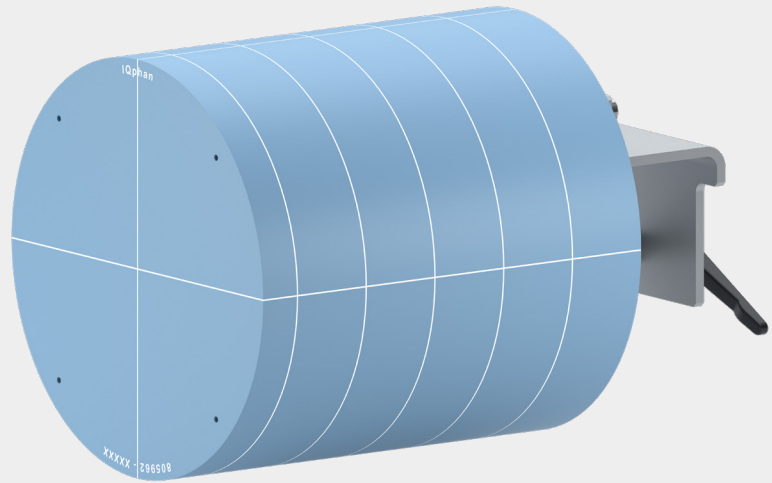


# IQphan™

## Comprehensive CT Image Quality Phantom

- Perform QA across CT imaging systems, from sophisticated diagnostic scanners to cone beam to on-board radiotherapy systems
- Use with RapidCHECK™ Image Quality Analysis software for exacting CT imaging quality testing, with quick, consistent analysis



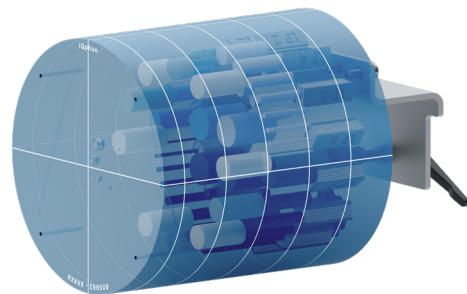
There are a multitude of CT imaging systems, spanning the diagnostic and radiation therapy spaces. This breadth has been a challenge for QA because of the different performance characteristics of these systems:

- Low contrasts, suitable for a helical diagnostic CT, might not be visible in CBCT
- A wire ramp, appropriate for MVCT, might cause undo artifacts at diagnostic energies
- Planar line pair objects might work for axial scans, but not fully represent the 3D performance of large detector helical CT or CBCT

Whether using one – or all – of these systems, IQphan can test performance limits without compromise.

### Comprehensive CT QA – All in One Phantom

With IQphan, a single phantom addresses QA across the range of specifications of different CT scanners, enabling you to gain more QA information than may be available with other phantoms. A combination of modules supports a robust variety of tests.



*Phantom shown partially transparent for reference only*

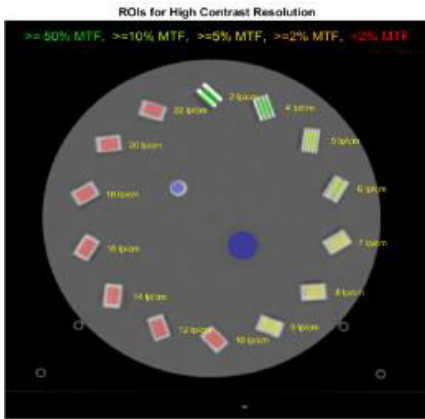
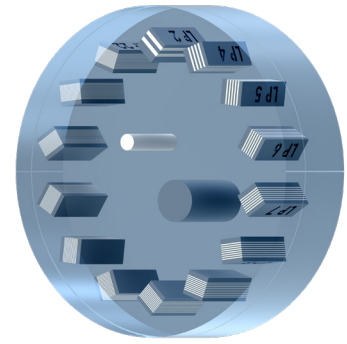
### Analysis with RapidCHECK™

IQphan integrates with RapidCHECK™ analysis software to quickly and consistently process CT data into results and reports.

