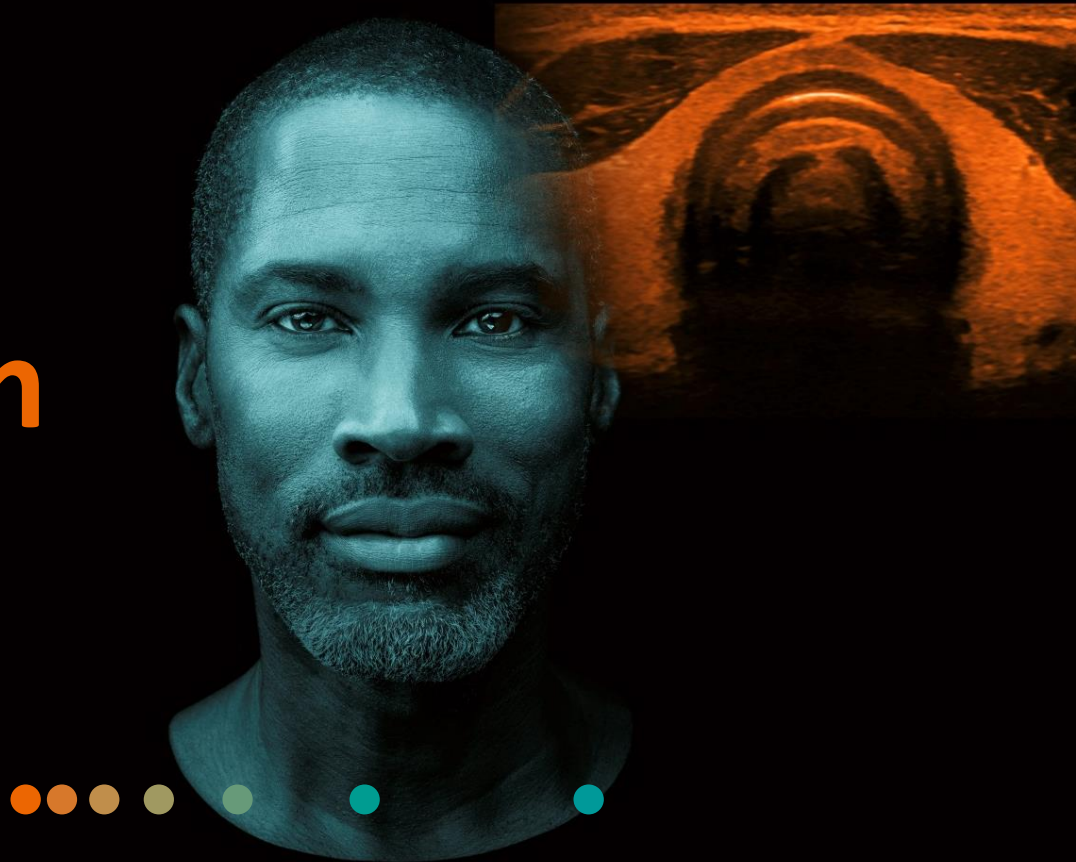


# ACUSON Sequoia Ultrasound System

Major Modes  
Release 3.5 (VB30)



# Objectives

- **Review B-mode and M-mode controls**
- Describe B-mode and M-mode optimization features
- Explain display modes
- Review Doppler controls
- Describe Doppler optimization features



Selection  
Screen

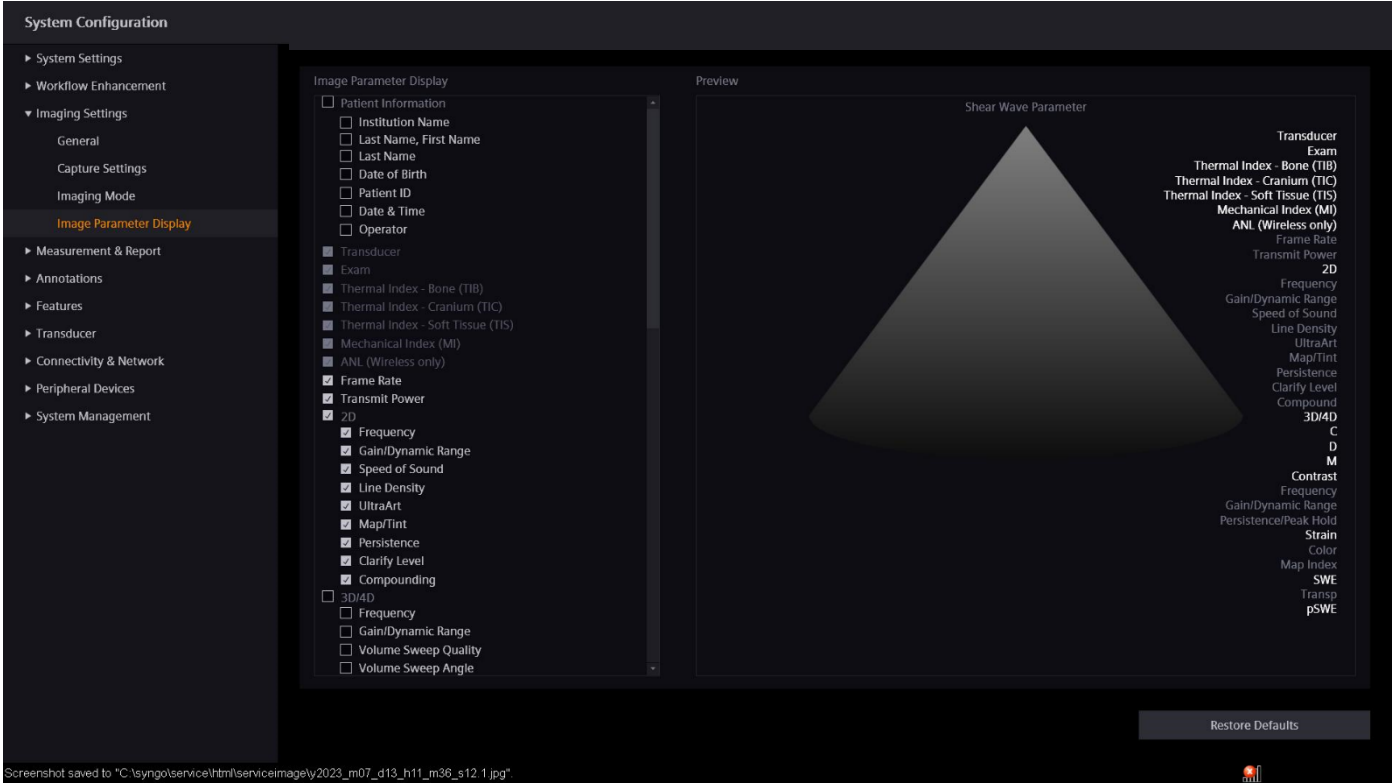
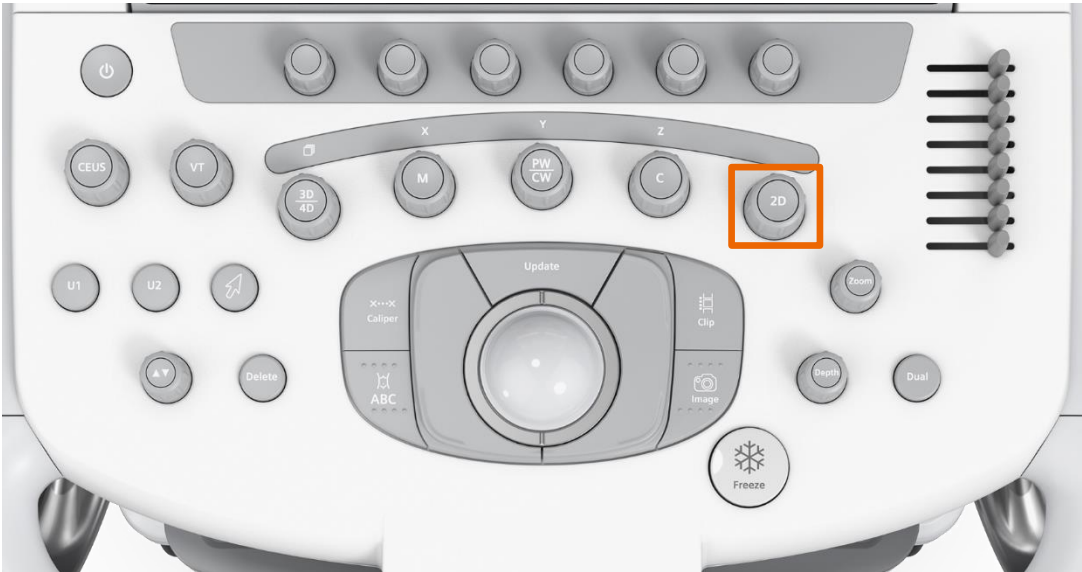


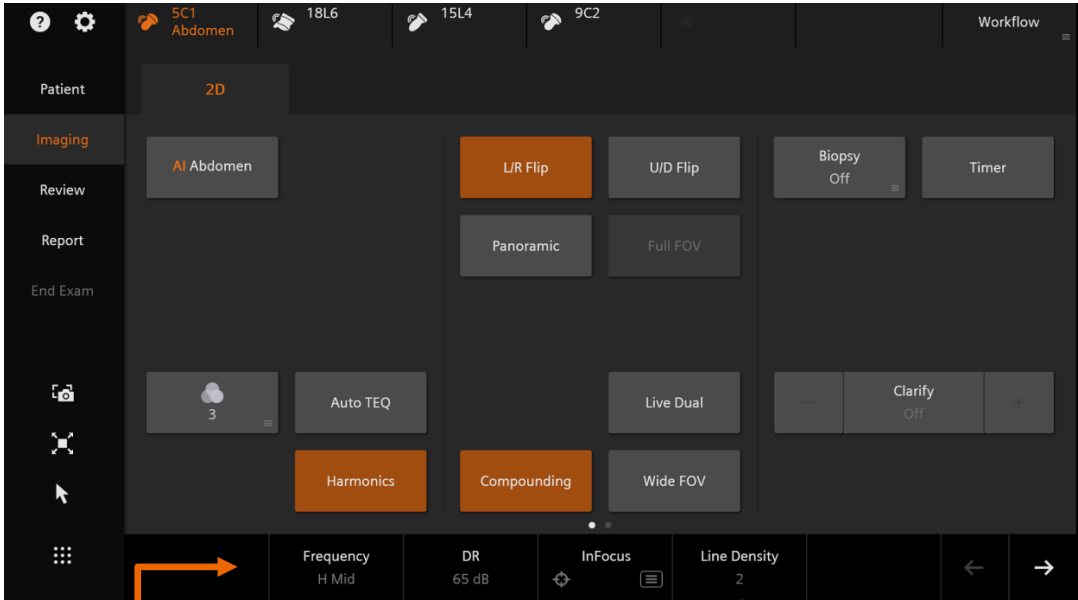
Image Screen  
Display

# B-mode controls

Control Panel



Touch Screen

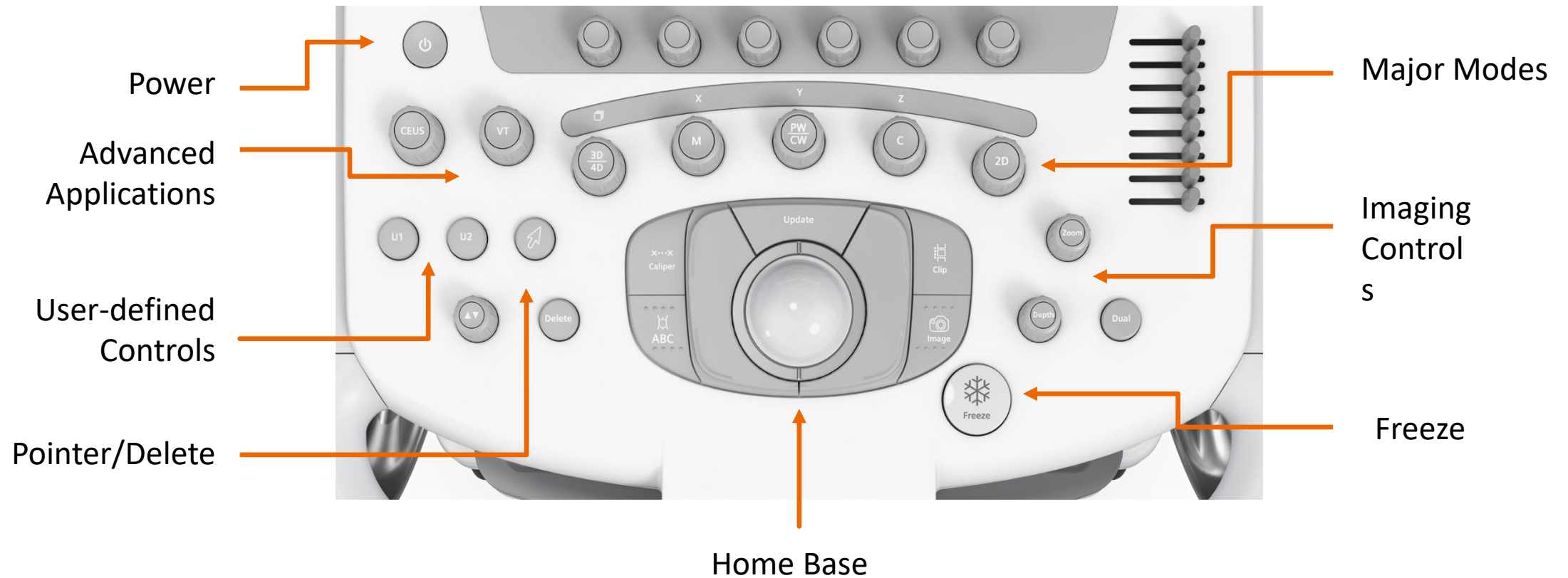


Soft Keys

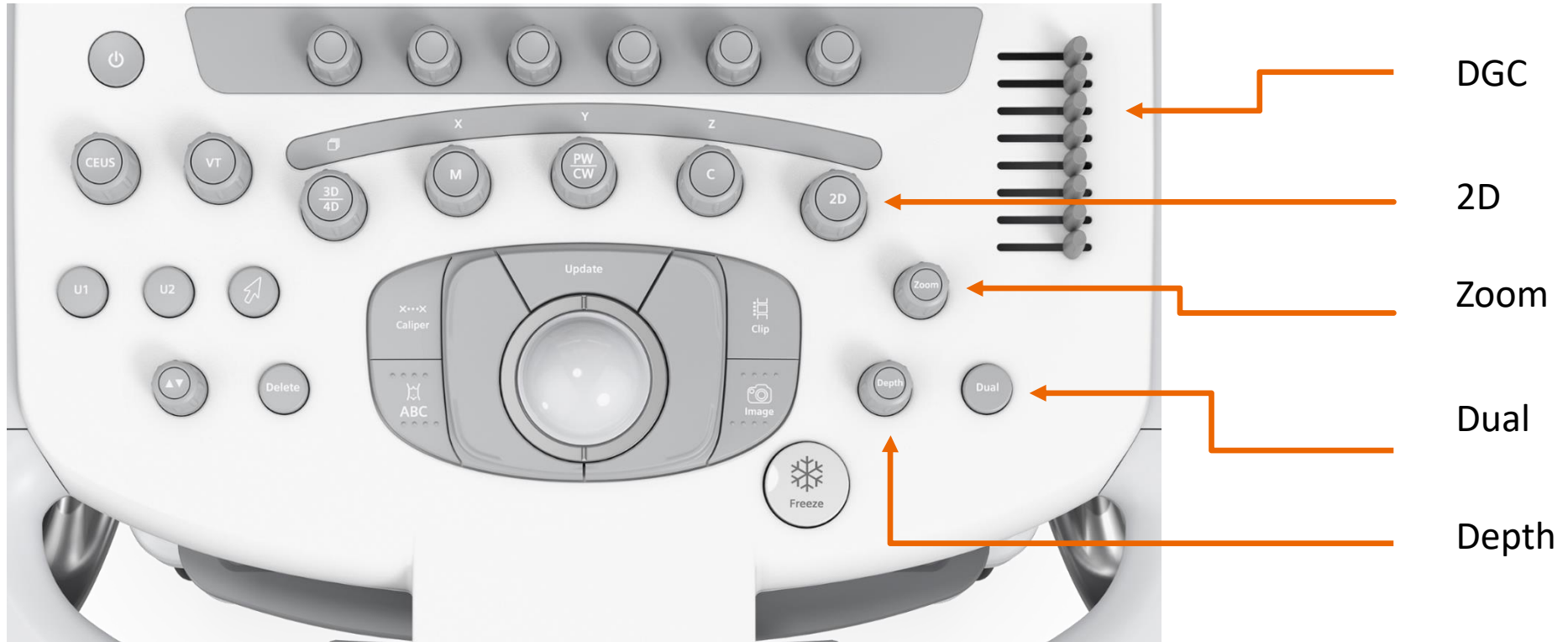




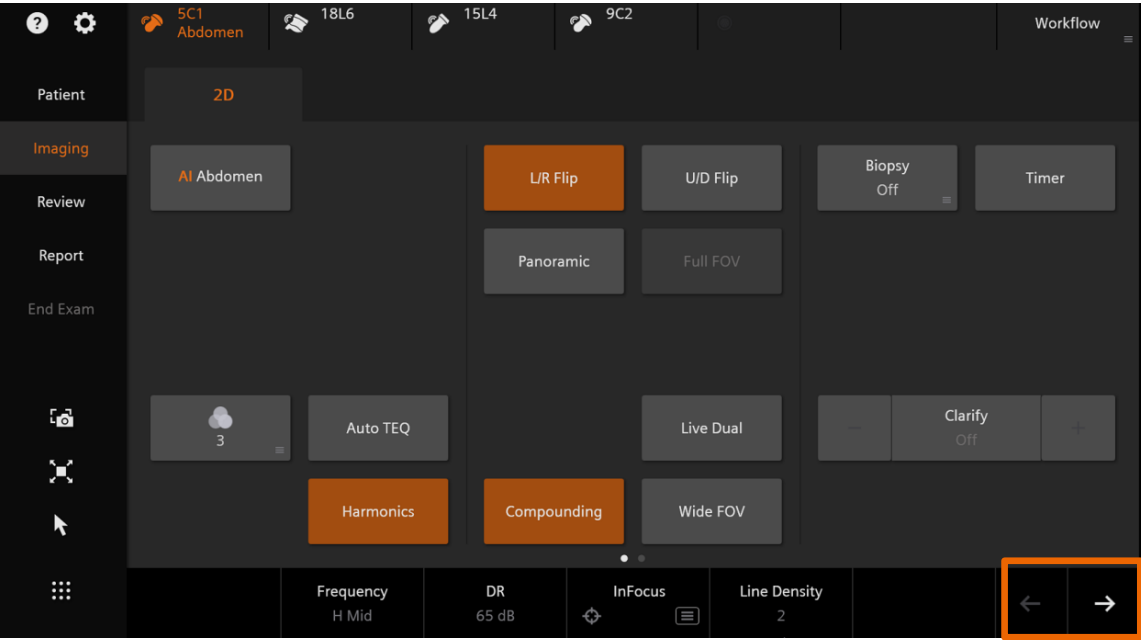
## Soft key rotary controls



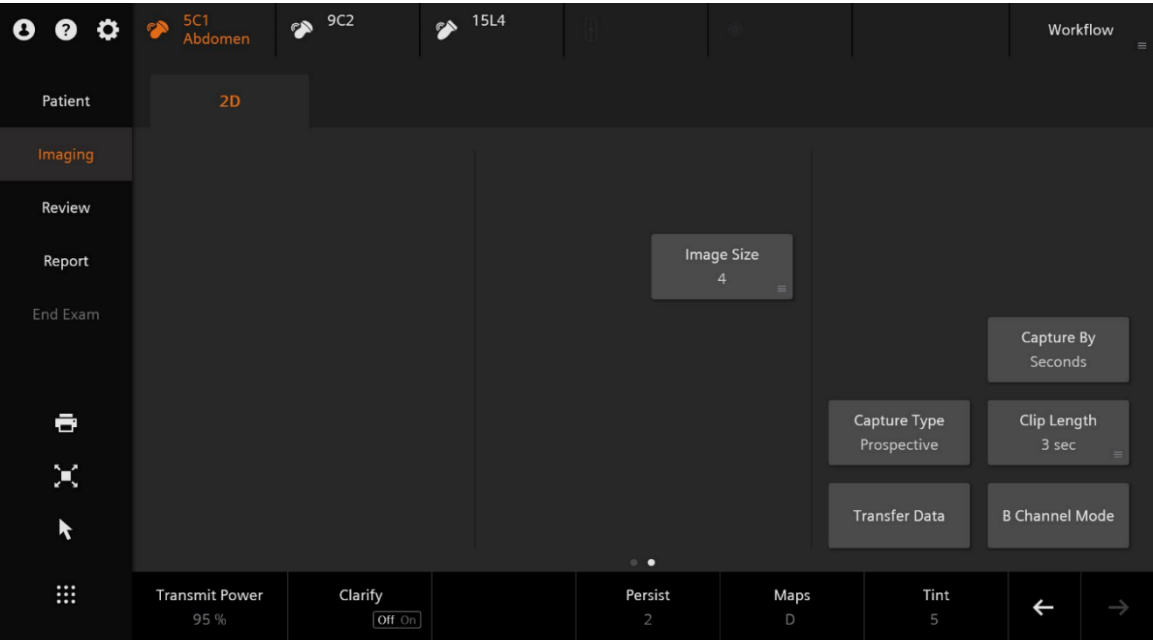
# B-mode controls on the Control Panel



# B-mode controls on the Touch Screen



Page One

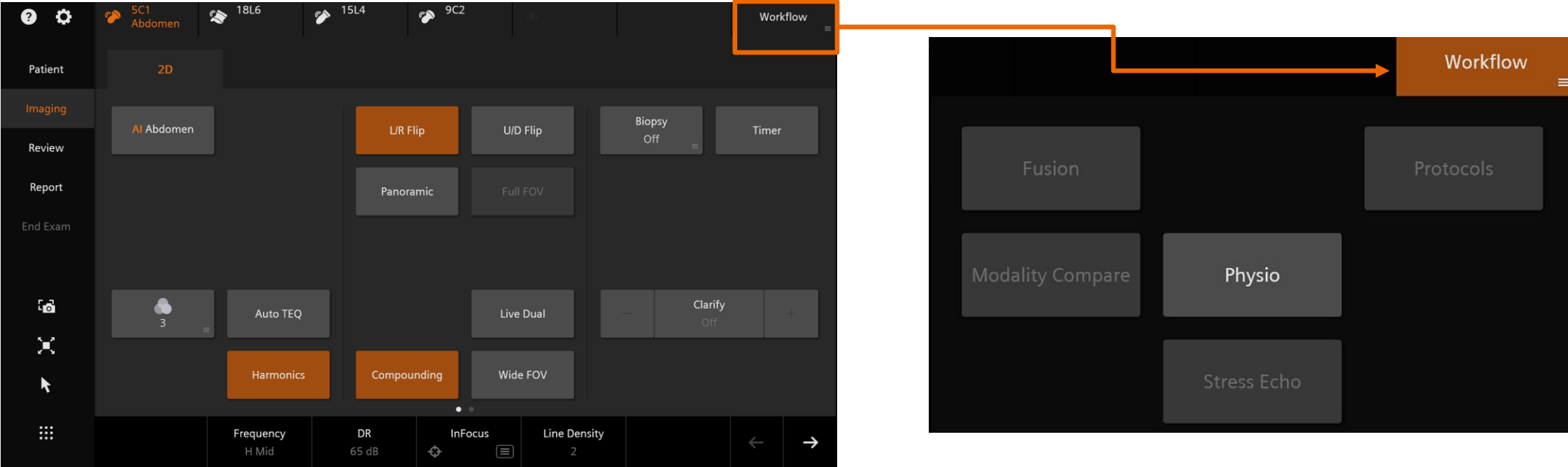


Page Two

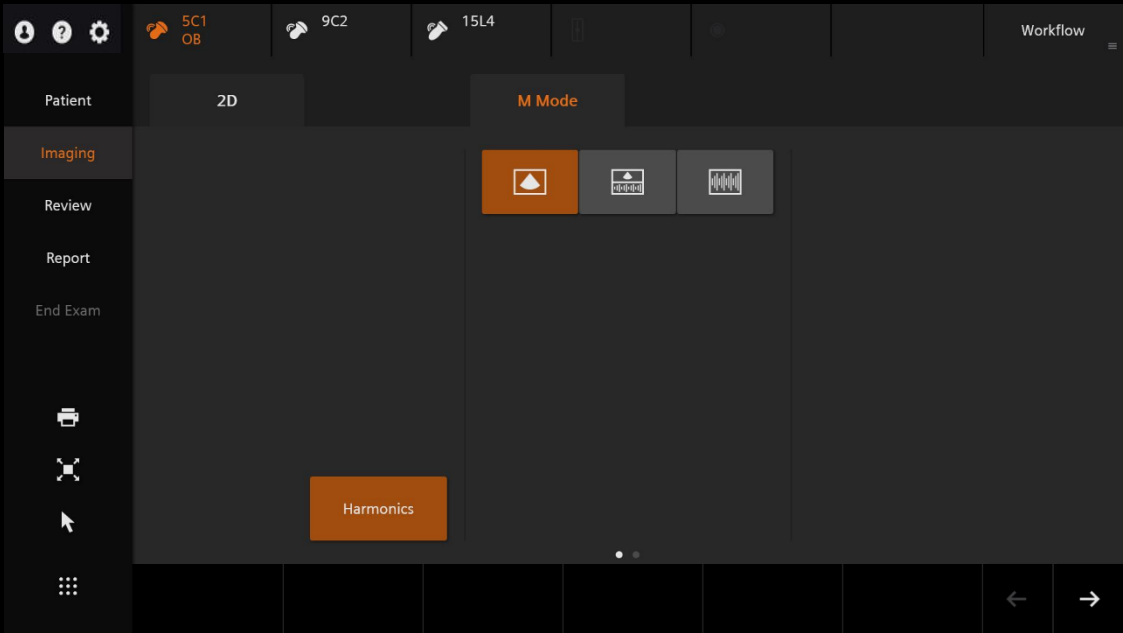
# B-mode controls on the soft keys



# Workflow control

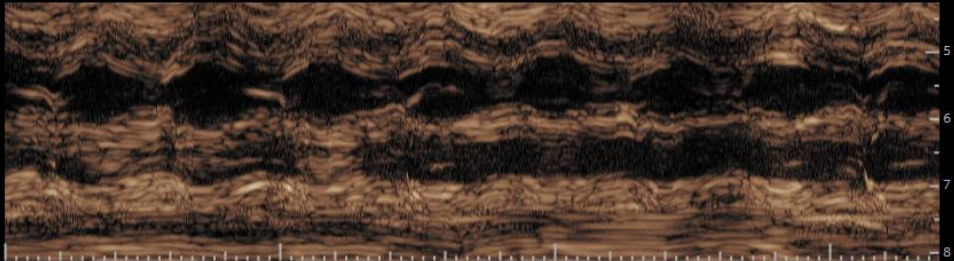


# M-mode controls



IR

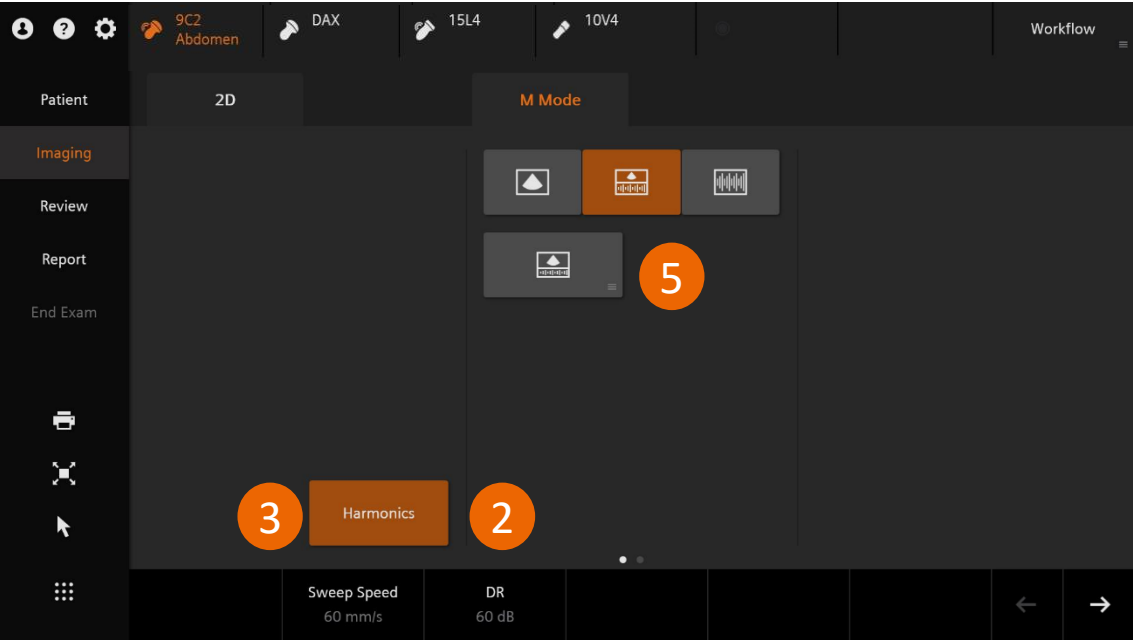
Sequoia



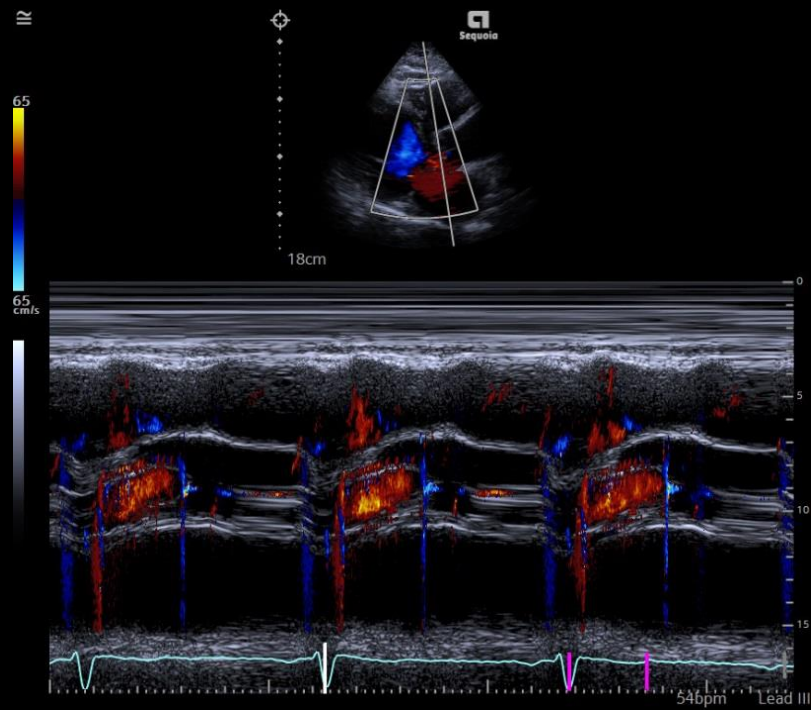
5C1  
OB  
TIB:2.47  
TIC:3.02  
TIS:1.27  
MI:1.38  
86fps  
95%  
**2D**  
H High  
9dB/DR55  
LD 2  
UA 3  
MapE/T9  
P 3  
**M**  
0dB/DR60  
MapD/T9  
E 2

