Head and Neck Phantom

for CT, X-Ray and Radiation Therapy

Factsheet

Item No. NLP1600

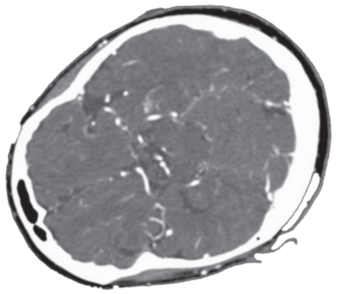
ERLER ZIMMER

This phantom simulates a contrast medium enhanced head in arterial phase (CT angiography). The neck and upper thorax are included up to the aortic arch and the fifth thoracic vertebra.

The vertex is included until approximately 0.5 cm below skin level. The thoracic phantom section excludes shoulder and back parts that are typically not part of CTA examinations.

The internal carotid artery has calcifications on both sides with moderate stenosis on the right side. Otherwise, the phantom has no significant vascular pathologies.

The phantom can be used in CT (including CBCT) to evaluate and optimize CTA imaging performance and post-processing applications such as vessel segmentation, including AI-enabled applications. It is also nicely suited for training purposes.The phantom provides a detailed and realistic simulation of vascular structures, soft and bone tissues.

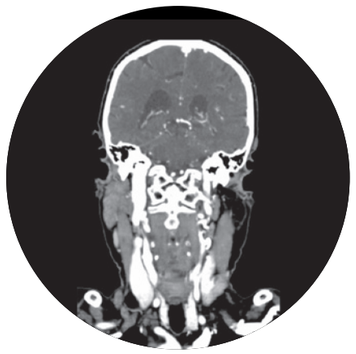


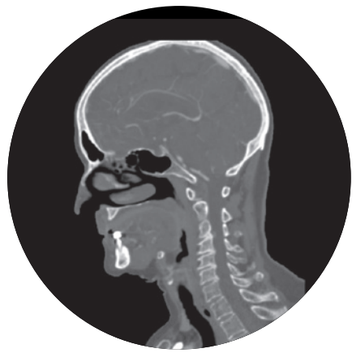
Diagnostic features:

- Realistic simulation of head and neck vessels up to the aortic arch, bone and soft tissues.
- Calcifications of the internal carotid artery at the carotid bifurcation on both sides with mild stenosis on the right side.

Specifications

Size: approx. 18.5 x 21.5 x 32.2 cm
Weight: approx. 5.63 kg
Base Material: Cellulose-polymer composite
Optimal Tube Voltage: 120 kVp (adaptable upon request)

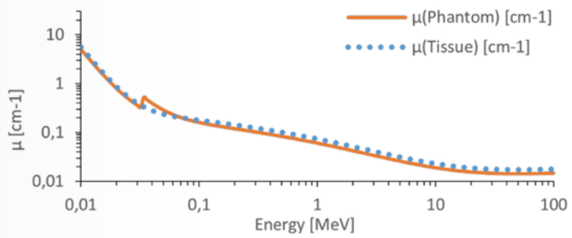




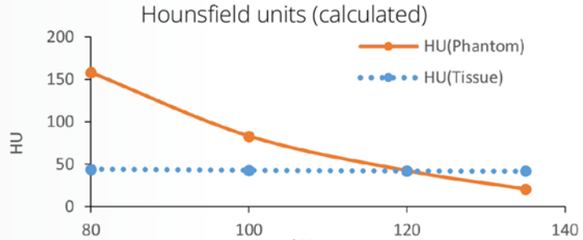
Attenuation properties

Soft Tissue

Linear attenuation coefficients [cm^{-1}] (calculated)

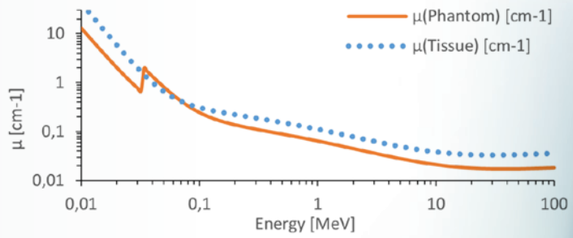


Hounsfield units (calculated)

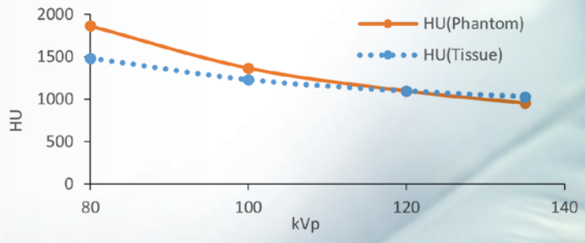


Bone Tissue

Linear attenuation coefficients [cm^{-1}] (calculated)



Hounsfield units (calculated)



Tissue Reference: Woodard HQ, White DR. The composition of body tissues. Br J Radiol. 1986.

General indications

- The phantom is made of a cellulose-polymer composite material with properties similar to hardwood. If handled carefully, it will last a long time.
- The phantom is coated with a protective layer. If the protective layer is undamaged, the phantom can be cleaned using a damp cloth (water or mild detergent).
- Protect from direct sunlight.
- Maintain a storage temperature of 10 °C to 30°C. If the phantom is exposed to temperatures below -10 °C or above 45 °C, it can be severely damaged.
- The phantom is not equipped for dose measurements with dosimeters and it is not suited for material characterization with dual energy CT.
- The phantom is not certified as medical device.
- Air voids are filled with cellulose-polymer composite of approx. -160 HU.
- Handle with care to prevent injury or damage.

EXPERTS IN MEDICAL EDUCATION

Erler-Zimmer Medical GmbH
Hauptstraße 27 · 77886 Lauf · Germany
T +49 7841 / 67191-0 · F +49 07841 / 67191-99
info@erler-zimmer.de

www.erler-zimmer.de

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