

**SPECIFICATIONS**  
for  
**Diagnostic Ultrasound System**

**ARIETTA 65**



**MODEL: ARIETTA 65**

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## **ARIETTA 65**

A better "Reproducibility", "Versatility", "Accuracy" are required for the ultrasound diagnostic equipment. ARIETTA 65 is available to perform efficiency in use cases by answering your needs. Because it is implemented comfortable workflow, high definition image quality and useful application from premium platform.

### **1. Smooth workflow**

It is implemented design and features to improve efficiency for everyday practice. For example, it is ergonomics design to suppress stress of user and to support comfortable everyday practice. The other side is optimized operation panel switch location.

Also, it is implemented any automated process features (e.x.: "Protocol Assistant" and "Auto Optimizer"). It can be performed everyday practice more smoothly.

### **2. Superb Imaging**

It is implemented any kinds of image processing technology from premium platform. it can be performed "HI REZ", "Compound Imaging" (improved contrast resolution by suppressing speckle noise) and "HdTHI" (improved spatial resolution and penetration).

Also, it can be performed the additional unique image processing technology (ANR/NNR).

### **3. Simple to use Applications**

It is available to provide reliable practice by any kinds of applications.

Real-time Tissue Elastography is displayed stiffness color by calculating distortion of tissue. it is useful when it is examined for breast or it is confirmed hepatitis progress. And 2D Tissue Tracking is available to visualized and to quantified by measuring wall motion of heart.

## Scanning Method

- Electronic Convex
- Electronic Linear
- Electronic Phased Array Sector

## Operating Modes

- **B-mode**
- BiPlane-mode
- **M-mode**
- D: **Spectral Doppler mode** (PW, CW\*<sup>1</sup>, HPRF-PW)
- **Dual Gate Doppler mode**
- **Color Flow mode**
- **Power Doppler mode (Directional Power Doppler)**
- **eFLOW mode (Directional eFLOW)**
- **RT-3D(4D) mode**\*<sup>2</sup>

\*<sup>1</sup> Option: EU-9198

\*<sup>2</sup> Option: EU-9198 and SOP-ARIETTA65-4

## Image Display Modes

- **B: gray-scale imaging**
- **Dual B**
- Quad B
- M
- **B and M**
- D: Spectral Doppler (PW, HPRF PW, and CW)
- B and D
- B(Color Flow)
- B(Power Doppler)
- B(eFLOW)
- **Dual B(Color Flow)**
- Quad B(Color Flow)
- Dual B(Power Doppler)
- Quad B(Power Doppler)
- Dual B(eFLOW)
- Quad B(eFLOW)
- **M(Color Flow)**
- M(Power Doppler)
- M(eFLOW)
- B(Color Flow) and M (Color Flow)
- B(Power Doppler) and M(Power Doppler)
- B(eFLOW) and M (eFLOW)
- B(Color Flow) and D
- B(Color Flow) and Dual
- B(Power Doppler) and D
- B(Power Doppler) and Dual
- B(eFLOW) and D
- B(eFLOW) and Dual
- B(Color Flow) and D simultaneous real-time display (Triplex mode)

- B(Power Doppler) and D simultaneous real-time display (**Triplex mode**)
- B(eFLOW) and D simultaneous real-time display (Triplex mode)
- B and B(Color Flow) simultaneous real-time display (Dual Flow)
- B and B(Power Doppler) simultaneous real-time display (Dual CF)
- B and B(eFLOW) simultaneous real-time display (Dual Flow)
- Dynamic Slow-motion Display\*<sup>1</sup>  
(Real-time image/Slow-motion image, side by side display)
- **Panoramic View**\*<sup>2</sup>
- **TDI (Tissue Doppler Imaging)**
- Intermittent trigger mode\*<sup>3</sup>
- Monitor Mode\*<sup>3</sup>(Fundamental/CHI)
- Real-time Tissue Elastography \*<sup>4</sup>
- Real Time Biplane(Using biplane probe, display a real time 2 section image. Probe dependent.)
- Request function: In multi-mode display, it is possible to select one mode for full screen display.
- RT-3D(4D) mode\*<sup>5</sup>

\*<sup>1</sup> Option: SOP-ARIETTA65-57

\*<sup>2</sup> Option: SOP-ARIETTA65-1

\*<sup>3</sup> Option: SOP-ARIETTA65-44

\*<sup>4</sup> Option: SOP-ARIETTA65-43

\*<sup>5</sup> Option: EU-9198 and SOP-ARIETTA65-4

## Beam former

### Transmission

- CPWG (Compound Pulse Wave Generator)
- Programmable waveform transmission

### Reception

- Multi-processing high-speed digital beam former
- 12-bit A/D converter (4096 gray levels)
- A/D Sampling Frequency: 40[MHz]
- Parallel processing: Multiple directions

### Transmission/Reception method of Harmonics

- Reception frequency: 3.2-18.0\* MHz
  - \* Maximum reception frequency can be achieved under below conditions.
  - Probe: L64, Freq: High, Freq. Info. : Receive

### Tissue Adaptive Technology

- Sound speed adjustment: 26 steps**

### Focusing

- Transmission: Multi-stage transmission focus of up to 4 stages out of 16 stages (probe dependent)**
- Reception: PixelFocus**

## System Dynamic Range

272dB

## System Processing Channels

574,976 Channels

## Frame rate

Max. More than 661 frames/sec\*

\* Depends on probes and various settings

## B-mode

- Display Gray Scale: 256 levels
- Scanning area: 1 degree step
- Line Density: 8 steps
- HI Frame Rate (Multi Parallel Processing)
- Zoom
  - HI zoom (real-time image):
    - Max. Up to 0.5 cm display image (probe dependent)
  - PAN zoom (real time and frozen image):
    - Max. Up to 0.5 cm display image (probe dependent)
- Depth range selections:  
0.75/1.0/1.5/2.0/2.5/3.0/3.5/4.0/4.5/5.0, 1 cm intervals from 5.0 to 24 cm, and 2cm intervals from 24cm to 40cm (probe dependent)
- Longitudinal and lateral inversion
- Rotation by 90 degrees (probe dependent)
- Gain\*: 80 dB range
- Echo enhancement: 8 steps
- Texture: 2 steps (Smooth/Sharp), not available in M-mode
- Smooth/Enhance: 8 steps for each other
- Persistence: 8 steps, including Off  
(Available to change type for adaptive frame rate)
- TGC (time gain compensation):  
Gain versus depth curve control: 8 slide controls TGC curve memory function
- LGC (lateral gain control):  
Gain versus angle curve control: 8 sectors (Sector probes only)
- Dynamic range: 40-90 dB
- Gray map: 10 types, changeable after frozen
- AGC: 8 steps
- View gamma: 4 types
- Spatial Compound Imaging  
(by selected linear and convex sector probes)
- Trapezoidal scan (possible by selected linear probes)  
Available to combine with compound scan

- B steer function: This function enables you to use oblique function not only Color Flow/ Power Doppler mode but B mode.
- Adaptive Imaging: HI REZ function 8 steps, 2 types  
Adaptive imaging is the technique to generate optimum image with changing filter characteristic depending on input signal.  
This technique which installed this ultrasound diagnostic scanner reduces speckle noise on B-mode images and provides uniformly and high contrast images.  
\* Gain and Dynamic range can be changed after freezing
- Acoustic Noise Reduction: 8 steps  
This technique is reduced acoustic noise (Based on signal level)
- Near field Noise Reduction  
reduces artifacts and noises in the heart chamber or blood vessel
- Low Echo Reduction  
This technique is compressed low gradient echo level.
- Grayscale Enhancement  
This technique is enhanced image which is displayed as grayscale.
- Auto-optimizer (Optimization of gain)
- Needle Emphasis (probe dependent)

## M-mode:

- Sweep method: Moving bar  
Sweep speed:  
300.0, 200.0, 133.3, 100.0, 66.7, 50.0, 40.0 mm/sec
  - Gain: B-gain  $\pm 30$  dB
  - Dynamic Range: 40 dB-90 dB
  - AGC: 8 steps
  - Acoustic Noise Reduction
  - Low Echo Reduction
  - FAM (Free Angular M-mode) \*
- \* Option: SOP-ARIETTA65-5

## Spectral Doppler:

- Display: Power spectrum
- Real-time Doppler Auto Trace
- Doppler methods:
  - PW (Pulsed Wave) Doppler
  - HPRF (High Pulse Repetition Frequency) PW Doppler
  - Dual Gate Doppler
  - CW (Continuous Wave) Doppler \*
- Reference frequencies (probe dependent):

Maximum 3 frequencies

PW: 1.9, 2.0, 2.1, 2.5, 3.0, 3.2, 3.3, 3.5, 3.8, 4.0, 4.3, 5.0, 6.0, 7.5, 8.6 MHz

CW: 1.8, 2.0, 2.1, 3.0, 3.3, 3.8, 5.0 MHz

- Analysis rate:
    - PW: 0.05 to 40 kHz
    - CW: 1.1 to 40 kHz
  - Max. velocity range:
    - PW/HPRF: -8.02 to 0 or 0 to +8.02 m/s
    - CW: -16.0 to 0 or 0 to +16.0 m/s
  - Base line shift: Adjustable in real-time and frozen
  - Steerable CW Doppler: probe dependent
  - Steered linear scanning: Max.  $\pm 30$  degrees changeable at 5 degrees interval
  - Auto angle Correction
  - Spectrum inversion
  - Angle correction: Available up to 80 degrees (Pre-settable, changeable after freezing)  
Auto angle correction, Warning function available
  - Sample volume size for PW Doppler:
    - 0.5 – 20 mm, changeable in 0.5mm, 1.0 mm step
  - Wall motion filter: 12steps, 1/16 of PRF is Max.
  - Doppler gain: 60dB variable, adjustable in real-time and frozen.
  - Echo Enhancement(CW): 3 steps
  - Low Echo Reduction(PW)
  - Grayscale Enhancement
  - Dynamic Range: 40-90dB, 1dB steps  
(Not changeable after freezing)
  - Auto-Optimizer  
(Optimization of gain, velocity range, baseline shift, sample gate position and angle Coreration)
  - Audio output: 2 channels\*
- \*Option: EU-9198

