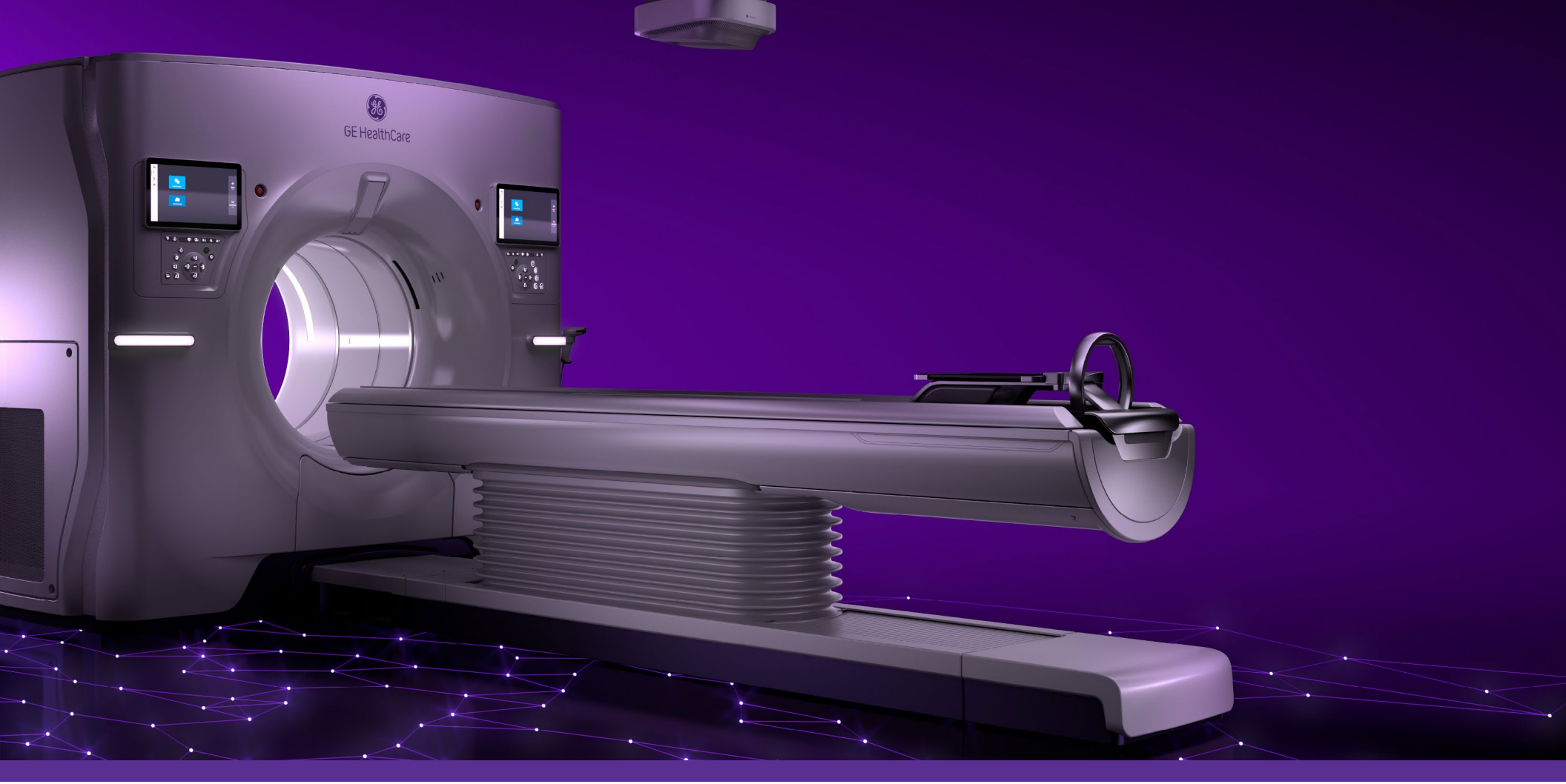


Revolution™ Apex platform

Lead CT now and into the future

GE HealthCare

Lead CT now and into the future

Today's healthcare professionals are facing increasing pressure to serve communities with rapidly growing patient volumes and more complex imaging needs. The challenge is to create high-quality images while managing a heavy patient load. Furthermore, these clinical pressures require new CT systems equipped to meet a broadening range of diagnostic needs.

In an environment where the pace of innovation in technology is only getting faster, the financial and operational barriers to stay at the leading edge are more prevalent than ever. We recognized the need to deliver CT technology that not only improves productivity and diagnostic confidence right now, but also provides the assurance of powerful built-in adaptability.

What today's radiology departments need is a cutting-edge platform with unprecedented clinical capabilities that will make you ready for every future.

