



Premium Ultrasound System

Resona R9

Platinum Edition

Ibrahima BARRY
Clinical Application Specialist



Welcome to Mindray Animal Ultrasound Family



**Premium
Resona R9**

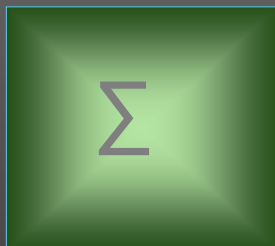
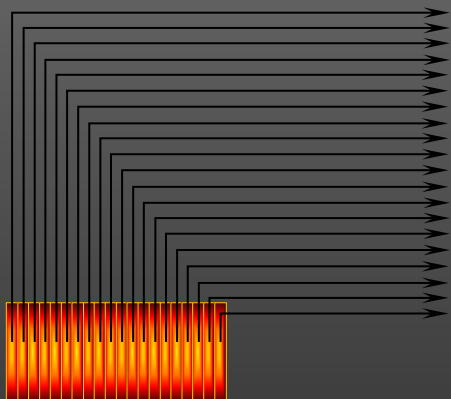


mindray

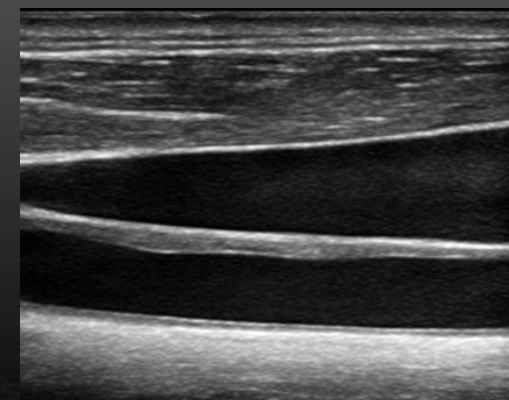
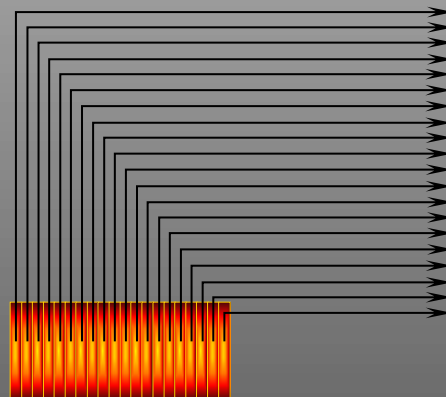
Traditional Beamformer



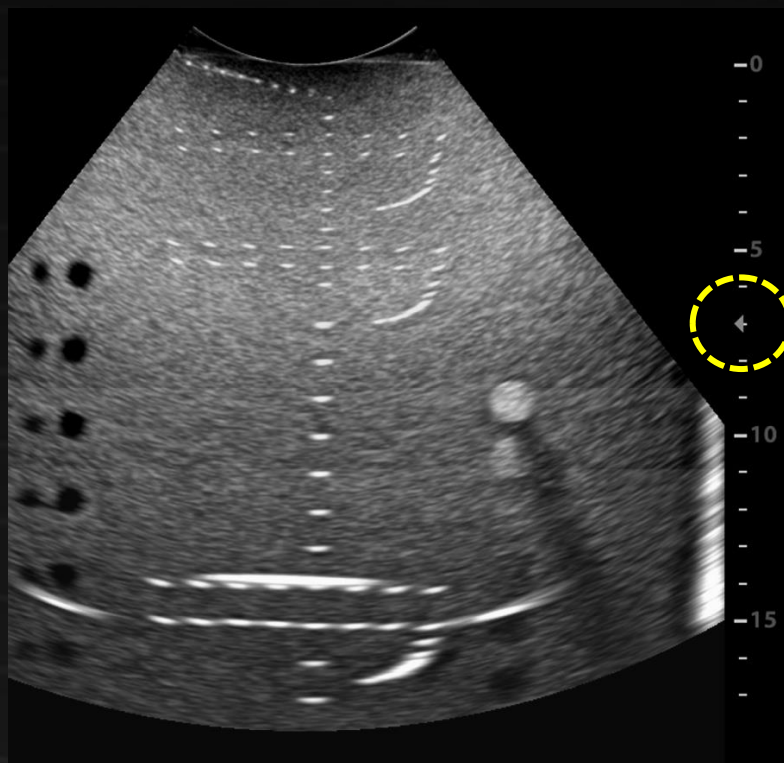
ZONE Sonography®



Powered by **ZST+**

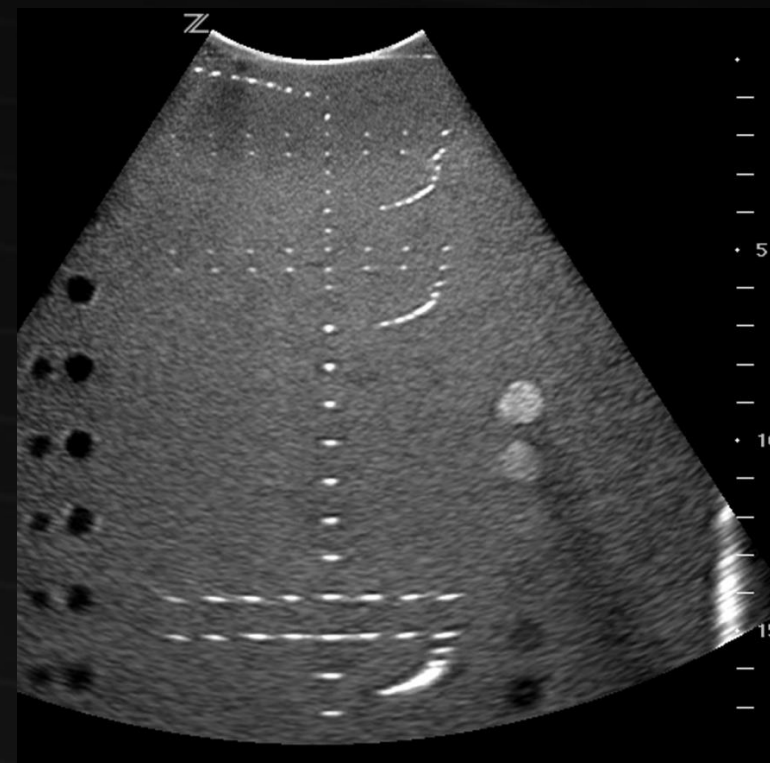


Traditional Focusing

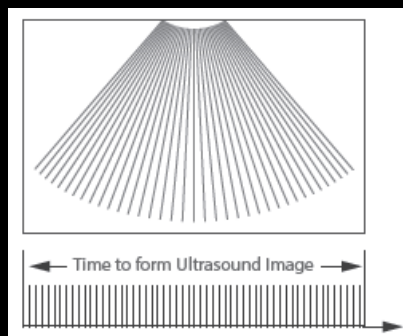


- Increase spatial resolution
- Improve uniformity

ZST+ Zone Focusing-Dynamic Pixel Focusing



- improve the detection rate of subtle lesions.



