UNITED IMAGING

Shanghai United Imaging Healthcare Co., Ltd.

uCT 780

Precision and Speed

uCT 780

With the persistent pursuit of precision and efficiency for imaging and diagnosis, uCT 780 is equipped with the fully integrated Z-Detector to allow low dose data acquisition with fine details. The fast rotation speed of the system fundamentally improves the cardiac scan quality while the coordinated control system boosts the speed for scan and reconstruction.

- High precision for imaging chain
- Excellence for cardiac scan
- Coordinated control for fast scan and reconstruction

High Precision for Imaging Chain

Precision in data generation, data acquisition and image reconstruction.

Precision in Data Acquisition

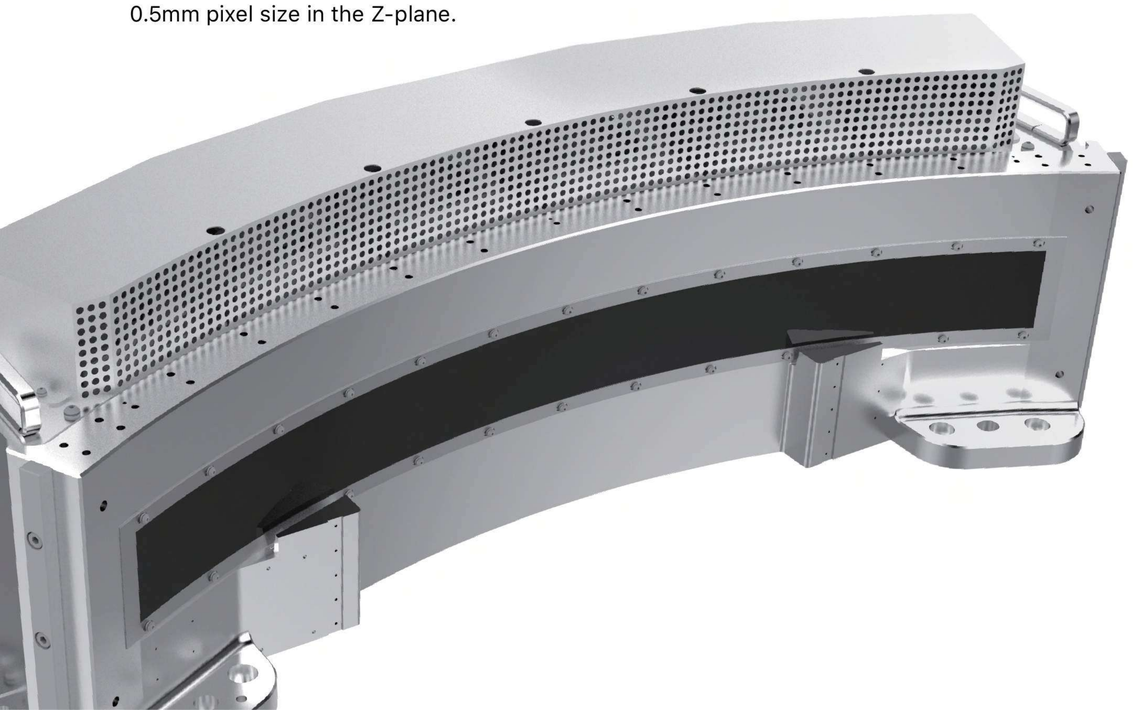
The state-of-art detector technology of uCT 780 ensures low noise and high clarity data acquisition.

Fully Integrated Z-Detector

The fully integrated design shortens the transmission length from centimeter to micrometer scale, resulted in effective suppression of electromagnetic interference and increased X-ray utilization.

Optimal 0.5mm Detector Element Size

Due to the outstanding electronic noise performance, Z-Detector delivers the optimal SNR and image quality with 74880 elements of 0.5mm pixel size in the Z-plane.



Single-Photon Level Electronic Noise

Z-Detector reduces electronic noise down to a single photon level, improving signal-to-noise ratio (SNR) and providing images with more details.

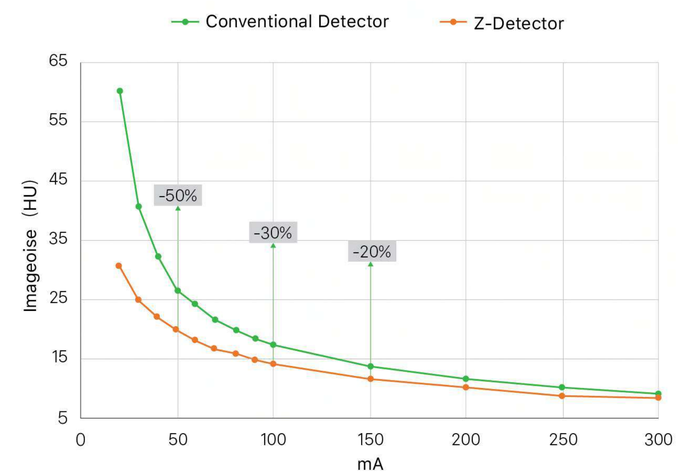
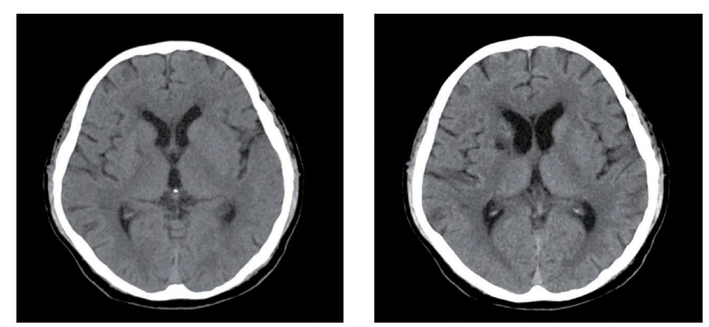