Clinical Data

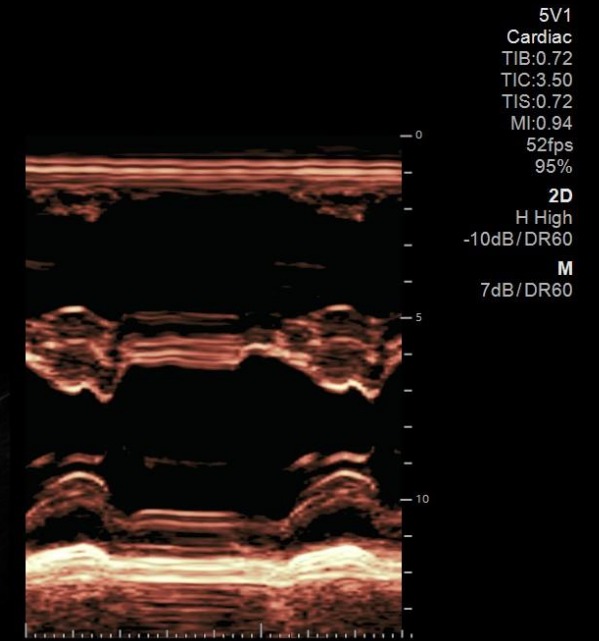
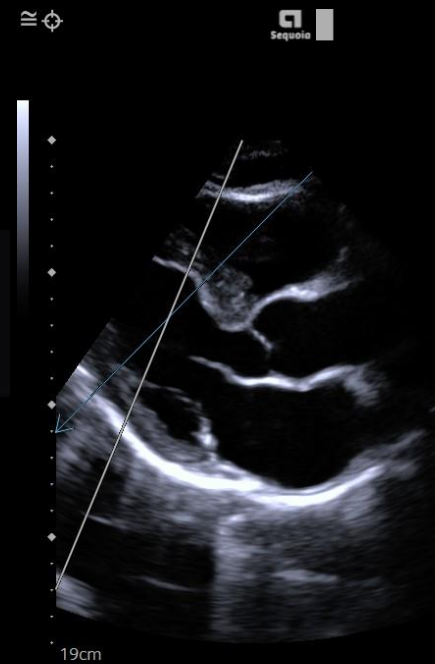
# M-mode Touch Screen controls



## Anatomic and color M-mode



5V1  
\*Cardiac-  
TIB:3.93  
TIC:3.06  
TIS:1.53  
MI:1.30  
19fps  
95%  
**2D**  
H Mid  
-6dB/DR61  
**C**  
Mid  
-2dB/General  
PRF 3968  
**M**  
2dB/DR60



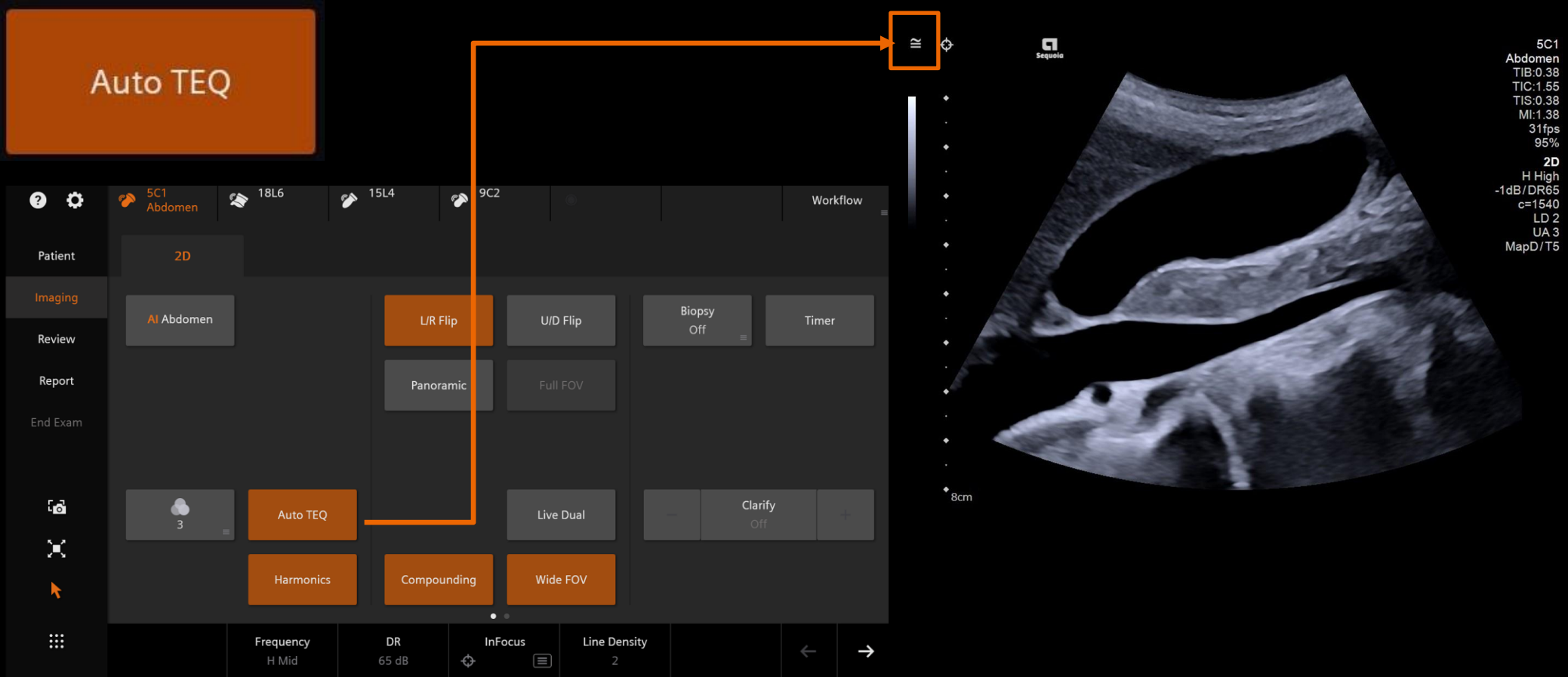


# Objectives

- Review B-mode and M-mode controls
- **Describe B-mode and M-mode optimization features**
- Explain display modes
- Review Doppler controls
- Describe Doppler optimization features

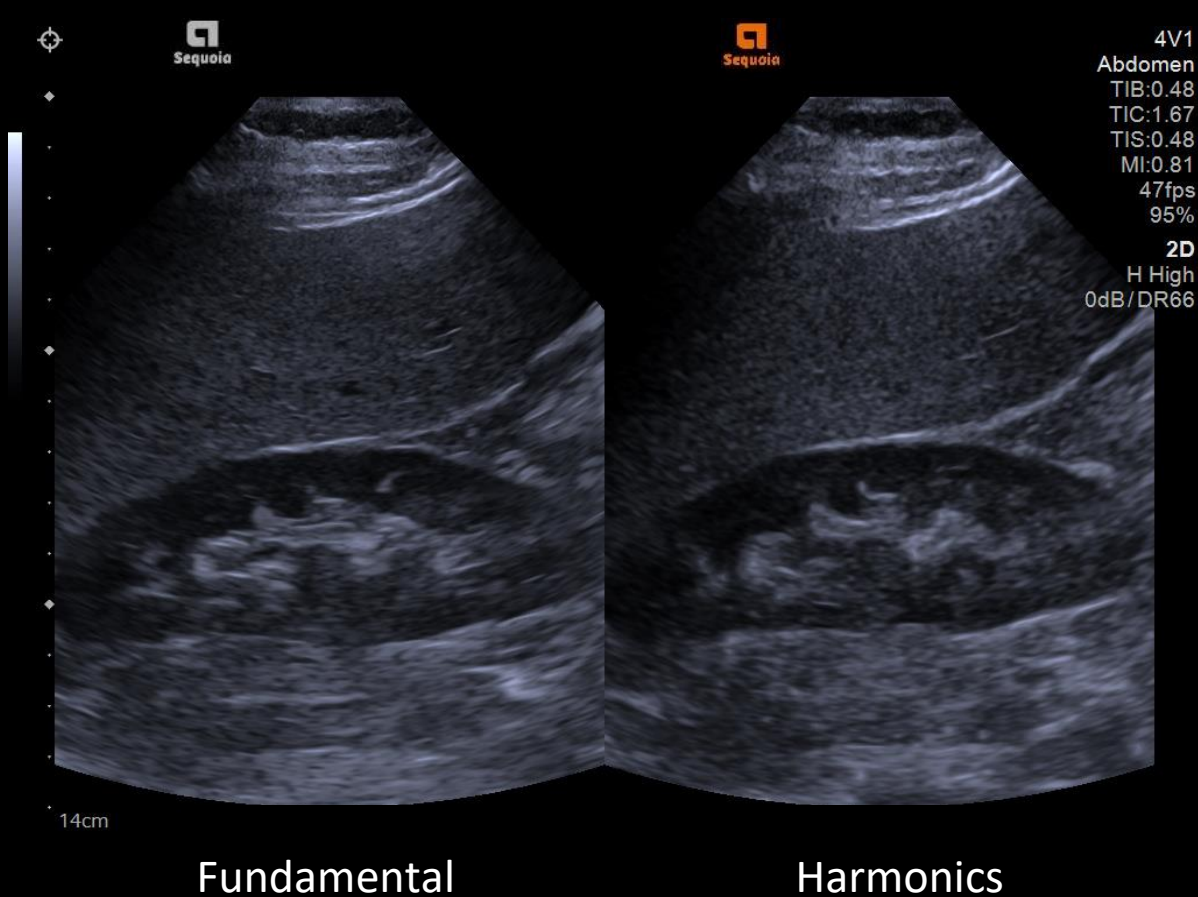


# Auto TEQ image optimization



# Harmonic imaging

Harmonics



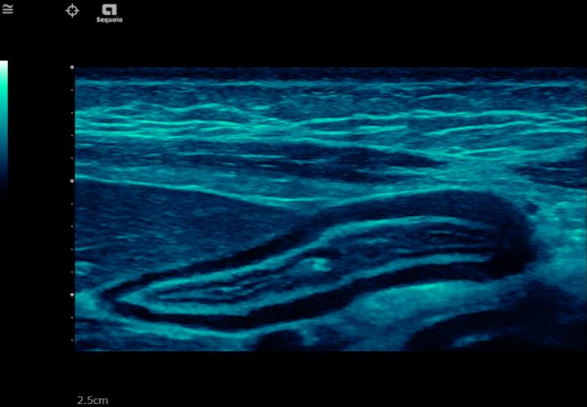
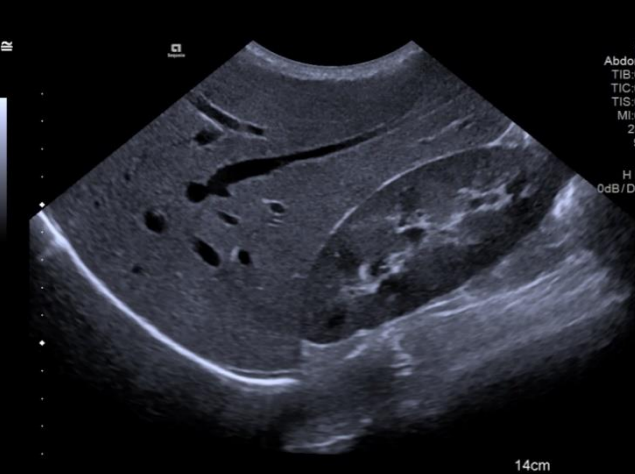
# Frequency imaging

Frequency  
H Mid

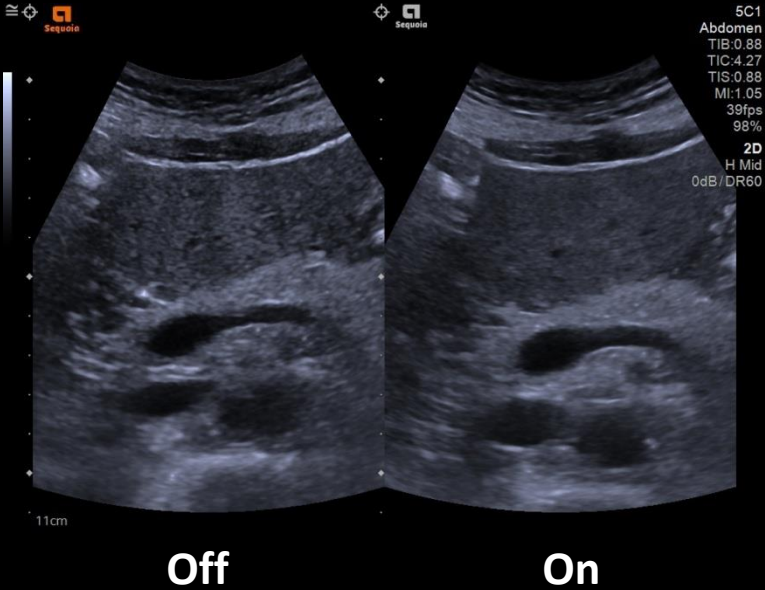
DR  
65 dB

InFocus

Line Density  
2



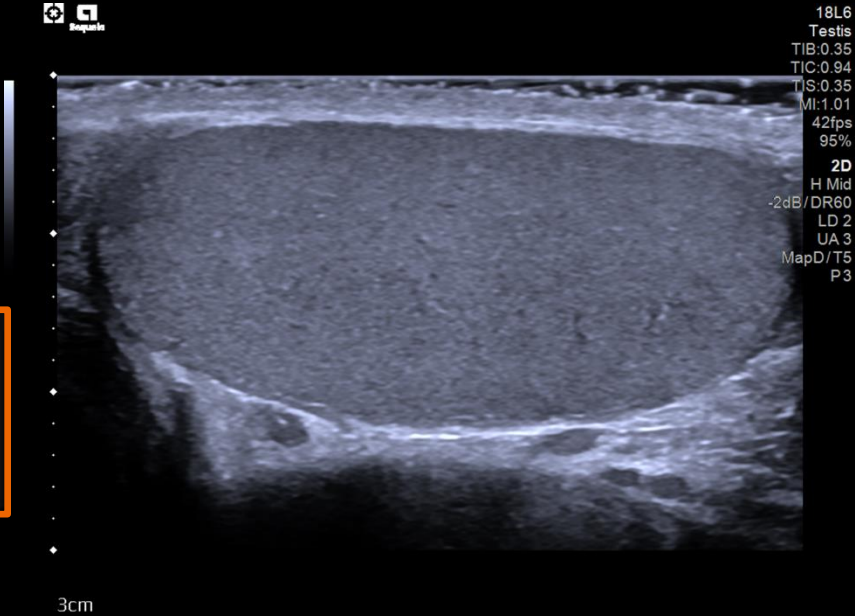
# Compounding



Compounding



Line Density  
1





Frequency  
H Mid

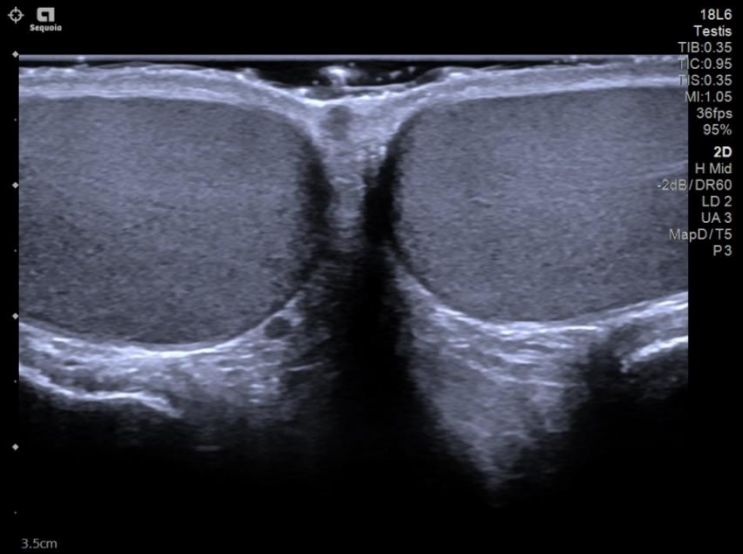
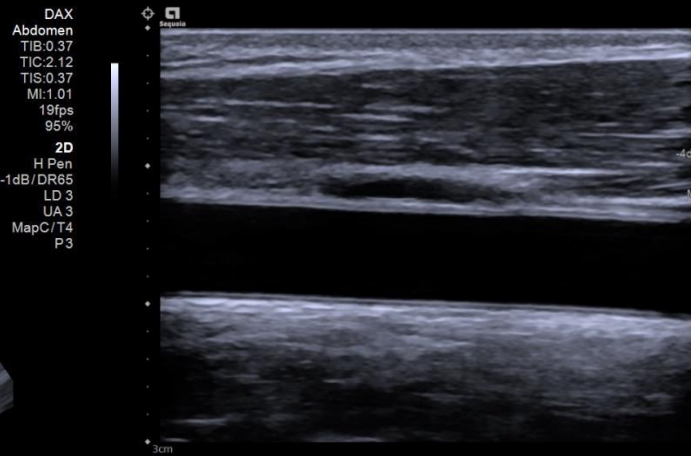
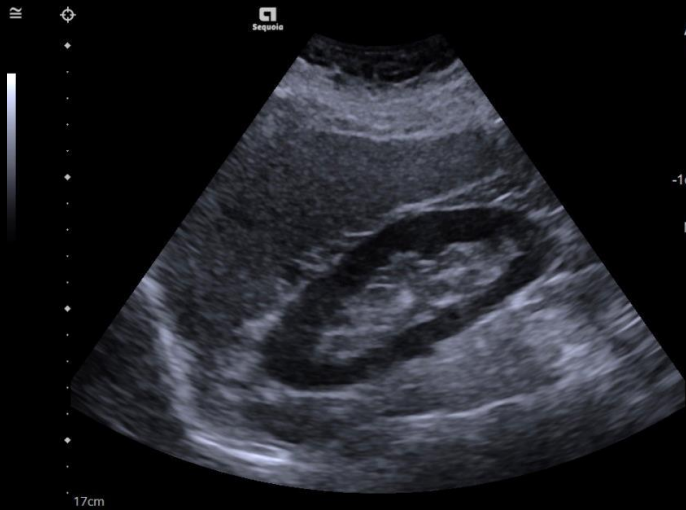
DR  
65 dB

InFocus

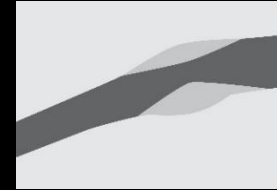
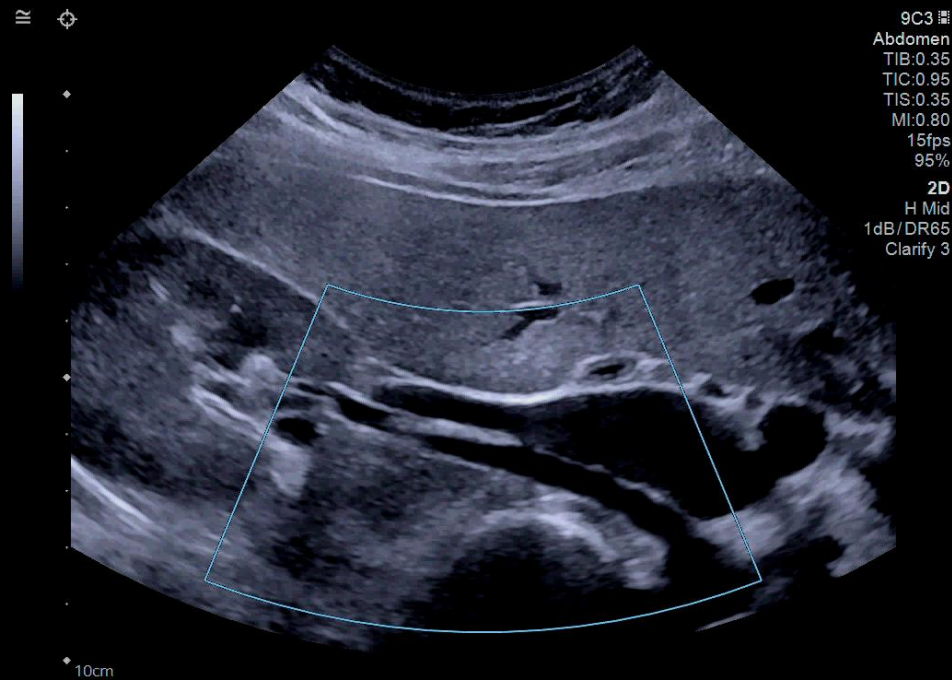
Line Density  
2

←

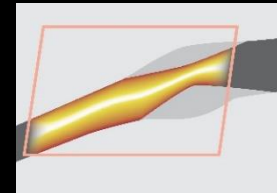
→



# Clarify vascular enhancement (VE) technology



2D



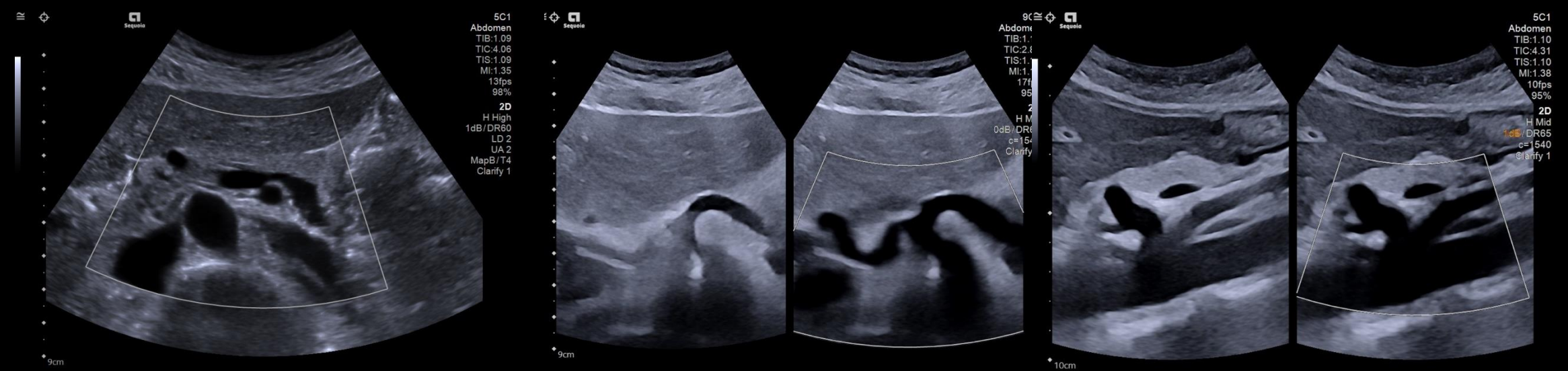
Power



Clarify

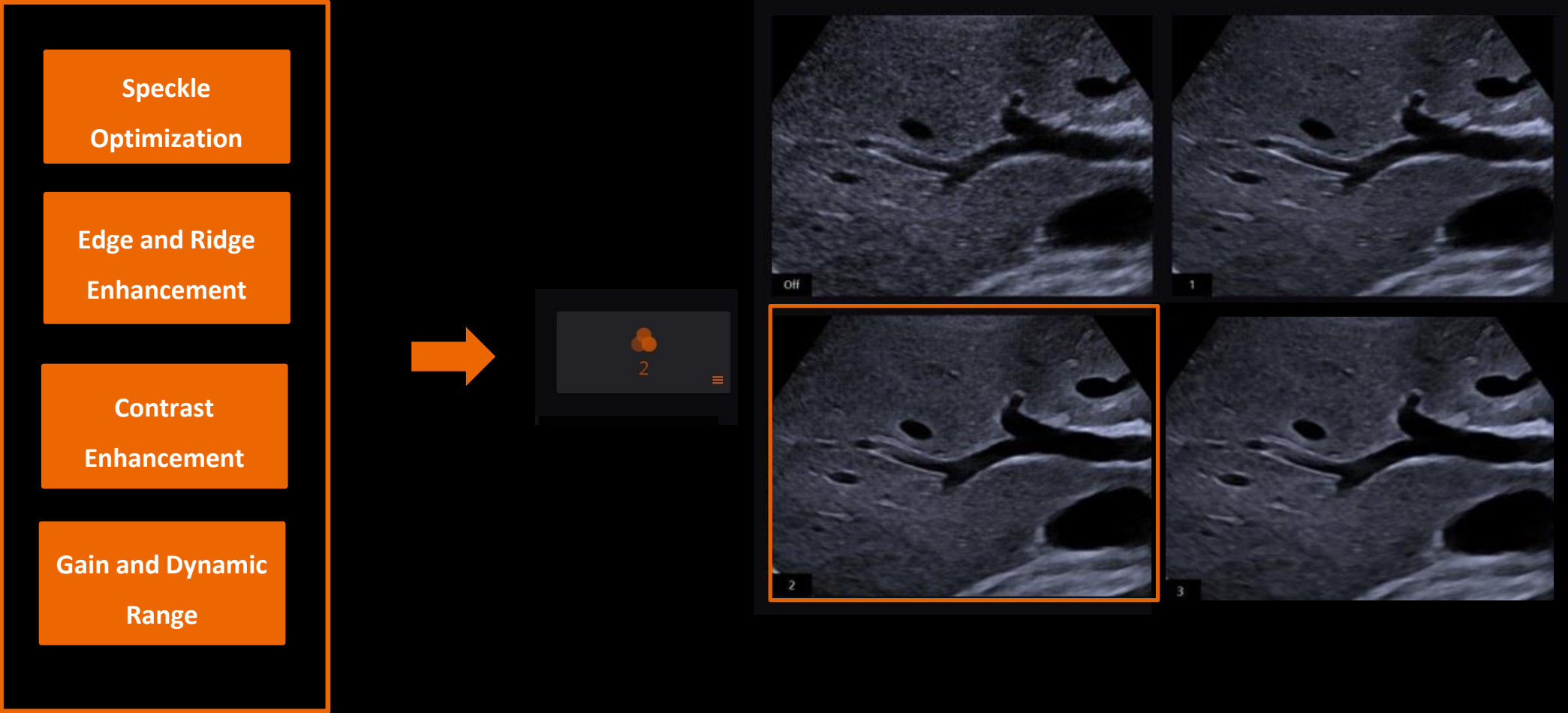
- Uses Power Doppler amplitude information to enhance B-mode imaging
- Reduces artifacts in vessels and improves vessel wall definition

