ACUSON Sequoia Ultrasound System

Clarify with Confidence

Crown Edition

SIEMENS Healthineers
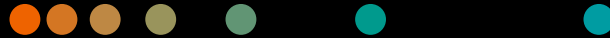
ACUSON Sequoia

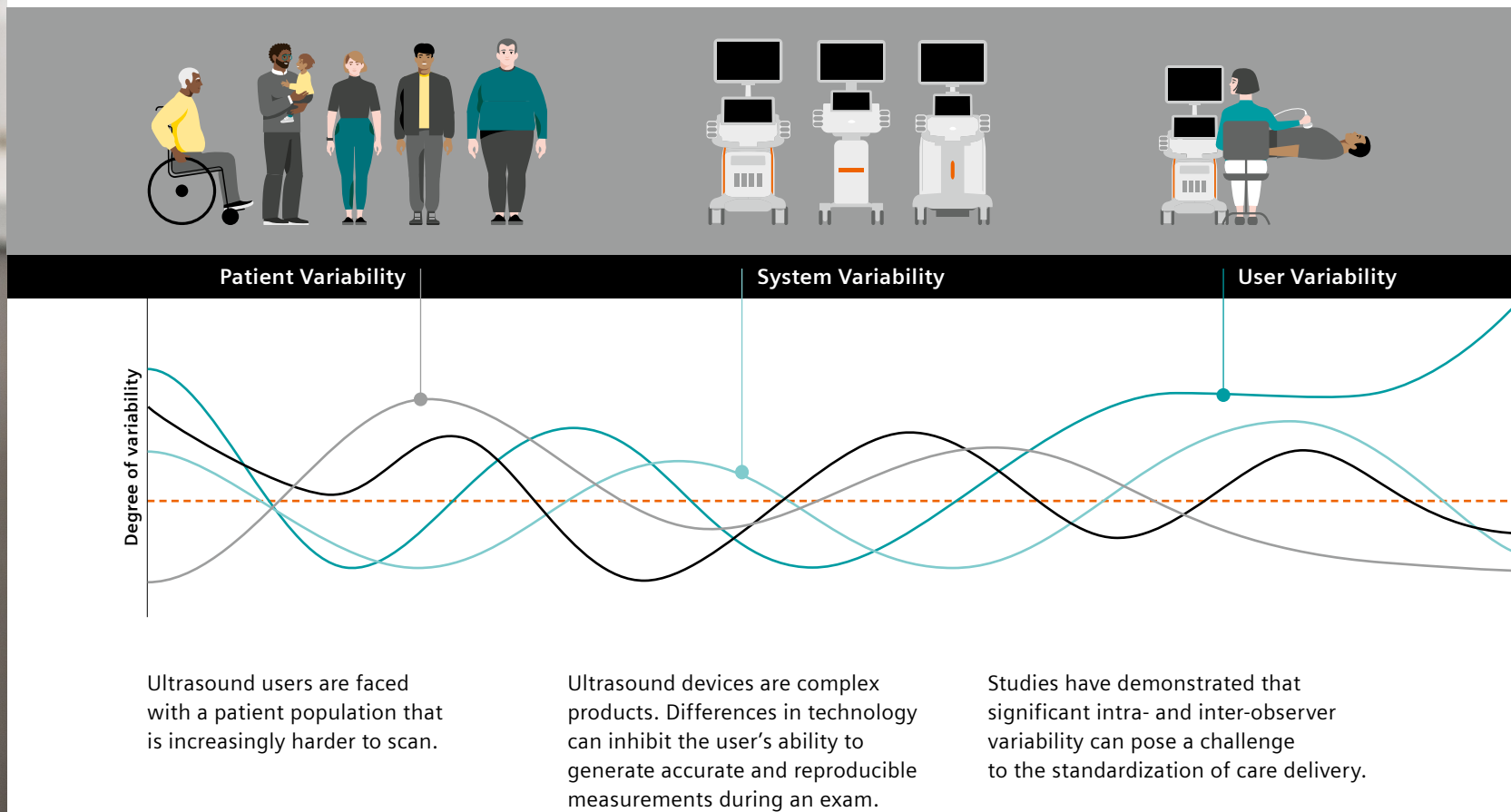## Delivering clinical excellence across ultrasound specialties

The ACUSON Sequoia encompass a fully featured Ultra-Premium ultrasound system, including innovative imaging, exclusive technologies, and specialty transducers designed to improve diagnostic accuracy in nearly every clinical use case.

