

# PREMIUM ULTRA- SOUND SCANNER **ALOKA ARIETTA 850**

## Innovating Healthcare, Embracing the Future

For a society where all can enjoy a secure, safe, healthy way of life,  
Hitachi delivers innovation for implementing healthcare services  
tailored to individuals.

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\*For proper use of the system, be sure to read the operating manual prior to placing it into service.



We strive to provide quality  
products and services for our customers.  
We operate with regard  
for the environment.

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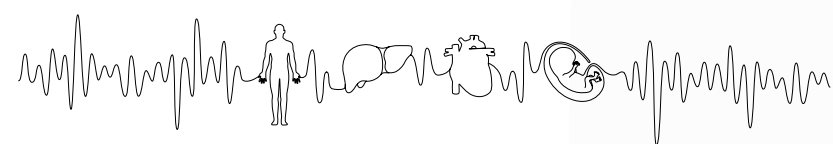
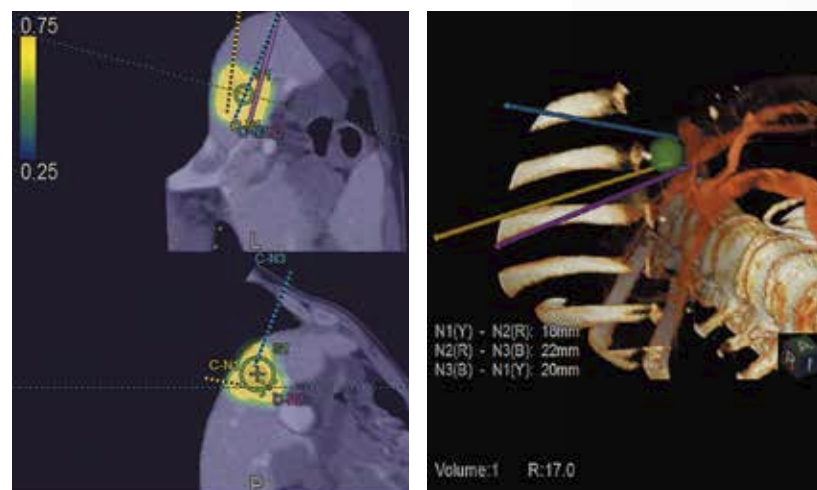
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# Sense and Visualize Ultrasound

THE NEXT EVOLUTION IN ULTRASOUND



## Hitachi's ALOKA ARIETTA 850 designed for high expectations

Greater examination precision, greater comfort, and a wider range of applications are now possible with ultrasound imaging. In response to the ever increasing expectations of the medical profession, diagnostic equipment continuously evolves. "Image quality," "workflow," and "applications" are three key functional areas where we have made a determined effort to refine fundamental performance, with the goal of creating the ultimate ultrasound platform. Flexibly responding to users' individual needs across the range of clinical disciplines, the ALOKA ARIETTA 850 brings diagnostic imaging without compromise.

## ALOKA ARIETTA 850



EVOLVED TO FIT  
YOUR SIGHT



## PURE IMAGE

Further refinement of technologies that hone the high quality "sound" gives rise to our highest premium class performance yet.

EVOLVED TO FIT  
YOUR TOUCH



## SEAMLESS WORKFLOW

Designed with sophisticated ergonomics and multiple new tools that streamline your workflow.

EVOLVED TO FIT  
YOUR PROCESS



## YOUR APPLICATION

An extensive variety of unique applications that create new clinical value are on offer across all specialties.



EVOLVED TO FIT  
YOUR SIGHTS

# PURE IMAGE

Technologies fostered by HITACHI to hone the high quality “sound” have evolved further giving life to Pure Symphonic Architecture. The combination of transducer/frontend, variable beamformer, active backend, and OLED monitor: all technologies working together to realize the highest level of premium class performance.



