

**SIEMENS**

MAGNETOM Skyra  
A Tim+Dot System

# This One Solution Made the Difference

Faster MRI Exams, Improved Quality, and Increased Throughput  
at Reno Diagnostic Centers

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**Reno  
Diagnostic  
Centers**

When it has to be done right.



“When I went back to school in North Carolina, I told many of my classmates that our goal was to keep or improve our current image quality while simultaneously decreasing our scan times and having a higher throughput. People said that wasn’t going to happen, but we proved them wrong. It does happen,” says Sina Alacano, staff MRI technologist at Reno Diagnostic Imaging Centers (RDC), Reno, NV.

At the time, RDC had a fully functional, seven-year-old, 3T MRI system. There were two options: do a software upgrade on the existing MRI system or replace it. “We didn’t want to just go down an upgrade path without thinking about what our needs would be in the future,” says Terri Mahannah, executive director at RDC.

## A Future-Forward Path

Fortunately, RDC’s radiologists and administrators work hand-in-hand, which Mahannah sees as a definite advantage for the organization. Well-versed in the capabilities of newer MRI technology, the radiologists reviewed the options with the administrators. “We decided that upgrading our existing MRI was not the direction we wanted to go in,” says Mahannah. “We’d have to spend a bit more money but we’d be better off replacing that magnet with a newer magnet with a better upgrade path.”

The Reno, NV, imaging market is highly competitive. In fact, RDC is the only outpatient imaging center in the community not affiliated with a hospital. In addition, RDC faces the same reimbursement challenges that so many other healthcare providers face: Reimbursements are going down yet the cost of providing care, in terms of organizational resources like well qualified staff, continues to rise. With all of these factors in play, decision-makers needed a system that could help them maximize throughput and manage higher patient volume not just now but for years to come. “The bottom line is we needed to do more cases per day in the same amount of time,” says Eric Kraemer, MD, radiologist.



*“Our radiologists prefer the Siemens systems over other vendors and they love the quality and capabilities of this scanner.”*

— Terri Mahannah  
Executive Director  
Reno Diagnostic Imaging Centers

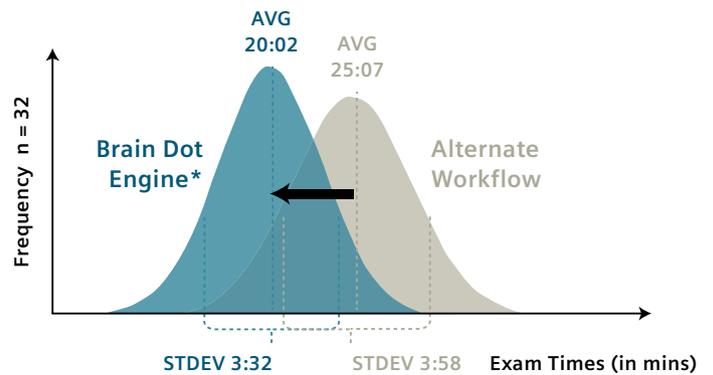
## Rock Solid Service

After evaluating several vendors’ 3T MRI offerings, the administrators and radiologists agreed that the MAGNETOM® Skyra was the best option for their MRI service line. “We had previously replaced an older 1.5T magnet with the MAGNETOM Espree. This enabled us to leverage workflow, parallel imaging, and better coil technology for speed and image quality improvements,” says Dr. Kraemer. “The experience educated us about what was possible with Siemens technology.”

As a result, RDC moved its timeline forward to replace an existing 3T system with the MAGNETOM Skyra. A 70-cm 3T system, the MAGNETOM Skyra offers a full range of advanced and routine applications combined with features that can help providers maximize efficiency. “Our radiologists prefer the Siemens systems over other vendors and they love the quality and capabilities of this scanner,” says Mahannah.

Installation went very smoothly. “The communication was fantastic,” Mahannah continues. “I just didn’t have any surprises. In my role, it’s very frustrating to have vendors come back and say ‘oh we found this or that and it’s going to cost you another \$30,000 or \$40,000.’ The Siemens team kept us informed of the progress and proactively communicated potential issues. And the service was awesome. They delivered like they said they would. Our service engineers are rock solid.”

