



Setting the 3T benchmark

Philips Achieva 3.0T TX with MultiTransmit technology

The Achieva 3.0T TX takes 3T clinical performance to the next level with MultiTransmit. In 2000, Philips was the first to introduce SENSE parallel RF receive technology and now we introduce another industry first with parallel RF transmission. MultiTransmit parallel RF transmission technology addresses fundamental challenges of 3T at the source to provide enhanced image uniformity, consistency and speed. By automatically adjusting the RF transmission signals to the size and shape of each individual patient, Achieva 3.0T TX provides superb diagnostic images in the most demanding high field applications such as liver and breast imaging.

Key Advantages

- MultiTransmit parallel RF transmission technology addresses dielectric shading and local SAR at the source
- Patient-adaptive RF management for consistent results in every anatomy and every patient
- Up to 40% faster scanning compared to conventional 3T

PHILIPS

Achieva 3.0T TX highlights

Achieva 3.0T TX's MultiTransmit technology addresses dielectric shading and local SAR issues at the source thereby enabling body related applications to become mainstream at 3T. This means less retakes and more consistent results.

MultiTransmit parallel RF transmission

MultiTransmit employs multiple RF sources which can be individually adjusted to each patient's unique anatomy, thereby addressing dielectric shading at the source. What's more, by using multiple RF sources, local RF deposition can be reduced to enable a gain in speed.

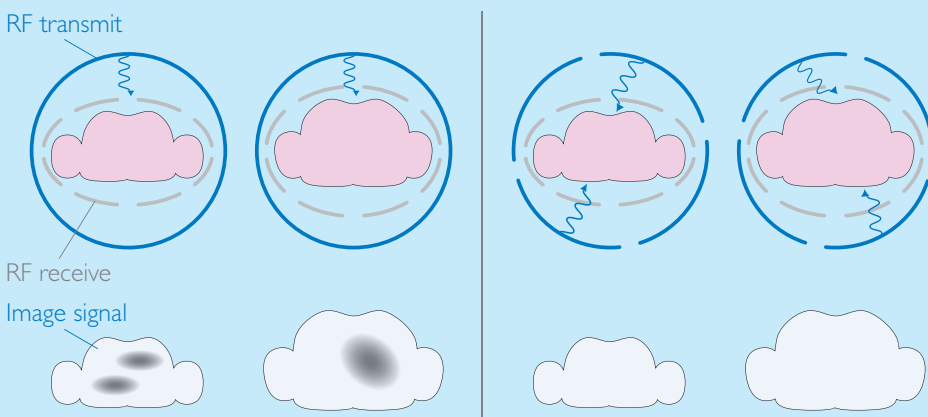
Benefits

- Enhanced uniform image quality
- More consistent results patient after patient
- Up to 40% increase in speed
- Enables growth areas for MR to become mainstream at 3T

What is dielectric shading?

Dielectric shading is non-uniform RF distribution in the body, caused by the fact that waves cannot uniformly penetrate the body due to tissue conductivity and shielding effects. This physical phenomenon is more pronounced at 3.0T since the RF wavelength at 3T (~25 cm) approaches the size of the body. The effects of dielectric shading are manifested in MR images as areas with different contrast and uniformity.

MultiTransmit - how it works

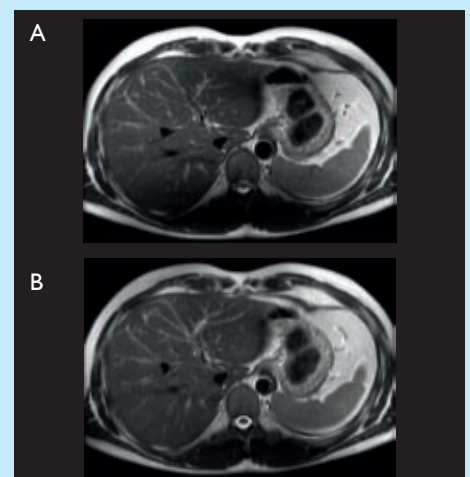


Conventional 3T

Conventional 3T uses only a single RF source, sometimes resulting in dielectric shading depending on the size and shape of the patient.

MultiTransmit

MultiTransmit employs multiple RF sources which can be individually adjusted to each patient's unique anatomy, thereby addressing dielectric shading at the source. What's more, by reducing local RF deposition, it optimizes speed even further.



A: Conventional 3T.

B: Achieva 3.0T TX with MultiTransmit, enhanced signal and contrast uniformity.

"MultiTransmit enables 3T MRI spine exams to be done approximately 30-40% faster"

Dr. W.A. Willinek M.D., Bonn University Hospital, Germany

Quality, consistency and speed

Speed

Sagittal T1 and T2 weighted lumbar spine showing a 40% reduction in scan time with MultiTransmit.