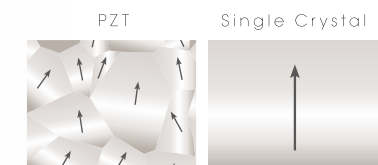
## PURE SYMPHONIC ARCHITECTURE



### Transducers / Frontend

#### [ Single Crystal ]

Piezoelectric single crystal technology is applied to both convex and sector transducer elements. The excellent piezoelectric properties of single crystals are used to generate ultrasound with high sensitivity and wide bandwidth resulting in superior quality imaging.



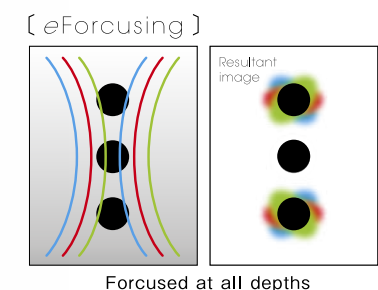
#### [ 4G CMUT ]

The evolution of CMUT (Capacitive Micro-machined Ultrasound Transducers), using next-generation silicon wafer technology has brought the full complement of ultrasound examination modes into practical use. With super wide frequency bandwidth and high sensitivity the enhanced resolution is maintained in the far field. CMUT can deliver a one-probe solution for a wide range of ultrasound examinations.

### Variable Beamformer

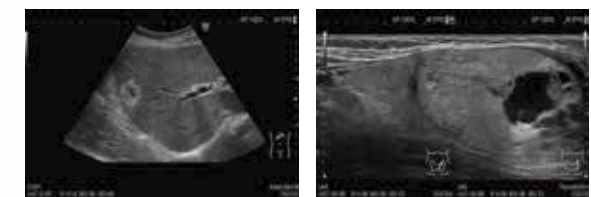
#### [ eFocusing ]

The eFocusing transmission and reception technology newly developed for ALOKA ARIETTA 850, significantly improves S/N and reduces focal dependency. Outstanding clarity of imaging from near to far field with less patient dependency is achieved.



### Active Backend

Active Backend is the powerful image processing engine developed to realize fast complex arithmetic computations providing imaging with outstanding definition.



### OLED Monitor

The ALOKA ARIETTA 850 has adopted the latest technology, 22 inch wide OLED Monitor for an optimum image display. Without requiring backlighting to function, the OLED Monitor displays true black so a previously unattainable contrast resolution can be achieved. It is the ideal monitor choice for diagnostic ultrasound, producing the highest quality grayscale display.



EVOLVED TO FIT  
YOUR TOUCH

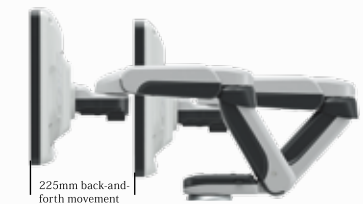
# SEAMLESS WORKFLOW

The ergonomic design of the ALOKA ARIETTA 850 minimizes operator fatigue. Supporting seamless workflow, the many easy-to-use functions shorten examination time and provide a more comfortable examination environment. As a result, the patient experience is also improved.



## Flexible Monitor Arm

The monitor arm mechanism supports a smooth back-and-forth movement of the screen during the examination without any change to the up, down, right or left position.



## 5-Switch System / Operating Console

The core 5-switch layout combined with trackball priority selection display on the monitor streamlines the workflow for more advanced functions, such as 3D, measurement, and analysis.



## Protocol Assistant

Prior registration of routine protocols significantly reduces the operation steps necessary during the examination. Prompts for image store, alerts of mistaken image store repeats, all contribute to increased examination efficiency, accuracy and throughput.

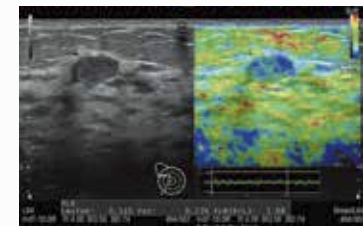


## Automated Measurement

Numerous automated functions implemented in ALOKA ARIETTA 850 enhance workflow.

### [ Combined Setting of AFS/ASR ]

Auto Frame Selection (AFS) picks out the appropriate frame for measurement in Real-time Tissue Elastography. Assist Strain Ratio (ASR) automatically locates the measurement ROI. Complex, repetitive measurement steps can now be completed using a single button.