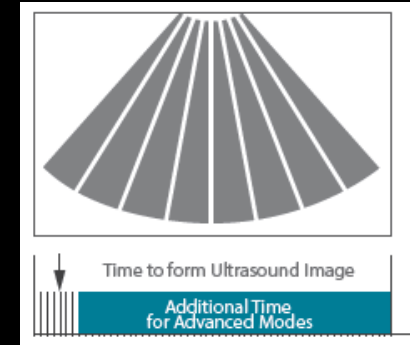
Traditional Beamformer

Data acquired line by line,
limited acoustic acquisition

Hardware-based Beamformer,
limits to upgrade

Limited Focal Depth and Number

Sound speed assumption = 1540 m/sec



ZONE Sonography®

Data acquired in ZONES,
10x faster acoustic acquisition

Software-based Beamformer,
easily upgradable

Full Field of View Focus

One button **digital**
sound speed compensation

A new leap to comfortable user experience

Window 10 Upgrade

- Enhanced security features allow users to keep customer's data, ultrasound devices **protected 24x7**.

6-way floating control panel

- With electronic control height adjustment.

Silence scan

- Reduce by up to **44% acoustic pressure** in clinical routine.*



23.8 inch LED monitor with dual-wing floating arm

- Enabling super flexible monitor position and lower body height for transportation

13.3" gesture control touch screen

- High resolution (1920x1080)**
LCD anti-glare touch screen.

Standby battery

- Standby mode for up to **24 hours**

Comprehensive Transducer Solutions

ABD

- C11-3U
- SC6-1U
- C6-2GU

SMP

- L11-3U
- L14-5WU
- LM16-4U
- L14-3WU
- DL14-3U
- L15-3WU

Cardiac

- SP5-1U
- P8-2U
- P10-4U
- P7-3TU
- P8-3Ts

MSK

- L16-4HU
- L20-5U
- LM16-4U
- L14-3WU
- L15-3WU
- L30-8U

Interventional

- C6-2GU
- 7LT4s



Powerful and Artificial Intelligence

Dedicated Application Solutions

“Extreme clarity, outstanding intelligence, superb confidence”

Liver

Liver stiffness quantification(HiFR STE)
Fatty liver Analysis (UltraSound
ATtenuation)
Smart HRI (Hepatorenal Index)
Liver Texture Index



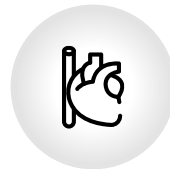
MSK

Precise evaluation of tendon injury
(L20-5s, STE)
Treatment monitoring of
rheumatic arthritis (CPP)



Cardiology

TTQA
TDI
TDI QA
LVO



Powerful tools

iScape View, iWorks, HD Scope
iNeedle+, iCompare
L15-3WU, L20-5



Vascular

(RIMT, V Flow, Smart Track)
Ultra Micro Angiography (UMA)

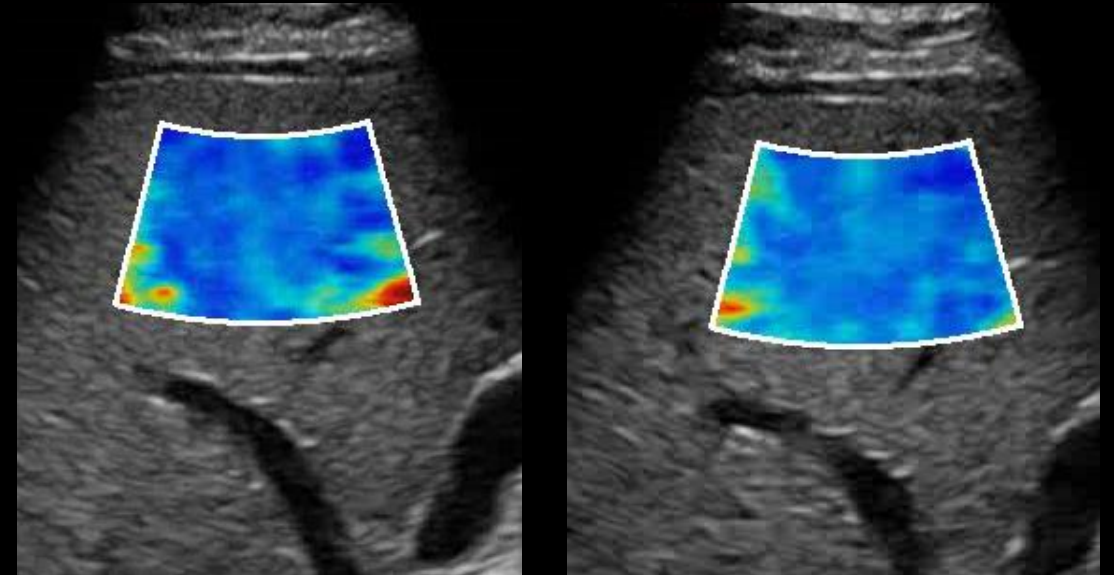


Comprehensive Elastography

High Frame Rate STE

Thanks to the powerful processing capability of ZST⁺ platform, new STE enables the highest frame rate STE in the field, up to **10 times faster** STE frame rate than before*, brings you more confidence in clinical diagnosis. (5~10 fps, equals to B frame rate)

1. More smooth and consistent STE
brings more confidence in tissue stiffness diagnosis
2. More sensitive motion detection
further excludes the respiration artifact for more accurate measurement