Image noise generated by Z-Detector and the conventional solid-state detector as measured and compared in CT scans using a 180-mm water phantom. The graph illustrates that a reduced noise level is obtained by Z-Detector within the entire range of mA settings. In the case of mA being lower than 50, Z-Detector has the capability to reduce more than half of the original noise, making it possible to develop various kinds of low-dose applications with standard-compliant image quality.



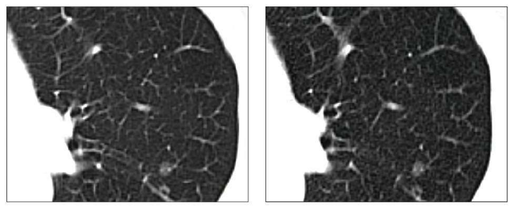
Z-detector (right) improves low contrast detectability and shows clear grey-white matter differentiation compared to the conventional detector (left).

Precision in Data Generation

uCT 780 is built to image different body types and body parts with targeted and precise dose distribution.

70kV Scan Mode

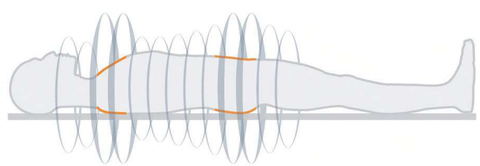
70kV scans enhance the contrast in contrast CT scans, which makes better visualization for small lesions, lesions lack of blood supply and CTV imaging. Imaging with 70kV can significantly reduce patient radiation dose with the downside of increased image noise. The unique Z-Detector is immune to the problem and the image quality for 70kV scans is maintained.



No significant image quality difference is observed between the original 120kV (left) and low-dose 70kV follow-up (right) scans.

uDose® Intelligent Dose Modulation

To minimize unnecessary radiation, uDose intelligent dose modulation generates optimized dose distribution plan according to varying body shapes, sizes and X-ray attenuations. uDose modulates radiation both in X-Y and Z planes for optimized patient care.



Precision in Image Reconstruction

In addition to various reconstruction filters, uCT 780 provides dedicated solutions for more image details and less artifacts.

0.5mm Thickness Images in All FOVs and Collimations

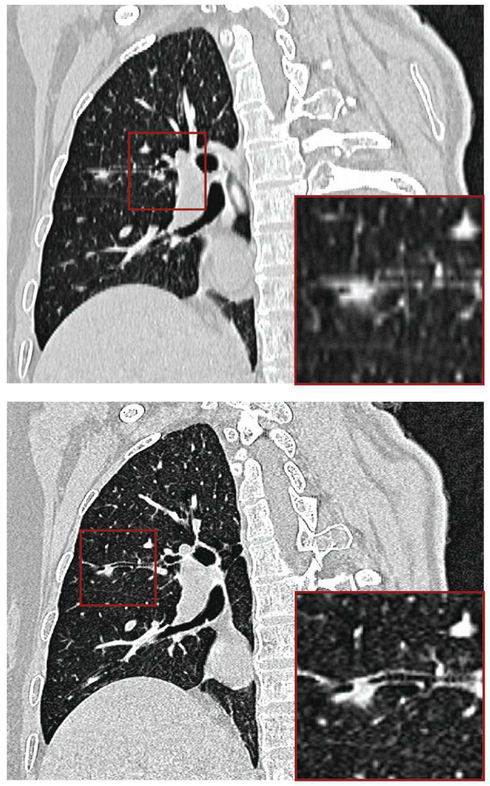
With the refined thin images, small tumors can be detected more readily than before.

1024x1024* High-definition Reconstruction Matrix

The high-resolution reconstruction matrix augments spatial resolution and reveals anatomic details, such as IAC, small joints, and high-resolution lung imaging.

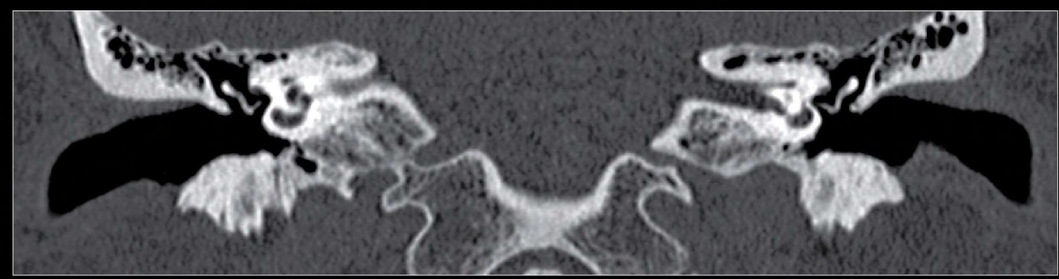
MAC* (Metal Artifact Calibration)