> *"When you think of equipment here at our hospital, we anticipate that we will keep our CT systems for 10 years. Now, of course, a CT system is new. Over the years, it's no longer the high-end system it was before. How can we make sure that during the lifespan of the system, there can be some improvements?"*
>
> Alain Luciani, M.D., Ph.D., Professor of Radiology,
> University Hospital Henri Mondor, France

> *By having the Revolution Apex platform, we made the choice for a platform that led us to have that smooth evolution in technology, not by taking two big steps, but still staying at the edge."*

Johan de Mey, M.D., Ph.D., Chair of Radiology,
University Hospital Brussels, Belgium

From here, anything is possible

Introducing the Revolution Apex platform

The Revolution™ Apex platform is our answer to your challenges. It is an all-new CT platform that offers the best of modern CT technology to provide versatile and unprecedented clinical solutions for your most challenging patients. The advanced technology at the core of the Revolution Apex platform includes a scalable detector, the most powerful X-ray tube, next-generation spectral imaging, the industry's fastest rotation speed, breakthrough image quality and Effortless Workflow.

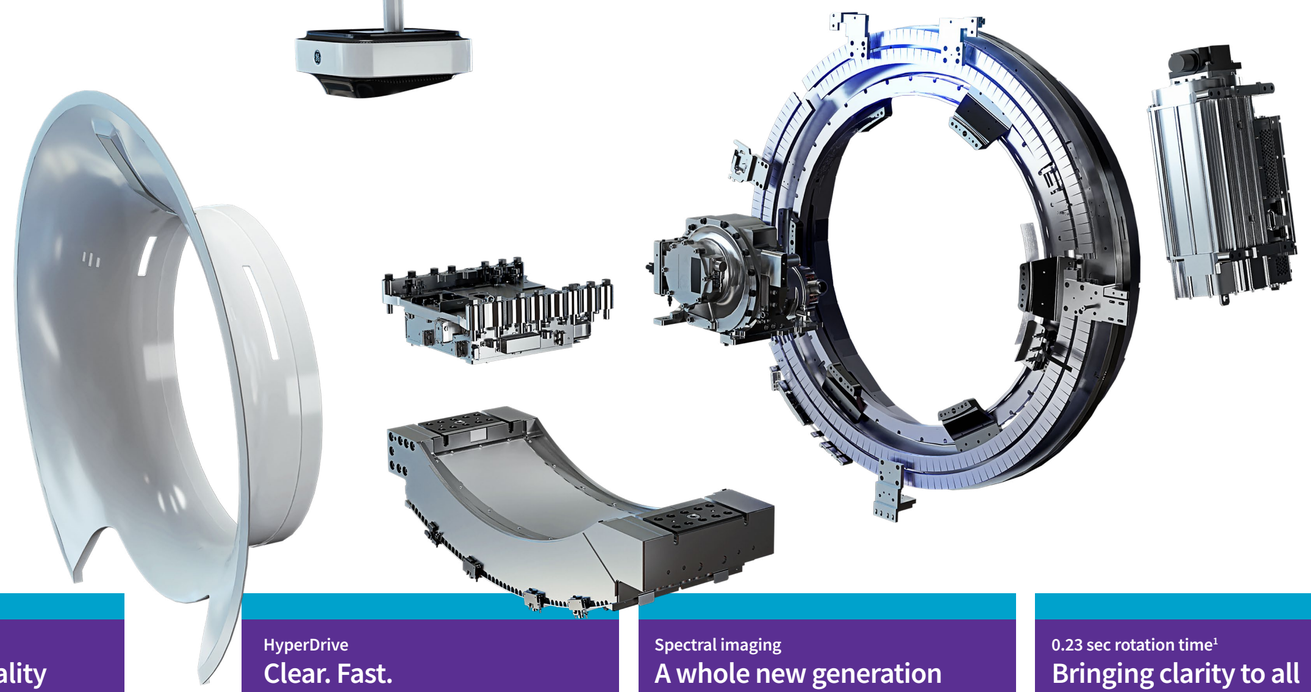
The Revolution Apex platform was created with a "future-ready" design philosophy, which lays the foundation of our entire portfolio of Revolution Apex platform systems. All of which are designed with built-in scalability, so you can be **ready for every future**. With the choice of 40 mm, 80 mm or 160 mm of coverage, you can decide which system is right for you today and easily upgrade to more capability when you need it.

Exceptional technology in every dimension of the CT imaging chain

Unprecedented clinical solutions across a wide range of care areas

Future-ready platform ensures quick access to the next generation of CT innovation

The capability of tomorrow's CT platform



Best-in-class technology

To create a high-performance system today that is ready for the future, the Revolution Apex platform was designed with a "future-ready" philosophy and equipped with the best available technologies for every component of the imaging chain. We started with the Clarity Detector.

We paired that with the incredible power of our Quantix™ X-ray Tube for wide coverage as well as the fastest gantry speed in the industry and next-generation spectral imaging. No matter which Revolution Apex platform system you choose, you'll experience the benefits of this state-of-the-art hardware.

