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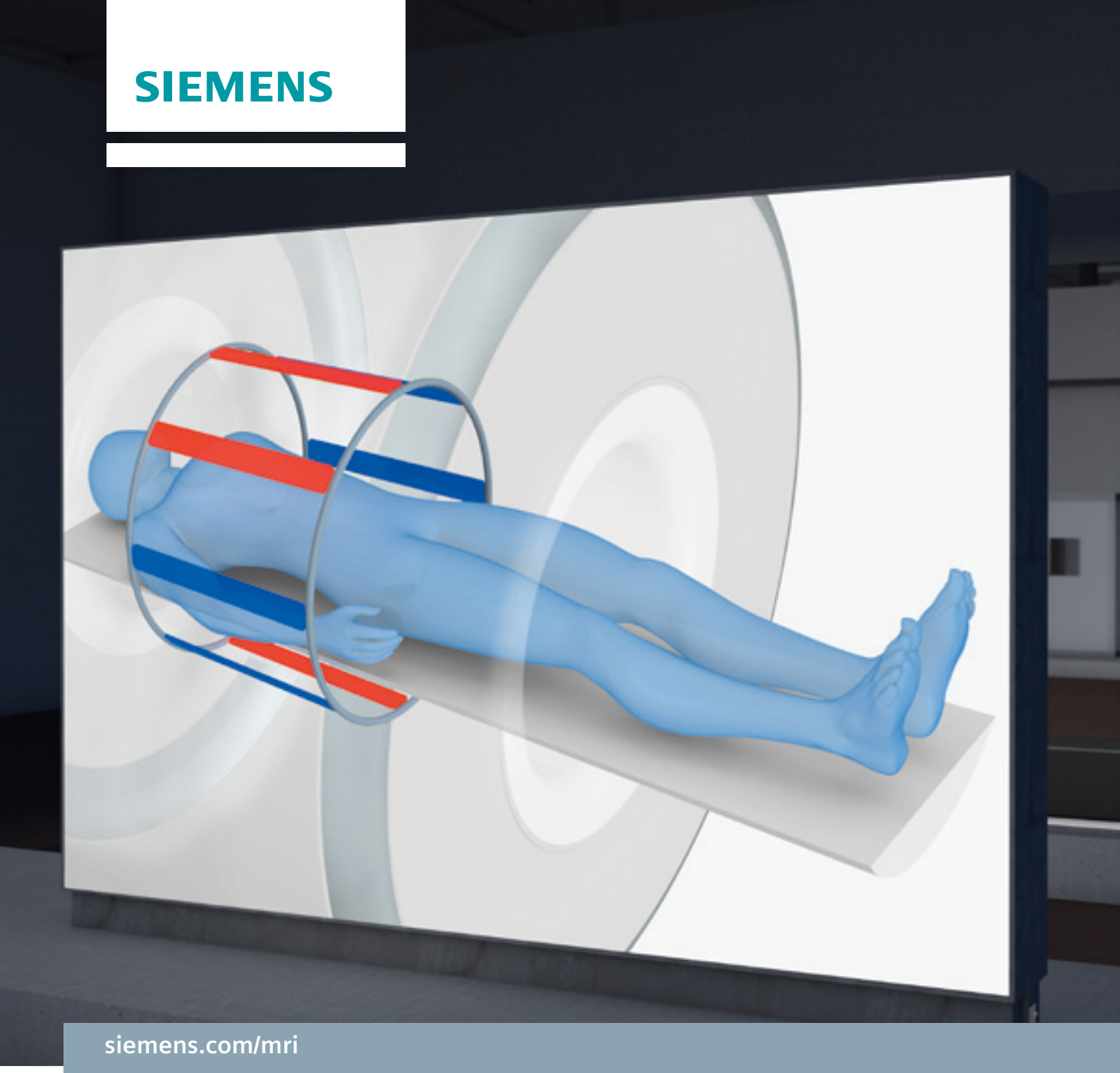


siemens.com/mri

TimTX TrueForm

Imaging the true form of the anatomy.

