Revolution EVO Gen 3

10

years of expertise in designing 40 mm detector CT systems that deliver advanced and reliable clinical capabilities.

GE Healthcare has more than

10000

40 mm detector CT systems installed worldwide.

Discover TrueFidelity CT Images[1,5] and new ways of using Revolution EVO Gen 3 – such as high resolution, fast rotation, high throughput, advanced applications for your referring physicians and innovative services for you to provide to your community.

Revolution EVO Gen 3

DEFYING TIME

Paving the way to the future, Revolution EVO Gen 3 defies time by helping you to surpass your day-to-day challenges at every step of the care cycle.
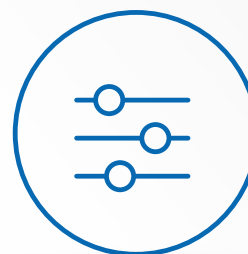
PLAN

SCAN

DIAGNOSE

UNLOCKED PERFORMANCE

PLAN

Allowing you to bring patients the personalized care they deserve.

Because one of your key challenges is to optimize the time of your teams and patients, as well as calculate the right radiation dose while delivering the right image quality.

Smart Dose Technologies

Intelligent technology designed to help you acquire high-quality images at low dose, contributing to more accurate diagnoses.

Iterative Reconstruction Method ASiR-V[1,2]

ASiR-V[1,2], the next generation GE Healthcare iterative reconstruction technique, was designed to routinely lower the exam dose while preserving or even enhancing diagnostic value[2].

Dose-Optimized Protocols (UW)

Designed, developed and validated by experts at the University of Wisconsin (UW), Madison, for GE Healthcare scanners for both adults and pediatrics.

Enhanced Workflow

Designed to help you improve productivity and patient experience by streamlining your workflow and access to information.

Smart MAR
Designed to reveal anatomic details obscured by metal artifacts.

Xtream Display

A multi-purpose LCD display, combined with the exceptional one stop scanning mode, enables pre-scanning to be accomplished in as few as five touches.

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Smart Dose Technologies

Iterative Reconstruction Method ASiR-V[1,2]

ASiR-V[1,2] focuses primarily on more advanced noise and object modelling than ASiR with added physics modelling to help reduce noise, improve low-contrast detectability and reduce artefacts.

Combining the speed of ASiR with added capabilities from Veo full model-based iterative reconstruction, the novel ASiR-V[1,2] iterative reconstruction algorithm allows you to lower the dose by up to 82% as compared to standard filtered back-projection reconstruction at the same image quality.[2]

ASiR-V[1,2] is able to improve spatial resolution compared to FBP by reconstructing higher resolution images with no increase in image noise.[2]

ASiR-V[1,2] improves the detectability of low-contrast objects by up to 135% when compared to corresponding FBP reconstructions at the same dose.[2]

Depending upon the scan technique and reconstruction parameters, ASiR-V[1,2] can significantly reduce electronic image noise by up to 91% compared to FBP at the same dose.[2]

ASiR-V[1,2] is able to reduce low-signal artefacts, such as streak artefacts, compared to FBP.[2]
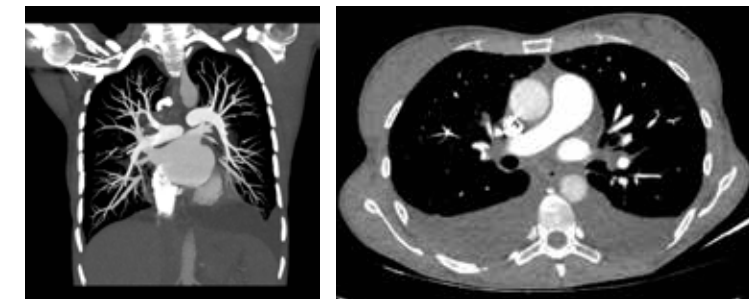
Dose Optimized Protocols (UW)

To provide you with more tools to optimize radiation dose, take clinically-useful images and potentially reduce the frequency of repeat CT scans, we made an agreement with the UW School of Medicine and Public Health. The current release UW protocols cover nearly all clinical indications for CT imaging, including neuro, MSK, chest, body, vascular and pediatric.

