



Tissue Characterization Phantom

GAMMEX 467

Accurate corrections for tissue inhomogeneities are a critical part of isodose treatment planning. Although most computerized treatment planning systems currently use CT image data, these systems frequently use empirical formulae in computing correction factors for tissue inhomogeneities.

The Gammex 467 Tissue Characterization Phantom can be used to establish the relationship between the electron density of various tissues and their corresponding CT number in Hounsfield Units. This data can then be transferred to the computerized treatment planning system for more accurate corrections for tissue inhomogeneities.

Scanning the phantom on a periodic basis provides data useful for the Quality Assurance Program of both the CT scanner and treatment planning system.

The Tissue Characterization Phantom consists of a Solid Water® disk approximately the size of an average pelvis. A matrix of sixteen holes in the disk hold interchangeable rods made of various tissue and water simulating materials. The physical density (g/cm³) and electron density relative to water of the rod materials are on a specification sheet that is provided with each phantom. The phantom also has a pattern of small air holes with known spacings for checking the CT scanners's distance measurement accuracy. A handy carrying case is also included.

continued

Gammex



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Rod Material	Electron Density Relative to Water	Physical Density g/cm ³
Lung (LN-300)	0.28	0.30
Lung (LN-450)	0.40	0.45
Adipose (AP6)	0.90	0.92
Breast	0.96	0.99
CT Solid Water	0.99	1.02
Brain	1.05	1.05
Liver (LV1)	1.07	1.08
Inner Bone	1.09	1.12
Bone (B200)	1.11	1.15
Bone (CB2-30% Mineral)	1.28	1.34
Bone (CB2-50% Mineral)	1.47	1.56
Cortical Bone (SB3)	1.69	1.82
True Water	1.00	1.00
Optional Titanium Insert	3.79	4.59

SPECIFICATIONS

Disk Material. . . . Solid Water® (Gammex 451)

Diameter 33 cm (12.9 in)

Height 5 cm (2 in)

Weight

Disk and Rods . . 4.6 kg (10 lbs)

Phantom

with case. 6.6 kg (14.5 lbs)