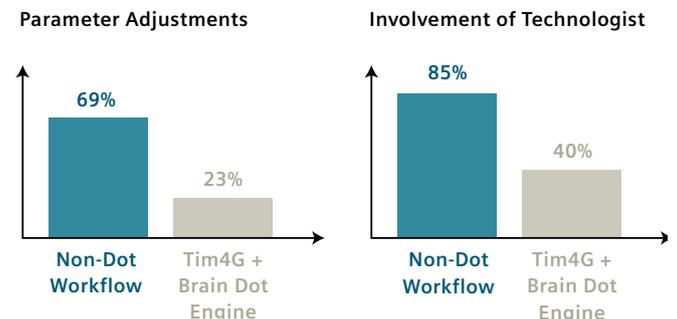
### Dot – Increasing consistency and throughput



**20% faster\*\***  
**More efficient patient scheduling**

\*Data on file.  
\*\*Exam protocols adjusted to clinical requirements.

### Dot + Tim 4G – Reduction in workload



**46%\* less Parameter Adjustments**  
**45%\* less Involvement of Technologists**

\*Data collection through independent observer.



*“There are several features of Dot that have been huge assets. It’s definitely helped our workflow.”*

— Sina Alacano  
MRI technologist  
Reno Diagnostic Imaging Centers

**Additional exams  
completed per day  
in the first year**

## Transforming Productivity

To maximize efficiency, technologists and radiologists were trained on the new 3T system, enabling them to jointly define high-quality yet efficient protocols and workflows. The MAGNETOM Skyra system includes Dot™ (Day optimizing throughput) technology combined with Tim® 4G (the fourth generation of the Total imaging matrix technology). These technologies fuel technologists’ ability to increase productivity, which is especially important at RDC since volume levels have increased. “We’re definitely able to get more patients scanned in fewer tech hours,” says Alacano.

To quantify the increase in productivity, Dr. Kraemer and his staff compared the fourth quarters of the last two years, typically their busiest time, to calculate the impact on the 3T MRI service line’s efficiency. “We performed an additional 480 MRIs in 2.25 fewer workdays after we installed the Skyra vs. our older 3T MR system,” says Dr. Kraemer. “When you factor in efficiencies gained from changing the exam mix, we estimate we completed approximately 8.1 additional exams per day.”

Alacano attributes some of these productivity gains to the Skyra’s Dot engines. “There are several features of Dot that have been huge assets,” she says. “It’s definitely helped our workflow. The techs no longer have to search and find pulse sequences. I’ve built all of our Dot engines to include many clinical and patient context decisions so that pulse sequences are at our technologists’ fingertips. As a result, it’s become much easier for technologists—both experienced and inexperienced—to find pulse sequences immediately versus going in and out of protocols.”



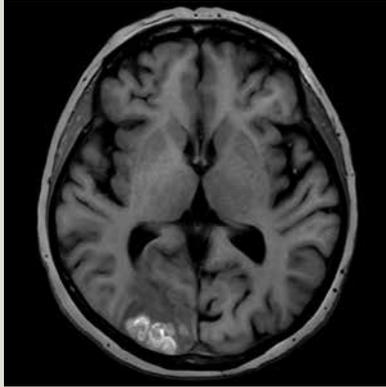
The Dot engines also include Siemens’ exclusive AutoAlign functionality, which enables consistent, reproducible positioning and patient-specific alignment to select anatomic structures (e.g., IACs, Optic nerves, ACL, etc.). “AutoAlign definitely helps our more inexperienced techs increase throughput because they’re able to scan faster,” says Alacano. For example, auto-align for the spine helps with the numerical marking of all vertebral bodies and disk spaces. That is a definite advantage when you’re scanning because the information is given to you instead of a tech having to count. Plus, it eliminates the need for repositioning.”

Alacano also notes that the automated voice commands for breathing are helping to improve workflow. The commands give the technologists time to set up additional pulse sequences instead of giving breathing instructions to the patient. The system even offers pre-programmed language options. With them, technologists can easily provide instructions in the patient’s native language, such as Spanish instructions for Spanish speaking patients—which can save significant time as well.