[ Manual ]

Acquire RTE scan    Select appropriate frame    Complete Strain Ratio Measurement Manually

[ Auto ]

Acquire RTE scan

### [ Estimated Fetal Weight (EFW) ]

Automates the routine EFW measurement of fetal growth.



### [ Cardiac Function ]

Automatic detection with dual screen display of ED/ES, automatic setting of sample gate location, and automatic detection of LV/LA/RA endocardial border with volume measurement, are implemented into the cardiac examination workflow.





EVOLVED TO FIT  
YOUR PROCESS

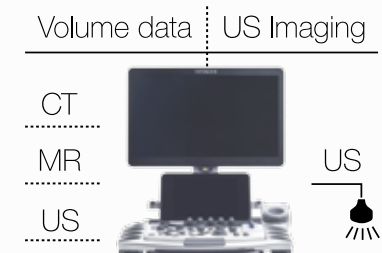
# YOUR APPLICATION

ALOKA ARIETTA 850 performs an extensive variety of advanced applications that offer support across a broad clinical range. With efficient support for rapid/accurate diagnosis, treatment guidance, and research opportunities, Hitachi creates new clinical value.



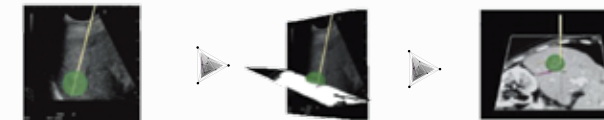
## Evolving RVS Features

Since its release in 2003, Hitachi's Real-time Virtual Sonography (RVS) has continued to evolve to meet clinical needs. Significant further developments have been introduced with the ALOKA ARIETTA 850.



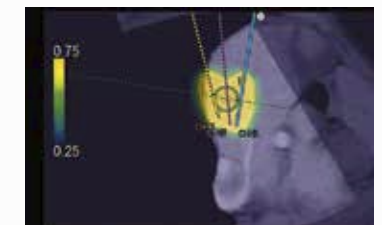
### [ 3D Sim-Navigator ]

Provides simulation of single or multiple needle paths during navigation to a target with Real-time Virtual Sonography (RVS). The positional relationship between the marked target and needle paths can be assessed in real time using the 3D body mark, reconstructed from the virtual CT volume data, with additional C-plane display orthogonal to the needle path.



### [ E-field Simulator ]

A color map superimposed on the CT image simulates the distribution of the electric field (E-field) from the given location of multiple electrodes during RFA treatment. The simulation can be made with different positions of the multiple electrodes to determine the optimal arrangement. This flexibility in planning the needle path can bring significant improvement to the treatment technique.



### [ Body Motion Tracking ]

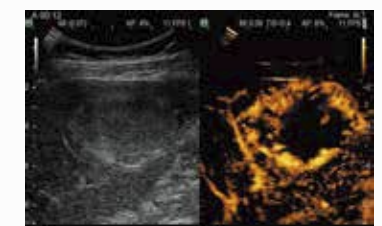
The omniTRAX Active Patient Tracker (manufactured by CIVCO) facilitates automatic registration of fused images when used at the time of CT/MR image acquisition; with the synchronized status being updated when small movements in the patient position are detected during the RVS examination.

### [ Needle Tracking ]

VirtuTRAX Bracket (manufactured by CIVCO) can track and display the needle tip location in real time during RFA and other interventional procedures.

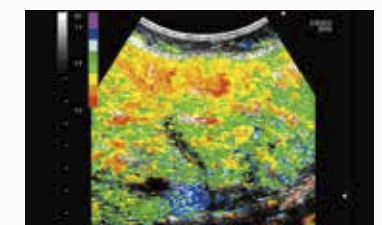
## Contrast Harmonic Imaging (CHI)

Contrast enhanced ultrasound is used widely for clinical diagnosis. Benefitting from its variable beamformer and high density transducers, ARIETTA 850 achieves a new level of performance in contrast agent detection.



