

How to acquire the perfect image

SPECTRALIS
Anterior Segment Module



**HEIDELBERG
ENGINEERING**
 **ACADEMY**

SPECTRALIS® Anterior Segment Module – The perfect image

General workflow

- ✓ Do not conduct any examination beforehand that can disturb the tear film (e.g., examination using a contact glass, applanation tonometry).
- ✓ Create a new patient database entry or choose an existing patient for a follow-up examination.
- ✓ Move the camera to the farthest back position.
- ✓ Turn the focus knob to approx. +21 D with the 30° standard lens on the camera.
- ✓ Close the acquisition window. Do not change the lens while the camera is running.
- ✓ Check if the anterior segment lens is clean before changing the lens.
- ✓ Adjust the table height and chinrest for the patient.
- ✓ Ask the patient to place the chin on the chinrest and to lean the forehead against the forehead support. Adjust the height of the chinrest so that the red marking is even with the corner of the eye.
- ✓ Turn on the camera.
- ✓ Turn the focus knob until position is approx. 0 mm (The position indicator will be black). Do not turn the focus knob again after the initial adjustment to 0 mm.
- ✓ Move the camera slowly towards the patient's eye until an evenly-illuminated image of the iris is displayed.
- ✓ Continue to move the camera closer until the OCT scan is displayed in the Acquisition window. Align the OCT scan as straight as possible so that it is just within the Sweet Spot (blue markers).
- ✓ Acquire images.
- ✓ Move the camera backwards and then move it towards the patient's other eye.
- ✓ Acquire the images of the second eye.
- ✓ Close the acquisition window. The images are saved automatically.
- ✓ View the images.





General acquisition information

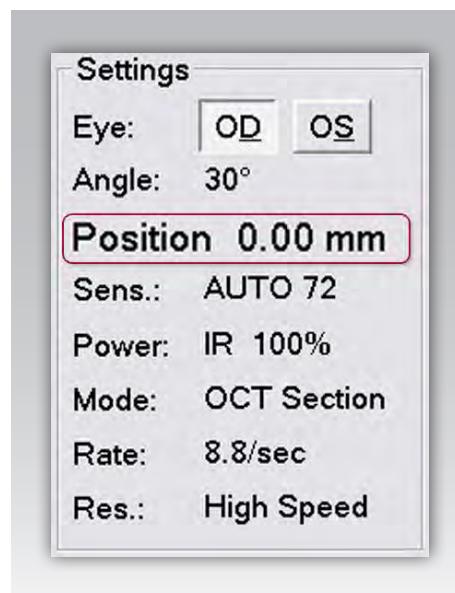
An OCT scan acquired with the SPECTRALIS Anterior Segment Module (ASM) is always combined with an infrared image (IR).

After the ASM is started, the “Position” of the lens must be set to approx. 0 mm by turning the focus knob. Do not turn the focus knob again after the initial adjustment to 0 mm.

The ASM provides three Applications: Cornea, Angle and Sclera. The technology limits acquisition of cornea and anterior chamber angle together in one OCT scan.

The size for the anterior segment scan is shown in **mm**. The scan sizes are displayed in degrees on the control panel and in the acquisition window:

8 mm \leq 15°, 11 mm \leq 20° and 16 mm \leq 30°.



The working distance of the ASM lens is approx. 12 mm. The camera should always be moved slowly towards the patient's eye to avoid injury.

Acquiring follow-up examinations with the AutoRescan function is not possible with the ASM.

Acquiring images of the cornea

- ✓ Make sure the patient's forehead is against the forehead support during the examination.
- ✓ Ask the patient to look straight ahead. The external fixation light can be used, if necessary. The internal fixation light is not provided as an option for the ASM.
- ✓ Select a scan pattern.
- ✓ Move the camera slowly towards the patient's eye until the IR image is evenly-illuminated and the OCT cornea scan appears within the Sweet Spot (blue markers) in the upper third of the image in the OCT acquisition window.
- ✓ Move the joystick slightly to align the OCT scan until it is as straight as possible.



