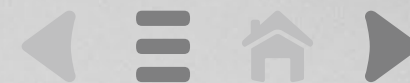


GE Healthcare

# Revolution EVO

More than just high tech.  
Higher purpose.





Today's healthcare environment is about creating new solutions to pressing needs. It's about understanding how one CT exam can improve patient outcomes while lowering the cost of providing care.

Simple and fast, CT is arguably the most valuable diagnostic imaging tool. Yet its capacity to improve the health of the world is far from tapped.

Advancing the role of CT is no longer just about technology. It's about design. That's the promise of Revolution\*. Understanding your needs. And designing the best solution to meet those needs.

All revolutions start somewhere. Our revolution began with the Revolution CT system—designed from the ground up for pioneering the future of CT.

Now comes Revolution EVO.



# Revolution EVO. Designed with purpose.

Revolution EVO is designed with the purpose of operating in the reality of now, while anticipating the challenges of tomorrow.

It's designed to support the widest variety of patients and applications, from complex trauma or cardiac cases, to large patient backlogs in busy emergency departments that strain workflows and resources.

The design of Revolution EVO is made for institutions that are unable to sacrifice advanced capabilities such as high resolution for daily productivity. It is well suited for those who need to provide the lowest dose possible. And it provides options to expand your referral physician base and the services you provide to your community.

Revolution EVO is designed for you.

# Benefits



## “I need high resolution.”

Experience and intuition alone aren't enough to help you make the difficult decisions you face daily. In your world seeing is a big part of solving. For the greatest diagnostic confidence, you need a CT that provides even greater degrees of resolution, clarity and definition.

Revolution EVO is designed to provide the high-resolution, low-dose images and answers that increase your confidence—even when performing advanced procedures. It helps you stay on top of today's standard of care.



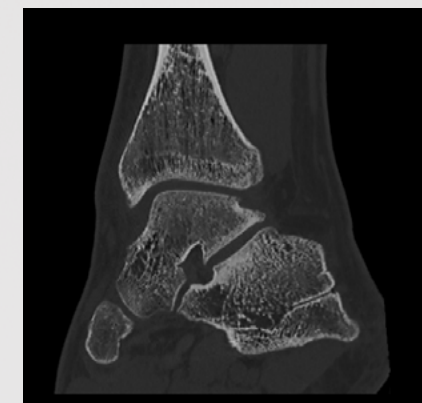
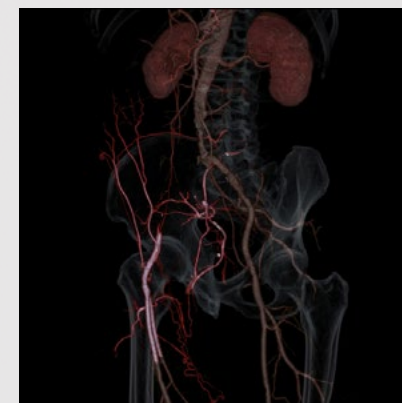
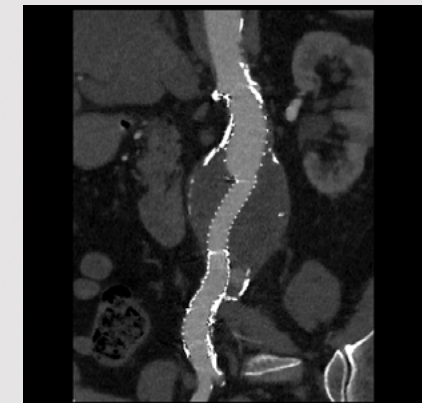
# 2x

## Increase in spatial resolution

### Clarity Imaging System ASiR-V\* advanced reconstruction

Helping you make a confident diagnosis is our mission, and image clarity is a big part of that. Doubling the spatial resolution gives you the image clarity you need to see fine anatomical details, providing a pathway to a quick, confident diagnosis. Revolution EVO also improves your ability to visualize with up to 135% improvement in low-contrast detectability.<sup>1</sup> Delivering vastly improved image quality across the entire body enables you to broaden your clinical applications and potentially improve treatment paths for diverse patient needs.

Revolution EVO delivers twice the spatial resolution thanks to its redesigned Clarity Imaging System. It features the Performix\* 40 Plus tube with ultra-stable dual focal spots, the GE-proprietary HiLight detector, and the low-noise Clarity data acquisition system inherited from our Revolution CT.



<sup>1</sup>Low contrast detectability (LCD), image noise, spatial resolution and artifact were assessed using reference factory protocols comparing ASiR-V and FBP. The LCD measured in 0.625-mm slices and tested for both head and body modes using the MITA CT IQ Phantom (CCT183, The Phantom Laboratory), using model observer method.



## “I need to make low dose routine.”

Diagnostic images at the right dose add up to great care. That’s why it’s essential for you to limit your patients’ radiation exposure to just what’s necessary. To do that, you need a CT that makes it easier for you to lower radiation dose without making it harder to make the right diagnosis.

Revolution EVO delivers several dose-lowering capabilities. Our innovative ASiR-V\* iterative reconstruction method comes standard, and is designed to reduce noise levels, improve low-contrast detectability and reduce dose by up to 82% in routine imaging for all exams and all patients.<sup>1</sup>

Along with ASiR-V, a comprehensive collection of Smart Dose technologies helps you monitor, measure and manage your dose delivery and select the optimum parameters for low dose and diagnostic images.

<sup>1</sup>Image quality as defined by low contrast detectability. In clinical practice, the use of ASiR-V may reduce CT patient dose depending on the clinical task, patient size, anatomical location, and clinical practice. A consultation with a radiologist and a physicist should be made to determine the appropriate dose to obtain diagnostic image quality for the particular clinical task. Low Contrast Detectability (LCD), Image Noise, Spatial Resolution and Artifact were assessed using reference factory protocols comparing ASiR-V and FBP. The LCD measured in 0.625 mm slices and tested for both head and body modes using the MITA CT IQ Phantom (CCT183, The Phantom Laboratory), using model observer method.