Upper: Conventional 3T, scan time 7:39 min.

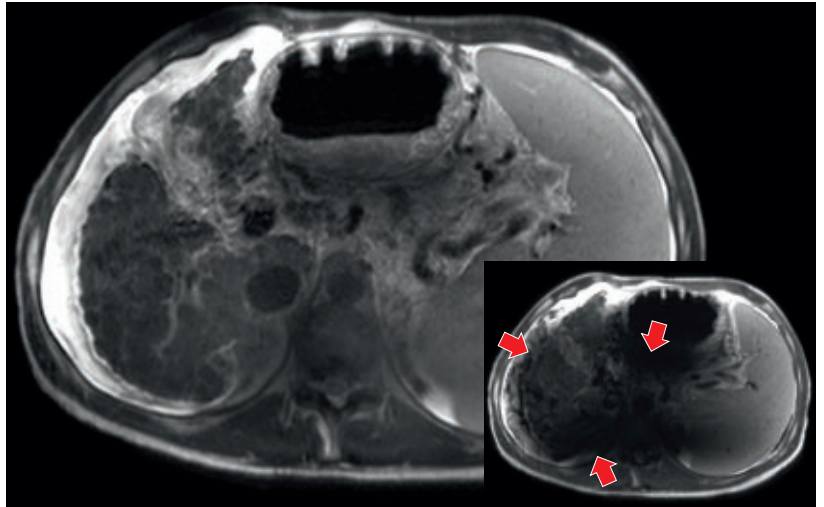
Lower: MultiTransmit, scan time 4:35 min.



Image quality

MultiTransmit effectively addresses dielectric shading, even in a patient with liver cirrhosis and ascites. Ascites patients are often challenging to image with MR due to the shielding effect of fluids.

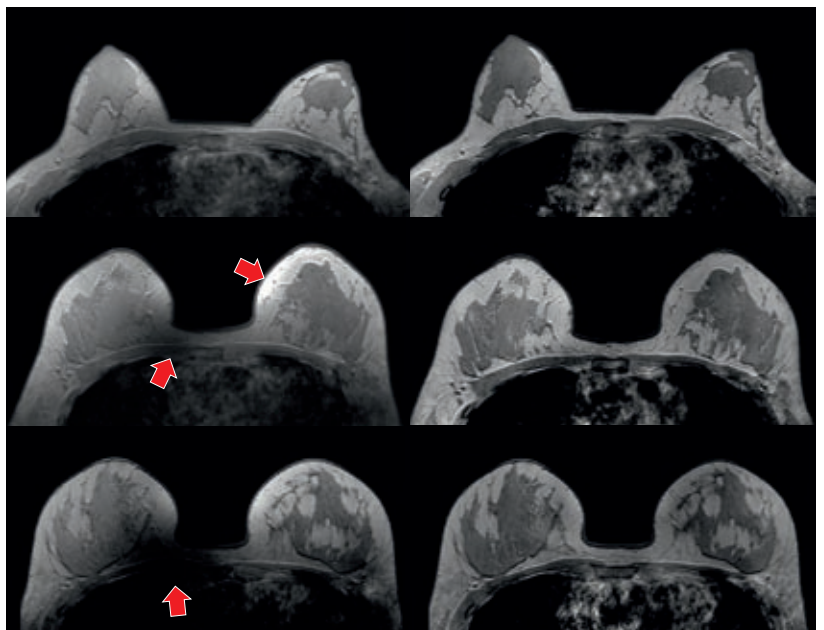
Large image: MultiTransmit. Inset: Conventional 3T.



Consistency

MultiTransmit enables consistent uniform image quality to assist with a confident diagnosis, patient after patient. Shown here: High resolution 2D T1-weighted gradient echo sequences.

Left: Conventional 3T. Right: MultiTransmit.



A great investment from any angle

Achieva 3.0T TX makes as much economic sense as it does from a clinical perspective. And one that makes a great return on investment. Because it enhances image quality and consistency across a wide range of applications, it gives you more reasons than ever to invest in 3T.

Philips MultiTransmit imaging, an industry first, is set to become the new standard for the future of high-field imaging. With Achieva 3.0T TX you benefit from:

- Enhanced diagnostic confidence due to enhanced image quality and consistency
- Higher throughput due to faster scanning and fewer retakes
- Wider range of applications that benefit from 3T clinical performance

With its unique advances in technology and image quality, Achieva 3.0T TX is revolutionizing MR imaging. It's a platform designed to keep you at the cutting edge of MR, now and in the future.



Please visit www.philips.com/achievaTX for more information



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