



SUN NUCLEAR

A MIRION MEDICAL COMPANY

Brachytherapy QA Phantom

045B

- Supports AAPM Task Group 128 recommendations
- Includes a water tank for phantom coupling and needle guidance measurement



A comprehensive prostate brachytherapy quality assurance program is essential for ensuring accurate image guidance and dosimetry calculations. The Brachytherapy QA Phantom provides a complete solution for implementing a QA program specific to transrectal ultrasound (TRUS)-guided prostate brachytherapy, in accordance with the recommendations of AAPM Task Group 128.¹

This phantom allows users to evaluate critical imaging performance parameters, including depth of penetration, axial and lateral resolution, distance, area, volume, and geometric accuracy relative to the treatment planning system.

The phantom is supplied with a water tank for vertically coupling the transducer to the phantom scanning membrane. The water tank features two angled slots that allow the phantom to be positioned at either 30° or 90°, accommodating both floor- and table-mounted TRUS systems. During imaging tests, the phantom rests inside the water-filled tank, ensuring consistent acoustic coupling without the need for ultrasound gel, simplifying setup and cleanup. Brachytherapy needle grid QA can be performed using the space available inside the water tank, as specified by Goldstein, et al.²

Key Benefits

- Zerdine® hydrogel tissue-mimicking materials
- Water tank supports simplified, consistent coupling and needle grid QA test

References: ¹ Pfeiffer D, Sutlief S, Feng W, Pierce HM, Kofler J. AAPM Task Group 128: Quality assurance tests for prostate brachytherapy ultrasound systems. Medical Physics. 2008;35(12):5471–5489. doi:10.1118/1.3006337.

² Goldstein A, Yudelev M, Sharma RK, Arterbery E. Design of Quality Assurance for Sonographic Prostate Brachytherapy Needle Guides. Journal of Ultrasound in Medicine. 2002;21(9):947–954. doi:10.7863/jum.2002.21.9.947.

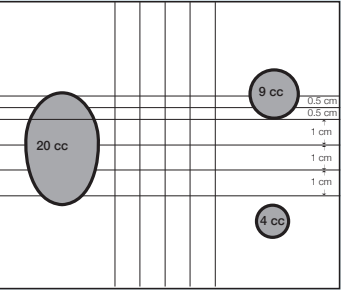
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Brachytherapy QA Phantom

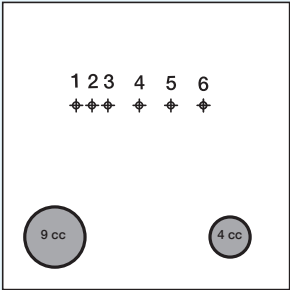
Supports AAPM Task Group 128 recommendations

Specifications

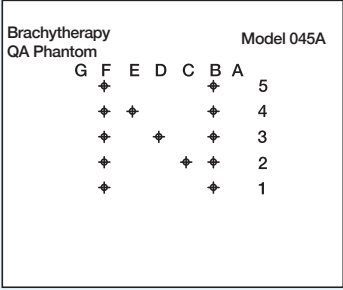
Dimensions	14 x 11 x 7.5 cm (5.5" x 4.3" x 3")
Weight	4 lbs (1.8 kg)
Materials	Water Tank: ABS plastic Phantom Housing: PVC plastic Tissue-Mimicking: Zerdine hydrogels
Zerdine Properties	Speed of sound: 1540 m/s Freezing point: 0° C Melting point: > 100° C Compatible with harmonic imaging
N-Grid	Number of targets: 13 Material: 150-micron nylon monofilament
Probe Retraction Grid	Number of targets: 5 Material: 150-micron nylon monofilament Spacing: 0.5 and 1 cm
Volume Targets	Contrast: hyperechoic to background Size: nominally 4, 9, and 20 cc



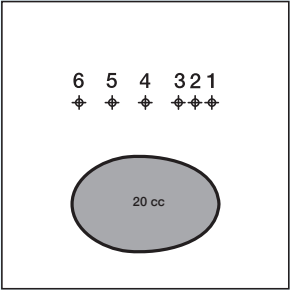
Top



Left



Front



Right