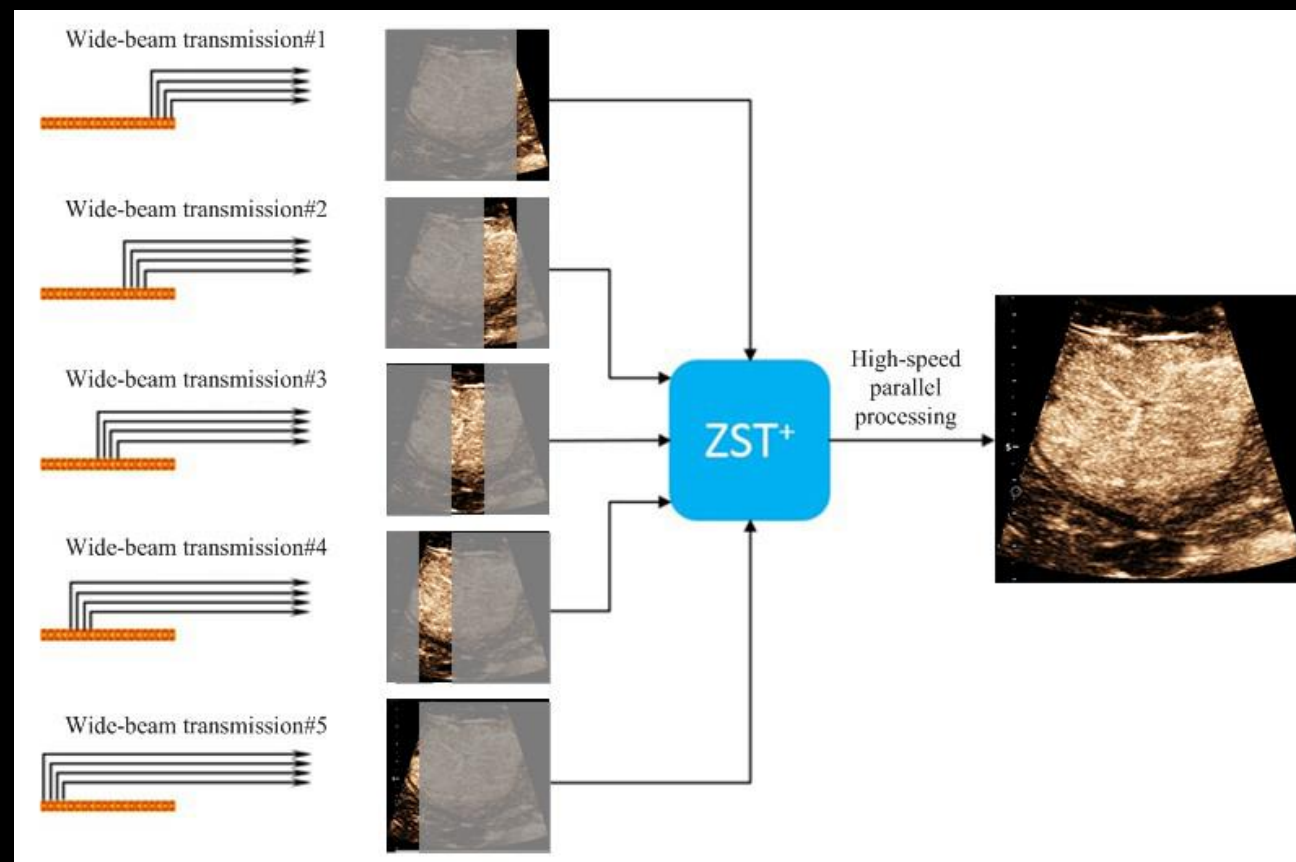
HiFR CEUS

Advanced CEUS



Empowered by ZST⁺ technology and plane wave based CEUS, HiFR CEUS enables ultra fast CEUS for vascular structure and perfusion character visualization in arterial phase, work as a complementary tool for UWN⁺

1. **4 ~ 17 times faster** than traditional CEUS
2. Available with all CEUS applications



Principle: Reducing the image acquisition time per frame based on ZST⁺ technology

*HiFR CEUS provides additional CEUS information, but cannot replace traditional CEUS ;

**HiFR CEUS is not recommended to apply in delay phase or 10cm deeper region ;

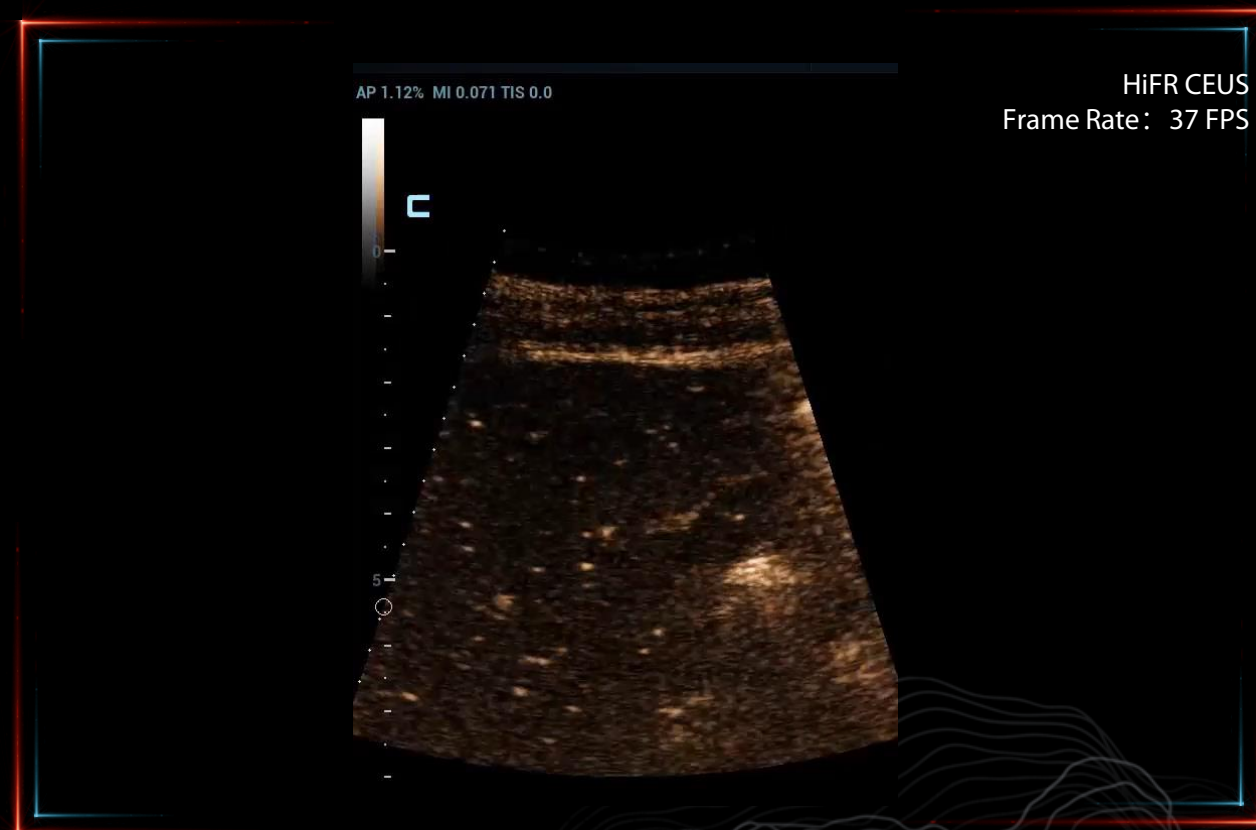
HiFR CEUS

For more insights of lesions

Empowered by ZST⁺ technology, HiFR CEUS is **4-6 times faster** than traditional abdominal CEUS, for vascular structure and perfusion character visualization in arterial phase, working as a complementary tool for UWN⁺

HiFR CEUS provides you:

1. More confident in tumor diagnosis
with clear vascular structure and perfusion character visualization in arterial phase
2. Great potential for tumor character research
by different tumor perfusion details in arterial phase from benign to malignant



HiFR CEUS case : HCC

With HiFR CEUS, not only the tumor quickly wash-in details could be clearly visualized, the enhancement of lesion feeding artery also can be clearly observed.

