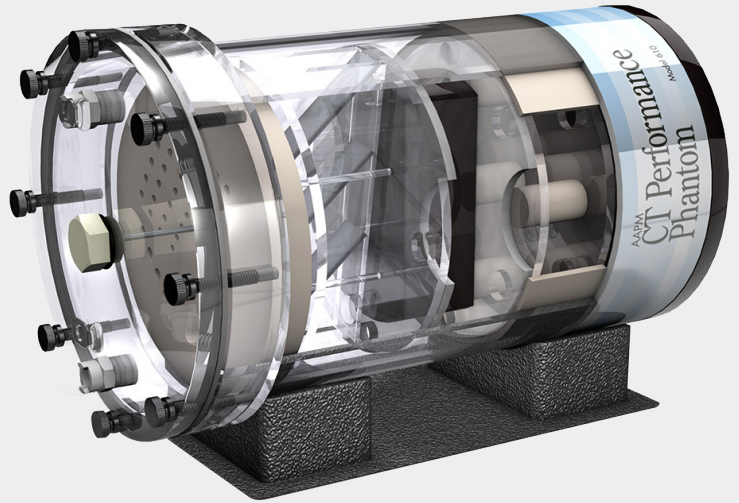




AAPM CT Performance Phantom

- Meets Guidelines in AAPM Report 1 for Performance Evaluation and Quality Assurance of CT Scanners
- Measure 10 distinct CT performance parameters.



(Shown with optional low contrast insert, 610-06)

The AAPM CT Performance Phantom offers the user a single test object that measures ten distinct CT performance parameters. The design is based on the guidelines presented in AAPM Report 1 for CT Scanner Phantoms. The goal of the report is to define CT scanner performance and outline practical methods for evaluating key parameters through utilization of particular phantoms.

CT number linearity, high contrast resolution, and slice width inserts are enclosed within a PMMA water tank equipped with quick-disconnect valves for convenient filling and draining between uses. A bone-equivalent ring can be placed over the inserts to assess beam hardening effects.

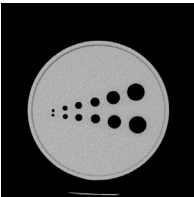
A contrast test object is attached to the bottom of the tank which include two rows of cavities from 1 to 0.125 in. diameter – the cavities can be filled with various solutions for contrast evaluation. An aluminum alignment insert is incorporated in the lid of the tank and can be interchanged with a polystyrene TLD insert for dose measurements. A holding cradle, filling tubes, and other accessories are included.

Performance Measurements:

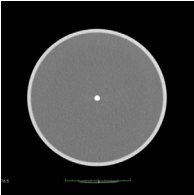
- Noise
- Sensitivity / Detectability
- Mechanical Alignment
- Beam Hardening
- Slice Thickness
- Size Independence
- Radiation Dose
- Spatial Uniformity
- HU Linearity
- Spatial Resolution and line spread function

Specifications

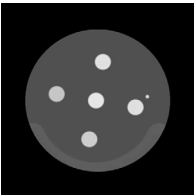
Model 610 Includes



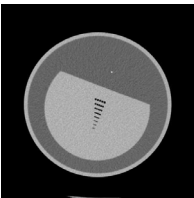
CONTRAST TEST OBJECT
8.5 in. OD x 2.5 in. L solid acrylic equivalent disk with 12 fillable cavities 1.6 in. deep. Two of each cavity with diameters 1, 0.75, 0.50, 0.375, 0.25, and 0.125 in., spaced twice their diameter apart from midline. Cavities can be easily filled from the outside with dextrose or NaCl solutions of various concentrations.



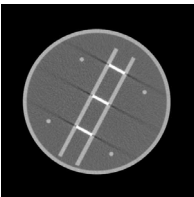
ALIGNMENT PIN
0.25 in. Ø x 3 in. L aluminum pin with threaded attachment to housing cover plate.



CT NUMBER LINEARITY INSERT
7.5 in. OD x 2.5 in. L includes 1 in. Ø rods of polyethylene, PMMA, polycarbonate, polystyrene, and nylon. Density values (g/cc): polyethylene 0.95, polystyrene 1.05, nylon 1.1, acrylic 1.19, polycarbonate 1.20.



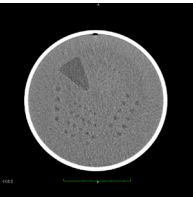
RESOLUTION INSERT
7.5 in. OD x 2.5 in. L with acrylic equivalent test object. Eight sets of air thru holes (five holes per set). Hole diameters (mm): 1.75, 1.5, 1.25, 1.0, 0.75, 0.61, 0.5, and 0.4. Distance between each hole is equal to hole diameter; each row is 5mm apart. Insert also contains a 0.009 in. stainless steel wire positioned longitudinally for calculation of line-spread function.



SLICE THICKNESS INSERT
7.5 in. OD x 3.5 in. L contains 3 of 0.02 in. x 1 in. aluminum strips at 45° on center, aligned vertically.

BONE RING
7.65 in. ID x 0.2 in. wall thickness x 2.8 in. L cortical bone ring. Fits over the Linearity, Resolution, and Slice Thickness insert for beam hardening.

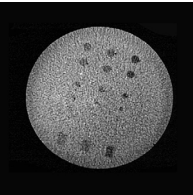
Optional Accessories



**LOW CONTRAST INSERT
PN 610-06**
8 in. OD x 1.18 in. L proprietary epoxy with CT density 6-10 HU above water, containing a series of water-filled holes from 2.5 to 7.5 mm Ø, in 0.5 mm steps. For each target size, the center-to-center distance between holes is twice the hole diameter.

**WHOLE BODY RESOLUTION AND NOISE RING
PN 610-07**
12" OD x 8.5" ID x 2" L Fits over phantom housing 12 in. OD x 8.5 in. ID x 2 in. L, fits over phantom housing. Contains the same test object as the Resolution Insert at two locations 90° apart.

**TLD INSERT
PN. 610-08**
0.5 in. OD x 3.5 in. L PMMA rod with 3 in. hole to accept TLDs. Can be changed with the Alignment Pin in the housing cover without removing the cover.



**LOW CONTRAST INSERT
SPHERICAL TARGETS
PN 610-10**
8 in. OD x 1.18 in. water-equivalent background containing spheres of 5, 10, and 20 CTU above background. Includes 3 reference plugs of each material used as spheres.

Specifications

Overall dimensions:	21.6 cm x 39.4 cm (8.5 in OD x 15.5 in L)
Empty Weight:	7.8g (17.25 lb.)
Materials:	PMMA tube 21.6 cm OD, 20.3 cm ID x 32.4 cm L (8.5 in OD, 8 in ID x 12.75 in L) with removable lid