By adjusting the type, amount and timing of oral and intravenous contrast, as well as modifying patient positioning, scan and reconstruction parameters, each protocol is optimized to enhance the potential for accurate diagnosis of any suspected clinical condition. These protocols can serve cost savings, create a standardized imaging and interpretation environment and ultimately provide patients with a better imaging experience.

They are annually reviewed and updated with inputs from radiologists, physicists and technologists.

Enhanced Workflow

Smart Flow technologies enable fast, hands-free patient positioning, exam prescription from the patient's side, integrated injections, real-time reconstruction and access to advanced applications right on the console.

With IQ Enhance, you can scan chest in as little as two seconds with 175 mm per second acquisition speed to help shorten patient breath-holds while maintaining image quality.

Smart MAR (Metal Artifact Reduction)

Helps to reduce photon starvation, beam hardening and streak artefacts caused by metal in the body, such as hip implants. It also helps you diagnose disease with greater confidence.

Double Hip Replacement.
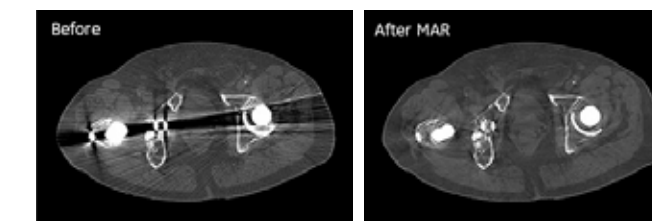
Xtream Display

The multi-purpose LCD display can show basic patient information on the gantry monitor. The user can confirm patient information in the scan room and improve workflow with preset positioning on gantry display.

Xtream Display has a video function to assist the user in explaining the CT examination to patients.

SCAN

Continuously maintaining your CT performance while you focus on your patients.

> *Because one of your key challenges is to obtain fast, high-quality images and avoid patient and staff disruptions.*

TrueFidelity CT Images[1,5]

How the best see better

Deep Learning Image Reconstruction (DLIR) promises unparalleled benefits for patients, along with the radiologists and technologists dedicated to their care.

Clarity Imaging chain

Redesigned to deliver high spatial resolution.

Clarity Detector
Inherited from the breakthrough technology introduced on Revolution CT.

Performix 40 Plus
Designed for the most demanding exams.

Smart Cardiac

Set up to perform complex cardiac procedures quickly, reliably and repeatedly.
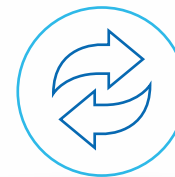
SnapShot Assist
Helps users optimize ECG-gated CT acquisitions.

SnapShot Pulse
Designed to reduce blurring artifacts due to motion in coronary vessels.

SnapShot Freeze 2[1,3]
Automated coronary motion correction.

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).

SCAN

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TrueFidelity CT Images[1,5]

How the best see better

TrueFidelity CT Images are more than a radical, next generation improvement. They elevate the vision of what you and Deep Learning Image Reconstruction can achieve—together.

Dual-energy Imaging

Enables quick post-processing of dual-energy data right on the console or on the Advantage Workstation, with easy image registration and one-click ROI ratio for simple analysis.
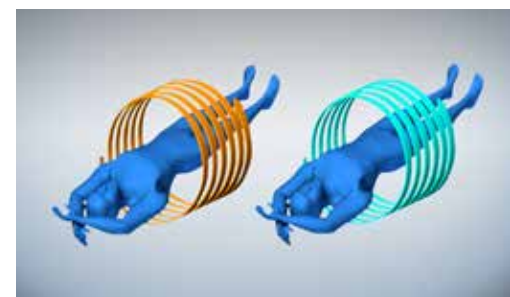
Clarity Imaging chain

