Sustainable magnetic resonance imaging solutions for a resilient tomorrow

SIGNA™ PET/MR AIR™ Edition

Creating a more sustainable future requires us to care for the planet and its inhabitants.

It is essential that we continue to drive progress toward early, precise, and accessible diagnosis and treatment of more patients. For the planet, it is critical that we do so with a reduced impact on precious and rare resources that are imperative to life. We believe that the advancement of precision health, greater digitization of healthcare, and increased access to quality care are fundamental to accomplishing this goal.

We support carbon policies that reduce greenhouse gas emissions and promote sustainable development. We are committed to achieving net zero by 2050 and are part of the UN-backed "Race to Zero," with a goal of reducing emissions based on the Paris Agreement. We've also set a public goal to achieve a 50% reduction in our own operational emissions by 2030. As a result of these efforts, we want to enable a more sustainable health system by addressing not only the environmental impacts of our products but also the challenges healthcare professionals and their patients face with resilient, digital options.
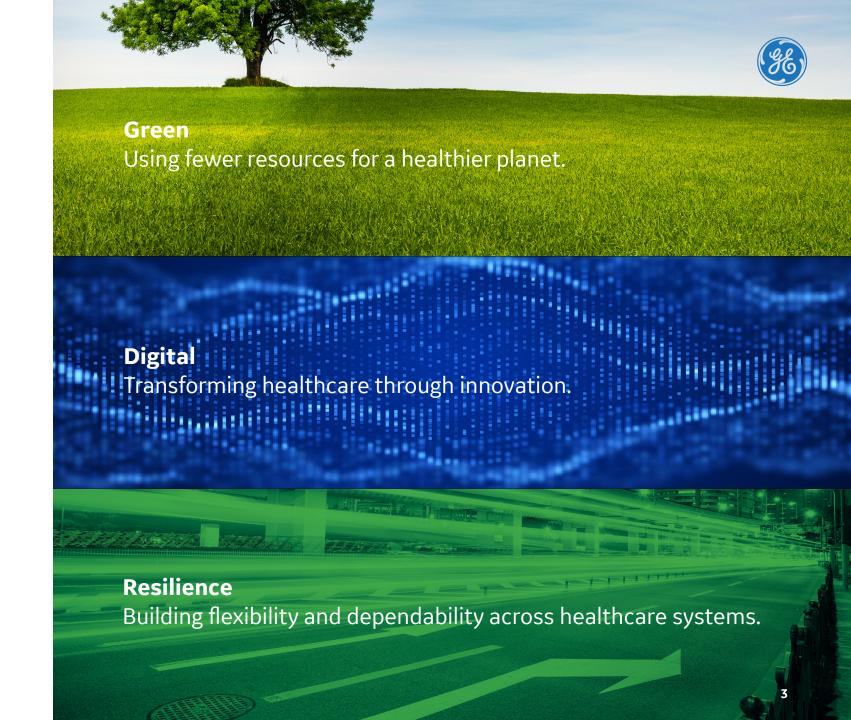
We are committed to achieving **net zero** emissions by 2050.

We've set a public goal of a **50% reduction** in our own operational emissions by 2030.

We deliver sustainable, intelligently efficient solutions for a resilient tomorrow.

Building a healthier world to help improve access to care and enable better patient outcomes.

Green
Using fewer resources for a healthier planet.

Digital
Transforming healthcare through innovation.

Resilience
Building flexibility and dependability across healthcare systems.

SIGNA™ PET/MR AIR™ helps create a resilient tomorrow.

Our 3.0T system, SIGNA™ PET/MR AIR™ Edition, and its services help ensure that radiology professionals and the patients they serve have the technology necessary to create a sustainable and resilient tomorrow.

A versatile, high-sensitivity scanner, SIGNA™ PET/MR AIR™ delivers improved quantitation and reduced attenuation while providing faster scans and higher MR image quality.

Reducing environmental impact

- There are zero carbon emissions from the system.

- GE MR systems are eligible for refurbishment, reuse, or recycling at the end of their product life.

- No helium refill is required on site during installation, and the magnet requires 30% less helium than previous generation.

Improving outcomes

- MR-compatible silicon photomultiplier detectors (SiPM) are 3x more sensitive than conventional tube-based PET detectors.[1]

- Industry-leading PET sensitivity & time-of-flight (TOF) technology provide impressive quantitative accuracy and high-count rate.