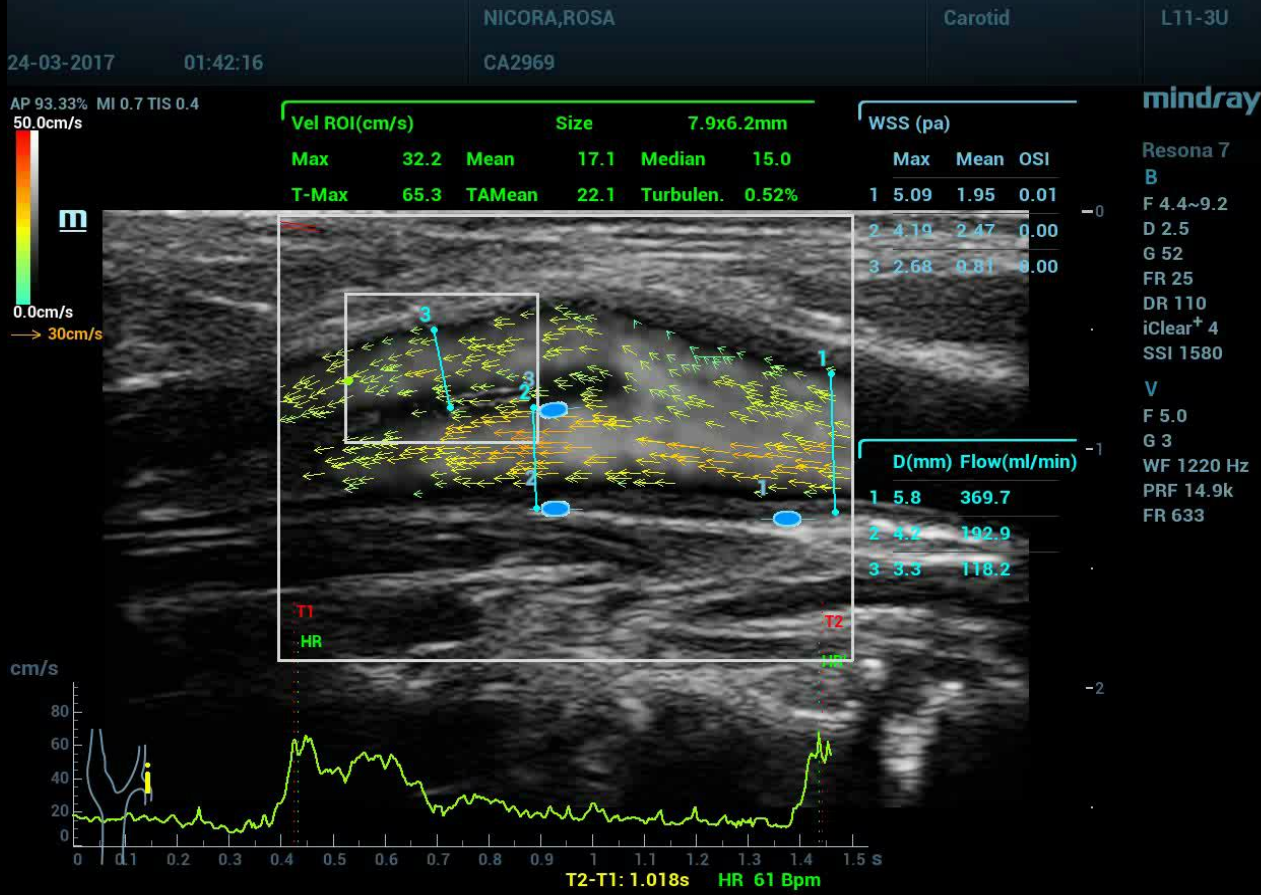
V Flow

Innovative technology developed by Mindray

CFM



V Flow



Turbulence
Carotid artery and Jugular vein

V Flow

Innovative technology developed by Mindray

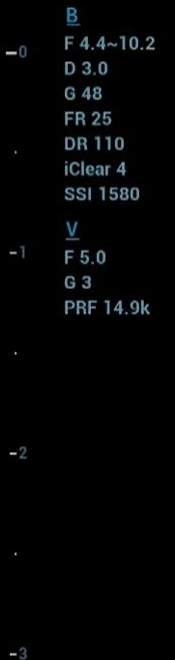
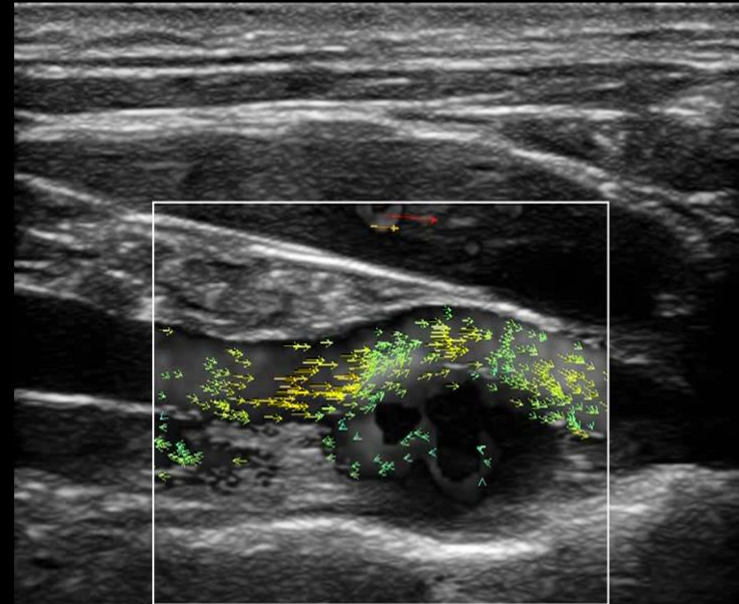
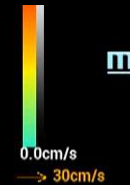
An novel approach for **vascular hemodynamic analysis**, using color coded vector arrows to follow up blood cell's moving **velocity magnitude, direction and angle independent**

Qualitative analysis tool:

- | Grayscale: flow distribution

Quantitative analysis tool:

- | Arrow color: flow velocity
- | Arrow direction: flow direction
- | Arrow length: flow velocity
- | Cursor on arrow: Instant flow velocity and angle number at any single point