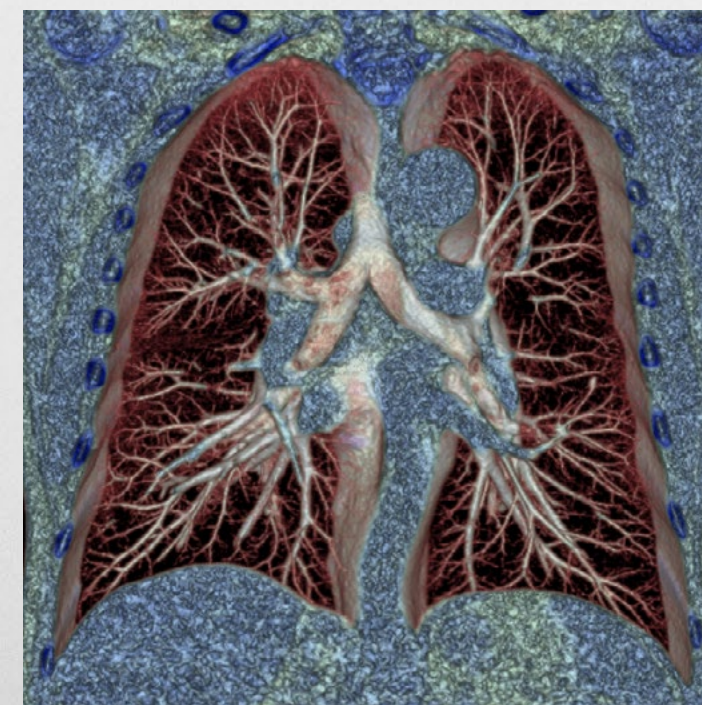




# 82%

**Up to 82% reduced dose.**

In routine imaging, ASiR-V has been shown to reduce dose by up to 82% compared to standard FBP reconstruction at the same image quality.<sup>1</sup>



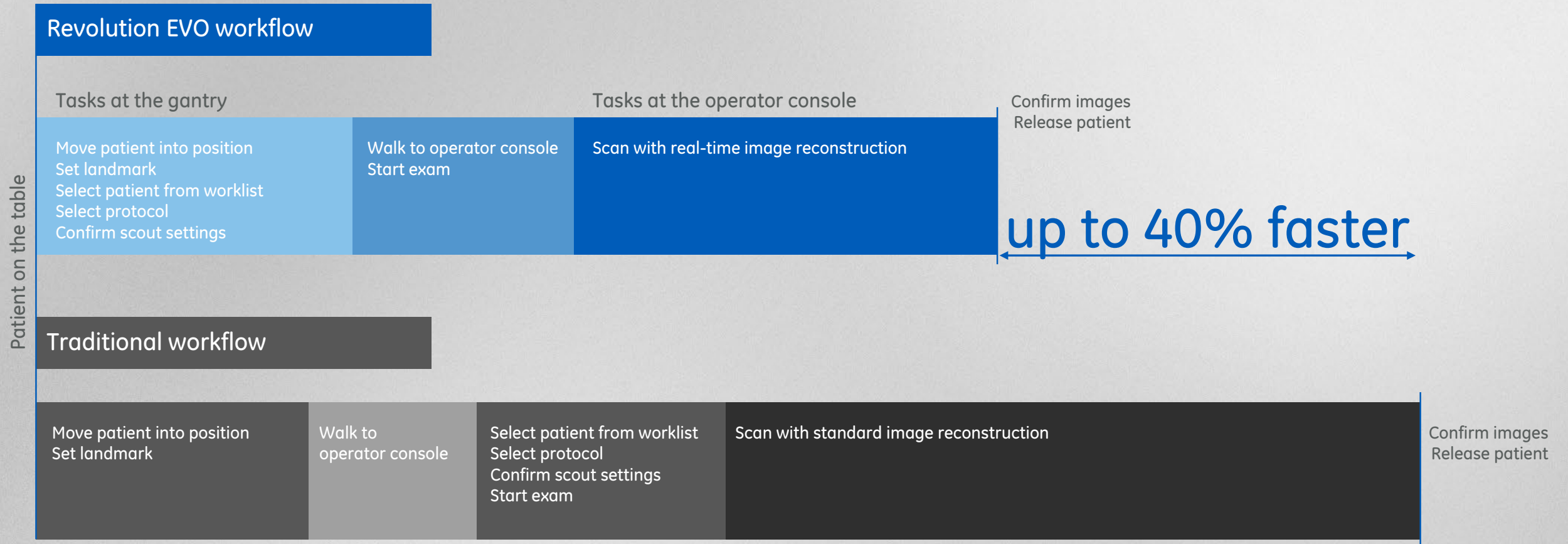
Ultra-low dose chest exam, 0.08 mSv, reconstructed using ASiR-V. This exam was acquired at 80 kV and 6 mAs and CTDIvol of 0.17 mGy. Effective dose as estimated using an adult chest factor of 0.014\* DLP.

<sup>1</sup>Image quality as defined by low contrast detectability. In clinical practice, the use of ASiR-V may reduce CT patient dose depending on the clinical task, patient size, anatomical location, and clinical practice. A consultation with a radiologist and a physicist should be made to determine the appropriate dose to obtain diagnostic image quality for the particular clinical task. Low Contrast Detectability (LCD), Image Noise, Spatial Resolution and Artifact were assessed using reference factory protocols comparing ASiR-V and FBP. The LCD measured in 0.625 mm slices and tested for both head and body modes using the MITA CT IQ Phantom (CCT183, The Phantom Laboratory), using model observer method.



# Up to 40%

Improved productivity<sup>1</sup>



<sup>1</sup>Actual results may vary depending on the circumstances, including but not limited to, exam type, clinical practice, and image reconstruction technique. This information was based on a simulation using the GE Healthcare Optima\* CT660 device and is presented for illustrative purposes only.



## “I need to help more patients.”

Leading a radiology department isn't easy, especially these days. You want to help your patients, the community and your institution. As new clinical and financial models evolve in healthcare, you need a CT that can help you attract new referring physicians, and grow the services you offer and the patients you serve.

Revolution EVO is designed to help you compete in your market by helping to manage the health of your patient population today with precision, efficiency and the right dose. ASiR-V low-dose capabilities make it ideal for pediatric scans, oncology and chronic disease follow-up. At the same time, Revolution EVO gives you the flexibility to expand your services to the fastest growing procedures like advanced coronary CCTA and TAVI planning.



## Advanced Applications powered by AW

Improve your capabilities across care areas.

### Emergency & Vascular

Scan trauma patients quickly and catch arterial phase enhancement easily without sacrificing image quality, with up to 175 mm/sec acquisitions enabled by high-pitch helical IQE and 0.35-second rotation speed.

Fast exam processing is enabled by zero-click bone segmentation, one-click stenosis measurement and semi-automated thrombus segmentation.

Perform stroke assessment scans with 140-mm perfusion shuttle technology and assess patient status quickly with Perfusion 4D.