Clarity Detector

Allows to see details as small as 0.28 mm thanks to its high resolution imaging capabilities. It delivers improved dose efficiency and signal-to-noise ratio as well, in addition to large coverage with z-axis uniformity.
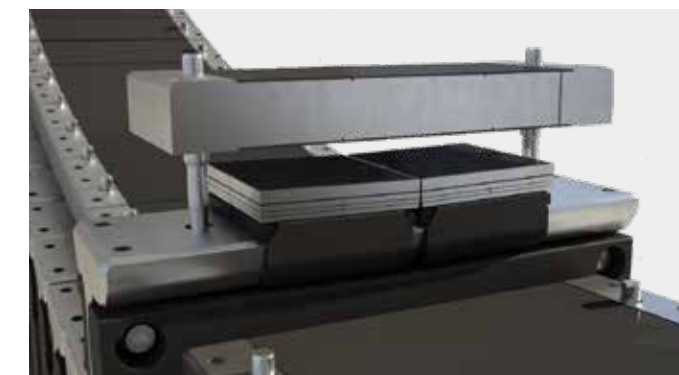
Performix 40 Plus

Provides improved precision with its stable dual-focal spot and enables faster scan times with its 0.35 second routine rotation speed. This results in shorter breath holds, may reduce the need for sedation, reduces motion artifacts from patient and organ movement and enables faster workflow for all applications.

Smart Cardiac

SnapShot Assist

Ensures cardiac exams are completed easily, in as few as five beats. It also advises you on the best acquisition technique based on the patient's heart rate and body mass index.

SnapShot Pulse

Allows for significant dose reduction in coronary imaging as compared to an ECG-gated helical acquisition mode.

SnapShot Freeze 2[1,3]

Reduces blurring artifacts due to motion in coronary vessels that cannot be addressed by gantry speed alone. It delivers a 58 ms-equivalent gantry speed with an effective temporal resolution of 29 ms.
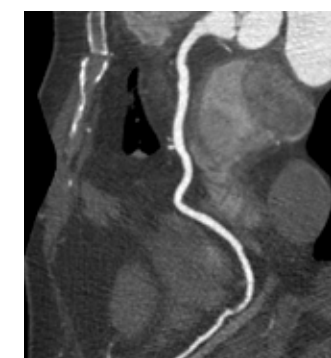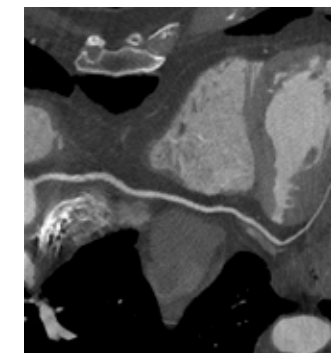
TRUEFIDELITY CT IMAGES

Deep Learning Image Reconstruction (DLIR)[1] promises unparalleled benefits for patients, as well as for the radiologists and technologists dedicated to their care. GE Healthcare pioneered and consistently pushed the science of image reconstruction further.

TrueFidelity CT Images are more than a radical, next generation improvement. They elevate the vision of what you and Deep Learning Image Reconstruction can achieve—together.

Compared with even the most sophisticated Model-Based Iterative Reconstruction, TrueFidelity CT Images are scanning taken to another level.

Contrast visualization is maintained; noise and artifacts are minimized; edges are maintained—just enough—so there's remarkable clarity and none of the compromise that comes with unfamiliar noise texture.[5]

The result is an easy, information-rich interpretation experience. An experience that gives diagnosticians the confidence they require, even as it potentially improves scan read times and fights radiologist fatigue.

A Deep Learning Image Reconstruction application is only as good as the training it receives.

GE Healthcare's proprietary DLIR training reflects our unmatched understanding of what successful DLIR requires and what radiologists want.
The foundation of that training is GE Healthcare's library of thousands of low noise, filtered back projection images. These ground truth images cover every anatomy and are the gold standard for image quality. The artificial intelligence that powers our Deep Learning Image Reconstruction gets its education here, an education that allows you and TrueFidelity CT Images to achieve never-before-possible clarity at low dose.

