Stratus OCT™ with Software Version 5.0
Real Answers in Real Time
**Stratus OCT™ — The standard of care system for comprehensive retina and glaucoma management.**

**Visualize virtual histology.** High resolution cross-sectional imaging for the comprehensive management of glaucoma and retinal disease.

**Assess RNFL change.** GPA Advanced Serial Analysis reports statistically significant change and rate of change in RNFL thickness.

**Expand your clinical confidence.** Most extensive library of clinical studies in the industry and over 8000 systems installed worldwide.

**Offer comprehensive care.** Valuable for pre- and post-op cataract patients to identify and illustrate cause of poor vision.

**Increase practice productivity.** Operate the full analysis capabilities from the lane, your office or a remote location.

In the Stratus OCT image display, retinal layers with the highest reflectivity appear red. In a healthy retina, these include the nerve fiber layer, retinal pigment epithelium and choriocapillaris. The layers that exhibit minimal reflectivity appear blue or black, such as the photoreceptor layer, choroid, vitreous fluid or blood.
Obtain real-time non-invasive histology of live tissue

Stratus OCT reveals the retinal layers in high-resolution, cross-sectional views, offering insight for diagnosis, therapy and ongoing management of retinal disorders.

Cystoid Macular Edema
Age-related Macular Degeneration with Overlying Cystoid Macular Edema
Diabetic Macular Edema
Branch Retinal Vein Occlusion
Central Serous Chorioretinopathy
Macular Hole with Operculum
Epiretinal Membrane with Lamellar Hole and Cystoid Macular Edema
Glaucoma
RNFL Loss
Visualize and analyze retinal disorders

Diabetic Retinopathy
- Stratus OCT reveals and measures diffuse macular thickening and loss of foveal contour
- Intraretinal cysts and fluid accumulation are identifiable as areas of low reflectivity in the cross-sectional scan
- Post-treatment resolution of retinal thickening can be quantified and monitored

Epiretinal Membrane
- Stratus OCT scan shows the epiretinal membrane as a highly reflective band on the inner retinal surface
- Separation of the membrane from the retina is visible in areas
- Underlying retina is thickened, with loss of normal foveal contour

Age-related Macular Degeneration
- Disruption of RPE, caused by neovascularization and drusen, can be visualized
- Pockets of interretinal fluid are visible as areas of reduced reflectivity
- Structural changes resulting from therapy can be quantified and monitored
Detect glaucoma damage at an earlier stage

Retinal Nerve Fiber Layer Analysis
- Analysis of RNFL aids in identification of early glaucomatous loss
- Circular scans of 3.4 mm diameter around optic nerve head provide measurement of RNFL in the peripapillary region
- RNFL thickness measurement is graphed in a TSNIT orientation and compared to age-matched normative data

Optic Nerve Head Analysis
- Radial line scans through optic disc provide cross-sectional information on cupping and neuroretinal rim area
- Disc margins are objectively identified using signal from end of RPE
- Key parameters include cup-to-disc ratio and horizontal integrated rim volume

Macular Thickness Analysis
- Thinning of the macula may reflect glaucomatous loss
- Structural analysis of retinal sublayers reveals macular complications
- Cross-sectional view provides visualization and measurement of retinal layers
Retinal Thickness Report

**Scan Protocol:** Fast Macular Thickness, Macular Thickness, Line, Cross Hair

**Used for:** Assessment of overall macular region or specific areas of interest

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**Patient Information**

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**Scan Image**

The image with the lowest signal strength or with a data message will be shown to facilitate operator review.

**Signal Strength**

Numbers range from 0 (weak) to 10 (strong). Analysis algorithm may fail on scans with low signal strength; therefore, images with a signal strength below 5 should not be used for analysis.

**Data Message**

“Scan Too High,” “Scan Too Low” or “Missing Data” message will be shown, if applicable, regarding placement and completeness of scan.

**Retinal Thickness**

Displayed for A scan indicated. This corresponds to A scan (shown here) selected on thickness chart.

**Caliper Length**

Measurement indicates distance between calipers if they are placed on scan image during analysis.

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**Scan Information**

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**Fundus Image**

Scan should be centered on fovea.

**Legend**

Arrow indicates direction and angle of individual scan displayed in scan image.

**Normative Data**

Distribution is indicated by a stoplight color code, described in detail inside back cover.

