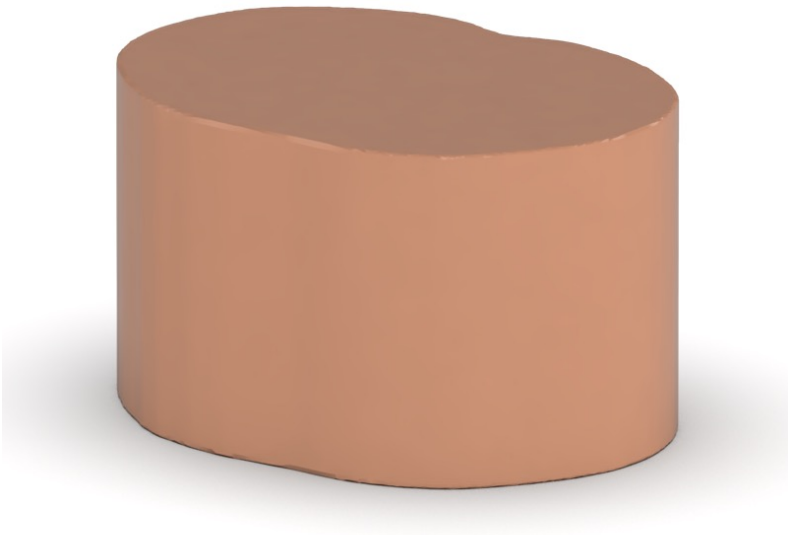
Article Number
PX0203447

Made in Germany

UNIFORM ABDOMEN PHANTOM LC SPHERES

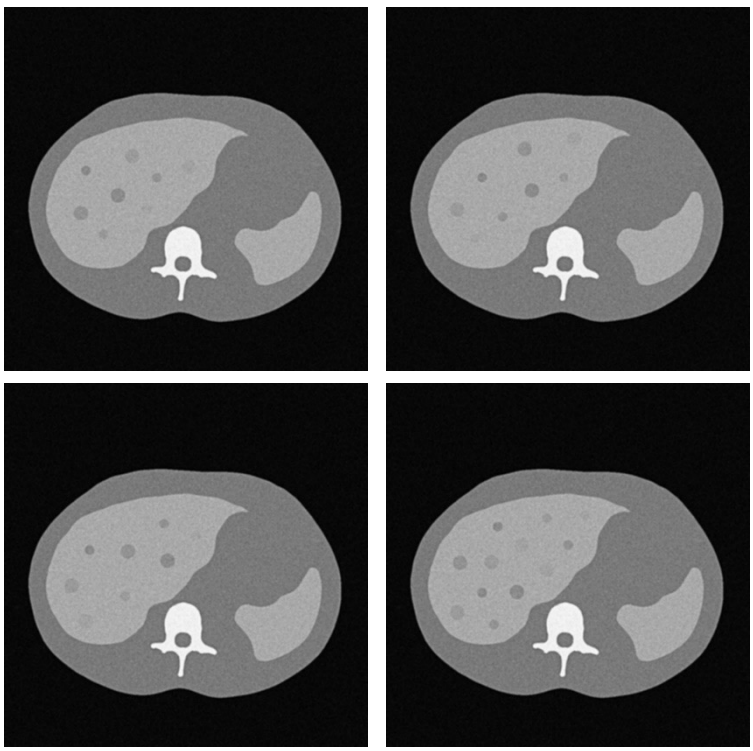
Age Category	Adult
Body Region	Abdomen
Target Modality	CT
Diagnostic Features	Low-contrast liver lesions



This phantom is a semianthropomorphic phantom representing the abdomen including the liver, spleen and the spine. Organ contours do not change throughout the entire phantom.

The phantom has 64 spherical lesions in the liver with 8 and 12 mm diameter and nominal lesion contrasts of 10, 20, 30 and 40 HU to the surrounding liver.

The phantom can be used in CT (including CBCT) to assess the detectability of spherical low-contrast lesions in a uniform liver background.