# Clarify VE technology

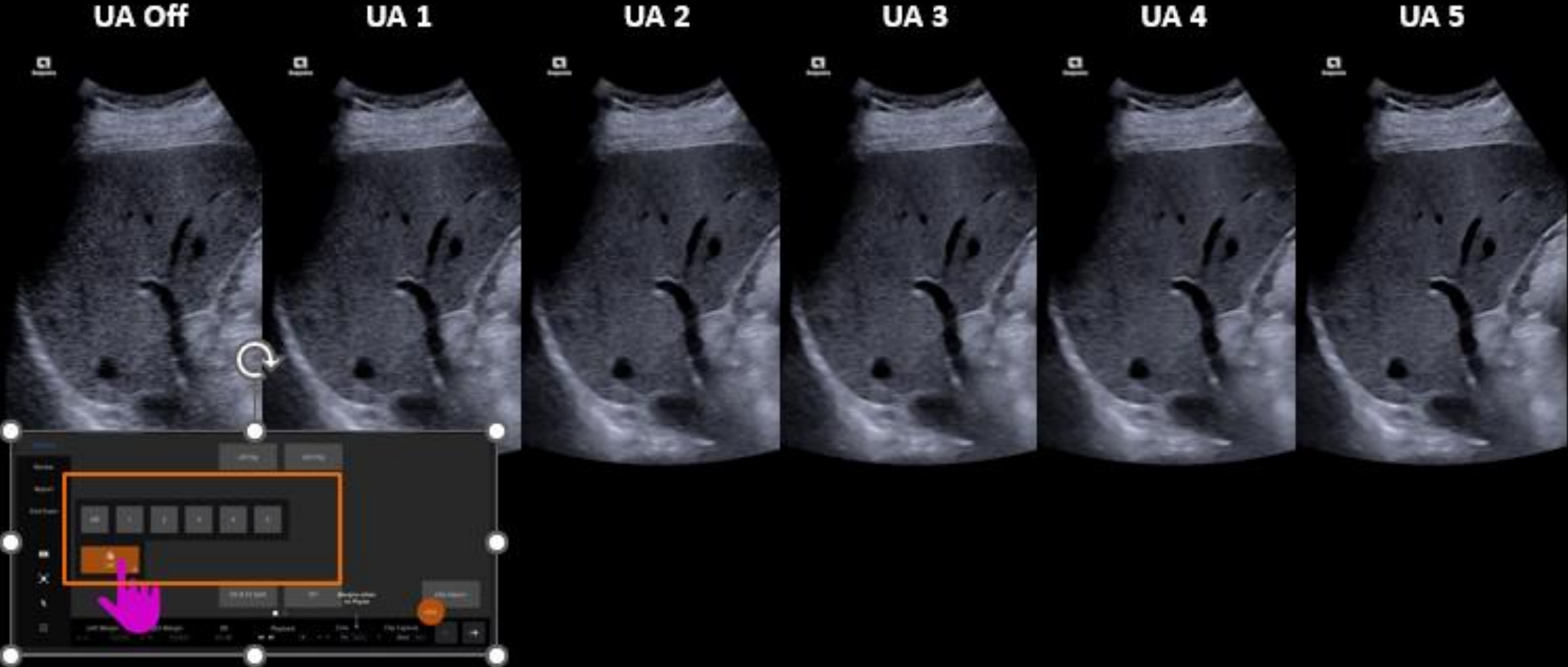




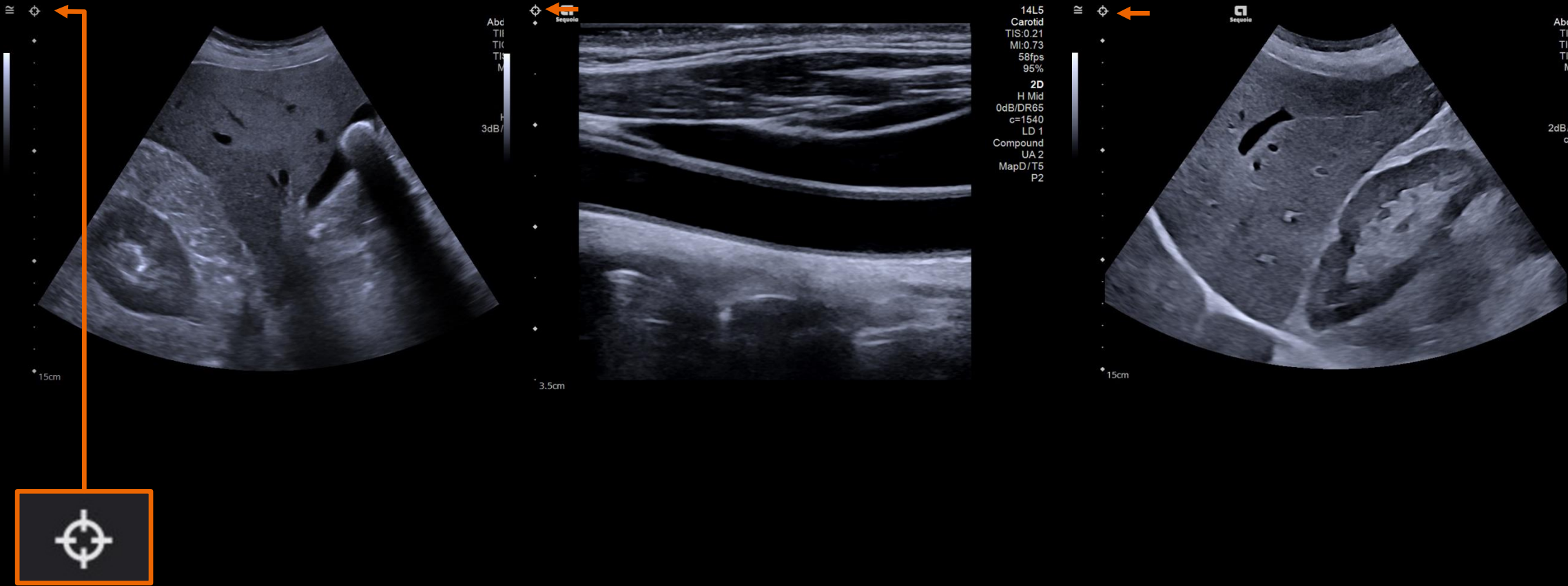
# UltraArt universal image processing



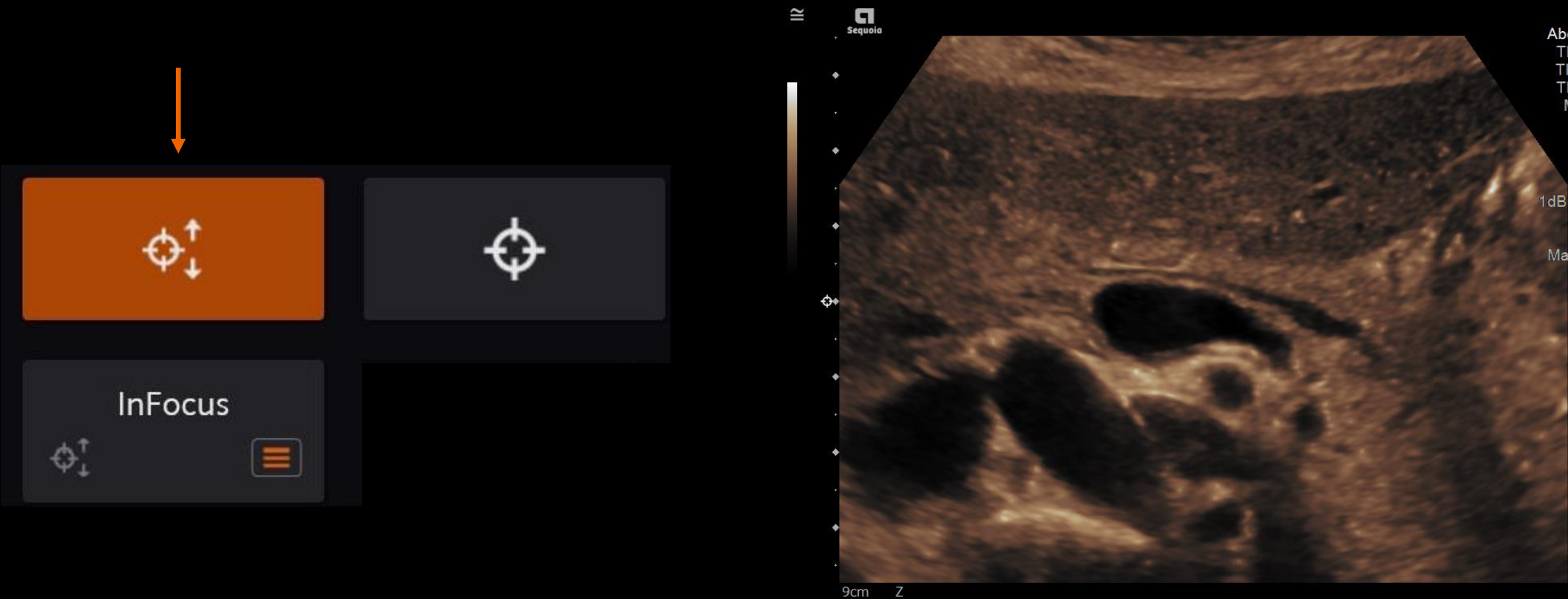
# UltraArt universal image processing



# InFocus coherent image formation

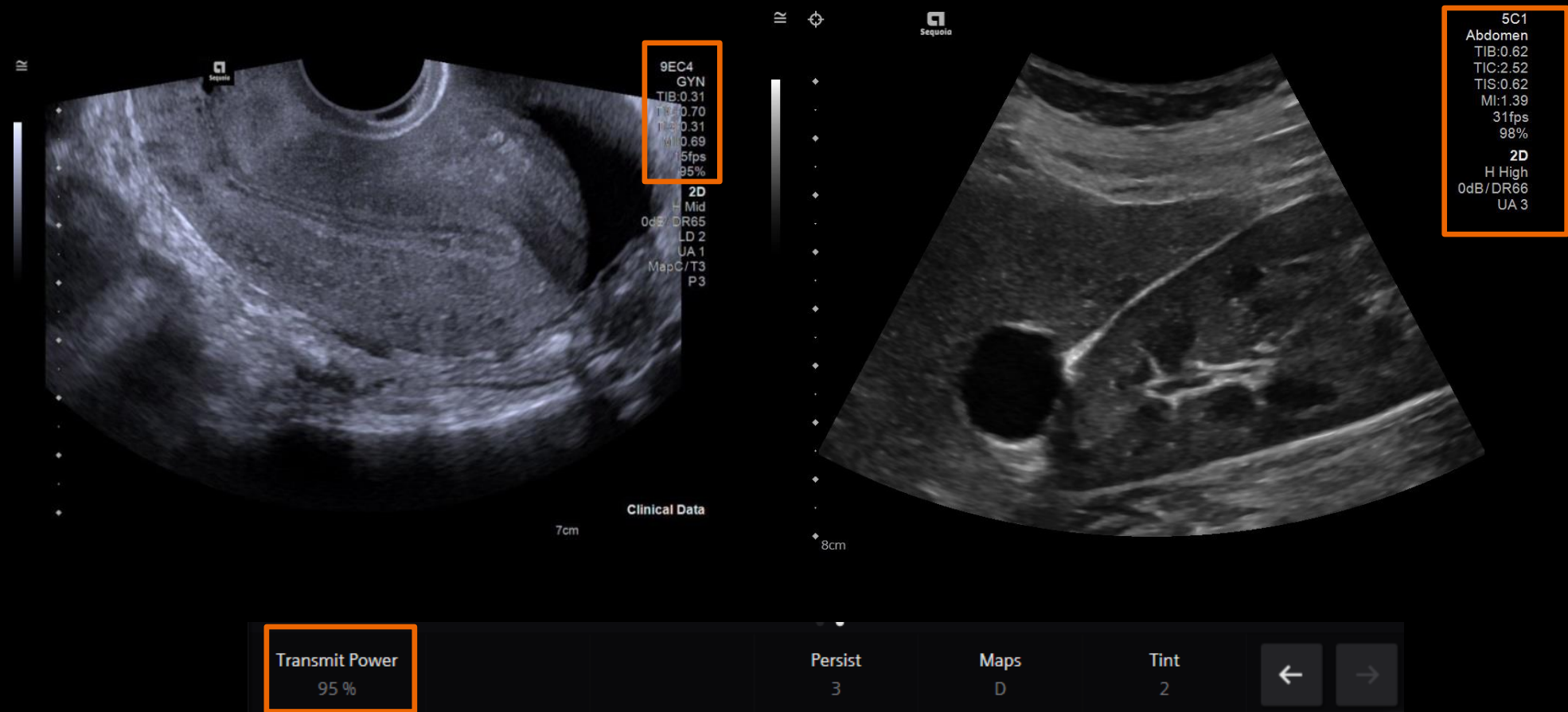


# InFocus coherent image formation – Selectable focus

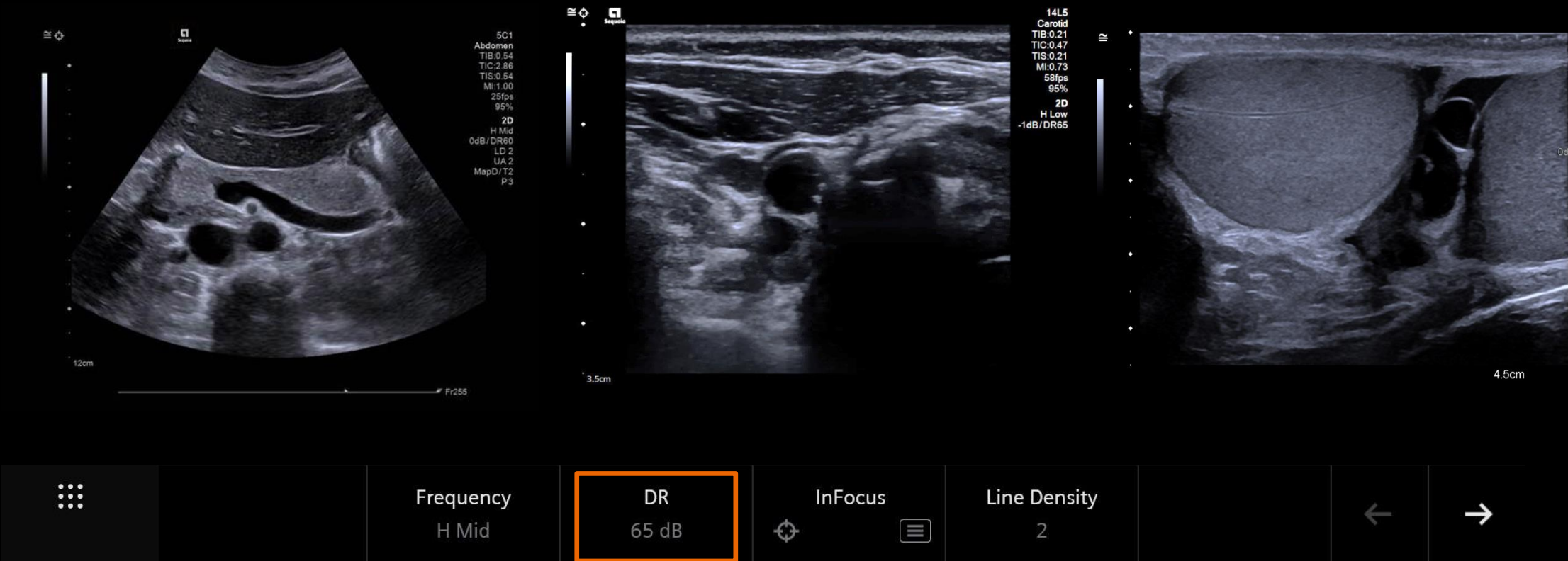


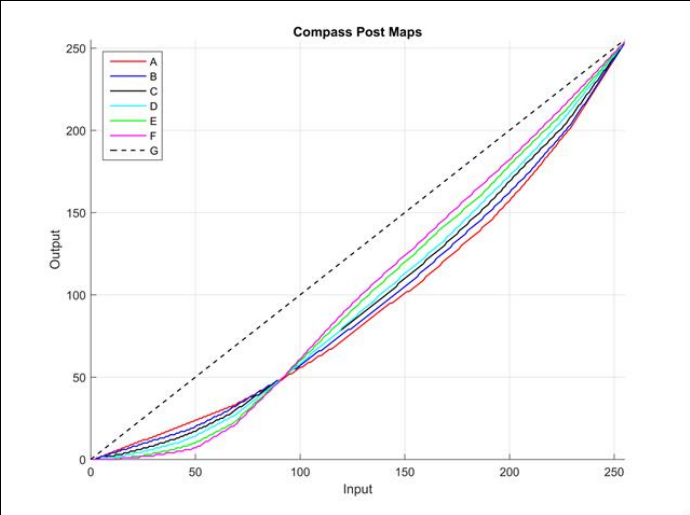
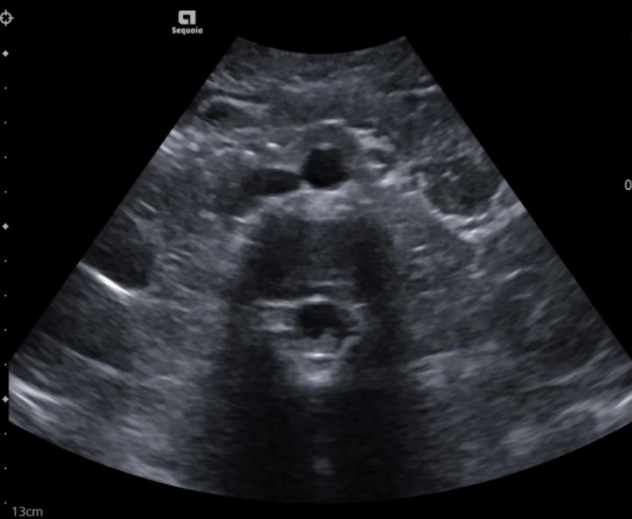


# Transmit Power



# Dynamic Range





Transmit Power  
95 %

Clarify  
Off On

Persist  
2

Maps  
C

Tint  
5



# Speed of Sound

LR

Sequoia

LR Flip

UR Flip

Off

1540

1480

1460

1446

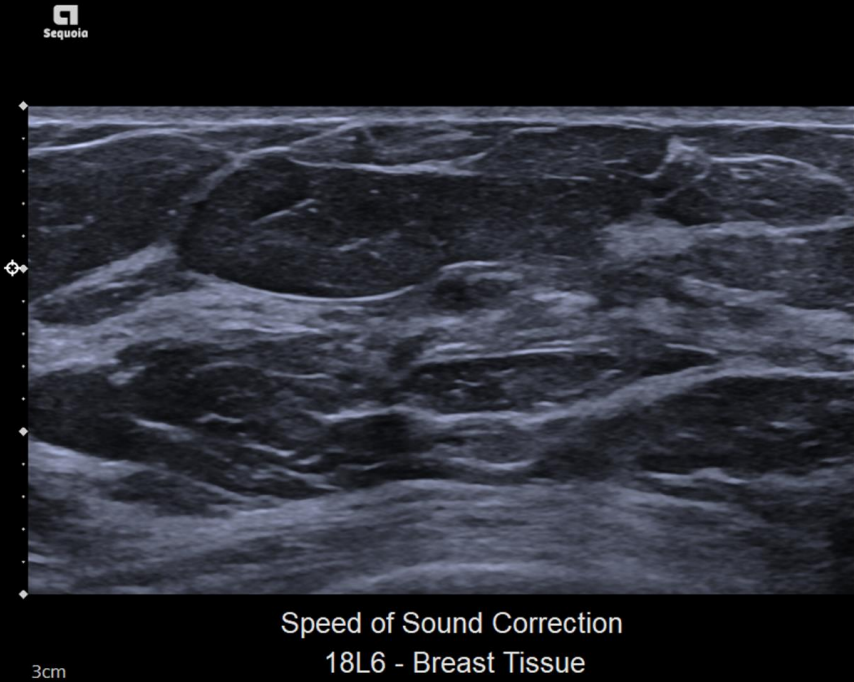
Speed of Sound  
c=1446

Trapezoid

0°

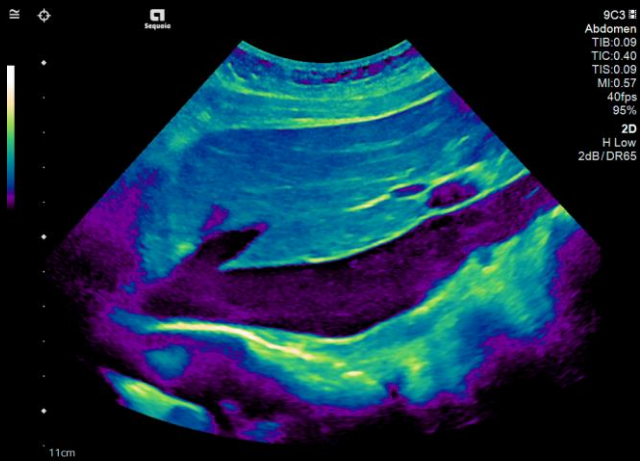
90°

Live Dual



18L6  
Breast  
TIB:0.13  
TIC:0.25  
TIS:0.13  
MI:0.72  
65fps  
95%  
2D  
Mid  
2dB/DR65  
→ c=1446

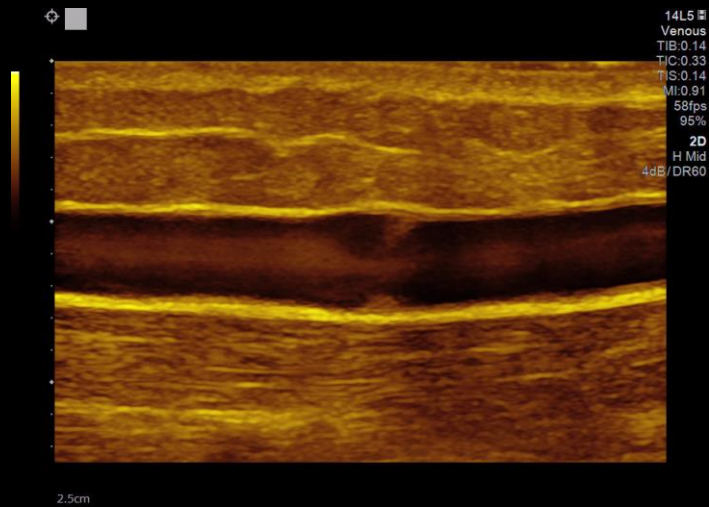




Inverted Rainbow



Sepia

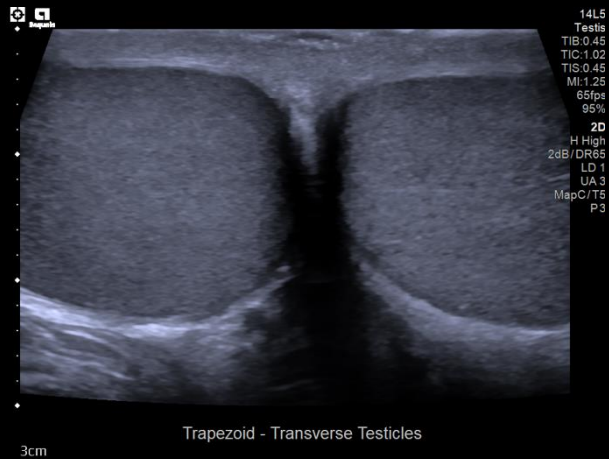
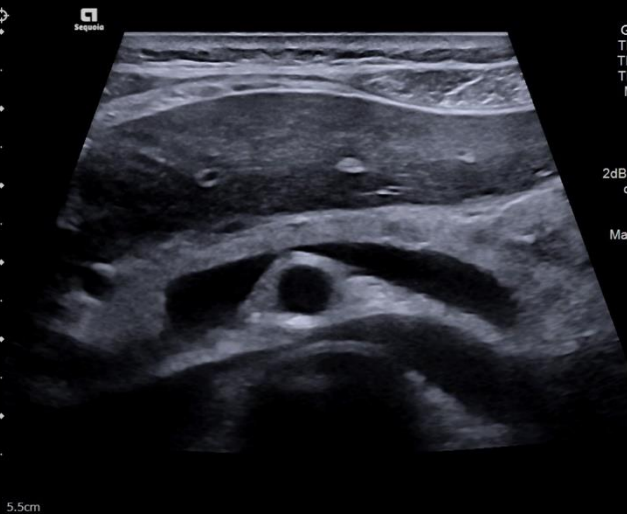
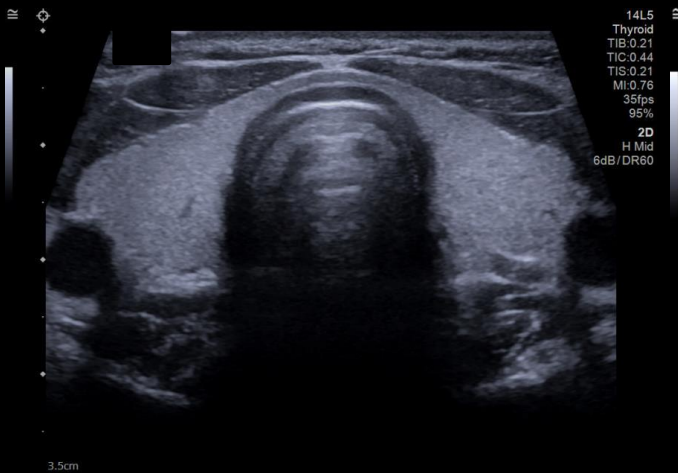


Gold

# Objectives

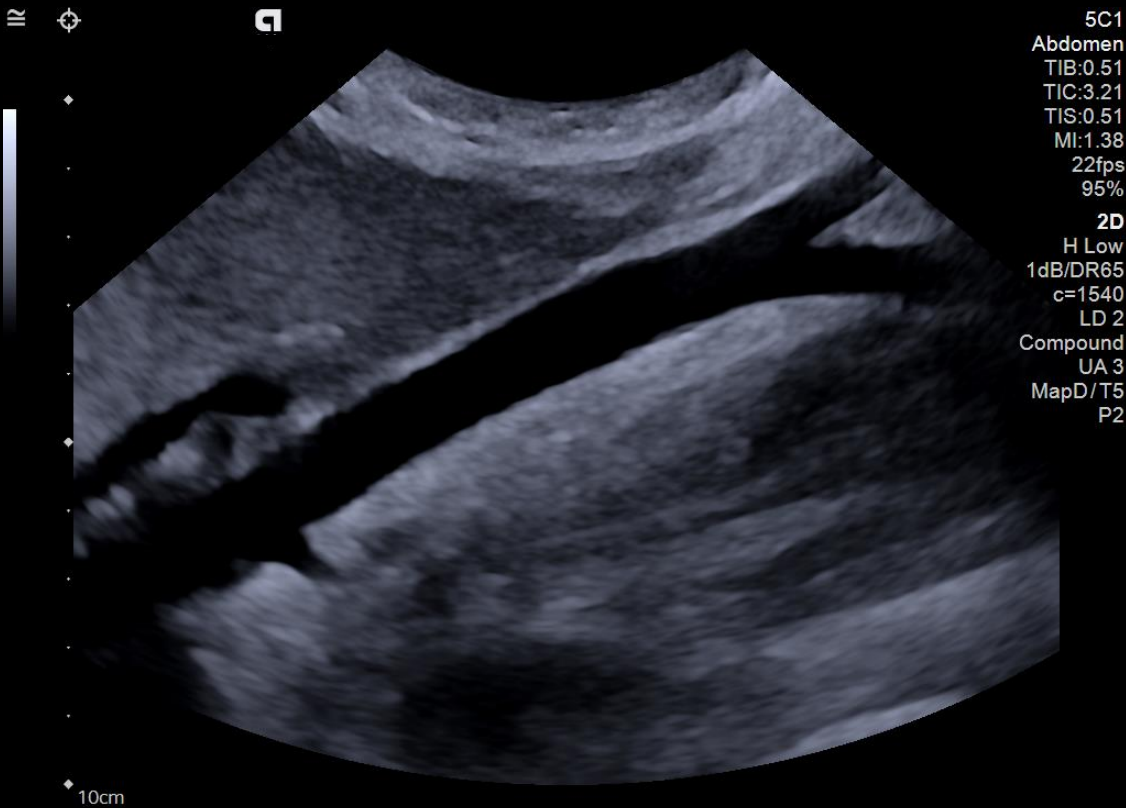
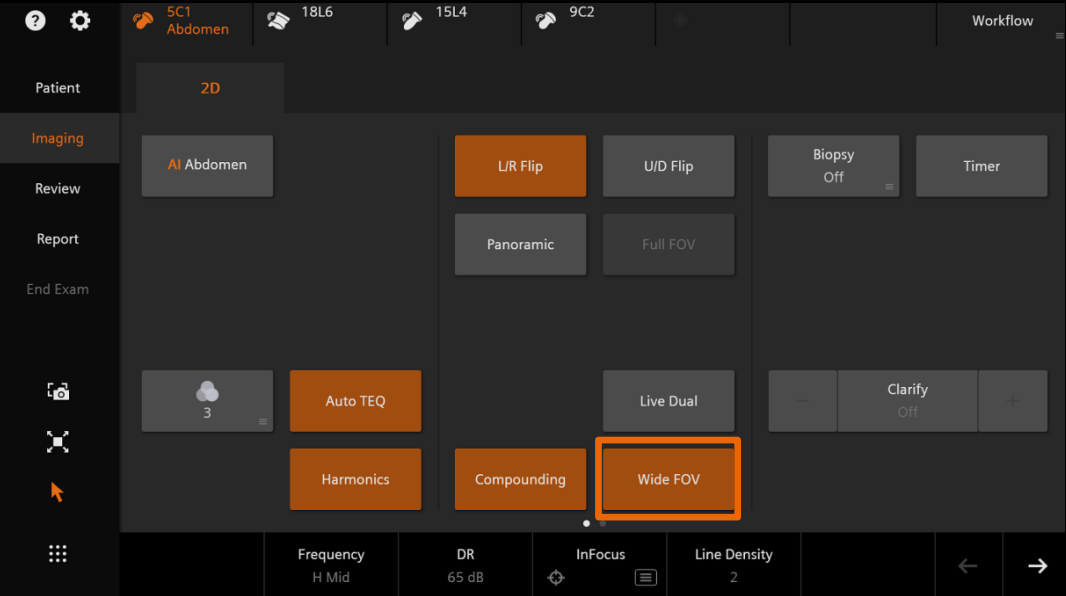
- Review B-mode and M-mode controls
- Describe B-mode and M-mode optimization features
- **Explain display modes**
- Review Doppler controls
- Describe Doppler optimization features