### Color Doppler Mode

- Color area size: Continuously variable
- Steered linear scanning:
  - Max.  $\pm 30$  degrees \*, changeable at 5 degrees interval
  - \* Probe dependent
- Line density: Up to 8 steps  
(Changeable setting independently with B mode)
- Auto-Optimizer (Optimization of gain)

### Color Flow Mode

- Display patterns:
  - Velocity (derived from mean Doppler frequency shift), Velocity + variance, Variance, Velocity + intensity, Velocity + variance + intensity

- Max. velocity range:  $\pm 0.63$ cm/sec to  $\pm 458.33$ cm/sec
- Reference frequency: (Probe dependent)
  - 1.9, 2.0, 2.1, 2.5, 3.0, 3.2, 3.3, 3.5, 3.8, 4.0, 4.3, 5.0, 6.0, 7.5, 8.6 MHz
- Pulse repetition frequency:
  - 0.03 to 19.8 kHz
- Gradation:
  - $\pm 127$  levels for velocity (red and blue)
  - 64 levels for variance (green)
- Color Inversion: Normal, Invert
- Smoothing: 5 steps
- Wall filter: 6 steps
- Persistence (Color): 8 steps
- Wall Motion Reduction: Off + 3 steps, 2 types
- Packet Size: 3 levels
- Base line shift(Color):
  - Up to double velocity ( $\pm 127$  steps)
- Color coding: 15 kinds
- TGC Enhancement: 2 kinds

### Power Doppler Mode

- Display patterns: Power Doppler, Directional Power Doppler
- Gradation: 256 levels
- Color coding 15 kinds
- Non-display of B/W image: Possible in ROI
- Smoothing: 5 levels

### High Resolution Power Doppler(eFLOW) Mode

- One of the Color Flow imaging functions that can display blood flow information in a high spatial and temporal resolution.
- Display patterns:
    - eFLOW, Directional eFLOW
  - Pulse repetition frequency:
    - 0.03 to 19.8 kHz
  - Gradation: 256 levels ( $\pm 127$  levels for directional)
  - Color coding: 15 kinds
  - Non-display of B/W image: Possible in ROI
  - Advanced wall motion reduction
  - Smoothing: 5 levels

### TDI(Tissue Doppler Imaging)

- Function Available

### Manual

It is applicable to browse instruction manual on this system.

- On-board operation manual

### Cine Memory

- Cine search and loop display (in B mode):  
ECG time phase display is possible
- Capacity  
B mode: **Max. 63,500 frames.**  
**M and D modes: Max. Approx. 900 seconds.**

## Data Management

### 1. Image data

#### 1-1. Format

Multiple-frame (moving) image

DICOM (Raw, MJPEG)

PC Format (AVI, WMV, MP4)

Single-frame (still) image

DICOM (Non-compressed, RLE, RGB (Plane/Pixel), JPEG)

PC Format (TIFF, BMP, JPEG)

#### 1-2. Image acquisition mode

- Real-time multi-frame image acquisition (Raw, Image)  
Aquiring both RAW and Image at the same time  
Post ECG: Max. 10 cardiac cycles (R-R)  
Pre ECG: Max. 10 cardiac cycles (R-R)  
Post Time: Max. 90 seconds  
Pre Time: Max. 16 seconds  
Manual:  
Raw data: Max. 150 seconds  
Image data: Max. 180 seconds
- Cine loop high-speed data transfer (Raw, Image)  
It is possible to selectively store data of arbitrary section in the Cine Memory.
- Simultaneous output to multiple media  
It is possible to output still image data to multiple of storage media include network and printers at the touch of a button.

#### 1-3 Image data management tool

Image viewer

- Thumbnail display of stored images (1-36 images)
- Check mark is put on a transferred image
- Image zoom, rotation, inversion
- 1:1 replay (main unit HDD or DICOM storage data)
- DVD-RAM
- DVD-R
- CD-R
- USB memory
- USB HDD
- Re-storing to media, transfer
- Adjustment is possible on the reconstructed Raw-data image (gain, dynamic range, gamma curve type, and color coding in Color flow mapping mode)

### 2. Measurement data

**It is possible to store measurement data in the main unit hard disk**

### 3. Patient data

Displayed information\*

#### Patient information

ID (up to 64 characters), Name (up to 64 characters, including middle name), Birthday, Sex, Age, Height, Weight, Occupation

#### Study information

Procedure ID, Accession, Study ID, Study Description Referring physician, Reporting Phys, Sonographer

\* Conforms to DICOM 3.0 standard

### 4. Data storage

- Main unit hard disk

Capacity: **Approx. 500GB**

**(It is available to change to 1TB HDD)**

- USB memory
- USB HDD
- CD-R
- DVD-RAM
- DVD-R
- Network interface(DICOM format): 1000baseT, 100baseTX or 10baseT (automatically switched)
- Network folder(BMP, JPEG, TIFF, AVI, MWV, MP4)

### 5. DICOM network communication\*<sup>1</sup>

- Conformity to DICOM service class:  
Ultrasound image storage SCU  
Ultrasound multi-image storage SCU  
Comprehensive SR SCU  
Storage media FSC/FSU/FSR  
Print management SCU  
Modality worklist management SCU  
Modality performed procedure step (MPPS) SCU  
Storage Commitment Push Model SCU  
Query/Retrieve SCU  
(For details, please refer to the DICOM Conformance Statement issued by Hitachi, Ltd.)
- Storage: Possible to store patient information directly to DICOM file server
- Print: Possible to printout images with DICOM compatible printer directly
- Work list management: Retrieval of patient and reservation information from hospital information system (HIS)  
NOTE: The HIS needs to be compatible with DICOM standard supplement 10. The HIS network and the DICOM network need to be linked.

- Router setting: possible
- Compatible with SR (Structured Report) for OB-GYN, cardiology, vascular and abdominal measurements\*<sup>2</sup>
- Query/Retrieve\*<sup>3</sup>
- Profile
- IHE (Integrated Healthcare Enterprise)
  - SWF (Scheduled Workflow)
  - PDI (Portable Data for Imaging)
  - ED (Evidence Documents in Radiology/Cardiology domain)
  - Echocardiography Workflow
  - CT (Consistent Time)

\*<sup>1</sup> Option: SOP-ARIETTA65-10

\*<sup>2</sup> Option: SOP-ARIETTA65-21

\*<sup>3</sup> Option: SOP-ARIETTA65-59

## 6. Security measures

User authentication function is available.

3 Types of user authority can be set.

It is possible to set whether password is required or not at the start of operation.

Audit logs

Accesses related to user management and patient data are recorded as audit log data.

Handling of these logs is limited to users with Level 1 access.

## 7. Teaching file can be made.

## Measurements and Analysis:

### Basic measurements

#### B mode

Distance, Dist-trace, Area/Circum, Volume, Hip J Angle, Histogram, Angle, B.Index

#### M mode

M.Length, Time, Heart Rate, M.VEL, M.Index

#### D mode

D.VEL, ACCEL, RI, Time, P1/2T, Heart Rate, D.Caliper, D.Index (Caliper), D.Index (Trace), Mean.VEL., PI, D.Trace, Steno Flow, Regurg Flow, Real-time Doppler auto trace

#### B/D mode

Blood Flow

#### B(Flow) mode

Flow Profile\*

\* Option: SOP-ARIETTA65-7

### Application measurements

#### **Obstetrical measurements**

- Supports multiple gestations
- Growth analysis function (display of past measurement data)

#### B mode

Gestational age, Fetal weight

Auto GA\*<sup>1</sup> is possible.

Ratio

Amniotic Fluid Index(AFI), AF Pocket/AFV, MVP

CTAR/CTR

Cervical length

Auto NT\*<sup>2</sup>

#### M mode

Fetal Heart Rate

LV Function

#### D mode

Blood flow

\*<sup>1</sup> Option: SOP-ARIETTA65-76

\*<sup>2</sup> Option: SOP-ARIETTA65-42

### Gynecological measurements

#### B mode

Uterus measurements

Endometrial thickness measurements

Cervical measurements

Ovary measurements

Follicular measurements (Volume measurements by 3-axis measurements are possible.)

Urinary bladder measurements

#### D mode

Uterine artery

Ovarian artery

### Urological measurements

#### B mode

PSA Volume

PRS slice volume

Bladder

#### D mode

Renal artery

### Cardiology measurement

#### B mode

LV Volume measurements

M.Simpson\*, Area-length\*, Pombo\*\*, Teichholz\*\*,

Gibson\*\*, Bullet, BP-ellipse, Simpson

\*Automatic heart cavity trace is possible. (3-point or full automated method\*<sup>1</sup>)

\*\* Auto measurement method\*<sup>1</sup> is possible.

Valve area measurements (AVA, MVA)

LA/AO

Ratio

Right ventricle measurements

LV myocardial mass

LA/RA Volume measurements

Automatic heart cavity trace\*<sup>1</sup> is possible. (3-point or full automated method)

FAC measurements

Automatic heart cavity trace\*<sup>1</sup> is possible. (3-point)

IVC (inferior vena cava) measurements

#### M mode

Pombo (wall), Teichholz (wall), Gibson (wall)

Caliper Mark Auto Shift is possible.

Mitral valve measurements

LA/AO measurements

Auto measurement method\*<sup>1</sup> is possible.