ACUSON Sequoia provides healthcare providers with advanced technologies and applications that intelligently respond to patient- and user-specific needs. Tailoring diagnosis and therapies to each patient's profile helps to improve clinical, operational and financial outcomes.

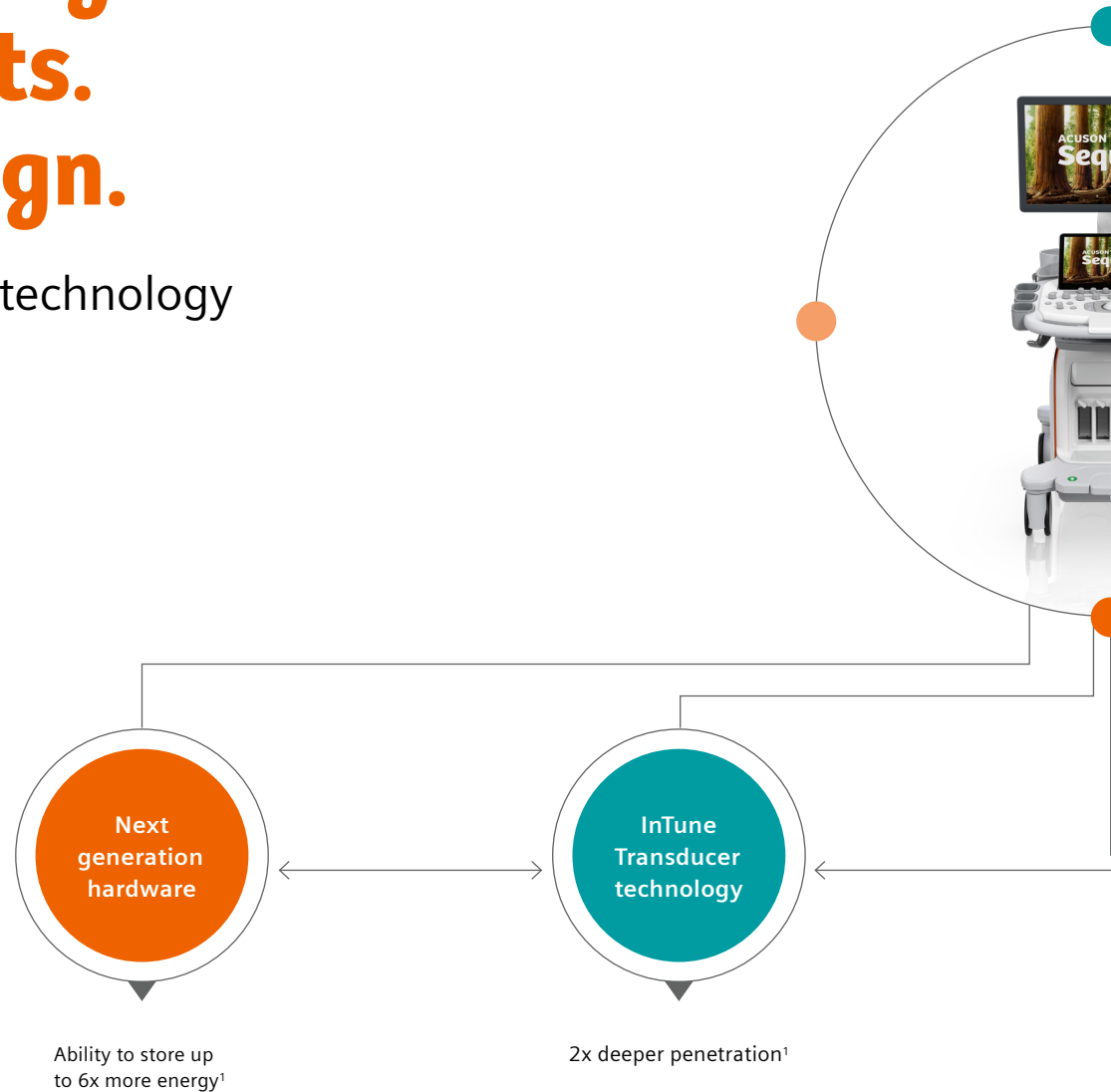# Ultrasound's potential has been limited by unwarranted variability

| Patient Variability | System Variability | User Variability |

Degree of variability

Ultrasound users are faced with a patient population that is increasingly harder to scan.

