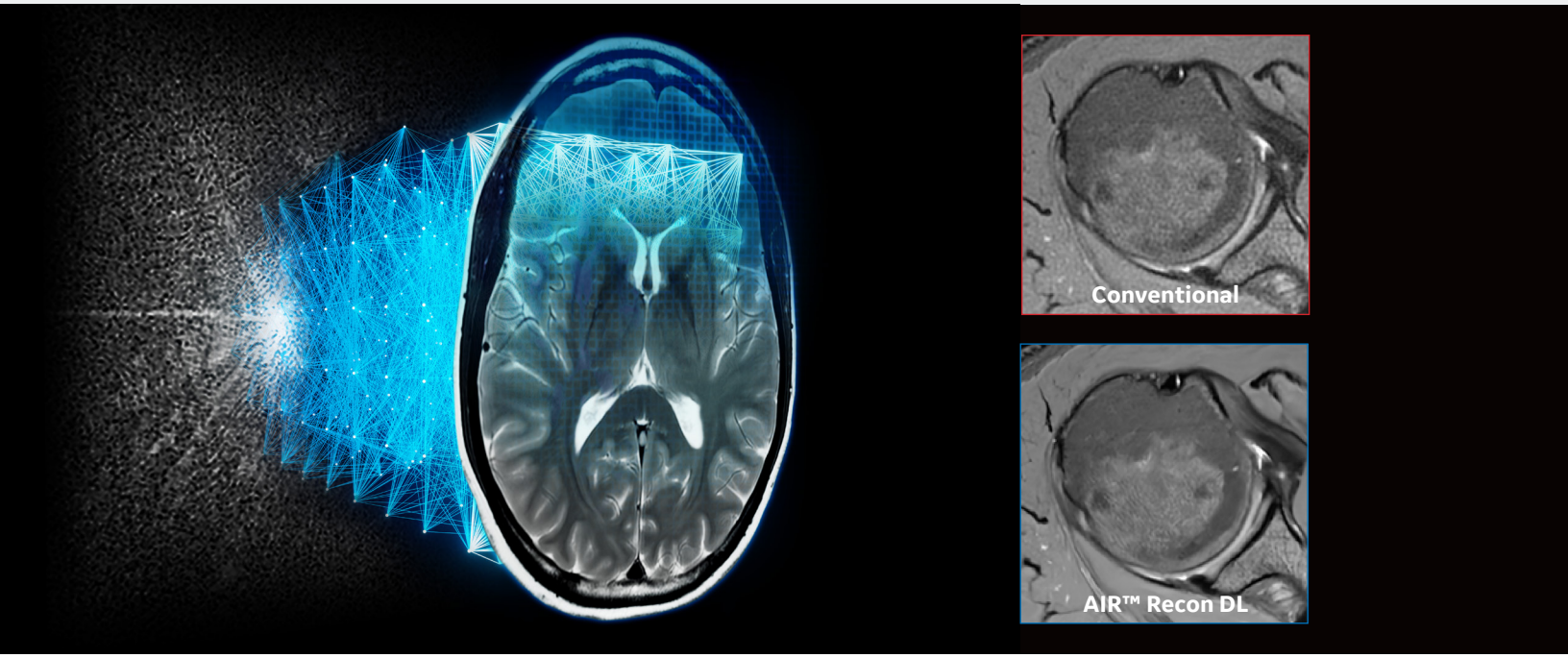
TOMORROW TODAY

Simply better image quality

AIR™ Recon DL



AIR™ Recon DL[‡] is a pioneering, deep-learning based reconstruction software that will change the way you think about MR imaging. Part of GE Healthcare's AIR™ family of products, which includes lightweight coil design and intelligent workflow applications, this software challenges the inherent trade-off between SNR, scan time and image resolution.

AIR™ Recon DL is not a filter or a post-processing technique. It improves image quality at the foundational level because it's embedded directly in the reconstruction pipeline and is applied to raw data to remove noise and ringing artifacts.