Tricuspid valve measurements

Pulmonary valve measurements

IVC (inferior vena cava) measurements

TAPSE measurements

#### D mode

LVOT (left ventricle outflow tract) flow

RVOT (right ventricle outflow tract) flow

Trans-mitral flow

(Full Automated or Automated setting period method)

Regurgitant flow (AR, PR, MR, TR)

Volumetric flow(MR)

Stenotic flow (AS, PS, MS, TS)

PISA



Pulmonary vein flow  
 TDI PW  
 (Full Automated or Automated setting period method)  
 Coronary flow  
 Asynchrony  
TDI-CF/M mode  
 Shorteningt  
 Percent Systolic Wall Thickening  
 \*1 Option: SOP-ARIETTA65-74 and PEU-ARIETTA65

## Vascular measurement

### Carotid artery

Blood flow measurement :

CCA (common carotid artery)  
 ICA (internal carotid artery)  
 ECA (external carotid artery)  
 BIFUR (Bifurcation of carotid artery)  
 VERT (Vertebral artery)

Stenotic rate:

% Stenosis area  
 % Stenosis diameter

IMT (Intima-media thickness) Measurements:

Automated IMT measurements\*1  
 IMT-C10 measurements\*1

### Measurements of arteries in extremities

Lower extremity artery flow  
 Upper extremity artery flow  
 Transit time of Vessel Flow(TVF)\*2

Stenotic rate:

% Stenosis area  
 % Stenosis diameter

### Measurements of veins in extremities

Lower extremity venous flow  
 Upper extremity venous flow

### Trans-cranial Doppler

Trans-cranial blood flow measurements

\*1 Option: SOP-ARIETTA 65-38

\*2 Option: SOP-ARIETTA 65-47 and PEU-ARIETTA65

## Abdominal measurement

### B mode

Gallbladder measurements  
 Common buile duct measurements  
 Liver measurements  
 Pancreas measurements  
 Pancreatic duct measurements  
 Renal measurement  
 Spleen measurements

Space-occupying lesion measurements  
 Blood vessel diameter measurements  
 Srenosis percentage measurements

### D mode

Artery measurements  
 Renal artery measurements  
 Portal vein measurements  
 Shunt blood vessel measurement

### B/D mode

Flow quantity(Artery)  
 Flow quantity(Vein)

## Small parts measurement

### B mode

Lesion measurement  
 Aspect ration measurements  
 Nipple-tumor distance measurement  
 Thyroid gland volume measurement  
 Thyroid isthmus tickness measurement

### D mode

Artery measurements

## Report Functions

### Measurement reports

Obstetrical report  
 Gynecological report  
 Cardiac function report  
 Vascular report  
 IMT (Intima-Media Thickness) report  
 Urological report  
 Abdominal measurement report  
 Small parts report

It is possible to recall past measurement reports.

Examination data history can be plotted on the report.

Direct printout of each report is possible with an optional PC printer.

Output of measurement values in CSV file is possible.

## Others

Hot Key function:

It is possible to assign measuring functions to the alphabet keys on the keyboard. (It is needed keyboard)

Measurements on VCR playback image:

Possible (manual calibration)

User's calculation:

30 equations can be set for each application

User-assignable terms: 60 words possible

Font size of measurement result:

Possible to change in 3 kinds

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## Physiological Signal Display

- Displayed information: ECG, PCG\*<sup>1</sup>, Pulse wave\*<sup>2</sup>, breathing waveform
- ECG synchronized display: Available for one phase
- Detect regular pulse from arrhythmia(RRp/RRpp)
- Display position: Continuously variable (both in B and M modes)
- Bar graph display for breathing waveform
- 3 type electrocardiograms (I, II, III)
- Automated detection end diastole and end systole phase.
- Automated split as end diastole(left) and end systole(right)

\*<sup>1</sup> Option: MA-300 (Not available in EU)

\*<sup>2</sup> Option: TY-307A (Not available in EU)

## Dual Gate Doppler (Probe dependent)

This is a function which displays Doppler Spectrums of two different sample points simultaneously.

Supported combinations are PW/PW, TDI/TDI, and PW/TDI.

This function is beneficial for functional evaluations of heart failures and phase analysis. For example, E/e' measurements can be performed in a single scan.

Automated sample gate setting for each gate is possible.

# Optional Functions

## PC printer

It is possible to printout OB/GYN, cardiology, PV, small parts and urology report screens including ultrasound images directly with an external PC printer.

## Real-time Tissue Elastography\*<sup>1</sup>

This function is used to visualize the stiffness of a tissue in real-time. The strain generated in a tissue on applying pressure is represented by colors

(it is available to change Elastography Color Map)

- Elasto mode: Overlapping display of Elastography on B-mode image
- Dual Elasto mode: Dual image display of Elasto mode, possible to select different color map on each side.
- Real-time biplane: Elasto mode Overlapping display of Elastography on B-mode image of either cross-section, in the function to display B-mode image with the one of different cross-section simultaneously.
- **Strain Ratio measurement:**  
Calculation of ratio of strain between arbitrary 2 regions
- Assist Strain Ratio: Clicking center of the tumor automatically sets the measurement ROI to the tumor and the fatty layer (the mammary gland region and lesion are targeted).
- Strain Graph:  
The time variation of distorted average value is displayed on a graph in real time.
- Auto Select Frame:  
The frame under stable pressure is chosen automatically.
- **Strain Histogram**\*<sup>2</sup>
- Compatible to RAW data

\*<sup>1</sup> Option: **SOP-ARIETTA65-43** (Probe dependent)

\*<sup>2</sup> Option: **SOP-ARIETTA65-60**

## Shear Wave Measurement\*<sup>1</sup>

It is a function for measuring the propagation velocity of shear waves and elasticity. The propagation velocity of shear waves varies with tissue hardness.

- Shear Wave Measurement mode:  
Measures the propagation velocity of shear waves in the target region.
- ROI setting function:  
A trackball can be used to change the position of the ROI you select to measure.
- Automatic recording of still images:  
The instrument can be set up to automatically send results after measurements.

- Integration with measurement functions:  
Measurement data is saved for each selected measurement. You can modify a measurement during an examination.
- Data saved to CSV files:  
Measurement data is saved in a CSV file.
- Attenuation measurement\*<sup>2</sup> :  
Simultaneously with the measurement of Vs, the ultrasound attenuation (ATT) is measured near the center of the ROI.

\*<sup>1</sup> Option: **SOP-ARIETTA65-73** (Probe dependent)

\*<sup>2</sup> It is only available with C251 and C253.

## Automated NT Measurement\*

It is possible to automatically extract the nuchal translucency(NT) thickness by simply setting ROI(region of interest). In addition, thicknesses at max NT, Mean NT can be automatically calculated.

\* Option: SOP-ARIETTA65-42

## Auto GA\*

Automatic fetus measurement function that measurement caliper are appeared automatically after selecting measurement items

Measurement items compatible with Auto GA

- Head: BPD, BPD<sub>o</sub>, OFD, OFD<sub>o</sub>, HC, HC2, HC3
- Abdomen: APTD, APD, TTD, TAD, AC, AC2, FTA
- Femur: FL

\* Option: SOP-ARIETTA65-76

## 2D Tissue Tracking (2DTT) \*

2DTT enables the evaluations of regional wall motion abnormalities within your region of interest, such as the myocardium and valves automatically by speckle tracking method on a B-mode image. With only minimal angle dependency, analysis from various cross sections have become possible. Multiple analyses, including wall thickness, various strains and rotation angle can be performed.

### Analysis

- Free use  
Distance and angular change between 2 points of your choice can be analyzed.
- SAX: Parasternal short-axis view
  - Circumferential Strain and Strain Rate
  - Radial Strain and Strain Rate Global Circumferential Strain, Strain Rate
  - Angle and Angle Rate
  - Twist (With Overlay function)

- APEX: Apical long-axis view
- Apex-S (Strain)
  - Longitudinal Strain and Strain Rate
  - Transverse Strain and Strain Rate
  - Global Longitudinal Strain and Strain Rate
  - Volume
- Apex-V (Volume)
  - Volume for cavity
  - Single and Biplane EF(With Overlay Function)
  - dv/dt(volume variation velocity)
  - Center of gravity coordinate, display tracking

#### View

- SAX
  - Basal SAX
  - Mid SAX
  - Apical SAX
- APEX-S, -V
  - 2ch, 3ch, 4ch (Inversion view included)

#### Graph Type

- Line Graph
- Color Graph
- Line & Color Graph
- Bull's eye (with Overlay function)

#### Measurements

- Point to Point
- Time to Peak
- 3 point: One-third point of diastole duration
- Distance

\*Option :SOP-ARIETTA65-49 and PEU-ARIETTA65

#### **Stress Echo analysis\***

Image display modes in which image acquisition is possible: B, Each Flow modes

- Image acquisition methods:
  - ECG synchronized acquisition
- Compatible frame rate: Up to 75 Hz
- Recalled screen
  - Playback speed: Selectable
  - Image allocation: Possible
  - Scoring: Possible
  - Automatic registration: On/Off
- Protocol: Skip view function is available.
  - Exercise stress protocols:
    - Exercise Stress Echo
    - Treadmill Exercise
    - Bicycle Exercise
  - Pharmacological stress protocols:
    - DSE
    - High-Dose DSE

- Low-Dose DSE
- Arbutamine
- Dipyridamole

User's protocol:

The user can make a protocol within 8 views X 12 stages in 1 exam.

Full disclosure (Multi acquisition): 270 seconds

- Scoring screen
  - Playback speed: Selectable
  - Comparison between different stages in the same view is possible
  - Image playback range is selectable
  - Systolic image acquisition
  - Bull's eye display (16 or 17 segmentation selectable)
- Report screen
  - Display format
    - Chart/Stage overview/View overview

\*Option: SOP-ARIETTA65-15 and PEU-ARIETTA65

#### **TDI analysis\***

Tissue Doppler Imaging (TDI) analysis is an echocardiographic technique employing the Doppler principle to measure the velocity of myocardial segments and other cardiac structures.

Strain information analysis is also available.

B-mode

Temporal Velocity Profile

Velocity, time, acceleration, ratio

Regional Velocity Profile

Velocity, distance

TDI-Myocardial Thickness (Wall thickness)

Distance, time, velocity

Strain rate

Time, strain rate

Strain

Time, strain

M-mode

Velocity trace

Velocity, time, acceleration, ratio, velocity difference

TDI-Myocardial Thickness (wall thickness)

Distance, time, velocity

Velocity Profile

Velocity, distance

CSV output of analyzed data is possible. CSV is a file format that can be converted into Excel file directly.

