

Technology Backgrounder

Magnetic Resonance Imaging

Philips offers a comprehensive portfolio of magnetic resonance imaging (MRI) diagnostic and therapeutic solutions that truly transform patient care, some of which are showcased at ECR 2013;

Multiva 1.5T system

The Multiva 1.5T system builds on Philips' innovative and proven technologies from both the Ingenia and Achieva platforms. At the heart of Multiva 1.5T is the FlexStream workflow, which enables more efficient handling of coils for head, spine, musculoskeletal and neurovascular exams.

Multiva 1.5T also features SmartSelect, a feature that automatically determines which coils and elements should be activated to yield the maximum signal-to-noise ratio (SNR) in the region of interest for greater efficiency and higher image resolution. Additionally, a large neurovascular coil design allows patients to use headphones during their scan, which can help improve the patient's overall comfort and experience. These improvements to workflow and the patient experience maximize the value of the system and allow clinicians to treat more patients each day without compromising image quality.

Key benefits/Features

- High quality routine imaging in as little as 10 minutes
- Advanced clinical applications, including whole body, oncology and breast imaging.
- Up to 40% reduction in patient/coil set up time with new FlexStream workflow.
- Affordability – today and for the life of your system.

Ingenia 1.5T and 3.0T systems



Philips Ingenia is the first-ever digital broadband MR solution, a true breakthrough in MR imaging. Driven by Philips' commitment to transforming care, Ingenia MR delivers a new standard in image clarity, scanning efficiency and scalability.

Ingenia was designed to address the diverse needs and challenges facing customers today. Delivering on the promise of Philips Imaging 2.0 to put the radiologist at the center of diagnostic and therapeutic processes, Ingenia allows for superb clinical collaboration and integration, enhanced patient focus and improved economic value.

Key benefits/Features

- Elevates clinical performance for traditional and growth applications, with up to a 40 percent increase in signal-to-noise ratio (SNR)* and the largest homogenous field-of-view for a 70 cm bore
- Accelerates patient management to deliver up to a 30 percent increase in throughput.*

Developed to improve economic value by lowering upgrade costs through channel-independent architecture for future expansion of clinical capabilities.

* Compared to Achieva

Philips SmartPath to dStream – bringing Ingenia’s digital capabilities to the majority of the installed base

The revolutionary dStream broadband technology, which Philips introduced with Ingenia, will now become available for the majority of the installed base. SmartPath to dStream provides enhanced image quality, improved workflow, easy coil handling and exceptional patient comfort.

dStream technology features signal digitization directly at the patient, delivering high SNR that benefits image quality and speed. The lightweight dStream digital coils are comfortable for patients, and the easy coil handling significantly benefits workflow. The SmartSelect feature automatically determines which coil elements to use, shortening scan setup time.

SmartPath to dStream builds on the existing system and is a cost-effective way to provide the clarity, scanning efficiency and scalability of digital broadband MRI. Compared with system replacement, it saves on magnet and reconstruction costs and results in less disturbance during installation for the facility.

MultiTransmit 4D



Five years ago, Philips introduced Achieva 3.0T TX that included the world’s first parallel RF transmit technology. Called MultiTransmit, the innovative technology helps to improve the performance of Philips 3T systems for greater adoption in mainstream radiology. MultiTransmit adapts the RF signal to each patient’s unique anatomy to address dielectric shading and specific absorption rate limitations inherent in 3T systems. The result is improved image contrast, uniformity and consistency, and up to 40 percent faster scans. The initial version of MultiTransmit has been ideal for static anatomies, such as spine, breast and liver. Philips offers the next level of this technology, called MultiTransmit 4D, in Ingenia 3T for real-time applications, such as cardiac.

Philips Ingenia MR-OR solution for intraoperative neurosurgery

Philips is expanding MRI into the therapy area. One of the new solutions in this field is the next generation MR-OR solution for intraoperative neurosurgery with Ingenia.