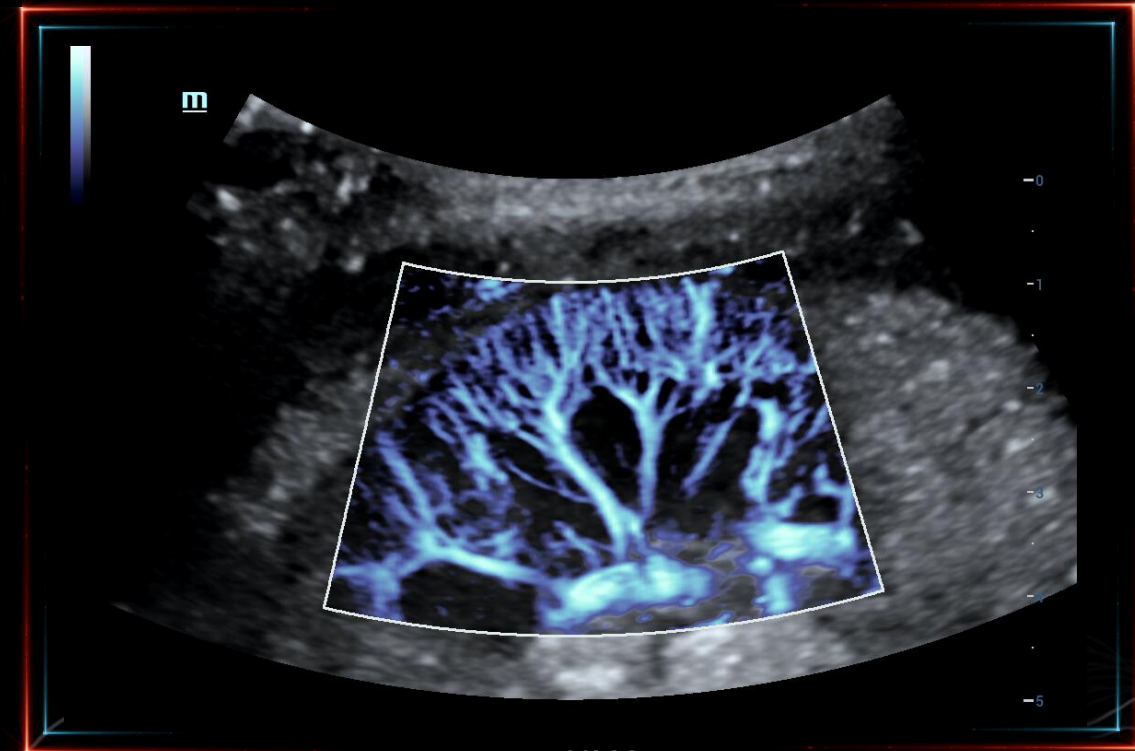


Ultra Micro Angiography (UMA)

There has long been a clinical need for **detection of slow flow** states especially in areas where assessment of vascularity is crucial to diagnosis and follow-up treatments. Traditional flow modes are limited in detecting very slow flow especially in small vessels. The Ultra Micro Angiography(UMA) technique has the potential to fill this role.

UMA brings you:

- **<200um** microcirculation and angiogenesis detection
- **Capture 5cm/s** slow blood flow, applied in tumor supply vessel observation



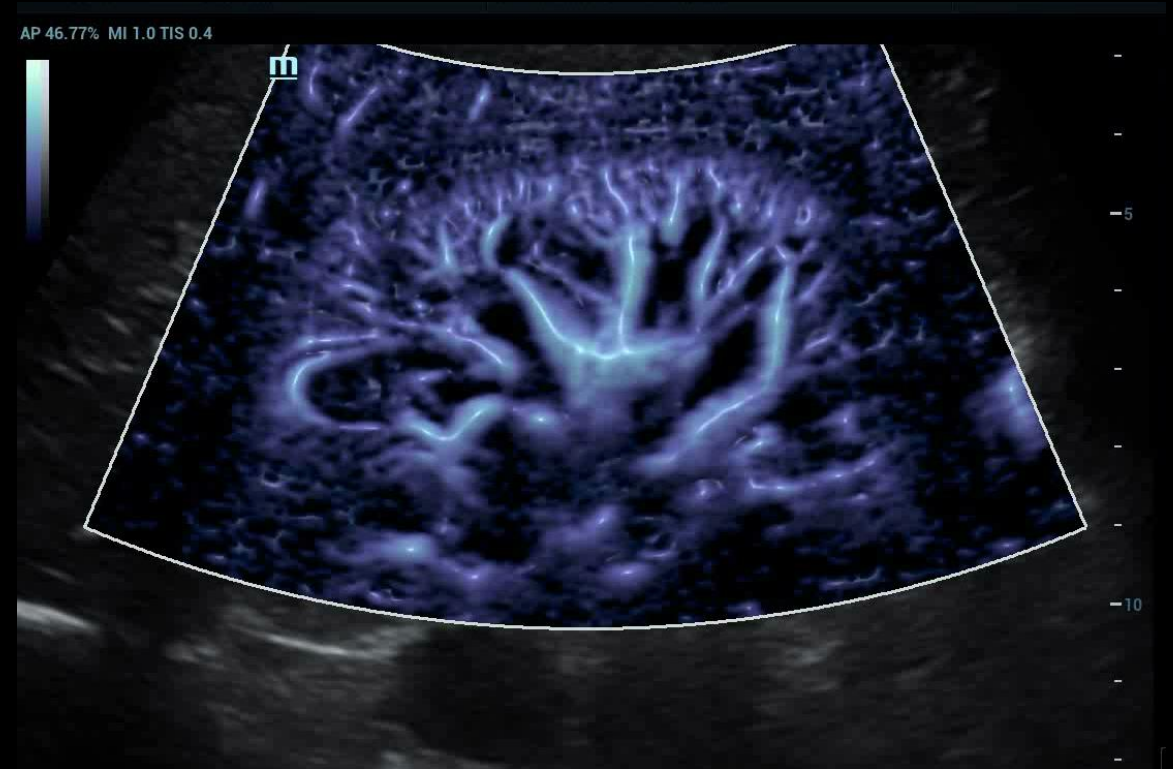
sUMA
Transplant kidney
SC6-1U

Glazing Flow (3D visualization)

Excellent Imaging Performance

1. All application available
2. Provide intuitive spatial information on CDFI
3. Provide better structure visualization for small vessels

Especially useful in rich blood supply tissue or organ, such as tumor supply vessels and kidney



Glazing Flow case (power mode) : Renal artery tree
Glazing flow delivers sharp visualization in arcuate artery and minor interlobular artery structure with 3D view