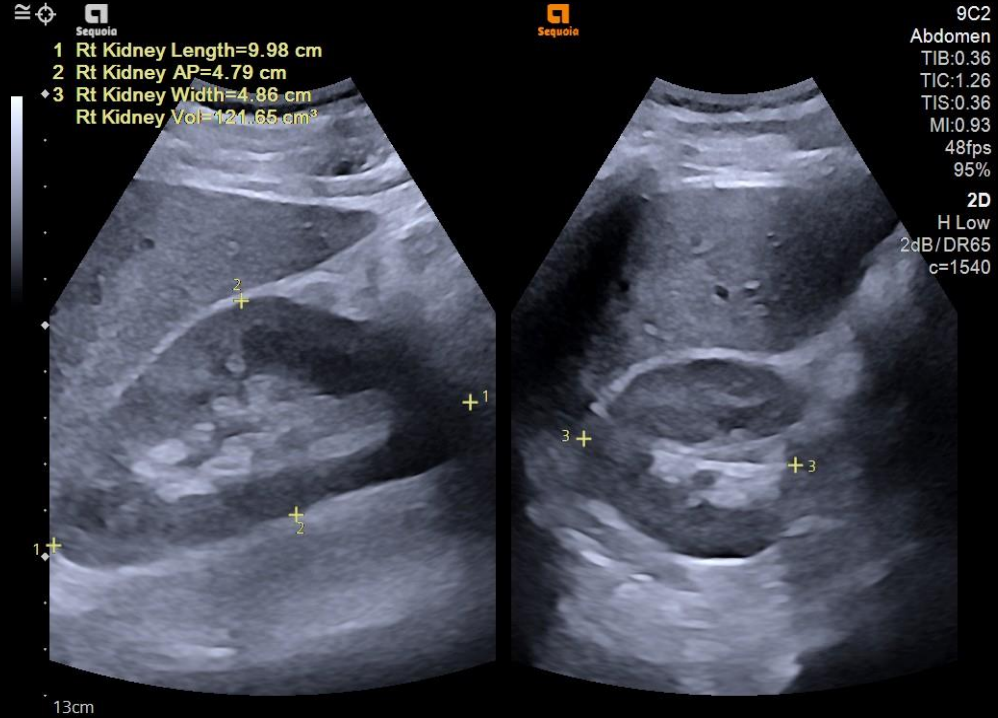
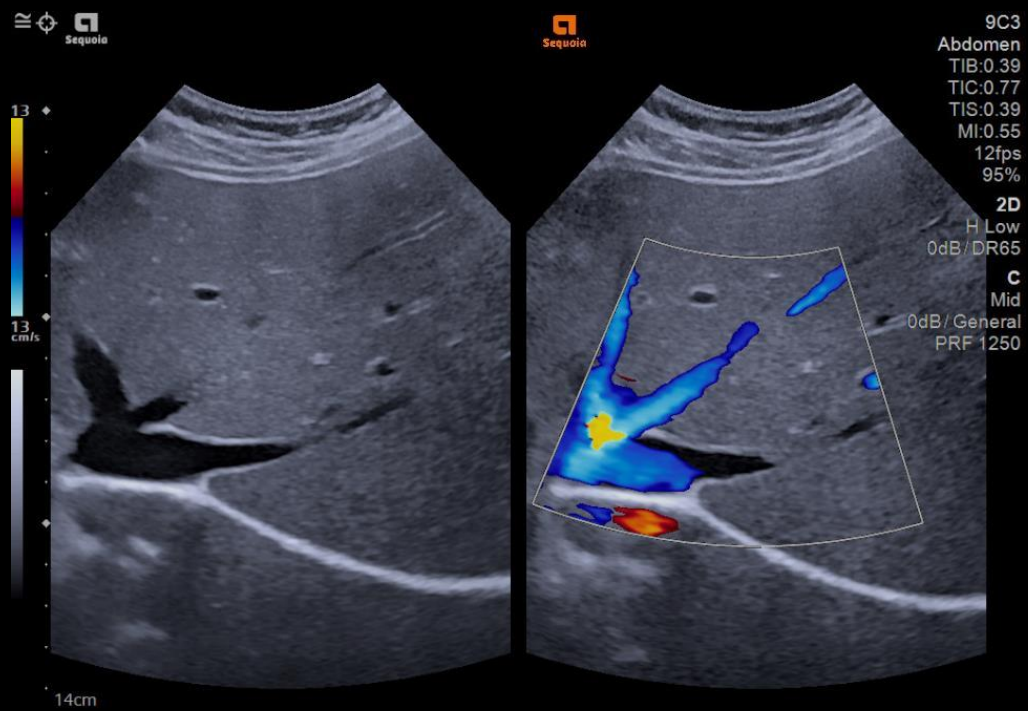




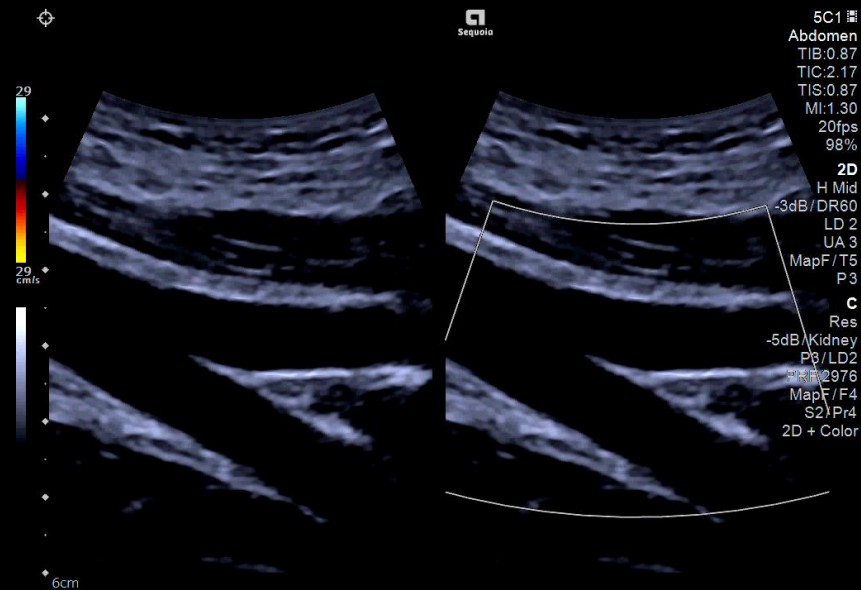
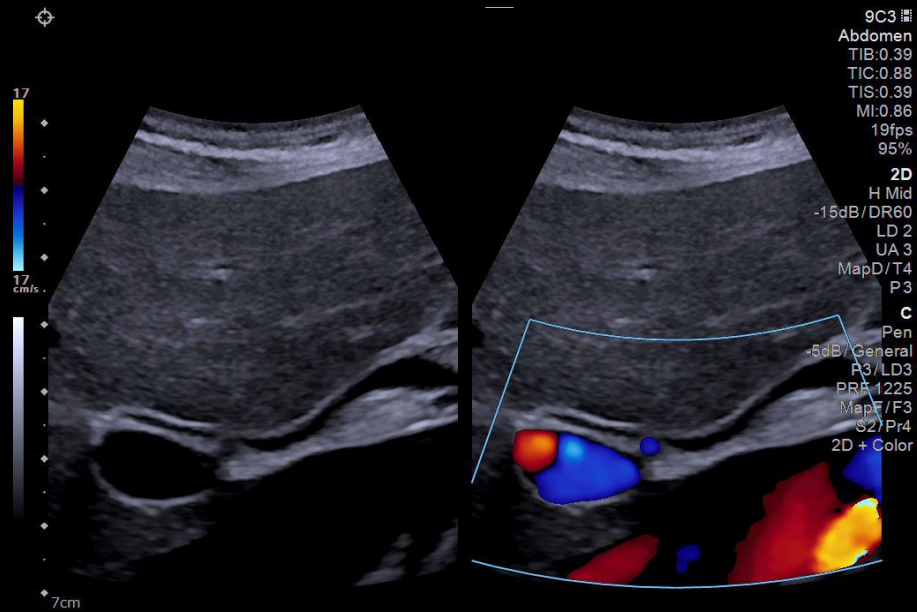
Trapezoid

# Wide Field of View



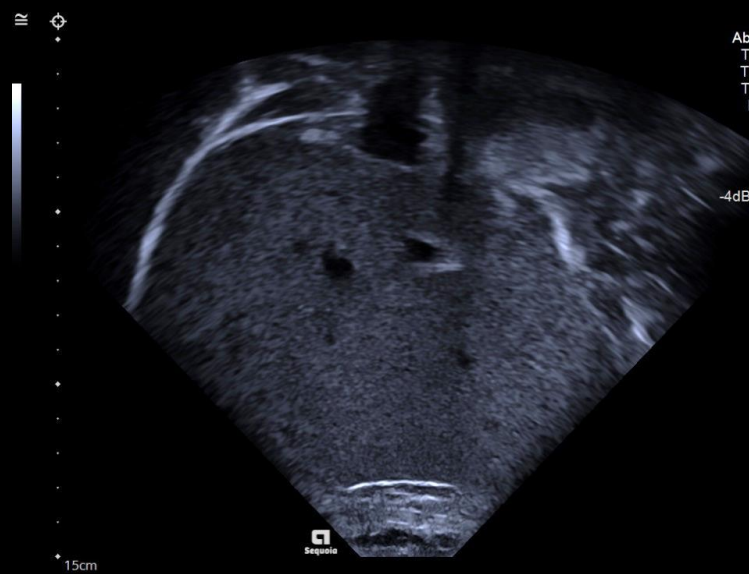
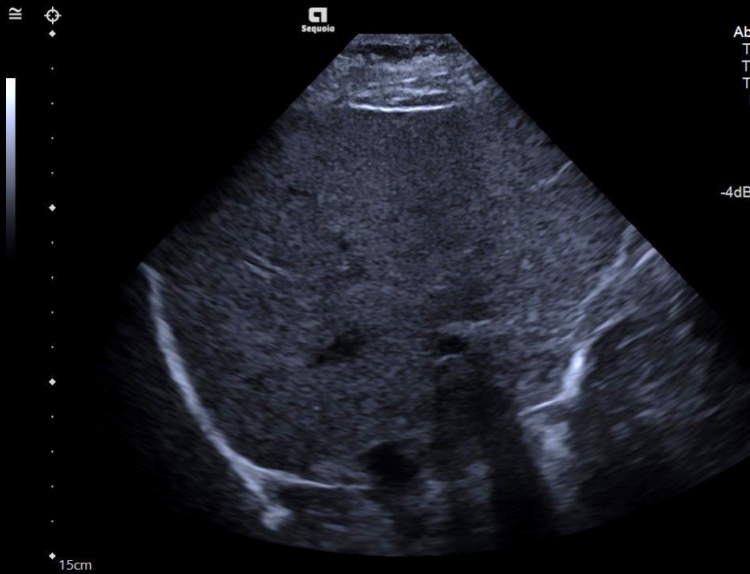




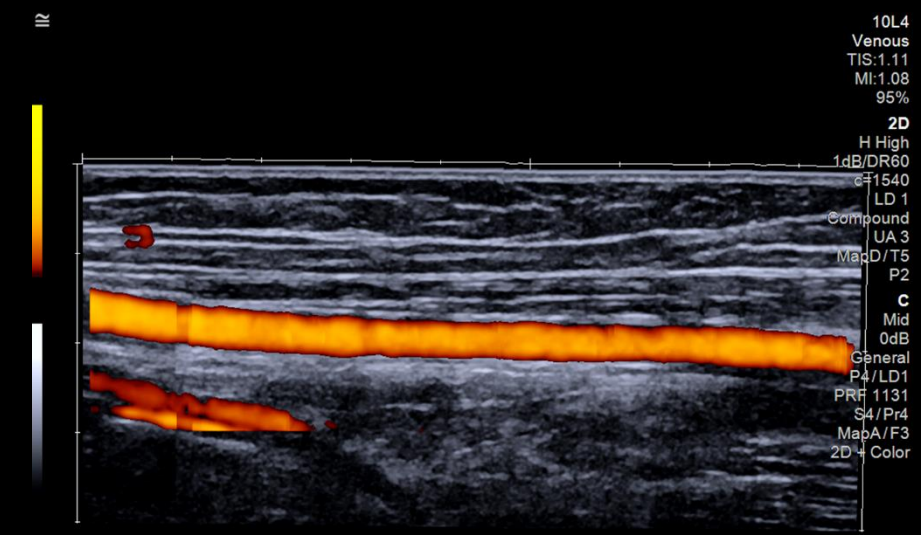
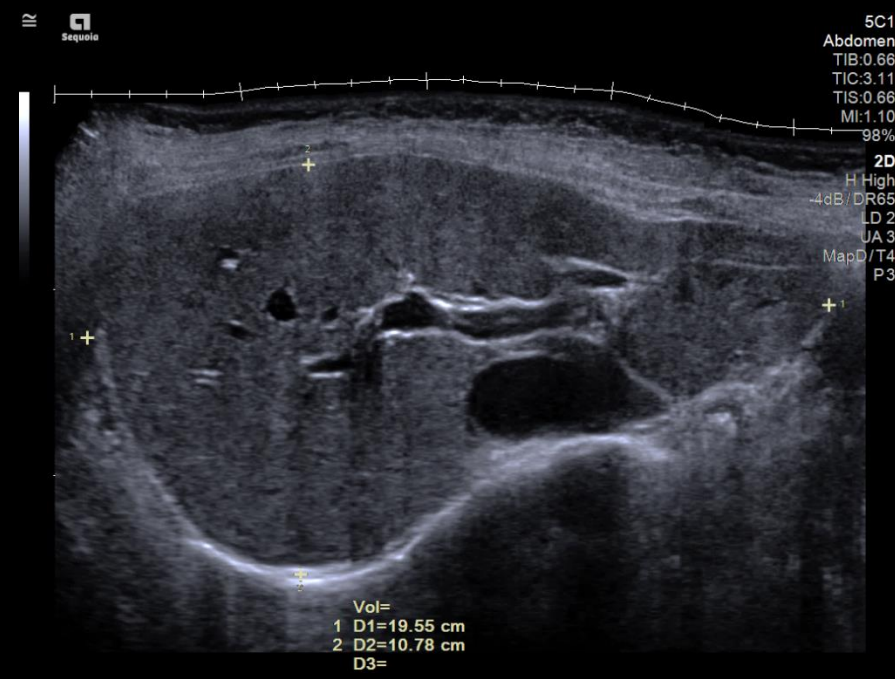


Live Dual

# Left/Right and Up/Down Flip

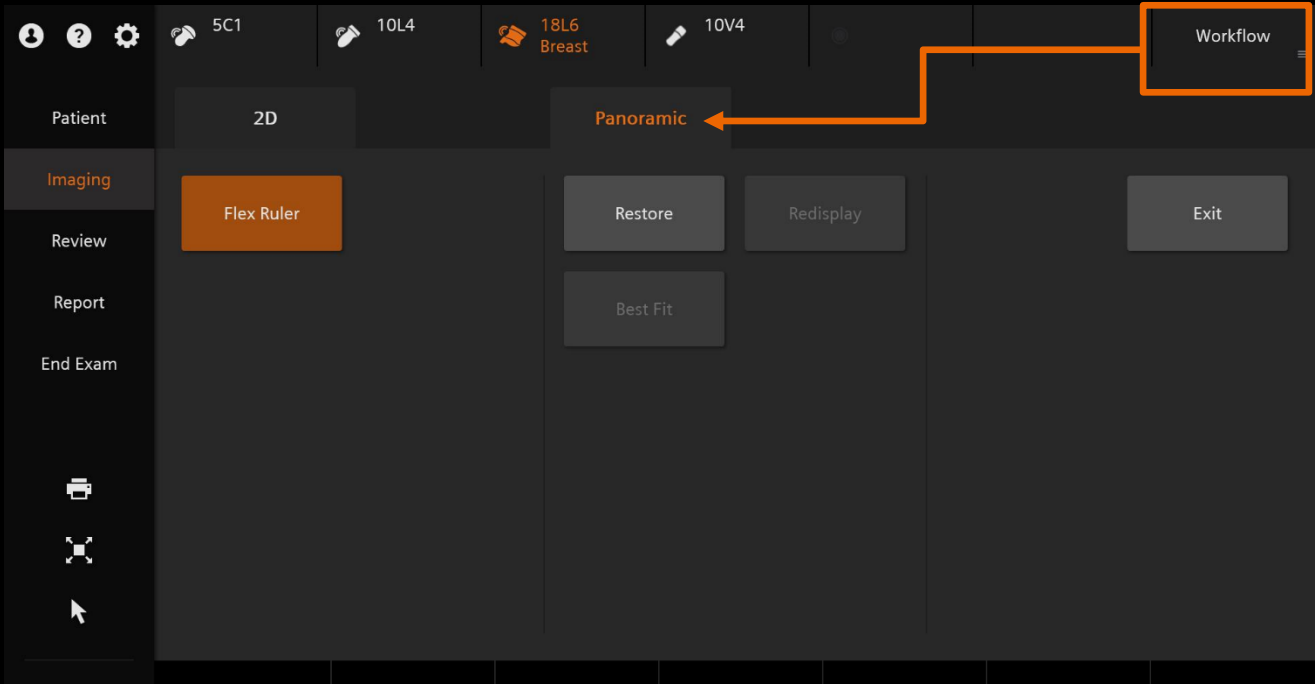
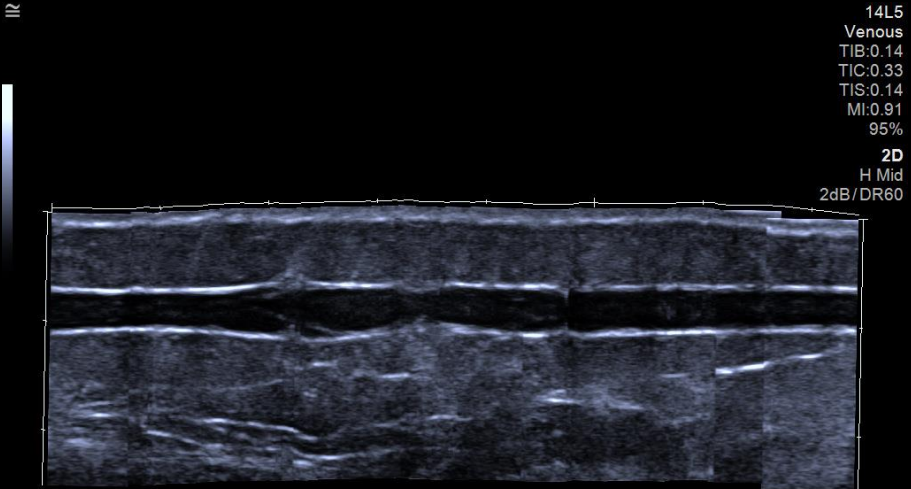


# Panoramic imaging

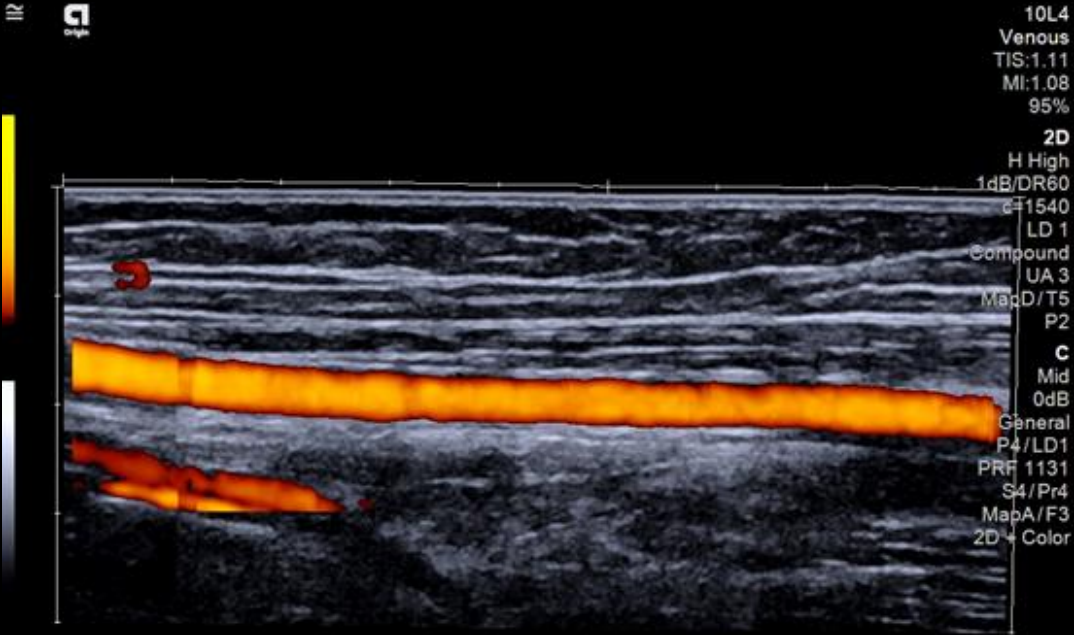
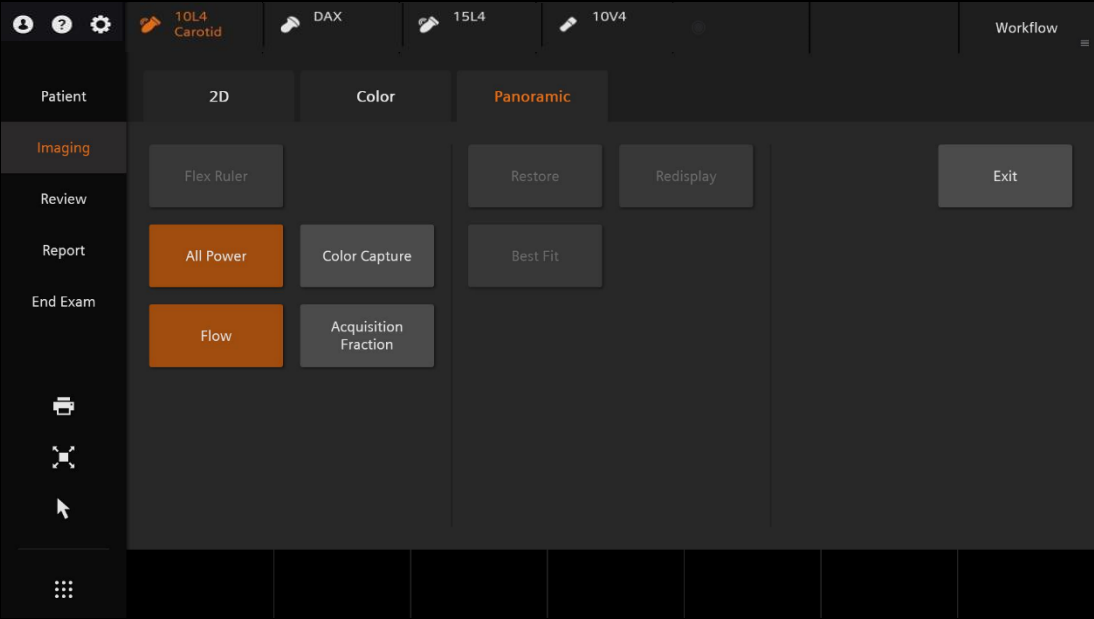




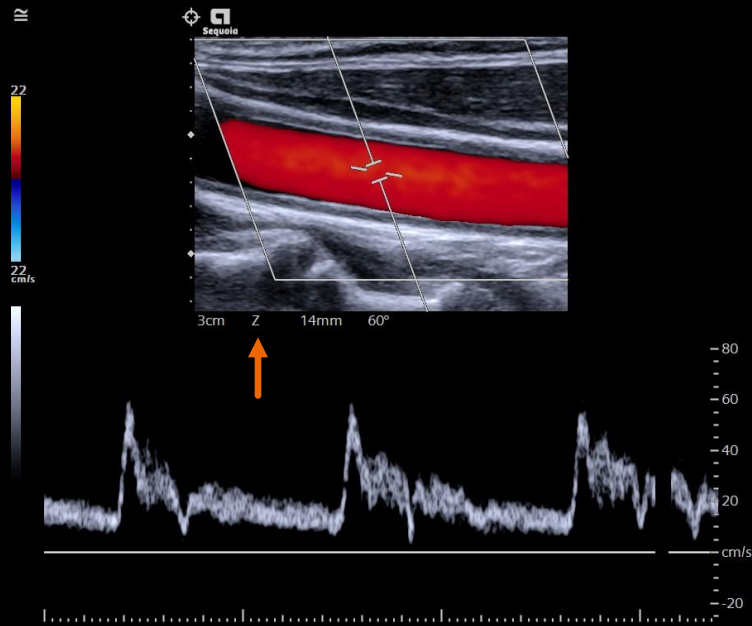
## Panoramic imaging – B-mode



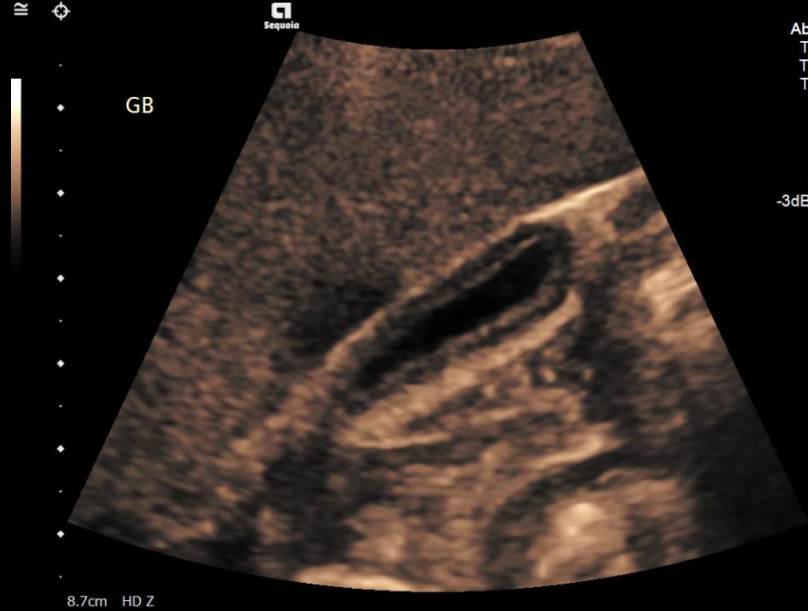
# Panoramic imaging – Power Doppler



# Zoom and HD Z

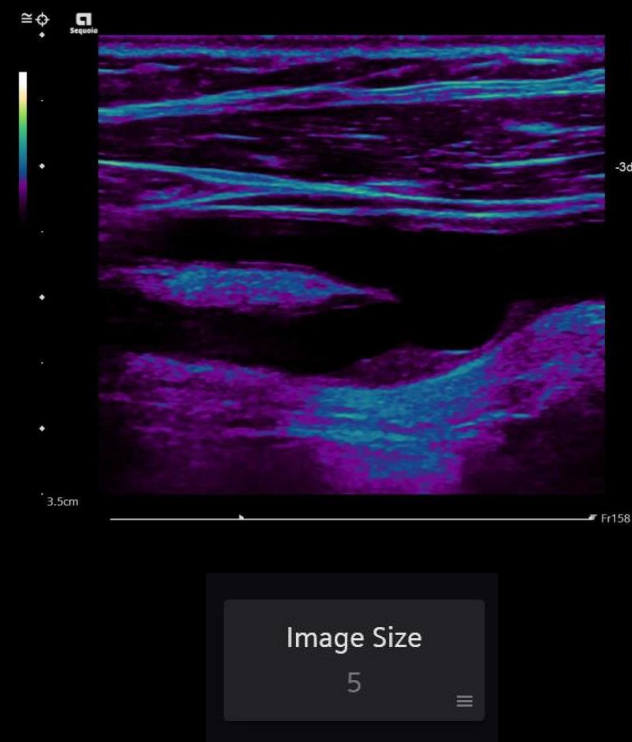
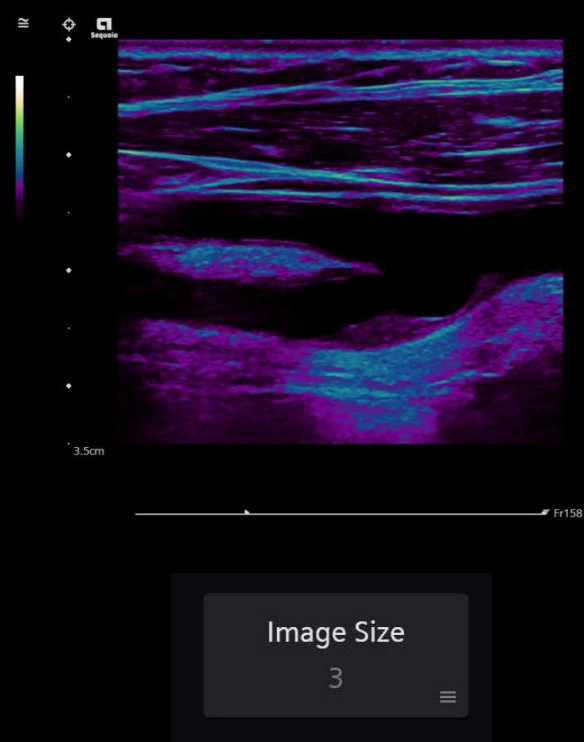
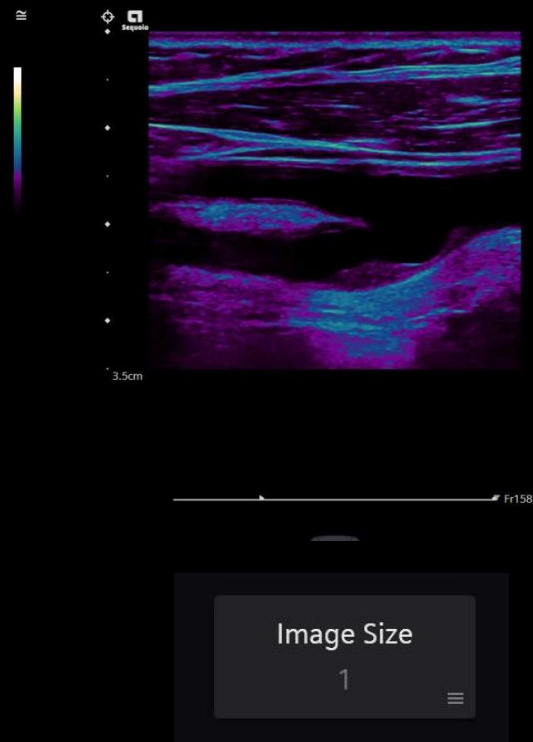