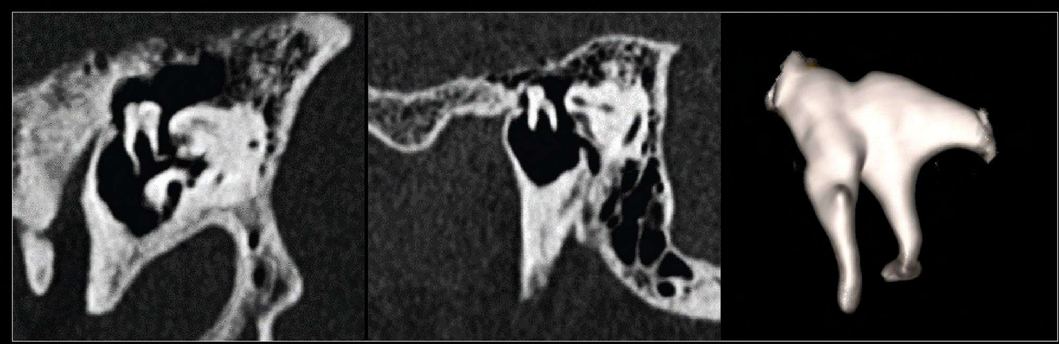
MAC reduces metal artifacts to improve image quality while preserving surrounding structures to assist diagnosis for patients with metal implants such as artificial limb or prostheses.



Obstruction of the bronchia is clearly visualized with the 0.5mm acquisition Z-detector and 1024x1024* reconstruction matrix (below) compared to the 1mm image with 512x512 reconstruction matrix (above).

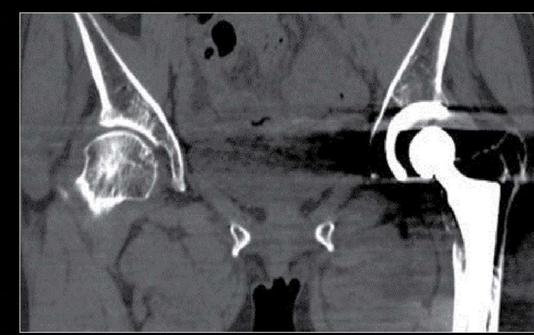
* optional

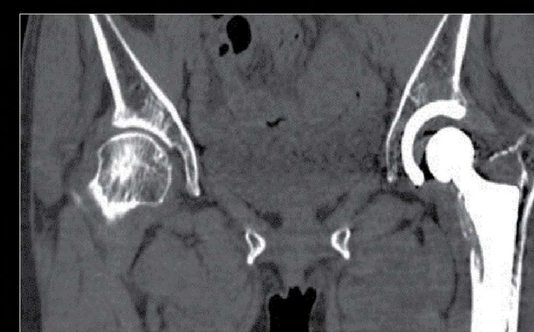




120kV, 185mAs , 0.5x0.5mm , WW2600 WL800

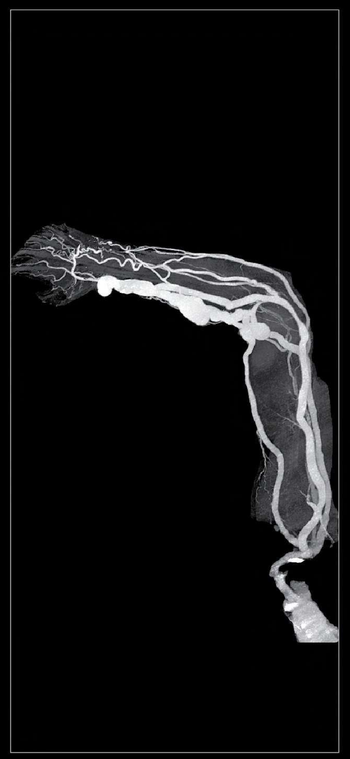
Inner ear with 0.5mm acquisition.