Scalable Clarity Detector
Built-in flexibility

Modular detector design with three different configurations for easy on-site upgrades from 40 mm up to 160 mm.

Quantix X-ray tube
Power like never before

With the ability to deliver 1300 mA of flux output in a 108 kW package, this is the most powerful CT X-ray tube ever made.

TrueFidelity DL
Futuristic image quality

Our image reconstruction technology uses a dedicated Deep Neural Network to generate high-definition, low-noise CT images. TrueFidelity DL is fully integrated with both single-energy and spectral imaging, so it produces exceptional images, even with low dose.

HyperDrive
Clear. Fast. Complete field of view.

HyperDrive provides up to 437.5 mm/s volumetric scanning reconstructed to a maximum 50 cm field-of-view (FOV).

Spectral imaging
A whole new generation of spectral imaging

Ultra-fast, kV/mA synchronized switching with integrated TrueFidelity DL enables almost perfectly registered volumetric dual-energy CT data and exquisite image quality for all patient sizes.

0.23 sec rotation time[1]
Bringing clarity to all cardiac cases

The industry's fastest rotation speed reaches new heights in speed, image quality and dose with TrueFidelity DL and SnapShot Freeze 2 for an effective temporal resolution of 19.5 msec.[2]

[1] Available on Revolution Apex Elite and Revolution Apex Plus.

[2] Effective temporal resolution achieved by a 6x improvement of motion-blur reduction while maintaining high spatial resolution as demonstrated in cardiac phantom testing. The reduction in motion artifacts is comparable to a 0.039 Equivalent Gantry Rotation Speed with effective temporal resolution of 19.5 msec, as demonstrated in mechanical and mathematical phantom testing. This is the experience of a single facility and may not generalizable or reproduceable.

Be ready for anything and anyone

Unprecedented clinical solutions

Today's radiology departments have to be ready for everything. Patient volumes continue to grow, cases are growing in complexity and rapid advancements in disease management keep pushing you to expand your imaging service lines.

The Revolution Apex platform is designed to provide unparalleled image quality, low dose and exceptional clinical solutions for both routine and challenging cases in all care areas for every patient.

- Cardiac
- Stroke
- Oncology
- MSK
- Chest
- Pediatric
- Emergency
- Obesity

One-beat cardiac. Simple for all at any heart rate and rhythm, with low radiation dose.

Scan type	Axial 1-beat cardiac
Rotation time	0.23 s
BPM	47-151
BMI	20
kV	100 kV
mA	330
Slice, mm	0.625
Reconstruction	TrueFidelity DL
Kernel	HD Standard
CTDIvol, mGy	7.88
DLP, mGy-cm	126
Eff. dose, mSv	1.7
k, *DLP	0.014

A 160 mm detector means coverage is no issue for whole-heart acquisition, making 1-beat cardiac at any heart rate a reality. Tools like AutoGating, SmartPhase, Smart Arrhythmia Management as well as SnapShot Freeze 2 streamline and boost post-processing that may help with faster and more precise diagnosis.

Cardiac

Nearly one-third of deaths worldwide are caused by cardiovascular disease. CT plays an more important role with the increase in referrals for cardiac CT procedures. Along with an increase in referrals comes an increase in the complexity of patient cases.

The Revolution Apex Elite is able to achieve unlimited 1-beat cardiac with 0.23s rotation speeds at a 19.5 ms temporal resolution.[2] It can complete high-quality CCTA exams in only one heart cycle at any heart rate. The Revolution Apex Elite delivers motion-free CCTA images with high diagnostic quality, low radiation dose and iodine contrast volume.

> *"Today with 0.23 sec/rotation, we don't administer beta blockers. We don't monitor the heart rhythm in advance, even when patients have a very high heart rate.*
>
> *That's a significant improvement between the past and today's CT scans with the Revolution Apex Elite because the workflow is much more efficient."*
>
> Dr. Joost Delanote, Radiologist, AZ Sint-Jan Brugge, Oostende, Belgium

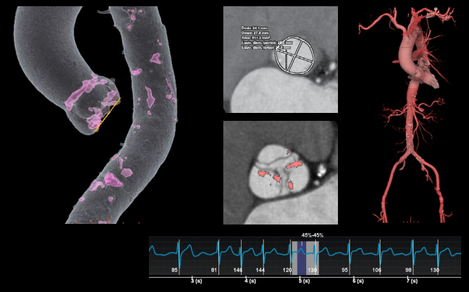
Cardiac

One-beat high resolution cardiac. Even with heavily calcified coronary plaques.

Scan type	Axial 1-beat cardiac
Rotation time	0.23 s
BPM	59
BMI	27
Calcium score	2623
kV	70
mA	1300
Slice, mm	0.625
Reconstruction	TrueFidelity DL
Kernel	HD Standard
Eff. dose, mSv	1.7
Eff. dose, mSv	1.7
k, *DLP	0.014

With high-definition imaging, the Revolution Apex platform has exceptional spatial resolution for better vessel visualization and reduced calcium blooming. This provides clear images to help the physician with tasks such as accurately quantifying stenosis in coronaries and other vascular structures, which could lead to increased speed and confidence in reporting.