Zoom

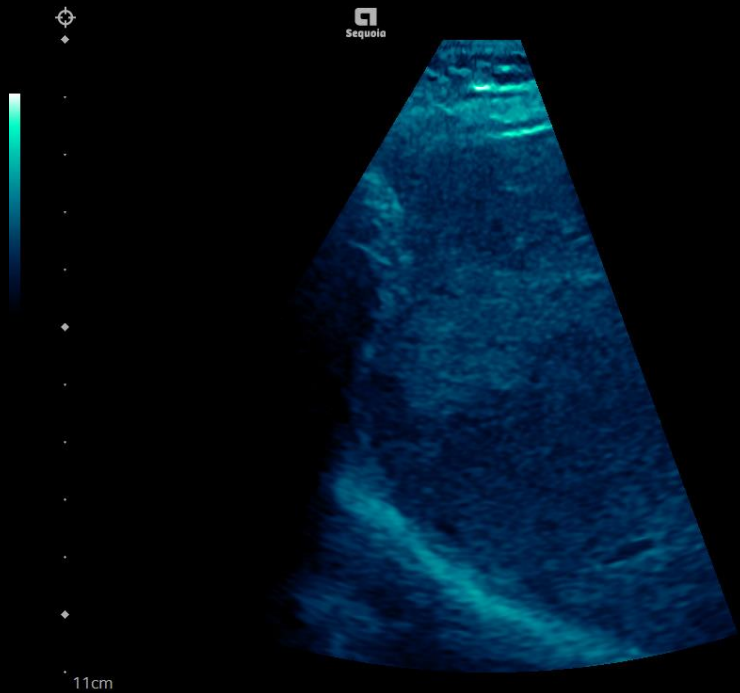
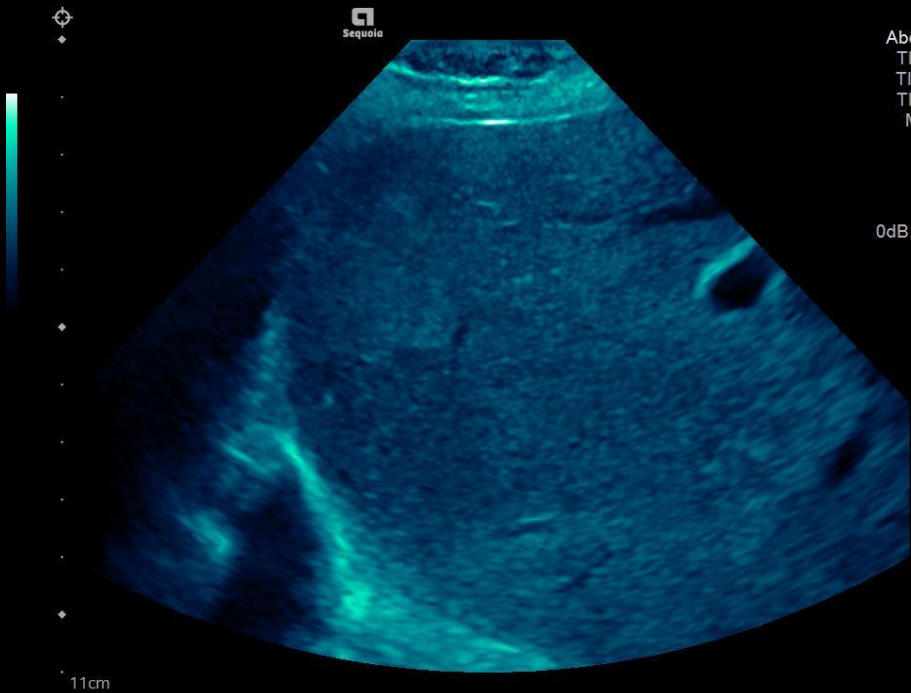


HD Z

# Image Size

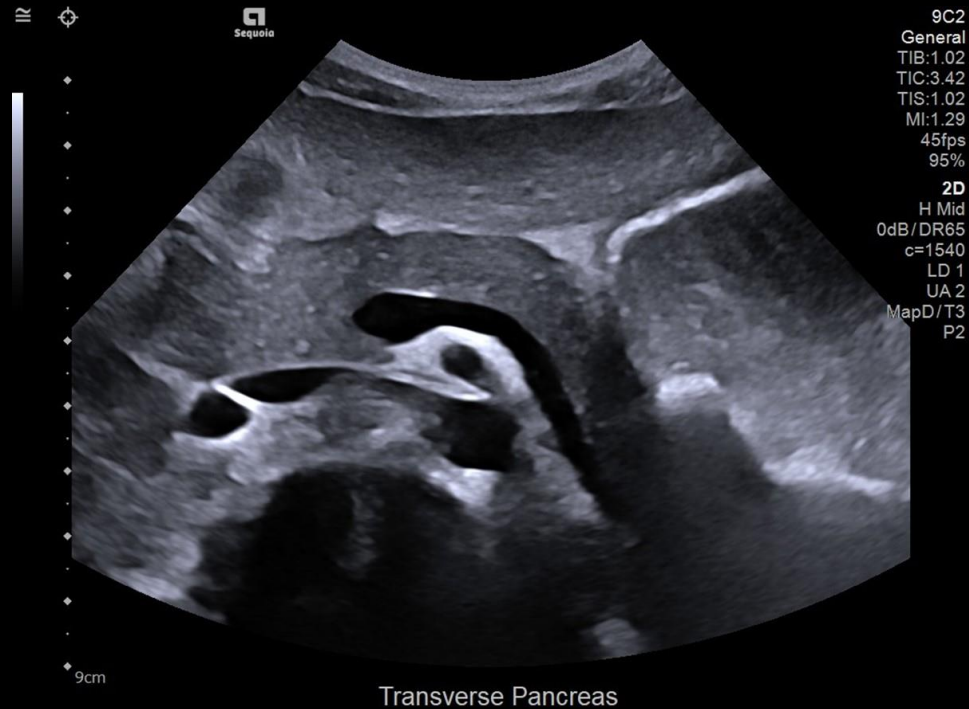


# Sector Size





# B-mode post-processing features



- DR
- Map
- Tint
- Image Size
- DGC
- Gain
- M-mode Gain
- UltraArt
- L/R Flip
- U/D Flip

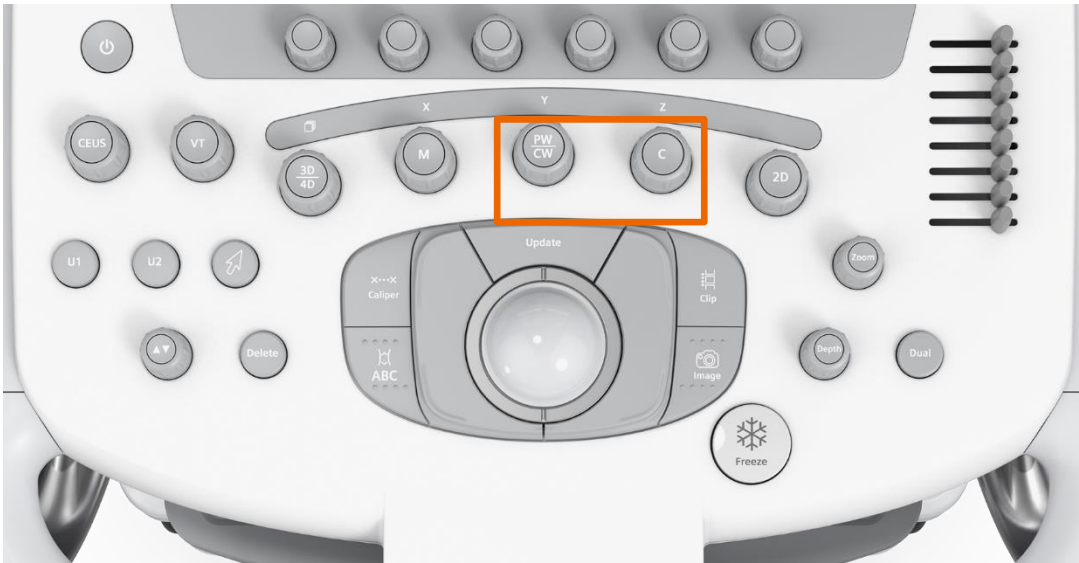


# Objectives

- Review B-mode and M-mode controls
- Describe B-mode and M-mode optimization features
- Explain display modes
- **Review Doppler controls**
- Describe Doppler optimization features



Control Panel

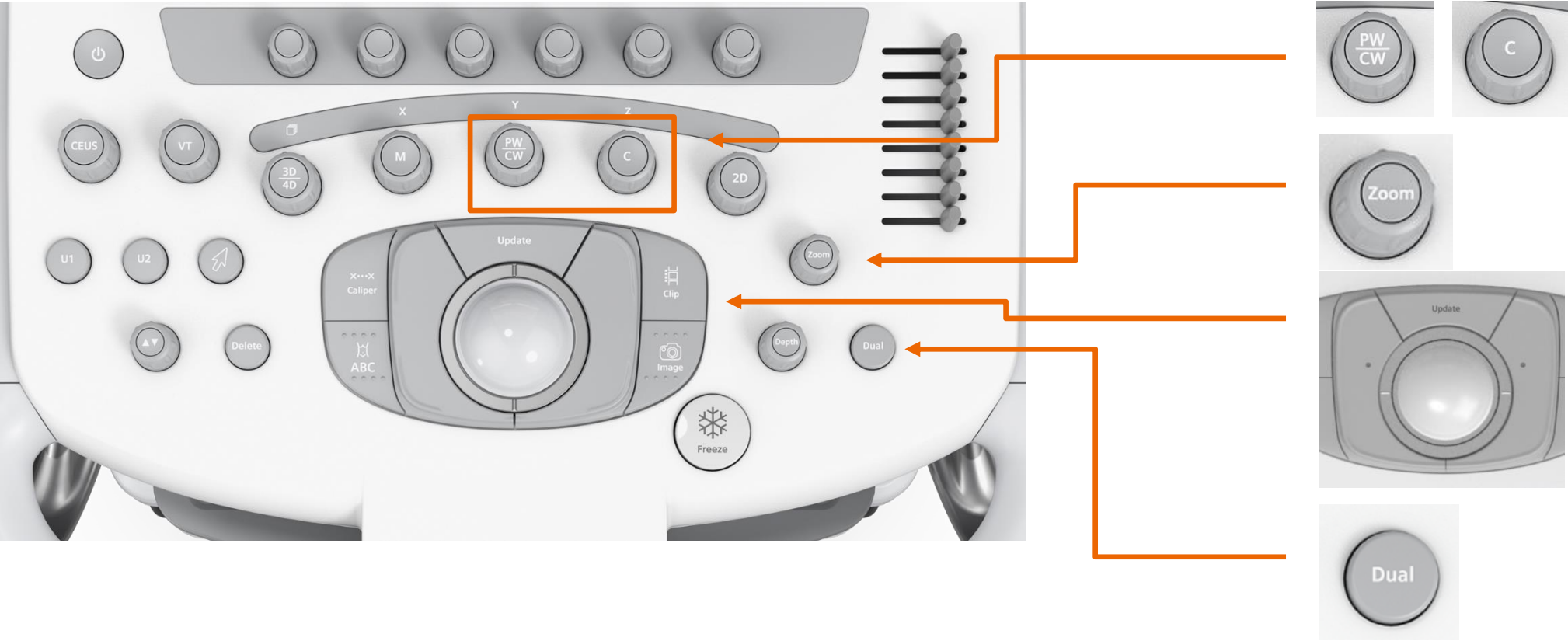


Touch Screen

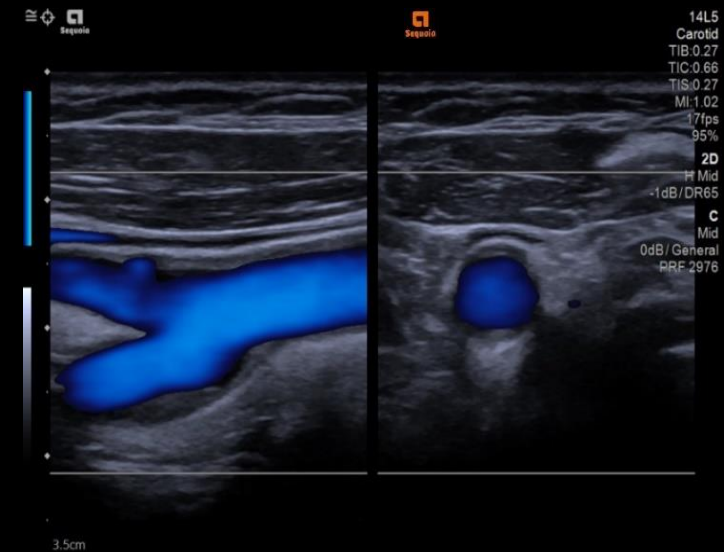
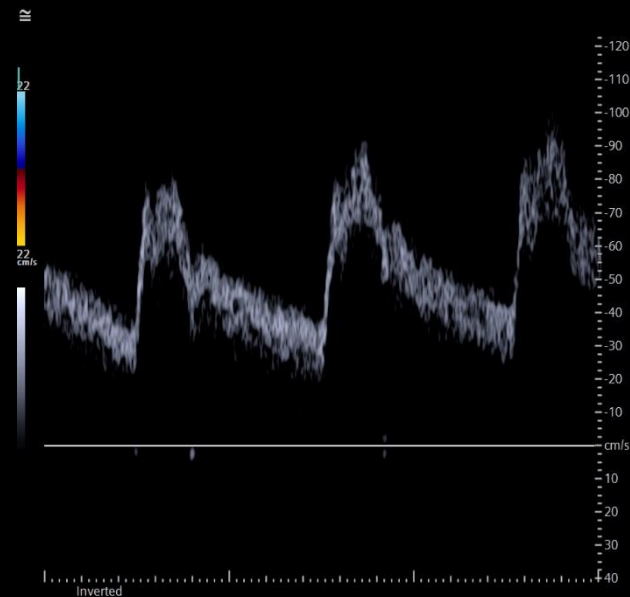
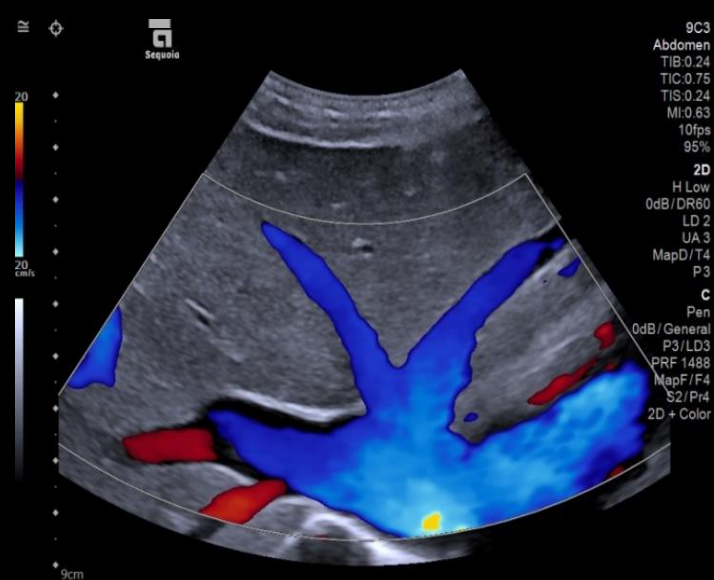


Soft keys

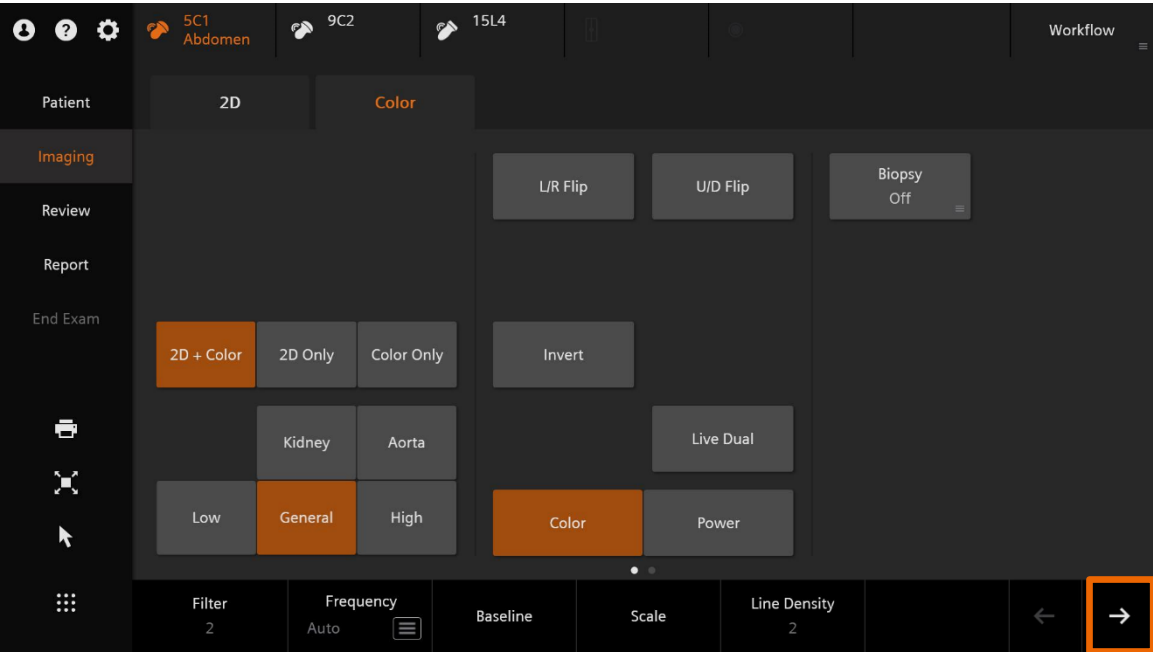
# Doppler controls on the Control Panel



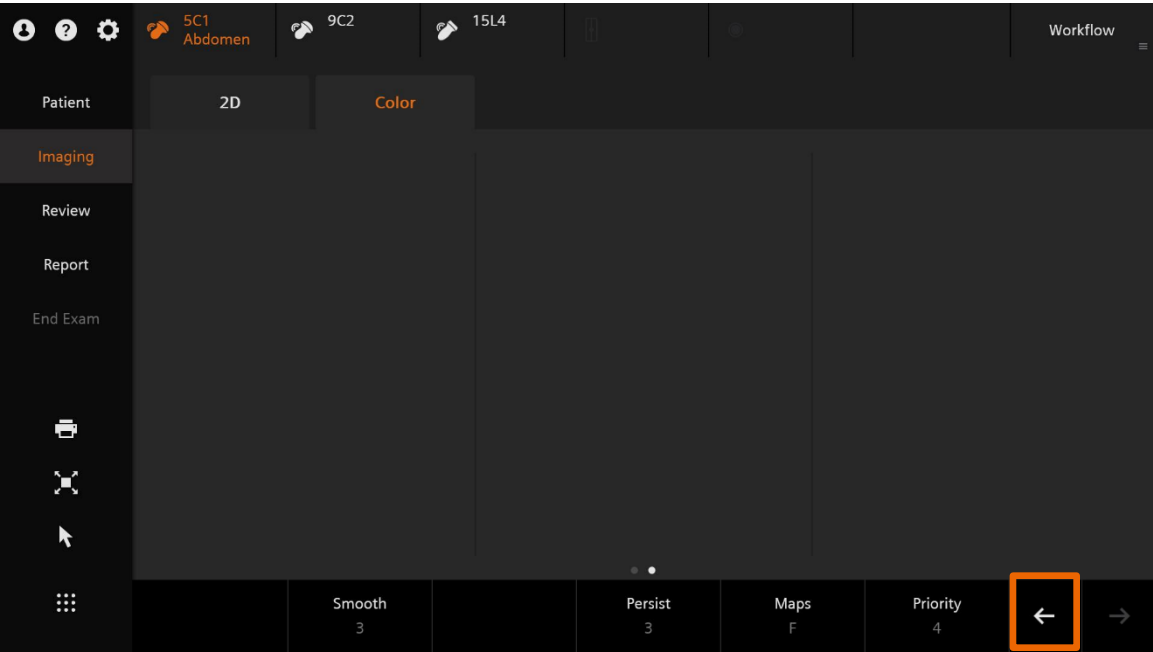
# Doppler modes



# Color controls on the Touch Screen



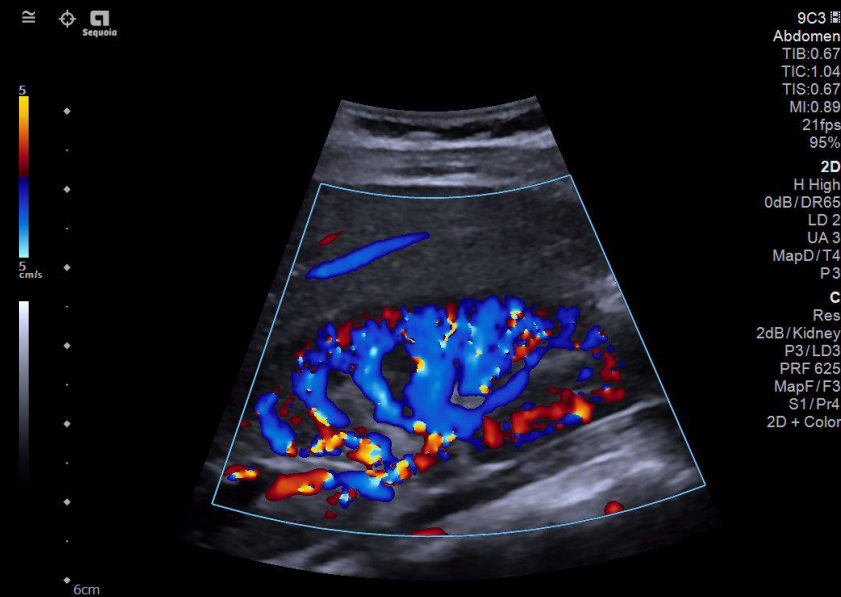
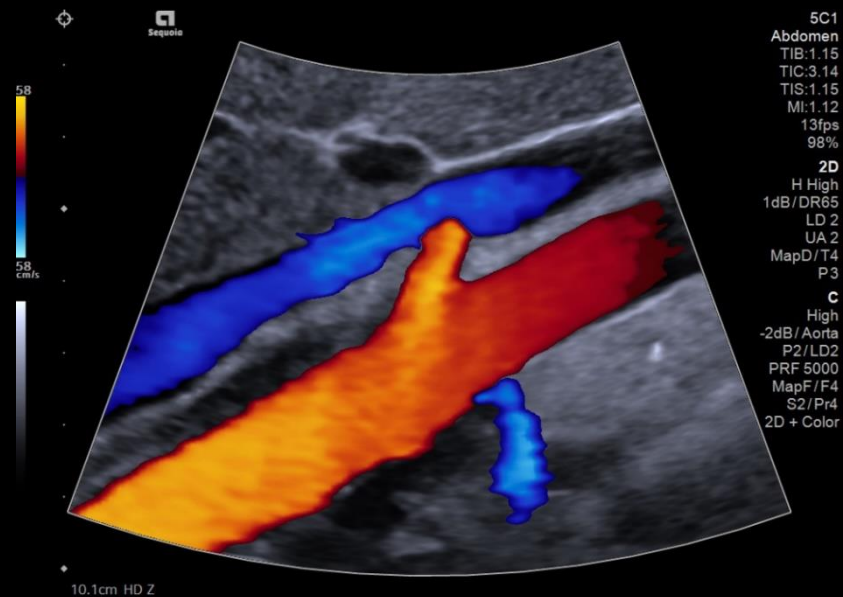
Page One



Page Two

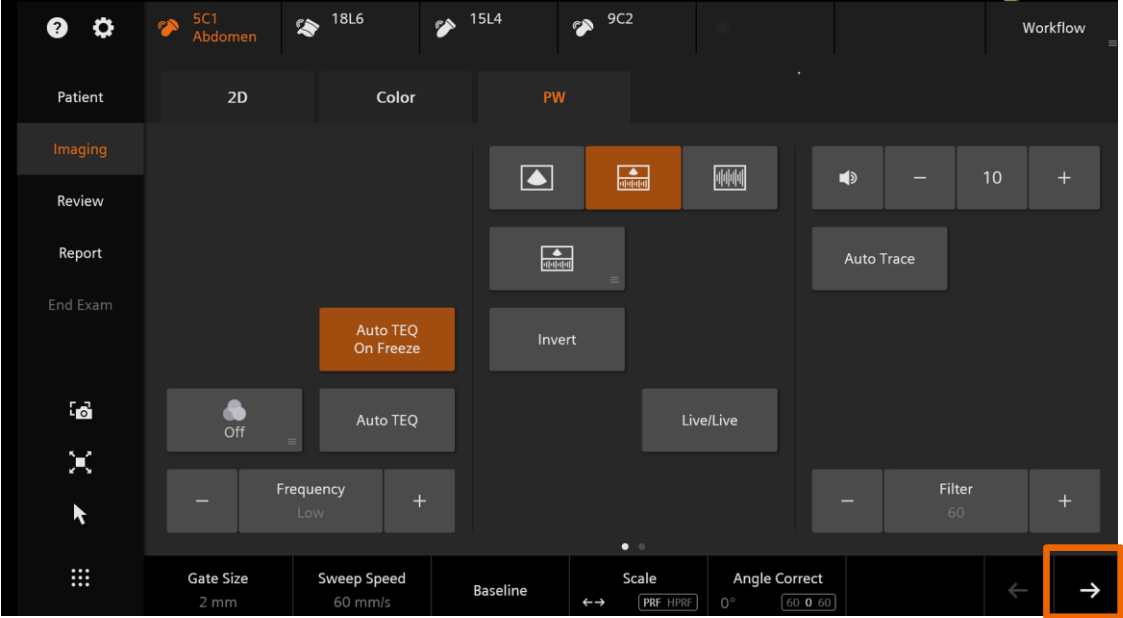


# Color Doppler controls on the soft keys



⋮	Filter 2	Frequency Auto	Baseline	Scale	Line Density 2		⋮		Smooth 3		Persist 3	Maps F	Priority 4
---	-------------	-------------------	----------	-------	-------------------	--	---	--	-------------	--	--------------	-----------	---------------

# PW controls on the Touch Screen

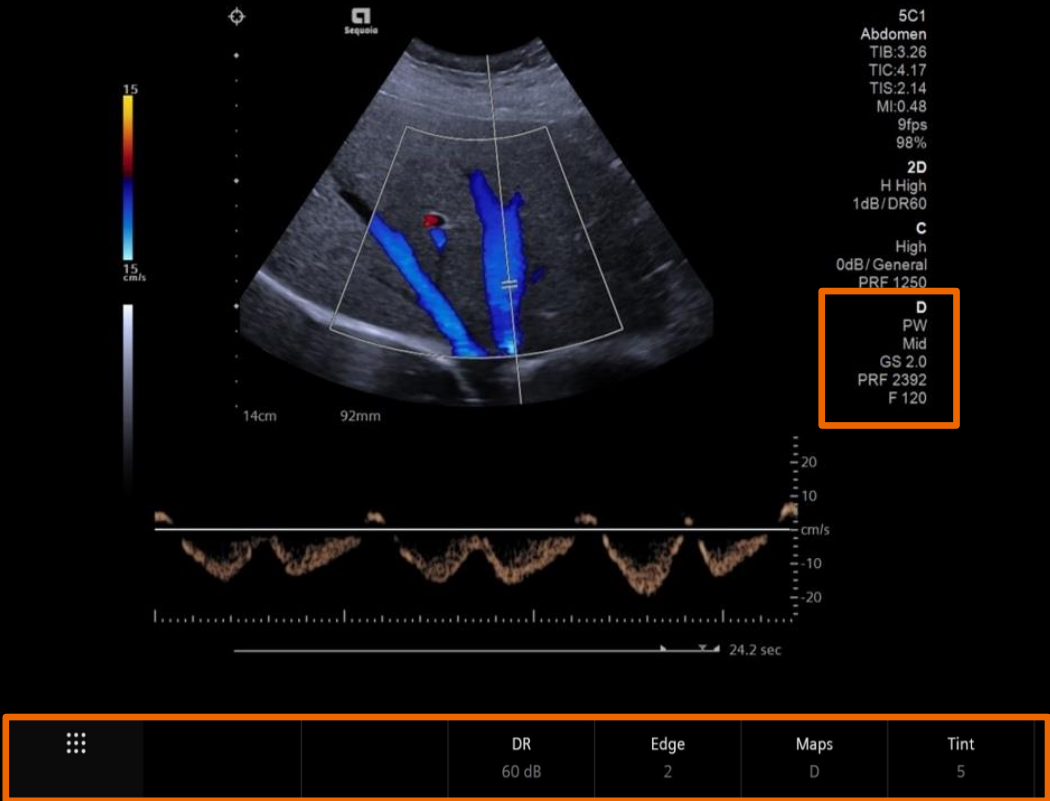


Page One



Page Two

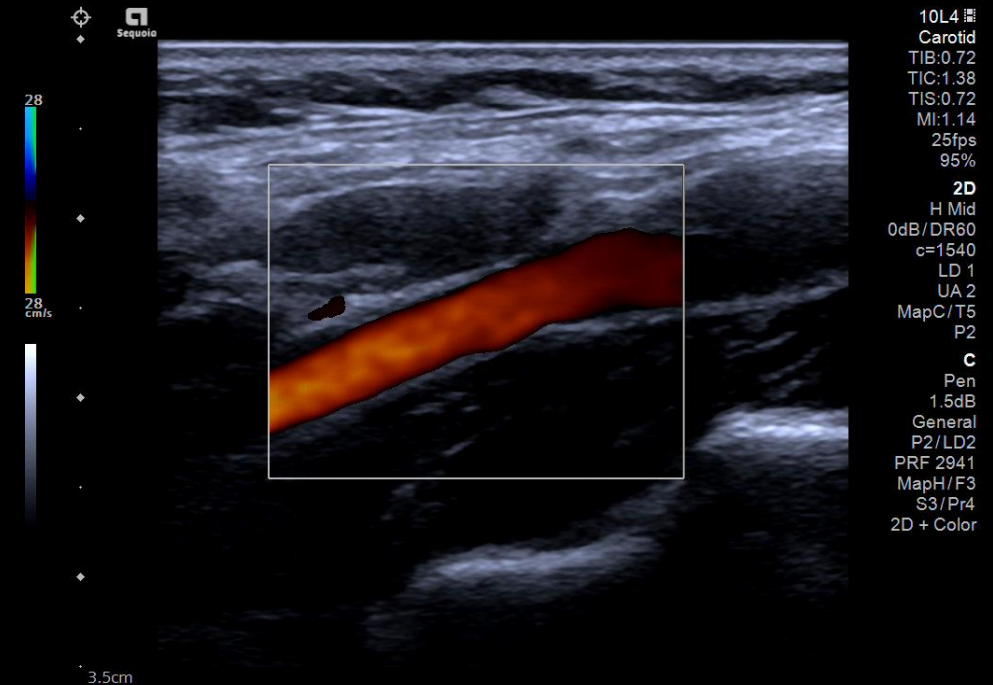
# PW Doppler controls on the soft keys



# Velocity variance map

Velocity variance map provides a variance in color flow display for differentiating complex flow patterns

- Available in Color Doppler velocity mode
  - Map H – General & Vascular
  - Map J – Cardiology
- Available on all transducers and presets



