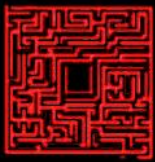


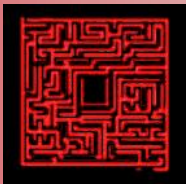


Epiqa

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IMRT QA



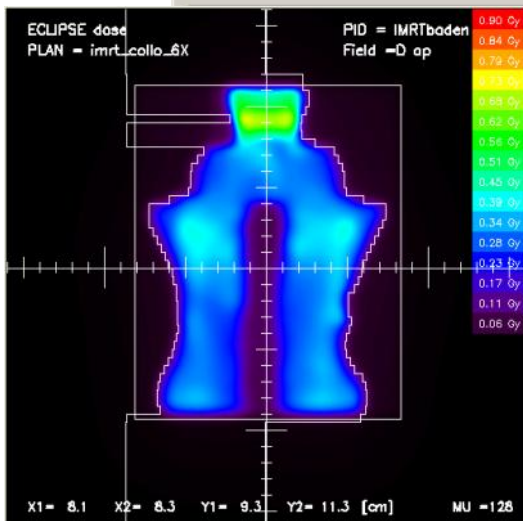
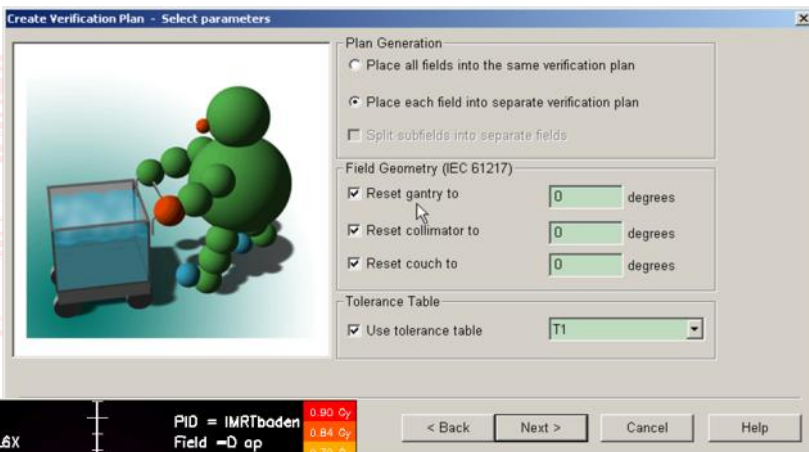
Plan Preparation For QA Using Portal Dosimetry

1. Plan preparation for measurement:

Create verification plan for phantom; keep all parameters without change OR
Use original patient plan for measurement using treatment console in QA mode.

2. Reference dose plane creation:

Create verification plan for phantom calculation while selecting option to zero all gantry angles and place each field in separate plan. Calculate verification plans using the same algorithm as for patient plan.



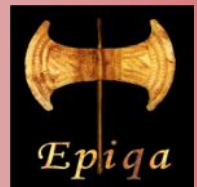
3. Deliver plan prepared in step 1:

Extend Portal Vision arm and acquire integrated images during entire plan delivery.

4. Export DICOM data for Epiqa:

Export patient plan.
Export verification dose planes perpendicular to beam axis at dose maximum.
Export acquired portal dosimetry images.

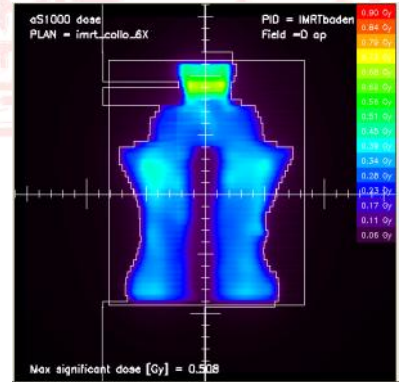
Results Evaluation



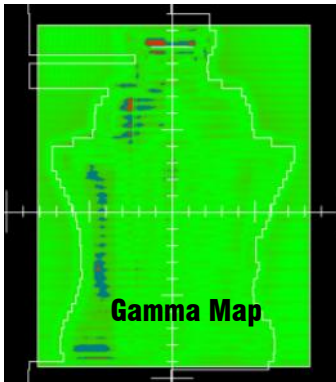
1. Load plan, reference doses and measured portal dosimetry images including reference image of 10x10 field.