\*Option: SOP-ARIETTA65-13 and PEU-ARIETTA65

### **CHI (Contrast Harmonic Imaging)\***

Contrast agent generates abundant second harmonics when disrupted, which eases detection by Harmonic Echo. Setting for low-pressure type contrast agent is also incorporated.

- Wide-band Contrast Harmonic Imaging (WbC)  
The wideband pulse inversion method enables retrieval of echoes from the ultrasound contrast agent across a broad spectrum and display them in CHI mode at a high level of sensitivity.
  - Tissue Reduction Contrast Harmonic Imaging (TrC)  
The Amplitude Modulation method makes it possible to reduce signals from tissue to get clearer CHI mode images.
  - Monitor mode  
In the Monitor mode, images are available with a low sound pressure during the intermission of high sound pressure transmission.
  - Motion-compensated Accumulation Imaging  
It is possible to display running of fine blood vessels by accumulating contrast echo information.
  - Flash  
This mode sends high acoustic pressure transmissions at set intervals to destroy the ultrasound contrast agent.
  - Frame Rate Limit  
Function of limiting Frame Rate not to break bubbles.
- \* Option: **SOP-ARIETTA65-44** (Probe dependent)

### **Automated IMT Measurement\***

It is possible to automatically extract max IMT, min IMT and mean IMT by simply setting ROI (region of interest) on a long-axis view of the vessel. In addition, the thicknesses at 3 points, i.e., the point at max IMT, and the points at 1cm on the right and left of the max IMT, can be automatically detected and averaged.

\* Option: **SOP-ARIETTA65-38**

### **Panoramic View\***

It is possible to display an image of an extensive range of the body by moving the probe. An area wider than the scanning width of the probe can be displayed.

\* Option: **SOP-ARIETTA65-1**

### **Protocol Assistant\***

This function provides the capability to guide study by displaying protocol list (view name, mode, measure).

It is useful to improve everyday study.

- Available to registered protocol: 128 kinds
- Suspend protocol function
- Available to edit protocol on the system
- Available to register and edit reference image
- Available to import or export like preset

\* Option: **SOP-ARIETTA65-79**

### **RT-3D (4D)\***

- It is possible to display 3 arbitrary sections simultaneously
- MPR (Multi-planar Reconstruction)
- 360 degrees omni-directional rotation
- 4 kinds of rendering selectable
- Combination of 2 kinds of rendering type (Rendering Mode Mix)
- Detail scan of the ROI (Region of interest) is possible
- Inversion Mode (black-and-white)
- B-mode measurements on an arbitrary plane possible
- Auto Clipper : Automated placenta rejection function
- Multi Slice Imaging (MSI)
- **HI REZ**
- Lower Threshold
- 4Dshading
- Snapshot : 3D image (1 View) is magnified and printed in color

\* Option: **EU-9198 and SOP-ARIETTA65-4** (Probe dependent)

## General Specifications

### Acoustic Power

- 0 to 100%, 5% step

### Preset Function

- 100 kinds (Max. 25 kinds per each probe)
- Preset contents storable in USB memory
- Q.S.S.(Quick Scanning Selector):  
Image modifying parameters (e.g. Gain, frequency, depth) of your choice can be registered. (Up to 4 sets per preset)  
These parameters can immediately be registered and selected by touch panel during examinations.
- Preset is booted up in conjunction with ID information(BodyParts or etc,)

### Characters and graphic displays

Character input area:

- ID\*, name, age, sex, retained text  
\* Can be corrected after exam
- Input is possible with virtual keyboard on LCD panel
- Automatic Annotation Labeling:  
800 words (User registration is possible. 10 Class)
- Body mark:  
38 kinds are available per each region.  
6 regions+1 user are able to register.  
Body mark editor to create user's body mark: Available  
Probe mark: 4 kinds  
Display position: changeable  
Fetal body mark: rotatable
- Assist line display (Probe dependent)

### Menu control

- 10.1-inch color TFT LCD touch panel

### Active Probe Ports

- For electronic scanning probes: 4
- For independent probes\*: 1

\*Option: EU-9187B, EU-9198

### Input/Output Signals

- Data Input/Output
  - USB2.0 : 5 channel  
(Main unit 3+ Operation Panel 2)
- Digital Video Input/Output
  - DVI-D digital : 2 channel(Output 1, Input1)  
Resolution: WXGA++(1600x900)
- Analog Video Input/Output

#### Output

- Y/C: 1 channels

#### Input

- Y/C: 1 channel
- Network
  - LAN (Wired, Wireless)
- Others  
Audio (L/R): 2 channel (Output 1, Input 1)

### Viewing Monitor

- 21.5 inch LCD display  
Resolution: WXGA++(1600 x 900)
- Tilt and swivel are possible.
- Height adjustment and swivel together with operation panel

### Safety Regulation

- IEC 60601-1: 2012  
Class I, Type BF

### Environmental Requirements

#### In Operation

- Temperature: +10 to +40 degrees C
- Relative Humidity: 30 to 75%  
(non condensing)
- Atmospheric pressure: 700 to 1060 hPa
- Altitude: Up to 3000m

#### In Storage/transportation

- Temperature: -10 to +50 degrees C
- Relative Humidity: 10 to 90%  
(non condensing)
- Atmospheric pressure: 700 to 1060 hPa

### Power Requirement

- 100 to 120/ 200 to 240V  $\pm 10\%$ , 50 or 60 Hz,  
Max. 750 VA (with options connected)
- Battery drive time \*  
70 minutes (first time use, 25 degrees C environment,  
B mode scanning)  
Battery driving time (battery capacity) may reduce  
depending on the charge-discharge repetition and  
environment.  
\*Option:EU-9199

### Dimensions

- 53.3 cm (W)  $\times$  74.2 cm (D)  $\times$  126.5 – 163.5 cm (H)

### Weight

- 85 kg (main unit only)

## System Configuration

Unite			Remarks
Category	Name	Model name	
System	Diagnostic ultrasound system	ARIETTA 65	includes a viewing monitor
Peripheral Interface / Connection Kit / Mounting Rack	Digital color printer (SONY)	UP-D25MD	EU-6060B, PM-AR65-H002, MP-FX-ALB-30 and MP-FX-ALB-31 are necessary.
	Digital color printer (MITSUBISHI)	CP30DW	EU-6060B, PM-AR65-H002, MP-FX-ALB-30 and MP-FX-ALB-32 are necessary.
	Digital monochrome printer (SONY)	UP-X898MD	PM-AR65-H001 is necessary
	Digital monochrome printer (MITSUBISHI)	P95DW	PM-AR65-H001 is necessary
	Medical video recorder	HVO-500MD/FHD	EU-6060B, PM-AR65-H003, MP-FX-ALB-33 and MP-FX-ALB-35 are necessary. PM-AR65-H003 is available for the model with SN:114857~.
	Medical video recorder	HVO-550MD/FHD	EU-6060B, PM-AR65-H003, MP-FX-ALB-33 and MP-FX-ALB-35 are necessary. PM-AR65-H003 is available for the model with SN:11071~.
	CD-R/DVD Disk Drive unit		
	Outlet expansion unit	EU-6060B	Unavailable during the operation on battery power.
	connection kit	PM-AR65-H001	
	connection kit	PM-AR65-H002	
	connection kit	PM-AR65-H003	
Hardware Option	Physiological signal display unit	PEU-ARIETTA65	
	Independent probe connection unit	EU-9187B	EU-9198 is necessary.
	CW & 3D unit	EU-9198	
	Battery unit	EU-9199	
	SWM unit	EU-9206	
	Jelly warmer	JW-3000U	EU-6063 and MP-FX-AVA-2B-R or MP-FX-AVA-2B-L are necessary. Unavailable during the operation on battery power.
	AC adopter for Jelly warmer	EU-6063	JW-3000U and MP-FX-AVA-2B-R or MP-FX-AVA-2B-L are necessary.
	Foot switch	MP-2819	3-point
	Foot switch	MP-2345B	1-point
	Small tray	MP-FX-ALB-21	
	Side tray	MP-FX-ALB-22	
	Mounting bracket	MP-FX-ALB-30	This is required when mounting color printer, medical video recorder, and when mounting monochrome printer in combination with aforementioned devices.
	Color printer mounting bracket (SONY)	MP-FX-ALB-31	
	Color printer mounting bracket (MITSUBISHI)	MP-FX-ALB-32	
	Medical video recorder mounting bracket	MP-FX-ALB-33	
	Peripheral expansion rack	MP-FX-ALB-34	This is required when mounting UP-D25MD and medical video recorder together on the system.
	Peripheral expansion rack	MP-FX-ALB-35	This is required when mounting CP30DW and medical video recorder together on the system.
	Flexible hook	MP-HA-ALB-2	It is impossible to simultaneously mount this and MP-HA-ALB-3.
	Flexible hanger	MP-HA-ALB-3	It is impossible to simultaneously mount this and MP-HA-ALB-2.
	Keyboard tray	MP-FX-ALB-6B	Optional keyboard is necessary.
	Jelly warmer right mount kit	MP-FX-AVA-2B-R	JW-3000U and EU-6063 are necessary.
	Jelly warmer left mount kit	MP-FX-AVA-2B-L	JW-3000U and EU-6063 are necessary.
	Small probe holder (RS)	MP-PH-AR70-2U	
	Small probe holder (LS)	MP-PH-AR70-4U	