# Objectives

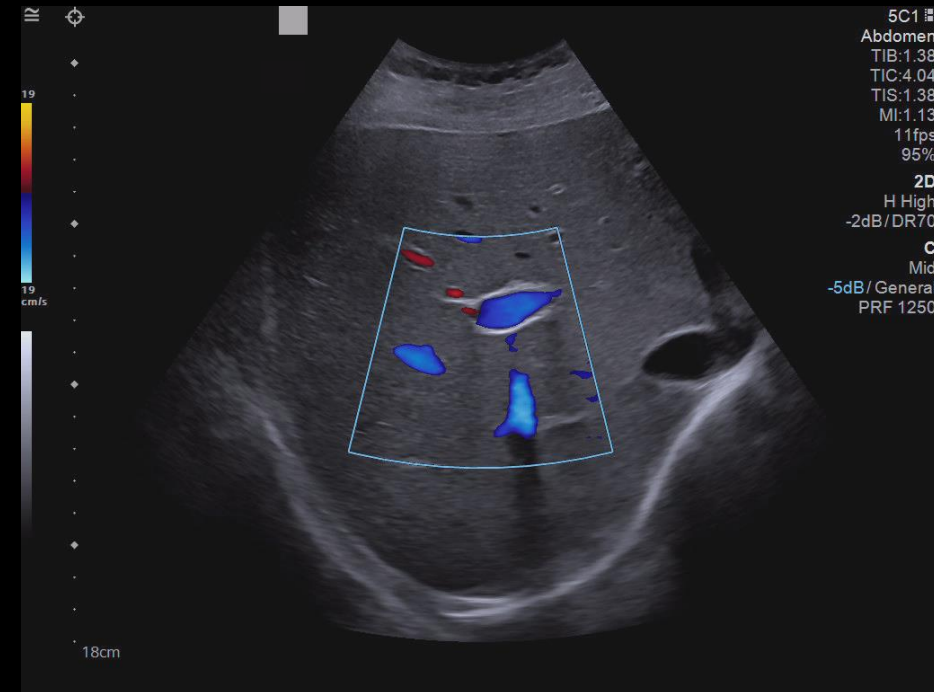
- Review B-mode and M-mode controls
- Describe B-mode and M-mode optimization features
- Explain display modes
- Review Doppler controls
- **Describe Doppler optimization features**





# Auto flash artifact suppression

Auto flash artifact suppression applies flash suppression relative to user motion



# Color Doppler

5C1  
Abdomen

18L6

15L4

9C2

Workflow

Patient

Imaging

Review

Report

End Exam

2D

Color

2D + Color

2D Only

Color Only

Kidney

Aorta

Low

General

High

L/R Flip

U/D Flip

Panoramic

Invert

Color

Power

Biopsy Off

Live Dual

Filter 2

Frequency Auto

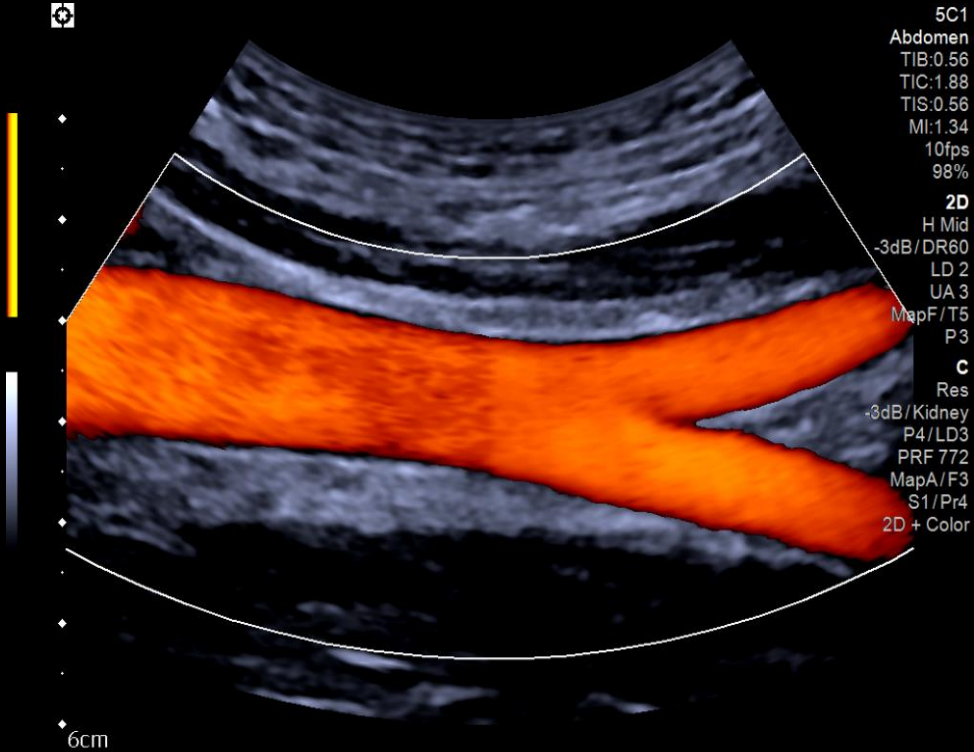
Baseline

Scale

Line Density 2

←

→



# Display modes

2D + Color	2D Only	Color Only
Slow	Kidney	Aorta
Low	General	High

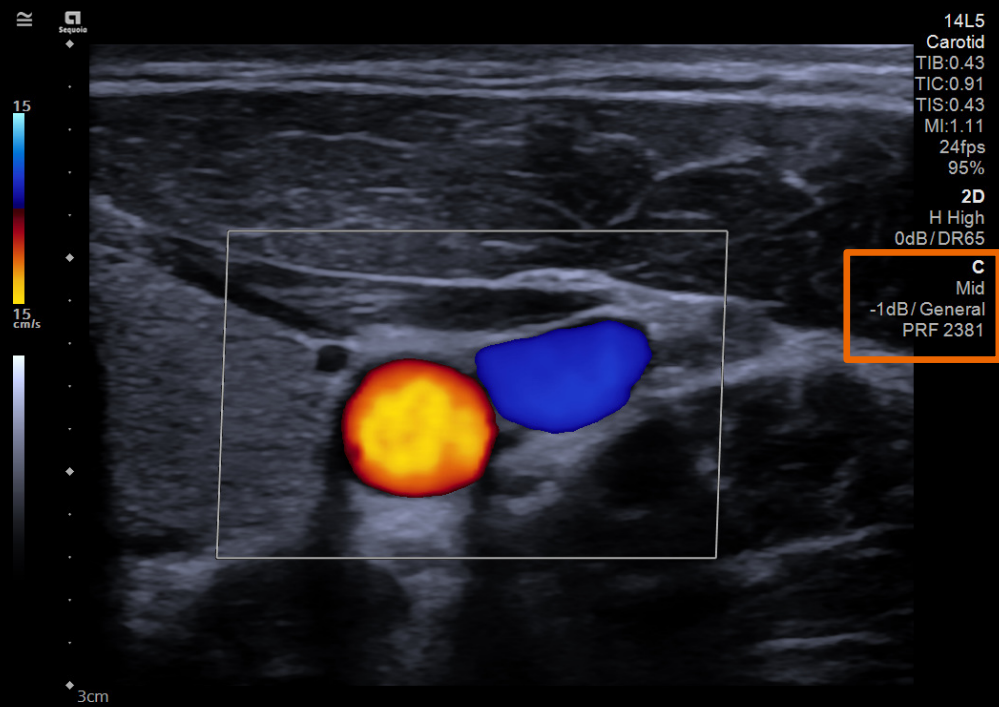
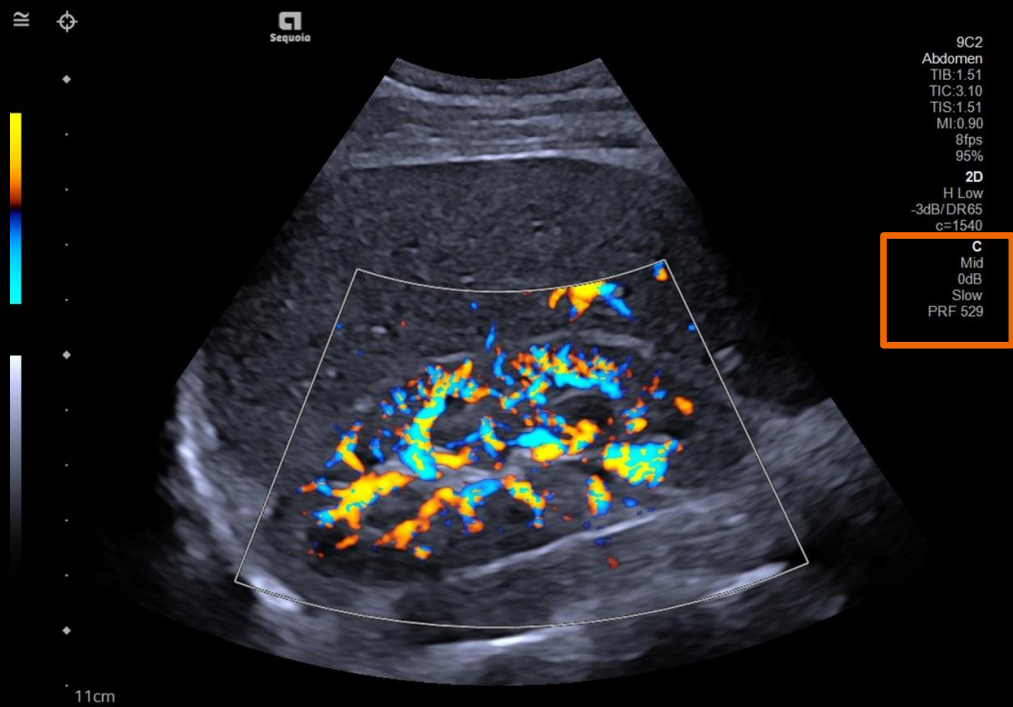


# Flow states

2D + Color	2D Only	Color Only
Slow	Kidney	Aorta
Low	General	High

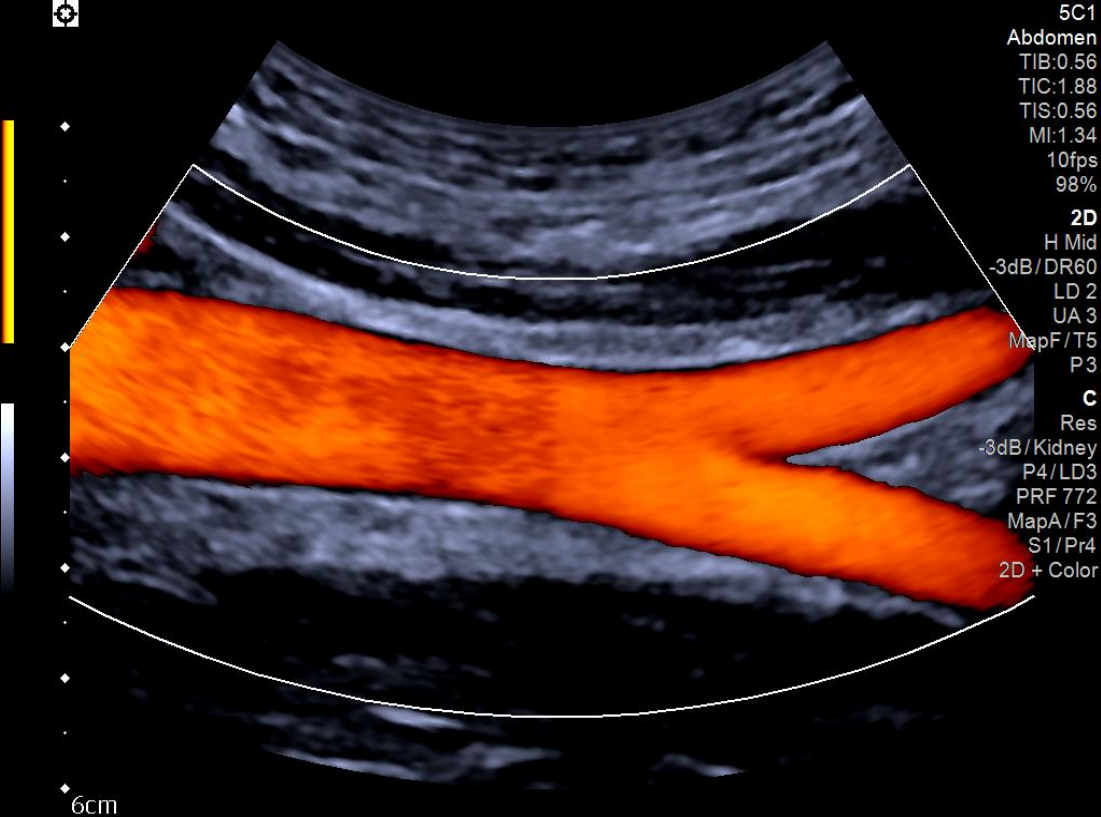
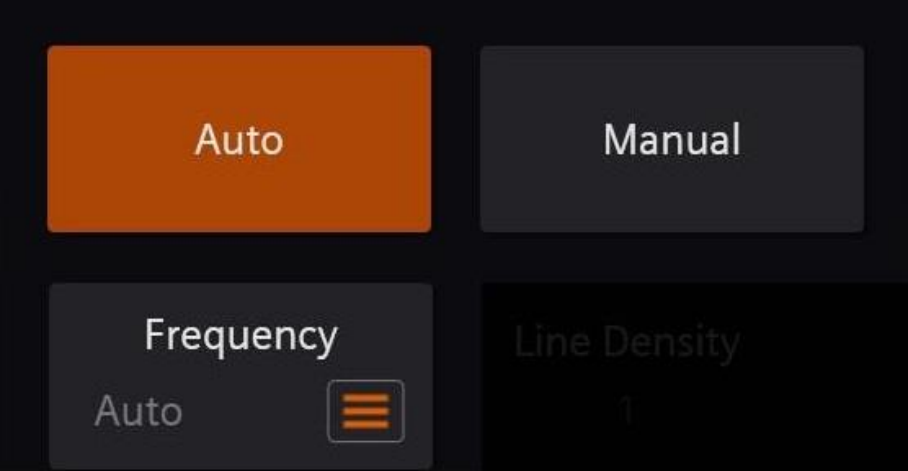


# Flow state examples



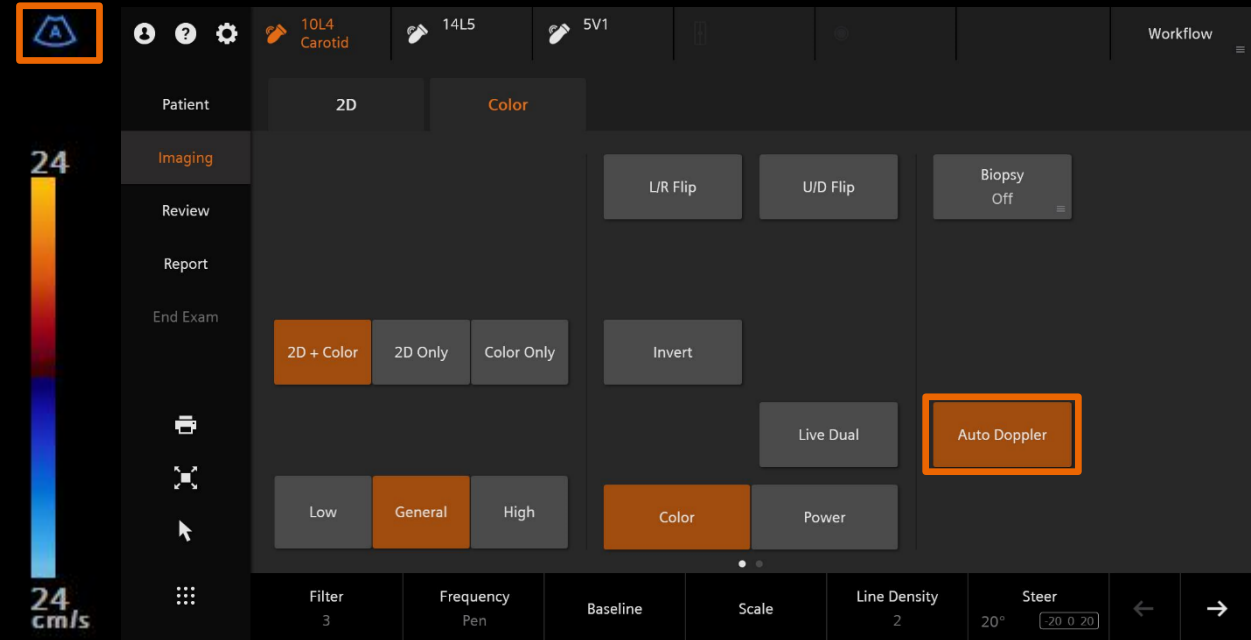


# Dynamic MultiHertz Technology



# Auto Doppler

- Available on Touch Screen when Color or PW Doppler activated
- Automated placement of Color ROI
- Automated placement of the sample gate and 60 ° angle correct for Pulsed-wave Doppler
- Available on 10L4 Transducer in the carotid and arterial preset
- **Icon located above color bar**



# Power Doppler

?

⚙

5C1  
Abdomen

18L6

15L4

9C2

Workflow

Patient

2D

Color

Imaging

Review

Report

End Exam

2D + Color

2D Only

Color Only

Slow

Kidney

Aorta

Low

General

High

L/R Flip

U/D Flip

Biopsy  
Off

Panoramic

Live Dual

Dir Power

Color

Power

Filter  
3

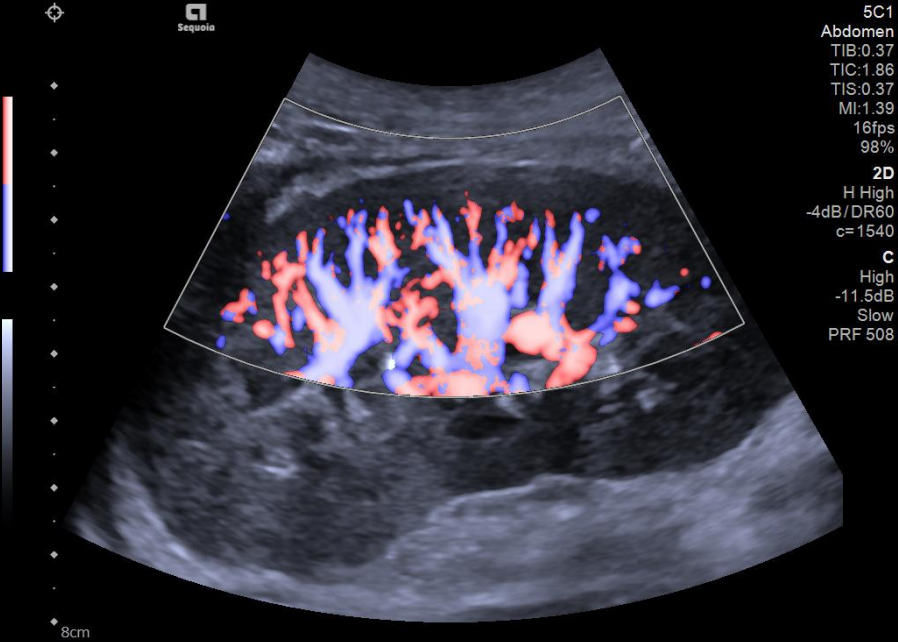
Frequency  
Auto

Scale

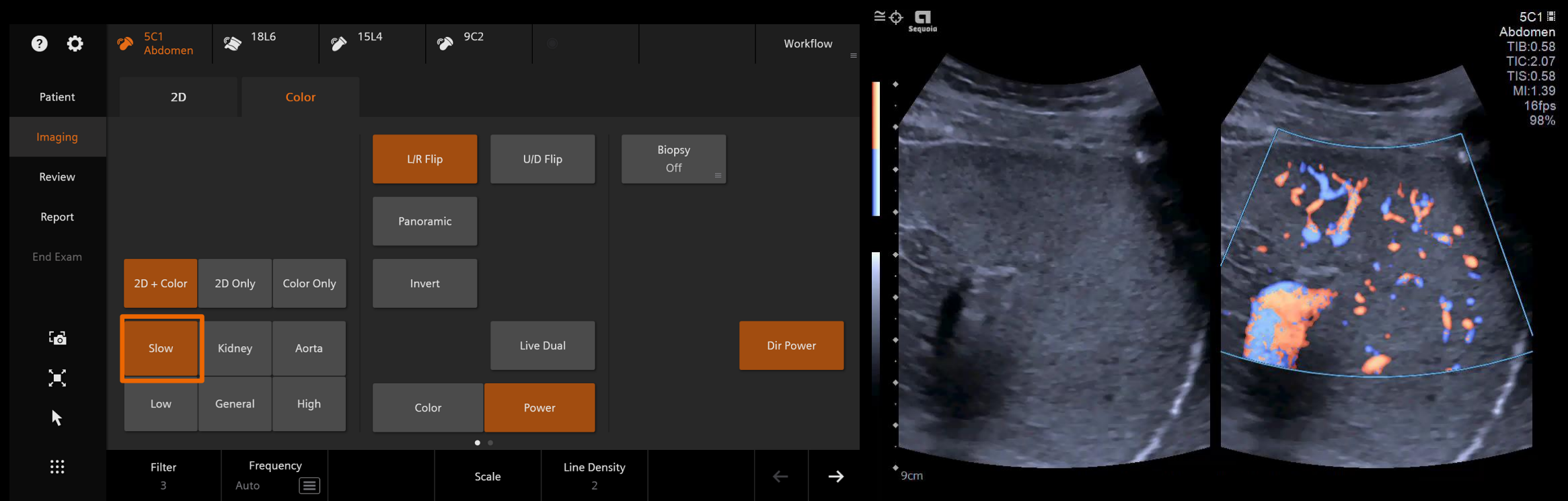
Line Density  
2

←

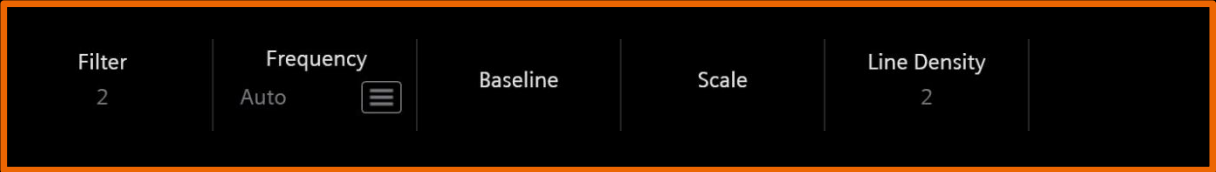
→



# Slow Flow



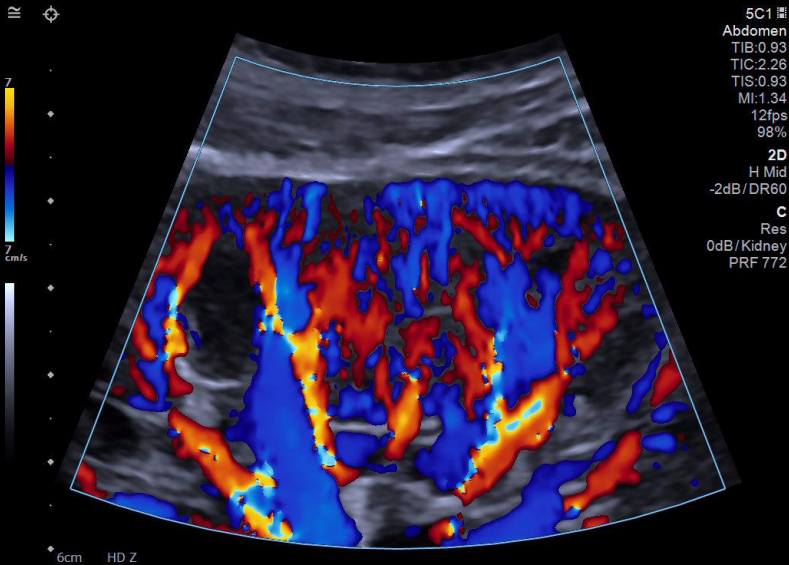
# Color Doppler – Soft keys



Page One



Page Two



# Power Doppler – Soft keys

Filter

3

Frequency

Auto

Scale

Line Density

2

Page One

Gate Size

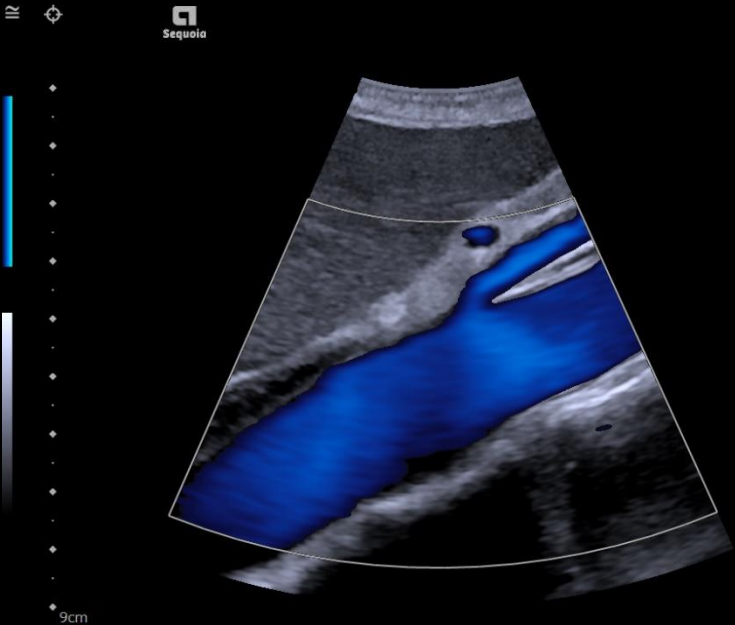
2 mm

Angle Correct

0°

60 0 60

Page Two

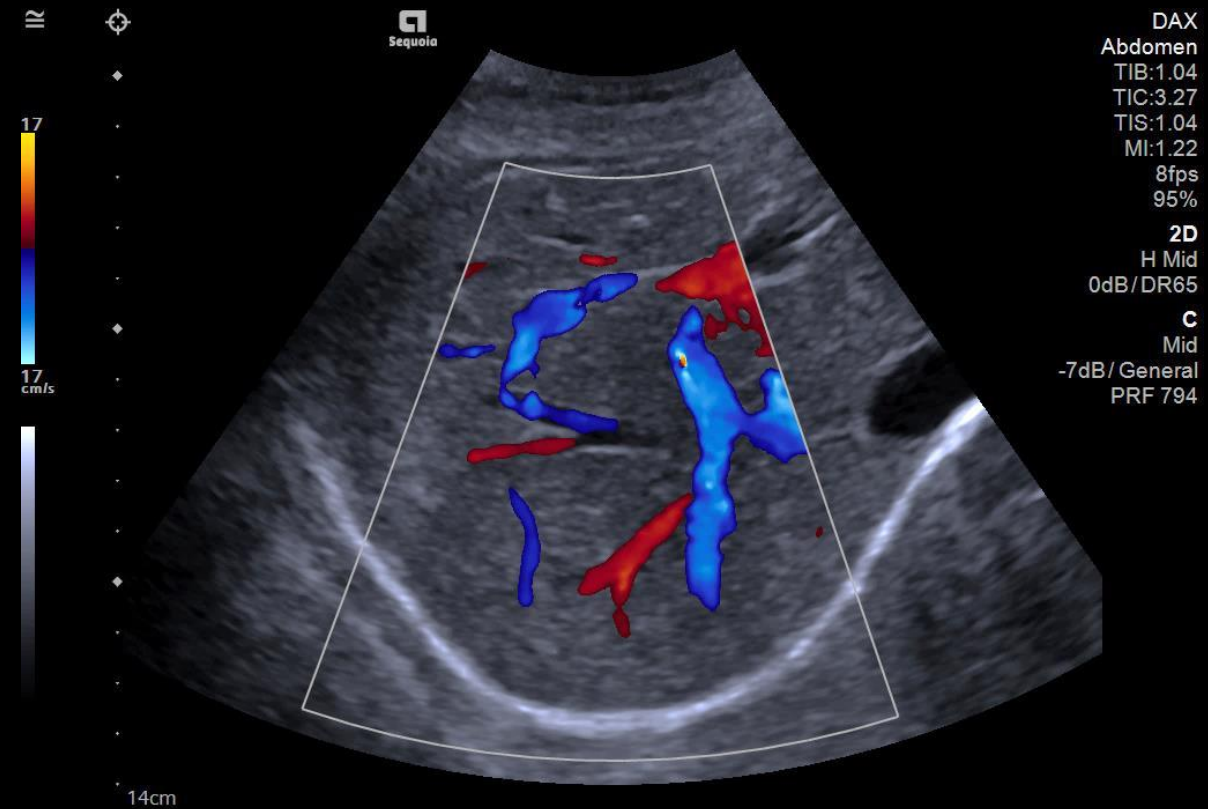


9C3  
Abdomen  
TIB:0.40  
TIC:0.79  
TIS:0.40  
MI:0.57  
16fps  
95%  
2D  
H Low  
-5dB/DR60  
LD 2  
UA 3  
MapE/T4  
P3  
C  
Mid  
-6dB/Aorta  
P2/LD3  
PRF 992  
MapE/F3  
S3/Pr4  
2D + Color