### [ Inflow Time Mapping (ITM) ]

IMT is a parametric display of the contrast agent time-to-peak enhancement, colorizing tissues according to their enhancement pattern.

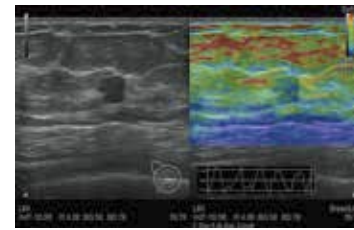




## Elastography

### [ Real-time Tissue Elastography (RTE) ]

RTE assesses tissue strain in real time and displays the measured differences in tissue stiffness as a color map. Its application has been validated in a wide variety of clinical fields: for the breast, thyroid gland and urinary structures. Using the abdominal convex transducer, it can also provide an estimation of fibrosis staging in patients with hepatitis C (LF Index).



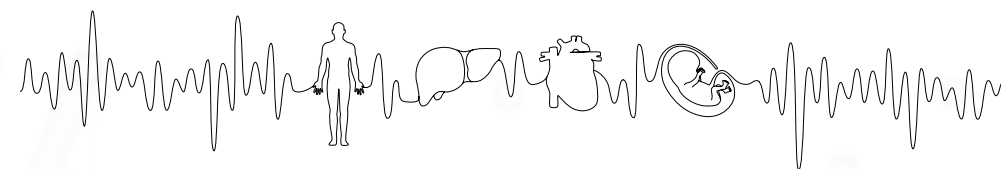
### [ Shear Wave Measurement (SWM) ]

Shear waves are generated using a 'push pulse' to excite the tissues. SWM provides an assessment of tissue stiffness by calculating  $V_s$ , the propagation velocity of the shear waves. Hitachi's SWM provides an additional reliability indicator,  $V_sN$ , as an objective evaluation of the  $V_s$  measurement.



### [ Combinational Elastography ]

The combined use of RTE and SWM offers a new approach to noninvasive assessment of liver fibrosis. LF index reflects the progression of liver fibrosis, whilst Shear Wave Measurement indicates the impact of other factors such as inflammation. Combining these 2 methods can detail the chronological progression of hepatitis.



### [ Fetal 3D/4D ]

Three- and four-dimensional imaging can play a role as a prenatal communication tool connecting parents with their fetus. Auto Clipper automatically defines the optimal cut plane removing placental or other unwanted tissue signals in front of the fetus, offering a clear surface-rendered fetal image.



### [ Auto FHR ]

The fetal heart rate can be automatically calculated using a tracking ROI placed over the fetal heart on the B mode image. This offers a safer and more objective measurement compared to conventional Doppler or M-mode methods. Furthermore, as this function is also available on the transvaginal transducer, assessment can be made from early gestation onwards.



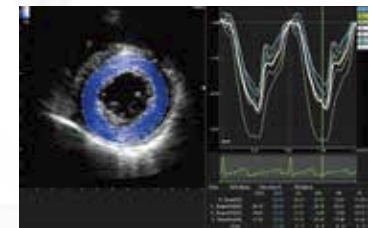
### [ Dual Gate Doppler ]

Enables observation of Doppler waveforms from two different locations during the same heart cycle. A combination of blood flow and Tissue Doppler waveforms enable measurements such as the LV diastolic performance indicator,  $E'/e'$  ratio, avoiding beat-to-beat variation. Simple measurements from two different waveforms can also be useful in the diagnosis of fetal arrhythmia.



### [ 2D Tissue Tracking (2DTT) ]

Quantify the movement of the entire left ventricle or simply a local movement of the myocardium. Pattern matching technology to follow the point of interest can be used to evaluate changes in chamber size and phase.



### [ EyeballIEF ]

EF (Ejection Fraction) is automatically measured from real time analysis of the B mode image. Frame selection and tracing can be semi-automated, with resultant reduction in examination time.



22inch OLED Monitor

10.4inch Touch Panel



5-SW System



4 Active + 2 Parking Transducer Connector Ports



Flexible Monitor Arm

Storage Space



Cable Management



Double Wheel Casters +Front Lock

