



SedentexCT IQ

CBCT Phantom

A PMMA cylinder (160 mm diameter) with recesses to house test inserts (fig. 1). Within the body of the cylinder are features for the following tests;

Noise/Uniformity

- The lower section of the phantom is uniform PMMA (density 1.20 +/- 1.00%)

Geometric Distortion

- An array of 2.0 mm diameter, 3.0 mm deep Air gaps are uniformly pitched at 10.0mm intervals through one slice of the cylinder

Test Inserts are included to perform the following measurements:

Spatial Resolution

- Line Spread Function (LSF) - PMMA/PTFE interface (fig. 2)
- Point Spread Function (PSF) - 0.25mm diameter stainless steel wire suspended in air (fig. 3)
- LP/mm - alternating Aluminium/polymer (XY) (1.0, 1.7, 2.0, 2.5, 2.8, 4.0 and 5.0 LP/mm) (fig. 4)
- LP/mm - alternating Aluminium/polymer (Z) (1.0, 1.7, 2.0, 2.5, 2.8, 4.0 and 5.0 LP/mm) (fig. 5)

Contrast Resolution (fig. 6)

- 1.0, 2.0, 3.0, 4.0, 5.0 mm diameter Aluminium, PTFE, delrin, LDPE, Air, Water (PMMA) rods suspended in PMMA

Pixel intensity (fig. 7)

- 25.0 mm diameter Aluminium, PTFE, delrin, LDPE, Air, Water (PMMA) rods suspended in PMMA

Beam Hardening Artefacts (fig. 8)

- A line of three 5.0 mm diameter rods of Ti suspended in PMMA

Blank PMMA insert (fig. 9)

Includes tripod for universal positioning





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Details

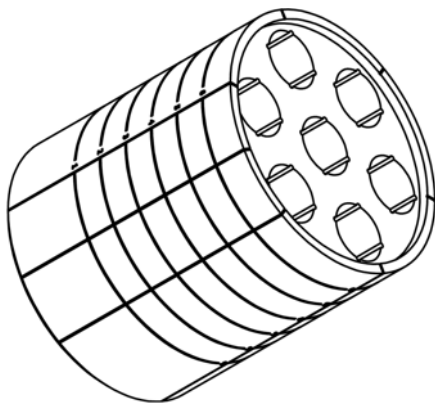


fig. 1 PMMA cylinder

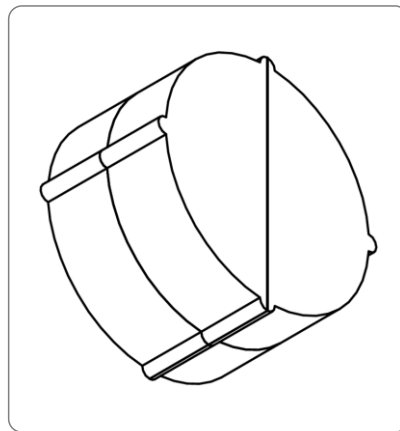


fig. 2 Line Spread Function (LSF)

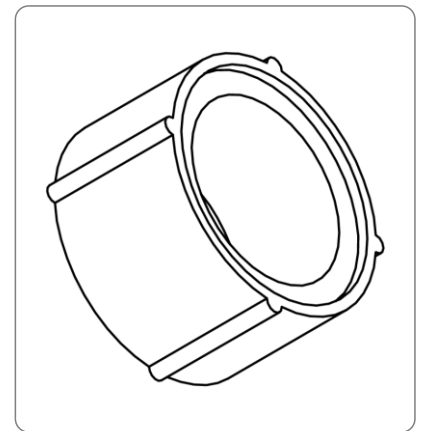


fig. 3 Point Spread Function (PSF)

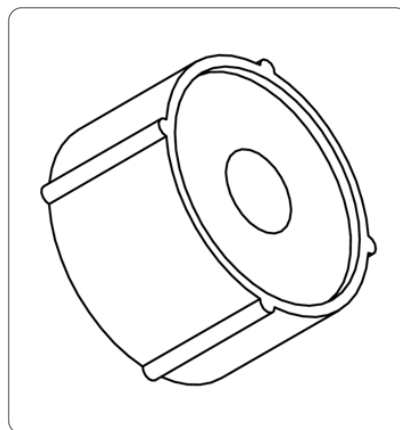


fig. 4 LP/mm Spatial Resolution (XY)

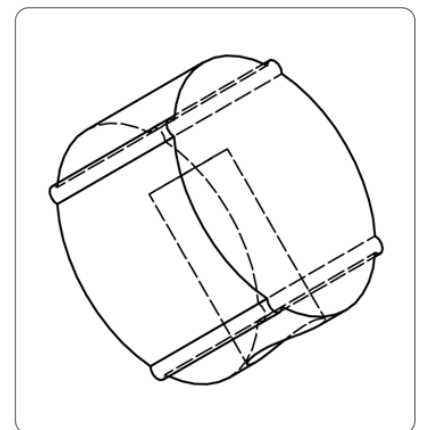


fig. 5 LP/mm Spatial Resolution (Z)