Clearly meeting the challenge of obesity

This epidemic poses particular difficulties for radiologists, technologists and ultimately, patients. In fact, at many facilities, at least 1 patient a day has multiple weight-related artifacts affecting image quality. The scan below is an example of GE Healthcare's improved TrueFidelity CT Image for a patient with a BMI of 49.
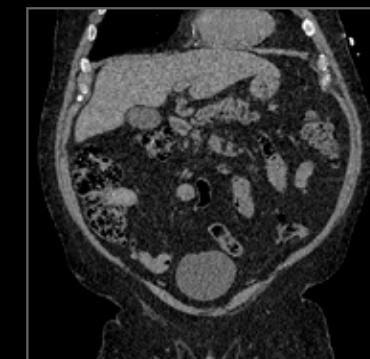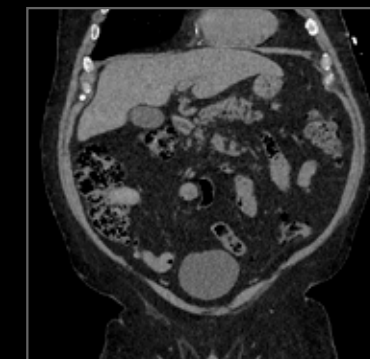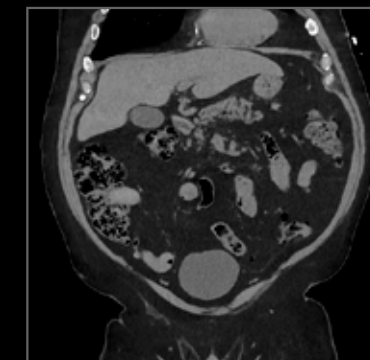
DIAGNOSE

Supporting your rapid, accurate and confident diagnosis to improve your patient care pathway.

Because one of your key challenges is to deliver a rapid, accurate, precise and confident diagnosis.

Broad range of available clinical applications
Helps you improve diagnostic confidence and productivity.

FastStroke[1]
Enables fast and efficient review of CT stroke images.

Accipio AI-powered Intracranial Hemorrhage Platform[4]
Supports radiology, ER and neuroradiology teams as a fully-automated solution.

Bone VCAR[1]
Designed for spine assessment via a deep-learning-based application.

DIAGNOSE

Supporting your rapid, accurate and confident diagnosis to improve your patient care pathway.

> Because one of your key challenges is to deliver a rapid, accurate, precise and confident diagnosis.

Broad range of available clinical applications

Oncology
A suite of Assisted Reading applications for lung and liver disease and oncology follow-ups.

Cardiovascular
A suite of automated applications for cardiovascular assessment and heart structure.
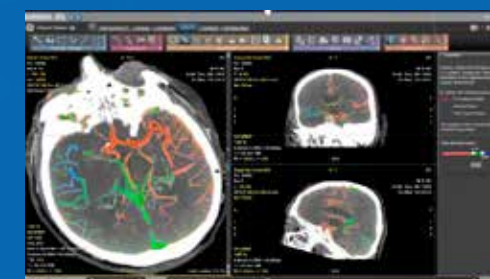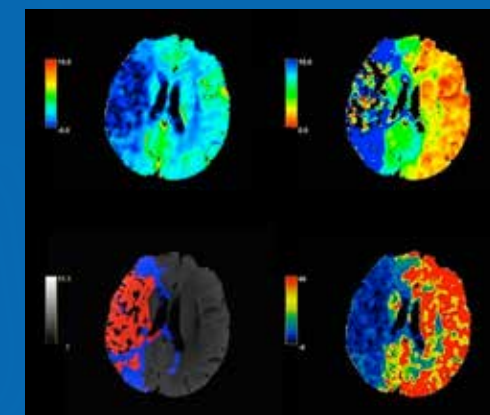
Neuro
A suite of dedicated workflow and post-processing solutions for assessment, triage and pre-procedure planning of the stroke and trauma patient.

MSK
Automated application to identify and label bone structures.

