EPIQ Evolution 2.0 IQ
Technology| 2D Imaging

PHILIPS

QuickGuide

2D Opt

This optimization emphasizes the higher, lower, or mid-range frequencies while imaging the entire bandwidth.

In harmonic imaging, the letter H appears before the 2D Opt selection on the monitor and touchscreen:

- HRES
- HGEN
- HPEN

Note
Not all options are available in every TSP.
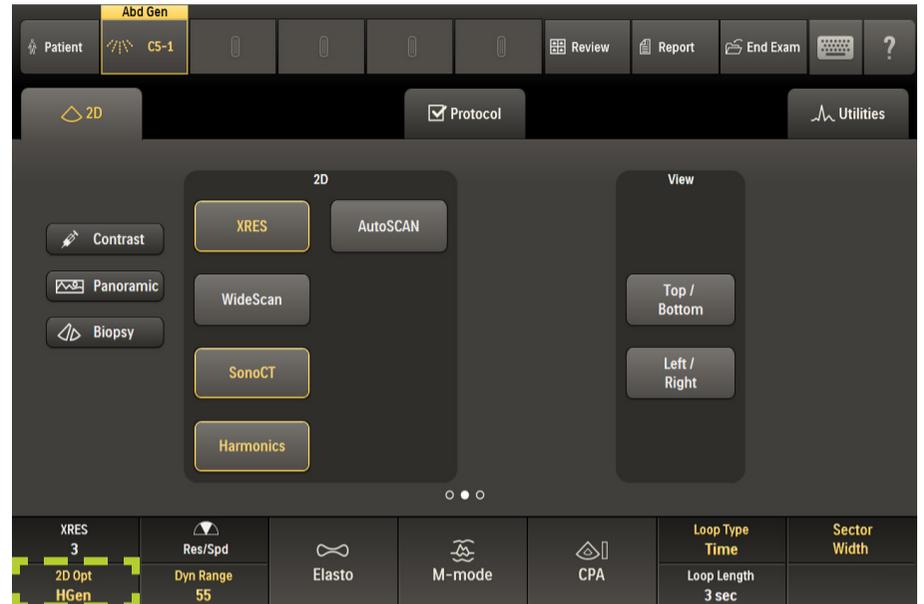
XRES

XRES image processing reduces speckle noise artifacts and improves image clarity and margin definition. Transducers and TSPs with Variable XRES enabled have settings that provide smoother images as XRES level is increased.

To activate Variable XRES, press the associated rotary knob, and then turn the rotary knob to the preferred setting.

Up to 5 Variable XRES settings are available on select transducers and TSPs, 1=course, 5=smooth.

XRES 1   XRES 3 Default   XRES 5

The current variable XRES setting appears to the right of the image if Variable XRES is available.

Tip
Make user-defined TSPs that are customized for the customer.
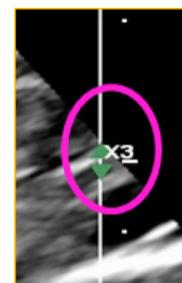
SonoCT

Real-time multiple lines-of-sight imaging increases tissue information and improves display of curved and irregular structures while reducing many angle-generated artifacts.

SonoCT provides:
- Increased margin definition
- Reduced angle-generated artifacts
- Virtual elimination of speckle noise
- Improved delineation of curved structures

Conventional   SonoCT   SonoCT and XRES

The muliitple lines-of-sight acquired with SonoCT are clearly demonstrated with a paper clip against the transducer lens cap.

Conventional Imaging   SonoCT Imaging

WideScan

Available on linear and curved arrays while in SonoCT mode.
Similar in appearance to trapezoidal imaging but not the same.