	Large probe holder (LS,RF)	MP-PH-AR70-5U	
	Large probe holder (RS,LF)	MP-PH-AR70-6U	
	Adapter for large probe holder (for thin and long probes)	MP-PHAD-AR70-1U	
	Adapter for large probe holder	MP-PH-ADAPTER-5BU	
	Endo-cavity probe holder kit	MP-PH-AVA-11B	
	HDD expansion unit	AR65 Built-in 1T HDD	Fuctory built-in option
Software Option	Panoramic View software	SOP-ARIETTA65-1	
	Real-time 3D software	SOP-ARIETTA65-4	EU-9198 is necessary.
	FAM software	SOP-ARIETTA65-5	
	Flow Profile Measurement software	SOP-ARIETTA65-7	
	DICOM network software	SOP-ARIETTA65-10	
	TDI Analysis software	SOP-ARIETTA65-13	
	Stress Echo software	SOP-ARIETTA65-15	PEU-ARIETTA65 is necessary.
	DICOM Structured Report software	SOP-ARIETTA65-21	SOP-ARIETTA65-10 is necessary.
	Automated IMT Measurement software	SOP-ARIETTA65-38	
	Automated NT Measurement software	SOP-ARIETTA65-42	
	Real-time Tissue Elastography software	SOP-ARIETTA65-43	Most of attachment / adapter is optional. See "Optional Probes" description.
	Contrast Harmonic Imaging software	SOP-ARIETTA65-44	
	Transit Time of Vessel Flow measurement software	SOP-ARIETTA65-47	PEU-ARIETTA65 is necessary.
	2D Tissue Tracking Analysis software	SOP-ARIETTA65-49	
	Dynamic Slow-motion Display software	SOP-ARIETTA65-57	
	DICOM Query/Retrieve software	SOP-ARIETTA65-59	SOP-ARIETTA65-10 is necessary.
	RTE Strain Histogram software	SOP-ARIETTA65-60	SOP-ARIETTA65-43 is necessary.
	Shear Wave Measurement Software	SOP-ARIETTA65-73	EU-9206 is necessary
	Automated Cardiac Measurement software	SOP-ARIETTA65-74	PEU-ARIETTA65 is necessary.
	Automated OB Measurement software	SOP-ARIETTA65-76	
	Protocol Assistant software	SOP-ARIETTA65-79	
	McAfee Embedded control 3 software	SOP-ARIETTA65-128	



## Optional Probes

### Electronic convex sector probes

Application (description)	Model	Frequency range (MHz)	Scanning angle (degrees)	Optional accessories
Abdominal	C251	5.0~1.0	70	Needle Guide - Ultra-Pro II 644-082 (CIVCO)* <sup>1</sup>
Abdominal	C253	5.0~1.0	70	Needle Guide - Ultra-Pro II 644-082 (CIVCO)* <sup>1</sup>
Abdominal	C35	8.0~2.0	70	Needle Guide - Ultra-Pro II 644-082 (CIVCO)* <sup>1</sup>
Abdominal	C41	13.0~4.0	100	-
Abdominal	C42	8.0~4.0	80	Puncture Adapter EZU-PA532 Needle Guide - Ultra-Pro 644-077 (CIVCO)* <sup>1</sup>
Abdominal	C22K	6.0~1.0	82	Puncture Adapter MP-2781 MP-2781-5 MP-2781-25 Needle Guide - Ultra-Pro 614-109 (CIVCO)* <sup>1</sup>
Abdominal	C22P	6.0~1.0	74	Puncture Adapter EZU-PA7C2* <sup>1</sup> MP-2824
Abdominal	C25P* <sup>2</sup>	5.0~1.0	70	Puncture Adapter EZU-PA7B1-1 EZU-PA7B1-2 EZU-PA7B1-3 EZU-PA7B1-4 EZU-PA7B1-C
Intraoperative	C42K	10.0~4.0	65	Puncture Adapter MP-2783 MP-2458 Needle Guide - Ultra-Pro 614-100 (CIVCO)* <sup>1</sup>
Intraoperative	C42T	10.0~3.0	65	Waterproof case WP-001
Transvaginal Transrectal	C41B	10.0~2.0	200	Puncture Adaptor MP-2445 Probe Cover RB-945BP-NS Waterproof case WP-001
Transvaginal Transrectal	C41V	8.0~4.0	200	Puncture Adapter EZU-PA5V
Transvaginal Transrectal	C41V1	10.0~2.0	200	Puncture Adapter EZU-PA7V
Transrectal	C41RP	9.0~2.0	180	Puncture Adapter MP-2452 Probe Cover RB-665P-NS Waterproof case WP-001

### Electronic linear probes

Application (description)	Model	Frequency range (MHz)	Scanning width (mm)	Optional accessories
Peripheral Vessel	L441	12.0~2.0	38	Needle Guide - Ultra-Pro II 644-075 (CIVCO)* <sup>1</sup> Elastography Stabilizer MP-2804
Peripheral Vessel	L442	12.0~2.0	38	Puncture Adapter EZU-PA7L1

Small Organ	L34	7.0~3.0	38	Puncture Adapter EZU-PA3C1H Needle Guide - Ultra-Pro II™ 644-079 (CIVCO)* <sup>1</sup>
Small Organ	L55	13.0~5.0	50	Puncture Adapter EZU-PA7L2* <sup>1</sup> Elastography Stabilizer EL-001
Small Organ	L64	18.0~5.0	38	Puncture Adapter EZU-PA7L3* <sup>1</sup> Acoustic Coupler SF-001(Acoustic Coupler) EZU-TEATC2(Attachment) Acoustic Coupler for Elastography EZU-TECPL1(Acoustic Coupler) EZU-TEATC2(Attachment) Elastography Stabilizer EL-002
Intraoperative	L43K	12.0~2.0	26	Waterproof case WP-001
Intraoperative	L44K	14.0~2.0	42	Waterproof case WP-001
Intraoperative	L44LA	13.0~2.0	36	-
Intraoperative	L46K1	14.0~2.0	63	Waterproof case WP-001
Intraoperative	L51K	15.0~3.0	13	Waterproof case WP-001
Intraoperative	L53K	15.0~3.0	25	Waterproof case WP-001

## Electronic phased array sector probes

Application (description)	Model	Frequency range (MHz)	Scanning angle (degrees)	Optional accessories
Cardiac Adult	S11	5.0~1.0	90	-
Cardiac Adult	S211	5.0~1.0	90	-
Cardiac Pediatric	S31	9.0~2.0	90	-
Cardiac, TEE	S3ESEL* <sup>3</sup>	8.0~2.0	90	-
Intraoperative	S31KP* <sup>4</sup>	8.0~3.0	90	Puncture Adapter MP-2450 Waterproof case WP-001

## RT-3D(4D) probes\*

\* EU-9198 and SOP-ARIETTA65-4 are necessary

Application (description)	Model	Frequency range (MHz)	Scanning angle (degrees)	Optional accessories
Fetal	VC35	8.0~2.0	72	-
Transvaginal	VC41V	8.0~2.0	145	-

## Electronic radial probes

Application (description)	Model	Frequency range (MHz)	Scanning angle (degrees)	Optional accessories
Transrectal	R41R	10.0~5.0	360	Waterproof case WP-001

## Bi-plane probe

Application (description)	Model	Frequency range (MHz)	Scanning angle(degrees) / width(mm)	Optional accessories
Transrectal	CC41R	8.0~4.0	100/120	Puncture Adapter EZU-PA5V EZU-PA3U Waterproof case WP-001
Transrectal	CC41R1	10.0~2.0	180/180	Puncture Adapter EZU-PA5V Probe Cover RB-945BP-NS Waterproof case WP-001
Transrectal	CL4416R Convex Linear	10.0~2.0	180	Puncture Adapter BA-001 Probe Cover RB-945BP-NS Waterproof case WP-001
		14.0~2.0	63	
Transrectal	C41L47RP Convex Linear	8.0~4.0	200	Puncture Adapter EZU-PA3U
		10.0~5.0	64	

## Independent CW Doppler probes\*

\* Independent probe connection unit **EU-9198** and **EU-9187B** are necessary

Application (description)	Model	Frequency range (MHz)	Optional accessories
Cardiac Adult	UST-2265-2	2.0	-

\*<sup>1</sup> Needle Guide Replacement Kit 610-608(CIVCO) is necessary.

\*<sup>2</sup> One of puncture adapter is necessary to use needle.

\*<sup>3</sup> Probe cover (CIVCO transducer cover 610-933) is necessary to use S3ESEL

\*<sup>4</sup> One piece of MP-2450 is attached.

## Probes and available functions

### Convex sector

Function Probe	FmT	WbT	HdTHI	CHI (Low)	CHI (Mid)	CHI (High)	TDI	Panoramic View	Needle Emphasis	Elastography	eFLOW	CW	Compound
C251	✓	✓	✓	-	-	-	✓	✓	-	✓	✓	✓	✓
C253	✓	✓	✓	✓	✓	✓	✓	✓	-	✓	✓	✓	✓
C35	✓	✓	✓	-	-	-	✓	✓	-	✓	✓	✓	✓
C41	-	-	✓	-	-	-	-	-	-	-	✓	-	✓
C42	✓	✓	✓	-	-	-	-	✓	-	✓	✓	✓	✓
C22K	-	-	✓	-	-	-	-	-	-	-	✓	-	✓
C22P	✓	✓	✓	-	-	-	-	-	-	-	✓	-	✓
C25P	✓	✓	✓	-	-	-	-	-	-	-	✓	-	✓
C42K	-	-	✓	-	-	-	-	-	-	✓	✓	-	✓
C42T	-	-	✓	✓	✓	-	-	-	-	✓	✓	-	✓
C41B	-	-	✓	-	-	-	-	-	-	✓	✓	-	✓
C41V	-	-	✓	-	-	-	-	-	-	✓	✓	-	✓
C41V1	-	-	✓	-	-	-	-	-	-	✓	✓	-	✓
C41RP	-	-	✓	-	-	-	-	-	-	-	✓	-	✓