Neuro

FastStroke[1]

Enables you to simplify and organize the display of CT stroke images for fast and efficient stroke evaluation. With one single tool, you can read and analyze all your series. It also allows a multiphase dynamic evaluation of vascular enhancement (mCTA) and vascular flow identification and collateral vessel assessment.

Accipio AI-powered Intracranial Hemorrhage Platform[4]

Allows you to increase bleed detection and reduce missed bleeds through real-time triaged and prioritized notification of non-contrast head CT. Accipio platform enhances escalation and intervention confidence, including mobilization of the Stroke, tPA and OR teams for mechanical clot removal. It also assists with stroke treatment planning including tPA administration and mechanical intervention, that can help avoid errors leading to clinical, economic and potentially litigious issues.

MSK

Bone VCAR[1]

Delivers automated spine identification and labeling, based on a deep learning model for high accuracy.

Bone VCAR labels vertebrae in less than 5 seconds (300 mm volume or less) and automatically generates curved reformats through the spine for true axial, sagittal, coronal views – oblique views parallel to the bodies and disc space.

UNLOCKED PERFORMANCE

Constantly upgrading your service to provide the best for your patients.

Because one of your key challenges is to do more in less time and be prepared for the future.

Smart Subscription
A subscription service that provides you with convenient and continuous access to the latest available capabilities.

Dose Watch Explore
A web-based, cloud-deployed, introductory dose management software to track, analyze and report practice-level data for your CT systems.

Tube Watch
A predictive monitoring solution for your CT scanners that can help anticipate an impending tube failure, enabling tube replacement at a more convenient time.

UNLOCKED PERFORMANCE

Constantly upgrading your service to provide the best for your patients.

> *Because one of your key challenges is to do more in less time and be prepared for the future.*

Smart Subscription

Provides access to the latest available capabilities for your devices, whenever needed, for one annual fee per device.

Its design started with a broad vision: to help you deliver the best patient care, not just today, but for the entire life of your CT investment.

We understand your challenges: declining reimbursements, increased workloads, shortage of radiologists, workflow challenges, aging fleets and lack of capital funds.

What will Smart Subscription offer you?

> Keeps getting better by giving you access to the latest available capabilities every day you own it.

> Ensures you have the same CT capabilities at all your sites by allowing you to provide consistent exams throughout your enterprise.

> One set of capabilities to learn, operate and read from, enabling you to increase your staff efficiency, reduce training and improve satisfaction.

Dose Watch Explore

Collects radiation dose data directly from your CT scanner, then summarizes and presents the data via a web application. With this introductory offering you can start to make initial improvements around dose management to help drive changes in your organization that can ultimately improve patient care with respect to radiation doses.

Tube Watch

Helps predict an impending tube failure and thus enabling tube replacement at a more convenient time.

What will Tube Watch offer you?

Monitor: Real-time representation of the working condition of a system's components. This means it remotely monitors and analyzes tube health trends over time and any indications of change in performance.

Predict: Estimates the failure date with high accuracy and helps you decide whether or not to proactively replace the X-ray tube.

Repair: Runs an in-depth assessment and, if needed, schedules on-site maintenance at a time that is most convenient for the facility.
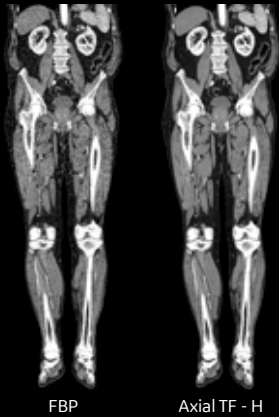
TrueFidelity

FBP

TrueFidelity
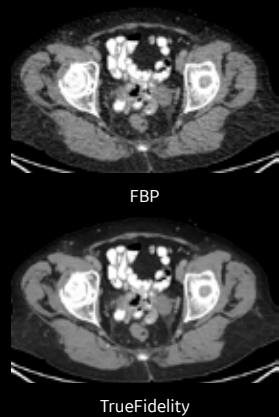
Routine Abdomen and Pelvis

Scan type: Helical - Rotation time: 0.5 s - Pitch: 0.984 - Slice: 0.625 mm - Reconstruction: DL-H - 120 kV - 125-212 mA - Noise index: 13.3 - Algorithm: Standard - 25 BMI - CTDIvol: 10.73 mGy - DLP: 498.95 mGy-cm - mSv (*0.015)