# Color post-processing

- 2D Gain
- Baseline
- Map
- Priority
- Invert



# Pulsed wave (PW) Doppler



5C1 Abdomen

18L6

15L4

9C2

Workflow

Patient

Imaging

Review

Report

End Exam

Off

Auto TEQ

Frequency Low

Gate Size 2 mm

Sweep Speed 60 mm/s

Baseline

Scale PRF HPRF

Angle Correct 0°

2D

Color

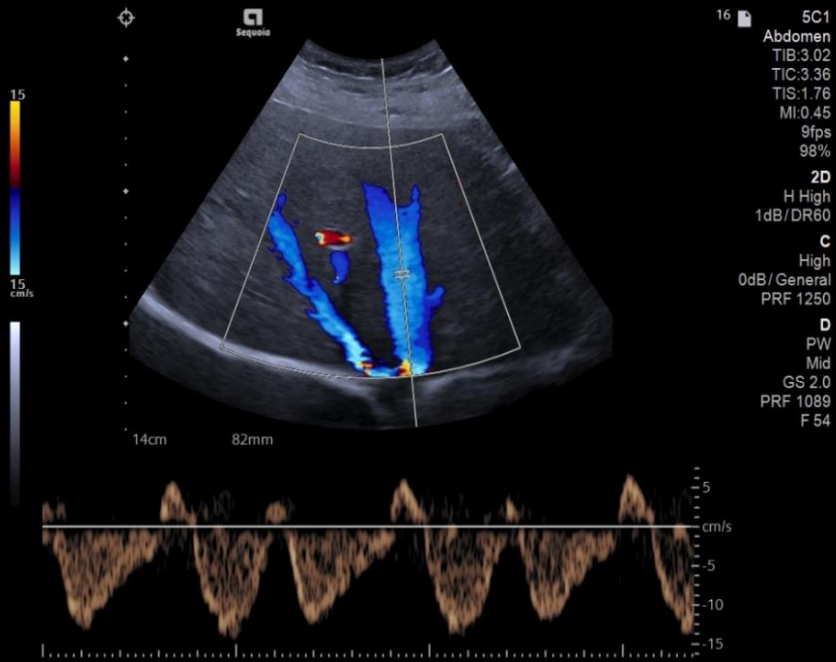
PW

Auto TEQ On Freeze

Invert

Auto Trace

Filter 60



# Pulsed wave (PW) Doppler – soft keys

Gate Size  
2 mm

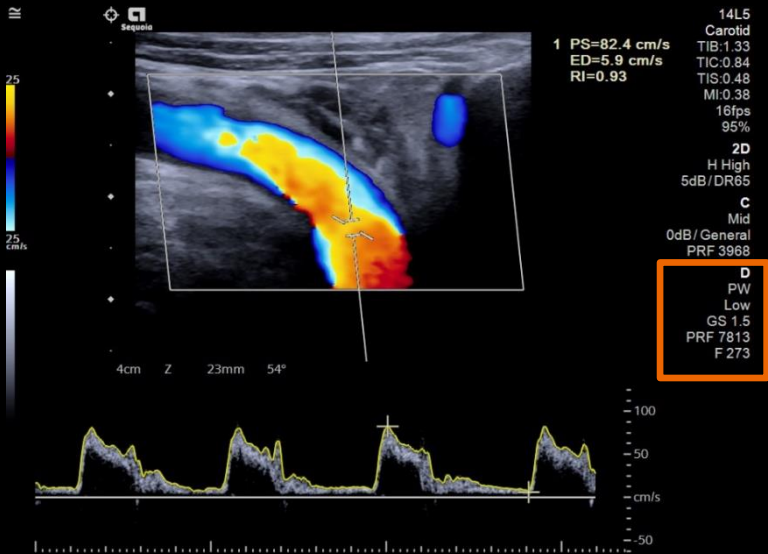
Sweep Speed  
60 mm/s

Baseline

←→  
Scale  
PRF HPRF

Angle Correct  
0°  
60 0 60

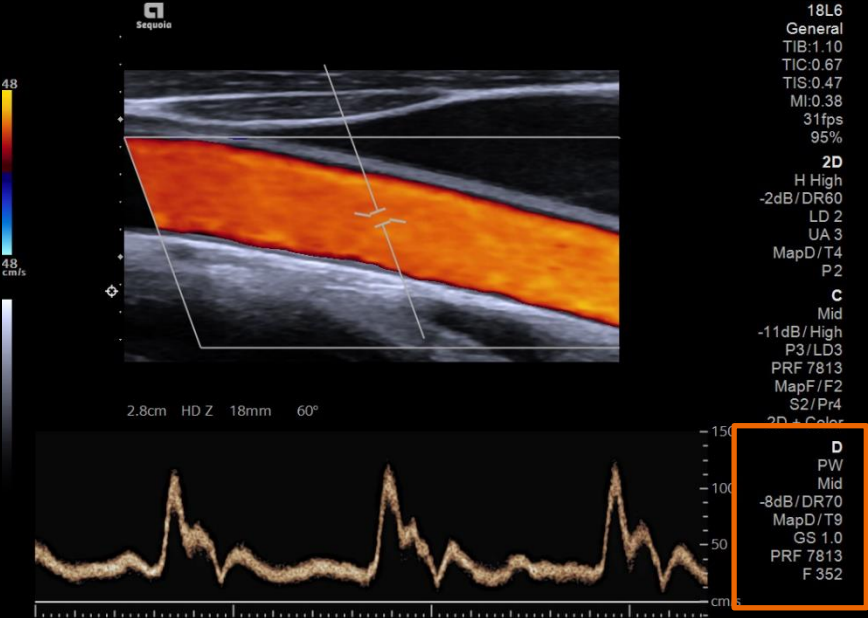
Page One

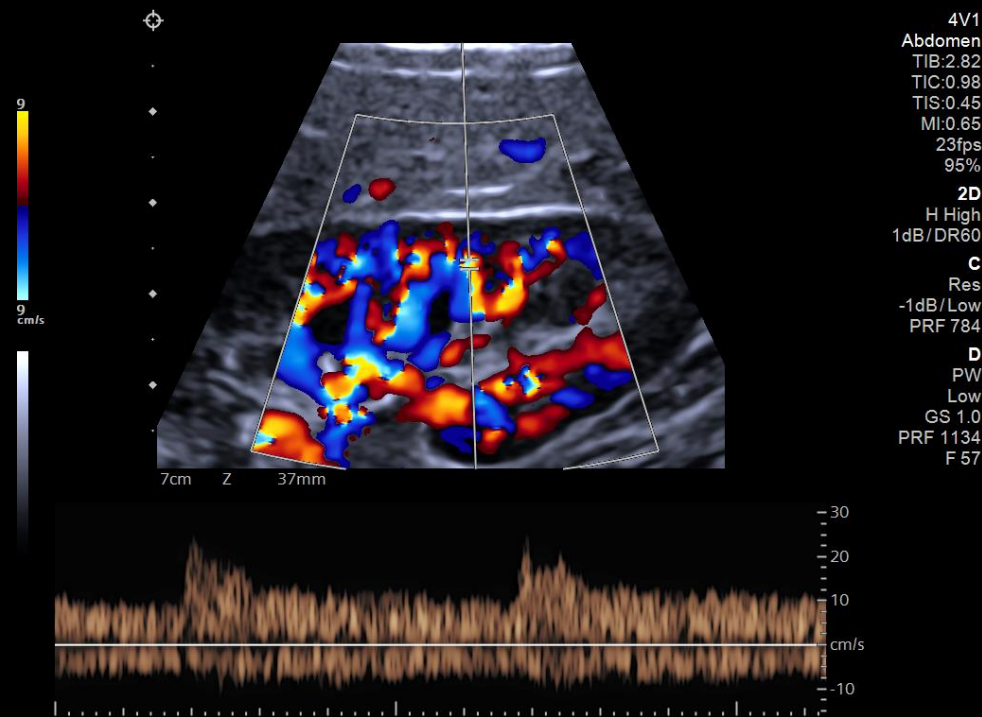


# Pulsed wave (PW) Doppler – soft keys

		DR	Edge	Maps	Tint
		60 dB	2	D	5

Page Two





Off

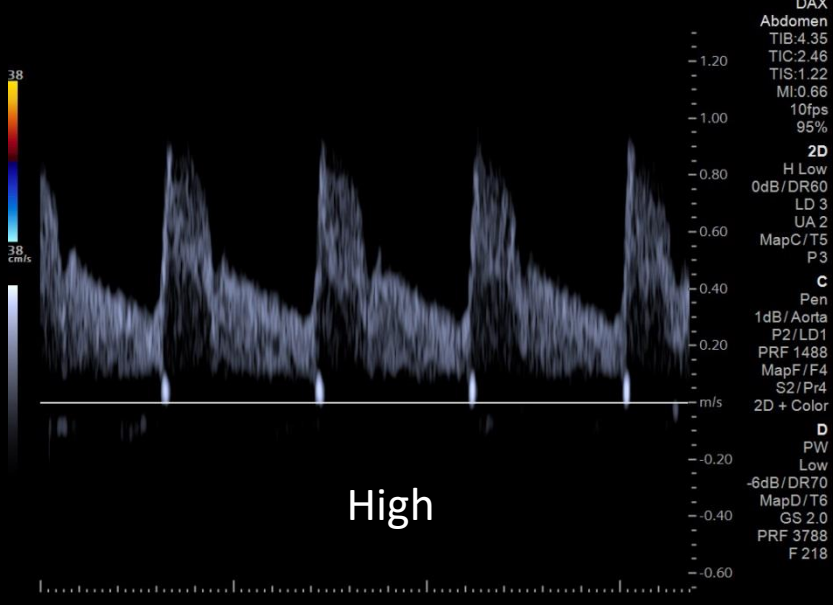
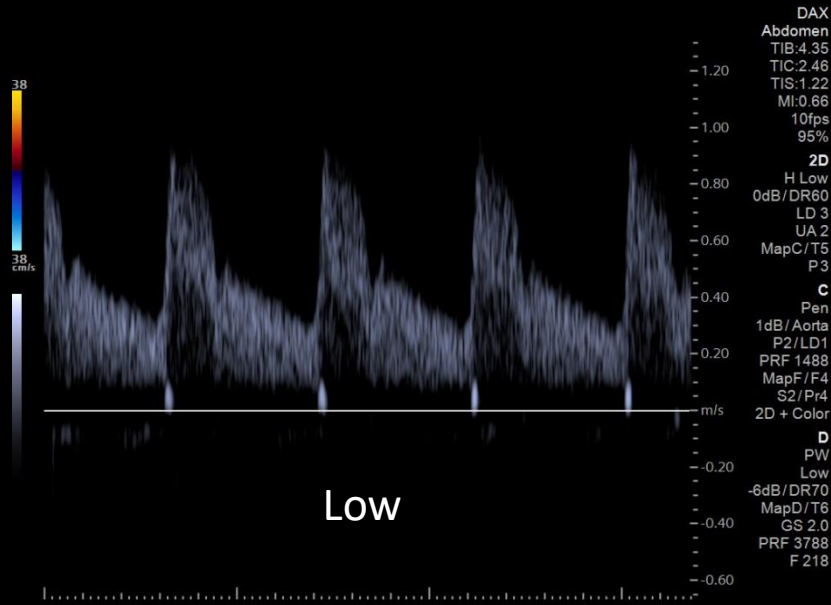
Low

Mid

High

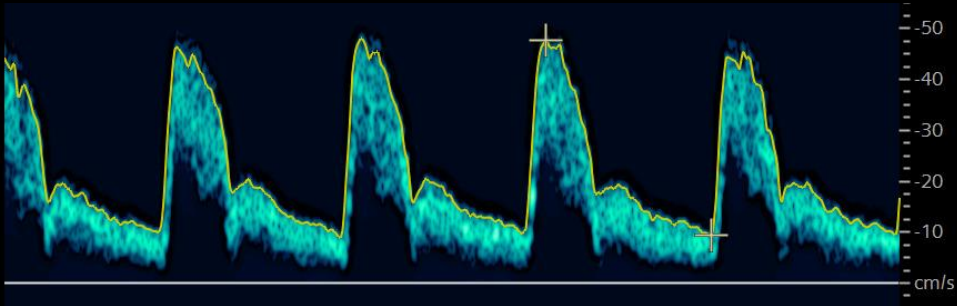
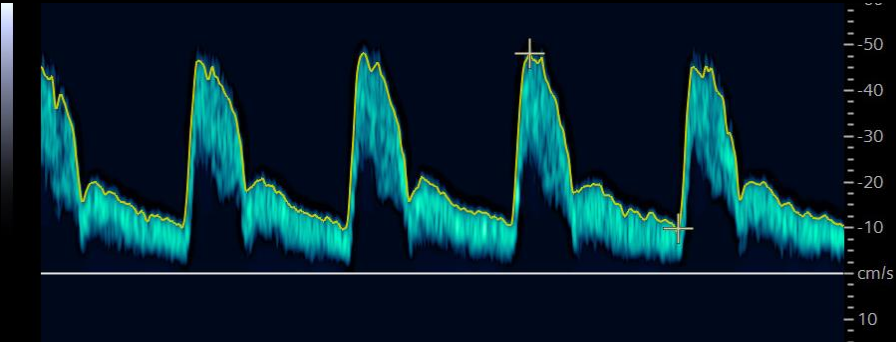
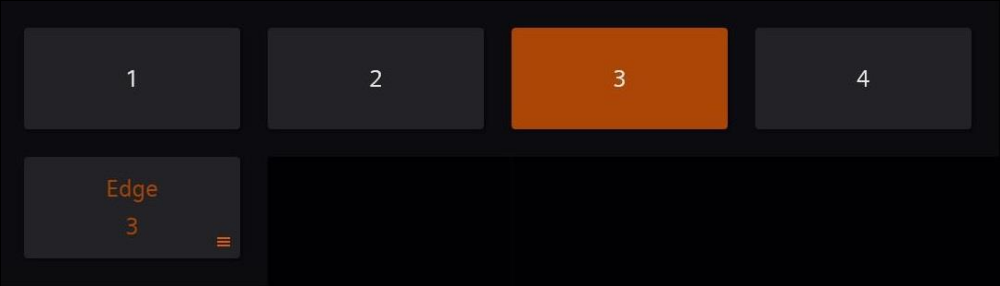
Mid

Live/Live

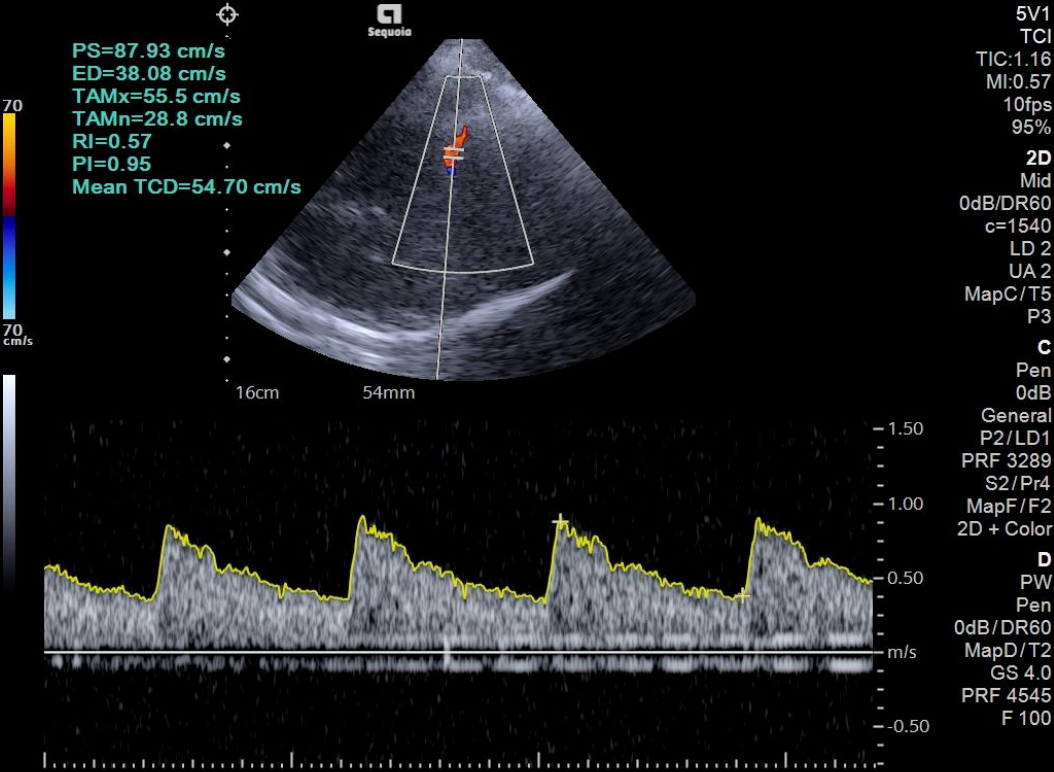
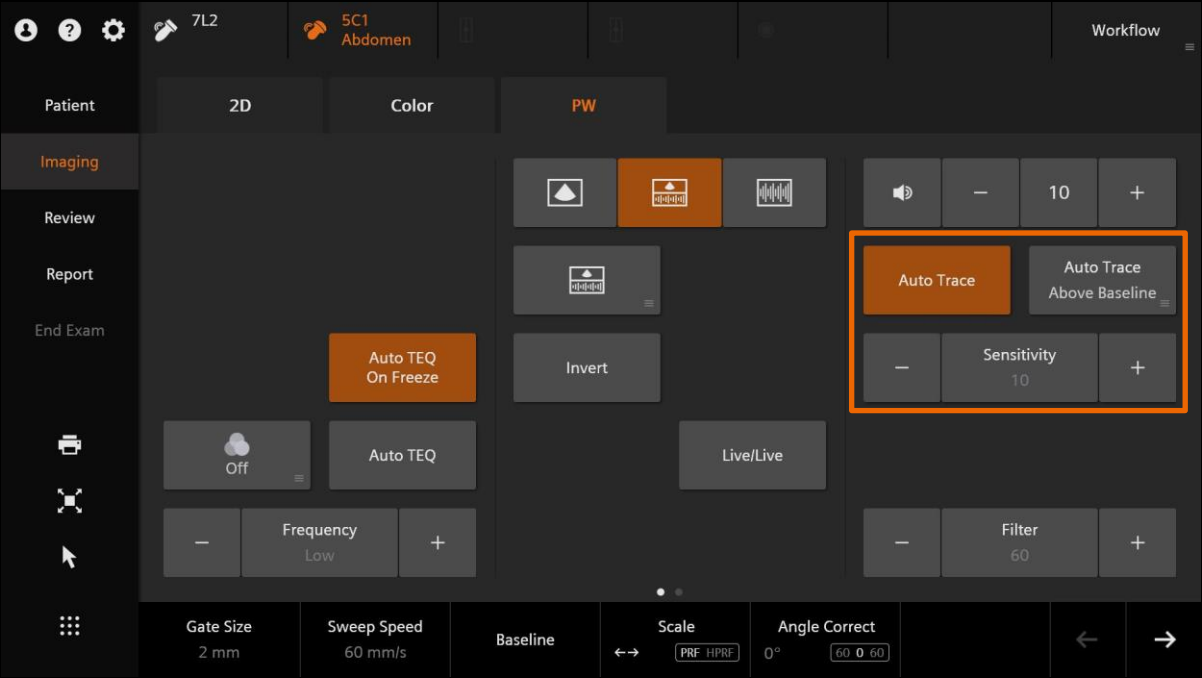


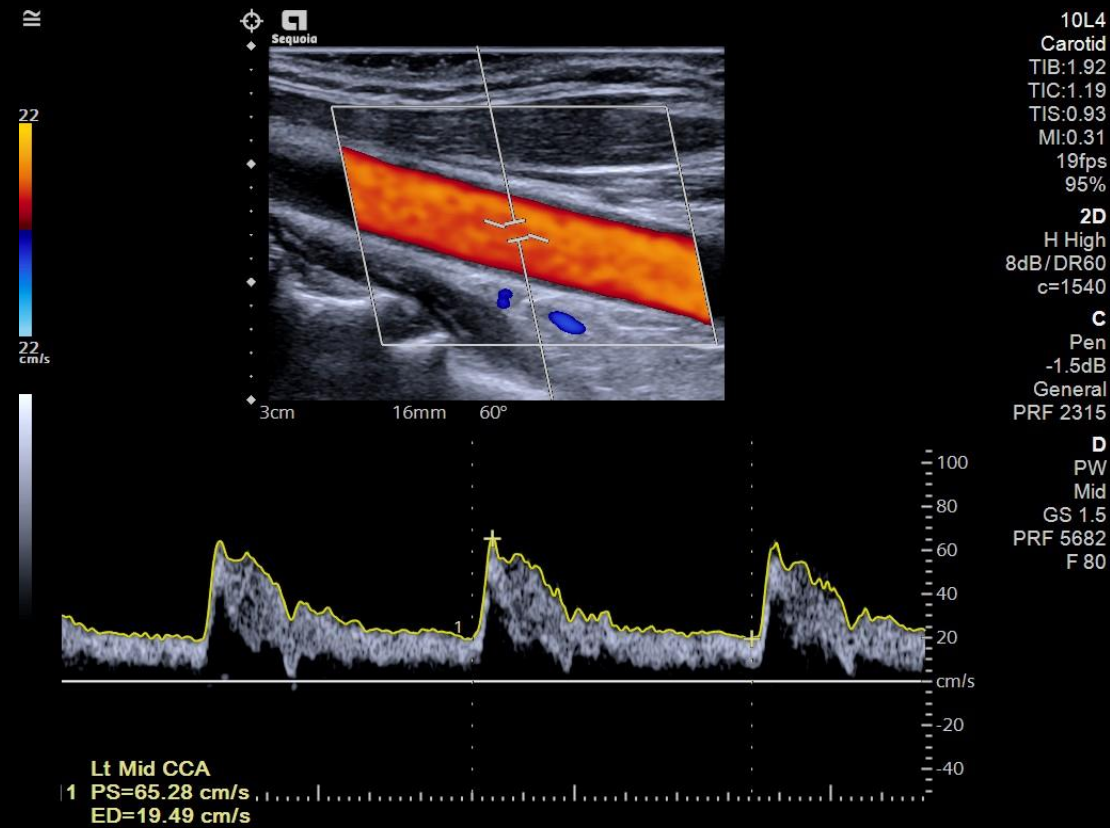
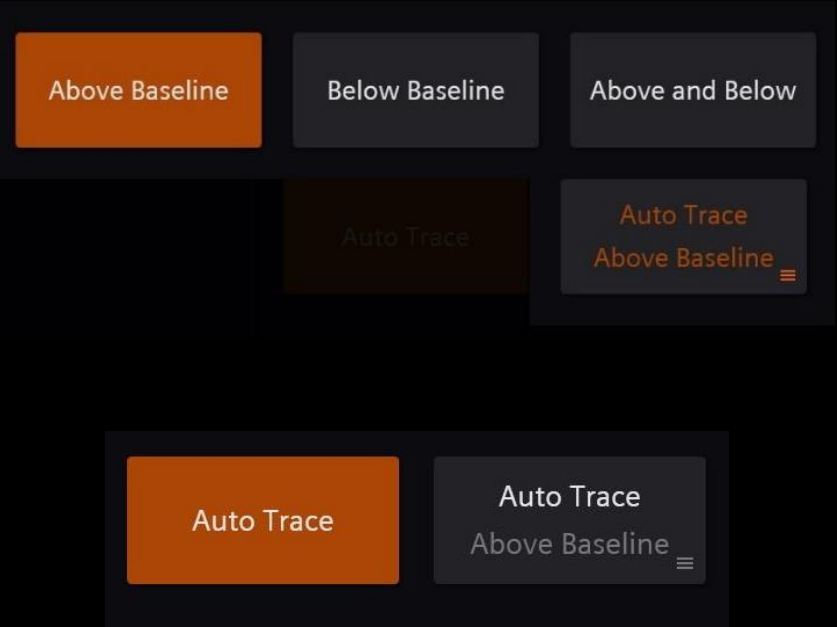


# Edge in PW Doppler



# Auto Trace Optimization & Sensitivity





# Auto Trace configuration

System Configuration

System Settings

Workflow Enhancement

Imaging Settings

Measurement & Report

Measurement

Touch Screen Measurement Config

Custom Measurement Label

Custom Calculations

Report

OB Tables

Annotations

Features

Transducer

Connectivity & Network

Peripheral Devices

System Management

General

Exam Package

Exam Specific

Per Label Configuration

Exam Package

Cardiac

CINE Measurement Behavior

Erase In CINE

2D Tools

Volume Tool

3 Distances

Area %Stenosis Tool

Ellipse + Trace

Generic Area Ratio Tool

Trace

Doppler Tools

Default Tool

Velocity

Volume Flow Tool

Volume

Distance

Flow

Heart Cycle

Result Format

Show

Unit

Precision

IVS

cm

0.00

LVPW

cm

0.00

LVID

cm

0.00

%Stenosis

%

0

A

cm²

0.00

A (B)

cm²

0.00

A (E)

cm²

0.00

Accel

m/s²

0.00

Angle

°

0

Area Ratio

0.00

AT

ms

0

Average Distance

cm

0.00

C

cm

0.00

C10

mm

0.00

D

cm

0.00

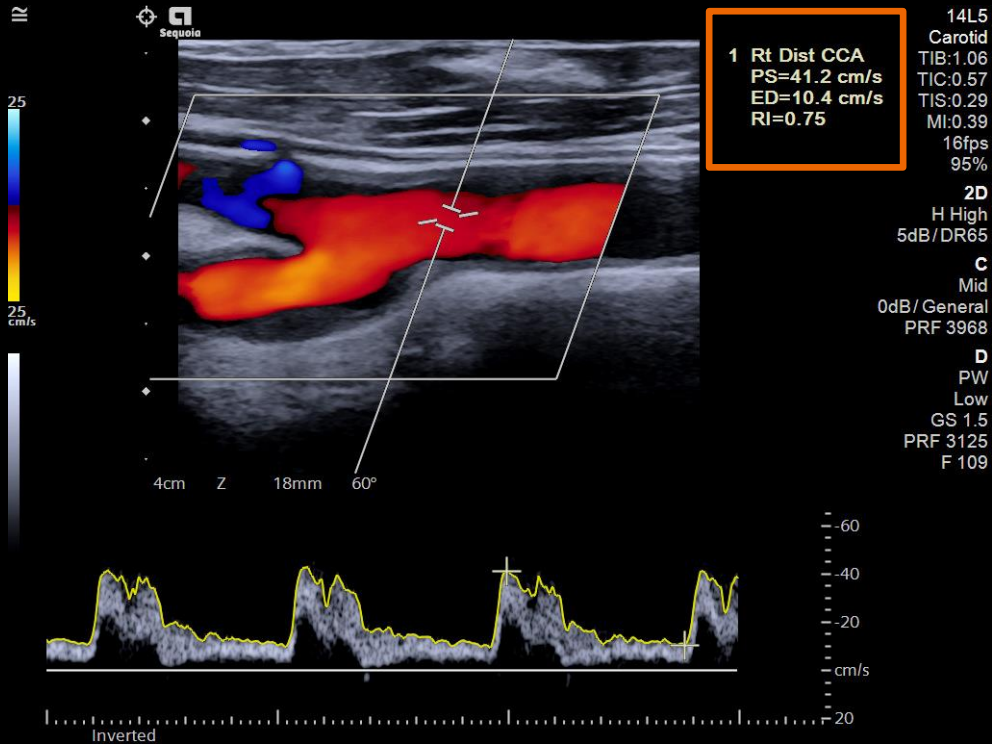
D (B)

cm

0.00

Restore Defaults: Cardiac

TAMx	<input checked="" type="checkbox"/> Show	cm/s	0.0
Time	<input type="checkbox"/> Show	ms	0
Tr Semi Major Axis	<input type="checkbox"/> Show	cm	0.00
Vel		cm/s	0.0
Velocity Ratio			0.00
Vmax	<input checked="" type="checkbox"/> Show	cm/s	0.0
Vmean	<input type="checkbox"/> Show	cm/s	0.00

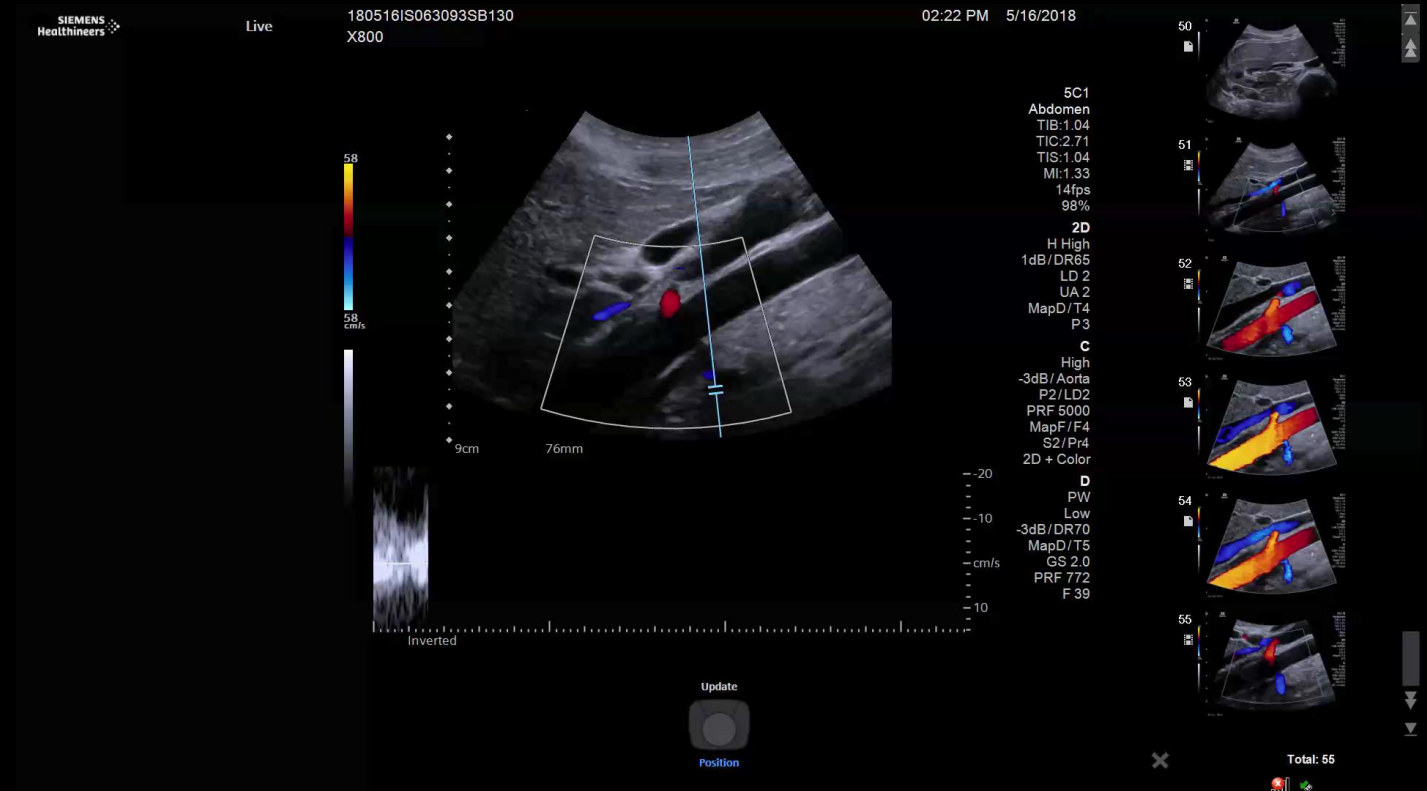
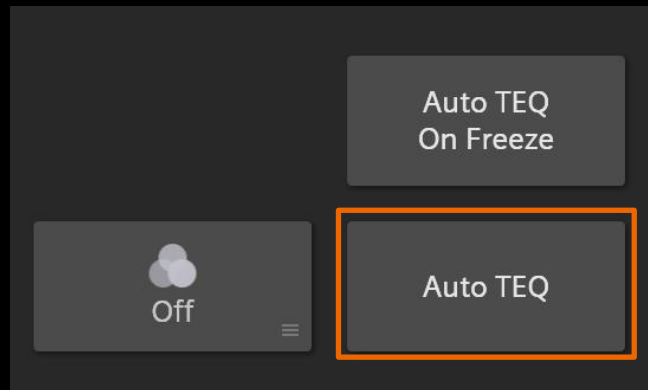