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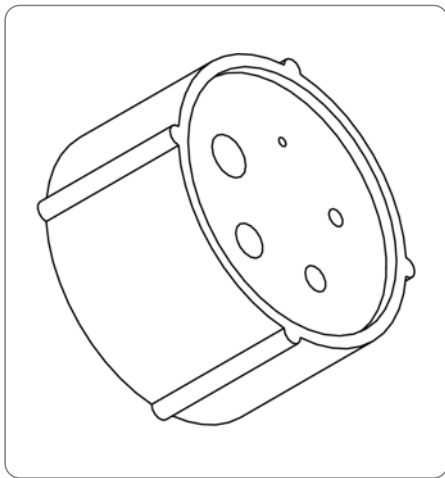


fig. 6 Contrast Resolution

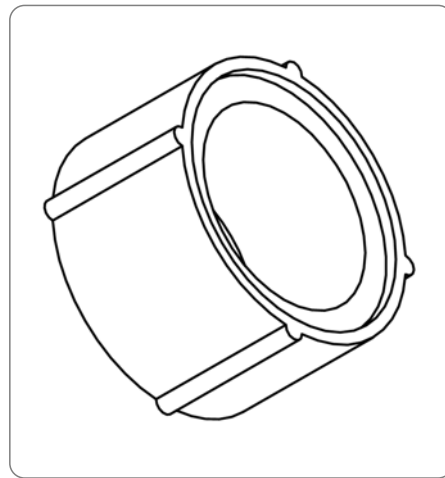


fig. 7 Pixel Intensity

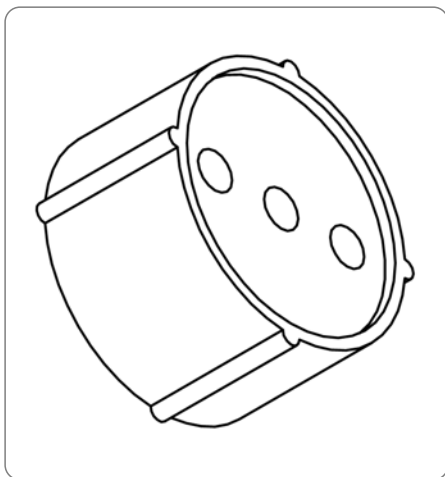


fig. 8 Artefacts

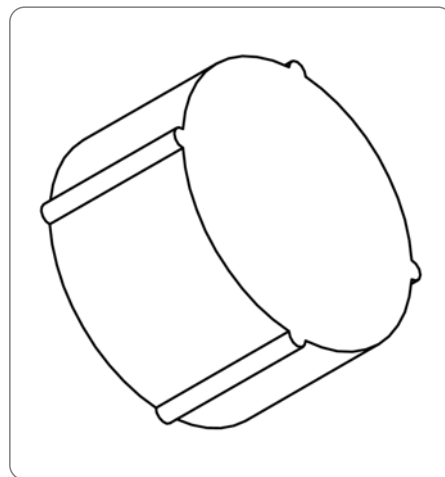


fig. 9 Blank PMMA insert

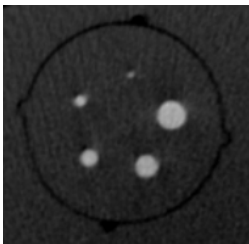


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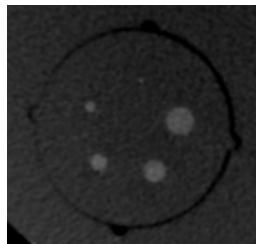
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Details

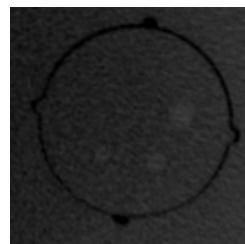
- Contrast resolution inserts:



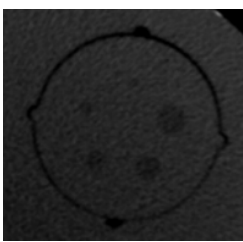
Aluminium



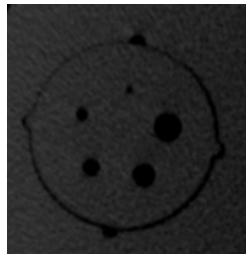
PTFE



Delrin

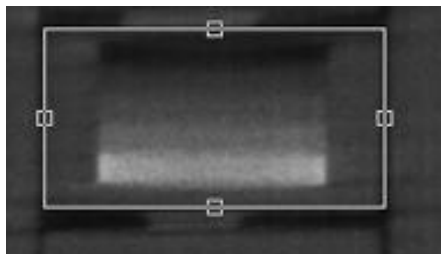
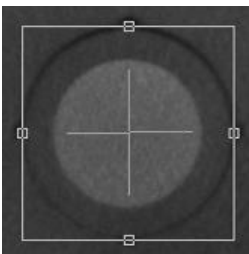


LDPE



Air

- Contrast-to-Noise:



(left: axial view, right: coronal view)

