



LUCY™ THORX

ALL-IN-ONE SBRT QA PHANTOM

Single phantom solution for CT SIM and Linac QA. Improve clinical efficiency with integrated imaging, mechanical, dosimetry and SBRT QA.



VERSATILE USER EXPERIENCE

The ThorX is designed to meet critical testing standards such as AAPM TG-53 for treatment planning system (TPS) QA, TG-66 for CT Simulator QA, TG-142 for QA of medical linear accelerators, and other end-to-end commissioning and routine QA activities.

VALUABLE QA ELEMENTS

- Visual Laser Alignment
- Geometric Targets
- Pseudo-anthropomorphic anatomy
- Multiple ion chamber cavities
- Rotating Film Rod Insert with ion chamber cavity
- Spine Film Insert
- Unique target shapes and with known margins and volumes

LUCY THORX

SBRT QA

- Pseudo-anthropomorphic thorax shape
- Kidney target and margin
- Triangle target and margin
- Spine Insert
- Three vertebrae and spinal cord
- Film measurement for high dose gradient verification with target (vertebra) and organ avoidance (spinal cord)

CT SIM QA

- Laser and CT scanner orientation
- Scan localization, laser movement and couch movement verification
- Gantry Tilt verification
- Intuitive DICOM orientation verification as the image set is transferred from CT SIM to TPS

LINAC IMAGING QA

CONSTANCY & MONITORING

- HU density
- Field Uniformity
- High Contrast Resolution (line pairs)
- MTF test
- Spatial Integrity and Geometric Distortion
- Slice thickness verification
- Planar MV and kV Scaling
- Mechanical QA
- 2D/2D, 3D/3D MV/kV coincidence

SGRT QA

- Pseudo-anthropomorphic shape that can be tracked with SGRT cameras
- Phantom can go through scan, plan, localize and treat just like a patient
- Accuracy of tracking can be correlated to dose targeting/delivery accuracy

LUCY THORX MATERIAL SPECIFICATIONS

Material	Material Density (g/cc)	Nominal CT Density #	Relative Electron Density to Water
Virtual Water	1.047	20	1.013
Cortical Bone	1.5	800	1.415
Blue Water	1.09	70	1.05
Adipose Fat	0.92	-80	0.9
Lung	0.28	-700	0.259
Alumina Ceramic	3.875	2600	N/A
Delrin	1.412	400	N/A
Tungsten Alloy	14.947	17000	N/A
Acrylic	1.19	120	N/A
Copper	8.96	2500	N/A
Aluminum Alloy	N/A	580	N/A

LUCY THORX SPECIFICATIONS

PHANTOM DIMENSIONS — 250.7 x 320 x 210mm // **MATERIAL & WEIGHT** — 13.15kg, Virtual Water

45MM SPHERE — 45mm diameter, 50.96cc volume, Blue Water // **KIDNEY TARGET** — 38.9cc volume, Blue Water

KIDNEY MARGIN — 241.75cc volume, Adipose Fat // **TRIANGLE TARGET** — 38.55cc volume, Blue Water

TRIANGLE MARGIN — 104.29cc volume, Lung // **LEFT LUNG** — 155.67cc volume, Lung

FILM ROD INSERT — 120.71mm L, 76.35mm D, Virtual Water // **FILM ROD INSERT TARGET** — 10.09cc volume, Acrylic

FILM ROD INSERT PRE-CUT FILM — 104.3 X 65.2mm, Gafchromic film

SPINE FILM INSERT — 90 X 44.6 X 50.8mm, Virtual Water

SPINE FILM INSERT PRE-CUT FILM — 86.8 X 47.6mm, Gafchromic film

FILM CALIBRATION STRIP — 76.2 X 25.4mm, Gafchromic film