MR 30 for SIGNA™
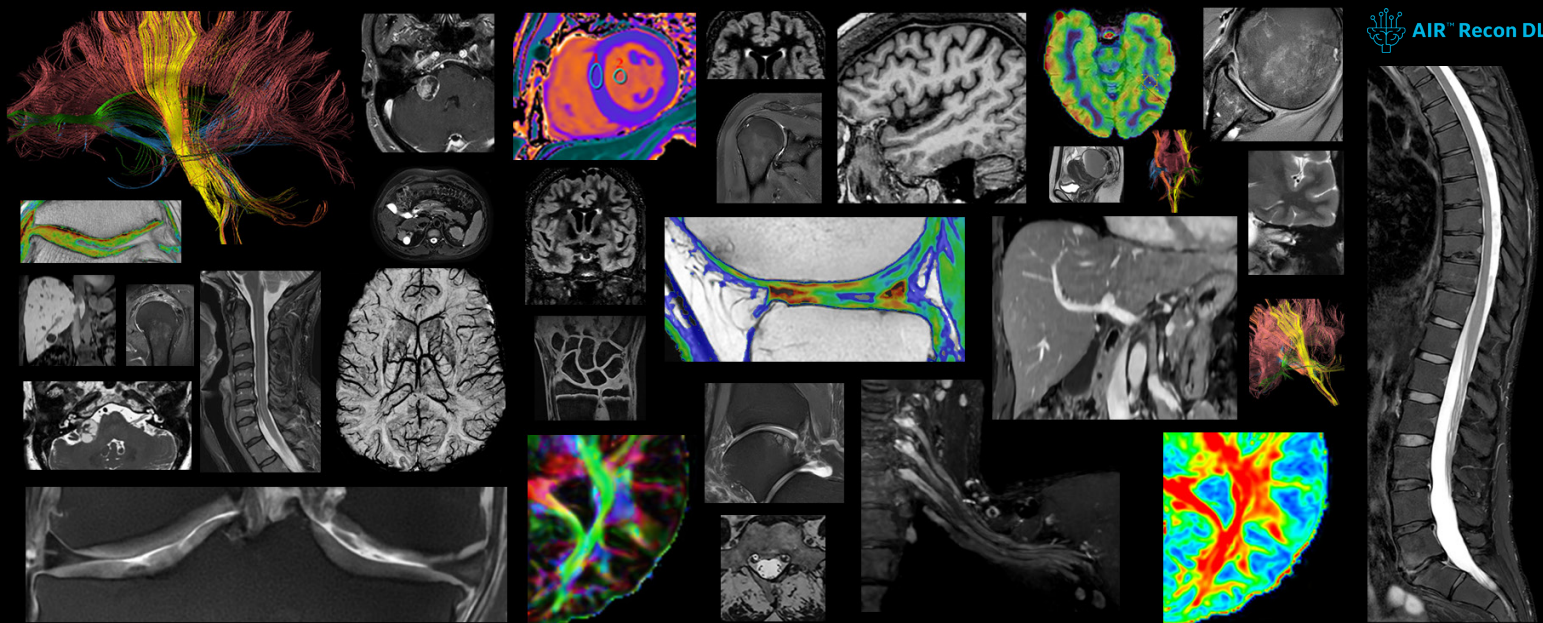
Future proof with expanded AIR™ Recon DL applications to enable personalized, end-to-end clinical solutions.

AIR™ Recon DL

Promise and commitment turned into reality.

The MR 30 for SIGNA™ software release brings the much-anticipated extension of AIR™ Recon DL to **3D**, motion-insensitive **PROPELLER** for your SIGNA™ MRI scanner. It also integrates a host of additional applications such as **DTI, FSE Flex, CartiGram,** as well as **phase sensitive MDE** and **T1 mapping** for cardiac imaging.

With Upgrade and Lift programs available, AIR™ Recon DL is compatible with the vast majority of GE's 1.5T, 3.0T and 7.0T systems. It enables personalized, end-to-end clinical solutions, from patient setup to scanning and to diagnostic report. In addition, MR 30 for SIGNA™ brings further extensions of HyperSense to additional sequences such as SWAN and CE MRA.