## High-Contrast Resolution Module

Designed for manual and automated analysis, this module features high-resolution line pairs, large 3D patterns that are easy to visualize, and robust data analysis in the RapidCHECK software.

- All line pair targets oriented 45° to radial line for a consistent balance between radial and circumferential resolution
- Includes high resolutions up to 22 lp/cm
- Designed for automation: Includes solid samples of resolution materials for accurate results during software analysis<sup>1</sup>
- Zinc high-contrast material provides visibility without over-ranging scanners



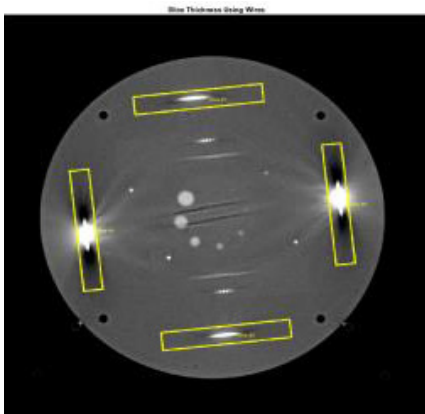
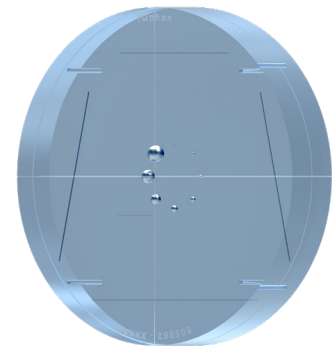
### Specifications

Material:	HE CT Solid Water®
Diameter:	20.0 cm (7.9 in)
Length:	A 4.0 cm (1.57 in) measurement region plus 2.0 cm on the end for mounting and scatter equilibrium
Resolution Pattern Size:	1.5 cm x 1.0 cm x 4.0 cm
Resolutions Tested:	2,4,5,6,7,8,9,10,12,14,16,18,20,22 lp/cm
Automated Analysis	Solid material samples improve computational analysis
Features:	Large 3D pattern sizes enable robust evaluation
Contrast Material:	Zinc

## Slice Sensitivity & Geometric Evaluation Module

Multiple wire-ramp materials and diameters enable this module to analyze slice thickness on scanners ranging from diagnostic CT to CBCT and MVCT.

- Measure slice thickness with two opposed pairs of wire ramps, one pair thinner and one pair thicker
- Enables Modulation Transfer Function with one-off vertical wire
- Check geometric accuracy with a set of 8 acrylic spheres
- Perform MTF measurements with BB's of two different sizes
- Robust across a wide range of CT systems, from diagnostic to RT



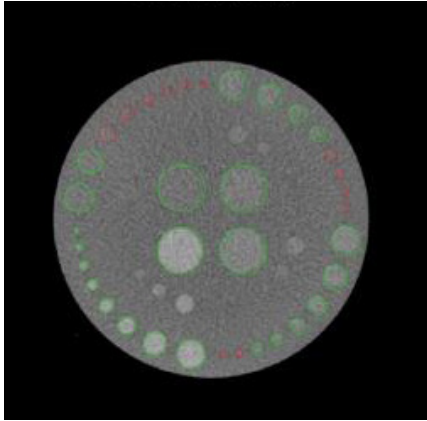
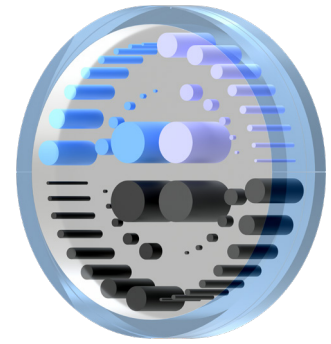
### Specifications