Ultrasound devices are complex products. Differences in technology can inhibit the user's ability to generate accurate and reproducible measurements during an exam.

Studies have demonstrated that significant intra- and inter-observer variability can pose a challenge to the standardization of care delivery.

Intelligent Imaging. Expanded Insights. User-Driven Design.

Powered by BioAcoustic imaging technology

Boost your clinical confidence with a system designed to enhance your expertise. The ACUSON Sequoia gives you the power to know more by maximizing the sensitivity and depth of your scans, while reducing variability across patients, systems and users.

An unmatched list of advanced application offerings allows clinicians to personalize ultrasound to a patient's specific needs.

Powerful AI-enabled tools and user-centric interfaces improve workflow efficiency allowing clinicians to focus more on their patients.

Next generation hardware

Ability to store up to 6x more energy[1]

InTune Transducer technology

2x deeper penetration[1]

Intelligent Imaging

Experience powerful imaging and reduced variability with automation in each major mode and a wide selection of advanced transducers.

Expanded Insights

Expand your expertise with advanced tools and innovations designed to improve diagnostic accuracy and patient outcomes.

User-Driven Design

Embrace advanced productivity and an intuitive design for the ultimate user experience.

InTune Pulser

InFocus Imaging Technology

Transmit & Receive signals with 10x higher acoustic fidelity[1]

3x more sensitivity[1]

Intelligent Imaging

Powerful automation and advanced transducers for easier imaging

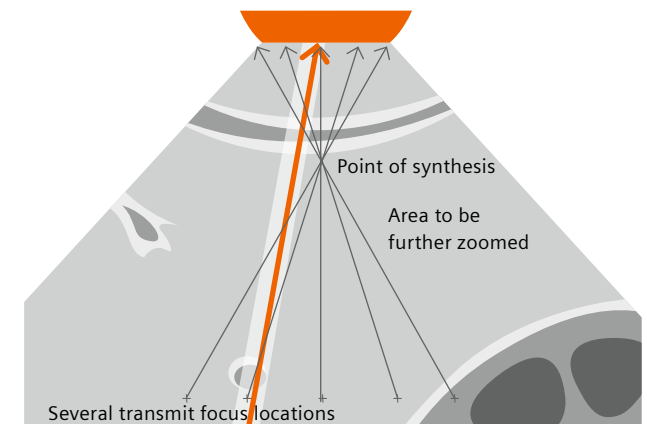### Fully focused images in record time

The ACUSON Sequoia ultrasound system's powerful architecture eliminates the need for conventional focal zones to create a fully focused image with faster frame rates than conventional systems.

InFocus uses synthesized, retrospectively focused transmit beams throughout the field of view that focuses at all depths. More information is harvested from the usual transmit sequence, using massive overlapping multibeam groups rather than individual or close parallel beam lines as in conventional systems. Secondary beamforming is enabled with InFocus and physics-based delay technologies. Amplitude corrections can be made across transmit events to significantly sharpen the image and improve spatial resolution beyond what is typical for a given transducer frequency.

InFocus receive beams

Area to be zoomed
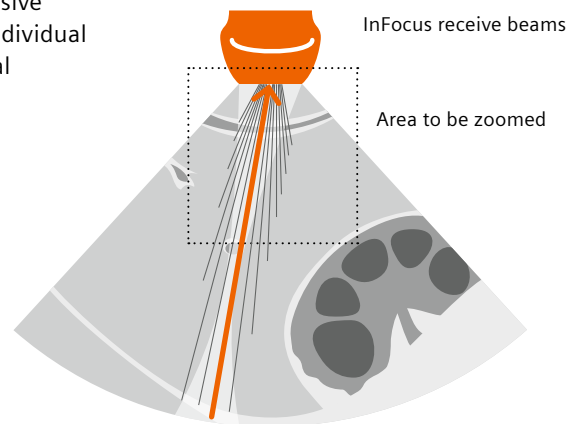
InFocus utilizes multiple simultaneous receive beams covering a region with a single transmit.

Point of synthesis

Area to be further zoomed

Several transmit focus locations

Many receive beams per transmit event leads to many interrogations per image point.

Get clearer deeper perspective

Next generation transducers specifically designed to produce optimal acoustics for each clinical use case. The acoustic matching between transducer and patient was optimized using advanced materials science and optimized test protocols, together with the electrical signal path between the transducer and system, resulting in superior signal fidelity.