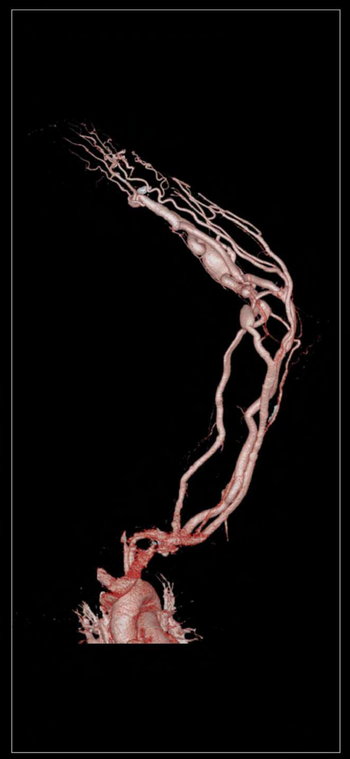




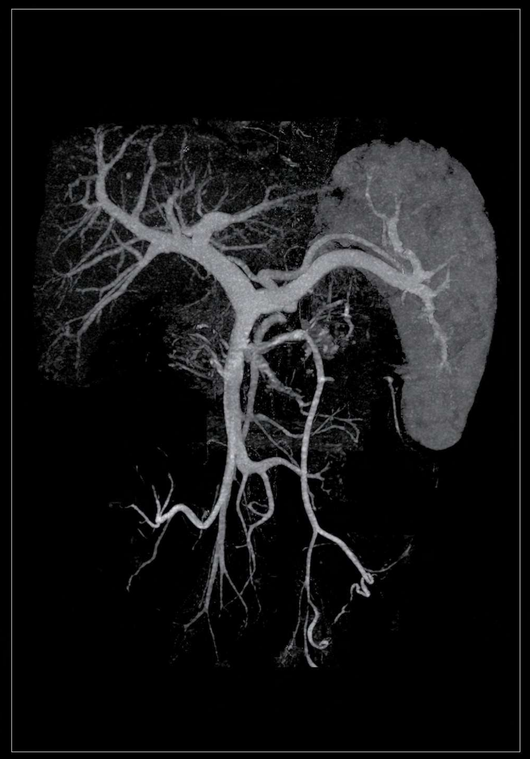
After surgery, surroundings of the metal hip replacement implant is clearly visualized with MAC*.

* optional





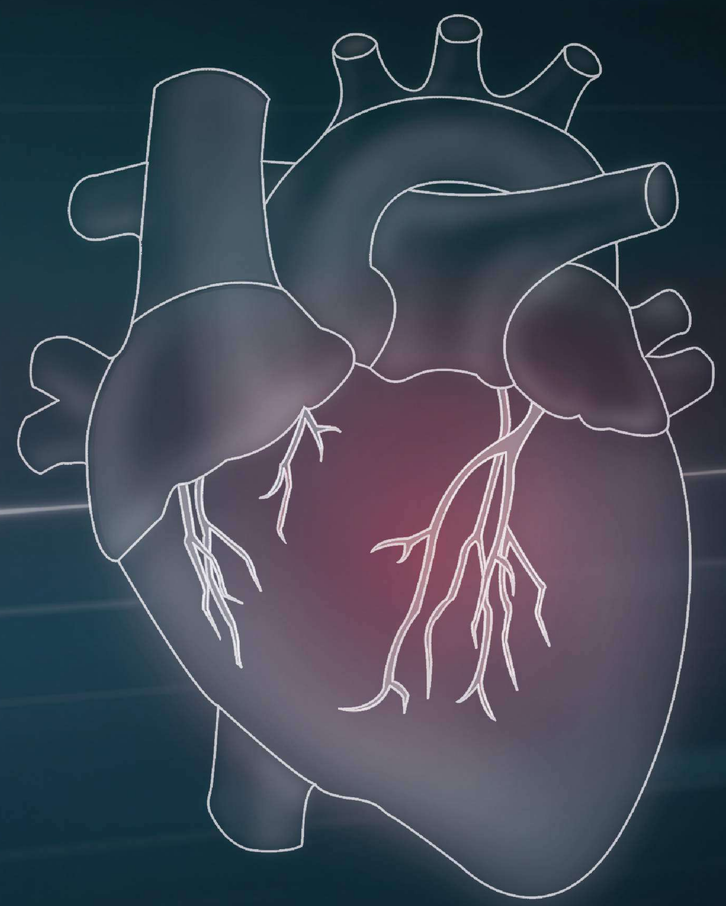
Enhanced contrast from 70 kV scan mode allows better clarity for upper extremity blood vessels, the arteriovenous malformation, and distal vessels in the hand.



Along with the Z-detector, 70 kV scan mode shows clear portal vein and its branches and increased image contrast.

Excellence for Cardiac Scan

Improved image quality for challenging patients.



0.3s Rotation Speed*

Fundamentally improve the temporal resolution for cardiac imaging.