### Oncology and Chronic Disease

Revolution EVO with ASiR-V enables ultra-low-dose imaging so that you can confidently provide a high level of care to those patients who require multiple scans or frequent follow-up.

OncoQuant\* automates oncology workflow from your PACS with robust imaging tools for easy comparisons over time and efficient follow-up exams.

Lung VCAR segmentation and reporting provide a more productive reading workflow with automatic processing for fast second reviews and easy follow-up comparisons.

Colon VCAR makes reading CT colonography easier by detecting colonic lesions with electronic cleansing and correlated 2D, 3D and 360-degree dissection views.

## Improved patient experience

**Fast scanning for patients large and small.**

With the increased weight limit of the Revolution EVO patient table and the improved low-contrast detectability and noise performance of ASiR-V, you can image patients weighing up to 675 lbs. and obtain diagnostic image quality with reduced noise and improved contrast resolution.

Pediatric patients present a different set of challenges. For these patients, speed and low dose are critical. Fast, up to 175-mm/sec acquisitions enable a reduction in breathing artifacts, and ASiR-V ultra-low-dose capabilities allow you to image these patients confidently.

## Smart Cardiac technologies

**Set up complex cardiac procedures quickly, reliably, and repeatedly.**

With Revolution EVO, a single acquisition with just one injection is all that's needed to obtain high-quality images of the entire aorta and coronaries for TAVI/TAVR planning and follow-up. Freeze coronary motion in higher-heart-rate patients with an effective temporal resolution of 0.29 msec delivered by SnapShot\* Freeze. Easily complete complex cardiac exams in as few as five beats with SnapShot Assist, and reduce dose by up to 83% in coronary imaging with SnapShot Pulse prospective gating.



## “I need to accomplish more in my day.”

The only thing you can predict for sure about your workday is how unpredictable it will be. Unanticipated complex exams, large numbers of emergency department exams, add-on patients and patients who arrive late all put pressure on you to get more done in your day.

You need a CT that provides the best images and helps you and your staff get through the chaos calmly and efficiently. Revolution EVO is designed to help you manage unpredictable patient loads and unexpected exam demands—quickly and compassionately.

Revolution EVO features the latest in Smart Flow technologies designed to help you improve productivity by streamlining user workflow and access to information. With more intelligence and automation from patient preparation through post processing, you can perform more studies in less time and manage your patient flow up to 40% more efficiently.<sup>1</sup>

<sup>1</sup>Actual results may vary depending on the circumstances, including but not limited to, exam type, clinical practice, and image reconstruction technique. This information was based on a simulation using the GE Healthcare Optima\* CT660 device and is presented for illustrative purposes only.



# Core Technologies

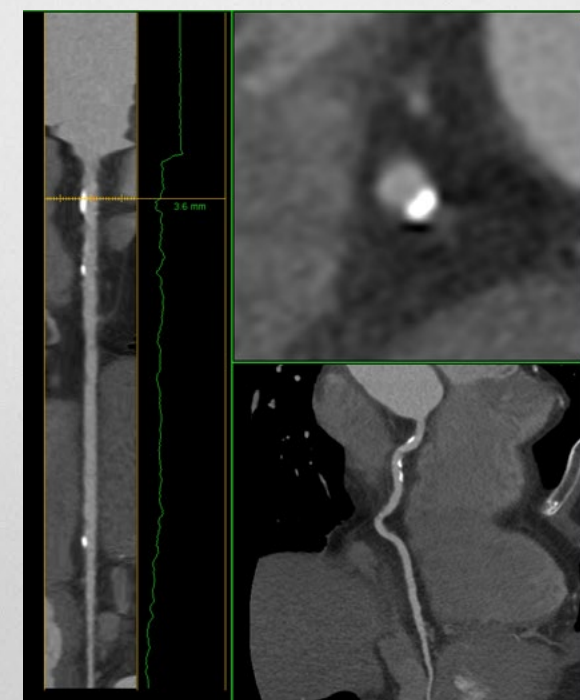


# Clarity Imaging System

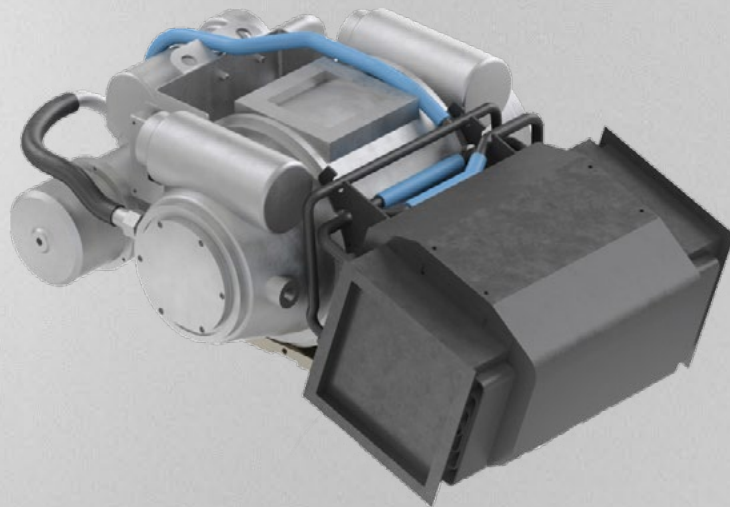
See clearly down to 0.28 millimeters.

For Revolution EVO we redesigned the entire imaging chain. It features the new Clarity detector inherited directly from the breakthrough technology introduced on Revolution CT.

The result: a CT system with the best spatial resolution in its class—20% higher than previous GE systems—to clearly show you details as small as just 0.28 millimeters.