- The hybrid system helps increase operational efficiency when used as an MR with image quality that is equal to stand-alone MR systems.

- ZTE MR replaces the X-ray-based gold standard for attenuation correction in the brain to improve quantitative imaging for radiation-sensitive patients (e.g., children and adolescents)

Contributing to a healthier planet

More than half of the healthcare sector's climate footprint, approximately 53%, is attributable to energy use.[2] As a result, we have strengthened our commitment to environmentally conscious design and sustainable practices across our product manufacturing, sourcing, distribution, installation, and service operations. This includes improving energy efficiency, optimizing the use of limited or rare materials, providing digitally enabled and remote predictive and maintenance service throughout the product lifespan, and offering refurbishment and recycling options at the end of product life.

GE Healthcare environmental management system is ISO 14001 certified.	Our production and service operations align to ISO 14001 standards.
We're committed to environmental product design.	This product conforms with IEC60601-1-9:2007.

Materials

GE Healthcare reviews the environmental aspects of the material supply used within our products to increase recyclability and decrease the use of hazardous substances, when possible.

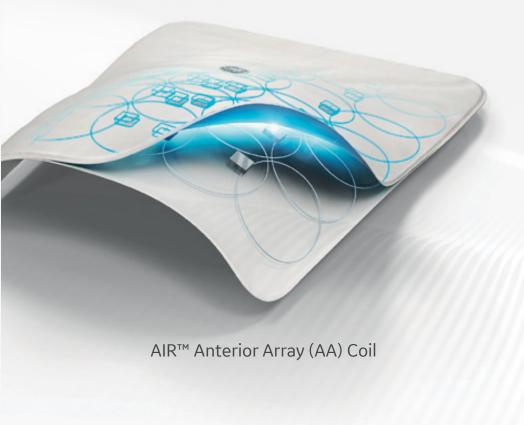|	
Recyclable	100% of the MR magnets returned are recycled into raw materials.[3]
	Our system covers are completely recyclable plastics.
Reduce the use of hazardous substances	REACH (EC) 1907–2006

Manufacturing

Through our environmental reviews, we also focus on implementing renewable energy and reducing waste.

Reducing electricity	The system uses Ultra High Efficiency (UHE) technology to generate exceptional imaging performance using about half the amount of electrical current than a contemporary system.

AIR™ Anterior Array (AA) Coil

Product utilization

Our imaging products are designed to help enable energy efficiency through dedicated features and advanced applications to reduce the environmental impact.

Ergonomically designed patient setup and positioning	AIR™ Recon DL enables shorter scan times, reducing the time spent on the table.
	AIR™ Coils are designed to be flexible and 50% lighter to provide better coverage than traditional coils. They allow greater patient positioning freedom and patient comfort, as well as reduced burden on the technologists lifting the coils.[4]
	AIR Touch™ offers 59% less patient setup time and 37% less table time for the patient.[5]
	AIR x™ automated MR slice prescription reduces setup time and provides reproducible planning to ensure exam consistency.

Reduce staff burden	Increase productivity and streamline workflows with shorter scan times.[6]
	Potentially reduce the radiation exposure to technologists by reducing setup time when using AIR Coils.
	MotionFree Brain head motion correction is derived directly from the patient's clinical PET scan data (no external devices or additional data required).

[4] AIR™ Coils data on file (2018).
[5] Compared to conventional technology. Data on file.
[6] Volunteer testing, compared to conventional coil technology. Deller et al, Radiology 2021; 298:166 -172.

Packaging

GE Healthcare imaging equipment has a robust and multi-sourced supply chain for systems and spare parts across all product portfolios.

Improved packaging
We are replacing our wood and corrugated cardboard packaging with paper, increasing the amount of recyclable packaging.

Product utilization (Cont.)

Reduce noise	Silenz is a 3D Zero-TE sequence comprised of high-bandwidth excitation and reduced gradient-switching radial acquisition that drastically reduce noise level from an ear splitting, motorcyle-level 91 dB to within 3 dB of scan room ambient sound. In addition, Silenz has added flexibility in sequence prescription to enable faster scan times.
Guidance for product utilization	Instructions are provided for use of the equipment to minimize the environmental impact during installation, use, and operation.
Reduce energy consumption during use	AIR Touch™ offers 59% less patient setup time and 37% less table time for the patient.[7]
Power consumption[8]	Off mode: 19.7 kW Standby (no scan): 26.4 kW Scan mode: 31.4–56.7 kW
Reduce consumable energy utilization	1115 L of helium are recovered per system.[9] Our helium recovery systems reduce any escaping gas during cool-down, ramp boil off, and training quench. 30% less helium is required, and there is no helium refill onsite during installation.[10]

[7] Compared to conventional technology. Data on file.
[8] Per COCIR Self-regulatory initiative for medical imaging equipment, over a 24-hour period, with 12 hours of active day and 12 hours of inactive night scenario.
[9] Value based upon factory recovery system. Data on file.
[10] Based on PET/MR 3.0T. Data on file (2023).