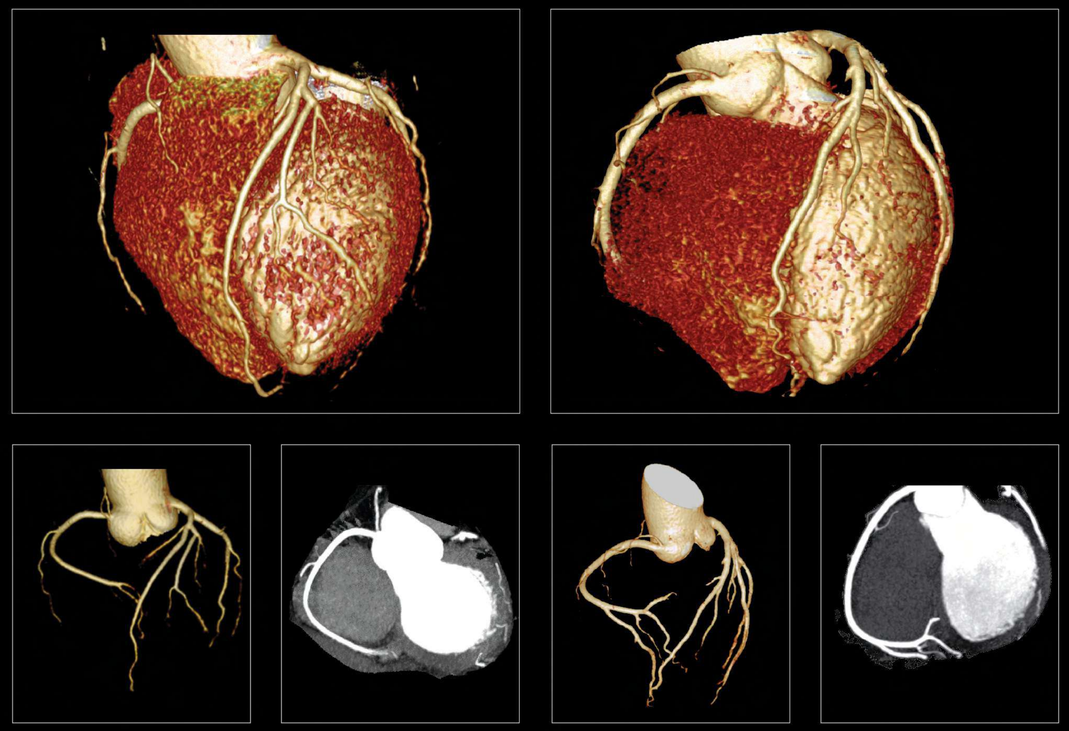
100kW Max Generator Power*

Clearly visualize challenging patient anatomy.

Fast and Predictive Applications

0-click post-processing to make diagnosis convenient.