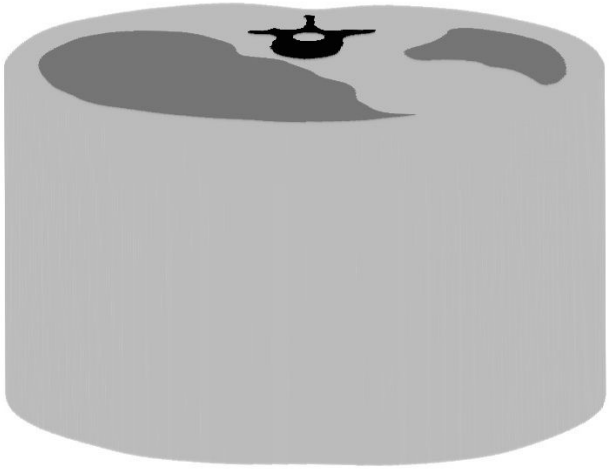


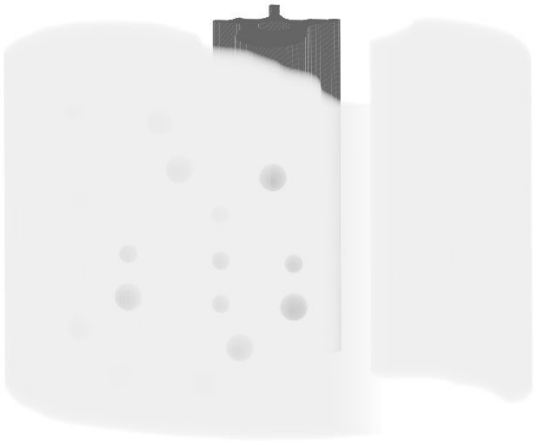
PhantomX GmbH
Schwedenstr. 14, 13357 Berlin

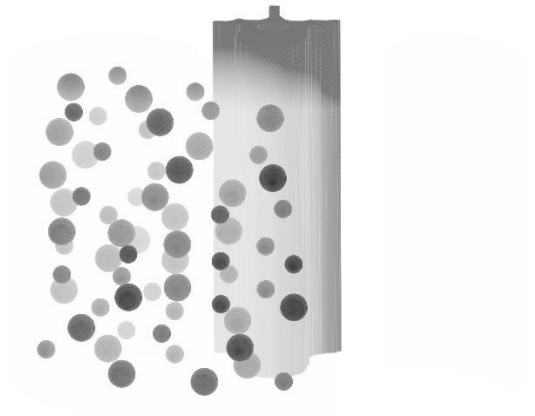
www.phantomx.de

Mail: info@phantomx.de
Tel: +49 (0)30 6407 9970

UNIFORM ABDOMEN PHANTOM LC SPHERES







Specifications

Size	Approx. 268 x 189 x 150 mm 10.6 × 7.4 × 5.9 in
Weight	Approx. 4950 g 10.9 lb
Base material	Cellulose-polymer composite
Optimal tube voltage	120 kVp [cf page 6] - adaptable upon request -

Diagnostic features

64 spherical liver lesions in 7 sections.

Lesion diameter: 8 mm and 12 mm
Nominal lesion contrasts*: 10, 20, 30 and 40 HU at 120 kVp

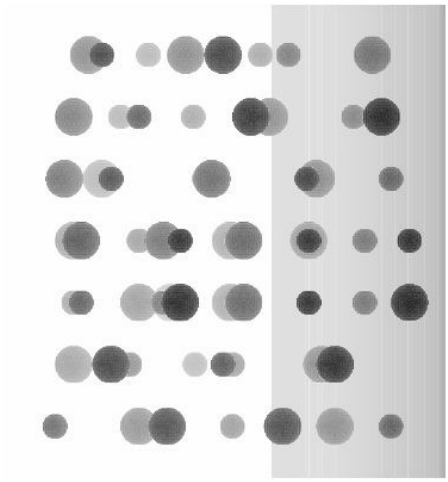
- Section 1: 8 lesions
- Section 2: 8 lesions
- Section 3: 8 lesions
- Section 4: 12 lesions
- Section 5: 12 lesions
- Section 6: 8 lesions
- Section 7: 8 lesions