> **By expanding AIR™ Recon DL to 3D and PROPELLER, GE has closed the gaps in our ability to provide improved image quality and patient experience to all our patients across exam types, particularly for brain imaging where we rely heavily on 3D sequences and MSK imaging where PROPELLER is important for reducing image quality variability and eliminating repeat sequences due to motion.**

Dr. Tiron Pechet
Shields Health Care Group

MR 30 for SIGNA™ is not yet CE marked. Not available for sale in all regions. Some applications discussed are optional/purchasable. Please contact your local GE representative for more information.

gehealthcare.com/mr

The AIR™ Recon DL Revolution

AIR™ Recon DL is a pioneering, deep-learning based reconstruction algorithm applied to the MR raw data to improve SNR and image sharpness at the foundational level by removing image noise and ringing artifacts while enabling shorter scan times. You can select a tailored SNR improvement level of AIR™ Recon DL based on preference, and AIR™ Recon DL images are directly visualized at the MR console without reconstruction delays.

Today, the AIR™ Recon DL algorithm has been expanded to motion-insensitive imaging with PROPELLER, 3D imaging, and more.*

Expanding AIR™ Recon DL for 2D imaging*

When AIR™ Recon DL was first introduced, it was compatible with most 2D sequences including Spin Echo, Fast Spin Echo, Single-Shot Fast Spin Echo, Gradient and Fast Gradient Echo, and EPI-based diffusion weighted family sequences. Now the capability is expanded to other sequences, such as Diffusion Tensor Imaging, FSE Flex, CartiGram T2 mapping, Cardiac T1 mapping, and Single-Shot Phase Sensitive Myocardial Delayed Enhancement (SSh PS MDE) with Respiratory Triggering.

> **If you have an upgrade that can enhance your productivity and even bring better image quality, I think there is no doubt that you want to perform the upgrade.**

Dr. Alexandre Borges
Santa Casa de Piracicaba
Brazil

WHAT ARE OUR CUSTOMERS SAYING?
Here is what radiologists from 10 clinical sites said in a recent AIR™ Recon DL reader study

100% said: AIR™ Recon DL provided **better SNR**

100% said: AIR™ Recon DL provided better or equivalent image **SHARPNESS**

99% said: AIR™ Recon DL provided better or equivalent **LESION CONSPICUITY**

Introducing AIR™ Recon DL PROPELLER*

Customers who rely on PROPELLER for motion-insensitive and minimal-distortion diffusion-weighted imaging will be pleased to know that AIR™ Recon DL is now compatible with PROPELLER, making it even easier to diagnose challenging anatomies with a multitude of contrasts.

Delivering AIR™ Recon DL for 3D*

3D imaging remains a key component to most clinical MR exams and now it is also compatible with AIR™ Recon DL. AIR™ Recon DL expands its compatibility to most 3D sequences including Cube, Fast Spin Echo, Gradient Echo and Fast Gradient Echo family of sequences. Scan now, reformat later.

SIGNA™ Pioneer 3.0T with AIR™ Recon DL

	Conventional pre-upgrade protocol	AIR™ Recon DL protocol	Exam time reduction %	Average voxel size reduction %
Brain	14:45	8:24	43	10
Cervical spine	12:18	7:09	42	16
Lumbar spine	16:02	9:20	42	33
Shoulder	12:38	8:52	30	18
Knee	14:12	9:20	34	15
Ankle	14:44	7:54	42	42
Prostate	24:25	12:42	48	24
Female pelvis	25:34	16:23	36	30

*Results courtesy of Unison Group Hospitals, UAE

BrainWave CSD & Probabilistic Tractography*

Upgrade your Diffusion Tensor Imaging (DTI) with Constrained Spherical Deconvolution (CSD) for BrainWave. CSD is an improved method for modeling diffusion data from HARDI data sets and intended for multi-shell DTI. Capable of Deterministic and Probabilistic tractography and diffusion parametric maps, including FA, ADC, eADC, AD, RD and Trace. This package also provides pre-processing options for MP-PCA denoising and corrections for intensity inhomogeneity bias, motion and susceptibility artifacts. Use with AIR™ Recon DL for the added sharpness and SNR.
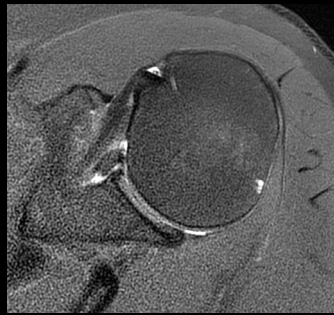
COLLECTIVE MINDS RADIOLOGY

