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S-Shearwave Imaging™

Calculates speed of transvers wave inside of the ROI and displays stiffness index by color coded map.
It increases the accuracy of clinical diagnose such as diffuse liver disease.

● Preparation

> Fast overnight before the examination. (At least 4 hours)

● Obtaining B-mode

> Acquire plane perpendicular to the right lobe capsule in supine or slight left lateral position with right arm extension.

> Contact a transducer well to intercostal space to get a high SWI SNR image.

> Scan the right intercostal space avoid shadowing area and adjust Gain not to be too bright or too dark image.
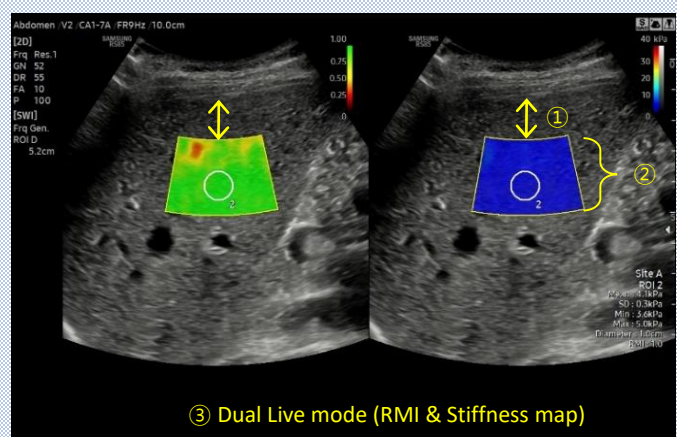
● Stiffness map Positioning

> The Map should be positioned at least 1.5cm-2cm below the liver capsule and avoid reverberation artifact.
> *(Depth of ROI should be at least twice the thickness of the muscle and fat layer in obese patient)*

> Stiffness map should be close to the center of the image.

> Position the stiffness map less than 6cm-7cm depth, it is limitation to measure an adequate shearwave.

> Avoid visibly large vessels if possible. *(Although the algorithm automatically excludes vessels.)*

Stiffness map Positioning example
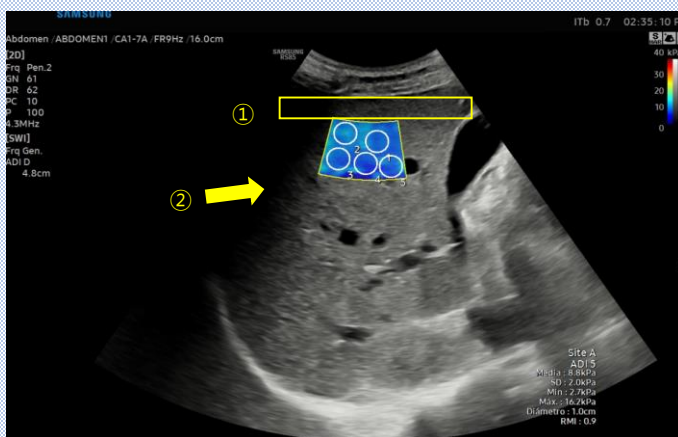
[Bad example]

① Should avoid reverberation artifact.
② Should avoid shadow artifact.

③ Dual Live mode (RMI & Stiffness map)

[Good example]

① ROI should be positioned at least 1.5-2cm below the liver capsule.
② Stiffness map should be placed less than 6-7cm depth.
③ Display [RMI] and [Stiffness] map on 2D image in real time.

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● ## Use RMI(Reliability Measurement Index) Map

➤ Recommend to display RMI map and Stiffness map together by pressing Dual Live for high reproducibility.

➤ High RMI values are strongly correlated with reproducible measurements.

Maximum RMI is 1, and it is considered to be reliable RMI 0.4 at least.

● ## Measurement & Quality criteria

➤ When if stiffness map is unstable, keep acquiring images for 5 - 6sec with gentle breath.

➤ At least of 1cm sized measure ROI is recommended.

➤ The optimal measure ROI location for acquisition depth is 4 - 4.5cm.

➤ Position a measure ROI in an area that meets both conditions : High RMI area and Good uniformity on stiffness map.

➤ At least 5 times of measurement are recommended with a quality assessment.

➤ IQR/Med(kPa) should ≤ 30% or IQR/Med(m/s) ≤ 15%.

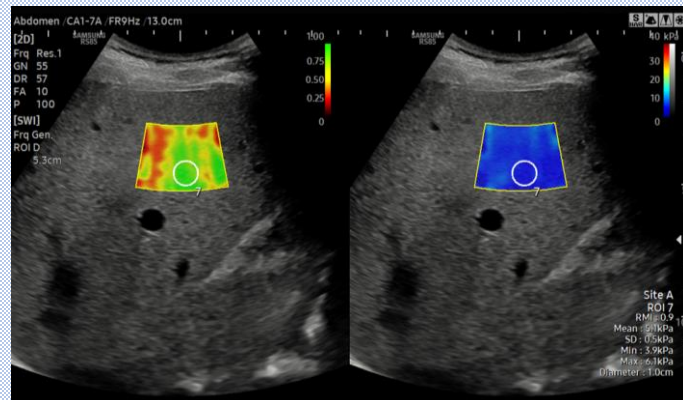➤ Each result requires to have RMI ≥ 0.4.

Dual Live Mode
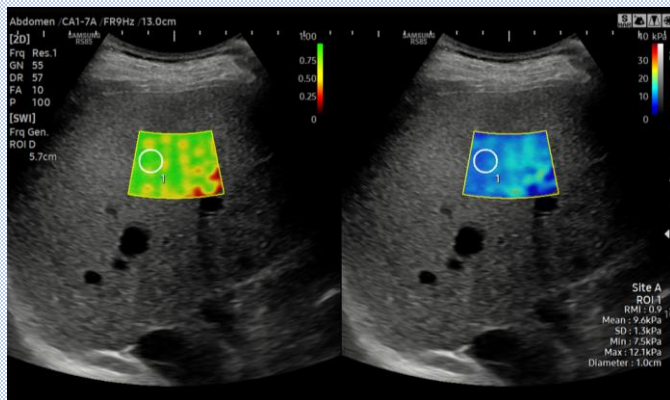
[Bad example]

Low reproducibility (Measure on less uniformity area)
• RMI = 0.9, Mean = 9.6kPa

[Good example]

High reproducibility (Measure on good uniformity area)
• RMI = 0.9, Mean = 5.1kPa