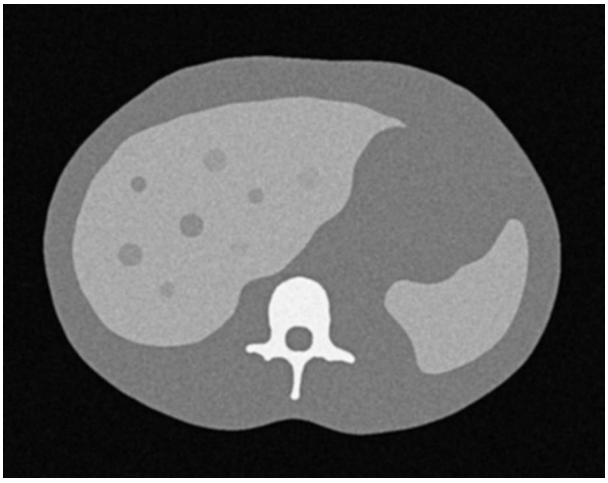
**cf. page 6 for measurement of lesion contrast*

For more information visit
www.phantomx.de

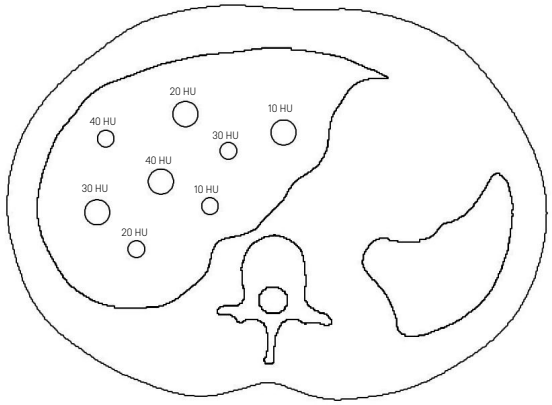
UNIFORM ABDOMEN PHANTOM LC SPHERES

Section 1
Section 2
Section 3
Section 4
Section 5
Section 6
Section 7

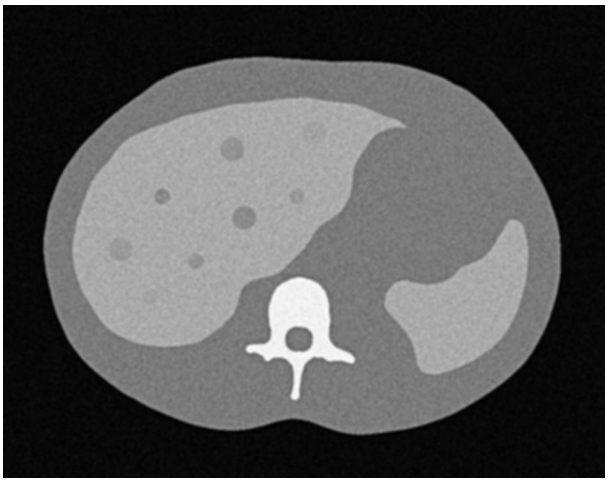




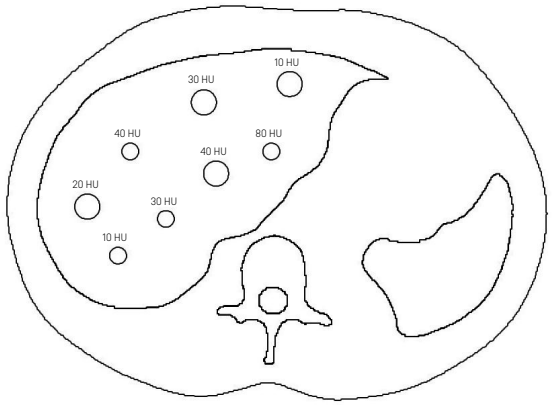
Exemplary image of section 1



Drawing indicates nominal lesion contrast to surrounding liver. Larger lesions have 12 mm diameter, smaller lesions have 8 mm diameter.

