

Ultra-Low-Dose Chest with FIRST

"The combination of the Aquilion ONE / GENESIS Edition and true, model-based iterative reconstruction in FIRST enables us to drive CT doses to lower levels than ever before while maintaining diagnostic image quality. This has enabled us to perform follow-up chest CT scans at doses similar to a chest X-ray."

Dr. Jonathan Seeff

Consultant Radiologist
Southern Radiology, Australia



Patient History

A 36-year-old man, a former smoker with a BMI of 28.4, presented with a persistent nonproductive cough. An ultra-low-dose CT examination of the chest was requested to rule out lung nodules.

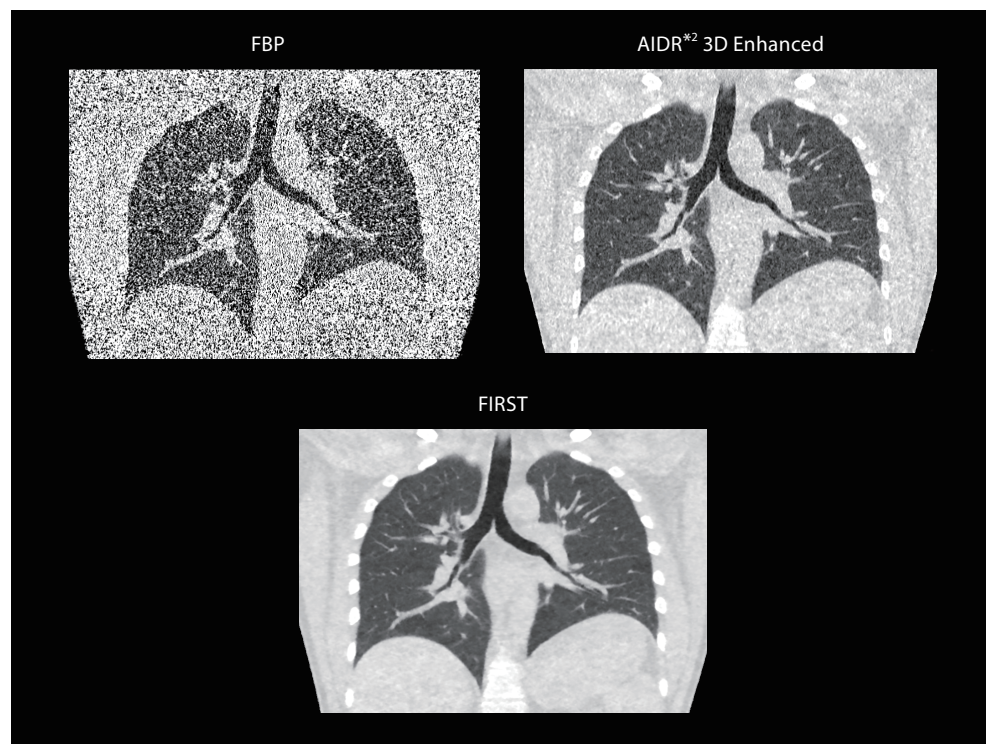
Results



Mild atelectasis is seen in the basal regions of the lungs in this CT scan performed at 0.08 mSv. No lung nodules are demonstrated.

Technology

The Forward projected model-based Iterative Reconstruction SoluTion (FIRST^{*1}) algorithm is a true MBIR algorithm, meaning that a forward projection step is performed for every iteration. FIRST provides improved high contrast spatial resolution and dose reduction of up to 82.4% when compared to filtered back projection. The integration of FIRST with automatic exposure control allows users to take full advantage of the capabilities of true iterative reconstruction without any of the guesswork that can interfere with clinical workflow.



Conclusion

FIRST is able to provide images of the lungs with improved high contrast spatial resolution at radiation doses as low as a chest X-ray.

Acquisition

Scanner Model:
Aquilion ONE / GENESIS Edition

Scan Mode:	Ultra Helical
Collimation:	0.5 mm x 80
Exposure:	135 kV, 3 mAs
Rotation Time:	0.3 second
Dose Reduction:	FIRST
CTDI:	0.2 mGy
DLP:	5.7 mGy·cm
Effective Dose:	0.08 mSv
k-factor:	0.014 ^{*3}

^{*1} Option

^{*2} Adaptive Iterative Dose Reduction

^{*3} American Association of Physicists in
Medicine (AAPM) Report 96, 2008.

CANON MEDICAL SYSTEMS CORPORATION

<https://global.medical.canon>

©Canon Medical Systems Corporation 2017-2018. All rights reserved.
Design and specifications are subject to change without notice.
Model number: TSX-305A MCACT0305EAC 2018-04 CMSC/Produced in Japan

Canon Medical Systems Corporation meets internationally recognized standards for Quality Management System ISO 9001, ISO 13485. Canon Medical Systems Corporation meets the Environmental Management System standard ISO 14001.

Aquilion ONE, Aquilion ONE GENESIS and Made for Life are trademarks of Canon Medical Systems Corporation.

Clinical results may vary due to clinical setting, patient presentation and other factors.

Made For life