### Linear

Function Probe	FmT	WbT	HdTHI	CHI (Low)	CHI (Mid)	CHI (High)	TDI	Panoramic View	Needle Emphasis	Elastography	eFLOW	CW	Compound	Trapezoid
L441	-	✓	✓	-	-	-	-	✓	✓	✓	✓	✓	✓	✓
L442	-	✓	✓	-	-	-	-	✓	✓	✓	✓	✓	✓	✓
L34	-	✓	✓	-	-	-	-	✓	✓	✓	✓	✓	✓	✓
L55	-	✓	✓	-	-	-	✓	✓	✓	✓	✓	-	✓	✓
L64	-	✓	✓	-	-	-	-	✓	✓	✓	✓	✓	✓	✓
L43K	-	-	✓	✓	✓	-	-	-	-	✓	✓	-	✓	✓
L44K	-	-	✓	✓	✓	-	-	-	-	✓	✓	-	✓	✓
L44LA	-	-	✓	✓	✓	-	-	-	-	✓	✓	-	✓	✓
L46K1	-	-	✓	-	-	-	-	-	-	✓	✓	-	✓	✓
L51K	-	-	✓	-	-	-	-	-	-	✓	✓	-	✓	✓
L53K	-	-	✓	-	-	-	-	-	-	✓	✓	-	✓	✓

### Phased array sector

Function Probe	FmT	WbT	HdTHI	CHI (Low)	CHI (Mid)	CHI (High)	TDI	Panoramic View	Elastography	eFLOW	CW	Compound
S11	✓	-	-	-	-	-	✓	-	-	✓	✓	-
S211	✓	-	-	-	-	-	✓	-	-	✓	✓	-
S31	✓	-	-	-	-	-	✓	-	-	✓	✓	-
S3ESEL	-	-	-	-	-	-	✓	-	-	✓	✓	-
S31KP	-	-	-	-	-	-	-	-	-	✓	-	-

## RT-3D (4D)

Function Probe	Real-time 3D	Compound	CW	eFLOW	Elastography	Panoramic View	TDI	CHI (High)	CHI (Mid)	CHI (Low)	HdTHI	WbT	FmT
VC35	✓	✓	·	✓	·	·	✓	·	·	·	✓	✓	✓
VC41V	✓	✓	·	✓	✓	·	·	·	·	·	·	✓	✓

## Radial

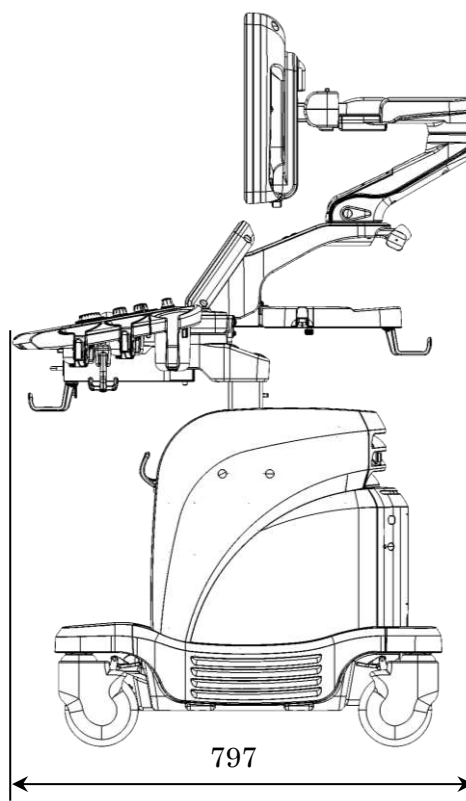
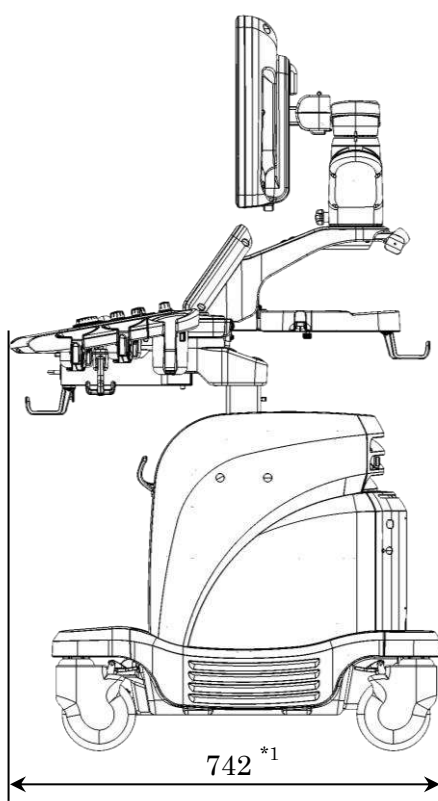
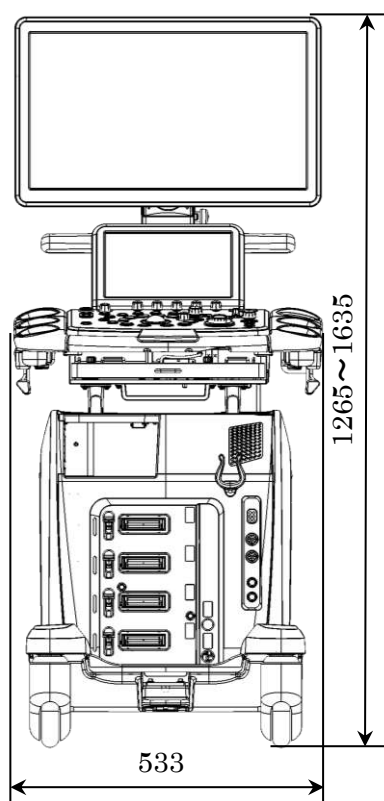
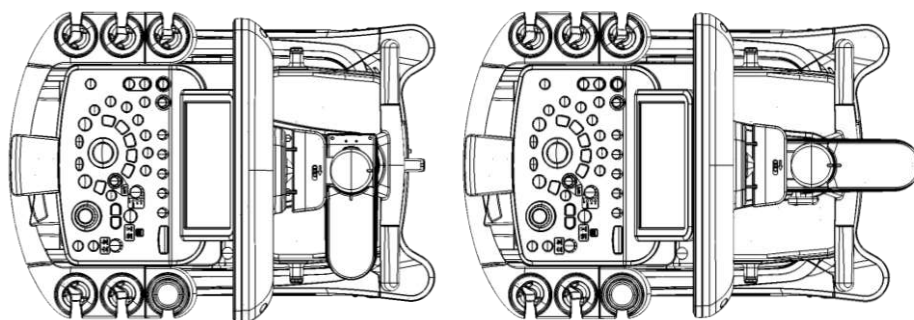
Function Probe	Compound	eFLOW	Elastography	Panoramic View	TDI	CHI (High)	CHI (Mid)	CHI (Low)	HdTHI	WbT	FmT
R41R	·	✓	✓	·	·	·	·	·	·	✓	·

## Bi-plane

Function Probe	Realtime BiPlane	Trapezoid	Compound	eFLOW	Elastography	Panoramic View	TDI	CHI (High)	CHI (Mid)	CHI (Low)	HdTHI	WbT	FmT
CC41R	✓	·	·	✓	✓	·	·	·	·	·	·	·	·
CC41R1	✓	·	·	✓	✓	·	·	·	·	·	·	·	·
CL4416R (Convex)		·	✓	✓	✓	·	·	·	·	·	·	·	·
CL4416R (Linear)		✓	✓	✓	✓	✓	·	·	·	·	·	·	·
C41L47RP (Convex)		·	·	✓	✓	·	·	·	·	·	·	·	·
C41L47RP (Linear)		✓	·	✓	✓	✓	·	·	·	·	·	·	·

## Independent

Function Probe	Trapezoid	Compound	CW	eFLOW	Elastography	Panoramic View	TDI	CHI (High)	CHI (Mid)	CHI (Low)	HdTHI	WbT	FmT
UST-2265-2	·	·	✓	·	·	·	·	·	·	·	·	·	·



Unit: mm

\*1 when the monitor arm is folded

- 
- The specifications are subject to change without notice.
  - The standard components and optional items differ depending on the country.  
Not all products are marketed in all countries.  
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Easy to handle

Smart design

**Innovating Healthcare, Embracing the Future**

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tailored to individuals.

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in Japan and other countries.  
·ARIETTA 850SE is the model limiting the functions of ARIETTA 850.  
·Specifications and appearance may be subject to change for improvement without notice.  
For proper use of the system, be sure to read the operating manual prior to placing it into service.  
·The standard components and optional items differ depending on the country.  
Not all products are marketed in all countries.  
Please contact your local Hitachi distributors for details.



Convex Transducers

C251

Abdomen  
5-1MHz  
70deg.  
(50R)

RV-004 \*1

C23

Abdomen  
6-1MHz  
70deg.  
(25R)

RV-017 \*1

C252

Abdomen  
6-1MHz  
70deg.  
(50R)

RV-004 \*1

C23RV

Abdomen  
Built-in sensor\*  
6-1MHz  
70deg.  
(25R)

\*Built-in magnetic sensor for RVS

C253

Abdomen  
5-1MHz  
70deg.  
(50R)

RV-004 \*1

C35

Abdomen  
8-2MHz  
70deg.  
(50R)

RV-004 \*1

C41

Abdomen  
13-4MHz  
100deg.  
(12R)

C42

Abdomen  
8-4MHz  
80deg.  
(21R)

RV-006 \*1

RV-007 \*1

EZU-PA532 \*2

1 Photo taken with Needle Guide Bracket (optional)

Linear Transducers

L34

Small parts  
7-3MHz  
38mm

EZU-PA3C1H \*3

SML44

Small parts  
22-2MHz  
38mm

RV-014 \*1

L44

Small parts  
9-4MHz  
38mm

EZU-PA7L1 \*3

L35

Small parts  
9-2MHz  
45mm

RV-017 \*1

L441

Small parts  
12-2MHz  
38mm

L442

Small parts  
12-2MHz  
38mm

EZU-PA7L1 \*3

L55

Small parts  
13-5MHz  
50mm

EZU-PA7L2 \*2

RV-008 \*1

L64

Small parts  
18-5MHz  
38mm

RV-009 \*1

SF-001 \*10

EZU-TECPL1 \*10

EZU-PA7L3 \*2

EZU-TEATC2 \*4

Sector Transducers

**MXS1**

Cardiology  
5-1MHz  
90deg.

A white, handheld sector transducer with a black connector at the end of a thin cable.

**S31**

Cardiology  
9-2MHz  
90deg.