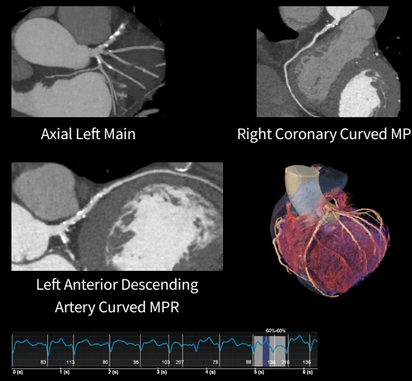
CCTA & TAVI for patient with variable HR 86 – 130 BPM and BMI 26.5



Scan type	Axial Gated I Helical
Rotation time, s	0.28
Pitch	0.992
Slice, mm	0.625mm
Reconstruction	TrueFidelity DL TF H
kV	100 I 120
mA	1088 I mA modulation ~250
Noise index	15 I 24
Contrast	
ml	65ml
mgI/ml	350mg/ml
Algorithm	Standard
DLP, mGy-cm	528
Eff. Dose, mSv	7.39
History	Aortic Valve Stenosis

Dedicated TAVR/TAVI scanning protocols allow mixed acquisition of the heart, aorta, and femoral arteries with just a single injection of contrast media, covering 700mm of anatomy in less than 10 seconds, these protocols further optimize contrast by boosting visualization.

1-beat Cardiac at 0.23s rotation for a patient with chest pain at 136 BPM. No beta blockers.



Axial Left Main

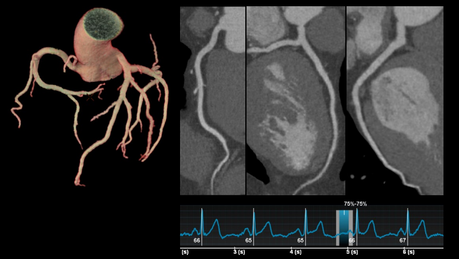
Right Coronary Curved MPR

Left Anterior Descending Artery Curved MPR

Scan type	Axial Gated
Rotation time, s	0.23
BPM	136
Slice, mm	0.625
Reconstruction	DLIR - H
Algorithm	Standard
kV	80
mA	Smart mA – 1075
Noise index	45.0
CTDIvol, mGy	15.22
DLP, mGy-cm	243.47
mSv (*0.014)	3.4

Apex Elite with unlimited 1-Beat cardiac, 0.23s rotation time and 80 kV achieves great CCTA images without beta blocker, for a patient with irregular heart rhythm. Thanks to TrueFidelity DL, Quantix tube and 160 mm whole organ coverage.

Patient with BMI 39 vessel assessment
1-beat CCTA with 0.23s/rot and TrueFidelity DL image



Scan type	Axial Gated
Rotation time, s	0.23
BPM	66
BMI	39
Slice, mm	0.625
Reconstruction	DLIR
Auto prescription	120 kV
mA	720
Contrast	
ml/flow - mgI/ml	55/5.0 – 320
Reconstruction	Standard
CTDIvol, mGy	7.3
DLP, mGy-cm	117
Eff. dose, mSv	1.6
k, *DLP	0.014

> *As a cardiac imager, frequently dealing with large body habitus patients, it is remarkable the differences in noise reduction and image quality we can achieve by routinely implementing TrueFidelity DL. The soft tissue contrast resolution improvement is very apparent and the image quality is very pleasing without unexpected textures.”*

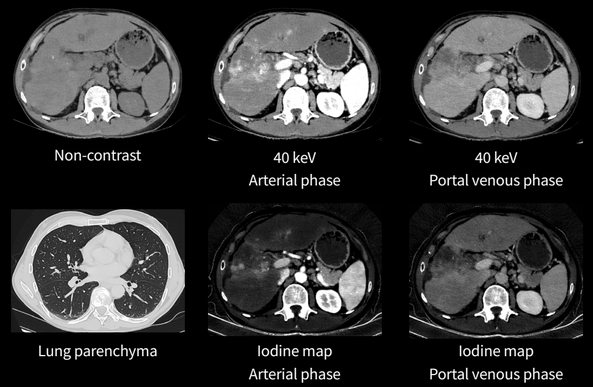
Luis Landeras, M.D., Associate Professor of Radiology, Associate Director, Cardiac Computed Tomography and Magnetic Resonance, University of Chicago

Oncology

Tumors can be complex. Poor image quality makes it difficult for radiologists to see detail, texture and margins. Radiologists need as much information as possible to diagnose and handle difficult cases. Even when radiologists have the information they need, they still lack an easy, streamlined way to read, interpret and review the data.