TimTX TrueForm design

TrueForm® design, pioneered and introduced by Siemens in 2007, is the result of numerous technological innovations and addresses the need for field homogeneity. One important aspect of TrueForm design is TimTX TrueForm™ technology, which provides uniform radiofrequency distribution in all body regions for optimal B1 homogeneity.

TimTX TrueForm Key Benefits

High image quality

- Excellent B1 homogeneity in all body parts
- 2-channel TX Array functionality for B1 shimming

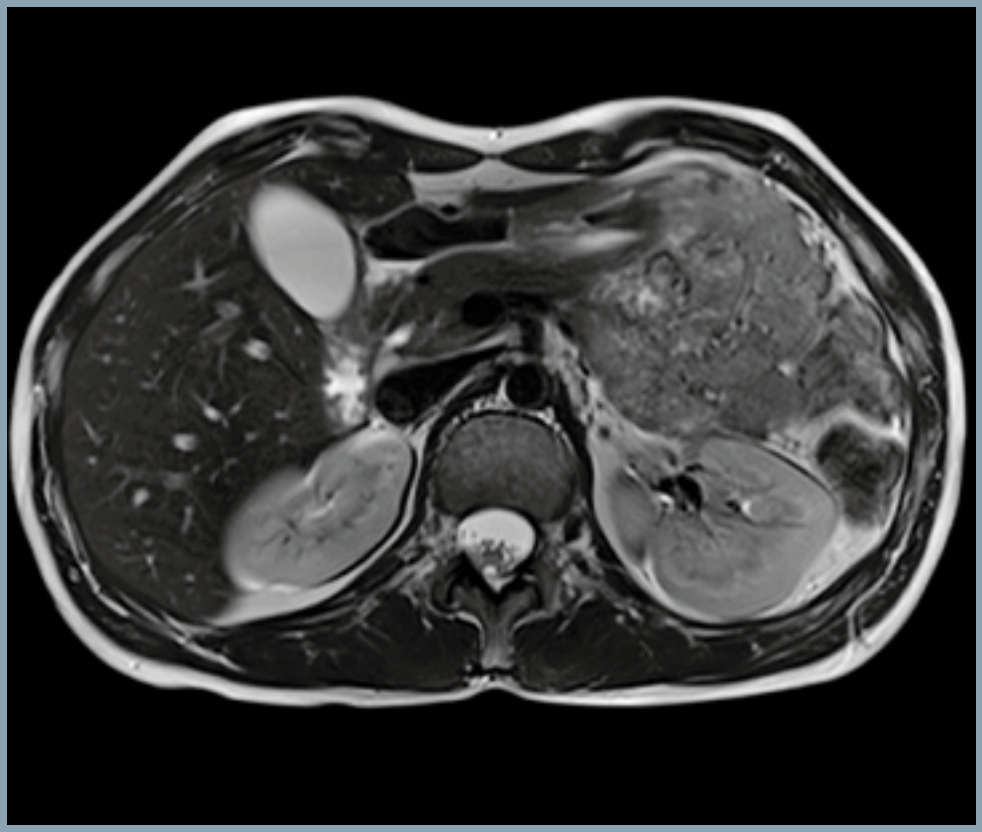
Faster speed

- Anatomy-specific optimization means no time-consuming patient-specific adjustments required, saving time
- No pre-scanning necessary and therefore, no change in the workflow
- SAR Reduction

Excellent clinical performance

- Technology pioneered in 2007 with more than 750 systems installed as of September 2011
- Standard on MAGNETOM Skyra and MAGNETOM Verio 3T systems
- High flexibility, can be used with all coils

Image with uniform signal intensity in the entire abdomen due to TimTX TrueForm (MAGNETOM Skyra, T2 TSE, 25 cm x 38 cm Field of View (FoV)).



Excellent clinical performance

TimTX TrueForm technology has established itself in the clinical routine with over 750 installations worldwide. The images below show the elimination of B1 inhomogeneities for different body parts.