End of product life

We are increasingly putting our retired products' materials back into the supply chain to maximize efficient use and minimize unnecessary waste. This circularity model enables our imaging products to extend their clinical impact through longer lifespans while reducing the environmental footprint. Additionally, we offer our customers partnered support for upgrades and services throughout a product's lifespan to maintain optimal performance and help drive better patient outcomes.

Our refurbishment programs involve an extensive inspection and testing process, designed to bring equipment back to its original certified manufacturing specifications. If the system is not suitable for refurbishment, eligible parts are harvested for reuse after quality and performance testing, while the rest are returned to dedicated recycling facilities.

Product utilization (Cont.)

Guidance for end of lifecycle	Equipment instructions are provided to minimize the environmental impact for disposal or recycling.
Upgradeable hardware and software options are provided as a solution to extend the product lifespan.	Imaging applications for SIGNA™ offer advanced applications such as HyperWorks, ViosWorks, ImageWorks, and SilentWorks to further advance diagnostics and accelerate throughput.
	Software tools provide access to the PET image reconstruction environment to help discover and use disease-specific tracers and develop new protocols.
Parts harvesting and refurbishment options are provided to reduce waste and environmental impacts while extending imaging access to less advantaged regions.	PET/MR system parts are eligible for assessment through the refurbishment program, in which they are assessed for refurbishment, harvesting, or recycling at the appropriate time in the lifespan.[11]
	94–96% of most systems are reused, refurbished, or recycled, extending the lifetime of each product.[11]
	Spare parts are 20.3% repairable and 5.9% harvestable.[12]
Waste reduction	This system is in accordance with Waste Electrical and Electronic Equipment (WEEE) regulations.

[11] 100% of products within MR, CT, nuclear medicine, PET, and X-ray are eligible for refurbishment, although whether a system is actually refurbished versus harvested for parts or otherwise recycled or reused is dependent on the state of the system when GE Healthcare takes possession of it. Data on file.
[12] Data on file.

Digitizing healthcare through transformative innovations for a resilient tomorrow

We are committed to investing in digital capabilities that help accelerate clinical decision making, optimize imaging operations, and drive efficiencies in exam workflows, all of which can improve patient outcomes. Enabling digital transformation will further enhance our predictive and maintenance service operations for the life of your products.

We are also dedicated to driving a more resilient and sustainable future in healthcare. Many factors, including the pandemic, climate-related weather disasters, and supply-chain issues amplified this need. Managing operations through these challenges requires resilience and perseverance.

Advancing clinical outcomes

Advanced applications and cutting-edge AI tools provide personalized data to drive actionable insights, helping healthcare professionals make fast, accurate clinical decisions for care pathways.

Gain actionable clinical insights quicker for earlier diagnosis	MR30 for SIGNA™ is the latest software release platform of all 3.0T MR scanners, making clinical use and research development easier.
	HyperWorks applications enable fast scanning with astonishing imaging and unsurpassed speed, delivering up to 8x faster results.[13]
	Scan up to 50% faster and reduce backlogs with AIR™ Recon DL.
	Q.Clear and TOF deliver up to 2x improvement in PET quantitation accuracy and up to 2x improvement in SNR.[13]
	ZTE MR for brain attenuation correction is more reliable and faster than Ultra Short Echo (UTE) and improves image quality.[13]
Keep your imaging equipment up to date with advanced clinical applications	Upgrade your clinical applications with SIGNA™ Continuum.
	Smart Subscription protects equipment from obsolescence and keeps the system at its best. It improves patient outcomes and productivity due to improved functionality and easy access to innovation.

[13] Data on file.

Advancing clinical outcomes (Cont.)