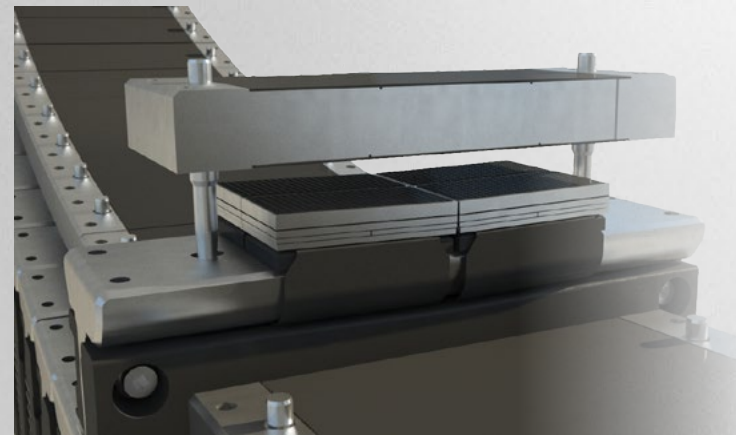






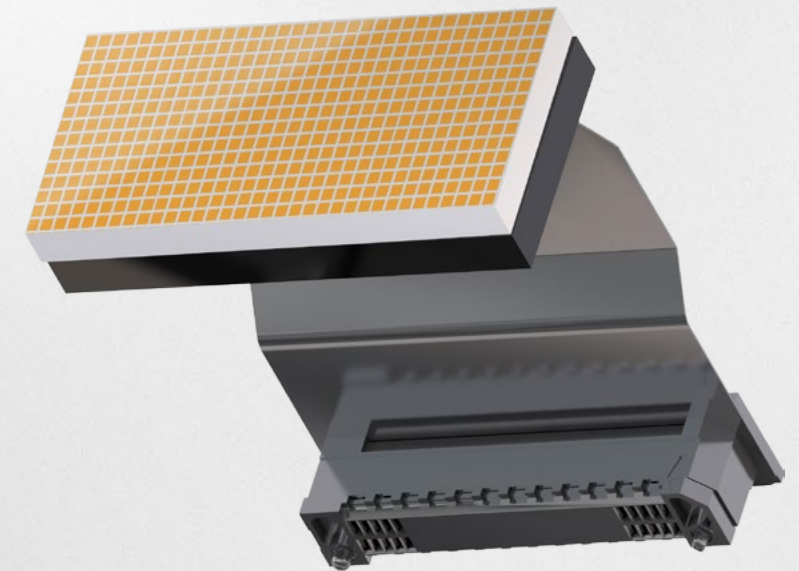
## Performix\* 40 Plus tube

At the beginning of the Clarity imaging chain, the Performix 40 Plus tube delivers exceptional performance. Its stable dual focal spot improves precision, and its 0.35-second routine rotation speed enables faster scan times. This may allow for shorter breath holds, may reduce the need for sedation, reduce motion artifacts from patient and organ movement, and enable faster workflow for all applications.



## HiLight Clarity detector

Inherited directly from our breakthrough Revolution CT system, the Clarity detector is the heart of Revolution EVO. With its high-resolution imaging capabilities, you can see details as small as 0.28 mm. The Clarity detector delivers improved dose efficiency and signal-to-noise ratio as well, plus large coverage with z-axis uniformity.



## Integrated Clarity data acquisition system

Thanks to its revolutionary, patented design, the data acquisition system is integrated directly onto the photo diode. This reduces the size of the data acquisition system by 75%, reduces noise by 44%, and lowers power consumption by 90% compared to previous-generation systems.

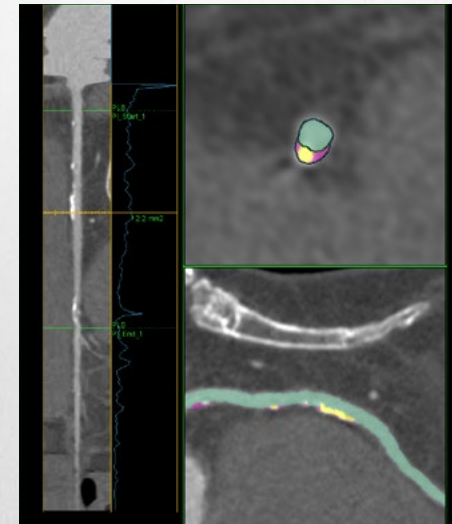


# ASiR-V\*

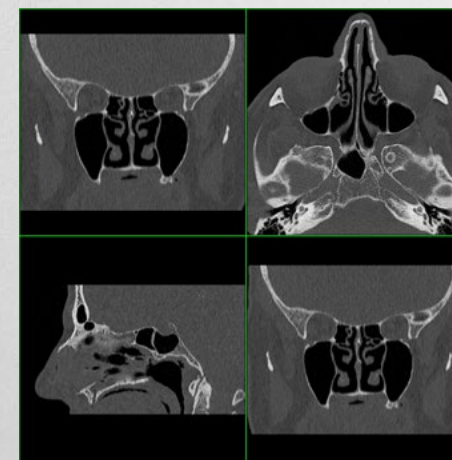
**Routinely image with up to 82% less dose.<sup>1</sup>  
Achieve twice the spatial resolution.**

Combining the speed of ASiR with added capabilities from Veo\* full model-based iterative reconstruction, the novel ASiR-V reconstruction algorithm brings low dose and improved quality to routine imaging.

Leveraging our extensive statistical modeling system, ASiR-V focuses primarily on more advanced noise and object modeling than ASiR with added physics modeling to help reduce noise, improve low-contrast detectability, and reduce artifacts. By focusing on these iterative reconstruction components, ASiR-V can significantly improve image quality at reconstruction speeds similar to filtered back projection (FBP).



Cardiac case with calcifications and plaque ID. DLP: 31 mGy, 0.4 mSv.  
Effective dose as estimated using an adult chest factor of 0.014\* DLP.



Sinus case combining low dose and high spatial resolution. DLP: 29.4 mGy,  
0.06 mSv. Effective dose as estimated using an adult head factor of  
0.0023\* DLP.



<sup>1</sup>Image quality as defined by low contrast detectability. In clinical practice, the use of ASiR-V may reduce CT patient dose depending on the clinical task, patient size, anatomical location, and clinical practice. A consultation with a radiologist and a physicist should be made to determine the appropriate dose to obtain diagnostic image quality for the particular clinical task. Low Contrast Detectability (LCD), Image Noise, Spatial Resolution and Artifact were assessed using reference factory protocols comparing ASiR-V and FBP. The LCD measured in 0.625 mm slices and tested for both head and body modes using the MITA CT IQ Phantom (CCT183, The Phantom Laboratory), using model observer method.



### ASiR-V

Routinely image with up to 82% less dose. Using ASiR-V, you can reduce dose up to 82% in routine imaging as compared to standard high-dose filtered back projection reconstruction at the same image quality.<sup>1</sup>

### Smart Dose Technologies

Automatic exposure control and more. Intelligent technology designed to acquire high-quality images using lower doses of radiation, helping you provide more accurate diagnoses and lower exposures for patients. Lower patient dose while still acquiring the high-quality images needed for your accurate diagnoses using dose management tools such as CT 4Kids dose-optimized pediatric reference scan protocols, 3D dose modulation, organ dose modulation, Dose Check, DICOM DRSR, and more—all at your fingertips.