Revolution Apex platform offers radiologists the information they need as well as an easier way to read, review, and interpret that information for potentially greater diagnostic confidence. With the next-generation, on-demand spectral imaging and deep learning, the most common procedures in the department and oncology follow-ups are all streamlined.

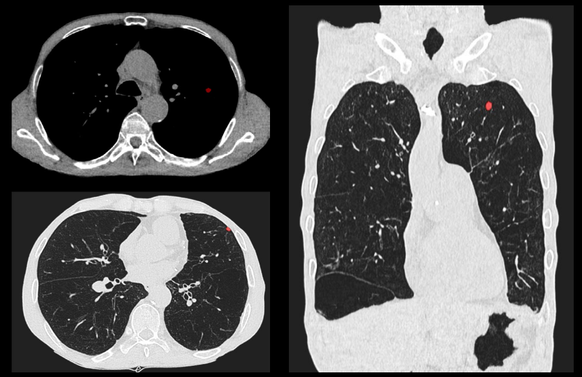
Spectral imaging to facilitate the post-treatment evaluation for a patient with liver cancer.



Scan type	Helical
Rotation time	0.6 s
BMI	29
kV	80/140 kVp switching
mA	145
Slice, mm	1.25
Reconstruction	TrueFidelity DL
Kernel	Standard
CTDIvol, mGy	9.5 / 8.6
DLP, mGy-cm	294 / 607
Eff. dose, mSv	3.8 / 7.8
k, *DLP	0.013

Thanks to kV/mA synchronized switching and TrueFidelity DL, spectral imaging on the Revolution Apex platform can produce high quality, low energy monochromatic images and iodine maps to enhance the depiction of lesions. This may help improve the diagnostic performance in evaluation for cancer patients.

Ultra-low dose chest exam with HyperDrive, less than 1 second scan time.



Scan type	Helical 80 mm
Rotation time	0.28 s
Pitch	1.531
BMI	22
kV	140
mA	10
Slice, mm	0.625
Reconstruction	TrueFidelity DL
Kernel	Standard
CTDIvol, mGy	0.18
DLP mGy x cm.	8.4
mSv (*0.014)	0.11

Using HyperDrive, a 437 mm/s volumetric scan with 50 cm FOV, the Revolution Apex platform can acquire sub-second chest exams with ultra-low dose. You can rely on TrueFidelity DL for every exam to achieve the best image.

Chest

According to the World Health Organization (WHO), lung cancer is the most commonly diagnosed cancer and the leading cause of cancer death globally. Low dose CT (LDCT) can reduce lung cancer mortality by up to 20% in high-risk individuals based on NLST. The challenges of LDCT are the false-positive results and radiation exposure to the patient. The amount of reading also adds burden to the radiology departments.

TrueFidelity DL demonstrates noise reduction and an improvement of subjective image quality compared to iterative reconstruction in ultra-low dose conditions. And HyperDrive enables up to 437.5 mm/s* volume acquisition speeds without compromising a 50 cm FOV or image quality. HyperDrive also minimizes the need for breath holds.

> *“Revolution Apex platform provides automatic lung and lung nodule segmentation, quantification measurement, nodule visualization, analysis and management to facilitate lung cancer screening. Diagnosis and follow-up are enabled through a streamlined workflow and the Smart Subscription package.”*

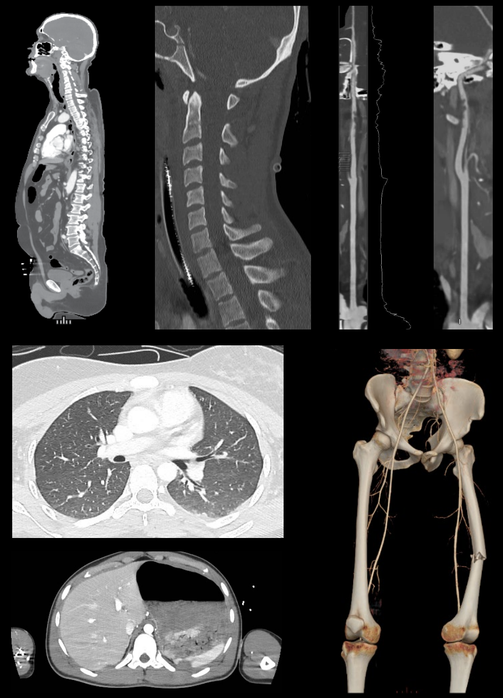
Jiang, B. et al. *Deep Learning Reconstruction Shows Better Lung Nodule Detection for Ultra-Low-Dose Chest CT. Radiology 303, 202–212 (2022).