> I can have the best of both worlds. I don't have to choose between improving the quality of the exam and shortening the exam time.

Pascal Roux, radiologist
Centre Cardiologique du Nord, Paris

AIR™ RECON DL AT A GLANCE

- Increases productivity by enabling shorter scan times
- Removes image noise and ringing by leveraging raw image data
- Delivers sharper and clearer TrueFidelity™ MR images
- Enables you to set your preferred SNR improvement level
- Real-time image review at the console
- Compatible with all anatomies

gehealthcare.com/AIR

Simply better than conventional technology.

[‡]Not yet CE marked for 1.5T. Not available for sale in all regions.

MEETING DEMAND REQUIRES BETTER PRODUCTIVITY



31% increase in MR scans 2007-2018[1]



20% of all MR exams require a repeated sequence[2]

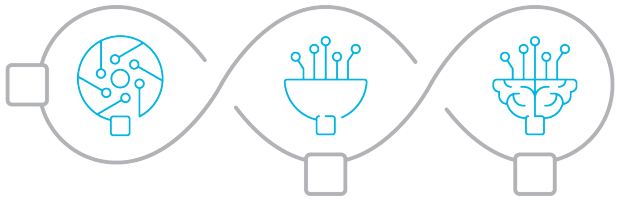


10% additional time required for repeats[2]



6% of appointments are no shows[3]

AIR™ Image Quality



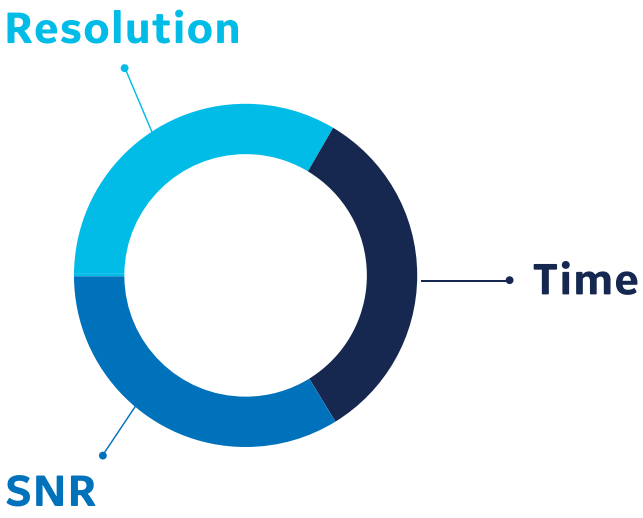
THE POWER OF DEEP-LEARNING COMES TO IMAGE RECONSTRUCTION

AIR™ Recon DL is part of the SIGNA™Works AIR™ IQ Edition** software, and it builds on state-of-the-art features included in our 2019 launch of AIR™ Edition Software. The 2019 release included AIR x™ and AIR Touch™, which delivered consistency and productivity, and AIR™ Recon, an image reconstruction method that improved SNR and reduced background noise and artifacts.

Customers who have been using our SIGNA™Works AIR™ Edition software agree that AIR™ was simply better, and now they'll be even more impressed. The SIGNA™Works AIR™ IQ Edition revolutionizes MR by bringing the power of deep-learning to image reconstruction, in the form of AIR™ Recon DL to redefine what MR image quality means. Are you ready to level up?

THE SNR, RESOLUTION, AND SCAN TIME DILEMMA

MR radiologists and technologists have long known that there is an inherent tradeoff between resolution, SNR and scan time. Simply put, the longer the scan time, the better the SNR, but unfortunately that model doesn't align well with reality. Radiologists and technologists have to meet demanding schedules and balance the added variability of patient shape, size and cooperation. The end result can be unsatisfying because when practitioners spend more time on patient setup, less time is left for the actual scan. Shorter scan times result in decreased SNR and poor image quality, and that can lead to patient call-backs and re-scans.