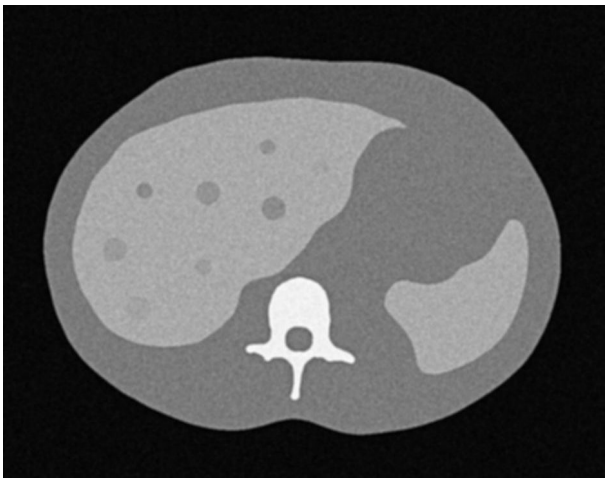


Exemplary image of section 2

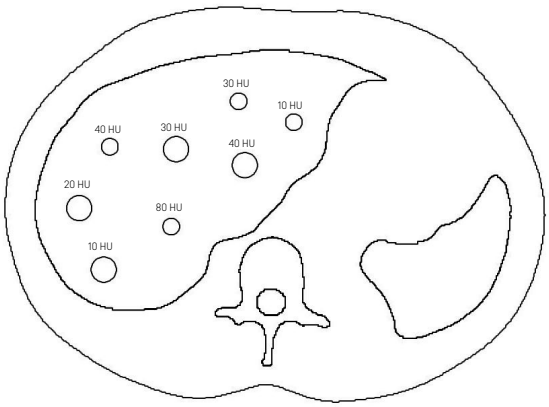


Drawing indicates nominal lesion contrast to surrounding liver. Larger lesions have 12 mm diameter, smaller lesions have 8 mm diameter.

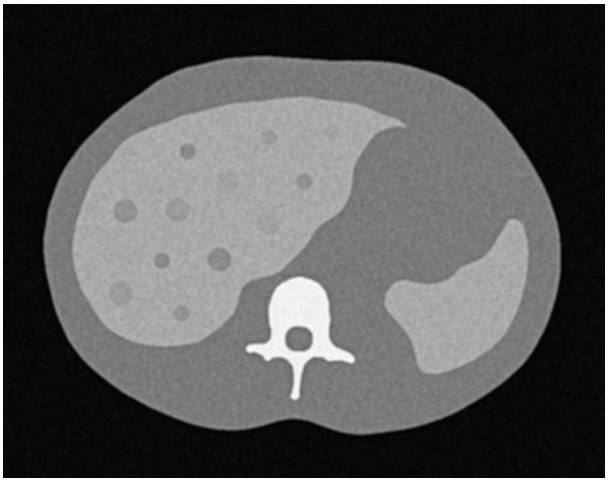
UNIFORM ABDOMEN PHANTOM LC SPHERES



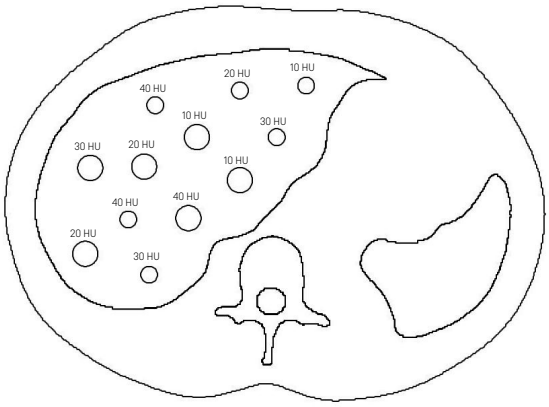
Exemplary image of section 3



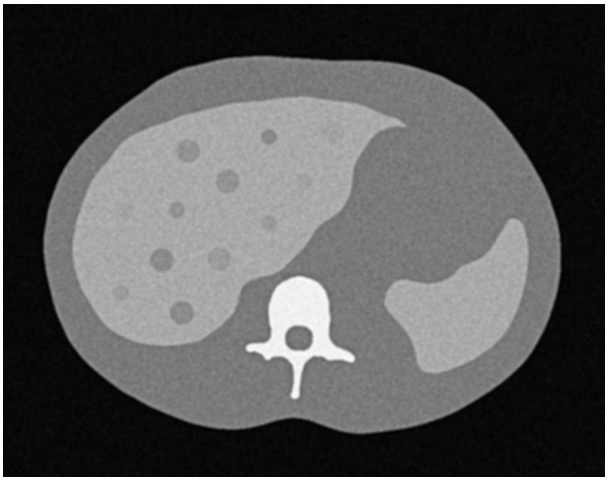
Drawing indicates nominal lesion contrast to surrounding liver. Larger lesions have 12 mm diameter, smaller lesions have 8 mm diameter.