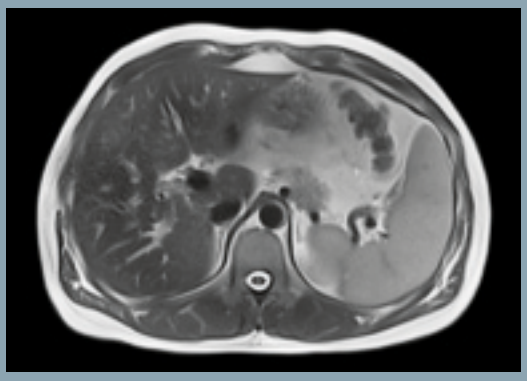
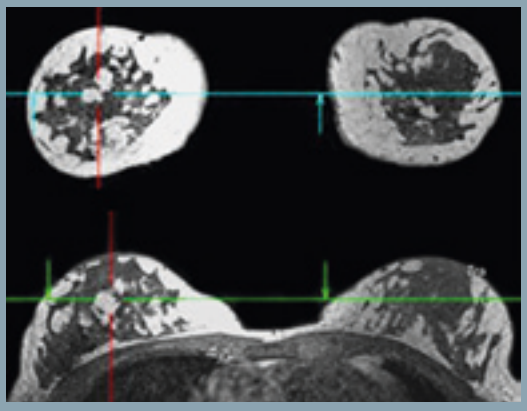


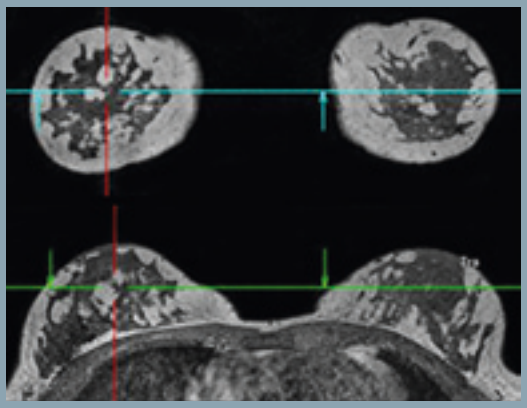
Image visualizes the effect of TimTX TrueForm: The signal intensity is uniform in the entire abdomen.

(MAGNETOM Verio, 32 cm x 38 cm FoV, *MR and PET/CT Imaging Center Bremen Mitte, Germany)*



Conventional RF Transmission

B1 inhomogeneities between left and right breast, resulting in different signal intensities and different contrasts.



TimTX TrueForm

Uniform RF distribution in all body regions without the need for time-consuming, patient-specific adjustments.

What our customers say:

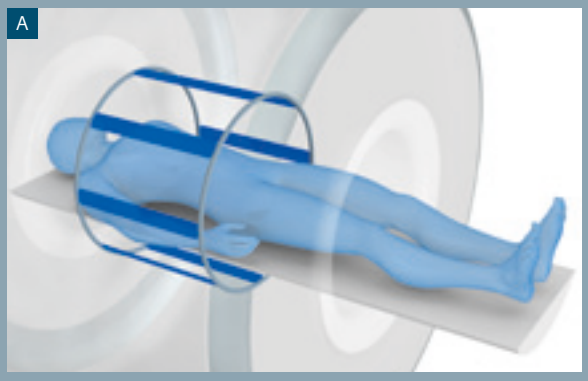
> TrueForm Design has made 3T MR imaging clinical routine.

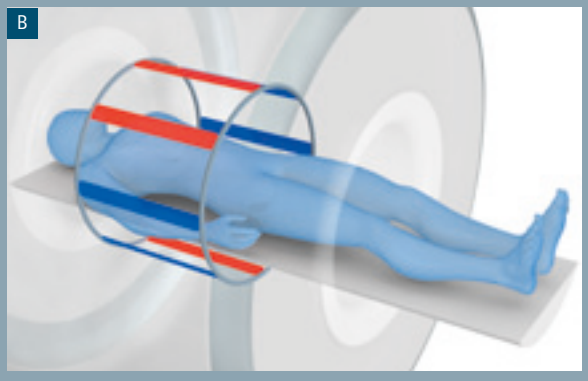
Markus Lentschig,
MR and PET/CT Imaging Center
Bremen Mitte, Germany

> TimTX TrueForm two-way RF transmission technology overcomes B1 inhomogeneities common in spine and neck examinations.