Material:	HE CT Solid Water®
Diameter:	20.0 cm (7.9in)
Wire Ramps:	2x Tungsten wire, 0.15 mm diameter, and 2x Stainless Steel wire, 0.635 mm diameter
MTF BB's:	0.18 mm and 0.28 mm
MTF Wire:	Tungsten wire, 5 degrees off-vertical, 0.05 mm diameter
Acrylic Spheres:	1.0, 1.5, 2.0, 3.0, 4.0, 6.0, 8.0, and 10.0 mm diameter

## Low-Contrast Detectability Module

Finally, a low-contrast test that works for radiation therapy systems as well as diagnostic CT. Challenge your high-end systems with 0.3% and 0.6% contrasts. Test your radiation therapy CT systems with body-like contrasts of 1.0% and 2.0%, in sizes ranging from 2.0 to 25.0 mm.

- Evaluate Low Contrast Detectability at four different contrast levels: 0.3%, 0.6%, 1.0%, and 2.0% (3 HU, 6 HU, 10 HU, and 20 HU)
- Sizes of each contrast object range from 2 to 25 mm
- Low-Z density-based contrasts
- The four precisely formulated contrast levels use density variations of low-Z materials for consistency across CT energies



### Specifications

Material:	Epoxy interior, with a shell of our new HE CT Solid Water®
Diameter:	20.0 cm (7.9in)
Length:	4.0 cm (1.57in)
Contrast Levels:	0.3% (3 HU), 0.6% (6 HU), 1.0% (10 HU), 2.0% (20 HU)
Sizes at Each Contrast	2, 3, 4, 5, 7, 9, 12, 15, and 25 mm
Sub-slice Contrasts:	2, 3, 5, 7, and 10 mm (cylinder diameter and length), at each contrast level

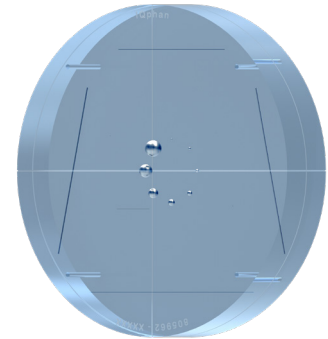
## Uniformity Module

Assess noise and uniformity in our HE CT Solid Water material

- Measure uniformity and noise
- Constructed of HE CT Solid Water for unparalleled water equivalency across the energy spectrum

### Specifications

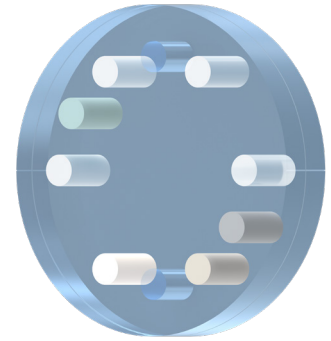
Material:	HE CT Solid Water®
Diameter:	20.0 cm (7.9in)
Length:	4.0 cm (1.57in)



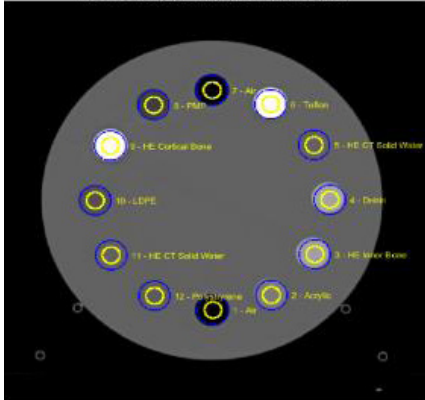
## HU Module

Test the consistency of known HU materials and measure the effective energy of the scan.

- 12 material samples
- Materials include Tissue-Mimicking Materials (TMMs) as well as commonly referenced plastics
- Bone is not just dense plastic; TMMs include higher-Z materials that can improve calibrations and effective energy measurements



HU Module Registration and Mean Value ROIs



## Specifications

Base Material:	HE CT Solid Water®
Diameter:	20.0 cm (7.9in)
Length:	4.0 cm (1.57in)
Insert Materials:	2x HE CT Solid Water, HE Inner Bone, HE Cortical Bone, Acrylic, Polystyrene, LDPE, PMP, Teflon, Delrin, 2x Air