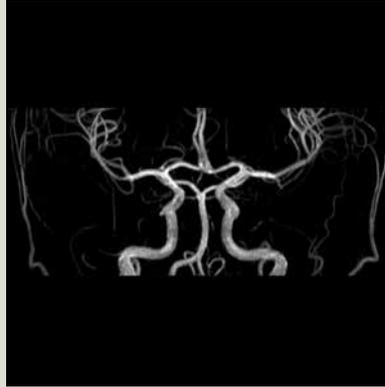


**480** more

**MRI in 2.25 fewer days  
over a one-year period**



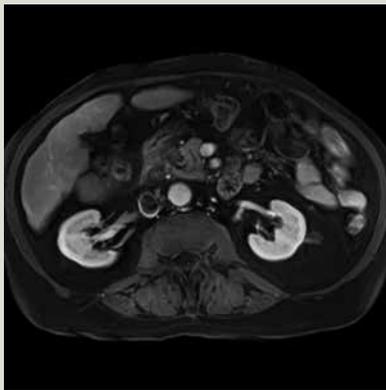
T1 FLASH, native, 320 matrix, SL 4 mm,  
TR 250, TE 2.5, TA 1:16 min  
MRI Bethanien, Zurich, Switzerland



3D FLASH ToF Tone, MIP, GRAPPA 2,  
512 matrix, SL 0.5 mm, TR 23, TE 4,  
TA 6 :36 min



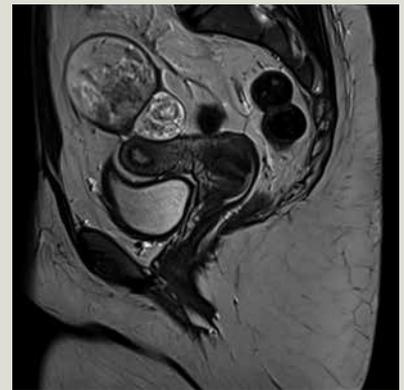
T1 TSE, 384 matrix, SL 3 mm, TR 650,  
TE 9.5, TA 4:30 min



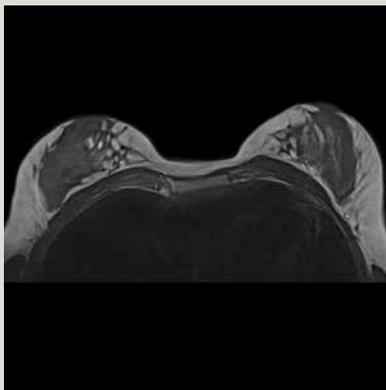
T1 3D VIBE FatSat, GRAPPA 2, 320 matrix,  
SL3 mm, TR 4.3, TE 1.9, TA 15 s  
University Hospital Mannheim,  
Mannheim, Germany



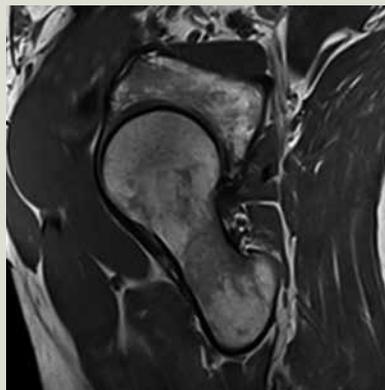
T1 3D VIBE FatSat, GRAPPA 3, 288 matrix,  
SL 0.9 mm, TR 3.2, TE 1.1, TA 18s



T2 TSE, GRAPPA 2, 320 matrix, SL 4 mm,  
TR 4000, TE 81, TA 3:36 min



T2 TSE, with BLADE, GRAPPA 2, 384 matrix,  
SL 4 mm, TR 6160, TE 104, TA 2:53 min



T2 TSE, 320 matrix, SL 3 mm, TR 4500,  
TE 85, TA 2:56 min



PD TSE, 384 matrix, SL 3 mm, TR 3100,  
TE 39, TA 3:16 min



*“We performed an additional 480 MRIs in 2.25 fewer workdays after we installed the Skyra vs. our older 3T MR system.”*

— Eric Kraemer, MD  
Radiologist  
Reno Diagnostic Imaging Centers

## High-Quality Imaging

Backed by this level of efficiency in 3T MRI, RDC schedules its imaging exams based on case type. For example, most neurology, prostate, breast, abdomen, and long bone exams are performed on the MAGNETOM Skyra, while other exams are routed to the 1.5T MAGNETOM Espree system. As a result, “on any given day, we’re seeing 5 to 10 more patients than before. That is huge,” says Mahannah.

In addition to the tremendous gains in efficiency, Dr. Kraemer reports that the image quality has been much better across the board, which is fundamental to the ability to provide high-quality care to the patients and referring physicians they serve. “Efficiency is the future,” he says. “Siemens has enabled us to be competitive in a very challenging reimbursement market, while continuing to provide exceptional image quality and patient care.”

Mahannah agrees. “If you are able to get your physicians and management onboard, you can adjust the protocols to maximize the 3T system to get a good return on your investment.”



**Most neurology exams reduced by 10 minutes while increasing image quality**

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

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