Professional Application of Cardiac Sonography

Cardiac Structural Assessment

- Auto EF
- Free Xros M

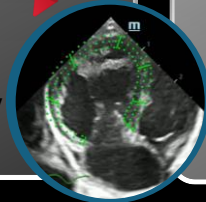
Perfusion Analysis

- LVO
- MCE

Myocardial Evaluation

- TDI
- TTQA
- TDI QA
- TTQA RV

NEW



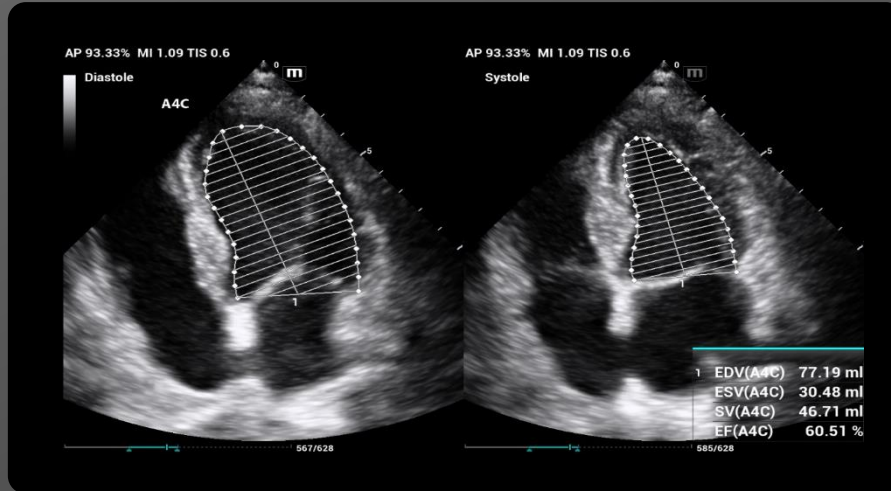
Interventional Examination

- TEE

NEW

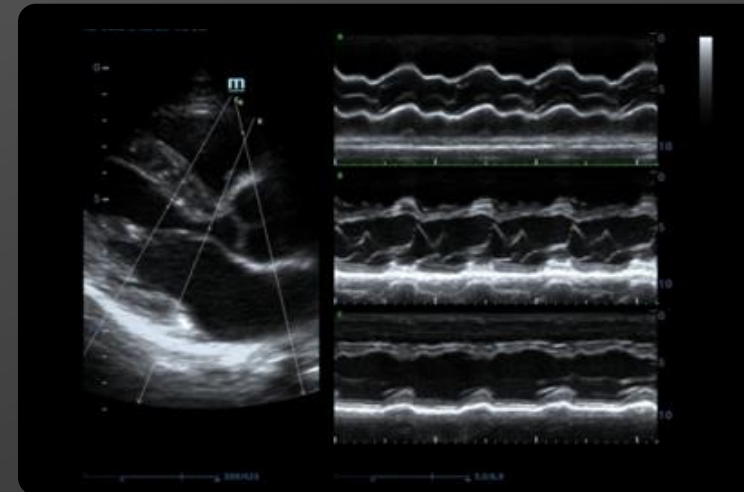


Cardiac Structural Assessment



Auto EF

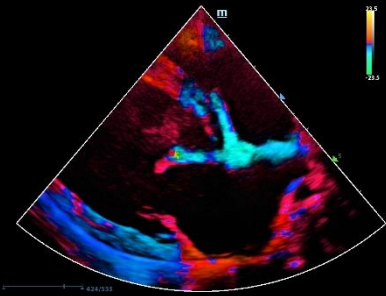
- Auto detect cardiac planes and myocardium borders
- Auto recognize systolic and diastolic images
- Auto measure of EDV/ESV/EF/SV



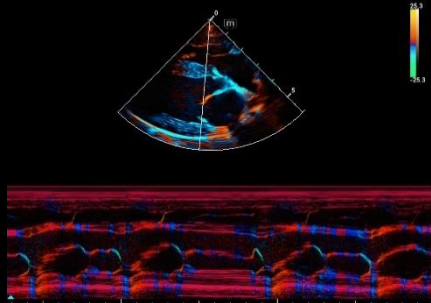
Free Xros M

- M-mark line to any position at desired angles
- Up to 3 independent lines

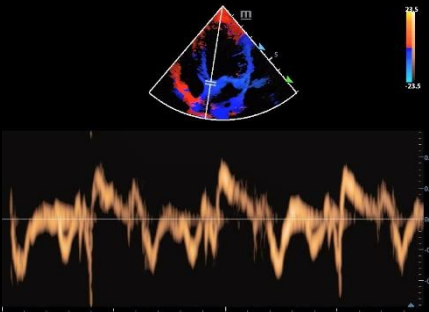
Myocardial Evaluation



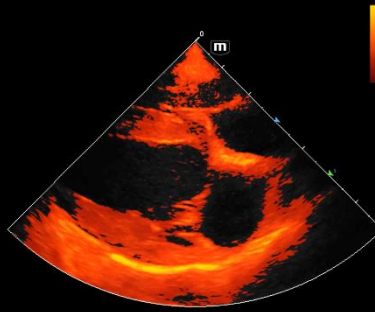
TVI



TVM



TVD



TEI

TVI

Precision in assessing **myocardial segment synchrony**

TVM

Accurately evaluate the **synchronization** of the interventricular septum and the left ventricular free wall

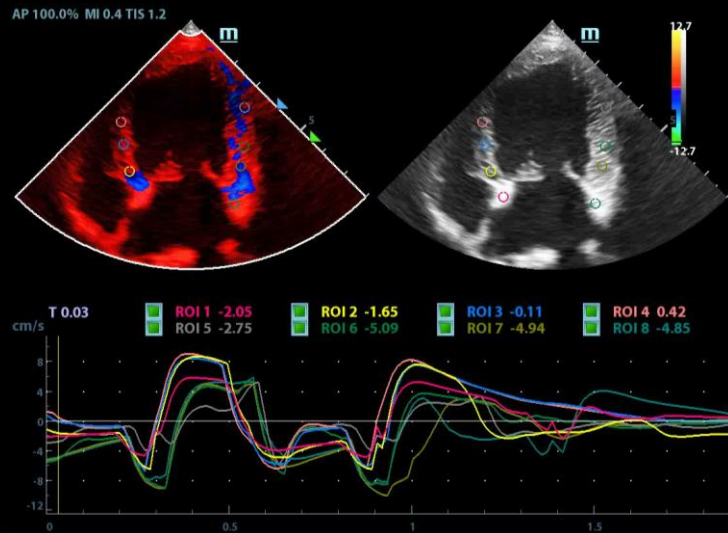
TVD

Measure the longitudinal elevation velocity of the myocardium at the base of the mitral valve (e', a') to quantitatively evaluate **ventricular diastolic function**

