QRM A PTW COMPANY

D100

QRM-10147

Spectral CT Phantom

The QRM-Spectral-CT Phantom was designed to test dual-energy, multi-energy and spectral CT protocols, as well as post-processing techniques.

Image acquisition and image processing at multiple energy levels is improving visualization for computed tomography.
The Spectral-CT Phantom can be used to test different type of CT-machines with dual-energy, multi-energy or photon-counting setups.
The 100 mm cylinder contains 8 holes of 20 mm diameter to house different test inserts of solid tissue equivalent materials or fillable tubes that can be filled with water or contrast media.
The phantom includes a set of different solid inserts of Iodine, Ca-hydroxyapatite, water and soft tissue equivalents as adipose, muscle, bone, and lung.
Mass density, electron density, effective atomic number (z) and elemental composition are given for each material.

Features

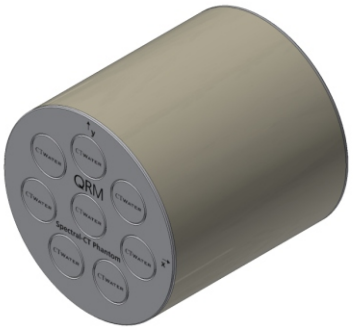
- Test the accuracy and consistency of spectral CT
- Test the Scanner performance
- Perform a material characterization and quantification of tissue-equivalent materials
- Decompose iodine and Ca levels
- Test the post-processing techniques of spectral CT

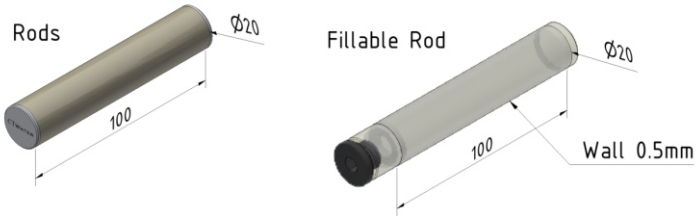
Part list of QRM-SCT

- Water-equivalent cylinder with 8 bores
- 8 plugs CTwater® (0 HU @ 70 - 150 kV)
- 12 test inserts:
  - adipose tissue (ICRU 44)
  - muscle tissue (ICRU 44)
  - lung tissue (ICRU 44)
  - liver tissue (ICRU 44)
  - 4 different Iodine rods (CTIodine)*
    - 2, 5, 10 and 15 mg I/cm³
  - 4 different Ca-HA rods (Bone)*
    - 100, 200, 400 and 800 mg CaHA/cm³
- 2 fillable

**specified values. Nominal values can vary with respect to manufacturing method and imaging device!*

Spectral CT Phantom





Phantom dimensions, D100 cylinder with 8 bores, ICRU rods and fillable rods

D100 **D100: fits also into Thorax and Abdomen Phantom**

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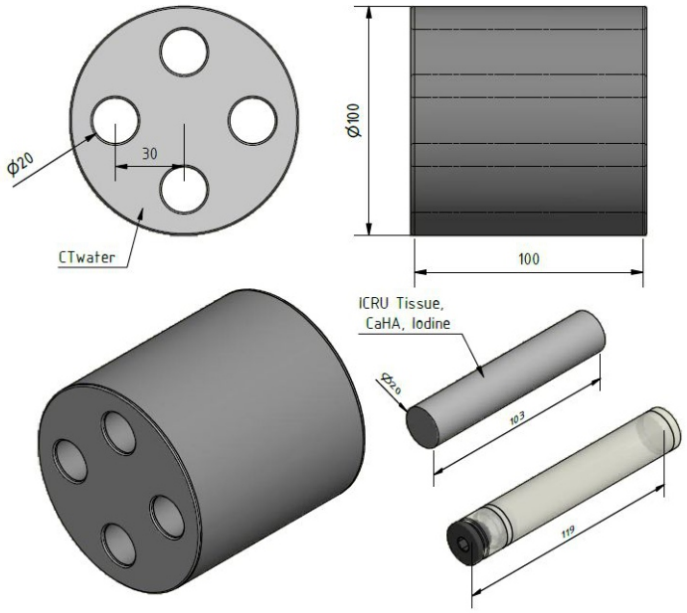
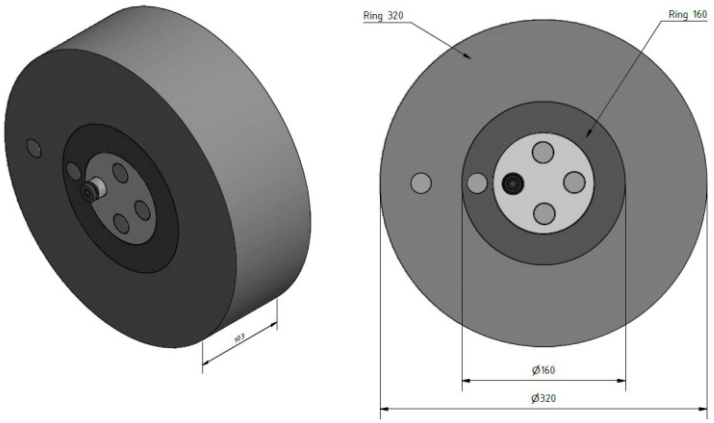
Spectral-CT Phantom



Schematic view of the version with 4 bores as customized option

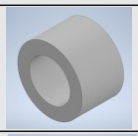
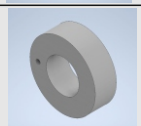
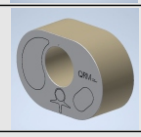


Optional rings D160 and D320

Specifications

Phantom diameter ..... 100 mm
Phantom length ..... 103 mm
Phantom weight ..... 1.0 kg
Rod diameter ..... 20 mm
Rod length .....103 mm

Optional available

Ring 160	CTWATER® D160mm / H100, bore D20	
Ring 320	CTWATER® D320mm / H100, bore D20	
Additional inserts	Tissue equivalents ICRU 44/46 Iodine, CaHA	
Tubes	Fillable tubes	
Abdomen	200 x 300 mm H 100 mm	

*specified values. Nominal values can vary with respect to manufacturing method and imaging device!

References:

[1] Ehn S, Sellerer T, Noel P, et al.
Assessment of quantification accuracy and image quality of a full-body dual-layer spectral CT system
J Appl Clin Med Phys 2018;19:1: 204–217

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