* 510(k) cleared in the USA. Not CE marked, not available for sale in all regions.
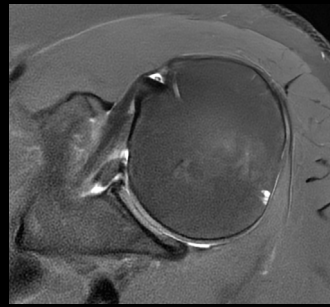
AIR™ Recon DL | PROPELLER
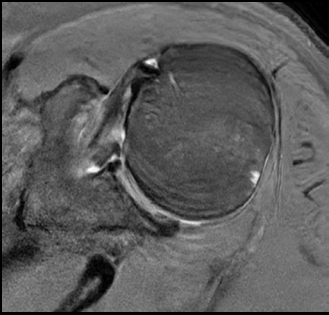
Axial PD FatSat FSE
0.3 x 0.4 x 3 mm
1:48 min

Axial PD FatSat PROPELLER
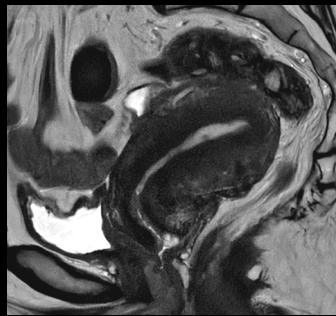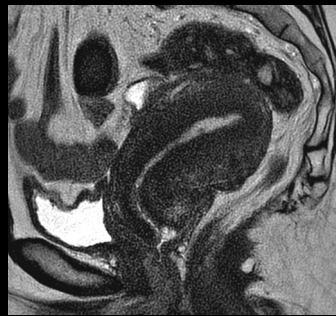Conventional
0.4 x 0.4 x 3 mm
2:25 min

Axial PD FatSat PROPELLER
with AIR™ Recon DL
0.4 x 0.4 x 3 mm
1:58 min

Respiratory or gross patient motion can result in ghosting artifacts with 2D FSE (with or without AIR™ Recon DL (left). PROPELLER can be used as a motion-insensitive alternative (middle) but can lack in SNR and sharpness. AIR™ Recon DL with PROPELLER (right) provides high resolution and high SNR with a reduced scan time.