Philips has been a leader in interventional MR since 1995, and has been offering both 1.5T and 3.0T MR-guided neurosurgery solutions. An MR-OR suite for intraoperative MRI adds value to neurosurgical facilities, supporting resection procedures that can save precious time for both surgeon and patient. When intraoperative MR reveals incomplete resection, for example, the resection can be completed in the same procedure and can reduce the need for subsequent surgery. When Philips introduced Ingenia, the first digital broadband MR system, the next generation intraoperative MR-OR was conceived as well.

Key benefits/Features

- Save precious time by obtaining fast intraoperative MRI results with smooth and quick patient transfer, which can reduce the need for subsequent surgery
- Gain access to Ingenia’s high MR image quality for neuronavigation with full MR diagnostic capabilities

- Increase MR utilization through dual-room (MR-OR) or triple-room (OR-MR-OR) approach

Panorama HFO



Panorama HFO (high field open) is designed around the diverse needs of patients. From very large or overly anxious patients to children and the elderly, Panorama HFO offers space, an open view and flexibility in positioning to deliver clinical comfort. The superb SNR efficiency of solenoid technology coils combined with state-of-the-art magnet technology facilitates performance comparable to 1.5T in several areas of imaging, from advanced neuro to

musculoskeletal (MSK) and cardiac to routine breast imaging.

Panorama HFO in Oncology Configuration



The Panorama HFO in Oncology Configuration is an oncology imaging solution for facilitating simulation and planning for radiation therapy. The open scan environment allows for scanning of patients in a treatment position, as well as MR-guided biopsy sampling, brachytherapy and other minimally invasive procedures.

Clinical solutions and IntelliSpace Portal

Philips is showcasing a number of Elite clinical solutions powered by dStream that contribute to the transformation of patient care.

A number of new clinical applications, also showcased, are designed to simplify and enhance neuro and body imaging applications.

The Elite Body solution features mDIXON, which simplifies and accelerates liver MRI studies by providing more information in a single exam and more SNR**, in addition to uniform fat suppression, resulting in total liver exam time in under eight minutes. The role of whole-body MRI in oncology is further enhanced by the application of whole-body diffusion-weighted imaging (DWIBS), an important functional imaging method used in screening, staging and therapeutic monitoring. The features of Ingenia, specifically the benefits of dStream acceleration, allow for fast whole body oncology imaging. Routine body imaging is greatly enhanced to the point where chest-abdomen-pelvis coverage can be obtained rivaling the speed of CT.

For advanced diagnostics used in disease characterization of the prostate, Ingenia supports superb lesion visualization. These lesions are now targeted and biopsied under MR guidance as part of the Elite prostate solution, providing the necessary outcome for treatment stratification. These are just a few of the many examples of how Ingenia is transforming patient care.

Ingenia's SNR improvements and imaging acceleration capability have shown great benefits for peripheral run-off studies, demonstrating high spatial resolution.

Philips is also featuring an expansion of the company's clinical applications in a collaborative way with the award-winning IntelliSpace Portal thin client solution. IntelliSpace Portal is a thin client applications server, virtually accessible-anywhere solution for multimodality clinical review, analysis and diagnosis. It is a rich, advanced visualization solution with key applications, such

as Tumor Tracking and Cartilage Assessment. Furthermore, the IntelliSpace Portal empowers the radiologist in patient care by providing the tools to access and create actionable information throughout the enterprise, on a secure, real-time, collaborative platform.

** Compared to e-THRIVE

Philips Technology Upgrades for Ingenia



Philips Technology Upgrades (PTU) is a five-year software subscription and hardware refresh program available for Ingenia systems. PTU provides customers with the ability to keep their MR systems at state-of-the-art performance levels. The software upgrades are provided for all software features and options originally delivered at installation, and all software options purchased subsequently within the PTU contract period. Adding PTU to the Ingenia service agreement helps keep the system updated with the latest base software. Clinical options can now simply be added as they are needed or become available.

For more information, additional materials and images, go to the [Philips Healthcare news center](#).