

Chapter 6

DEVICE-SPECIFIC GUIDANCE AND TIPS

In Chapters 1 through 5, the general concepts of getting good scans are covered comprehensively. However, the diversity of optical coherence tomography (OCT) imaging devices demands more device-specific information and tips in order to obtain good scans on a particular device. This chapter is prepared just for that purpose.

Six different commercially available OCT devices are discussed here in 6 independent sections. Each section serves as a handy companion to your daily OCT imaging from operators' perspectives. Although lots of information can be found in the manufacturers' operation manual, these sections are intended to provide a quick and concise reference while scanning patients in the clinic.

6-1: CIRRUS HD OCT

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Some of the features described next may not be available in some countries and/or may not be activated on all instruments. Please contact Zeiss or a Zeiss distributor in your country for more information.

1. Machine Performance Verification Check

It is recommended to check Cirrus HD OCT units for performance verification on a weekly basis. This is to verify that the fundus image and the OCT scan image are aligned to each other. Practically, this means the OCT scan is actually placed where it appears to be placed on the fundus image. To perform a verification test, a Verification Test Tool that comes with the instrument needs to be attached in front of the scanner lens from the patient side. Please follow the detailed instruction in the Operational Overview chapter of the User's Manual. The entire procedure takes about 2 minutes.

2. Scan Types

Cirrus HD OCT provides a wide variety of scanning types. Here, each scan type is briefly discussed for its application and characteristics.

a. Posterior Segment Scans

i. Cube Scans

Macular Cube 512 × 128

This is the default scan type of Cirrus HD OCT. This generates a 3D cube data in a $6 \times 6 \times 2$ -mm volume centered at the foveola. This scan type is favorable for various macular pathologies when quantitative measurements are *not* the primary purpose. It provides greater sampling density along the horizontal line so that each B-scan presents detailed visualization of the macular region, but it is not suitable for detailed quantitative analysis due to lower sampling density from top to bottom, which makes uneven sampling density between horizontal and vertical directions, leading to potential unwanted measurement bias.

Macular Cube 200 × 200

This also generates a 3D cube data in a $6 \times 6 \times 2$ -mm volume centered at the foveola, just like **Macular Cube 512 × 128**. However, this scan type provides isotropic cube data (same sampling density along both horizontal and vertical directions) so that comprehensive detailed quantitative analysis can be performed without concerning about uneven sampling density. On the other hand, it does not provide as detailed of a view as the **Macular Cube 512 × 128** does on each B-scan.

Optic Disc Cube 200 × 200

For optic disc region, this is the only cube scan option. As optic disc imaging is mainly used for glaucoma and some neuro-ophthalmology assessment, obtaining quantitative measurements is the primary focus here. Except for the scanning location, the scan type specifications are identical to **Macular Cube 200 × 200**. As with **Macular Cube 200 × 200**, this provides isotropic cube data that are advantageous for comprehensive detailed quantitative analysis.