2. Convert portal dosimetry images to dose in water matrix.

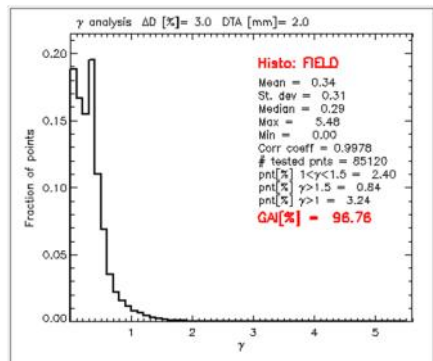
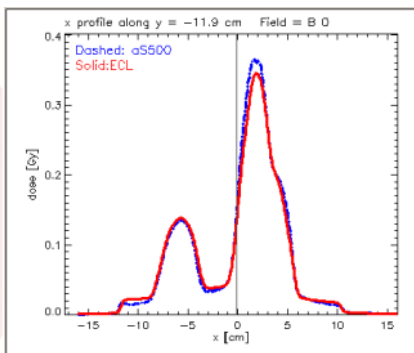


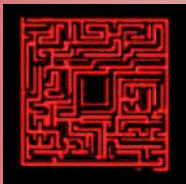
3. Evaluate results using gamma analysis or dose difference information.



Example of some evaluation tools:

- ◆ Profiles comparison
- ◆ Point evaluation - dose difference, gamma
- ◆ Results histogram and statistics
- ◆ Flexible definition of local or global gamma criteria

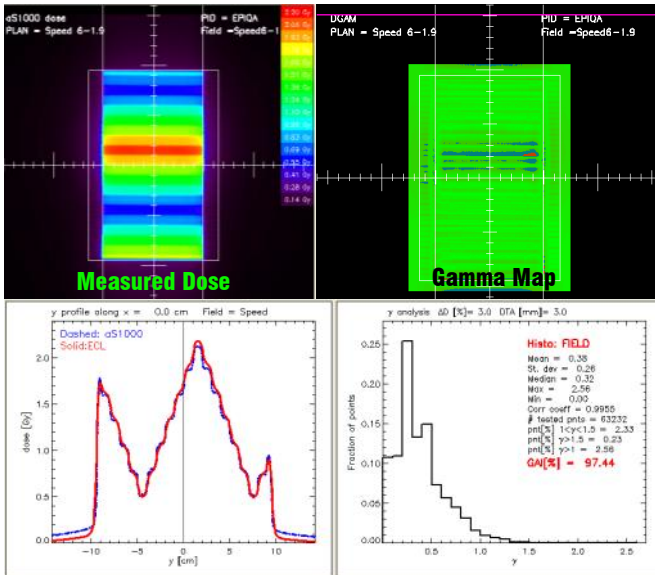




Dynamic MLC Commissioning And QA

Verify dynamic MLC performance using classical tests recommended in the literature. Use Portal Vision dosimetry acquisition and Epiqa to evaluate results.

1. Leaf speed test evaluation - TPS vs. measurement or long term stability comparison.

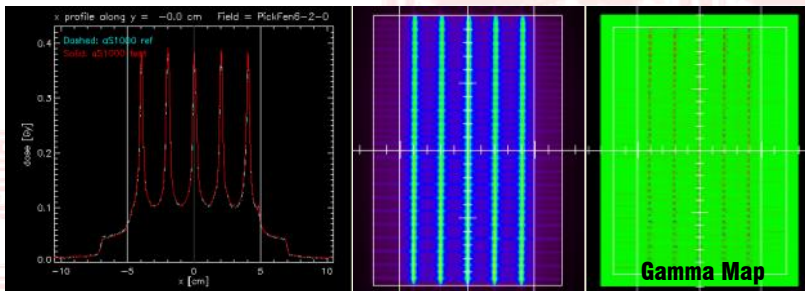


2. Chair test evaluation*.

Dynamic leaf gap and leaf transmission are key parameters for correct modeling of sliding window field calculation. Epiqa provides qualitative analysis of calculated vs. measured chair test field to investigate correct values.

*The sliding slit test for dynamic IMRT: a useful tool for adjustment of MLC related parameters | Chauvet et al 2005 Phys. Med. Biol. 50:563

3. Picket Fence test - dynamic MLC positioning and reproducibility.



Comparison of two picket fence measurements.