Compact-pinless connectors further improve signal-to-noise ratio and feature one-handed plug and play connection.

Boost your clinical confidence

Scanning technically difficult patients can be a daily challenge for many ultrasound users. Innovative Ultra-Derived Fat Fraction technology on three abdominal transducers, the 5C1, 9C2 and DAX, aids clinicians in the early detection of MAFLD for nearly any patient body habitus, providing diagnostic confidence when you need it most.

DAX – Deep Abdominal Transducer with up to 73% color Doppler improvement.[2]

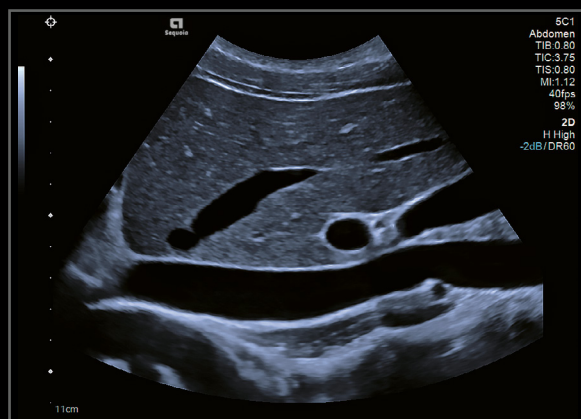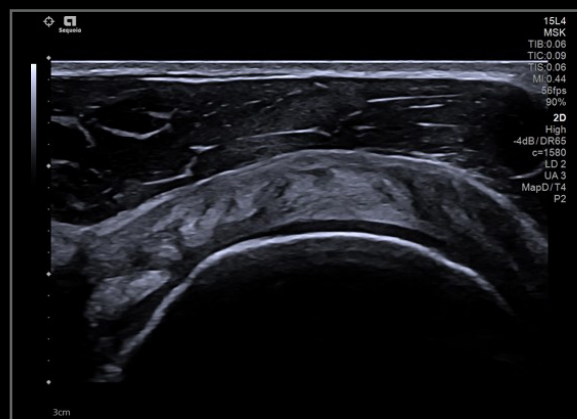**9C2 –** Improve intercostal scanning in kids with 15% smaller lens that supports CEUS, Auto pSWE and UDFF.[3]

15L4 – Exceptional near field resolution with 25% deeper penetration.[4]

InFocus Imaging
Fully-focused imaging of the liver and IVC utilizing InFocus Technology that delivers image uniformity throughout the field of view.


High Frequency Linear Transducer
Utilizing the high frequency 15L4 transducer, structures can be visualized in greater detail resolution as shown in this image of the supraspinatus tendon.
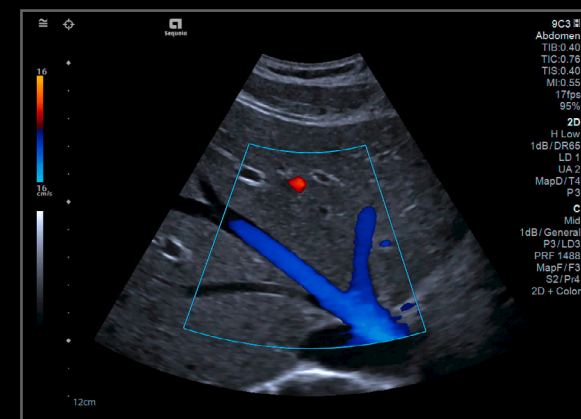

AutoFlash Color Suppression Technology
Reduce color flash artifacts without user interaction for improved color sensitivity and performance, even when a patient is actively breathing.
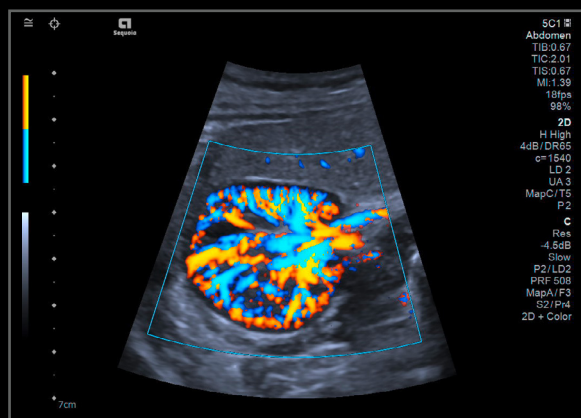

