

Commissioning and QA

Eclipse simplifies and accelerates the entire treatment planning process. Treatment machine creation scripts, rapid beam data import, automated configuration, and integrated beam data analysis speed initial commissioning. System quality is easily maintained through data integrity checks and electronic beam data approval. Pre-treatment verification has been revolutionized with Eclipse Portal Dose Calculation. Planning process QA is simplified through integration in the Varian Inspiration™ integrated oncology environment and DICOM transfer to third-party systems.

Rapid Beam Data Entry and Documentation

The initial configuration of any treatment planning system involves creation of treatment machines. Machine creation scripts, available in Eclipse for multiple vendors, simplify this process by eliminating manual entry of parameters and limits.

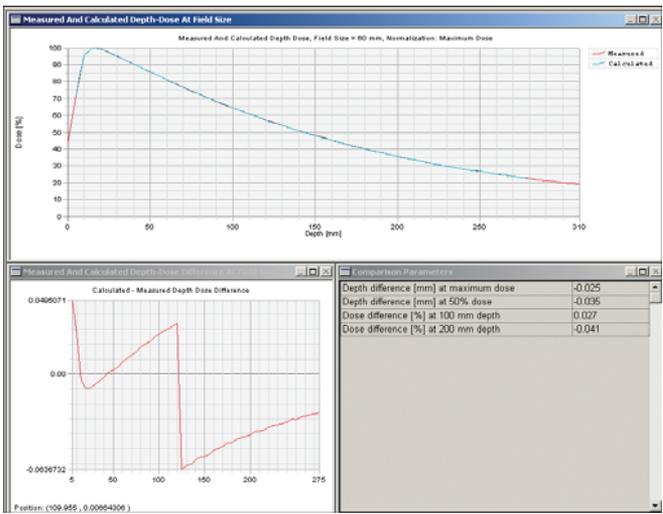
After beam data is imported into Eclipse and checked for consistency, configuration takes only a few minutes so the clinician can quickly begin validating the beam models. This may be simplified further by using Eclipse Beam Data for Clinac® linear accelerators.

The clinician can share or copy beam models between matched treatment units, making beam data management easier. With centralized beam data, the physicist only needs to maintain one set. Beam data can be printed in tabular format and exported in ASCII format to common spreadsheet applications, minimizing clinical data preparation.

Efficient Beam Model Validation

To validate beam models, the physicist can calculate and compare depth dose curves and profiles in a water phantom corresponding to input data. Eclipse displays calculated data superimposed over the measured data, eliminating the time-consuming task of printing and overlaying plots. Percentage difference and distance-to-agreement values are displayed as recommended by the AAPM Task Group 53 on Quality Assurance for Clinical Radiotherapy Treatment Planning.

Built-in safeguards prevent beam models from being used for dose calculations until approved by an authorized user. Eclipse performs cyclical redundancy checks (CRCs) on all beam data files each time they are accessed. If a failure is detected, an error message is issued and further dose calculation is prevented until the condition is corrected and the beam data is re-approved.

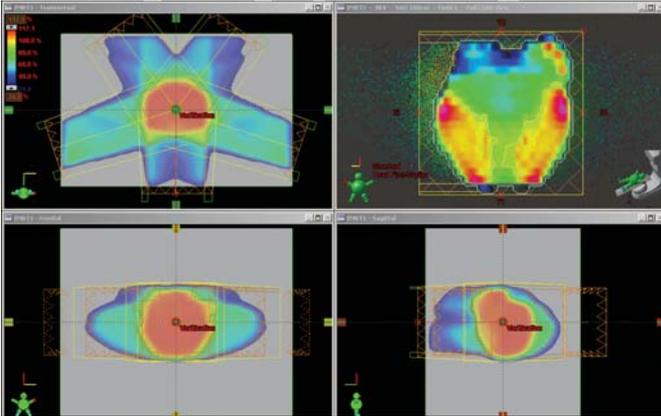


Eclipse displays percentage difference and distance-to-agreement values to compare calculated and measured beam data.

Eclipse™ Treatment Planning System

Integrated Plan Verification and Quality Assurance

A critical part of pre-treatment quality assurance is the verification of treatment plans and their corresponding dose distributions. In Eclipse, treatment plans can be copied and calculated on any geometrical or scanned phantom. This process is automated and accelerates quality assurance tasks.

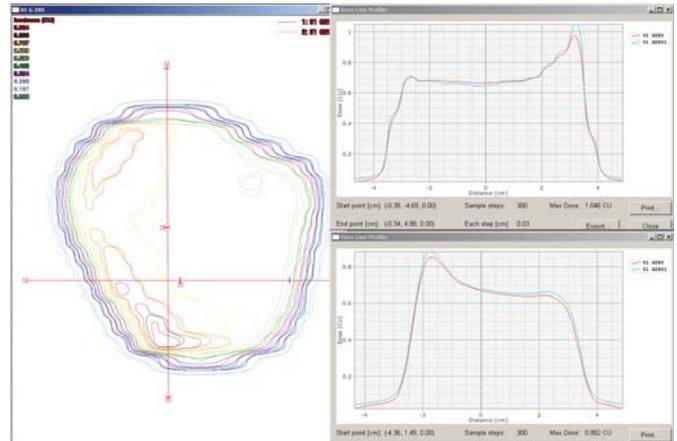


A five-field IMRT plan is calculated on a water phantom for pre-treatment verification.

Dose calculated in the phantom is compared with point dose or dose distribution measurements. Dose distributions in any plane through the phantom can be displayed and exported to third-party dosimetry QA systems via DICOM RT. Exported objects include plan geometry, dose prescription, reference points, blocks or MLC apertures, wedge information, intensity-modulated radiation therapy (IMRT) fluence, and 2D and 3D dose distributions.

Eclipse can calculate a calibrated dose distribution at the portal imager. The physicist can compare this to an electronic dose image from Varian's PortalVision™ MV imaging system, eliminating phantom setup and film processing and offering an integrated quality assurance method.

Eclipse is part of the Inspiration™ integrated oncology environment, where all Varian products share a common database. Verification plan data is automatically stored with the patient record, ensuring that the correct patient-specific QA data is used. The Inspiration environment eliminates the additional quality assurance required when exporting data to non-integrated systems.



Calculated and measured portal dose images are analyzed using line dose profiles.

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