

IMRT Thorax Phantom

- Verify heterogeneity corrections
- Correlate CTU to electron density
- Check dose distributions in sensitive areas
- Check depth doses and absolute dose
- 2D and 3D isodoses
- Calibrate film with ion chamber and other detectors
- Designed to accommodate additional, optional breast attachments



Complete QA from CT Imaging to Dose Verification

The IMRT Thorax Phantom for film and ion chamber dosimetry is designed to address the complex issues surrounding commissioning and comparison of treatment planning systems and complete system QA from CT imaging to dose verification. Once the only way to do IMRT/VMAT QA, phantoms like the IMRT Thorax Phantom are used today for more intensive investigations especially during commissioning, research and end-to-end testing.

Tissue Equivalent Technology

The phantom is elliptical in shape and properly represents an average human torso in proportion, density and two-dimensional structure. It measures 29 cm long x 30 cm wide x 20 cm thick. The phantom is constructed of proprietary tissue equivalent epoxy materials. Linear attenuations of the simulated tissues are within 1% of actual attenuation for water and bone, and within 3% for lung from 50 keV to 15 MeV.

Tissue equivalent interchangeable rod inserts accommodate ionization chambers allowing for point dose measurements in multiple planes within the phantom. Hole placement allows verification in the most critical areas of the chest. One half of the phantom is divided into 12 sections, each 1 cm thick, to support radiographic or Gafchromic™ film. Additional inserts are available to support a variety of other detectors including TLD's, MOSFET, and diodes.

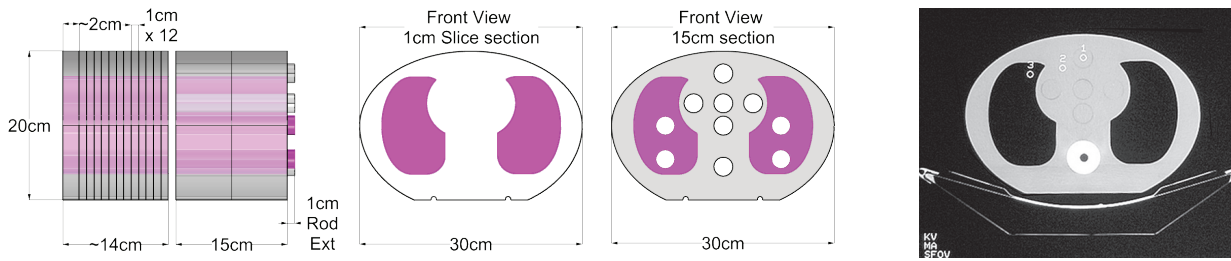
Intuitive Setup

Handling, assembly and proper orientation of the phantom is easy with the use of a unique alignment base and holding device. The surfaces of the phantom are marked for ease of laser alignment. CT markers are included to ensure accurate film to plan registration on the center film.*

*The Sun Nuclear line of IMRT phantoms is compatible with the RIT 113 software for film to plan analysis. Gafchromic™ is a trademark of Ashland.

IMRT Verification and End-to-End Solution

The IMRT phantoms are manufactured from tissue equivalent materials that mimic within 1% from 50 keV to 15 MeV for accurate simulation during all necessary steps of IMRT verification. The interchangeable rod design allows the phantom to accommodate many dose measurement devices such as ion chambers, TLD, diodes and MOSFET's in the same location within the phantom. Phantom cross sections accommodate Gafchromic™ film.



Specifications

Dimensions assembled with holder	43.2 cm x 38.1 cm x 22.9 cm (17" x 15" x 9")
Weight	30 lbs (11.2 kg)
Materials	Phantom Body: Tissue Equivalent Epoxy Materials Inserts: Tissue Equivalent Materials (epoxy resin based)

Insert Options

Part No.	Description
002RW-CVXX-XX	Water equivalent rod insert with ion chamber cavity
002RB-CVXX-XX	Bone equivalent insert with ion chamber cavity
002RL-CVXX-XX	Lung equivalent insert with ion chamber cavity

*Customers must complete their order with the purchase of at least one (1) insert option listed above. For best results, the full set is recommended. Refer to separate cavity and plug code list for available chamber cavities.

Items Included with IMRT Thorax Phantom

Quantity	Description
1	Thorax section drilled to accommodate rod inserts
12	1 cm thorax sections
1	2 cm end section
5	Water equivalent solid rod inserts (002RW-S)
1	Bone equivalent solid rod insert (002RB-S)
4	Lung equivalent solid rod inserts (002RL-S)
1	Set of CT to film fiducial markers
1	Alignment base
1	Holding device
1	User guide

Optional Accessories

Part No.	Description
002BR-2PK	Set of 350cc breast attachments, predrilled in a 3 cm x 3 cm grid to accommodate 8 TLD detectors
002FC	Film Stack for small volume 3D image reconstruction
020HCV	Homogeneous section that accommodates 002FC or 002GC cassettes
002LCV	Thorax region section that accommodates 002FC
002SPH	Water equivalent rods for TLD's (set of 5 rods length 5cm)
002ED	Electron density reference plugs, set of 4 (lung, bone, muscle, adipose)
9501	Case for IMRT Phantoms (002H9K, 002LFC, 002PRA) when ordered with corresponding Cavity Slab (002HCV, 002LCV, 002PCV)
9502	Case for IMRT Phantoms (002H9K, 002LFC, 002PRA)
158200-09	Precision Cut EBT3 Film Kit for Model 002FC (Set of 25 inserts plus 6 calibration strips)