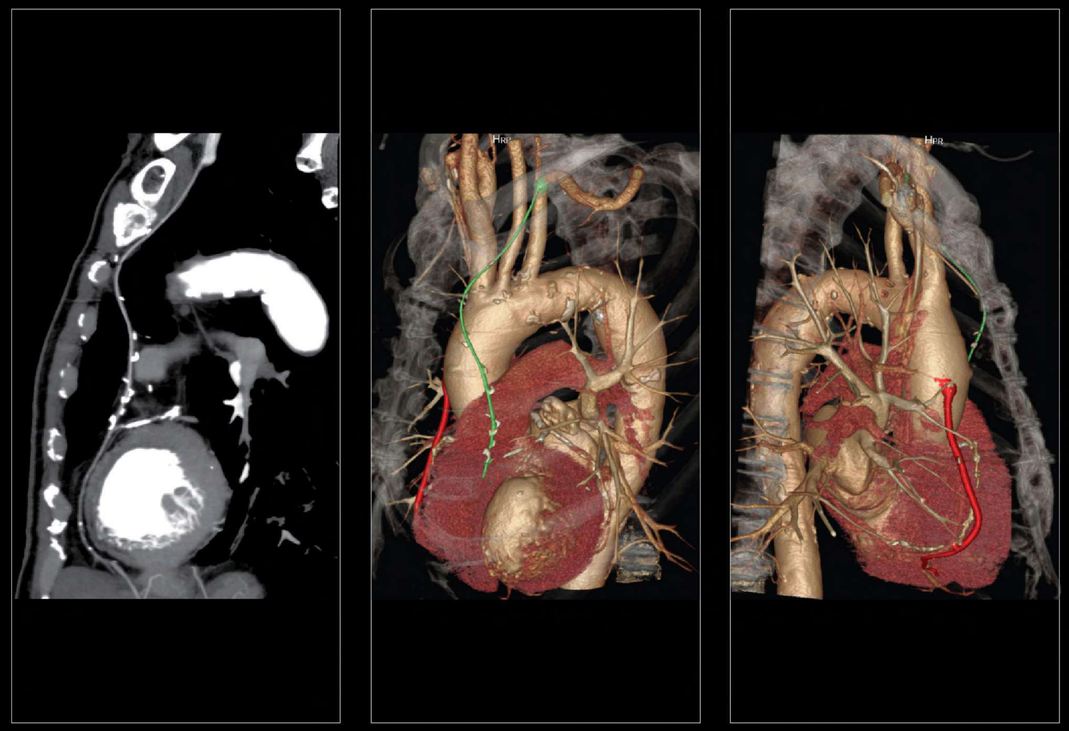
* optional



120kV, 4.8mSv

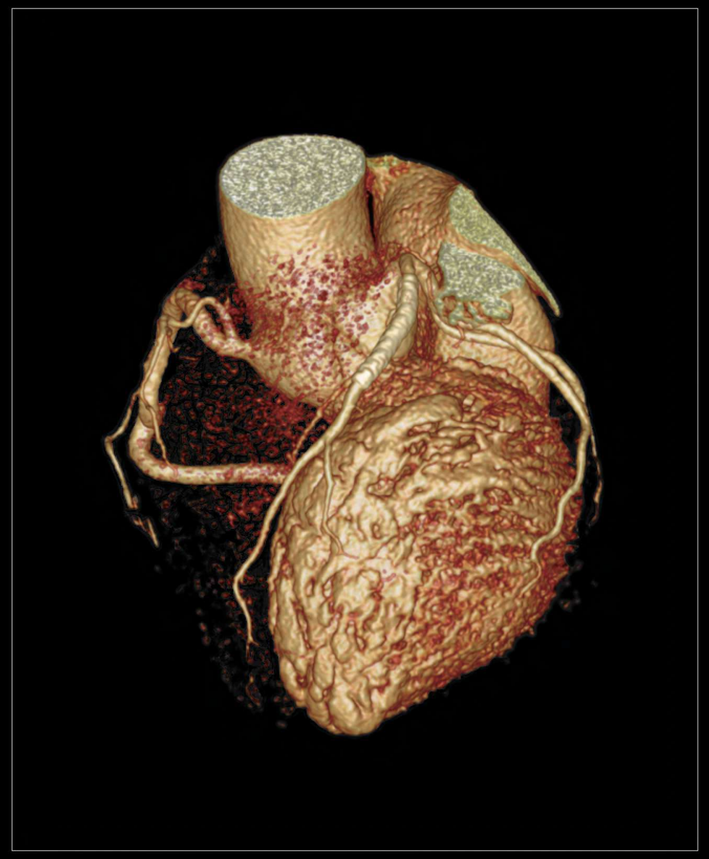
70kV, 0.7mSv

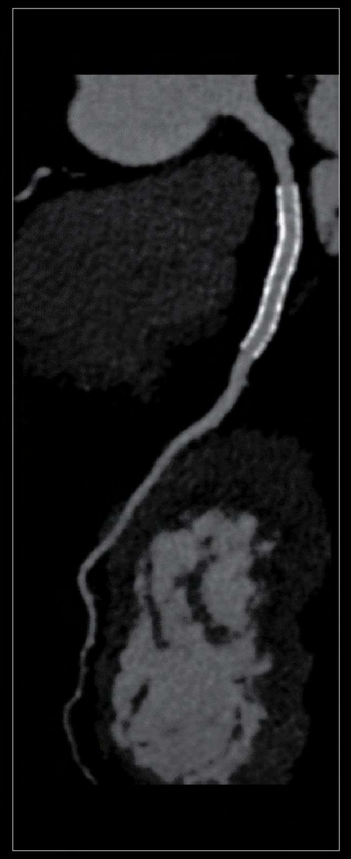
With the uCT 780 system, consistent image quality for coronary CTA can be ensured with different kV imaging for different body types. In comparison, 85% radiation dose is reduced with 70 kV compared to 120 kV scan mode.



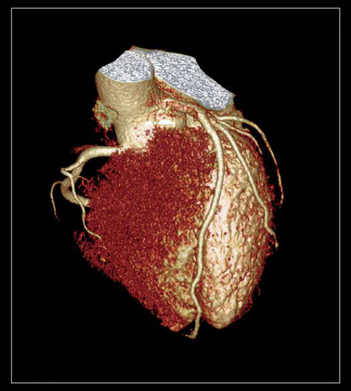
120kV 340mAs 65ml 5ml/s

Clear visualization of CABG vessels and RAD stenosis.

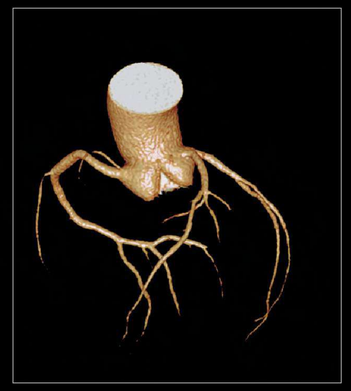




The minimum slice thickness of 0.5mm and isotropic spatial resolution of 0.25mm enable clear view of coronary stents, and facilitate the clinical evaluation of in-stent restenosis.

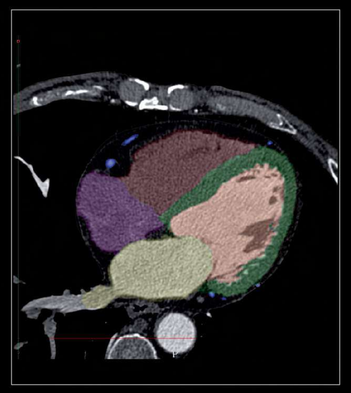


0-click Extraction

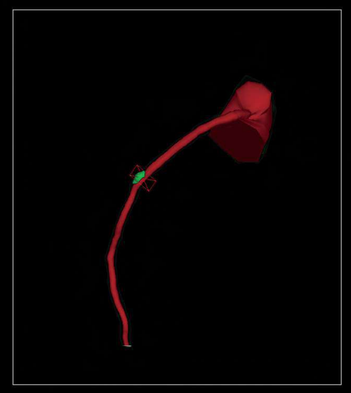


Automatic Coronary Arterial Tree Extraction

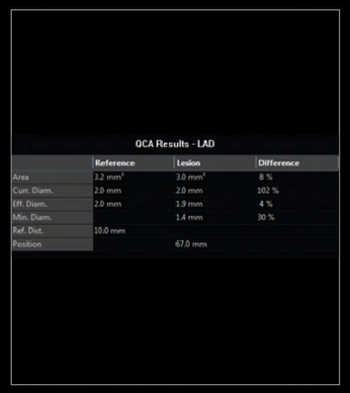
Singke-click CPR



Atrioventricular Segmentation



Plaque Analysis



QCA Results - LAD

	Reference	Lesion	Difference
Area	3.2 mm²	3.0 mm²	8 %
Curr. Diam.	2.0 mm	2.0 mm	102 %
Eff. Diam.	2.0 mm	1.9 mm	4 %
Min. Diam.		1.4 mm	30 %
Ref. Dist.	10.0 mm		
Position		67.0 mm	

Stenosis Analysis

The fast and predictive workflow for coronary CTA analysis assists diagnosis with reliable results.