1 Press SonoCT.

2 Press WideScan.
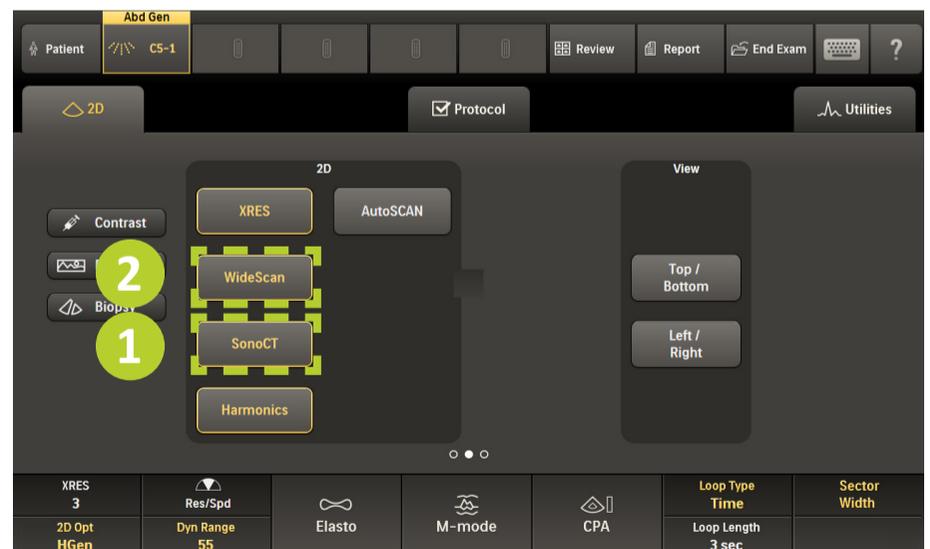
- Provides a quantifiable image of structures larger than the traditional field of view.
- Demonstrates anatomic spatial relationships.
- Allows for bi-directional construction of the panoramic mosaic.

AutoSCAN

AutoSCAN automatically and continuously optimizes 2D image brightness at the default gain and TGC settings.

- Only available in 2D mode.
- Gain and TGC can also be manually adjusted when AutoSCAN is on.

Note
There is no visual indicator that AutoSCAN is on.

iSCAN

Press iSCAN to automatically adjust TGC, receiver gain, compression maps, spectral Doppler PRF, and baseline during real-time scanning.

- Evaluates grayscale distribution to optimize TGC and 2D gain.
- The iSCAN icon appears in the bottom left-hand corner of the monitor when activated. The iSCAN icon turns red for three seconds to indicate the image has been optimized.

Tip
In 2D iSCAN optimizes system settings based on the frame acquired at the moment iSCAN is pressed. These settings remain unchanged until pressing iSCAN again, touching Reset iSCAN, or changing the associated controls manually.
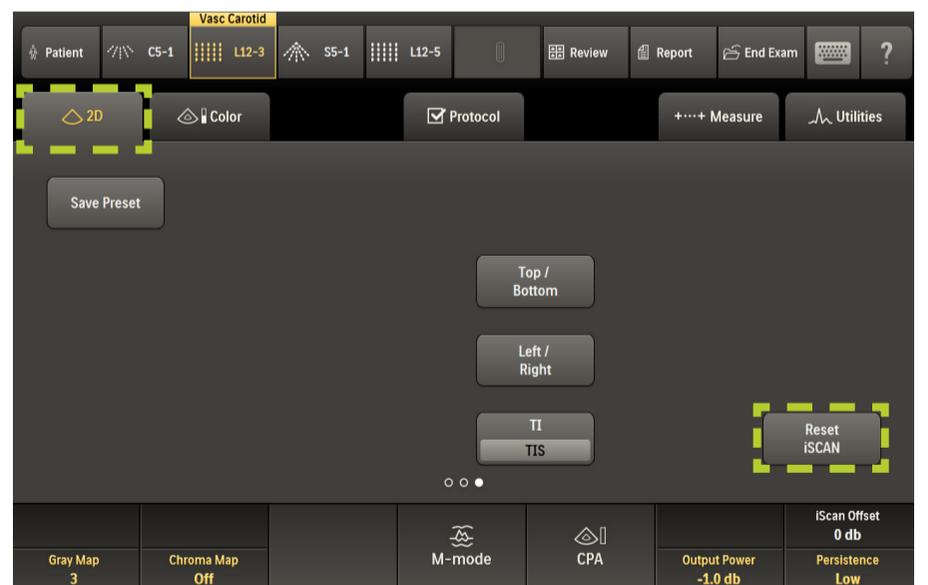
Tissue Harmonics

Tissue Harmonic imaging provides enhanced image contrast resolution and images with fewer artifacts, particularly in cystic structures.