TEI

Utilized for evaluating **myocardial contractile power**

Myocardial Evaluation



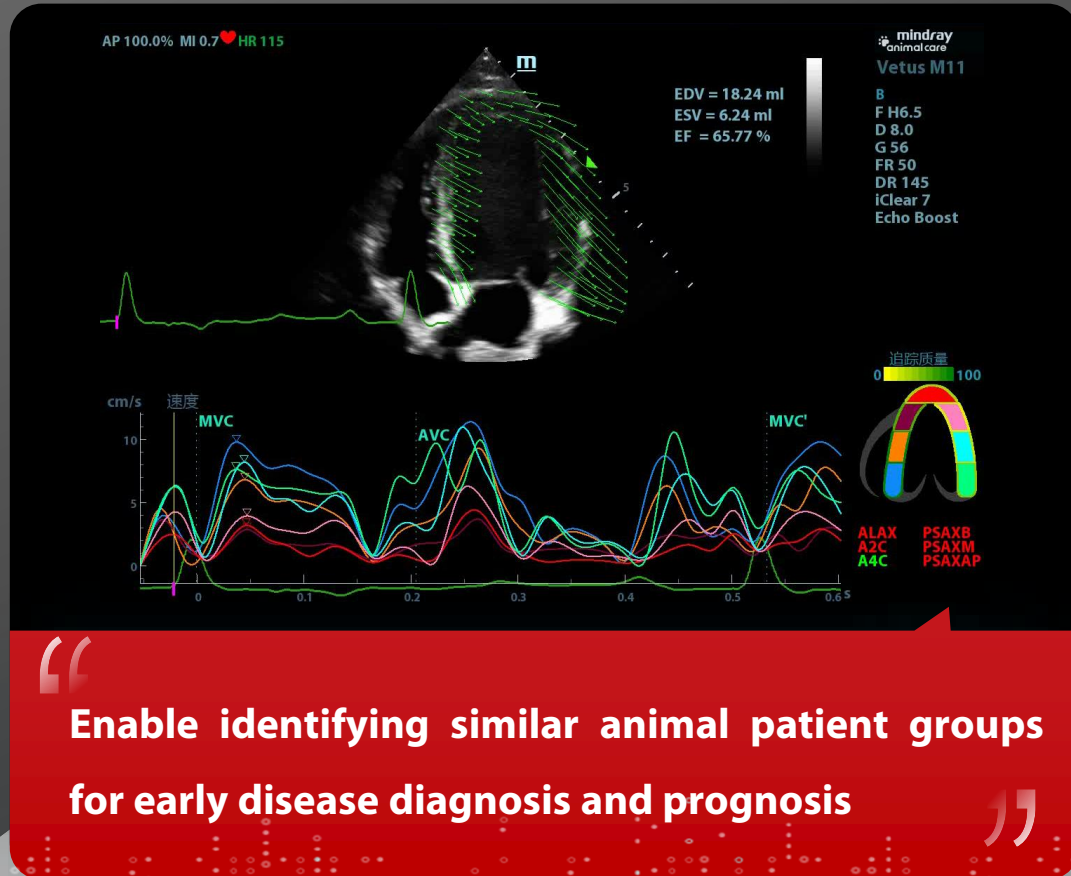
Globally evaluating the velocity change of segmental myocardium within cardiac cycles in order to diagnosis unnormal segment

TDI QA

Tissue Doppler Imaging Quantitative Analysis

- User-define sampling points, max 8 ROI
- Support real-time and post-analysis
- Multidimensional parameters of cardiac tissue motion

Myocardial Evaluation



TTQA

Tissue Tracking Quantitative Analysis

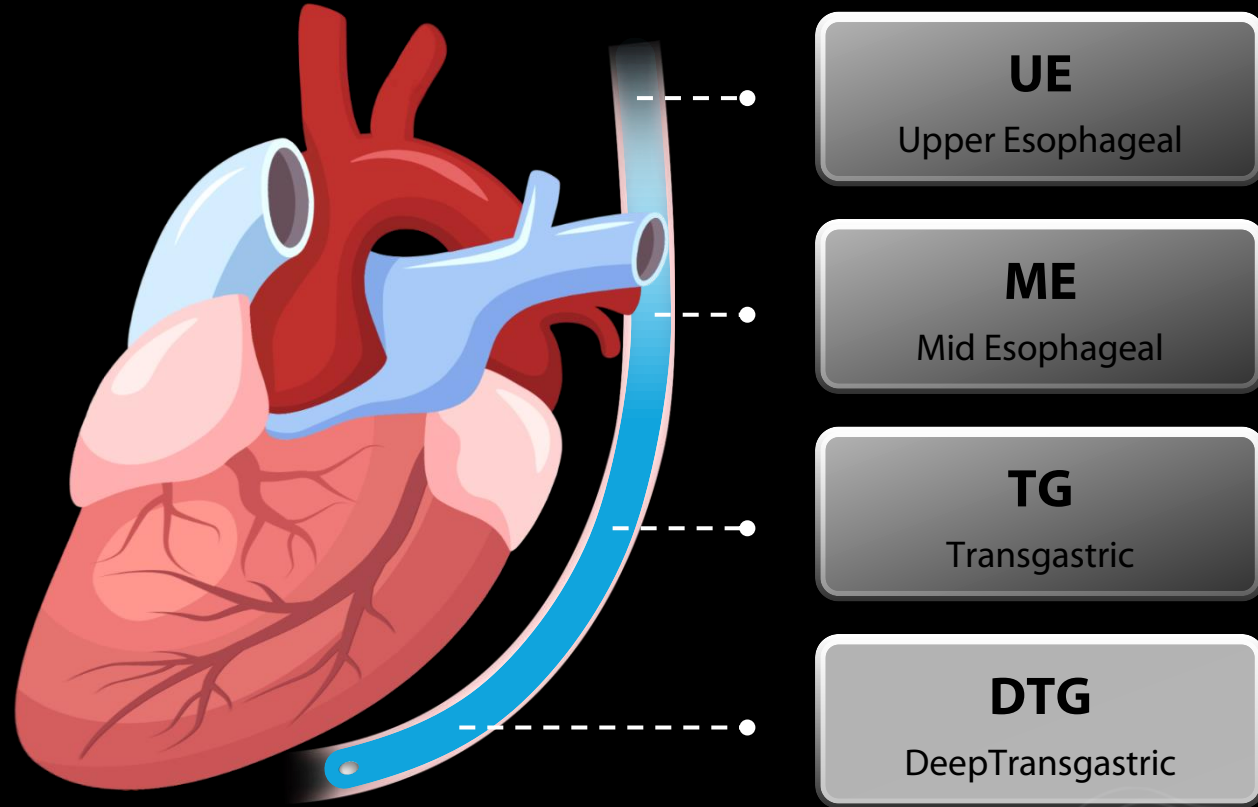
- Angle-independent
- Multiple-dimension assessments with quantitative metrics
- Comprehensive tracking results to better assess LV function

Interventional Application

What is TEE transducer?

