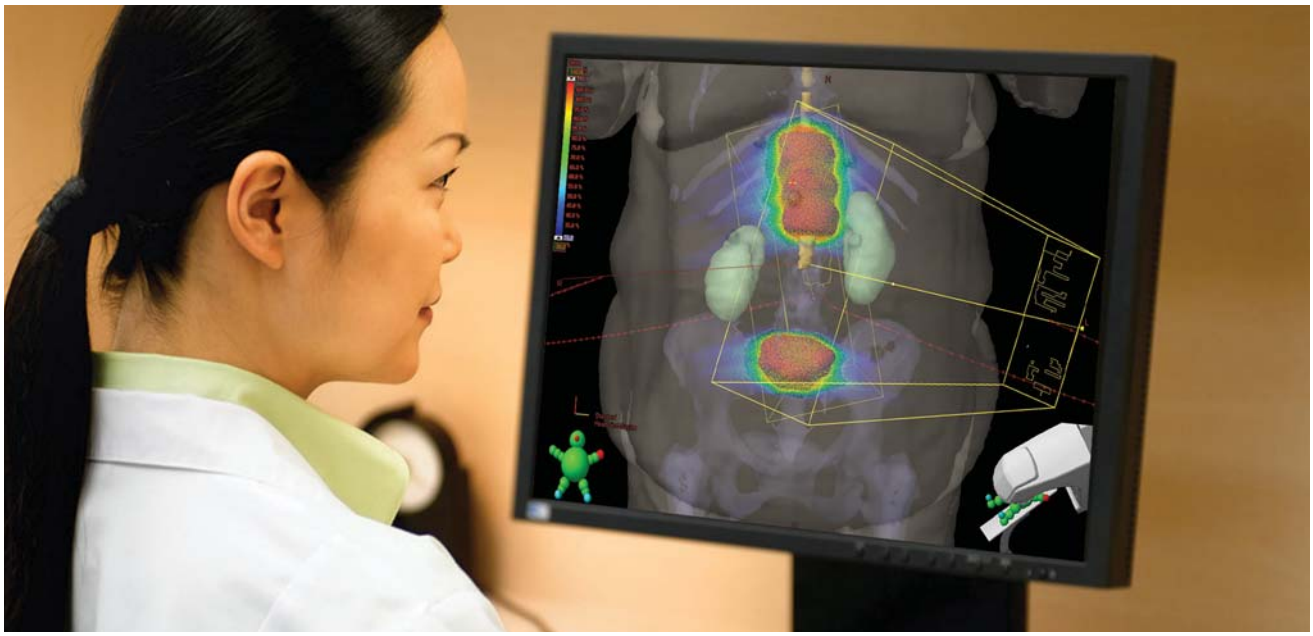
VARIAN
medical systems

Eclipse Treatment Planning System

New Features and Enhancements for 2010



FEATURE	FUNCTION	BENEFIT	
Registration	Multimodality image registration and segmentation	Increased planning versatility, PET contouring, and enhanced target volume delineation	Included
Portal Dosimetry for RapidArc® Radiotherapy Technology	Pre-treatment verification of RapidArc plans	Ability to split RapidArc treatment fields into verification sub-arcs	Included*
Leaf Motion Calculator	Tracking jaws based on MLC aperture	Reduced leakage, support of step-and-shoot and multiple static segment IMRT delivery	Included
Proton Therapy	New spot list editor; improved setup field handling; room's eye view imaging; improved beam line editor	Custom designed modulated scanning	Included
RapidArc Radiotherapy Technology	Intuitive arc beam geometry tool, progressive resolution algorithm, and simple collision detection	Faster treatment field setup, reduced optimization time, and efficient motion calculation	Purchasable option
Smart Segmentation® Automatic Contouring Utility	Fully automatic segmentation	Improved contouring efficiency and consistency	Purchasable option
SmartAdapt	Deformable registration; toolset for tracking and adapting to interfractional changes during treatment	Quickly visualize and address differences between the planning CT and CBCT images	Purchasable option
Acuros® XB Advanced Dose Calculation	New dose calculation algorithm for external beam planning	Fast and accurate dose calculation, available for a full range of photon beams	Purchasable option

**Included if clinical site already has RapidArc and Portal Dosimetry licenses*

Acuros XB advanced dose calculation

Acuros XB is a new dose calculation algorithm available for external beam planning. This algorithm offers standard Monte Carlo equivalent dose calculation accuracy for the full range of photon beams without compromising calculation speed.