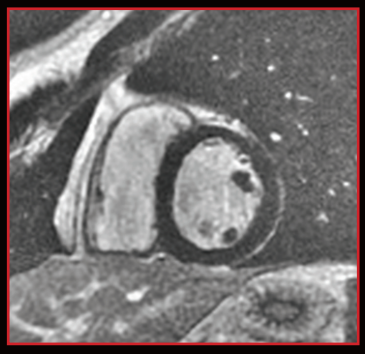
[1] IMV 2018 MR Market Outlook report

[2] Andre et al J Am Coll Radiol 2015;12:689-695

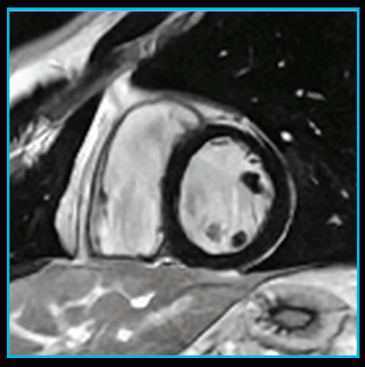
[3] H Benjamin Harvey et al JACR October 2017 Volume 14 (10) Pages 1303–1309

**SIGNA™Works AIR™ IQ Edition (MR29) is not available on all systems. Please contact your local GE representative for more information.

