ARIETTA 850
THE NEXT EVOLUTION
IN ULTRASOUND
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, this premium ultrasound platform brings diagnostic imaging without compromise.

It’s ARIETTA 850, the next evolution in ultrasound.

**PURE IMAGE**

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

**SEAMLESS WORKFLOW**

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

**YOUR APPLICATION**

An extensive variety of unique applications that create new clinical value are on offer across all specialties.
Technologies fostered by FUJIFILM to hone the high quality ‘sound’ have evolved further giving life to Pure Symphonic Architecture. The combination of transducer/front-end, variable beamformer, active back-end, and OLED monitor – all these technologies work together to realize the highest level of premium class performance.

**PURE IMAGE**

**PURE SYMPHONIC ARCHITECTURE**

**Transducers / Front-end**

**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 Transducer), 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. 4G 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 ARIETTA 850 significantly improves S/N and reduces focal dependency. Outstanding clarity of clinical images from near to far field with less patient dependency is achieved.

**Active Back-end Plus**

Active back-end is the powerful image processing engine developed to realize fast complex arithmetic computations and Carving Imaging is the next level in image quality, providing imaging with outstanding definition.

**Carving Imaging**

Advanced image technology producing images with “Clearer Visibility”. Stable imaging with less patient dependency helps you achieve cleaner images with less noise, made possible by our new image processing technology that enhances tissue structure visibility.

**OLED Monitor**

The 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 for a previously unattainable contrast resolution. It is the ideal monitor choice for diagnostic ultrasound, producing the highest quality grayscale display.
SEAMLESS WORKFLOW

The ergonomic design of the 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 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 (RTE). Assist Strain Ratio (ASR) automatically locates the measurement ROI. Complex, repetitive measurement steps can now be completed using a single button.

Estimated Fetal Weight (EFW)
By analyzing the characteristics of the target and providing automatic setting of the measurement point, Auto EFW automates the routine measurement for fetal growth evaluation.

Cardiac Function
Automatic detection with dual screen display of first-diastolic/first-systolic images (ED/ES), automatic setting of sample gate location, and automatic detection of LV/IVA/RA endocardial border with volume measurement are implemented into the cardiac examination workflow.
ARIETTA 850 performs within an extensive variety of advanced applications that offer support across a broad clinical range. With efficient assistance for rapid and accurate diagnosis, treatment guidance, and research opportunities, FUJIFILM creates new clinical value.

Evolving RVS Features

Since its release in 2003, FUJIFILM’s Real-time Virtual Sonography (RVS) has continued to evolve to meet clinical needs. Significant further developments have been introduced with the 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 colour map superimposed on the CT image simulates the distribution of the electric field (E-field) from a 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

Body motion tracking 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

Needle Tracking 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)

ITM is a parametric display of the contrast agent time-to-peak enhancement, colourizing 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 colour 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 the propagation velocity of the shear waves. FUJIFILM’s SWM provides an additional reliability indicator, VsN, as an objective evaluation of the Vs measurement. Judge the degree of liver steatosis with attenuation (ATT) measurement to assess diffuse liver diseases.

### Shear Wave Elastography (SWE)
Easily quantify shear tissue elasticity - and visualise it in real-time with our 2D Shear Wave Elastography and achieve a precise scoring of the fibrosis level in a non-invasive and reliable way.

### Fetal 3D/4D
Three- and four-dimensional imaging can play a role as a perinatal 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 clearer surface-rendered fetal image.

### AutoFHR
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 translational transducer, assessment can be made from early gestation onwards.

### Dual Gate Doppler
This function analyses observation of Doppler waveforms from two different locations during the same heart cycle. A combination of blood flow and Tissue Doppler waveforms allow 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 phases.

### EyeballEF
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.