Quiet Suite

Imaging is to be seen, not heard.
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Complete, quiet exams for neurology and orthopedics
+ Noise reduction right from the start, with the QuietX localizer
+ Complete clinical examinations with QuietX TSE, SE and GRE for T1, T2 and DarkFluid contrasts, QuietX SWI and the inaudible PETRA
+ No need for hardware modifications

Minimum of 70% reduction in sound pressure²
+ Reduced need for sedation
+ Easier communication with patients, reducing anxiety and the need for rescans
+ Higher patient comfort and satisfaction

No need to compromise image quality
+ Diagnostic quality of images are maintained
+ Improve clinical care for vulnerable patients

Advanced noise reduction technologies are present on all MAGNETOM scanners. Nevertheless, we have continuously strived to develop technologies that will further lower noise without compromising our standard for high quality and efficient imaging. With Quiet Suite¹, we have addressed the root source – sharp gradient switches – to take noise reduction to a new level. Benefit from at least a 70 percent reduction in sound pressure² for complete and quiet neurological and orthopedic examinations. Quiet Suite includes QuietX and PETRA as well as optimized protocols for neurological and orthopedic examinations. With no need to compromise image quality and scan time and no need for hardware modifications, your patients can immediately benefit from more comfortable MRI examinations.
Complete, quiet neurological examinations.

Hear the difference. Compare the outcome.

**Conventional**

- **Localizer**
  - dBA 100
  - Background noise 60
- **T2 TSE**
  - dBA 94
  - 83 reduction 72 %
- **T2 DarkFluid**
  - 92
  - 79 reduction 77 %
- **SWI**
  - 96
  - 81 reduction 82 %
- **T1 FLASH 3D**
  - 88
  - 77 reduction 70 %

**Quiet Suite**

- **Localizer**
  - dBA 94
  - 83 reduction 72 %
- **T2 TSE**
  - 91
  - 78 reduction 77 %
- **T2 DarkFluid**
  - 92
  - 79 reduction 77 %
- **SWI**
  - 96
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- **T1 FLASH 3D**
  - 88
  - 77 reduction 70 %

**Hear the difference. Compare the outcome.**
Address the cause,
not the effects.

The main source of MRI acoustic noise is the gradient coils. Rapid switching of the gradients generates significant mechanical vibrations, akin to a jackhammer or a loudspeaker at a rock concert.

To effectively reduce noise beyond what can be achieved by conventional methods (gradient insulation, force compensation), the cause of the noise – sharp gradient switching – must be addressed directly. The challenge lies in developing a solution that is effective and intelligent and does not compromise image quality or scan time.

QuietX, a unique Siemens innovation, is a smart algorithm for optimizing gradient switching. QuietX works to provide the best possible gradient trajectory through intelligent summation of gradients and reduction of the slew rate, while also maintaining timing parameters in the same range. The results include significant reductions in acoustic noise and smoother, more pleasant sounds – with no impact on image quality and scan time.

Conventional MRI examinations are accompanied by sharp gradient switches, producing mechanical vibrations that translate into loud, unpleasant sounds. QuietX overcomes these sound peaks by optimizing and smoothing the gradient trajectory and consequently lowering the noise.

Schematic illustration: Conventional and QuietX
Complete, quiet orthopedic examinations.

Conventional

Quiet Suite

Knee exam
Experience a minimum reduction of 70% in sound pressure.

### Inaudible imaging with PETRA

Quiet Suite includes PETRA, a sequence for 3D T1 imaging. For neurological imaging, PETRA can barely be heard over ambient background noise. With a Tx/Rx coil, PETRA is inaudible over background noise.
The realization of quiet MRI is truly exciting. It will improve clinical care for many pediatric, dementia and psychiatric patients, while providing a more comfortable experience for all patients. For the many patients scanned at our hospital, T1-weighted PETRA provided the same diagnostic information as MPRAGE. PETRA even provided diagnostic advantages in some cases; for example, paranasal sinuses could be imaged without susceptibility-related distortion.3,4

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1 May not be commercially available in countries outside the U.S., future availability cannot be guaranteed.

2 Data on file. The sound example is for demonstration purposes only. The ratio between conventional and Quiet Suite MRI sound is accurately represented; however, actual sounds may differ in volume and quality. Reduction in sound pressure, measurements made on MAGNETOM Skyra, not considering ear plugs.

3 The statements by Siemens’ customers described herein are based on results that were achieved in the customer’s unique setting. Because there is no “typical” hospital and many variables exist (such as hospital size, case mix, level of IT adoption) there can be no guarantee that other customers will achieve the same results.

³ MR scanning has not been established as safe for imaging fetuses and infants under two years of age. The responsible physician has to decide about the benefit of the MRI examination in comparison to other imaging procedures.

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