Conventional   **AIR™ Recon DL**

Sagittal T2 **PROPELLER**
0.5 x 0.5 x 3 mm
3:23 min

Conventional   **AIR™ Recon DL**

Axial T2 **PROPELLER**
0.5 x 0.5 x 3 mm
3:44 min

MUSE DWI   **Conventional**   **AIR™ Recon DL**
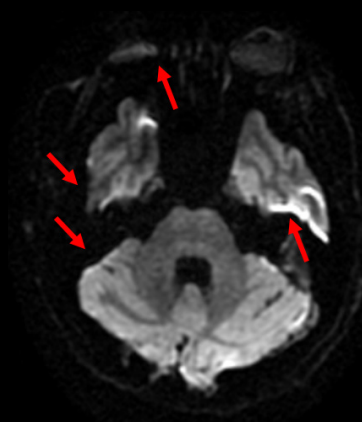
MUSE DW EPI
b=1000
1.6 x 1.5 x 1.5 mm
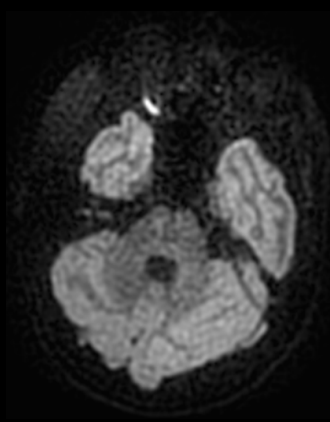
Axial **PROPELLER** DWI
b=1000
1.6 x 1.6 x 1.5
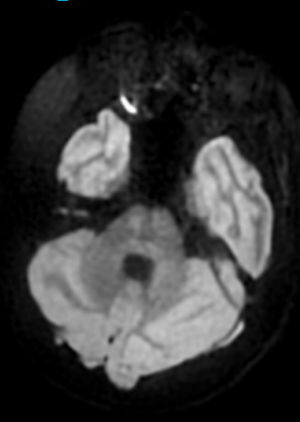
Geometric distortion change can result with MUSE DWI in certain regions (left). PROPELLER DWI offers a distortion-free alternative to DWEPI, but can result in long scan times or low SNR (middle). AIR™ Recon DL with PROPELLER DWI provides high SNR with a reduced scan time.
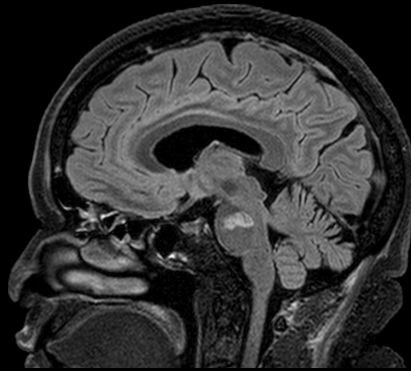
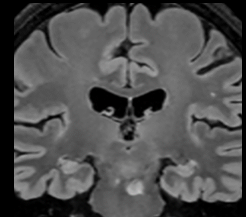AIR™ Recon DL PROPELLER and 3D are 510(k) cleared in the USA. Not CE marked, not available for sale in all regions.
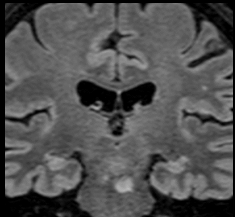
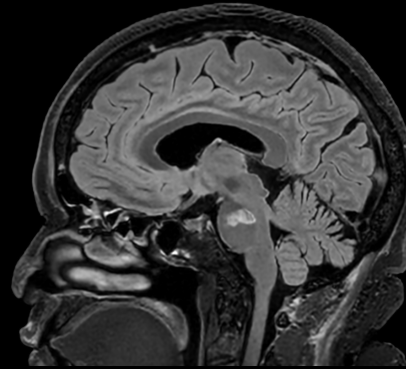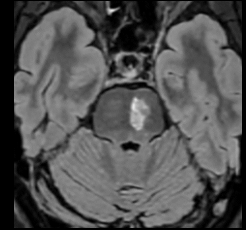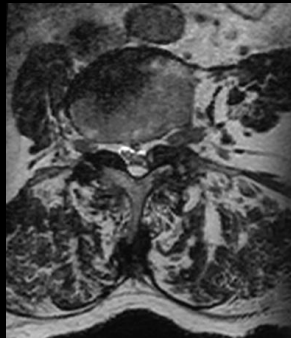# AIR™ Recon DL | 3D

Coronal reformat
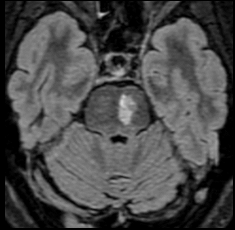
Axial reformat

Conventional

AIR™ Recon DL

Coronal reformat

Axial reformat

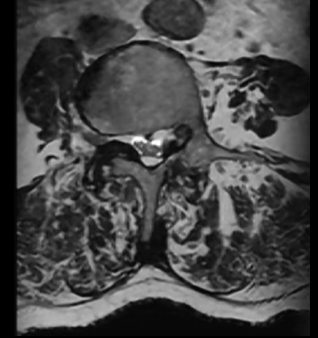Sagittal Cube T2 FLAIR HyperSense
1 x 1 x 1 mm
4:34 min