Coordinated Control for Fast Scan and Reconstruction

Take workflow efficiency one step further.

Coordinated Control System Architecture

Powered by Versatile Proprietary Platform.

Rapid Transfer of Massive Data

Support the 360 million voxel data acquisition and reconstruction speed up to 60 IPS.

System Hardware Synchronization Control on a Microsecond Basis

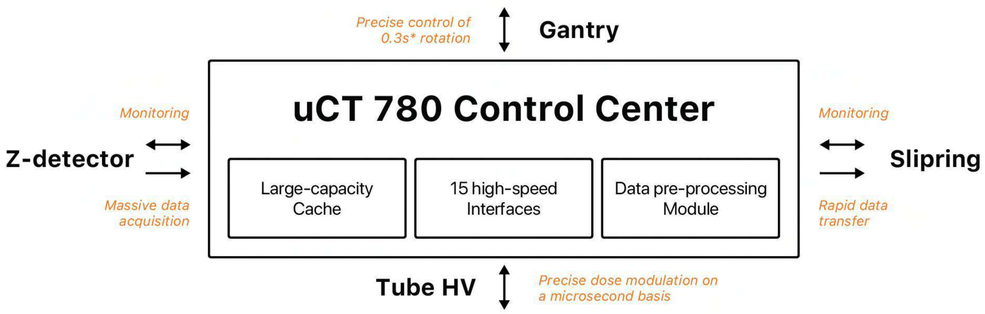
Support precise radiation dose control and 0.3s high speed gantry rotation.

Easy-Logic Intelligent Prediction Platform

Intelligently predict user's next action and gets tube, generator, gantry and data-path prepared in advance.

Real-time System Condition Monitor

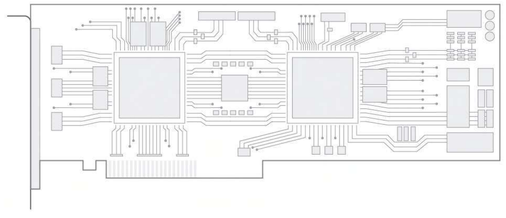
Actively maintain system stability, reliability and service ability.



The high-precision control system realizes the coordinated control of the tube, high voltage generator, detectors, slip ring, and gantry, which ensures precise data transmission and synchronized operations.

GWB Reconstruction Acceleration Board*

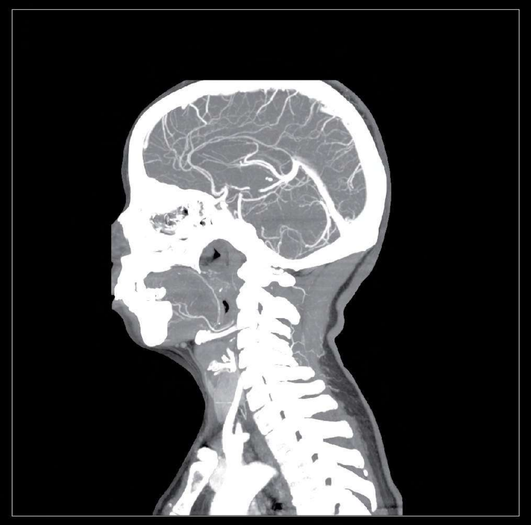
uCT 780 is equipped with the innovative reconstruction acceleration board – GWB. The brand new massively paralleled design of GWB delivers outstanding reconstruction performance and boosts efficiency for making diagnostic decisions.



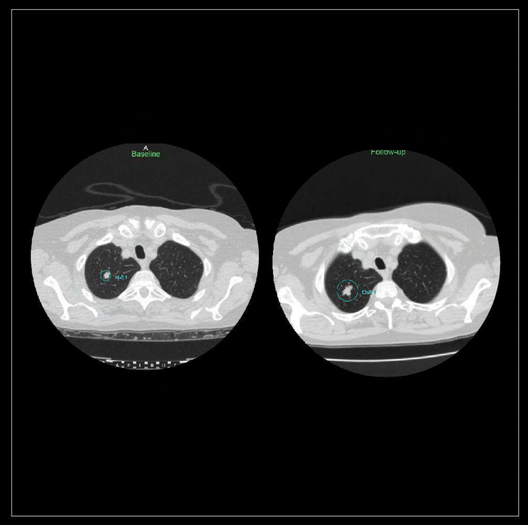
* optional

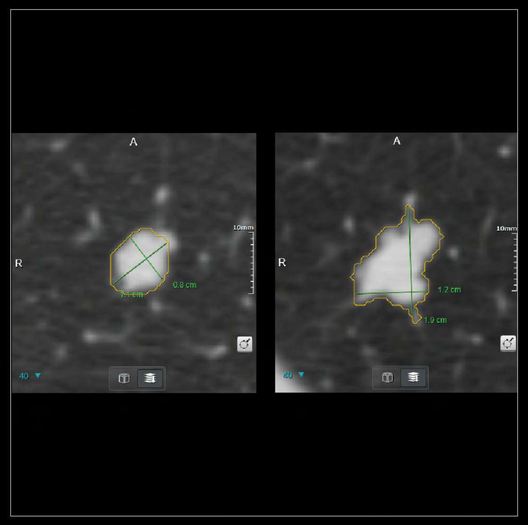
Fast and precise large range CTA shows aorta dissection as well as the stenosis of right iliac artery; contrast enhancement of right iliac artery is significantly lower than that of the left iliac artery.

uCT 780 shows clear occlusion in the left popliteal artery and its collateral circulation, and provides clarity in the plantar arch which is difficult to be observed by conventional CT.