**Thickness Chart**

Graphic display of retinal thickness. Colored bands demonstrate range of normative data.
Retinal Thickness Tabular Output

**Scan Protocol:** Radial Lines, Fast Macular Thickness, Macular Thickness

**Used for:** Imaging and measurement of macular pathology

### Map Diameters

Diameters at which sector averages are calculated. Can be 1.0, 2.22 and 3.45 mm diameters or 1.0, 3.0 and 6.0 mm diameters as shown here.

### Scan Information

**Parameter** | **Normal Range**
--- | ---
Fovea Minimum | 135 – 215 µm
Fovea | 168 – 239 µm
Temporal Inner Macula | 240 – 294 µm
Superior Inner Macula | 243 – 296 µm
Nasal Inner Macula | 240 – 297 µm
Inferior Inner Macula | 246 – 297 µm
Temporal Outer Macula | 199 – 276 µm
Superior Outer Macula | 207 – 256 µm
Nasal Outer Macula | 198 – 274 µm
Inferior Outer Macula | 207 – 256 µm

### Ratio

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Normal Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Superior/Inferior</td>
<td>0.832 – 1.222</td>
</tr>
<tr>
<td>Temporal/Nasal Inner</td>
<td>0.800 – 1.227</td>
</tr>
<tr>
<td>Temporal/Nasal Outer</td>
<td>0.557 – 1.845</td>
</tr>
</tbody>
</table>

### Volume

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Normal Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fovea</td>
<td>0.13 – 0.19 cubic mm</td>
</tr>
<tr>
<td>Temporal Inner Macula</td>
<td>0.38 – 0.46 cubic mm</td>
</tr>
<tr>
<td>Superior Inner Macula</td>
<td>0.38 – 0.46 cubic mm</td>
</tr>
<tr>
<td>Nasal Inner Macula</td>
<td>0.38 – 0.47 cubic mm</td>
</tr>
<tr>
<td>Inferior Inner Macula</td>
<td>0.39 – 0.47 cubic mm</td>
</tr>
<tr>
<td>Temporal Outer Macula</td>
<td>1.06 – 1.46 cubic mm</td>
</tr>
<tr>
<td>Superior Outer Macula</td>
<td>1.10 – 1.36 cubic mm</td>
</tr>
<tr>
<td>Nasal Outer Macula</td>
<td>1.05 – 1.45 cubic mm</td>
</tr>
<tr>
<td>Inferior Outer Macula</td>
<td>1.10 – 1.35 cubic mm</td>
</tr>
<tr>
<td>Total Macula Volume</td>
<td>6.18 – 7.42 cubic mm</td>
</tr>
</tbody>
</table>

### Normal Distribution, Macula Thickness

**Legend**

Normative data is displayed in stoplight color code, described in detail inside back page.

**Color Scale**

For thickness maps.
Stratus OCT Printout

Optic Nerve Head Analysis Report

Scan Protocol: Optic Disc, Fast Optic Disc
Used for: Evaluation of the optic disc

Patient Information

Cup Markers
The edge of the cup is indicated with a green dot on the scan image and a green x on the composite diagram.

RPE Markers
The end of the RPE is indicated. Shown blue on the scan image, red on the composite diagram.

Signal Strength
Numbers range from 0 (weak) to 10 (strong). Analysis algorithm may fail on scans with low signal strength; therefore, images with a signal strength below 5 should not be used for analysis.

Optic Nerve Head Results
Data are derived from the 6 radial line scans.

Vertical Integrated Rim Area
Total volume of RNFL tissue in the rim is obtained by multiplying the average of the 6 individual rim areas by the circumference of the disc. Normal values are 0.36 ± 0.08 cubic mm.

Horizontal Integrated Rim Width
Total rim area is obtained by multiplying the average of the 6 individual nerve widths by the circumference of the disc.

Disc Area
The area within the red outline on the composite diagram.

Cup Area
The area within the green outline on the composite diagram.

Rim Area
Disc area minus cup area.

Cup/Disc Area Ratio
Ratio of cup area to disc area.

Cup/Disc Horizontal Ratio
Ratio of the longest horizontal line across the cup to the longest horizontal line across the disc.

Cup/Disc Vertical Ratio
Ratio of the longest vertical line across the cup to the longest vertical line across the disc.

Fundus Image
Can be used to verify scan placement.