Professor Henrik Michaely, MD,
Associate Professor of Radiology,
Section Chief Vascular
and Abdominal Imaging,
Institute of Clinical Radiology
and Nuclear Medicine,
University Medical Center
Mannheim, Germany

Imaging the true form of the anatomy

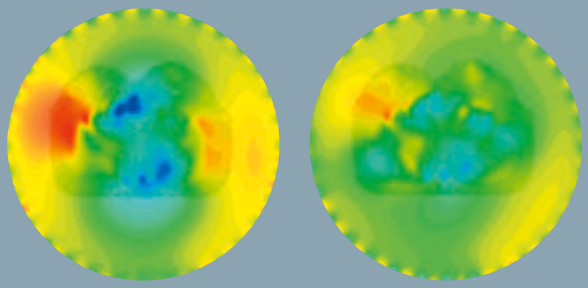




Comparison of conventional RF transmission (A) and TimTX TrueForm (B), which offers the functionality of a 2-channel Transmit Array for B1 shimming.

A: Conventional RF Transmission
Circular polarization:
Identical amplitude on both ports
Fixed Phase $\Delta\varphi = 90°$

B: TimTX TrueForm
Different transmission settings possible:
Different amplitudes
Phase difference $\Delta\varphi \neq 90°$



TimTX TrueForm technology enables uniform RF distribution in all body regions. It is a robust method for B1 homogenization, supporting excellent image quality and diagnostic confidence.

B1 field plots of the imaging volume for conventional (left) and TimTX TrueForm (right) technologies. Images show uniform B1 homogeneity with TimTX TrueForm technology, which allow improved uniform image intensity in the MR images.

TimTX TrueForm

MAGNETOM® Skyra and MAGNETOM Verio utilize the innovative RF excitation system that TimTX TrueForm offers, coupled with novel application and processing features to deliver uniform RF distribution over all body regions for excellent B1 homogeneity.

TimTX TrueForm for MAGNETOM Skyra and MAGNETOM Verio (namely TrueForm RF design) incorporates TrueForm excitation, which uses amplitude and phase transmission settings optimized for different body regions. Feeding the two-port integrated body coil with an optimized weighting yields a homogeneous B1 distribution.

B1 homogenization

At high field strengths, such as 3 Tesla, the wave length of the RF approaches the dimensions of the human anatomy. This can create destructive excitation field interference and, consequently, non-uniform signal intensities in the imaging volume. Signal shading and – even more critical – contrast variations in the imaging volume can become an issue.

TimTX TrueForm is the ideal solution for B1 homogenization and offers the functionality of a 2-channel Transmit Array for B1 shimming. It uses optimized amplitude and phase transmission settings of the integrated body coil with different weightings, yielding a homogeneous B1 distribution.

Anatomy-specific optimization

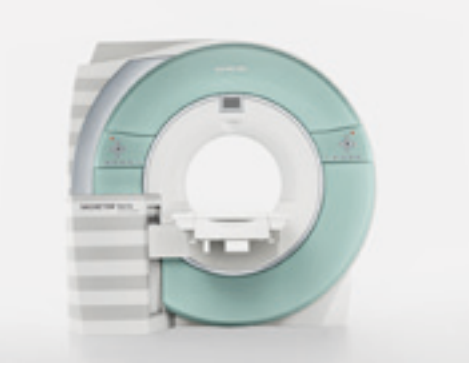
TimTX TrueForm works with anatomy-specific settings. Due to the fact that different body shapes (especially due to the fact that the amount of fatty tissue varies) do not have a significant influence on B1 homogeneity, no pre-scanning is required. The anatomy-specific optimization is powered by Tim® (Total imaging matrix) technology's AutoCoilDetect, which results in patient-specific adjustments without the need for additional time-consuming measurements. As a result, time can be saved compared to patient-specific implementations that require extensive calibration.

SAR reduction

TimTX TrueForm uses settings for simultaneous optimization of B1 homogeneity and SAR (specific absorption rate) reduction. This synergy is made possible with accurate SAR calculations that are based on precise numerical calculations, providing higher B1 and SAR performance than calculations with conventional simple SAR models. Benefits are greater coverage (more slices in the same time) and faster scan times (due to shorter repetition times).

Available on MAGNETOM Skyra 3T ...

... and MAGNETOM Verio 3T systems.



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