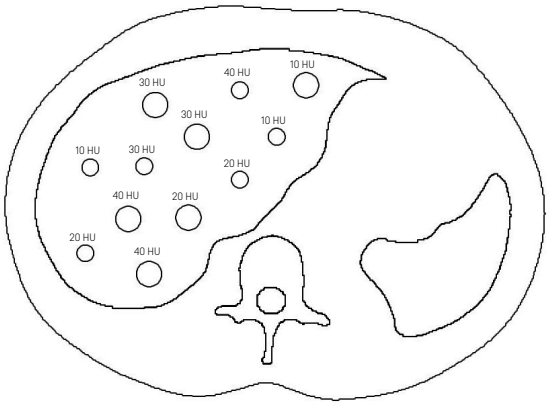
Exemplary image of section 4



Drawing indicates nominal lesion contrast to surrounding liver. Larger lesions have 12 mm diameter, smaller lesions have 8 mm diameter.

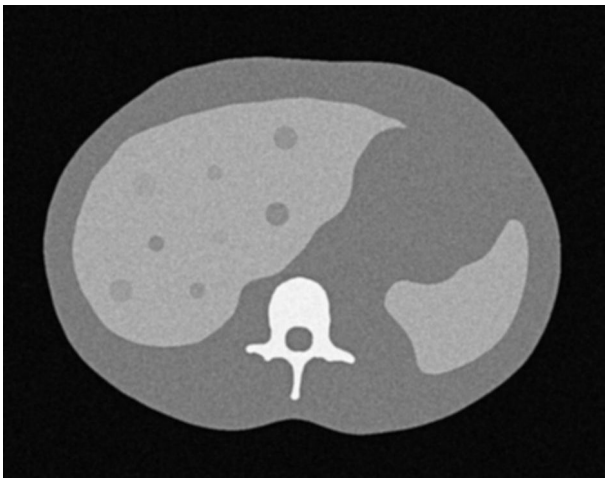


Exemplary image of section 5

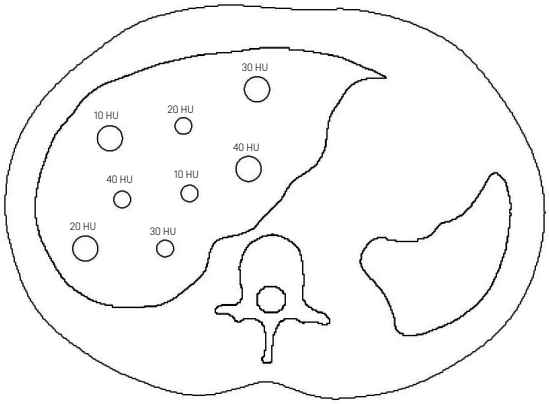


Drawing indicates nominal lesion contrast to surrounding liver. Larger lesions have 12 mm diameter, smaller lesions have 8 mm diameter.

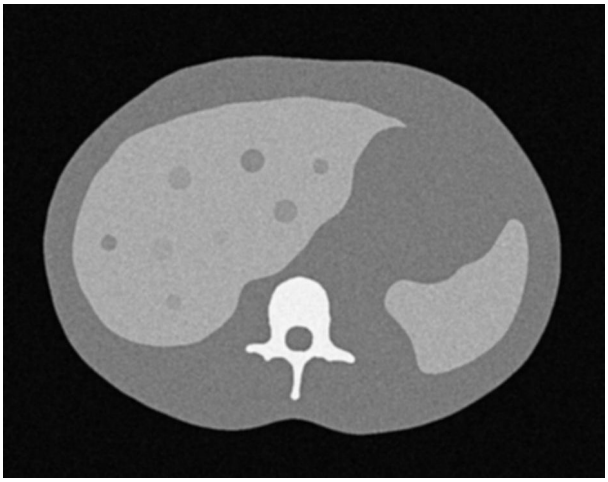
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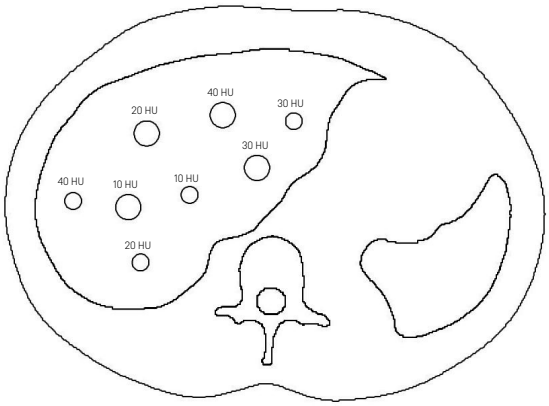
Exemplary image of section 6



Drawing indicates nominal lesion contrast to surrounding liver. Larger lesions have 12 mm diameter, smaller lesions have 8 mm diameter.