Axial
reformat

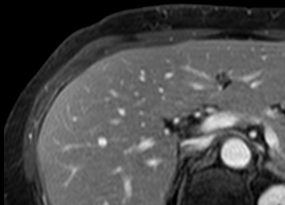**Conventional**

AIR™ Recon DL
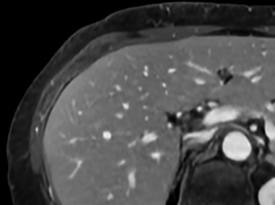
Axial
reformat

Sagittal T2 Cube with HyperSense
1 x 1 x 1 mm
5:05 min

Conventional   **AIR™ Recon DL**

Axial LAVA ASPIR
1.3 x 1.6 x 2.6 mm
18 sec

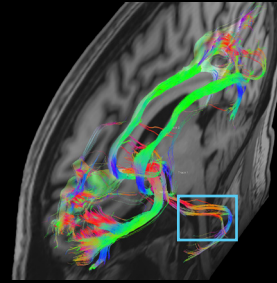**Conventional**   **AIR™ Recon DL**

Coronal reformat

AIR™ Recon DL | 2D enhancements

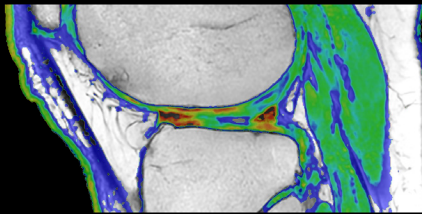## AIR™ Recon DL Diffusion Tensor Imaging

Conventional
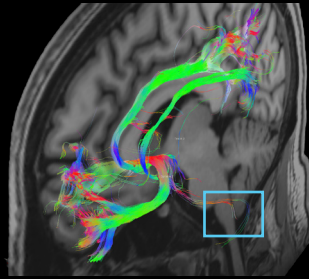
AIR™ Recon DL

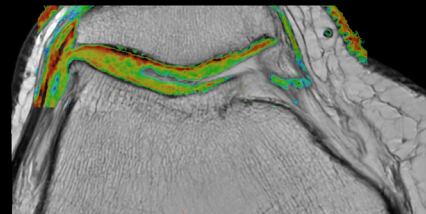ARDL provides clearer visualization and the potential for longer fibre tracking in DTI, as indicated.

AIR™ Recon DL CartiGram (T2 mapping)

AIR™ Recon DL

AIR™ Recon DL

Sagittal
0.5 x 0.6 x 3 mm | 5:13 min
ARC = 4

Axial
0.4 x 0.4 x 2.6 mm | 3:48 min
ARC = 3

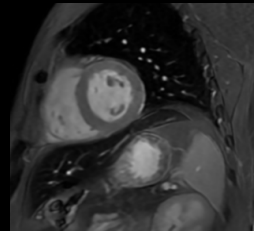## AIR™ Recon DL FSE Flex

AIR™ Recon DL

Water   In Phase   Out of Phase   Fat

Two Station Spine
Top Station - 0.7 x 0.8 x 3 mm | 3:15
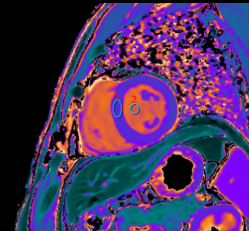minBottom Station - 0.7 x 0.8 x 3 mm
2:10 min

AIR™ Recon DL Cardiac T1 mapping

AIR™ Recon DL
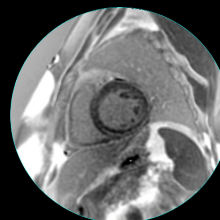
AIR™ Recon DL

Frame data   T1Map

Short Axis
1.6 x 2.8 x 8 mm | 10 sec

AIR™ Recon DL Single Shot Phase Sensitive MDE with Respiratory Triggering

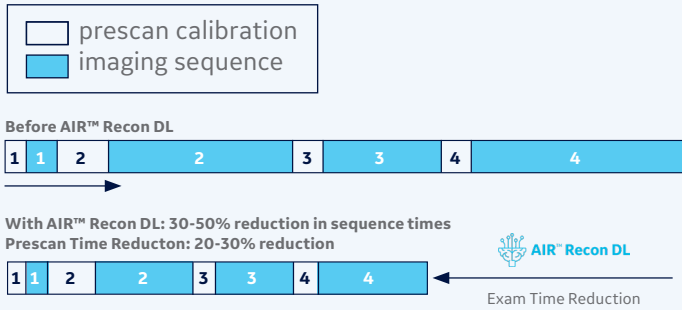**Conventional**

AIR™ Recon DL

Short Axis
2.6 x 3.0 x 8 mm | 2:53 min

Prescan Time Reduction

Prescans are calibrations that are routinely done between imaging sequences within an exam. While AIR™ Recon DL has already led to significant (30-50%) reductions in exam times, more time savings will be delivered with time-optimized prescan. With no impact on resultant image quality, prescan times are automatically reduced by approximately 20-30% which will contribute to even further reduced exam times. This behind-the-scenes improvement works particularly well with AIR x™ brain and knee.