Fig. 1: Correct position of the OCT scan.

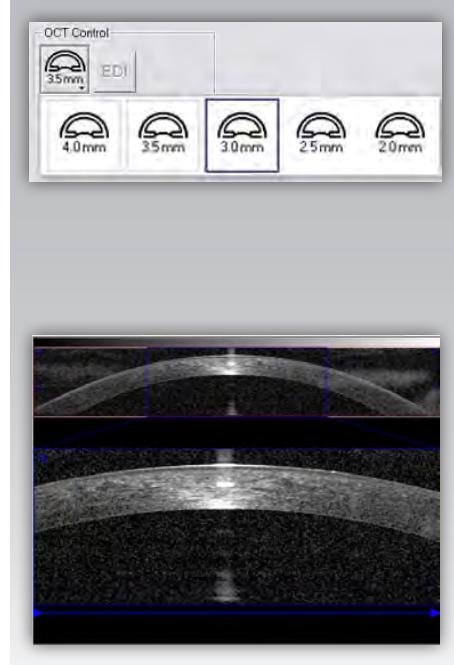
Fig. 2: OCT scan is still too low. Move the camera closer to the patient's eye.

Fig. 3: OCT scan is flipped. The camera is too close to the patient's eye.

TIP:

If the IR image and OCT scan are not displayed in good quality at the same time, try to vary the anterior chamber depth.

In hyperopic eyes, the anterior chamber tends to be flatter, in myopic eyes – deeper.



CAUTION:

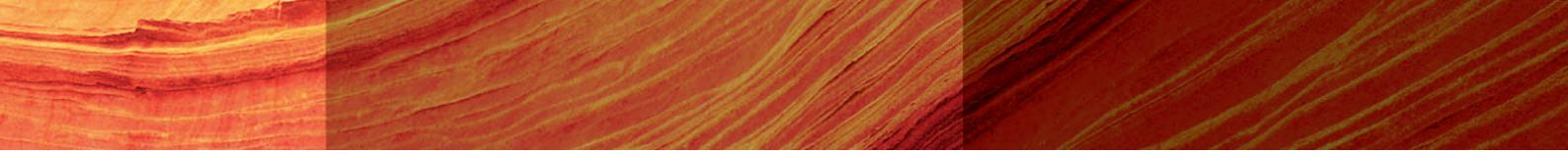
The “Position” of the lens was adjusted to approx. 0 mm before the acquisition process. Do not turn the focus knob again after the initial adjustment to 0 mm. This may lead to a decline of the image quality.

TIP:

There are two OCT sections on the acquisition window. The upper section is the complete OCT scan that is acquired. The lower section is a zoomed in portion of the upper section within the blue frame. Move the blue frame by drag-and-drop to the desired position to check the image quality of the OCT scan.

- ✓ Switch on ART Mean (Active Eye Tracking).
- ✓ Move the scan pattern to the area of interest.
- ✓ Acquire the image when the desired image quality has been achieved or the image has been averaged 60 frames for single line scans.
- ✓ Switch off ART Mean (Active Eye Tracking).
- ✓ Acquire additional images or close the acquisition module. The images are saved automatically.
- ✓ View images.
- ✓ If the automatic refraction correction failed, measurements are not possible. The measurement tools are blocked for images with this message “Refraction Correction Failed. No measurements possible”.

In order to achieve correct central corneal thickness measurements, position the scan through the center (apex) of the cornea. The corneal thickness can also be measured at any other position, as needed.



Acquiring images of the anterior chamber angle

- ✓ Make sure the patient's forehead is against the forehead support during the examination.
- ✓ Ask the patient to look straight ahead. The external fixation light can be used, if necessary. The internal fixation light is not provided as an option for the ASM.
- ✓ Select a scan pattern.