Slow Flow Color Doppler
Using smart filters and adaptive signal enhancement, slow flow can image smaller, low-flow vessels further into tissue like this kidney with reduced flash artifact.
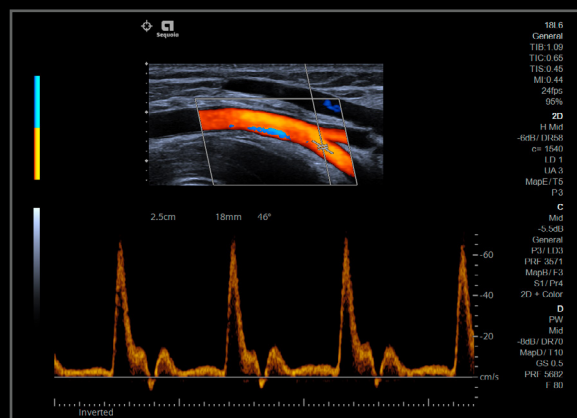

Auto Doppler and Spectral
Auto Doppler can reduce the number of exam keystrokes by more than 25%.[5] It automatically places the Doppler gate for fast and accurate sampling of the flow velocity. Auto Spectral Doppler automatically optimizes the gain, baseline, scale, and wall filter, keeping operator adjustments to a minimum.
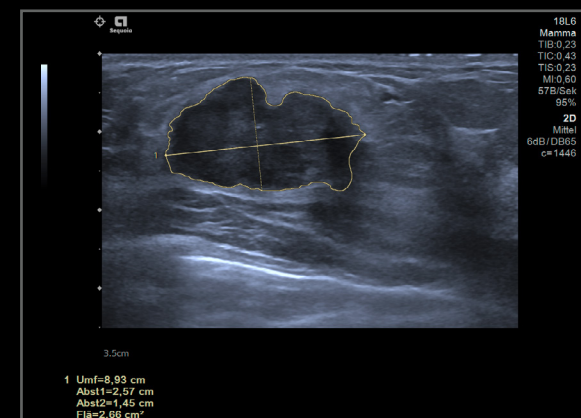

AutoCalcs
Delivers comprehensive measurements of complex lesions. Uses a machine learning algorithm that instantly calculates maximum length, AP and circumference improving measurement efficiency and variability.
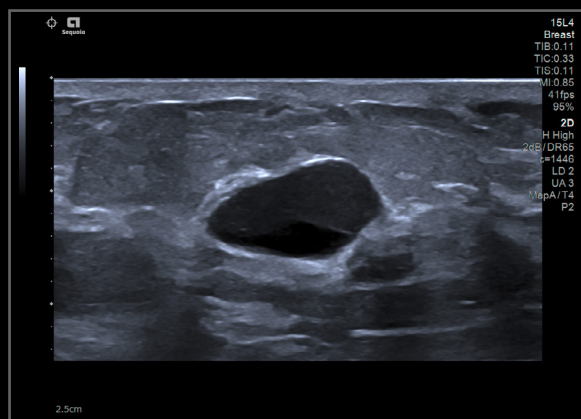
Speed of Sound Adjustment
Adjusting the speed of sound can improve contrast and detail resolution, which allows for the most accurate representation of different types of tissues, as shown in this image of a breast mass.
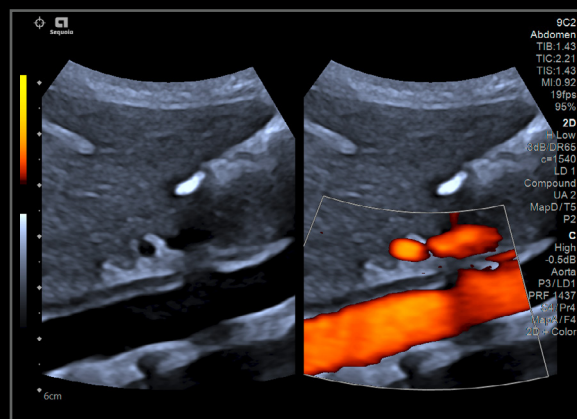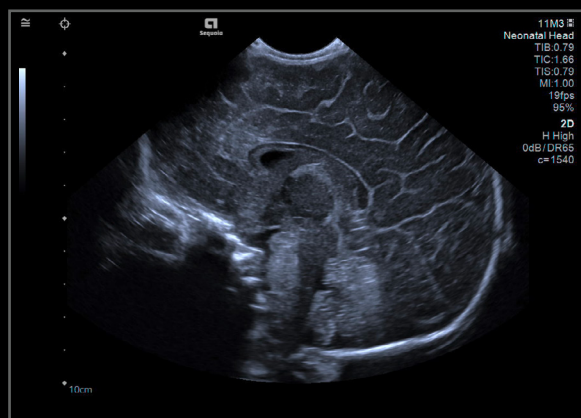