- Reduces image artifacts and increases resolution; the trade-off is less penetration.
- Does not impact frame rate.
- More clarity in acoustic enhancement and shadowing.
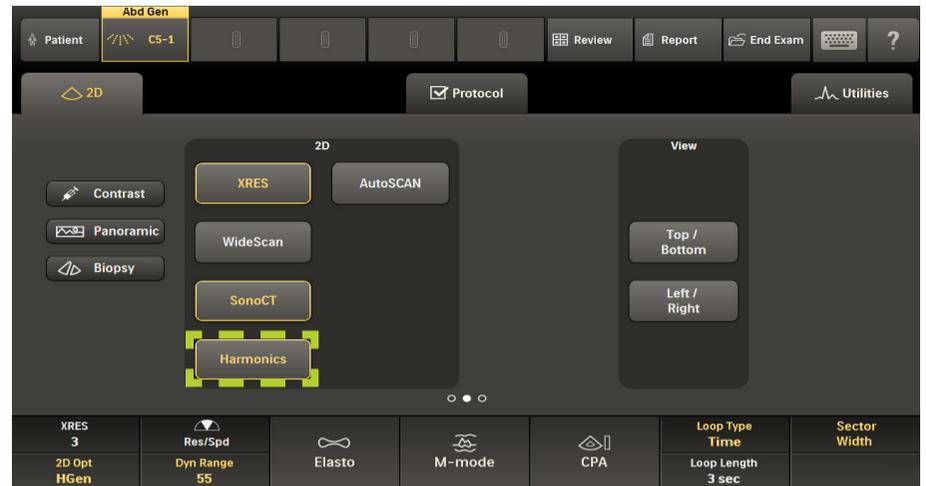
In Harmonic mode, the indicator appears to the upper right of the image.

Tip
Useful in difficult-to-image patients.

Tissue Aberration Correction (TAC)

This user-selected speed of sound compensation maintains exceptional sharpness on fatty and dense breast tissue.

- Uses speed of sound correction, applied to both transmit and receive signals, throughout adipose tissue.
- SonoCT frames will be better registered at the lower speed of sound.
- Advanced XRES will not be effected by changing TAC because Advanced XRES is a post-processing function.
- Reduces the effects of acoustic beam distortion.
- Sharpens spatial resolution.
- Improves tissue uniformity throughout the depth of view in TDP.

Notes
- The C5-1 penetration TSPs use TAC in the first 3 cm of tissue. The Advanced Breast TSP uses TAC throughout the image.
- Tissue with higher fat content causes in speed of sound changes and reduction of overall image sharpness and decreased tissue definition.
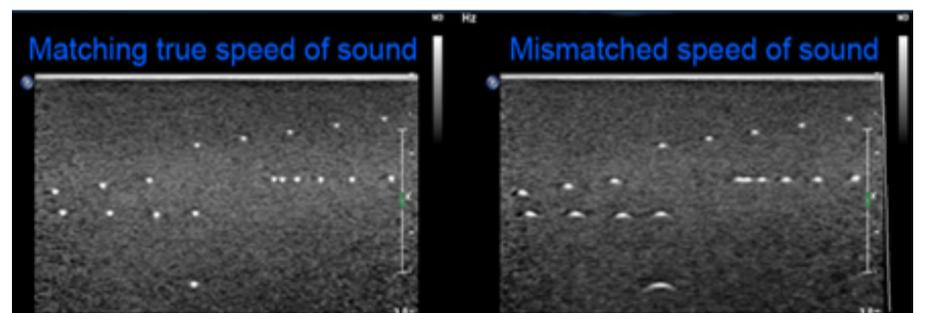
Gray Map

The Gray Map feature controls the levels of grays and whites in the image.

Access Gray Map on the third page of the 2D touchscreen. To change the Gray Map level, turn the first rotary knob.