Emergency

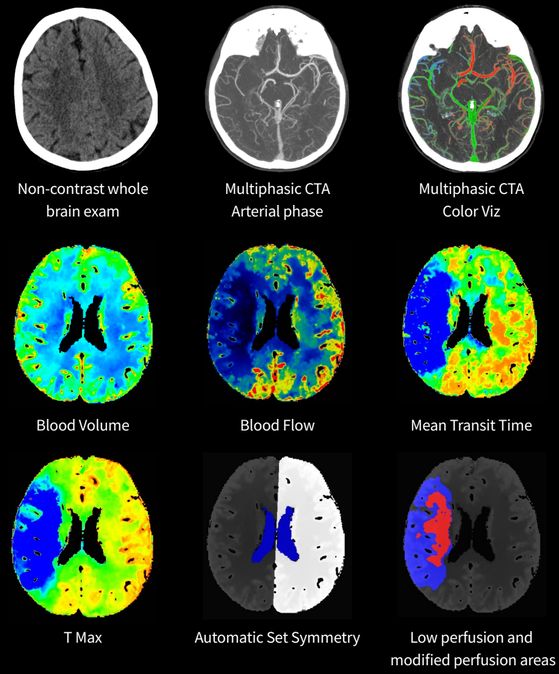
Emergency department patients may be injured, traumatized, or in distress. So the ability to obtain fast scans and high-quality images is crucial. Time is life for ER patients. But they may have difficulty remaining still, following instructions, or holding their breath. This can result in motion artifacts that decrease diagnostic confidence or even result in failed scans. Patients may also have metal implants, plates, screws, rods or fillings, which create metal artifacts in the image.

Be prepared for the unexpected with the Revolution Apex platform. Its suite of technologies, such as HyperDrive, TrueFidelity DL and Effortless Workflow offer the radiologist faster scans and high image quality at full 50 cm FOV which could lead to a more confident diagnosis. At the same time, the two meter positioning table and 80 cm bore size help with patients who are difficult to position properly and offer a higher level of comfort.

Ultrafast trauma exams with spectral imaging for all body types.



Acute stroke rule out in less than five minutes.



Stroke

For stroke patients, time is brain. When a patient arrives at the emergency room with symptoms that suggest a stroke, CT is the first-line imaging test to make a quick and accurate diagnosis that enables immediate treatment. Significant intra-arterial hemorrhage tends to occur relatively early after an ischemia stroke's intra-arterial reperfusion therapy, during a period when iodine contrast can stain the brain parenchyma.

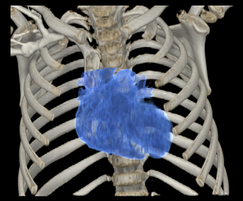
The Revolution Apex platform is designed to reduce time to diagnosis for your stroke patients, with the goal of saving time and brain tissue. FastStroke provides a fast and efficient review of CT images for ischemic stroke evaluation. It is a comprehensive workflow solution for reviewing all CT series acquired for acute stroke workup with exceptional flexibility and simplicity. It is designed to intelligently adapt to your department practices, allowing you to post-process and review CT stroke images effortlessly.

Pediatric

Pediatric patients can be challenging. Pediatric patients require fast and accurate images to avoid the need for sedation, unnecessary repeat scans, as well as lower radiation doses for safer care.

The Revolution Apex platform leverages HyperDrive and TrueFidelity DL to provide fast scanning and the lowest possible doses for the youngest patients, along with improved image quality and diagnostic confidence.

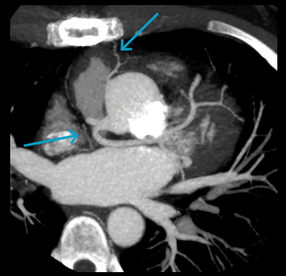
Pediatric imaging with minimal need for sedation or table movement using the lowest possible dose.



Scan type	Axial 160 mm collimation
Rotation time	0.28 s
kV	100
mA	95
Slice, mm	1.25
Reconstruction	TrueFidelity DL
Kernel	Standard
CTDIvol, mGy	0.97
DLP, mGy-cm	15.52
Eff. Dose mSv (*0.018)	0.28

The Revolution Apex platform can leverage 160 mm whole organ coverage or HyperDrive to potentially reduce the need for sedation. TrueFidelity DL images and low kV scans allow you to minimize the radiation dose while improving image quality and diagnostic confidence.

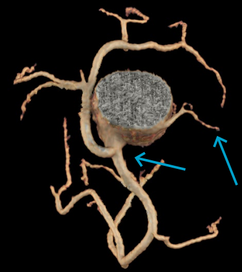
19-year-old CCTA image for right ventricle double outlet



Axial MIP - Posterior Sinus Origin LAD and LCX and Tiny RCA

Scan type	Axial
Rotation time, s	0.28
Pitch	1
Slice, mm	0.625
Reconstruction	DLIR - M
kV	80
mA	423
Algorithm	Standard
DLP, mGy-cm	214.25 mGy
mSv (*0.0023)	2.78 mSv
History	Assess Pulmonary Artery Anatomy
Findings	Double Outlet Right Ventricle

