

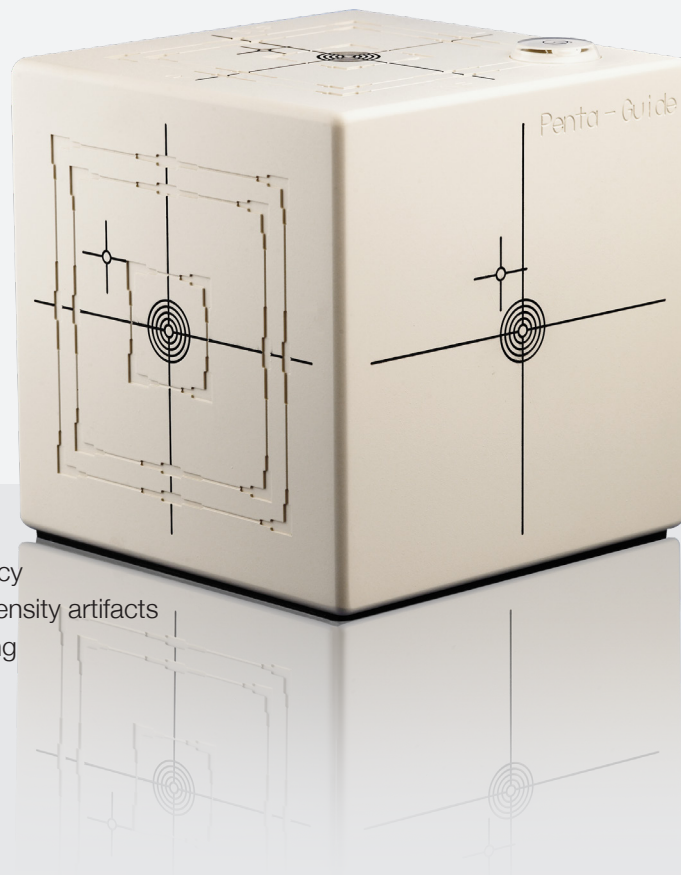
Penta-Guide QUASAR BY MODUS QA

Perform true spatial alignment and coincidence tests on IGRT systems

The QUASAR™ Penta-Guide Phantom contains low-density rings and hollow spheres designed to minimize imaging artifacts. These unique visualization features provide quick confirmation of the phantom set-up before investing time in the QA procedure. They also serve to ensure isocenter alignment in accordance with accepted radiotherapy tolerances using 2D/2D and 3D/3D match.

KEY FEATURES

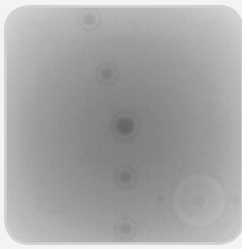
- ▶ Enables daily testing to ensure on-board imaging targeting accuracy
- ▶ Contains low-density rings and hollow spheres to minimize high-density artifacts
- ▶ Includes FREE image analysis software to simplify CBCT QA testing
- ▶ Apply simple Pass / Fail acceptance criteria
- ▶ Testing does not infringe upon patient treatment time
- ▶ Light field alignment 4x4; 10x10; 12x12
- ▶ 16 cm cube -5kg
- ▶ 1/4 mm accuracy



Carried out by a therapist every morning, testing takes little or no extra time and can be completed during normal daily equipment warm-up procedures.

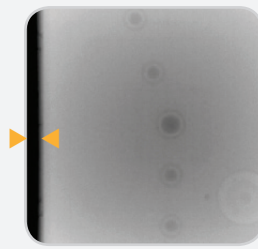
The phantom ensures the accuracy of linac-mounted image-guidance systems, including cone beam CT (CBCT), x-ray volumetric imaging (XVI) and on-board imaging (OBI), by enabling daily testing for:

- ▶ 3D Cone Beam Registration
- ▶ kV and MV System Coincidence
- ▶ kV and MV Projection Images
- ▶ Laser and Light Field Coincidence
- ▶ Weekly Remote Table Adjustments



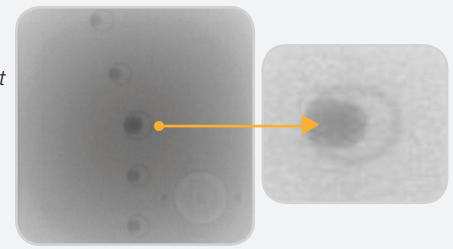
Left: Phantom centered in field of view, spheres centered in rings

*All images 6MV AP



Left: Example of translational misalignment

Right: Example of rotational misalignment



PASS/FAIL CRITERIA

For each test there are simple pass/fail criteria. A typical tolerance of +/- 2 mm in x, y, and z directions is recommended. Displacements can be tracked over time for trend analysis using the Excel spreadsheet provided with the Penta-Guide. Alternatively, shifts can be exported to the record and verify system.

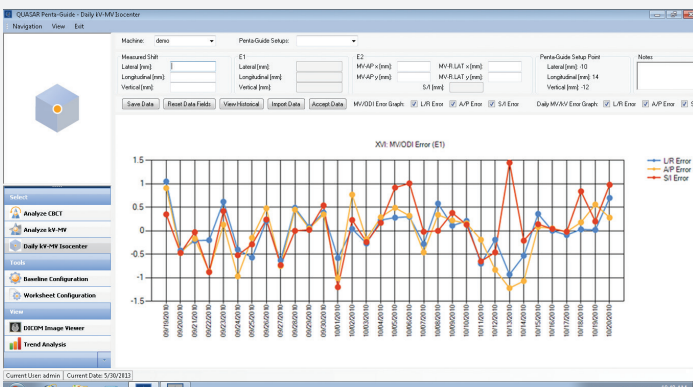


IMAGE QUALITY ANALYSIS SOFTWARE

QUASAR™ Penta-Guide QA Software is a time-saving application designed to simplify, enhance and automate the image analysis, trending and reporting of 3D CBCT and kV-MV projection images.

ORDERING INFORMATION

- 100-1009 QUASAR™ Penta-Guide Phantom
- ▶ 1-Phantom
 - ▶ 1-Software (Lite)
 - ▶ User's guide

OPTIONAL ACCESSORIES

- 500-3503 QUASAR™ Penta-Guide Tilt Plate
500-3501 QUASAR™ Hood for Frameless Array



Optional: QUASAR™ Penta-Guide Tilt Plate is used to verify Image-Guided shifts for Six Degrees of Freedom Couches



Optional: QUASAR™ Hood is used to confirm that the Varian Frameless Array or other visual position indicator is aligned with the CBCT and OBI

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