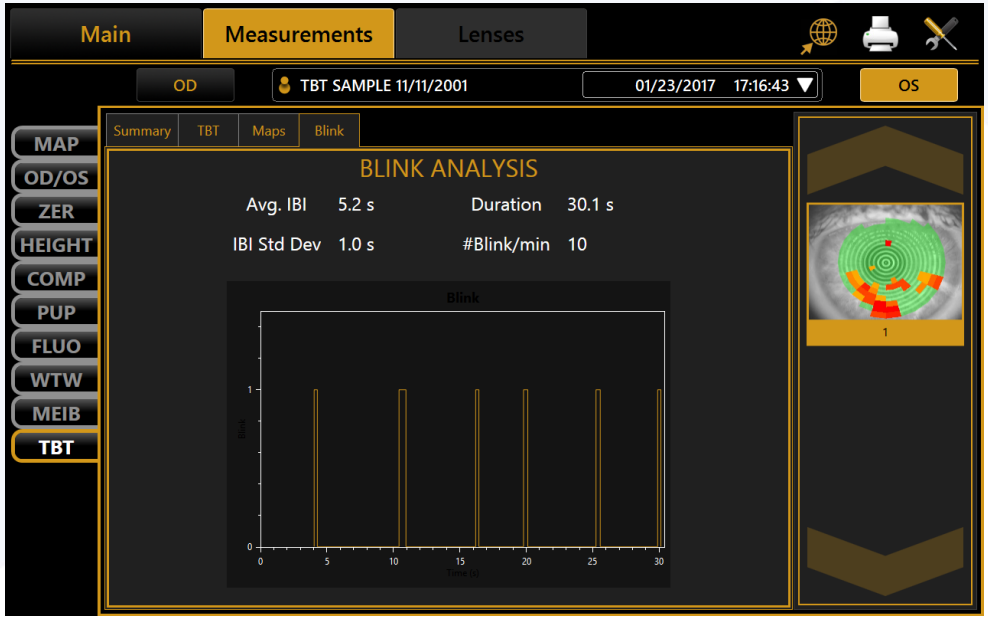


TOPCON

Tear Film Breakup Time [TBT] Viewing

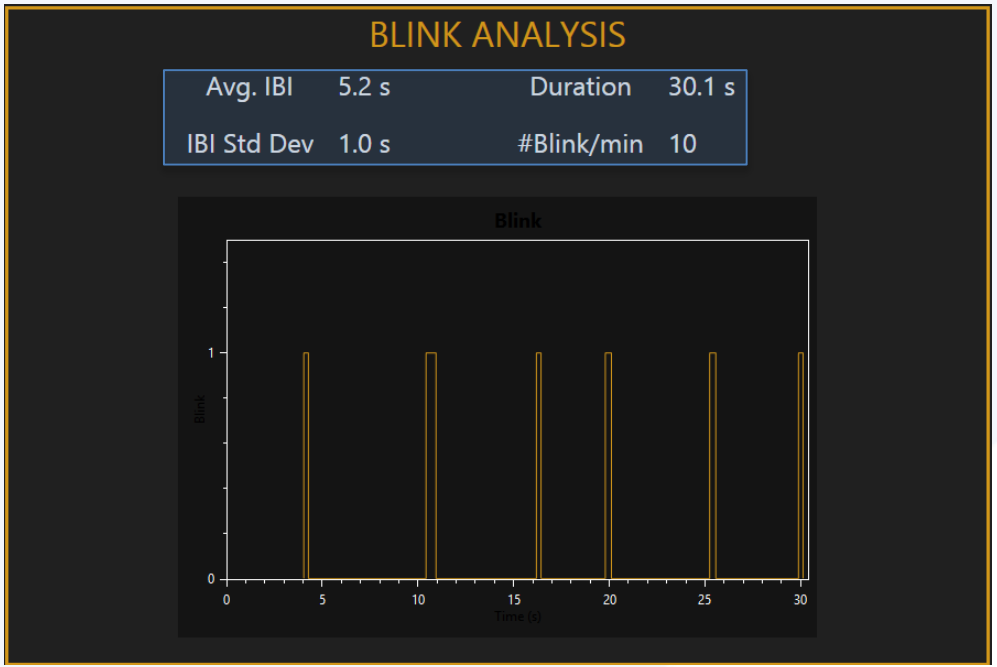
Blink Tab

*The **Blink** Tab shows statistics related to the **Blink** Acquisition*



Tear Film Breakup Time [TBT] Viewing

Blink Tab - Stats



Avg. IBI (Inter-Blink Interval)

- Average time between blinks

IBI Std Dev

- Standard Deviation of average time between blinks

Duration

- Amount of time of Blink Detection acquisition

#Blink/min

- Number of blinks per minute

TOPCON

Thank you