*Images courtesy of Frisbie Memorial Hospital, Rochester, NH*

FBP

Axial TF - H

Runoff – Bilateral Stent

Scan type: Helical - Rotation time: 0.6 s - Pitch: 0.516 - Slice: 0.625 mm - Reconstruction: DL-H - 100 kV - Auto 100/80 mA - Noise index: N/A - Contrast: 70 ml at 3.s5ml/s, 350 mgI/ml - Algorithm: Std - CTDIvol: 5.5 mGy - DLP: 707 mGy-cm - **History:** Claudication - **Findings:** Right Femoral Occlusion

*Images courtesy of Frisbie Memorial Hospital, Rochester, NH*

Vascular

Volume Rendering   Volume MiP   Volume MiP Calcification subtracted
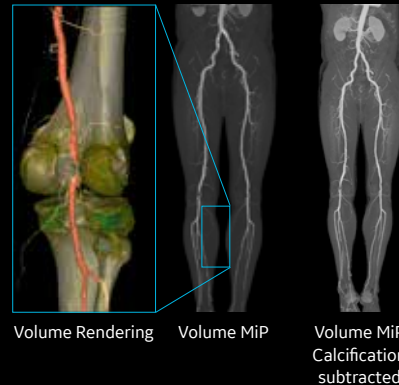
Excellent IQ for peripheral angiography

Scan type: Helical - Rotation time: 0.6 s - Pitch: 0.516 - Slice: 0.625 mm - 100 kV - 80 mA - Noise index: 70 - Kernel: Standard - ASiR-V* 70 % - CTDIvol: 5.0 mGy - DLP: 694 mGy-cm

Images Courtesy of Dorset County Hospital, Dorchester – United Kingdom

Coronal 1.25 mm

Curved view   Curved Smart MAR   Coronal Smart MAR 1.25 mm
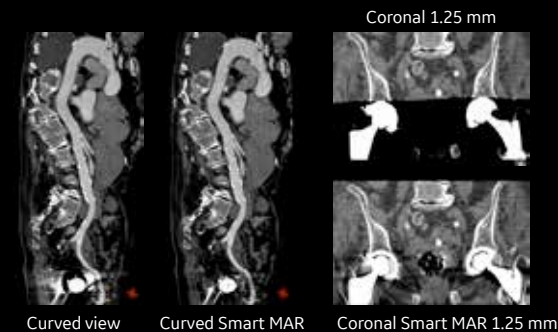
TAVI – iliac vessels assessment (prosthesis) with Smart MAR

Scan type: Helical - Rotation time: 0.6 s - Pitch: 0.984 - Slice: 1.25 mm - 100 kV - 257/308 mA - Kernel: Standard -/ + MAR - ASiR-V 50 % - CTDIvol: 10 mGy - DLP: 512 mGy-cm
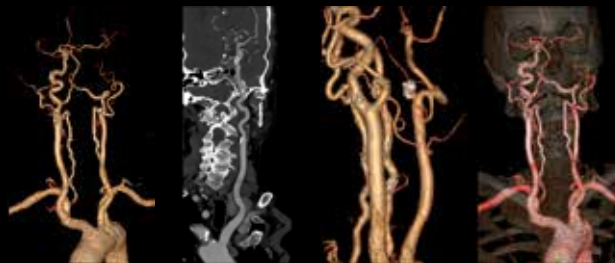
Images Courtesy of Clinique Parly II, Versailles – France

Neuro

Low-dose and high-quality CT for circle of Willis

Scan type: Helical - Rotation time: 0.4 s - Pitch: 0.531 - Slice: 0.625 mm - 100 kV - 79 mA - Noise index: 15 - Kernel: Standard - ASiR-V 40 % - CTDIvol: 7.5 mGy - DLP: 298 mGy-cm - Eff. dose: 0.92 mSv - k: 0.0021 *DLP