# 82%

Decrease dose up to 82% with ASiR-V

### DoseWatch\*§

Dose management solution. Analyze, identify, and optimize patient dose with web-based dose monitoring software. Keep dose levels as low as reasonably achievable (ALARA) while producing sharp, focused diagnostic images. Track and monitor patients' cumulative radiation dose over time and take steps to prevent excessive radiation dose.

### Dose Check

Pre-scanning monitoring and alerts. Receive notifications and alerts if your predetermined dose levels will be exceeded. You can correct and confirm the right settings before scanning to avoid unnecessary radiation dose to your patient.

### GE Blueprint Benchmark

Comprehensive radiation management. Compare your current dose management performance to industry guidelines and best/better practices. Receive the insights, suggestions, and strategies you need to build an effective dose management program in your hospital or healthcare system.

<sup>1</sup>In clinical practice, the use of ASiR-V may reduce CT patient dose depending on the clinical task, patient size, anatomical location, and clinical practice. A consultation with a radiologist and a physicist should be made to determine the appropriate dose to obtain diagnostic image quality for the particular clinical task.

<sup>§</sup>Optional



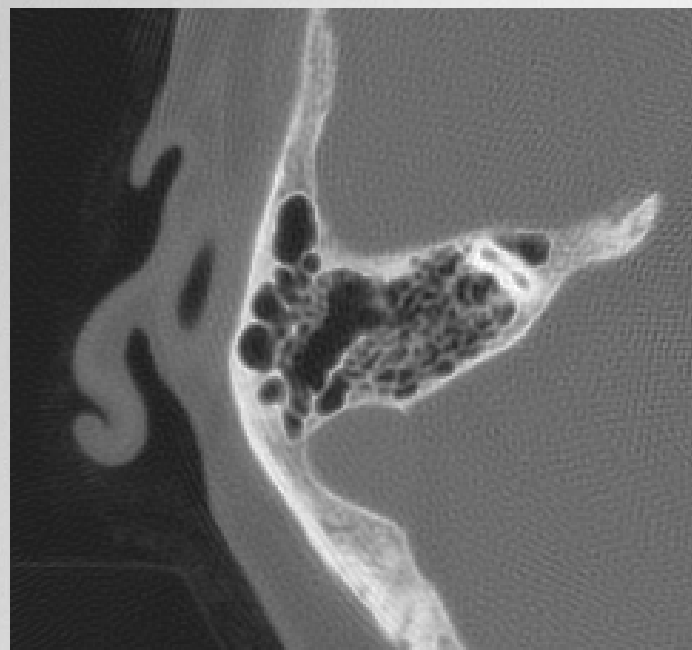




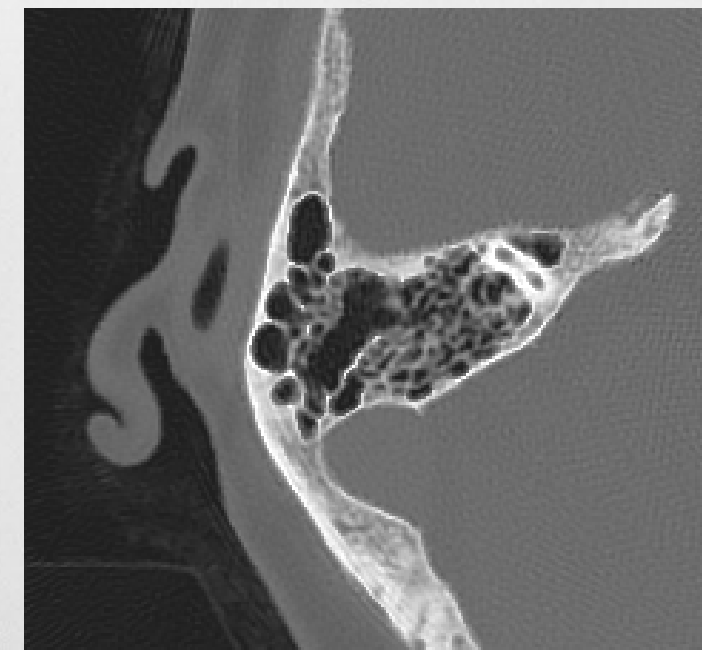
100%

**Up to 100% better  
spatial resolution.**

ASiR-V has the capability to improve spatial resolution compared to FBP by allowing the reconstruction of higher-resolution images with no increase in image noise.<sup>1</sup>



FBP



ASiR-V

A inner ear case. The ASiR-V reconstruction clearly demonstrates better spatial resolution with similar image noise.

<sup>1</sup>Low contrast detectability (LCD), image noise, spatial resolution and artifact were assessed using reference factory protocols comparing ASiR-V and FBP. The LCD measured in 0.625-mm slices and tested for both head and body modes using the MITA CT IQ Phantom (CCT183, The Phantom Laboratory), using model observer method.



# 135%

**Up to 135% improved  
low-contrast detectability.**

ASiR-V improves the detectability of low-contrast objects by up to 135% when compared to corresponding FBP reconstructions at the same dose.<sup>1</sup>



FBP



ASiR-V

ASiR-V reduces noise in a neurology case and enables better gray/white matter differentiation.