Composite Diagram
Yellow line indicates individual scan selected and displayed above.

Scan List
For each of the 6 radial line scans, this indicates the date when the scan was last adjusted and saved.

Cup Area
The area within the green outline on the composite diagram.

Cup Volume
Volume of cup area on the topographic display.

Cup Offset for Topo
Default is 150 µm anterior to disc. Represents edge of blue shading on topographic display—the surface of the cup as if it were filled with water.

Scan Information

Individual Radial Scan Analysis
Data relates only to the individual scan image displayed.

Rim Area
Indicated with red shading on scan image, this area is bounded by the cup diameter line and a line from the RPE marker to the anterior surface of the disc, at a 90-degree angle to the cup diameter line.

Average Nerve Width @ Disc
The average of the nerve bundle widths at the disc on each side. Nerve bundle width indicated by yellow line from RPE marker to anterior surface.

Disc Diameter
Illustrated and measured on a straight line between the 2 RPE markers. Blue line on scan image.

Cup Diameter
Illustrated and measured on a straight line parallel to, and 150 µm anterior to, the disc diameter line. Red on image, green on diagram, this line is adjustable.

Horizontal Rim Length
Disc diameter minus the cup diameter.

Legend
Arrow indicates direction and angle of individual scan displayed in scan image.

Cup Offset
Point at which cup diameter is measured. Default placement is 150 µm anterior to the RPE markers; this point is adjustable.

Plot Background
There are 3 optional backgrounds; two are similar to a topographic map. Aligned and Shaded (default) provides a shaded relief topographic map and corrects for patient motion. Absolute provides a non-shaded topographic map with no correction for movement. None shows a solid gray background with no appearance of depth.

Fundus Image
Can be used to verify scan placement.

Composite Diagram
Yellow line indicates individual scan selected and displayed above.
## RNFL Thickness Average Analysis

**Scan Protocol:** RNFL 3.4 mm, Fast RNFL 3.4 mm  
**Used for:** Retinal nerve fiber layer thickness assessment and comparison to normative database

### Patient Information

### RNFL Thickness Chart

- Peripapillary RNFL thickness is displayed in TSNIT format.
- Colored bands demonstrate range of normative data.

### Sector Averages

Comparison to normative data in each sector is indicated with stoplight color scheme. Values are displayed numerically.

### Quadrant Averages

Comparison to normative data in each quadrant is indicated with stoplight color scheme. Values are displayed numerically.

### OD/OS Graph

- TSNIT line graph displays RNFL thickness in both eyes.
- Asymmetry may be indicative of glaucomatous loss.

### Scans Used

If any of the 3 circular scans has been deselected, analysis might be incomplete and for the fast RNFL scan, normative data will not be displayed.

### Legend

Normative data is displayed in stoplight color code, described in detail on inside back cover.

### Tabular Data

<table>
<thead>
<tr>
<th>Comparison</th>
<th>Average Ratio</th>
<th>Measurement</th>
<th>Average Values</th>
</tr>
</thead>
<tbody>
<tr>
<td>Imax/Smax</td>
<td>0.80 – 1.25</td>
<td>Min-Max Difference between minimum and maximum measurements</td>
<td>96 – 154 µm</td>
</tr>
<tr>
<td>Smax/Imax</td>
<td>0.77 – 1.25</td>
<td>Smax Thickest measurement in superior quadrant</td>
<td>124 – 189 µm</td>
</tr>
<tr>
<td>Smax/Tavg</td>
<td>1.70 – 3.06</td>
<td>Imax Thickest measurement in inferior quadrant</td>
<td>125 – 194 µm</td>
</tr>
<tr>
<td>Imax/Tavg</td>
<td>1.69 – 3.12</td>
<td>Savg Average measurement in superior quadrant</td>
<td>97 – 152 µm</td>
</tr>
<tr>
<td>Smax/Navg</td>
<td>1.37 – 2.93</td>
<td>Iavg Average thickness in inferior quadrant</td>
<td>98 – 156 µm</td>
</tr>
<tr>
<td>Average Thickness</td>
<td>82 – 118 µm</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Normal distribution, RNFL normative data, Carl Zeiss Meditec.
GPA™ Advanced Serial Analysis

Scan Protocol: Fast RNFL Thickness (3.4), RNFL Thickness (2.27 x disc)