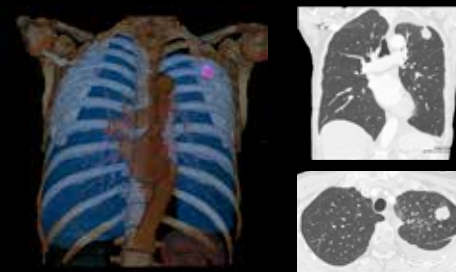*Images Courtesy of Mälarsjukhuset Hospital, Eskilstuna - Sweden*

Head and neck CTA: excellent IQ for left carotid occlusion

Scan type: Helical - Rotation time: 0.35 s - Pitch: 1.531 - Slice: 0.625 mm - Scan length: 355 mm - 120 kV - 226-478 mA - Noise index: 15 - Kernel: Detail - ASiR-V* 30 % - CTDIvol: 6 mGy - DLP: 260 mGy-cm

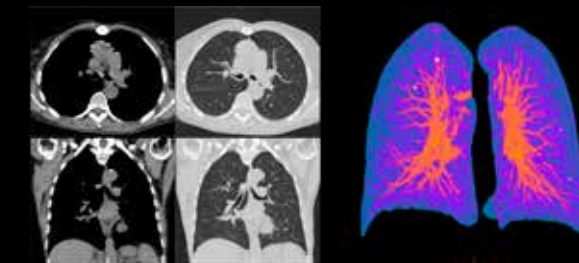*Images Courtesy of Clinique Parly II, Versailles - France*

Chest

Low-dose chest CT for lung cancer follow-up

Scan type: Helical - Rotation time: 0.4 s - Pitch: 1.375 - Scan length: 40 mm - 120 kV - Smart mA - Noise index: 25 - Kernel: Standard/Lung - ASiR-V* 60/30 % - DLP: 135 mGy-cm - IQE

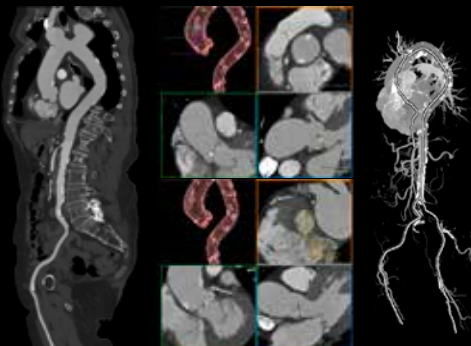*Courtesy of Acrim Polyclinique St Côme, Compiègne – Frances*

Ultra-low-dose thorax exam for lung disease follow-up

Scan type: Helical - Rotation time: 0.35 s - Pitch: 1.531 - Slice: 1.25 mm - Scan length: 316 mm - 120 kV - 50-64 mA - Noise index: 45 - Kernel: Standard/Lung - ASiR-V 60 % - CTDIvol: 1.0 mGy - DLP: 40 mGy-cm

*Images Courtesy of Clinique Parly II, Versailles – France*

Cardiac

Rapid and precise TAVI planning with mixed mode acquisition

Scan type: Helical gated/ Helical non-gated - Rotation time: 0.35 s - Pitch: 1.531 (non-gated) - Slice: 0.625 mm - Scan length: 528 mm - 100 kV - 260-449 mA - Noise index: 35 - Kernel: Standard - ASiR-V* 60 % - CTDIvol: 21.4 mGy - DLP: 655 mGy-cm

Images Courtesy of Clinique Parly II, Versailles - France
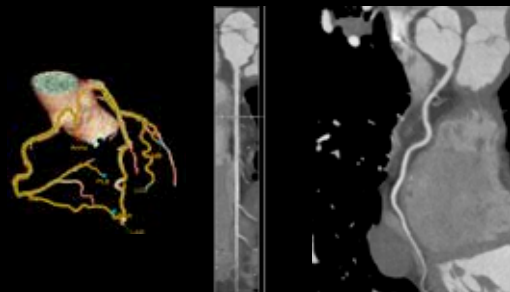
Cardiac SnapShot Freeze at 1.7 mSv