Prescan Time Reduction

- ☐ prescan calibration
- ▣ imaging sequence

Before AIR™ Recon DL

| 1 | 1 | 2 | 2 | 3 | 3 | 4 | 4 |

With AIR™ Recon DL: 30-50% reduction in sequence times
Prescan Time Reducton: 20-30% reduction

| 1 | 1 | 2 | 2 | 3 | 3 | 4 | 4 |

AIR™ Recon DL

Exam Time Reduction

ASL Flexible Label Duration

A long-awaited update to GE's 3D pCASL application brings a user-selectable label duration. The longer labeling time will result in improved perfusion SNR and increased robustness to flow pulsatility. This update aligns with the 2022 ISMRM Perfusion Study Group recommendation of long label/long delay acquisition for imaging of geriatric, ischemic and steno-occlusive disease patients where transit times are known to be longer.

HyperSense extensions to CE-MRA and SWAN

HyperSense, GE's industry-first Compressed Sensing acceleration technique, has now been extended to contrast-enhanced MR angiography (3D TOF) and Susceptibility Weighted imaging (SWAN), leading to shorter scan times and/or higher resolution. In addition, SWAN acquisitions can now accommodate image data needs for third-party Quantitative Susceptibility Mapping (QSM) tools.
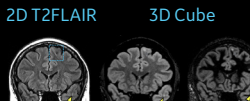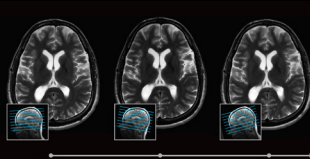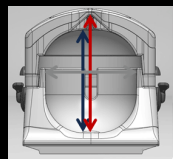
Time-Course Myocardial Blood Flow Mapping

Explore the clinical benefits of AIR™ Recon DL compatible Time-Course MBF mapping with a dual-bolus or pre-bolus protocol for improved rest and stress perfusion exams. Time-Course MBF is compatible with the Quantitative Perfusion module in cvi42 from Circle CVI.

Time-Course
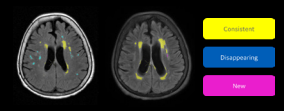
Time-Course Myocardial Blood Flow
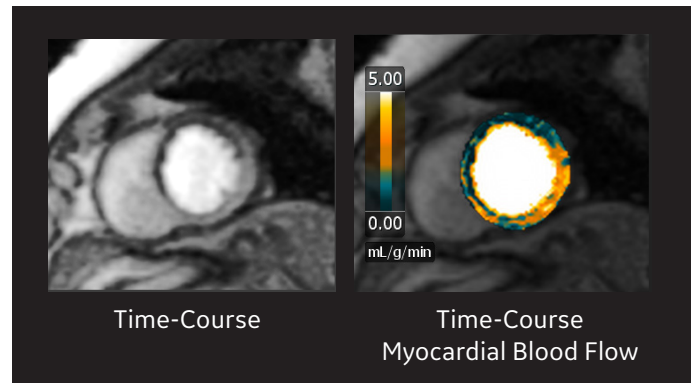
Wireless Gating*

The MR 30 for SIGNA™ release brings wireless Bluetooth gating functionality, delivering a 3-in-1 solution which includes respiratory, plethysmograph (PPG), and ECG. MR compatible up to 3.0T with excellent noise immunity and long battery life.

Disease focused end-to-end Neuro imaging
Multiple Sclerosis

Patient adaptive AIR™ Coil

AIR x™ brain for consistent and reproducible slice placement

motion-insensitive PROPELLER

2D T2FLAIR   3D Cube

T2FLAIR   FLAIR   DIR

AIR™ Recon DL for 2D, PROPELLER and 3D imaging
HyperSense acceleration for 3D imaging
Prospective Motion Correction with PROMO

Report Generation with MR Smart Subscription

Volumetry & longitudinal WM lesion monitoring with Quantib