Exemplary image of section 7



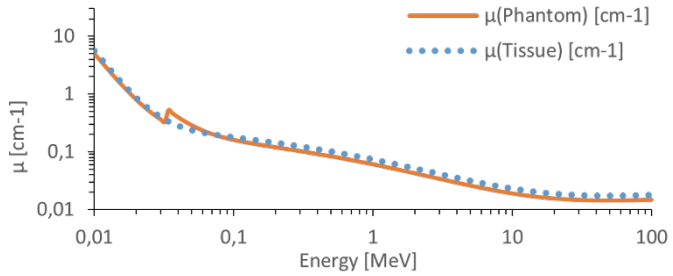
Drawing indicates nominal lesion contrast to surrounding liver. Larger lesions have 12 mm diameter, smaller lesions have 8 mm diameter.

UNIFORM ABDOMEN PHANTOM LC SPHERES

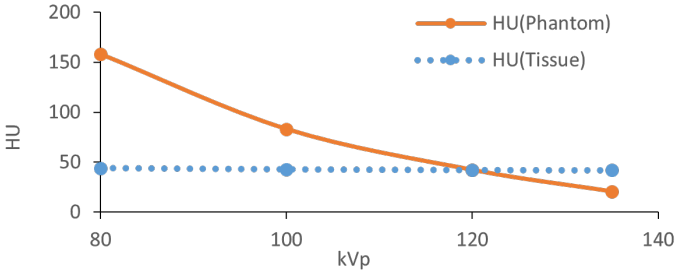
Attenuation properties

Soft Tissue

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

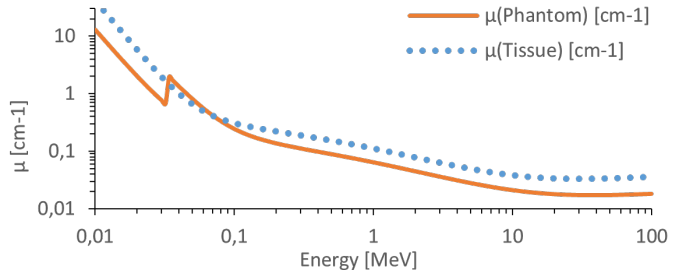


Hounsfield units (calculated)

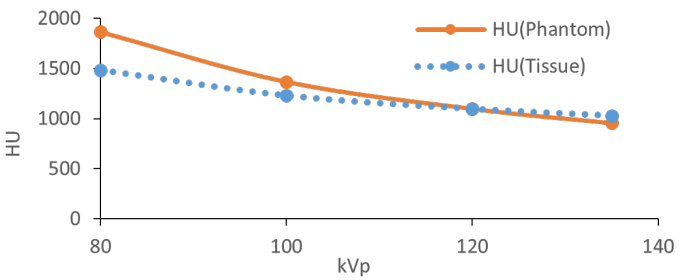


Bone Tissue

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.
- If external damage is observed, it is recommended to consult PhantomX.

Lesion contrast

Lesion contrast can vary based on protocol settings, including dose and reconstruction algorithm, as well as the chosen measurement method.

To measure lesion contrast, it is recommended to define volumes of interest (VOIs) that encompass most of the lesion and adjacent tissue. Edges of the lesion should be avoided, and measurements should be averaged across multiple scans to improve reliability, given the inherent noisiness of low-contrast measurements.

The VOI should cover at least one-third of the lesion volume, and the VOI for adjacent tissue should be equal to or larger than the lesion volume.

Phantom based on modified data, originally published by Roth H et al. A new 2.5 D representation for lymph node detection in CT. The Cancer Imaging Archive (2015) DOI: 10.7937/K9/TCIA.2015.AQIIDCNM (CC BY 3.0)