Hitachi reserves the right to change specifications described herein without prior notice. This document provides general technical descriptions of both optional and standard features.
AIRIS Elite Open MR from Hitachi

AIRIS® Elite Advanced Mid-Field MR is the next step in mid-field MR performance.

Elite combines the renowned reliability, cost-effectiveness and patient comfort of Hitachi’s Open MR with throughput and capabilities previously not possible at mid-field.

Capabilities and sequences such as RF-Fat Saturation, RAPID™ Parallel Imaging, Single Shot EPI Diffusion-Weighted Imaging with DWI analysis tools, Balanced SARGE™, advanced MRA capabilities and much more are available now with AIRIS Elite.

At the same time, AIRIS Elite delivers all the renowned benefits of Hitachi Open MR design. Our asymmetric two-post architecture affords a spacious opening for ultimate patient comfort, especially for those who are claustrophobic or larger than average. The table design even permits free lateral patient positioning within the gantry.

Through our unique design and engineering philosophy, AIRIS Elite has shattered conventional wisdom in mid-field MR image quality and performance, all while keeping the patient comfort and flexibility you’d expect from Hitachi, the world leader in Open MR imaging.

AIRIS Elite features Hitachi’s Scalable DualQuad® RF system, higher-order active shim technology and high-performance gradients. These advanced subsystems, integrated with Hitachi’s award-winning gantry design and vertical field permanent magnet technology, enable AIRIS Elite to break through previous mid-field MR price and performance conventions.
High-performance Sub-systems

Advanced Magnet Technology
AIRIS Elite brings together outstanding performance in all critical systems. Hitachi’s signature asymmetric two-post open architecture houses our reliable and cost-effective permanent magnet technology, delivering a 0.3T field strength in a vertical orientation with consistently high homogeneity. Field uniformity is enhanced by Hitachi’s higher-order Active Shim technology, which makes possible advanced imaging techniques such as RF-Fat Saturation and EPI-DWI. In fact, AIRIS Elite is the first mid-field system available with this technology. The magnet is self-shielded to contain a 5 Gauss fringe field within the scan room, reducing the cost of siting while allowing more flexibility in suite design. For example, windows can be incorporated within the suite, which is not always possible in a room requiring magnetic shielding, thus maximizing the friendly, non-claustrophobic atmosphere of Hitachi’s Open MR.

Advanced RF Technology
AIRIS Elite’s standard RF configuration is Hitachi’s Scalable DualQuad® (SDQ) RF system. SDQ elevates multiple array RF technology to a new level, facilitating advanced applications today and setting the stage for future developments. Ultra-low noise preamplifiers contribute to optimized signal-to-noise ratio. Additionally, the Multi-Element Resonator (MER) quadrature flat transmit coil and powerful transmit amplifier provide uniform RF excitation and maintain high image quality. The wide range of anatomically-specific receive coils help SDQ optimize image quality, throughput and comfort.

Powerful Gradient System
With 21mT/m maximum amplitude and 55T/m/s maximum slew rate, the powerful and fast gradients provide high resolution and low TE/TR, rivaling many conventional high-field systems. Yet, AIRIS Elite uses air cooling for reliable and efficient gradient operation. This level of gradient performance enables a variety of advanced imaging techniques traditionally associated with high-field systems, including:
- Short TE and TR values in Fast Spin Echo and MRA imaging sequences
- FSE imaging with great flexibility, including short inter-echo times and long ETLs
- Single-shot EPI with RF-Fat Saturation

Comfort and Convenience
Three-axis motorized movement, a simplified control mechanism and a number of user enhancements bring a new level of convenience and speed to patient positioning, helping to maximize patient acceptance and throughput. Highlighted by a large color monitor, the system features an intuitive graphical user interface (GUI) that is easy to learn and use. Additional features such as a DVD-RAM image archive and a CD-write function enhance the performance. Traditional Hitachi patient comfort features are all there too, including wide 80-cm table width and wheelchair-height low position for ease of access.

Sophisticated Computer System
AIRIS Elite’s Dual XP workstation features a multiprocessor computer architecture, enabling multi-tasking capabilities to increase efficiency and patient throughput. Highlighted by a large color monitor, the system features an intuitive graphical user interface (GUI) that is easy to learn and use. Additional features such as a DVD-RAM image archive and a CD-write function enhance the performance.

AIRIS® Elite
Hitachi is the undisputed leader in the development of Open MR technology, having pioneered the adaptation of advanced imaging to Open MR.

- Comprehensive RF Fat-Saturation
- RAPID™ Parallel Imaging technology
- FSE and Echo-Planar Imaging (EPI)
- Steady-state gradient echo sequences (SARGE™)
- MRA, including Timed Bolus MRA
- EPI-based Diffusion-Weighted Imaging

AIRIS Elite is the result of our extensive experience in Open MR, mid-field at a new level of performance. You can count on Hitachi for maximum yet cost-effective performance on a consistent basis.

Through our industry-leading Ultra Plus Customer Assurance program, we keep your costs down and system reliability up. In fact, we guarantee 99% system uptime for customers enrolled in Ultra Plus. The program includes ongoing software upgrades, training and marketing support.

For Open MR that takes you to the far horizon of mid-field performance, you can depend on Hitachi and AIRIS Elite.

**Enhanced Capabilities at Mid-field**

- **Comprehensive RF Fat-Saturation**
- **RAPID™ Parallel Imaging technology**
- **FSE and Echo-Planar Imaging (EPI)**
- **Steady-state gradient echo sequences (SARGE™)**
- **MRA, including Timed Bolus MRA**
- **EPI-based Diffusion-Weighted Imaging**

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**RF Fat Saturation**

Once considered one of the benchmarks of “high-field” MR systems, Hitachi’s higher order Active Shim technology on AIRIS Elite changes the RF Fat-Sat paradigm, resulting in consistent uniformity through the image volume.

**RAPID™ Parallel Imaging**

RAPID™ Parallel Imaging, with purpose-designed coils including head, extremity and body, can be used to reduce total study time with same image resolution, or increase resolution with the same total study time as conventional imaging.