A white, handheld sector transducer with a black connector at the end of a thin cable.

**S11**

Cardiology  
5-1MHz  
90deg.

A white, handheld sector transducer with a black connector at the end of a thin cable.

**S42**

Cardiology  
14-3MHz  
90deg.

A white, handheld sector transducer with a black connector at the end of a thin cable.

**S12**

Cardiology  
5-1MHz  
90deg.

A white, handheld sector transducer with a black connector at the end of a thin cable.

**S121**

Cardiology  
5-1MHz  
90deg.

A white, handheld sector transducer with a black connector at the end of a thin cable.

**S211**

Cardiology  
5-1MHz  
90deg.

A white, handheld sector transducer with a black connector at the end of a thin cable.

Transesophageal Transducers


**MXS2ESLL1**

Cardiology  
10-1MHz  
90deg.

A black, flexible transesophageal transducer with a black connector at the end of a thin cable.

**S3ESEL**

Cardiology  
8-2MHz  
90deg.

A black, flexible transesophageal transducer with a black connector at the end of a thin cable.

**S3ESL1**

Cardiology  
9-2MHz  
90deg.

A black, flexible transesophageal transducer with a black connector at the end of a thin cable.


**S3ESCLS**

Cardiology  
8-2MHz  
90deg.

A black, flexible transesophageal transducer with a black connector at the end of a thin cable.

C22P

Biopsy  
6-1MHz  
74deg.  
(22R)




MP-2824 \*6  
EZU-PA7C2 \*2

† Photo taken with RVS Attachment (standard component)

C42T

Intraoperative  
10-3MHz  
65deg.  
(20R)



RV-003 \*1

L44LA1

Intraoperative  
13-2MHz  
38mm



C25P

Biopsy  
5-1MHz  
70deg.  
(50R)




[EZU-PA7B1-1:12,13G / EZU-PA7B1-2:14-16G / EZU-PA7B1-3:17-19G / EZU-PA7B1-4:20-23G / EZU-PA7B1-C:17G(for RFA needle)] \*5

RV-005 \*1

† Photo taken with Biopsy Attachment (optional)

S31KP


Biopsy /  
Intraoperative  
8-3MHz  
90deg.



† Photo taken with Puncture Adapter MP-2450 (standard component)

L46K

Intraoperative  
13-3MHz  
60mm



MP-2448 \*6

C22K

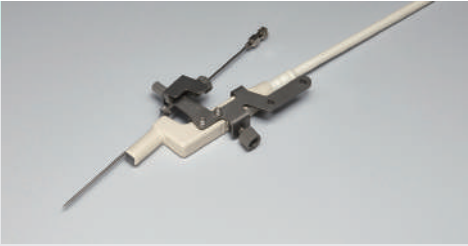
Intraoperative  
6-1MHz  
82deg.  
(21R)



MP-2781 \*6  
MP-2781-5 \*6 MP-2781-25 \*6

L31KP

Biopsy /  
Intraoperative  
9-2MHz  
6mm



† Photo taken with Puncture Adapter MP-2450 (standard component)

L46K1

Intraoperative  
14-2MHz  
63mm



C22I

Intraoperative  
6-1MHz  
82deg.  
(20R)



L43K

Intraoperative  
12-2MHz  
26mm



L51K

Intraoperative  
15-3MHz  
13mm



C22T

Intraoperative  
6-1MHz  
82deg.  
(20R)



L44K

Intraoperative  
14-2MHz  
42mm



L53K

Intraoperative  
15-3MHz  
25mm



C42K

Intraoperative  
10-4MHz  
65deg.  
(21R)



MP-2458 \*6

L44LA

Intraoperative  
13-2MHz  
36mm





C41B


Transvaginal,  
Transrectal  
10-2MHz  
200deg.  
(10R)



MP-2445 \*8  
RV-013 \*1

CL4416R

Transrectal  
C:10-2MHz  
L:14-2MHz  
C:180deg.  
L:63mm



BA-001 \*6  
RV-011 \*1

VC34

Abdomen  
7-2MHz  
70deg.  
(40R)



C41RP

Transrectal  
9-2MHz  
180deg.  
(9R)



MP-2452-G16<sup>†</sup> \*8

<sup>†</sup> Puncture Adapter MP-2452-G18 for C41RP transducer is standard component

C41L47RP

Transrectal  
C:8-4MHz  
L:10-5MHz  
C:200deg.(10R)  
L:64mm



EZU-PA3U \*9  
RV-011 \*1

VC35

Abdomen  
8-2MHz  
72deg.  
(46R)



CC41R


Transrectal  
8-4MHz  
(Both sagittal and axial scan head)  
100deg.(10R) (Sagittal scan)/  
120deg.(10R) (Axial scan)



EZU-PA5V \*7  
EZU-PA3U \*9  
RV-010 \*1

R41R

Transrectal  
10-5MHz  
360deg.  
(6R)



VC41V

Transvaginal  
8-2MHz  
145deg.<sup>†</sup>  
(10R)



<sup>†</sup> The maximum viewing angle depends on the model to connect.

C41V1


Transvaginal  
10-2MHz  
200deg.  
(10R)



EZU-PA7V \*7  
RV-002 \*1

R41RL

Transrectal  
10-5MHz  
360deg.  
(6R)





VL54

Small parts  
13-5MHz  
38mm



CC41R1

Transrectal  
10-2MHz  
(Both sagittal and axial scan head)  
180deg.(9R)  
(Both sagittal and axial scan head)



EZU-PASV \*7  
RV-015 \*1

C41V

Transvaginal,  
Transrectal  
8-4MHz  
200deg.  
(10R)



EZU-PASV \*7

\*# (Optional)

- \*1 RVS attachment
- \*2 Needle guide bracket
- \*3 Coupler attachment
- \*4 Acoustic coupler attachment
- \*5 Biopsy attachment
- \*6 Puncture adapter
- \*7 Sterile puncture adoptor
- \*8 Puncture guide tube
- \*9 Puncture guide fixture
- \*10 Acoustic coupler

List of optional Transducers

		LISENDO 880 LE	ARIETTA 850LE/850	ARIETTA 850 SE	ARIETTA 750LE/750SE/750VE	ARIETTA 70/570/V70	ARIETTA 65	ARIETTA 60/S60/V60	ARIETTA 50 LE/50	Noblus	ARIETTA Precision	ARIETTA Prologue
Convex Transducers	C251	✓	✓	✓		✓	✓	✓		✓	✓	✓
	C252 *	✓	✓	✓	✓							
	C253			✓	✓		✓		✓			
	C35	✓	✓	✓	✓	✓	✓	✓		✓		✓
	C41				✓	✓	✓	✓		✓		
	C42	✓	✓	✓	✓	✓	✓	✓		✓		✓
	C23 *		✓	✓	✓							
	C23RV *		✓	✓	✓							
	L34	✓	✓	✓	✓	✓	✓	✓		✓		
Linear Transducers	L44							✓		✓		✓
	L441	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓
	L442			✓	✓		✓		✓			
	L55		✓	✓	✓	✓	✓	✓	✓	✓		✓
	L64	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	SML44	✓	✓	✓								
	L35 *	✓	✓	✓								
	MXS1 *	✓	✓		✓							
	S11			✓	✓		✓		✓			
Sector Transducers	S12 *					✓						
	S121 *	✓	✓	✓	✓							
	S211 *						✓	✓		✓		✓
	S31 *	✓	✓	✓	✓	✓	✓	✓		✓		✓
	S42	✓	✓	✓	✓	✓						
	MXS2ESLL1 *	✓										
	S3ESEL	✓	✓	✓	✓	✓	✓			✓		
	S3ESL1	✓	✓	✓	✓	✓		✓		✓		
	S3ESCLS	✓	✓	✓								
Transesophageal transducers	C22P		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	C25P		✓	✓	✓	✓	✓	✓			✓	✓
	C22K		✓	✓	✓	✓	✓	✓		✓		
	C22I				✓	✓		✓		✓	✓	
	C22T				✓	✓		✓		✓	✓	
	C42K	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓
	C42T		✓	✓	✓	✓	✓	✓		✓	✓	
	S31KP				✓	✓	✓	✓		✓	✓	
	L31KP					✓						
Biopsy/ Intraoperative Transducers	L43K		✓	✓	✓	✓	✓	✓		✓	✓	
	L44K		✓	✓	✓	✓	✓	✓			✓	
	L44LA		✓	✓	✓	✓	✓	✓		✓	✓	
	L44LA1		✓	✓	✓	✓		✓		✓	✓	
	L46K					✓		✓				
	L46K1		✓	✓	✓	✓	✓				✓	
	L51K		✓	✓	✓	✓	✓	✓			✓	
	L53K	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓
	C41B		✓	✓	✓	✓	✓	✓	✓	✓		✓
	C41RP		✓	✓	✓	✓	✓	✓	✓			
	CC41R		✓	✓	✓	✓	✓	✓		✓		
	C41V1		✓	✓	✓	✓	✓	✓	✓	✓		✓
	CC41R1		✓	✓		✓	✓	✓			✓	
	C41V				✓		✓		✓	✓	✓	
	CL4416R		✓	✓		✓	✓	✓			✓	
	C41L47RP		✓	✓	✓	✓	✓	✓		✓	✓	
Transvaginal, Transrectal Transducers	R41R		✓	✓	✓	✓	✓	✓		✓		
	R41RL		✓	✓	✓	✓		✓			✓	
	VC34		✓	✓		✓		✓				
	VC35		✓	✓	✓	✓	✓	✓				
	VC41V		✓	✓	✓	✓	✓	✓				
	VL54					✓		✓				
3D/4D transducers												

\* Single Crystal

March 30, 2021

Subject: Notification of changes due to company name change

## 1. Background

Based on “Hitachi Announces the Conclusion of Absorption-type Company Split Agreement Relating to Diagnostic Imaging-related Business”, issued on February 18, 2021 (hereinafter referred to as “Hitachi News Release Feb 18, 2021”), Hitachi, Ltd. will execute an absorption-type split and its Healthcare Business Unit’s diagnostic imaging business (CT, MRI, X-ray diagnostic equipment, ultrasound diagnostic imaging equipment, etc.) will be absorbed and split into a newly established company. Based on the absorption-type split, the new company name will change to FUJIFILM Healthcare Corporation.