Transesophageal echocardiogram (TEE)

- An alternative way to perform an echocardiogram
- A specialized probe containing an ultrasound transducer at its tip is passed into the animals' esophageal



The pin of the TEE probe can be rotated flexibly

Interventional Application

Brand-new TEE transducer for veterinary cardiac imaging

Easy operation shaft

- Length: 108 cm
- External diameter: 10.5 mm
- Good stiffness
- Embedded depth markers

User defined button★

- Degree, freeze, save image

Easy operation control wheel

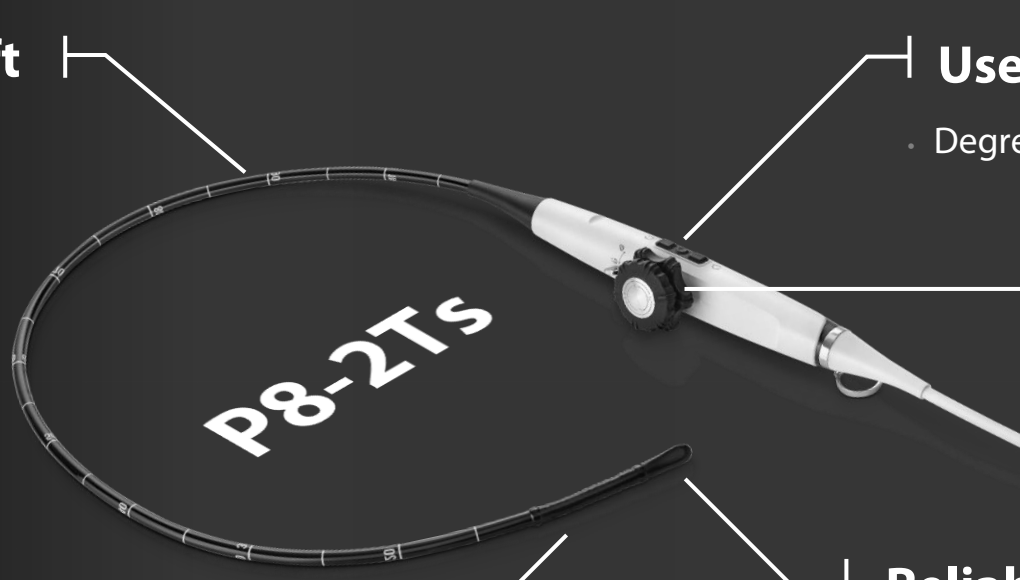
- 4-way articulation for better positioning

Protective deflection sleeve

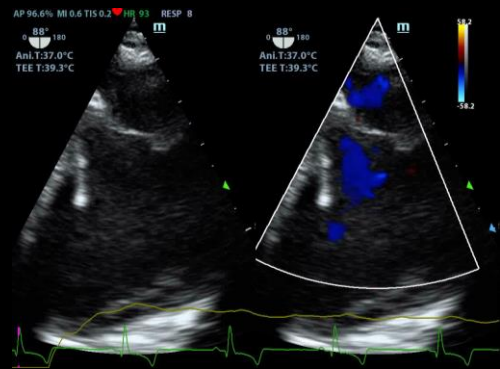
- Resistant to disinfection and corrosion

Reliable lens tip★

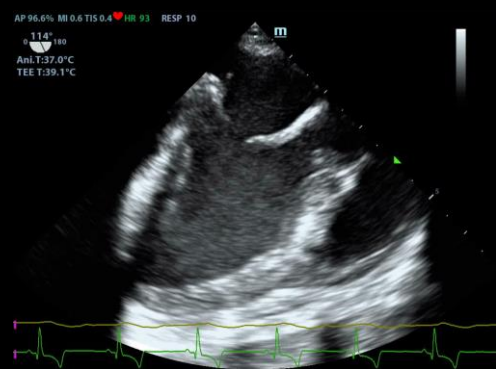
- Diameter of inflexible distal part: 17.5 mm
- Tip deflection: Up/Down/Left/Right: $\geq 120^\circ/45^\circ/45^\circ/45^\circ$
- Waterproof
- Over temperature warning



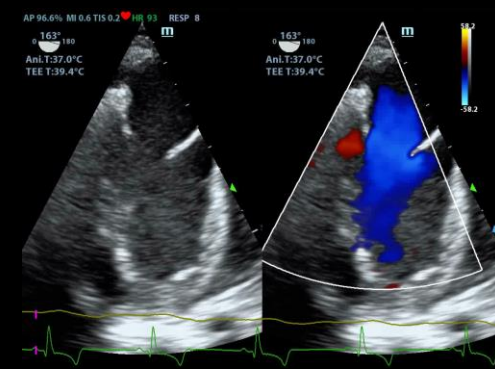
Incredible TEE Performance



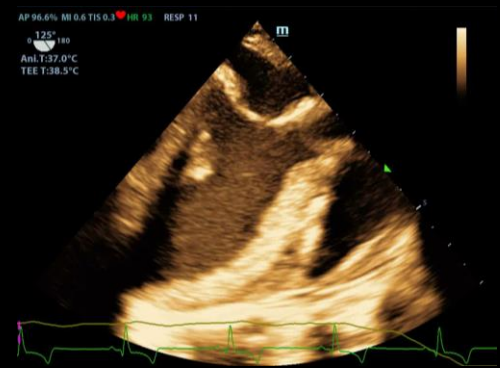
MV Regurgitation-ME-2 Chamber View (Canine)



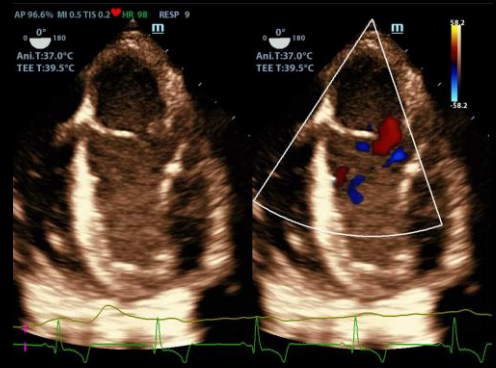
ME LAX View (Canine)



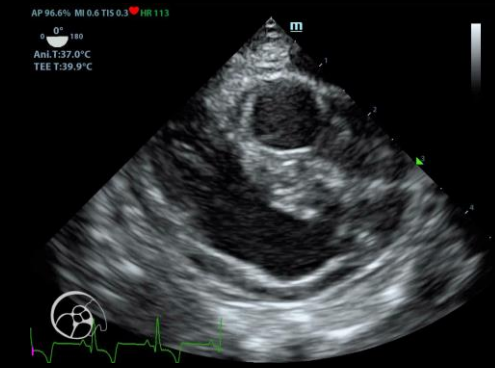
MV Regurgitation-ME-2 Chamber View (Canine)



ME LAX View (Canine)



MV Regurgitation-ME-4 Chamber View (Canine)



ME-AV SAX View (Canine)



Powerful

Clarity image powered by ZST⁺

- Zone Imaging
- Zone Focusing
- Zone Processing



Focus

- HD-Scope, Echo boost, SSC
- 3T , ComboWave, Single crystal
- UWN+ Contrast Imaging
- UMA (Ultra Micro Angiography)
- V Flow
- HiFR CEUS
- Sound Touch Elastography
- Tissue Doppler Image and QA
- Tissue Tracking QA



Speed

High efficiency vet workflow & remarkable user experience

- iConsole, full-space floating
- 13.3", intuitive interaction
- 23.8 inch LED monitor
- 2 Hours, auto wake-up
- 1 Meter, modular design
- 26dB super-silence

