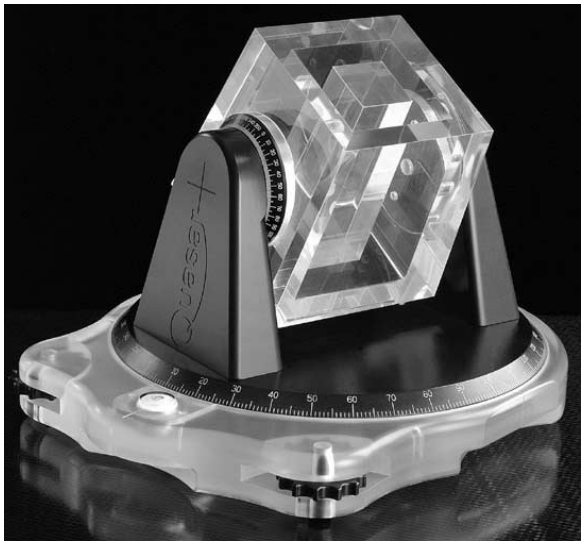
QUASAR
Quality Assurance System for Advanced Radiotherapy

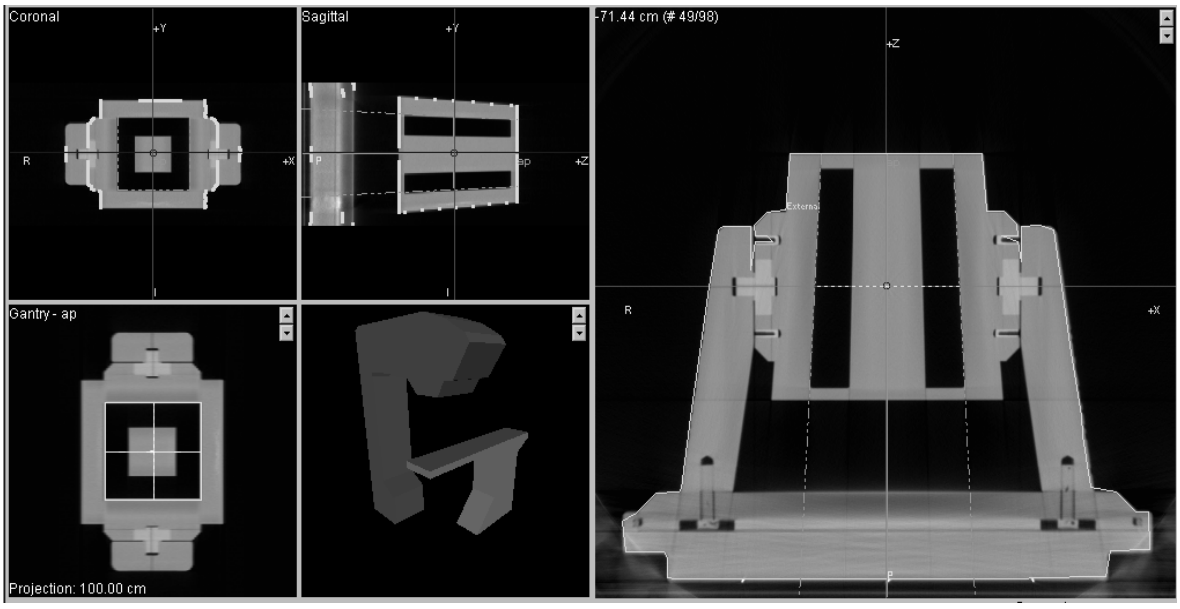
QUASAR Beam Geometry Phantom



A cost-effective tool designed to test the complex beam geometry imaging functions of CT simulators and radiation therapy planning systems; the QUASAR Beam Geometry Phantom reproduces the divergent beam in acrylic. The QUASAR Beam Geometry Phantom and its partner the QUASAR Body Phantom were developed[1] by Jake Van Dyk at the London Regional Cancer Centre. These phantoms are designed to enable many of the nondosimetric quality assurance tests recommended by TG 53[2].