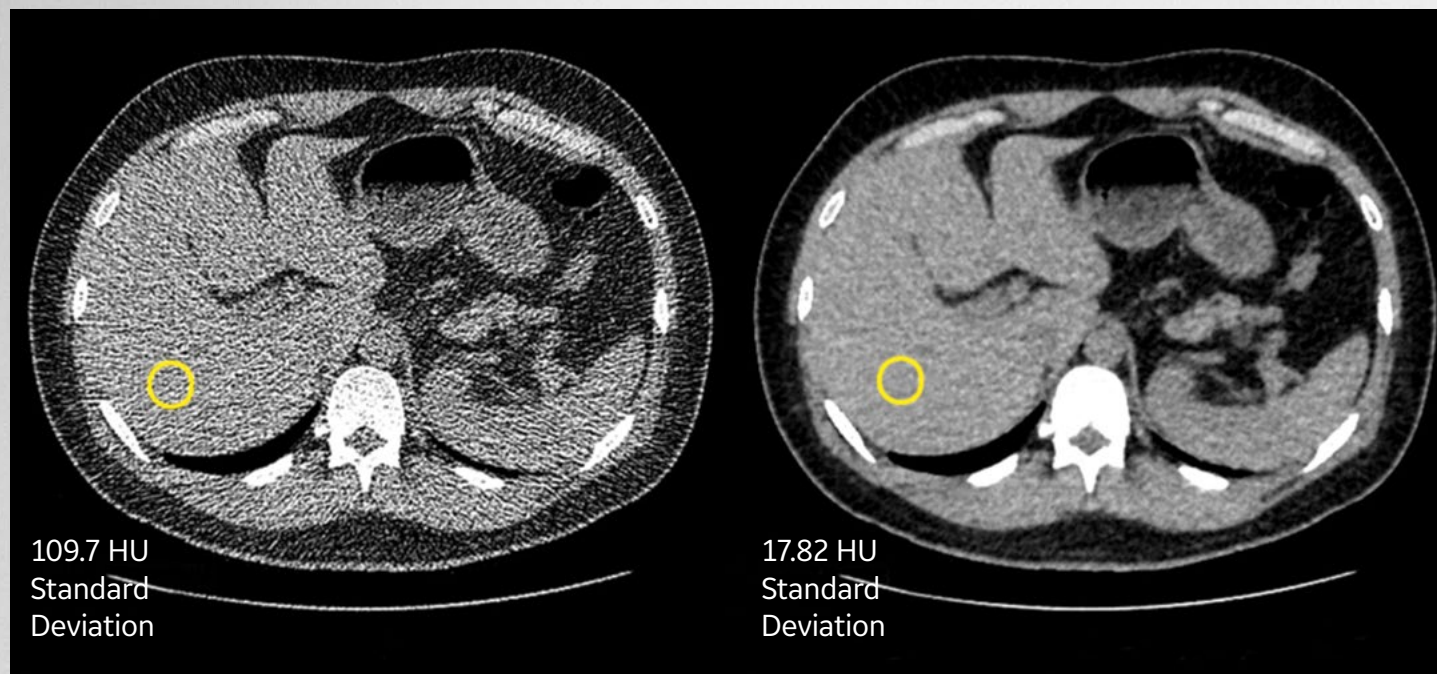
<sup>1</sup>Low contrast detectability (LCD), image noise, spatial resolution and artifact were assessed using reference factory protocols comparing ASiR-V and FBP. The LCD measured in 0.625-mm slices and tested for both head and body modes using the MITA CT IQ Phantom (CCT183, The Phantom Laboratory), using model observer method.



91%

Up to 91% less image noise.

Depending upon the scan technique and reconstruction parameters, ASiR-V can significantly reduce electronic image noise compared to FBP at the same dose.<sup>1</sup>



FBP

~84% noise reduction ASiR-V

ASiR-V reduces streaks and noise in clinical images. The case shows a low-dose abdomen scan where ASiR-V significantly reduced low-signal streaks and image noise.

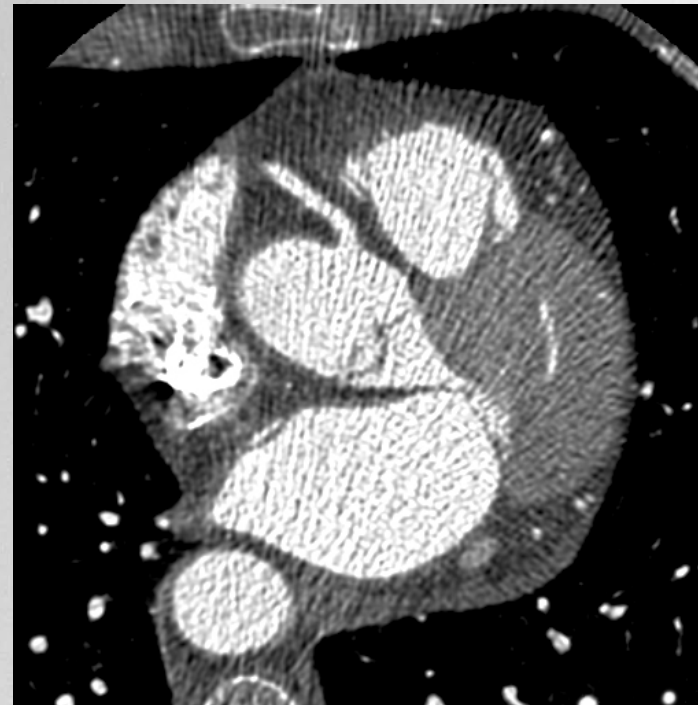
<sup>1</sup>Low contrast detectability (LCD), image noise, spatial resolution and artifact were assessed using reference factory protocols comparing ASiR-V and FBP. The LCD measured in 0.625-mm slices and tested for both head and body modes using the MITA CT IQ Phantom (CCT183, The Phantom Laboratory), using model observer method.



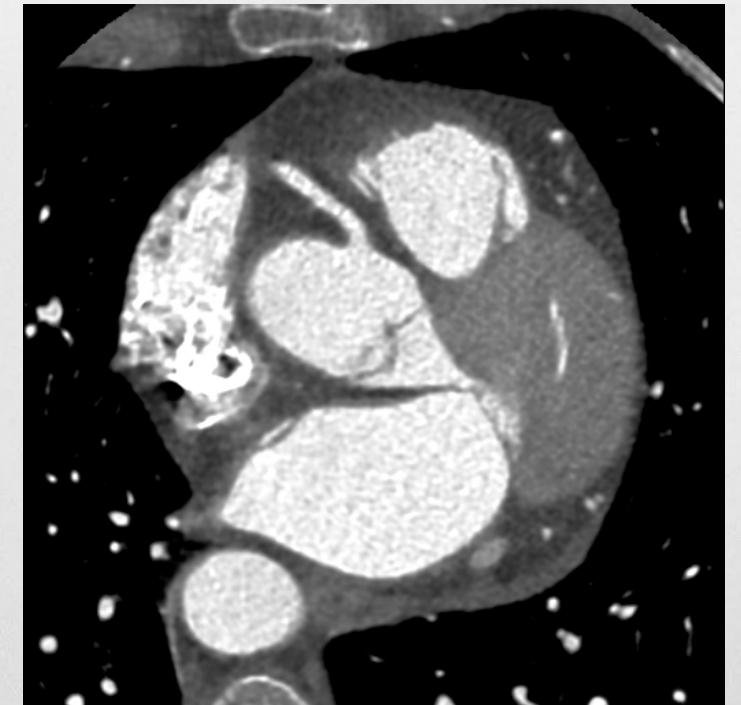


### Less streak artifact.

ASiR-V has the capability to reduce low-signal artifact, such as streak artifact, compared to FBP.<sup>1</sup>



Without ASiR-V



With ASiR-V

<sup>1</sup>Low contrast detectability (LCD), image noise, spatial resolution and artifact were assessed using reference factory protocols comparing ASiR-V and FBP. The LCD measured in 0.625-mm slices and tested for both head and body modes using the MITA CT IQ Phantom (CCT183, The Phantom Laboratory), using model observer method.



