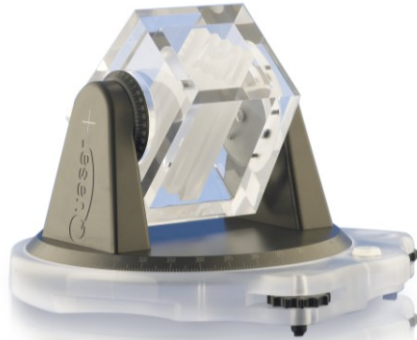


# MLC Beam Geometry Phantom

Nondosimetric QA

The **QUASAR™** MLC Beam Geometry phantom addresses the complex nondosimetric, beam geometry and beam imaging features of modern planning systems and simulators.



IMRT and other conformal therapies have led to increased demands on the physicists who commission and maintain these systems. AAPM Task Group reports including TG 66(1), TG 53(2), and TG 51(3) make clear recommendations regarding the importance of dosimetric and nondosimetric tests within an overall integrated QA process.

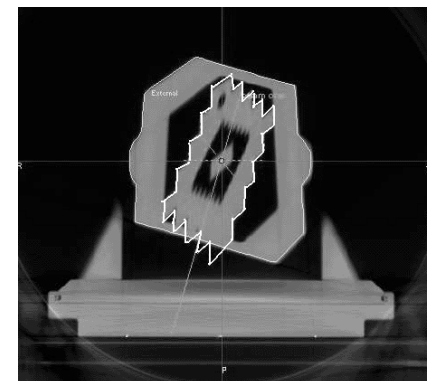
The MLC Beam Geometry Phantom addresses these recommendations by testing beam integrity from CT simulation and planning to the linear acceleration and portal imaging system in IMRT, 3D conformal RT, and conventional RT. These tests reveal errors in beam imaging, DICOM transfer, registration, alignment, and orientation, and the User Guide includes a peer-reviewed procedure with pass/fail criteria based on these publications.

Compatible with standard collimators, MLCs, mini MLCs, and micro MLCs from multiple vendors, the MLC Beam Geometry Phantom supports nondosimetric tests for equipment commissioning, technique commissioning, system characterization, and routine QA protocols.

- 1) MUTIC S., PALTA J. R., BUTKER E. K., DAS I. J., HUO M. S., LOO L. D., SALTER B. J., MCCOLLOUGH C., VAN DYK J., Quality assurance for computed-tomography simulators and the computed-tomography-simulation process: Report of the AAPM Radiation Therapy Committee Task Group No. 66, Med Phys, 30, (2003) 2762-2792
- 2) FRAASS B., DOPPKE K., HUNT M., KUTCHER G., STARKSCHALL G., STERN R., VAN DYK J., American Association of Physicists in Medicine Radiation Therapy Committee Task Group 53: quality assurance for clinical radiotherapy treatment planning, Med Phys, 25, (1998) 1773-1829
- 3) ALMOND P. R., BIGG S P. J., COURSEY B. M., HANSON W. F., HUO M. S., NATH R., ROGE R S D. W. AAPM's TG-51 protocol for clinical reference dosimetry of high-energy photon and electron beams, Med. Phys 26(1999) 1847-1870

## Key Features

- Physical simulation of beam with MLC leaf locations
- Simulates couch and gantry rotations
- Enables end-to-end testing of beam integrity
- Used for commissioning and testing upgrades and repairs
- Compatible with multiple vendors



*Display of the collimated field (white) on a reconstructed, axial CT slice, which illustrates accurate alignment with the phantom geometry*



## Multiple Nondosimetric Tests

- 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
- 5 mm (MLC), 4 mm (mini MLC) and 3 mm (micro MLC) steps allow Medical Physicists to test the integrity of treatment planning systems and CT-simulators in the display of MLC-shaped fields on transverse or reconstructed images.

### QUASAR MLC Beam Geometry Phantom Specifications

- 10 cm and 15 cm square collimated beam phantom plus 3 mm, 4 mm and 5 mm steps 17 cm long
- Phantom rotates about isocenter on vertical (couch) and horizontal (gantry) axes
- Rotational scale readouts correspond to ICRU 42
- 1 mm diameter stainless steel ball located at the isocenter
- "Z" wire fiducial marker (stainless steel) 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, stainless steel markers

#### **The Quality Assurance System for Advanced Radiotherapy (QUASAR™)**

supports the testing of a wide variety of dosimetric and nondosimetric functions of planning systems, CT simulators and delivery systems.

QUASAR is a valuable part of any quality assurance program. From respiratory motion and MLC beam geometry to daily on-board imaging QA, QUASAR phantoms and software are ready to be incorporated into your QA protocols for regularly scheduled testing. They are also effective for commissioning new systems and upgrades, and testing repairs.

Designed by and for medical physicists, QUASAR quality assurance tools provide you with confidence that every patient is getting the best possible treatment.

The QUASAR MLC Beam Geometry Phantom is just one of the many quality assurance tools available from Modus Medical Devices Inc. To find out more, please contact Modus.

Modus reserves the right to make changes without notice. Product may not be exactly as shown.  
December, 2010

## Ordering Information

100-1003 QUASAR MLC  
Beam Geometry Phantom

500-2000 Heavy-duty Case