# Auto TEQ tissue equalization technology

## Doppler optimization

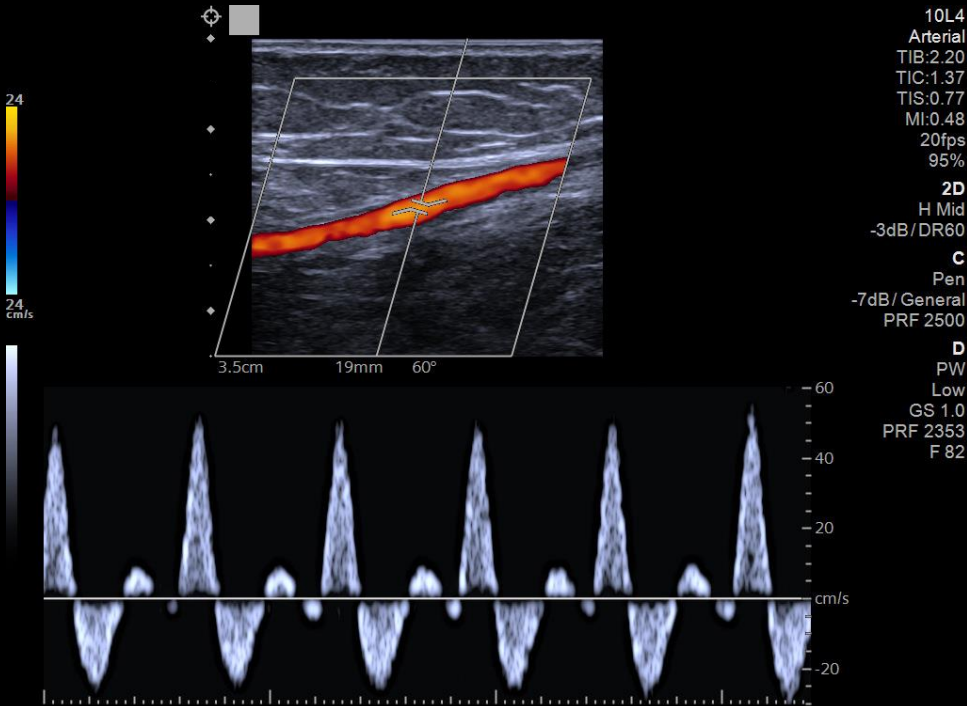
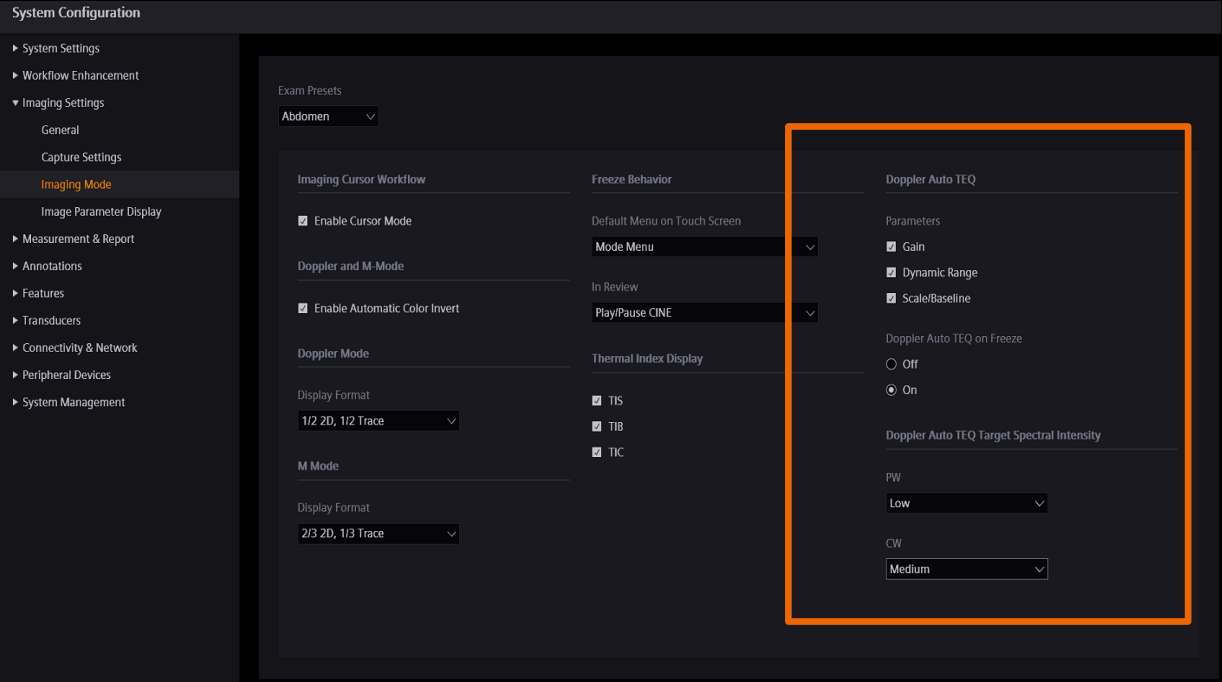
Automatic spectral Doppler optimization of:

- Gain
- Scale/Baseline
- Dynamic Range



# Auto TEQ tissue equalization technology

## Doppler optimization

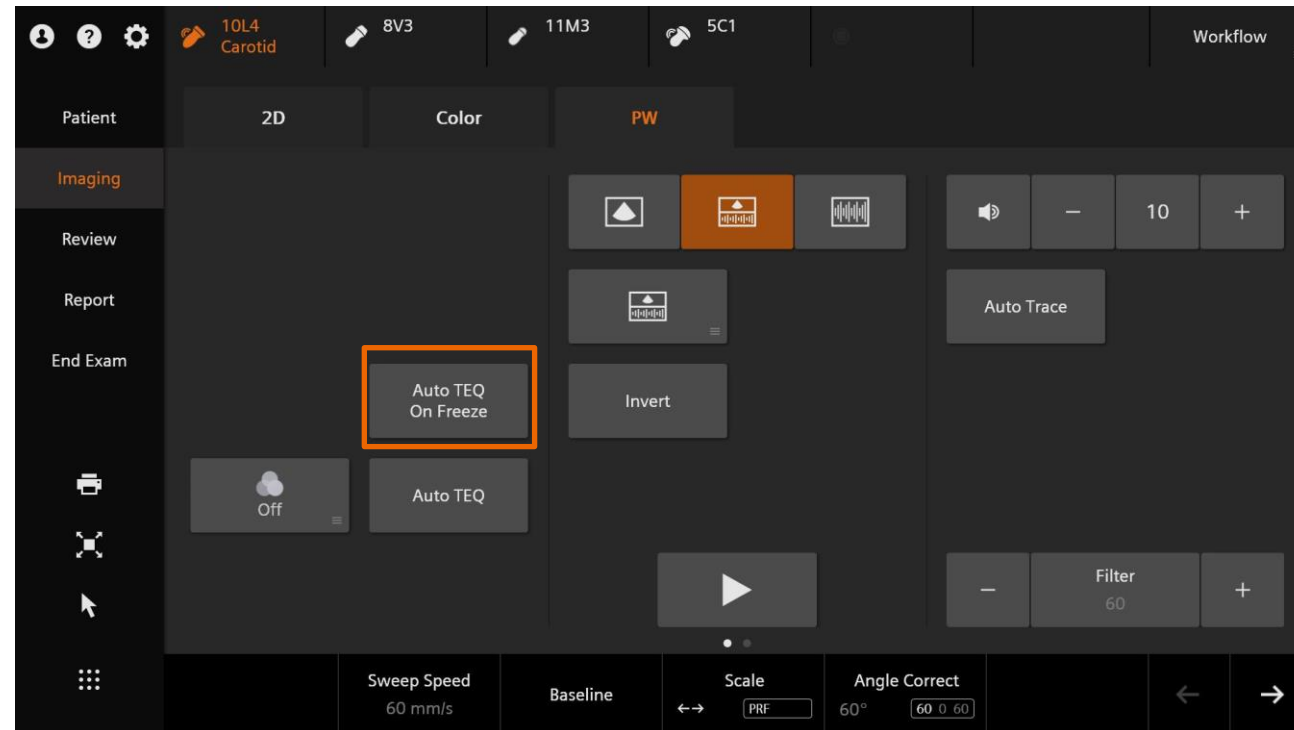




# Auto TEQ on Freeze Touch Screen

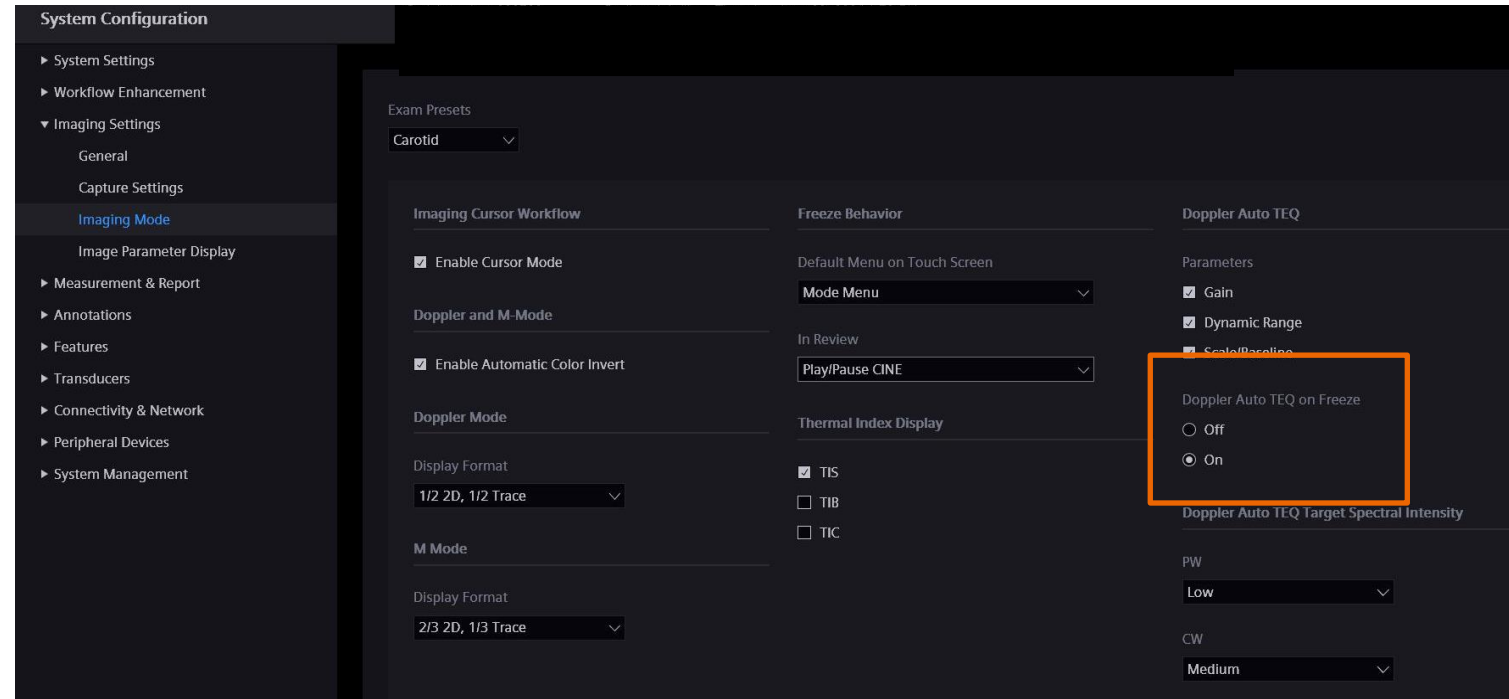
Touch Screen PW Mode  
Button will only appear  
when Doppler TEQ on  
freeze is *turned on*

- When feature is activated: scale and baseline will automatically optimize on freeze
- When the feature is not activated: scale and baseline is set by user and remain unchanged after freeze

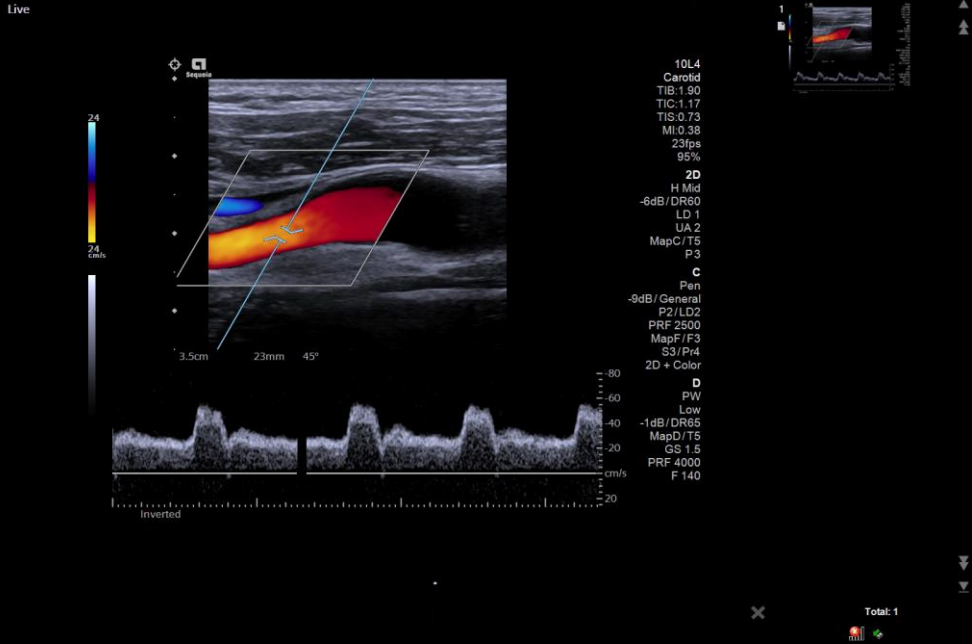
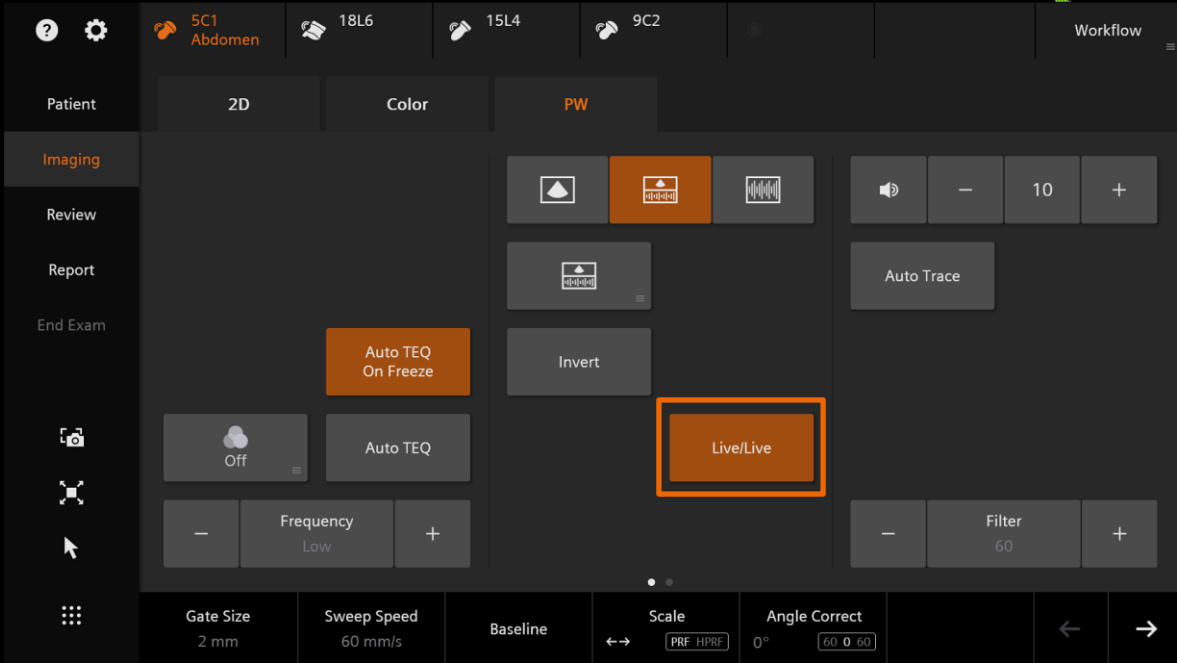


# Doppler Auto TEQ on Freeze

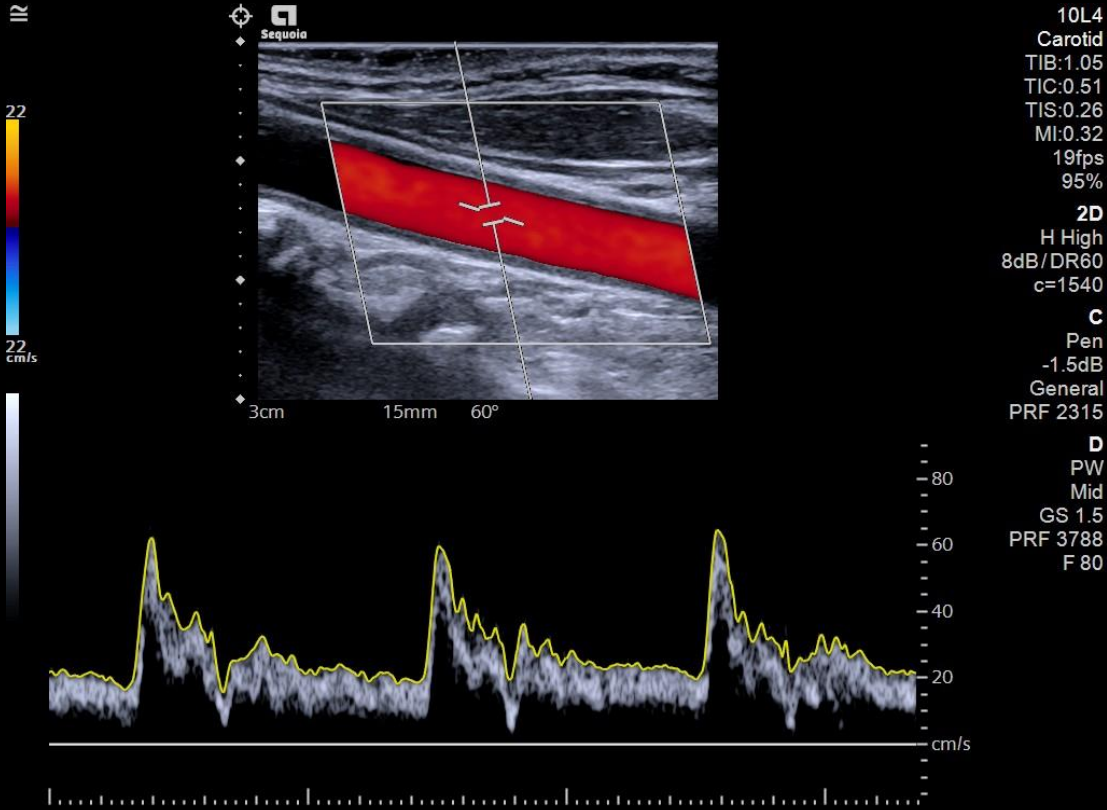
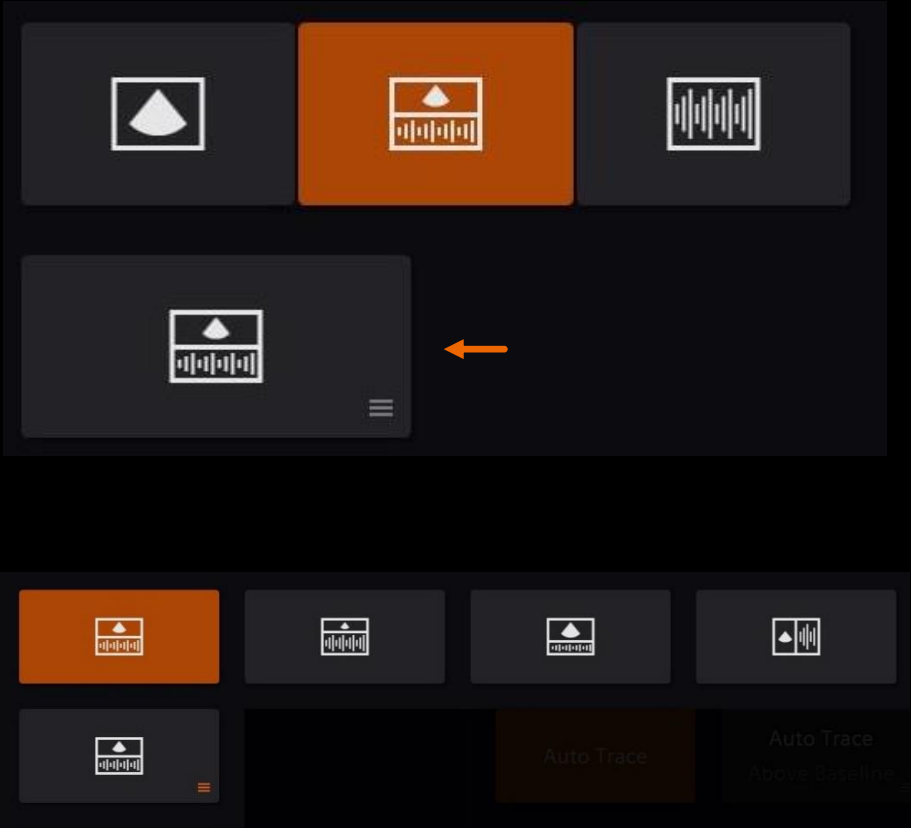
- There is the option to pause Auto TEQ on Freeze
- System Configuration > Imaging Settings > Imaging Mode > doppler Auto TEQ on Freeze



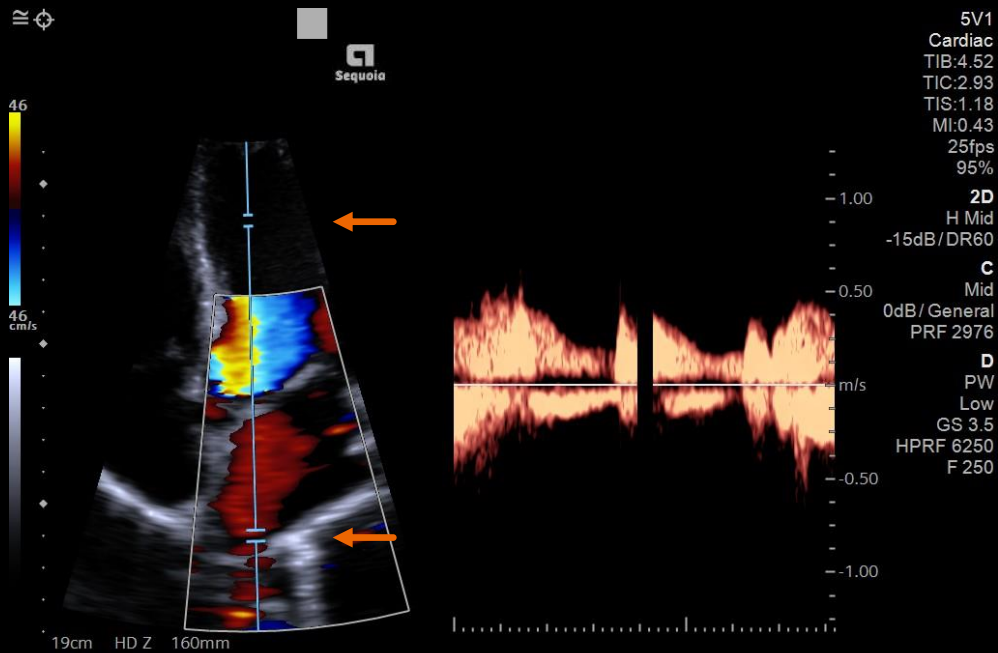
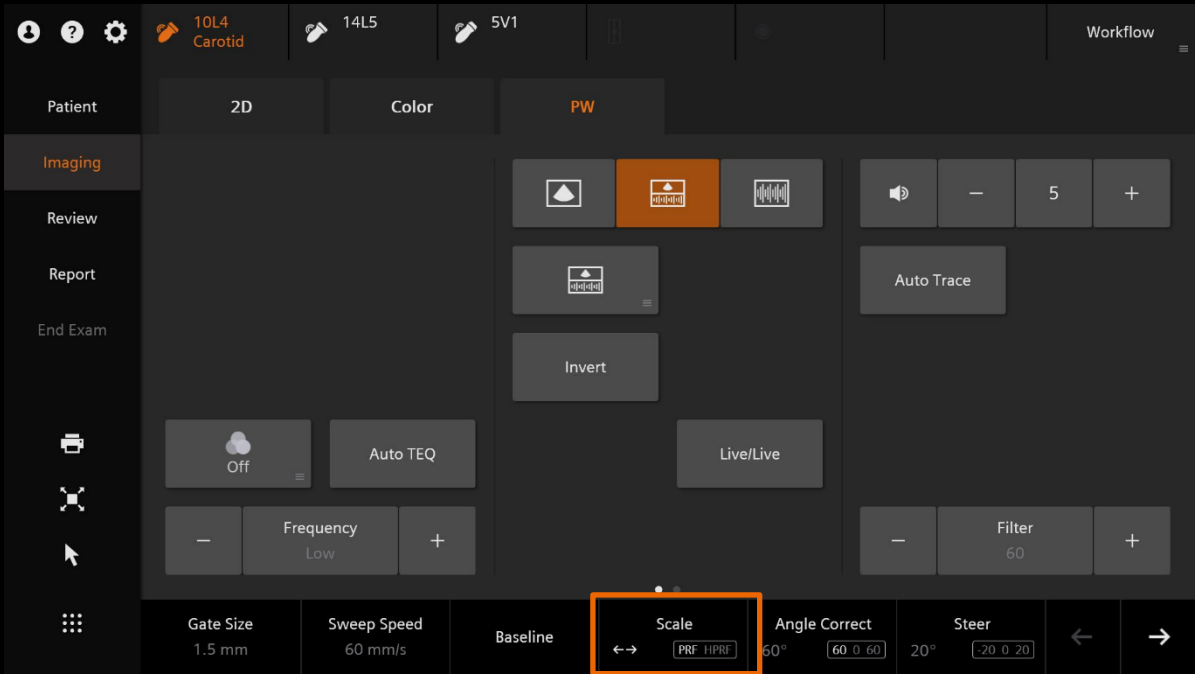
# Live/Live (triplex)



# Display modes

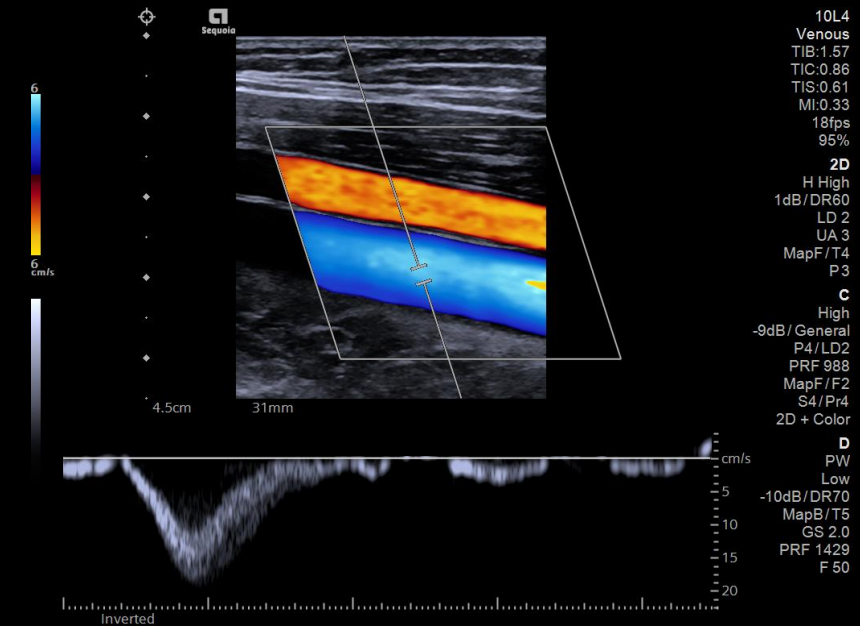


# HPRF – High pulse repetition frequency



# Doppler post-processing

- 2D/PW Gain
- Scale
- Baseline
- Invert
- Angle Correct
- Edge
- Auto Trace
- Ultra Art
- Sweep Speed
- Dynamic Range
- Maps
- Tints
- Format (1/3-2/3, side-by-side, 2/3-1/3, 1/2-1/2)





# Trademarks and disclaimers

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Thank you for your enthusiasm!

# Questions?