# Smart Technologies

Modern imaging intelligence.

## Smart Flow

Designed to help you improve productivity and patient experience by streamlining your workflow and access to information, Smart Flow technologies enable fast, hands-free patient positioning, exam prescription from the patient's side, integrated injections, real-time reconstruction during the scan and access to advanced applications right on the console.

## Real-time reconstruction

Reconstruction of images in real time helps you focus solely on the diagnosis of your patient. With Image Check, up to 55 images are reconstructed and available per second. For trauma patients, when the extent of the injuries is unknown, you can prospectively prescribe up to 10 multiphase reconstructions and easily prioritize which one you need first.

## IQ enhance pitch booster

Scan a chest in as fast as two seconds with 175-mm-per-second acquisition speed to help shorten patient breath-holds while maintaining image quality.



Main screen



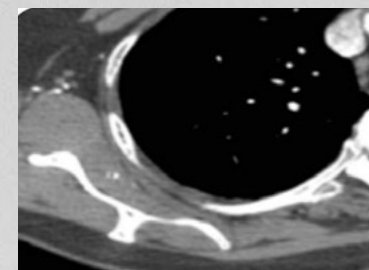
Instruction video



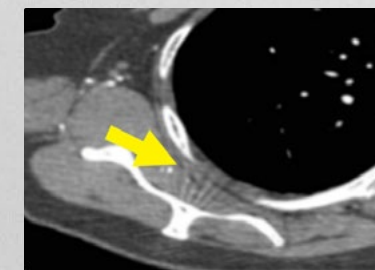
Patient worklist



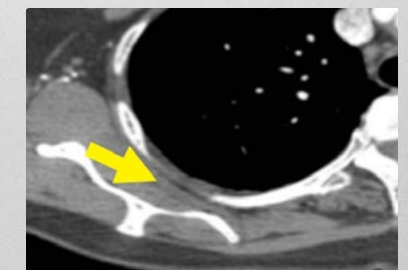
Protocol selection



Without pitch booster.  
Slow pitch.  
Good exam quality.



Without pitch booster.  
Fast pitch.  
Good exam speed.



Without pitch booster.  
Good exam quality  
and speed.



## Smart Cardiac

Set up and perform complex cardiac procedures quickly, reliably, and repeatedly with Smart Cardiac tools on the Advantage Workstation.

### SnapShot\* Assist

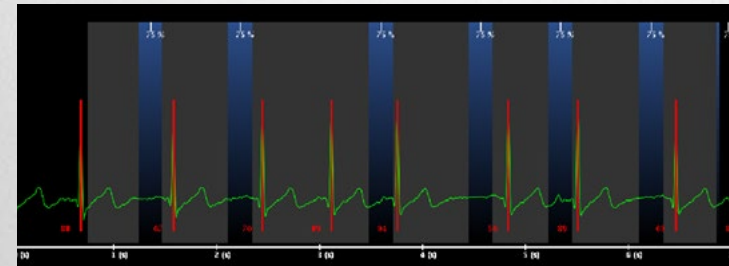
Easily complete cardiac exams in as few as five beats with SnapShot Assist, which advises you of the best acquisition technique based on the patient's heart rate and BMI.

### SnapShot Pulse

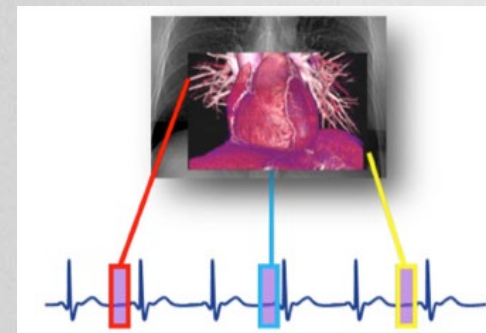
Prospective gating with SnapShot Pulse allows for a dose reduction of up to 83% for coronary imaging compared to an ECG-gated helical acquisition mode.

### SnapShot Freeze

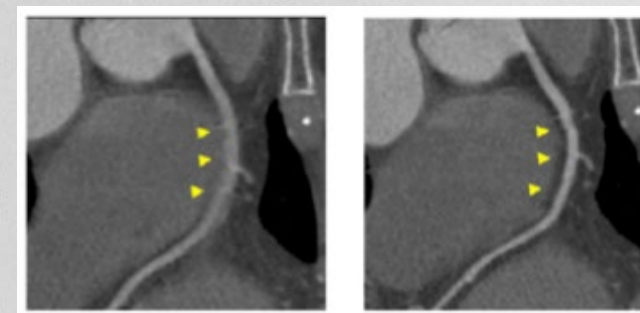
Reducing motion blurring in vessels by up to a factor of six, SnapShot Freeze facilitates your diagnosis by freezing coronary motion even in higher-heart-rate coronary CT exams. It delivers a 58-msec-equivalent gantry speed with an effective temporal resolution of 29 msec.<sup>1</sup>



SnapShot Assist



SnapShot Pulse



Without  
SnapShot Freeze

With  
SnapShot Freeze

<sup>1</sup>As demonstrated in cardiac phantom testing.