⚠ CAUTION:

To acquire both chamber angles (measure the AOD, the ACA, and the angular distance), select scan pattern 2ACAs or a linear scan with a scan length of 16 mm.

- ✓ Move the camera slowly towards the patient's eye until the IR image is evenly-illuminated and the OCT cornea scan appears within the Sweet Spot (blue markers) in the upper third of the image in the OCT acquisition window.
- ✓ If the OCT scan is tilted, pivot the camera head left/right until the OCT scan is horizontally orientated. For SPECTRALIS OCT devices without pivoting camera head adjust the patient's fixation accordingly.
- ✓ Imaging one anterior chamber angle: Half of the pupil has to be displayed in the IR image. The blue scan line must cross the limbus (Fig. 1: red arrow) and should line up with the center of the pupil (Fig. 1: green arrow).

Imaging both anterior chamber angles: Align the camera so that the pupil is centered in the IR image. The blue scan line must cross the limbus (Fig. 2: red arrows) and should line up with the center of the pupil (Fig. 2: green arrow).

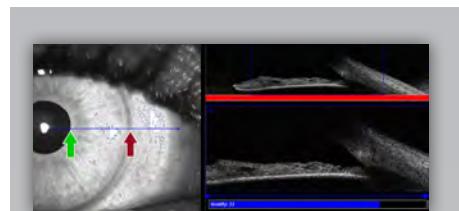


Fig. 1: Correct position of the OCT scan for acquiring an image of one chamber angle.

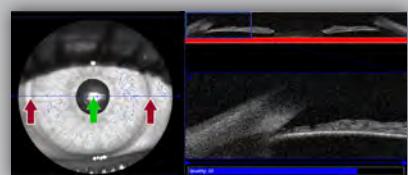


Fig. 2: Correct position of the OCT scan for acquiring an image of both chamber angles.

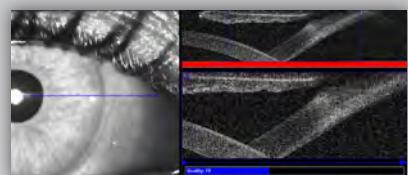


Fig. 3: The cornea and the iris are displayed in the OCT Scan. Note: The iris is flipped. Move the camera closer to the patient's eye.

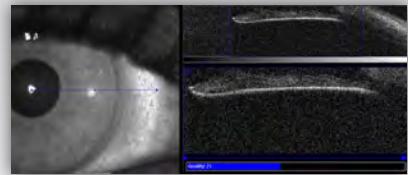


Fig. 4: The image shows only the iris; the angle structure is cut off. The camera is too close to the patient's eye.

⚠ CAUTION:

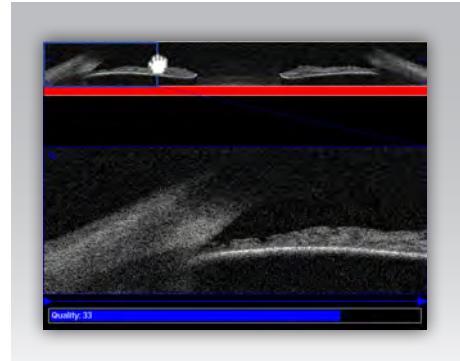
For optimum image quality and to measure the anterior chamber angle, acquire the OCT scan as horizontal as possible along the lower border of the acquisition window. The iris and the corneal-scleral transition must be displayed in the scan.

⚠ CAUTION:

The “Position” of the lens was adjusted to approx. 0 mm before the acquisition process. Do not turn the focus knob again after the initial adjustment to 0 mm. This may lead to a decline of the image quality.

👉 TIP:

There are two OCT sections on the acquisition window. The upper section is the complete OCT scan that is acquired. The lower section is a zoomed in portion of the upper section within the blue frame. Move the blue frame by drag-and-drop to the desired position to check the image quality of the OCT scan. When acquiring an image of both anterior chamber angles, position the Zoom window in one of the anterior chamber angles to assess the quality.