Used for: Statistical analysis of RNFL thickness change over time. Can be applied to up to 8 OD and/or 8 OS scan groups
Stratus OCT Normative Data

Stoplight Color Scheme

RNFL Normative Data Display

Of the normal population:

90% 95% fall within or below the green band
4% 5% fall within or below the yellow band
1% 1% fall within the red band; considered outside the normal limit

RNFL Normative Distribution

Macula Normative Data Display

Of the normal population:

1% 1% fall within the light red band; considered outside the normal limit
4% 5% fall within or above the light yellow band
90% 95% fall within or below the green band
4% 5% fall within or below the yellow band
1% 1% fall within the red band; considered outside the normal limit

Macula Normative Distribution
At Carl Zeiss Meditec, we are committed to expanding clinical potential with innovative, precise and clinically advanced instruments that contribute to the enhancement of vision worldwide. And, through lifetime customer care and ongoing technology upgrades, we are also dedicated to ensuring your success now and throughout the future.

For more information on the Stratus OCT system or to order, contact your Carl Zeiss Meditec representative today, or visit our website at www.meditec.zeiss.com/stratus.

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### Technical Specifications

#### Tomographic Imaging

<table>
<thead>
<tr>
<th>Purpose</th>
<th>Cross-sectional imaging of retina</th>
</tr>
</thead>
<tbody>
<tr>
<td>Signal type</td>
<td>Optical scattering from tissue</td>
</tr>
<tr>
<td>Signal source</td>
<td>Superluminescent diode, 820 nm</td>
</tr>
<tr>
<td>Optical power</td>
<td>≤750 microwatts at cornea</td>
</tr>
<tr>
<td>Longitudinal/Axial resolution</td>
<td>≤10 µm in tissue</td>
</tr>
<tr>
<td>Transverse sample size</td>
<td>20 µm in tissue</td>
</tr>
<tr>
<td>Scanners</td>
<td>Galvanometric mirror</td>
</tr>
<tr>
<td>Scan patterns</td>
<td>Line, circle, concentric rings, radial lines</td>
</tr>
<tr>
<td>Scan pixels</td>
<td>Adjustable from (1024 axial x 128 transverse) to (1024 axial x 768 transverse)</td>
</tr>
<tr>
<td>Longitudinal (depth) range</td>
<td>2 mm in tissue</td>
</tr>
<tr>
<td>Scan rate</td>
<td>400 A scan/sec</td>
</tr>
</tbody>
</table>

#### Fundus Imaging

<table>
<thead>
<tr>
<th>Purpose</th>
<th>Fundus alignment, documentation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Signal type</td>
<td>CCD image</td>
</tr>
<tr>
<td>Field of view</td>
<td>26° x 20.5°</td>
</tr>
<tr>
<td>Viewing method</td>
<td>Flat panel display</td>
</tr>
<tr>
<td>Illumination</td>
<td>Near IR/red-free</td>
</tr>
<tr>
<td>Internal fixation</td>
<td>32 x 16 LED dot matrix</td>
</tr>
<tr>
<td>External fixation</td>
<td>Slit lamp type adjustable blinking LED</td>
</tr>
<tr>
<td>Minimum pupil diameter</td>
<td>3.2 mm</td>
</tr>
</tbody>
</table>

#### Electrical

<table>
<thead>
<tr>
<th>Power consumption</th>
<th>100 V approx. (±10%), 50/60 Hz, 6.0 A</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>115 V approx. (±10%), 60 Hz, 6.0 A</td>
</tr>
<tr>
<td></td>
<td>230 V approx. (±10%), 50/60 Hz, 3.0 A</td>
</tr>
<tr>
<td></td>
<td>700 VA</td>
</tr>
</tbody>
</table>

#### Footprint

| Patient module        | 48 inches x 34 inches, 120 cm x 85 cm |

#### User Features

<table>
<thead>
<tr>
<th>Processor</th>
<th>2.4 GHz Pentium® IV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating system</td>
<td>Windows® 2000</td>
</tr>
<tr>
<td>Memory</td>
<td>512 MB</td>
</tr>
</tbody>
</table>

#### Standards and Approvals

- UL 2601-1
- CSA 22.2 No. 601.1
- MDD

**Note:** All technical specifications are subject to change without notice.

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Pentium is a registered trademark of Intel Corp.

Windows is a registered trademark of Microsoft Corp.