



NEONATAL CHEST PHANTOM GAMMEX 610

The *NEW* Gammex 610 Neonatal Chest Phantom is designed for routine quality assurance monitoring of computed and digital radiography systems. Because the phantom replicates both the anatomic structure and the tissue attenuation characteristics of a real neonate, the phantom can be imaged using clinical protocols resulting in a test of the entire imaging chain, including image processing parameters.

The Gammex 610 is the first anthropomorphic neonatal phantom that sufficiently represents a 1-2kg neonate in its transmission characteristics, histogram, physical size and structure. As such, it can be imaged using the appropriate clinical parameters to provide a measure of image consistency over time. The phantom also contains clinically relevant image quality challenges for resolution and noise in the form of a lung with simulated pneumothorax with pleural thickening, and a lung with simulated hyaline membrane disease.

The Gammex 610 Neonatal Chest Phantom answers a recognized need by both international and national standards groups such as IPEM and AAPM for a comprehensive quality assurance program for computed and digital radiography addressing the two major concerns of patient exposure and image quality.

Patient exposure is a concern because computed and digital radiographic equipment will scale the over exposed images to the proper density. The result, often referred to as “Dose Creep” is especially relevant in pediatric imaging where some patients are radiographed several times per day.

Evaluation of *Image quality* is complicated by the way in which computed and digital radiographic systems use a-priori knowledge of anatomy being radiographed to process and display the image. Image quality can be degraded through improper parameter selection. The effect of parameter selection on image quality can only be assessed by using a phantom that replicates the human anatomy. The Gammex 610 phantom is specially suited as a tool for establishing the lowest possible exposure level that still maintains diagnostic image quality.

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| Size: | 100mm x 100mm x 54mm (Approx.) |
| Weight: | Approximately 500grams |
| Composition:: | Air Muscle Normal Lung Hyaline Membrane Lung Bone |
| Lungs included: | #1 Left – Hyaline Membrane Disease; PTX #2 Right – Hyaline Membrane Disease texture; No PTX #3 Left – Normal texture; PTX #4 Right – Normal texture; No PTX |
| Gammex 610 Neonatal Chest Phantom comes with a custom carrying case. | |





Phantoms

RADIOGRAPHIC SURVEY PHANTOM GAMMEX 170NJ

The Gammex 170NJ phantom provides a simple and reproducible test tool for inter-facility surveys and intra-department comparison of radiographic systems. For routine quality control, the phantom images provide a rapid assessment of high contrast resolution, low contrast detectability, radiographic exposure consistency as well as radiation light-field alignment and collimation accuracy. The phantom is designed for use in three ranges of clinical settings: extremity (no copper plates) in the range of 60 kVP, abdomen or lumbar spine (with 2.4 mm Cu plate) in the range of 75 kVP, and chest (with 2.0 mm Cu plate) in the range of 120 kVP.

The Radiographic Survey phantom is fully compatible with RIT QClick image analysis software that automatically performs MTF, step wedge, resolution, high and low contrast, noise and uniformity tests from your radiographic film image. Results are automatically stored in a database for easy retrieval. Specified for use by health physicists performing routine inspection, the Gammex 170NJ is designed with features to optimize portability and ease of use. Each phantom is equipped with a carrying strap, tripod mounting assembly and built-in levels for quick set up, and orientation in the variety of clinical settings encountered by inspection teams and consultants.

Phantom Base Material

- (2) acrylic blocks: 3.9x3.9x.78 cm (10x10x2 in.) assembled
- (1) 2.0 mm Cu plate, 3.9x3.9 cm (10x10 in.)
- (1) 2.4 mm Cu plate, 3.9x3.9 cm (10x10 in.)