- ✓ Switch on ART Mean (Active Eye Tracking).
- ✓ Move the scan pattern to the area of interest.
- ✓ Acquire the image when the desired image quality has been achieved or the image has been averaged 60 frames for single line scans.
- ✓ Switch off ART Mean (Active Eye Tracking).
- ✓ Acquire additional images or close the acquisition window. The images are saved automatically.
- ✓ View images.
- ✓ If the automatic refraction correction failed, measurements are not possible. The measurement tools are blocked for images with this message “Refraction Correction Failed. No measurements possible”.

Acquiring images of the sclera

The “Sclera” application is very versatile. Besides the possibility to display the Sclera to show e.g. filtering blebs, this application is also used for displaying Schlemm’s Canal, iris tumors etc. Sclera imaging is the only modality where the EDI function can be activated or deactivated.

- ✓ Make sure the patient’s forehead is against the forehead support during the examination. Move the camera slowly towards the patient’s eye until the IR image is evenly-illuminated.
- ✓ Ask the patient to look to the right or to the left so that the area of interest is displayed in the IR-image. Use the external fixation light to position the patient’s eye.

- ✓ Select a scan pattern.



- ✓ To display the OCT scan, move the camera slowly towards the patient's eye until the scan is within the Sweet Spot (blue markers). When the EDI function is activated, the Sweet Spot appears in the lower third of the acquisition window. If the EDI function is deactivated, the Sweet Spot is positioned in the upper third of the image in the OCT acquisition window.

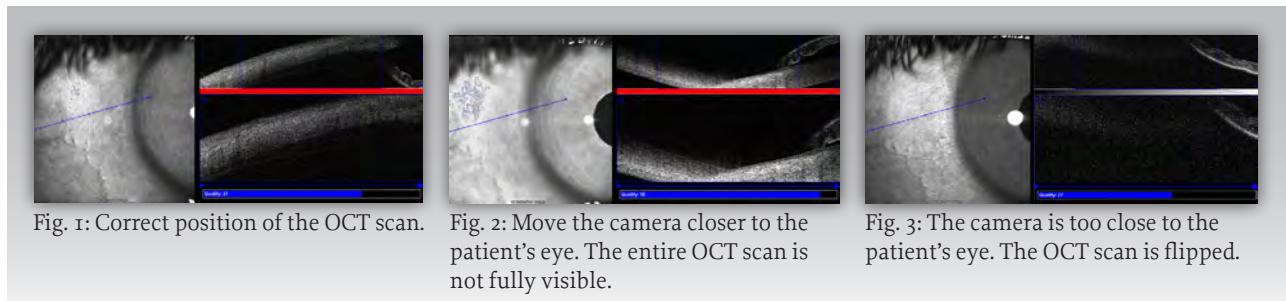


Fig. 1: Correct position of the OCT scan.

Fig. 2: Move the camera closer to the patient's eye. The entire OCT scan is not fully visible.

Fig. 3: The camera is too close to the patient's eye. The OCT scan is flipped.

⚠ CAUTION:

The “Position” of the lens was adjusted to approx. 0 mm before the acquisition process. Do not turn the focus knob again after the initial adjustment to 0 mm. This may lead to a decline of the image quality.

👉 TIP:

There are two OCT sections on the acquisition screen. The upper section is the complete OCT scan that is acquired. The lower section is a zoomed in portion of the upper section within the blue frame. Move the blue frame per drag-and-drop to the desired position to check the image quality of the OCT scan.

- ✓ Switch on ART Mean (Active Eye Tracking).
- ✓ Move the scan pattern to the area of interest.
- ✓ Acquire the image when the desired image quality has been achieved or the image has been averaged 60 frames for a single line scan.
- ✓ Switch off ART Mean (Active Eye Tracking).
- ✓ Acquire additional images or close the acquisition window. The images are saved automatically.
- ✓ View the images.



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