- Gray Map selections range from 1—5.
- This feature controls transitions from "more whites" to "flatter whites."
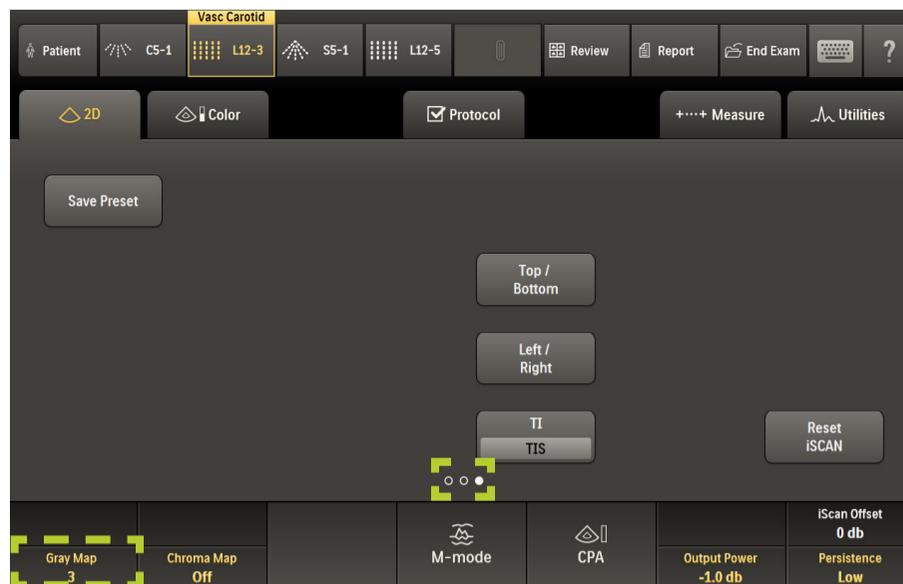
The Gray Map level also appears at the top of the grayscale bar on the monitor screen.

Note
This is also a post-processing feature.

Dynamic Range

Dynamic Range is the default optimization setting for imaging in 2D Opt, allowing for adjustments, adjusting up for more shades of gray and down for fewer shades of gray.

Press the rotary knob on the system control panel to switch between Dynamic Range and DRS modes. When activated, Dyn Range is highlighted on the touchscreen.

Dynamic Resolution System (DRS)

DRS provides one-button temporal vs. spatial resolution in 2D and 3D modes.

- DRS is a macro control that adjusts multiple parameters simultaneously to optimize functions such as:
  - Line density
  - Persistence
  - Number of lines of sight (SonoCT)
- R1 is optimized for maximum image quality.
- RS provides the best overall choice of system settings.
- S1 is optimized to improve speed.
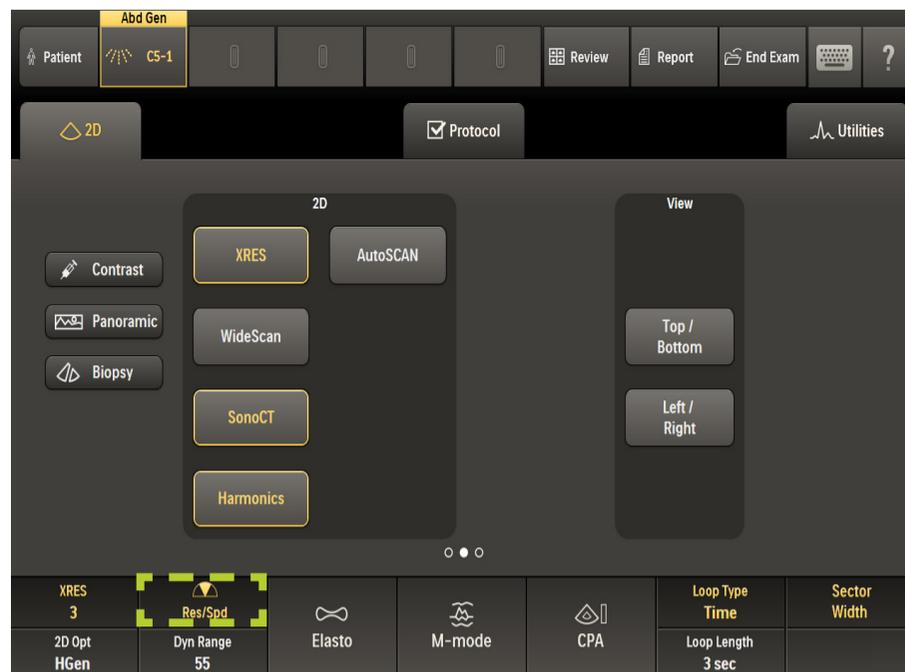
Note

Some system settings, such as Persistence and SonoCT steering angles, affect temporal response but not frame rate, therefore frame rate (FR) annotation may not change when adjusting DRS to speed.