High Frequency Curved Transducer
The 9C2 high frequency curved single crystal transducer provides superior detail and contrast resolution in pediatric imaging.

Volume Imaging
3D/4D imaging allows you to visualize anatomy in new dimensions for improved confidence as demonstrated in this surface rendering of an early OB.

Single Crystal Technology
See highly detailed resolution like never before with the 11M3 micro-convex transducer as shown in this midline image of a neonatal head.
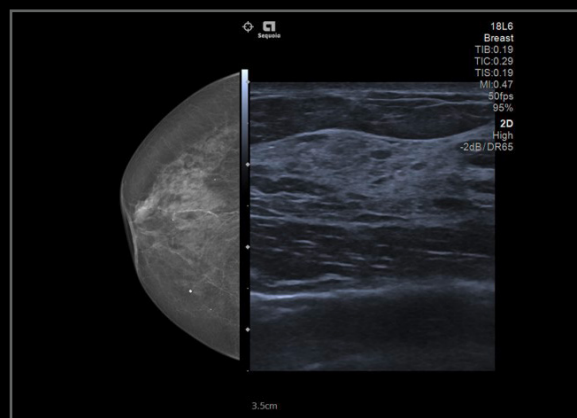
Modality Compare
Easily pinpoint regions of interest and improve procedural efficiency by importing and viewing previous patient studies alongside real-time ultrasound images.
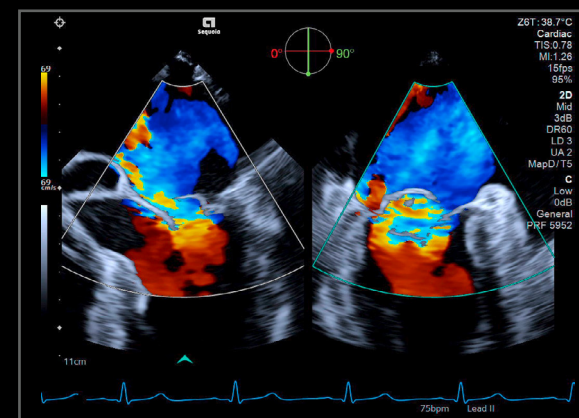
Bi-plane with Color Doppler
Bi-Plane+ image of mitral valve prolapse with Color Doppler demonstrates severe regurgitation utilizing the Z6T transesophageal transducer.

Expanded Insights

Advanced tools and applications to improve diagnostic accuracy

Improve diagnostic accuracy and confidence

The ACUSON Sequoia ultrasound system was built from the ground up with dedicated hardware for exceptional performance in applications such as contrast enhanced ultrasound (CEUS) and elastography, and is setting a new benchmark in the quantification of liver fat with Ultrasound Derived Fat Fraction (UDFF).

With its industry leading performance, the ACUSON Sequoia ultrasound system enables healthcare professionals to access the clinical information needed for personalized precision medicine.

The ACUSON Sequoia is addressing clinical use cases leveraging the comprehensive advanced applications toolbox offered by the ACUSON Sequoia ultrasound system – from quantification and characterization of tissue to interventional procedures.

Next gen breast 2D-SWE to characterize breast lesions as benign or malignant.

Ultrasound Derived Fat Fraction (UDFF) for the noninvasive assessment of hepatic steatosis.

Next Generation 2D-SWE
Experience greater sensitivity in the detection and visualization of malignant breast lesions with Next-Gen Breast Elastography.

Auto pSWE
Rapidly reduce liver elastography acquisition time up to 75%[6] by acquiring up to 15 valid pSWE measurements in less than 5 seconds.

UDFF
Classify hepatic steatosis with a simple and clear cutoff value of >5% using Ultrasound Derived Fat Fraction (UDFF).

