

Pro-RT ED CBCT

07-602

07-602A



In CBCT imaging, CT numbers are affected by scatter and system-specific acquisition conditions, so calibration must be performed per system. Diagnostics developed the Pro-RT ED CBCT phantom for this system-specific calibration and to establish the correlation between CT data and electron density used in radiotherapy treatment planning, where tissue heterogeneity must be accounted for.

The phantom comprises a large body section with a removable head module, extending coverage along the longitudinal (z) axis so evaluation spans a clinically relevant scan volume. Fifteen tissue-equivalent electron density plugs ($\varnothing$ 30 mm $\times$ 165 mm), including two fillable water vials, can be positioned at 16 locations across the scan field. Optional titanium, stainless-steel and aluminium cores are also available.

Available materials: Lung (inhale/exhale), Adipose tissue, Breast (50% gland / 50% adipose tissue), Pro-Water, Brain (gray, white and medium matter), Liver, Calcium 50 mg/mL, Bone 200, Calcium 300 mg/mL, Bone 1250 and a water sample.

Technical data (can be modified to customer specifications):

Two configurations:

07-602 head insert, and body segmented into 3 × 55 mm sections

- Electron Density Head Insert: Ø 200 mm x 165 mm (3x 55 mm)
- Electron Density Body without Head Insert: 300 mm x 400 mm x 165 mm (3x 55 mm)
- list of electron density plugs Ø 30 mm x 165 mm:
Lung (inhale), Lung (exhale), Adipose tissue, Breast (50% gland / 50% adipose tissue), Pro water, Brain (gray matter), Brain (white matter), Brain (medium matter), Liver, Calcium 50 mg/mL, Bone 200, Calcium 300 mg/mL, Bone 1250, Water sample and optional titanium, steel or aluminum core
- stand
- carrying case

07-602A solid 165 mm insert and body

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- Electron Density Body without Head Insert: 300 mm x 400 mm x 165 mm
- list of electron density plugs Ø 30 mm x 165 mm:
Lung (inhale), Lung (exhale), Adipose tissue, Breast (50% gland / 50% adipose tissue), Pro water, Brain (gray matter), Brain (white matter), Brain (medium matter), Liver, Calcium 50 mg/mL, Bone 200, Calcium 300 mg/mL, Bone 1250, Water sample and optional titanium, steel or aluminum core
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The values shown in the table are example values only. Each product is supplied with its own certificate containing the actual product-specific data.

Material	Physical Density	Electron Density Relative to Water
Lung (inhale)	0.24	0.23
Lung (exhale)	0.67	0.65
Adipose tissue	0.93	0.90
Breast 50/50	0.98	0.96
Pro Water	1.03	1.00
Brain, gray matter	1.09	1.07

Material	Physical Density	Electron Density Relative to Water
Brain, white matter	1.07	1.06
Brain, medium matter	1.08	1.07
Liver	1.06	1.01
Calcium 50 mg/mL	1.16	1.09
Bone 200	1.19	1.15
Calcium 300 mg/mL	1.39	1.29
Bone 1250	1.80	1.66
Water sample	—	—

Product features:

- Complies with:
 - IEC 61223-3-5
 - IEC 61223-2-6
 - AAPM guidelines
 - ACR guidelines
 - 21CFR 1020.33 specifications
- CE marked
- The manual provides detailed guidelines for carrying out each test, results assessment and registration