Pseudo Aneurysm of Transverse Arch



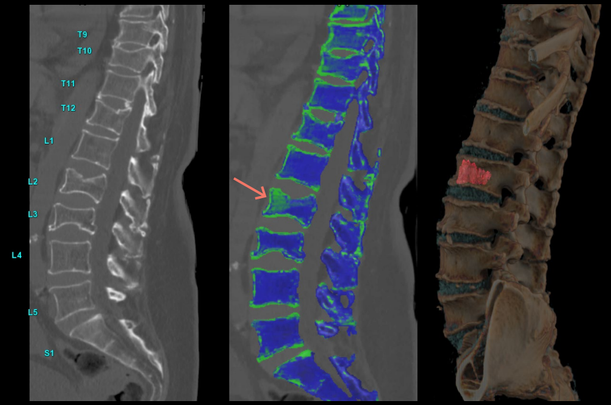
Posterior Sinus Origin and Anterior Facing RCA Origin

MSK

Fractures and dislocations may require surgical interventions as well as follow-ups to determine healing, leading to the need for high quality diagnostic images at low doses. Radiologists need to be able to diagnose even the tiniest fractures and breaks. Patients may have metal implants, plates, screws, rods, or fillings, resulting in metal artifacts in the image.

The Revolution Apex platform features high-resolution image acquisition and a 1024 reconstruction matrix. This may lead to ultra-high-resolution MSK imaging for detecting tiny fractures along with metal artifact reduction that works with both single-energy and dual-energy acquisitions.

Spectral imaging to identify bone marrow edema.



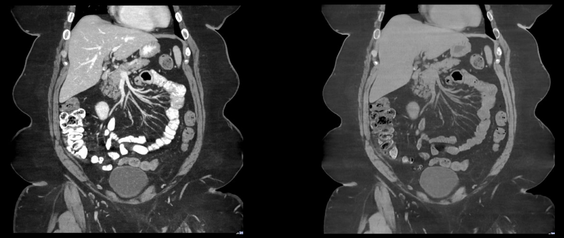
Sagittal – Bone window

Spectral Bone Marrow

Scan type	GSI helical 40 mm
Rotation time	1 s
Pitch	1
BMI	28
kV	80/140 kVp switching
mA	445
Slice, mm	1.25
Reconstruction	TrueFidelity DL
Kernel	Standard
CTDIvol, mGy	24

Spectral imaging can also generate calcium-suppressed water maps to help evaluate bone marrow edema caused by bone fractures and bruises. This may benefit patients who have contraindications to MR imaging or when MR imaging is not available.

High quality spectral imaging even for morbidly obese patients.



2.5 mm, 70 keV

2.5 mm iodine/water

2.5 mm, 40 keV

2.5 mm iodine/water

Scan type	Helical 80 mm collimation
BMI	51
Rotation time	0.5 s
kV	80/140 kVp switching
mA	515
Slice, mm	0.625
Reconstruction	TrueFidelity DL
Kernel	Standard
CTDIvol, mGy	55

Powered by the Quantix X-ray tube and TrueFidelity DL, GSI Xtream on the Revolution Apex platform allows spectral imaging for patients with large body habitus, without compromising exceptional image quality even for 40 keV and material mapping.

Obesity

Obese patients often have larger body sizes and increased layers of subcutaneous fat. This can make it difficult for the X-ray to penetrate the tissue effectively, resulting in reduced image quality. The increased attenuation of X-rays by fat can also affect the contrast and clarity of the images, making it challenging to visualize certain structures.

Using the many capabilities of the Revolution Apex platform, including the Quantix X-ray tube, Clarity Detector and TrueFidelity DL, you can achieve uncompromised image quality, even for morbidly obese patients with both single-energy and spectral imaging.

Revolutionizing CT from referral to report

> *Workflow efficiency is critical. We have seen that by mapping our process. We can see some of our pain points and then we can automate, decrease errors, provide better standardization and less variability."*
>
> Ricardo Cury, M.D., Chairman of Radiology,
> Baptist Health

Effortless Workflow

We are always seeking out new ways to boost operational efficiency with the goal of making your imaging workflow feel like second nature, possibly even invisible. When it comes to CT, we studied the entire workflow and created solutions to simplify and streamline each step of the process.

These solutions are the core of our Effortless Workflow model, a sophisticated collection of technologies that automate and simplify time-consuming tasks from pre-scan to post-scan. Effortless Workflow takes the CT experience to a new level of speed and precision.

Pre-scan

Before the scan
Intelligent Protocoling can automatically and intelligently suggest the relevant protocols for each study. After selecting the protocol, the patient Auto Positioning system, supported by a 3D camera and an AI algorithm, can intelligently identify specific anatomical landmarks and the patient isocenter. The system can then automatically move your patient into the optimal position for the scout scan.

Intelligent Protocoling

Auto Positioning

Scan

During the scan
Auto Prescription is a virtual scan assistant that can automatically adapt scan parameters to your patient's size and clinical indications. This can help you ensure the right scan settings so you can achieve optimal dose and image quality for every patient, every time.