CEUS Imaging
In contrast imaging, the ACUSON Sequoia ultrasound system has twice the sensitivity, which in turn requires less contrast material than conventional ultrasound systems for improved diagnostic confidence[7].

2D Heart[AI] – Contrast Quantification
The AI-powered 2D Heart[AI] feature provides single-click analysis of size, function, and bull's-eye analysis with segmental strain curves. Measurements can be performed on contrast enhanced images and does not require an ECG.

Fusion Imaging
Combine imaging modalities as demonstrated in this example of CT and ultrasound fusion for improved diagnostic confidence.

User-Driven Design

Designed by users for a best-in-class operator experience

The variability inherent in the ultrasound scanning process can pose a challenge for users. In an effort to eliminate variability, Siemens Healthineers hosted 170 workshops with 365 ultrasound users worldwide to create an ultrasound system designed by users, for users.

Leveraging automation, machine learning and listening to ultrasound users, every detail was re-imagined to reduce complexity and improve the user experience.
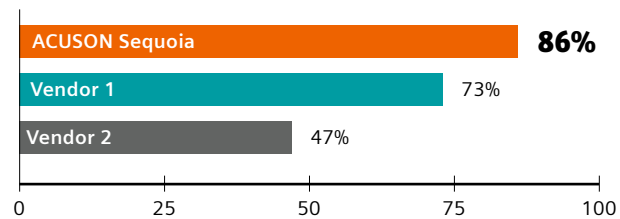
Preferred by users

Overall usability of an ultrasound system determines how well advanced technologies and diagnostic tools are able to expand healthcare professional's clinical capabilities. The ACUSON Sequoia ultrasound system was evaluated by an independent user experience design and development company in terms of user performance and user satisfaction.

The ACUSON Sequoia ultrasound system earned a system usability score (SUS) of 86% and user preference score of 82%, scoring higher than the conventional ultrasound systems participating in the study.[8]
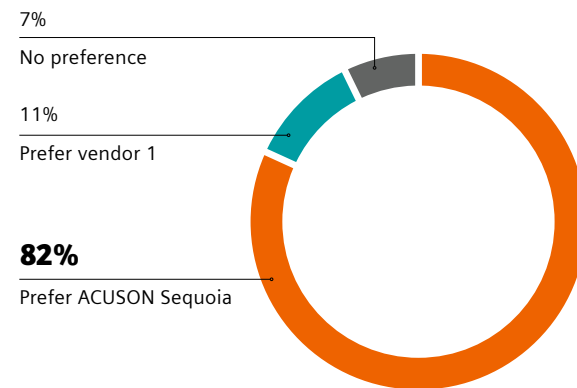
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Average system usability score

ACUSON Sequoia	**86%**
Vendor 1	73%
Vendor 2	47%

0   25   50   75   100

User preference

7%
No preference

11%
Prefer vendor 1

82%
Prefer ACUSON Sequoia

More information:

User-Driven Design

Increase productivity with built in automation and AI
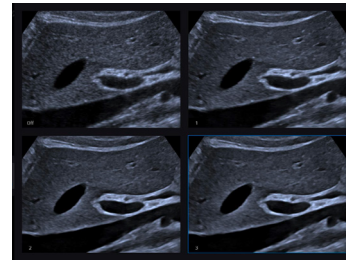

1-touch registration

Machine learning technology automatically selects the correct transducer and exam type for a patient scan supporting a seamless workflow.

Gesture detecting transducers

Tap on the transducer to quickly activate and start scanning with the ACUSON Sequoia ultrasound system's unique sensor technology.

UltraArt real-time quad-display

Exclusive UltraArt universal image technology allows users to select their image preference from a real-time touch screen display.

Virtual Workstation

Establish a connection to a remote computer or server to access remote applications directly from the ultrasound system.

24" Barco monitor

Dual-layer technology brings image consistency from the exam room to reading room.

Smaller intuitive touch display

A 13.3" touch screen provides an enhanced user interface that improves ergonomics and workflow.

Integrated gel warmer

An integrated gel warmer can be placed on either side of the system.

Larger storage areas

One integrated storage bin and storage shelf option.

Central locking and steer pedals

A central locking mechanism eliminates the need to lock each wheel individually, enhancing maneuverability.

Floating control panel

Designed to fit every room and workflow, the control panel can swivel 180 degrees for seamless workflow.