Help improve patient outcomes with improved image quality

Solutions to reduce involuntary and physiological movement with an extensive selection of motion correction applications are included: Q.Static and Motion VUE for PET and PROPELLER, PROMO, and Auto Navigator for MR.
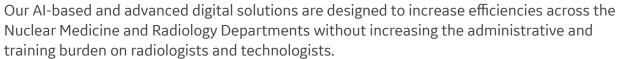
MotionFree Brain technology corrects for PET motion artifacts without external devices and ensures the corrected images are aligned with the attenuation map.

Drive advancements with precision health

Wing-to-wing clinical solutions from setup to report help reduce scan times and increase precision health, including anatomy-dedicated post-processing tools and quantitative tools for measuring and assisting diagnosis.

Optimizing imaging operations

Our AI-based and advanced digital solutions are designed to increase efficiencies across the Nuclear Medicine and Radiology Departments without increasing the administrative and training burden on radiologists and technologists.

Increase productivity and consistency	
	Eliminate the need for space for two scanners and needing to schedule two separate scans .
	Reduce scan time up to 50% with AIR™ Recon DL.[14]
	AIR x™ automated MR slice prescription reduces setup time and provides reproducible planning to ensure exam consistency.
	PET Retro-Recon Protocols help increase productivity by allowing users to create, save, and select retrospective reconstruction protocols.
	GE Healthcare's Imaging Protocol Manager remotely updates and manages protocols between facilities on MR systems to help deliver consistent image quality and optimal patient care.
	Gain data intelligence and actionable insights across the radiology department to increase productivity with Imaging Insights.
	The hybrid system helps increase operational efficiency when using the MR of the PET/MR with image quality that is equal to stand-alone MR systems.
	Leverage on-demand or scheduled virtual clinical applications training with GE specialists to support staff, enabled by Digital Expert Access.

[14] Compared to conventional technology. Data on file.

Optimizing imaging operations (Cont.)

Reduce downtime

The OnWatch™ remote monitoring system reduces unplanned down time by 35% with an 11% reduction in on-site repair time.[15]

Additionally, it boasts a 43% remote fix rate with 83% of issues resolved during the first call.[15]

This, in turn, helps reduce travel and carbon footprint, as well as overall energy and waste, by keeping our systems optimally running.

Improved thermal performance allows the magnet to stay cold longer during extended outages, and the system can immediately return to scanning when the power goes back on.

Cybersecurity

SIGNA™ PET/MR incorporates a broad assortment of capabilities to enable privacy and security. The layered approach of defense in depth limits the risk that the failure of a single security safeguard will allow compromise of the system. GE Healthcare's Design Engineering Privacy and Security (DEPS) process follows GDPR, HIPAA, NIST 800-53, NIST 800-30, ISO 27001, and NIST CSF requirements.

[15] Compared to previous generation software. Data on file.

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Enabling intelligent exam workflows

Intelligent automation features help drive consistency, enable fast, easy exams, and improve workflow with fewer resources, all while achieving similar or improved outcomes.

Reduce setup time	AIR Touch™ reduces setup time by 59%.[16]
	AIR x™ allows five times faster setup with four times fewer mouse clicks.[17]
Reduce exam time	AIR Touch™ reduces patient table time by 37%.[16]
	Reduce scan time up to 50% per patient with AIR™ Recon DL, enabling improved workflow and efficiency.[18]
	Reduce overall scan times without compromising image quality with HyperSense, which can be used in 88% of all clinical procedures.
Ease of use	AIR™ Coils optimize SNR, enabling positioning for any patient shape, while anatomy-dedicated post-processing tools unique to the specific organ system bring precision medicine into the imaging room.
	Autobind or Pasting MR tasks are automatically added or subtracted when adding or subtracting PET beds.
Cleanability	Our equipment is designed to be cleaned and disinfected easily. We continue to test and approve new cleaning and disinfecting agents. Visit *Cleaning.GEHealthcare.com* for updates.

[16] Compared to previous generation software. Data on file.
[17] Comparison of automated workflow with AIR x™ versus traditional setup process. Data on file.
[18] Compared to conventional technology. Data on file.

Building a healthy world to help enable better patient outcomes.

GE Healthcare is a member of COCIR, the European Trade Association representing the medical imaging, radiotherapy, health ICT, and electromedical industries.[19]

[19] https://www.cocir.org/about-cocir/members.html

Not all products or features are available in all geographies. Check with your local GE Healthcare representative for availability in your country.
Not all features are included in the standard system configuration. Check with your local GE Healthcare representative.

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