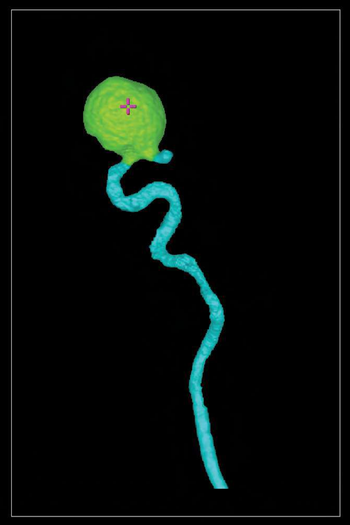


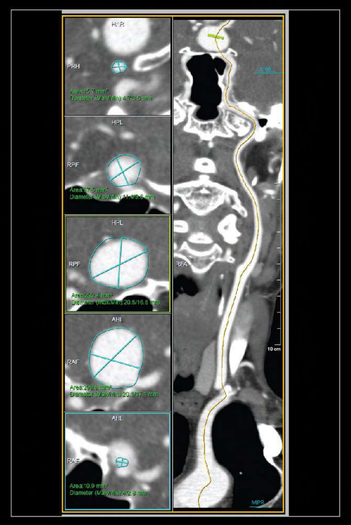
With one single scan, the intelligent bone removal algorithm extracts clear carotid CTA images and shows excellent visualization of the carotid siphon.



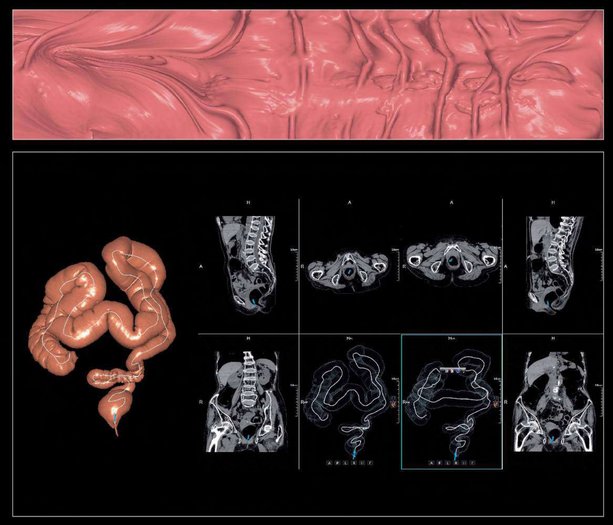


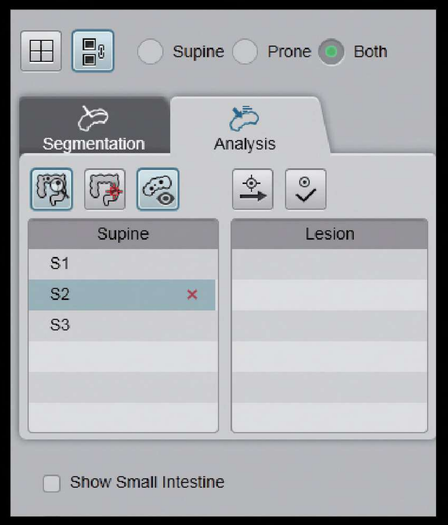
For lung screenings, the Lung nodule assessment application assists the detection and quantification of Nodules and lesions. It can also be applied to follow-up studies to track nodule growth over time.





Besides dedicated intelligent bone removal for different body parts, the CT vessel analysis application provides an easy tool for comprehensive CTA analysis.





For CTC screenings, the virtual colonoscopy application enables fast and easy polyp detection and visualization of colon inner views.

"User in Mind" Design

Focusing on user experience, uMR 780 combines precise operation with a lightweight and artistic design. We bring aesthetic enjoyment and ease of use to the technology, delivering care, trust and respect through our design.

Aesthetic Pleasure

Our design scheme integrates eastern aesthetics with minimalism, presenting a seamless fusion of traditional and modern styling.

User-friendly Design

Our product design ultimately aims to deliver comfort, safety, efficiency, and ease-of-use. By applying ergonomic principles, we combine innovative design with perfect functionality in order to provide the best possible user experience, optimizing patient comfort during every examination.

Sophisticated Craftsmanship

Driven by the tenets of lightweight and precision design, we fine-tune every technological detail to embody the spirit of craftsmanship in every product.

ABOUT UIH

Shanghai United Imaging Healthcare Co., Ltd. is a provider of high-end medical equipment and medical IT solutions. From our headquarters in Shanghai's Jiading district to our network of research and development centers throughout the world, our global mission is to provide medical institutions with a full-range of healthcare solutions, from diagnostic imaging and radiation therapy equipment to service, training, and medical IT. We are dedicated to expanding access to high-quality medical care and improving the value of our services.

With a passion for change and independent innovation, we always aim to meet your needs. Perceive More. Provide More. Access More. We Have A Passion for Change.

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