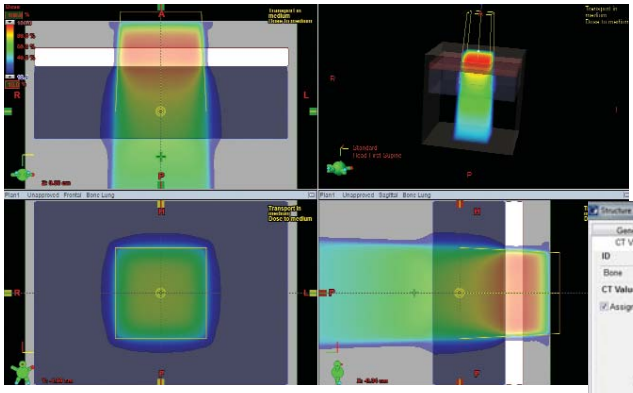
Acuros XB is a fully integrated feature of the Eclipse™ treatment planning system with several features, including:

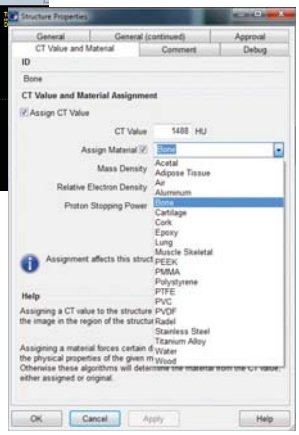
- User-selectable dose calculation grid size
- Dose reporting mode – dose to medium or dose to water
- Assignment of material type based on CT image information or manually to contoured structures

Additional features of Acuros XB

- Support for X-ray photon beams from medical linear accelerators with nominal energy ranging from 4 to 25 MV
- Support for third-party treatment units
- Support for wedges, dynamic wedges, intensity-modulated radiation therapy (IMRT), and volumetric modulated arc therapy (VMAT)

Experience a simplified and rapid commissioning process with Acuros XB while using the same beam data as the AAA algorithm. Acuros XB provides you with the technological flexibility needed for today's advanced treatment techniques.





(Top) Acuros XB bone/lung 18X colorwash
(Right) Assign material to structure easily with Acuros XB

Registration

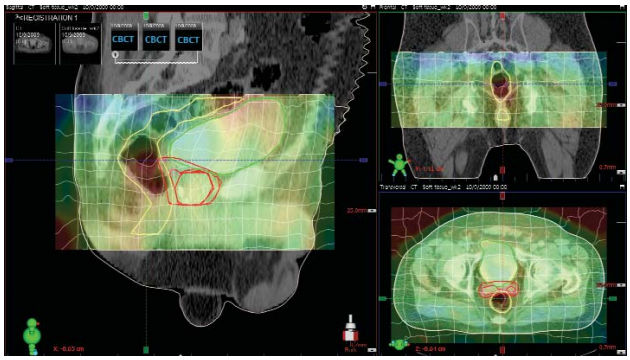
The Eclipse treatment planning system features an improved multimodality image registration and segmentation workspace for PET, CT, MR, as well as CBCT scans. A selection of several automatic rigid registration algorithms, including point-based matching, provides you with the flexibility to plan both simple and complex cases and allows integration of many aspects of morphology and function into the contouring process. Manual rigid registration, registration review, and approval are also included. PET and relative intensity-based contouring capabilities enable a variety of uses for biological imaging in radiation oncology.

Smart Segmentation

The Smart Segmentation automatic contouring utility features enhanced segmentation of bony structures of the pelvis, the external head contour, and the thoracic spinal canal. The newly added segmentation of the seminal vesicles better addresses the need for prostate cancer patient segmentation and has the potential to positively influence the segmentation of other organs such as the rectum. To support optimal image-guided workflow and better patient positioning, gold markers segmentation has been introduced. Improved artifact correction, support of basic segmentation for different body positions, the option to customize the dimension of the segmented structures and other new features allow you to use this application for a wider range of patients. In addition, Smart Segmentation enables several segmentation services to be supported in a multi-site environment.

