

Beam Stop Phantom

Beam Stop Array (BSA) to estimate the scatter distribution of X-ray cone-beam computed tomography and to develop scatter correction techniques

The Beamstop Array (BSA) consists of a regular array of lead cylinders embedded in a polymethylmethacrylate (PMMA) plate. Under the assumption that the lead blockers offer an attenuation length sufficient to prevent primary radiation from reaching the detector, QRM-Beamstop is a convenient means to experimentally determine the x-ray scatter-to-primary ratio for a given measurement setup for analog and digital radiography.

The beam stop array is placed between the object and the x-ray source or between object and detector.

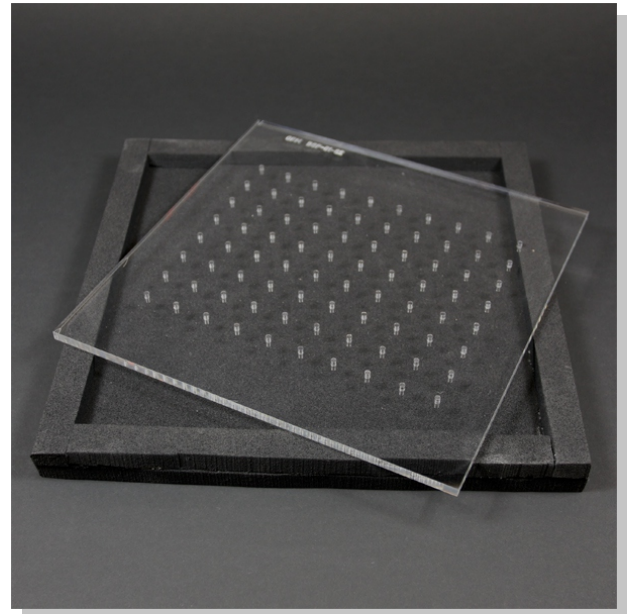
A measurement of the signal level behind each blocker gives the scatter intensity, whereas a measurement without the beam stop array represents the total intensity (scatter and primary signal). Dividing both values results in the scatter fraction.

Specifications

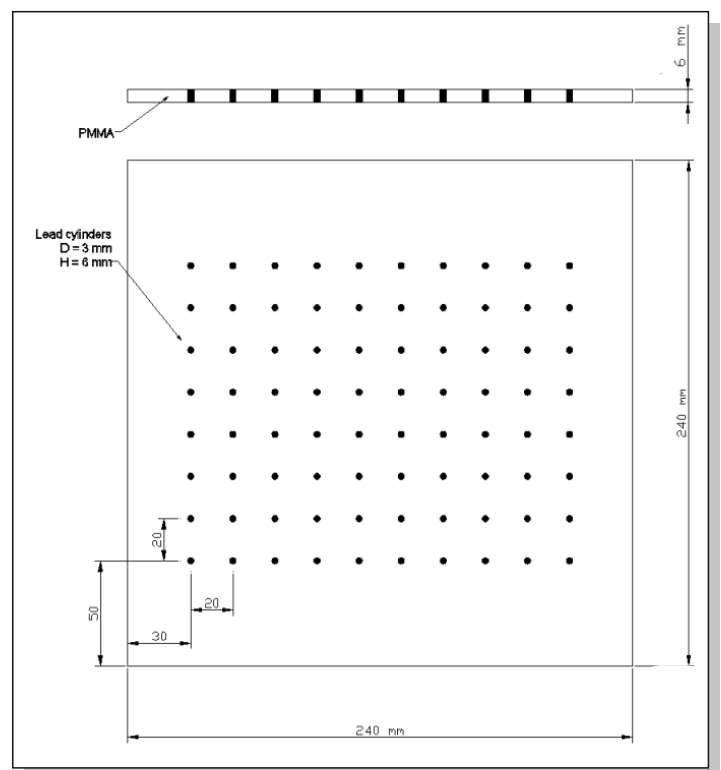
Phantom size:	240 mm x 240 mm
Thickness:	6 mm
Body material:	PMMA
Lead cylindrical inlets:	
Height:	6 mm
Diameter:	3 mm
Spacing:	20 mm

References

- [1] Maher, K.P.: Comparison of Scatter Measurement Technique in Digital Fluoroscopy. Phys.Med.Biol. 38 (1993) 1977–1983
- [2] Ning, R., Tang, X., Conover, D.: X-ray scatter correction algorithm for cone beam CT imaging. Med. Phys. 31 (2004) 1195 – 1202



QRM-Beamstop-Phantom



Schematic drawing of Beam Stop Phantom