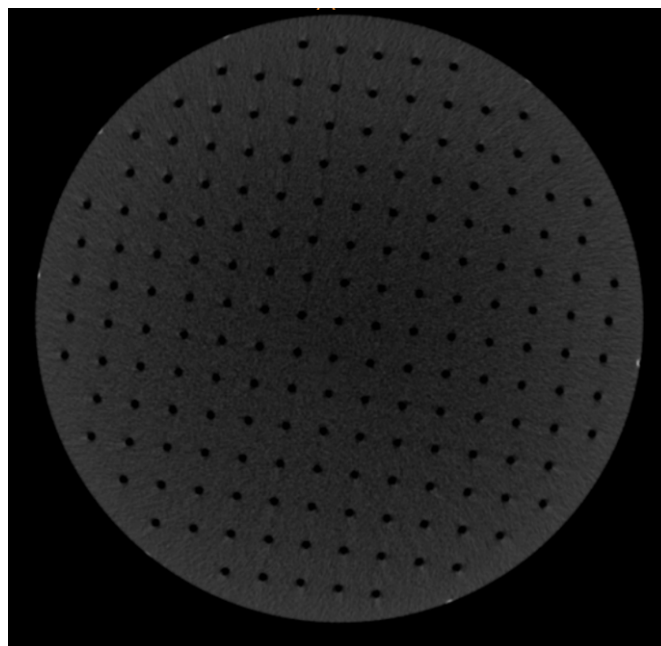


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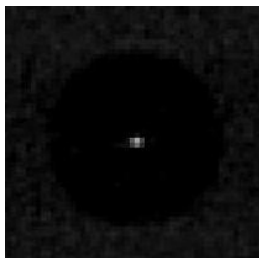
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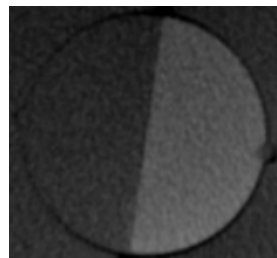
- Geometric accuracy:



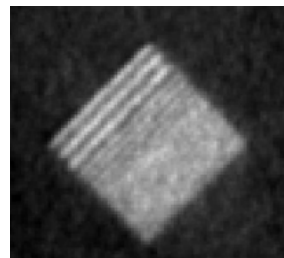
- Image quality tests:



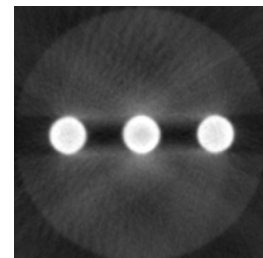
PSF



LSF



Spatial Resolution



Artefacts

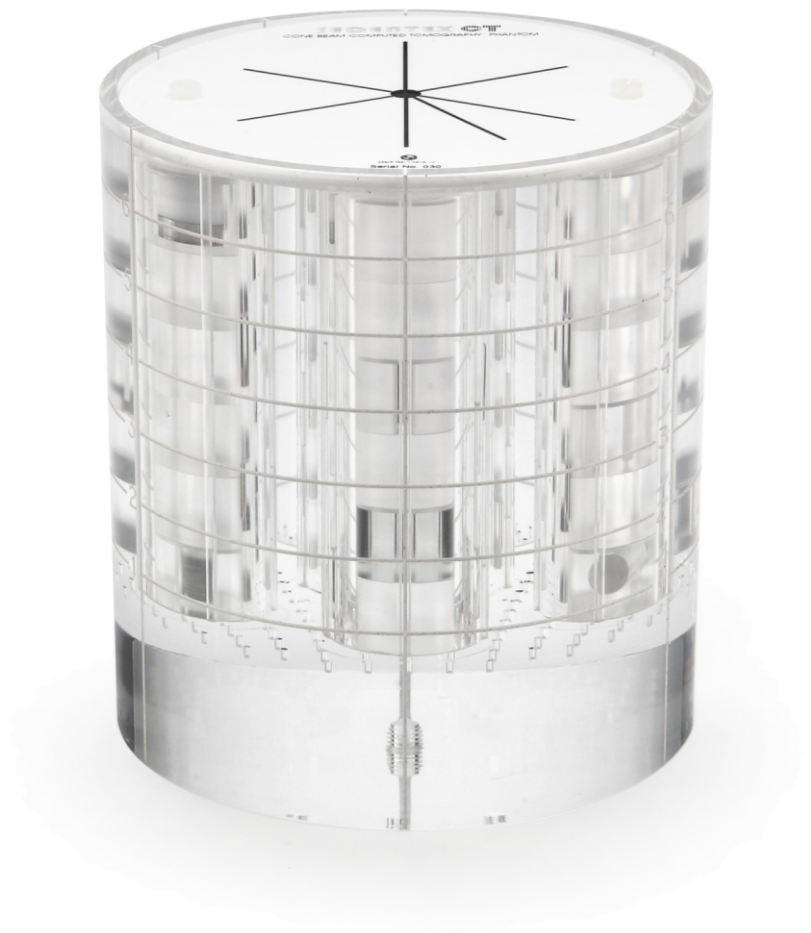
www.leadstestobjects.com



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