Increases SNR

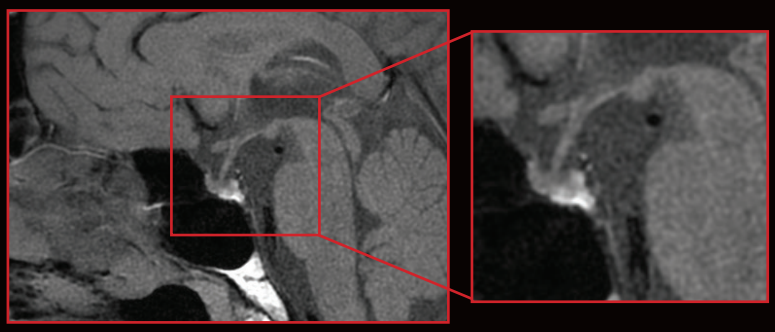


Conventional

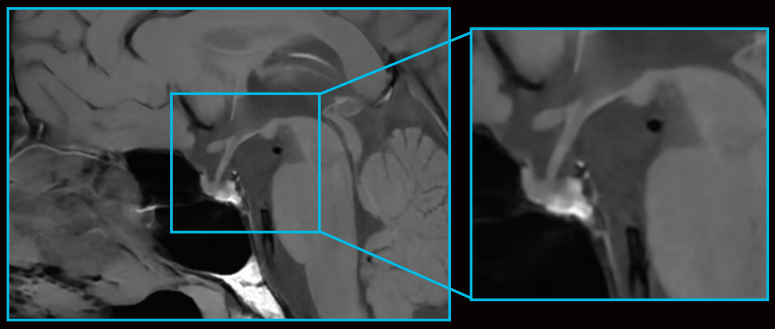


AIR™ Recon DL

Delivers sharper and clearer images



Conventional

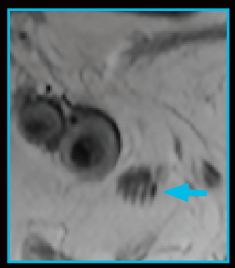


AIR™ Recon DL

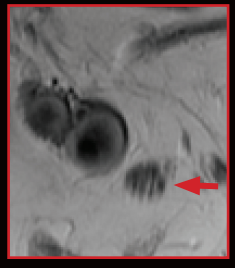
Reduces scan time



Conventional
256 x 180 (1 NEX)
1:10 min

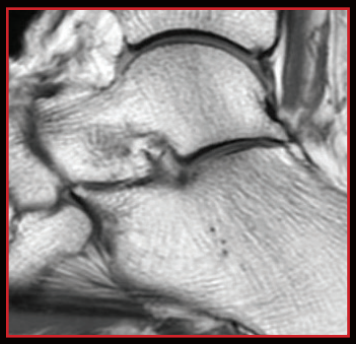


AIR™ Recon DL
256 x 180 (1 NEX)
1:10 min

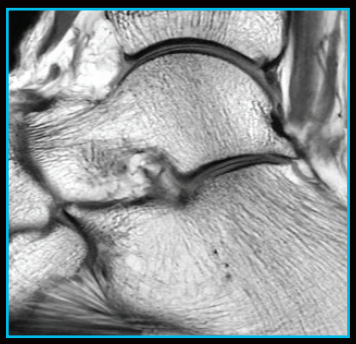


Conventional
512 x 352 (2 NEX)
4:09 min

Enables higher resolution, with shorter scan time



Conventional
352 x 256
1:59 min



AIR™ Recon DL
640 x 384
1:18 min

HOW DOES AIR™ RECON DL WORK?

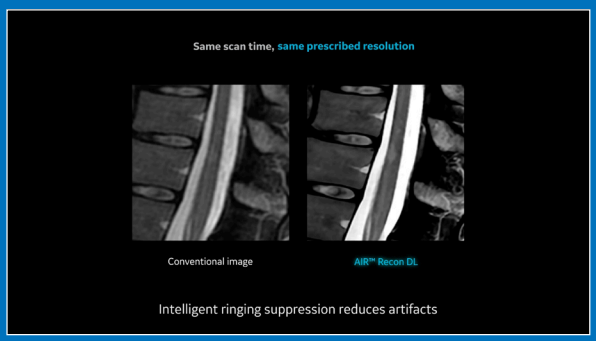
AIR™ Recon DL is a deep learning-based convolutional neural network designed to intelligently reconstruct a final MR image with high SNR and improved image sharpness. AIR™ Recon DL is not a filter or post-processing technique but rather is embedded directly in the reconstruction pipeline, where the neural network model is applied to input data to remove noise and ringing artifacts prior to final image formation. This means AIR™ Recon DL can access the full set of acquired source data to generate an image, compared to post DICOM image conversion where important information has already been lost.

AIR™ Recon DL's neural network is trained on over 10,000 images using GE's Edison AI Platform. The trained network employs a cascade of over 100,000 unique pattern recognitions for noise and low resolution to reconstruct only the ideal object image. The network includes a tunable SNR improvement level to suit the user's preference and an innovative ringing suppression technology that recognizes common artifacts like Gibbs ringing and truncation and recasts it into improved image detail. The result is an image with high SNR and spatial resolution that is virtually free of artifacts.

With AIR™ Recon DL, radiologists can have higher consistency and quality in the images they interpret. And technologists can acquire higher SNR without a time penalty. Scan time may also be reduced without compromising detail or SNR. No more compromises or tradeoffs.

Powered By Edison

To see how AIR™ Recon DL works, visit:
https://youtu.be/oW6kTByRk7s



WHAT EARLY USERS ARE SAYING

21 radiologists from 11 different sites and 6 different countries were asked about their experience using AIR™ Recon DL.

100% said:

- Images are sharper and more detailed
- Can enable prescription changes to shorten scan time
- Images display less noise

95% said:

- Improves lesion conspicuity
- Improves diagnostic confidence
- May help reduce the number of repeat series

90% said:

- May allow for prescription changes to increase spatial resolution
- Images are easier to read, can be read quicker and lead to reduced eye fatigue

4 out of 5 radiologists agree:



AIR™ Recon DL will reduce variability across different patients and technologists

REFERENCE MATERIALS

The following articles in *SIGNA™ Pulse of MR* magazine provide more information on AIR™ Recon DL:

- Autumn 2019 – *A new era of deep-learning image reconstruction*
- Autumn 2019 – *Abstracts accepted at RSNA 2019*
- Spring 2020 – *Deep-learning-based MR reconstruction designed to address compromise between SNR, scan time and resolution*
- Spring 2020 – *AIR Recon DL abstracts accepted for ISMRM 2020*

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