In-Vivo Dosimetry with SagiNova®
Integrated System for In-Vivo Measurement

In-Vivo Dosimetry System
The integrated and independently working In-Vivo Dosimetry System is operated from the afterloader control software. It facilitates real-time dose monitoring and automatic documentation of the doses to bladder and rectum in the treatment report.

The comfortable In-Vivo Dosimetry System within SagiNova® saves space and eases handling.

Integrated System
In-vivo dosimetry is an important quality assurance method for HDR brachytherapy of e.g. cervical cancer. It provides information that helps to assure precise, targeted and conformal dose delivery. Studies have shown that in-vivo dosimetry is feasible and can be performed to estimate the dose to the rectum during HDR brachytherapy also using Co-60. SagiNova® is equipped with a multi-channel dosimeter system for in-vivo patient dosimetry during radiation therapy. It is directly integrated in the afterloader and controlled via the SagiNova® control software.

Dose Monitoring in Rectum and Bladder
The unique system allows direct monitoring of doses to rectum and bladder independently and “live” on the control console during the treatment. Dose limit values can be defined via the SagiNova® treatment control software. Warnings are displayed if bladder or rectum dose limits are exceeded. The data is documented in the treatment report.

The Probes
The probe for bladder measurements has a diameter of only 3 mm and is used together with a Foley catheter. The flexible rectum probe with five detectors, spaced 15 mm apart from each other, enables the measurement of the dose distribution.

Calibration
Both probes can be automatically calibrated with SagiNova’s quality assurance tool, QAssist, the afterloading calibration phantom and the afterloader source as reference. The built-in software takes the specific calibration geometry into account and makes calibration a one-click solution.

Phantom
A cylindrical Perspex (PMMA) phantom for the calibration of the semiconductor probes is included in the system. It comes with a tripod and can also be used for the source calibration in combination with a thimble ionization chamber.

Scientific References
1. Zaman ZK, et al., Comparison of planned and measured rectal dose in-vivo during high dose rate Cobalt-60 brachytherapy of cervical cancer, Physica Medica (2014)

Dose measurement at bladder and rectum with semiconductor probes. The connection box system is integrated in the SagiNova® afterloader.

Eckert & Ziegler
Contributing to saving lives
Set Content SET0214
Set for In-Vivo Dosimetry, integrated in SagiNova®

<table>
<thead>
<tr>
<th>Quantity</th>
<th>Item</th>
<th>Part number</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Afterloading Calibration Phantom T9193</td>
<td>1321-3035</td>
</tr>
<tr>
<td>1</td>
<td>Multichannel Dosimeter VIVODOS® (built-in device, T10018)</td>
<td>1379-0241</td>
</tr>
<tr>
<td>1</td>
<td>Fivefold semiconductor rectum probe T9112</td>
<td>1321-3034</td>
</tr>
<tr>
<td>1</td>
<td>Single semiconductor bladder probe T9113</td>
<td>1379-0222</td>
</tr>
<tr>
<td>1</td>
<td>AL adapter for rectal probe T9112</td>
<td>1321-3037</td>
</tr>
<tr>
<td>1</td>
<td>AL adapter for bladder probe T9113</td>
<td>1379-0227</td>
</tr>
<tr>
<td>1</td>
<td>AL adapter for afterloading applicator LAR01-01</td>
<td>1321-3039</td>
</tr>
<tr>
<td>1</td>
<td>Tripod for AL calibration phantom L651002</td>
<td>1379-0211</td>
</tr>
<tr>
<td>2</td>
<td>AL adapter, blind plug T9193/102</td>
<td>1321-3036</td>
</tr>
<tr>
<td>1</td>
<td>AL detector connection box</td>
<td>1379-0233</td>
</tr>
<tr>
<td>1</td>
<td>Cable for AL detector connection box</td>
<td>1379-0234</td>
</tr>
</tbody>
</table>

Dosimeter Measurements (Gy)

- R1: 0.73 Gy
- R2: 1.09 Gy
- R3: 0.13 Gy
- R4: 0.04 Gy
- R5: 0.02 Gy
- B1: 0.04 Gy

VIVODOS and UNIDOS are registered trademarks of PTW-Freiburg. SagiNova is a registered trademark of Eckert & Ziegler BEBIG GmbH and its subsidiaries. The mentioned products are not available in all markets. Please contact your local Eckert & Ziegler BEBIG representative for more information.