After the transfer of shares of FUJIFILM Healthcare Corporation, a subsidiary of Hitachi, Ltd., to FUJIFILM Corporation on March 31, 2021, FUJIFILM Corporation will become a shareholder of FUJIFILM Healthcare Corporation, and FUJIFILM Healthcare Corporation will become a subsidiary of FUJIFILM Corporation. Since Hitachi, Ltd. and FUJIFILM Corporation are separate companies that have no capital relationship, Hitachi, Ltd. and FUJIFILM Healthcare Corporation will also be separate companies that have no capital relationship on March 31, 2021.

More information is available on the attached sheet, titled “Hitachi News Release Feb 18, 2021.”

## 2. Company name change overview

The table below shows the transition of changes in the shareholders of legal manufacturers, exporters, and sales companies in order to conduct manufacturing registrations and product registrations in each country.

Content	Before March 31, 2021	March 31, 2021~ June 30, 2021	After July 1, 2021
Legal manufacturer Name	Hitachi, Ltd.	Hitachi, Ltd.	FUJIFILM Healthcare Corporation (*1)
Brand name	HITACHI	HITACHI	FUJIFILM

### ©Hitachi, Ltd. Healthcare Business Unit

Ueno East Tower, 2-16-1, Higashi-Ueno, Taito-ku, Tokyo, 110-0015, Japan  
Tel.: +81-3-6284-3800 <http://www.hitachi.com/businesses/healthcare/>



Content	Before March 31, 2021	March 31, 2021~ June 30, 2021	After July 1, 2021
Exporter	Hitachi, Ltd.	FUJIFILM Healthcare Corporation	FUJIFILM Healthcare Corporation
Sales Company	Hitachi, Ltd.	FUJIFILM Healthcare Corporation	FUJIFILM Healthcare Corporation
Shareholder of Sales Company	Hitachi, Ltd.	FUJIFILM Corporation	FUJIFILM Corporation
ISO13485 holder	Hitachi, Ltd.	Hitachi, Ltd.	FUJIFILM Healthcare Corporation
Company name listed in FSC (Free Sales Certificate)	Hitachi, Ltd.	Hitachi, Ltd.	FUJIFILM Healthcare Corporation

(\*1) However, when shipping products under the new brand, administrative procedures in each country are required because the products can only be shipped after the product registration, which specifies the change in legal manufacturer and address, is completed.


Even after the change of legal manufacturer, the manufacturing process, quality management system (QMS) and product safety of the product will remain unchanged, with no impact on the factory and QMS.

Responsibility for sold HITACHI brand products and HITACHI brand inventory will be transferred to FUJIFILM Healthcare Corporation.

### 3. Changes regarding global subsidiaries

Following the absorption-type split of the diagnostic imaging business (CT, MRI, X-ray diagnostic equipment, ultrasound diagnostic imaging equipment, etc.) of Hitachi, Ltd. Healthcare Business Unit and the transfer of shares of the new company, the shareholders and company name of the global subsidiaries will also be changed and incorporate FUJIFILM Healthcare Corporation.

Hitachi, Ltd.



Name: Akio Yamamoto

Title: CEO

Healthcare Business Unit



©Hitachi, Ltd. Healthcare Business Unit

Ueno East Tower, 2-16-1, Higashi-Ueno, Taito-ku, Tokyo, 110-0015, Japan  
Tel.: +81-3-6284-3800 <http://www.hitachi.com/businesses/healthcare/>



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bei Arzneimitteln und  
Medizinprodukten  
www.zlg.de  
ZLG-BS-244.10.08



Product Service

## EC Certificate

Full Quality Assurance System  
Directive 93/42/EEC on Medical Devices (MDD), Annex II excluding (4)  
(Devices in Class IIa, IIb or III)

**No. G1 095005 0031 Rev. 01**

**Manufacturer:**

**Hitachi, Ltd.**  
**2-16-1, Higashi-Ueno, Taito-ku**  
**Tokyo**  
**110-0015 JAPAN**

**Product Category(ies):** **Diagnostic Ultrasound Systems,**  
**related Probes and Their Accessories**

The Certification Body of TÜV SÜD Product Service GmbH declares that the aforementioned manufacturer has implemented a quality assurance system for design, manufacture and final inspection of the respective devices / device categories in accordance with MDD Annex II. This quality assurance system conforms to the requirements of this Directive and is subject to periodical surveillance. For marketing of class III devices an additional Annex II (4) certificate is mandatory. See also notes overleaf.

**Report No.:**

**JAQ235039329**

**Valid from:**

**2020-01-10**

**Valid until:**

**2024-05-26**

**Date,**

**2020-01-10**

Christoph Dicks  
Head of Certification/Notified Body





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für Gesundheitsschutz  
bei Arzneimitteln und  
Medizinprodukten  
www.zlg.de  
ZLG-BS-244.10.08



Product Service

## EC Certificate

Full Quality Assurance System  
Directive 93/42/EEC on Medical Devices (MDD), Annex II excluding (4)  
(Devices in Class IIa, IIb or III)

**No. G1 095005 0031 Rev. 01**

### Facility(ies):

**Hitachi, Ltd.**  
2-16-1, Higashi-Ueno, Taito-ku, Tokyo, 110-0015 JAPAN

**Hitachi, Ltd. Healthcare Ultrasound R&D Center**  
3-1-1, Higashikoigakubo, Kokubunji-shi, Tokyo, 185-0014  
JAPAN

**Hitachi, Ltd. Healthcare Mitaka Works**  
6-22-1, Mure, Mitaka-shi, Tokyo, 181-8622 JAPAN

**Hitachi Healthcare Manufacturing, Ltd. Tokyo Works**  
3-7-19, Imai, Ome-shi, Tokyo, 198-8577 JAPAN

**Hitachi Healthcare Manufacturing, Ltd.**  
**Analytical Systems Kashiwa Factory**  
2-1, Shintoyofuta, Kashiwa-shi, Chiba, 277-0804 JAPAN

**Hitachi Healthcare Manufacturing, Ltd.**  
**Analytical Systems Kashiwa Factory**  
3-1, Shintoyofuta, Kashiwa-shi, Chiba, 277-0804 JAPAN

**Hitachi, Ltd. Medical System Operations Group, Kashiwa**  
2-1, Shintoyofuta, Kashiwa-shi, Chiba, 277-0804 JAPAN

-/-

# Certificate

The Certification Body of  
**TÜV Rheinland LGA Products GmbH**

hereby certifies that the organization

**Hitachi, Ltd.  
Medical System Operations Group,  
Kashiwa  
2-1, Shintoyofuta,  
Kashiwa-shi, Chiba,  
277-0804 Japan**

has established and applies a quality management system for medical devices  
for the following scope:

**See attachments for the scope of certification**

Proof has been furnished that the requirements specified in

**EN ISO 13485:2016**

are fulfilled. The quality management system is subject to yearly surveillance.

Effective Date: 2019-12-27

Certificate Registration No.: SX 60144495 0001

An audit was performed. Report No.: 12031275 009

This Certificate is valid until: 2022-12-26

Certification Body



Date 2019-12-04



  
Takashi Matsuda

**TÜV Rheinland LGA Products GmbH - Tillystraße 2 - 90431 Nürnberg**

Tel.: +49 221 806-1371 Fax: +49 221 806-3935 e-mail: cert-validity@de.tuv.com <http://www.tuv.com/safety>

**TÜV Rheinland**  
**LGA Products GmbH**  
**Tillystraße 2, 90431 Nürnberg**

Doc.1/2, Rev.0

**Attachment to  
Certificate**

**Registration No.:** SX 60144495 0001  
**Report No.:** 12031275 009

**Organization:** Hitachi, Ltd.  
Medical System Operations Group,  
Kashiwa  
2-1, Shintoyofuta,  
Kashiwa-shi, Chiba,  
277-0804 Japan

**Scope:** Design and Development, Manufacture and Servicing Support of  
Diagnostic X-ray Equipment, X-ray CT Systems, MRI Systems,  
Ultrasound Diagnostic Systems, Ultrasound Transducer/Probes,  
Optical Encephalography Systems, Blood Irradiators, X-ray  
Tubes, X-ray Tube Assemblies, Diagnostic Image Workstations  
and Surgical Navigation System

**Certification Body**



**Date:** 2019-12-04

  
**Takashi Matsuda**



**TÜV Rheinland**  
**LGA Products GmbH**  
**Tillystraße 2, 90431 Nürnberg**

Doc.2/2, Rev.0

**Attachment to  
Certificate**

**Registration No.:** SX 60144495 0001  
**Report No.:** 12031275 009

**Organization:** Hitachi, Ltd.  
Medical System Operations Group,  
Kashiwa  
2-1, Shintoyofuta,  
Kashiwa-shi, Chiba,  
277-0804 Japan

**Scope:** Sites included:

Hitachi Healthcare Manufacturing, Ltd. Kashiwa Factory  
2-1, Shintoyofuta, Kashiwa-shi, Chiba, 277-0804, Japan  
3-1, Shintoyofuta, Kashiwa-shi, Chiba, 277-0804, Japan

**Scope:**

Manufacture of Diagnostic X-ray Equipment, X-ray CT Systems,  
MRI Systems, Ultrasound Diagnostic Systems, Ultrasound  
Transducer/Probes, Optical Encephalography Systems, Blood  
Irradiators, Diagnostic Image Workstations and Surgical  
Navigation System

Hitachi Healthcare Manufacturing, Ltd. Mobara Branch Factory  
1754, Sangaya, Mobara-shi, Chiba, 297-0042, Japan

**Scope:**

Design, Development and Manufacture of X-ray Tubes and  
X-ray Tube Assemblies

**Certification Body**



**Date:** 2019-12-04

  
**Takashi Matsuda**