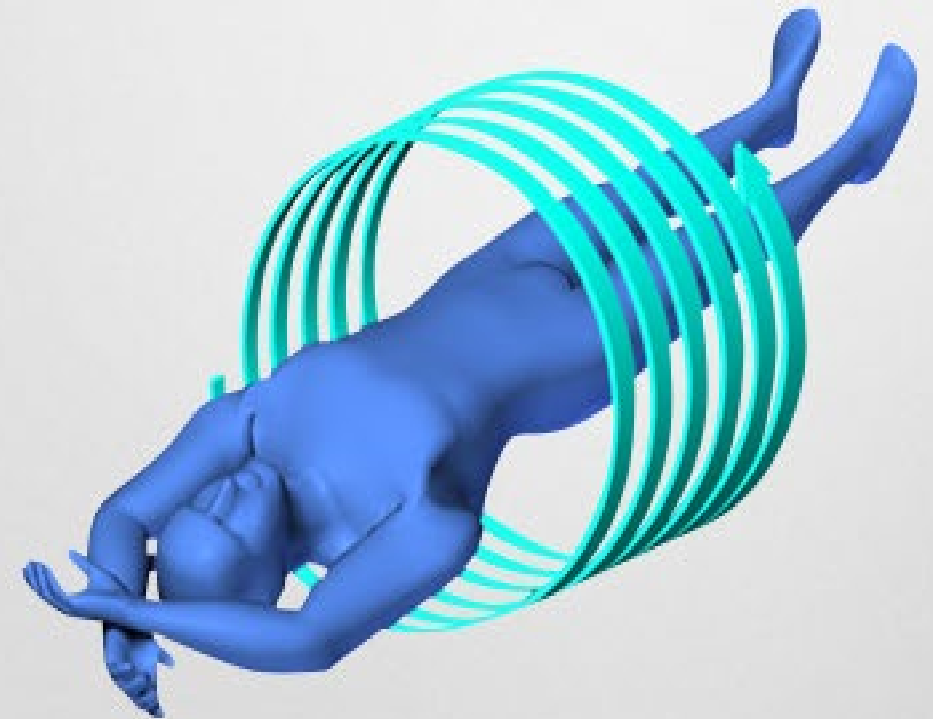
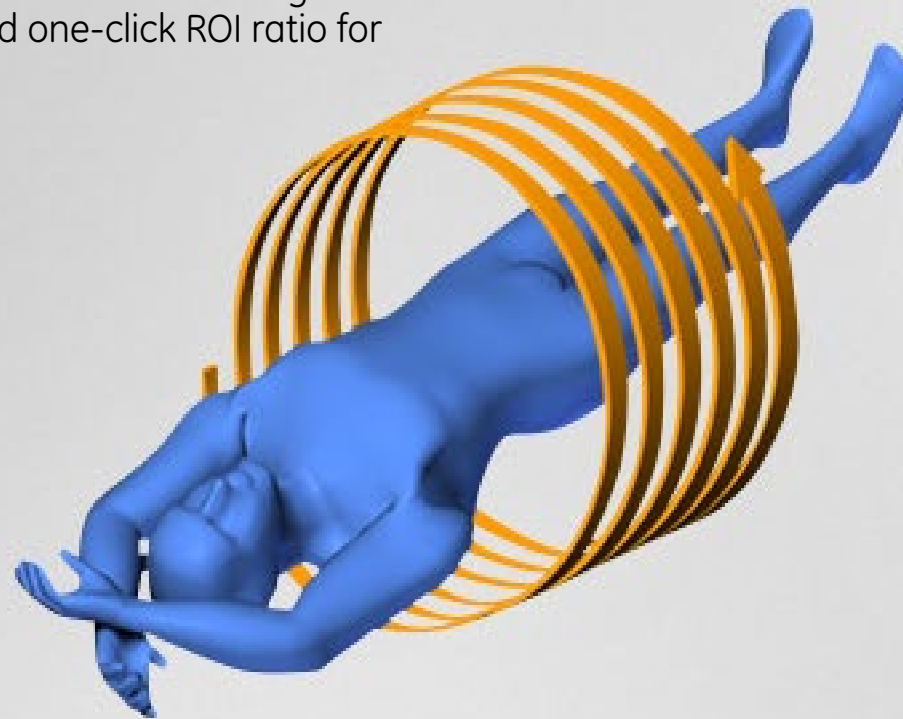
# Dual-energy imaging

## Simpler scan solutions.

For simple characterization, two-path dual-energy acquisitions on Revolution EVO improve workflow with a solution that's both dose-neutral and fast.

Dual-energy imaging allows easy configuration of back-to-back axial or helical scans of the same anatomy at two different X-ray energies (kVs). Both scans are performed at half dose with excellent image quality, thanks to ASiR-V iterative reconstruction. The second acquisition can be performed in the opposite direction in a short scan time.

The additionally acquired dual-energy data can be quickly post-processed right on the console or on the Advantage Workstation with easy image registration and one-click ROI ratio for simple analysis.





# Solutions & Services



# Solutions beyond the scanner.

## Optimize your investment.

Lift your organization to a new level of performance with our complete portfolio of consulting and support services. GE Healthcare Services will work with you to address your healthcare system's growth, quality and operational excellence, so you can meet your business objectives.

## Asset optimization.

Using proprietary software and data analytics, we can help you optimize your maintenance contracts and establish benchmarks for utilization of assets which can help reduce costs and drive productivity.

## Patient flow optimization.

We track patient flow from admission to discharge in real time. The ability to capture and analyze this data can help you decrease wait time, reduce costs, and improve the quality and safety of care.

## Workforce optimization.

We can help improve workforce utilization across the continuum of care, which can have an impact on the bottom line. All while improving the quality of care and staff satisfaction.

## Right dose by design.

Improving dose management starts with a strategy. GE Blueprint helps healthcare organizations build a strategic roadmap for a comprehensive radiation dose management program encompassing leadership, practices and technology. We start with our GE Blueprint Benchmark Assessment to compare and assess your current performance against industry guidelines and best practices to help you balance your dose management priorities and develop your program across your entire healthcare system. Then we partner with you to go beyond meeting compliance and regulatory guidelines to help you improve clinical and quality outcomes.

## Flexible equipment financing.

GE Capital, Healthcare Financial Services has the financial expertise, combined with healthcare industry knowledge and resources to provide your organization with a complete range of equipment financing solutions for every stage of your growth.



With Revolution EVO you can get the high resolution you need, make low dose routine, accomplish more in your day and help more patients. It enables you to serve the widest variety of patients and referring physicians with a diversity of applications today—while positioning your institution to rise to the challenges you'll face going forward.

Revolution EVO.

More than just high tech. Higher purpose.

**Contact your GE Healthcare Sales Representative to learn more about Revolution EVO.**





[www.gehealthcare.com](http://www.gehealthcare.com)

GE Healthcare provides transformational medical technologies and services to meet the demand for increased access, enhanced quality and more affordable healthcare around the world. GE (NYSE: GE) works on things that matter - great people and technologies taking on tough challenges. From medical imaging, software & IT, patient monitoring and diagnostics to drug discovery, biopharmaceutical manufacturing technologies and performance improvement solutions, GE Healthcare helps medical professionals deliver great healthcare to their patients.

**imagination at work**

GE Healthcare  
3000 N. Grandview Blvd.  
Waukesha, WI 53188  
U.S.A.

©2014 General Electric Company - All rights reserved.

General Electric Company reserves the right to make changes in specifications and features shown herein, or discontinue the product described at any time without notice or obligation.

GE and GE Monogram are trademarks of General Electric Company.

GE Healthcare, a division of General Electric Company.

\* Trademark of General Electric Company

CT-0553-07.14-EN-US

JB22848XU