Scan type: Cine - Rotation time: 0.35 s - Slice: 0.625 mm - Scan time: 7 s - 120 kV - 200 mA - Kernel: Standard - ASiR-V 50 % - CTDIvol: 8.5 mGy - DLP: 119 mGy-cm - Eff. dose: 1.7 mSv - k: 0.014*DLP

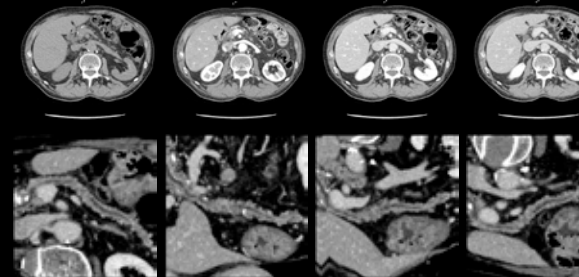*Images Courtesy of Wheaton Franciscan - Franklin, Wi*

Body

Multi-planar review of helical abdomen for mass evaluation

Scan type: Helical - Rotation time: 0.6 s - Slice: 0.625 mm - Scan time: 4.81 s - 120 kV - Auto mA - Kernel: Standard+ - ASiR –V 40 % - CTDIvol: 7.6 mGy - DLP: 380 mGy-cm - Eff. dose: 5.7 mSv

Images Courtesy of Wheaton Franciscan - Franklin, Wi

Low-dose multiphase abdomen exam

Scan type: Helical - Rotation time: 0.7 s - Pitch : 0.984 - Slice: 0.625 mm - 100 kV - 80 - 103 mA (Smart mA) - Kernel: Standard - ASiR-V*: 60 % - Noise Index: 40 - 35 - CM: 100 ml - Saline fl. 3.0: 35 ml - CTDIvol: 2.3 – 3.8 mGy - DLP: 409 mGy-cm (4ph) - BMI: 23

Images Courtesy of Humanitas Research Hospital, Milano - Italia

GE Healthcare is a leading provider of medical imaging, monitoring, biomanufacturing, and cell and gene therapy technologies. GE Healthcare enables precision health in diagnostics, therapeutics and monitoring through intelligent devices, data analytics, applications and services. With over 100 years of experience and leadership in the healthcare industry and more than 50,000 employees globally, GE Healthcare helps healthcare providers, researchers and life sciences companies in their mission to improve outcomes for patients around the world. Follow us on Facebook, LinkedIn, Twitter and The Pulse for latest news, or visit our website www.gehealthcare.com for more information.

1. Optional.

2. 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 was measured using 0.625 mm slices and tested for both head and body modes using the MITA CT IQ Phantom (CCT183, The Phantom Laboratory), using a model observer method.

3. As demonstrated in cardiac phantom testing. SnapShot Freeze 2 requires CardIQ Xpress 2.0 Reveal. A 6x improvement of motion-blur reduction while maintaining high spatial resolution is demonstrated in cardiac phantom testing. The reduction in motion artifacts is comparable to a 0.058s Equivalent Gantry Rotation Speed with effective temporal resolution of 29 msec, as demonstrated in mathematical phantom testing.

4. Accipio Ix and AbsoluteZero are trademarks of MaxQ-AI. GE Healthcare is a licensed distributor of Accipio Ix.

5. Not yet CE marked. May not available for sale in all countries. DLIR neural networks give an image appearance (as shown on NPS plots) similar to traditional high-dose, low-noise FBP images. Demonstrated in phantom testing comparing images reconstructed from the same raw data, with DLIR-H and ASiR-V 50%, using the standard kernel.

6. Local regulations and/or validations may affect product availability, so some products may not be available for sale in all countries. Before placing an order, check with your GE sales or customer service representative on product availability.

GE imagination at work