Imbedded Test Objects

Gammex 117 Aluminum step wedge, 11 steps; Dimensions: 5.5" x 1.5" x 1.37", step depth 0.5", step height 0.125"

High contrast resolution test tool: 20 line pairs from 0.6 lp/mm to 10 lp/mm

Contrast-detail test objects: Eight holes of 0.375" diameter with decreasing depths of: 0.006", 0.009", 0.013", 0.018", 0.025", 0.035", 0.049", 0.068"

Tolerance ± 0.0020 "

Two sets of four holes of 0.068" depth with decreasing diameters of: 0.2", 0.15", 0.1", 0.08"

Tolerance ± 0.0020 "

Alignment and Orientation Markers

Four corner markers for light field alignment

Top edge lead reference line for film orientation

Point alignment marker, 0.08" diameter, 0.75" deep

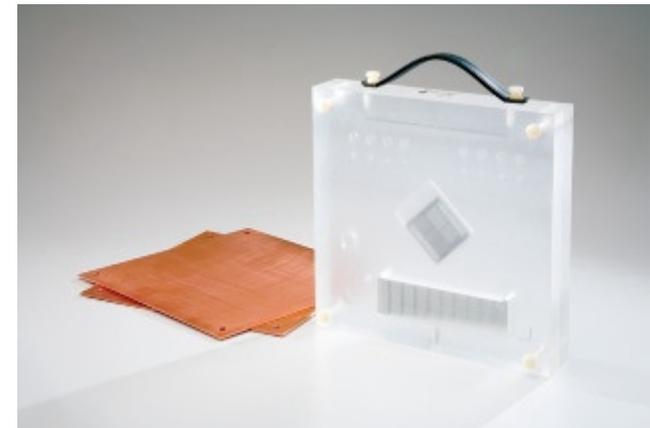
Top and front surface bubble levels

Ergonomic Features

Carrying strap

Thread for tripod mounting

Thumb screw fasteners for attaching copper attenuation plates.





Phantoms

HEAD/BODY CT PHANTOM GAMMEX 461A

The Gammex 461A Head/Body CT Phantom provides a set of tools for evaluating CT image quality. The main modules are constructed of Solid Water®. This permits testing without the difficulties of filling phantoms with water. The set of standard inserts is sufficient for many users. The Gammex 461A comes complete with a custom carrying case.

Features Include:

- Head Module of a uniform disc of Solid Water® Material
- Ring of Bone mimicking material that mounts around the head module
- Body scanning module, body annulus is mounted on the head module.
- The head has 5 tapered cavities which accept tapered inserts and the body annulus ring has 4 cavities, providing a total of 9 test positions.

SPECIFICATIONS

Phantom Construction: Solid Water® Material

Inserts Included:

(9) Uniform Solid Water® inserts for measurement of Noise, CT Number, and Uniformity

(1) Edge/Contrast Scale Response

(1) Spatial Resolution (1.50 to 0.4 mm at 100% contrast)

(1) Low Contrast Detectability (0.6%)

(1) Alignment Artifact (Aluminum Pin)

(4) Alignment, Slice Thickness, Phantom Position

(2) Slice Thickness and Sensitivity Profile 2:1 Slope (26.6° Slope)

(2) Beam Hardening Artifact (Simulated Bone)

(6) Linearity

Case Size: 70 x 41 x 22 cm (24x16x8 in.)

Weight: 16.2 kg (35.7 lbs.)





Phantoms

RADIOGRAPHIC CONTRAST DETAIL PHANTOM GAMMEX 1151

The Gammex 1151 Contrast/Detail Phantom allows the user to determine the threshold contrast characteristics of a radiographic or fluoroscopic system and then monitor performance on a routine basis.

The Gammex 1151 is an aluminum plate with a 10 x 10 matrix of holes. All of the holes in a given row have a constant depth. All of the holes in a given column have a constant diameter. A ten-point contrast-detail curve is constructed by observing the shallowest depth hole that can be seen for each hole diameter.

SPECIFICATIONS

Construction: 6061 Aluminum
Hole Depth: 0.13 to 2.29 mm
Hole Diameter: 0.58 to 7.93 mm
Size: 18 x 18 x 1.3 cm
Weight: 1.0 kg