Features and functions that can be tested using the QUASAR Beam Geometry Phantom include:

- Multiplanar CT Image reconstruction, geometric accuracy, orientation, and 3D measurement tools on CT simulators, radiation therapy planning systems and other imaging workstations
- Beam display graphics at oblique gantry and couch angles
- Digitally reconstructed radiographs
- Portal images on linear accelerators
- Image transfer, storage, retrieval, DICOM tools on all workstations
- 2D image geometric accuracy and measurement tools



coronal and sagital images reformatted from multiple transverse CT images

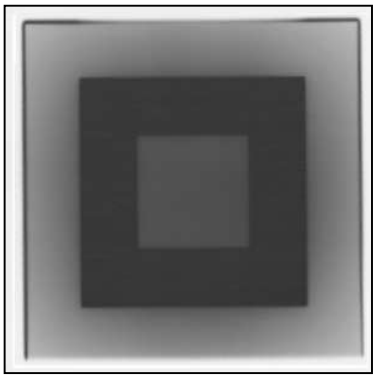
The QUASAR Quality Assurance System for Advanced Radiotherapy has been designed to support the testing of a wide variety of nondosimetric functions of Radiation Therapy Planning Systems and CT simulators using a single set of test objects.

A valuable part of any quality assurance program, the QUASAR phantoms can improve the efficiency of your quality assurance program. The phantoms should be used for regularly scheduled testing, as well as commissioning new systems and upgrades, and testing repairs.

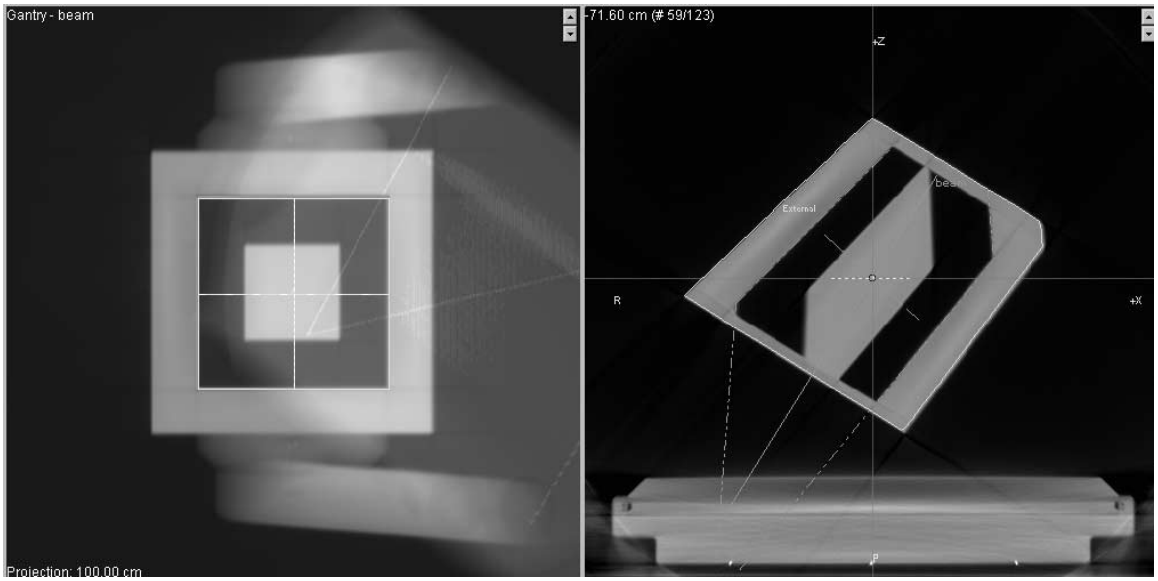
The QUASAR system provides you with the confidence that your radiation treatment planning software and CT simulators are performing to their full potential.

Beam Geometry Phantom Specifications

- 5, 10, and 15 cm collimated beam phantom, 17 cm long
- Phantom rotates about isocenter on vertical (couch) and horizontal (gantry) axes
- Rotational scale readouts correspond to IEC 1217
- 1 mm diameter steel ball located at the isocenter
- "Z" wire fiducial marker in base
- 3 point leveling system with built in level indicator
- Laser alignment marks
- Overall height 28 cm, width 36.6 cm, length 42.5 cm
- Weight 13 kg
- Materials: acrylic, Delrin, nylon, steel ball, steel wire, rubber
- Container for storage and handling, optional shipping case
- User's Guide with Quality Assurance Worksheets



portal image



digitally reconstructed radiograph from transverse CT images with oblique couch and gantry angle

References:

1) A Quality Assurance Phantom for Three-Dimensional Radiation Therapy Treatment Planning, Tim Craig, Denis Brochu, and Jake Van Dyk; Int. J. Radiation Oncology Biol. Phys., Vol. 44, No. 4, pp. 955-966, 1999.
2) AAPM Radiation Therapy Committee Task Group 53: Quality Assurance for Clinical Radiotherapy Treatment Planning, Benedick Fraass, Karen Doppke, Margie Hunt, Gerald Kutcher, George Starkschall, Robin Stern, Jake Van Dyke; Med. Phys. 25 (10), October 1998, pp. 1773-1829.

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