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ACUSON Sequoia

User-Driven Design

When lives depend on the right diagnosis, you need the confidence that you can deliver. That calls for a trusted partner to help ensure systems are performing properly, staff are trained and processes optimized.

Kinectus, powered by Amazon Web Services, is a rapid and secure connection to technical and clinical support. Kinectus™ is a secure, easy-to-use, cloud-based connect platform for Ultrasound that keeps you connected and supplied with software updates, all while enabling you adhere to current security and compliance guidelines. Powered by AWS (Amazon Web Services), Kinectus enables quicker resolution of your system questions via remote technical support and remote application support. It also provides faster updates through on-demand and automatic remote software updates all with a secure connection.
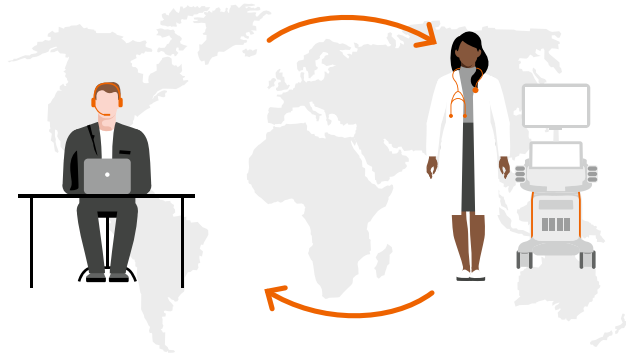
teamplay Fleet

teamplay Fleet is a digital health platform solution that enables customers to streamline the management of their fleet from Siemens Healthineers and to optimize their asset performance holistically, 24/7, and from any browser capable device.

Digital education with PEPconnect

Included with every purchase, PEPConnect is a smarter connection to knowledge — designed to increase staff competency, efficiency, and productivity.

TechUp 18

TechUp 18 protects your investment with a service contract including a software upgrade program. This program enables eligible customers with feature enhancements to existing software licenses, new features from software base configurations, and new licensed features, if available. TechUp 18 is an add-on option for qualifying service contracts to help enhance the investment in your Siemens Healthineers ultrasound system.

Why Siemens Healthineers?

We pioneer breakthroughs in healthcare. For everyone. Everywhere. Sustainably.

At Siemens Healthineers, we pioneer breakthroughs in healthcare. For everyone. Everywhere. Sustainably. As a leader in medical technology, we want to advance a world in which breakthroughs in healthcare create new possibilities with a minimal impact on our planet. By consistently bringing innovations to the market, we enable healthcare professionals to innovate personalized care, achieve operational excellence, and transform the system of care.

Our portfolio, spanning in vitro and in vivo diagnostics to image-guided therapy and cancer care, is crucial for clinical decision-making and treatment pathways. With the unique combination of our strengths in patient twinning, precision therapy, as well as digital data, and artificial intelligence (AI), we are well positioned to take on the greatest challenges in healthcare. We will continue to build on these strengths to help overcome the world's most threatening diseases, enable efficient operations, and expand access to care.

We are a team of more than 71,000 Healthineers in over 70 countries passionately pushing the boundaries of what is possible in healthcare to help improve the lives of people around the world.

Keeping you protected from Cyber Threat

The Windows 10 operating system and state-of-the-art cybersecurity program protects the privacy of your data and strengthens your systems' resiliency from external cyberattacks.

The scientific overlay is not that of the individual pictured and is not from a device of Siemens Healthineers.

The products/features mentioned in this document may not be commercially available in all countries. Due to regulatory reasons their future availability cannot be guaranteed. Please contact your local Siemens Healthineers organization for further details. Standalone clinical images may have been cropped to better visualize pathology.

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syngo VVI is a trademark of Siemens Healthcare GmbH.

[1] *Data on file.*

[2] *Link to publication: https://www.clinicalimaging. org/article/S0899-7071(22)00242-X/fulltext*

[3] *Compared to 9C3 transducer*

[4] *Compared to 18L6 transducer*

[5] *Data on file. Keystroke is defined as any interaction with the ultrasound machine including touchscreen taps and swipes, mouse movement, flat key presses, soft key twists, and soft key presses.*

[6] *Data on file. Many variables exist in the customer environment including sonographer techniques, which may affect individual customer experience.*

[7] *Compared to ACUSON Sequoia 512 ultrasound system*

[8] *Macadamian Usability Test Study using the ACUSON Sequoia. Study result data on file. More information also available at www.macadamian.com.*

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