Smart Plan

Auto Prescription

Post-scan

After the scan
Smart DMPR generates consistent and anatomically relevant reformats. Parallel Recon processes multiple reconstruction tasks at the same time so images are ready to review even before your patient leaves the scan room. This is crucially important for time-sensitive exams such as stroke and polytrauma workups.

Automated post-processing tools

> *“Our group has two strategic pillars, which consist of innovation and excellence in diagnosis. With Smart Subscription we are able to remain on top of technological advances and thereby stay aligned with our strategic pillars.”*
>
> Dr. Hugues BRAT, Chief Medical Director,
> 3R Réseau Radiologique Roman, Switzerland

Smart Subscription

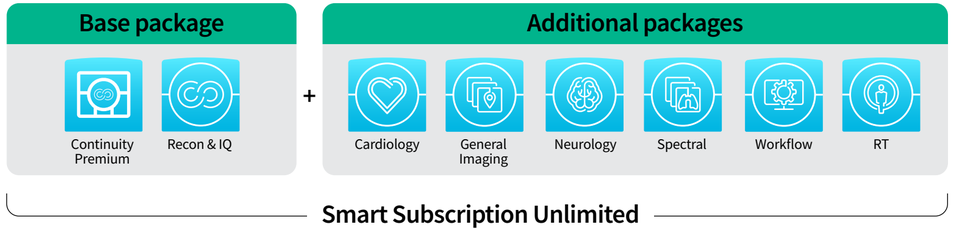
A CT that keeps getting better

Smart Subscription, a subscription service that provides access to the latest capabilities for your CT.[3]

Keep pace
Smart Subscription is the industry’s first subscription-based service for CT that helps you keep your computing platform and software up to date and keep pace with clinical and workflow innovations.

Consistency
It helps you maintain the same capabilities across all of your systems, at all your sites, enabling more consistent exams.

Flexibility
Smart Subscription includes a broad range of application packages across many different imaging services, giving you the flexibility to pick the right plan for you.



[3] Software available to customer is dependent on the software package purchased by customer.

Get a head start on the future of CT

Future-ready platform

It's challenging enough to ensure you have the latest CT technologies to support confident diagnoses for your current patients. You also need to keep an eye on the future. That's why we built the Revolution Apex platform with a "future-ready" design philosophy. Our modular Clarity Detector is the foundation of this approach.

You can start with Revolution Apex Select, which has a 40 mm Clarity Detector and 0.28 sec rotation speed. In the future, when you need to grow your service line, you can scale the detector up to 160 mm and upgrade the rotation speed to 0.23 sec per rotation.[4] Our "future-ready" philosophy doesn't stop at your system's hardware.

Your Clarity Operator Environment will receive regular updates that can easily be downloaded to your system. The Revolution Apex platform also gives you access to Smart Subscription, the industry's first subscription-based service for CT applications. With the Revolution Apex platform, you don't have to worry about keeping up with technology, because everything you need for the future is already there.

The future is green

We support carbon policies that reduce greenhouse gas emissions and promote sustainable development. We are committed to achieving net zero by 2050 and are part of the UN-backed "Race to Zero," with a goal of reducing emissions based on the Paris Agreement.

We've also set a public goal to achieve a 50% reduction in our own operational emissions by 2030.

1
Reduce bloat technology
Scalable to the core
85% of the materials used in the Revolution Apex platform are recyclable at the end of its lifespan.

2
Reuse to expand potential
Live past the lifetime
Our CT systems are built with scalability and upgradability to help prevent technology obsolescence and advance clinical capability.

3
Recycle once done
Sustainable to the end
94% – 96% of most systems are reused, refurbished, or recycled, extending the lifetime of each product.

[4] Available on Revolution Apex Elite

Revolution Apex Select

Built to perform and then outperform
Best for routine imaging centers covering all care areas

40 mm detector coverage
0.28 sec rotation speed
TrueFidelity DL
Smart Subscription

Revolution Apex Plus

The versatility to see it all
Best for ED/trauma COE and pediatric COE

80 mm detector coverage
0.23 sec rotation speed
TrueFidelity DL
Smart Subscription

Revolution Apex Elite

Image any challenge and every patient
Best for providing uncompromised solutions for all challenging patients

160 mm detector coverage
0.23 sec rotation speed
TrueFidelity DL
Smart Subscription

Up to 1300 mA with 200 KVA, up to 1200 mA with 150 KVA

About GE HealthCare

GE HealthCare is the $18 billion healthcare business (NYSE: GEHC). As a leading global medical technology and digital solutions innovator, GE HealthCare enables clinicians to make faster, more informed decisions through intelligent devices, data analytics, applications and services, supported by its Edison intelligence platform. With over 100 years of healthcare industry experience and around 50,000 employees globally, the company operates at the center of an ecosystem working toward precision health, digitizing healthcare, helping drive productivity and improve outcomes for patients, providers, health systems and researchers around the world.

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