SmartAdapt

The SmartAdapt toolset enables you to easily track and adapt to interfractional changes in anatomy in your patient throughout the treatment. Using the interactive deformable registration and segmentation tools, you can quickly visualize and address differences between the planning CT and CBCT images. You can automatically deform and propagate initial contours to match the current anatomy, and edit or fine tune the changes using a variety of 2D and 3D contour editing features. Sophisticated techniques such as blending, color mapping, difference rendering, and deformation-specific information allow a thorough review and approval of your registration results. A statistics tool allows tracking of relevant changes and provides you with crucial information for deciding about a potential reoptimization. Adapting treatments to meet your clinical goals and to improve patient outcomes can be made easier with SmartAdapt.



Display of deformation grid and deformation distance information after deformable registration of two CT scans of a patient with prostate cancer.

Image courtesy of Dr. J. Wu, Duke University, Durham, NC

RapidArc enhancements

The next generation of RapidArc radiotherapy technology provides tools which simplify the set up of the RapidArc treatment field. The new intuitive arc Geometry Tool will suggest the number of arcs and isocenters based on target position and size, and improves efficiency during the planning process. New features, including the use of automatic normal tissue objective, mean dose objective, and intermediate dose calculation, will increase the quality of your treatment plans and make it possible to treat a wider range of tumor sites.

Progressive-Resolution Optimizer Algorithm

The enhanced Progressive-Resolution Optimizer Algorithm (PRO) available in 2010 significantly reduces the optimization time for RapidArc treatment plans. To optimally achieve radiation goals and parameters given by radiation oncologists, the improved PRO uses calculated dose distribution done with AAA or Acuros XB as a reference dose when restarting the optimization.

Leaf Motion Calculator

The leaf motion calculator algorithm is available only for the TrueBeam™ system and is fully integrated in the Eclipse distributed calculation framework (DCF) to support both sliding window and multiple static segment IMRT delivery.

Portal Dosimetry for RapidArc

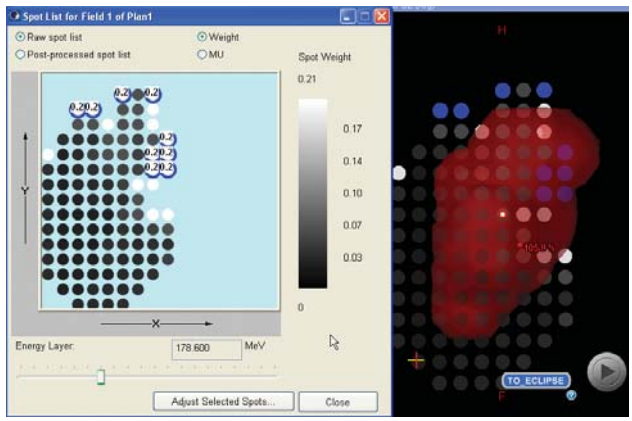
Get more value out of your PortalVision™ MV imaging system and eliminate the need to purchase additional QA equipment just for RapidArc. The Eclipse treatment planning system provides tools which allow you to split your RapidArc treatment field into verification sub-arcs for detailed investigation of small arc segments. You can use Portal Dosimetry for RapidArc pre-treatment QA – giving you the same fast and efficient process, and the same high-resolution QA measurements for RapidArc.

Eclipse Treatment Planning System

Proton therapy

The Eclipse treatment planning system offers the next generation of proton therapy. Eclipse continues to support advanced proton delivery capabilities. Now you can tailor your proton treatments using the spot list editor. This new feature allows you to edit the spot list for custom designed modulated scanning.

The proton planning features are fully integrated with advanced hardware and software components, providing a range of configuration options specifically tailored to each site's clinical objectives.



The spot list editor displays values and spots to be edited.

Key components include:

- Enhanced beam-line editing capability, including user specification of spread out Bragg peak (SOBP) and range
- Room-based imaging, including gantry pitch angles
- Enhanced setup field handling
- Beam spot editor for pencil-beam scanning

VARIAN
medical systems
A partner for life

USA Headquarters, California
Varian Medical Systems
Palo Alto, CA
Tel: 650.424.5700
800.544.4636
Fax: 650.493.5637
www.varian.com

Headquarters Europe, Eastern Europe, Africa, Middle & Near East
Varian Medical Systems International AG
Zug, Switzerland
Tel: 41.41.749.8844
Fax: 41.41.740.3340
info.europe@varian.com

RAD 10118B

10/10 (400)